

June 29, 2001

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

**Subject: Docket Nos. 50-361 and 50-362
Second Ten-Year Interval Inservice Inspection Program
Reactor Pressure Vessel Examinations
San Onofre Nuclear Generating Station
Units 2 and 3**

**Reference: Federal Register: September 22, 1999 (Volume 64, Number 183)
10 CFR Part 50 Industry Codes and Standards; Amended
Requirements; Final Rule [Page 51370]**

Gentlemen:

This letter requests NRC approval of three (3) Relief Requests (RRs) from the ASME Code requirements for the reactor pressure vessel (RPV) examinations for use at San Onofre Nuclear Generating Station Units 2 and 3. These 3 RR's, provided as Enclosures 1 through 3, are the following:

Enclosure	Relief Request	Summary Description
1	RR B-2-01	Examination Category B-A: Alternative Length Sizing Criteria
2	RR B-2-02	Examination Category B-D: Reduced weld volume of 1/2 inch from the Weld.
3	RR B-2-03	Examination Category B-J: RPV Piping Nozzle Ultrasonic Testing from the Inside Surface

On September 22, 1999, the Nuclear Regulatory Commission issued an amendment to 10 CFR 50.55a to incorporate by reference more recent editions and addenda of the ASME Boiler and Pressure Vessel Code and the ASME Code for Operation and Maintenance of Nuclear Power Plants for construction, inservice inspection, and inservice testing. These provisions provide updated

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rules for the construction of components of light-water-cooled nuclear power plants, and for the inservice inspection and inservice testing of those components. This final rule permits the use of improved methods for construction, inservice inspection, and inservice testing of nuclear power plant components.

RRs B-2-01 through B-2-03 seek relief from specific requirements of Subsection IWB in accordance with 10 CFR 50.55a (a)(3). Relief is requested because the existing program at San Onofre Units 2 and 3 provides an acceptable level of quality and safety, and because compliance with the ASME Code requirement results in a hardship and an unusual difficulty without a compensating increase in the level of quality and safety. The specific reasons are provided in each individual request. It is noted that the NRC has approved these three relief requests for other plants.

These relief requests are needed to support the Unit 2 Cycle 12 refueling outage, which is scheduled to begin in May of 2002. To support planning activities for the reactor pressure vessel examinations that will be performed during the Cycle 12 refueling outage, your approval by January 1, 2002 would be greatly appreciated.

If you have any questions or need additional information regarding this matter, please feel free to contact me or Mr. Jack Rainsberry at (949) 368-7420.

Sincerely,



Enclosures

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
J. E. Donoghue, NRC Project Manager, San Onofre Units 2, and 3
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 & 3

Enclosure 1
Relief Request
RR B-2-01

**San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-01**

COMPONENT DESCRIPTION:

ASME Section XI, Class 1, Examination category B-A, Item no. B1.10 reactor pressure vessel (RPV) longitudinal and circumferential shell welds and B1.20 RPV head welds subject to Appendix VIII, Supplement 4 examination.

ASME CODE CLASS:

ASME Section XI Class 1

ASME EXAMINATION REQUIREMENTS:

10 CFR 50.55a(b)(2) was amended to reference Section XI of the Code through the 1995 Edition with the 1996 Addenda (64 FR 51370). ASME Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 4, Subparagraph 3.2(c), requires that the ultrasonic testing performance demonstration results be plotted on a two dimensional plot with the measured depth plotted along the ordinate axis and the true depth plotted along the abscissa axis. For qualification, the plot must satisfy the following statistical parameters: (1) the slope of the linear regression line is not less than 0.7; (2) the mean deviation of flaw depth is less than 0.25 inches; and (3) the correlation coefficient is not less than 0.70.

RELIEF REQUESTED:

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested to use the Root Mean Square Error (RMSE) calculations of 3.2(a) and 3.2(b) in lieu of the statistical parameters of 3.2(c). These examinations will be performed during the second ten-year inspection interval for San Onofre Nuclear Generating Units 2 and 3.

BASIS FOR RELIEF:

In a public meeting (Reference 1) on October 11, 2000, the Performance Demonstration Initiative (PDI) identified the discrepancy between the Subparagraph 3.2(c) and the PDI program. After review, the NRC has agreed that 10 CFR 50.55a(b)(2)(xv)(C)(1) should have excluded Subparagraph 3.2(c) as a requirement.

Subsequently, the NRC granted similar relief for Millstone Nuclear Power Station Units Nos. 2 and 3, Hope Creek Generating Station, and Salem Generating Station, Unit Nos. 1 and 2. (References 2 and 3).

