

April 16, 2004

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

**Subject: Docket Nos. 50-361 and 50-362
Second Ten-Year Inservice Inspection (ISI) Interval Relief
Request RR-B-2-08 Regarding American Society of Mechanical
Engineers (ASME) Boiler and Pressure Vessel Code Inspection
Requirements for Item No. B3.90, Nozzle to Vessel Welds
San Onofre Nuclear Generating Station Units 2 and 3**

Dear Sir or Madam,

This letter submits the Southern California Edison (SCE) Company's Relief Request RR-B-2-08 to obtain relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code inspection requirements for Section XI, Class 1, Table IWB-2500-1, Examination Category B-D, Item No. B3.90, nozzle to vessel welds.

SCE is making this request because the design configuration restrictions make the ASME Code examination coverage requirements impractical. Plant modifications or the replacement of components would have been needed to allow the complete examination coverage that is required by the ASME Code. This would have imposed a considerable burden on SCE without a compensating increase in the level of quality and safety.

SCE requests NRC approval of Relief Request RR-B-2-08 prior to August 17, 2004, which is the 12 months following the end of the second ten-year interval of the San Onofre Nuclear Generating Station Units 2 and 3 Inservice Inspection Programs.

Document Control Desk

-2-

April 16, 2004

Should you have any questions, please contact Mr. Jack Rainsberry at (949) 368-7420.

Sincerely,

A handwritten signature in black ink, appearing to read "C. C. Osterholtz". The signature is fluid and cursive, with the first name being the most prominent.

Enclosure

cc: B. S. Mallett, Regional Administrator, NRC Region IV
B. M. Pham, NRC Project Manager, San Onofre Units 2, and 3
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 & 3

ENCLOSURE

Relief Request RR-B-2-08

**Request to Obtain Relief from ASME Code Inspection Requirements
for Section XI, Class 1, Table IWB-2500-1, Examination Category B-D,
Item No. B3.90, Nozzle to Vessel Welds**

10 CFR 50.55a Request for Relief RR-B-2-08

Relief Request
In Accordance with 10 CFR 50.55a(g)(5)(iii)

--Inservice Inspection Impracticality--

1. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Components Affected

ASME Section XI, Class 1, Table IWB-2500-1, Examination Category B-D, Item No. B3.90, nozzle to vessel welds listed below:

San Onofre Nuclear Generation Station (SONGS) Unit 2

Weld ID	Description	Category	Item	Examination Method	Examination Volume Covered
02-001-021	Hot leg nozzle to shell weld at 0 degree	B-D	B3.90	Volumetric (UT)	74.1 %
02-001-024	Hot leg nozzle to shell weld at 180 degrees	B-D	B3.90	Volumetric (UT)	74.1 %

SONGS Unit 3

03-001-021	Hot leg nozzle to shell weld at 0 degree	B-D	B3.90	Volumetric (UT)	74.1 %
03-001-024	Hot leg nozzle to shell weld at 180 degrees	B-D	B3.90	Volumetric (UT)	74.1 %

2. Applicable Code Edition and Addenda

ASME Section XI Code 1989 Edition, no Addenda, for the second ten-year inservice inspection (ISI) interval, Table IWB-2500-1, Examination Category B-D, full penetration welds of nozzles in vessels, Item No. B3.90 nozzle to vessel welds.

3. Applicable Code Requirement

ASME Section XI, Class 1, Table IWB-2500-1, Examination Category B-D, Item No. B3.90, nozzle to vessel welds, examination requirements figure no. IWB-2500-7(a). See Attachment 1.

Ultrasonic examination requirements were modified on September 22, 1999, when the Nuclear Regulatory Commission issued an amendment to 10 CFR 50.55a. This amendment incorporated by reference more recent editions and addenda of the ASME Boiler and Pressure Vessel Code (i.e., ASME Section XI Code 1995 Edition with the 1996 Addenda for Appendix VIII Performance Demonstration for Ultrasonic Examination Systems).

Relief Request No. RR-B-2-02 was granted for SONGS Units 2 and 3 for the Examination Category B-D, Item No. B3.90 "Reactor Vessel Nozzle to Vessel Welds," to reduce the examination volume to one-half inch from the widest part of the weld in lieu of one-half through wall thickness from each side of the weld. An alternative to perform nozzle to vessel weld examinations from the vessel shell with Appendix VIII qualified personnel and procedures where possible was granted for SONGS Unit 2 only until November 22, 2002.

