

Dominion Nuclear Connecticut, Inc.  
5000 Dominion Boulevard, Glen Allen, Virginia 23060  
Web Address: www.dom.com



April 19, 2010

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

Serial No. 10-189  
NSS&L/MLC R0  
Docket No. 50-423  
License No. NPF-49

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**  
**ASME SECTION XI INSERVICE INSPECTION PROGRAM**  
**RELIEF REQUESTS FOR LIMITED COVERAGE EXAMINATIONS PERFORMED IN**  
**THE SECOND 10-YEAR INSPECTION INTERVAL**

Millstone Power Station Unit 3's (MPS3) second 10-year interval for the inservice inspection program concluded on April 22, 2009. During this interval, the components identified in Attachments 1 through 10 received less than the required examination coverage. Accordingly, pursuant to 10 CFR 50.55a(g)(5)(iii), Dominion Nuclear Connecticut, Inc. (DNC) requests relief on the basis that the required examination coverage is impractical due to physical obstructions and limitations imposed by design, geometry and materials of construction of the subject components.

Attachments 1 through 10 contain the relief requests and the basis for these requests. These relief requests have been reviewed and approved by the station's Facility Safety Review Committee.

If you have any questions or require additional information, please contact Wanda Craft at (804) 273-4687.

Sincerely,



J. Alan Price  
Vice President – Nuclear Engineering

A047  
NRR

Attachments:

1. Relief Request IR-2-51 - Examination Category B-A, Pressure Retaining Welds in Reactor Vessel.
2. Relief Request IR-2-52 - Examination Category B-B, Pressure Retaining Welds In Vessels Other Than Reactor Vessels.
3. Relief Request IR-2-53 - Examination Category B-D, Full Penetration Welds of Nozzles in Vessels - Inspection Program B.
4. Relief Request IR-2-54, Examination Category B-H, Integral Attachments for Vessels.
5. Relief Request IR-2-55, Examination Category C-A, Pressure Retaining Welds in Pressure Vessels.
6. Relief Request IR-2-56, Examination Category C-C, Integral Attachments of Vessels, Piping, Pumps, and Valves.
7. Relief Request IR-2-57, Examination Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel High Alloy Piping.
8. Relief Request IR-2-58, Examination Category F-A, Supports.
9. Relief Request IR-2-59, Examination Category R-A, Risk Informed Piping Examinations.
10. Relief Request IR-2-60, Examination Category B-P, All Pressure Retaining Components.

Commitments made in this letter:

1. None

cc: U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Ms. C. J. Sanders  
NRC Project Manager, Mail Stop 8B3  
U.S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738

NRC Senior Resident Inspector  
Millstone Power Station

**ATTACHMENT 1**

**RELIEF REQUEST IR-2-51**

**EXAMINATION CATEGORY B-A**  
**PRESSURE RETAINING WELDS IN REACTOR VESSEL**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Effected

ASME Code Class: Code Class 1

Examination Category: B-A, Pressure Retaining Welds in Reactor Vessel

Item Numbers: B1.11, Shell Welds - Circumferential  
B1.12, Shell Welds - Longitudinal  
B1.21, Head Welds - Circumferential  
B1.22, Head Welds - Meridional

Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category B-A requires volumetric examination of 100 percent of the weld volume as defined in ASME Section XI Table IWB-2500-1 and shown in Figures IWB-2500-1, IWB-2500-2 and IWB-2500-3. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the weld provided greater than 90 percent of the required volume has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the essentially 100 percent volumetric examination coverage requirement for the subject welds. Due to the design of the reactor vessel, geometric configuration and permanent obstructions limit the volumetric examination coverage of the subject welds.

During the second 10-year reactor pressure vessel examination, the best available technology was utilized in performing the automated ultrasonic examination. The examinations were performed with equipment, procedures and personnel qualified in accordance with the requirements of ASME Section XI,

Appendix VIII, 1995 Edition thru 1996 Addenda as modified by the Performance Demonstration Initiative (PDI) program.

A total of 58 permanent incore instrument nozzles penetrate the bottom head and six core support lugs permanently attached to the vessel interior limit the access to the lower head welds. The close proximity of the inlet nozzle and outlet nozzle boss limits the ultrasonic scanning of the upper shell longitudinal seam welds. These noted obstructions prevent achieving the essentially 100 percent volume examination coverage required by code.

The limitations and the actual examination coverage attained for each weld for which relief is requested are noted in the Table 1.

Isometric drawings, coverage calculations and limitation sketches are provided in this attachment.

TABLE 1- Examination Category B-A Welds with Limited Volumetric Coverage

Weld Identification	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage Attained (%)
101-122A	B1.12	Upper Shell longitudinal Seam at 90 Azimuth (Az.)	Limited examination due to the inlet nozzles proximity to the weld. One recordable subsurface indication was identified and evaluated as acceptable per IWB 3510-1.	74
101-122B	B1.12	Upper Shell longitudinal Seam at 210 Az.	Limited examination due to obstruction caused by outlet nozzle boss. No recordable Indications were detected.	87
101-122C	B1.12	Upper Shell longitudinal Seam at 330 Az.	Limited examination due to obstruction caused by outlet nozzle boss. No recordable Indications detected.	87

TABLE 1- Examination Category B-A Welds with Limited Volumetric Coverage

Weld Identification	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage Attained (%)
101-141	B1.11	Lower Shell To Bottom Head Torus	Limited examination due to obstruction caused by permanent core support lugs. One recordable subsurface indication identified and evaluated as acceptable per IWB 3510-1.	54
101-154A	B1.22	Torus Peel Segment at 0 Az.	Limited examination due to obstruction caused by permanent core support lugs and incore instrument nozzles. No recordable indications were detected.	70
101-154B	B1.22	Torus Peel Segment at 90 Az.	Limited examination due to obstruction caused by permanent incore instrumentation nozzles. No recordable indications were detected.	84
101-154C	B1.22	Torus Peel Segment at 180 Az.	Limited examination due to obstruction caused by permanent core support lugs. No recordable indications were detected.	84
102-151	B1.21	Torus To Dollar Plate Weld	Limited examination due to obstruction caused by permanent incore instrument nozzles. No recordable indications were detected.	38

5. Burden Caused by Compliance

To increase examination coverage on the subject welds requires a significant design modification or replacement of components with a different design to eliminate the noted obstructions. This is impractical due to the cost, additional radiation exposure and impact to plant equipment.

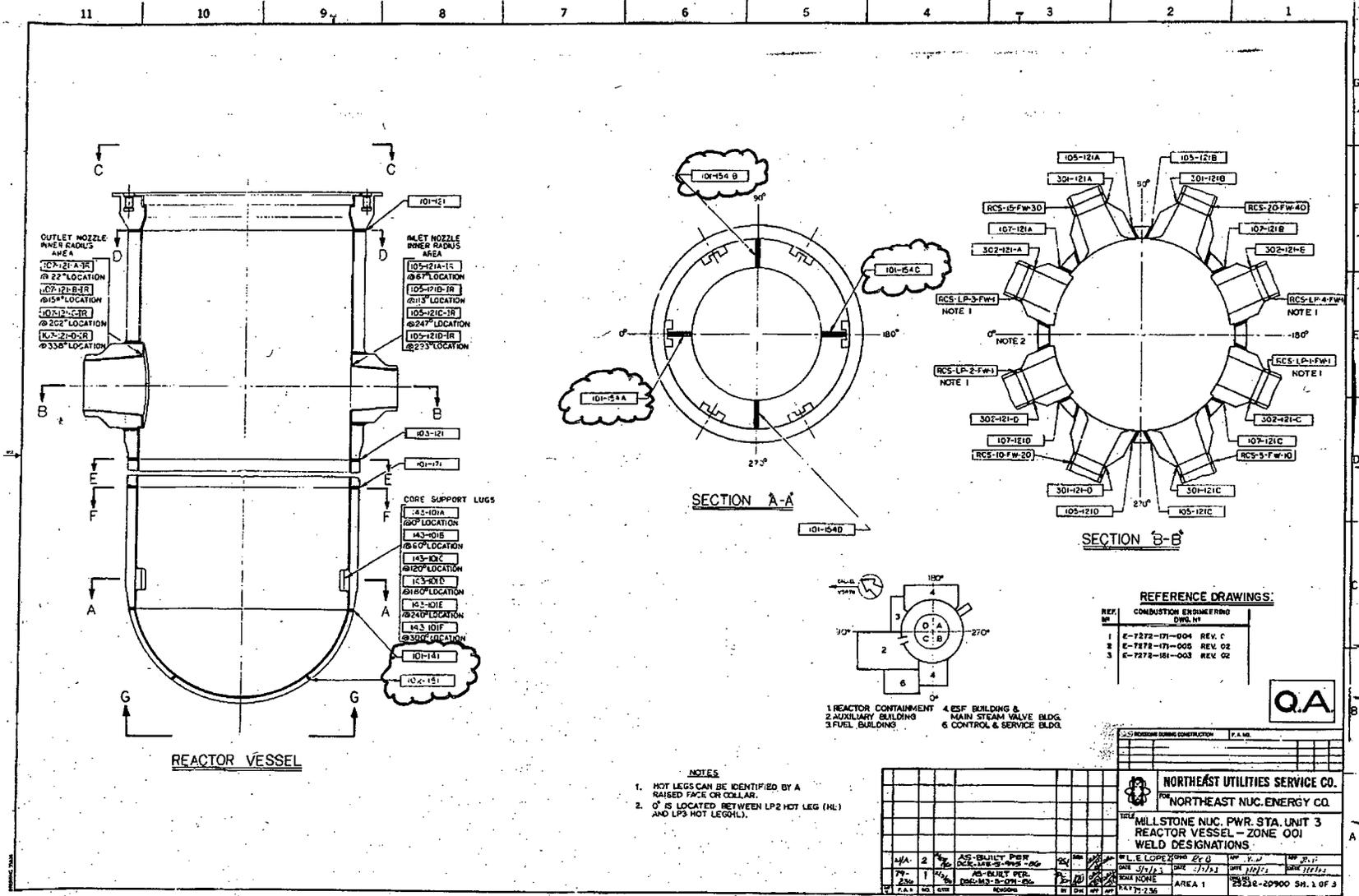
6. Proposed Alternative and Basis for Use

The subject welds received a volumetric examination on the accessible portions of the subject welds to the maximum extent practical given the limitations caused by the geometric configuration and permanent obstructions. Additionally, a visual examination (VT-2) is performed at the end of each refueling outage during the system leakage tests as required by Section XI, IWB-2500-1, Category B-P.

Based upon the examination volumes that were obtained with acceptable results along with the visual (VT-2) examination performed each refueling outage, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Period for Which Relief is Requested

The relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.







## Coverage Layout & Calculations

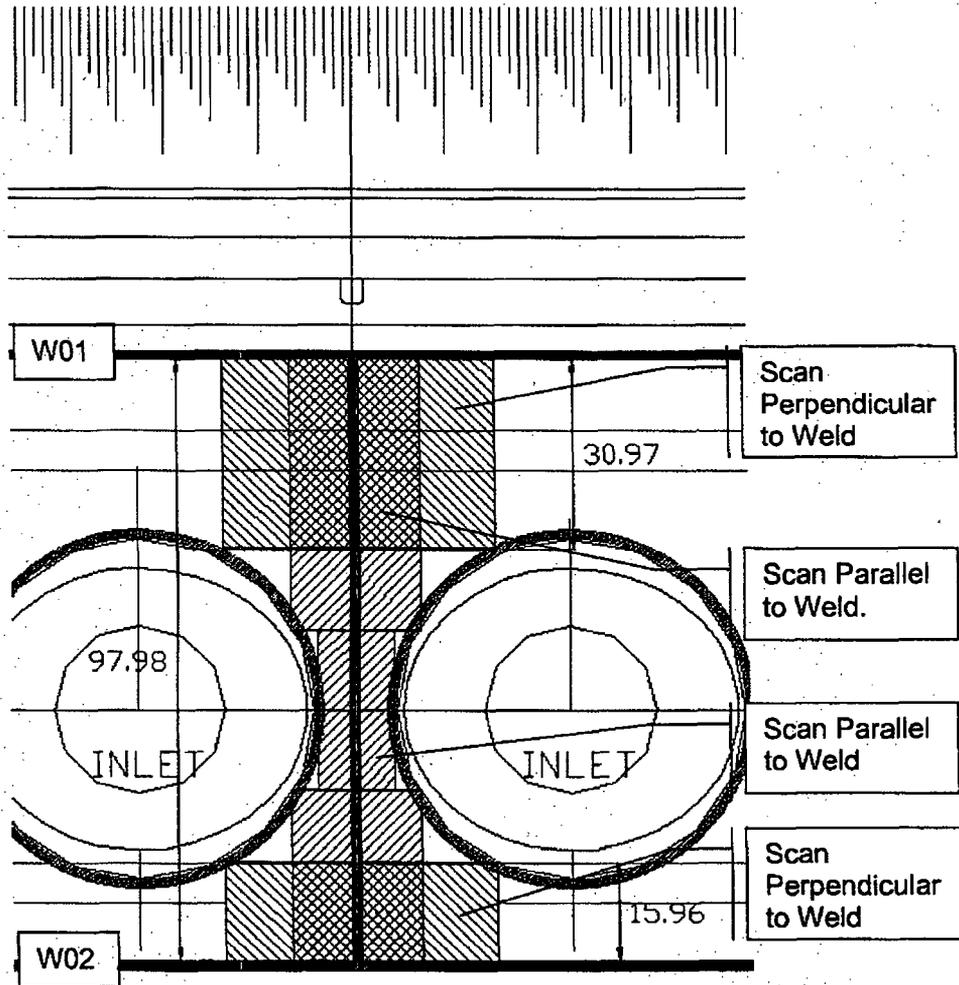
**Weld Description:** Upper Shell Long. Seam @ 90° **ASME Code Item No.:** B1.12  
**Millstone Weld ID:** 101-122A **ASME Code Figure No.:** IWB-2500-2  
**TWS Weld Designator:** W06 **AREVA Drawing No.:** 8017264

### AGGREGATE COVERAGE: 74%

Zone Coverage Obtained									
Inner 15%T:		73.9%			Outer 85%T:		73.9%		
Examination Volume Definition									
Weld Length:					97.98 in.				
Area Measurement					Volume Calculation				
Inner 15%T		19.76 sq. in.			Inner 15%T		1936.1 cu. in.		
Outer 85%T		119.16 sq. in.			Outer 85%T		11675.3 cu. in.		
Limitations		Limits scan by:			Compensation(s)				
Inlet Nozzles		Nozzle proximity to Weld			None				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	19.76	97.98	1936.1	1936.1	100.0%	No	
2	70L/45L	Down	19.76	97.98	1936.1	1936.1	100.0%	No	
3	70L/45L	CW	19.76	46.93	927.3	1936.1	47.9%	Yes	Inlet Nozzles
4	70L/45L	CCW	19.76	46.93	927.3	1936.1	47.9%	Yes	Inlet Nozzles
<b>Totals:</b>					<b>5726.8</b>	<b>7744.3</b>	<b>73.9%</b>		
OUTER 85%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	119.16	97.98	11675.3	11675.3	100.0%	No	
2	45L/45S	Down	119.16	97.98	11675.3	11675.3	100.0%	No	
3	45L/45S	CW	119.16	46.93	5592.2	11675.3	47.9%	Yes	Inlet Nozzles
4	45L/45S	CCW	119.16	46.93	5592.2	11675.3	47.9%	Yes	Inlet Nozzles
<b>Totals:</b>					<b>34535.0</b>	<b>46701.2</b>	<b>73.9%</b>		



-90°



W06 101-122A  
B1.21  
IWB-2500-3

RV Scan Coverage (Scan Limitations shown)

Note: Coverage for W06 near weld tie-ins completed during Upper Circumferential Weld (W01) and Lower Circumferential Weld (W02) scans.



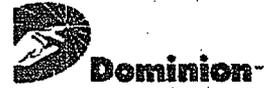
## Coverage Layout & Calculations

**Weld Description:** Upper Shell Long. Seams @ 210° and 330°  
**ASME Code Item No.:** B1.12     **ASME Code Figure No.:** IWB-2500-2  
**Millstone Weld ID (TWS Weld Designator):** 101-122B (W07) & 101-122C (W08)  
**AREVA Drawing No.:** 8017264

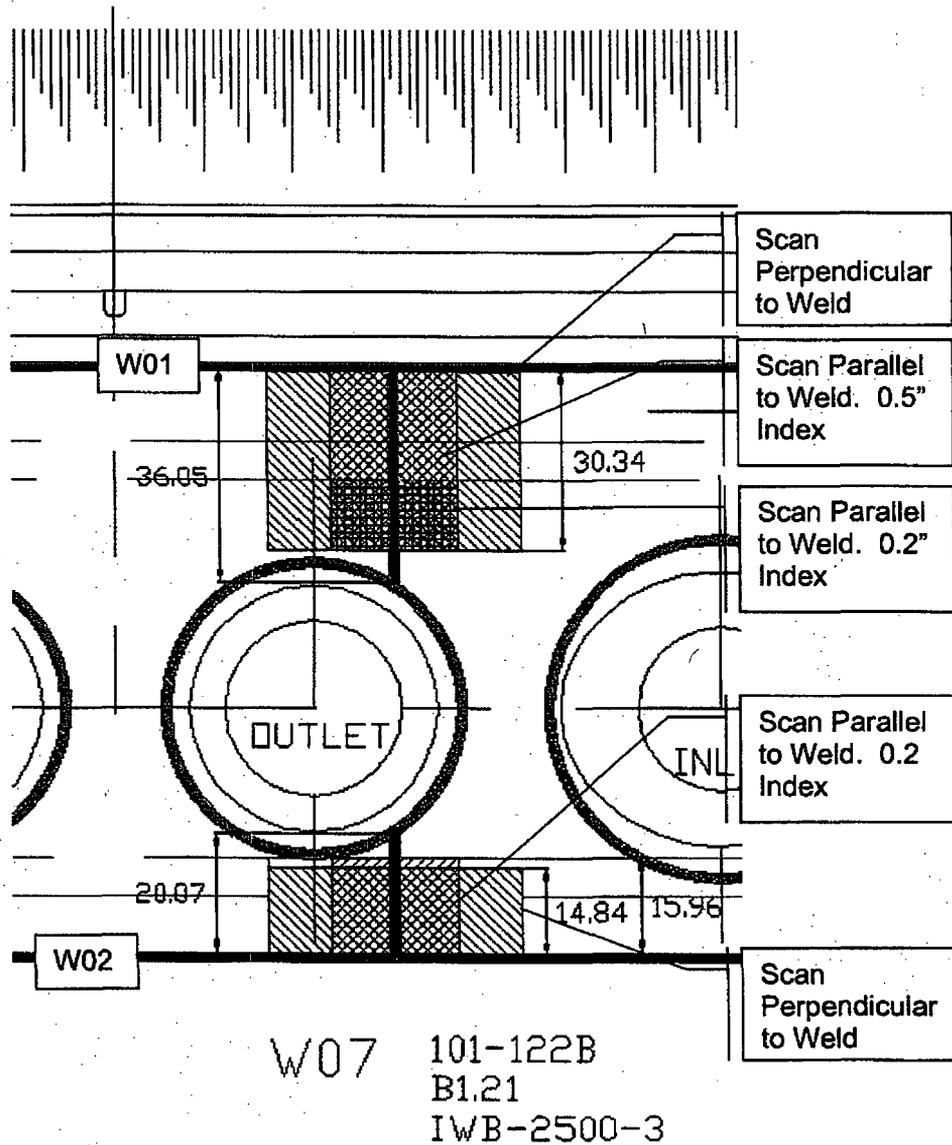
Note: W07 is shown in example. It is representative of 101-122C (W08) @ 330°

### AGGREGATE COVERAGE: 87%

Zone Coverage Obtained									
Inner 15%T:		90.6%			Outer 85%T:		84.1%		
Examination Volume Definition									
Weld Length:					56.12 in.				
Area Measurement					Volume Calculation				
Inner 15%T		79.14 sq. in.			Inner 15%T		4441.3 cu. in.		
Outer 85%T		493.51 sq. in.			Outer 85%T		27695.8 cu. in.		
Limitations		Limits scan by:			Compensation(s)				
Outlet Nozzles		Nozzle proximity to Weld			Up Direction, below weld - Scan as single side Down Direction, above weld - Scan as single side				
Examination Coverage Calculations (Treated as Single Sided Examination)									
INNER 15%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1 & 2	70L/45L	Up & Down	74.07	56.12	4156.8	4441.3	93.6%	Yes	Outlet Nozzle Boss
3	70L/45L	CW	70.54	56.12	3958.7	4441.3	89.1%	Yes	Outlet Nozzle Boss
4	70L/45L	CCW	70.54	56.12	3958.7	4441.3	89.1%	Yes	Outlet Nozzle Boss
<b>Totals:</b>					<b>12074.2</b>	<b>13324.0</b>	<b>90.6%</b>		
OUTER 85%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1 & 2	45L/45S	Up & Down	471.95	56.12	26485.8	27695.8	95.6%	Yes	Outlet Nozzle Boss
3	45L/45S	CW	386.39	56.12	21684.2	27695.8	78.3%	Yes	Outlet Nozzle Boss
4	45L/45S	CCW	386.39	56.12	21684.2	27695.8	78.3%	Yes	Outlet Nozzle Boss
<b>Totals:</b>					<b>69854.2</b>	<b>83087.3</b>	<b>84.1%</b>		



-180°



RV Scan Coverage (Scan Limitations shown)

*Note: Coverage for W07 near weld tie-ins completed during Upper Circumferential Weld (W01) and Lower Circumferential Weld (W02) scans. Lower Circumferential Weld also completes parallel scan due to shortened length of weld.*



## Coverage Layout & Calculations

**Weld Description:** Lower Shell to Bottom Head Torus

**ASME Code Item No.:** B1.11

**Millstone Weld ID:** 101-141

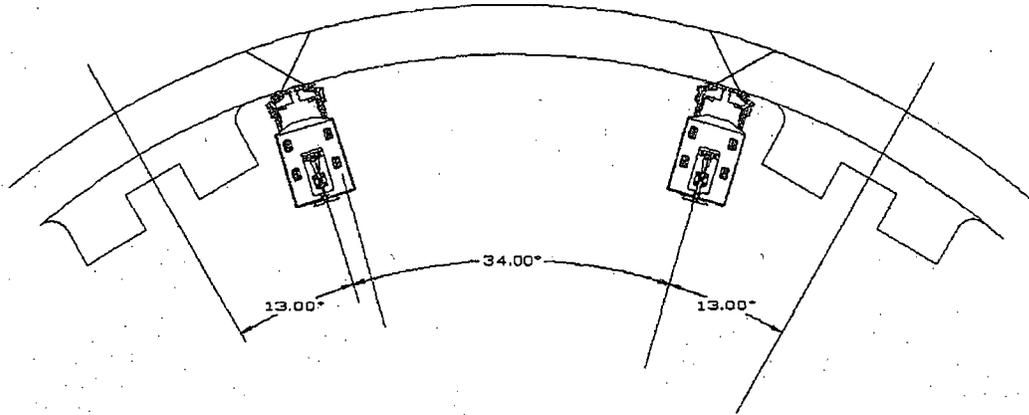
**TWS Weld Designator:** W04

**ASME Code Figure No.:** IWB-2500-1

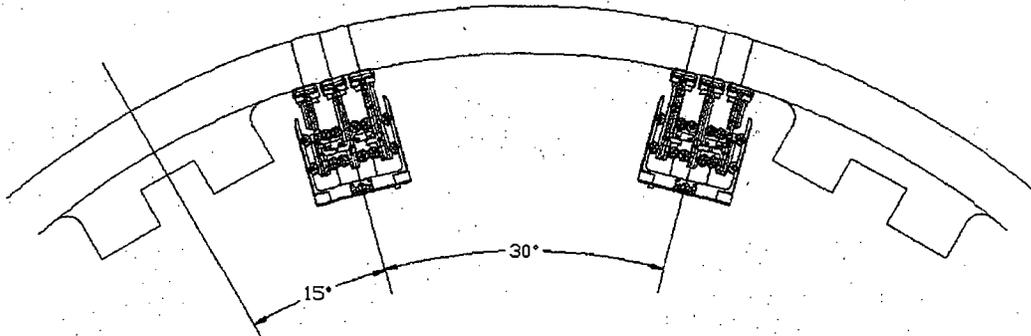
**AREVA Drawing No.:** 8017264

### AGGREGATE COVERAGE: 54%

Zone Coverage Obtained									
Inner 15%T: 53.3%		Outer 85%T: 55.6%							
Examination Volume Definition									
Weld Length: 544.50 in.									
Area Measurement					Volume Calculation				
Inner 15%T		6.13 sq. in.			Inner 15%T		3337.8 cu. in.		
Outer 85%T		39.78 sq. in.			Outer 85%T		21660.2 cu. in.		
Limitations		Limits scan by:			Compensation(s)				
Lugs (6)		Reduction in axial & circ scan distance			Scan area twice by rotating contact head				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T (Between lugs)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	6.13	272.29	1669.1	3337.8	50.0%	Yes	Lugs
2	70L/45L	Down	6.13	272.29	1669.1	3337.8	50.0%	Yes	Lugs
3	70L/45L	CW	6.13	308.60	1891.7	3337.8	56.7%	Yes	Lugs
4	70L/45L	CCW	6.13	308.60	1891.7	3337.8	56.7%	Yes	Lugs
<b>Totals:</b>					<b>7121.7</b>	<b>13351.2</b>	<b>53.3%</b>		
OUTER 85%T (Between lugs)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	39.78	290.44	11553.7	21660.2	53.3%	Yes	Lugs
2	45L/45S	Down	39.78	290.44	11553.7	21660.2	53.3%	Yes	Lugs
3	45L/45S	CW	39.78	308.60	12276.1	21660.2	56.7%	Yes	Lugs
4	45L/45S	CCW	39.78	308.60	12276.1	21660.2	56.7%	Yes	Lugs
<b>Totals:</b>					<b>47659.6</b>	<b>86641.0</b>	<b>55.0%</b>		
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T (Limitation scan under lugs)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	0.00	272.29	0.0	3337.8	0.0%	Yes	Lugs
2	70L/45L	Down	0.00	272.29	0.0	3337.8	0.0%	Yes	Lugs
3	70L/45L	CW	0.00	235.98	0.0	3337.8	0.0%	Yes	Lugs
4	70L/45L	CCW	0.00	235.98	0.0	3337.8	0.0%	Yes	Lugs
<b>Totals:</b>					<b>0.0</b>	<b>13351.2</b>	<b>0.0%</b>		
OUTER 85%T (Limitation scan under lugs)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	1.91	272.29	520.1	21660.2	2.4%	Yes	Lugs
2	45L/45S	Down	0.00	272.29	0.0	21660.2	0.0%	Yes	Lugs
3	45L/45S	CW	0.00	235.98	0.0	21660.2	0.0%	Yes	Lugs
4	45L/45S	CCW	0.00	235.98	0.0	21660.2	0.0%	Yes	Lugs
<b>Totals:</b>					<b>520.1</b>	<b>86641.0</b>	<b>0.6%</b>		



**RV Scan Coverage (Circumferential Scan – Parallel to weld)**  
*Note: No coverage possible for circumferential scans under lugs (6 total)*



**RV Scan Coverage (Axial Scan – Perpendicular to weld)**  
*Note: Under lug axial scans are 30° in circumferential length centered on lug (6 total)*

<b>Weld Identification</b> TWS No.: W04 Millstone No.: 101-141
--

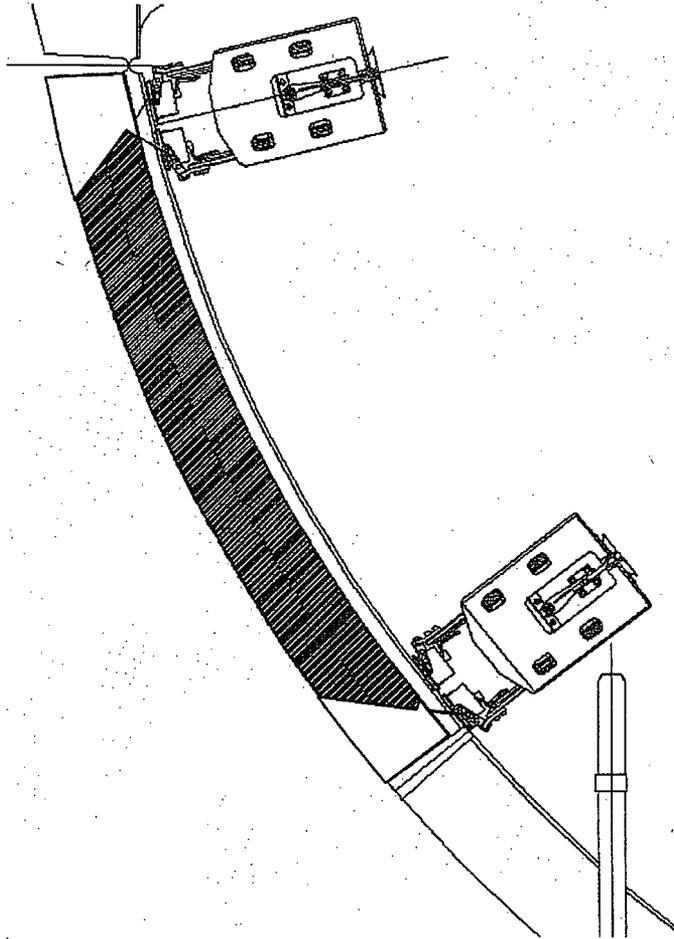


## Coverage Layout & Calculations

**Weld Description:** Torus Peel Segment @ 0° **ASME Code Item No.:** B1.22  
**Millstone Weld ID:** 101-154A **ASME Code Figure No.:** IWB-2500-3  
**TWS Weld Designator:** W15 **AREVA Drawing No.:** 8017264

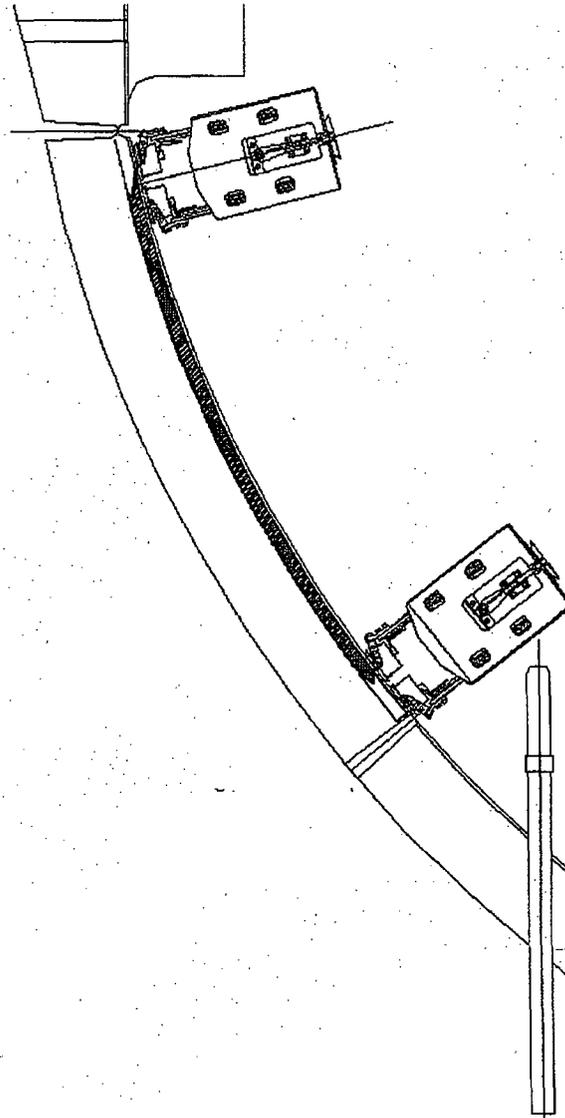
### AGGREGATE COVERAGE: 70%

Zone Coverage Obtained									
Inner 15%T:		73.4%			Outer 85%T:		66.7%		
Examination Volume Definition									
Weld Length:					44.71 in.				
Area Measurement					Volume Calculation				
Inner 15%T		5.46 sq. in.			Inner 15%T		244.1 cu. in.		
Outer 85%T		30.91 sq. in.			Outer 85%T		1362.0 cu. in.		
Limitations		Limits scan by:			Compensation(s)				
Incores & Lugs		Reduction in scan length			None				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	5.46	37.84	206.6	244.1	84.6%	Yes	Incore & Lug
2	70L/45L	Down	5.46	37.84	206.6	244.1	84.6%	Yes	Incore & Lug
3	70L/45L	CW	5.46	27.83	152.0	244.1	62.2%	Yes	Incore & Lug
4	70L/45L	CCW	5.46	27.83	152.0	244.1	62.2%	Yes	Incore & Lug
<b>Totals:</b>					<b>7.17.1</b>	<b>976.5</b>	<b>73.4%</b>		
OUTER 85%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	30.91	37.84	1169.6	1362.0	84.6%	Yes	Incore & Lug
2	45L/45S	Down	30.91	37.84	1169.6	1362.0	84.6%	Yes	Incore & Lug
3	45L/45S	CW	30.91	21.83	674.8	1362.0	48.8%	Yes	Incore & Lug
4	45L/45S	CCW	30.91	21.83	674.8	1362.0	48.8%	Yes	Incore & Lug
<b>Totals:</b>					<b>3688.8</b>	<b>5527.9</b>	<b>66.7%</b>		



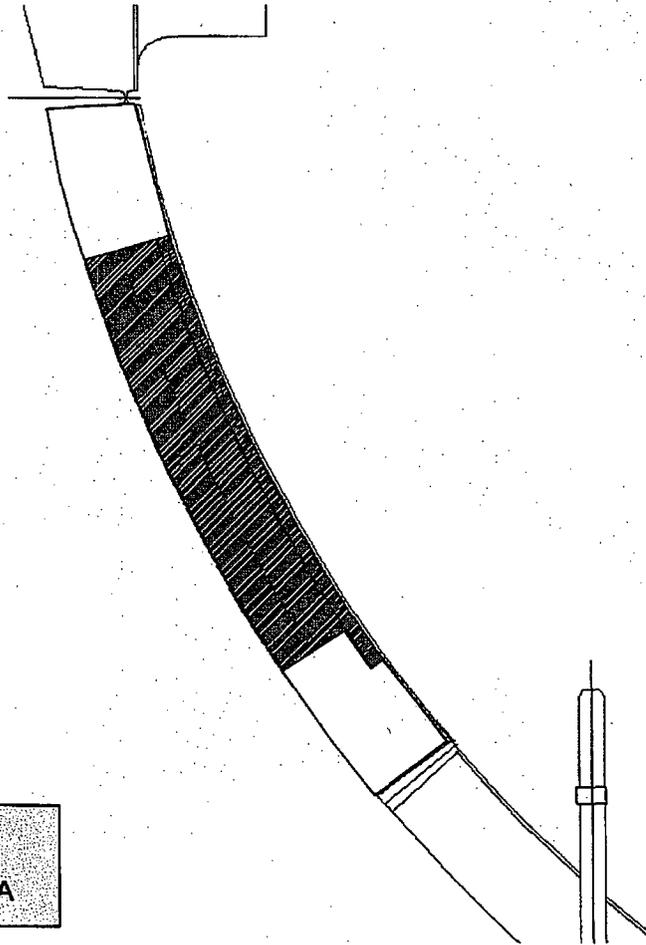
85%T Coverage Plot (Axial Scan – Parallel to weld)  
Limited due to Lug and Incore

**Weld Identification**  
TWS No.: W15  
Millstone No.: 101-154A



15%T Coverage Plot (Axial Scan – Parallel to weld)  
Limited due to Lug and Incore

**Weld Identification**  
TWS No.: W15  
Millstone No.: 101-154A



**Weld Identification**  
**TWS No.: W15**  
**Millstone No.: 101-154A**

15% & 85% T Coverage Plot (Circumferential Scan – Perpendicular to weld)  
Limited due to Lug and Incore

15% & 85% T Total Cross Sectional Area

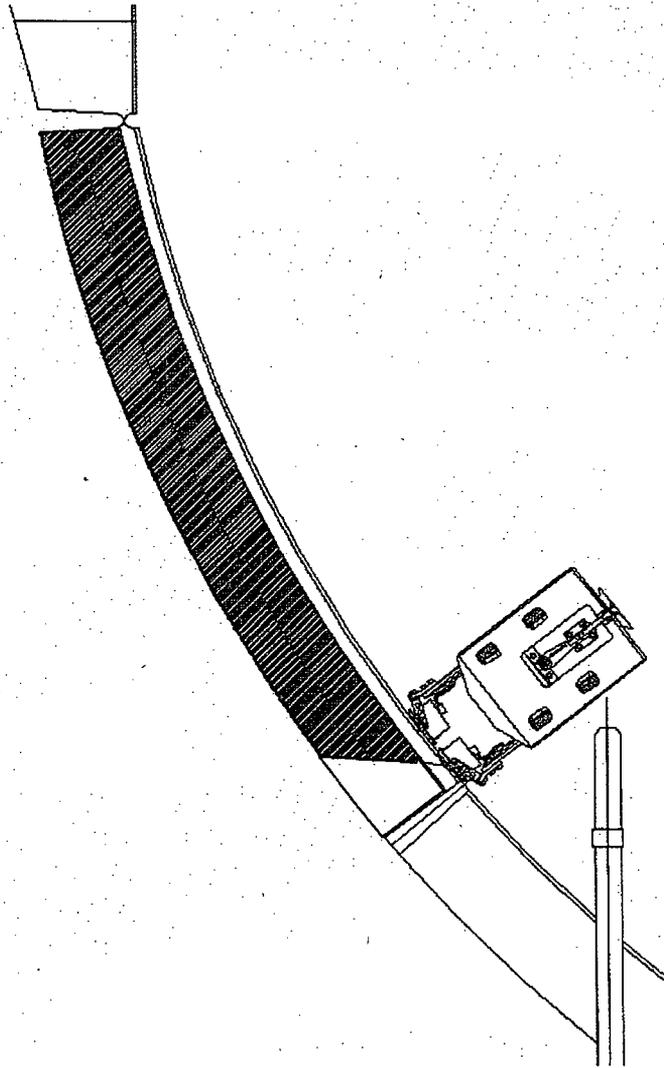


## Coverage Layout & Calculations

Weld Description: Torus Peal Segment @ 90°      ASME Code Item No.: B1.22  
Millstone Weld ID: 101-154B      ASME Code Figure No.: IWB-2500-3  
TWS Weld Designator: W16      AREVA Drawing No.: 8017264

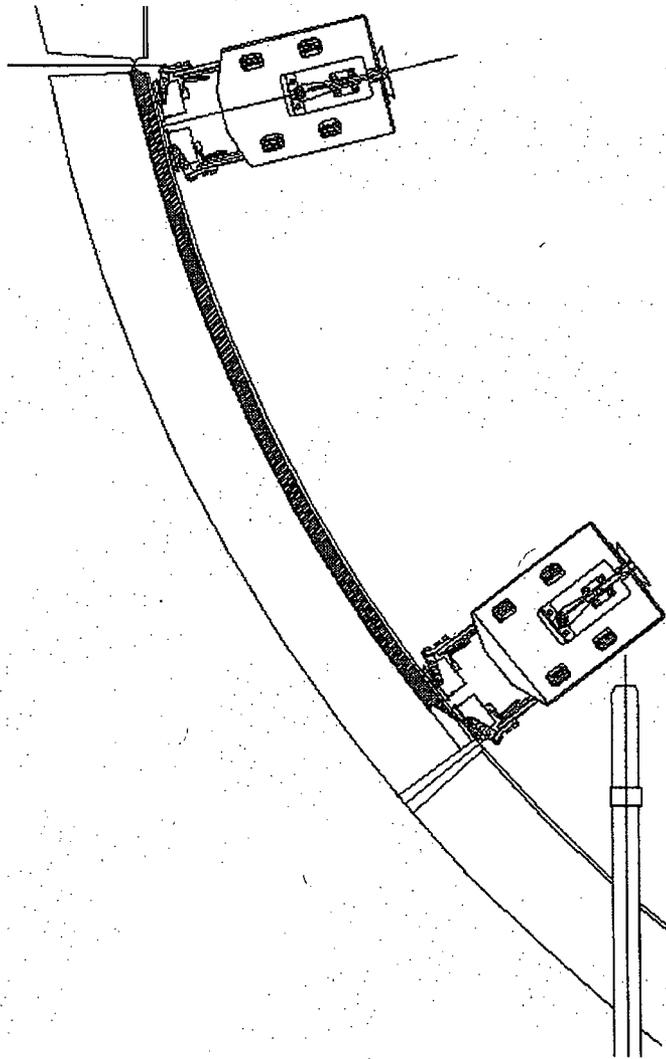
### AGGREGATE COVERAGE: 84%

Zone Coverage Obtained									
Inner:15%T:		86.0%		Outer:85%T:		82.6%			
Examination Volume Definition									
Weld Length:		44.71 in.							
Area Measurement					Volume Calculation				
Inner 15%T		5.46 sq. in.		Inner 15%T		244.1 cu. in.			
Outer 85%T		30.91 sq. in.		Outer 85%T		1382.0 cu. in.			
Limitations		Limits scan by:			Compensation(s)				
Incore		Reduction in Scan length			None				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T									
Entry #	Exam Angle (deg)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	5.46	43.33	236.6	244.1	96.9%	Yes	Incore
2	70L/45L	Down	5.46	40.45	220.9	244.1	90.5%	Yes	Incore
3	70L/45L	CW	5.46	35.00	191.1	244.1	78.3%	Yes	Incore
4	70L/45L	CCW	5.46	35.00	191.1	244.1	78.3%	Yes	Incore
<b>Totals:</b>					<b>839.6</b>	<b>976.5</b>	<b>86.0%</b>		
OUTER 85%T									
Entry #	Exam Angle (deg)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	30.91	43.33	1339.3	1382.0	96.9%	Yes	Incore
2	45L/45S	Down	30.91	40.45	1250.3	1382.0	90.5%	Yes	Incore
3	45L/45S	CW	30.91	32.00	989.1	1382.0	71.6%	Yes	Incore
4	45L/45S	CCW	30.91	32.00	989.1	1382.0	71.6%	Yes	Incore
<b>Totals:</b>					<b>4567.9</b>	<b>5527.9</b>	<b>82.6%</b>		



