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Stephenie L. Pyle
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Arkansas Nuclear One

2CAN111101

November 30, 2011

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Use of Alternate ASME Code Case N-770-1 Baseline Examination
Request for Alternative ANO2-ISI-007
Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy Operations, Inc. (Entergy) hereby requests NRC approval of the attached Inservice Inspection (ISI) Request for Alternative for Arkansas Nuclear One, Unit 2 (ANO-2). This alternative is for the current fourth 10-year ISI interval.

The request is associated with the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Code Case N-770-1 as conditioned in the Final Rule 10 CFR 50.55a(g)(6)(ii)(F)(3), dated June 21, 2011.

To support the next ANO-2 refueling outage in the Fall of 2012, Entergy requests approval of this alternative by September 1, 2012.

This request does not contain any regulatory commitments.

If you have any questions or require additional information, please contact me.

Sincerely,

Original signed by Stephenie L. Pyle

SLP/rwc

Attachment: Request for Alternative ANO2-ISI-007

cc: Mr. Elmo E. Collins
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U. S. Nuclear Regulatory Commission
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Attachment to

2CAN111101

Request for Alternative
ANO2-ISI-007

REQUEST FOR RELIEF
ANO2-ISI-007

Components / Numbers:	See Table 1
Code Classes:	American Society of Mechanical Engineers (ASME) Code Class 1
References:	ANO Unit 1 Risk Informed (RI) Inservice Inspection Program (based in part on ASME Code Case N-716) ASME Section XI 2001 Edition w/ 2003 Addenda, Table IWB-2500-1 MRP-139, Revision 1 10 CFR 50.55a ASME Code Case N-460 ASME Code Case N-770-1
Examination Category:	R-A
Item Number(s)	R1.20
Description:	Pressure Retaining Welds in Piping – Inspection Program B
Unit / Inspection Interval Applicability:	Arkansas Nuclear One, Unit 2 (ANO-2) / Fourth (4th) 10-Year Interval

I. CODE REQUIREMENTS

ASME Section XI, Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping – Inspection Program B":

1) Item B9.11, as allowed by the RI process, requires a volumetric examination of circumferential piping welds NPS 4 or larger, as depicted in Figures IWB-2500-8 and Risk-Informed Inservice Inspection Evaluation Procedure, EPRI Report No. TR-106706, Interim Report, June 1996.

MRP-139, Revision 1, Table 6-1 requires a volumetric examination of 100% of Category E non-resistant material, non-mitigated cold leg dissimilar metal welds on a 6-year frequency.

ASME Code Case N-460 allows a reduction in coverage due to interference or geometry as long as the overall coverage is greater than 90%.

ASME Code Case N-770-1 requires a baseline examination of all Inspection Item B welds, as defined in Table 1 of the Code Case, by the end of the next refuel outage after January 20, 2012. Previous examinations of these welds can be credited for baseline examinations if they were performed within the re-inspection period for the weld item in Table 1 using Section XI, Appendix VII requirements and met the Code required examination volume of essentially 100 percent. Other previous examinations that do not meet these requirements can be used to meet the baseline examination requirement, provided NRC approval of alternative inspection requirements in accordance with paragraphs 10 CFR 50.55a(a)(3)(i) or (a)(3)(ii) is granted prior to the end of the next refuel outage after January 20, 2012.

II. RELIEF REQUEST

Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy Operations, Inc. (Entergy) requests relief from achieving the Code-required coverage when performing volumetric examinations of the components identified in Table 1. Note that the estimated percent coverage of Code Required Volume was obtained by utilizing previous examination data on file at ANO.

III. BASIS FOR RELIEF

During past ultrasonic examination of the piping welds listed in Table 1, greater than 90% coverage of the required examination volume could not be obtained.

Class 1 piping and components are often designed with welded joints and materials which can physically and/or metallurgically obstruct portions of the required examination volume. For examinations performed after the 10 CFR 50.55a mandatory implementation date for Appendix VIII of ASME Code Section XI, Code coverage percentages, provided in Table 1, reflect what is currently allowed by qualified Appendix VIII techniques. Appendix VIII qualified (PDI) procedures have demonstrated that sound beams may potentially be attenuated and distorted when required to pass through austenitic weld metal. Still, the PDI qualified methods employ the best available technology for maximizing examination coverage of these types of welds. Examination was extended to the far side of the weld to the extent permitted by geometry and material composition, but this portion (cast stainless steel) of the examination is not included in the reported coverage for welds examined under PDI and Appendix VIII rules.

Entergy has used the best available and EPRI approved techniques to examine the subject piping welds. To improve upon these examination coverage percentages, modification and/or replacement of the component would be required. Consistent with the ASME Section XI sampling approach, examination of the subject welds is adequate to detect generic degradation, if it existed, therefore demonstrating an acceptable level of integrity.

IV. PROPOSED ALTERNATIVE EXAMINATIONS

Entergy has examined the subject items to the extent practical.

