PHOENIX SURVEYS, INC.

COMPENSATED DENSITY
COMPENSATED NEUTRON
DUAL INDUCTION

Company	Petroleum Development Corporation
Well	State Peterson 21-16
Field	Wattenberg
County	Weld
State	Colorado
Location	643' FNL & 1979' FWL NE NW Sec - 16, Twp - 5N, Rge - 63W
Other Services	None
Elevation	K B 4690 D F 4689 G L 4680

Company			
Well			
Field			
County			
State/Prv			
Permanent Datum	GL	Elevation	4680
Log Measured From	KB		
Drilling Measured From	KB		

Date	May 24, 2003
Run Number	1
Depth Driller	6900
Depth Logger	6892
Bottom Logged Interval	6892
Top Log Interval	Casing
Casing Driller	406
Casing Logger	406
Bit Size	7-7/8"
Type Fluid in Hole	Chem Gel
Density / Viscosity	9.4 / 40
pH / Fluid Loss	8.5 / 9.0
Source of Sample	Flowline
Rm @ Meas. Temp	3.64 @ 76° F
Rmf @ Meas. Temp	2.72 @ 76° F
Rmc @ Meas. Temp	4.55 @ 76° F
Source of Rmf / Rmc	Meas. / Calc
Rm @ BHT	1.37 @ 199° F
Time Circulation Stopped	0145
Time Logger on Bottom	0645
Maximum Recorded Temperature	199° F
Equipment Number	4057
Location	Brighton, CO
Recorded By	Grissom/Reynolds
Witnessed By	Dirk Olsen

<<< Fold Here >>>

Comments

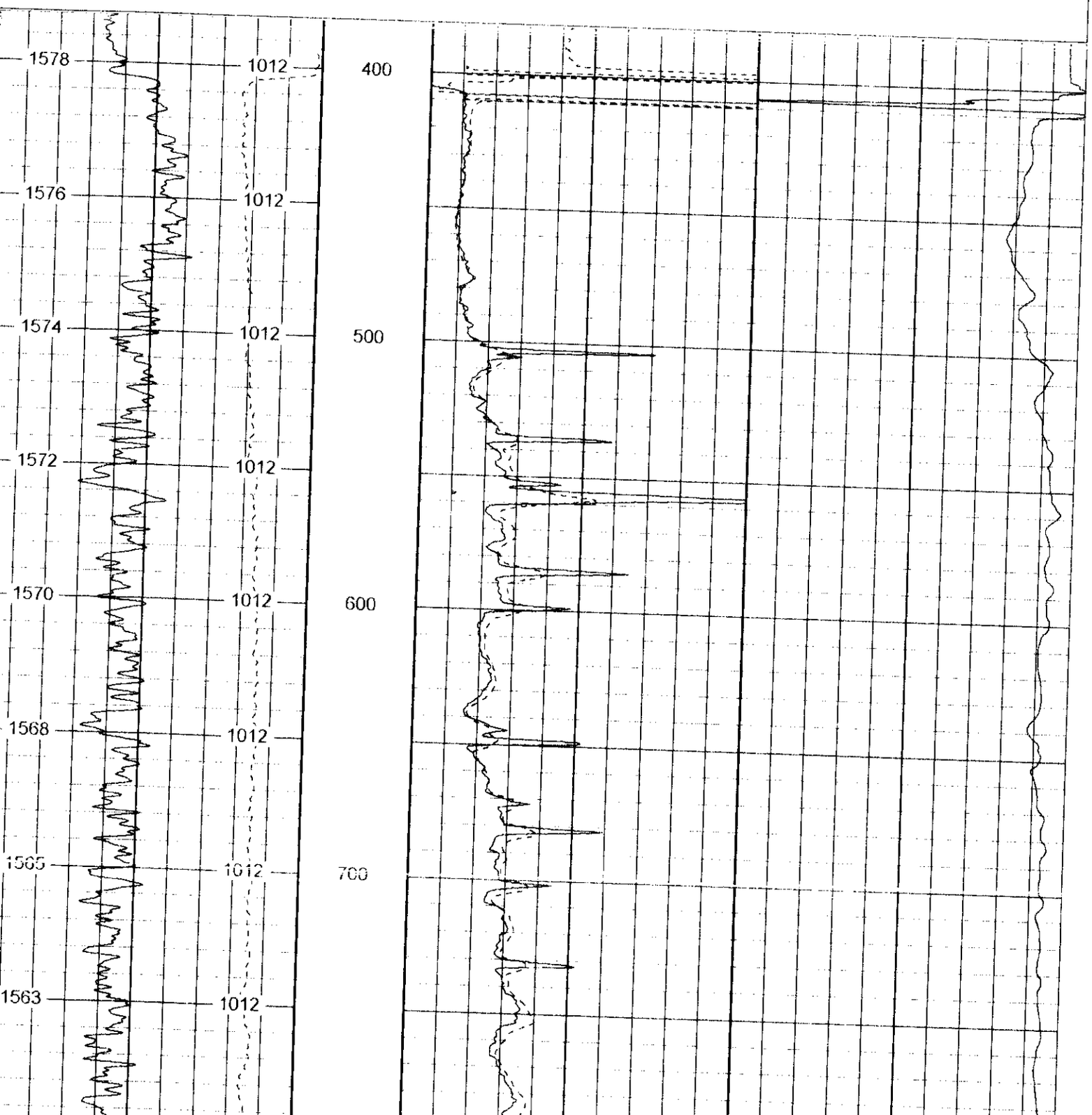
Annular volume is calculated for 4-1/2" casing.
Caza Drilling Rig 32.
Thank you for using Phoenix Surveys.