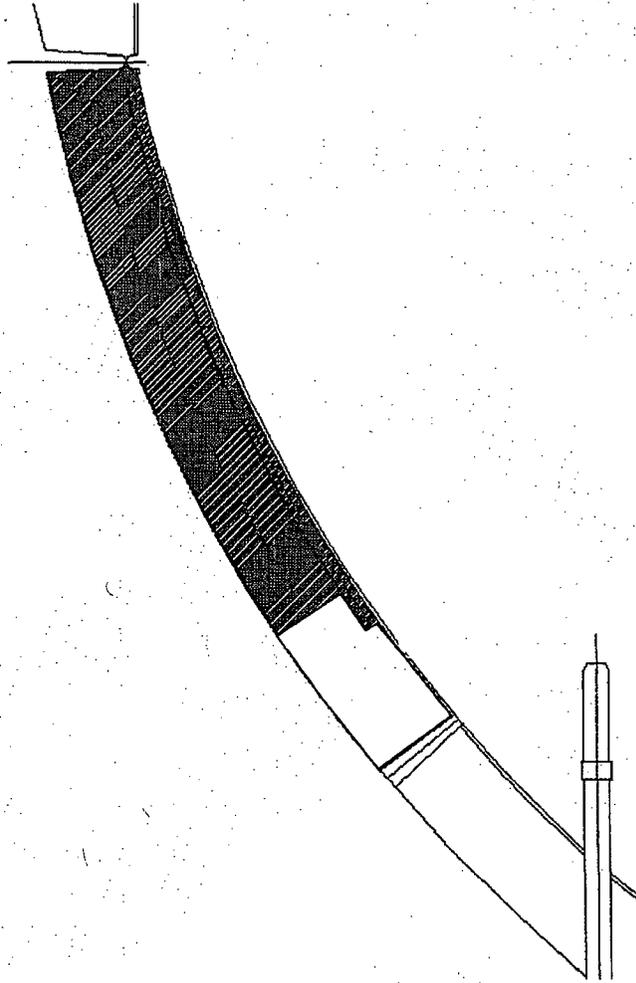
85%T Coverage Plot (Axial Scan – Parallel to weld)  
Limited due to Incore

<p><b>Weld Identification</b> TWS No.: W16 Millstone No.: 101-154B</p>
--



15%T Coverage Plot (Axial Scan - Parallel to weld)  
Limited due to Incore

**Weld Identification**  
**TWS No.: W16**  
**Millstone No.: 101-154B**



15% & 85% T Coverage Plot (Circumferential Scan – Perpendicular to weld)  
Limited due to Incore

**Weld Identification**  
TWS No.: W16  
Millstone No.: 101-154B

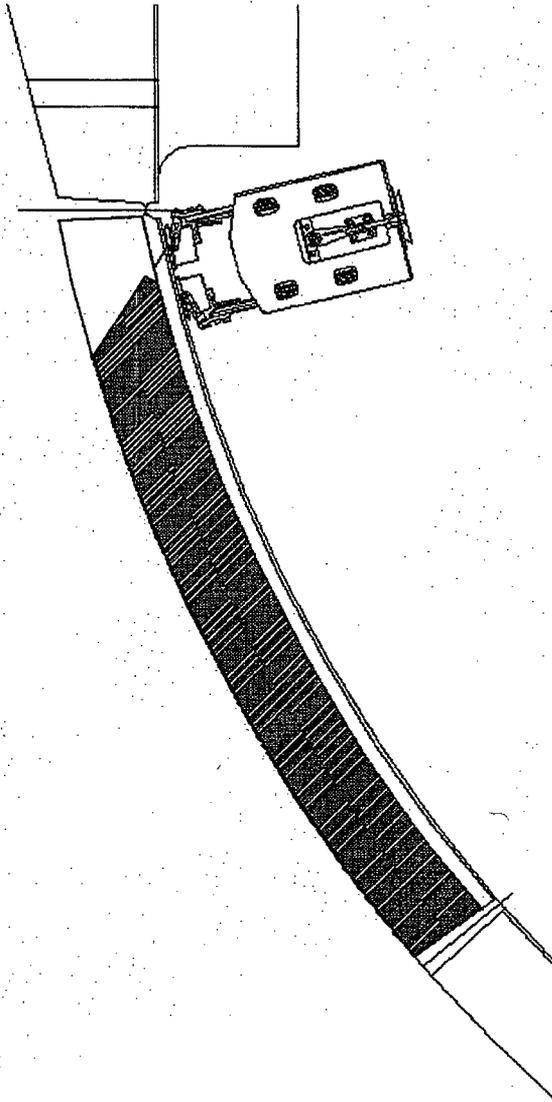


## Coverage Layout & Calculations

**Weld Description:** Torus Peel Segment @ 180°      **ASME Code Item No.:** B1.22  
**Millstone Weld ID:** 101-154C                      **ASME Code Figure No.:** IWB-2500-3  
**TWS Weld Designator:** W17                              **AREVA Drawing No.:** 8017264

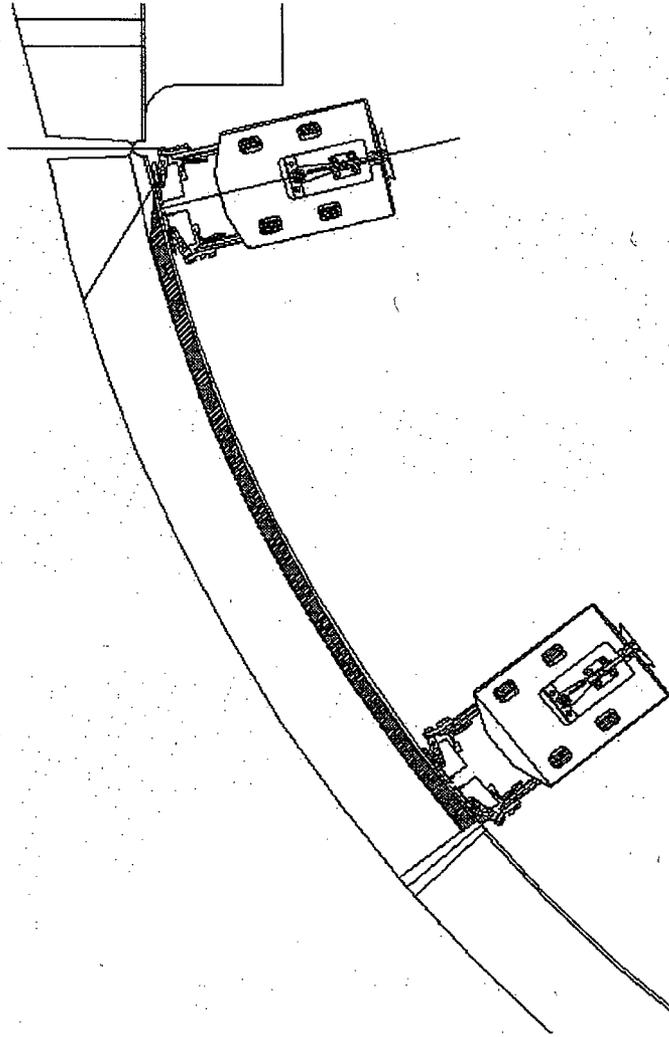
### AGGREGATE COVERAGE: 84%

Zone Coverage Obtained									
Inner 15%T:		84.0%			Outer 85%T:		84.0%		
Examination Volume Definition									
Weld Length:					44.71 in.				
Area Measurement					Volume Calculation				
Inner 15%T		5.46 sq. in.			Inner 15%T		244.1 cu. in.		
Outer 85%T		30.91 sq. in.			Outer 85%T		1382.0 cu. in.		
Limitations		Limits scan by:			Compensation(s)				
Lug		Reduction in Scan length			None				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T									
Entry #	Exam Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	5.46	42.05	229.6	244.1	94.1%	Yes	Lugs
2	70L/45L	Down	5.46	39.17	213.9	244.1	87.6%	Yes	Lugs
3	70L/45L	CW	5.46	34.48	188.3	244.1	77.1%	Yes	Lugs
4	70L/45L	CCW	5.46	34.48	188.3	244.1	77.1%	Yes	Lugs
<b>Totals:</b>					<b>820.0</b>	<b>976.5</b>	<b>84.0%</b>		
OUTER 85%T									
Entry #	Exam Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	30.91	42.05	1299.8	1382.0	94.1%	Yes	Lugs
2	45L/45S	Down	30.91	39.17	1210.7	1382.0	87.6%	Yes	Lugs
3	45L/45S	CW	30.91	34.48	1065.8	1382.0	77.1%	Yes	Lugs
4	45L/45S	CCW	30.91	34.48	1065.8	1382.0	77.1%	Yes	Lugs
<b>Totals:</b>					<b>4642.1</b>	<b>5527.9</b>	<b>84.0%</b>		



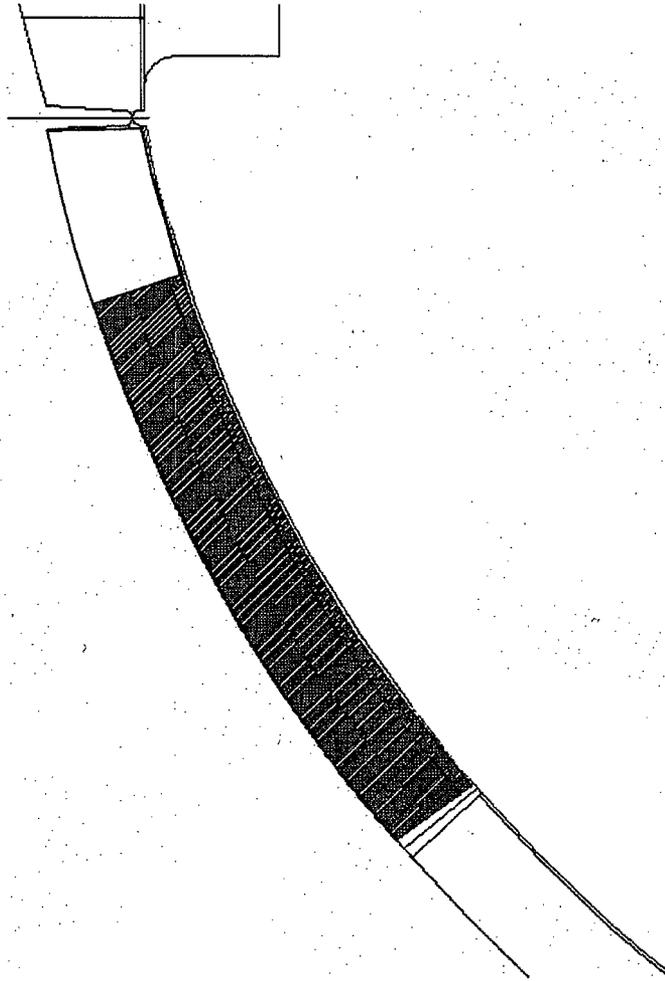
85%T Coverage Plot (Axial Scan – Parallel to weld)  
Limited due to Lug

**Weld Identification**  
TWS No.: W17  
Millstone No.: 101-154C



15%T Coverage Plot (Axial Scan – Parallel to weld)  
Limited due to Lug

**Weld Identification**  
**TWS No.: W17**  
**Millstone No.: 101-154C**



15% & 85% T Coverage Plot (Circumferential Scan - Perpendicular to weld)  
Limited due to Lug

**Weld Identification**  
TWS No.: W17  
Millstone No.: 101-154C

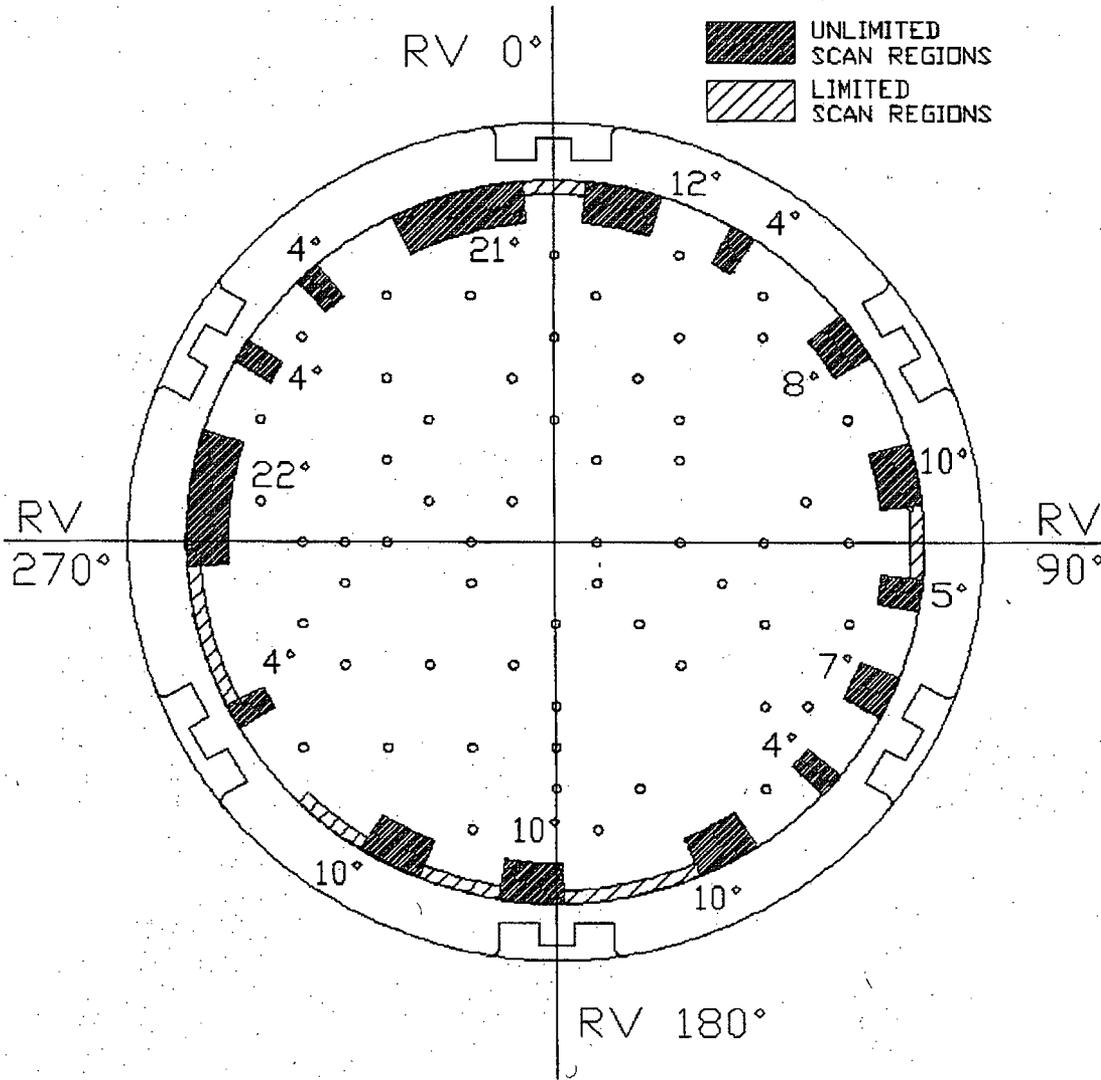


## Coverage Layout & Calculations

**Weld Description:** Torus to Dollar Plate Weld **ASME Code Item No.:** B1.21  
**Millstone Weld ID:** 102-151 **ASME Code Figure No.:** IWB-2500-3  
**TWS Weld Designator:** W05 **AREVA Drawing No.:** 8017264

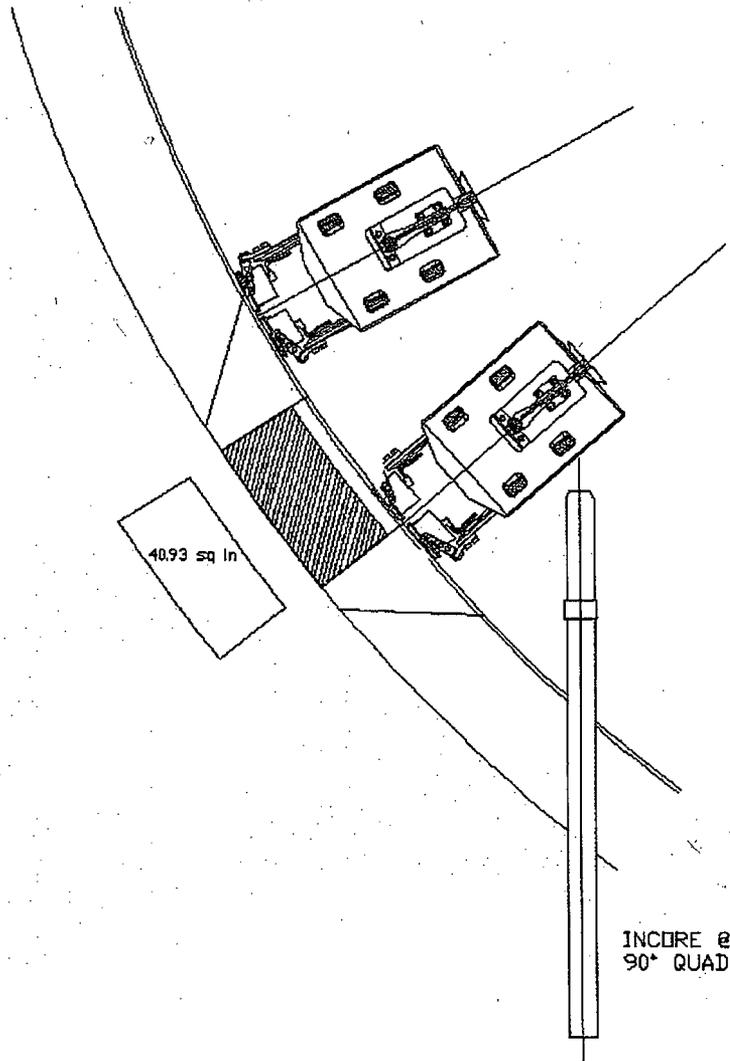
### AGGREGATE COVERAGE: 38 %

Zone Coverage Obtained									
Inner 15%T:		37.5%		Outer 85%T:		37.7%			
Examination Volume Definition									
Weld Length:		425.10 in.							
Area Measurement					Volume Calculation				
Inner 15%T		7.01 sq. in.		Inner 15%T		2980.0 cu. in.			
Outer 85%T		40.93 sq. in.		Outer 85%T		17399.3 cu. in.			
Limitations		Limits scan by:			Compensation(s)				
Incores		Preventing full movement of Head			Breaking circ scan into multiple regions to maximize scan coverage				
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	7.01	159.41	1117.5	2980.0	37.5%	Yes	Incores
2	70L/45L	Down	7.01	159.41	1117.5	2980.0	37.5%	Yes	Incores
3	70L/45L	CW	7.01	159.41	1117.5	2980.0	37.5%	Yes	Incores
4	70L/45L	CCW	7.01	159.41	1117.5	2980.0	37.5%	Yes	Incores
<b>Totals:</b>					<b>4469.9</b>	<b>11919.8</b>	<b>37.5%</b>		
OUTER 85%T									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	40.93	159.41	6524.7	17399.3	37.5%	Yes	Incores
2	45L/45S	Down	40.93	159.41	6524.7	17399.3	37.5%	Yes	Incores
3	45L/45S	CW	40.93	159.41	6524.7	17399.3	37.5%	Yes	Incores
4	45L/45S	CCW	40.93	159.41	6524.7	17399.3	37.5%	Yes	Incores
<b>Totals:</b>					<b>26098.6</b>	<b>69597.4</b>	<b>37.5%</b>		
Examination Coverage Calculations (Treated as Dual Sided Examination)									
INNER 15%T (LIMITED REGIONS)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Up	0.00	0.00	0.0	2980.0	0.0%	Yes	Incores
2	70L/45L	Down	0.00	0.00	0.0	2980.0	0.0%	Yes	Incores
3	70L/45L	CW	0.00	0.00	0.0	2980.0	0.0%	Yes	Incores
4	70L/45L	CCW	0.00	0.00	0.0	2980.0	0.0%	Yes	Incores
<b>Totals:</b>					<b>0.0</b>	<b>11919.8</b>	<b>0.0%</b>		
OUTER 85%T (LIMITED REGIONS)									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	45L/45S	Up	0.00	0.00	0.0	17399.3	0.0%	Yes	Incores
2	45L/45S	Down	1.55	101.55	157.4	17399.3	0.9%	Yes	Incores
3	45L/45S	CW	0.00	0.00	0.0	17399.3	0.0%	Yes	Incores
4	45L/45S	CCW	0.00	0.00	0.0	17399.3	0.0%	Yes	Incores
<b>Totals:</b>					<b>157.4</b>	<b>69597.4</b>	<b>0.2%</b>		

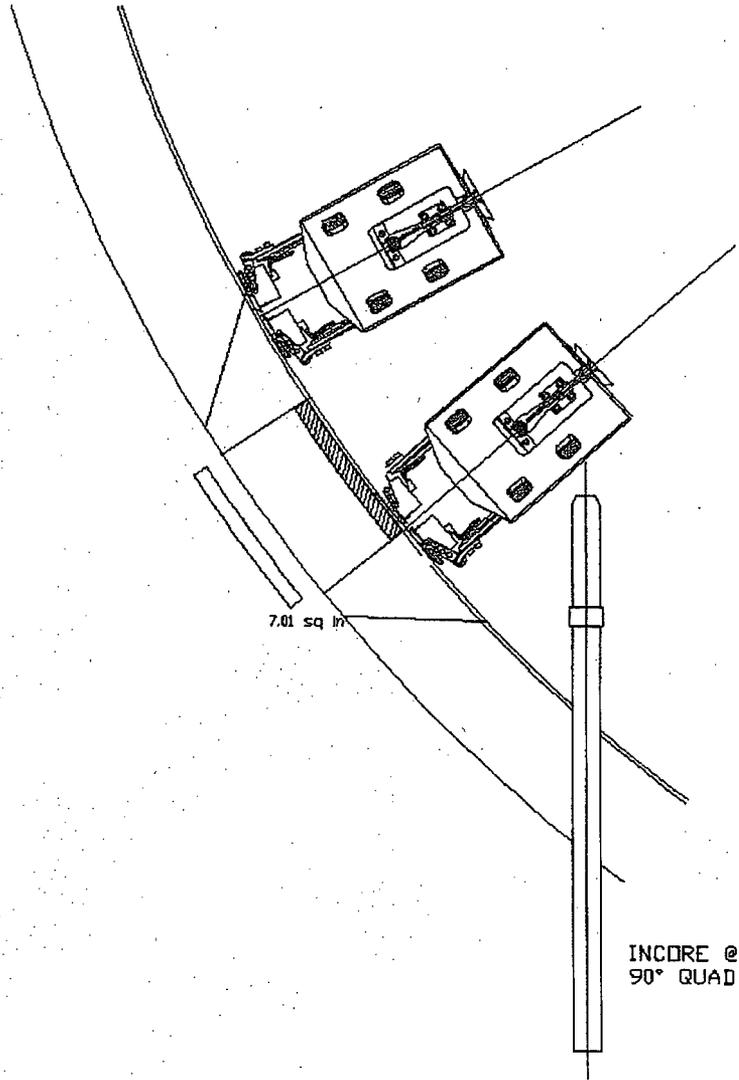


RV Scan Coverage Top View

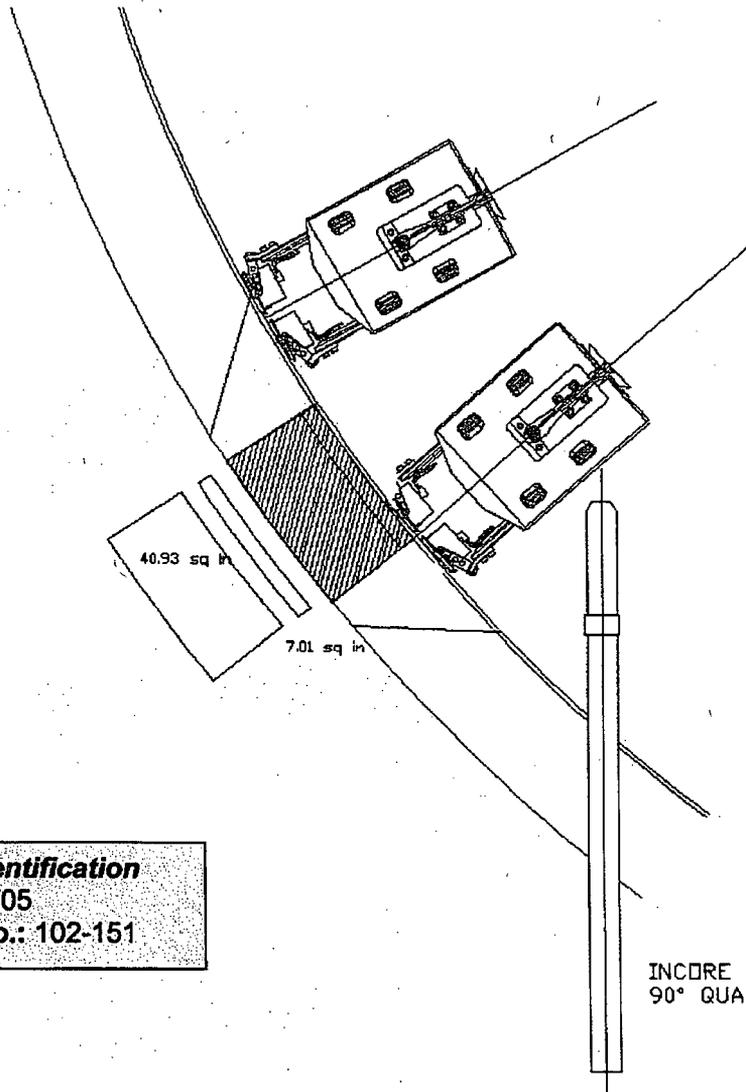
**Weld Identification**  
TWS No.: W05  
Millstone No.: 102-151



85%T Coverage Plot (No Limitation – between Incores)  
(Axial Scan – Perpendicular to weld)

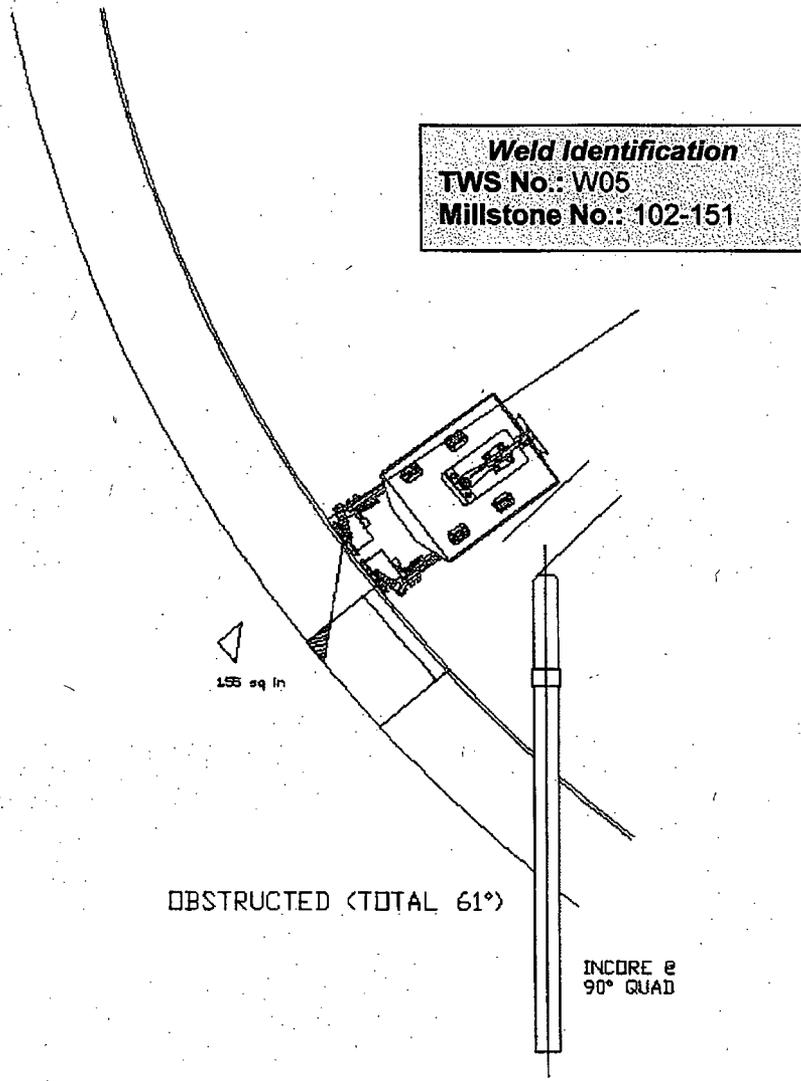


15%T Coverage Plot (No Limitation- between incores)  
(Axial Scan - Perpendicular to weld)



**Weld Identification**  
TWS No.: W05  
Millstone No.: 102-151

15% & 85% T Coverage Plot (Circumferential Scan – Parallel to weld)  
(No Limitation – between incores)



85%T Coverage Plot (Limitation – Near Incores)  
(Axial Scan – Perpendicular to weld)

Note: 15%T Axial Scan (Perpendicular to weld) - No Coverage near Incores.  
15%T & 85%T Circumferential Scan (Parallel to weld) - No Coverage near Incores.

**ATTACHMENT 2**

**RELIEF REQUEST IR-2-52**

**EXAMINATION CATEGORY B-B**  
**PRESSURE RETAINING WELDS IN VESSELS OTHER THAN**  
**REACTOR VESSELS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Effected

ASME Code Class: Code Class 1

Examination Category: B-B, Pressure Retaining Welds in Vessels other than Reactor Vessels

Item Numbers: B2.11, Pressurizer, Shell-to-Head Welds, Circumferential  
B2.40, Steam Generator, Tube Sheet-to-Head Weld

Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category B-B requires volumetric examination of, 100 percent of the weld volume as defined in Table IWB-2500-1 and shown in Figures IWB-2500-1 and IWB-2500-6. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the welds provided greater than 90 percent of the required volume has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from essentially 100 percent volumetric examination coverage requirement for the subject welds due to the geometric configuration and permanent obstructions which limit the volumetric coverage that can be attained.

The pressurizer shell to upper head weld (03-007-SW-J) examination is limited due to seven permanently welded 2" x 2" insulation support ring mounting pads, four 3" diameter instrument taps and four vertical support members from a pressurizer safety valve restraint that obstruct portions of the subject weld and preclude achieving the required 100 percent volume examination coverage.

The steam generator tube sheet to head weld (03-003-SW-Z) examination is limited due to the close proximity of the tube sheet flange that limits scanning on the tube sheet side of the weld. Additional limitations are due to 4 lower steam generator support vertical members that obstruct portions of the subject weld and preclude achieving the required 100 percent volume examination coverage.

Isometric drawings, coverage calculations and limitation sketches are provided in this attachment.

TABLE 1- Examination Category B-B Welds with Limited Volumetric Coverage

Weld Number	Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
03-007-SW-J	B2.11	Pressurizer shell to upper head weld	Limited examination due to obstruction caused by permanent insulation support ring mounting pads and pressurizer safety valve restraint members. No recordable indications were detected.	74.7
03-003-SW-Z	B2.40	Steam generator tube sheet to head weld	Limited examination due to obstruction caused by tube sheet flange and steam generator lower support members. No recordable indications were detected.	81.5

5. Burden Caused by Compliance

To increase the examination coverage for weld number 03-007-SW-J requires removal of the permanently welded insulation support ring mounting pads by cutting the mounting pad welds and then reinstalling the mounting pads by welding following completion of the examination. Additionally, removal of the pressurizer safety valve restraint would be required which also requires removal of the safety valves and associated piping to provide clearance necessary for the restraint to be removed.

To attempt removal of the massive restraint could also subject adjacent plant equipment to potential damage during the removal process.

To increase the examination coverage for weld number 03-003-SW-Z requires removal of the lower steam generator support members which provide stability and support the weight of the steam generator. Additionally, a significant design modification or replacement of the component with a different design is required to eliminate the obstructions caused by the location of the tubesheet.

These options to meet the 100 percent Code examination requirements are considered impractical due to the cost, additional radiation exposure, and impact to plant equipment.

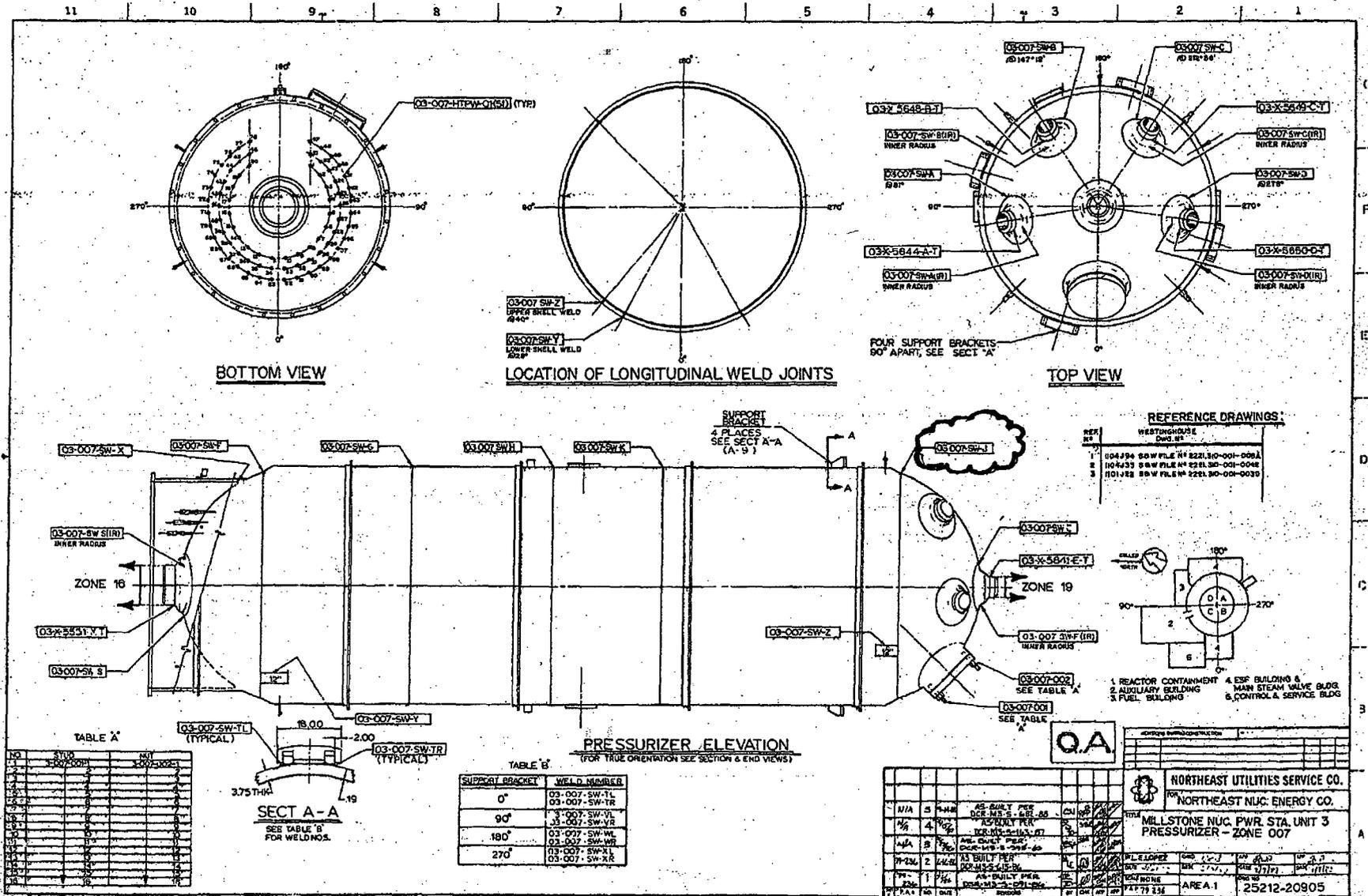
6. Proposed Alternative Examination and Basis for Use

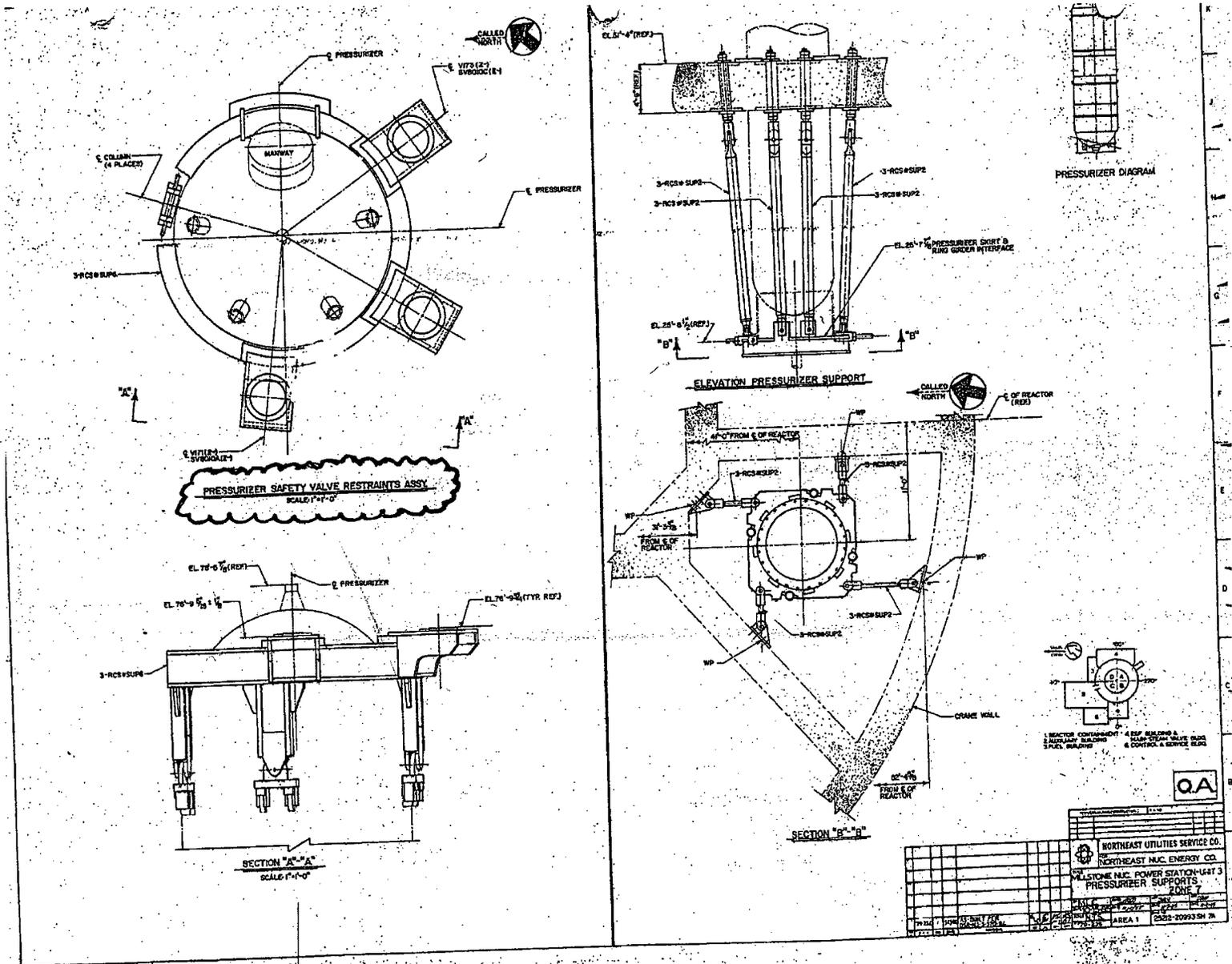
The subject welds received a volumetric examination utilizing the best available techniques on the accessible portions of welds to the extent practical. Additionally, a visual (VT-2) examination is performed at the end of each outage during the system leakage tests as required by Section XI, Table IWB-2500-1, Category B-P.