V. CONCLUSION

10 CFR 50.55a(g)(6)(i) states:

> The Commission will evaluate determinations under paragraph (g)(5) of this section that Code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Entergy believes that it is impractical to obtain greater examination coverage on these areas. To obtain additional coverage would necessitate modification and/or replacement of the component. The examinations performed on the subject areas would detect generic degradation, if it existed, therefore demonstrating an acceptable level of integrity. Therefore, Entergy requests the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

Table 1
Limited R-A Examinations

Component Description				Additional Information					
Item Number	**Comp. ID**	**Item Description**	**Estimated % Coverage of Code Required Volume**	**Examination Summary**	**Scan Plan**	**Exam Method and Limitations**	**Search Units**	**Surface Examination**	**Exam Results**
R1.20	08-014	**Reactor Coolant Pump (RCP) 2P-32B Suction Nozzle Elbow to Safe End (SE) Circumferential Weld**	60%	Component was scanned from the elbow side only. 100% of the required axial coverage and 87.2% of the circumferential coverage was obtained excluding the SE cast stainless steel (SS) material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 1) derived from ultrasonic test (UT) examination report ISI-VE-09-039 on file at ANO.	Manual UT Phased Array examination. Figure 1 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	None required.	No indications were recorded.
R1.20	09-008	**RCP 2P-32B Discharge Nozzle SE to Pipe Circumferential Weld**	56%	Component was scanned from the pipe side only. 100% of the required axial coverage and 73.8% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 2) derived from UT examination report ISI-VE-09-040 on file at ANO.	Manual UT Phased Array examination. Figure 2 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	None required.	No indications were recorded.
R1.20	10-014	**RCP 2P-32A Suction Nozzle Elbow to SE Circumferential Weld**	55%	Component was scanned from the elbow side only. 100% of the required axial coverage and 84.1% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 3) derived from UT examination report ISI-VE-09-041 on file at ANO.	Manual UT Phased Array examination. Figure 3 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	None required.	No indications were recorded.
R1.20	11-008	**RCP 2P-32A Discharge Nozzle SE to Pipe Circumferential Weld**	56.7%	Component was scanned from the pipe side only. 100% of the required axial coverage and 76.3% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 4) derived from UT examination report ISI-VE-09-042 on file at ANO.	Manual UT Phased Array examination. Figure 4 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	None required.	No indications were recorded.

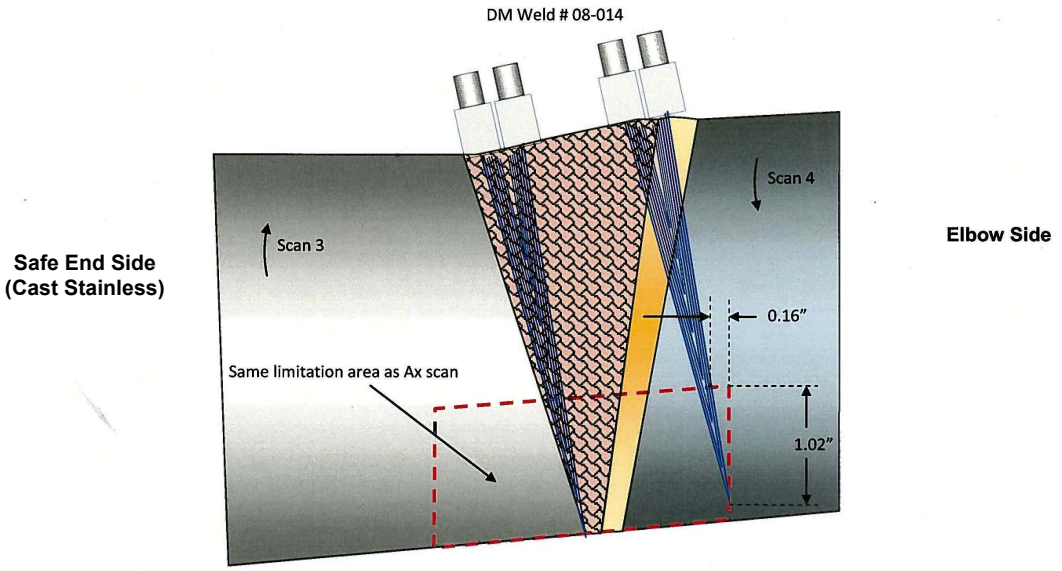
Table 1 (cont')
Limited R-A Examinations

