

Commonwealth Edison Company
Braidwood Generating Station
Route #1, Box 84
Braceville, IL 60407-9619
Tel 815-458-2801



October 23, 1996

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Comparison of Eddy Current Data Acquisition Equipment
Braidwood Nuclear Power Station, Unit 1
Facility Operating License NPF-72
NRC Docket Number 50-4

- Reference:
- (1) Braidwood Unit 1 Steam Generator Inspection
October 22, 1996, Teleconference Between
the Commonwealth Edison Company and the
Nuclear Regulatory Commission
 - (2) Harold Gene Stanley letter to Document Control Desk, May 24,
1996, "Operating Interval Between Eddy Current Inspections for
Circumferential Indication in the Braidwood Unit 1 Steam
Generators."

In reference (2) Commonwealth Edison (ComEd) committed to using a Steam Generator (SG) eddy current inspection methodology for the Braidwood Station mid-cycle SG inspection equivalent to or better than that used during the Byron Unit 1 Spring 1996 refueling outage. Accordingly, Braidwood elected to use the TC 6700 Eddy Current Tester to inspect Unit 1 Steam Generators.

The TC 6700 Eddy Current Tester was compared to the MIZ-30A in accordance with the requirements of Electric Power Research Institute (EPRI) Document NP-6201, Appendix H. This comparison is documented in Westinghouse transmittal CCE-96-197, "Documentation of Appendix H compliance and Equivalency Calculation Note DDM-96-009." This report shows that the TC 6700 is equivalent or better than the MIZ-30A which was used at Byron during Byron's Unit 1 Spring 1996 refueling outage. Due to this report's proprietary nature, it will be provided to the Nuclear Regulatory Commission in a follow up transmittal. In addition, Westinghouse conducted an analysis that showed that there is no data loss in the data transfer between the TC 6700 Tester and Eddy Net 95

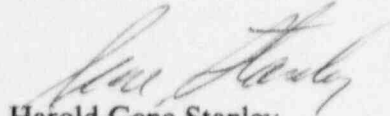
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PDR ADOCK 05000456
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Acc 1/1

analysis software. A copy of this report is attached as per the United States Nuclear Regulatory Commission's request made in the reference (1) teleconference.

If you have any questions concerning this correspondence please, contact Denise Saccomando at (630) 663-7283.

Sincerely,



Harold Gene Stanley
Site Vice President
Braidwood Generating Station

HGS/fb/96066.doc

Attachment

cc: R. R. Assa, Braidwood Project Manager - NRR
M. D. Lynch, Senior Project Manager - NRR
C. J. Phillips, Senior Resident Inspector - Braidwood
A. B. Beach, Regional Administrator - RIII
Office of Nuclear Safety - IDNS

TC 6700 TO MIZ 30A COMPARE

ENCLOSED

TC 6700 Configuration
Miz 30A Summary Form

Graphics

100% axial .115 +pt and .080 set to 20 volts
(ANSER, converted ANSER, Miz 30A)

C-scan 100% axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 63% O.D. axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 60% I.D. axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 40% O.D. axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 21% I.D. axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 21% O.D. axial .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 100% circ. .115 coil
(ANSER, converted ANSER, Miz 30A)

C-scan 100% circ. +pt coil
(ANSER, converted ANSER, Miz 30A)

C-scan 60% O.D. circ. +pt coil
(ANSER, converted ANSER, Miz 30A)

C-scan 60% I.D. circ. +pt coil
(ANSER, converted ANSER, Miz 30A)

S-scan 40% O.D. circ. +pt coil
(ANSER, converted ANSER, Miz 30A)

TC6700 Configuration File: TC12X2

Version: 0.046 created Tue Sep 24 12:56:41 1996

Acquisition Rate:	1230 Hz	Frequency Setup
Current Source:	0 Volts	F1 300.00 kHz
Acquisition Type:	INTERNAL	F2 200.00 kHz
Interpolation:	ON	F3 100.00 kHz
Demodulation Type:	REAL_IMAG	F4 20.00 kHz
Frequency Accuracy:	2.00 %	
Number of Frequencies:	4	
Number of Contexts:	2	
Number of Probes:	1	

Configuration Comments:
 Sampling rate set up for 900 RPM at 0.6 ips for 7/8" tubing.
 Must use appropriate TC6700 RPC adapter (DWG # 1B79589 for 10-pin, or 1B79546 for 36-pin cable).

GENERATOR SETUP

	Ctx 1	Ctx 2
GENERATOR 1 is set to NORMAL	F1 3.8V	F2 3.8V
	F3 3.8V	F4 3.8V
GENERATOR 2 is set to NORMAL	F2 3.8V	F1 3.8V
	F4 3.8V	F3 3.8V
GENERATOR 3 is set to OFF		
GENERATOR 4 is set to OFF		

DEMODULATION SETUP

Demodulation Signal 1	F1	F2
Demodulation Signal 2	F3	F4
Demodulation Signal 3	F2	F1
Demodulation Signal 5	F4	F3

ACQUISITION SETUP

TRM	TRM	Probe	Coil	Input Switch	Demod Switch	Gain	Bal Gen	Ctx 1	Ctx 2
1	1	1	5	2	3	38	N/A	200 5	300 2
1	2	1	5	2	5	38	N/A		100 9
1	3	1	1	1	1	38	N/A	300 1	200 4
1	4	1	1	1	2	38	N/A	100 7	20 11
2	1	1	4	2	2	38	N/A	100 8	
2	2	1	6	2	2	38	N/A		
2	3	1	7	1	1	38	N/A	300 3	200 6
2	4	1	7	1	2	38	N/A	100 10	
3	1	1	9	1	1	29	N/A		
3	2	1	10	2	1	29	N/A		
3	3	1	11	3	1	29	N/A		
3	4	1	12	4	1	29	N/A		
4	1	1	13	1	1	29	N/A		
4	2	1	13	1	2	29	N/A		
4	3	1	13	1	3	29	N/A		
4	4	1	13	1	6	29	N/A		

PROBE: 1 RPC Trigger Channel: 8

ANSER	Coil	Coil	Chan		TRN	TRN	Dmd	In		Filt	Filt	Bal	
Chan	Num	Type	Grp	Freq	Brd	Ch	Sw	Sw	Ctx	Gn	Type	Perm	Gen
1	1	115	1	300	1	3	1	1	1	38	NONE	0	N/A
2	5	+PT	1	300	1	1	3	2	2	38	NONE	0	N/A
3	7	BOM	1	300	2	3	1	1	1	38	NONE	0	N/A
4	1	115	1	200	1	3	1	1	2	38	NONE	0	N/A
5	5	+PT	1	200	1	1	3	2	1	38	NONE	0	N/A
6	7	BOM	1	200	2	3	1	1	2	38	NONE	0	N/A
7	1	115	1	100	1	4	2	1	1	38	NONE	0	N/A
8	4	TRG	1	100	2	1	2	2	1	38	NONE	0	N/A
9	5	+PT	1	100	1	2	5	2	2	38	NONE	0	N/A
10	7	BOM	1	100	2	4	2	1	1	38	NONE	0	N/A
11	1	115	1	20	1	4	2	1	2	38	NONE	0	N/A

*** SUMMARY FORM ***
PLANT: Waltz Mill
DATE: 09-26-96
LEG: HOT

OPERATOR: Pierini GP LEVEL: III
OPERATOR: LEVEL:

ASME S/N:	N/A	STD S/N:	ACGT02196
TUBE DIAM:	0.750	WALL THICK:	0.043
MATERIAL:	Inconel 600		

```

PROBE TYPE:      115+Pt80M
PROBE S/N:
MANUFACTURE      Zetec
PR EXT TYPE      Westinghouse
MANUFACTURE
PROBE LEN:       50 ft
PR EXT LEN:      60 ft

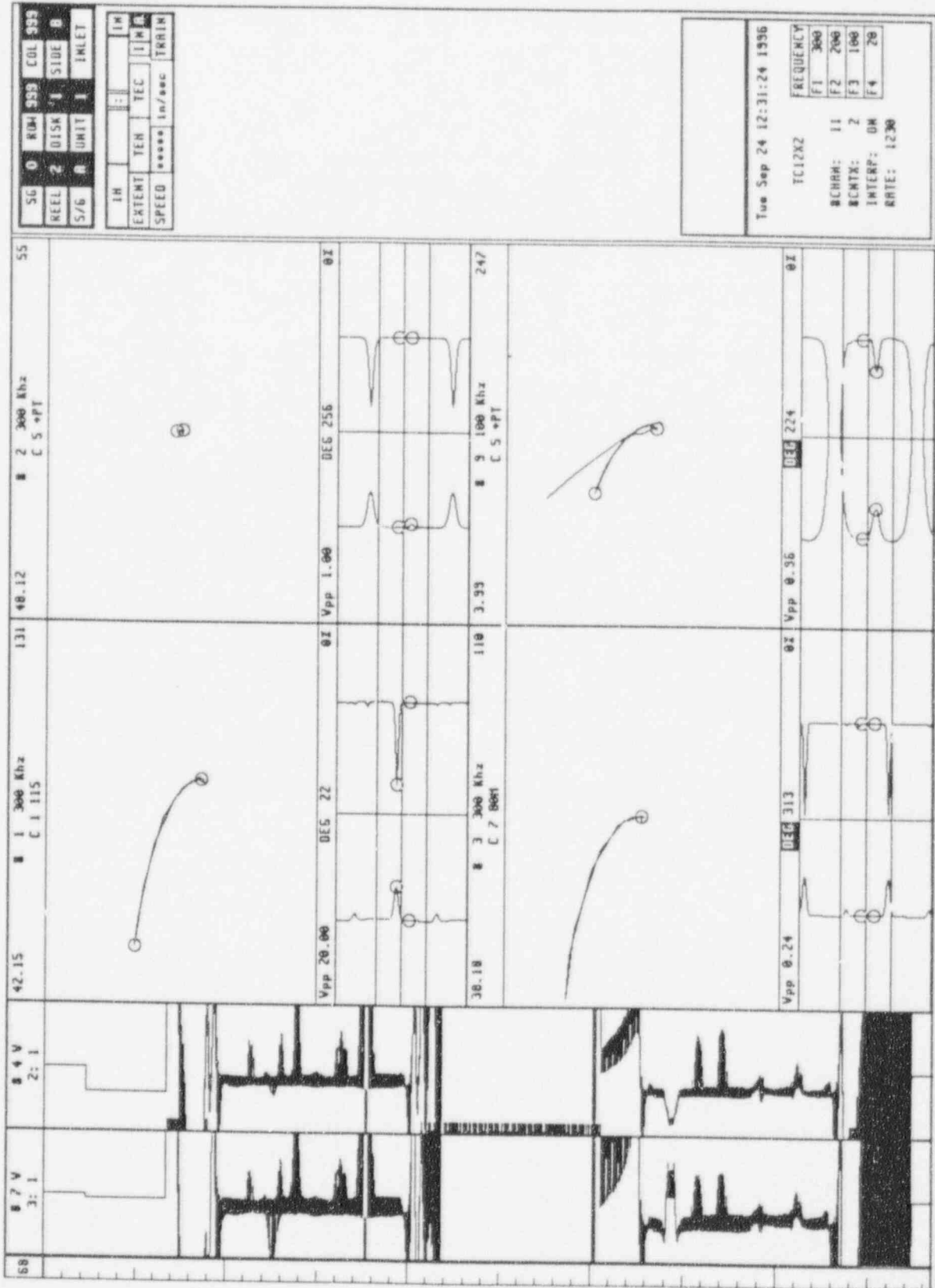
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ADDITIONAL TEXT INPUT:
0.6 ips 900 RPM 12Vx2

CONFIGURATION INFORMATION:

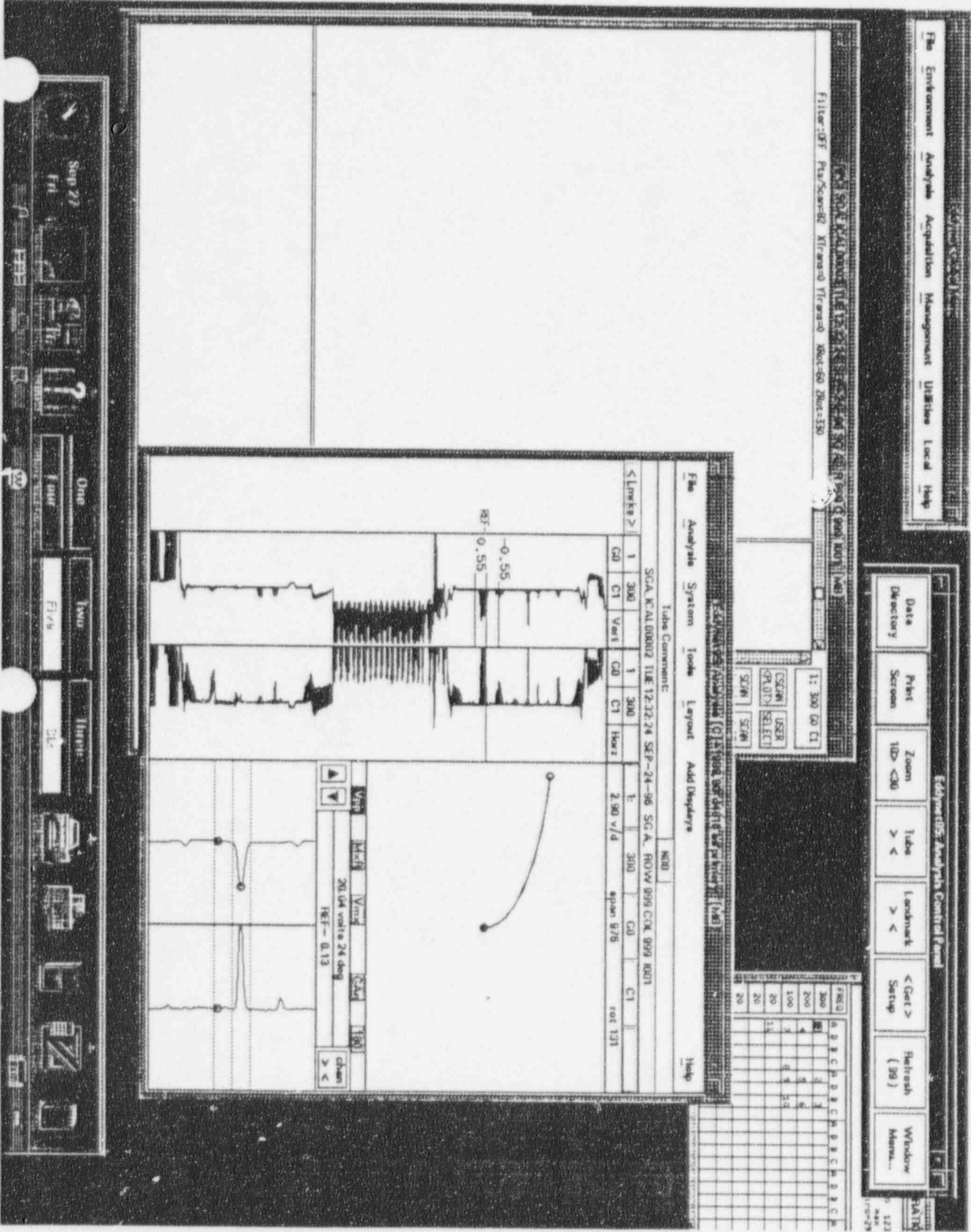
	1	2	3	4	5	6	7	8	9	10	11	12	13
CHAN	300	300	300	200	200	200	200	100	100	100	20	20	
SPAN	152	12	59	990	131	614	178	248	282	66	15	15	
ROT	302	229	287	40	153	323	89	120	75	140	251	237	
COIL	1	5	7	1	4	5	7	1	5	7	1	5	

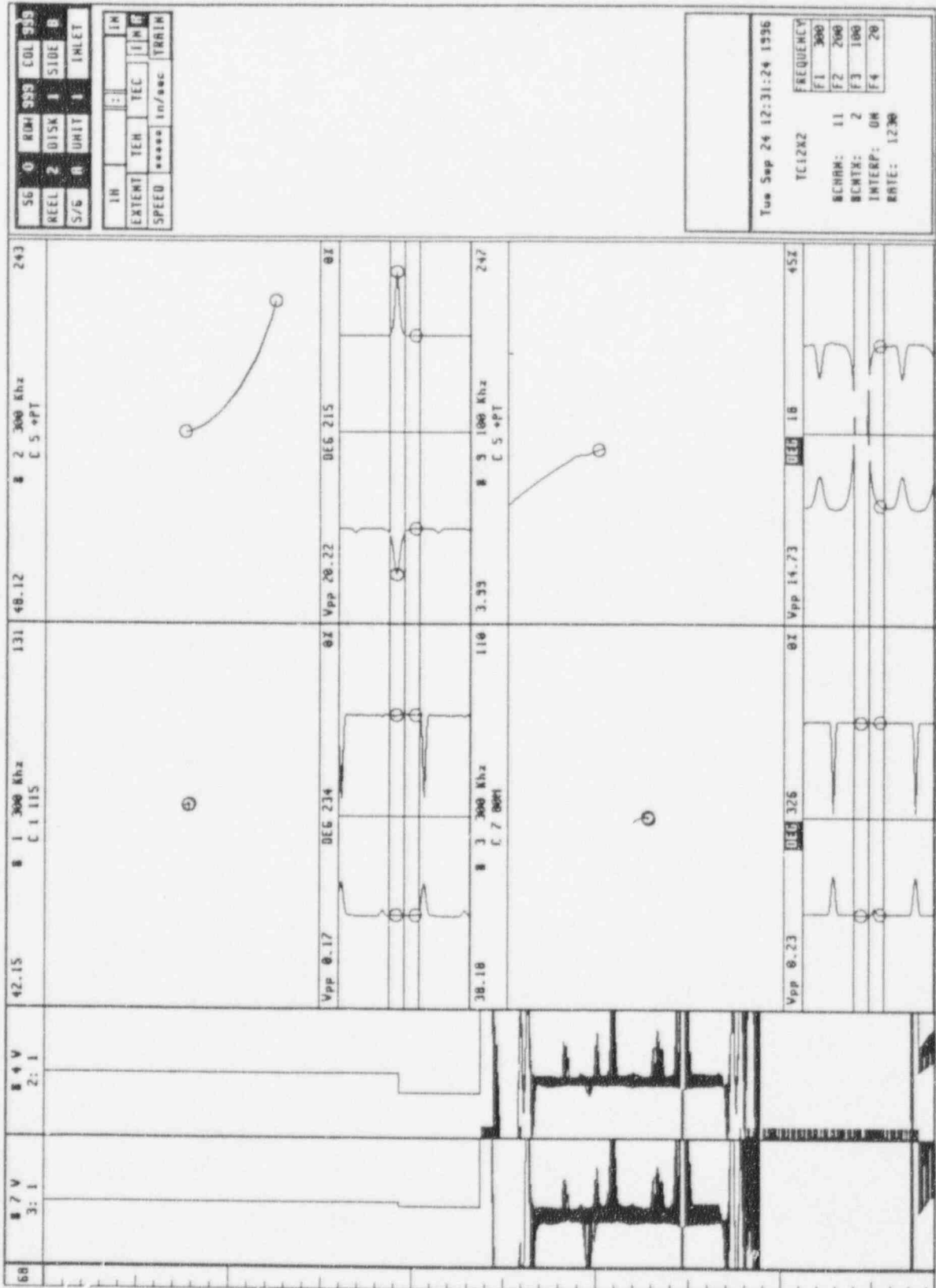
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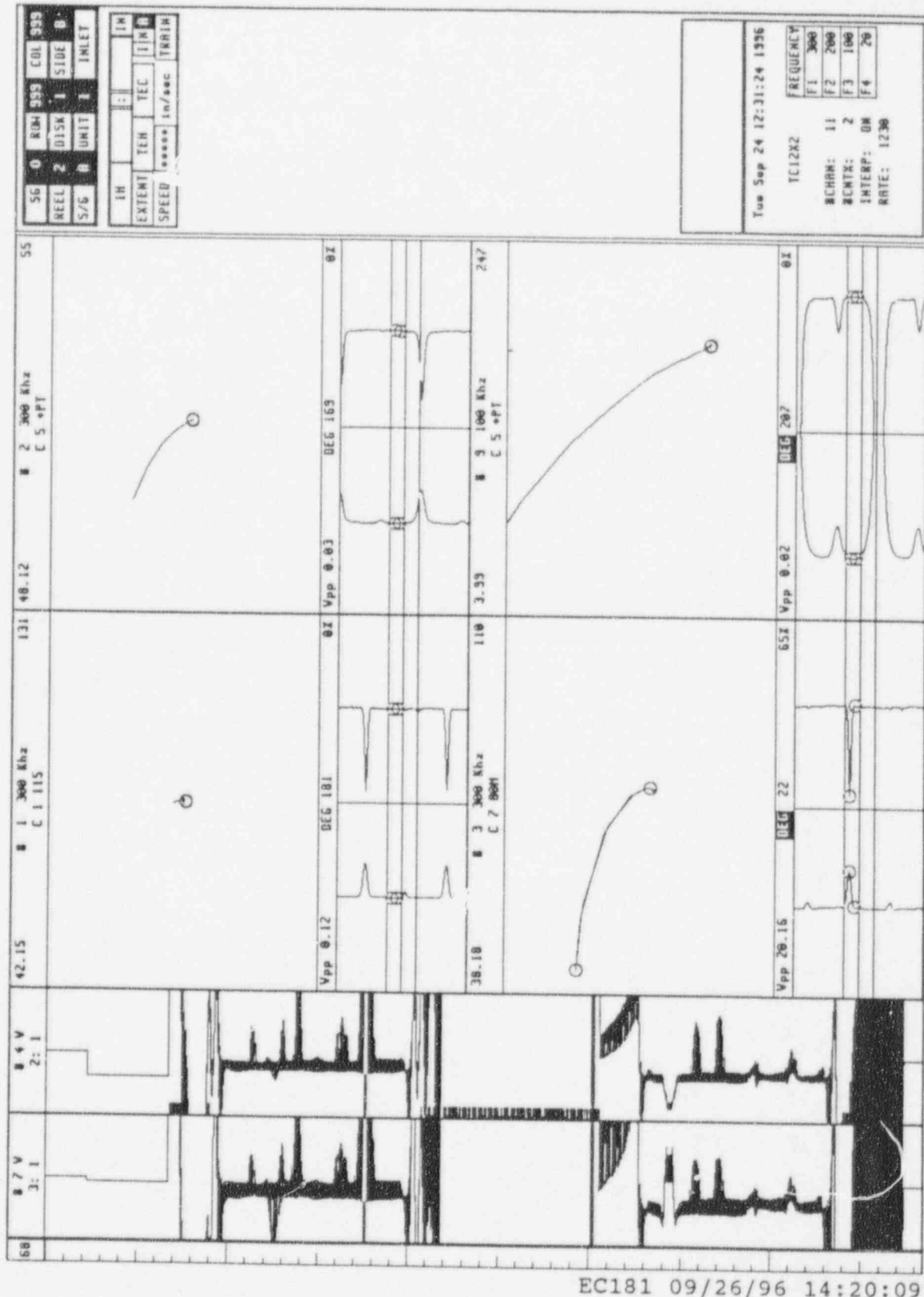


