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**Advanced Passive 1000 (AP1000)  
Generic Technical Specification Traveler (GTST)**

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**Title: Changes Related to LCO 3.0, Limiting Condition for Operation (LCO) Applicability**

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**I. Technical Specifications Task Force (TSTF) Travelers, Approved Since Revision 2 of STS NUREG-1431, and Used to Develop this GTST**

**TSTF Number and Title:**

TSTF-006-A, Rev 1, Add Exception for LCO 3.0.7 to LCO 3.0.1  
TSTF-071-A, Rev 2, Add Example of SFDP to the 3.0.6 Bases  
TSTF-122-A, Rev 0, Revise LCO 3.0.2 Bases to Remove Possible Confusion  
TSTF-165-A, Rev 0, Revise the LCO 3.0.5 Bases to Refer to Testing and Not SRs  
TSTF-166-A, Rev 0, Correct Inconsistency between LCO 3.0.6 and the SFDP Regarding Performance of an Evaluation  
TSTF-273-A, Rev 2, SFDP Clarifications  
TSTF-359-A, Rev 9, Increase Flexibility in MODE Restraints  
TSTF-372-A, Rev 4, Addition of LCO 3.0.9, Inoperability of Snubbers  
TSTF-427-A, Rev 2, Allowance for Non-Technical Specification Barrier Degradation on Supported System OPERABILITY  
TSTF-482-A, Rev 0, Correct LCO 3.0.6 Bases  
TSTF-494-T, Rev 1, Correct Bases Discussion of Figure B3.0-1

**STS NUREGs Affected:**

TSTF-006-A, Rev 1: NUREGs 1430 and 1431  
TSTF-071-A, Rev 2: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-122-A, Rev 0: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-165-A, Rev 0: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-166-A, Rev 0: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-273-A, Rev 2: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-359-A, Rev 9: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-372-A, Rev 4: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-427-A, Rev 2: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-482-A, Rev 0: NUREGs 1430, 1431, 1432, 1433, and 1434  
TSTF-494-T, Rev 1: NUREGs 1430, 1431, 1432, 1433, and 1434

**NRC Approval Date:**

TSTF-006-A, Rev 1: 01-Feb-96  
TSTF-071-A, Rev 2: 27-Oct-98  
TSTF-122-A, Rev 0: 13-Mar-97  
TSTF-165-A, Rev 0: 02-May-97  
TSTF-166-A, Rev 0: 02-May-97  
TSTF-273-A, Rev 2: 16-Aug-99  
TSTF-359-A, Rev 9: 12-May-03  
TSTF-372-A, Rev 4: 27-Apr-05  
TSTF-427-A, Rev 2: 03-Oct-06  
TSTF-482-A, Rev 0: 06-Dec-05

TSTF-494-T, Rev 1: 18-May-06

**TSTF Classification:**

TSTF-006-A, Rev 1: Consistency/Standardization  
TSTF-071-A, Rev 2: Improve Specifications  
TSTF-122-A, Rev 0: Change Bases  
TSTF-165-A, Rev 0: Change Bases  
TSTF-166-A, Rev 0: Correct Specifications  
TSTF-273-A, Rev 2: Correct Specifications  
TSTF-359-A, Rev 9: Technical Change  
TSTF-372-A, Rev 4: Technical Change  
TSTF-427-A, Rev 2: Technical Change  
TSTF-482-A, Rev 0: Bases Only Change  
TSTF-494-T, Rev 1: Bases Only Change

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**II. Reference Combined License (RCOL) Standard Departures (Std. Dep.), RCOL COL Items, and RCOL Plant-Specific Technical Specifications (PTS) Changes Used to Develop this GTST**

**RCOL Std. Dep. Number and Title:**

There are no Vogtle Electric Generating Plant Units 3 and 4 (Vogtle or VEGP) departures applicable to GTS LCO 3.0.

**RCOL COL Item Number and Title:**

There are no Vogtle COL items applicable to GTS LCO 3.0.

**RCOL PTS Change Number and Title:**

VEGP LAR DOC A005: Editorial Corrections  
VEGP LAR DOC L05: Deletion of LCO 3.0.8

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### **III. Comments on Relations Among TSTFs, RCOL Std. Dep., RCOL COL Items, and RCOL PTS Changes**

This section discusses the considered changes that are: (1) applicable to operating reactor designs, but not to the AP1000 design; (2) already incorporated in the GTS; or (3) superseded by another change.

DOC L05 deletes GTS LCO 3.0.8. TSTF-372-A, Rev. 4, and TSTF-427-A, Rev. 2, each add a new LCO 3.0 subsection, which are subsequently numbered as LCO 3.0.8 and LCO 3.0.9.

TSTF-006-A, Rev. 1, was incorporated into Revision 2 of the STS NUREG series. Revision 2 of NUREG-1431 is the reported basis for the AP1000 GTS. However, TSTF-006 was not included in the AP1000 GTS and it appears that TSTF-006 should be included because it provides an appropriate exception for LCO 3.0.7. This is also consistent with DOC A005.

TSTF-071-A, Rev. 2 and TSTF-494-T, Rev. 1 are intentionally not adapted by AP1000 GTS. The Bases examples are not considered to be helpful, especially given the plant-specific details provided in procedures. Since neither issued COL Bases for VEGP or V.C. Summer include this portion of the Bases, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COL Bases.

TSTF-166-A, Rev. 0 and TSTF-273-A, Rev. 2 were incorporated in Revision 2 of the WOG ISTS. Therefore, it was expected that these two TSTFs would have been incorporated into the AP1000 GTS. However, TSTF-166-A has not been included in the AP1000 GTS, whereas, TSTF-273-A was included. TSTF-166-A notes the inconsistency between LCO 3.0.6, the SFDP, and the LCO 3.0.6 Bases. This is corrected by explicitly requiring an evaluation in accordance with the SFDP in LCO 3.0.6; rather than the GTS statement that "additional evaluations may be required." Incorporating TSTF-166-A into the AP1000 STS would make the AP1000 STS consistent with all of the current STS (NUREGs 1430 through 1434). Note that TSTF-273-A was incorrectly incorporated into the last sentence of the Bases for GTS LCO 3.0.6. This GTST revision corrects the error.

TSTF-122-A, Rev. 0, was incorporated into Revision 2 of the STS NUREG series. Revision 2 of NUREG-1431 is the reported basis for the AP1000 GTS. However, TSTF-122 was not included in the AP1000GTS and it appears that TSTF-122 should be included because it provides clarification for the LCO 3.0.2 Bases discussion.