Component Description				Additional Information					
Item Number	**Comp. ID**	**Item Description**	**Estimated % Coverage of Code Required Volume**	**Examination Summary**	**Scan Plan**	**Exam Method and Limitations**	**Search Units**	**Surface Examination**	**Exam Results**
R1.20	12-014	**RCP 2P-32C Suction Nozzle Elbow to SE Circumferential Weld**	56.3%	Component was scanned from the elbow side only. 100% of the required axial coverage and 85.3% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 5) derived from UT examination report ISI-VE-09-043 on file at ANO.	Manual UT Phased Array examination. Figure 5 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	Surface examination not required.	No indications were recorded.
R1.20	13-008	**RCP 2P-32C Discharge Nozzle SE to Pipe Circumferential Weld**	60.1%	Component was scanned from the pipe side only. 100% of the required axial coverage and 89.7% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 6) derived from UT examination report ISI-VE-09-044 on file at ANO.	Manual UT Phased Array examination. Figure 6 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	Surface examination not required.	No indications were recorded.
R1.20	14-014	**RCP 2P-32D Suction Nozzle Elbow to SE Circumferential Weld**	57.5%	Component was scanned from the elbow side only. 100% of the required axial coverage and 87% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 7) derived from UT examination report ISI-VE-09-045 on file at ANO.	Manual UT Phased Array examination. Figure 7 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	Surface examination not required.	No indications were recorded.
R1.20	15-008	**RCP 2P-32D Discharge Nozzle SE to Pipe Circumferential Weld**	62.8%	Component was scanned from the pipe side only. 100% of the required axial coverage and 89.7% of the circumferential coverage was obtained excluding the SE cast SS material. The circumferential scan was limited due to the cast SS and the component configuration.	See the attached sketch (Figure 8) derived from UT examination report ISI-VE-09-046 on file at ANO.	Manual UT Phased Array examination. Figure 8 depicts the component configuration.	Wave modalities are longitudinal and shear. Insonification angles included 0°-80° flat L-wave; 25°-75° axial shear wave; and 0°-80° circumferential L-wave with +10° & -10° skew.	Surface examination not required.	No indications were recorded.

Figure 1

Scan Plan and Coverage for ISI Component 08-014

Not to Scale



Arkansas Nuclear One Unit 2 Reactor Coolant Pump Suction Nozzle DMW

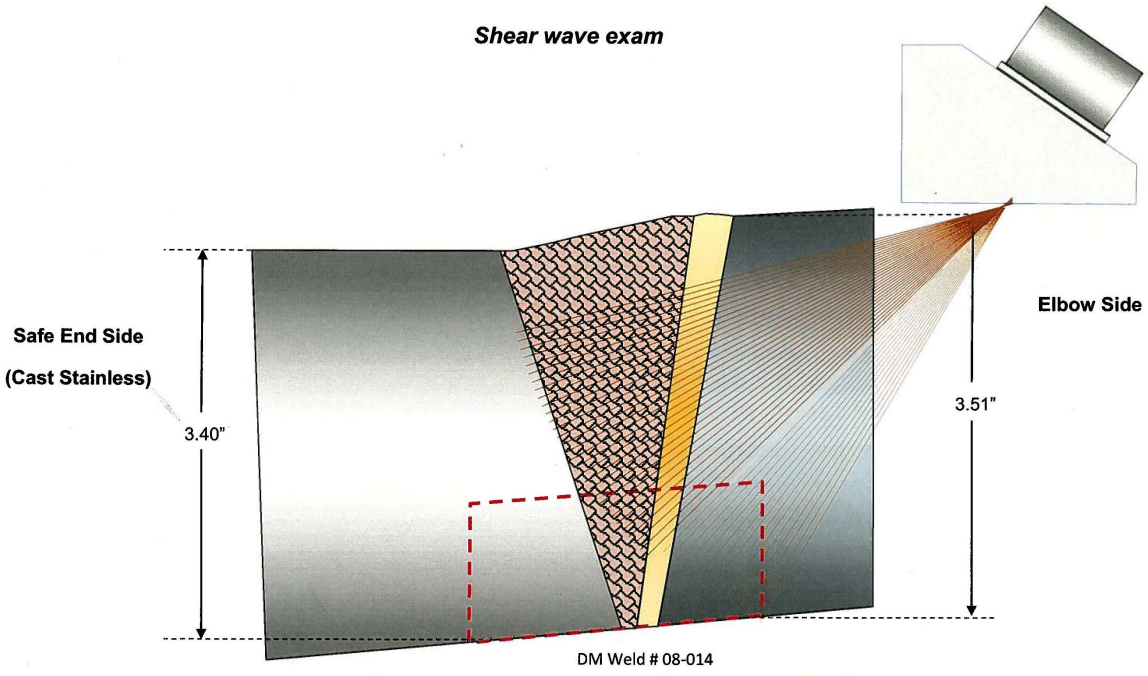
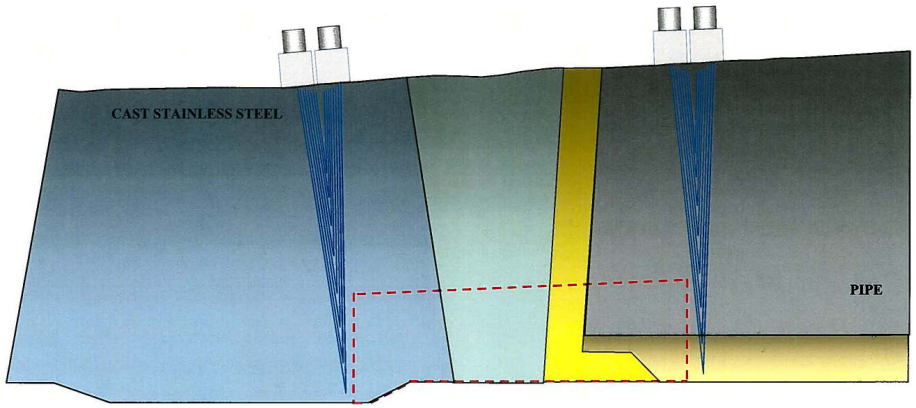


