



November 7, 1984  
JPN-84-73

Director of Nuclear Reactor Regulations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

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

Subject: James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
Recirculation System Welds

- References: 1. NYPA letter, C.A. McNeill, Jr. to D.B.  
Vassallo, dated October 25, 1984 (JAFP-84-1001)
2. NYPA Letter, C.A. McNeill, Jr. to D.B.  
Vassallo, dated October 21, 1984  
(JAFP-84-0979).

Dear Sir:

In References 1 and 2 we transmitted information regarding  
cracking in the recirculation system welds which was  
discovered during the September 1984 outage.

The enclosure to this letter responds to questions which were  
transmitted to us in a telephone conversation on October 31, 1984.  
Attachments 1 to 4 refer to question 1 of the enclosure.

If you have any further questions, please contact  
Mr. J.A. Gray, Jr. of my staff.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Robert A. Bayne', with a small 'for' written below it.

J. P. Bayne  
First Executive Vice President  
Chief Operations Officer

cc: Office of the Resident Inspector  
U.S. Nuclear Regulatory Commission  
Post Office Box 136  
Lycoming, New York 13093

Enclosure

*Adol*  
*11*

Enclosure to

JPN-84-73

Recirculation System Welds

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

Response to question 1.  
Weld 12-23

In 1977, General Electric Co. performed an inspection on the subject weld as did Ebasco in the Summer, 1983 outage. These inspections resulted in the findings of indications which were deemed to be geometric in origin. The plots made were based on a projected OD/ID profile (flat-topped weld crown and ideal ID profile) and did not reflect the actual conditions. In addition to this, the exams were performed using full-length 45° wedges which prevented the shoe from going beyond the "butt-up" position which is necessary to obtain a meaningful examination. The shortened (EPRI-modified) wedges were not available until late (fall) 1983. Replotting of the 1983 data using 1984 ID/OD profile information (Attachment #1) shows that weld geometry was the cause of the indication recorded by Ebasco. In the September, 1984 outage, further investigation was performed by the NYPA and Ebasco Level III's including examination of OD profile. As a result it was determined that a 45° exam, even if performed with the EPRI-modified wedges, would not examine the area-of-interest (the heat affected zone between the counterbore and root) due to the O.D. configuration (See Attachment #2). Based on this information and the projected exit point vs. area-of-interest relationship, a 60° exam was performed on weld 12-23. The remainder of the welds which have a similar OD profile, were also examined using a 60° shear wave if the 45° exam proved inadequate. As a result of these inspections, all pipe-safe end welds which were inspected in 1983 were reinspected (i.e., welds 12-1, 12-7, & 12-75). These inspections, utilizing the 60° technique, revealed that these three weldments were free of reportable indications. Attachment #3 is a resubmittal of weld 12-23 data which was generated in 1983 and Attachment #4 is the 1984 data.

Response to question 2.  
Sizing Techniques

In NYPA Letter JAFP-84-1001, Introduction, a reference was made to "headwave, creeping wave on ID." The correct reference is "head wave, creeping wave on OD."

Response to question 3.  
As-Built Overlay Thicknesses

Weld Number	As-built thickness after 1st layer (in)	Thickness with 1st layer (in)
12-12	0.499	0.644
12-23	0.568	0.680
12-64	0.671	0.705
12-69	0.482	0.596
12-70	0.385	0.504



Response to question 4.  
Measured Axial Shrinkage

Weld Number	Axial Shrinkage (in)
12-12	0.135
12-23	0.180
12-64	0.223
12-69	0.126
12-70	0.199

Response to questions 5 and 6.  
Shrinkage Stresses

There are no unrepaired cracked welds on the same run of pipe (riser) as an overlay. Therefore, there is no significant effect of shrinkage stresses due to overlay on other unrepaired flawed welds. The analyses previously submitted to you are, therefore, accurate.

Preliminary conservative hand calculations for shrinkage of approximately 0.2" resulted in maximum shrinkage stresses of 7000 psi (7 ksi) at the sweepolet to riser pipe weld (on the manifold) associated with the individual safe-end. Final, detailed calculations are still in progress.

Response to question 7.  
Weld 12-17

In the report on the subject weld, the word "seismic" was omitted from the stress equation. This was a typographical error and does not affect the numerical values of the equation which are correct.

ATTACHMENT I

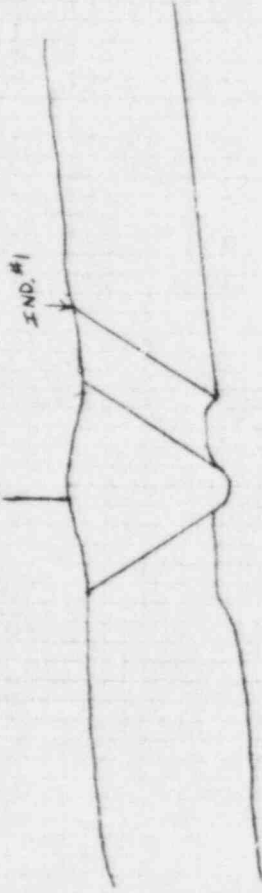
JPN-84-73

RECIRCULATION SYSTEM WELDS

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

↓ REFERENCED WELD & BASED ON 1983 EST. AS MEASURED FROM S.E. SIDE TO-ROOT RELATIONSHIP.