4. Impracticality of Compliance

The ASME Section XI Code 1989 Edition no Addenda and the 1995 Edition through the 1996 Addenda Table IWB-2500-1, Examination Category B-D, full penetration welds of nozzles in vessels, Item No. B3.90 nozzle to vessel welds requires examination volume shall be per figure shown in IWB-2500-7(a).

Note: Relief request RR-B-2-02 allowed SONGS Units 2 and 3 to perform the examination one-half inch from the widest part of the weld in lieu of one-half through wall thickness from each side of the weld.

Unit 2 Examination Limitations

During the Unit 2 Cycle-12 refueling outage in the summer of 2002 the outlet nozzle to shell welds were examined by remote tool (automated examination) from the nozzle bore and from the vessel interior using a circular scanning path around the nozzle opening to examine for transverse defects. These circular scans are commonly called tangential (Tan) scans. The bore examinations provided 100% coverage for the axial scan direction, which accounts for 50% of the required scans. The limitation occurred in the circular scans performed from the vessel interior, where the nozzle protrusion or boss obstructs complete scanning of a significant portion of the examination volume residing within the nozzle cylinder base metal. Scans are limited about the nozzle and the coverage is worsened at the 90/270-degree locations where the saddle effect of the shell geometry projects the

10 CFR 50.55a Request for Relief RR-B-2-08

central beam away from a significant portion of the examination volume. Two rotations of the Shell sled were used to maximize the coverage by placing each of the transducers as near as possible to the weld. When combining the bore and transverse scan coverage estimates, the combined coverage for these welds is 74.1%. See figures contained in Attachment 2.

Unit 3 Examination Limitations

During the Unit 3 Cycle-12 refueling outage in the spring of 2003 the outlet nozzle to shell welds were examined by remote tool (automated examination) from the nozzle bore, and from the vessel interior using circular and radial scanning paths around the nozzle opening to examine for transverse defects and defects parallel to the weld axis. The circular scans are commonly called tangential scans, and the radial scans are referred to as star scans. The bore and star scan examinations provided 100% coverage for the axial scan direction, which accounts for 50% of the required scans. The limitation occurred in the circular scans performed from the vessel interior, where the nozzle protrusion or boss obstructs complete scanning of a significant portion of the examination volume residing within the nozzle cylinder base metal. Scans are limited about the nozzle and the coverage is worsened at the 90/270-degree locations where the saddle effect of the shell geometry projects the central beam away from a significant portion of the examination volume. When combining the bore, star and transverse scan coverage estimates, the combined coverage for these welds is 74.1%. See figures contained in Attachment 3.

5. Burden Caused by Compliance

The design configuration restrictions of SONGS, Units 2 and 3 make the Code required examination coverage requirements impractical. Plant modifications or the replacement of components designed to allow for complete coverage would be needed to meet the ASME Code requirements. This would impose a considerable burden to SONGS.

6. Proposed Alternative and Basis for Use

The following alternatives are proposed in lieu of the required examination figure shown in IWB-2500-7(a):

- 1) A volumetric examination (UT) of the subject welds was performed to the maximum extent practical due to design configuration restrictions during the second ten-year interval.
- 2) Visual examination as required by Code Category B-N-1 was performed during the second ten-year interval.

10 CFR 50.55a Request for Relief RR-B-2-08

- 3) Pressure test VT-2 visual examination as required by Code Category B-P was performed during the second ten-year interval.

The basis for the use of these alternative inspections is that they provide the best inspection coverage possible within the limitations of the current design configuration.

7. Duration of proposed Alternative

- 1) Second ten year ISI interval which began on April 1, 1994 and ended on August 17, 2003.