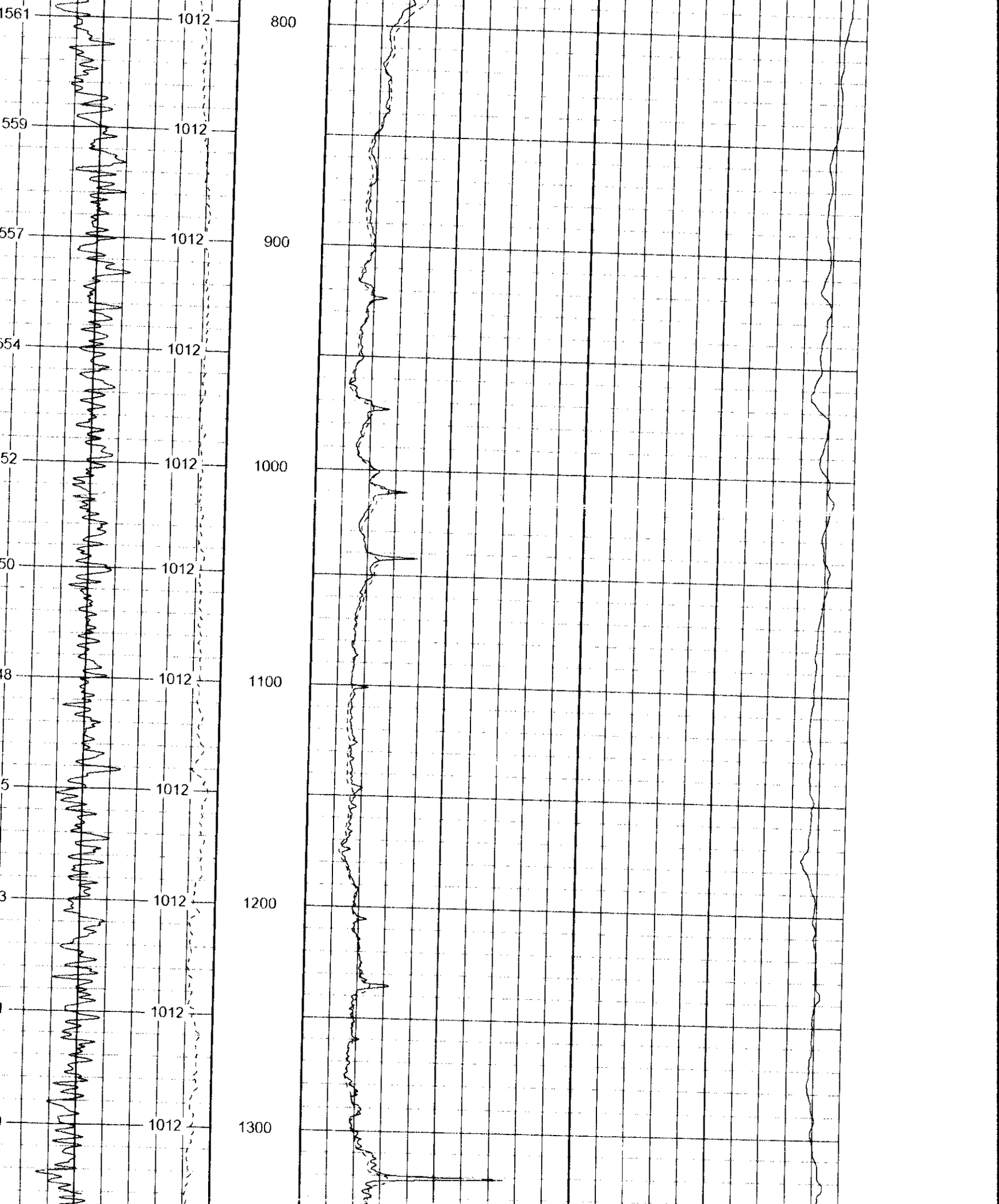
0312

Database File:	3806 db
Dataset Pathname:	pass4
Presentation Format:	dilin5
Dataset Creation:	Sat May 24 09:16:31 2003 by Log 6.2_B4
Charted by:	Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	200
6	dCAL (in)	16
0	Spontaneous Potential (mV)	200

