

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

ULTRASONIC TEST DATA

MAY 24, 1985

8505300397 850524
PDR ADOCK 05000331
Q PDR

WELD NUMBER RRA-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aido Avenue
Santa Clara, CA 95050
408-980-9333Location DAECCal. No. KH-012 Time 0925Job No. IEL-029Date 3/20/85Page 1 of 5

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level Kenn Hall # Examiner/Level John M. Hall # Review/Level Donald Henry #
Authorized Inspector N.M. Daugherty 5/22/85 Customer Larry A. Rangan 5/21/85E
Q
UInstrument NORTEC 131-D S/N 417 ReCal Due 6-11-85 Cable 6' COAX
Recorder Gulton TR-722 S/N 2091003 ReCal Due 4-4-85
Recorder LMT SLAVE S/N 2 ReCal Due 5-14-85
Vertical Linearity Check Check Completed KLH

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	45	41	35	31	25	20	16	9	4

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scaleP
M
E
N
TAttenuator Linearity Check Check Completed KLH

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	☒	41	20	☒	78	☒	76

Signal amplitude must fall within listed values

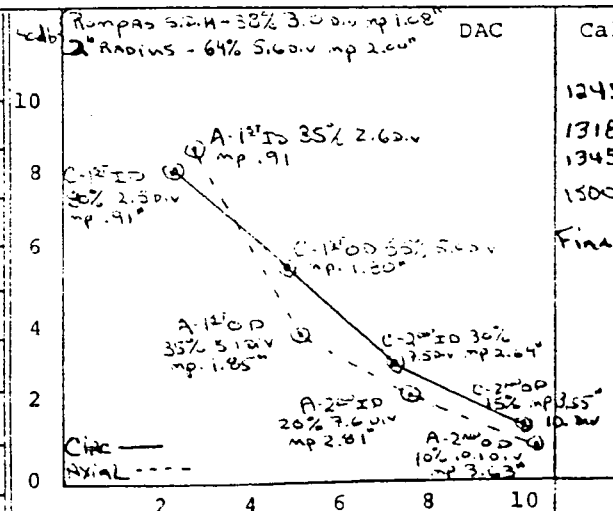
Transducers

S/N NA1299 Mfg. H'Sonic Type SW Size 1/2 x 1/2 Freq. 2.25MHz Index ✓ Angle 44°
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA

P
R
O
CProcedure UT-10 Rev. 11 F.C. #3 Date 11-12-82C
A
L
I
B
R
A
T
I
O
NCal. Block Type PIPE SEG S/N 651345 Ref. Refl. ID NORCA Temp. 78°FVerification/Ref. Blk. Rumpas S/N 044 Ref. Refl. SDH/2" Radius Temp. 78°F

Instrument Settings

	L	<	Digital
Gain	NA	0.6/0.50	1" = 1.00
Sweep	NA	10-933	4" = 4.00
Delay	NA	1-036	NA
Reject	NA	OFF	NA
Damp.	NA	OFF	NA
Freq.	NA	2.25MHz	NA
Video	NA	(-)	NA
REP. RATE	NA	1K	NA



Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DACC
Report No. 85-335
Cal. No. KA-012 Time 1500
Job No. TEL-029
Date 3-20-85
Page 1 of 20

Post-IHSI

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

I T E M	Description <u>Pipe / Pipe</u> Size <u>10"</u> Material <u>SS</u> S/N(s) <u>RRA-B-14A</u>		
	Location <u>DRY WEL</u> Preparation <u>AS FOUND</u> Temp <u>102° F</u>		
S I G N	Examiner/Level <u>Kevin Hase II</u> Examiner/Level <u>John G. I</u> Review/Level <u>Donald Hasey III</u>		
	Authorized Inspector <u>W.N. McQuay</u> 4/1/85 Customer <u>Acme P. Ryan</u> 3/24/85		
E Q U I P M E N T	Tester 1 <u>NORTEC 131D</u> S/N <u>417</u> 2 <u>LMT-SLAVE</u> S/N <u>2</u>		
	Recorder <u>Kustan 16722</u> S/N <u>2091003</u> 2 <u>NA</u> S/N <u>NA</u>		
	Transducer 1 <u>4500</u> S/N <u>225442</u> 2 <u>NA</u> S/N <u>NA</u>		
	Couplant <u>LMT-GEL</u> Cable <u>6' COAX</u> Marker <u>NA</u> Photo <u>NA</u>		
P R O C	Calibration Procedure <u>UT-10</u>		Rev. <u>11</u> FC # <u>8</u>
	Examination Procedure <u>UT-10</u>		Rev. <u>11</u> FC # <u>8</u>
	Recording Procedure <u>UT-6</u>		Rev. <u>2</u>
C A L I B	Calib. Blk <u>S/N 651345</u> Temp. <u>78° F</u> Ref. <u>Match</u> Amp. <u>8090</u> Sweep <u>2.5</u>		
	Ref. Gain <u>46/A=50</u> Damp. <u>OFF</u> Reject <u>OFF</u> Gate <u>2-10</u>		
E X A M I N A T I O N	Alarm <u>NA</u> Mag. Tape Count <u>NA</u> Chart <u>ATTACHED</u> Cal. Check Time <u>1535</u>		
	Cal. Ref. Blk <u>RompAS</u> Ref. Refl. <u>SDH 12R</u> Amp. <u>35%</u> Sweep Position <u>3.0/5.6</u>		
	Scan Gain <u>52/A=50</u> Ref. Dwg <u>ISO-122</u> Reject Level <u>ASME XI</u> Report Level <u>ASME XI</u>		
N A D	NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples		
	Scan	Type	Disp.
	0	PT	NA
	1	Visual	NAD
	2	Base Metal	NA
	3	LW/FLOW	G/L
	4	LA/FLOW	G
	5	HCW	L
	6	HCCW	L
	Scan		
Description of Indications			
3+4 ID+OD GEO. greater than 50% DAC			
3+6 Linear Indications (SEE Attached Data and 60° REBOK Information)			
Pre-IHSI report # 85-253: Only change noted is the axial indications. The remaining portion appears to be consistent with Pre-Exam. 1984			
Linear - see NRI-006 (SEE Data Sheet)			

ELEV VIEW Sketch

WELD # RRA-BJ4A

INDICATION #	SCAN DIRECTION	% DAC	M P's			W's *			L's *			REMARKS
			Toward	Max	Away	Toward	Max.	Away	L ₁	MAX.	L ₂	
1	3	75	(Buck) .95	.95	1.05	(Buck) .75	.75	.80	*	1.0"	*	* 360° Intermitt ID GEO.
2	3	150	2.44	2.58	2.73	1.7	1.8	2.05 1.8 2.05	* *	5"	*	* 360° Intermitt ID GEO.
3	4	80	(Buck) 1.28	1.28	1.37	(Buck) .75	.75	.85	*	1"	*	* 360° Intermitt OD GEO.
4	4	100	.72	.85	.97	1.3	1.4	1.6	*	1"	*	* 360° Intermitt ID GEO.
5	4	50	1.65	1.72	1.85	.8	.9	1.15	8.5	9	9.25	OD GEO.
6	4	150	2.42	2.57	2.68	2.4	2.6	2.7	*	11	*	* 360° Intermitt ID GEO.
7	5	100	1.75	1.83	2.16	7.6" 7.75	7.75" 8.25	8.25"	.71"	.71"	.8"	* Linear (See ReLook: 600° Data Attached for Ind # 7, 8)
8	6	100	1.75	2.04	2.26	6.5" 5.8	6.1"	5.8" 6.5	.78"	.78"	.8"	
												* on pipe near J4.

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD (Wb); TDC/OUTER RADIUS (Ro)]

L'S: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC TDC/OUTER RADIUS (L_0); WELD Q (L_w)

WELD # RRA-B-J4A (Recheck/Evaluated) 4 3/4" ccw TDC

Ref. points Bottom point of
tee on pipe.
of Weld.

INDICATION #	SCAN DIRECTION	% DAC	M P's			W's *			L's *			REMARKS
			TOWARD	MAX	AWAY	TOWARD	MAX.	AWAY	L ₁	MAX.	L ₂	
1	5	100%	1.32	1.71	2.00	- 43/64"	- 1 3/16"	- 1 13/32"	90° Hed	3/4"	1 1/16"	Skewed 130° Linear (Pipe Side - J4)
2 *	5	50%	*	1.79	*	*	- 11/16"	*	*	45/64"	*	* Max only Linear (Pipe Side - J4)
3	5	50%	*	1.93	*	*	- 9/16"	*	*	45/64"	*	* max only Linear (Pipe Side - J4)
* Signals peak and travel together.												
4	6	120%	1.29	1.53	1.80	- 7/16"	- 1/8"	+ 1/8"	-	5/8"	-	Linear Signal drops off instantly when xducer moved away from weld. (Skew 25°)
5	6	NIR	*	1.19	* + 1 1/4"	*	- 1/2"	*	*	5/8"	*	* max only Linear (Point higher on #4)
6	5	140%	1.66	2.01	2.62	- 2 59/64"	- 3 23/64"	- 3 59/64"	-	2 21/64"	-	20° skew. Linear (Same as Ind. #4)
J&M												

REPORT # 85-335

PAGE 6 of 30

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (Wb); TDC/OUTER RADIUS (Lo)]

L's: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (Lo); WELD Q (Wb)]

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Job
Location DAEC
Report No NRI-006
Exam Date 3/20/85

NOTIFICATION OF REPORTABLE INDICATION

Page 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRR-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐
Linear (Circ) - 30% thru wall extending from 25" to 34" on the
Pap side (J4 side). Indication evaluated after the decision was made
to overlay. Rerlook was performed by D. Harvey (4/3/85) based on stri-
chart indications.

Examination Reference:

ISI Rpt. # 85-335

Signature of Examiner/Certif. Level

Date:

Donald Hamer, III

4/3/85

Signature of LMT Field Supervisor

Date:

Donald Hamer

4/3/85

Notification Acknowledged by

Date:

Client Representative: Harry A. Bunn

4/4/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

WELD # RRA-B-J4A

[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (Wb); TDC/OUTER RADIUS (Lo)]

LAMBERT, MacGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

JOB IEL-029

SHEET NO _____

OF _____

CALCULATED BY Donald Hamer

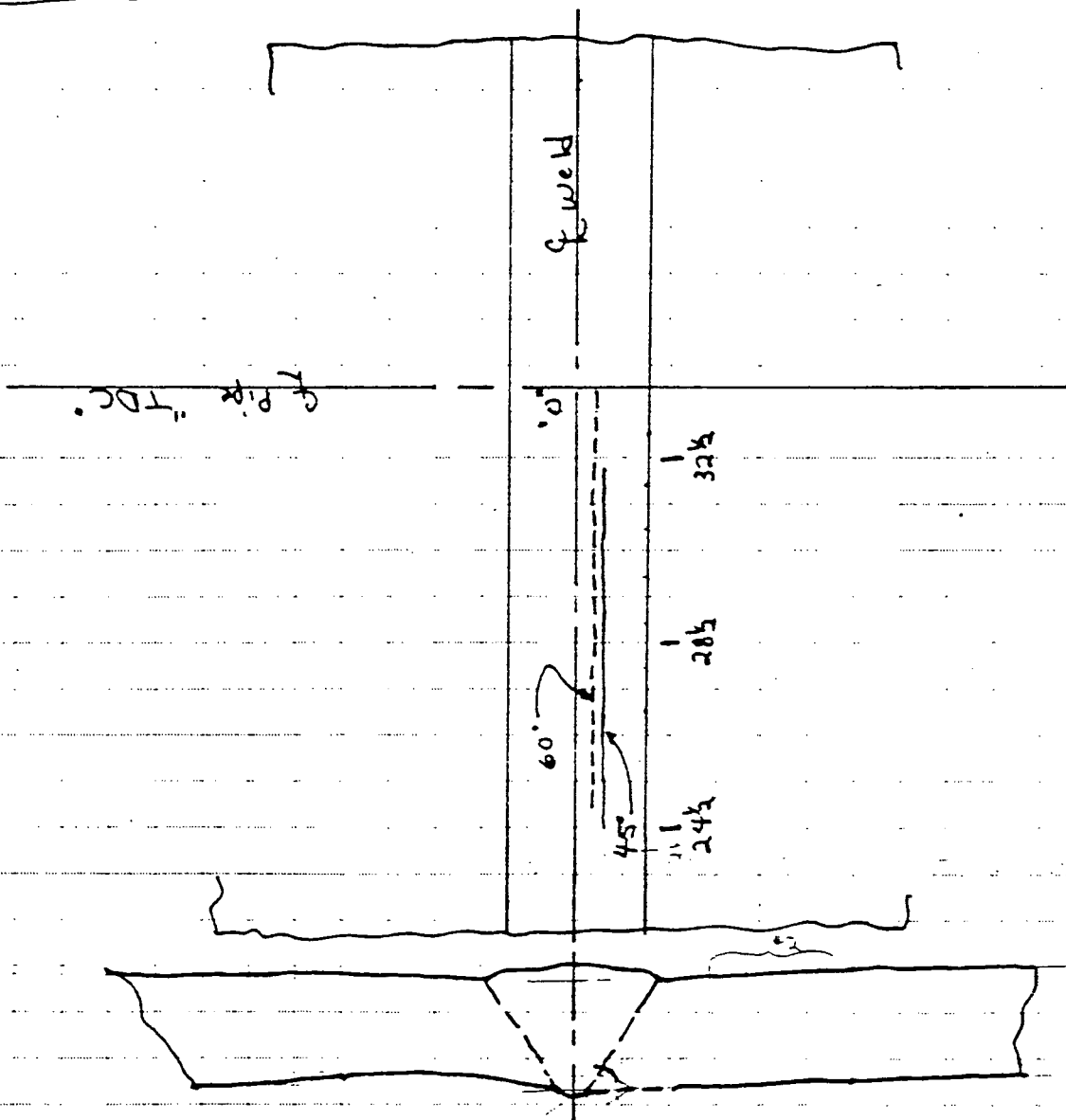
DATE 4/4/15

CHECKED BY _____

DATE _____

SCALE _____

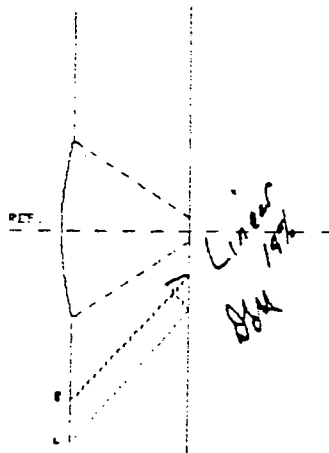
RRA-BJ4A



RPT # = 85-335
 JOB NO. = IEL-029
 RRA-BJ4A
 IND# 1

BUT1
 SCH 3
 24-172 > 22-174
 EX. IPR. 8
 NP. 1 8.6
 FR. 1 8.6
 RT. SEP. 8.125
 PRF. ANG. 33.63886753
 RNF 8.86
 L. ANG. 49
 C. ANG. 47
 T. ANG. 47
 L. POS. 1.189375
 C. POS. 8.858625
 T. POS. 8.898625
 L. D. P. 1.89
 C. D. P. 8.89
 T. D. P. 8.89

SCALE 1



LEAD 58X MAX. PT. = 58X DAC
 LEAD DEPTH 8.88
 LEAD POS. = -8.281

CENTER MAX. PT. = 168X DAC
 CENTER DEPTH 8.553
 CENTER POS. = -8.236

TRAIL 58X MAX. PT. = 58X DAC
 TRAIL DEPTH 8.553
 TRAIL POS. = -8.236

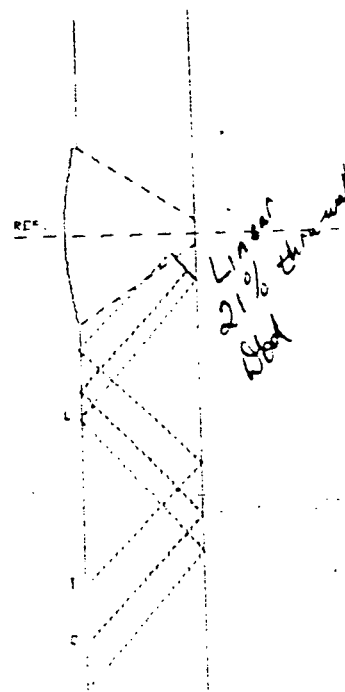
% WALL = 16

48316.5151

RPT # = 85-335
 JOB NO. = IEL-029
 RRA-BJ4A
 IND# 1a

BUT1
 SCH 3
 24-172 > 32-174
 EX. IPR. 8
 NP. 1 8.6
 FR. 1 8.6
 RT. SEP. 8.125
 PRF. ANG. 23.63886753
 RNF 8.86
 L. ANG. 45
 C. ANG. 47
 T. ANG. 45
 L. POS. 2.328125
 C. POS. 2.85375
 T. POS. 1.798875
 L. D. P. 2.76
 C. D. P. 2.52
 T. D. P. 2.37

SCALE 1



LEAD 58X MAX. PT. = 88X DAC
 LEAD DEPTH 8.582
 LEAD POS. = -8.244

CENTER MAX. PT. = 168X DAC
 CENTER DEPTH 8.553
 CENTER POS. = -8.213

TRAIL 58X MAX. PT. = 88X DAC
 TRAIL DEPTH 8.476
 TRAIL POS. = -8.12

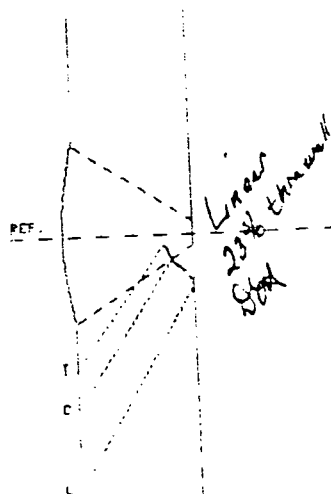
% WALL = 15

48316.5816

RPT # = 85-335
 JOB NO. = IEL-029
 RRA-BJ4A
 IND# 2

BUTL
 SON 3
 25-7-74
 EX.TPR. 8
 NR.T 8.6
 FR.T 8.6
 RT.SET 8.125
 PRP.ANG 33.63886753
 RNF 8.86
 L.ANG 68
 C.ANG 57
 T.ANG 54
 L.POS 1.328125
 C.POS 8.821875
 T.POS 8.71875
 L.H.P. 1.25
 C.H.P. 8.91
 T.H.P. 8.79

SCALE 1



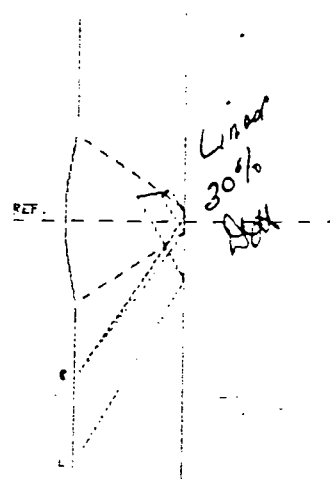
LEAD 58% MAX.P.T. = 62% DDC
 LEAD DEPTH 8.555
 LEAD.POS. = -8.21
 CENTER MAX.P.T. = 128% DDC
 CENTER DEPTH 8.466
 CENTER.POS. = -8.157
 TRAIL 58% MAX.P.T. = 68% DDC
 TRAIL DEPTH 8.464
 TRAIL.POS. = -8.877
 X WALL = 15

48317.8225

RPT # = 85-335
 JOB NO. = IEL-029
 RRA-BJ4A
 IND# 3

BUTL
 SON 4
 24-7-78 > 32-1-72
 EX.TPR. 8
 NR.T 8.55
 FR.T 8.55
 RT.SET 8.125
 PRP.ANG 33.63886753
 RNF 8.86
 L.ANG 68
 C.ANG 57
 T.ANG 54
 L.POS 1.265625
 C.POS 8.826125
 T.POS 8.828125
 L.H.P. 1.53
 C.H.P. 1.16
 T.H.P. 1.16

SCALE 1



LEAD 58% MAX.P.T. = 58% DDC
 LEAD DEPTH 8.385
 LEAD.POS. = 8.113
 CENTER MAX.P.T. = 188% DDC
 CENTER DEPTH 8.466
 CENTER.POS. = 8.147
 TRAIL 58% MAX.P.T. = 58% DDC
 TRAIL DEPTH 8.418
 TRAIL.POS. = 8.113
 X WALL = 38

48317.8646

WELD NUMBER RRB-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

LMT-UTC-1 1/83

Location DAEC
Cal. No. KH-012 Time 0925
Job No. TEL-029
Date 3/20/85
Page 1 of 5

REPORT OF ULTRASONIC CALIBRATION

S
I
G
N

Examiner/Level Kenn Hall II Examiner/Level John Mathis II Review/Level Donald Henry III
Authorized Inspector N.M. Duggan 5/22/85 Customer Larry A. R...

E
Q
U

Instrument NORTEC 131-D S/N 417 ReCal Due 6-11-85 Cable 6' COAX
Recorder GULTON TR-722 S/N 2091003 ReCal Due 4-4-85
Recorder LMT SLAVE S/N 2 ReCal Due 5-14-85
Vertical Linearity Check Check Completed KLH

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	45	41	35	31	25	20	16	9	4

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scale

P

Attenuator Linearity Check Check Completed KLH

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	<u>XXX</u>	<u>41</u>	<u>20</u>	<u>XXX</u>	<u>78</u>	<u>XXX</u>	<u>76</u>

Signal amplitude must fall within listed values

E
N
T

Transducers

S/N NA1299 Mfg. H'Sonic Type SW Size 1/2 x 1/2 Freq. 2.25MHz Index ✓ Angle 44°
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA

P
R
O
C

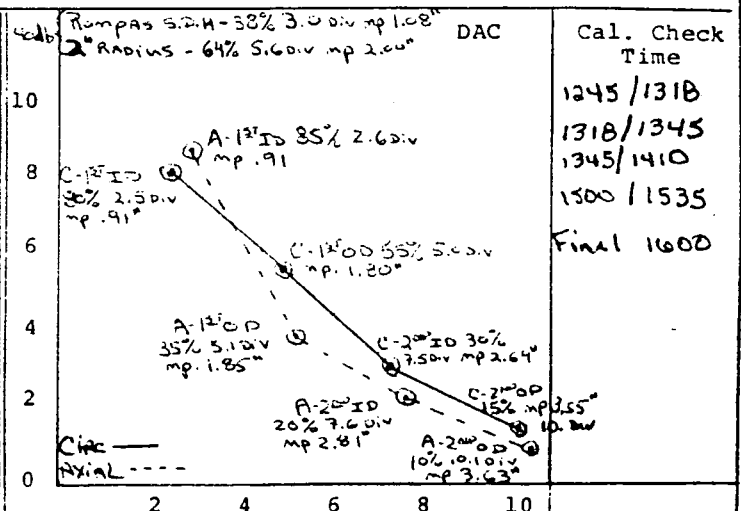
Procedure UT-10 Rev. 11 F.C. #8 Date 11-12-82

C
A
L
I
B
R
A
T
I
O
N

Cal. Block Type PIPE SEG S/N 651345 Ref. Refl. ID NOTCH Temp. 78°F
Verification/Ref. Blk. Rompas S/N 044 Ref. Refl. SDH/2" RADIUS Temp. 78°F

Instrument Settings

	<u>L</u>	<u><</u>	Digital
Gain	<u>NA</u>	<u>C-46/A-50</u>	<u>1" = 1.00</u>
Sweep	<u>NA</u>	<u>10-933</u>	<u>4" = 4.00</u>
Delay	<u>NA</u>	<u>1-036</u>	<u>NA</u>
Reject	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Damp.	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Freq.	<u>NA</u>	<u>2.25MHz</u>	<u>NA</u>
Video	<u>NA</u>	<u>(-)</u>	<u>NA</u>
REP. RATE	<u>NA</u>	<u>1K</u>	<u>NA</u>



Lambert • MacGill • Thomas, Inc.