Figure 2

Scan Plan and Coverage for ISI Component 09-008

Not to Scale

ANO2 RCP DISCHARGE "B" NOZZLE
09-008 / 2P-32B
CIRCUMFERENTIAL EXAMINATION VOLUME



ANO2 RCP DISCHARGE "B" NOZZLE
09-008 / 2P-32B
SHEARWAVE EXAMINATION VOLUME

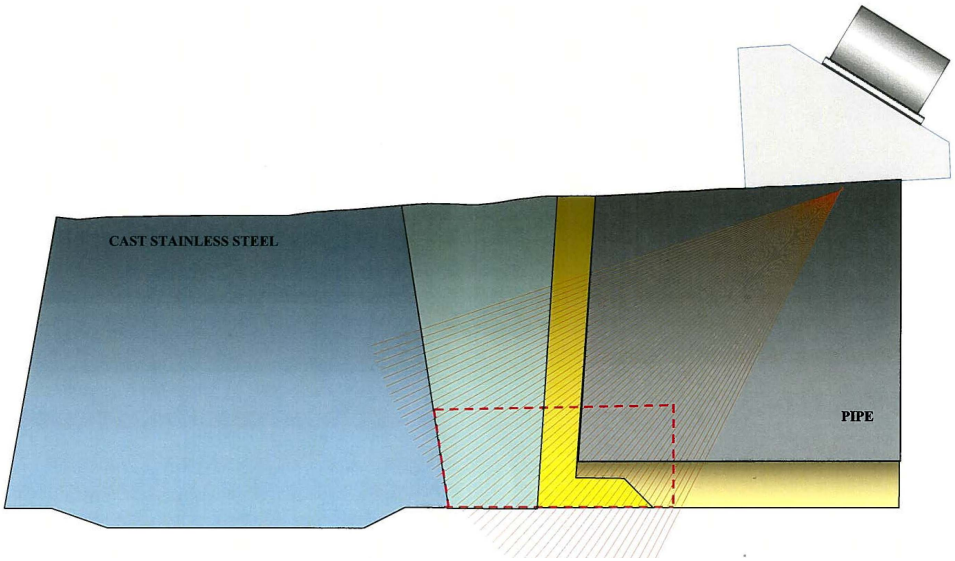


Figure 3

Scan Plan and Coverage for ISI Component 10-014

Not to Scale

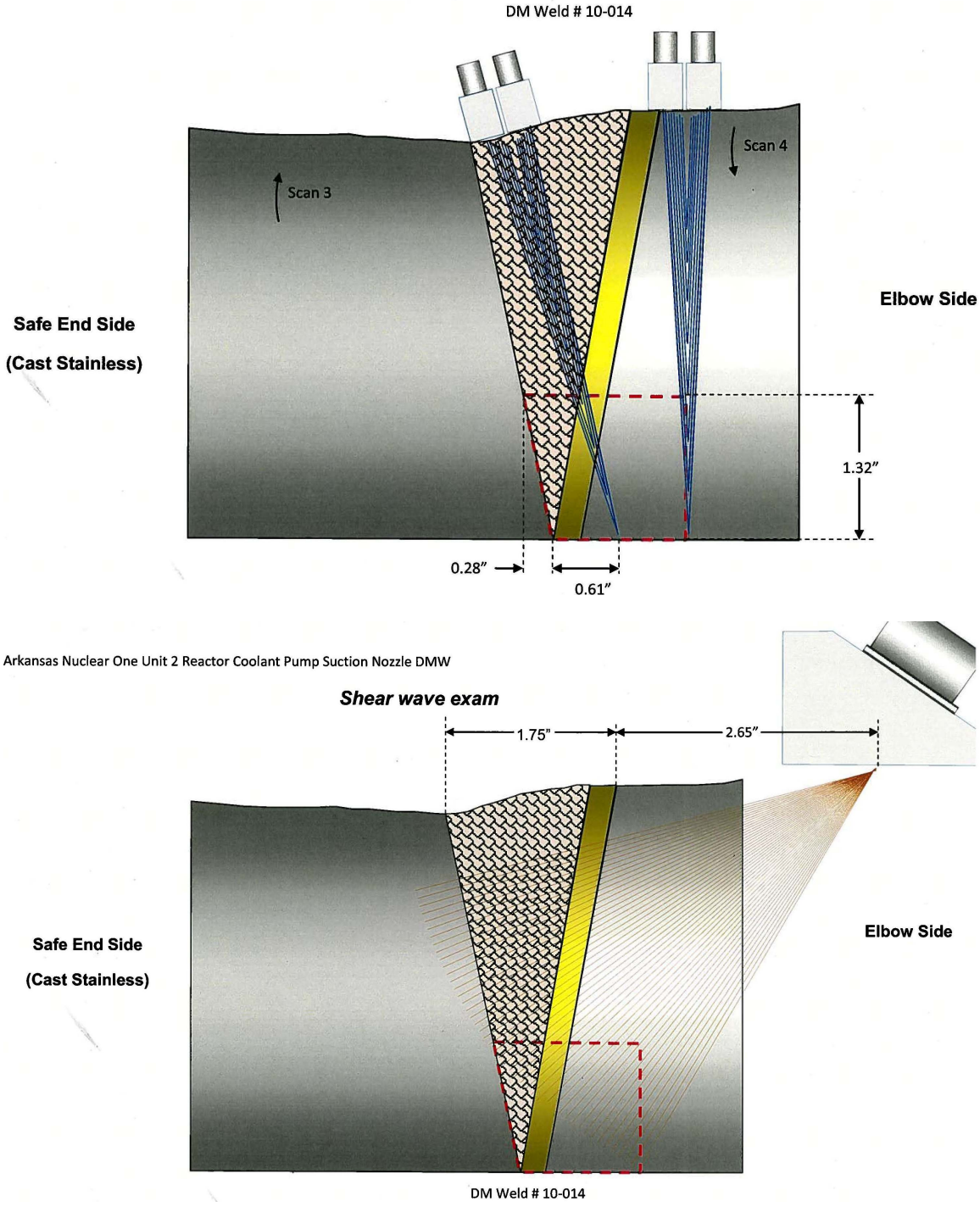
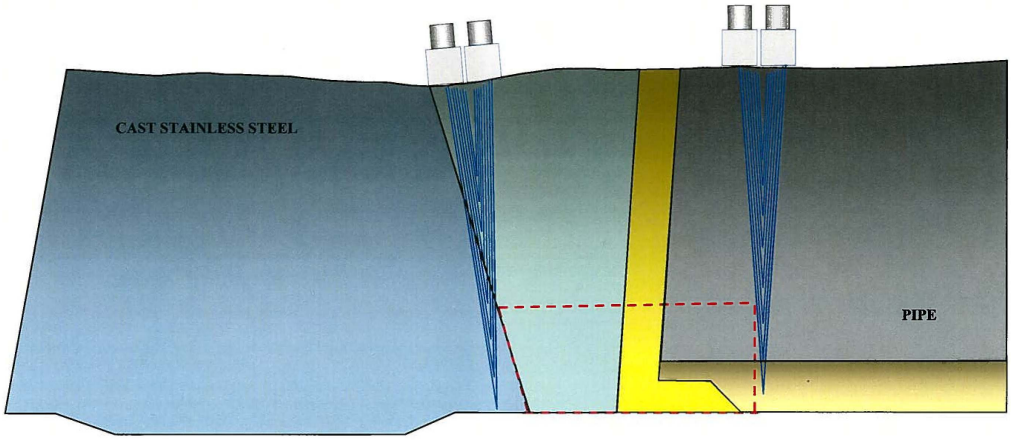


