James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
Lycoming, New York 13093
315 342.3840

Corbin A. McNeill, Jr.
Resident Manager

NewYorkPower Authority

October 21, 1984
JAFP-84-0979

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing

Subject: James A. FitzPatrick Nuclear Power Plant (JAFNPP)
Docket No. 50-333
Recirculation System Weld Joints

Dear Sir:

A thorough in-service inspection program has recently been completed of the recirculation and associated stainless steel piping systems at JAFNPP. IGSCC-like indications were found in six 12-inch diameter recirculation riser welds and four 28-inch diameter welds. Attachment 1 provides a weld-by-weld summary of these indications including sizes and corrective actions taken.

To facilitate further discussion, it should be noted that each weld is identified by four sets of numbers. The first set is the pipe diameter, the second two sets identify the system, and the last is the individual weld number. The system number has been omitted, since all the welds under discussion are in the recirculation system.

Five of the welds were repaired by full structural weld overlay repairs, in which the design basis was to assume no structural credit for any remaining pipe wall over the entire length of the observed indication. It is also noteworthy that the overlay designs included thermal expansion stress as a primary stress to account for possible low toughness material effects, and that the first layer of weld overlay material has been discounted in determining overlay thickness to account for possible crack propagation into diluted ferrite weld metal. These conservatisms were applied in addition to the standard weld overlay practices of controlling weldment ferrite and carbon levels and applying the overlays with low heat input and water in the pipe. Design and application of the weld overlays applied at FitzPatrick exceed the standard practices used in the large majority of weld overlays applied in U.S. BWRs in terms of their ability to restore design basis structural margins to the welds and to arrest any future IGSCC propagation in the weldment.

A047
1/1

Five welds with indications were evaluated in accordance with ASME Section XI, IWB-3640 and the recommendations of NRC Generic Letter 84-11. In all cases, the indications are shown to be acceptable for a period in excess of the time to the next scheduled plant outage, in the as-welded condition. In addition, each weld was also treated by IHSI, which should inhibit further IGSCC propagation in these welds thus increasing their acceptability for continued operation by an even larger margin. It is noteworthy that the evaluations of these welds also included thermal expansion stress as a primary stress in determining maximum allowable flaw size to account for possible low toughness material effects. One final point of significance is that IHSI was performed on a large percentage of the remaining uncracked welds, thus greatly reducing the probability of future IGSCC in these welds. Considering the above factors, the New York Power Authority considers the results of the inspections and the corrective actions taken adequate to justify continued operation until the 1986 refueling outage at which time the relevant welds will be reevaluated.

Attachments 2 through 6 to this letter transmit fracture mechanics evaluation of ultrasonic indications for welds 28-53, 28-113, 28-112, 12-4, and 12-17. These indications were found by Ebasco personnel using 45° and 60° angles of shear waves at 2-1/4 MHz. The sizing was performed by KWU/UTL personnel using various techniques including:

- ID mode conversion - creeping wave
- SLIC 40-dual element multiple angle
- 45°, 4 MHz
- 60°, 4 MHz
- SUSI, dual element focused beam
- crack tip diffraction, 45°, 4 MHz
- head wave, creeping wave on ID

Attachment 7 is a summary of recirculation system weld inspections as of this date.

Attachment 8 provides weld overlay reports.

Attachment 9 provides weld overlay thicknesses.

Attachment 10 provides ultrasonic test data and polar plots for the riser and safe-end welds plus weld 12-02-2-70.

Attachment 11 provides simplified isometric drawings of the James A. FitzPatrick recirculation system.

If you have any questions, please contact Mr. J. A. Gray, Jr.

Very truly yours,

W Dornsife Jr By direction for
CORBIN A. McNEILL, JR.

CAM:SMT:lar

Attachments

cc: J. P. Bayne - WPO (w/attachments)
R. Burns - WPO (w/o attachments)
J. Gray - WPO (w/attachments)
S. M. Toth - WPO (w/attachments)
D. Sancic - WPO (w/attachments)
T. Dougherty - WPO (w/o attachments)
P. C. Riccardella - SI (w/attachments)
R. Patch - JAF (w/attachments)
Document Control Center - JAF (w/attachments)
R. J. Converse - JAF (w/o attachments)

Dr. Thomas E. Murley, Regional Administrator
U.S. N.R.C. Region I
631 Park Avenue
King of Prussia, PA 19406

L. Doerflein, NRC Resident Inspector

Attachment 1
JAFP-84-0979
October 21, 1984

Weld Summary

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

WELD SUMMARY

JAMES A. FITZPATRICK - RESULTS OF IGSCC INSPECTIONS

Weld No.	Loop	Weld Location	Crack Type	Length	Thru Wall	Depth Var.	IHSI	Discovery Method	Previous Inspection	Corrective Action	Remarks
12-4	A	Pipe to sweep-o-let	C	1.0%	No	7.5%	Yes 9/84	UT-Pre & Post IHSI	6/83	IHSI & Analysis	
12-12	A	Pipe to safe end	C	100%	Yes 1	Avg.50% Max.100% Min.<5%	Yes 9/84	PT,Visual, UT,Post IHSI		Weld Overlay	See Note 1
12-17	A	Pipe to safe end	C	4.0% 3.0%	No	Max.10%	Yes 9/84	UT,Post IHSI	12/81	None	Indications 90% apart
12-23	A	Pipe to safe end	C	100% int.	No	Avg.40% Max.75% Min.<5%	Yes 9/84	UT,Post IHSI	6/83	Weld Overlay	See Note 1
12-64	B	Pipe to safe end	C	100% int.	Yes 2	Avg.30% Max.100% Min.<5%	Yes 9/84	PT,Visual, UT,Post IHSI		Weld Overlay	See Note 1
12-69	B	Pipe to safe end	C	100%	Yes 2	Not aplt	Yes 9/84	PT,Visual UT,post IHSI	12/81	Weld Overlay	See Note 1
12-70	B	Elbow to pipe	C	12.6%	No	45%	Yes 9/84	UT,Pre-IHSI	12/81	Weld Overlay	
28-48	A	Pipe to safe end	C	1.1%	No	15%	Yes 3/84	UT,Pre-IHSI		IHSI & Analysis	
28-53	A	Elbow to valve	C	.3%	No	5%	Yes 9/84	UT,Pre-IHSI	6/83	IHSI & Analysis	
28-112	B	Elbow to valve	C	.6%	No	17%	Yes 9/84	UT,Pre-IHSI	6/83	IHSI & Analysis	
28-113	B	Valve to pipe	C	.5%	No	10%	Yes 9/84	UT,Pre-IHSI	6/83	IHSI & Analysis	

Note 1 - No pre-IHSI UT examination performed.

Attachment 2
JAFP-84-0979
October 21, 1984

Fracture Mechanics Evaluation of Ultrasonic Indication in Recirculation System Weld Joint 28-113

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

The applied stresses (pressure + DW + thermal + seismic) were also used, in conjunction with ASME Section XI, Article IWB-3640, to determine allowable indication size. This result is illustrated in Figure 3. In accordance with the requirements of NRC Generic Letter 84-11, a maximum allowable crack size of 2/3 of the IWB-3640 limit is used to allow for uncertainty in crack depth sizing. Referring to Figure 3, it is seen that this limit is not predicted to be exceeded for greater than 36 months in the subject weld, even considering as/welded residual stress conditions. If IHSI residual stress benefits are accounted for, the flaw will remain at its present size, and thus satisfy the allowable flaw size limit by a large margin for the balance of plant life.

On the basis of the above evaluation, it is concluded that continued operation of this weld, considering the observed indication, will not lead to a reduction in plant safety margins, or a plant operational concern. The application of IHSI to the joint further reinforces this conclusion.

Very truly yours,

P. C. Riccardella

/dlh

Enclosures

Figure 1. Stress Intensity factor versus Crack Depth for J. A. Fitzpatrick Recirculation System - Weld 28-113

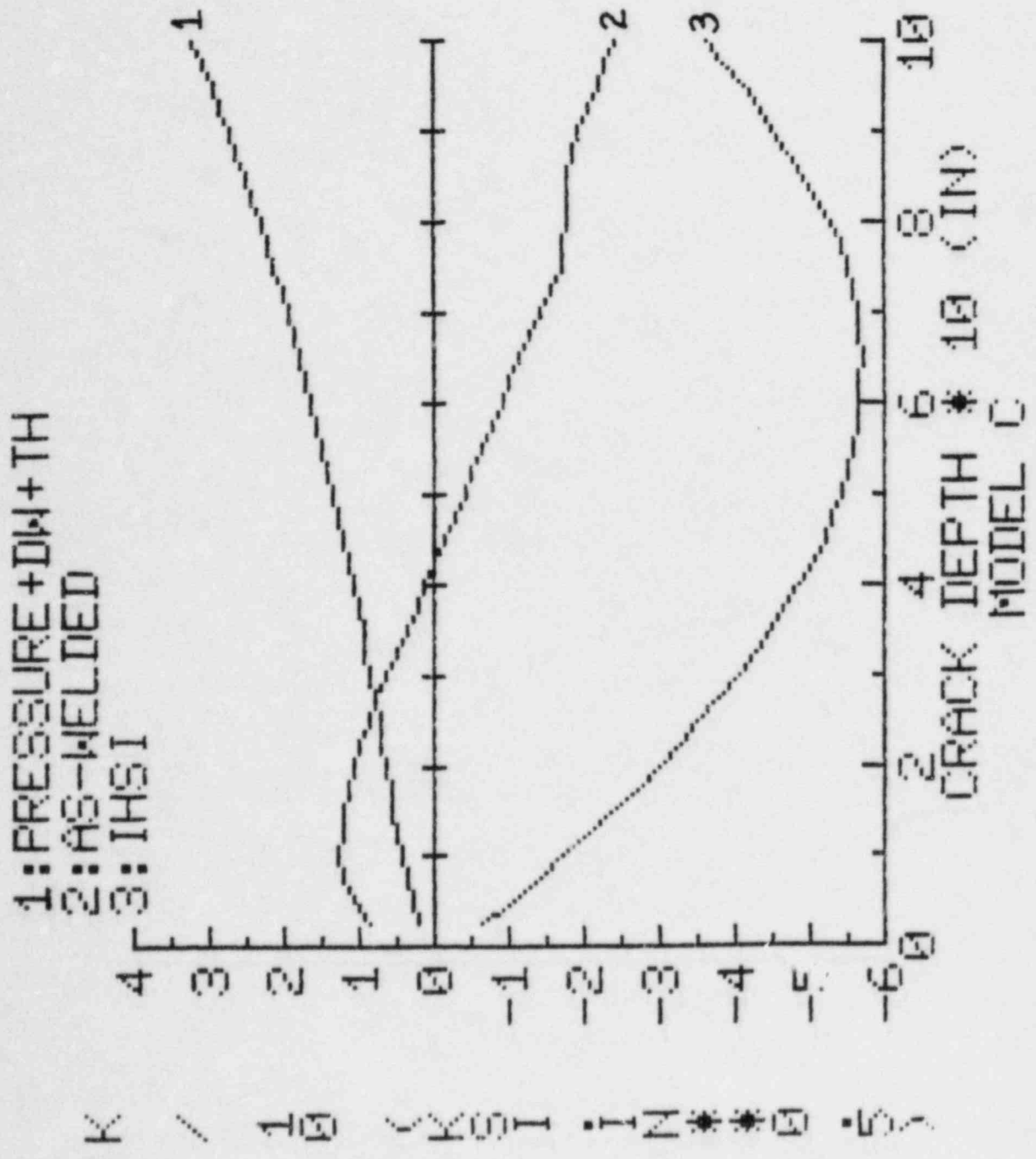


Figure 2. Predicted Stress Corrosion Crack Growth for Observed Ultrasonic Flaw Indication - Weld 28-113.

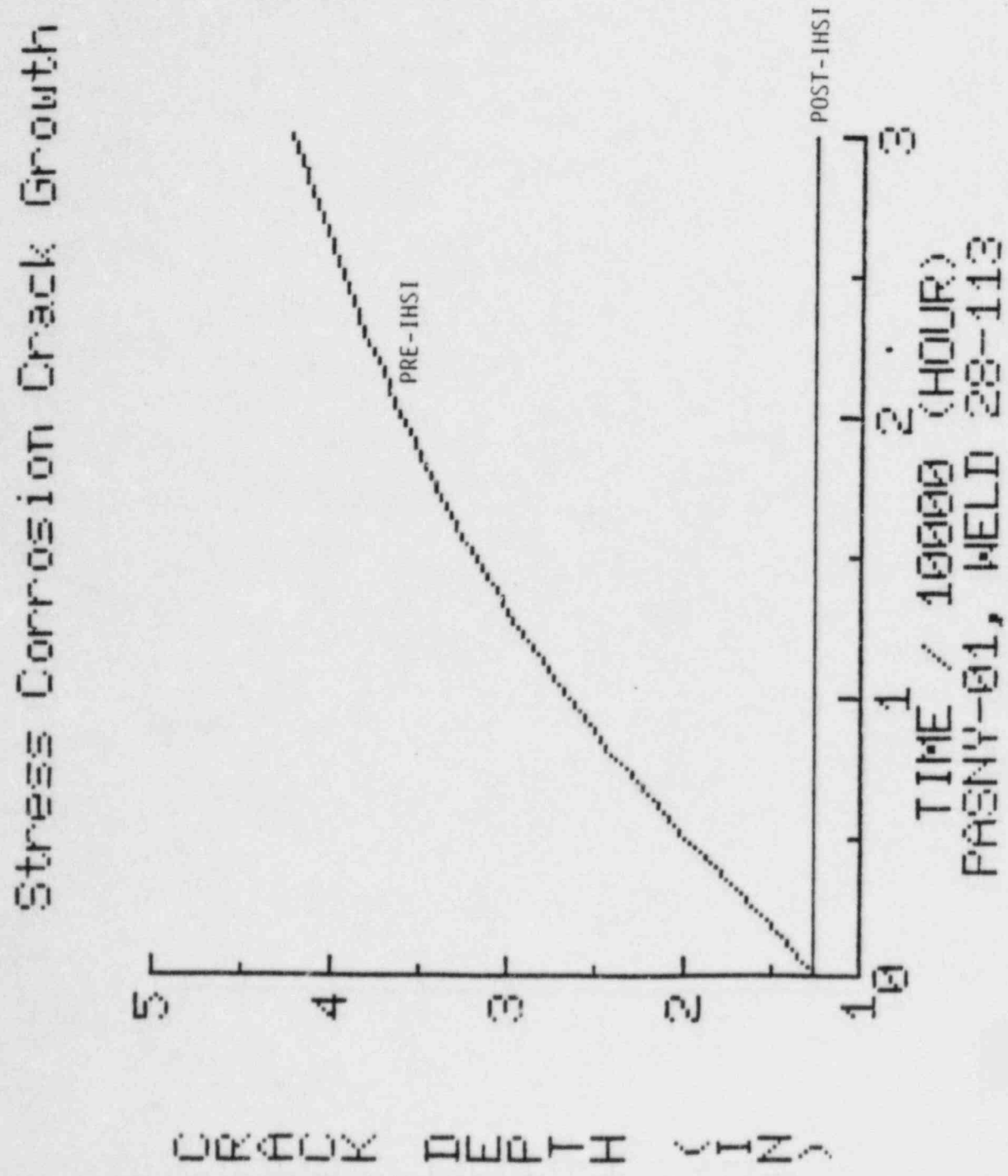
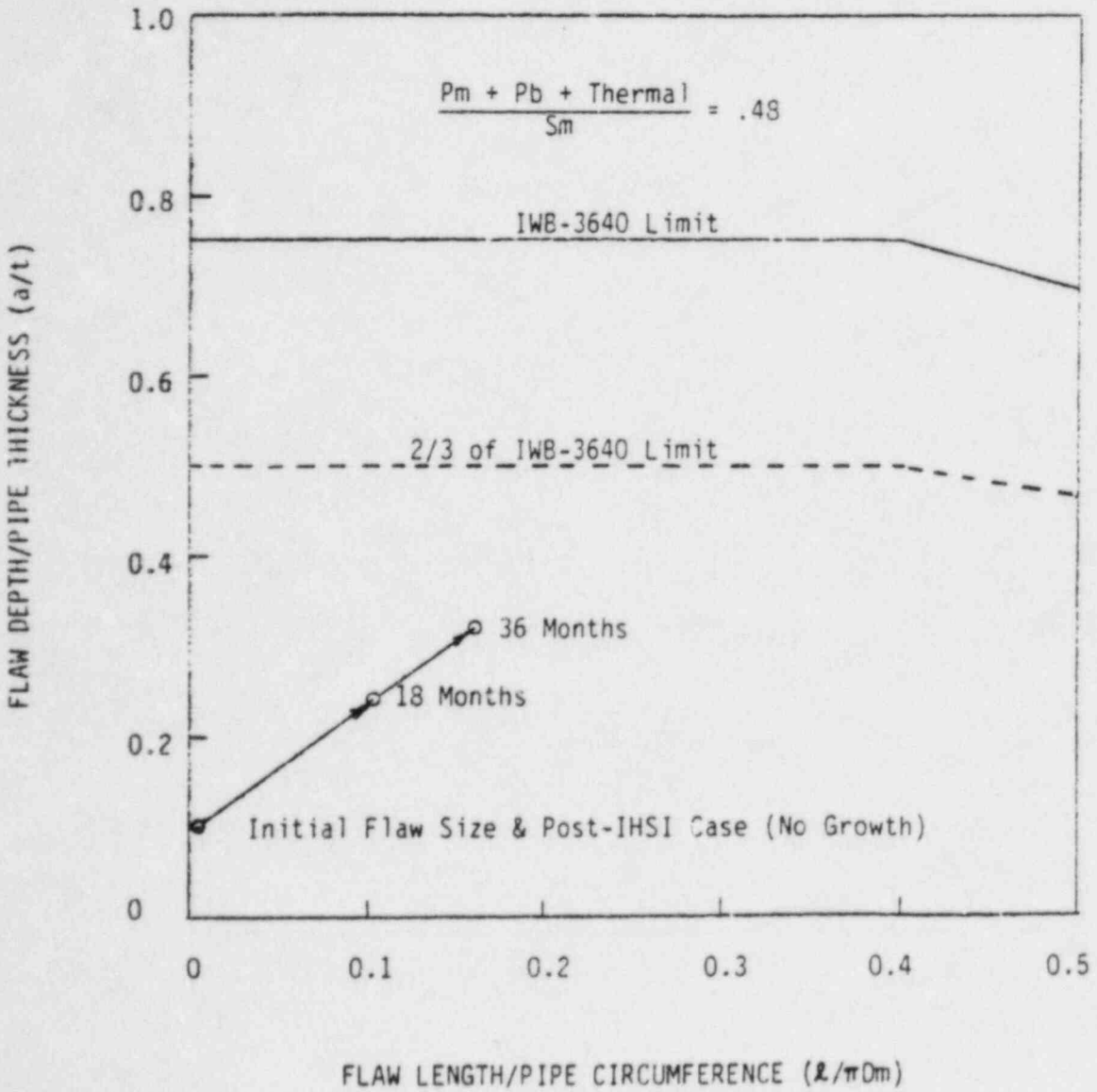


Figure 3. Comparison of Predicted Crack Growth with Allowable Flaw Size Limits - Weld 28-113



Attachment 3
JAFP-84-0979
October 21, 1984

Fracture Mechanics Evaluation of Ultrasonic Indication in Recirculation System Weld Joint 28-112

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

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DSR # 2163
OF PAGES 5

October 3, 1984
PCR-84-056A

Mr. David Sancic
New York State Power Authority
P. O. Box 41
Lycoming, NY 13093

Subject: Fracture Mechanics Evaluation of Ultrasonic Indication in Weld Joint 28-112 in J. A. Fitzpatrick Recirculation System

References:
1. GE Report 22A2622, Rev. 1, "Design Report, Recirculation System for James A. Fitzpatrick Nuclear Power Station, ANSIB31.1 Calculations," Dec. 6, 1976.
2. EPRI Report NP-2662-LD, "Computational Residual Stress Analysis for Induction Heating of Welded BWR Pipes," EPRI Project T113-8, Final Report, Dec. 1982.

Dear Dave:

This letter summarizes our evaluation of the subject U.T. indication per your request. Input to the evaluation was as follows:

Indication Length - 0.5 inch
Indication Depth - 0.221 inch

Pipe O.D. - 28.363 inch
Pipe I.D. - 25.867 inch
Pipe Wall Thickness - 1.248 inch

Applied Stresses (From Ref. 1, Node 175)
Pressure + DW + Thermal - 6899 PSI
Pressure + DW + Thermal + Seismic - 7935 PSI

Residual Stresses
Pre-IHSI Standard Distributions
Post-IHSI From Reference 2

Figure 1 provides applied stress intensity factor versus crack depth data for three load cases used in the evaluation. Assuming the indication to be IGSCC, these stress intensity curves were used to perform IGSCC crack growth estimates for both as-welded and post-IHSI residual stress conditions. The resulting crack growth prediction is illustrated in Figure 2 for the as-welded case. The post-IHSI case is also shown, and results in no predicted crack growth for the balance of plant life.

The applied stresses (pressure + DW + thermal + seismic) were also used, in conjunction with ASME Section XI, Article IWB-3640, to determine allowable indication size. This result is illustrated in Figure 3. In accordance with the requirements of NRC Generic Letter 84-11, a maximum allowable crack size of 2/3 of the IWB-3640 limit is used to allow for uncertainty in crack depth sizing. Referring to Figure 3, it is seen that this limit is not predicted to be exceeded for greater than 36 months in the subject weld, even considering as/welded residual stress conditions. If IHSI residual stress benefits are accounted for, the flaw will remain at its present size, and thus satisfy the allowable flaw size limit by a large margin for the balance of plant life.

On the basis of the above evaluation, it is concluded that continued operation of this weld, considering the observed indication, will not lead to a reduction in plant safety margins, or a plant operational concern. The application of IHSI to the joint further reinforces this conclusion.

Very truly yours,

P. C. Riccardella

/dlh

Enclosures

Figure 1. Stress Intensity Factor Versus Crack Depth for J. A. Fitzpatrick Recirculation System Weld 28-112

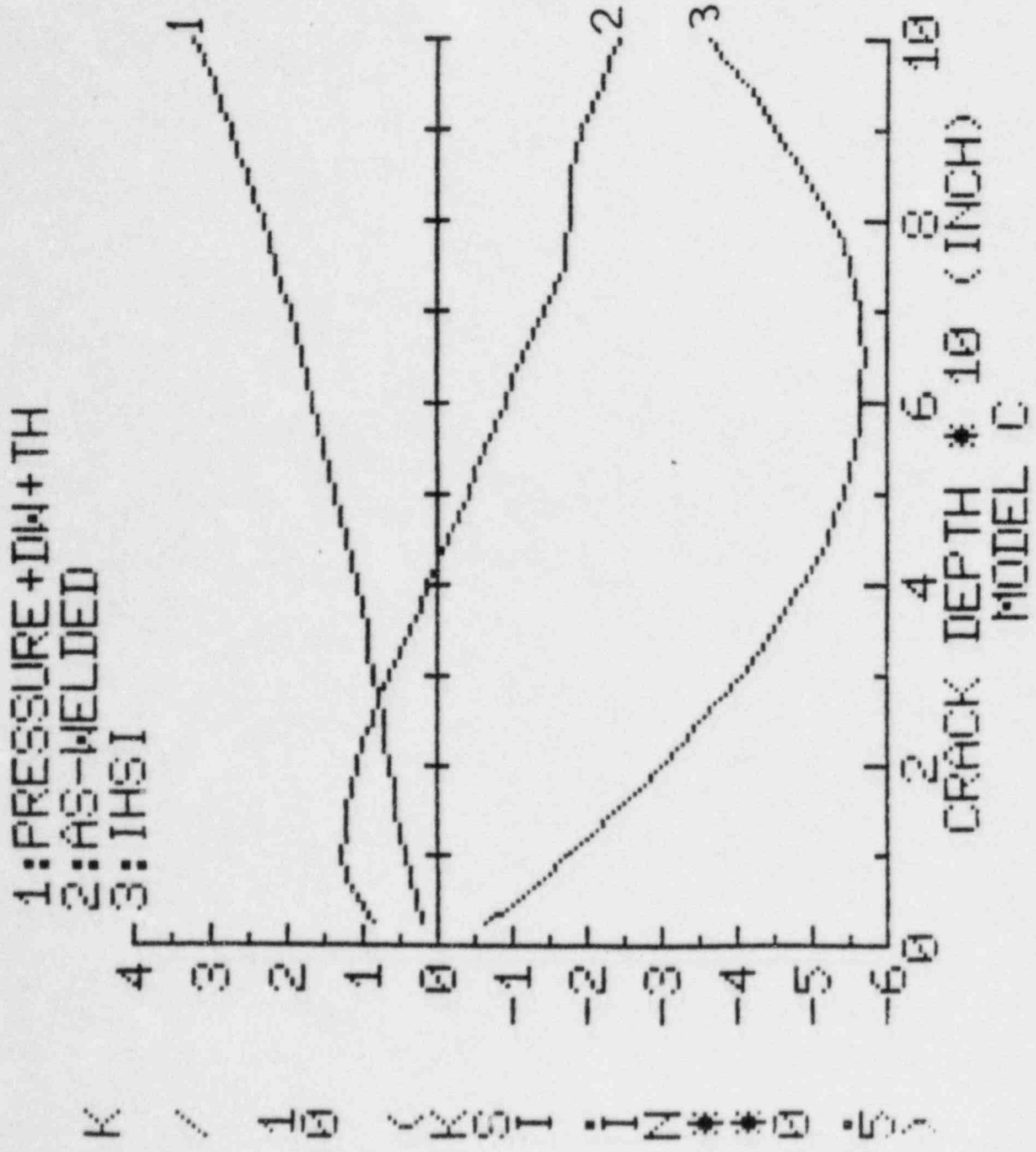


Figure 2. Predicted Stress Corrosion Crack Growth for Observed Ultrasonic Flaw Indication

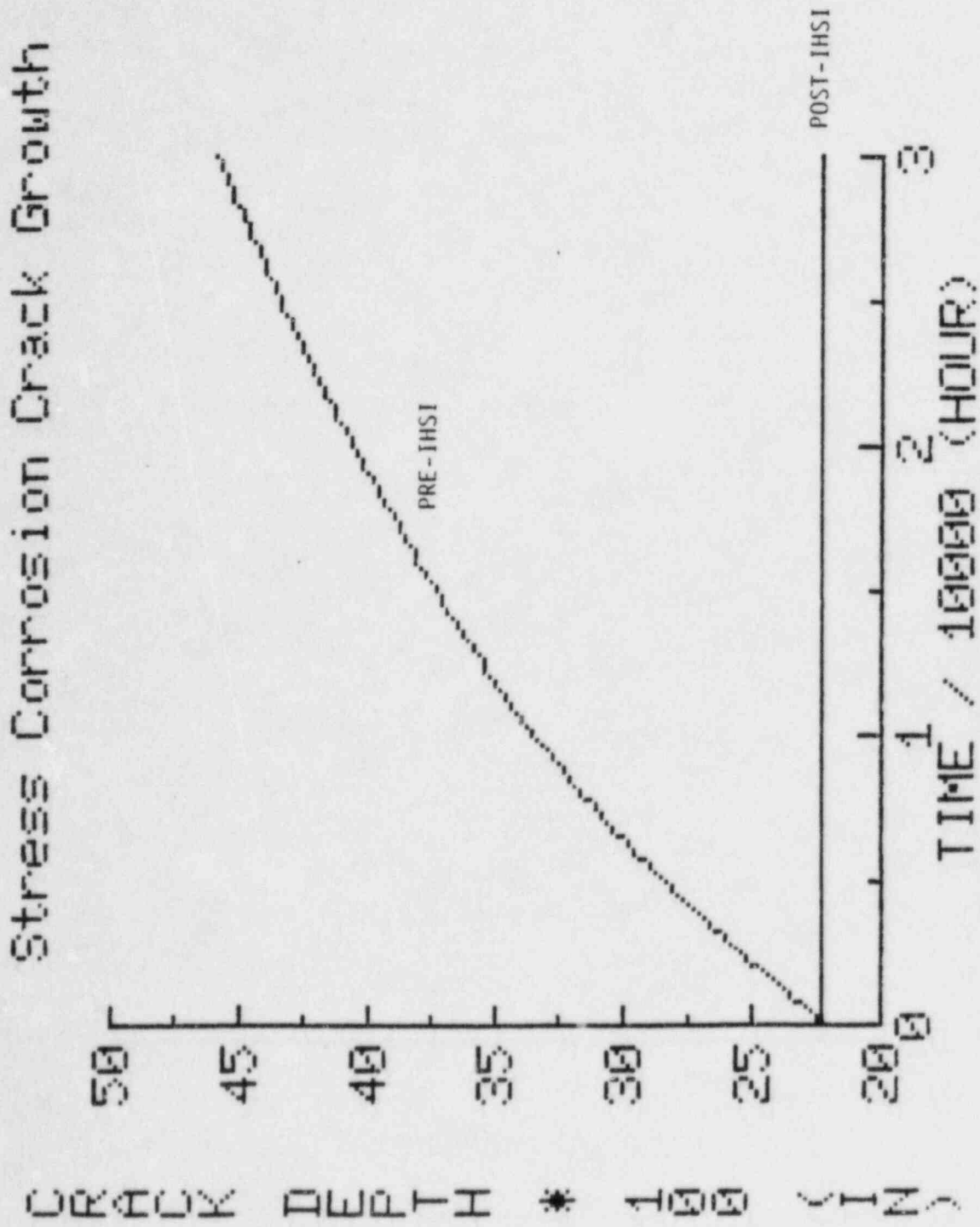
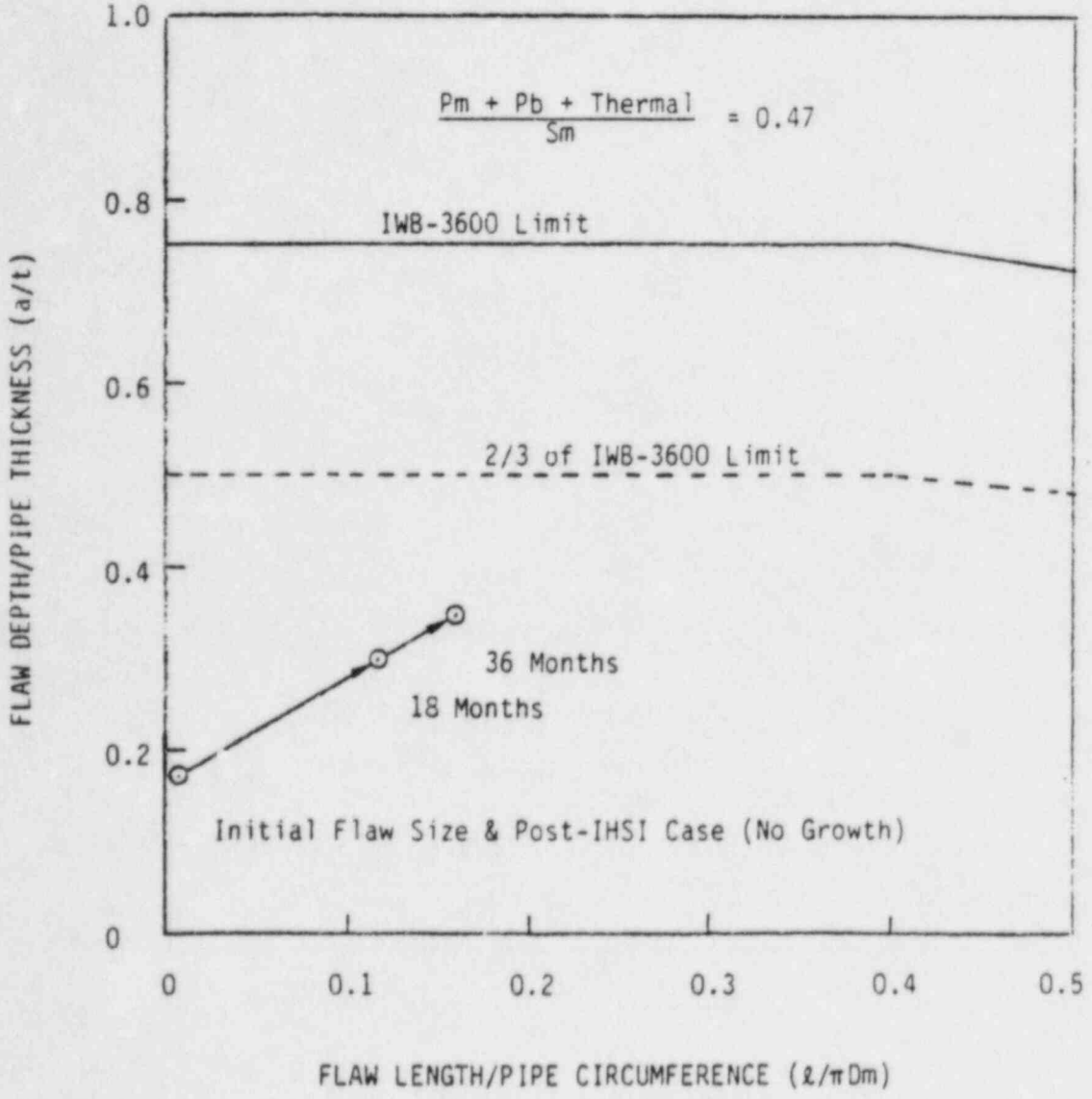


Figure 3. Comparison of Predicted Crack Growth With Allowable Flaw Size Limits - Weld 28-112



Attachment 4
JAFP-84-0979
October 21, 1984

Fracture Mechanics Evaluation of Ultrasonic Indication in Recirculation System Weld Joint 12-4

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

STRUCTURAL INTEGRITY ASSOCIATES
3150 ALMADEN EXPWY SUITE 226 • SAN JOSE, CA 95118 • (408) 978-8200

DSR # 2159
OF PAGES 5

October 3, 1984
PCR-84-055A

Mr. David Sancic
New York State Power Authority
P. O. Box 41
Lycoming, NY 13093

Subject: Fracture Mechanics Evaluation of Ultrasonic Indication in Weld Joint 12-4 in J. A. Fitzpatrick Recirculation System

References:
1. GE Report 22A2622, Rev. 1, "Design Report, Recirculation System for James A. Fitzpatrick Nuclear Power Station, ANSIB31.1 Calculations," Dec. 6, 1976.
2. EPRI Report NP-2662-LD, "Computational Residual Stress Analysis for Induction Heating of Welded BWR Pipes," EPRI Project T113-8, Final Report, Dec. 1982.

Dear Dave:

This letter summarizes our evaluation of the subject U.T. indication per your request. Input to the evaluation was as follows:

Indication Length - 0.4 inch
Indication Depth - 0.046 inch

Pipe O.D. - 12.662 inch
Pipe I.D. - 11.442 inch
Pipe Wall Thickness - 0.61 inch

Applied Stresses (From Ref. 1, Node 258)
Pressure + DW + Thermal - 14030 PSI
Pressure + DW + Thermal + Seismic - 17245 PSI

Residual Stresses
Pre-IHSI Standard Distributions
Post-IHSI From Reference 2

Figure 1 provides applied stress intensity factor versus crack depth data for three load cases used in the evaluation. Assuming the indication to be IGSCC, these stress intensity curves were used to perform IGSCC crack growth estimates for both as-welded and post-IHSI residual stress conditions. The resulting crack growth prediction is illustrated in Figure 2 for the as-welded case. The post-IHSI case is also shown, and results in no predicted crack growth for the balance of plant life.

The allowable end-of-cycle flaw size was determined in accordance with ASME Section XI, Article IWB-3640, and is illustrated in Figure 3 in terms of allowable flaw depth versus length. Note that although not required by IWB-3640, thermal expansion stresses have been included in the evaluation to account for possible effects of low toughness weldment material. In accordance with the requirements of NRC Generic letter 84-11, a maximum allowable flaw size of 2/3 of the IWB-3640 limit (shown as a dashed line in Figure 3) is used to allow for uncertainty in flaw depth sizing.

Referring to Figure 3, it is seen that the 2/3 of IWB-3640 limit is exceeded in approximately nine months in the as-welded case, but is satisfied by a large margin in the post-IHSI case, since no crack propagation is predicted. To add further assurance in the post-IHSI case, the IGSCC crack growth analysis has been repeated assuming various initial crack depths ranging upward from the observed crack depth. No crack propagation is predicted in the post-IHSI condition for initial crack depths up to .488 inches, or 80% of the pipe wall. It is also noteworthy that, given the relatively short length of the observed indication (5% of circumference), it would not lead to any reduction in piping system safety margins, even if the above crack growth or initial flaw size estimates are significantly in error. Leak before break is clearly the expected, hypothetical failure mode for this indication.

On the basis of the above evaluation, it is concluded that continued operation of the plant with this weld, considering the observed indication and the IHSI treatment which has been applied, will not lead to a reduction in plant safety margins, or a plant operational concern.

Very truly yours,

P. C. Riccardella

/dlh

Enclosures

Figure 1. Stress Intensity Factor versus Crack Depth for J. A. Fitzpatrick Recirculation System Weld 12-4.

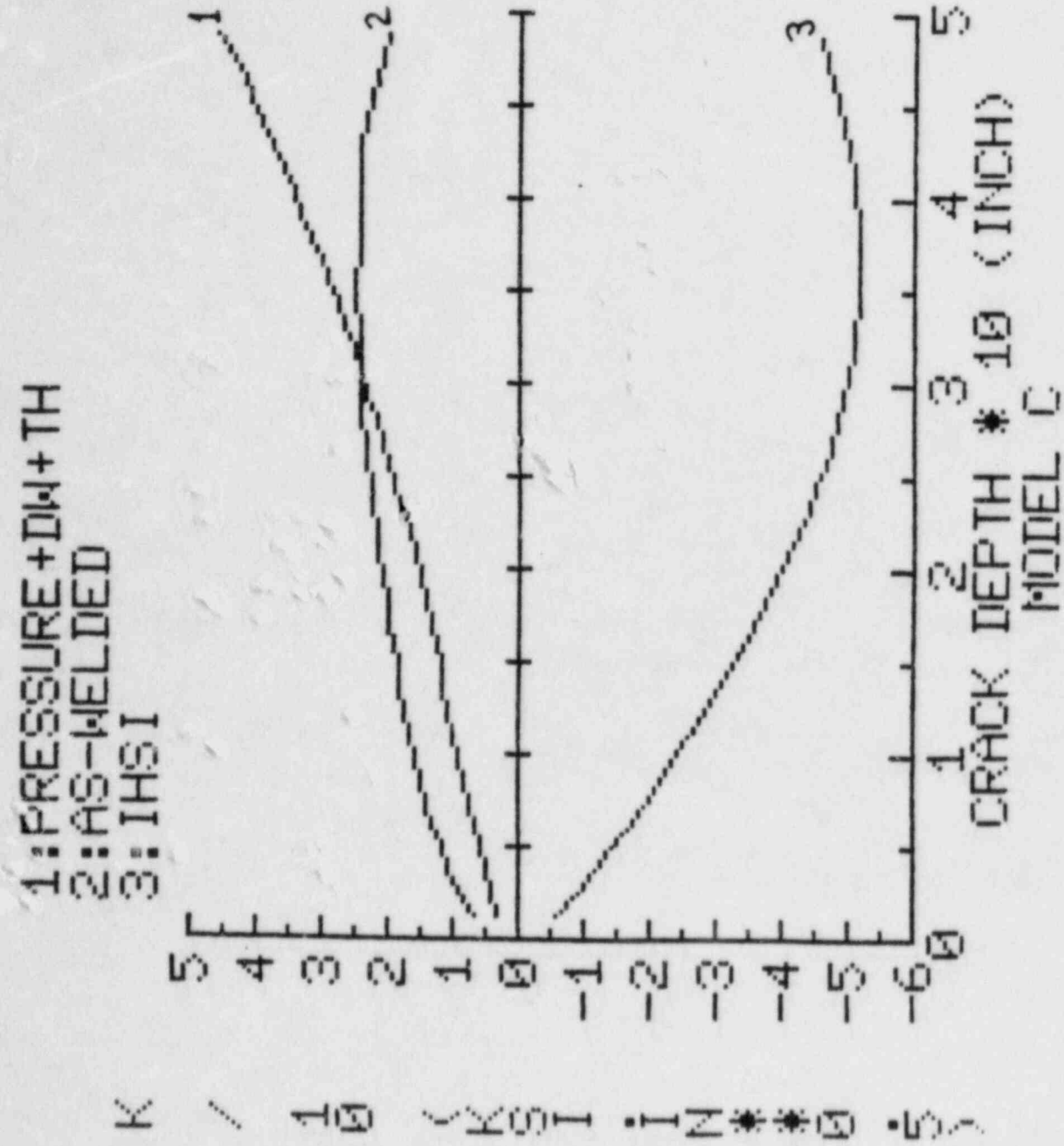


Figure 2. Predicted Stress Corrosion Crack Growth for Observed Ultrasonic Flaw Indication.

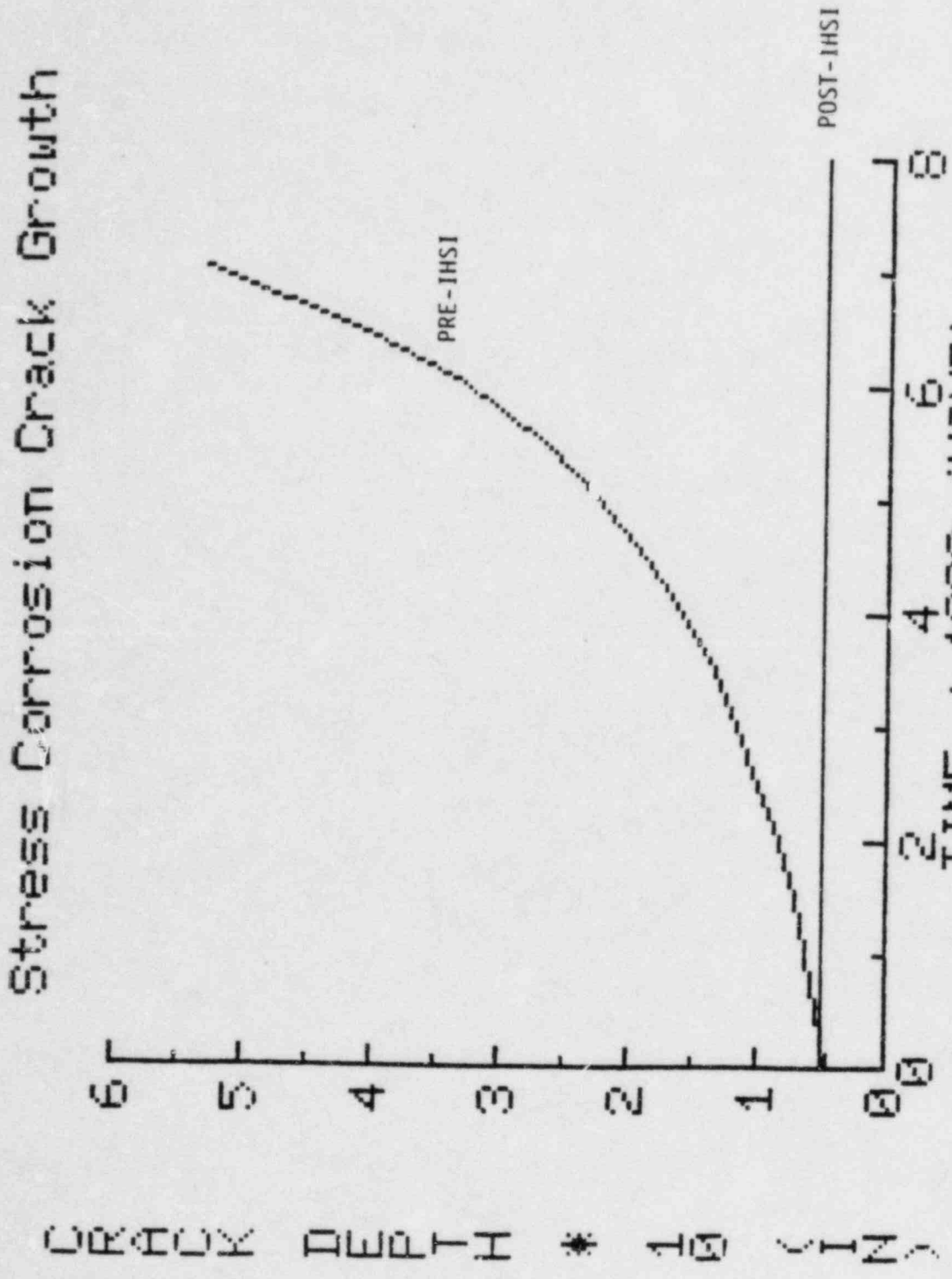
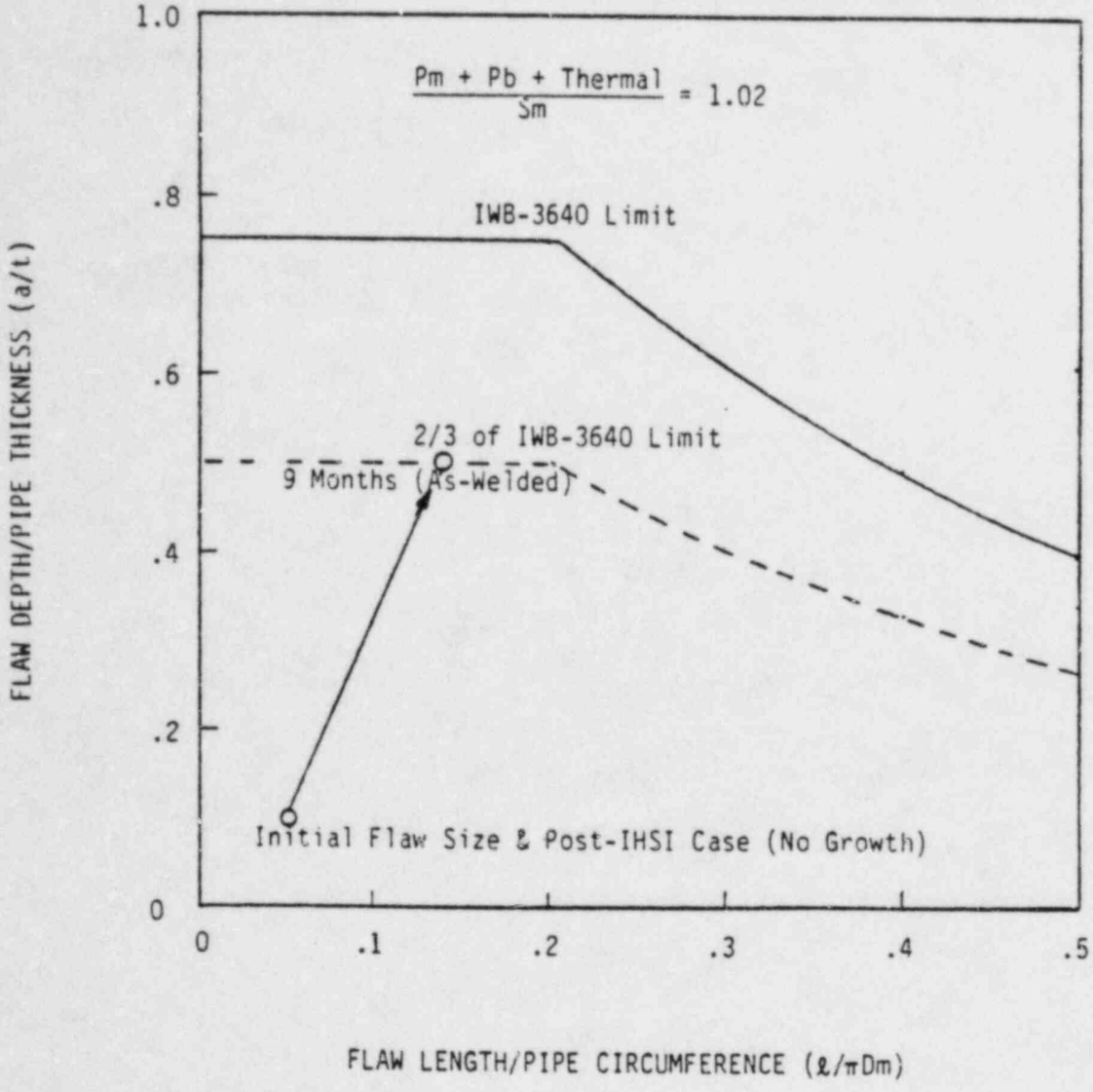


Figure 3. Comparison of Predicted Crack Growth with Allowable Flaw Size Limits - Weld 12-4.



Attachment 5
JAFP-84-0979
October 21, 1984

Fracture Mechanics Evaluation of Ultrasonic Indication in Recirculation System Weld Joint 28-53

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket 50-333

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October 10, 1984
PCR-84-057A

Mr. David Sancic
James A. Fitzpatrick
Nuclear Power Plant
Lake Road East
Town of Scriba
Oswego, NY 13093

Subject: Fracture Mechanics Evaluation of Ultrasonic Indication in Weld Joint 28-53 in J. A. Fitzpatrick Recirculation System

References:
1. GE Report 22A2622, Rev. 1, "Design Report, Recirculation System for James A. Fitzpatrick Nuclear Power Station, ANSIB31.1 Calculations," Dec. 6, 1976.
2. EPRI Report NP-2662-LD, "Computational Residual Stress Analysis for Induction Heacing of Welded BWR Pipes," EPRI Project T113-8, Final Report, Dec. 1982.

This letter summarizes our evaluation of the subject U.T. indication per your request. Input to the evaluation was as follows:

Indication Length - 0.28 inch
Indication Depth - 0.069 inch

Pipe O.D. - 28.363 inch
Pipe I.D. - 25.867 inch
Pipe Wall Thickness - 1.248 inch

Applied Stresses (From Ref. 1, Node 331)
Pressure + DW + Thermal - 6985 PSI
Pressure + DW + Thermal + Seismic - 8213 PSI

Residual Stresses
Pre-IHSI Standard Distributions
Post-IHSI From Reference 2

Figure 1 provides applied stress intensity factor versus crack depth data for three load cases used in the evaluation. Assuming the indication to be IGSCC, these stress intensity curves were used to perform IGSCC crack growth estimates for both as-welded and post-IHSI residual stress conditions. The resulting crack growth prediction is illustrated in Figure 2 for the as-welded case. The post-IHSI case is also shown, and results in no predicted crack growth for the balance of plant life.

The applied stresses (pressure + DW + thermal + seismic) were also used, in conjunction with ASME Section XI, Article IWB-3640, to determine allowable indication size. This result is illustrated in Figure 3. In accordance with the requirements of NRC Generic Letter 84-11, a maximum allowable crack size of 2/3 of the IWB-3640 limit is used to allow for uncertainty in crack depth sizing. Referring to Figure 3, it is seen that this limit is not predicted to be exceeded for greater than 36 months in the subject weld, even considering as-welded residual stress conditions. If IHSI residual stress benefits are accounted for, the flaw will remain at its present size, and thus satisfy the allowable flaw size limit by a large margin for the balance of plant life.

On the basis of the above evaluation, it is concluded that continued operation of this weld, considering the observed indication, will not lead to a reduction in plant safety margins, or a plant operational concern.

Figure 1. Stress Intensity Factor versus Crack Depth for J. A. Fitzpatrick Recirculation System-Weld 28-53.