The justification for TSTF-359 is based on vendor-specific evaluations. For Westinghouse plants, that evaluation is in MUHP-3015, "Qualitative Risk Assessment Supporting Increased Flexibility in Mode Restraints," January 2002. This report evaluated "the key plant changes that occur during the Mode changes so it is possible to identify the initiating events that can occur and systems available for event detection, actuation, and mitigation." It also considered initiating events and equipment available to mitigate those events. Based on that evaluation, Notes were proposed for several systems to prohibit the use of LCO 3.0.4.b. These Notes were applied to LTOP, ECCS-Shutdown, AFW, and AC Sources - Operating. TSTF-359-A also removed existing Notes from the ISTS and revised SR 3.0.4. There is no technical basis for concluding that the analysis performed in support of TSTF-359-A and the high-risk configurations addressed by the Notes are applicable to AP1000 plants. TSTF-359-A is not implemented by this GTST and is deferred for future consideration.

TSTF-372-A adds LCO 3.0.8, which provides a delay time in declaring a supported system inoperable when a required snubber cannot perform its function. It is a risk-informed change, which evaluated a loss of offsite power due to a seismic event. This analysis (both system configuration and assumed limiting earthquake frequencies) may not be applicable to the AP1000. Therefore, TSTF-372-A is deferred for future consideration.”

TSTF-427-A adds LCO 3.0.9, which provides a delay time in declaring a supported system inoperable when a barrier cannot perform its function. It is a risk-informed change, which evaluated a number of initiators (LOCA, HELB, RCP seal failures, feedline and steamline breaks, flooding, turbine missile, tornados). This analysis may not be applicable to the AP1000. Therefore, TSTF-427-A is deferred for future consideration.”

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**IV. Additional Changes Proposed as Part of this GTST (modifications proposed by NRC staff and/or clear editorial changes or deviations identified by preparer of GTST)**

APOG Recommended Changes to Improve the Specifications and Bases

Revise the fifth paragraph of the LCO 3.0.2 Bases to correctly implement TSTF-122-A:

**“Additionally, if intentional entry into ACTIONS Alternatives that** would ~~not~~ result in redundant equipment being inoperable, **alternatives** should be used instead.”

Revise the last sentence of the LCO 3.0.6 Bases to correct a typographical error made while incorporating TSTF-273:

“When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported **ed** system.”

There is an editorial error in LCO 3.0.2, first paragraph, third line, where the word “LCO” should be added before “3.0.6.” Adding “LCO” would be consistent with NUREG-1431.

Change “test” to “testing” in the last sentence of LCO 3.0.5 to be consistent with the first sentence. This is consistent with NUREG-1431.

In the Bases for LCO 3.0.1, add a coma after “i.e.” for editorial correctness.

In the Bases for LCO 3.0.2, capitalize “specification” in the last line of the first paragraph. This is consistent with Specification being a capitalized term.

In the Bases for LCO 3.0.3, make the following revisions for editorial correctness:

- First paragraph, remove the semicolon after “met”
- Fifth paragraph, first line, remove the word “into”
- Sixth paragraph, remove the coma after “terminated”
- Last two paragraphs labeled “a.” and “b.” should be ended in a semicolon, not a period

The shutdown and cooldown for compliance with TS can/will utilize normal plant operating systems, which are nonsafety-related systems and not governed by TS LCOs. Revise the LCO 3.0.3 Bases to clarify that compliance with Actions of LCO 3.0.3 do not depend solely on use of safety-related or TS-required systems:

“. . . less than the total time allowed. **Compliance with the time limits of Specification 3.0.3 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 . . .”

In the Bases for LCO 3.0.3, make the following revisions for editorial correctness:

- Second paragraph, first line, change “Specification 3.0.3” to “LCO 3.0.3”
- Last paragraph, first line, change “Exceptions to 3.0.3” to “Exceptions to LCO 3.0.3”
- Last paragraph, second line, delete the comma after “LCO 3.0.3”

In the Bases for LCO 3.0.3, delete the last sentence of the third paragraph which states, "In MODES 5 and 6, LCO 3.0.8 provides actions for Conditions not covered in other Specifications." LCO 3.0.8 has been deleted.

Change "results" to "result" the third paragraph, fifth line of the Bases for LCO 3.0.4 for editorial correctness.

Change "allowance of restoring" to "allowance for restoring" in the first paragraph, first sentence of the Bases for LCO 3.0.5 for editorial correctness. Change "specification" to "Specification" in the fourth paragraph, fourth line of the Bases for LCO 3.0.5 for editorial correctness.

Revise the sixth paragraph of the LCO 3.0.6 Bases to add a factual statement ("There are no support system LCO requirements for offsite power based on the safety-related passive design"). This clarifies the preceding mention that operations are being restricted in accordance with the Actions of the support system.

Delete the LCO 3.0.6 Bases statement in the last paragraph retained from the NUREG-1431 Bases that cites "pump suction" as an example of a TS support system. This example is not applicable to the passive AP1000 design. Deleting this TS Bases example has no impact on compliance with the TS requirements:

" . . . (e.g., loss of automatic start due to inoperable instrumentation, ~~or loss of pump suction source due to low tank level~~) . . . "

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**V. Applicability****Affected Generic Technical Specifications and Bases:**

Section 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

**Changes to the Generic Technical Specifications and Bases:**

AP1000 LCO 3.0.8 is deleted. LCO 3.0.8.a imposes a “restore” action, but does not include a stated completion time. This action duplicates the “restore” action already imposed in various Mode 5 or 6 Specifications, and for these Specifications does not provide any additional safety benefit. (DOC L05)

LCO 3.0.1 is updated to reflect an exception for LCO 3.0.7. This change completes Revision 0 change NRC-03, C.5 which added STS LCO 3.0.7 to address test exception LCOs and was omitted by the original change. (DOC A005 and TSTF-006-A)

LCO 3.0.1 Bases are revised for editorial correctness. (APOG Comment)

LCO 3.0.2 is revised to be consistent with NUREG-1431. (APOG Comment)

LCO 3.0.2 Bases are revised to clarify the discussion regarding intentional entry into Actions. This is a basic editorial change to clarify the concept. (TSTF-122-A)

LCO 3.0.2 Bases are revised to capitalize “specification” in the last line of the first paragraph for consistency. (APOG Comment)

LCO 3.0.3 Bases are revised for editorial correctness and for consistency with NUREG-1431. (APOG Comment and NRC Staff Edit)

LCO 3.0.4 Bases are revised for editorial correctness. (APOG Comment)

LCO 3.0.5 is revised to be consistent with NUREG-1431. (APOG Comment)

