10 CFR 50.55a(g)
10 CFR 50.55a(g)(5)(iii)

A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear Generating Station

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102-05925-DCM/RJR
November 14, 2008

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528, 50-529 and 50-530
Response to Request for Additional Information – Relief Request 38

By letter dated September 24, 2008, the Nuclear Regulatory Commission (NRC) requested additional information pertaining to APS' submittal dated March 14, 2008 (Agencywide Documents and Management System (ADAMS) Accession No. ML080920639). APS' response to the requested information is enclosed. Additionally, as stated in the response to Question 2.1(a), APS is withdrawing the portion of Relief Request 38 that discusses Category B-A, Item B1.22, Reactor Pressure Vessel Lower Meridional Weld.

APS makes no commitments in this letter. If you have questions regarding this submittal, please contact Russell A. Stroud, Licensing Section Leader, at (623) 393-5111.

Sincerely,

D.C. Mims

DCM/RAS/RJR/gat

Enclosure: Response to Request for Additional Information – Relief Request 38

cc: E. E. Collins Jr. NRC Region IV Regional Administrator
B. K. Singal NRC NRR Project Manager
R. I. Treadway NRC Senior Resident Inspector

A047
NRR

ENCLOSURE

Response to Request for Additional Information – Relief Request 38

Excerpt from the NRC's Request

Part A, Examination Category B-A, Item B1.22, Pressure Retaining Welds in Reactor Vessel

The licensee stated that the reactor pressure vessel (RPV) lower head meridional weld examination is limited to approximately 22 percent of the Code volume coverage, due to geometric constraints of the in-core instrumentation penetrations and flow skirt. The licensee provided a schematic of the subject (Figure 1) depicting in-core instrumentation penetrations and the flow skirt configuration depicting the interferences that create the limitations. The ASME Code states that essentially 100 percent of the "accessible length" of the subject weld must be volumetrically examined.

Note: The ASME Code Committees, when implementing the above requirement in the ASME Code, considered the various obstacles (e.g., control rod drives (in some cases), RPV support skirt, instrument lines, etc.) that prevent the volumetric examination of the full length of the subject weld. For this particular ASME Code requirement, the examinations are limited to the accessible length of the RPV lower head weld.

The licensee is requested to:

NRC Question 2.1(a)

Define the accessible length of the RPV bottom head meridional weld and state whether the reported 22 percent volumetric coverage represents essentially 100 percent of this accessible length. If the reported 22 percent volumetric coverage represents essentially 100 percent of this accessible length, provide reasons for requesting for the relief. If essentially 100 percent of the accessible weld length was not achieved, continue to question 2.1(b).

APS Response

The accessible length of the reactor pressure vessel bottom head meridional weld is the length of weld not obstructed by the flow skirt and bottom mounted instrumentation. The reported 22 percent volumetric coverage represents essentially 100 percent of this accessible length. Therefore, relief is not required and APS withdraws this portion of the request.

NRC Question 2.1(b)

The licensee stated that, given presently available technology, no additional coverage can be obtained. In order to demonstrate impracticality, provide a brief description of the technology deployed and discuss the specific reasons that limit coverage using this technology.

APS Response

APS response to 2.1(b) is not required because APS is withdrawing this portion of the request.

Excerpt from the NRC's Request

Part B, Examination Category B-D, Item B3.110, Full Penetration Welded Nozzles in Vessels

Please clarify the following statements regarding the examination of pressurizer nozzle-to-vessel welds 5-10 and 5-13:

> *Pressurizer nozzle Zone 5 welds 5-10 and 5-13 were limited to an average of 83% Code volume coverage because of limited access based on geometric constraints of the nozzle. The radius portion of the nozzle and the curvature of the Pressurizer head limited some angles of sound to portions of the inside diameter.*

Note: General references to geometric constraints, nozzle radius portion, and curvature of the pressurizer head are not adequate to demonstrate impracticality. In addition, the impact of these conditions on ultrasonic beam propagation and coverage are not well defined.

The licensee is requested to:

NRC Question 2.2(a)

Provide detailed information to support the basis for the limited examinations of pressurizer nozzle-to-vessel welds 5-10, 5-13, and the basis for demonstrating impracticality. Include detailed descriptions (with sufficient explanation, and lay-out or cross-sectional drawings/sketches) to enable the staff to understand the causes of ultrasonic scan limitations and their impact on examination volume coverage.

APS Response

The cross sectional sketches of welds 5-10 and 5-13 are included in Attachment A. These sketches show the weld configuration, material thickness, scan path limits, and ultrasound beam path. These sketches show that the area of code volume not examined is the portion of the upper volume of the nozzle forging material. In both cases, 100% of the weld filler material was examined.

NRC Question 2.2(b)

List the type of nozzles included in the subject request (e.g. surge, safety, relief, spray, etc.) and describe the nozzle dimensions and the materials used in the fabrication of these nozzles.

APS Response

Weld 5-10 is for the spray nozzle. The nozzle dimension is 4" nominal pipe size (NPS). The welded materials are:

- Pressurizer top head, carbon steel SA-533 Gr. B Class 1.
- Spray nozzle forging, carbon steel SA-541 Class 3.
- The weld filler material is carbon steel.

Weld 5-13 is for the associated safety nozzle. The nozzle dimension is 6" NPS. The welded materials are:

- Pressurizer top head, carbon steel SA-533 Gr. B Class 1.
- Safety nozzle forging SA-541 Class 3.
- The weld filler material is carbon steel.

Excerpt from the NRC's Request

Part C, Examination Category B-H, Item B8.20, Integral Attachments for Vessels

The licensee is requested to:

NRC Question 2.3(a)

Provide a cross-sectional sketch showing the pressurizer support skirt weld. Include in this sketch a depiction of how the volumetric technique was applied and coverage obtained.

APS Response

Attachment B contains the cross sectional drawing of the pressurizer support skirt weld that was taken from Unit 2 ultrasonic examination report number UT-06-088. The drawing depicts the weld configuration and the portion of the attachment weld that could not be examined. The 45 and 60-degree arrows represent the transducer exit point and sound propagation path.

NRC Question 2.3(b)

Confirm that 100 percent of the surface examination was performed on the outside surface of the pressurizer support skirt weld.

APS Response

One hundred percent of the outside weld surface was examined by the magnetic particle technique.

Excerpt from the NRC's Request

Part D, Examination Category B-J, Items B9.11, Pressure Retaining Welds in Piping

It is not apparent that the following general statements demonstrate impracticality for the ASME Code, Section XI, Examination Category B-J piping welds.

> *Several [ASME Code, Section XI] category B-J and C-F-1 butt welds were only accessible from one side of the weld due to configuration. Only 50% Code volume coverage was credited due to single sided examination of austenitic stainless steel welds e.g. obstruction from valves.*

The licensee is requested to:
NRC Question 2.4(a)

Describe the configuration (e.g., pipe-to-valve, pipe-to-elbow, etc.), materials and dimensions of each of the ASME Code, Section XI, Examination Category B-J piping welds.

APS Response

The following table lists the weld configuration, materials, and dimension of each B-J piping weld.

Item ID	Configuration	Material	Dimensions
22-11	pipe-to-valve	300 series SS to 300 series SS	16" NPS 1.594" T
23-4	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
23-6	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
24-6	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
24-14	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
24-16	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
24-19	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
25-4	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
25-6	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
26-6	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
26-17	pipe-to-valve	300 series SS to 300 series SS	14" NPS 1.406" T
29-2	pipe-to-tee	300 series SS to 300 series SS	4" NPS .532" T
29-3	pipe-to-tee	300 series SS to 300 series SS	4" NPS .531" T

NRC Question 2.4(b)

Provide detailed information to support the basis for each limited ASME Code, Section XI, Examination Category B-J weld and, therefore, demonstrate impracticality. Include detailed descriptions (with sufficient explanation, and layout or cross-sectional drawings/sketches) to enable the staff to understand the causes of ultrasonic scan limitations and their impact on examination volume coverage.

APS Response

All of the B-J piping welds were examined in accordance with the Performance Demonstration Initiative (PDI) generic procedure PDI-UT-2. No limitations to the procedural requirements were encountered. Attachment C contains a sketch of a typical weld profile (pipe-to-fitting, pipe-to-valve, pipe-to-pump, etc.) configuration. As shown in the sketch, these types of welds contain a taper as the connection transitions into the attached item. As a result of the slope of this taper and limited distance from the weld to the attached item, no meaningful axial scans can be performed from the tapered side of the weld as shown in Attachment C. The coverage plots from two B-J welds 22-11 and 23-4 are included to show the field application.

10 CFR 50.55a (b)(2)(xv)(A)(2) allows for full coverage credit to be claimed from a single side examination if a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld is successfully completed. However, the PDI procedure used by APS has not been qualified to detect flaws on the far side of single side access configurations as shown in Attachment C. Therefore, APS considers the B-J welds to be limited coverage.

NRC Question 2.4(c)

Describe the ultrasonic techniques (shear wave and angles, and refracted L-wave and angles) applied to maximize coverage when examining from a single side of these welds.

