TENNESSEE VALLEY AUTHORITY

Sequoyah Units 1 and 2 License Amendment Request to Revise LCO 3.3.6 Containment Vent Isolation Instrumentation

June 11, 2025

Introduction

- Tennessee Valley Authority (TVA) is submitting a license amendment request (LAR) for Sequoyah Nuclear Power Plant (SQN), Units 1 and 2 Renewed Facility Operating License Nos. DPR-77 and DPR-79
- LAR applies to Technical Specification (TS) Limiting Condition of Operation (LCO) 3.3.6 “Containment Vent Isolation Instrumentation,” for both SQN Units 1 and 2
- Proposed TS revisions would
    - Revise LCO 3.3.6 to include required actions that specifically include containment air radiation monitor isolation valves
    - Revise TS Table 3.3.6-1 to identify the conditions applicable to specific functions of the containment vent isolation (CVI) instrumentation

Background

- SQN submitted a LAR in August 1991 (ML20082M717)
  - Containment upper and lower compartment air radiation monitor isolation valves were allowed to remain open in the event of a degraded signal channel
  - Containment isolation Phase A, Phase B and Safety Injection still credited closure of the air radiation monitor isolation valves
  - Corresponding required LCO action (Action 15) required closure of the air radiation monitor isolation valves in the event those signal functions were degraded
- NRC approved LAR and issued SQN Unit 1 and 2 license amendments in ML013310303 in June 1993

Background

- SQN requested conversion to Improved Technical Specifications (ITS) for both Units in November 2013 (ML13329A717)
  - LCO 3.3.6 markups included as part of ITS conversion package in ML13329A916
  - Revisions removed Action 15 on the basis that TS LCO 3.3.6 Action A is sufficient
  - However, TS LCO 3.3.6 Action A only indicates required closure of the containment purge supply and exhaust isolation valves
  - NRC approved ITS conversion in September 2015 (ML15238B499)

Reason for Proposed Change

- SQN TS LCO 3.3.6 Required Action A.1 only addresses the containment purge supply and exhaust isolation valves
  - Required action does not specifically include the air radiation monitor isolation valves
- Issue has been entered into SQN corrective action program
  - Administrative control created to address non-conservative technical specification LCO 3.3.6
  - Operations standing order of actions to be taken for radiation monitor isolation valves made inoperable by isolation instrumentation
  - Standing order to remain in effect until issue is fully resolved through a license amendment
  - No instances of reportability identified under 10 CFR 50.73

Reason for Proposed Change

- Current SQN Units 1 and 2 TS LCO 3.3.6 Action A is inconsistent with required actions that existed in TS prior to ITS conversion
- Revision to TS LCO 3.3.6 is necessary to include required actions for closure of the containment upper and lower compartment air radiation monitor isolation valves
- Revision to TS Table 3.3.6-1 is necessary to specify required actions be taken during Phase A, Phase B and Safety Injection in the event those signal functions are degraded

Description of the Proposed Change

LCO 3.3.6 The Containment Ventilation Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable in MODE 1, 2, 3, or 4. ---------- One or more Functions with one or more manual or automatic actuation trains inoperable. OR One required radiation monitoring channel inoperable.	A.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge supply and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately

Replace Condition with Insert A

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Description of the Proposed Change

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.6-1 for the channel(s) or train(s).	Immediately
B. ----------NOTE---------- Only applicable in MODE 1, 2, 3, or 4. ---------- One or more Functions with one or more manual or automatic actuation trains inoperable. OR One required radiation monitoring channel inoperable.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge supply and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately
C. One channel inoperable.	C.1 Restore channel to OPERABLE status.	48 hours OR In accordance with the Risk Informed Completion Time Program
D. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- C.1 Restore train to OPERABLE status.	24 hours OR In accordance with the Risk Informed Completion Time Program
E. Required Action and associated Completion Time of Condition C or D not met. OR One or more of Functions 1, 2, and 4 with 2 channels or trains inoperable.	E.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for air radiation monitor isolation valve(s) made inoperable by isolation instrumentation.	Immediately

Insert A

Description of the Proposed Change

Table 3.3.6-1 (page 1 of 1)
Containment Ventilation Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1,2,3,4	2	SR 3.3.6.6	NA
2. Automatic Actuation				
a. Logic	1,2,3,4	2 trains	SR 3.3.6.2	NA
b. Relays	1,2,3,4	2 trains	SR 3.3.6.3 SR 3.3.6.5	NA
3. Containment Purge Air Radiation Monitor	1,2,3,4	1	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	≤ 8.5 x 10^{-3} µCi/cc
4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

CONDITIONS

B, C, D

B, E

B, C, E

B

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Description of the Proposed Change

- New LCO 3.3.6 Condition A is created for one or more functions with one or more required channels or trains inoperable
- Current LCO 3.3.6 Condition A becomes Condition B
- New LCO 3.3.6 Condition C is added where one channel is inoperable. The only Required Action C.1 is to restore the channel to operable status
- A new LCO 3.3.6 Condition D is added where one train is inoperable. The only Required Action D.1 is to restore the train to operable status
- A new LCO 3.3.6 Condition E is added for when the Required Action and associated Completion Times of Condition C or Condition D are not met or one or more of Functions 1, 2, and 4 with 2 channels or trains are inoperable. The Required Action is to immediately enter the applicable Conditions and Required Actions of LCO 3.3.6, “Containment Isolation Valves,” for air radiation monitor isolation valve(s) made inoperable by isolation instrumentation.
- Table 3.3.6-1 is revised to identify the LCO 3.3.6 Conditions applicable to the various Functions of the Containment Ventilation Isolation Instrumentation

Technical Evaluation

- Proposed new Conditions are consistent with similar TS Section 3.3 Instrumentation LCO sections of both the current SQN Units 1 and 2 TS and NUREG-1431, such as LCO 3.3.1 “Reactor Trip System (RTS) Instrumentation” and LCO 3.3.2 “Engineered Safety Feature Actuation System (ESFAS) Instrumentation.”
- The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in WCAP-14333-P-A. The specified Completion Time is reasonable considering another train is OPERABLE, and the low probability of an event occurring during this interval.
- The Required Action is modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. Reliability analysis WCAP-10271-P-A indicates that 4 hours is the average time required to perform surveillance.

Precedents

The following precedents are similar to the proposed license amendment request for SQN Units 1 and 2

- Callaway Unit 1 Proposed TS LCO 3.3.6 Revision in September 2011 (ML112660095)
    - Add a Note allowing opening and administrative control of containment mini-purge supply and exhaust valves which have been closed in accordance with the Action. Change necessary to maintain ability to vent containment and maintain pressure within limits.
    - Issue introduced during ITS conversion and not recognized as an operational limitation at the time
    - ML12219A336 – Callaway response to RAIs August 2012
    - ML12318A209 – NRC issuance of Callaway Unit 1 amendment in December 2012

Schedule for Submittal

- TVA plans to submit license amendment request to NRC by June 30, 2025

- LAR to be implemented within 60 days of NRC approval


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