

Serial: RNP-RA/03-0160

DEC 30 2003

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
FOR RELIEF REQUEST PERTAINING TO EXAMINATION COVERAGE
LESS THAN ESSENTIALLY 100 PERCENT (RELIEF REQUEST NO. 34)

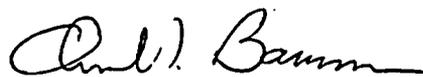
Ladies and Gentlemen:

In accordance with 10 CFR 50.55a(g)(6)(i), Relief Request RR-34 was submitted for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, by letter dated February 11, 2003. A request for additional information (RAI) was received from the NRC by letter dated November 6, 2003. That RAI requested a reply no later than December 30, 2003.

The response to the RAI is provided in the attachment to this letter.

If you have any questions regarding this matter, please contact me.

Sincerely,



C. T. Baucom
Supervisor – Licensing/Regulatory Programs

CTB/cac

Attachment

c: Mr. L. A. Reyes, NRC, Region II
Mr. C. P. Patel, NRC, NRR
NRC Resident Inspector

A047

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR RELIEF REQUEST PERTAINING TO EXAMINATION COVERAGE LESS THAN ESSENTIALLY 100 PERCENT (RELIEF REQUEST NO. 34)

By NRC letter dated November 6, 2003, the following request for additional information (RAI) was provided:

The licensee has requested relief in accordance with 10 CFR 50.55a(g)(5)(iii) based upon the argument that the Code examinations are impractical at their facility. However, the licensee must present adequate information to support a determination that the required examinations are impractical (not simply inconvenient) to perform to the extent required by the Code. This information should include drawings, or other physical descriptions, of the component examination areas, including examination coverage(s), weld cross-sections, etc., necessary to support the request. In addition, the licensee should submit argument(s) as to why the use of other methods would not reasonably increase the examination coverage(s). In Attachment I for Relief Request 34 of the licensee's submittal (Table 1 on page 2 of 9), the limitation discussion for Reactor Vessel Upper Shell Welds states that the reduced volumetric coverage (90 percent) is due to "proximity of the inlet nozzle inner radius section." This discussion does not provide an adequate description of the physical limitation or indicate whether other techniques such as different interrogation angles could have practically increased the coverage.

Similar issues exist with the remainder of the components listed in Table 1. The drawings provided by the licensee are inadequate to determine the extent of actual scanning limitations. The licensee should address the following issues in the revised relief request:

- Provide a technical basis for each component listed in Table 1, describing in detail the examination limitation, and discuss whether other examinations may be used to increase or supplement the limited examinations. The technical basis should include a cross-sectional sketch of the weld, indicating ultrasonic coverage(s) and details of the weld and base metal materials. The technical basis should confirm, where applicable, that the examinations that were performed were also qualified under Appendix VIII of ASME Section XI.
- Indicate what degradation mechanism(s) is most likely to occur in this weld and a technical basis for whether the achieved examination coverage could reasonably be expected to detect this degradation.

The following information is provided in response to this RAI:

The submittal dated February 11, 2003, included component and layout drawings. Those drawings have not been repeated in this RAI response.

In response to the question pertaining to degradation mechanisms, the following information is provided to supplement discussions in the previous submittal and the RAI responses included in this submittal:

The material combinations being inspected include 316 stainless piping welds; CF8 cast pipe to 304 forging; 304 plate to CF8 casting; 316 pipe to carbon steel casting; low alloy steel forgings to alloy steel plate; and, buttered cast low alloy steel to stainless pipe.

The types of degradation that could possibly be seen in the welds inspected include corrosion and fatigue. Corrosion occurs as either intergranular or transgranular cracking and surface pitting or roughening. Fatigue failure in any of the welds will appear in the form of cracking.

However, the probability of these occurring is very low due to the material choices for the environments, and the design of the welds. The welds exposed to primary coolant are produced without backing to preclude crevice effects and are either back-gouged and welded on the ID or clad with stainless to protect low alloy steel components. The low alloy steel exposed to secondary fluid, which is specifically treated to prevent corrosion, has shown no degradation to date.

If degradation has occurred in non-examined areas, it is likely that Code-required pressure testing would detect leakage associated with these systems and components.

AUTOMATED CATEGORY B-A EXAMINATIONS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, reactor pressure vessel (RPV) nozzle-to-vessel welds with identification numbers 101/03, 101/06, 101/07, 101/22, 101/23, 101/24, 101/25, 101/26, 101/27, and 101/28.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Category B-A, Item Numbers B1.11, B1.12, B1.21, B1.22, and B1.30. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Category B-A, Item Numbers B1.11, B1.12, B1.21, B1.22, and B1.30, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation. Table 2 identifies the material associated with these welds, and Table 3 is an excerpt from the ISwT Reactor Vessel Scan Plan.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Automated ultrasonic examinations were performed on the HBRSEP, Unit No. 2, reactor vessel in accordance with the requirements of 10 CFR 50.55a, the Technical Specifications, and the 1986 Edition of the ASME Section XI Code. These examinations had ten B-A welds that could not achieve the required 100% (>90%) coverage. The following descriptions, coupled with the tables and figures, are the requested details of the examination limitations. The accompanying figures graphically depict the extent of the limitations. The table quantifies the extent of Code-required volume that was examined.

During the review process it was determined that welds 101/14, 101/15, and 101/16 had coverage in excess of the required 90% and these welds are not included in this submittal.

RPV Lower Head Meridional Welds

Automated scanning of the RPV lower head meridional welds (101/23, 101/24, 101/25, 101/26, 101/27, and 101/28) was limited due to interference from the instrumentation tubes and the core support lugs. Figure 1 is a roll-out inside view of the reactor pressure vessel showing the scan limitations. Figure 2 provides a side section view of the meridional welds showing the limited scanning areas.

RPV Circumferential Lower Head Welds

The automated scanning of the lower head ring-to-lower head weld (101/07) was limited due to interference from the lower head bottom-mounted instrumentation (BMI) tubes. Figure 1 is a roll-out inside view of the reactor pressure vessel showing the scan limitations. Figure 3 shows a top view of the parallel scanning limitation and a side view of the transverse scanning limitations.

Examination of the lower head-to-lower shell weld (101/06) was limited due to interference from the core support lugs. Figure 1 shows the inside roll-out view and Figure 4 shows a side view of the limited area.

RPV Longitudinal Lower Shell Weld

Examination of the lower shell longitudinal weld (101/22) was limited due to interference from the core support lug at 0°. Figure 1 is a roll-out inside view showing scan limitations. Figure 6 shows the side view of the limited area.

RPV Upper Shell-to-Flange Weld

The transverse examination of the upper shell-to-flange weld (101/03) was limited due to the flange configuration. The tapered surface on the flange side did not allow transverse scanning. Figure 1 is a roll-out inside view showing scan limitations. Figure 5 shows a side view of the limited area.

TABLE 1
REACTOR VESSEL COVERAGE AND LIMITATIONS

Weld	Item	Description	Coverage	Limitation
101/03	B1.30	Upper Shell to Flange	73%	Limited examination due to proximity of flange taper.
101/06	B1.11	Lower Head to Lower Shell Weld	82%	Limited due to proximity of core support lugs.
101/07	B1.21	Lower Head Ring to Lower Head	5%	Limited due to proximity of lower head bottom-mounted instrumentation (BMI) tubes.
101/22	B1.12	Lower Shell Longitudinal Weld @ 0°	73%	Limited due to proximity of core support lug.
101/23	B1.22	Lower Head Meridional	63%	Limited due to proximity of lower head BMI tubes.
101/24	B1.22	Lower Head Meridional	44%	Limited due to proximity of lower head BMI tubes and core support lug at 0°.
101/25	B1.22	Lower Head Meridional	66%	Limited due to proximity of lower head BMI tubes.
101/26	B1.22	Lower Head Meridional	56%	Limited due to proximity of lower head BMI tubes.
101/27	B1.22	Lower Head Meridional	44%	Limited due to proximity of lower head BMI tubes and core support lug at 270°.
101/28	B1.22	Lower Head Meridional	69%	Limited due to proximity of lower head BMI tubes.

**TABLE 2
REACTOR VESSEL MATERIAL AND WELD IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	WELD	MATERIAL 2
101/03	B-A	B1.30	REACTOR VESSEL SHELL TO FLANGE	FLANGE SA-336	RACO3 + Ni200 SAW	UPPER SHELL SA-302 GR B
101/06	B-A	B1.11	REACTOR VESSEL LOWER SHELL TO LOWER HEAD	LOWER SHELL SA-302 GR A	RACO3 + Ni200 SAW	LOWER HEAD SA-302 GR B
101/07	B-A	B1.21	REACTOR VESSEL LOWER HEAD TO LOWER HEAD RING WELD	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD DOME SA-302 GR B
101/22	B-A	B1.12	REACTOR VESSEL LOWER SHELL LONGITUDINAL WELD @ 0°	UPPER SHELL SA-302 GR B	RACO3 (SAW) & E8018	UPPER SHELL SA-302 GR B
101/23	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 30°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B
101/24	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 90°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B
101/25	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 150°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B
101/26	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 210°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B
101/27	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 270°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B
101/28	B-A	B1.22	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 330°	LOWER HEAD SA-302 GR B	RACO3 (SAW) & E8018	LOWER HEAD SA-302 GR B

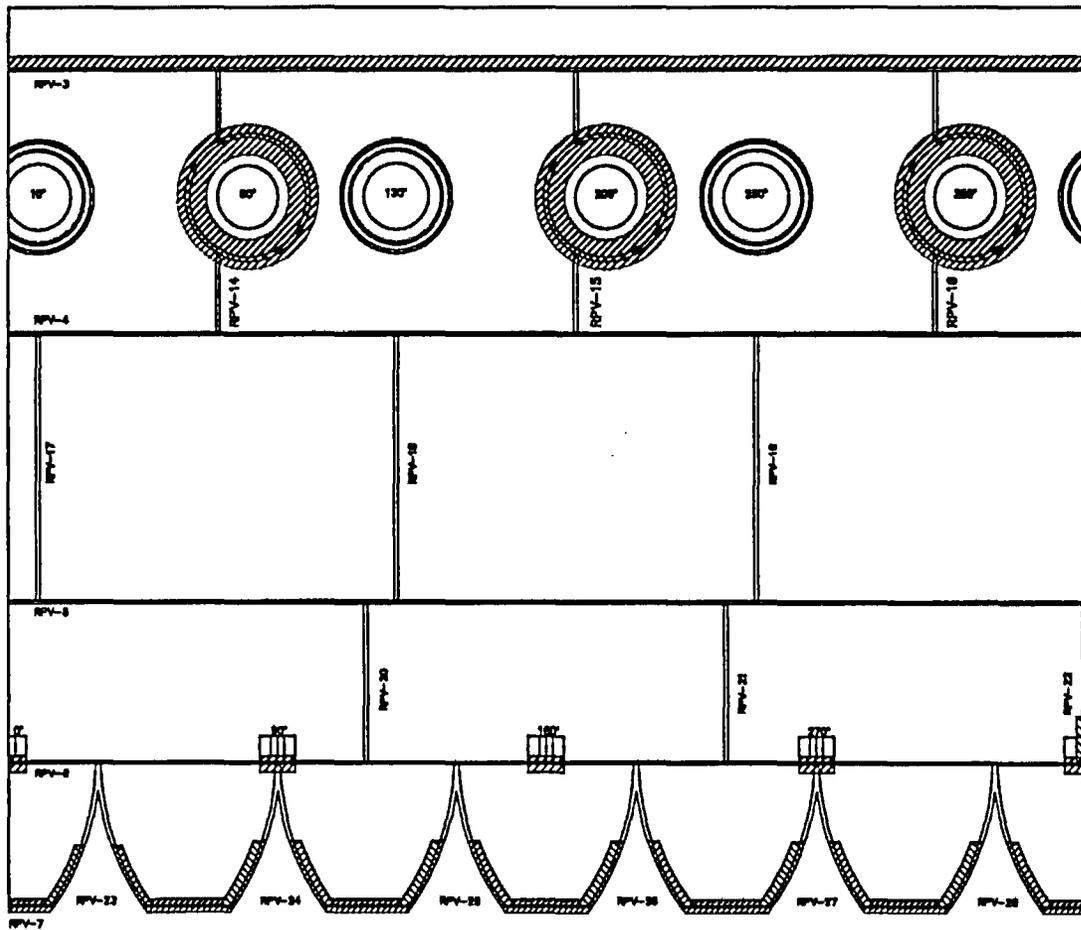
**TABLE 3
REACTOR VESSEL SCAN PLAN**

WELD NUMBER	EXAM AREA IDENTIFICATION	EXAM		BEAM ANGLE(S)	EXAM TYPE	BEAM DIRECTIONS	CODE COVERAGE (CRV)	LIMITATIONS
		VOLUME	FIGURE					
101/03	REACTOR VESSEL FLANGE TO UPPER SHELL	A B A B	4	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	92% 92% 53% 53% 73% CRV	Limited examination due to the proximity of the flange taper and the outlet nozzle integral extension.
101/06	REACTOR VESSEL LOWER HEAD TO LOWER SHELL	A B A B	2	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	87% 87% 77% 77% 82% CRV	Limited examination due to the proximity of the core barrel stabilizing lugs.
101/07	REACTOR VESSEL LOWER HEAD RING TO LOWER HEAD	A B A B	1	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	5% 5% 5% 5% 5% CRV	Limited examination due to the proximity of the lower head bottom-mounted instrumentation (BMI) tubes.
101/22	REACTOR VESSEL LOWER SHELL LONGITUDINAL WELD @ 0°	A B A B	3	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	74% 74% 71% 71% 73% CRV	Limited examination due to the core barrel stabilizing lug @ 0°.
101/23	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 30°	A B A B	3	SLIC 40 45° & 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	64% 64% 61% 61% 63% CRV	Limited examination due to the proximity of the lower head BMI tubes.

**TABLE 3
REACTOR VESSEL SCAN PLAN
(Continued)**

WELD NUMBER	EXAM AREA IDENTIFICATION	EXAM		BEAM ANGLE(S)	EXAM TYPE	BEAM DIRECTIONS	CODE COVERAGE (CRV)	LIMITATIONS
101/24	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 90°	A B A B	3	SLIC 40 45° & 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	48% 48% 39% 39% 44% CRV	Limited examination due to the proximity of the lower head BMI tubes and core barrel stabilizing lug @ 90°.
101/25	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 150°	A B A B	3	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	72% 72% 60% 60% 66% CRV	Limited examination due to the proximity of the lower head BMI tubes.
101/26	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 210°	A B A B	3	SLIC 40 45° & 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	56% 56% 56% 56% 56% CRV	Limited examination due to the proximity of the lower head BMI tubes.
101/27	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 270°	A B A B	3	SLIC 40 45° & 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	42% 42% 46% 46% 44% CRV	Limited examination due to the proximity of the lower head BMI tubes and core barrel stabilizing lug @ 270°.
101/28	REACTOR VESSEL LOWER HEAD MERIDIONAL WELD @ 330°	A B A B	3	SLIC 40 55° SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	65% 65% 73% 73% 69% CRV	Limited examination due to the proximity of the lower head BMI tubes.

Figure 1



INACCESSABLE SCANNING SURFACES

H. B. Robinson
Vessel Rollout – Inside View
July 2001
limves

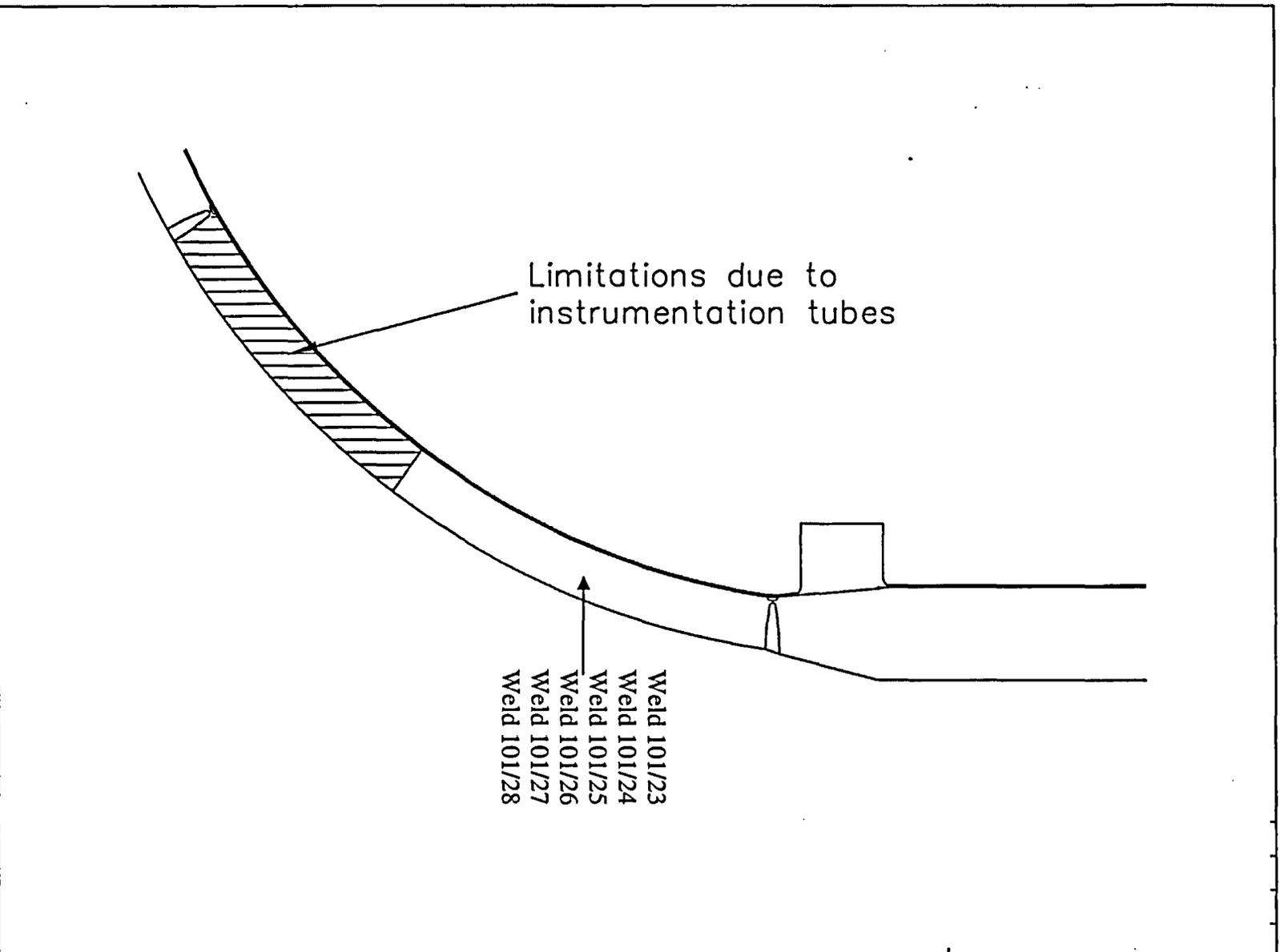


Figure 2

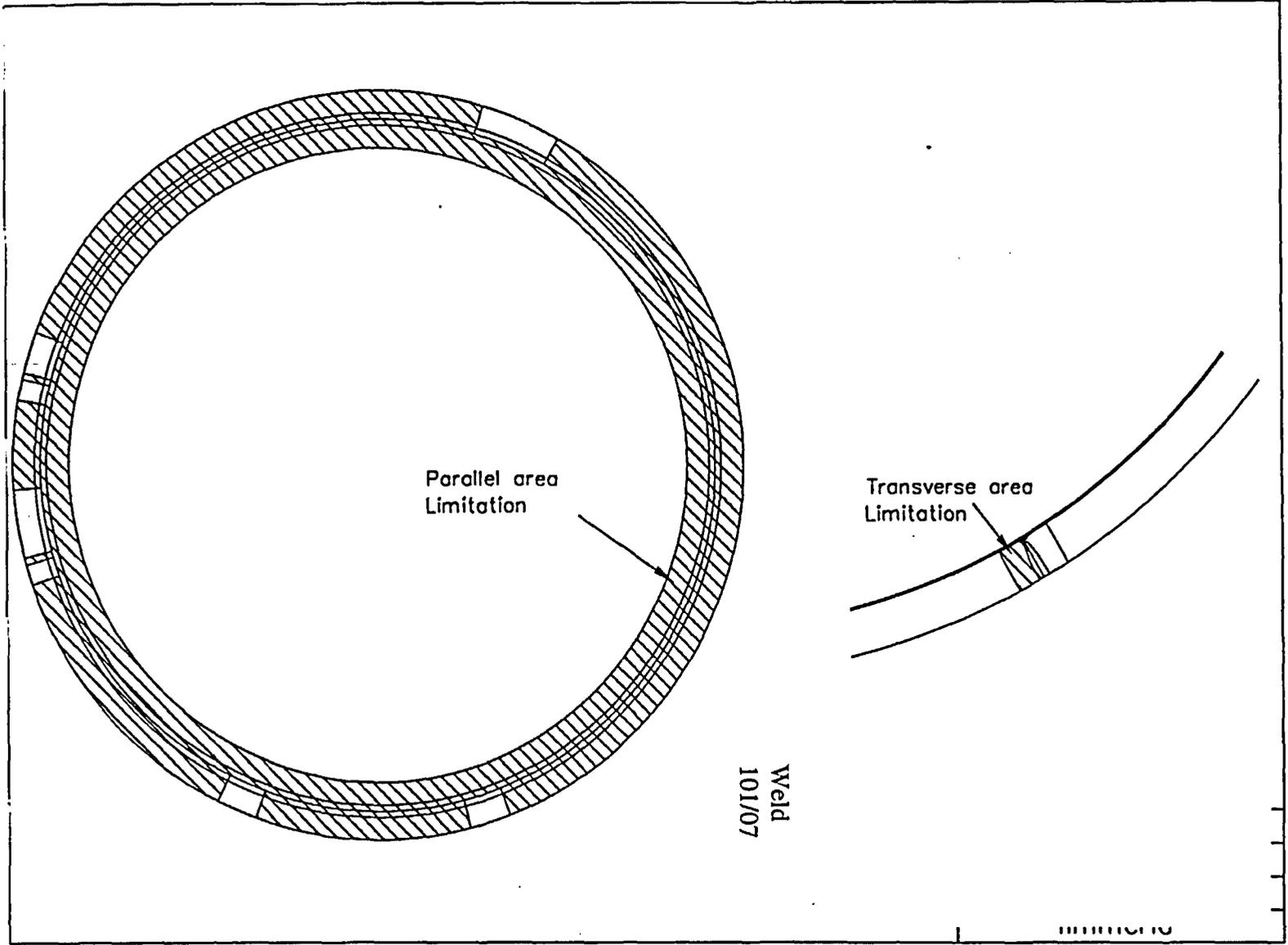


Figure 3

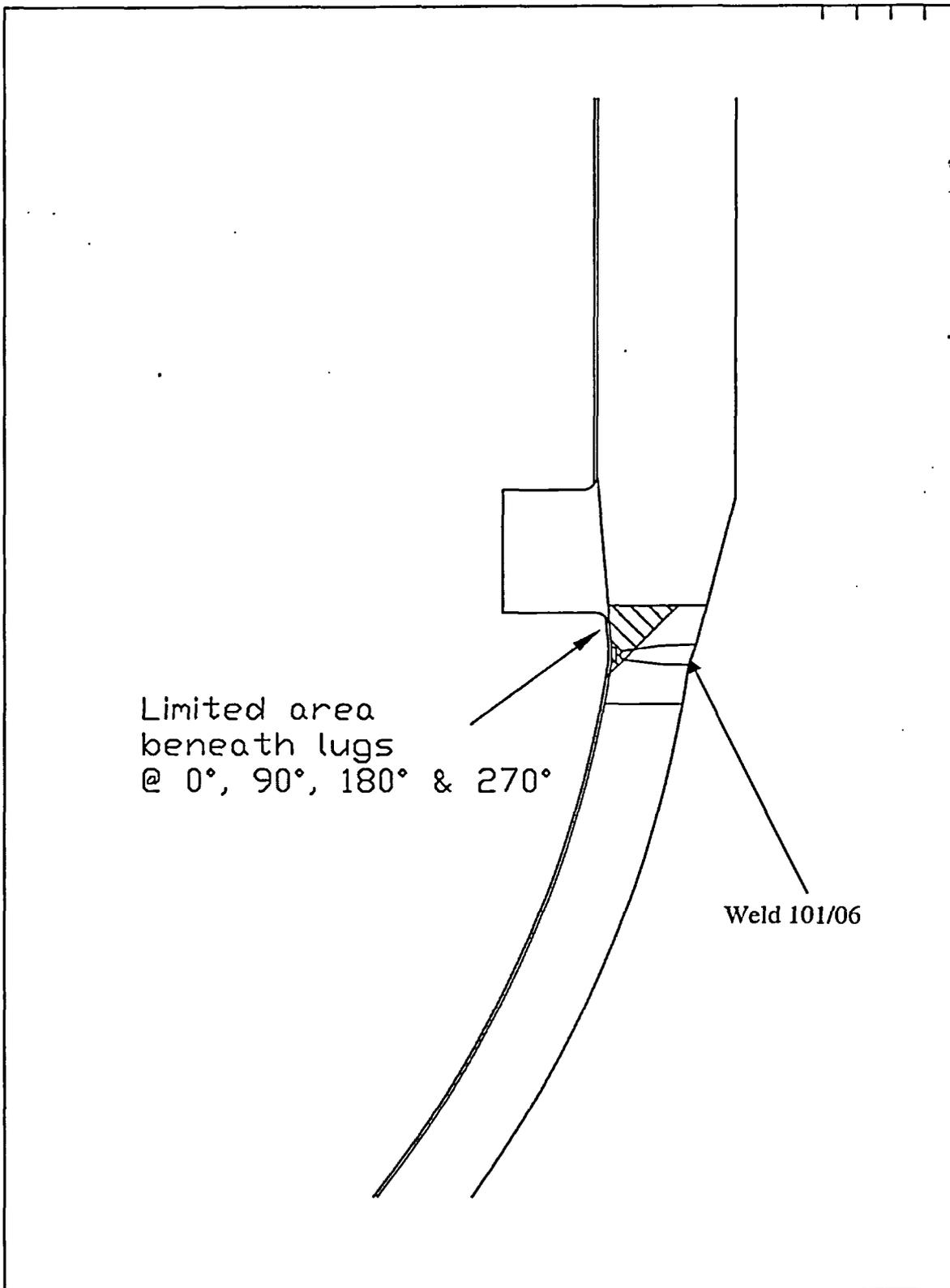


Figure 4

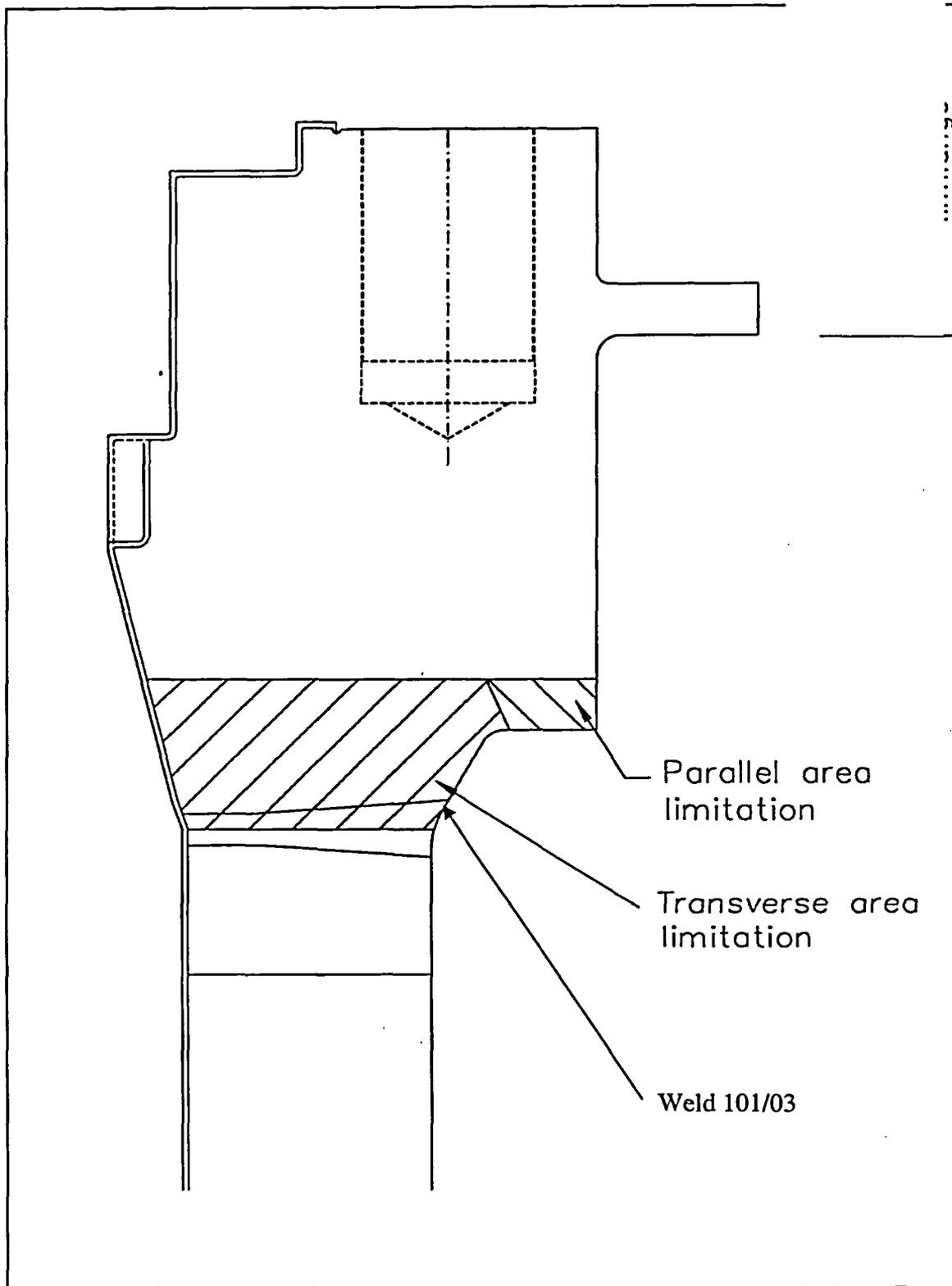


Figure 5

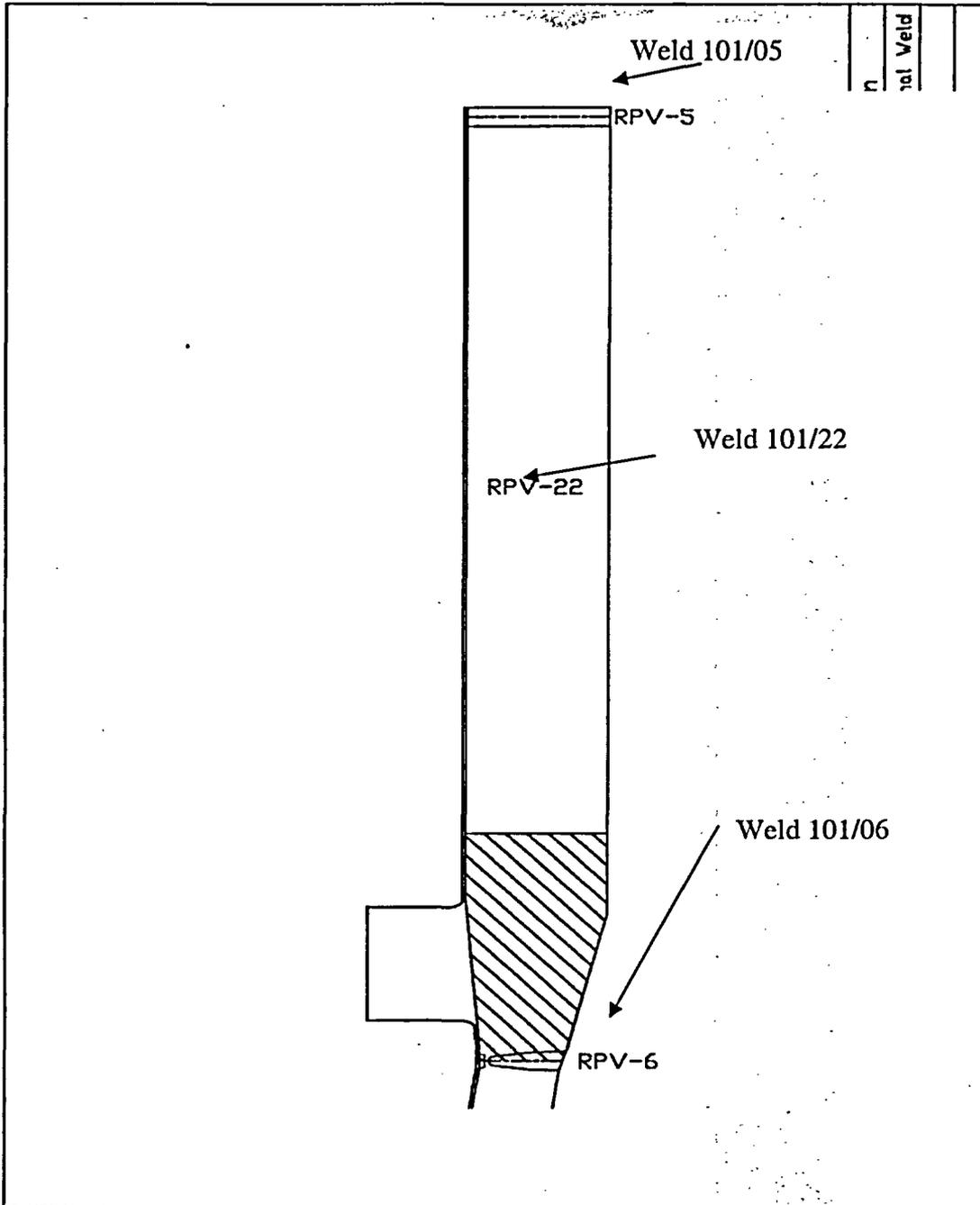


Figure 6

AUTOMATED CATEGORY B-D EXAMINATIONS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, reactor coolant system loop piping weld numbers 101A/29, 101A/31, and 101A/33.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Category B-D, Item Number B3.90. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Category B-D, Item Number B3.90, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation. Table 2 identifies the material associated with these welds, and Table 3 is an excerpt from the ISwT Reactor Vessel Scan Plan.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Automated ultrasonic examinations were performed on the RPV in accordance with the requirements of 10 CFR 50.55(a), the Technical Specifications, and the 1986 Edition of the ASME Section XI Code. These examinations included three B-D weld examinations that did not achieve the required 100% (>90%) coverage. The following descriptions, coupled with the tables and figures, are details of the examination limitations. The

accompanying figures depict the extent of the limitations. Table 1 provides the estimated required volume that was covered.

During the review process it was determined that welds 101A/30 and 101A/32 had coverage in excess of the required 90% and these welds are not included in this submittal.

RPV Outlet Nozzle to Shell Welds

Automated scanning (transverse examination only) of the outlet nozzle to shell welds (101A/29, 101A/31, and 101A/33) was limited due to interference from the nozzle integral extension. Figure 1 provides a side section view of the outlet nozzle to shell welds showing the limited scanning areas.

**TABLE 1
REACTOR VESSEL COVERAGE AND LIMITATIONS**

Weld	Item	Description	Coverage	Limitation
101A/29	B3.90	Outlet Nozzle to Shell Weld @ 10°	55%	Limited due to proximity of nozzle integral extension.
101A/31	B3.90	Outlet Nozzle to Shell Weld @ 130°	55%	Limited due to proximity of nozzle integral extension.
101A/33	B3.90	Outlet Nozzle to Shell Weld @ 250°	55%	Limited due to proximity of nozzle integral extension.

**TABLE 2
REACTOR VESSEL MATERIAL AND WELD IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	WELD	MATERIAL 2
101A/29	B-D	B3.90	REACTOR VESSEL HOT LEG LOOP "B" NOZZLE WELD @ 10°	NOZZLE SA-336	MIL B-4 MOD (SAW) & 8018	UPPER SHELL SA-302 GR B
101A/31	B-D	B3.90	REACTOR VESSEL HOT LEG LOOP "A" NOZZLE WELD @ 130°	NOZZLE SA-336	MIL B-4 MOD (SAW) & 8018	UPPER SHELL SA-302 GR B
101A/33	B-D	B3.90	REACTOR VESSEL HOT LEG LOOP "C" NOZZLE WELD @ 250°	NOZZLE SA-336	MIL B-4 MOD (SAW) & 8018	UPPER SHELL SA-302 GR B

**TABLE 3
REACTOR VESSEL SCAN PLAN**

WELD NUMBER	EXAM AREA IDENTIFICATION	EXAM		BEAM ANGLE(S)	EXAM TYPE	BEAM DIRECTIONS	CODE COVERAGE (CRV)	LIMITATIONS
		VOLUME	FIGURE					
101A/29	REACTOR VESSEL HOT LEG LOOP "B" NOZZLE WELD @ 10°	A & B A & B A B	5	SLIC 40 & 20 SLIC 40 & 20 SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	100% 100% 10% 10% 55% CRV	Limited examination due to the proximity of the integral extension.
101A/31	REACTOR VESSEL HOT LEG LOOP "A" NOZZLE WELD @ 130°	A & B A & B A B	5	SLIC 40 & 20 SLIC 40 & 20 SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	100% 100% 10% 10% 55% CRV	Limited examination due to the proximity of the integral extension.
101A/33	REACTOR VESSEL HOT LEG LOOP "A" NOZZLE WELD @ 250°	A & B A & B A B	5	SLIC 40 & 20 SLIC 40 & 20 SLIC 40 55°	PARALLEL PARALLEL TRANSVERSE TRANSVERSE	2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS 2 DIRECTIONS	100% 100% 10% 10% 55% CRV	Limited examination due to the proximity of the integral extension.

Weld 101A/29
Weld 101A/31
Weld 101A/33

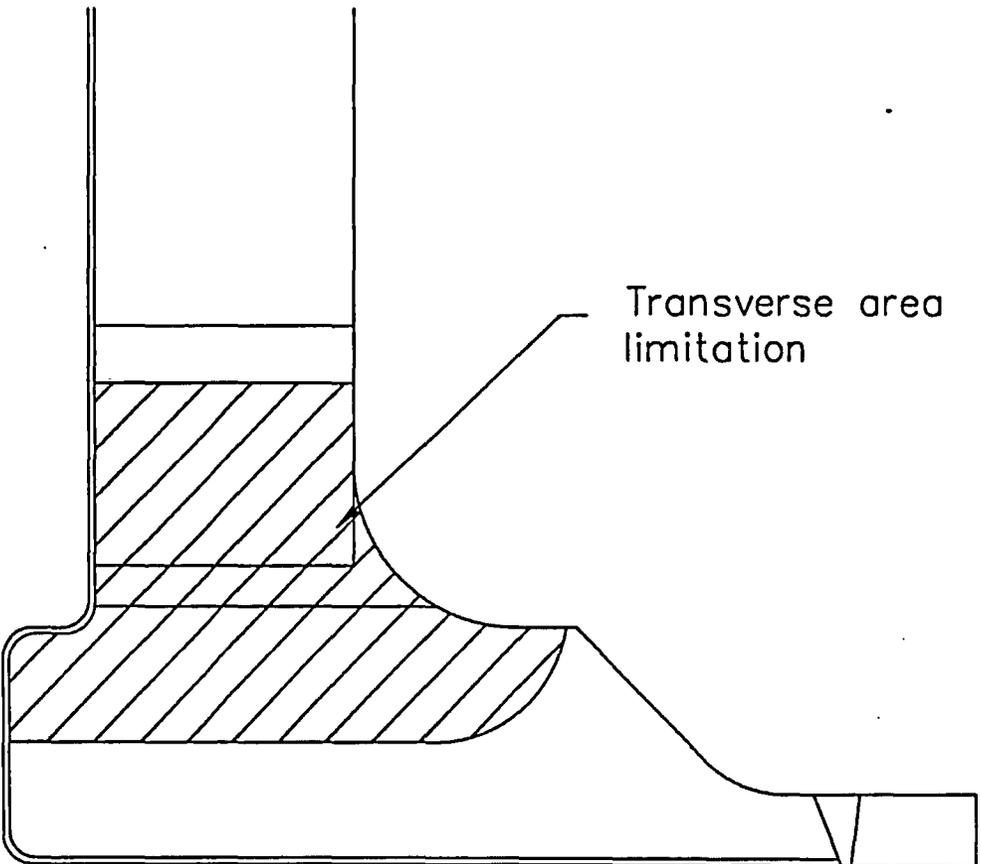


Figure 1

MANUAL CATEGORY B-A EXAMINATIONS

Component(s) for Which Relief is Requested

The component applicable to this relief request is the HBRSEP, Unit No. 2, reactor vessel closure head meridional weld with identification number 101/08.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Category B-A, Item Number B1.22. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the component listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Category B-A, Item Number B1.22, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Table 1 quantifies the extent of required volume that was covered, and Table 2 identifies the materials joined. Performance Demonstration Initiative (PDI) qualified personnel were used at the time of the examination. The PDI procedure in effect at the time of the examination was qualified for a thickness range of up to 7.63 inches. The RPV head thickness is 7.75 inches, which prompted Relief Request RR-31, which was approved under TAC No. MB1140, dated March 9, 2001. The relief allowed the utilization of previous examination techniques for the examination of the meridional weld (Reg. Guide 1.150).

Ultrasonic examination techniques utilized during the Third Ten-Year Interval on the loop piping welds were consistent with industry standards during the time frame the examination occurred. The weld profiles provided show the configurations as well as the scans performed inclusive of beam path coverage. Beam path coverage does not account for beam spread, which would increase the effective coverage of each weld.

Scan directions utilized are as follows:

Scan 1	With flow
Scan 2	Against flow
Scan 3	Clockwise, looking in the direction of flow
Scan 4	Counterclockwise, looking in the direction of flow

Each scan direction was assigned a value of 100% of the required scan volume for each direction. Each scan percentage was compiled and divided by the four directions to arrive at a cumulative examination coverage percentage.

Additional information included in support of this relief request are an Inservice Inspection Determination of Percent Coverage Worksheet, Limited Exam Data Sheets for weld 101/08, and a cross-sectional view of weld 101/08.

**TABLE 1
 MERIDIONAL WELD COVERAGE AND LIMITATIONS**

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Technique (PDI)
101/08	Reactor Vessel Closure Head Meridional Weld	B-A	B1.22	VOL	49%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION, HEAD FLANGE AND CRDM PENETRATIONS.	NO

**TABLE 2
 MERIDIONAL WELD MATERIAL AND WELD IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	WELD	MATERIAL 2
101/08	B-A	B1.22	Reactor Vessel Closure Head Meridional Weld	SA-302 GR B	RAC03 (SAW) & E8018	SA-302 GR B

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	101/08	ASME CATEGORY:	B-A
ASME CODE FIGURE:	IWB-2500-3	ASME ITEM NUMBER:	B1.22
CONFIGURATION:	REACTOR VESSEL HEAD MERIDIONAL WELD	% CRV ACHIEVED:	49%
PDI TECHNIQUE USED:	NO	EXAM DATE:	4/16/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	47%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
2	47%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
3	51%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
4	51%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	47%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
2	47%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
3	51%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.
4	51%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.

0° SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
LONGITUDINAL	47%	SCAN LIMITED DUE TO COMPONENT CONFIGURATION AND CRDM PENETRATIONS.



