

GPU Nuclear
P.O. Box 388
Forked River, New Jersey 08731
609-693-6000
Writer's Direct Dial Number:

December 1, 1982

Mr. Ronald C. Haynes, Administrator
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19405

Dear Mr. Haynes:

SUBJECT: Oyster Creek Nuclear Generating Station
Docket 50-219
I&E Bulletin 82-03

The purpose of this letter is to provide our response to questions Nos. 1 and 4 of IEB 82-03, Rev. 1. It is of the utmost importance to GPUN to assure that our ultrasonic (UT) test methods are adequate to detect intergranular stress corrosion cracking (IGSCC) in thick-walled piping. In addition, we are actively studying the incidences and causes of thick-wall IGSCC in industry. Because of our on-going programs to address this phenomenon the positions taken in our answers to IEB 82-03 are subject to change. A detailed response based on present knowledge and information are provided below in IEB 82-03 format.

1. GPUN is currently in the process of indoctrinating, training and qualifying a new NDE services contractor. When this activity is complete, GPUN will be able to comply with IEB 82-03 by demonstrating our methods and techniques early to middle December. We will be in contact with your staff to make arrangements.

4.a.(1) and (2)

A total of sixteen (16) welds have been selected for inspection based on stress rule index (SRI), carbon content and configuration within the system. Attachment 1 is an isometric drawing typical of the five (5) recirc loops. It identifies loop configurations and those welds to be inspected as well as all welds in each loop. Attachment 2 is a table identifying welds to be inspected, their corresponding stress rule indices, IGSCC susceptibility ranking and amplifying reasons as to why the weld was chosen for inspection. In the event that relevant indications are detected, the ISI sample size will be increased.

8212080556 821201
PDR ADOCK 05000219
Q PDR

IEE11

4.a.(3)

The recirculation loop piping is constructed of type 316 stainless steel with an outside diameter of 26 inches and a minimum wall thickness of 0.982 inches. A specific alloy chemistry for each piping spool piece is not available; therefore, detailed chemistries for each weld joint cannot be identified. However, an upper and lower carbon content bounding can be determined from the material certification which is between 0.041 and 0.053 percent. These values encompass all the piping within the recirculation system.

4.2.(4)

The expected occupational radiation exposure for the planned inspection is described by subtasks below:

1.	Preparation work by Maintenance and Construction	
	- Removal of Insulation	
	- Scaffolding Erection	
	- Scaffolding Removal	100.0 Man-Rem
2.	Inservice Inspection	
	- Review and Acceptance of NDE	1.0 Man-Rem
3.	Non-destructive Examination	
	- Performance of NDE	18.0 Man-Rem
4.	Radiation Control	
	- Surveys	
	- Work Monitoring	1.0 Man-Rem
	<u>TOTAL EXPOSURE</u>	<u>120.0 Man-Rem</u>

The following is a summary of ALARA measures of presently planned in-service inspection (ISI) for recirculation system piping:

Radiation exposure will be reduced during the ISI of the recirculation system by minimizing working time in the drywell and working in the lowest possible radiation areas. Some of the specific methods OCNGS will use to accomplish exposure reduction are as follows:

Mockup training in conditions similar to the work site for personnel performing the ISI.

Prejob briefings for personnel covering planned work, radiological conditions at the worksite, radiological requirements, etc.

NDE equipment calibration to be performed outside the drywell.

Establishing of the maximum possible distance from ISI activities to recirculation piping.

Temporary shielding to be utilized as conditions allow.

4.b

The GPUN ultrasonic examination procedure utilized for the detection of intergranular stress corrosion cracking in austenitic steel pipe is as follows: the procedure employs a single element, 2.25 megahertz frequency, shear wave transducer of one half (1/2) maximum diameter and forty-five degree angle. System calibration is performed by utilizing a calibration block containing both ten percent (10%) and five percent (5%) notches oriented longitudinally and circumferentially. The ten percent notches are located on both outside and inside surfaces while the five percent notches are located only on the inside surface. The ten percent notches are utilized to establish the initial DAC on the CRT. This DAC is a three (3) point DAC giving a slope line representing an amplitude height easily observed on the CRT. The calibration settings are then increased in sensitivity by scanning the five (5) percent notch on the inside diameter of the calibration block. The subsequent amplitude on the CRT is always less than the ten (10) percent amplitude. Additional gain in sensitivity is achieved by increasing the decibel setting to that level at which the five (5) percent notch amplitude is equal in CRT screen height to the previous inside diameter ten (10) percent notch amplitude. The new sensitivity setting is further increased by adding six (6) decibels, that is, doubling the sensitivity level of calibration to the new higher level for scanning purposes. Once discernable indications are observed, the evaluation of whether to record or not is made at the primary calibration level of sensitivity for the area of interest, that is to say, five (5) percent notch for 4/8 node indications and ten (10) percent notches for greater than 4/8 node indications. This is done by eliminating six (6) decibels for the 4/8 indication (IGSCC) and evaluating whether or not to record. Amplitudes breaking the base line at locations greater than 4/8 node (weld) shall have the additional decibels removed to bring the DAC back in line with the ten (10) percent notch calibration sensitivity level.

4.c

No previous experience in the examination of recirculation piping welds utilizing the methodology of 4.b exists.

4.d

A preliminary evaluation of GPUN's UT methods took place on October 29, 1982 at Battelle. Representatives from the NRC and J. A. Jones, EPRI NDE Center, provided instructions to the GPUN personnel.

As a result of the October 29, 1982 exercise, the following documents were developed and presented to the NRC representative:

1. UT Calibration Sheets (56 and 57)
2. UT Data Sheets (92, 93, 94, 95, and 100)
3. Grid Maps (A, B, C, D, and E)

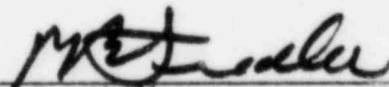
Upon returning to our facilities, the GPUN NDE examiner replotted the indications for evaluation and review by engineering personnel. The review disclosed that some changes needed to be made to the grid sheets given to the NRC representative at the close of the demonstration. The final report data from the October 29, 1982 exercise describes this new information and is provided for your perusal as Attachment 3.

The preliminary evaluation and review of data led to the conclusion that a modification to the ultrasonic test procedure would be needed to enhance detection of IGSCC in the five (5) percent through-wall range. The modified procedure planned to be used to examine the recirculation piping is described briefly in 4b above.