APS Response

In accordance with PDI procedure PDI-UT-2, the table below lists the angle and mode of ultrasonic sound applied to maximize coverage of the single sided B-J piping welds.

Item ID	Configuration	Ultrasonic Technique	Dimensions
22-11	pipe-to-valve	45 degree refracted L-wave	16" NPS 1.594" T
23-4	pipe-to-valve	45 degree refracted L-wave	14" NPS 1.406" T
23-6	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
24-6	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
24-14	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
24-16	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
24-19	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
25-4	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
25-6	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T

Item ID	Configuration	Ultrasonic Technique	Dimensions
26-6	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
26-17	pipe-to-valve	60 degree refracted L-wave	14" NPS 1.406" T
29-2	pipe-to-tee	60 degree refracted L-wave	4" NPS .532" T
29-3	pipe-to-tee	60 degree refracted L-wave	4" NPS .531" T

NRC Question 2.4(d)

In addition to the basis for impracticality, state whether any outside diameter surface feature, such as weld crown, diametrical weld shrinkage, or surface roughness conditions caused limited volumetric coverage during the subject piping weld examinations. Discuss the efforts that were used to address these conditions.

APS Response

Ultrasonic examination reports for the single sided B-J piping welds indicate that there are no limitations or comments addressing weld crown, diametrical weld shrinkage, surface roughness, or other conditions that would cause limited volumetric coverage.

NRC Question 2.4(e)

Confirm that ASME Code-required surface examinations were completed for the subject welds.

APS Response

APS has verified that ASME Code-required surface examinations were completed for the subject welds.

Excerpt from the NRC's Request

Part E, Examination Category C-C, Items C3.20 and C3.30, Integral Attachments for Vessels, Piping, Pumps and Valves

The licensee is requested to:

NRC Question 2.5(a)

Confirm that component support SI-107-H-022 is located on the safety injection system piping.

APS Response

Component support SI-107-H-022 is located on the safety injection system piping and is shown on drawing 02-P-SIF-204.

NRC Question 2.5(b)

Provide a sketch or photograph depicting the stated configuration of welded attachments on component supports 116-1B and 116-1C. Also, list the high-pressure safety injection pump designation for the subject supports.

APS Response

The High Pressure Safety Injection pump has four integrally attached support lugs. The zone drawing shown in Attachment D lists the support designation for the subject supports. Two support lugs are on the front of the pump and two support lugs are on the rear of the pump. The limited lug-to-pump welds are the front lugs (weld numbers 116-1B and 116-1C). The rear lugs (116-1A and 116-1D) were not limited.

Also included are pictures of the front and rear support lugs. Access to the bottom side of the rear lug-to-pressure boundary welds (116-1A and 116-1D) is provided when the insulation is removed. No access to the bottom side of the front lug-to-pressure boundary welds (116-1B and 116-1C) is provided when the insulation is removed. Access to these welds (116-1B and 116-1C) is limited by the structural steel member that supports each lug as seen in the following pictures.

All four lugs were liquid penetrant examined to the maximum extent allowable. The rear lug welds (116-1A and 116-1D) were not limited and 100% coverage was obtained. The front lug welds (116-1B and 116-1C) were limited at the bottom side of the lug-to-pressure boundary weld. The examiner estimated the total coverage for all four lug welds to be 72%.

Based on the physical restrictions, APS considers the bottom surface of the front lug-to-pressure boundary weld to be impractical for examination.

Excerpt from the NRC's Request

Part F, Examination Category C-F-1, Items C5.11 and Item C5.21, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping

It is not apparent that the following general statements demonstrate impracticality for the ASME Code, Section XI, Examination Category C-F-1 piping welds.

> *Several [ASME Code, Section XI] category B-J and C-F-1 butt welds were only accessible from one side of the weld due to configuration. Only 50% Code volume coverage was credited due to single sided examination of austenitic stainless steel welds e.g. obstruction from valves.*

The licensee is requested to:

NRC Question 2.6(a)

Describe the configuration (e.g., pipe-to-valve, pipe-to-elbow, etc.), materials and dimensions of each of the ASME Code, Section XI, Examination Category C-F-1 piping welds.

APS Response

The following Table lists the weld configuration, materials, and dimension of each C-F-1 piping weld. Weld 63-4, listed in Item 4 of the original submittal, was an error and does not require relief.

Item ID	Configuration	Material	Dimensions
77-7	pipe-to-flange	300 series SS to 300 series SS	12" NPS .406" T
77-14	pipe-to-valve	300 series SS to 300 series SS	12" NPS 1.125" T
84-12	pipe-to-valve	300 series SS to 300 series SS	24" NPS .562" T
85-46	pipe-to-valve	300 series SS to 300 series SS	20" NPS .375" T
77-27	pipe-to-valve	300 series SS to 300 series SS	12" NPS 1.312" T
70-121	pipe-to-valve	300 series SS to 300 series SS	16" NPS 1.420" T
77-16	pipe-to-valve	300 series SS to 300 series SS	12" NPS 1.125" T
84-3	pipe-to-valve	300 series SS to 300 series SS	20" NPS .375" T
106-1	pipe-to-pump	300 series SS to 300 series SS	4" NPS .337" T
106-21	pipe-to-valve	300 series SS to 300 series SS	4" NPS .438" T
106-64	pipe-to-valve	300 series SS to 300 series SS	2" NPS .344" T
106-68	pipe-to-tee	300 series SS to 300 series SS	2" NPS .344" T
107-1	pipe-to-pump	300 series SS to 300 series SS	4" NPS .337" T
107-11	pipe-to-valve	300 series SS to 300 series SS	4" NPS .337" T
110-17	pipe-to-valve	300 series SS to 300 series SS	2" NPS .344" T
110-52	pipe-to-tee	300 series SS to 300 series SS	2" NPS .344" T
115-13	pipe-to-penetration	300 series SS to 300 series SS	3" NPS .438" T
115-20	pipe-to-valve	300 series SS to 300 series SS	3" NPS .438" T
118-49	pipe-to-valve	300 series SS to 300 series SS	3" NPS .438" T
119-52	pipe-to-valve	300 series SS to 300 series SS	3" NPS .438" T
119-53	pipe-to-valve	300 series SS to 300 series SS	2" NPS .344" T

NRC Question 2.6(b)

Provide detailed information to support the basis for each limited ASME Code, Section XI, Examination Category C-F-1 weld and, therefore, demonstrate impracticality. Include detailed descriptions (with sufficient explanation, and layout or cross-sectional drawings/sketches) to enable the staff to understand the causes of ultrasonic scan limitations and their impact on examination volume coverage.

APS Response

All of the C-F-1 piping welds were examined in accordance with the Performance Demonstration Initiative (PDI) generic procedure PDI-UT-2. No limitations to the procedural

requirements were encountered. Attachment C contains a sketch of a typical weld profile (pipe-to-fitting, pipe-to-valve, pipe-to-pump, etc.) configuration. As shown in the sketch, these types of welds contain a taper as the connection transitions into the attached item. As a result of the slope of this taper and limited distance from the weld to the attached item, no meaningful axial scans can be performed from the tapered side of the weld as shown in Attachment C. The coverage plots from two C-F-1 welds 77-14 and 85-46 are included to show the field application.

10 CFR 50.55a (b)(2)(xv)(A)(2) allows for full coverage credit to be claimed from a single side examination if a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld is successfully completed. However, the PDI procedure used by APS has not been qualified to detect flaws on the far side of single side access configurations as shown in Attachment C. Therefore, APS considers the B-J welds to be limited coverage.

NRC Question 2.6(c)

Describe the ultrasonic techniques (shear wave and angles, and refracted L-wave and angles) applied to maximize coverage when examining from a single side of these welds.

APS Response

In accordance with PDI procedure, PDI-UT-2, the table below list the angle and mode of ultrasonic sound applied to maximize coverage of the single sided C-F-1 piping welds. Weld 63-4, listed in Item 4 of the original submittal, was an error and does not require relief.

Item ID	Configuration	Ultrasonic Technique	Dimensions	
77-7	pipe-to-flange	70 degree shear wave	12" NPS	.406" T
77-14	pipe-to-valve	45 degree refracted L-wave	12" NPS	1.125" T
84-12	pipe-to-valve	60 degree refracted L-wave	24" NPS	.562" T
85-46	pipe-to-valve	70 degree shear wave	20" NPS	.375" T
77-27	pipe-to-valve	60 degree refracted L-wave	12" NPS	1.312" T
70-121	pipe-to-valve	60 degree refracted L-wave	16" NPS	1.420" T
77-16	pipe-to-valve	60 degree refracted L-wave	12" NPS	1.125" T
84-3	pipe-to-flange	70 degree shear wave	20" NPS	.375" T
106-1	pipe-to-pump	70 degree shear wave	4" NPS	.337" T
106-21	pipe-to-valve	70 degree shear wave	4" NPS	.438" T
106-64	pipe-to-valve	70 degree shear wave	2" NPS	.344" T
106-68	pipe-to-tee	70 degree shear wave	2" NPS	.344" T
107-1	pipe-to-pump	70 degree shear wave	4" NPS	.337" T
107-11	pipe-to-valve	70 degree shear wave	4" NPS	.337" T
110-17	pipe-to-valve	70 degree shear wave	2" NPS	.344" T
110-52	pipe-to-tee	70 degree shear wave	2" NPS	.344" T
115-13	pipe-to -penetration	70 degree shear wave	3" NPS	.438" T
115-20	pipe-to-valve	70 degree shear wave	3" NPS	.438" T
118-49	pipe-to-valve	70 degree shear wave	3" NPS	.438" T

Item ID	Configuration	Ultrasonic Technique	Dimensions
119-52	pipe-to-valve	70 degree shear wave	3" NPS .438" T
119-53	pipe-to-valve	70 degree shear wave	2" NPS .344" T

NRC Question 2.6(d)

In addition to the basis for impracticality, state whether any outside diameter surface feature, such as weld crown, diametrical weld shrinkage, or surface roughness conditions caused limited volumetric coverage during the subject piping weld examinations. Discuss the efforts that were used to address these conditions.

