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10 CFR 50.90

1CAN031901

March 25, 2019

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

SUBJECT: License Amendment Request
Application to Revise Technical Specifications to Adopt TSTF-439,
"Eliminate Second Completion Times Limiting Time from Discovery of
Failure to Meet an LCO"
Arkansas Nuclear One, Unit 1
Docket No. 50-313
Renewed Facility Operating License No. DPR-51

REFERENCES: 1. Letter from Thomas H. Boyce (U.S. NRC) to Technical Specifications
Task Force, "Status of TSTF 439, 'Eliminate Second Completion Times
Limiting Time from Discovery of Failure to Meet an LCO'," dated
January 11, 2006 (ML0601202720)

2. TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion
Times – RITSTF Initiative 4b," (ML18183A493)

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) is submitting a request for an amendment to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit 1 (ANO-1). The proposed amendment adopts previously NRC-approved Industry/Technical Specifications Task Force (TSTF) Traveler 439 (TSTF-439), Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO" (Reference 1). TSTF-439 has been incorporated into NUREG-1430, "Standard Technical Specifications for Babcock & Wilcox Plants," Revision 4.

The enclosure provides a description and assessment of the proposed changes. In addition, the enclosure concludes that the proposed amendment does not involve a significant hazards consideration. Attachment 1 of the enclosure provides the existing TS pages marked to show the proposed changes. Attachment 2 of the enclosure provides a markup of the current TS Bases pages associated with this change, for information only. Attachment 3 of the enclosure provides revised (clean) TS pages.

No new regulatory commitments are included in this amendment request.

Approval of the proposed amendment is requested by April 1, 2020. Once approved, the amendment shall be implemented coincident with the planned modifications, currently scheduled during the 1R29 refueling outage (spring 2021). Note that approval of this amendment is required before Entergy can request adoption of TSTF-505, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," Revision 2 (Reference 2). The Entergy request to adopt TSTF-505 for ANO-1 is currently planned to occur in the 2020 timeframe.

In accordance with 10 CFR 50.91, Entergy is notifying the State of Arkansas of this amendment request by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Tim Arnold at 479-858-7826.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on March 25, 2019.

Sincerely,

ORIGINAL SIGNED BY MANDY K. HALTER

MKH/dbb

Enclosure: Description and Assessment

Enclosure Attachments:

1. Proposed Technical Specification Changes (Mark-Up)
2. Markup of Technical Specification Bases Pages (Information Only)
3. Revised Technical Specification Pages

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Enclosure to

1CAN031901

Description and Assessment

1.0 SUMMARY DESCRIPTION

The proposed amendment would modify the Arkansas Nuclear One, Unit 1 (ANO-1) Renewed Operating License DPR-51 Technical Specifications (TSs) to remove second completion times consistent with previously NRC-approved Industry/Technical Specifications Task Force (TSTF) Traveler 439 (TSTF-439), Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO" (Reference 1). The requested change does not involve a significant hazards consideration.

2.0 DETAILED DESCRIPTION

2.1 Current TS Requirements

ANO-1 TS 1.3, "Completion Times," discusses the existence and purpose of second Completion Times contained in various specifications. The following specific ANO-1 TS Actions contain a second completion time:

TS	TITLE	REQUIRED ACTIONS	2 ND COMPLETION TIME
3.6.5	Reactor Building Spray and Cooling Systems	A.1, B.1	10 days from discovery of failure to meet the LCO
3.7.5	Emergency Feedwater (EFW) System	A.1, B.1	10 days from discovery of failure to meet the LCO
3.8.1	AC Source – Operating	A.3, B.4	10 days from discovery of failure to meet the LCO
3.8.7	Inverters – Operating	A.1	96 hours from discovery of failure to meet LCO
3.8.9	Distribution Systems – Operating	A.1, B.1, C.1	16 hours from discovery of failure to meet LCO

2.2 Reason for the Proposed Change

The second Completion Time provides a limit on the amount of time that a Limiting Condition for Operation (LCO) could not be met for various combinations of Actions/Conditions. The intent of the second Completion Time was to preclude entry into and out of the Actions of an LCO for an indefinite period of time without ever meeting the LCO. However, this limitation is no longer necessary due to other processes or programs which are effective in minimizing long-term application of LCO Action Completion Times (discussed later). In addition, the second Completion Times are required to be removed prior to a licensee's adoption of TSTF-505, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," Revision 2 (Reference 2). Section 2.2 of TSTF-505 contains a Note which states:

It is necessary to adopt TSTF-439, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO [Limiting Condition for Operation]," in order to adopt TSTF 505 for those Required Actions that are affected by both travelers.