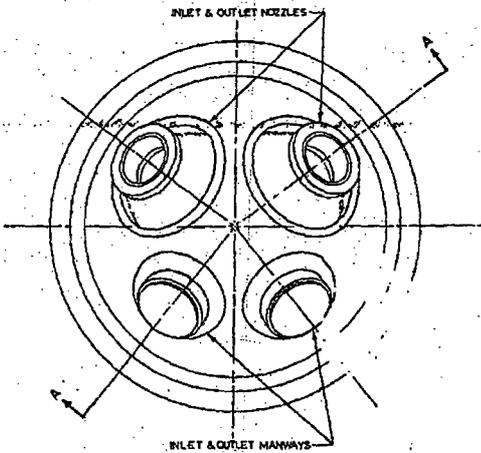
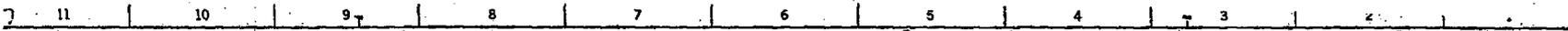
Based upon the examination volumes that were obtained with acceptable results and the visual (VT-2) examination performed each refueling outage, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Duration of Proposed Alternative

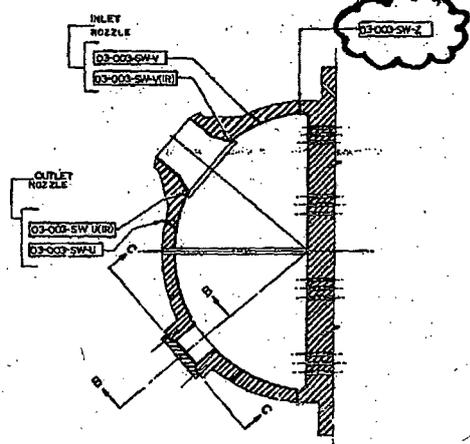
Relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.



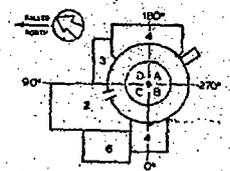




**BOTTOM VIEW**



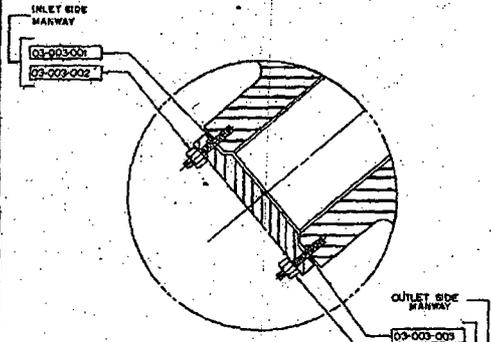
**SECTIONAL ELEVATION**  
SECTION A-A



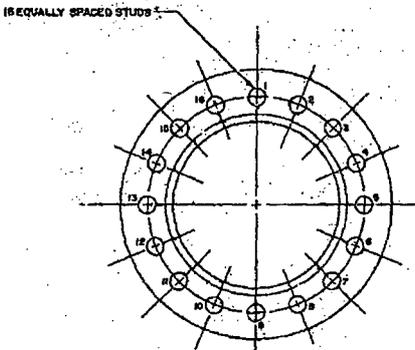
- 1 REACTOR CONTAINMENT
- 2 AUXILIARY BUILDING
- 3 FUEL BUILDING
- 4 ESP BUILDING
- 5 MAIN STEAM VALVE BLDG.
- 6 CONTROL & SERVICE BLDG.

**REFERENCE DRAWINGS:**

REF. NO.	DESCRIPTION
1	100475 S&W FILE # 222120-001-005H
2	100408 S&W FILE # 222120-001-007H



**MANWAY STUDS DETAIL**  
SECTION "B-B"



**MANWAY STUDS LOCATION**  
SECTION "C-C"  
(TYP)

**INLET SIDE  
MANWAY DESIGNATION**

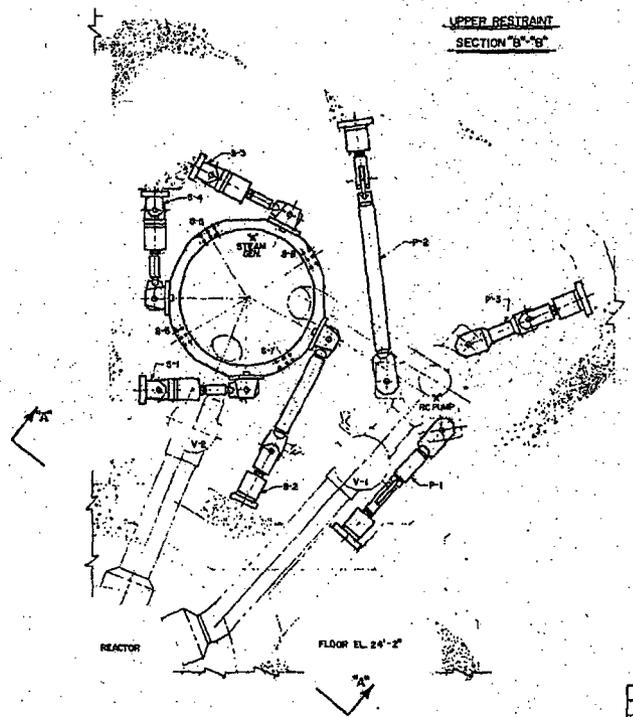
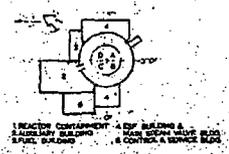
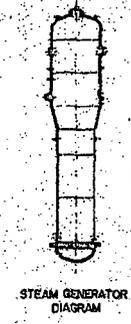
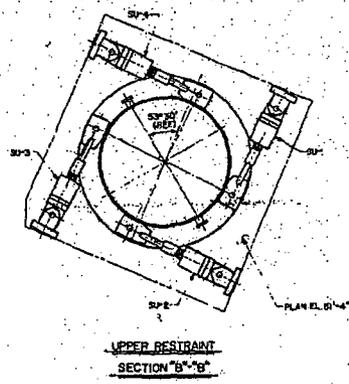
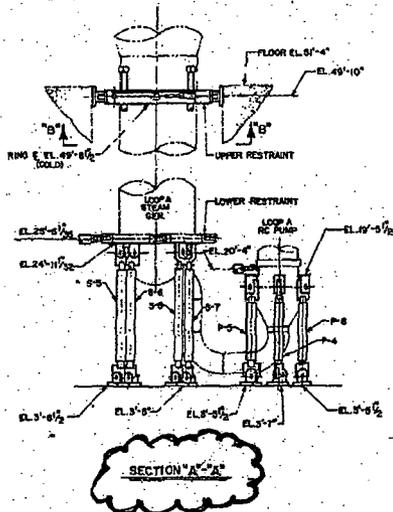
NO.	STUD	UNIT
1	03-003-001-1	03-003-001-1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10
11		11
12		12
13		13
14		14
15		15
16		16
17		17
18		18

**OUTLET SIDE  
MANWAY DESIGNATION**

NO.	STUD	UNIT
1	03-003-003-1	03-003-003-1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10
11		11
12		12
13		13
14		14
15		15
16		16
17		17
18		18

**Q.A.**

NORTH EAST UTILITIES SERVICE CO.	
NORTH EAST NUC. ENERGY CO.	
MILLSTONE NUC. PWR. STA. UNIT 3	
STEAM GENERATOR 1A (LOOP 1)	
ZONE 003	
DATE: 10/11/00	BY: [Signature]
AREA 1	25212-20901



REF DRAWINGS  
 WELDERS  
 12179-0111C-204

NOTE:  
 1. REACTOR COOLANT PUMP AND SUPPORTS ARE SHOWN FOR INFORMATION ONLY. SEE ZONE 8 FOR APPROPRIATE DWG.

QA

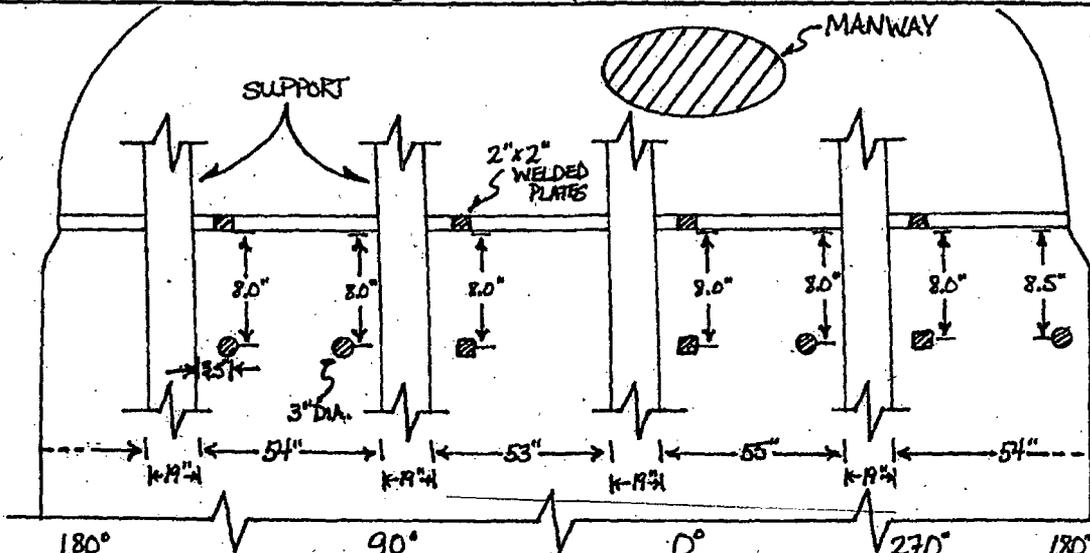
NORTHEAST UTILITIES SERVICE	
NORTHEAST NUC. ENERGY CORP.	
SALISBURY NUC. POWER STATION-1B	
STEAM GENERATOR SUPPORTS	
FLOOR 11	
DRAWING NO. 2000-33	
DATE 11/28/67	
AREA 11	
SCALE 1/8" = 1'-0"	

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>III</u>	AWO Number <u>01-17243</u>
System <u>PRESSURIZER</u>	Percentage of Area Examined <u>74.7%</u>
Component ID <u>03-007-SW-J</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>PRESSURIZER HEAD TO FLANGE</u>	Calibration Data Sheet # <u>Pages 1, 2, 3</u>
Procedure No. <u>MP-XI-7</u> Rev <u>0</u>	Page <u>4</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



Examiner Comments TOTAL COVERAGE OBTAINED WAS 74.7%. SEE BELOW:

<u>SCAN 0° WELD: 72%</u>	
<u>SCAN 45° NORMAL SIDE A: 70%</u>	<u>SCAN 45° PARALLEL SIDE A: 72%</u>
<u>SCAN 45° NORMAL SIDE B: 85%</u>	<u>SCAN 45° PARALLEL SIDE B: 72%</u>
<u>SCAN 60° NORMAL SIDE A: 30%</u>	<u>SCAN 60° PARALLEL SIDE A: 72%</u>
<u>SCAN 60° NORMAL SIDE B: 88%</u>	<u>SCAN 60° PARALLEL SIDE B: 72%</u>

R. J. III 9/12/02

Level of Use  
 Information

MP-XI-2  
 Rev. 000  
 12 of 12

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>M3-04-16876</u>
System <u>MS</u>	Percentage of Area Examined <u>81.5%</u>
Component ID <u>03-003-SW-2</u>	Examination Data Sheet # <u>311-01-044</u>
Component Description <u>Tube sheet to Head Weld</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-UT-7</u> Rev <u>000-04</u>	Page <u>12A</u> of <u>12B</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

Scan	0°	Weld	100%
*Scan	45°	Up	92.9%
*Scan	45°	Dn	52.9%
*Scan	60°	Up	94.1%
*Scan	60°	Dn	37.9%
**Scan	45°	Parallel	89%
**Scan	45°	Parallel	89%
*Scan	60°	Parallel	89%
*Scan	60°	Parallel	89%

733.8 = 81.5% coverage obtained.

- \* Limitations due to Tube sheet flange and steam generator supports.
- \*\* Limitations due to steam generator supports.

Examiner Comments See attached Ultrasonic Examination Sketch Sheet.

11. 4/23/17

Level of Use  
Reference



MP-XT-2  
 Rev. 000-01  
 11 of 11

Millstone Unit 3

Ultrasonic Examination Sketch Sheet

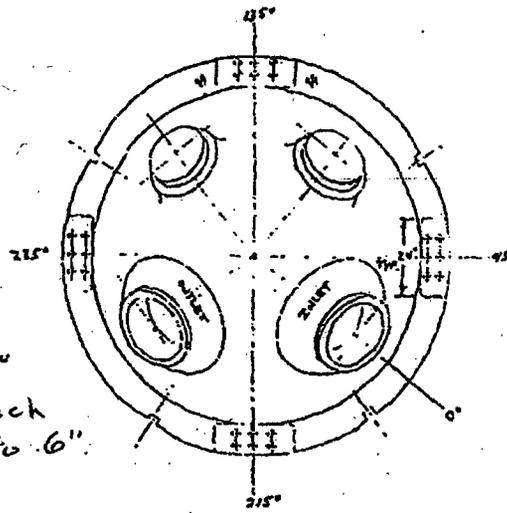
Reference ID: 311-01-044/03-e03 sit 2 Data Pkg.: 311-01-044 Page: 12B of 12B

Sketch Area

No coverage for 45° and 60°  
 Parallel scans for 12" at each  
 steam generator support.

No coverage for 45° and 60°  
 T scan looking up for 12" at each  
 steam generator support from 6" to 6"

No coverage for 45° and 60°  
 T scan looking down for 12" at each  
 steam generator support.  
 Also, as noted below, 45° and 60°  
 limited at 5 1/2" from 6" of weld  
 due to tube sheet flange.



Comments:

*Ph. III 4/22/07*

45° and 60° scans are limited for 12" at 4 locations @ 45°, 135°, 225° and 315° azimuth indicated on above sketch due to proximity of steam generator supports.
Also the scan path on the top side of the weld is 5 1/2" from weld 6" to the tube sheet flange for 45° and 60° top side axial scan.

**ATTACHMENT 3**

**RELIEF REQUEST IR-2-53**

**EXAMINATION CATEGORY B-D**  
**FULL PENETRATION WELDS OF NOZZLES IN VESSELS -**  
**INSPECTION PROGRAM B**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Effected

ASME Code Class: Code Class 1

Examination Category: B-D, Full Penetration Welds of Nozzles in Vessels –  
Inspection Program B

Item Numbers: B3.110, Pressurizer, Nozzle-to-Vessel Welds  
B3.130, Steam Generator, Nozzle-to-Vessel Welds  
B3.90, Reactor Vessel, Nozzle-to-Vessel Welds

Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category B-D requires volumetric examination of 100 percent of the weld volume as defined in Table IWB-2500-1 and shown in figure IWB-2500-7. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the welds provided greater than 90 percent of the required volume has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the 100% volumetric examination coverage requirement of the subject welds due to the geometric configuration and permanent obstructions which limit the volumetric coverage that can be attained.

The steam generator nozzle to head welds, and the pressurizer spray, safety, and relief nozzle to head welds were examined with a manual ultrasonic technique using the best available technology to achieve the maximum examination coverage practicable. Due to the nozzle configuration with its outside diameter taper, scanning on the nozzle side

of the weld is limited to circumferential scans only and prevents attaining 100 percent examination coverage.

The pressurizer surge nozzle to head weld was examined with a manual ultrasonic technique using the best available technology available to achieve the maximum examination practicable. There are 78 pressurizer heaters that penetrate the pressurizer bottom head. Due to permanent obstructions caused by these pressurizer heater penetrations, scanning was limited on the head side of the weld which prevents attaining 100 percent examination coverage.

The reactor vessel nozzle to head welds were examined using automated ultrasonic technique during the 10-year reactor vessel examination. The examinations were performed with equipment, procedures and personnel qualified in accordance with the requirements of ASME Section XI, Appendix VIII 1995 Edition thru 1996 Addenda as modified by the Performance Demonstration Initiative (PDI). Due to the permanent obstruction of the outlet nozzle boss, scanning was limited on the shell side of the welds which prevent attaining 100 percent examination coverage.

Isometric drawings and limitation sketches are provided in this attachment.

TABLE 1- Examination Category B-D Welds with Limited Volumetric Coverage

Weld Identification	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
03-006-SW-U	B1.130	Steam generator Outlet Nozzle to Head weld.	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.77
03-006-SW-V	B1.130	Steam generator Inlet Nozzle to Head weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.77
03-007-SW-A	B3.110	Pressurizer Safety Nozzle to Head Weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.70
03-007-SW-B	B3.110	Pressurizer Safety Nozzle to Head Weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.70
03-007-SW-C	B3.110	Pressurizer Safety Nozzle to Head Weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.70

**TABLE 1- Examination Category B-D Welds with Limited Volumetric Coverage**

Weld Identification	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
03-007-SW-D	B3.110	Pressurizer Relief Nozzle to Head Weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.70
03-007-SW-E	B3.110	Pressurizer Spray Nozzle to Head Weld	Scan limitations due to tapered nozzle configuration restricting the axial scans from the nozzle side. No recordable indications were detected.	77.70
03-007-SW-S	B3.110	Pressurizer Surge Nozzle to Head Weld	Limited coverage due to obstructions from pressurizer heaters. No recordable indications were detected.	64.16
107-121A	B3.90	RPV Outlet Nozzle to Shell Weld	Scan limitations due to obstruction from the nozzle boss. No recordable indications were detected.	70.00
107-121B	B3.90	RPV Outlet Nozzle to Shell Weld	Scan limitations due to obstruction from the nozzle boss. No recordable indications were detected.	70.00
107-121C	B3.90	RPV Outlet Nozzle to Shell Weld	Scan limitations due to obstruction from the nozzle boss. One subsurface indication was detected that was evaluated as acceptable to IWB-3512-1.	70.00
107-121D	B3.90	RPV Outlet Nozzle to Shell Weld	Scan limitations due to obstruction from the nozzle boss. Two subsurface indications detected and evaluated as acceptable to IWB-3512-1.	70.00

**5. Burden Caused by Compliance**

To increase examination coverage on the subject welds requires a significant design modification or replacement of components with a different design to eliminate the noted obstructions, which is considered impractical due to the cost, additional radiation exposure and impact to plant equipment.

**6. Proposed Alternative and Basis for Use**

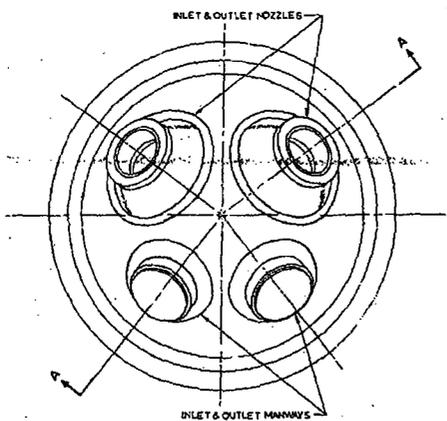
The subject welds received a volumetric examination utilizing the best available techniques on the accessible portions of welds to the extent practical. Additionally, a visual (VT-2) examination was performed at the end of each refueling outage during the system leakage tests as required by Section XI, Table IWB-2500-1, Category B-P.

Based upon the examinations volumes attained with acceptable results and the visual (VT-2) examination performed each refueling outage, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

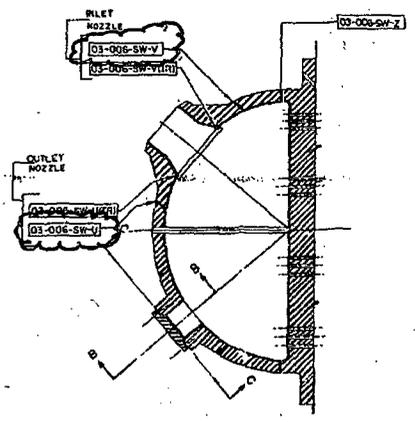
7. Duration of Proposed Alternative

The relief is requested for the second ten-year inspection interval for Millstone Unit No. 3, which began on April 23, 1999 and ended April 22, 2009.

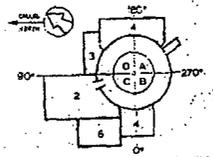
11 10 9 8 7 6 5 4 3 2 1



**BOTTOM VIEW**



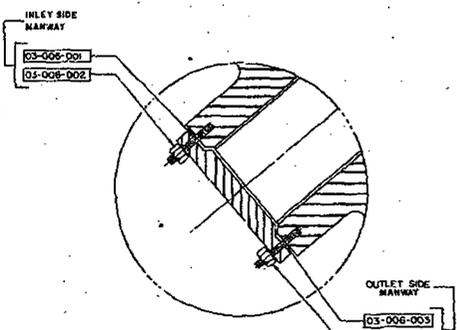
**SECTIONAL ELEVATION  
SECTION "A-A"**



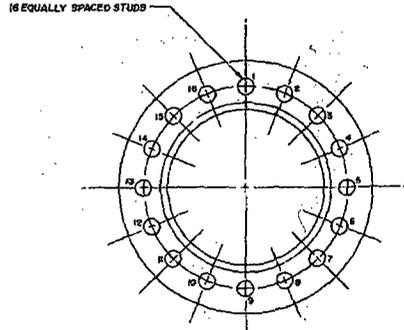
1 REACTOR CONTAINMENT 4 ESF BUILDING &  
2 AUXILIARY BUILDING MAIN STEAM VALVE BLDG  
3 FUEL BUILDING 6 CONTROL & SERVICE BLDG

**REFERENCE DRAWINGS:**

REF. NO.	WESTHOUSE DWG. NO.
1	808J78 SWW FILE # 8221 210-001-005K
2	808J06 SWW FILE # 2221 210-001-007K



**MANWAY STUDS DETAIL  
SECTION "B-B"**



**MANWAY STUDS LOCATION  
SECTION "C-C"  
(TYP)**

**INLET SIDE  
MANWAY DESIGNATION**

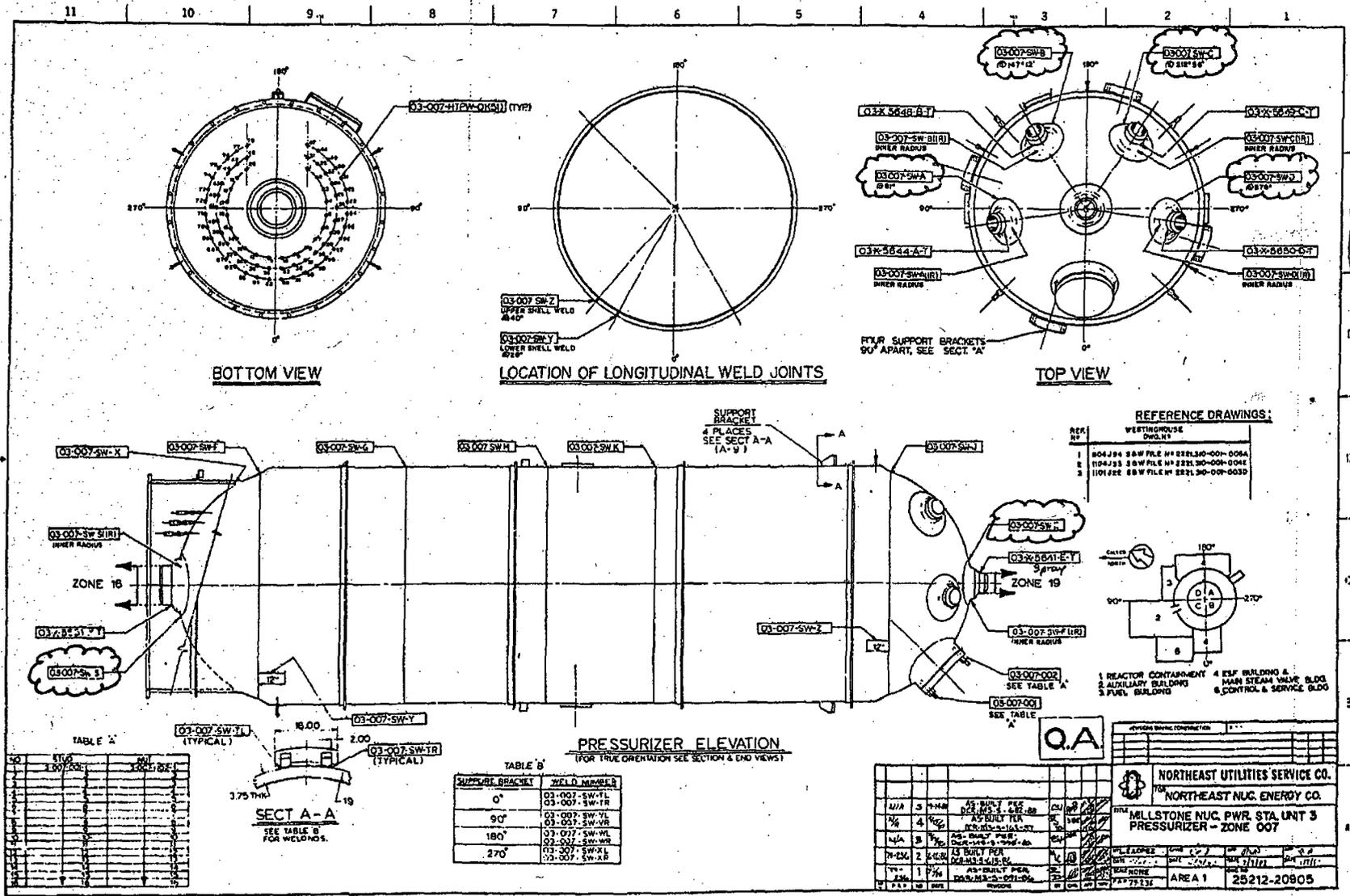
NO.	STUD	NUT
1	03-006-001-1	03-006-002-1
2	1	2
3	3	4
4	4	5
5	5	6
6	6	7
7	7	8
8	8	9
9	9	10
10	10	11
11	11	12
12	12	13
13	13	14
14	14	15
15	15	16
16	16	17

**OUTLET SIDE  
MANWAY DESIGNATION**

NO.	STUD	NUT
1	03-006-003-1	03-006-004-1
2	1	2
3	3	4
4	4	5
5	5	6
6	6	7
7	7	8
8	8	9
9	9	10
10	10	11
11	11	12
12	12	13
13	13	14
14	14	15
15	15	16
16	16	17

QA

NORTH EAST UTILITIES SERVICE CO.		FOR		NORTH EAST NUC. ENERGY CO.	
MILLSTONE NUC. PWR. STA. UNIT 3					
STEAM GENERATOR ID (LOOP4)					
ZONE 006					
FILE NO.	REV.	DATE	BY	CHKD.	APP'D.
03-006-001-1	1	11/17/83	WJL	WJL	WJL
DESCRIPTION			AREA 1		
27212-20504					





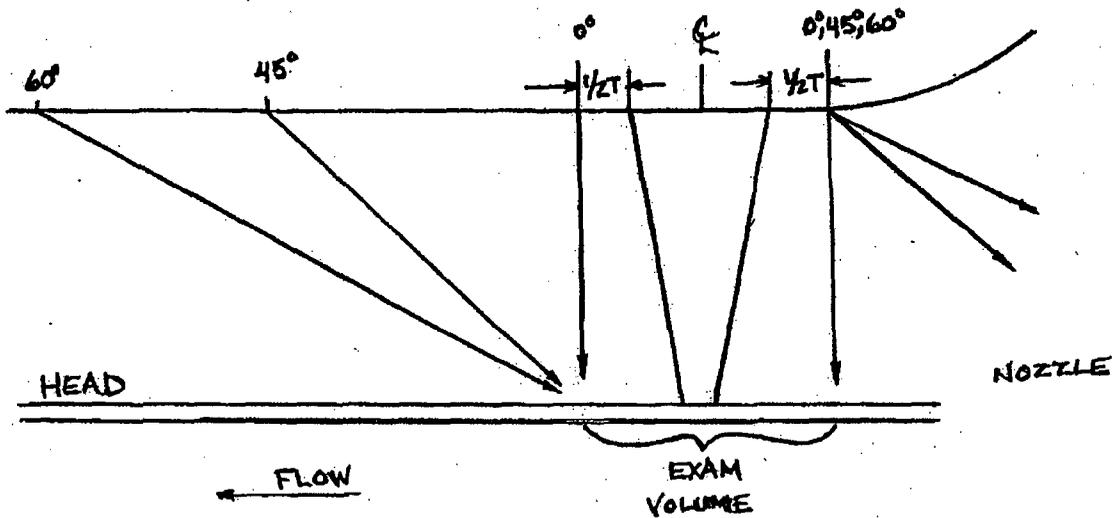
ATTACHMENT 1											
COVERAGE CALCULATION DATA SHEET											
Plant <u>MP</u> Unit <u>3</u>	AWO Number <u>M3-04-16872</u>										
System <u>RCS</u>	Percentage of Area Examined <u>77.77</u>										
Component ID <u>03-006-SW-U</u>	Examination Data Sheet # <u>310-01-002</u>										
Component Description <u>OUTLET NOZZLE TO HEAD</u>	Calibration Data Sheet # <u>N/A</u>										
Procedure No. <u>MP-UT-7</u> Rev <u>000-04</u>	Page <u>9</u> of <u>9</u>										
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>											
Coverage Calculation / Equation / Sketch Area											
<small>DRAWG. NOT TO SCALE</small>											
Examiner Comments	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1) 0° = 11.11%</td> <td style="width: 50%;">6) 60° CW = 11.11%</td> </tr> <tr> <td>2) 45° CW = 11.11%</td> <td>7) 60° CCW = 11.11%</td> </tr> <tr> <td>3) 45° CCW = 11.11%</td> <td>8) 60° US = 11.11%</td> </tr> <tr> <td>4) 45° US = 11.11%</td> <td>9) 60° DS = 0%</td> </tr> <tr> <td>5) 45° DS = 0%</td> <td style="text-align: right;"><b>TOTAL = 77.77% COVERAGE</b></td> </tr> </table>	1) 0° = 11.11%	6) 60° CW = 11.11%	2) 45° CW = 11.11%	7) 60° CCW = 11.11%	3) 45° CCW = 11.11%	8) 60° US = 11.11%	4) 45° US = 11.11%	9) 60° DS = 0%	5) 45° DS = 0%	<b>TOTAL = 77.77% COVERAGE</b>
1) 0° = 11.11%	6) 60° CW = 11.11%										
2) 45° CW = 11.11%	7) 60° CCW = 11.11%										
3) 45° CCW = 11.11%	8) 60° US = 11.11%										
4) 45° US = 11.11%	9) 60° DS = 0%										
5) 45° DS = 0%	<b>TOTAL = 77.77% COVERAGE</b>										

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MP</u> Unit <u>3</u>	AWO Number <u>M3-04-16872</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.77</u>
Component ID <u>03-006-SW-V</u>	Examination Data Sheet # <u>310-01-003</u>
Component Description <u>INLET NOZ. TO HEAD</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-UT-7</u> Rev <u>000-04</u>	Page <u>9</u> of <u>9</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



DRWG. NOT TO SCALE

Examiner Comments	1) 0° = 11.11%	6) 60° CW = 11.11%
	2) 45° CW = 11.11%	7) 60° CCW = 11.11%
	3) 45° CCW = 11.11%	8) 60° US = 0%
	4) 45° US = 0%	9) 60° DS = 11.11%
	5) 45° DS = 11.11%	TOTAL = 77.77% COVERAGE

NOMINAL "T" = 4.90" WELD CROWN WIDTH ESTIMATED 3"

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-17243</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.7%</u>
Component ID <u>03-007-SW-A</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>Upper Head to Safety Nozzle</u>	Calibration Data Sheet # <u>Pages 1, 2, 3</u>
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>7</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

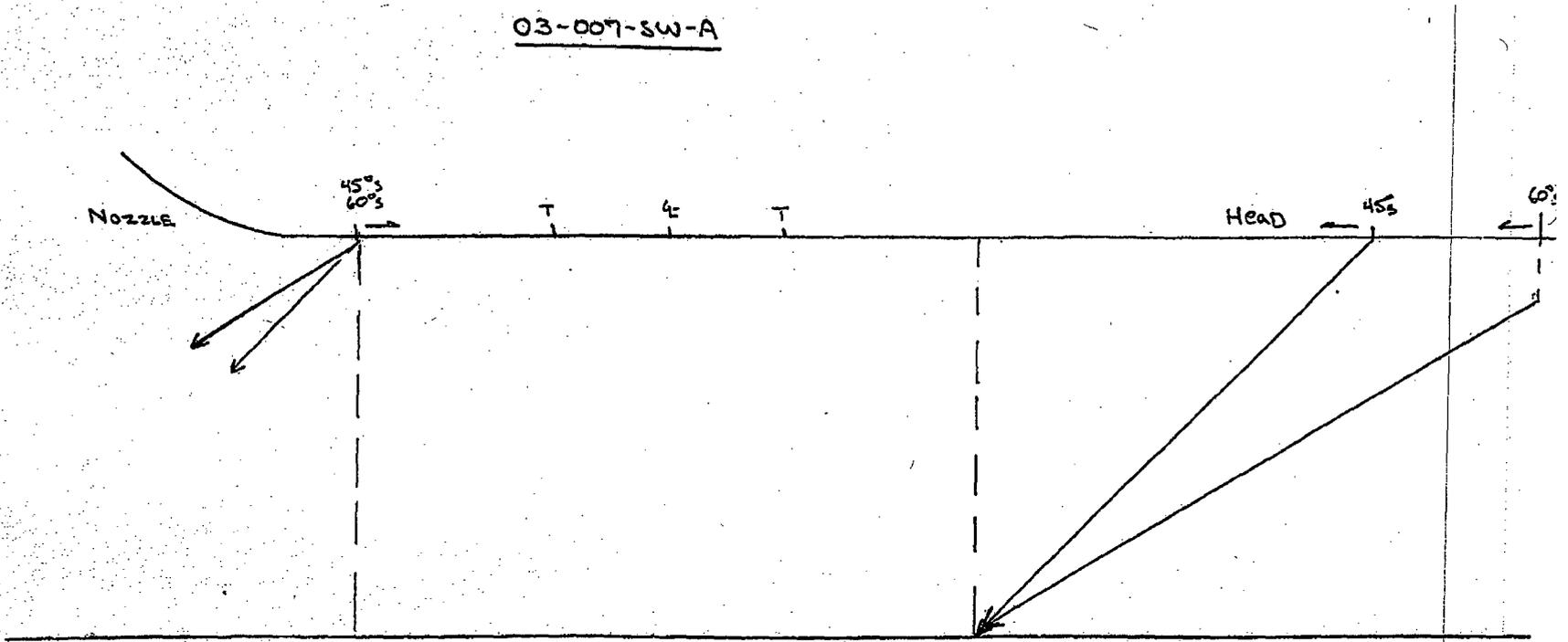
Coverage Calculation / Equation / Sketch Area

SCAN 0° WELD - 100%  
SCAN 45° Normal Side A - 100%  
SCAN 45° Normal Side B - 0%  
SCAN 60° Normal Side A - 100%  
SCAN 60° Normal Side B - 0%  
SCAN 45° PARALLEL - 100%  
SCAN 45° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
 $700/9 = 77.7\%$  coverage obtained

Examiner Comments

Single sided due to configuration - see sketch sheet

03-007-SW-A



DATA PK  
308

Page 8 of 11

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-17243</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.7%</u>
Component ID <u>03-007-SW-B</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>Safety Nozzle to head weld</u>	Calibration Data Sheet # <u>1, 2, 3</u>
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>7</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

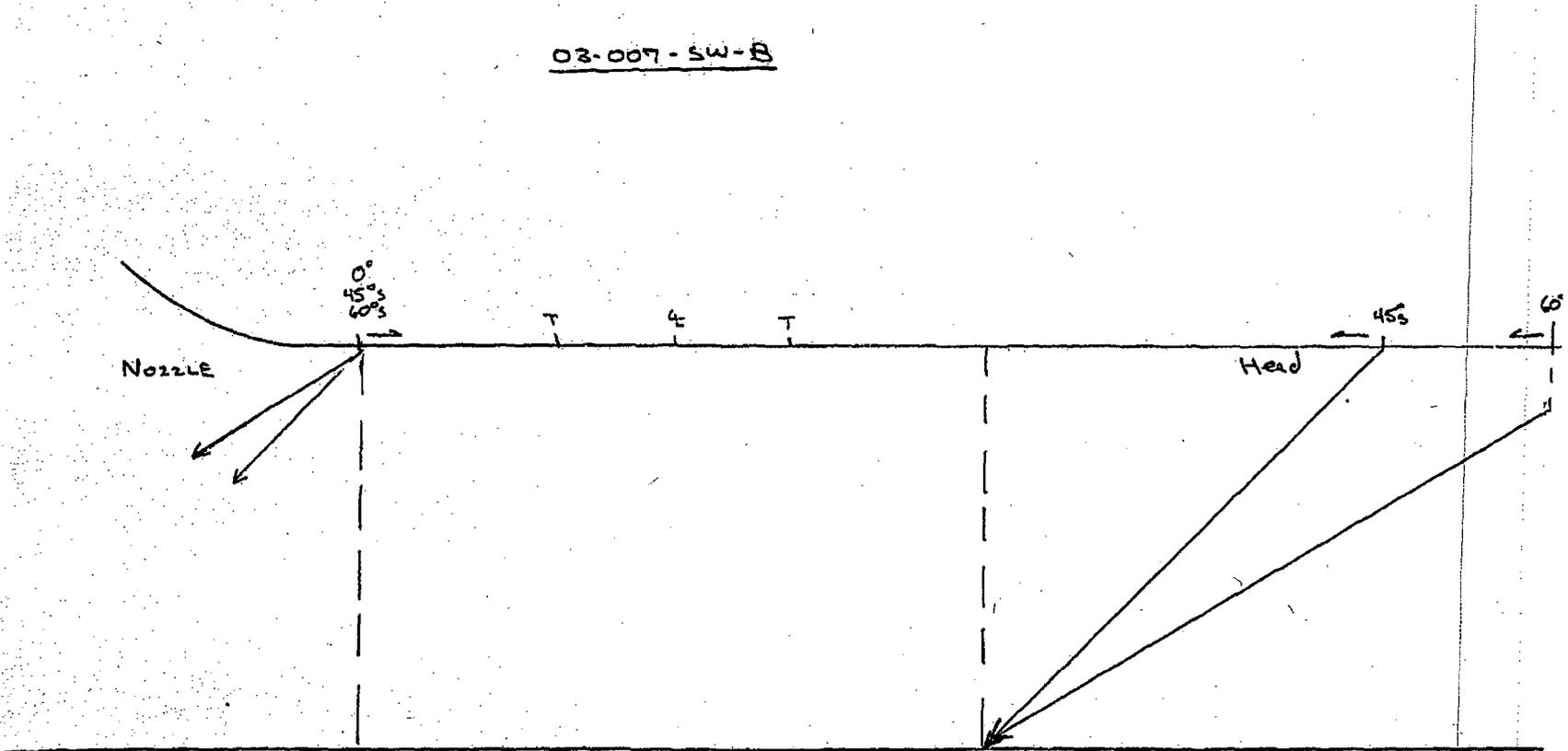
Coverage Calculation / Equation / Sketch Area

SCAN 0° WELD - 100%  
SCAN 45° Normal Side A - 100%  
SCAN 45° Normal Side B - 0%  
SCAN 60° Normal Side A - 100%  
SCAN 60° Normal Side B - 0%  
SCAN 45° PARALLEL - 100%  
SCAN: 45° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
 $700/9 = 77.7\%$  coverage obtained

Examiner Comments

Single sided due to configuration - see sketch sheet

03-007-SW-B



ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-17243</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.7%</u>
Component ID <u>03-007-SW-C</u>	Examination Data Sheet # <u>NA</u>
Component Description <u>Safety Nozzle to head weld</u>	Calibration Data Sheet # <u>Pages 1,2,3</u>
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>7</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

SCAN 0° WELD - 100%  
SCAN 45° Normal Side A - 100%  
SCAN 45° Normal Side B - 0%  
SCAN 60° Normal Side A - 100%  
SCAN 60° Normal Side B - 0%  
SCAN 45° PARALLEL - 100%  
SCAN: 45° PARALLEL - 100%  
SCAN: 60° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
 $700/9 = 77.7\%$  coverage obtained

