R1162

GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3
System: Reactor Pressure Vessel
Weld ID: V-2-C **ASME Code Category:** B-A

Calibration Sheets: C-003

Supporting Data: Examination Data Sheets E-07-00 thru E-07-02, Indication Data Sheet 07-001, 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-2-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. This examination was limited due to the Jet Pump brackets at 270° and 300°. The total examination coverage was calculated to be 91%.

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 one (1) indication with the 45° shear wave scans that was evaluated and found to be acceptable per the referencing Code section.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

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

GERIS Analyst: [signature]	GE Reviewer: Teresa Kimball
LEVEL: III DATE: 12/15/93	LEVEL: III DATE: 12-15-93
UTILITY Review: [signature]	ANII Review:
TITLE: [illegible] DATE: 1/26/94	TITLE: [signature] DATE: 7/12/94

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1.1KR 7-6-95

0469 0000 0554

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GERIS 2000 Examination Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-2-C
Exam Data Sheet: E-07-00

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-093	E-07-01	10/21/93	2234	2347	613.25	634.75	251.50	311.00	81B	JCG
BF-094	E-07-02	10/23/93	0324	0523	610.25	638.00	311.25	390.00	88A/89A	JCG
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Comments: N/A

Limitations: BF-093 limited due to Jet Pump Riser Brackets @ 270° and 300°.

Analyst: [signature]
Level: III Date: 12/10/93

Reviewed By: [signature]
Level: II Date: 12/14/93

GE Nuclear Energy

GERIS 2000 Examination Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-2-C
Cal. ID: C-003

Exam Data Sheet No.: E-07-01
Patch ID: BF-093
Ind. Data Sheet Series: 07-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	NRI	~	~	~	~	~
2	0 WM	N/A	NRI	~	~	~	~	~
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	2	07-001	~	~	~	~
10	45 RS	270 CCW	NRI	~	~	~	~	~
11	60 RS	0 UP	NRI	~	~	~	~	~
12	60 RS	90 CW	NRI	~	~	~	~	~
13	60 RS	180 DN	NRI	~	~	~	~	~
14	60 RS	270 CCW	NRI	~	~	~	~	~
15	0 BM	N/A	NRI	~	~	~	~	~
16	0 BM	N/A	NRI	~	~	~	~	~
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Comments: N/A

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: [signature]
Level: III Date: 12/10/93

Reviewed By: [signature]
Level: II Date: 12/14/93

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GERIS 2000 Examination Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-2-C
Cal. ID: C-003

Exam Data Sheet No.: E-07-02
Patch ID: BF-094
Ind. Data Sheet Series: 07-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	NRI	~	~	~	~	~
2	0 WM	N/A	NRI	~	~	~	~	~
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	NRI	~	~	~	~	~
10	45 RS	270 CCW	NRI	~	~	~	~	~
11	60 RS	0 UP	NRI	~	~	~	~	~
12	60 RS	90 CW	NRI	~	~	~	~	~
13	60 RS	180 DN	NRI	~	~	~	~	~
14	60 RS	270 CCW	NRI	~	~	~	~	~
15	0 BM	N/A	NRI	~	~	~	~	~
16	0 BM	N/A	NRI	~	~	~	~	~
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Comments: N/A

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: [signature] Level: III Date: 12/10/93

Reviewed By: [signature] Level: II Date: 12/14/93

EXAM-DS2 V.1 9/28/93

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GE Nuclear Energy

GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3
Weld ID: V-2-C
Cal. ID: C-003

Exam Data Sheet No.: E-07-01
Patch ID: BF-093
Ind. Data Sheet No.: 07-001

Indication: 07-001 **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
50.2%	621.90	~	~	~	~	298.00	8.69	~	~	~	~	~
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Comments: OD Surface indication evaluated to notch sensitivity
13.05 dB below notch response.