TC 6700 20 Volts on 100% Axial 115 m/l

TC6700 converted to Eddy.net
20 volts are 100% Axial 115 mm

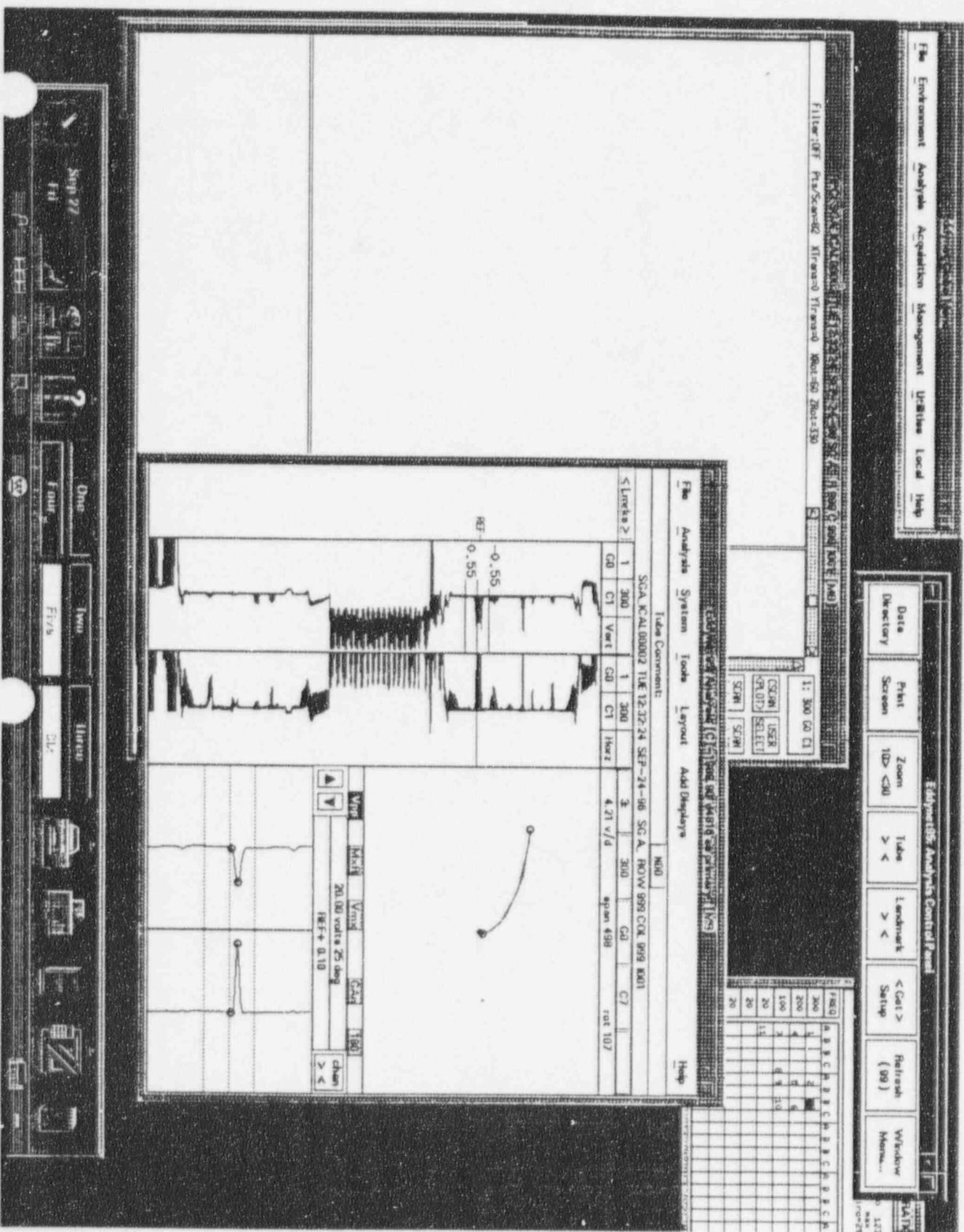




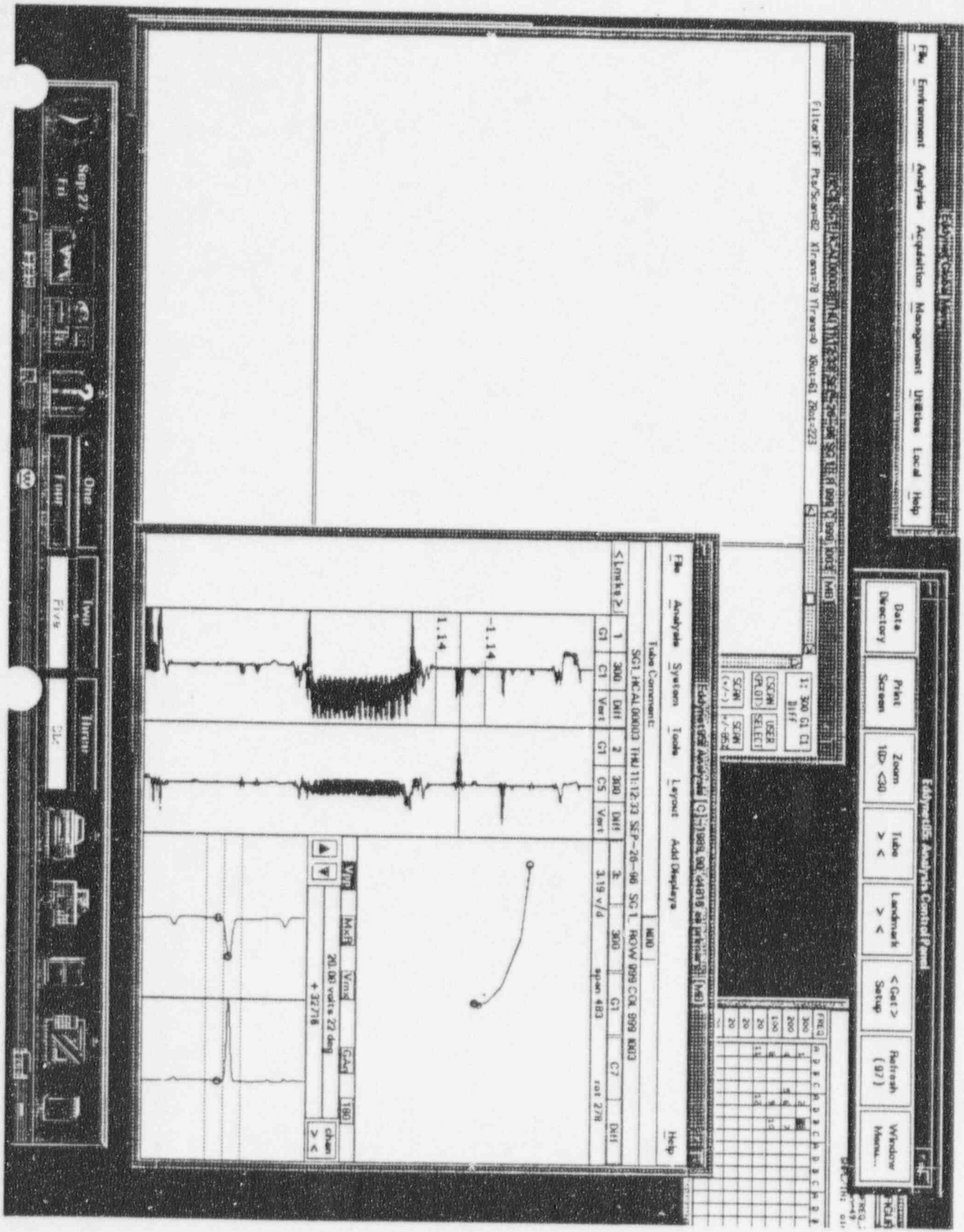


TC 6700 20 Volts on 100% Axial .080 in.

TC 6100 converted to LCCY reel
20 volts cu 100% axial .080 mil



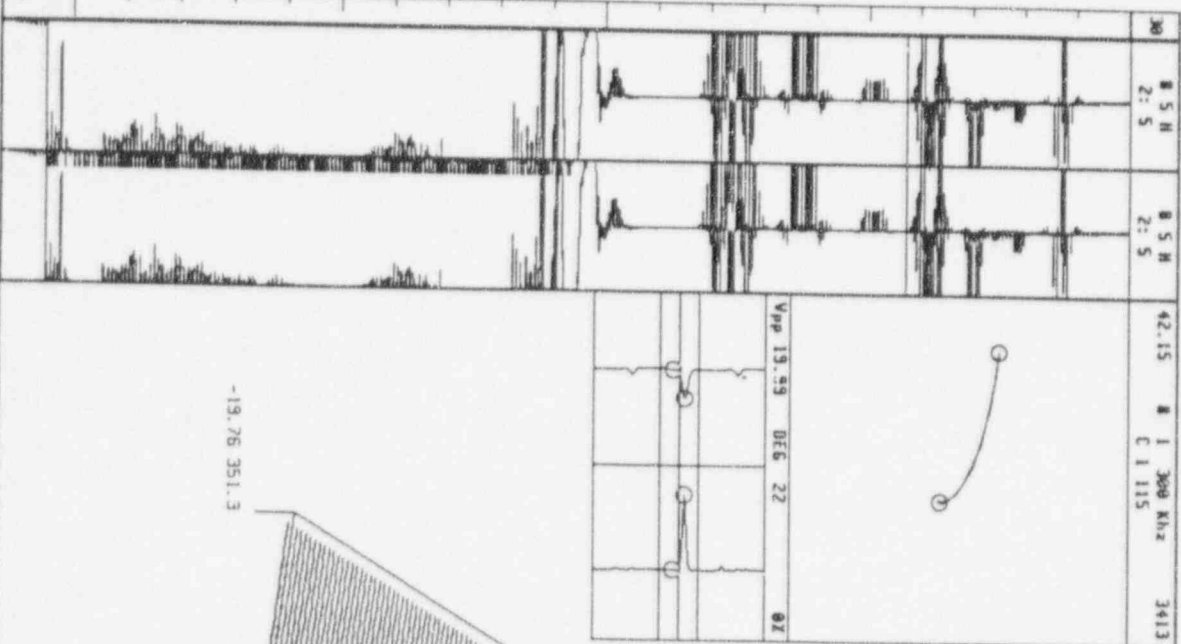
M12 30A 20 volts on 10070 Axial 050 mil



SG	0	ROM	539	COL	539
REEL	2	DISK	1	SIDE	B
S/G	0	UNIT	1	INLET	

RPCI	:	1M
EXTENT	TEH	TEC
SPEED	0.60	in/sec
		TRIM

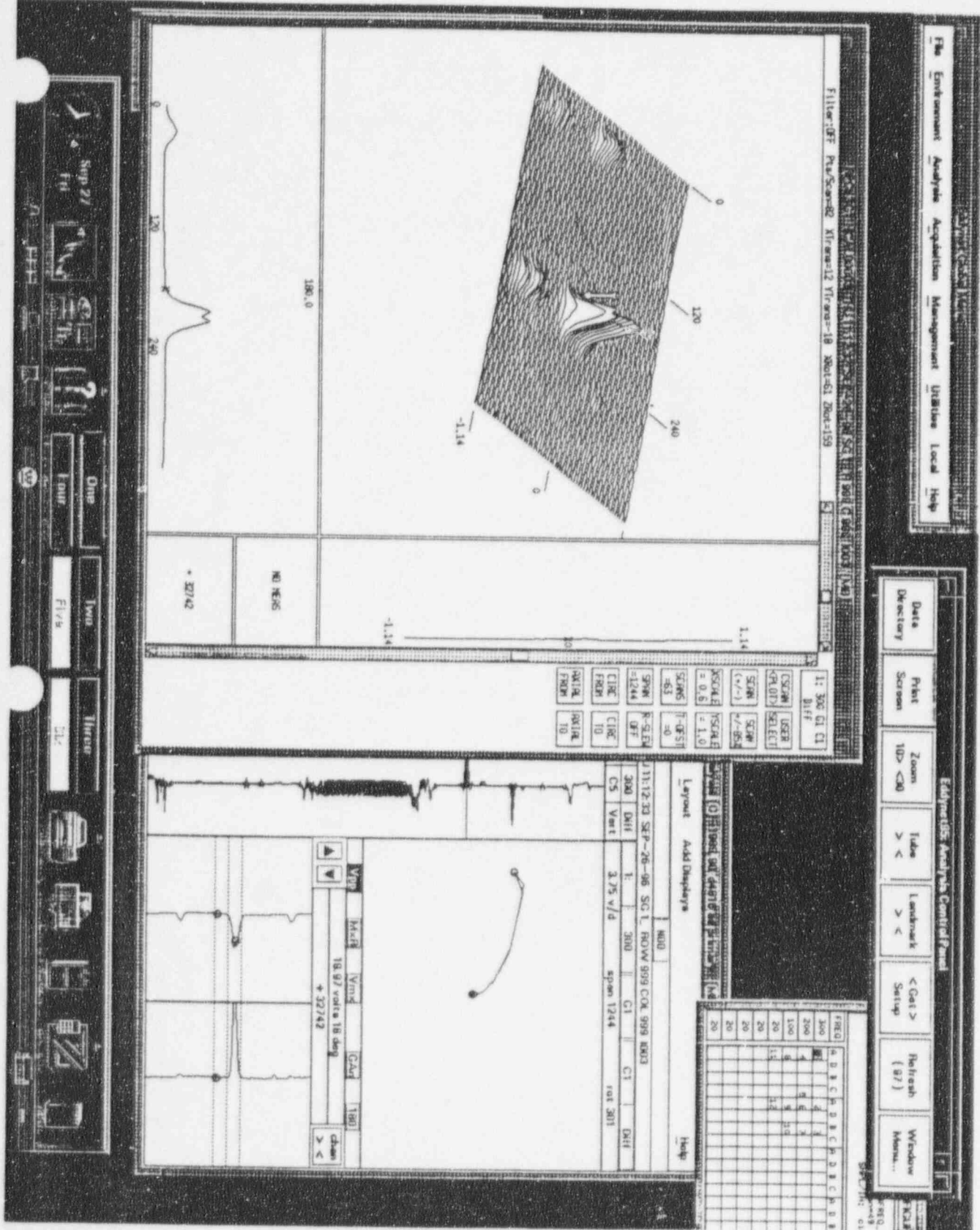
ROT=(118°, 164°)	SCALE=200.0	OFFSET=0°	GRID 100x82
PPS: 82/83/84	TICKS/SCAN	PITCH=0.039	CIRC=2.435
300 RPM	SET_ZERO	SUB SCAN OFF	SUB TRACE OFF
CSCAN PLOT	VERT COMP	DELTA=1.00 V	TICK TRK 634
TICK CH. 0	RAEBH OFF	RO=100° RO=100°	CIR STEP=18°