RE-PLOT OF 1983 DATA USING 10/00. PLOT ESTABLISHED IN 1984

NOTE: FULL-LENGTH 45° SHOES WERE USED IN 1983 PROHIBITING THE SHOE TO GO BEYOND THE "BUTT-UP" POSITION SO AS TO OBTAIN A MEANINGFUL EXAMINATION. SHORT-NOSED (EPRI-RECOMMENDED) WEDGES NOT AVAILABLE TO PLANTS KNOWLEDGE UNTIL LATE (FALL) 1983.

ATTACH. #1

G. SECHLER  
SCALE: 1" = 1'

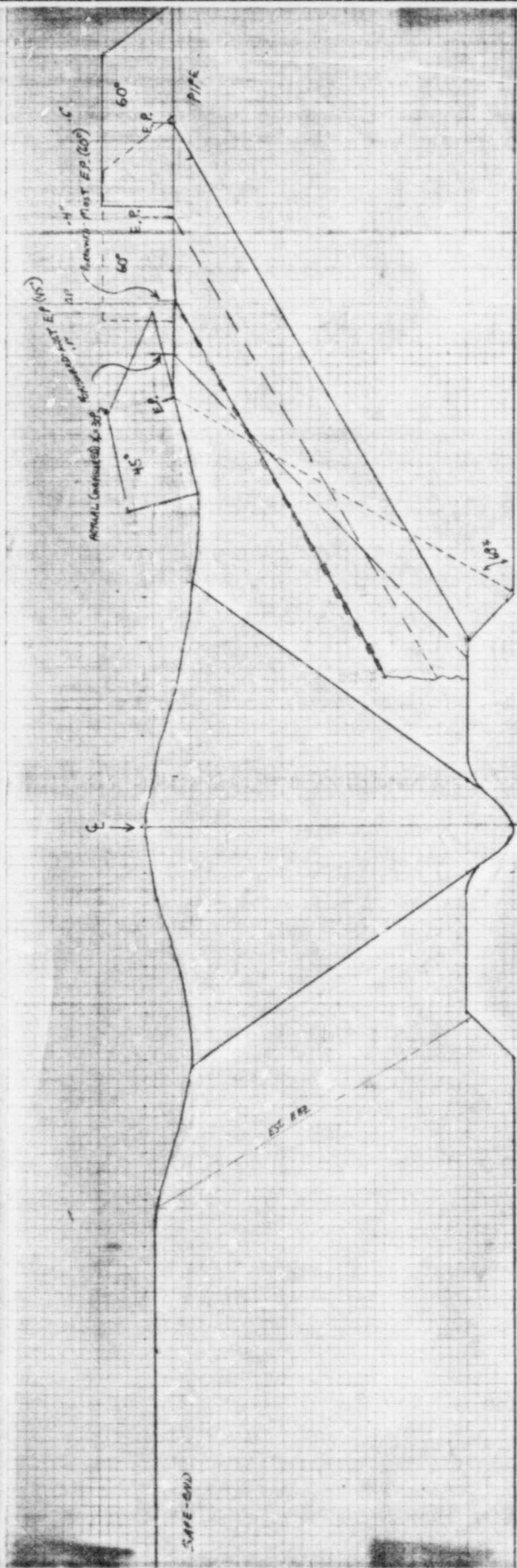
ATTACHMENT II

JPN-84-73

RECIRCULATION SYSTEM WELDS

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333



SCALE: 5:1

J. SECHLER

ATTACHMENT III

JPN-84-73

RECIRCULATION SYSTEM WELDS

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333



EASCO SERVICES INCORPORATED  
QUALITY ASSURANCE ENGINEERING  
INSERVICE INSPECTION  
CALIBRATION DATA

PROJECT J. A. FITZPATRICKDATA SHEET NO. 500-0956 DATE 6-14-83PROCEDURE ISI-UT-JAFUT5 REV 3

COMPONENT OR SYSTEM RECIRC. RISER C PIPE OD (IF APPLICABLE) 12"  
ITEM IDENTIFICATION NO(S), LISTED ON REVERSE SIDE - COMPONENT TEMP 85° EXAM. SURFACE ☐ ID ☒ OD  
CALIBRATION BLOCK NO. 12A376 THICKNESS .76" TEMP 80°

