
Technical Specifications Task Force Improved Standard Technical Specifications Change Traveler

Revise LCO 3.0.3 to Require Managing Risk

NUREGs Affected: 1430 1431 1432 1433 1434 2194

Classification: 1) Technical Change

Recommended for CLIP?: Yes

Correction or Improvement: Improvement

NRC Fee Status: Not Exempt

Benefit: Avoids a Plant Shutdown

Changes Marked on ISTS Rev 5.0

PWROG RISD & PA (if applicable): PA-LSC-1708 RS-2019-005

See attached.

Revision History**OG Revision 0****Revision Status: Closed**

Revision Proposed by: PWROG

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 25-Feb-21

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 19-Mar-21

TSTF Review Information

TSTF Received Date: 19-Mar-21

Date Distributed for Review 19-Mar-21

TSTF Comments:
(No Comments)

TSTF Resolution: Approved

Date: 05-Apr-21

TSTF Revision 1**Revision Status: Closed**

Revision Proposed by: TSTF

Revision Description:

The draft traveler was renamed and revised based on NRC comments.

12-Dec-23

TSTF Revision 1**Revision Status: Closed**

Owners Group Review Information

Date Originated by OG: 26-Oct-21

Owners Group Comments
(No Comments)Owners Group Resolution: Approved Date: 11-Nov-21

TSTF Review Information

TSTF Received Date: 11-Nov-21 Date Distributed for Review 11-Nov-21

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 30-Nov-21

TSTF Revision 2**Revision Status: Closed**

Revision Proposed by: TSTF

Revision Description:

The traveler was revised to address NRC comments:

- Certain specifications were revised to require a plant shutdown instead of entering LCO 3.0.3.
 - The changes to LCO 3.0.3 were minimized.
 - The justification was expanded to provide more information on applying the Maintenance Rule guidance to emergent conditions.
 - The justification was expanded to discuss transition between LCO 3.0.3.a and LCO 3.0.3.b.
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Owners Group Review Information

Date Originated by OG: 02-Feb-23

Owners Group Comments
(No Comments)Owners Group Resolution: Approved Date: 17-Feb-23

TSTF Review Information

TSTF Received Date: 17-Feb-23 Date Distributed for Review 17-Feb-23

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 06-Mar-23

NRC Review Information

NRC Received Date: 06-Mar-23

12-Dec-23

TSTF Revision 2**Revision Status: Closed**

Final Resolution: NRC Requests Changes: TSTF Will Revise

TSTF Revision 3**Revision Status: Active**

Revision Proposed by: TSTF

Revision Description:

Based on feedback from the NRC, TSTF-585 was significantly revised. The traveler was renamed from "Provide an Alternative to the LCO 3.0.3 One-Hour Preparation Time" to "Revise LCO 3.0.3 to Require Managing Risk."

LCO 3.0.3 was revised to require a risk assessment and implementation of risk management actions within 6 hours of entry into LCO 3.0.3. If the risk assessment determines that the risk of continuing plant operation is acceptable, the risk management actions are implemented, and the entry into LCO 3.0.3 was not planned, 24 hours from entry into LCO 3.0.3 is provided before initiating a plant shutdown. Otherwise, an immediate shutdown is must be initiated at the end of the 6 hour period.

Owners Group Review Information

Date Originated by OG: 23-Oct-23

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 06-Nov-23

TSTF Review Information

TSTF Received Date: 27-Nov-23

Date Distributed for Review 27-Nov-23

TSTF Comments:
(No Comments)

TSTF Resolution: Approved

Date: 12-Dec-23

Affected Technical Specifications

LCO 3.0.3	LCO Applicability	
LCO 3.0.3 Bases	LCO Applicability	
Action 3.8.4.E	DC Sources - Operating	NUREG(s)- 1430 1431 1432 1433 1434 Only
	Change Description: New Action	
Action 3.8.4.E Bases	DC Sources - Operating	NUREG(s)- 1430 1431 1432 1433 1434 Only
	Change Description: New Action	
Action 3.7.2.B	Main Steam Isolation Valves (MSIVs)	NUREG(s)- 1430 1431 1432 Only
Action 3.7.2.B Bases	Main Steam Isolation Valves (MSIVs)	NUREG(s)- 1430 1431 1432 Only

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DRAFT

PWROG-9, Rev. 0

TSTF-585, Rev. 3

Action 3.8.4.D	DC Sources - Operating	NUREG(s)- 1430 1431 1432 Only
Action 3.8.4.D Bases	DC Sources - Operating	NUREG(s)- 1430 1431 1432 Only
Action 3.8.9.E	Distribution Systems - Operating	NUREG(s)- 1430 1431 1432 Only
Action 3.8.9.E Bases	Distribution Systems - Operating	NUREG(s)- 1430 1431 1432 Only
Action 3.1.6.B	APSR Alignment Limits	NUREG(s)- 1430 Only
Action 3.1.6.B Bases	APSR Alignment Limits	NUREG(s)- 1430 Only
Action 3.6.10.C	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.10.C Bases	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.8.4.F	DC Sources - Operating	NUREG(s)- 1433 1434 Only
Action 3.8.4.F Bases	DC Sources - Operating	NUREG(s)- 1433 1434 Only
Action 3.8.9.F	Distribution Systems - Operating	NUREG(s)- 1433 1434 Only
Action 3.8.9.F Bases	Distribution Systems - Operating	NUREG(s)- 1433 1434 Only
Action 3.8.4.G	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.G Bases	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.5.F	Distribution Systems - Operating	NUREG(s)- 2194 Only
Action 3.8.5.F Bases	Distribution Systems - Operating	NUREG(s)- 2194 Only

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1. SUMMARY DESCRIPTION

The proposed change revises Limiting Condition for Operation (LCO) 3.0.3 to require assessing and managing plant risk whenever LCO 3.0.3 is entered. Six hours are provided to perform the risk assessment and to implement any necessary risk management actions. If the assessment determines that the risk of continued plant operation is acceptable, 24 hours from entry into LCO 3.0.3 is provided to prepare for a plant shutdown, to perform repairs, or to request relief from the NRC. If the assessment determines that the risk of continued plant operation is not acceptable, then initiation of actions to shut down the plant is required. The proposed change also revises or adds some Technical Specifications (TS) Required Actions to require a plant shutdown instead of entry into LCO 3.0.3. The proposed change affects the Standard Technical Specifications (STS) in NUREG-1430, NUREG-1431, NUREG-1432, NUREG-1433, NUREG-1434, and NUREG-2194¹.

2. DETAILED DESCRIPTION

2.1. Background

LCO 3.0.3 requires a plant shutdown under three conditions:

1. An LCO is not met, and the associated Actions are not met;
2. An LCO is not met, and an associated Action is not provided; or
3. An LCO is not met, and LCO 3.0.3 entry is directed by the associated Actions.

LCO 3.0.3 requires initiation of actions to shut down the plant within one hour if any of these conditions are met.

LCO 3.0.3 entries can be explicit or implicit. Explicit LCO 3.0.3 entries are directed by a Required Action in a specification, which typically states, "Enter LCO 3.0.3," with a Completion Time of "Immediately." Implicit LCO 3.0.3 entries result from a specification not providing an Action that reflects a failure to meet the LCO. The most common use of implicit LCO 3.0.3 entries is to not include an Action for more than one inoperable train or subsystem in a TS that requires multiple trains or subsystems to be operable. For example, a circulating water system

¹NUREG-1430 provides the STS for Babcock & Wilcox plant designs.

NUREG-1431 provides the STS for Westinghouse plant designs.

NUREG-1432 provides the STS for Combustion Engineering plant designs.

NUREG-1433 provides the STS for BWR/4 plant designs, but is also representative of the BWR/2, BWR/3, and, in some cases, BWR/5 designs.

NUREG-1434 provides the STS for the BWR/6 plant design, and is representative, in some cases, of the BWR/5 plant design.

NUREG-2194 provides the STS for Westinghouse Advanced Passive (AP) 1000 plant designs.

TS could require two trains to be operable but only provide an Action for one inoperable train. If both trains are inoperable, LCO 3.0.3 is applicable.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50, paragraph 50.36(c)(2), "Limiting Conditions for Operation," states, "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." LCO 3.0.3 satisfies this regulation by providing a requirement to shut down the reactor if an LCO is not met and the TS does not provide any other remedial action.

Generic Letter 80-30 mandated all licensees revise the equivalent to LCO 3.0.3 to require pressurized water reactors (PWRs) to be in Hot Standby within one hour and boiling water reactors (BWRs) to be in Hot Shutdown within six hours. However, the 1980 versions of the STS provided one hour to prepare before initiating a shutdown. The purpose of the one-hour allowance was not discussed in the STS Bases, but Generic Letter (GL) 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," revised the Bases to state, "One hour is allowed to prepare for an orderly shutdown before initiating a change in plant operation. This time permits the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid." All operating plants have adopted the one-hour time to prepare in their equivalent of LCO 3.0.3.

In 1993, the NRC promulgated 10 CFR 50.65(a)(4) (i.e., the Maintenance Rule), which states, "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities." The industry has implemented this requirement using the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," which is endorsed by NRC Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The guidance is followed to reduce the likelihood of initiating events, reduce the likelihood of the unavailability of redundant trains, and increase the likelihood of successful operator actions in response to an initiating event. The risk assessment and management activities required by 10 CFR 50.65(a)(4) are performed when TS equipment is inoperable, such as the circumstances that can result in entry into LCO 3.0.3.

2.2. Current Technical Specifications Requirements

In the Pressurized Water Reactor (PWR) STS (NUREG-1430, NUREG-1431, NUREG-1432, and NUREG-2194), LCO 3.0.3 states:

- LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:
- a. MODE 3 within 7 hours,

- b. MODE 4 within 13 hours, and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

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

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

In the Boiling Water Reactor (BWR) STS (NUREG-1433 and NUREG-1434), the LCO 3.0.3 requirements reflect the differences between the PWR and BWR Mode definitions, but is otherwise the same:

...place the unit, as applicable, in:

- a. MODE 2 within [7]² hours,
- b. MODE 3 within 13 hours, and
- c. MODE 4 within 37 hours.

...

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

Some TS Actions direct entry into LCO 3.0.3. The following specifications explicitly require entering LCO 3.0.3 in the stated Condition with a Completion Time of "Immediately" and are proposed to be revised:

TS Number	NUREG	TS Title	Condition
3.8.5	2194	Distribution Systems – Operating	Two inoperable divisions that result in a loss of safety function.

² The NUREG-1433 TS include a Reviewer's Note that states that a longer time to reach MODE 2 may be justified on a plant-specific basis.

TS Number	NUREG	TS Title	Condition
3.8.9	1430 1431 1432 1433 1434	Distribution Systems – Operating	Two or more electrical power distribution systems are inoperable that result in a loss of function.