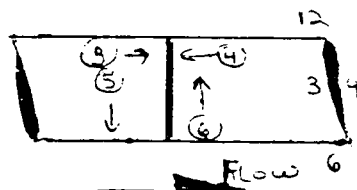
Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC
Report No. 85-332
Cal. No. KH-012 Time 12:45
Job No. IEL-029
Date 3-20-85
Page 1 of 15

Post-IHSI

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

I T E M	Description <u>P/P</u> Size <u>10"</u> Material <u>S.S</u> S/N(s) <u>RAB-B-J4A</u>								
	Location <u>DRIVEWELL</u> Preparation <u>AS FOUND</u> Temp <u>102°F</u>								
S I G N	Examiner/Level <u>Kenn Hall II</u> Examiner/Level <u>Vicki Mathe I</u> Review/Level <u>Donald Hamy III</u>								
	Authorized Inspector <u>WMM Douglas 4/12/85</u> Customer <u>Thyng A. R. 3/2/85</u>								
E Q U I P M E N T	Tester 1 <u>NORTEC 121-D</u> S/N <u>417</u> 2 <u>LMT SLAVE</u> S/N <u>2</u>								
	Recorder 1 <u>Gulton TR-722</u> S/N <u>2041003</u> 2 <u>NA</u> S/N <u>NA</u>								
	Transducer 1 <u>1A249, Hismic 1/2" 2.25MHz, SW</u> 2 <u>NA</u>								
	3 <u>NA</u> 4 <u>NA</u>								
	Couplant <u>LMT GEL</u> Cable <u>6' COAX</u> Marker <u>NA</u> Photo <u>NA</u>								
P R O C	Calibration Procedure <u>UT-10</u> Rev. <u>11 F.C. #8</u>								
	Examination Procedure <u>UT-10</u> Rev. <u>11 F.C. #8</u>								
	Recording Procedure <u>UT-6</u> Rev. <u>2</u>								
C A L I B	Calib. Blk. <u>G51345</u> Temp. <u>78°F</u> Ref. ID <u>NA</u> Amp. <u>50%</u> Sweep <u>2.5 Div</u>								
	Ref. Gain <u>C-46/A-55</u> Damp. <u>OFF</u> Reject <u>OFF</u> Gate <u>2-10</u>								
	Alarm <u>NA</u> Mag. Tape Count <u>NA</u> Chart <u>ATTACHED</u> Cal. Check Time <u>13:18</u>								
E X A M I N A T I O N	LMT Ramps Cal. Ref. Blk. <u>044</u> Ref. Refl. <u>SDR 1/2" Radius</u> Amp. <u>35%/64%</u> Sweep Position <u>3.0 / S.C Div</u>								
	Scan Gain <u>5.0 / A-56</u> Ref. Dwg. <u>ISS 122</u> Reject Level <u>ASME XI</u> Report Level <u>ASME XI</u>								
	NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples								
	Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
	0	PT	NA						
	1	Visual	NAD	7			13		
	2	Base Metal	NA	8			14		
	3	II W/Flow	G/L	9	NA		15	NA	
	4	II A/Flow	NAD	10			16		
	5	II C.W	NAD	11			17		
6	II C.C.W	NAD	12			18			
			Scan	Description of Indications					
			3	ID GEO. greater than 50% DAC.					
			4	ID + OD GEO. Less than 50% DAC					
			(3)	Linear - SEE NRI-007 BOM					
			Pre-IHSI report # 85-253: Only noted change due to possible position of the threshold level. <u>OK</u>						
ELEV. VIEW sketch			(SEE DATA SHEET)						



WELD # RRB-BJ4A

[illegible]

REPORT # 85-332
PAGE 2 of 15

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. W6D $Q(wb)$; TDC/output RANGE(Q)

L's: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L_o); WELD Q (w_b)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Job
Location DAEC
Report NONRI-007
Exam Date 3/20/85

NOTIFICATION OF REPORTABLE INDICATION

Page 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRB-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐

Linear (Circ) - 25% thruwall as measured from sketch, extends from 5 1/4" to 8 1/2" on pwp side (J4 side). Indication re-evaluated after review of strip charts and plots. Rework performed by D Harvey (4/3/85)
See back

Examination Reference:

ISI Rpt. # 85-332

Signature of Examiner/Certif. Level

Date:

Donald Hamer / III

4/3/85

Signature of LMT Field Supervisor

Date:

Donald Hamer

4/3/85

Notification Acknowledged by

Date:

Client Representative: *Harry A. Rung*

4/4/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐)

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

WELD # RRB-B-J4A

[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (Wb); TDC/OUTER RADIUS (Lo)]

LAMBERT, MacGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

JOB _____

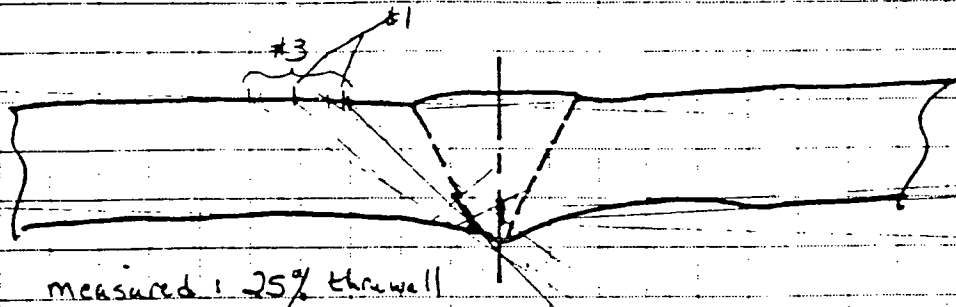
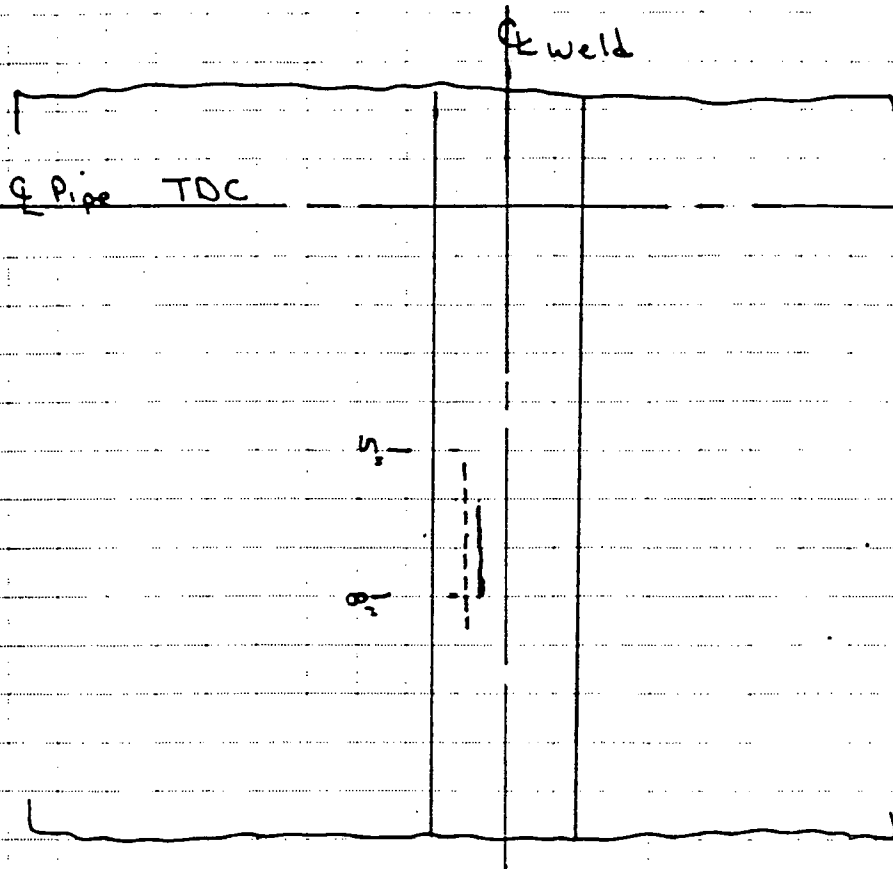
SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

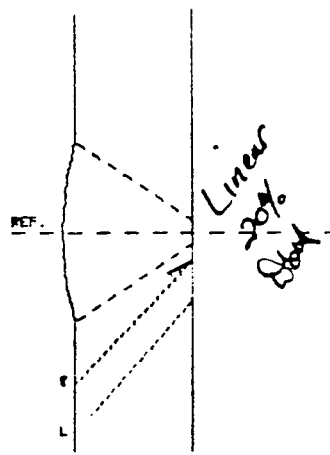
RRB-BJ4A



RPT # = 85-335²
 JOB NO. = IEL-029
 RRB-BJ4A
 IND# 1

BUTT
 SON 3
 6778
 EX. IPR. 8
 MR. I 8.6
 PR. I 8.6
 RT. SET 8.125
 PRF. ANG 22.6388675J
 RNF 8.865
 L. ANG 45
 C. ANG 47
 T. ANG 47
 L. POS 1.846875
 C. POS 8.756875
 T. POS 8.756875
 L.N.P. 1.1
 C.N.P. 8.88
 T.N.P. 8.88

SCALE 1



LEAD 50% MAX. PT. = 25% DAC
 LEAD DEPTH 8.428
 LEAD POS. = -8.215

CENTER MAX. PT. = 50% DAC
 CENTER DEPTH 8.6
 CENTER POS. = -8.151

TRAIL 50% MAX. PT. = 25% DAC
 TRAIL DEPTH 8.6
 TRAIL POS. = -8.151

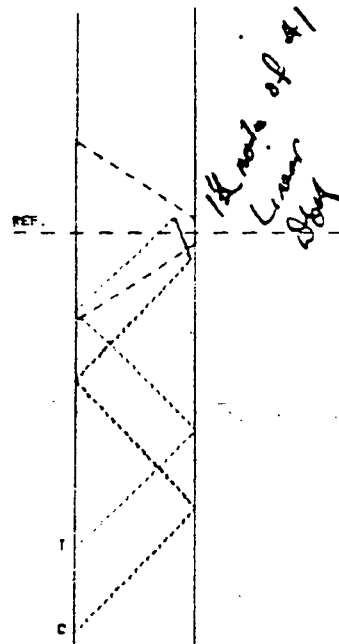
% WALL = 20

48215.4255

RPT # = 85-335²
 JOB NO. = IEL-029
 RRB-BJ4A
 IND# 1a

BUTT
 SON 3
 6778
 EX. IPR. 8
 MR. I 8.6
 PR. I 8.6
 RT. SET 8.125
 PRF. ANG 22.6388675J
 RNF 8
 L. ANG 47
 C. ANG 47
 T. ANG 45
 L. POS 2.8625
 C. POS 2.8625
 T. POS 1.625
 L.N.P. 2.61
 C.N.P. 2.61
 T.N.P. 2.38

SCALE 1



LEAD 50% MAX. PT. = 55% DAC
 LEAD DEPTH 8.58
 LEAD POS. = -8.154

CENTER MAX. PT. = 118% DAC
 CENTER DEPTH 8.58
 CENTER POS. = -8.154

TRAIL 50% MAX. PT. = 30% DAC
 TRAIL DEPTH 8.45
 TRAIL POS. = 8.865

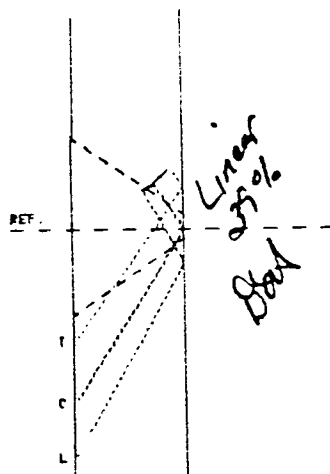
% WALL = 15

48215.3943

RPT # = 85-335²
 JOB NO. = IEL-029
 RRB-BJ4A
 IND# 2

BUTT
 SCH 4
 SET > 0-1/2
 EX. TPR. 8
 MR. T 8.58
 PR. T 8.58
 RT. SEP 8.125
 PRP. ANG 33.65886753
 RNF 8
 L. ANG 68
 C. ANG 57
 T. ANG 54
 L. POS 1.283125
 C. POS 8.921875
 T. POS 8.685375
 L.N.P. 1.55
 C.N.P. 1.35
 T.N.P. 1.11

SCALE 1



LEAD 58% MAX. PT. = 58% DAC
 LEAD DEPTH 8.365
 LEAD. POS. = 8.174

CENTER MAX. PT. = 188% DAC
 CENTER DEPTH 8.425
 CENTER. POS. = 8.21

TRAIL 58% MAX. PT. = 58% DAC
 TRAIL DEPTH 8.588
 TRAIL. POS. = 8.283

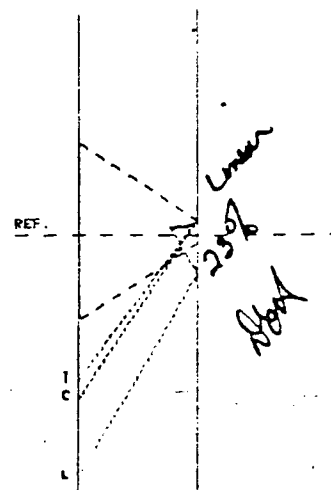
X WALL = 25

48316.1728

RPT # = 85-335²
 JOB NO. = IEL-029
 RRB-BJ4A
 IND# 3

BUTT
 SCH 3
 SET > 0-1/2
 EX. TPR. 8
 MR. T 8.6
 PR. T 8.6
 RT. SEP 8.125
 PRP. ANG 33.65886753
 RNF 8
 L. ANG 68
 C. ANG 57
 T. ANG 54
 L. POS 1.265625
 C. POS 8.853375
 T. POS 8.765625
 L.N.P. 1.48
 C.N.P. 1.87
 T.N.P. 1

SCALE 1



LEAD 58% MAX. PT. = 45% DAC
 LEAD DEPTH 8.46
 LEAD. POS. = 8.816

CENTER MAX. PT. = 58% DAC
 CENTER DEPTH 8.583
 CENTER. POS. = 8.829

TRAIL 58% MAX. PT. = 45% DAC
 TRAIL DEPTH 8.588
 TRAIL. POS. = 8.843

X WALL = 21

48316.124

WELD NUMBER RRE-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Cal. No. DR-020 Time 0950

Job No. TEL-029

Date 3-27-85

Page 1 of +5

REPORT OF ULTRASONIC CALIBRATION

S
I
G
N

Examiner/Level J. J. R. / II Examiner/Level Jessie Hunt II Review/Level J. J. R. III
Authorized Inspector J. J. R. / 5/22/85 Customer W. A. B. / 4/4/85

Instrument NORTEC 131-D S/N 311 ReCal Due 4-22-85 Cable 6' WAX
Recorder GILSON TR-722 S/N 8082502 ReCal Due 8-5-85
Recorder LMT SLAVE S/N 19 ReCal Due 4-29-85
Vertical Linearity Check Check Completed OK

U

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	48	45	40	35	30	26	20	16	12	6

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scale

I

Attenuator Linearity Check Check Completed OK

M

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	<u>XXX</u>	<u>43</u>	<u>23</u>	<u>XXX</u>	<u>66</u>	<u>XXX</u>	<u>74</u>

Signal amplitude must fall within listed values

E

Transducers

N

S/N 52285 Mfg. H'SONIC Type SW Size 1/2 x 1/2 Freq. 1.5 MHz Index OK Angle 45°
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA

P

Procedure UT-10 Rev. 11 F.C. #8 Date 11-12-82

C

Cal. Block Type PIPE SEG S/N 651345 Ref. Refl. ID NOTCH Temp. 85°F
Verification/Ref. Blk. LMT Rumpas S/N 044 Ref. Refl. SDH/2" Temp. 85°F

A

L

I

B

R

A

T

I

O

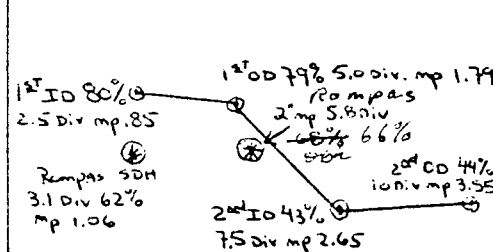
N

Instrument Settings

	<u>L</u>	<u><</u>	Digital
Gain	<u>NA</u>	<u>46db</u>	<u>1" = 1.00</u>
Sweep	<u>NA</u>	<u>5-826</u>	<u>4" = 4.00</u>
Delay	<u>NA</u>	<u>1-430</u>	<u>NA</u>
Reject	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Damp.	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Freq.	<u>NA</u>	<u>1 MHz</u>	<u>NA</u>
Video	<u>NA</u>	<u>(-)</u>	<u>NA</u>
Rep. Rate	<u>NA</u>	<u>1K</u>	<u>NA</u>

DAC

Cal. Check
Time



1118/1200
1355/1430
1450/1535
1550/1615
1615/1645
1652 (Final)

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC
Report No. 85-370
Cal. No. DR-020 Time 1450
Job No. TEL-029
Date 3-27-85
Page 1 of 18

Post 1 HSI

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

I T E M	Description <u>Pipe / p.p.e</u> Size <u>10"</u> Material <u>S/S</u> S/N(s) <u>RRE-BJ4A</u>		
	Location <u>Dry well</u> Preparation <u>as found</u> Temp <u>105°F</u>		
S I G N	Examiner/Level <u>Paul R. Smith</u> Examiner/Level <u>George Davis</u> Review/Level <u>S. J. Thomas</u>		
	Authorized Inspector <u>W. W. D. 4/17/85</u> Customer <u>Lang A. R. 4/4/85</u>		
E Q U I P M E N T	Tester 1 <u>Nortec 131D</u> S/N <u>311</u> 2 <u>LMT SLAVE</u> S/N <u>19</u>		
	Recorder 1 <u>EAUTON</u> S/N <u>8082502</u> 2 <u>NA</u> S/N <u>NA</u>		
	Transducer 1 <u>S2285, SW, 1/2 x 1/2, 1/2 m4 2 1/2</u> S/N <u>NA</u>		
	3 <u>NA</u> 4 <u>NA</u>		
	Couplant <u>LMT GEL</u> Cable <u>6' COZY</u> Marker <u>NA</u> Photo <u>NA</u>		
P R O C	Calibration Procedure <u>UT 10</u>		Rev. <u>11 FCF#8</u>
	Examination Procedure <u>UT 10</u>		Rev. <u>11 FCF#8</u>
	Recording Procedure <u>UT 6</u>		Rev. <u>2</u>
C A L I B	Calib. Blk. <u>PIPE SEG 651345</u> Temp. <u>85°F</u> Ref. ID Notch Amp. <u>80%</u> Sweep <u>2.5 DIV.</u>		
	Ref. Gain <u>46 db</u> Damp. <u>OFF</u> Reject <u>OFF</u> Gate <u>2-10 DIV.</u>		
	Alarm <u>NA</u> Mag. Tape Count <u>NA</u> Chart <u>ATTACHED</u> Cal. Check Time <u>1535</u>		
E X A M I N A T I O N	Cal. Ref. Blk. <u>Rampas SDH 62%</u> Ref. Refl. <u>2" m.p.</u> Amp. <u>66%</u> Sweep Position <u>3.1 DIV</u>		
	Scan Gain <u>52 db</u> Ref. Dwg. <u>ISO 120</u> Reject Level <u>ASME XI</u> Report Level <u>ASME XI</u>		
	NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples		
	Scan	Type	Disp.
	0	PT	N/A
	1	Visual	NAD
	2	Base Metal	N/A
	3	L W/FLOW	PO. & L
	4	L A/FLOW	G
	5	11 CW	NAD
6	11 CCW	NAD	
ELEV VIEW Sketch			
Scan	Description of Indications		
3	see attached data sheet for Disp ALSO O.D Geometry less than 50%		
4	see attached data sheet for Disp		
See NRI-011 Box			

WELD # RRE-B-J4A

[illegible]

REPORT # 85-370
PAGE 2 of 18

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (w_b); TDC/OUTER RADIUS (L_o)
1' = DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L_o); WELD Q (w_b)

WELD # RRE-B-J4A ReLook

REPORT # 85-370
PAGE 5 of 18

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WGLD (Wb); TDC/OUTER RINGS (Lo)]

COMPUTED BY A PROGRAM OF THE TCM INTERPOLATION (1) * 1) FID G (u)



Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC
Report No NRI-011
Exam Date 3/15/85

NOTIFICATION OF REPORTABLE INDICATION

Page 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRE-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐

Linear - 57% thru wall as measured from sketch, extending from 18 $\frac{5}{8}$ " to 22"

Evaluation completed by D. Harvey after review of Pre-THSI strip charts. Flaw located in gap piece (J4 side).

Examination Reference:

ISI Rot # 85-306

Signature of Examiner/Certif. Level

Date:

Donald E. Hamer

4/6/85

Signature of LMT Field Supervisor

Date:

Donald E. Hamer

4/6/85

Notification Acknowledged by

Date:

Client Representative: Harry A. Brumgar

4/6/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐

COPY

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

LAMBERT, MacGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

JOB LCL-027

SHEET NO

OF

CALCULATED BY

D. Hamby

DATE

4/5/85

CHECKED BY

DATE

SCALE

None

RRE-BJ4A

Pipe 0900
0900

22-

45°

14-

5600

Weld

FLOW

Q @ 21"

EJ41

57% thru well

COPY

REPORT # NRI 011
PAGE 2 of 5

WELD # BRE-BJ4A (Rehook/Evaluation)

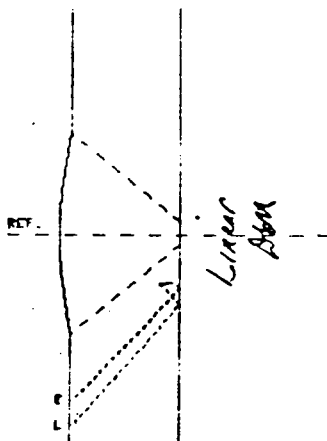
[illegible]

* W_{TDC} : DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD (Wb); TDC/OUTER RADIUS]

RPT # = 85-370
 JOB NO. = IEL-029
 RRC-BJ4A
 IND# 1 (RELOOK-45)

RUT
 SCN 3
 IS > 21-7/8
 EX. IPR. 8
 NO. 1 8.56
 PR. 1 8.56
 RT. SEP 8.125
 PRP. ANG 28.7843641
 RNF 8.86
 L. ANG 46
 C. ANG 46
 T. ANG 46
 L. POS 1
 C. POS 8.675
 T. POS 8.675
 L. N. P. 8.98
 C. N. P. 8.85
 T. N. P. 8.85

SCALE 1



LEAD 58% MAX. PT. = 58% DAC
 LEAD DEPTH 8.464
 LEAD POS. = -8.27

CENTER MAX. PT. = 188% DAC
 CENTER DEPTH 8.53
 CENTER POS. = -8.262

TRAIL 58% MAX. PT. = 58% DAC
 TRAIL DEPTH 8.53
 TRAIL POS. = -8.262

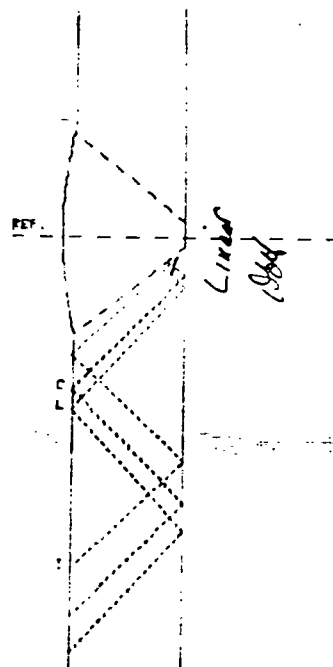
% WALL = 12

48515.541

RPT # = 85-370
 JOB NO. = IEL-029
 RRC-BJ4A
 IND# 1a

RUT
 SCN 3
 IS > 21-7/8
 EX. IPR. 8
 NO. 1 8.56
 PR. 1 8.56
 RT. SEP 8.125
 PRP. ANG 28.7843641
 RNF 8.86
 L. ANG 46
 C. ANG 46
 T. ANG 46
 L. POS 2.15625
 C. POS 1.96875
 T. POS 1.71875
 L. N. P. 2.61
 C. N. P. 2.49
 T. N. P. 2.3

SCALE 1



LEAD 58% MAX. PT. = 58% DAC
 LEAD DEPTH 8.454
 LEAD POS. = -8.216

CENTER MAX. PT. = 188% DAC
 CENTER DEPTH 8.51
 CENTER POS. = -8.177

TRAIL 58% MAX. PT. = 58% DAC
 TRAIL DEPTH 8.534
 TRAIL POS. = -8.12

% WALL = 2

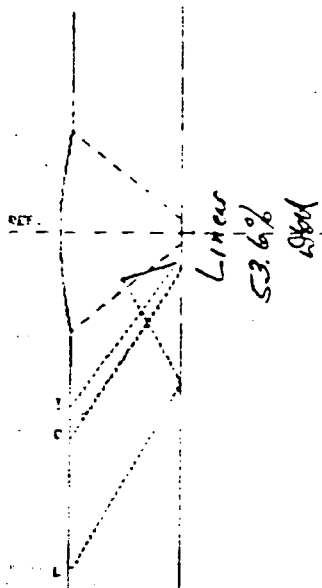
48515.541
 COPY

REPORT # NRI-011
 PAGE 4 of 5

RPT # = 85-370
 JOB NO. = 1EL-029
 RRC-BJ4A
 IND# 2

BUT1
 SCN 3
 IS > 22
 EX. IPR. 8
 MP. 1 8.56
 PP. 1 8.56
 RT. SET 8.125
 RPT. ANG 28.7843641
 L. ANG 60
 C. ANG 57
 T. ANG 54
 L. POS 1.75
 C. POS 1.0625
 T. POS 8.38625
 L. N. P. 1.72
 C. N. P. 1.06
 T. N. P. 8.9

SCALE 1



LEAD 58% MAX. PT. = 78.5% DAC
 LEAD DEPTH 8.26
 LEAD POS. = -8.252

CENTER MAX. PT. = 141% DAC
 CENTER DEPTH 8.543
 CENTER POS. = -8.172

TRAIL 58% MAX. PT. = 78.5% DAC
 TRAIL DEPTH 8.529
 TRAIL POS. = -8.176

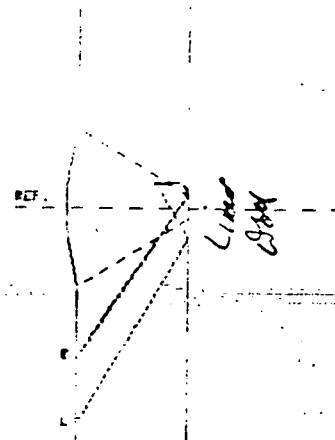
% WALL = 51

48516.8527

RPT # = 85-370
 JOB NO. = 1EL-029
 RRC-BJ4A
 IND# 3

BUT1
 SCN 4
 IS > 21-1/2
 EX. IPR. 8
 MP. 1 8.56
 PP. 1 8.56
 RT. SET 8.125
 RPT. ANG 22.3
 L. ANG 60
 C. ANG 57
 T. ANG 57
 L. POS 1.125
 C. POS 8.78125
 T. POS 8.78125
 L. N. P. 1.44
 C. N. P. 1.00
 T. N. P. 1.00

SCALE 1



LEAD 58% MAX. PT. = 78.5% DAC
 LEAD DEPTH 8.36
 LEAD POS. = 8.124

CENTER MAX. PT. = 141% DAC
 CENTER DEPTH 8.512
 CENTER POS. = 8.122

TRAIL 58% MAX. PT. = 78.5% DAC
 TRAIL DEPTH 8.512
 TRAIL POS. = 8.122

% WALL = 24

48516.8554

COPY

REPORT # NRI-011
 PAGE 5 of 5

WELD NUMBER RRG-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location DAECCal. No. DR-020 Time 0950Job No. TEL-029Date 3-27-85Page 1 of +5