## SCAN COVERAGE

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

## EQUIPMENT DATA

## SEARCH UNIT

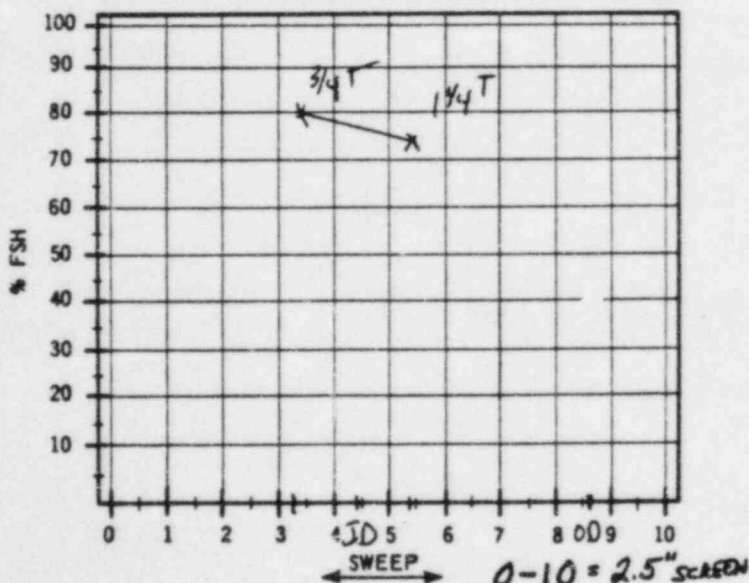
Manufacturer AEROTECH  
Style GAMMA  
Serial No. 022072  
Size 1/2" Frequency 2.25 MHz  
Angle 45° Mode SHEAR

## INSTRUMENT

Manufacturer KBI Model 4SL-38  
Serial No. 210692 Coaxial Cable Length 6'  
Frequency 2.5 MHz Reject OFF  
Rep Rate NA Damping OFF  
dB Gain - Coarse 20 Fine 26

Couplant ULTRAGEL II Batch No. 8330

Primary Reference Response 80%  
Amplitude % Full Screen Height

DAC PLOT - TIME 3:25 AM, PM

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

## CALIBRATION CHECKS

TIME	AMPL $\pm$ 20% (2dB) OF INITIAL AMPL		SWEEP $\pm$ 5% OF INITIAL LOCATION	
	YES	NO	YES	NO
6:10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

## EXAMINER(S)

1. Richard De TC-1A LEVEL II  
2. James Card TC-1A LEVEL II  
REVIEWED BY J. Smith DATE 6-22-83

## ADDITIONAL REMARKS

IGSCC EXAMINATION

San Francisco NYPA 6/24/83

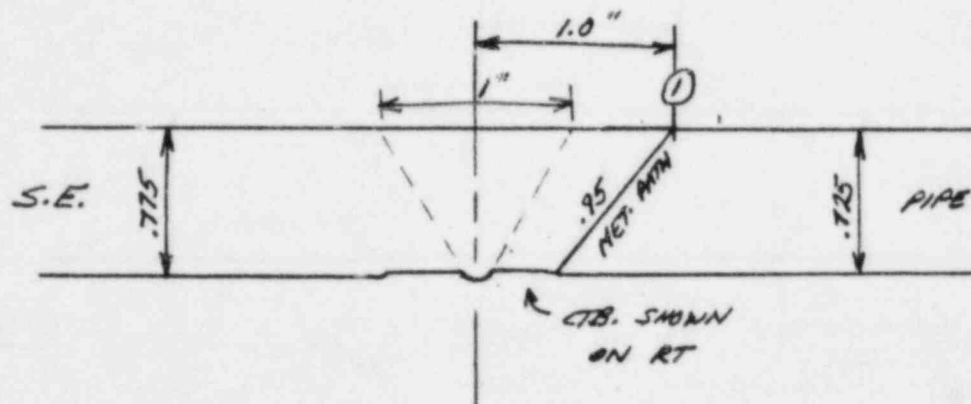




12-02-2-23

S02-09-IG

pg. 3 of 3



ADDITIONAL THICKNESS  
READINGS TAKEN - SEE DATA  
SHEET # S02-49-IG AND  
PT REPORT # S02-12-PT.

ADDITIONAL THICKNESS  
READINGS TAKEN SEE DATA  
sheet # S02-51-IG.

ATTACHMENT IV

JPN-84-73

RECIRCULATION SYSTEM WELDS

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

Weld 12-02-2-23



# ULTRASONIC DATA SHEET

UNIT: *INCHES*

SYSTEM: *02-2 Reviser*

COMPONENT: *Piping Wells*

DESCRIPTION: *Pipe - 24" S&W end; Top of Riser "C"*

WELD ID: *12-02-2-23*

PROCEDURE: *QAI 80 + Add.*

MATERIAL: *SS*

THICKNESS: *.71*

TEST SURFACE: *CD*

INSTRUMENT(S): *1152-38*

CAL-BLOCK(S): *(See cal. charts)*

CRYSTAL: *53425*

CRYSTAL: *84-88*

CRYSTAL:

NODE: *5 CL*

BEAM DIRECTION: *Transverse*

NO. POSITIONS: *41*

ANGLE: *45°*

ANGLE: *73°*

ANGLE:

DISTANCE: *1.0"*

#1 REF: *Top - 92" Pipe*

TIME START: *1100*

TIME START: *1100*

TIME START: *1100*

COUPLANT: *ULTRATEC 92*

COUPLANT BATCH NO.: *8443*

TIME STOP: *1100*

TIME STOP: *1100*

TIME STOP: *1100*

CAL. SHEET: *THF-ENR-008 4008*

DATE: *11/18/84*

DATE: *11/18/84*

DATE:

PERFORMED BY: *George Seabrook*

ID#: *5-1765*

LEVEL: *III*

DATE:

PERFORMED BY: *4/8*

ID#: *44*

LEVEL: *II*

DATE:

LIMITED SCAN

YES (IF SO WHY)

POSITION

MAX. SIGNAL (% OF DAC)

DEPTH (IN.)