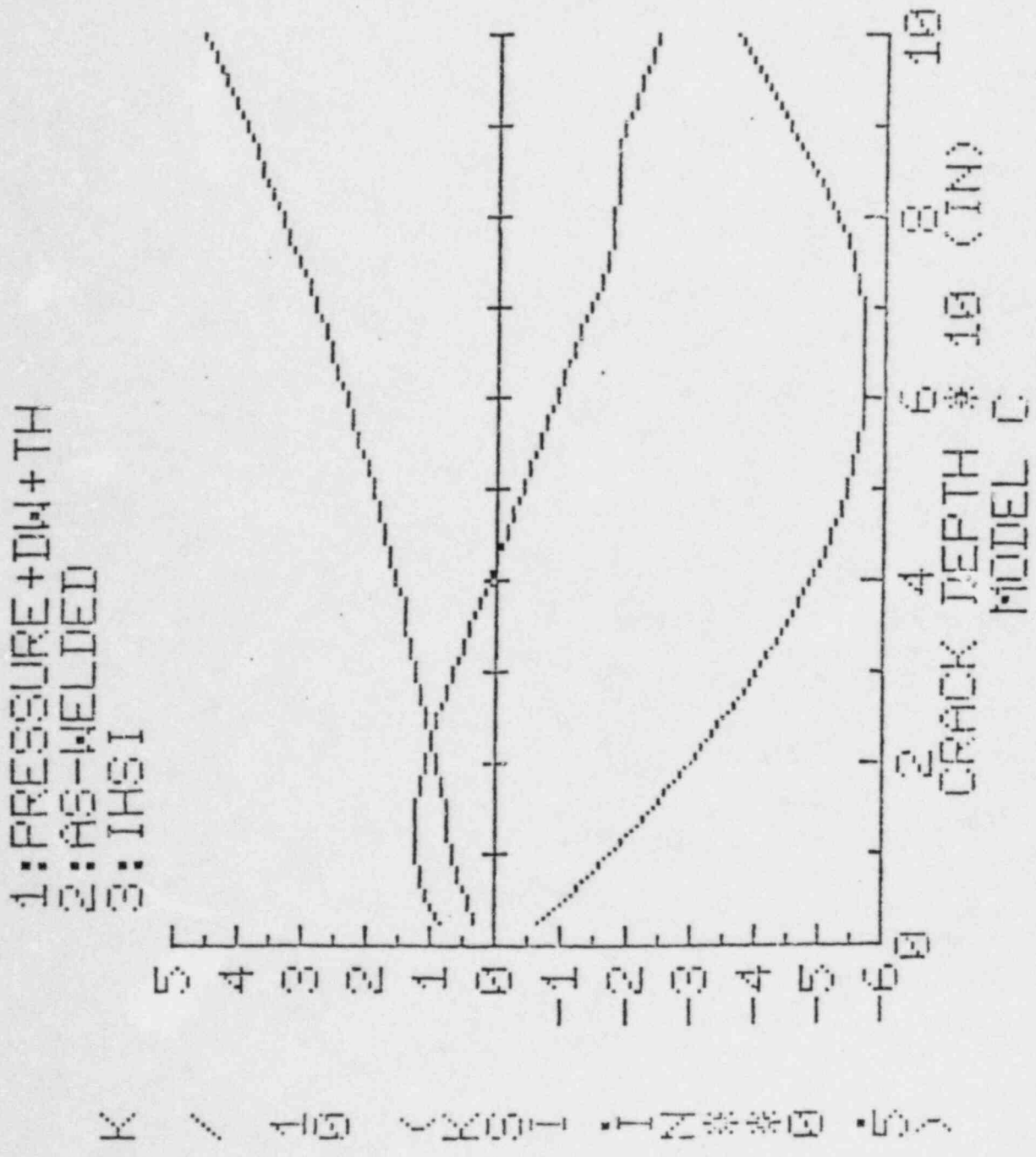


Figure 2. Predicted Stress Corrosion Crack Growth for Observed Ultrasonic Flaw Indication - Weld 28-53

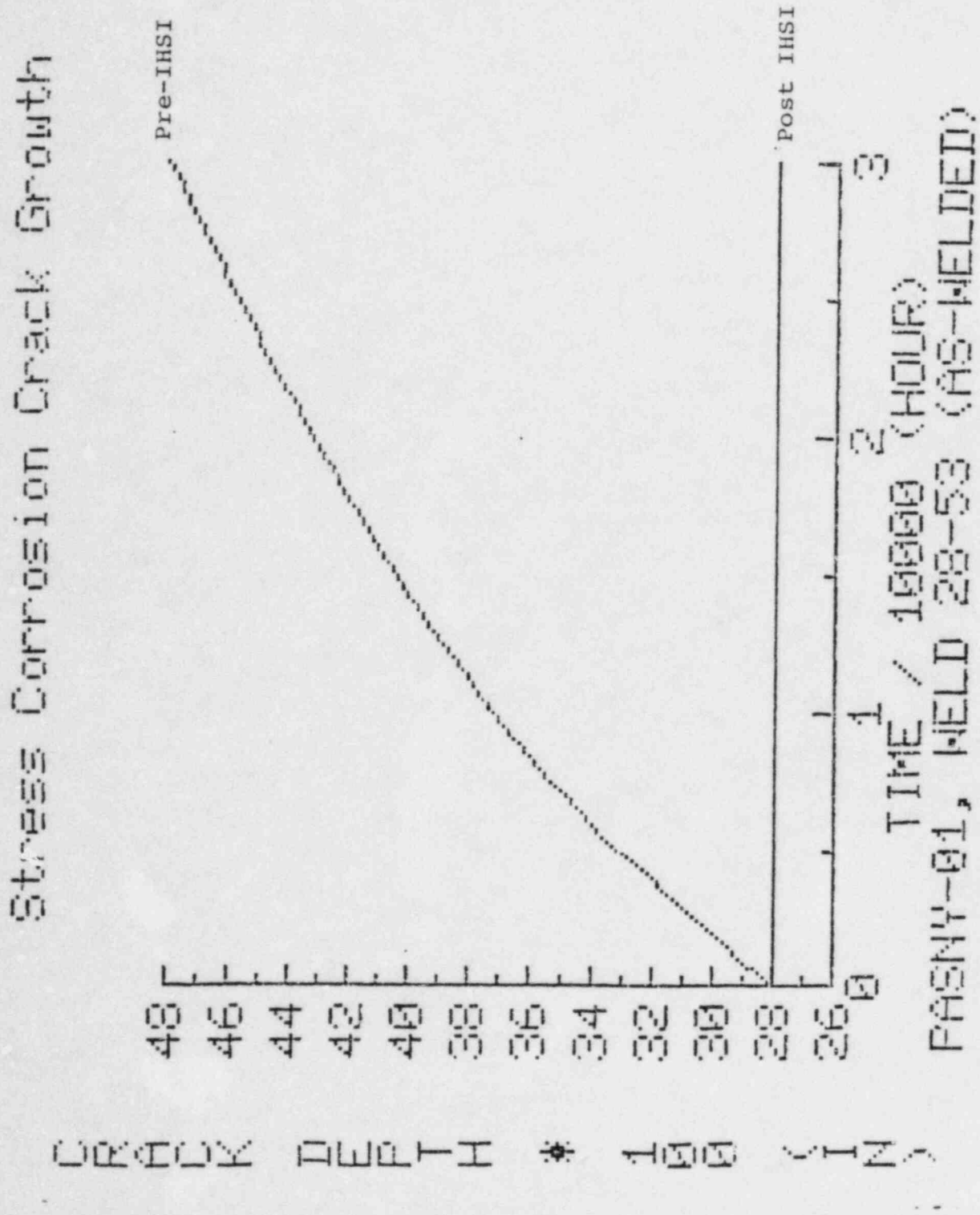
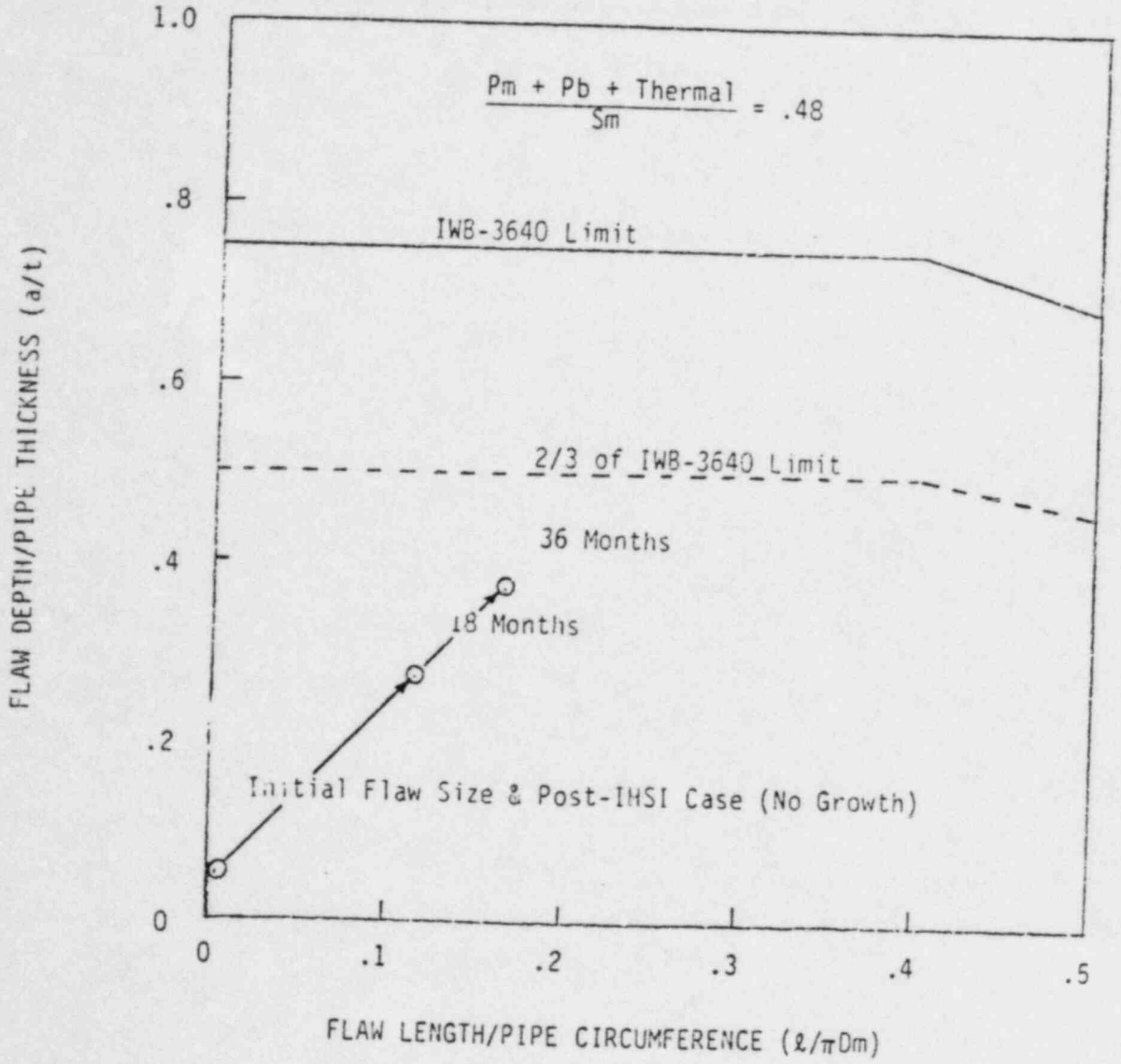


Figure 3. Comparison of Predicted Crack Growth with Allowable Flaw Size Limits - Weld 28-53.



Attachment 6
JAFP-84-0979
October 21, 1984

Fracture Mechanics Evaluation of Ultrasonic Indication in Recirculation System Weld Joint 12-17

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

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October 18, 1984
PCR-84-062

TELECOPY (315) 342-3840
Ext. 292, 3 min.

Mr. David Sancic
New York State Power Authority
P. O. Box 41
Lycoming, NY 13093

Subject: Fracture Mechanics Evaluation of Ultrasonic Indication in Weld Joint 12-17 in J. A. Fitzpatrick Recirculation System

References:
1. GE Report 22A2622, Rev. 1, "Design Report, Recirculation System for James A. Fitzpatrick Nuclear Power Station, ANSI831.1 Calculations," Dec. 6, 1976.
2. EPRI Report NP-2662-LD, "Computational Residual Stress Analysis for Induction Heating of Welded BWR Pipes," EPRI Project T113-8, Final Report, Dec. 1982.

Dear Dave:

This letter summarizes our evaluation of the subject U.T. indication per your request. Input to the evaluation was as follows:

Indication Length - 2.90 inch
Indication Depth - 0.061 inch

Pipe O.D. - 12.662 inch
Pipe I.D. - 11.442 inch
Pipe Wall Thickness - 0.61 inch

Applied Stresses (From Ref. 1, Node 178)
Pressure + DW + Thermal - 17988 PSI

Residual Stresses
Pre-IHSI — Standard Distributions
Post-IHSI — From Reference 2

Figure 1 provides applied stress intensity factor versus crack depth data for three load cases used in the evaluation. Assuming the indication to be IGSCC, these stress intensity curves were used to perform IGSCC crack growth estimates for both as-welded and post-IHSI residual stress conditions. The resulting crack growth prediction is illustrated in Figure 2 for the as-welded case. The post-IHSI case is also shown, and results in no predicted crack growth for the balance of plant life.

The allowable end-of-cycle flaw size was determined in accordance with ASME Section XI, Article IWB-3640, and is illustrated in Figure 3 in terms of allowable flaw depth versus length. Note that although not required by IWB-3640, thermal expansion stresses have been included in the evaluation to account for possible effects of low toughness weldment material. In accordance with the requirements of NRC Generic letter 84-11, a maximum allowable flaw size of 2/3 of the IWB-3640 limit (shown as a dashed line in Figure 3) is used to allow for uncertainty in flaw depth sizing.

Referring to Figure 3, it is seen that the 2/3 of IWB-3640 limit is exceeded fairly shortly in the as-welded case, but is satisfied indefinitely in the post-IHSI case, since no crack propagation is predicted. To add further assurance in the post-IHSI case, the I6SCC crack growth analysis has been repeated assuming various initial flaw sizes ranging from the observed UT depth. No crack propagation is predicted in the post-IHSI condition for initial crack depths up to 0.439 inches, or 72% of the pipe wall. It is also noteworthy that, given the relatively short length of the observed indication (8% of circumference), it would not lead to rupture of the pipe joint even if the above crack growth or initial flaw size estimates are significantly in error. Leak before break is clearly the expected, hypothetical failure mode for this indication.

On the basis of the above evaluation, it is concluded that continued operation of the plant with this weld, considering the observed indication and the IHSI treatment which has been applied, will not lead to a reduction in plant safety margins, or a plant operational concern.

Very truly yours,

On-Yu Kuo for PCR

P. C. Riccardella

/dlh

Enclosures

Figure 1. Stress Intensity Factor Versus Crack Depth for J. A. Fitzpatrick Recirculation System Weld 12-17.

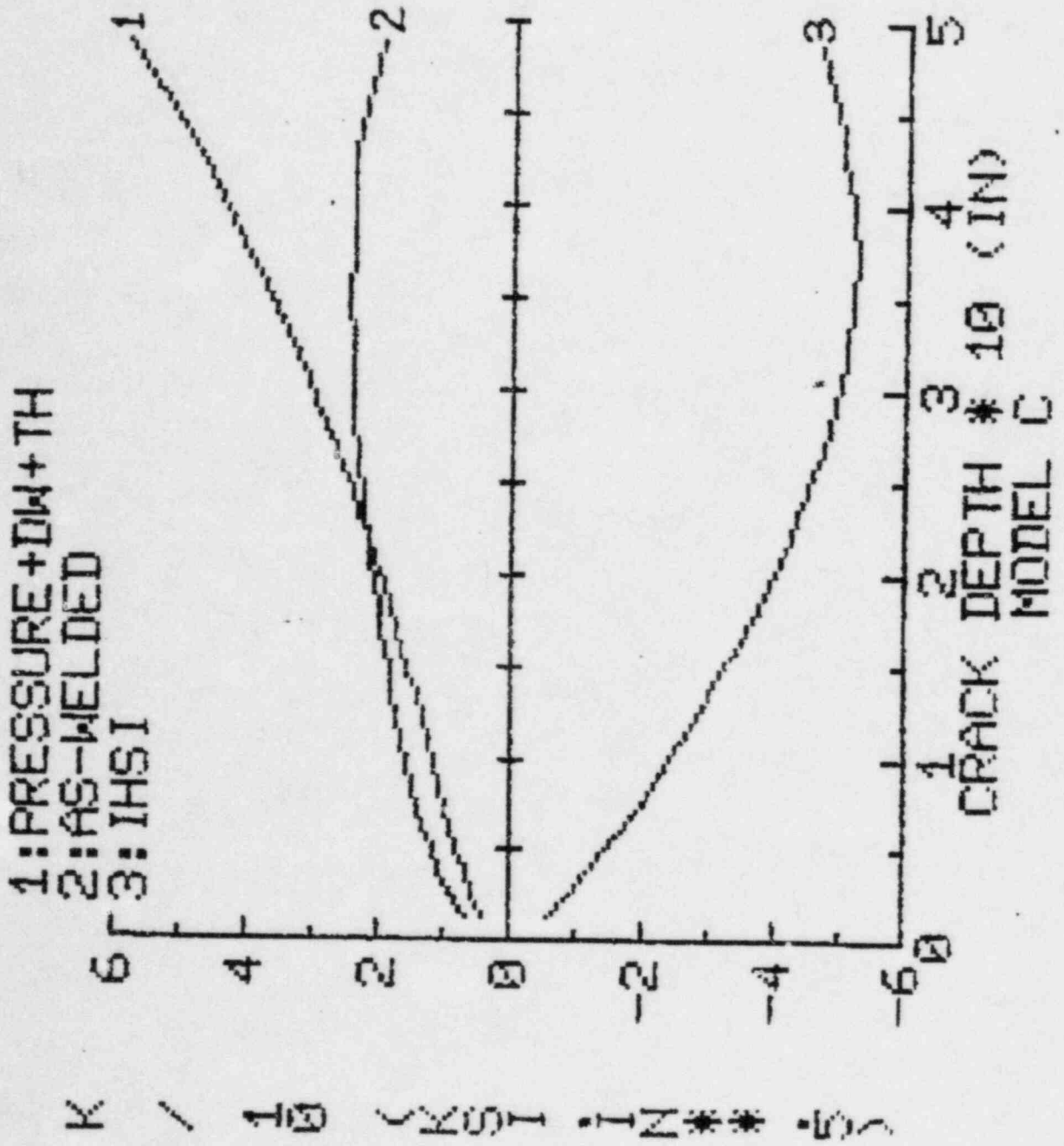


Figure 2. Predicted Stress Corrosion Crack Growth for Observed Ultrasonic Flaw Evaluation

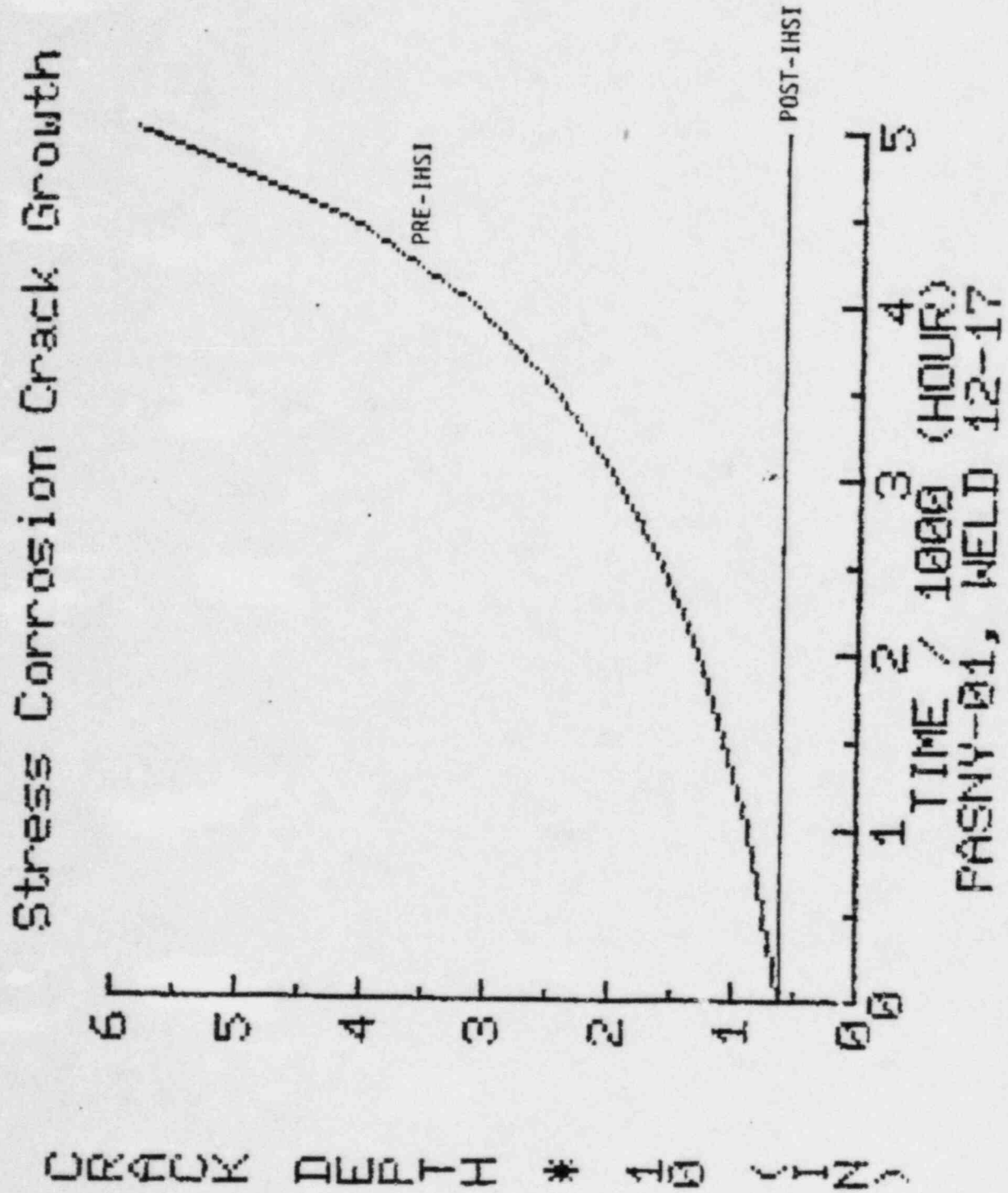
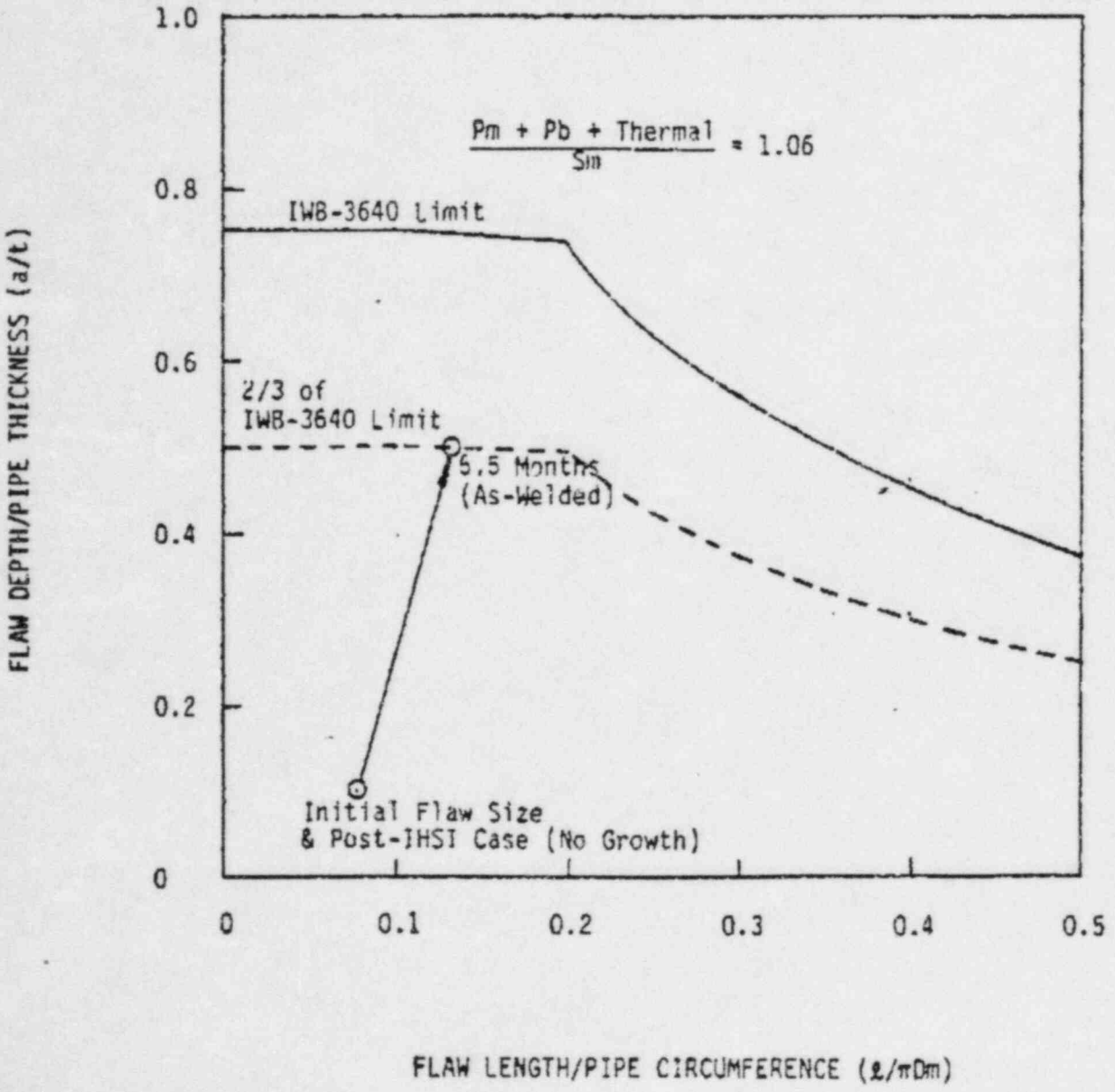


Figure 3. Comparison of Predicted Crack Growth With Allowable Flaw Size Limits - Weld 12-17.



Attachment 7
JAFP-84-0979
October 21, 1984

Summary of Recirculation System Weld Ultrasonic Inspections (UT)

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

Pipe Diameter	Total Welds	UT Inspections Completed*
12"	40	40
22"	16	16
28"	41	39**

*All UT utilized procedures and personnel certified in accordance with the requirements of IEB 83-02 and Generic Letter 84-11.

**Two 28" welds were not subjected to UT because of their location under pipe whip restraints.

Attachment 8
JAFP-84-0979
October 21, 1984

Weld Overlay Reports

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

STRUCTURAL INTEGRITY ASSOCIATES
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October 12, 1984
PCR-84-060

Mr. David Sancic
New York State Power Authority
P. O. Box 41
Lycoming, NY 13093

Subject: Weld Overlay Design for J. A. Fitzpatrick Recirculation Weld 12-70

Dear Dave:

Attached per your request today are detailed design calculations for the weld overlay for the subject weld. This design is a full structural overlay, which assumes that the observed crack is completely through the original pipe wall, over the entire observed length. (Actually, the recommended overlay thickness is adequate for through wall crack lengths up to 40% of the circumference. Lengths beyond this would require a somewhat thicker overlay).

Other recommendations regarding this overlay design are as follows:

- As-deposited weld overlay ferrite levels should be measured after each layer, and should be a minimum of 10 FN. The weld overlay material should also be specified to a maximum carbon level of 0.02%. This will ensure no propagation of the observed IGSCC into the weld overlay.

- The minimum overlay thickness should be measured after the first PT clear layer. This allows for the possibility of some propagation of the observed IGSCC into the ferrite diluted first layer.

- The welding should be performed using a controlled heat input process (≤40 KJ/in) with water in the pipe to minimize any further sensitization of the underlying piping material, and to ensure a favorable residual stress pattern.

- The as-installed design should be subjected to a thorough preservice baseline examination, including ultrasonic examination of the weld overlay material and its bond to the pipe, and best possible examination of the underlying weldment to define the existing indication.

The proposed design, implemented as outlined above, will produce a sound, long-term repair of the observed indication which ensures that current design basis safety margins are maintained in the joint.

Very truly yours,

Peter C. Riccardella

/sl

PASNY-01

Weld Overlay Design for Weld Joint 12-70

I. Weld #: 12-70 (pipe to elbow)
Node #: 65

II. Flaw Configuration

$\ell = 4.75"$

$a/t = 45\%$, $t = .69"$ } $a = .3105"$

Circumferential Crack

III. $OD = 12.662"$ $\quad R_m = \frac{12.662 - .69}{2} = 5.986"$

$t = 0.69"$ $\quad 2\pi R_m = 37.61"$

IV Applied Stress (Ref. 1)

$I = 1.0$ axial stress

$S_m = 16.95$ ksi

	σ_a	σ_a/S_m
Pre. + DW	5.924	.35
Pre + DW + Seis	7.347	.43
Exp.	4.198	.25
Pre + DW + Exp.	9.632	.57
Pre + DW + Seis + Exp.	10.843	.64

hoop stress

design pressure = 1.274 ksi

$\sigma_h = \frac{PR}{t} = \frac{1.274 \times (12.662 - .69)/2}{.69} = 11.05$ ksi

$\sigma_h / S_m = .65$

Prepared by: [illegible] 10-12-84
Checked by: [illegible] 10/12/84
File No. PASNY-01-200
Page 1 of 5

V. Weld Overlay Sizing

- circumferential crack

  $a/t = .45$

  $\ell/2\pi R_m = .13$

  $\Rightarrow$ overlay thickness = 0.23"

- axial crack

  $a/t = 0.1$
  $\ell = 1"$
  $\ell/\sqrt{Rt} = .5$
  } hypothetical crack

  $\Rightarrow$ overlay thickness = 0.23"

- $\sqrt{Rt} = 2.03"$

  $1.5\sqrt{Rt} = 3.05"$ ← min. WOL length

Prepared by: [illegible] 10-12-84
Checked by: [illegible] 10/12/84
File No. PASNY-01-200
Page 2 of 5

Weld 12-70

0417757

TABLE D1 (CONTINUED)

GENERAL ELECTRIC COMPANY — SPEC NO, 22A2522 — REV, NO, 1
BOILING WATER REACTOR SYSTEMS DEPARTMENT — PAGE NO, 92

FITZPATRICK RECIRC DISCHARGE LINE A RISERS AND HEADER

JOINT NO,	TYPE	OD	ID	T	INERTIA	Z
65	B,WELD AM/AM	12,882	11,442	0,810	820,5	66,423

I=1,000

		MA	MB	MC
EXPANSION	MOMENTS=	22044,	-12091S,	120147,
DEADLOAD	MOMENTS=	-1548#,	2573,	-5901,
PRIMARY SEISMIC	MOMENTS=	15531,	53152,	85309,
SECONDARY SEISMIC	MOMENTS=	0,	0,	0,

		STRESS	RATIO
A, PRIMARY STRESS INTENSITIES			
DEADLOAD + PRESSURE	=	5924,	0,373
DEADLOAD + PRESSURE + SEISMIC	=	7347,	0,385
B, SECONDARY STRESS RANGE			
EXPANSION	=	4198,	0,153
EXPANSION + SECONDARY SEISMIC	=	4198,	0,153
C, PRIMARY PLUS SECONDARY STRESS RANGE			
DEADLOAD + PRESSURE + EXPANSION	=	9632,	0,185
DEADLOAD + PRESSURE + SEISMIC + THERMAL + EXPANSION	=	10843,	0,208
D, RARE EVENTS-PRIMARY STESS LIMIT			
ALLOWABLE STRESS = 19080,			
ELESTIC EVELUATED PRIMARY STRESSES AS SHOWN BELOW		STRESS	RATIO
EMERGENCY CONDITIONS 10E-1>PHO>10E-4			
DEADLOAD + PRESSURE + DOUBLE PRIMARY SEISMIC		8505,	0,297
DEADLOAD + MAX, PRESSURE + PRIMARY SEISMIC		8505,	0,297
FAULTED CONDITIONS 10E-3>PHO>10E-6			
DEADLOAD+MAX,PRESSURE+DOUBLE PRIMARY SEISMIC		10029,	0,263

Prepared by: [signature] 10-12-84
Checked by: [signature] 10/12/84
File No. PASNY-01-200
Page 3 of 5

Prepared by: [signature] 10-12-84
Checked by: [signature] 10/12/84
File No. PASNY-01-200
Page 4 of 5

STRUCTURAL INTEGRITY ASSOCIATES
WELD OVERLAY SIZING

OVERLAY SIZING FOR CIRCUMFERENTIAL CRACK:-

PASNY-01. WELD 12-70, WELD OVERLAY DESIGN

WALL THICKNESS=0.6900
LOAD FACTOR= 1.00
STRESS RATIO=0.640

	L/CIRCUMFERENCE					
	0.0	0.1	0.2	0.3	0.4	0.5-->1.0
FINAL A/T	0.7500	0.7500	0.7500	0.7500	0.7500	0.7041
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2300	0.2300	0.2900

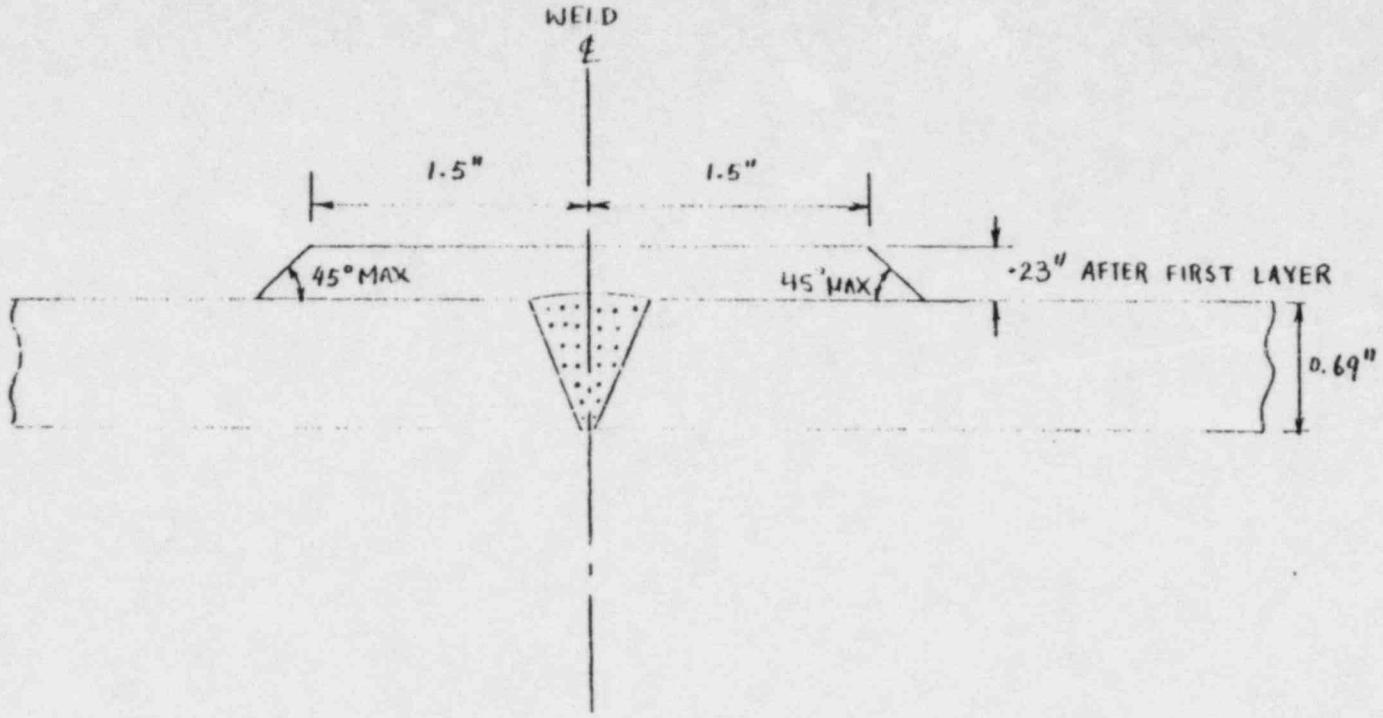
CRITICAL FLAW SIZE FOR AXIAL CRACK:

PASNY-01. WELD OVERLAY DESIGN

WALL THICKNESS=0.6900
LOAD FACTOR= 1.00
STRESS RATIO=0.650

	L/SQRT(RT)						
	0.0	0.5	1.0	2.0	3.0	4.0	5.0
FINAL A/T	0.7500	0.7500	0.7500	0.7275	0.6938	0.6685	0.6558
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2584	0.3045	0.3422	0.3622

	6.0	7.0	8.0	9.0	10.0	11.0	>12.0
FINAL A/T	0.6494	0.6431	0.6367	0.6309	0.6207	0.6207	0.1000
OVERLAY THICKNESS	0.3725	0.3830	0.3937	0.4037	0.4216	0.4216	6.2100



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October 16, 1984
PCR-84-061

Mr. David Sancic
New York State Power Authority
P.O. Box 41
Lycoming, N.Y. 13093

Subject: Weld Overlay Designs for J.A. FitzPatrick Recirculation Welds 12-12, 12-23, 12-64, and 12-69

Dear Dave:

Attached per your request today are detailed design calculations for the weld overlays for the subject welds. The designs are full structural overlays, which assume that the observed cracks are completely through the original pipe wall, over the entire observed length.

Other recommendations regarding the overlay designs are as follows:

As-deposited weld overlay ferrite levels should be measured after each layer, and should be a minimum of 10 FN. The weld overlay material should also be specified to a maximum carbon level of 0.02%. This will ensure no propagation of the observed IGSCC into the weld overlay.

The minimum overlay thickness should be measured after the first PT clear layer. This allows for the possibility of some propagation of the observed IGSCC into the ferrite diluted first layer.

The welding should be performed using a controlled heat input process (<40 KJ/in) with water in the pipe to minimize any further sensitization of the underlying piping material, and to ensure a favorable residual stress pattern.

The as-installed designs should be subjected to a thorough preservice baseline examination, including ultrasonic examination of the weld overlay material and its bond to the pipe, and best possible examination of the underlying weldment to define the existing indications.

The proposed designs, implemented as outlined above, will produce sound, long term repairs, of the observed indications, which ensure that current design basis safety margins are maintained in the joints.

Very truly yours,

Peter C. Riccardella

/rp

STRUCTURAL INTEGRITY ASSOCIATES
WELD OVERLAY SIZING

OVERLAY SIZING FOR CIRCUMFERENTIAL CRACK:-

TITLE:PASNY-01, WELDS 12-12 AND 12-64 WELD OVERLAY DESIGN

WALL THICKNESS= 0.6900
STRESS RATIO= 1.130
LOAD FACTOR= 1.000

	L/CIRCUM					
	.0	.1	.2	.3	.4	.5->1.0
FINAL A/T	0.7500	0.7500	0.7500	0.7422	0.6919	0.5938
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2397	0.3073	0.4721

CRITICAL FLAW SIZE FOR AXIAL CRACK:

TITLE:PASNY-01, WELDS 12-12 AND 12-64 WELD OVERLAY DESIGN

WALL THICKNESS= 0.6900
STRESS RATIO= 0.650
LOAD FACTOR= 1.000

	L/SQRT(RT)						
	.0	.5	1.0	2.0	3.0	4.0	5.0
FINAL A/T	0.7500	0.7500	0.7500	0.7275	0.6938	0.6685	0.6558
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2584	0.3045	0.3422	0.3622
	6.0	7.0	8.0	9.0	10.0	11.0	>12.0
FINAL A/T	0.6494	0.6431	0.6367	0.6309	0.6207	0.6207	0.1000
OVERLAY THICKNESS	0.3725	0.3830	0.3937	0.4037	0.4216	0.4216	6.2100

Prepared by: [signature] 10-12-84
Checked by: [signature] 10/16/84
File No. PASNY-01-200
Page 1 of 8

Weld 12-12

0417757 TABLE D1 (CONTINUED)

GENERAL ELECTRIC COMPANY SPEC NO, 22A2822 REV, NO, 1
BOILING WATER REACTOR SYSTEMS DEPARTMENT PAGE NO, 159

FITZPATRICK RECIRC DISCHARGE LINE B RISERS AND HEADER

JOINT NO,	TYPE	OD	ID	T	INERTIA	Z
19A	NOZZLE(RPV)	12,662	11,442	0,610	420,5	66,423

I=1,000

		MA,	MB	MC
EXPANSION	MOMENTS=	-300834,	268376,	398047,
DEADLOAD	MOMENTS=	-17042,	-106225,	-18871,
PRIMARY SEISMIC	MOMENTS=	25530,	86039,	409530,
SECONDARY SEISMIC	MOMENTS=	0,	0,	0,

		STRESS	RATIO
A, PRIMARY STRESS INTENSITIES			
DEADLOAD + PRESSURE	=	7316,	0,460
DEADLOAD + PRESSURE + SEISMIC	=	12770,	0,809
B, SECONDARY STRESS RANGE			
EXPANSION	=	8529,	0,310
EXPANSION + SECONDARY SEISMIC	=	8529,	0,310
C, PRIMARY PLUS SECONDARY STRESS RANGE			
DEADLOAD + PRESSURE + EXPANSION	=	13511,	0,260
DEADLOAD + PRESSURE + SEISMIC + THERMAL + EXPANSION	=	19151,	0,368
D, RARE EVENTS-PRIMARY STESS LIMIT			
ALLOWABLE STRESS = 19080,			
ELESTIC EVELUATED PRIMARY STRESSES AS SHOWN BELOW		STRESS	RATIO
EMERGENCY CONDITIONS 10E-1>P40>10E-3			
DEADLOAD + PRESSURE + DOUBLE PRIMARY SEISMIC		13928,	0,487
DEADLOAD + MAX, PRESSURE + PRIMARY SEISMIC		13928,	0,487
FAULTED CONDITIONS 10E-3>P40>10E-6			
DEADLOAD+MAX,PRESSURE+DOUBLE PRIMARY SEISMIC		20162,	0,528

Prepared by: Chin-Yan Cuo 10-12-84
Checked by: [illegible] 10/16/84
File No: PASNY-01-200
Page 2 of 8

Weld 12-64

0417757

TABLE D1 (CONTINUED)

GENERAL ELECTRIC COMPANY — SPEC NO, 22A2622 — REV, NO, 1
BOILING WATER REACTOR SYSTEMS DEPARTMENT — PAGE NO, 75

FITZPATRICK RECIRC DISCHARGE LINE A RISERS AND HEADER

JOINT NO,	TYPE	OD	ID	T	INERTIA	Z
2A	NOZZLE(RPV)	12.882	11.882	0.810	820.5	66.823

I=1.000

		MA	MB	MC
EXPANSION	MOMENTS=	355702,	-359108,	45e827,
DEADLOAD	MOMENTS=	-15195,	12879,	-22452,
PRIMARY SEISMIC	MOMENTS=	17547,	69e77,	2e7870,
SECONDARY SEISMIC	MOMENTS=	0,	0,	0,

		STRESS	RATIO
A, PRIMARY STRESS INTENSITIES			
DEADLOAD + PRESSURE	=	6124,	0,385
DEADLOAD + PRESSURE + SEISMIC	=	10243,	0,537
B, SECONDARY STRESS RANGE			
EXPANSION	=	10259,	0,373
EXPANSION + SECONDARY SEISMIC	=	10259,	0,373
C, PRIMARY PLUS SECONDARY STRESS RANGE			
DEADLOAD + PRESSURE + EXPANSION	=	15e62,	0,297
DEADLOAD + PRESSURE + SEISMIC + THERMAL + EXPANSION	=	19091,	0,3e7
D, WAVE EVENTS-PRIMARY STESS LIMIT			
ALLOWABLE STRESS = 19080,			
ELESTIC EVELUATED PRIMARY STRESS IS AS SHOWN BELOW		STRESS	RATIO
EMERGENCY CONDITIONS 10E-1>P40>10E-3			
DEADLOAD + PRESSURE + DOUBLE PRIMARY SEISMIC		11400,	0,398
DEADLOAD + MAX, PRESSURE + PRIMARY SEISMIC		11400,	0,398
FAULTED CONDITIONS 10E-3>P40>10E-6			
DEADLOAD+MAX,PRESSURE+DOUBLE PRIMARY SEISMIC		15573,	0,408

Prepared by: Chu-Yu Eng 10-2-84
Checked by: [illegible] 10/16/84
File No. PASN4-01-200
Page 3 of 8

STRUCTURAL INTEGRITY ASSOCIATES
WELD OVERLAY SIZING

OVERLAY SIZING FOR CIRCUMFERENTIAL CRACK:-

TITLE:PASNY-01, WELD 12-69 WELD OVERLAY DESIGN

WALL THICKNESS= 0.6900
STRESS RATIO= 0.850
LOAD FACTOR= 1.000

	L/CIRCUM					
	.0	.1	.2	.3	.4	.5->1.0
FINAL A/T	0.7500	0.7500	0.7500	0.7500	0.7500	0.6523
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2300	0.2300	0.3677

CRITICAL FLAW SIZE FOR AXIAL CRACK:

TITLE:PASNY-01, WELD 12-69 WELD OVERLAY DESIGN

WALL THICKNESS= 0.6900
STRESS RATIO= 0.650
LOAD FACTOR= 1.000

	L/SQRT(RT)						
	.0	.5	1.0	2.0	3.0	4.0	5.0
FINAL A/T	0.7500	0.7500	0.7500	0.7275	0.6938	0.6685	0.6558
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2584	0.3045	0.3422	0.3622

	6.0	7.0	8.0	9.0	10.0	11.0	>12.0
FINAL A/T	0.6494	0.6431	0.6367	0.6309	0.6207	0.6207	0.1000
OVERLAY THICKNESS	0.3725	0.3830	0.3937	0.4037	0.4216	0.4216	6.2100

Prepared by: [signature] 10-12-84
Checked by: [signature] 10/16/84
File No. PASNY-01-200
Page 4 of 8

Weld 12-69

0417757

TABLE D1 (CONTINUED)

GENERAL ELECTRIC COMPANY — SPEC NO. 22A2622 — REV. NO. 1
BOILING WATER REACTOR SYSTEMS DEPARTMENT — PAGE NO. 91

FITZPATRICK RECIRC DISCHARGE LINE A RISERS AND HEADER

JOINT NO.	TYPE	OD	ID	T	INERTIA	Z
24	NOZZLE(RPV)	12.802	11.442	2.210	429.5	66.823

I=1.000

		MA	MB	MC
EXPANSION	MOMENTS=	220697.	151925.	261787.
DEADLOAD	MOMENTS=	15486.	98579.	39906.
PRIMARY SEISMIC	MOMENTS=	15552.	74985.	295210.
SECONDARY SEISMIC	MOMENTS=	0.	0.	0.

		STRESS	RATIO
A. PRIMARY STRESS INTENSITIES			
DEADLOAD + PRESSURE	=	7290.	0.458
DEADLOAD + PRESSURE + SEISMIC	=	11573.	0.596
B. SECONDARY STRESS RANGE			
EXPANSION	=	5038.	0.205
EXPANSION + SECONDARY SEISMIC	=	5038.	0.205
C. PRIMARY PLUS SECONDARY STRESS RANGE			
DEADLOAD + PRESSURE + EXPANSION	=	10291.	0.198
DEADLOAD + PRESSURE + SEISMIC + THERMAL + EXPANSION	=	14353.	0.276
D. PAST EVENTS-PRIMARY STRESS LIMIT			
ALLOWABLE STRESS = 19380.			
ELASTIC EVALUATED PRIMARY STRESSES AS SHOWN BELOW		STRESS	RATIO
EMERGENCY CONDITIONS 1.0E=1.2PNO>1.0E=1			
DEADLOAD + PRESSURE + DOUBLE PRIMARY SEISMIC		12530.	0.438
DEADLOAD + MAX. PRESSURE + PRIMARY SEISMIC		12530.	0.438
FAULTED CONDITIONS 1.0E=1.2P+B>1.0E=0			
DEADLOAD+MAX.PRESSURE+DOUBLE PRIMARY SEISMIC		17054.	0.447

Prepared by: [signature] 10-12-84
Checked by: [signature] 10/16/84
File No. PASNY-01-200
Page 5 of 8

STRUCTURAL INTEGRITY ASSOCIATES
WELD OVERLAY SIZING

OVERLAY SIZING FOR CIRCUMFERENTIAL CRACK:-

FITZPATRICK WELD 12-23

WALL THICKNESS=0.6900
LOAD FACTOR= 1.00
STRESS RATIO=1.310

	L/CIRCUMFERENCE					
	0.0	0.1	0.2	0.3	0.4	0.5-->1.0
FINAL A/T	0.7500	0.7500	0.7500	0.7056	0.6421	0.5615
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2879	0.3846	0.5388

CRITICAL FLAW SIZE FOR AXIAL CRACK:

FITZPATRICK WELD 12-23

WALL THICKNESS=0.6900
LOAD FACTOR= 1.00
STRESS RATIO=0.650

	L/SQRT(RT)						
	0.0	0.5	1.0	2.0	3.0	4.0	5.0
FINAL A/T	0.7500	0.7500	0.7500	0.7275	0.6938	0.6685	0.6558
OVERLAY THICKNESS	0.2300	0.2300	0.2300	0.2584	0.3045	0.3422	0.3622
	6.0	7.0	8.0	9.0	10.0	11.0	>12.0
FINAL A/T	0.6494	0.6431	0.6367	0.6309	0.6207	0.6207	0.1000
OVERLAY THICKNESS	0.3725	0.3830	0.3937	0.4037	0.4216	0.4216	6.2100

WELD 12-23

0417757 TABLE D1 (CONTINUED)

GENERAL ELECTRIC COMPANY SPEC NO. 22A2622 REV. NO. 1
BOILING WATER REACTOR SYSTEMS DEPARTMENT PAGE NO. 169

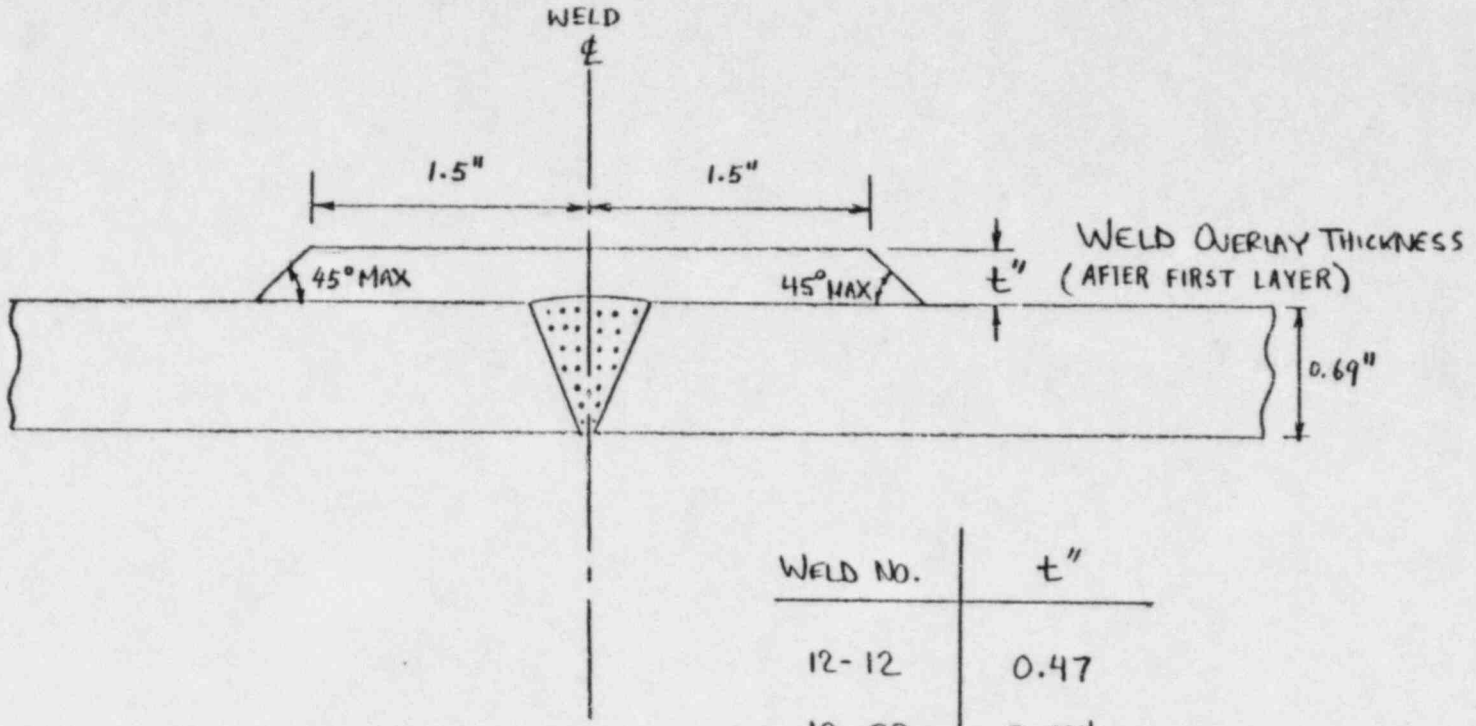
FITZPATRICK RECIRC DISCHARGE LINE 8 RISERS AND HEADER

JOINT NO.	TYPE	OD	ID	T	INERTIA	Z
21a	NOZZLE(BRV)	12.662	11.442	0.610	820.5	66.423

I=1.000

		MA	MB	MC
EXPANSION	MOMENTS=	-390477.	364011.	490409.
DEADLOAD	MOMENTS=	-16958.	-114609.	21767.
PRIMARY SEISMIC	MOMENTS=	15350.	38575.	474820.
SECONDARY SEISMIC	MOMENTS=	0.	0.	0.

		STRESS	RATIO
A. PRIMARY STRESS INTENSITIES			
DEADLOAD + PRESSURE	=	7447.	0.468
DEADLOAD + PRESSURE + SEISMIC	=	13490.	0.707
B. SECONDARY STRESS RANGE			
EXPANSION	=	10818.	0.394
EXPANSION + SECONDARY SEISMIC	=	10818.	0.394
C. PRIMARY PLUS SECONDARY STRESS RANGE			
DEADLOAD + PRESSURE + EXPANSION	=	10111.	0.310
DEADLOAD + PRESSURE + SEISMIC + THERMAL + EXPANSION	=	22250.	0.428
D. RARE EVENTS-PRIMARY STESS LIMIT			
ALLOWABLE STRESS = 19060.			
ELESTIC EVELUATED PRIMARY STRESSES AS SHOWN BELOW		STRESS	RATIO
EMERGENCY CONDITIONS 10E-1>P40>10E-3			
DEADLOAD + PRESSURE + DOUBLE PRIMARY SEISMIC		14648.	0.512
DEADLOAD + MAX. PRESSURE + PRIMARY SEISMIC		14648.	0.512
FAULTED CONDITIONS 10E-3>P40>10E-6			
DEADLOAD+MAX.PRESSURE+DOUBLE PRIMARY SEISMIC		21725.	0.569



WELD NO.	t"
12-12	0.47
12-23	0.54
12-64	0.47
12-69	0.23 - 0.37*

* RANGE - ACTUAL THICKNESS PENDING FINAL UT LENGTH DETERMINATION.

Prepared by: [illegible]
Checked by: [illegible]
File No. PASNY-01-200
Page 8 of 8

Attachment 9
JAFP-84-0979
October 21, 1984

Weld Overlay Thicknesses

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

Weld No.	Length	Thickness**
12-70	3.01"	0.23"
12-12	3.01"	0.47"
12-64	3.01"	0.47"
12-23	3.01"	0.54"
12-69	3.01"	0.23" - 0.37"*

*Ranges - Actual size will be determined after UT evaluation of indication length.