Washington

Limited Exam Data Sheet

ISI Weld Number: 101/08
 ISI Component Number: Reactor Vessel Head Weld / 2005 RC Sketch(s) Attached? YES
 Isometric Number: HJR2-1068 Rev.2 Sht.1 NO

Overall Weld Length: 49 Inches Thickness: 8.40 Inches Weld Width: 3.0 Inches

Class: IWB Base Metal Width 8.4 Inches Total Cross Sectional Area 95.76 Inches

Base Metal Calculation:

Total Cubic Volume 4692.24 Inches

Weld Metal Calculation:

Base Metal Cubic Volume 3457.44 Inches

Weld Metal Cubic Volume 1234.8 Inches

SCANS	Total Cubic Volume Scanned (Inches)		Total Cubic Volume
	x	i	
0"	23 x 8.4 x 8.4	1622.88	3457.44
45° t	23 x 8.4 x 8.4	1622.88	3457.44
45° b	23 x 8.4 x 8.4	1622.88	3457.44
45° cw	249 x 8.4 x 8.4 9.2 x 8.4 x 8.4	1756.94 649.15	3457.44
45° ccw	139 x 8.4 x 8.4 9.2 x 8.4 x 8.4 x 0.5	981.78 324.58	3457.44
60° t	23 x 8.4 x 8.4	1622.88	3457.44
60° b	23 x 8.4 x 8.4	1622.88	3457.44
60° cw	17.5 x 8.4 x 8.4 16.6 x 8.4 x 8.4 2.83 x 5.5	1234.80 1171.30 15.565	3457.44
60° ccw	6.4 x 8.4 x 8.4 16.6 x 8.4 x 8.4 x 0.5	431.58 585.65	3457.44
Total Cubic Volume Scanned			31116.96
Total Cubic Volume			31116.96
			Aggregate Coverage 49%

Examiner: [Signature] Level: III Date: 4-16-01
 Examiner: [Signature] Level: N/A Date: N/A
 Reviewer (Washington): [Signature] Date: 4-27-01
 Reviewer (Client): [Signature] Date: 5-1-01
 Reviewer (ANII): [Signature] Date: 7/18/01



Limited Exam Data Sheet

ISI Weld Number: 101A08
 ISI Component Number: Reactor Vessel Head Weld / 2005 RC
 Isometric Number: HBR2-1068 Rev.2 Sht.1

Sketch(s) Attached? YES
 NO

Overall Weld Length: 49 Inches Thickness: 8.40 Inches Weld Width: 3.0 Inches

Class: IWB Base Metal Width 8.4 Inches Total Cross Sectional Area 95.76 Inches

Base Metal Calculation:

Total Cubic Volume 4692.24 Inches

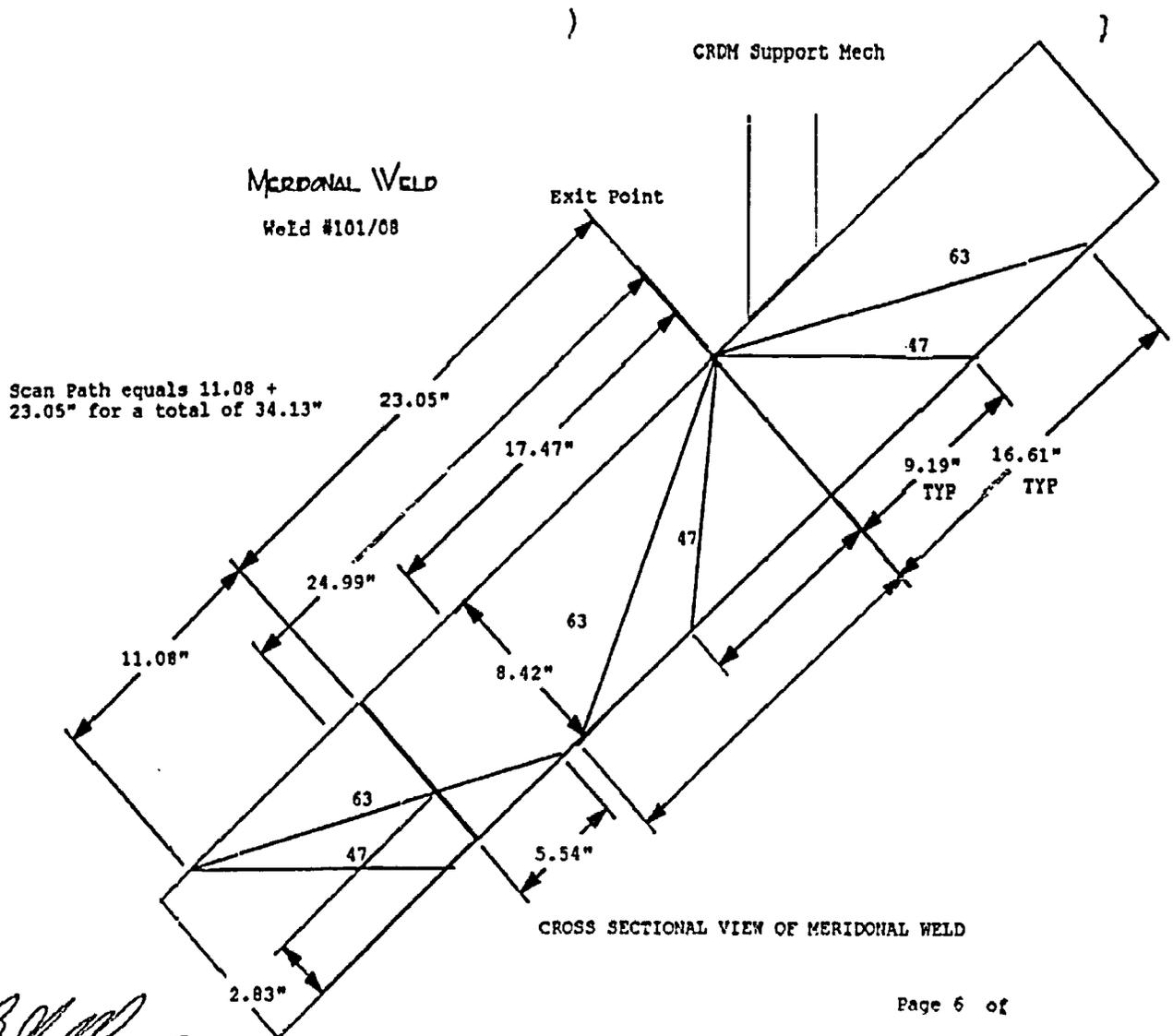
Weld Metal Calculation:

Base Metal Cubic Volume 3457.44 Inches

Weld Metal Cubic Volume 1234.8 Inches

SCANS	Total Cubic Volume Scanned (Inches)				Total Cubic Volume
	u	t			
0°	23 x 30 x 8.4	579.60	579.6	1234.8	
45° t	23 x 30 x 8.4	579.60	579.6	1234.8	
45° b	23 x 30 x 8.4	579.60	579.6	1234.8	
45° cw	249 x 3 x 8.4 9.2 x 3 x 8.4	627.48 231.84	859.32	1234.8	
45° ccw	13.9 x 3 x 8.4 9.2 x 3 x 8.4 x 0.5	336.78 113.92	466.2	1234.8	
60° t	23 x 30 x 8.4	579.60	579.6	1234.8	
60° b	23 x 30 x 8.4	579.60	579.6	1234.8	
60° cw	17.5 x 3 x 8.4 16.6 x 3 x 8.4 2.83 x 5.5	441.00 418.32 15.565	843.76	1234.8	
60° ccw	6.4 x 3 x 8.4 16.6 x 3 x 8.4 x 0.5	161.28 209.16	370.44	1234.8	
Total Cubic Volume Scanned				<u>5437.72</u>	
Total Cubic Volume				<u>11113.2</u>	Aggregate Coverage <u>49%</u>

Examiner: [Signature] Level: III Date: 4-16-01
 Examiner: N/A Level: N/A Date: N/A
 Reviewer (Washington): [Signature] Date: 4-27-01
 Reviewer (Client): [Signature] Date: 5-2-01
 Reviewer (ANII): [Signature] Date: 7/18/01



B. J. [Signature] II 4-16-01

21.020 ..

MANUAL CATEGORIES B-F AND B-J EXAMINATIONS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, reactor coolant system piping associated with loop welds identified in Table 1.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Categories B-F and B-J, Item Numbers B5.70 and B9.11, respectively. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Categories B-F and B-J, Item Numbers B5.70 and B9.11, respectively, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

During the review process performed on the subject welds, it was identified that the ISI Program description included steam generator nozzle safe end welds. After further review, it appears that the steam generators were provided with a stainless steel build-up on the hot leg and cold leg nozzles and that there is no weld in this location. Therefore, these welds are not included in this RAI response and have been deleted from the ISI Program description.

Table 1 quantifies the extent of required volume that was covered, and Table 2 identifies the materials joined.

Ultrasonic examination techniques utilized during the Third Ten-Year Interval on the loop piping welds were consistent with industry standards during the time frame the examination occurred. The weld profiles provided depict the configurations as well as the scans performed inclusive of beam path coverage. Beam path coverage does not account for beam spread, which would increase the actual coverage for each weld.

Scan directions utilized are as follows:

- | | |
|--------|--|
| Scan 1 | With flow |
| Scan 2 | Against flow |
| Scan 3 | Clockwise, looking in the direction of flow |
| Scan 4 | Counterclockwise, looking in the direction of flow |

Each scan direction was assigned a value of 100% of the required scan volume for each direction. Each scan percentage was compiled and divided by the four directions to arrive at a cumulative coverage percentage.

Additional information included in support of this relief request are Inservice Inspection Determination of Percent Coverage Worksheets and associated weld coverage plots for examination coverage.

**TABLE 1
LOOP PIPING COVERAGE AND LIMITATIONS**

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Technique
107/04DM	Hot Leg Loop "A" Elbow to Hot Leg Nozzle	B-F	B5.70	VOL	61%	Centrifugally cast stainless steel elbow to carbon steel cast nozzle.	Standard ASME Code manual ultrasonic examination
107/05DM	Crossover Leg Loop "A" S/G Nozzle to Elbow	B-F	B5.70	VOL	61.75%	Carbon cast nozzle to centrifugally cast stainless steel elbow.	Standard ASME Code manual ultrasonic examination
107A/04DM	Hot Leg Loop "B" Elbow to Hot Leg Nozzle	B-F	B5.70	VOL	60.35%	Centrifugally cast stainless steel elbow to carbon steel cast nozzle.	WCAP-11778
107A/05DM	Crossover Leg Loop "B" S/G Nozzle to Elbow	B-F	B5.70	VOL	60.52%	Carbon cast nozzle to centrifugally cast stainless steel elbow.	WCAP-11778
107B/04DM	Hot Leg Loop "C" Elbow to Hot Leg Nozzle	B-F	B5.70	VOL	51.50%	Centrifugally cast stainless steel elbow to carbon steel cast nozzle.	PDI
107B/05DM	Crossover Leg Loop "C" S/G Nozzle to Elbow	B-F	B5.70	VOL	55.75%	Carbon cast nozzle to centrifugally cast stainless steel elbow	PDI
107A/07	Crossover Leg Loop "B" Pipe to Elbow	B-J	B9.11	VOL	84%	Wrought stainless steel pipe to centrifugally cast stainless steel elbow.	WCAP-11778
107B/11	Cold Leg Loop "C" RCP to Pipe	B-J	B9.11	VOL	57%	Centrifugally cast stainless steel elbow to wrought stainless steel pipe.	PDI

**TABLE 2
 MATERIAL IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	MATERIAL 2
107/04DM	B-F	B5.70	Hot Leg Loop "A" Elbow to Hot Leg Nozzle	Elbow A376 TP 316	Nozzle SA-216 GR WCC
107/05DM	B-F	B5.70	Crossover Leg Loop "A" S/G Nozzle to Elbow	Nozzle SA-216 GR WCC	Elbow A376 TP 316
107A/04DM	B-F	B5.70	Hot Leg Loop "B" Elbow to Hot Leg Nozzle	Elbow A376 TP 316	Nozzle SA-216 GR WCC
107A/05DM	B-F	B5.70	Crossover Leg Loop "B" S/G Nozzle to Elbow	Nozzle SA-216 GR WCC	Elbow A376 TP 316
107B/04DM	B-F	B5.70	Hot Leg Loop "C" Elbow to Hot Leg Nozzle	Elbow A376 TP 316	Nozzle SA-216 GR WCC
107B/05DM	B-F	B5.70	Crossover Leg Loop "C" S/G Nozzle to Elbow	Nozzle SA-216 GR WCC	Elbow A376 TP 316
107A/07	B-J	B9.11	Crossover Leg Loop "B" Pipe to Elbow	Pipe A376 TP 316	Elbow A376 TP 316
107B/11	B-J	B9.11	Cold Leg Loop "C" RCP to Pipe	Pump A376 TP 316	Pipe A376 TP 316

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

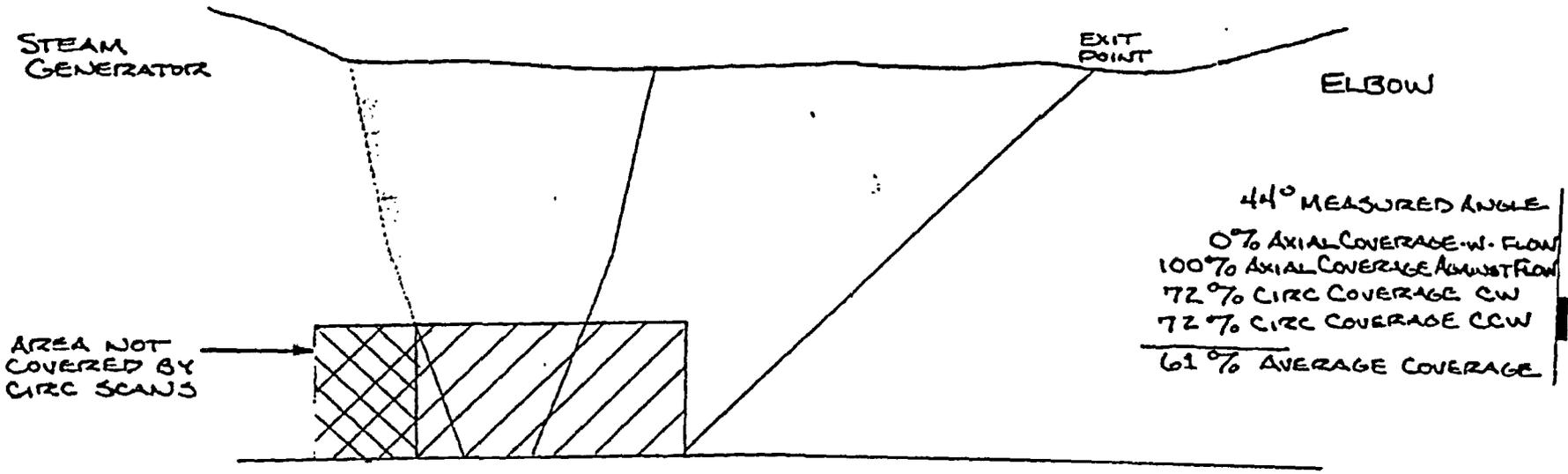
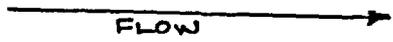
COMPONENT ID:	107/04DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	ELBOW TO NOZZLE	% CRV ACHIEVED:	61%
PDI TECHNIQUE USED:	NO	EXAM DATE:	10/3/93

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
3	72%	1/2V SINGLE SIDED EXAM DUE CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	72%	1/2V SINGLE SIDED EXAM DUE CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.

ROBINSON UNIT #2
WELD # 107/04DM



COVERAGE PLOT BASED ON
ORIGINAL PROFILE AND OEM
WELD DESIGN SPECIFICATIONS.

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

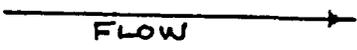
COMPONENT ID:	107/05DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	NOZZLE TO ELBOW	% CRV ACHIEVED:	61.75%
PDI TECHNIQUE USED:	NO	EXAM DATE:	10/4/93

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
2	99%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
3	74%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	74%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.

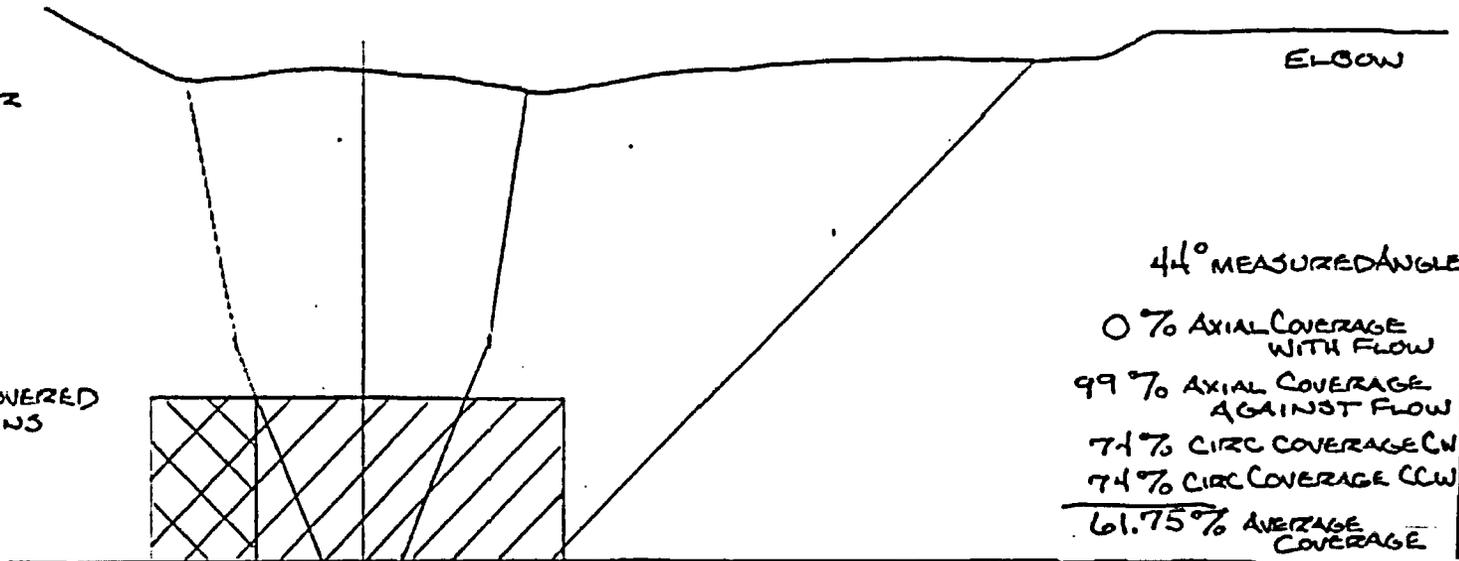
ROBINSON UNIT #2
WELD # 107/05DM



STEAM
GENERATOR

ELBOW

AREA NOT COVERED
BY CIRC SCANS



COVERAGE PLOT BASED ON
ORIGINAL PROFILE AND OEM
WELD DESIGN SPECIFICATIONS.

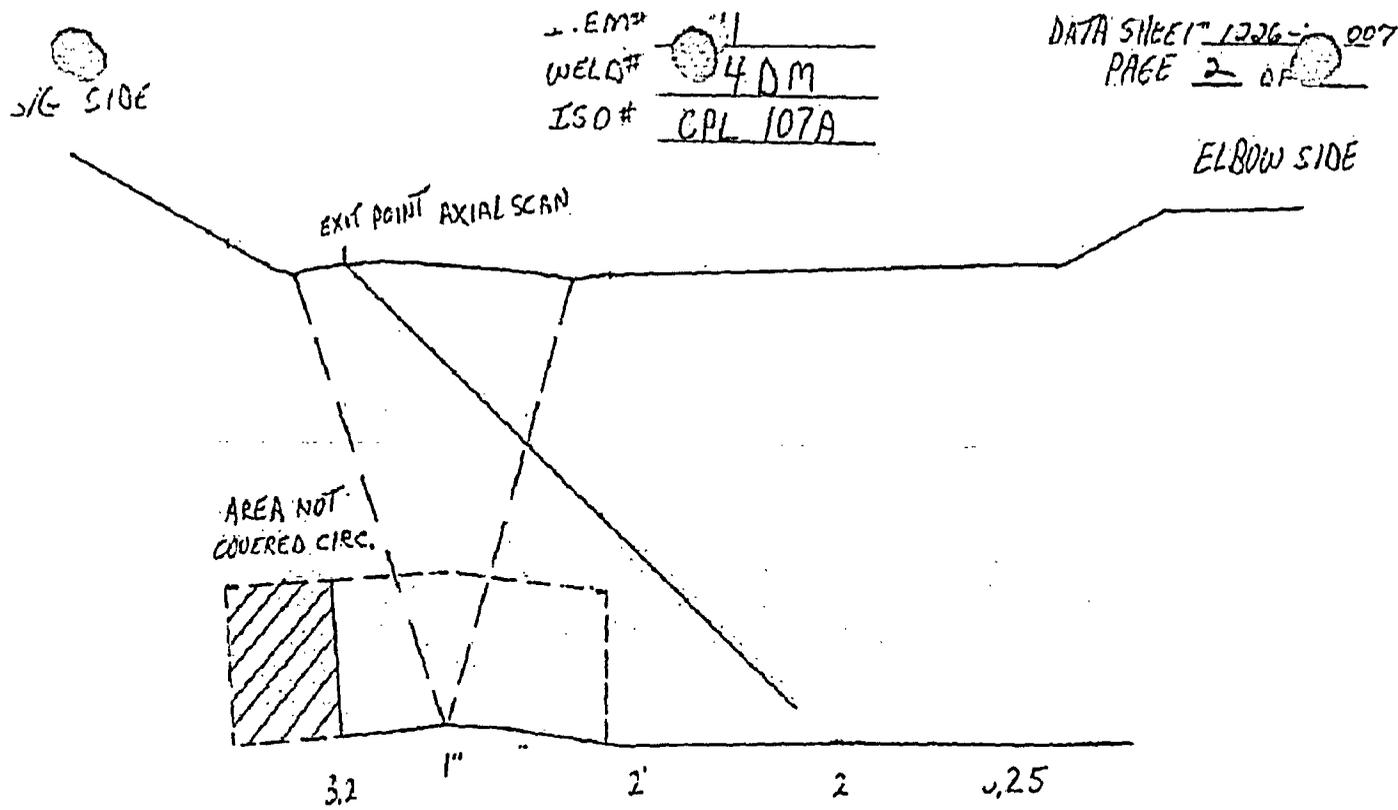
**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	107A/04DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	ELBOW TO NOZZLE	% CRV ACHIEVED:	60.35%
PDI TECHNIQUE USED:	NO - WESTINGHOUSE TECHNIQUE PER WCAP 11778 UTILIZED	EXAM DATE:	3/18/98

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
3	70.7%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	70.7%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.



Reviewed Scott Larson 3/17/98
C Osman 3/18/98

Edmund K. Donovan III 3/15/98
D.H.-80 3/20/98

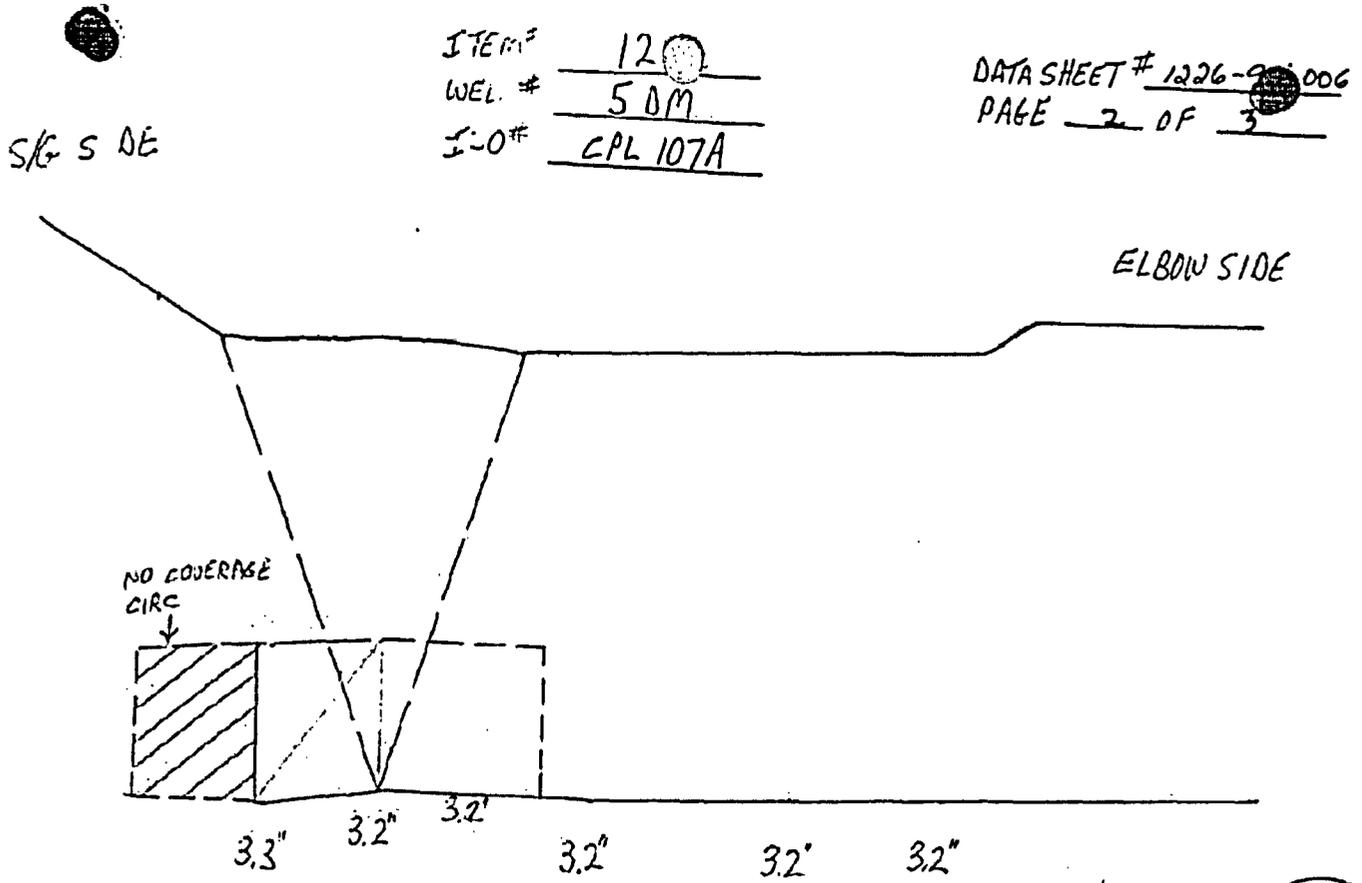
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	107A/05DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	NOZZLE TO ELBOW	% CRV ACHIEVED:	60.52%
PDI TECHNIQUE USED:	NO – WESTINGHOUSE TECHNIQUE PER WCAP 11778 UTILIZED	EXAM DATE:	3/18/98

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
2	100%	NONE
3	71%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	71%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.



Reviewer: *Scott Law* 3-17-98
C. Deman 3-18-98

Edmund Dawson 3/15/98
D.H. So. RNP 3/29/98



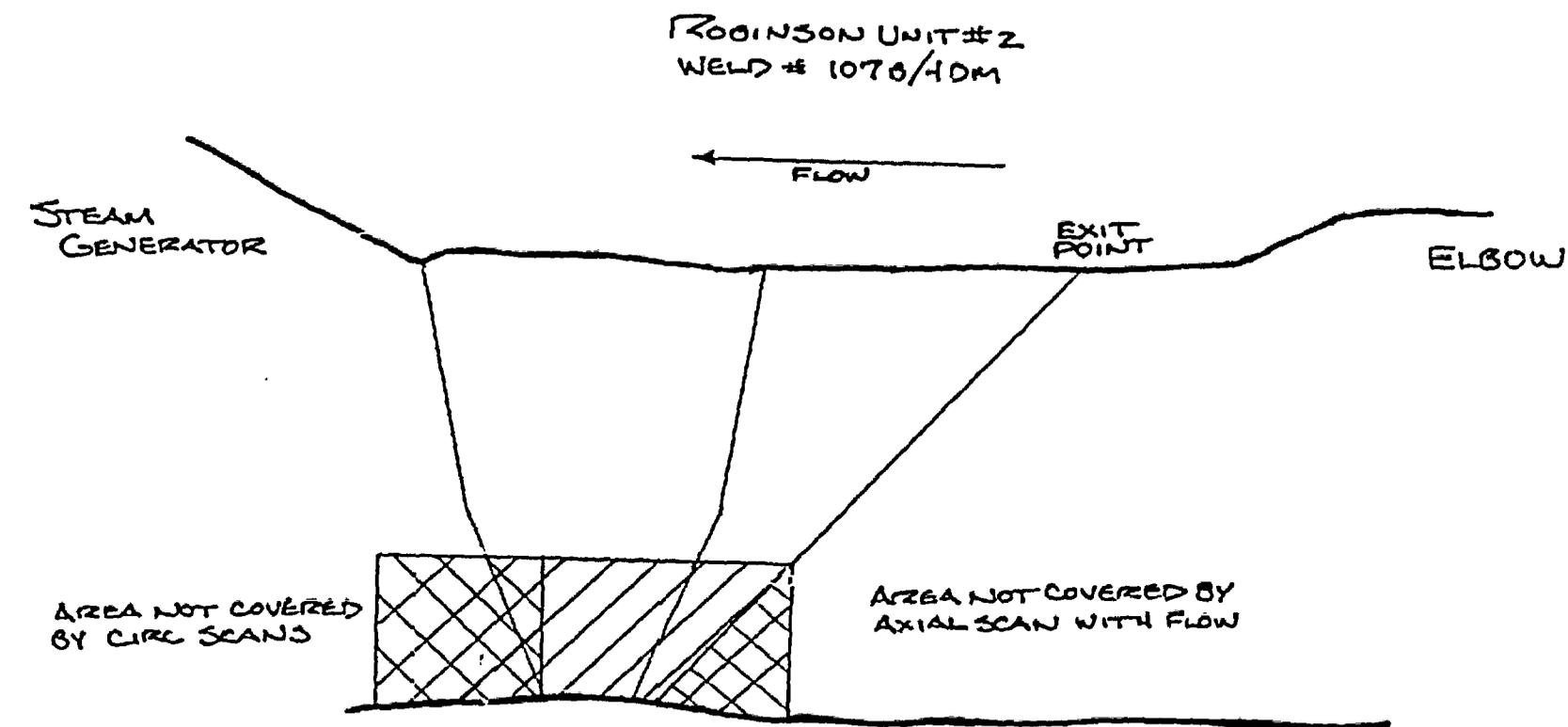
**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	107B/04DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	ELBOW TO NOZZLE	% CRV ACHIEVED:	51.50%
PDI TECHNIQUE USED:	YES	EXAM DATE:	5/25/01

41° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	84%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
2	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
3	61%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	61%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.



COVERAGE PLOT BASED ON ORIGINAL REFERENCED PROFILE AND OEM WELD DESIGN SPECIFICATIONS.

$\pm 1^\circ$ MEASURED ANGLE

84% AXIAL COVERAGE W. FLOW
0% AXIAL COVERAGE AGAINST FLOW
61% CIRC COVERAGE CW
61% CIRC COVERAGE CCW
51.5% AVERAGE COVERAGE

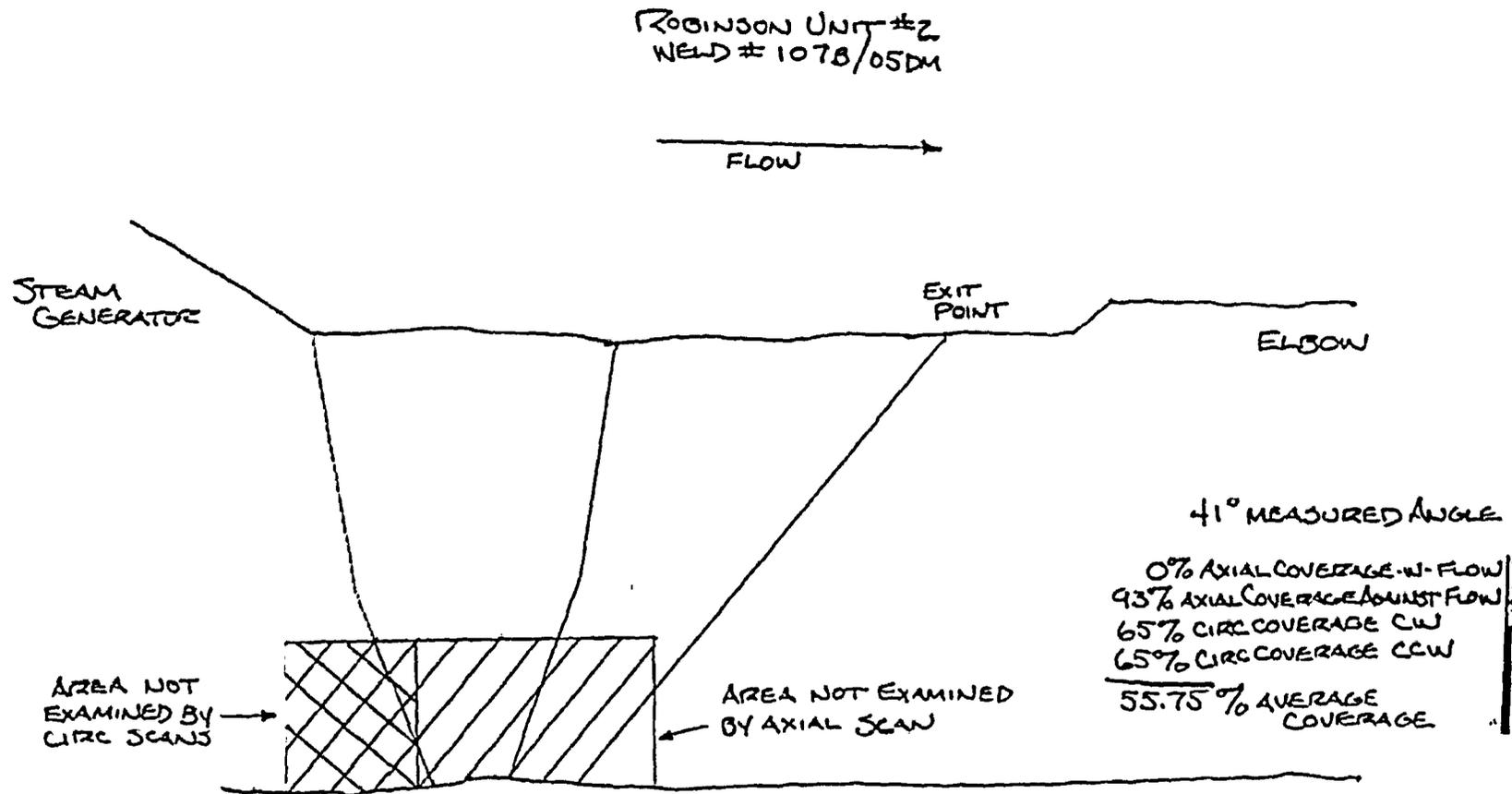
**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	107B/05DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.70
CONFIGURATION	NOZZLE TO ELBOW	% CRV ACHIEVED:	55.75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/20/01

41° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
2	93%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
3	65%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.
4	65%	1/2V SINGLE SIDED EXAM DUE TO CAST STAINLESS STEEL ELBOW TO CARBON CAST NOZZLE CONFIGURATION.

* See attached CRV plot for examination coverage.



COVERAGE PLOT BASED ON ORIGINAL REFERENCED PROFILE AND OEM WELD DESIGN SPECIFICATIONS.

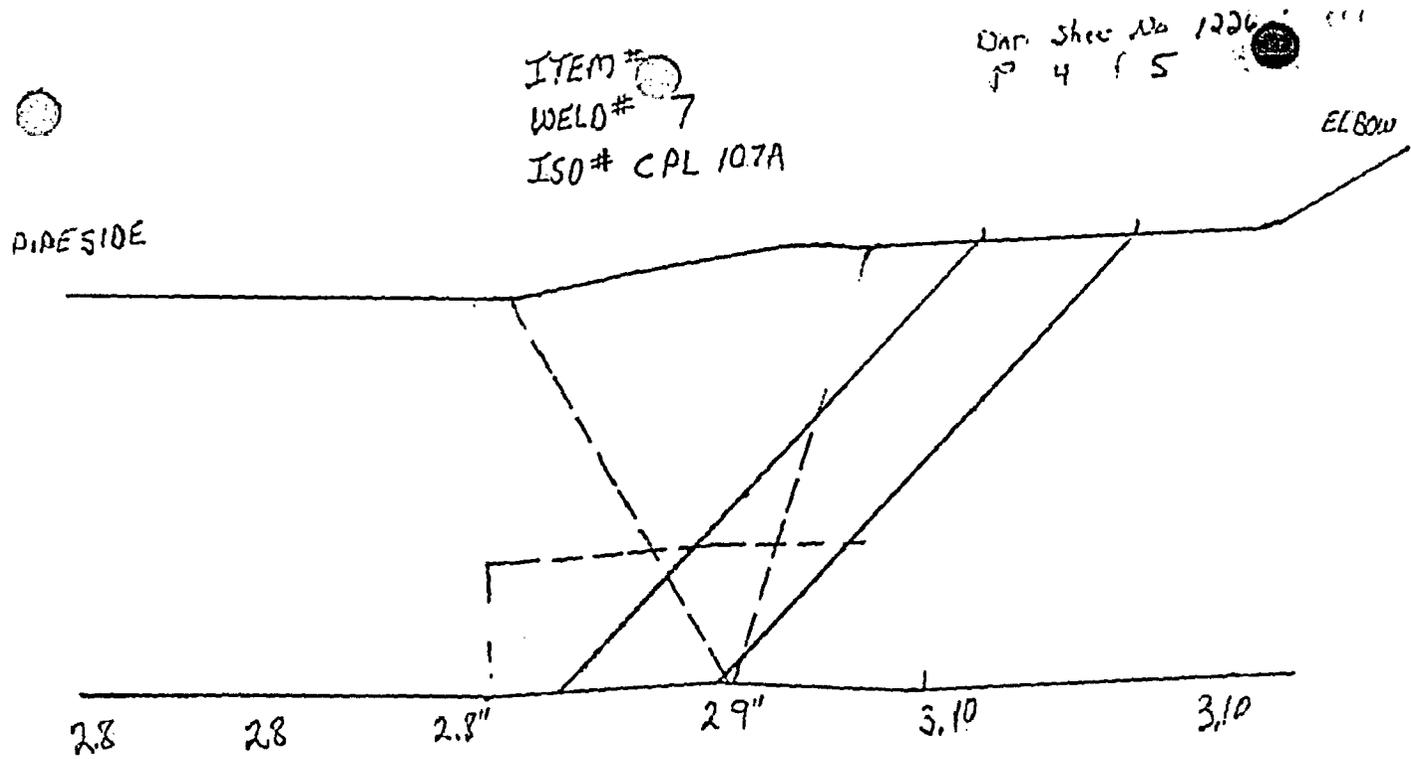
**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	107A/07	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	PIPE TO ELBOW	% CRV ACHIEVED:	84%
PDI TECHNIQUE USED:	NO - WESTINGHOUSE TECHNIQUE PER WCAP-11778 UTILIZED	EXAM DATE:	3/19/98

41° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	36%	1/2V SINGLE SIDED EXAM DUE TO PIPE TO CAST STAINLESS STEEL ELBOW CONFIGURATION.
3	100%	NONE
4	100%	NONE

* See attached CRV plot for examination coverage.



Dale Murdock 3/15/98
Reviewed: Scott Larson 3-2-98
C. Osman 3-18-98



**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	107B/11	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	RC PUMP TO PIPE	% CRV ACHIEVED:	57%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/20/01

41° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO REACTOR COOLANT PUMP NOZZLE TO PIPE CONFIGURATION.
2	100%	NONE
3	64%	1/2V EXAM DUE TO REACTOR COOLANT PUMP NOZZLE TO PIPE CONFIGURATION.
4	64%	1/2V EXAM DUE TO REACTOR COOLANT PUMP NOZZLE TO PIPE CONFIGURATION.

* See attached CRV plot for examination coverage.

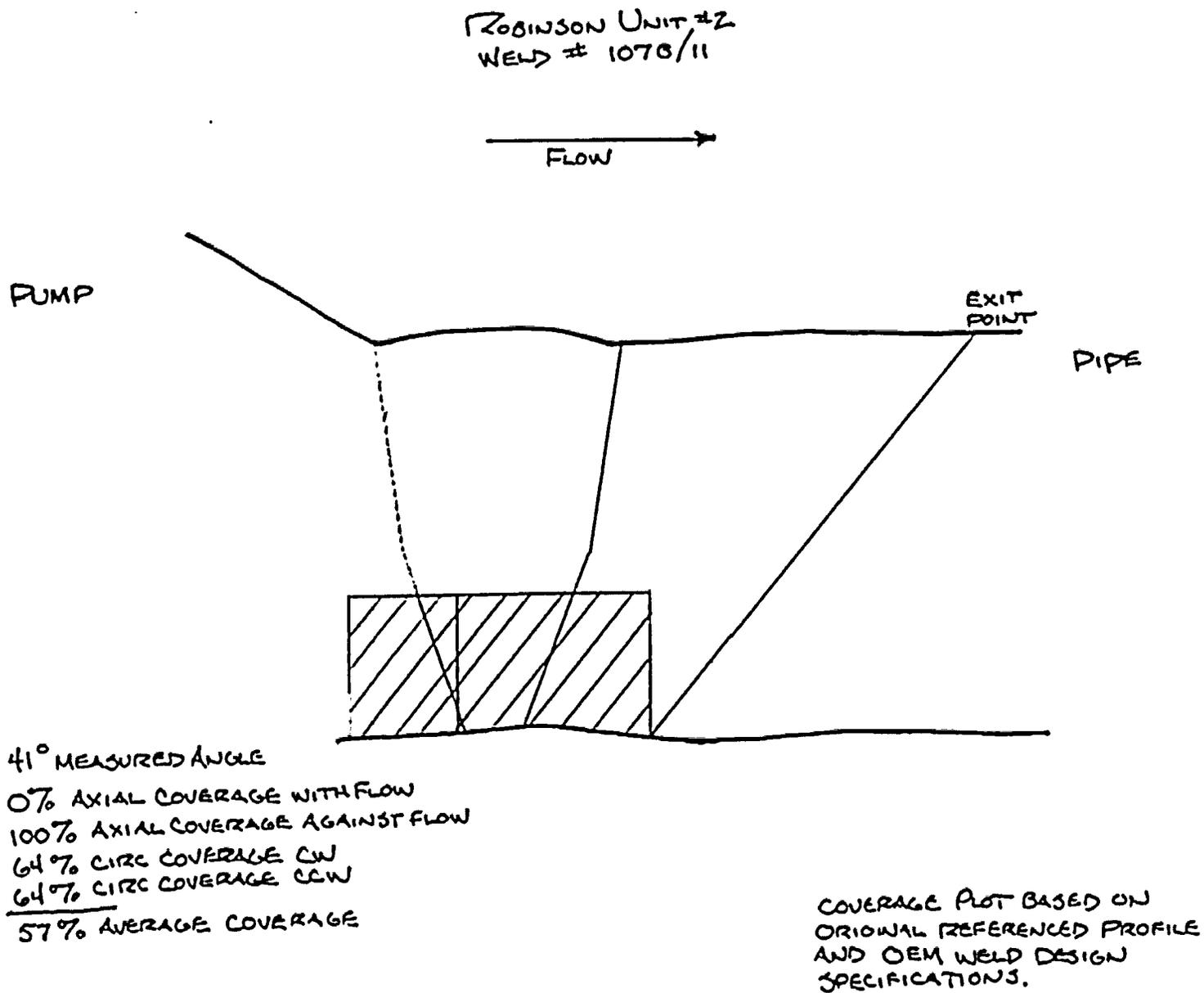


Figure 1

CATEGORIES B-F, B-J, AND C-B NOZZLE EXAMINATIONS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, limited examination of component nozzle configurations identified in Table 1.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Categories B-F, B-J, and C-B, Item Numbers B5.40, B9.31, and C2.21, respectively. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Categories B-F, B-J, and C-B, Item Numbers B5.40, B9.31, and C2.21, respectively, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Ultrasonic examination techniques utilized during the Third Ten-Year Interval on the nozzle configurations were consistent with industry standards during the time frame the examination occurred. The weld profiles provided show the configurations as well as the scans performed inclusive of beam path coverage. Beam path coverage does not account for beam spread, which would increase the identified coverage for each weld.

Typically, a branch connection only allows for axial scanning from one side, and circumferential scans do not allow complete coverage of the Code-required volume due to the nozzle connection design configuration. Table 1 quantifies the extent of required volume that was covered, and Table 2 identifies the materials joined.

Scan directions utilized are as follows:

Scan 1	With flow
Scan 2	Against flow
Scan 3	Clockwise, looking in the direction of flow
Scan 4	Counterclockwise, looking in the direction of flow

Each scan direction was assigned a value of 100% of the required scan volume for each direction. Each scan percentage was compiled and divided by the four directions to arrive at a cumulative coverage percentage.

Additional information included in support of this relief request are Inservice Inspection Determination of Percent Coverage Worksheets, associated weld coverage plots for examination coverage, and, where available, weld scan limitation details.

**TABLE 1
NOZZLE COVERAGE AND LIMITATIONS**

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Technique
117/01DM	Pressurizer Relief Nozzle to Safe-End	B-F	B5.40	VOL	74.80%	Nozzle configuration.	PDI
118/01DM	Pressurizer Safety Nozzle to Safe-End	B-F	B5.40	VOL	88.25%	Nozzle configuration.	PDI
108/01BC	Loop Pipe to 12" Branch Connection	B-J	B9.31	VOL	62%	Nozzle configuration.	PDI
112/01BC	Loop Pipe to 10" Branch Connection	B-J	B9.31	VOL	60%	Nozzle configuration.	PDI
202/03	Boron Injection Tank Lower Head to Nozzle Weld	C-B	C2.21	VOL	74.25%	Vessel weld/nozzle configuration.	Standard ASME Code manual ultrasonic examination.
202/04	Boron Injection Tank Upper Head to Nozzle Weld	C-B	C2.21	VOL	84%	Vessel weld/nozzle configuration.	Standard ASME Code manual ultrasonic examination.
205/08	Steam Generator "A" Upper Shell to Feedwater Nozzle	C-B	C2.21	VOL	53%	Nozzle configuration.	Standard ASME Code manual ultrasonic examination.
205A/07	Steam Generator "B" Upper Head to Steam Nozzle	C-B	C2.21	VOL	44%	Nozzle configuration.	Standard ASME Code manual ultrasonic examination.
205A/08	Steam Generator "B" Upper Shell to Feedwater Nozzle	C-B	C2.21	VOL	56%	Nozzle configuration.	Standard ASME Code manual ultrasonic examination.

**TABLE 2
NOZZLE MATERIAL IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	MATERIAL 2
117/01DM	B-F	B5.40	Pressurizer Relief Nozzle to Safe-End	Nozzle SA-216 GR WCC	Safe-End SA-182 TP-316
118/01DM	B-F	B5.40	Pressurizer Safety Nozzle to Safe-End	Nozzle SA-216 GR WCC	Safe-End SA-182 TP-316
108/01BC	B-J	B9.31	Loop Pipe to 12" Branch Connection	Loop Pipe A376 TP316	Branch A-182 F-316
112/01BC	B-J	B9.31	Loop Pipe to 10" Branch Connection	Loop Pipe A376 TP316	Branch A-182 F-316
202/03	C-B	C2.21	Boron Injection Tank Lower Head to Nozzle Weld	Head SA-240 TP-304	Nozzle SA-182 F-304
202/04	C-B	C2.21	Boron Injection Tank Upper Head to Nozzle Weld	Head SA-240 TP-304	Nozzle SA-182 F-304
205/08	C-B	C2.21	Steam Generator "A" Upper Shell to Feedwater Nozzle	Shell SA-533 GR-A CL. 2	Nozzle SA-508 CLASS 2a
205A/07	C-B	C2.21	Steam Generator "B" Upper Head to Steam Nozzle	Shell SA-533 GR-A CL. 2	Nozzle SA-508 CLASS 2a
205A/08	C-B	C2.21	Steam Generator "B" Upper Shell to Feedwater Nozzle	Shell SA-533 GR-A CL. 2	Nozzle SA-508 CLASS 2a

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	117/01DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.40
CONFIGURATION:	NOZZLE TO SAFE END	% CRV ACHIEVED:	74.80%
PDI TECHNIQUE USED:	YES	EXAM DATE:	3/14/98

45° SHEAR & RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	95%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.
2	26%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.
3	89%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.
4	89%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.

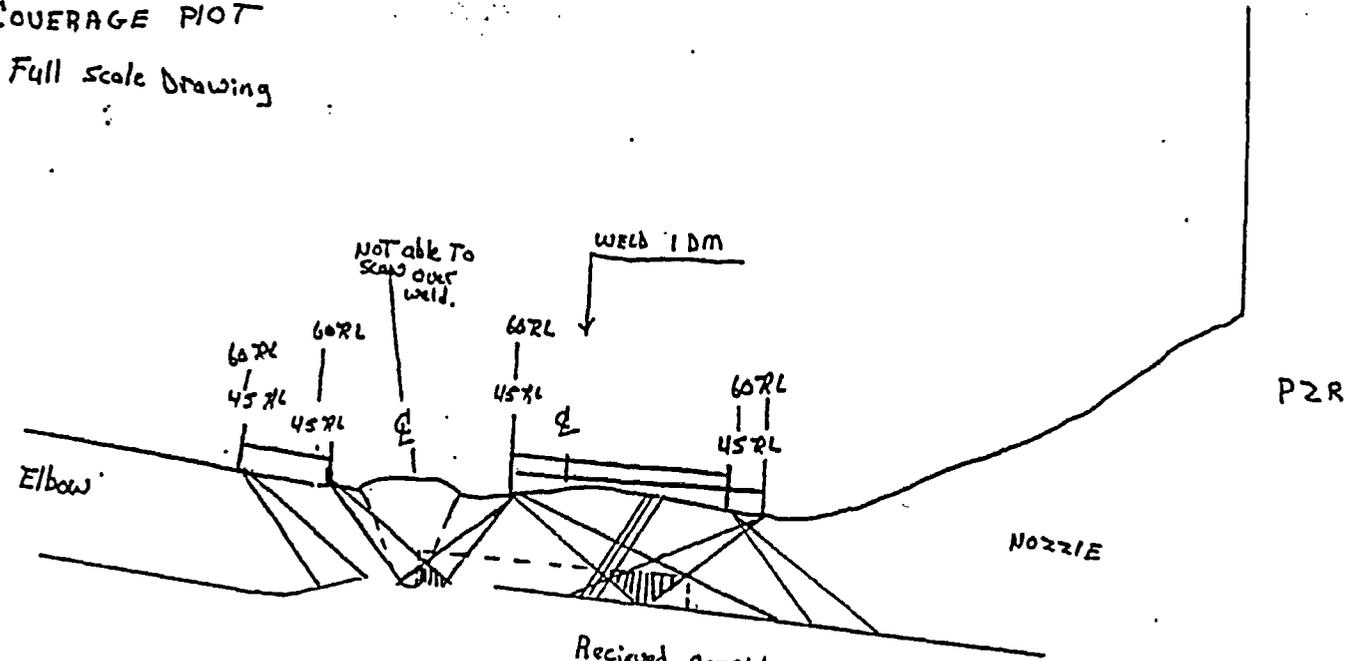
60° SHEAR & RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	95%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.
2	26%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION AND ADJACENT WELD.