San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-01

ALTERNATIVE EXAMINATION:

Pursuant to 10 CFR 50.55a(a)(3)(i), The Southern California Edison Company proposes to use the RMSE values of 10 CFR 50.55a(b)(2)(xv)(C)(1) which modifies the depth sizing criterion of Appendix VIII, Supplement 4, Subparagraph 3.2(a), in lieu of Subparagraph 3.2(c).

IMPLEMENTATION SCHEDULE:

Second Inservice Inspection Interval

REFERENCES

- 1) Memorandum from D. G. Naujock to E. J. Sullivan titled, "Summary of Public Meeting Held on October 11, 2000, with PDI Representatives," dated November 13, 2000.
- 2) Letter from J. Clifford, NRC NRR to R.G. Lizotte, Northeast Nuclear Energy Company, Subject: Millstone Nuclear Power Station, Units Nos. 2 and 3 – Request for Relief (TAC Nos. MA9857 and MA9858), dated January 26, 2001, Enclosure 1 – Safety Evaluation..
- 3) Letter from J. Clifford, NRC NRR to H. W. Keiser PSEG Nuclear LLC, Subject: Hope Creek Generating Station and Salem Nuclear Generating Station, Unit Nos 1 and 2 – Evaluation of Relief Request RR-B6-1 (TAC Nos. MB1401 MB1399 and MB1400), dated March 26, 2001.

Enclosure 2
Relief Request
RR B-2-02

San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-02

COMPONENT DESCRIPTION:

San Onofre Units 2 and 3, Class 1 Reactor Pressure Vessel (RPV) Nozzle-to-Vessel welds.

ASME CODE CLASS:

ASME Section XI Class 1

ASME EXAMINATION REQUIREMENTS:

ASME Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 1989 Edition with no Addenda; Table IWB-2500-1, Examination Category B-D, Full Penetration Welds of Nozzles in Vessels, Code Item B3.90, Figures IWB-2500-7 (a) and (b) for defining the examination volume and Article 4 of Section V for the Ultrasonic (UT) examination.

In addition Southern California Edison (SCE) had committed in the second Interval Inservice Inspection Program (Reference 1) to implement Alternative A to Regulatory Guide 1.150, Rev. 1 "Ultrasonic Testing Of Reactor Pressure Vessel (RPV) Welds During Preservice and Inservice Examinations" as regulatory guidance for the UT examination of RPV welds.

RELIEF REQUESTED:

Pursuant to 10CFR50.55a(a)(3)(i), SCE requests relief from the $t_w/2$ examination volume requirements of ASME Section XI, Figures IWB-2500-7 (a) and (b).

Additionally, SCE requests relief from ASME Section V, Article 4 for the performance of the required volumetric examinations as specified in Table IWB-2500-1 Category B-D of the 1989 Edition with no Addenda of ASME Section XI.

This relief is requested for the San Onofre Units 2 and 3, second 10-year interval vessel examination.

BASIS FOR RELIEF:

San Onofre Units 2 and 3 are currently required to perform in-service examinations of selected welds in accordance with the requirements of 10CFR50.55a, Plant Technical Specifications, and the 1989 Edition with no Addenda of the American Society of Mechanical Engineers Boiler and Pressure

**San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-02**

Vessel Code, Section XI, Rules for In-Service Inspection of Nuclear Power Plant Components. The Code invokes the $(t_w/2)$ examination volume requirements of Figures IWB-2500-7 (a) and (b).

The examination volume for the RPV pressure retaining nozzle-to-vessel welds extend far beyond the weld into the base metal, and is unnecessarily large. This extends the examination time significantly, and results in no net increase in safety, as the area being examined is a base metal region which is not prone to in-service cracking and has been extensively examined during construction, pre-service examination, and during the first in-service examinations with acceptable results.

The implementation of this request for relief would reduce the examination volume next to the widest part of the weld from half of the vessel wall thickness to one-half ($1/2$) inch from the weld. This reduction is applicable to base metal examination volume that was extensively interrogated during the construction and preservice inspections and is not located in the high stressed areas of the nozzle-to-vessel weld. The high stressed areas are included in the examination volume as defined above and are subject to examination.