**After the first clean PT.

Attachment 10
JAFP-84-0979
October 21, 1984

Ultrasonic Data and Polar Plots
For All Riser to Safe-End Welds Plus Weld 12-02-2-70

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

Weld 12-02-2-1

6063A/5-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. Fitzpatrick

DATA SHEET NO. JAF-092/A DATE 10-17-84

PROCEDURE JAF-UT5Add1-2 REV 3

COMPONENT OR SYSTEM Recirculation Loop PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 122°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS 0.66" TEMP 120°F

SCAN COVERAGE

☒ ST# of WHAZ ☒ ST# of BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

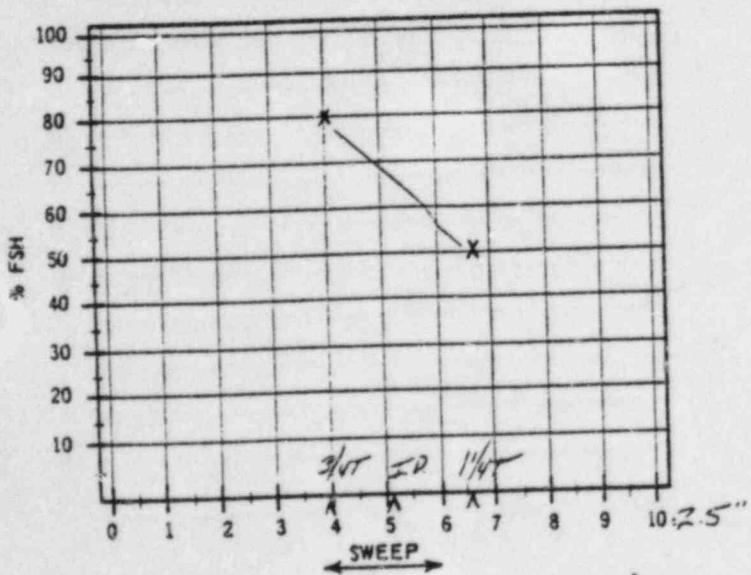
SEARCH UNIT

Manufacturer Aerotech
Style GAMMA
Serial No. E1411Z
Size 0.5" DIA. Frequency 2.25 MHZ
Angle 62° Mode SHEAR
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer KrautKramer Branson Model USL-38
Serial No. Z10571 Cable Length 6'
Frequency 2.5 MHZ Reject OFF
Rep Rate N/A Damping OFF
dB Gain - Coarse 20 Fine 34
Primary Reference Response Amplitude % Full Screen Height 80% FSH

DAC PLOT - TIME 1530 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
1910	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL II
2. Robert Byers TC-1A LEVEL II
REVIEWED BY [signature] DATE 10/17/84

ADDITIONAL REMARKS

[signature], NPPA UT III 10/17/84

ELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
3-02-2-1	✓	N/A	See Indication Data Sheet

Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/8-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

INDICATION DATA

SHEET 2 OF ____

ITEM IDENTIFICATION 12-02-2-1

CALIBRATION DATA SHEET NO. JAF-092/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON ____ (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
N/A	N/A	✓	1	Pipe	100	5.9	1/2" CW	1.4"	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	✓	2	Pipe	34	2.8	38 1/4 CW	0.6"	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	✓	3	Pipe	38	3.6	39 1/2	0.6"	N/A	N/A	N/A	N/A	N/A	N/A

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	✓	N/A	*	N/A			60°
2	✓	N/A	*	N/A			*Intermittent indications in base material 360° around. Axial measurements from Toe of weld.
3	✓	N/A	*	N/A			

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Bourdy TC-1A LEVEL II

REVIEWED BY Clarence Smith III DATE 10/17/84

EBASCO SERVICES INCORPORATED

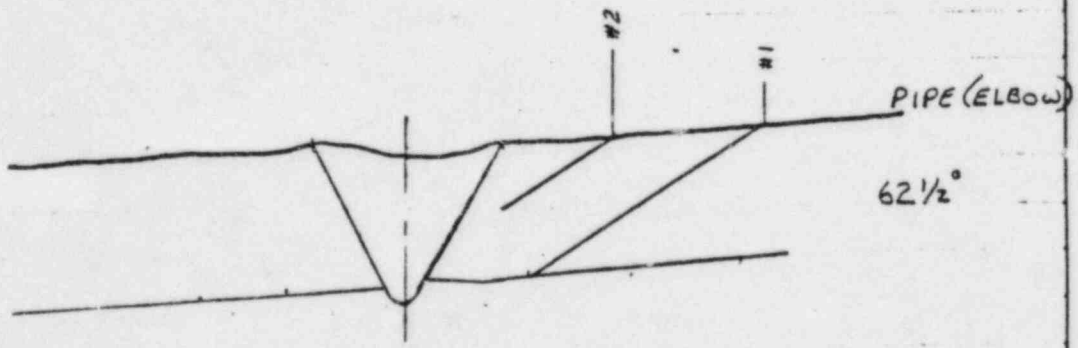
BY _____ DATE _____ SHEET 3 OF 3

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT J.A. FITZPATRICK DATA SHEET # JAF-692/A

SUBJECT 12.02.2.1 RECIRCULATION SYSTEM LOOP "A"



12-02-2-1

UNITED STATES TESTING COMPANY, INC.

12-02-2-1

10/16/84
Date

RADIOGRAPHIC EXAMINATION REPORT

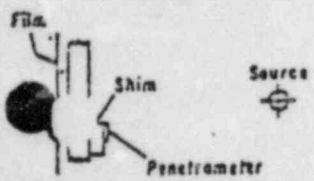
Customer: NYPA
Location: JAFNPP
Purchase order no.: NYO 82-246
Work request no.: N/A
Welder I. D.: W 4+7

R. T. Procedure/Rev.: REACTOR CONTROLS INC RT1
Specimen Description: WELD
Material Type: S/S
Dia./Thickness: 12.750 / 1.668
Specimen I. D.: RECIRC WELD 15 B

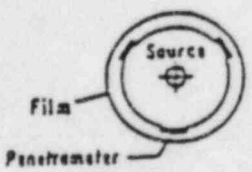
Procedure Data

Gamma		X-Ray		Penetrameter Designation	15F
Source Type	IR192	Machine Mfg.	A	Required Sensitivity/Essential Hole	2/4T
Curies	70	Kilovoltage		Shim Thickness	.093
Physical Size	1/8 X 1/8	Milliamperage	N	Pb Screens: Front	.010 Back .010
Effective Size	.177	Focal Spot Size		Source to Film Distance	12.750
Film Type	KODAK M	No. Exposures	4	Geometric Unsharpness	.010
Film Size	4½X17	Total No. Film	8	Exposure Time	6 M.

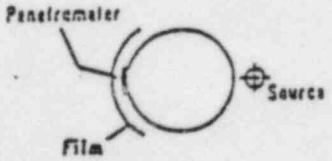
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☑ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
5B	0-10				✓	✓	✓	✓	✓	ARTIFACTS	2.55	2.3-2.6	✓	
	10-20					✓	✓			ARTIFACTS	2.45	2.4-2.5	✓	
	20-30					✓	✓			ARTIFACTS	2.6	2.6-2.7	✓	
	30-0				✓		✓		✓	ARTIFACTS	2.5	2.2-2.6	✓	

Acceptance Criteria: Code/Addenda/Class – ASME III 68

Remarks:

Radiographed By:

Interpreted By: R Koontz I. 10/16/84 Date

Customer Review: Name II Level 10-17-84 Date

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J. A FITZPATRICK

DATA SHEET NO. JAF-R2/4 DATE 10-12-84

PROCEDURE JAF-UT-5 / ADD 142 REV 3

COMPONENT OR SYSTEM Recirc Loop A PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 120°F

CALIBRATION BLOCK NO. 17-A376 THICKNESS .66 TEMP 110°F

SCAN COVERAGE

☑ WHAZ ☑ BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer NORTEC

Style 2T-2

Serial No. 15462

Size .50" Frequency 2.25 MHZ

Angle 43° Mode SHEAR

Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER Model USK-7

Serial No. 22276-1539 Cable Length 6'

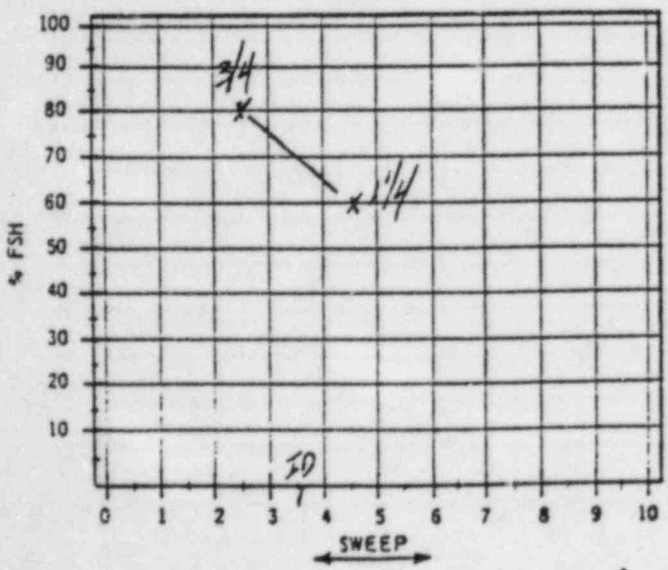
Frequency BB Reject MIN

Rep Rate N/A Damping N/A

dB Gain – Coarse 20 Fine 20

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 800 (AM) PM



2.5

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
1145	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINERS

1. [signature] TC-1A LEVEL II

2. [signature] TC-1A LEVEL II

REVIEWED BY [signature] DATE 12/19/84

ADDITIONAL REMARKS ID 36
3/4 26
1 1/4 46

[signature] UTPA III
12/19/84

* COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-2-1	✓	N/A	SEE 60° DATA SHEETS
			SCAN ONE SIDE ONLY FROM PIPE SIDE
			ROOT SIGNAL 10-50% DAC. RECORDABLE INDICATION
			100% DAC 360° AROUND.

*Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-2-1
CALIBRATION DATA SHEET NO. IAF-102/1

DATA TABULATION

SCAN DIRECTION: ST. BEAM	SCAN DIRECTION: CIRCUMFERENTIAL	SCAN DIRECTION: AXIAL	INDICATION NO.	EXAM. ON ____(ADJ) WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM WELD ℄)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: S.U. POSITION	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: S.U. POSITION	STRAIGHT BEAM (CAL ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	STRAIGHT BEAM (CAL ON BACK REFLECTION): BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	ELBOW SIDE	60	3.8	16" CW	.8	3.8	BU	4.2	1.0		
		✓	2	ELBOW SIDE	100+	3.7	1" CW	.65						
		✓	3	ELBOW SIDE	100+	3.8	1" CCW	.7						

RESULTS

INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% t: DEPTH (IF PLANAR)	% t: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
1	✓	N/A	1.2				90 to -135° & 45 to 135° INTERMITTENT 360°, 100% of DAC
2	✓	N/A	.5				
3	✓	N/A	.5				

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. V. J. Carruzzo — TC-1A LEVEL II
2. John R. Brieff — TC-1A LEVEL I
REVIEWED BY Bruce Smith III — DATE 10/17/84

EBASCO SERVICES INCORPORATED

BY _____ DATE _____

CHKD. BY _____ DATE _____

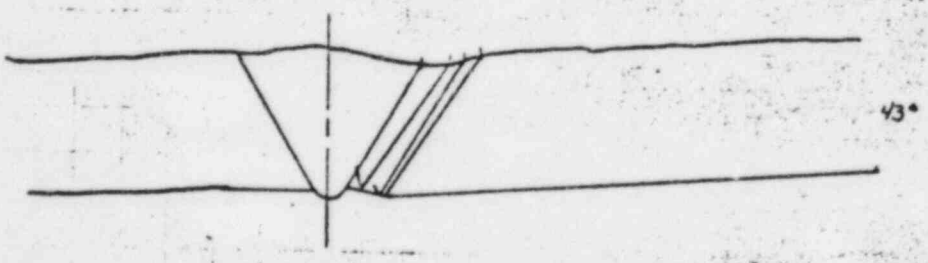
SHEET 3 OF 4

OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT J.A. Fitzpatrick

SUBJECT 12-02-2-1 Recir. Sys. Loop "A" Data Sheet # JAF-102

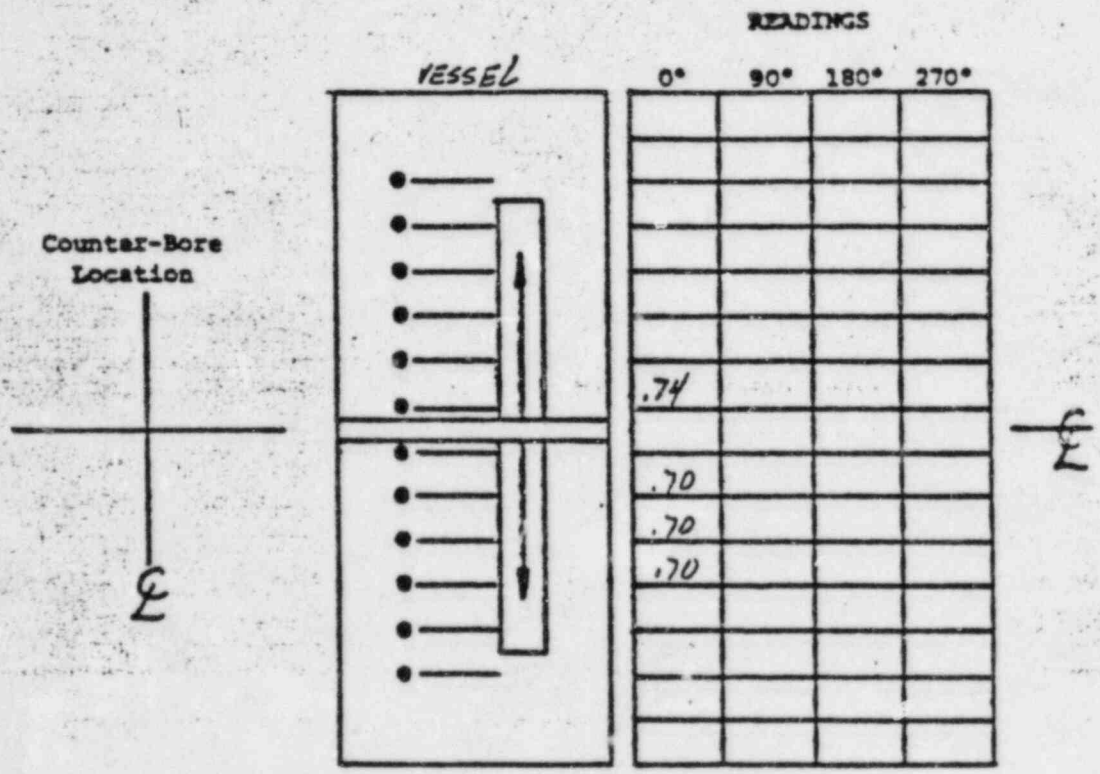


12-02-2-1

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

Pg 4.1.1

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-1 System/Area RELIEF - SAFE-ENDS

Examiner J. Canazzo Level II Date 10-13-81

REPORT OF UT INSPECTION

REPORT NO. JAF 102084-1

CLIENT New York Power Authority

DATE 10-19-84

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-1 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFE END MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS _____ INCHES

SURFACE CONDITION OF PIPE ground OF WELD GROUND

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 126 °F

METHOD OF EXAMINATION: AUTOMATIC / MANUAL / SEMI-AUTO YES (ROBB)

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60	RTD SEL 70	SBI 1 SLIC40	SUS1 SUS423	KK MWB 70
SERIAL NO.	#7	V#2	V#2	80-580	/	2002	/
TRANSDUCER SIZE (MM) (~~INCHES~~)	8x9	8x9	8x9	2x7x15	2x ⌀9.5	⌀9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	45°/70°	44°	57°	70°	/	52°	/
EXIT POINT (MM) (~~INCHES~~)	12/10	13	13	9	/	13	/
REMARKS:	mode-conversion	shear	shear	high-long-mode	long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.	/	KK USK7
SERIAL NUMBER	/	27274-2613
CALIBRATION DATE	/	09-10-84
CABLE TYPE	/	TRIAXIAL
CABLE LENGTH	/	50 meter

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. #8413

PERSONNEL PERFORMING EXAMINATION:

NAME M. DALICHOW LEVEL I SIGNATURE _____

NAME U. SCHWANKE LEVEL I SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

REPORT NO. JAE 102084-1
DATE 10-19-84

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	35	31	25	20	15	10	-

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 $\pm$ 5% OF FULL SCALE

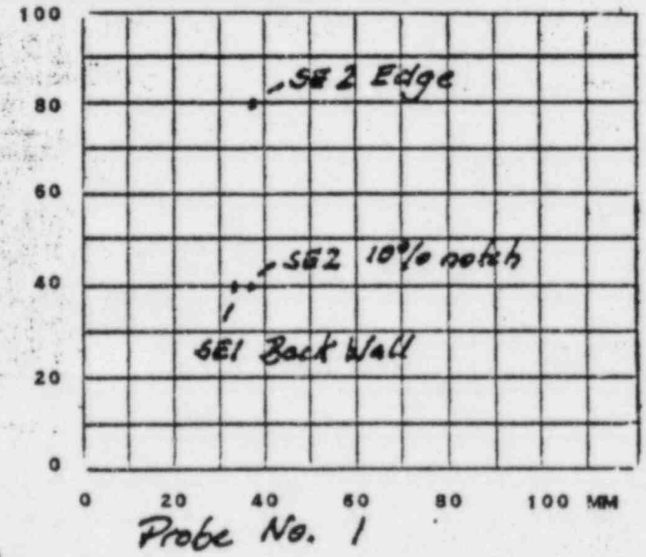
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1776-091084

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER N.A.
MATERIAL S.S. 304
REFERENCE REFLECTORS Back Walk.
REFERENCE REFLECTORS Edge
REFERENCE REFLECTORS 10% notch I.D.
REFERENCE REFLECTORS
REFERENCE REFLECTORS



Probe No. 1

V-PATH DATA

PROBE NO.	PROBE NO.	METAL (MM) PATH (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK -/- S/N -/- REF. REFL. -/- TEMP. -/- °F
REF. BLOCK 12-A376-.66 S/N N.A. REF. REFL. 10% notch I.D. TEMP. 115 °F
THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)	SWEEP RANGE
M. Dalichow	09:00	46 d.B 80% FSH	3.7
M. Dalichow	13:00	46 d.B 80% FSH	3.7

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAE 102084-1

DATE 10-19-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (~~IN~~)	AMPLITUDE (DB)	CALIBRATION BLOCK NO.	REMARKS
1	10% notch I.D.	37	46	12-A376-.66	SE2
	Edge	39	40	"	SE2
	Back Wall	34	46	"	SE1
2	10% notch I.D	22	24	12-A376-.66	½-V-PATH
	10% notch O.D	46	26	"	½-V-PATH
	10% notch 1½ rode	68	30	"	½-V-PATH
3	10% notch I.D.	30	40	D-A376-.66	½-V-PATH
4	90% notch	2,5 depth fr. O.D	60	EDM-CAL-25mm	PA 14 mm
	80% notch	5,0 " "	62	"	PA 18 mm
	70½ notch	7,5 " "	64	"	PA 23 mm
	60% notch	10,0 " "	66	"	PA 25 mm
5					
6	20% notch	5mm depth fr. I.D.	70	EDM-CAL-25mm	SPOT - Calibration

REFERENCE POINT LOCATION TOP OF THE PIPE

INSPECTED AREA FROM CW 856 -0-13 mm

			REFLECTOR POSITION/MM											
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW	
1	1	1	856	1001	13	÷	-12	÷	÷	÷	÷	÷	-10	39
1	1	1	856	1001	13	÷	-12	÷	÷	÷	÷	÷	-12	45
1	2	1	856	1001	13	÷	-12	÷	÷	÷	÷	÷	-16	27
1	3	1	856	1001	13	÷	-12	÷	÷	÷	÷	÷	-8	32
—	—	—	856	÷	13	EDGE GEOMETRY - COUNTER BORE								

EXAMINER DAUCHOW / SCHWARTZ LEVEL II

SIGNATURE

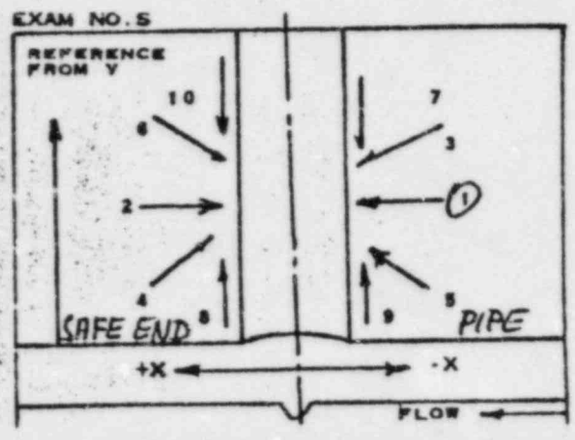
AUTHORIZED INSPECTOR

(IF REQUIRED)

CLIENT UTPA ET. III 10/29/84

(IF REQUIRED)

EXAM NO. 5



PAGE 4 OF 6

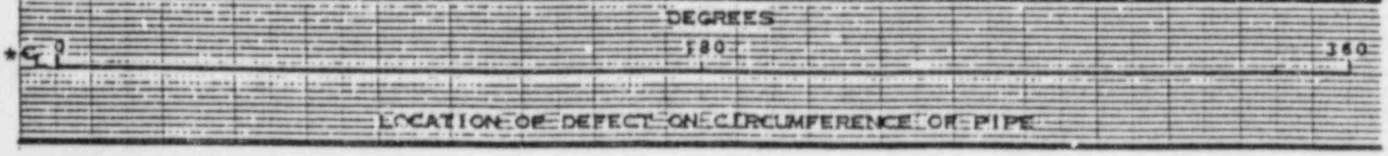
REPORT NO. JAE 102084-1

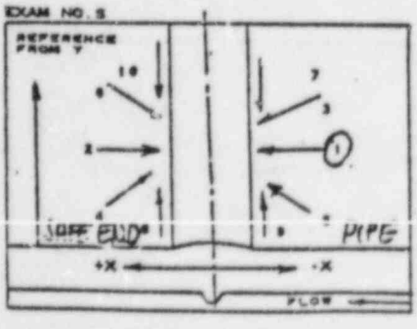
DATE 10-19-84

REPORT NO. JAF 102084-1

DATA STANDARD REPORT OF INDICATION NUMBER 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT X	POINT Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	32°	1	-24	1001	56	39	SHEAR-DIRECT
2	1	32°	1	-32	1001	58	45	SE 2
3	1	44°	1	-31	1001	40	27	
4	1	57°	1	-38	1001	48	32	
———	SIGNAL NO 1-4		ID-GEOMETRY (COUNTERBORE) INDICATIONS					———





EXAMINER DALICHOW / SCHWANKE LEVEL II

LEVEL III REVIEWED BY William E. Dietz DATE 10-20-87

AUTHORIZED INSPECTOR ———

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

T—INSPECTION —IGSCC—

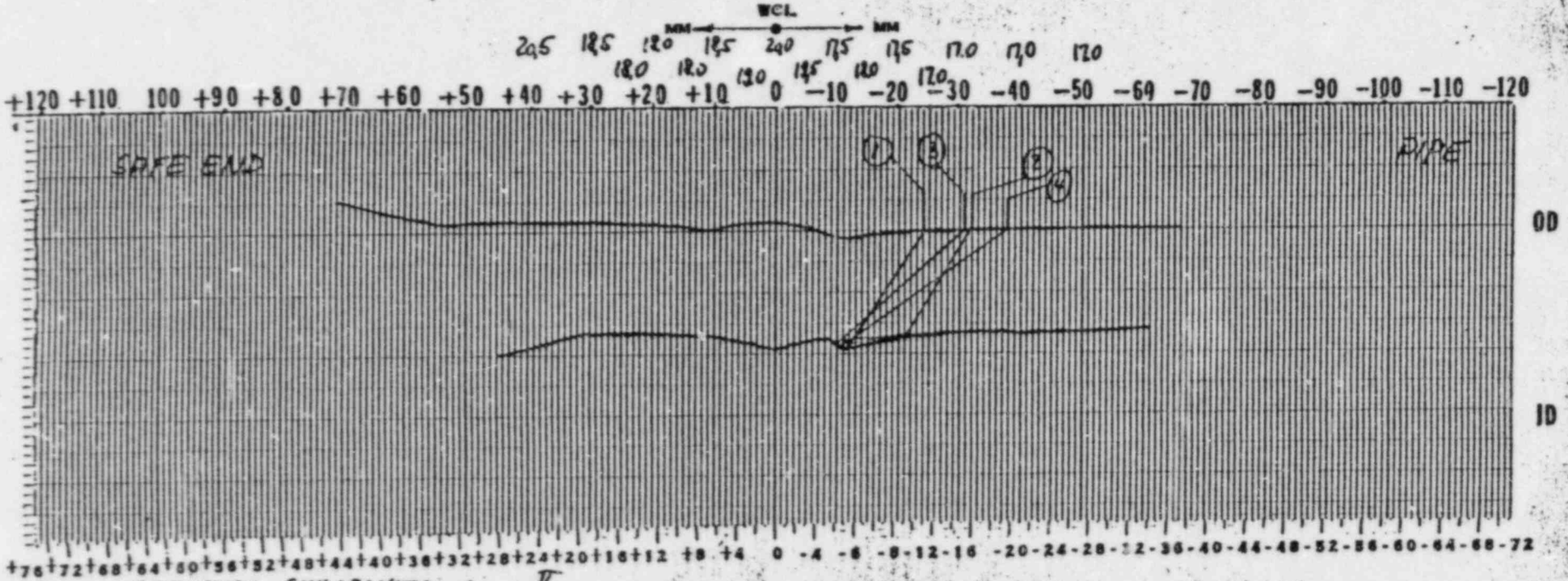
'eld Identification No 12-02-2-1

ignal No INDICATION NO 1

oodinate from reference point "Y" CW 1001 inches

Probes Used	Probe No.	Signal No.
Wall Thickness	MSEB 4-H	÷
Root Center	MSEB 4-H	÷
Other Data	1	1, 2
	2	3
	3	4

INSPECTION CONTOUR



INSPECTOR DALKOW, SCHWANKE Level II

DATE 10-19-84

WCL

INCHES

1/16"

Weld 12-02-2-7

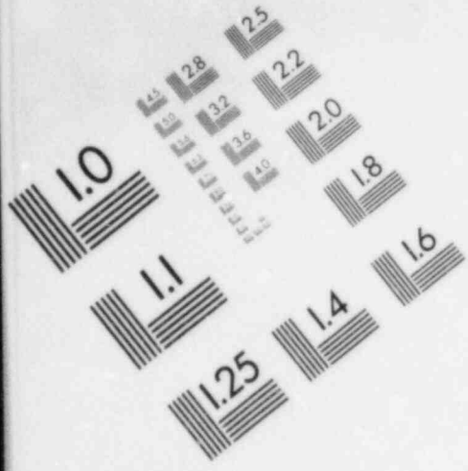
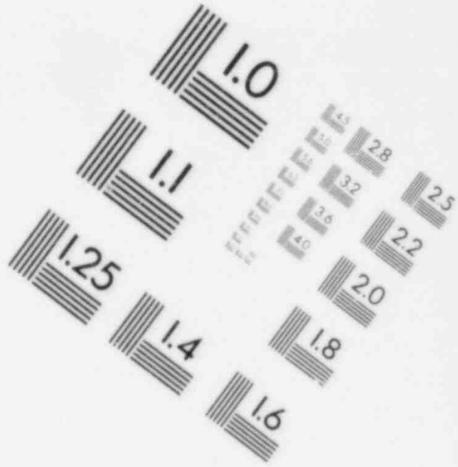
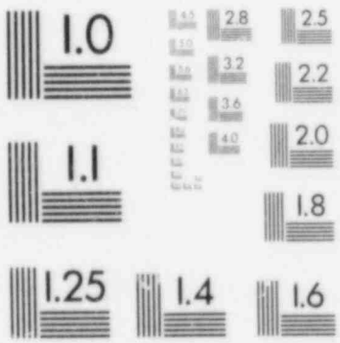
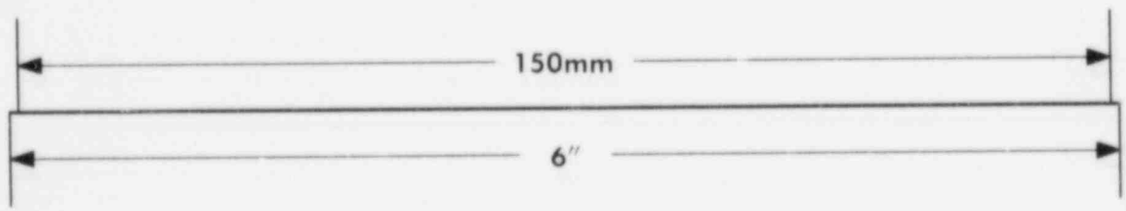
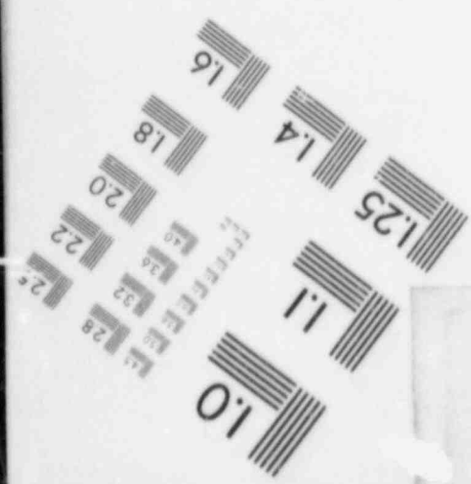


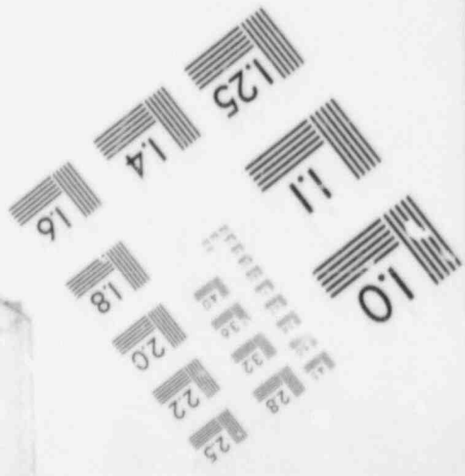
IMAGE EVALUATION
TEST TARGET (MT-3)











60S3A/8-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT JA FITZPATRICK

DATA SHEET NO. JAF-096/A DATE 8-12-89

PROCEDURE JAF-UT-5 AMD 02 REV 3

COMPONENT OR SYSTEM RECIRCULATION SYS. Loop "A" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 122°F

CALIBRATION BLOCK NO. 12-A32 THICKNESS .66" TEMP 105°F

SCAN COVERAGE

☒ 0° WHAZ ☒ 0° BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer KB Aerotech
Style Gamma
Serial No. E1442
Size .52" Ø Frequency 2.25 MHz
Angle 62½° Mode SHEAR

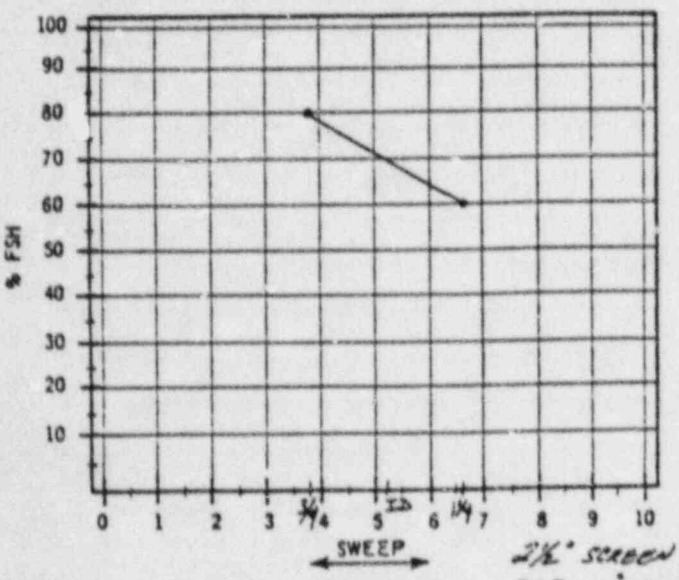
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer Sonotronics-Branson Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.25 MHz Reject N/A
Rep Rate N/A Damping N/A
dB Gain - Coarse 20 Fine 30 MEDIUM 39

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT - TIME 1235 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
2030	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Che section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. John R. O'Keefe TC-1A LEVEL I
REVIEWED BY [signature] DATE 10/17

ADDITIONAL REMARKS
¾T - 3.9 @ 80% @ 54db
ID. - 5.2
[illegible]

[signature] NDE III 10/17/89

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
12-02-2-7	✓	N/A	See Indication Data Sheet

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-2-1
CALIBRATION DATA SHEET NO. JAF-096/A

DATA TABULATION

SCAN DIRECTION: ST. BEAM	SCAN DIRECTION: CIRCUMFERENTIAL	SCAN DIRECTION: AXIAL	INDICATION NO.	EXAM. ON (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM WELD ℄)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: S.U. POSITION	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: S.U. POSITION	STRAIGHT BEAM (CAL ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	STRAIGHT BEAM (CAL ON BACK REFLECTION): BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	ELBOW	50	4.2	38.5 CW	.8						
		✓	2	|	100	4.2	38.5 CW	.7						
		✓	3	|	25	3.0	15.5 CW	.44						
		✓	4	|	25	3.0	1.25 CW	.44						
			•											

RESULTS

INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% t: DEPTH (IF PLANAR)	% t: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
							60°
							MULTIPLE SIGNALS - ALL MEASUREMENTS TAKEN
							FROM TOE of WELD TO INDEX POINT. I.e.T.e
							mitted 360°.

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. John R. O'Neil TC-1A LEVEL I

EBASCO SERVICES INCORPORATED

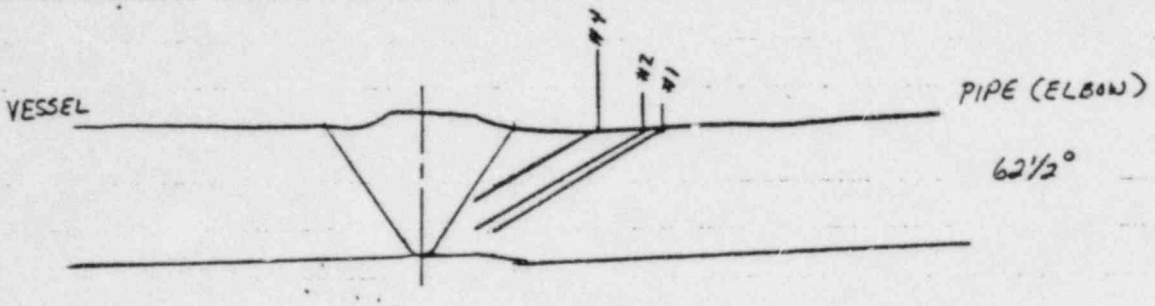
BY _____ DATE _____ SHEET 3 OF _____

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT JA FITZPATRICK Data Sheet # JAF-046/A

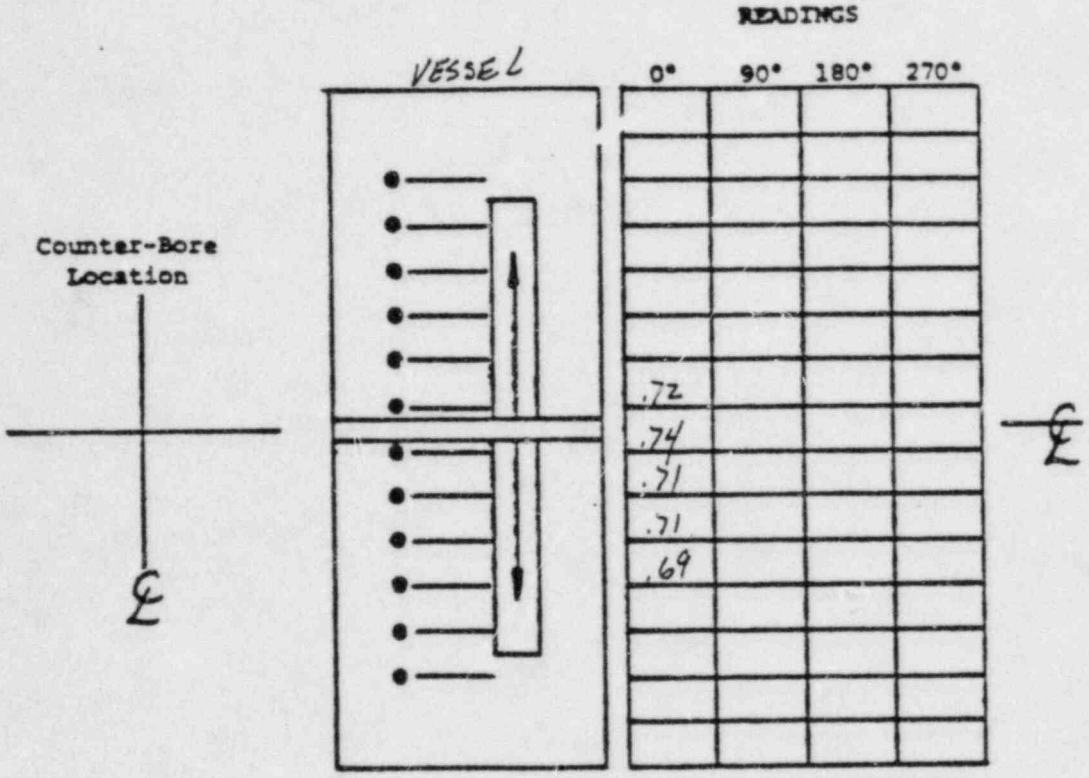
SUBJECT 12-02-2-7 "A" Loop RECIRCULATION SYS.



12-02-2-7

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-7 System/Area RECIRC SAFE ENDS

Examiner J. Carnazzo Level II Date 10-13-84

UNITED STATES TESTING COMPANY, INC.

12-02-2-7

10/16/84
Date

RADIOGRAPHIC EXAMINATION REPORT

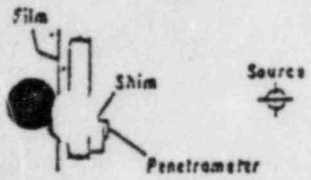
Customer NYPA
Location JAFNPP
Purchase order no. NYO 82-246
Work request no. N/A
Welder I. D. 7

R. T. Procedure/Rev. REACTOR CONTROLS INC RT 1
Specimen Description WELD
Material Type S/S
Dia./Thickness 12.750 / .688
Specimen I. D. RECIRC WELD 19B

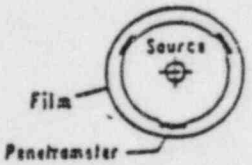
Procedure Data

Gamma	X-Ray	
Source Type IR^{192}	Machine Mfg. N/A	Penetrameter Designation 15F
Curies 70	Kilovoltage	Required Sensitivity/Essential Hole 2-4T
Physical Size 1/8 X 1/8	Milliamperage N	Shim Thickness .093
Effective Size .177	Focal Spot Size	Pb Screens: Front .010 Back .010
		Source to Film Distance 12 3/4"
Film Type KODAK M	No. Exposures 4 R1 1	Geometric Unsharpness .010
Film Size 4½ X 17	Total No. Film 8 R1 2	Exposure Time 6 MIN

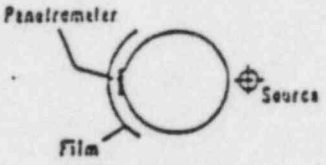
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☒ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
19B	0-10					✓		✓	✓	ARTIFACTS	2.3	2.1-2.3	✓	
	10-20			X					✓	ARTIFACTS	2.4	2.0-2.3		X
	20-30					✓		✓	✓	ARTIFACTS	2.4	2.05-2.4	✓	
	30-0						✓	✓	✓	ARTIFACTS	2.5	2.3-2.5	✓	
19BR1	10-20					✓				ARTIFACTS	2.3	2.3-2.4	✓	

Acceptance Criteria: Code/Addenda/Class – ASME III 68

Remarks: COUNTER BORE ≃ 3/4" from ℄ of WELD

Radiographed By:

Interpreted by: RKoontz II 10-16-84
Date

Customer Review
Name Level Date 10-17-84

PAGE 1 OF 6

REPORT OF UT INSPECTION

REPORT NO. JAF102084-2

CLIENT New York Power Authority

DATE 10-19-84

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-7 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFE END MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12 O.D. INCHES WALL THICKNESS _____ INCHES

SURFACE CONDITION OF PIPE ground OF WELD GROUND

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 127 °F

METHOD OF EXAMINATION: AUTOMATIC - MANUAL YES SEMI-AUTO -

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60	KK MWB 60	SKL SLIC40	SUSI SUS42B	KK MWB 70
SERIAL NO.	1.03	V#3	V#3	R415-1			
TRANSDUCER SIZE (MM)	8x9	8x9	8x9	8x9	2x ϕ9.5	ϕ9.5	8x9
FREQUENCY MHz	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/32°	44°	57°	56°			
EXIT POINT (MM)	12/10	13	13	13			
REMARKS:	mode-conversion	shear	shear	shear	long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK USK7
SERIAL NUMBER		27274-2606
CALIBRATION DATE		08-23-84
CABLE TYPE		Coaxial
CABLE LENGTH		2.5 meter

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. # 8443

PERSONNEL PERFORMING EXAMINATION:

NAME M. DALICHOW LEVEL II SIGNATURE _____

NAME U. SCHWANKE LEVEL II SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	34	30	25	20	15	10	-/-

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

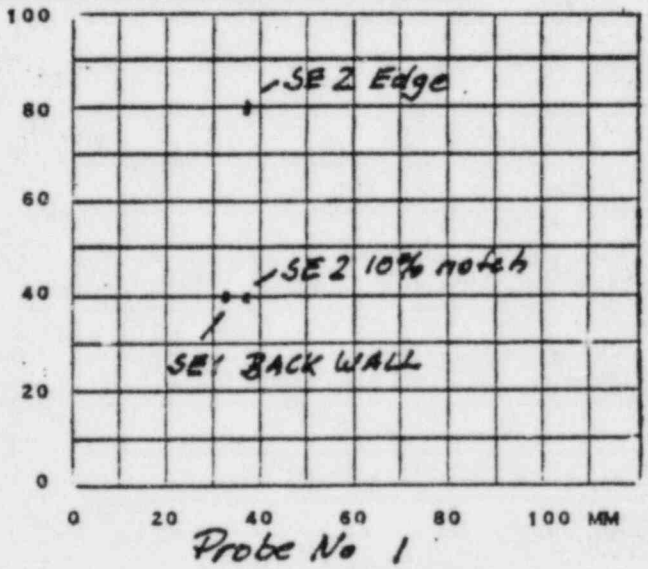
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1763-82384

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER N.A.
MATERIAL SS 304
REFERENCE REFLECTORS 10% notch I.D.
REFERENCE REFLECTORS Edge I.D.
REFERENCE REFLECTORS BACK WALL
REFERENCE REFLECTORS
REFERENCE REFLECTORS



Probe No 1

V-PATH DATA

PROBE NO.	PROBE NO.	METAL PATH (MM) (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK -/- S/N -/- REF. REFL. -/- TEMP. -/- °F
REF. BLOCK 12-A376-.66 S/N N.A. REF. REFL. 10% notch I.D. TEMP. 115 °F
THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)	SWEEP RANGE
M. Dalichow		SE2 48 dB 80% FSH	3.6
M. Dalichow		SE2 48 dB 80% FSH	3.6

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAE 102084-2

DATE 10-19-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (~~IN~~)	AMPLITUDE (DB)	CALIBRATION BLOCK NO.	REMARKS
1	10% notch I.D	36	48	12-A376-.66	SE2
	Edge I.D.	37	42	"	SE2
	Back Wall	34	48	"	SE1
2	10% notch I.D.	22	26	12-A376-.66	½ node
	10% notch O.D	45	32	"	2/2 node
	10% notch I.D.	69	34	"	3/2 node
3	10% notch I.D.	28	40	12-A376-.66	½ node
4	10% notch I.D.	33	44	12-A376-.66	½ node
5					
6					

REFERENCE POINT LOCATION TOP OF THE PIPE

INSPECTED AREA CW 810-0-45

			REFLECTOR POSITION/MM												
			Y LINEAR EXTEND FROM REFERENCE CW			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM	
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW		
1	1	1	810	904	35	÷	-15	÷	÷	÷	÷	÷	-18	39	INTERMITTEND
1	1	1	810	904	35	÷	-15	÷	÷	÷	÷	÷	-20	44	
1	2	1	÷	904	÷	÷	-15	÷	÷	÷	÷	÷	-16	24	SCRATCH
1	3	1	÷	904	÷	÷	-15	÷	÷	÷	÷	÷	-14	28	
1	3	1	÷	904	÷	÷	-11	÷	÷	÷	÷	÷	-6	32	COUNTER-BORE
1	4	1	÷	904	÷	÷	-3	÷	÷	÷	÷	÷	-22	31	FUSION-LINE
			ALL INDICATIONS ID-GEOMETRY												

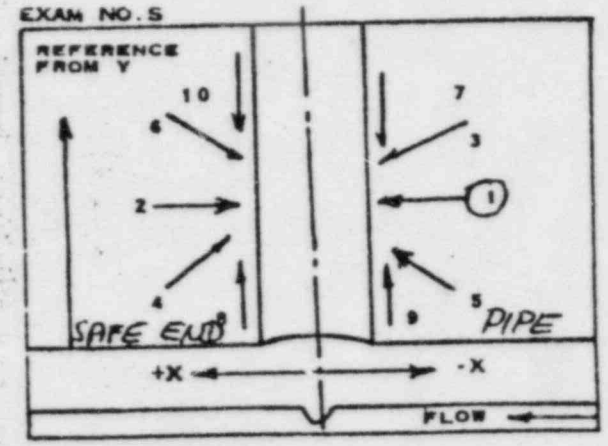
EXAMINER DALICHOW / ICHWANUK LEVEL I

SIGNATURE

AUTHORIZED INSPECTOR

CLIENT (IF REQUIRED) (IF REQUIRED) 10/29/84

EXAM NO.S



PAGE 4 OF 6

REPORT NO. JAF 102084-2

DATE 10-19-84

ITT-114

REPORT NO. JAF 102084-2

PAGE 5 OF 6

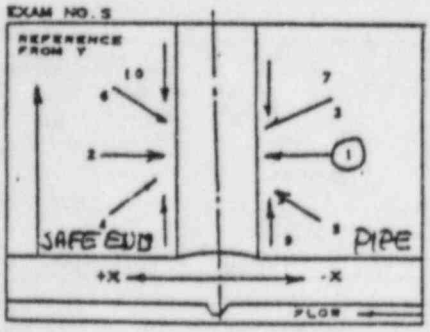
DATA STANDARD REPORT OF INDICATION NUMBER 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT POINT X	Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	32°	1	25	904	64	39	SHEAR DIREKT SCRATCH
2	1	32°	1	31	904	66	44	SE 2 SCRATCH
3	2	44°	1	30	904	42	24	SCRATCH
4	3	57°	1	36	904	46	32	COUNTER BORE
5	3	57°	1	37	904	54	28	SCRATCH
6	4	56°	1	29	904	62	31	FUSION LINE

DEGREES

*C 0 180 360

LOCATION OF DEFECT ON CIRCUMFERENCE OF PIPE



EXAMINER DALICHOW/SCHWARTZ LEVEL II

LEVEL III REVIEWED BY William E. Potts DATE 10-20-84

AUTHORIZED INSPECTOR _____

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

'—INSPECTION —IGSCC—

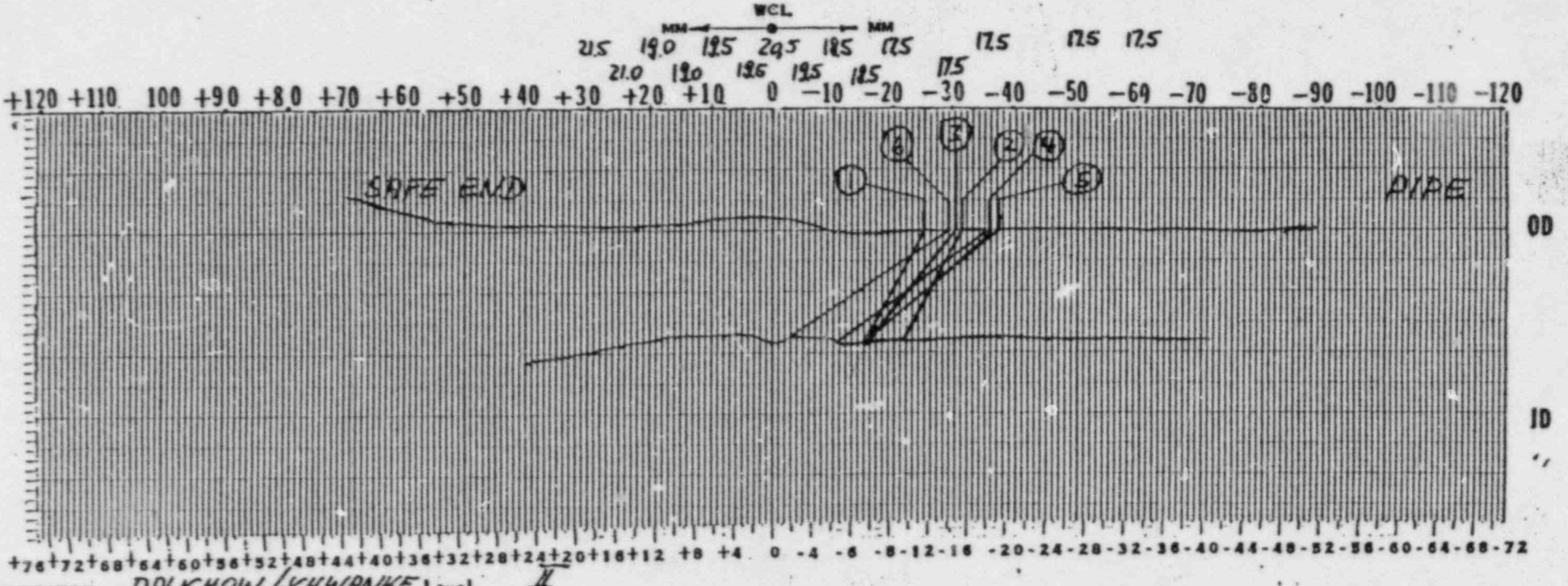
ld Identification No 12-02-2-7

gnal No INDICATION NO 1

odinate from reference point "Y" CW 904

Probes Used	Probe No.	Signal No.
Wall Thickness	K5K	÷
Root Center	K5K	÷
Other Data	1	1,2
	2	3
	3	4,5
	4	6

INSPECTION CONTOUR



INSPECTOR DALKOW/SCHWANKE Level II

DATE 10-19-84

WCL

INCHES

1/16"

Report No. JAF 102084-2 page 6 of 6

Weld 12-02-2-12

ULTRASONIC DATA SHEET

UNIT: JAFNPP	SYSTEM: 02-2 / Recirc	COMPONENT: piping welds
DESCRIPTION: Pipe-To-Safe end - Top of Riser "D"		

WELD ID: 12-02-2-12	PROCEDURE: QAI - 9.0 + Add.	MATERIAL: SS	THICKNESS: .70" TEST SURFACE: OD
INSTRUMENT(S): USL-38	CAL-BLOCK(S): (see CAL. sheets)	CRYSTAL: 53475	CRYSTAL: 84-88 / CRYSTAL:
NODE: S/L BEAM DIRECTION: Trans./parallel	NO. POSITIONS: 41	ANGLE: 45°	ANGLE: 73° / ANGLE:
DISTANCE: 1.0" #1 REF: Top of pipe		TIME START: 1100	TIME START: 1100 / TIME START:
COUPLANT: ULTRAGEL II	COUPLANT BATCH NO.: 8443	TIME STOP: 1400	TIME STOP: 1400 / TIME STOP:
CAL. SHEET: JAF-EVAL-008 & 009		DATE: 10/15/84	DATE: 10/15/84 / DATE:
PERFORMED BY: George Sackler [signature]		ID#: 5-1765	LEVEL: III
PERFORMED BY: N/A		ID#: N/A	LEVEL: N/A

LIMITED SCAN: ☑ NO ☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (% DAC) 20 TO 20	LEN. 50 TO 50	LEN. 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	CRYSTAL DISTANCE FROM (INCHES) A	B	1	2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MIN. POSITION (IN.) 1 A	MIN. POSITION (IN.) 2 B	MAXIMUM DISTANCE FROM SURFACE IN.	MAX. POSITION (IN.) 1 A	MAX. POSITION (IN.) 2 B	REMARKS
See attached chart & plot (8" scan) for values —																				are thru-wall 360° intermittent.

REVIEWED BY:	LEVEL:	DATE REVIEWED:	FIGURE NO.:
SK-JAF-82-002	WRED NO.:		DATA SHEET NO.:

CALIBRATION SHEET

SHEET NO: JAF-EVAL-005 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc COMPONENT: piping welds

EXAMINER: George Seekins ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586
LINEARITY CHECK ☒ YES ☐ NO
REJECT: off %DB
MAT'L. CAL.: 182
DELAY: 678
PULSE ENERGY: S.E.D.
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 12
FINE GAIN: 10 %
SCREEN RANGE: 2.5
SCREEN DEPTH: 1.0 IN.
☐ T&R ☒ NORMAL } OPERATION
FREQUENCY: 5 MHZ
☒ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: off
GAIN:
DLY:
SLP: } DAC
POLARITY:
WIDTH:
DELAY: } GATE %
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTO-A376-.75
LENGTH: IN.
OD: IN.
THICKNESS: IN.

