PHILADELPHIA ELECTRIC COMPANY

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(215) 841-4502

JOHN S. KEMPER
VICE-PRESIDENT
ENGINEERING AND RESEARCH

AUG 28 1984

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 & 2
Information for Materials Engineering Branch (MTEG)
Regarding SER Confirmatory Issue #12 - Preservice
Inspection (PSI) Program

References:
1) Telecon between M. Hum (NRC/MTEB), B. Brown (EG&G Lab.) and D. Schmidt (PECo), 8/17/84
2) Telecon between M. Hum/C. Cheng (NRC/MTEB) and D. Schmidt (PECo), 7/20/84
3) Letter, J. S. Kemper (PECo) to A. Schwencer (NRC), dated 7/17/84

Attachment: Limerick Unit 1 PSI Relief Request No. 15, Rev. 1

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

As discussed in the reference 1) and 2) telecons, the attachment provides a revision to Relief Request No. 15. Originally transmitted by reference 3), Relief Request No. 15 has been revised to provide the requested clarification and additional information.

Sincerely,

V. S. Boyer
for JSK

DLS/pd08278402

See Attached Service List

B001
1/1

cc: Judge Lawrence Brenner (w/o enclosure)
Judge Peter A. Morris (w/o enclosure)
Judge Richard F. Cole (w/o enclosure)
Troy B. Conner, Jr., Esq. (w/o enclosure)
Ann P. Hodgdon, Esq. (w/o enclosure)
Mr. Frank R. Romano (w/o enclosure)
Mr. Robert L. Anthony (w/o enclosure)
Maureen Mulligan (w/o enclosure)
Charles W. Elliot, Esq. (w/o enclosure)
Zori G. Ferkin, Esq. (w/o enclosure)
Mr. Thomas Gerusky (w/o enclosure)
Director, Penna. Emergency Management Agency (w/o enclosure)
Angus R. Love, Esq. (w/o enclosure)
David Wersan, Esq. (w/o enclosure)
Robert J. Sugarman, Esq. (w/o enclosure)
Martha W. Bush, Esq. (w/o enclosure)
Spence W. Perry, Esq. (w/o enclosure)
Jay M. Gutierrez, Esq. (w/o enclosure)
Atomic Safety & Licensing Appeal Board (w/o enclosure)
Atomic Safety & Licensing Board Panel (w/o enclosure)
Docket & Service Section (w/o enclosure)
Mr. James Wiggins (w/o enclosure)
Mr. Timothy R. S. Campbell (w/o enclosure)

Limerick Generating Station, Unit 1
Preservice Inspection Relief Request
ASME B&PV Code, Section XI

15. Class 2 Pressure Retaining Welds in Piping
Code Item Nos. C2.1 and C2.2, Category C-F

Code Requirement

Those pipe circumferential butt welds and those longitudinal weld joints in pipe fittings included in Code Category C-F of Table IWC-2520 shall be volumetrically examined per Item Nos. C2.1 and C2.2 of Table IWC-2600. The examinations shall include 100% of the C-F welds and shall be performed completely, once, as a preservice examination requirement. Table IWC-2520 requires the examination volume to include the weld plus the base metal for distance of one-wall thickness beyond the edge of the weld.

Relief Request:

Relief is requested from the base metal volume requirement of Table IWC-2520. Radiography was utilized as the volumetric examination technique. The examination volume included the weld plus the base metal for a minimum distance of $\frac{1}{4}$ inch beyond the edge of the weld. There are 40 circumferential and 80 longitudinal welds associated with 20 Main Steam elbows included in this relief request.

Justification for Granting Relief:

The integrity of the piping pressure boundary has been verified by construction code testing requirements. Shop welds were radiographed in accordance with that edition of ASME Section III in effect at the time of procurement. Field weld examinations, which include radiography and hydrostatic pressure tests, were performed in accordance with the 1974 Edition of Section III including the Addenda through Winter 1974.

Laminar indications throughout the base metal of the 20 Main Steam elbows have precluded ultrasonic testing from providing a meaningful Section XI Volumetric examination. The construction radiographs for the welds in question were reviewed and additional radiography was performed to achieve coverage in excess of the requirements of the 1980 Edition of Section XI, including the Addenda through the Winter 1981, per Figure IWC-2500-7 (Anticipated Code Edition for ISI Program). Radiography will be used for subsequent ISI. The preservice volumetric examinations have been augmented by complete liquid penetrant tests, which were performed in accordance with the 1977 Edition of Section XI, including the Addenda through Summer 1978.