After completing the demonstration required by IEB 82-03, Item 1 and the results are made available, a supplement to this letter will be forwarded to you. It will further address the crack detection capability of the UT methodology to be used during the upcoming outage.

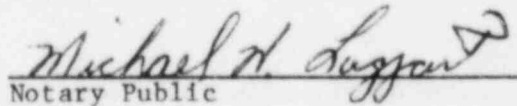
In the event that any questions or comments arise regarding the information provided herein, please contact Mr. J. Knubel at (201) 299-2264.

Very truly yours,



Peter B. Fiedler
Vice President and Director
Oyster Creek

Sworn to and subscribed to before me this 1st day
of December, 1982.



Notary Public

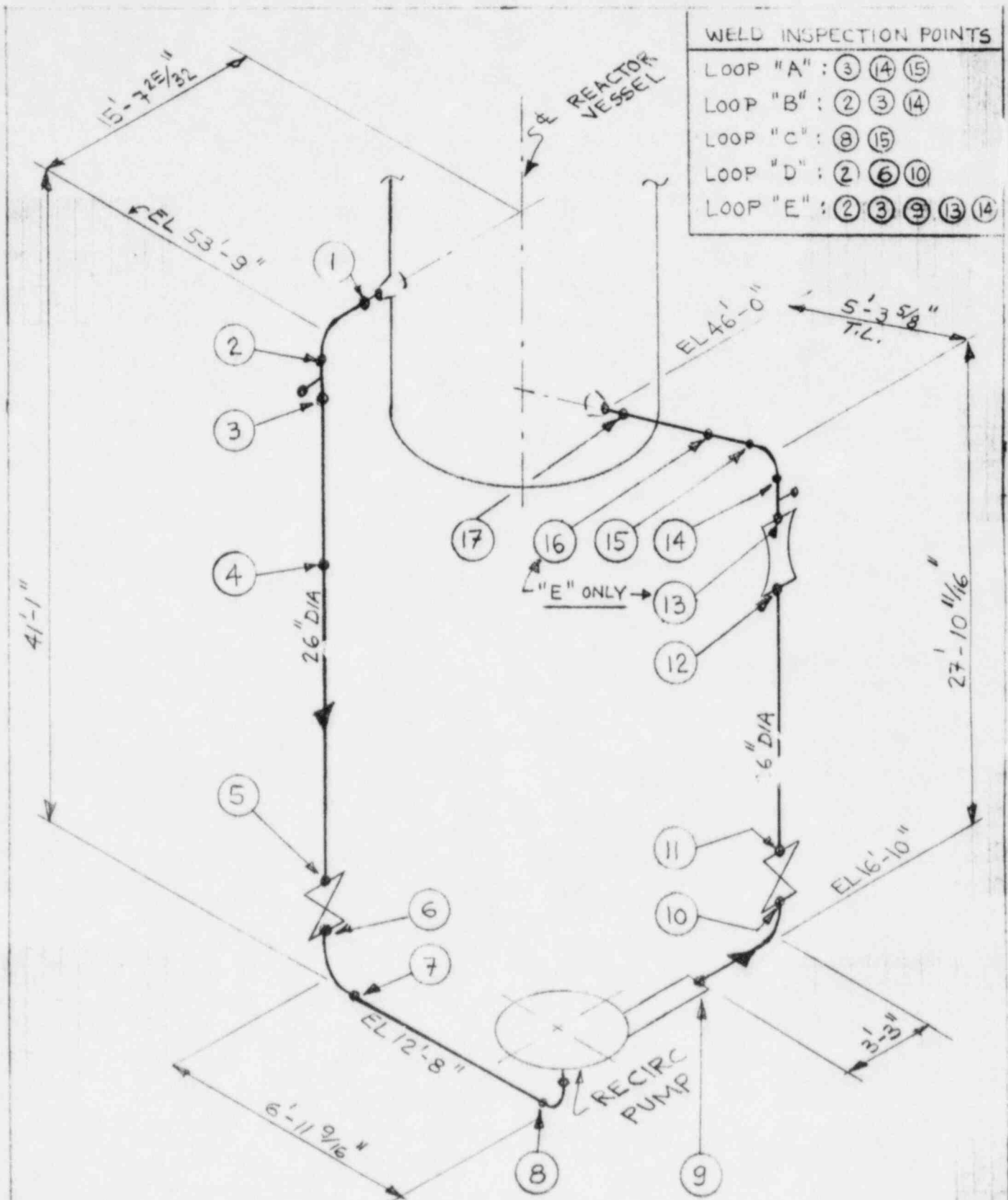
Attachments

MICHAEL L. LUTZ
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires December 31, 1985

cc: NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

REACTOR RECIRCULATION PIPING, TYPICAL LOOP, OYSTER CREEK



WELD INSPECTION POINTS	
LOOP "A" :	(3) (14) (15)
LOOP "B" :	(2) (3) (14)
LOOP "C" :	(8) (15)
LOOP "D" :	(2) (6) (10)
LOOP "E" :	(2) (3) (9) (13) (14)

NOTES

1. LOOPS "A", "B", "C" & "D" HAVE A TOTAL OF 15 WELDS EACH.
2. LOOP "E" HAS A TOTAL OF 17 WELDS.

EVALUATION SUMMARIES FOR:RECIRCULATION LOOP A

<u>ISOMETRIC WELD ID</u>	<u>SRI</u>	<u>ISGCC SUSCEPTIBILITY RANK (1)</u>
3	1.41	M
14	1.25	M
15	1.36	M

RECIRCULATION LOOP B

<u>ISOMETRIC WELD ID</u>	<u>SRI</u>	<u>ISGCC SUSCEPTIBILITY RANK (1)</u>
2	1.35	M
3	1.41	M
14	1.38	M

RECIRCULATION LOOP C

<u>ISOMETRIC WELD ID</u>	<u>SRI</u>	<u>ISGCC SUSCEPTIBILITY RANK (1)</u>
8	1.35	M
15	1.36	M

RECIRCULATION LOOP D

<u>ISOMETRIC WELD ID</u>	<u>SRI</u>	<u>ISGCC SUSCEPTIBILITY RANK (1)</u>
2	1.30	M
6	1.34	M
10	1.33	M

RECIRCULATION LOOP D

<u>ISOMETRIC WELD ID</u>	<u>SRI</u>	<u>ISGCC SUSCEPTIBILITY RANK (1)</u>
2	1.35	M
3	1.41	M
9	1.25	M
13	1.45	M
14	1.41	M

ATTACHMENT 2
(CONT'D)

- NOTES: (1) Evaluation based on stress rule index (SRI) and carbon content (.041% - .053%)
- (2) M = Moderate
- (3) The susceptibility rank is based on the stress rule index (SRI) weighted by the alloy carbon content. The susceptibility designation is bench-marked against field occurrences and EPRI/GE pipe test programs.