Some specifications may result in implicit entry into LCO 3.0.3 by not providing Actions for all Conditions related to failure to meet the LCO. The following specifications may result in implicit entry into LCO 3.0.3 and are proposed to be revised:

TS Number	NUREG	TS Title	Condition
3.1.6	1430	AXIAL POWER SHAPING ROD (APSR) Alignment Limits	More than one APSR inoperable or not aligned within its limits.
3.6.10	1431	Hydrogen Ignition System (HIS) (Ice Condenser)	Two HIS trains inoperable. More than one containment region with no operable hydrogen igniter.
3.7.2	1430 1431 1432	Main Steam Isolation Valves (MSIVs)	More than one MSIV inoperable in Mode 1.
3.8.4	1430 1431 1432 1433 1434	DC Sources - Operating	Two DC electrical power subsystems inoperable.

2.3. Reason for the Proposed Change

The existing LCO 3.0.3 requires a rapid plant shutdown regardless of the risk significance of the plant condition. The NRC has encouraged licensees to use risk assessment where practical to reduce unnecessary conservatism associated with current regulatory requirements. The proposed change requires a licensee to assess the risk significance of the degradation that led to entry into LCO 3.0.3, to take the required risk management actions, and to shut down the plant in a time frame based on the plant risk.

Historical information has shown that about half of the plant shutdowns initiated under LCO 3.0.3 could be avoided if licensees had additional time to resolve the condition or obtain relief from the NRC. While reactor operators are trained to perform a rapid plant shutdown, moving from full power to cold shutdown is a major plant evolution that exercises an array of plant equipment and procedures. Most TS-required equipment is in standby, and its inoperability

does not threaten stable plant operation. Therefore, maneuvering the plant through a rapid shutdown transient may be unwarranted for a limited period of time if plant risk is determined to be acceptable and the required risk management actions are implemented.

2.4. Description of the Proposed Change

The proposed change revises LCO 3.0.3 to require a risk assessment to be performed and the required risk management actions to be implemented within six hours of entry into LCO 3.0.3. This requirement replaces the existing one-hour time to prepare for a plant shutdown in LCO 3.0.3. If risk is assessed and managed and deemed to be acceptable, operation may continue for a total of 24 hours after entry into LCO 3.0.3 (that is, eighteen hours after the period permitted for the risk assessment.) At the end of that period, if the plant is still in LCO 3.0.3, initiation of a shutdown is required. If the risk is determined to not be acceptable for continued plant operation, a plant shutdown must be initiated. The proposed change to LCO 3.0.3 does not alter the required times to enter lower Modes once a shutdown is initiated under LCO 3.0.3.

The following changes are proposed to LCO 3.0.3 (additions are in italics, deletions are struck through):

PWR TS

- LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1-hour~~ to place the unit, as applicable, in:

- a. MODE 3 within ~~7~~ 30 hours,
- b. MODE 4 within ~~43~~ 36 hours, and
- c. MODE 5 within ~~37~~ 60 hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. *MODE 3 within 12 hours,*

b. *MODE 4 within 18 hours, and*

c. *MODE 5 within 42 hours.*

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

BWR TS

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1-hour~~ to place the unit, as applicable, in:

- a. *MODE 2 within [7 30] hours,*
- b. *MODE 3 within ~~13~~ 36 hours, and*
- c. *MODE 4 within ~~37~~ 60 hours.*

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. *MODE 2 within [12] hours,*
- b. *MODE 3 within 18 hours, and*

c. *MODE 4 within 42 hours.*

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

-----REVIEWER'S NOTE-----
 The brackets around the time provided to reach MODE 2 allow a plant to extend the time from 6 12 hours to a plant specific time. Before the time can be changed, plant specific data must be provided to support the extended time.

The Reviewer's Note and the brackets around the time to enter Mode 2 only appear in NUREG-1433.

Other Proposed Changes

TS 3.8.9 in NUREG-1430 through NUREG-1434, and TS 3.8.5 in NUREG-2194, titled, "Distribution Systems - Operating," is revised to replace a requirement to enter LCO 3.0.3 immediately with a requirement to shut down the plant.

- NUREG-1430, NUREG-1431, NUREG-1432
 Condition E, "Two or more electrical power distribution subsystems inoperable that result in a loss of safety function," Required Action E.1, "Enter LCO 3.0.3," is replaced with Required Action E.1, "Be in MODE 3," with a Completion Time of six hours, and Required Action E.2, "Be in MODE 5," with a Completion Time of 36 hours.
- NUREG-1433 and NUREG-1434
 Condition F, "Two or more electrical power distribution subsystems inoperable that result in a loss of safety function," Required Action F.1, "Enter LCO 3.0.3," is replaced with Required Action F.1, "Be in MODE 3," with a Completion Time of 12 hours, and Required Action F.2, "Be in MODE 4," with a Completion Time of 36 hours.
- NUREG-2194
 Condition F, "Two inoperable divisions that result in a loss of safety function," is revised to state, "Two *or more* inoperable divisions that result in a loss of safety function," Required Action F.1, "Enter LCO 3.0.3," is replaced with Required Action F.1, "Be in

MODE 3," with a Completion Time of six hours, and Required Action F.2, "Be in MODE 5," with a Completion Time of 36 hours.

TS 3.1.6 in NUREG-1430, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits," does not contain a condition for more than one APSR inoperable or not aligned within its limits. Existing Condition B, "Required Action and associated Completion Time not met," which requires a plant shutdown, is revised to add a new Condition joined with a logical "OR" which states, "Two or more APSRs inoperable, not aligned within its limits, or both."

TS 3.6.10 in NUREG-1431, "Hydrogen Ignition System (HIS) (Ice Condenser)," does not contain a condition for both HIS trains inoperable or for more than one containment region with no operable hydrogen ignitor. Existing Condition C, "Required Action and associated Completion Time not met," which requires a plant shutdown, is revised to add two new Conditions, each joined with a logical "OR" which state, "Both HIS trains inoperable," and "More than one containment region with no OPERABLE hydrogen ignitor."

TS 3.7.2 in NUREG-1430, NUREG-1431, and NUREG-1432, "Main Steam Isolation Valves (MSIVs)," does not contain a condition for more than one MSIV inoperable while in Mode 1. Existing Condition C provides Required Actions for one or more MSIVs inoperable in Mode 2 or 3. Existing Condition B, "Required Action and associated Completion Time of Condition A not met," which requires being in Mode 2 within six hours, is revised to add a new Condition joined with a logical "OR" which states, "More than one MSIV inoperable in MODE 1."

TS 3.8.4 in NUREG-1430 through NUREG-1434, "Distribution Systems - Operating," does not contain a condition for more than one DC subsystem inoperable (called "station service DC subsystems" in NUREG-1433 and "Division 1 and 2" DC subsystems in NUREG-1434.). A new Condition E is added for the condition of both DC electrical power subsystems inoperable. New Required Action E.1 directs being in Mode 3 in six hours in NUREG-1430 through NUREG-1432 and 12 hours in NUREG-1433 and NUREG-1434. New Required Action E.2 directs being in Mode 5 in 36 hours in NUREG-1430 through NUREG 1432 and to be in Mode 4 in 36 hours in NUREG-1433 and NUREG-1434.

The TS Bases are revised to reflect these changes.

The NUREG-2194 LCO 3.0.3 Bases are also revised to incorporate changes approved by the NRC in TSTF-529, "Clarify Use and Application Rules," in order to make the TS Bases consistent with the other STS NUREGs.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50.36, states, "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications." A licensee may make changes to the TS Bases without prior NRC review and approval in accordance with the Technical Specifications Bases Control Program. The proposed TS Bases changes are consistent with the proposed TS changes and provide the purpose for each requirement in the specification consistent with the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993

(58 FR 39132). Therefore, the Bases changes are provided for information, and approval of the Bases is not requested.

A model application is attached. The model may be used by licensees desiring to adopt the traveler following NRC approval.

3. TECHNICAL EVALUATION

The proposed change revises the TS to require a risk assessment to be performed, and the required risk management actions to be implemented, within six hours of entering LCO 3.0.3. This requirement replaces the current one-hour period provided to prepare for a shutdown. The plant conditions that may result in entering LCO 3.0.3 have differing levels of risk significance. Unlike the current "one size fits all" approach in the current LCO 3.0.3, the proposed change requires risk to be assessed and risk management actions to be implemented, and the timing of the subsequent plant shutdown is informed by the risk assessment. If the risk-assessment determines that continued plant operation is acceptable and the entry into LCO 3.0.3 was not planned, initiation of a plant shutdown is required 24 hours from entry into LCO 3.0.3. This 24-hour period is provided to prepare for the shutdown, make repairs, or obtain relief from the NRC. If the risk assessment determines that continued plant operation is not acceptable (or if the risk assessment or credited risk management actions are not completed, or the LCO 3.0.3 entry was planned), initiation of a plant shutdown is required immediately following the risk assessment. The proposed change does not alter the times permitted to enter lower Modes once a shutdown is initiated.

The proposed change also revises several specifications to require a plant shutdown instead of explicitly or implicitly requiring entry into LCO 3.0.3. This has no practical effect on plant operation or safety except that the existing hour to prepare for a shutdown in LCO 3.0.3 is not incorporated into the revised TS Actions. This change is more restrictive, but maintaining the allowance of one hour was deemed to be less valuable than maintaining consistency within the TS given the small likelihood that the Actions would be entered.

3.1. LCO 3.0.3 Change Overview

3.1.1. The Proposed Change is Consistent with the Regulations

Title 10 of the Code of Federal Regulations (10 CFR), Part 50, paragraph 50.36(c)(2), "Limiting Conditions for Operation," states, "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." LCO 3.0.3 satisfies this regulation by providing a requirement to shut down the reactor if an LCO is not met and the TS does not provide any other remedial action. 10 CFR 50.36(c)(2) does not specify a timeframe for a licensee to shut down the reactor if an LCO is not met. The NRC has found it consistent with 10 CFR 50.36 for the current plant TS to contain a one-hour delay before initiating a plant shutdown. Since the length of the delay is not specified in the regulations, the proposed 6-hour period to assess risk, and the potential for 24 hours before initiating a plant shutdown is also consistent with 10 CFR 50.36(c)(2).

The proposed changes to incorporate Actions to initiate a shutdown instead of explicit or implicit entry into LCO 3.0.3 does not change the requirement to shut down the plant. Therefore, these changes are also consistent with 10 CFR 50.36(c)(2).