FLM TYPE UN	FLM Angle 0	Coll DIM. 100	PRESSURE OFF
SCAN TRCK ON	TRIG ON H=3	RK_CIRC_OFF	



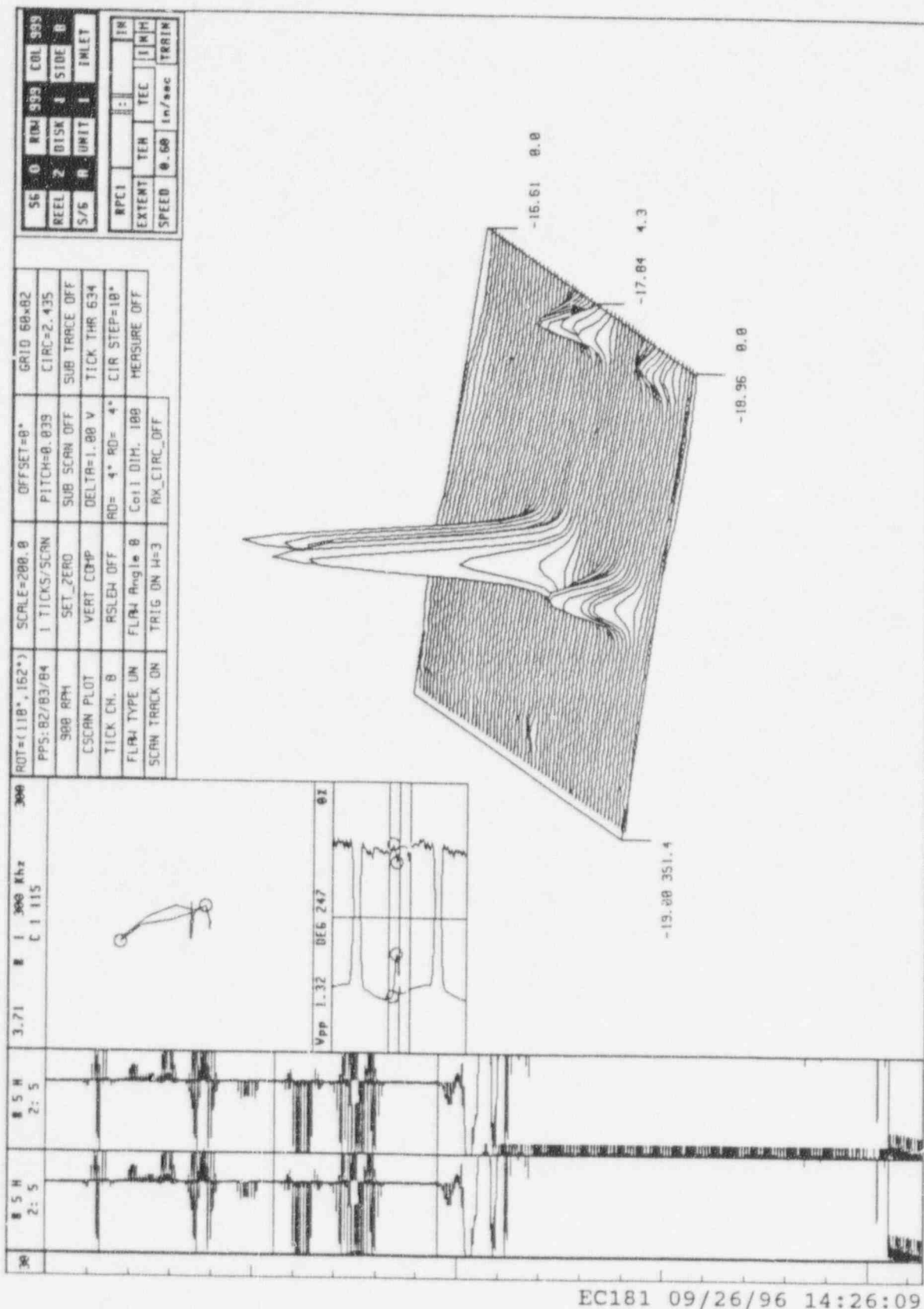
EC181 09/26/96 14:24:54

TC 6700 100% Area

M12 30 A 10076 H x 1 A 1

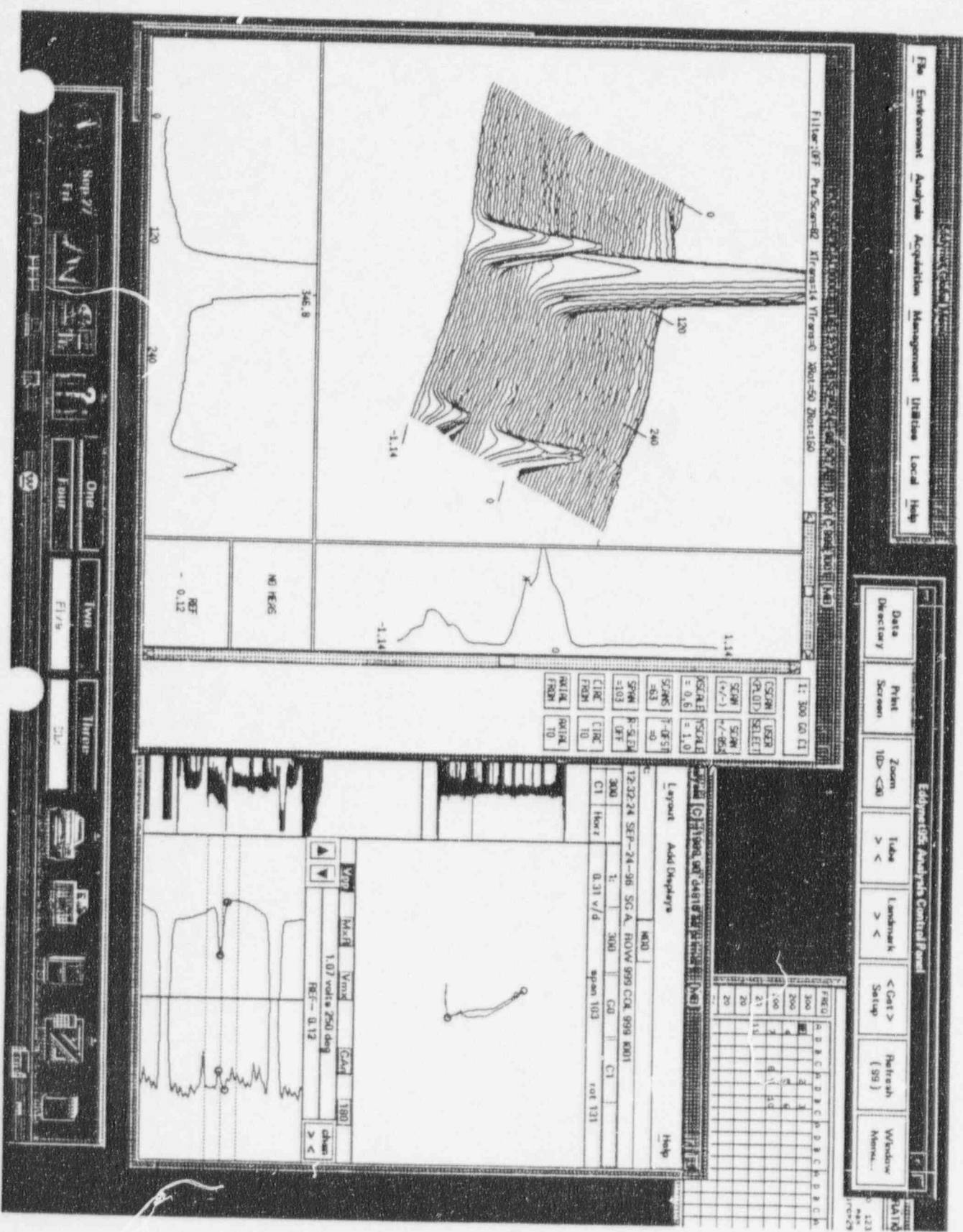


WALTZ MILL 09/24/96 INLET UNIT: 1 SG: A REEL: 2 DNT

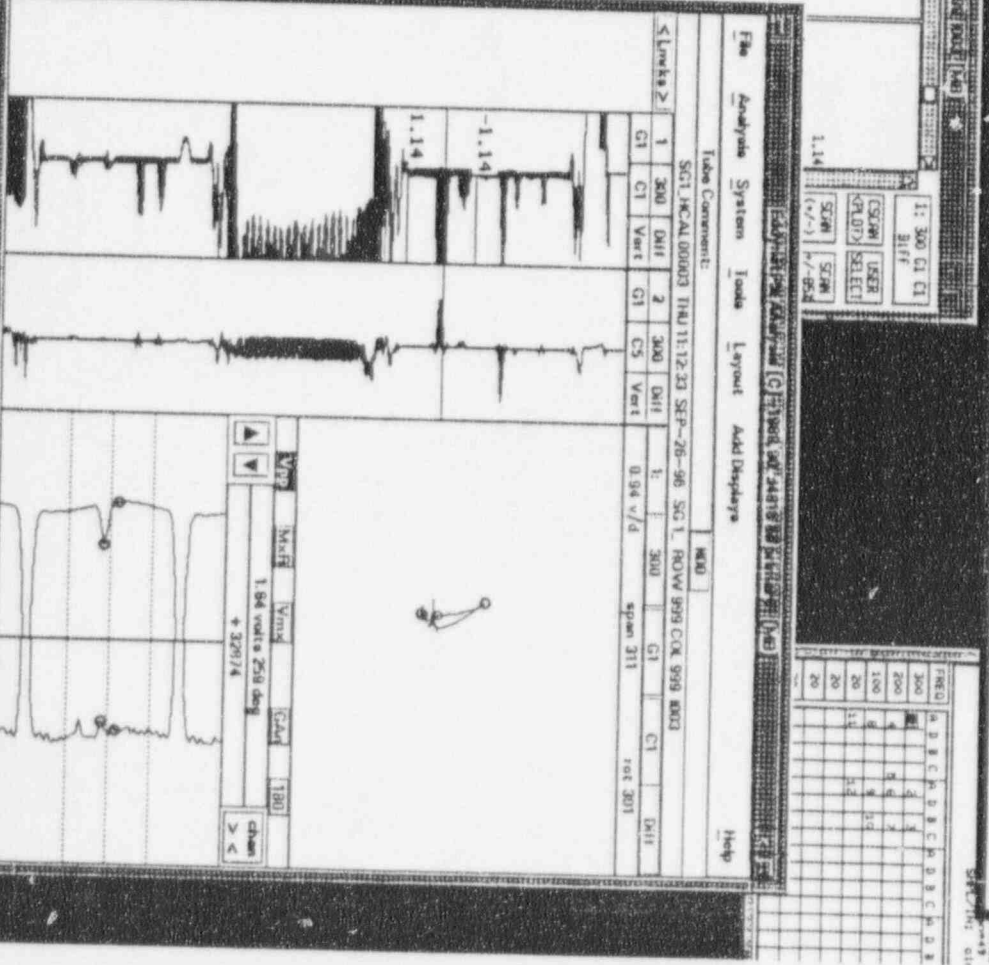
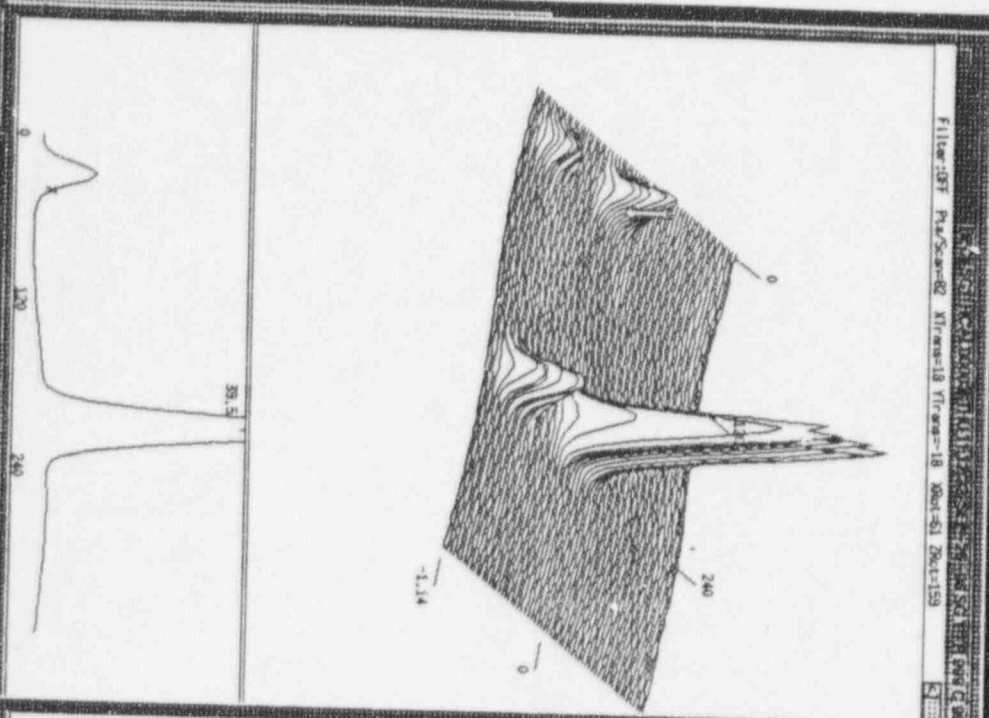


TC 6100 63'6 0.0. Axis 1

Converted 6346 0.0 Axis 1



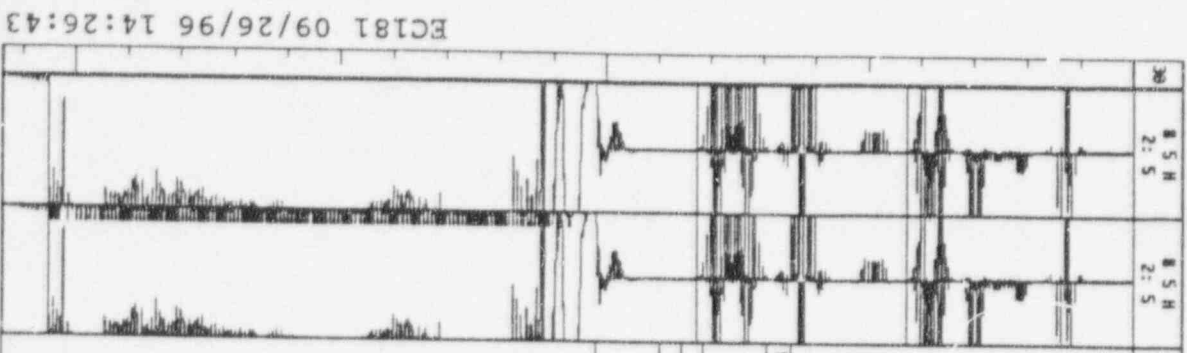
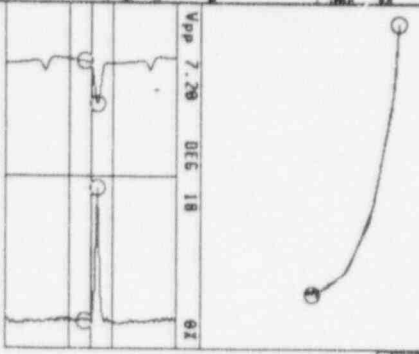
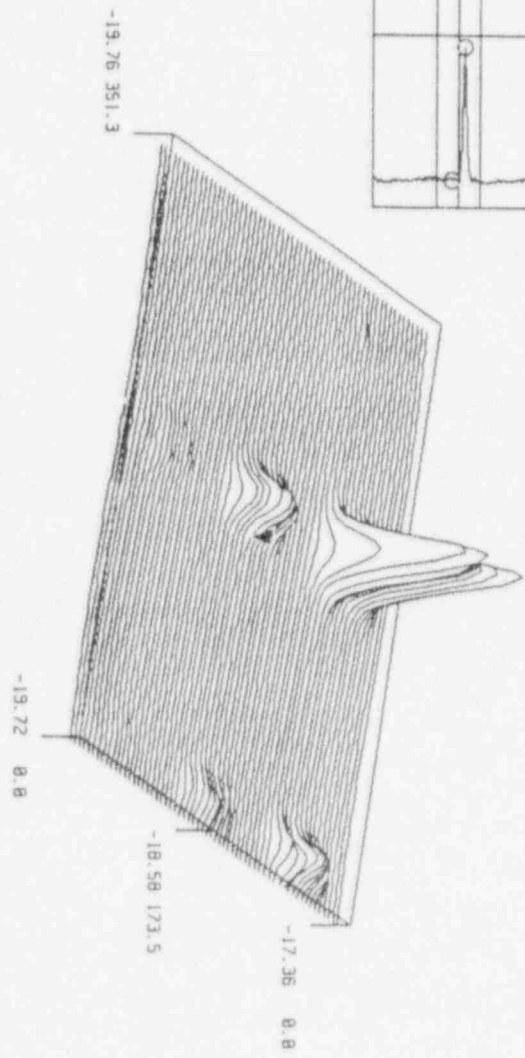
Axiol



ROT=(118°, 162°)		SCALE=200.0		OFFSET=0°		GRIID 68x82	
PPS: 02/03/04		1 TICKS/SCRN		PITCH=0.039		CIRC=2.435	
900 RPT1		SET_ZERO		SUB SCRN OFF		SUB TRACE OFF	
CSCRN PLOT		VERT CO+P		DELTA=1.00 V		TICK THR 634	