(4) IGSCC STRESS RULE INDEX METHODOLOGY

$$SRI = \frac{P_M + P_B}{S_Y} + \frac{Q + F + R}{S_Y + .002E}$$

- WHERE:
- P_M = PRIMARY MEMBRANE STRESS
- P_B = PRIMARY BENDING STRESS
- Q = SECONDARY STRESS
- F = PEAK STRESS
- R = WELD RESIDUAL STRESS
- E = YOUNG'S MODULUS AT TEMPERATURE
- S_Y = ASME CODE MINIMUM YIELD STRESS AT TEMPERATURE

Site: Battelle Inspection ID: N/A Component Pipe Procedure NTS008 Rev. 4

Examiner: Bob Turner ID#: 1863 Level: III Couplant: UTRA Gel

Examiner: Bob Joffe ID#: 2011 Level: II Couplant ID#: N/A

Drawing# N/A

Instrument ID#: 21050

Linearity Check Yes No

Reject: CRP

Mat'l. Cal.: 7.96

Delay: 6.58

Pulse Energy: N/A

Coarse Gain in DB: 20

Fine Gain in DB: 0

Fine Gain: 30%

Screen Range: 2.5"

Screen Depth: 2.5" In.

T&R Operation

Normal

Frequency: 2.25 MHZ

Pulse Rep. Rate: N/A

Damping: N/A

Filter: N/A

Calibration Block ID# PK Crystal ID# 40070

Length 10" In. Type 75°

OD 28" In. Freq. 2.5 MHZ

Thickness 1.050 In. Size .5" In.

Temp N/A °F Actual 45 °

Date: OCTOBER 29, 1982 Time: 12:53

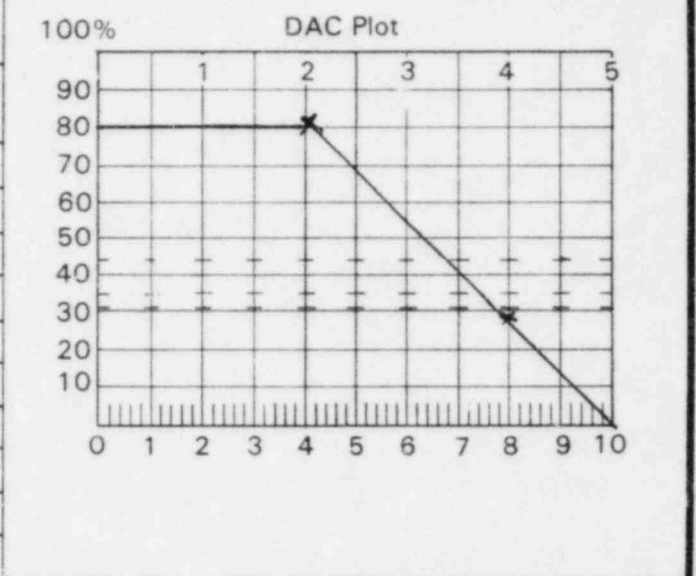
Search Unit Cable Type 1A-CR ID 02482 Length 6'

Thermometer N/A
(Required Summer '73 for Vessels
Required Winter '75 for piping)

System Calibration

Angle 45° Cal. Dir. Axial Circ.

Reflector	Amplitude % of Full Screen	Screen Reading In Inches
4/8 Node	80 %	1.0 In.
8/8 Node	28 %	2.0 In.
1/8 Node	N/A %	N/A In.
1/8 Node	%	In.
1/8 Node	%	In.
Top Notch	%	In.
Opposite Notch	%	In.
Notch	%	In.
Bkr CB	%	In.
Bkr P	%	In.



Calibration Confirmation

	1345 Hrs		1530 Hrs		Hrs		Hrs		Hrs	
	%	In.	%	In.	%	In.	%	In.	%	In.
Back Refl.	-	-	-	-	%	In.	%	In.	%	In.
4/8 Node	80%	1.0 In.	80%	1.0 In.	%	In.	%	In.	%	In.
8/8 Node	28%	2.0 In.	28%	2.0 In.	%	In.	%	In.	%	In.
1/8 Node	N/A	N/A In.	N/A	N/A In.	%	In.	%	In.	%	In.
Top Notch	%	In.	%	In.	%	In.	%	In.	%	In.
Opposite Notch	%	In.	%	In.	%	In.	%	In.	%	In.
Notch	%	In.	%	In.	%	In.	%	In.	%	In.
Initials	<u>@</u>		<u>BJ</u>							

Remarks: 100% NOTCH

Reviewed By: [Signature]

Level III Date 11-5-82

Calibration Sheet

Site: BATTELLE Inspection ID: NIA Component WELD Procedure MTIS-008 Rev. 4

Examiner: Robert Turner ID#: 1869 Level: III Couplant: ULTRAGEL

Examiner: Jeff Joffe ID#: 2011 Level: II Couplant ID#: NA

Drawing# NIA

Instrument ID#: 211050

Linearity Check Yes No

Reject: OFF

Mat'l. Cal.: 8.0

Delay: 6.58

Pulse Energy: N/A

Coarse Gain in DB: 20

Fine Gain in DB: 2

Fine Gain: 6090

Screen Range: 2.5

Screen Depth: 2.5 In.