The Entergy request to adopt TSTF-505 for ANO-1 is currently planned to occur in the 2020 timeframe. Note that all of the ANO-1 TS Required Actions listed in Section 2.1 above are affected by TSTF-505.

2.3 Description of the Proposed Change

In addition to removing discussions of the second Completion Time from TS Section 3.1, the following is an example of changes proposed for the remaining specifications listed in Section 2.1 above:

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor building spray train inoperable in MODE 1 or 2.	A.1 Restore reactor building spray train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

The associated TS Bases (included for information in Attachment 2 of this enclosure) are revised to accommodate the proposed change to the subject TSs. The TS Bases changes will be implemented in accordance with TS 5.5.14, "Technical Specification (TS) Bases Control Program" during implementation of the subject TS changes. Note that the ANO-1 inverter TS 3.8.7 Bases does not contain reference to the second Completion Time; therefore, Attachment 2 of this enclosure does not include a TS 3.8.7 Bases page.

2.4 Variations from TSTF-439

The ANO-1 TS governing the Reactor Building Spray System is numbered 3.6.5. The applicable TSTF-439 markup page from NUREG 1430, "Standard Technical Specifications for Babcock & Wilcox Plants," Revision 4, is numbered 3.6.6 and uses the terminology "containment" in lieu of the ANO-1 noun name of "reactor building". In addition, information may be relocated from one TS page to another in order to optimize space usage. While such relocation may involve deletion of unnecessary continuation statements, no technical changes are made when relocating information. Entergy considers these differences to be administrative in nature. Subsequently, TSTF-439 remains applicable to ANO-1 in light of these differences.

The listing of affected ANO-1 TS in Section 2.1 above are consistent with those listed in TSTF-439 with the exception of TS 3.8.7, which TSTF-439 does not include. This is because Revision 4 of NUREG 1430 does not contain a second Completion Time in the respective Inverter TS 3.8.7. The ANO-1 TSs were converted to the NUREG 1430, Revision 1, standard in October 2001. Revision 1 of NUREG 1430 did not contain a second Completion Time for TS 3.8.7. In the Reference 3 Entergy letter dated August 23, 2001 (the 7th letter associated with

conversion to NUREG 1430), Entergy added the subject second Completion Time, although there is no documented discussion regarding the reason for this addition. Nevertheless, removal of this second Completion Time remains consistent with the intent of TSTF-439 and, therefore, is considered appropriate.

3.0 TECHNICAL EVALUATION

As discussed in TSTF-439, Revision 2, the adoption of a second Completion Time was based on an NRC concern that a plant could continue to operate indefinitely with an LCO never being met by alternately meeting the requirements of separate Conditions. At the time, no regulatory requirement or program could be identified that would prevent this misuse of the TS. However, two programs now exist that provide a strong disincentive to continued operation with concurrent multiple inoperabilities for which the second Completion Times were initially designed to prevent.

One of these programs is the 10 CFR 50.65(a)(1) Maintenance Rule which requires each licensee to monitor the performance or condition of structures, systems, and components (SSCs) against licensee-established goals to ensure that the SSCs are capable of fulfilling their intended functions. If the performance or condition of an SSC does not meet established goals, appropriate corrective action is required to be initiated. The NRC monitors the licensee's Corrective Action process and could take action if the licensee's maintenance program permitted the systems required by a single LCO to become concurrently inoperable multiple times. The performance and condition monitoring activities required by 10 CFR 50.65(a)(1) and (a)(2) would identify whether poor maintenance practices resulted in multiple entries into the actions of the LCO and subsequently result in unacceptable unavailability of the SSCs. The effectiveness of the performance monitoring activities and associated corrective actions is evaluated at least every refueling cycle, not to exceed 24 months in accordance with 10 CFR 50.65(a)(3). Because the standard TS Completion Time for one system is not affected by other inoperable equipment, the second Completion Times were adopted as an attempt to influence the Completion Time for one system based on the condition of another system, if the two systems were required by the same LCO. However, 10 CFR 50.65(a)(4) is a superior mechanism for applying such influence as the Maintenance Rule considers all inoperable risk-significant equipment, not just the one or two systems governed by a single LCO.