TW= 0.127 L= 0.25 S= 0

Analyst: [signature]
Level: III Date: 12/15/93

Reviewed By: Teresa Kimball
Level: III Date: 12-15-93

GE Nuclear Energy

GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3
Weld ID: V-2-B
Patch: BF-091

Exam Data Sheet No.: E-07-01
Ind. Data Sheet No.: 07-001
Indication: 07-001

Flaw Thruwall Dimension =	0.127
Flaw Length "l" =	0.25
Seperation with clad "S" =	N/A
Surface Separation "S" =	0.00
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"

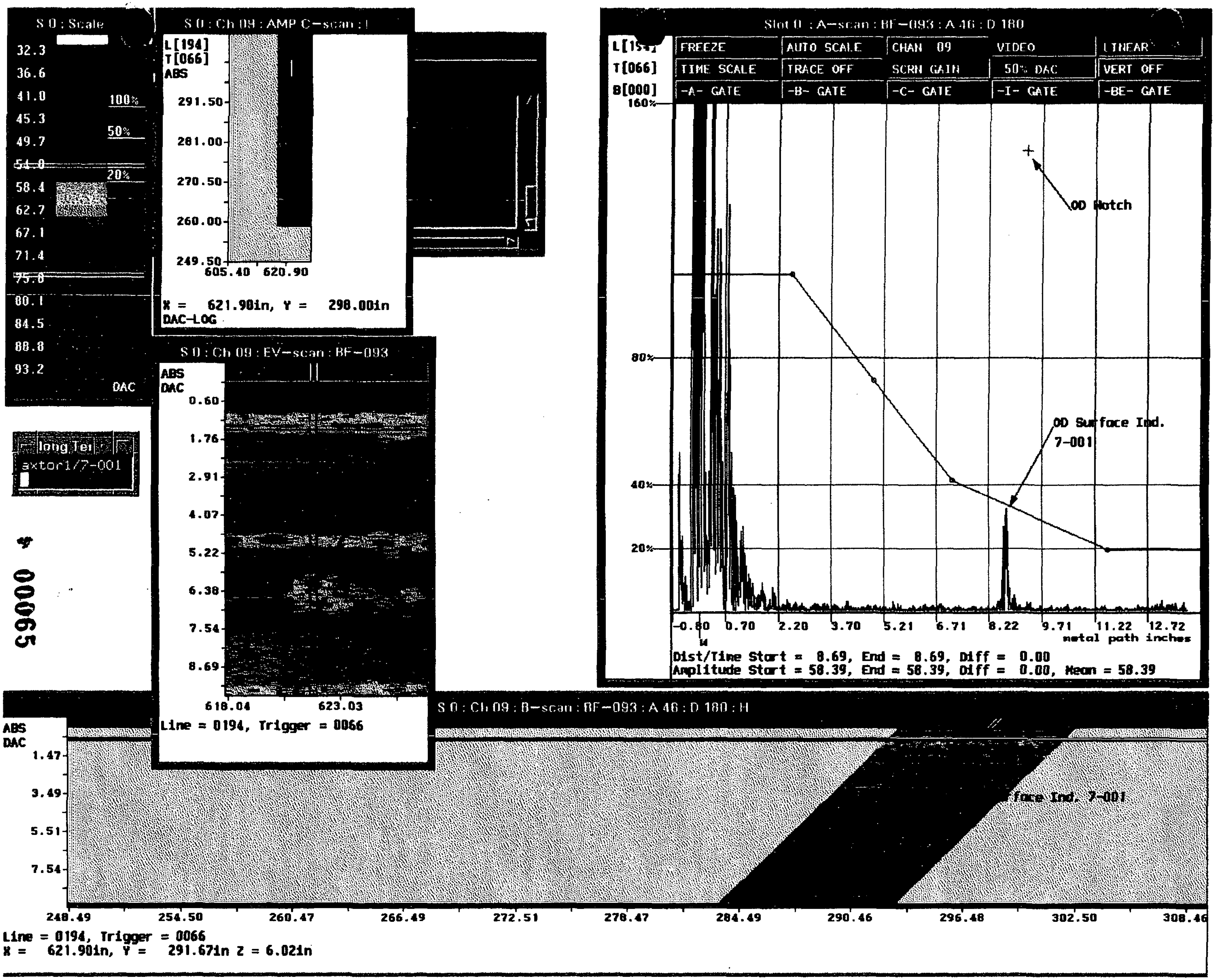
a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	5.20	7.60 Y
			Allowed	Allowed
			5.20	0.00

a =	0.127
a/l value =	0.500
Y =	0.000

Flaw is Surface

Allowed a/t =	5.20%
a/t =	1.99%

Comments: Evaluated to notch sensitivity assigned thruwall dimension = 2%T.