* See attached CRV plot for examination coverage.

DATA Sheet No. 1425-98-006
Page 7 of 7

Item #9
COVERAGE PLOT
Full scale Drawing



Received complete coverage
shaded Area.
Received one direction
coverage in total WRU.

Scott Lauer
3-14-98
C. Oaman 3-15-98

M. H. So
3-12-98
D. H. So
3/28/98
Date



**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

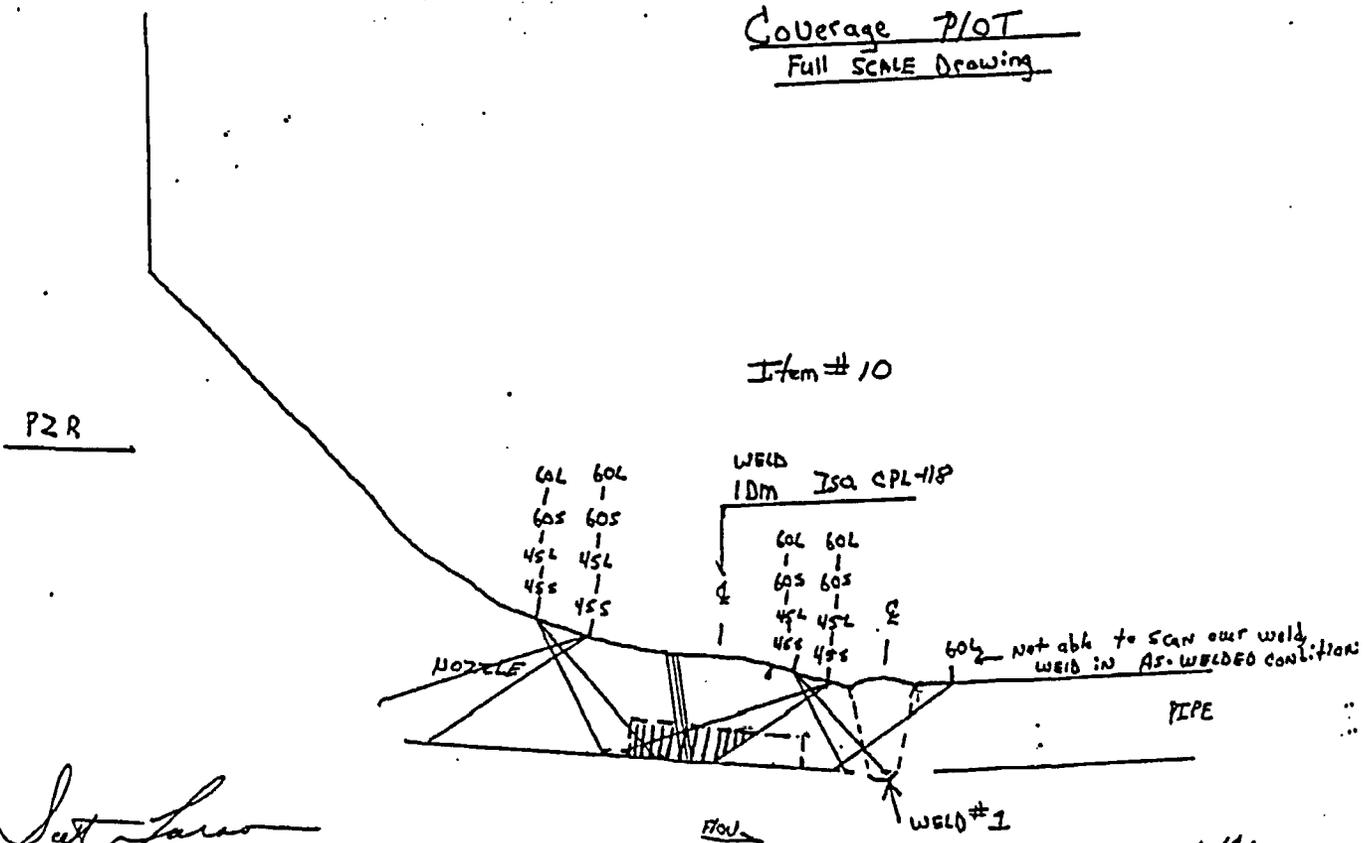
COMPONENT ID:	118/01DM	ASME CATEGORY:	B-F
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B5.40
CONFIGURATION:	NOZZLE TO SAFE END	% CRV ACHIEVED:	88.25%
PDI TECHNIQUE USED:	YES	EXAM DATE:	3/14/98

45° SHEAR & RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	53%	1/2V SINGLE SIDED EXAM DUE TO INTEGRAL CAST NOZZLE TO SAFE END CONFIGURATION, AS-WELDED CONDITION AND DOWNSTREAM WELD.
3	100%	NONE
4	100%	NONE

* See attached CRV plot for examination coverage.

Coverage PLOT
Full SCALE Drawing



Just Lars
3-14-98

C. Damron 3-15-98

D.H. So
3/20/98

Received Complete Coverage
IN shaded AREAS
Received one direction Coverage
in total WRU.

AMERICAN
INSPECTION
Date

del
3/17/98

M. J. Wilson
3-12-98

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	108/01BC	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-10	ASME ITEM NUMBER:	B9.31
CONFIGURATION:	BRANCH CONNECTION TO LOOP PIPE	% CRV ACHIEVED:	62%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/30/01

38° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
3	55%	NOZZLE CONFIGURATION LIMITS THE CIRCUMFERENTIAL SCAN.
4	55%	NOZZLE CONFIGURATION LIMITS THE CIRCUMFERENTIAL SCAN.

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	38%	1/2V SINGLE SIDED EXAM AND BRANCH CONNECTION TO PIPE CONFIGURATION.
2	96%	1/2V SINGLE SIDED EXAM AND BRANCH CONNECTION TO PIPE CONFIGURATION.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO BRANCH CONNECTION TO PIPE CONFIGURATION.
2	100%	NONE

60° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO BRANCH CONNECTION TO PIPE CONFIGURATION.
2	100%	NONE

* See attached CRV plots for examination coverage.



Washington

Page 8 of 8

W.R. # _____

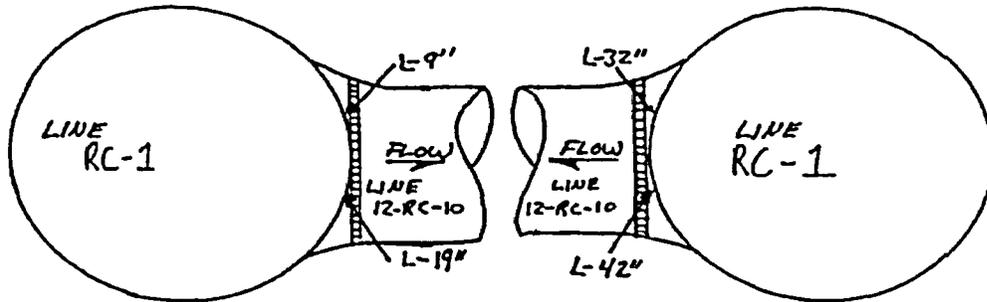
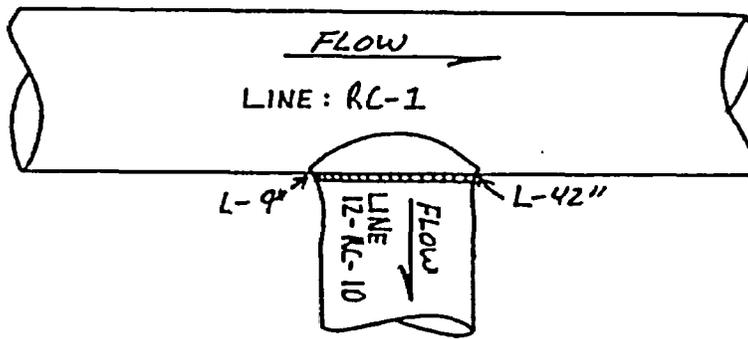
Client: H.B. ROBINSON Project: RO-20 Report No.: 01-008

System: RC 2005 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/30/01

Line No.: 12-RC-10 Drawing No.: HBR2-10618 SHIT.13 Rev.: 1

Component I.D.: 108/01BC Search Unit's: 38° CIRC/45° SHEAR & 60° SHEAR & RL

SCAN LIMITATION SKETCH
TOP VIEW

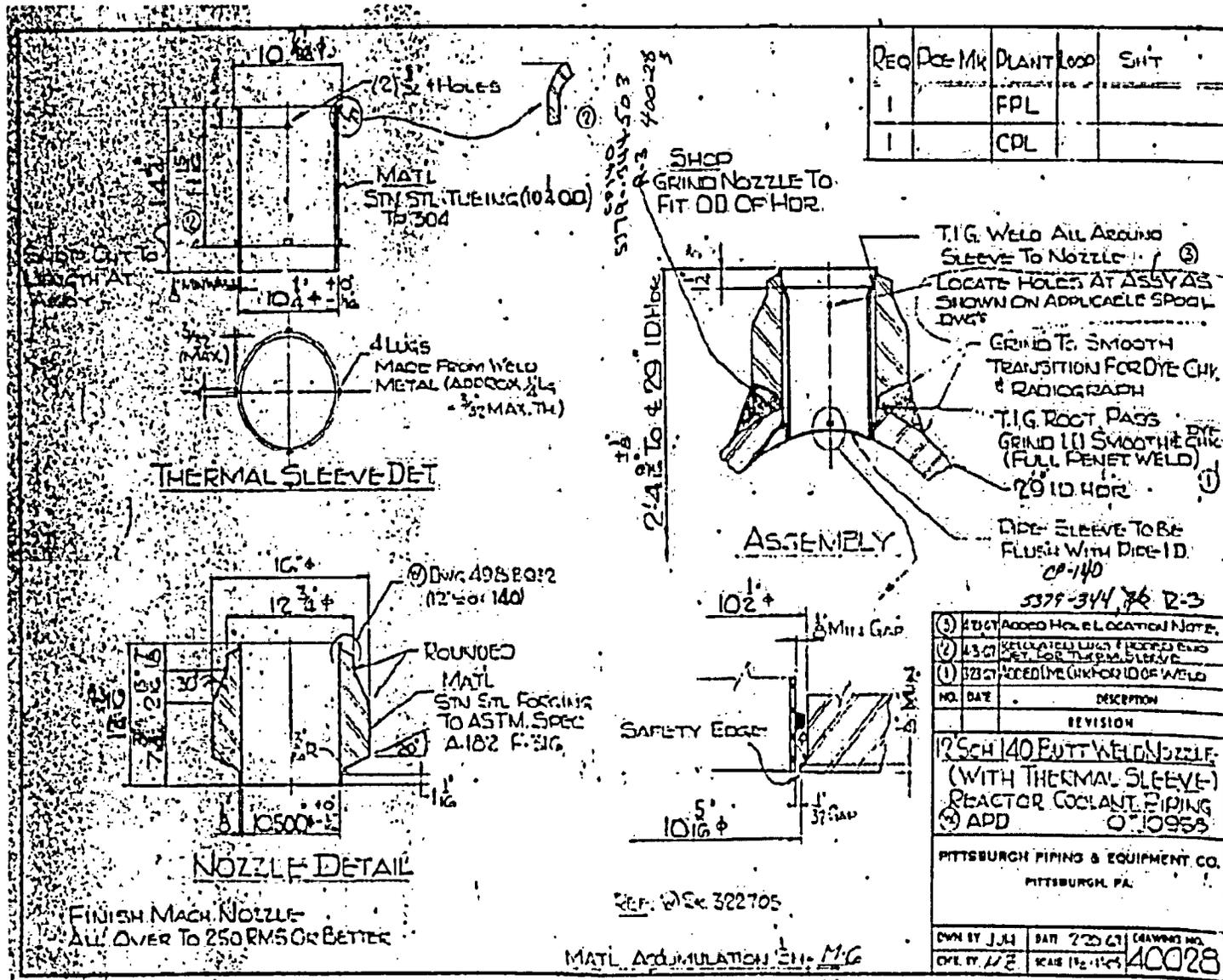


VIEW LOOKING WITH FLOW

VIEW LOOKING AGAINST FLOW

Examiner: <u>Burt Tillman</u>	Level: <u>II</u>	Date: <u>4-30-01</u>
Examiner: <u>N/A</u>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Washington) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>5-3-01</u>
Reviewer: (Client) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>7/5/01</u>
Reviewer: (ANII) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>7/4/01</u>

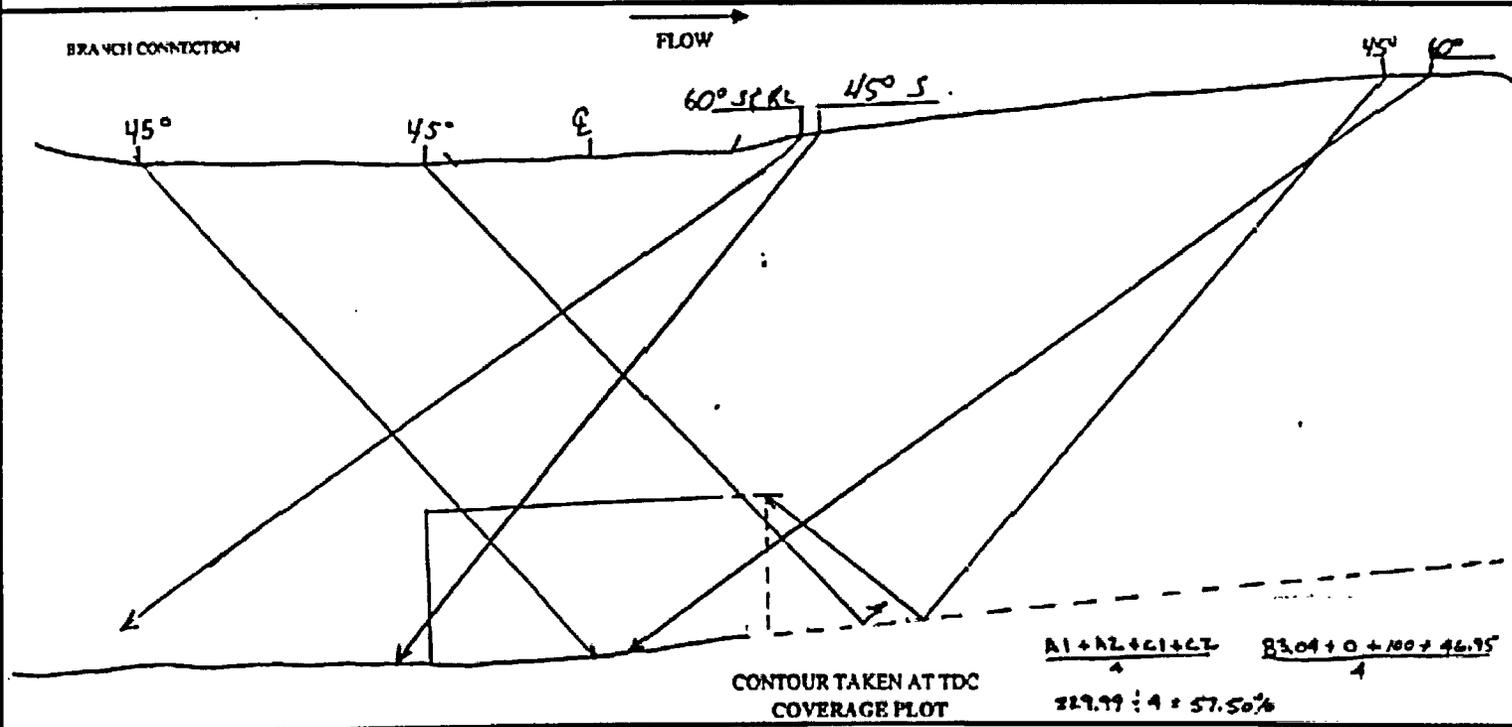
Refer to attached Ultrasonic Indication Data Sheet





Washington

Client: H.B. ROBINSON Project: RO-20 System: RC 2005 W.R. # _____ Report No.: 01-008
 Line No.: 12-RC-10 Component I.D.: 108/01BC Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/30/01
 Drawing No.: HBR2-10618_SHT. 13 Rev.: 1 Search Unit's: 31° SHEAR CIRC/ 45° & 60° SHEAR AND 60° RL AXIAL



Examine: Bret Flesner Bret Flesner Level: II Date: 4/30/01 Examiner: _____ Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: III Date: 5-3-01 Reviewer: (Client) [Signature] Level: _____ Date: 7/9/01
 Reviewer: (AMM) [Signature] Date: 9/7/01
 Refer to attached Ultrasonic Indication Data Sheet

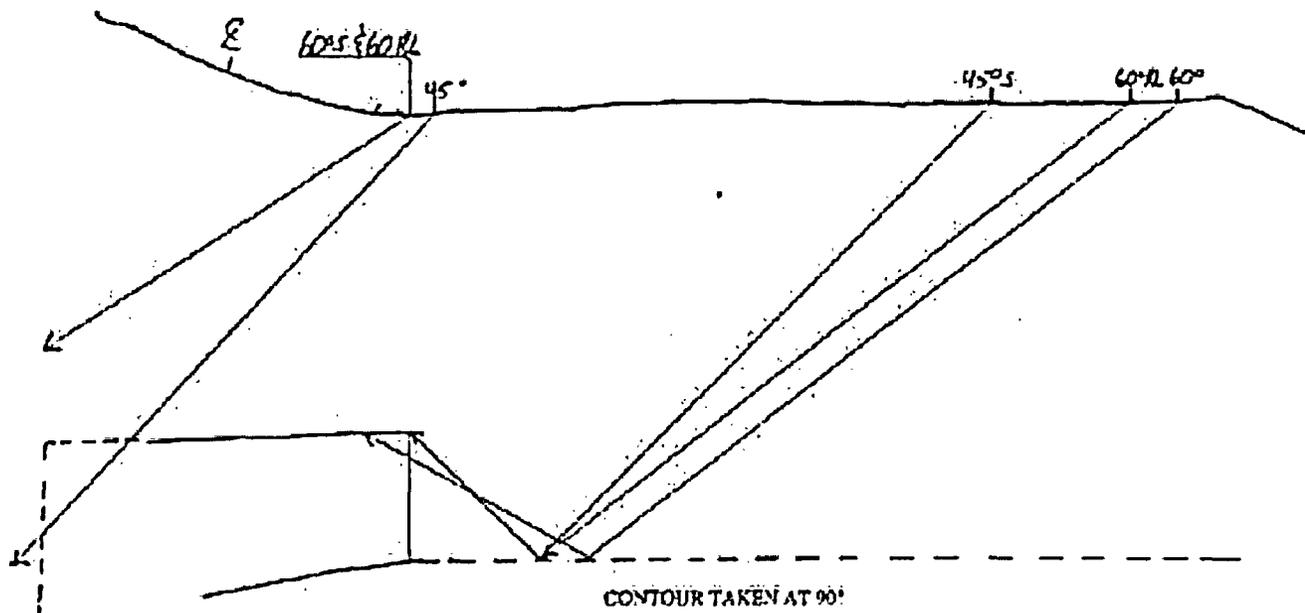


Client: H.B. ROBINSON Project: RO-20 System: RC 2005 W.R. # _____
 Line No.: 12-RC-10 Component I.D.: 108/01BC Procedure: HBR-UT-86-1 Report No.: 01-008
 Drawing No.: HBR2-10618 SHT. 13 Rev.: 1 Search Unit's: N° SHEAR CIRC 45° & 60° SHEAR AND 60° RL AXIAL Date: 4/30/01

BRANCH CONNECTION

FLOW →

PIPE



CONTOUR TAKEN AT 90°
COVERAGE PLOT

Examiner: Bret Flesner Level: II Date: 4/30/01 Examiner: N/A Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: II Date: 5-3-01 Reviewer: (Client) [Signature] Level: _____ Date: 7/9/01
 Reviewer: (ANIP) [Signature] Level: W-III Date: 7/9/01
 Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	112/01BC	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-10	ASME ITEM NUMBER:	B9.31
CONFIGURATION:	BRANCH CONNECTION TO LOOP PIPE	% CRV ACHIEVED:	60%
PDI TECHNIQUE USED:	YES	EXAM DATE:	5/3/01

38° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
3	70%	NOZZLE CONFIGURATION LIMITS THE CIRCUMFERENTIAL SCAN.
4	70%	NOZZLE CONFIGURATION LIMITS THE CIRCUMFERENTIAL SCAN.

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO BRANCH CONNECTION TO PIPE CONFIGURATION.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO BRANCH CONNECTION TO PIPE CONFIGURATION.

60° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO BRANCH CONNECTION TO PIPE CONFIGURATION.

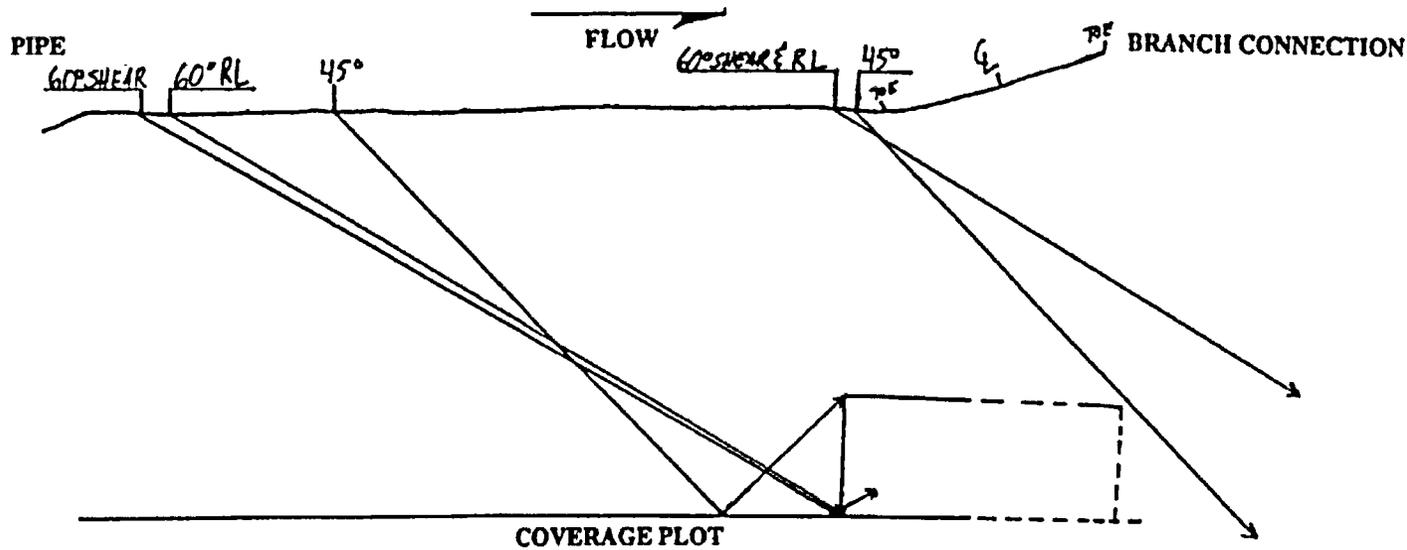
* See attached CRV plot for examination coverage.



Washington

Page 6 of 6

Client: H.B. ROBINSON Project: RO-20 System: RC 2005 W.R. # _____ Report No.: 01-012
 Line No.: 27.5-RC-7 Component I.D.: 112/01BC Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/30/01
 Drawing No.: HBR2-10618 SHT. 17 Rev.: 3 Search Unit: 45°S, 60°S, & 60° REFRACTED LONGITUDINAL



50% Code Required Coverage was obtained from scanning single sided. The screen range was established to encompass and additional 1/3 "T" but, due to grain structure and metallurgical conditions, this additional coverage cannot be claimed.

Examiner: Dave Fleming Level: II Date: 4/30/01 Examiner: _____ Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: III Date: 5-8-01 Reviewer: (Client) [Signature] Level: III Date: 7/9/01
 Reviewer: (ANII) [Signature] Date: 7/9/01
 Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	202/03	ASME CATEGORY:	C-B
ASME CODE FIGURE:	IWC-2500-4(a)	ASME ITEM NUMBER:	C2.21
CONFIGURATION:	BOTTOM HEAD TO NOZZLE	% CRV ACHIEVED:	74.25%
PDI TECHNIQUE USED:	NO	EXAM DATE:	4/26/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	69%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	28%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
3	100%	NONE
4	100%	NONE

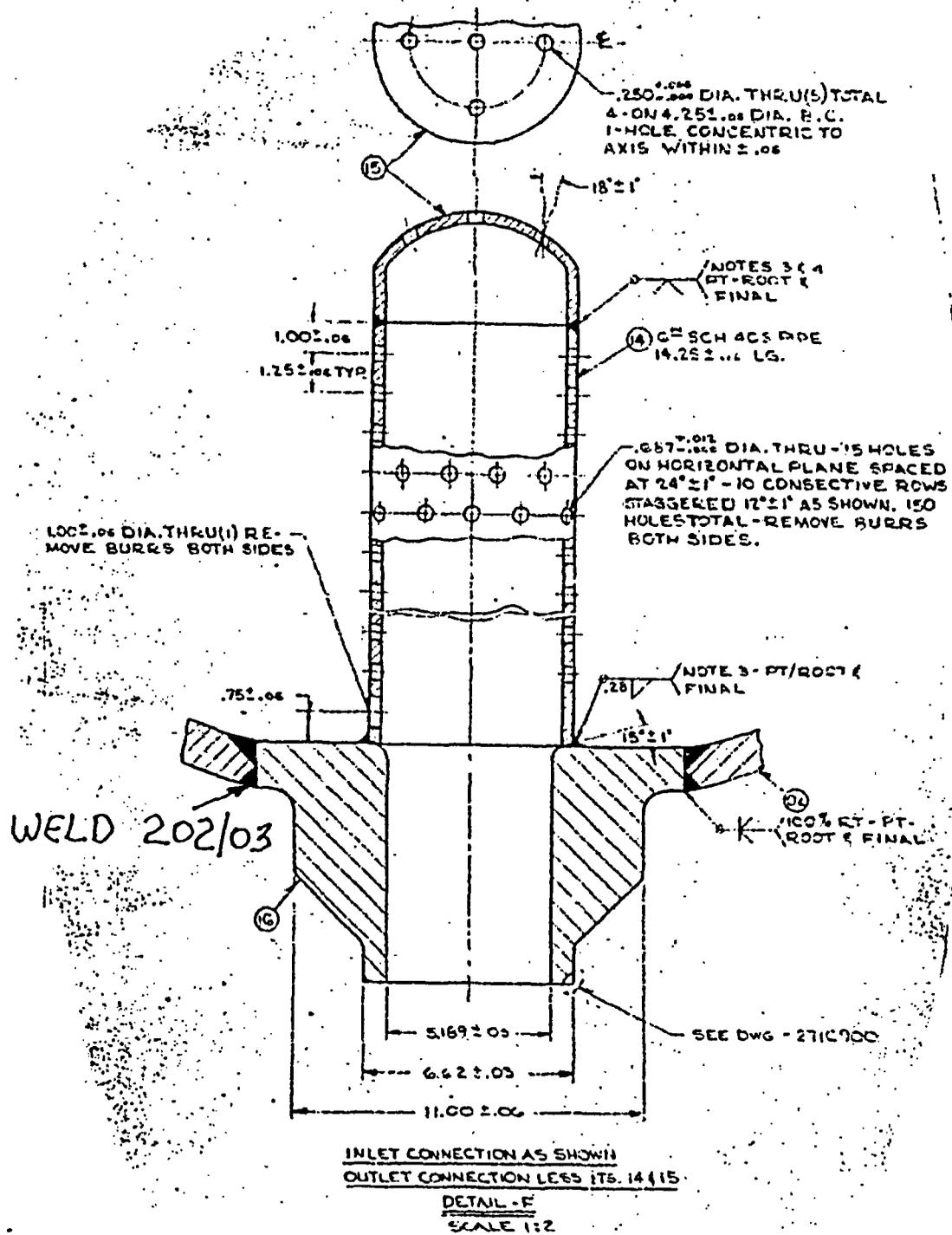
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	64%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	20%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
3	100%	NONE
4	100%	NONE

60° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	62%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	20%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.

* See attached CRV plots for examination coverage, and supplemental photograph showing component configuration.





Washington

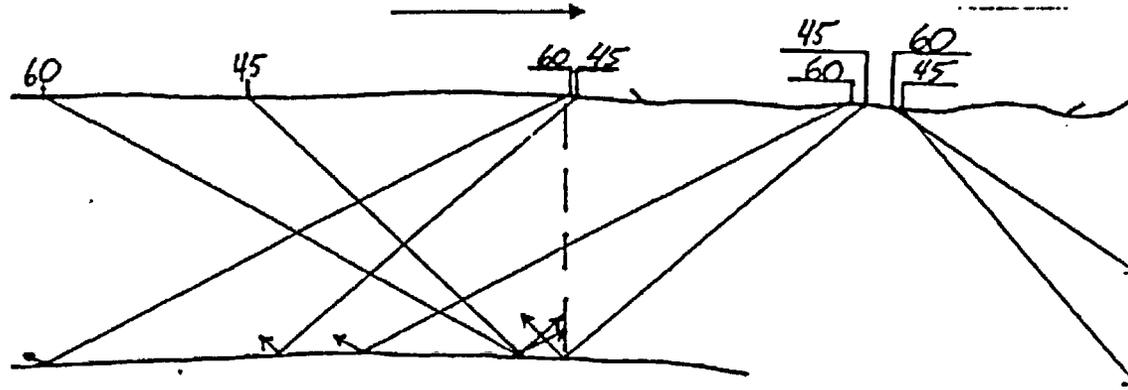
Page 5 of 7

Client: H.B. ROBINSON Project: RO-20 System: SI 2080 W.R. # _____ Report No.: 01-042
 Line No.: BIT Component I.D.: 20203 Procedure: HBR-UT-86-5 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-10618_SHT. 58 Rev.: 1 Search Unit Angle: 45° & 60° Mode: Shear

LOWER HEAD

DOME

FLOW



COVERAGE PLOT

Examiner: Bret Flesner *Bret Flesner* Level: II Date: 4/26/01 Examiner: _____ *[Signature]* Level: N/A Date: N/A
 Reviewer: (Washington) Bret Flesner Level: III Date: 5-1-01 Reviewer: (Client) [Signature] Level: III Date: 5/1/01
 Reviewer: (ANII) [Signature] Date: 7/9/01

Refer to attached Ultrasonic Indication Data Sheet

United States Nuclear Regulatory Commission
 Attachment to Serial: RNP-RA/03-0160
 Page 64 of 184



Washington

Client: I.B.ROBINSON Project: RO-20 System: SI 2080 W.R. # _____ Report No.: 01-042
 Line No.: BIT Component I.D.: 202/03 Procedure: HBR-UT-86-5 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-10618 SHIT.58 Rev.: 1 Search Unit Angle: 45° & 60° Mode: SHEAR

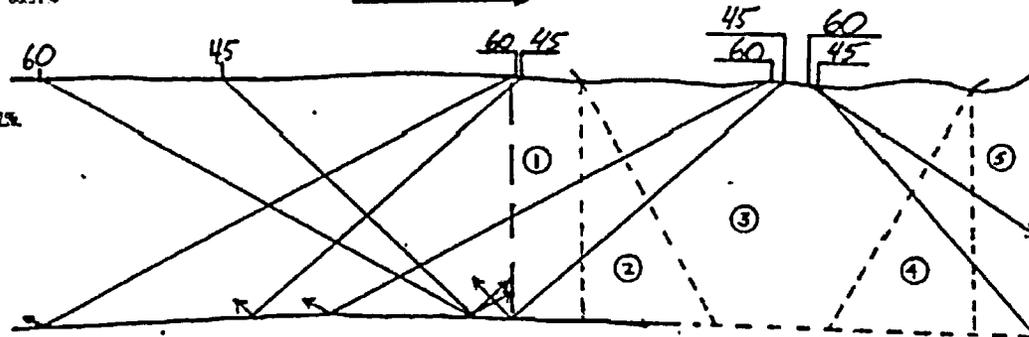
Axial Base Metal
 1) 0.85" of 0.85" one direction 100%
 2) 0.765" of 0.765" one direction 100%
 4 & 5) 0.70" of 1.615" one direction 43.34%
Axial Weld Metal
 0.345" of 2.89" Against Flow 11.94%
 2.53" of 2.89" With Flow 86.51%

LOWER HEAD

DOME

FLOW

$\frac{C1 + C2 + W1 + W2 + B1}{5}$
 $\frac{100\% + 100\% + 11.94\% + 86.51\% + 71.67\%}{5}$
 70.12%
 74.02% Total Required Volume Achieved



Examiner: Bert Flanagan Level: IV Date: 4-26-01 Examiner: N/A Level: N/A Date: N/A
 Reviewer: (Washington) Bert Flanagan Level: III Date: 5-1-01 Reviewer: (Client) [Signature] Level: III Date: 4-26-01
 Reviewer: (ANII) [Signature] Date: 7/19/01
 Refer to attached Ultrasonic Indication Data Sheet



Washington

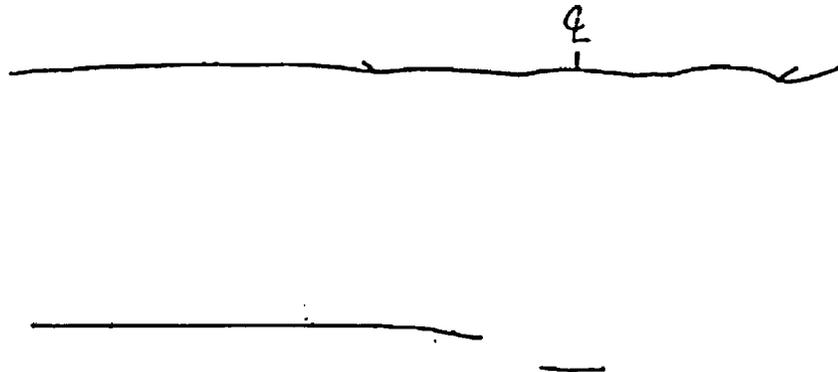
Page 7 of 7

Client: H.B. ROBINSON Project: RO-20 System: SI 2080 W.R. # _____ Report No.: 01-042
 Line No.: BIT Component I D.: 202/03 Procedure: HBR-UT-86-5 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-10618_SHT. 58 Rev.: 1 Search Unit Angle: 0° Mode: LONG.

LOWER HEAD

DRAIN

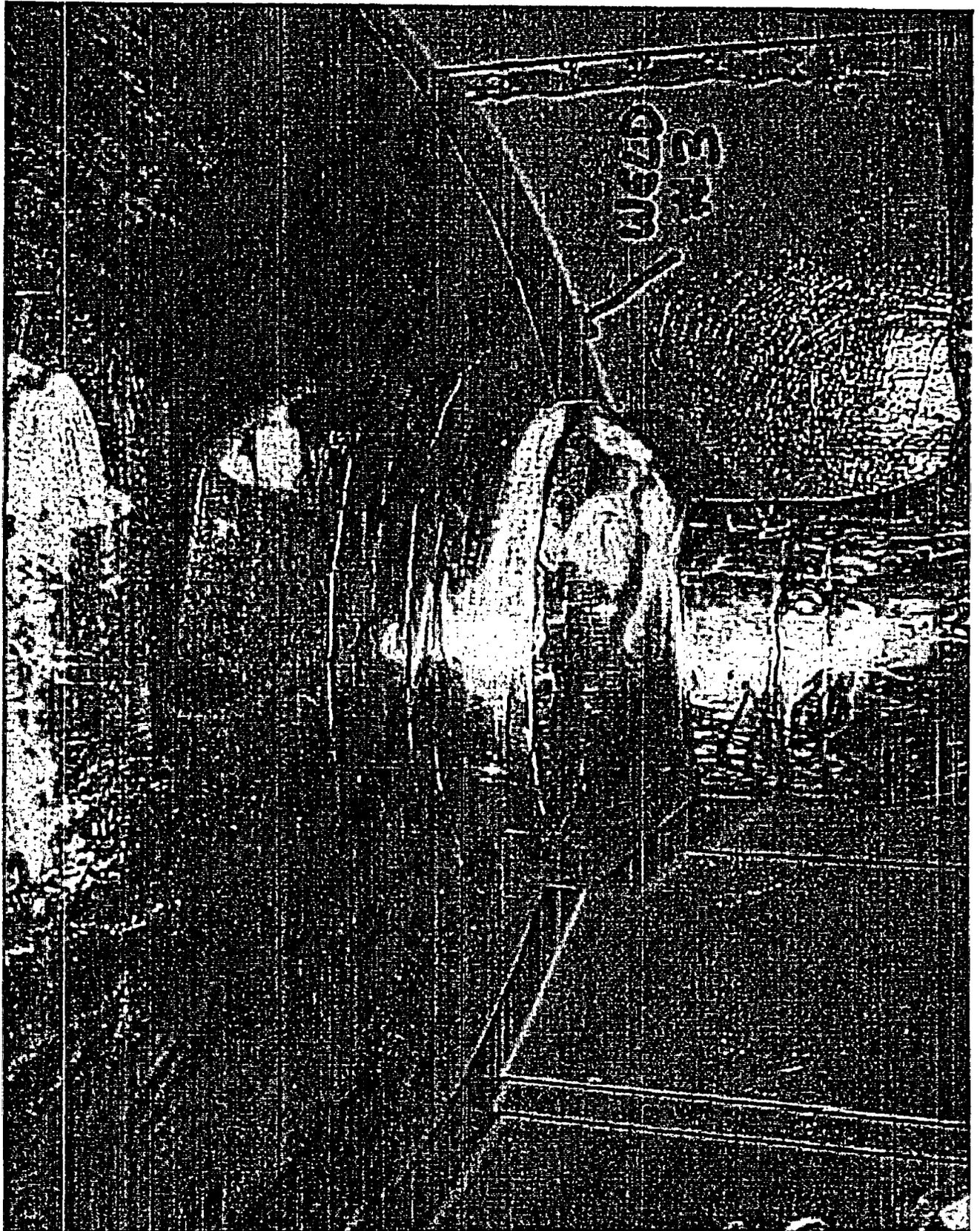
FLOW



ID CONTOUR

Examiner: Bret Flesner *Bret Flesner* Level: II Date: 4/26/01 Examiner: _____ Level: N/A Date: N/A
 Reviewer: (Washington) Bret Flesner Level: III Date: 5-1-01 Reviewer: (Client) J. Z. C. Level: III Date: 7/9/01
 Reviewer: (ANII) [Signature] Date: 7/9/01

Refer to attached Ultrasonic Indication Data Sheet



**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	202/04	ASME CATEGORY:	C-B
ASME CODE FIGURE:	IWC-2500-4(a)	ASME ITEM NUMBER:	C2.21
CONFIGURATION:	UPPER HEAD TO NOZZLE	% CRV ACHIEVED:	84%
PDI TECHNIQUE USED:	NO	EXAM DATE:	4/24/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	82%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	68%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
3	93%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
4	93%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.

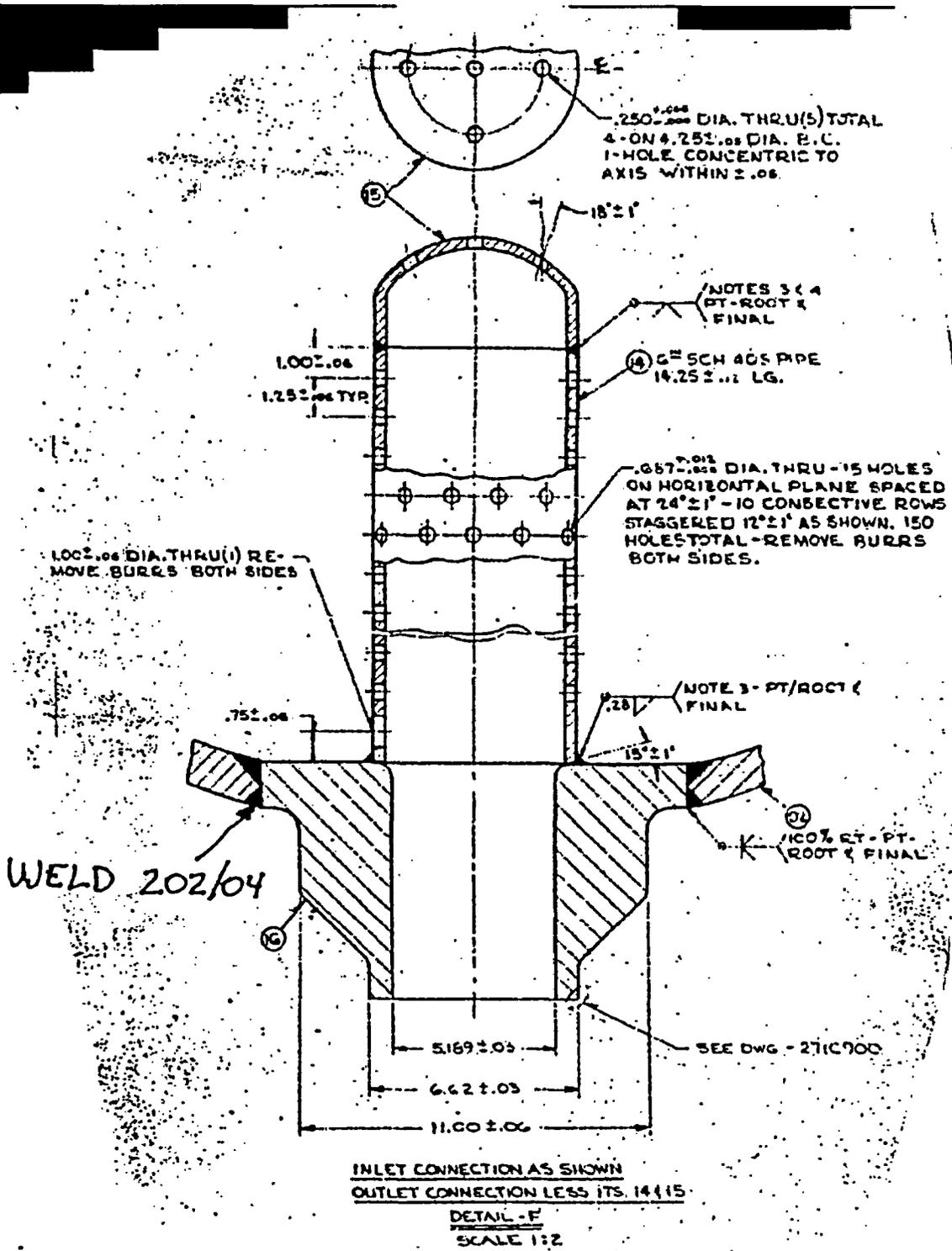
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	82%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	68%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
3	93%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
4	93%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.

60° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	82%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.
2	68%	LIMITED SCAN DUE TO HEAD TO NOZZLE CONFIGURATION.

* See attached CRV plots for examination coverage, and supplemental photograph showing component configuration.