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level J. S. Ruff Examiner/Level Jessie Hunt IIReview/Level J. J. Hunt IIIAuthorized Inspector J. L. McDowell 5/22/85Customer Jerry H. Bryan 4/4/85E
Q
UInstrument NORTEC 131-D S/N 311 ReCal Due 4-22-85 Cable 6' COAXRecorder Gulton TR-722 S/N 8082502 ReCal Due 8-5-85Recorder LMT SLAVE S/N 19 ReCal Due 4-29-85

Vertical Linearity Check

Check Completed Dkh

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	48	45	40	35	30	26	20	16	12	6

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scaleI
P
M
E
N
T

Attenuator Linearity Check

Check Completed Dkh

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	<u>XXX</u>	<u>43</u>	<u>23</u>	<u>XXX</u>	<u>66</u>	<u>XXX</u>	<u>74</u>

Signal amplitude must fall within listed values

Transducers

S/N S2285 Mfg. H'SONIC Type SW Size 2x1/2 Freq. 1.5MHz Index OK Angle 45°S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAS/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAS/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAP
R
O
CProcedure UT-10 Rev. 11 F.C. #8 Date 11-12-82C
A
L
I
B
R
A
T
I
O
NCal. Block Type PIPE SEG S/N G51345 Ref. Refl. ID NOTCH Temp. 85°FVerification/Ref. Blk. LMT Rumpas S/N 044 Ref. Refl. SDH/2" Temp. 85°F

Instrument Settings

	<u>L</u>	<u>∠</u>	Digital
Gain	<u>NA</u>	<u>46db</u>	<u>1" = 1.00</u>
Sweep	<u>NA</u>	<u>5-826</u>	<u>4" = 4.00</u>
Delay	<u>NA</u>	<u>1-430</u>	<u>NA</u>
Reject	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Damp.	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Freq.	<u>NA</u>	<u>1MHz</u>	<u>NA</u>
Video	<u>NA</u>	<u>(-)</u>	<u>NA</u>
Rep. Rate	<u>NA</u>	<u>1K</u>	<u>NA</u>

DAC

Cal. Check
Time

10

1118/1200

8

1355/1430

6

1450/1535

4

1550/1615

2

1615/1645

0

1652 (Final)

NOTE: AXIAL NOTCHES fell
within 2 db of circ
notches

2 4 6 8 10

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC
Report No. 85-371
Cal. No. DR-020 Time 1550
Job No. IEL-029
Date 3-27-85
Page 1 of 20

POST 11451

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

I T E M	Description <u>P.PE/APE</u> Size <u>10"</u> Material <u>S/S</u> S/N(s) <u>PRG-13-J4A</u>																																																																								
	Location <u>DRYWELL</u> Preparation <u>as found</u> Temp <u>105°F</u>																																																																								
S I G N	Examiner/Level <u>J. H. Pelt</u> Examiner/Level <u>George Davis</u> Review/Level <u>E. J. Thomas</u>																																																																								
	Authorized Inspector <u>W. M. O'Donnell</u> 4/17/85 Customer <u>Lang A. Rangan</u> 4/14/85																																																																								
E Q U I P M E N T	Tester 1 <u>NOTEC 131 D</u> S/N <u>311</u> 2 <u>LANT SLAVE</u> S/N <u>19</u>																																																																								
	Recorder <u>LG-4700 T12722S/N</u> <u>5052502</u> 2 <u>N/A</u> S/N <u>N/A</u>																																																																								
	Transducer 1 <u>52185 PDC</u> <u>5052502</u> 2 <u>N/A</u>																																																																								
	3 <u>N/A</u> 4 <u>N/A</u>																																																																								
	Couplant <u>LANT-100</u> Cable <u>6' COAX</u> Marker <u>N/A</u> Photo <u>N/A</u>																																																																								
P R O C	Calibration Procedure <u>UT 10</u> Rev. <u>11 FCES</u>																																																																								
	Examination Procedure <u>UT 10</u> Rev. <u>11 FCES</u>																																																																								
	Recording Procedure <u>UT 6</u> Rev. <u>2</u>																																																																								
C A L I B	Calib. Blk. <u>P.PE S/S</u> Temp. <u>85°F</u> Ref. <u>EDNRL</u> Amp. <u>50%</u> Sweep <u>2.5 DIV</u>																																																																								
	Ref. Gain <u>44 dB</u> Damp. <u>OFF</u> Reject <u>OFF</u> Gate <u>2-10 DIV</u>																																																																								
	Alarm <u>N/A</u> Mag. Tape Count <u>N/A</u> Chart <u>attached</u> Cal. Check Time <u>1615</u>																																																																								
E X A M I N A T I O N	Cal. Ref. Blk. <u>4M-100</u> Ref. Refl. <u>2" MAG</u> Amp. <u>60%</u> Sweep Position <u>5 & 8 DIV</u>																																																																								
	Scan Gain <u>52 dB</u> Ref. Dwg. <u>150-125</u> Reject Level <u>ASME XI</u> Report Level <u>ASME XI</u>																																																																								
	NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M' = Multiples																																																																								
	<table border="1"> <thead> <tr> <th>Scan</th> <th>Type</th> <th>Disp.</th> <th>Scan</th> <th>Type</th> <th>Disp.</th> <th>Scan</th> <th>Type</th> <th>Disp.</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>PT</td> <td>N/A</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>Visual</td> <td>AND</td> <td>7</td> <td></td> <td></td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Base Metal</td> <td>N/A</td> <td>8</td> <td></td> <td></td> <td>14</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>L W/FLOW</td> <td>L</td> <td>9</td> <td></td> <td></td> <td>15</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>L A/FLOW</td> <td>G</td> <td>10</td> <td></td> <td></td> <td>16</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>II CW</td> <td>NAD</td> <td>11</td> <td></td> <td></td> <td>17</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>II CCW</td> <td>NAD</td> <td>12</td> <td></td> <td></td> <td>18</td> <td></td> <td></td> </tr> </tbody> </table>		Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.	0	PT	N/A							1	Visual	AND	7			13			2	Base Metal	N/A	8			14			3	L W/FLOW	L	9			15			4	L A/FLOW	G	10			16			5	II CW	NAD	11			17			6	II CCW	NAD	12			18	
Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.																																																																	
0	PT	N/A																																																																							
1	Visual	AND	7			13																																																																			
2	Base Metal	N/A	8			14																																																																			
3	L W/FLOW	L	9			15																																																																			
4	L A/FLOW	G	10			16																																																																			
5	II CW	NAD	11			17																																																																			
6	II CCW	NAD	12			18																																																																			
	ELEV VIEW Sketch																																																																								
	Scan	Description of Indications																																																																							
	3	See attached Data sheets pages 4 Thru 9 for Disp.																																																																							
	4	See NRI-005 and I.D.O.D Geometry Less Than 50% DAC																																																																							

WELD # RRG-B-J4A

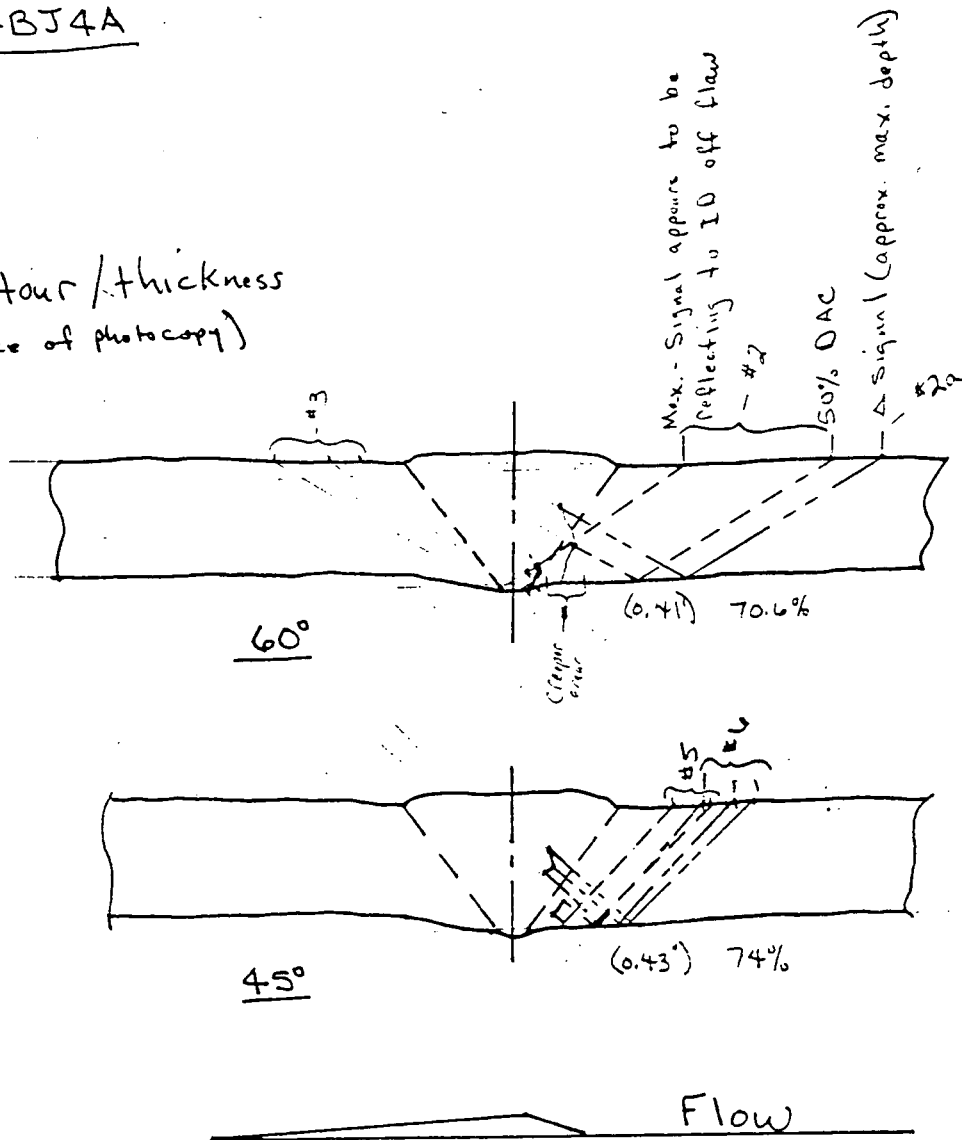
[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WGLD (Wb); TDC/OUTER RADIUS (10

L's: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/ARTERRADIUS (L); WELD Q (W₀)

RRG-BJ4A

Contour / thickness
(Trace of photocopy)



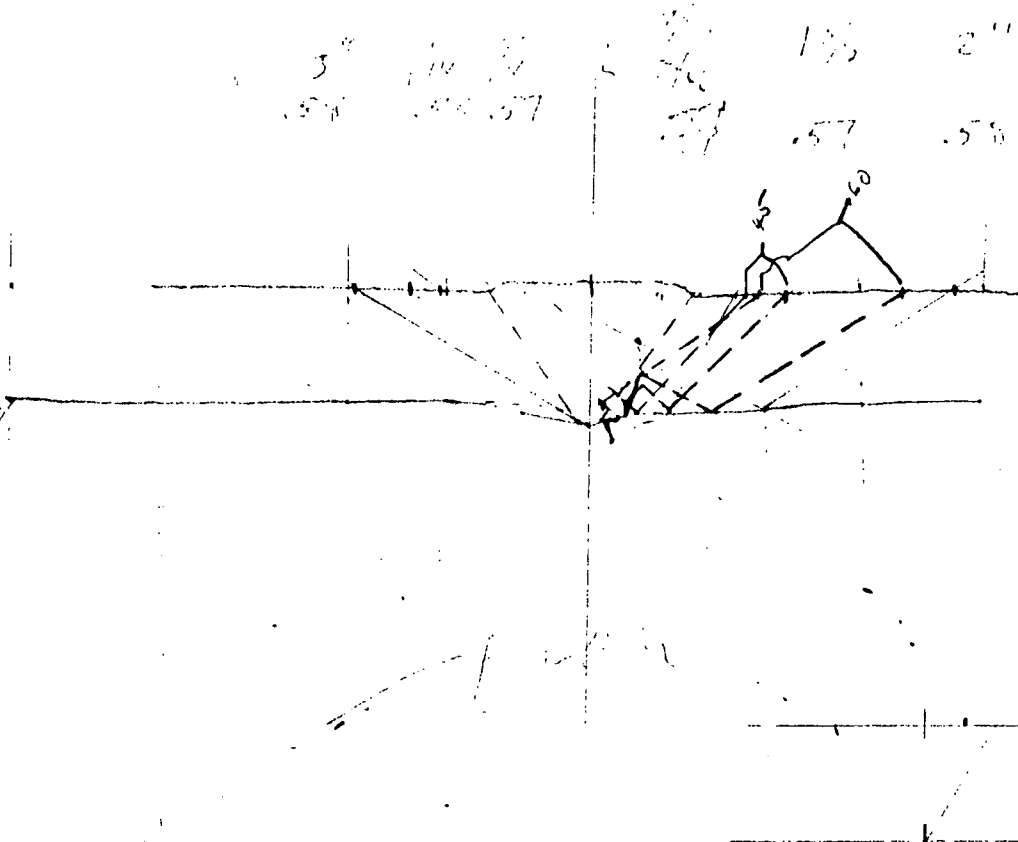
00000070339

Photo-copy of original - contour/thickness @ 271
 204

CV-EXP-1450

max Edge to Edge 3 $\frac{1}{16}$
 — Edge to notch 3 $\frac{1}{64}$

3" 10 1/4 1 1/2 2"
 .57 .57 .57 .57



10 1/4 1 1/2
 .57 .57 .57 .57

34
 10 1/4
 1 1/2
 2 3/4

WELD # RRG-BJ4A (ReLook/Evaluation)

85-371

INDICATION #	SCAN DIRECTION	% DAC	M P's			W's *			L's *			REMARKS
			Toward	Max	Away	Toward	Max	Away	L ₁	MAX.	L ₂	
1	Creep 3	N/A	—	—	—	—	10 ¹ / ₃₂ * Butted	—	—	27"	—	* & to Front of xducer Butted - not max. (A)
2	3 (60°)	316%	NR	Butted 1.00	1.57	N/A	55 ¹ / ₆₄	159 ¹ / ₆₄	26 1/4"	27"	29 3/8"	Linear
	Similar indications to #2 @ :								16 1/2 30 1/2"	N/A	22 3/4 33 1/2	No max readings on thru-wall only L ₁ -L ₂ - due to exposure. additional check for possible thru wall.
2.a	3 (60°)	316%	N/A	Butted 1.00	1.95	N/A	55 ¹ / ₆₄	155 ¹ / ₆₄	26 1/4"	27"	29 1/8"	
3	4 (60°)	316%	Butted 1.14	1.23	1.54	51 ¹ / ₆₄	21 1/32 22 1/64	15 ¹ / ₆₄	25 7/8"	27"	30"	Linear
	Similar indications to #3 @ :								18 1/2" 30 1/2"	N/A	23 33"	same as #2 above.
4	4 (45°)		N/A	3.40	N/A	—	2 31 ¹ / ₆₄	—	—	27"	—	Info only OD - 600.
5	3 (45°)	115	N/A	Butted .92	1.06	N/A	13 ¹ / ₁₆	1	25 1/2"	27"	33 1/2"	Linear (Same as #2)
	Similar indications to #5 @ :								18"	N/A	20 1/2"	
6	3 (45°)	25	1.27	1.32	1.45	31 ¹ / ₃₂	1 1/8	1 1/32	—	27"	—	Signal behind #5 Linear (Upper portion #5)
6a	3 (45°)	—	2.37	2.46	Butted	1 3/4"	1 25 ¹ / ₃₂ "	Butted	—	27"	—	Linear (1 1/2 Node #6)
REPORT # 85-371 PAGE 6 of 90												
(A) Creeper (max) on cal block @ 13 ¹ / ₆₄ ahead of front of xducer.												

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (W₀); TDC/OUTER RADIUS (L₀); WELD Q (W₀)]

11. DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L₀); WELD Q (W₀)]

Lambert • MacGill • Thon • Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Job
Location DAEC

Report No NRI-005

Exam Date 3/27/85

NOTIFICATION OF REPORTABLE INDICATION

Page 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRG-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐)

Linear - 74% Thru-wall extending from approximately 25 1/2" to 33 1/2" from TDC.
A 70.6% thru-wall flaw detected in same region with 60° extending from 26 1/4" to 29 3/8". Flaw on upstream side (near J4). Similar indications appear @: 16 1/2" - 22 3/4"; 30 1/2" - 33 1/2" using 60° beam and 18" - 20 1/2" using 45°.

Examination Reference:

ISI Rpt. # 85-371

Signature of Examiner/Certif. Level

Date:

D. P. B. R. S. / II

4/2/85

Signature of LMT Field Supervisor

Date:

Donald E. Hamer / III

4/2/85

Notification Acknowledged by

Date:

Client Representative:

Harry A. Rangan

4/2/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐)

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

COPY

LAMBERT, MacGILL, THOMAS, INC.

771 East Brokaw Road
SAN JOSE, CALIFORNIA 95112
(408) 297-8766

JOB IEL-02A

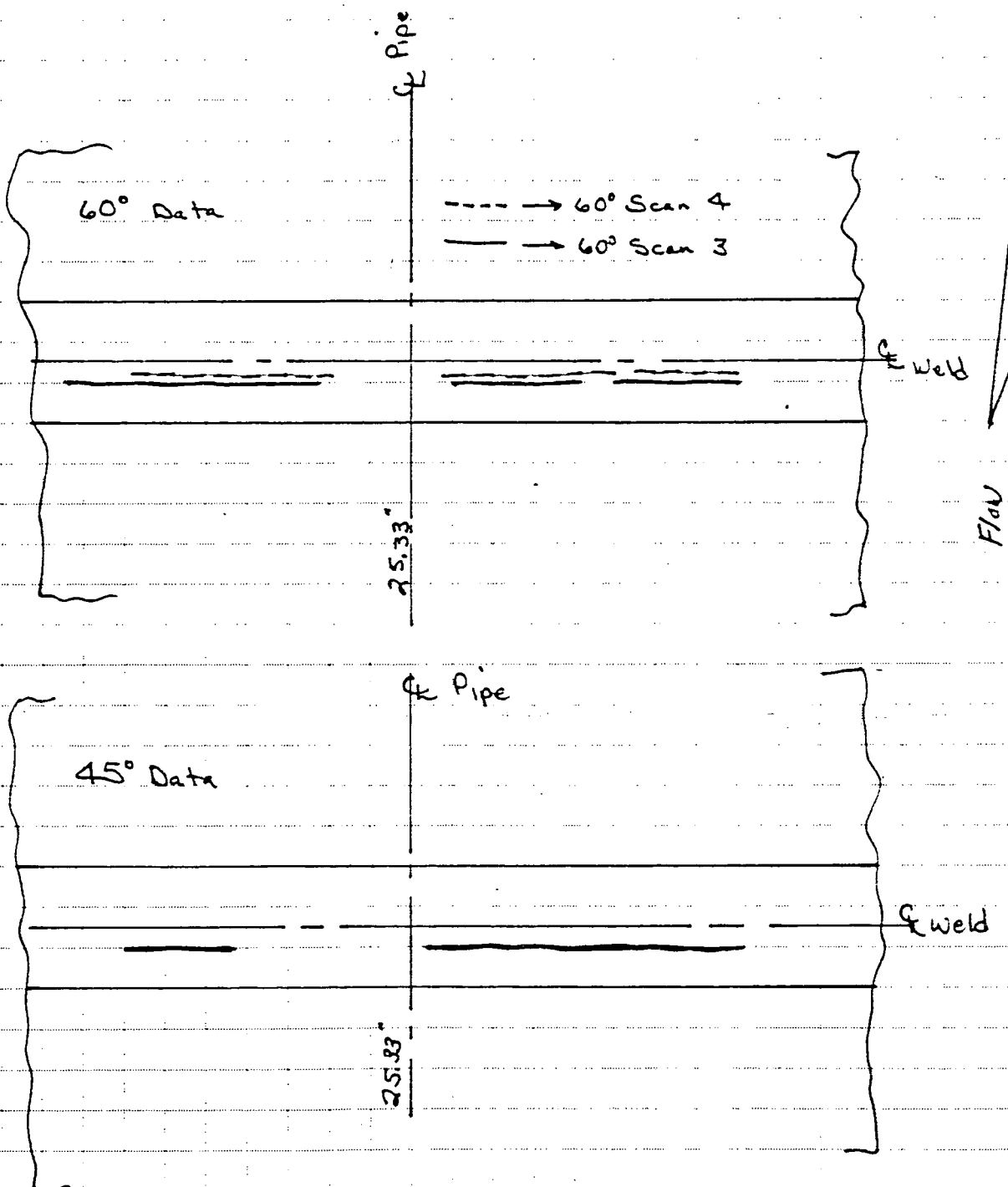
SHEET NO _____ OF _____

CALCULATED BY D. Hamley DATE 4/2/85

CHECKED BY _____ DATE _____

SCALE None

RRG-BJ4A



NRI-005
Page 2 of 5

LAMBERT, MacGILL, THOMAS, INC.

771 East Brokaw Road
SAN JOSE, CALIFORNIA 95112
(408) 297-8766

JOB IEL-029

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

Note:

The pre-IHSI exam (Rpt # 85-312) revealed an area which was evaluated as geometry but was noted for in-depth relook after IHSI. The strip charts indicated the flaw grew in length during the time of pre-to-post IHSI inspection.

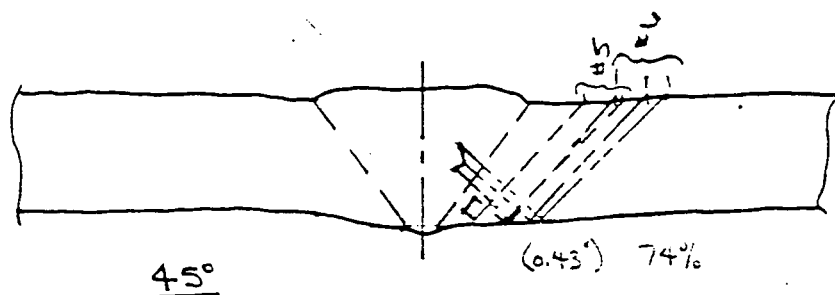
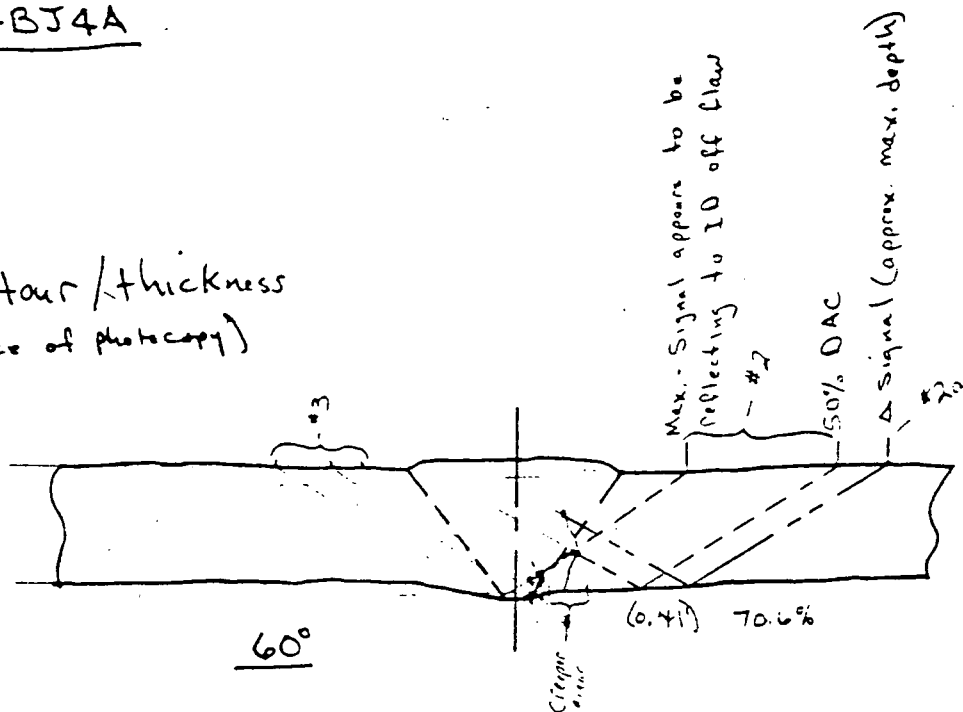
A review of the report from 1983 inspection showed no indications in the area as the ones ~~found~~ ^{ion} found in the Pre- and Post-IHSI inspection.