In accordance with 10 CFR 50.65(a)(4), the risk impact of all inoperable risk-significant equipment is assessed and managed when performing preventative or corrective maintenance. The risk assessments are conducted using the procedures and guidance endorsed by Regulatory Guide (RG) 1.182, "Assessing and Managing Risk before Maintenance Activities at Nuclear Power Plants." RG 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for the conduct of the risk assessments, quantitative and qualitative guidelines for establishing risk management actions, and provide example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and the determination that the proposed maintenance is acceptable. This comprehensive program provides much greater assurance of safe plant operation than the second Completion Times contained in the TS listed in Section 2.1 above.

Another program that acts to prevent indefinite application of a TS LCO is the Reactor Oversight Process (ROP). Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," describes the tracking and reporting of performance indicators to support the NRC ROP. The NEI document is endorsed by Regulatory Issue Summary (RIS) 2001-11, "Voluntary Submission of Performance Indicator Data." NEI 99-02, Section 2.2, describes the Mitigating Systems Cornerstone. NEI 99-02 specifically addresses emergency AC Sources, which encompasses the AC Sources and Distribution System LCOs, and the Emergency (Auxiliary) Feedwater system. Extended unavailability of these systems due to multiple entries into the actions would affect the NRC's evaluation of the licensee's performance under the ROP.

Although the ANO-1 Reactor Building Spray (RBS) system is not included in the above ROP discussion, it is included in the Maintenance Rule. Consistent with TSTF-439, ANO-1 TS 3.6.5, "Reactor Building Spray and Cooling Systems," has a 72-hour Completion Time for one RBS train inoperable (Condition A) and a 7-day Completion Time for one Reactor Building cooling train inoperable (Condition B). Conditions A and B have a second Completion Time of 10 days from discovery of failure to meet the LCO. Condition G also states that if two RBS trains are inoperable or any combination of three or more trains are inoperable, LCO 3.0.3 must be entered immediately. Therefore, the second Completion Time is not needed because 1) at least one RBS train is required to be operable to avoid entry into LCO 3.0.3, 2) any combination of two of the four trains (assuming at least one operable RBS train) can perform the safety function and, 3) adverse combinations require entry into LCO 3.0.3. The second Completion Time restricts operation with only one train inoperable; however, this is unnecessary because three operable trains remain available in this configuration and only two trains are needed to perform the safety function. Therefore, the second Completion Time is overly restrictive.

In addition to the aforementioned programs, a requirement is proposed to be added to Section 1.3 of the TSs that would require licensees to establish administrative controls in order to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls are intended to consider plant risk and limit the maximum contiguous time of failing to meet the LCO. When considered in conjunction with the regulatory processes discussed above, the proposed addition to TS Section 1.3 provides an equivalent or superior level of plant safety without the unnecessary complication of the second Completion Times (with consideration of TSTF-505 as discussed previously).

ANO has procedural guidance for LCO tracking. As part of the implementation process for this TS change, Entergy plans to add statements similar to the following to the appropriate procedure.

It is possible to alternate between TS Conditions in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so is inconsistent with the basis of the Completion Times. Therefore, the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO shall be limited.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.36, "Technical specifications," 10 CFR 50.36(c)(2) 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." The proposed change continues to meet the requirements of this regulation.

10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," ensures that nuclear power plant SSCs will be maintained such that the intended safety functions are met when required. The proposed change does not alter the methods employed at ANO-1 in complying with the requirements of this regulation.

4.2 Precedent

This letter is consistent with Exelon Generation Company, LLC, letter dated November 1, 2018 (ML18305B401), "Application to Revise Technical Specifications to Adopt TSTF-439, 'Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO'," which was accepted by the NRC for review on November 29, 2018 (ML18337A130).

4.3 No Significant Hazards Consideration Analysis

The proposed amendment would modify the Arkansas Nuclear One, Unit 1 (ANO-1) Renewed Operating License DPR-51 Technical Specifications (TSs) to remove second completion times consistent with previously NRC-approved Industry/Technical Specifications Task Force (TSTF) Traveler 439 (TSTF-439), Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO." Entergy Operations, Inc. (Entergy) has concluded that any variations from TSTF-439 are consistent with and meet the intent of the TSTF.

Entergy has evaluated whether or not 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 eliminates certain Completion Times from the TSs. Completion Times are not an initiator to any accident previously evaluated. As a result, the probability of an accident previously evaluated is not affected. The consequences of an accident with respect to the proposed change are no different than the consequences of the same accident when applying the existing Completion Times. As a result, the consequences of an accident previously evaluated are not affected by this change. The proposed change does not alter or prevent the ability of structure, system, or component (SSC) from performing the credited function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed change does not affect the source term,

reactor building isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed change does not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed change is consistent with the safety analysis assumptions and resultant consequences.