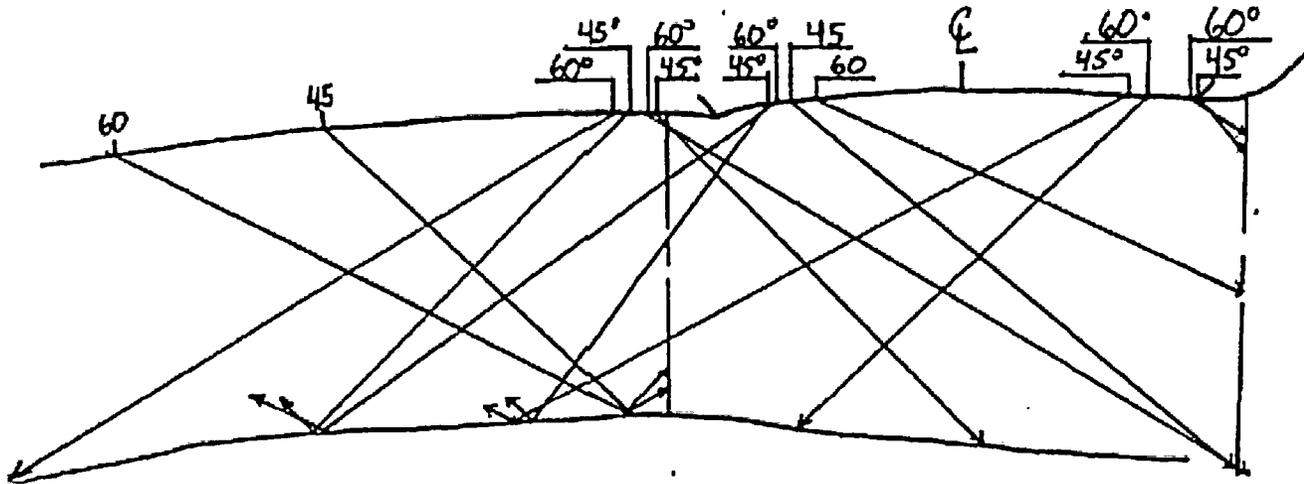
Washington

Page 5 of 7

Client: H.B. ROBINSON Project: RO-20 System: SI 2080 W.R. # _____
 Line No.: RIT Component I.D.: 202/04 Procedure: HBR-UT-86-5 Rev.: I Report No.: 01-05501-042 Date: 4/26/01
 Drawing No.: HBR2-10618 SHT. 58 Rev.: 1 Search Unit Angle: 45° & 60° Mode: SHEAR

UPPER HEAD

DOME



COVERAGE PLOT

Examiner: Bret Flesner Level: II Date: 4/26/01 Examiner: [Signature] Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: III Date: 5-1-01 Reviewer: (Client) [Signature] Level: III Date: 7/9/01
 Reviewer: (ANTI) [Signature] Date: 7/9/01

Refer to attached Ultrasonic Indication Data Sheet

United States Nuclear Regulatory Commission
 Attachment to Serial: RNP-RA/03-0160
 Page 70 of 184



Washington

Client: H. B. ROBINSON Project: RO-20 System: SI 2080 W.R. # _____ Report No.: 01-042
 Line No.: BIT Component I.D.: 202/04 Procedure: HBR-UT-86-5 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-10618 SHT 58 Rev.: 1 Search Unit Angle: 45° & 60° Mode: SHEAR

Axial Base Metal

- 1) 0.81" of 0.85" one direction 95.00%
- 2) 1.075" of 1.09" one direction 98.62%
- 4 & 5) 1.53" of 2.15" one direction 71.16%

Axial Weld Metal

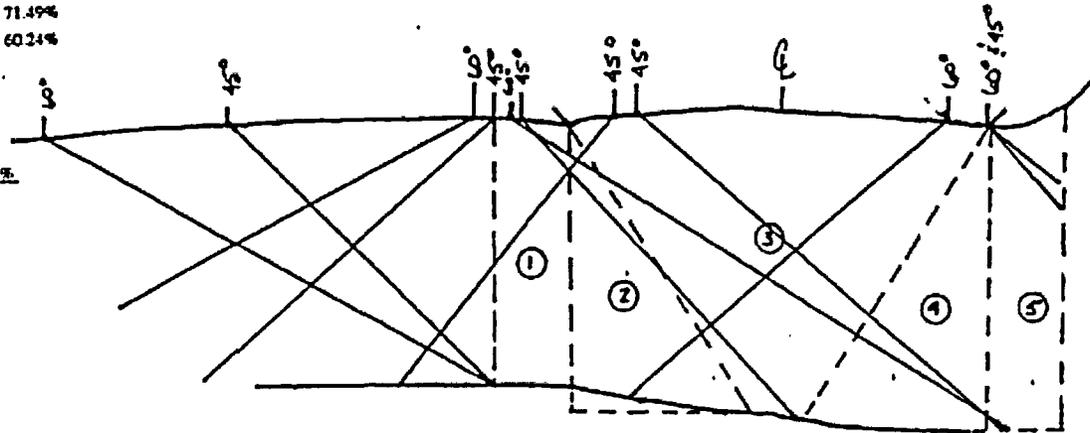
- 1.78" of 2.49" Against Flow 71.49%
- 1.50" of 2.49" With Flow 60.24%

$$\frac{C1 + C2 + W1 + W2 + B1}{5}$$

$$\frac{100\% + 100\% + 71.49\% + 60.24\% + 88.26\%}{5}$$

$$\frac{419.99\%}{5}$$

84.00% Total Required Volume Achieved



Examiner: [Signature] Level: II Date: 4/24/01 Examiner: [Signature] Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: III Date: 5-1-01 Reviewer: (Client) [Signature] Level: III Date: 7/9/01
 Reviewer: (ANII) [Signature] Date: 7/9/01
 Refer to attached Ultrasonic Indication Data Sheet



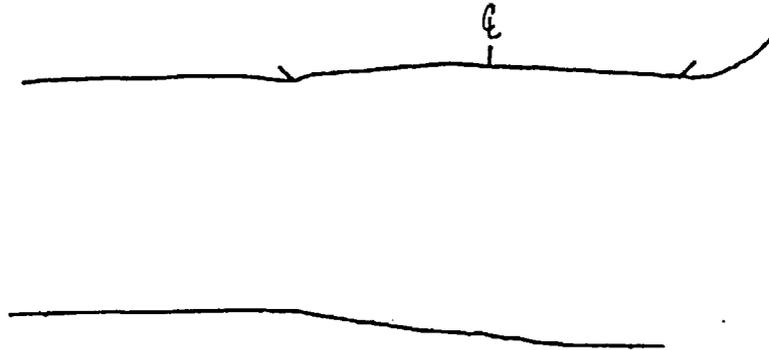
Washington

Page 7 of 7

Client: H.B. ROBINSON Project: RO-20 System: SI 2088 W.R. # _____ Report No.: 01-055 of 01-07
 Line No.: BIT Component I.D.: 202/04 Procedure: HBR-UT-86-5 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-10618_SHT. 58 Rev.: 1 Search Unit Angle: 0° Mode: LONG.

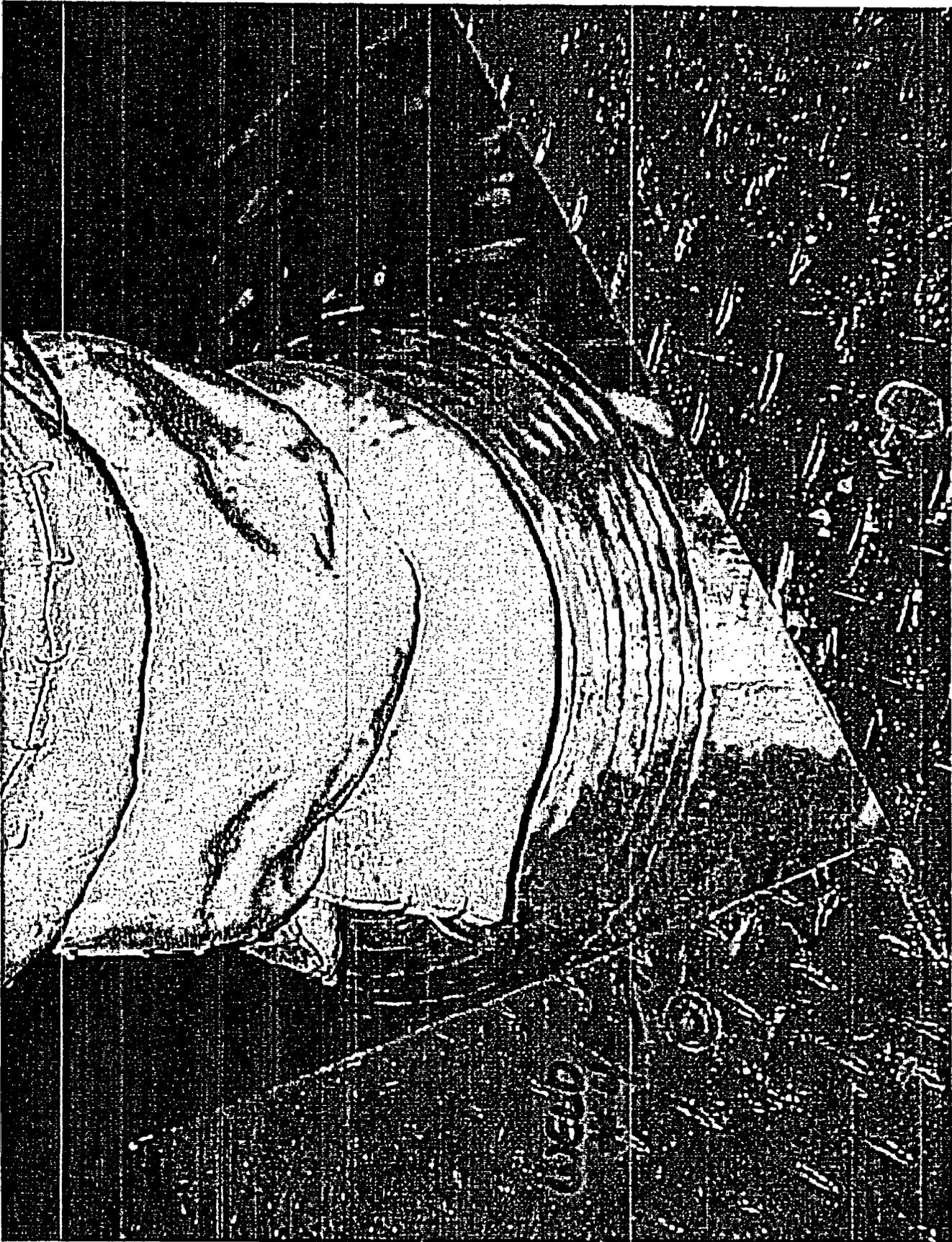
UPPER HEAD

NOZZLE



IID
Contour

Examiner: Bret Flesher Level: II Date: 4/26/01 Examiner: _____ Level: N/A Date: N/A
 Reviewer: (Washington) Dwight Miller Level: III Date: 5/4/01 Reviewer: (Client) [Signature] Level: III Date: 7/6/01
 Reviewer: (ANID) [Signature] Date: 7/2/01
 Refer to attached Ultrasonic Indication Data Sheet



**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	205/08	ASME CATEGORY:	C-B
ASME CODE FIGURE:	IWC-2500-4(a)	ASME ITEM NUMBER:	C2.21
CONFIGURATION:	UPPER SHELL TO FEEDWATER NOZZLE	% CRV ACHIEVED:	53%
PDI TECHNIQUE USED:	NO	EXAM DATE:	9/29/93

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	80%	COMPONENT NOZZLE TO SHELL CONFIGURATION AND INSULATION RING.
2	0%	NO SCAN DUE TO COMPONENT NOZZLE TO SHELL CONFIGURATION.
3	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.
4	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

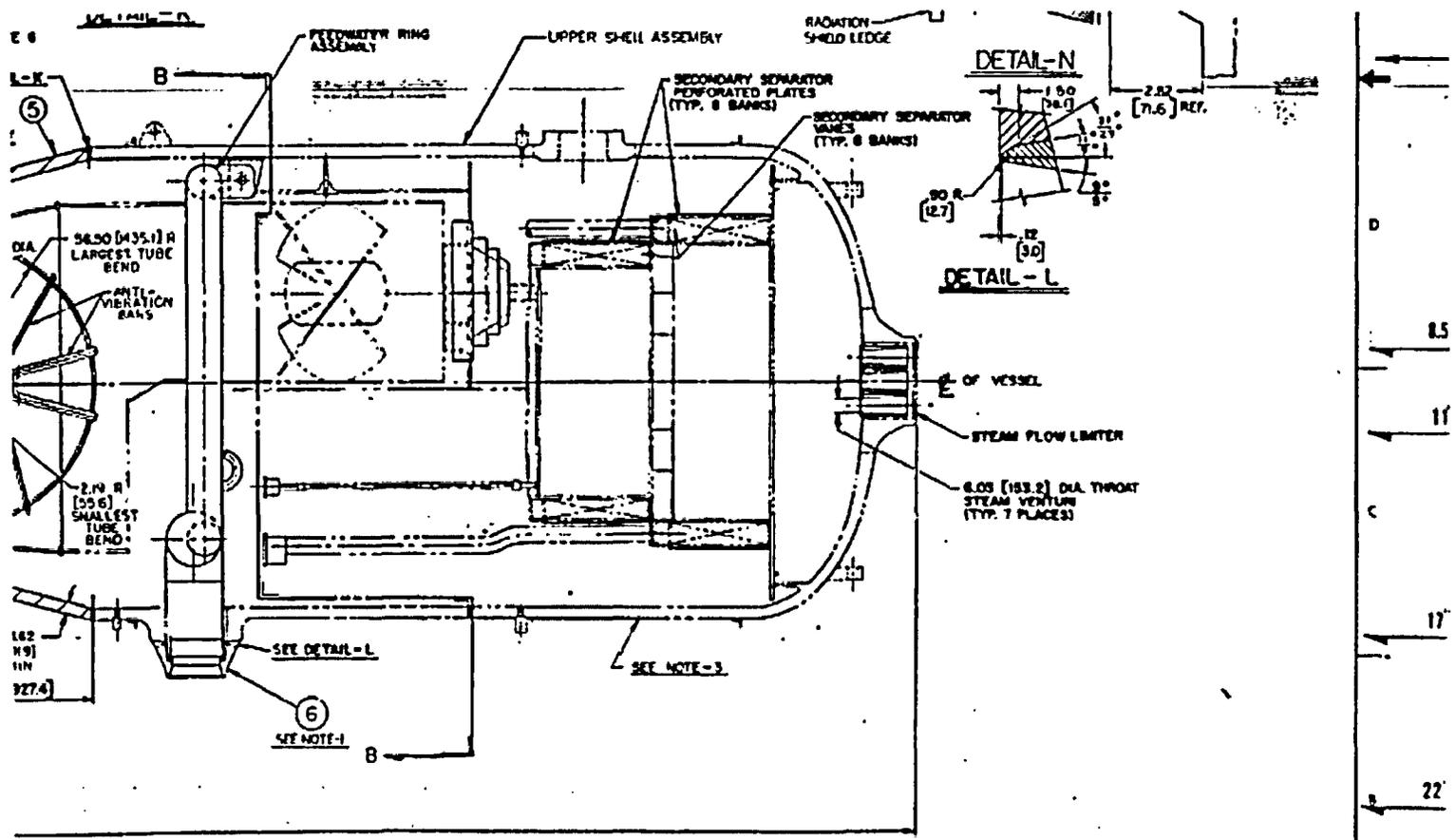
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	80%	COMPONENT NOZZLE TO SHELL CONFIGURATION AND INSULATION RING.
2	0%	NO SCAN DUE TO COMPONENT NOZZLE TO SHELL CONFIGURATION.
3	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.
4	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

0° LAMB SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

* See attached CRV plots for examination coverage.

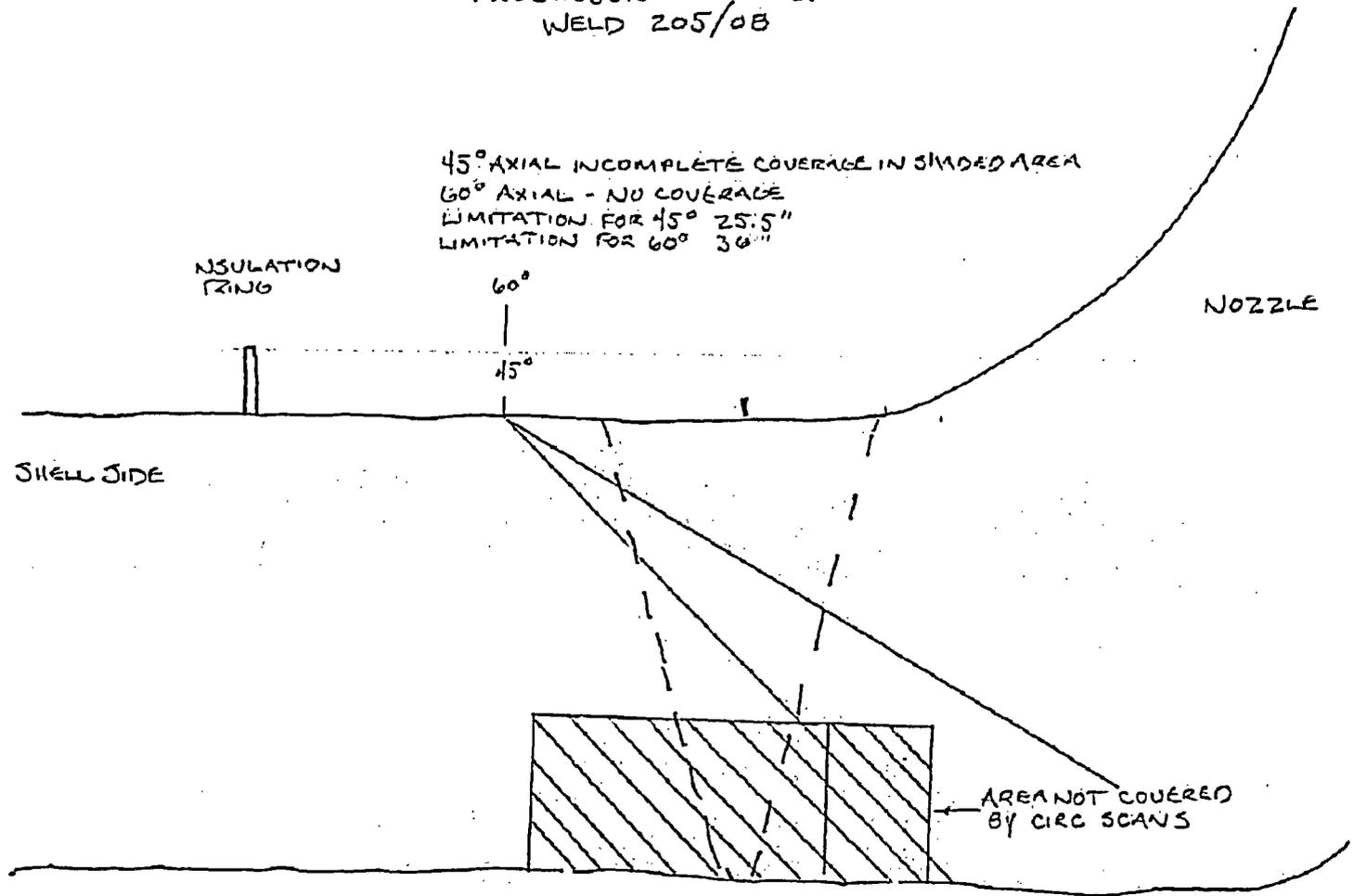


NO END VIEW

CP&I DRAWING No. HBR2-10735					
CP&I P.O. No. (11-127)					
DATE	REV.	FIELD	BY	CHKD	DATE
	1		JM	CLD	11/1/74

UNLESS OTHERWISE SPECIFIED R 2400 OVER 6000 6000 OVER 12000 TO 12000 OVER 12000 TO 38000 OVER 38000 ± .38 - .38 ± .76 - .76 CTRY	DISCREPANCY REPORTING DATA THIS DOCUMENT CONTAINS INFORMATION NECESSARY FOR THE DISCREPANCY REPORTING SYSTEM (DRS) WHICH IS DESCRIBED IN THE DR-1000 (REV. 10-73) AND IS TO BE USED TO REPORT DISCREPANCIES TO THE NRC. THIS INFORMATION IS TO BE USED TO REPORT DISCREPANCIES TO THE NRC. THIS INFORMATION IS TO BE USED TO REPORT DISCREPANCIES TO THE NRC.	TOLERANCES & DIMENSIONAL RULES UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE TO BE IN INCHES AND DECIMALS THEREOF. DIMENSIONS ARE TO BE IN INCHES AND DECIMALS THEREOF. DIMENSIONS ARE TO BE IN INCHES AND DECIMALS THEREOF.	INSPECTION & ACCEPTANCE THIS DRAWING IS THE PROPERTY OF WESTINGHOUSE ELECTRIC CORPORATION. IT IS LOANED TO YOU BY CONTRACT AND IS TO BE RETURNED TO THE COMPANY WHEN YOU ARE THROUGH WITH IT. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.	WESTINGHOUSE ELECTRIC CORPORATION WATER REACTOR DIVISION - PENSACOLA, FL, U.S.A. STEAM GENERATOR - MGD, 44 F GENERAL ARRANGEMENT 4 2170457
	DATE: 11/1/74 DRAWN BY: JM CHECKED BY: CLD APPROVED BY: CLD DATE: 11/1/74	DRAWN BY: JM CHECKED BY: CLD APPROVED BY: CLD DATE: 11/1/74	DRAWN BY: JM CHECKED BY: CLD APPROVED BY: CLD DATE: 11/1/74	DRAWN BY: JM CHECKED BY: CLD APPROVED BY: CLD DATE: 11/1/74

ROBINSON UNIT #2
WELD 205/08



**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	205A/07	ASME CATEGORY:	C-B
ASME CODE FIGURE:	IWC-2500-4(a)	ASME ITEM NUMBER:	C2.21
CONFIGURATION:	STEAM GENERATOR UPPER HEAD TO STEAM NOZZLE	% CRV ACHIEVED:	44%
PDI TECHNIQUE USED:	NO	EXAM DATE:	3/18/98

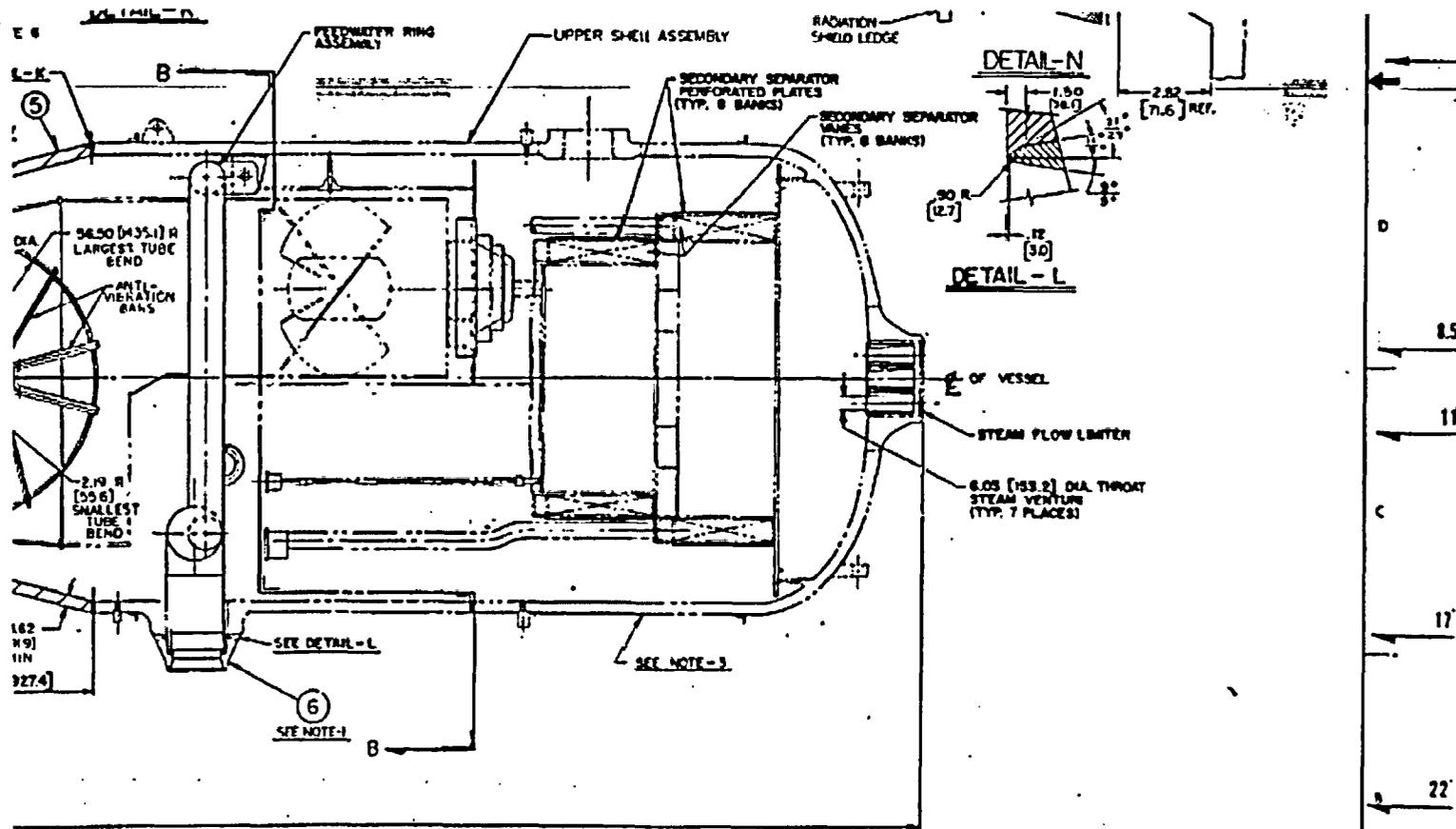
45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	70%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.
2	6%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.
3	35%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.
4	35%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN - BEAM IS OUTSIDE THE CODE-REQUIRED VOLUME.
3	35%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.
4	35%	LIMITED EXAM DUE TO NOZZLE CONFIGURATION AND WELD CROWN.

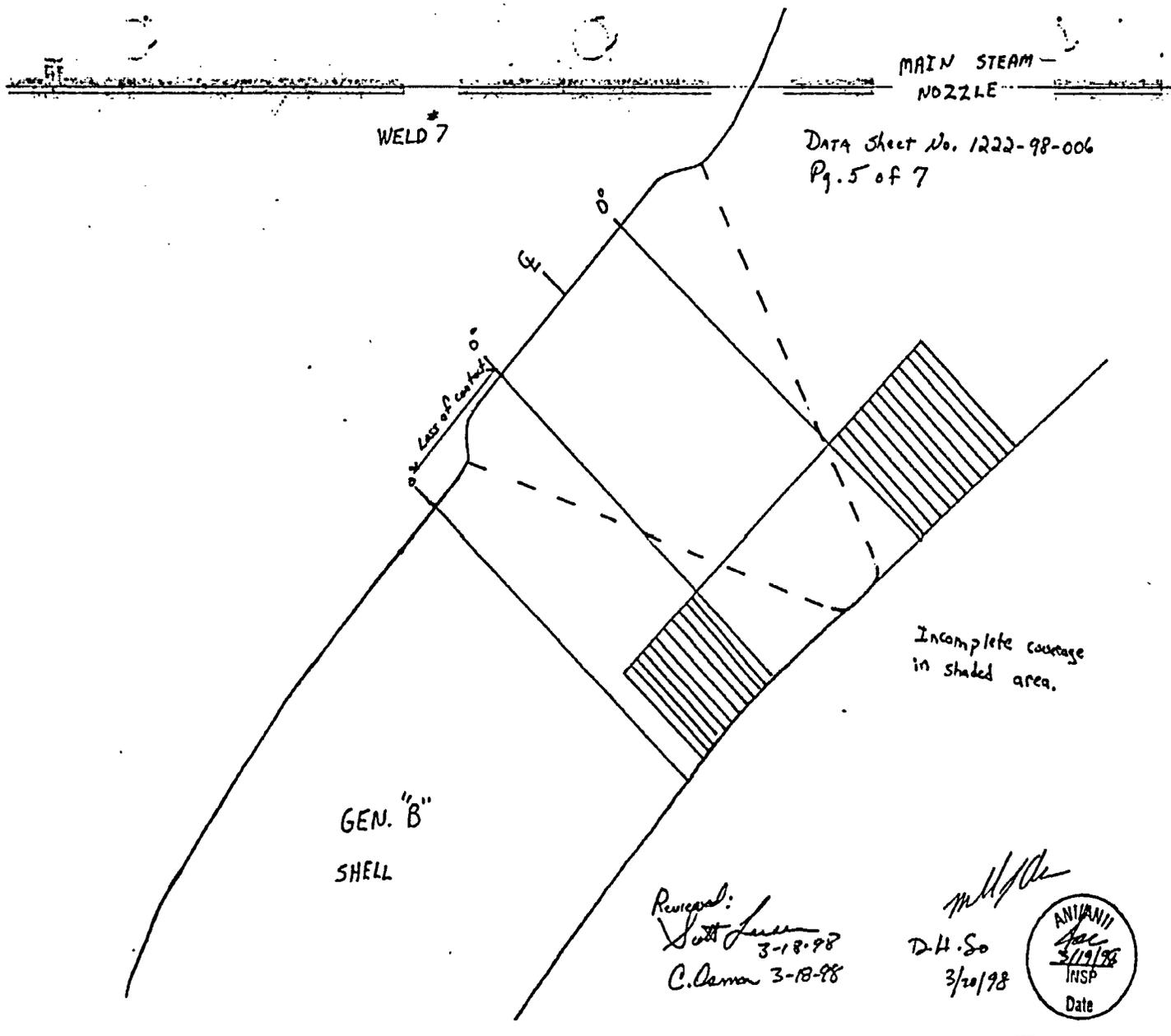
* See attached CRV plots for examination coverage

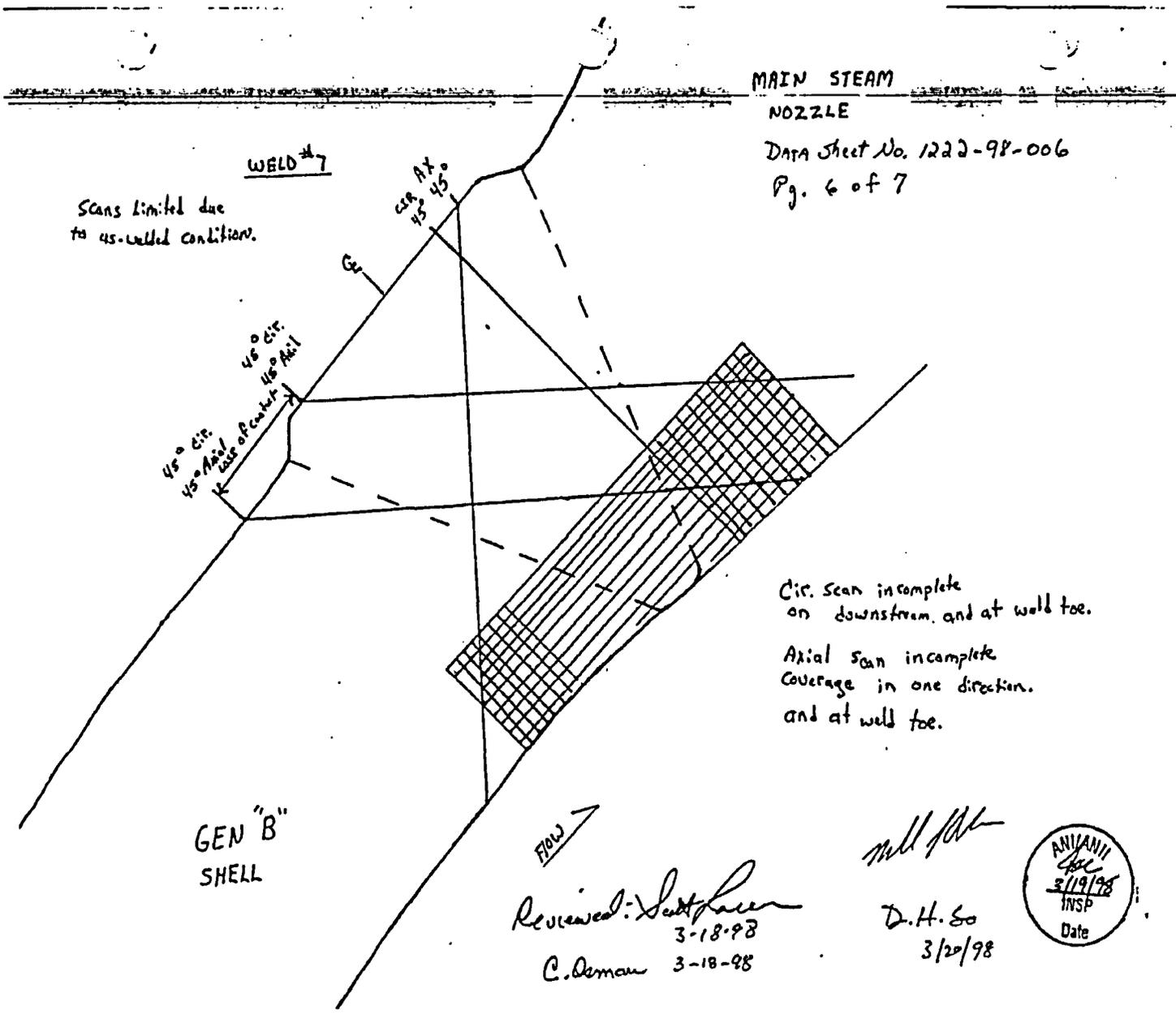


NO END VIEW

CPAL DRAWING No. HBR2-10735					
CPAL P.O. No. (P-127)					
DATE	REV.	FIELD	DRAWN BY	CHKD BY	DATE
	0	51	(W)	CLD	11/16/57

UNLESS SPECIFIED R 8400 OVER 8000 TO 12000 .38 .50 .38 .75 .30 1.15 .75	WESTINGHOUSE PROPRIETARY DATA THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF THE WESTINGHOUSE ELECTRICAL CORPORATION WHICH IS UNLAWFULLY TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE WESTINGHOUSE ELECTRICAL CORPORATION.	TOLERANCE & FINISHING RULES UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO BE HOLD TO THE CLOSEST TOLERANCE PERMITTED BY THE MANUFACTURING PROCESS. FINISHES ARE TO BE AS SPECIFIED OR THE BEST AVAILABLE. DIMENSIONS ARE TO BE TO UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE TO BE TO UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE TO BE TO UNLESS OTHERWISE SPECIFIED.	WESTINGHOUSE WATER REACTOR DIVISIONS - PENSACOLA, FL. U.S.A. STEAM GENERATOR - MOD. 30 F GENERAL ARRANGEMENT	6129157





MAIN STEAM

NOZZLE

Data Sheet No. 1222-98-006

Pg. 6 of 7

WELD #7

Scans limited due to 45-welded condition.

45° AX 15° 45°
45° AX 15° 45°
45° AX 15° 45°

Circ. scan incomplete on downstream and at weld toe.

Axial scan incomplete coverage in one direction and at weld toe.

GEN "B" SHELL

FLOW

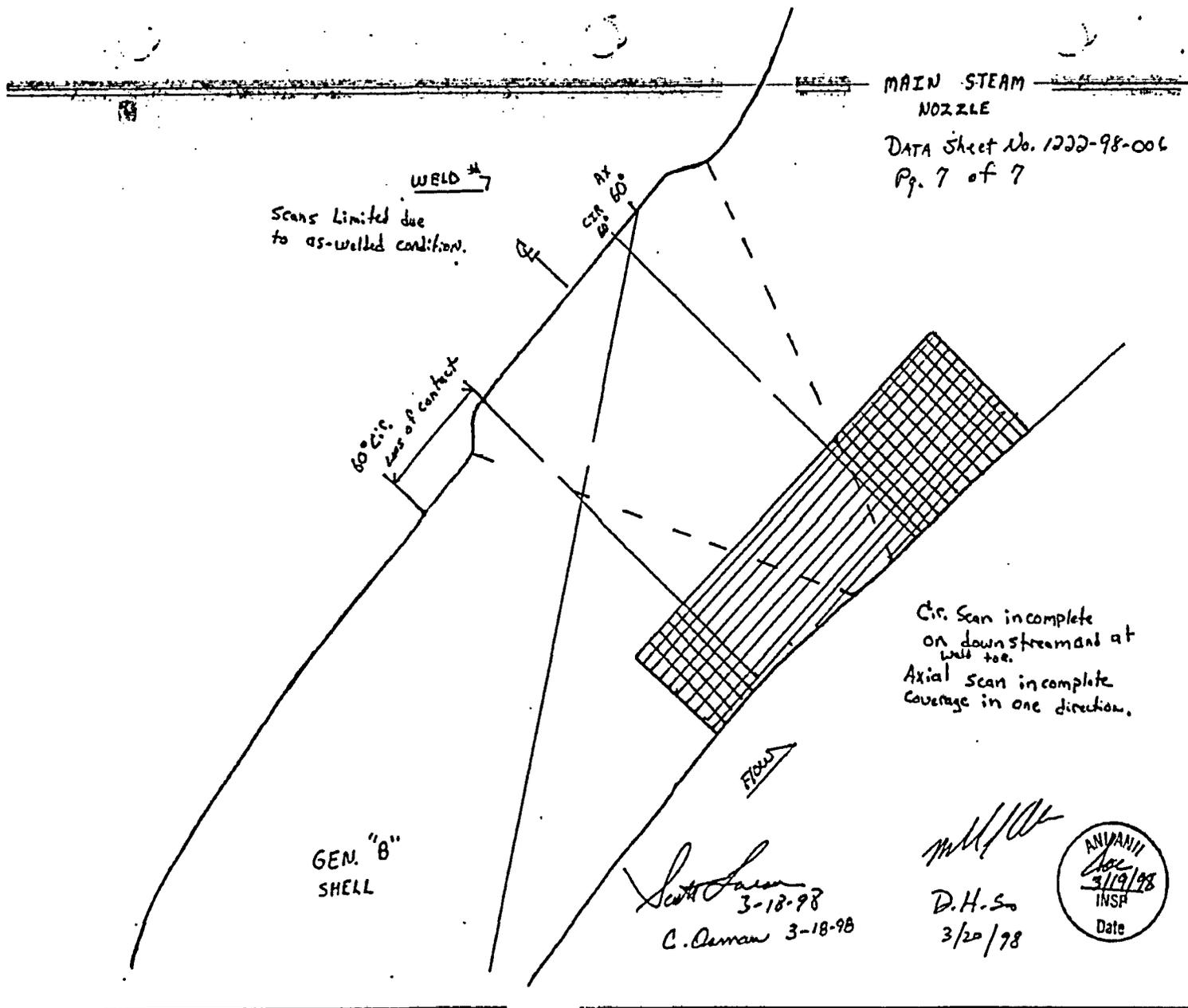
Reviewed: [Signature] 3-18-98

C. Deman 3-18-98

[Signature]

D.H. So 3/20/98





MAIN STEAM
NOZZLE
DATA Sheet No. 1222-98-006
Pg. 7 of 7

Scans Limited due
to as-welded condition.

60° Cir.
Area of Contact

Ax.
Cir. 60°

Cir. Scan incomplete
on downstream and at
wall toe.
Axial scan incomplete
coverage in one direction.

GEN. "B"
SHELL

Scott Larson
3-18-98
C. Oerman 3-18-98

M.H. / W.

D.H.S.
3/20/98



**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	205A/08	ASME CATEGORY:	C-B
ASME CODE FIGURE:	IWC-2500-4(a)	ASME ITEM NUMBER:	C2.21
CONFIGURATION:	UPPER SHELL TO FEEDWATER NOZZLE	% CRV ACHIEVED:	56%
PDI TECHNIQUE USED:	NO	EXAM DATE:	3/18/98

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	92%	COMPONENT NOZZLE TO SHELL CONFIGURATION AND INSULATION RING.
2	0%	NO SCAN DUE TO COMPONENT NOZZLE TO SHELL CONFIGURATION.
3	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.
4	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

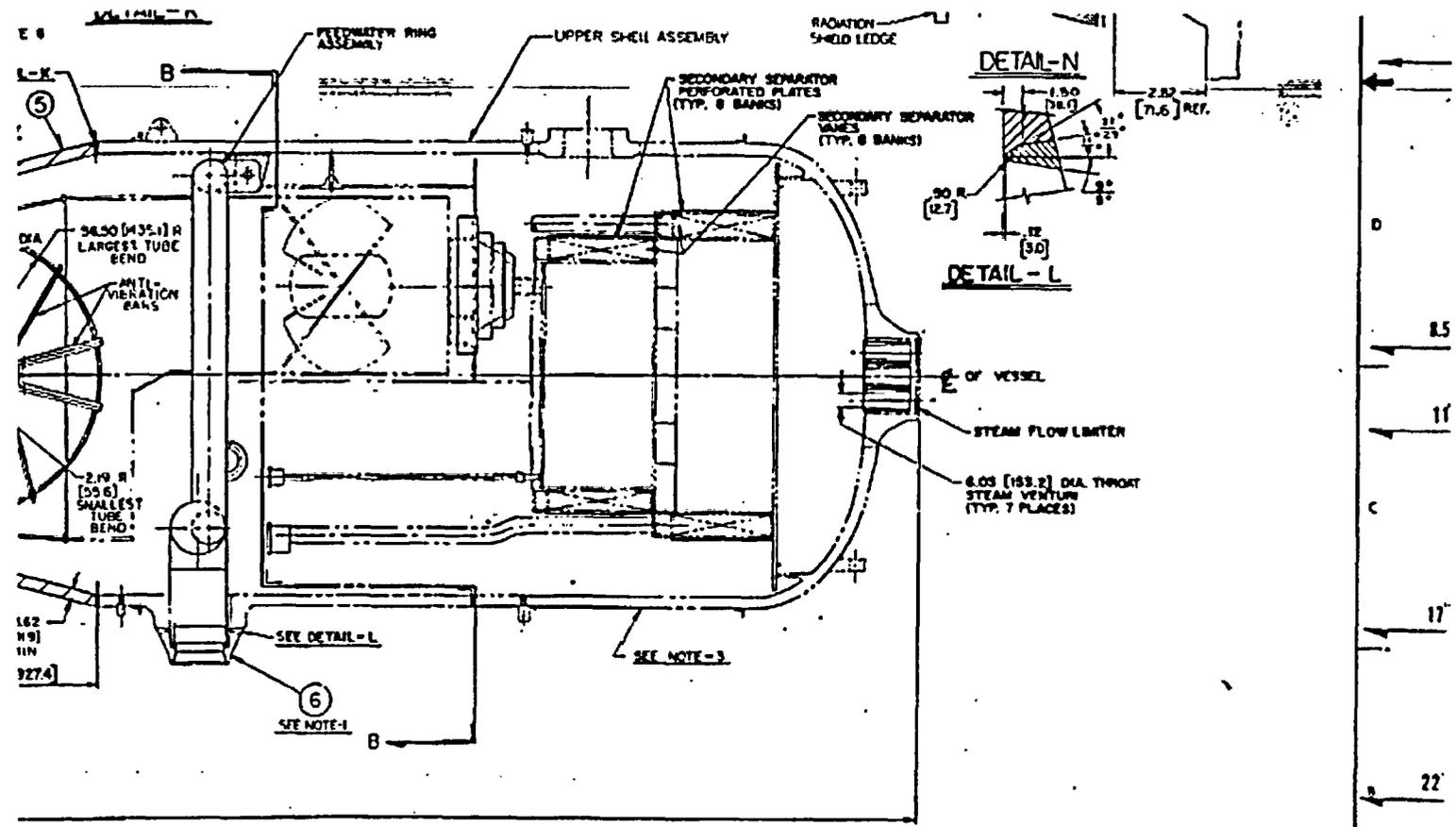
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	90%	COMPONENT NOZZLE TO SHELL CONFIGURATION AND INSULATION RING.
2	0%	NO SCAN DUE TO COMPONENT NOZZLE TO SHELL CONFIGURATION.
3	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.
4	66%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

0° LAMB SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	91%	COMPONENT NOZZLE TO SHELL CONFIGURATION.

* See attached CRV plots for examination coverage.



WIND END VIEW

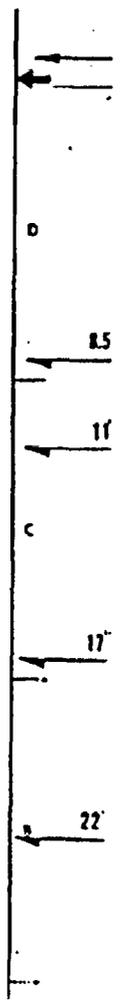
CP&L DRAWING No. HMR2-10755					
CP&L P.O. No. (P-127)					
DATE	REV.	VIEW	BY	APP'D	DATE
	0	W/M	(W)	CLD	11/10/54

TOLERANCES UNLESS OTHERWISE SPECIFIED			
± .005	± .003	± .002	± .001
± .001	± .0005	± .0002	± .0001

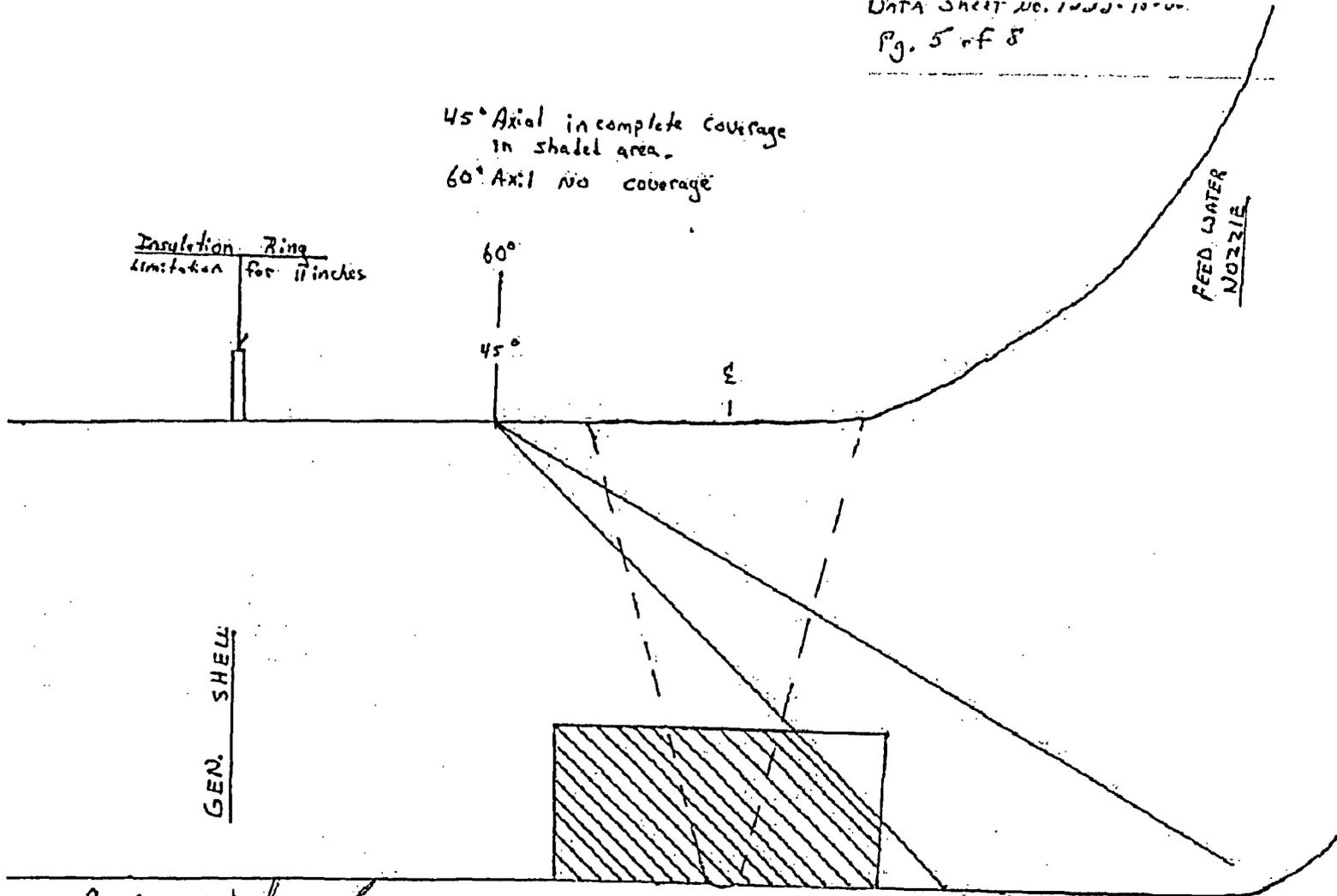
<p>WESTINGHOUSE PROPRIETARY DATA</p> <p>THIS DRAWING IS THE PROPERTY OF WESTINGHOUSE ELECTRIC CORPORATION. IT IS TO BE KEPT IN CONFIDENCE AND NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF WESTINGHOUSE ELECTRIC CORPORATION.</p>	<p>THIRD ANGLE PROJECTION</p>
--	-------------------------------

<p>DATE: 11/10/54</p> <p>BY: [Signature]</p> <p>APP'D: [Signature]</p>	<p>DATE: 11/10/54</p> <p>BY: [Signature]</p> <p>APP'D: [Signature]</p>
--	--

<p>Westinghouse Electric Corporation</p> <p>WATER REACTOR DIVISIONS - PENSACOLA, FL. U.S.A.</p> <p>STEAM GENERATOR - 1500.04 F</p> <p>GENERAL ARRANGEMENT</p>



UNTA SHEET NO. 1000-10-00
Pg. 5 of 8



45° Axial incomplete coverage
in shaded area.
60° Axial No coverage

Insulation Ring
limitation for 11 inches

60°
45°

FEED WATER
NOZZLE

GEN. SHELL

Reviewed: Scott Larson 3-11-98
C. Demich 3-18-98

FLOW

D.H. So 5/20/98

WILLIAM
Lee
3/19/98
INSP
Date

3-17-98

Data Sheet No. 1200-98-cc
Pg. 6 of 8

In complete coverage
in shaded area.