LCO 3.0.5 Bases are revised for editorial correctness. (APOG Comment)

The Bases of LCO 3.0.5 are revised to consistently refer to “required testing.” (TSTF-165-A)

LCO 3.0.6 Specification is revised to specifically require an evaluation in accordance with the SFDP; rather than the GTS statement that “additional evaluations may be required.” There is an inconsistency between LCO 3.0.6, the SFDP, and the LCO 3.0.6 Bases. (TSTF-166-A)

LCO 3.0.6 Bases are corrected to be consistent with the statements in LCO 3.0.6. This is a basic editorial change to clarify the concept. (TSTF-482-A)

LCO 3.0.6 Bases are corrected to be consistent with the prior implementation of TSTF-273-A. (APOG Comment)

LCO 3.0.6 Bases sixth paragraph is revised to add a factual statement regarding offsite power support systems. (APOG Comment)



LCO 3.0.6 Bases last paragraph is revised to delete an example of a TS support system that is not applicable to the AP1000 design. (APOG Comment and NRC Staff Edit)

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## **VI. Traveler Information**

### **Description of TSTF changes:**

LCO 3.0.7 is added to address test exception LCOs in the list of LCO 3.0.1 exceptions per TSTF-006-A, Rev. 1.

Two sentences in the AP1000 GTS LCO 3.0.2 Bases are revised by TSTF-122-A, Rev. 0 from:

Alternatives that would not result in redundant equipment being inoperable should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time other conditions could exist which result in LCO 3.0.3 being entered.

to:

Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time conditions could exist which may result in LCO 3.0.3 being entered.

The LCO 3.0.5 Bases are revised by TSTF-165-A to consistently use the phrase “required testing” or the word “testing” instead of “SR” or “Surveillance Requirement.”

The LCO 3.0.6 Bases are revised from “LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS)” to “LCO 3.0.6 establishes an exception to LCO 3.0.2 for supported systems that have a support system LCO specified in the Technical Specifications (TS).”

LCO 3.0.6 Specification is revised by TSTF-166-A, Rev. 0 to require an evaluation in accordance with the Safety Function Determination Program (SFDP).

Also, two editorial corrections are made to the LCO 3.0.6 Bases by TSTF-482-A, Rev. 0 to make the sentences grammatically correct.

### **Rationale for TSTF changes:**

LCO 3.0.7 was inadvertently omitted by the STS Revision 0 change (NRC-03, C.5) that added LCO 3.0.7 regarding test exception LCOs. LCO 3.0.1 in the CEOG, BWR-4, and BWR-6 STS included a reference to LCO 3.0.7 as part of change NRC-03, C.5. Applying TSTF-006-A, Rev. 1 corrects this oversight.

The original wording of LCO 3.0.2 is confusing because it begins to discuss inoperability of redundant equipment without introducing the topic. This topic of inoperable redundant equipment seems to be more appropriate for the Bases of LCO 3.0.3, but an appropriate discussion is already provided there. The proposed wording in TSTF-122-A, Rev. 0 retains the intent while presenting the material in the appropriate context of LCO 3.0.2.

TSTF-166-A, Rev. 0 addresses the fact that the Bases for LCO 3.0.5 inconsistently uses the term “SRs” instead of “testing.” The change is necessary to address required testing to demonstrate operability that is not a Surveillance.

TSTF-166-A, Rev. 0 identifies an inconsistency between LCO 3.0.6, the SFDP, and the LCO 3.0.6 Bases. GTS LCO 3.0.6 Specification does not explicitly require an evaluation in accordance with the SFDP; rather it states that additional evaluations may be required. In addition, because LCO 3.0.6 now states that the evaluation shall be done in accordance with the SFDP and the SFDP states that other appropriate actions may be taken, there is no need for the statement “additional . . . limitations may be required” in LCO 3.0.6.

**Description of changes in RCOL Std. Dep., RCOL COL Item(s), and RCOL PTS Changes:**

DOC A005 revises LCO 3.0.1 to include an exception for LCO 3.0.7.

DOC L05 eliminates AP1000 GTS LCO 3.0.8.

A more detailed description of the changes by each of the above DOCs can be found in Reference 2, VEGP TSU LAR in Enclosure 1; the NRC staff safety evaluation can be found in Reference 3, VEGP LAR SER. The VEGP TSU LAR was modified in response to NRC staff RAIs (Reference 9) by Southern Nuclear Operating Company’s RAI Response in Reference 10.

**Rationale for changes in RCOL Std. Dep., RCOL COL Item(s), and RCOL PTS Changes:**

The intent of LCO 3.0.7 is to provide an exception to LCO 3.0.1.

DOC L05 notes that the considerations of GTS LCO 3.0.8 are adequately addressed within individual LCOs that reference LCO 3.0.8 or by TS 5.4.1.b to Monitor Safety System Shutdown Monitoring Trees parameters.

**Description of additional changes proposed by NRC staff/preparer of GTST:**

The fifth paragraph of the LCO 3.0.2 Bases is revised to state:

“**Additionally, if intentional entry into ACTIONS Alternatives that** would ~~not~~ result in redundant equipment being inoperable, **alternatives** should be used instead.” (APOG Comment)

The last sentence of the LCO 3.0.6 Bases is revised to state:

“When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported **ed** system.” (APOG Comment)

The word “LCO” is added before “3.0.6” in the first paragraph of the LCO 3.0.2 Specification. (APOG Comment)

The word “test” is revised to “testing” in the last sentence of LCO 3.0.5 to be consistent with the first sentence. (APOG Comment)

A coma is added after “i.e.” in the Bases for LCO 3.0.1. (APOG Comment)

The word “specification” in the last line of the first paragraph is capitalized In the Bases for LCO 3.0.2. (APOG Comment)

The following revisions are implemented in the Bases for LCO 3.0.3:

- First paragraph, remove the semicolon after “met”
- Fifth paragraph, first line, remove the word “into”
- Sixth paragraph, remove the coma after “terminated”
- Last two paragraphs labeled “a.” and “b.” should be ended in a semicolon, not a period. The paragraph labeled “b.” ends with “; or”, in conformance with WG paragraph 2.1.3.c, and WOG STS Rev. 4, except that the WOG STS uses commas instead of semicolons. (APOG Comment and NRC Staff Edit)

The LCO 3.0.3 Bases are revised to state:

“. . . 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 . . .” (APOG Comment and NRC Staff Edit)

The following revisions are implemented in the Bases for LCO 3.0.3:

- Second paragraph, first line, change “Specification 3.0.3” to “LCO 3.0.3”
- Last paragraph, first line, change “Exceptions to 3.0.3” to “Exceptions to LCO 3.0.3”
- Last paragraph, second line, add a comma after “shutdown” (APOG Comment and NRC Staff Edit)

The last sentence of the third paragraph of the Bases for LCO 3.0.3 is deleted. (APOG Comment)

The word “results” is revised to “result” in the third paragraph, fifth line of the Bases for LCO 3.0.4. (APOG Comment)

The phrase “allowance of restoring” is revised to “allowance for restoring” in the first paragraph, first sentence of the Bases for LCO 3.0.5. In addition, the word “specification” is revised to “Specification” in the fourth paragraph, fourth line of the Bases for LCO 3.0.5. (APOG Comment)

The sixth paragraph of the LCO 3.0.6 Bases statement is revised to add a factual statement:

**“There are no support system LCO requirements for offsite power based on the safety-related passive design.”** (APOG Comment)

The last paragraph of the LCO 3.0.6 Bases statement is revised to delete “pump suction” as an example of a TS support system:

“. . . (e.g., loss of automatic **actuation capability** ~~start~~ due to inoperable instrumentation, ~~or loss of pump suction source due to low tank level~~) . . .” (APOG Comment and NRC Staff Edit)

**Rationale for additional changes proposed by NRC staff/preparer of GTST:**

The revision to the LCO 3.0.2 Bases corrects errors in the implementation of TSTF-122-A.

The revision to the LCO 3.0.6 Bases correctly implements the previous adaption of TSTF-273-A.

Adding "LCO" in LCO 3.0.2, is consistent with NUREG-1431.

The revision to LCO 3.0.5 is consistent with NUREG-1431.

The revision to the Bases for LCO 3.0.1 corrects an editorial error.

The revision to the Bases for LCO 3.0.2 provides consistency.

The revision to the Bases for LCO 3.0.3 corrects several editorial errors and provides consistency with NUREG-1431. In addition, LCO 3.0.8 has been eliminated.

The revision to the Bases for LCO 3.0.4 corrects an editorial error.

The revisions to the Bases for LCO 3.0.5 correct an editorial errors.

The revisions to the LCO 3.0.6 Bases are appropriate clarifications to reflect the AP1000 passive design.

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## VII. GTST Safety Evaluation

### Technical Analysis:

#### TSTF-166-A

LCO 3.0.6 Specification is revised to explicitly require an evaluation per the SFDP by deleting the statement, “additional evaluations and limitations may be required” and replacing it with the statement, “an evaluation shall be performed.” This is necessary due to an inconsistency between LCO 3.0.6, the SFDP, and the LCO 3.0.6 Bases. As written, GTS LCO 3.0.6 does not explicitly require an evaluation in accordance with the SFDP; rather, it states that additional evaluations may be required.

The required actions for specified support systems, though adequate when no other safety systems are inoperable, usually do not consider the possibility that other specified safety systems (both support and supported) in the redundant train are inoperable. If a system in one train is already inoperable when a support system in the opposite train becomes inoperable, a loss of function condition may exist. Accordingly, LCO 3.0.6 requires an evaluation for this condition in accordance with the SFDP whenever a support system LCO is not met.

#### TSTF-273-A

TSTF-273-A was incorrectly incorporated into the last sentence of the Bases for GTS LCO 3.0.6. The reference should be to the “LCO for the supported system” and not the “LCO for the support system.” This revision corrects a misstatement of fact and is therefore acceptable.

#### TSTF-482-A

LCO 3.0.6 states, “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.”

However, the LCO 3.0.6 Bases states “LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS).” The Bases also do not specify that this is only true if the support system has an LCO in the TS. This is inconsistent with the Specification and incorrect.

LCO 3.0.2 states that when an LCO is not met, the Conditions and Required Actions must be entered. LCO 3.0.6 requires entering the Conditions and Required Actions for support systems when those support systems have an LCO in the TS. This change makes the Bases consistent with the TS.

The LCO 3.0.6 Bases are revised to add a factual statement regarding offsite power support systems for the AP1000. This revision is an appropriate clarification to reflect the AP1000 passive design and is therefore acceptable.

The remaining changes are editorial, clarifying, grammatical, or otherwise considered administrative. These changes do not affect the technical content, but improve the readability, implementation, and understanding of the requirements, and are therefore acceptable.

Having found that this GTST’s proposed changes to the GTS and Bases are acceptable, the NRC staff concludes that AP1000 STS Subsection LCO 3.0 is an acceptable model Specification for the AP1000 standard reactor design.

**References to Previous NRC Safety Evaluation Reports (SERs):**

None

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## VIII. Review Information

### Evaluator Comments:

None

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### Review Information:

Availability for public review and comment on Revision 0 of this traveler approved by NRC staff on 6/6/2014.

### APOG Comments (Ref. 7) and Resolutions:

1. (Internal # 6) The GTST sections often repeat VEGP LAR DOCs, which reference “existing” and “current” requirements. The inclusion in the GTST of references to “existing” and “current,” are not always valid in the context of the GTS. Each occurrence of “existing” and “current” should be revised to be clear and specific to GTS, MTS, or VEGP COL TS (or other), as appropriate. Noted ambiguities are corrected in the GTST body.
2. (Internal # 7) Section VII, GTST Safety Evaluation, inconsistently completes the subsection “References to Previous NRC Safety Evaluation Reports (SERs)” by citing the associated SE for VEGP 3&4 COL Amendment 13. It is not clear whether there is a substantive intended difference when omitting the SE citation. This is resolved by removing the SE citation in Section VII of the GTST and ensuring that appropriate references to the consistent citation of this reference in Section X of the GTST are made.
3. (Internal # 9) TSTF-071-A, Rev. 2, was incorporated in Revision 2 of the WOG NUREG; however, TSTF-071-A was not included in the AP1000 GTS. This Bases-only change is generally not adopted by most plant-specific ISTS conversions (for example, it is currently not in VEGP Units 1 and 2 Bases). The Bases examples are not considered to be helpful, especially given the plant-specific details provided in procedures. Since neither issued COL Bases for VEGP or V.C. Summer include this portion of the Bases, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COL Bases. Similarly, TSTF-494 is not appropriate to be included. Remove TSTF-071 and TSTF-494 from GTST. This is resolved by removing the changes implemented by TSTF-071 and TSTF-494 from the GTST.
4. (Internal # 10) TSTF-165 made several changes to the LCO 3.0.5 Bases, which are not incorporated in the AP1000 GTS, and not evaluated in the GTST. Generally, TSTF-165 replaces the phrase “Surveillance Requirements” or “SRs” with “required testing.” This change corrects an inconsistency with LCO 3.0.5. This is resolved by incorporating TSTF-165 into the GTST.
5. (Internal # 11) The GTST incorporates TSTF-359-A, Rev. 9. The justification for TSTF-359 was based on vendor-specific evaluations. For Westinghouse plants, that evaluation was in