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 previously evaluated?

Response: No

The proposed change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing plant operation. The proposed change does not alter any assumptions made in the safety analysis.

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

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

Response: No

The proposed change to delete the second Completion Time does not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by this change. The proposed change will not result in plant operation in a configuration outside of the design basis.

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

Based on the above, Entergy 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.

4.4 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.

5.0 ENVIRONMENTAL EVALUATION

The proposed change 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 change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or 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 change 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 change.

6.0 REFERENCES

1. Letter from Thomas H. Boyce (U.S. NRC) to Technical Specifications Task Force, "Status of TSTF 439, 'Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO'," dated January 11, 2006 (ML0601202720)
2. TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," (ML18183A493)
3. Entergy letter dated August 23, 2001, "Comments on Draft Safety Evaluation and Proposed Final Supplemental for all Sections Relating to the Conversion to Improved Technical Specifications" (TAC No. MA8082) (1CAN080101) (ML012390149, ML012390174, ML012390153)

ATTACHMENTS

1. Proposed Technical Specification Changes (Mark-Up)
2. Markup of Technical Specification Bases Pages (Information Only)
3. Revised Technical Specification Pages

Enclosure Attachment 1 to

1CAN031901

Technical Specification Page Markups

(9 Pages)

1.3 Completion Times

DESCRIPTION (continued)

However, when a subsequent train, subsystem, component, or variable, expressed in the Condition, is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability; and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." ~~Example 1.3-3 illustrates one use of this type of Completion Time. The 10-day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.~~

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
C. One Function X train inoperable. <u>AND</u> One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. <u>OR</u> C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

1.3 Completion Times

EXAMPLES (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended. ~~The Completion Times of Conditions A and B are modified by a logical connector, with a separate 10-day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock." In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.~~

3.6 REACTOR BUILDING SYSTEMS

3.6.5 Reactor Building Spray and Cooling Systems

LCO 3.6.5 Two reactor building spray trains and two reactor building cooling trains shall be OPERABLE.

-----NOTE-----
Only one train of reactor building spray and one train of reactor building cooling are required to be OPERABLE during MODES 3 and 4.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor building spray train inoperable in MODE 1 or 2.	A.1 Restore reactor building spray train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
B. One reactor building cooling train inoperable in MODE 1 or 2.	B.1 Restore reactor building cooling train to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
C. Two reactor building cooling trains inoperable in MODE 1 or 2.	C.1 Restore one reactor building cooling train to OPERABLE status.	72 hours

3.7 PLANT SYSTEMS

3.7.5 Emergency Feedwater (EFW) System

LCO 3.7.5 Two EFW trains shall be OPERABLE.

-----NOTE-----
Only one EFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Turbine driven EFW train inoperable due to one inoperable steam supply.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>Turbine driven EFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days</p> <p>AND</p> <p>10 days from discovery of failure to meet the LCO</p>
<p>B. One EFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.</p>	<p>B.1 Restore EFW train to OPERABLE status.</p>	<p>72 hours</p> <p>AND</p> <p>10 days from discovery of failure to meet the LCO</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3 -----NOTE----- Startup Transformer No. 2 may be removed from service for up to 30 days for preplanned preventative maintenance. This 30 day Completion Time may be applied not more than once in any 10 year period. -----</p> <p>Restore required offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>AND</u></p> <p>10 days from discovery of failure to meet LCO</p>
B. One DG inoperable.	<p>B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.</p> <p><u>OR</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p>

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CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. (continued)</p>	<p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG.</p> <p><u>AND</u></p>	<p>24 hours</p>
	<p>B.4 Restore DG to OPERABLE status.</p>	<p>7 days</p> <p>AND</p> <p>10 days from discovery of failure to meet LCO</p>
<p>C. Two required offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p>
<p>C.2 Restore one required offsite circuit to OPERABLE status.</p>	<p>24 hours</p>	
<p>D. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.6, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any train. -----</p> <p>D.1 Restore required offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore DG to OPERABLE status.</p>	<p>12 hours</p> <p>12 hours</p>
<p>E. Two DGs inoperable.</p>	<p>E.1 Restore one DG to OPERABLE status.</p>	<p>2 hours</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The following inverters shall be OPERABLE.