20 TO 20

50 TO 50

100 TO 100

BEAM DIRECTION

ANGLE (DEG)

CRYSTAL

DISTANCE

FROM

SURFACE

DISTANCE FROM SURFACE IN.

POSITION (IN.)

DISTANCE FROM SURFACE IN.

POSITION (IN.)

REMARKS

360° AUTOMATIC

1-75% T-400-1111

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REMARKS

REVIEWED BY:

LEVEL:

DATE REVIEWED:

FIGURE NO.:

DATA SHEET NO.:

WELD NO.:

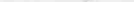
DATA SHEET NO.:

SK-1AF-82-002

COMPONENT: piping, welds

COUPLANT: ALTRAFEL II

COUPLANT ID# : 8443

☐ FIRST ECHO  } START

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DATE REVIEWED



# CALIBRATION SHEET

SET NO: JAF-SUAL-009

TIME: 1100

HR

DATE: 10/15/84

IT: JAFUUP  
 AMINER: George Sadeh  
 AMINER: 14  
 SYSTEM: 02-2/RECIRC.  
 ID#: 5-1765  
 ID#: 14  
 LEVEL: 50  
 LEVEL: 14  
 COMPONENT: PIPE WELDS  
 COUPLANT: ALTRAFEL II  
 COUPLANT ID#: 8443

INSTRUMENT: 210568  
 NEARITY CHECK: YES ☒ NO ☐  
 ELECT: OFF  
 ATT. CAL: 966  
 ELAY: 682  
 ULSE ENERGY: 0.1  
 COARSE GAIN IN DB: 40  
 FINE GAIN IN DB: 22  
 FINE GAIN DB: 22

CALIBRATION BLOCK  
 ID#: 570-1376-15  
 LENGTH: 12 IN  
 OD: 1.25 IN  
 THICKNESS: .75 IN  
 CRYSTAL  
 ID#: 84-88  
 TYPE: RTO  
 FREQ: 2 MHZ  
 SIZE: 6 X 13 mm  
 ACTUAL: 73  
 SERIAL NO.:  
 SIGNAL AMP: % SCREEN READING  
 COURSE GAIN DB: FINE GAIN DB

SYSTEM CALIBRATION  
 ANGLE 73 ° NODE Large: TUDIAL  
 REFLECTOR  
 1 1B-NODE 100 % 0.3 SD. IN.  
 2 1B-NODE 90 % 0.4 SD. IN.  
 3 1B-NODE 70 % 0.5 SD. IN.  
 4 1B-NODE 55 % 0.6 SD. IN.  
 5 1B-NODE 40 % 0.7 SD. IN.  
 6 1B-NODE 30 % 0.8 SD. IN.  
 TOP NOTCH  
 OPPOSITE NOTCH  
 BKR CB  
 BKR P

CALIBRATION CONFIRMATION  
 TIME 1700  
 BLOCK SIM.  
 BACK REFL.  
 1 1B-NODE 100 % 0.3 SD. IN.  
 3 1B-NODE 80 % 0.5 SD. IN.  
 5 1B-NODE 50 % 0.7 SD. IN.  
 INITIALS: Sadeh



## REPORT OF UT INSPECTION

PAGE 1 OF 0  
REPORT NO. JAF 101584-1  
DATE 10-13-84CLIENT New York Power Authority  
LOCATION James A. FitzpatrickWELD 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 .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	SRI SLIC 40	SUSI SUS 428	KK MWB 70
SERIAL NO.	# 7		V # 2	80-580			
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	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

EQUIPMENT MODEL NO.  
SERIAL NUMBER  
CALIBRATION DATE  
CABLE TYPE  
CABLE LENGTH

AUTOMATIC	MANUAL
	4K USK 7
	27274-2613
	09-10-84
	coaxial
	2 w

COUPLING ULTRAGEL II  
MFG. TECHNICARE-ECHO, Inc.  
B. ACCT. NO. # 8330

## PERSONNEL PERFORMING EXAMINATION:

NAME M. DALICHOW LEVEL II SIGNATURE [Signature]  
NAME U. Horsthemke LEVEL I SIGNATURE [Signature]  
NAME \_\_\_\_\_ LEVEL \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
NAME \_\_\_\_\_ LEVEL \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
NAME \_\_\_\_\_ LEVEL \_\_\_\_\_ SIGNATURE \_\_\_\_\_

# SYSTEM CALIBRATION VERIFICATION RECORD

PAGE 2 OF 6  
REPORT NO. JAF 101584-1  
DATE 10-13-84

**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  $\pm$  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 SS 304