TICK CH. 0		RSLBY OFF		RD=176° RD=176°		CIR STEP=10°	
FLRM TYPE UN		FLRM Angle 0		Coil DTH. 100		MEASURE OFF	
SCRN TRACK ON		TRIG ON H=3		RX_CIRC OFF			

SD	0	ROM	333	COL	333
REEL	2	DISK	1	SIDE	0
S/G	0	UNIT	1	INLET	

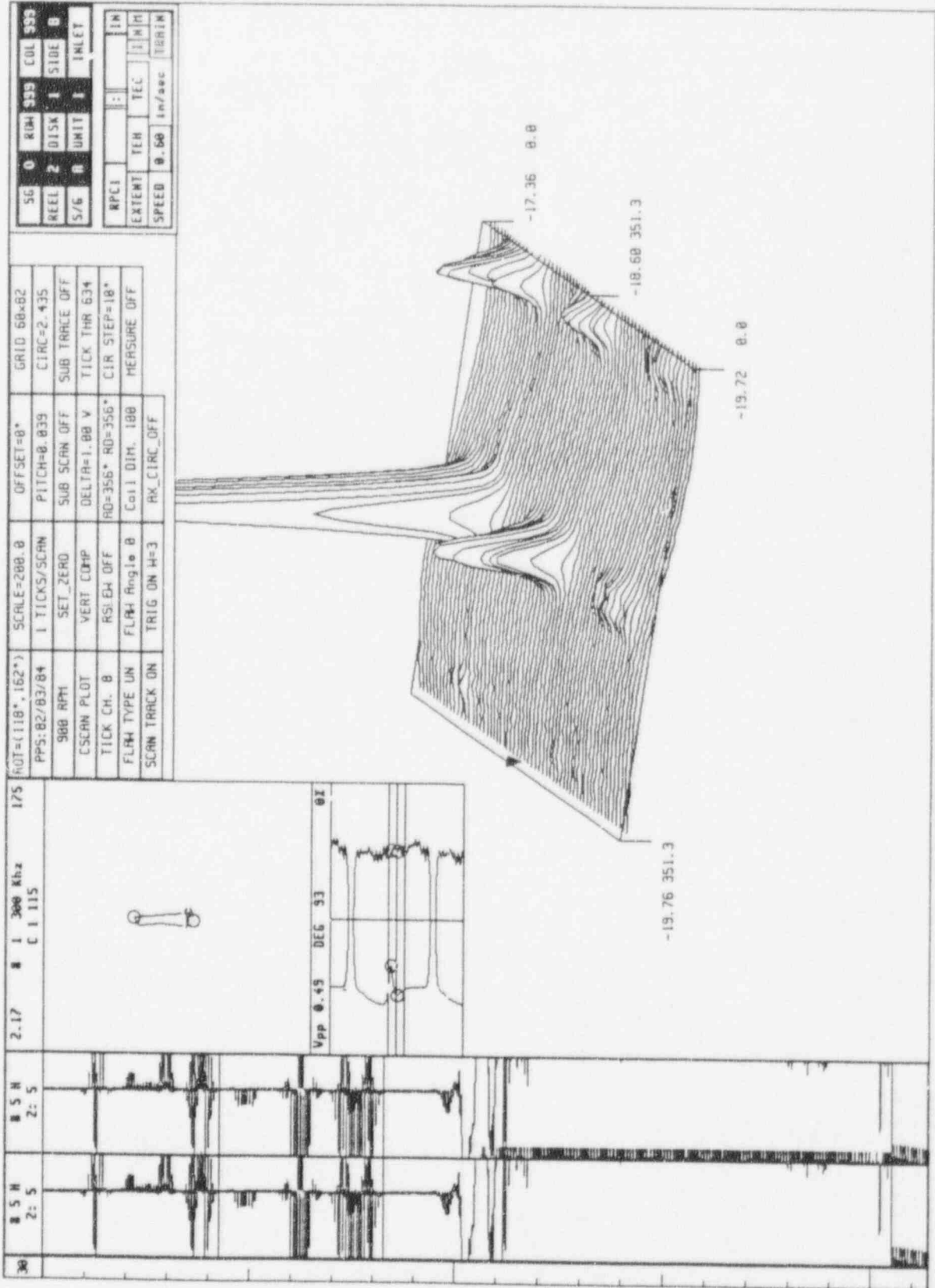
RPL		:		IN
EXTENT	TEH	TEC		1 MIN
SPEED	0.50	in/sec		TRIM



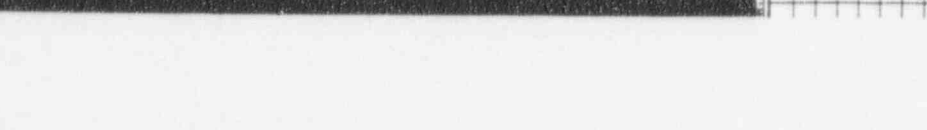
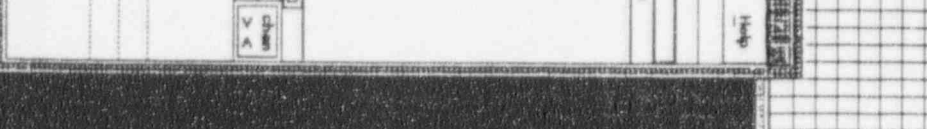
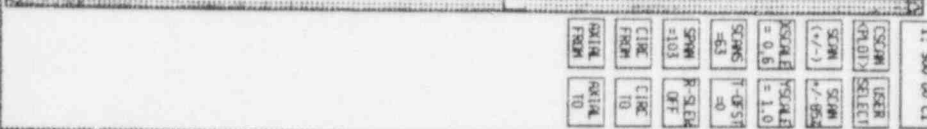
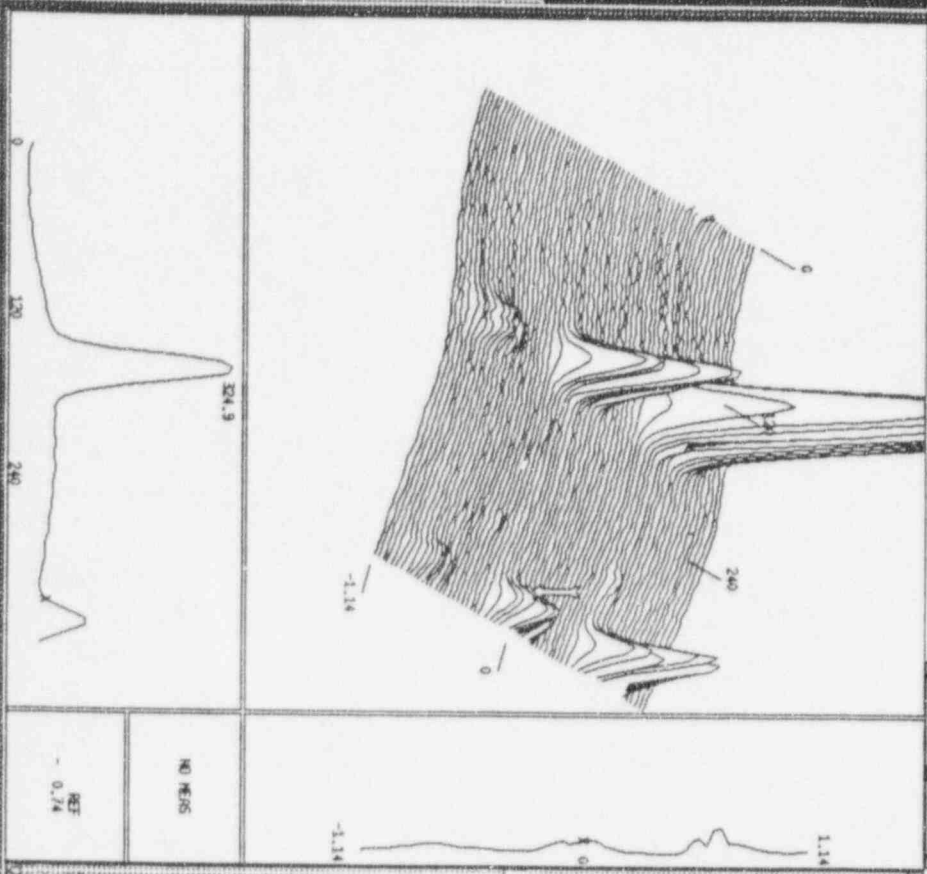
EC181 09/26/96 14:26:43

TC 6700

60% ID Final



TC 6700 40% O.D. Axial



File Environment Analysis Application Management Utilities Local Help

Date _____
 Locality _____

open

Zoom
ID: 630

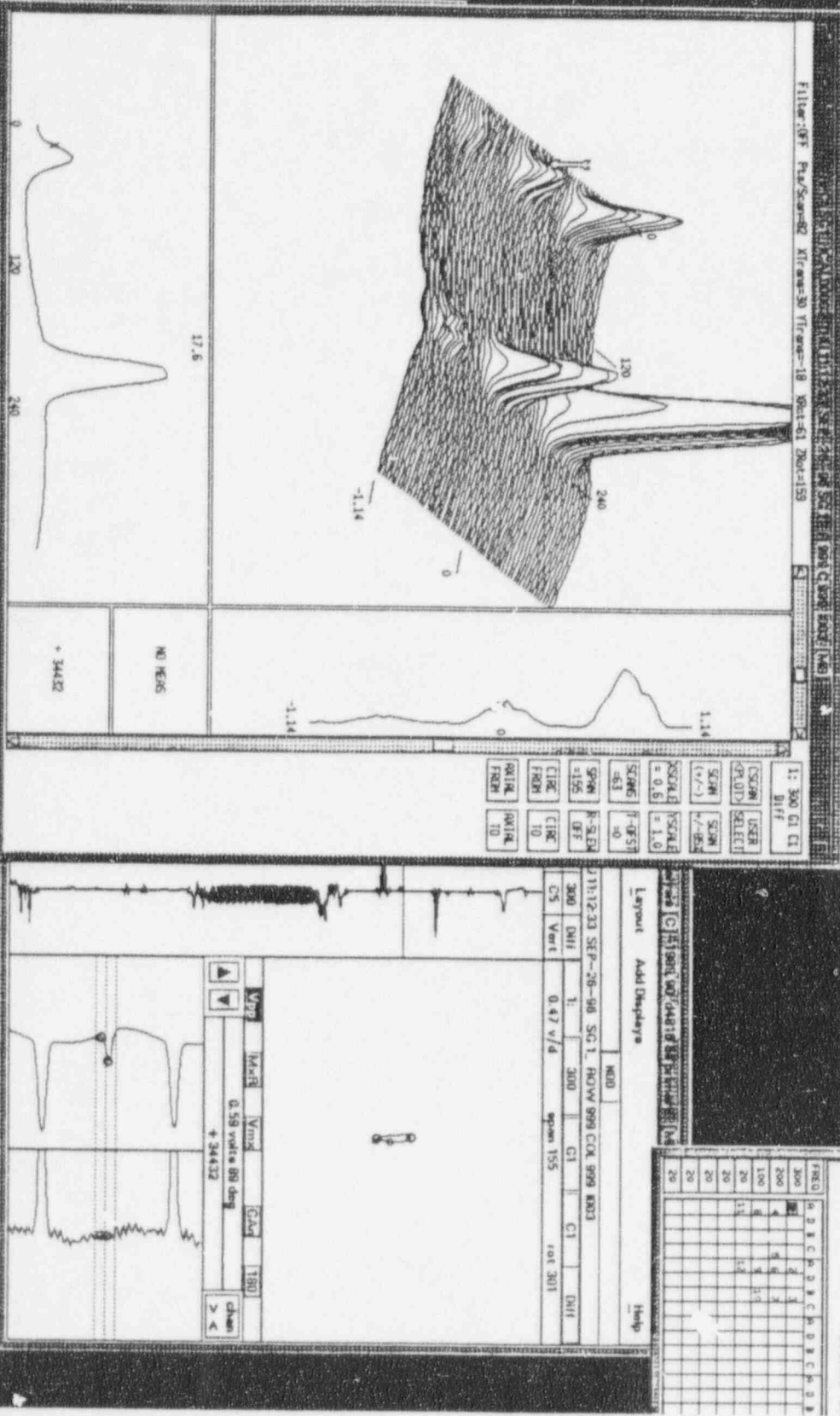
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Setup

Five tracks
(67)

**Vivendo
Materia...**



