

Southern California Edison Company

23 PARKER STREET IRVINE, CALIFORNIA 92718

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WALTER C. MARSH MANAGER OF NUCLEAR REGULATORY AFFAIRS

TELEPHONE (714) 484 4403

U. S. Nuclear Regulatory Commission Document Control Desk Washington, D.C. 20555

Gentlemen:

- Subject: Docket No. 50-361 Special Report Inservice Inspection of Steam Generator Tubes San Onofre Nuclear Generating Station, Unit 2
- References: 1. PWR Steam Generator Examination Guidelines, Revision 2, Electric Power Research Institute (EPRI) Report Number NP-6201, dated December 1988.
 - Letter from M. O. Medford (SCE) to Mr. G. W. Knighton (USNRC) dated April 5, 1985.

Pursuant to Surveillance Requirement 4.4.4.5(a) of Appendix A, Technical Specifications to Facility Operating License NPF-10, this report is being submitted to the Commission following the completion of an inservice inspection of steam generator tubes at San Onofre Unit 2.

Eddy current inspection of the steam generator tubing was completed on July 20, 1993. A total of 11,937 tubes (66.0% of the tubes in service) in two steam generators were inspected full length and 32 tubes were removed from service by mechanical plugging. This inspection significantly exceeded the amount of tubing required to be inspected per Surveillance Requirements 4.4.4.0 through 4.4.4.2, including all prospective C-2 expansions [i.e., a 3% sample plus a 6% (2S) and a 12% (4S) expansion in each steam generator].

The planned inspection programs for both steam generators were fully consistent with industry recommendations in the "PWR Steam Generator Examination Guidelines" (Reference 1). The programs included inspection of the full length of 100% of the tubing in the central cavity region of the tube bundle where the batwing wear mechanism previously described in Reference 2 is active, and tubes adjacent to tie-rods.

The inspection programs for both steam generators were expanded. The expansions included local bounding of tubes to be plugged, inspection of the full length of all tubes not in the inspection programs within the past four years, and inspection of all tubes with a motorized rotating pancake coil (MRPC) probe at the inlet top-of-tubesheet location.

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In Steam Generator E-088, 5987 tubes were inspected full length. Two tubes were found with the MRPC probe to have a circumferential indication at the inlet top-of-tubesheet location and were plugged. One tube was found with the MRPC probe to have axial indications at the inlet top-of-tubesheet, and was plugged. One tube was found with the MRPC probe to have a volumetric indication at the inlet top-of-tubesheet, and was plugged. One tube was preventively plugged due to tie-rod denting. Three tubes were preventively plugged due to degradation at a vertical strap support. Three tubes were preventively plugged due to degradation at a batwing support.

In Steam Generator E-089, 5950 tubes were inspected. Ten tubes were found with the MRPC probe to have circumferential indications at the inlet top-oftubesheet location and were plugged. Two tubes were found with the MRPC probe to have axial indications at the inlet top-of-tubesheet, and were plugged. Two tubes were found to be defective, due to greater than 90% throughwall indications within the explosively expanded region within the tubesheet, and were plugged. MRPC probe testing of these two tubes within the tubesheet revealed that the indications are axially oriented.

One tube in E-089 was found to be defective, due to a 89% throughwall indication at the sixth eggcrate support on the inlet side of the tube, and was plugged. MRPC probe testing of this indication, and an indication in this tube at the fifth eggcrate support on the inlet side of the tube, revealed an axial indication at each of these locations. One other tube in E-089 had a similar axial indication at the sixth eggcrate support on the inlet side of the tube, and the tube, and it was plugged.

Also, in E-089 two tubes were preventively plugged due to degradation at a vertical strap support. One tube was preventively plugged due to degradation at an eggcrate support. Two tubes were preventively plugged due to degradation at a batwing support.

As required by Surveillance Requirement 4.4.4.5(b), complete results of the recently completed inservice inspection will be submitted to the Commission by July 20, 1994.

If you require any additional information, please so advise.

Sincerely,

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CC:

 R. H. Faulkenberry, Regional Administrator, USNRC Region V
C. W. Caldwell, USNRC Senior Resident Inspector, Units 1, 2 & 3
M. B. Fields, Project Manager, SONGS 2/3, USNRC, NRR Institute of Nuclear Power Operations (INPO)