



Limerick

Revise Operability Requirement for Standby Gas Treatment System (SGTS)

June 26, 2025

Agenda

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- Meeting Objectives
- Background Information
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- Justification
- Overview of Submittal Schedule
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- Questions



Introductions

Corporate Licensing Engineers –Lane Oberembt Corporate Licensing Senior Manager – Wendi Para Corporate/Limerick Risk Engineer – Suzanne Loyd, Connelly Richards Limerick Regulatory Assurance Manager – Jordan Rajan Limerick Regulatory Assurance Engineers – George Budock, Renee Guy Limerick Operations – Sagar Patel, J.D. Williamson Limerick SGTS Engineer – John Creamer



Meeting Objectives

- Present information to the NRC to provide a clear understanding of the proposed Limerick License Amendment Request (LAR)
 - The proposed change adds a footnote to SR 4.6.5.3.d.2 to state that automatic initiation and manual start from the control room are not required for one Standby Gas Treatment Subsystem when manually isolated while the other subsystem is in service for purging, inerting or de-inerting.
 - This change is required for protection of the associated ductwork
- Obtain feedback from the NRC on the proposed LAR to ensure a high-quality submittal and support efficient use of resources, both NRC & Constellation.
- Establish a mutual understanding of the proposed schedule and corresponding need date to ensure adequate NRC resource availability



Background Information

- LCO 3.6.5.3 requires, "Two independent standby gas treatment subsystems shall be OPERABLE" in OPERATIONAL CONDITIONS (OPCON) 1, 2, or 3 and when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS.
 - OPERATIONAL CONDITIONS (OPCON) equivalent to MODE
- During plant startup after an outage, inspections and work are continuing in the drywell and containment. The air is continuously purged to maintain a habitable environment for personnel. To minimize the possibility of any radioactive release, the air is routed through the in-service SGTS filter train.



Background Information cont.

- The second, standby, train of SGTS is isolated via associated hand switch and manual slide gates to prevent possible damage if a DBA LOCA or HELB in OPCON 1, 2, or 3 were to occur. These slide gates prevent the duct work and filter housing from being damaged due to the pressure surge of the accident while containment purging is inservice.
 - Procedural steps exist to align this isolated SGTS train if it is emergently required to be put into service.
- Based on this isolation, the train is declared inoperable when LCO 3.6.5.3 is not met.
- In this condition, Limerick cannot change OPCONs during startup without either:
 - Securing the purge, re-opening the slide gates and re-aligning plant equipment to restore the standby SGTS to OPERABLE status, or
 - Using LCO 3.0.4.b, performing an associated risk assessment and, if acceptable, changing OPCONs and entering the action.



Background Information cont.

- Prior to 2020, Limerick entered LCO 3.0.4.b to change OPCONs during startup when purging containment.
 - Limerick incorporated TSTF-359 into their TS in 2004 (Amds. 169 and 132, for U1 and U2, respectively)
 - TSTF-359 "Increase Flexibility in Mode Restraints" revised LCO 3.0.4 to allow entry into a OPCON when an LCO was not met. One option was performance of a risk assessment as outlined in LCO 3.0.4.b.
 - TSTF-359 states, "Adoption of LCO 3.0.4.b would result in this consideration applying to assessments for **planned** activities, as well as emergent conditions."
- In 2020, a concern was raised by an NRC Inspector about repeated use of LCO 3.0.4.b for routine/planned evolutions since this practice was not in accordance with NEI 03-10.
 - NEI 03-10 was issued in 2003 to provide industry implementation guidance for TSTF-359.
 - NEI 03-10 states, "It is not intended for routine use".
 - The Limerick Licensing Basis does not reference NEI 03-10.
 - TSTF-359, the TS and TS Bases, and the staff's SE for TSTF-359 do not state the provision cannot be used for routine use.



Background Information cont.

 Since 2020, Limerick has reverted to securing purging operations, unisolating the standby train of SGTS, declaring it operable, making the OPCON change, re-isolating the train of SGTS, and restart purging.



Scope of Technical Specification Changes

 The LAR would add a footnote to SR 4.6.5.3.d.2 to state it is not required for one Standby Gas Treatment Subsystem which is manually isolated while the other subsystem is in service for purging, inerting or de-inerting.