Limerick Generaing Station, Unit 1
Preservice Inspection Relief Request
ASME B&PV Code, Section XI

15. Additional Information:

These 20 Main Steam elbows were fabricated from SA 515 Gr. 70 rolled carbon steel plate with specified design minimum wall thickness of .928 inches. Many of these elbows exhibit a condition of stacked mid plate indications, detectable by 0° longitudinal wave ultrasonic testing (UT). These indications are dispositioned as a combination of laminations and planar non-metallic inclusions throughout the elbow base metal. Though not rejectable to the applicable base material Code testing requirements, this condition limits the effectiveness and completeness of the angle beam UT.

The preservice examination of the welds in these 20 elbows is divided into 120 volumes. Fifty-six (56) of the volumes were examined ultrasonically (0°, 45° ax, 45° circ). A breakdown of the examinations is as follows:

Number Complete	29
Number Incomplete	27
Number with Recordable Indications	21

The majority of these UT examinations were performed from the pipe side due to the laminar indications detected in the elbow base metal during the 0° straight beam examination.

When the decision was made to use the construction radiographs for the preservice inspection, additional radiography was required to achieve ASME Section XI, 1980 coverage. Based on an evaluation of the radiographs and the limited UT examinations, it was determined that additional angle radiography, down the fusion line, would not be of any benefit.

For inservice inspection, both the required volumetric and surface examination will be performed. However, radiography will be used in lieu of ultrasonic testing. UT will be used for interrogative purposes when possible when a change is noted during comparison of the baseline radiographs with the subsequent inservice inspection radiographs.

Attached are the UT examination data for two welds. This information is typical of the condition found in the base metal of the 20 elbows.

Plant/Unit Limerick I
Comp/System MS

CALIBRATION DATA SHEET

Data Sheet No. 1566-253
Procedure No. ZQA 1566
Subject Piping Welds
Rev/Change No. 1 CA 1
Calibration Block No. Lim 26-928CS
Surface OD
Block Temp 70 °F
Comp. Temp 68 °F

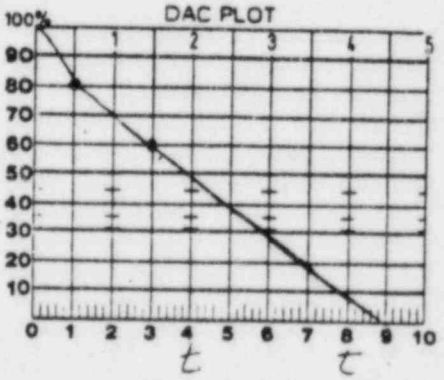
INSTRUMENT SETTINGS	
Mfg/Model No.:	Sonic Mk1
Serial No. :	785039
Sweep Length :	2.10
Sweep Delay :	1.90
Pulse Length/Damping:	Min
Freq. 2 Rep. Rate:	1K
Filter: Mid Video: Jack:	T
DEC/Gate Switch:	off Range: 2
Mode Select: Norm Reject:	off
Gain (coarse): 50 (fine):	2

SEARCH UNIT	
Scan Angle: 0° Mode:	L
Fixturing (if any):	NA
Style or Type No. :	Accusan
Size & Shape :	1.0 Round
Frequency :	2.25MHz
Serial No/Brand:	6102
Measured Angle :	NA
Cable Type & Length:	RG174-U42'
Couplant Brand:	Sonotrace 30
Couplant Batch:	8783

holes IDENT.	DEPTH in.	AMPL. %	ATTEN. dB
1/4t	.286	80	52
3/4t	.858	60	↓

INSTR. LINEARITY CAL. Amplitude					
	High	Low		High	Low
1	100	50	5	40	20
2	80	40	6	31	15
3	64	31	7	25	12
4	50	25	8	20	10

SCAN AREA	
0° WRV	X
0° Mat'l	X
⊥ to Weld	—
= to Weld	—



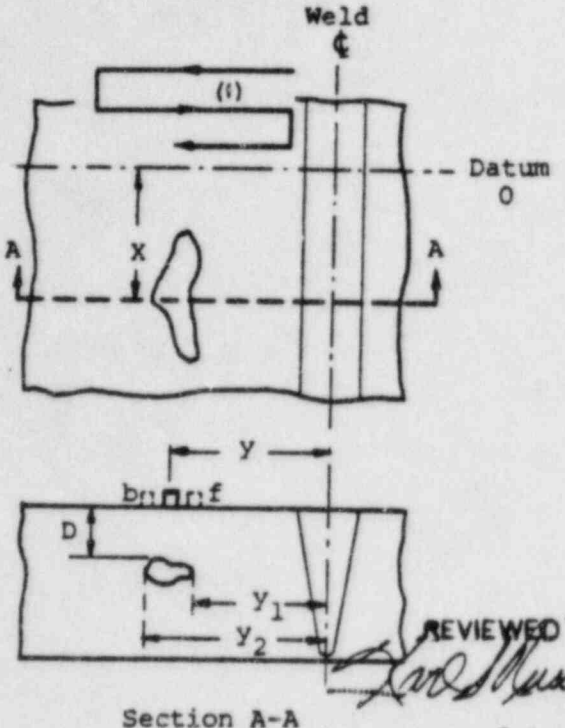
AMPL. CONTROL LINEARITY		
Initial	Δ dB	Result
80	-6	40
80	-12	21
40	+6	80
20	+12	78