CRYSTAL

ID# 53475
TYPE DWB
FREQ. 4 MHZ
SIZE 8X8mm IN.
ACTUAL ∠ 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE IN.
SIGNAL AMP. % SCREEN READING IN.
COURSE GAIN DB N/A FINE GAIN DB

SEARCH UNIT CABLE

TYPE Bucknell LENGTH 6'

CAL. BLOCK TEMP. F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE shear

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" 1/8 NODE	100 + %	5%-.10 IN.
.15" 1/8 NODE	100 + %	60%-.15 IN.
.20" 1/8 NODE	100 + %	40%-.20 IN.
.25" 1/8 NODE	100 + %	40%-.25 IN.
.30" 1/8 NODE	100 + %	30%-.30 IN.
.35" 1/8 NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.	HRS.	HRS.	HRS.	HRS.	HRS.
BLOCK SIM.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	% IN.
BACK REFL.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.
.15"/1/8 NODE	100 % 60% .15 IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.
.25"/1/8 NODE	100 % 40% .25 IN.	% IN.	% IN.	% IN.	% IN.	% IN.
.35"/1/8 NODE	100 % 25% .35 IN.	% IN.	% IN.	% IN.	% IN.	% IN.
INITIALS	[illegible]					

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

CALIBRATION SHEET

SHEET NO: JAFEVAL-009 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc. COMPONENT: piping welds

EXAMINER: George Seaker ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210568
LINEARITY CHECK ☒ YES ☐ NO
REJECT: off %DB
MAT'L. CAL.: 966
DELAY: 682
PULSE ENERGY: 0/T
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 22
FINE GAIN: 15 %
SCREEN RANGE: .5
SCREEN DEPTH: 1.0 IN.
☒ T&R ☐ NORMAL } OPERATION
FREQUENCY: 2.5 MHZ
☒ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN:
DLY:
SLP: } DAC
POLARITY:
WIDTH:
DELAY: } GATE %
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75
LENGTH: 12 IN.
OD: 1.25 IN.
THICKNESS: .75 IN.

CRYSTAL

ID# 84-88
TYPE RTD
FREQ. 2 MHZ
SIZE 6X13 mm IN.
ACTUAL ∠ 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. _____ SCREEN RANGE N/A IN.
SIGNAL AMP _____ % SCREEN READING N/A IN.
COURSE GAIN DB _____ FINE GAIN DB _____

SYSTEM CALIBRATION

ANGLE 73 ° NODE Longitudinal

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN ~~INCHES~~ S.D
.1 ~~LB NODE~~	100 %	.3 S.D. ~~IN.~~
.2 ~~LB NODE~~	90 %	.45 D. ~~IN.~~
.3 ~~LB NODE~~	70 %	.5 S.D. ~~IN.~~
.4 ~~LB NODE~~	55 %	.6 S.D. ~~IN.~~
.5 ~~LB NODE~~	40 %	.7 S.D. ~~IN.~~
.6 ~~LB NODE~~	30 %	.8 S.D. ~~IN.~~
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. _____ F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.	HRS.	HRS.	HRS.	HRS.	HRS.
BLOCK SIM.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	% IN.
BACK REFL.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	% IN.
.1 ~~LB NODE~~	100 % .3 S.D. ~~IN.~~	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.
.3 ~~LB NODE~~	80 % .5 S.D. ~~IN.~~	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.
.5 ~~LB NODE~~	50 % .7 S.D. ~~IN.~~	% IN.	% IN.	% IN.	% IN.	% IN.
INITIALS	[signature]					

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY _____ LEVEL _____ DATE REVIEWED _____

KWU

Ultrasonic Inspection Report

Page 1 of ____
No. JAF 10 1384 - 3
Date 10/13/84

Client: PASNY

Location: J. A. FITZPATRICK N.P.P.

System: Recirculation line Weld Identification No.: 12-02-2-12

Inspected Area: whole circumference from pipe side, length evaluation of crack indications

Position of Weld Contour: NO WELD CONTOUR DONE

Reference Point Location: Top of pipe

Conclusion of Examination Results:

The found crack indications can be detected over the whole circumference (360 degrees) with short interuptions. Within these interuptions echo amplitudes do not drop below 20% DAC evaluated with SE II (mode conversion).
100% DAC = 10% ID NOTCH +14dB

DR. SEYDEL/II Seydel

Responsible Inspector _____ Level ____ Signature: _____

William E. Shutts LEVEL III

Kraftwerk Union AG

UNITED STATES TESTING COMPANY, INC.

12-02-2-12

10/16/84
Date

RADIOGRAPHIC EXAMINATION REPORT

Customer NYPA	R. T. Procedure/Rev. REACTOR CONTROLS INC RT1
Location JAFNPP	Specimen Description WELD
Purchase order no. NYO 82-246	Material Type S/S
Work request no. N/A	Dia./Thickness 12.750 / .688
Welder I. D. 7	Specimen I. D. RECIRC WELD 21B

Procedure Data

Gamma	X-Ray	
Source Type IR 192	Machine Mfg.	A
Curies 70	Kilovoltage	
Physical Size 1/8 X 1/8	Milliamperage	N
Effective Size .177	Focal Spot Size	

Penetrameter Designation	15F
Required Sensitivity/Essential Hole	2/4T
Shim Thickness	.093
Pb Screens: Front .010	Back .010
Source to Film Distance	12 3/4"

Film Type KODAK M	No. Exposures 4	Geometric Unsharpness .010
Film Size 4½ X 17	Total No. Film 8	Exposure Time 6 MIN

A ☐

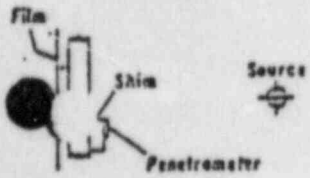
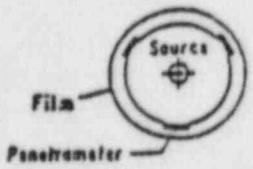


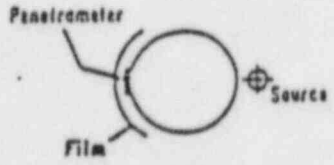
Plate-Test Coupons

B ☐



Panoramic

C ☑



Double Wall

D ☐

Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
21B	0-10				✓	✓	✓	✓		ARTIFACTS	2.8	2.8-2.9	✓	
	10-20			14" X	✓	✓				"	2.8	2.7-2.9		✓
	20-30									"	2.8	2.6-2.9	✓	
	30-0									"	2.85	2.7-3.0	✓	

Acceptance Criteria: Code/Addenda/Class – ASME III 68

Remarks: COUNTERBORE ≥ 3/4" from ℄ of weld

Radiographed By:

Interpreted By: R Koontz II 10-16-84
Date

Customer Review: Mark III 10-17-84
Name Level Date

6063A/5-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J. A. Fitzpatrick

DATA SHEET NO. JAF-091/A DATE 10-13-84

PROCEDURE JAF-UT-SWIZ REV 3

COMPONENT OR SYSTEM Recirculation Loop "A" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 122°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS 0.66" TEMP 120°F

SCAN COVERAGE

☒ 0° WHAZ ☒ 0° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

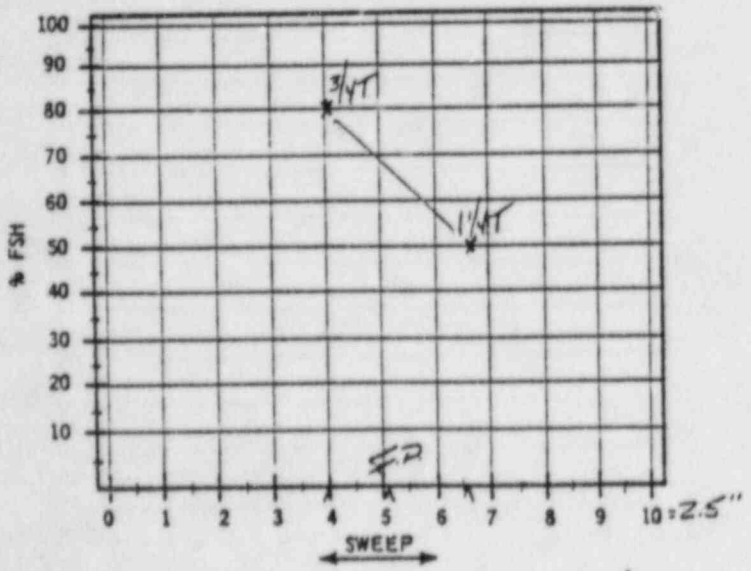
SEARCH UNIT

Manufacturer Aerotech
Style Gamma
Serial No. E14112
Size 0.5" DIA Frequency 2.25 MHZ
Angle 62° Mode Shear
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer Krautkramer Branson Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.5 MHZ Reject OFF
Rep Rate N/A Damping OFF
dB Gain – Coarse 20 Fine 34
Primary Reference Response Amplitude % Full Screen Height 80% FSH

DAC PLOT – TIME 1530 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
1910	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Burgett TC-1A LEVEL II
REVIEWED BY [signature] DATE 10/17/84

ADDITIONAL REMARKS

[signature] NYPA III
10/17/84

LD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-02-2-12	✓	N/A	SEE INDICATION DATA SHEET.

omments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also clude the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

INDICATION DATA

SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-2-1
CALIBRATION DATA SHEET NO. JAF-091/3

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON _____ (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
			1	ELBOW	50	3.2	0	.7						
			2	ELBOW	40	3.7	4 CW	.7						
			3	ELBOW	25	4.6	7 5/8 CW	.8						
			4	ELBOW	25	4.4	8 1/2 CW	.85						
			5	ELBOW	30	4.8	4 CW	1.0					NOTE: 25° TOWARDS 0°	
			6	ELBOW	25	3.5	2 CW	.7						
			7	ELBOW	20	2.4	1 1/2 CW	.6						
			8	ELBOW	15	3.0	40 CW	.6						
			9	ELBOW	40	3.8	3/6 CW	.6						
			10	ELBOW	30	2.2	35 CW	.6						
			11	ELBOW	20	2.0	31 1/2 CW	.6						

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
							60°
							ALL MEASUREMENTS TAKEN FROM TOE OF WELD
							TO INDEX POINT. Intermittent 360° in
							inclusions in base material

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Bowyer TC-1A LEVEL II
REVIEWED BY [signature] DATE 10/1/84

EBASCO SERVICES INCORPORATED

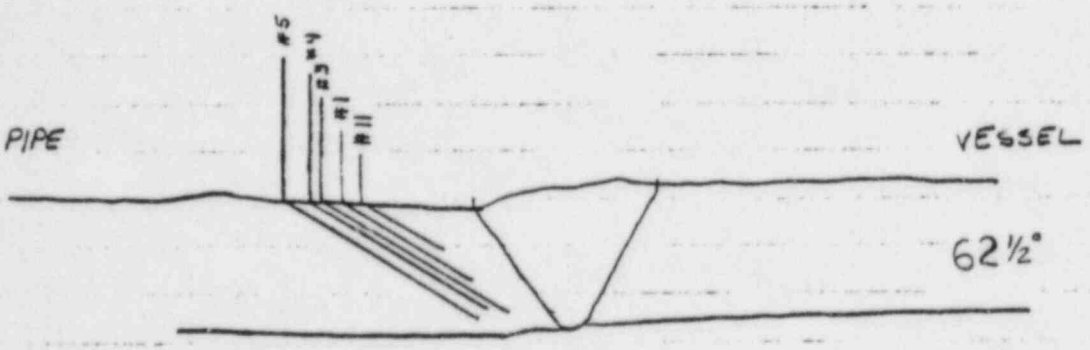
BY _____ DATE _____ SHEET 3 OF 4

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT JA FITZPATRICK Data Sheet # JAF-091A

SUBJECT 12-02-2-12 "A" Loop RECIRCULATION SYSTEM

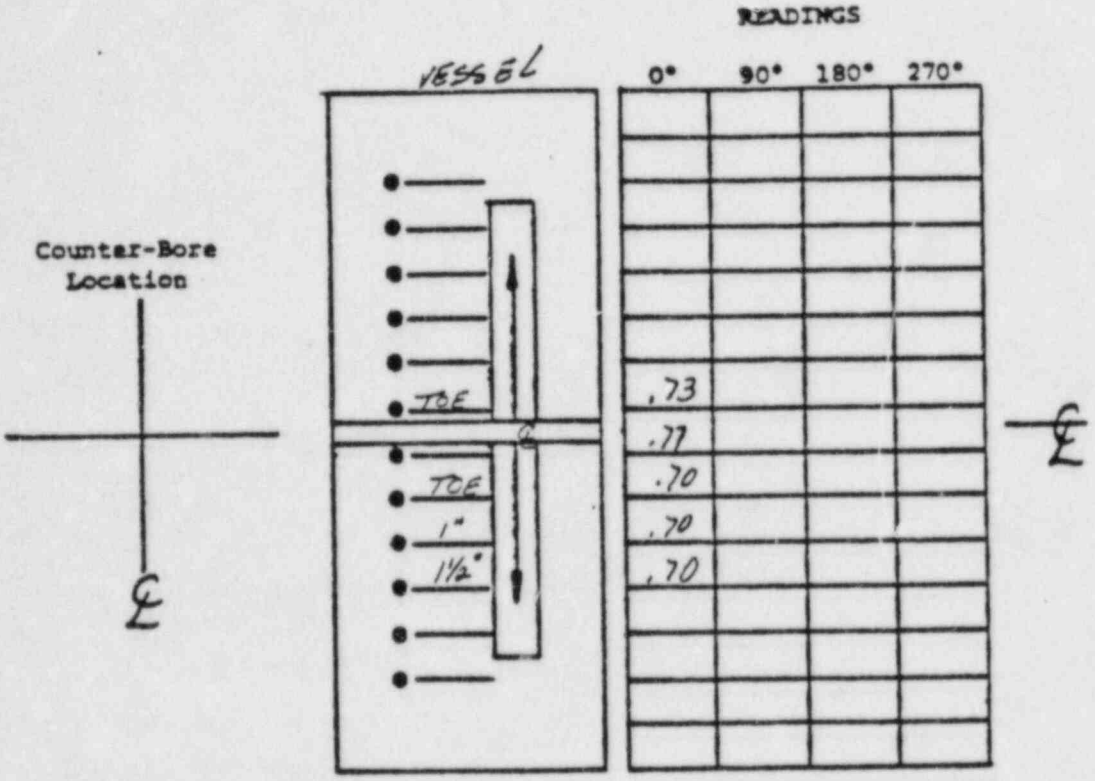


12-02-2-12

John A. O'Neil
Lev. I

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-12 System/Area RECIRC SAFE-ENDS

Examiner [signature] Level II Date 10-13-84

[signature]

Weld 12-02-2-12

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.4000	0.3000	0.700
0.25	0.4000	0.3000	0.700
0.50	0.4000	0.3000	0.700
0.75	0.4000	0.3000	0.700
1.00	0.4000	0.3000	0.700
1.25	0.4000	0.3000	0.700
1.50	0.4000	0.3000	0.700
1.75	0.4000	0.3000	0.700
2.00	0.4000	0.3000	0.700
2.25	0.3500	0.3500	0.700
2.50	0.3000	0.4000	0.700
2.75	0.2500	0.4500	0.700
3.00	0.2000	0.5000	0.700
3.25	0.1330	0.5670	0.700
3.50	0.0660	0.6340	0.700
3.75	0.0000	0.7000	0.700
4.00	0.0500	0.6500	0.700
4.25	0.0625	0.6375	0.700
4.50	0.0750	0.6250	0.700
4.75	0.0875	0.6125	0.700
5.00	0.1000	0.6000	0.700
5.25	0.1500	0.5500	0.700
5.50	0.2000	0.5000	0.700
5.75	0.2500	0.4500	0.700
6.00	0.3000	0.4000	0.700
6.25	0.3250	0.3750	0.700
6.50	0.3500	0.3500	0.700
6.75	0.3750	0.3250	0.700
7.00	0.4000	0.3000	0.700
7.25	0.4250	0.2750	0.700
7.50	0.4500	0.2500	0.700
7.75	0.4750	0.2250	0.700
8.00	0.5000	0.2000	0.700
8.25	0.4625	0.2375	0.700
8.50	0.4250	0.2750	0.700
8.75	0.3875	0.3125	0.700
9.00	0.3500	0.3500	0.700
9.25	0.3125	0.3875	0.700
9.50	0.2750	0.4250	0.700
9.75	0.2375	0.4625	0.700
10.00	0.2000	0.5000	0.700
10.25	0.1875	0.5125	0.700
10.50	0.1750	0.5250	0.700
10.75	0.1625	0.5375	0.700
11.00	0.1500	0.5500	0.700
11.25	0.1250	0.5750	0.700
11.50	0.1000	0.6000	0.700
11.75	0.0750	0.6250	0.700
12.00	0.0500	0.6500	0.700
12.25	0.0575	0.6425	0.700

Weld 12-02-2-12

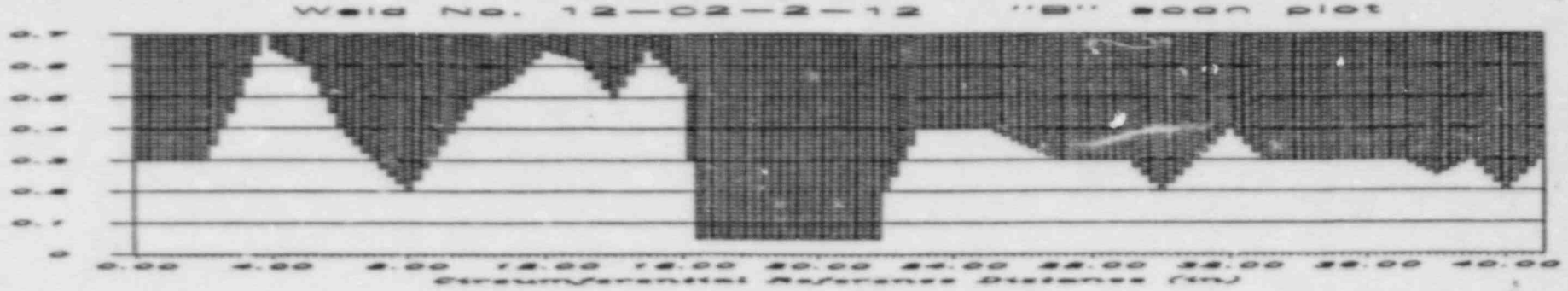
Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
12.50	0.0650	0.6350	0.700
12.75	0.0725	0.6275	0.700
13.00	0.0800	0.6200	0.700
13.25	0.1100	0.5900	0.700
13.50	0.1400	0.5600	0.700
13.75	0.1700	0.5300	0.700
14.00	0.2000	0.5000	0.700
14.25	0.1625	0.5375	0.700
14.50	0.1250	0.5750	0.700
14.75	0.0875	0.6125	0.700
15.00	0.0500	0.6500	0.700
15.25	0.0750	0.6250	0.700
15.50	0.1000	0.6000	0.700
15.75	0.1250	0.5750	0.700
16.00	0.1500	0.5500	0.700
16.25	0.4000	0.3000	0.700
16.50	0.6500	0.0500	0.700
16.75	0.6500	0.0500	0.700
17.00	0.6500	0.0500	0.700
17.25	0.6500	0.0500	0.700
17.50	0.6500	0.0500	0.700
17.75	0.6500	0.0500	0.700
18.00	0.6500	0.0500	0.700
18.25	0.6500	0.0500	0.700
18.50	0.6500	0.0500	0.700
18.75	0.6500	0.0500	0.700
19.00	0.6500	0.0500	0.700
19.25	0.6500	0.0500	0.700
19.50	0.6500	0.0500	0.700
19.75	0.6500	0.0500	0.700
20.00	0.6500	0.0500	0.700
20.25	0.6500	0.0500	0.700
20.50	0.6500	0.0500	0.700
20.75	0.6500	0.0500	0.700
21.00	0.6500	0.0500	0.700
21.25	0.6500	0.0500	0.700
21.50	0.6500	0.0500	0.700
21.75	0.6500	0.0500	0.700
22.00	0.5000	0.2000	0.700
22.25	0.4500	0.2500	0.700
22.50	0.4000	0.3000	0.700
22.75	0.3500	0.3500	0.700
23.00	0.3000	0.4000	0.700
23.25	0.3000	0.4000	0.700
23.50	0.3000	0.4000	0.700
23.75	0.3000	0.4000	0.700
24.00	0.3000	0.4000	0.700
24.25	0.3000	0.4000	0.700
24.50	0.3000	0.4000	0.700
24.75	0.3000	0.4000	0.700

Weld 12-02-2-12

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.3000	0.4000	0.700
25.25	0.3125	0.3875	0.700
25.50	0.3250	0.3750	0.700
25.75	0.3375	0.3625	0.700
26.00	0.3500	0.3500	0.700
26.25	0.3627	0.3373	0.700
26.50	0.3750	0.3250	0.700
26.75	0.3875	0.3125	0.700
27.00	0.4000	0.3000	0.700
27.25	0.4000	0.3000	0.700
27.50	0.4000	0.3000	0.700
27.75	0.4000	0.3000	0.700
28.00	0.4000	0.3000	0.700
28.25	0.4000	0.3000	0.700
28.50	0.4000	0.3000	0.700
28.75	0.4000	0.3000	0.700
29.00	0.4000	0.3000	0.700
29.25	0.4250	0.2750	0.700
29.50	0.4500	0.2500	0.700
29.75	0.4750	0.2250	0.700
30.00	0.5000	0.2000	0.700
30.25	0.4750	0.2250	0.700
30.50	0.4500	0.2500	0.700
30.75	0.4250	0.2750	0.700
31.00	0.4000	0.3000	0.700
31.25	0.3750	0.3250	0.700
31.50	0.3500	0.3500	0.700
31.75	0.3250	0.3750	0.700
32.00	0.3000	0.4000	0.700
32.25	0.3250	0.3750	0.700
32.50	0.3500	0.3500	0.700
32.75	0.3750	0.3250	0.700
33.00	0.4000	0.3000	0.700
33.25	0.4000	0.3000	0.700
33.50	0.4000	0.3000	0.700
33.75	0.4000	0.3000	0.700
34.00	0.4000	0.3000	0.700
34.25	0.4000	0.3000	0.700
34.50	0.4000	0.3000	0.700
34.75	0.4000	0.3000	0.700
35.00	0.4000	0.3000	0.700
35.25	0.4000	0.3000	0.700
35.50	0.4000	0.3000	0.700
35.75	0.4000	0.3000	0.700
36.00	0.4000	0.3000	0.700
36.25	0.4000	0.3000	0.700
36.50	0.4000	0.3000	0.700
36.75	0.4000	0.3000	0.700
37.00	0.4000	0.3000	0.700
37.25	0.4125	0.2875	0.700

Weld 12-02-2-12

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.4250	0.2750	0.700
37.75	0.4375	0.2625	0.700
38.00	0.4500	0.2500	0.700
38.25	0.4375	0.2625	0.700
38.50	0.4250	0.2750	0.700
38.75	0.4125	0.2875	0.700
39.00	0.4000	0.3000	0.700
39.25	0.4250	0.2750	0.700
39.50	0.4500	0.2500	0.700
39.75	0.4750	0.2250	0.700
40.00	0.5000	0.2000	0.700
40.25	0.4750	0.2250	0.700
40.50	0.4500	0.2500	0.700
40.75	0.4250	0.2750	0.700
41.00	0.4000	0.3000	0.700


Weld No. 12—02—2—12 "B" scan plot
0.00
4.00
8.00
12.00
16.00
20.00
24.00
28.00
32.00
36.00
40.00
Circumferential Reference Distance (in)

Weld 12-02-2-17

ULTRASONIC DATA SHEET

UNIT: JAFNPP	SYSTEM: 02-2/Recirc	COMPONENT: piping welds	
DESCRIPTION: Pipe-to-Safe end; Top of Riser			
WELD ID: 12-02-2-17	PROCEDURE: QAI-80 + Add.	MATERIAL: SS	THICKNESS: .70" / TEST SURFACE: OD
INSTRUMENT(S): USL-38	CAL-BLOCK(S): (See CAL. sheets)	CRYSTAL: 53475	CRYSTAL: 84-88 / CRYSTAL:
NODE: SE/L / BEAM DIRECTION: Trans, Circ/Ax / NO.POSITIONS: 41		ANGLE: 45°	ANGLE: 73° / ANGLE: N/A
DISTANCE: 1.0" / #1 REF: Top of Pipe		TIME START: 1100	TIME START: 1100 / TIME START:
COUPLANT: ULTRAGEL II / COUPLANT BATCH NO.: 8443		TIME STOP: 1400	TIME STOP: 1400 / TIME STOP:
CAL. SHEET: JAF-EVAL-008 & 009		DATE: 10/15/84	DATE: 10/15/84 / DATE:
PERFORMED BY: George Seeber George Seeber		ID#: S-1765	LEVEL: III
PERFORMED BY: N/A		ID#: N/A	LEVEL: N/A

LIMITED SCAN ☐ NO ☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH(%DAC) 20 TO 20	LEN. LENGTH(%DAC) 50 TO 50	LEN. LENGTH(%DAC) 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	(INCHES) CRYSTAL DISTANCE FROM A	(INCHES) CRYSTAL DISTANCE FROM B	(INCHES) CRYSTAL DISTANCE FROM 1	(INCHES) CRYSTAL DISTANCE FROM 2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MINIMUM POSITION (IN.) 1	MINIMUM POSITION (IN.) 2	MAXIMUM DISTANCE FROM SURFACE IN.	MAXIMUM POSITION (IN.) 1	MAXIMUM POSITION (IN.) 2	REMARKS
		See attached charts & plot (.8" Scan) for values -													A	B		A	B	Two (2) small indications - both ≥ 10% thru-wall;

REVIEWED BY: / LEVEL: / DATE REVIEWED: / FIGURE NO.:

SK-JAF-82-002 / WRED NO.: / DATA SHEET NO.:

CALIBRATION SHEET

SHEET NO: JAF-RMC-005 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc. COMPONENT: piping welds

EXAMINER: George Seckler ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586
LINEARITY CHECK [X] YES [ ] NO
REJECT: OFF %DB
MAT'L. CAL.: 182
DELAY: 678
PULSE ENERGY: S.P.D.
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 12
FINE GAIN: 10 %
SCREEN RANGE: 2.5
SCREEN DEPTH: 1.0 IN.
[ ] T&R [X] NORMAL } OPERATION
FREQUENCY: 5 MHZ.
[X] NORMAL [ ] RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN:
DLY: } DAC
SLP:
POLARITY:
WIDTH: } GATE %
DELAY:
[ ] NORMAL [ ] FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A376-.25
LENGTH: IN.
OD: IN.
THICKNESS: IN.

CRYSTAL

ID# 53475
TYPE DWC
FREQ. 4 MHZ
SIZE 8x8mm #1
ACTUAL Δ 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE "
SIGNAL AMP % SCREEN READING "
COURSE GAIN DB N/A FINE GAIN DB

SEARCH UNIT CABLE

TYPE Euclid LENGTH 6'

CAL. BLOCK TEMP. F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE sheer

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" 1S NODE	100 + %	50%-.10 IN.
.15" 1S NODE	100 + %	60%-.15 IN.
.20" 1S NODE	100 + %	40%-.20 IN.
.25" 1S NODE	100 + %	40%-.25 IN.
.30" 1S NODE	100 + %	30%-.30 IN.
.35" 1S NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.		HRS		HRS		HRS.		HRS.		HRS.		HR
BLOCK SIM.	%	N/A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.15" 1S NODE	100 %	60% .15 IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.25" 1S NODE	100 %	40% .25 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.35" 1S NODE	100 %	25% .35 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS													

* BKR CB (BACK REFLECTION FROM CAL. BLOCK) * BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

SK-JAF-81-011

CALIBRATION SHEET

SHEET NO: JAFUAL-009 | TIME: 1100 HR | DATE: 10/15/84

IT: JAFNPP | SYSTEM: 02-2/RECIRC. | COMPONENT: PIPING WELDS

EXAMINER: George Sadler | ID#: 5-1765 | LEVEL: III | COUPLANT: ULTRAGEL II

EXAMINER: N/A | ID#: N/A | LEVEL: N/A | COUPLANT ID#: 8443

INSTRUMENT

#: 210568
NEARITY CHECK ☒ YES ☐ NO
EJECT: off %DB
AT'L. CAL.: 966
ELAY: 682
ULSE ENERGY: 0/T
OARSE GAIN IN DB: 40
INE GAIN IN DB: 22
INE GAIN: 15 %
CREEN RANGE: .5
CREEN DEPTH: 4.0 IN.
☒ T&R ☐ NORMAL } OPERATION
REQUENCY: 2.5 MHZ.
☒ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN:
DLY: } DAC
SLP:
POLARITY:
WIDTH: } GATE %
DELAY:
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD A376-.75
LENGTH: 12 IN.
OD: 1.25 IN.
THICKNESS: .75 IN.

CRYSTAL

ID#: 84-88
TYPE: RTD
FREQ.: 2 MHZ
SIZE: 6X13 mm IMP
ACTUAL Δ: 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO.: ____ SCREEN RANGE: N/A IN.
SIGNAL AMP: ____ % SCREEN READING: N/A IN.
COURSE GAIN DB: ____ FINE GAIN DB: ____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. ____ F°
CAL. BLOCK SIMULATOR TEMP. ____ F° N/A
(REQUIRED SUMMER 75 FOR VESSEL; REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° NODE Longitudinal

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES S.D.
.1 LB NODE	100 %	.3 S.D. IN.
.2 LB NODE	90 %	.45 S.D. IN.
.3 LB NODE	70 %	.5 S.D. IN.
.4 LB NODE	55 %	.6 S.D. IN.
.5 LB NODE	40 %	.7 S.D. IN.
.6 LB NODE	30 %	.8 S.D. IN.
TOP NOTCH	N/A %	N/A IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.	HRS.	HRS.	HRS.	HRS.	HR
BLOCK SIM.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	%
BACK REFL.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	%
.1 LB NODE	100 % .3 S.D. IN.	% N/A IN.	% IN.	% IN.	% IN.	%
.3 LB NODE	80 % .5 S.D. IN.	% N/A IN.	% IN.	% IN.	% IN.	%
.5 LB NODE	50 % .7 S.D. IN.	% IN.	% IN.	% IN.	% IN.	%
INITIALS	[illegible]					

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

DATE REVIEWED ____

SK-JAF-81-011

Void Zone Horizontal Cross Plot

Weld 12-02-2-17

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.6500	0.0500	0.700
0.25	0.6375	0.0625	0.700
0.50	0.6250	0.0750	0.700
0.75	0.6125	0.0875	0.700
1.00	0.6000	0.1000	0.700
1.25	0.5950	0.1050	0.700
1.50	0.5900	0.1100	0.700
1.75	0.5850	0.1150	0.700
2.00	0.5800	0.1200	0.700
2.25	0.5850	0.1150	0.700
2.50	0.5900	0.1100	0.700
2.75	0.5950	0.1050	0.700
3.00	0.6000	0.1000	0.700
3.25	0.6125	0.0875	0.700
3.50	0.6250	0.0750	0.700
3.75	0.6375	0.0625	0.700
4.00	0.6500	0.0500	0.700
4.25	0.6500	0.0500	0.700
4.50	0.6500	0.0500	0.700
4.75	0.6500	0.0500	0.700
5.00	0.6500	0.0500	0.700
5.25	0.6500	0.0500	0.700
5.50	0.6500	0.0500	0.700
5.75	0.6500	0.0500	0.700
6.00	0.6500	0.0500	0.700
6.25	0.6500	0.0500	0.700
6.50	0.6500	0.0500	0.700
6.75	0.6500	0.0500	0.700
7.00	0.6500	0.0500	0.700
7.25	0.6500	0.0500	0.700
7.50	0.6500	0.0500	0.700
7.75	0.6500	0.0500	0.700
8.00	0.6500	0.0500	0.700
8.25	0.6500	0.0500	0.700
8.50	0.6500	0.0500	0.700
8.75	0.6500	0.0500	0.700
9.00	0.6500	0.0500	0.700
9.25	0.6500	0.0500	0.700
9.50	0.6500	0.0500	0.700
9.75	0.6500	0.0500	0.700
10.00	0.6500	0.0500	0.700
10.25	0.6500	0.0500	0.700
10.50	0.6500	0.0500	0.700
10.75	0.6500	0.0500	0.700
11.00	0.6500	0.0500	0.700
11.25	0.6375	0.0625	0.700
11.50	0.6250	0.0750	0.700
11.75	0.6125	0.0875	0.700
12.00	0.6000	0.1000	0.700
12.25	0.5950	0.1050	0.700

Weld 12-02-2-17

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
12.50	0.5900	0.1100	0.700
12.75	0.5850	0.1150	0.700
13.00	0.5800	0.1200	0.700
13.25	0.5900	0.1100	0.700
13.50	0.6000	0.1000	0.700
13.75	0.6100	0.0900	0.700
14.00	0.6200	0.0800	0.700
14.25	0.6275	0.0725	0.700
14.50	0.6350	0.0650	0.700
14.75	0.6425	0.0575	0.700
15.00	0.6500	0.0500	0.700
15.25	0.6500	0.0500	0.700
15.50	0.6500	0.0500	0.700
15.75	0.6500	0.0500	0.700
16.00	0.6500	0.0500	0.700
16.25	0.6500	0.0500	0.700
16.50	0.6500	0.0500	0.700
16.75	0.6500	0.0500	0.700
17.00	0.6500	0.0500	0.700
17.25	0.6500	0.0500	0.700
17.50	0.6500	0.0500	0.700
17.75	0.6500	0.0500	0.700
18.00	0.6500	0.0500	0.700
18.25	0.6500	0.0500	0.700
18.50	0.6500	0.0500	0.700
18.75	0.6500	0.0500	0.700
19.00	0.6500	0.0500	0.700
19.25	0.6500	0.0500	0.700
19.50	0.6500	0.0500	0.700
19.75	0.6500	0.0500	0.700
20.00	0.6500	0.0500	0.700
20.25	0.6500	0.0500	0.700
20.50	0.6500	0.0500	0.700
20.75	0.6500	0.0500	0.700
21.00	0.6500	0.0500	0.700
21.25	0.6500	0.0500	0.700
21.50	0.6500	0.0500	0.700
21.75	0.6500	0.0500	0.700
22.00	0.6500	0.0500	0.700
22.25	0.6500	0.0500	0.700
22.50	0.6500	0.0500	0.700
22.75	0.6500	0.0500	0.700
23.00	0.6500	0.0500	0.700
23.25	0.6500	0.0500	0.700
23.50	0.6500	0.0500	0.700
23.75	0.6500	0.0500	0.700
24.00	0.6500	0.0500	0.700
24.25	0.6500	0.0500	0.700
24.50	0.6500	0.0500	0.700
24.75	0.6500	0.0500	0.700

Weld 12-02-2-17

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.6500	0.0500	0.700
25.25	0.6500	0.0500	0.700
25.50	0.6500	0.0500	0.700
25.75	0.6500	0.0500	0.700
26.00	0.6500	0.0500	0.700
26.25	0.6500	0.0500	0.700
26.50	0.6500	0.0500	0.700
26.75	0.6500	0.0500	0.700
27.00	0.6500	0.0500	0.700
27.25	0.6500	0.0500	0.700
27.50	0.6500	0.0500	0.700
27.75	0.6500	0.0500	0.700
28.00	0.6500	0.0500	0.700
28.25	0.6500	0.0500	0.700
28.50	0.6500	0.0500	0.700
28.75	0.6500	0.0500	0.700
29.00	0.6500	0.0500	0.700
29.25	0.6500	0.0500	0.700
29.50	0.6500	0.0500	0.700
29.75	0.6500	0.0500	0.700
30.00	0.6500	0.0500	0.700
30.25	0.6500	0.0500	0.700
30.50	0.6500	0.0500	0.700
30.75	0.6500	0.0500	0.700
31.00	0.6500	0.0500	0.700
31.25	0.6500	0.0500	0.700
31.50	0.6500	0.0500	0.700
31.75	0.6500	0.0500	0.700
32.00	0.6500	0.0500	0.700
32.25	0.6500	0.0500	0.700
32.50	0.6500	0.0500	0.700
32.75	0.6500	0.0500	0.700
33.00	0.6500	0.0500	0.700
33.25	0.6500	0.0500	0.700
33.50	0.6500	0.0500	0.700
33.75	0.6500	0.0500	0.700
34.00	0.6500	0.0500	0.700
34.25	0.6500	0.0500	0.700
34.50	0.6500	0.0500	0.700
34.75	0.6500	0.0500	0.700
35.00	0.6500	0.0500	0.700
35.25	0.6500	0.0500	0.700
35.50	0.6500	0.0500	0.700
35.75	0.6500	0.0500	0.700
36.00	0.6500	0.0500	0.700
36.25	0.6500	0.0500	0.700
36.50	0.6500	0.0500	0.700
36.75	0.6500	0.0500	0.700
37.00	0.6500	0.0500	0.700
37.25	0.6500	0.0500	0.700

Weld 12-02-2-17

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.6500	0.0500	0.700
37.75	0.6500	0.0500	0.700
38.00	0.6500	0.0500	0.700
38.25	0.6500	0.0500	0.700
38.50	0.6500	0.0500	0.700
38.75	0.6500	0.0500	0.700
39.00	0.6500	0.0500	0.700
39.25	0.6500	0.0500	0.700
39.50	0.6500	0.0500	0.700
39.75	0.6500	0.0500	0.700
40.00	0.6500	0.0500	0.700
40.25	0.6500	0.0500	0.700
40.50	0.6500	0.0500	0.700
40.75	0.6500	0.0500	0.700
41.00	0.6500	0.0500	0.700

PAGE 1 OF 6

REPORT NO. JAF/01684-

REPORT OF UT INSPECTION

DATE 10-16-84

CLIENT New York Power Authority

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-17 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFE END MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS _____ INCHE

SURFACE CONDITION OF PIPE ground OF WELD ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 125 C

METHOD OF EXAMINATION: AUTOMATIC ÷ MANUAL X SEMI-AUTO ÷

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60		SBI SLIC40	SUSI SUS423	KK MWB 70
SERIAL NO.	1.03	V#3	V#3				
TRANSDUCER SIZE (MM) (INCHES)	8x9	8x9	8x9		2x Ø9.5	Ø9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	61°/32°	44°	57°				
EXIT POINT (MM) (INCHES)	12/10	13	13				
REMARKS:	mode-conversion	shear	shear		long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK USK 7
SERIAL NUMBER		27274-2606
CALIBRATION DATE		08-23-84
CABLE TYPE		COAXIAL
CABLE LENGTH		2m

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc

B.ACCT. NO. # 8443

PERSONNEL PERFORMING EXAMINATION:

NAME U. SCHWANKE LEVEL II SIGNATURE _____

NAME H.-P. THEELEN LEVEL II SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

REPORT NO. JAF101684-3
DATE 10-16-84

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	34	30	25	20	15	10	÷

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

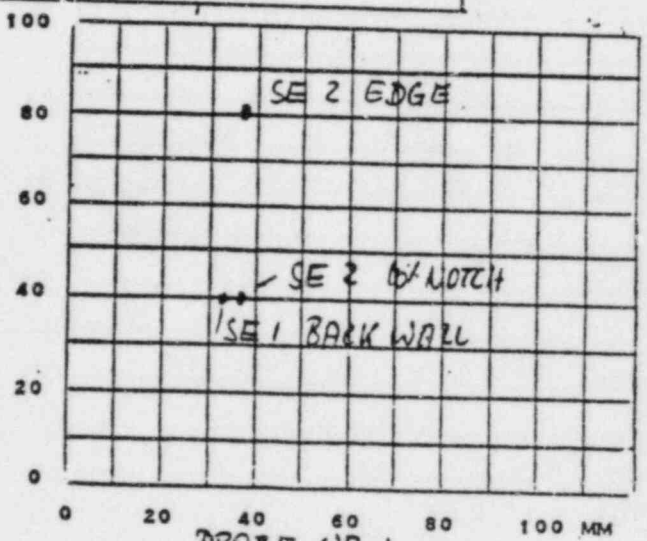
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTO , REFER TO CAL. NO. 1763-82384

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER n.a.
MATERIAL SS 304
REFERENCE REFLECTORS 10% NOTCH ID
REFERENCE REFLECTORS EDGE ID
REFERENCE REFLECTORS BACK WALL
REFERENCE REFLECTORS
REFERENCE REFLECTORS



V-PATH DATA

PROBE NO.	PROBE NO	METAL (MM) PATH (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK ÷ S/N ÷ REF. REFL. ÷ TEMP. ÷ °F
REF. BLOCK 12 A376-.66 S/N ÷ REF. REFL. 10% NOTCH ID TEMP. 115 °F
THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)			SWEEP RANGE
U. SCHWANKE	13:30	SE 2	48 dB	80% FSH	3.6
U. SCHWANKE	17:00	SE 2	48 dB	80% FSH	3.6

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 101684-3

DATE 10-16-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) ~~(IN)~~	AMPLITUDE (DB) 80% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	36	48	12-A376-.66	SE 2
	EDGE ID	37	42	-"-	SE 2
	BACKWALL	34	48	-"-	SE 1
2	10% NOTCH ID	22	26	12-A376-.66	1/2 V-PATH
	10% NOTCH OD	45	32	-"-	2/2 V-PATH
	10% NOTCH ID	69	34	-"-	3/2 V-PATH
3	10% NOTCH ID	28	40	12-A376-.66	1/2 V-PATH
4					
5					
6					

REFERENCE POINT LOCATION Top of Pipe & WCL

			REFLECTOR POSITION/MM											
			Y LINEAR EXTEND FROM REFERENCE CW			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW	
1	1	1	275	280	315	-	10	-	-	-	<10%	-	-16	42

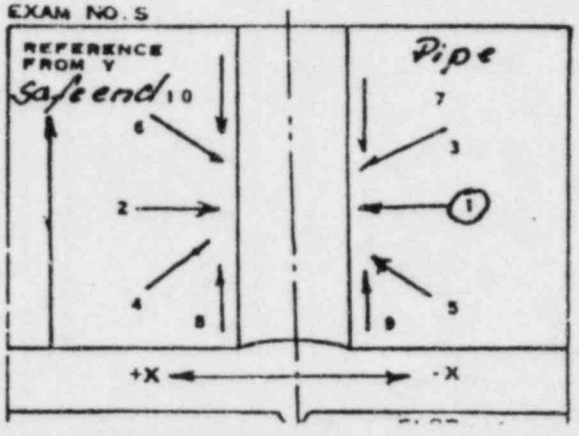
EXAMINER SCHWANKE LEVEL II

SIGNATURE

AUTHORIZED INSPECTOR

CLIENT (IF REQUIRED) UT. (IF REQUIRED) 12/17/84

EXAM NO.S



PAGE 4 OF 6

REPORT NO. JAF 101684-1

DATE 12-16-84

REPORT NO. JAF 101684-3

PAGE 5 OF 6

DATA STANDARD REPORT OF INDICATION NUMBER 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT POINT X	Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	68°/32°	1	28	280	64	42	CE 2
2	1	68°/32°	1	35	280	68	38	direct shear wave
3	2	44°	1	61	280	58	68	3/2 V
4	3	57°	1	35	280	56	30	

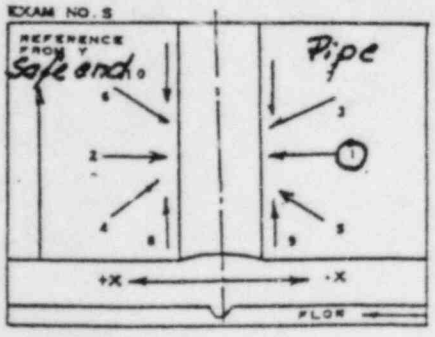
Safeend

DEGREES

*0 180 360

Pipe

LOCATION OF DEFECT ON CIRCUMFERENCE OF PIPE



EXAMINER U. Schwanke LEVEL II

LEVEL III
REVIEWED BY Wilfred E. Shutt DATE 10-17-84

AUTHORIZED INSPECTOR _____

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

UT—INSPECTION —IGSCC—

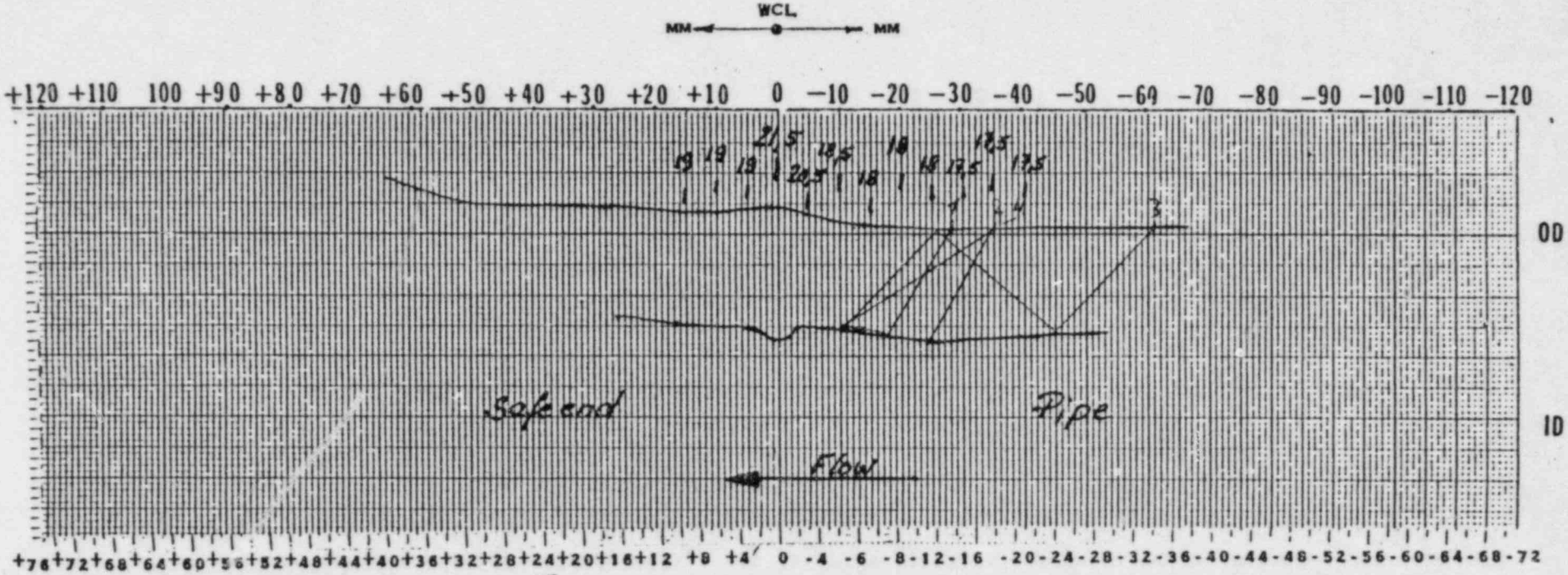
Weld Identification No 12-02-2-17

~~Signal No~~ Indication No. 1

Coodinate from reference point "Y" 280 mm CW

Probes Used	Probe No.	Signal No.
Wall Thickness	MSEB 4H	
Root Center	MSEB 4H	
Other Data	1	1, 2
	2	3
	3	4

INSPECTION CONTOUR



INSPECTOR U. SCHWANKE Level II

DATE 10-16-84

WCL

INCHES

1/16"

Report No. JAE 10/6/84-3 page 6 of 6

UNITED STATES TESTING COMPANY, INC.