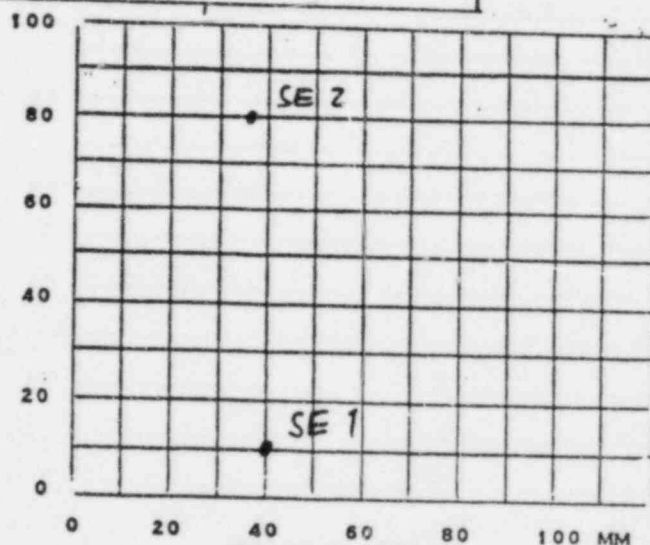
REFERENCE REFLECTORS 10% NOTCH 1D

REFERENCE REFLECTORS \_\_\_\_\_

REFERENCE REFLECTORS \_\_\_\_\_

REFERENCE REFLECTORS \_\_\_\_\_

REFERENCE REFLECTORS \_\_\_\_\_



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

## RECHECK DATA

CAL. BLOCK 12-A 376-.66 S/N ÷ REF. REFL. 10% NOTCH 1D 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 6REPORT NO. JAF 101584-1DATE 10-13-84

## DAC DATA

PROBE NO.	REFERENCE REFLECTOR	METAL PATH (MM) (IN)	AMPLITUDE (DB) 90% FSH	CALIBRATION BLOCK NO.	REMARKS
1	10% NOTCH ID	37	46	12-A376-.66	SE 2
	10% NOTCH ID	40	66	-1-	SE 1
	EDGE ID	39	40	-1-	SE 2
	BACK WALL	34	46	-1-	SE 1
3	10% NOTCH ID	30	40	12-A376-.66	
4	90% NOTCH	2.5 36PT 4.0 OD	60	EDM-CAL-1.0"	PA 14 100000
	80% NOTCH	5.0 -11-	62	-1-	PA 18 100000
	70% NOTCH	7.5 -1-	64	-1-	PA 23 100000
	60% NOTCH	10.0 -1-	66	-1-	PA 25 100000









INSPECTION -IGSCC-

Id Identification No 12-02-2-23

gnat No INDICATION NR 1

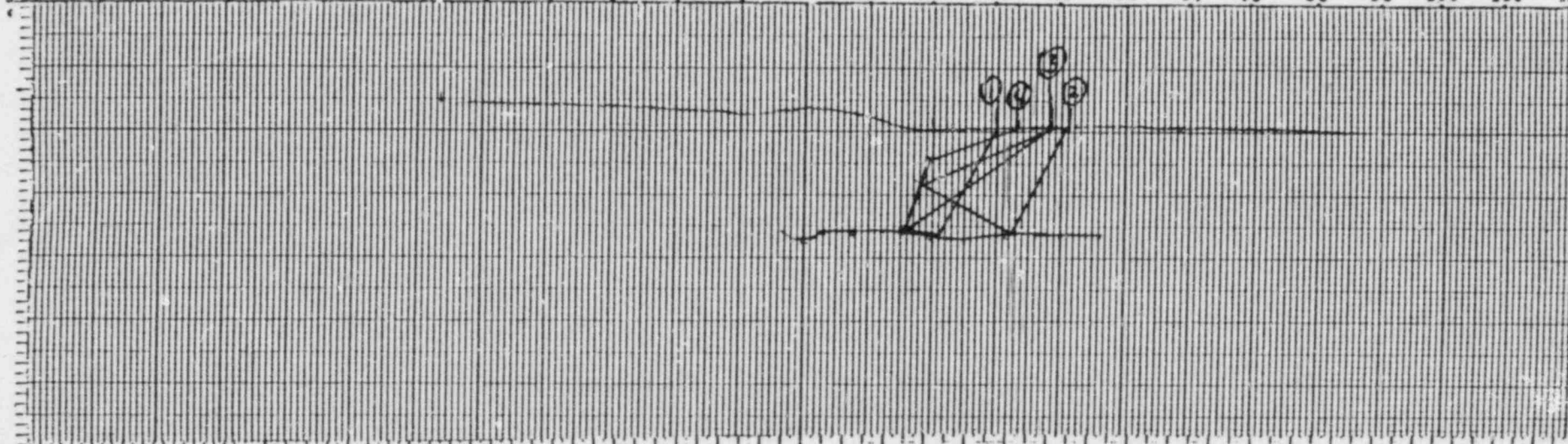
ordinate from reference point "Y" 20 mm CW

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

WCL  
MM ← → MM

+120 +110 100 +90 +80 +70 +60 +50 +40 +30 +20 +10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120



+76 +72 +68 +64 +60 +56 +52 +48 +44 +40 +36 +32 +28 +24 +20 +16 +12 +8 +4 0 -4 -6 -8 -12 -16 -20 -24 -28 -32 -36 -40 -44 -48 -52 -56 -60 -64 -68 -72