CALIBRATION CHECKS	TIME
Initial Cal.	1:00
Intermediate	—
Intermediate	—
Intermediate	—
Final Cal.	4:30

EXAMINATION WELD/AREA	RECORDABLE INDICATION Yes	RECORDABLE INDICATION No	COMMENTS/REASON FOR INCOMPLETE EXAMINATION(S)
MSA 031	NA	X	Rod S Russell
MSA 032	X	NA	AUG 24 1979
MSB 034	NA	X	HARTFORD STEAM BLR.
MSB 035	NA	X	INSP. CO.
MSC 031	NA	X	
MSC 032	NA	X	one was due to configuration
MSD 031	NA	X	
MSA 032	NA	X	

ADDITIONAL SHEETS? (CHECK BOX)			
Continuation	—	Beam Plot	—
Supplements	X	None	—

EXAMINERS 1 Eugene Valley Date 1/10/80 Level I
2 [illegible] Date 1/2/80 Level I
REVIEWED Robert H. Zey PE Co Date 1-10-80 Level III
NUCLEAR ENERGY SERVICES INC



Section A-A

SUPPLEMENT A

INDICATION REPORT SHEET
STRAIGHT BEAM

Procedure No. 80A 1566
Subject Piping Welds
Weld No. MSD C32
Page 2 of 3
Attached to Cal. Data Sheet No. 1566-253

REVIEWED BY.
AUG 24 1979

Notes:

(1) X-axis increments not to exceed allowable scan increments.
(2) End points shall be: (a) 50% of DAC (6db) for WRV Straight Beam exam, (b) equal to Remaining Back Reflection (RBR) for base material lamination exam.
(3) This column for WRV Straight Beam exam only.
(4) This column for base material lamination exam only.

INDICATION NO.	SIDE OF WELD	D (in T/8s)	X	MAX ~~% DAC (+6db)~~	RBR (4) % FSH	Y @ MAX % DAC	FORWARD (f) ENDPOINT Y_1 (2)	BACK (b) ENDPOINT Y_2 (2)
1	U	4/8	1/2"	35%	35%	1/2"	—	—
				65	30	3/4"	—	—
				40	30	1"	—	—
				40	40	1 1/4"	—	—
1	U	4/8	3/4"	20	20	3/4"	—	—
				50	30	1"	—	—
				70	50	1 1/4	—	—
				70	30	1 1/2	—	—
				40	40	1 3/4	—	—
1	U	4/8	1"	35	35	1 1/2	—	—
				75	50	1 3/4	—	—
				100	60	2	—	—
				60	35	2 1/4	—	—

COMMENTS
Eccentric El
Midwall (1/2t) laminar lamination. Plot included on graph paper.

EXAMINERS
1. Eugene Kelley Date 7/6/79 Level II
2. [signature] Date 7/2/79 Level I
REVIEWER Robert H. Gray PEC Level III Date 1-16-80

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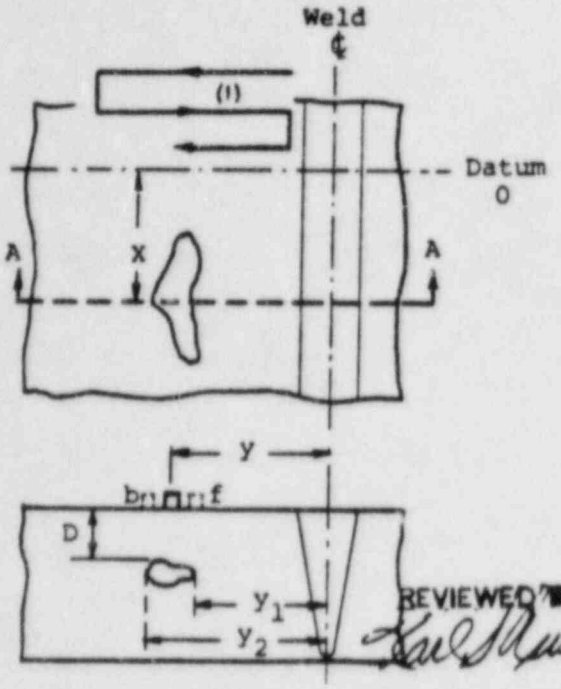
SUPPLEMENT A