0	Deep Resistivity (Ohm-m)	50 1000	CILD (mmho-m) 0
0	Shallow Resistivity (Ohm-m)	50	

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1100
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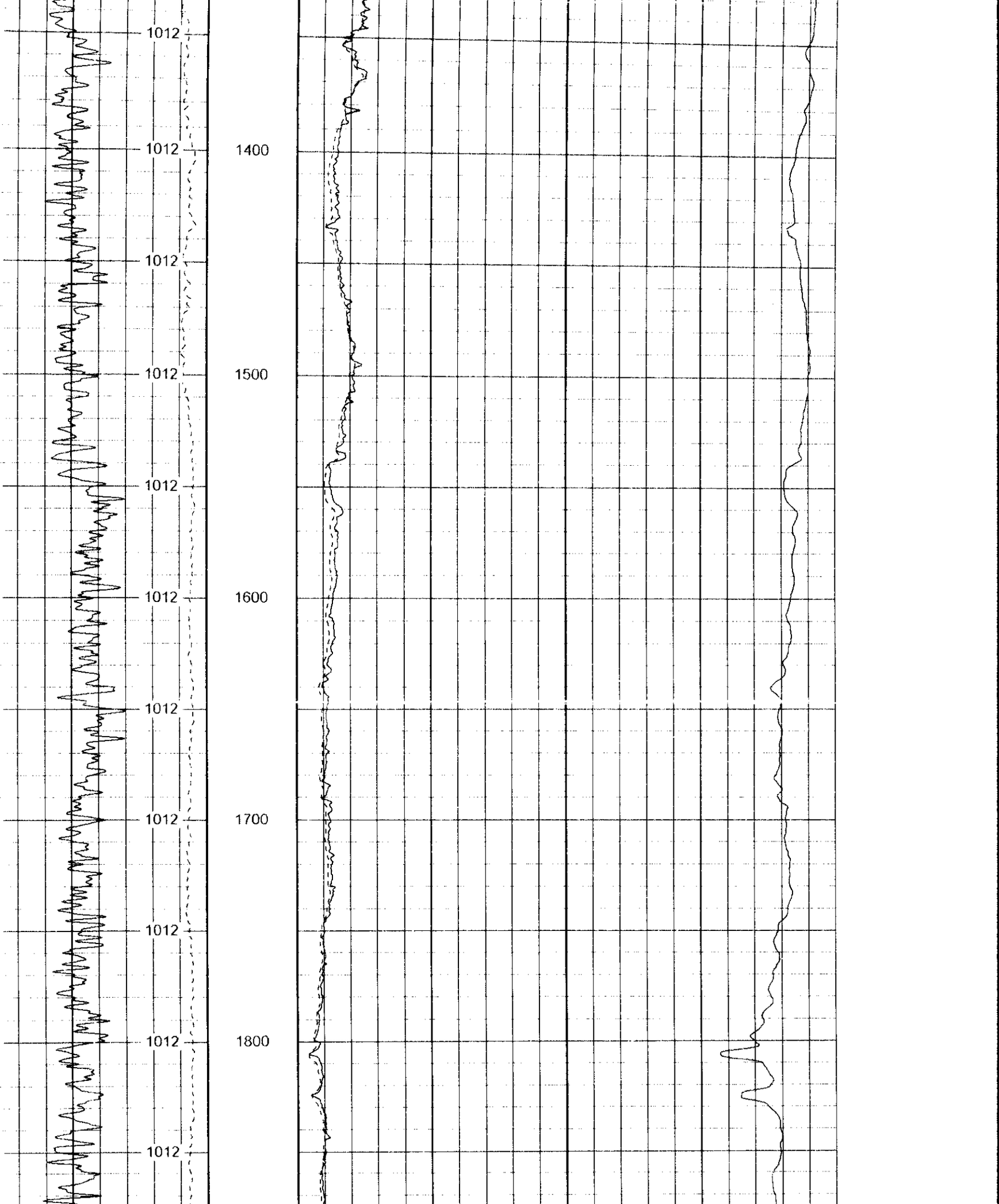