T&R Operation

Normal

Frequency: 2.5 MHZ

Pulse Rep. Rate: NA

Damping: N/A

Filter: N/A

Calibration Block ID# PRR Length 10" In. OD 28" In. Thickness 1.050 In. Temp NIA °F

Crystal ID# 40070 Type 45° Freq. 2.5 MHZ Size .5 In. Actual 45 °

Date: 10/29/82 Time: 1535

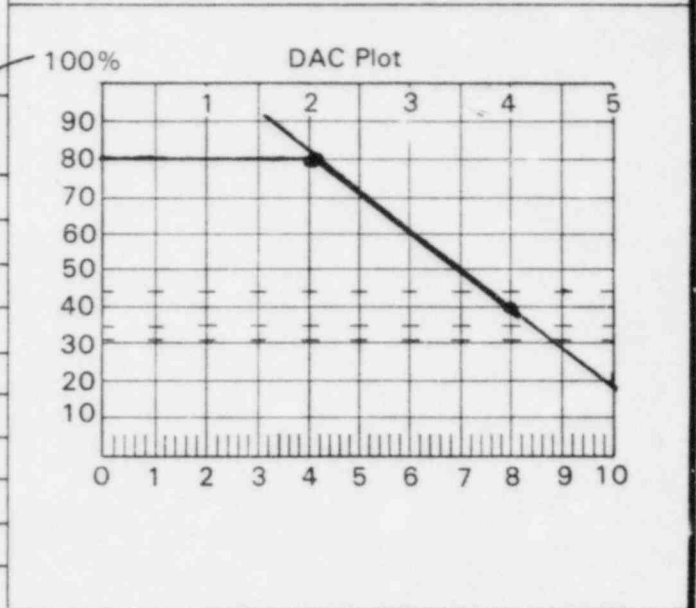
Search Unit Cable Type Microdot ID 024-02 Length 6'

Thermometer N/A
(Required Summer '73 for Vessels
Required Winter '75 for piping)

System Calibration

Angle 45° Cal. Dir. Axial Circ.

Reflector	Amplitude % of Full Screen	Screen Reading In Inches
4/8 Node	<u>80</u> %	<u>1</u> In.
8/8 Node	<u>40</u> %	<u>2</u> In.
1/8 Node	<u>N/A</u> %	<u>N/A</u> In.
1/8 Node	%	In.
1/8 Node	%	In.
Top Notch	%	In.
Opposite Notch	%	In.
Notch	%	In.
Bkr CB	%	In.
Bkr P	%	In.



Calibration Confirmation

Time	1610 Hrs	Hrs	Hrs	Hrs	Hrs
Back Refl.	% In.	% In.	% In.	% In.	% In.
4/8 Node	<u>80</u> % <u>1</u> In.	% In.	% In.	% In.	% In.
8/8 Node	<u>40</u> % <u>2</u> In.	% In.	% In.	% In.	% In.
1/8 Node	% In.	% In.	% In.	% In.	% In.
Top Notch	<u>N/A</u> % <u>N/A</u> In.	% In.	% In.	% In.	% In.
Opposite Notch	% In.	% In.	% In.	% In.	% In.
Notch	% In.	% In.	% In.	% In.	% In.
Initials	<u>RT</u>				

Remarks: 100% NOTCH

Reviewed By: Al Stuli

Level: III Date: 11-5-82

Site: <u>Battelle</u>		Inspection ID: <u>N/A</u>		Component: <u>Pipe weld</u>	
Description: <u>Circumferential weld</u>				Cal. Block: <u>18R</u>	
I.D.: <u>Sample A</u>		Procedure: <u>NTS00844</u>		Material: <u>S/S</u>	Thickness: <u>1.050</u> In.
No. Positions: <u>1</u>	Distance: <u>-</u> In.	Drawing: <u>N/A</u>	Cal. Sheet: <u>000058</u>	Cal. Sheet: <u>057</u>	Cal. Sheet: <u>N/A</u>
Beam Direction <u>Long</u> <input type="checkbox"/> <u>Shear</u> <input type="checkbox"/>		Limited Exam <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Angle: <u>45°</u>	Angle: <u>45°</u>
Examiner: <u>Robert E. Turner</u>		ID#: <u>1863</u>	Level: <u>III</u>	Time Start: <u>14:40</u> Hr.	Time Start: <u>1540</u> Hr.
Examiner: <u>Jeff Joffe</u>		ID#: <u>2011</u>	Level:	Time Stop: <u>1505</u> Hr.	Time Stop: <u>1544</u> Hr.
Notes:				Part Temp: <u>N/A</u> 0°F	Part Temp: <u>N/A</u> 0°F
				Date: <u>October 29, 1982</u>	Date: <u>102982</u>

0° Information Only

Weld Height .030 Weld Width 1.600

→
Surface One to Surface Two

BM	Haz	Weld	Haz	BM
<u>1.300</u>	<u>1.300</u>	<u>1.150</u>	<u>1.025</u>	<u>1.025</u>

Ind. No.	Angle (Deg)	Surface	Beam Direction	LAM		LNGTH		WIDTH		Through Wall Dimension						Remarks					
				Max Amp % DAC	Depth	Crystal	Distance	From	Minimum		Maximum		Depth		Position In.						
									CW	CCW	1	2					1	2	1	2	
																					CW
<u>200</u>	<u>45</u>	<u>Z</u>	<u>1</u>	<u>20</u>	<u>1.150</u>	<u>7</u>	<u>1.30</u>	<u>1.30</u>	<u>1.30</u>	<u>*</u>	<u>1.2</u>	<u>1.450</u>	<u>*</u>	<u>WELD INTERFERENCE</u>							
				<u>10</u>	<u>1.150</u>	<u>8.25</u>	<u>1.350</u>														
				<u>10</u>	<u>1.150</u>	<u>5.25</u>	<u>1.300</u>														

No Reportable Indications Reportable Indications Non Relevant Indications

Reviewed by: R. Stuhl Level: III Date: 11-5-82 Page 1 of 1 NDE Request No. N/A

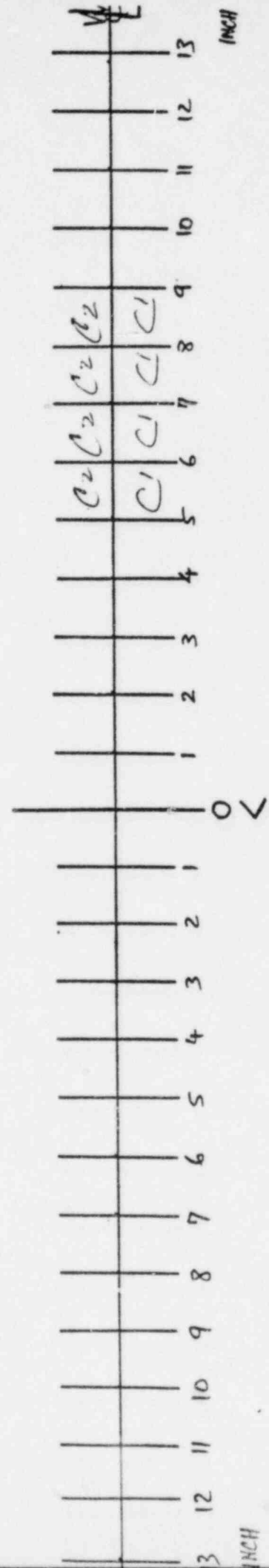
SPECIMEN A
 ISI TEAM
 UTILITY GROUP
 PROCEDURE MTIS-00824

