WOLF CREEK
NUCLEAR OPERATING CORPORATION

Bart D. Withers
President and
Chief Executive Officer

March 5, 1992

WM 92-0035

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Inservice Inspection Program
Relief Requests

Gentlemen:

The purpose of this letter is to transmit requests for relief from ASME Section XI requirements for the Wolf Creek Generating Station Inservice Inspection (ISI) Program in accordance with 10 CFR 50.55a(g)(5)(iii). Provided in the attachment are relief requests which apply to ISI Periods 1 and 2. Relief Request I1R-23, I1R-24, I1R-25, I1R-26, I1R-27, I1R-28, and I1R-29 concern examinations required by ASME Section XI. I1R-30 is associated with Wolf Creek Nuclear Operating Corporation's commitment to perform augmented examinations in addition to the examinations required by ASME Section XI.

WCNOC requests approval of the relief requests prior to May 5, 1992 which coincides with the end of ISI Period 2.

If you have any questions concerning this matter, please contact me or Mr. S. G. Wideman of my staff.

Very truly yours,

Bart D. Withers
President and
Chief Executive Officer

BDW/aem

Attachment

cc: A. T. Howell (NRC), w/a
R. D. Martin (NRC), w/a
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W. D. Rockley (NRC), w/a

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Q PDR

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ISI RELIEF REQUEST I1R-23

Components: BB-01-F207, BB-01-F307, BB-01-F407, BB-01-F305, BB-01-F405, BB-01-F306, BB-01-F203, BB-01-F303

Category: B-J

Description: Reactor Coolant Pumps "B", "C" and "D" Suction to Elbow, Steam Generators "C" and "D" Outlet Safe-End to Elbow, Steam Generator "C" Outlet Elbow to Crossover Leg Spool, and Reactor Pressure Vessel Outlet Nozzles "B" and "C" Safe-End to Pipe.

Code Requirement: Section XI, Table IWB-2500-1, item B9.1 requires the inner 1/3t of the weld plus 1/4" of the base metal beyond the weld toe to be scanned as shown by Figure IWB-2500-8.

Basis for Relief: The transducers used to examine Cast Stainless Steel (CSS) were too large to maintain sufficient contact in the circumferential scanning mode (reference Figure 1). They did, however, maintain adequate contact when scanning perpendicular to the weld axis.

Wolf Creek contends that other transducers may have maintained better contact along the weld crown, but would not have provided as an effective examination. This is because the transducers used to examine this CSS material were designed specifically to enhance the flaw detection capabilities.

The transducer size, frequency, damping, focusing and wave mode were all variables optimized to provide the best response in this coarse grain material. When transducers deviate from this design and are used to send sound into CSS material, it is entirely probable that the returning sound/signal has been so altered by the effects of scattering that any flaw indications would be masked by the noise reflections caused by grain boundaries.

With welds F207, F307, F407, F305, F405 and F306, the weld crown and weld shrinkage causes transducer lift off. With welds F203 and F303, the weld taper causes transducer lift off.

Alternate Examination: The code required volumetric examination will be completed perpendicular to the weld axis from two (2) directions.

ASME Code Section III: Complete ultrasonic examinations of these welds at 0° and 41° showed no indications.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing these welds. In addition, these welds were examined using ultrasonic equipment, with no irregularities found. Any future indications of significant size will be found by the alternate examination and corrective action will be taken.

A satisfactory level of safety to the plant and its personnel will be achieved by the alternate examination.

ISI RELIEF REQUEST I1R-24

Component: TEM01-SEAM-2-W

Category: C-A

Description: Boron Injection Tank Upper Head to Shell Weld

Code Requirement: Section XI, Table IWC-2500-1, Item C1.20, requires the weld plus 1/2" of the base metal on both sides of the weld be scanned as shown by Figure IWC-2500-1.

Basis for Relief: The transducers used to examine Cast Stainless Steel (CSS) material were too large to maintain sufficient contact when running along the weld crown (circumferential examination). Thus, resulting with 0% inspection using the circumferential scan (reference Figure 1).

Wolf Creek contends that other transducers may have maintained better contact along the weld crown, but would would not have provided as an effective examination. This is because the transducers used to examine this CSS material were designed specifically to enhance the flaw detection capabilities.

The transducer size, frequency, damping, focusing, and wave mode were all variables optimized to provide the best response in this coarse grain material. When transducers deviate from this design and are used to send sound into CSS material, it is entirely probable that the returning sound/signal has been so altered by the effects of scattering that any flaw indications would be masked by the noise reflections caused by grain boundaries.

Alternate Examination: The code required volumetric examination will be completed perpendicular to the weld axis from two (2) directions.

ASME Code Section III: A complete ultrasonic examination was performed at an angle of 0^{o} and approximately 50% of the weld was examined with angles of 41^{o}. These inspections revealed no indications.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. This weld was ultrasonic inspected to the extent possible, with no irregularities found. The probability of a flaw occurring in the area not being examined is small. Most future indications of significant size will be found by examination of the weld as it is now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the mentioned weld. The safety of the plant and its personnel is not being compromised.