APS Response

A review of the ultrasonic examination reports for the single sided C-F-1 piping welds indicates that no limitations or comments were made addressing weld crown, diametrical weld shrinkage, surface roughness, or other conditions that would cause limited volumetric coverage.

NRC Question 2.6(e)

Confirm that ASME Code-required surface examinations were completed for the subject welds.

APS Response

APS has verified that ASME Code-required surface examinations were completed for the subject welds.

Attachment A

Sketches for Question 2.2(a)

RR 38 RAI PART B

Supplemental Report

WELD 5-10
SPRAY NOZZLE

Report No.: UT-02-027
Page: 3 of 3

Summary No.: 2-005-010

Examiner:	Thomas, Wayne	Level:	III	Reviewer:	L.R. DAVIS	Date:	4-9-02
Examiner:	N/A	Level:	N/A	Site Review:	R.L. BROWNING	Date:	4-12-02
Other:	N/A	Level:	N/A	ANII Review:		Date:	4-15-02

Comments:

0° SCANS

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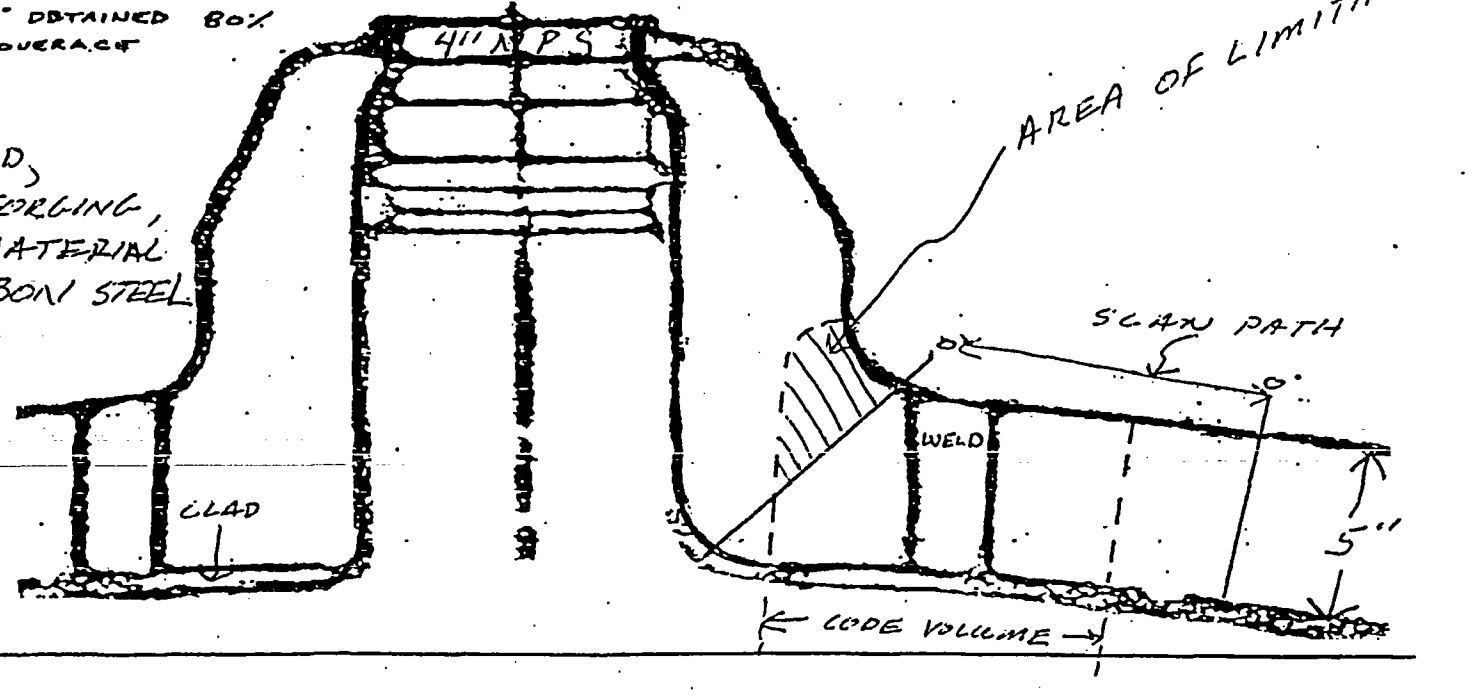
Comments: 0° OBTAINED 80% COVERAGE

Sketch or Photo:

PZR HEAD, NOZZLE FORGING, & WELD MATERIAL ALL CARBON STEEL



Supplemental Report

WELD 5-10

Report No.: UT-02-036

Page: 3 of 3

Summary No.: 2-005-010

Examiner:	Thomas, Wayne	Level:	III	Reviewer:	L.R. DAVIS	Date:	4-9-02
Examiner:	N/A	Level:	N/A	Site Review:	RL BROWNING	Date:	4-12-02
Other:	N/A	Level:	N/A	ANII Review:		Date:	4-15-02

Comments: NOT TO SCALE

45° SCANS

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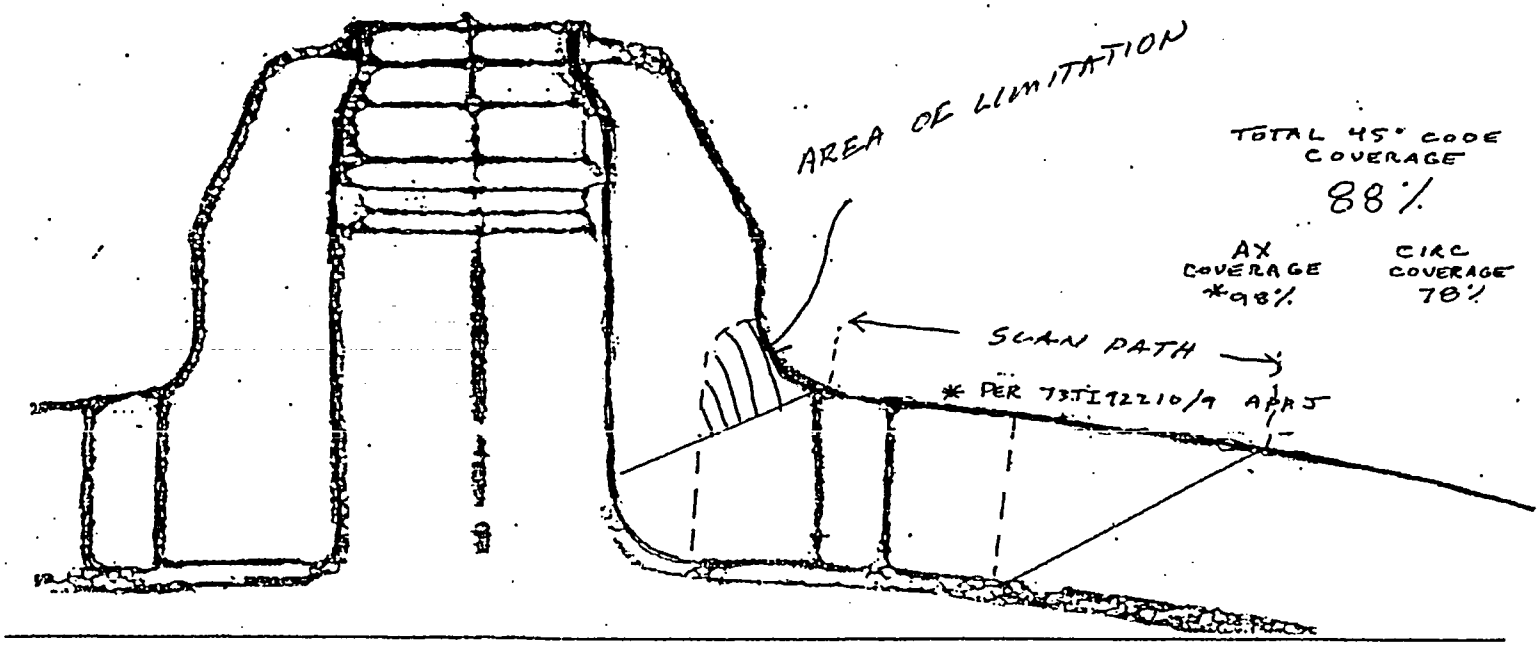