ATTACHMENT 3

DATE
 PROCTOR
 NRC REGION

②

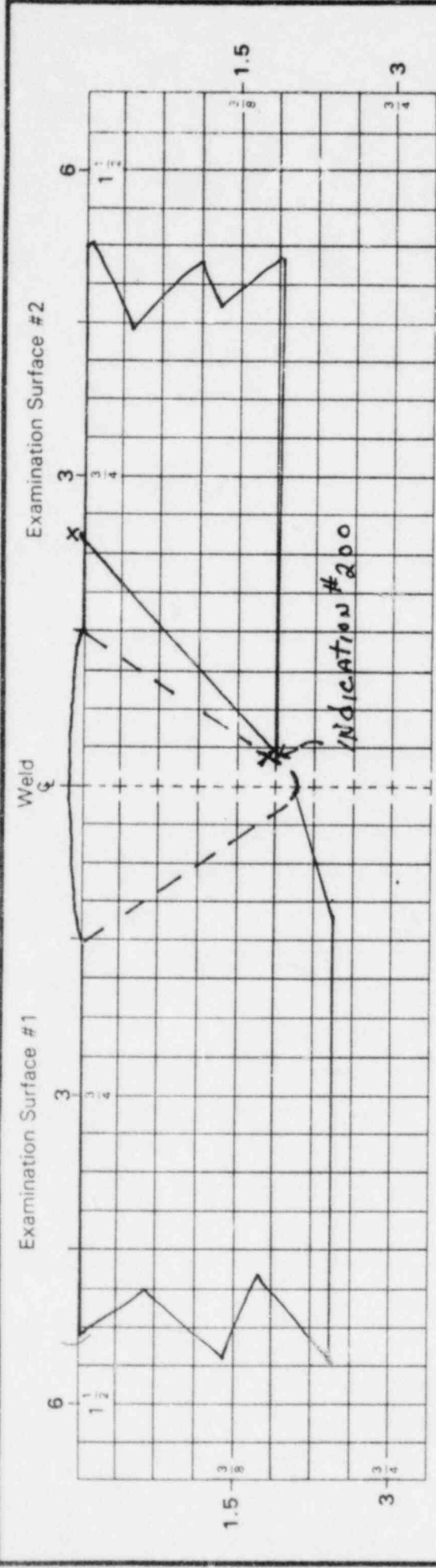
FLOW
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①

C1 = location AS of 10/28/82
 C2 = Amended location AS of 11/1/82
 AFTER PLOTTING

[Signature]
 11-5-82



Examiners Comments BATFELLE SAMPLE 'A' LOW AMPLITUDE, NEAR I.D. ROOT
POSSIBLE RBSCC.

Examiner Radney Lumm Level III Date 11/1/82

Materials Technology Evaluation and Disposition _____

Geometric Recordable Reportable Analyst _____ Title _____ Date _____

Site/Inspection I.D. _____

Component I.D. _____

Component/Weld No. _____

Acceptance Standard _____

Site: BATTELLE		Inspection ID: NIA		Component: WELD	
Description: RISER TO ELBOW				Cal. Block: PRR	
I.D.: SAMPLE B		Procedure: MTIS-00824		Material: S/S	Thickness: 1.050 In.
No. Positions: NIA	Distance: NIA In.	Drawing: NIA	Cal. Sheet 056	Cal. Sheet: 57	Cal. Sheet: NIA
Beam Direction <input type="checkbox"/> Long <input checked="" type="checkbox"/> Shear		Limited Exam <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Angle: 45°	Angle: 45°
Examiner: Rodney Turner		ID#: 1863	Level: III	Time Start: 1300 Hr.	Time Start: 1545 Hr.
Examiner: BUJ		ID#: 2011	Level: II	Time Stop: 1345 Hr.	Time Stop: 1551 Hr.
Notes:				Part Temp: NIA 0°F	Part Temp: NIA 0°F
				Date: 10/29/82	Date: 10/29/82
0° Information Only Weld Height = .030 Weld Width 1.6 → Surface One to Surface Two					
BM	Haz	Weld	Haz	BM	
—	—	1.2	1.250	1.275	

Ind. No.	Angle (Deg)	Surface	Beam Direction	LAM		LNGTH	WIDTH	Through Wall Dimension						Remarks	
				Max Amp % DAC	Depth	Crystal	Distance	From	Minimum		Maximum				
									Depth	Position In.		Depth	Position In.		
										1	2		1		2
CW	CCW	1	2	CW	CCW	CW	CCW								
200	45°	2	1	20	1.75	6.5	6.5	1.650	*	—	1.8	1.8	*-WELD INTER FERENCE		
				10	1.75	6	6 ^{Bus}								
				10	1.80	12.70	-								
201	45°	2	1	20	1.8	-	7.75	1.650	*		1.850	1.650			
				10	1.8		7.5								
				10	1.8		8.5								

No Reportable Indications Reportable Indications Non Relevant Indications

Reviewed by: **[Signature]** Level: **III** Date: **11-5-82** Page 1 of 1 NDE Request No. **N/A**