Sept 27

1997

One

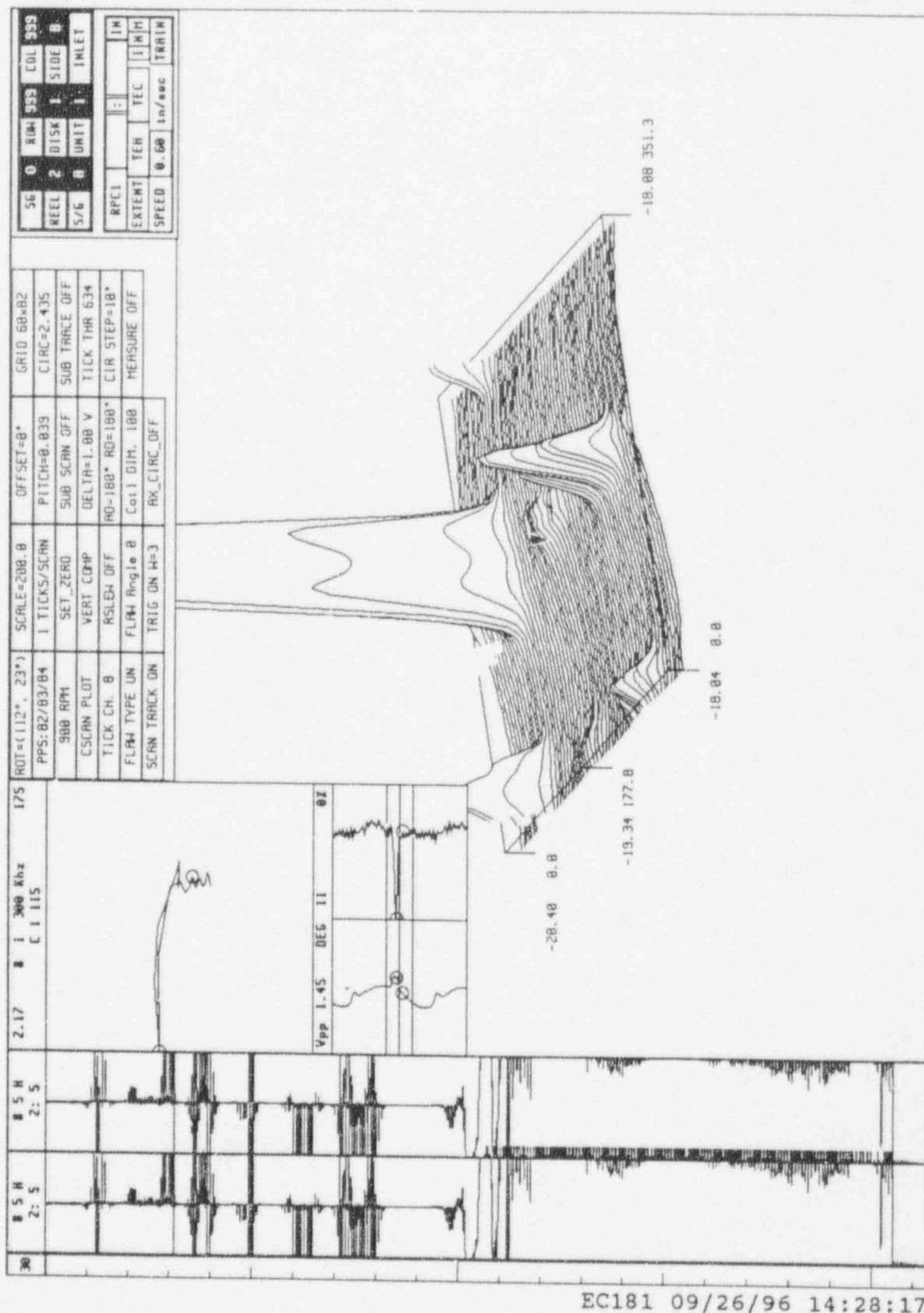
Two

Harvest

Product:

Flynn

on

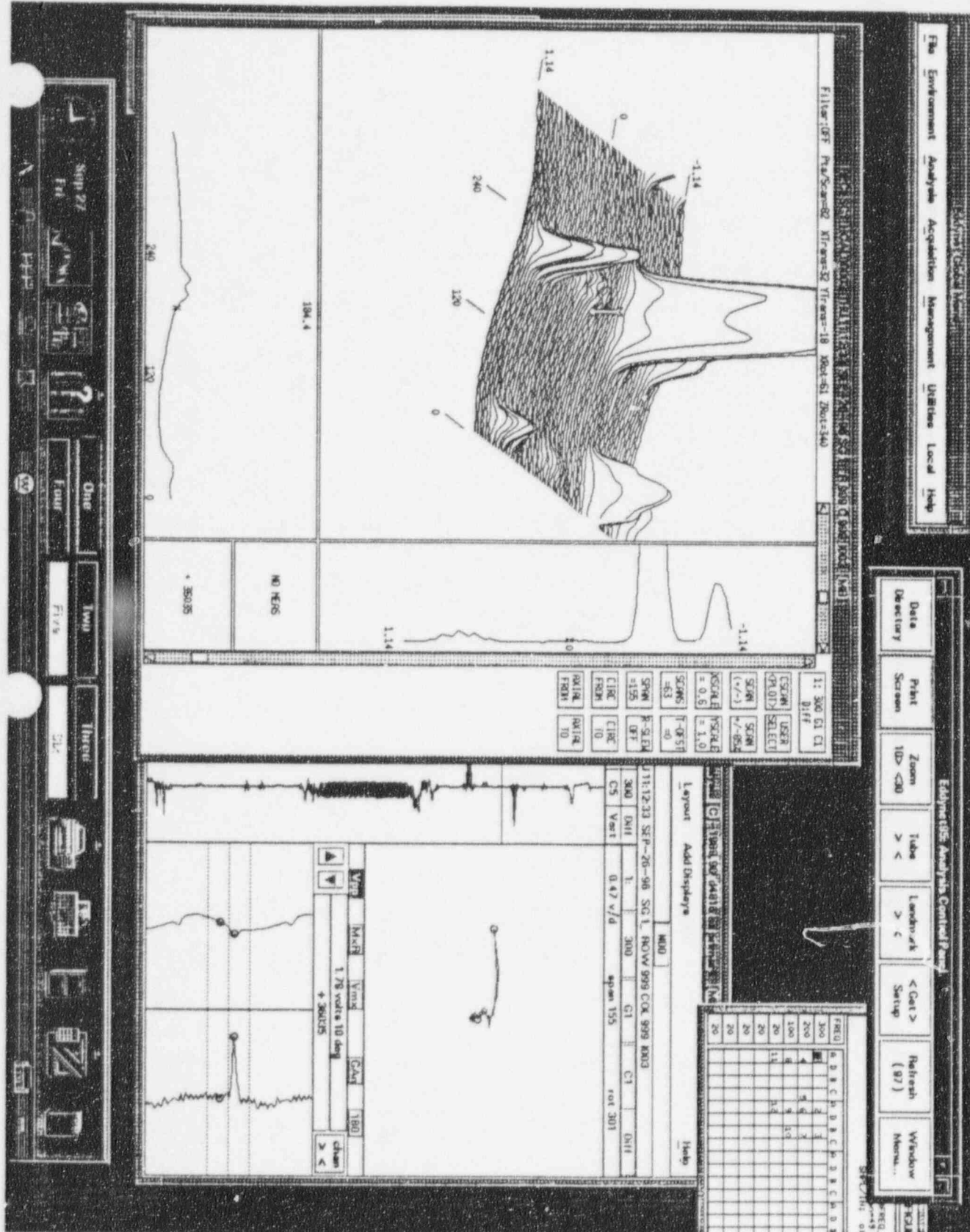


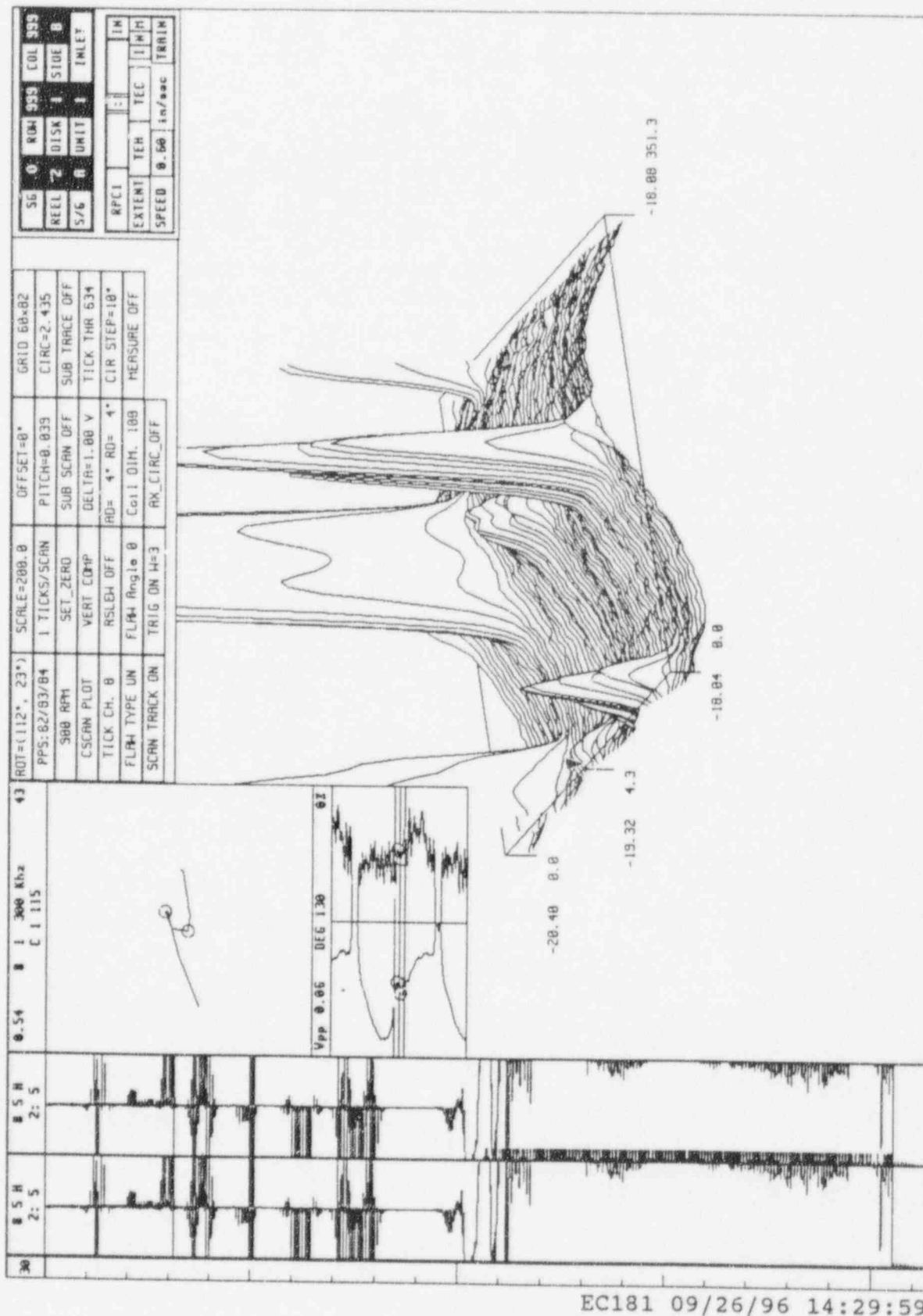
TC 6700 21% I.D. 1114

TC 6700

EC181 09/26/96 14:28:17

M12 30A 2170 I.D. Axial





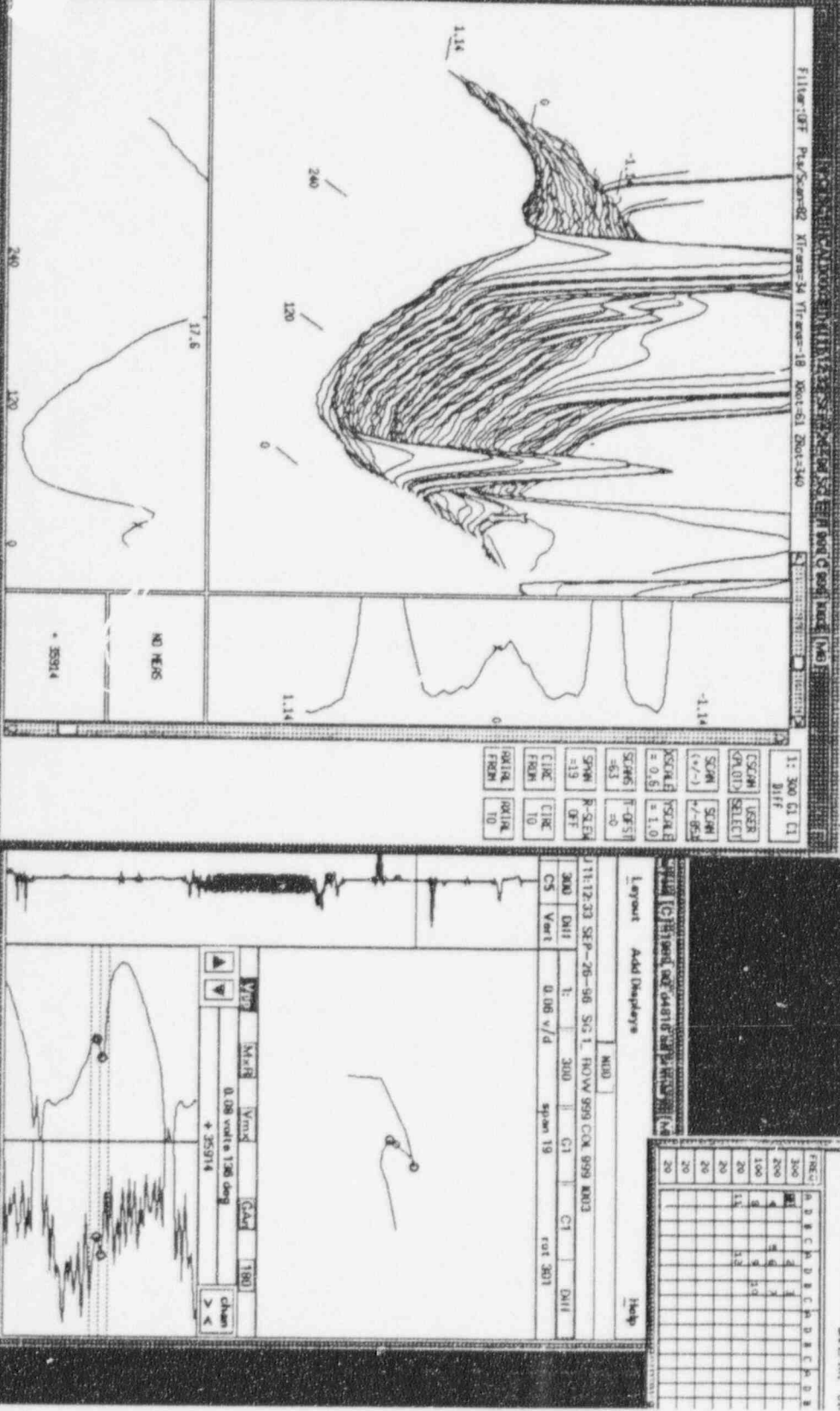
TC 6700 21% CO. 4.121

File	Envir. control	Analysis	Acquisition	Management	Utilities	Local	Help
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Eddyline 185: Analytic Control Panel

Data Dictionary	Print Screen	Zoom 100 < 200	Table > <	Landmark > <	< Get > Set to	Refresh (97)	Window Menu...
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Wanda W.
Merna...



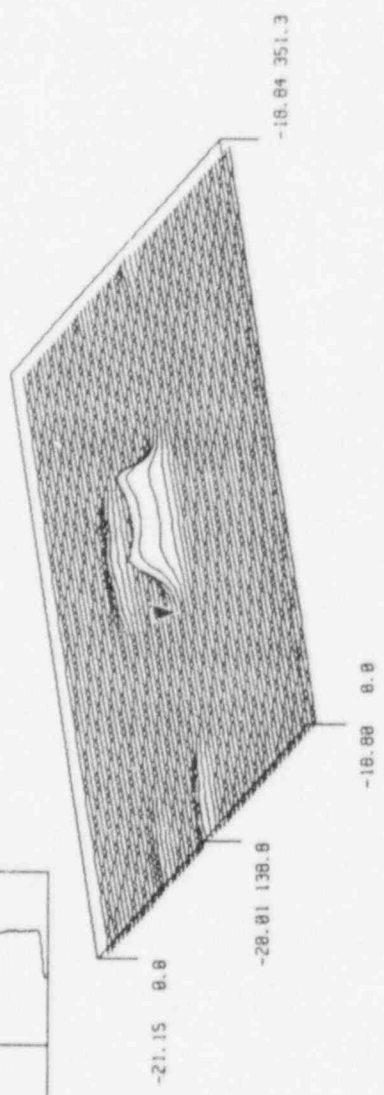
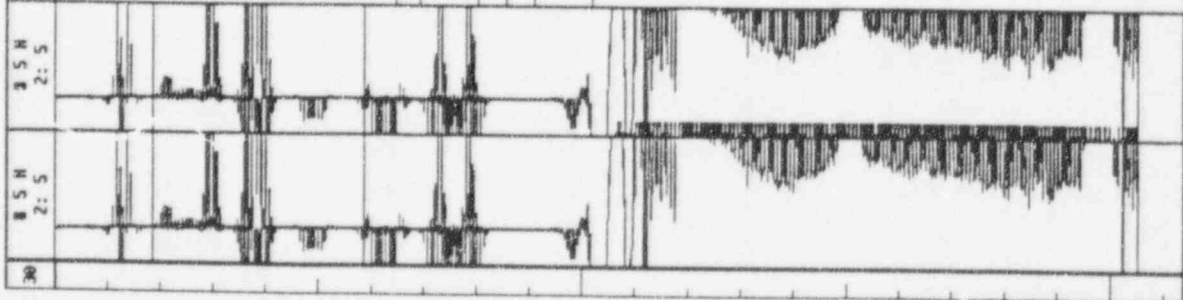
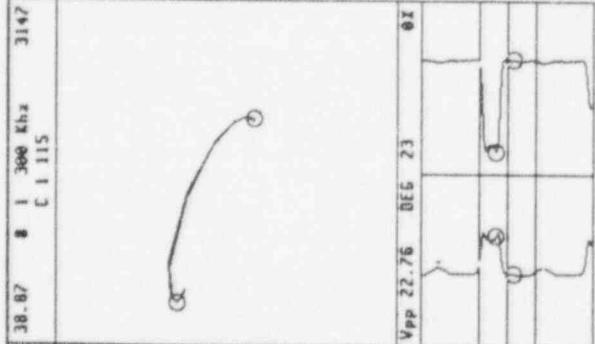