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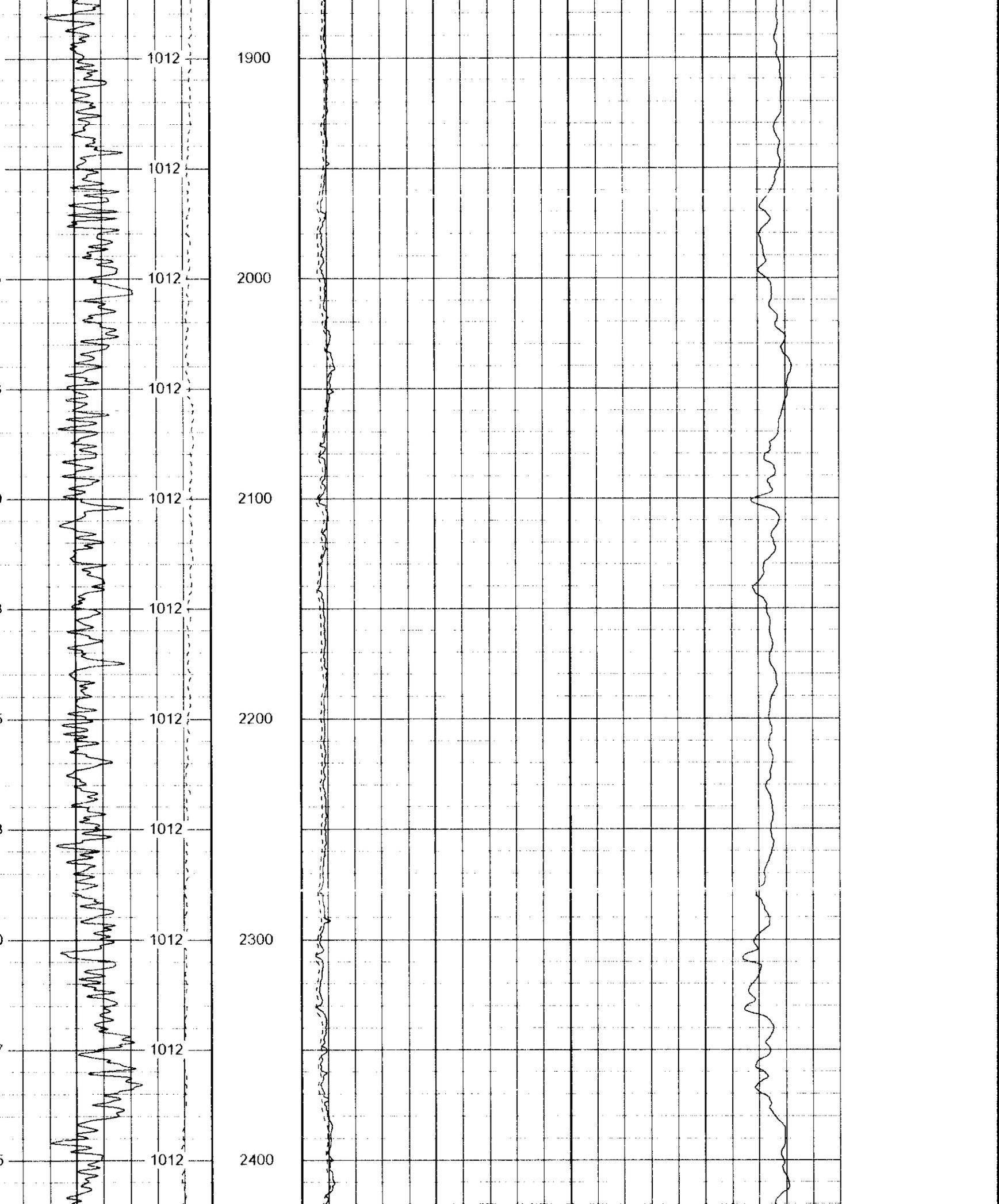
1800
1012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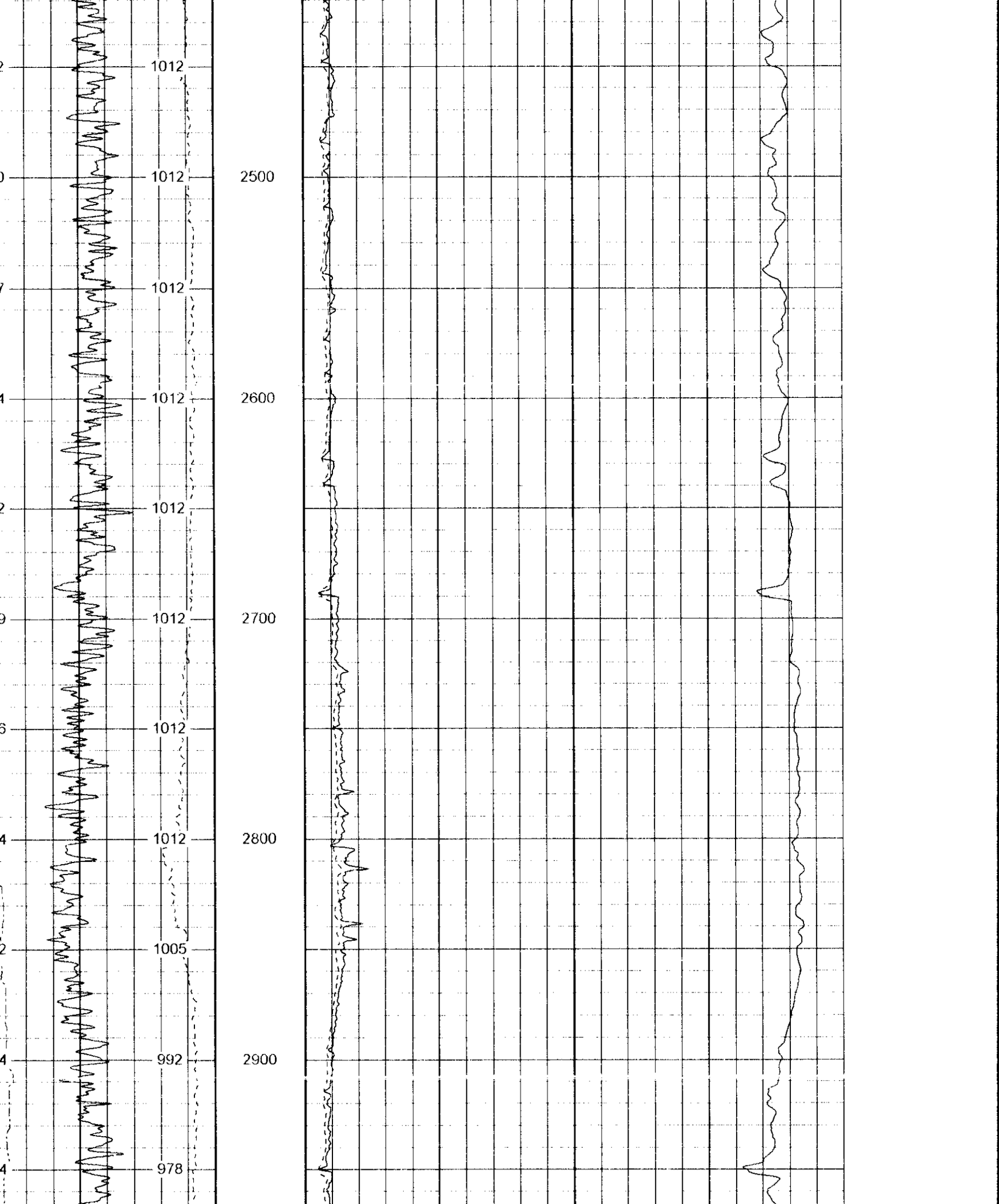
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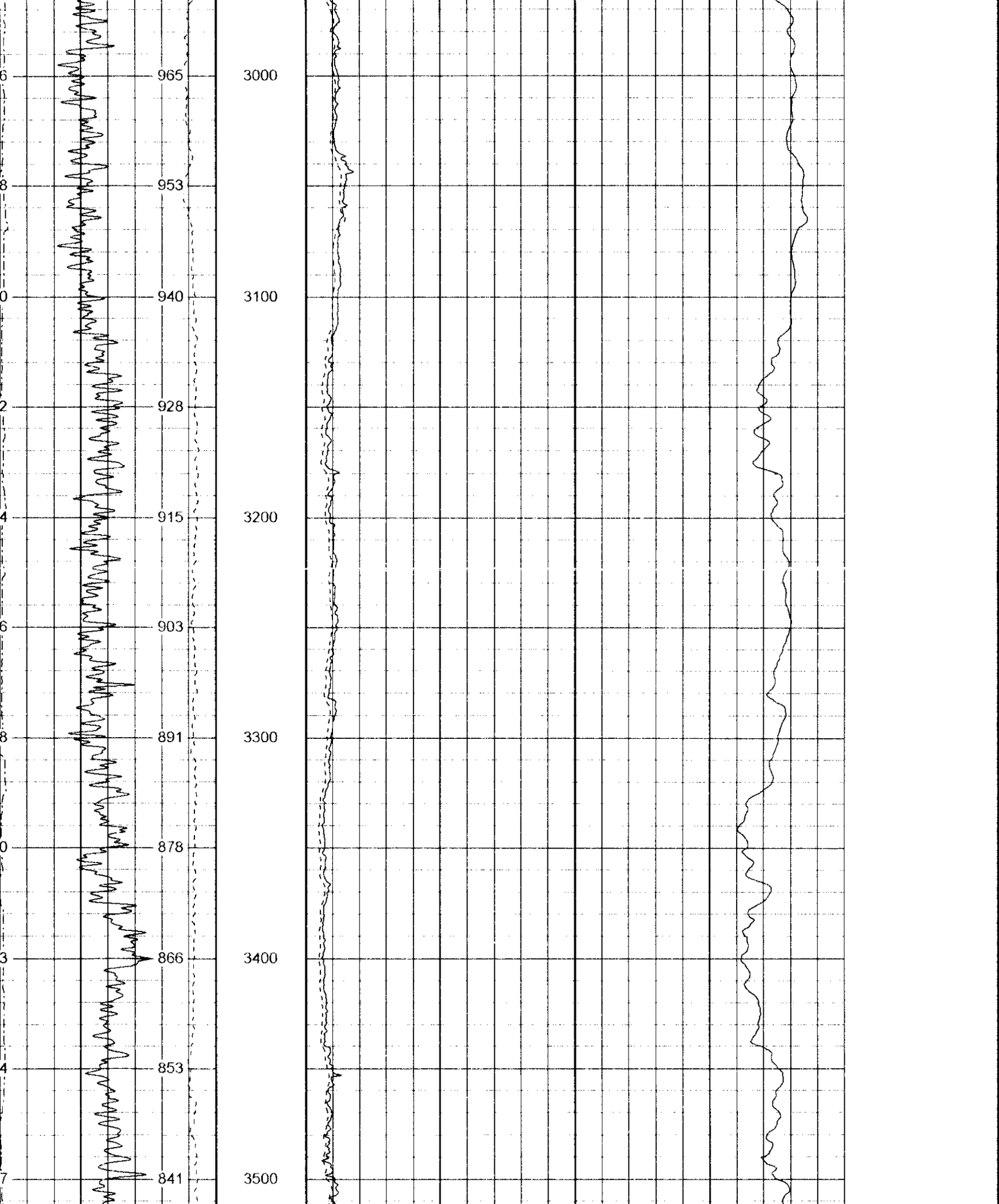