- a. Two Red Train inverters (Y11 and Y13, Y11 and Y15, or Y13 and Y15), and
- b. Two Green Train inverters (Y22 and Y24, Y22 and Y25, or Y24 and Y25),

-----NOTE-----
One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b may be disconnected from its associated DC bus for ≤ 2 hours to perform load transfer to or from the swing inverter, provided:

- a. The associated 120 VAC bus is energized from its alternate AC source; and
 - b. The other three 120 VAC buses are energized from their associated OPERABLE inverters.
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APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b inoperable.</p>	<p>A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any of the 120 VAC buses RS1, RS2, RS3, or RS4 de-energized. ----- Restore inverter to OPERABLE status.</p>	<p>24 hours <u>AND</u> 96 hours from discovery of failure to meet LCO</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Two AC, DC, and 120 VAC electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystem(s) inoperable.	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
B. One or more 120 VAC electrical power distribution subsystem(s) (RS1, RS2, RS3, RS4) inoperable.	B.1 Restore 120 VAC electrical power distribution subsystem(s) to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
C. One or more DC electrical power distribution subsystem(s) inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
D. Required Action and associated Completion Time 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

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**Markup of Technical Specification Bases Pages
(Information Only)**

(10 Pages)

LCO (continued)

For a Reactor Building Spray Train to be considered OPERABLE, at least one qualified PAM Reactor Building Spray flow indication must be available in the control room (Reference 6). If the Reactor Building Spray Train is considered inoperable solely due to flow indication inoperability, TS 3.0.6 can be invoked using the Safety Function Determination Program, and LCO 3.3.15 can alternately be used for TS compliance in lieu of LCO 3.6.5 Conditions and Required Actions.

The Reactor Building Cooling System includes cooling coils, dampers, axial flow fans, single speed fan motors, instruments, and controls to ensure an OPERABLE flow path.

APPLICABILITY

In MODES 1, 2, 3, and 4, the reactor building OPERABILITY for the limiting Design Basis Accidents is based on full power operation. Although reduced power in the lower MODES would not require the same level of accident mitigation performance, there are no accident analyses for reduced performance in the lower MODES. Since an event could cause a release of radioactive material in the reactor building as well as a temperature and pressure rise, the Reactor Building Spray System and the Reactor Building Cooling System are required to be OPERABLE in MODES 1, 2, 3, and 4.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the Reactor Building Spray System and the Reactor Building Cooling System are not required to be OPERABLE in MODES 5 and 6.

ACTIONS

A.1

With one reactor building spray train inoperable in MODE 1 or 2, the inoperable reactor building spray train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to support the iodine removal and perform the reactor building cooling functions. The 72 hour Completion Time takes into account the redundant heat and iodine removal capability afforded by the OPERABLE reactor building cooling and spray trains, reasonable time for repairs, and the low probability of a DBA occurring during this period.

~~The 10 day portion of the Completion Time for Required Action A.1 is based on the low probability of coincident entry into two Conditions in this LCO coupled with the low probability of an accident occurring during this time. Refer to Section 1.3, Completion Times for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO" portion of the Completion Time.~~

ACTIONS (continued)

B.1

With one of the reactor building cooling trains inoperable in MODE 1 or 2, the inoperable reactor building cooling train must be restored to OPERABLE status within 7 days. The remaining OPERABLE components are capable of providing at least 100% of the heat removal needs after an accident. The 7 day Completion Time takes into account the redundant heat removal capabilities afforded by combinations of the Reactor Building Spray System and Reactor Building Cooling System and the low probability of a DBA occurring during this period.

~~The 10 day portion of the Completion Time for Required Action B.1 is based on the low probability of coincident entry into two Conditions in this LCO coupled with the low probability of an accident occurring during this time. Refer to Section 1.3 for a more detailed discussion of the "from discovery of failure to meet the LCO" portion of the Completion Time.~~

C.1

With two of the reactor building cooling trains inoperable in MODE 1 or 2, one of the reactor building cooling trains must be restored to OPERABLE status within 72 hours. The remaining spray system components (both spray trains are OPERABLE or else Condition G is entered) support iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time takes into account the redundant heat removal capabilities afforded by the Reactor Building Spray System and the low probability of a DBA occurring during this period.