3.1.2. The Proposed Change Improves Plant Safety

Nuclear plant operators are trained to perform a rapid plant shutdown and practice such shutdowns in plant simulators but are rarely called on to do so in the plant. Most TS-required plant shutdowns are preceded by an Action that provides time to restore compliance and TS-required immediate plant shutdowns are rare. A review of ten years of Licensee Event Reports (LERs) (2010 - 2020) identified 52 immediate plant shutdowns that were required by the TS over approximately 1000 reactor-years of operation (i.e., approximately one per 20 reactor-years). As a result, immediate plant shutdowns are considered to be infrequent evolutions. Licensees typically implement additional administrative requirements to minimize the risk from infrequent evolutions, but the abbreviated time to initiate a shutdown provided by LCO 3.0.3 may not provide time to implement those precautions.

A plant shutdown under LCO 3.0.3 is also time-critical in that a major plant evolution must be initiated within one hour. A TS-required immediate plant shutdown includes many activities, such as stopping maintenance or testing and restoring systems, or planning for a shutdown with unavailable systems. Human performance studies indicate that time-critical actions are more error prone and providing additional time to initiate a plant shutdown under LCO 3.0.3 could relieve time pressure and reduce the risk of human error.

The NRC's Notice of Enforcement Discretion guidance (NRC Enforcement Manual, Appendix F, "Notices of Enforcement Discretion,") recognizes that a plant shutdown is not always the safest course of action:

The NRC has historically recognized that the two safest modes for operating a nuclear power plant are either Mode 5 (shut down) or Mode 1 (operating at power). Transitions between these two modes may introduce situations or configurations that involve an increase in risk. The NRC expects its licensees to comply with all applicable requirements (i.e., regulations, license conditions, etc.). However, circumstances may arise at an operating NPP where compliance with a TS LCO or a license condition would result in an unnecessary transient without a corresponding health and safety benefit; or a situation may exist where potential radiological or other hazards of continued operation must be balanced against public health and safety or common defense and security.

A comparison of Emergency Notification System (ENS) data to LER data was performed examining the ten-year period of 2010 – 2020. An ENS notification is required when a plant shutdown required by the TS is initiated. An LER is required when a plant shutdown required by the TS is completed. The review determined that only about half of the plant shutdowns initiated under LCO 3.0.3 resulted in a shutdown. This indicates that if licensees had additional time to resolve the condition, the plant transient associated with initiating a plant shutdown could have been avoided.

The goal of the proposed change is to improve plant safety by requiring an assessment of the risk of continued plant operation to determine whether an immediate shutdown is appropriate or if providing additional time that may avoid an unwarranted plant transient is justified.

The proposed change also revises certain TS Actions to require a plant shutdown instead of invoking LCO 3.0.3. These revised Actions are applicable in conditions which would not warrant additional time or for which risk cannot be assessed.

3.1.3. The Proposed Change Leverages Existing Risk Management Tools

3.1.3.1. 10 CFR 50.65(a)(4)

The proposed change requires that risk be assessed and managed when LCO 3.0.3 is entered. The requirement to assess and manage risk has previously been added to:

- LCO 3.0.4 (Mode changes),
- LCO 3.0.8 (Nonfunctional Snubbers),
- LCO 3.0.9 (Nonfunctional Barriers), and
- SR 3.0.3 (Missed Surveillances).

In all of these cases, risk is assessed using the existing 10 CFR 50.65(a)(4) (i.e., the Maintenance Rule) tools, which have been in use for over 20 years and are readily available to operators. The NRC's approval of these changes and the TS Bases require the risk assessments to be conducted using the procedures and guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," which is endorsed by NRC Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These tools are used to reduce the likelihood of initiating events, reduce the likelihood of the unavailability of redundant trains, and increase the likelihood of successful operator actions in response to an initiating event. The risk assessment must consider all inoperable TS equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope. The same requirements are imposed by the proposed change.

Section 11 of NUMARC 93-01 provides guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. Assessing the risk means using a risk-informed process to evaluate the overall contribution to risk as a result of inoperable equipment. Managing the risk also means providing plant personnel with proper awareness of the risk and taking actions as appropriate to control the risk. The process for conducting the risk assessments and using the result of the assessment in plant decisionmaking is proceduralized and denotes responsibilities and processes for conducting the assessment for cases when the plant configuration is not covered by the normal assessment tool.

In the operating Modes in which LCO 3.0.3 is applicable, the risk assessment considers the impact on the key plant safety functions that ensure the integrity of the reactor coolant pressure boundary, ensure the capability to shut down and maintain the reactor in a safe shutdown

condition, and ensure the capability to prevent or mitigate the consequences of accidents that could result in potentially significant offsite exposures.

The risk assessment considers factors such as:

- Technical specifications requirements;
- The degree of redundancy available for performance of the safety function(s) served by the inoperable equipment;
- The duration of the condition;
- The likelihood of an initiating event or accident that would require the performance of the affected safety function;
- The likelihood that the inoperable equipment will significantly increase the frequency of a risk-significant initiating event;
- Component and system dependencies that are affected; and
- Significant performance issues for the in-service redundant SSCs.

NUMARC 93-01, Section 11.3.2, "General Guidance for the Assessment - Power Operations and Shutdown," also addresses the evaluation of emergent conditions, such as those leading to entry into LCO 3.0.3. The risk assessment must consider emergent conditions, such as inoperable equipment due to failures, or significant changes in external conditions (weather, offsite power availability). The risk assessment must also consider internal events, internal floods, and internal fires.

Risk management actions include planning and conducting plant activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, and actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures).

Risk assessment and risk management actions consider the activities required to restore the inoperable equipment, such as jumpering terminals, lifting leads, placing temporary lead shielding on pipes and equipment, removal of barriers, and use of temporary blocks, bypasses, scaffolding and supports.

NEI 18-10

Some licensees use NEI 18-10, "Monitoring the Effectiveness of Nuclear Power Plant Maintenance," as guidance in implementing 10 CFR 50.65 (i.e., the Maintenance Rule) in lieu of NUMARC 93-01. The primary difference between NEI 18-10 and NUMARC 93-01 is in the implementation of 10 CFR 50.65(a)(2), which governs which systems are subject to preventative maintenance programs. However, the risk assessment performed to support the existing and proposed TS includes all inoperable TS equipment regardless of whether the equipment is

included in the normal 10 CFR 50.65(a)(4) risk assessment scope. Therefore, the use of NEI 18-10 has no effect on the applicability of the proposed change.

NEI 18-10, Section 11, "(A)(4) Assessment," was copied from Section 11 of NUMARC 93-01 without change. Therefore, it is accurate to state that the risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.160, which endorses the guidance in Section 11 of NUMARC 93-01, regardless of whether the licensee is following NUMARC 93-01 or NEI 18-10.

FLEX and Other Mitigating Strategies

In response to the accident at Fukushima Dai-ichi, the NRC issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." The Order required licensees to implement diverse and flexible mitigation strategies, known as FLEX, that will increase defense-in-depth for beyond-design-basis scenarios.

As described in NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," FLEX consists of:

- Both plant and FLEX equipment that provides means of obtaining power and water to maintain or restore key safety functions for all reactors at a site;
- Reasonable staging and protection of FLEX equipment from beyond-design-basis external events applicable to a site;
- Procedures and guidance to implement FLEX strategies; and
- Programmatic controls that assure the continued viability and reliability of the FLEX strategies.

Note that the FLEX strategies are focused on maintaining or restoring key plant safety functions and are not tied to any specific damage state or mechanistic assessment of external events.

NEI 16-06, "Crediting Mitigating Strategies in Risk-Informed Decision Making," provides guidance on the use of plant mitigating strategies in risk-informed decision making, such as Maintenance Rule risk assessments and mitigating actions. These mitigating strategies employ plant responses that utilize portable equipment to restore or maintain various safety functions during beyond design basis conditions and the loss of permanently installed plant equipment. Examples of these strategies include FLEX and may also include other mitigating strategies as discussed in NRC Regulatory Issue Summary (RIS) 2008-15, "NRC Staff Position on Crediting Mitigating Strategies Implemented in Response to Security Orders in Risk-Informed Licensing Actions and in the Significance Determination Process."

As part of their 10 CFR 50.65(a)(4) risk assessment process, licensees may consider FLEX and other mitigating strategies when choosing risk management actions and assessing the risk associated with continued plant operation while in LCO 3.0.3.

3.2. LCO 3.0.3 Detailed Justification

3.2.1. Time to Assess and Manage Risk and Implement Risk Management Actions

The proposed change adds a new requirement to LCO 3.0.3 to perform a risk assessment and implement the required risk management actions. This new requirement is applicable regardless of any intent to defer a plant shutdown if the risk assessment determines that continuing operation is acceptable. The proposed change provides six hours to perform the risk assessment and implement the required risk management actions and replaces the current one-hour allowance in LCO 3.0.3 to prepare for a plant shutdown. The six-hour period is considered appropriate because:

- All licensees have computer software that can calculate plant risk based on the plant configuration used to implement 10 CFR 50.65(a)(4). The time to calculate the risk will vary depending on the software, hardware, and the complexity of the plant condition. It may be necessary to engage the licensees Probabilistic Risk Assessment (PRA) staff in order to determine the quantitative or qualitative risk. These activities may take from one to several hours.
- The time required to implement risk management actions, such as briefing the operating staff, protecting equipment, or pre-staging FLEX equipment, varies and may require additional staff.

Taken together, a six-hour period to perform the risk assessment and implement the risk management actions is reasonable.

In addition, licensed operators are trained to take conservative actions to protect the plant. Should plant conditions warrant immediate action to ensure safety or if continued safe operation of the plant is uncertain, licensed operators will take appropriate action regardless of allowances in the TS.

3.2.2. Plant Operation May Continue if Risk is Acceptable

If the risk assessment determines that continuing operation is acceptable and entry into LCO 3.0.3 was unplanned, and the required risk management actions have been implemented, licensees are required to initiate action within 24 hours of entry into LCO 3.0.3 to place the unit in a Mode or other specified condition in which the initiating LCO is not applicable. The term “continuing operation is acceptable,” means that the condition represents no more than a minimal increase in risk after implementation of any risk management actions (i.e., the level determined acceptable during normal work control levels³). The term “required risk management actions” means those risk management actions that are quantitatively or qualitatively credited in the risk

³ NUMARC 93-01 describes an activity subject to "normal work controls" as having an incremental core damage probability (ICDP) < 1E-6 and an Incremental Large Early Release Probability (ILERP) of < 1E-7.

assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable.

Assessment and management of risk requires knowing the likely cause of the failures or variables outside of their limits that resulted in LCO 3.0.3 entry in order to assess the risk and to take the appropriate risk management actions. A formal cause or apparent cause evaluation is not required because of the limited time available; however, the likely cause should be known. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

3.2.3. Plant Operation May Continue if the LCO 3.0.3 Entry is Unplanned

The requirement to initiate actions to shut down the plant within 24 hours of entry into LCO 3.0.3 may not be used if the entry into LCO 3.0.3 is planned. For example, if Train A of a two-train system is inoperable due to maintenance, the licensee may not plan to make Train B inoperable such that LCO 3.0.3 is applicable and then apply LCO 3.0.3 to defer initiation of a shutdown. However, if Train A of a two-train system is inoperable for maintenance and emergent conditions result in Train B being inoperable causing entry into LCO 3.0.3 and the risk assessment and risk management requirements are satisfied, the 24-hour allowance may be used.

