Reactor Coolant System (RCS) Leak Detection Instrumentation License Amendment Request

Pre-Submittal Meeting – February 10, 2026

Palo Verde Nuclear Generating Station

PaloVerde™ GENERATING STATION

Agenda

- Background
- Case for Action
- Analytical Work
- Proposed Technical Specification/Bases Changes
- Schedule

Background

- Original PVNGS RCS leak detection Limiting Condition for Operation (LCO) included noble gas (gaseous) or particulate radiation monitoring and sump instruments
- Improvement in fuel performance reduced RCS gaseous concentrations during power operations limiting effectiveness of gaseous channel to detect RCS leakage
- In 1998, License Amendment 117 changed PVNGS LCO to require both gaseous and particulate channels be operable
- Containment sump instrumentation LCO requirements remained unchanged
- Gaseous channel remains in LCO consistent with RG 1.45 and NRC safety evaluations regarding GDC 4 and leak-before-break methodology for PVNGS

Case for Action

- LCO 3.4.16 Required Action, Condition D, for a loss of all TS credited RCS leak detection instrumentation, is to enter LCO 3.0.3 immediately, which directs that Action shall be initiated within 1 hour to place the unit in:

    a. MODE 3 within 7 hours;

    b. MODE 5 within 37 hours

- Proposed change revises TS Section 3.4.16, *RCS Leakage Detection Instrumentation*, to modify the required actions such that 72 hours is provided to restore RCS leak detection instrumentation, in lieu of plant shutdown, provided alternative RCS leak detection actions are implemented

Case for Action

- Goal is to avoid an unwarranted plant transient/shutdown
- Current requirement to enter LCO 3.0.3, on loss of all RCS leak detection instrumentation, disincentive to perform maintenance on instrumentation equipment at power, as a failure of related instrumentation would require immediate plant shutdown

Analytical Work

- Change similar to Millstone License Amendment (ML082261529)
- RCS Leak Detection Instrumentation is low risk
  - Qualitative insights from PRA indicate LOCA events represent small contribution to Core Damage and Large Early Release frequencies
  - Extending TS 3.4.16 Completion Time to 72 hours has very low safety impact on plant risk
- PVNGS Leak Before Break analyses support proposed completion times

Proposed Changes Addressed in LAR

- Existing Condition C is redesignated as D and a new Condition C added that contains new Required Actions:
    1. Analyze grab samples of the containment atmosphere
       OR
    2. Perform SR 3.4.14.1 [i.e., RCS water inventory balance SR]
       AND
    3. Restore at least one RCS leakage detection monitor to OPERABLE status
- Completion Times for Required Actions C.1 and C.2 would be once per 12 hours
- Completion Time for Required Action C.3 would be 72 hours

Proposed Changes Addressed in LAR

~~D~~C. All required monitors inoperable.	~~D.1~~	~~Enter LCO 3.0.3~~	~~Immediately~~
	C.1	Analyze grab samples of the containment atmosphere.	Once per 12 hours
	OR		
	C.2	Perform SR 3.4.14.1.	Once per 12 hours
	AND		
	C.3	Restore at least one RCS leakage detection monitor to OPERABLE status.	72 hours
~~C~~D. Required Action and associated Completion Time not met.	~~C~~D.1	Be in MODE 3.	6 hours
	AND		
	~~C~~D.2	Be in MODE 5.	36 hours

Conforming TS Bases Change – 3.4.16 Actions

C.1, C.2, and C.3

If all required monitors are inoperable, no automatic means of monitoring leakage are available. Frequent use of indirect methods of monitoring RCS leakage must be implemented. Either grab samples of the containment atmosphere must be taken and analyzed or a water inventory balance must be performed every 12 hours to provide alternate periodic information. With a sample obtained and analyzed or a water inventory balance (SR 3.4.14.1) performed every 12 hours, 72 hours is provided to restore at least one RCS leakage detection monitor. The 72 hour Completion Time is reasonable, considering the low probability of significant RCS leakage occurring during this time and the avoidance of a plant shutdown in response to the loss of monitoring equipment, while providing a reasonable time to restore a monitor to OPERABLE status.

Schedule

- Pre-submittal meeting – February 10, 2026
- Planned submittal – End of February 2026
- Requested approval – 9 months (December 2026)
- Will request 90-day implementation period following NRC approval