TYPICAL CIRCUMFERENTIAL SCAN LIFTOFF

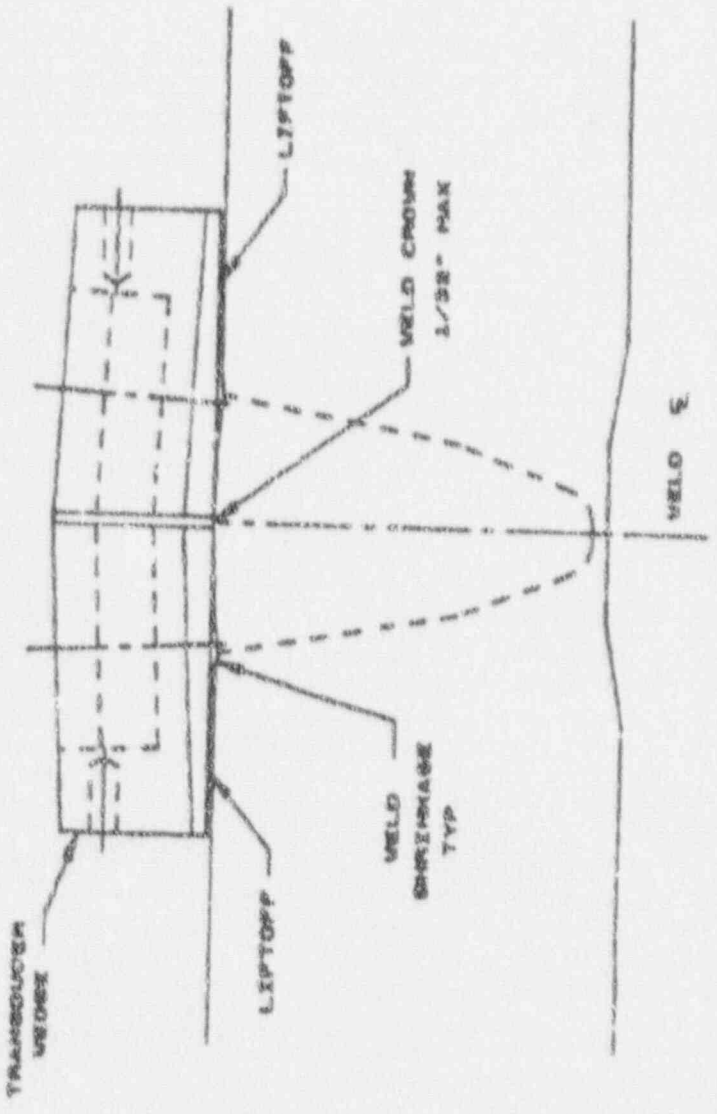


FIGURE 1

ISI RELIEF REQUEST I1R-25

Components: EJ-02-F022

Category: C-F

Description: 12" Pipe to Residual Heat Removal Heat Exchanger (EEJ01B) - B Inlet Weld

Code Requirement: Section XI, Table IWC-2500-1, Item Number C5.11, requires 100% surface examination of the 12" pipe to heat exchanger weld as defined by Figure IWC-2500-7

Basis for Relief: The surface examination of the subject weld is 39% obstructed by a 1 1/2" by 1 5/8" ring. The ring is welded over the downstream toe of the weld; therefore, making it impossible to get the required 1/2" coverage beyond the toe of the weld. To examine the obstructed area would require physically removing the welded ring (reference Figure 1).

Alternate Examination: None; the Code required surface examination will be completed to the maximum extent practical.

ASME Code Section III: Liquid Penetrant examination showed no indications. The preservice examination was not subject to the obstruction described above.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was liquid penetrant examined, with no irregularities found. The probability of a flaw occurring in the area not being examined is small. Most future indications of significant size will be found by examination of the weld as it is now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the mentioned weld.

ISI RELIEF REQUEST I1R-26

Component: EJ-02-C020

Category: C-C

Description: Integrally Welded Attachments - 8 Lugs

Code Requirement: Section XI, Table IWC-2500-1, Item Number C3.20, requires 100% surface examinations of each integrally welded attachment as defined by IWC-2500-5

Basis for Relief: The surface examination of the subject integrally welded attachments (lugs) are 24% obstructed on two (2) of the lugs. The obstruction is a result of a permanent hanger that is used to support the Residual Heat Removal (RHR) piping. The diagonal supports of this hanger cross over the required inspection area on two of the lugs (reference Figure 2).

Alternate Examination: None; the Code required surface examination will be completed to the maximum extent practical.

ASME Code Section III: Liquid Penetrant examination showed no indications. The preservice examination was not subject to the obstruction described above.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing these lugs. In addition, these lugs were liquid penetrant examined, with no irregularities found. The probability of a flaw occurring in the area not being examined is small. Most future indications of significant size will be found by examination of the lugs as they are now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the mentioned lugs.

ISI RELIEF REQUEST I1R-27

Component: TEM01-SEAM-3-W

Category: C-A

Description: Boron Injection Tank Bottom Head to Shell Weld

Code Requirement: Section XI, Table IWC-2500-1, Item Number C1.20, requires the weld plus 1/2" of the base metal on both sides of the weld be scanned as shown by Figure IWC-2500-1.

Basis for Relief: The volumetric examination of the subject weld is limited in the following way:

LIMITATIONS	BEAM TOWARD SHELL	BEAM TOWARD HEAD
Weld Configuration	-57%	-33%
Leg Supports	-22%	-25%
Instrumentation Nozzle	- 4%	- 5%
Total Weld Coverage	17%	37%

The circumferential examination was 100% limited due to the weld configuration (reference Figures 3A through 3D for the percentage breakdown).

The transducers used to examine Cast Stainless Steel (CSS) material were too large to maintain sufficient contact when running along the weld crown. However, Wolf Creek contends that other transducers may have maintained better contact along the weld crown, but would not have provided as an effective examination. This is because the transducers used to examine this CSS material were designed specifically to enhance the flaw detection capabilities.

The transducer size, frequency, damping, focusing, and wave mode were all variables optimized to provide the best response in this coarse grain material. When transducers deviate from this design and are used to send sound into CSS material, it is entirely probable that the returning sound/signal has been so altered by the effects of scattering that any flaw indications would be masked by the noise reflections caused by grain boundaries.

Alternate Examination: None; the Code required volumetric examination will be completed to the maximum extent possible.

ASME Code Section XII: A complete ultrasonic examination was performed at an angle of 0^{o}. The axial and circumferential scans were limited in the following way:

SCAN METHOD	HEAD TO SHELL	SHELL TO HEAD
Axial	~40%	~90%
Circumferential	~40%	~90%

These inspections revealed no indications.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing these lugs. This weld was ultrasonic inspected to the extent possible, with no irregularities found.

In addition to ultrasonic examination, a System Pressure Test (STS PE-044A) was performed on the Boron Injection Tank in May of 1991, with no indications of leakage to the tank. The upper head to shell weld (TEM01-SEAM-2-W) was ultrasonic inspected in Refuel Outage 3 in the axial direction, with no indications found.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the mentioned weld.

Component: EBB01A-SEAM-1-W

Category: B-B

Description: Steam Generator "A" Tubesheet-to-Channel Head Weld

Code Requirement: Section XI, Table IWB-2500-1, Item Number B2.40, requires 100% volumetric examination of the Steam Generator Tubesheet-to-Channel Head Weld as defined by Figure IWB-2500-6

Basis for Relief: The volumetric examination of the subject weld is 22.4% obstructed by four (4) supports. The 60° axial scan on the tubesheet side is 20% obstructed by the support flange. The obstruction results from insufficient base metal between the weld and flange to complete this angle beam examination. There is approximately 1% obstruction due to weld taper and the code data plate. Reference Figure 4 for weld layout.

Alternate Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

ASME Code Section III: Ultrasonic scans at 0°, 45° and 60° showed no indications. These preservice examinations were subject to the obstructions described above.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was examined using ultrasonic equipment, with no irregularities found. The probability of a flaw occurring only in one of these areas not being examined is extremely small. Most future indications of significant size will be found by examination of the weld as it is now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of this weld.