SURVEILLANCE REQUIREMENTS 4.6.5.3 Each standby gas treatment subsystem shall be demonstrated OPERABLE: In accordance with the Surveillance Frequency Control Program by: d. 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 9.1 inches water gauge while operating the filter train at a flow rate of 8400 cfm ± 10%. 2. Verifying that the fan starts and isolation valves necessary to draw a suction from the refueling area or the reactor enclosure recirculation discharge open on each of the following test signals, except for valves that are locked, sealed, or otherwise secured in the actuated position. Manual initiation from the control room, and a) b) Simulated automatic initiation signal.

- Not required for one Standby Gas Treatment Subsystem manually isolated while the other subsystem is in service for purging, inerting or de-inerting containment.

• The change would require the standby SGTS train to be fully functional except for automatic initiation and manual start from the control room.



Justification

- The physical act of turning the Mode Switch from 3 to 2 or 2 to 1 does not change the plant configuration in such a way as to make operability of the second train of SGTS more important than it was prior to the switch being manipulated.
- Reducing unnecessary component manipulations during critical plant evolutions will enhance the overall safety of the plant startup.
- The station will remain in the 7-day action during OPCON change rather than restart the action after the OPCON change when the system is again declared inoperable due to the manual slide gates being re-closed.
- Information provided by the Probabilistic Risk Analysis (PRA) shows there is no safety significance to SGTS as measured relative to Core Damage Frequency (CDF). Similarly, there are no SGTS functions that mitigate Large Early Release Frequency (LERF) scenarios.



Overview of Submittal Schedule

- Pre-submittal Meeting with NRC to discuss LAR June 26, 2025
- LAR submittal by CEG by early July 2025
- Request NRC approval by April 15, 2026, to support plant startup from Limerick Refueling Outage Li1R21 (spring 2026).



Summary and Wrap-up

- Add a footnote to SR 4.6.5.3.d.2 to state that automatic initiation and manual start from the control room are not required for one Standby Gas Treatment Subsystem when manually isolated while the other subsystem is in service for purging, inerting or de-inerting to maintain a habitable work environment.
- Approval would minimize distracting plant evolutions during plant startup.
- Approval would help eliminate the increased risk of equipment inoperability due to component manipulation.



Questions?





Supplemental Information



Supplemental Information

OPERATIONAL CONDITION - CONDITION

1.26 An OPERATIONAL CONDITION, i.e., CONDITION, shall be any one inclusive combination of mode switch position and average reactor coolant temperature as specified in Table 1.2.

TABLE 1.2

OPERATIONAL CONDITIONS

CONDITION

- POWER OPERATION
- 2. STARTUP

3. HOT SHUTDOWN

4. COLD SHUTDOWN

REFUELING*

MODE SWITCH POSITION

Run

Startup/Hot Standby

Shutdown# ***

Shutdown# ## ***

Shutdown or Refuel** #

AVERAGE REACTOR COOLANT TEMPERATURE

Any temperature

Any temperature

> 200°F

 \leq 200°F ****

NA



Supplemental Information

LCO 3.0.4 (Unit 1 & Unit 2)

3.0.4 When a Limiting Condition for Operation is not met, entry into an OPERATIONAL CONDITION or other specified condition in the Applicability shall only be made:

- a. When the associated ACTION requirements to be entered permit continued operation in the OPERATIONAL CONDITION or other specified condition in the Applicability for an unlimited period of time; or
- b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the OPERATIONAL CONDITION or other specified condition in the Applicability, and establishment of risk management actions, if appropriate (exceptions to this Specification are stated in the individual Specifications); or
- c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in OPERATIONAL CONDITIONS or other specified conditions in the Applicability that are required to comply with ACTION requirements or that are part of a shutdown of the unit.



Supplemental Information cont.

Unit 1 & 2 SR 4.6.5.3.d.2

SURVEILLANCE REQUIREMENTS

4.6.5.3 Each standby gas treatment subsystem shall be demonstrated OPERABLE:

- d. In accordance with the Surveillance Frequency Control Program by:
 - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 9.1 inches water gauge while operating the filter train at a flow rate of 8400 cfm \pm 10%.
 - Verifying that the fan starts and isolation valves necessary to draw a suction from the refueling area or the reactor enclosure recirculation discharge open on each of the following test signals, except for valves that are locked, sealed, or otherwise secured in the actuated position:
 - a) Manual initiation from the control room, and
 - b) Simulated automatic initiation signal.