WELD #8

FEED WATER
1/2" x 1/2"

GEN. SHELL

T.H. So
3/20/98



Received: Scott Larson 3-18-98
C. Dorman 3-18-98

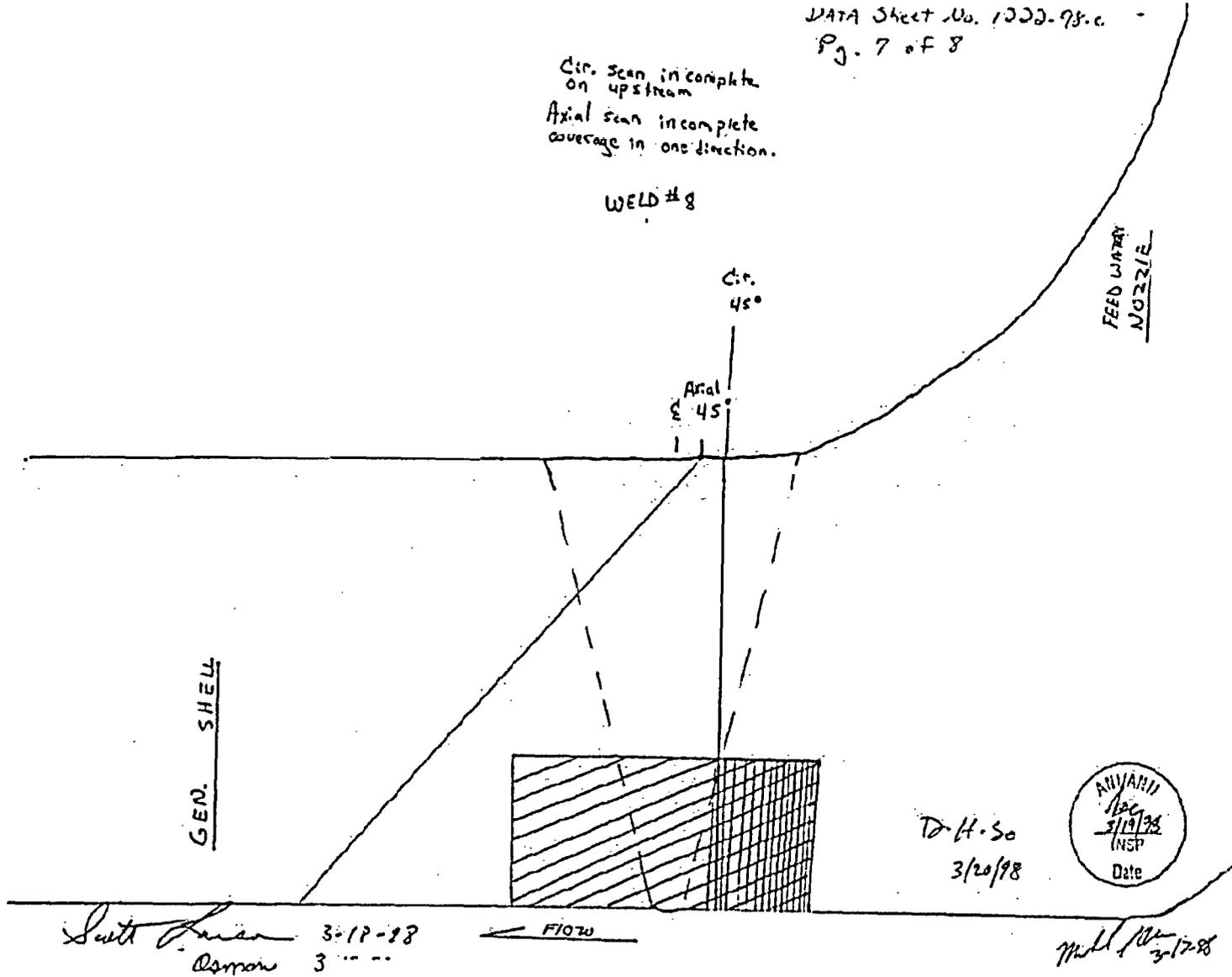
FLOW

Mull/dk
3-17-98

DATA Sheet No. 1000-98.c
Pg. 7 of 8

Cir. scan incomplete
on upstream
Axial scan incomplete
coverage in one direction.

WELD #8



GEN. SHELL

FEED WATER NOZZLE

Cir. 45°

Axial 45°

FLOW

AVIARI
126
3/19/98
INSP
Date

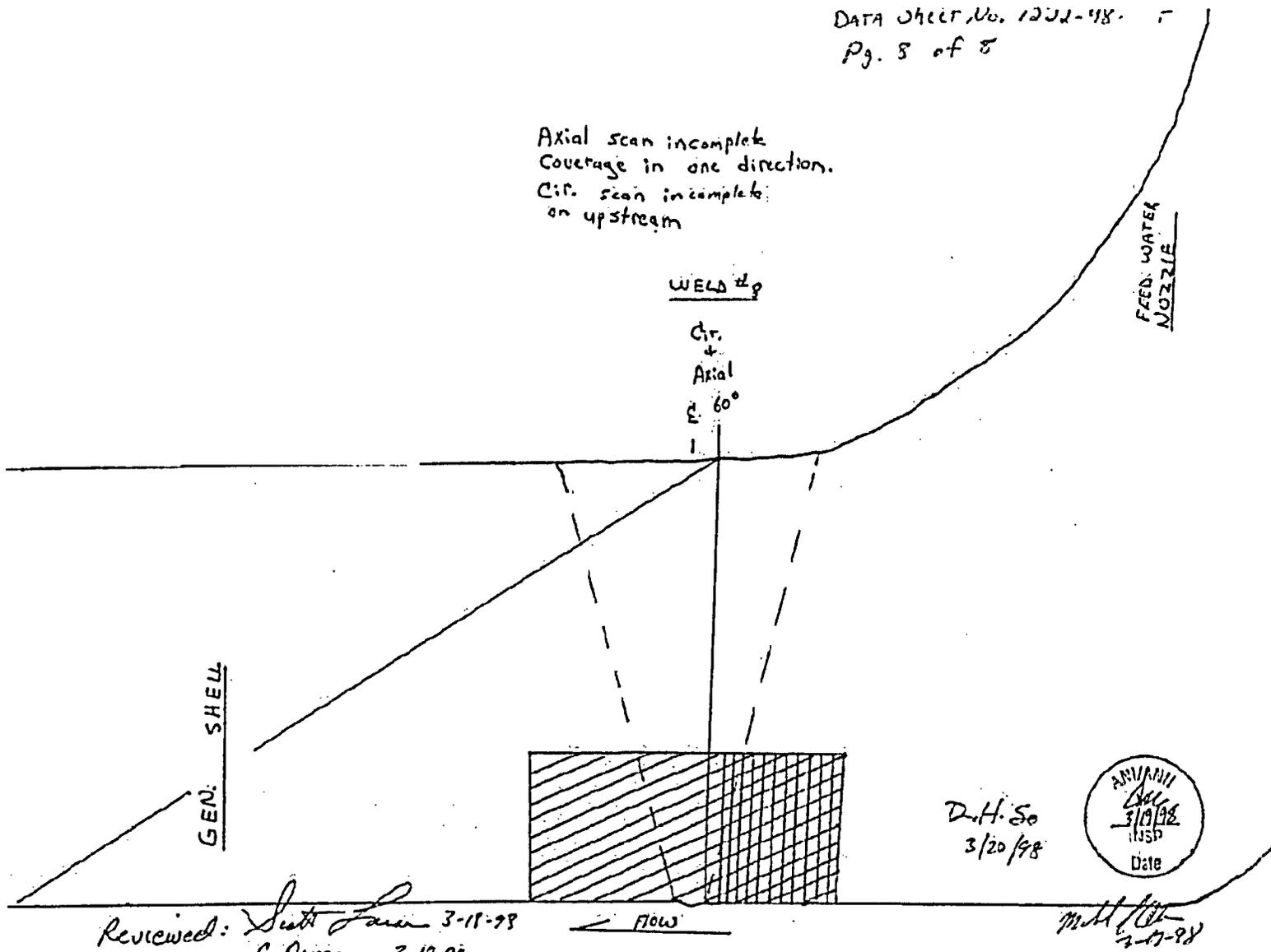
TD H. So
3/20/98

Smith 3-19-98
Cannon 3 ...

Mull 3-17-98

DATA SHEET No. 1202-48.
Pg. 5 of 8

Axial scan incomplete
Coverage in one direction.
Cir. scan incomplete
on upstream



Reviewed: *Scott Lavin* 3-18-98
C. Demen 3-18-98

D.H. So
3/20/98



M.H. [Signature]
3-19-98

CATEGORIES B-J, C-F-1, AND C-F-2 PIPING EXAMINATIONS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2 piping associated with the welds identified in Table 1.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Categories B-J, C-F-1, and C-F-2, Item Numbers B9.11, B9.40, C5.11, C5.21, and C5.51, respectively. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Categories B-J, C-F-1, and C-F-2, Item Numbers B9.11, B9.40, C5.11, C5.21, and C5.51, respectively, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Ultrasonic examination techniques utilized during the Third Ten-Year Interval on the piping configurations were consistent with industry standards during the time frame the examination occurred. The weld profiles provided show the configurations as well as the scans performed inclusive of beam path coverage. Beam path coverage does not account for beam spread, which would increase the coverage for each weld.

Typically, a one-sided exam a on a valve to pipe or flange with an as-welded crown will result in a limitation of 50% when the examination is performed on stainless steel utilizing the applicable PDI technique. If the crown is ground flush, a maximum credit for coverage would typically be 75%. Table 1 quantifies the extent of coverage, and Table 2 identifies the materials joined.

Scan directions utilized are as follows:

Scan 1	With flow
Scan 2	Against flow
Scan 3	Clockwise, looking in the direction of flow
Scan 4	Counterclockwise, looking in the direction of flow

Each scan direction was assigned a value of 100% of the required scan volume for each direction. Each scan percentage was compiled and divided by the four directions to arrive at a cumulative coverage percentage.

Additional information included in support of this relief request are Inservice Inspection Determination of Percent Coverage Worksheets, associated weld coverage plots for examination coverage, or weld scan limitation details, as applicable.

**TABLE 1
PIPING COVERAGE AND LIMITATIONS**

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Technique
112/19	Safety Injection Accumulator Discharge Elbow to Tee	B-J	B9.11	VOL	66%	Elbow to Tee configuration.	PDI
113/01	RHR Return Line 10" X 8" Reducer to Valve SI-876A	B-J	B9.11	VOL	43.75%	Reducer to valve configuration.	PDI
114/03	RHR Return Line Pipe to Valve SI-876B	B-J	B9.11	VOL	56.70%	Pipe to valve configuration.	PDI
115/04	RHR Return Line Pipe to Valve SI-876C	B-J	B9.11	VOL	56.70%	Pipe to valve configuration.	PDI
116B/18	Pressurizer Spray Line Elbow to Pipe	B-J	B9.11	VOL	75%	Elbow to Pipe configuration.	PDI
116B/19	Pressurizer Spray Line Pipe to Safe- End	B-J	B9.11	VOL	51%	Pipe to safe-end configuration.	Standard ASME Code manual ultrasonic examination.
118A/01	Pressurizer Safety Line Safe-End to Pipe	B-J	B9.11	VOL	62.5%	Safe-end to pipe configuration.	PDI
118B/08	Pressurizer Spray Line Elbow to Flange	B-J	B9.11	VOL	75%	Elbow to flange configuration.	PDI
133/10	Seal Injection Pipe to Elbow	B-J	B9.40	SUR	90%	Limited at 0° due to proximity of the elbow to the ceiling.	N/A

TABLE 1
PIPING COVERAGE AND LIMITATIONS
(Continued)

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Technique
219A/203	Safety Injection System Reducer to Pipe	C-F-1	C5.11	VOL	75%	Weld crown configuration.	PDI
220/38	RHR System Pipe to Elbow	C-F-1	C5.11	VOL	82.50%	Weld crown configuration.	PDI
220A/69	RHR System Pipe to Elbow	C-F-1	C5.11	VOL	71.50%	Weld crown configuration.	Standard ASME Code manual ultrasonic examination.
239/01	Safety Injection System Tee to Pipe	C-F-1	C5.21	VOL	89.50%	Weld crown configuration.	PDI
212/21	Main Steam System Pipe to Valve MS-V1-3A	C-F-2	C5.51	VOL	75%	Pipe to valve configuration.	PDI
213/17	Main Steam System Pipe to Valve MS-V1-3B	C-F-2	C5.51	VOL	85%	Pipe to valve configuration.	Standard ASME Code manual ultrasonic examination.
213/22	Main Steam System Branch Connection to Valve SV1-1B	C-F-2	C5.51	VOL	87.50%	Pipe to valve configuration.	Standard ASME Code manual ultrasonic examination.
214/19	Main Steam System Pipe to Valve MS-V1-3C	C-F-2	C5.51	VOL	75%	Pipe to valve configuration.	PDI
216/15	Main Feedwater System Pipe to Valve FW-8B	C-F-2	C5.51	VOL	71%	Pipe to valve configuration.	Standard ASME Code manual ultrasonic examination.

**TABLE 2
PIPING WELD MATERIAL AND WELD IDENTIFICATION**

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	MATERIAL 2
112/19	B-J	B9.11	Safety Injection Accumulator Discharge Elbow to Tee	Elbow A-403 WP-316	Tee A-403 WP-316
113/01	B-J	B9.11	RHR Return Line 10" X 8" Reducer to Valve SI-876A	Reducer A-403 WP-304	Valve A351 GR CF8
114/03	B-J	B9.11	RHR Return Line Pipe to Valve SI-876B	Pipe A-376 TP-316	Valve A-351 GR CF8
115/04	B-J	B9.11	RHR Return Line Pipe to Valve SI-876C	Pipe A-376 TP-316	Valve A-351 GR CF8
116B/18	B-J	B9.11	Pressurizer Spray Line Elbow to Pipe	Elbow A-403 WP-316	Pipe A-376 TP-316
116B/19	B-J	B9.11	Pressurizer Spray Line Pipe to Safe-End	Pipe A-376 TP-316	Safe-End SA182 TP316
118A/01	B-J	B9.11	Pressurizer Safety Line Safe-End to Pipe	Pipe A-376 TP-316	Safe-End SA182 TP316
118B/08	B-J	B9.11	Pressurizer Spray Line Elbow to Flange	Elbow A-403 WP-316	Flange A-182 F-316
133/10	B-J	B9.40	Seal Injection Pipe to Elbow	Pipe A-376 TP-316	Elbow A-403 WP-316
219A/203	C-F-1	C5.11	Safety Injection System Reducer to Pipe	Reducer A-403 WP-304	Pipe A-376 TP-316
220/38	C-F-1	C5.11	RHR System Pipe to Elbow	Pipe A-358 CL1 TP-304	Elbow A-403 WP-304
220A/69	C-F-1	C5.11	RHR System Pipe to Elbow	Pipe A-358 CL 1 TP-304	Elbow A-403 WP-304
239/01	C-F-1	C5.21	Safety Injection System Tee to Pipe	Pipe A-312 TP-316	Tee A-403 WP-304
212/21	C-F-2	C5.51	Main Steam System Pipe to Valve MS-V1-3A	Pipe A 106 GR B	Valve A216 WCB
213/17	C-F-2	C5.51	Main Steam System Pipe to Valve MS-V1-3B	Pipe A 106 GR B	Valve A216 WCB

TABLE 2
PIPING WELD MATERIAL AND WELD IDENTIFICATION
(Continued)

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	MATERIAL 2
213/22	C-F-2	C5.51	Main Steam System Branch Connection to Valve SV1-1B	Branch A 106 GR B	Valve SA216 WCB
214/19	C-F-2	C5.51	Main Steam System Pipe to Valve MS-V1-3C	Pipe A 106 GR B	Valve A216 WCB
216/15	C-F-2	C5.51	Main Feedwater System Pipe to Valve FW-8B	Pipe A 106 GR B	Valve A216 WCB

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	112/19	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	TEE TO ELBOW	% CRV ACHIEVED:	66%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/22/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ELBOW TO TEE CONFIGURATION.
2	50%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.
3	82%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.
4	82%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ELBOW TO TEE CONFIGURATION.
2	70%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.

70° RL SCAN

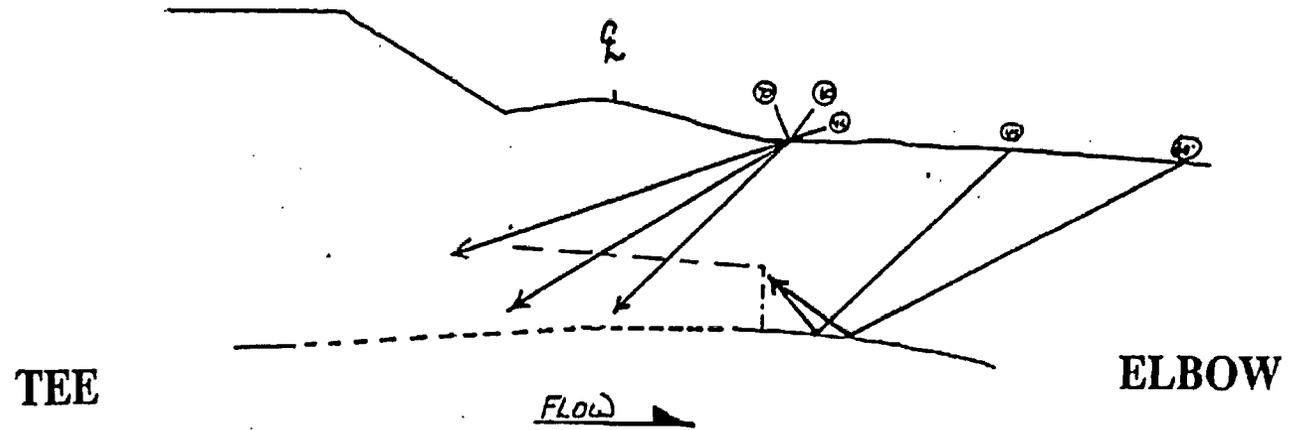
SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ELBOW TO TEE CONFIGURATION.
2	100%	NONE

* See attached CRV plot for examination coverage.



Client: HB ROBINSON 2 Project: RO-20 System: ACCUM. DISCHARGE Report No.: 01-012
 Line No.: 10-SI-54 Component I.D.: 112/19 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/22/01
 Drawing No.: HBR2-10618 ShL 17 Rev.: 3 Search Unit Angle: 45°, 60°, & 70° Mode: 45°S, 60°S, 70°RL

50% CODE REQUIRED COVERAGE OBTAINED FROM SCANNING SINGLE SIDED. HOWEVER, SCREEN RANGE WAS ESTABLISHED TO ENCOMPASS AN ADDITIONAL 1/3 "T" BUT, DUE TO GRAIN STRUCTURE AND METALLURGICAL CONDITIONS, THIS ADDITIONAL COVERAGE CAN NOT BE CLAIMED.



Examiner: Charles R. Bennett Level: IV Date: 4-22-01 Examiner: N/A Level: N/A Date: N/A
 Reviewer: (Washington) [Signature] Level: III Date: 4-28-01 Reviewer: (Client) [Signature] Level: III Date: 5-1-01
 Reviewer: (ANII) [Signature] Date: 7/9/01
 Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	113/01	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	REDUCER TO VALVE	% CRV ACHIEVED:	43.75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/28/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	33%	COMPONENT CONFIGURATION AND AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE REDUCER/VALVE.
2	0%	NO SCAN DUE TO REDUCER TO VALVE CONFIGURATION.
3	71%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE REDUCER/VALVE.
4	71%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE REDUCER/VALVE.

70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	2%	SINGLE SIDED 1/2V EXAM DUE TO REDUCER TO VALVE CONFIGURATION.
2	0%	NO SCAN DUE TO REDUCER TO VALVE CONFIGURATION.

* See attached CRV plot for examination coverage.

NOTE: An RL transducer could not be used due to the limited scanning surface. The appropriately focused RL transducer is too large to scan the area and a smaller RL transducer did not have the focal depth necessary to provide an adequate exam. Also, due to the weld crown being in an as-welded condition, scanning could not be performed over the weld crown.



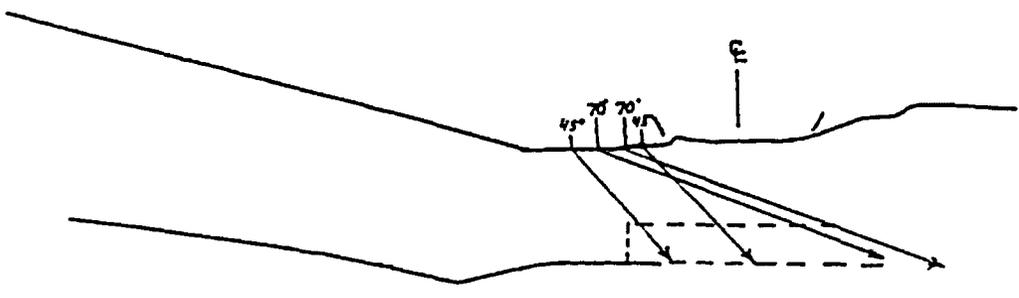
Washington

Page 4 of 4

Client: H.B. Robinson Project: RO-20 System: SI 2080 W.R. # 21A Report No.: 01-013
 Line No.: B-SI-37 Component I.D.: 113/01 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/26/01
 Drawing No.: NHBR2-10618 Sht. 18 Rev.: 2 Search Unit Angle: 45° & 70° Mode: 45°S & 70°S

REDUCER

VALVE



Code Required Coverage is less than 50%.
 100%
 5-2-01

→ FLOW

Examiner: Donald A. Barrett Level: II Date: 4-28-01 Examiner: N/A Level: N/A Date: N/A
 Reviewer: (Washington) John S. [Signature] Level: IV Date: 4/29/01 Reviewer: (Client) John S. [Signature] Level: III Date: 5-2-01
 Reviewer: (ANII) John S. [Signature] Date: 4/29/01
 Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	114/03	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	56.70%
PDI TECHNIQUE USED:	YES	EXAM DATE:	3/23/98

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE CREATING LIFT-OFF OF THE TRANSDUCER.
2	5.4%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE AND PIPE TO VALVE CONFIGURATION.
3	58%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE.
4	58%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE.

45° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	5.4%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE AND PIPE TO VALVE CONFIGURATION.

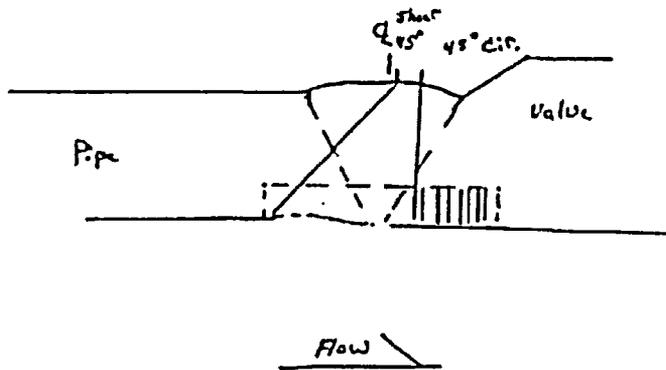
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO PIPE TO VALVE CONFIGURATION. ULTRASONIC BEAM PATH IS OUTSIDE OF THE CRV BLOCK.

* See attached CRV plot for examination coverage.

DATA SK r No 1425 98 017
Pg 5 f

WELD # 3
Coverage Plot



Reviewed *[Signature]* 3-23-98
Carl Oman 3-23-98



[Signature]
3-23-98
D.H. So 3/24/98

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	115/04	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	56.70%
PDI TECHNIQUE USED:	YES	EXAM DATE:	3/19/98

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	5%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO VALVE CONFIGURATION. LIMITED ACCESS FROM THE VALVE SIDE OF THE WELD DUE TO COMPONENT CONFIGURATION.
2	100%	NONE
3	60.9%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE.
4	60.9%	AS-WELDED CONDITION LIMITS CONTACT ON THE SURFACE OF THE WELD TOE INTERFACE AT THE PIPE/VALVE.

60° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO VALVE CONFIGURATION. NO SCAN ACCESS IS PERMITTED FROM THE VALVE SIDE OF THE WELD DUE TO COMPONENT CONFIGURATION.
2	100%	NONE

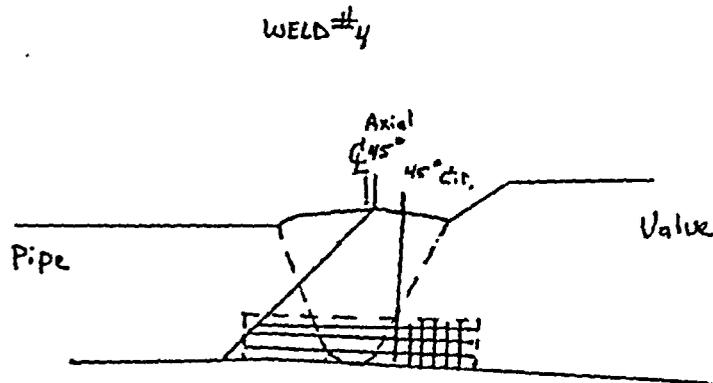
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO VALVE CONFIGURATION. NO SCAN ACCESS IS PERMITTED FROM THE VALVE SIDE OF THE WELD DUE TO COMPONENT CONFIGURATION.
2	100%	NONE

* See attached CRV plot for examination coverage.

DATA Sheet No. 1425-98-016
Pg. 5 of 5

Coverage Plot.



Reviewed: *Scott Larson*
3-20-98

Carl Aman 3-22-98

Mark J. Olson

3-20-98

D.H. So - 3/24/98



**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	116B/18	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	ELBOW TO PIPE	% CRV ACHIEVED:	75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/29/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO ADJACENT WELD 116B/19.
3	100%	NONE
4	100%	NONE

45° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO ADJACENT WELD 116B/19.

70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO ADJACENT WELD 116B/19.

* See attached CRV plot for examination coverage.



Washington

Page 5 of 5

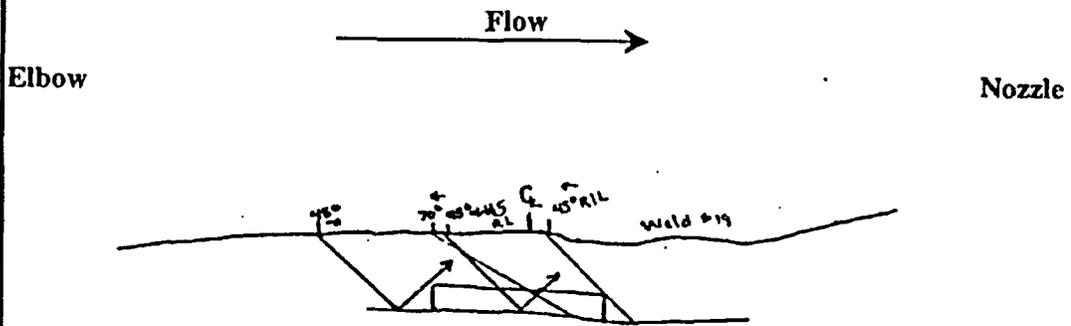
W.R. # N/A

Client: CP & L Project: H. B. Robinson Report No.: 01-017

System: RC 2005 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/29/01

Line No.: 4-RC-30 Drawing No.: HBR2-10618 sht. 23 Rev.: 1

Component I.D.: 116B/18 Search Unit Angle: 45° and 70° Mode: Sh&R/L



Achieved 50% / 91.1% of the Code Required Coverage *DOB 5-4-01*

Total Volume = 2.708⁻³
 Clockwise = 100%
 Counterclockwise = 100%
 Against Flow = ~~68.4%~~ *DOB 5-4-01*
 With Flow = 100%

Total = 364.4% / 4 = 91.1% Actual Coverage Achieved

Note: 50% Code Required coverage was obtained from scanning single sided.
 The screen range was established to encompass an additional 1/3T but, due to grain structure and metallurgical conditions, this additional coverage cannot be claimed.

Examiner: Jay Miller <i>Jay Miller</i>	Level: <u>III</u>	Date: <u>4/29/01</u>
Examiner: <i>[Signature]</i>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Washington) <i>[Signature]</i>	Level: <u>III</u>	Date: <u>5-3-01</u>
Reviewer: (Client) <i>[Signature]</i>	Level: <u>III</u>	Date: <u>5-4-01</u>
Reviewer: (ANTI) <i>[Signature]</i>		Date: <u>7/9/01</u>

Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	116B/19	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	PIPE TO SAFE END	% CRV ACHIEVED:	51%
PDI TECHNIQUE USED:	NO	EXAM DATE:	10/7/93

45° SHEAR SCAN

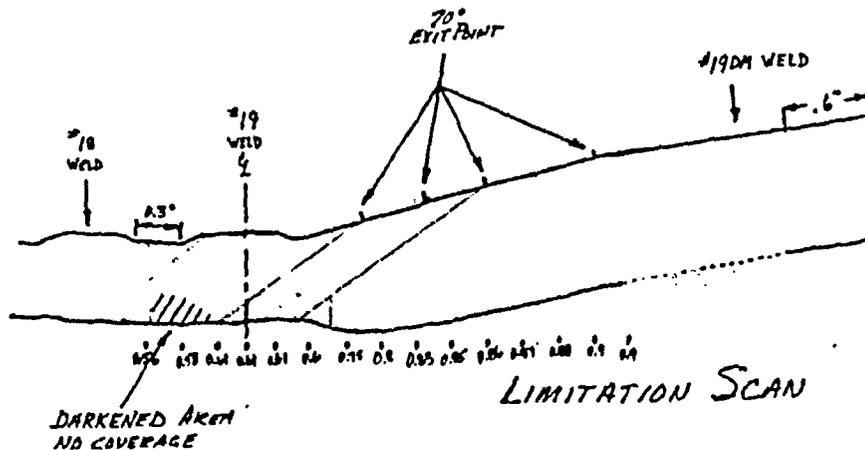
SCAN	% VOLUME ACHIEVED	LIMITATION
3	68%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT WELD 116B/18.
4	68%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT WELD 116B/18.

70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ADJACENT WELD 116B/18.
2	68%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT WELD 116B/18.

* See attached CRV plot for examination coverage.

1223-032
7 of 7



DISTANCE FROM EXIT POINT TO WEDGE TIP 0.5"
BEAM ANGLE 56° THROUGH INSPECTION AREA

CPL-116B WELD #19

EXAMINER 1. Teri Adams LEVEL II DATE 10-7-93
2. Stephen Sule LEVEL II DATE 10-7-93

PAGE OF

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	118A/01	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	PIPE TO SAFE END	% CRV ACHIEVED:	62.50%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/29/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ADJACENT SAFE-END CONFIGURATION.
2	80%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT SAFE-END CONFIGURATION.
3	78%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT SAFE-END CONFIGURATION.
4	78%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT SAFE-END CONFIGURATION.

45° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO ADJACENT SAFE-END CONFIGURATION.
2	100%	NONE

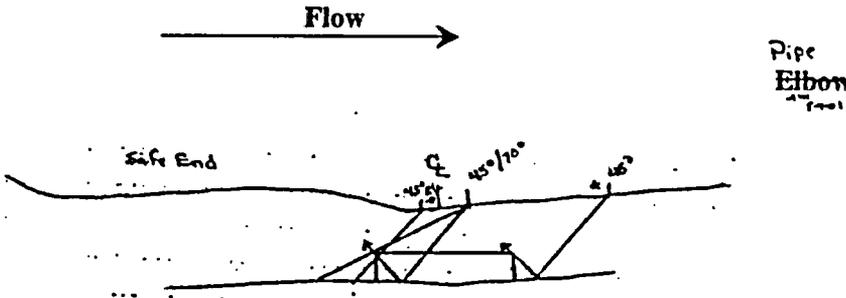
70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	SINGLE SIDED 1/2V EXAM DUE TO ADJACENT SAFE-END CONFIGURATION
2	100%	NONE

* See attached CRV plot for examination coverage.

 Washington	Page <u>5</u> of <u>5</u>
	W.R. # <u>N/A</u>
Client: <u>CP & L</u> Project: <u>H. B. Robinson</u> Report No.: <u>01-018</u>	
System: <u>RC 2005</u> Procedure: <u>HBR-UT-86-1</u> Rev.: <u>1</u> Date: <u>4/28/01</u>	
Line No.: <u>4-RC-43</u> Drawing No.: <u>HBR2-10618 sht. 28</u> Rev.: <u>3</u>	
Component I.D.: <u>118A/01</u> Search Unit Angle: <u>45° & 70</u> Mode: <u>Sh&R/L</u>	

Flow →



Achieved 50% / 99.83% of the Code Required Coverage

~~Total Volume = 2.708⁻³
 Clockwise = 100%
 Counterclockwise = 100%
 With Flow = 99.33%
 Against Flow = 100%
 Total Coverage = 399.33% / 4 = 99.83%~~

Note: 50% Code Required Coverage was obtained from scanning single sided.
 The screen range was established to encompass an addition 1/3T but, due to grain structure and metallurgical conditions, this additional coverage cannot be claimed.

Examiner: <u>Jay Miller</u> <i>Jay Miller</i> Level: <u>III</u> Date: <u>4/28/01</u>
Examiner: <u>N/A</u> Level: <u>N/A</u> Date: <u>N/A</u>
Reviewer: (Washington) <u><i>[Signature]</i></u> Level: <u>III</u> Date: <u>5-9-01</u>
Reviewer: (Client) <u><i>[Signature]</i></u> Level: <u>III</u> Date: <u>7/9/01</u>
Reviewer: (ANII) <u><i>[Signature]</i></u> Date: <u>7/9/01</u>

Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	118B/08	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.11
CONFIGURATION:	ELBOW TO FLANGE	% CRV ACHIEVED:	75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/22/01

45° SHEAR & RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO ELBOW TO FLANGE CONFIGURATION.
3	100%	NONE
4	100%	NONE

70° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	0%	NO SCAN DUE TO ELBOW TO FLANGE CONFIGURATION.

* See attached CRV plot for examination coverage.



Washington

Page 5 of 5

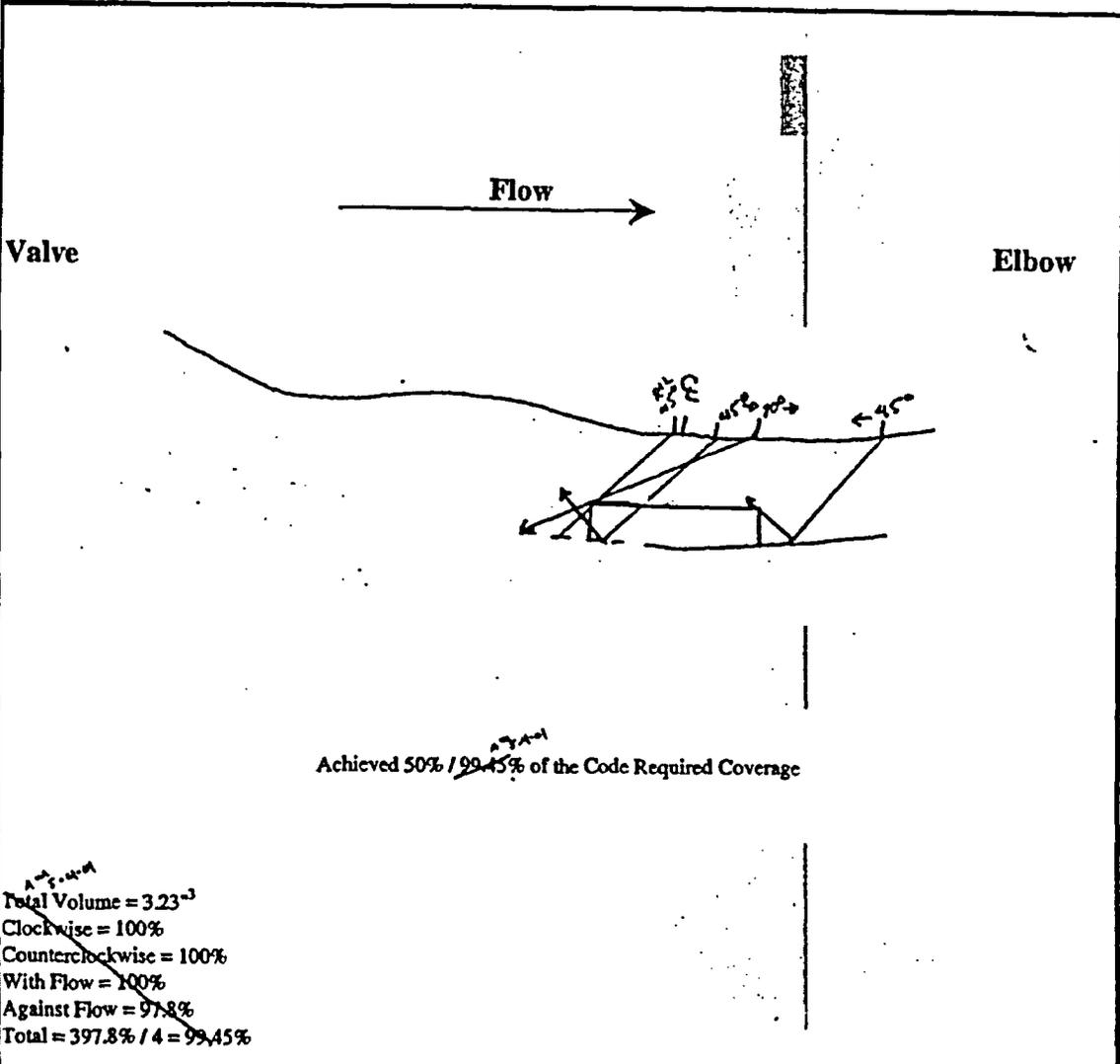
W.R. # N/A

Client: CP & L Project: H. B. Robinson Report No.: 01-019

System: RC 2005 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/28/01

Line No.: 4-RC-45 Drawing No.: HBR2-10618 sht. 28 Rev.: 3

Component I.D.: 118B/08 Search Unit Angle: 45° & 70 Mode: Sh&R/I



A 70° - 45° - 90°
 Total Volume = 3.23⁻³
 Clockwise = 100%
 Counterclockwise = 100%
 With Flow = 100%
 Against Flow = 97.8%
 Total = 397.8% / 4 = 99.45%

Note: 50% Code Required Coverage was obtained from scanning single sided.
 The screen range was established to encompass an additional 1/3T but, due to grain structure and metallurgical condition, this additional coverage cannot be claimed.

Examiner: <u>Jay Miller</u>	Level: <u>III</u>	Date: <u>4/28/01</u>
Examiner: <u>[Signature]</u>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Washington) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>5-3-01</u>
Reviewer: (Client) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>5-4-01</u>
Reviewer: (ANII) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>6/24/01</u>

Refer to attached Ultrasonic Indication Data Sheet

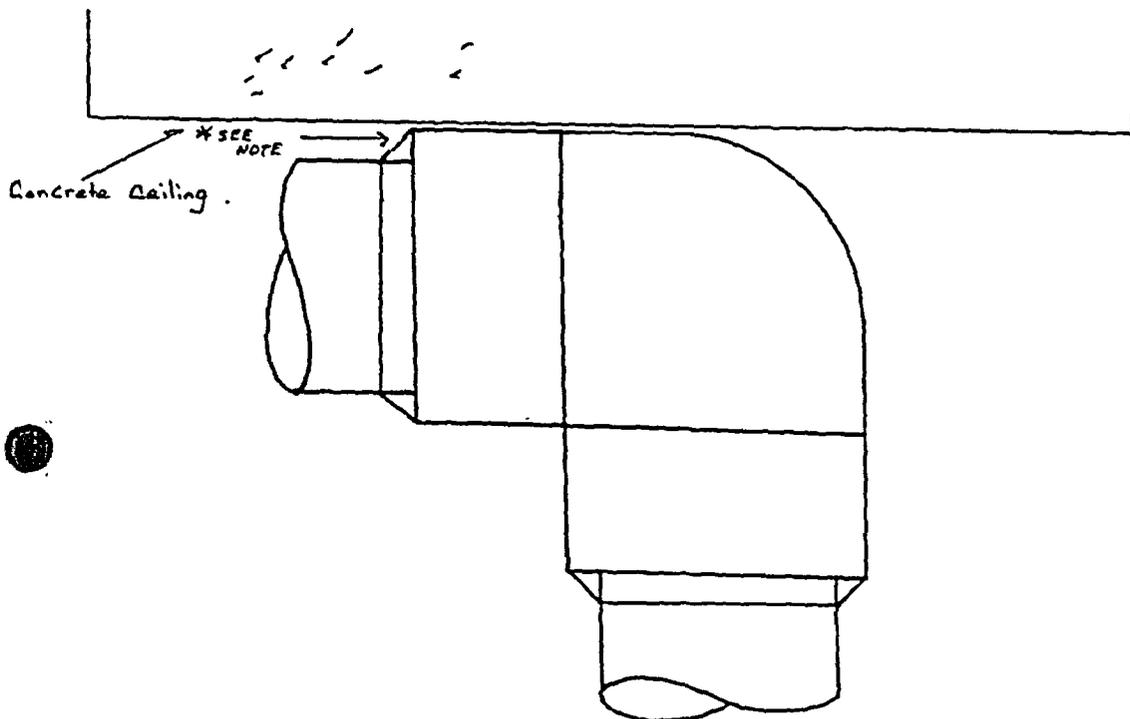
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(PT)**

COMPONENT ID:	133/10	ASME CATEGORY:	B-J
ASME CODE FIGURE:	IWB-2500-8	ASME ITEM NUMBER:	B9.40
CONFIGURATION:	PIPE TO ELBOW	% CRS ACHIEVED:	90%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	10/11/93

* Exam was limited at top dead center due to the close proximity of the ceiling; see sketch for surface examination limitation. Code-required surface is estimated at 90% CRS.

1217-057

PAGE 2 OF 2
CPL-133
WELD 10



* LIMITED EXAM TOP OF SOCKET
ELBOW DUE TO CEILING.

EXAMINER Steve Wollum LEVEL II DATE 10-11-93

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	219A/203	ASME CATEGORY:	C-F-1
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.11
CONFIGURATION:	REDUCER TO PIPE	% CRV ACHIEVED:	75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/26/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO REDUCER TO PIPE CONFIGURATION.
2	50%	1/2V SINGLE SIDED EXAM DUE TO REDUCER TO PIPE CONFIGURATION.
3	100%	NONE
4	100%	NONE

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO REDUCER TO PIPE CONFIGURATION.
2	75%	1/2V SINGLE SIDED EXAM DUE TO REDUCER TO PIPE CONFIGURATION.

70° RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO REDUCER TO PIPE CONFIGURATION.
2	100%	NONE

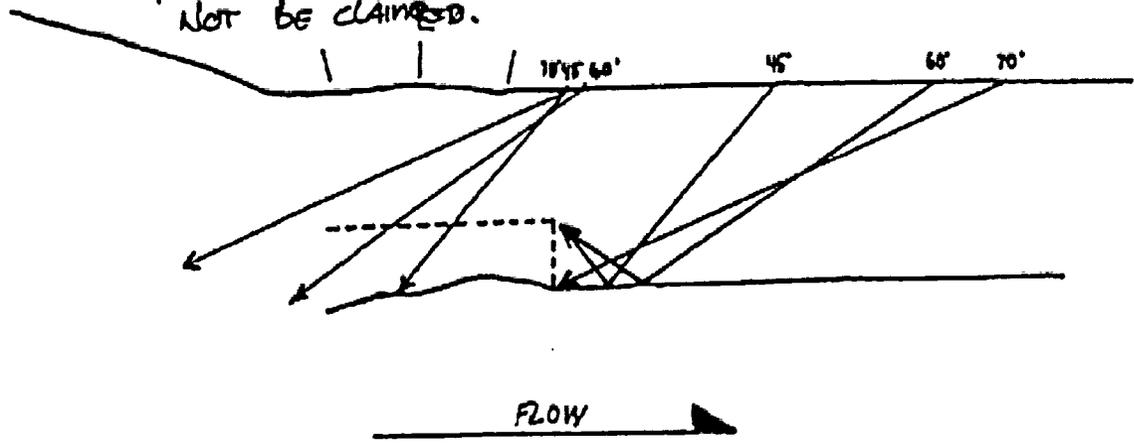
* See attached CRV plot for examination coverage.



Client: H.B. ROBINSON Project: RO-20 System: SI 2080 W.R. # N/A Report No.: 01-051
 Line No.: 8-SI-37 Component I.D.: 219A/203 Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/26/01
 Drawing No.: HBR2-1061A SHT.79 Rev.: 2 Search Unit Angle: N/A Mode: N/A

50% CODE REQUIRED COVERAGE OBTAINED FROM SCANNING SINGLE SIDED. HOWEVER SCREEN RANGE WAS ESTABLISHED TO ENCOMPASS AN ADDITIONAL 1/3 t, BUT DUE TO GRAIN STRUCTURE & METALLURGICAL CONDITIONS, THIS ADDITIONAL COVERAGE WILL NOT BE CLAIMED.

REDUCER



Examiner: Charles R. Barrett Level: II Date: 4-26-01 Examiner: N/A Level: N/A Date: N/A
 Reviewer: (Washington) J. J. [Signature] Level: III Date: 4-27-01 Reviewer: (Client) Edwin [Signature] Level: III Date: 5-2-01
 Reviewer: (ANII) [Signature] Date: 7/5/01
 Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	220/38	ASME CATEGORY:	C-F-1
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.11
CONFIGURATION:	PIPE TO ELBOW	% CRV ACHIEVED:	82.50%
PDI TECHNIQUE USED:	YES	EXAM DATE:	8/30/99

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	30%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO ELBOW CONFIGURATION.
2	80%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO ELBOW CONFIGURATION.
3	100%	NONE
4	100%	NONE

70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO ELBOW CONFIGURATION.
2	100%	NONE

* See attached CRV plots for examination coverage.

