Pre-Submittal Presentation – Containment Temperature & Safety Injection Tank Volume Requirements LAR

April 2023

PaloVerde™
GENERATING STATION

Agenda

- Description of Proposed Changes
- Proposed TS and TS Bases Changes
- Precedence
- Submittal Timeline

Description of Proposed Changes

- The proposed change to surveillance requirements (SRs) 3.5.1.2 and 3.5.2.2 for TS Limiting Condition for Operation (LCO) 3.5.1, *Safety Injection Tanks (SITs) – Operating*, and LCO 3.5.2, *Safety Injection Tanks (SITs) – Shutdown,* will revise the LCO SRs such that the SIT volume design values are expressed in cubic feet, with no instrument uncertainties.
  - The proposed change will list the SIT volumes as analytical values from the Design Basis Accident (DBA) analysis with no instrument uncertainties included.
  - To ensure the DBA analytical limits will not be exceeded, the surveillance procedures supporting TS SRs 3.5.1.2 and 3.5.2.2 will continue to use the current instrument uncertainties.
  - Allows the use of both NR and WR level indication.

Description of Proposed Changes

- The proposed change to the current TS LCO 3.6.5, *Containment Air Temperature*, will revise the LCO limit for containment average air temperature from less than or equal to 117°F to be less than or equal to 120°F, without instrument uncertainty.
  - Original PVNGS TS LCO limit for containment average air temperature was ≤ 120 °F but it was changed to ≤ 117 °F, at APS request, in license amendment (LA) 117 (ADAMS Accession Number ML021720060).
  - Restoring TS LCO limit to design basis analytical value more closely aligns TS 3.6.5, Containment Air Temperature, with Combustion Engineering (CE) Standard Technical Specification (STS).

Description of Proposed Changes

TS LCO 3.6.5, *Containment Air Temperature*

- Provides consistency as it aligns LCO 3.6.5 with other LCOs which list design basis analytical values as limits.
- Does not change initial condition for average containment temperature in PVNGS safety analyses.
- No current plans to change surveillance procedure acceptance criterion, TS Bases markup reflects current SR criterion.

Proposed Changes to TS 3.5.1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each SIT is ≥ 1750 cubic feet ~~28% narrow range~~ and ≤ 1950 cubic feet ~~72% narrow range~~.	In accordance with the Surveillance Frequency Control Program

Proposed Changes to TS 3.5.2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify each required SIT isolation valve is fully open when pressurizer pressure is ≥ 430 psia.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify borated water volume in each required SIT is: a. For four OPERABLE SITs, > 908 cubic feet ~~39% wide range indication~~ and < 2000 cubic feet ~~83% wide range indication~~. OR b. For three OPERABLE SITs, > 1361 cubic feet ~~60% wide range indication~~ and < 2000 cubic feet ~~83% wide range indication~~.	In accordance with the Surveillance Frequency Control Program

Proposed Changes to TS Bases 3.5.1

APPLICABLE SAFETY ANALYSES

A minimum of 1750 cubic feet of borated water, and a maximum of 1950 cubic feet of borated water are used in the safety analyses as the volume in the SITs. The SIT level indicators provided in the control room are marked in percentages, not in cubic feet. The required SIT volumes from the safety analyses are converted to a level percentage with instrument inaccuracies applied to enable performance of surveillance procedures. ~~To allow for instrument inaccuracy, a 28% narrow range (corresponding to 1802 cubic feet) and a 72% narrow range (corresponding to 1914 cubic feet) are specified. The analyses are based upon the cubic feet requirements; the percentage figures are provided in the LCO for operator use because the level indicator provided in the control room is marked in percentages, not in cubic feet~~.

Proposed Changes to TS Bases 3.5.2

APPLICABLE SAFETY ANALYSES

For three OPERABLE SITs, the safety analysis uses a minimum of 1361 cubic feet of borated water ~~and a maximum of 2000 cubic feet of borated water. To allow for instrument inaccuracy, a 60% wide range level (corresponding to 1451.5 cubic feet) and a 83% wide range level (corresponding to 1914 cubic feet) are specified~~. For four OPERABLE SITs, the safety analysis uses a minimum of 908 cubic feet of borated water ~~and a maximum of 2000 cubic feet of borated water. To allow for instrument inaccuracy, a 39% wide range level (corresponding to 1029.2 cubic feet) and a 83% wide range level (corresponding to 1914 cubic feet) are specified. The percentage figures are provided in the LCO for operator use because the level indicator provided in the control room is marked in percentage, not in cubic feet~~. For three OPERABLE SITs and four OPERABLE SITs, an analytical high limit of 2000 cubic feet is developed in the design analyses based on maintaining an adequate gas volume to ensure proper injection and the ability of the SITs to fully discharge. The SIT level indicators provided in the control room are marked in percentages, not in cubic feet. The required SIT volumes from the safety analyses are converted to a level percentage with instrument inaccuracies applied to enable performance of surveillance procedures.

Proposed Changes to TS 3.6.5

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be ≤ ~~117~~120°F.

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

Proposed Changes to TS Bases 3.6.5

APPLICABLE SAFETY ANALYSES (continued)

The initial containment average air temperature condition of 120°F resulted in a maximum vapor temperature in containment of 405.65°F. The temperature of the containment steel liner reached approximately 244°F. The containment Average air temperature limit of 120°F ensures that, in the event of an accident, the maximum design temperature for the containment steel liner, 300°F, is not exceeded. The consequence of exceeding this design temperature may be the potential for degradation of the containment structure under accident loads.

The ~~LCO~~ Technical Specification Surveillance limit of 117°F has been derived to account for instrument inaccuracies. The indicated limit of 117°F ensures that the ~~actual~~ analytical limit of 120°F will not be exceeded.

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii).

Proposed Changes to TS Bases 3.6.5

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1

Verifying that containment average air temperature is within the LCO limit ensures that containment operation remains within the limit assumed for the containment analyses. In order to determine the containment average air temperature, an arithmetic average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~The Primary containment average air temperature is determined by taking the arithmetical average of the temperatures at any five of the following locations:~~

~~a. Nominal Elevation 85' 0"~~
~~b. Nominal Elevation 85' 0"~~
~~c. Nominal Elevation 126' 0"~~
~~d. Nominal Elevation 126' 0"~~
~~e. Nominal Elevation 145' 0"~~
~~f. Nominal Elevation 188' 0"~~
~~g. Nominal Elevation 188' 0"~~

- TS Bases being updated to remove reference to specific temperature indicators to be consistent with the Standard Technical Specification Bases.
- How surveillances are performed not typically described in TS Bases.

Precedents

Changes more closely align PVNGS TS with CE Standard Technical Specifications (NUREG-1432, Vol 1, Rev 5) in that analytical limits are provided in lieu of instrument inaccuracy.

Submittal Timeline

- Submit to NRC April 2023 – Request to submit one license amendment request (LAR) vs. two separate LAR for changes to TS LCO 3.6.5, LCO 3.5.1, and LCO 3.5.2
- Estimated 1-yr NRC review time
- Requesting a 90-day implementation time

Questions