As stated in the current TS Bases, planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives. While these actions are similar to those required by the proposed LCO 3.0.3, planned use of the extended period of operation permitted under the proposed LCO 3.0.3 would be inconsistent with the safety basis for the existing TS Completion Times, which considered the need for planned entries.

3.2.4. Basis for the 24-Hour Period

On entry into LCO 3.0.3, a licensee will typically be pursuing four activities in parallel:

- Performance of a risk assessment and implementation of risk management actions;
- Preparing for an orderly plant shutdown;
- Working to restore equipment to operable status or parameters to within limits in order to exit LCO 3.0.3; or
- Evaluating whether to request relief from the NRC.

If within the first six hours the risk assessment determines that continuing operation is acceptable, risk management actions have been implemented, and the entry into LCO 3.0.3 was

unplanned, licensees may pursue the remaining actions within 24 hours of entry into LCO 3.0.3. The 24-hour period is based on pursuing these goals.

Preparing for an orderly plant shutdown may include many activities, such as:

- Bring an additional operating crew on site to support the shutdown, which considers that the LCO 3.0.3 entry may occur on a weekend, holiday, or during a night shift when there may be less staff on site.
- Bring in additional site technical and maintenance support staff to secure any station maintenance in progress, restore any inoperable components necessary for shutdown, or address any maintenance issues that arise during shutdown.
- Bring in simulator staff to support simulator exercises of a shutdown with the inoperable equipment that led to entry into LCO 3.0.3. The simulator staff must familiarize themselves with the situation and prepare training scenarios.
- Conduct simulator training to prepare the crew for the shutdown considering the current plant condition, including the inoperable equipment. This may include turn over to another shift crew to staff the control room during training.
- Perform just-in-time procedure reviews to prepare for the shutdown. Additional operating staff may be needed to allow the shutdown shift to perform the reviews.
- Coordinate with the transmission load dispatcher for power requirements with the station offline.

Therefore, if the proposed conditions are met, providing 24 hours from entry into LCO 3.0.3 to prepare for a shutdown is reasonable.

The licensee should have a reasonable scope and schedule for restoring compliance such that LCO 3.0.3 is no longer applicable. However, it is not required that the schedule be 24 hours or less, as the licensee may be pursuing regulatory relief or an orderly shutdown in addition to working to restore compliance with the LCOs.

In parallel with repairs and preparing for an orderly shutdown, the licensee may request regulatory relief to provide additional time to repair the condition. The NRC Enforcement Manual, Appendix F, "Notices of Enforcement Discretion," describes the process for considering enforcement discretion. While not impossible, it is unlikely that a licensee could provide the requested information and for the NRC staff to have sufficient time to consider the request and render a decision under the current LCO 3.0.3 one-hour period before a plant shutdown is initiated. However, if the proposed conditions are satisfied, the proposed 24-hour period would be sufficient for the licensee to request and for the NRC to consider enforcement discretion or an emergency license amendment under the provisions of 10 CFR 50.91(a)(5). Until such relief is granted, the licensee must follow their TS.

3.3. LCO 3.0.3 Editorial Changes

The revision to LCO 3.0.3 required a change to the time to be in the listed Modes. One hour is subtracted from each time because the existing one-hour delay time is removed and six or twenty-four hours are added to the times to reflect the time provided to perform the risk assessment and, if justified, the additional time for continued plant operation. All times are based on the entry into LCO 3.0.3.

The penultimate paragraph of LCO 3.0.3 states, "Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required." This is revised to state, "If corrective measures are completed..., then ..." as an editorial improvement.

3.4. Other TS Changes

3.4.1. Other TS Evaluation

The industry evaluated the STS NUREGs and identified the Actions that invoked LCO 3.0.3 explicitly and also identified specifications that lacked Actions for obvious failures to meet the LCO, such as not providing an Action for two inoperable trains in specifications that require two trains to be operable. Each Action or specification was then examined, considering factors such as:

- Could the Condition affect safe plant operation assuming no other failures or accidents?
- Could the Condition be assessed for its risk impact?
- Could the Condition be entered for failures that would not significantly degrade the ability of the system to perform its primary function?
- Are there proceduralized actions that can be taken to diminish the impact of the failure?
- Would an immediate plant shutdown be complicated by the failure?

It was determined that no changes are needed for most specifications and the proposed revision to LCO 3.0.3 would be appropriate if the conditions for use are met. For example:

- The "Emergency Core Cooling System - Operating" specification Actions for PWRs requires entering LCO 3.0.3 when less than 100% of the ECCS flow equivalent to a single operable train is available. For BWRs, LCO 3.0.3 entry is required for several combinations of inoperable equipment that would prevent the ECCS from performing its required function. However, the proposed LCO 3.0.3 is appropriate for this condition. At most PWR and BWR plants, the low pressure ECCS components are also used for decay heat removal during shutdown. Requiring an immediate plant shutdown to a condition that could require the use of an inoperable decay heat removal system may be unwarranted. Also, high pressure injection is typically a low-risk system (risk informed Completion Times typically greater than 30 days) and time to diagnose and potentially correct inoperabilities should be permitted.

- The PWR Control Room Emergency Filtration System (CREFS) requires entering LCO 3.0.3 if two CREFS trains are inoperable for reasons other than an inoperable boundary. However, if both CREFS trains are inoperable due to an inoperable boundary, 24 hours are provided to determine if the control room occupants can be protected (and, if so, 90 days are provided to restore the boundary.) Using the proposed LCO 3.0.3 if the conditions are met is appropriate for this condition as 24 hours are already provided when the safety function cannot be performed.
- The "AC Sources - Operating" specification requires entering LCO 3.0.3 when three or more required AC sources are inoperable. Using the proposed LCO 3.0.3 if the conditions are met is appropriate for this condition. If both offsite circuits are inoperable, a plant trip will likely render LCO 3.0.3 entry moot. However, if the unit continues to operate in this TS condition (for example, if two DGs and one offsite circuit are inoperable), requiring an immediate plant shutdown and removal of the main generator as a power source should be avoided. If plant risk is assessed and managed, permitting additional time to restore sufficient capability to exit LCO 3.0.3 before initiating a shutdown is reasonable. Note that the proposed change does not alter the existing TS Actions that require restoring at least one of two inoperable DGs within 2 hours. If an offsite circuit and DG are both inoperable, the TS requires one to be restored within 12 hours. As discussed in TS Example 1.3-2, these Actions continue and effectively limit the application of the proposed change to LCO 3.0.3.
- Many TS instrumentation functions do not include a Condition for all required channels for a function being inoperable. Using the proposed LCO 3.0.3 if the conditions are met is appropriate for these conditions. Disturbing the plant when instrumentation is inoperable could result in a reactor trip or inadvertent actuation. Moreover, there are usually redundant and diverse ways of determining important plant parameters and most initiation functions have multiple methods of achieving the goal. Most automatic functions can be manually performed by an operator using existing procedures. However, if the plant is in an unknown state, plant operators are trained to take conservative action to protect plant safety, such as manually initiating a reactor trip. Lastly, if a channel is out of service for testing or maintenance, it usually can be restored, and the condition exited.

The evaluation identified some specifications that should be revised to eliminate an explicit or implicit entry into LCO 3.0.3 and to instead require a plant shutdown or other appropriate actions.

3.4.2. Other TS Changes

3.4.2.1. NUREG-1430, TS 3.1.6, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits"

The specification requires each APSR to be operable and aligned with its group average height. There is no TS Action for more than one inoperable APSR or more than one APSR not aligned with the group average height. More than one misaligned APSR may produce unacceptable power peaking factors and linear heat generation rates. A risk assessment cannot be performed

for reactor parameters. Therefore, the implicit LCO 3.0.3 entry is replaced with a requirement to shut down the reactor by modifying the existing default Action to be in Mode 3 within six hours with an additional Condition applicable when two or more APSRs are inoperable or not aligned within the limits.

3.4.2.2. NUREG-1431, TS 3.6.10, "Hydrogen Ignition System (HIS)"

The specification is applicable to plants with an ice condenser containment design. Two HIS trains are required to be operable. There are no Conditions for both HIS trains inoperable or for more than one containment region with no operable hydrogen ignitor. Ice condenser plants are vulnerable to hydrogen ignition in post-accident environments because of their small containment volume. The unavailability of both HIS trains or of the ignitors in more than one compartment could lead to hydrogen buildup and ignition, potentially overpressurizing the containment or damaging equipment. Therefore, the implicit LCO 3.0.3 entry is replaced with a requirement to shut down the reactor by modifying the existing default Action to be in Mode 3 within six hours with an additional Condition applicable when both HIS trains are inoperable, or if there is more than one containment region with no operable hydrogen ignitor.

3.4.2.3. NUREG-1430, NUREG-1431, and NUREG-1432, TS 3.7.2, "Main Steam Isolation Valves (MSIVs)"

The specifications require the MSIV on each steam line to be operable in Mode 1, and in Modes 2 and 3 except when all MSIVs are closed. There is an Action for one MSIV inoperable in Mode 1 and an Action for one or more MSIVs inoperable in Mode 2 or 3, but there is no Action for more than one MSIV inoperable in Mode 1. The MSIVs are the primary mitigation mechanism for a number of events, such as a steam generator tube rupture, a high-energy line break inside containment, a main steam line break outside of the containment, and a feedwater line break. Inoperability of more than one MSIV, particularly in plants with only two or three main steam lines, would have a significant impact on the plant's ability to respond to these events. Therefore, the implicit LCO 3.0.3 entry is replaced with a requirement to exit Mode 1 by modifying the existing default Action to be in Mode 2 within six hours with an additional Condition applicable when more than one MSIV is inoperable while in Mode 1.

3.4.2.4. NUREG-1430 through NUREG-1434 TS 3.8.4, "DC Sources - Operating"

The specifications require two subsystems or divisions of DC power to be operable. The specification contains an Action for the battery or batteries and battery charger(s) on one subsystem or division inoperable but does not contain an Action for more than one DC electrical power subsystem inoperable. The batteries, along with the inverters, are the uninterruptible power source for the reactor protection and engineered safety feature instrumentation and controls. As most at-power accident analyses assume a loss of normal power and credit the reactor protection and engineered safety feature instrumentation and controls, loss of more than one DC electrical subsystem would have a significant impact on the plant's ability to respond to an accident. Therefore, the implicit LCO 3.0.3 entry is replaced with a new Action with Required Actions to shut down the reactor and exit the Applicability of the specification in the timeframes used in the examples in Section 1.3 of the STS.