Raytheon
Engineers & Constructors

Page 7 of 14
Report No.: 99-012-1

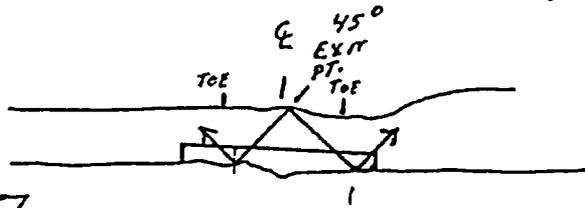
CODE REQUIRED VOLUME
COVERAGE PLOT
FOR

COMPONENT NO.: 220/38
45° Shear

← FLOW

ELBOW

PIPE



A1 = 30%
A2 = 100%
C1 = 100%
C2 = 100%

$330 \div 4 = 82.5\%$ CRV ACHIEVED. *See also UT/LIT 9/21/99*

~~95.9% CRV ACHIEVED~~ *See 9/21/99*

Comments: *SUPPLEMENTED 70° SHEAR WAVE EXAMINATION PERFORMED TO ACHIEVE 100% CRV*

Examiner/Level *Charles Hays / II* Date 8-30-99

*John L. Wood III / 9-16-99
NRC P. O. Box 9-2099*

Raytheon
Engineers & Constructors

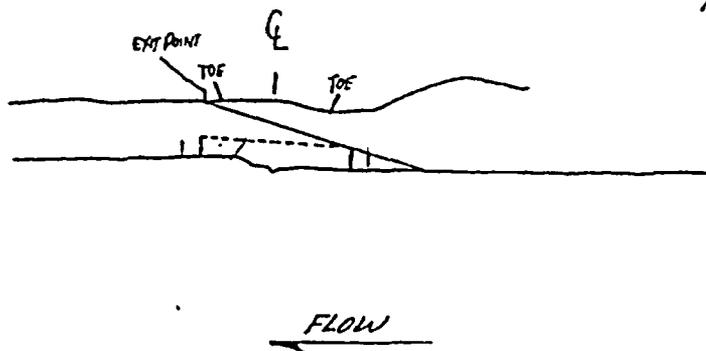
Page 8 of 14
Report No.: 99-012-1

CODE REQUIRED VOLUME
COVERAGE PLOT
FOR

COMPONENT NO.: 220 138
70° SHEAR

ELBOW

PIPE



Comments: 100% EXAMINATION VOLUME ACHIEVED. RZc 9/21/99

Examiner / Level

Charles Hoag / IIT
James J. Hoag III 12-16-99
ASST. Dir. 2-24-99

Date 8-31-99

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	220A/69	ASME CATEGORY:	C-F-1
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.11
CONFIGURATION:	45° ELBOW TO PIPE	% CRV ACHIEVED:	71.50%
PDI TECHNIQUE USED:	NO	EXAM DATE:	8/29/96

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO 45° ELBOW TO PUP PIECE. CLOSE PROXIMITY OF WELD 68 WILL NOT ALLOW SCANNING FROM UPSTREAM SIDE (1 SCAN).
2	50%	SINGLE SIDED 1/2V EXAM DUE TO 45° ELBOW TO PUP PIECE. CLOSE PROXIMITY OF WELD 68 WILL NOT ALLOW SCANNING FROM UPSTREAM SIDE (1 SCAN). EXISTING WELD CROWN AND COMPONENT CONFIGURATION LIMITS SCAN AREA.
3	100%	NONE
4	100%	NONE

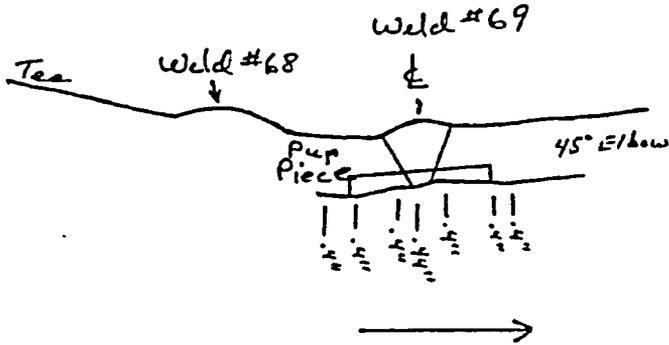
70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	0%	NO SCAN DUE TO 45° ELBOW TO PUP PIECE. CLOSE PROXIMITY OF WELD 68 WILL NOT ALLOW SCANNING FROM UPSTREAM SIDE (1 SCAN).
2	86%	SINGLE SIDED 1/2V EXAM DUE TO 45° ELBOW TO PUP PIECE. CLOSE PROXIMITY OF WELD #68 AND EXISTING WELD CROWN LIMIT SCAN AREA.

* See attached CRV plot for examination coverage.

CAROLINA POWER & LIGHT COMPANY WELD EXAMINATION PROFILE SHEET		Report Number: <u>96-21</u>
		Page <u>6</u> of <u>6</u>
Plant: <u>RNP</u>	Unit: <u>2</u>	System: <u>RHR</u> Weld No.: <u>69 CPL 230A</u>
		UT Exam Calibration Sheet No.: <u>AHachard</u>
Crown Height: <u>.08"</u>	Weld Toes Verified By: <input checked="" type="checkbox"/> Direct VT <input type="checkbox"/> Etch <input type="checkbox"/> Stamp Marks <input type="checkbox"/> Other	
Crown Width: <u>.45"</u>	Weld Circumference/Length: <u>44"</u>	

Note: Thickness measurements should be at 0.25" increments. Additional readings and locations can be performed at Technician's discretion and documented. Flow direction shall be noted. Weld profile shall be noted showing crown, root, weld toes and joint configuration.



Examined By: <u>Scott Lane</u>	Examined By: <u>NA</u>	Reviewed <u>D.H. So</u>	Approved
Date: <u>8-26-96</u>	Date: <u>NA</u>	Date: <u>12/17/96</u>	

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	239/01	ASME CATEGORY:	C-F-1
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.11
CONFIGURATION:	TEE TO PIPE	% CRV ACHIEVED:	89.50%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/26/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
3	100%	NONE
4	100%	NONE

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	78.94%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.
2	78.94%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.

70° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	78.94%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.
2	78.94%	SINGLE SIDED 1/2V EXAM DUE TO PIPE TO TEE INTRADOSE CONFIGURATION.

* See attached CRV plot for examination coverage.

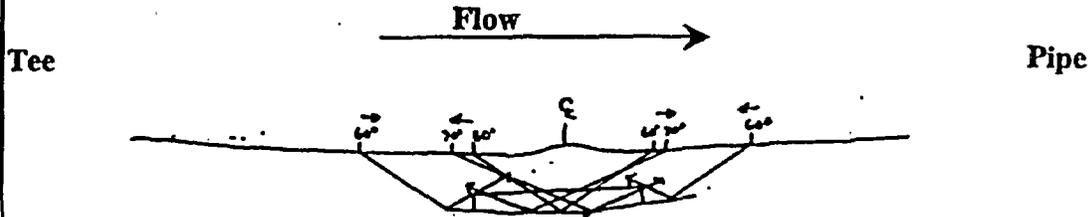


Washington

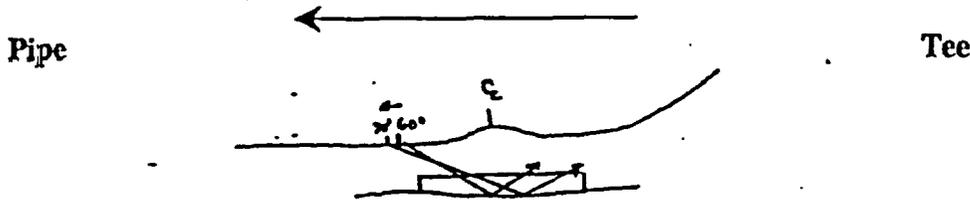
Page 5 of 5

W.R. # N/A

Client: CP & L Project: H. B. Robinson Report No.: 01-055
 System: HPSI Procedure: HBR-UT-86-1 Rev.: 1 Date: 4/26/01
 Line No.: 4-SI-110 Drawing No.: HBR2-10618 sht. 105 Rev.: 5
 Component I.D.: 239/1 Search Unit Angle: 60° & 70 Mode: Shear



Note: Weld width was less than three times the thickness. A 70° Shear was performed from both sides, therefore 100% coverage was obtained as demonstrate during PDI-UT-2 procedure expansion for as welded conditions. Reference: the PDI letter dated April 18, 2000.



Examination limited from 2.5" CW to 5.5" CW and 8.5" CW to 11.5" CW on the tee side due to configuration. Total Coverage claimed for 6" = 50% (one sided exam)

Total Volume = 1.85"³
 Clockwise = 100%
 Counterclockwise = 100%
 With Flow (8.25") = 100% * 57.89% = 57.89% 78.94%
 With Flow (6") = 0% * 42.11% = 21.05%
 Against Flow (8.25") = 100% * 57.89% = 57.89% 78.94%
 Against flow (6") = 50% * 42.11% = 21.05%

Total = 357.88 / 4 = 89.5%

Total coverage achieved = 89.5%

Examiner: <u>Jay Miller</u> <i>Jay Miller</i>	Level: <u>III</u>	Date: <u>4-26-01</u> <i>4-26-01</i>
Examiner: <u>N/A</u>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Washington) <i>Billy White</i>	Level: <u>III</u>	Date: <u>5-3-01</u>
Reviewer: (Client) <i>John W. Slack</i>	Level: <u>III</u>	Date: <u>5-9-01</u>
Reviewer: (ANII) <i>John Tall</i>		Date: <u>7/9/01</u>

Refer to attached Ultrasonic Indication Data Sheet

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	212/21	ASME CATEGORY:	C-F-2
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.51
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/26/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	1 1/2V SINGLE SIDED EXAM DUE TO PIPE TO VALVE CONFIGURATION.
2	100%	1 1/2V SINGLE SIDED EXAM (SCAN 1) DUE TO PIPE TO VALVE CONFIGURATION. SCAN 2 IS CREDITED BY 1 1/2V SINGLE SIDED EXAM.
3	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	1 1/2V SINGLE SIDED EXAM DUE TO PIPE TO VALVE CONFIGURATION.
2	100%	1 1/2V SINGLE SIDED EXAM (SCAN 1) DUE TO PIPE TO VALVE CONFIGURATION. SCAN 2 IS CREDITED BY 1 1/2V SINGLE SIDED EXAM.
3	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

* See attached CRV plot for examination coverage.



Washington

Page 4 of 4

W.R. # _____

Client: CP & L

Project: H.B. Robinson

Report No.: 01-044

System: Main Steam

Procedure: HBR-UT-86-9 Rev.: 0

Date: 4/26/01

Line No.: 26-MS-1

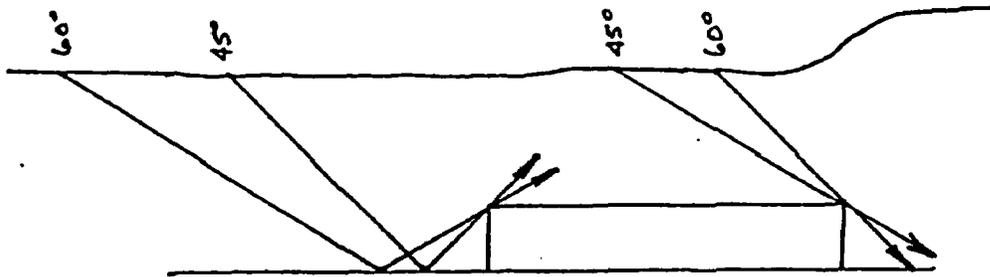
Drawing No.: HBR2-10618 SHT 25 71

Rev.: 2

Component I.D.: 212/21

Component Thickness: 1.042"

Item No. C5.51



$$\frac{A1 + A2 + 1 + C2}{4} = \frac{100\% + 100\% + 100\% + 0\%}{4} = \frac{300}{4} = 75\%$$

75% Code Required Volume Achieved

Examiner: [Signature] Level: III Date: 4-26-01

Examiner: N/A Level: N/A Date: N/A

Reviewer: (Washington) [Signature] Level: _____ Date: 5/01/01

Reviewer: (Client) [Signature] Level: III Date: 5-3-01

Reviewer: (ANII) [Signature] Date: 7/9/01

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	213/17	ASME CATEGORY:	C-F-2
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.51
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	85%
PDI TECHNIQUE USED:	NO	EXAM DATE:	9/13/96

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	1 1/2V SINGLE SIDED EXAM DUE TO PIPE TO VALVE CONFIGURATION.
2	100%	1 1/2V SINGLE SIDED EXAM (SCAN 1) DUE TO PIPE TO VALVE CONFIGURATION. SCAN 2 IS CREDITED BY 1 1/2V SINGLE SIDED EXAM.
3	70%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	70%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

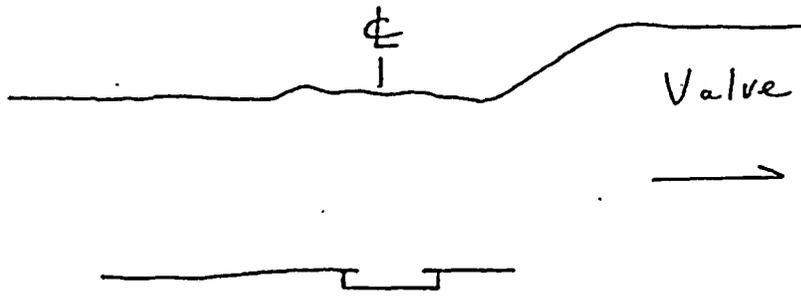
* See attached CRV plot for examination coverage.

CAROLINA POWER & LIGHT COMPANY WELD EXAMINATION PROFILE SHEET	Report Number: <u>96-27</u>
	Page <u>3</u> of <u>3</u>

Plant: <u>RNP</u> Unit: <u>2</u>	System: <u>MS</u> Weld No.: <u>CPL 213 W.17</u> UT Exam Calibration Sheet No.: _____
----------------------------------	---

Crown Height: <u>.1"</u>	Weld Toes Verified By: <input checked="" type="checkbox"/> Direct VT <input type="checkbox"/> Etch <input type="checkbox"/> Stamp Marks <input type="checkbox"/> Other
Crown Width: <u>1.3"</u>	Weld Circumference Length: <u>26"</u>

Note: Thickness measurements should be at 0.25" increments. Additional readings and locations can be performed at Technician's discretion and documented. Flow direction shall be noted. Weld profile shall be noted showing crown, root, weld toes and joint configuration.



Backing ring verified on construction WDR.



Examined By: <u>[Signature]</u>	Examined By: <u>N/A</u>	Reviewed: <u>[Signature]</u>	Approved: <u>[Signature]</u>
Date: <u>9-13-96</u>	Date: <u>N/A</u>	Date: <u>12/6/96</u>	

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	213/22	ASME CATEGORY:	C-F-2
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.51
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	87.50%
PDI TECHNIQUE USED:	NO	EXAM DATE:	9/12/96

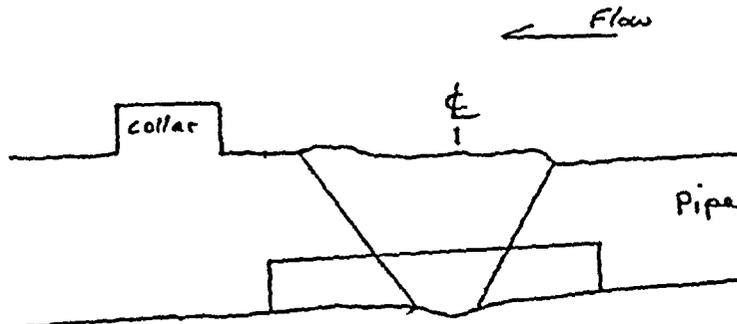
45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	1 1/2V SINGLE SIDED EXAM DUE TO PIPE TO VALVE CONFIGURATION.
2	100%	1 1/2V SINGLE SIDED EXAM (SCAN 1) DUE TO PIPE TO VALVE CONFIGURATION. SCAN 2 IS CREDITED BY 1 1/2V SINGLE SIDED EXAM.
3	75%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	75%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

* See attached CRV plot for examination coverage.

CAROLINA POWER & LIGHT COMPANY WELD EXAMINATION PROFILE SHEET		Report Number: <u>96-28</u> Page <u>4</u> of <u>4</u>
Plant: <u>RNP</u> Unit: <u>2</u>	System: <u>M.S.</u> Weld No.: <u>22</u> UT Exam Calibration Sheet No.: _____	
Crown Height: <u>.10"</u> Crown Width: <u>1.2"</u>	Weld Toes Verified By: <input checked="" type="checkbox"/> Direct VT <input type="checkbox"/> Etch <input type="checkbox"/> Stamp Marks <input type="checkbox"/> Other Weld Circumference/Length: <u>8" circ.</u>	

Note: Thickness measurements should be at 0.25" increments. Additional readings and locations can be performed at Technician's discretion and documented. Flow direction shall be noted. Weld profile shall be noted showing crown, root, weld toes and joint configuration.



Examined By: <u>Scott Lawson</u>	Examined By: <u>N/A</u>	Reviewed <u>D.H. So</u>	Approved
Date: <u>9-12-96</u>	Date: <u>N/A</u>	Date: <u>12/5/96</u>	

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(UT)**

COMPONENT ID:	214/19	ASME CATEGORY:	C-F-2
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.51
CONFIGURATION:	PIPE TO VALVE	% CRV ACHIEVED:	75%
PDI TECHNIQUE USED:	YES	EXAM DATE:	4/26/01

45° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	100%	NONE
3	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

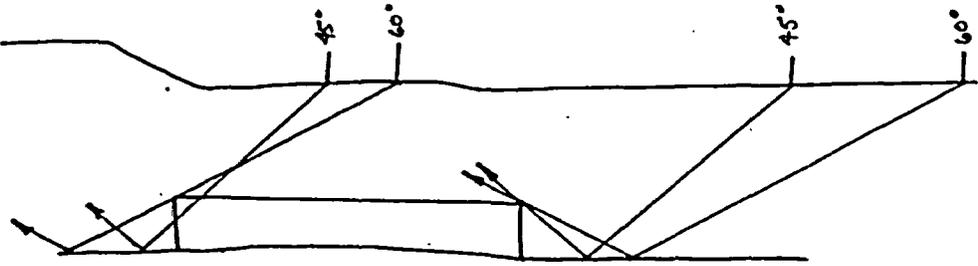
60° SHEAR SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	100%	NONE
2	100%	NONE
3	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	50%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

* See attached CRV plot for examination coverage.

 <b style="font-size: 1.2em;">Washington		Page <u>4</u> of <u>4</u>
		W.R. # _____
Client: <u>CP & L</u>	Project: <u>H.B. Robinson</u>	Report No.: <u>01-045</u>
System: <u>Main Steam</u>	Procedure: <u>HBR-UT-86-9</u> Rev.: <u>0</u>	Date: <u>4/26/01</u>
Line No.: <u>26-MS-3</u>	Drawing No.: <u>HBR2-1061B SHT.73</u>	Rev.: <u>2</u>
Component I.D.: <u>214/19</u>	Component Thickness: <u>1.042"</u>	Item No. <u>C5.51</u>

← *FLOW* →



$$\frac{A1 + A2 + C1 + C2}{4} = \frac{100\% + 100\% + 100\% + 0\%}{4} = \frac{300}{4} = 75\%$$

75% Code Required Volume Achieved

Examiner: <u>[Signature]</u>	Level: <u>III</u>	Date: <u>4-26-01</u>
Examiner: <u>N/A</u>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Washington) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>4/27/01</u>
Reviewer: (Client) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>5-3-01</u>
Reviewer: (ANII) <u>[Signature]</u>		Date: <u>7/10/01</u>

**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (UT)**

COMPONENT ID:	216/15	ASME CATEGORY:	C-F-2
ASME CODE FIGURE:	IWC-2500-7	ASME ITEM NUMBER:	C5.51
CONFIGURATION:	VALVE TO PIPE	% CRV ACHIEVED:	71%
PDI TECHNIQUE USED:	NO	EXAM DATE:	9/12/96

45° SHEAR & RL SCAN

SCAN	% VOLUME ACHIEVED	LIMITATION
1	60%	1 1/2V SINGLE SIDED EXAM DUE TO PIPE TO VALVE CONFIGURATION.
2	100%	1 1/2V SINGLE SIDED EXAM (SCAN 1) DUE TO PIPE TO VALVE CONFIGURATION. SCAN 2 IS CREDITED BY 1 1/2V SINGLE SIDED EXAM
3	62%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.
4	62%	LIMITED EXAM DUE TO PIPE TO VALVE CONFIGURATION AND WELD CROWN.

* See attached CRV plot for examination coverage.

CAROLINA POWER & LIGHT COMPANY WELD EXAMINATION PROFILE SHEET		Report Number: <u>96-29</u> Page <u>3</u> of <u>6</u>
Plant: <u>RNP</u> Unit: <u>2</u>	System: <u>FW</u> Weld No.: <u>CPL 216 0115</u> UT Exam Calibration Sheet No.: _____	
Crown Height: <u>.1"</u>	Weld Toes Verified By: <input checked="" type="checkbox"/> Direct VT <input type="checkbox"/> Etch <input type="checkbox"/> Stamp Marks <input type="checkbox"/> Other	
Crown Width: <u>1.3"</u>	Weld Circumference/Length: <u>16"</u>	
<p>Note: Thickness measurements should be at 0.25" increments. Additional readings and locations can be performed at Technician's discretion and documented. Flow direction shall be noted. Weld profile shall be noted showing crown, root, weld toes and joint configuration.</p> <p style="text-align: center;"><i>Profile taken 2.5" ccw from Top Dead Center</i></p> <div style="text-align: center;"> </div>		
Examined By: <u>[Signature]</u> Date: <u>9-12-96</u>	Examined By: <u>N/A</u> Date: <u>N/A</u>	Reviewed <u>D.H. So</u> Approved _____ Date: <u>12/15/96</u>

CATEGORY C-C WELDED ATTACHMENTS

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, welded attachments identified in Table 1.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Category C-C, Item Numbers C3.10 and C3.20. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," for the components listed in Table 1, require that examination coverage be essentially 100% of the subject weld or component. Although this Code Case applies to volumetric examinations, application of the same technique (i.e., >90% surface) for restricted access has been applied.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Category C-C, Item Numbers C3.10 and C3.20, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for the components listed in Table 1 are the maximum extent practical for these components. Table 1 lists the coverage that was achieved and the reason for the limitation.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of these components. It is judged that patterns of degradation of the listed components would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the listed components has been provided.

Surface examination techniques utilized during the Third Ten-Year Interval on the affected configurations were consistent with industry standards during the time frame the exam occurred and were essentially unchanged during the interval. The affected configurations depict the support integral attachments and the examination area covered during the examination. Physical restrictions due to support configuration were the limiting factor which resulted in limited examination of the attachment welds.

Additional information included in support of this relief request are Inservice Inspection Determination of Percent Coverage Worksheets, associated sketches for surface examination coverage limitations, and supplemental photographs showing component configurations, as applicable.

**TABLE 1
INTEGRAL ATTACHMENT COVERAGE AND LIMITATIONS**

Drawing/ Component	Description	Category	Item	NDE	Exam Coverage	Limitation/Comment	Examination Type (Manual or Automated)
202/WS-1 202/WS-2 202/WS-3 202/WS-4	Boron Injection Tank Integral Attachments (Support Legs)	C-C	C3.10	SUR	88%	Boron Injection Tank support leg configuration.	Manual
204/WS1-A	Residual Heat Exchanger Integral Attachments (Support Legs)	C-C	C3.10	SUR	80%	Residual Heat Exchangers exam is limited by physical access/component configuration.	Manual
212/A-WS	Main Steam System Integral Attachment	C-C	C3.20	SUR	50%	Support configuration.	Manual
212/R-WS	Main Steam System Integral Attachment	C-C	C3.20	SUR	50%	Support configuration.	Manual
213/F-WS	Main Steam System Integral Attachment	C-C	C3.20	SUR	84%	Support configuration.	Manual
214/K-WS	Main Steam System Integral Attachment	C-C	C3.20	SUR	50%	Support configuration.	Manual
216/G-WS	Feedwater System Integral Attachment	C-C	C3.20	SUR	50%	Support configuration.	Manual
221A/I-WS	Safety Injection System Integral Attachment	C-C	C3.20	SUR	75%	Support configuration.	Manual
233/D-WS	Safety Injection System Integral Attachment	C-C	C3.20	SUR	50%	Support configuration.	Manual

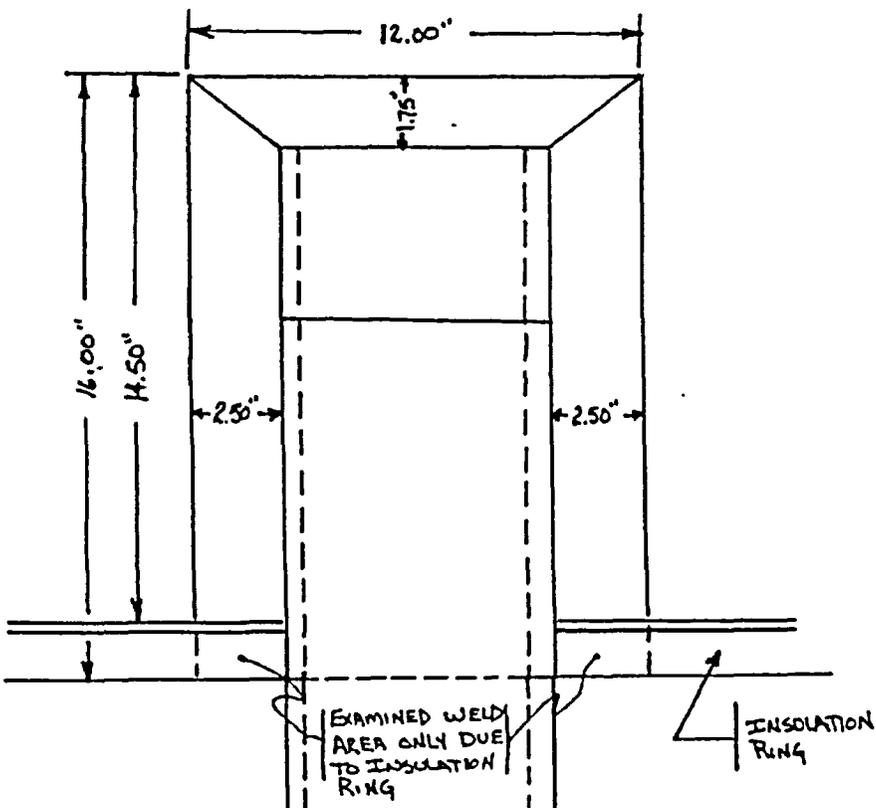
TABLE 2
INTEGRAL ATTACHMENT MATERIAL IDENTIFICATION

WELD ID	CODE CATEGORY	CODE ITEM #	DESCRIPTION	MATERIAL 1	MATERIAL 2
202/WS-1 202/WS-2 202/WS-3 202/WS-4	C-C	C3.10	Boron Injection Tank Integral Attachments (Support Legs)	Shell SA-351 CF8A	Attachment
204/WS1-A	C-C	C3.10	Residual Heat Exchanger Integral Attachments (Support Legs)	Shell SA-240 TP-304	Attachment SA-7 steel
212/A-WS	C-C	C3.20	Main Steam System Integral Attachment	Pipe A-106 GR B	Attachment A-500 GR B
212/R-WS	C-C	C3.20	Main Steam System Integral Attachment	Pipe A-106 GR B	Attachment A-106 GR B
213/F-WS	C-C	C3.20	Main Steam System Integral Attachment	Pipe A-106 GR B	Attachment A-106 GR B
214/K-WS	C-C	C3.20	Main Steam System Integral Attachment	Pipe A-106 GR B	Attachment A-106 GR B
216/G-WS	C-C	C3.20	Feedwater System Integral Attachment	Pipe A-106 GR B	Attachment A-106 GR B
221A/I-WS	C-C	C3.20	Safety Injection System Integral Attachment	Pipe A-312 TP-304	Attachment A-312 TP-304
233/D-WS	C-C	C3.20	Safety Injection System Integral Attachment	Pipe A-312 TP-304	Attachment A-312 TP-304

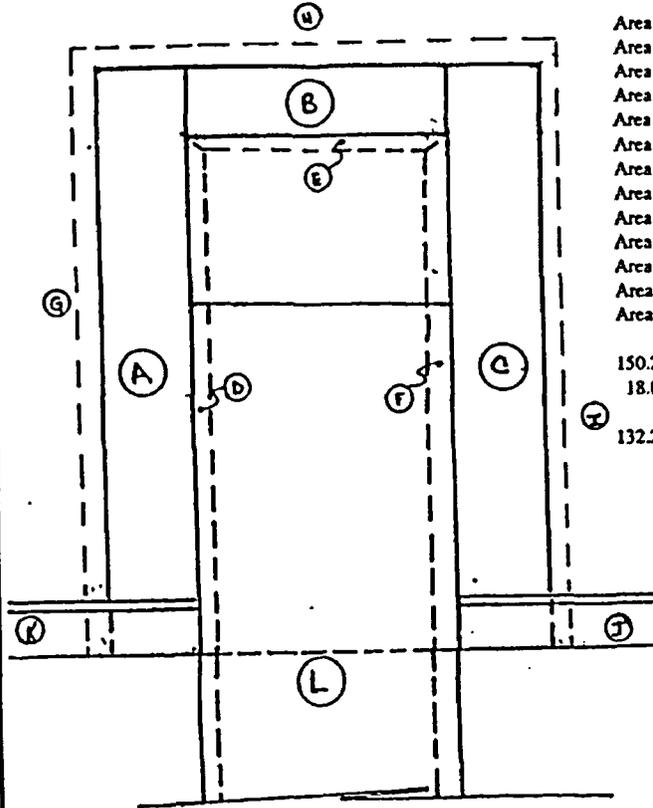
**INSERVICE INSPECTION
 DETERMINATION OF PERCENT COVERAGE WORKSHEET
 (PT)**

COMPONENT ID:	202/WS-1 202/WS-2 202/WS-3 202/WS-4	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.10
CONFIGURATION:	WELDED ATTACHMENTS TO VESSEL	% CRS ACHIEVED:	88%
PDI TECHNIQUE USED:	N/A	EXAM DATES:	202/WS-1 4/14/92 202/WS-2 8/29/96 202/WS-3 4/8/01 202/WS-4 4/26/01

* See CRS sketches for examination coverage, and supplemental photographs showing component configurations.

 Washington		Page <u>2</u> of <u>43</u>
		W.R. # <u>N/A</u>
Client: <u>CP&I</u> Project: <u>H.B. ROBBINSON</u> Report No.: <u>01-042</u>		<i>RTF</i> <i>4-21-01</i>
System: <u>SAFETY INJECTION</u> Procedure: <u>HBR-PT-86-1</u> Rev.: <u>1</u> Date: <u>4-8-01</u>		
Line No.: <u>BIT TANK</u> Drawing No.: <u>HBR2-1061B SH 58</u> Rev.: <u>1</u>		
Component I.D.: <u>WS-3</u> Search Unit Angle: <u>N/A</u> Mode: <u>N/A</u>		
		
<p>DRAWING NOT TO SCALE NOTE: A 10.00" x 0.50" WELD NOT EXAMINED UNDER LUG</p>		
Examiner: <u>N/A. By</u>	Level: <u>III</u>	Date: <u>4/8/01</u>
Examiner: <u>N/A</u>	Level: <u>N/A</u>	Date: <u>N/A</u>
Reviewer: (Raytheon) <u>[Signature]</u>	Level: <u>II</u>	Date: <u>4-18-01</u>
Reviewer: (Client) <u>[Signature]</u>	Level: <u>III</u>	Date: <u>5-2-01</u>
Reviewer: (ANII) <u>[Signature]</u>		Date: <u>6/24/01</u>
<input checked="" type="checkbox"/> Refer to attached Ultrasonic Indication Data Sheet		

 Washington	Page <u>3</u> of <u>43</u>	<i>BIT</i>
	W.R. # <u>N/A</u>	
Client: <u>CP&L</u> Project: <u>H.B. Robinson</u> Report No.: <u>01-042</u>		
System: <u>2080 Safety Injection</u> Procedure: <u>HBR-PT-86-1</u> Rev.: <u>1</u> Date: <u>4/8/01</u>		
Line No.: <u>Boron Injection Tank</u> Drawing No.: <u>HBR2-10618 3458</u> Rev.: <u>1</u>		
Component I.D.: <u>202/WS-3</u> Search Unit Angle: <u>N/A</u> Mode: <u>N/A</u>		



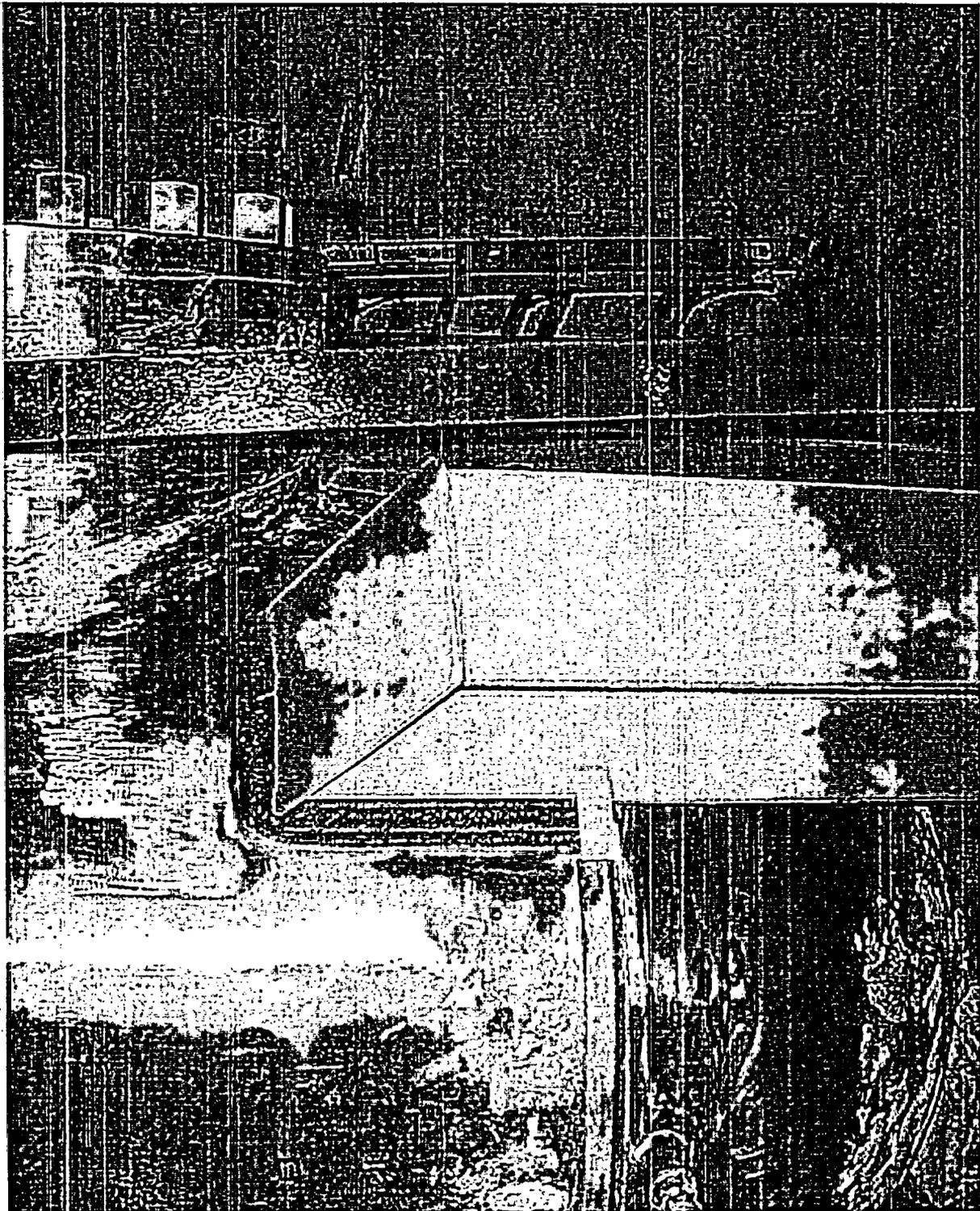
Area A 2.50" x 16.00" = 40.00"²
 Area B 1.75" x 7.00" = 12.25"²
 Area C 2.50" x 16.00" = 40.00"²
 Area D 16.00" x 0.50" = 8.00"²
 Area E 7.00" x 0.50" = 3.50"²
 Area F 16.00" x 0.50" = 8.00"²
 Area G 16.00" x 0.50" = 8.00"²
 Area H 13.00" x 0.50" = 7.50"²
 Area I 16.00" x 0.50" = 8.00"²
 Area J (1.50" x 0.50") x 2 = 1.50"² Restriction
 Area K (1.50" x 0.50") x 2 = 1.50"² Restriction
 Area L 10.00" x 1.50" = 15.00"² Restriction
 Area L = weld (0.50") + 0.50" both sides

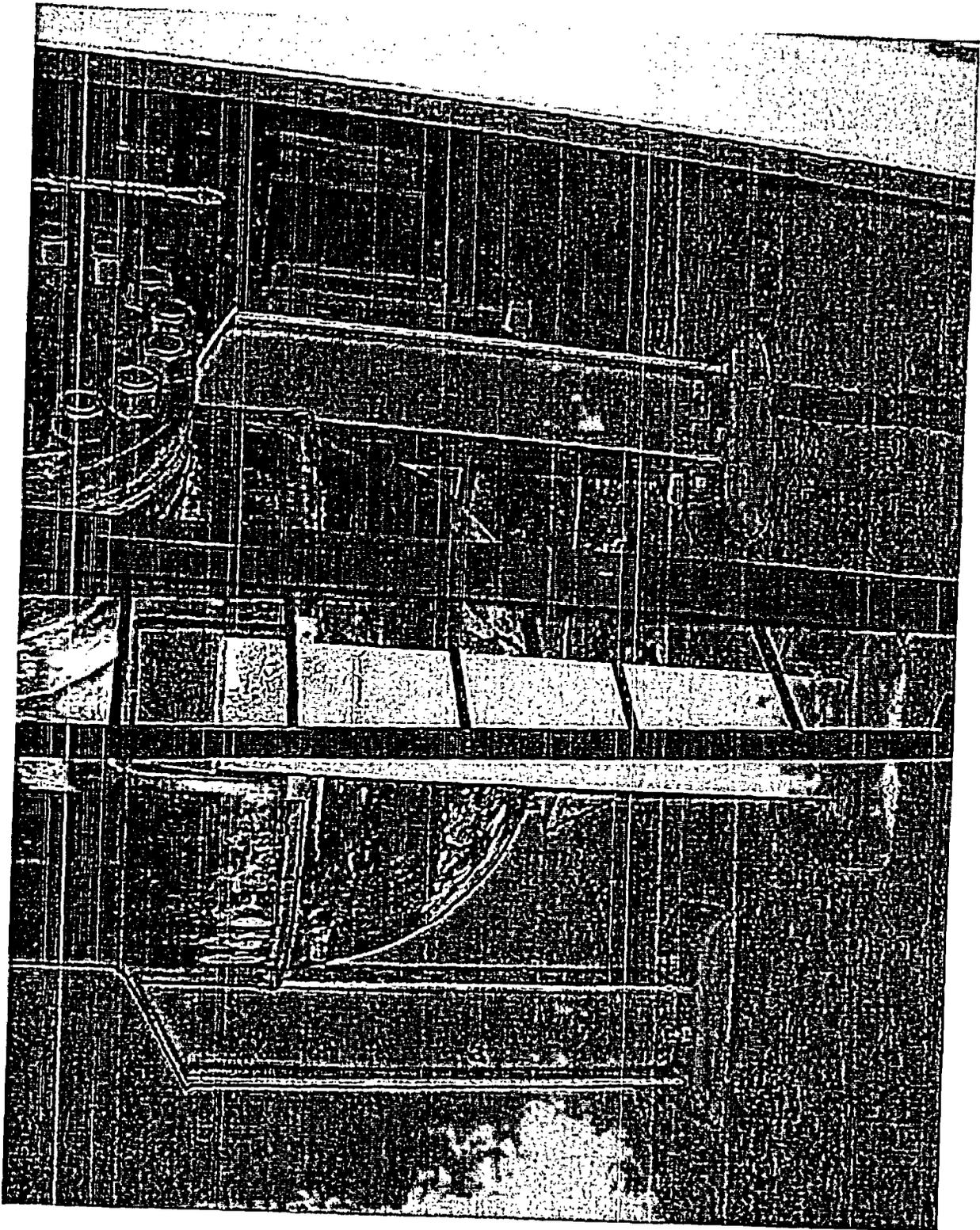
150.25"² Total Examination Surface
 18.00"² Total restriction

132.25"² ÷ 150.25"² = 0.8802 or 88.02%

Examiner: <u>N/A. B7</u> Level: <u>III</u> Date: <u>4/8/01</u>
Examiner: <u>N/A</u> Level: <u>N/A</u> Date: <u>N/A</u>
Reviewer: (Raytheon) <u>[Signature]</u> Level: <u>II</u> Date: <u>4-8-01</u>
Reviewer: (Client) <u>[Signature]</u> Level: <u>III</u> Date: <u>5-2-01</u>
Reviewer: (ANII) <u>[Signature]</u> Date: <u>6/24/01</u>

Refer to attached Ultrasonic Indication Data Sheet



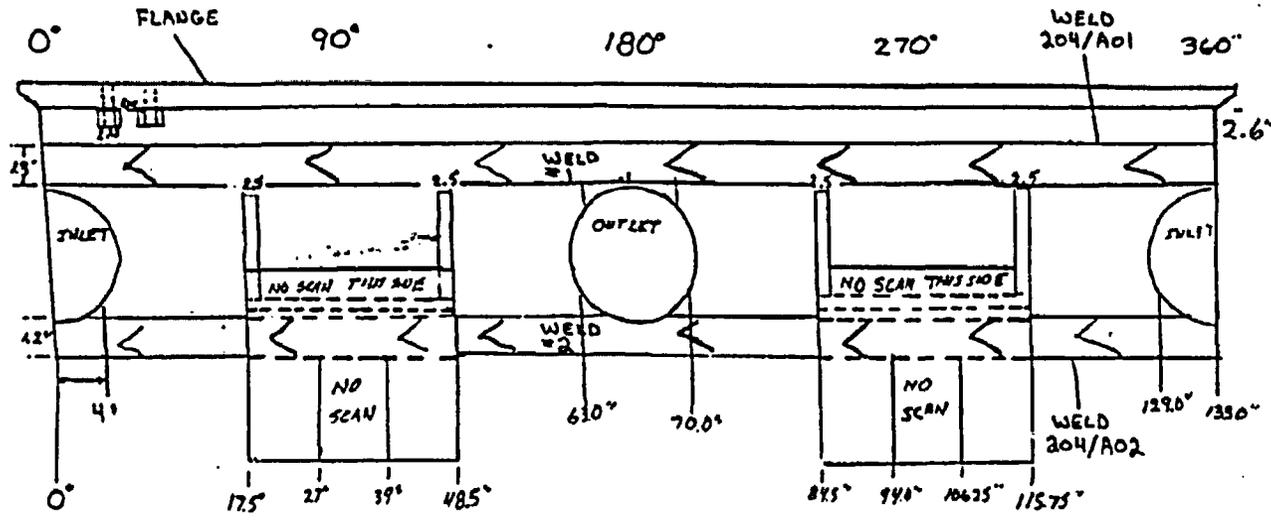


**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(PT)**

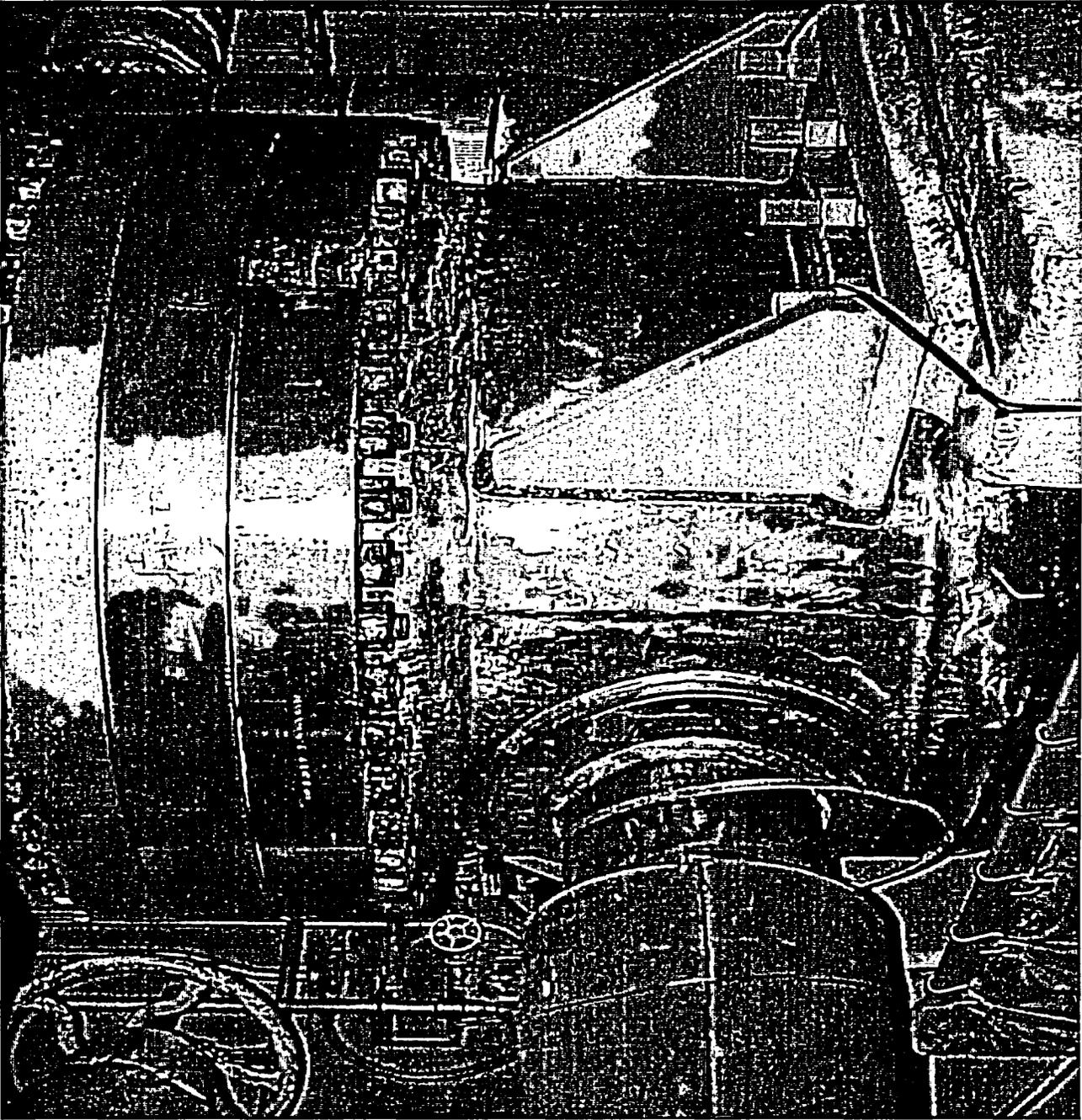
COMPONENT ID:	204/WS1-A	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.10
CONFIGURATION:	WELDED SUPPORTS TO SHELL	% CRS ACHIEVED:	80%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	8/30/99

* Integral surface examination limited by support/vessel configuration. See CRS sketch for surface examination coverage, and supplemental photograph showing component configuration.