12-02-2-17

10/16/84
Date

RADIOGRAPHIC EXAMINATION REPORT

Customer NYPA
Location JAFNPP
Purchase order no. NYO 82-246
Work request no. N/A
Welder I. D. 7+8

R. T. Procedure/Rev. REACTOR CONTROLS INC. RT1
Specimen Description WELD
Material Type S/S
Dia./Thickness 12.750/.668
Specimen I. D. RECIRC WELD 17B

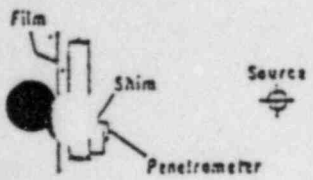
Procedure Data

Gamma		X-Ray		
Source Type	IR 192	Machine Mfg.		
Curies	95	Kilovoltage		
Physical Size	1/8 x 48	Milliamperage	N/A	
Effective Size	.177	Focal Spot Size		

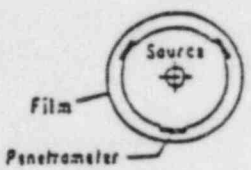
Penetrameter Designation 15 F
Required Sensitivity/Essential Hole 2/4T
Shim Thickness .063
Pb Screens: Front .010 Back .010
Source to Film Distance 12 3/4

Film Type KODAK M
Film Size 4½ x 17
No. Exposures 4
Total No. Film 8
Geometric Unsharpness .010
Exposure Time 4½ MIN

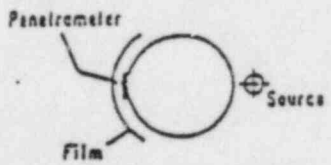
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☒ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
17B	0-10					✓		✓	✓	ARTIFACTS	2.65	2.3-2.5	✓	
	10-20					✓		✓	✓	ARTIFACTS	2.77	2.7-3.0	✓	
	20-30				✓	✓		✓	✓	ARTIFACTS	2.66	2.5-2.7	✓	
	30-0						✓	✓	✓	ARTIFACTS	2.7	2.4-2.7	✓	

Acceptance Criteria: Code/Addenda/Class – ASME III 68

Remarks: COUNTER BORE ≃ 3/4" FROM ℄ of WELD

Radiographed By:

Interpreted By: R Kroutil II 10-16-84
Date

Customer Review: [signature] II 10-17-84
Name Level Date

6063A/8-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT JA FITZPATRICK

DATA SHEET NO. JAF-095/A DATE 10-12-84

PROCEDURE JAF-UT-5 Add 1+2 REV 3

COMPONENT OR SYSTEM "A" LOOP RECIRCULATION PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 127°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS 0.66" TEMP 105°F

SCAN COVERAGE

N/A 0° WHAZ N/A 0° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer KB AEROTECH
Style GAMMA
Serial No. E14H2
Size 0.50" ø Frequency 2.25 MHz.
Angle 62.5° Mode SHEAR

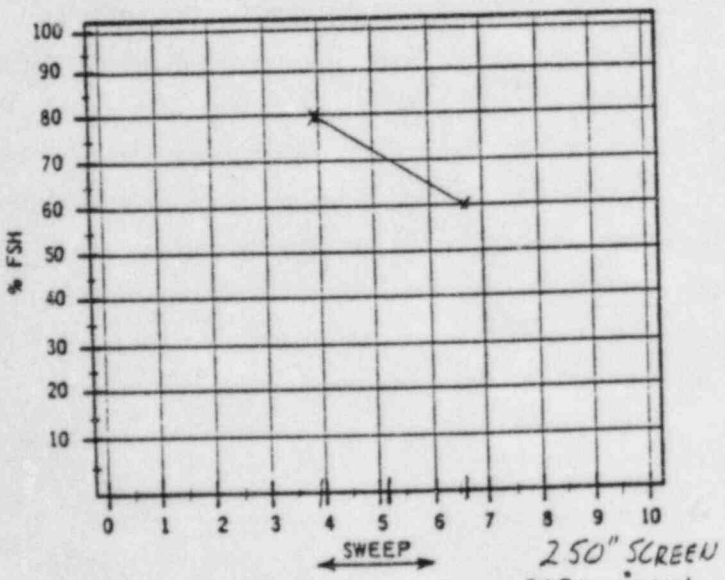
Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER-BRANSON Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.25 MHZ Reject NA
Rep Rate NA Damping N/A
dB Gain – Coarse 20 Fine 34

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 1635 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
2030	X	NA	X	NA

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-IA LEVEL III
2. John R. O'Neil TC-IA LEVEL Lev I
REVIEWED BY Otis Smith III DATE 10/17

ADDITIONAL REMARKS

3/4 T-3.9 @ 80% @ 54 dB
ID -5.2 @ 2½" SCREEN

[signature] NDE III 10/17/84

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
12-02-2-17	X		See Indication Data Sheet

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-2-17
CALIBRATION DATA SHEET NO. JAF-095/4

62.5°

DATA TABULATION

SCAN DIRECTION: ST. BEAM	SCAN DIRECTION: CIRCUMFERENTIAL	SCAN DIRECTION: AXIAL	INDICATION NO.	EXAM. ON ____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM WELD ℄)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: S.U. POSITION	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: S.U. POSITION	STRAIGHT BEAM (CAL ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	STRAIGHT BEAM (CAL ON BACK REFLECTION): BACK REFLECTION AMPLITUDE (% FSH)
		X	1	PIPE-ELBOW	25 FSH	3.2	13°CW	0.50"					NOTE: 360° LOW AMPLITUDE	
		X	2	PIPE-ELBOW	75	4.1	0°CW	0.70"					NOTE: MULTIPLE	

RESULTS

INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% T: DEPTH (IF PLANAR)	% T: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
							62½° - ALL MEASUREMENTS TAKEN FROM TOE OF WELD. EXAMINATION 360°

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S) 1. [signature] TC-1A LEVEL II

2. John R. O'Neil Jr. TC-1A LEVEL I

REVIEWED BY [signature] DATE 10/17/84

EBASCO SERVICES INCORPORATED

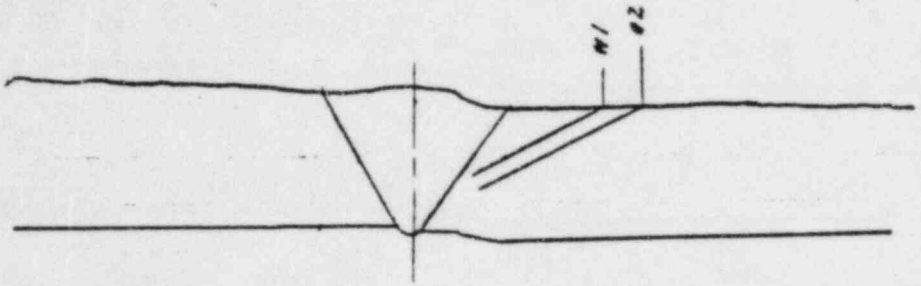
BY _____ DATE _____ SHEET 3 OF 4

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT J.A. FITZPATRICK Data Sheet # JAF-095/A

SUBJECT 12-02-2-17 RECIRCULATION SYSTEM "A" Loop

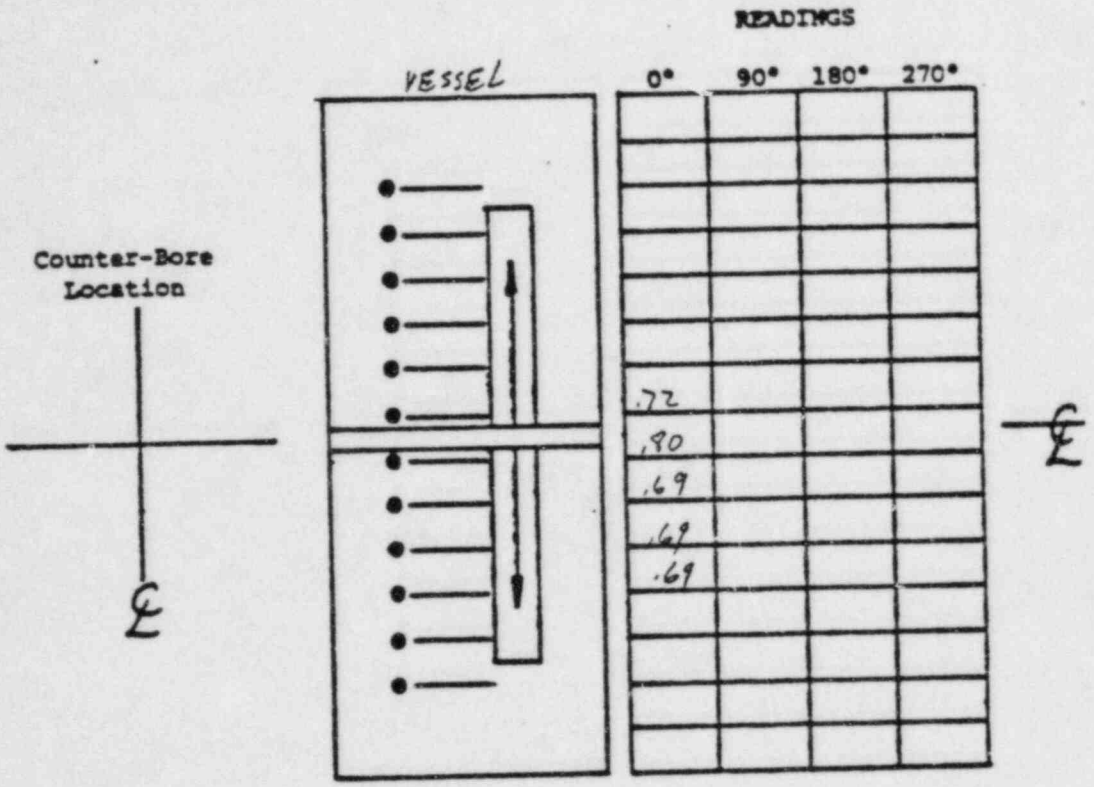


62½°

12-02-2-17

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-17 System/Area RECIRC SAFE-ENDS

Examiner J. Flannigan Level III Date 10-13-84

Weld 12-02-2-23

ULTRASONIC DATA SHEET

UNIT: JAFNPP | SYSTEM: 02-2 Recirc | COMPONENT: piping welds

DESCRIPTION: Pipe-to-Safe end: Top of Riser "C"

WELD ID: 12-02-2-23	PROCEDURE: PDI 80 + Addl.	MATERIAL: SS	THICKNESS: .71	TEST SURFACE: OD	
INSTRUMENT(S): USC-38	CAL-BLOCK(S): (See cal. sheets)	CRYSTAL: 53475	CRYSTAL: 84-88	CRYSTAL:	
NODE: 5 & 6	BEAM DIRECTION: Trans. Longitudinal	NO. POSITIONS: 41	ANGLE: 45°	ANGLE: 73°	ANGLE:
DISTANCE: 1.0"	#1 REF: Top-of-pipe		TIME START: 1100	TIME START: 1100	TIME START:
COUPLANT: ULTRAGEL II	COUPLANT BATCH NO.: 8443		TIME STOP: 1400	TIME STOP: 1400	TIME STOP:
CAL. SHEET: JAF-EVAL-008 & 009			DATE: 10/15/84	DATE: 10/15/84	DATE:
PERFORMED BY: George Seeber			ID#: 5-1765	LEVEL: III	
PERFORMED BY: N/A			ID#: N/A	LEVEL: N/A	

LIMITED SCAN

☒ NO

☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (%DAC) 20 TO 20	LEN. LENGTH (%DAC) 50 TO 50	LEN. LENGTH (%DAC) 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	(INCHES) CRYSTAL DISTANCE FROM A	(INCHES) CRYSTAL DISTANCE FROM B	(INCHES) CRYSTAL DISTANCE FROM 1	(INCHES) CRYSTAL DISTANCE FROM 2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MINIMUM POSITION (IN.) 1	MINIMUM POSITION (IN.) 2	HALF MAXIMUM AMPLITUDE MAXIMUM DISTANCE FROM SURFACE IN.	MAXIMUM POSITION (IN.) 1	MAXIMUM POSITION (IN.) 2	REMARKS
		See	Attached	Charts	&	plot	(B"	Scan)	For	Values	-									360° Intermittent
																				1-75% Clad-wall.

REVIEWED BY: | LEVEL: | DATE REVIEWED: | FIGURE NO.:

SK-IAF-82-002 | WRED NO.: | DATA SHEET NO.:

CALIBRATION SHEET

SHEET NO: JAF-RMC-005 TIME: 1100 HR DATE: 10/15/84

INIT: JAFMPP SYSTEM: 02-2/Reactor COMPONENT: piping welds

EXAMINER: George Seekins ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586
LINEARITY CHECK [X] YES [ ] NO
REJECT: OFF %DB
MAT'L. CAL.: 182
DELAY: 678
PULSE ENERGY: S.E.D.
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 12
FINE GAIN: 10 %
SCREEN RANGE: 2.5
SCREEN DEPTH: 1.0 IN.
[ ] T&R [X] NORMAL } OPERATION
FREQUENCY: 5 MHZ.
[X] NORMAL [ ] RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN: DLY: SLP: } DAC
POLARITY: WIDTH: DELAY: } GATE %
[ ] NORMAL [ ] FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A376-.25
LENGTH: IN.
OD: IN.
THICKNESS: IN.

CRYSTAL

ID#: 53475
TYPE: dual
FREQ.: 4 MHZ
SIZE: 8x8mm in.
ACTUAL ∠: 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE "
SIGNAL AMP % SCREEN READING "
COURSE GAIN DB N/A FINE GAIN DB

SEARCH UNIT CABLE

TYPE Burleigh LENGTH 6'

CAL. BLOCK TEMP. F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE shear

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" 1/8 NODE	100 + %	50%-.10 IN.
.15" 1/8 NODE	100 + %	60%-.15 IN.
.20" 1/8 NODE	100 + %	40%-.20 IN.
.25" 1/8 NODE	100 + %	40%-.25 IN.
.30" 1/8 NODE	100 + %	30%-.30 IN.
.35" 1/8 NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	%	IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.		HRS		HRS		HRS.		HRS.		HRS.		HI
BLOCK SIM.	%	N/A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	N/A %	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.15" 1/8 NODE	100 %	.15 IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.25" 1/8 NODE	100 %	.25 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.35" 1/8 NODE	100 %	.35 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS													

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

SK-JAF-81-011

CALIBRATION SHEET

SHEET NO: JAFNUAL-009 TIME: 1100 HR DATE: 10/15/84

PLANT: JAFNPP SYSTEM: 02-2/Recirc. COMPONENT: Piping welds

EXAMINER: George Sabbe ID#: S-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

#: 210568
LINEARITY CHECK ☒ YES ☐ NO
REJECT: off %DB
ATT. CAL.: 966
DELAY: 682
PULSE ENERGY: 0/T
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 22
FINE GAIN: 15 %
SCREEN RANGE: .5
SCREEN DEPTH: 1.0 IN.
☐ T&R ☐ NORMAL } OPERATION
FREQUENCY: 2.5 MHZ.
☐ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN: DLY: SLP: } DAC
POLARITY: WIDTH: DELAY: } GATE %
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75
LENGTH: 12 IN.
OD: 1.25 IN.
THICKNESS: .75 IN.

CRYSTAL

ID#: 84-88
TYPE: RTD
FREQ.: 2 MHZ
SIZE: 6X13 mm IN.
ACTUAL Δ: 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. _____ SCREEN RANGE _____ IN.
SIGNAL AMP _____ % SCREEN READING _____ IN.
COURSE GAIN DB _____ FINE GAIN DB _____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. _____ F°
CAL. BLOCK SIMULATOR TEMP. _____ F° N
(REQUIRED SUMMER 75 FOR VESSELS Δ
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° MODE Longitudinal

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.1 ~~IB NODE~~	100 %	.3 SD. IN.
.2 ~~IB NODE~~	90 %	.45D. IN.
.3 ~~IB NODE~~	70 %	.5 SD. IN.
.4 ~~IB NODE~~	55 %	.6 SD. IN.
.5 ~~IB NODE~~	40 %	.7 SD. IN.
.6 ~~IB NODE~~	30 %	.8 S.D. IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N %	N IN.
BKR. CB*	Δ %	Δ IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.		HRS.		HRS.		HRS.		HRS.		HR
BLOCK SIM.	%	N IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	%	Δ IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.1 ~~IB NODE~~	100 %	.3 SD. IN.	%	N IN.	%	N IN.	%	N IN.	%	N IN.	%
.3 ~~IB NODE~~	80 %	.5 SD. IN.	%	Δ IN.	%	Δ IN.	%	Δ IN.	%	Δ IN.	%
.5 ~~IB NODE~~	50 %	.7 SD. IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS	GSabbe										

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY: LEVEL: SK-JAF-81-011 DATE REVIEWED

PAGE 1 OF 6

REPORT OF UT INSPECTION

REPORT NO. JAF 101584-1

CLIENT New York Power Authority

DATE 10-13-84

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-23 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFEND MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS 1.65 INCHES

SURFACE CONDITION OF PIPE ground OF WELD ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 100 °F

METHOD OF EXAMINATION: AUTOMATIC - MANUAL X SEMI-AUTO -

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60	RTD SEL 70	SKL SLIC40	SUSI SUS42B	KK MWB 70
SERIAL NO.	# 7		V # 2	80-580			
TRANSDUCER SIZE (MM) (~~INCHES~~)	8x9	8x9	8x9	2x7x15	2x Ø9.5	Ø9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/32°		57°	70			
EXIT POINT (MM) (~~INCHES~~)	12/10		13	9			
REMARKS:	mode-conver-sion	shear	shear	high-long-mode	long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		4K USH 7
SERIAL NUMBER		27274-2613
CALIBRATION DATE		09-10-84
CABLE TYPE		coaxial
CABLE LENGTH		2 M

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. # 8330

PERSONNEL PERFORMING EXAMINATION:

NAME M. DALICHOW LEVEL II SIGNATURE

NAME U. Horsthemke LEVEL II SIGNATURE

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

REPORT NO. JAF 101584-1

DATE 10-13-84

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	35	30	25	20	15	10	÷

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	60%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1776-091084

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66

DRAWING NUMBER n.a.

MATERIAL SS 304

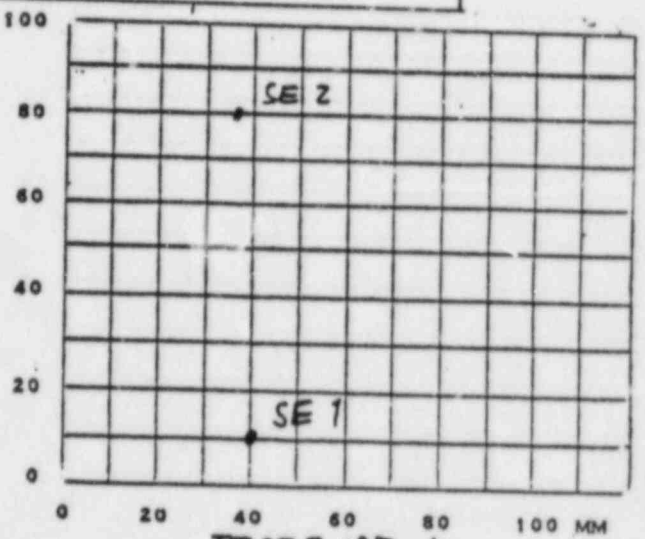
REFERENCE REFLECTORS 10% NOTCH ID

REFERENCE REFLECTORS

REFERENCE REFLECTORS

REFERENCE REFLECTORS

REFERENCE REFLECTORS



PROBE NR 1

V-PATH DATA

PROBE NO.	PROBE NO.	METAL PATH (MM) (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK 12-A 376-.66 S/N ÷ REF. REFL. 10% NOTCH ID TEMP. 110 °F

REF. BLOCK ÷ S/N ÷ REF. REFL. ÷ TEMP. ÷ °F

THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)	SWEEP RANGE
DALICHOW	16:00	SE 2 46 dB 80% FSH	3.7
DALICHOW	19:30	SE 2 46 dB 80% FSH	3.7

SYSTEM CALIBRATION VERIFICATION RECORD

PAGE 3 OF 6

REPORT NO. JAF 101584-1

DATE 10-13-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM)	AMPLITUDE (DB) 80% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	37	46	12-A376-.66	SE 2
	10% NOTCH ID	40	66	-"-	SE 1
	EDGE ID	39	40	-"-	SE 2
	BACKWALL	34	46	-"-	SE 1
3	10% NOTCH ID	30	40	12-A376-.66	
4	90% NOTCH	2.5 DEPTH fr. OD	60	EDM-CAL-1.0"	PA 14 mm
	80% NOTCH	5.0 -"-	62	-"-	PA 18 mm
	70% NOTCH	7.5 -"-	64	-"-	PA 23 mm
	60% NOTCH	10.0 -"-	66	-"-	PA 25 mm

REFERENCE POINT LOCATION TOP OF THE PIPE

			REFLECTOR POSITION/MM													
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM	
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW		
1	1	1	0	20	60	÷	-15	÷	÷	÷	>50%	÷	-6	42	SE2
1	3	1	0	20	40	÷	-15	÷	÷	÷	>50%	÷	±0	28	
1	4	1	5	20	40	÷	-19	÷	÷	÷	÷	75%	÷	4 min DEPTH ft. OD	
1	1	1	15	20	35	÷	-18	÷	÷	÷	>50%	÷	-8	40	SE1
7	1	1	÷	20	÷	BUTTED UP	-21	-34	÷	÷	>50%	÷	-6	42	SE2
			SKEW ANGLE EXAM 7			10° TO WCL									

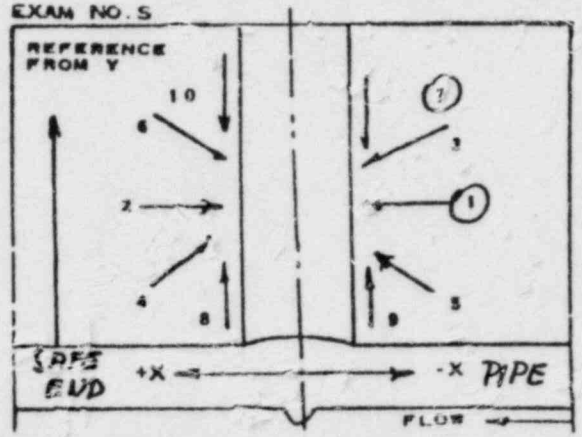
EXAMINER DALICHOW / HORSTHEMKE LEVEL II

SIGNATURE

AUTHORIZED INSPECTOR

CLIENT (IF REQUIRED) (IF REQUIRED) 9/17/84

EXAM NO.S



PAGE 4 OF 6

REPORT NO. JAF/0935 84-1

DATE 10-13-84

REPORT NO. PF 101584-1

PAGE 5 OF 6

DATA STANDARD REPORT OF INDICATION NUMBER 1

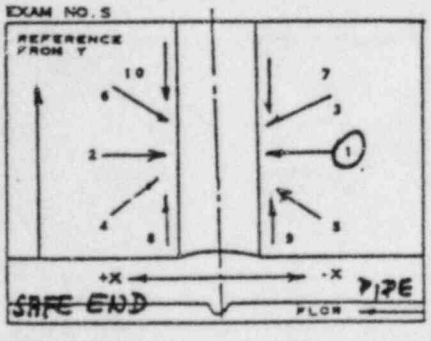
SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT X	POINT Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	32°	1	30	20	52	42	SE2
2	1	32°-70-70	1	41	20	54	40	SE1 75% CRACK
3	3	56°	1	38	20	40	28	
4	4	70°	1	34	20	68	4 mm IDTIP ID	

SAFE END DEGREES

0 180 360

* CL

PIPE LOCATION OF DEFECT ON CIRCUMFERENCE OF PIPE



EXAMINER JALICHOW/NORTHEHUG LEVEL II

Level III

REVIEWED BY William E. Dwyer DATE 10-15-84

AUTHORIZED INSPECTOR

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

—INSPECTION —IGSCC—

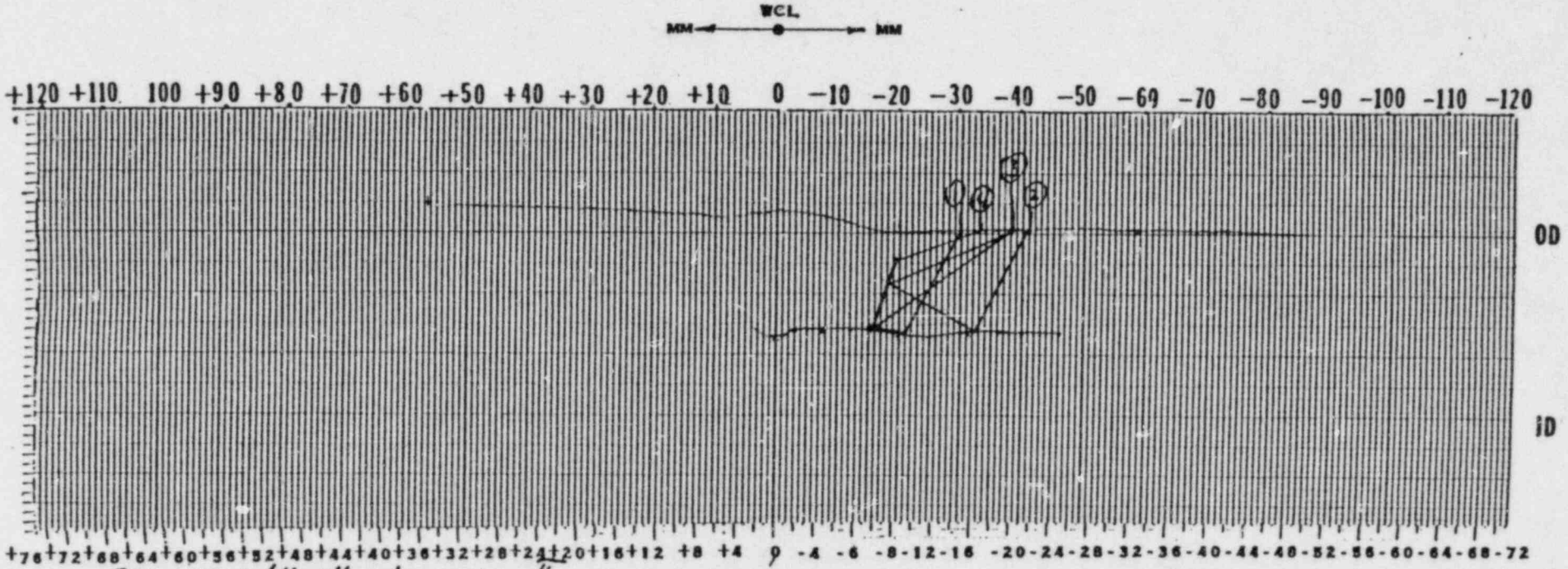
ld Identification No 12-02-2-23

gnal No INDICATION NR 1

odinate from reference point "Y" 20 mm CW

Probes Used	Probe No.	Signal No.
Wall Thickness	MSEB 4H	÷
Root Center	MSEB 4H	÷
Other Data	1	1, 2
	3	3
	4	4

INSPECTION CONTOUR



INSPECTOR DALICHOW / Horstkemper Level II

DATE 10-13-84

6063A/5-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT JAF. ISI Outage
DATA SHEET NO. JHF-085/A DATE 10/12/84
PROCEDURE JAF UT5 Add 1 & 2 REV 3

COMPONENT OR SYSTEM Recirculation System Loop "A" PIPE OD (IF APPLICABLE) 12"
ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 120°F
CALIBRATION BLOCK NO. 12-A376 THICKNESS .66 TEMP 110°F

SCAN COVERAGE

N/A ° WHAZ N/A ° BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

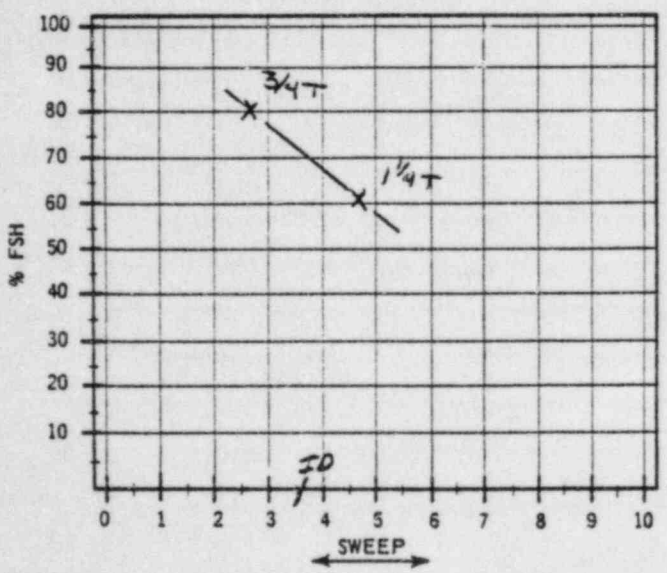
SEARCH UNIT

Manufacturer Nortec
Style 2t-2
Serial No. 15462
Size .50" Frequency 2.25 MHz
Angle 43° Mode SHEAR
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer KRAUT KRAMER Model USK-7
Serial No. 27276-1534 Cable Length 6'
Frequency BB Reject min
Rep Rate N/A Damping N/A
dB Gain – Coarse 20 Fine 20
Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 8:00 (AM) PM



NOTE: *When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.*

CALIBRATION CHECKS

TIME	AMPL ± 20% (2dB) OF INITIAL AMPL YES	AMPL ± 20% (2dB) OF INITIAL AMPL NO	SWEEP ± 10% OF INITIAL LOCATION YES	SWEEP ± 10% OF INITIAL LOCATION NO
1145	✓	N/A	✓	N/A

NOTE: *If response above is "NO" refer to Calibration Check section of procedure.*

EXAMINER(S)
1. [signature] TC-1A LEVEL II
[signature] TC-1A LEVEL I
REVIEWED BY Otis L. Smith III DATE 10/17/

ADDITIONAL REMARKS ID. 3.6
3/4T - 2.6 80%
1 1/4T - 4.6 62%

[signature] N/A III 10/17/84 4 T&P 1.0-15.

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
12-02-2-23	/	N/A	SEE ATTACHED SHEET

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

INDICATION DATA

SHEET 2 OF 4

ITEM IDENTIFICATION 12-02-2-23

CALIBRATION DATA SHEET NO. JAF-085/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON _____ (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	PIPE SIDE	100	3.4	2" CW	.8	3.2	.65	4.0	1.0	ALSO TRANSVERSE 70% DAC	
		✓	2	PIPE SIDE	100	4.2	3½" CW	.7	4.2	.7	4.6	1.2		
		✓	3	PIPE SIDE	60	3.7	2½" CW	.9	3.4	.7	4.2	1.1		

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
							JO 10-12-84 43° ~~2/3~~ @ 62½°
							INTERMITTENT 360°

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. V. J. Canarezzo TC-1A LEVEL III
2. John R. Dickel TC-1A LEVEL I

REVIEWED BY Arthur Smith III DATE 10/17/84

EBASCO SERVICES INCORPORATED

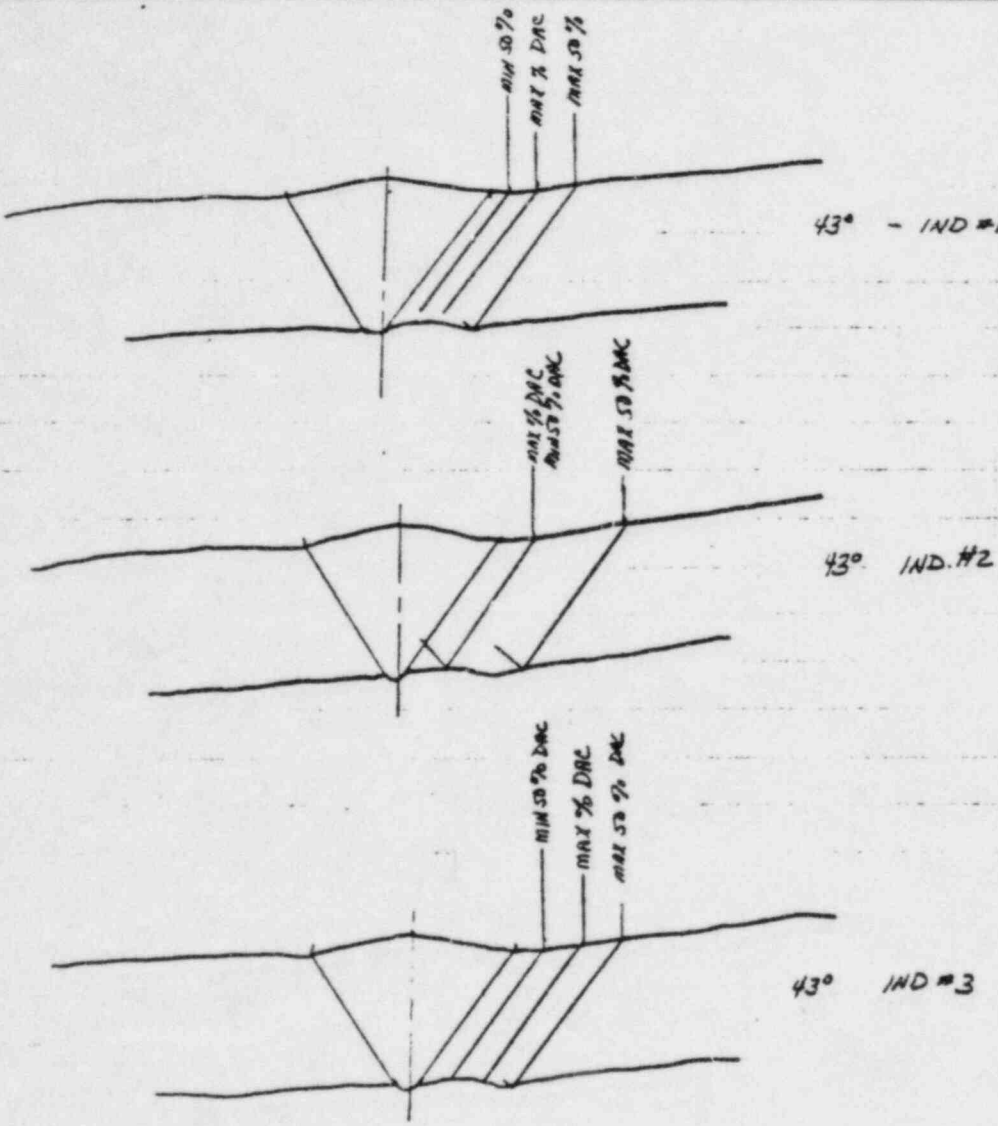
BY _____ DATE _____ SHEET 3 OF 4

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT J.A. FITZPATRICK Data Sheet # JAF-085/A

SUBJECT 12-02-2-23 "A" Loop RECIRCULATION SYSTEM

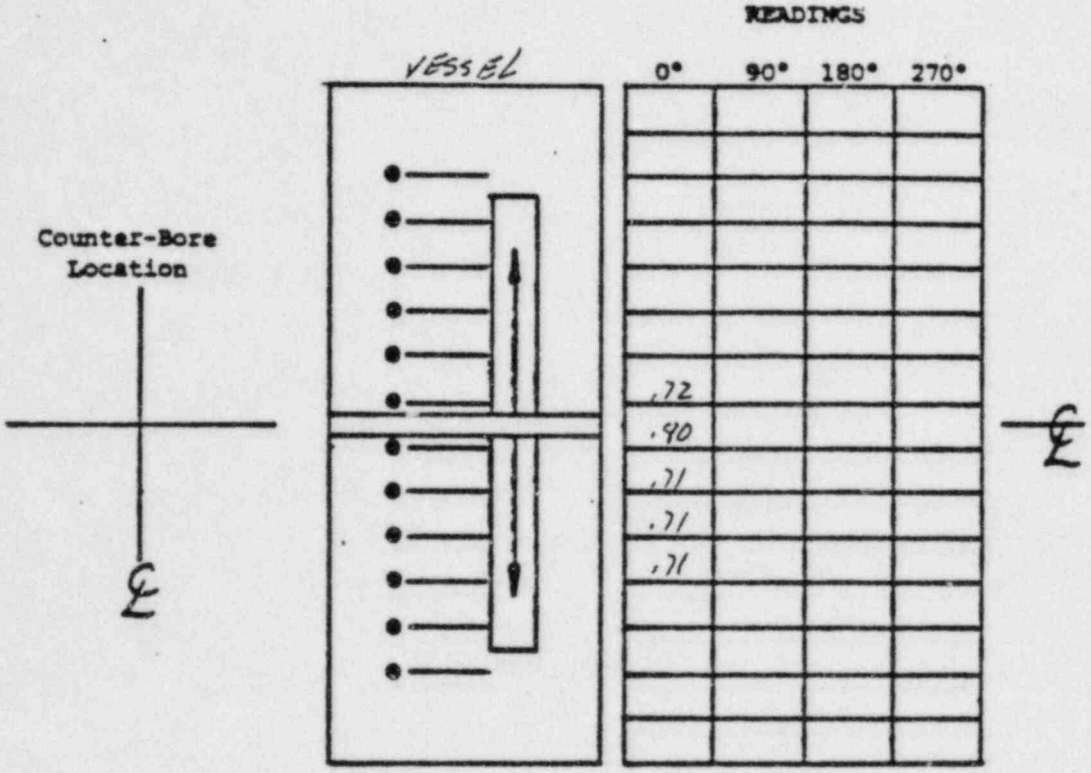


12-02-2-23

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET

Data Sheet # JHF-085/A.



Transducer Size .50 Weld No. 12-02-2-23 System/Area PECIAC SAFE-ENDS

Examiner J. J. Conway Level II Date 10-13-84

6063A/9-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. Fitzpatrick
DATA SHEET NO. JAF-086/A DATE 10-16-8
PROCEDURE JAF-UT-5 Add1+2 REV 3

COMPONENT OR SYSTEM Recirculation Loop "A" PIPE OD (IF APPLICABLE) 12"
ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 115°F
CALIBRATION BLOCK NO. 12-A376 THICKNESS 0.66" TEMP 120°F

SCAN COVERAGE

☐ 45° WHAZ ☐ 45° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer K.B. Aerotech
Style Gamma
Serial No. E1411Z
Size 0.5" Dia. Frequency 2.25 MHz
Angle 62° Mode Shear

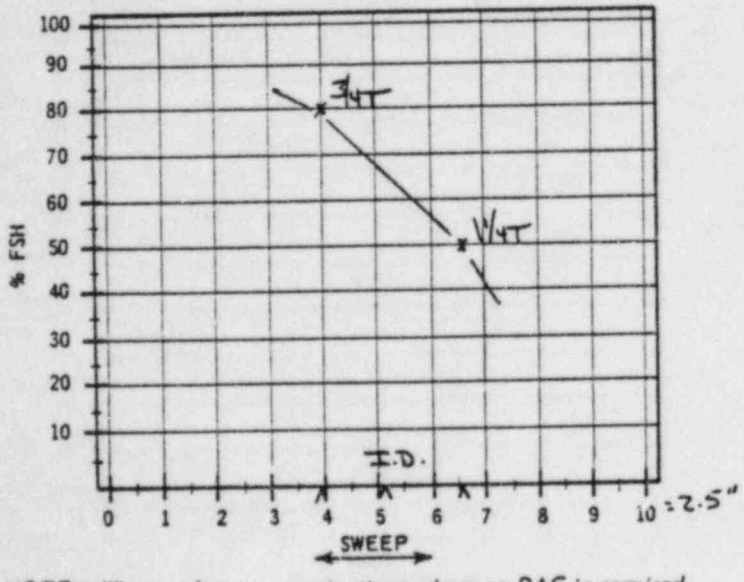
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer Krautkramer Branson Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.5 MHz Reject OFF
Rep Rate N/A Damping OFF
dB Gain – Coarse 20 Fine 34

Primary Reference Response Amplitude % Full Screen Height 80% FSH

DAC PLOT - TIME 1200 AM (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (2dB) OF INITIAL AMPL: YES	AMPL ± 20% (2dB) OF INITIAL AMPL: NO	SWEEP + 10% OF INITIAL LOCATION: YES	SWEEP + 10% OF INITIAL LOCATION: NO
1335	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Bourg TC-1A LEVEL I
REVIEWED BY [signature] DATE 10/17/8

ADDITIONAL REMARKS

[signature] 10488 NDE III 10/17/85

ELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-02-2-23	✓	N/A	Multiple Indications 360° Intermittent. See Indication Data Sheet.

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

TCP 10-16-94
SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-1-23
CALIBRATION DATA SHEET NO. JAF-086/A

DATA TABULATION

SCAN DIRECTION: ST. BEAM	SCAN DIRECTION: CIRCUMFERENTIAL	SCAN DIRECTION: AXIAL	INDICATION NO.	EXAM. ON _____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM ℄ WELD ℄)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: S.U. POSITION	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: S.U. POSITION	STRAIGHT BEAM (CAL ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	STRAIGHT BEAM (CAL ON BACK REFLECTION): BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	Pipe	44	1.6	0°	0.65"						
		✓	2		62	3.8	4" cw	0.65"						
		✓	3		21	3.4	5" cw	0.65"						
		✓	4		31	3.2	6" cw	0.65"						
		✓	5		25	3.8	9" cw	0.65"						
		✓	6		19	3.0	10" cw	0.65"						
		✓	7		38	4.0	12" cw	0.65"						
		✓	8		31	2.8	13" cw	0.65"						
		✓	9		31	3.8	15" cw	0.65"						
		✓	10		25	4.0	16" cw	0.65"						
		✓	11		25	3.8	17" cw	0.65"						
		✓	12		19	4.0	20" cw	0.65"						
		✓	13		25	2.6	26" cw	0.65"						

RESULTS

INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% T: DEPTH (IF PLANAR)	% T: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
							Multiple Signals 360° Intermittent around pipe.

* Note: Measurements taken From toe of Weld.

CONTINUATION ATTACHED – ☒ Yes ☐ No

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Bangert TC-1A LEVEL II

6062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

SHEET 3 OF 4

ITEM IDENTIFICATION 12-02-2-23

CALIBRATION DATA SHEET NO. JAF-086/A

DATA TABULATION

SCAN DIRECTION: ST. BEAM	SCAN DIRECTION: CIRCUMFERENTIAL	SCAN DIRECTION: AXIAL	INDICATION NO.	EXAM. ON _____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM WELD ℄ *)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM: S.U. POSITION	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: SWEEP READING	50% DAC OR HALF MAXIMUM AMPLITUDE: MAXIMUM: S.U. POSITION	STRAIGHT BEAM (CAL. ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	STRAIGHT BEAM (CAL. ON BACK REFLECTION): BACK REFLECTION AMPLITUDE (% FSH)
		✓	14	PIPE	21	3.0	27½" CW	0.65"						
		✓	15		21	3.2	31½" CW	0.65"						
		✓	16		31	4.0	32½" CW	0.65"						
		✓	17		28	3.0	34" CW	0.65"						
		✓	18		21	3.5	35" CW	0.65"						
		✓	19		25	3.2	36" CW	0.65"						
		✓	20		25	2.8	37" CW	0.65"						
		✓	21		19	3.4	38" CW	0.65"						
		✓	22		25	3.3	39½" CW	0.65"						
		✓	23		62	2.0	1" CW	0.65"						

RESULTS

INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% t: DEPTH (IF PLANAR)	% t: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
							Multiple Signals 360° Intermittent around pipe.

* Note: MEASUREMENTS TAKEN FROM TOE OF WELD.

CONTINUATION ATTACHED – ☐ Yes ☑ No

EXAMINER(S)
1. Thomas E Parker TC-1A LEVEL III
2. Robert Bargyk TC-1A LEVEL I
REVIEWED BY Otis Smith III DATE 10/17/84

EBASCO SERVICES INCORPORATED

BY _____ DATE _____ SHEET 4 OF 4

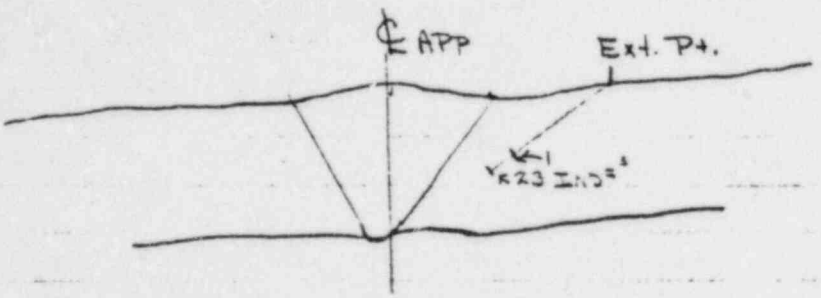
CHKD. BY TCB DATE 10-16-84 OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

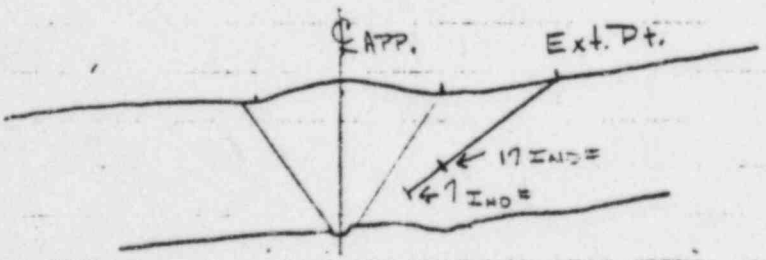
PROJECT Fitz 151 Data Sheet # JAF-086/A

SUBJECT _____

12-02-2-23

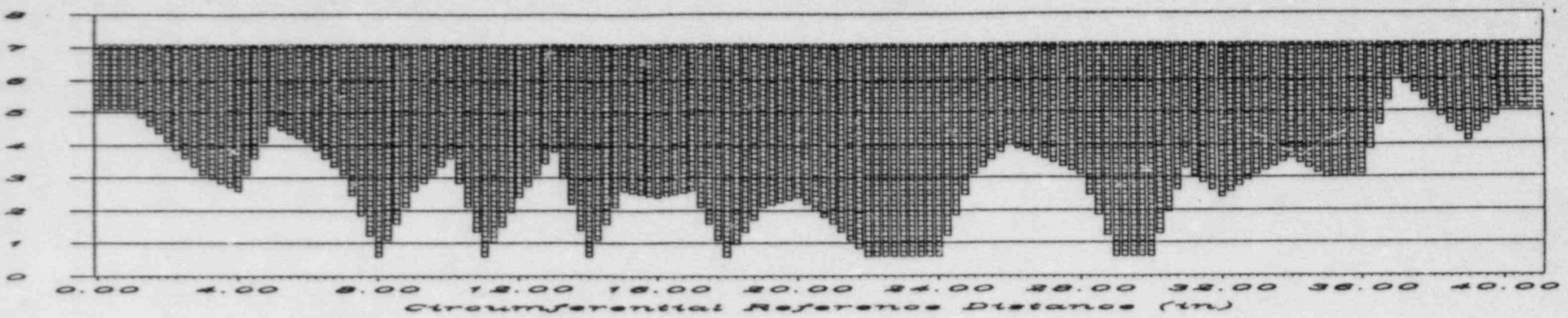


12-02-2-23



12-02-2-23

Weld No. 12—02—2—23 "B" Scan Plot



Weld 12-02-2-23

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.2000	0.5100	0.660
0.25	0.2000	0.5100	0.660
0.50	0.2000	0.5100	0.660
0.75	0.2000	0.5100	0.660
1.00	0.2000	0.5100	0.660
1.25	0.2250	0.4850	0.660
1.50	0.2500	0.4600	0.660
1.75	0.2750	0.4350	0.660
2.00	0.3000	0.4100	0.660
2.25	0.3250	0.3850	0.660
2.50	0.3500	0.3600	0.660
2.75	0.3750	0.3350	0.660
3.00	0.4000	0.3100	0.660
3.25	0.4125	0.2975	0.660
3.50	0.4250	0.2850	0.660
3.75	0.4375	0.2725	0.660
4.00	0.4500	0.2600	0.660
4.25	0.4000	0.3100	0.660
4.50	0.3500	0.3600	0.660
4.75	0.3000	0.4100	0.660
5.00	0.2500	0.4600	0.660
5.25	0.2625	0.4475	0.660
5.50	0.2750	0.4350	0.660
5.75	0.2875	0.4225	0.660
6.00	0.3000	0.4100	0.660
6.25	0.3250	0.3850	0.660
6.50	0.3500	0.3600	0.660
6.75	0.3750	0.3350	0.660
7.00	0.4000	0.3100	0.660
7.25	0.4625	0.2475	0.660
7.50	0.5250	0.1850	0.660
7.75	0.5875	0.1225	0.660
8.00	0.6500	0.0600	0.660
8.25	0.6000	0.1100	0.660
8.50	0.5500	0.1600	0.660
8.75	0.5000	0.2100	0.660
9.00	0.4500	0.2600	0.660
9.25	0.4250	0.2850	0.660
9.50	0.4000	0.3100	0.660
9.75	0.3750	0.3350	0.660
10.00	0.3500	0.3600	0.660
10.25	0.4250	0.2850	0.660
10.50	0.5000	0.2100	0.660
10.75	0.5750	0.1350	0.660
11.00	0.6500	0.0600	0.660
11.25	0.6050	0.1050	0.660
11.50	0.5600	0.1500	0.660
11.75	0.5150	0.1950	0.660
12.00	0.4700	0.2400	0.660
12.25	0.4350	0.2750	0.660

Weld 12-02-2-23

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
12.50	0.4000	0.3100	0.660
12.75	0.3650	0.3450	0.660
13.00	0.3300	0.3800	0.660
13.25	0.4100	0.3000	0.660
13.50	0.4900	0.2200	0.660
13.75	0.5700	0.1400	0.660
14.00	0.6500	0.0600	0.660
14.25	0.6000	0.1100	0.660
14.50	0.5500	0.1600	0.660
14.75	0.5000	0.2100	0.660
15.00	0.4500	0.2600	0.660
15.25	0.4550	0.2550	0.660
15.50	0.4600	0.2500	0.660
15.75	0.4650	0.2450	0.660
16.00	0.4700	0.2400	0.660
16.25	0.4650	0.2450	0.660
16.50	0.4600	0.2500	0.660
16.75	0.4550	0.2550	0.660
17.00	0.4500	0.2600	0.660
17.25	0.5000	0.2100	0.660
17.50	0.5500	0.1600	0.660
17.75	0.6000	0.1100	0.660
18.00	0.6500	0.0600	0.660
18.25	0.6125	0.0975	0.660
18.50	0.5750	0.1350	0.660
18.75	0.5375	0.1725	0.660
19.00	0.5000	0.2100	0.660
19.25	0.4925	0.2175	0.660
19.50	0.4850	0.2250	0.660
19.75	0.4775	0.2325	0.660
20.00	0.4700	0.2400	0.660
20.25	0.4900	0.2200	0.660
20.50	0.5100	0.2000	0.660
20.75	0.5300	0.1800	0.660
21.00	0.5500	0.1600	0.660
21.25	0.5750	0.1350	0.660
21.50	0.6000	0.1100	0.660
21.75	0.6250	0.0850	0.660
22.00	0.6500	0.0600	0.660
22.25	0.6500	0.0600	0.660
22.50	0.6500	0.0600	0.660
22.75	0.6500	0.0600	0.660
23.00	0.6500	0.0600	0.660
23.25	0.6500	0.0600	0.660
23.50	0.6500	0.0600	0.660
23.75	0.6500	0.0600	0.660
24.00	0.6500	0.0600	0.660
24.25	0.5875	0.1225	0.660
24.50	0.5250	0.1850	0.660
24.75	0.4625	0.2475	0.660

Weld 12-02-2-23

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.4000	0.3100	0.660
25.25	0.3775	0.3325	0.660
25.50	0.3550	0.3550	0.660
25.75	0.3325	0.3775	0.660
26.00	0.3100	0.4000	0.660
26.25	0.3200	0.3900	0.660
26.50	0.3300	0.3800	0.660
26.75	0.3400	0.3700	0.660
27.00	0.3500	0.3600	0.660
27.25	0.3625	0.3475	0.660
27.50	0.3750	0.3350	0.660
27.75	0.3875	0.3225	0.660
28.00	0.4000	0.3100	0.660
28.25	0.4625	0.2475	0.660
28.50	0.5250	0.1850	0.660
28.75	0.5875	0.1225	0.660
29.00	0.6500	0.0600	0.660
29.25	0.6500	0.0600	0.660
29.50	0.6500	0.0600	0.660
29.75	0.6500	0.0600	0.660
30.00	0.6500	0.0600	0.660
30.25	0.5825	0.1275	0.660
30.50	0.5150	0.1950	0.660
30.75	0.4475	0.2625	0.660
31.00	0.3800	0.3300	0.660
31.25	0.4025	0.3075	0.660
31.50	0.4250	0.2850	0.660
31.75	0.4475	0.2625	0.660
32.00	0.4700	0.2400	0.660
32.25	0.4525	0.2575	0.660
32.50	0.4350	0.2750	0.660
32.75	0.4175	0.2925	0.660
33.00	0.4000	0.3100	0.660
33.25	0.3875	0.3225	0.660
33.50	0.3750	0.3350	0.660
33.75	0.3625	0.3475	0.660
34.00	0.3500	0.3600	0.660
34.25	0.3650	0.3450	0.660
34.50	0.3800	0.3300	0.660
34.75	0.3950	0.3150	0.660
35.00	0.4100	0.3000	0.660
35.25	0.4075	0.3025	0.660
35.50	0.4050	0.3050	0.660
35.75	0.4025	0.3075	0.660
36.00	0.4000	0.3100	0.660
36.25	0.3250	0.3850	0.660
36.50	0.2500	0.4600	0.660
36.75	0.1750	0.5350	0.660
37.00	0.1000	0.6100	0.660
37.25	0.1250	0.5850	0.660

Weld 12-02-2-23

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.1500	0.5600	0.660
37.75	0.1750	0.5350	0.660
38.00	0.2000	0.5100	0.660
38.25	0.2250	0.4850	0.660
38.50	0.2500	0.4600	0.660
38.75	0.2750	0.4350	0.660
39.00	0.3000	0.4100	0.660
39.25	0.2750	0.4350	0.660
39.50	0.2500	0.4600	0.660
39.75	0.2250	0.4850	0.660
40.00	0.2000	0.5100	0.660
40.25	0.2000	0.5100	0.660
40.50	0.2000	0.5100	0.660
40.75	0.2000	0.5100	0.660
41.00	0.2000	0.5100	0.660

Weld 12-02-2-58

EQSSA/9-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. Fitzpatrick

DATA SHEET NO. JAF-094/A DATE 10-13-84

PROCEDURE JAF-UTS-RWH2 REV 3

COMPONENT OR SYSTEM Recirculation Loop "B" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 122°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS .066" TEMP 120°F

SCAN COVERAGE

☒ 0° WHAZ ☒ 0° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer Aerotech
Style Gamma
Serial No. E14112
Size .5" Dia. Frequency 2.25 MHz
Angle 62° Mode Shear

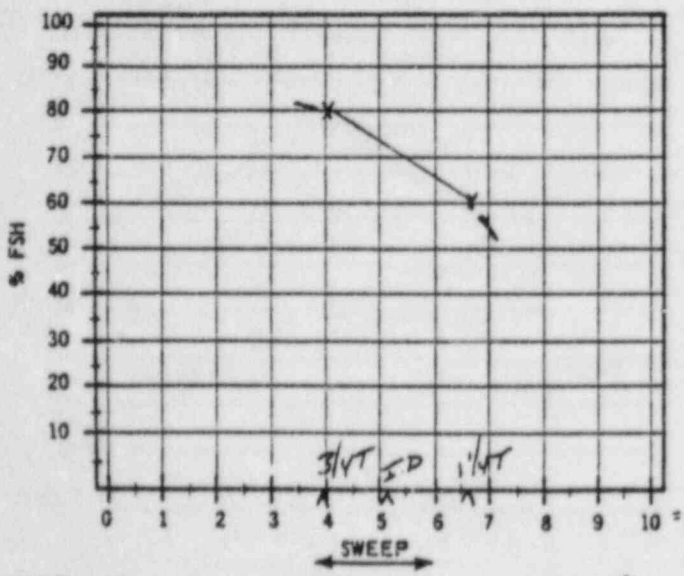
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer Kraut Kramer Branson Model USL-38
Serial No. 210591 Cable Length 6'
Frequency 2.5 MHz Reject OFF
Rep Rate N/A Damping OFF
dB Gain – Coarse 20 Fine 34

Primary Reference Response Amplitude % Full Screen Height 80% FSH

DAC PLOT – TIME 1530 AM, PM



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
1910	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Bundy TC-1A LEVEL II
REVIEWED BY Arthur Smith III DATE 10/17/84

ADDITIONAL REMARKS

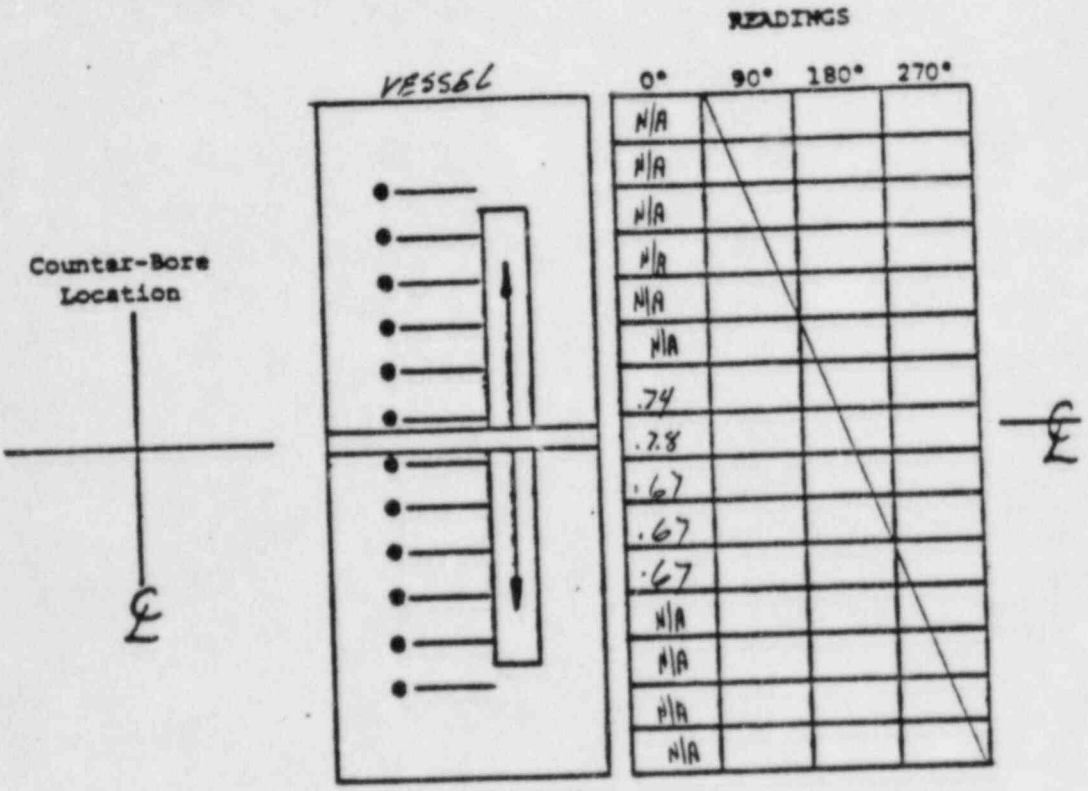
[signature] 10/17/84

/ELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-02-2-58	N/A	✓	Multiple Indications at non-recordable amplitudes in base material. Intermittent 360°.