3.4.2.5. NUREG-1430 through NUREG-1434 TS 3.8.9, and NUREG-2194 TS 3.8.5, "Distribution Systems - Operating"

The specifications require entry into LCO 3.0.3 when two or more inoperable divisions or subsystems result in a loss of function. Electrical distribution includes AC, DC, and AC Vital Bus systems. When two or more electrical power distribution subsystems are inoperable that result in a loss of safety function, the remaining subsystems are no longer capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition without assuming any additional failures. Therefore, an immediate plant shutdown is warranted. The Required Action to enter LCO 3.0.3 is replaced with Required Actions to shut down the reactor and exit the Applicability of the specification in the timeframes used in the examples in Section 1.3 of the STS. The Required Actions and Completion Times are consistent with the other Actions in the TS and the Examples in TS Section 1.3.

3.5. TS Bases Changes

The TS Bases are revised to reflect the proposed TS changes. The LCO 3.0.3 Bases discuss the requirement that risk be assessed and managed, and state that the risk assessment must be conducted using the procedures and guidance endorsed by Regulatory Guide 1.160 and Section 11 of NUMARC 93-01, and that the risk assessment must determine that continuing operation is acceptable. Acceptability is based on the guidelines in NUMARC 93-01; that is, there should be no more than minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels). The model application requires the licensee to confirm that this guidance will be followed. The Bases also discuss the treatment of common cause in the risk assessment and which risk management actions are considered to be required.

Editorial changes are made to the LCO 3.0.3 Bases to improve consistency and clarity.

- LCO 3.0.3 describes three conditions on entry, but the TS Bases combine two of those reasons. The Bases are revised to be consistent with the TS.
- The LCO 3.0.3 Bases state, "This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits for safe operation as defined by the LCO and its ACTIONS." While the phrase, "within the limits for safe operation," may be correct, it is not one of the conditions given for entering LCO 3.0.3 in the TS and perpetuates a common misunderstanding that LCO 3.0.3 entry may be required for reasons other than those stated in the TS. Therefore, the phrase "for safe operation" is removed.

The NUREG-2194 LCO 3.0.3 Bases are also revised to incorporate changes approved by the NRC in TSTF-529, "Clarify Use and Application Rules," in order to make the TS Bases consistent between the STS NUREGs. The NRC approved TSTF-529, Revision 4, on April 21, 2016, for NUREG-1430 through NUREG-1434 (see NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML16060A441.) The changes to the NUREG-2194 LCO 3.0.3 Bases are:

- The LCO 3.0.3 Bases uses the term "reaching" when describing a transition to a lower Mode. The term "entering" is more accurate and is the commonly used term in the TS for Mode transitions. In seven locations in the LCO 3.0.3 Bases, the term "reaching" a Mode is replaced with the term "entering" a Mode. These changes do not represent any change in intent but are made for consistency within the STS.
- The LCO 3.0.3 Bases list the conditions under which a unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited. This list is incomplete because it does not acknowledge that a unit shutdown may be terminated and LCO 3.0.3 exited if the LCO is no longer applicable (i.e., the LCO that was not met which led to entry into LCO 3.0.3). The proposed change adds to the list a new paragraph b that states, "The LCO is no longer applicable," and the subsequent list items are renumbered. This change does not represent any change in intent but is made for consistency within the STS.

3.6. Conclusion

The proposed change will enhance plant safety by assessing and managing plant risk when LCO 3.0.3 is entered, and avoiding unnecessary plant shutdown transients if the risk is acceptable. This permits time to rectify the condition, prepare for an orderly plant shutdown, or request NRC relief.

4. REGULATORY EVALUATION

The regulation at Title 10 of the Code of Federal Regulations (10 CFR) Section 50.36(b) requires:

Each license authorizing operation of a ... utilization facility ... will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 ["Contents of applications; technical information"]. The Commission may include such additional technical specifications as the Commission finds appropriate.

Per 10 CFR 50.90, whenever a holder of a license desires to amend the license, application for an amendment must be filed with the Commission, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

Per 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations that govern the issuance of initial licenses to the extent applicable and appropriate.

Section IV, "The Commission Policy," of the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58 FR 39132), dated July 22, 1993, states in part that improved STS have been developed and will be maintained for each NSSS owners group. The Commission Policy encourages licensees to use the improved STS as the basis for plant-specific Technical Specifications." The industry's proposal of travelers and the NRC's approval of travelers is the method used to maintain the improved STS as described in the

Commission's Policy. Following NRC approval, licensees adopt travelers into their plant-specific technical specifications following the requirements of 10 CFR 50.90. Therefore, the traveler process facilitates the Commission's policy while satisfying the requirements of the applicable regulations.

The regulation at 10 CFR 50.36(a)(1) also requires the application to include a "summary statement of the bases or reasons for such specifications, other than those covering administrative controls".

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

5. REFERENCES

None

Model Application

[DATE]

10 CFR 50.90

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

DOCKET NO.PLANT NAME

[50][52]-[xxx]

SUBJECT: Application to Revise Technical Specifications to Adopt
TSTF-585, "Revise LCO 3.0.3 to Require Managing Risk"

Pursuant to 10 CFR 50.90, [LICENSEE] is submitting a request for an amendment to the Technical Specifications (TS) for [PLANT NAME, UNIT NOS.].

[LICENSEE] requests adoption of TSTF-585, "Revise LCO 3.0.3 to Require Managing Risk," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] TS. TSTF-585 revises Limiting Condition for Operation (LCO) 3.0.3 to require assessing and managing plant risk whenever LCO 3.0.3 is entered. If the risk assessment determines that continued plant operation is acceptable and other conditions are satisfied, 24 hours from entry into LCO 3.0.3 is permitted to initiate a shutdown. Otherwise, initiation of the shutdown is required immediately. The proposed amendment also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

The enclosure provides a description and assessment of the proposed changes. Attachment 1 provides the existing TS pages marked to show the proposed changes. Attachment 2 provides revised (clean) TS pages. Attachment 3 provides the existing TS Bases pages marked to show revised text associated with the proposed TS changes and is provided for information only.

[LICENSEE] requests that the amendment be reviewed under the Consolidated Line-Item Improvement Process (CLIP). Approval of the proposed amendment is requested within six months of completion of the NRC's acceptance review. Once approved, the amendment shall be implemented within 90 days.

This letter contains no new regulatory commitments.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated [STATE] Official.

[In accordance with 10 CFR 50.30(b), a license amendment request must be executed in a signed original under oath or affirmation. This can be accomplished by attaching a notarized affidavit confirming the signature authority of the signatory, or by including the following statement in the cover letter: "I declare under penalty of perjury that the foregoing is true and correct. Executed on (date)." The alternative statement is pursuant to 28 USC 1746. It does not require notarization.]

If you should have any questions regarding this submittal, please contact [NAME, TITLE, TELEPHONE NUMBER].

Sincerely,

[Name, Title]

Enclosure: Description and Assessment

Attachments: 1. Proposed Technical Specification Changes (Mark-Up)
2. Revised Technical Specification Pages
3. Proposed Technical Specification Bases Changes (Mark-Up) – For Information Only

[The attachments are to be provided by the licensee and are not included in the model application.]

cc: NRC Project Manager
NRC Regional Office
NRC Resident Inspector
State Contact

ENCLOSURE

DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

[LICENSEE] requests adoption of TSTF-585, "Revise LCO 3.0.3 to Require Managing Risk," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] Technical Specifications (TS). TSTF-585 revises Limiting Condition for Operation (LCO) 3.0.3 to require a risk assessment to be performed and risk management actions to be implemented within six hours. If the risk assessment determines that continued plant operation is acceptable and other conditions are satisfied, 24 hours from entry into LCO 3.0.3 is permitted to initiate a shutdown. Otherwise, initiation of the shutdown is required immediately. The proposed amendment also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

2.0 ASSESSMENT

2.1 Applicability of Safety Evaluation

[LICENSEE] has reviewed the safety evaluation for TSTF-585 provided to the Technical Specifications Task Force in a letter dated [DATE]. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-585. [As described herein,] [LICENSEE] has concluded that the justifications presented in TSTF-585 and the safety evaluation prepared by the NRC staff are applicable to [PLANT, UNIT NOS.] and justify this amendment for the incorporation of the changes to the [PLANT] TS.

[LICENSEE] confirms Section 11 of NUMARC 93-01, including the action thresholds under normal work controls, will be used to perform the LCO 3.0.3 risk assessment to determine whether continued plant operation is acceptable.

[LICENSEE] has reviewed the [PLANT] plant-specific specifications that do not appear in the STS. [LICENSEE] has determined that [none of the] [the following] plant-specific specifications should be revised to require a plant shutdown instead of entering LCO 3.0.3. [Describe any additional changes.]

2.2 Variations

[[LICENSEE] is not proposing any variations from the TS changes described in TSTF-585 or the applicable parts of the NRC staff's safety evaluation dated [DATE.]] [[LICENSEE] is proposing the following variations from the TS changes described in TSTF-585 or the applicable parts of the NRC staff's safety evaluation: [Describe the variations.]]

[The [PLANT] TS utilize different [numbering][and][titles] than the STS on which TSTF-585 was based. Specifically, [describe differences between the plant-specific TS numbering and/or titles and the TSTF-585 numbering and titles.] These differences are administrative and do not affect the applicability of TSTF-585 to the [PLANT] TS.]

[The [PLANT] TS contain requirements that differ from the STS on which TSTF-585 was based but are encompassed in the TSTF-585 justification. [Describe differences and why TSTF-585 is still applicable.]]

[The [PLANT] TS contain Actions for conditions that are added or modified in the traveler to avoid entry into LCO 3.0.3. They are [describe.] As a result, these traveler changes are not applicable. This does not affect the applicability of the remaining portions of TSTF-585 to the [PLANT] TS.]

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

[LICENSEE] requests adoption of TSTF-585, " Revise LCO 3.0.3 to Require Managing Risk," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] Technical Specifications (TS). TSTF-585 revises Limiting Condition for Operation (LCO) 3.0.3 to require a risk assessment to be performed and risk management actions to be implemented within six hours. If the risk assessment determines that continued plant operation is acceptable and other conditions are satisfied, 24 hours from entry into LCO 3.0.3 is permitted to initiate a shutdown. Otherwise, initiation of the shutdown is required immediately. The proposed amendment also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

[LICENSEE] has evaluated if a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change revises LCO 3.0.3 to provide additional time before initiating a plant shutdown. The proposed change also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

The proposed change does not affect the capability of any system to perform a design function as assumed in previously evaluated accidents because the affected systems are inoperable prior to entering LCO 3.0.3 or the Required Actions. The time permitted before initiating a plant shutdown when Technical Specification requirements are not met is not an assumption in any design basis accident or transient. Equipment that is inoperable prior to an analyzed event is not an initiator of any accident previously evaluated. Therefore, the probability of any accident previously evaluated is not affected.

