



A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

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102-05948-DCM/RJR
January 12, 2009

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
Unit 3 Second Inspection Interval Impractical Examinations - Relief
Request 43**

Pursuant to 10 CFR 50.55a(g)(5)(iii), Arizona Public Service Company (APS) is submitting Relief Request 43 for the Unit 3 second Inservice Inspection (ISI) interval. The enclosed Relief Request 43 requests relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements which have been determined by APS to be impractical.

On March 14, 2008, APS submitted Relief Request 38 for similar impracticalities experienced during the Unit 2 second ISI interval. On September 24, 2008, the NRC requested additional information in support of Relief Request 38 which was submitted on November 14, 2008. Relief Request 43 incorporates similar information that was requested to support Relief Request 38.

This letter does not make any commitments to the NRC. If you have any questions or require additional information regarding this relief request, please contact Russell A. Stroud, Licensing Section Leader, at (623) 393-5111.

Sincerely,

4047
NRR

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DCM/TNW/RAS/RJR/gat

Enclosure

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

ENCLOSURE

Relief Request 43

Unit 3

INTERVAL 2

Relief Request No. 43

Relief Request in Accordance with 10 CFR 50.55a(g)(5)(iii) Inservice Inspection Impracticality

ASME Code Components Affected

	<u>Category</u>	<u>Item</u>	<u>Description</u>
1.	B-H	B8.20	Pressurizer - Integrally Welded Attachment
2.	B-J	B9.11	NPS 4 in. or Larger - Circumferential Welds
3.	C-C	C3.30	Pump - Integrally Welded Attachments
4.	C-F-1	C5.11	Piping Welds > 3/8 in. Nominal Wall Thickness for Piping > NPS 4 in. - Circumferential Welds
		C5.21	Piping Welds > 1/5 in. Nominal Wall Thickness for Piping \geq NPS 2 in. and \leq 4 in. - Circumferential Welds
5.	C-H	C7.30 C7.40	All Pressure Retaining Components

Code Class 1 and 2

Applicable Code Editions and Addenda

Second 10-year Inservice Inspection Interval for Palo Verde Nuclear Generating Station (PVNGS) Unit 3: American Society of Mechanical Engineers (ASME) Code, Section XI, 1992 Edition through 1992 Addenda. Unit 3's second ISI interval ended on January 10, 2008.

Applicable Code Requirements

IWB-2500 and IWC-2500 of ASME Section XI, 1992 Edition through 1992 Addenda states in part that B-H, B-J, C-C, C-F-1 welds and C-H components will be examined essentially 100%.

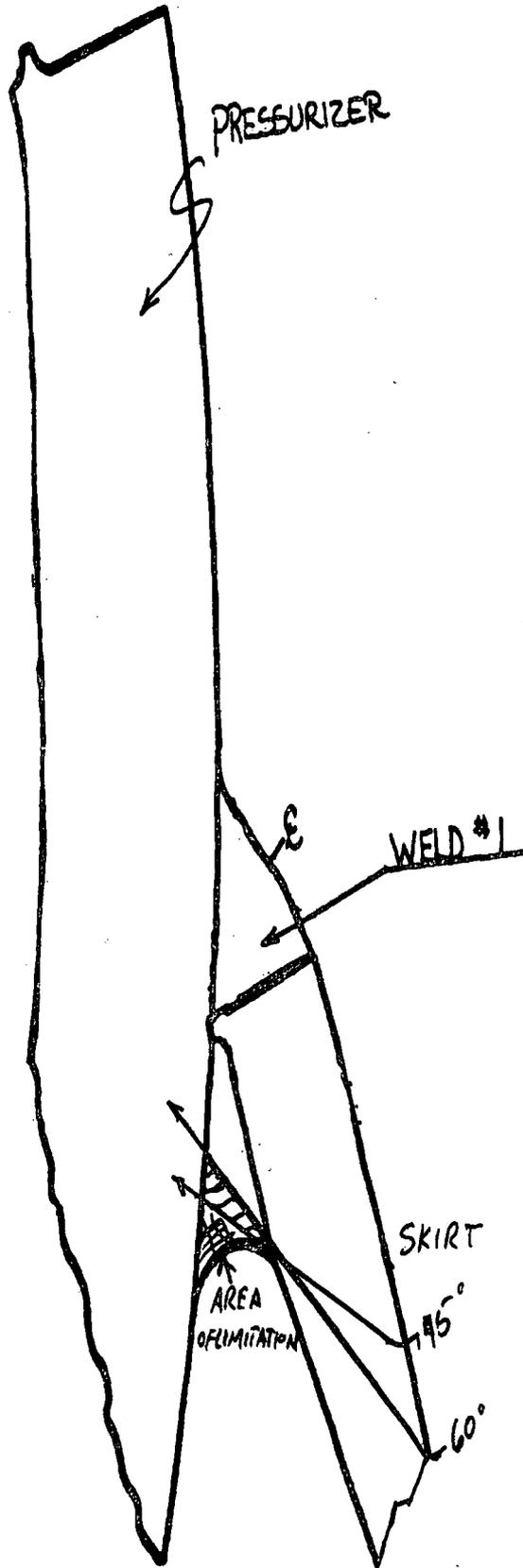
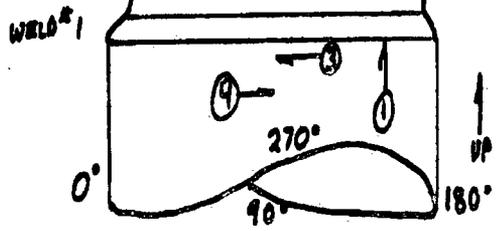
Proposed Alternatives