INDICATION REPORT SHEET
STRAIGHT BEAM



Section A-A

Procedure No. 80A1366
Subject Piping welds
Weld No. HSB 092
Page 2 of 3
Attached to Cal. Data Sheet No. 1566-253 continued

Notes:

(1) X-axis increments not to exceed allowable scan increments.
(2) End points shall be: (a) 50% of DAC (6db) for WRV Straight Beam exam, (b) equal to Remaining Back Reflection (RBR) for base material lamination exam.
(3) This column for WRV Straight Beam exam only.
(4) This column for base material lamination exam only.

REVIEWED BY Karl Russell AUG 24 1979

HARTFORD STEAM B.R.

INDICATION NO.	SIDE OF WELD	D (in T/8s)	INSP. X (1)	MAX. ~~% DAC (4db)~~ (2)	RBR (4) % FSH	Y @ MAX % DAC	FORWARD (f) ENDPOINT Y_1 (2)	BACK (b) ENDPOINT Y_2 (2)
1	U	4/8	✓	40	40	2½	—	—
↓	U	4/8	1¼	40	40	1¼	—	—
				100	60	1½	—	—
				100	60	1¾	—	—
				80	35	2	—	—
↓	↓	↓	✓	45	45	2¼	—	—

COMMENTS

EXAMINERS
1. Eugene Kibey Date 7/2/79 Level II
2. [illegible] Date [illegible] Level —
REVIEWER Robert H. Long, PE, Level III Date 1-10-80

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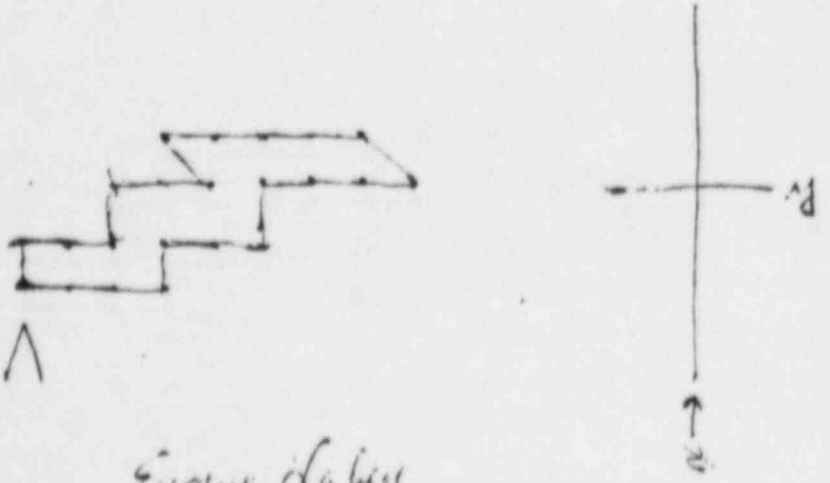
NUCLEAR ENERGY SERVICES INC.
NES DIVISION

Downstream Pipe | Upstream Elbow | REF.

WELD MSD C.37

plan View of Base metal lamination



Engineering

NES 105 (9/74)

Reviewed - Accepted - Robert Jr. Jones PE's, Level III 1-10 9.C

Plant/Unit LIMERICK / I
Comp/System MAIN STEAM
ISO 03-03 Loop A

CALIBRATION DATA SHEET

Page 1 of 8
Data Sheet No.
Procedure No. 80A1567
Subject: FITTING TO FITTING WELDS
Rev/Change No. 3
Calibration Block No. LIM-26-.928-CS
Fabrication No. N/A
Surface OD
Block Temp 70 °F
Comp. Temp 71 °F
Thickness .928
CRT Calibrated in INCHES OF METAL PATH 2.0" SCREEN
Each Maj. Screen Div= .20"

5MHZ USED FOR BETTER RESOLUTION.