The consequences of any design basis accident or transient that might occur during the proposed period prior to initiation of a plant shutdown are no different than the consequences of such an event during the current delay period provided by LCO 3.0.3. The likelihood of malfunction of equipment is not affected as the applicable equipment is

inoperable prior to entering LCO 3.0.3 or the Required Actions. As a result, the consequences of previously evaluated accidents are not affected.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change revises LCO 3.0.3 to provide additional time before initiating a plant shutdown. The proposed change also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

The proposed change only alters the time permitted before initiating a plant shutdown when TS equipment is inoperable, or TS limits are not met. The proposed change does not alter the design function or operation of any equipment because the affected systems are inoperable prior to entering LCO 3.0.3 or the Required Actions. The design basis accidents and transients considered in the updated final safety analysis report (UFSAR) assume that equipment is operable at the beginning of the analysis, and the time permitted to restore inoperable equipment or variables outside of limits is not an assumption in the UFSAR in any design basis accident or transient analyses. Therefore, providing a longer period after entering LCO 3.0.3 before initiating a plant shutdown or adding Required Actions that direct a plant shutdown would not have been considered a new or different design basis accident in the UFSAR if it had been previously identified.

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

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed change revises LCO 3.0.3 to provide additional time before initiating a plant shutdown. The proposed change also revises or adds some TS Required Actions to direct a plant shutdown instead of entry into LCO 3.0.3.

The proposed change only alters the time permitted before initiating a plant shutdown when TS equipment is inoperable, or TS limits are not met. The proposed change does not alter any specific values assumed in the design and licensing basis or controlling values of parameters. The proposed change does not alter a design basis or safety limit.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

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

3.2 Conclusion

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

4.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Technical Specifications and Bases Changes

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1 hour~~ to place the unit, as applicable, in:

- a. MODE 3 within ~~307~~ hours,
- b. MODE 4 within ~~3643~~ hours, and
- c. MODE 5 within ~~6037~~ hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 3 within 12 hours,
- b. MODE 4 within 18 hours, and
- c. MODE 5 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4

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

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 AXIAL POWER SHAPING ROD (APSR) Alignment Limits

LCO 3.1.6 Each APSR shall be OPERABLE and aligned within [6.5]% of its group average height.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One APSR inoperable, not aligned within its limits, or both.	A.1 Perform SR 3.2.3.1.	2 hours <u>AND</u> 2 hours after each APSR movement
B. Two or more APSRs inoperable, not aligned within their limits, or both. <u>OR</u> Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.6.1 Verify position of each APSR is within [6.5]% of the group average height.	[12 hours <u>OR</u> In accordance with the

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Two MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and deactivated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. More than one MSIV inoperable in MODE 1. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2 or 3.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	[8] hours Once per 7 days
	D.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and Associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours
E. Two DC electrical power subsystems inoperable.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One or more DC electrical power distribution subsystems inoperable.</p>	<p>C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p>	<p>D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.</p>	<p>6 hours 12 hours</p>
<p>E. Two or more electrical power distribution subsystems inoperable that result in a loss of function.</p>	<p>E.1 Be in MODE 3.Enter LCO 3.0.3. <u>AND</u> E.2 Be in MODE 5.</p>	<p>6 hours Immediately 36 hours</p>

BASES

LCO 3.0.2 (continued)

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The ACTIONS for not meeting a single LCO adequately manage any increase in plant risk, provided any unusual external conditions (e.g., severe weather, offsite power instability) are considered. In addition, the increased risk associated with simultaneous removal of multiple structures, systems, trains or components from service is assessed and managed in accordance with 10 CFR 50.65(a)(4). Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable and the ACTIONS Condition(s) are entered.

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and either:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; ~~or~~
- c. ~~Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, t~~The ACTIONS specifically state ~~a Condition corresponding to such combinations and also~~ that LCO 3.0.3 be entered immediately.

BASES

LCO 3.0.3 (continued)

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief.

It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown. The term “required risk management actions” means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met,
- b. The LCO is no longer applicable,
- c. A Condition exists for which the Required Actions have now been performed, or
- d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the

Condition is initially entered and not from the time LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 allow ~~3637~~ hours for the unit to be in MODE 5 ~~when after~~ a shutdown is ~~initiated required~~ during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is ~~required~~ **initiated**, the time limit for entering the next lower MODE applies. If a lower MODE is entered in less time than allowed, however, the total allowable time to enter MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is entered ~~in~~ 2 hours **after a shutdown is initiated**, then the time allowed for entering MODE 4

BASES

LCO 3.0.3 (continued)

is the next ~~1044~~ hours, because the total time for entering MODE 4 is not reduced from the allowable limit of ~~1243~~ hours **after a shutdown is initiated**. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter 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 3.7.14, "Fuel Storage Pool Water Level." LCO 3.7.14 has an Applicability of "During movement of irradiated fuel assemblies in fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.14 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 3.7.14 of "Suspend movement of irradiated fuel assemblies in fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

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

BASES

ACTIONS

A.1

The ACTIONS described below are required if one APSR is inoperable. The plant is not allowed to operate with more than one inoperable APSR. This would require the reactor to be shut down, ~~in accordance with LCO 3.0.3.~~

An alternate to realigning a single misaligned APSR to the group average position is to align the remainder of the APSR group to the position of the misaligned or inoperable APSR, while maintaining APSR insertion, in accordance with the limits in the COLR. This restores the alignment requirements. Deviations up to 2 hours will not cause significant xenon redistribution to occur. This alternative assumes the APSR group movement does not cause the limits of LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits," to be exceeded. For this reason, APSR group movement is only practical for instances where small movements of the APSR group are sufficient to re-establish APSR alignment.

The reactor may continue in operation with the APSR misaligned if the limits on AXIAL POWER IMBALANCE are surveilled within 2 hours to determine if the AXIAL POWER IMBALANCE is still within limits. Also, since any additional movement of the APSRs may result in additional imbalance, Required Action A.1 also requires the AXIAL POWER IMBALANCE Surveillance to be performed again within 2 hours after each APSR movement. The required Completion Time of up to 2 hours will not cause significant xenon redistribution to occur.

B.1

The plant must be brought to a MODE in which the LCO does not apply if ~~more than one APSR is inoperable, or is misaligned, or both, or the~~ Required Actions and associated Completion Times cannot be met. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, for reaching MODE 3 from RTP in an orderly manner and without challenging plant systems. In MODE 3, APSR group alignment limits are not required because the reactor is not generating THERMAL POWER and excessive local LHRs cannot occur from APSR misalignment.

BASES

ACTIONS (continued)

B.1

If the MSIV cannot be restored to OPERABLE status in accordance with Required Action A.1, **or if more than one MSIV is inoperable in MODE 1**, the unit must be placed in MODE 2 and the inoperable MSIV(s) closed within the next 6 hours. The Completion Times are reasonable, based on operating experience, to reach MODE 2.

C.1 and C.2

Condition C is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition A.

Inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure these valves are in the closed position.

D.1 and D.2

If the MSIV cannot be restored to OPERABLE status or closed in 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 MODE 2 conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

D.1 and D.2

If the inoperable DC electrical power subsystem(s) cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours.

Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 8). There are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms in MODE 4 than in MODE 5. For example, in MODE 4 the turbine driven emergency feedwater pump[s] are available to provide Reactor Coolant System (RCS) cooling via the steam generators utilizing natural circulation. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state.

Required Action D.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

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 plant systems.

E.1 and E.2

If both DC electrical power subsystems are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE SR 3.8.4.1

BASES

ACTIONS (continued)

results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

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 plant systems.

E.1 and E.2

Condition E corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. ~~the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.~~

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the [required] AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. [The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1 hour~~ to place the unit, as applicable, in:

- a. MODE 3 within ~~307~~ hours,
- b. MODE 4 within ~~3643~~ hours, and
- c. MODE 5 within ~~6037~~ hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 3 within 12 hours,
- b. MODE 4 within 18 hours, and
- c. MODE 5 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4

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

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

3.6 CONTAINMENT SYSTEMS

3.6.10 Hydrogen Ignition System (HIS) (Ice Condenser)

LCO 3.6.10 Two HIS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One HIS train inoperable.</p>	<p>A.1 Restore HIS train to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Perform SR 3.6.10.1 on the OPERABLE train.</p>	<p>7 days</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per 7 days</p>
<p>B. One containment region with no OPERABLE hydrogen ignitor.</p>	<p>B.1 Restore one hydrogen ignitor in the affected containment region to OPERABLE status.</p>	<p>7 days</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Both HIS trains inoperable.</p> <p><u>OR</u></p> <p>More than one containment region with no OPERABLE hydrogen ignitor.</p>	<p>C.1 Be in MODE 3.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>OR</u> Required Action and associated Completion Time not met.		

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Four] MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and de-activated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. More than one MSIV inoperable in MODE 1. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2 or 3.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	[8] hours Once per 7 days
	D.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and Associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours
E. Two DC electrical power subsystems inoperable.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	E.1 Be in MODE 3. Enter LCO 3.0.3. <u>AND</u> E.2 Be in MODE 5.	6 hours Immediately 36 hours

BASES

LCO 3.0.2 (continued)

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The ACTIONS for not meeting a single LCO adequately manage any increase in plant risk, provided any unusual external conditions (e.g., severe weather, offsite power instability) are considered. In addition, the increased risk associated with simultaneous removal of multiple structures, systems, trains or components from service is assessed and managed in accordance with 10 CFR 50.65(a)(4). Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable, and the ACTIONS Condition(s) are entered.

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; ~~or~~
- ~~b-c. Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, t~~he ACTIONS specifically state ~~a Condition corresponding to such combinations and also~~ that LCO 3.0.3 be entered immediately.

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LCO Applicability
B 3.0

BASES

LCO 3.0.3 (continued)

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief. It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available.

LCO Applicability
B 3.0

such as regulatory relief or an orderly shutdown. The term "required risk management actions" means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met,
- b. The LCO is no longer applicable,
- c. A Condition exists for which the Required Actions have now been performed, or
- d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time LCO 3.0.3 is exited.