The UT examination of the RPV vessel-to-nozzle weld will be performed both from the vessel shell and from the nozzle bore to ensure full code required through volume examination coverage. The portion of the examination from the vessel shell will be conducted utilizing Appendix VIII Supplements 4 and 6 as amended by the Final Rule in Federal Register Notice 64FR 51370 dated September 22, 1999 in lieu of Article 4 of Section V, which will allow SCE to use a Performance Demonstration Initiative (PDI) qualified procedure, personnel and equipment for the examination.

In addition to the examination from the vessel wall, a UT examination from the nozzle bore will be performed per the requirements of Article 4 of Section V and the subsequent guideline requirements of Regulatory Guide 1.150 Rev 1. Currently there are no PDI qualified procedures for the bore examination of the nozzle to vessel weld. The Final Rule requires implementation of Appendix VIII Supplement 7 "Qualification Requirements for Nozzle-To-Vessel Weld" by November 22, 2002. In Supplement 7 and as amended in the Final Rule, both Supplements 4 and 6 will be required at that time.

The use of a qualified UT procedure implementing Supplements 4 and 6 for the portion of the examinations conducted from the vessel shell will save time on the RPV since this would be the same procedure and set up as used for the adjacent welds.

San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-02

Recently, the NRC granted similar relief to Salem Generating Station, Unit 1. (Reference 2).

ALTERNATIVE EXAMINATIONS

SCE proposes to use the reduced volume of one-half ($\frac{1}{2}$) inch from the weld, in lieu of the requirements of ASME Section XI Figures IWB-2500-7 (a) and (b).

SCE proposes to use the alternative requirements defined above in lieu of ASME Section V, Article 4 for the performance of the required volumetric examinations as specified in Table IWB-2500-1 Category B-D of the 1989 Edition with no Addenda of ASME Section XI.

SCE will perform examinations in accordance with ASME Code, Section XI, Div. 1, 1995 Edition, 1996 Addenda, Appendix VIII Supplement 4 and 6 as amended by the Federal Register Notice 64FR 51370 dated September 22, 1999, for the portion of the examination conducted from the vessel shell.

The extent of examination coverage proposed, along with the demonstrated ultrasonic technique and periodic system pressure tests, will provide added assurance that the Reactor Vessel welds have remained free of service related flaws, therefore providing an acceptable level of quality and safety.

REFERENCES

- 1) Letter from W. C. Marsh (SCE) to the Document Control Desk (NRC), dated October 4, 1993; Subject: Docket Nos. 50-361 and 50-362, ASME Code Update for the Second Ten Year Interval, Inservice Inspection Programs, San Onofre Nuclear Generating Station, Units 2 and 3
- 2) Letter from J. Clifford (NRC) to H. W. Keiser (PSEG Nuclear) dated April 26, 2001; Subject: Salem Nuclear Generating Station, Unit No. 1 - Relief from ASME Code Requirements Related to the Inservice Inspection Program, Second 10-Year Interval, Relief Request RR-B8 (TAC No. MB1228)

Enclosure 3
Relief Request
RR B-2-03

**San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-03**

COMPONENT DESCRIPTION:

San Onofre Units 2 and 3, Class 1, Category B-J Pressure Retaining Piping welds attaching the Reactor Pressure Vessel (RPV) Nozzle to extension piece and extension piece to pipe weld.

ASME CODE CLASS:

ASME Section XI Class 1

ASME EXAMINATION REQUIREMENTS

The 1999 Edition of 10 CFR 50.55(a) Codes and Standards was revised by Federal Register Notice 64 FR 51400, September 22, 1999. This revision requires that ASME Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 1995 Edition with 1996 Addenda, Appendix VIII, Supplement 3 for Ferritic piping welds be implemented by May 22, 2000.

RELIEF REQUESTED:

Pursuant to 10CFR50.55a(a)(3)(ii), SCE requests relief from ASME Section XI, Appendix VIII Supplement 3 for piping welds to be examined from the inside surface. This relief request would be for the San Onofre Units 2 and 3 second 10-year interval reactor pressure vessel examination.

BASIS FOR RELIEF

The subject welds are located inside the primary shield and reactor cavity. Welds are difficult to access. The ultrasonic testing (UT) examination from the outside surface examination would be severely limited. Limitations from the pipe outside diameter (OD) would be due to the close proximity of two welds: RPV nozzle to extension piece weld and the extension piece to pipe or elbow weld. There are currently no Appendix VIII qualified personnel or procedures for performing piping welds from the inside surface. In lieu of doing the Appendix VIII, Supplement 3 UT examinations from the pipe OD, SCE requests relief to continue the past practice of performing the UT examination from the inside diameter (ID). This will be done in conjunction with our 10-year vessel examination, utilizing current industry technology. This will reduce the examination limitations by employing the UT from the ID. The ID examination would reduce the radiation dose. To perform the UT examination from the outside surface those performing the manual examinations (and supports such as builders of scaffolding, removal of insulation, preparing and cleaning the welds, fire watch, health physics among others) shall be exposed to a dose rate