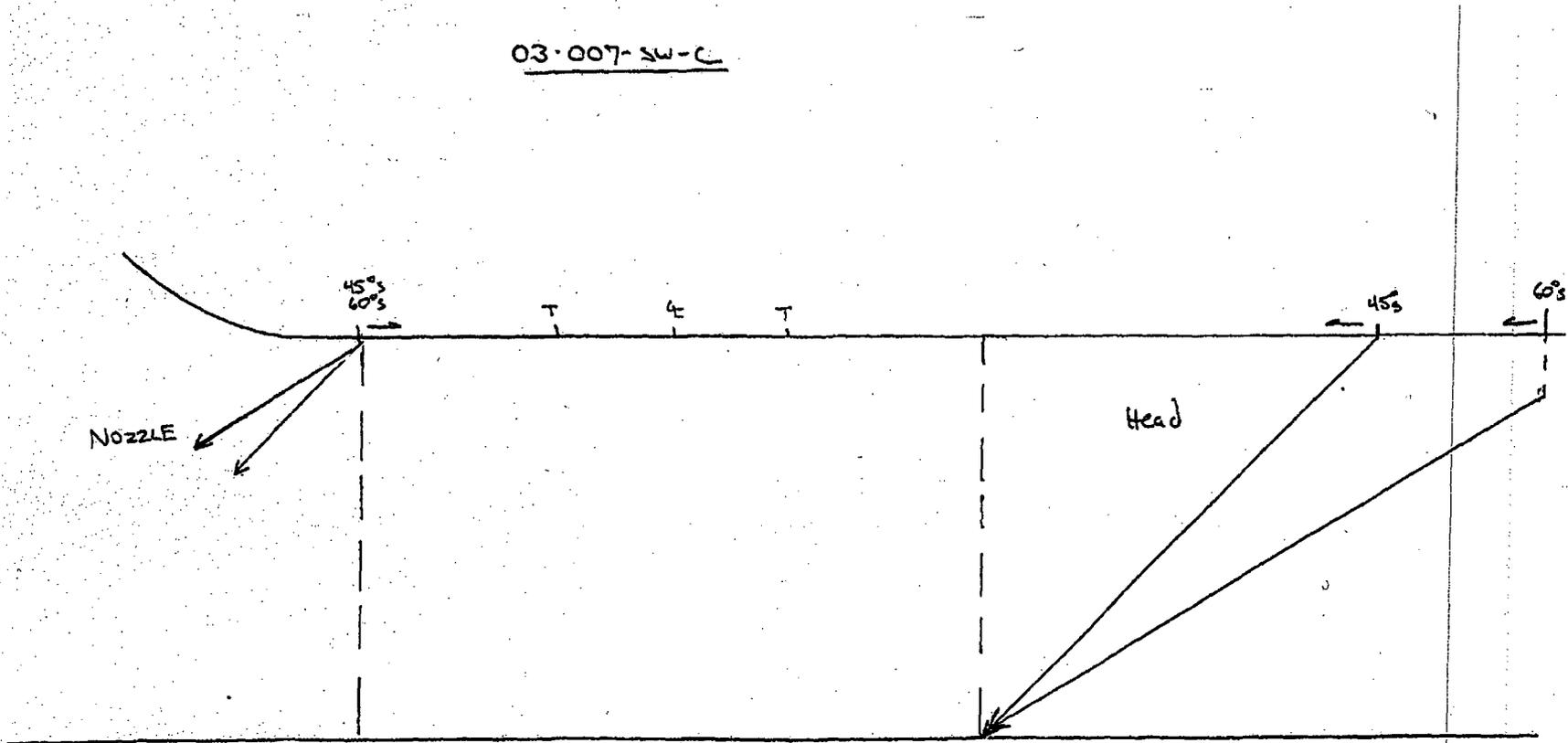
Examiner Comments \_\_\_\_\_

Single sided due to configuration - see sketch sheet

\_\_\_\_\_

\_\_\_\_\_

03-007-SW-C



ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-17243</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.7%</u>
Component ID <u>03-007-SW-D</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>Relief Nozz. to head weld</u>	Calibration Data Sheet # <u>Page 2; 3</u>
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>7</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

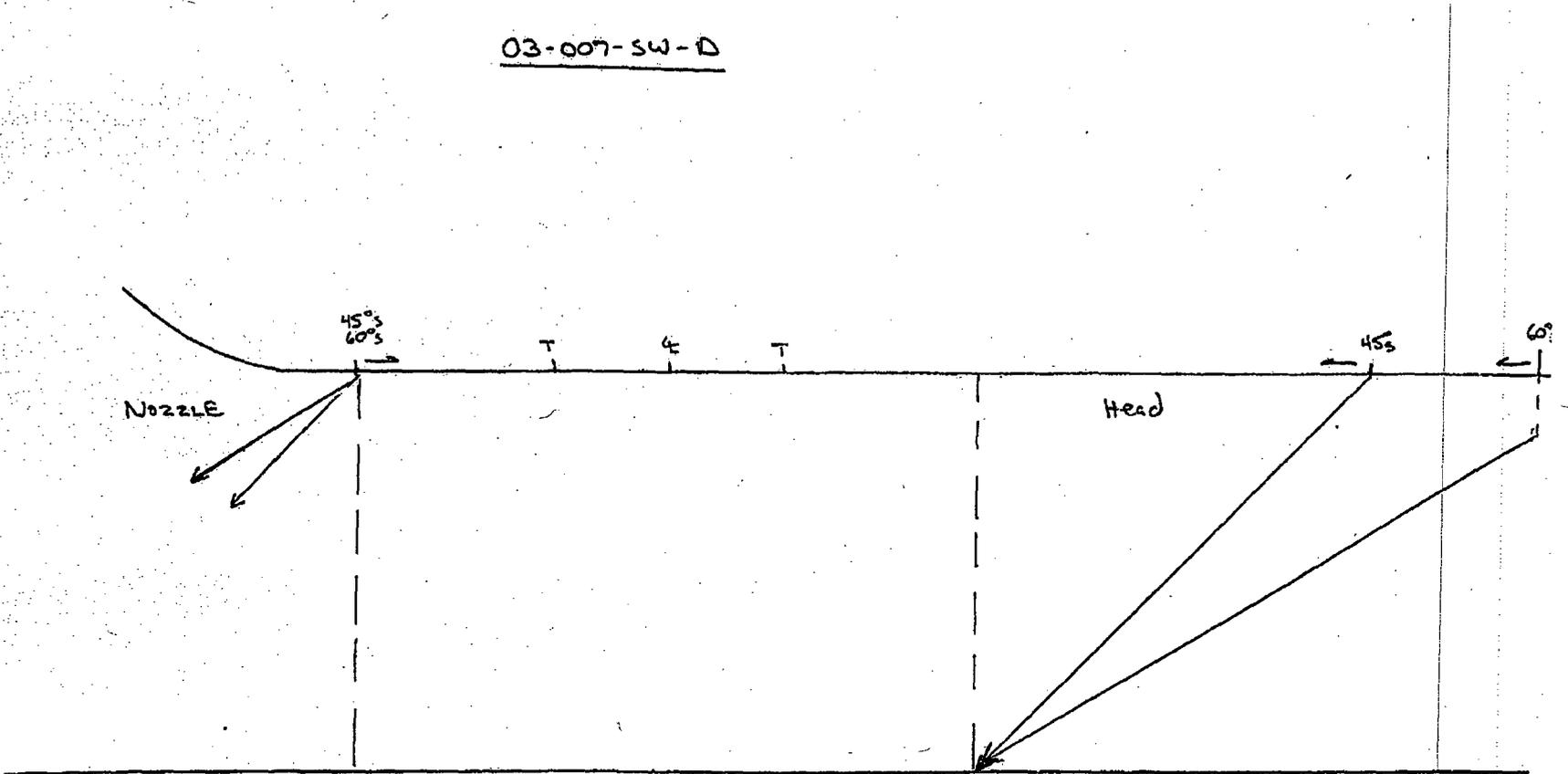
Coverage Calculation / Equation / Sketch Area

SCAN 0° WELD - 100%  
SCAN 45° Normal Side A - 100%  
SCAN 45° Normal Side B - 0%  
SCAN 60° Normal Side A - 100%  
SCAN 60° Normal Side B - 0%  
SCAN 45° PARALLEL - 100%  
SCAN: 45° PARALLEL - 100%  
SCAN: 60° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
 $700/9 = 77.7\%$  coverage obtained

Examiner Comments

Single sided due to configuration

03-007-SW-D



ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-17243</u>
System <u>RCS</u>	Percentage of Area Examined <u>77.7%</u>
Component ID <u>03-007-SW-E</u>	Examination Data Sheet # <u>NA</u>
Component Description <u>SPRAY NOZZLE to head weld</u>	Calibration Data Sheet # <u>Pages 1, 2, 3</u>
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>7</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

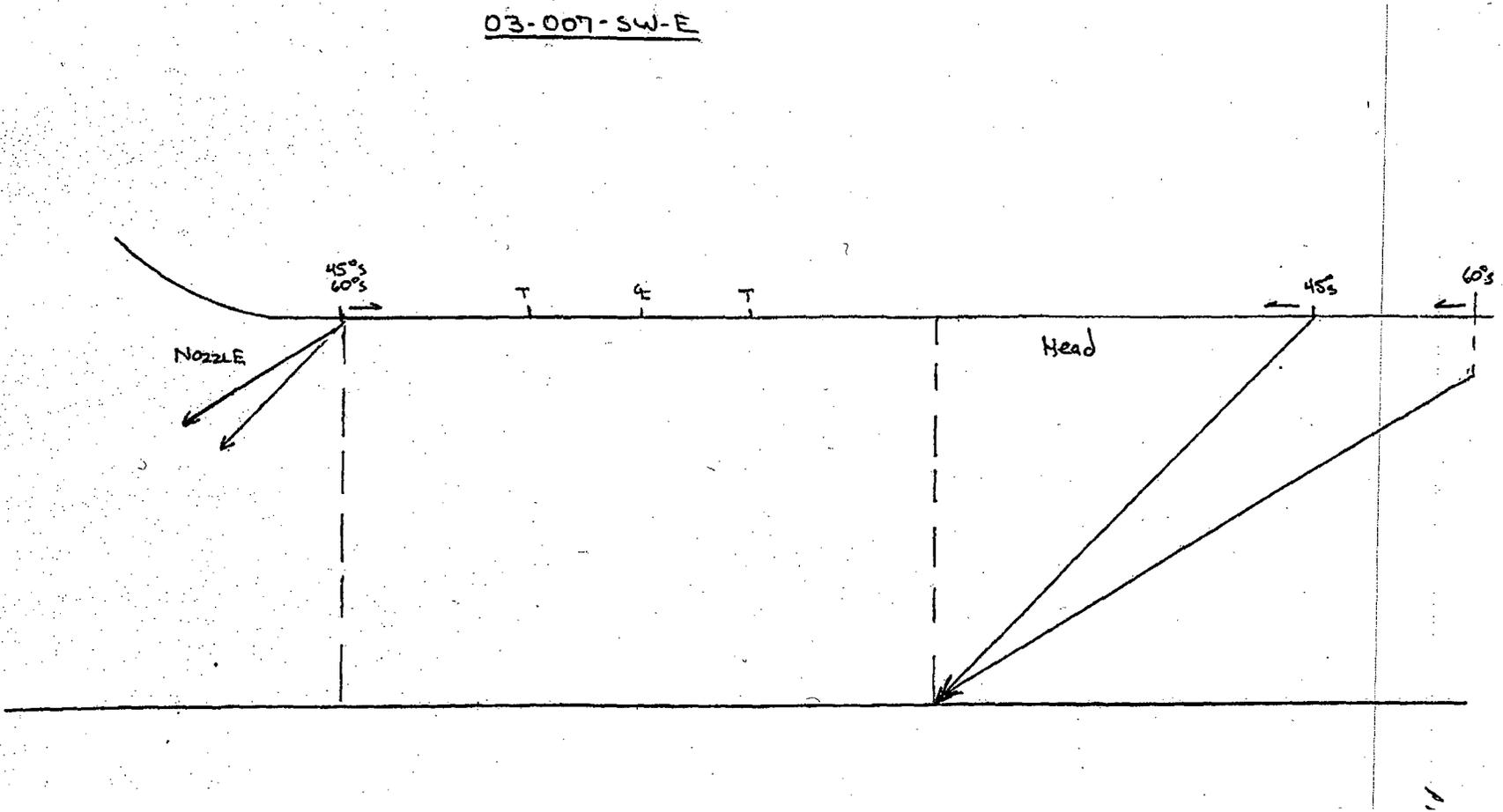
Coverage Calculation / Equation / Sketch Area

SCAN 0° WELD - 100%  
SCAN 45° Normal Side A - 100%  
SCAN 45° Normal Side B - 0%  
SCAN 60° Normal Side A - 100%  
SCAN 60° Normal Side B - 0%  
SCAN 45° PARALLEL - 100%  
SCAN 45° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
SCAN 60° PARALLEL - 100%  
 $700/9 = 77.7\%$  coverage obtained

Examiner Comments

Single sided due to configuration - see sketch sheet

03-007-SW-E



ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3 06 08155</u>
System <u>RCS</u>	Percentage of Area Examined <u>64.16</u>
Component ID <u>03-007-SW-S</u>	Examination Data Sheet # <u>1,2,3</u>
Component Description <u>SURGE NOZZLE TO LOWER HEAD</u>	Calibration Data Sheet # <u>1,2,3</u>
Procedure No. <u>EA-AA-NDE-UT-702</u> Rev <u>002</u>	Page <u>6</u> of <u>15</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

**VESSEL WELD / 3" THICK (-CLAD) / 1.5" WELD WIDTH / CLASS 1**

**CODE VOLUME OBSTRUCTED DUE TO CONFIGURATION AND PZR HEATERS**

SCAN 0°	81%
SCAN 45° NORMAL VESSEL SIDE	40%
SCAN 45° NORMAL NOZZLE SIDE	66%
SCAN 60° NORMAL VESSEL SIDE	25.4%
SCAN 80° NORMAL NOZZLE SIDE	41%
SCAN 45° PARALLEL CW	81%
SCAN 45° PARALLEL CCW	81%
SCAN 60° PARALLEL CW	81%
SCAN 60° PARALLEL CCW	81%
<b>TOTAL</b>	<b>577.4 / 9 = 64.16% Coverage Obtained</b>

Examiner Comments SEE ATTACHED COVERAGE PLOTS

---



---



---



---

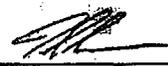


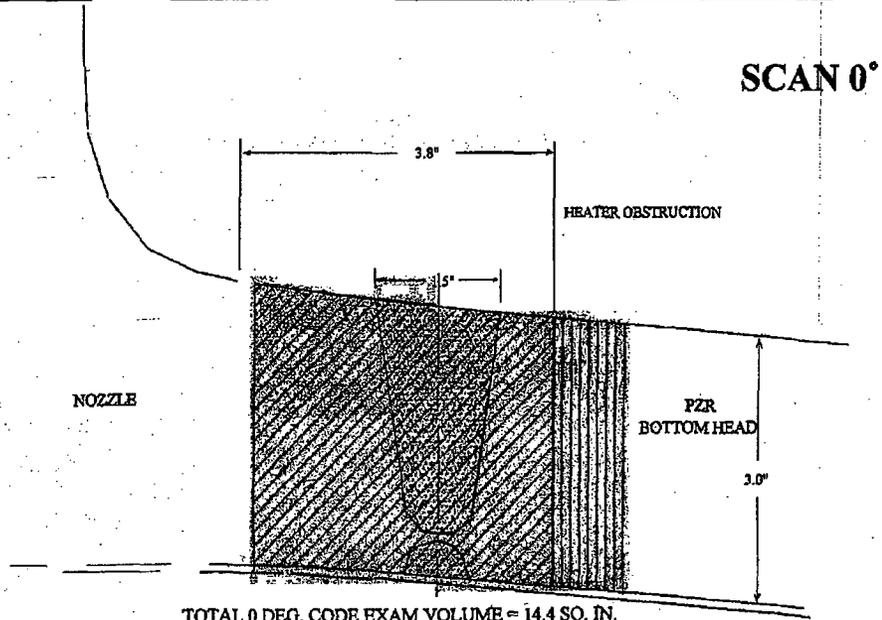
### UT Indication/Coverage Plot

Outage No.: 3R12  
Report No.: 312-01-003  
Summary No.: N/A  
Page No.: 7 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 26212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002

Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08



TOTAL 0 DEG. CODE EXAM VOLUME = 14.4 SQ. IN.  
TOTAL 0 DEG AREA EXAMINED = 11.67 SQ. IN.  
TOTAL 0 DEG AREA NOT EXAMINED = 2.73 SQ. IN.  
TOTAL 0 DEG CODE EXAM VOLUME EXAMINED = 81%

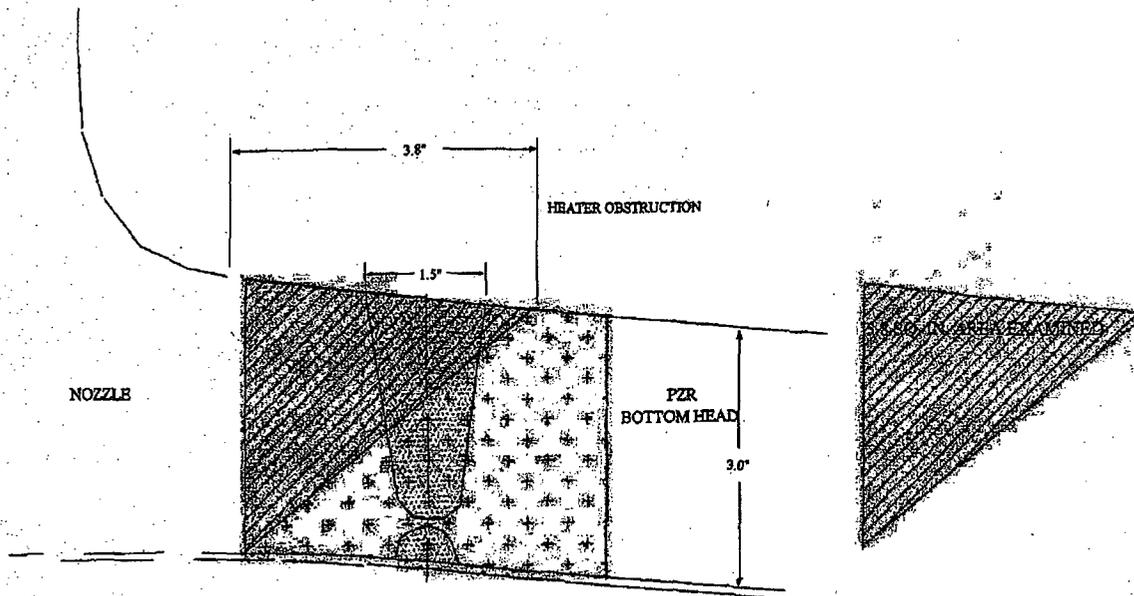


### UT Indication/Coverage Plot

Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 8 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S  
 Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002  
 Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08

### SCAN 45° NORMAL VESSEL SIDE



TOTAL 45 DEG CODE EXAM VOLUME REQUIRED = 14.4 SQ. IN.  
 TOTAL 45 DEG VESSEL SIDE AREA EXAMINED = 5.8 SQ. IN.  
 TOTAL 45 DEG VESSEL SIDE AREA NOT EXAMINED = 8.6 SQ. IN.  
 TOTAL 45 DEG VESSEL SIDE CODE VOLUME EXAMINED = 40%

*Coverage measurements  
 determined using CAD program.*



### UT Indication/Coverage Plot

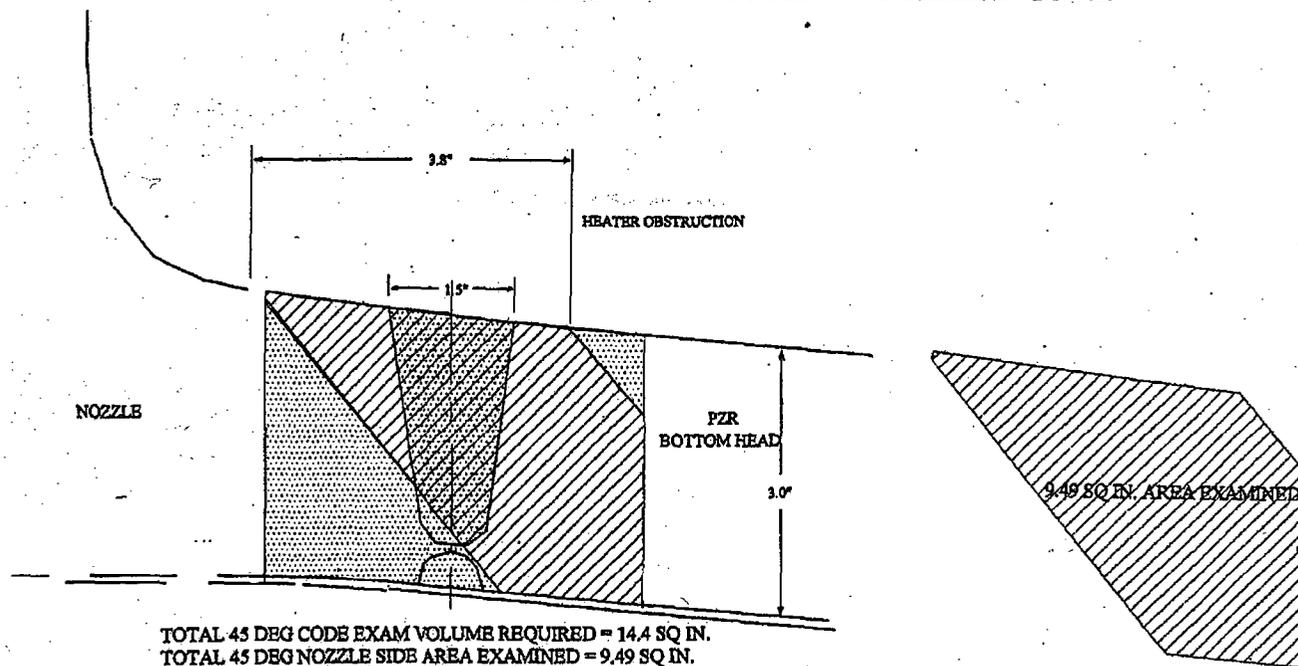
Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 9 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV 002

Prepared By: W.L. THOMAS Level: III Signature: [Signature] Date: 10/21/08

### SCAN 45° NORMAL NOZZLE SIDE



TOTAL 45 DEG CODE EXAM VOLUME REQUIRED = 14.4 SQ IN.  
 TOTAL 45 DEG NOZZLE SIDE AREA EXAMINED = 9.49 SQ IN.  
 TOTAL 45 DEG NOZZLE SIDE AREA NOT EXAMINED = 4.91 SQ IN.  
 TOTAL 45 DEG NOZZLE SIDE CODE VOLUME EXAMINED = 66%

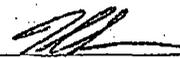


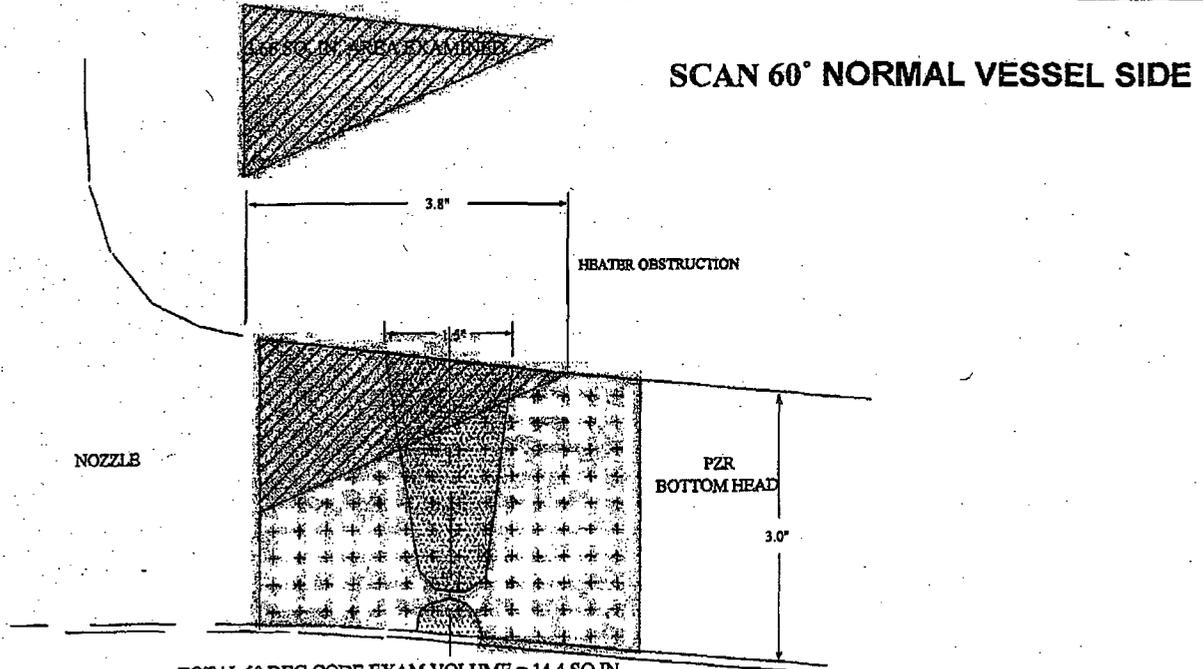
# UT Indication/Coverage Plot

Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 10 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV 002

Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08



TOTAL 60 DEG CODE EXAM VOLUME = 14.4 SQ. IN.  
 TOTAL 60 DEG VESSEL SIDE AREA EXAMINED = 3.66 SQ. IN.  
 TOTAL 60 DEG VESSEL SIDE AREA NOT EXAMINED = 10.74 SQ. IN.  
 TOTAL 60 DEG VESSEL SIDE CODE VOLUME EXAMINED = 25.4%

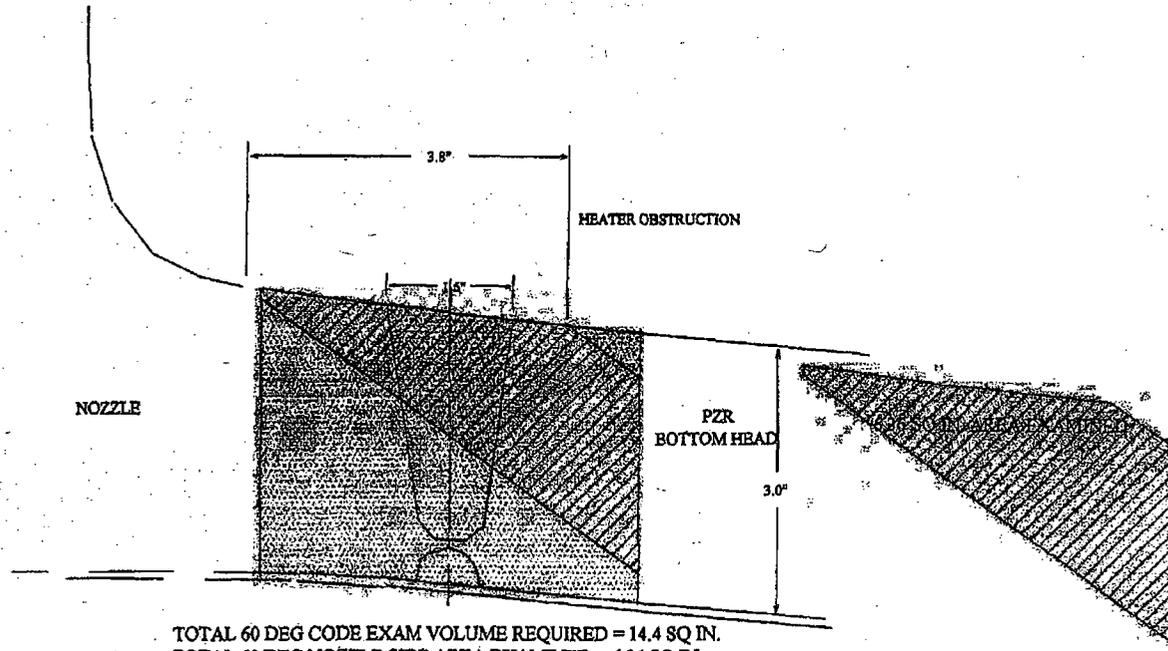
# LMT

## UT Indication/Coverage Plot

Outage No.: 3R12  
Report No.: 312-01-003  
Summary No.: N/A  
Page No.: 11 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S  
Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002  
Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08

### SCAN 60° NORMAL NOZZLE SIDE



TOTAL 60 DEG CODE EXAM VOLUME REQUIRED = 14.4 SQ IN.  
TOTAL 60 DEG NOZZLE SIDE AREA EXAMINED = 6.36 SQ IN.  
TOTAL 60 DEG NOZZLE SIDE AREA NOT EXAMINED = 8.04 SQ IN.  
TOTAL 60 DEG NOZZLE SIDE CODE VOLUME EXAMINED = 41%

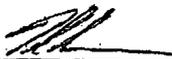


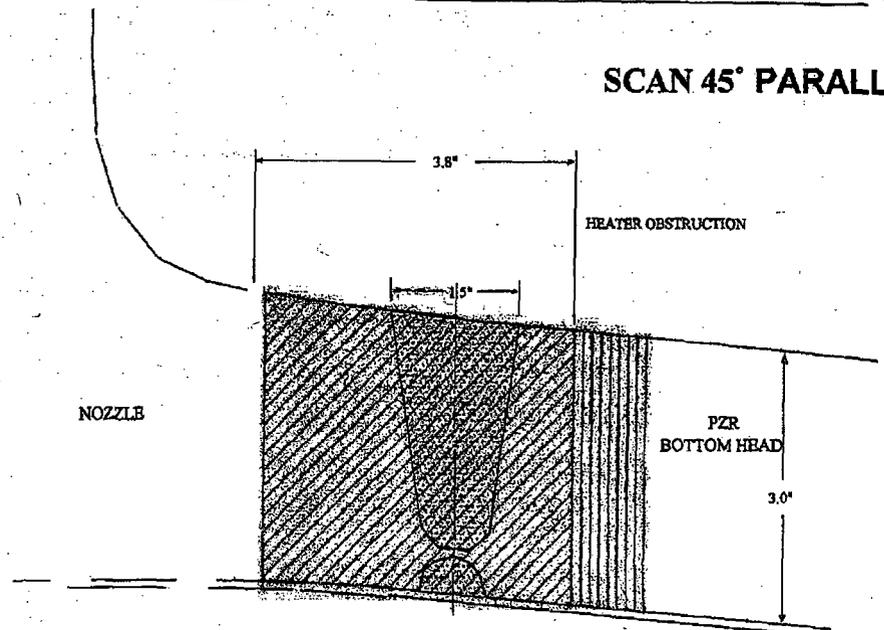
# UT Indication/Coverage Plot

Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 12 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002

Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08



## SCAN 45° PARALLEL CW

TOTAL 45 DEG CIRC SCAN CW CODE EXAM VOLUME REQUIRED = 14.4 SQ. IN.

TOTAL 45 DEG CIRC SCAN CW AREA EXAMINED = 11.67 SQ. IN.

TOTAL 45 DEG CIRC SCAN CW AREA NOT EXAMINED = 2.73 SQ. IN.

TOTAL 45 DEG CIRC SCAN CW CODE VOLUME = 81%

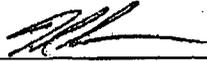


# UT Indication/Coverage Plot

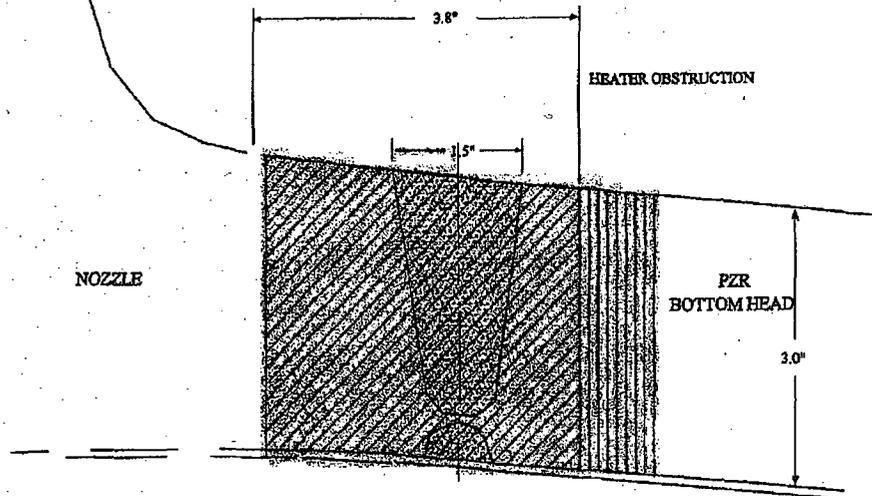
Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 13 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002

Prepared By: W.L.THOMAS Level: III Signature:  Date: 10/21/08

## SCAN 45° PARALLEL CCW



TOTAL 45 DEG CIRC SCAN CCW CODE EXAM VOLUME REQUIRED = 14.4 SQ IN.

TOTAL 45 DEG CIRC SCAN CCW AREA EXAMINED = 11.67 SQ IN.

TOTAL 45 DEG CIRC SCAN CCW AREA NOT EXAMINED = 2.73 SQ IN.

TOTAL 45 DEG CIRC SCAN CCW CODE VOLUME ACHIEVED = 81%

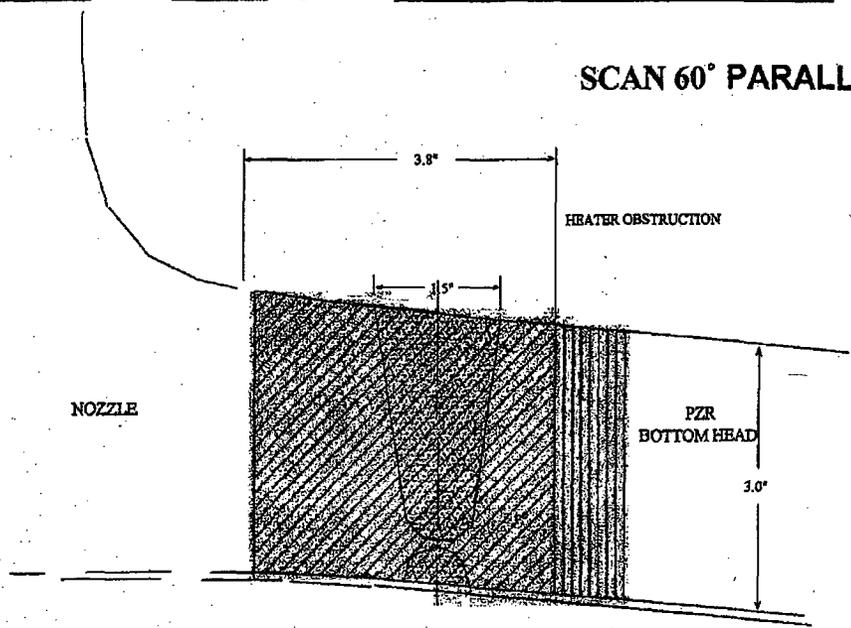


# UT Indication/Coverage Plot

Outage No.: 3R12  
 Report No.: 312-01-003  
 Summary No.: N/A  
 Page No.: 14 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S  
 Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002  
 Prepared By: W.L.THOMAS Level: III Signature: *[Signature]* Date: 10/21/08

## SCAN 60° PARALLEL CW



TOTAL 60 DEG CIRC SCAN CW CODE EXAM VOLUME REQUIRED = 14.4 SQ IN.  
 TOTAL 60 DEG CIRC SCAN CW AREA EXAMINED = 11.67 SQ IN.  
 TOTAL 60 DEG CIRC SCAN CW AREA NOT EXAMINED = 2.73 SQ IN.  
 TOTAL 60 DEG CIRC SCAN CW CODE VOLUME ACHIEVED = 81%

# LMT

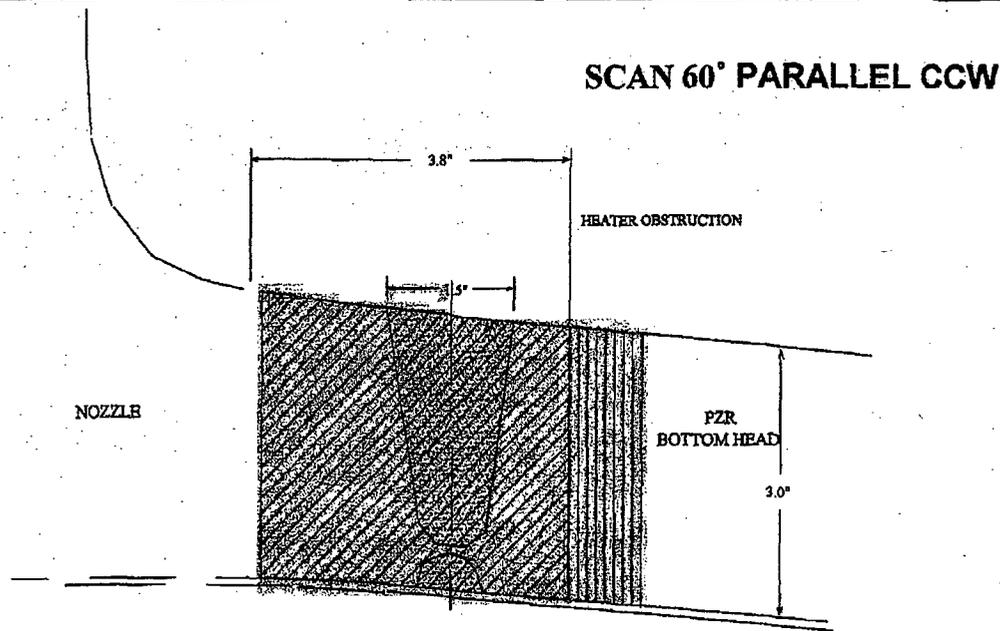
## UT Indication/Coverage Plot

Outage No.: 3R12  
Report No.: 312-01-003  
Summary No.: N/A  
Page No.: 15 of 15

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20905 Component ID: 03-007-SW-S

Description: SURGE NOZZLE TO LOWER HEAD Procedure: ER-AA-NDE-UT-702 REV: 002

Prepared By: W.L. THOMAS Level: III Signature:  Date: 10/21/08



TOTAL 60 DEG CIRC SCAN CCW CODE EXAM VOLUME REQUIRED = 14.4 SQ. IN.  
TOTAL 60 DEG CIRC SCAN CCW AREA EXAMINED = 11.67 SQ. IN.  
TOTAL 60 DEG CIRC SCAN CCW AREA NOT EXAMINED = 2.73 SQ. IN.  
TOTAL 60 DEG CIRC SCAN CCW CODE VOLUME ACHIEVED = 81%.