A request for relief for the following items is being requested because of physical interference due to plant configuration and component geometry. The examination limitations are described in the paragraphs below. In order to meet the volumetric or surface coverage requirements, the affected welds would have to be re-designed and modified. To meet the pressure testing coverage requirements, installation clips and other attachments would have to be re-designed and modified. Re-design and modification of components to obtain the required examination volume is contrary to the intent of the Code. Therefore, this option is considered impractical.

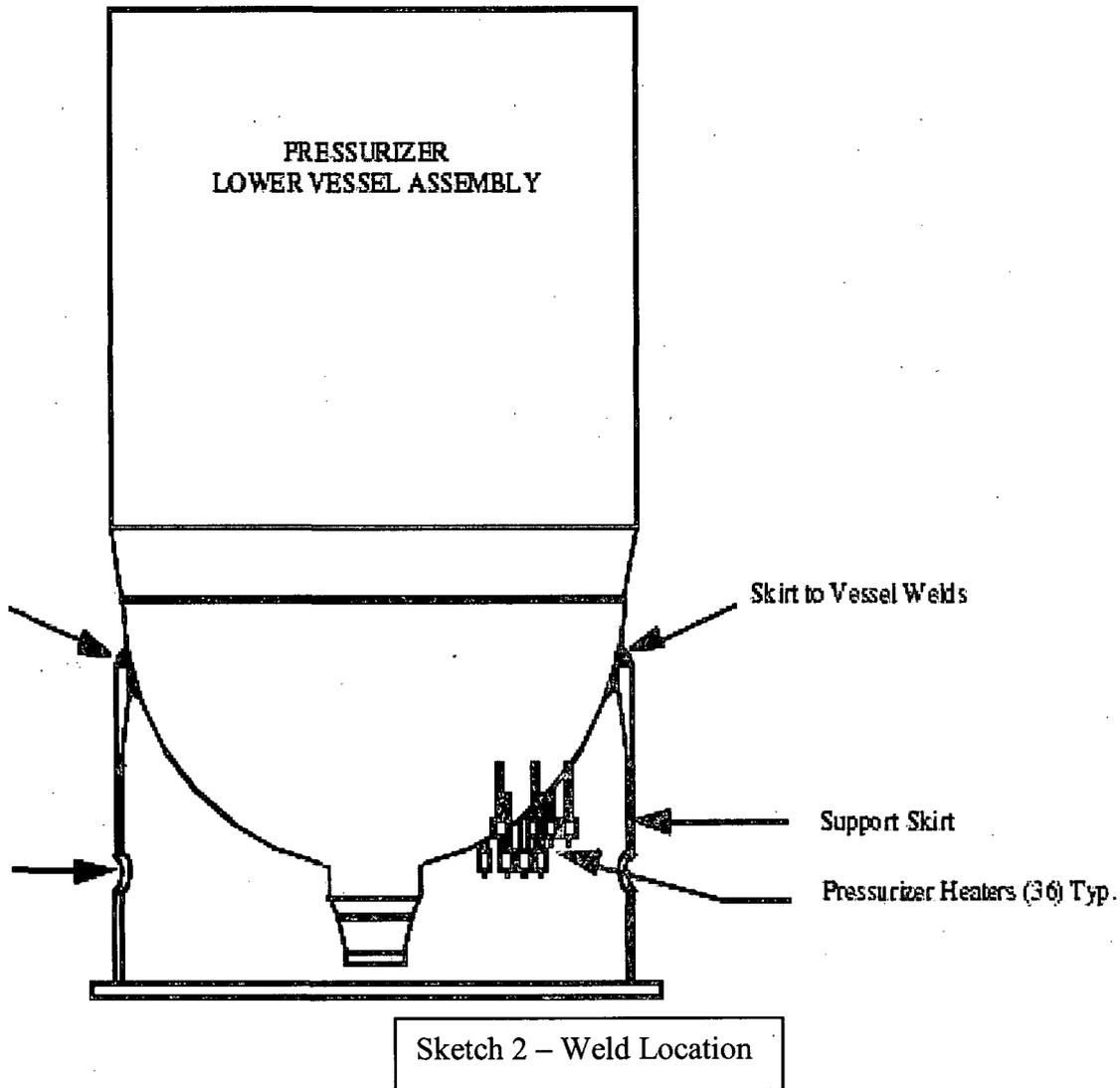
1. B-H B8.20 Pressurizer - Integrally Welded Attachment