INSPECTOR DALICHOW / Horsthemke Level II

DATE 10-13-84

WCL  
INCHES  
1/16"

Report No. JAF 10584-1 page 6 of 6

EBASCO SERVICES INCORPORATED  
QUALITY ASSURANCE ENGINEERING  
INSERVICE INSPECTION  
CALIBRATION DATA

PROJECT JAF. ISI outage  
DATA SHEET NO. JAF-C85/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

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

## EQUIPMENT DATA

## SEARCH UNIT

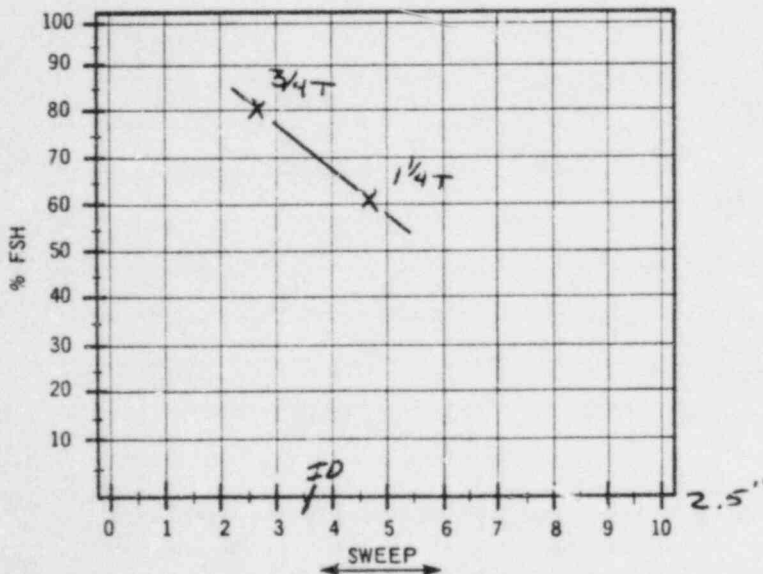
Manufacturer NORTEC  
Style ZT-2  
Serial No. 15462  
Size .50" Frequency 2.25 MHz  
Angle 43° Mode SHEAR

Couplant ULTRAGE 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		SWEEP + 10% OF INITIAL LOCATION	
	YES	NO	YES	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 [Signature] DATE 10/17/84

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

[Signature] 10/17/84 4 TEP  
10-15-





## DATA TABULATION

[illegible]