8. Precedents

Letter from NRC to Mr. J. D. Shiffer (Diablo Canyon) dated December 14, 1988; Subject: Safety Evaluation of the Diablo Canyon Units 1 and 2 Ten-Year Inservice Inspection (ISI) Program Plan (TAC Nos. 62155 and 60656)

9. Attachments

1. Figure IWB-2500-7(a) - Nozzle in Shell or Head, 1989 Section XI – Division 1
2. Unit 2 Figures:
 - Coverage from Nozzle Bore Scans
 - Tan Scan Coverage @ 0 degree and 180 degrees
 - Tan Scan Coverage @ 90 degree and 270 degrees
3. Unit 3 Figures:
 - Coverage from Nozzle Bore Scans
 - Tan Scan Coverage @ 0 degree and 180 degrees
 - Tan Scan Coverage @ 90 degree and 270 degrees

10 CFR 50.55a Request for Relief RR-B-2-08

Attachment 1

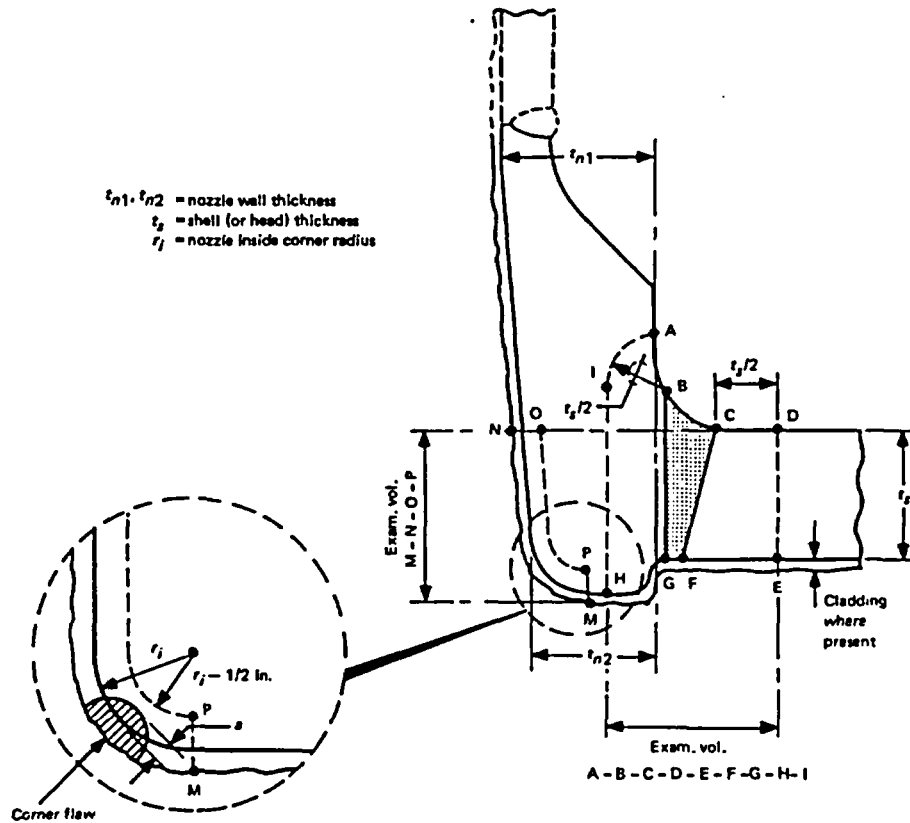
Figure IWB-2500-7(a)

Nozzle in Shell or Head

1989 Section X1 - Division 1

REQUIREMENTS FOR CLASS 1 COMPONENTS
1989 SECTION XI — DIVISION 1

Fig. IWB-2500-7(a)



EXAMINATION REGION [Note (1)]

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

EXAMINATION VOLUME [Note (2)]

- C-D-E-F
- B-C-F-G
- A-B-G-H-I
- M-N-O-P

NOTES:

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in IWB-3512.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