The Pressurizer Skirt weld (Weld #1) is inaccessible from the inside due to radiation, insulation, heaters, and drain lines. Only the outside surface of the skirt weld is accessible for examination. Where the outside portion is accessible, an ultrasonic examination was also performed to augment the surface examination. The ultrasonic examination achieved 78% Code volume coverage. Therefore, APS considers this examination to be limited. In addition, a magnetic particle (MT) surface examination was performed on 100% of the accessible surface of the weld. The following sketches (Sketch 1 and Sketch 2) illustrate the geometric conditions that limit the examination of this weld to the outside diameter.

SKETCH AND SCAN DIRECTIONS



Sketch 1 -Weld Configuration



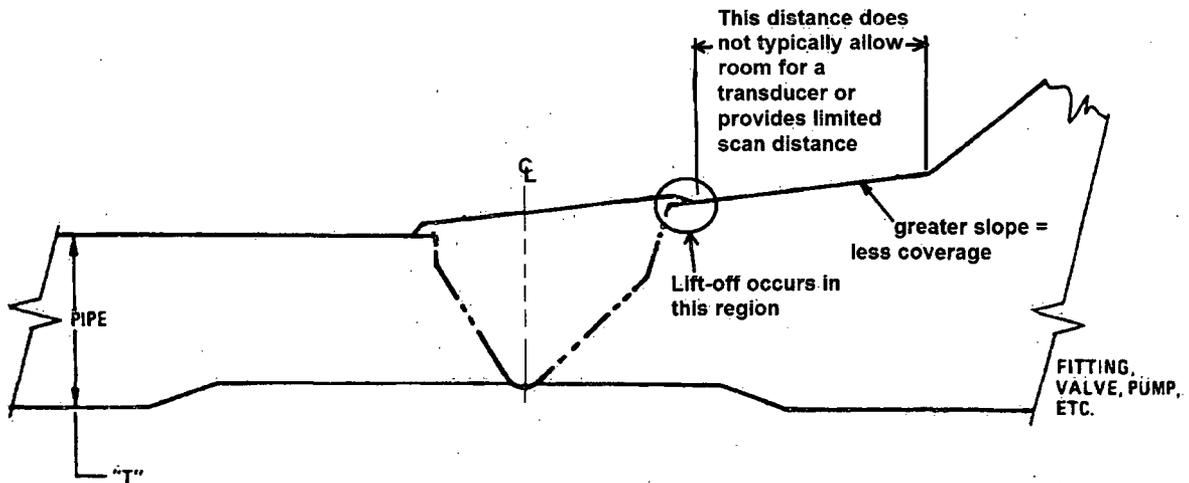
2. B-J B9.11 NPS 4 in. or Larger - Circumferential Welds

The following piping butt weld of category B-J with single sided access was credited to only a 50% code volume coverage based on Appendix VIII Performance Demonstration Initiative (PDI) demonstration.

