

April 03, 2006

Mr. Richard M. Rosenblum
Senior Vice President and Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2 - SUMMARY OF
JANUARY 2006 DISCUSSIONS OF STEAM GENERATOR TUBE
INSPECTIONS (TAC NO. MC8395)

Dear Mr. Rosenblum:

On January 23, 2006, the Nuclear Regulatory Commission (NRC) staff participated in conference calls with Southern California Edison (SCE) representatives regarding the 2006 steam generator tube inspections at San Onofre Nuclear Generating Station, Unit 2. The information supplied by SCE, in support of these discussions (handouts), is enclosed. The NRC staff did not identify any issues that would warrant preventing the plant from starting up following its 14th refueling outage.

Sincerely,

/RA/

N. Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No.: 50-361

Enclosures: 1. Summary of conference call
2. Information supplied by SCE in
support of these discussions (handouts)

cc w/encls: See next page

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DATE	4/3/06	4/3/06	02/23/06	4/3/06

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SUMMARY OF CONFERENCE CALL WITH
SAN ONOFRE NUCLEAR GENERATING STATION UNIT 2 (SONGS-2)
REGARDING THE FALL 2005 STEAM GENERATOR TUBE INSPECTION RESULTS

On January 23, 2006, U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with San Onofre Nuclear Generating Station, Unit 2 (SONGS-2) representatives regarding the fall 2005 steam generator (SG) tube inspection activities. The issues discussed included those listed in the enclosure to the letter documenting the arrangement of this conference call, which was sent to SONGS-2 on September 28, 2005 (Agencywide Documents Access and Management System Accession number ML052690119). Prior to the conference call, the licensee provided a handout to facilitate the discussion, included as Enclosure 2 to this letter.

The conference call summarized below is based on the information provided in the handout.

Background information on the SONGS-2 SGs is provided on page 2 of the handout. The two SGs supplied by Combustion Engineering (CE) are designated as SG 88 and SG 89. The SGs were originally designed with 9352 tubes. Through four campaigns, 345 tubes in SG 88 and 189 tubes in SG 89 were sleeved. The CE/Asea Brown Boveri (ABB) designed sleeves have a welded upper joint and a rolled lower joint.

At the time of the call, eddy current (ECT) inspection by the bobbin probe was complete and approximately 97 percent of the ECT by +Point inspection was complete (page 4 of the handout).

The description of the inspections performed during the outage and the results are provided on pages 8 through 13 of the handout. Approximately 18,000 tubes were inspected during this outage.

No indications were found in the cold-leg top-of-tubesheet locations inspected with +Point and, therefore, the inspection scope was not expanded beyond the 20 percent of the tubes inspected. In response to the recent findings at Catawba, Unit 2, the licensee examined tubes adjacent to the tie rods and the tubes surrounding all new and previously identified loose parts indications within 1 inch of the tubesheet.

One correction to the handout, on page 10, there were no miscellaneous obstructed u-bend indications in SG 88.

Based on its presentation to the NRC staff in July 2005, the licensee did not expect the number of sleeved tubes determined to be obstructed within the sleeves (63 in SG 88 and 35 in SG 89). On page 13 of the handout, the licensee summarizes the sleeve inspection results.

The abbreviation "Obs" indicates the number of sleeves obstructed or partially obstructed. Obstructed sleeves have no inspection data because of partial obstruction or obstruction near the entrance of the sleeve. Partially obstructed sleeves were completely inspected with the +Point probe; however, the ECT signals indicated partial obstruction based on data from

Comanche Peak. The abbreviation "%Obs" is the percentage of obstructed sleeves from the population of sleeves installed. The licensee indicated that the obstruction locations varied over the entire length of the sleeve and were determined by how far the probe traveled. In completing its accident analyses, the licensee assumed all obstructed sleeved tubes acted like plugged tubes and concluded that structural and leakage integrity was maintained even if the sleeve fully collapsed. This was demonstrated during the qualification testing for the sleeving process. No sleeves were to be installed this outage and all obstructed sleeves were taken out of service.

For all sleeves examined at the joints, no damage was found; however, nickel migration was seen at the outer diameter of the sleeve to the upper joint. The licensee believes the nickel migrated from the sealing bands at the rolled joint. This phenomenon was seen in the past and at other plants.

The NRC staff requested the licensee to discuss the impact of plugging the sleeved tubes on the plant's operating power level. The currently approved safety analyses assumed that a maximum of 21.4 percent of the tube population is plugged. With the planned plugging of sleeved tubes, the licensee estimated that approximately 17 percent of the tubes will have been plugged. The licensee indicated that these SGs will be inspected a final time, during the next refueling outage, prior to replacement. SONGS-2 was operating at 99 percent power before this outage (valves fully open) and is expected to return from this outage, after plugging the sleeved tubes, at approximately 95 percent power.

The licensee subsequently informed the NRC staff that 10 tubes with obstructed sleeves were in-situ pressure tested at $3\Delta P$ and all passed with no leakage.

San Onofre Nuclear Generating Station
Units 2 and 3

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March 2006

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March 2006