D. Haney

NRI-005
Page 3 of 5

RRG-BJ4A

Contour / thickness
(Trace of photocopy)



Flow

NRI-005
Page 4 of 5

COPY

REPORT# 85-371
PAGE 4 of 20

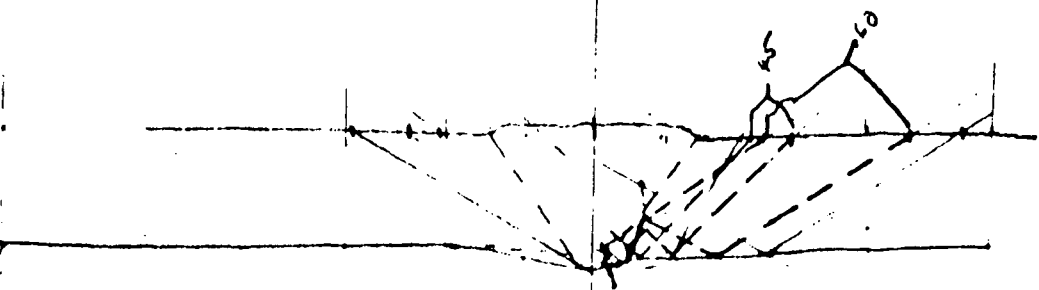
Photo-copy of original - contour/thickness @ 271
 Steel

1

3"	1 1/4"	2 1/2"	1 3/4"	2"
.58	.57	.57	.57	.58

Craper 1450

MAX Edge to Edge 3 1/16"
 — Edge to Notch 3 1/8"



1 1/2"

1 1/2"	1 1/2"	1 1/2"
.57	.57	.57

36
 10
 13
 23
 64

REPORT # 85-371
 PAGE 5 of 5

NRI-005
 Page 5 of 5

WELD NUMBER RRD-J4

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Cal. No. CP-006 Time 1452

Job No. IEL-029

Date 3-7-85

Page 1 of 6

Evaluation Supplement page #6

REPORT OF ULTRASONIC CALIBRATION

S
I
G
N

Examiner/Level Paul B. II Examiner/Level John T. I Review/Level Donald H. III
Authorized Inspector W. P. M. Reynolds 4/22/85 Customer Henry A. Brown 3/11/85

E
Q
U

Instrument Nortec 131D S/N 311 4/29/85 ReCal Due 4-22-85 Cable 6' COX
Recorder GUITON TR722 S/N 8082502 ReCal Due 8-5-85
Recorder N/A S/N N/A ReCal Due N/A
Vertical Linearity Check Check Completed CP

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	46	41	35	30	24	21	15	10	5

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scale

I
P
M
E

Attenuator Linearity Check Check Completed CP

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	☒	40	21	☒	78	☒	78

Signal amplitude must fall within listed values

N
T

Transducers

S/N A-1299 Mfg. H/Sonic Type SW Size 1/2" x 1/2" Freq. 2.5 MHz Index OK Angle 45°
S/N N/A Mfg. N/A Type N/A Size N/A Freq. N/A Index N/A Angle N/A
S/N Mfg. Type Size Freq. Index Angle
S/N Mfg. Type Size Freq. Index Angle

P
R
O
C

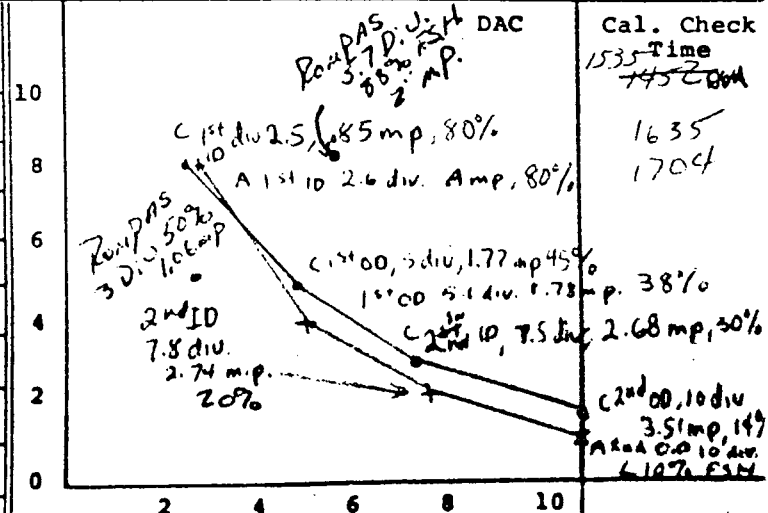
Procedure UT 10 Rev. 11 FC #8 Date 11-12-82

C
A
L
I
B
R
A
T
I
O
N

Cal. Block Type PIPE SEG S/N 651345 Ref. Refl. 10 Notch Temp. 73°F
Verification/Ref. Blk. ROMPDS S/N MT-044 Ref. Refl. SDH 1/2" mp radius Temp. 73°F

Instrument Settings

	<u>L</u>	<u><</u>	Digital
Gain	<u>N/A</u>	<u>AXIAL - 45dB</u> <u>CIRC - 39dB</u>	<u>N/A</u>
Sweep		<u>1/486</u>	<u>1" = 1.00</u> <u>1" = 2.00</u>
Delay		<u>10/644</u>	<u>N/A</u>
Reject		<u>OFF</u>	
Damp.		<u>OFF</u>	
Freq.		<u>2.25 MHz</u>	
Video		<u>(-)</u>	
PRR	<u>✓</u>	<u>1K</u>	



Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location DAECReport No. 85-271Cal. No. CP006 Time 1642Job No. IEL-029Date 3-7-85Page 1 of 4622

See included Supplement Sheets

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM

Description EL/p.p.c Size 10" d Material 9/5 304 S/N(s) RRD-B-J4Location DRYWELL Preparation AS FOUND Temp 64°F

SIGN

Examiner/Level Ch. P. P. II Examiner/Level 11/7/85 Review/Level Donald Hamey/III
Authorized Inspector 4/16/85 Customer 3/13/85 2/19/89

EQUIPMENT

Tester 1 NORTEC 131D S/N 311 2 L.M.T. SLAVE S/N 19
Recorder 1 GULFON TR722 S/N 8082502 2 NA S/N NA
Transducer 1 1/2" x 1/2", HANSON, 2.25" S/N A12992 NA
3 NA 4 NA
Couplant LMT-Gel Cable 6 BNC/MD Marker NA Photo NA

PROC

Calibration Procedure UT-10 FC #8 Rev. 11
Examination Procedure UT-10 FC #8 Rev. 11
Recording Procedure UT-6 Rev. 2

CALIB

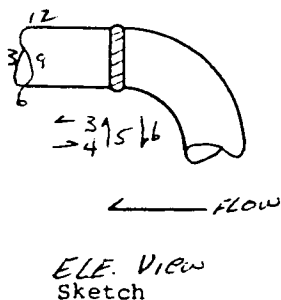
Calib. Blk. P.P.C. S/N 651345 Temp. 73°F Ref. 100% Amp. 80% Sweep 2.5 Div.
Ref. Gain 45 Damp. off Reject off Gate 1-10 Div
Alarm NA Mag. Tape Count NA Chart ATTACHED Cal. Check Time 1704

EXAMINATION

Cal. Ref. Blk. COMPAS Ref. Refl. S.D.H. 1/2" R. Amp. 50%/85% Sweep Position 3 D.V. / 5.7 D.V.
Scan Gain 45 Ref. Dwg. ISC-122 Reject Level ASME XI Report Level ASME XI

NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	NA						
1	Visual	NAD	7			13		
2	Base Metal	NA	8			14		
3	1 WF	NAD	9			15		
4	1 AF	G	10			16		
5	11 CW	L	11			17		
6	11 CCW	L	12			18		



Scan

Description of Indications

4

D.P. Gro

5/6

See included supplement sheets

WELD

RED-13-J4

REPORT # 85-271
PAGE 2 of 4³²

✱

L's

WELD # RRD-BJ4

Points: Center Point between the two punch marks @ TDC; Weld Center line

INDICATION #	SCAN DIRECTION	% DAC	M P's			W's *			L's *			REMARKS
			TOWARD	MAX	AWAY	TOWARD	MAX.	AWAY	L ₁	MAX.	L ₂	
1	6	100	.73	.94	1.05	0"	1/4"	13/32"	parallel 13/16"	5°-10° 1 1/16"	Skew 15° 1 3/16"	Linear (#1) Axial
2	6	60	.73	.90	1.06	-1/4"	-1/16"	+5/32"	1"	1 5/32"	1 3/8"	Skew 30° - Linear (#2) Axial
3 (45°)	6	25-50	2.31	2.49	2.80	1 1/8"	1 13/32"	1 51/64"	1 1/8"	1 11/32"	1 9/16"	Skew 15° - Linear (#1 @ 1 1/2 NOOE)
4	6	40	2.32	2.48	2.72	27/32"	1 1/16"	1 19/64"	1 15/64"	1 21/32"	2 3/16"	Linear (#2 @ 1 1/2 NOOE)
5 (60°)	6	No data	1.82	2.23	2.52	13/16"	1 13/32"	1 5/8"	3/4"	1"	1 1/4"	Skew 15° - Linear max. thru wall 60%
6 (45°)	5	N.F. No data	max only	.96	max only	max only	-1 3/32"	max only	NR	1"	NR	Skew 45° - Linear #2
7 (45°)	5	N.F. No data	max only	.94	max only	max only	-1 1/4"	max only	NR	1 5/32"	NR	Skew 45° - Linear #1
8 (45°)	4	not maxed No data	NR	Butt Rod .84	NR	NR	3/4"	N/R	N/R	-7/16"	NR	Circ. Linear @ area of #1 & 2
9 (45°)	4	No data	2.26	2.43	2.68	1 13/32"	1 13/16"	2"	-22/32"	-9/16"	-5/16"	#8 indicator @ 1 1/2 NOOE - Linear
10 (60°)	4	50%	.92	1.06	1.23	3/4"	7/8"	1 1/16"	-1 6/32"	-1 1/32"	-7/8"	Root Geo.
Note: The W/SY 70 (ID Creeper) was used to scan area to confirm the above indications. The results were 2 indications in the area of the above indications. Instrument was calibrated with the ID Creeper @ 80% FST 5 Div. sweep as established by 10% ID notch. For additional information, The weld crown was scanned using the 70° RLW beam for near surface indications. A low amplitude signal was obtained in the area of the indications. The instrument was in a non-cal state due to the lack of proper calibration standard, but the results do indicate a near surface flaw.												

REPORT # 85-271

PAGE 18 of 22

W. H. H. 2/5/75

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD Q (W₀); TDC/OUTER RADIUS (L₀)L's: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L₀); WELD Q (W₀)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Report No NRI-002

Exam Date 3/7/85

NOTIFICATION OF REPORTABLE INDICATION

Part I - LMT Findings

LMT Job No. IEL-029

RRD-B-J4

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☐ No ☐)

2-Linear indications on pipe side of weld # RRD-BJ4. Indications are oriented axially at 7/16" and 1/16" counter clockwise of TDC. A circumference indication appears to be ^{circ} running between the 2 axial indications. Maximum through wall of axial - 60% plus; Maximum through wall of circumference indication - 13%. The max length appears to be 7/8" away from weld.

Examination Reference:

ISI Rpt. # 85-271

Signature of Examiner/Certif. Level II

Date: 3-9-85

Signature of LMT Field Supervisor Donald E. Hawley

Date: 3/9/85

Notification Acknowledged by

Date: 3/10/85

Client Representative: Harry A. Bunting

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐)

COPY

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

LAMBERT, MacGILL, THOMAS, INC.

771 East Brokaw Road
SAN JOSE, CALIFORNIA 95112
(408) 297-8766

JOB ELL-027

SHEET NO _____

OF _____

CALCULATED BY D. Hawley

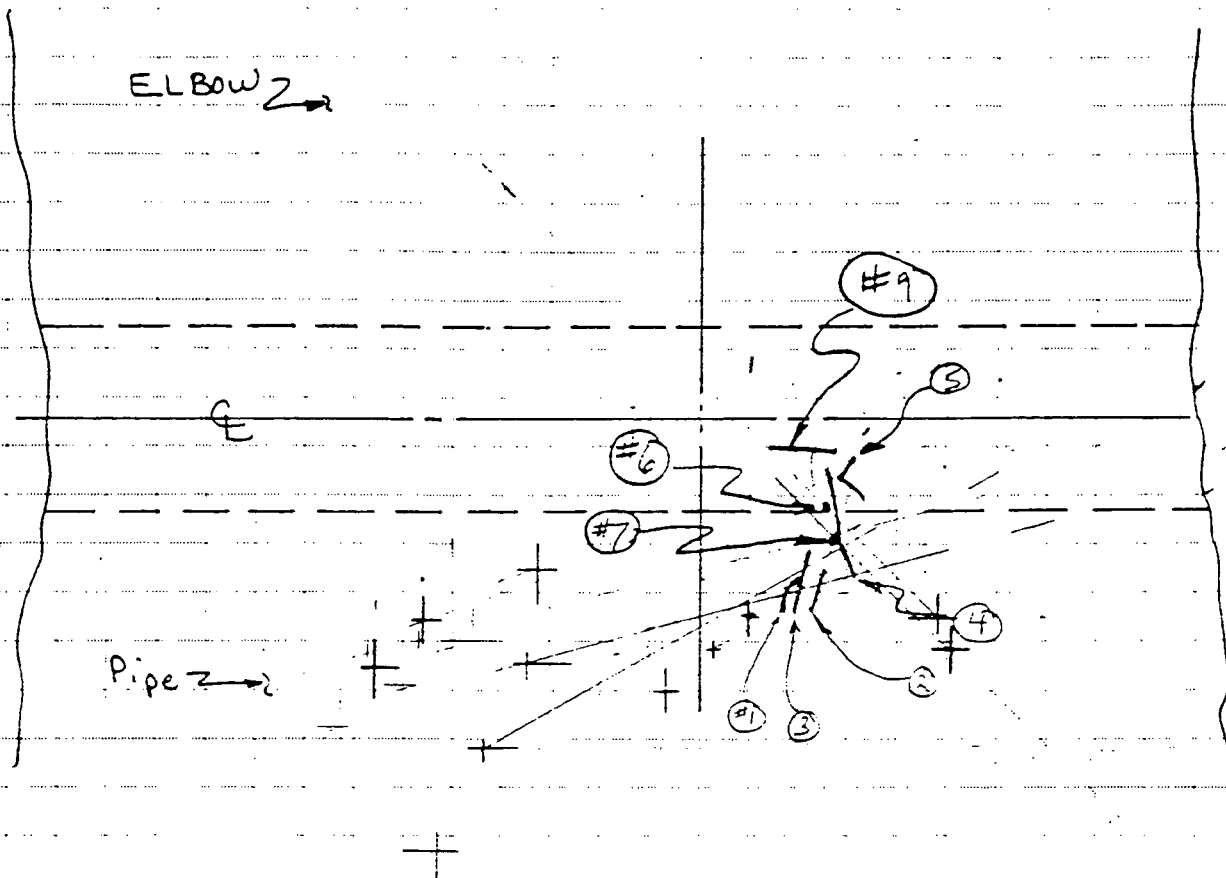
DATE 2/12/85

CHECKED BY _____

DATE _____

SCALE _____

RRD-BJ4



GENERAL ELECTRIC

EXAMINATION EVALUATION SUMMARY

EES NO 002
DATE April 30, 1985

SYSTEM: RECIRCULATION

WELD ID: RRD - J4

CLIENT: DUANE ARNOLD

EDS NO(S): 38 - 59

DISK ID: 4

DISK ID: 5 / 6

FILE NO(S): 7 - 8

FILE NO(S): 4 - 7 / 1 - 15

EVALUATION SUMMARY:

No Reportable Indications were observed during the inspection of RRD - J4.

* No scan 1 was performed from 10" to 24"L due to elbow configuration.

A best effort examination only was performed on scans 3CW & 3CCW from 10"
to 23"L due to elbow configuration.

EVALUATED BY:

RW Peckham

REVIEWED BY:

Jim D. Binkman

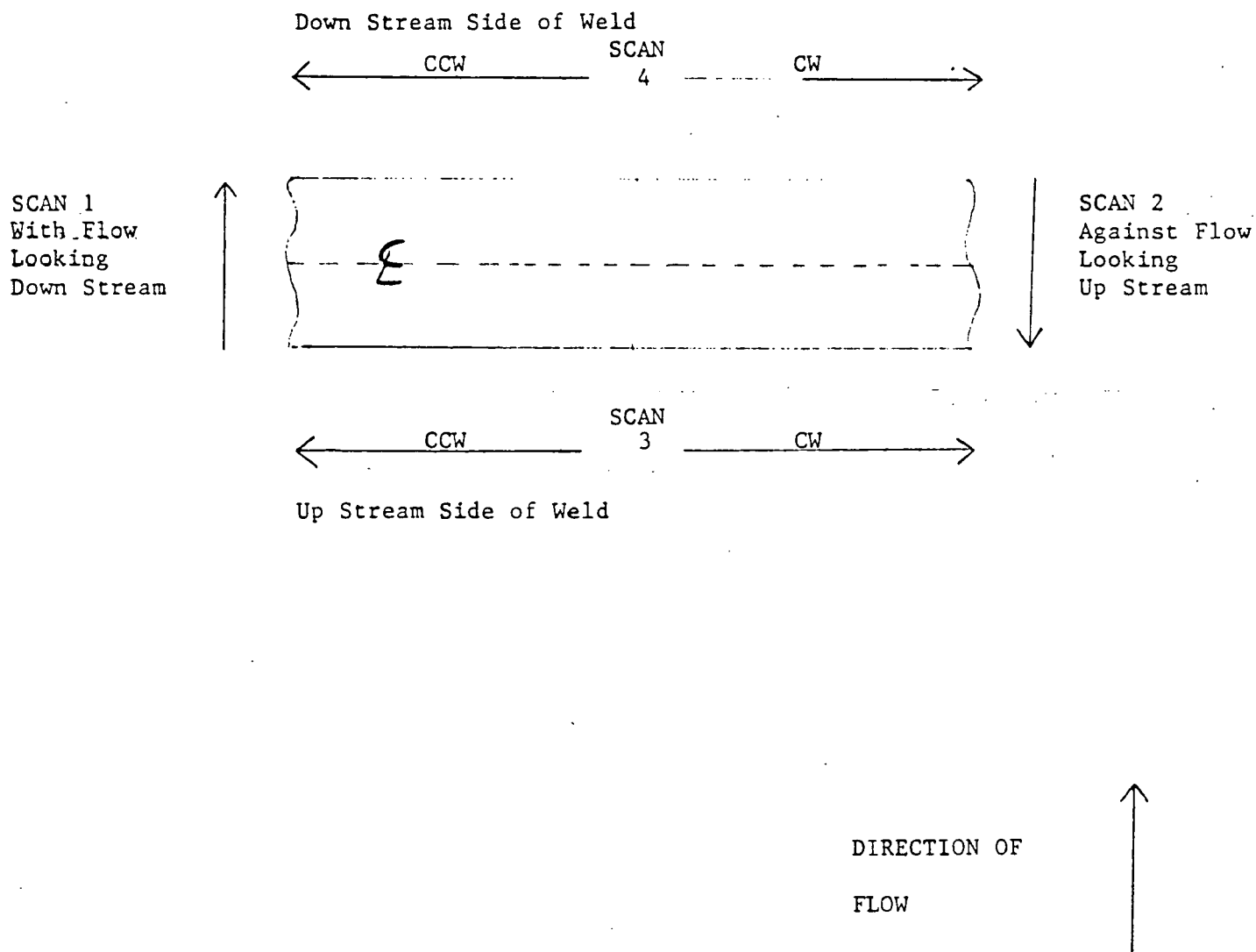
☐ REVIEWED ☐ APPROVED

LEVEL III DATE 4/30/85

LEVEL II DATE MAY 85

TTL _____ DATE _____

BEAM COMPONENT DIRECTION



GENERAL ELECTRIC

SMART UT WELD EXAMINATION PARAMETERS

SYSTEM: RECIRCULATION

SITE: DUANE ARNOLD

WELD No.: RRD-J4

UNIT: # 1

ISO No.: Loop B 4.2-2

DATE: 14 APRIL 85

WELD CONFIG. ELBOW-PIPE
flow 

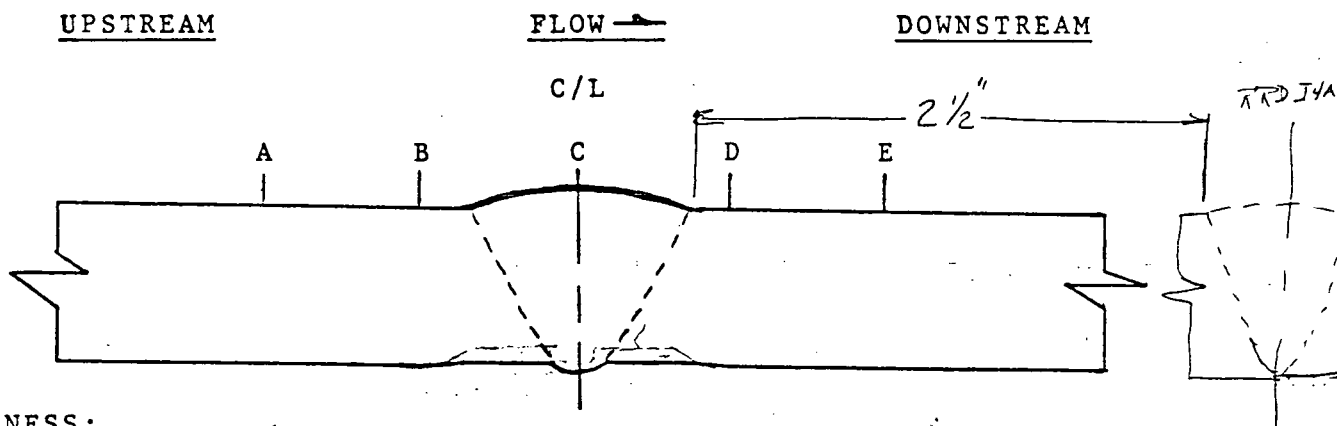
WELD PARAMETERS

CROWN HEIGHT: 1/16"

DIAMETER: 10"

CROWN WIDTH: 1"

WELD LENGTH: 34 1/2"



THICKNESS:

A) .802"

B) .634"

C) .618"

D) .584"

E) .582"

COMMENTS: NO scan 1 from 10"-24 1/2" due to elbow configuration. Best effort scan 3CW and 3CCW from 10"-23 1/2" due to elbow configuration.

CALIBRATION

CAL BLOCK No.: 651345

DIAMETER: 10"

CAL BLOCK "T": .618"

REFLECTOR: 4/8 lot ch

WELD NUMBER RRD-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training
 515 Aldo Avenue
 Santa Clara, CA 95050
 408-980-9333

Location DAECCal. No. (P-006 Time 1452)Job No. TEL-029Date 3-7-85Page 1 of 6

Evaluation Supplement page #6

REPORT OF ULTRASONIC CALIBRATION

SIGN

Examiner/Level Paul G. II Examiner/Level John T. I Review/Level Donald Henry III
 Authorized Inspector W. M. M. [unclear] 4-2-83 Customer Henry A. [unclear] 3/1/84

EQU

Instrument LMT stand Nortec 131D S/N 311 ReCal Due 4-22-85 Cable 6' coDX
 Recorder GULSON TR722 S/N 5082502 ReCal Due 8-5-85
 Recorder N/A S/N N/A ReCal Due N/A
 Vertical Linearity Check Check Completed cl

U

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	46	41	35	30	24	21	16	10	5

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scale

I

Attenuator Linearity Check

Check Completed cl

M

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	<u>40</u>	<u>21</u>	<u>78</u>	<u>78</u>	<u>78</u>	<u>78</u>	<u>78</u>

Signal amplitude must fall within listed values

E

Transducers

S/N A-1299 Mfg. H/Sonic Type SW Size 1/2" x 1/2" Freq. 2 1/4 mhz Index OK Angle 45°
 S/N N/A Mfg. N/A Type N/A Size N/A Freq. N/A Index N/A Angle N/A
 S/N Mfg. Type Size Freq. Index Angle
 S/N Mfg. Type Size Freq. Index Angle

P

R

O

C

Procedure UT 10 Rev. 11 FC #8 Date 11-12-82

C

A

L

I

B

R

A

T

I

O

N

N

N

N

N

N

N

N

N

N

N

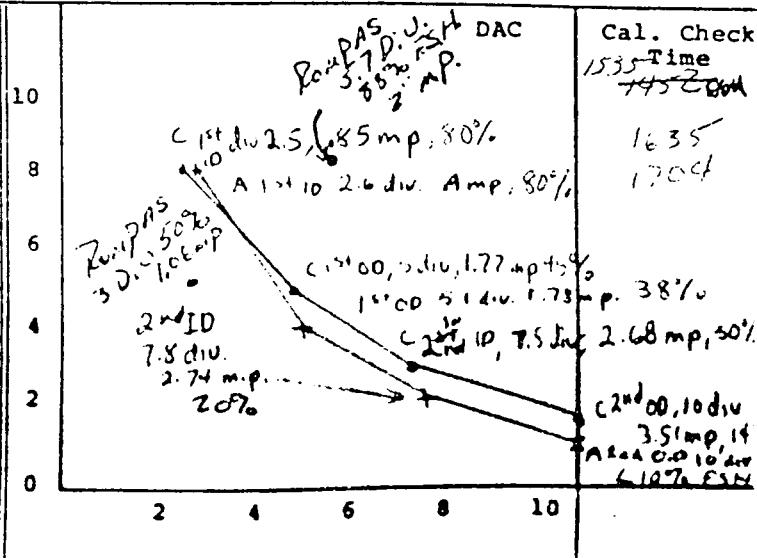
N

N

Cal. Block Type PIPE SEG 651345 S/N 651345 Ref. Refl. ID Notch Temp. 73°F
 Verification/Ref. Blk. Romps S/N LMT-044 Ref. Refl. SDH/2" mpratus Temp. 73°F

Instrument Settings

	L	ANAL	Digital
Gain	<u>N/A</u>	<u>AXIAL-45dB</u> <u>LINC-34dB</u>	<u>N/A</u>
Sweep	<u> </u>	<u>1/481</u>	<u>1" = 1.00</u> <u>2" = 2.00</u>
Delay	<u> </u>	<u>10/644</u>	<u>N/A</u>
Reject	<u> </u>	<u>OFF</u>	<u> </u>
Damp.	<u> </u>	<u>OFF</u>	<u> </u>
Freq.	<u> </u>	<u>2.25 mhz</u>	<u> </u>
Video	<u> </u>	<u>(-)</u>	<u> </u>
PRR	<u> </u>	<u>1K</u>	<u> </u>



Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location DAECReport No. 85-272Cal. No. CP006 Time 1535Job No. IEL-029Date 3-7-85Page 1 of 19

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM

Description PIPE PIPE Size 10" Material S/S 304 S/N(s) RRD-B-J4ALocation Dry Well Preparation As Found Temp 64°F

SIGN

Examiner/Level Patricia I. Examiner/Level Alto Novis Review/Level Donald Hamby IIIAuthorized Inspector W. M. Dancy 4/15/85 Customer Frank A. Brown 3/14/85

EQUIPMENT

Tester 1 Nortec 1310 S/N 311 2 LNT Sieve # S/N #19Recorder 1 Gulton TR722S S/N 8082502 CD NA S/N NATransducer 1 1/2" x 1/2" H'sonic 2.25 MHz #1299 NA3 NA 4 NACouplant LMT GEL Cable 6' Coax Marker NA Photo NA

PROC

Calibration Procedure UT 10 F.C. #8 Rev. 11Examination Procedure UT 10 F.C. #8 Rev. 11Recording Procedure UT 6 Rev. 2

CALIB

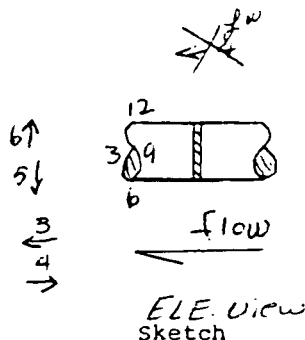
Calib. Blk. Pipe seg. S/N 657345 Temp. 73°F Ref. Notch Amp. 80% Sweep 2.5 div.Ref. Gain Circ 39 Damp. off Reject off Gate 1-10 div.Alarm NA Mag. Tape Count NA Chart Attached Cal. Check Time 1635

EXAMINATION

Cal. Ref. Blk. Rampas S/N 654 Ref. Refl. SOH 2" radius Amp. 50%/80% Sweep Position 300°/5.7 div.Scan Gain 45 db Ref. Dwg. IS-122 Reject Level ASME XI Report Level ASME XI

NAD = No Apparent Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	N						
1	Visual	NAD	7			13		
2	Base Metal	NA	8			14		
3	WF	G/L	9			15		
4	AF	G	10			16		
5	LCW	NAD	11			17		
6	LCW	NAD	12			18		



Scan Description of Indications

3/4 I.D. + O.D. Geometry
③ Linear - see NRI-008

WELD # RRD-B-J4A

[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WGLD (4th); TDC/OUTER RINGS (4th)]

L'S: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (r_o); WELD Q (w_b)

REPORT # 85-272
PAGE 2 of 19

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Report No. NR1-008

Exam Date 3/7/85

NOTIFICATION OF REPORTABLE INDICATION

Pg 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRD-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐
Linear (Circ) - 42% thru wall as measured on sketch, extends from
33" to 5 1/2" (6 1/2" long) on pup side (J4 side). Evaluation was completed
after decision to not remove weld. Rework performed by D. Harvey (4/3/85),
based on Pre-IA5I strip charts and plots.