CONTINUATION ATTACHED - ☐ Yes ☐ No

EXAMINER'S

1. *J. L. Caney*

2. *J. A. A. A. A.*

REVIEWED BY *W. H. A. A. A.*

# EBASCO SERVICES INCORPORATED

BY \_\_\_\_\_ DATE \_\_\_\_\_

SHEET 3 OF 4

CHKD. BY \_\_\_\_\_ DATE \_\_\_\_\_

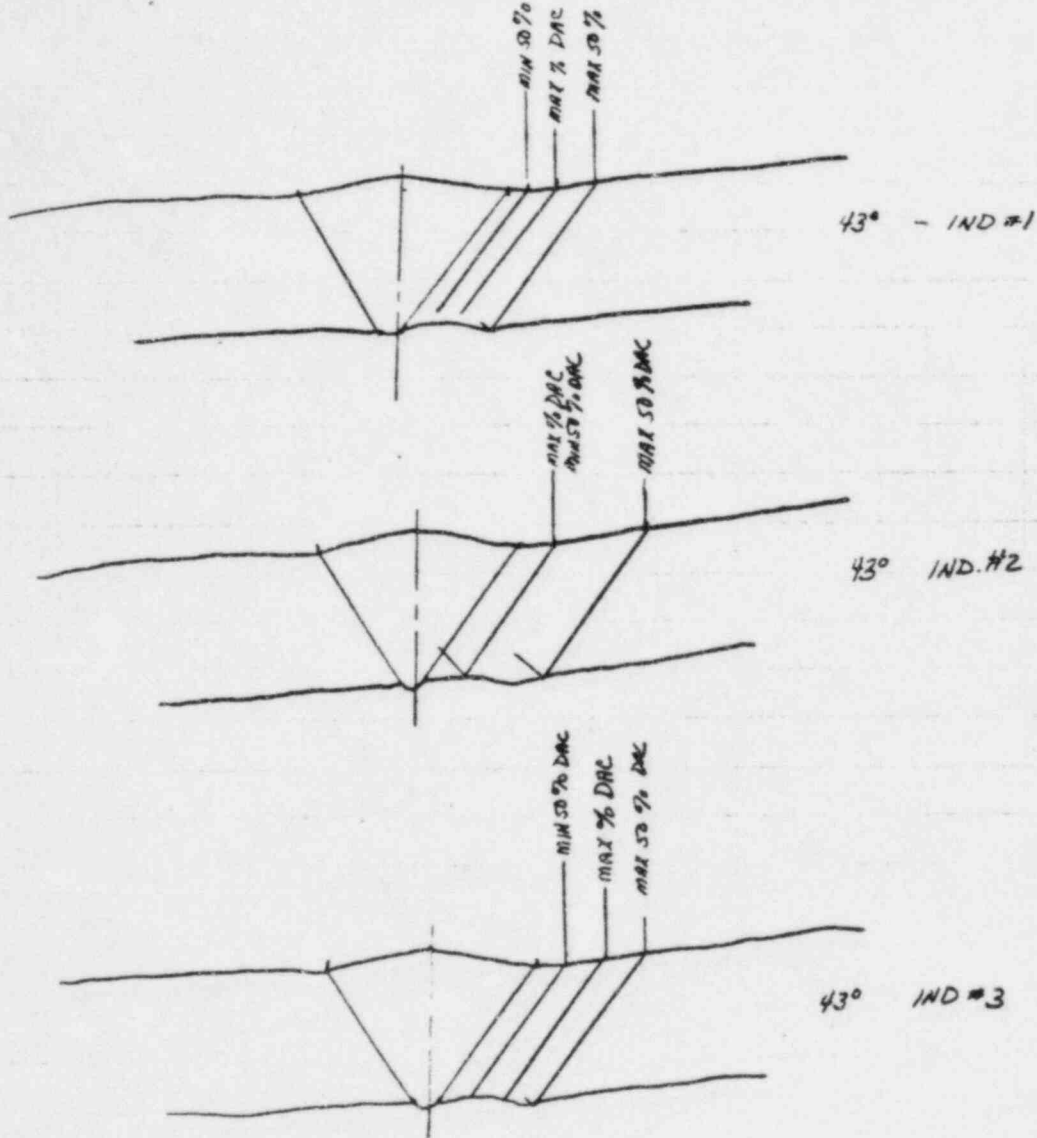
OFS NO. \_\_\_\_\_ DEPT. NO. \_\_\_\_\_

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.

Counter-Bore Location

VESSEL

READINGS			
0°	90°	180°	270°
.72			
.90			
.71			
.71			
.71			

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

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

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

JAF WHAZ

JAF BASE MATERIAL

☒ AXIAL☒ CIRCUMFERENTIAL

## EQUIPMENT DATA

## SEARCH UNIT

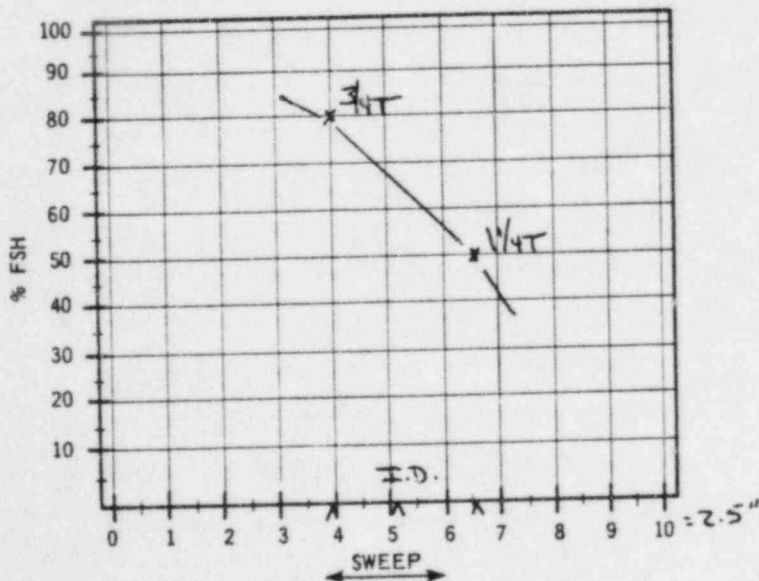
Manufacturer K.B. Aerotech  
Style Gamma  
Serial No. E14112  
Size 0.5" DIA. Frequency 2.25 MHz  
Angle 62° Mode SHEAR

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 1200 AM PM

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

## CALIBRATION CHECKS

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

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

## EXAMINER(S)

1. Thomas P. Smith TC-1A LEVEL III  
2. Robert Bouff TC-1A LEVEL I  
REVIEWED BY Thomas P. Smith DATE 10/17/8

ADDITIONAL REMARKS

George J. Lubbock N48A III 10/17/8

[illegible]

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



EBASCO SERVICES INCORPORATED  
QUALITY ASSURANCE ENGINEERING  
INSERVICE INSPECTION  
INDICATION DATA

TEP 10-16-84  
SHEET 2 OF 4

ITEM IDENTIFICATION 12-02-2-23CALIBRATION DATA SHEET NO. JAF-086/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)	
ST. BEAM	CIR-CUM-FERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD ET)	MINIMUM		MAXIMUM		INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
									SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION		
		✓	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		LENGTH	% t		WIDTH (IF LAMINAR)	COMMENTS						
		CIRC	AXIAL			DEPTH (IF PLANAR)								
								Multiple Signals 360° Intermittent around pipe.						

\* NOTE: MEASUREMENTS TAKEN FROM TOE OF WELD.