Supplemental Report

WELD 5-10

Report No.: UT-02-039
Page: 3 of 3

Summary No.:	2-005-010				
Examiner:	Thomas, Wayne	Level:	III	Reviewer: L.R. DAVIS	Date: 4-9-02
Examiner:	N/A	Level:	N/A	Site Review: R.L. Browning	Date: 4-12-02
Other:	N/A	Level:	N/A	ANII Review:	Date: 4-15-02

Comments: 60° SCANS

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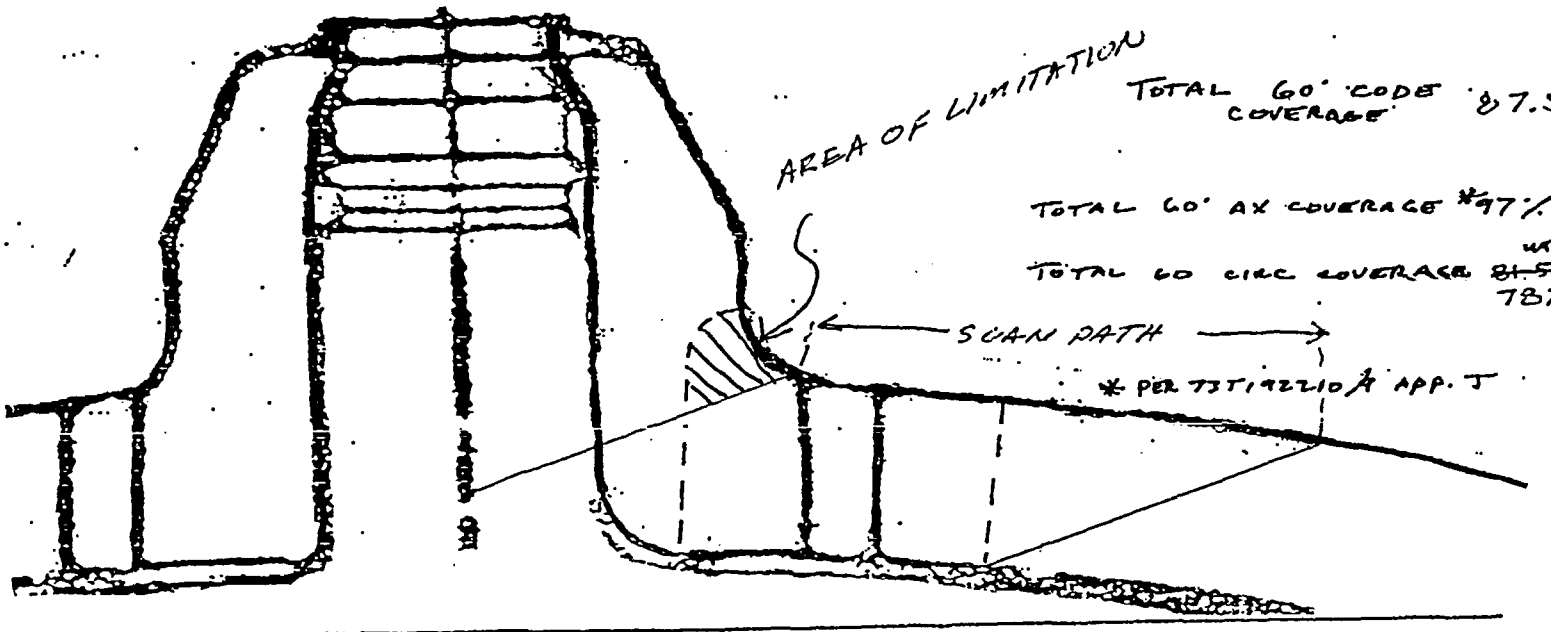

Supplemental Report

WELD 5-10

Report No.: UT-02-033
Page: 3 of 3

Summary No.: 2-005-010

Examiner:	Thomas, Wayne	Level:	III	Reviewer:	L.R. DAVIS	Date:	4-11-02
Examiner:	N/A	Level:	N/A	Site Review:	BROWNING	Date:	4-12-02
Other:	N/A	Level:	N/A	ANII Review:		Date:	4-15-02

Comments:

70° SCANS

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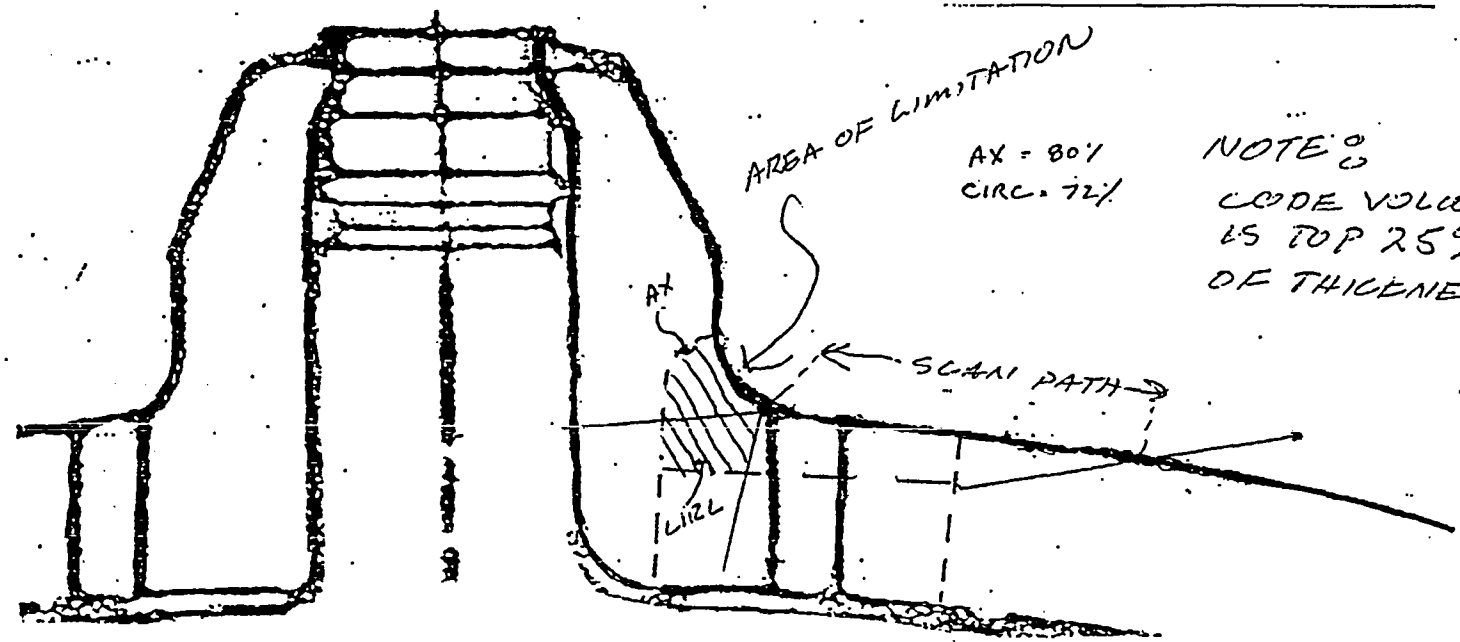

RR 38 RAI PART B

Supplemental Report

WELD 5-13
SAFETY NOZZLE

Report No.: UT-02-031
Page: 3 of 3

Summary No.: 2-005-013

Examiner:	Thomas, Wayne	Level:	III	Reviewer:	L.R. DAVIS	Date:	4-9-02
Examiner:	N/A	Level:	N/A	Site Review:	R.L. Brownlee	Date:	4-12-02
Other:	N/A	Level:	N/A	ANII Review:		Date:	

Comments:

0° SCANS

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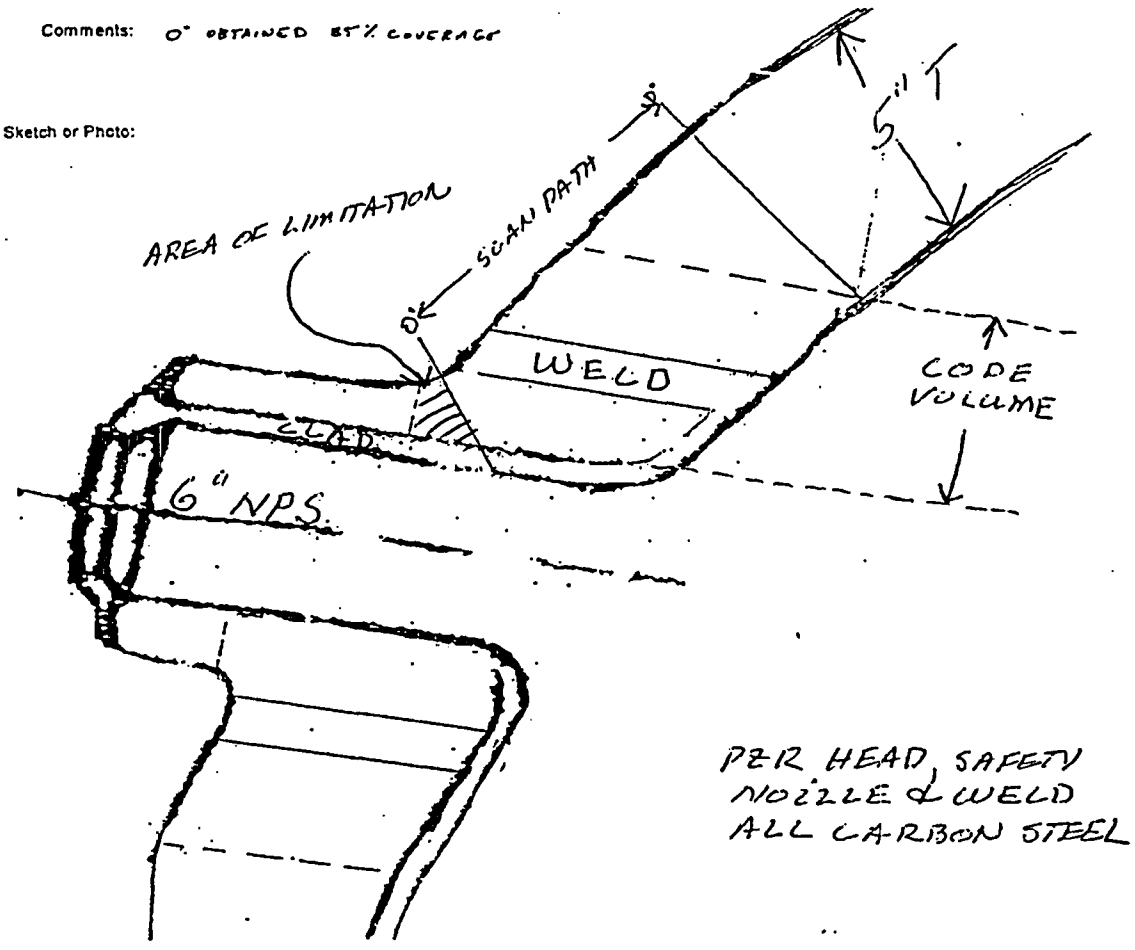
Comments: 0° OBTAINED 85% COVERAGE

Sketch or Photo:



Supplemental Report

WELD 5-13

Report No.: UT-02-037

Page: 3 of 3

Summary No.: 2-005-013

Examiner:	Thomas, Wayne	Level:	III	Reviewer:	L. R DAVIS	Date:	4-9-02
Examiner:	N/A	Level:	N/A	Site Review:	R.L. BROWNING RLB	Date:	4-12-02
Other:	N/A	Level:	N/A	ANII Review:		Date:	4-15-02

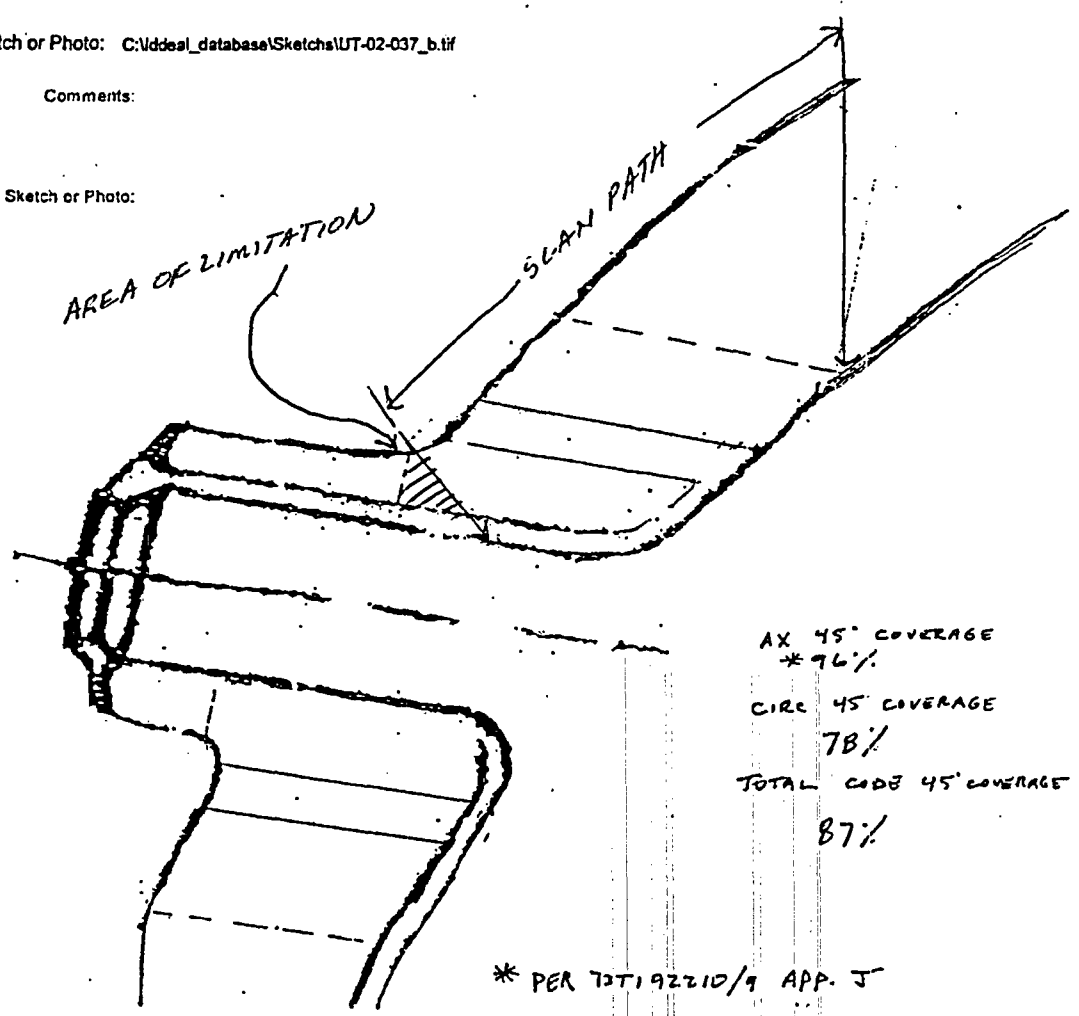
Comments:

45° SCANS

Sketch or Photo: C:\ldeal_database\Sketchs\UT-02-037_b.tif

Comments:

Sketch or Photo:



AX 45° COVERAGE
*96%

CIRC 45° COVERAGE
78%

TOTAL CODE 45° COVERAGE
87%

* PER 72T192210/9 APP. J

Supplemental Report

WELD 5-13

Report No.: UT-02-040

Page: 3 of 3

Summary No.: 2-005-013

Examiner: Thomas, Wayne Level: III Reviewer: L.R. DAVIS Date: 4-9-02

Examiner: N/A Level: N/A Site Review: See page 1 Date:

Other: N/A Level: N/A ANII Review: Date: 4-15-02

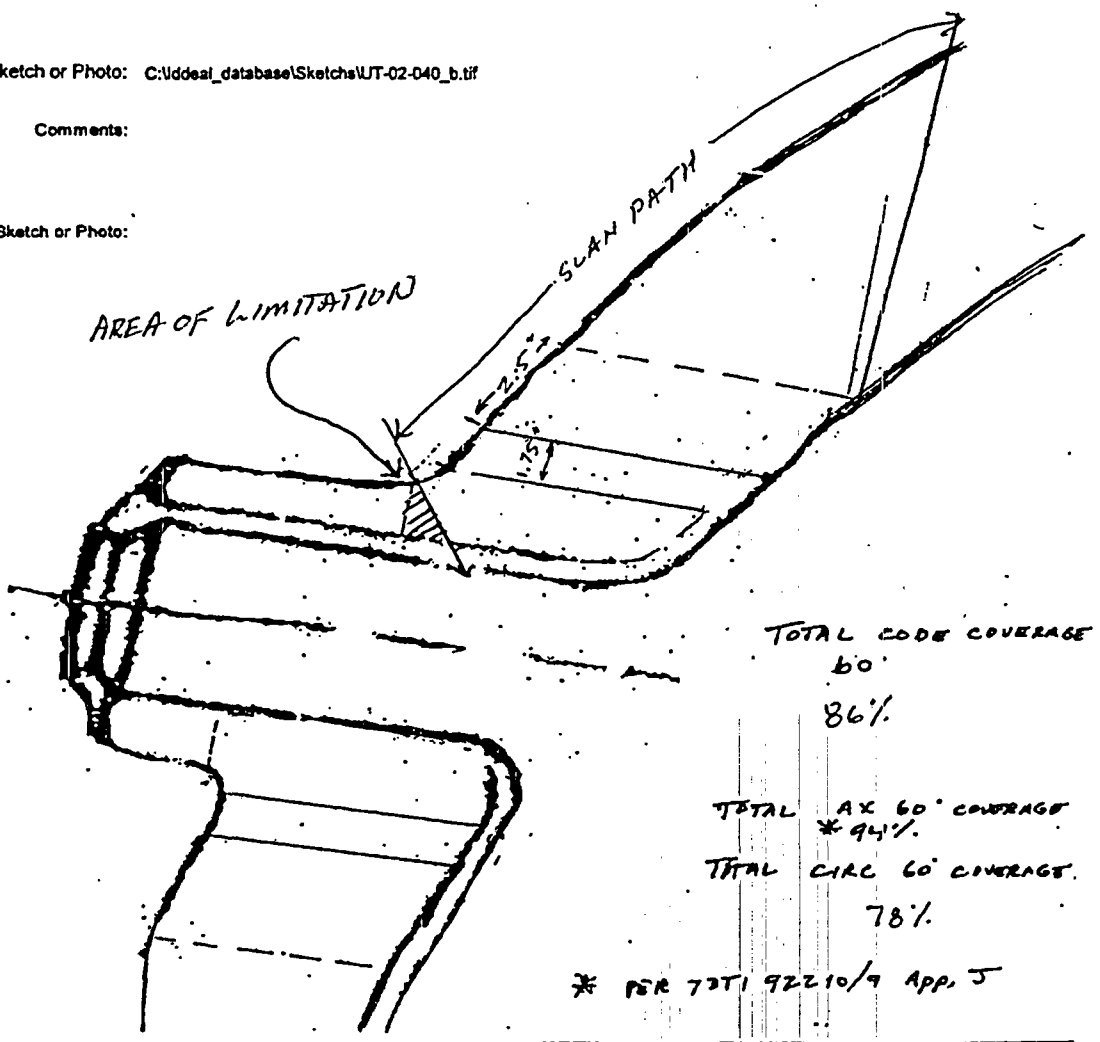
Comments:

60° SCANS

Sketch or Photo: C:\ddeal_database\Sketchs\UT-02-040_b.tif

Comments:

Sketch or Photo:



TOTAL CODE COVERAGE 60° 86%

TOTAL AX 60° COVERAGE * 94%

TOTAL CIRC 60° COVERAGE 78%

* PER TTI 92210/9 APP. J

Supplemental Report

WELD 5-13

Report No.: UT-02-034

Page: 3 of 3

Summary No.: 2-005-013

Examiner: Thomas, Wayne Level: III Reviewer: L.R. DAVIS Date: 4-11-02

Examiner: N/A Level: N/A Site Review: RL BROWNING Date: 4-12-02

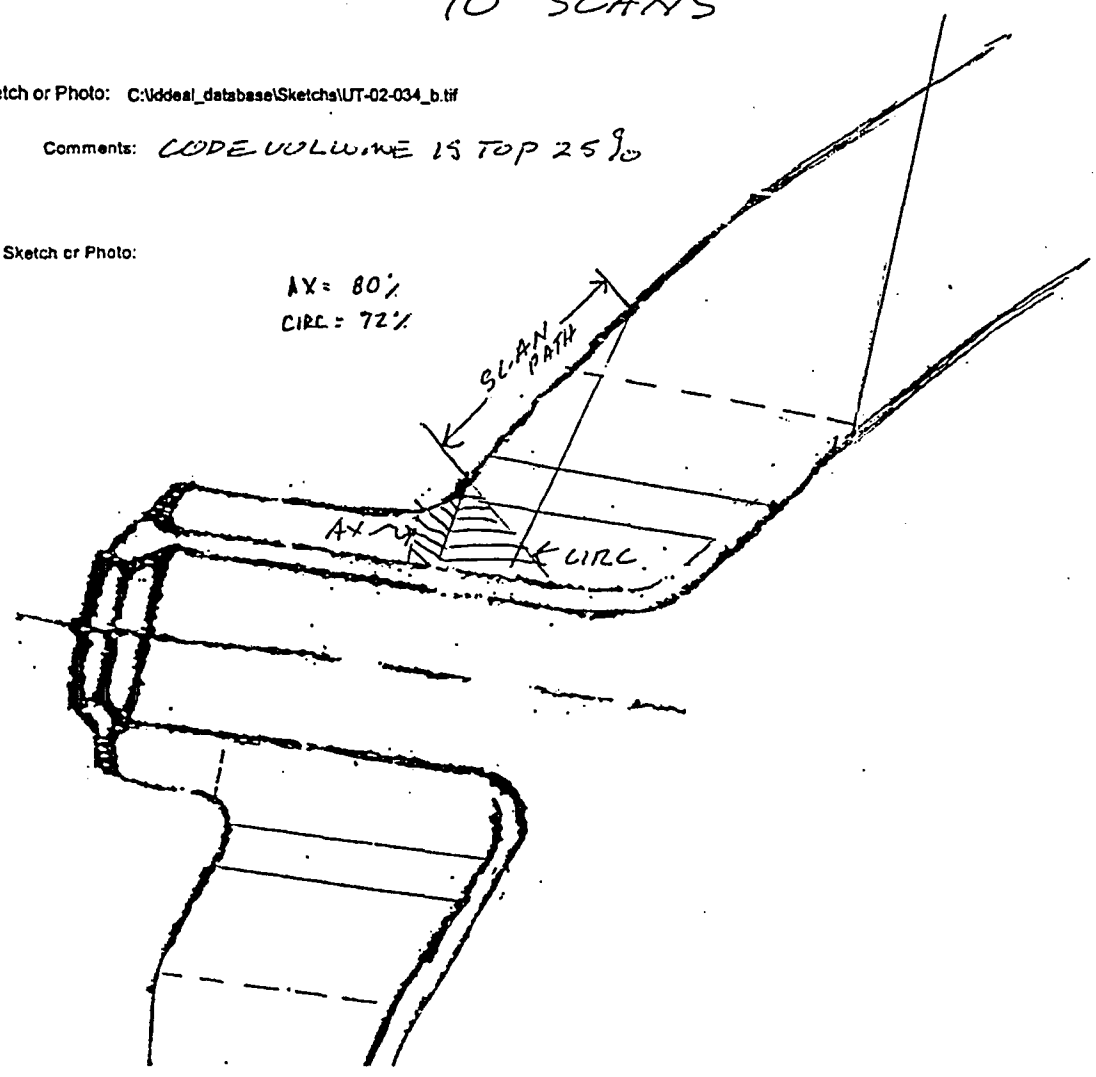
Other: N/A Level: N/A ANII Review: Date: 4-15-02

Comments: 70° SCANS

Sketch or Photo: C:\ddeal_database\Sketchs\UT-02-034_b.tif

Comments: CODE VOLUME IS TOP 25%

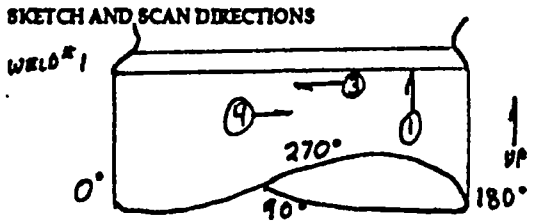
Sketch or Photo:

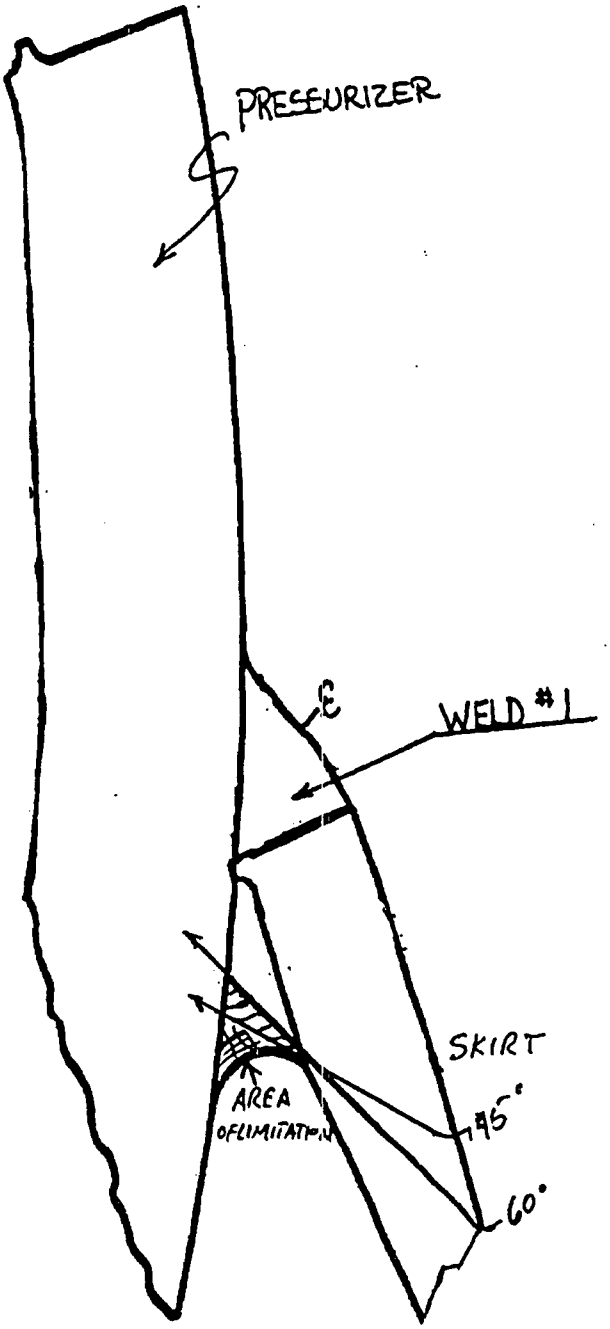


Attachment B

Drawing for Question 2.3(a)