Examination Reference:

ISI Rpt # 85-272

Signature of Examiner/Certif. Level

Date:

Donald Harvey / III

4/3/85

Signature of LMT Field Supervisor

Date:

Donald Harvey

4/3/85

Notification Acknowledged by

Date:

Client Representative: Harry A. Berman

4/4/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

WELD # RRD-B-JAA

[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. W60 & (wb); TDC/output channel(s)]

L'S: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (r_o); WELD Q (w_b)

LAMBERT, MacGILL, THOMAS, INC.
515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

JOB IEL-029

SHEET NO

OF

CALCULATED BY D. Hamley

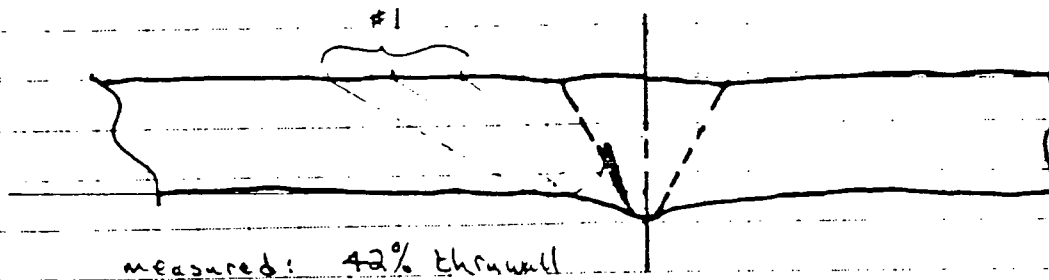
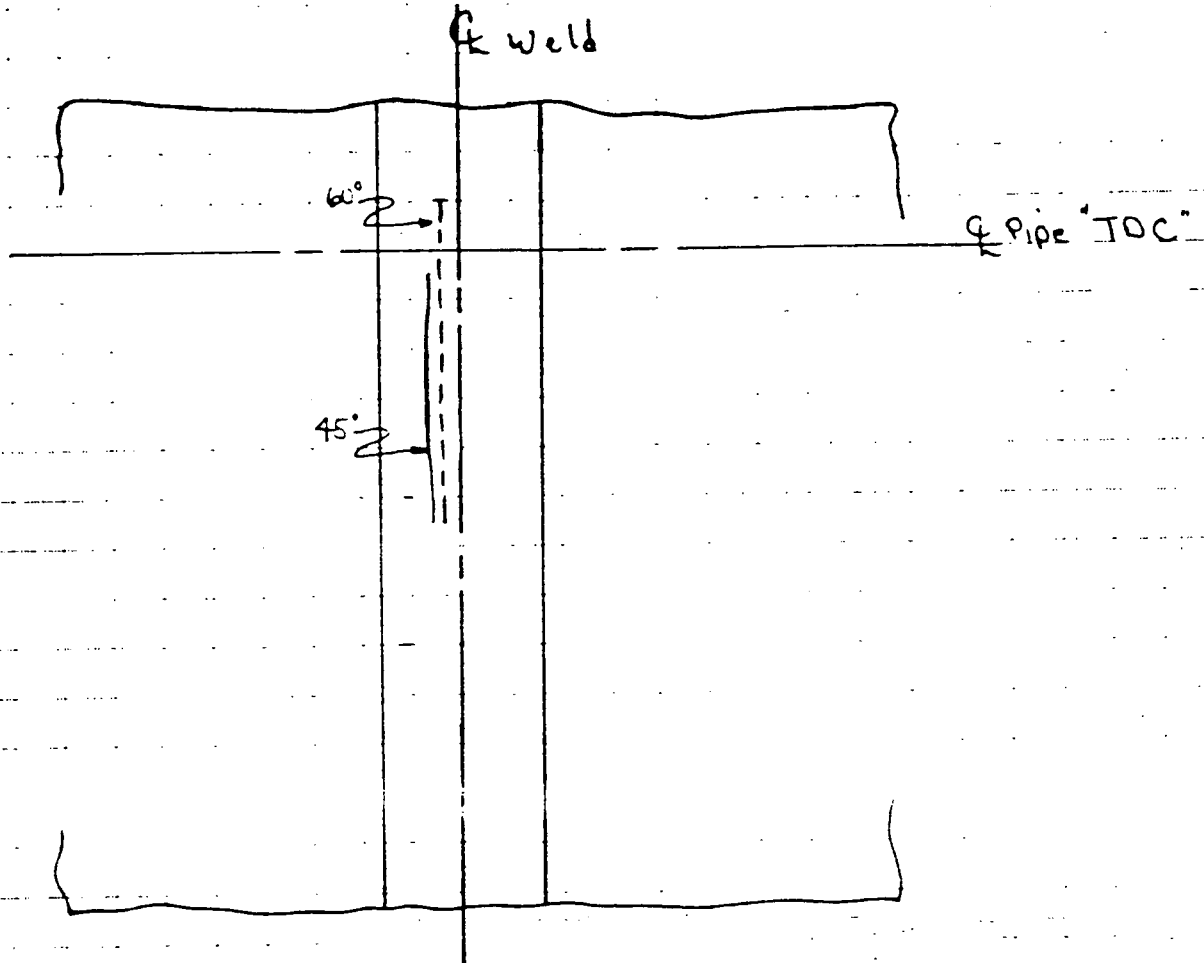
DATE 4/4/85

CHECKED BY

DATE

SCALE None

RRD-BJ4A



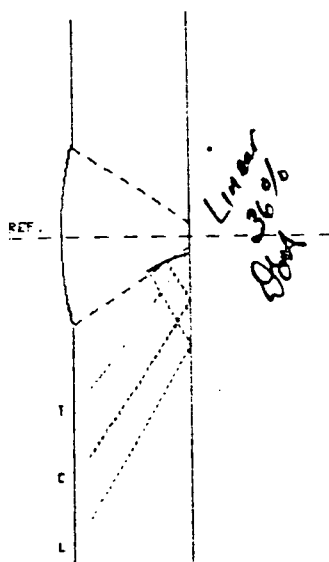
REPORT # NRI-008
PAGE 3 of 5

85-272-029-030148

RPT # = 85-272
 JOB NO. = IEL-029
 RRD-BJ4A
 IND# 1

BUT1
 SCH 3
 2/4 3 4
 EX. TPR. B
 NF. T 0.6
 FR. T 0.6
 RT. SET 0.125
 PRP. QNG 33.65886753
 RNF 0.06
 L. QNG 68
 C. QNG 57
 T. QNG 54
 L. POS 1.080375
 C. POS 1.265625
 T. POS 0.521875
 L. M. P. 1.63
 C. M. P. 1.33
 T. M. P. 1.01

SCALE 1



LEAD 58X MAX. P1. = 48X DAC
 LEAD DEPTH 0.385
 LEAD POS. = -0.137
 CENTER MAX. P1. = 88X DAC
 CENTER DEPTH 0.476
 CENTER POS. = -0.145
 TRAIL 58X MAX. P1. = 48X DAC
 TRAIL DEPTH 0.534
 TRAIL POS. = -0.183

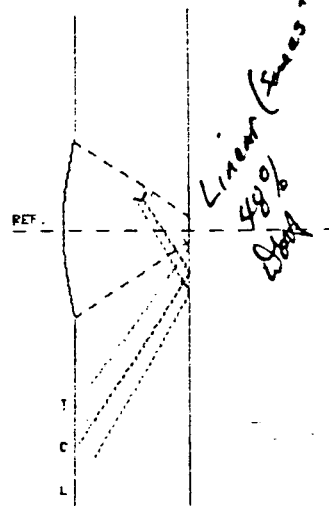
% WALL = 35

48316.2541

RPT # = 85-272
 JOB NO. = IEL-029
 RRD-BJ4A
 IND# 2

BUT1
 SCH 4
 23 3 5-1/2
 EX. TPR. B
 NF. T 0.53
 FR. T 0.53
 RT. SET 0.125
 PRP. QNG 33.65886753
 RNF 0.06
 L. QNG 68
 C. QNG 57
 T. QNG 54
 L. POS 1.355375
 C. POS 1.148625
 T. POS 0.521875
 L. M. P. 1.74
 C. M. P. 1.52
 T. M. P. 1.37

SCALE 1



LEAD 58X MAX. P1. = 32.5X DAC
 LEAD DEPTH 0.31
 LEAD POS. = 0.145
 CENTER MAX. P1. = 65X DAC
 CENTER DEPTH 0.352
 CENTER POS. = 0.136

TRAIL 58X MAX. P1. = 32.5X DAC
 TRAIL DEPTH 0.375
 TRAIL POS. = 0.189

% WALL = 11

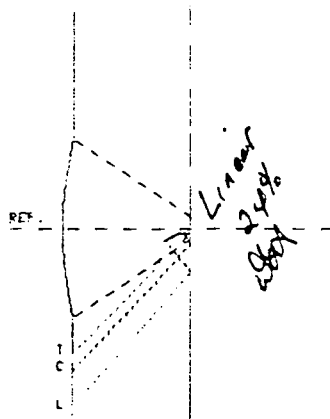
48316.3182

0000030149

RPT # = 85-272
 JOB NO. = IEL-029
 RRD-BJ4A
 IND# 3

BUT1
 SCH 3
 1/2 2 5-1/2
 EX. TPR. 8
 MR. T 8.6
 FR. T 8.6
 RT. SEP 8.125
 PRP. ANG 33.65886753
 RNF 8.86
 L. ANG 49
 C. ANG 47
 T. ANG 45
 L. POS 8.521875
 C. POS 8.734275
 T. POS 8.648625
 L. N. P. 1.12
 C. N. P. 8.55
 T. N. P. 8.85

SCALE :



LEAD 58% MAX. P.I. = 45% DAC
 LEAD DEPTH 8.465
 LEAD POS. = -8.875

CENTER MAX. P.I. = 58% DAC
 CENTER DEPTH 8.552
 CENTER POS. = -8.832

TRAIL 58% MAX. P.I. = 45% DAC
 TRAIL DEPTH 8.588
 TRAIL POS. = -8.832

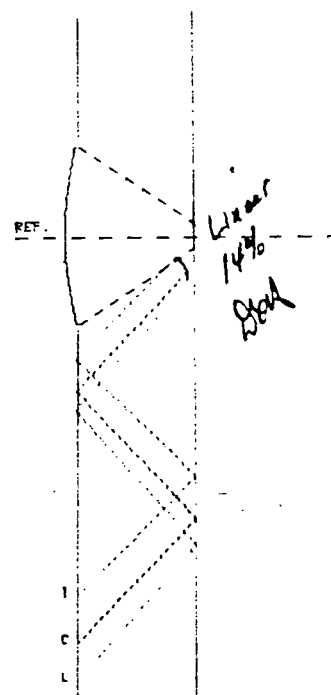
% WALL = 22

48316.4113

RPT # = 85-272
 JOB NO. = IEL-029
 RRD-BJ4A
 IND# 3a

BUT1
 SCH 3
 1/2 2 5-1/2
 EX. TPR. 8
 MR. T 8.6
 FR. T 8.6
 RT. SEP 8.125
 PRP. ANG 33.65886753
 RNF 8.86
 L. ANG 49
 C. ANG 47
 T. ANG 45
 L. POS 8.521875
 C. POS 8.734275
 T. POS 8.648625
 L. N. P. 1.12
 C. N. P. 8.55
 T. N. P. 8.85

SCALE :



LEAD 58% MAX. P.I. = 62.5% DAC
 LEAD DEPTH 8.571
 LEAD POS. = -8.243

CENTER MAX. P.I. = 125% DAC
 CENTER DEPTH 8.573
 CENTER POS. = -8.192

TRAIL 58% MAX. P.I. = 62.5% DAC
 TRAIL DEPTH 8.518
 TRAIL POS. = -8.125

% WALL = 3

48316.4652

EXAMINATION EVALUATION SUMMARY

EES NO 003
DATE April 29, 1985

SYSTEM: RECIRCULATION

WELD ID: RRD - J4A

CLIENT: DUANE ARNOLD

EDS NO(S): 76 - 91

DISK ID: 8

DISK ID: 9

FILE NO(S): 1 - 15

FILE NO(S): 1

EVALUATION SUMMARY:

One (1) linear indication was detected during the inspection of RRD - J4A.
This indication is circumferential in orientation and located in the
HAZ on the upstream side of the weld. Circumferential location is from
26" L to 6 1/4" L (14 1/4" total length measured clockwise with flow with L.
at top dead center of pipe). The approximate maximum thruwall dimension
was measured to be 37%. This indication demonstrates characteristics
typical of IGSCC.

EVALUATED BY:

Ree Feinbach

REVIEWED BY:

Jim D. Burkman

☐ REVIEWED ☐ APPROVED

LEVEL III DATE 4/29/85

LEVEL II DATE 1 May 85

TTL DATE

GENERAL ELECTRIC

SMART UT WELD EXAMINATION PARAMETERS

SYSTEM: Recirculation

WELD No.: RRD-54A

ISO No.: Loop B 4.2-2

WELD CONFIG. Pipe - Pipe
flow 

SITE: Duane Arnold

UNIT: #1

DATE: 19 April 1985

WELD PARAMETERS

CROWN HEIGHT: 1/16"

CROWN WIDTH: 7/8"

DIAMETER: 10"

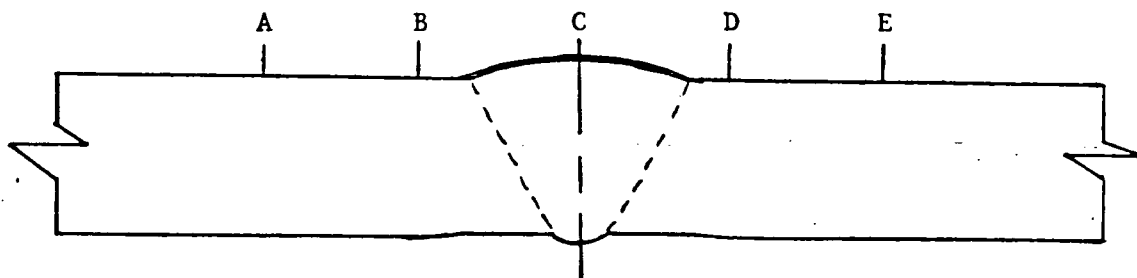
WELD LENGTH: 34"

UPSTREAM

FLOW 

DOWNSTREAM

C/L



THICKNESS:

- A) .580"
- B) .580"
- C) .708"
- D) .569"
- E) .605"

COMMENTS:

CALIBRATION

CAL BLOCK No.: 651345

CAL BLOCK "T": .618"

DIAMETER: 10"

REFLECTOR: 4/8 notch

WELD NUMBER RRD-J7

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Cal. No. JF008 Time 0835

Job No. TEL-029

Date 3-22-85

Page 1 of 1

REPORT OF ULTRASONIC CALIBRATION

S
I
G
N

Examiner/Level Jessie French II Examiner/Level Kevin Schrier I Review/Level E.J. Schrier III
Authorized Inspector W.N. McDougall 5/22/85 Customer Long A. Brown 4/4/85

E
Q
U
I
P
M
E
N
T

Instrument NORTEC 131-D S/N 417 ReCal Due 6-11-85 Cable 6' COAX
Recorder GULTON TR-722 S/N 2091003 ReCal Due 4-4-85
Recorder LMT SLAVE S/N 2 ReCal Due 5-14-85
Vertical Linearity Check Check Completed JA

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	45	40	36	32	26	22	16	10	5

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scale

Attenuator Linearity Check

Check Completed JA

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	54 to 96
Actual Value	<u>XXXX</u>	<u>43</u>	<u>22</u>	<u>XXXX</u>	<u>70</u>	<u>XXXX</u>	<u>75</u>

Signal amplitude must fall within listed values

Transducers

S/N A1299 Mfg. H'SONIC Type SW Size 1/2 x 1/2 Freq. 2.25MHz Index OK Angle 43.5°
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA

P
R
O
C

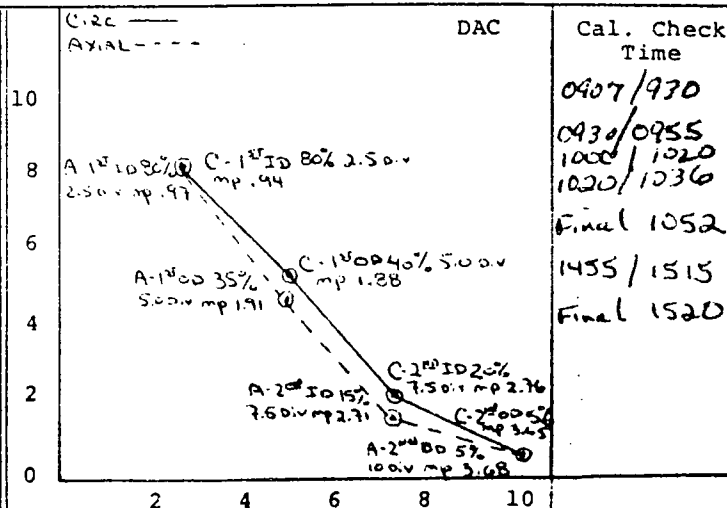
Procedure UT-10 Rev. 11 F.C. #8 Date 11-12-82

C
A
L
I
B
R
A
T
I
O
N

Cal. Block Type PIPE SEG S/N 651345 Ref. Refl. ID NOTCH Temp. 80°F
Verification/Ref. Blk. PIPE SEG S/N 651345 Ref. Refl. ID GOOD NOTCH Temp. 80°F

Instrument Settings

	<u>L</u>	<u><</u>	Digital
Gain	<u>NA</u>	<u>C-46/A-49</u>	<u>1" = 1.00</u>
Sweep	<u>NA</u>	<u>10-954</u>	<u>4" = 4.00</u>
Delay	<u>NA</u>	<u>1-832</u>	<u>NA</u>
Reject	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Damp.	<u>NA</u>	<u>OFF</u>	<u>NA</u>
Freq.	<u>NA</u>	<u>2.25MHz</u>	<u>NA</u>
Video	<u>NA</u>	<u>(-)</u>	<u>NA</u>
REP RATE	<u>NA</u>	<u>1K</u>	<u>NA</u>



Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location D.A.E.CReport No. 85-353Cal. No. JF-008 Time 1455Job No. IEL-029Date 3-22-85Page 1 of 11

No 1HS1

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM

Description P/P Size 10"Ø Material S.S S/N(s) RRD-B-J7Location DRYWELL Preparation AS FOUND Temp 102°F

SIGN

Examiner/Level J. J. French I Examiner/Level Kevin S. Smith II Review/Level S. J. Thomas III
Authorized Inspector W. W. Duggan 4/17/85 Customer J. A. Bump 4/1/87

EQUIPMENT

Tester 1 NORTEC 131-D S/N 417 2 LMT SLAVE S/N 2
Recorder 1 GULSON TR-722 S/N 2091003 2 NA S/N NA
Transducer 1 1A1299, H'SONC 1/2" x 1/2" 2.25MHz, sw, 45° 2 NA
3 NA 4 NA
Couplant LMT GEL Cable 6' COAX Marker NA Photo NA

PROC

Calibration Procedure UT-10 Rev. 11 F.C. #8
Examination Procedure UT-10 Rev. 11 F.C. #8
Recording Procedure UT-6 Rev. 2

CALIB

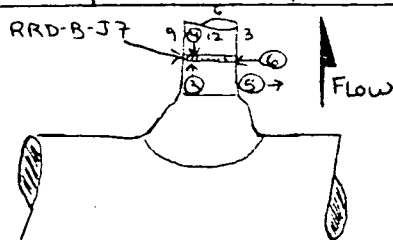
Calib. Blk. 651345 Temp. 80% Ref. ID Notch Amp. 80% Sweep 2.5 div
Ref. Gain C-46/A-49 Damp. OFF Reject OFF Gate 2-10 div
Alarm NA Mag. Tape Count NA Chart ATTACHED Cal. Check Time 1515

EXAMINATION

Cal. Ref. Blk. 651345 Ref. Refl. ID. notch Amp. 80%/40% Sweep Position 2.5 / 5 div
Scan Gain C-52/A-55 Ref. Dwg. ISO-122 Reject Level ASME XI Report Level ASME XI

NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	NA						
1	Visual	NAD	7			13		
2	Base Metal	NA	8			14		
3	11 W/Flow	G	9			15		
4	11 A/Flow	X NAD	10			16		
5	11 C.W	L	11			17		
6	11 C.C.W	L	12			18		



ELEV. VIEW

Sketch

Scan	Description of Indications
3	2.I.D. 4.O.D. GEOMETRY 360° INT some LESS THAN 50% DAC
5	LINEAR INDICATION LOW AMP? DIDN'T SHOW ON CHART
6	LINEAR INDICATION See PAGE 2 & 3

WELD # RRD-B-J7

[illegible]

REPORT # 85-353
PAGE 2 of 17

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD ϕ (W_b); TDC/OUTER RADIUS (L_o)
I's: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L_o); WELD ϕ (W_b)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Job _____
Location DAEC
Report No NRI-004
Exam Date 3/22/85

NOTIFICATION OF REPORTABLE INDICATION

Part I - LMT Findings

LMT Job No. IEL-029

RRD-BJ7

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐)

Linear-axially oriented - Approximately 26% thru-wall from ID. Location -
13.724" from O°, (O° at point in-line with outer radius of upper elbow), seen
ultrasonically from 1" to 1 1/2" from weld center line on downstream pipe.

Examination Reference:

ISI Rpt. # 85-353

Signature of Examiner/Certif. Level

Jessie French Jr.

Date:

3-27-85

Signature of LMT Field Supervisor

Donald Hawley

Date:

2/27/85

Notification Acknowledged by ☒

Client Representative:

Harry D. Bryan

Date:

3/27/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐)

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

LAMBERT, MacGILL, THOMAS, INC.