COMPONENT NO.: RHR HX "A" TUBESHEET TO SHELL WELD AND SHELL TO LOWER HEAD WELD



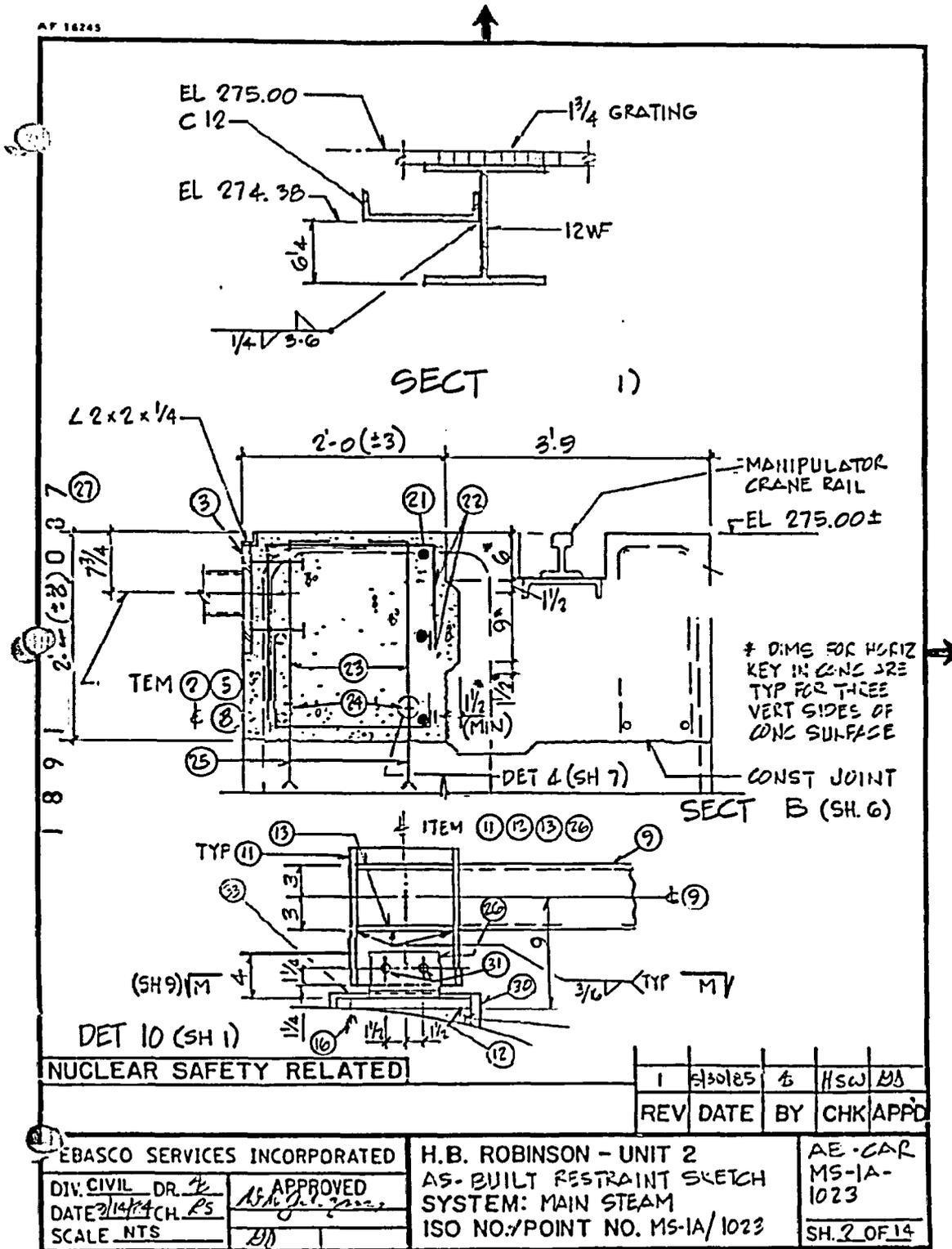
Examiner/Level: Jerry [Signature] L-II Date: 8-30-99
[Signature] / III / 9-16-99
[Signature] / IV / 10-22-99

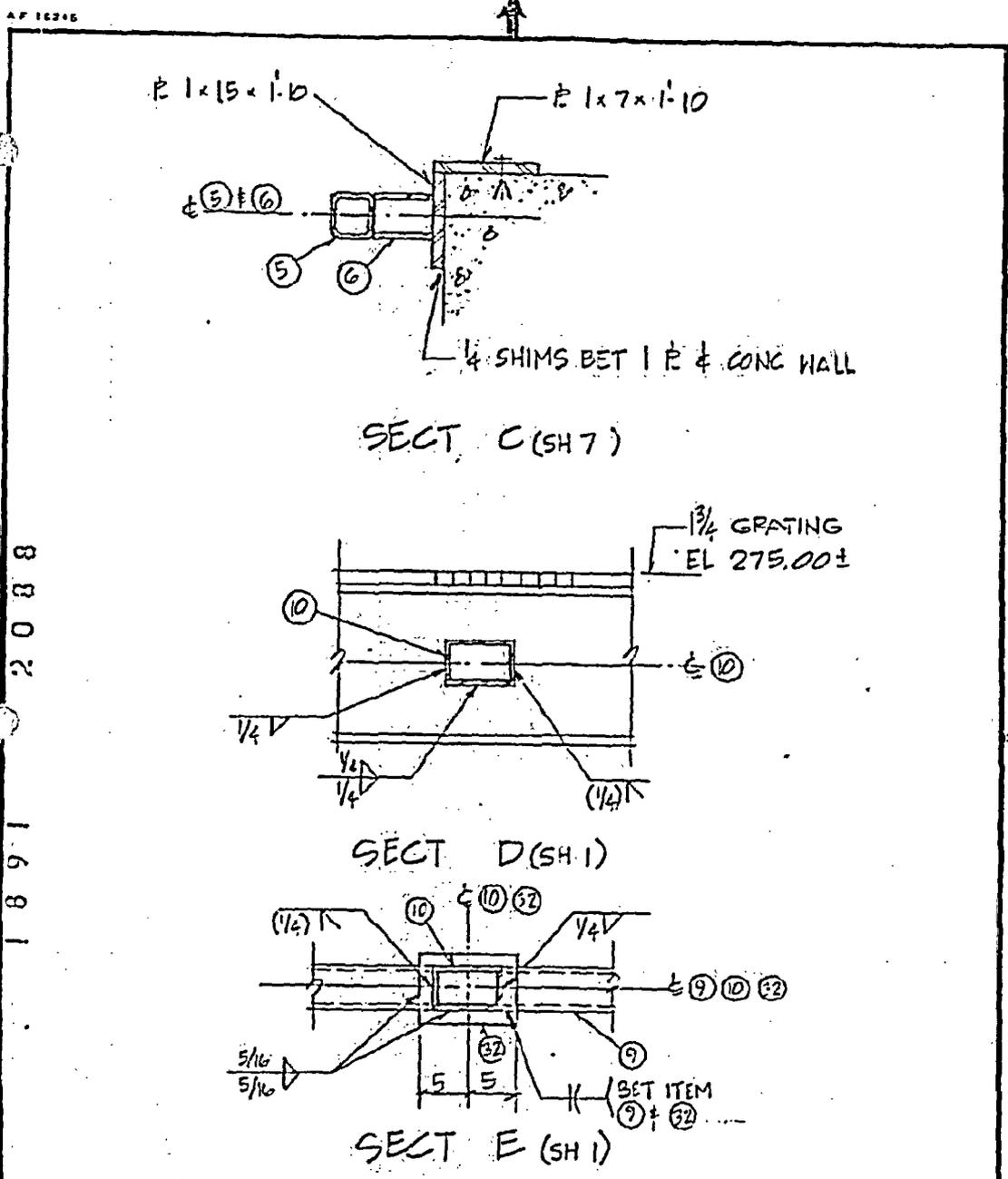


**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(MT)**

COMPONENT ID:	212/A-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	50%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	10/7/93

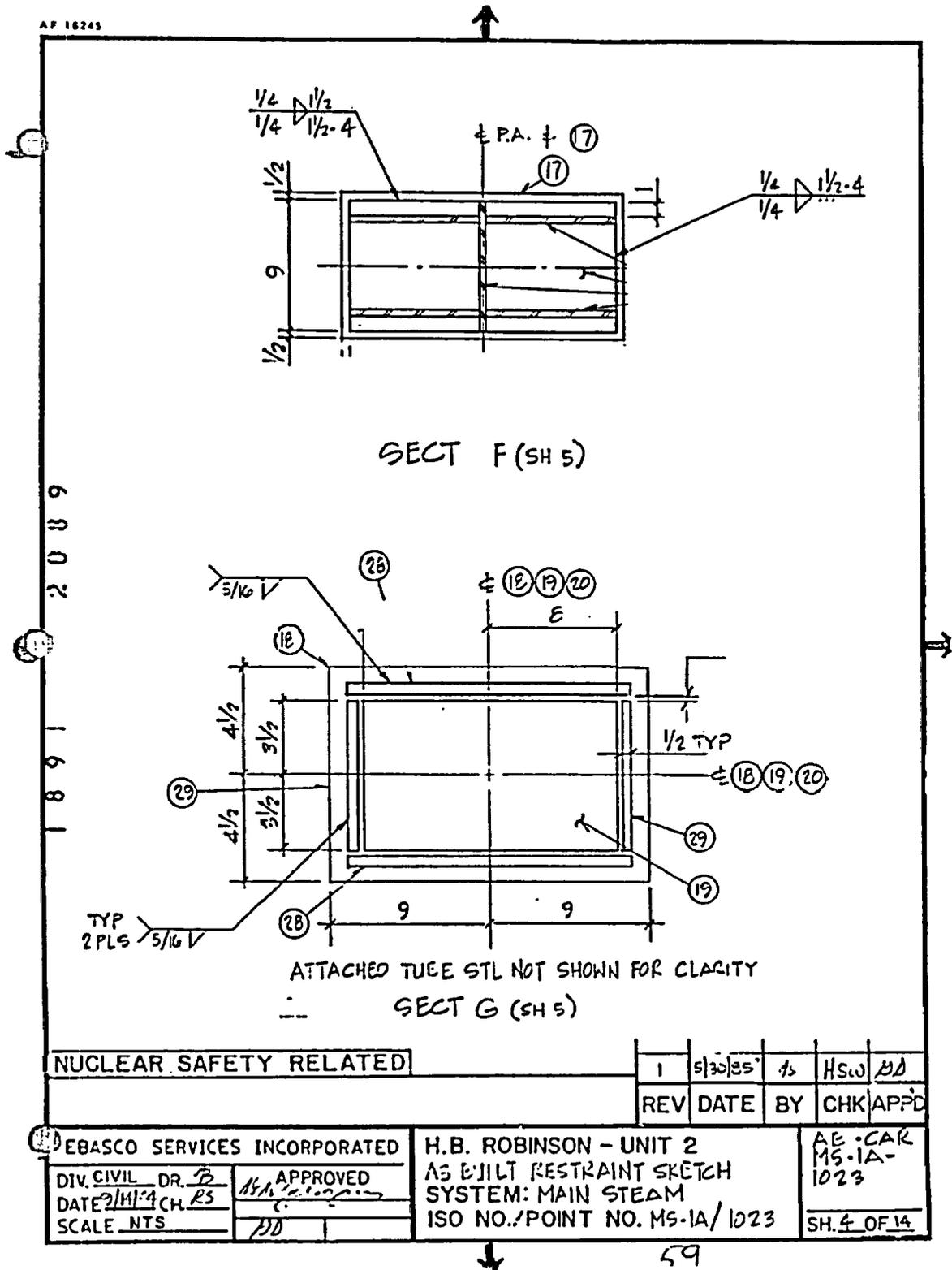
* The magnetic particle examination of this support could only be performed in one direction. The coverage is estimated at 50% of the Code-required surface (CRS). See CRS sketches for surface examination coverage limitations.

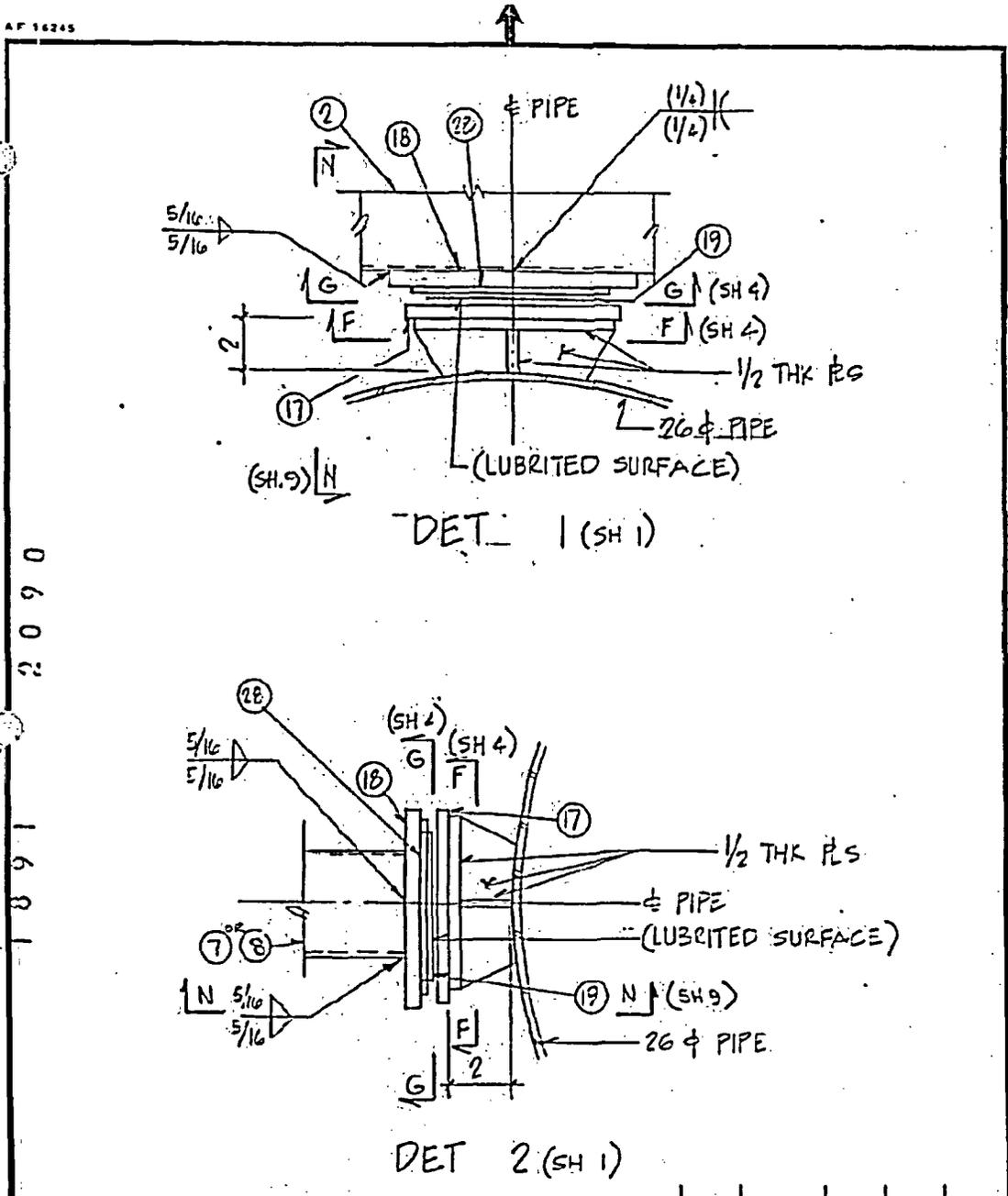




NUCLEAR SAFETY RELATED				
1	Sketches	AS	Hew	MS
REV	DATE	BY	CHK	APPD
EBCASCO SERVICES INCORPORATED		H.B. ROBINSON - UNIT 2		AS - CAR
DIV. CIVIL DR. 12	APPROVED	AS-BUILT RESTRAINT SKETCH		MS-1A-
DATE 2/17/75	<i>[Signature]</i>	SYSTEM: MAIN STEAM		1023
SCALE NTS	MS	ISO NO./POINT NO. MS-1A/1023		SH. 3 OF 14

58





NUCLEAR SAFETY RELATED

1	5/3/85	1/2	H/S/D	1/2
REV	DATE	BY	CHK	APPD

EBASCO SERVICES INCORPORATED

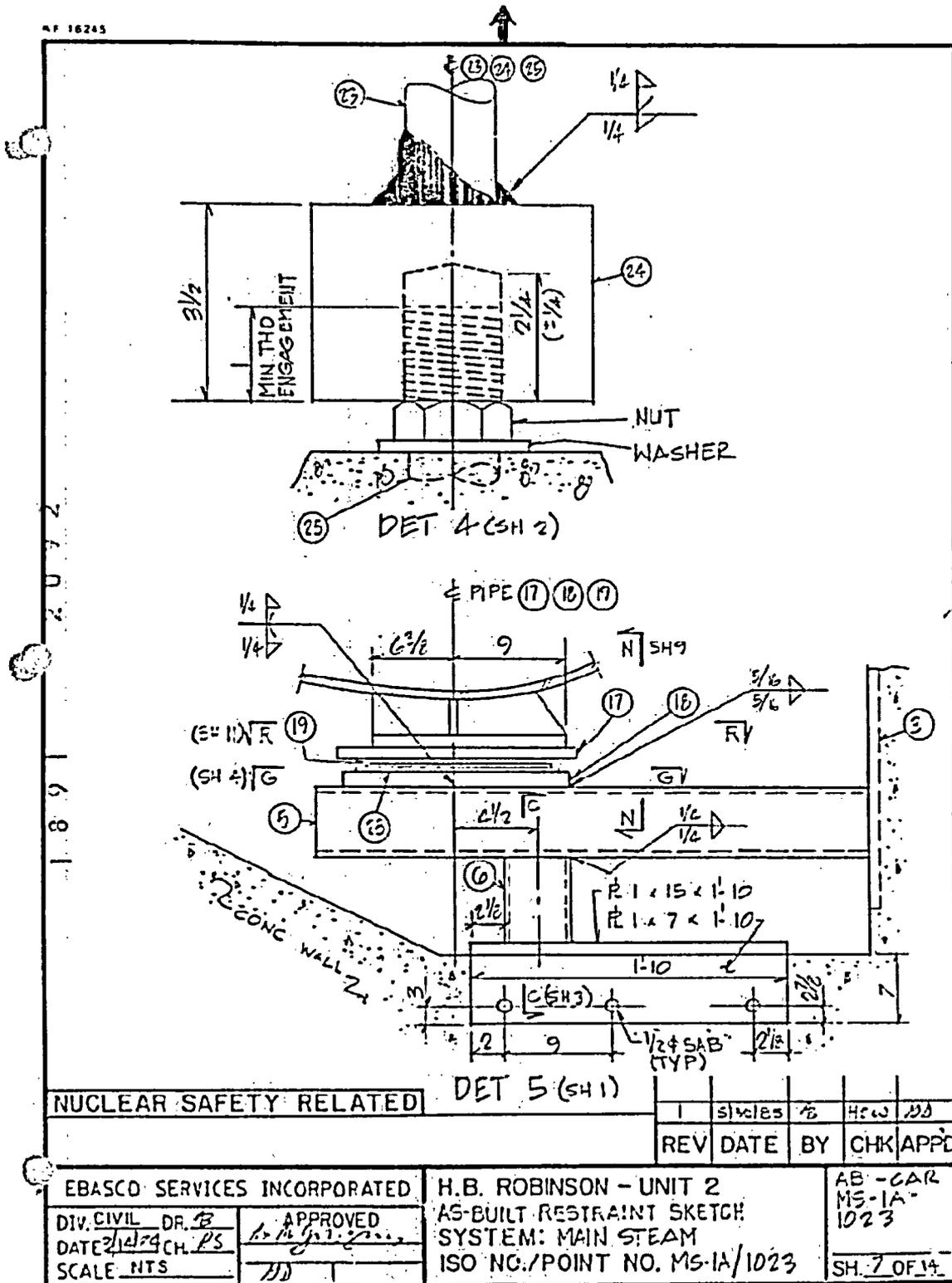
DIV. CIVIL DR. 7
 DATE 2/14/84 CH. 125
 SCALE NTS

APPROVED
 [Signature]
 M1

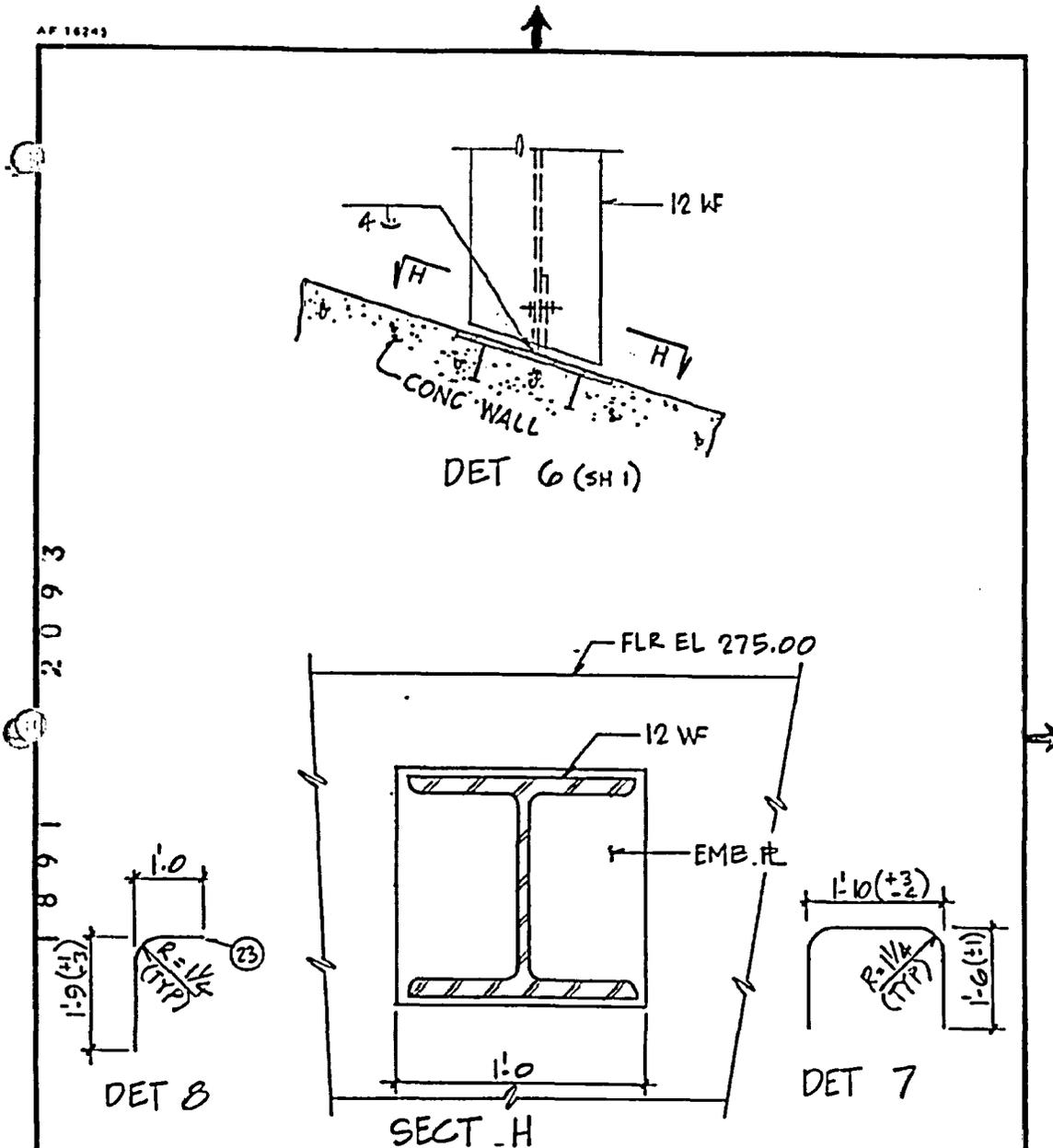
H. B. ROBINSON - UNIT 2
 AS-BUILT RESTRAINT SKETCH
 SYSTEM: MAIN STEAM
 ISO NO./POINT NO. MS-1A/1023

AS-CAR
 MS-1A-
 1023
 SH. 5 OF 14

↓ (r)



A, 107



NUCLEAR SAFETY RELATED

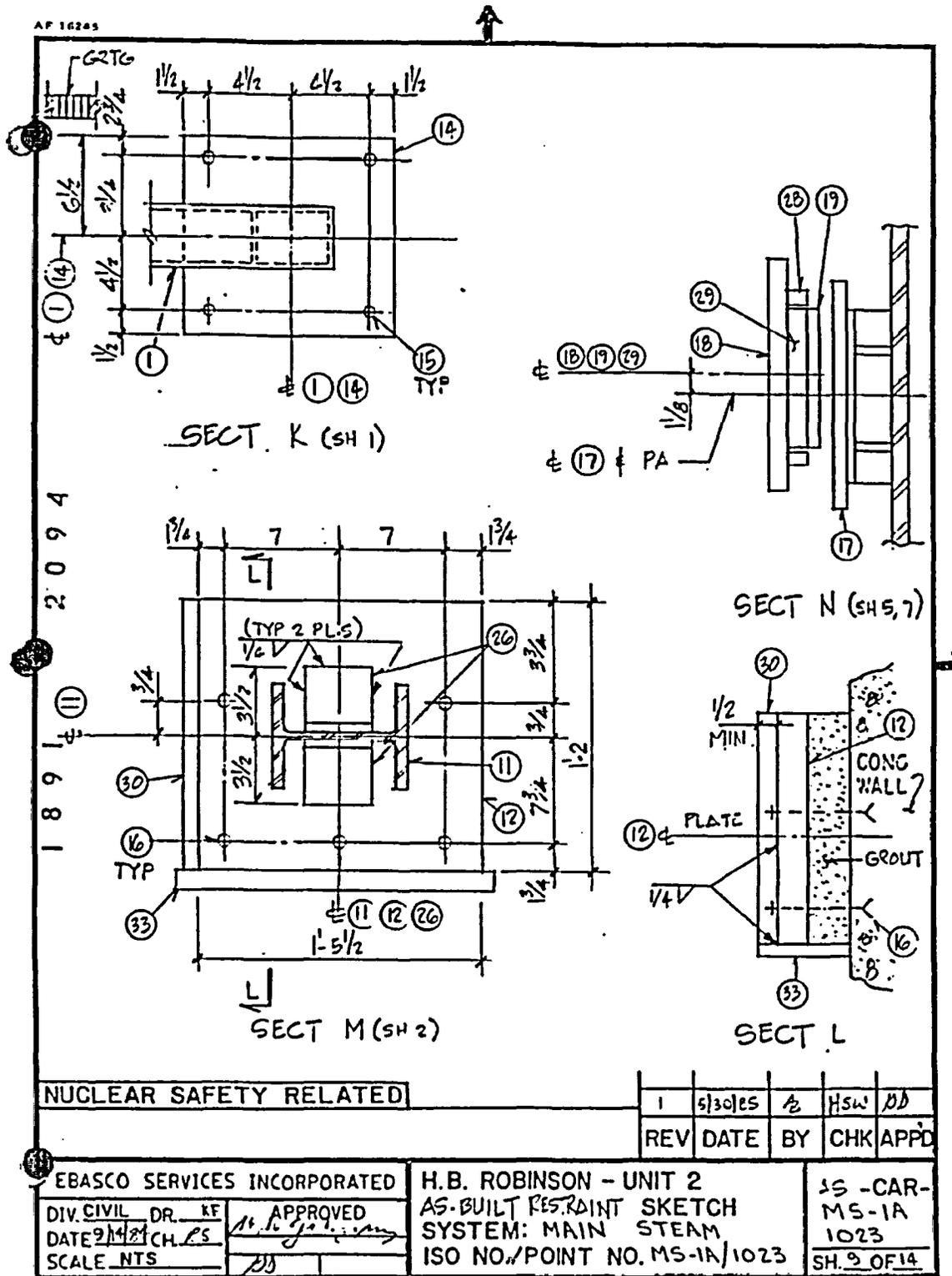
1	sketch	AS	H.S.	MD
REV	DATE	BY	CHK	APPD

EBASCO SERVICES INCORPORATED
 DIV. CIVIL DR. AS
 DATE 2/14/59 CH. PS
 SCALE NTS

H.B. ROBINSON - UNIT 2
 AS-BUILT RESTRAINT SKETCH
 SYSTEM: MAIN STEAM
 ISO NO./POINT NO. MS-1A/1023

AS-BUILT
 MS-1A-
 1023
 SH. 8 OF 14

12



AP 16245

NOTES:

1. FOR GENERAL NOTES SEE SK-MOD-CAR-GH-1, LATEST REVISION.
2. ALL WELDS ARE NEW WELDS UNLESS OTHERWISE NOTED.
3. CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN TO EXPOSE THE REINFORCING BARS.
4. PRECAUTIONS SHALL BE TAKEN TO AVOID DAMAGE TO BARS DURING ALL CONCRETE REMOVAL OPERATIONS.
5. EXPOSED REINFORCING BARS SHALL BE CLEAN AND FREE OF OLD CONCRETE.
6. EXPOSED CONCRETE SURFACES AGAINST WHICH NEW CONCRETE WILL BE PLACED SHALL BE ROUGHENED TO APPROXIMATELY 1/4 INCH AND CLEANED PRIOR TO THE PLACEMENT OF THE REINFORCING BARS AND NEW CONCRETE.
7. NEW REINFORCING BARS SHALL BE DEFORMED AND SHALL CONFORM TO THE REQUIREMENTS OF EBASCO SPECIFICATION CAR-HBR-C-3; DATED FEBRUARY 3, 1977. ALL BARS SHALL BE BENT COLD.
8. REINFORCING BAR WELDING PROCEDURES, WORKMANSHIP, QUALIFICATIONS, AND INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.4-79, "STRUCTURAL WELDING CODE - REINFORCING STEEL", SECTIONS 1, 4, 5, 6 AND 7; FOR ASTM A515 GRADE 60 BARS.

WELDING SHALL BE PERFORMED USING THE MANUAL SHIELDED METAL ARC (SMAW) PROCESS. LOW HYDROGEN ELECTRODES SHALL BE STORED IN OVENS PER AWS D1.4-79, AND SHALL NOT BE EXPOSED TO AMBIENT ATMOSPHERE FOR MORE THAN ONE HOUR PRIOR TO USE.

MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE IN ACCORDANCE WITH AWS D1.4-79 TABLE 5.2.

ALL WELDS SHALL BE VISUALLY EXAMINED FOR NONCONFORMANCE WITH THE ACCEPTANCE STANDARDS OF AWS D1.4-79, SECTION 4.4.

NUCLEAR SAFETY RELATED

1	5/21/55	HS	HSW	DD
REV	DATE	BY	CHK	APPD

EBASCO SERVICES INCORPORATED

H.B. ROBINSON - UNIT 2
 AS-BUILT RESTRAINT SKETCH
 SYSTEM: MAIN STEAM
 ISO. NO./POINT NO. MS-1A/1023

AS-CAR-
 MS-1A-1023

DIV. CIVIL DR. MS
 DATE 7/14/74 CH. RS
 SCALE NTS

APPROVED
A. H. Robinson
MS

SH. 10 OF 12

2095

↓ 125

AF 16243

BILL OF MATERIALS

			QA CLASS	
ITEM	QTY	DESCRIPTION	Q	NA
①	1	TS 4x4x1/2x5'-6 (ASTM A-500 GR B)	YES	
②	1	TS 6x6x1/2x2'-0 1/2 (ASTM A-500 GR B)	YES	
③	1	TS 1x10x4'-0	YES	
④	12	5/8 x 6 9/16 H&L NELSON CONCRETE ANCHOR STUDS PART NO. 101-053-019 (TRW-NELSON DIV)	YES	
⑤	1	TS 6x6x1/2x3'-0 (ASTM A-500 GR B)	YES	
⑥	1	TS 6x6x1/2x0'-5 1/2 (ASTM A-500 GR B)	YES	
⑦	1	TS 6x6x1/2x0'-6 7/8 (ASTM A-500 GR B)	YES	
⑧	1	TS 6x6x1/2x0'-6 1/2 (ASTM A-500 GR B)	YES	
⑨	1	TS 6x6x1/2x2'-8 3/8 (CUT TO SUIT) (ASTM A-500 GR B)	YES	

ALL STRUCTURAL STEEL ASTM A 36 UNLESS NOTED

1	5/20/05	AS	HSCW	DD
REV	DATE	BY	CHK	APPD

DEBASCO SERVICES INCORPORATED

CP&L/H.B. ROBINSON - UNIT 2
 AS-BUILT RESTRAINT SKETCH
 SYSTEM: MAIN STEAM
 ISO NO./POINT NO. MS-1A/1023

AS-2AR
 MS-1A-
 1023
 SH. 12 OF 14

DIV. CIVIL DR. PS
 DATE 3/14/05
 SCALE NONE

APPROVED
[Signature]
[Signature]

67

AF 16245

BILL OF MATERIALS

			QA CLASS	
ITEM	QTY	DESCRIPTION	Q	NA
(10)	1	TS 6x6x1/2 x 2'-9 1/2 (ASTM A-500 GR B)	YES	
(11)	1	H 8x28 x 1'-3	YES	
(12)	1	R 1 x 14 x 1'-5 1/2	YES	
(13)	4	R 3/8 x 3 3/4 x 0'-7	YES	
(14)	1	R 3/4 x 12 x 1'-0	YES	
(15)	4	3/2 φ WEDGE ANCHOR WS-3470 (ITT PHILLIPS)	YES	
(16)	5	1 φ WEDGE ANCHOR WS-10090 (ITT PHILLIPS)	YES	
(17)	4	R 1/2 x 10 x 1'-7 (ASTM A-240 TP 304) (FINISH SURFACE TO 63 RMS)	YES	
(18)	4	R 1 x 9 x 1'-6	YES	
(19)	4	LUBRITE R 1/2 x 7 x 1'-4 (ASTM B22-C86300) W/AE-7 LUBRICANT	YES	
ALL STRUCTURAL STEEL ASTM A 36 UNLESS NOTED			1	3/3/05
			REV	DATE
			BY	CHK
			APPD	
EBASCO SERVICES INCORPORATED		CP&L/H. B. ROBINSON - UNIT 2	AS-CAR	
DIV. CIVIL DR. <i>TS</i>	APPROVED	AS-BUILT RESTRAINT SKETCH	MS-1A-	
DATE <i>1/17/05</i>	<i>TS</i>	SYSTEM: MAIN STEAM	1023	
SCALE NONE		ISO NO./POINT NO. MS-1A/1023	SH. 13 OF 14	

1. 1.9

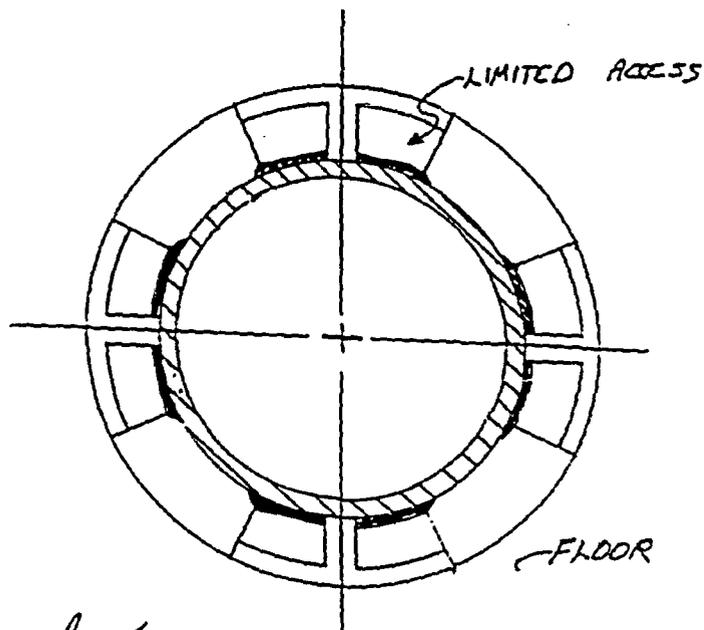
BILL OF MATERIALS				QA CLASS	
ITEM	QTY	DESCRIPTION	Q	NA	
(21)	3	#8 BARS x 5'-4 (ASTM A-615 GR 60)	YES		
(22)	12	#5 BARS x 5'-0 (BEND PER DET 7) (ASTM A-615 GR 60)	YES		
(23)	10	#5 BARS x 2'-9 (BEND PER DET 8) (ASTM A-615 GR 60)	YES		
(24)	10	2 SQ x 0'-3 1/2 STL BAR (SEE DET 4, SH 7)	YES		
(25)	10	5/8 φ MAXI BOLTS MB-625-12-9 (DRILL CO. DIV, LTD)	YES		
(26)	2	L 4 x 4 x 1/2 x 0'-6 (TRIM ONE LEG AS SHOWN)	YES		
(27)	AS REQ'D	CONCRETE (f'c = 4000 PSI)	YES		
(28)	8	R 3/8 x 1/2 x 1'-5 LG	YES		
-	AS REQ'D	EMBECCO 636 GROUT	YES		
(29)	8	R 3/8 x 1/2 x 0'-7 LG	YES		
(30)	1	R 1/2 x 3 x 1'-2 3/16	YES		
(31)	2	7/8 φ x 2 7/8 LG ASTM A-325 BOLTS WITH STANDARD WASHER AND HEAVY HEX NUT	YES		
(32)	1	R 1/2 x 6 x 0'-10	YES		
(33)	1	R 1/2 x 3 1/2 x 1'-2 1/2	YES		
ALL STRUCTURAL STEEL ASTM A 36 UNLESS NOTED			1	5/50/25	TN / JSCW / JDD
			REV	DATE	BY
EBASCO SERVICES INCORPORATED			CPBL/H. B. ROBINSON - UNIT 2		AE-CAR
DIV. CIVIL DR. FE			AS-BUILT RESTRAINT SKETCH		MS-1A-
DATE 7/14/74 CH. PS			SYSTEM: MAIN STEAM		1023
SCALE NONE			ISO NO./POINT NO. MS-1A/1023		SH. 14 OF 14

h9

2 of 2
1218-013

LIMITED EXAM DUE TO COMPONENT
ONE DIRECTION ONLY.

A - W 5



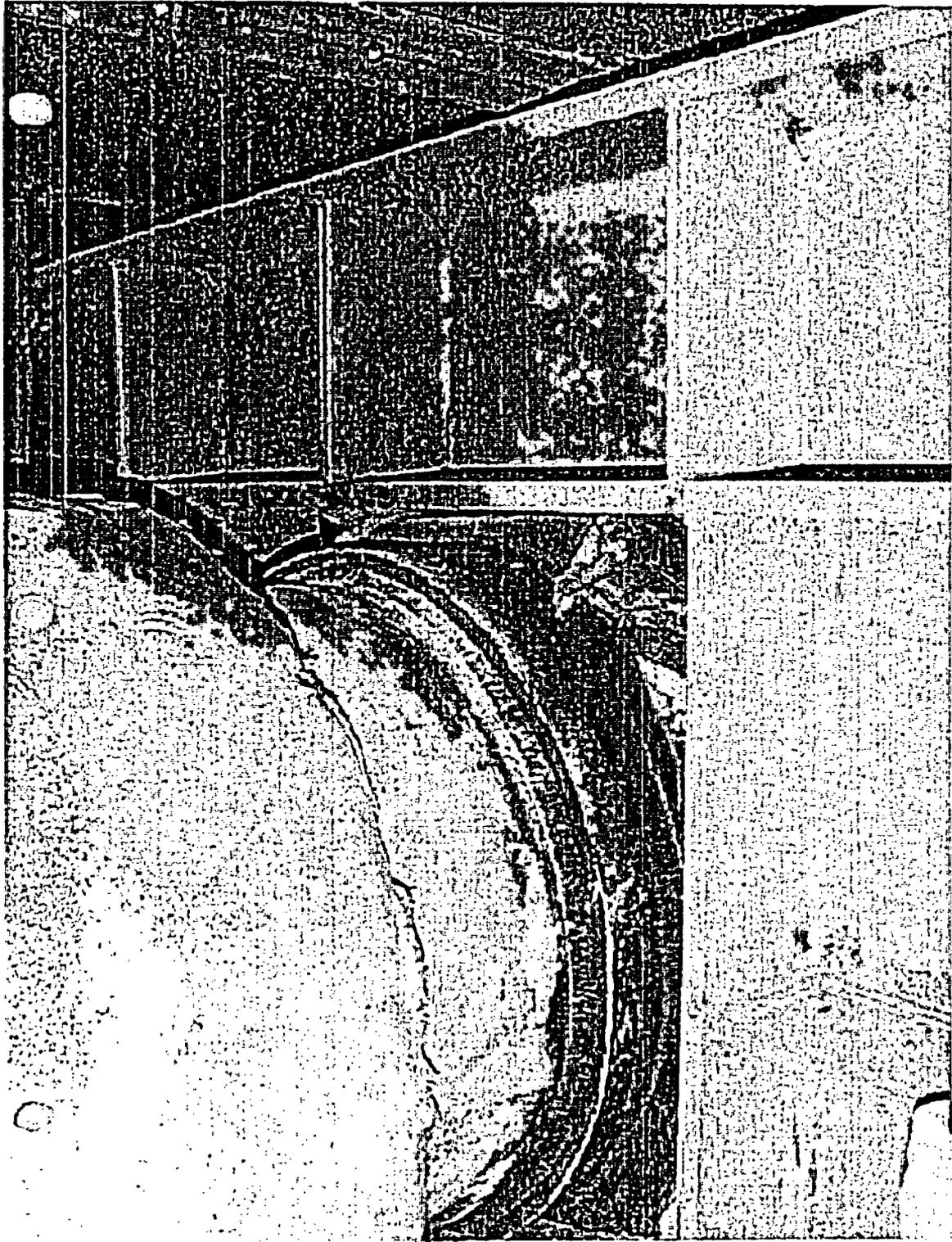
EXAMINER Stephen LEVEL III DATE 10-7-93
EXAMINER Steve Walker LEVEL II DATE 10-7-93

= 2 OF 2

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(MT)**

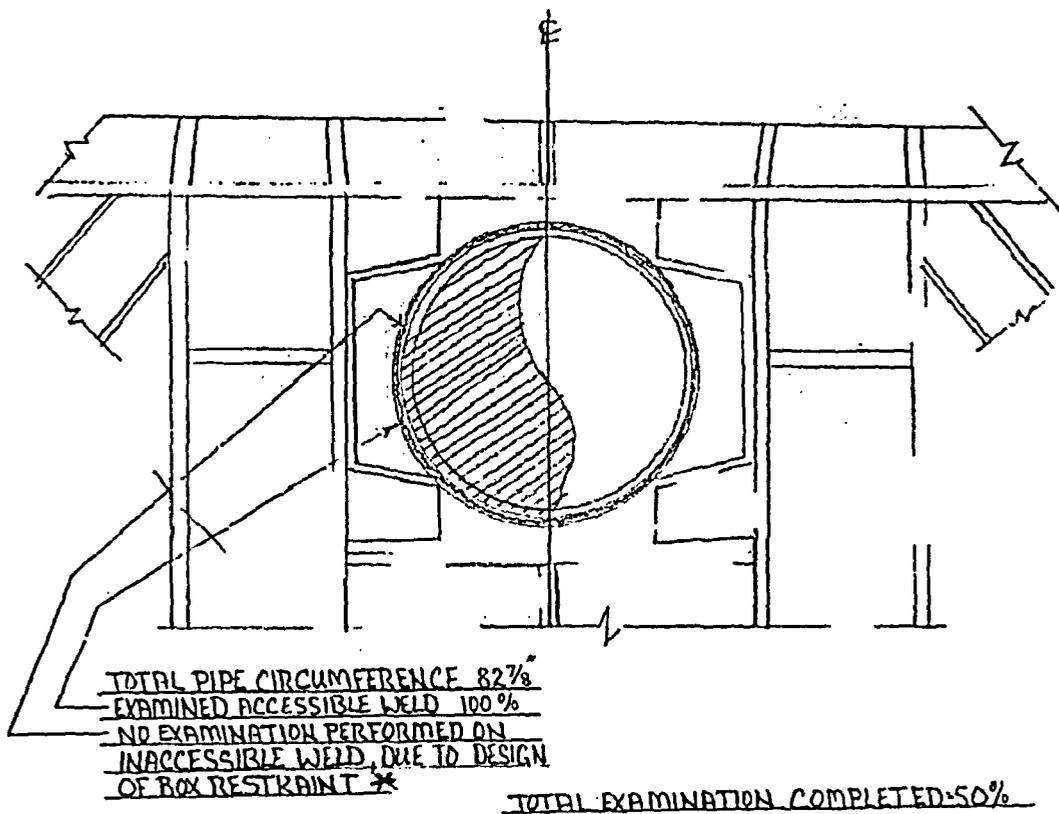
COMPONENT ID:	212/R-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	50%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	10/7/93

* The magnetic particle examination of this support could only be performed in one direction. The coverage is estimated at 50% of the Code-required surface (CRS). See CRS sketches for surface examination coverage limitations, and supplemental photograph showing component configuration.



JP

INTEGRAL ATTACHMENT R-WS



DWG NOT TO SCALE

* Per discussion with Scott Larson, also would be inaccessible for penetrant examination.