CONTINUATION ATTACHED - ☒ Yes ☐ No

EXAMINER(S)

1. James Pugh TC-1A LEVEL III  
2. Robert Boyer TC-1A LEVEL I  
John H. H. ad-hoc

EBASCO SERVICES INCORPORATED  
QUALITY ASSURANCE ENGINEERING  
INSERVICE INSPECTION  
INDICATION DATA

SHEET 3 OF 4ITEM IDENTIFICATION 12-02-2-27CALIBRATION DATA SHEET NO. JAF-086/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)	
ST. BEAM	CIR-CUM-FERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)		AXIAL (DISTANCE FROM WELD $\frac{1}{2}$ )	MINIMUM		MAXIMUM		INDICATION AMPLITUDE (% FSH)
			SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION								
/	✓	14	Pipe	21	3.0	27 1/2" cw	0.65"	\						
	✓	15		21	3.2	31 1/2" cw	0.65"							
	✓	16		31	4.0	32 1/2" 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	39 1/2" cw	0.65"							
	✓	23		62	2.0	1" cw	0.65"							
							X							

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

\* NOTE: MEASUREMENTS TAKEN FROM TOE OF WELD.

CONTINUATION ATTACHED - ☒ Yes ☐ No

EXAMINER(S)

1. James E. Pugh TC-1A LEVEL III

2. Robert B. Benge TC-1A LEVEL I

REVIEWED BY Steve Smith III DATE 10/17/84



# EBASCO SERVICES INCORPORATED

BY \_\_\_\_\_ DATE \_\_\_\_\_

SHEET 4 OF 4

CHKD. BY JLB DATE 12-16-84

OFS NO. \_\_\_\_\_ DEPT. NO. \_\_\_\_\_

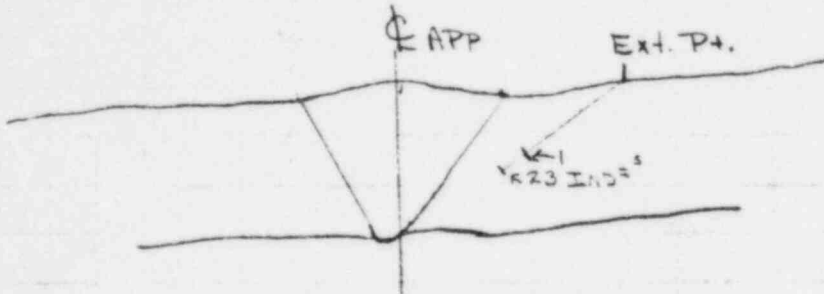
CLIENT NYPA

PROJECT Fitz 151

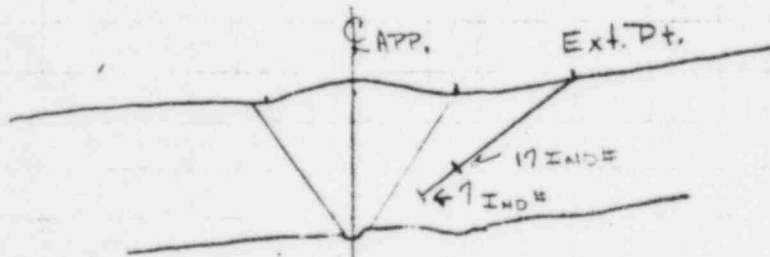
Data Sheet # JAF-086/A

SUBJECT \_\_\_\_\_

12-02-2-23

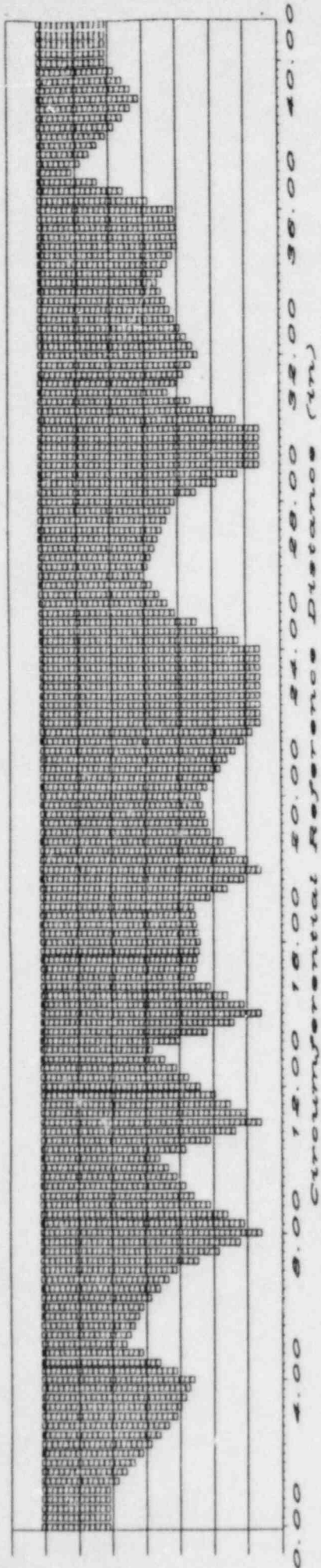


12-02-2-23



12-02-2-23

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