D.1

If the Required Actions and associated Completion Times are not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

E.1

With either one required reactor building (RB) spray train or one required reactor building cooling train inoperable in MODE 3 or 4, the inoperable train must be restored to OPERABLE status in 36 hours. The 36 hour Completion Time is reasonable based on consideration of the cooling capacity of the remaining required train of RB cooling or RB spray, the reduced reactor coolant energy in these MODES, and the short time spent in these MODES.

F.1

If the Required Action and associated Completion Time of Condition E are not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 5 within 36 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required unit conditions in an orderly manner and without challenging unit systems.

APPLICABILITY (continued)

In MODE 4, the EFW system must be OPERABLE when the steam generators are relied upon for decay heat removal since EFW is the safety related source of feedwater to the steam generators. In MODE 4, the steam generators are normally used for heat removal until the DHR system is in operation.

In MODES 5 and 6, the steam generators are not used for DHR and the EFW system is not required.

ACTIONS

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

A.1

With one of the two steam supply paths to the turbine driven EFW pump inoperable, or if the turbine driven EFW pump is inoperable in MODE 3 immediately following refueling, action must be taken to restore the steam supply to OPERABLE status within 7 days. An OPERABLE steam supply path must include an OPERABLE AC-powered steam supply valve (CV-2617 or CV-2667), an OPERABLE DC-powered steam supply valve (CV-2613 or CV-2663), and an OPERABLE DC-powered steam supply bypass valve (CV-2615 or CV-2665). The 7-day Completion Time is reasonable, based on the following reasons:

- a. For the inoperability of a turbine driven EFW pump due to one inoperable steam supply, the 7-day Completion Time is reasonable since there is a redundant steam line for the turbine driven pump and the turbine driven train is still capable of performing its specified safety function for most postulated events.
- b. For the inoperability of the turbine driven EFW pump while in MODE 3 immediately subsequent to a refueling, the 7-day Completion Time is reasonable due to the minimal decay heat levels in this situation.
- c. For both the inoperability of a turbine driven pump due to one inoperable steam supply and an inoperable turbine driven EFW pump while in MODE 3 immediately following a refueling, the 7-day Completion Time is reasonable due to the availability of the redundant OPERABLE EFW pump, and due to the low probability of an event requiring the use of the inoperable turbine driven EFW pump.

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

~~The 10-day Completion Time provides a limitation on the time allowed in this specified Condition after discovery of failure to meet the LCO. The AND connector between 7 days and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.~~

ACTIONS (continued)

A.1 (continued)

Condition A is modified by a Note which limits the applicability of the Condition for an inoperable turbine driven EFW pump in MODE 3 to when the unit has not entered MODE 2 following a refueling. Condition A allows one EFW train to be inoperable for 7 days vice the 72-hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.

B.1

When one of the required EFW trains (pump or flow path) is inoperable in MODE 1, 2, or 3 for reasons other than Condition A, action must be taken to restore the train to OPERABLE status within 72 hours. This Condition includes the loss of two steam supply lines to the turbine driven EFW pump. The 72-hour Completion Time is reasonable, based on the redundant capabilities afforded by the EFW system, time needed for repairs, and the low probability of an event requiring EFW occurring during this time period. ~~The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of required EFW components to be inoperable during any continuous failure to meet this LCO.~~

~~The 10-day Completion Time provides a limitation on the time allowed in this specified Condition after discovery of failure to meet the LCO. The AND connector between 72 hours and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.~~

C.1 and C.2

With the required motor driven EFW train (pump or flow path) inoperable and the turbine driven EFW train inoperable due to one inoperable steam supply, action must be taken to restore the affected equipment to OPERABLE status within 24 hours. With respect to the turbine driven EFW train, an OPERABLE steam supply path must include an OPERABLE AC-powered steam supply valve (CV-2617 or CV-2667), an OPERABLE DC-powered steam supply valve (CV-2613 or CV-2663), and an OPERABLE DC-powered steam supply bypass valve (CV-2615 or CV-2665). Assuming no single active failures when in this condition, the accident (a FWLB or MSLB) could result in the loss of the remaining steam supply to the inoperable turbine driven EFW pump due to the faulted SG. In this condition, the EFW system may no longer be able to meet the required flow to the SGs assumed in the safety analysis.

The 24-hour Completion Time is reasonable based on the remaining OPERABLE steam supply to the affected turbine driven EFW pump and the low probability of an event occurring that would require the inoperable steam supply to be available for the affected turbine driven EFW pump.

D.1 and D.2

When Required Action A.1, B.1, C.1, or C.2 cannot be met within the required 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 18 hours.