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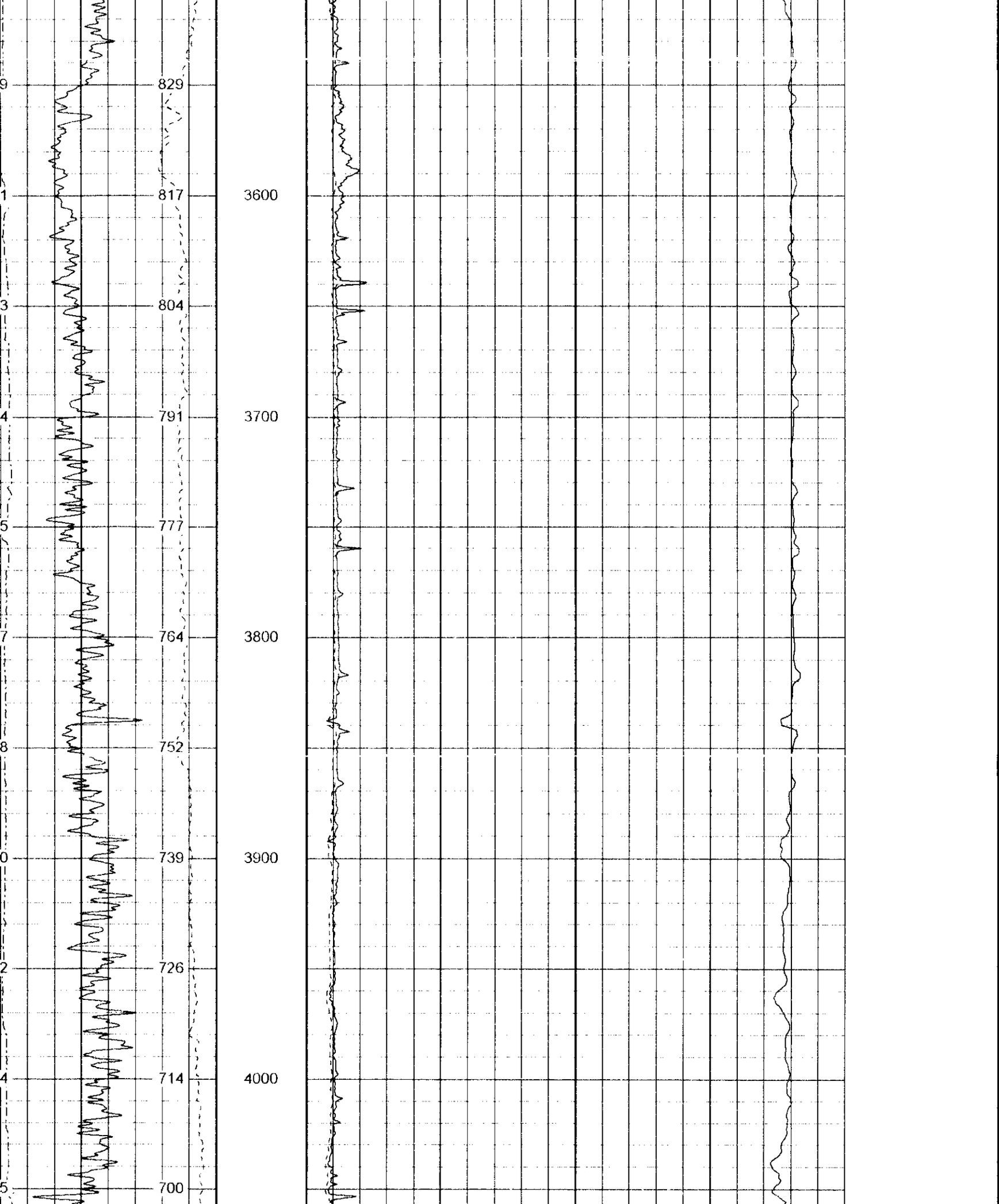
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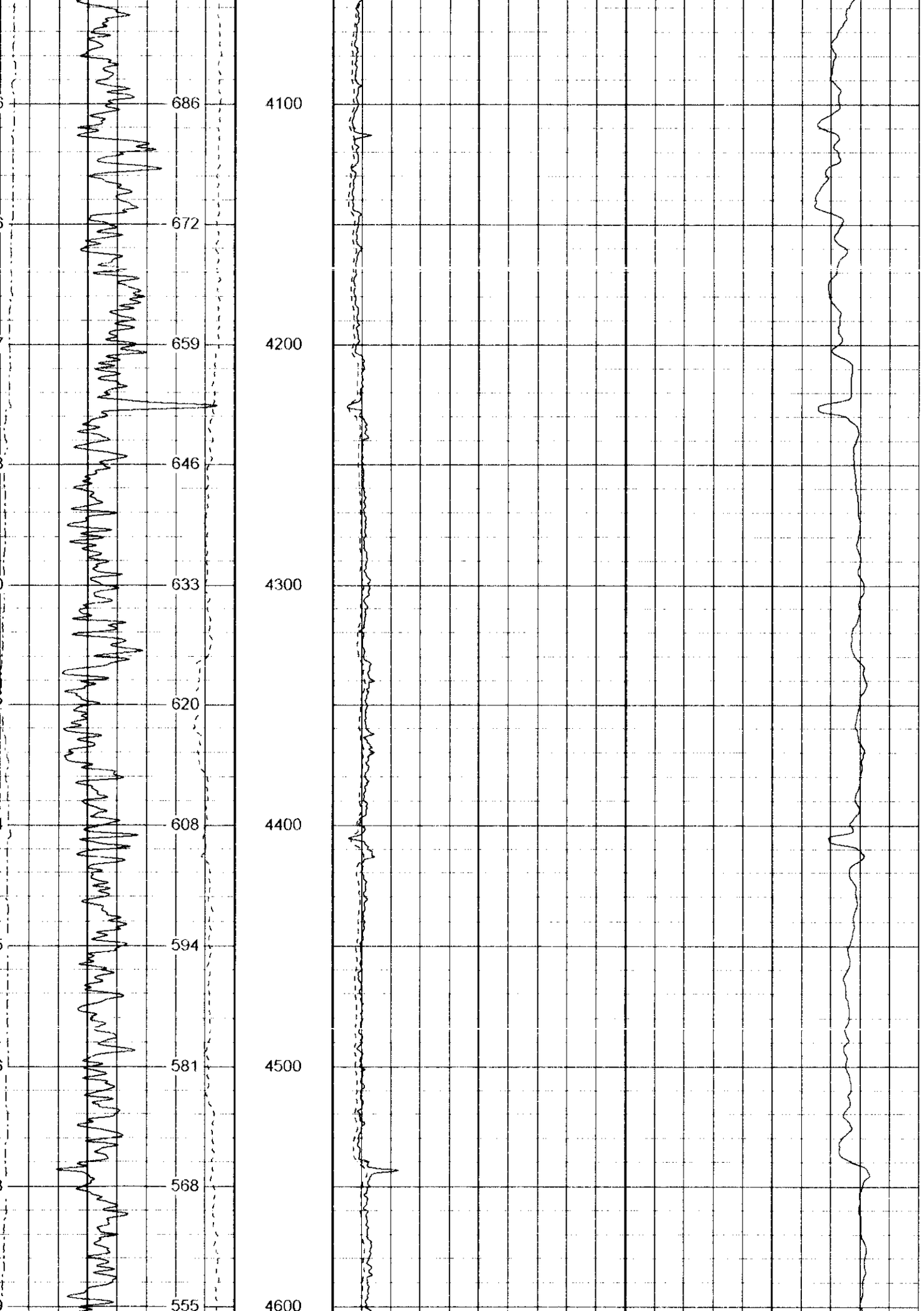
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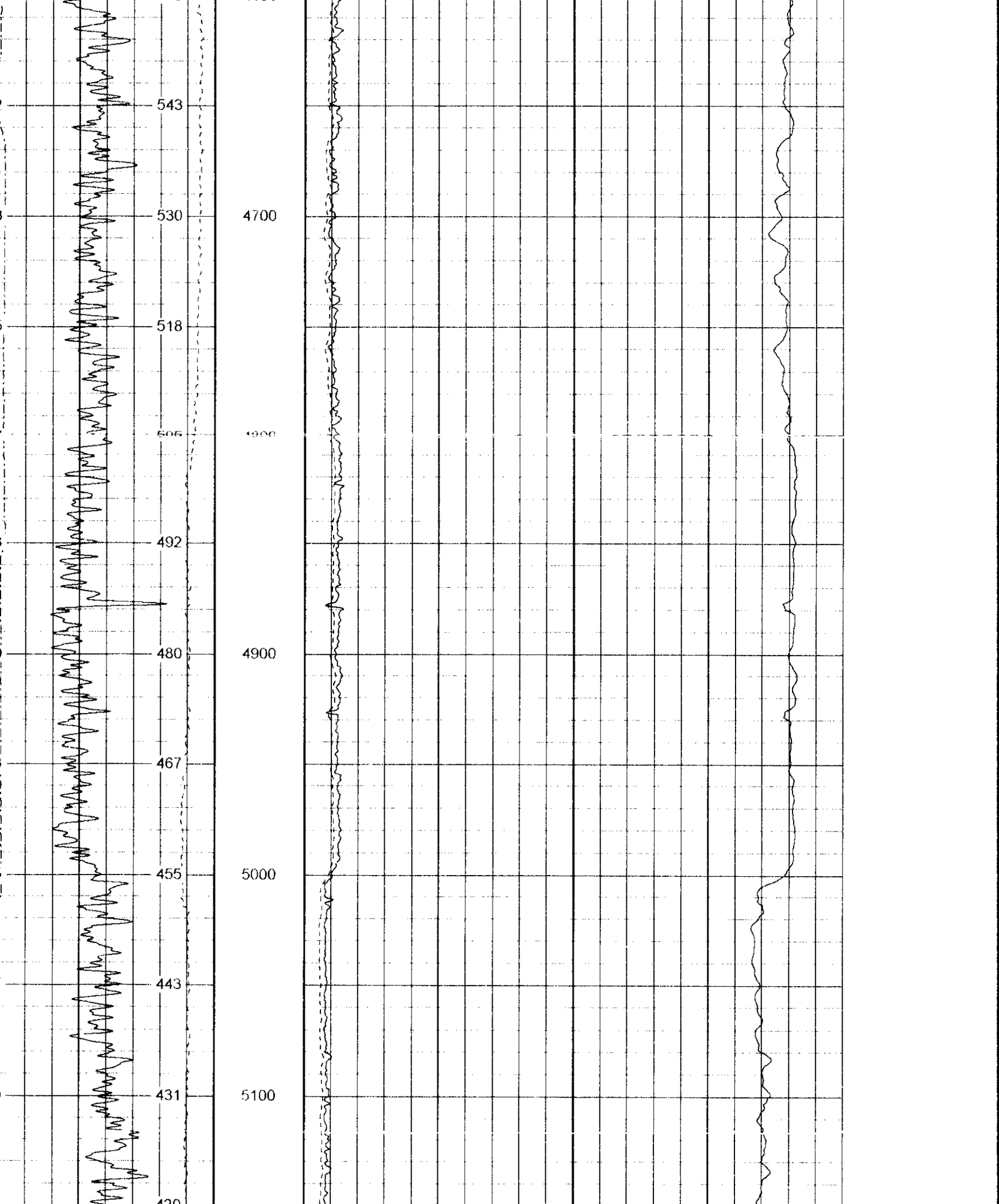