INSTRUMENT SETTINGS	
Mfg/Model No.:	SONIC MKI
Serial No. :	03182E
Sweep Length :	1.02
Sweep Delay :	1.39
Pulse Length/Damping:	MIN
Freq.: 5 Rep. Rate:	3K
Filter: HI Video	Jack B.T
DEC/Gate Switch OFF Range:	2
Mode Select: THRU TRANS Reject	OFF
Gain (coarse): 50 (fine):	13
Scan Sensitivity:	69

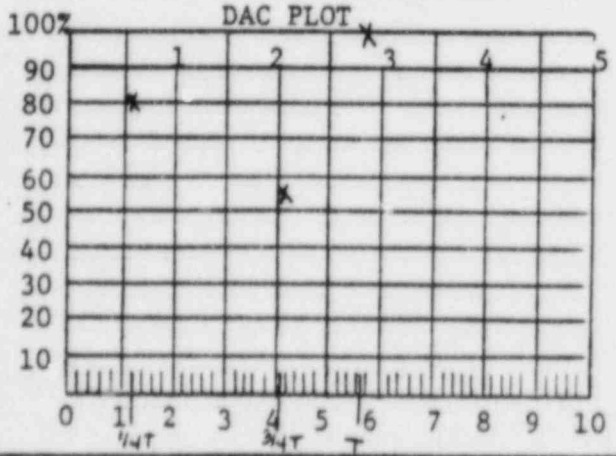
SEARCH UNIT	
Scan Angle: 0° Mode:	LONG
Fixturing (if any):	N/A
Style or Type No.	GAMMA DUFF
Size & Shape:	.5" ROUND
Frequency :	5.0 MHZ
Serial No/Brand:	KB3274 / AEROTECH
Measured Angle :	N/A
Cable Type & Length	6' DUAL ATTACHED
Couplant Brand:	ULTRAGEL II
Couplant Batch:	8226

SCAN AREA	
0° WRV	X
0° Mar'l	X
= To Weld	N/A
⊥ To Weld	N/A
Calibration	
Axial	N/A
Circ	N/A

INSTR. LINEARITY CAL.

	Amplitude High	Low		High	Low
1	102	51	5	38	19
2	80	40	6	30	15
3	61	30	7	22	11
4	48	24	8	17	8

DAC PLOT



AMPL. CONTROL LINEARITY

Initial	dB	Result
80	-6	38
80	-12	17
40	+6	85
20	+12	86

EXAMINATION WELD/AREA	Recordable Indications Yes	No	Geom	COMMENTS/REASON FOR INCOMPLETED SCAN (S)
MSA-029-40-MIN	X	N/A	N/A	COMPLETE FITTING TO FITTING
MSA-029-40-MAX	X	N/A	N/A	COMPLETE FITTING TO FITTING
MSA-030-24-MIN	X	N/A	N/A	COMPLETE FITTING TO FITTING
MSA-030-24-MAX	X	N/A	N/A	COMPLETE FITTING TO FITTING

CALIBRATION CHECKS	TIME
Initial Cal.	1740
Intermediate	2130
Intermediate	0125
Intermediate	—
Final Cal.	0515

ADDITIONAL SHEETS? CHECK BOX			
Continuation	N/A	Beam Plot	N/A
Supplements	X	None	N/A

EXAMINERS 1 John Wigell Date 5-21-83 Level II
2 Steve Spindler Date 5-21-83 Level I

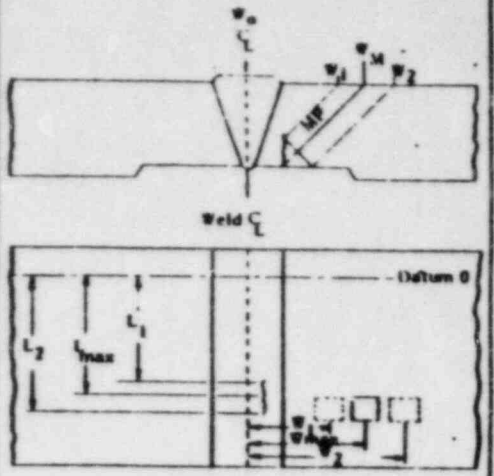
REVIEWERS 1 _____ Date _____
2 _____ Date _____
3 _____ Date _____

NUCLEAR ENERGY SERVICES, INC.

NUCLEAR ENERGY SERVICES, INC.

