R1168

GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3
System: Reactor Pressure Vessel
Weld ID: V-4-C **ASME Code Category:** B-A

Calibration Sheets: C-001

Supporting Data: Examination Data Sheets E-15-00 and E-15-01, Indication Data Sheets 15-001, 15-004, 15-005, 15-012, 15-018, 15-024, 15-027 thru 15-032, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-4-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. The total examination coverage was calculated to be 100%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scans, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: Teresa Kimball	GE Reviewer: R.O. Forman
LEVEL: III DATE: 12-16-93	LEVEL: II DATE: 12-18-93
UTILITY Review: J M Woody	ANII Review:
TITLE: QA DATE: 1/26/94	TITLE: Albert Feld DATE: 7/13/94

R1168

GE Nuclear Energy

GERIS 2000 Examination Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Exam data sheet: E-15-00

Procedure No.: GE-UT-700
Revision No.: 2
FRR No.: N/A

Patch	Data Sh.	Date	Start	Stop	Min X	Max X	Min Y	Max Y	Disk No.	Examiner
BF-049	E-15-01	10/13/93	6:06	7:52	347.25	375.25	517.50	584.00	41A	ROF
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Comments: N/A

Limitations: None

Analyst: Teresa Kimball
Level: III Date: 12-18-93

Reviewed By: R.O. Forman
Level: II Date: 12-18-93

2 of 29

R1168

GE Nuclear Energy

GERIS 2000 Examination Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet Series: 15-XXX

Channel	Angle	Direction	Ind.	Ind. Data Sh.	Ind. Data Sh.	Ind. Data Sh.	Ind. Data Sh.	Ind. Data Sheet
1	0 WM	N/A	5	15-001	15-004	~	~	~
2	0 WM	N/A	5	15-005	15-012	15-018	15-024	~
3	70 RL	0 UP	NRI	~	~	~	~	~
4	70 RL	90 CW	NRI	~	~	~	~	~
5	70 RL	180 DN	NRI	~	~	~	~	~
6	70 RL	270 CCW	NRI	~	~	~	~	~
7	45 RS	0 UP	NRI	~	~	~	~	~
8	45 RS	90 CW	NRI	~	~	~	~	~
9	45 RS	180 DN	1, 2	15-027	15-028	~	~	~
10	45 RS	270 CCW	2	15-029	~	~	~	~
11	60 RS	0 UP	NRI	~	~	~	~	~
12	60 RS	90 CW	NRI	~	~	~	~	~
13	60 RS	180 DN	1	15-030	15-031	~	~	~
14	60 RS	270 CCW	1	15-032	~	~	~	~
15	0 BM	N/A	5	~	~	~	~	~
16	0 BM	N/A	5	~	~	~	~	~
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Comments: 5 = Plate segregates CCW side of weld.

Data Sheet Codes: G-XXX; "G" = Geometry (may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Analyst: Teresa Kimball

Level: III Date: 12-16-93

Reviewed By: R. O. Forman

Level: II Date: 12-16-93

3 OF 29

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-001

Indication: 15-001/003 **Channel:** 1 **Angle:** 0 **Direction:** 0

Amp.	X	20% Min Y	MP	50% Min Y	MP	@ Max Y	MP	50% Max Y	MP	20% Max Y	MP	Remarks
44.3%	356.75	~	~	~	~	~	~	~	~	~	~	15-001
60.6%	356.96	~	~	558.70	BL	558.95	3.57	559.20	3.58	~	~	15-001
50.2%	357.21	~	~	~	~	559.21	3.50	~	~	~	~	15-001
57.0%	357.46	~	~	558.70	BL	558.95	3.45	559.20	3.52	~	~	15-001
82.9%	357.71	~	~	559.20	3.44	559.45	3.44	559.70	3.44	~	~	15-001
88.2%	357.96	~	~	558.95	3.45	559.20	3.44	559.70	3.42	~	~	15-001
73.1%	358.21	~	~	558.95	3.42	559.20	3.45	559.45	3.39	~	~	15-001
57.0%	358.46	~	~	~	~	559.20	3.39	~	~	~	~	15-001
53.5%	358.71	~	~	~	~	559.45	3.42	~	~	~	~	15-001
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68.7%	357.96	~	~	569.70	BL	568.59	3.26	569.70	3.32	~	~	15-002
53.5%	358.21	~	~	~	~	569.20	3.24	~	~	~	~	15-002
~	358.46	~	~	~	~	~	~	~	~	~	~	15-002
60.6%	358.71	~	~	568.70	3.22	568.95	3.26	569.20	3.22	~	~	15-002
~	~	~	~	~	~	~	~	~	~	~	~	~
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60.6%	357.71	~	~	569.70	BL	569.95	3.78	570.20	3.83	~	~	15-003
68.7%	357.96	~	~	569.95	3.76	570.20	3.76	570.45	3.63	~	~	15-003
60.6%	358.96	~	~	569.95	BL	570.20	3.73	570.45	BL	~	~	15-003
50.2%	358.46	~	~	~	~	570.20	3.72	~	~	~	~	15-003
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.
Recorded for reference only.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-004

Indication: 15-004 **Channel:** 1 **Angle:** 0 **Direction:** 0

		20%		50%		@ Max		50%		20%		
Amp.	**X**	**Min Y**	**MP**	**Min Y**	**MP**	**Y**	**MP**	**Max Y**	**MP**	**Max Y**	**MP**	**Remarks**
68.7%	357.46	~	~	~	~	570.95	3.42	~	~	~	~	15-004
57.0%	357.71	~	~	~	~	570.95	3.44	~	~	~	~	15-004
77.9%	357.96	~	~	570.70	3.42	570.95	3.42	571.20	3.45	~	~	15-004
53.5%	358.21	~	~	~	~	571.20	3.39	~	~	~	~	15-004
64.5%	358.46	~	~	570.70	BL	570.95	3.45	571.70	BL	~	~	15-004
68.7%	358.71	~	~	570.70	3.42	570.95	3.52	571.20	3.42	~	~	15-004
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.

Recorded for reference only.

Analyst: Deena Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

5 OF 29

R11168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-005

Indication: 15-005/011 **Channel:** 2 **Angle:** 0 **Direction:** 90

Amp.	Y	20% Min X	MP	50% Min X	MP	@ Max X	MP	50% Max X	MP	20% Max X	MP	Remarks
44.3%	538.05	~	~	~	~	355.90	4.77	~	~	~	~	15-005
82.9%	538.30	~	~	355.65	4.69	356.15	4.66	356.40	4.66	~	~	15-005
155.1%	538.55	~	~	355.40	4.69	355.90	4.66	356.40	4.66	~	~	15-005
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68.7%	538.55	~	~	~	~	357.90	4.43	~	~	~	~	15-006
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77.9%	538.55	~	~	~	~	358.90	3.38	~	~	~	~	15-007
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68.7%	540.80	~	~	357.15	4.92	357.40	4.94	357.65	4.92	~	~	15-008
68.7%	541.05	~	~	357.15	4.92	357.40	4.92	357.65	4.92	~	~	15-008
106.4%	541.30	~	~	357.15	4.89	357.40	4.90	357.90	4.90	~	~	15-008
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94.0%	549.30	~	~	357.90	3.31	358.15	3.36	358.40	3.36	~	~	15-009
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57.0%	550.30	~	~	~	~	357.15	3.44	~	~	~	~	15-010
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73.1%	552.05	~	~	356.65	4.31	357.15	4.33	357.40	4.31	~	~	15-011
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.
Recorded for reference only.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

EXAM-DS3 V.1 9/28/93

10/22/9315-005.XLS

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-012

Indication: 15-012/017 **Channel:** 2 **Angle:** 0 **Direction:** 90

Amp.	Y	20% Min X	MP	50% Min X	MP	@ Max X	MP	50% Max X	MP	20% Max X	MP	Remarks
155.1%	554.55	~	~	357.40	3.47	357.90	3.47	358.40	3.44	~	~	15-012
225.7%	554.80	~	~	357.40	3.43	357.90	3.44	358.65	3.43	~	~	15-012
50.1%	555.05	~	~	~	~	357.65	3.44	~	~	~	~	15-012
~	555.30	~	~	~	~	~	~	~	~	~	~	15-012
175.6%	555.55	~	~	357.40	3.47	357.90	3.44	358.40	3.44	~	~	15-012
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57.0%	560.30	~	~	~	~	357.40	3.62	~	~	~	~	15.013
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57.0%	563.55	~	~	357.65	3.38	358.15	3.21	~	~	~	~	15.014
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77.9%	564.80	~	~	~	~	355.15	4.46	355.65	4.49	~	~	15-015
73.1%	565.05	~	~	~	~	354.90	4.60	355.15	4.62	~	~	15-015
94.0%	565.30	~	~	354.90	4.49	355.15	4.54	355.65	4.49	~	~	15-015
155.1%	565.55	~	~	354.90	4.45	355.15	4.45	355.90	4.51	~	~	15-015
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50.1%	565.30	~	~	~	~	356.90	4.73	~	~	~	~	15-016
100.0%	565.55	~	~	356.15	BL	356.65	4.73	356.90	4.73	~	~	15-016
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68.7%	566.30	~	~	356.90	4.60	357.15	4.56	357.65	4.60	~	~	15-017
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.
Recorded for reference only.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-018

Indication: 15-018/023 **Channel:** 2 **Angle:** 0 **Direction:** 90

Amp.	Y	20% Min X	MP	50% Min X	MP	@ Max X	MP	50% Max X	MP	20% Max X	MP	Remarks
50.1%	568.05	~	~	~	~	355.15	3.92	~	~	~	~	15-018
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
73.1%	568.05	~	~	355.90	4.56	356.15	4.56	356.40	4.58	~	~	15-019
68.7%	568.30	~	~	355.90	4.53	356.15	4.60	356.40	4.56	~	~	15-019
~	~	~	~	~	~	~	~	~	~	~	~	~
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57.0%	568.05	~	~	357.90	4.31	358.15	4.31	358.40	4.30	~	~	15-020
68.7%	568.30	~	~	357.90	BL	358.40	4.20	358.65	4.20	~	~	15-020
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~	~	~	~	~	~	~	~	~	~	~	~	~
57.0%	570.55	~	~	~	~	357.90	3.90	358.15	3.89	~	~	15-021
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44.3%	570.55	~	~	~	~	356.40	3.49	~	~	~	~	15-022
73.1%	570.80	~	~	356.15	3.36	356.90	3.36	357.15	3.38	~	~	15-022
106.4%	571.05	~	~	356.15	3.41	356.65	3.36	356.90	3.36	~	~	15-022
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100.0%	571.30	~	~	356.65	5.99	356.90	5.99	357.40	5.94	~	~	15-023
120.6%	571.55	~	~	356.65	6.06	356.90	6.01	357.40	5.99	~	~	15-023
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.
Recorded for reference only.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

EXAM-DS3 V.1 9/28/93

10/22/9315-018.XLS

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-024

Indication: 15-024/026 **Channel:** 2 **Angle:** 0 **Direction:** 90

		20%		50%		@ Max		50%		20%		
Amp.	**Y**	**Min X**	**MP**	**Min X**	**MP**	**X**	**MP**	**Max X**	**MP**	**Max X**	**MP**	**Remarks**
113.4%	571.80	~	~	357.15	BL	357.40	6.34	357.65	6.34	~	~	15-024
155.1%	572.05	~	~	356.90	6.19	357.40	6.23	357.90	6.21	~	~	15-024
136.8%	572.30	~	~	356.90	6.10	357.40	6.07	357.90	BL	~	~	15-024
50.1%	572.55	~	~	~	~	357.65	6.21	~	~	~	~	15-024
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100.0%	571.81	~	~	357.90	5.92	358.40	5.97	358.65	5.92	~	~	15-025
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50.1%	573.05	~	~	357.15	3.75	357.40	3.59	357.65	3.59	~	~	15-026
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Comments:

Non-relevant straight beam indications due to plate segregates, no significant loss of backwall.
Recorded for reference only.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

9 OF 29

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-027

Indication: 15-027 **Channel:** 9 **Angle:** 45 **Direction:** 180

Amp.	X	20% Min Y	MP	50% Min Y	MP	@ Max Y	MP	50% Max Y	MP	20% Max Y	MP	Remarks
50.1%	360.15	~	~	~	~	550.25	8.83	~	~	~	~	~
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Comments: OD surface geometry.
13.05 dB below notch sensitivity.
No apparent tip signals.
Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

10 OF 29

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-028

Indication: 15-028 **Channel:** 9 **Angle:** 45 **Direction:** 180

Amp.	X	20% Min Y	MP	50% Min Y	MP	@ Max Y	MP	50% Max Y	MP	20% Max Y	MP	Remarks
~	359.90	~	~	~	~	~	~	~	~	~	~	~
60.6%	360.15	~	~	~	~	543.00	2.26	543.25	2.77	~	~	MP=Depth
~	360.40	~	~	~	~	~	~	~	~	~	~	~
~	360.65	~	~	~	~	~	~	~	~	~	~	~
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Comments: This indication also seen with Ch. 10 & 13 below recordable levels (See 15-031).
Recorded at less than ASME required DAC levels due to apparent tip diffracted signals.
Thruwall size was determined by the PATT technique.