771 East Broadway Road
SAN JOSE, CALIFORNIA 95112
(408) 297-8766

JOB IFL-029

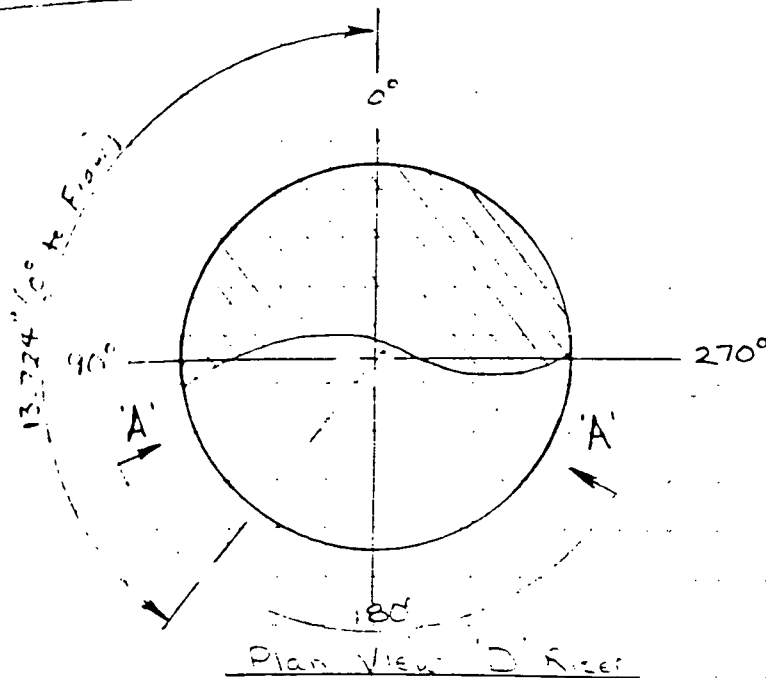
SHEET NO. _____ OF _____

CALCULATED BY D. Harny JE DATE 3/27/85

CHECKED BY _____ DATE _____

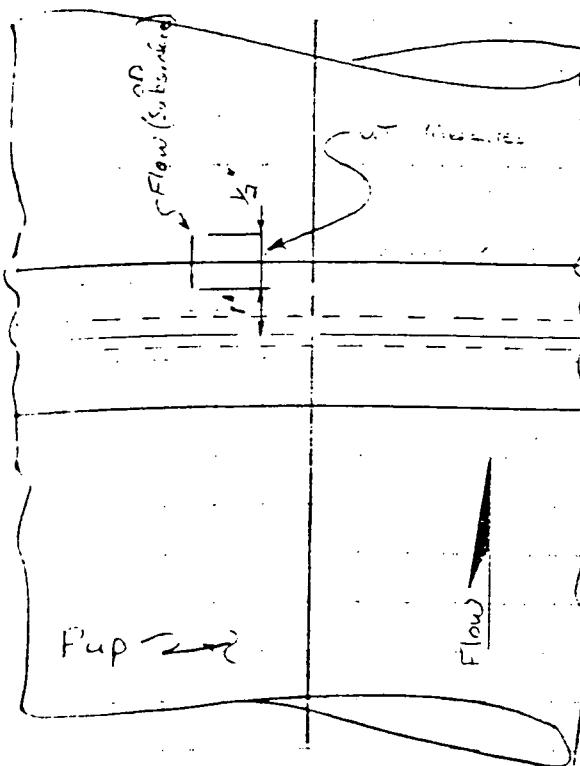
SCALE None

RRD-BJ7



Reactor Vessel

RRD-BJ2



Preliminary (45° data)
Depth: approx 26.3%
Location: Downstream
Pipe @ 13.724°
from 0°

LAMBERT, MACGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-8333

JOB IEL-029

SHEET NO. _____

OF _____

CALCULATED BY David Risher

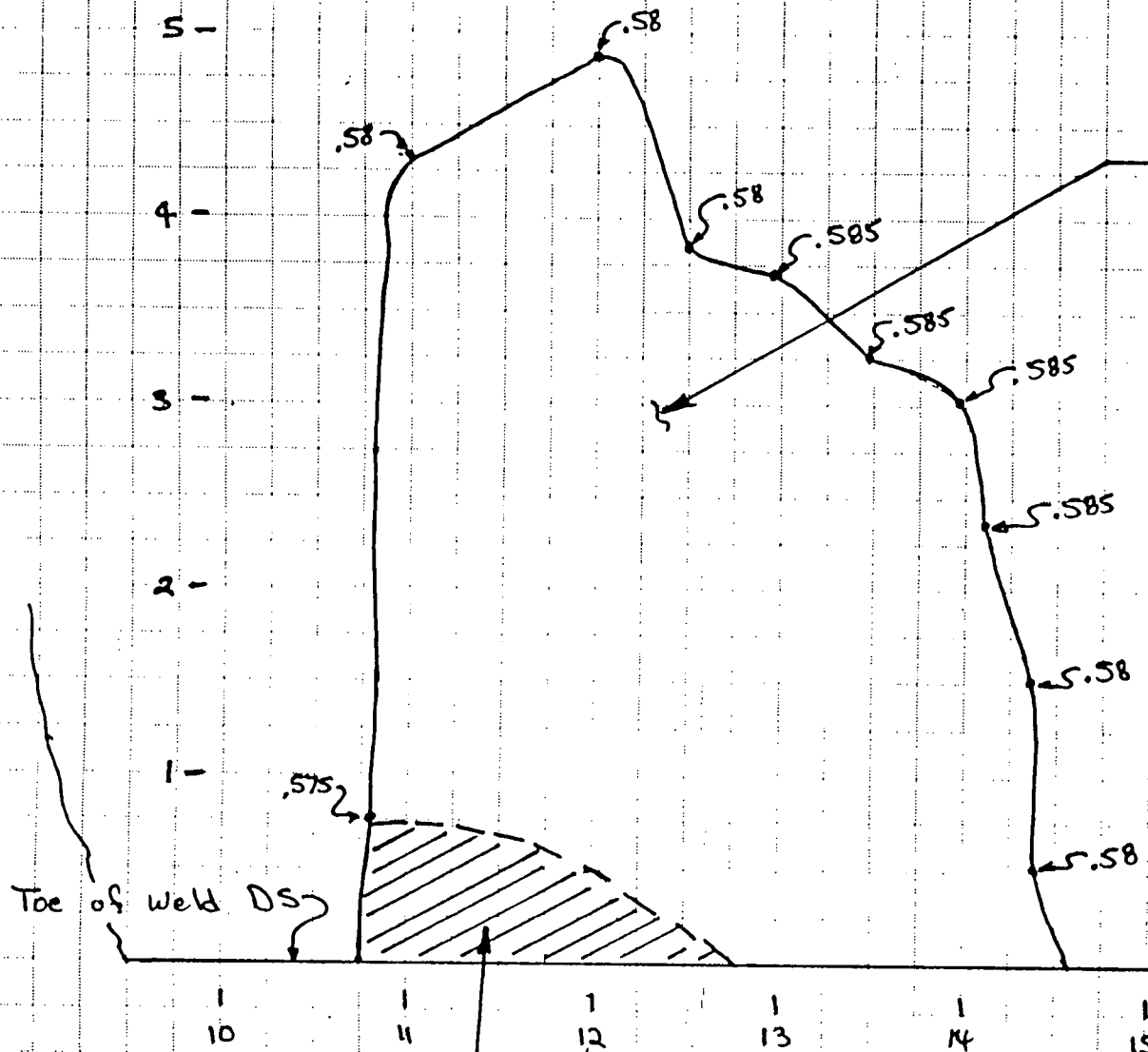
DATE 4/16/85

CHECKED BY D. Haney

DATE _____

SCALE Full

RRD-B57



Region of thickness variations: 0.46-0.585
Double signals maintained over 50% of region

Region of min. reading of: 0.405"

LAMBERT, MacGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

JOB IEL-029

SHEET NO. _____

OF _____

CALCULATED BY David Richey

DATE 4/17/85

CHECKED BY D. Hanley

DATE _____

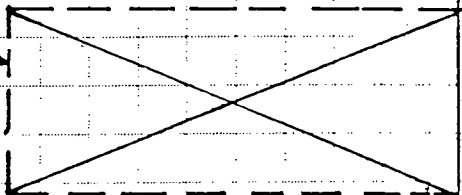
SCALE _____

RRD-BJ7

Thickness 360°
on Downstream Base
Metal.

.575
.575
.58
.575
.575
.58
.575
.58
.585
.59
.585
.59
.59
.58
.58
.575
.58
.575

See attached
sheet



.565
.565
.575
.575
.575
.575
.575
.575
.57
.57
.57
.575

34
30
25
20
15
10
5

4 J 0 3

GENERAL ELECTRIC

EXAMINATION EVALUATION SUMMARY

EES NO. 010
DATE April 24, 1985

SYSTEM: RECIRCULATION

WELD ID: RRD-J7

CLIENT: DUANE ARNOLD

EDS NO(S): 001 to 025

DISK ID: 2

DISK ID: 3 / 5

FILE NO(S): 1 - 14

FILE NO(S): 1-9 / 1-2

EVALUATION SUMMARY:

One (1) indication on the downstream side of the weld. This reflector is laminar with planar components extending to the inside surface. A 0° longitudinal wave examination was performed to provide a detailed mapping of the indication. Results indicated the following location and dimensions:

Length: 5" Width: 4 1/8"

Depth: Varying from 0" to .162" from the I.D. surface with majority of laminar component lying at a depth of .105".

Circumferential location: From 10 1/8" to 14 1/4" L measured around pipe with pipe L_a at 180° from vessel. Note: Circumferential measurements made clockwise with respect to flow.

Axial location: From 1" downstream of weld centerline to 6" downstream of weld centerline.

A 45° shear wave examination was performed and substantiated that planar components exist connecting the inside surface to the laminar components.

No other reportable indications were observed during the inspection of RRD-J7.

EVALUATED BY:

REVIEWED BY:

☐ REVIEWED ☐ APPROVED

RW Bechval

Tim D. Brinkman

LEVEL III DATE 4/24/85

LEVEL II DATE 4/24/85

TTL _____ DATE _____

GENERAL ELECTRIC

SMART UT WELD EXAMINATION PARAMETERS

SYSTEM: RECIRCULATION

SITE: DUANE ARNOLD

WELD No.: RRD-I7

UNIT: #1

ISO No.: Loop B 4.2-2

DATE: 13 APRIL 1985

WELD CONFIG. PIPE-PIPE
flow $\rightarrow$

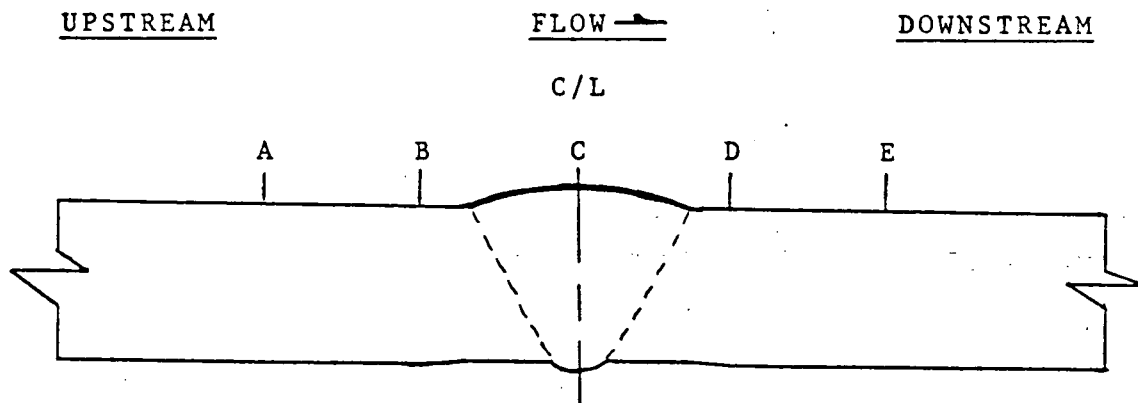
WELD PARAMETERS

CROWN HEIGHT: 1/8"

DIAMETER: 10"

CROWN WIDTH: 1 1/4"

WELD LENGTH: 34 1/2"



THICKNESS:

A) .770"

B) .758"

C) .786"

D) .554"

E) .549"

COMMENTS:

OD MISMATCH OF APPROX. .25" -
UPSTREAM IS LARGER DIAMETER THAN
DOWNSTREAM.

CALIBRATION

CAL BLOCK No.: 651345

DIAMETER: 10"

CAL BLOCK "T": .618"

REFLECTOR: 4/8 NOTCH

WELD NUMBER RRF-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue

Santa Clara, CA 95050

408-980-9333

Location DAECCal. No. DR021 Time 1410Job No. IEL-029Date 4-2-85Page 1 of 5

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level William For/I Examiner/Level KEVIN SCRIVNER Review/Level E.J. Thomas IIIAuthorized Inspector W.M. Dwyer 5/22/85 Customer Larry A. R... 4/4/85E
Q
UInstrument NORTEC 131-D S/N 530 B ReCal Due 6-14-85 Cable 6' COAXRecorder Gutten TR-722J S/N 71147 ReCal Due 7-28-85Recorder LMT SLAVE S/N 2 ReCal Due 5-14-85Vertical Linearity Check Check Completed OK

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	49	45	40	35	29	25	20	15	10	5

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scaleI
P
M
E
N
TAttenuator Linearity Check Check Completed OK

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	☒	40	20	☒	80	☒	80

Signal amplitude must fall within listed values

Transducers

S/NA 1299 Mfg. H'SONIC Type SW Size 1/2 x 1/2 Freq. 2.25 MHz Index OK Angle 45°S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAS/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAS/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NAP
R
O
CProcedure UT-10 Rev. 11 FC#8 Date 11-12-82C
A
LCal. Block Type PIPE SEG. S/N 651345 Ref. Refl. ID NOTCH Temp. 93°FVerification/Ref. Blk. PIPE SEG. S/N 651345 Ref. Refl. ID NOTCH Temp. 93°F

I

Instrument Settings

B

R

A

T

I

O

N

	L	<	Digital
Gain	NA	C.36/A.43	1" = 1.00
Sweep	NA	5/820	4" = 4.00
Delay	NA	1/480	NA
Reject	NA	OFF	NA
Damp.	NA	OFF	NA
Freq.	NA	2.25 MHz	NA
Video	NA	(-)	NA
Rep Rate	NA	1K	NA

10

8

6

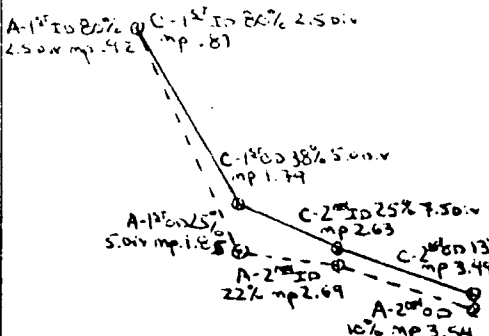
4

2

0

CIRC —
AXIAL

DAC

Cal. Check
Time

1445/1521

1521/1545

1615/1625

1635 (Final)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Report No. 85-403

Cal. No. DR-021 Time 1445

Job No. TEL-029

Date 4-2-85

Page 1 of 15

POST 1451

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM

Description R/P Size 10" Ø Material SS S/N(s) RRF-B-J4A

Location DRYWELL Preparation AS FOUND Temp 96°F

SIGN

Examiner/Level Dick Ruff Examiner/Level William Long Review/Level E.J. Thomas

Authorized Inspector William Long Customer Tang A. Pung

EQUIPMENT

Tester 1 NORTEC 131-D S/N 533-B 2 LMT SLAVE S/N 2
Recorder KUDON TR-72T S/N 71147 2 NA S/N NA
Transducer 1 1A1294, HCONK, 1/2" x 1/2", 2.25MHz, 45° 2 NA
3 NA 4 NA
Couplant LMT GEL Cable 6' COAX Marker NA Photo NA

PROC

Calibration Procedure UT-10 Rev. 11 F.C. #8
Examination Procedure UT-10 Rev. 11 F.C. #8
Recording Procedure UT-6 Rev. 2

CALIB

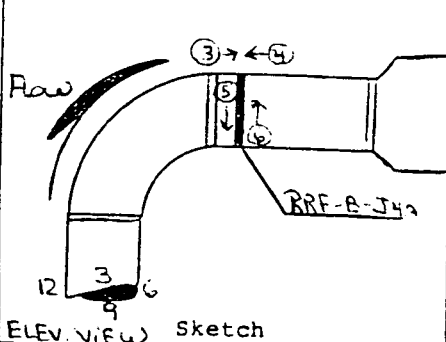
Calib. Blk. PIPE SEG. 651345 Temp. 93°F Ref. ID CONK Amp. 8.0% Sweep 2.5
Ref. Gain C-36/A-43 Damp. OFF Reject OFF Gate 2-10
Alarm NA Mag. Tape Count NA Chart ATTACHED Cal. Check Time 1521

EXAMINATION

Cal. Ref. Blk. PIPE SEG. 651345 Ref. Refl. ID CONK Amp. 8.0%/38% Sweep Position 2.5 - 5 DIV
Scan Gain C-42/A-49 Ref. Dwg. ISO-120 Reject Level ASME XI Report Level ASME XI

NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	NA						
1	Visual	NAD	7			13		
2	Base Metal	NA	8			14		
3	11 W/Flow	L/G	9	NA		15		NA
4	11 A/Flow	G	10			16		
5	11 C.W	NAD	11			17		
6	11 C.C.W	NAD	12			18		



Scan Description of Indications

3 see attached data sheets for DISP ALSO ID'ED Geometry LESS Than 50% ORC

4 see attached data sheets for DISP 4 L60 I.D., 0.0 Geometry LESS Than 50% ORC

③ See NRI-010

WELD # RRF-B-J4A

[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD (Wb); TDC/OUTER RADIUS (r)]

11. DISTANCE FROM TANGENCY CENTER TO A DATUM POINT [E.G. TDC/OUTER RADIUS (L_0); WELD Q (w_0)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Job
Location DAEC
Report No NRI-04
Exam Dates 3/5/85

NOTIFICATION OF REPORTABLE INDICATION

Page 1 of 5

Part I - LMT Findings

LMT Job No. IEL-029

RRF-BJ4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐
Linear - 82.5% thruwall as measured on sketch, extending from
14" to 16" on fly side (J4 side). Evaluation completed by D. Harvey
after review of Pre-IHSI strip charts.

Examination Reference:

ISI Rot # 85-309

Signature of Examiner/Certif. Level

Date:

Donald E. Harvey, III

4/6/85

Signature of LMT Field Supervisor

Date:

Donald E. Harvey

4/6/85

Notification Acknowledged ☒

Date:

Client Representative: Harry A. Bingham

4/6/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐

COPY

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

AMBERT, MacGILL, THOMAS, INC.

515 Aldo Avenue
Santa Clara, CA 95050
(408) 980-9333

SHEET NO

OF

CALCULATED BY D. Henry

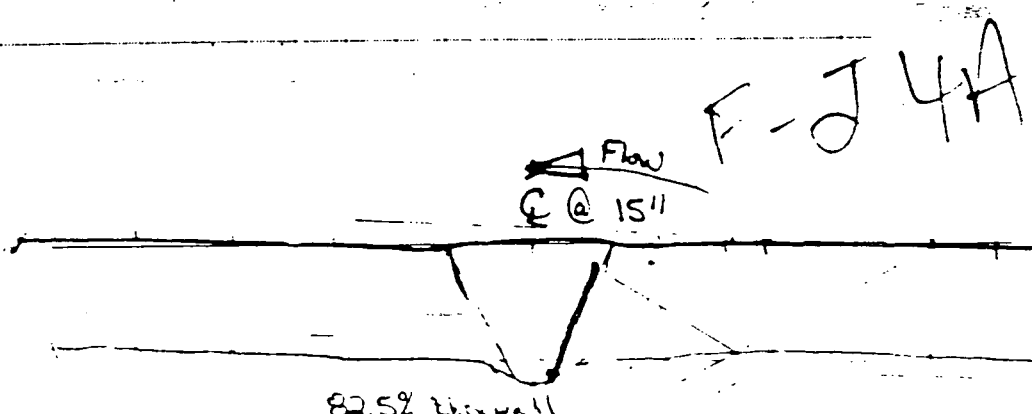
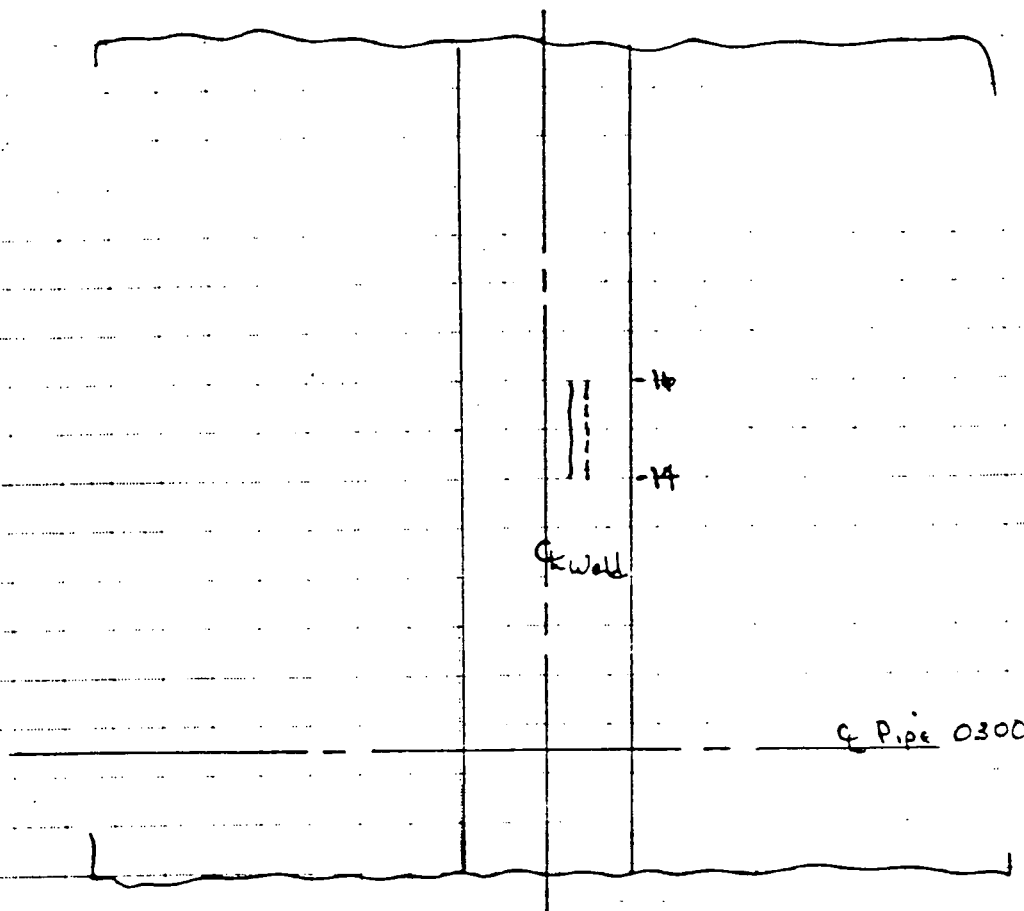
DATE 4/5/85

CHECKED BY

DATE

SCALE None

RRF-BJ4A



COPY

REPORT # NRT-010
PAGE 3 of 5

WELD # RRF-BJ4A (Relopk/Evaluation)

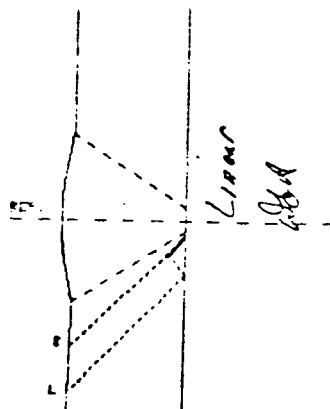
[illegible]

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT (ETC. WELD Q (W6); TDC/OUTER RADIUS (

RPT # = 85-403
 JOB NO. = IEL-029
 RRF-BJ4A
 IND# 1 (RELOOK-45)

BUT1
 SCH 3
 14 3 16
 EX. TPR. 2
 NP. T 8.50
 PR. T 8.50
 PT. SET 8.125
 PRP. ANG 22.3474435
 RNF 8.06
 L. ANG 48
 C. ANG 46
 T. ANG 46
 L. POS 8.30625
 C. POS 8.65625
 T. POS 8.65625
 L. R. P. 8.05
 T. R. P. 8.81

SCALE 1



LEAD SEX MAX. PT. = 42.5% DOC
 LEAD DEPTH 8.482
 LEAD POS. = -8.153

CENTER MAX. PT. = 85% DOC
 CENTER DEPTH 8.571
 CENTER POS. = -8.832

TRAIL SEX MAX. PT. = 42.5% DOC
 TRAIL DEPTH 8.575
 TRAIL POS. = -8.832

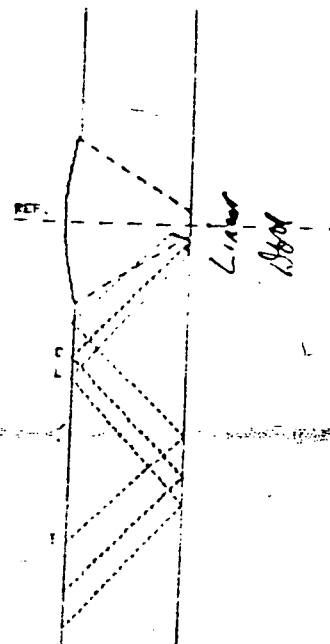
% WALL = 15

48512.8826

RPT # = 85-403
 JOB NO. = IEL-029
 RRF-BJ4A
 IND# 1a

BUT1
 SCH 3
 14 3 16
 EX. TPR. 2
 NP. T 8.50
 PR. T 8.50
 PT. SET 8.125
 PRP. ANG 22.3474435
 RNF 8.06
 L. ANG 48
 C. ANG 46
 T. ANG 46
 L. POS 8.30625
 C. POS 8.65625
 T. POS 8.65625
 L. R. P. 8.05
 T. R. P. 8.81

SCALE 1



LEAD SEX MAX. PT. = 68% DOC
 LEAD DEPTH 8.574
 LEAD POS. = -8.153

CENTER MAX. PT. = 128% DOC
 CENTER DEPTH 8.576
 CENTER POS. = -8.1

TRAIL SEX MAX. PT. = 68% DOC
 TRAIL DEPTH 8.482
 TRAIL POS. = -8.864

% WALL = 15

48512.1218

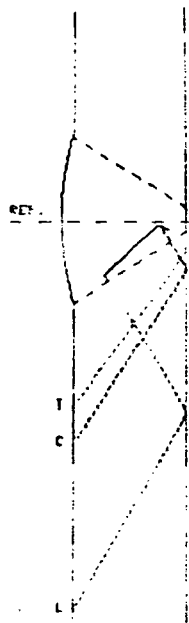
COPY

REPORT # NRI-010
 PAGE 4 of 5

RPT # = 85-403
 JOB NO. = 1EL-029
 RRF-BJ4A
 IND# 2(RELOOK-60)

BUT1
 SCN 4
 EX.TPR. 8
 MR.T 8.50
 FR.T 8.50
 RT.SET 8.125
 PPT.DNG 22.3424435
 RNF 8.86
 L.DNG 68
 C.DNG 57
 T.DNG 54
 L.POS 2
 C.POS 1.15625
 T.POS 8.50075
 L.N.P. 1.98
 C.N.P. 1.37
 T.N.P. 1.12

SCALE 1



LEAD 58% MAX.PT. = 55% DAC
 LEAD DEPTH 8.12
 LEAD.POS. = -8.284

CENTER MAX.PT. = 118% DAC
 CENTER DEPTH 8.436
 CENTER.POS. = -8.839

TRAIL 58% MAX.PT. = 55% DAC
 TRAIL DEPTH 8.582
 TRAIL.POS. = -8.861

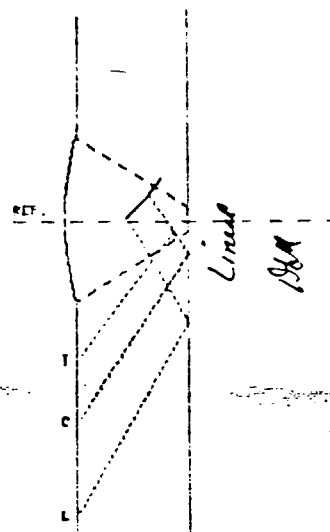
% WALL = 57

48512.1715

RPT # = 85-403
 JOB NO. = 1EL-029
 RRF-BJ4A
 IND# 3

BUT1
 SCN 4
 EX.TPR. 8
 MR.T 8.52
 FR.T 8.52
 RT.SET 8.125
 PPT.DNG 22.3424435
 RNF 8.86
 L.DNG 68
 C.DNG 57
 T.DNG 54
 L.POS 1.15625
 C.POS 8.75
 T.POS 1.76
 L.N.P. 1.4
 C.N.P. 1.18
 T.N.P. 1.18

SCALE 1



LEAD 58% MAX.PT. = 45% DAC
 LEAD DEPTH 8.26
 LEAD.POS. = -8.886

CENTER MAX.PT. = 58% DAC
 CENTER DEPTH 8.378
 CENTER.POS. = 8.112

TRAIL 58% MAX.PT. = 45% DAC
 TRAIL DEPTH 8.446
 TRAIL.POS. = 8.287

% WALL = 23

48512.274

COPY

REPORT # NRI-010
 PAGE 5 of 5

GENERAL ELECTRIC

EXAMINATION EVALUATION SUMMARY

EES NO. 013
DATE April 30, 1985

SYSTEM: RECIRCULATION

WELD ID: RRF-J4A

CLIENT: DUANE ARNOLD

EDS NO(S): 120 - 135

DISK ID: 13

DISK ID: 14

FILE NO(S): 1 - 15

FILE NO(S): 1

EVALUATION SUMMARY:

The evaluation provided below shall be considered PRELIMINARY with
no final resolution forthcoming due to the fact the weld overlay
operations were inacted on RRF-J4A prior to final manual evaluation.