ISI RELIEF REQUEST I1R-29

Component: EBB01C-SEAM-1-W

Category: B-B

Description: Steam Generator "C" Tubesheet-to-Channel Head Weld

Code Requirement: Section XI, Table IWB-2500-1, Item Number B2.40, requires 100% volumetric examination of the Steam Generator Tubesheet-to-Channel Head Weld as defined by Figure IWB-2500-6

Basis for Relief: The volumetric examination of the subject weld is 22.4% obstructed by four (4) supports. The 60° axial scan on the tubesheet side is 30% obstructed by the support flange. The obstruction results from insufficient base metal between the weld and flange to complete this angle beam examination. There is approximately 1% obstruction due to weld taper and the code data plate. Reference Figure 5 for weld layout.

Alternate Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

ASME Code Section III: Ultrasonic scans at 0°, 45° and 60° showed no indications. These preservice examinations were subject to the obstructions described above.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was examined using ultrasonic equipment, with no irregularities found. The probability of a flaw occurring only in one of these areas not being examined is extremely small. Most future indications of significant size will be found by examination of the weld as it is now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of this weld.

1SI RELIEF REQUEST I1R-29

Component: TBB03-10B-C-W and TBB03-10B-D-W

Category: B-D

Description: Pressurizer Nozzle to Pressurizer Vessel Head Welds

Code Requirement: Section XI, Table IWB-2500-1, Item Number B3.110, requires 100% volumetric examination of the Pressurizer Nozzle to Pressurizer Vessel Head Weld, as defined by Figure IWB-2500-7.

Basis for Relief: Pressurizer Nozzle weld taper and base metal taper near the nozzle causes the transducer to lift off. As a result, a portion of the weld required volume (WRV) receives no shear wave examination when using 45° and 60° angle beams. This was observed when examining Nozzle to Vessel Welds TBB03-10B-C-W and TBB03-10B-D-W. For both welds, 15% of the WRV could not be scanned using a 45° angle beam, and 11.5% of the WRV could not be scanned using a 60° angle beam.

Alternate Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

ASME Code Section III: Complete ultrasonic scans at 0°, 45° and 60° showed geometrical indications only.

Evaluation of Plant Safety: Strict ASME Section III quality controls were used when designing, fabricating and installing these welds. In addition, these welds were examined using ultrasonic equipment, showing only geometrical indications. The probability of a flaw occurring only in one of these areas not being examined is extremely small. Most future indications of significant size will be found by examination of the welds as they are now.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the mentioned welds.

ISI RELIEF REQUEST I1R-30
(Augmented)

Component: PBB01B-FLYWHEEL

Category: N/A

Description: Reactor Coolant Pump "B" Flywheel

Code Requirement: Augmented examination for compliance with Regulatory Guide 1.14 Reactor Coolant Pump Flywheel Integrity, Section C.4 requires surface examination of all exposed surfaces

Basis for Relief: The surface examination of the subject Flywheel is 3% obstructed by a seal ring that is located on the bottom side of the Flywheel (reference Figure 6).

Tight clearances are required for seal ring location. This ring reduces the vacuum effect produced by the rotating flywheel in order to prevent oil from being sucked out of the oil reservoir stand pipe. After the ring is set, it should not be moved unless absolutely necessary.

Alternate Examination: None; the Code required surface examination will be completed to the maximum extent practical.

ASME Code Section III: This is the Preservice Inspection Examination. No rejectable indications were found. There were four (4) small (1/16" and less) rounded surface (penetrant exam) indications found in the Bore Area and Keyways.

Evaluation of Plant Safety: The Flywheel was examined to the fullest extent possible, utilizing UT, MT and PT examination methods. The probability of a flaw occurring in the area not being examined is extremely small.

Based on the above, a satisfactory level of safety will be achieved without providing a complete examination of the Flywheel.