TW = .51 L = .75 S = 2.26 w/clad

Analyst: Dausa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

EXAM-DS3 V.2 10/22/93

12/14/9315-028.XLS

11 OF 29

GE Nuclear Energy

GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3
Weld ID: V-4-C
Patch: BF-049

Exam Data Sheet No.: E-15-01
Ind. Data Sheet No.: 15-028
Indication: 15-028

Flaw Thruwall Dimension = 0.51
Flaw Length "l" = 0.75
Separation with clad "S" = 2.26
Surface Separation "S" = 2.07

T nominal = 6.38
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	4.28	4.96 Y
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			4.28	4.96

a = 0.255
a/l value = 0.340
Y = 1.000

Flaw is Subsurface

Allowed a/t = 4.96%
a/t = 4.00%

Comments:

EXAM-DS4 V.1 10/3/93

EXAM-DS4.XLS12/12/93

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-029

Indication: 15-029 **Channel:** 10 **Angle:** 45 **Direction:** 270

		20%		50%		@ Max		50%		20%		
Amp.	**Y**	**Min X**	**MP**	**Min X**	**MP**	**X**	**MP**	**Max X**	**MP**	**Max X**	**MP**	**Remarks**
50.1%	542.75	~	~	~	~	364.71	9.53	~	~	~	~	~
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Comments: OD surface geometry.
13.59 dB below notch sensitivity.
Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1
This indication is also seen with Ch. 8 and Ch. 12 at less than recordable levels.

Analyst: Deesa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

13 OF 29

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-030

Indication: 15-030 **Channel:** 13 **Angle:** 60 **Direction:** 180

Amp.	**X**	**20% Min Y**	**MP**	**50% Min Y**	**MP**	**@ Max Y**	**MP**	**50% Max Y**	**MP**	**20% Max Y**	**MP**	**Remarks**
57.0%	359.79	~	~	542.70	5.14	542.95	5.36	543.20	5.57	~	~	Midwall
57.0%	360.04	~	~	542.45	4.95	542.70	5.14	543.20	5.57	~	~	Midwall
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Comments: No apparent tip signals.
Thruwall size was determined by the ASME 50% method.
This indication also seen with Ch.10 below recordable levels.

TW = .31 L = .25 S = 2.415 w/clad

Analyst: Deresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

14 OF 29

GE Nuclear Energy

GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3
Weld ID: V-4-C
Patch: BF-049

Exam Data Sheet No.: E-15-01
Ind. Data Sheet No.: 15-030
Indication: 15-030

Flaw Thruwall Dimension = 0.31
Flaw Length "l" = 0.25
Separation with clad "S" = 2.42
Surface Separation "S" = 2.23

T nominal = 6.38
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	5.20	7.60 Y
			Allowed	Allowed
			5.20	7.60

a = 0.155
a/l value = 0.500
Y = 1.000

Flaw is Subsurface

Allowed a/t = 7.60%
a/t = 2.43%

Comments:

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-031

Indication: 15-031 **Channel:** 13 **Angle:** 60 **Direction:** 180

		20%		50%		@ Max		50%		20%		
Amp.	**X**	**Min Y**	**MP**	**Min Y**	**MP**	**Y**	**MP**	**Max Y**	**MP**	**Max Y**	**MP**	**Remarks**
BL	359.79	~	~	~	~	~	~	~	~	~	~	~
28.6%	360.29	~	~	~	~	544.20	2.39	544.95	2.89	~	~	MP=Depth
BL	360.79	~	~	~	~	~	~	~	~	~	~	~
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Comments: This indication also recorded with Ch. 9 (see 15-028).
Recorded at less than ASME required amplitude level due to apparent tip diffracted signals.
Thruwall size was determined by the PATT technique

TW = .5 L = .5 S = 2.39 w/clad

Analyst: Teresa Kimball
Level: III Date: 12-16-93

Reviewed By: R.O. Forman
Level: II Date: 12-16-93

R1168

GE Nuclear Energy

GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3
Weld ID: V-4-C
Patch: BF-049

Exam Data Sheet No.: E-15-01
Ind. Data Sheet No.: 15-031
Indication: 15-031

Flaw Thruwall Dimension = 0.50
Flaw Length "l" = 0.50
Separation with clad "S" = 2.39
Surface Separation "S" = 2.20

T nominal = 6.38
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	5.20	7.60 Y
			Allowed	Allowed
			5.20	7.60

a = 0.250
a/l value = 0.500
Y = 1.000

Flaw is Subsurface

Allowed a/t = 7.60%
a/t = 3.92%

Comments:

EXAM-DS4 V.1 10/3/93

EXAM-DS4.XLS12/12/93

R1168

GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-4-C
Cal. ID: C-001

Exam Data Sheet No.: E-15-01
Patch ID: BF-049
Ind. Data Sheet No.: 15-032

Indication: 15-032
Channel: 14
Angle: 60
Direction: 270

		20%		50%		@ Max		50%		20%		
Amp.	**Y**	**Min X**	**MP**	**Min X**	**MP**	**X**	**MP**	**Max X**	**MP**	**Max X**	**MP**	**Remarks**
60.6%	561.75	~	~	363.35	4.93	363.60	5.12	364.35	5.81	~	~	Midwall
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Comments: No apparent tip signals.
Thruwall size was determined by the ASME 50% method.
This indication also seen with Ch. 10 at below recordable levels.

TW = .44 L = .25 S = 2.34 w/clad

Analyst: Deresa Kimball
Level: III
Date: 12-16-93

Reviewed By: R.O. Forman
Level: II
Date: 12-16-93

18 OF 29

GE Nuclear Energy

GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3
Weld ID: V-4-C
Patch: BF-049

Exam Data Sheet No.: E-15-01
Ind. Data Sheet No.: 15-032
Indication: 15-032

Flaw Thruwall Dimension = 0.44
Flaw Length "l" = 0.25
Separation with clad "S" = 2.34
Surface Separation "S" = 2.15

T nominal = 6.38
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition
TABLE IWB-3510-1 for 4" to 12"

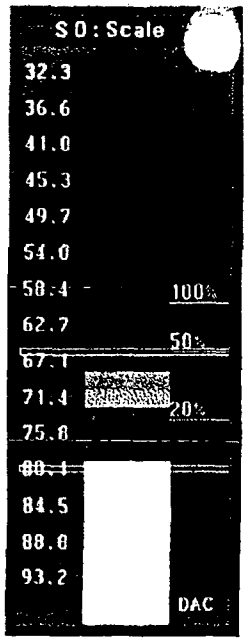
a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	5.20	7.60 Y
			Allowed	Allowed
			5.20	7.60

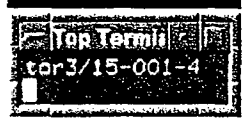
a = 0.220
a/l value = 0.500
Y = 1.000

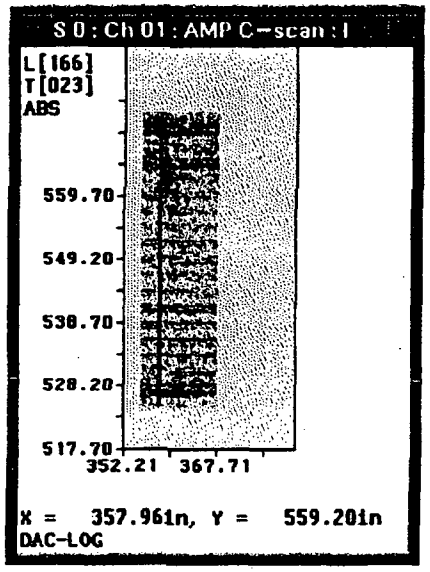
Flaw is Subsurface

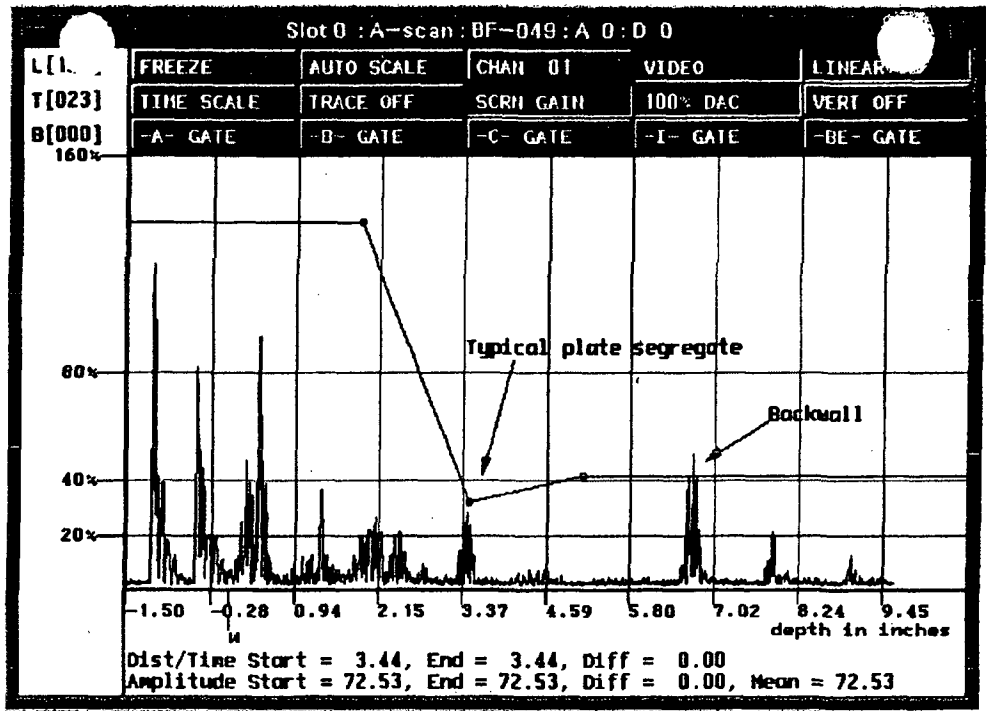
Allowed a/t = 7.60%
a/t = 3.45%

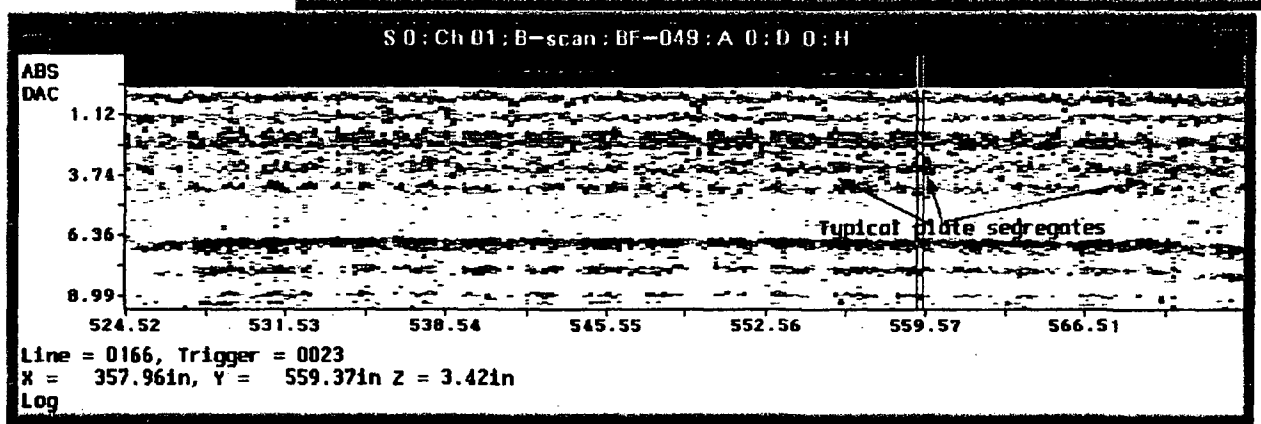
Comments:

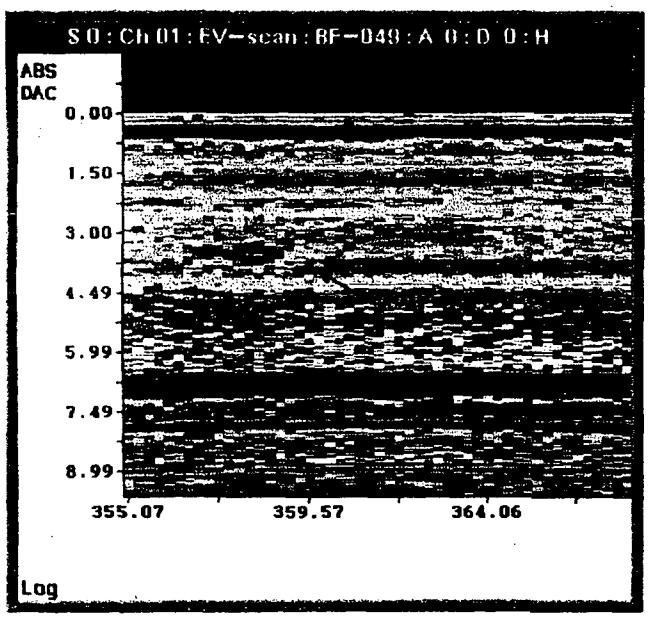


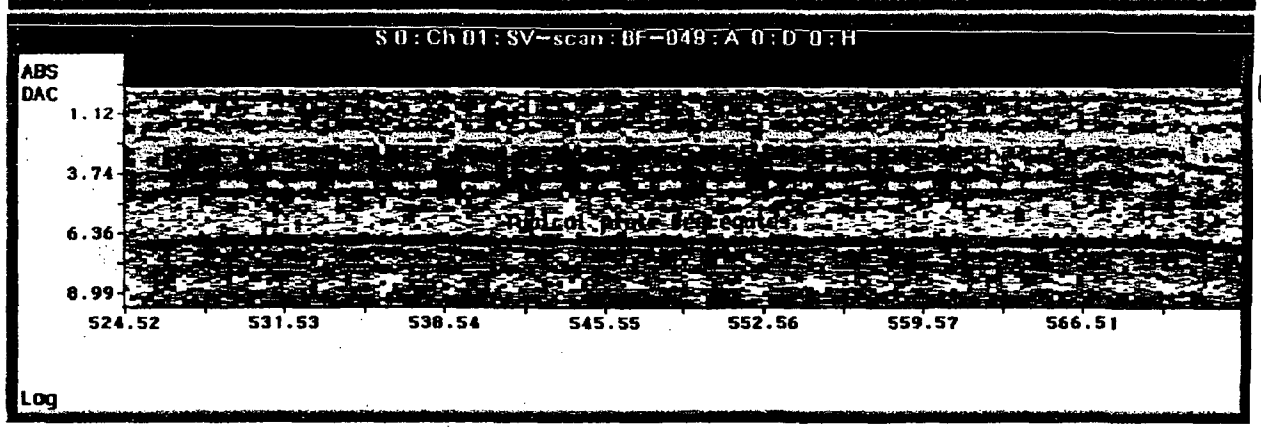








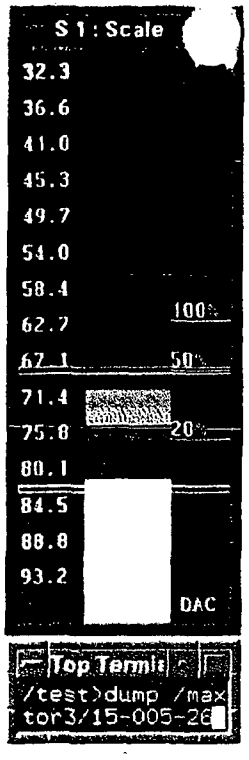


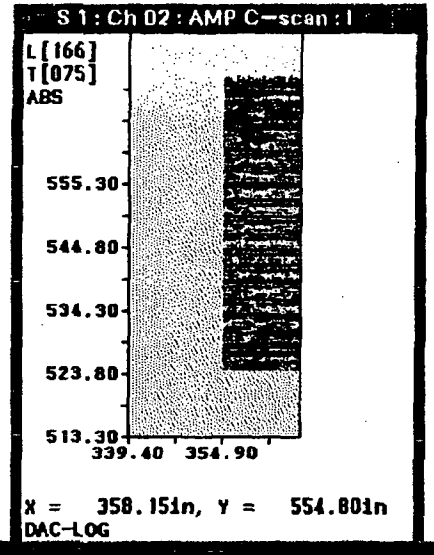


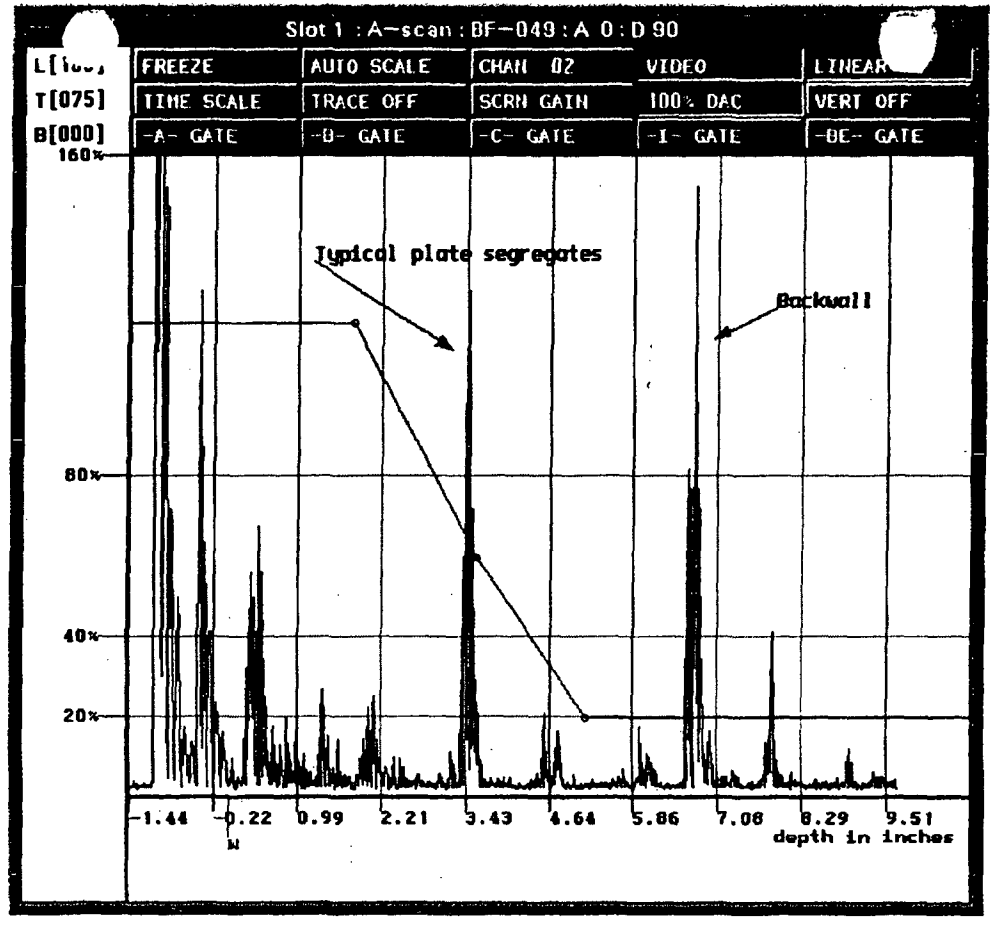
00226

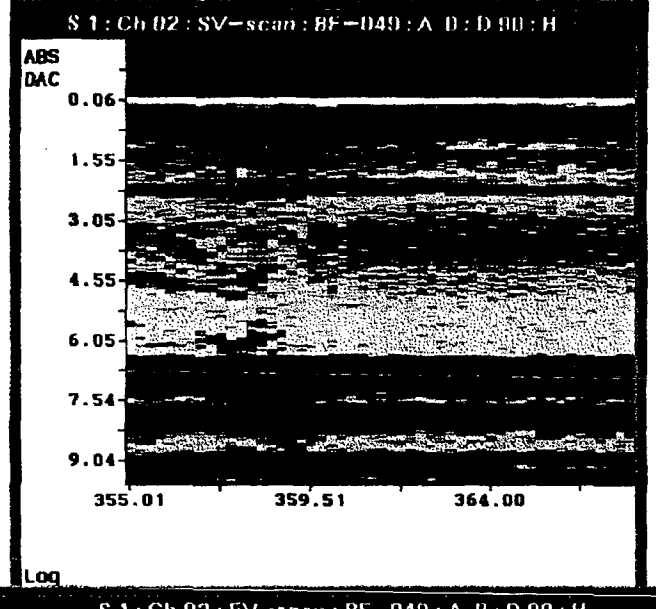
20 of 29

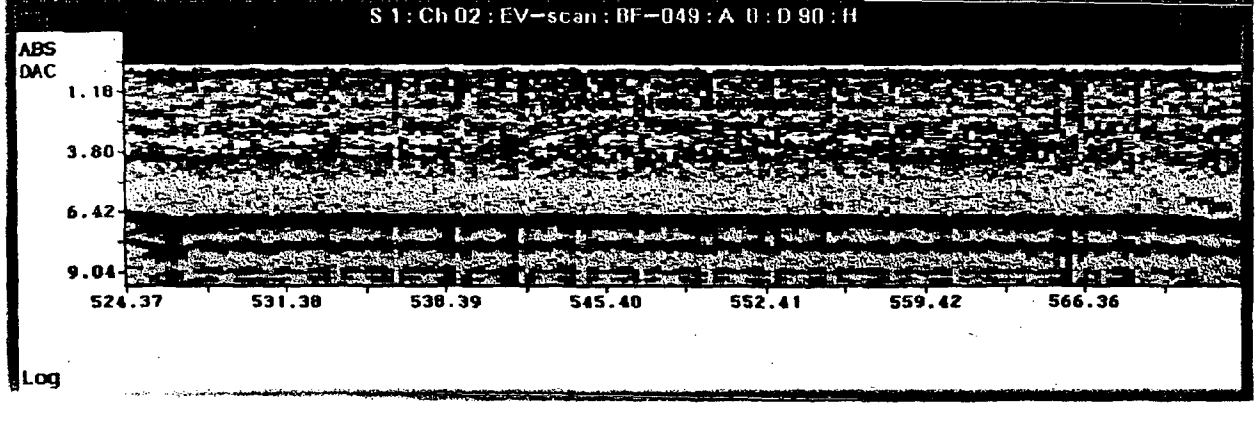
R1168

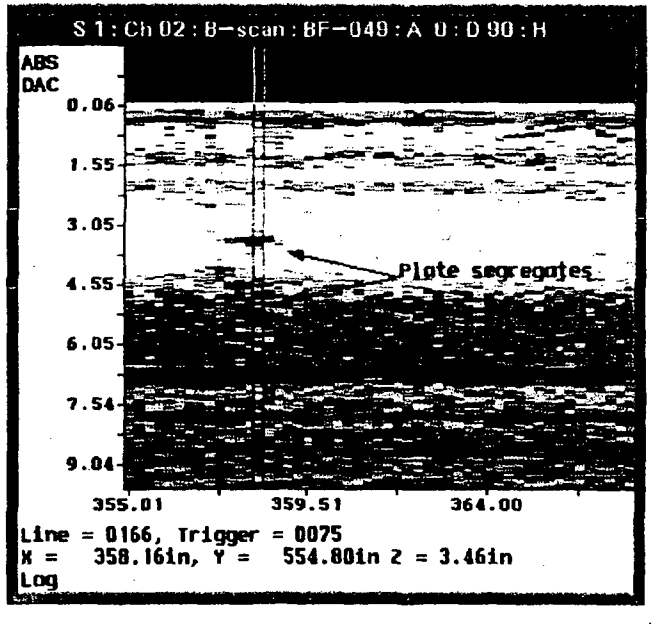








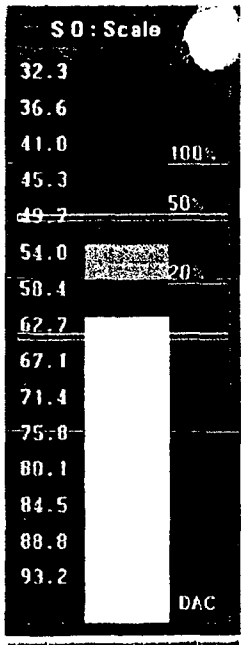




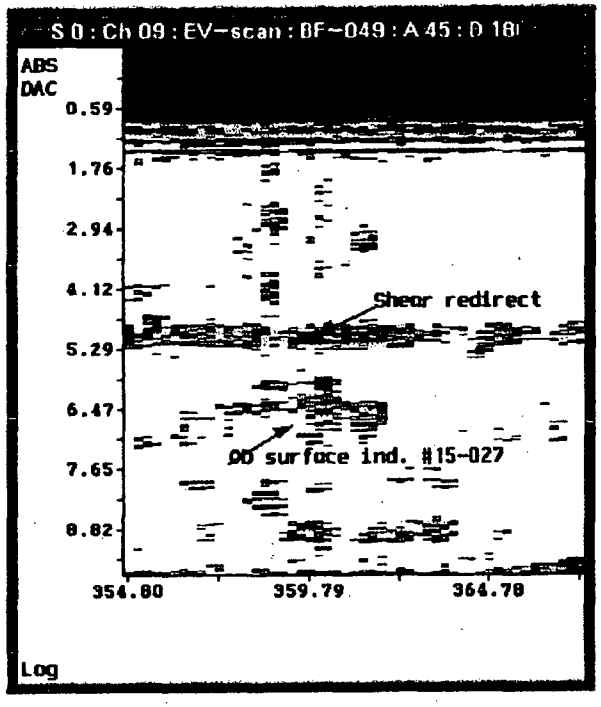
00227

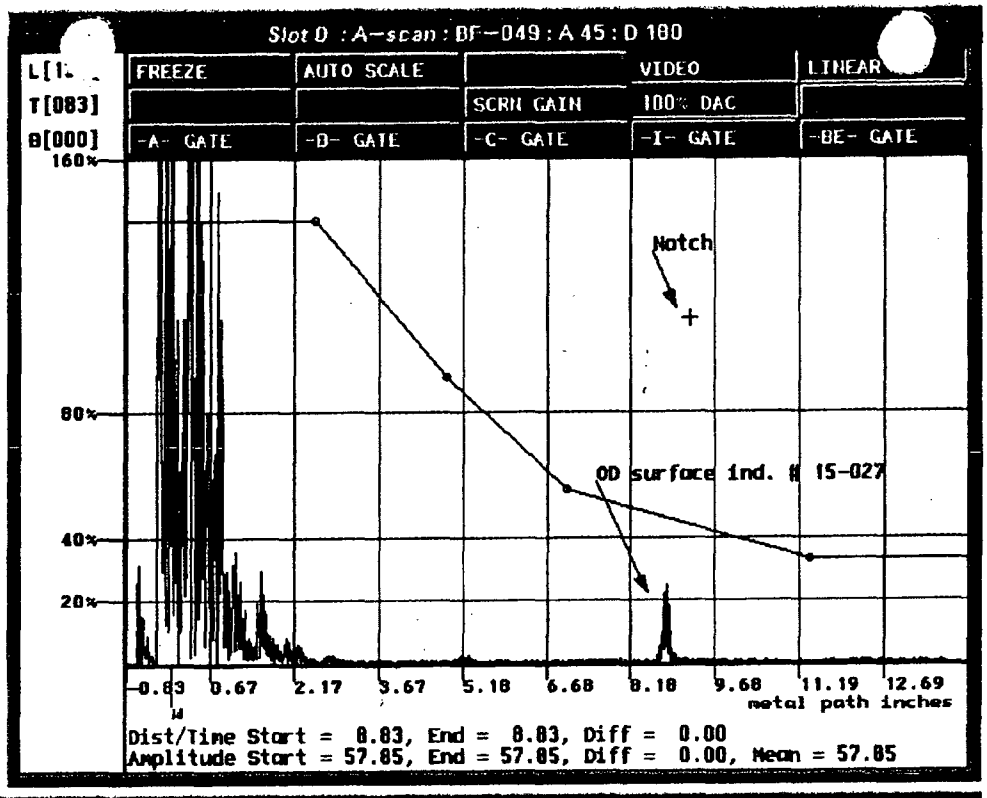
21 of 29

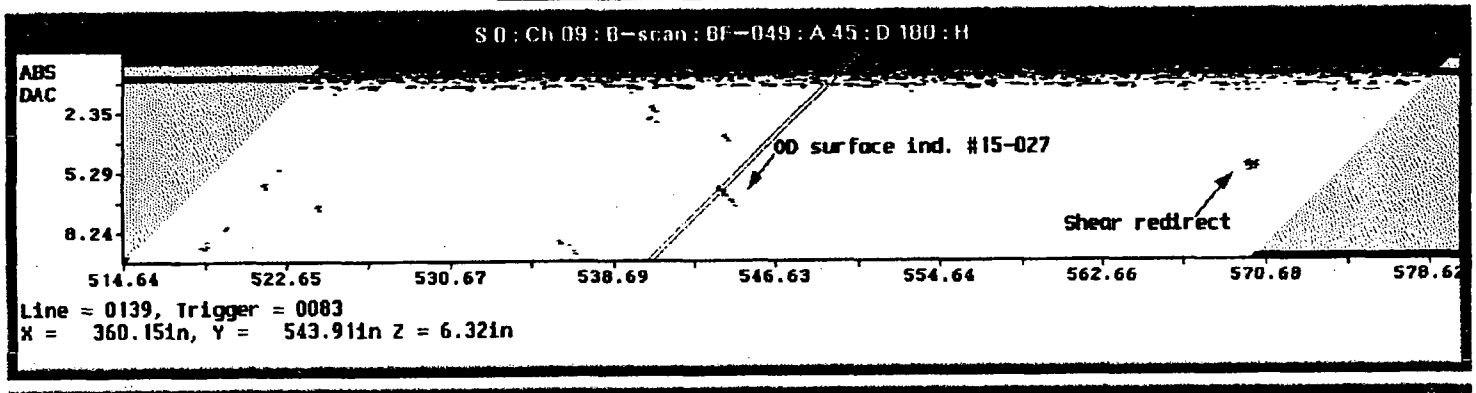
R1168

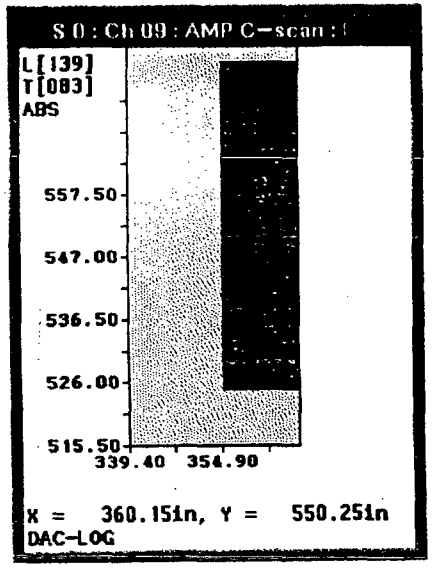

S 0 : Scale
32.3
36.6
41.0
100%
45.3
49.7
50%
54.0
20%
58.4
62.7
67.1
71.4