Figure 4

Scan Plan and Coverage for ISI Component 11-008

Not to Scale

ANO2 RCP DISCHARGE "A" NOZZLE
11-008 / 2P-32A
CIRCUMFERENTIAL EXAMINATION VOLUME



ANO2 RCP DISCHARGE "A" NOZZLE
11-008 / 2P-32A
SHEARWAVE EXAMINATION VOLUME

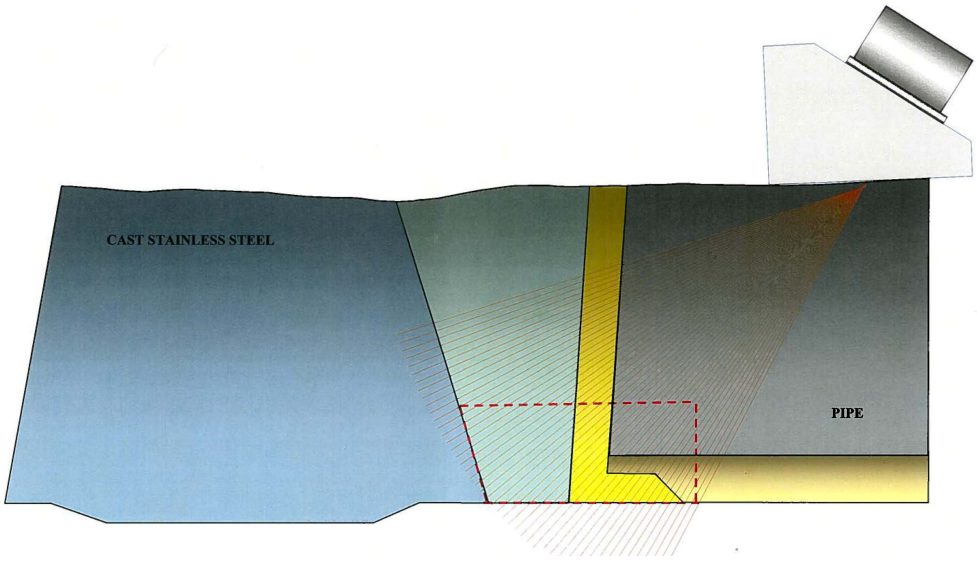