**San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-03**

of 250 to 8000 mRem/Hr. The estimated number of hours required of these examinations, as documented in Section 3.3.2.4 of the 2nd Interval Inservice Inspection Program (Reference 1) are as follows: Build scaffolding: 64 hours, remove insulations: 32 hours, weld preparation: 48 hours, non-destructive examinations for 24 welds: 96 hours, reinstall insulations: 32 hours and remove scaffolding: 32 hours. The total man-hours are 304. Using an effective dose rate of 0.25 R/Hr for work directly on the welds and 0.040 R/Hr for work away from the welds, the estimated dose is 27 Person-Rem.

The concept of personnel performance demonstrations for ultrasonic examination qualifications was introduced to the nuclear industry in the 1989 Edition, 1989 Addenda, of Section XI. The Performance Demonstration Initiative (PDI) was formed in 1991 to implement the requirements of Appendix VIII. When the PDI proposed an alternative implementation schedule, during the public comment period, it did not consider the ID surface examinations of Category B-J welds performed from the ID surface.

Qualifications for piping examinations from the OD surface were initiated in 1994. Examinations from the ID surface were considered in the design and fabrication of piping samples. However, it was the intention of PDI to complete the piping qualifications that are performed from the ID surface, in conjunction with the nozzle-to-shell and dissimilar metal welds. These examinations are normally performed using the RPV examination device. A stand-alone qualification for the one or two Category B-J welds past the RPV nozzle will require additional qualification specimens, which are not currently available. Performing separate qualifications at this time, and later returning to perform the nozzle and dissimilar metal weld qualifications places an undo burden on the vendors and owners.

Our vendor would be required to perform an additional qualification exercise if they have to implement Appendix VIII examinations on the subject welds during the Cycle 12 refueling outages. It is estimated that the total cost to our inspection vendor could exceed \$100,000. If these qualifications were performed at the same time as the dissimilar metal weld qualifications, the additional costs would be minimal.

These combined demonstrations would be performed according to the requirements of Supplement 12 to Appendix VIII. Modifications of Supplement 12 are currently in progress within the ASME Code to address piping examination from the ID surface. The required implementation date for Supplement 12 is November 22, 2002.

PDI has been administering Supplement 3 exams since 1994. These demonstrations have not included examinations from the pipe ID surface. Supplement 12 examinations are expected to begin by the required implementation date of November 22, 2002. This implementation date gives the

**San Onofre Nuclear Generating Station
Units 2 and 3
Second Ten-Year Interval
ISI RELIEF REQUEST RR B-2-03**

industry adequate time to prepare samples, procedures, protocols, and demonstrations prior to outages scheduled on or after this date.

Attempting to implement the requirements during the Cycle 12 refueling outages, for examining the subject welds from the inside surface would be a hardship. Relief is therefore requested in accordance with 10 CFR 50.55a(a)(3)(ii). Compliance with the specified requirements of doing the Appendix VIII, Supplement 3 UT examinations from the pipe OD would result in hardship or unusual difficulty without a compensating increase in the level of safety.

Recently, the NRC granted similar relief to Salem Generating Station, Unit 1. (Reference 2).

ALTERNATIVE EXAMINATIONS

Perform RPV ultrasonic examination of the RPV nozzle to extension piece weld and the extension piece to pipe or elbow welds from the inside surface in accordance with the 1989 Edition, no Addenda of the ASME Boiler and Pressure Vessel Code, Section XI, per the previous commitment in the 2nd Interval Inservice Inspection Program (Reference 1).

REFERENCES

- 1) Letter from W. C. Marsh (SCE) to the Document Control Desk (NRC), dated October 4, 1993; Subject: Docket Nos. 50-361 and 50-362, ASME Code Update for the Second Ten Year Interval, Inservice Inspection Programs, San Onofre Nuclear Generating Station, Units 2 and 3
- 2) Letter from J. Clifford (NRC) to H. W. Keiser (PSEG Nuclear) dated April 26, 2001; Subject: Salem Nuclear Generating Station, Unit No. 1 - Relief from ASME Code Requirements Related to the Inservice Inspection Program, Second 10-Year Interval, Relief Request RR-B12 (TAC No. MB1236)