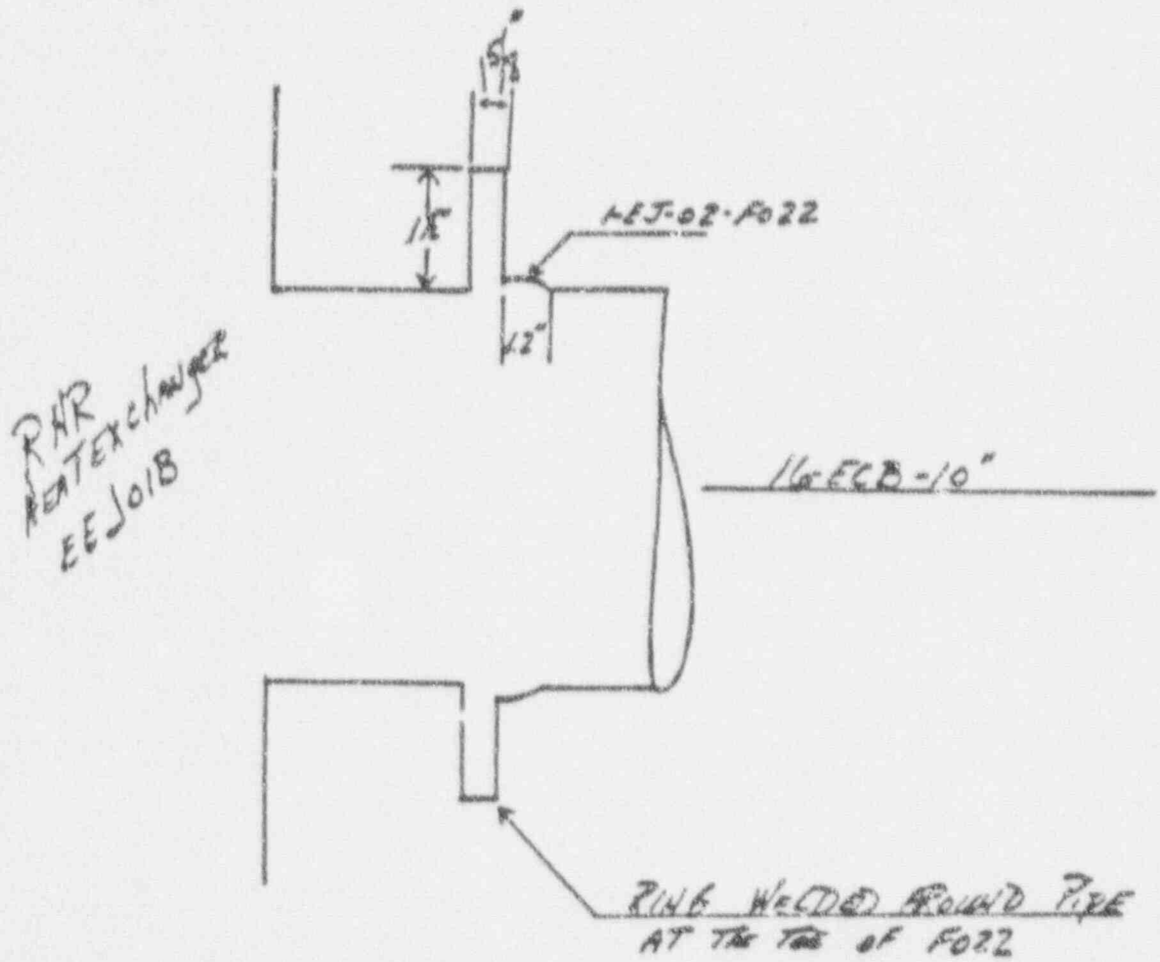
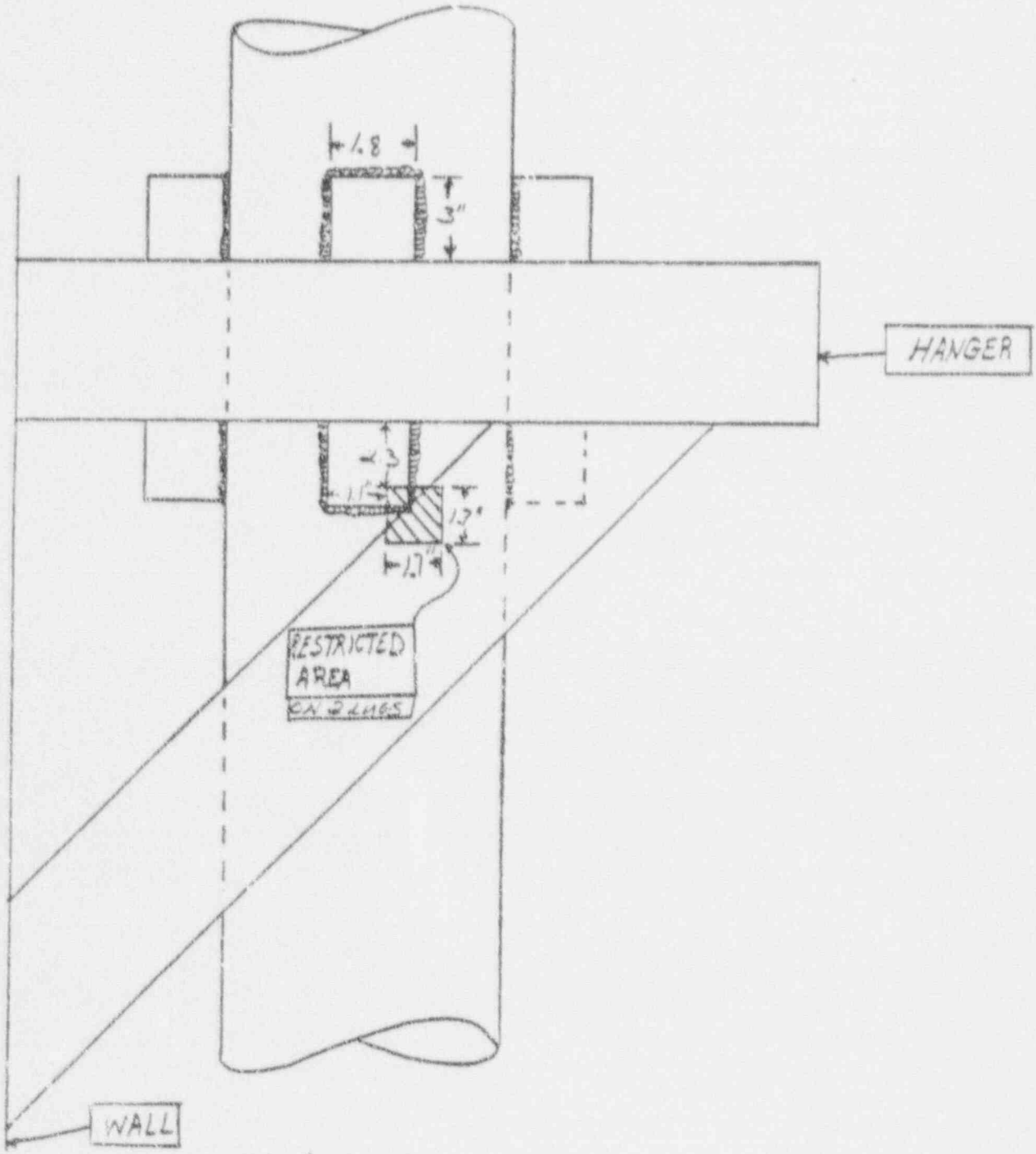