ACTIONS (continued)

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

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

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

A.3

With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72-hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

~~The second Completion Time for Required Action A.3 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DG is inoperable and that DG is subsequently returned OPERABLE, the LCO may already have been not met for up to 7 days. This could lead to a total of 10 days, since initial failure to meet the LCO, to restore the offsite circuit. At this time, a DG could again become inoperable, the circuit restored OPERABLE, and an additional 7 days (for a total of 17 days) allowed prior to complete restoration of the LCO. The 10-day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between the 72-hour and 10-day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.~~

~~As in Required Action A.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition A was entered.~~

ACTIONS (continued)

B.4 (continued)

~~The second Completion Time for Required Action B.4 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable and that circuit is subsequently restored OPERABLE, the LCO may already have been not met for up to 72 hours. This could lead to a total of 10 days, since initial failure to meet the LCO, to restore the DG. At this time, an offsite circuit could again become inoperable, the DG restored OPERABLE, and an additional 72 hours (for a total of 13 days) allowed prior to complete restoration of the LCO. The 10-day Completion Time provides a limit on time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Condition A and Condition B are entered concurrently. The "AND" connector between the 7-day and 10-day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.~~

~~As in Required Action B.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition B was entered.~~

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that a Completion Time of 24 hours is allowed for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains.

ACTIONS (continued)

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable; and
- b. A required feature is inoperable.

If at any time during the existence of Condition C (two offsite circuits inoperable) a required feature becomes inoperable, this Completion Time begins to be tracked. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of abnormalities; and
- b. Adequate core cooling is provided, and reactor building OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems – Shutdown."

ACTIONS

A.1

With one or more required AC electrical power distribution subsystems inoperable, the remaining OPERABLE portions of the AC electrical power distribution subsystem(s) may be capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ES functions not being supported. Therefore, the required AC buses, load centers, and motor control centers must be restored to OPERABLE status within 8 hours.

Condition A worst case scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8-hour time limit before requiring a unit shutdown in this Condition is acceptable because of:

- a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train to the actions associated with taking the unit to shutdown within this time limit; and
- b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

~~The second Completion Time for Required Action A.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DC bus is inoperable and subsequently restored OPERABLE, the LCO may already have been not met for up to 8 hours. This could lead to a total of 16 hours, since initial failure of the LCO, to restore the AC distribution system. At this time, a DC circuit could again become inoperable, and AC distribution restored OPERABLE. This could continue indefinitely.~~

ACTIONS (continued)

A.1 (continued)

~~The Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time the LCO was initially not met, instead of the time Condition A was entered. The 16-hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.~~

B.1

With one or more 120 VAC bus electrical power distribution subsystems inoperable, the remaining OPERABLE portions of the 120 VAC bus subsystem(s) may be capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum ES functions not being supported. Therefore, the 120 VAC bus subsystem(s) must be restored to OPERABLE status within 8 hours by powering the affected bus(es) from the associated inverter via inverted DC or from its alternate AC source.

Condition B represents one or more 120 VAC bus subsystem(s) without power; potentially both the DC source and the associated alternate AC source are nonfunctioning. In this situation the unit is significantly more vulnerable to a complete loss of all un-interruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining bus subsystem(s) and restoring power to the affected bus subsystem(s). The loss of any RS-panel requires entry into Condition B.

This 8-hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have the Required Action Completion Times shorter than 8 hours if declared inoperable, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue;
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train; and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 8-hour Completion Time takes into account the importance to safety of restoring the 120 VAC bus subsystem(s) to OPERABLE status, the redundant capability afforded by the other OPERABLE bus subsystem, and the low probability of a DBA occurring during this period.

ACTIONS (continued)

B.1 (continued)

~~The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an AC bus is inoperable and subsequently returned OPERABLE, the LCO may already have been not met for up to 8 hours. This could lead to a total of 16 hours, since initial failure of the LCO, to restore the 120 VAC bus subsystem(s). At this time, an AC train could again become inoperable, and 120 VAC bus subsystem(s) restored to OPERABLE. This could continue indefinitely.~~

~~This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time the LCO was initially not met, instead of the time Condition B was entered. The 16-hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.~~

C.1

With one or more DC subsystems inoperable, the remaining OPERABLE portions of the DC electrical power distribution subsystems may be capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ES functions not being supported. Therefore, the DC buses must be restored to OPERABLE status within 8 hours by powering the bus from the associated battery or one of the two associated chargers.