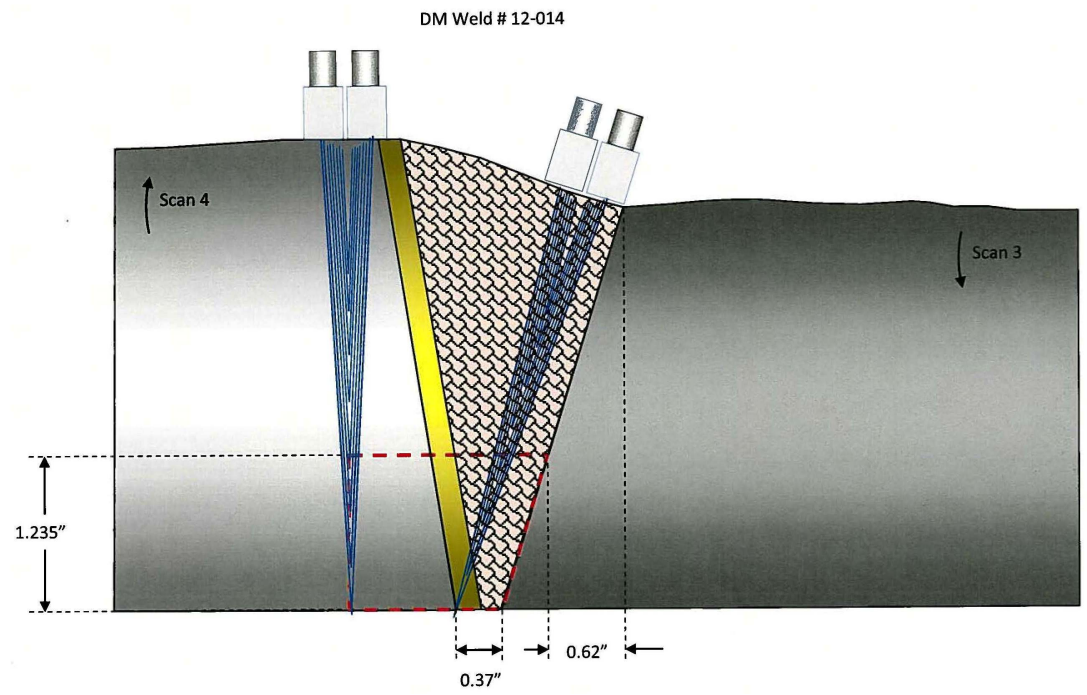


Figure 5

Scan Plan and Coverage for ISI Component 12-014

Not to Scale



Arkansas Nuclear One Unit 2 Reactor Coolant Pump Suction Nozzle DMW

Shear wave exam

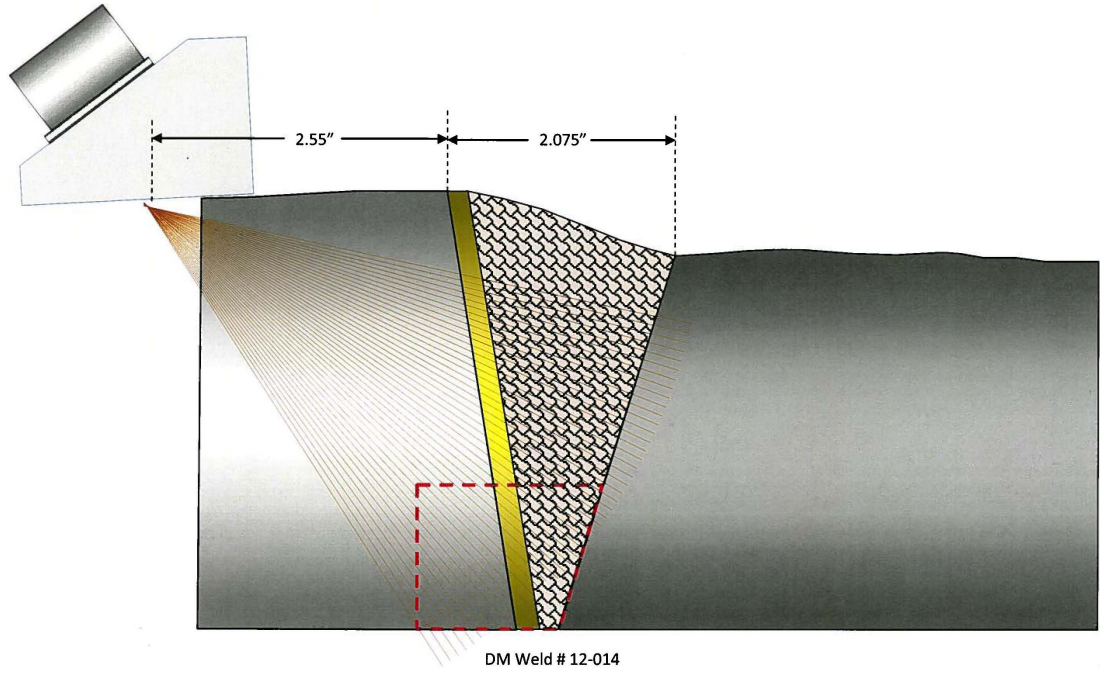
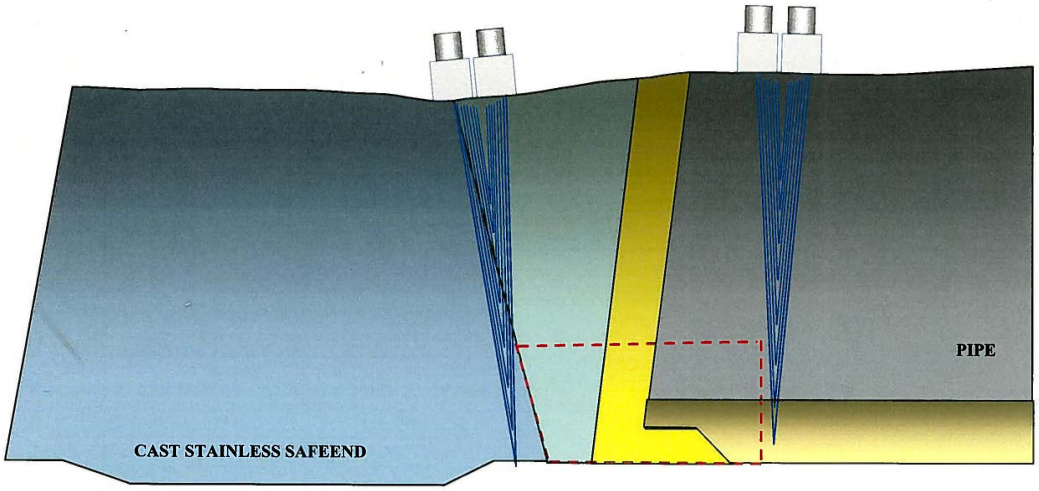