RHR
HEAT EXCHANGER
EEJ01B
1½"
½"
HEJ-02-F022
16-ECB-10"
RING WELDED AROUND PIPE
AT THE TOE OF F022

Figure 1

WELD # 1-EJ-02-C020

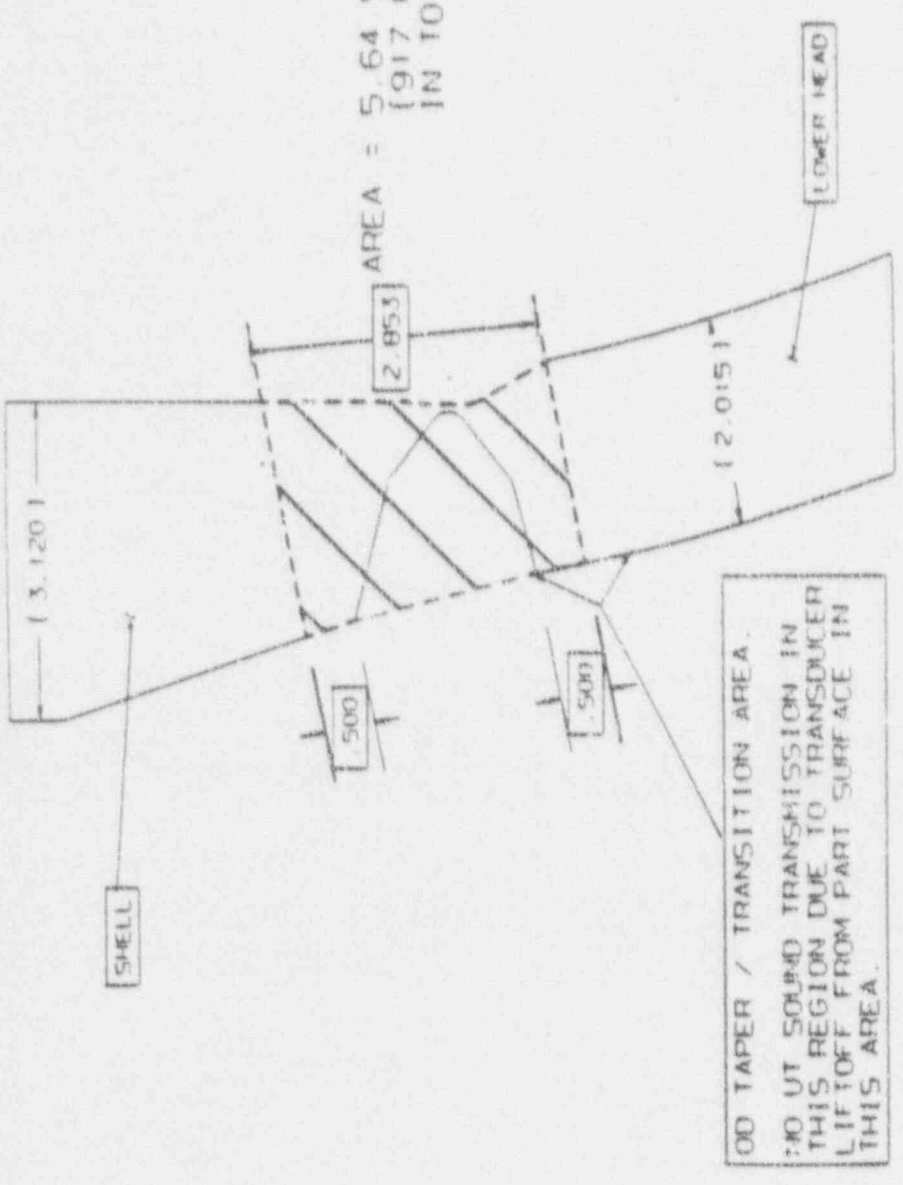
FILLET WELD SIZE .5"



NOTE: NOT TO SCALE

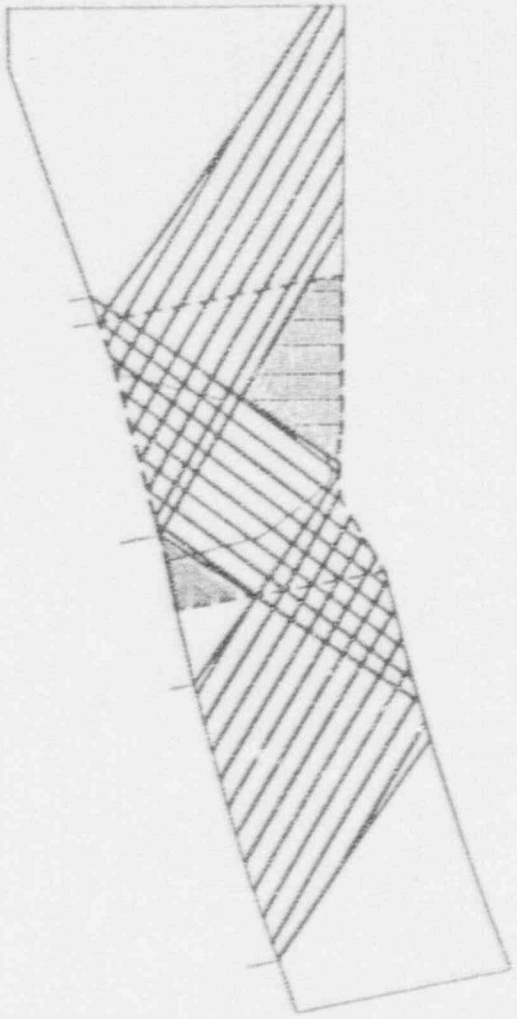
RESTRICTED DUE TO HANGER

Figure 2



AREA OF INTEREST

Figure 3A



TOTAL WELD COVERAGE
WITHOUT EXTERNAL
RESTRICTIONS

AREA COVERAGE
BEAM DIRECTION TOWARDS SHELL:
UPPER REGION - 2.06 SQUARE INCHES
236 CUBIC INCHES
36 PERCENT
LOWER REGION - 0.388 SQUARE INCHES
45 CUBIC INCHES
7 PERCENT