The B-J piping weld was examined in accordance with the PDI generic procedure PDI-UT-2. No limitations to the procedural requirements were encountered. The following sketch is a typical weld profile configuration (pipe-to-fitting, pipe-to-valve, pipe-to-pump, etc.). As shown in the following 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.

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PIPE TO FITTING JOINTS



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 sided access configurations. Therefore, APS considers the B-J weld to be limited coverage.

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 weld.

Item ID	Configuration	Ultrasonic Technique	Diameter & Wall Thickness	Material
23-4	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	14" x 1.406"	300 series SS to same

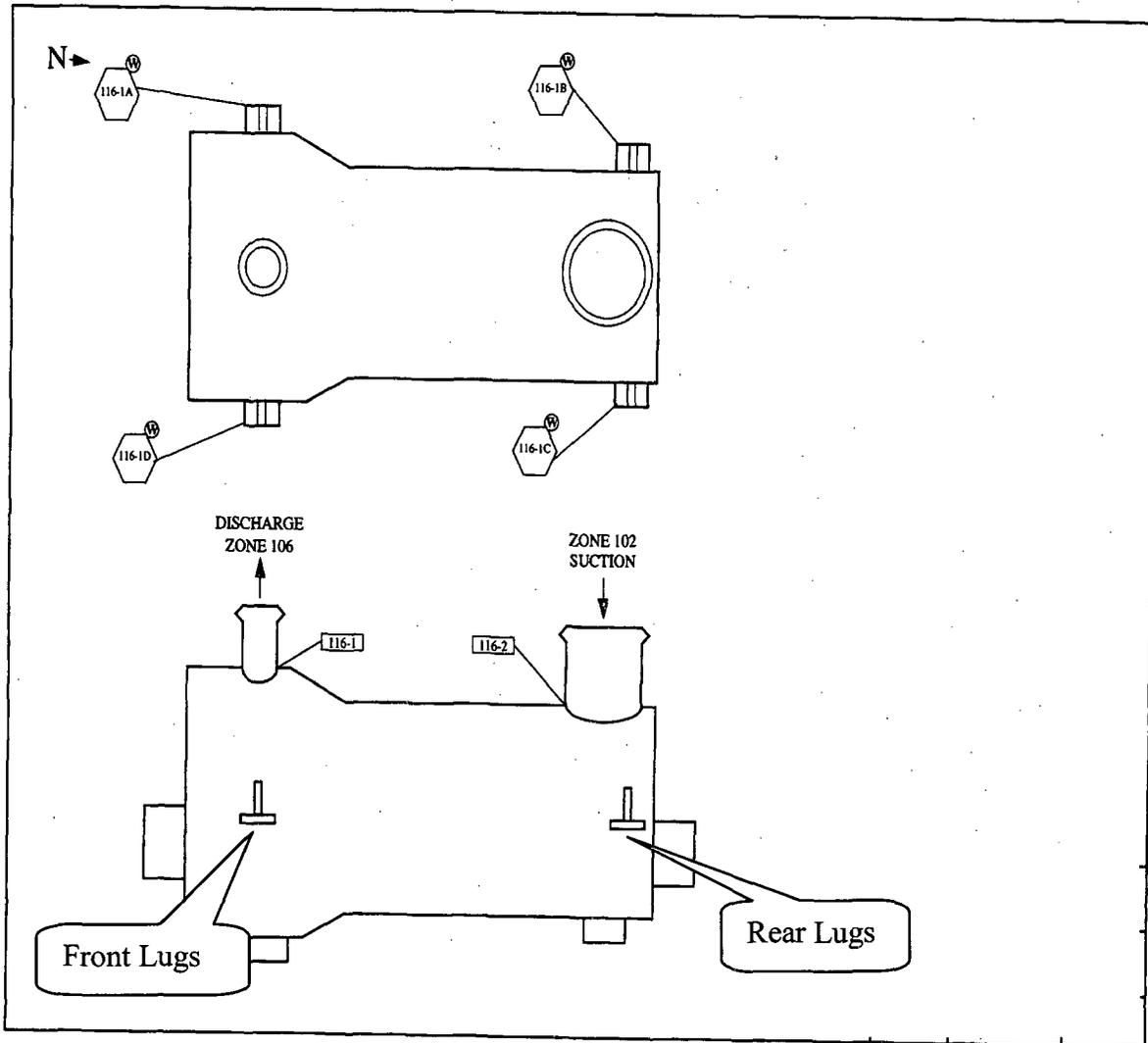
A review of the ultrasonic examination reports for the single sided B-J piping weld indicates that no limitations or comments were made addressing weld crown, diametrical weld shrinkage, surface roughness, or other conditions that would cause limited volumetric coverage. It should be noted that a liquid penetrant examination was also performed with no limitations noted.