LCO Applicability
B 3.0

The time limits of LCO 3.0.3 allow ~~3637~~ hours for the unit to be in MODE 5 ~~when after~~ a shutdown is ~~initiated required~~ during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is ~~required initiated~~, the time limit for entering the next lower MODE applies. If a lower MODE is entered in less time than allowed, however, the total allowable time to enter MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is entered ~~in 2 hours after a shutdown is initiated~~, then the time allowed for entering MODE 4

BASES

LCO 3.0.3 (continued)

is the next ~~1044~~ hours, because the total time for entering MODE 4 is not reduced from the allowable limit of ~~1243~~ hours ~~after a shutdown is initiated~~. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter 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, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.15 of "Suspend movement of irradiated fuel assemblies in the fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

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

BASES

ACTIONS (continued)

C.1

If both HIS trains are inoperable, if there is more than one containment region with no OPERABLE hydrogen ignitor, or if the HIS subsystem(s) cannot be restored to OPERABLE status within the associated Completion Time, t~~The unit must be placed in a MODE in which the LCO does not apply if the HIS subsystem(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. This is done by placing the unit in at least MODE 3 within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.6.10.1

This SR confirms that \geq [32] of 33 hydrogen ignitors can be successfully energized in each train. The ignitors are simple resistance elements. Therefore, energizing provides assurance of OPERABILITY. The allowance of one inoperable hydrogen ignitor is acceptable because, although one inoperable hydrogen ignitor in a region would compromise redundancy in that region, the containment regions are interconnected so that ignition in one region would cause burning to progress to the others (i.e., there is overlap in each hydrogen ignitor's effectiveness between regions). [The Frequency of 92 days has been shown to be acceptable through operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

-----REVIEWER'S NOTE-----
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
-----]

SR 3.6.10.2

This SR confirms that the two inoperable hydrogen ignitors allowed by SR 3.6.10.1 (i.e., one in each train) are not in the same containment region. [The Frequency of 92 days is acceptable based on the Frequency of SR 3.6.10.1, which provides the information for performing this SR.

BASES

LCO

This LCO requires that [four] MSIVs in the steam lines be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits, and they close on an isolation actuation signal.

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 (Ref. 4) limits or the NRC staff approved licensing basis.

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1, and in MODES 2 and 3 except when closed and de-activated, when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function.

In MODE 4, normally most of the MSIVs are closed, and the steam generator energy is low.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

A.1

With one MSIV inoperable in MODE 1, action must be taken to restore OPERABLE status within [8] hours [or in accordance with the Risk Informed Completion Time Program]. Some repairs to the MSIV can be made with the unit hot. The [8] hour Completion Time is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the MSIVs.

The [8] hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

B.1

If the MSIV cannot be restored to OPERABLE status within [8] hours, **or if more than one MSIV is inoperable in MODE 1**, 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 MODE 2 within 6 hours and Condition C would be entered. The Completion Times are reasonable, based on operating experience, to reach MODE 2 and to close the MSIV(s) in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 8). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 8, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action D.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

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 plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

E.1 and E.2

If both DC electrical power subsystems are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS**SR 3.8.4.1**

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge

BASES

ACTIONS (continued)

Required Action D.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

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 plant systems.

E.1 and E.2

Condition E corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. ~~the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.~~

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the [required] AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. [The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

OR

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1 hour~~ to place the unit, as applicable, in:

- a. MODE 3 within 307 hours,
- b. [MODE 4 within 3643] hours, and
- c. MODE 5 within 6037 hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 3 within 12 hours,
- b. MODE 4 within 18 hours, and
- c. MODE 5 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4

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

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

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Two] MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and de-activated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. More than one MSIV inoperable in MODE 1. <u>OR</u> Required Action and Associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2 or 3.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	[8] hours Once per 7 days
	D.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and Associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours
E. Two DC electrical power subsystems inoperable.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	E.1 Be in MODE 3. Enter LCO 3.0.3. <u>AND</u> E.2 Be in MODE 5.	6 hours Immediately 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

BASES

LCO 3.0.2 (continued)

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The ACTIONS for not meeting a single LCO adequately manage any increase in plant risk, provided any unusual external conditions (e.g., severe weather, offsite power instability) are considered. In addition, the increased risk associated with simultaneous removal of multiple structures, systems, trains or components from service is assessed and managed in accordance with 10 CFR 50.65(a)(4). Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable and the ACTIONS Condition(s) are entered.

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and either:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; **or**
- c. ~~— Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, t~~The ACTIONS specifically state **a Condition corresponding to such combinations and also** that LCO 3.0.3 be entered immediately.

BASES

LCO 3.0.3 (continued)

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief.

It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown. The term “required risk management actions” means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met,
- b. The LCO is no longer applicable,
- c. A Condition exists for which the Required Actions have now been performed, or
- d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the

Condition is initially entered and not from the time LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 allow ~~3637~~ hours for the unit to be in MODE 5 ~~when after~~ a shutdown is ~~required initiated~~ during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is ~~required initiated~~, the time limit for entering the next lower MODE applies. If a lower MODE is entered in less time than allowed, however, the total allowable time to enter

BASES

LCO 3.0.3 (continued)

MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is entered ~~in~~ 2 hours **after a shutdown is initiated**, then the time allowed for entering MODE 4 is the next ~~1044~~ hours, because the total time for entering MODE 4 is not reduced from the allowable limit of ~~1243~~ hours **after a shutdown is initiated**. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter 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 3.7.16, "Fuel Storage Pool Water Level." LCO 3.7.16 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 3.7.16 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.16 of "Suspend movement of irradiated fuel assemblies in 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.

[The requirement to be in MODE 4 in 13 hours is plant specific and depends on the ability to cool the pressurizer and degas.]

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It allows placing the unit in a MODE or other specified condition stated in that

BASES

ACTIONS

A.1

With one MSIV inoperable in MODE 1, time is allowed to restore the component to OPERABLE status. Some repairs can be made to the MSIV with the unit hot. The [8] hour Completion Time is reasonable, considering the probability of an accident occurring during the time period that would require closure of the MSIVs. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The [8] hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

B.1

If the MSIV cannot be restored to OPERABLE status within [8] hours, **or if more than one MSIV is inoperable in MODE 1**, 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 MODE 2 within 6 hours and Condition C would be entered. The Completion Time is reasonable, based on operating experience, to reach MODE 2, and close the MSIV(s) in an orderly manner and without challenging unit systems.

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

Condition C is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition A.

Inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, MSIV status indications available in the control room, and other administrative controls, to ensure these valves are in the closed position.

BASES

ACTIONS (continued)

The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

E.1 and E.2

If both DC electrical power subsystems are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS**SR 3.8.4.1**

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc times the number of connected cells or [127.6] V for a 58 cell battery at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life. [The 7 day Frequency is consistent with manufacturer recommendations.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

-----REVIEWER'S NOTE-----
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
-----]

BASES

ACTIONS (continued)

E.1 and E.2

Condition E corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. ~~the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.~~

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. [The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

-----REVIEWER'S NOTE-----

Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1 hour~~ to place the unit, as applicable, in:

- a. MODE 2 within ~~[30 7]~~ hours,
- b. MODE 3 within ~~3643~~ hours, and
- c. MODE 4 within ~~6037~~ hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 2 within [12] hours,
- b. MODE 3 within 18 hours, and
- c. MODE 4 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

-----REVIEWER'S NOTE-----

The brackets around the time provided to reach MODE 2 allow a plant to extend the time from ~~7~~12 hours to a plant specific time. Before the time can be changed, plant specific data must be provided to support the extended time.

-
- 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;

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and Associated Completion Time of Condition A[, B, or C] not met for station service DC subsystem.	D.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- Be in MODE 3.	12 hours
E. Two station service DC subsystems inoperable.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours
FE. [Required Action and associated Completion Time of Condition A[, B, or C] not met for DG DC subsystem.	FE.1 Declare associated DG inoperable.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	[7 days <u>OR</u> In accordance with the

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more [station service] DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- Be in MODE 3.	12 hours
E. [One or more DG DC electrical power distribution subsystems inoperable.	E.1 Declare associated DG(s) inoperable.	Immediately]
F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Be in MODE 3. Enter LCO 3.0.3. <u>AND</u> F.2 Be in MODE 4.	12 hours Immediately 36 hours.

BASES

LCO 3.0.2 (continued)

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.10, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The ACTIONS for not meeting a single LCO adequately manage any increase in plant risk, provided any unusual external conditions (e.g., severe weather, offsite power instability) are considered. In addition, the increased risk associated with simultaneous removal of multiple structures, systems, trains or components from service is assessed and managed in accordance with 10 CFR 50.65(a)(4). Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable, and the ACTIONS Condition(s) are entered.

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; **or**
- c. ~~— Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, t~~The ACTIONS specifically state **a Condition corresponding to such combinations and also** that LCO 3.0.3 be entered immediately.

BASES

LCO 3.0.3 (continued)

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief.

It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown. The term “required risk management actions” means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation.~~

~~This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met,
- b. The LCO is no longer applicable,
- c. A Condition exists for which the Required Actions have now been performed, or
- d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the

Condition is initially entered and not from the time LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 allow ~~3637~~ hours for the unit to be in MODE 4 ~~when after~~ a shutdown is ~~initiated required~~ during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is ~~initiated required~~, the time limit for entering the next lower MODE applies. If a lower MODE is entered in

BASES

LCO 3.0.3 (continued)

less time than allowed, however, the total allowable time to enter MODE 4, or other applicable MODE, is not reduced. For example, if MODE 2 is entered ~~in 2~~ hours **after a shutdown is initiated**, then the time allowed for entering MODE 3 is the next ~~1044~~ hours, because the total time for entering MODE 3 is not reduced from the allowable limit of **1243** hours **after a shutdown is initiated**. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter a lower MODE of operation in less than the total time allowed.

In MODES 1, 2, and 3, 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 4 and 5 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, or 3) 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 3.7.8, "Spent Fuel Storage Pool Water Level." LCO 3.7.8 has an Applicability of "During movement of irradiated fuel assemblies in the spent fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.8 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.8 of "Suspend movement of irradiated fuel assemblies in the spent fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

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

BASES

ACTIONS (continued)

2. [LICENSEE] will follow the guidance established in TSTF-IG-05-02, Implementation Guidance for TSTF-423, Revision 2, "Technical Specifications End States, NEDC-32988-A," November 2009.
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If the inoperable station service DC electrical power subsystem cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 8) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action D.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1 and E.2

If both station service DC subsystems are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

FE.1

If the DG DC electrical power subsystem cannot be restored to OPERABLE status in the associated Completion Time, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions for an inoperable DG, LCO 3.8.1, "AC Sources - Operating."

BASES

ACTIONS (continued)

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action D.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

[E.1

With one or more DG DC buses inoperable, the associated DG(s) may be incapable of performing their intended functions. In this situation the DG(s) must be immediately declared inoperable. This action also requires entry into applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating."]