75.8
80.1
84.5
88.8
93.2
DAC

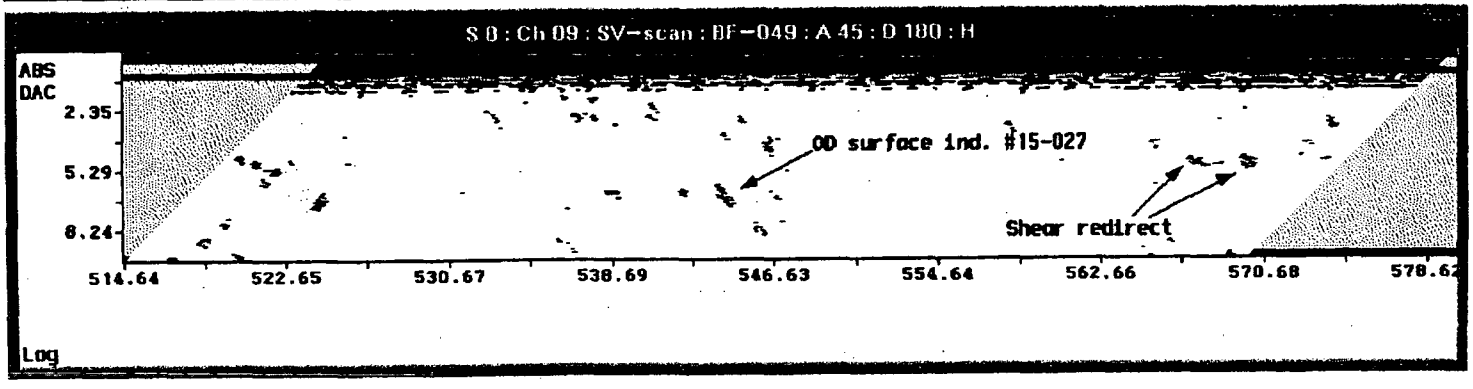

Top Termi
tor3/15-027


S 0 : Ch 09 : EV-scan : BF-049 : A 45 : D 180
ABS
DAC
0.59
1.76
2.94
4.12
5.29
6.47
7.65
8.82
Shear redirect
OD surface ind. #15-027
354.80
359.79
364.78
Log

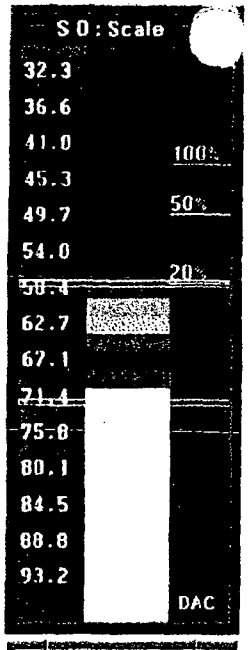

Slot D : A-scan : BF-049 : A 45 : D 180
L[1
T[083]
B[000]
FREEZE
AUTO SCALE
VIDEO
LINEAR
SCRN GAIN
100% DAC
-A- GATE
-B- GATE
-C- GATE
-I- GATE
-BE- GATE
160%
80%
40%
20%
Notch
OD surface ind. # 15-027
0.83
0.67
2.17
3.67
5.18
6.68
8.18
9.68
11.19
12.69
metal path inches
Dist/Time Start = 8.83, End = 8.83, Diff = 0.00
Amplitude Start = 57.85, End = 57.85, Diff = 0.00, Mean = 57.85