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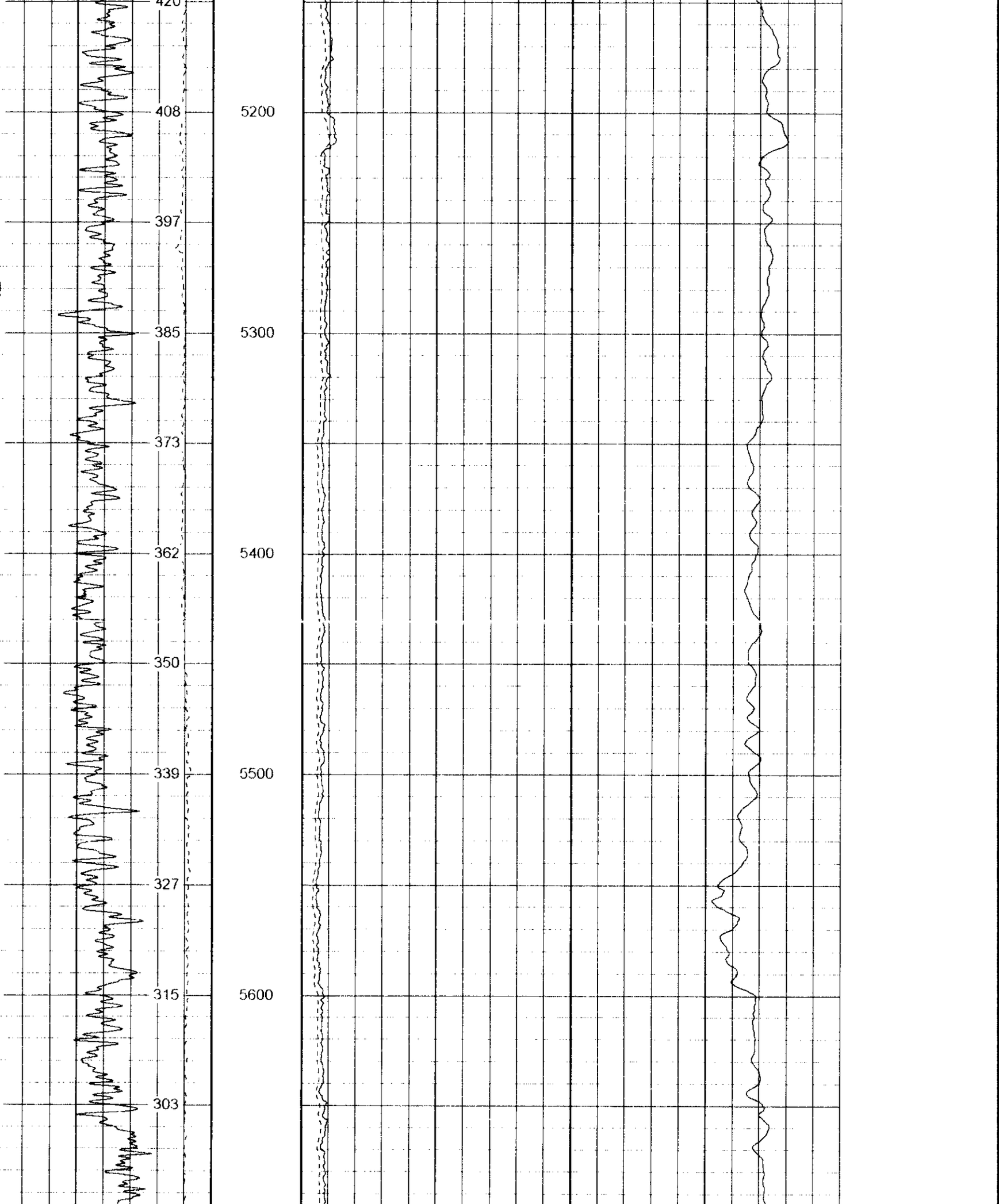
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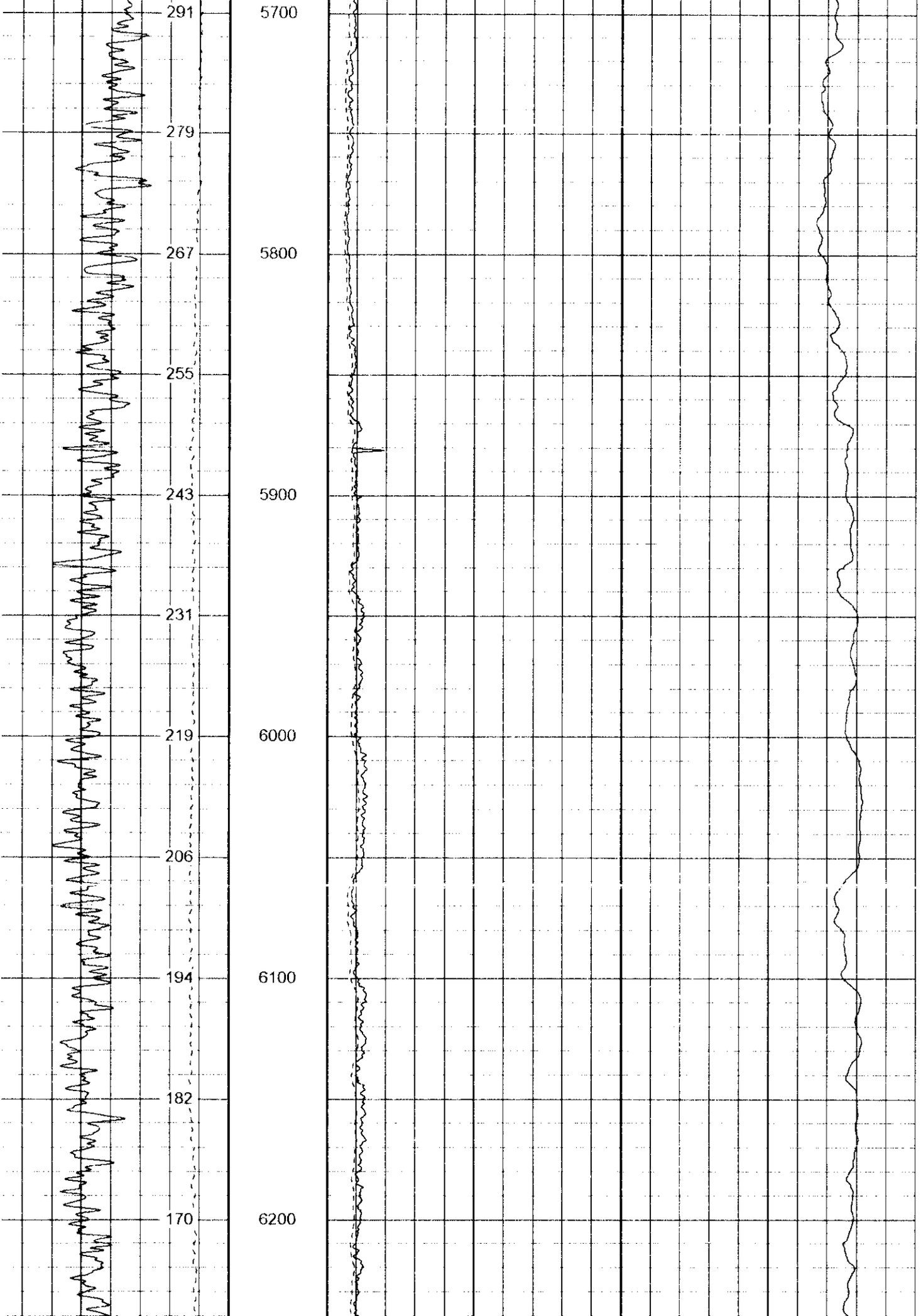
5600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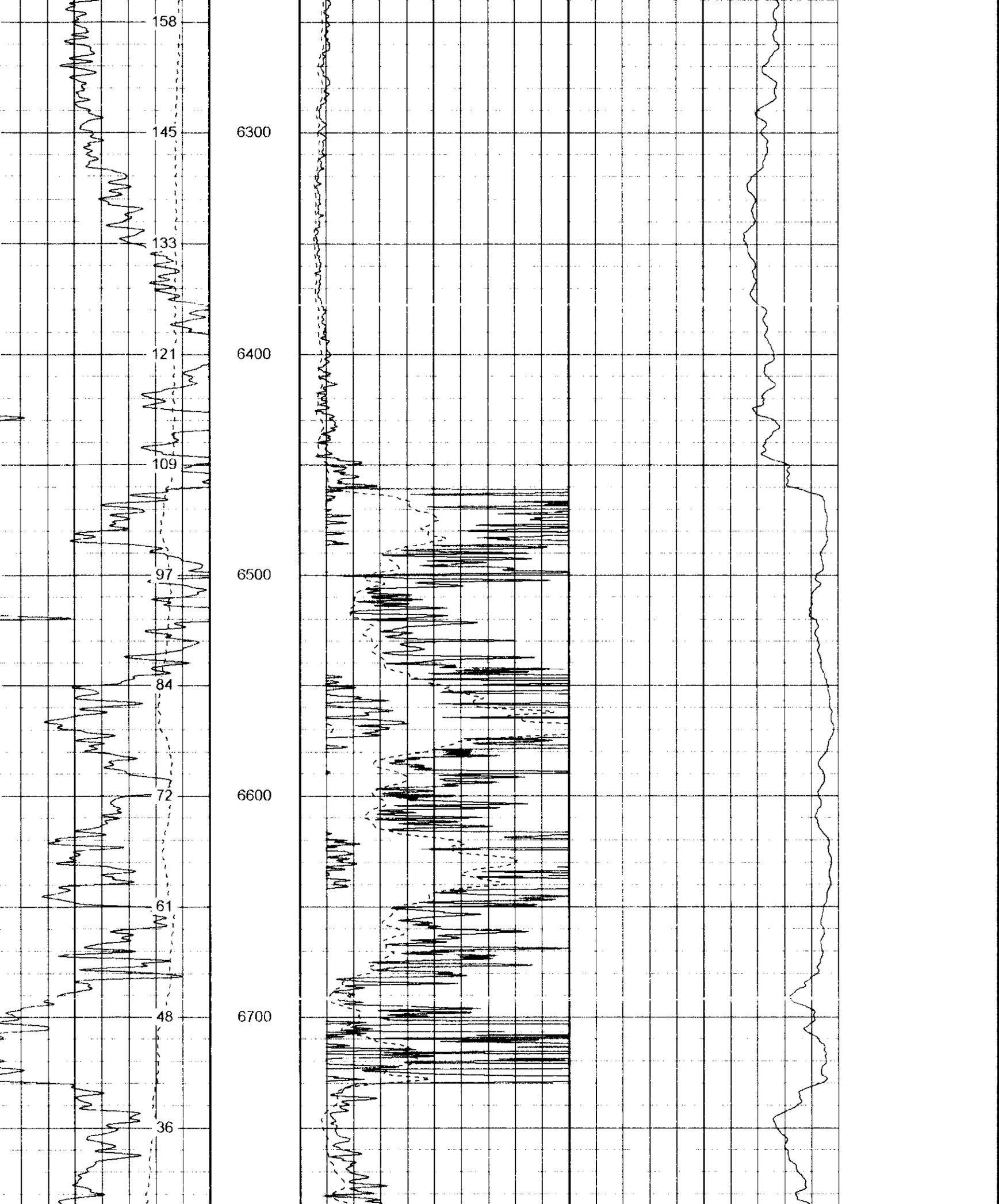
5900
6000
6100