MUHP-3015, "Qualitative Risk Assessment Supporting Increased Flexibility in Mode Restraints," January 2002. This report evaluated "the key plant changes that occur during the Mode changes so it is possible to identify the initiating events that can occur and systems available for event detection, actuation, and mitigation." It also considered initiating events and equipment available to mitigate those events. Based on that evaluation, Notes were proposed for several systems to prohibit the use of LCO 3.0.4.b. These Notes were applied to LTOP, ECCS-Shutdown, AFW, and AC Sources - Operating. TSTF-359-A also removed existing Notes from the ISTS and revised SR 3.0.4. There is no technical basis for concluding that the analysis performed in support of TSTF-359-A and the high-risk configurations addressed by the Notes are applicable to AP1000 plants. Remove TSTF-359-A from the GTST. Include TSTF-359-A in the reference disposition tables, as "TSTF deferred for future consideration"

Note: also reinstate LCO 3.0.4 "not applicable" Notes deleted in various Specifications as a result of incorporating TSTF-359. This is resolved by reversing all changes implemented by the initial application of TSTF-359-A to this GTST.

6. (Internal # 12) TSTF-372-A adds LCO 3.0.8, which provides a delay time in declaring a supported system inoperable when a required snubber cannot perform its function. It is a risk-informed change, which evaluated a loss of offsite power due to a seismic event. This analysis (both system configuration and assumed limiting earthquake frequencies) may not be applicable to the AP1000. Remove TSTF-372-A from the GTST. Include TSTF-372 in the reference disposition tables, as "TSTF deferred for future consideration." This is resolved by removing the changes implemented by TSTF-372 from the GTST.
7. (Internal # 14) TSTF-427-A adds LCO 3.0.9, which provides a delay time in declaring a supported system inoperable when a barrier cannot perform its function. It is a risk-informed change, which evaluated a number of initiators (LOCA, HELB, RCP seal failures, feedline and steamline breaks, flooding, turbine missile, tornados). This analysis may not be applicable to the AP1000. Therefore, TSTF-427-A is deferred for future consideration." This is resolved by removing the changes implemented by TSTF-427 from the GTST.
8. (Internal # 42) TSTF-122-A was incorporated with minor errors. The following changes would correct the errors. In the LCO 3.0.2 Bases, 5<sup>th</sup> paragraph:
  - Following the struck term "Alternatives that" delete the word "not"
  - Place a comma prior to the inserted word "alternatives"This is resolved by making the requested change.
9. (Internal # 43) A typographical error was made in incorporating TSTF-273 in the last sentence of the LCO 3.0.6 Bases. The sentence should state (emphasis added; revise "support" to "supported"): "When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported system." The last sentence in the LCO 3.0.6 Bases should be revised to match TSTF-273. This is resolved by making the requested change.
10. (Internal # 44) There is an editorial error in LCO 3.0.2, first paragraph, third line, where the word "LCO" should be added before "3.0.6." Adding "LCO" would be consistent with NUREG-1431. This is resolved by making the requested change.
11. (Internal # 45) In LCO 3.0.5, last sentence, change "test" to "testing" to be consistent with the first sentence. This is consistent with NUREG-1431. This is resolved by making the requested change.

12. (Internal # 46) In the Bases for LCO 3.0.1, add a coma after “i.e.” for editorial correctness. This is resolved by making the requested change.
13. (Internal # 47) In the Bases for LCO 3.0.2, first paragraph, last line, capitalize “specification.” This is consistent with Specification being a capitalized term. This is resolved by making the requested change.
14. (Internal # 48) In the Bases for LCO 3.0.2, third paragraph, twelfth line, the word “could” should be revised to “may” for consistency with the LCO 3.0.2 Bases mark-up and with the TSTF-122 change. This comment is not implemented. The sixth sentence contains the word “could” because it is included in that sentence in the Bases for GTS LCO 3.0.2; however, “could” has never been in the same sentence in the Bases for WOG STS LCO 3.0.2. The markup of the sentence in the GTS, with the TSTF-122 change applied and the word “could” highlighted, states:

Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time ~~other~~ conditions ~~could~~ exist which **may** result in LCO 3.0.3 being entered.

The comment is resolved by applying TSTF-122 as stated above.

15. (Internal # 49) In the Bases for LCO 3.0.3, for editorial correctness:
- First paragraph, remove the semicolon after “met”
  - Fifth paragraph, first line, remove the word “into”
  - Sixth paragraph, remove the coma after “terminated”
  - Last two paragraphs labeled “a.” and “b.” should be ended in a semicolon, not a period

This is consistent with NUREG-1431. This is resolved by making the requested changes with an additional edit. The paragraph labeled “b.” ends with “; or”, in conformance with WG paragraph 2.1.3.c, and WOG STS Rev. 4, except that the WOG STS uses commas instead of semicolons.

16. (Internal # 50) Revise LCO 3.0.3 Bases to clarify that compliance with Actions of LCO 3.0.3 do not depend solely on use of safety-related or TS-required systems. The shutdown and cooldown for compliance with TS can/will utilize normal plant operating systems, which are nonsafety-related systems and not governed by TS LCOs. Make the following changes to LCO 3.0.3 Bases discussion:

“. . . less than the total time allowed. **Compliance with the time limits of Specification 3.0.3 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 . . .”

This is resolved by making the requested changes with an additional edit. Include the word “may.”

“. . . 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 . . .”

17. (Internal # 51) In the Bases for LCO 3.0.3, for editorial correctness:

- Second paragraph, first line, change “Specification 3.0.3” to “LCO 3.0.3”
- Last paragraph, first line, change “Exceptions to 3.0.3” to “Exceptions to LCO 3.0.3”
- Last paragraph, second line, delete the comma after “LCO 3.0.3”

This is consistent with NUREG-1431. This is resolved by making the first two requested changes and editing the final change. In the last paragraph, first sentence, insert a comma after the word “shutdown” so that the sentence states (identical to WOG STS Rev. 4):

“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.”