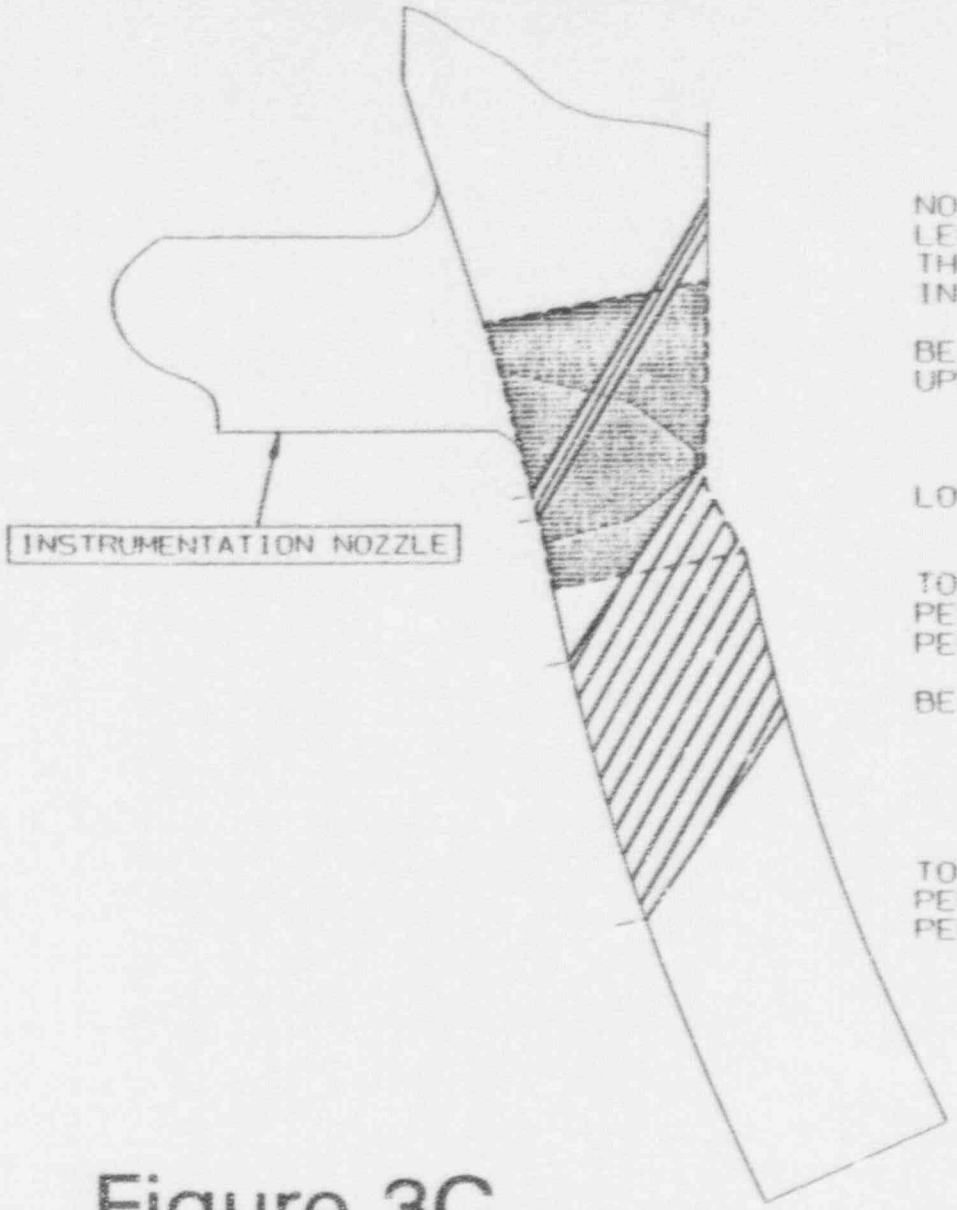
TOTAL:
PERCENTAGE OF WELD EXAMINED: 43
PERCENTAGE OF WELD NOT EXAMINED: 57

BEAM DIRECTION TOWARDS HEAD:
3.76 SQUARE INCHES
430 CUBIC INCHES
67 PERCENT

TOTALS:
PERCENTAGE OF WELD EXAMINED: 67
PERCENTAGE OF WELD NOT EXAMINED: 33

= AREA OF INTEREST NOT EXAMINED

Figure 3B



AREA COVERAGE BY INSTRUMENTATION NOZZLE

NOTE:
LENGTH OF RESTRICTION 4 INCHES @ 2 LOCATIONS
THIS YIELDS 5.0% OF THE TOTAL WELD IS UNDER
INSTRUMENTATION NOZZLE.

BEAM DIRECTION TOWARD SHELL:
UPPER REGION - 0.46 SQUARE INCHES
3.68 CUBIC INCHES
.41 PERCENT

LOWER REGION - 0.55 SQUARE INCHES
4.40 CUBIC INCHES
.55 PERCENT

TOTALS:
PERCENT OF WELD EXAMINED: 0.9
PERCENT OF WELD NOT EXAMINED: 4.1

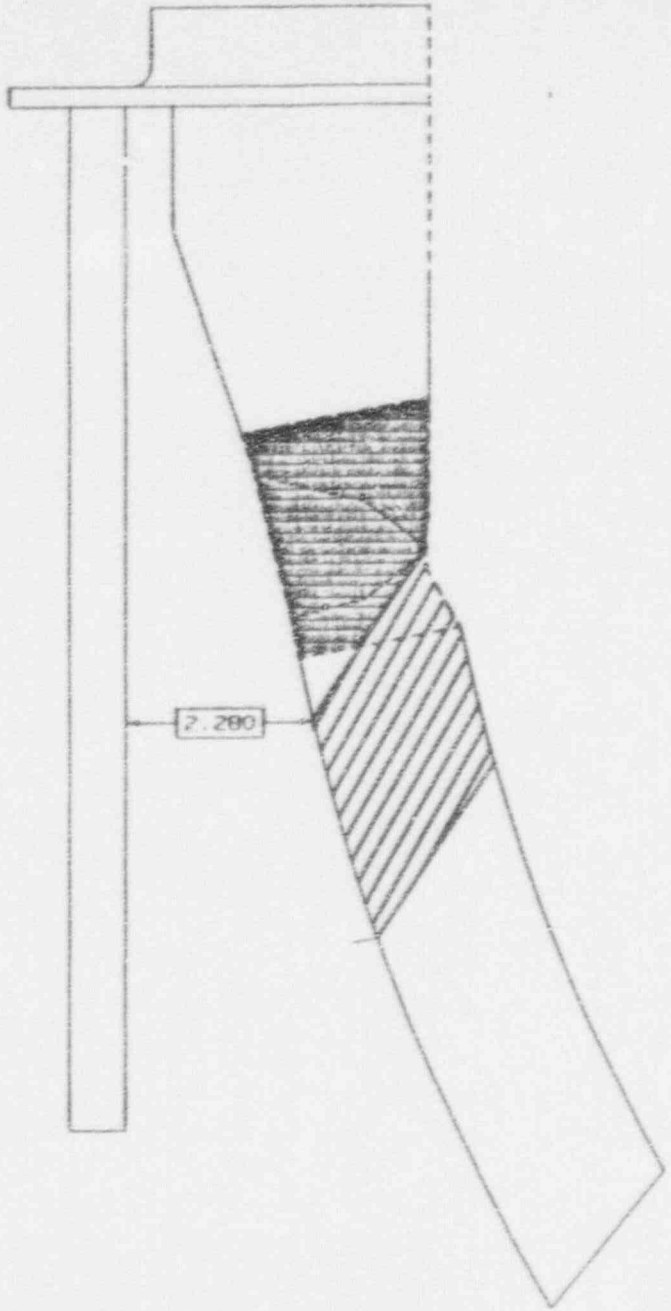
BEAM DIRECTION TOWARDS HEAD:
0.0 SQUARE INCHES
0.0 CUBIC INCHES
0.0 PERCENT

TOTALS:
PERCENT OF WELD EXAMINED: 0.0
PERCENT OF WELD NOT EXAMINED: 5

= AREA OF INTEREST NOT EXAMINED

Figure 3C

COVERAGE IN AREA WITH INSTRUMENTATION NOZZLE



AREA COVERAGE UNDER LEG

NOTE:
LENGTH OF RESTRICTION :0 INCHES
AT 4 LOCATIONS. THIS YIELDS 24.6% OF THE
TOTAL WELD AREA UNDER THE SUPPORT LEGS.