Condition C represents one or more DC subsystem(s) without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

This 8-hour limit is more conservative than Completion Times allowed for the vast majority of components that are without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 8 hours, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue;
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions to restore power to the affected train; and
- c. The potential for an event in conjunction with a single failure of a redundant component.

ACTIONS (continued)

C.1 (continued)

~~The second Completion Time for Required Action C.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition C is entered while, for instance, an AC bus is inoperable and subsequently returned OPERABLE, the LCO may already have been not met for up to 8 hours. This could lead to a total of 16 hours, since initial failure of the LCO, to restore the DC distribution system. At this time, an AC train could again become inoperable and DC distribution restored OPERABLE. This could continue indefinitely.~~

~~This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time the LCO was initially not met, instead of the time Condition C was entered. The 16-hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.~~

D.1 and D.2

If the inoperable distribution 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 and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

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. 3). 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 are available to provide 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.

E.1

Condition E corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

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Revised Technical Specification Pages
(9 Pages)

1.3 Completion Times

DESCRIPTION (continued)

However, when a subsequent train, subsystem, component, or variable, expressed in the Condition, is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability; and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours
C. One Function X train inoperable. <u>AND</u> One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. <u>OR</u> C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

1.3 Completion Times

EXAMPLES (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended.

3.6 REACTOR BUILDING SYSTEMS

3.6.5 Reactor Building Spray and Cooling Systems

LCO 3.6.5 Two reactor building spray trains and two reactor building cooling trains shall be OPERABLE.

-----NOTE-----
Only one train of reactor building spray and one train of reactor building cooling are required to be OPERABLE during MODES 3 and 4.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor building spray train inoperable in MODE 1 or 2.	A.1 Restore reactor building spray train to OPERABLE status.	72 hours
B. One reactor building cooling train inoperable in MODE 1 or 2.	B.1 Restore reactor building cooling train to OPERABLE status.	7 days
C. Two reactor building cooling trains inoperable in MODE 1 or 2.	C.1 Restore one reactor building cooling train to OPERABLE status.	72 hours

3.7 PLANT SYSTEMS

3.7.5 Emergency Feedwater (EFW) System

LCO 3.7.5 Two EFW trains shall be OPERABLE.

-----NOTE-----
Only one EFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Turbine driven EFW train inoperable due to one inoperable steam supply.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>Turbine driven EFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days</p>
<p>B. One EFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.</p>	<p>B.1 Restore EFW train to OPERABLE status.</p>	<p>72 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3 -----NOTE----- Startup Transformer No. 2 may be removed from service for up to 30 days for preplanned preventative maintenance. This 30 day Completion Time may be applied not more than once in any 10 year period. -----</p> <p>Restore required offsite circuit to OPERABLE status.</p>	72 hours
B. One DG inoperable.	<p>B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG.</p> <p><u>AND</u></p> <p>B.4 Restore DG to OPERABLE status.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p>24 hours</p> <p>7 days</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two required offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one required offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p>
<p>D. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.6, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any train. -----</p> <p>D.1 Restore required offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore DG to OPERABLE status.</p>	<p>12 hours</p> <p>12 hours</p>
<p>E. Two DGs inoperable.</p>	<p>E.1 Restore one DG to OPERABLE status.</p>	<p>2 hours</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The following inverters shall be OPERABLE.

- a. Two Red Train inverters (Y11 and Y13, Y11 and Y15, or Y13 and Y15), and
- b. Two Green Train inverters (Y22 and Y24, Y22 and Y25, or Y24 and Y25),

-----NOTE-----
One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b may be disconnected from its associated DC bus for ≤ 2 hours to perform load transfer to or from the swing inverter, provided:

- a. The associated 120 VAC bus is energized from its alternate AC source; and
 - b. The other three 120 VAC buses are energized from their associated OPERABLE inverters.
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APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b inoperable.</p>	<p>A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any of the 120 VAC buses RS1, RS2, RS3, or RS4 de-energized. ----- Restore inverter to OPERABLE status.</p>	<p>24 hours</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Two AC, DC, and 120 VAC electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystem(s) inoperable.	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
B. One or more 120 VAC electrical power distribution subsystem(s) (RS1, RS2, RS3, RS4) inoperable.	B.1 Restore 120 VAC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
C. One or more DC electrical power distribution subsystem(s) inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering Mode 4. ----- Be in MODE 4.	12 hours