Project No.	Site	L_o Location	Date: (Mo/Day/Yr)
5551	Limerick	Buttweld	5-21-87
Item Identification MSA029 LBM-N		W_o Location weld E	Page 2 of 8
Examiner: TC-1A Level John Nigrelli level II		Angle Used: 0° / 45°⊥ / 45°=	Attached Cal. Data Sheet
Examiner: TC-1A Level		Scanning dB: 69 / NA / NA	Thickness .928"
			Diameter (nom.) .26"

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0
W max Distance from ℄ to S.U. at maximum response.
W_1 Distance from weld ℄ at 50% of DAC (fwd)
W_2 Distance from weld ℄ at 50% of DAC (backward)



Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L .max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
1	150%	5/8"	500 660"	NA	NA	NA	NA	10 3/4"	75°	20°	NA	CCW Toe	
2	50%	3/4"	580°	NA	NA	NA	NA	NA	2.0"	NA	NA	CW Toe	
3	50%	5/8"	800°	NA	NA	NA	NA	5 3/4"	6 1/4"	7.0°	NA	CW	
4	50%	5/8"	600°	NA	NA	NA	NA	5 3/4"	6 1/4"	7.0°	NA	CW	
5	50	3 1/4"	600°	NA	NA	NA	NA	NA	3 3/4"	NA	35	CW	
6	50	2 1/2"	520°	NA	NA	NA	NA	NA	7 3/4"	NA	40	CW	
7	60	2 1/4"	660°	NA	NA	NA	NA	NA	9"	NA	35	CCW	
8	150%	1 1/4"	580°	NA	NA	NA	NA	NA	10 3/4	NA	NA	CCW	

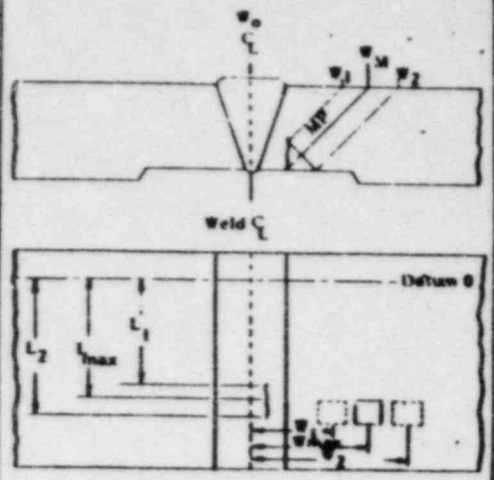
DRAW FULL SCALE PLOT HERE:

REVIEWER _____ DATE _____
REVIEWER _____ DATE _____
REVIEWER _____ DATE _____

NUCLEAR ENERGY SERVICES, INC.

Project No.	Site	L_o Location	Date: (Mo/Day/Yr)
5551	Limerick	Buttweld	5-21-83
Item Identification MSA029LBMW		W_o Location weld ℄	Page 3 of 8
Examiner: TC-1A Level II John N. Gaetti level II		Angle Used: 0° / 45°⊥ / 45°=	Attached Cal. Data Sheet ____
Examiner: TC-1A Level I Steve Spindler I		Scanning dB: 69 / NA / NA	Thickness .928"
			Diameter (nom.) 26"

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0
W max Distance from ℄ to S.U. at maximum response.
W_1 Distance from weld ℄ at 50% of DAC (fwd)
W_2 Distance from weld ℄ at 50% of DAC (backward)



Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
9	100%	13¼"	.600	NA	NA	NA	NA	10½"	12¼"	14"	NA	CCW	
10	100	23¼"	.600	NA	NA	NA	NA	NA	19"	NA	40	CCW	

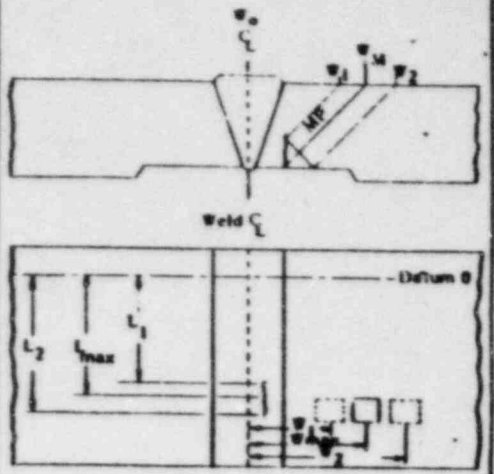
DRAW FULL SCALE PLOT HERE:

REVIEWER _____ DATE _____
REVIEWER _____ DATE _____
REVIEWER _____ DATE _____

NUCLEAR ENERGY SERVICES, INC.

