

**From:** Lingam, Siva  
**Sent:** Thursday, February 24, 2022 11:58 AM  
**To:** Matthew.Cox@aps.com  
**Cc:** Dixon-Herrity, Jennifer; Bloom, Steven; Terry, Leslie; Johnson, Andrew; Makar, Gregory; Klein, Paul; Carl.Stephenson@aps.com  
**Subject:** Palo Verde, Unit 3 - Final RAIs for 22nd Refueling Outage (Spring 2021) Steam Generator Tube Inservice Inspection Report (EPID L-2021-LRO-0051)

By letter dated October 19, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21292A184), Arizona Public Service Company (the licensee) submitted information summarizing the results of the spring 2021 steam generator (SG) inspections performed at Palo Verde Nuclear Generating Station, Unit 3 (Palo Verde Unit 3). These inspections were performed during refueling outage 22 (3R22).

All pressurized water reactors have Technical Specifications (TSs) according to § 50.36 of Title 10 of the *Code of Federal Regulations* that include a SG Program with specific criteria for the structural and leakage integrity, repair, and inspection of SG tubes. Palo Verde Unit 3 TS Section 5.6.8 requires that a report be submitted within 180 days after the initial entry into hot shutdown (MODE 4) following completion of an inspection of the SGs performed in accordance with TS Section 5.5.9, which requires that a SG Program be established and implemented to ensure SG tube integrity is maintained.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed your application for the subject SG inspection report and concluded that additional information is required for complete evaluation. We transmitted the draft requests for additional information (RAIs) for the subject SG inspection report on February 10, 2022, and at your request, held a clarification call on February 23, 2022. Please note the following **official** RAIs from the NRC staff for the subject SG inspection report, and provide your responses by March 31, 2022, as mutually agreed during the clarification call. Your timely responses will allow the NRC staff to complete its review on schedule.

1. The SG tube in Row 42, Column 89 (R42C89) in SG 31 was reported to have a 57 percent through wall (TW) wear indication associated with batwing 1. The NRC staff noted that this wear indication was reported as 18 percent TW during 3R20 (spring 2018, ADAMS Accession No. ML18306A999). Section 8.0, "Condition Monitoring," of the spring 2021 SG tube inspection report states that no structural and/or leakage integrity threshold values were exceeded, all SG performance criteria were satisfied during Cycles 21 and 22, and no in-situ pressure testing was required. Tube R42C89 in SG 31 was plugged during 3R22. Please discuss the following relative to the 57 percent TW wear indication associated with batwing 1 in tube R42C89 in SG 31:
  - a. Was this wear indication within the previous operational assessment predictions? If not, what changes have been made to the operational assessment?
  - b. Provide the structural length and depth of the wear scar as compared to a wear scar at the condition monitoring limit.
  - c. Any available insights (e.g., thermal hydraulic conditions) on what contributed to the large growth between 3R20 to 3R22.

2. Table 2, "Indication Summary," in Section 8.0 of the spring 2021 SG tube inspection report states that two tubes and seven tubes were plugged in SGs 31 and 32, respectively, due to "Preventative Level III Discretion Due to Array." Please provide additional detail on why these nine tubes were plugged (e.g., insights from the raw array data).

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