18. (Internal # 52) In the third paragraph, delete the last sentence, which states, “In MODES 5 and 6, LCO 3.0.8 provides actions for Conditions not covered in other Specifications.” LCO 3.0.8 has been deleted.
19. (Internal # 53) For editorial correctness, change “results” to “result” in the third paragraph, fifth line of the Bases for LCO 3.0.4. This is resolved by making the requested change.
20. (Internal # 54) For editorial correctness, change “allowance of restoring” to “allowance for restoring” in the first paragraph, first sentence of the Bases for LCO 3.0.5. Also, change “specification” to “Specification” in the fourth paragraph, fourth line of the Bases for LCO 3.0.5. This is resolved by making the requested changes.
21. (Internal #55) Revise the sixth paragraph of the LCO 3.0.6 Bases to add a factual statement (“There are no support system LCO requirements for offsite power based on the safety-related passive design”). This clarifies the preceding mention that operations are being restricted in accordance with the Actions of the support system. This is resolved by making the requested change.
22. (Internal # 56) Delete the LCO 3.0.6 Bases statement retained from NUREG-1431 Bases that cites “pump suction” as an example of a TS support system. This example is not applicable to the passive AP1000 design. Deleting this TS Bases example has no impact on compliance with the TS requirements. Make the following change to the LCO 3.0.6 Bases discussion:

“ . . . (e.g., loss of automatic start due to inoperable instrumentation, ~~or loss of pump suction source due to low tank level~~) . . . ”

This is resolved by making the requested change with an additional edit. Also replace the word “start” with the words “actuation capability.”

**NRC Final Approval Date:** 12/7/2015

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**IX. Evaluator Comments for Consideration in Finalizing Technical Specifications and Bases**

None

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**X. References Used in GTST**

1. AP1000 DCD, Revision 19, Section 16, "Technical Specifications," June 2011 (ML11171A500).
2. Southern Nuclear Operating Company, Vogtle Electric Generating Plant, Units 3 and 4, Technical Specifications Upgrade License Amendment Request, February 24, 2011 (ML12065A057).
3. NRC Safety Evaluation (SE) for Amendment No. 13 to Combined License (COL) No. NPF-91 for Vogtle Electric Generating Plant (VEGP) Unit 3, and Amendment No. 13 to COL No. NPF-92 for VEGP Unit 4, September 9, 2013, ADAMS Package Accession No. ML13238A337, which contains:
  - ML13238A355 Cover Letter - Issuance of License Amendment No. 13 for Vogtle Units 3 and 4 (LAR 12-002).
  - ML13238A359 Enclosure 1 - Amendment No. 13 to COL No. NPF-91
  - ML13239A256 Enclosure 2 - Amendment No. 13 to COL No. NPF-92
  - ML13239A284 Enclosure 3 - Revised plant-specific TS pages (Attachment to Amendment No. 13)
  - ML13239A287 Enclosure 4 - Safety Evaluation (SE), and Attachment 1 - Acronyms
  - ML13239A288 SE Attachment 2 - Table A - Administrative Changes
  - ML13239A319 SE Attachment 3 - Table M - More Restrictive Changes
  - ML13239A333 SE Attachment 4 - Table R - Relocated Specifications
  - ML13239A331 SE Attachment 5 - Table D - Detail Removed Changes
  - ML13239A316 SE Attachment 6 - Table L - Less Restrictive Changes

The following documents were subsequently issued to correct an administrative error in Enclosure 3:

- ML13277A616 Letter - Correction To The Attachment (Replacement Pages) - Vogtle Electric Generating Plant Units 3 and 4-Issuance of Amendment Re: Technical Specifications Upgrade (LAR 12-002) (TAC No. RP9402)
  - ML13277A637 Enclosure 3 - Revised plant-specific TS pages (Attachment to Amendment No. 13) (corrected)
4. TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," June 2005.
  5. RAI Letter No. 01 Related to License Amendment Request (LAR) 12-002 for the Vogtle Electric Generating Plant Units 3 and 4 Combined Licenses, September 7, 2012 (ML12251A355).
  6. Southern Nuclear Operating Company, Vogtle Electric Generating Plant, Units 3 and 4, Response to Request for Additional Information Letter No. 01 Related to License Amendment Request LAR-12-002, ND-12-2015, October 04, 2012 (ML12286A363 and ML12286A360)

7. APOG-2014-008, APOG (AP1000 Utilities) Comments on AP1000 Standardized Technical Specifications (STS) Generic Technical Specification Travelers (GTSTs), Docket ID NRC-2014-0147, September 22, 2014 (ML14265A493)
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**XI. MARKUP of the Applicable GTS Subsection for Preparation of the STS NUREG**

The entire section of the Specifications and the Bases associated with this GTST is presented next.

Changes to the Specifications and Bases are denoted as follows: Deleted portions are marked in strikethrough red font, and inserted portions in bold blue font.



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### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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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.

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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.

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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; and
- 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.

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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.

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### 3.0 LCO Applicability

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#### LCO 3.0.4 (continued)

Exceptions to this Specification are stated in the individual Specifications.

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

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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.

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LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, ~~additional-an evaluation and limitations may be required~~ 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.

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

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LCO 3.0.7 Test Exception LCO 3.1.8 allows specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

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### 3.0 LCO Applicability

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~~LCO 3.0.8~~      ~~When an LCO is not met and the associated ACTIONS are not met or an associated ACTION is not provided, action shall be initiated within 1 hour to:~~

~~a. Restore inoperable equipment and~~

~~b. Monitor Safety System Shutdown Monitoring Trees parameters~~

~~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 3.0.8 is not required.~~

~~LCO 3.0.8 is only applicable in MODES 5 and 6.~~

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## B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

## BASES

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LCOs	LCO 3.0.1 through LCO 3.0.78 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
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LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirements for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification.)
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LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that the ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This <del>Specification specification</del> establishes that:</p> <ol style="list-style-type: none"> <li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and</li> <li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li> </ol> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case compliance with the Required Actions provides an acceptable level of safety for continued operation.</p>
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**BASES**

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## LCO 3.0.2 (continued)

Completing the Required Actions is not required when an LCO is met, or is no longer applicable, unless otherwise stated in the individual Specifications.

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 reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. **Additionally, if intentional entry into ACTIONS** ~~Alternatives that~~ would ~~not~~ result in redundant equipment being inoperable, **alternatives** should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time ~~other~~ conditions ~~could~~ exist which **may** result in LCO 3.0.3 being entered. 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.

## 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. Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, the 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. 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 ~~into~~ 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 reach 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. 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. A Condition exists for which the Required Actions have now been performed; ~~or~~;

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BASES

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## LCO 3.0.3 (continued)

- c. 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 3.0.3 is exited.

