

## Response to SDAA Audit Question

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**Question Number:** A-16.3.0-1

**Receipt Date:** 07/31/2023

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**Question:**

Section 3.3, “Changes to Chapter 3, Limiting Conditions for Operation and Surveillance Requirements,” of TR-101310-NP, “US460 Standard Design Approval Technical Specifications Development,” Revision 0, provides the following description of the SDAA’s proposed adaptation of unapproved TSTF traveler, TSTF 585, “Revise LCO 3.0.3,” Rev. 0, which is currently under consideration by the NRC technical specifications branch (NRR/DSS/STSB):

“3.3.1 Modification of Limiting Condition of Operation 3.0.3

“The legacy nuclear plant owners have proposed changes to the time provided to initiate a shutdown when LCO 3.0.3 applies. The changes are described in a proposed NRC/industry traveler that is applicable to legacy plant STS. NuScale monitored these efforts in public meetings and believes that a corresponding change is appropriate for incorporation into the NuScale specifications.

“Similarly, the Bases for LCO 3.0.3 are being revised to align to the appropriate extent with the proposed change to the legacy plant STS.”

Since TSTF-585 is not yet approved, and its proposed changes to W-STC LCO 3.0.3 and associated Bases, and the justifications for those changes, may change in response to staff comments, it is recommended that US460 GTS LCO 3.0.3 and Bases match the US600 certified design GTS LCO 3.0.3 and Bases.

Should this traveler be approved by the NRC staff in time to be applied to the SDA GTS LCO 3.0.3 and Bases, please justify why the revised WSTS LCO 3.0.3 and Bases are appropriate and beneficial for the NuScale US460 design.

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**Response:**

Technical Specification Task Force Traveler TSTF-585, “Provide an Alternative to the LCO 3.0.3 One-Hour Preparation Time,” has not been approved by the NRC. NuScale is not pursuing incorporation of TSTF-585 into the standard design approval (SDA) at this time.

NuScale revises the following sections to remove TSTF-585 verbiage or references to TSTF-585:

- LCO Applicability 3.0
- LCO Applicability B 3.0
- Table 4-1, TR-101310

Markups of the affected changes, as described in the response, are provided below:

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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[, and LCO 3.0.8].

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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 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:~~action shall be initiated to place the unit in a MODE or other specified condition in which the LCO is not applicable within:~~

- a. MODE 2 within 7 hours~~1 hour; or~~
- b. MODE 3 and PASSIVELY COOLED within 37 hours.~~24 hours if entry into LCO 3.0.3 is unplanned and risk is assessed and managed.~~

~~At the end of the 1 hour or 24 hour period:~~

- ~~a. Be in MODE 2 within 6 hours; and~~
- ~~b. Be in MODE 3 and PASSIVELY COOLED within 36 hours.~~

Exceptions to this Specification are stated in the individual Specifications.

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

LCO 3.0.3 is only applicable in MODES 1 and 2, and in MODE 3 when not PASSIVELY COOLED.~~and 2, and in MODE 3 when not PASSIVELY COOLED.~~

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## LCO 3.0.3 (continued)

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

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

~~LCO 3.0.3.a provides one hour to prepare for a plant shutdown.~~ This includes time to ~~permits~~ the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.

~~Alternatively, LCO 3.0.3.b provides 24 hours before initiating a plant shutdown to perform repairs, prepare for an orderly plant shutdown, or to pursue regulatory relief if entry into LCO 3.0.3 is unplanned and risk is assessed and managed.~~

~~LCO 3.0.3.b may not be used if entry into LCO 3.0.3 is planned. Planned entry into LCO 3.0.3, if determined to be appropriate, is limited to the time limit in LCO 3.0.3.a.~~

~~LCO 3.0.3.b may be used if risk is assessed and managed. The risk assessment must consider all inoperable equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope. The risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that use of the 24 hour period before initiating a shutdown is acceptable. There may be no more than minimal~~

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## LCO 3.0.3 (continued)

~~increase in risk (i.e., the level determined acceptable during normal work control levels) and no net increase in risk after implementation of risk management actions.~~

~~The use of LCO 3.0.3.b is not dependent on planned restoration of compliance with the LCO or ACTIONS within 24 hours as other actions are available, such as regulatory relief or an orderly shutdown.~~