Project No.	Site	L_o Location	Date: (Mo/Day/Yr)
5551	Limerick	Butt weld	5-21-13
Item Identification MSA024LDMAX		W_o Location weld ℄	Page 4 of 8
Examiner: TC-1A Level II John Nigrelli	Angle Used: 0° / 45°⊥ / 45°=		Attached Cal. Data Sheet
Examiner: TC-1A Level I Steve Spindler	Scanning dB: 69 / NA / NA		Thickness .928"
			Diameter (nom.) 26

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0
W max Distance from ℄ to S.U. at maximum response.
W_1 Distance from weld ℄ at 50% of DAC (fwd)
W_2 Distance from weld ℄ at 50% of DAC (backward)



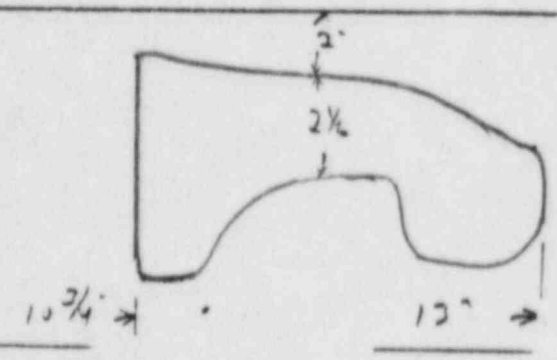
Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
1	50%	3/4"	480"-560"					27"	26"	29"		CCW Toe	
2	50%	1/2"	680"-720"					6¼"	8"	9⅝"		CW Toe	
3	150%	1/2"	600"					24¾	26"	27⅞"		CW Toe	
4	100%	3/4"	460" To 820"					31½	35¼"	40"		CW	
5	100%	2.0"	800"						23¼"			CCW	
6	200+	2.0"	500"						2.0"			CCW	
7	100%	1¼"	640"					8.0"	8⅜"	9.¾"		CW	
8	100+	2¼"	680"					~~3/8 min~~				CW	See Sketch For Dim.

DRAW FULL SCALE PLOT HERE:

REVIEWER _____ DATE _____
REVIEWER _____ DATE _____
REVIEWER _____ DATE _____

80A 1567 Rev 3
Page 50 F 8
Fitting to Fitting

MSA 029 LD MAX



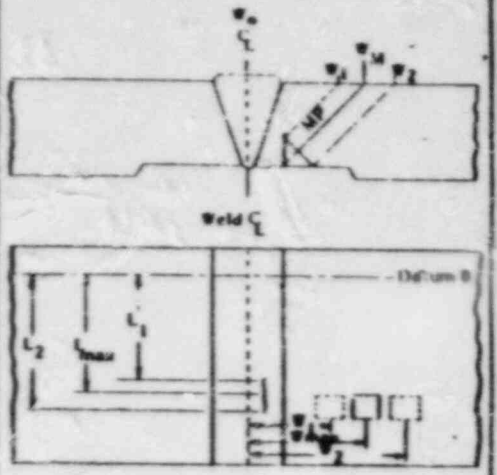
John Nygaard
Level II
5-21-87

NUCLEAR ENERGY SERVICES, INC.

Project No.	Site	L_o Location	Date: (Mo/Day/Yr)
5551	Limerick	Buttweld	5-21-83
Item Identification MSA030LowerW		W_o Location Weld E	Page 6 of 8
Examiner: TC-1A Level II John N. Gerth level II		Angle Used: 0° / 45°⊥ / 45°=	Attached Cal. Data Sheet
Examiner: TC-1A Level I Steve Spindler I		Scanning dB: 69 / NA / NA	Thickness 928"
			Diameter (nom.) 26"

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0

W_{max} Distance from ℓ to S.U. at maximum response.
W_1 Distance from weld ℓ at 50% of DAC (fwd)
W_2 Distance from weld ℓ at 50% of DAC (backward)



Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
1	150%	3/4"	.640"	NA	NA	NA	NA	16 1/4"	18"	20"	NA	CCW Toe	
2	100%	1/2"	.800"	NA	NA	NA	NA	15"	15 5/8"	16 1/4"	NA	CW Toe	
3	50%	1/2"	.420"	NA	NA	NA	NA	NA	14"	NA	NA	CW	
4	50%	2"	.520"	NA	NA	NA	NA	NA	19 1/2"	NA	NA	CW	
5	60%	2 5/8"	.400"	NA	NA	NA	NA	NA	10 3/8"	NA	45	CW	
6	80%	3"	.400"	NA	NA	NA	NA	NA	9 1/2"	NA	40	CW	
7	75%	1 1/2"	.540"	NA	NA	NA	NA	NA	18"	NA	NA	CCW	

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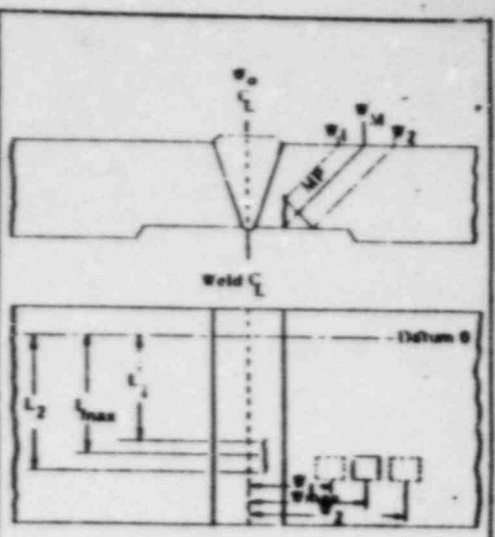
NES NUCLEAR ENERGY SERVICES, INC.