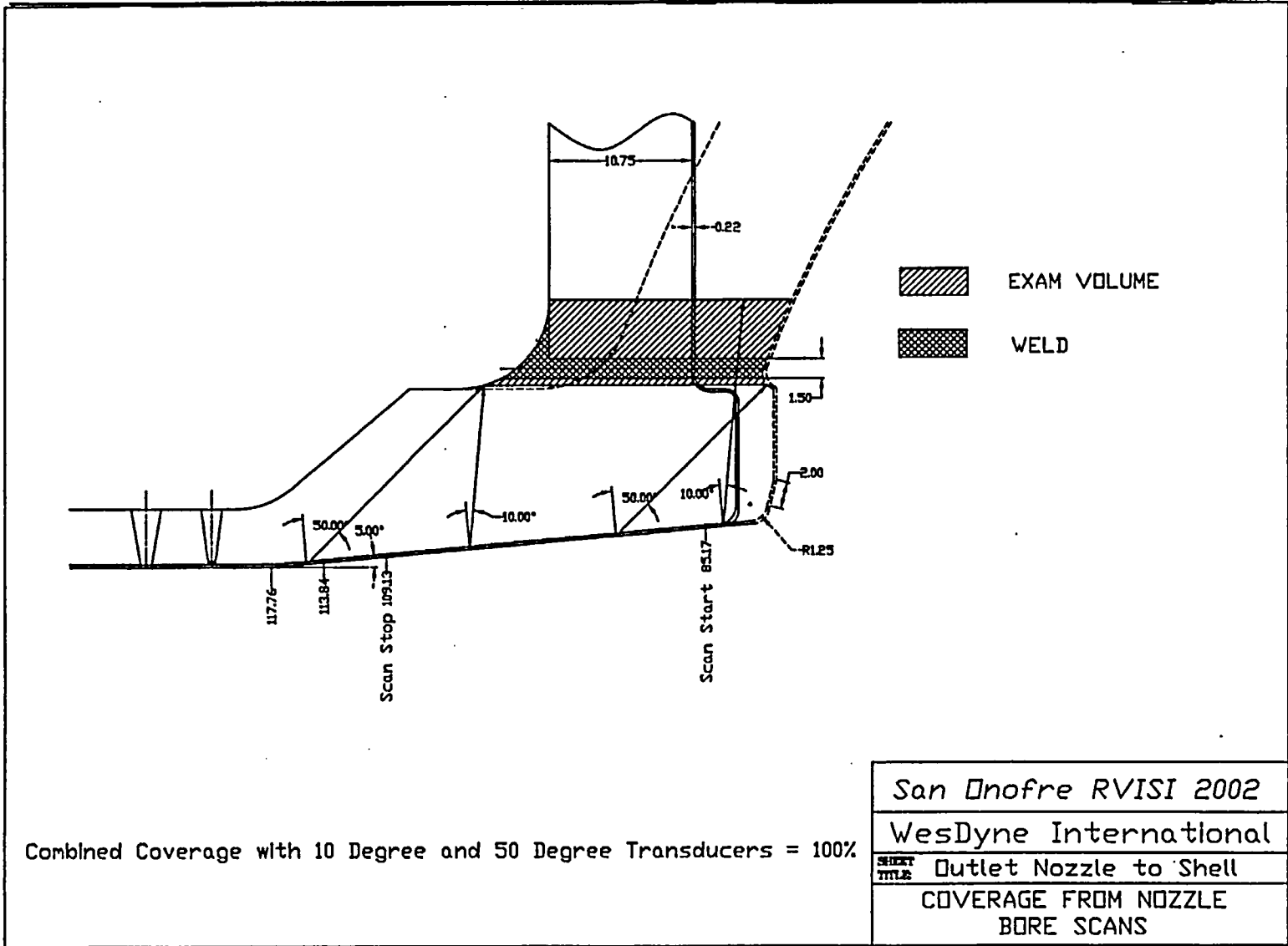
FIG. IWB-2500-7(a) NOZZLE IN SHELL OR HEAD
(Examination Zones In Barrel Type Nozzles Joined by Full Penetration Corner Welds)