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 1202-2-58 System/Area REACT

Examiner J. Flannagan Level II Date 10-13-84

ULTRASONIC DATA SHEET

UNIT: JAFNPP | SYSTEM: 02-2 / Recirc | COMPONENT: piping weld

DESCRIPTION: Pipe-to-Safe end - Top of Hook "F"

WELD ID: 12-02-2-58	PROCEDURE: GHI-8.0 + Add.	MATERIAL: SS	THICKNESS: .68	TEST SURFACE: OD	
INSTRUMENT(S): 45C-38	CAL-BLOCK(S): (See cal. sheets)	CRYSTAL: 53475	CRYSTAL: 84-88	CRYSTAL:	
NODE: 5 & C	BEAM DIRECTION: Trans. & parallel	NO. POSITIONS: 41	ANGLE: 45°	ANGLE: 73°	ANGLE:
DISTANCE: 4.0"	#1 REF: Top of pipe		TIME START: 1100	TIME START: 1100	TIME START: N/A
COUPLANT: 444 GEL II	COUPLANT BATCH NO.: 8443		TIME STOP: 1400	TIME STOP: 1400	TIME STOP:
CAL. SHEET: JAF-EVAL-008 & 009			DATE: 10/15/84	DATE: 10/15/84	DATE:
PERFORMED BY: George Seiler	Gary Kubly		ID#: S-1765	LEVEL: III	LIMITED SCAN
PERFORMED BY: N/A			ID#: N/A	LEVEL: N/A	☒ NO ☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (%DAC) 20 TO 20	LEN. 50 TO 50	LEN. 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	(INCHES) CRYSTAL DISTANCE FROM A	B	1	2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	POSITION (IN.) 1 A	2 B	MAXIMUM DISTANCE FROM SURFACE IN.	POSITION (IN.) 1 A	2 B	REMARKS
		NO	reportable	recordable																Indications - 360° Geometric Reflectors - Root C.B.

REVIEWED BY: | LEVEL: | DATE REVIEWED: | FIGURE NO.:

WRED NO.: | DATA SHEET NO.:

SK-JAF-82-002

CALIBRATION SHEET

SHEET NO: JAF-RMR-005 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc COMPONENT: piping welds

EXAMINER: George Seddon Dwight Hurlbut ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586

LINEARITY CHECK ☑ YES ☐ NO

REJECT: OFF %DB

MAT'L. CAL.: 182

DELAY: 678

PULSE ENERGY: S.F.D.

COARSE GAIN IN DB: 40

FINE GAIN IN DB: 12

FINE GAIN: 10 %

SCREEN RANGE: 2.5

SCREEN DEPTH: 1.0 IN.

☐ T&R ☑ NORMAL } OPERATION

FREQUENCY: 5 MHZ.

☑ NORMAL ☐ RF } DISPLAY

REP. RATE: 1K

ZERO CONTROL: 0 0

DAMPING: OFF

GAIN: DLY: SLP: } DAC N/A

POLARITY: WIDTH: DELAY: } GATE N/A %

☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A36-.25

LENGTH: IN.

OD: IN.

THICKNESS: IN.

CRYSTAL

ID# 53475

TYPE MWB

FREQ. 4 MHZ

SIZE 8x8mm IN.

ACTUAL Δ 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE II

SIGNAL AMP. % SCREEN READING II

COURSE GAIN DB N/A FINE GAIN DB N/A

SEARCH UNIT CABLE

TYPE Buckeye LENGTH 6'

CAL. BLOCK TEMP. F°

CAL. BLOCK SIMULATOR TEMP. N/A F°

(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE shear

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" I/8 NODE	100 + %	50%-.10 IN.
.15" I/8 NODE	100 + %	60%-.15 IN.
.20" I/8 NODE	100 + %	40%-.20 IN.
.25" I/8 NODE	100 + %	40%-.25 IN.
.30" I/8 NODE	100 + %	30%-.30 IN.
.35" I/8 NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.	HRS	HRS	HRS	HRS	HRS	HR
BLOCK SIM.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A
BACK REFL.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A
.15" I/8 NODE	100 % .15 IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A IN.	% N/A
.25" I/8 NODE	100 % .25 IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
.35" I/8 NODE	100 % .35 IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
INITIALS	[illegible]						

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL

SK-JAF-81-011 DATE REVIEWED

CALIBRATION SHEET

EET NO: JAFUAL-009 TIME: 1100 HR DATE: 10/15/84

IT: JAFNPP SYSTEM: 02-2/RECIRC. COMPONENT: PIPING Welds

AMINER: George Sabka ID#: S-1765 LEVEL: III COUPLANT: ULTRAGEL II

AMINER: N/A ID#: N/A LEVEL: N/A COUPLANT I.D#: 8443

INSTRUMENT

#: 210568
INEARITY CHECK ☒ YES ☐ NO
EJECT: off %DB
AT'L. CAL: 966
ELAY: 682
ULSE ENERGY: O/H
OARSE GAIN IN DB: 40
INE GAIN IN DB: 22
INE GAIN: 15 %
ICREEN RANGE: .5
ICREEN DEPTH: 1.0 IN.
☒ T&R ☐ NORMAL } OPERATION
REQUENCY: 2.5 MHZ.
☒ NORMAL ☐ RF } DISPLAY
EP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN:
DLY: } DAC
SLP:
POLARITY:
WIDTH: } GATE %
DELAY:
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75
LENGTH: 12 IN.
OD: 1.25 IN.
THICKNESS: .75 IN.

CRYSTAL

ID# 84-88
TYPE RTD
FREQ. 2 MHZ
SIZE 6X13 mm IN.
ACTUAL ∠ 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. _____ SCREEN RANGE _____ IN.
SIGNAL AMP _____ % SCREEN READING _____ IN.
COURSE GAIN DB _____ FINE GAIN DB _____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. _____ F°
CAL. BLOCK SIMULATOR TEMP. _____ F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° NODE Long. Indicial

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES S.D.
.1 LB NODE	100 %	.3 S.D. IN.
.2 LB NODE	90 %	.45 S.D. IN.
.3 LB NODE	70 %	.5 S.D. IN.
.4 LB NODE	55 %	.6 S.D. IN.
.5 LB NODE	40 %	.7 S.D. IN.
.6 LB NODE	30 %	.8 S.D. IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	%	IN.
BKR. CB*	%	IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-63
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.	HRS.	HRS.	HRS.	HRS.	HRS.	HR
BLOCK SIM.	% N IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
BACK REFL.	% N IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
.1 LB NODE	100 % .3 S.D. IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
.3 LB NODE	80 % .5 S.D. IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
.5 LB NODE	50 % .7 S.D. IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
INITIALS							

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

UNITED STATES TESTING COMPANY, INC.

12-02-2-58

10/17/84
Date

RADIOGRAPHIC EXAMINATION REPORT

Customer NYPA
Location JAFNPP
Purchase order no. NYO 82-246
Work request no. N/A
Welder I. D. 4+7

R. T. Procedure/Rev. REACTOR CONTROLS INC R.
Specimen Description WELD
Material Type S/S
Dia./Thickness 12.75 / .688
Specimen I. D. RECIRC WELD 15A

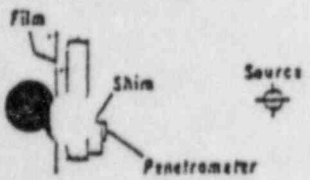
Procedure Data

Gamma	X-Ray
Source Type IR 192	Machine Mfg. A
Curies 94	Kilovoltage
Physical Size ⅛ X ⅛	Milliamperage
Effective Size .177	Focal Spot Size

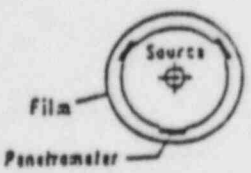
Penetrameter Designation 15F
Required Sensitivity/Essential Hole 2-4T
Shim Thickness .063
Pb Screens: Front .010 Back .010
Source to Film Distance 12.75"

Film Type KODAK M
Film Size 4½ X 17
No. Exposures 4
Total No. Film 8
Geometric Unsharpness .010
Exposure Time 4½ MIN.

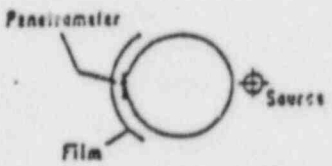
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☒ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
15A	0-10					✓	✓	✓		ARTIFACTS	2.6	2.3-2.6	✓	
	10-20					✓		✓		" "	3.1	2.7-3.1	✓	
	20-30					✓		✓		" "	2.75	2.4-2.8	✓	
	30-0					✓	✓	✓		" "	2.8	2.35-2.9	✓	

Acceptance Criteria: Code/Addenda/Class– ASME III 68

Remarks:

Radiographed By:

Interpreted By: R Koontz II 10-17-84
Date

Customer Review: [illegible] III 10-17-84
Name Level Date

Weld 12-02-2-[illegible]4

ULTRASONIC DATA SHEET

UNIT: JAFNPP	SYSTEM: 02-2 Recirc			COMPONENT: piping welds	
DESCRIPTION: pipe-to-Safe end Top of pipe "6"					
WELD ID: 12-02-2-64	PROCEDURE: QAE-9.0 + Add.	MATERIAL: SS	THICKNESS: .66	TEST SURFACE: OD	
INSTRUMENT(S): USL-38	CAL-BLOCK(S): (See cal. sheets)	CRYSTAL: 53475	CRYSTAL: 84-88	CRYSTAL:	
NODE: S & L / BEAM DIRECTION: Trans. & para. / NO. POSITIONS: 41		ANGLE: 45°	ANGLE: 73°	ANGLE:	
DISTANCE: 1.0" / #1 REF: Top of pipe		TIME START: 1100	TIME START: 1100	TIME START:	
COUPLANT: ULTRAGEL II / COUPLANT BATCH NO.: 8443		TIME STOP: 1400	TIME STOP: 1400	TIME STOP:	
CAL. SHEET: QAE-EVAL.-008 & 009		DATE: 10/15/89	DATE: 10/15/89	DATE:	
PERFORMED BY: George Sudbye		ID#: S-1765	LEVEL: III	LIMITED SCAN: ☑ NO ☐ YES (IF SO WHY)	
PERFORMED BY: N/A		ID#: N/A	LEVEL: N/A		

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (% DAC) 20 TO 20	LEN. LENGTH (% DAC) 50 TO 50	LEN. LENGTH (% DAC) 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	(INCHES) CRYSTAL DISTANCE FROM A	(INCHES) CRYSTAL DISTANCE FROM B	(INCHES) CRYSTAL DISTANCE FROM 1	(INCHES) CRYSTAL DISTANCE FROM 2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MINIMUM POSITION (IN.) 1 A	MINIMUM POSITION (IN.) 2 B	HALF MAXIMUM AMPLITUDE MAXIMUM DISTANCE FROM SURFACE IN.	MAXIMUM POSITION (IN.) 1 A	MAXIMUM POSITION (IN.) 2 B	REMARKS
			See attached sketch & plot ("B" Scan)											For values —					Two Thru-wall Ind. 360° Intermittent.

REVIEWED BY:	LEVEL:	DATE REVIEWED:
FIGURE NO.:		
SX-IAF-87-007	WRED NO.:	DATA SHEET NO.:

CALIBRATION SHEET

SHEET NO: JAF-RMC-005 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc. COMPONENT: piping welds

EXAMINER: George Seibert ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586
LINEARITY CHECK ☒ YES ☐ NO
REJECT: OFF %DB
MAT'L. CAL.: 182
DELAY: 678
PULSE ENERGY: S.E.D.
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 12
FINE GAIN: 10 %
SCREEN RANGE: 2.5
SCREEN DEPTH: 1.0 IN.
☐ T&R ☒ NORMAL } OPERATION
FREQUENCY: 5 MHZ.
☒ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0
DAMPING: OFF
GAIN: L.Y: SLP: } DAC
POLARITY: WIDTH: DELAY: } GATE %
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A376-.25
LENGTH: IN.
OD: IN.
THICKNESS: IN.

CRYSTAL

ID#: 53475
TYPE: dual
FREQ.: 4 MHZ
SIZE: 8x9mm
ACTUAL Δ: 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE
SIGNAL AMP % SCREEN READING
COURSE GAIN DB: N/A FINE GAIN DB

SEARCH UNIT CABLE

TYPE: Sucoflex LENGTH: 6'

CAL. BLOCK TEMP. F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45° NODE shear

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" 1S NODE	100 + %	50%-.10 IN.
.15" 1S NODE	100 + %	60%-.15 IN.
.20" 1S NODE	100 + %	40%-.20 IN.
.25" 1S NODE	100 + %	40%-.25 IN.
.30" 1S NODE	100 + %	30%-.30 IN.
.35" 1S NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

FIGURE NO(S) EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.		HRS		HRS		HRS		HRS		H
BLOCK SIM.	%	N/A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.15" 1S NODE	100 %	60% IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.25" 1S NODE	100 %	40% IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.35" 1S NODE	100 %	25% IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS											

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL SK-1AF-R1-011 DATE REVIEWED

CALIBRATION SHEET

EET NO: JAFUAL-009 | TIME: 1100 HR | DATE: 10/15/84

IIT: JAFNPP | SYSTEM: 02-2/Recirc. | COMPONENT: piping welds

(AMINER: George Sahler | ID#: 5-1765 | LEVEL: III | COUPLANT: ULTRAGEL II

:AMINER: N/A | ID#: N/A | LEVEL: N/A | COUPLANT ID#: 8443

INSTRUMENT

)#: 210568

INEARITY CHECK ☒ YES ☐ NO

EJECT: off %DB

IAT'L. CAL.: 966

ELAY: 682

ULSE ENERGY: 0/T

OARSE GAIN IN DB: 40

INE GAIN IN DB: 22

INE GAIN: 15 %

CREEN RANGE: .5

CREEN DEPTH: 1.0 IN.

☒ T&R ☐ NORMAL } OPERATION

FREQUENCY: 2.5 MHZ.

☒ NORMAL ☐ RF } DISPLAY

REP. RATE: 1K

ZERO CONTROL: 0 0

DAMPING: OFF

GAIN: ____

DLY: ____ } DAC ____

SLP: ____

POLARITY: ____

WIDTH: ____ } GATE ____ %

DELAY: ____

☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75

LENGTH: 12 IN.

OD: 1.25 IN.

THICKNESS: .75 IN.

CRYSTAL

ID# 84-88

TYPE RTD

FREQ. 2 MHZ

SIZE 6X13 mm IN.

ACTUAL & 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. ____ SCREEN RANGE ____ IN.

SIGNAL AMP. ____ % SCREEN READING ____ IN.

COURSE GAIN DB ____ FINE GAIN DB ____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. ____ F°

CAL. BLOCK SIMULATOR TEMP. ____ F° N/A

(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° MODE Longitudinal

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN ~~INCHES~~ S.D.
.1 ~~I.B MODE~~	100 %	.3 S.D. ~~IN.~~
.2 ~~I.B MODE~~	80 %	.45 S.D. ~~IN.~~
.3 ~~I.B MODE~~	70 %	.5 S.D. ~~IN.~~
.4 ~~I.B MODE~~	55 %	.6 S.D. ~~IN.~~
.5 ~~I.B MODE~~	40 %	.7 S.D. ~~IN.~~
.6 ~~I.B MODE~~	30 %	.8 S.D. ~~IN.~~
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.		HRS.		HRS.		HRS.		HRS.		HR
BLOCK SIM.	% N/A IN.		%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	% N/A IN.		%	IN.	%	IN.	%	IN.	%	IN.	%
.1 ~~I.B MODE~~	100 %	.3 S.D. IN.	% N/A	IN.	% N/A	IN.	% N/A	IN.	% N/A	IN.	% N/A
.3 ~~I.B MODE~~	80 %	.5 S.D. IN.	% N/A	IN.	% N/A	IN.	% N/A	IN.	% N/A	IN.	% N/A
.5 ~~I.B MODE~~	50 %	.7 S.D. IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS											

* BKR CB (BACK REFLECTION FROM CAL. BLOCK) * BKR P (BACK REFLECTION FROM PART)

REVIEWED BY ____ LEVEL ____ DATE REVIEWED ____

WELL NO. 12-10N-12W-04

Weld 12-02-2-64

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.1500	0.5100	0.660
0.25	0.1500	0.5100	0.660
0.50	0.1500	0.5100	0.660
0.75	0.1500	0.5100	0.660
1.00	0.1500	0.5100	0.660
1.25	0.1875	0.4725	0.660
1.50	0.2250	0.4350	0.660
1.75	0.2625	0.3975	0.660
2.00	0.3000	0.3600	0.660
2.25	0.2750	0.3850	0.660
2.50	0.2500	0.4100	0.660
2.75	0.2250	0.4350	0.660
3.00	0.2000	0.4600	0.660
3.25	0.1500	0.5100	0.660
3.50	0.1000	0.5600	0.660
3.75	0.0500	0.6100	0.660
4.00	0.0000	0.6600	0.660
4.25	0.0375	0.6225	0.660
4.50	0.0750	0.5850	0.660
4.75	0.1125	0.5475	0.660
5.00	0.1500	0.5100	0.660
5.25	0.1875	0.4725	0.660
5.50	0.2250	0.4350	0.660
5.75	0.2625	0.3975	0.660
6.00	0.3000	0.3600	0.660
6.25	0.3375	0.3225	0.660
6.50	0.3750	0.2850	0.660
6.75	0.4125	0.2475	0.660
7.00	0.4500	0.2100	0.660
7.25	0.4875	0.1725	0.660
7.50	0.5250	0.1350	0.660
7.75	0.5625	0.0975	0.660
8.00	0.6000	0.0600	0.660
8.25	0.5750	0.0850	0.660
8.50	0.5500	0.1100	0.660
8.75	0.5250	0.1350	0.660
9.00	0.5000	0.1600	0.660
9.25	0.4500	0.2100	0.660
9.50	0.4000	0.2600	0.660
9.75	0.3500	0.3100	0.660
10.00	0.3000	0.3600	0.660
10.25	0.2750	0.3850	0.660
10.50	0.2500	0.4100	0.660
10.75	0.2250	0.4350	0.660
11.00	0.2000	0.4600	0.660
11.25	0.2500	0.4100	0.660
11.50	0.3000	0.3600	0.660
11.75	0.3500	0.3100	0.660
12.00	0.4000	0.2600	0.660
12.25	0.3750	0.2850	0.660

Weld 12-02-2-64

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
12.50	0.3500	0.3100	0.660
12.75	0.3250	0.3350	0.660
13.00	0.3000	0.3600	0.660
13.25	0.3500	0.3100	0.660
13.50	0.4000	0.2600	0.660
13.75	0.4500	0.2100	0.660
14.00	0.5000	0.1600	0.660
14.25	0.4950	0.1650	0.660
14.50	0.4900	0.1700	0.660
14.75	0.4850	0.1750	0.660
15.00	0.4800	0.1800	0.660
15.25	0.4850	0.1750	0.660
15.50	0.4900	0.1700	0.660
15.75	0.4950	0.1650	0.660
16.00	0.5000	0.1600	0.660
16.25	0.5250	0.1350	0.660
16.50	0.5500	0.1100	0.660
16.75	0.5750	0.0850	0.660
17.00	0.6000	0.0600	0.660
17.25	0.5550	0.1050	0.660
17.50	0.5100	0.1500	0.660
17.75	0.4650	0.1950	0.660
18.00	0.4200	0.2400	0.660
18.25	0.4400	0.2200	0.660
18.50	0.4600	0.2000	0.660
18.75	0.4800	0.1800	0.660
19.00	0.5000	0.1600	0.660
19.25	0.5250	0.1350	0.660
19.50	0.5500	0.1100	0.660
19.75	0.5750	0.0850	0.660
20.00	0.6000	0.0600	0.660
20.25	0.6000	0.0600	0.660
20.50	0.6000	0.0600	0.660
20.75	0.6000	0.0600	0.660
21.00	0.6000	0.0600	0.660
21.25	0.5750	0.0850	0.660
21.50	0.5500	0.1100	0.660
21.75	0.5250	0.1350	0.660
22.00	0.5000	0.1600	0.660
22.25	0.5000	0.1600	0.660
22.50	0.5000	0.1600	0.660
22.75	0.5000	0.1600	0.660
23.00	0.5000	0.1600	0.660
23.25	0.4750	0.1850	0.660
23.50	0.4500	0.2100	0.660
23.75	0.4250	0.2350	0.660
24.00	0.4000	0.2600	0.660
24.25	0.4250	0.2350	0.660
24.50	0.4500	0.2100	0.660
24.75	0.4750	0.1850	0.660

Weld 12-02-2-64

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.5000	0.1600	0.660
25.25	0.5250	0.1350	0.660
25.50	0.5500	0.1100	0.660
25.75	0.5750	0.0850	0.660
26.00	0.6000	0.0600	0.660
26.25	0.5250	0.1350	0.660
26.50	0.4500	0.2100	0.660
26.75	0.3750	0.2850	0.660
27.00	0.3000	0.3600	0.660
27.25	0.3250	0.3350	0.660
27.50	0.3500	0.3100	0.660
27.75	0.3750	0.2850	0.660
28.00	0.4000	0.2600	0.660
28.25	0.4000	0.2600	0.660
28.50	0.4000	0.2600	0.660
28.75	0.4000	0.2600	0.660
29.00	0.4000	0.2600	0.660
29.25	0.4500	0.2100	0.660
29.50	0.5000	0.1600	0.660
29.75	0.5500	0.1100	0.660
30.00	0.6000	0.0600	0.660
30.25	0.5750	0.0850	0.660
30.50	0.5500	0.1100	0.660
30.75	0.5250	0.1350	0.660
31.00	0.5000	0.1600	0.660
31.25	0.4300	0.2100	0.660
31.50	0.4000	0.2600	0.660
31.75	0.3500	0.3100	0.660
32.00	0.3000	0.3600	0.660
32.25	0.2750	0.3850	0.660
32.50	0.2500	0.4100	0.660
32.75	0.2250	0.4350	0.660
33.00	0.2000	0.4600	0.660
33.25	0.2250	0.4350	0.660
33.50	0.2500	0.4100	0.660
33.75	0.2750	0.3850	0.660
34.00	0.3000	0.3600	0.660
34.25	0.3000	0.3600	0.660
34.50	0.3000	0.3600	0.660
34.75	0.3000	0.3600	0.660
35.00	0.3000	0.3600	0.660
35.25	0.3250	0.3350	0.660
35.50	0.3500	0.3100	0.660
35.75	0.3750	0.2850	0.660
36.00	0.4000	0.2600	0.660
36.25	0.4250	0.2350	0.660
36.50	0.4500	0.2100	0.660
36.75	0.4750	0.1850	0.660
37.00	0.5000	0.1600	0.660
37.25	0.4750	0.1850	0.660

Weld 12-02-2-64

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.4500	0.2100	0.660
37.75	0.4250	0.2350	0.660
38.00	0.4000	0.2600	0.660
38.25	0.3500	0.3100	0.660
38.50	0.3000	0.3600	0.660
38.75	0.2500	0.4100	0.660
39.00	0.2000	0.4600	0.660
39.25	0.1500	0.5100	0.660
39.50	0.1000	0.5600	0.660
39.75	0.0500	0.6100	0.660
40.00	0.0000	0.6600	0.660
40.25	0.0375	0.6225	0.660
40.50	0.0750	0.5850	0.660
40.75	0.1125	0.5475	0.660
41.00	0.1500	0.5100	0.660

KWU

Ultrasonic Inspection Report

Page 1 of ____
No. JAF 1013 -2
Date 10/12/84

Client: PASNY

Location: J. A. FITZPATRICK N.P.P.

System: RECIRCULATION LINE Weld Identification No.: 12-02-2-64

Inspected Area: WHOLE CIRCUMFERENCE FROM PIPE SIDE ; LENGTH EVALUATION OF CRACK INDICATIONS

Position of Weld Contour: ____

Reference Print Location: TOP OF PIPE

Conclusion of Examination Results:

THE CRACK INDICATIONS CAN BE DETECTED OVER THE WHOLE CIRCUMFERENCE (360 DEGREES) WITH SHORT INTERUPTIONS. THE LENGTH OF THESE INTERUPTIONS ARE NOT BIGGER THAN TWO INCHES. THE AMPLITUDES DO NOT DROP BELOW 20% DAC EVALUATED WITH SE II (MODE CONVERSION) WITHIN THESE INTERUPTIONS

100% DAC = 10% ID NOTCH + 14dB

DR. SEYDEL / II Seydel

Responsible Inspector ____ Level ____ Signature: ____

William E. Shutter LEVEL III

Kraftwerk Union AG

4.T. 10/17/84

1.

UNITED STATES TESTING COMPANY, INC.

12-02-2-64

10/16/84
Date

RADIOGRAPHIC EXAMINATION REPORT

Customer NYPA	R. T. Procedure/Rev. REACTOR CONTROLS INC RT-1
Location JAFNPP	Specimen Description WELD
Purchase order no. NYO 82-246	Material Type S/S
Work request no. N/A	Dia./Thickness 12.75 / .688
Welder I. D. 7	Specimen I. D. RECIRC WELD 19A

Procedure Data

Gamma	X-Ray		
Source Type IR192	Machine Mfg.	A	Penetrameter Designation 15F
Curies 69	Kilovoltage		Required Sensitivity/Essential Hole 2/4T
Physical Size 1/8 x 1/8	Milliamperage	N	Shim Thickness .093
Effective Size .177	Focal Spot Size		Pb Screens: Front .010 Back .010
			Source to Film Distance 12 3/4"

Film Type KODAK M	No. Exposures 4	Geometric Unsharpness .010
Film Size 4½ x 17	Total No. Film 8	Exposure Time 6MIN

A ☐

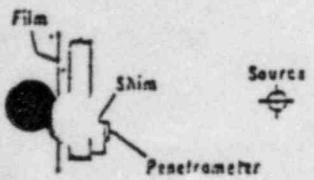
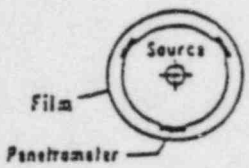


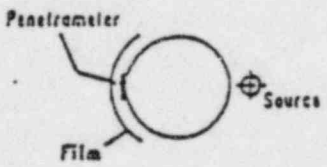
Plate-Test Coupons

B ☐



Panoramic

C ☑



Double Wall

D ☐

Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
19A	0-10							✓	✓	ARTIFACTS	2.8	2.3-2.7		
	10-20									"	2.5	2.3-2.5	✓	
	20-30					✓			✓	"	2.74	2.4-2.7	✓	
	30-0						✓	✓	✓	"	2.9	2.5-2.7		

Acceptance Criteria: Code/Addenda/Class –

Remarks: DENISTY 0-10 DOES NOT FALL WITHIN -15% or 30% OF PENETRAME
DENISTY
COUNTER BORE @ 3/4 from ℄ of WELD
NUMBER BAND MOVED DURING SHOOTING 0-1 BECAME 40-0

Radiographed By:

Interpreted By: R Koontz II 10/16/84
Name Level Date

Customer Review: [illegible] III 10-17-84
Name Level Date

6063A/8-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. FITZPATRICK

DATA SHEET NO. JAF-093/A DATE 10-12-84

PROCEDURE JAF-UT-5 Addn 2 REV 3

COMPONENT OR SYSTEM Recirculation Sys. Loop "B" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP Go 10-12-84 1837 120°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS .66" TEMP Go 10-12-84 1054 110°F

SCAN COVERAGE

☒ 0° WHAZ ☒ 0° BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer KB AEROTECH

Style GAMMA

Serial No. E14H2

Size .50" Ø Frequency 2.25 MHZ

Angle 62½° Mode SHEAR

Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER-BRANSON Model USL-38

Serial No. 210571 Cable Length 6'

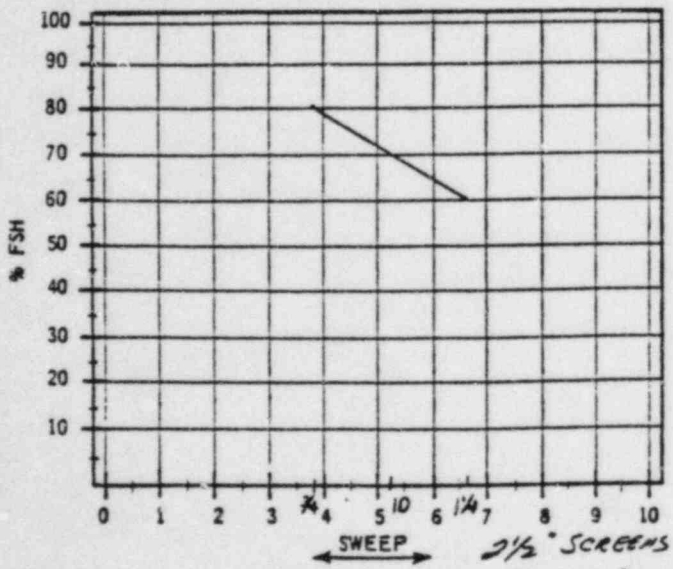
Frequency 2.25 MHZ ~~Pulse Date 10-12-84~~ Reject N/A

Rep Rate N/A Damping N/A

dB Gain – Coarse 20 Fine 34

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 1635 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (2dB) OF INITIAL AMPL YES	AMPL ± 20% (2dB) OF INITIAL AMPL NO	SWEEP + 10% OF INITIAL LOCATION YES	SWEEP + 10% OF INITIAL LOCATION NO
2030	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Chec section of procedure.

EXAMINER(S)

1. [signature] TC-1A LEVEL II

2. John R. O'Neil TC-1A LEVEL I

REVIEWED BY Otis Smith III DATE 10/17/84

ADDITIONAL REMARKS

¾T - 3.9 @ 80% @ 54db

ID - 5.2 dw.

1¼T - ~~1~~ 1 @ 4.9.

[signature] WS III 10/17/84

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-02-2-64	✓	N/A	SEE INDICATION DATA SHEET.

* *Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.*

1062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION
INDICATION DATA

SHEET 2 OF 4
ITEM IDENTIFICATION 12-02-2-C4
CALIBRATION DATA SHEET NO. JAF-093/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON _____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	ELBOW SIDE	100+	4.7	2.4 CW	.75	3.2	BU	6.7	1.55	SKEWED 20°	
		✓	2		75	4.4	1.2 CCW	1.1						

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		60°
							INDICATION #1 FROM 1.0" – 5.75" CW
							MULTIPLE NON-RECORDABLE INDICATIONS 360°
							INTERMITTENT - ALL MEASUREMENTS TAKEN FROM
							TOE OF WELD TO INDEX POINT.

CONTINUATION ATTACHED – ☒ Yes. ☐ No

EXAMINER(S)
1. _____ TC-1A LEVEL III
2. _____ TC-1A LEVEL II
REVIEWED BY _____ DATE 10/17/84

EBASCO SERVICES INCORPORATED

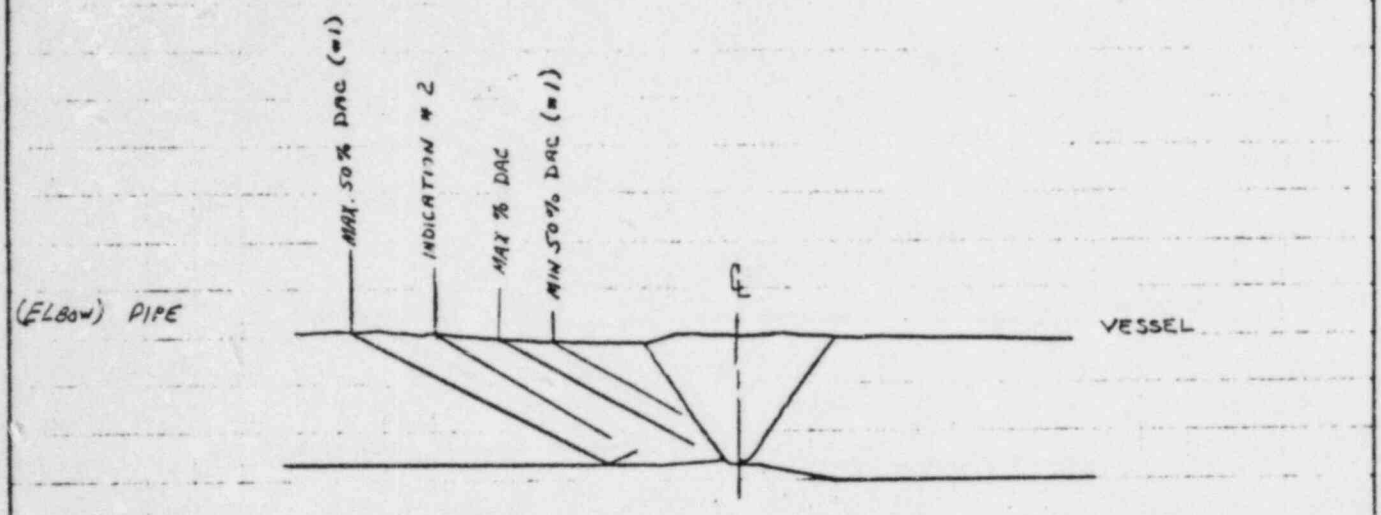
BY _____ DATE _____ SHEET 3 OF 4

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NEW YORK POWER AUTHORITY

PROJECT J.A. FITZPATRICK Data Sheet # JAF-093/A

SUBJECT 12-02-2 (90-10-13-14) RECIRCULATION SYSTEM "B" LOOP



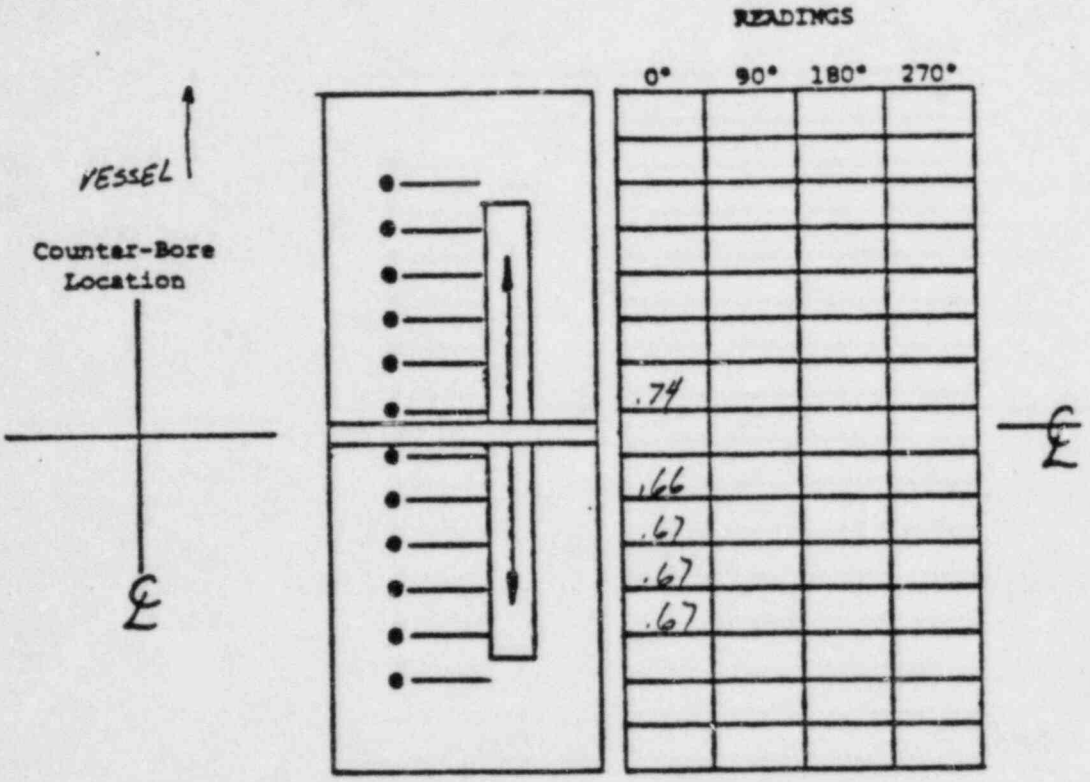
℄ T's ESTIMATED

12-02-2-64

John R. O'Neal
Lic. I

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-64 System/Area RECIRC

Examiner J. L. Camargo Level II Date 10-13-84

John R. Oyler
Lev. I

Weld 12-02-2-69

60631/8-64

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. FITZPATRICK

DATA SHEET NO. JAF-088/1A DATE 10-12-84

PROCEDURE JAF-UT-5 Add 1+2 REV 3

COMPONENT OR SYSTEM Recirculation System Loop "B" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 127°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS .66" TEMP 135°F

SCAN COVERAGE

☑ 0° WHAZ ☑ 0° BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer KB. AEROTECH
Style GAMMA
Serial No. E14H2
Size .50" ø Frequency 2.25 MHz
Angle 62½° Mode SHEAR

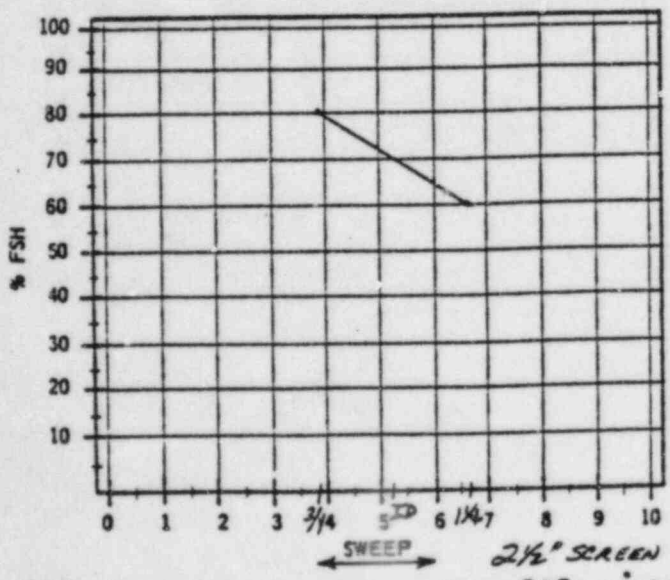
Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER-BRANSON Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.25 MHz Reject N/A
Rep Rate N/A Damping N/A
dB Gain – Coarse 20 Fine 10-12-84 20 34

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 1635 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
2030	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Che section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. John K. O'Reilly TC-1A LEVEL I
REVIEWED BY Otis L. Smith III DATE 10/17

ADDITIONAL REMARKS
3/4 T - 3.1 @ 80% @ 54db
ID - 5.2

[signature] NYPA III 10/12/84

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
12-02-2-69	/	N/A	See Indication Data Sheet

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

5062/8-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

INDICATION DATA

SHEET 2 OF 4

ITEM IDENTIFICATION 12-02-2-69

CALIBRATION DATA SHEET NO. JAF-088/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON ____ (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
		✓	1	Elbow side	100	4.6	32.5 CW	.8						
		✓	2		50	3.7	33 CW	.9						
		✓	3		40	3.9	36.25 CW	.95						
	✓		4		25	4.8	33 CW		45° skew looking towards 0°					

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	%t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
							60°
							Multiple indications intermittant
							360° in base material at low
							amplitudes

EXAMINER(S)

1. [signature] TC-1A LEVEL III

2. [signature] TC-1A LEVEL II

REVIEWED BY [signature] III DATE 10/17/84

CONTINUATION ATTACHED – ☐ Yes ☐ No

EBASCO SERVICES INCORPORATED

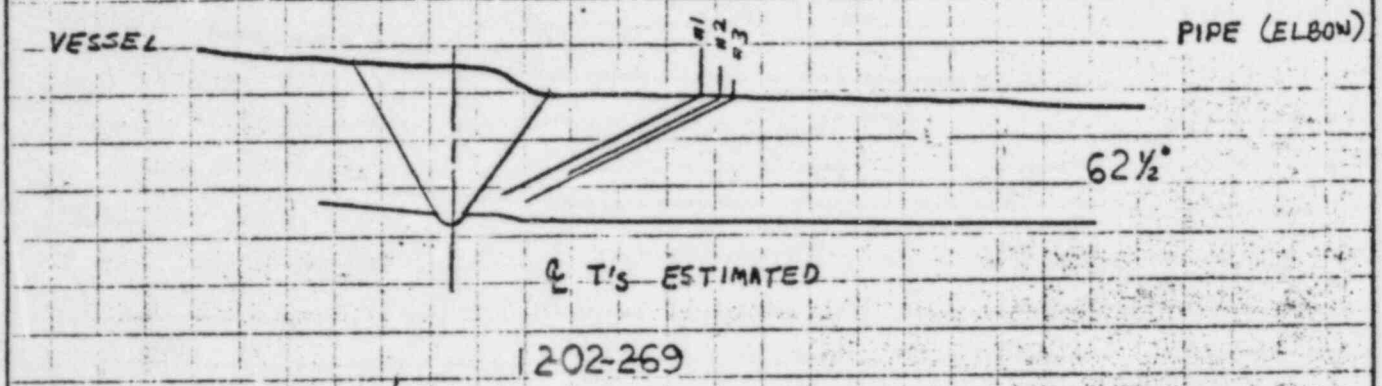
BY _____ DATE _____ SHEET 3 OF 4

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT JA FITZPATRICK Data Sheet # JAF-088/A

SUBJECT 12-02-2-68 RECIRCULATION SYSTEM LOOP "B"



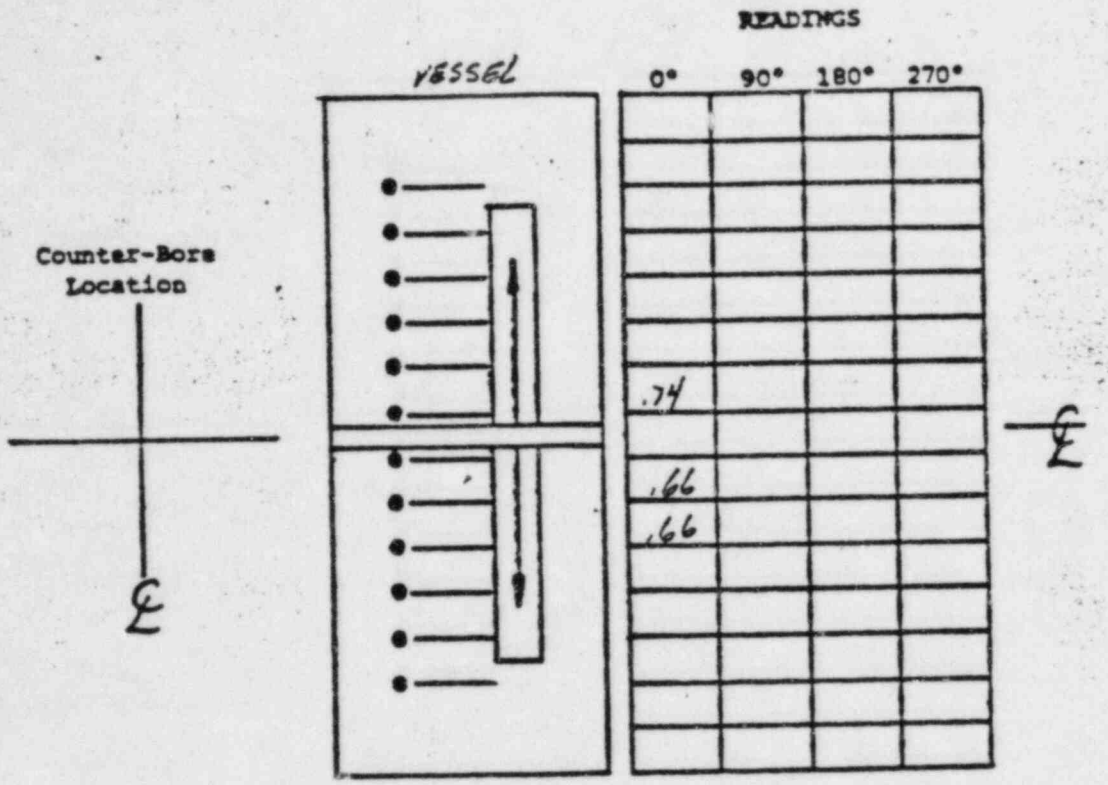
℄ T's ESTIMATED

202-269

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

Pg. 4 of 4

WELD THICKNESS DATA SHEET



Transducer Size .50 Weld No. 12-02-2-81 System/Area Recirc

Examiner J. Flannigo Level II Date 10-13-84

John K. O'Neil
Lev. I

UNITED STATES TESTING COMPANY, INC.

12-02-2-69

10/17/84
Date

RADIOGRAPHIC EXAMINATION REPORT

Customer NYPA	R. T. Procedure/Rev. REACTOR CONTROLS RT-1/
Location JAFNPP	Specimen Description WELD
Purchase order no. NYO-82-246	Material Type S/S
Work request no. N/A	Dia./Thickness 12.75 / .688
Welder I. D. 7+4	Specimen I. D. RECIRC WELD 21A

Procedure Data

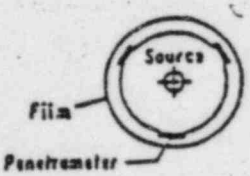
Gamma	X-Ray	
Source Type IR 192	Machine Mfg. N/A	Penetrameter Designation 15F
Curies 84	Kilovoltage	Required Sensitivity/Essential Hole 2-4T
Physical Size ⅛ X ⅛	Milliamperage	Shim Thickness .063
Effective Size .177	Focal Spot Size	Pb Screens: Front .010 Back .010
		Source to Film Distance 12.75

Film Type KODAK M	No. Exposures 4	Geometric Unsharpness .010
Film Size 4½ X 17	Total No. Film 8	Exposure Time 5 m.

A ☐

Plate-Test Coupons

B ☐



Panoramic

C ☑

Double Wall

D ☐

Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
21A	0-10				✓	✓	✓			ARTIFACTS	3.0	2.8-3.0	✓	
	10-20				✓	✓				" "	3.0	2.8-3.1	✓	
	20-30				✓	✓	✓	✓		" "	3.6	3.3-3.6	✓	
	30-0					✓	✓	✓		" "	2.9	2.4-3.1	✓	

Acceptance Criteria: Code/Addenda/Class– ASME III 68

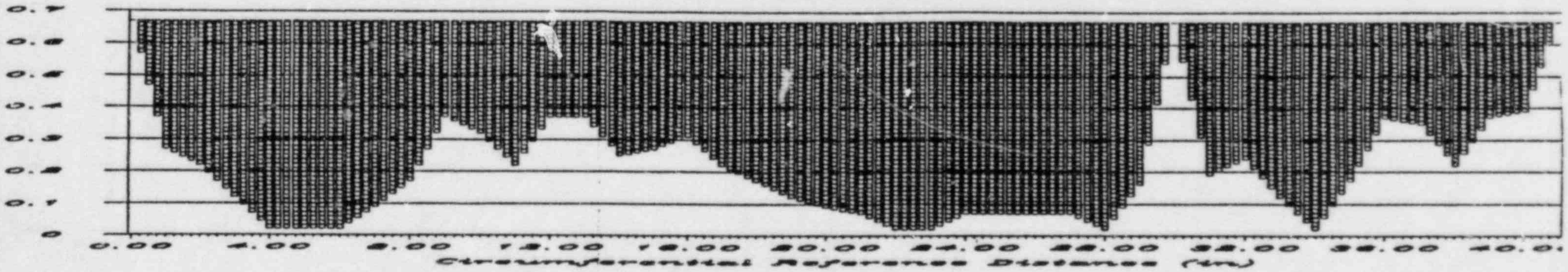
Remarks:

Radiographed By:

Interpreted By: R Koontz II 10-17-84
Date

Customer Review: [illegible] III 10-17-84
Name Level Date

Weld No. 12-02-2-60 "B" scan plot



PAGE 1 OF 4

REPORT NO. JAF 101984-

DATE 101884

REPORT OF UT INSPECTION

CLIENT New York Power Authority

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-69 DRAWING NO. N.A.