SG	0	RDH	339	COL	339
REEL	2	DISK	1	SIDE	0
S/S	0	UNIT	1	INLET	

RPCI	:	IN
EXTENT	TEC	TEC
SPEED	0.60	in/sec

GRID	60x82
CIRC	2.435
SUB TRACE	OFF
TICK THR	634
CIR STEP	18"
MESURE	OFF

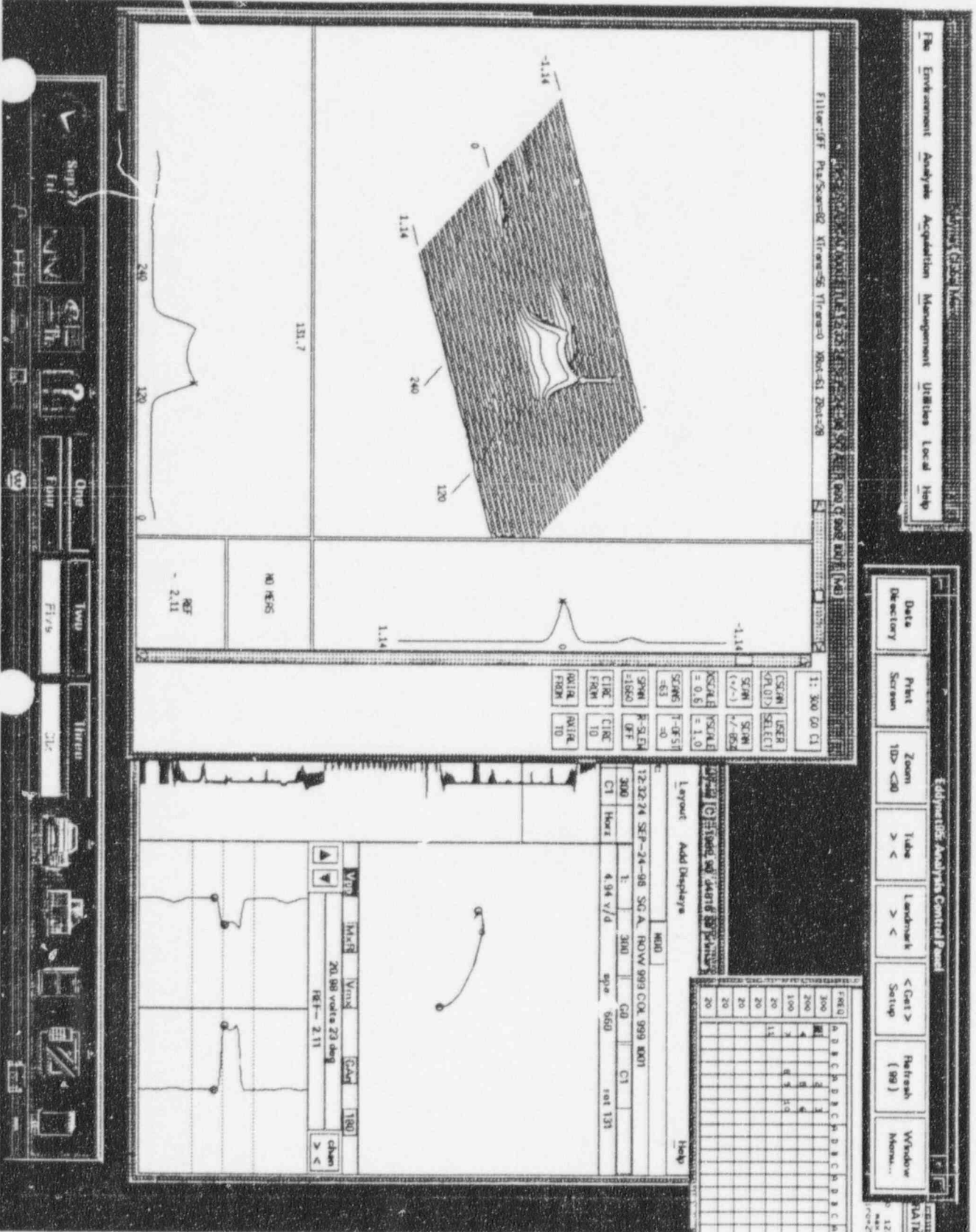
OFFSET	0"
PITCH	0.039
SUB SCAN	OFF
DELTA	1.00 V
RD=140"	RD=140"
Coil DIM.	100
AX_CIRC	OFF

SCALE	200.0
TICKS/SCAN	1
SET_ZERO	OFF
VERT COMP	OFF
RSLEW	OFF
FLRM Angle	0
TRIG ON H	3

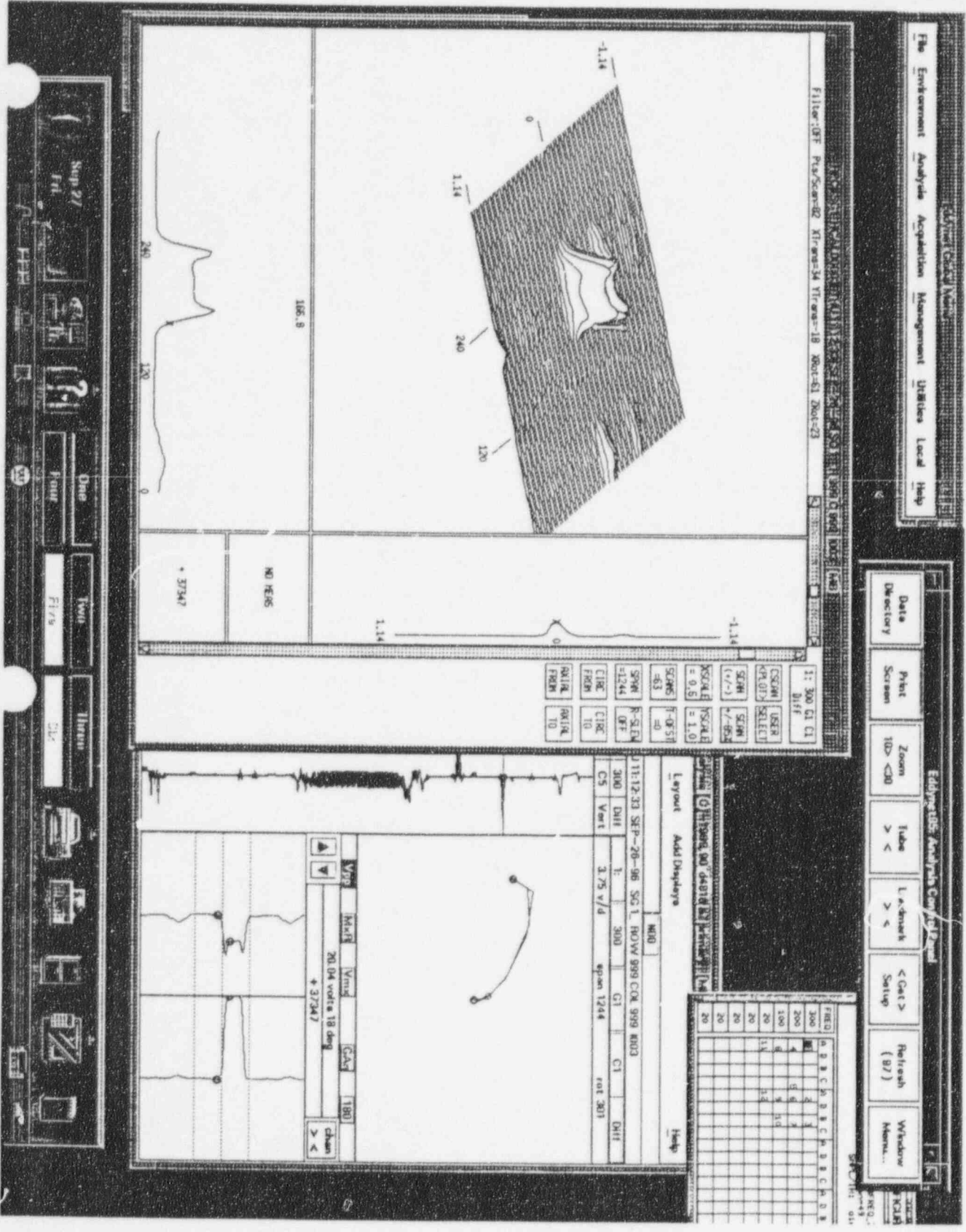


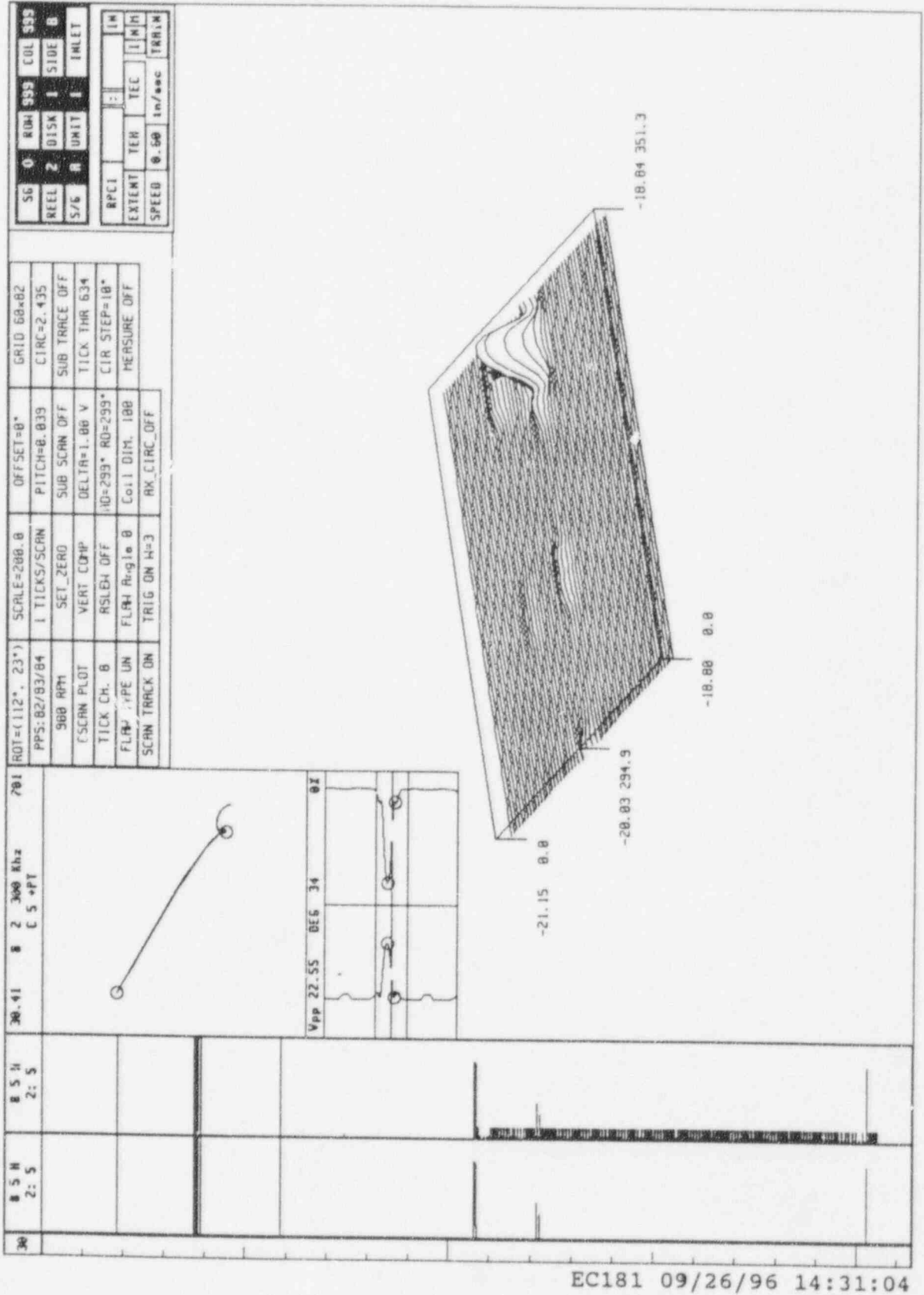
TC 6700 100% Circ.

Converted 100% circ.

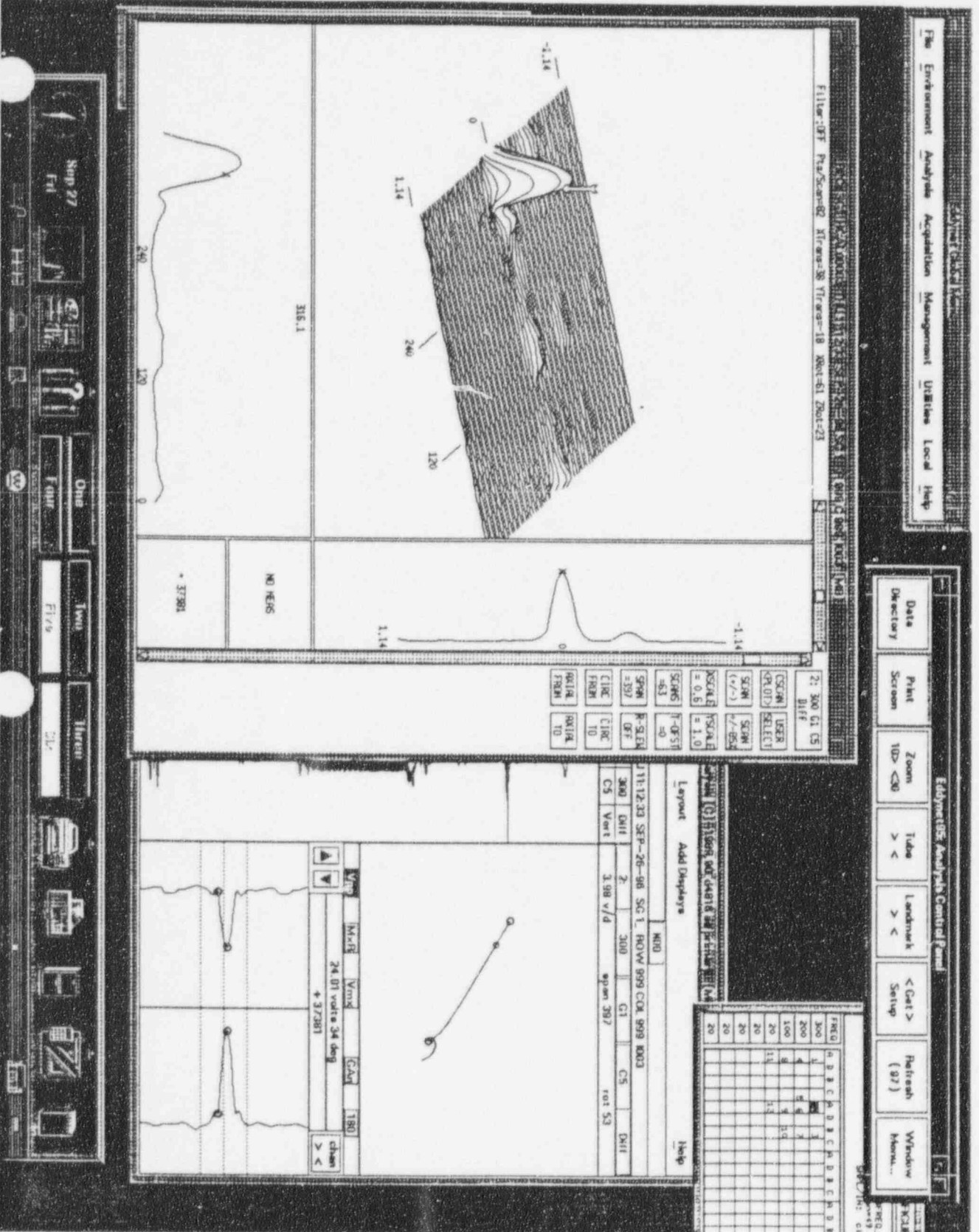


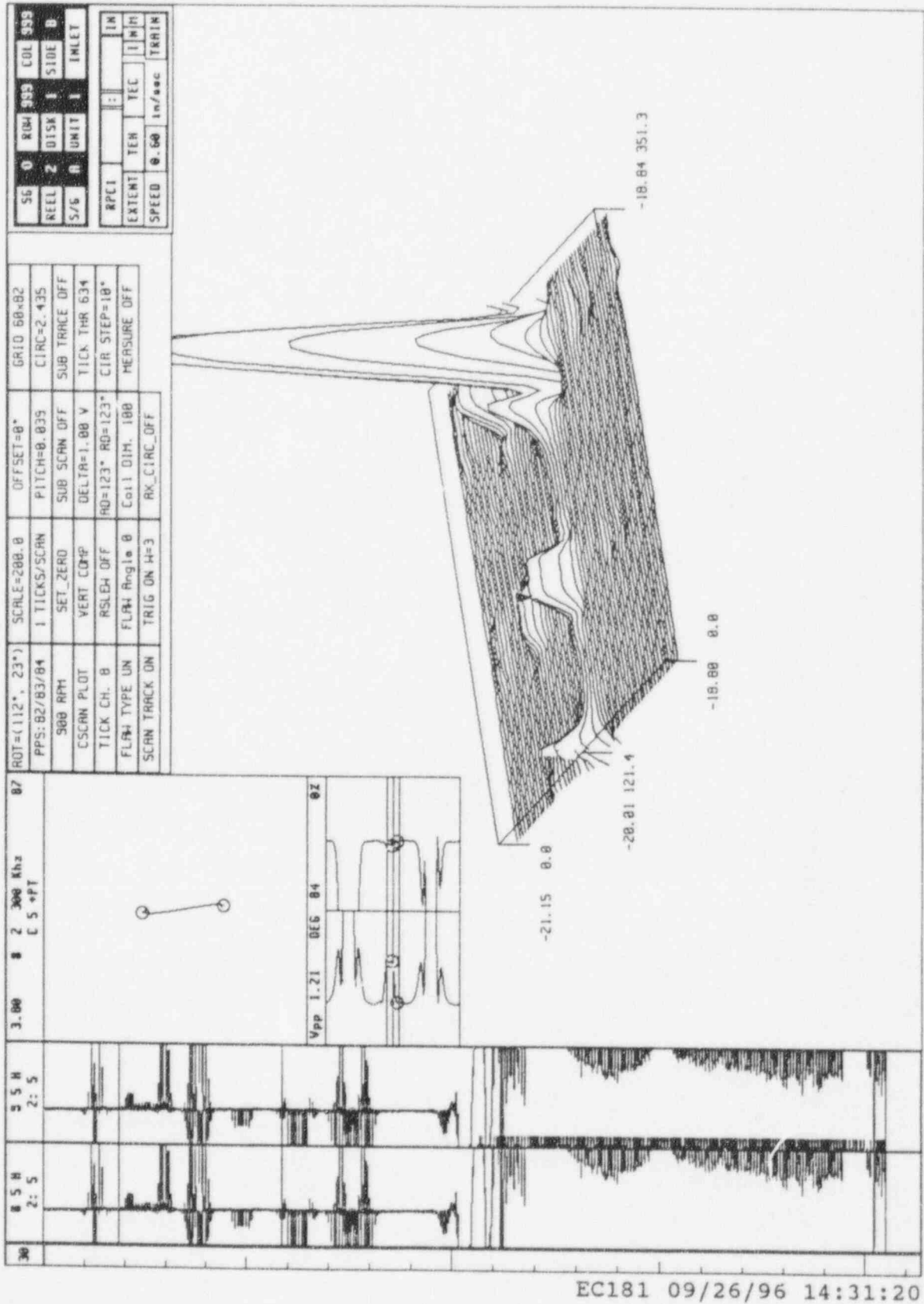
M12 30 H 100% circ.





M12 30A 100% Circ, +PT





TC 6700 60% O.D. +PT

File	Environment	Analysis	Acquisition	Management	Utilities	Local	Help