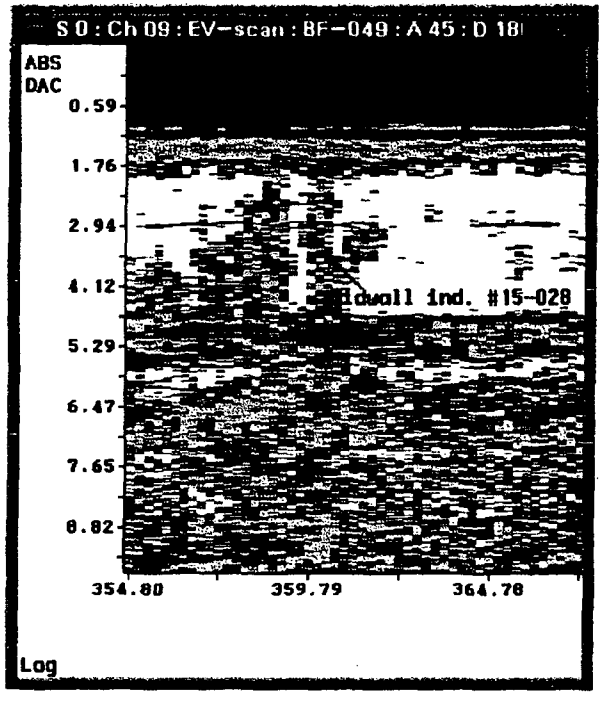

S 0 : Ch 09 : B-scan : BF-049 : A 45 : D 180 : H
ABS
DAC
2.35
5.29
8.24
OD surface ind. #15-027
Shear redirect
514.64
522.65
530.67
538.69
546.63
554.64
562.66
570.68
578.62
Line = 0139, Trigger = 0083
X = 360.15in, Y = 543.91in Z = 6.32in

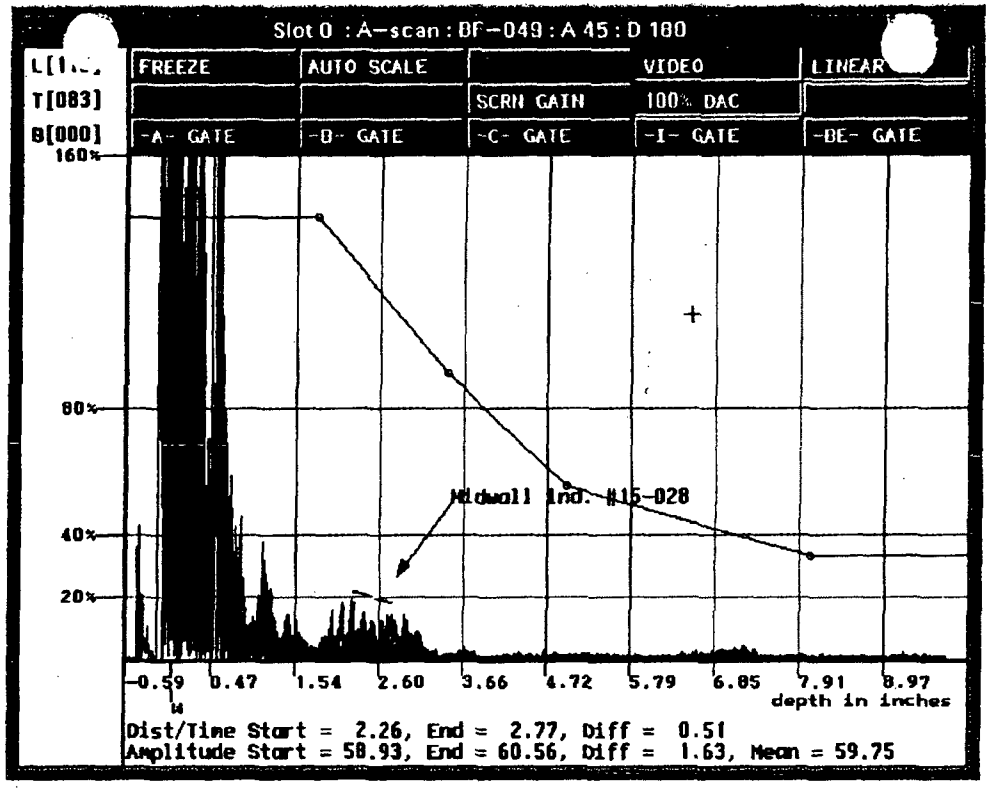

S 0 : Ch 09 : AMP C-scan :
L[139]
T[083]
ABS
557.50
547.00
536.50
526.00
515.50
339.40
354.90
X = 360.15in, Y = 550.25in
DAC-LOG

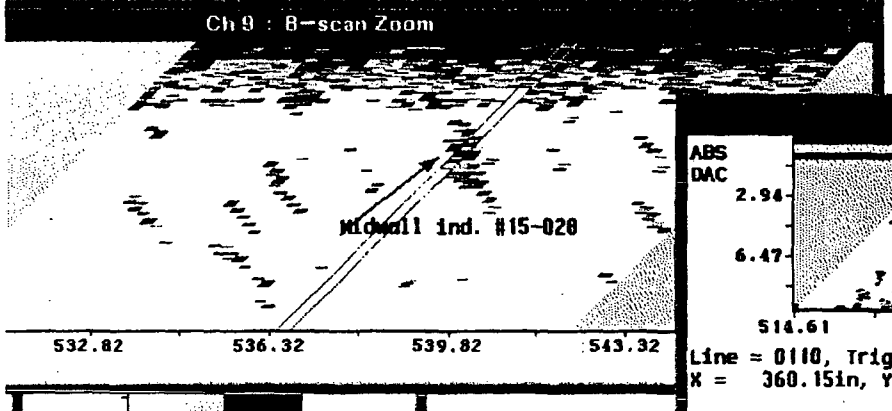

S 0 : Ch 09 : SV-scan : BF-049 : A 45 : D 180 : H
ABS
DAC
2.35
5.29
8.24
OD surface ind. #15-027
Shear redirect
514.64
522.65
530.67
538.69
546.63
554.64
562.66
570.68
578.62
Log

