



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 15, 2021

Mr. James M. Welsch  
Senior Vice President, Generation  
and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Power Plant  
P.O. Box 56, Mail Code 104/6  
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1 – REVIEW OF THE  
FALL 2020 STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT  
(EPID L-2021-LRO-0022)

Dear Mr. Welsch:

By letter dated April 22, 2021 (Agencywide Documents Access and Management System Accession No. ML21112A158), Pacific Gas and Electric Company (the licensee) submitted information summarizing the results of the fall 2020 steam generator tube inservice inspections performed at Diablo Canyon Nuclear Power Plant, Unit 1. These inspections were performed during refueling outage 22. The steam generator tube inspection report was submitted in accordance with Technical Specification 5.6.10, "Steam Generator (SG) Tube Inspection Report."

Based on its review, the U.S. Nuclear Regulatory Commission (NRC) staff concludes that the licensee has provided the information required by Technical Specification 5.6.10, and that no followup is required at this time. A summary of the NRC staff's review is enclosed.

If you have any questions, please contact me at 301-415-3168 or via e-mail at [Samson.Lee@nrc.gov](mailto:Samson.Lee@nrc.gov).

Sincerely,

*/RA/*

Samson S. Lee, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-275

Enclosure:  
Review of the Steam Generator  
Tube Inspection Report

cc: Listserv

REVIEW OF THE FALL 2020 REFUELING OUTAGE 22

STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-275

By letter dated April 22, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21112A158), Pacific Gas and Electric Company (the licensee) submitted information summarizing the results of its fall 2020 steam generator (SG) tube inspections performed at Diablo Canyon Nuclear Power Plant (Diablo Canyon), Unit 1. These inspections were performed during Refueling Outage 22. The SG tube inspection report was submitted in accordance with Diablo Canyon Technical Specification (TS) 5.6.10, "Steam Generator (SG) Tube Inspection Report."

Diablo Canyon, Unit 1 has four Westinghouse Model D54 SGs, each of which contains 4,444 thermally treated Alloy 690 tubes. Each tube has a nominal outside diameter of 0.750 inches and nominal thickness of 0.043 inch, except for Row 1 and Row 2, which have a nominal thickness of 0.044 inch. During SG fabrication, the tubes were hydraulically expanded over the full depth of the tubesheet. The ends of each tube were tack-expanded using a urethane plug expansion process prior to making an autogenous seal weld on the primary side of the tubesheet. The tubes are arranged on a triangular pitch with 1.144-inch spacing. The tubes in Rows 1 through 16 received full-length thermal stress relief following bending. Eight Type 405 stainless steel support plates, which have broached trefoil-shaped holes, support the vertical section of the tubes. In the U-bend section, the tubes are supported by three sets of "V" shaped Type 405 stainless steel anti-vibration bars.

The licensee provided the scope, extent, methods, and results of its SG tube inspections in the document referenced above. In addition, the licensee described corrective actions (e.g., tube plugging) if any were taken in response to the inspection findings.

Based on the review of the information provided, the U.S. Nuclear Regulatory Commission (NRC) staff has the following observations:

- The only form of degradation noted was tube wear from interactions with tube support plates and anti-vibration bars. No wear from foreign objects was detected and no possible loose parts were detected, so the licensee did not perform foreign object search and retrieval.
- The licensee performed two simplified analysis procedures for the Operational Assessment, a deterministic arithmetic method, and a Monte Carlo method. Both methods showed that the SG performance criteria for structural and leakage integrity would be satisfied until Refueling Outage 25.
- The licensee implemented the more detailed reporting requirements of Technical Specifications Task Force (TSTF) Traveler TSTF-577, Revision 1, "Revised Frequencies for Steam Generator Tube Inspections," dated April 14, 2021 (ADAMS Accession No. ML21099A086), even though they have not implemented TSTF-577.

Enclosure

Based on the review of the information provided, the NRC staff concludes that the licensee provided the information required by Diablo Canyon TS 5.6.10. In addition, the NRC staff concludes that there are no technical issues that warrant follow-up action currently, since the inspections appear to be consistent with the objective of detecting potential tube degradation and the inspection results appear to be consistent with industry operating experience at similarly designed and operated units.

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1 – REVIEW OF THE FALL 2020 STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT (EPID L-2021-LRO-0022) DATED NOVEMBER 15, 2021

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**ADAMS Accession No. ML21307A001**

**\*via e-mail**

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