Figure 6

Scan Plan and Coverage for ISI Component 13-008

Not to Scale

ANO2 RCP DISCHARGE "A" NOZZLE
13-008 / 2P-32C
CIRCUMFERENTIAL EXAMINATION VOLUME



ANO2 RCP DISCHARGE "A" NOZZLE
13-008 / 2P-32C
EXAMINATION SHEARWAVE VOLUME

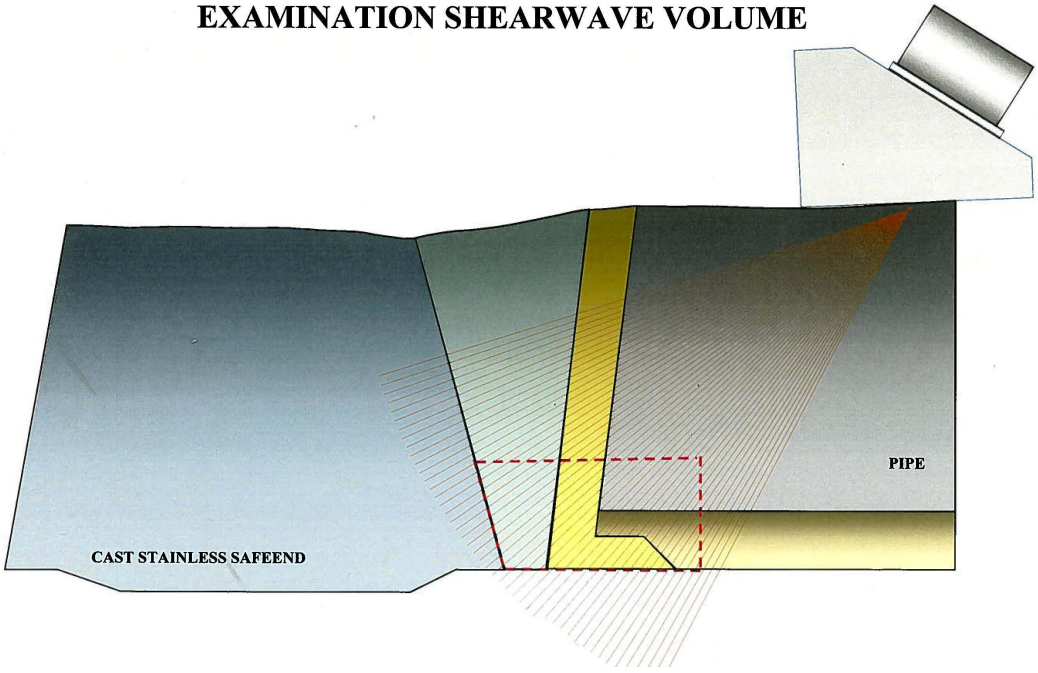


Figure 7

Scan Plan and Coverage for ISI Component 14-014