TYPE OF WELDING Pipe to Safe End MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS 0.67 INCHE

SURFACE CONDITION OF PIPE ground OF WELD Ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 126 °

METHOD OF EXAMINATION: AUTOMATIC ✓ MANUAL X SEMI-AUTO —

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60		SBL SLIC40	SUSA SUS42A	KK MWB 70
SERIAL NO.	1.03						
TRANSDUCER SIZE (MM) ~~(inches)~~	8x9	8x9	8x9		2x Ø9.5	Ø9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/32°						
EXIT POINT (MM) ~~(inches)~~	12/10						
REMARKS:	mode-conversion	shear	shear		long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK USK7
SERIAL NUMBER		27274-2606
CALIBRATION DATE		08-23-84
CABLE TYPE		Coax
CABLE LENGTH		2 meter

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc

B.ACCT. NO. #8443

PERSONNEL PERFORMING EXAMINATION:

NAME U. Schwanke LEVEL I SIGNATURE U. Schwanke

NAME H.-P. Theelen LEVEL I SIGNATURE H. Theelen

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

REPORT NO. JAE 101984-1
DATE 10-12-84

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	34	30	25	20	15	10	n/a

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 $\pm$ 5% OF FULL SCALE

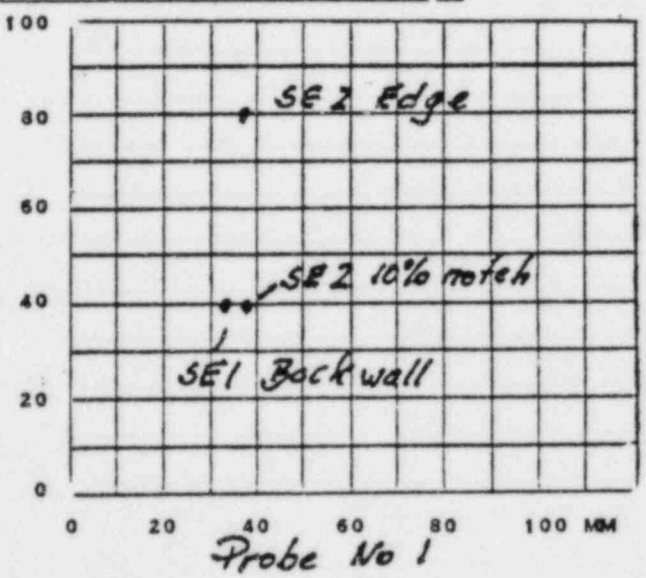
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1763-82384

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER N.A.
MATERIAL SS 304
REFERENCE REFLECTORS 10% Notch ID
REFERENCE REFLECTORS Edge I.D
REFERENCE REFLECTORS Backwall
REFERENCE REFLECTORS
REFERENCE REFLECTORS



V-PATH DATA

PROBE NO.	PROBE NO.	METAL (MM) PATH (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM)(INCHES)

RECHECK DATA

CAL. BLOCK n/a S/N n/a REF. REFL. n/a TEMP. n/a °F
REF. BLOCK 12 A376-.66 S/N n/a REF. REFL. 10% notch ID TEMP. 115 °F
THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)	SWEEP RANGE
U. Schwanke	9:45	SE2 48 dB 80% FSH	3.6
U. Schwanke	10:05	SE2 48 dB 80% FSH	3.6

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 101984-1

DATE 10-18-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (~~IN~~)	AMPLITUDE (DB) 80% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% notch I.D	36	48	12-A376-.66	SE2
	Edge I.D.	37	42	"	SE2
	Backwall	34	48	"	SE1
2					
3					
4					
5					
6					

12-02-2-09
post IHSI

REFERENCE POINT LOCATION TOP OF THE PIPE

DETERMINATION OF CRACK-LENGTH

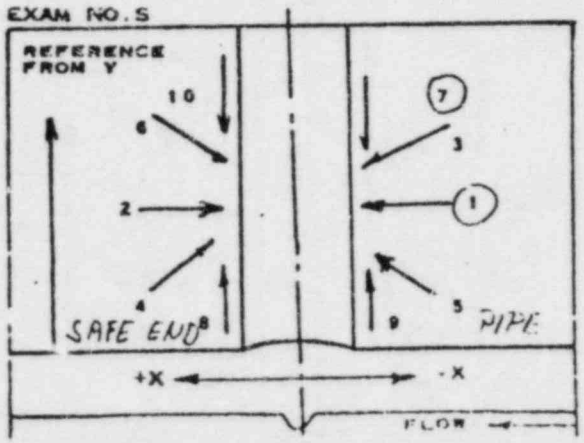
			REFLECTOR POSITION/MM											
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW	
1	1	÷	0	0	0	15	35	70	÷	÷	>50	÷	SE 2	42
1	1	÷	230	300	320	÷	÷	÷	÷	÷	>50	÷	SE 2/SE 1	29 / 37
1	1	÷	775	÷	800	÷	÷	÷	÷	÷	> 30	÷	SE 2/SE 1	35 / 36
1	1	÷	900	÷	920	÷	÷	÷	÷	÷	> 50	÷	SE 2/SE 1	38 / 36
1	1	÷	960	÷	970	÷	÷	÷	÷	÷	> 30	÷	SE 2/SE 1	39 / 37
1	1	÷	0	—	1035	INTERMITTENT			÷	÷	<10	÷	>-16	48÷40

EXAMINER ICHWANKE / THEELEN LEVEL II

SIGNATURE

AUTHORIZED INSPECTOR

CLIENT (IF REQUIRED) 4/19/84 (IF REQUIRED)



PAGE 4 OF 4

REPORT NO. JAE 100284-1

DATE 10-02-84

UTL-316

Weld 12-02-2-69

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.0000	0.6700	0.670
0.25	0.1000	0.5700	0.670
0.50	0.2000	0.4700	0.670
0.75	0.3000	0.3700	0.670
1.00	0.4000	0.2700	0.670
1.25	0.4125	0.2575	0.670
1.50	0.4250	0.2450	0.670
1.75	0.4375	0.2325	0.670
2.00	0.4500	0.2200	0.670
2.25	0.4750	0.1950	0.670
2.50	0.5000	0.1700	0.670
2.75	0.5250	0.1450	0.670
3.00	0.5500	0.1200	0.670
3.25	0.5750	0.0950	0.670
3.50	0.6000	0.0700	0.670
3.75	0.6250	0.0450	0.670
4.00	0.6500	0.0200	0.670
4.25	0.6500	0.0200	0.670
4.50	0.6500	0.0200	0.670
4.75	0.6500	0.0200	0.670
5.00	0.6500	0.0200	0.670
5.25	0.6500	0.0200	0.670
5.50	0.6500	0.0200	0.670
5.75	0.6500	0.0200	0.670
6.00	0.6500	0.0200	0.670
6.25	0.6325	0.0375	0.670
6.50	0.6150	0.0550	0.670
6.75	0.5975	0.0725	0.670
7.00	0.5800	0.0900	0.670
7.25	0.5600	0.1100	0.670
7.50	0.5400	0.1300	0.670
7.75	0.5200	0.1500	0.670
8.00	0.5000	0.1700	0.670
8.25	0.4500	0.2200	0.670
8.50	0.4000	0.2700	0.670
8.75	0.3500	0.3200	0.670
9.00	0.3000	0.3700	0.670
9.25	0.3125	0.3575	0.670
9.50	0.3250	0.3450	0.670
9.75	0.3375	0.3325	0.670
10.00	0.3500	0.3200	0.670
10.25	0.3750	0.2950	0.670
10.50	0.4000	0.2700	0.670
10.75	0.4250	0.2450	0.670
11.00	0.4500	0.2200	0.670
11.25	0.4125	0.2575	0.670
11.50	0.3750	0.2950	0.670
11.75	0.3375	0.3325	0.670
12.00	0.3000	0.3700	0.670
12.25	0.3000	0.3700	0.670

Weld 12-02-2-69

Reference Distance (inches)	Remaining Wal	Crack Depth	Nominal Wall Thickness
12.50	0.3000	0.3700	0.670
12.75	0.3000	0.3700	0.670
13.00	0.3000	0.3700	0.670
13.25	0.3300	0.3400	0.670
13.50	0.3600	0.3100	0.670
13.75	0.3900	0.2800	0.670
14.00	0.4200	0.2500	0.670
14.25	0.4150	0.2550	0.670
14.50	0.4100	0.2600	0.670
14.75	0.4050	0.2650	0.670
15.00	0.4000	0.2700	0.670
15.25	0.3900	0.2800	0.670
15.50	0.3800	0.2900	0.670
15.75	0.3700	0.3000	0.670
16.00	0.3600	0.3100	0.670
16.25	0.3825	0.2875	0.670
16.50	0.4050	0.2650	0.670
16.75	0.4275	0.2425	0.670
17.00	0.4500	0.2200	0.670
17.25	0.4625	0.2075	0.670
17.50	0.4750	0.1950	0.670
17.75	0.4875	0.1825	0.670
18.00	0.5000	0.1700	0.670
18.25	0.5125	0.1575	0.670
18.50	0.5250	0.1450	0.670
18.75	0.5375	0.1325	0.670
19.00	0.5500	0.1200	0.670
19.25	0.5575	0.1125	0.670
19.50	0.5650	0.1050	0.670
19.75	0.5725	0.0975	0.670
20.00	0.5800	0.0900	0.670
20.25	0.5850	0.0850	0.670
20.50	0.5900	0.0800	0.670
20.75	0.5950	0.0750	0.670
21.00	0.6000	0.0700	0.670
21.25	0.6125	0.0575	0.670
21.50	0.6250	0.0450	0.670
21.75	0.6375	0.0325	0.670
22.00	0.6500	0.0200	0.670
22.25	0.6500	0.0200	0.670
22.50	0.6500	0.0200	0.670
22.75	0.6500	0.0200	0.670
23.00	0.6500	0.0200	0.670
23.25	0.6375	0.0325	0.670
23.50	0.6250	0.0450	0.670
23.75	0.6125	0.0575	0.670
24.00	0.6000	0.0700	0.670
24.25	0.6000	0.0700	0.670
24.50	0.6000	0.0700	0.670
24.75	0.6000	0.0700	0.670

Weld 12-02-2-69

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.6000	0.0700	0.670
25.25	0.6000	0.0700	0.670
25.50	0.6000	0.0700	0.670
25.75	0.6000	0.0700	0.670
26.00	0.6000	0.0700	0.670
26.25	0.6000	0.0700	0.670
26.50	0.6000	0.0700	0.670
26.75	0.6000	0.0700	0.670
27.00	0.6000	0.0700	0.670
27.25	0.6125	0.0575	0.670
27.50	0.6250	0.0450	0.670
27.75	0.6375	0.0325	0.670
28.00	0.6500	0.0200	0.670
28.25	0.6150	0.0550	0.670
28.50	0.5800	0.0900	0.670
28.75	0.5450	0.1250	0.670
29.00	0.5100	0.1600	0.670
29.25	0.3825	0.2875	0.670
29.50	0.2550	0.4150	0.670
29.75	0.1275	0.5425	0.670
30.00	0.0000	0.6700	0.670
30.25	0.1200	0.5500	0.670
30.50	0.2400	0.4300	0.670
30.75	0.3600	0.3100	0.670
31.00	0.4800	0.1900	0.670
31.25	0.4675	0.2025	0.670
31.50	0.4550	0.2150	0.670
31.75	0.4425	0.2275	0.670
32.00	0.4300	0.2400	0.670
32.25	0.4600	0.2100	0.670
32.50	0.4900	0.1800	0.670
32.75	0.5200	0.1500	0.670
33.00	0.5500	0.1200	0.670
33.25	0.5750	0.0950	0.670
33.50	0.6000	0.0700	0.670
33.75	0.6250	0.0450	0.670
34.00	0.6500	0.0200	0.670
34.25	0.6125	0.0575	0.670
34.50	0.5750	0.0950	0.670
34.75	0.5375	0.1325	0.670
35.00	0.5000	0.1700	0.670
35.25	0.4500	0.2200	0.670
35.50	0.4000	0.2700	0.670
35.75	0.3500	0.3200	0.670
36.00	0.3000	0.3700	0.670
36.25	0.3050	0.3650	0.670
36.50	0.3100	0.3600	0.670
36.75	0.3150	0.3550	0.670
37.00	0.3200	0.3500	0.670
37.25	0.3525	0.3175	0.670

Weld 12-02-2-69

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.3850	0.2850	0.670
37.75	0.4175	0.2525	0.670
38.00	0.4500	0.2200	0.670
38.25	0.4125	0.2575	0.670
38.50	0.3750	0.2950	0.670
38.75	0.3375	0.3325	0.670
39.00	0.3000	0.3700	0.670
39.25	0.2950	0.3750	0.670
39.50	0.2900	0.3800	0.670
39.75	0.2850	0.3850	0.670
40.00	0.2800	0.3900	0.670
40.25	0.2100	0.4600	0.670
40.50	0.1400	0.5300	0.670
40.75	0.0700	0.6000	0.670
41.00	0.0000	0.6700	0.670

Weld 12-02-2-75

ULTRASONIC DATA SHEET

UNIT: JAFNPP | SYSTEM: 02-2 Recirc | COMPONENT: piping weld

DESCRIPTION: Pipe - to - Safe end ; top of nozzle "K"

WELD ID: 12-02-2-75	PROCEDURE: QAI 9.0 & Add.	MATERIAL: SS	THICKNESS: .70"	TEST SURFACE: OD	
INSTRUMENT(S): USL-38	CAL-BLOCK(S): (See cal. sheets)	CRYSTAL: 5-3475	CRYSTAL: 84-88	CRYSTAL:	
NODE: 5 & 6	BEAM DIRECTION: Trans. Encoded	NO. POSITIONS: 41	ANGLE: 45°	ANGLE: 73°	ANGLE: N/A
DISTANCE: 1.0"	#1 REF: Top of pipe		TIME START: 1100	TIME START: 1100	TIME START:
COUPLANT: ULTRAGEL II	COUPLANT BATCH NO.: 8443		TIME STOP: 1400	TIME STOP: 1400	TIME STOP:
CAL. SHEET: QAF-EVAL-005 & 009			DATE: 10/15/84	DATE: 10/15/84	DATE:
PERFORMED BY: George Seiler			ID#: S-1765	LEVEL: III	LIMITED SCAN
PERFORMED BY: N/A			ID#: N/A	LEVEL: N/A	☒ NO ☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (%DAC) 20 TO 20	LEN. LENGTH (%DAC) 50 TO 50	LEN. LENGTH (%DAC) 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	(INCHES) CRYSTAL DISTANCE FROM A	(INCHES) CRYSTAL DISTANCE FROM B	(INCHES) CRYSTAL DISTANCE FROM 1	(INCHES) CRYSTAL DISTANCE FROM 2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MINIMUM POSITION (IN.) 1	MINIMUM POSITION (IN.) 2	MAXIMUM DISTANCE FROM SURFACE IN.	MAXIMUM POSITION (IN.) 1	MAXIMUM POSITION (IN.) 2	REMARKS
															A	B		A	B	
—	—	NO		Acceptable, Inaccessable indications - 360° Geometric reflectors - Root & C.B.																

REVIEWED BY: | LEVEL: | DATE REVIEWED: | FIGURE NO.:

WRED NO.: | DATA SHEET NO.:

SK-JAF-82-002

EET NO.: SAF-PWR-005 TIME: 1100 HR DATE: 4/22/81

NIT: JAFNPP SYSTEM: 02-2/Rx. Recirc. COMPONENT: piping welds

XAMINER: George Seibert ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

XAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

D#: 210586

LINEARITY CHECK ☒ YES ☐ NO

REJECT: OFF %DB

MAT'L. CAL.: 182

DELAY: 678

PULSE ENERGY: S.P.D.

COARSE GAIN IN DB: 40

FINE GAIN IN DB: 12

FINE GAIN: 10 %

SCREEN RANGE: 2.5

SCREEN DEPTH: 1.0 IN.

☐ T&R ☒ NORMAL } OPERATION

FREQUENCY: 5 MHZ.

☒ NORMAL ☐ RF } DISPLAY

REP. RATE: 1K

ZERO CONTROL: 0 0

DAMPING: OFF

GAIN: DLY: SLP: } DAC

POLARITY: WIDTH: DELAY: } GATE %

☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A376-.25

LENGTH: IN.

OD: IN.

THICKNESS: IN.

CRYSTAL

ID#: 5-3475

TYPE: MWB

FREQ.: 4 MHZ

SIZE: 9x9mm IN.

ACTUAL Δ: 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO.: SCREEN RANGE:

SIGNAL AMP: % SCREEN READING:

COURSE GAIN DB: N/A FINE GAIN DB:

SEARCH UNIT CABLE

TYPE: Buckeye LENGTH: 6'

CAL. BLOCK TEMP.: F°

CAL. BLOCK SIMULATOR TEMP.: N/A F°

(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE sheer

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" I.D. NODE	100 + %	50%-.10 IN.
.15" I.D. NODE	100 + %	60%-.15 IN.
.20" I.D. NODE	100 + %	40%-.20 IN.
.25" I.D. NODE	100 + %	40%-.25 IN.
.30" I.D. NODE	100 + %	30%-.30 IN.
.35" I.D. NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR. CB*	N/A %	N/A IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.		HRS		HRS		HRS.		HRS.		HRS.		H
BLOCK SIM.	%	N/A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.15" I.D. NODE	100 %	60%-.15 IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%
.25" I.D. NODE	100 %	60%-.25 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.35" I.D. NODE	100 %	25%-.35 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS													

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

SK-JAF-81-011

CALIBRATION SHEET

SET NO: JAFUAL-009 | TIME: 1100 HR | DATE: 10/15/84

UT: JAFNPP | SYSTEM: 02-2/Recirc. | COMPONENT: Piping welds

EXAMINER: George Stubbe | ID#: 5-1765 | LEVEL: III | COUPLANT: Ultragel II

EXAMINER: N/A | ID#: N/A | LEVEL: N/A | COUPLANT ID#: 8443

INSTRUMENT

#: 210568
PEARITY CHECK ☒ YES ☐ NO
EJECT: off %DB
AT'L. CAL.: 966
ELAY: 682
ULSE ENERGY: 0/T
OARSE GAIN IN DB: 40
INE GAIN IN DB: 22
INE GAIN: 15 %
ICREEN RANGE: .5
ICREEN DEPTH: 1.0 IN.
☐ T&R ☐ NORMAL } OPERATION
FREQUENCY: 2.5 MHZ.
☒ NORMAL ☐ RF } DISPLAY
REP. RATE: 1K
ZERO CONTROL: 0 0
DAMPING: OFF
GAIN: ____
DLY: ____ } DAC ____
SLP: ____
POLARITY: ____
WIDTH: ____ } GATE ____ %
DELAY: ____
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75
LENGTH: 12 IN.
OD: 1.25 IN.
THICKNESS: .75 IN.

CRYSTAL

ID#: 84-88
TYPE: RTD
FREQ.: 2 MHZ
SIZE: 6X13 mm IN.
ACTUAL Δ: 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. ____ SCREEN RANGE ____ IN.
SIGNAL AMP ____ % SCREEN READING ____ IN.
COURSE GAIN DB ____ FINE GAIN DB ____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. ____ F°
CAL. BLOCK SIMULATOR TEMP. ____ F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° NODE Longitudinal

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES S,a
.1 ~~LB NODE~~	100 %	.3 S.D. ~~IN.~~
.2 ~~LB NODE~~	90 %	.45 D. ~~IN.~~
.3 ~~LB NODE~~	70 %	.5 S.D. ~~IN.~~
.4 ~~LB NODE~~	55 %	.6 S.D. ~~IN.~~
.5 ~~LB NODE~~	40 %	.7 S.D. ~~IN.~~
.6 ~~LB NODE~~	30 %	.8 S.D. ~~IN.~~
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N %	N IN.
BKR. CB*	A %	A IN.
BKR. P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-63
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1700 HRS.		HRS.		HRS.		HRS.		HRS.		HR
BLOCK SIM.	%	N IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
BACK REFL.	%	A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
.1 ~~LB NODE~~	100 %	.3 S.D. IN.	%	N IN.	%	N IN.	%	N IN.	%	N IN.	%
.3 ~~LB NODE~~	80 %	.5 S.D. IN.	%	A IN.	%	A IN.	%	A IN.	%	A IN.	%
.5 ~~LB NODE~~	50 %	.7 S.D. IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
INITIALS											

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY ____ LEVEL ____ DATE REVIEWED ____

REPORT OF UT INSPECTION

REPORT NO. JAF 10684-1

DATE 10-16-84

CLIENT New York Power Authority

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-75 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFE END MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS _____ INCHES

SURFACE CONDITION OF PIPE ground OF WELD ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 125 °F

METHOD OF EXAMINATION: AUTOMATIC ÷ MANUAL ÷ SEMI-AUTO ROBBY

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60		SRI SLIC40	SUSI SUS42B	KK MWB 70
SERIAL NO.	V#7	V#2	V#2				
TRANSDUCER SIZE (MM) (~~INCHES~~)	8x9	8x9	8x9		2x Ø9.5	Ø9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/32°	44°	57°				
EXIT POINT (MM) (~~INCHES~~)	12/10	13	13				
REMARKS:	mode-conversion	shear	shear		long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK USK7
SERIAL NUMBER		27274-2643
CALIBRATION DATE		09-10-84
CABLE TYPE		TRIAXIAL
CABLE LENGTH		50m

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. # 8443

PERSONNEL PERFORMING EXAMINATION:

NAME U. HORSTHEMKE LEVEL II SIGNATURE _____

NAME U. SCHWANKE LEVEL II SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 10/684-1
DATE 10-16-84

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	35	30	25	20	15	10	÷

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

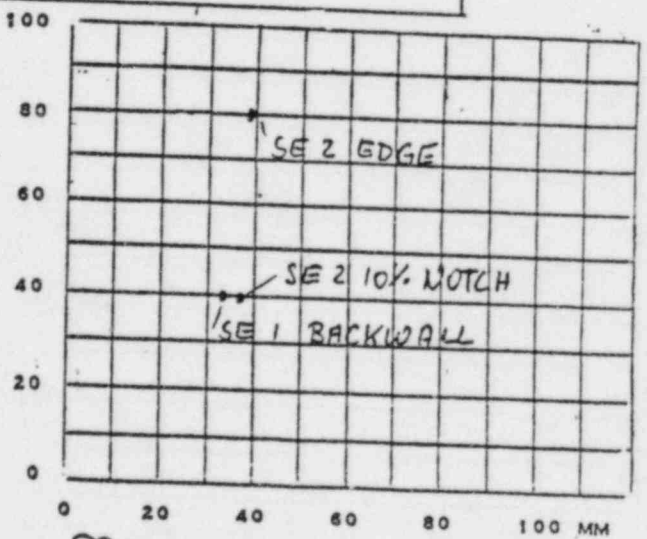
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1776-91084

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER n.a.
MATERIAL SS 304
REFERENCE REFLECTORS 10% NOTCH ID
REFERENCE REFLECTORS EDGE ID
REFERENCE REFLECTORS BACK WALL
REFERENCE REFLECTORS
REFERENCE REFLECTORS



V-PATH DATA PROBE NR. 1

PROBE NO.	PROBE NO.	METAL (MM) PATH (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK ÷ S/N ÷ REF. REFL. ÷ TEMP. ÷ °F
REF. BLOCK 12-A376-.66 S/N ÷ REF. REFL. 10% NOTCH ID TEMP. 110 °F
THERMOMETER SERIAL NO. 4TL 010

NAME	TIME	DAC (RECORD AMPLITUDE)	SWEEP RANGE
Horsthemke	10:00	SE 2 46 dB 80% FSH	3.7
Horsthemke	13:30	SE 2 46 dB 80% FSH	3.7

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF/01684-1

DATE 10-16-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (~~IN~~)	AMPLITUDE (DB) 80% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	37	46	12-A376-.66	SE 2
	EDGE ID	39	40	-"-	SE 2
	BACKWALL	34	46	-"-	SE 1
2	10% NOTCH ID	22	24	12-A376-.66	1/2 V-PATH
	10% NOTCH OD	46	26	-"-	2/2 V-PATH
	10% NOTCH ID	68	30	-"-	3/2 V-PATH
3	10% NOTCH ID	30	40	12-A376-.66	1/2 V-PATH
4					
5					
6					

REFERENCE POINT LOCATION Top of Pipe

			REFLECTOR POSITION/MM												
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW	
			No Reportable Indications						(Geometry)					

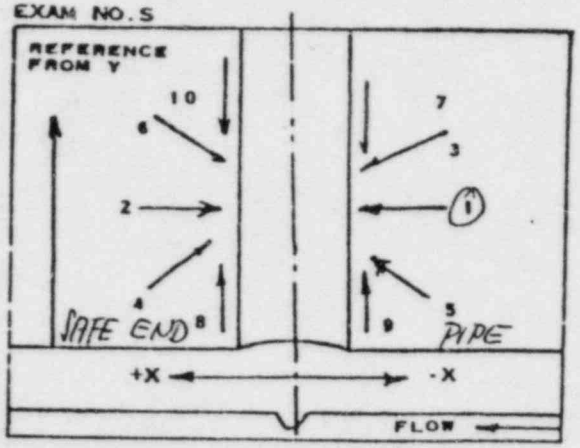
EXAMINER Schwanke, Horsthemke LEVEL II

SIGNATURE

AUTHORIZED INSPECTOR _____ (IF REQUIRED)

CLIENT _____ (IF REQUIRED)

EXAM NO.S



PAGE 4 OF 6

REPORT NO. JAF/10/6/94-1

DATE 10-16-94

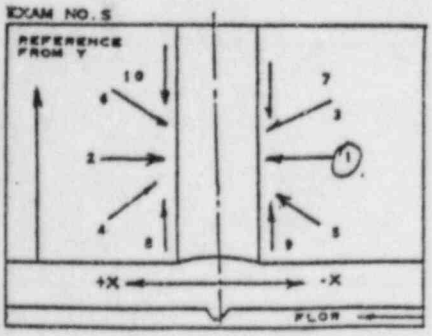
REPORT NO. JAF 101684-1

DATA STANDARD REPORT OF INDICATION NUMBER 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT POINT X	Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	68°/32°	1	33	340	70	36	
2	1	〃	1	35	340	62	66	
3	2	44°	1	37	340	54	23	counter bore
4	3	57°	1	28	340	54	28	
5	4	〃	1	48	340	56	28	Interface

*C.L. 0 — DEGREES — 180 — 360

LOCATION OF DEFECT ON CIRCUMFERENCE OF PIPE



EXAMINER Schwanke, Horsthemke LEVEL II

REVIEWED BY Level III Walter E. Sutton DATE 10-17-84

AUTHORIZED INSPECTOR _____

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

UT—INSPECTION —IGSCC—

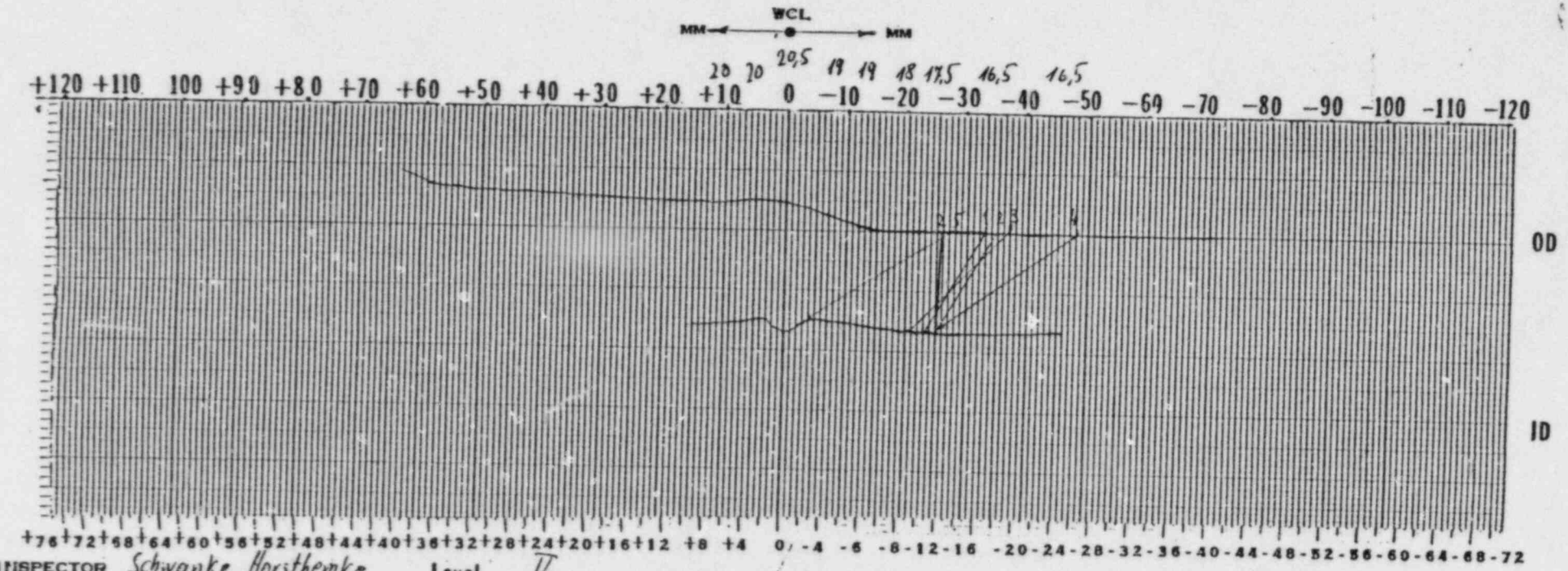
Weld Identification No 12-02-2-75

Signal No Indication No. 1

Coodinate from reference point "Y". 340 mm

Probes Used	Probe No.	Signal No.
Wall Thickness	MSEB 4 H	
Root Center	20,5 mm	
Other Data	1	1, 2
	2 3	3 4,5

INSPECTION CONTOUR



INSPECTOR Schwanke, Horsthemke Level II

DATE 10.16.84

WCL

INCHES

1/16"

Report No. JAF 101684-1 page 6 of 6

UNITED STATES TESTING COMPANY, INC.

12-02-2-75

10/17/84
Date

RADIOGRAPHIC EXAMINATION REPORT

tomer NYPA
cation JAFNPP
rchase order no. NYO 82 246
ork request no.
lder I. D. 7

R. T. Procedure/Rev. REACTOR CONTROLS INC/RT1
Specimen Description WELD
Material Type S/S
Dia./Thickness 12.750/.688
Specimen I. D. RECIRC WELD 17A

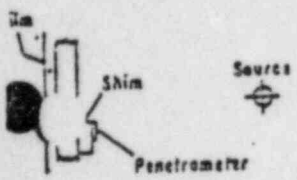
Procedure Data

Gamma	X-Ray	A
ource Type IR 192	Machine Mfg.	
aries 36	Kilovoltage	
ysical Size 1/8 x 3/32	Milliamperage	N
ffective Size .155	Focal Spot Size	

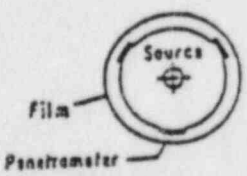
Penetrameter Designation 15F
Required Sensitivity/Essential Hole 2/4T
Shim Thickness .093
Pb Screens: Front .010 Back .010
Source to Film Distance 12 3/4

Film Type KODAK M
Film Size 4 1/2 x 17
No. Exposures 4
Total No. Film 8
Geometric Unsharpness
Exposure Time

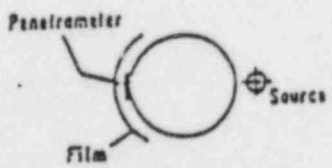
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☒ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
17A	0-10						✓	✓	✓	ARTIFACTS	3.3	2.75-3.1		
	10-20					✓				"	3.1	2.7-3.0	✓	
	20-30									"	3.25	2.6-3.1		
	30-0					✓	✓	✓	✓	"	3.5	2.8-3.3		

Acceptance Criteria: Code/Addenda/Class –

Remarks: FILM 0-10 DENSITIES DO NOT LIE WITHIN THE -15% +30% CALLED FOR BY UST-RT-EG Rev1 AND ASME CODE
20-30
30-0
NO COPY OF RCI RT1 IS AVAILABLE AT THIS TIME

Radiographed By: _____

Interpreted By: R Koontz II 10/17/84
Name Level Date

Customer Review: _____ III 10-17-84
Name Level Date

6063A/8-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A.FitzPatrick

DATA SHEET NO. JAF-090/A DATE 10-13-84

PROCEDURE JAF-UT-5 Add 112 REV 3

COMPONENT OR SYSTEM Recirculation Loop "B" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 122°F

CALIBRATION BLOCK NO. 12-A316 THICKNESS 0.66" TEMP 120°F

SCAN COVERAGE

☐ 0° WHAZ ☐ 0° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

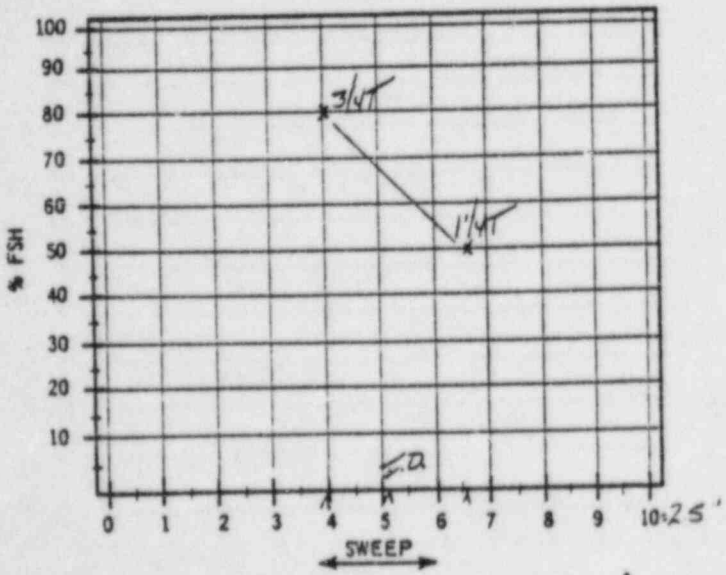
SEARCH UNIT

Manufacturer Aerotech
Style Gamma
Serial No. E14112
Size 0.5" Dia Frequency 2.25 MHz
Angle 62° Mode Shear
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer KrautKramer Branson Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.5 MHz Reject OFF
Rep Rate N/A Damping OFF
dB Gain - Coarse 20 Fine 34
Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT - TIME 1530 AM (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
TIME	YES	NO	YES	NO
1910	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. [signature] TC-1A LEVEL II
REVIEWED BY [signature] DATE 10/17/84

ADDITIONAL REMARKS

[signature] NNPA UT III 10/17/84

WELD OR COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
12-02-Z-15	✓	N/A	SEE INDICATION DATA SHEET

* Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

062/5-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
[illegible]SERVICE INSPECTION

INDICATION DATA

SHEET 2 OF 3

ITEM IDENTIFICATION 12-02-Z-75

CALIBRATION DATA SHEET NO. JAF-090/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON _____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ℄ *)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
N/A	N/A	✓	1	Pipe	31	3.2	0° TDC	0.6"	—	—	—	—	—	—
N/A	N/A	✓	2	Pipe	100	4.7	0° TDC	0.7"	—	—	—	—	—	—
N/A	N/A	✓	3	Pipe	25	4.0	1" CW	0.6"	—	—	—	—	—	—
N/A	N/A	✓	4	Pipe	25	2.7	3½" CW	0.6"	—	—	—	—	—	—
N/A	N/A	✓	5	Pipe	38	3.0	25" CW	0.6"	—	—	—	—	—	—
N/A	N/A	✓	6	Pipe	25	3.5	30½" CW	0.6"	—	—	—	—	—	—
N/A	N/A	✓	7	Pipe	25	3.5	36" CW	0.6"	—	—	—	—	—	—

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
							60°
							Indications intermittent 360° in base material (HAZ).
							* MEASUREMENTS TAKEN AT TOE OF WELD

CONTINUATION ATTACHED – ☐ Yes, ☐ No

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. Robert Brugge TC-1A LEVEL I

REVIEWED BY [signature] DATE 10/17/24

EBASCO SERVICES INCORPORATED

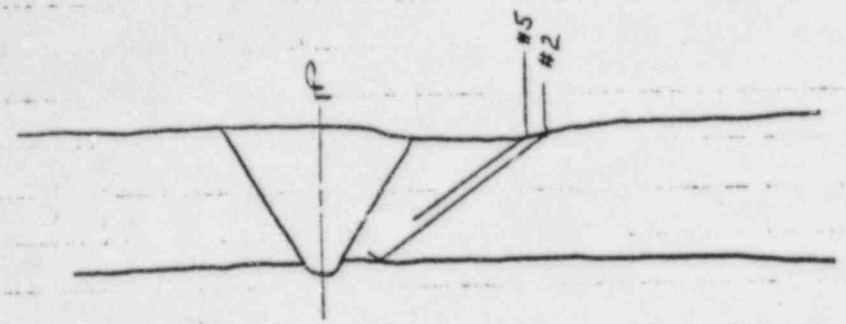
BY _____ DATE _____ SHEET 3 OF 3

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NYPA

PROJECT JA. FITZPATRICK Data Sheet # JAF-69C/A

SUBJECT 12-02-2-75 RECIRCULATION SYSTEM Loop "B"



12-02-2-75

E0853A/9-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT J.A. FITZPATRICK

DATA SHEET NO. JAF-112/A DATE 10-18-84

PROCEDURE JAF-UT-5 Add 1/2 REV 3

COMPONENT OR SYSTEM RECIRCULATION SYSTEM "B" LOOP PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE – COMPONENT TEMP 115°F

CALIBRATION BLOCK NO. 12-A376 THICKNESS 0.66" TEMP 100°F

SCAN COVERAGE

☒ 0° WHAZ ☒ 0° BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer AEROTECH
Style GAMMA
Serial No. E14112
Size 0.50" Frequency 2.25 MHZ
Angle 61° Mode SHEAR

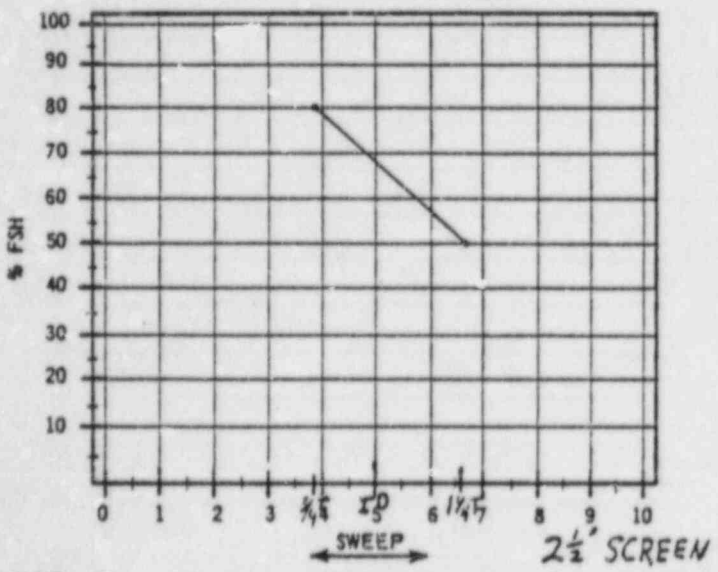
Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER-BRANSON Model USL-38
Serial No. 210571 Cable Length 6'
Frequency 2.25 MHZ Reject OFF
Rep Rate NA Damping OFF
dB Gain – Coarse 40 Fine 12

Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 1600 AM, (PM)



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (2dB) OF INITIAL AMPL YES	AMPL ± 20% (2dB) OF INITIAL AMPL NO	SWEEP ± 10° OF INITIAL LOCATION YES	SWEEP ± 10° OF INITIAL LOCATION NO
1715	X	N/A	X	N/A

NOTE: If response above is "NO" refer to Calibration section of procedure.

EXAMINER(S)
1. Arthur Smith TC-1A LEVEL II
2. John R. O'Neil TC-1A LEVEL II
REVIEWED BY Arthur Smith III DATE 10-19-84

ADDITIONAL REMARKS

¾T-3.8 @80% @ 52 dB
I.D. -5.0
1¼T-6.6 @50%

NPPA-UT 10/19/84

...M COMPONENT ...TIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-81	NA	X	LOW AMPLITUDE NON-RECORDABLE INDICATIONS FOUND AT 1°CCW. IN A AXIAL SCAN. ALSO LOW AMPLITUDE NONRECORDABLE INDICATIONS FOUND USING TRANSVERSE SCAN AT 23°-25°CW, 29½°CW, and 8¼°CW. THE INDICATION AT 8¼°CW CAN BE LOCATED USING BOTH CW AND CCW. SCAN PATHS.

...mments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also ...clude the location of these conditions.

BECHTEL POWER CORPORATION
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT JAF ISI Outage

DATA SHEET NO. _____ DATE 10/12/84

PROCEDURE NO. JAF UT-S and 1-2 REV 3

COMPONENT OR SYSTEM Recirculation System Loop "B" PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NOS. LISTED ON REVERSE SIDE - COMPONENT TEMP 120°F EXAM. SURFACE N/A ID ☐ OD ☑

CALIBRATION BLOCK NO. 12-A376 THICKNESS .66 TEMP 110°F

SCAN COVERAGE

N/A ☐ HAZ N/A ☐ BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

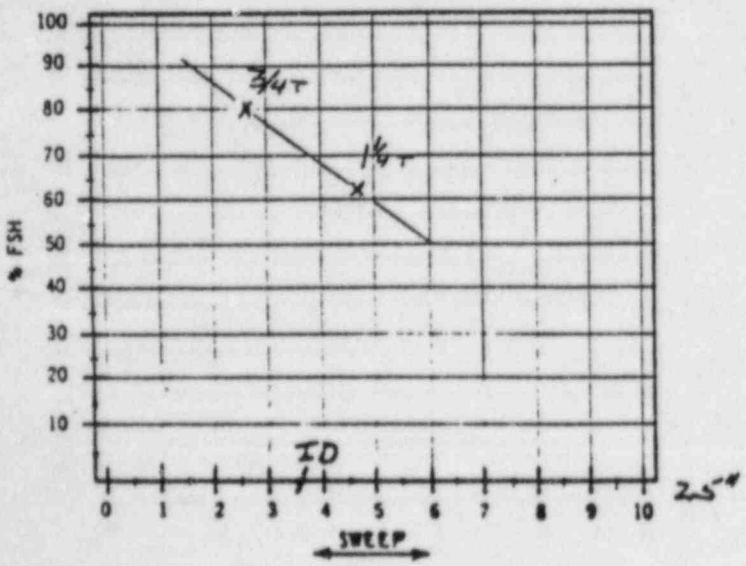
SEARCH UNIT

Manufacturer Nortec
Style Zt-2
Serial No. 15462
Size .50" Frequency 2.25 mHz
Angle 43° Mode SHEAR
Couplant Ultragel II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER Model USK 7
Serial No. 27276-1534 Coaxial Cable Length 6'
Frequency BB Reject min
Rep Rate N/A Damping N/A
dB Gain – Coarse 20 Fine 30
Primary Reference Response Amplitude % Full Screen Height 80%

DAC PLOT – TIME 800 (AM) PM



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (2dB) OF INITIAL AMPL YES	AMPL ± 20% (2dB) OF INITIAL AMPL NO	SWEEP ± 5% OF INITIAL LOCATION YES	SWEEP ± 5% OF INITIAL LOCATION NO
1145	✓	N/A	✓	N/A

NOTE: If response above is "NO" refer to Calibration Check section of procedure.

EXAMINER(S)
1. _____ TC-1A LEVEL II
2. _____ TC-1A LEVEL II
REVIEWED BY _____ DATE 10/12/84

ADDITIONAL REMARKS ID 3.6
3/4 2.6 80%
1 1/4 4.6 62%

_____ NDEA III
10/12/84

ON COMPONENT IDENTIFICATION	RECORDABLE INDICATION		COMMENTS OR REFERENCE TO INDICATION DATA SHEET (IDS)*
	YES	NO	
2-2-81	✓	N/A	~~SEE ATTACHED SHEET + 60° DATA SHEET~~
			FINAL EVALUATION of INDICATIONS # 1 AND 2
			ON DATA SHEET # JAF-112/A

*Comments may include geometric reflectors, areas of inaccessibility, surface condition, etc. . . Also include the location of these conditions.

QUALITY ASSURANCE ENGINEERING

INSERVICE INSPECTION

INDICATION DATA

CALIBRATION DATA SHEET NO. [illegible]

DATA TABULATION

45° BEAM	60° BEAM	70° BEAM	INDICATION NO.	BEAM ON (ADJ) WELD SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION: CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	SEARCH UNIT EXIT POINT LOCATION: AXIAL (DISTANCE FROM WELD ℄)	50% DAC OR HALF MAXIMUM AMPLITUDE: MINIMUM SWEEP READING	MINIMUM S.U. POSITION	MAXIMUM SWEEP READING	MAXIMUM S.U. POSITION	STRAIGHT BEAM (CAL ON BACK REFLECTION): INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
	✓		1	PIPE SIDE	70	4.3	6½ CW	.8	4.3	.8	4.8	.9		
	✓		2	PIPE SIDE	100	4.4	1" CCW	.9	4.4	.9	4.8	1.0"		

RESULTS	INDICATION NO.	LOCATION OF INDICATION: CIRC	LOCATION OF INDICATION: AXIAL	LENGTH	% t: DEPTH (IF PLANAR)	% t: DISTANCE FROM SURFACE	WIDTH (IF LAMINAR)	COMMENTS
								ALL MEASUREMENTS FROM TOE OF WELD.

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINED BY:

1. [signature] TC-1A LEVEL II

2. [signature] TC-1A LEVEL I

REVIEWED BY [signature] DATE 10/12/84

EBASCO SERVICES INCORPORATED

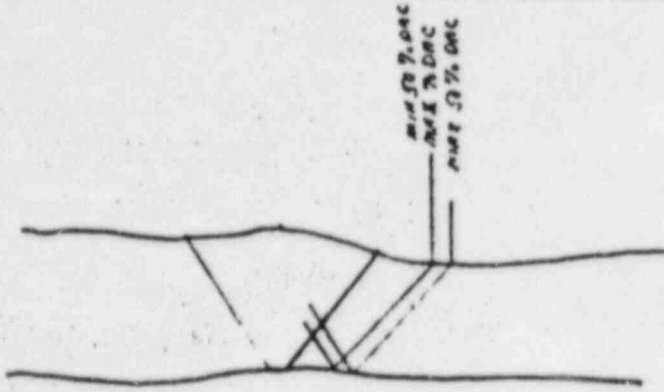
BY _____ DATE _____ SHEET 3 OF 3

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

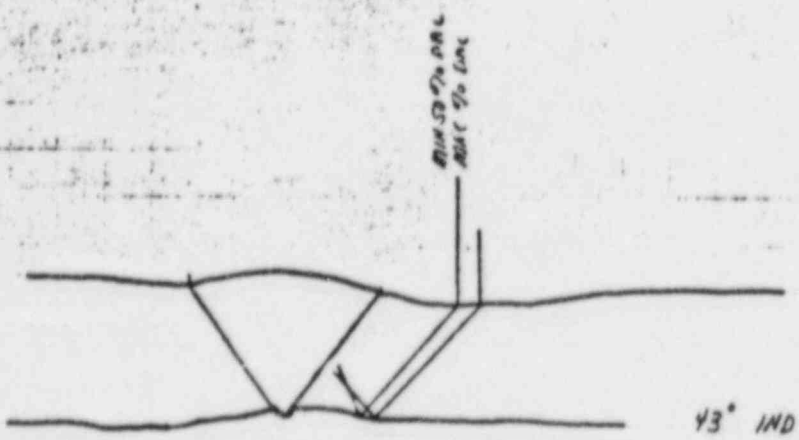
CLIENT NYPA

PROJECT JA FITZPATRICK Data Sheet # JAF-111/2

SUBJECT 12-02-2-88 RECIRCULATION SYSTEM Loop "B"



43° - IND #1



43° IND #2

L-32-2-81

ULTRASONIC DATA SHEET

UNIT: JAFNPP	SYSTEM: 02-2 / Recirc.		COMPONENT: piping weld	
DESCRIPTION: Pipe-to-safe end; Top of riser "H"				
WELD ID: 12-02-2-81	PROCEDURE: QAI 9.0 + Add.	MATERIAL: SS	THICKNESS: .69	TEST SURFACE: OD
INSTRUMENT(S): USL-38	CAL-BLOCK(S): (See cal. sheets)	CRYSTAL: 93475	CRYSTAL: 84-88	CRYSTAL:
NODE: 5 & L / BEAM DIRECTION: Trans. & parallel	NO. POSITIONS: 41	ANGLE: 45°	ANGLE: 73°	ANGLE:
DISTANCE: 1.0" / #1 REF: 90-7, pipe		TIME START: 1100	TIME START: 1100	TIME START: N/A
COUPLANT: Ultragel II	COUPLANT BATCH NO.: 8443	TIME STOP: 1400	TIME STOP: 1400	TIME STOP:
CAL. SHEET: JAF-EVAC-008 & 009		DATE: 10/15/84	DATE: 10/15/84	DATE:
PERFORMED BY: George Sadler [signature]		ID#: 5-1765	LEVEL: III	LIMITED SCAN
PERFORMED BY: N/A		ID#: N/A	LEVEL: N/A	☑ NO ☐ YES (IF SO WHY)

POSITION A	POSITION B	LAMINATION (ONLY) MAX. SIGNAL (% OF DAC)	LAMINATION (ONLY) DEPTH (IN.)	LEN. LENGTH (% DAC) 20 TO 20	LEN. 50 TO 50	LEN. 100 TO 100	BEAM DIRECTION	ANGLE (DEG)	CRYSTAL DISTANCE FROM (INCHES) A	B	1	2	SURFACE	HALF MAXIMUM AMPLITUDE MINIMUM DISTANCE FROM SURFACE IN.	MINIMUM POSITION (IN.) 1 A	MINIMUM POSITION (IN.) 2 B	MAXIMUM DISTANCE FROM SURFACE IN.	MAXIMUM POSITION (IN.) 1 A	MAXIMUM POSITION (IN.) 2 B	REMARKS
		no reportable/recordable indications - 360° Geometric reflectors - Root & C.B.																		

REVIEWED BY:	LEVEL:	DATE REVIEWED:	FIGURE NO.:
		WRED NO.:	DATA SHEET NO.:

SK-JAF-82-002

CALIBRATION SHEET

SHEET NO: JAF-UMC-005 TIME: 1100 HR DATE: 10/15/84

UNIT: JAFNPP SYSTEM: 02-2/Recirc. COMPONENT: piping welds

EXAMINER: George Seckler ID#: 5-1765 LEVEL: III COUPLANT: ULTRAGEL II

EXAMINER: N/A ID#: N/A LEVEL: N/A COUPLANT ID#: 8443

INSTRUMENT

ID#: 210586
LINEARITY CHECK ☒ YES ☐ NO
REJECT: off %DB
MAT'L. CAL.: 182
DELAY: 678
PULSE ENERGY: S.P.D.
COARSE GAIN IN DB: 40
FINE GAIN IN DB: 12
FINE GAIN: 10
SCREEN RANGE: 2.5
SCREEN DEPTH: 1.0 IN.
☐ T&R ☑ NORMAL } OPERATION
FREQUENCY: 5 MHZ.
☑ NORMAL ☐ RF } DISPLAY
REP. RATE: IK
ZERO CONTROL: 0 0
DAMPING: off
GAIN: DLY: SLP: } DAC N/A
POLARITY: WIDTH: DELAY: } GATE N/A %
☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: CTD-A376-.25
LENGTH: IN.
OD: IN.
THICKNESS: IN.

CRYSTAL

ID# 53475
TYPE dual
FREQ. 4 MHZ
SIZE 8x9mm in.
ACTUAL ∠ 45° °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. SCREEN RANGE
SIGNAL AMP % SCREEN READING
COURSE GAIN DB N/A FINE GAIN DB N/A

SEARCH UNIT CABLE

TYPE Bucknell LENGTH 6'

CAL. BLOCK TEMP. F°
CAL. BLOCK SIMULATOR TEMP. N/A F°
(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 45 ° NODE shear

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES
.10" I8 NODE	100 + %	50%-.10 IN.
.15" I8 NODE	100 + %	60%-.15 IN.
.20" I8 NODE	100 + %	40%-.20 IN.
.25" I8 NODE	100 + %	40%-.25 IN.
.30" I8 NODE	100 + %	30%-.30 IN.
.35" I8 NODE	100 + %	25%-.35 IN.
TOP NOTCH	%	IN.
OPPOSITE NOTCH	N/A %	N/A IN.
BKR CB*	N/A %	N/A IN.
BKR P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1400 HRS.		HRS		HRS		HRS.		HRS.		HRS.		K
BLOCK SIM.	%	N/A IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	
BACK REFL.	N/A %	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	
.15" I8 NODE	100 %	.15 IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	%	N/A IN.	
.25" I8 NODE	100 %	.25 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	
.35" I8 NODE	100 %	.35 IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	
INITIALS	GSeckler												

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

REVIEWED BY LEVEL DATE REVIEWED

CALIBRATION SHEET

SHEET NO: JAFCAL-009 | TIME: 1100 HR | DATE: 10/15/84

IT: JAFNPP | SYSTEM: 02-2/RECIRC. | COMPONENT: PIPING welds

AMINER: George Seekins | ID#: S-1765 | LEVEL: III | COUPLANT: ULTRAGEL II

AMINER: N/A | ID#: N/A | LEVEL: N/A | COUPLANT ID#: 8443

INSTRUMENT

#: 210568

NEARITY CHECK ☒ YES ☐ NO

EJECT: off %DB

AT'L. CAL: 966

ELAY: 682

ULSE ENERGY: 0/1

OARSE GAIN IN DB: 40

INE GAIN IN DB: 22

INE GAIN: 15 %

CREEN RANGE: .5

CREEN DEPTH: 6.0 IN.

☒ T&R ☐ NORMAL } OPERATION

REQUENCY: 2.5 MHZ.

☒ NORMAL ☐ RF } DISPLAY

EP. RATE: 1K

ZERO CONTROL: 0 0

DAMPING: OFF

GAIN: ____

DLY: ____ } DAC

SLP: ____

POLARITY: ____

WIDTH: ____ } GATE ____ %

DELAY: ____

☐ NORMAL ☐ FIRST ECHO } ECHO START

CALIBRATION BLOCK

ID#: RTD-A376-.75

LENGTH: 12 IN.

OD: 1.25 IN.

THICKNESS: .75 IN.

CRYSTAL

ID# 84-88

TYPE RTD

FREQ. 2 MHZ

SIZE 6X13 mm IN.

ACTUAL Δ 73 °

CALIBRATION BLOCK SIMULATOR

SERIAL NO. ____ SCREEN RANGE ____ IN.

SIGNAL AMP ____ % SCREEN READING ____ IN.

COURSE GAIN DB ____ FINE GAIN DB ____

SEARCH UNIT CABLE

TYPE DUAL LENGTH 6'

CAL. BLOCK TEMP. ____ F°

CAL. BLOCK SIMULATOR TEMP. ____ F°

(REQUIRED SUMMER 75 FOR VESSELS
REQUIRED WINTER 75 FOR PIPING)

SYSTEM CALIBRATION

ANGLE 73 ° MODE Long. Tan. L/L

REFLECTOR	AMPLITUDE % OF FULL SCREEN	SCREEN READING IN INCHES S.D.
.1 ~~I.B NODE~~	100 %	.3 S.D. ~~IN.~~
.2 ~~I.B NODE~~	90 %	.45 D. ~~IN.~~
.3 ~~I.B NODE~~	70 %	.5 S.D. ~~IN.~~
.4 ~~I.B NODE~~	55 %	.6 S.D. ~~IN.~~
.5 ~~I.B NODE~~	40 %	.7 S.D. ~~IN.~~
.6 ~~I.B NODE~~	30 %	.8 S.D. ~~IN.~~
TOP NOTCH	%	IN.
OPPOSITE NOTCH	%	IN.
BKR CB*	%	IN.
BKR P*	%	IN.

FIGURE NO(S). EXAMINED

12-02-2-12
12-02-2-17
12-02-2-23
12-02-2-64
12-02-2-58
12-02-2-75
12-02-2-81
N/A

CALIBRATION CONFIRMATION

TIME	1300 HRS.	HRS.	HRS.	HRS.	HRS.	HRS.	HR
BLOCK SIM.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
BACK REFL.	% N/A IN.	% IN.	% IN.	% IN.	% IN.	% IN.	%
.1 ~~I.B NODE~~	100 % .3 S.D. ~~IN.~~	% IN.	% IN.	% IN.	% IN.	% IN.	%
.3 ~~I.B NODE~~	80 % .5 S.D. ~~IN.~~	% IN.	% IN.	% IN.	% IN.	% IN.	%
.5 ~~I.B NODE~~	50 % .7 S.D. ~~IN.~~	% IN.	% IN.	% IN.	% IN.	% IN.	%
INITIALS							

*BKR CB (BACK REFLECTION FROM CAL. BLOCK) *BKR P (BACK REFLECTION FROM PART)

SK-JAF-81-011 DATE REVIEWED ____

REPORT OF UT INSPECTION

REPORT NO. JAF 10684-2

DATE 10-16-84

CLIENT New York Power Authority

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-81 DRAWING NO. N.A.