6200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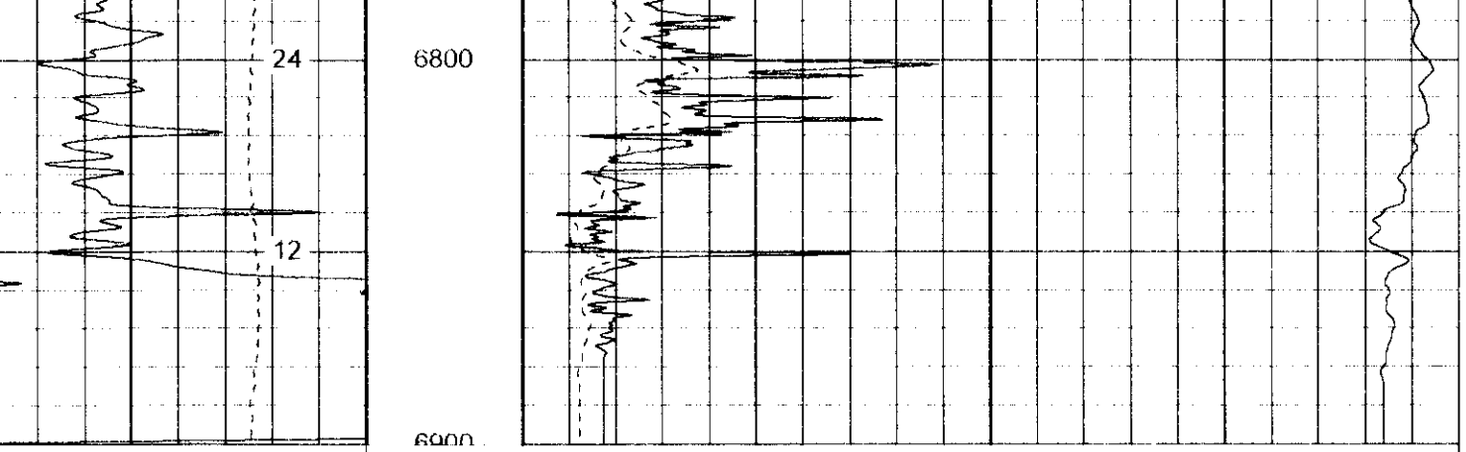
6300
6400
6500
6600
6700



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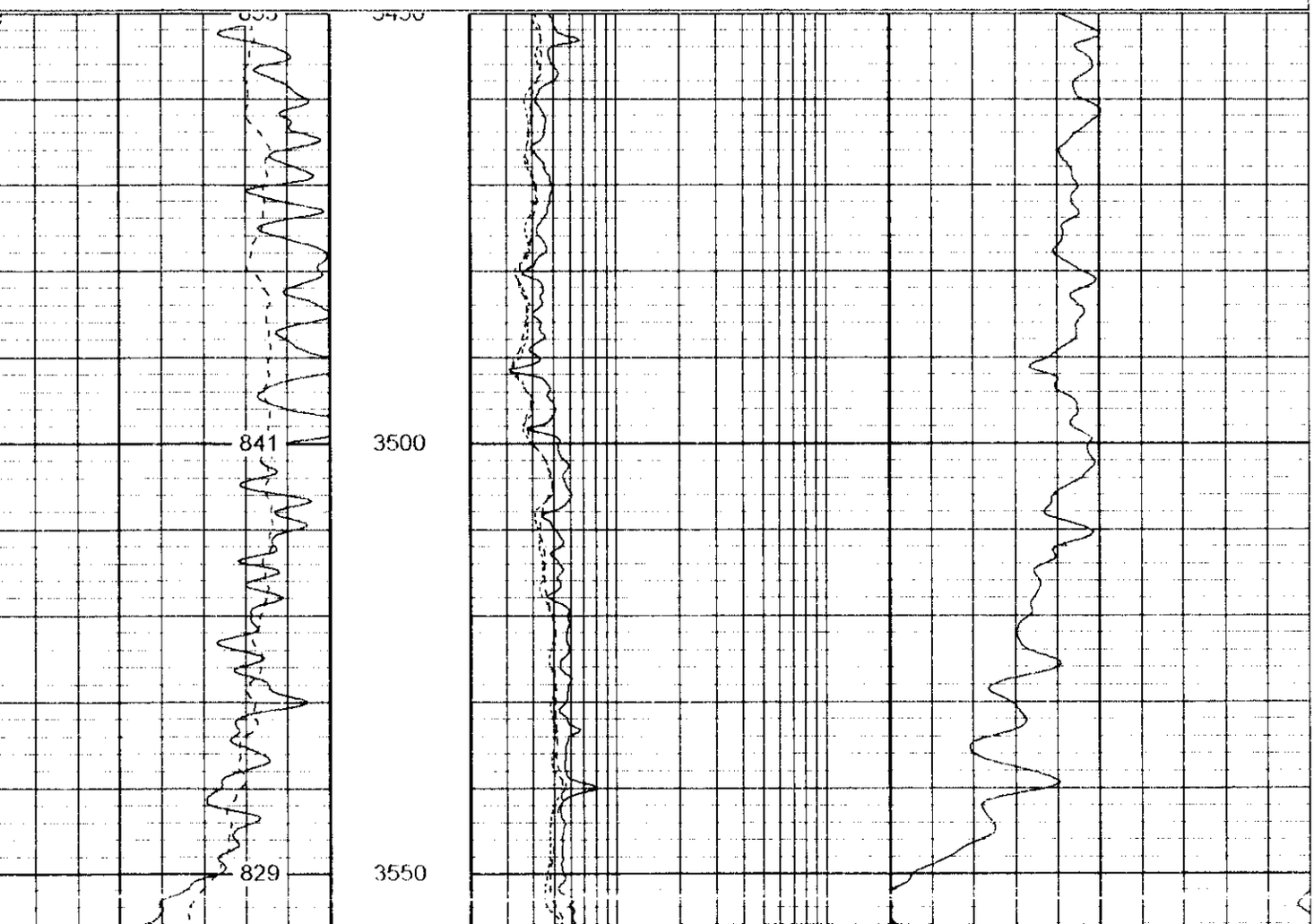
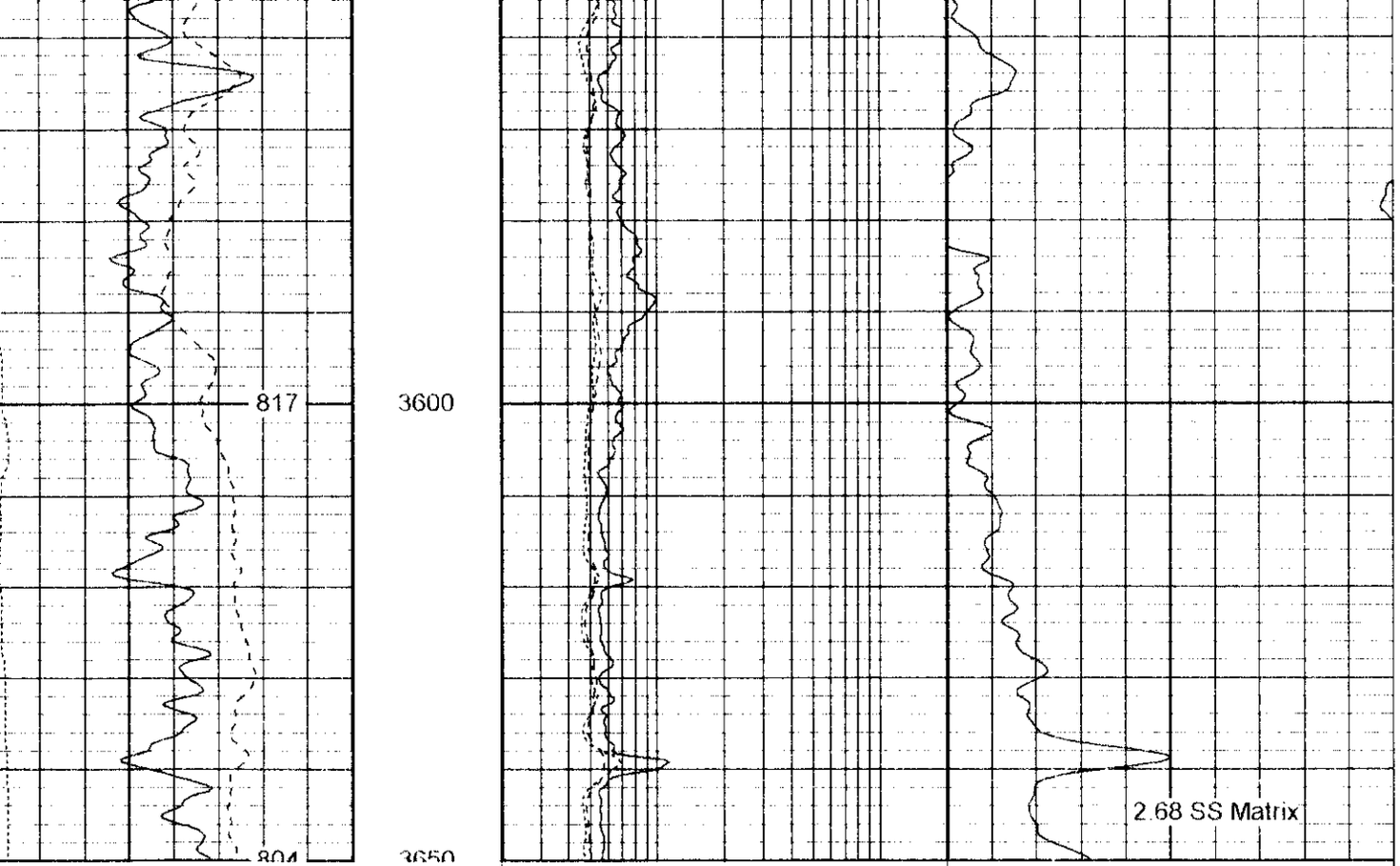
et Creation: Sat May 24 09:16:31 2003 by Log 6.2_B4