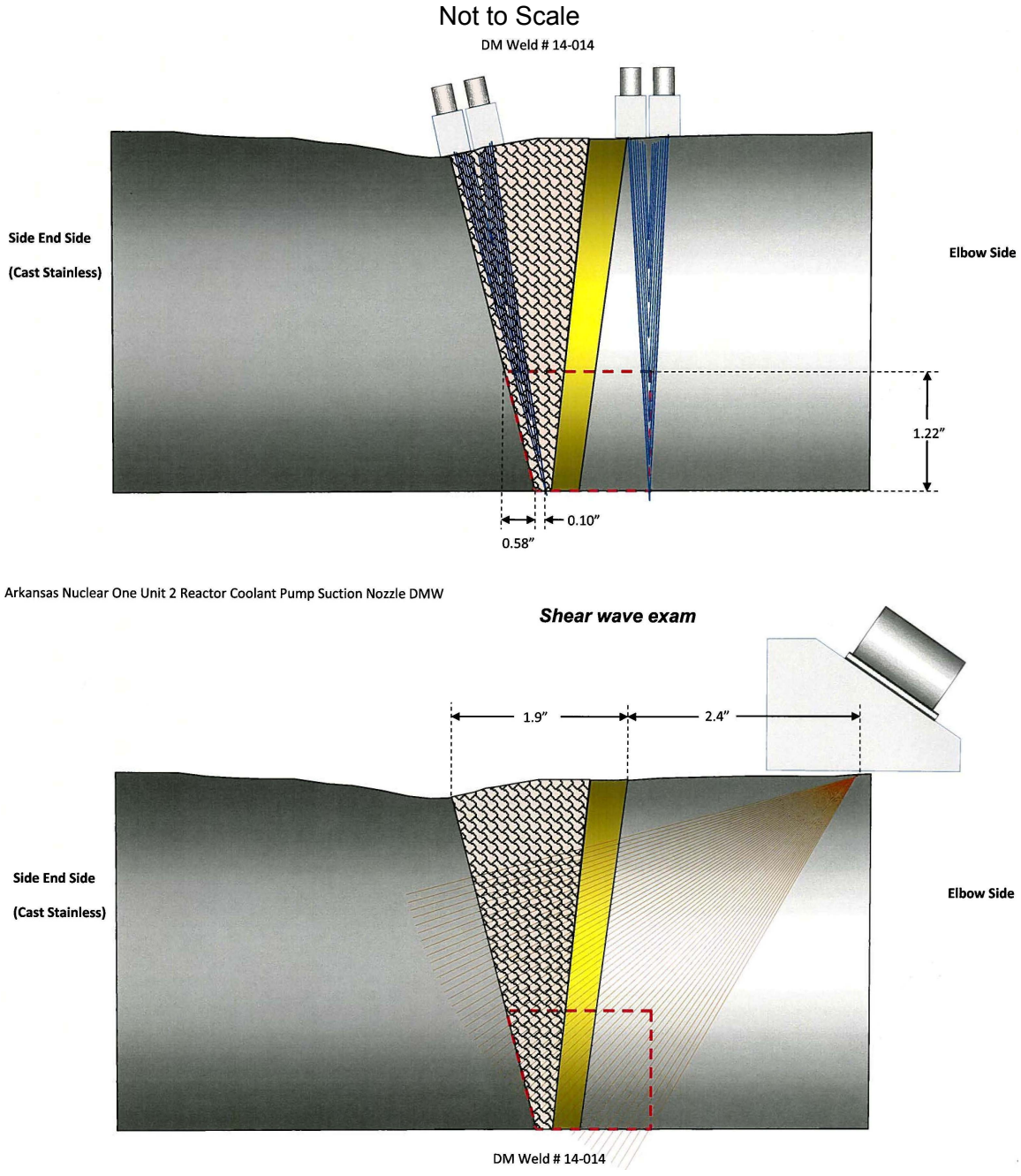
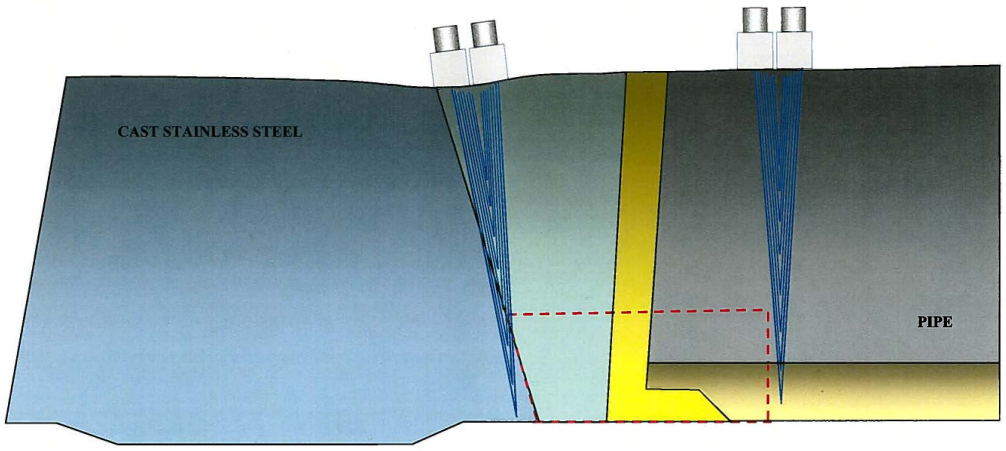


Figure 8

Scan Plan and Coverage for ISI Component 15-008

Not to Scale

ANO2 RCP DISCHARGE "D" NOZZLE
15-008 / 2P-32D
CIRCUMFERENTIAL EXAMINATION VOLUME



ANO2 RCP DISCHARGE "D" NOZZLE
15-008 / 2P-32D
SHEARWAVE EXAMINATION VOLUME