3. C-C C3.30 Pump - Integrally Welded Attachments

The HPSI Pump front support lugs (116-1A, 116-1D, 117-1A and 117-1D) have restricted access by the structural base support material. The lugs are accessible for examination; however, the Code required examination area is limited on the bottom of the front lugs. The following drawing illustrates the location of the lugs and the photo identifies the support member limitations. A comparison photo for the rear lugs illustrates the difference in accessibility. The rear lugs were not limited and 100% coverage was obtained. The front lugs were limited at the bottom side of the lug-to-

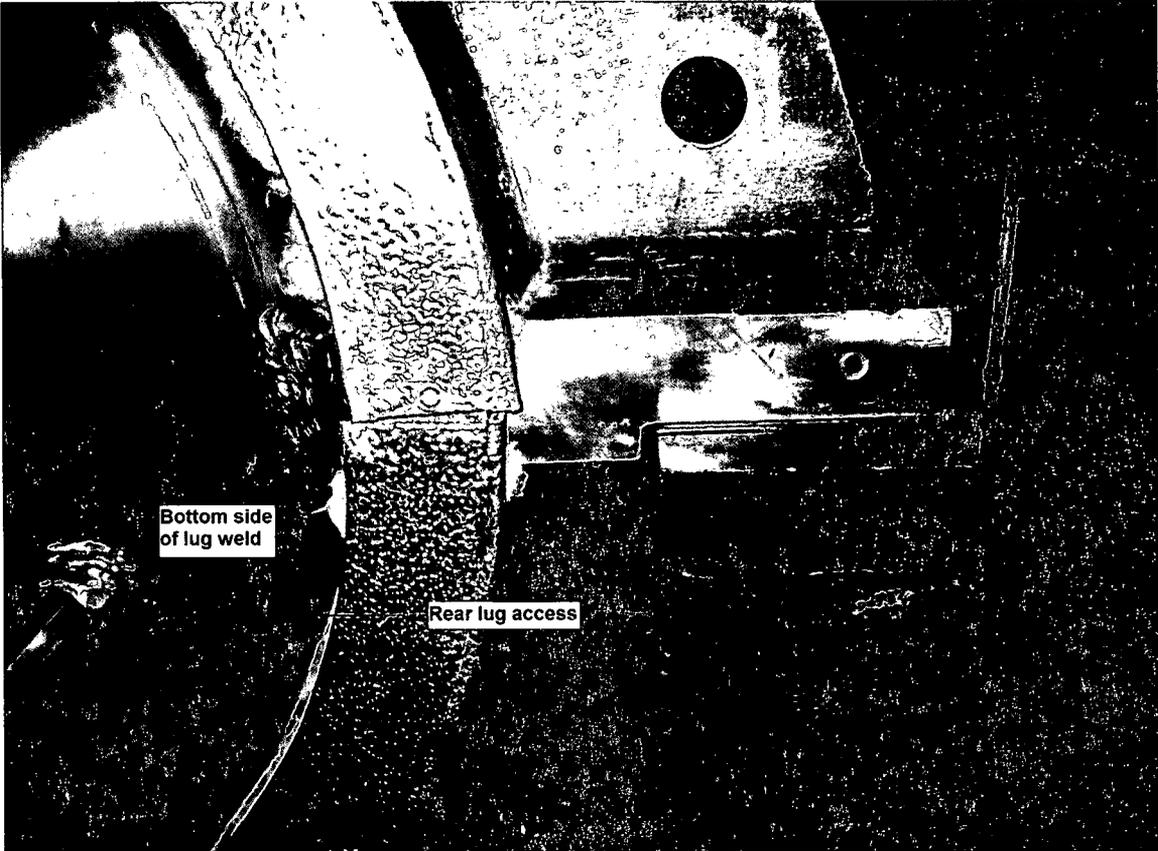
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pressure boundary weld. The examination reports for the front lugs noted 78% of the required area was examined. Therefore, APS considers this examination to be limited.