Carl Omon
CPL NRC Level III
3/23/98

Donald E. Murphy

Carl Omon 3-25-98



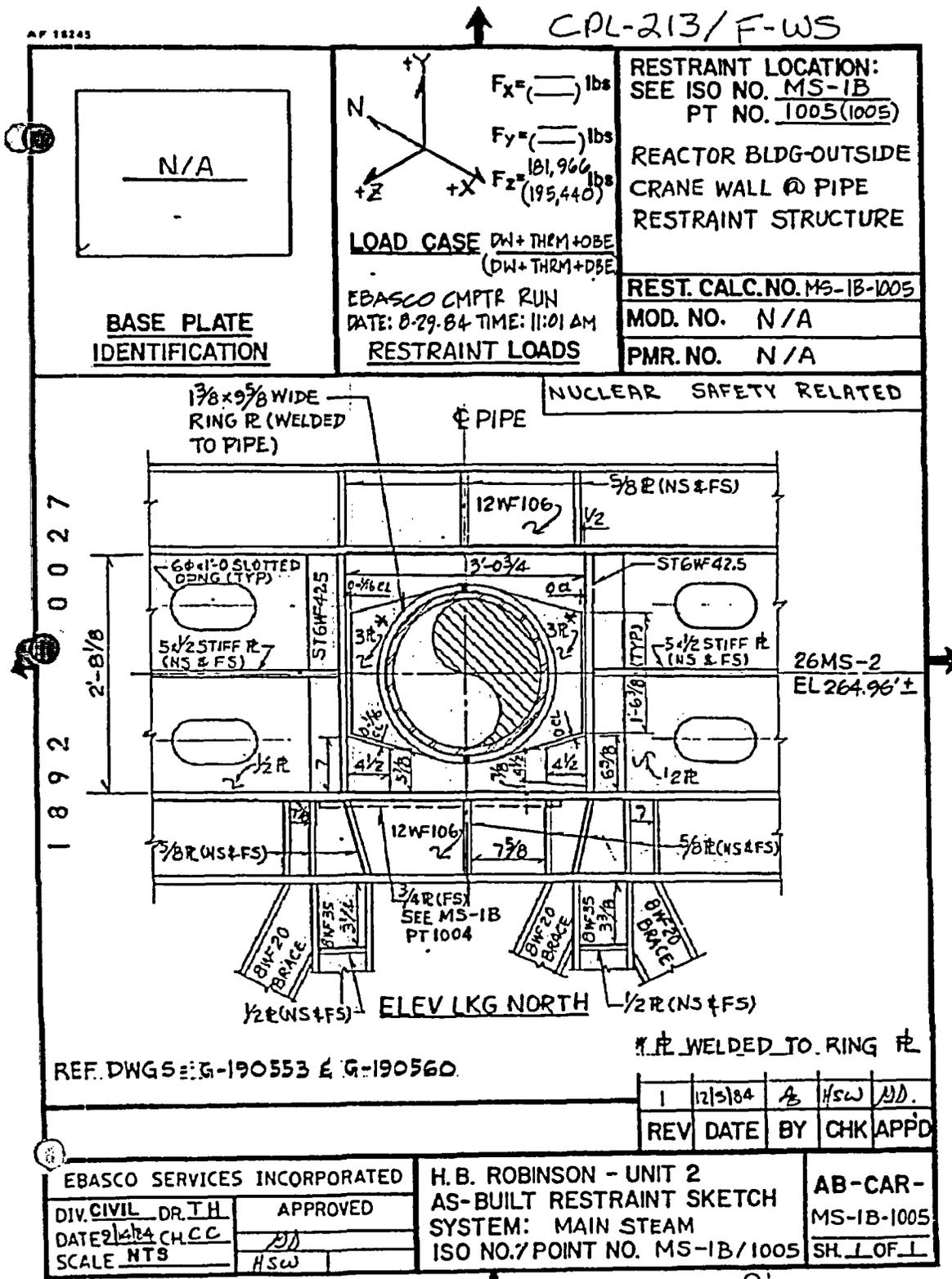
3-23-98

D.H. So
RNP 3/26/98

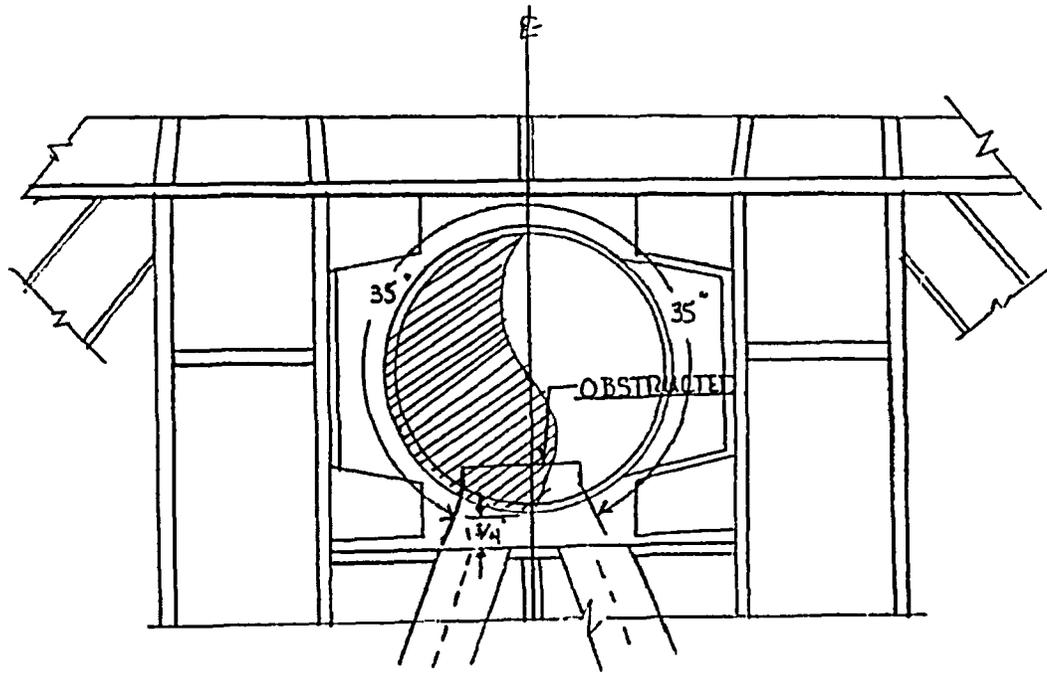
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(MT)**

COMPONENT ID:	213/F-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	84%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	3/21/98

* The magnetic particle examination of this support was limited due to the configuration. The coverage is estimated at 84% of the Code-required surface (CRS). See CRS sketches for surface examination coverage limitations.



INTEGRAL ATTACHMENT F-NS



TOTAL PIPE CIRCUMFERENCE 82 7/8"
AREA EXAMINED 70"

APPROX % COMPLETE 84%

DWG NOT TO SCALE



Per discussion with Scott Larson, NES Level III
cannot apply PT to increase overall coverage
to greater than 90%.

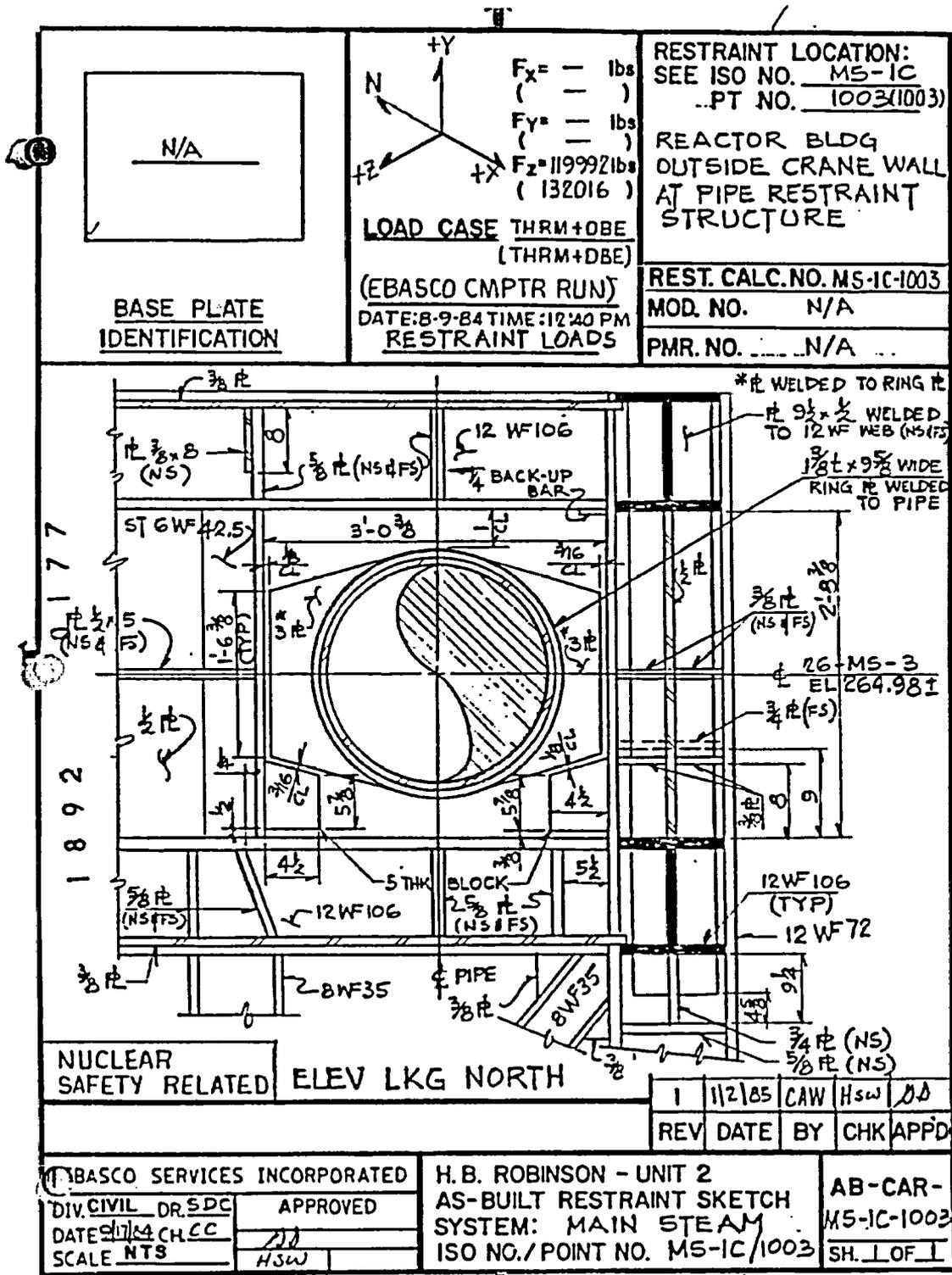
Carl R. Osment
CPL NOE Level III
3/23/98

Donald E. Muff 3-21-98
Reviewed: Scott Larson 3-23-98
D. H. So RNP 3/21/98

**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(MT)**

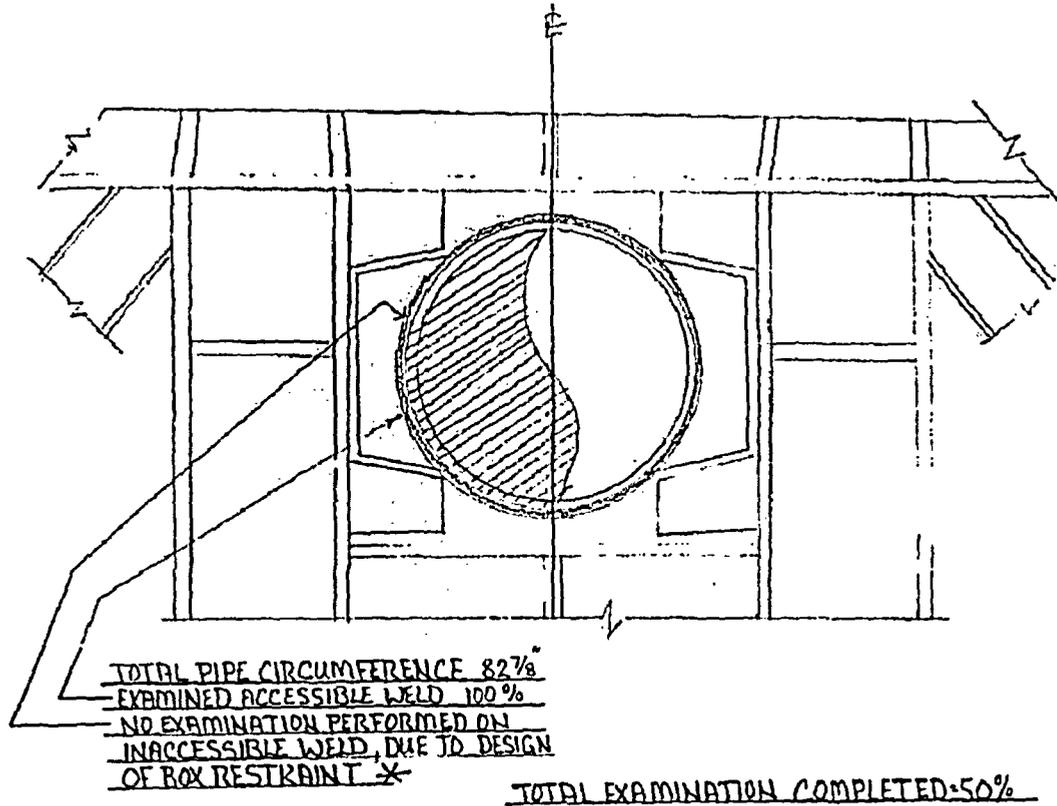
COMPONENT ID:	214/K-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	50%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	3/24/98

* The magnetic particle examination of this support was limited due to the configuration. The coverage is estimated at 50% of the Code-required surface (CRS). See CRS sketches for surface examination coverage limitations.



39

INTEGRAL ATTACHMENT -WS



DWG NOT TO SCALE

Reviewed: Scott Larson 3-25-98

Ⓜ Per conversation with Scott Larson, NES Level III, weld also would be inaccessible for penetrant examination.

Carl Damon
3-25-98

Donald E. Naff

3-24-98

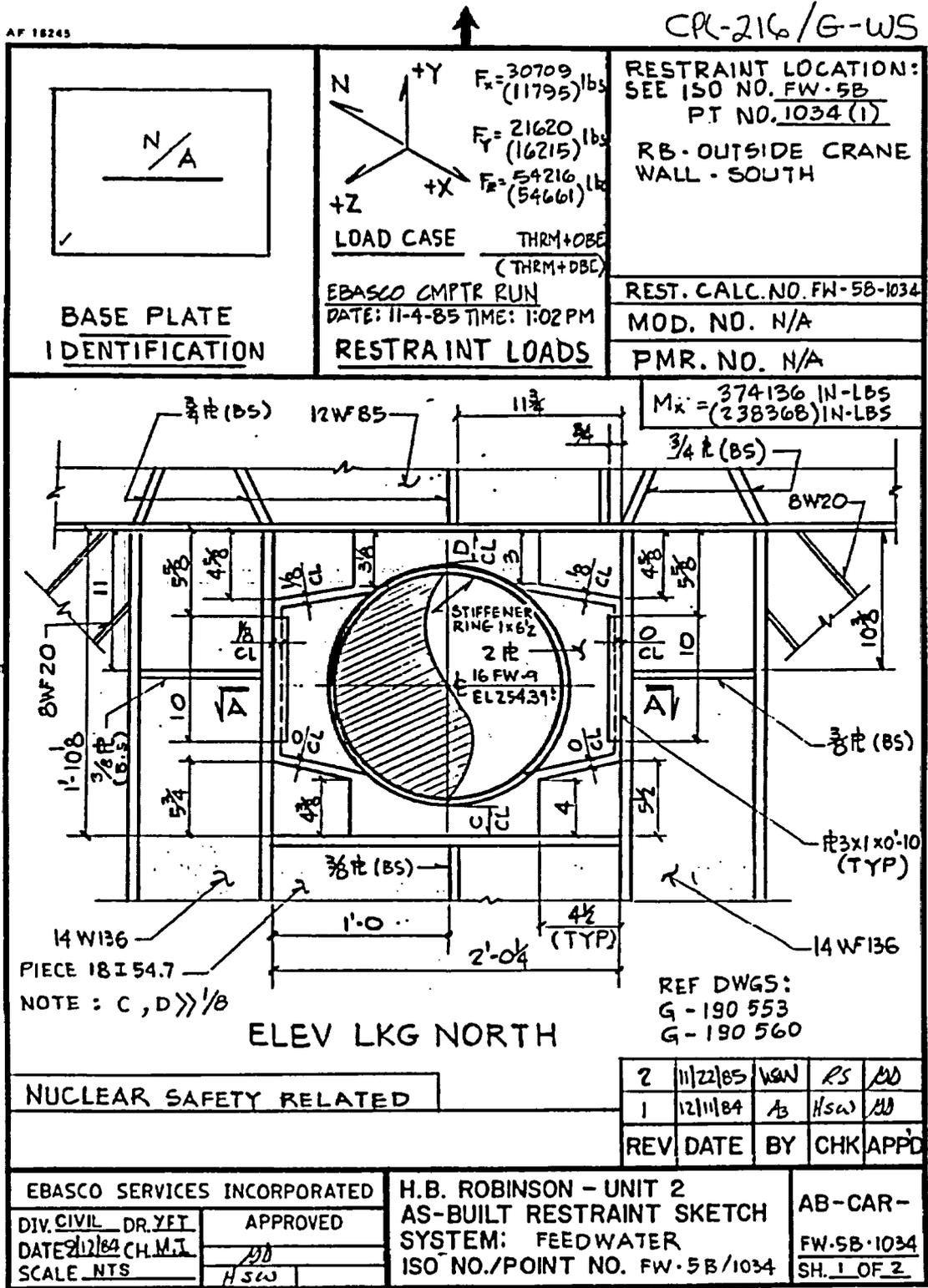
D: H. So RMP 3/26/98



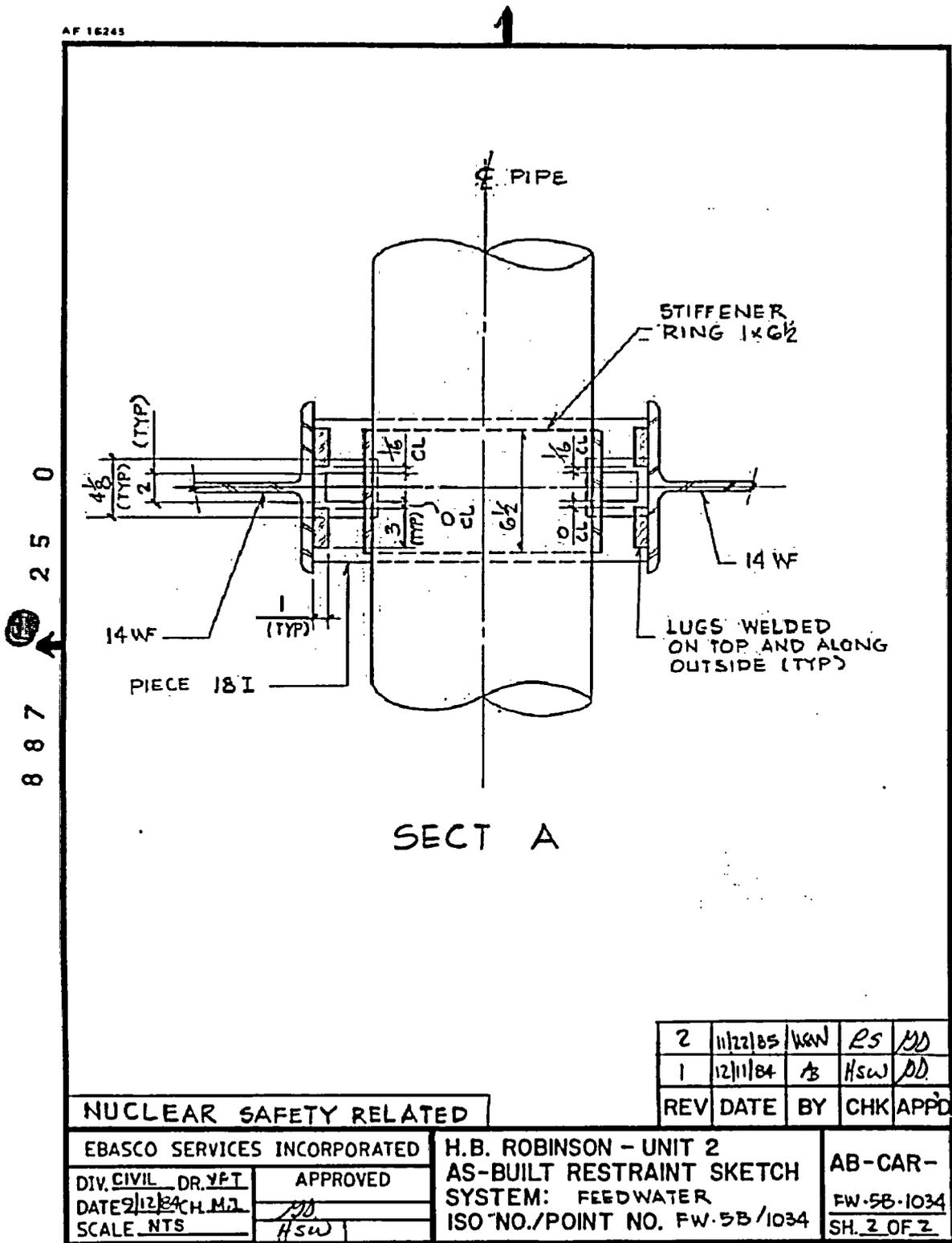
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(MT)**

COMPONENT ID:	216/G-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	50%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	10/10/93

* The magnetic particle examination of this support was limited due to the configuration. The coverage is estimated at 50% of the Code-required surface (CRS). See CRS sketches for surface examination coverage limitations.



887 2509

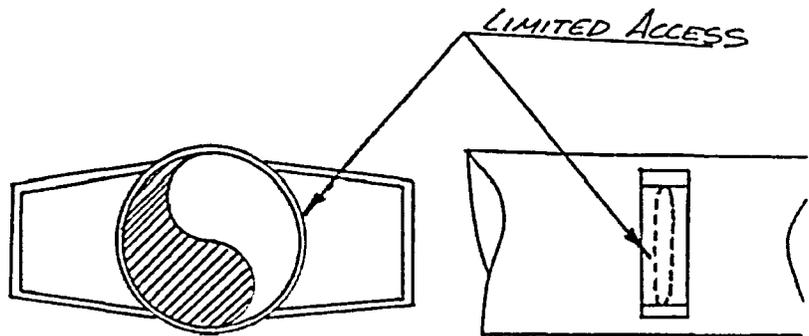


SP 1218
PAGE 2 OF 2

WELD G (WELDE SUPPORT)

* LIMITED EXAM DU TO COMPONENT
CONFIGURATION

* ONE DIRECTION ONLY

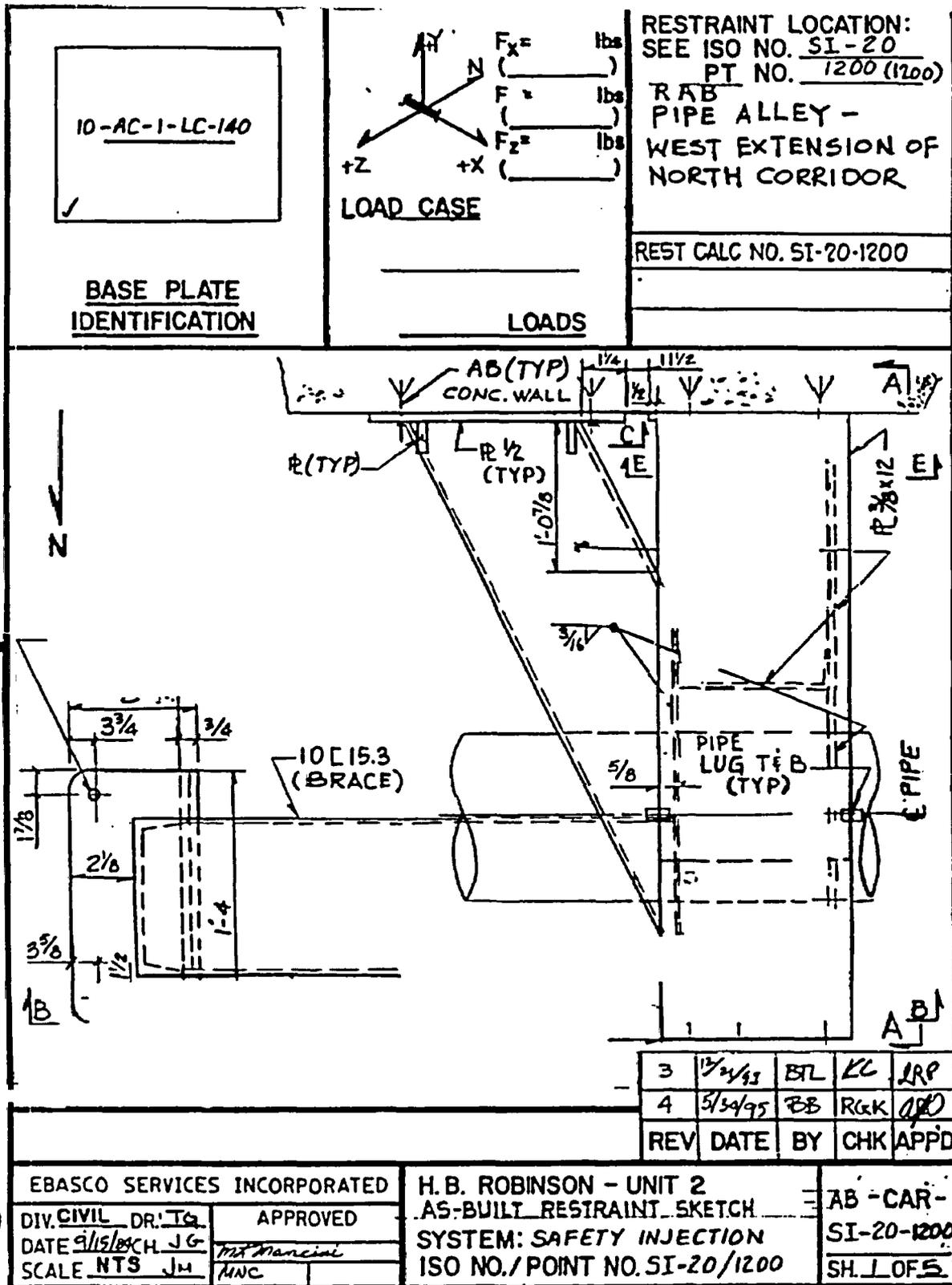


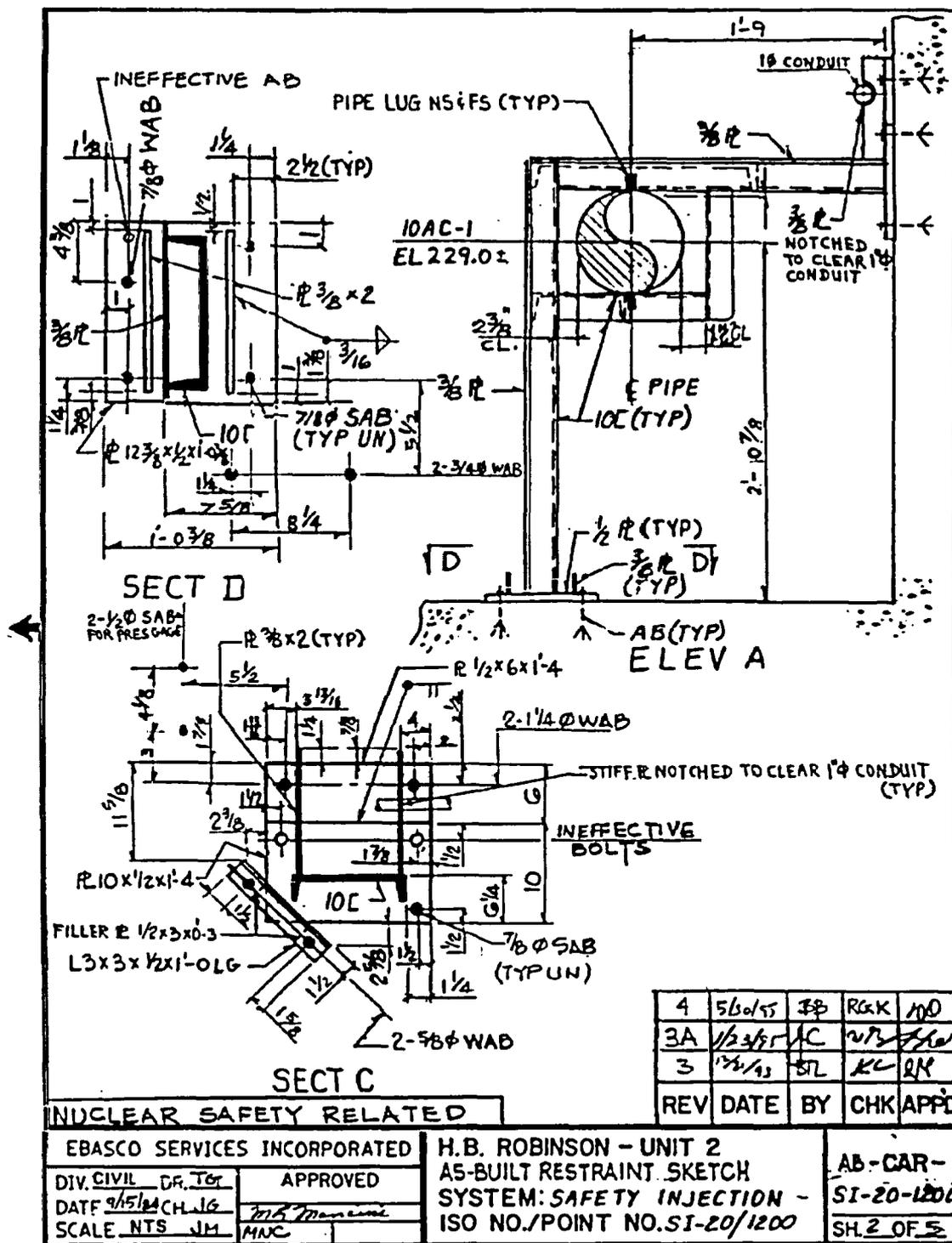
Review of Drawings L L II

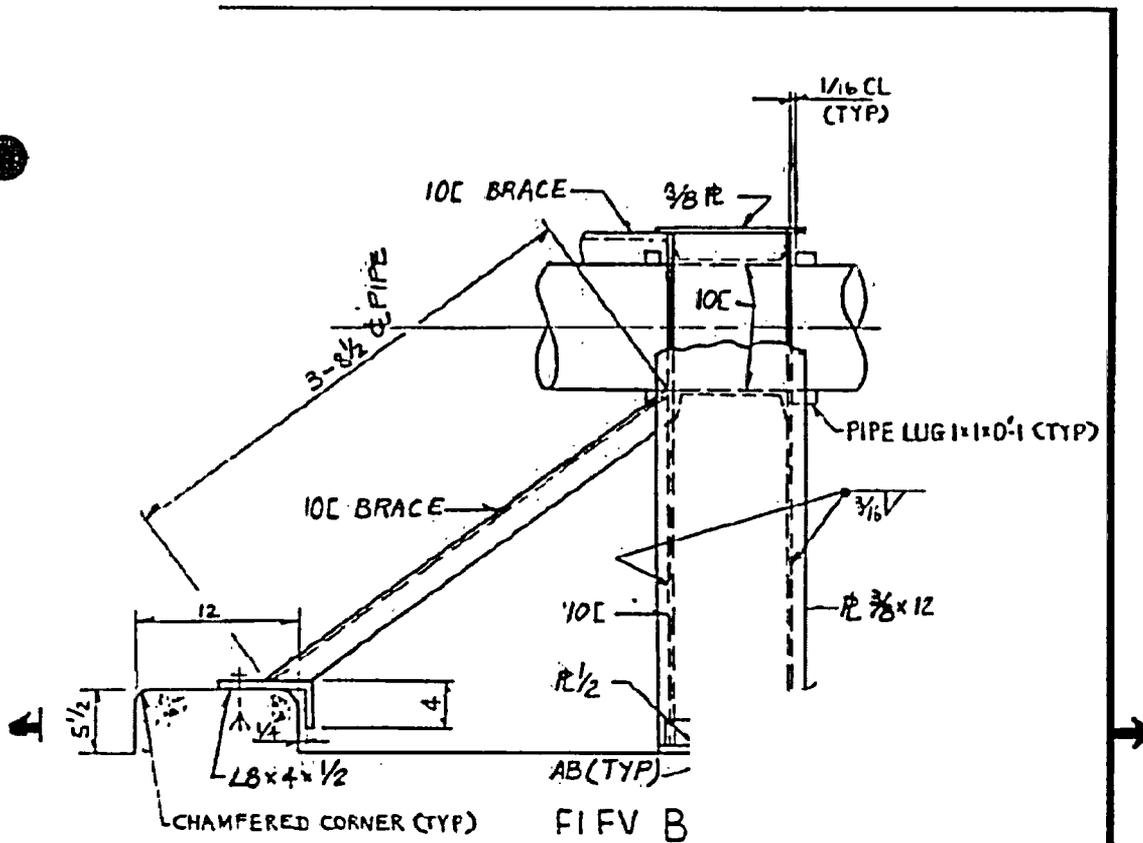
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(PT)**

COMPONENT ID:	221A/I-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	75%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	8/22/96

* The liquid penetrant examination was performed on three of the four lugs on the subject support. The top/east lug is inaccessible due to obstruction caused by hanger design/installation. The total Code examination coverage of the required examination area was 75% (i.e., 25% reduction in coverage). The coverage obtained was the maximum practicable coverage due to the obstructions to surface examination caused by the permanent hanger installation. See sketches for surface examination coverage limitations, and supplemental photograph showing component configuration.



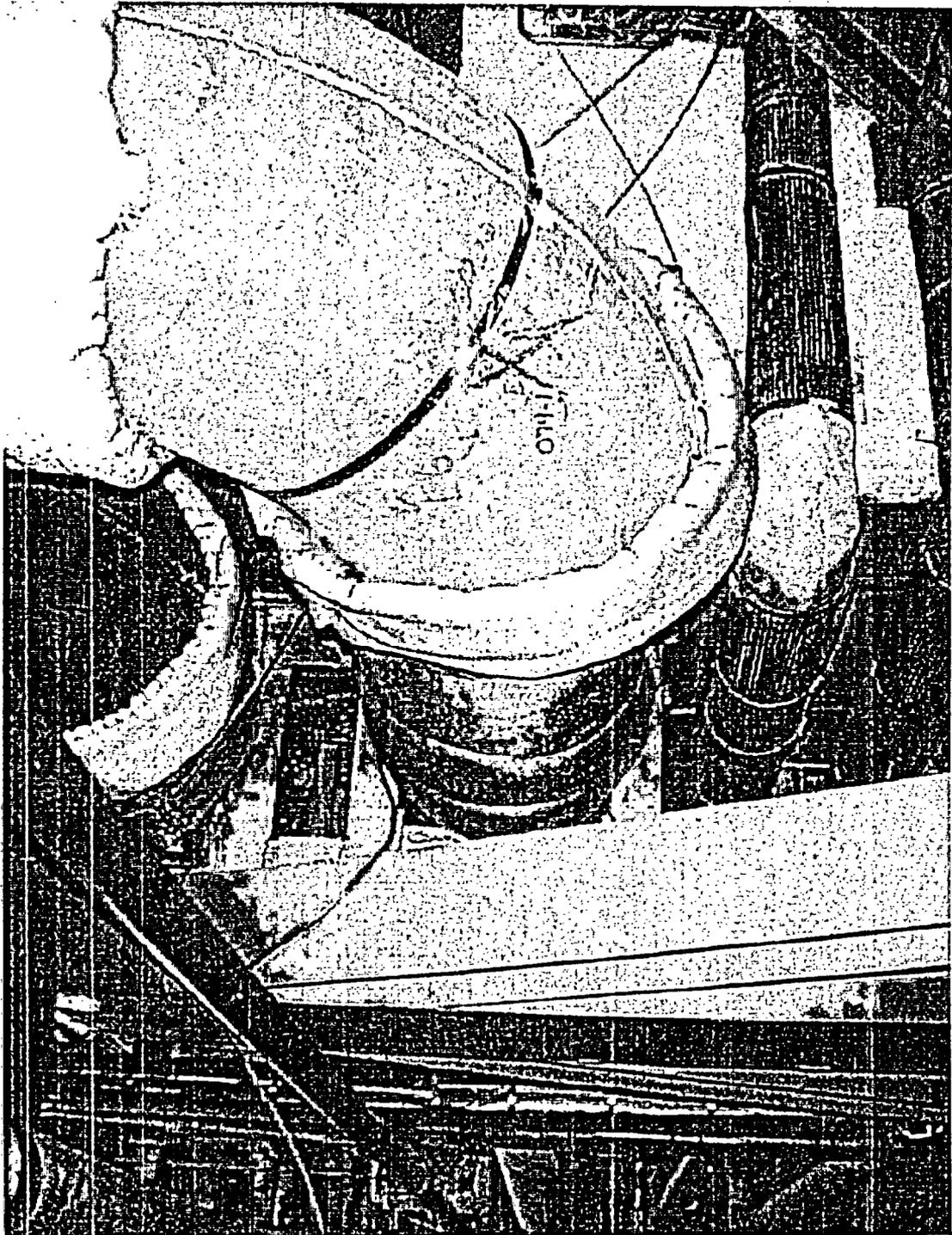




2	4/8/86	JB	
1	6/25/85		

DIV. CIVIL DR Tg DATE 9/15/84 CH. JG SCALE NTS JM	APPROVED	H.B. ROBINSON - UNIT 2 AS-BUILT RESTRAINT SKETCH SYSTEM: SAFETY INJECTION ISO NO./POINT NO. SI-20/1200	AB-CAR-
	<i>MNC</i>		SI-20-1200
			SH. 3 OF 5

↓ CPL-221A-J

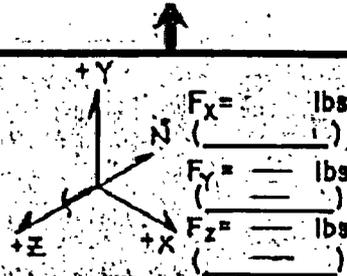


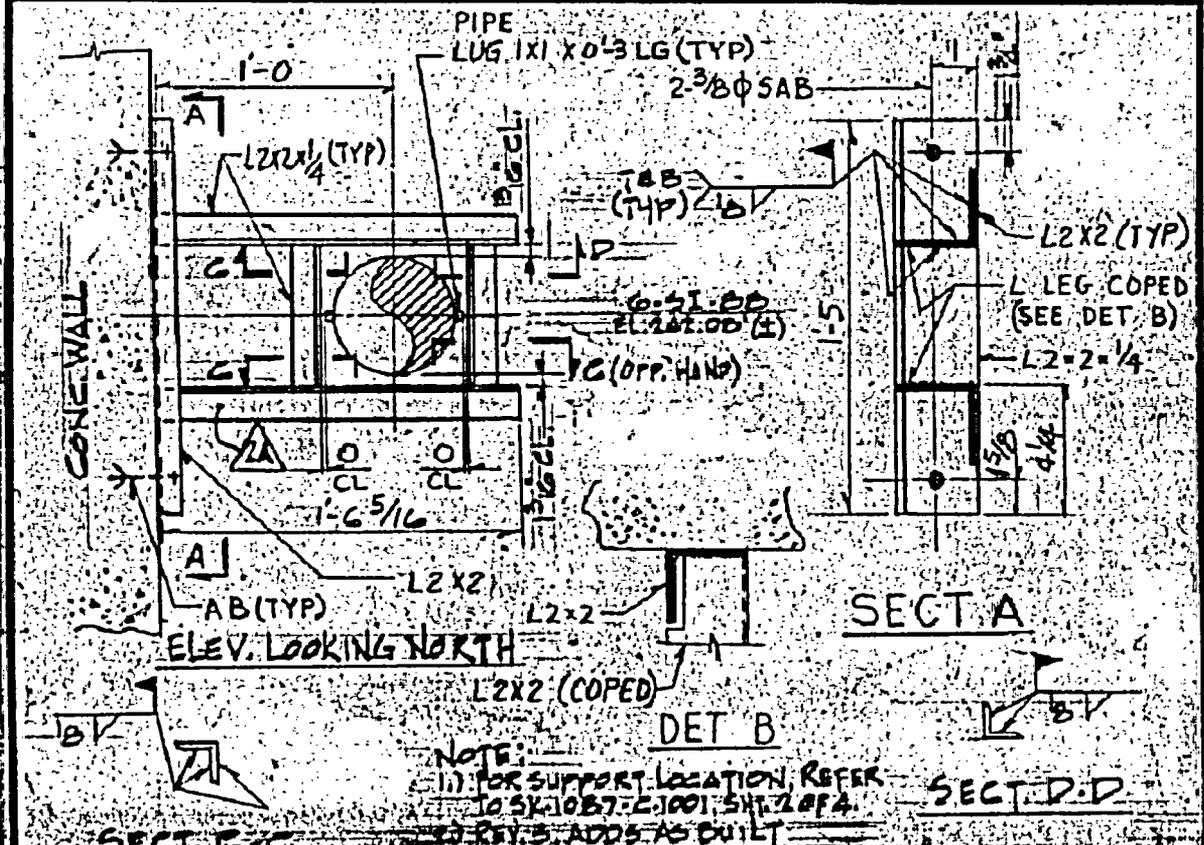
**INSERVICE INSPECTION
DETERMINATION OF PERCENT COVERAGE WORKSHEET
(PT)**

COMPONENT ID:	233/D-WS	ASME CATEGORY:	C-C
ASME CODE FIGURE:	IWC-2500-5	ASME ITEM NUMBER:	C3.20
CONFIGURATION:	INTEGRAL ATTACHMENT	% CRS ACHIEVED:	50%
PDI TECHNIQUE USED:	N/A	EXAM DATE:	4/13/92

* A liquid penetrant examination was performed on one of the two subject welded attachments. The backside lug is inaccessible due to obstruction caused by hanger design/installation, and piping above and below the subject integral attachments, making it physically impossible to access. The total Code examination coverage of the required examination area was 50% (i.e., one of the two lugs). The coverage obtained was the maximum practicable coverage due to the obstructions to surface examination caused by the permanent hanger installation and adjacent piping. See sketches for surface examination coverage limitations.

CPL-233/D-WS

<p>AF 16245</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center;"><u>G-SI-88-CF-40</u></p> </div> <p style="text-align: center;">BASE PLATE IDENTIFICATION</p>	 <p style="text-align: center;">LOAD CASE</p> <p style="text-align: center;">LOADS</p>	<p>RESTRAINT LOCATION: SEE ISO NO. <u>SI-20</u> PT NO. <u>944(944)</u></p> <p style="text-align: center;">REACTOR AUX BLDG PIPE ALLEY</p>
		<p>REST CALC NO <u>SI-20-544</u></p>
		<p>MOD NO <u>M492-REV 3</u></p>
		<p>PMR NO <u>3</u></p>



<p>(FOR ORIENTATION, SEE ELEVATION ABOVE.)</p>	<p>REACTOR SAFETY RELATED</p>	<p>3</p>	<p>12/27/89</p>	<p>JA</p>	<p>RS</p>	<p>750</p>
<p>REV 1 INCORPORATES "AS-BUILT" CONDITION</p>		<p>2</p>	<p>4/9/86</p>	<p>JB</p>	<p>CS</p>	<p>00</p>
		<p>1</p>	<p>6/25/85</p>	<p>RB</p>	<p>HSC</p>	<p>00</p>
		<p>REV</p>	<p>DATE</p>	<p>BY</p>	<p>CHK</p>	<p>APPD</p>

<p>EBASCO SERVICES INCORPORATED</p>	<p>H.B. ROBINSON - UNIT 2 AS-BUILT RESTRAINT SKETCH SYSTEM: SAFETY INJECTION ISO NO./ POINT NO: SI-20/944</p>	<p>AB-CAR SI-20-944 SH. 1 OF 1</p>
<p>DIV. CIVIL DR. To</p>	<p>APPROVED</p>	
<p>DATE: 9-6-84 CH. JG</p>	<p><i>[Signature]</i></p>	
<p>SCALE: NTS 1/4"</p>	<p><i>[Signature]</i></p>	

1125

PAGE 2 OF 2

DATA SHEET NO. 1095-20
 EXAM ITEM CPL-233-D-WS
 ISO DWG. NO. CPL-233 REV. 1

SKETCH SHEET

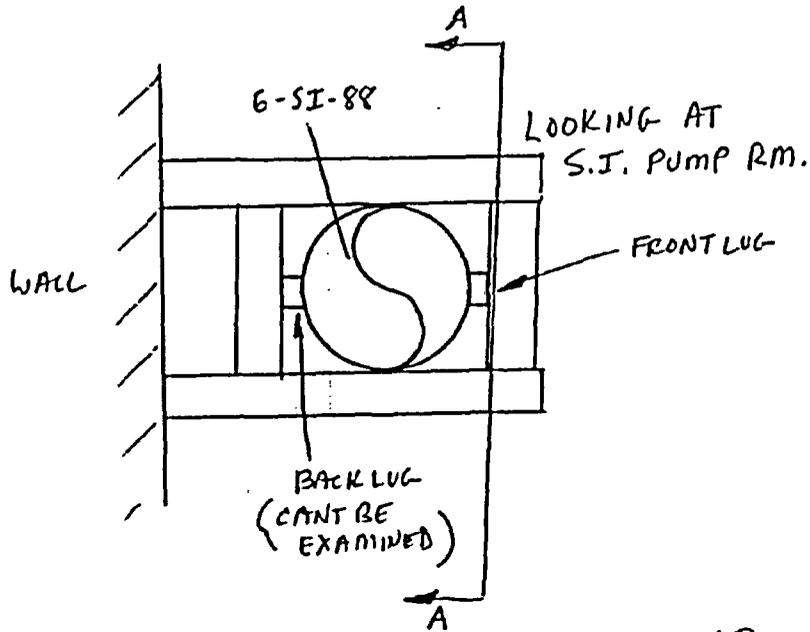
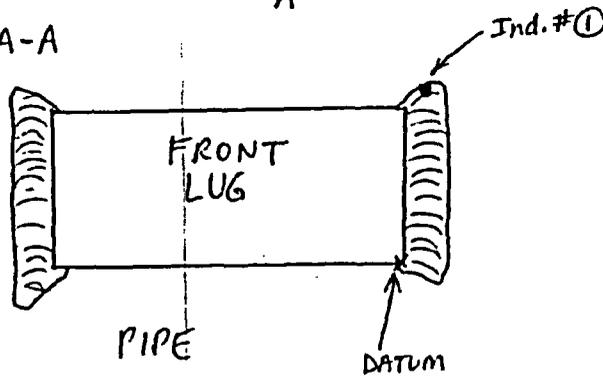


FIG. A-A



EXAMINER Cliff Mass
 EXAMINER N/A
 REVIEWER Dale Murchak
 REVIEWER Richard B. Weber
 REVIEWER R. Wallack

LEVEL II
 LEVEL N/A
 LEVEL III
 DATE 5/22/92
 DATE 6/2/92

DATE 4-13-92
 DATE N/A
 DATE 4/16/92

CATEGORY B-G-1 REACTOR COOLANT PUMP STUD

Component(s) for Which Relief is Requested

The component applicable to this relief request is the HBRSEP, Unit No. 2, reactor coolant pump stud number 7.

Code Examination Requirements

The applicable Code edition is the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Category B-G-1, Item Number B6.180. The applicable Code examination requirements, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," require that examination coverage be essentially 100% of the subject component.

Requested Relief

Relief is requested from the examination requirements of the ASME Code, 1986 Edition, Section XI, Category B-G-1, Item Number B6.180, as interpreted by Code Case N-460, "Alternative Examination Requirements for Class 1 and Class 2 Welds, Section XI, Division 1," which states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10% (i.e., coverage is greater than 90%). The examination coverage achieved for reactor coolant pump stud number 7 was the maximum extent practical for this component.

Basis for Requested Relief

This relief is requested pursuant to 10 CFR 50.55a(g)(6)(i) on the basis that compliance with the referenced Code requirements is impractical and that public health and safety will not be endangered by allowing the proposed alternatives in lieu of Code requirements. Substantial burden would be incurred to achieve additional coverage of this component. It is judged that patterns of degradation of this component would have been detected by the coverage that was achieved. Therefore, reasonable assurance of the integrity of the component has been provided.

The ultrasonic examination technique utilized during the Third Ten-Year Interval on reactor coolant pump stud number 7 was a stud bore probe. A limitation was identified on the lower eight inches of this stud due to a taper restriction. Future examination of this stud will be performed utilizing the PDI technique, which will encompass 100% of the reactor coolant pump studs. The limitation on reactor coolant pump stud number 7 equates to less than 0.36% of the overall volume of the reactor coolant pump studs when taken in aggregate.