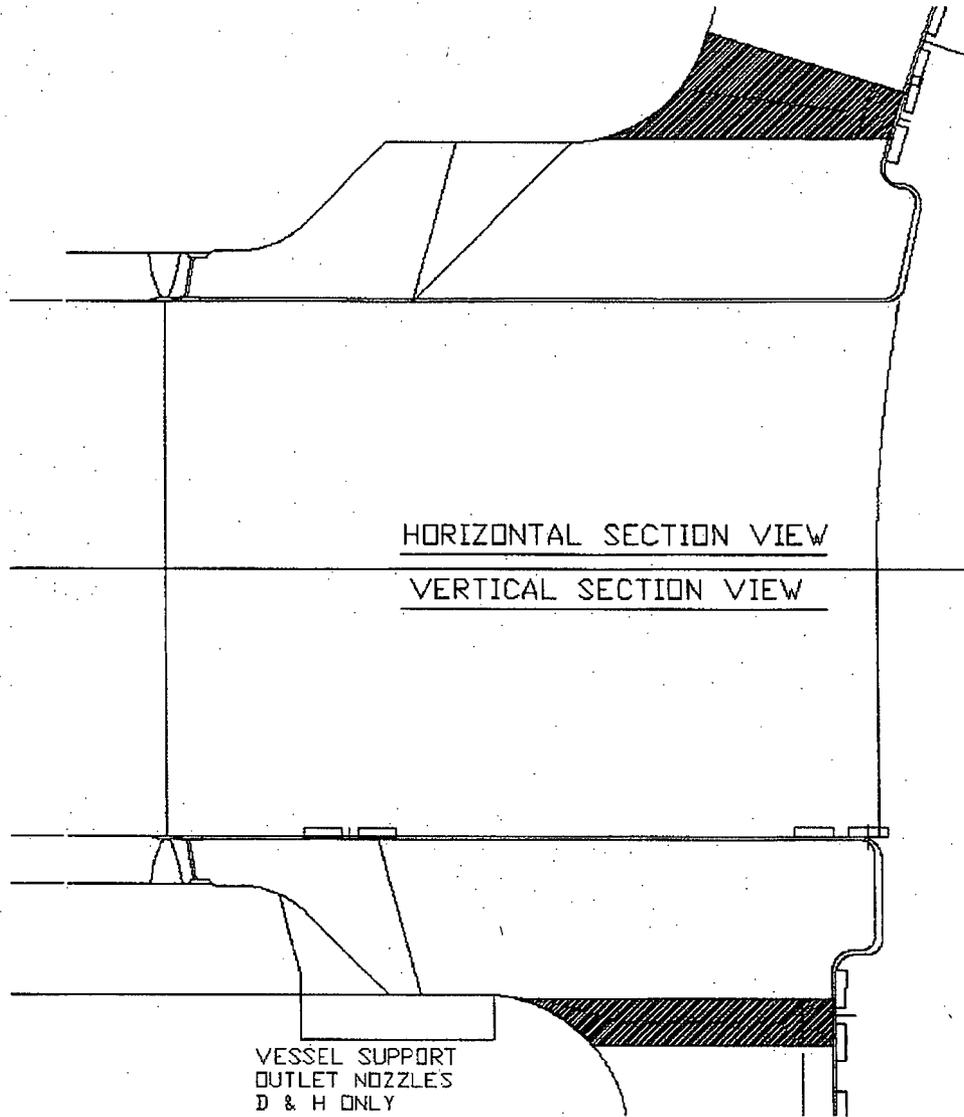


## Coverage Layout & Calculations

**Weld Description:** Outlet Nozzle to Shell @ 22°, 158°, 202°, 338°  
**ASME Code Item No.:** B3.90      **ASME Code Figure No.:** IWB-2500-7  
**Millstone Weld ID (TWS Weld Designator):** 107-121A (W19), 107-121B (W25) 107-121C (W27), 107-121D (W33)  
**AREVA Drawing No.:** 8017264

### AGGREGATE COVERAGE: 70%

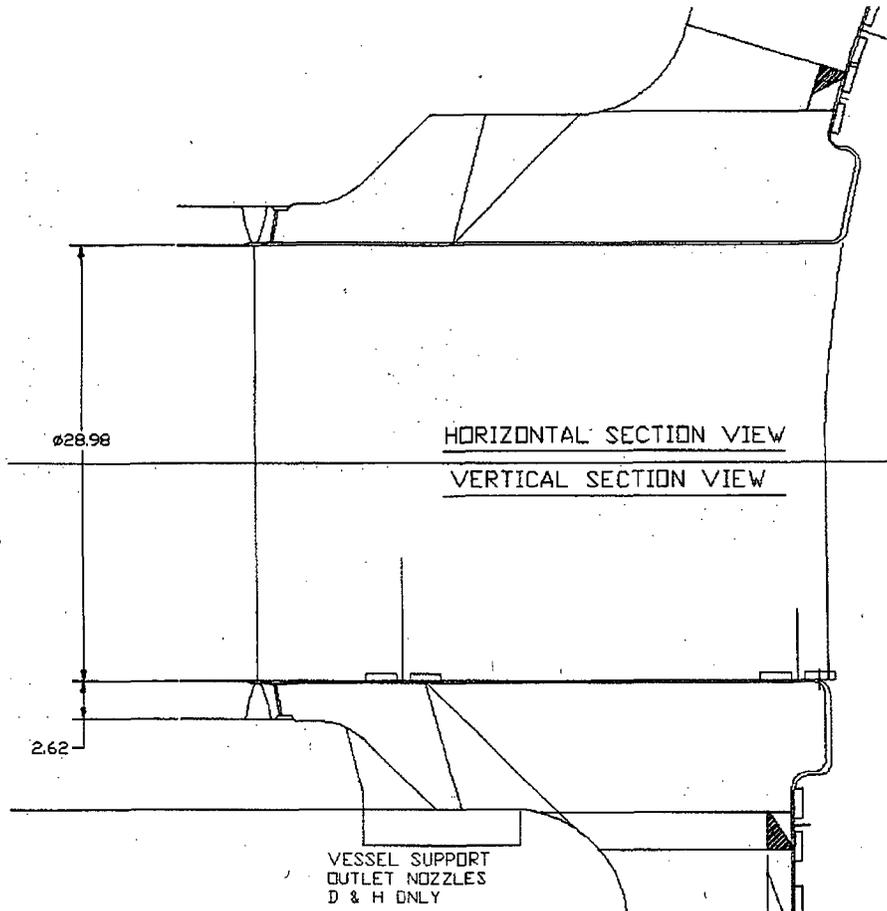
Zone Coverage Obtained								
Inner 15%T: 53.4%			Outer 85%T: 86.2%					
Area Measurement				Examination Volume Definition				
Area Measurement not calculated for nozzles.				Volume Calculation				
				Inner 15%T		697.6 cu. in.		
				Outer 85%T		6353.6 cu. in.		
Limitations		Limits scan by:			Compensation(s)			
Nozzle Boss		Reduction in scan index			None			
Examination Coverage Calculations (Treated as Dual Sided Examination)								
<b>INNER 15%T</b>								
Entry #	Exam. Angle (deg.)	Beam Direction	Length Examined (degs)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	70L/45L	Shell: Radial	360	697.6	697.6	100.0%	Yes*	Nozzle Boss
2	15L/45S	Bore: Radial	360	697.6	697.6	100.0%	No	
3	70L/45L	Shell: CW	360	48.0	697.6	6.9%	Yes	Nozzle Boss
4	70L/45L	Shell: CCW	360	48.0	697.6	6.9%	Yes	Nozzle Boss
<b>Totals:</b>				<b>793.6</b>	<b>2092.8</b>	<b>53.4%</b>		
* This coverage is satisfied with the scan from the nozzle bore.								
<b>OUTER 85%T</b>								
Entry #	Exam. Angle (deg.)	Beam Direction	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Limitations
1	15L/45S	Bore: Radial In	360	6353.6	6353.6	100.0%	No	
3	45L/45S	Shell: CW	360	5036.8	6353.6	79.3%	Yes	Nozzle Boss
4	45L/45S	Shell: CCW	360	5036.8	6353.6	79.3%	Yes	Nozzle Boss
<b>Totals:</b>				<b>16427.2</b>	<b>19060.8</b>	<b>86.2%</b>		



15%T & 85%T Coverage Plot (Radial Scan – Perpendicular to weld from Nozzle Bore)

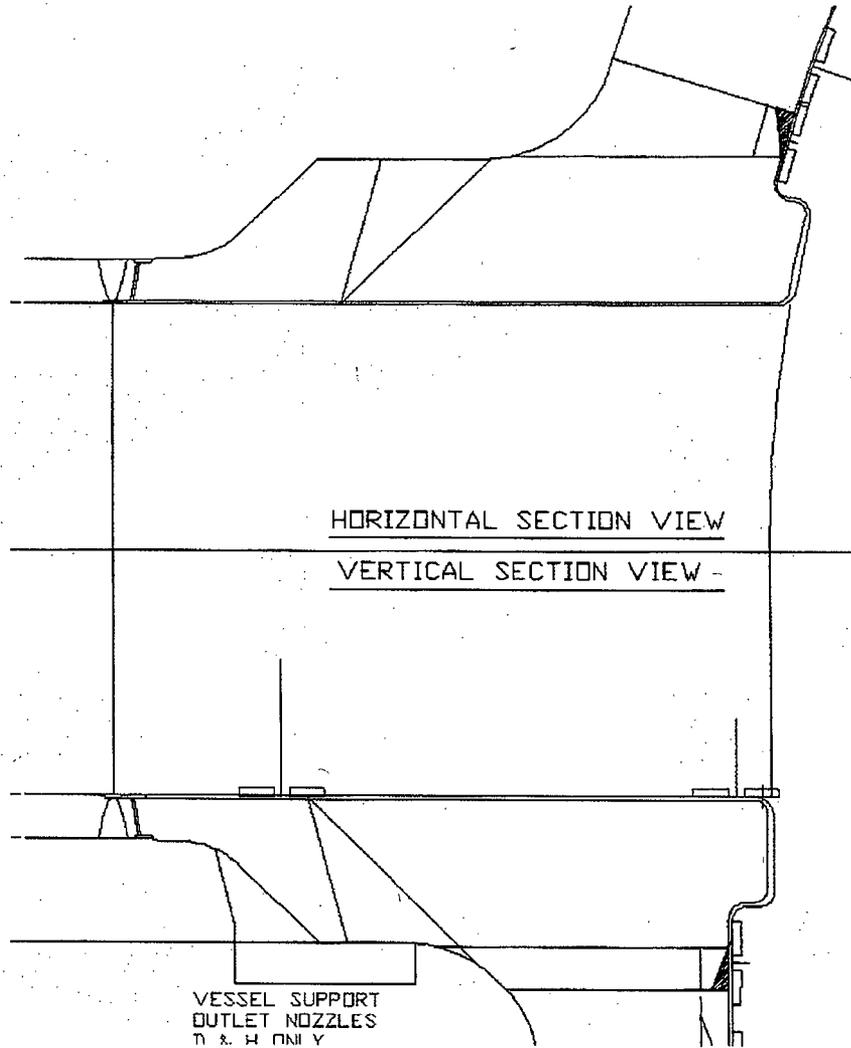
**Weld Identification**

Millstone No. (TWS No.): 107-121A (W19), 107-121B (W25), 107-121C (W27), 107-121D (W33)



15%T Coverage Plot (Radial Scan – Perpendicular to weld from Shell ID)  
Beam Direction away from Bore ID

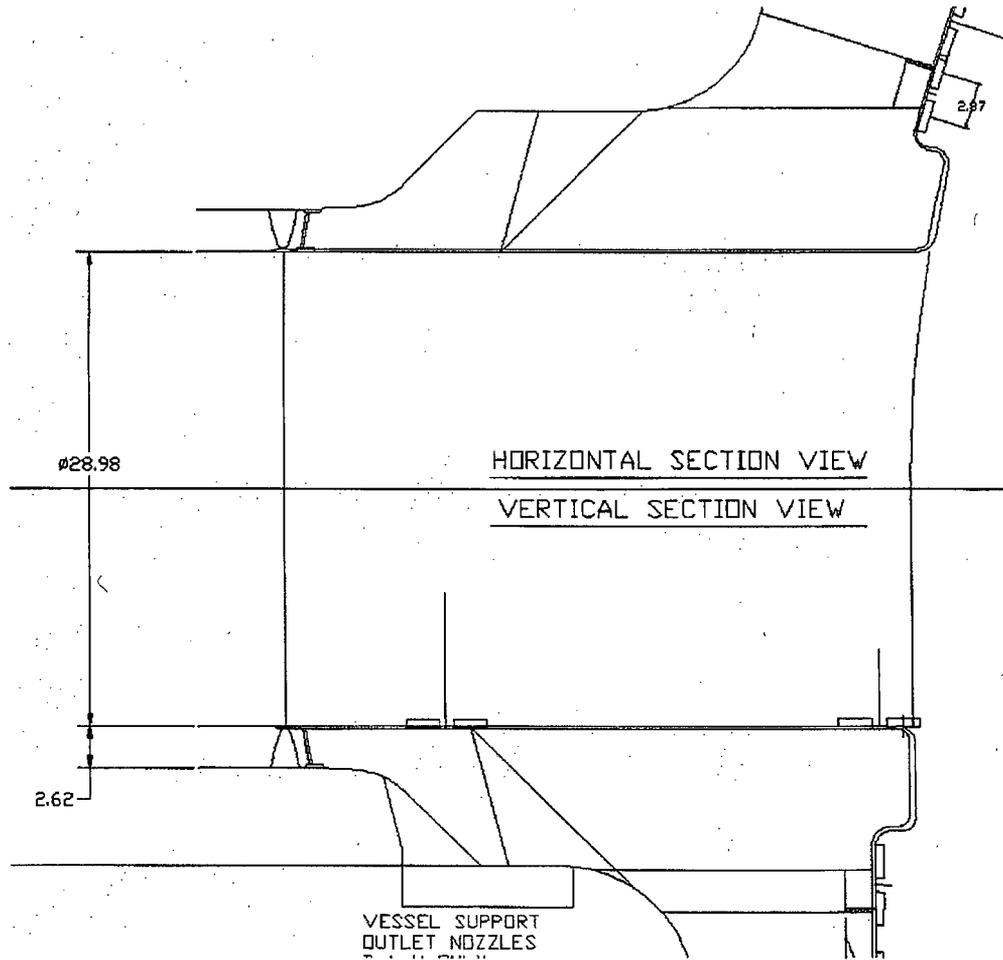
**Weld Identification**  
**Millstone No. (TWS No.): 107-121A (W19), 107-121B (W25) 107-121C (W27), 107-121D (W33)**



15%T Coverage Plot (Radial Scan – Perpendicular to weld from Shell ID)  
Beam Direction toward Bore ID

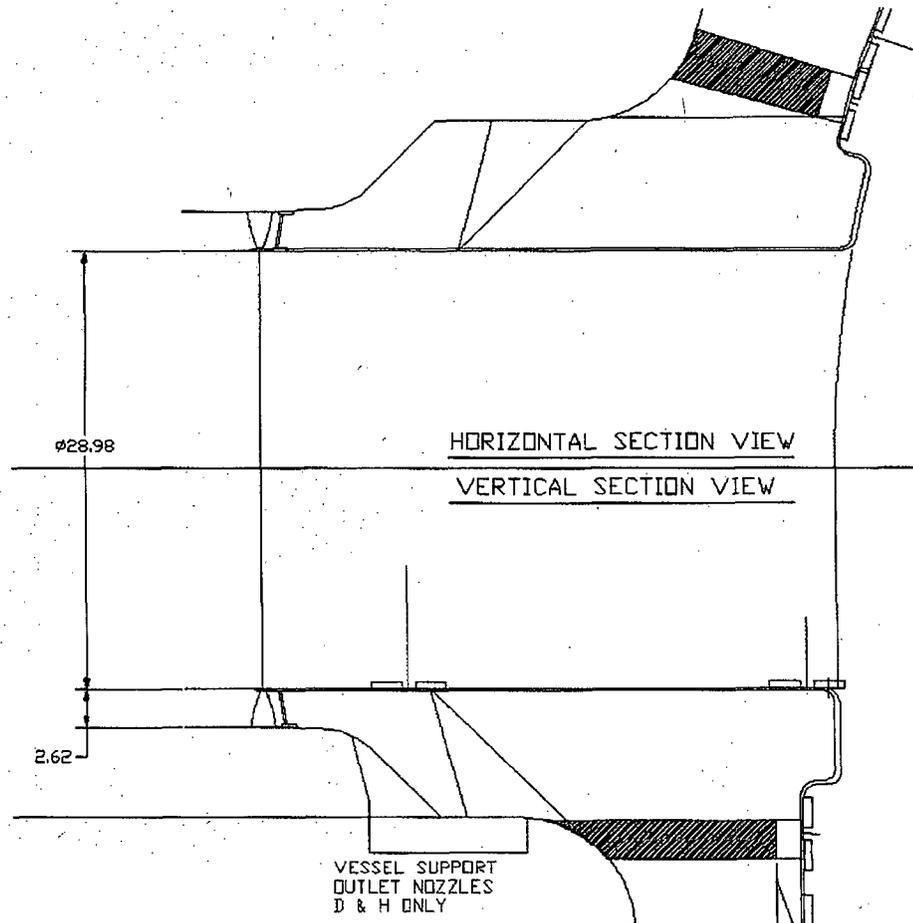
**Weld Identification**

Millstone No. (TWS No.): 107-121A (W19), 107-121B (W25) 107-121C (W27), 107-121D (W33)



15% T Coverage Plot (Circumferential Scan – Perpendicular to weld from Shell ID)

**Weld Identification**  
Millstone No. (TWS No.): 107-121A (W19), 107-121B (W25), 107-121C (W27), 107-121D (W33)



85% T Coverage Plot (Circumferential Scan – Perpendicular to weld from Shell ID)

**Weld Identification**

**Millstone No. (TWS No.):** 107-121A (W19), 107-121B (W25), 107-121C (W27), 107-121D (W33)

**ATTACHMENT 4**

**RELIEF REQUEST IR-2-54**

**EXAMINATION CATEGORY B-H**  
**INTEGRAL ATTACHMENTS FOR VESSELS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Effected

ASME Code Class: Code Class 1  
Examination Category: B-H, Integral Attachments for Vessels  
Item Numbers: B8.20, Pressurizer  
Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category B-H requires surface examination of 100 percent of the weld length as defined in Table IWB-2500-1 and shown in figure IWB 2500-15 for the subject welds. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the welds provided greater than 90 percent of the required volume has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the essentially 100% surface examination coverage requirement of the subject welds due to obstructions caused by a component support structure which limits the surface examination coverage that can be attained.

The subject attachment welds and their associated lugs provide attachment points for the pressurizer safety valve and piping restraint. There are 8 welded lugs consisting of 4 pairs with each pair located approximately every 90 degrees around the circumference of the pressurizer. With the pressurizer safety valve

restraint in place, the support brackets mount over the positioning lugs and are pinned in place. These support brackets overlap approximately 80 percent of each attachment lug and their associated welds leaving this portion of each weld inaccessible for examination. The support requires disassembly and removal to increase the examination coverage for these welds; however, due to the massive physical size of the support (weighing an estimated 10,000 pounds), specialized rigging and handling techniques are required to attempt removal. Due to the size of the support, its movement during the removal activity presents the potential to damage adjacent plant equipment. Reinstallation with critical alignments is also a concern. In addition, the support is configured in such a manner that the pressurizer safety lines route through the support members inhibiting the removal of the support without removal of the pressurizer safety valves and associated piping.

The use of ultrasonic examination was evaluated and due to the weld configuration and access, it was determined that no meaningful results could be attained. Additionally, liquid penetrant was considered and evaluated. Due to the confined space under the bracket, it was determined that no additional coverage could be expected.

Support configuration drawings and limitation sketch are provided in this attachment.

TABLE 1- Examination Category B-H Welds with Limited Surface Examination Coverage

Weld Number	Code Item Number	Configuration	Comments	Surface Examination Coverage (%)
03-007-SW-TL	B8.20	Pressurizer North Support Bracket Lug (Left)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20
03-007-SW-TR	B8.20	Pressurizer North Support Bracket Lug (Right)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20

**TABLE 1- Examination Category B-H Welds with Limited Surface Examination Coverage**

Weld Identification	Code Item Number	Configuration	Comments	Surface Examination Coverage (%)
03-007-SW-VL	B8.20	Pressurizer South Support Bracket Lug (Left)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20
03-007-SW-VR	B8.20	Pressurizer South Support Bracket Lug (Right)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20
03-007-SW-WL	B8.20	Pressurizer East Support Bracket Lug (Left)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20
03-007-SW-WR	B8.20	Pressurizer East Support Bracket Lug (Right)	Limited accessibility due to the obstruction of the restraint brackets. One 1.1 in. long linear indication was detected and evaluated as a laminar flaw in the integral attachment material and was acceptable per IWB 3516.2(b).	20
03-007-SW-XL	B8.20	Pressurizer West Support Bracket Lug (Left)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20
03-007-SW-XR	B8.20	Pressurizer West Support Bracket Lug (Right)	Limited accessibility due to the obstruction of the restraint brackets. No recordable indications were detected.	20

**5. Burden Caused by Compliance**

To increase examination coverage on the subject welds requires removal of a massive component restraint, which would also require removal of pressurizer

safety valves and associated piping. Removal of the restraint is considered impractical due to the increased radiation exposure and impact to plant equipment.

6. Proposed Alternative and Basis for Use

The subject welds received a surface examination utilizing the best available techniques on the accessible portions of welds to the extent practical. Additionally, a visual (VT-2) examination was performed at the end of each refueling outage during the system leakage tests as required by Section XI, Table IWB-2500-1, Category B-P.

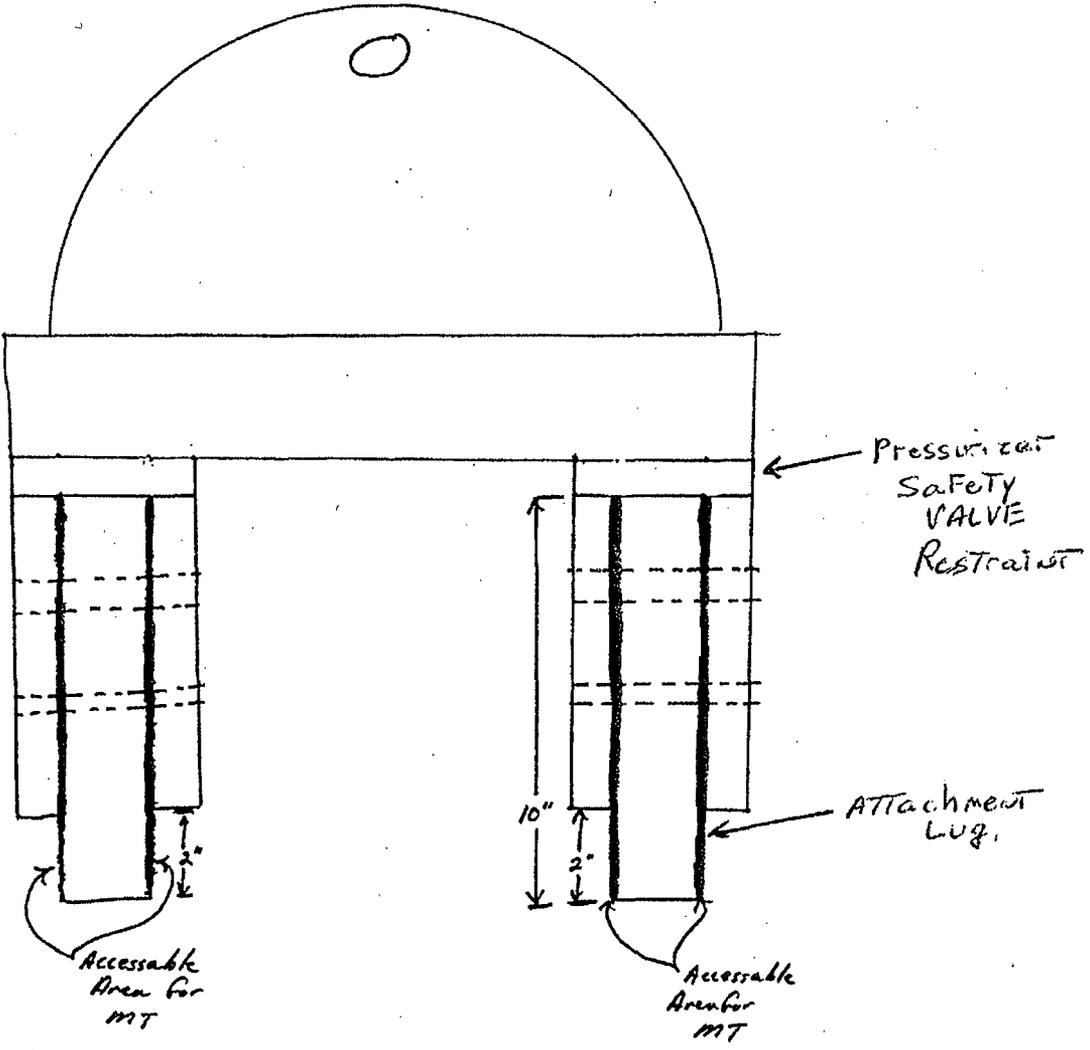
Based upon the surface examination coverage that was obtained with acceptable results and the visual (VT-2) examination performed each refueling outage, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Duration of Proposed Alternative

The relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.







Attachment lug / weld orientation - (8) lugs typical welded on both sides

**ATTACHMENT 5**

**RELIEF REQUEST IR-2-55**

**EXAMINATION CATEGORY C-A**  
**PRESSURE RETAINING WELDS IN PRESSURE VESSELS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Affected

ASME Code Class: Code Class 2  
Examination Category: C-A, Pressure Retaining Welds in Pressure Vessels  
Item Number: C1.20, Head Circumferential Welds  
Component Identification: Weld Number 03-073-008

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Category C-A requires volumetric examination of 100 percent of the weld length as defined in Table IWC-2500-1 and shown in Figure IWC 2500-1. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the welds provided greater than 90 percent of the required volume has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the 100% volumetric examination coverage requirement of the subject welds due to the geometric configuration and permanent obstructions which limit the volumetric examination coverage that can be attained.

The "A" Residual Heat Removal Heat exchanger lower head to shell weld was examined with a manual ultrasonic technique using the best technology available to achieve the maximum examination coverage practicable.

Due to the original design of the heat exchanger, the position of the inlet and outlet nozzle to shell reinforcing plates are in close proximity to the subject head to flange weld limiting the ultrasonic examination coverage from the shell side of the weld.

Coverage calculations and limitation sketches are provided in this attachment.

TABLE 1- Examination Category C-A Welds with Limited Volumetric Coverage

Weld Identification	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
03-073-008	C1.20	"A" RHR Heat Exchanger Lower Head to Shell Weld	Limited accessibility due to the obstruction of the nozzle reinforcement plates. No recordable indications were detected.	79.7

5. Burden Caused by Compliance

To increase examination coverage on the subject welds requires removal of the permanently welded reinforcing plates that are part of the original heat exchanger design or replacement of the heat exchanger with a design that would allow for complete examination coverage of the subject weld. This option to meet the 100 percent code examination requirement is considered impractical due to the cost, increased radiation exposure and impact to plant equipment.

6. Proposed Alternative and Basis for Use

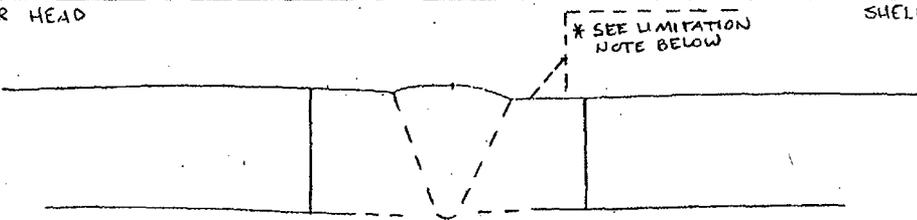
The subject welds received a volumetric examination utilizing the best available techniques on the accessible portions of welds to the extent practical. Additionally, a visual (VT-2) examination is performed during each inspection period during the system leakage tests as required by Section XI, Table IWC-2500-1, Category C-H.

Based upon the examination volumes that were attained with acceptable results along with the visual (VT-2) examination performed each inspection period, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Duration of Proposed Alternative

The relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.



ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14321</u>
System <u>RHS</u>	Percentage of Area Examined <u>79.7</u>
Component ID <u>03-073-008</u>	Examination Data Sheet # _____
Component Description <u>SHELL TO LOWER HEAD</u>	Calibration Data Sheet # _____
Procedure No. <u>MP-XT-2</u> Rev. <u>0</u>	Page _____ of _____
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch Area	
<p>LOWER HEAD</p> 	<p style="text-align: right;">SHELL</p>
<p>45° AXIAL SCAN LOWER HEAD SIDE (2-DIRECTIONAL) <span style="float: right;">100%</span></p> <p>45° AXIAL SCAN SHELL SIDE (2-DIRECTIONAL) <span style="float: right;">* 59.4%</span></p> <p>45° CIRC SCAN LOWER HEAD (CW/CCW) <span style="float: right;">100%</span></p> <p>45° CIRC SCAN SHELL SIDE (CW/CCW) <span style="float: right;">* 59.4%</span></p> <p style="text-align: center;">TOTAL COVERAGE ÷ 4 <span style="float: right;">318.8 ÷ 4 = 79.7%</span></p>	
WELD LENGTH = 125.5"	
<p><b>Examiner Comments</b> * NOTE: SCAN RESTRICTIONS ON SHELL SIDE DUE TO INLET/OUTLET NOZZLE REINFORCING PLATES. NO SHELL SIDE EXAM FROM 50" TO 76" AND 113" TO 125". MEASURED CW LOOKING DOWN ON VESSEL. TOTAL SCAN LIMITATION IS 51", OR 40.6% OF WELD LENGTH. 70° L WAVE EXAM PERFORMED FROM HEAD SIDE AT THESE LOCATIONS FOR OPTIMUM COVERAGE. NO ADDITIONAL COVERAGE CREDITED FOR THE 70° EXAM.</p>	

**ATTACHMENT 6**

**RELIEF REQUEST IR-2-56**

**EXAMINATION CATEGORY C-C**  
**INTEGRAL ATTACHMENTS OF VESSELS, PIPING, PUMPS, AND VALVES**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Affected

ASME Code Class: Code Class 2

Examination Category: C-C, Integral Attachments of Vessels,  
Piping, Pumps, and Valves

Item Numbers: C3.20, Piping

Component Identification: RHS-4-PSR052 pipe support lug attachment  
welds within the Residual Heat Removal System  
(RHS)

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category C-C requires surface examination of essentially 100 percent of the weld length as defined in Table IWB-2500-1 and shown in Figure IWB 2500-5 for the subject welds. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the welds provided greater than 90 percent of the required surface has been examined.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the essentially 100% surface examination coverage requirement of the subject welds due to the geometric configuration and permanent obstructions caused by the pipe support members, which limit the surface examination coverage that can be attained.

The surface examination of the subject welds were performed to the maximum extent practicable with the limitations caused by obstruction of the permanently welded support members and the physical location of the pipe in close proximity to a permanent building wall structure.

The subject attachment welds consist of a set of welds for eight lugs welded to RHS piping pressure boundary to restrict pipe support clamp movement. There are four welded lugs located on each side of the clamp. Each lug is welded on three sides. The examination of the attachment welds for these eight lugs is restricted because access to the welds is limited by permanently welded structural support members and the location of a permanent building wall. The welds associated with four of the eight lugs are completely inaccessible for examination due to the physical location of the support members on the top and bottom of the pipe and the location of the pipe in close proximity to a building wall which prohibits access to one side of the pipe. The welds associated with the remaining four lugs are restricted from examination on one of the three welded sides due to the permanent support members located on the top and bottom of the pipe that abuts these welds. This limits the coverage on each of these four welded lugs to 66 percent each. The aggregate coverage calculated for the set of eight lugs was 33 percent.

The support design drawing is attached for reference.

TABLE 1- Examination Category C-C Welds with Limited Volumetric Coverage

Identification Number	Code Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
RHS-4-PSR052	B8.20	Set of (8) piping lug attachment welds for support RHS-4-PSR052	Limited examination due to the obstruction caused by the permanent support members and building wall. No recordable indications were detected.	33

5. Burden Caused by Compliance

To increase the examination coverage on the subject welds requires removal of the permanent support members by physically cutting the support members apart and replacing the support members by rewelding following the completion of the surface examination. Removal of the permanently welded support members is considered to be impractical based on the increased radiation exposure and impact to plant equipment.

6. Proposed Alternative and Basis for Use

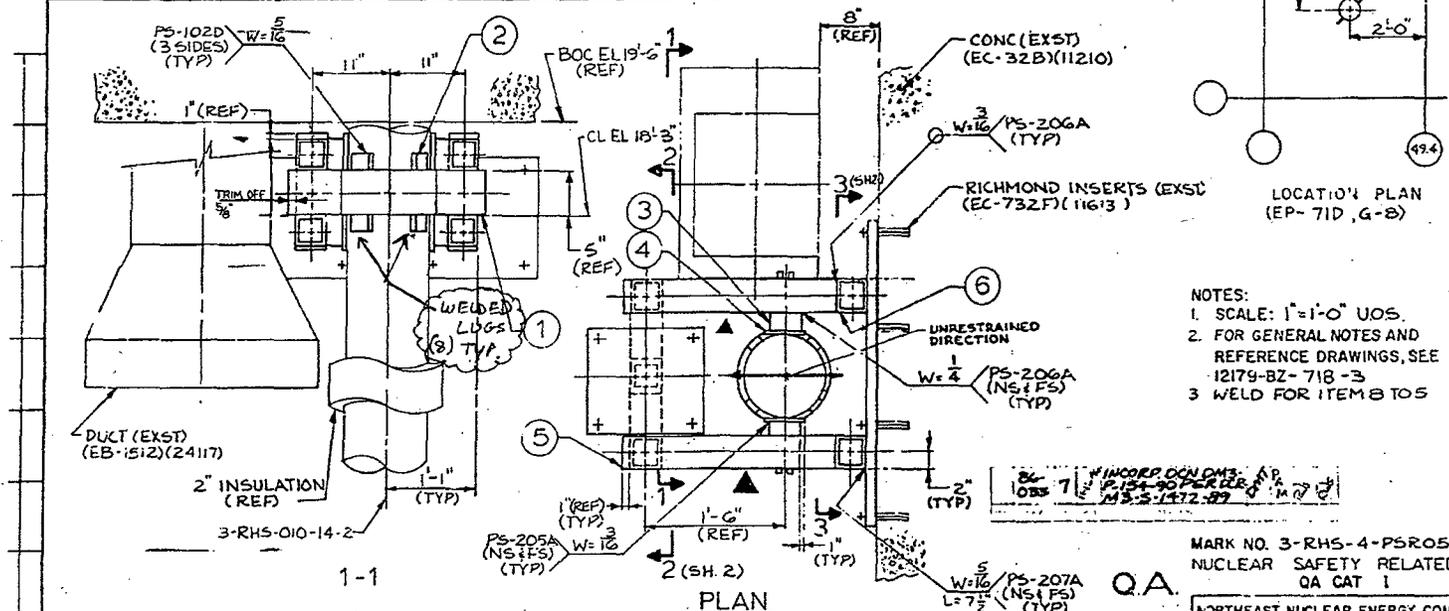
The subject welds received a surface examination utilizing the best available techniques on the accessible portions of welds to the extent practical. Additionally, a visual (VT-2) examination is performed each inspection period on the piping during the system leakage tests as required by Section XI, Table IWB-2500-1, Category C-H.

Based upon the surface examination coverage that was attained with acceptable results and the visual (VT-2) examination performed each inspection period, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Duration of Proposed Alternative

The relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.

STRESS CALC NO.-REV.(PT.NO.)	PIPE MOVEMENT COLD TO HOT (IN.)			HYDROTEST LOAD F <sub>y</sub> (LBS)
	ΔX	ΔY	ΔZ	
12179-NP(6)-X7102-4 (140)	+0.05	+0.01	0.0	



- NOTES:  
 1. SCALE: 1"=1'-0" UOS.  
 2. FOR GENERAL NOTES AND REFERENCE DRAWINGS, SEE 12179-BZ-71B-3  
 3. WELD FOR ITEMS 8 TO 5

MARK NO. 3-RHS-4-PSR052  
 NUCLEAR SAFETY RELATED  
 QA CAT 1

LOADING CONDITION	SUPPORT LOADS					
	F <sub>x</sub> (LBS)	F <sub>y</sub> (LBS)	F <sub>z</sub> (LBS)	M <sub>x</sub> (FT-LBS)	M <sub>y</sub> (FT-LBS)	M <sub>z</sub> (FT-LBS)
NORMAL/UPSET	—	-5220	+5573 -1395	—	—	—
FAULTED (N411)	—	-6122	+5979 -2109	—	—	—

NO.	ISSUE	DESCRIPTION	DATE	BY	CHKD
6	REVISED	REVISED			
5	REVISED	REVISED			
4	REVISED	REVISED			
3	REVISED	REVISED			
2	REVISED	REVISED			
1	ORIGINAL ISSUE				

THE INFORMATION ON THIS DRAWING MAY NOT BE COPIED OR USED FOR OTHER THAN THE CONSTRUCTION MAINTENANCE OR REPAIR OF THE PLANT FACILITY DESCRIBED IN THE TITLE BLOCK

AREAS	LEVELS	WORK PKG
4		

STONE & WEBSTER ENGINEERING CORP.  
 BOSTON, MASS.

NORTHEAST NUCLEAR ENERGY COMPANY  
 DIVISION OF  
 NORTHEAST UTILITIES

TITLE  
 MILLSTONE NUCLEAR POWER  
 STATION-UNIT NO. 3

RESIDUAL HEAT REMOVAL PPG.  
 ESF BLDG  
 PIPE SUPPORT DETAILS

DWG NO  
 25212-22659 54.58A

DWG NO. 12179-BZ-71B-58-7  
 SHEET OF 2

DESIGNED BY BAB DRAWN BY EF  
 DESIGN CHECKED BY DAK CHECKED BY BAE

**ATTACHMENT 7**

**RELIEF REQUEST IR-2-57**

**EXAMINATION CATEGORY C-F-1**  
**PRESSURE RETAINING WELDS IN AUSTENITIC STAINLESS STEEL HIGH**  
**ALLOY PIPING**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Affected

ASME Code Class: Code Class 2

Examination Category: C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel High Alloy Piping

Item Number: 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 2in. and  $\leq$  4 in. - Circumferential welds

Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI 1989 Edition, No Addenda

Austenitic piping welds with single side access subject to ultrasonic examination with Supplement 2 of Appendix VIII to the 1995 Edition with 1996 Addenda of ASME Section XI.

3. Applicable Code Requirement

ASME Section XI, 1989 Edition, Examination Category C-F-1 requires 100 percent volumetric examination coverage for circumferential piping welds as defined in Table IWC-2500-1 and shown in Figure IWC-2500-7. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allows credit for essentially 100 percent coverage of the weld provided greater than 90 percent of the required volume has been examined.

10 CFR 50.55a(b)(2)(xv)(A), requires the following examination coverage criteria when applying Supplement 2 to Appendix VIII:

- (1) Piping must be examined in two axial directions and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available.
- (2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds, full coverage credit from a single side may be claimed only after completing a successful single sided Appendix VIII demonstration using flaws on the opposite side of the weld.

10 CFR 50.55a(b)(2)(xvi)(B), requires that examinations performed from one side of a ferritic or stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. To demonstrate equivalency to the two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and §50.55a(b)(2)(xv)(A).

#### 4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the essentially 100% volumetric examination coverage requirement for austenitic piping welds with single side access.

There are currently no Performance Demonstration Initiative (PDI) qualified single side examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. Current technology is not capable of reliably detecting or sizing flaws on the far side of an austenitic weld for configurations common to US nuclear applications.

PDI Performance Demonstration Qualification Summary (PDQS) certificates for austenitic piping list the limitation that single side examination is performed on a best effort basis. The best effort qualification is provided in place of a complete single side qualification to demonstrate that the examiners qualification and the subsequent weld examination is based on application of the best available technology.

When the examination area is limited to one side of an austenitic weld, examination coverage does not comply with 10 CFR 50.55a(b)(2)(xv)(A) and proficiency demonstrations do not comply with 10 CFR 50.55a(b)(2)(xvi)(B) and full coverage credit may not be claimed.

Based on the configuration limited to single side access, relief is requested for complying with the essentially 100 percent required examination coverage for the following piping welds listed in Table 1. The subject piping welds are located within the Chemical and Volume Control (CHS), Quench Spray (QSS), Residual Heat

Removal (RHS), Containment Recirculation Spray (RSS), High Pressure Safety Injection (SIH) and Low Pressure Safety Injection (SIL) systems. Note that examination coverage listed is that attained during examination with no credit taken for the far side of each weld in which examination from that side could not be performed.

Limitation sketches are provided in this attachment.

Table 1- Limited Examination Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel High Alloy Piping

Weld Number	Code Item Number	Configuration	Limitation and Results	Ultrasonic Examination Coverage (%)
CHS-30-11-SW-E	C5.11	6 " Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
CHS-30-12-SW-B	C5.11	6 " Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	49.5
CHS-30-12-SW-C	C5.11	6" Flange-To-Pipe	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
CHS-30-13-SW-B	C5.11	6" Flange-To-Elbow	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
CHS-507-10-SW-11	C5.21	4" Elbow-to-Tee	Axial Scan limited to 64.7 percent and circ scan limited to 83 percent on the elbow side due to restriction caused by the intrados of the elbow. Axial scan limited to 62.4 percent and circ scan limited to 80 percent on the tee side due to the restriction caused by branch of the tee. Total combined coverage of 72.5 percent. No recordable indications identified.	72.5
CHS-507-FW-19	C5.21	4" Pipe-to-Valve	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	46
QSS-3-4-SW-K	C5.11	12" Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
QSS-3-FW-5BR	C5.11	12" Flange-To-Pipe	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. Additional limitation due to welded support	44

Weld Number	Code Item Number	Configuration	Limitation and Results	Ultrasonic Examination Coverage (%)
			that limits the pipe side axial scan to 72 percent. No recordable indications identified.	
QSS-6-3-SW-D	C5.11	14" Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
QSS-6-4-SW-B	C5.11	14" Flange-To-Elbow	Examination limited to the elbow side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
QSS-6-4-SW-D	C5.11	14" Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. Additional limitation due to a weldolet on the pipe side of the weld limiting the pipe side axial scan to 96.5 percent and circ scan to 97.5 percent. No recordable indications identified.	48.5
RHS-501-FW-6	C5.11	12" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
RHS-502-FW-7	C5.11	12" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
RHS-6-2-SW-K	C5.11	14" Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
RHS-6-FW-4	C5.11	14" Pipe-To-Pump Nozzle	Examination limited to the pipe side only due to taper of the nozzle within close proximity of the weld. No recordable indications identified.	50
RSS-11-2-SW-B	C5.11	16" Flange-To-Elbow	Examination limited to the elbow side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
RSS-1-3-SW-B	C5.11	12" Flange-To-Pipe	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	49.5
RSS-15-3-SW-B	C5.11	12" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
RSS-16-2-SW-B	C5.11	12" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50

Weld Number	Code Item Number	Configuration	Limitation and Results	Ultrasonic Examination Coverage (%)
RSS-19-4-SW-G	C5.11	16" Reducer-To-Nozzle	Examination limited to the reducer side only due to the taper of the nozzle in close proximity of the weld. Additional limitation caused by a weldolet on the reducer side of the weld limiting the axial to 94 percent. No recordable indications identified.	48.5
RSS-21-4-SW-G	C5.11	16" Reducer-To-Flange	Examination limited to the reducer side only due to taper of the flange within close proximity of the weld. Additional limitation caused by a weldolet on the reducer side of the weld limiting the axial to 96 percent. No recordable indications identified.	49
RSS-8-2-SW-R	C5.11	16" Flange-To-Elbow	Examination limited to the elbow side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
SIH-12-3-SW-C	C5.11	6" Pipe-To-Flange	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	49.5
SIH-12-FW-3	C5.11	6" Pipe-To-Valve	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
SIH-4-3-SW-B	C5.21	4" Flange-to-Pipe	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	41
SIL-11-FW-3	C5.11	8" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
SIL-152A-FW-1	C5.11	24" Flange-To-Pipe	Examination limited to the pipe side only due to taper of the flange within close proximity of the weld. No recordable indications identified.	50
SIL-25-FW-1-5M	C5.11	8" Pipe-To-Tee	Axial scan limited to elbow side only due to the taper of the tee within close proximity of the weld. Circumferential scan performed on both the elbow and tee side. No recordable indications identified.	75
SIL-25-FW-1-8M	C5.11	8" Pipe-To-Tee	Axial scan limited to elbow side only due to the taper of the tee within close proximity of the weld. Circumferential scan performed on both the elbow and tee side. No recordable indications identified.	75

Weld Number	Code Item Number	Configuration	Limitation and Results	Ultrasonic Examination Coverage (%)
SIL-25-FW-2	C5.11	8" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. Additional limitation due to a weldolet on the pipe side of the weld limiting the pipe side axial scan to 90 percent and circ scan to 90 percent. No recordable indications identified.	45
SIL-25-FW-3	C5.11	8" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50
SIL-40-FW-1	C5.11	6" Valve-To-Pipe	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. Recordable indications identified and evaluated as acceptable ID Geometry.	50
SIL-9-FW-1	C5.11	6" Pipe-To-Valve	Examination limited to the pipe side only due to taper of the valve within close proximity of the weld. No recordable indications identified.	50

5. Burden Caused by Compliance

Compliance with code requirements requires extensive modification or replacement of components with a design that allows examination from both sides of the weld. This option to meet the required 100 percent volume examination coverage is considered impractical based on the cost, additional radiation exposure and impact to plant equipment.