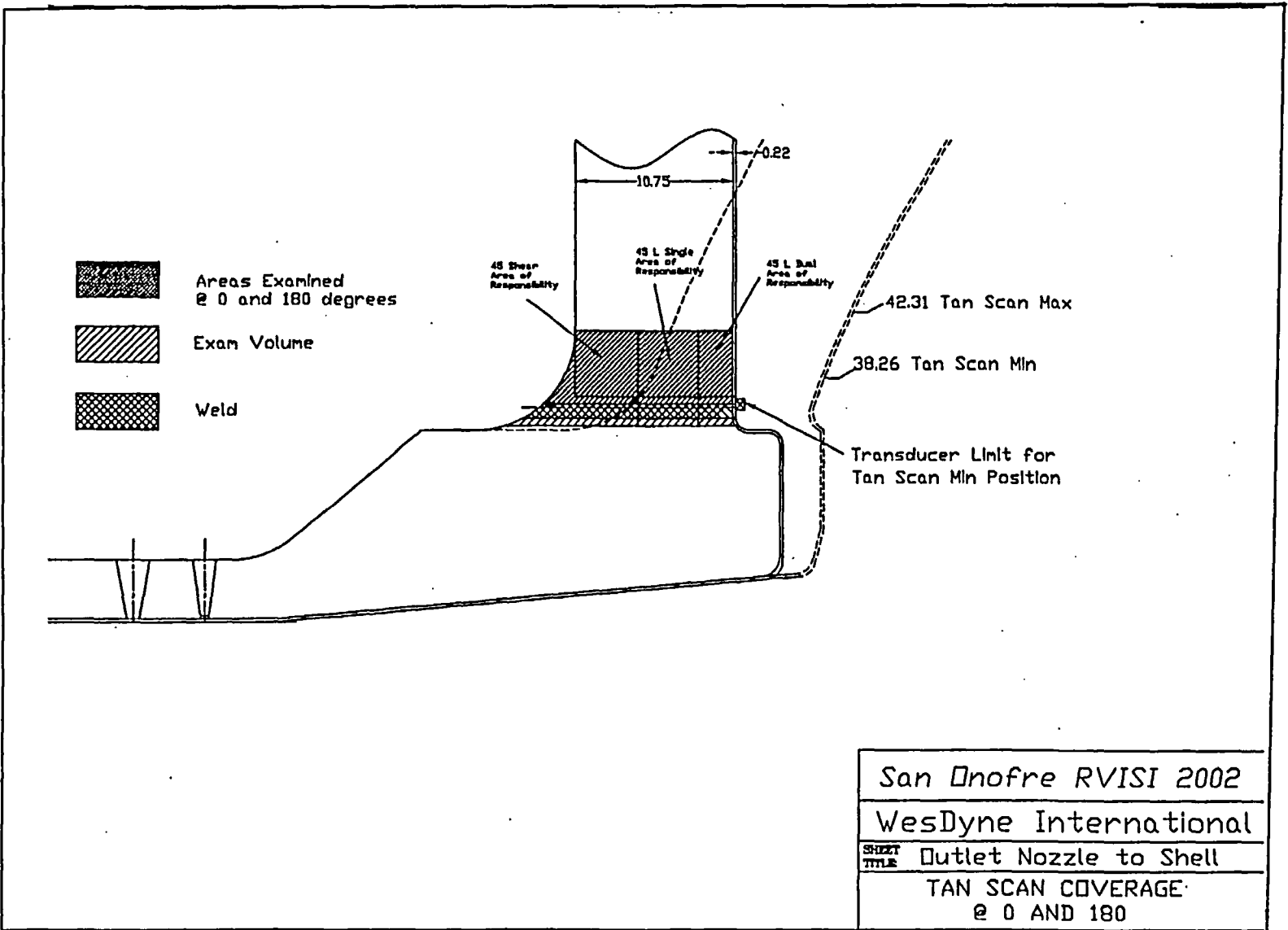
10 CFR 50.55a Request for Relief RR-B-2-08