TYPE OF WELDING PIPE TO SAFE END MATERIAL: BASE SS WELD CS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS _____ INCHES

SURFACE CONDITION OF PIPE ground OF WELD ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 125 °F

METHOD OF EXAMINATION: AUTOMATIC ÷ MANUAL X SEMI-AUTO ÷

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60	RTD UEL 70	SRI SLIC40	SUS SUS423	KK MWB 70
SERIAL NO.	1.03	V#3	V#3	80-580	019		
TRANSDUCER SIZE (MM) (~~INCHES~~)	8x9	8x9	8x9	2x(7x15)	2x #9.5	#9	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/32°	44°	57°	70°	∠40		
EXIT POINT (MM) (~~INCHES~~)	12/10	13	13	9	N.A		
REMARKS:	mode-conversion	shear	shear	high-angle long	long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK-USK 7
SERIAL NUMBER		27274-2606
CALIBRATION DATE		08-23-84
CABLE TYPE		COAX19L
CABLE LENGTH		2m

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. # 8443

PERSONNEL PERFORMING EXAMINATION:

NAME M. DAUCHOW LEVEL II SIGNATURE _____

NAME U. SCHWANKE LEVEL II SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

NAME _____ LEVEL _____ SIGNATURE _____

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 101684-2
DATE 10-16-84

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	40	34	30	25	20	15	10	÷

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

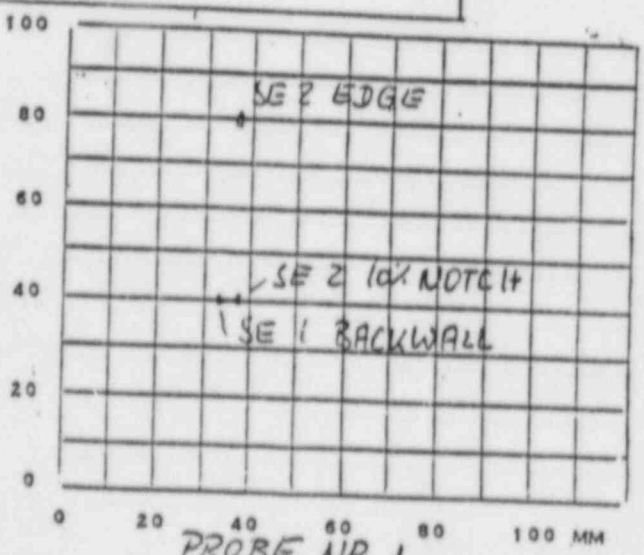
ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1763-82384

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66
DRAWING NUMBER n.a.
MATERIAL SS 304
REFERENCE REFLECTORS 10% NOTCH ID
REFERENCE REFLECTORS EDGE ID
REFERENCE REFLECTORS BACK WALL
REFERENCE REFLECTORS
REFERENCE REFLECTORS



V-PATH DATA

PROBE NO.	- PROBE NO.	METAL PATH (MM) (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK ÷ S/N ÷ REF. REFL. ÷ TEMP. ÷ °F
REF. BLOCK 12-A376-.66 S/N ÷ REF. REFL. 10% NOTCH ID TEMP. 115 °F
THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE)			SWEEP RANGE
M. DALICHOW	10:00	SE 2	48 dB	80% FSH	3.6
U. SCHWANKE	13:30	SE 2	48 dB	80% FSH	3.6
U. SCHWANKE	17:00	SE 2	48 dB	80% FSH	3.6

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 101684-2

DATE 10-16-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (IN)	AMPLITUDE (DB) 80% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	36	48	12-A376-.66	SE 2
	EDGE ID	37	42	-"-	SE 2
	BACKWALL	34	48	-"-	SE 1
2	10% NOTCH ID	22	26	12-A376-.66	1/2 V-PATH
	10% NOTCH OD	45	32	-"-	2/2 V-PATH
	10% NOTCH ID	69	34	-"-	3/2 V-PATH
3	10% NOTCH ID	28	40	12-A376-.66	1/2 V-PATH
4	90% NOTCH	2,5 DEPTH/r. OD	60	EDM-CAL-25 mm	PA 14 mm
	80% NOTCH	5.0 -"-	62	-"-	PA 18 mm
	70% NOTCH	7.5 -"-	64	-"-	PA 23 mm
	60% NOTCH	10.0 -"-	66	-"-	PA 25 mm
5	20% NOTCH ID	20 mm DEPTH/r. OD	70	EDM-CAL-25 mm	CALCULATET FOR 17 mm WALLTHICKNESS
6					

REFERENCE POINT LOCATION TOP of PIPE

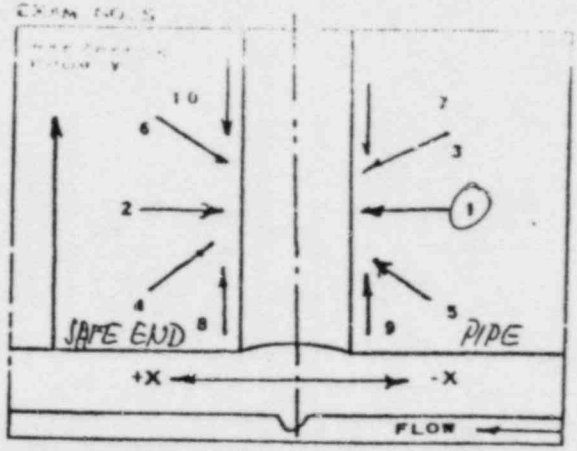
			REFLECTOR POSITION/MM											
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DAC dB	METAL-PATH MM
EXAM NO.	PROBE SIZE	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW	
				No reportable		Indications				(Geometry)				

EXAMINER [illegible]

SIGNATURE [illegible]

AUTHORIZED INSPECTOR _____ (IF REQUIRED)

CLIENT [illegible] (IF REQUIRED)



PAGE 4 OF 6

REPORT NO. JAF 10/RPV-2

DATE 10-16-84

REPORT NO. JAF 101684-2

PAGE 5 OF 6

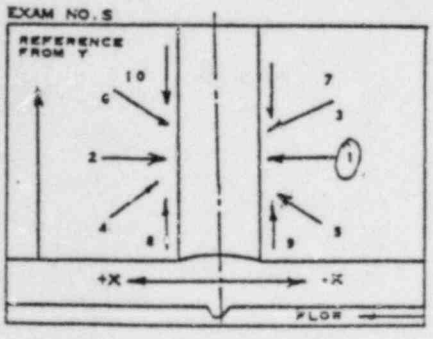
DATA STANDARD REPORT OF INDICATION NUMBER 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT POINT X	Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	68°/32°	1	31	280	64	40	GEOMETRY
2	2	44°	1	33	280	50	24	
3	3	57°	1	30	280	58	35	ROOT

DEGREES

*0 180 360

LOCATION OF DEFECT ON CIRCUMFERENCE OF PIPE



EXAMINER Dalichow / Schwanke LEVEL II

LEVEL III REVIEWED BY Wilson E. Shutts DATE 10-17-84

AUTHORIZED INSPECTOR _____

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

UT—INSPECTION —ICSCC—

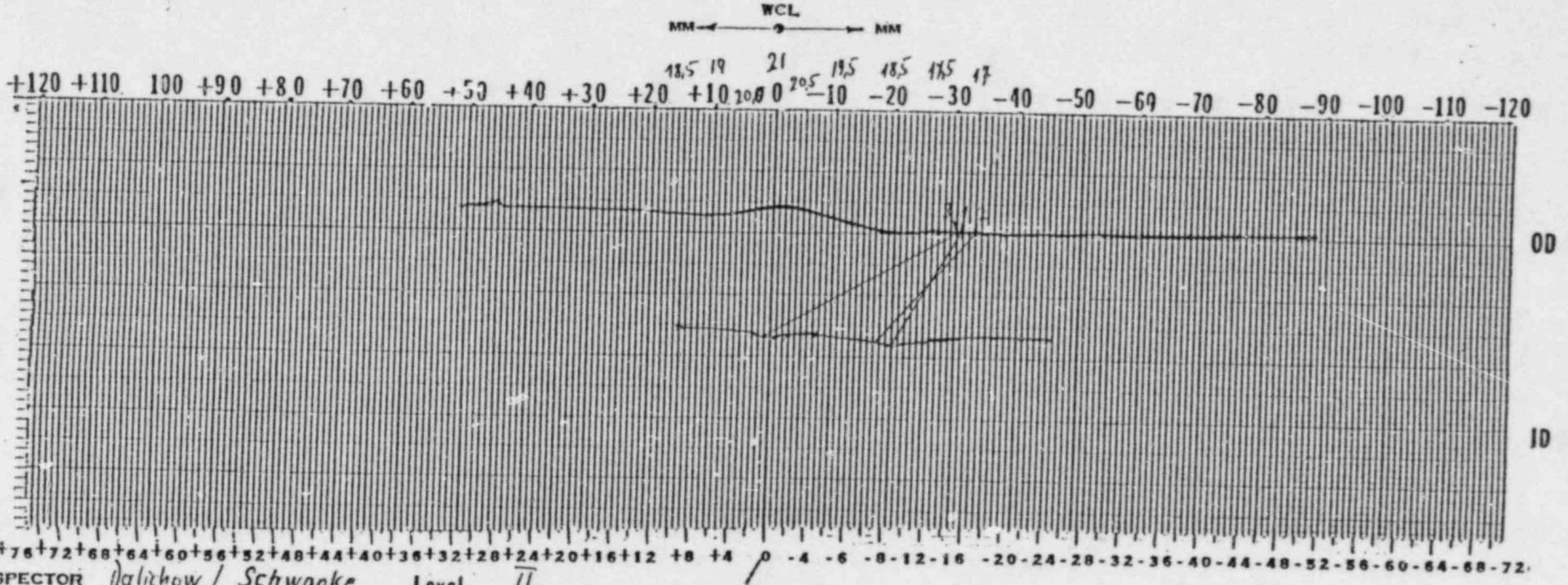
Weld Identification No 12-02-2-81

~~Signal No~~ Indication No. 1

Coodinate from reference point "Y" 280 mm

Probes Used	Probe No.	Signal No.
Wall Thickness	ASEB4H	
Root Center	21 mm	
Other Data	1	1
	2	2
	3	3

INSPECTION CONTOUR



INSPECTOR Dalichow / Schwanke Level II

DATE 10-16-84

Report No. JAF 101684-2 page 6 of 6

UTL-318

UNITED STATES TESTING COMPANY, INC.

12-02-2-81

Date 10/17/84

RADIOGRAPHIC EXAMINATION REPORT

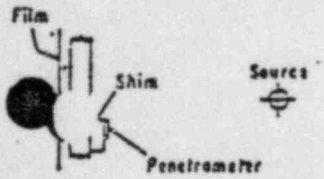
Customer NYPA	R. T. Procedure/Rev. REACTOR CONTROLS INC MTI
Location JAFNPP	Specimen Description WELD
Purchase order no. NYO 82-246	Material Type S/S
Work request no. N/A	Dia./Thickness 12.75 / .375
Welder I. D. 7	Specimen I. D. RECIRC WELD 13A

Procedure Data

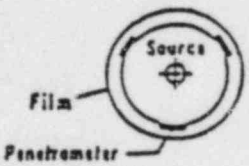
Gamma	X-Ray	
Source Type IR 192	Machine Mfg. N/A	Penetrameter Designation 15F
Curies 44	Kilovoltage	Required Sensitivity/Essential Hole 2 /4T
Physical Size 1/8 X 3/32	Milliamperage	Shim Thickness .093
Effective Size .155	Focal Spot Size	Pb Screens: Front .010 Back .010
		Source to Film Distance 12.75

Film Type KODAK M	No. Exposures 4	Geometric Unsharpness .009
Film Size 4½ X 17	Total No. Film 8	Exposure Time 9M.

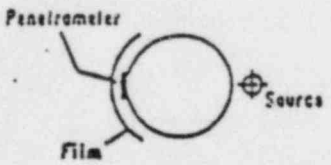
A ☐ Plate-Test Coupons



B ☐ Panoramic



C ☑ Double Wall



D ☐ Other

Specimen I. D.	Film Increment Number	Cracks	Incomplete Penetration	Incomplete Fusion	Slag Inclusion	Porosity	Root Concavity/ Convexity	Undercut	Tungsten Inclusion	Other	Density: Penetrameter	Density: Weld	Accept	Reject
15F	0-10				✓		✓	✓		ARTIFACTS	2.9	2.7-2.9	✓	
	10-20									" "	3.0	2.6-2.75	✓	
	20-30							✓	✓	" "	3.1	2.4-2.9		
	30-0						✓	✓	✓	" "	3.1	2.5-2.8		

Acceptance Criteria: Code/Addenda/Class – ASME III 65

Remarks: FILM 20-30 DENSITIES DO NO LIE WITHIN -15% +30% SPECIFIE
30-0 BY UST-RT EG Rev 1
NO COPY OF RCI RT 1 IS AVAILABLE

Radiographed By:

Interpreted By: R Koontz II 10-17-84 (Date)

Customer Review: [illegible] III 10-17-84 (Name / Level / Date)

Weld 12-02-2-70

P063A/5-84

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

CALIBRATION DATA

PROJECT JAF

DATA SHEET NO. JAF-076/A DATE 10-11-8

PROCEDURE JAF-UT-5 Add 1+2 REV 3

COMPONENT OR SYSTEM RECIRC LOOP B PIPE OD (IF APPLICABLE) 12"

ITEM IDENTIFICATION NO(S). LISTED ON REVERSE SIDE - COMPONENT TEMP 125° F

CALIBRATION BLOCK NO. 17-9376 THICKNESS .66" TEMP 110° F

SCAN COVERAGE

NA ☐ WHAZ NA ☐ BASE MATERIAL ☑ AXIAL ☑ CIRCUMFERENTIAL

EQUIPMENT DATA

SEARCH UNIT

Manufacturer K.B. AEROTECH
Style GAMMA
Serial No. K02119
Size .50" ϕ Frequency 2.25 MHZ
Angle 60° Mode SHEAR

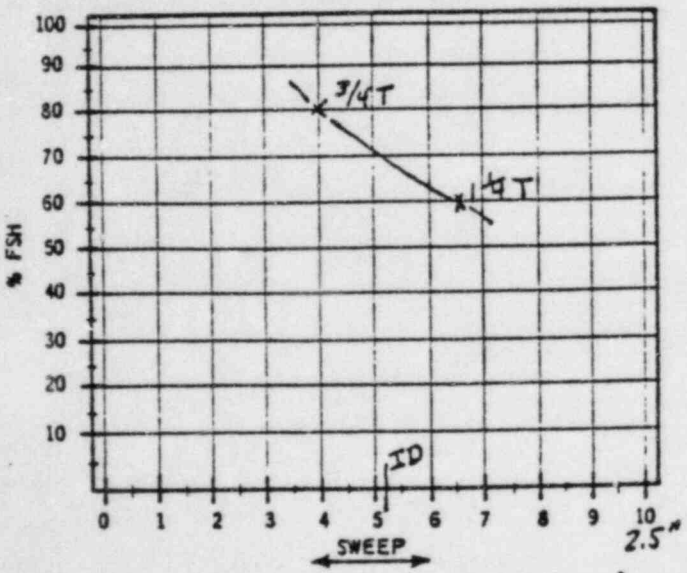
Couplant ULTRAGEL II Batch No. 8439

INSTRUMENT

Manufacturer KRAUTKRAMER Model USK 6
Serial No. 27593 - 3923 Cable Length 6'
Frequency B.B. Reject MIN
Rep Rate N/A Damping N/A
dB Gain – Coarse 20 Fine 8

Primary Reference Response Amplitude % Full Screen Height 80% 3/4 T

DAC PLOT - TIME 9:00 AM, PM



NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

	AMPL ± 20% (2dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATIO	
TIME	YES	NO	YES	NO
1230	✓	NA	✓	NA
1600	✓	NA	✓	NA

NOTE: If response above is "NO" refer to Calibration Ch section of procedure.

EXAMINER(S)
1. [signature] TC-1A LEVEL III
2. [signature] TC-1A LEVEL I
REVIEWED BY [signature] DATE 10/1

ADDITIONAL REMARKS

ID 5.2
3/4 4.0 @ 80%
1 1/4 6.6 @ 60%

[signature] 10/4/84

062/8-78

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
INSERVICE INSPECTION

INDICATION DATA

SHEET 2 OF 2

ITEM IDENTIFICATION 12-02-2-7C
RECIRC. SYS. LOOP B

CALIBRATION DATA SHEET NO. IAE-076/A

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON _____(ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
									MINIMUM		MAXIMUM			
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM TOE OF WELD)	SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION	INDICATION AMPLITUDE (% FSH)	BACK REFLECTIO AMPLITUDE (% FSH)
N/A	N/A	✓	1	PIPE	100	3.7	11" CW	.6"	3.5	.5"	5.6	.98	N/A	N/A
N/A	N/A	✓	2	PIPE	50	4.4	8 3/8" CW	.7"	N/A	N/A	N/A	N/A	N/A	N/A

RESULTS

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	✓	N/A	3 1/8"	N/A	39%	N/A	MULTIPLE INDICATIONS IN BASE MATERIAL WITH SHORT SOUND PATH. - ALL MEASUREMENTS TAKEN FROM TOE TO INDEX POINT.

CONTINUATION ATTACHED – ☐ Yes ☐ No

EXAMINER(S)
1. Thomas E Graham TC-1A LEVEL III
2. John R O'Neil TC-1A LEVEL I

REVIEWED BY Otto Smith III DATE 10/12/84

EBASCO SERVICES INCORPORATED

BY _____ DATE _____ SHEET 3 OF 3

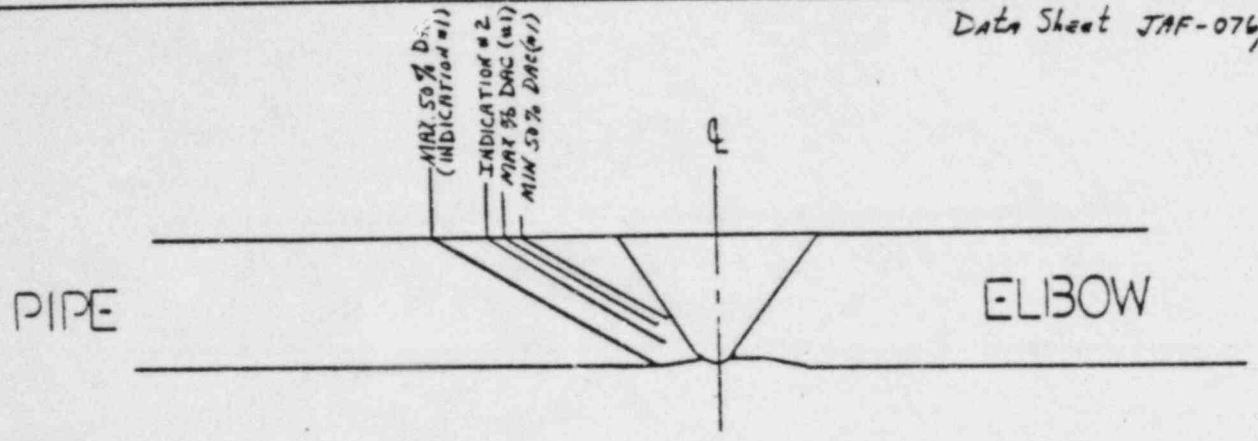
CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT NEW YORK POWER AUTHORITY

PROJECT J.A. FITZPATRICK

SUBJECT 12-02-2-70 RECIRCULATION SYSTEM Loop "B"

Data Sheet JAF-076/A



12-02-2-70

CROWN WIDTH ~ 1.1"

John R O'Neal
Rev. I

PAGE 1 OF 6

REPORT NO. JAF/01284-1

REPORT OF UT INSPECTION

DATE 10-11-84

CLIENT New York Power Authority

LOCATION James A. Fitzpatrick

WELD IDENTIFICATION NO. 12-02-2-70 DRAWING NO. N.A.

TYPE OF WELDING ELBOW TO PIPE MATERIAL: BASE SS WELD SS

SIZE OF PIPE 12" O.D. INCHES WALL THICKNESS 0.68 INCHES

SURFACE CONDITION OF PIPE ground OF WELD ground

WELDING PROCEDURE OR WELD RECORD n.a. TEMPERATURE 124 °F

METHOD OF EXAMINATION: AUTOMATIC ✓ MANUAL ✓ SEMI-AUTO ROBBY

UT. PROCEDURE NO. UTL - UT - S - 1 Rev. 0 DATE 11-15-83 CLIENT APPROVAL yes

form rev. 1 dated 4-17-84

	PROBE NO. 1	PROBE NO. 2	PROBE NO. 3	PROBE NO. 4	PROBE NO. 5	PROBE NO. 6	PROBE NO. 7
PROBE TYPE AND/OR MANUFACTURER	KK WSY 70	KK MWB 45	KK MWB 60	RTD SEL-70	SRI SLIC40	SUSI SUS423	KK MWB 70
SERIAL NO.	V#7	V#2	#2	80-580	019		V#2
TRANSDUCER SIZE (MM) (~~INCHES~~)	8x9	8x9	8x9	2x7x15	2x Ø9.5	Ø9.5	8x9
FREQUENCY MHZ	2	2	2	4	5	5	2
ANGLE OF INCIDENCE	68°/30°	44°	57°	70°	Σ40		66°
EXIT POINT (MM) (~~INCHES~~)	12/10	13	13	9	✓		13
REMARKS:	mode-conversion	shear	shear	high-long-mode	long-shear	shear	shear

	AUTOMATIC	MANUAL
EQUIPMENT MODEL NO.		KK USK7
SERIAL NUMBER		27274-2613
CALIBRATION DATE		09-10-84
CABLE TYPE		Triaxial
CABLE LENGTH		.50m

COUPLING ULTRAGEL II

MFG. TECHNICARE-ECHO, Inc.

B.ACCT. NO. # 8330

PERSONNEL PERFORMING EXAMINATION:

NAME U. HORSTHEMKE LEVEL II SIGNATURE

NAME H. DALICHOW LEVEL II SIGNATURE

NAME _____ LEVEL ____ SIGNATURE _____

NAME _____ LEVEL ____ SIGNATURE _____

NAME _____ LEVEL ____ SIGNATURE _____

REPORT NO. JAF 101284-1

DATE 10-11-84

SYSTEM CALIBRATION VERIFICATION RECORD

LINEARITY CHECK

VERTICAL

SIGNAL 1	100	90	80	70	60	50	40	30	20	10
SIGNAL 2	50	45	41	35	30	25	20	15	10	—

SIGNAL 2 SHALL EQUAL 50% OF SIGNAL 1 ± 5% OF FULL SCALE

ATTENUATOR

TESTER GAIN	SET	-6	-12	SET	+12	SET	+6
SIGNAL AMP	80%	32-48	16-24	20%	64-96	40%	64-96
		40	20		80		80

DAILY LINEARITY CHECKS SATISFACTORY, REFER TO CAL. NO. 1776-091084

REFERENCE BLOCK DATA

SERIAL NUMBER 12-A376-.66

DRAWING NUMBER n.a.

MATERIAL SS 304

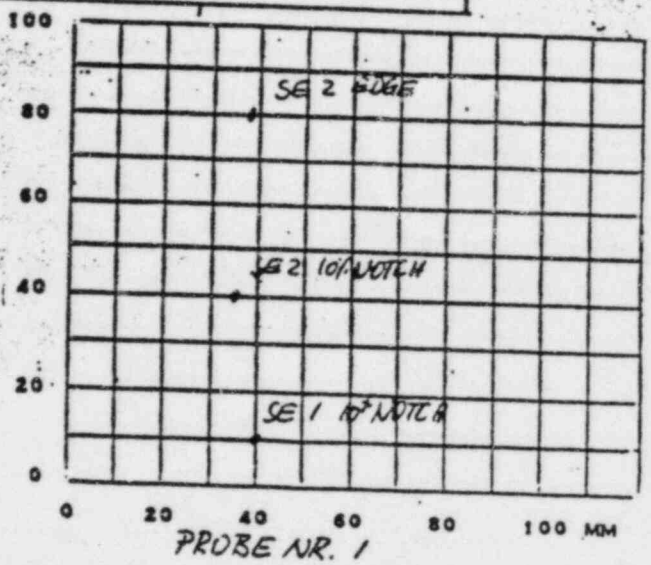
REFERENCE REFLECTORS 10% NOTCH ID

REFERENCE REFLECTORS EDGE ID

REFERENCE REFLECTORS BACK WALL

REFERENCE REFLECTORS

REFERENCE REFLECTORS



PROBE NR. 1

V-PATH DATA

PROBE NO.	PROBE NO.	METAL (MM) PATH (INCHES)	AMPLITUDE (dB)	PROJECTION DISTANCE (MM) (INCHES)

RECHECK DATA

CAL. BLOCK 12-A376-.66 S/N ″ REF. REFL. 10% NOTCH TEMP. 118 °F

REF. BLOCK ″ S/N ″ REF. REFL. ″ TEMP. ″ °F

THERMOMETER SERIAL NO. UTL 010

NAME	TIME	DAC (RECORD AMPLITUDE) 80% FSH	SWEEP RANGE
HORSTHEMKE	19:00	SE 2 10% NOTCH 46dB	3.7
DALKOW	21:30	SE 2 10% NOTCH 46dB	3.7

SYSTEM CALIBRATION VERIFICATION RECORD

REPORT NO. JAF 101284-1

DATE 10-11-84

DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (IN)	AMPLITUDE (DB)	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	37	46	12-A376-.66	SE 2
	10% NOTCH ID	40	66	-"-	SE 1
	EDGE ID	39	40	-"-	SE 2
	BACKWALL	34	46	-"-	SE 1
2	10% NOTCH ID	22	94	12-A376-.66	1/2 VEE-PATH
	10% NOTCH OD	46	26	-"-	3/2 VEE-PATH
	10% NOTCH ID	68	30	-"-	3/2 VEE-PATH
3	10% NOTCH ID	30	40	12-A376-.66	1/2 VEE-PATH
4	90% NOTCH	2.5 DEPTH OD	60	EDM-CAL	PA 14 mm
	80% NOTCH	5.0 DEPTH OD	62	-"-	PA 18 mm
	70% NOTCH	7.5 DEPTH OD	64	-"-	PA 23 mm
	60% NOTCH	10.0 DEPTH OD	66	-"-	PA 25 mm
	—				
5	20% NOTCH	20.0 DEPTH OD	70	EDM-CAL	CALCULATET FOR 17 mm WALLTHICKNESS
7	10% NOTCH ID	56	60	12-A376-.66	1/2 VEE-PATH

REFERENCE POINT LOCATION Top of Pipe

			REFLECTOR POSITION/MM												
			Y LINEAR EXTEND FROM REFERENCE			X LINEAR EXTEND FROM WELD CT LINE			Z DEPTH POS. FROM SURFACE % OF 'T'		EVALUATION % OF 'T'		ECHO HEIGHT DIFF. dB	METAL-PATH MM	
EXAM NO.	PROBE NO.	IND NO.	START	AT MAX	END	START	AT MAX	END	START	END	CLASS	SIZ.	DAC/BW		
2	1	1	190	204	310	÷	+ 16	÷	÷	÷			-8	41	
2	1	1	200	204	274	÷	+ 16	÷	÷	÷			-12	38	
2	2	1	190	204	310	÷	+ 16	÷	÷	÷	30-50		-12	24	
2	3	1	190	204	310	÷	+ 16	÷	÷	÷			-6	31	
2	7	1	÷	204	÷	÷	+ 16	÷	÷	÷			÷	26	
2	4	1	÷	204	÷	÷	+ 16	÷	÷	÷	÷	45	÷	10mm Depth fr. OD	
2	5	1	÷	204	÷	÷	+ 16	÷	÷	÷	÷	45	÷	45% Thr. Wall	
				1											

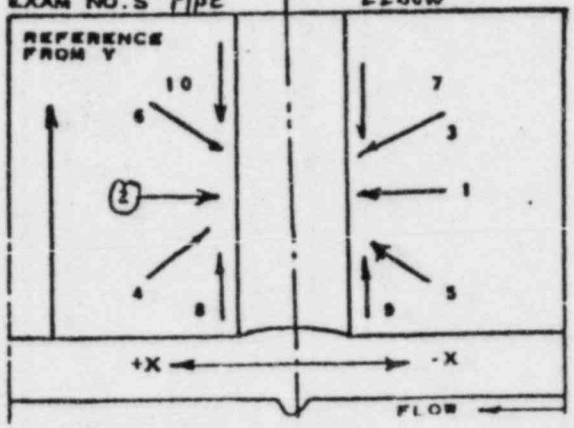
EXAMINER Horsthemke / Dalichow LEVEL II/II

SIGNATURE

AUTHORIZED INSPECTOR _____ (IF REQUIRED)

CLIENT _____ (IF REQUIRED)

EXAM NO.S Pipe Elbow



PAGE 4 OF 6

REPORT NO. JAF1012284-1

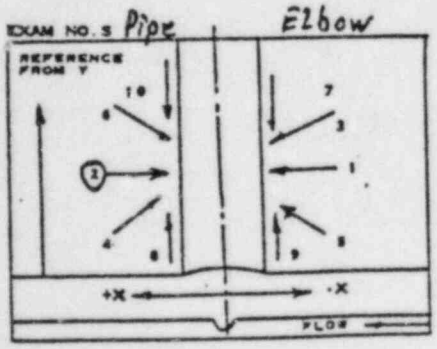
DATE 10.11.84

REPORT NO. JAF 101284-1

PAGE 5 OF 6

DATA STANDARD REPORT OF INDICATION NUMBER: 1

SIGNAL NO.	PROBE NO.	ANGLE OF INCIDENT	EXAM NO.	EXIT X	POINT Y	GAIN DB 100% DAC	METAL PATH	REMARKS
1	1	68°/32°	2	31	204	54	41	
2	1	"	2	38	204	58	38	
3	2	44°	2	32	204	36	24	
4	3	57°	2	41	204	46	31	
5	7	66°	2	26	204	70	26	
6	4	70°	2	40	204	72	10mm Depth from OD	
7	5	E 40°	2	⅞	204	74	45%	Thr. Wall



EXAMINER Horsthemke, Dedichow LEVEL II / II

REVIEWED BY William E. Dedichow Level III DATE 10-12-84

AUTHORIZED INSPECTOR _____

* THE ABOVE GRAPH REPRESENTS THE POSITION OF THE DEFECT IN RELATIONSHIP TO THE WELD CENTERLINE.

UTL-314A

UT—INSPECTION —IGSCC—

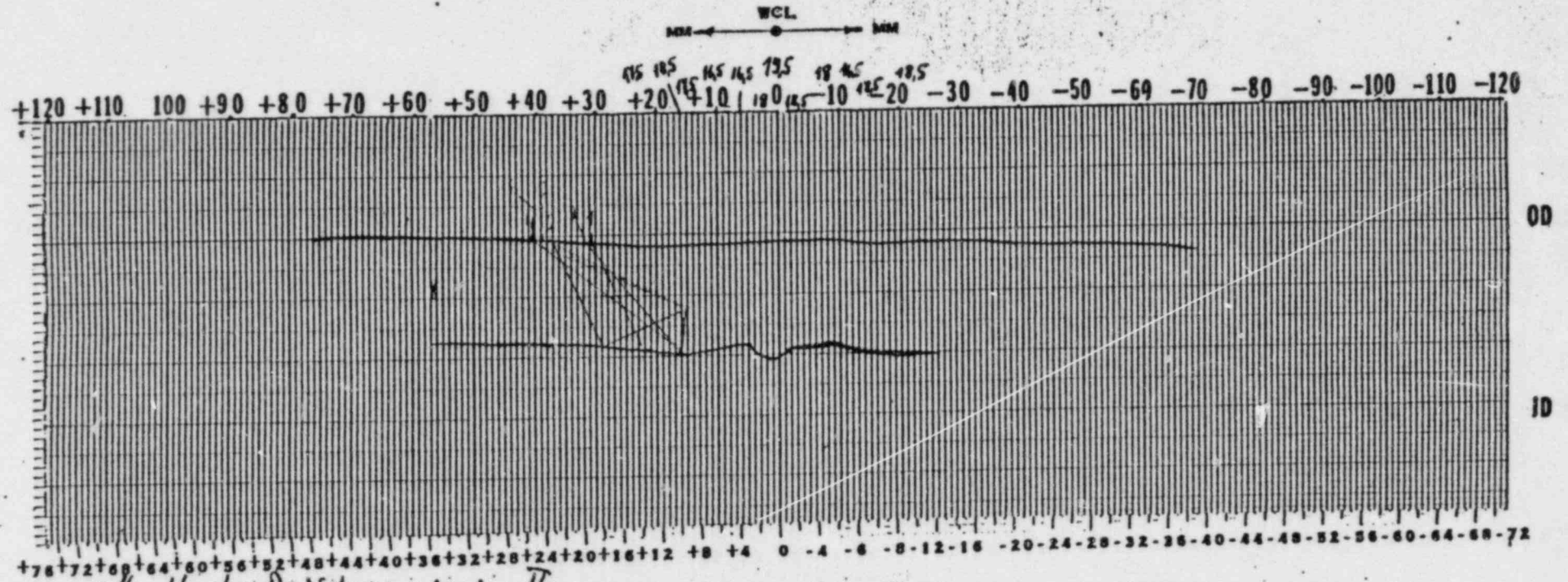
Weld Identification No 12-02-2-70

~~Signal No~~ Indication No. 1 1

Coodinate from reference point "Y" 204mm = 8"

Probes Used	Probe No.	Signal No.
Wall Thickness	MSEB4H	
Root Center	19,5 mm	
Other Data	1	1, 2
	2	3
	3	4
	4	6
	5	7 5

INSPECTION CONTOUR



INSPECTOR Horsthemke, Dalichow Level II

DATE 10.11.84

WCL.
INCHES
1/16"

Report No. SAF 101284-1 page 6 of 6

Weld 12-02-2-70

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
0.00	0.6500	0.0600	0.710
0.25	0.6500	0.0600	0.710
0.50	0.6500	0.0600	0.710
0.75	0.6500	0.0600	0.710
1.00	0.6500	0.0600	0.710
1.25	0.6500	0.0600	0.710
1.50	0.6500	0.0600	0.710
1.75	0.6500	0.0600	0.710
2.00	0.6500	0.0600	0.710
2.25	0.6500	0.0600	0.710
2.50	0.6500	0.0600	0.710
2.75	0.6500	0.0600	0.710
3.00	0.6500	0.0600	0.710
3.25	0.6500	0.0600	0.710
3.50	0.6500	0.0600	0.710
3.75	0.6500	0.0600	0.710
4.00	0.6500	0.0600	0.710
4.25	0.6500	0.0600	0.710
4.50	0.6500	0.0600	0.710
4.75	0.6500	0.0600	0.710
5.00	0.6500	0.0600	0.710
5.25	0.6500	0.0600	0.710
5.50	0.6500	0.0600	0.710
5.75	0.6500	0.0600	0.710
6.00	0.6500	0.0600	0.710
6.25	0.6500	0.0600	0.710
6.50	0.6500	0.0600	0.710
6.75	0.6500	0.0600	0.710
7.00	0.6500	0.0600	0.710
7.25	0.6500	0.0600	0.710
7.50	0.6500	0.0600	0.710
7.75	0.6250	0.0850	0.710
8.00	0.6000	0.1100	0.710
8.25	0.4100	0.3000	0.710
8.50	0.4500	0.2600	0.710
8.75	0.4750	0.2350	0.710
9.00	0.5000	0.2100	0.710
9.25	0.5125	0.1975	0.710
9.50	0.5250	0.1850	0.710
9.75	0.5375	0.1725	0.710
10.00	0.5500	0.1600	0.710
10.25	0.5625	0.1475	0.710
10.50	0.5750	0.1350	0.710
10.75	0.5875	0.1225	0.710
11.00	0.6000	0.1100	0.710
11.25	0.6080	0.1020	0.710
11.50	0.6160	0.0940	0.710
11.75	0.6250	0.0850	0.710
12.00	0.6330	0.0770	0.710
12.25	0.6410	0.0690	0.710

Weld 12-02-2-70

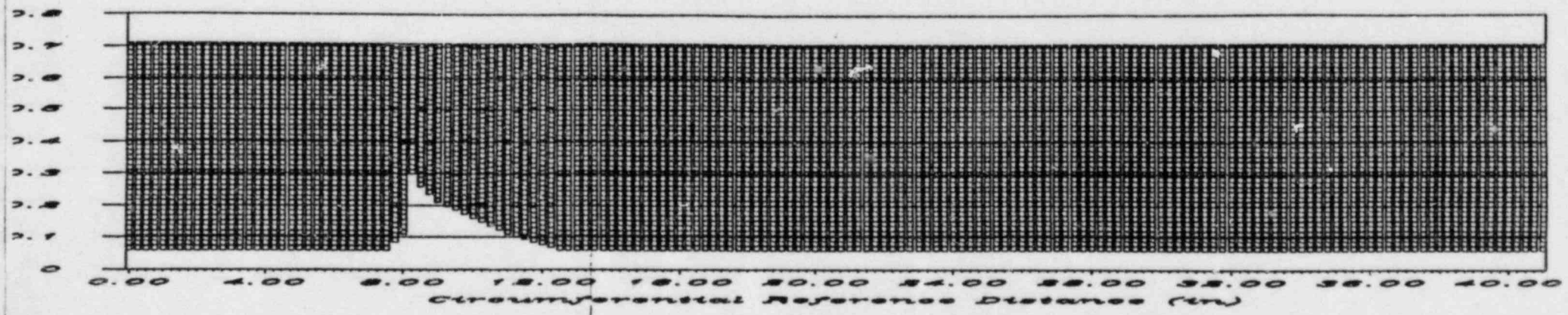
Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
12.50	0.6500	0.0600	0.710
12.75	0.6500	0.0600	0.710
13.00	0.6500	0.0600	0.710
13.25	0.6500	0.0600	0.710
13.50	0.6500	0.0600	0.710
13.75	0.6500	0.0600	0.710
14.00	0.6500	0.0600	0.710
14.25	0.6500	0.0600	0.710
14.50	0.6500	0.0600	0.710
14.75	0.6500	0.0600	0.710
15.00	0.6500	0.0600	0.710
15.25	0.6500	0.0600	0.710
15.50	0.6500	0.0600	0.710
15.75	0.6500	0.0600	0.710
16.00	0.6500	0.0600	0.710
16.25	0.6500	0.0600	0.710
16.50	0.6500	0.0600	0.710
16.75	0.6500	0.0600	0.710
17.00	0.6500	0.0600	0.710
17.25	0.6500	0.0600	0.710
17.50	0.6500	0.0600	0.710
17.75	0.6500	0.0600	0.710
18.00	0.6500	0.0600	0.710
18.25	0.6500	0.0600	0.710
18.50	0.6500	0.0600	0.710
18.75	0.6500	0.0600	0.710
19.00	0.6500	0.0600	0.710
19.25	0.6500	0.0600	0.710
19.50	0.6500	0.0600	0.710
19.75	0.6500	0.0600	0.710
20.00	0.6500	0.0600	0.710
20.25	0.6500	0.0600	0.710
20.50	0.6500	0.0600	0.710
20.75	0.6500	0.0600	0.710
21.00	0.6500	0.0600	0.710
21.25	0.6500	0.0600	0.710
21.50	0.6500	0.0600	0.710
21.75	0.6500	0.0600	0.710
22.00	0.6500	0.0600	0.710
22.25	0.6500	0.0600	0.710
22.50	0.6500	0.0600	0.710
22.75	0.6500	0.0600	0.710
23.00	0.6500	0.0600	0.710
23.25	0.6500	0.0600	0.710
23.50	0.6500	0.0600	0.710
23.75	0.6500	0.0600	0.710
24.00	0.6500	0.0600	0.710
24.25	0.6500	0.0600	0.710
24.50	0.6500	0.0600	0.710
24.75	0.6500	0.0600	0.710

Weld 12-02-2-70

Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
25.00	0.6500	0.0600	0.710
25.25	0.6500	0.0600	0.710
25.50	0.6500	0.0600	0.710
25.75	0.6500	0.0600	0.710
26.00	0.6500	0.0600	0.710
26.25	0.6500	0.0600	0.710
26.50	0.6500	0.0600	0.710
26.75	0.6500	0.0600	0.710
27.00	0.6500	0.0600	0.710
27.25	0.6500	0.0600	0.710
27.50	0.6500	0.0600	0.710
27.75	0.6500	0.0600	0.710
28.00	0.6500	0.0600	0.710
28.25	0.6500	0.0600	0.710
28.50	0.6500	0.0600	0.710
28.75	0.6500	0.0600	0.710
29.00	0.6500	0.0600	0.710
29.25	0.6500	0.0600	0.710
29.50	0.6500	0.0600	0.710
29.75	0.6500	0.0600	0.710
30.00	0.6500	0.0600	0.710
30.25	0.6500	0.0600	0.710
30.50	0.6500	0.0600	0.710
30.75	0.6500	0.0600	0.710
31.00	0.6500	0.0600	0.710
31.25	0.6500	0.0600	0.710
31.50	0.6500	0.0600	0.710
31.75	0.6500	0.0600	0.710
32.00	0.6500	0.0600	0.710
32.25	0.6500	0.0600	0.710
32.50	0.6500	0.0600	0.710
32.75	0.6500	0.0600	0.710
33.00	0.6500	0.0600	0.710
33.25	0.6500	0.0600	0.710
33.50	0.6500	0.0600	0.710
33.75	0.6500	0.0600	0.710
34.00	0.6500	0.0600	0.710
34.25	0.6500	0.0600	0.710
34.50	0.6500	0.0600	0.710
34.75	0.6500	0.0600	0.710
35.00	0.6500	0.0600	0.710
35.25	0.6500	0.0600	0.710
35.50	0.6500	0.0600	0.710
35.75	0.6500	0.0600	0.710
36.00	0.6500	0.0600	0.710
36.25	0.6500	0.0600	0.710
36.50	0.6500	0.0600	0.710
36.75	0.6500	0.0600	0.710
37.00	0.6500	0.0600	0.710
37.25	0.6500	0.0600	0.710

Weld 12-02-2-70

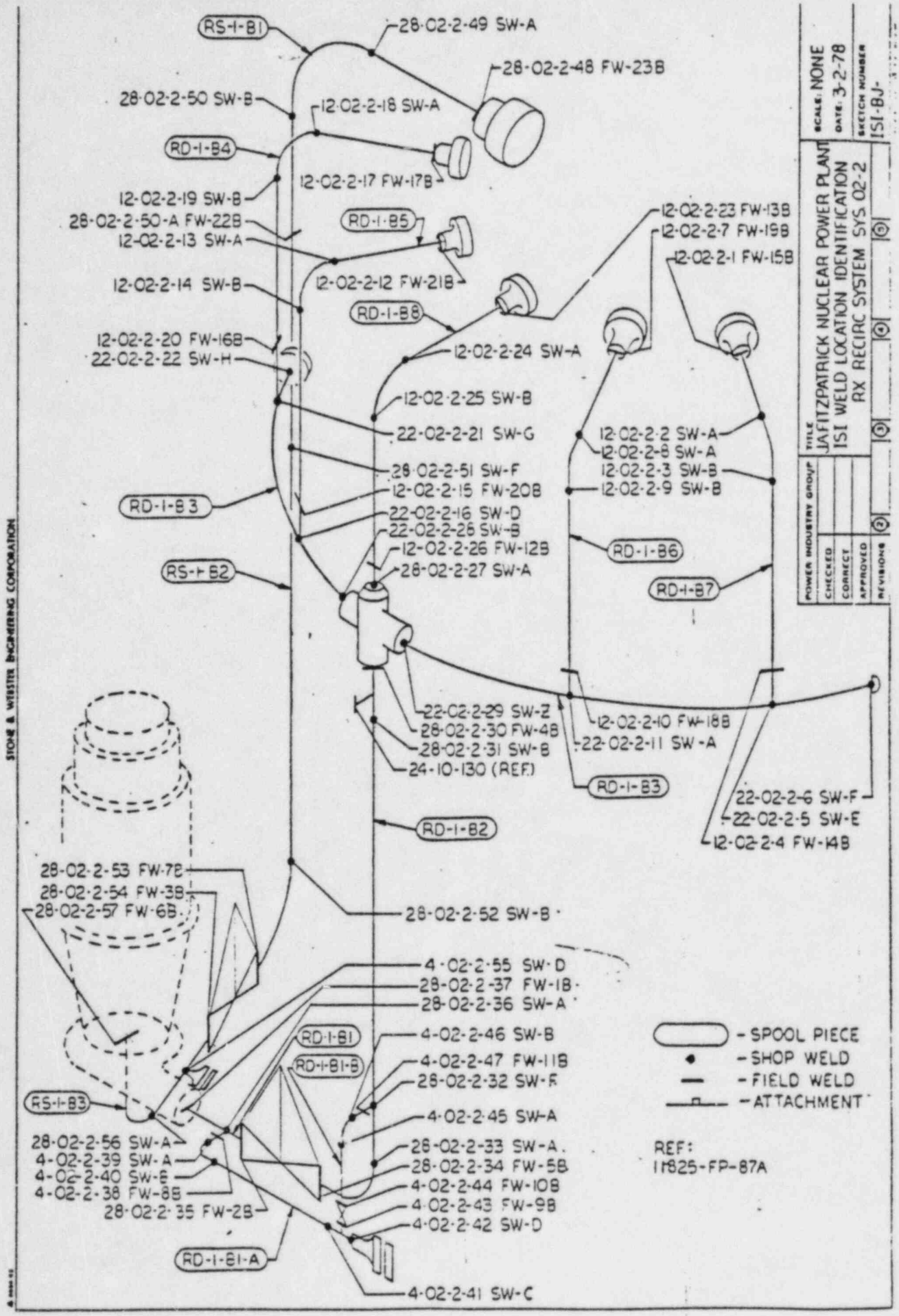
Reference Distance (inches)	Remaining Wall	Crack Depth	Nominal Wall Thickness
37.50	0.6500	0.0600	0.710
37.75	0.6500	0.0600	0.710
38.00	0.6500	0.0600	0.710
38.25	0.6500	0.0600	0.710
38.50	0.6500	0.0600	0.710
38.75	0.6500	0.0600	0.710
39.00	0.6500	0.0600	0.710
39.25	0.6500	0.0600	0.710
39.50	0.6500	0.0600	0.710
39.75	0.6500	0.0600	0.710
40.00	0.6500	0.0600	0.710
40.25	0.6500	0.0600	0.710
40.50	0.6500	0.0600	0.710
40.75	0.6500	0.0600	0.710
41.00	0.6500	0.0600	0.710


Weld No. 12-02-2-70 "B" scan plot
0.00
1.00
2.00
10.00
Circumferential Reference Distance (in)

Attachment 11
JAFP-84-0979
October 21, 1984

Isometric Drawings for Reactor
Water Recirculation System

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333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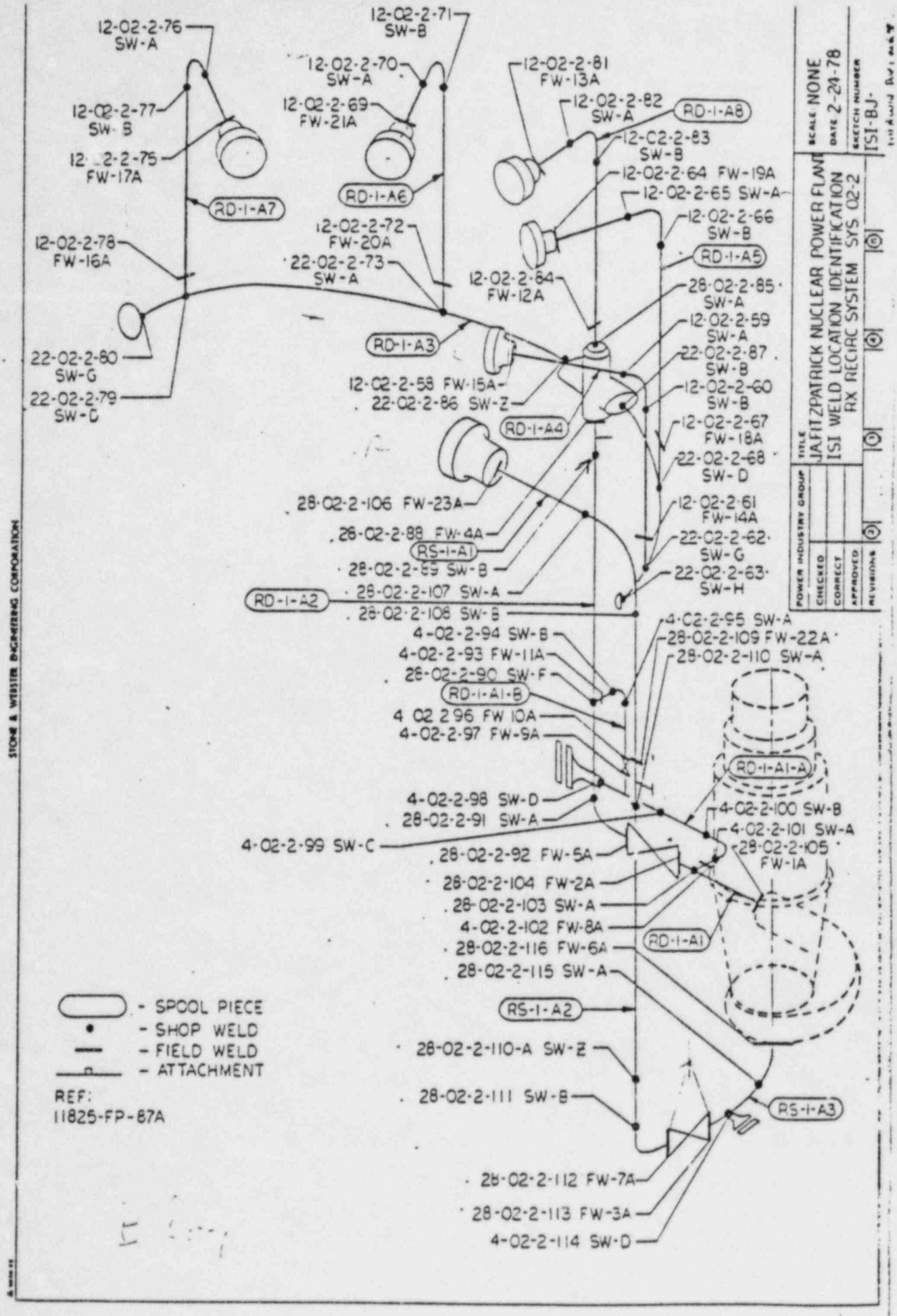
28-02-2-48 FW-23B
28-02-2-50 SW-B
12-02-2-18 SW-A
RD-1-84
12-02-2-17 FW-17B
12-02-2-19 SW-B
28-02-2-50-A FW-22B
RD-1-85
12-02-2-13 SW-A
12-02-2-12 FW-21B
12-02-2-14 SW-B
RD-1-88
12-02-2-20 FW-16B
22-02-2-22 SW-H
12-02-2-24 SW-A
12-02-2-25 SW-B
22-02-2-21 SW-G
28-02-2-51 SW-F
12-02-2-15 FW-20B
RD-1-83
22-02-2-16 SW-D
22-02-2-26 SW-B
12-02-2-26 FW-12B
RS-1-82
28-02-2-27 SW-A
12-02-2-23 FW-13B
12-02-2-7 FW-19B
12-02-2-1 FW-15B
12-02-2-2 SW-A
12-02-2-8 SW-A
12-02-2-3 SW-B
12-02-2-9 SW-B
RD-1-86
RD-1-87
22-02-2-29 SW-Z
28-02-2-30 FW-4B
28-02-2-31 SW-B
24-10-130 (REF.)
12-02-2-10 FW-18B
22-02-2-11 SW-A
RD-1-83
22-02-2-6 SW-F
22-02-2-5 SW-E
12-02-2-4 FW-14B
RD-1-82
28-02-2-53 FW-7B
28-02-2-54 FW-3B
28-02-2-57 FW-6B
28-02-2-52 SW-B
4-02-2-55 SW-D
28-02-2-37 FW-1B
28-02-2-36 SW-A
RD-1-81
RD-1-81-B
4-02-2-46 SW-B
4-02-2-47 FW-11B
28-02-2-32 SW-F
RS-1-83
4-02-2-45 SW-A
28-02-2-56 SW-A
4-02-2-39 SW-A
4-02-2-40 SW-B
4-02-2-38 FW-8B
28-02-2-35 FW-2B
28-02-2-33 SW-A
28-02-2-34 FW-5B
4-02-2-44 FW-10B
4-02-2-43 FW-9B
4-02-2-42 SW-D
RD-1-81-A
4-02-2-41 SW-C
- SPOOL PIECE
- SHOP WELD
- FIELD WELD
- ATTACHMENT
REF:
11825-FP-87A
STONE & WEBSTER ENGINEERING CORPORATION
POWER INDUSTRY GROUP
CHECKED
CORRECT
APPROVED
REVISIONS
TITLE
JAFITZPATRICK NUCLEAR POWER PLANT
ISI WELD LOCATION IDENTIFICATION
RX RECIRC SYSTEM SYS 02-2
SCALE: NONE
DATE: 3-2-78
SKETCH NUMBER
ISI-BJ-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12-02-2-75 FW-17A
RD-1-A7
12-02-2-78 FW-16A
22-02-2-80 SW-G
22-02-2-79 SW-C
12-02-2-71 SW-B
12-02-2-70 SW-A
12-02-2-69 FW-21A
RD-1-A6
12-02-2-72 FW-20A
22-02-2-73 SW-A
RD-1-A3
12-02-2-58 FW-15A
22-02-2-86 SW-Z
RD-1-A4
28-02-2-106 FW-23A
28-02-2-88 FW-4A
RS-1-A1
28-02-2-89 SW-B
RD-1-A2
28-02-2-107 SW-A
28-02-2-108 SW-B
4-02-2-94 SW-B
4-02-2-93 FW-11A
28-02-2-90 SW-F
RD-1-A1-B
4-02-2-96 FW-10A
4-02-2-97 FW-9A
4-02-2-98 SW-D
28-02-2-91 SW-A
4-02-2-99 SW-C
28-02-2-92 FW-5A
28-02-2-104 FW-2A
28-02-2-103 SW-A
4-02-2-102 FW-8A
28-02-2-116 FW-6A
28-02-2-115 SW-A
RS-1-A2
28-02-2-110-A SW-Z
28-02-2-111 SW-B
28-02-2-112 FW-7A
28-02-2-113 FW-3A
4-02-2-114 SW-D
12-02-2-81 FW-13A
12-02-2-82 SW-A
RD-1-A8
12-02-2-83 SW-B
12-02-2-64 FW-19A
12-02-2-65 SW-A
12-02-2-66 SW-B
RD-1-A5
12-02-2-84 FW-12A
28-02-2-85 SW-A
12-02-2-59 SW-A
22-02-2-87 SW-B
12-02-2-60 SW-B
12-02-2-67 FW-18A
22-02-2-68 SW-D
12-02-2-61 FW-14A
22-02-2-62 SW-G
22-02-2-63 SW-H
4-02-2-95 SW-A
28-02-2-109 FW-22A
28-02-2-110 SW-A
RD-1-A1-A
4-02-2-100 SW-B
4-02-2-101 SW-A
28-02-2-105 FW-1A
RD-1-A1
RS-1-A3
- SPOOL PIECE
- SHOP WELD
- FIELD WELD
- ATTACHMENT
REF:
11825-FP-87A
STONE & WEBSTER ENGINEERING CORPORATION
POWER INDUSTRY GROUP
CHECKED
CORRECT
APPROVED
REVISIONS
TITLE
JAFITZPATRICK NUCLEAR POWER PLANT
ISI WELD LOCATION IDENTIFICATION
RX RECIRC SYSTEM SYS 02-2
SCALE NONE
DATE 2-24-78
SKETCH NUMBER
ISI-BJ-