6. Proposed Alternative and Basis for Use

The subject welds received a volumetric examination to the maximum extent practical utilizing the best available techniques, as qualified through the Performance Demonstration Initiative (PDI) for Supplement 2 with demonstrated best effort for single sided examination, from the accessible side of the weld. Additionally, a visual (VT-2) examination is performed each inspection period during the system leakage tests as required by Section XI, Table IWC-2500-1, Category C-H.

Based on the volumetric examination coverage attained with acceptable results and the visual (VT-2) examination performed each inspection period, it is reasonable to conclude that service induced degradation would be detected. Therefore, these

proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Period for Which Relief is Requested

The relief is requested for examinations performed during the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.

ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-06-13090</u>
System <u>CHS / ZONE 093</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>CHS-30-11-SW-E</u>	Examination Data Sheet # <u>311-01-118</u>
Component Description <u>PIPE- FLANGE</u>	Calibration Data Sheet # <u>311-01-118</u>
Procedure No. <u>QA-NET-A-502</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch / Area	
PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
TOTAL COVERAGE = 4	<u>200 ÷ 4 = 50%</u>
Examiner Comments <u>EXAMINED FROM PIPE SIDE ONLY DUE TO FLANGE.</u>	

ATTACHMENT 1

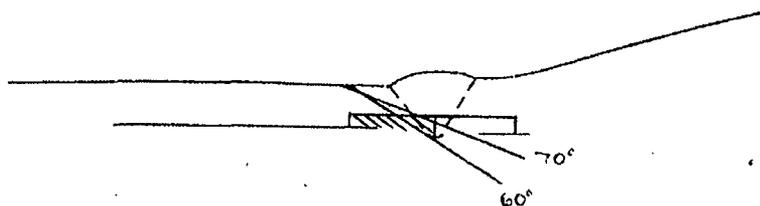
COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-06-13090</u>
System <u>CHS / ZONE 093</u>	Percentage of Area Examined <u>49.50%</u>
Component ID <u>CHS-30-13-SW-B</u>	Examination Data Sheet # <u>311-01-119</u>
Component Description <u>PIPE- FLANGE</u>	Calibration Data Sheet # <u>311-01-119</u>
Procedure No. <u>ER-AA-NDE-UT-302</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

PIPE

FLANGE



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	98%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
TOTAL COVERAGE = 4	$198 \div 4 = 49.5\%$

Examiner Comments NO EXAM ON DOWNSTREAM SIDE DUE TO FLANGE

---



---



---



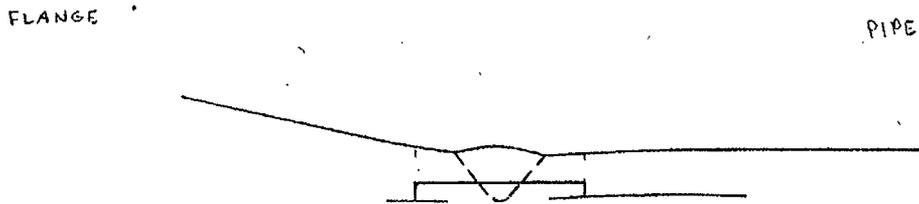
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-06-13090</u>
System <u>CHS / ZONE 93</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>CHS-30-13-SW-C</u>	Examination Data Sheet # <u>311-01-120</u>
Component Description <u>FLANGE-PIPE</u>	Calibration Data Sheet # <u>311-01-120</u>
Procedure No. <u>ER-AA-NSE-UT-807</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
<hr/>	
TOTAL COVERAGE ÷ 4	$200 \div 4 = 50\%$

Examiner Comments EXAMINED FROM PIPE SIDE ONLY DUE TO FLANGE.

---



---



---



---

ATTACHMENT 1

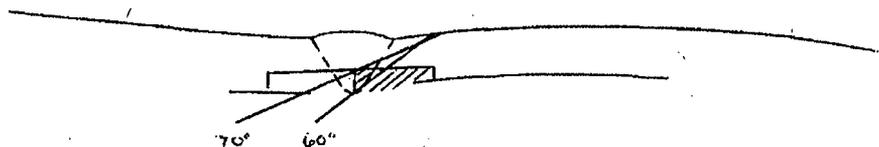
COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-06-13090</u>
System <u>CHS / ZONE 093</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>CHS-30-13-SW-B</u>	Examination Data Sheet # <u>311-01-121</u>
Component Description <u>FLANGE - ELBOW</u>	Calibration Data Sheet # <u>311-01-121</u>
Procedure No. <u>FR-AA-NDE-UT-802</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

FLANGE

ELBOW



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
<hr/>	
TOTAL COVERAGE = 4	$200 \div 4 = 50\%$

Examiner Comments EXAMINED FROM PIPE SIDE ONLY DUE TO FLANGE.

---



---



---



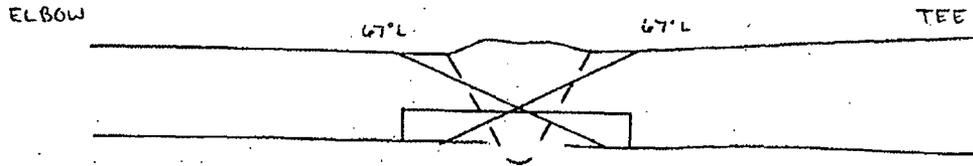
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-02-08298</u>
System <u>CHS</u>	Percentage of Area Examined <u>72.5%</u>
Component ID <u>CHS-507-10-SW-11</u>	Examination Data Sheet # _____
Component Description <u>ELBOW - TEE</u>	Calibration Data Sheet # _____
Procedure No. <u>MP-XT-2</u> Rev <u>0</u>	Page <u>8</u> of <u>8</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



ELBOW  
 AXIAL SCAN PIPE SIDE (67" L) = 78%  
 MULTIPLY 78% BY 83% TO ACCOUNT FOR US LIMITATION = 64.7%  
 AXIAL SCAN TEE SIDE (67" L) = 78%  
 MULTIPLY BY 70% BY 80% TO ACCOUNT FOR DS LIMITATION = 62.4%  
 CIRC SCAN ELBOW SIDE WITH SCAN LIMITATION = 83%  
 CIRC SCAN TEE SIDE WITH SCAN LIMITATION = 80%  
 TOTAL COVERAGE ÷ 4 = 72.5%

Examiner Comments SEE EXAM DATA SHEET FOR SCAN LIMITATION DATA.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ATTACHMENT 1

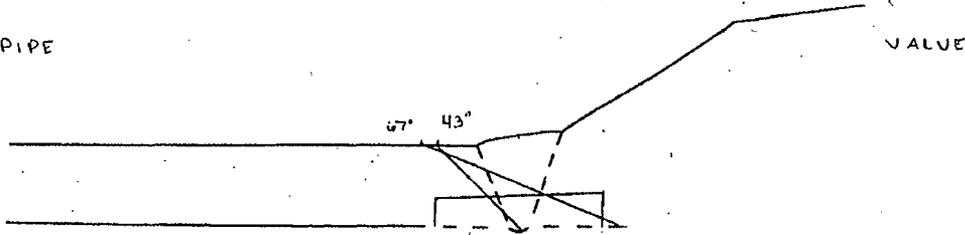
COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u>	Unit <u>3</u>	AWO Number <u>M3-02-08298</u>
System <u>CHS</u>		Percentage of Area Examined <u>46%</u>
Component ID <u>CHS-507-FW-19</u>		Examination Data Sheet # _____
Component Description <u>PIPE-VALVE</u>		Calibration Data Sheet # _____
Procedure No. <u>MP-XT-2</u>	Rev <u>0</u>	Page <u>6</u> of <u>6</u>
Calculation Type	Surface <input type="checkbox"/>	Volumetric <input checked="" type="checkbox"/>

Coverage Calculation / Equation / Sketch Area

PIPE

VALVE



AXIAL SCAN PIPE SIDE (70°)	84%
AXIAL SCAN VALVE SIDE (70°)	0%
CIRC SCAN PIPE SIDE (45° SH)	100%
CIRC SCAN VALVE SIDE (45° SH)	0%
TOTAL COVERAGE ÷ 4	184 ÷ 4 = 46%

Examiner Comments N/A

---



---



---



---



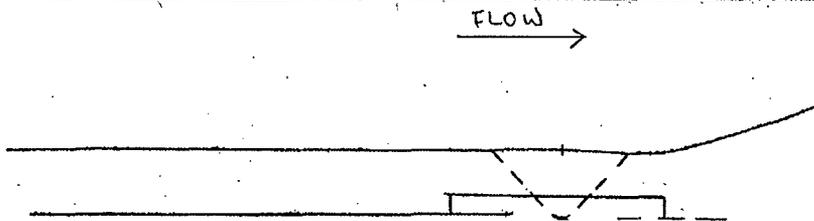
---

**ATTACHMENT 1**

**COVERAGE CALCULATION DATA SHEET**

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>QSS ZONE 97</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>QSS-3-4-SW-K</u>	Examination Data Sheet # <u>309-01-116</u>
Component Description <u>PIPE-FLANGE</u>	Calibration Data Sheet # <u>309-01-116</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>00-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

**Coverage Calculation / Equation / Sketch Area**



UPST CIRC SCAN	100%
DNST CIRC SCAN	0%
UPST AXIAL SCAN	100%
DNST AXIAL SCAN	0%
TOTAL = 4	$200 \div 4 = 50\%$

Examiner Comments 1-SIDED EXAM DUE TO FLANGE CONFIGURATION

---



---



---



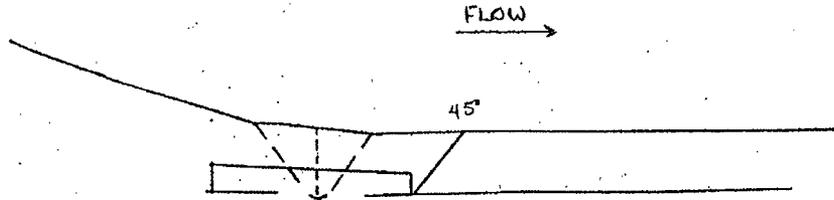
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>QSS / ZONE 97</u>	Percentage of Area Examined <u>44%</u>
Component ID <u>QSS-3-FW-5-BR</u>	Examination Data Sheet # <u>309-01-118</u>
Component Description <u>VALVE - PIPE</u>	Calibration Data Sheet # <u>309-01-118</u>
Procedure No. <u>MP-ADT-UT-2</u> Rev <u>000-02</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST CIRC SCAN	0%
DNST CIRC SCAN	100%
UPST AXIAL SCAN	0%
DNST AXIAL SCAN	* 72%
TOTAL = 4	$17.2 \div 4 = 44\%$

\* TOTAL WELD LENGTH OF 41" MINUS WELDED SUPPORT SCAN LIMITATION OF 11.6" EQUALS 72% TOTAL DNST <sup>AXIAL</sup> CIRC SCAN COVERAGE.

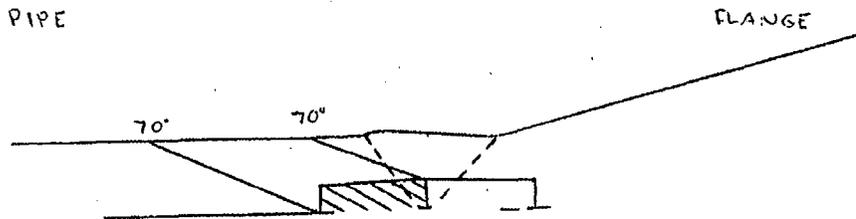
Examiner Comments L SIDED EXAM DUE TO VALVE FLANGE ON UPST SIDE. DNST AXIAL SCAN LIMITED FROM -2.9" TO +2.9" AND 17.2" TO 23.0" DUE TO WELDED SUPPORT.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>QSS/ZONE 096</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>QSS-6-3-SW-D</u>	Examination Data Sheet # <u>311-01-123</u>
Component Description <u>PIPE-FLANGE</u>	Calibration Data Sheet # <u>311-01-123</u>
Procedure No. <u>EP-AA-NDE-UT-802</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
TOTAL COVERAGE ÷ 4	$200 \div 4 = 50\%$

Examiner Comments NO SCAN FROM FLANGE SIDE DUE TO CONFIGURATION.

---



---



---



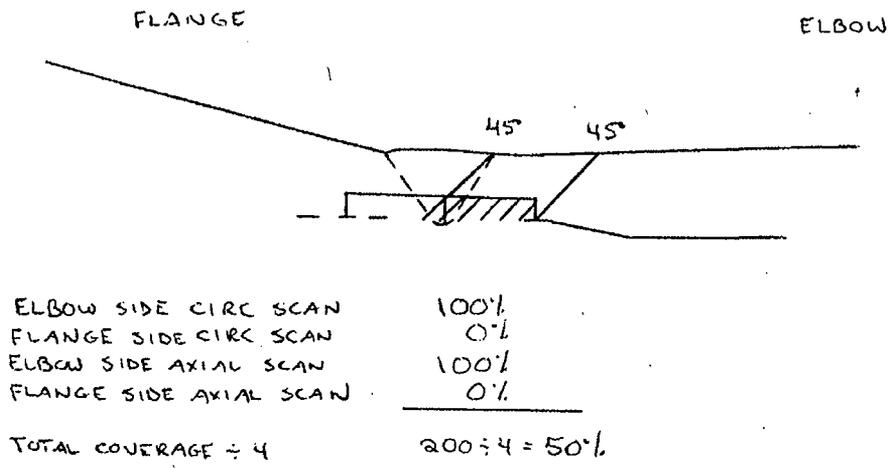
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>QSS/ZONE 094</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>QSS-6-4-SW-B</u>	Examination Data Sheet # <u>311-01-124</u>
Component Description <u>FLANGE-ELBOW</u>	Calibration Data Sheet # <u>311-01-124</u>
Procedure No. <u>ER-AANDF-UT-802</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



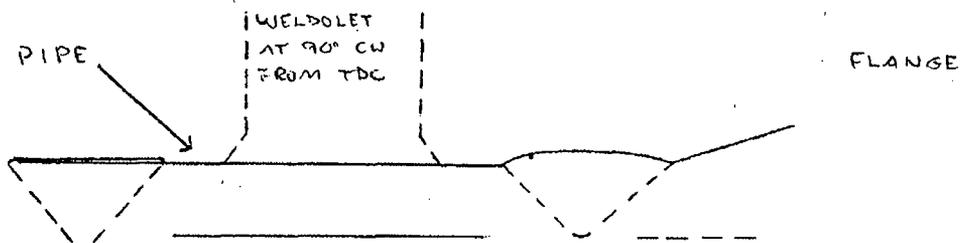
Examiner Comments NO SCAN FROM FLANGE SIDE DUE TO CONFIGURATION,  
70° AXIAL SCAN PERFORMED FOR FAR SIDE COVERAGE - PERFORMED 45° AXIAL  
CIRC SCANS.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>QSS</u>	Percentage of Area Examined <u>48.5%</u>
Component ID <u>QSS-6-4-SW-D</u>	Examination Data Sheet # <u>311-01-126</u>
Component Description <u>PIPE-FLANGE</u>	Calibration Data Sheet # <u>311-01-126</u>
Procedure No. <u>ER-AA-NDE-WT-802</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



PIPE SIDE CIRC SCAN	97.5%
PIPE SIDE AXIAL SCAN	96.5%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
TOTAL COVERAGE ÷ 4	$194 \div 4 = 48.5\%$

Examiner Comments PIPE SIDE WELDOLET RESTRICTING 60° CIRC & 70° AXIAL SCANS.  
60° CIRC SCAN LIMITED FROM 11" TO 12". 70° AXIAL SCAN LIMITED FROM 10.75" TO 12.25".  
WELD LENGTH MEASURED 44.75" - NO EXAM FROM FLANGE SIDE DUE TO  
CONFIGURATION.

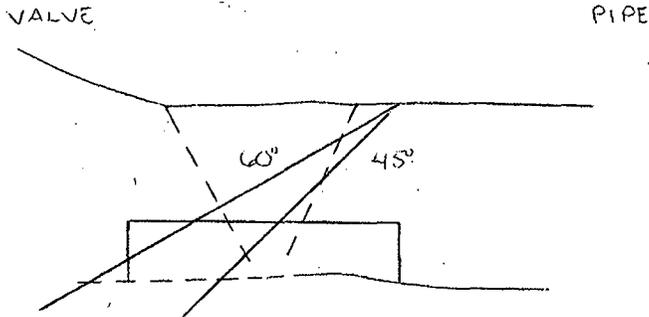
ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>N/A</u>
System <u>RHS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RHS-501-FW-6</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>VALVE-PIPE</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-XT-2</u> Rev <u>000-01</u>	Page <u>1</u> of <u>1</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch Area	
VALVE	PIPE
PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
VALVE SIDE CIRC SCAN	0%
VALVE SIDE AXIAL SCAN	0%
TOTAL COVERAGE $\frac{1}{4}$	$200\% \div 4 = 50\%$
<b>Examiner Comments</b> <u>1-SIDED EXAM DUE TO VALVE CONFIGURATION. PROFILE DATA OBTAINED FROM PREVIOUS EXAM DATA OBTAINED ON 5/3/95. EXAM DATA USED FOR THIS CALCULATION WAS OBTAINED FROM PREVIOUS EXAM DATA ON 10/5/05</u>	

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u>	Unit <u>3</u>	AWO Number <u>N/A</u>
System <u>RHS</u>		Percentage of Area Examined <u>50%</u>
Component ID <u>RHS-502-FW-7</u>		Examination Data Sheet # <u>N/A</u>
Component Description <u>VALVE-PIPE</u>		Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-XT-2</u>	Rev <u>000-01</u>	Page <u>1</u> of <u>1</u>
Calculation Type	Surface <input type="checkbox"/>	Volumetric <input checked="" type="checkbox"/>

Coverage Calculation / Equation / Sketch Area



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
VALVE SIDE CIRC SCAN	0%
VALVE SIDE AXIAL SCAN	0%
<b>TOTAL COVERAGE</b>	<b>200% ÷ 4 = 50%</b>

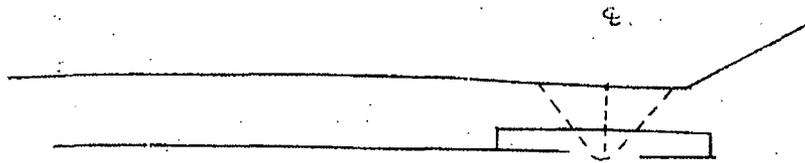
Examiner Comments 1-SIDED EXAM DUE TO VALVE CONFIGURATION. PROFILE DATA OBTAINED FROM PREVIOUS EXAM DATA ON 4/29/95. UT EXAM DATA USED FOR THIS CALCULATION WAS OBTAINED ON 10/5/05.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>RHS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RHS-6-2-SW-K</u>	Examination Data Sheet # <u>309-01-139</u>
Component Description <u>PIPE-FLANGE</u>	Calibration Data Sheet # <u>309-01-139</u>
Procedure No <u>MP-FDET-2</u> Rev <u>000-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST AXIAL SCAN = 100%  
UPST CIRC SCAN = 100%  
DNST AXIAL SCAN = 0%  
DNST CIRC SCAN = 0%  
TOTAL = 4 = 50%

200%  
= 4 = 50%

PIPE → FLANGE

Examiner Comments N/A SCANNED ACROSS WELD FOR OPTIMUM COVERAGE

---



---



---



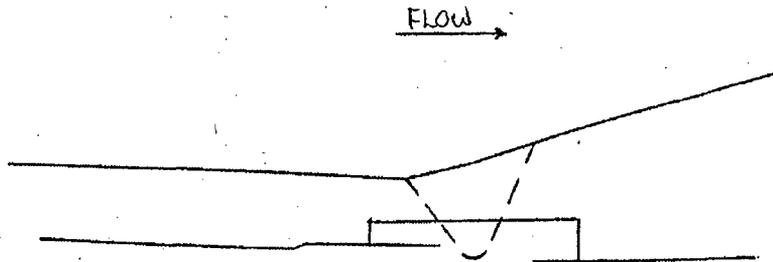
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>RHS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RHS-6-FW-4</u>	Examination Data Sheet # <u>309-01-141</u>
Component Description <u>PIPE - PUMP</u>	Calibration Data Sheet # <u>309-01-141</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>000-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST	CIRC SCAN	100%
DNST	CIRC SCAN	0%
UPST	AXIAL SCAN	100%
DNST	AXIAL SCAN	0%
TOTAL ÷ 4		$200 \div 4 = 50\%$

Examiner Comments NO SCAN FROM DNST (PUMP) SIDE DUE TO CONFIGURATION

---



---



---



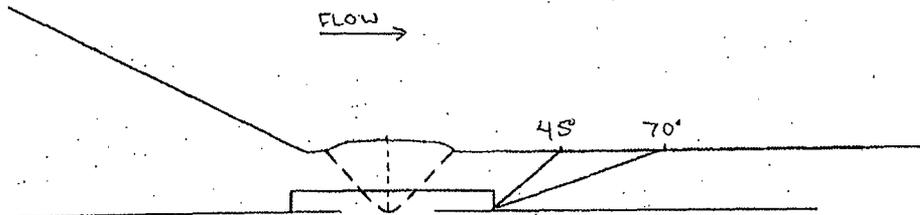
---

**ATTACHMENT 1**

**COVERAGE CALCULATION DATA SHEET**

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>RSS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RSS-112-SW-B</u>	Examination Data Sheet # <u>309-01-144</u>
Component Description <u>FLANGE-ELBOW</u>	Calibration Data Sheet # <u>309-01-144</u>
Procedure No. <u>MR-PDI-UT-2</u> Rev <u>000-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

**Coverage Calculation / Equation / Sketch Area**



UPST SIDE CIRC SCAN	0%
DNST SIDE CIRC SCAN	100%
UPST SIDE AXIAL SCAN	0%
DNST SIDE AXIAL SCAN	100%
TOTAL ÷ 4	$200 \div 4 = 50\%$

**Examiner Comments** NO SCAN FROM UPST SIDE DUE TO FLANGE CONFIGURATION:

---



---



---



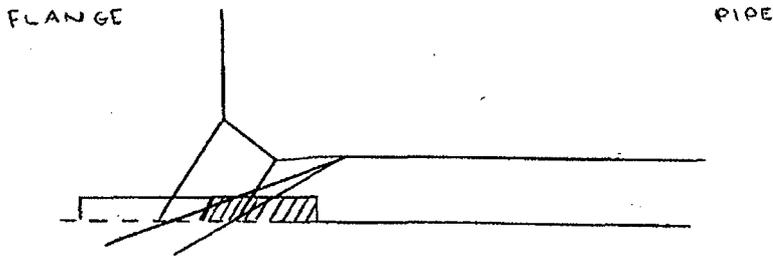
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>RSS / ZONE 102</u>	Percentage of Area Examined <u>49.5%</u>
Component ID <u>RSS-13-SW-0</u>	Examination Data Sheet # <u>311-01-135</u>
Component Description <u>FLANGE-PIPE</u>	Calibration Data Sheet # <u>311-01-135</u>
Procedure No. <u>ER-AA-ND-UT-82</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	96%
<b>TOTAL COVERAGE ÷ 4</b>	<b>198 ÷ 4 = 49.5%</b>

Examiner Comments NO EXAM FROM FLANGE SIDE DUE TO CONFIGURATION.

---



---



---



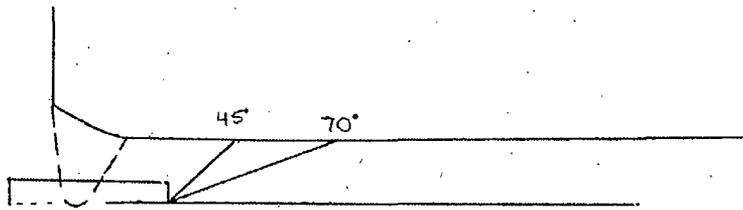
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>RSS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RSS-15-3-SW-B</u>	Examination Data Sheet # <u>309-01-146</u>
Component Description <u>VALVE-PIPE</u>	Calibration Data Sheet # <u>309-01-146</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>000-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST. CIRC SCAN	0%
DNST. CIRC SCAN	100%
UPST. AXIAL SCAN	0%
DNST. AXIAL SCAN	100%
TOTAL=4	$200 \div 4 = 50\%$

Examiner Comments NO EXAM FROM VALVE SIDE DUE TO CONFIGURATION.

---



---



---



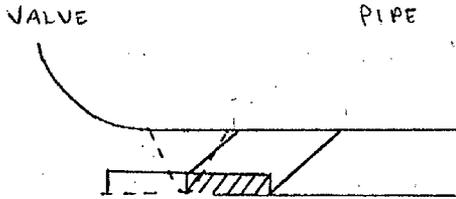
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>RSS / ZONE 100</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RSS-16-2-SW-B</u>	Examination Data Sheet # <u>311-01-130</u>
Component Description <u>VALVE - PIPE</u>	Calibration Data Sheet # <u>311-01-130</u>
Procedure No. <u>EE-AA-NDE-UT-802 Rev 0</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST SIDE	CIRC SCAN	0%
UPST SIDE	AXIAL SCAN	0%
DNST SIDE	CIRC SCAN	100%
DNST SIDE	AXIAL SCAN	100%
TOTAL %		$200\% \div 4 = 50\%$

Examiner Comments NO SCAN FROM VALVE SIDE DUE TO CONFIGURATION

---



---



---



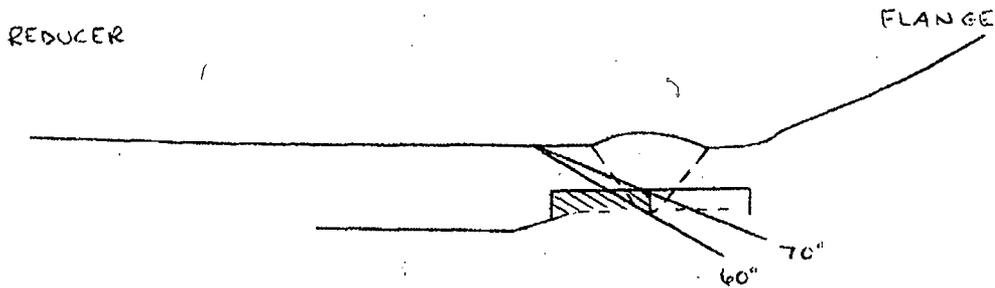
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>RSS / ZONE 101</u>	Percentage of Area Examined <u>48.5%</u>
Component ID <u>RSS-19-4-SW-G</u>	Examination Data Sheet # <u>311-01-134</u>
Component Description <u>REDUCER-FLANGE</u>	Calibration Data Sheet # <u>311-01-134</u>
Procedure No. <u>ER-AA-NDE-UT-802 Rev 0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST CIRC SCAN	100%
UPST AXIAL SCAN	94%
DNST CIRC SCAN	0%
DNST AXIAL SCAN	0%
TOTAL = 4 =	194 ÷ 4 = 48.5%

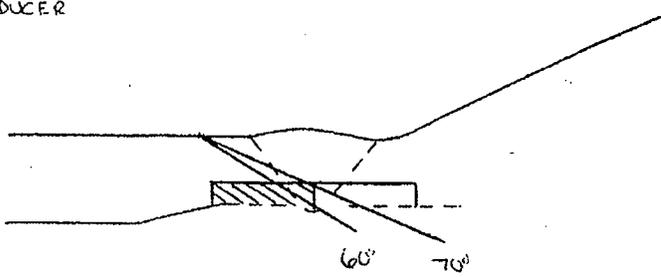
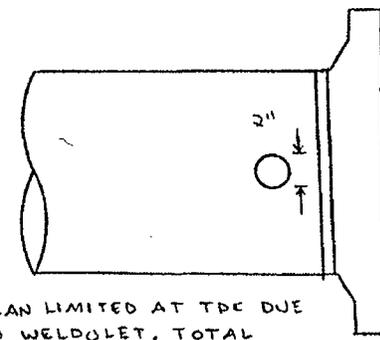
Examiner Comments NO EXAM FROM FLANGE SIDE DUE TO CONFIGURATION. 60° & 70°  
AXIAL SCANS LIMITED ON REDUCER SIDE DUE TO WELDOLET AT IDC. NO AXIAL  
SCAN FROM -1.5" TO +1.5". (495" WELD LENGTH - 3" = 46.5" SCANNED = 94%)

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>RSS / ZONE 100</u>	Percentage of Area Examined <u>48% 49%</u>
Component ID <u>RSS-21-4-SW-G</u>	Examination Data Sheet # <u>311-01-133</u>
Component Description <u>REDUCER-FLANGE</u>	Calibration Data Sheet # <u>311-01-133</u>
Procedure NOE- <u>AA-NOE-UT-202</u> Rev <u>0</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

<p>REDUCER</p> 	<p>FLANGE</p> 										
<table border="0"> <tr> <td>UPST CIRC SCAN</td> <td>100%</td> </tr> <tr> <td>UPST AXIAL SCAN</td> <td>96%</td> </tr> <tr> <td>DNST CIRC SCAN</td> <td>0%</td> </tr> <tr> <td>DNST AXIAL SCAN</td> <td>0%</td> </tr> <tr> <td>TOTAL ÷ 4</td> <td><math>196 \div 4 = 49\%</math></td> </tr> </table>	UPST CIRC SCAN	100%	UPST AXIAL SCAN	96%	DNST CIRC SCAN	0%	DNST AXIAL SCAN	0%	TOTAL ÷ 4	$196 \div 4 = 49\%$	<p>* SCAN LIMITED AT TDC DUE TO WELDLET, TOTAL LIMITATION IS 2" OF 49.5" OF TOTAL WELD LENGTH. 96% SCAN COVERAGE ACHIEVED.</p>
UPST CIRC SCAN	100%										
UPST AXIAL SCAN	96%										
DNST CIRC SCAN	0%										
DNST AXIAL SCAN	0%										
TOTAL ÷ 4	$196 \div 4 = 49\%$										

Examiner Comments NO SCAN FROM DOWNSTREAM SIDE DUE TO FLANGE.

---



---



---



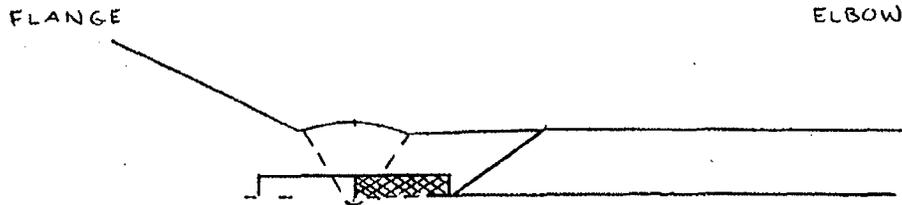
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-02-08774</u>
System <u>RSS / ZONE 100</u>	Percentage of Area Examined: <u>50%</u>
Component ID <u>RSS-8-2-SW-R</u>	Examination Data Sheet # <u>310-01-107</u>
Component Description <u>FLANGE- ELBOW</u>	Calibration Data Sheet # <u>310-01-107</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>000-03</u>	Page <u>4</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
ELBOW SIDE CIRC SCAN	100%
ELBOW SIDE AXIAL SCAN	100%
TOTAL COVERAGE ÷ 4	$200 \div 4 = 50\%$

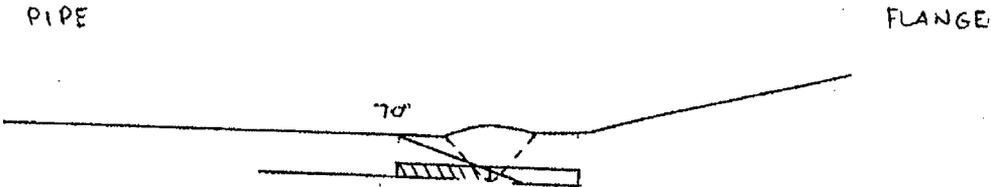
Examiner Comments NO SCAN FROM FLANGE SIDE DUE TO CONFIGURATION.  
70° AXIAL SCAN PERFORMED FOR SUPPLEMENTAL COVERAGE ON FAR SIDE.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>SIH / ZONE 090</u>	Percentage of Area Examined <u>49.5%</u>
Component ID <u>SIH-12-3-SW-C</u>	Examination Data Sheet # <u>311-01-109</u>
Component Description <u>PIPE-FLANGE</u>	Calibration Data Sheet # <u>311-01-109</u>
Procedure No. <u>FR-AA-NDE-UT-802</u> Rev <u>0</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	70%
FLANGE SIDE CIRC SCAN	0%
FLANGE SIDE AXIAL SCAN	0%
TOTAL COVERAGE ÷ 4	$198 \div 4 = 49.5\%$

Examiner Comments NO SCAN FROM FLANGE SIDE DUE TO CONFIGURATION

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-04-07805</u>
System <u>SIH / ZONE 090</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>SIH-12-FW-3</u>	Examination Data Sheet # <u>311-01-111</u>
Component Description <u>VALVE - PIPE</u>	Calibration Data Sheet # <u>311-01-111</u>
Procedure No. _____ Rev _____	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area

VALVE

PIPE



VALVE SIDE CIRC SCAN	0%
VALVE SIDE AXIAL SCAN	0%
<del>PIPE</del> PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
TOTAL COVERAGE $\frac{200}{4}$	$200 \div 4 = 50\%$

Examiner Comments NO SCAN FROM VALVE SIDE DUE TO CONFIGURATION.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

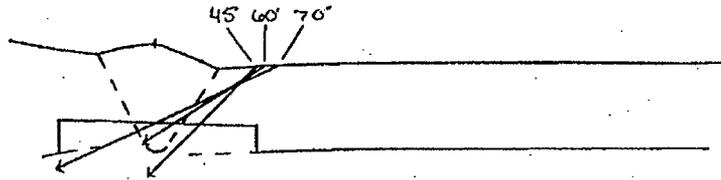
\_\_\_\_\_

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-02-08298</u>
System <u>SIH</u>	Percentage of Area Examined <u>41%</u>
Component ID <u>SIH-4-3-SW-B</u>	Examination Data Sheet # _____
Component Description <u>4" FLANGE - PIPE</u>	Callibration Data Sheet # _____
Procedure No. <u>MP-KT-2</u> Rev <u>0</u>	Page <u>10</u> of <u>10</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



COVERAGE CALCULATION USING SCAN ANGLE OF MAX COVERAGE :

SCAN 1	70° AXIAL SCAN FROM PIPE SIDE	64%
SCAN 2	AXIAL SCAN FROM FLANGE SIDE	0%
SCAN 3	45°/60° CIRC SCAN FROM PIPE SIDE	100%
SCAN 4	CIRC SCAN FROM FLANGE SIDE	0%
TOTAL COVERAGE ÷ 4		164% ÷ 4 = 41%

Examiner Comments \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

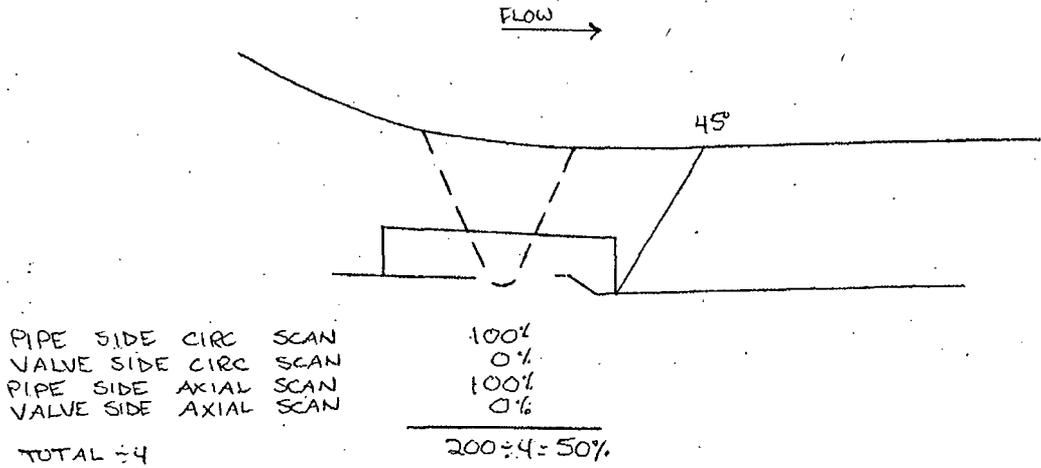
\_\_\_\_\_

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-01-14322</u>
System <u>SIL</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>SIL-11-FW-3</u>	Examination Data Sheet # <u>309-01-154</u>
Component Description <u>VALVE-PIPE</u>	Calibration Data Sheet # <u>309-01-154</u>
Procedure No. <u>MP-PX-UT-2</u> Rev <u>000-01</u>	Page <u>5</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



Examiner Comments NO SCAN ON UPST. (VALVE) SIDE DUE TO CONFIGURATION.