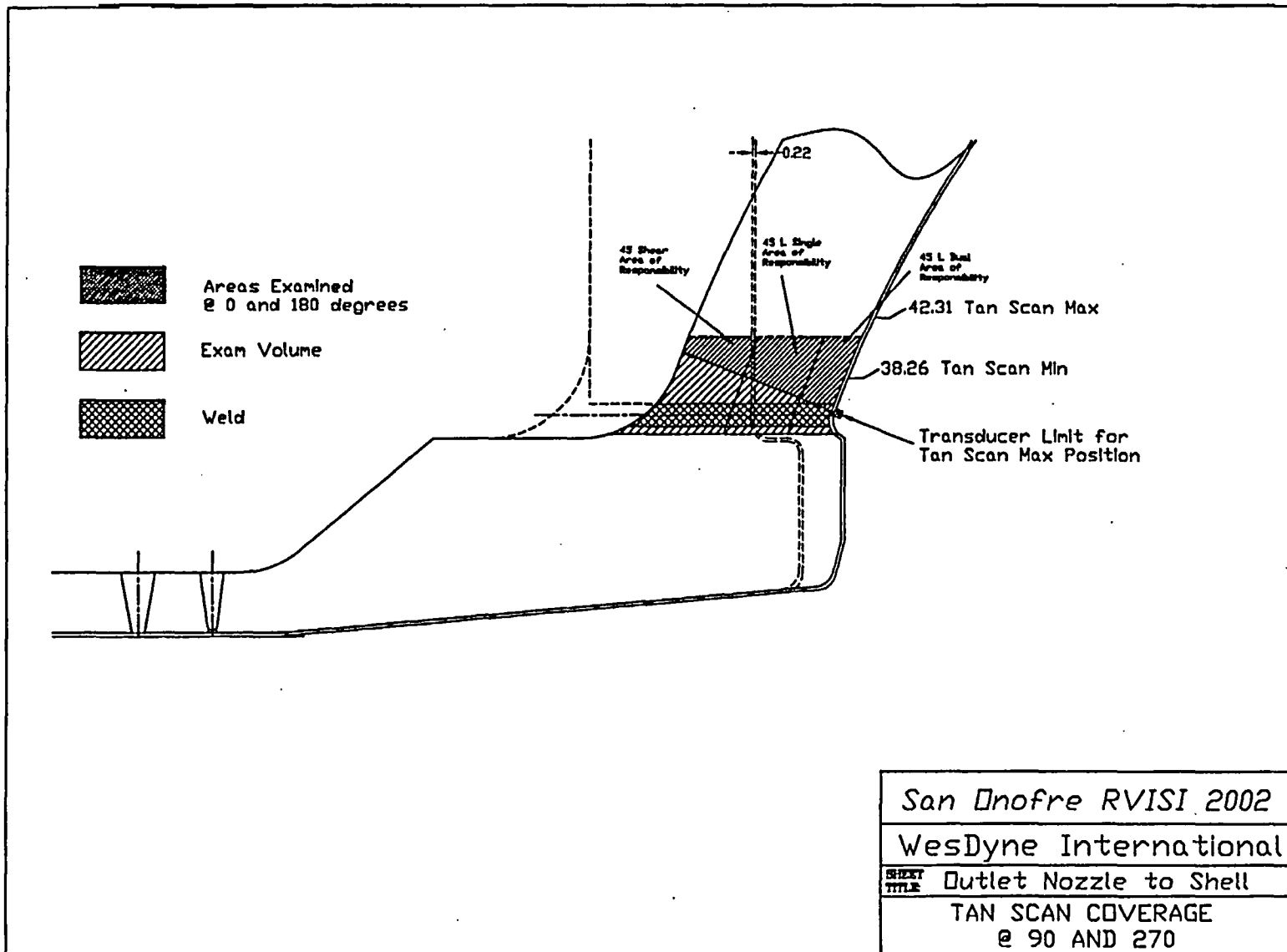
Attachment 2

Unit 2 Figures:

- Coverage from Nozzle Bore Scans**
- Tan Scan Coverage @ 0 degree and 180 degrees**
- Tan Scan Coverage @ 90 degree and 270 degrees**