BEAM DIRECTION TOWARD SHELL:
0.550 SQUARE INCHES
22 CUBIC INCHES
2.4 PERCENT

TOTALS:
PERCENT OF WELD EXAMINED: 2.4
PERCENT OF WELD NOT EXAMINED: 22.2

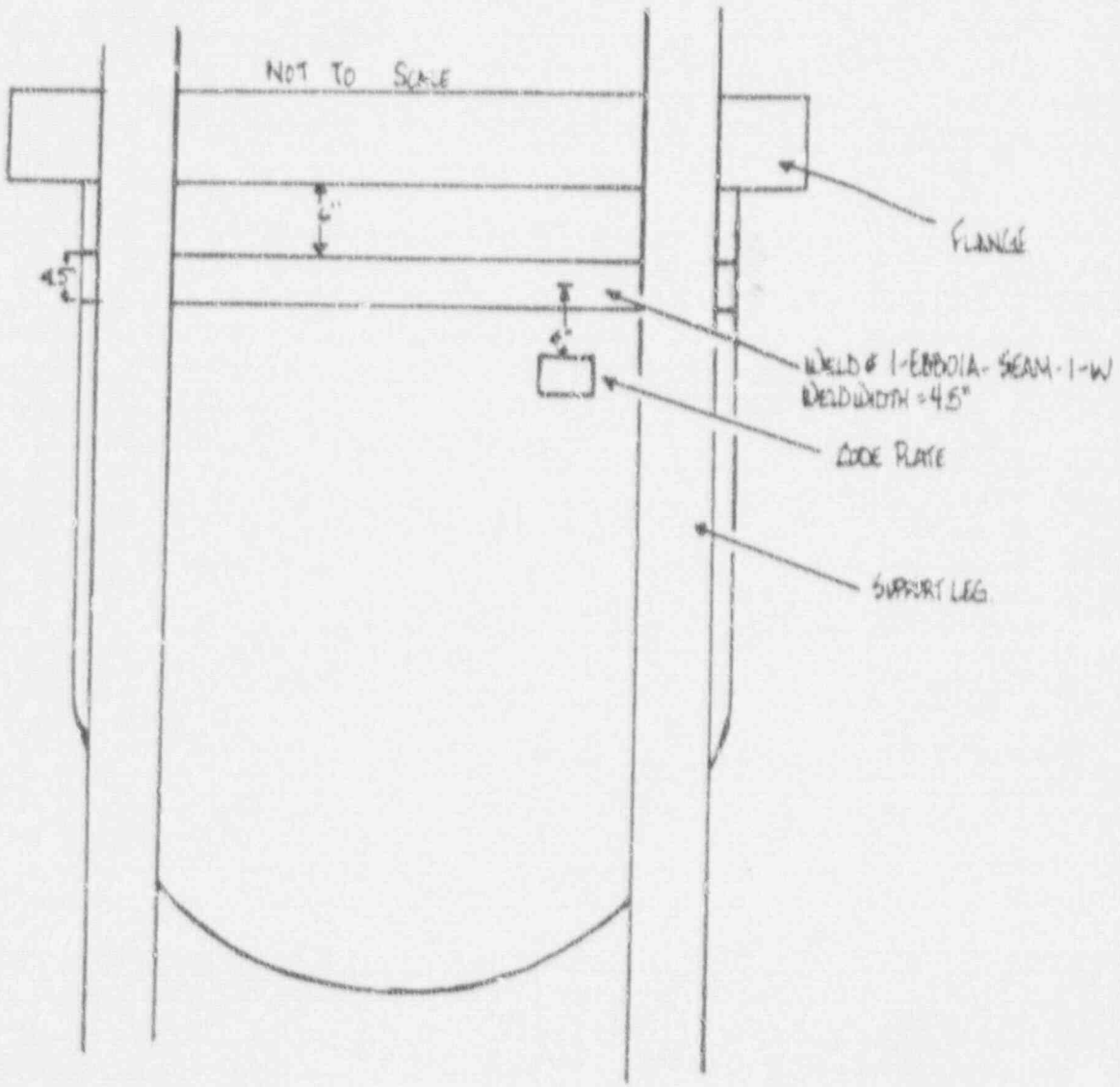
BEAM DIRECTION TOWARDS HEAD:
0.0 SQUARE INCHES
0.0 CUBIC INCHES
0.0 PERCENT

TOTALS:
PERCENT OF WELD EXAMINED: 0.0
PERCENT OF WELD NOT EXAMINED: 24.6

= AREA OF INTEREST NOT EXAMINED

Figure 3D

COVERAGE IN AREA WITH BIT LEG



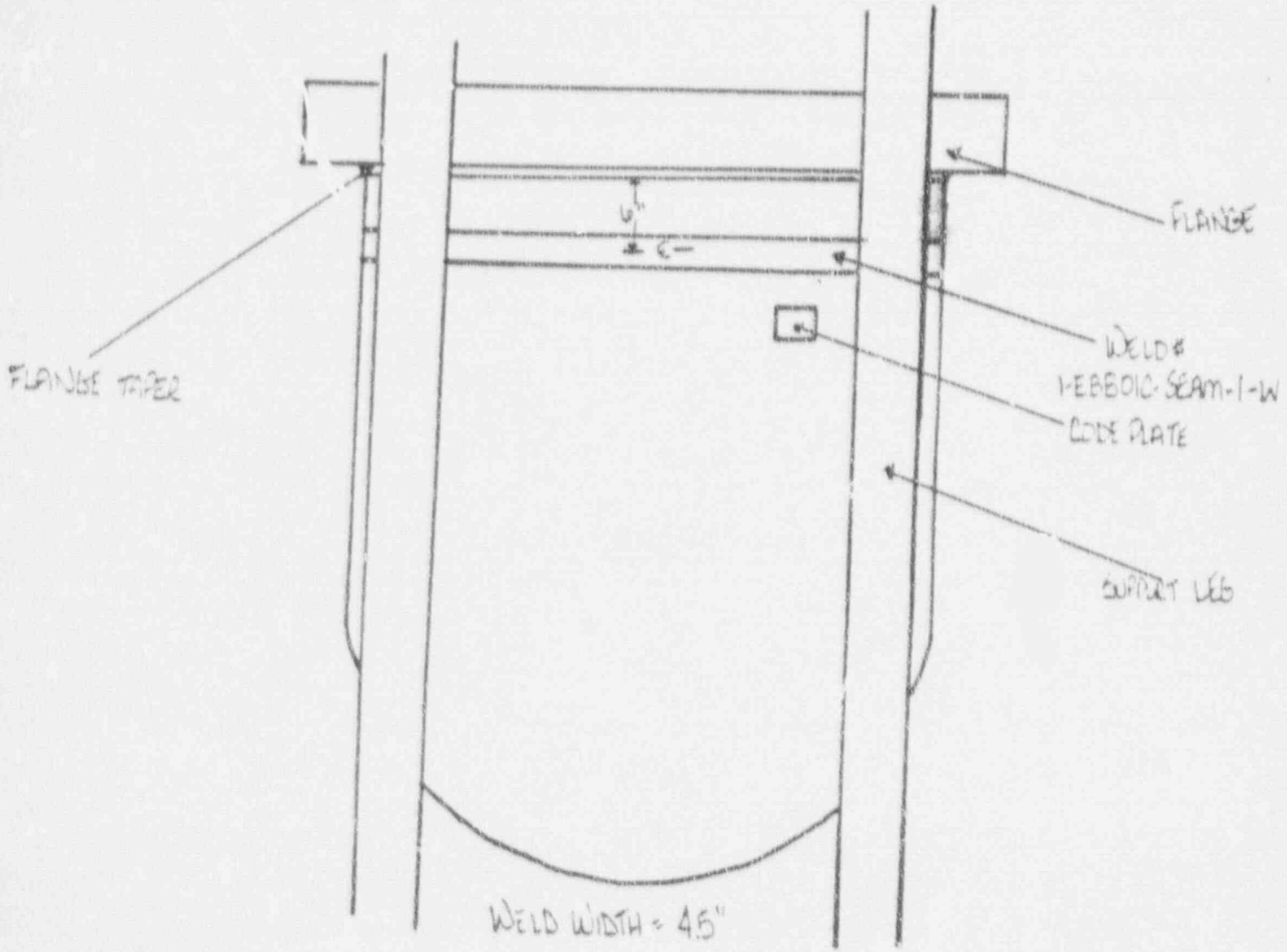
SUPPORT LEG LOCATIONS

39¼" to 63¾", CCW FROM DATUM XO, FULL SCAN AREA
42-3/4" to 66-3/4", CW FROM DATUM XO, FULL SCAN AREA