The time limits of **LCO Specification-3.0.3** allow 37 hours for the unit to be in MODE 5 when a shutdown is required during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is required, the time limit for reaching the next lower MODE applies. If a lower MODE is reached in less time than allowed, however, the total allowable time to reach MODE 5, or other applicable MODE is not reduced. For example, if MODE 3 is reached in 2 hours, then the time allowed for reaching MODE 4 is the next 11 hours, because the total time for reaching MODE 4 is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach a lower MODE of operation in less than the total time allowed. **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. ~~In MODES 5 and 6, LCO 3.0.8 provides actions for Conditions not covered in other Specifications.~~

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.

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**BASES**

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**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 precludes placing the unit in a MODE or other specified condition stated **in** that Applicability (e.g., Applicability desired to be entered) when the following exist:

- a. Unit conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and
- b. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the unit being required to exit the Applicability desired to be entered to comply with the Required Actions.

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

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

Exceptions to LCO 3.0.4 are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.

LCO 3.0.4 is only applicable when entering MODE 4 from MODE 5, MODE 3 from MODE 4 or 5, MODE 2 from MODE 3 or 4 or 5, or MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODE 1, 2, 3, or 4. The requirements of LCO 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability



## BASES

## LCO 3.0.4 (continued)

(unless in MODE 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

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

## LCO 3.0.5

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

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

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY. This **Specification** ~~specification~~ does not provide time to perform any other preventive or corrective maintenance.

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

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of **required testing** ~~an SR~~ on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment

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**BASES**

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## LCO 3.0.5 (continued)

is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of **required testing** ~~an SR~~ on another channel in the same trip system.

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LCO 3.0.6

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

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

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

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**BASES**

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## LCO 3.0.6 (continued)

Specification 5.5.7, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

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

This loss of safety function does not require the assumption of additional single failures or loss of offsite power. Since operations are being restricted in accordance with the ACTIONS of the support system, any resulting temporary loss of redundancy or single failure protection is taken into account. **There are no support system LCO requirements for offsite power based on the safety-related passive design.**

When loss of safety function is determined to exist, and the SFDP requires entry into the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists, consideration must be given to the specific type of function affected. Where a loss of function is solely due to a single Technical Specification support system (e.g., loss of automatic **actuation capability start** due to inoperable instrumentation, ~~or loss of pump suction source due to low tank level~~) the appropriate LCO is the LCO for the support system. The ACTIONS for a support system LCO adequately addresses the inoperabilities of that system without reliance on entering its supported system LCO. When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported system.

## BASES

LCO 3.0.7 There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Test Exception LCO 3.1.8 allows specified Technical Specification (TS) requirements to be changed to permit performance of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these TS. Unless otherwise specified, all the other TS requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

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

~~LCO 3.0.8 LCO 3.0.8 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.~~

~~This Specification delineates the requirements 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. 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.~~

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**BASES**

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## LCO 3.0.8 (continued)

~~Upon entering LCO 3.0.8, 1 hour is allowed to prepare for an orderly plan of action which optimizes plant safety and equipment restoration. The Shutdown Safety Status Trees provide a systematic method to explicitly determine the status of the plant during shutdown conditions, after entering MODE 5. A set of plant parameters is monitored and if any parameter is outside of its defined limits, a transition is made to the Shutdown Emergency Response Guidelines. These guidelines provide preplanned actions for addressing parameters outside defined limits.~~

~~Examples of the required end states specified for inoperable passive systems while in MODES 5 and 6 are provided in Table B 3.0-1, Passive Systems Shutdown MODE Matrix. These requirements are specified in the individual Specifications. The required end states specified for passive systems, when the unit is in MODE 5 or 6, are selected to ensure that the initial conditions and system and equipment availabilities minimize the likelihood and consequences of potential shutdown events.~~

~~ACTIONS required in accordance with LCO 3.0.8 may be terminated and LCO 3.0.8 exited if any of the following occurs:~~

- ~~a. The LCO is now met.~~
- ~~b. A Condition exists for which the Required Actions have now been performed.~~
- ~~c. 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 3.0.8 is exited.~~

~~In MODES 5 and 6, LCO 3.0.8 provides actions for Conditions not covered in other Specifications and for multiple concurrent Conditions for which conflicting actions are specified.~~

~~As an example of the application of LCO 3.0.8, see column 2 of Table B 3.0-1, Passive Systems Shutdown MODE Matrix, for the core makeup tank. This example assumes that the plant is initially in MODE 5 with the Reactor Coolant System (RCS) pressure boundary intact. In this plant condition, LCO 3.5.3 requires one core makeup tank to be OPERABLE. The table shows the required end state established by the Required Actions of TS 3.5.3 in the event that the core makeup tank cannot be restored to OPERABLE status.~~

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**BASES**

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## LCO 3.0.8 (continued)

~~For this initial plant shutdown condition with no OPERABLE core makeup tanks, four conditions are identified in TS 3.5.3, with associated Required Actions and Completion Times. If Conditions A, B, and C cannot be completed within the required Completion Times, then Condition D requires immediately initiating action to place the plant in MODE 5 with the RCS pressure boundary open, and with pressurizer level greater than 20 percent.~~

~~LCO 3.0.8 would apply if actions could not immediately be initiated to open the RCS pressure boundary. In this situation, in parallel with the TS 3.5.3 actions to continue to open the RCS pressure boundary, LCO 3.0.8 requires the operators to take actions to restore one core makeup tank to OPERABLE status, and to monitor the Safety System Shutdown Monitoring Trees.~~

~~The Shutdown Status Trees monitor seven key RCS parameters and direct the operators to one of six shutdown ERGs in the event that any of the parameters are outside of allowable limits. The shutdown ERGs identify actions to be taken by the operators to satisfy the critical safety functions for the plant in the shutdown condition, using plant equipment available in this shutdown condition. LCO 3.0.8 monitoring would continue to be required until one core makeup tank is restored to OPERABLE status or the Required Actions for Condition D can be satisfied. In this case, once the RCS pressure boundary is open as required by Condition D, LCO 3.0.8 would be exited.~~

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Table B 3.0-1 (page 1 of 2)  
Passive Systems Shutdown MODE Matrix