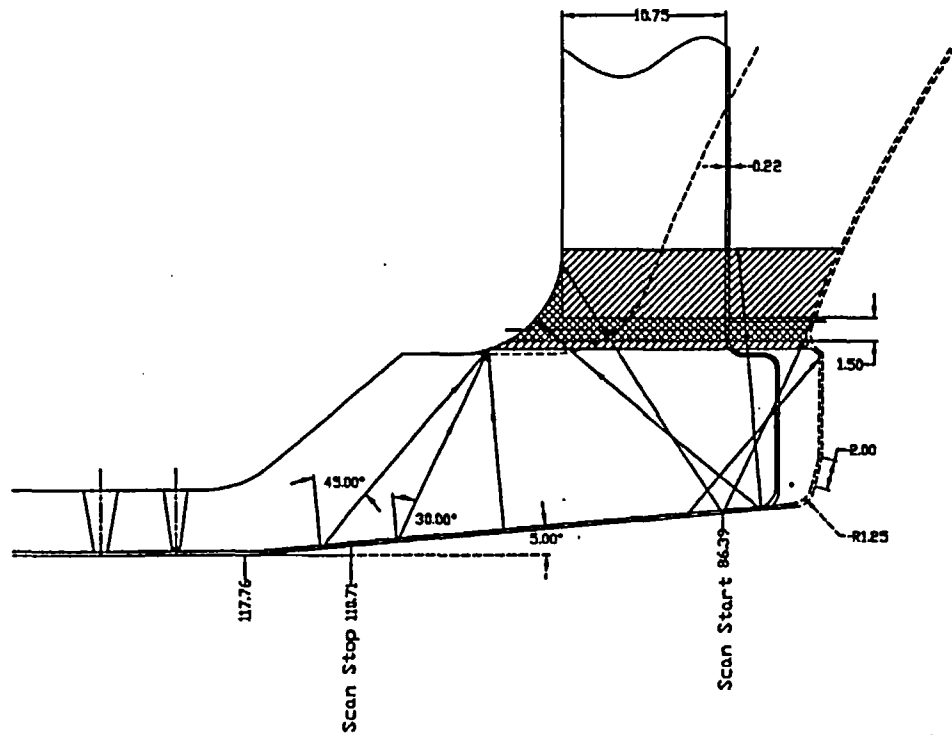


10 CFR 50.55a Request for Relief RR-B-2-08

Attachment 3

Unit 3 Figures:

- Coverage from Nozzle Bore Scans
- Tan Scan Coverage @ 0 degree and 180 degrees
- Tan Scan Coverage @ 90 degree and 270 degrees