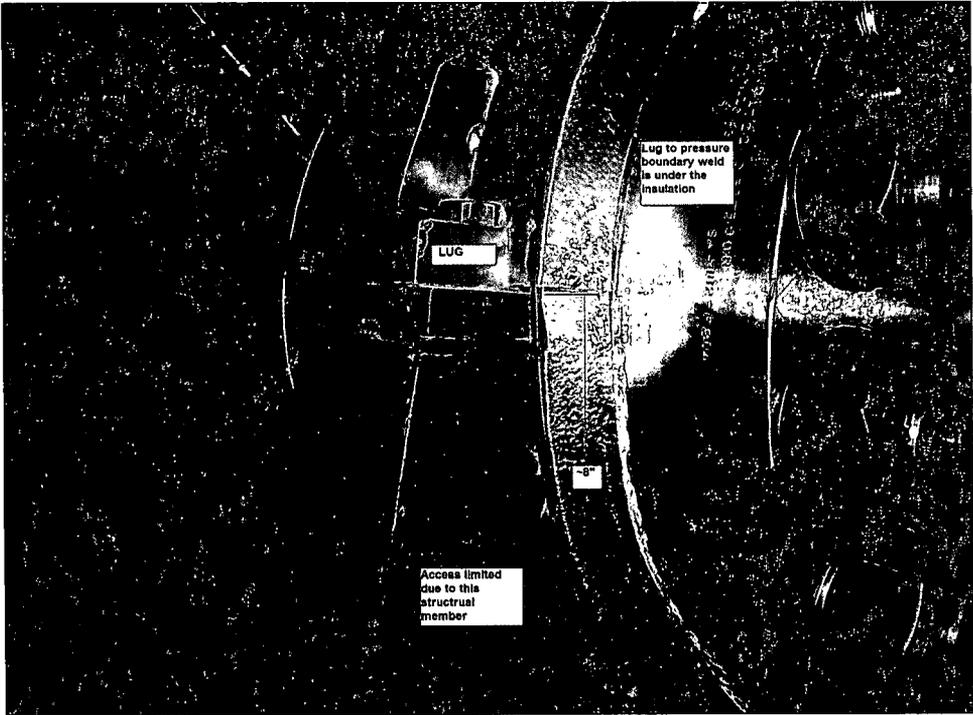


ISI Zone Drawing of typical HPSI Pump

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HPSI Pump Rear Lug



HPSI Pump Front Lug

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4. C-F-1 C5.11 Piping Welds > 3/8 in. Nominal Wall Thickness for Piping > NPS 4 in. - Circumferential Welds, and

C5.21 Piping Welds > 1/5 in. Nominal Wall Thickness for Piping \geq NPS 2 in. and \leq 4 in. Circumferential Welds

The butt welds of category C-F-1 with single sided access were credited to only a 50% code volume coverage based on Appendix VIII PDI demonstration.

All of the C-F-1 piping welds were examined in accordance with the PDI generic procedure PDI-UT-2. No limitations to the procedural requirements were encountered. The Item 2 discussion illustrates a typical weld profile sketch (pipe-to-fitting, pipe-to-valve, pipe-to-pump, etc.) for these weld configurations. As shown in the sketch in Item 2, 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.

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. Therefore, APS considers the C-F-1 welds to be limited coverage.

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.