LCO Applicability	Automatic Depressurization System	Core Makeup Tank	Passive RHR	IRWST	Containment	Containment Cooling <sup>(1)</sup>
MODE 5 RCS pressure boundary intact	9 of 10 paths OPERABLE All paths closed	One CMT OPERABLE	System OPERABLE	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.12	LCO 3.5.3	LCO 3.5.5	LCO 3.5.7	LCO 3.6.78	LCO 3.6.67
Required End State	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level
MODE 5 RCS pressure boundary open or pressurizer level < 20%	Stages 1, 2, and 3 open; 2 stage 4 valves OPERABLE	None	None	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.13			LCO 3.5.7	LCO 3.6.78	LCO 3.6.67
Required End State	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level			MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level
MODE 6 Upper internals in place	Stages 1, 2, and 3 open; 2 stage 4 valves OPERABLE	None	None	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.13			LCO 3.5.8	LCO 3.6.78	LCO 3.6.67
Required End State	MODE 6 Upper internals removed			MODE 6 Refueling cavity full	MODE 6 Refueling cavity full	MODE 6 Refueling cavity full

Table B 3.0-1 (page 2 of 2)  
Passive Systems Shutdown MODE Matrix

LCO Applicability	Automatic Depressurization System	Core Makeup Tank	Passive RHR	IRWST	Containment	Containment Cooling <sup>(1)</sup>
MODE 6 Upper internals removed	None	None	None	One injection flow path and one recirculation sump flow path OPERABLE  LCO 3.5.8	Closure capability  LCO 3.6.78	Three water flow paths OPERABLE  LCO 3.6.67
Required End State				MODE 6 Refueling cavity full	MODE 6 Refueling cavity full	MODE 6 Refueling cavity full

(1) Containment cooling via PCS is not required when core decay heat  $\leq$  6.0 MWt.



**XII. Applicable STS Subsection After Incorporation of this GTST's Modifications**

The entire subsection of the Specifications and the Bases associated with this GTST, following incorporation of the modifications, is presented next.

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### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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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.

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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.

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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; and
- 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.

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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.

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### 3.0 LCO Applicability

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#### LCO 3.0.4 (continued)

Exceptions to this Specification are stated in the individual Specifications.

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

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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.

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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.

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

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LCO 3.0.7      Test Exception LCO 3.1.8 allows specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

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## B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

## BASES

LCOs	LCO 3.0.1 through LCO 3.0.7 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirements for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification.)
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that the ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ol style="list-style-type: none"> <li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and</li> <li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li> </ol> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case compliance with the Required Actions provides an acceptable level of safety for continued operation.</p>

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**BASES**

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## LCO 3.0.2 (continued)

Completing the Required Actions is not required when an LCO is met, or is no longer applicable, unless otherwise stated in the individual Specifications.

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 reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time conditions exist which may result in LCO 3.0.3 being entered. 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.

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**BASES**

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**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. Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, the 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. 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, 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 reach 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. 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. A Condition exists for which the Required Actions have now been performed; or

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**BASES**

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## LCO 3.0.3 (continued)

- c. 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 3.0.3 is exited.

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

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**BASES**

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**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 precludes placing the unit in a MODE or other specified condition stated in that Applicability (e.g., Applicability desired to be entered) when the following exist:

- a. Unit conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and
- b. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the unit being required to exit the Applicability desired to be entered to comply with the Required Actions.

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

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

Exceptions to LCO 3.0.4 are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.

LCO 3.0.4 is only applicable when entering MODE 4 from MODE 5, MODE 3 from MODE 4 or 5, MODE 2 from MODE 3 or 4 or 5, or MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODE 1, 2, 3, or 4. The requirements of LCO 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability



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**BASES**

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## LCO 3.0.4 (continued)

(unless in MODE 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

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

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LCO 3.0.5

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

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

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

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

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of required testing on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking

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**BASES**

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## LCO 3.0.5 (continued)

an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of required testing on another channel in the same trip system.

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## LCO 3.0.6

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

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

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

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**BASES**

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## LCO 3.0.6 (continued)

Specification 5.5.7, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

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

This loss of safety function does not require the assumption of additional single failures or loss of offsite power. Since operations are being restricted in accordance with the ACTIONS of the support system, any resulting temporary loss of redundancy or single failure protection is taken into account. There are no support system LCO requirements for offsite power based on the safety-related passive design.

When loss of safety function is determined to exist, and the SFDP requires entry into the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists, consideration must be given to the specific type of function affected. Where a loss of function is solely due to a single Technical Specification support system (e.g., loss of automatic actuation capability due to inoperable instrumentation) the appropriate LCO is the LCO for the support system. The ACTIONS for a support system LCO adequately address the inoperabilities of that system without reliance on entering its supported system LCO. When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported system.

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LCO 3.0.7

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

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**BASES**

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## LCO 3.0.7 (continued)

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

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

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Table B 3.0-1 (page 1 of 2)  
Passive Systems Shutdown MODE Matrix

LCO Applicability	Automatic Depressurization System	Core Makeup Tank	Passive RHR	IRWST	Containment	Containment Cooling <sup>(1)</sup>
MODE 5 RCS pressure boundary intact	9 of 10 paths OPERABLE All paths closed	One CMT OPERABLE	System OPERABLE	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.12	LCO 3.5.3	LCO 3.5.5	LCO 3.5.7	LCO 3.6.7	LCO 3.6.6
Required End State	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level
MODE 5 RCS pressure boundary open or pressurizer level < 20%	Stages 1, 2, and 3 open; 2 stage 4 valves OPERABLE	None	None	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.13			LCO 3.5.7	LCO 3.6.7	LCO 3.6.6
Required End State	MODE 5 RCS pressure boundary open, ≥ 20% pressurizer level			MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level	MODE 5 RCS pressure boundary intact, ≥ 20% pressurizer level
MODE 6 Upper internals in place	Stages 1, 2, and 3 open; 2 stage 4 valves OPERABLE	None	None	One injection flow path and one recirculation sump flow path OPERABLE	Closure capability	Three water flow paths OPERABLE
	LCO 3.4.13			LCO 3.5.8	LCO 3.6.7	LCO 3.6.6
Required End State	MODE 6 Upper internals removed			MODE 6 Refueling cavity full	MODE 6 Refueling cavity full	MODE 6 Refueling cavity full

Table B 3.0-1 (page 2 of 2)  
Passive Systems Shutdown MODE Matrix

LCO Applicability	Automatic Depressurization System	Core Makeup Tank	Passive RHR	IRWST	Containment	Containment Cooling <sup>(1)</sup>
MODE 6 Upper internals removed	None	None	None	One injection flow path and one recirculation sump flow path OPERABLE  LCO 3.5.8	Closure capability  LCO 3.6.7	Three water flow paths OPERABLE  LCO 3.6.6
Required End State				MODE 6 Refueling cavity full	MODE 6 Refueling cavity full	MODE 6 Refueling cavity full

(1) Containment cooling via PCS is not required when core decay heat  $\leq$  6.0 MWt.