PRELIMINARY RESULTS:

Circumferential indication observed in downstream weld HAZ at 17"-19"
and 14" - 15" L location. Other small axial indications were
observed at L locations of 24"-25" and 27"-28" and 7½"-8½".

EVALUATED BY:

RW Peckard

REVIEWED BY:

Tim D. Burkman

☐ REVIEWED ☐ APPROVED

LEVEL III DATE 4/30/85

LEVEL II DATE LMAY 1985

TTL _____ DATE _____

GENERAL ELECTRIC

SMART UT WELD EXAMINATION PARAMETERS

SYSTEM: RECIRC

SITE: DUANE ARNOLD

WELD No.: RRF-J4A

UNIT: 1

ISO No.: ASME 4.2-1

DATE: 4-20-85

WELD CONFIG. P-P
flow →

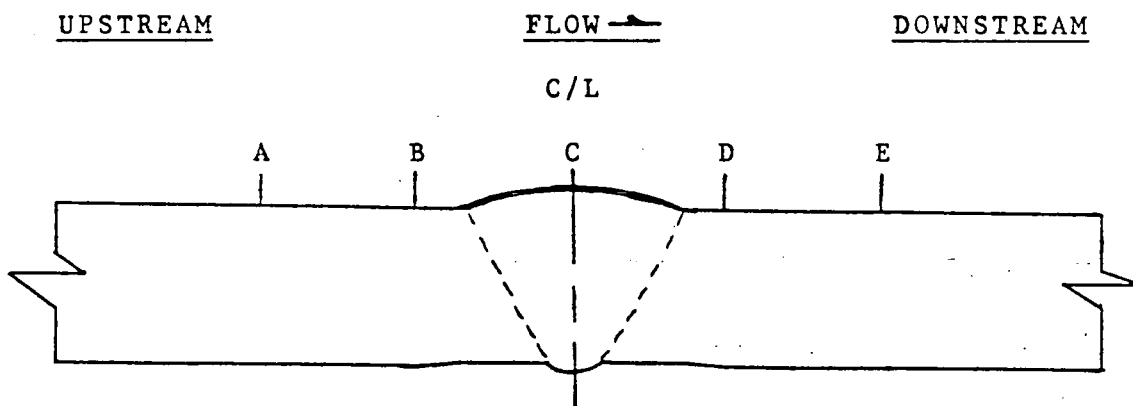
WELD PARAMETERS

CROWN HEIGHT: 1/8"

DIAMETER: 10"

CROWN WIDTH: 13/16"

WELD LENGTH: 34 1/4"



THICKNESS:

A) .562"

B) .576"

C) .664"

D) .582"

E) .582"

COMMENTS:

20"-30" ROUGH GRINDING AT
FUSION LINE ON BOTH SIDES.
(DIPS IN WELD)

CALIBRATION

CAL BLOCK No.: 651345

DIAMETER: 10"

CAL BLOCK "T": .618"

REFLECTOR: 4/8 NOTCH

WELD NUMBER RRH-J4A

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location DAEC
Cal. No. KH-021 Time 0910
Job No. TEL-029
Date 4-4-85
Page 1 of 4

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level Ken Kelt II Examiner/Level Jerry W. I Review/Level E. J. Thomas III
Authorized Inspector W. M. McCarty 5/2/85 Customer Chang A. Bonyan 4/5/85E
Q
UInstrument NORTEC 131-D S/N 530-B ReCal Due 6-14-85 Cable 6' COAX
Recorder Gulton TR-722 J S/N 71147 ReCal Due 7-28-85
Recorder LMT SLAVE S/N 2 ReCal Due 5-14-85
Vertical Linearity Check Check Completed KLH

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	50	46	40	36	30	26	21	16	10	5

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scaleI
P
M
E
N
TAttenuator Linearity Check Check Completed KLH

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	☒	40	22	☒	70	☒	78

Signal amplitude must fall within listed values

Transducers

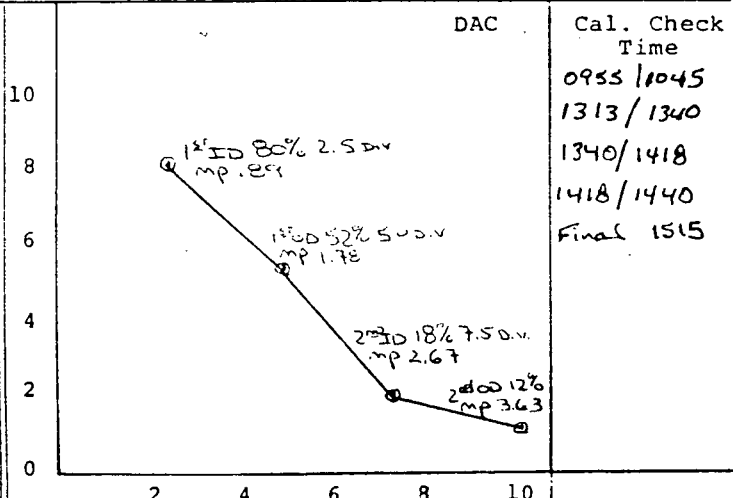
S/N NS2285 Mfg. H'sonic Type SW Size 1/2 x 1/2 Freq. 1.5MHz Index OK Angle 45°
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA
 S/N NA Mfg. NA Type NA Size NA Freq. NA Index NA Angle NA

P
R
O
CProcedure UT-10 Rev. 11 F.C. #8 Date 11-12-82C
A
L
I
B
R
A
T
I
O
NCal. Block Type PIPE SEG S/N 651345 Ref. Refl. ID NOTCH Temp. 80°FVerification/Ref. Blk. PIPE SEG S/N 651345 Ref. Refl. ID NOTCH Temp. 80°F

AXIALS NOTCHES WITHIN PROCEDURE TOLERANCES

Instrument Settings

	L	<	Digital
Gain	NA	54db	1"=1.00
Sweep	NA	5-812	4"=4.00
Delay	NA	1-362	NA
Reject	NA	OFF	NA
Damp.	NA	OFF	NA
Freq.	NA	WB	NA
Video	NA	(-)	NA
Rep. Rate	NA	1K	NA



Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC
Report No. 85-428
Cal. No. PH-021 Time 0955
Job No. IEL-029
Date 04-04-85
Page 1 of 18

Post INST

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM Description PIPE/PIPE Size 10" Ø Material S.S S/N(s) RRH-BJ4A
Location DAYWELL Preparation AS FOUND Temp 84°F

SIGN Examiner/Level Kim Hall # Examiner/Level Larry Wood Review/Level EJ Thom
Authorized Inspector W. M. O'Connell 5/6/85 Customer Larry A. Ryan 4/6/85

EQUIPMENT Tester 1 NORTEC 131-D S/N 530-B 2 LMT SLAVE S/N 2
Recorder GULONTR-722IS S/N 71147 2 NA S/N NA
Transducer 52285 1/2" 1.5mm, 45° 2 NA
3 NA 4 NA
Couplant LMT GEL Cable 6' COAX Marker NA Photo NA

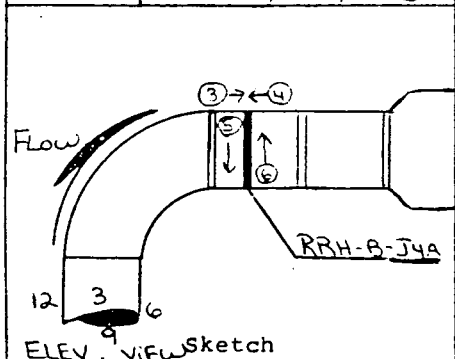
PROC Calibration Procedure UT-10 Rev. 11 F.C. #8
Examination Procedure UT-10 Rev. 11 F.C. #8
Recording Procedure UT-6 Rev. 2

CALIB. Calib. Blk. PIPE SEG 651345 Temp. 80°F Ref. ID NOTCH Amp. 80% Sweep 2.5 Div.
Ref. Gain 54db Damp. OFF Reject OFF Gate 2-10
Alarm NA Mag. Tape Count NA Chart ATTACHED Cal. Check Time 1045

Cal. Ref. Blk. PIPE SEG 651345 Ref. Refl. ID NOTCH Amp. 80% Sweep Position 2.5
Scan Gain 60db Ref. Dwg. ISO-120 Reject Level ASME XI Report Level ASME XI

E X A M I N A T I O N NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	NA						
1	Visual	NAD	7			13		
2	Base Metal	NA	8			14		
3	11 W/Flow	NA	9			15		
4	11 A/Flow	G	10			16		
5	11 C.W	NAD	11			17		
6	11 C.C.W	NAD	12			18		



Scan 3+4 3 Description of Indications ID + OD GEO. GREATER than 50% DAC (SEE DATA SHEET) linear on pup side of WEID, Refer to (2) (below)

SEE NRI-009 FOR Linear Rework and DATA

WELD # RRH-BJ4A

INDICATION #	SCAN DIRECTION	% DAC	M.P.'s			W's *			L's *			REMARKS
			TOWARD	MAX.	AWAY	TOWARD	MAX.	AWAY	L ₁	MAX.	L ₂	
1	3	100	2.28	2.45 (Butt)	2.60	1.65	1.85	2.0	6.25	7.0"	7.25	ID GEO.
2	3	50	.88	.88	1.02	.7	.7	.85	11 ³ / ₄	12 ¹ / ₁₆	12 ¹ / ₂	ID GEO.
3	3	50	1.58	1.79	1.90	.7	.7	.85	*	12 ¹ / ₁₆	*	ID GEO. * 360° Intermitt
4	3	200	2.3	2.45	2.61	1.75	1.85	2.0	*	12 ¹ / ₁₆	*	ID GEO. * 360° Intermitt
5	3	45	1.04	1.04	1.12	.7	.7	.80	25	25 ³ / ₈	25 ³ / ₄	ID GEO.
6	4	50	1.08	1.08 (Butt)	1.24	.7	.7	.85	*	3 ³ / ₈	*	ID GEO. * 360° Intermitt
7	3	100	.80	.80	1.02	.7	.7	.875	*	12	*	ID GEO. * 360° Intermitt
8	3	200	2.36	2.48 (Butt)	2.57	1.75	1.9	1.90	*	12 ¹ / ₄	*	ID GEO. * 360° Intermitt
9	4	35	1.13	1.13	1.25	.7	.7	.85	12	12 ¹ / ₄	12 ¹ / ₂	ID GEO.

REPORT # 85-428
 PAGE 2 of 18

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WGLD (Wb); TDC/OUTER RINGS (L

1'S: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS (L_0); WELD Q (w_0)



Testing • Engineering • Service • Training
515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Report No NRI-

Exam Date 4/4/85

NOTIFICATION OF REPORTABLE INDICATION

Part I - LMT Findings

LMT Job No. IEL-029

RRH-BJ-4A

NDT Method: UT ☒ PT ☐ MT ☐ ET ☐ VT ☐

Description of Indication: (Sketch/photograph attached Yes ☒ No ☐

Linear - 67.9% thruwall x 2 1/8" Long on pup side (J4 side). Extends from 1 to 22". Evaluation completed by D. Harvey after review ^{PR-IHSI} of a strip char

Examination Reference:

ISI Rpt. # 85-315 / 85-428

Signature of Examiner/Certif. Level

Date:

Donald E. Harvey III

4/6/85

Signature of LMT Field Supervisor

Date:

Donald E. Harvey

4/6/85

Notification Acknowledged by

Date:

Client Representative:

Kary A. Bungan

4/6/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes ☐ No ☐

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

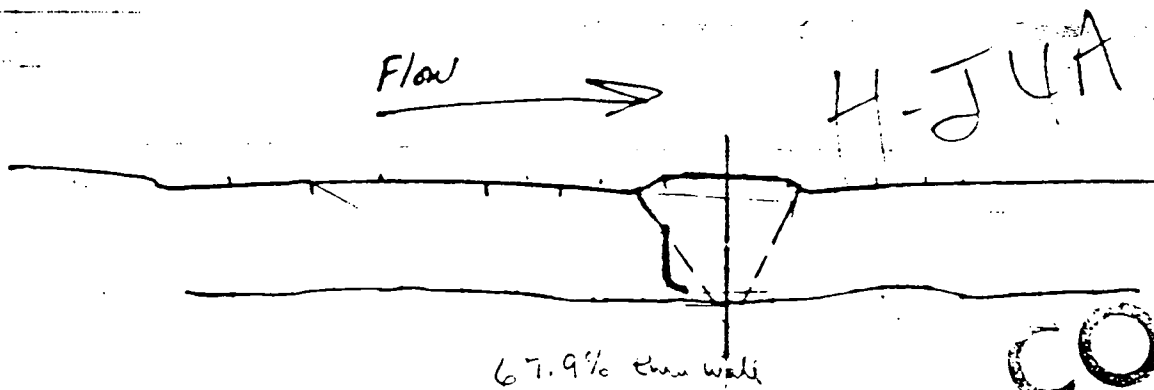
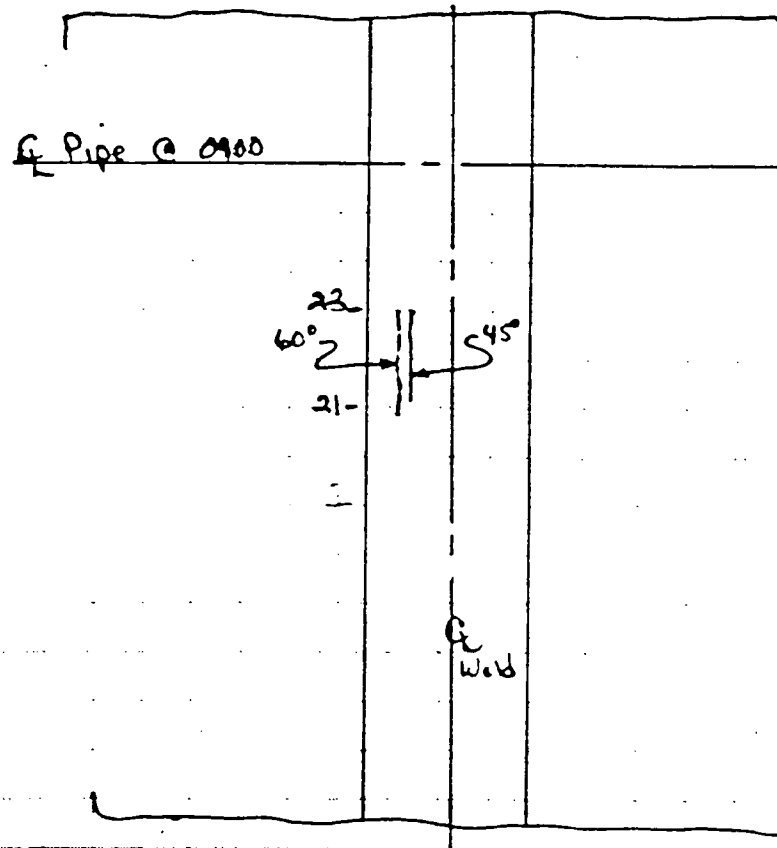
Closed

Date:

Client Representative

ADP

RRH-BJ4A



COPY

WELD # RRH-BJ4A (Relook/Evaluation)

[illegible]

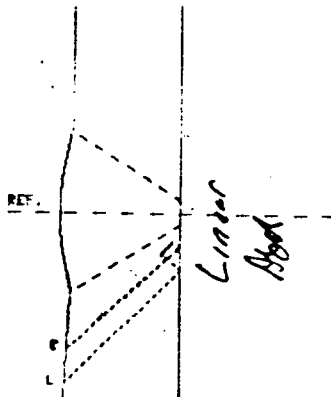
* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. W/LO $q(w)$]; TDC/OUTER RADII

REPORT # NAT-009
PAGE 3 of 5

RPT # = 85-428
 JOB NO. = IEL-029
 RRH-BJ4A
 IND# 1 (RELOOK-45)

BUTT
 SCN 3
 20 > 22
 EX.TPR. 4
 MR. 1 0.55
 FR. 1 0.55
 RT. SET 0.125
 PRP. ANG 22.3424435
 RNF 0.00
 L. ANG 40
 C. ANG 40
 I. ANG 40
 L. POS 0.075
 C. POS 0.783125
 I. POS 0.783125
 L.N.P. 0.94
 C.N.P. 0.81
 I.N.P. 0.81

SCALE :



LEAD 50% MAX. PI. = 50% DAC
 LEAD DEPTH 0.456
 LEAD POS. = -0.222

CENTER MAX. PI. = 100% DAC
 CENTER DEPTH 0.516
 CENTER POS. = -0.16

TRAIL 50% MAX. PI. = 50% DAC
 TRAIL DEPTH 0.516
 TRAIL POS. = -0.16

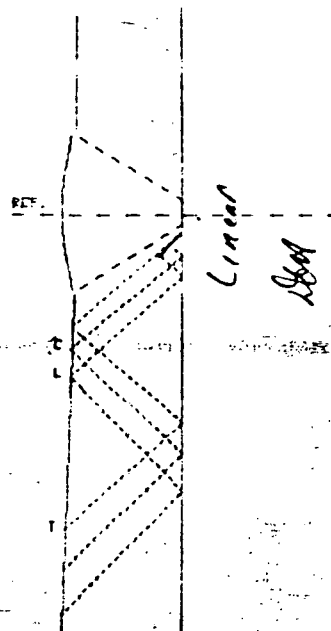
% WALL = 11

40511.1006

RPT # = 85-428
 JOB NO. = IEL-029
 RRH-BJ4A
 IND# 1a

BUTT
 SCN 3
 20 > 22
 EX.TPR. 2
 MR. 1 0.55
 FR. 1 0.55
 RT. SET 0.125
 PRP. ANG 22.3424435
 RNF 0.00
 L. ANG 40
 C. ANG 40
 I. ANG 40
 L. POS 2.0625
 C. POS 1.020125
 I. POS 1.020125
 L.N.P. 2.6
 C.N.P. 2.43
 I.N.P. 2.22

SCALE :



LEAD 50% MAX. PI. = 60% DAC
 LEAD DEPTH 0.438
 LEAD POS. = -0.238

CENTER MAX. PI. = 120% DAC
 CENTER DEPTH 0.484
 CENTER POS. = -0.102

TRAIL 50% MAX. PI. = 60% DAC
 TRAIL DEPTH 0.543
 TRAIL POS. = -0.123

% WALL = 20

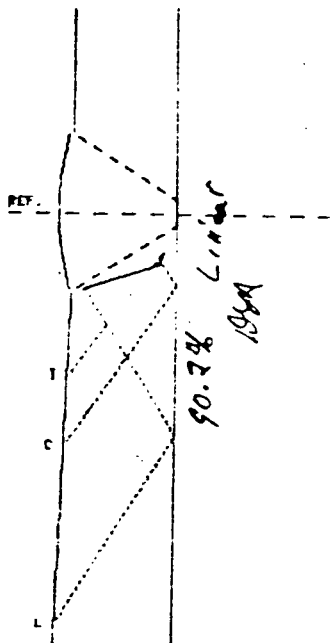
40511.2227

COPY

RPT # = 85-428
 JOB NO. = IEL-029
 RRH-BJ4A
 IND# 2(RELOOK-60)

BUT1
 SCH 3
 15-7/8 > 22
 EX. TPR. 2
 MR. 1 0.55
 FR. 1 0.55
 RT. SET 0.125
 PRP. ANG 22.34/4435
 BPF 0.06
 L. ANG 60
 C. ANG 57
 T. ANG 54
 L. POS 2.125
 C. POS 1.21572
 T. POS 0.853375
 L. N.P. 2.03
 C. N.P. 1.15
 T. N.P. 0.81

SCALE 1



LEAD 50% MAX. PT. = 55% DAC
 LEAD DEPTH 0.894
 LEAD. POS. = -0.483

CENTER MAX. PT. = 118% DAC
 CENTER DEPTH 0.463
 CENTER. POS. = -0.276

TRAIL 50% MAX. PT. = 55% DAC
 TRAIL DEPTH 0.483
 TRAIL. POS. = -0.22

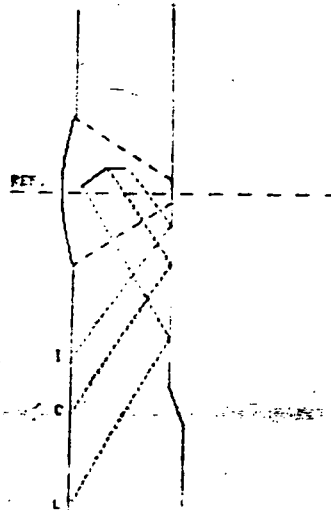
% WALL = 23

48511.5043

RPT # = 85-428
 JOB NO. = IEL-029
 RRH-BJ4A
 IND# 3

BUT1
 SCH 4
 15-7/8 > 22
 EX. TPR. 0
 MR. 1 0.58
 FR. 1 0.5
 CR. 1 0.5
 CR. LGTH. 1
 CR. ANG 21.68/48945
 RT. SET 0.125
 PRP. ANG 22.34/4435
 BPF 0.06
 L. ANG 60
 C. ANG 57
 T. ANG 54
 L. POS 1.625
 C. POS 1.15625
 T. POS 0.875
 L. N.P. 1.9
 C. N.P. 1.51
 T. N.P. 1.22

SCALE 1



LEAD 50% MAX. PT. = 68% DAC
 LEAD DEPTH 0.85
 LEAD. POS. = 0.822

CENTER MAX. PT. = 128% DAC
 CENTER DEPTH 0.178
 CENTER. POS. = 0.112

TRAIL 50% MAX. PT. = 68% DAC
 TRAIL DEPTH 0.283
 TRAIL. POS. = 0.114

% WALL = 40

48511.524

COPY

WELD NUMBER RHB-J1

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location OAECReport No. 85-528Cal. No. DR-027 Time 1410Job No. 1EL-029Date 4-12-85Page 1 of 15