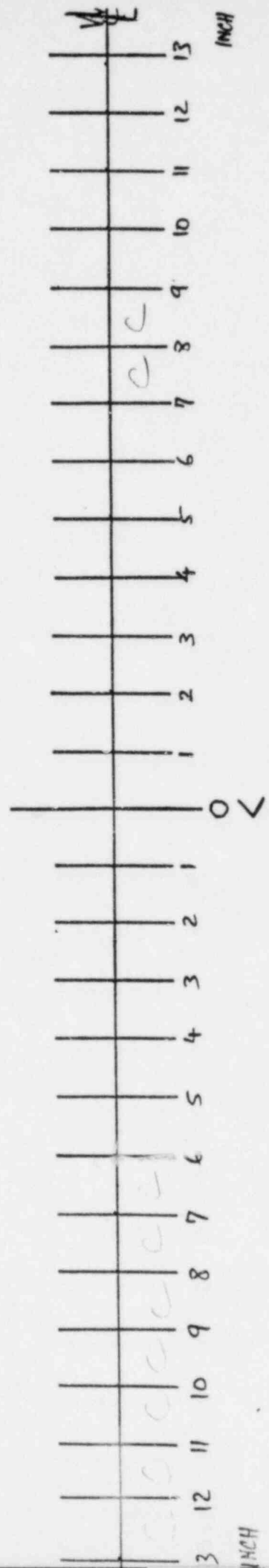
SPECIMEN B
ISI TEAM
UTILITY GROUP
PROCEDURE MTI-SOOP-RJ

ATTACHMENT 3

DATE
PROCTOR
NRC REGION

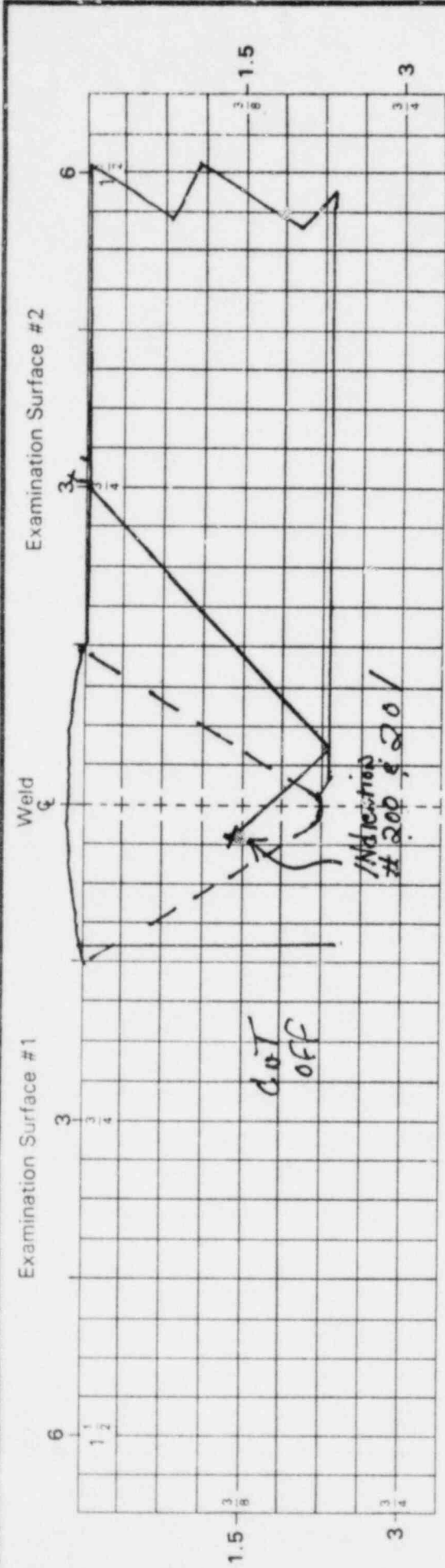
②

FLOW
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①

Robert
11-5-82



Examiners Comments SAMPLE B - Battelle depth Plots out to 1.50 = .200"
INDICATION FOR BOTH INDICATIONS
DATA SHEET 000092
 Examiner Rodney Linn Level III Date 11/1/12

Materials Technology Evaluation and Disposition _____

Geometric Recordable Reportable Title _____ Analyst _____ Date _____

Site/Inspection I.D. _____

Component I.D. _____

Component/Weld No. _____

Acceptance Standard _____ Page _____ of _____

Site: BATTELLE		Inspection ID: N/A		Component: WELD	
Description: ELBOW TO SAFE-END				Cal. Block: PBR	
I.D.: SAMPLE C		Procedure: MMS-008 24		Material: SL5	Thickness: 1.030 In.
No. Positions: N/A	Distance: N/A In.	Drawing: N/A	Cal. Sheet 056	Cal. Sheet: 057	Cal. Sheet: N/A
Beam Direction _____ Long <input checked="" type="checkbox"/> Shear		Limited Exam <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Angle: 45°	Angle: 45°
Examiner: RODNEY LUMPKIN		ID#: 1863	Level: III	Time Start: 1350 Hr.	Time Start: 1552 Hr.
Examiner: ANDREW JOFFE		ID#: 2011	Level: II	Time Stop: 1420 Hr.	Time Stop: 1558 Hr.
Notes:				Part Temp: N/A 0°F	Part Temp: N/A 0°F
				Date: 10/29/82	Date: 10/29/82

0° Information Only

Weld Height 2.030 Weld Width 1.5"

→

Surface One to Surface Two

BM 1.300	Haz 1.300	Weld 1.150	Haz 1.025	BM 1.025
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Ind. No.	Angle (Deg)	Surface	Beam Direction	LAM		LNGTH		WIDTH		Through Wall Dimension						Remarks
				Max Amp % DAC	Depth	Crystal		Distance		Minimum		Maximum		Depth		
										Position In.		Position In.				
										1	2	1	2			
CW	CCW	1	2	Depth	CW	CCW	Depth	CW	CCW							
200	45	2	1	50	1.1	45"		1.25			*		1.150	1.350	* WELD INTERFERENCE	
				25	1.050	6.1"		1.25								
				5	1.150	0		1.300								