SKETCH AND SCAN DIRECTIONS

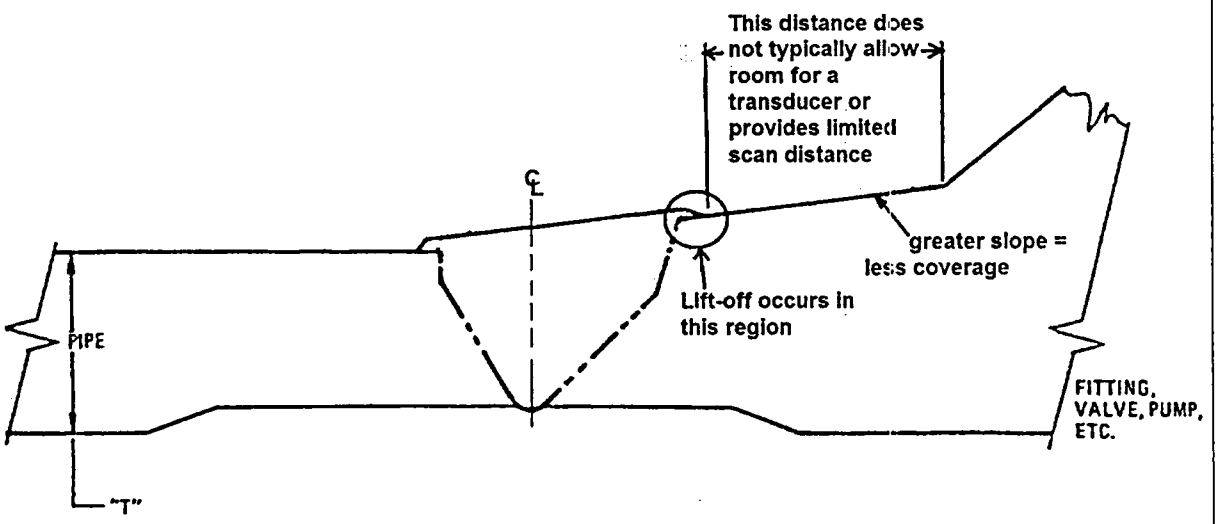


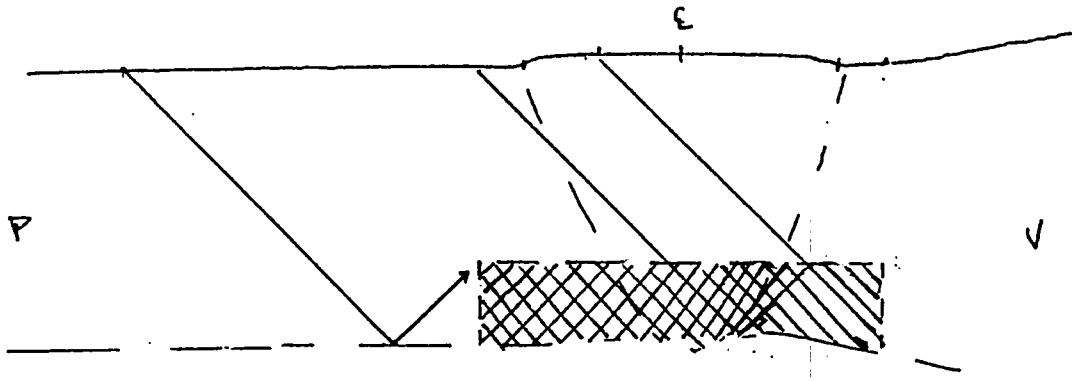


Attachment C

Sketches for Question 2.4(b) and 2.6(b).