S 0 : Scale
DAC
S 0 : Ch 09 : AMP C-scan : I
X = 621.90in, Y = 298.00in
DAC-LOG
S 0 : Ch 09 : EV-scan : BF-093
Line = 0194, Trigger = 0066
long Ter
axtor1/7-001
Slot 0 : A-scan : BF-093 : A 46 : D 180
FREEZE
AUTO SCALE
CHAN 09
VIDEO
LINEAR
TIME SCALE
TRACE OFF
SCRN GAIN
50% DAC
VERT OFF
-A- GATE
-B- GATE
-C- GATE
-I- GATE
-BE- GATE
OD Notch
OD Surface Ind. 7-001
metal path inches
Dist/Time Start = 8.69, End = 8.69, Diff = 0.00
Amplitude Start = 58.39, End = 58.39, Diff = 0.00, Mean = 58.39
S 0 : Ch 09 : B-scan : BF-093 : A 46 : D 180 : H
Line = 0194, Trigger = 0066
X = 621.90in, Y = 291.67in Z = 6.02in

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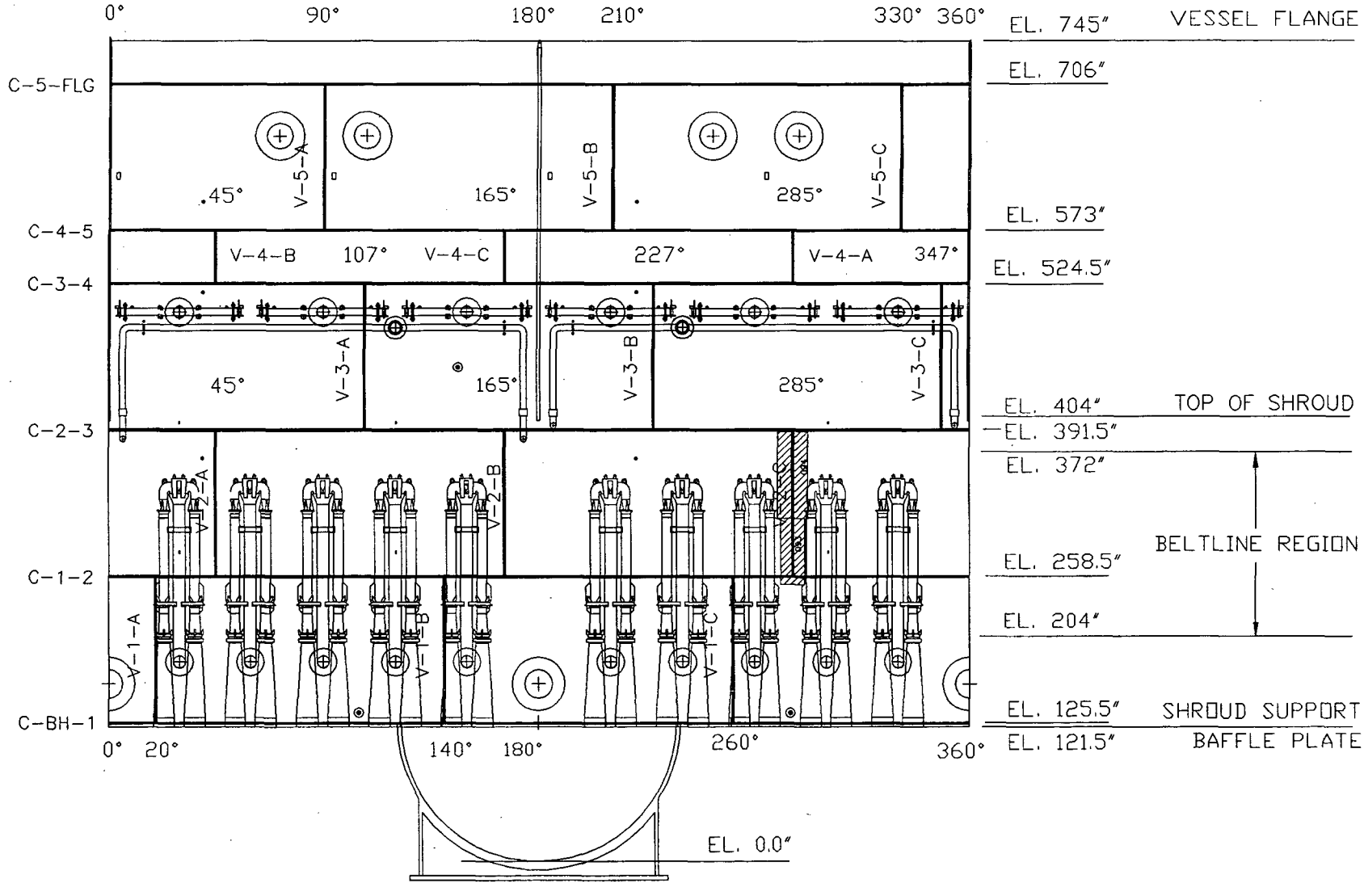
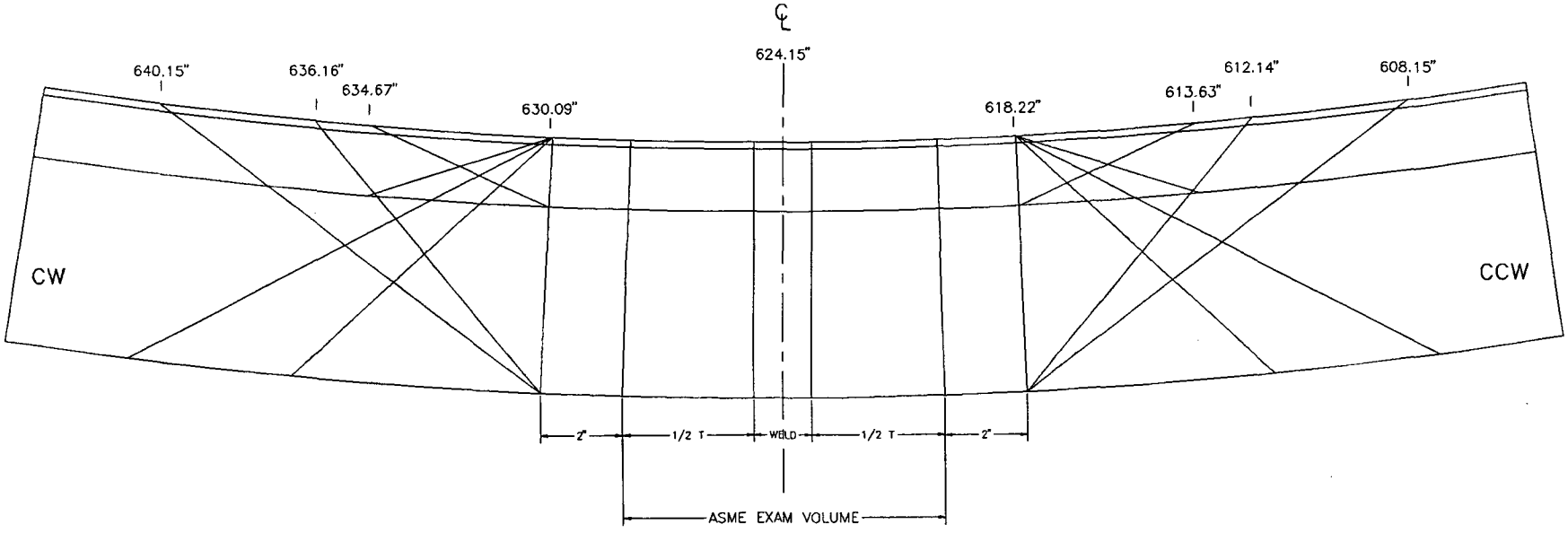
BROWNS FERRY UNIT-3 WELD LOCATIONS