F.1 and F.2

Condition F corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, **the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours.**~~the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.~~

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~1 hour~~ to place the unit, as applicable, in:

- a. MODE 2 within ~~307~~ hours,
- b. MODE 3 within ~~3643~~ hours, and
- c. MODE 4 within ~~6037~~ hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 2 within [12] hours,
- b. MODE 3 within 18 hours, and
- c. MODE 4 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

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;
- 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.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. [Division 1 or 2] DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore [Division 1 and 2] DC electrical power subsystems to OPERABLE status.	[2] hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time for [Division 1 or 2] DC electrical power subsystem for Condition A, B, or C not met.	D.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- Be in MODE 3.	12 hours
E. [Division 1 and 2] DC electrical power subsystems inoperable.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours
FE. [Division 3] DC electrical power subsystem inoperable for reasons other than Condition A [or B].	FE.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately
GF. Required Action and associated Completion Time for [Division 3] DC electrical power subsystem for Condition A, B, or FE not met.	GF.1 Be in MODE 3. <u>AND</u> GF.2 Be in MODE 4.	12 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more [Division 1 and 2] DC electrical power distribution subsystems inoperable.	C.1 Restore [Division 1 and 2] DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- Be in MODE 3.	12 hours
E. One or more [Division 3] AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	E.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately
F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Be in MODE 3. Enter LCO 3.0.3. <u>AND</u> F.2 Be in MODE 4.	12 hours Immediately 36 hours

BASES

LCO 3.0.2 (continued)

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.11, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The ACTIONS for not meeting a single LCO adequately manage any increase in plant risk, provided any unusual external conditions (e.g., severe weather, offsite power instability) are considered. In addition, the increased risk associated with simultaneous removal of multiple structures, systems, trains or components from service is assessed and managed in accordance with 10 CFR 50.65(a)(4). Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable, and the ACTIONS Condition(s) are entered.

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; **or**
- c. ~~— Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, t~~The ACTIONS specifically state **a Condition corresponding to such combinations and also** that LCO 3.0.3 be entered immediately.

BASES

LCO 3.0.3 (continued)

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief.

It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown. The term “required risk management actions” means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met,
- b. The LCO is no longer applicable,
- c. A Condition exists for which the Required Actions have now been performed, or
- d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the

Condition is initially entered and not from the time LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 allow ~~3637~~ hours for the unit to be in MODE 4 ~~when after~~ a shutdown is ~~initiated required~~ during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is ~~required~~ ~~initiated~~, the time limit for entering the next lower MODE applies. If a lower MODE is entered in less time than allowed, however, the total allowable time to enter MODE 4, or other applicable MODE, is not reduced. For example, if

BASES

LCO 3.0.3 (continued)

MODE 2 is entered ~~in~~ 2 hours **after a shutdown is initiated**, then the time allowed for entering MODE 3 is the next ~~1044~~ hours, because the total time for entering MODE 3 is not reduced from the allowable limit of **1243 hours after a shutdown is initiated**. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter a lower MODE of operation in less than the total time allowed.

In MODES 1, 2, and 3, 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 4 and 5 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, or 3) 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 3.7.7, "Fuel Pool Water Level." LCO 3.7.7 has an Applicability of "During movement of irradiated fuel assemblies in the associated fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.7 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.7 of "Suspend movement of irradiated fuel assemblies in the associated fuel storage pool(s)" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

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

BASES

ACTIONS (continued)

2. [LICENSEE] will follow the guidance established in TSTF-IG-05-02, Implementation Guidance for TSTF-423, Revision 2, "Technical Specifications End States, NEDC-32988-A," November 2009.
-

If a Division 1 or 2 DC electrical power subsystem is inoperable and not restored within the provided Completion Time, the plant must be brought to a condition in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 8) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action D.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1 and E.2

If both [Division 1 and 2] DC electrical power subsystems are inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

FE.1

With the Division 3 DC electrical power subsystem inoperable for reasons other than Condition A or B, the HPCS and 2C Standby Service Water System may be incapable of performing their intended functions and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions of LCO 3.5.1, "ECCS - Operating," [and LCO 3.7.1, "Standby Service Water (SSW)] System and [Ultimate Heat Sink (UHS)"].

GE.1 and GE.2

If the inoperable Division 3 DC electrical power subsystem cannot be restored to OPERABLE status within the associated Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

SURVEILLANCE
REQUIREMENTSSR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc times the number of connected cells or [127.6] V for a 58 cell battery at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life. [The 7 day Frequency is consistent with manufacturer recommendations.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS (continued)

If the inoperable electrical power distribution system cannot be restored to OPERABLE status within the associated Completion Times, the plant must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action D.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1

With the Division 3 electrical power distribution system inoperable, the Division 3 powered systems are not capable of performing their intended functions. Immediately declaring the high pressure core spray inoperable allows the ACTIONS of LCO 3.5.1, "ECCS - Operating," to apply appropriate limitations on continued reactor operation.

F.1 and F.2

Condition F corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. (Single division systems are not included, although for this Action, Division 3 is considered redundant to Division 1 and 2 ECCS.) When two or more inoperable electrical power distribution subsystems result in the

BASES

ACTIONS (continued)

loss of a required function, **the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours.** ~~the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.~~

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

Meeting this Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. [The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

-----REVIEWER'S NOTE-----

Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.
4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

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

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable.

Within 6 hours perform a risk assessment addressing inoperable systems and components and implement required risk management actions. If the risk assessment determines that continuing operation is acceptable, the required risk management actions are implemented, and entry into LCO 3.0.3 was unplanned, then action ~~Action~~ shall be initiated within 24 hours ~~4 hour~~ to place the unit, as applicable, in:

- a. MODE 3 within ~~307~~ hours; and
- b. MODE 4 within ~~3643~~ hours; and
- c. MODE 5 within ~~6037~~ hours.

If the risk assessment determines that continuing operation is not acceptable, the risk assessment was not performed, the required risk management actions were not implemented, or entry into LCO 3.0.3 was planned, then action shall be initiated to place the unit, as applicable, in:

- a. MODE 3 within 12 hours,
- b. MODE 4 within 18 hours, and
- c. MODE 5 within 42 hours.

All times are determined from entry into LCO 3.0.3.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall 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 are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

3.0 LCO Applicability

LCO 3.0.4 (continued)

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 5.5.7, "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.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two or more inoperable divisions that result in a loss of safety function.	F.1 Be in MODE 3. Enter LCO 3.0.3.	6 hours Immediately
	<u>AND</u> F.2 Be in MODE 5.	36 hours.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.5.1 Verify correct breaker and switch alignments and voltage to required DC and AC instrument and control electrical power distribution subsystems.	7 days

BASES

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met, and:

- a. An associated Required Action and Completion Time is not met and no other Condition applies; ~~or~~
- b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit; or
- ~~c. Some—Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, ~~t~~he ACTIONS specifically state a Condition corresponding to such combinations and also that LCO 3.0.3 be entered immediately.~~

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits ~~for safe operation~~ as defined by the LCO and its ACTIONS. Planned entry into LCO 3.0.3 should be avoided. If it is not practicable to avoid planned entry into LCO 3.0.3, plant risk should be assessed and managed in accordance with 10 CFR 50.65(a)(4), and the planned entry into LCO 3.0.3 should have less effect on plant safety than other practicable alternatives. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being inoperable.

Upon entering LCO 3.0.3, a risk assessment addressing inoperable systems and components must be completed and required risk management actions must be implemented within 6 hours. The risk assessment must consider all inoperable 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 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 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

condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures). The likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown, the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.

If the risk assessment determines that there is no more than a minimal increase in risk after implementation of risk management actions (i.e., the level determined acceptable during normal work control levels as discussed in Section 11 of NUMARC 93-01), then continuing operation for a limited time is acceptable. Provided that the risk assessment determined that continuing operation is acceptable, that the required risk management actions are implemented, and that entry into LCO 3.0.3 was unplanned, action to shut down the unit must be initiated within 24 hours of entry into LCO 3.0.3. The 24 hour period may be used to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief. It is not necessary for the planned restoration of compliance with the LCO or ACTIONS to be within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown. The term "required risk management actions" means those risk management actions that are quantitatively or qualitatively credited in the risk assessment and are necessary for the risk assessment to demonstrate that continued plant operation is acceptable. The 24 hour provision may not be used if the LCO 3.0.3 entry is planned, such as intentionally removing a train from service when the redundant train is inoperable. However, it may be used for emergent conditions that occur in parallel with other planned or unplanned inoperabilities.

If the risk assessment determines that continuing operation is not acceptable, if the risk assessment was not completed or the required risk management actions were not implemented, or if entry into LCO 3.0.3 was planned, action to shut down the unit must be initiated following the 6 hour time period provided to perform the risk assessment and implement risk management actions.

All times for completing actions and entering MODES are determined from entry into LCO 3.0.3.

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.~~

OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO-LCO 3.0.3 are consistent with the discussion of Section 1.3, "Completion Times."

A unit shutdown required in accordance with LCO-LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

- a. The LCO is now met;
- b. The LCO is no longer applicable.
- cb. A Condition exists for which the Required Actions have now been performed; or

BASES

LCO 3.0.3 (continued)

- de. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition was initially entered and not from the time LCO-LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 allow 3637 hours for the unit to be in MODE 5 when-after a shutdown is initiated required during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is required initiated, the time limit for reaching-entering the next lower MODE applies. If a lower MODE is reached-entered in less time than allowed, however, the total allowable time to reach-enter MODE 5, or other applicable MODE is not reduced. For example, if MODE 3 is reached entered in 2 hours after a shutdown is initiated, then the time allowed for reaching-entering MODE 4 is the next 1044 hours, because the total time for reaching-entering MODE 4 is not reduced from the allowable limit of 1243 hours after a shutdown is initiated. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach-enter a lower MODE of operation in less than the total time allowed. Compliance with the time limits of Specification 3.0.3 may rely on the use of nonsafety-related systems, which are not governed by Technical Specification LCOs.

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 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. 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.

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 3.7.5, Spent Fuel Pool Water Level. This Specification has an Applicability of "At all times." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.5 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.5 of "Suspend movement of irradiated fuel assemblies in the spent fuel 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.

BASES

ACTIONS (continued)

- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for restoring one DC electric power distribution system division to OPERABLE status is consistent with Regulatory Guide 1.93 (Ref. 4).

E.1 and E.2

If the inoperable distribution division(s) cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to MODE 5 where the probability and consequences on an event are minimized. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 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 plant systems.

F.1 and F.2

With two **or more** inoperable divisions that result in a loss of safety function, adequate core cooling, containment OPERABILITY and other vital functions for DBA mitigation would be compromised, and **the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours.**~~immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

SURVEILLANCE
REQUIREMENTSSR 3.8.5.1

This Surveillance verifies that the Class 1E AC instrument and control and DC electrical power distribution subsystems are functioning properly, with the required circuit breakers and switches properly aligned. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the Class 1E AC instrument and control and DC electrical power distribution subsystems, and other indications available in the control room that alert the operator to electrical power distribution system malfunctions.