

January 11, 2002

Mr. Harold B. Ray
Executive Vice President
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San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: REQUEST FOR RELIEF REGARDING REACTOR PRESSURE VESSEL
NOZZLE EXAMINATIONS FOR SAN ONOFRE NUCLEAR GENERATING
STATION, UNITS 2 AND 3 (TAC NOS. MB2484 AND MB2485)

Dear Mr. Ray:

By letter dated July 27, 2001, as supplemented by letters dated November 29 and December 24, 2001, Southern California Edison Company (the licensee), requested relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the ASME Code) required inspection criteria. The proposed alternative to the ASME Code is contained in Relief Request RR B-2-04 for the second 10-year inservice inspection interval at San Onofre Nuclear Generating Station (SONGS), Units 2 and 3.

Based on the enclosed safety evaluation, the NRC staff concludes that RR B-2-04 provides an acceptable level of quality and safety. Therefore, pursuant to Section 10 CFR 50.55a(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR), the Commission authorizes the proposed alternative in RR B-2-04 for the second 10-year inservice inspection intervals at SONGS, Units 2 and 3.

The three requests for relief, RRs B-2-01, B-2-02, and B-2-03, which were submitted in the separate letter of June 29, 2001, were authorized in the NRC staff's letter of November 20, 2001. This letter closes out the NRC staff's work for TAC Nos. MB2484 and MB2485.

Sincerely,

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM
RELIEF REQUEST RR B-2-04
REACTOR PRESSURE VESSEL NOZZLE EXAMINATIONS
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3
SOUTHERN CALIFORNIA EDISON COMPANY
DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

By letter dated July 27, 2001, as supplemented by letters of November 29 and December 24, 2001, Southern California Edison Company (the licensee), submitted Relief Request (RR) B-2-04 for relief from the volumetric examination requirements in Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the ASME Code) for San Onofre Nuclear Generating Station (SONGS), Units 2 and 3. Alternatively, the licensee requested that the Commission approve the use of VT-1 visual examination enhanced by using a camera of an 8 to 1 zoom to inspect the inner radius section of the reactor pressure vessel (RPV) nozzles during the second inspection interval in support of Cycle 12 refueling outages. The outages are scheduled to start in May 2002 for Unit 2 and January 2003 for Unit 3.

2.0 APPLICABLE REQUIREMENTS

Inservice inspection (ISI) of the RPV nozzles shall be performed in accordance with Section XI of the ASME Code and applicable addenda as required by Section 10 CFR 50.55a(g) of Title 10 of the *Code of Federal Regulations* (10 CFR), except where specific written relief has been granted by the Commission pursuant to Section 10 CFR 50.55a(g)(6)(i). Section 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety; or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to Section 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in Section 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval,

subject to the limitations and modifications listed therein. The ASME Code of record for SONGS, Units 2 and 3 for the second 10-year interval is the 1989 Edition of Section XI of the ASME Code, with no addenda.

3.0 EVALUATION

The components for which relief is requested:

The licensee identifies RPV nozzle inside radius section for SONGS, Units 2 and 3, as the component, to which the relief request is intended to apply.

Applicable ASME Code requirement from which relief is requested:

RPV nozzles must be examined in accordance with the requirements of IWB-2500-1 of the 1989 Edition for both units. IWB-2500 states that:

“(a) Components shall be examined and tested as specified in Table IWB-2500-1. The method of examination for the components and parts of the pressure retaining boundaries shall comply with those tabulated in Table IWB-2500-1 except where alternative examination methods are used that meet the requirements of IWA-2240.”

The specific ASME Code requirement for the RPV nozzle inside radius section is provided in Item No. B3.100 of Table IWB-2500-1, and the examination method stipulated is volumetric.

Licensee's Basis for Requesting Relief:

“According to an NRC memorandum (Reference 2), the staff indicated that an Ultrasonic (UT) examination could be replaced by VT-1 visual examination for the proposed Reactor Pressure Vessel nozzle inspections on the basis that surveillance is maintained and VT-1 visual examination is performed.

The implementation of this relief is also expected to reduce on-vessel examination time by as much as 10 hours, which translates to significant cost savings and reduced personnel radiation exposure.”

Licensee's Proposed Alternative Examination:

Pursuant to Section 10 CFR 50.55a(a)(3)(i), the licensee proposed to perform a VT-1 visual examination enhanced by using a camera of an 8 to 1 zoom on the RPV nozzle inside radius section for SONGS, Units 2 and 3.

NRC Staff Evaluation:

The NRC staff has evaluated the licensee's basis for requesting relief. As stated in the meeting summary dated May 25, 2000, for a meeting held at NRC headquarters on May 9, 2000, with industry on the subject of RPV Nozzle Inner Radius Inspection, the NRC staff concluded, “UT inspections could be replaced by VT-1 for the proposed RPV nozzle inspections, on the basis

that surveillance is maintained and VT-1, which is superior to the current requirement for VT-3, would ensure the same capability of the visual examination as that shown in the tape for the Indian Point Unit 3 inspection.” Since the video tape was made using a camera of an 8 to 1 zoom, the VT-1 that the NRC staff referred to in the meeting summary is best described as a VT-1 visual examination enhanced by using a camera of an 8 to 1 zoom. Considering the proposed use of a high magnification camera for the VT-1 examinations (with resolution better than 1 mil), the NRC staff has determined that it is highly unlikely that the licensee would not detect flaws of 1-mil opening, and, therefore, the proposed inspection method provides adequate assurance of structural integrity of the RPV nozzles. The licensee has also committed to adhere to the allowable flaw length criteria in Table IWB-3512-1 of the ASME Code, Section XI, 1998 edition, for the disposition of any linear flaws. Hence, the NRC staff concludes that there is reasonable assurance that the proposed alternative will result in an acceptable level of quality and safety.

4.0 CONCLUSION

The NRC staff has evaluated the licensee’s submittal and concluded that the proposed alternative would provide an acceptable level of quality and safety, and the proposed alternative provides reasonable assurance of structural integrity of the subject components. Therefore, RR B-2-04 is authorized pursuant to Section 10 CFR 50.55a(a)(3)(i) for the second 10-year ISI at SONGS, Units 2 and 3.

Principal contributor: Simon Sheng

Date: January 11, 2002