Project No. 5551	Site Limerick	L_o Location Buttweld					Date: (Mo/Day/Yr) 5 21 87	
Item Identification MSA03-L-MAX		W_o Location Weld E					Page 8 of 8	
Examiner: TC-1A Level Peter Nigro Level II		Angle Used	0°	45°⊥	45°=		Attached Cal. Data Sheet	
Examiner: TC-1A Level Steve Sanders I		Scanning dB	65	NA	NA		Thickness .928"	
							Diameter (nom.) 26"	

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0
W max Distance from $\mathcal{C}_L$ to S.U. at maximum response.
W_1 Distance from weld $\mathcal{C}_L$ at 50% of DAC (fwd)
W_2 Distance from weld $\mathcal{C}_L$ at 50% of DAC (backward)

Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
9	100+	3¼"	.520"	NA	NA	NA	NA	16"	16½"	17"	30	CW	
10	100	4½"	560"	NA	NA	NA	NA	NA	25"	NA	70	CW	



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REVIEWER _____ DATE _____
REVIEWER _____ DATE _____

NUCLEAR ENERGY SERVICES, INC.

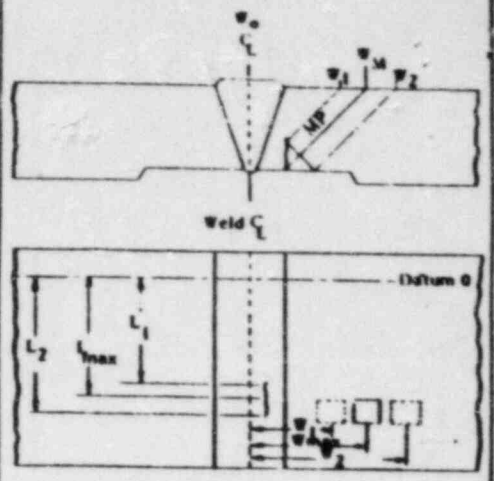
Project No.	Site	L_o Location	Date: (Mo/Day/Yr)
5551	Limerick	Buttweld	5-21-83

Item Identification	W_o Location	Page	of
MSA 030 Loma	weld C	7	8

Examiner: TC-1A Level	Angle Used	0°	45°⊥	45°=	Attached Cal. Data Sheet
John Nigrelli Level III					
Examiner: TC-1A Level	Scanning dB	69	NA	NA	Thickness .928"
Steve Spindler I					Diameter (nom.) 26"

MP Metal Path
RBR Remaining Back Reflection
L Distance from Datum 0

W_{max} Distance from $\mathcal{C}_L$ to S.U. at maximum response.
W_1 Distance from weld $\mathcal{C}_L$ at 50% of DAC (fwd)
W_2 Distance from weld $\mathcal{C}_L$ at 50% of DAC (backward)



Ind. No.	% of DAC	W MAX W	W MAX MP	FWD 50% DAC W_1	FWD 50% DAC MP	BACKWARD 50% DAC W_2	BACKWARD 50% DAC MP	L_1 50% DAC	L max	L_2 50% DAC	RBR amp	S.U. Loc.	REMARKS
1	50 To 100+	3/4"	600 680	NA	NA	NA	NA	Toe of Buttweld	6½"	13 7/8"	NA	CCW Toe	
2	50 To 100+	3/4"	420 600 840	NA	NA	NA	NA	Intermittent Length of long Scan Vertical Depth and Amp			NA	CW Toe	
3	100%	1½"	640"	NA	NA	NA	NA	Toe of Buttweld	1"	2"	NA	CCW	
4	50%	1½"	560"	NA	NA	NA	NA	2"	3"	4"	NA	CCW	
5	100%	1½"	720"	NA	NA	NA	NA	NA	2½"	NA	NA	CW	
6	50	2½"	760"	NA	NA	NA	NA	NA	4½"	NA	35	CW	
7	70	4¼"	800"	NA	NA	NA	NA	NA	To 6½"	NA	60	CW	
8	120%	1¾"	500"	NA	NA	NA	NA	NA	13½"	NA	NA	CW	

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