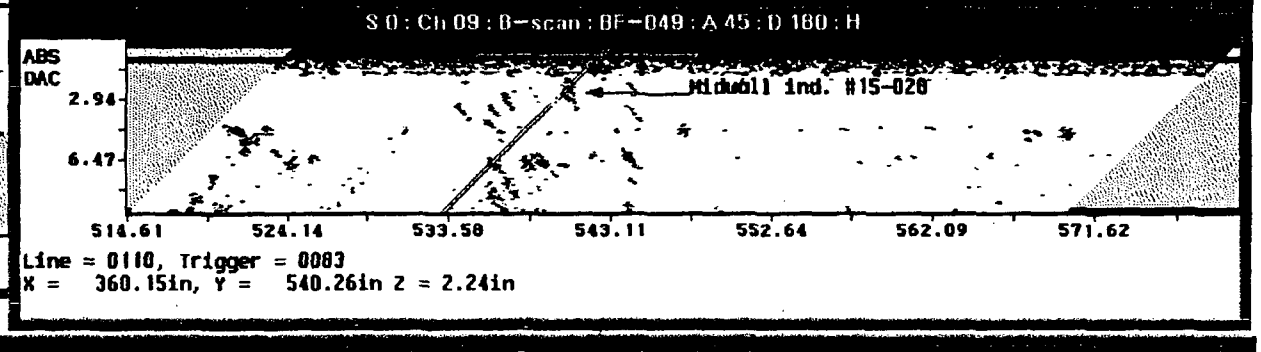
R1168

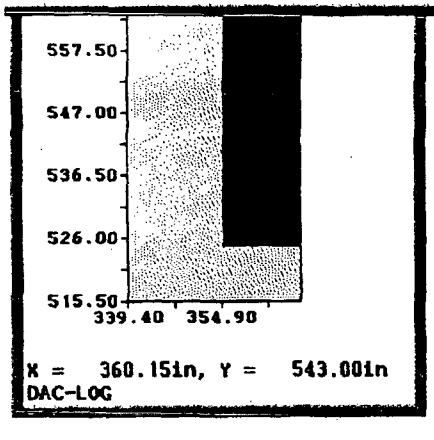


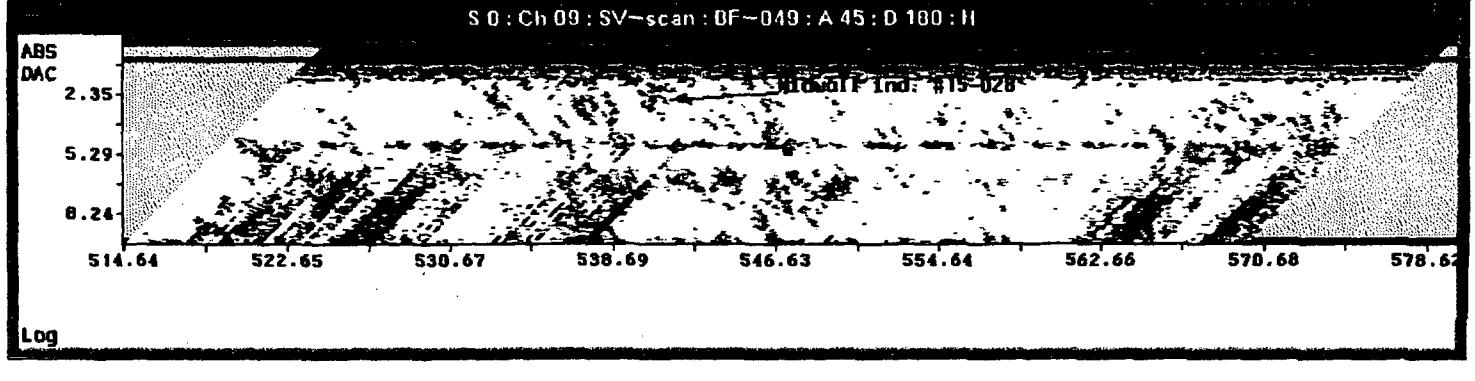






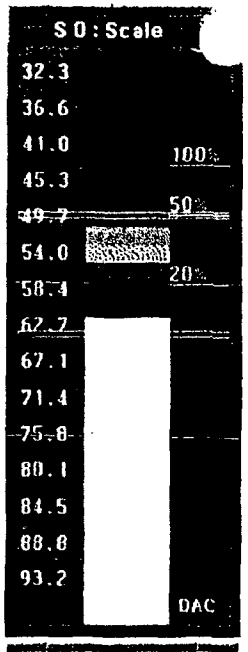


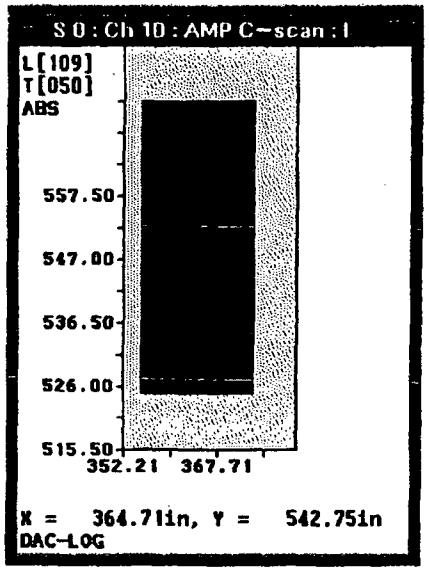


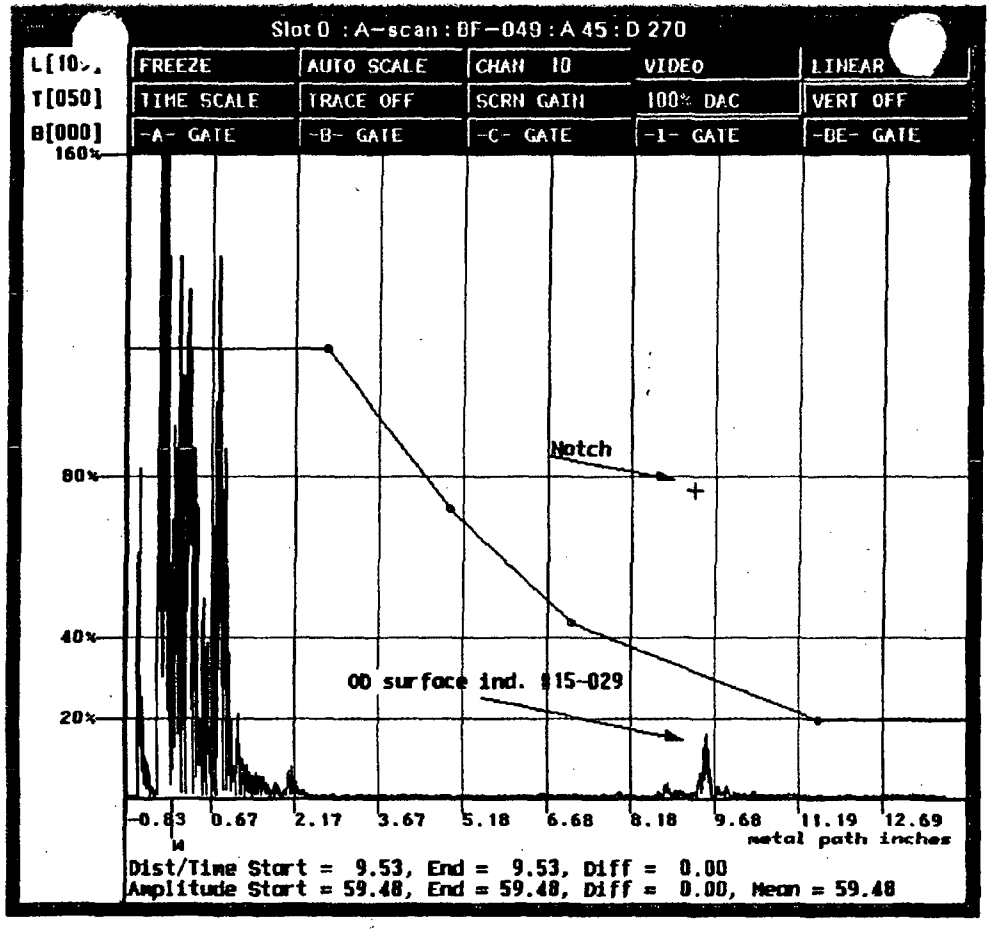


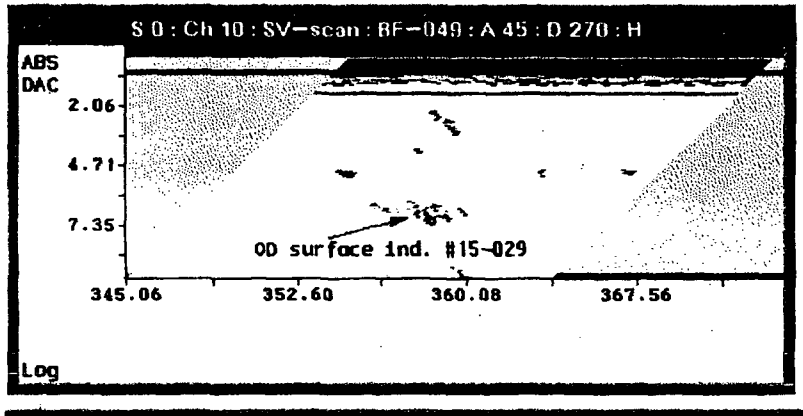
00229 23 of 29

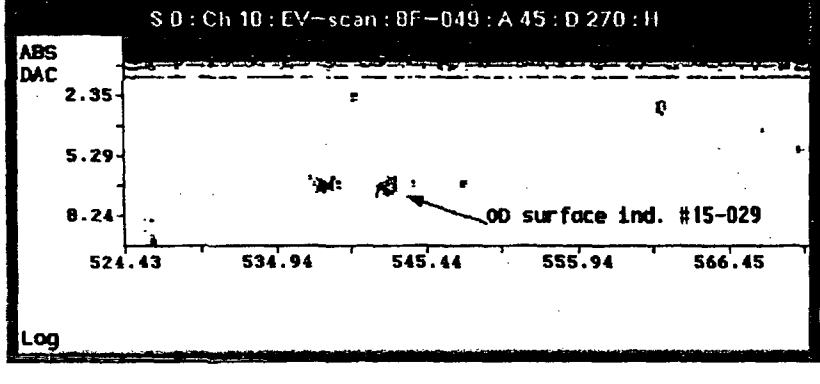
R1168

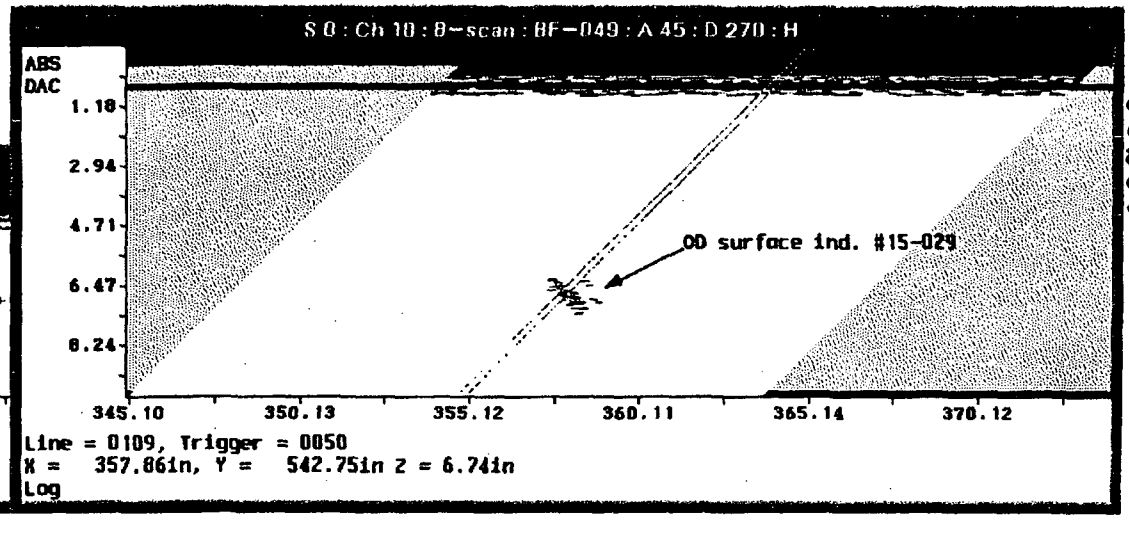






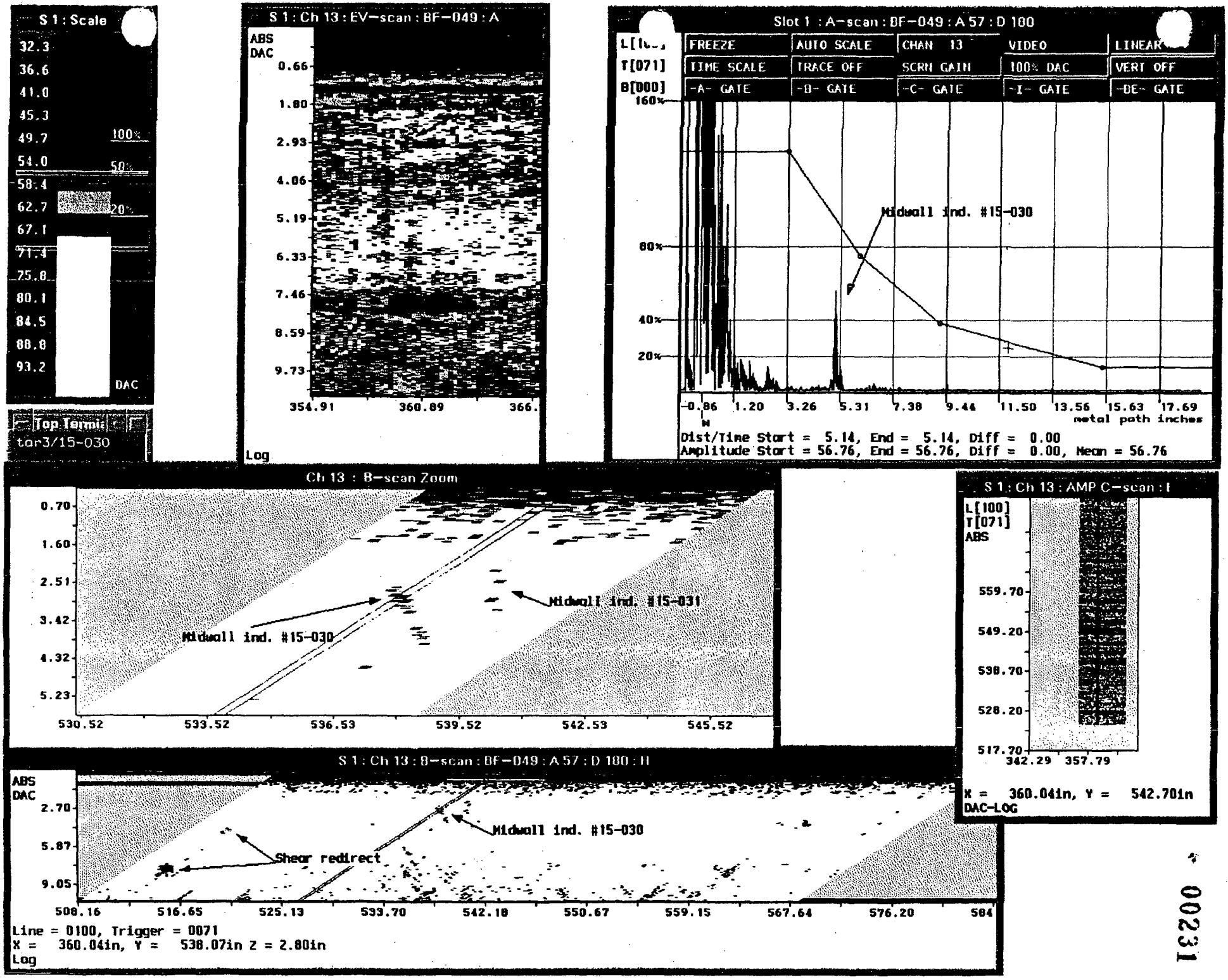






00230 24 of 29

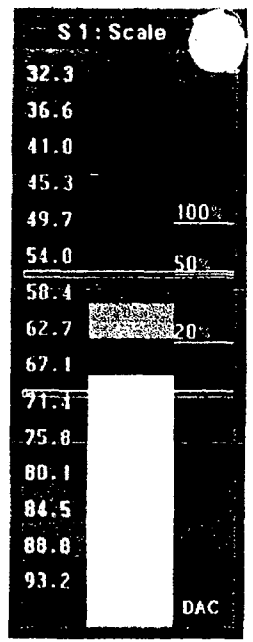
R1168

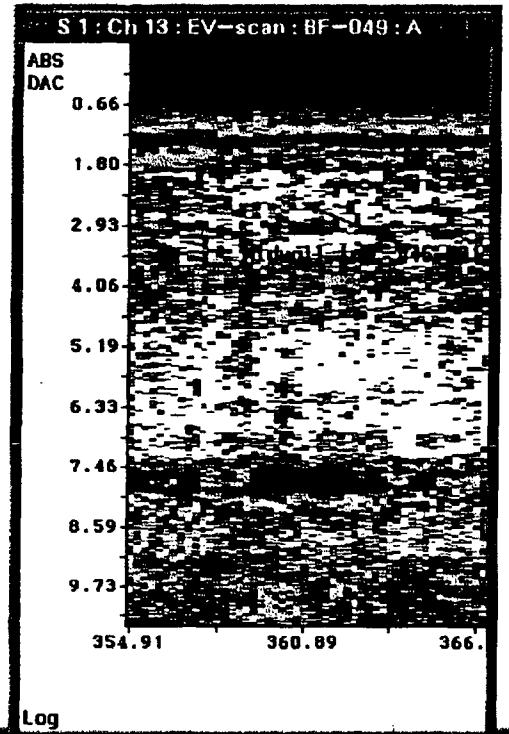


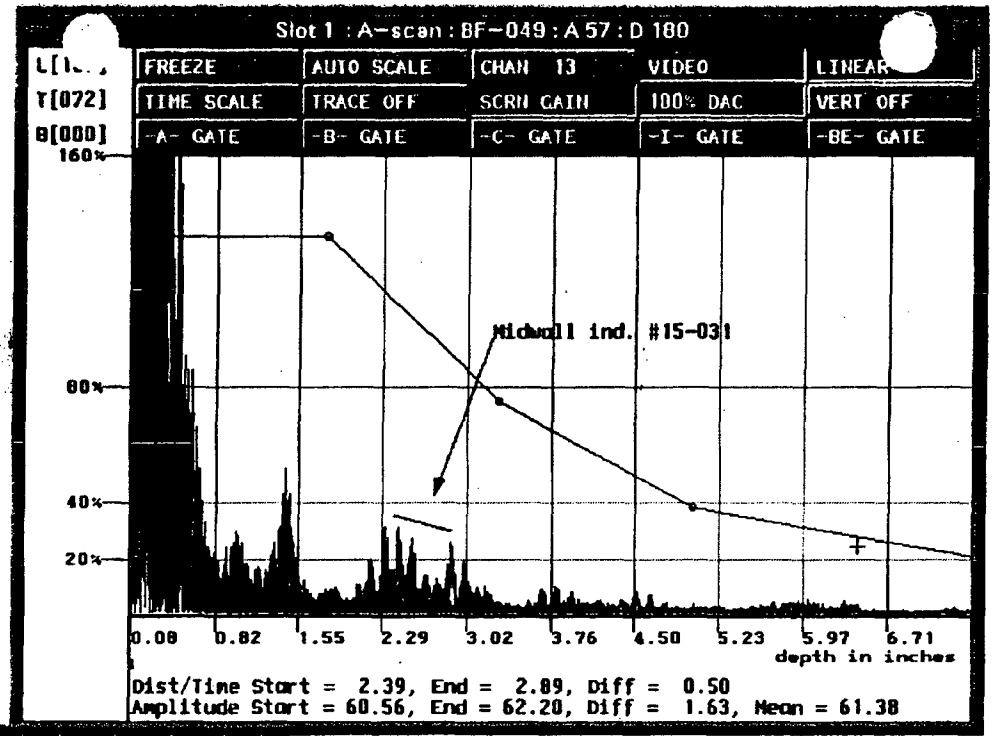
R1168