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	618.22	630.09
2	0 W	90	618.22	630.09
3	70 UP	0	618.22	630.09
4	70 CW	90	613.63	630.09
5	70 DN	180	618.22	630.09
6	70 CCW	270	618.22	634.67
7	45 UP	0	618.22	630.09
8	45 CW	90	612.14	630.09
9	45 DN	180	618.22	630.09
10	45 CCW	270	618.22	636.16
11	60 UP	0	618.22	630.09
12	60 CW	90	608.15	630.09
13	60 DN	180	618.22	630.09
14	60 CCW	270	618.22	640.15
15	0 BM	0	618.22	640.15
16	0 BM	90	608.15	630.09

GE NUCLEAR ENERGY	BROWNS FERRY UNIT 3	WELD V-2-C EXAM VOLUME	SCALE: NONE	DWG. BF3-VERT	REV. 0

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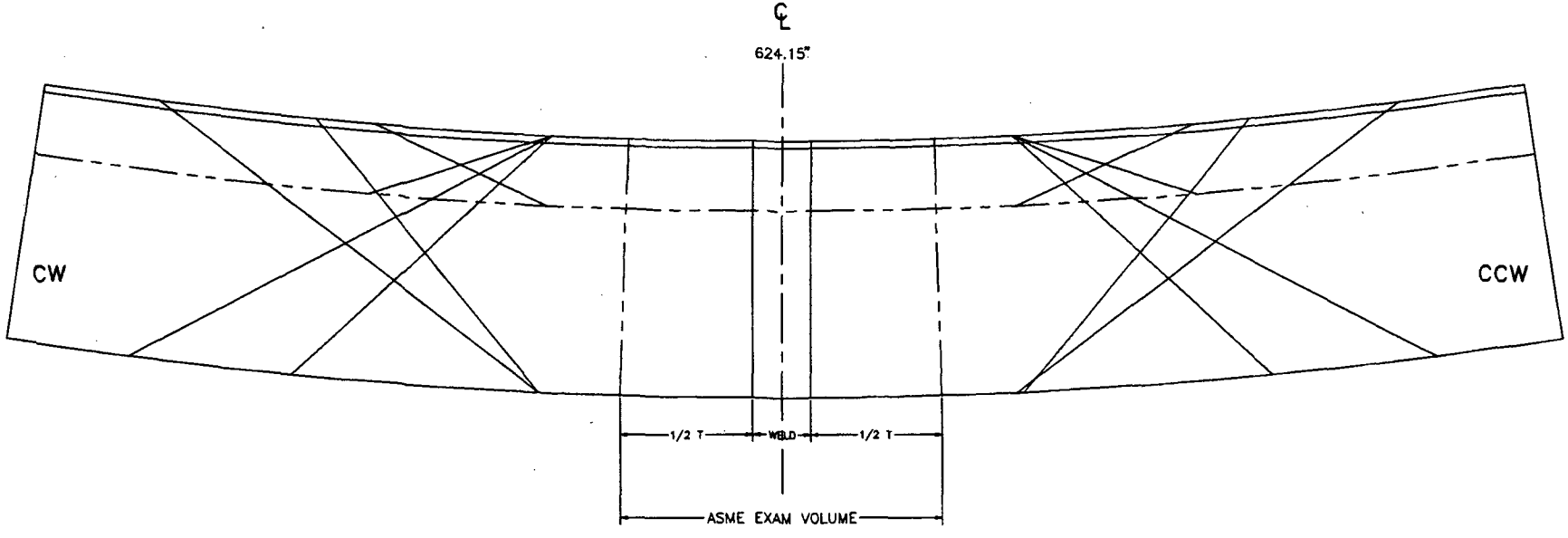

Nominal Clad T = 3/16"
Nominal Base Metal T = 6 3/8"
1 Degree = 2.19"

P-scans limited due to Jet Pump Brackets.
Reference Scanner Data Setup BF-093

GE NUCLEAR ENERGY	BROWNS FERRY UNIT 3	JET PP AUTOMATED SCAN LIMIT	SCALE: NONE	DWG. N2ABCJET	REV. 0