---



---



---



---

Millstone Unit 3

Ultrasonic Examination Sketch Sheet

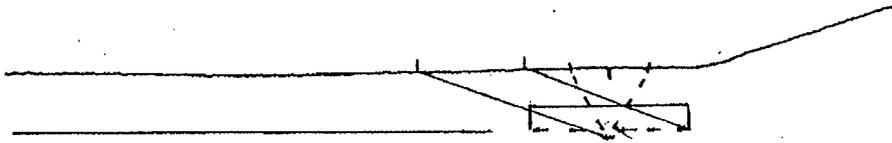
Reference ID: <u>SIL-152A-FW-1</u>	Data Pkg.: <u>312-01-026</u>	Page: <u>3</u> of <u>6</u>
------------------------------------	------------------------------	----------------------------

Sketch Area

Pipe

Flow →

Flange



UPST Axial scan = 100% 70°  
UPST Circ scan = 100% 60°  
DNST Axial scan = 0%  
DNST Circ scan = 0%  

---

Total coverage = 50%

Comments:

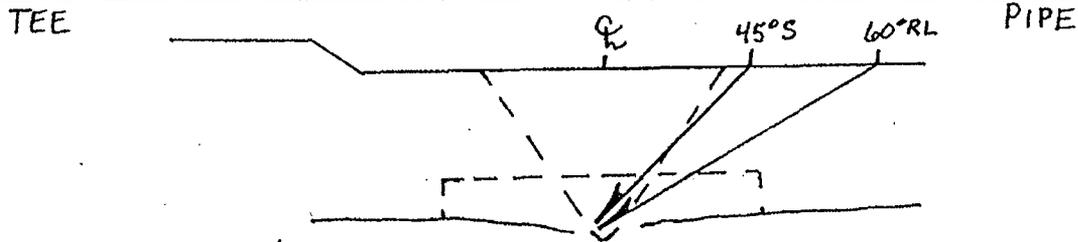
<p>single sided exam due to flange</p>
--

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant MILLSTONE Unit 3 AWO Number M3-04-11778  
System SI Percentage of Area Examined 75%  
Component ID SIL-25-FW-1-5M Examination Data Sheet # 310-01-081  
Component Description PIPE TO 8x8x8" TEE Calibration Data Sheet # 310-01-081  
Procedure No. MP-PDT-UT-2 Rev 000-03 Page 3 of 3  
Calculation Type Surface  Volumetric

Coverage Calculation / Equation / Sketch Area



UPST. CIRC SCANS 100%  
DNST. CIRC SCANS 100%  
UPST. AX SCANS 100%  
DNST. AX SCANS 0%  
TOTAL % OF SCANS 300%  
OF POSSIBLE 400%  
 $300 \div 400 = 75\%$  TOTAL COVERAGE ACHIEVED

Examiner Comments THICKNESS AND CONTOUR TAKEN FROM PREVIOUS DATA, DATED; 5/2/95

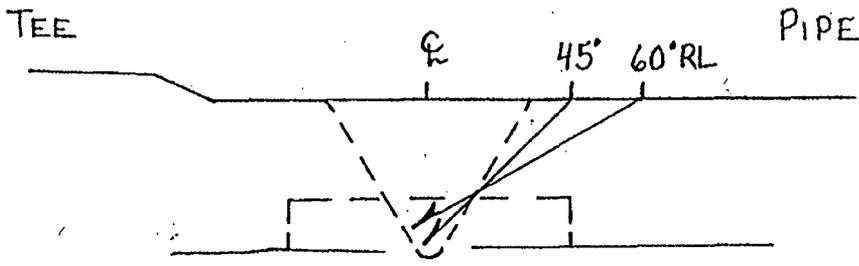
ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

02 10/15/05

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-<del>04</del>-11778</u>
System <u>SAFETY INJECTION</u>	Percentage of Area Examined <u>75%</u>
Component ID <u>SIL-25-FW-18M</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>8" X 8" X 8" TEE TO PIPE</u>	Calibration Data Sheet # <u>310-01-084</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>000-03</u>	Page <u>3</u> of <u>3</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



UPST. CIRC SCANS	<u>100%</u>
DNST. CIRC SCANS	<u>100%</u>
UPST. AX SCANS	<u>0%</u>
DNST. AX SCANS	<u>100%</u>
TOTAL OF SCANS	<u>300%</u>
OF POSSIBLE 400%	
$300 \div 400 = 75\%$ TOTAL COVERAGE ACHIEVED	

Examiner Comments THICKNESS AND CONTOUR TAKEN FROM PREVIOUS DATA, DATED: 5/2/95

ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number _____
System <u>SIL</u>	Percentage of Area Examined <u>45%</u>
Component ID <u>SIL-25-FW-2</u>	Examination Data Sheet # _____
Component Description <u>PIPE-VALVE</u>	Calibration Data Sheet # _____
Procedure No. <u>MP-XT-2</u> Rev <u>000-01</u>	Page _____ of _____
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch Area	
PIPE	VALVE
PIPE SIDE CIRC SCAN PIPE SIDE AXIAL SCAN VALVE SIDE CIRC SCAN VALVE SIDE AXIAL SCAN	90% * 90% * 0% 0%
TOTAL COVERAGE $\div 4$ $180\% \div 4 = 45\%$	
<b>Examiner Comments</b> * EXAM LIMITED FROM 1 1/2" TO 1 3/4" DUE TO WELD JOINT ON WELD. TOTAL LIMITATION IS 2.75", OR 10% OF TOTAL WELD LENGTH. THEREFORE, PIPE SIDE AXIAL & CIRC SCAN COVERAGE IS 90% FOR EACH SCAN. PROFILE AND LIMITATION DATA OBTAINED FROM PREVIOUS DATA OBTAINED 5/2/95. UT EXAM DATA USED FOR THIS CALCULATION WAS OBTAINED FROM PREVIOUS DATA ON 10/5/05.      1-SIDED EXAM DUE TO VALVE CONFIGURATION	

ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>N/A</u>
System <u>SIL</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>SIL-25-FW-3</u>	Examination Data Sheet # <u>N/A</u>
Component Description <u>PIPE - VALVE</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-KT-2</u> Rev <u>000-01</u>	Page <u>1</u> of <u>1</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch Area	
PIPE	VALVE
PIPE SIDE CIRC SCAN      100% PIPE SIDE AXIAL SCAN      100% VALVE SIDE CIRC SCAN      0% VALVE SIDE AXIAL SCAN      0%	
<hr/> TOTAL COVERAGE ÷ 4      200% ÷ 4 = 50%	
Examiner Comments <u>1-SIDED EXAM DUE TO CONFIGURATION. PROFILE DATA OBTAINED FROM PREVIOUS EXAM DATA ON 5/1/95. UT EXAM DATA USED FOR THIS CALCULATION WAS OBTAINED FROM PREVIOUS EXAM DATA ON 10/5/05.</u>	

ATTACHMENT 1	
COVERAGE CALCULATION DATA SHEET	
Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>01-17214</u>
System <u>SIL</u>	Percentage of Area Examined <u>75%</u>
Component ID <u>SIL-801-514-40-65-5-RF</u>	Examination Data Sheet # <u>Page 4</u>
Component Description <u>VALVE TO PIPE</u>	Calibration Data Sheet # <u>308-01-055</u>
Procedure No. <u>MP-XT-2</u> Rev <u>000</u>	Page <u>6</u> of <u>6</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	
Coverage Calculation / Equation / Sketch Area	
<p>TOTAL</p> <p>L = 21"</p> <p>W = 1.3"</p> <p>H = .24"</p> <p>VOLUME = 6.55IN<sup>3</sup></p>	<p>SCAN 1</p> <p>L = 21"</p> <p>W = .65"</p> <p>H = .24"</p> <p>3.28IN<sup>3</sup></p>
	<p>SCAN 2</p> <p>L = 21"</p> <p>W = .65"</p> <p>H = .24"</p> <p>3.28IN<sup>3</sup></p>
Examiner Comments <u>Pl. III 9/15/02</u>	
<u>SCAN 1 - 50% 0% U.S. SCAN (BOUNCE)</u>	
<u>SCAN 2 - 50% 100% D.S. SCAN</u>	
<u>SCAN 3 - 100% C.W. SCAN</u>	
<u>SCAN 4 - 100% CCW. SCAN</u>	
<u>300 / 4 75% COVERAGE OBTAINED</u>	
<u>Pl. III 9/15/02</u>	

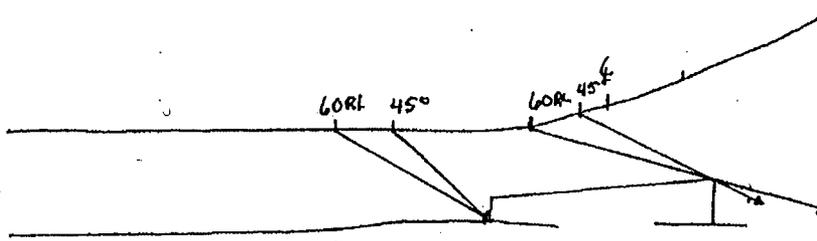
Reviewers Comment: 50 percent coverage credited due to single sided exam

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-14310</u>
System <u>Sil.</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>Sil-9-FW-1</u>	Examination Data Sheet # <u>309-01-147</u>
Component Description <u>Pipe to Valve</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MT-PDI-UT-2 Rev 000-02</u>	Page <u>34</u> of <u>34</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



Examiner Comments 50% Coverage Due to Stainless Steel Configuration  
Pipe to Valve (SS)

**ATTACHMENT 8**

**RELIEF REQUEST IR-2-58**

**EXAMINATION CATEGORY F-A**  
**SUPPORTS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Affected

ASME Code Class: Code Class 1  
Examination Category: F-A, Supports  
Item Numbers: F1.40, Supports Other than Piping Supports  
Component Identification: Reactor Vessel Supports, 3-RVS-1, 3-RVS-2, 3-RVS-3 and 3-RVS-4

2. Applicable Code Addition and Addenda

ASME Section XI, 1989 Edition, No addenda with the alternative requirements of Code Case N-491-2, approved for use in Reg. Guide 1.147 Revision 15.

3. Applicable Code Requirement

ASME Section XI, Code Case N-491-2, Table 2500-1 requires that supports for other than piping are subject to a VT-3 visual examination once each inspection interval.

4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the visual examination of the subject supports to the extent required by code due to permanent obstruction caused by the reactor vessel insulation panels.

The Millstone reactor vessel has four supports located under two cold leg nozzles and two hot leg nozzles. The support assembly of each of these nozzles consists of a nozzle pad and steel plates positioned between a steel support structure that is welded to the neutron shield tank as shown in the figure in this attachment. The support is designed to act as a vertical restraint, loaded in compression so it is not subject to the typical failure mechanisms associated with stress at ridged connections and loosened fasteners. The majority of each support is encased in permanent insulation panels of the reactor vessel and the reactor vessel nozzles. Only a portion (approximately 10%) of the end of each support is accessible for VT-3 visual examination.

The supports are located in a congested, confined space below the permanent refueling cavity seal ring. The area can only be accessed by entry through a seal ring hatch. In addition to the difficult access, the radiation levels are approximately 50mr per hour. It is estimated that the removal and reinstallation of the permanent insulation panels in this confined space would result in additional exposure of approximately 2 man-rem. Additionally, it is anticipated that modification and/or removal of the permanent cavity seal ring would be required to support access for this project.

The reactor vessel support assembly drawing is attached.

5. Burden Caused by Compliance

To increase the direct visual examination coverage of the subject supports requires removal of the reactor vessel insulation panels.

Removal of the reactor vessel insulation panels to meet the 100 percent code examination requirement is impractical due to the access restrictions, high radiation levels and support design.

6. Proposed Alternative and Basis for Use

The subject supports received a VT-3 visual examination on the accessible portions to the maximum extent practical with the insulation in place. In addition, the insulation was examined for any evidence of disturbance or degradation which may be attributed to abnormal support disturbance.

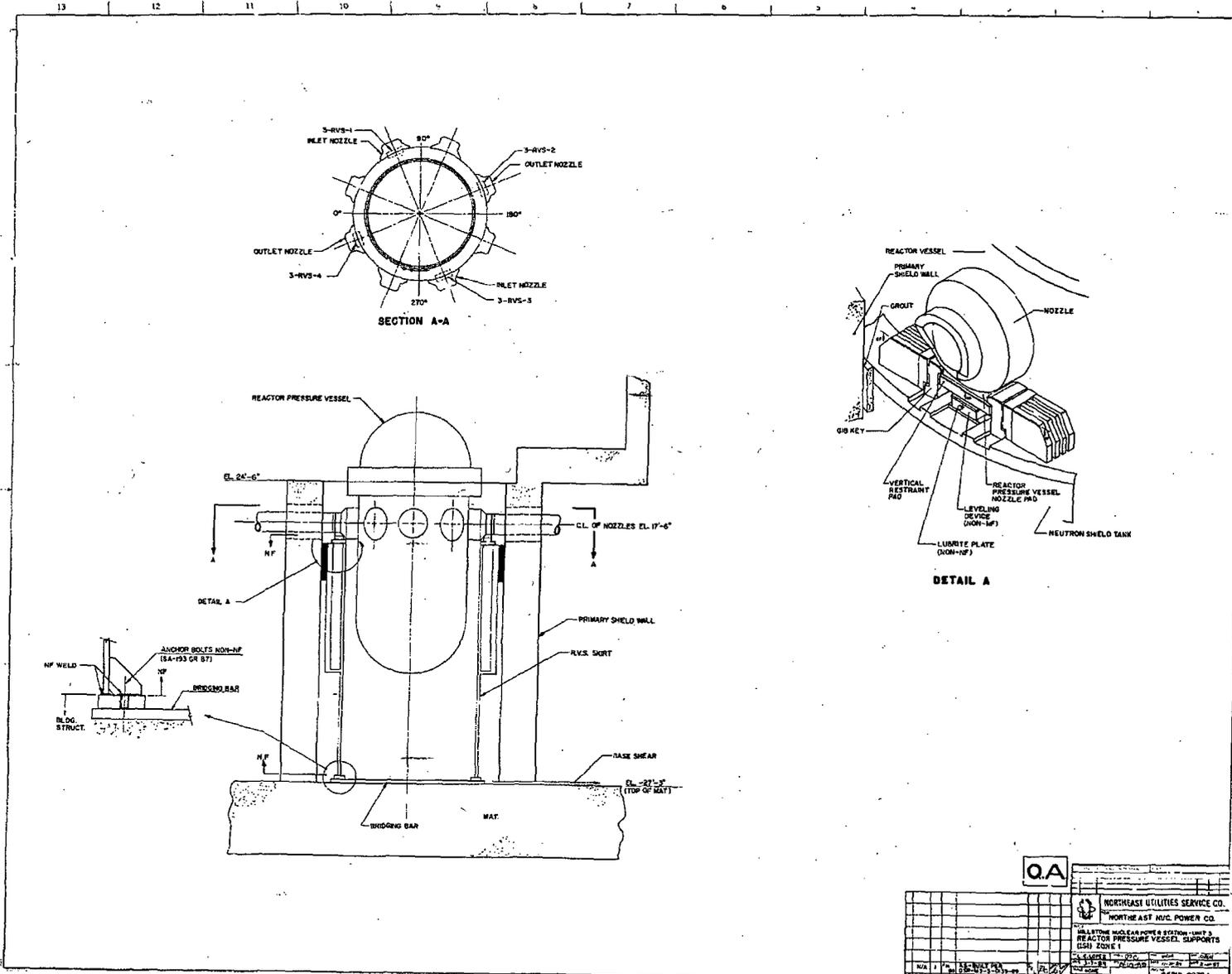
Based on the visual examination coverage attained, the proposed alternative provides an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject supports.

7. Duration of Proposed Alternative

The relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.

8. Precedents

A similar request for relief (IR-28) was approved for the first interval at Millstone Unit 3 by letter dated November 3, 1999, ADAMS Accession No. M993220119.



Q.A		NORTH EAST UTILITIES SERVICE CO.	
		NORTH EAST NUC. POWER CO.	
		WILKINSON WOODBRIDGE & FOSTER ENGINEERS	
		REACTOR PRESSURE VESSEL SUPPORTS	
		DSH ZONE 1	
DATE	BY	SCALE	PROJECT NO.
10/1/58	WJL	1/2" = 1'-0"	3582-2070-4

**ATTACHMENT 9**

**RELIEF REQUEST IR-2-59**

**EXAMINATION CATEGORY R-A**  
**RISK INFORMED PIPING EXAMINATIONS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality

1. ASME Code Components Affected

ASME Code Class: Code Class 1  
Examination Category: R-A, Risk Informed Piping Examinations  
Item Number: R1.11, Elements Subject to Thermal Fatigue  
R1.20, Elements Not Subject to a Damage  
Mechanism  
Component Identification: Listed in Table 1

2. Applicable Code Addition and Addenda

ASME Section XI 1989 Edition, No Addenda

Austenitic piping welds with single side access subject to ultrasonic examination with Supplement 2 of Appendix VIII to the 1995 Edition with 1996 Addenda of ASME Section XI.

3. Applicable Code Requirement

The examination requirements for Class 1 piping welds are governed by the Risk Informed Inservice Inspection program that was approved by the NRC in a Safety Evaluation dated March 12, 2002 (ADAMS Accession No. ML020570312). This program was developed in accordance with the Westinghouse Owners Group Topical Report WCAP-14572, Revision 1-NP-A. The WCAP Table 4.1-1, Examination Category R-A, Risk Informed Piping Examinations, requires 100 percent of the weld to be examined. The alternative requirements of ASME Section XI, Code Case N-460, approved for use in Regulatory Guide 1.147 Rev. 15, allow credit for essentially 100 percent coverage of the weld provided greater than 90 percent of the required volume has been examined.

10 CFR 50.55a(b)(2)(xv)(A), requires the following examination coverage when applying Supplement 2 to Appendix VIII:

- (1) Piping must be examined in two axial directions and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available.

(2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds, full coverage credit from a single side may be claimed only after completing a successful single side Appendix VIII demonstration using flaws on the opposite side of the weld.

10 CFR 50.55a(b)(2)(xvi)(B), requires that examinations performed from one side of a stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. To demonstrate equivalency to the two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and §50.55a(b)(2)(xv)(A).

#### 4. Impracticality of Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the 100 percent volumetric examination coverage requirement for austenitic piping welds with single side access.

There are currently no Performance Demonstration Initiative (PDI) qualified single side examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. Current technology is not capable of reliably detecting or sizing flaws on the far side of an austenitic weld for configurations common to US nuclear applications.

PDI Performance Demonstration Qualification Summary (PDQS) certificates for austenitic piping list the limitation that single side examination is performed on a best effort basis. The best effort qualification is provided in place of a complete single side qualification to demonstrate that the examiners qualification and the subsequent weld examination is based on application of the best available technology.

When the examination area is limited to one side of an austenitic weld, examination coverage does not comply with 10 CFR 50.55a(b)(2)(xv)(A) and proficiency demonstrations do not comply with 10 CFR 50.55a(b)(2)(xvi)(B) and full coverage credit may not be claimed.

Based on the configuration limited to single side access, relief is requested on complying with the 100 percent required examination coverage for the piping welds listed in Table 1. Note that examination coverage listed is that which was obtained during examination with no credit taken for the far side of each weld.

Component configuration sketches are provided in this attachment.

Table 1- Examination Category R-A Welds with Limited Volumetric Coverage

Weld Identification	Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
408044-FW-10-1	R1.20	1.5" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. Note this was a preservice examination associated with a valve replacement. No recordable indications were detected.	50
408044-FW-5	R1.20	1.5" Valve-To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. Note this was a preservice examination associated with a valve replacement. No recordable indications were detected.	50
RCS-150-FW-2	R1.11	2" Valve-To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-15-FW-28	R1.20	27.5" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-504A-FW-4	R1.11	8" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-504C-FW-4	R1.11	8" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-513-FW-25	R1.11	3" Valve To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-513-FW-29	R1.11	3" Valve-To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-5-FW-8	R1.20	27.5" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50

**Table 1- Examination Category R-A Welds with Limited Volumetric Coverage**

Weld Identification	Item Number	Configuration	Comments	Ultrasonic Examination Coverage (%)
RCS-10-FW-18	R1.20	27.5" Pipe-to-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-20-FW-38	R1.20	27.5" Pipe-to-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-LP2-HL1-SW-C	R1.20	29" Pipe-To-Nozzle	Limited examination from the pipe side only due to the taper of the nozzle within close proximity of the weld. No recordable indications were detected.	50
RCS-LP3-FW-27	R1.11	6" Valve -To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RCS-LP4-FW-HL1-CMR	R1.20	29" Pipe-To-Nozzle	Limited examination from the pipe side only due to the taper of the nozzle within close proximity of the weld. No recordable indications were detected.	50
RHS-501-FW-3	R1.11	12" Valve-To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
RHS--502-FW-3	R1.11	12" Valve-To-Pipe	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
SIL-13-FW-5	R1.11	6" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. Recordable indications were detected that were evaluated as acceptable root geometry.	50
SIL-4-FW-10	R1.11	10" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
SIL-5-FW-10	R1.11	10" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50
SIL-6-FW-10	R1.11	10" Pipe-To-Valve	Limited examination from the pipe side only due to the taper of the valve within close proximity of the weld. No recordable indications were detected.	50

5. Burden Caused by Compliance

Compliance with code requirements requires extensive modification or replacement of components with a design that allows examination from both sides of the weld. This option to meet the 100 percent examination coverage requirement is considered impractical due to cost, additional radiation exposure and impact to plant equipment.

6. Proposed Alternative and Basis for Use

The subject welds received a volumetric examination to the maximum extent practical utilizing the best available techniques, as qualified through the Performance Demonstration Initiative (PDI) for Supplement 2 with demonstrated best effort for single side examination, from the accessible side of the weld. Additionally a visual (VT-2) examination was performed each refueling outage during the system leakage tests as required by Section XI, Table IWB-2500-1, Category B-P.

Based on the volumetric examination coverage attained with acceptable results, and the visual (VT-2) examination performed each refueling outage, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject welds.

7. Duration of Proposed Alternative

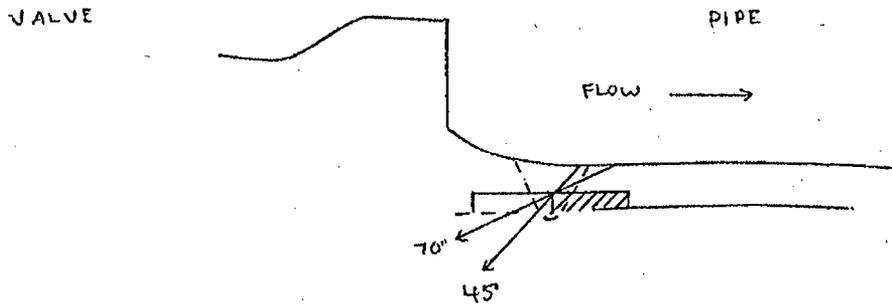
Relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>MS-06-00145</u>
System <u>RCS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>408044-FW-10-1</u>	Examination Data Sheet # <u>311-01-151</u>
Component Description <u>VALVE - PIPE</u>	Calibration Data Sheet # <u>311-01-151</u>
Procedure No <u>EP-AA-NDE-UT-802</u> Rev <u>0</u>	Page <u>6</u> of <u>6</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



VALVE SIDE CIRC SCAN	0%
VALVE SIDE AXIAL SCAN	0%
PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
TOTAL COVERAGE = 4	200 ÷ 4 = 50%

Examiner Comments NO SCAN FROM UPST SIDE DUE TO VALVE. SCANNED ACROSS WELD FOR OPTIMUM COVERAGE.

---



---



---



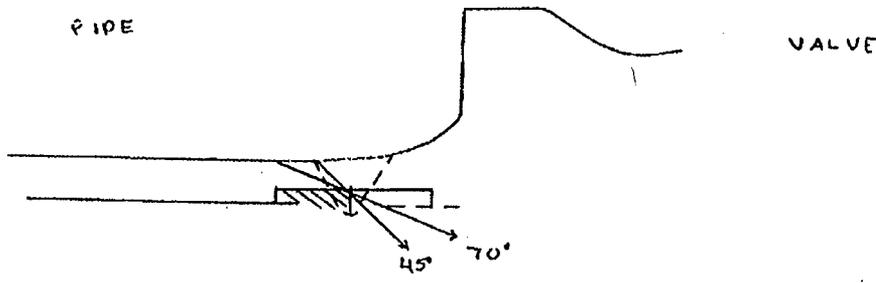
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-06-00145</u>
System <u>SIH</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>408044-FW-5</u>	Examination Data Sheet # <u>311-01-152</u>
Component Description <u>PIPE-VALVE</u>	Calibration Data Sheet # <u>311-01-152</u>
Procedure No. <u>EP-AA-NDE-UT-002</u> Rev <u>0</u>	Page <u>7</u> of <u>7</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



PIPE SIDE CIRC SCAN	100%
PIPE SIDE AXIAL SCAN	100%
VALVE SIDE CIRC SCAN	0%
VALVE SIDE AXIAL SCAN	0%
<b>TOTAL COVERAGE ÷ 4</b>	<b>200 ÷ 4 = 50%</b>

Examiner Comments NO SCAN ON DNST SIDE DUE TO VALVE. SCANNED ACROSS WELD FOR OPTIMUM COVERAGE.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

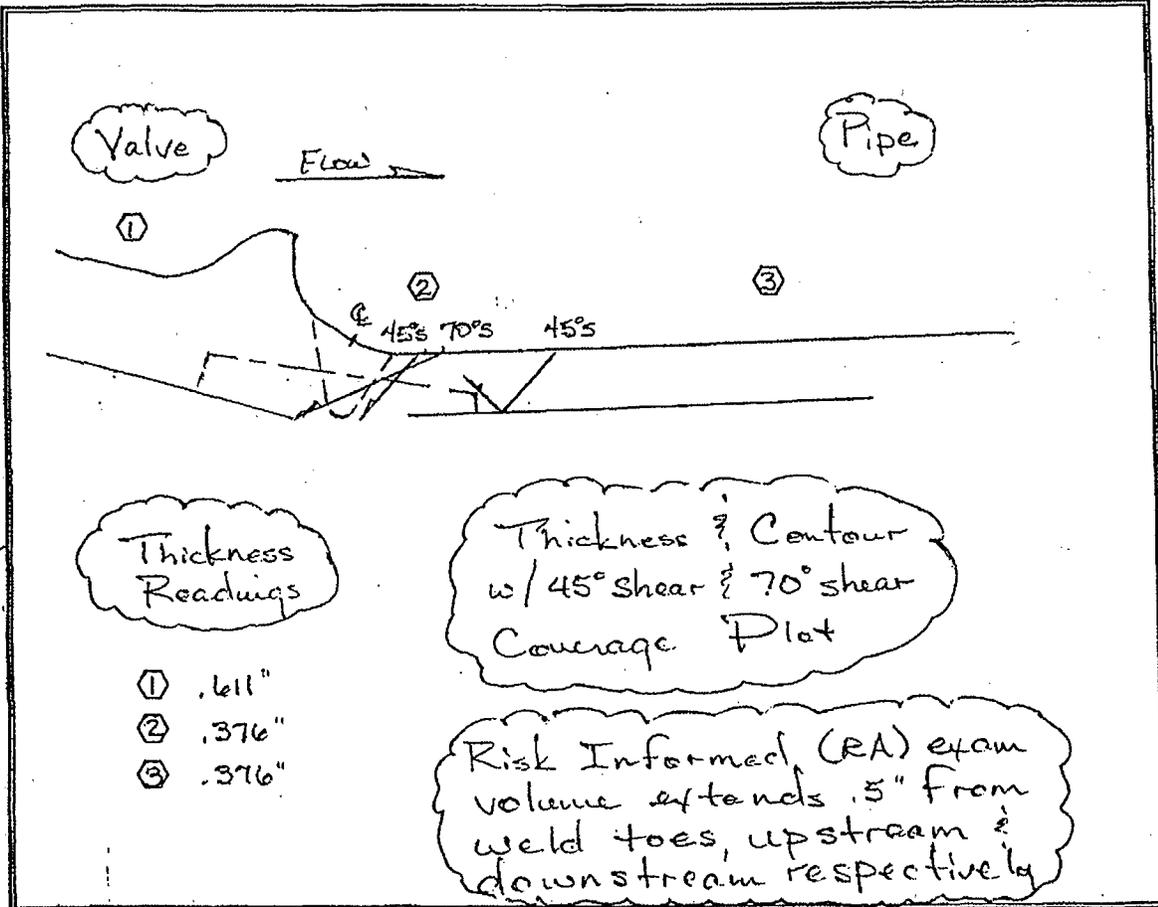
\_\_\_\_\_

Millstone Power Station

GENERIC SKETCH SHEET

Plant Millstone Unit 3  
System Pressurizer Spray Zone 019  
Component ID RCS-150-FW-2

Page 3 of 4  
Cal. Data Sheet # 309-01-120  
Exam. Data Sheet # N/A



Examiner Comments No counter bore detected

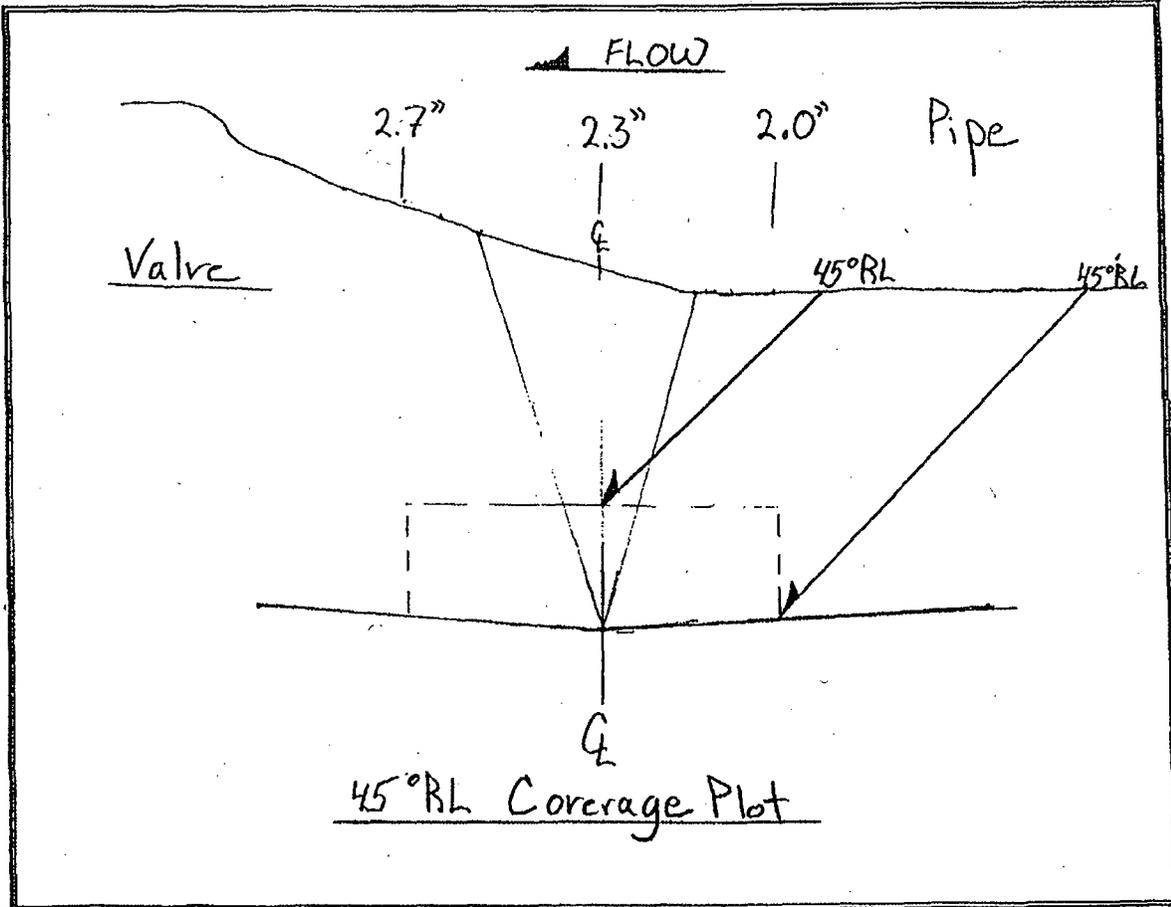
SINGLE SIDED EXAM OBTAINED 50% COVERAGE

Millstone Power Station

GENERIC SKETCH SHEET

Plant Millstone Unit 3  
System RCS Zone 014  
Component ID RCS-15-FW-28

Page 2 of 2  
Cal. Data Sheet # 309-c1-121  
Exam. Data Sheet # NA



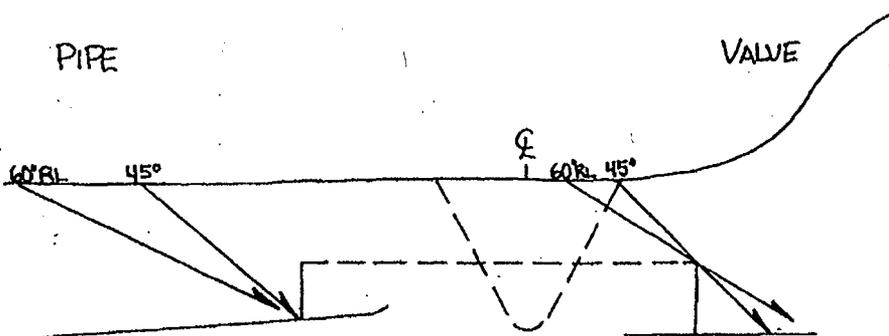
Examiner Comments 50% Coverage Plot.

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>01-14310</u>
System <u>RCS</u>	Percentage of Area Examined <u>60%</u>
Component ID <u>RCS-504A-FW-4</u>	Examination Data Sheet # <u>309-01-122</u>
Component Description <u>PIPE TO VALVE</u>	Calibration Data Sheet # <u>NA</u>
Procedure No. <u>MR-PDI-UT-2</u> Rev <u>000-02</u>	Page <u>5</u> of <u>6</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



Examiner Comments 50% CODE COVERAGE ACHIEVED DUE TO SINGLE SIDED  
SS. EXAM VOLUME

---



---



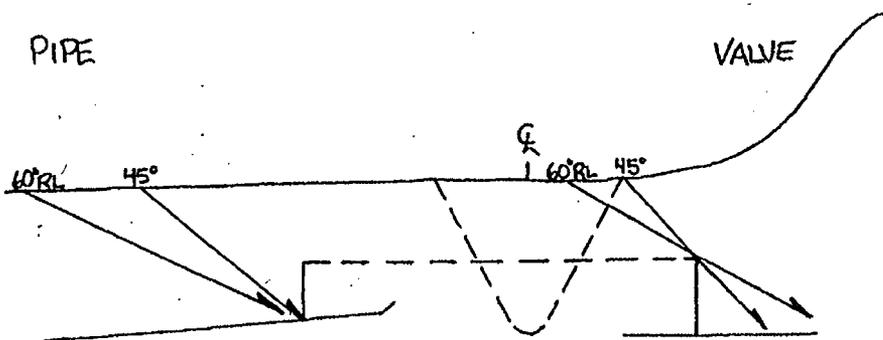
---

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>01-14310</u>
System <u>RCS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RCS-504C-FW-4</u>	Examination Data Sheet # <u>309-01-123</u>
Component Description <u>PIPE TO VALVE</u>	Calibration Data Sheet # <u>1; 2 309-01-123</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev <u>000-02</u>	Page <u>5</u> of <u>6</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



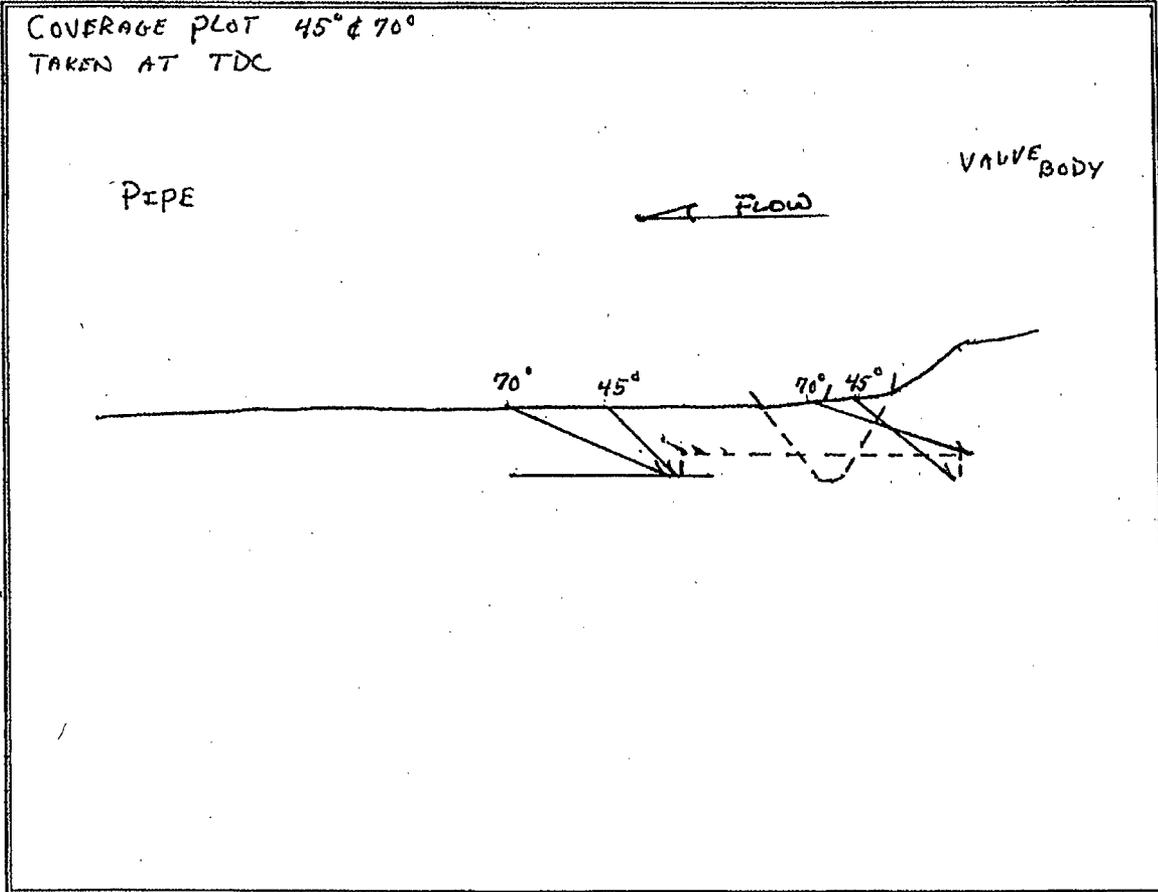
Examiner Comments 50% CODE COVERAGE ACHIEVED DUE TO SINGLE SIDED  
SS EXAM VOLUME.

Millstone Power Station

GENERIC SKETCH SHEET

Plant MILLSTONE Unit 3  
System PRESSURIZER Zone 021  
Component ID RCS-513-FW-25

Page 3 of 5  
Cal. Data Sheet # 309-E1-125  
Exam. Data Sheet # N/A



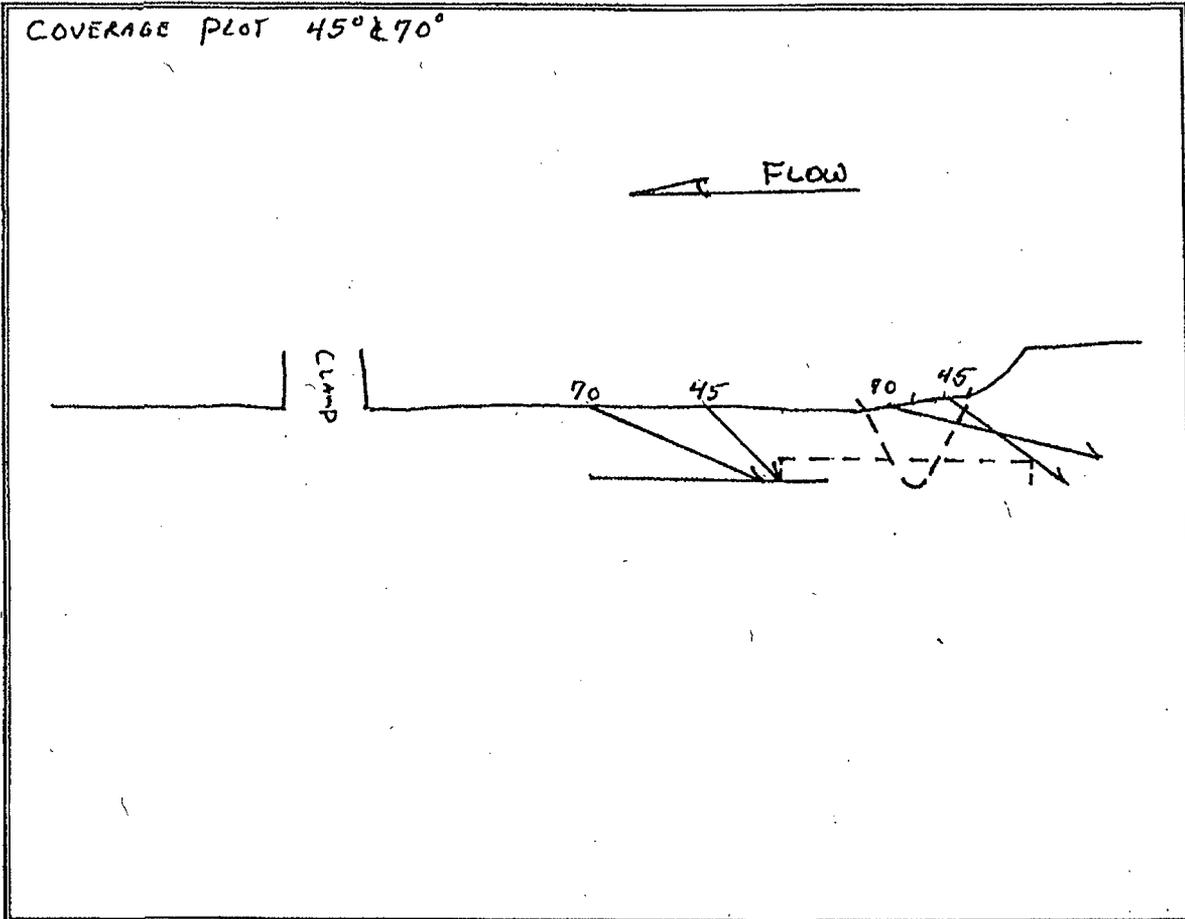
Examiner Comments ONE SIDED EXAM DUE TO VALVE BODY TO PIPE CONFIG  
50% COVERAGE OBTAINED

Millstone Power Station

GENERIC SKETCH SHEET

Plant MILLSTONE Unit 3  
System PRESSURIZER Zone A21  
Component ID RCS-513-FW-29

Page 3 of 5  
Cal. Data Sheet # 309-01-124  
Exam. Data Sheet # N/A



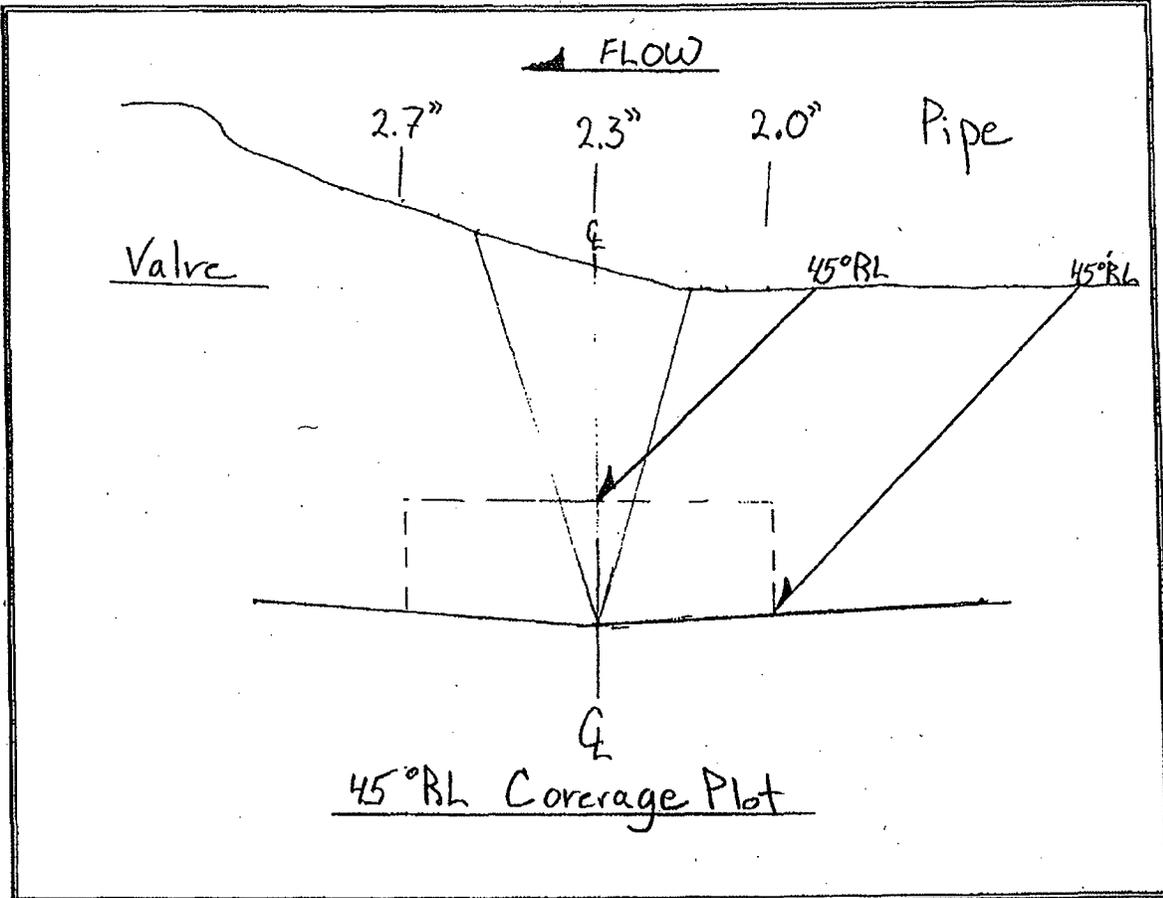
Examiner Comments ONE SIDED EXAM DUE TO VALVE BODY TO  
PIPE CONFIG. 50% COVERAGE OBTAINED

Millstone Power Station

GENERIC SKETCH SHEET

Plant Millstone Unit 3  
System RCS Zone 012  
Component ID RCS-5-FW-8

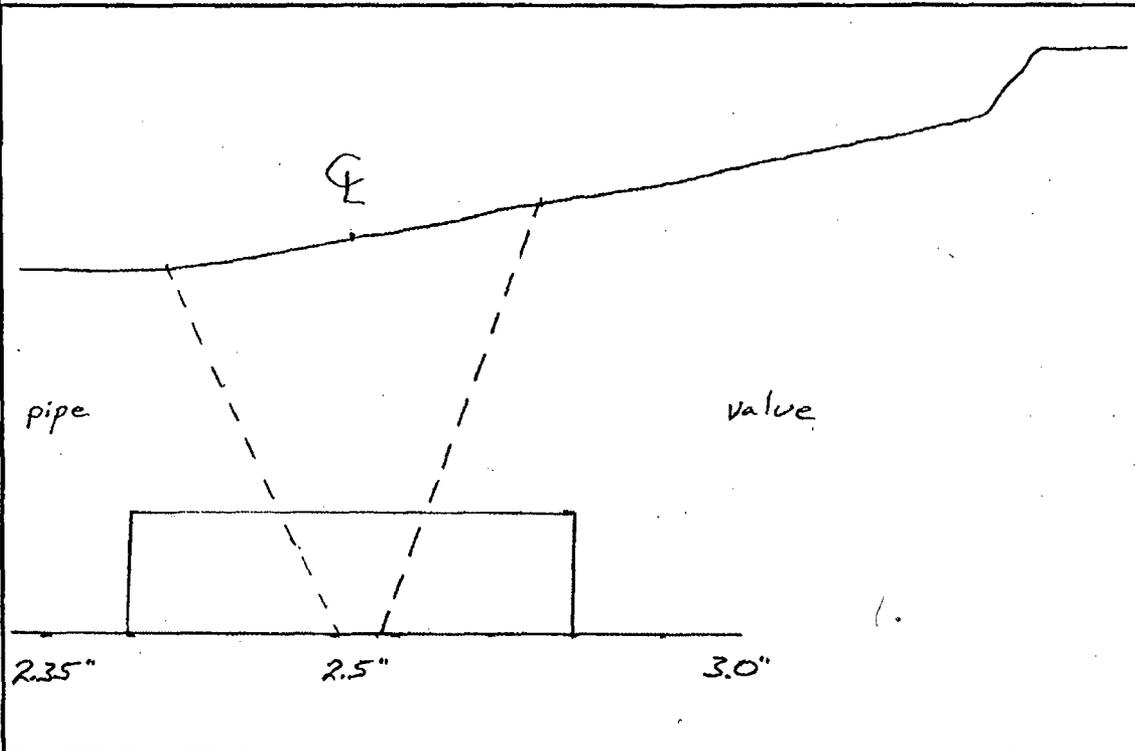
Page 2 of 2  
Cal. Data Sheet # 309-01-129  
Exam. Data Sheet # N/A



Examiner Comments 50% Coverage Plot.