PIPE TO FITTING JOINTS

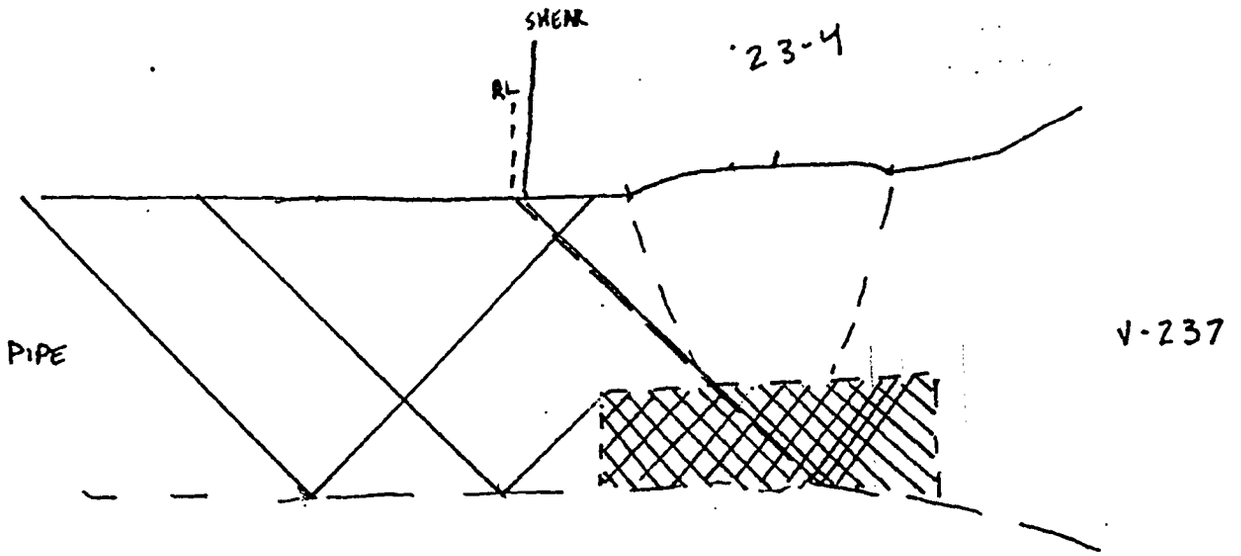




B-J Weld 22-11

FLOW

86.8% AX SCANS
100% CIRC SCANS
93.4% TOTAL

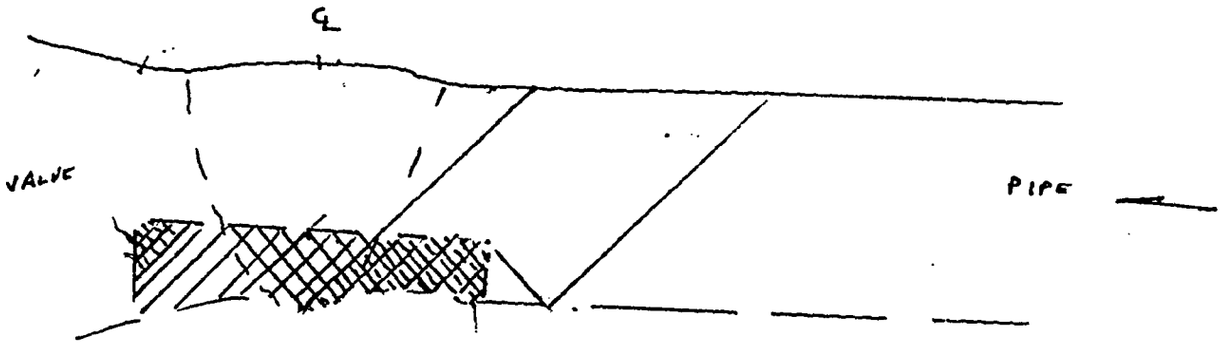


Coverage PLOT.
45° Shear

B-J Weld 23-4

FLOW

AX SCANS	91%
CIRC SCANS	100%
TOTAL	95.5%



C-F-1 Weld 77-14

/ = ONE DIRECTION

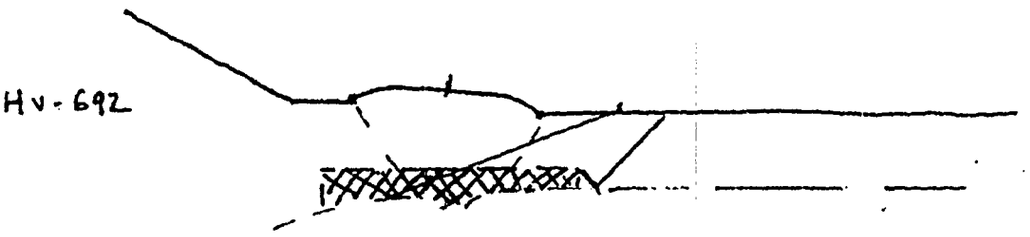
X = TWO DIRECTION

◫ = RL COVERAGE

CIRC = 100%

AX = 81%

TOTAL = 90.5%



C-F-1 Weld 85-46

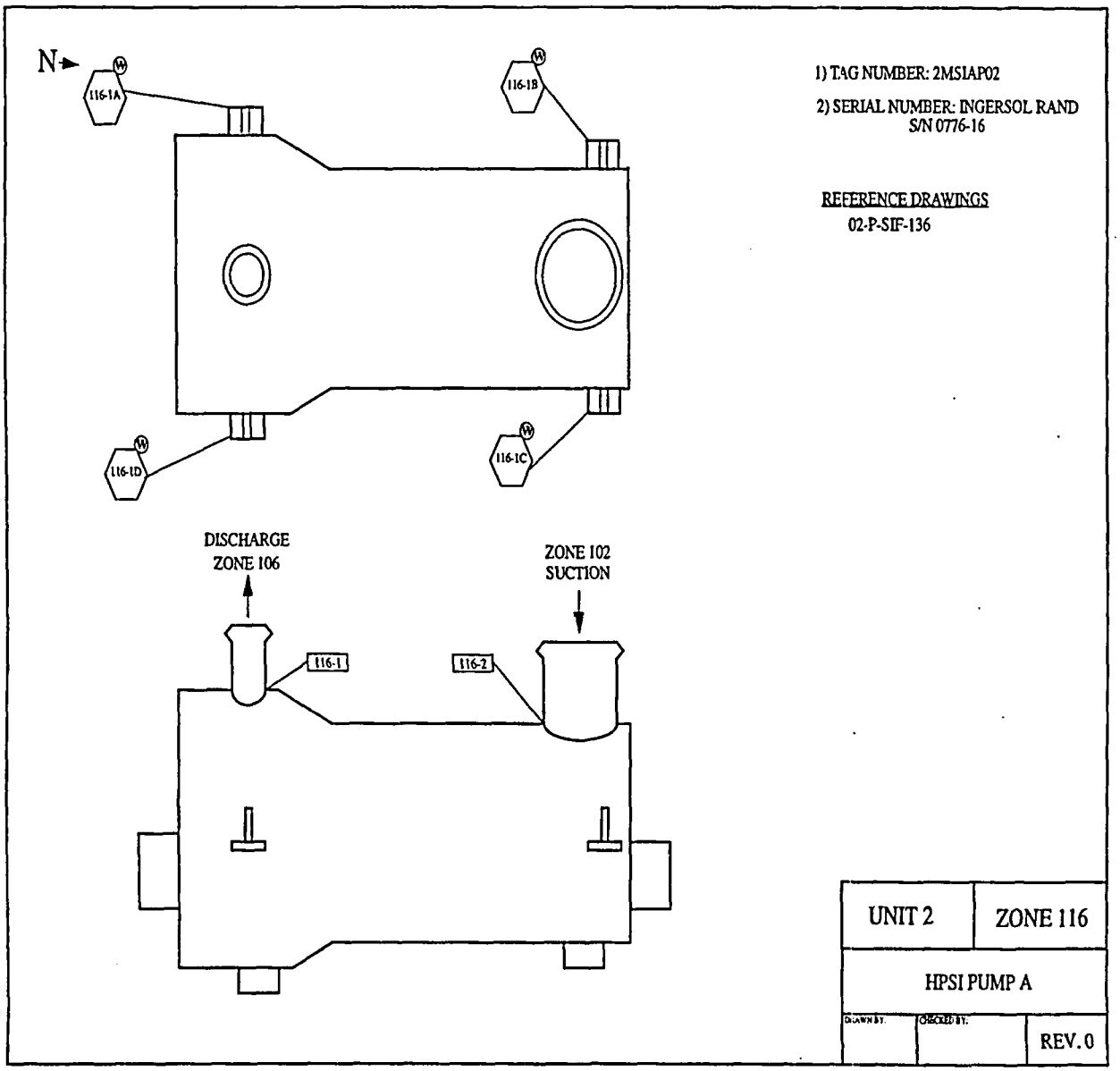
FLOW

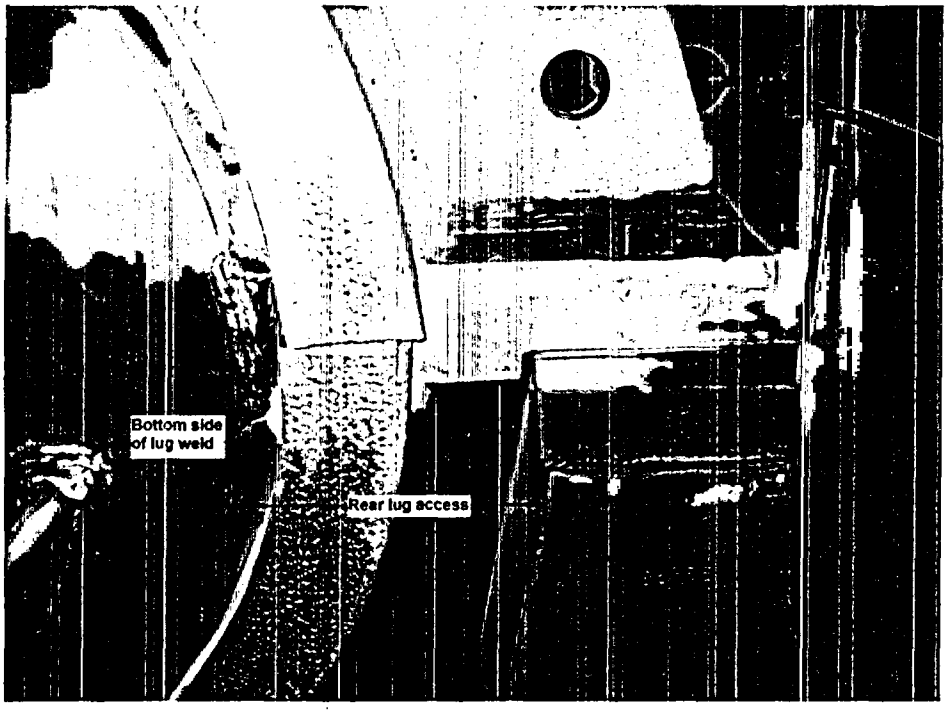
AX 100%
USING 2 1/2 NODE

CIRC 100%
BEST EFFORT EXAM
DUE TO AS WELDED
CONDITION.

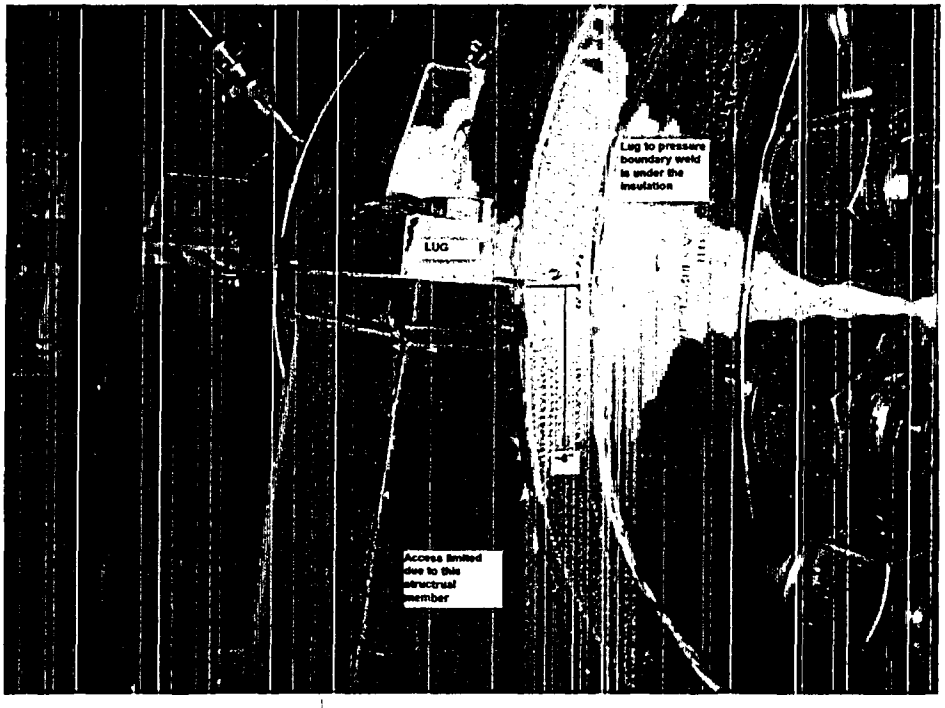
Attachment D

Drawing and Photos for Question 2.5(b)


N
116-1A
116-1B
116-1C
116-1D
1) TAG NUMBER: 2MSIAP02
2) SERIAL NUMBER: INGERSOL RAND
S/N 0776-16
REFERENCE DRAWINGS
02-P-SIF-136
DISCHARGE
ZONE 106
ZONE 102
SUCTION
116-1
116-2
UNIT 2
ZONE 116
HPSI PUMP A
DRAWN BY:
CHECKED BY:
REV. 0



HPSI Pump Rear Lug



HPSI Pump Front Lug