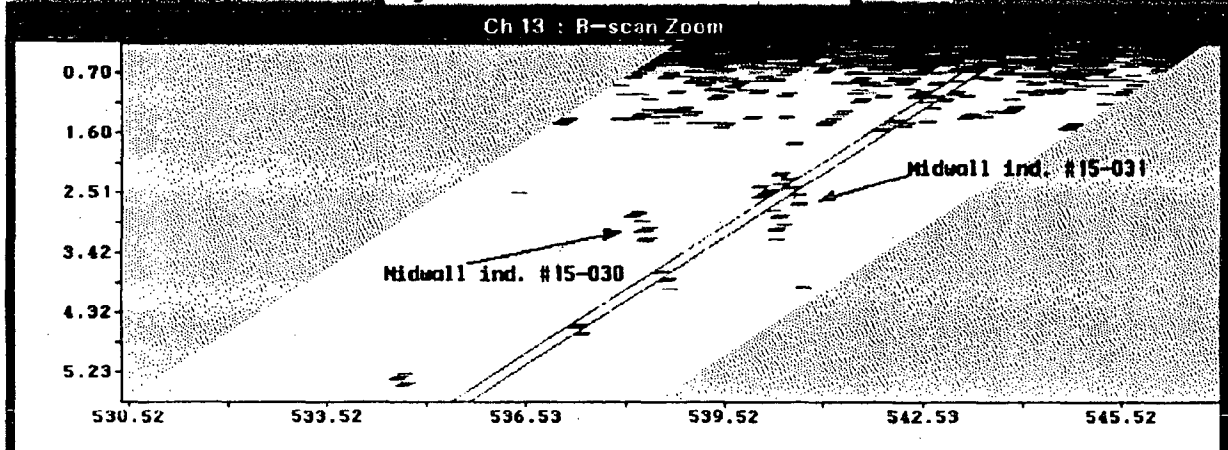
25 of 29

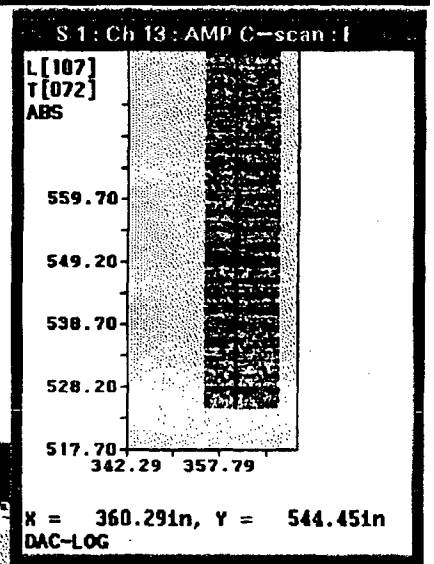
00231

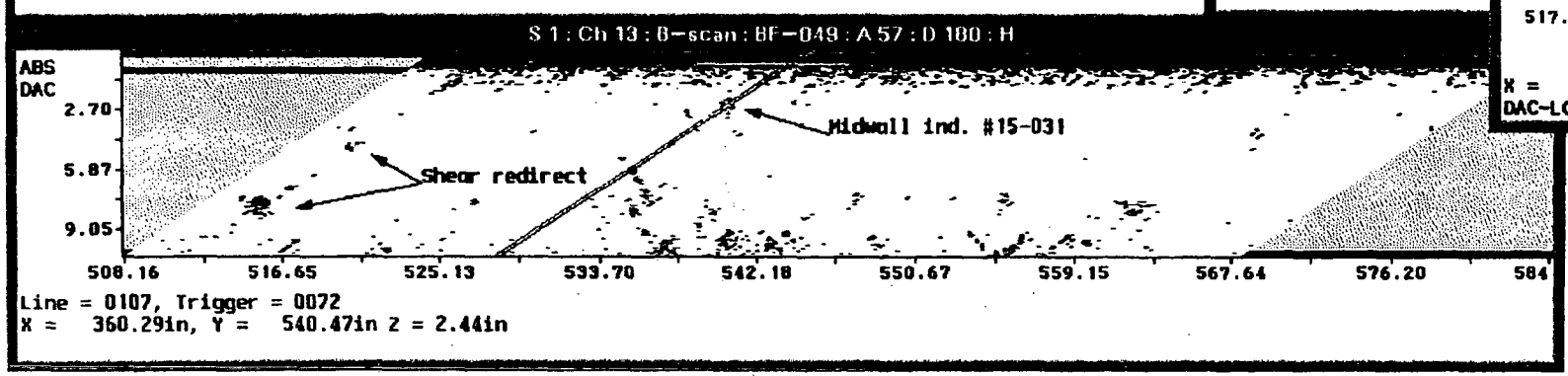




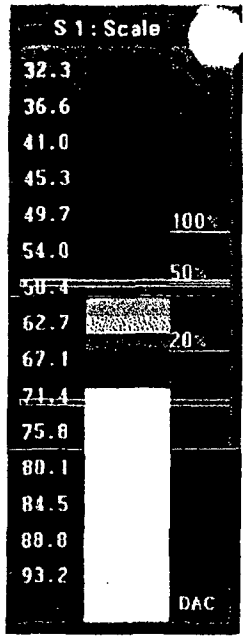


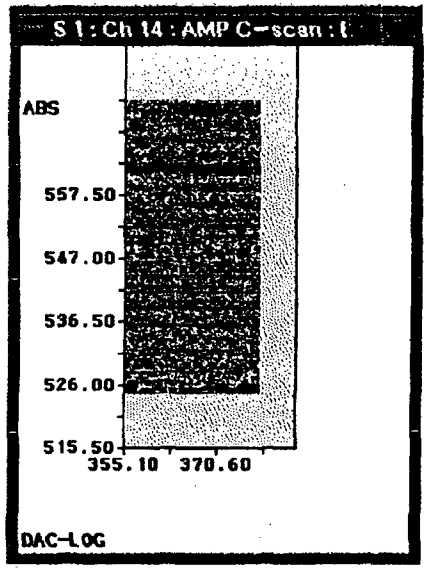


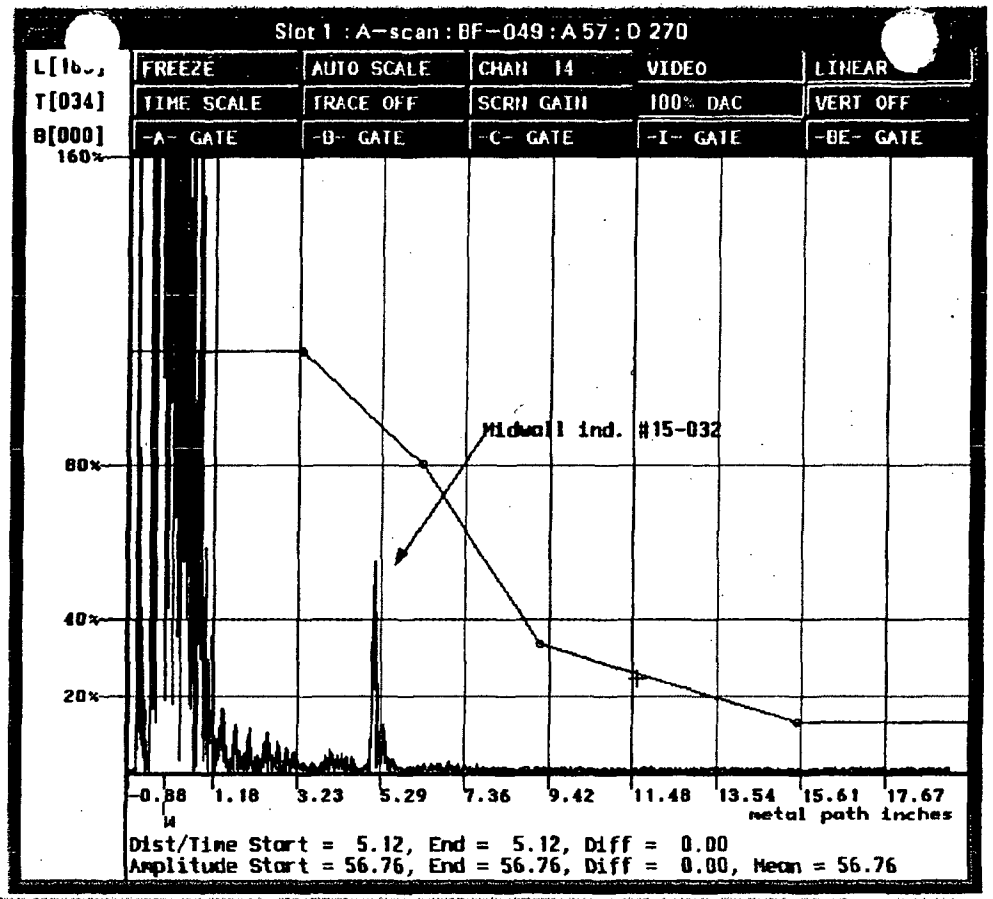


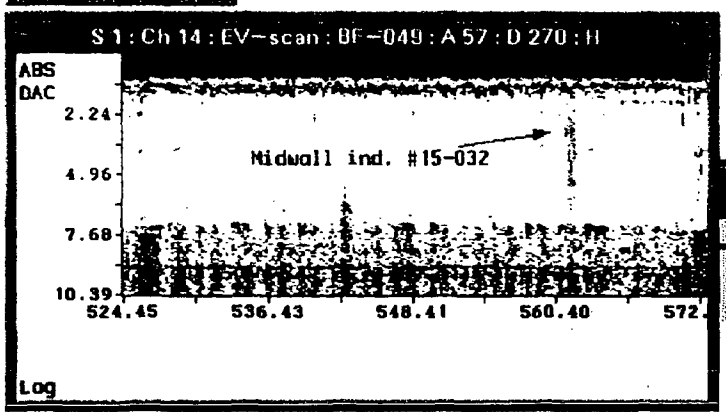


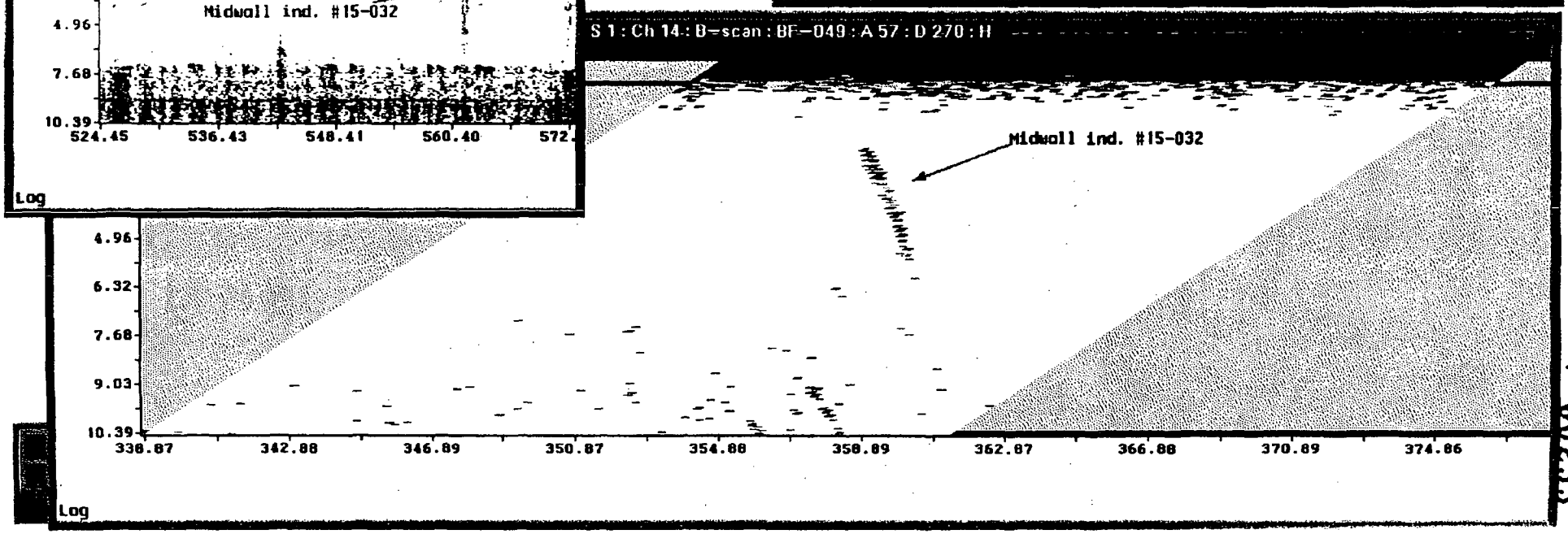
R1168
26 OF 29
00232





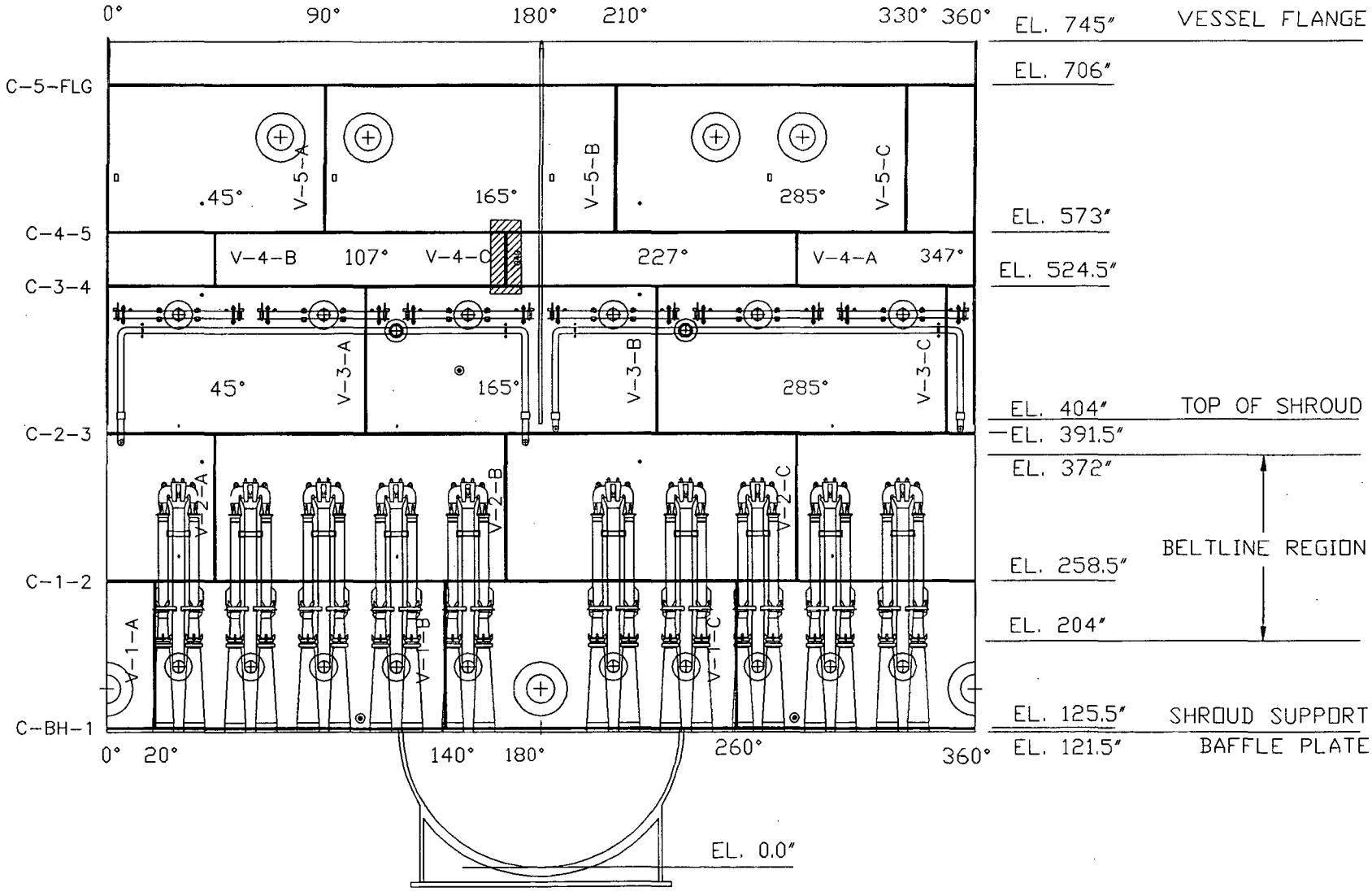




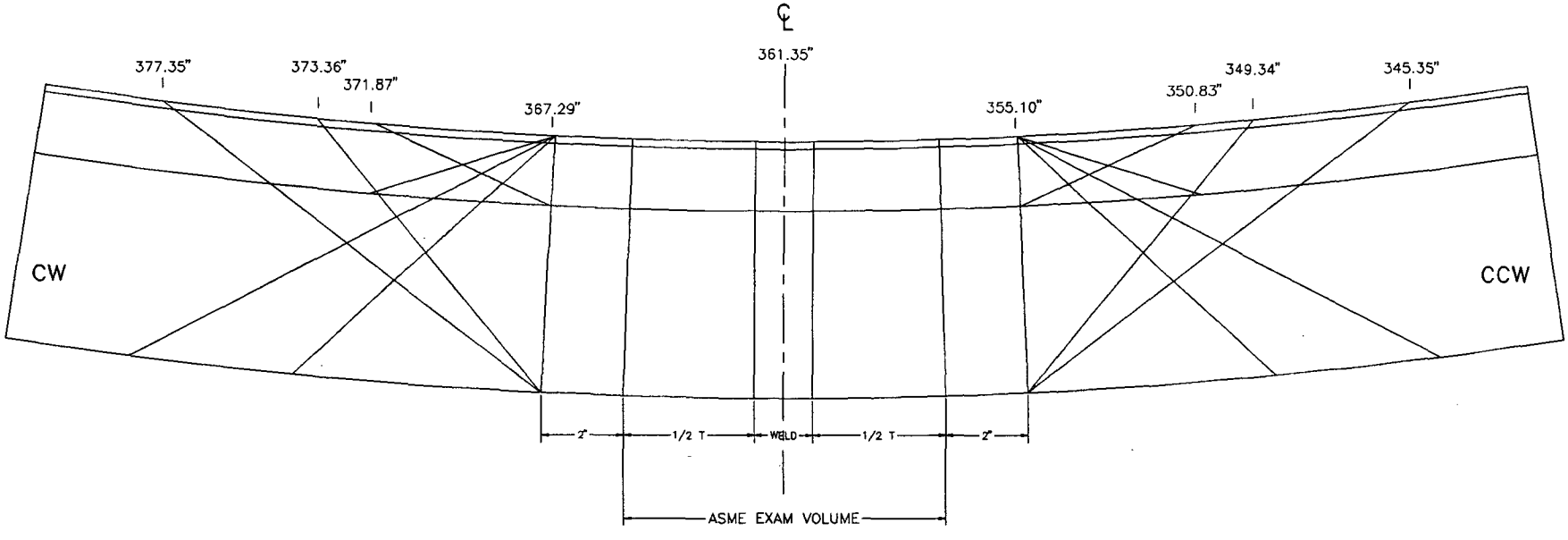


R1168
27 OF 29
80233

BROWNS FERRY UNIT-3 WELD LOCATIONS



GE NUCLEAR ENERGY	BROWNS FERRY UNIT 3	VESSEL ROLLOUT & AS SCANNED PATCH LOCATIONS	BF-3-VMA	REV 0



Nominal Clad T = 3/16"
Nominal Base Metal T = 6 3/8"
1 Degree = 2.19"

CH.	ANGLE	DIR.	MIN X	MAX X
1	0 W	0	355.10	367.29
2	0 W	90	355.10	367.29
3	70 UP	0	355.10	367.29
4	70 CW	90	350.83	367.29
5	70 DN	180	355.10	367.29
6	70 CCW	270	355.10	371.87
7	45 UP	0	355.10	367.29
8	45 CW	90	349.34	367.29
9	45 DN	180	355.10	367.29
10	45 CCW	270	355.10	373.36
11	60 UP	0	355.10	367.29
12	60 CW	90	345.35	367.29
13	60 DN	180	355.10	367.29
14	60 CCW	270	355.10	377.35
15	0 BM	0	355.10	377.35
16	0 BM	90	345.35	367.29

GE NUCLEAR ENERGY	BROWNS FERRY UNIT 3	WELD V-4-C EXAM VOLUME	SCALE: NONE	DWG. BF3-VERT	REV. 0

R1168
29 OF 29

* 00235