~~To assess and manage risk, the likely cause of the conditions that resulted in LCO 3.0.3 entry should be understood. A formal cause or apparent cause evaluation is not required because of the limited time available. If the extent of condition is unknown the risk assessment should consider the increased possibility of common cause failure either numerically or through risk management actions.~~

~~The time limits in LCO 3.0.3.a and LCO 3.0.3.b begin on entry into LCO 3.0.3. The risk assessment must be completed before using LCO 3.0.3.b. If LCO 3.0.3.b is entered and later the conditions for use are no longer satisfied, LCO 3.0.3.a is entered, and the one hour period begins when LCO 3.0.3 was entered. If the one hour has expired and operation is not in accordance with the LCO or ACTIONS, the requirements to enter a lower MODE begins immediately (i.e., MODE 3 must be entered within the following 6 hours). If LCO 3.0.3.a is entered and later the requirements of LCO 3.0.3.b are satisfied, the LCO 3.0.3.b period begins when LCO 3.0.3 was entered, even if a plant shutdown has begun.~~

~~The time limits specified to enter lower MODES of operation begin if operation is not in accordance with the LCO or ACTIONS within the time periods in LCO 3.0.3.a or LCO 3.0.3.b. The time limits permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE.~~  
The time limits specified to enter lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, "Completion Times."

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## LCO 3.0.3 (continued)

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

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

The time limits of LCO 3.0.3 allow 376 hours for the unit to be in MODE 3 and PASSIVELY COOLED when a shutdown is required during MODE 1 operation. If the unit is in MODE 2 when a shutdown is required, the time limit for entering MODE 3 and PASSIVE COOLING applies. If MODE 2 is entered in less time than allowed, however, the total allowable time to enter MODE 3 and be PASSIVELY COOLED is not reduced. For example, if MODE 2 is entered in 2 hours, then the time allowed for entering MODE 3 and to establish PASSIVE COOLING is the next 354 hours, because the total time for entering MODE 3 and to be PASSIVELY COOLED is not reduced from the allowable limit of 376 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to enter a lower MODE of operation in less than the total time allowed.

The Completion Times are established considering the limited likelihood of a design basis event during the 376 hours allowed to enter MODE 3 and be PASSIVELY COOLED. They also provide adequate time to permit evaluation of conditions and restoration of OPERABILITY without challenging plant systems during a shutdown. Analysis shows that 37 hours from entry into 3.0.3 is a reasonable time to enter MODE 3 and be PASSIVELY COOLED using normal plant systems and procedures.

In MODES 1, 2, and MODE 3 when not PASSIVELY COOLED, LCO 3.0.3 provides actions for Conditions not covered in other Specifications. The requirements of LCO 3.0.3 do not apply in MODE 3 when PASSIVELY COOLED, and MODES 4 and 5 because the unit is already in the most restrictive condition required by LCO 3.0.3. The requirements of LCO 3.0.3 do not apply in other specified conditions of

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**Table 4-1 Standard Technical Specifications Traveler Adaptation**

Traveler No.	Addressed	Comments
571	N/A	T-traveler or otherwise not available
572	N/A	T-traveler or otherwise not available
573	No	Boiling water reactor (BWR)-specific
574	N/A	T-traveler or otherwise not available
575	N/A	T-traveler or otherwise not available
576	No	BWR-specific
577	Yes	Addressed in Section 5.5 to extent appropriate
578	No	Not applicable to NuScale design
579	No	Not applicable to NuScale TS
580	No	Not applicable to NuScale design
581	N/A	T-traveler or otherwise not available
582	No	Not applicable to NuScale design
583	N/A	T-traveler or otherwise not available
584	No	BWR-specific
585	<del>N/A</del> Yes	<del>T-traveler or otherwise not available</del> NuScale incorporated revision 0 like content in anticipation of industry and regulatory adoption of this change. Adjustments will be considered for incorporation as industry and regulatory issues are resolved.
586	N/A	T-traveler or otherwise not available
587	N/A	T-traveler or otherwise not available
588	Pending	NuScale is monitoring this proposal for future consideration and adoption.
589	No	Not applicable to NuScale design
590	N/A	T-traveler or otherwise not available
591	No	Not applicable to NuScale TS
592	No	Not applicable to NuScale design
593	N/A	T-traveler or otherwise not available
594	N/A	T-traveler or otherwise not available
595	N/A	T-traveler or otherwise not available
596	Pending	NuScale is monitoring this proposal for future consideration and adoption.