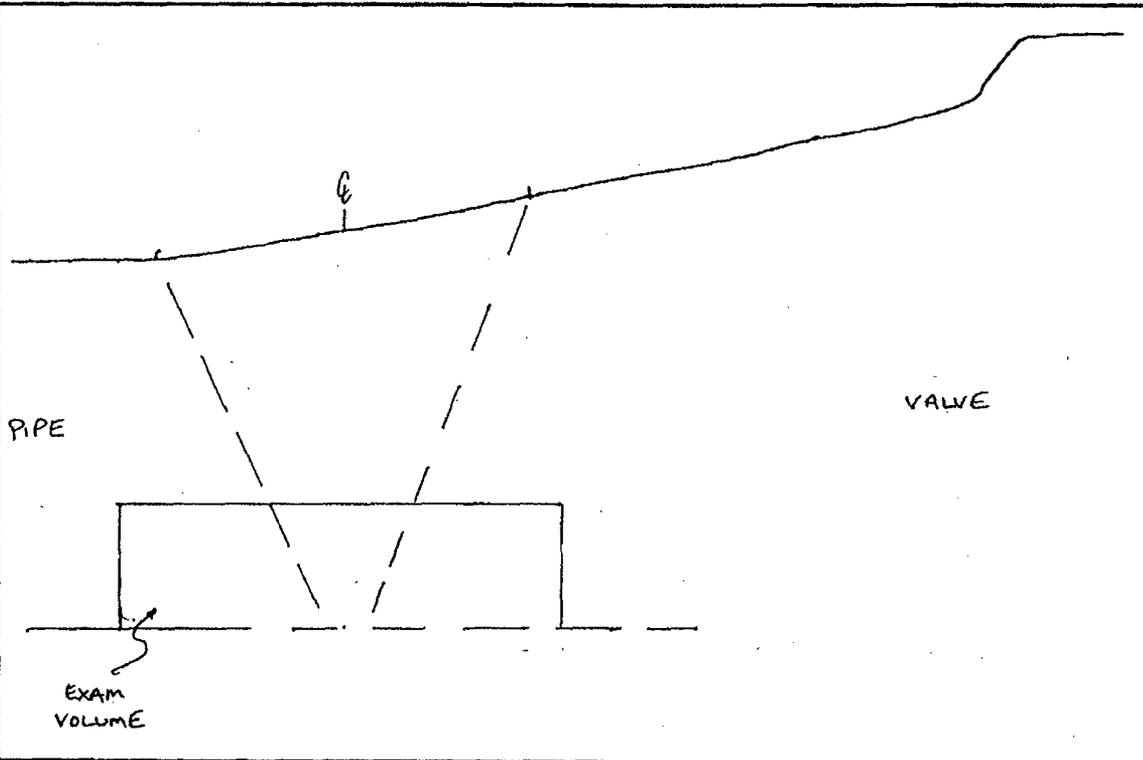
GENERIC SKETCH SHEET

Plant MP Unit 3 Page 2 of 2  
System RCS Zone 13 Exam Package 310-01-006  
Component ID RCS-10-FW-1B



GENERIC SKETCH SHEET

Plant MP Unit 3 Page 2 of 2  
System RCS Zone 015 Exam Package 310-01-008  
Component ID RCS-20-FW-38

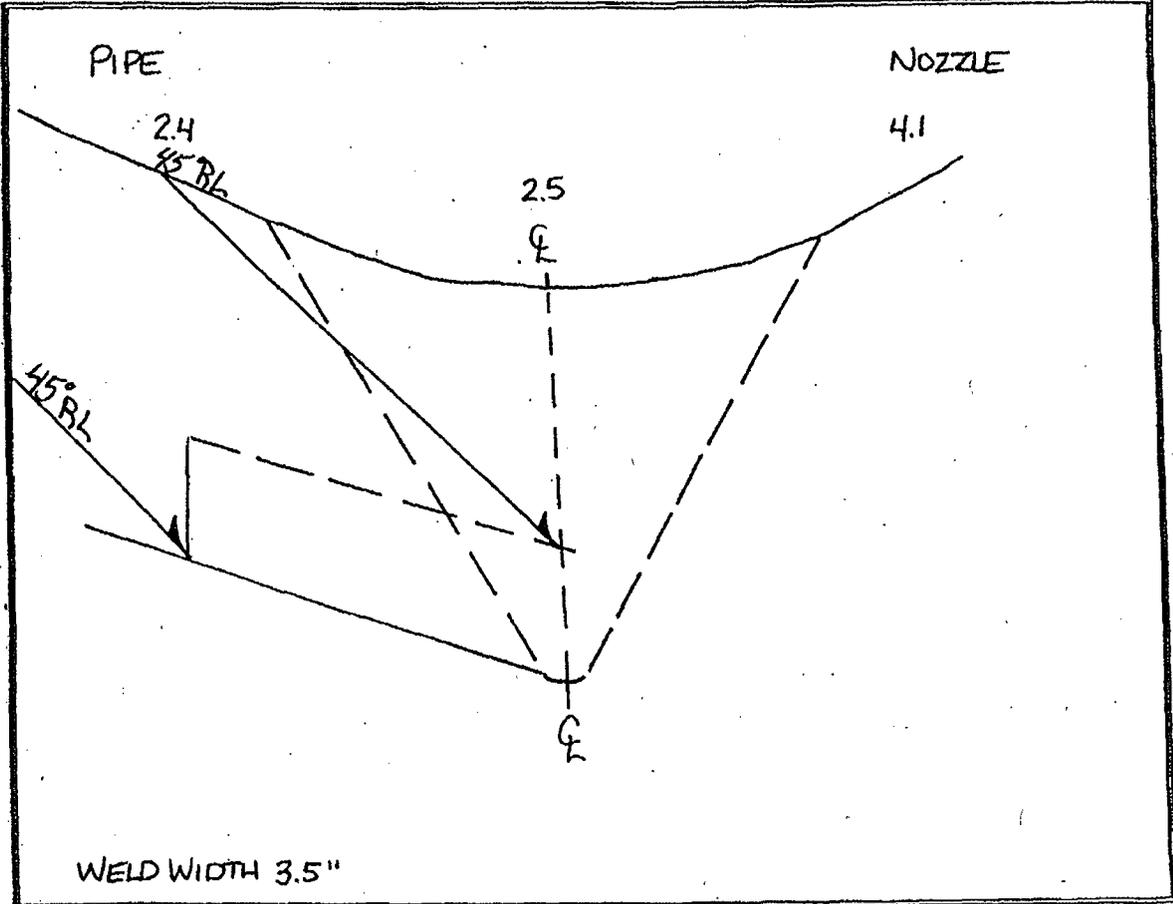


Millstone Power Station

GENERIC SKETCH SHEET

Plant MILLSTONE Unit 3  
System RCS Zone 13  
Component ID RCS-LP2-HLI-SW-C

Page 3 of 3  
Cal. Data Sheet # 309-01-130  
Exam. Data Sheet # 4A



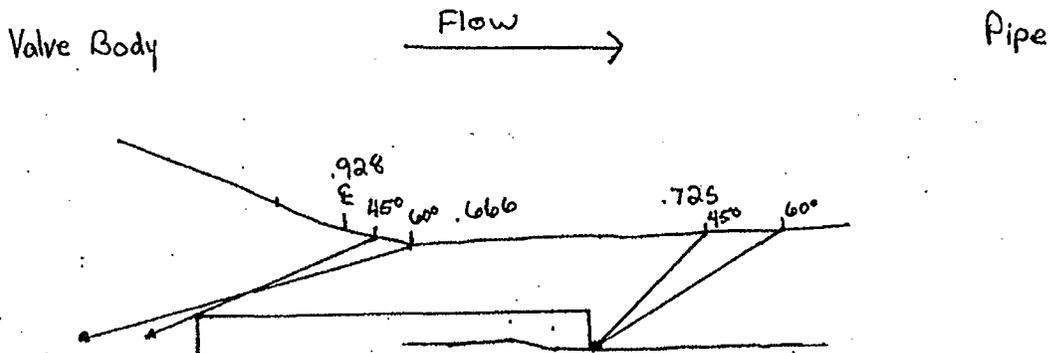
Examiner Comments 50% Coverage Plot

ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>Millstone</u> Unit <u>3</u>	AWO Number <u>01-14310</u>
System <u>RCS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>RCS-LP3-FW-27</u>	Examination Data Sheet # <u>309-01-131</u>
Component Description <u>Valve to Pip</u>	Calibration Data Sheet # <u>4A</u>
Procedure No. <u>MT-PDI-4T-2</u> Rev <u>000-02</u>	Page <u>3</u> of <u>5</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



Examiner Comments 50% Due to One-sided SS

---



---



---



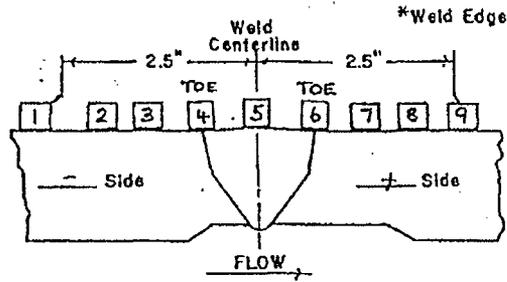
---

Millstone Unit 3

Ultrasonic Weld Thickness Profile

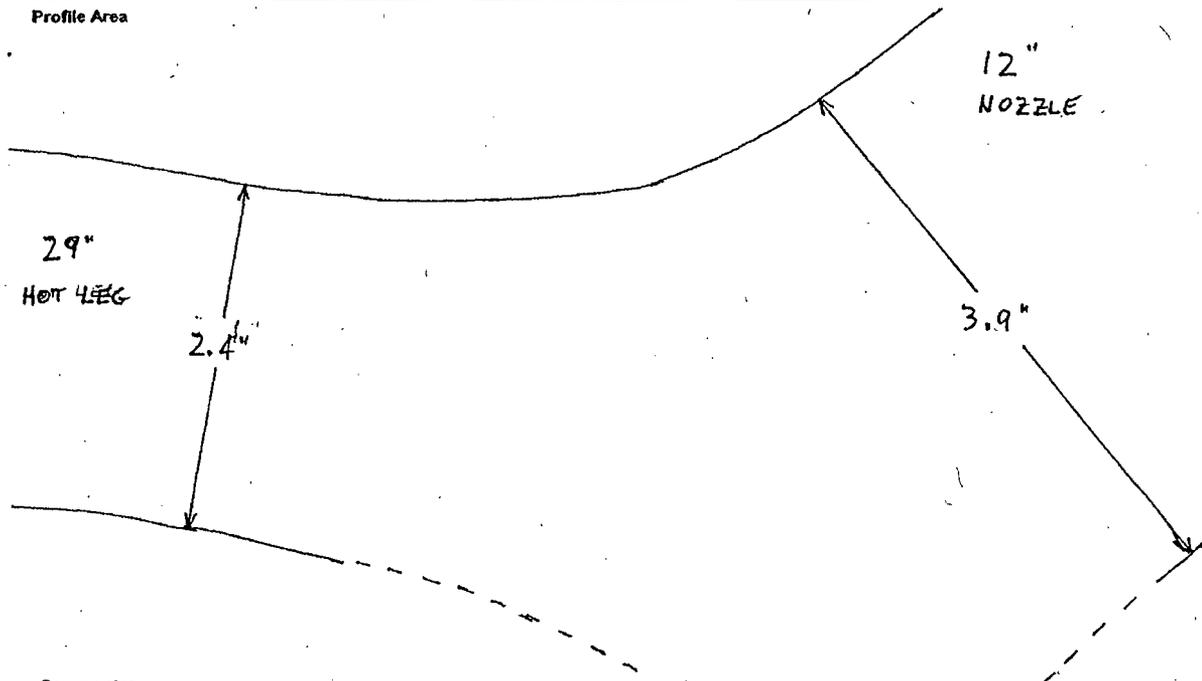
Reference ID: RCS-LP4-FW-HL I-CMA Data Pkg.: 310-01-009 Page: 3 of 3

Position	0°	90°	180°	270°
1	2.4"			
2	2.4"			
3	NA			
TOE*	NA			
CL	NA		NA	
TOE*	NA			
4	NA			
5	3.9"			
6	3.9"			



Crown Height: FLUSH Crown Width: NA Dia.: 29"/12" Weld Length: NA Long Seam: NA

Profile Area



Comments:

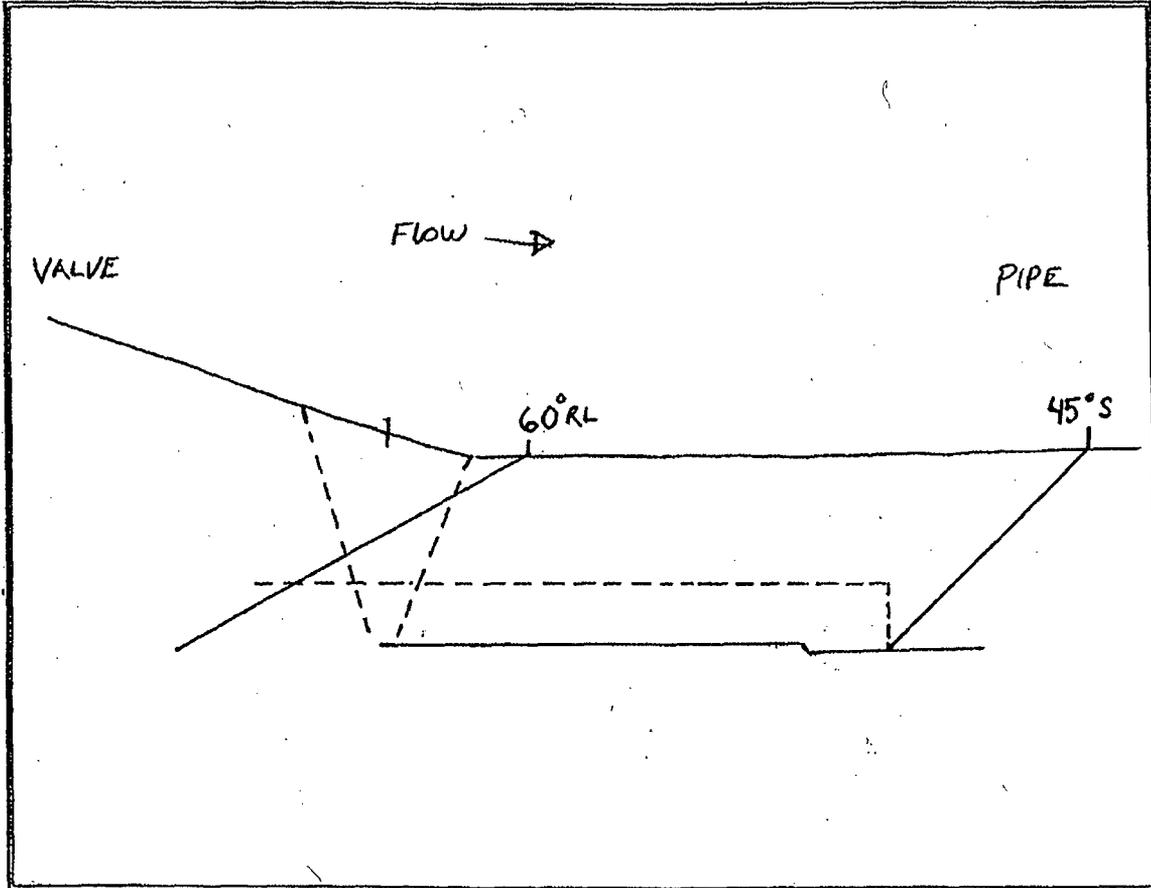
PROFILE TAKEN AT DUTUM 0.

Millstone Power Station

GENERIC SKETCH SHEET

Plant MILLSTONE Unit 3  
System RHS Zone 2.7  
Component ID RHS-504-FW-3

Page 34 of 4 <sup>11/10/04</sup>  
Cal. Data Sheet # 309-01-135  
Exam. Data Sheet # N/A



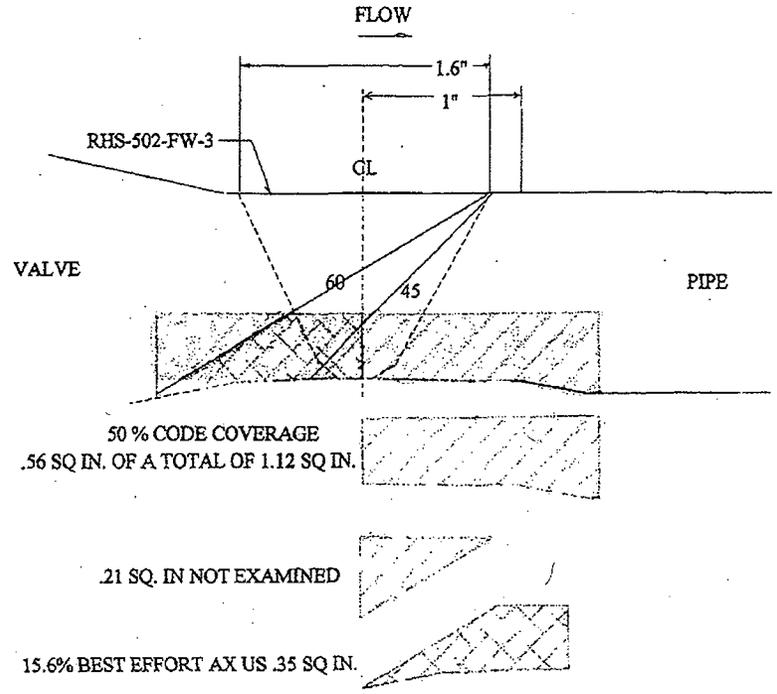
Examiner Comments EXAM COVERAGE EXPANDED DUE TO DETECTION OF COUNTERBORE. 50% COVERAGE.



# UT Indication/Coverage Plot

Outage No.: 3R12  
 Report No.: 312-01-016  
 Summary No.: N/A  
 Page No.: 4 of 6

Site: MILLSTONE Unit: 3 Drawing No.: 25212-20930 Component ID: RHS-502-FW-3  
 Description: VALVE TO PIPE Procedure: ER-AA-NDE-UT-802 REV: 000  
 Prepared By: W.L.THOMAS Level: III Signature: [Signature] Date: 10/22/08



*See attachment*

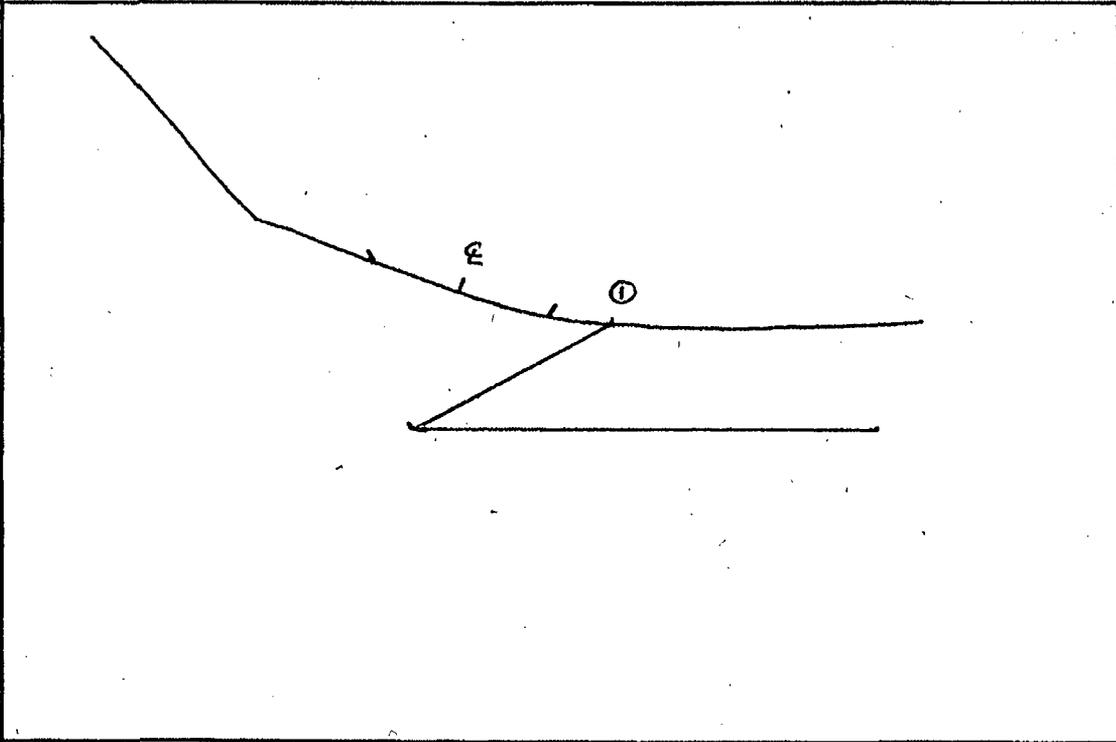
Serial No. 10-189  
 Request No. IR-2-59  
 Attachment 9, Page 21 of 25

GENERIC SKETCH SHEET

Plant MILLSTONE Unit 3 Page 6 of 6

System RCS Zone 024 Exam Package 310-01-015

Component ID SIL-13-FW-5



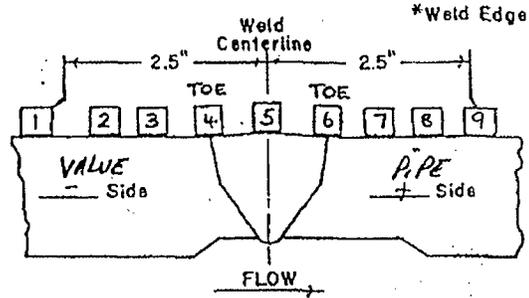
Examiner Comments: ① GORL ROOT GEOMETRY INTERMITTENT 360°

Millstone Unit 3

Ultrasonic Weld Thickness Profile

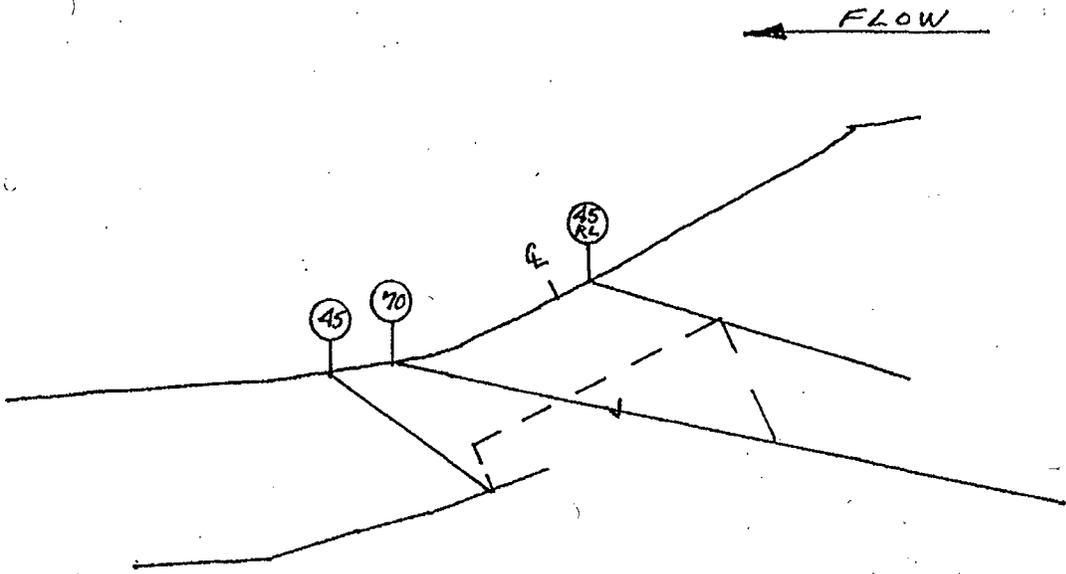
Reference ID: SIL-4-FW-10 Data Pkg.: 311-01-057 Page: 4 of 5

	0°	90°	180°	270°
1	1.14			
2	1.03			
3	.97			
TOE	.97			
CL	.932			
TOE	N/A			
7				
8				
9				



Crown Height: FLUSH Crown Width: 1.1 Dia.: 10.0 Weld Length: 32.0 Long Seam: N/A

Profile Area



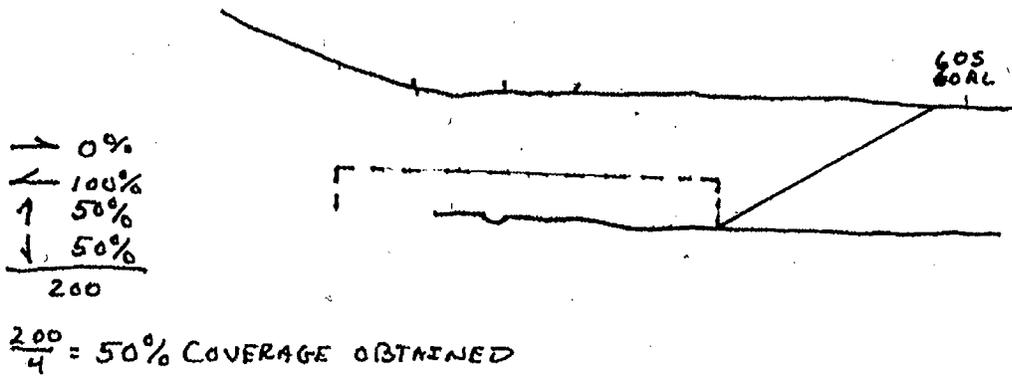
Comments: Thickness taken from previous data.


ATTACHMENT 1

COVERAGE CALCULATION DATA SHEET

Plant <u>MILLSTONE</u> Unit <u>3</u>	AWO Number <u>M3-02-1177E</u>
System <u>RCS</u>	Percentage of Area Examined <u>50%</u>
Component ID <u>SIL-5-FW-10</u>	Examination Data Sheet # <u>310-01-014</u>
Component Description <u>VALVE TO PIPE</u>	Calibration Data Sheet # <u>N/A</u>
Procedure No. <u>MP-PDI-UT-2</u> Rev. <u>000-03</u>	Page <u>4</u> of <u>4</u>
Calculation Type Surface <input type="checkbox"/> Volumetric <input checked="" type="checkbox"/>	

Coverage Calculation / Equation / Sketch Area



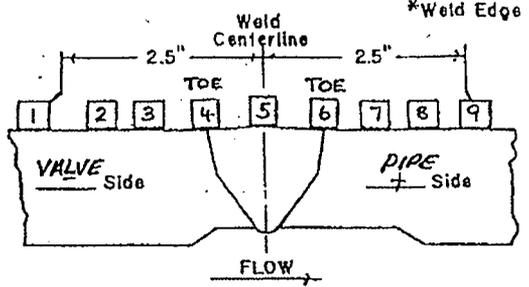
Examiner Comments SINGLE SIDE EXAM DUE TO VALVE TO PIPE CONFIGURATION

Millstone Unit 3

Ultrasonic Weld Thickness Profile

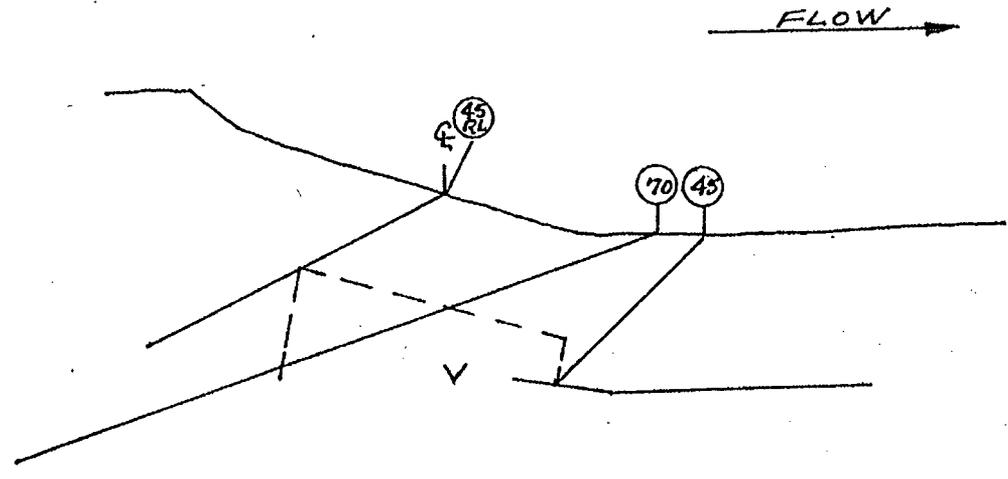
Reference ID: SIL-6-FW-10 Data Pkg.: 311-01-058 Page: 4 of 5

Position	0°	90°	180°	270°
1	1.0			
2	1.0			
3	.927			
TOE*	1.0			
CL	1.20			
TOE*	N/A			
7				
8				
9	∇			



Crown Height: FLUSH Crown Width: 1.35 Dia.: 10.0 Weld Length: 32.0 Long Seam: N/A

Profile Area



Comments: Thickness taken from previous data.


**ATTACHMENT 10**

**RELIEF REQUEST IR-2-60**

**EXAMINATION CATEGORY B-P**  
**ALL PRESSURE RETAINING COMPONENTS**

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**

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

--Inservice Inspection Impracticality--

1. ASME Code Components Affected

ASME Code Class: Code Class 1

Examination Category: B-P, All Pressure Retaining Components

Item Number: B15.11, Reactor Vessel, Pressure Retaining Boundary

Description: Pressure Testing Requirements for the Reactor  
Pressure Vessel (RPV) Flange Leak-Off Piping

Component Identification: NPS 1 RPV Flange Seal Leak-Off Piping

2. Applicable Code Edition and Addenda

ASME Section XI, 1989 Edition, No Addenda, with the alternative requirements of ASME Code Case N-498-4, approved for use in Regulatory Guide 1.147 Revision. 15.

3. Applicable Code Requirement

The 1989 Edition of ASME Section XI, Table IWB-2500-1, Examination Category B-P, requires all pressure retaining components to be subject to a system hydrostatic test in accordance with IWB-5222. ASME Code Case N-498-4 allows a system leakage test at or near the end of each inspection interval as an alternative to the 10-year system hydrostatic test required by Table IWB-2500-1. The boundary subject to test pressurization during the leakage test conducted at or near the end of each inspection interval shall extend to all Class 1 pressure retaining components within the system boundary with a test pressure not less than the pressure corresponding to 100% rated reactor power.

4. Impracticality of Code Compliance

The Reactor Pressure Vessel (RPV) head flange seal leak detection piping is shown in Figures 1 and 2 in this attachment. The piping is separated from the reactor

coolant pressure boundary by one passive membrane, which is an o-ring located on the inner vessel flange. A second o-ring is located on the outside of the tap in the vessel flange. Failure of the inner o-ring is the only condition under which this line is pressurized. Therefore, the line is not expected to be pressurized during the system pressure test following a refueling outage.

The configuration of this piping precludes system pressure testing while the vessel head is removed because the configuration of the vessel tap coupled with the high test pressure prevents the tap in the flange from being temporarily plugged or connected to other piping. The opening in the flange is smooth walled, making the effectiveness of a temporary seal very limited. Failure of a temporary test seal could possibly cause ejection of the device used for plugging or connecting to the vessel flange.

The configuration also precludes pressurizing the line externally with the head installed. The top head of the vessel contains two grooves that hold the o-rings. The o-rings are held in place by a series of retainer clips that are housed in recessed cavities in the flange face. If a pressure test were to be performed with the head on, the inner o-ring would be pressurized in a direction opposite to its design function. This test pressure would result in a net inward force on the inner o-ring that would tend to push it into the recessed cavity that houses the retainer clips. The thin o-ring material would likely be damaged by the inward force.

#### 5. Burden Caused by Compliance

The RPV flange seal leak-off line is only pressurized in the event of a failure of the inner O-ring. Purposely failing or not installing the inner o-ring in order to perform a pressure test requires installing a new o-ring set with the time and radiation exposure associated with removing and reinstalling the RPV head a second time to replace the o-rings.

This option is considered impractical due to the cost, increased radiation exposure and impact to outage duration.

#### 6. Proposed Alternative and Basis for Use

A VT-2 visual examination will be performed each outage on the unpressurized subject piping as part of the Class 1 leakage test. If the inner o-ring should leak during the operating cycle it will be identified by an increase in temperature of the leak-off line above ambient temperature which is an indication of o-ring seal leakage. This high temperature would actuate an alarm in the Control Room, which would be closely monitored by procedurally controlled operator actions allowing identification of any further compensatory actions required. This leakage would be collected in the primary drain transfer tank.

Additionally, the flange seal leak-off line is essentially a leakage collection/detection system and the line would only function as a Class 1 pressure boundary if the inner o-ring fails, thereby pressurizing the line. If any significant leakage does occur in the

leak-off line piping itself during this time of pressurization, it would clearly exhibit boric acid accumulation and be discernable during the proposed VT-2 visual examination that will be performed unpressurized as proposed in this request.

Based upon the above, it is reasonable to conclude that service induced degradation would be detected. Therefore, these proposed alternatives will provide an acceptable level of quality and safety by providing reasonable assurance of structural integrity of the subject piping.

Future pressure testing of this line will be performed in accordance with the Third Interval relief request IR-3-11 which was submitted on April 28, 2009, and is currently awaiting approval.

7. Duration of Proposed Alternative

Relief is requested for the second 10-year inspection interval for Millstone Power Station Unit 3, which began on April 23, 1999 and ended April 22, 2009.

8. Precedents

A similar request for relief was previously approved for Limerick Generating Station, Units 1 and 2 by letter dated January 27, 2009 (ADAMS Accession No. ML090060218).

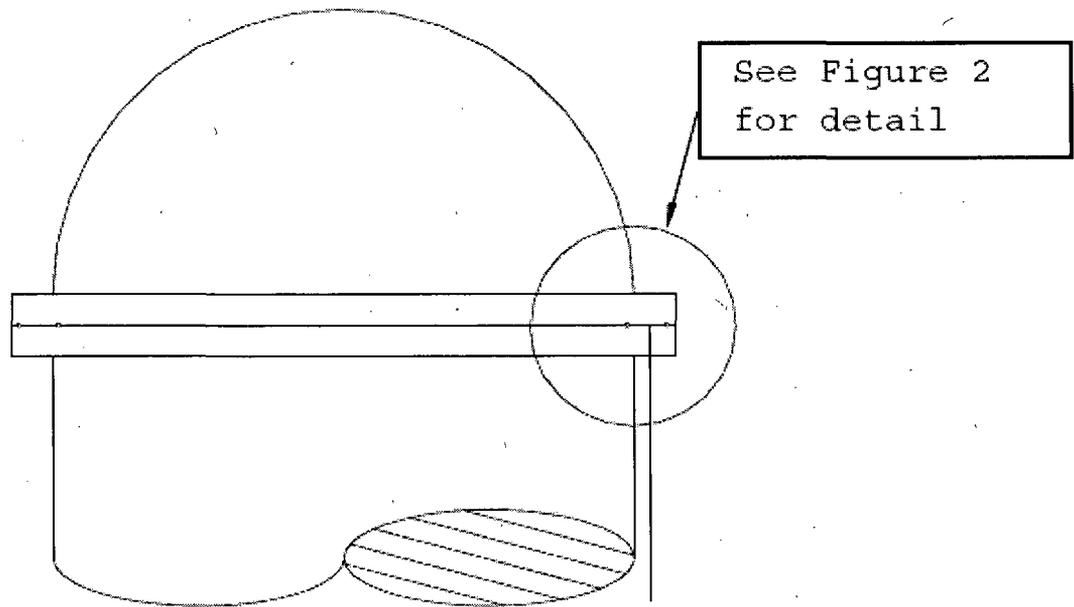


Figure 1:  
REACTOR PRESSURE VESSEL HEAD FLANGE  
LEAK-OFF LINE CONFIGURATION

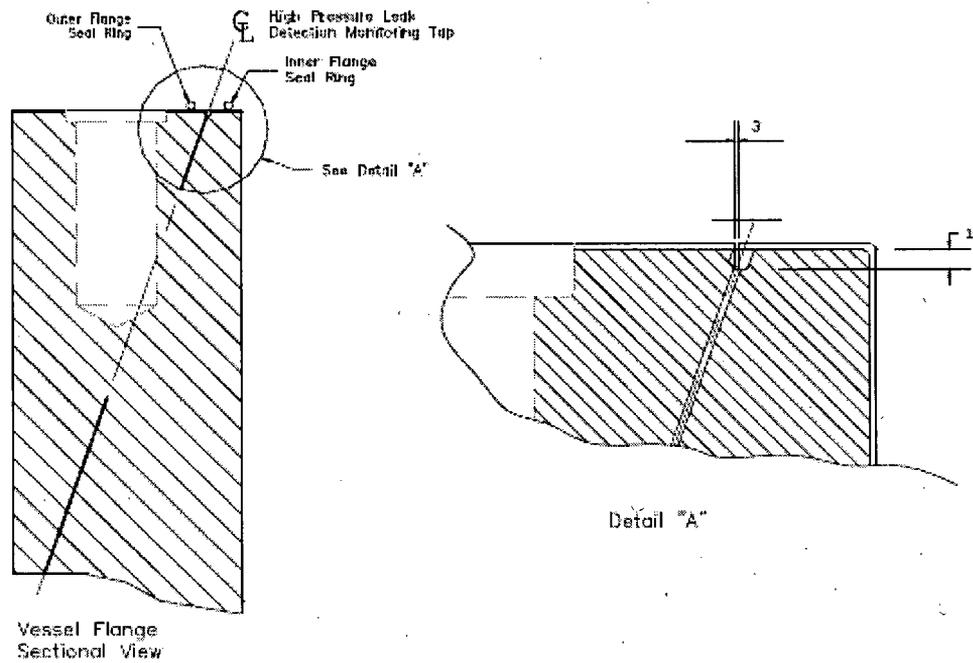


Figure 2  
REACTOR PRESSURE VESSEL HEAD FLANGE  
LEAK-OFF LINE DETAILS