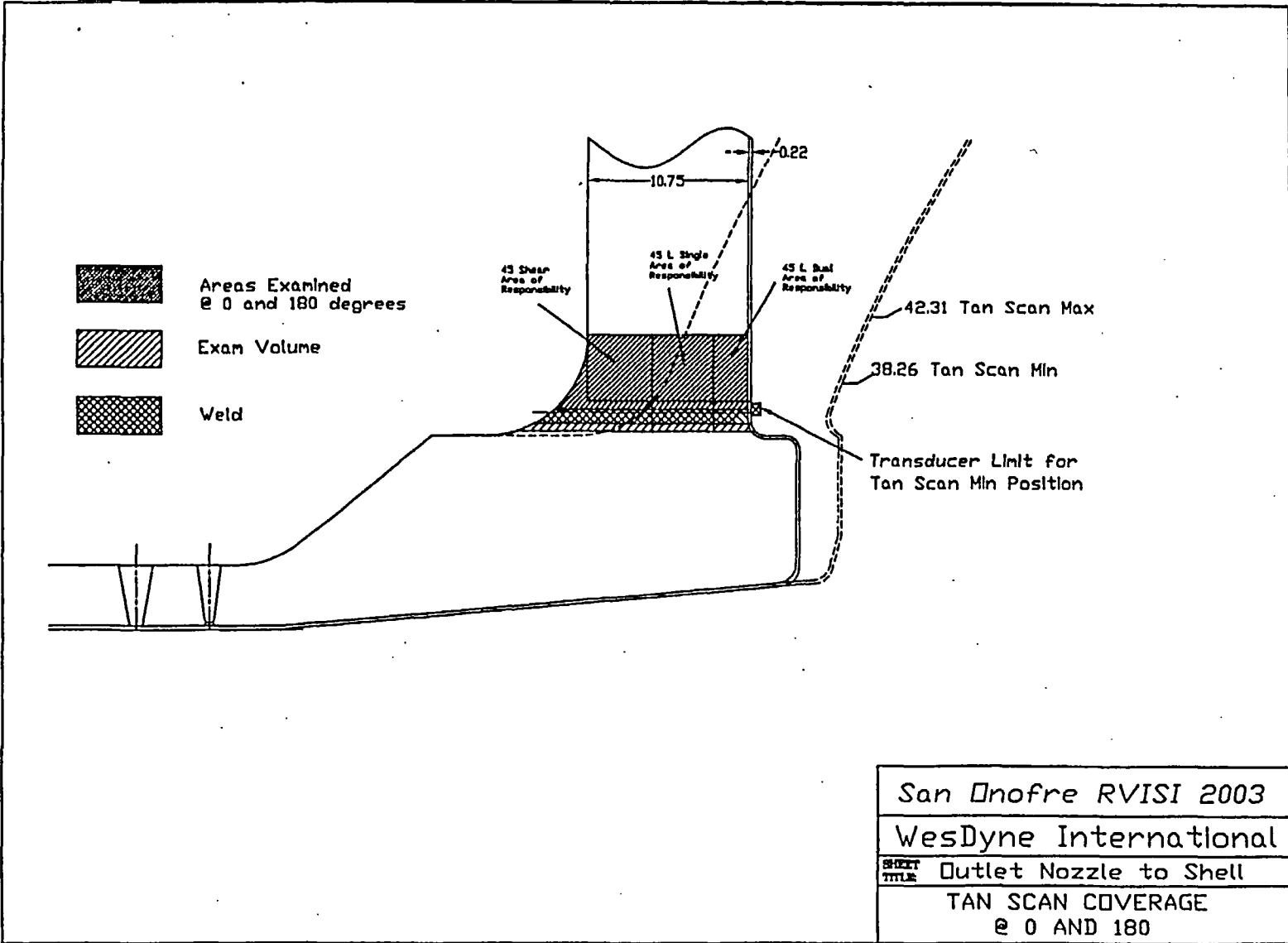


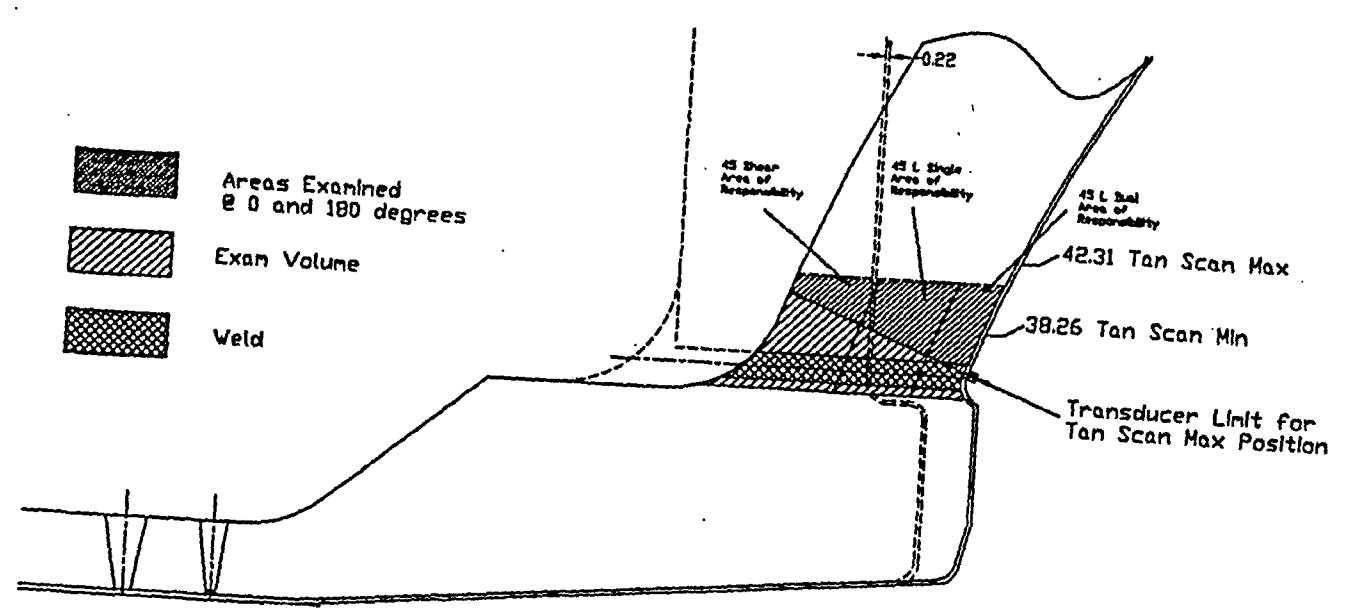
San Onofre 3 RVISI 2003

WesDyne International

Outlet Nozzle to Shell

COVERAGE FROM NOZZLE
BORE SCANS





San Onofre RVISI 2003	
WesDyne International	
SHEET	Outlet Nozzle to Shell
TITLE	TAN SCAN COVERAGE @ 90 AND 270