44" to 68", CCW FROM DATUM IV, FULL SCAN AREA
38½" to 62½", CW FROM DATUM IV, FULL SCAN AREA

CODE PLATE LOCATION

25½" to 30½" CW FROM DATUM XO
4" to 8¼" BELOW WELD ℄.

Figure 4



SUPPORT LEG LOCATIONS

"CCW to 64"CW of Datum NO
"CW to 65"CW of Datum NI
1½"CW to 65½"CW of Datum WO
9½"CW to 63½"CW of Datum SO

CODE PLATE LOCATION

FROM 7" to 10¾" below ℄ of weld
ON Bottom Head side
22½" to 29½" CW from Datum NO

TAPER ON FLANGE LOCATED 6" BACK FROM ℄ OF WELD

Figure 5

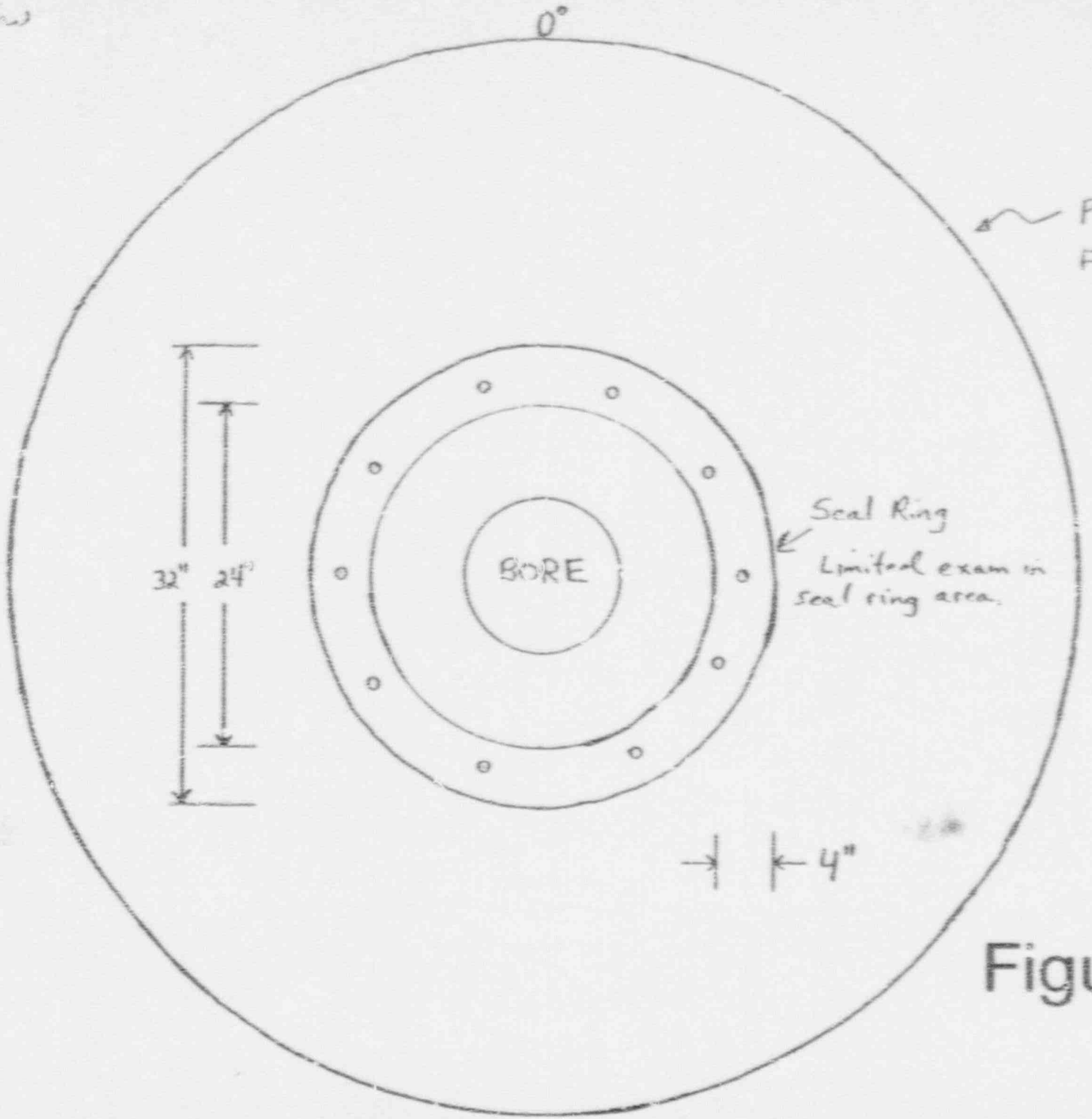

Bottom View
0°
PBB01B
Fly wheel
Seal Ring
Limited exam in seal ring area.
BORE
32"
24"
4"

Figure 6