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Eddystone 195: Analysis Control Panel

Date _____
Secretary _____Print
Screen

700-681
Loom

Tube
>
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Landmark

V. G. ...
S. ...

The first (or second)

WV
Inshore

12

Filter:0FF Pu/Sc:0=82 XTrms:64 YTrms:0 XRot:61 ZRot:28

2: 3600 60 05

1000

$$\begin{array}{l} 9.0 = \\ 1.0 = \end{array}$$

SP-25

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ACKNOWLEDGMENTS

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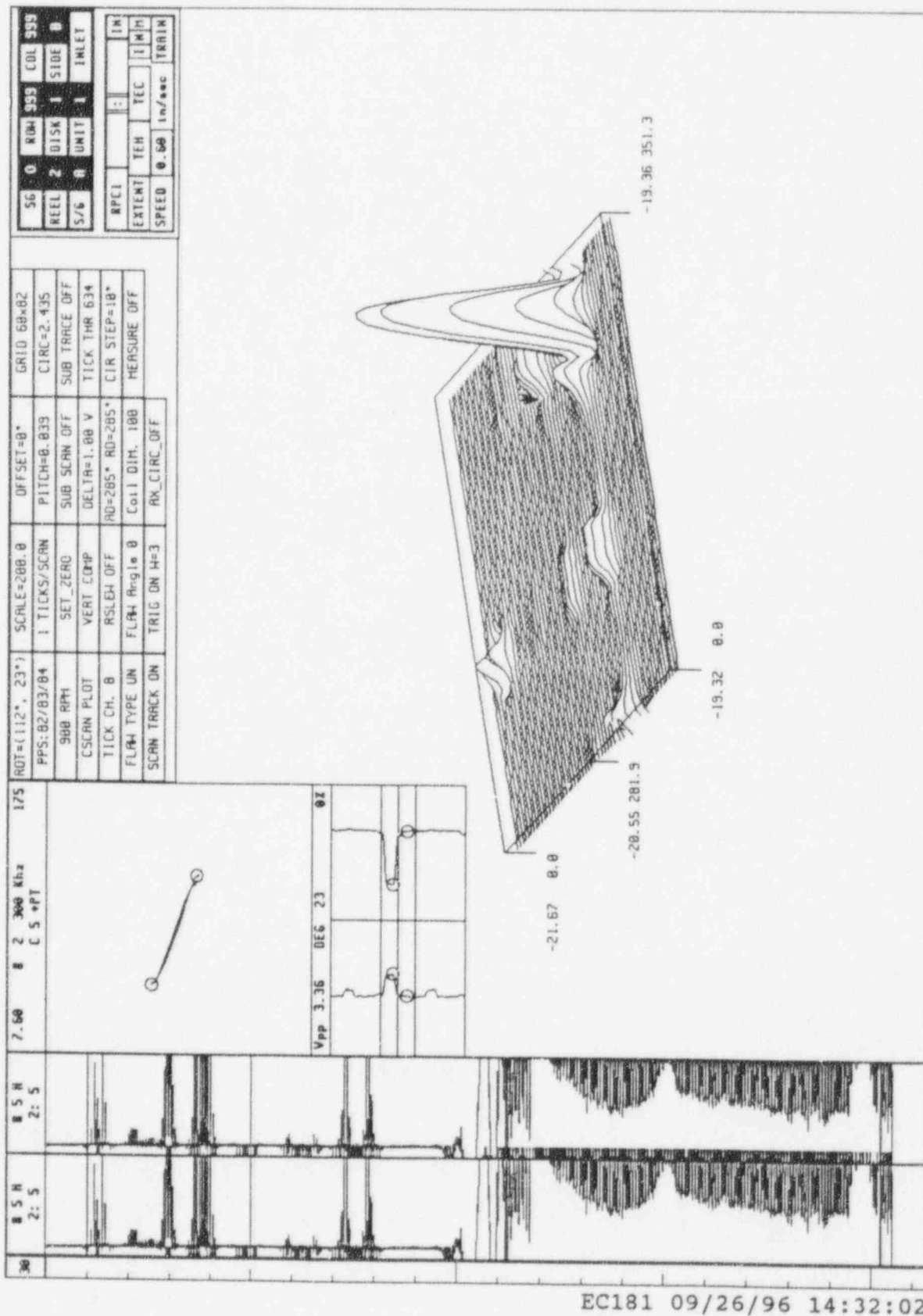
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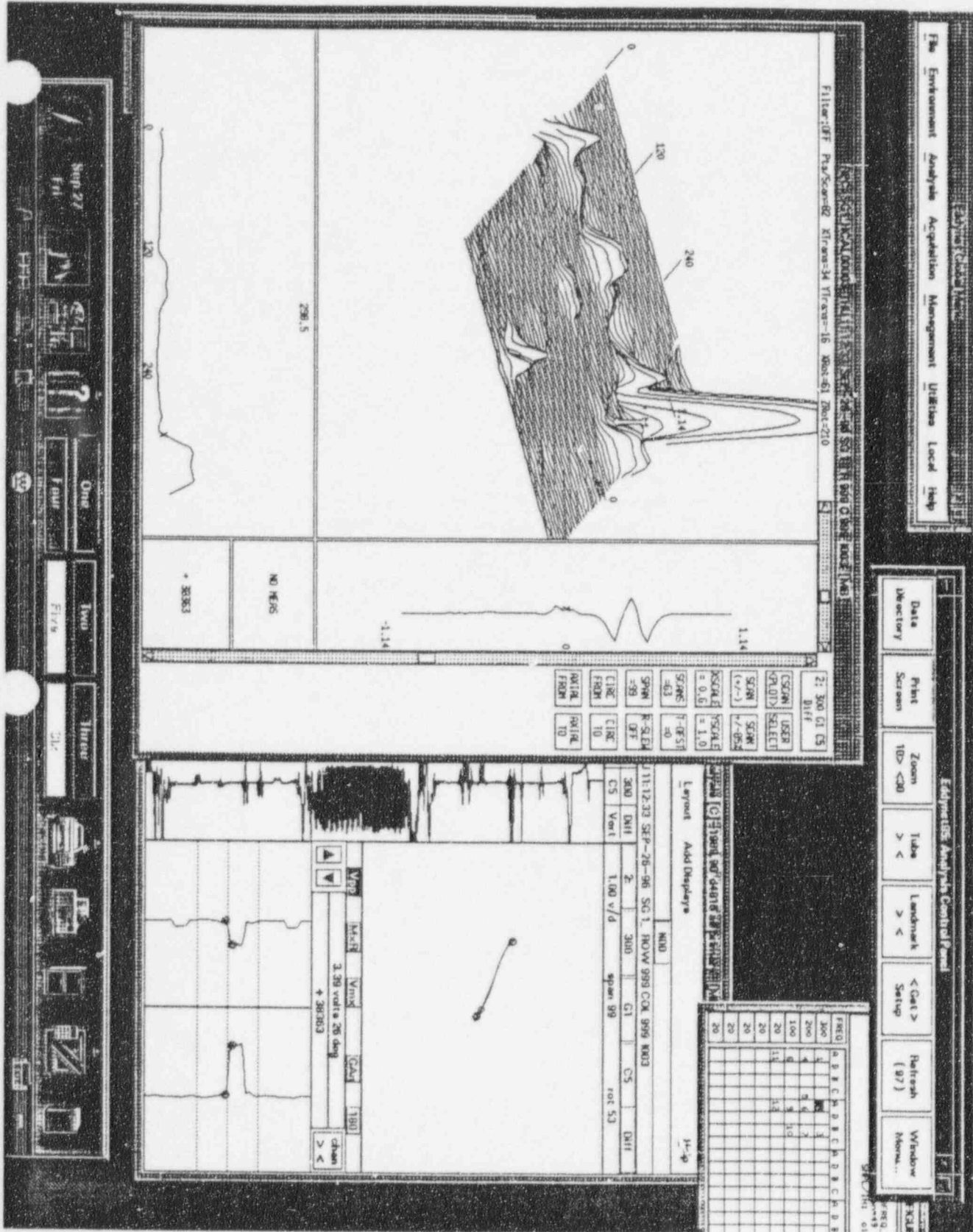
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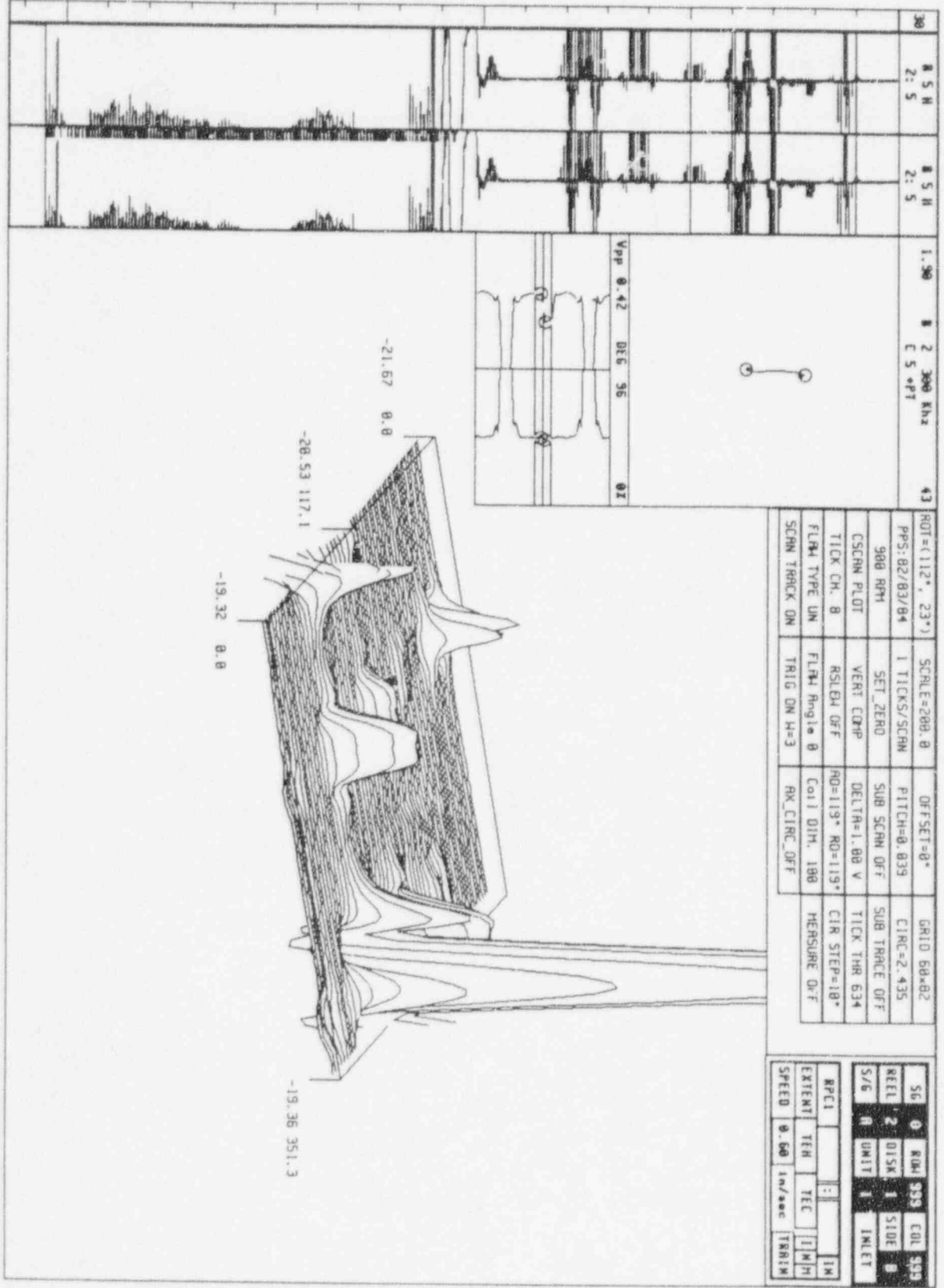


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