No Reportable Indications
 Reportable Indications
 Non Relevant Indications

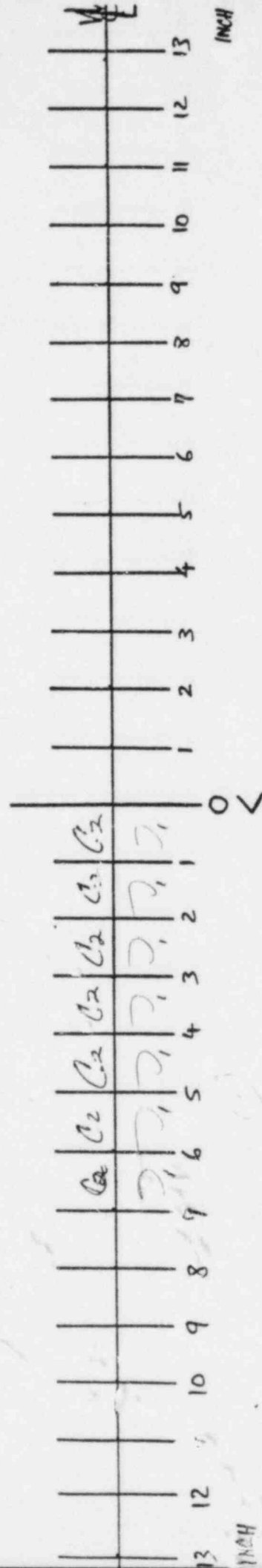
Reviewed by: [Signature]	Level: III	Date: 11-5-82	Page 1 of 1	NDE Request No. N/A
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SPECIMEN
ISI TEAM TURNER INCH
UTILITY GROUP
PROCEDURE MTS-008 R4

DATE
PROCTOR
NRC REGION

②

FLOW
↓

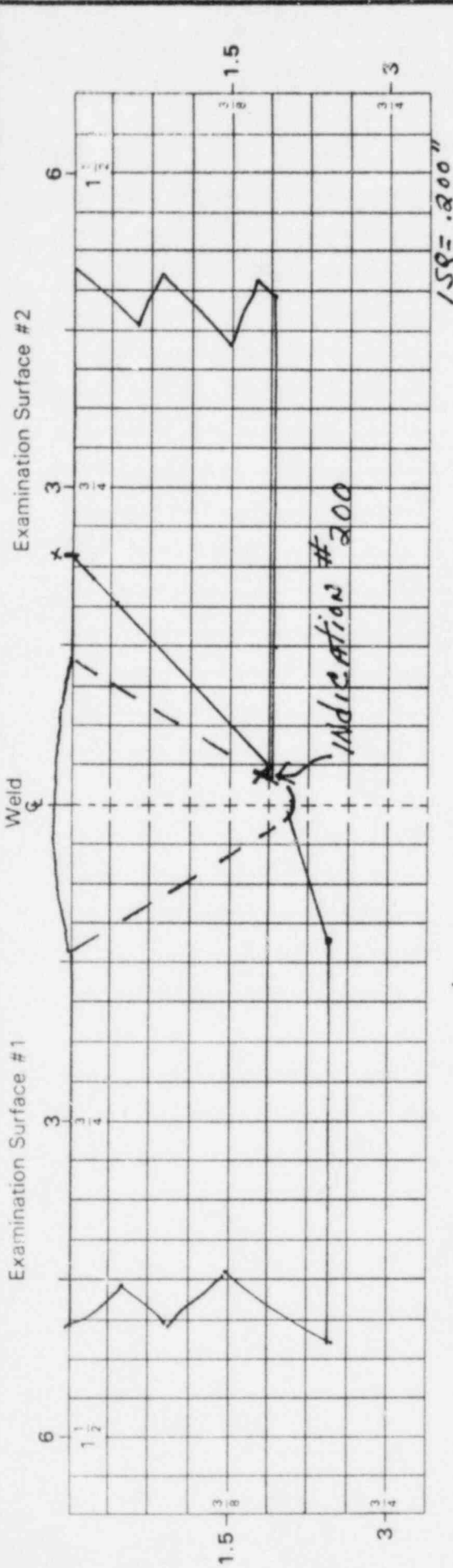


①

C₁ = location AS OF 10/09/82

C₂ = Amended location AS OF 11/04/82
ALTER PLOTTING

Repostule
11-5-82



Examiners Comments: Battelle Sample # C 50% MAX Amplitude Close to I.D.

Root, possible IGSDC

Data Sheet 000093

Examiner Rodney Terum Level III Date 11/1/82

Materials Technology Evaluation and Disposition _____

Geometric Recordable Reportable Analyst _____ Title _____ Date _____

Site/Inspection I.D. _____

Component I.D. _____

Component/Weld No. _____

Acceptance Standard _____ Page _____ of _____

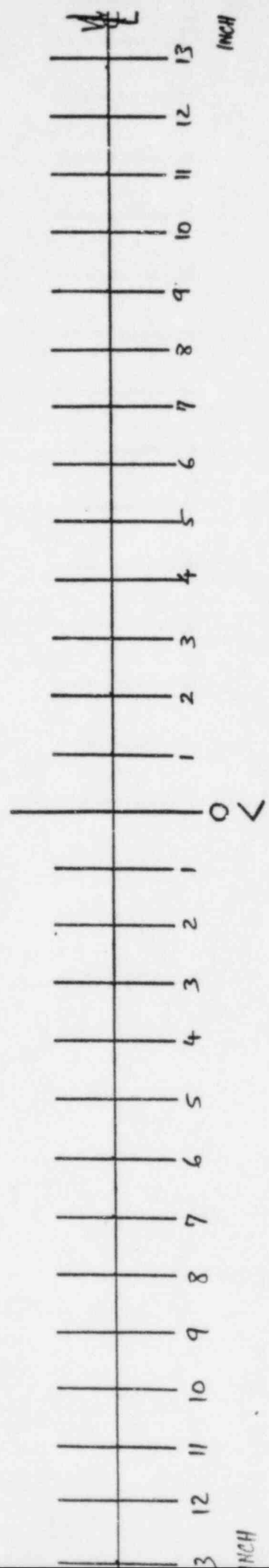
SPECIMEN ID: P
ISI TEAM: TURNER/SCIFFE
UTILITY: GDUIN
PROCEDURE: MTIS-00884

ATTACHMENT 3

DATE:
PROCTOR:
NRC REGION:

②

FLOW
↓



NONE

①

Robert
11-5-82

Site: BATELLE		Inspection ID: N/A		Component: WELD	
Description: SAFE EQP CO ELROW				Cal. Block: PBR	
I.D.: SAMPLE E		Procedure: MTIS-008 24		Material: SKS	Thickness: 1.050 In.
No. Positions: 1	Distance: N/A in.	Drawing: N/A	Cal. Sheet 56	Cal. Sheet: 057	Cal. Sheet: N/A
Beam Direction <u> </u> Long <input checked="" type="checkbox"/> Shear		Limited Exam <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Angle: 45°	Angle: 45°
Examiner: <i>[Signature]</i>		ID#: 1863	Level: III	Time Start: 1510 Hr.	Time Start: 1605 Hr.
Examiner: <i>[Signature]</i>		ID#: 2011	Level: II	Time Stop: 1530 Hr.	Time Stop: 1610 Hr.
Notes:		Part Temp: N/A °F		Part Temp: N/A °F	Part Temp: °F
		Date: 10/29/80		Date: 10/29/82	Date: N/A

0° Information Only
Weld Height 0.030 Weld Width 1.5"

→
Surface One to Surface Two

BM	Haz	Weld	Haz	BM
1.300	1.250	1.175	1.050	1.050

Ind. No.	Angle (Deg)	Surface	Beam Direction	LAM		LNTH		WIDTH		Through Wall Dimension						Remarks
				Max Amp % DAC	Depth	Crystal	Distance	Minimum				Maximum				
								From	Position In.		Depth	Position In.				
									1	2		1	2			
CW	CCW	1	2	CW	CCW	Depth	CW	CCW								
200	45	2	1	20	1.165	2	1.250	1.250	*	1.250	1.400	* WELD INTERFERENCE				
				10	1.200		2.250	1.250								
				10	1.150	0	1.300									

No Reportable Indications <input type="checkbox"/>		Reportable Indications <input checked="" type="checkbox"/>		Non Relevant Indications <input type="checkbox"/>	
Reviewed by: <i>[Signature]</i>		Level: III	Date: 11-5-82	Page 1 of 1	NDE Request No. N/A

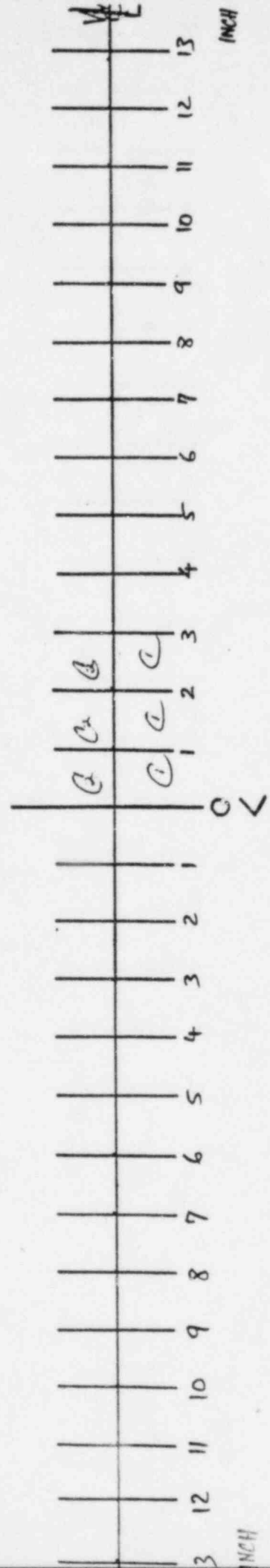
SPECIMEN F
TURNER OFFICE
ISI TEAM
UTILITY G. DUNN
PROCEDURE MTIS-008 R4

ATTACHMENT 3

DATE
PROCTOR
NRC REGION

②

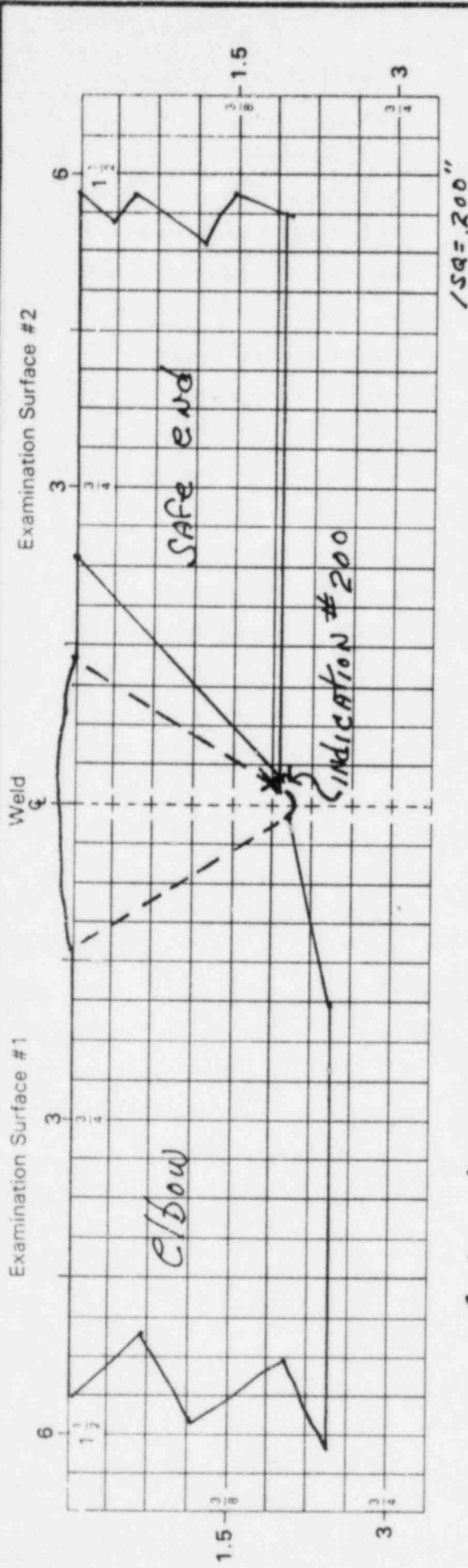
FLOW
↓



①

C1 = location as of 10/29/82
C2 = Amended location as of 11/1/82
After plotting.

R. Stumbe
11-5-82



Examiners Comments BATTELLE SAMPLE E - SIGNALS AT ROOT AREA, VERY LOW IN AMPLITUDE, POSSIBLE IGSCC. DATA SHEET #000100

Examiner Rodney Turner Level III Date 11/1/82

Materials Technology Evaluation and Disposition _____

Geometric Recordable Reportable Analyst _____ Title _____ Date _____

Site/Inspection I.D. _____

Component I.D. _____

Component Weld No. _____

Acceptance Standard _____