Post IHST

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

I T E M	Description <u>TEE/PIPE</u> Size <u>18"φ</u> Material <u>SS</u> S/N(s) <u>RHB-BJ1</u>																																																																								
	Location <u>DRYWELL</u> Preparation <u>As found</u> Temp <u>88°F</u>																																																																								
S I G N	Examiner/Level <u>DR/1/1</u> Examiner/Level <u>James W. Russell</u> Review/Level <u>Donald Henry/III</u>																																																																								
	Authorized Inspector <u>W. W. Russell</u> 5/22/85 Customer <u>Henry A. Bannan</u> 4/30/85																																																																								
E Q U I P M E N T	Tester 1 <u>Montec 1310</u> S/N <u>410</u> 2 <u>LMTSLAVE</u> S/N <u>3</u>																																																																								
	Recorder 1 <u>Gulton TR722</u> S/N <u>2091002</u> 2 <u>NA</u> S/N <u>NA</u>																																																																								
	Transducer 1 <u>H. sonic, SW, 1/2" x 1/2", 1.6 MHz, 45°</u> S/N <u>52285</u> 2 <u>NA</u>																																																																								
	3 <u>NA</u> 4 <u>NA</u>																																																																								
	Couplant <u>6384 LMT</u> Cable <u>6' Coax</u> Marker <u>NA</u> Photo <u>NA</u>																																																																								
P R O C	Calibration Procedure <u>UT-10</u> Rev. <u>11 FC8</u>																																																																								
	Examination Procedure <u>UT-10</u> Rev. <u>11 FC8</u>																																																																								
	Recording Procedure <u>UT-6</u> Rev. <u>2</u>																																																																								
C A L I B	Calib. Blk. <u>AK 7724</u> Temp. <u>84°F</u> Ref. <u>TD North</u> Amp. <u>80%</u> Sweep <u>2.5 d.v</u>																																																																								
	Ref. Gain <u>54 dB</u> Damp. <u>OFF</u> Reject <u>OFF</u> Gate <u>2.0 - 10.0 d.v</u>																																																																								
E X A M I N A T I O N	Alarm <u>NA</u> Mag. Tape Count <u>NA</u> Chart <u>Attached</u> Cal. Check Time <u>1450</u>																																																																								
	<u>LMT-040</u> Cal. Ref. Blk. <u>Rompas</u> Ref. Refl. <u>4 mp/SDA</u> Amp. <u>75%/85%</u> Sweep Position <u>7.8/2.1 d.v</u> Scan Gain <u>60 dB</u> Ref. Dwg. <u>ISO 114</u> Reject Level <u>ASME XI</u> Report Level <u>ASME XI</u>																																																																								
	NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples <table border="1"> <thead> <tr> <th>Scan</th> <th>Type</th> <th>Disp.</th> <th>Scan</th> <th>Type</th> <th>Disp.</th> <th>Scan</th> <th>Type</th> <th>Disp.</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>PT</td> <td>NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>Visual</td> <td>NAD</td> <td>7</td> <td></td> <td></td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Base Metal</td> <td>NA</td> <td>8</td> <td></td> <td></td> <td>14</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>LW/Flow</td> <td>NA</td> <td>9</td> <td></td> <td></td> <td>15</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>LA/Flow</td> <td>G</td> <td>10</td> <td></td> <td></td> <td>16</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>LCW</td> <td>NAD</td> <td>11</td> <td></td> <td></td> <td>17</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>LCW</td> <td>NAD</td> <td>12</td> <td></td> <td></td> <td>18</td> <td></td> <td></td> </tr> </tbody> </table>		Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.	0	PT	NA							1	Visual	NAD	7			13			2	Base Metal	NA	8			14			3	LW/Flow	NA	9			15			4	LA/Flow	G	10			16			5	LCW	NAD	11			17			6	LCW	NAD	12			18	
Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.																																																																	
0	PT	NA																																																																							
1	Visual	NAD	7			13																																																																			
2	Base Metal	NA	8			14																																																																			
3	LW/Flow	NA	9			15																																																																			
4	LA/Flow	G	10			16																																																																			
5	LCW	NAD	11			17																																																																			
6	LCW	NAD	12			18																																																																			
ELEV. VIEW Sketch		Scan 3 NO SC SCAN DUE TO TEE Scan 4 see attached data sheet for disp																																																																							

WELD # RHB-BJI

[illegible]

* W'S: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. WELD $Q(W_0)$; TDC/OUTER RADIUS(L_0)]
L'S: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC. TDC/OUTER RADIUS(L_0); WELD $Q(W_0)$]

RPT # = 85-528

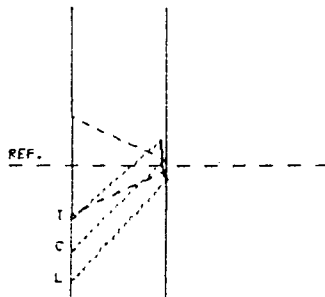
JOB NO. = IEL-029

RHB-BJ1

IND# 1

BUTT
SCN 4
10
EX.TPR. 0
NR.T 0.36075
FR.T 0.36075
RT.SEP. 0.125
P.ANG. 25
RNF 0
L.ANG. 47
C.ANG. 45
T.ANG. 43
L.POS. 1.1975
C.POS. 0.875
T.POS. 0.5625
L.NP. 1.42
C.NP. 1.71
T.NP. 1.23

SCALE 0.5



LEAD 50% MAX.PI. = 47.5% DAC
LEAD DEPTH 0.935
LEAD.POS. = -0.112

CENTER MAX.PI. = 35% DAC
CENTER DEPTH 0.926
CENTER.POS. = 0.951

TRAIL 50% MAX.PI. = 47.5% DAC
TRAIL DEPTH 0.899
TRAIL.POS. = 0.226

% WALL = 4

41387.3540

RPT # = 85-528

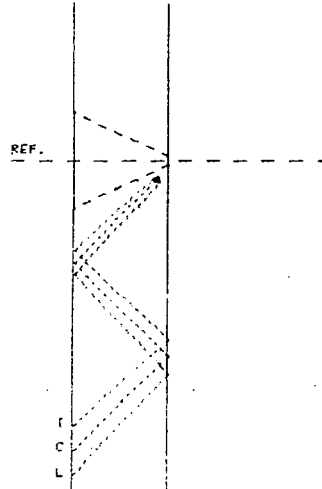
JOB NO. = IEL-029

RHB-BJ1

IND# 2

BUTT
SCN 4
10
EX.TPR. 0
NR.T 0.36075
FR.T 0.36075
RT.SEP. 0.125
P.ANG. 25
RNF 0
L.ANG. 47
C.ANG. 45
T.ANG. 43
L.POS. 3.25
C.POS. 3
T.POS. 2.75
L.NP. 4.12
C.NP. 3.98
T.NP. 3.73

SCALE 0.5



LEAD 50% MAX.PI. = 50% DAC
LEAD DEPTH 0.922
LEAD.POS. = -0.237

CENTER MAX.PI. = 100% DAC
CENTER DEPTH 0.976
CENTER.POS. = -0.186

TRAIL 50% MAX.PI. = 50% DAC
TRAIL DEPTH 0.79
TRAIL.POS. = -0.206

% WALL = 3

41387.3585

RPT # = 85-528

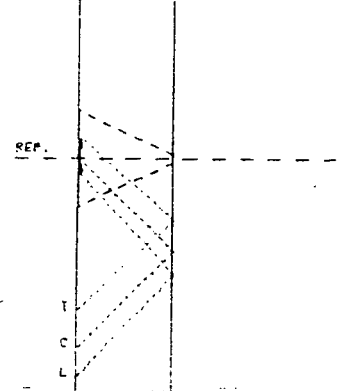
JOB NO. = IEL-029

RHB-BJ1

IND# 3

BUTT
SCN 4
10
EX.TPR. 0
NR.T 0.36075
FR.T 0.36075
RT.SEP. 0.125
P.ANG. 25
RNF 0
L.ANG. 47
C.ANG. 45
T.ANG. 42
L.POS. 2.25
C.POS. 1.3375
T.POS. 1.5625
L.NP. 2.85
C.NP. 2.71
T.NP. 2.6

SCALE 0.5



LEAD 50% MAX.PI. = 35% DAC
LEAD DEPTH 0.933
LEAD.POS. = -0.136

CENTER MAX.PI. = 70% DAC
CENTER DEPTH 0.921
CENTER.POS. = -0.921

TRAIL 50% MAX.PI. = 35% DAC
TRAIL DEPTH 0.936
TRAIL.POS. = 0.211

% WALL = 2

41387.4213

REPORT # 85-528
PAGE 3 of 15

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333Location DAECCal. No. DR-027 Time 1400Job No. TEL-029Date 4-12-85Page 1 of 6

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level D. J. P. / II Examiner/Level Chris W. Russell Review/Level Donald H. Hanning / III
Authorized Inspector D. J. P. / 5/22/85 Customer Lang A. B. / 4/30/85E
Q
UInstrument NORTEC 131D S/N 410 ReCal Due 5-19-85 Cable 6' COAX
Recorder GULTON TR 722 S/N 2091002 ReCal Due 5-2-85
Recorder LMT SLAVE S/N 3 ReCal Due 6-14-85
Vertical Linearity Check Check Completed OK

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	49	44	40	35	30	25	20	15	10	5

Signal 2 shall equal 50% of Signal 1 $\pm$ 5% of full scaleI
P
M
E
N
TAttenuator Linearity Check Check Completed OK

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	80%	32 to 48	16 to 24	20%	64 to 96	40%	64 to 96
Actual Value	<u>44</u>	<u>23</u>	<u>74</u>	<u>76</u>			

Signal amplitude must fall within listed values

Transducers

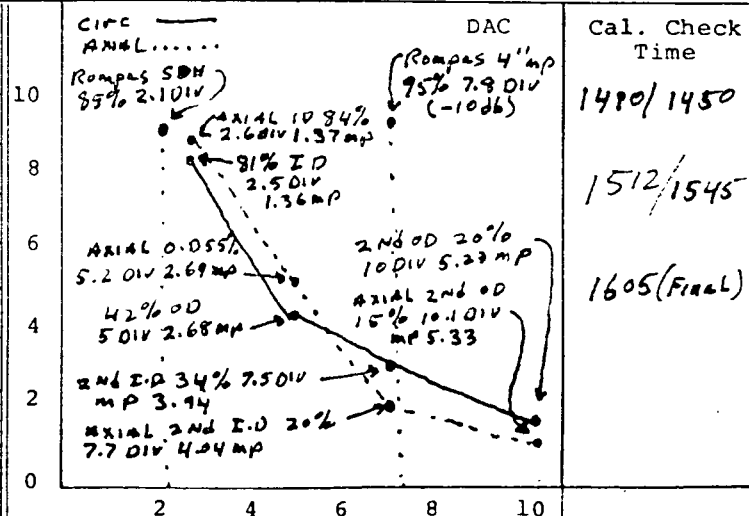
S/N S2285 Mfg. H'SONIC Type SW Size 1/2" x 1/2" Freq. 1.2 MHz Index OK Angle 45°
 S/N MIA Mfg. MIA Type MIA Size MIA Freq. MIA Index MIA Angle MIA
 S/N } Mfg. } Type } Size } Freq. } Index } Angle }
 S/N } Mfg. } Type } Size } Freq. } Index } Angle }

P
R
O
CProcedure UT-10 Rev. 11FL8 Date 11-12-82C
A
L
I
B
R
A
T
I
O
N

Cal. Block Type PIPE SEG S/N A3533064 Ref. Refl. ID NOTCH Temp. 84°F
 Verification/Ref. Blk. ROMPAS S/N LMT040 Ref. Refl. SDH 4" MP Temp. 84°F

Instrument Settings

	L	∠	Digital
Gain	<u>MIA</u>	<u>54/56</u>	<u>MIA</u>
Sweep	<u>5/822</u>	<u>1"=1.00</u>	<u>4"=4.00</u>
Delay	<u>10/314</u>	<u>N/A</u>	
Reject	<u>OFF</u>		
Damp.	<u>OFF</u>		
Freq.	<u>WB</u>		
Video	<u>1</u>		
<u>RR</u>		<u>1k</u>	



WELD NUMBER RRA-J4

Lambert • MacGill • Thomas, Inc.

Testing • Engineering • Service • Training

515 Aldo Avenue

Santa Clara, CA 95050

408-980-9333

Location D.A.E.C.Cal. No. KH-010 Time 1450Job No. IEL-029Date 3/14/85Page 1 of 7

REPORT OF ULTRASONIC CALIBRATION

S
I
G
NExaminer/Level Kevin Lee II Examiner/Level Jerry Wood I Review/Level Donald Harvey IIT
Authorized Inspector W.N. MacGill 5/22/85 Customer Henry R. Rupp 3/14/85E
QInstrument NORTEC 131-D S/N 311 ReCal Due 4/22/85 Cable 6' COAXIAL BNC to MCRDT
Recorder GULTON TR 722 S/N 8082502 ReCal Due 6/5/85
Recorder LMT SLAVE S/N 19 ReCal Due 4/29/85

Vertical Linearity Check

Check Completed RH

Signal 1	100	90	80	70	60	50	40	30	20	10
Signal 2	<u>50</u>	<u>45</u>	<u>41</u>	<u>35</u>	<u>30</u>	<u>26</u>	<u>21</u>	<u>15</u>	<u>10</u>	<u>6</u>

Signal 2 shall equal 50% of Signal 1 $\pm 5\%$ of full scaleI
P

Attenuator Linearity Check

Check Completed RH

Tester Gain	Set	-6	-12	Set	+12	Set	+6
Signal Amp.	<u>80%</u>	<u>32 to 48</u>	<u>16 to 24</u>	<u>20%</u>	<u>64 to 96</u>	<u>40%</u>	<u>64 to 96</u>
Actual Value	<u>42</u>	<u>22</u>	<u>66</u>	<u>76</u>			

Signal amplitude must fall within listed values

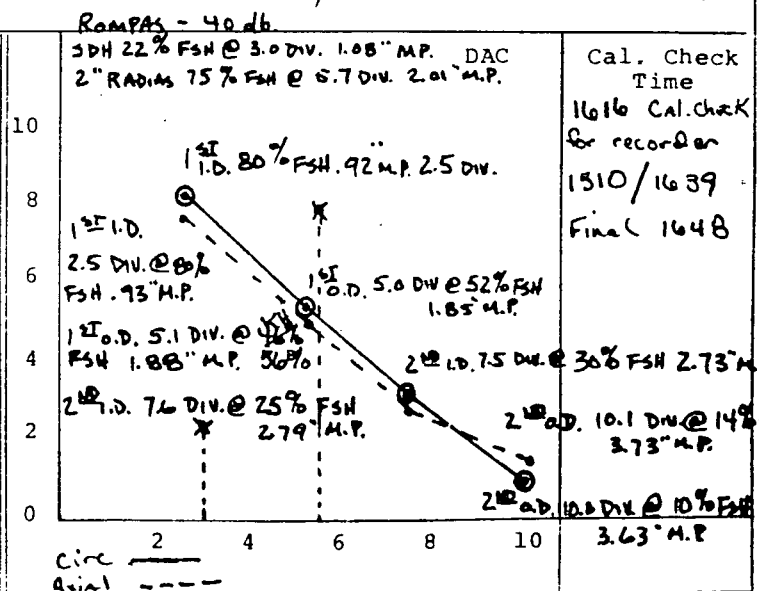
E
N
T

Transducers

S/N A1299 Mfg. H'sonic Type S.W. Size 1/2" x 1/2" Freq. 2.25MHz Index OK Angle 44°S/N N/A Mfg. N/A Type N/A Size N/A Freq. N/A Index N/A Angle N/AS/N N/A Mfg. N/A Type N/A Size N/A Freq. N/A Index N/A Angle N/AS/N N/A Mfg. N/A Type N/A Size N/A Freq. N/A Index N/A Angle N/AP
R
O
CProcedure UT-10 Rev. 11 F.C.B Date 11/12/82C
A
L
I
B
R
A
T
I
O
NCal. Block Type PIPE SEG. S/N 651345 Ref. Refl. 1.D. NITCH Temp. 89°F.Verification/Ref. Blk. Rompas S/N 039 Ref. Refl. SDH/2" Temp. 89°F.

Instrument Settings

	L	∠	Digital
Gain	<u>N/A</u>	<u>A. 57db</u> <u>C. 53db</u>	<u>1" = 1.00</u>
Sweep		<u>5/824</u>	<u>4" = 4.00</u>
Delay		<u>1/490</u>	<u>N/A</u>
Reject		<u>OFF</u>	
Damp.		<u>OFF</u>	
Freq.		<u>W.B.</u>	
Video		<u>(+)</u>	
Reprate		<u>1K</u>	



Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

Location DAEC

Report No. 85-302

Cal. No. KH-010 Time 1510

Job No. IEL-029

Date 3/14/85

Page 1 of 26

POST IHSI

REPORT OF VISUAL AND ULTRASONIC EXAMINATION

ITEM Description ELbow to PIPE Size 10" Material S/S S/N(s) RAA-BJ4
Location DRY WELL Preparation AS FOUND Temp 101°F

SIGN Examiner/Level Kevin Hall II Examiner/Level Jerry Wood I Review/Level Donald Henry III
Authorized Inspector M.M. O'Connell 4/15/85 Customer Thomson 3/14/85

EQUIPMENT Tester 1 NORTEC 131-D S/N 311 2 NA S/N NA
Recorder 1 Guthrie TR 702 S/N 8082502 2 NA S/N NA
Transducer 1 1 1/2" S.W.H. Sonic 2.25MHz S/N 41299 2 NA
3 NA 4 NA
Couplant LMT GEL Cable 6' coaxial Marker NA Photo NA

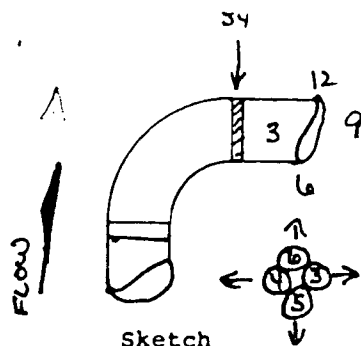
PROC Calibration Procedure UT-10 Rev. 11 F.C. 8
Examination Procedure UT-10 Rev. 11 F.C. 8
Recording Procedure UT-6 Rev. 2

CALIB. Calib. Blk. PIPE 586 Temp. 89°F Ref. ID NOTCH Amp. 80% FSH Sweep 2.5 DIV
Ref. Gain 53dB / 57dB Damp. OFF Reject OFF Gate 1.8 to 10.0
Alarm NA Mag. Tape Count NA Chart ATTACHED Cal. Check Time 1639

E X A M I N A T I O N Cal. Ref. Blk. Rampes Ref. Refl. 30H/2" Rad Amp. 22%/75% Sweep Position 3.0/5.7 2W
Scan Gain 40dB Ref. Dwg. ISO-122 Reject Level ASME XI Report Level ASME XI

NAD = No Apparant Disc. L = Linear G = Geometry S = Spot M = Multiples

Scan	Type	Disp.	Scan	Type	Disp.	Scan	Type	Disp.
0	PT	<u>NA</u>						
1	Visual	<u>L</u>	7			13		
2	Base Metal	<u>N/A</u>	8			14		
3	<u>L W/FLOW</u>	<u>NAD</u>	9	<u>N A</u>		15	<u>N A</u>	
4	<u>L A/FLOW</u>	<u>G</u>	10			16		
5	<u>II CW</u>	<u>L</u>	11			17		
6	<u>II CCW</u>	<u>NAD</u>	12			18		



Scan Description of Indications
1 Visual has LEAK at - 3 1/2 in. TDC (CCW)
3 ID+OD CED. LESS than 50% DAC
4 OD CED greater than 50% DAC
5 ID+OD greater than 50% DAC

(SEE ATTACHED)

WELD # BRA-BJ4

INDICATION #	SCAN DIRECTION	% DAC	M P's			W's *			L's *			REMARKS
			Toward	MAX	AWAY	Toward	MAX.	AWAY	L ₁	MAX.	L ₂	
1	3	40-50	Butt	1.85	1.9	Butt	.8	.9	-8 $\frac{3}{4}$	-9	-9 $\frac{1}{8}$	OD GEO.
2	3	25	Butt	.93	1.07	Butt	.8	.9	23	23	23 $\frac{3}{8}$	ID GEO.
3	3	50	Butt	.99	1.19	Butt	1.2	1.3	-2 $\frac{1}{4}$	-2 $\frac{1}{4}$	-2 $\frac{7}{16}$	ID GEO.
4	4	100	1.68	1.75	1.86	.9	1.0	1.2	-3 $\frac{1}{4}$	-3 $\frac{1}{2}$	-3 $\frac{13}{16}$	OD GEO.
5	5	100	Butt	1.82	2.03	Butt	2"	2.25	-2 $\frac{14}{16}$	-3	-3 $\frac{5}{16}$	OD GEO. Linear Center

Note: Minus measures indicate dimensions taken in counter clockwise direction.

REPORT # 85-302
PAGE 92 of 36

* W's: DISTANCE FROM TRANSDUCER INDEX TO A DATUM POINT [ETC. W6LD 6 (W6); TDC/OUTER RADIUS (10

LIS: DISTANCE FROM TRANSDUCER CENTER TO A DATUM POINT [ETC TDC/OUTER RADIUS (L_0); WELD Q (W_0)

Lambert • MacGill • Thomas, Inc.



Testing • Engineering • Service • Training

515 Aldo Avenue
Santa Clara, CA 95050
408-980-9333

JOB
Location DAEC

Report No NRI 002

Exam Date 3/14/85

NOTIFICATION OF REPORTABLE INDICATION

Part I - LMT Findings

LMT Job No. IEL-029

RRA-BJ4

NDT Method: UT ✓ PT MT ET VT

Description of Indication: (Sketch/photograph attached Yes ✓ No)

Linear - axially oriented - 100% thru wall (water leaking). No ultrasonic indications on inner diameter. Ultrasonically, indication detected at $\frac{3}{4}$ " from center line of weld on elbow side, 2.541" ccw from TDC.

Verbal to IE on 3/14/85

Examination Reference:

ISI Rpt # 85-302

Signature of Examiner/Certif. Level

Kevin J. Hall II

Date:

03/27/85

Signature of LMT Field Supervisor

Donald C. Hamby

Date:

3/27/85

Notification Acknowledged by ✓

Date:

Client Representative:

Harry D. Berman

3/27/85

Part II - Re-examination

Findings: (Sketch/photograph attached Yes No)

Re-examination Reference:

Signature of Examiner/Certif. Level

Date:

Signature of LMT Supervisor

Date:

Closed

Date:

Client Representative

771 East Brokaw Road
SAN JOSE, CALIFORNIA 95112
(408) 297-8766

SHEET NO.

OF

CALCULATED BY

D. Harvey

DATE _____

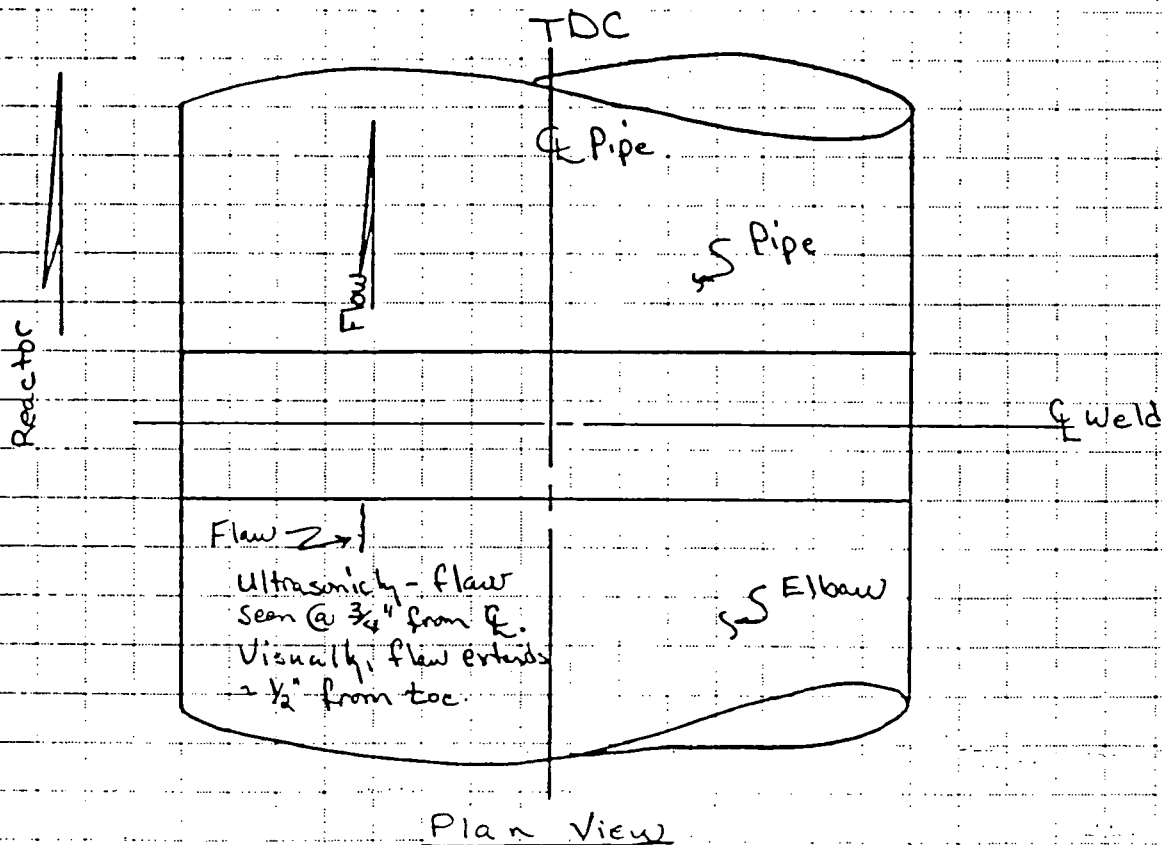
3/27/85

CHECKED BY

DATE _____

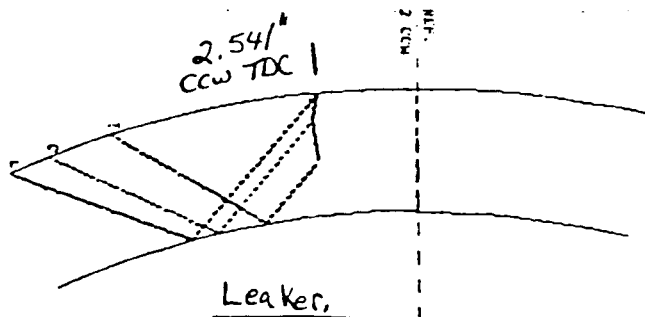
8SCALE

RRA-BJ4



CENTIM MAX.P1.-	100% DOC
CENTIM DEFIII	0.143
CENTIM.PDS.-	-0.041
IEMIL MAX.MX.P1.-	50% DA
IEMIL DEFIII	0.338
IEMIL.PDS.-	-0.307
Z-MAX.L-	32

32710. 3540



```

KPT # = 85-302
JOB NO. = 1EL-029
RRA-BJ4
IND# 5

TIME
SCN 5
J4
WALL H. 0.025
OUTSIDE W. 5.325
C.DMG 42
C.DMG 43
L.PDS 2.15625
L.PDS 1.5325
L.PDS 1.5325
L.PDS 1.5325
L.PDS 1.5325
L.PDS 1.5325
SCALE 1

```

Note: This is a true plot of the indicatory. The original plot was performed as on flat surface.