Item ID	Configuration	Ultrasonic Technique	Diameter & Wall Thickness	Material
62-24	pipe to penetration	45 Degree Shear Wave 60 Degree Refracted L-Wave	6" x .562"	300 series SS to same
63-4	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	6" x .562"	300 series SS to same
63-30	pipe to penetration	45 Degree Shear Wave 60 Degree Refracted L-Wave	6" x .562"	300 series SS to same
77-7	pipe to flange	45, 70 Degree Shear Wave	12" x .375"	300 series SS to same
77-14	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	12" x 1.125"	300 series SS to same
79-14	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	12" x 1.125"	300 series SS to same
76-7	pipe to flange	45, 70 Degree Shear Wave	12" x .375"	300 series SS to same
77-16	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	12" x 1.125"	300 series SS to same
84-9	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	24" x .562"	300 series SS to same
77-27	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	12" x 1.312"	300 series SS to same
70-121	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	16" x 1.594"	300 series SS to same
84-3	pipe to	45, 70 Degree Shear Wave	24 x .375	300 series SS to same

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Item ID	Configuration	Ultrasonic Technique	Diameter & Wall Thickness	Material
	penetration			
84-12	pipe to valve	45 Degree Shear Wave 60 Degree Refracted L-Wave	24" x .562"	300 series SS to same
85-46	pipe to valve	45, 70 Degree Shear Wave	20" x .375"	300 series SS to same
106-1	pipe to pump	45, 70 Degree Shear Wave	4" x .337"	300 series SS to same
106-21	pipe to valve	45, 70 Degree Shear Wave	4" x .438"	300 series SS to same
107-11	pipe to valve	45, 70 Degree Shear Wave	4" x .337"	300 series SS to same
107-42	pipe to tee	45, 70 Degree Shear Wave	2" x .344"	300 series SS to same
109-21	pipe to tee	45, 70 Degree Shear Wave	4" x .337"	300 series SS to same
110-39	pipe to penetration	45, 70 Degree Shear Wave	3" x .438"	300 series SS to same
110-17	pipe to valve	45, 70 Degree Shear Wave	2" x .344"	300 series SS to same
110-52	pipe to tee	45, 70 Degree Shear Wave	2" x .344"	300 series SS to same
111-34	pipe to flange	45, 70 Degree Shear Wave	4" x .438"	300 series SS to same
112-45	pipe to reducer	45, 70 Degree Shear Wave	3" x .438"	300 series SS to same
113-21	pipe to tee	45, 60, 70 Deg Shear Wave 60 Degree Refracted L-Wave	2" x .344"	300 series SS to same
113-28	pipe to valve	45, 70 Degree Shear Wave	2" x .344"	300 series SS to same
115-13	pipe to penetration	45, 70 Degree Shear Wave	3" x .438"	300 series SS to same
118-49	pipe to valve	45, 70 Degree Shear Wave	3" x .438"	300 series SS to same
119-52	pipe to valve	45, 70 Degree Shear Wave	3" x .438"	300 series SS to same
119-53	pipe to valve	45, 70 Degree Shear Wave	2" x .344"	300 series SS to same

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.

5. C-H C7.30 and C7.40 All Pressure Retaining components

The three chemical and volume control system (CVCS) charging pumps each have a suction stabilizer and pulsation dampener for system stability purposes. These components have a bladder and nitrogen system to moderate the fluid shock in the CVCS to maintain consistent operating characteristics. The nitrogen tubing lines up to and including the first isolation valve from the stabilizer and dampeners are ASME Class 2. A visual testing level II (VT-2) qualified examiner employs a "snoop" method to detect escaping gas in the form of bubbles on this tubing. This tubing has installation clips and other attachments that prevent 100% snooping of the tubing. Therefore, APS considers this examination to be limited. Note the following photograph depicts a typical installation clip and associated VT-2 limitation.

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Line numbers for these lines are A-938-HCBA-3/8", A-937-CCBA-3/8", B-940-HCBA-3/8", B-939-CCBA-3/8", E-942-HCBA-3/8", E-941-CCBA-3/8 "

Conclusion

In conclusion, the items for which relief is being requested were examined to the fullest extent possible. In accordance with 10 CFR 50.55a(g)(5)(iii) APS is requesting relief from conformance with the above cited Code requirements which have been determined to be impractical for Items B8.20, B9.11, C3.30, C5.11, C5.21, C7.30, and C7.40.

References

ASME Section XI, Division 1, Rules for Inspection and Testing of Components of Light Water Cooled Plants 1992 Edition, 1992 Addenda.

NRC Regulations, Title 10, Code of Federal Regulations 10 CFR 50.55a.