ed by: Depth in Feet scaled 1:240

Density Caliper (in)	16	2	Deep Resistivity (Ohm-m)	200	20	Density Porosity (pu)	0
Gamma Ray (GAPI)	130	2	Medium Resistivity (Ohm-m)	200	20	Neutron Porosity (pu)	0
SP (mV)	100	2	Shallow Resistivity (Ohm-m)	200			

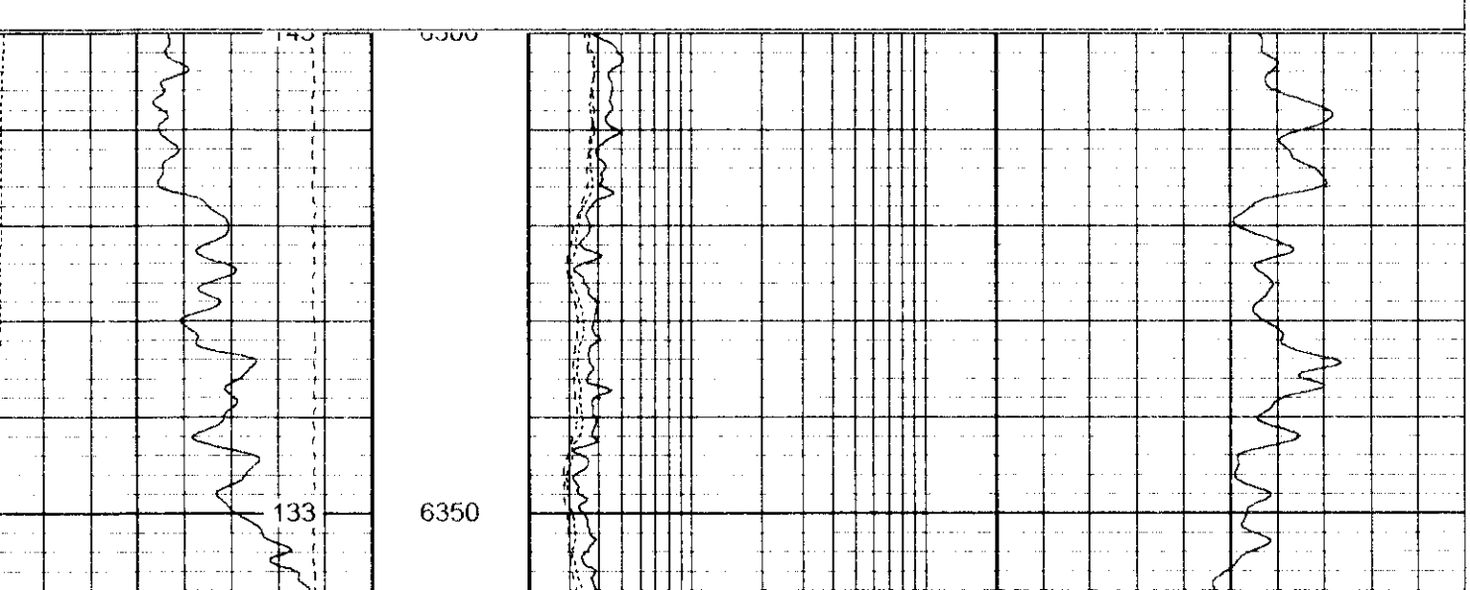


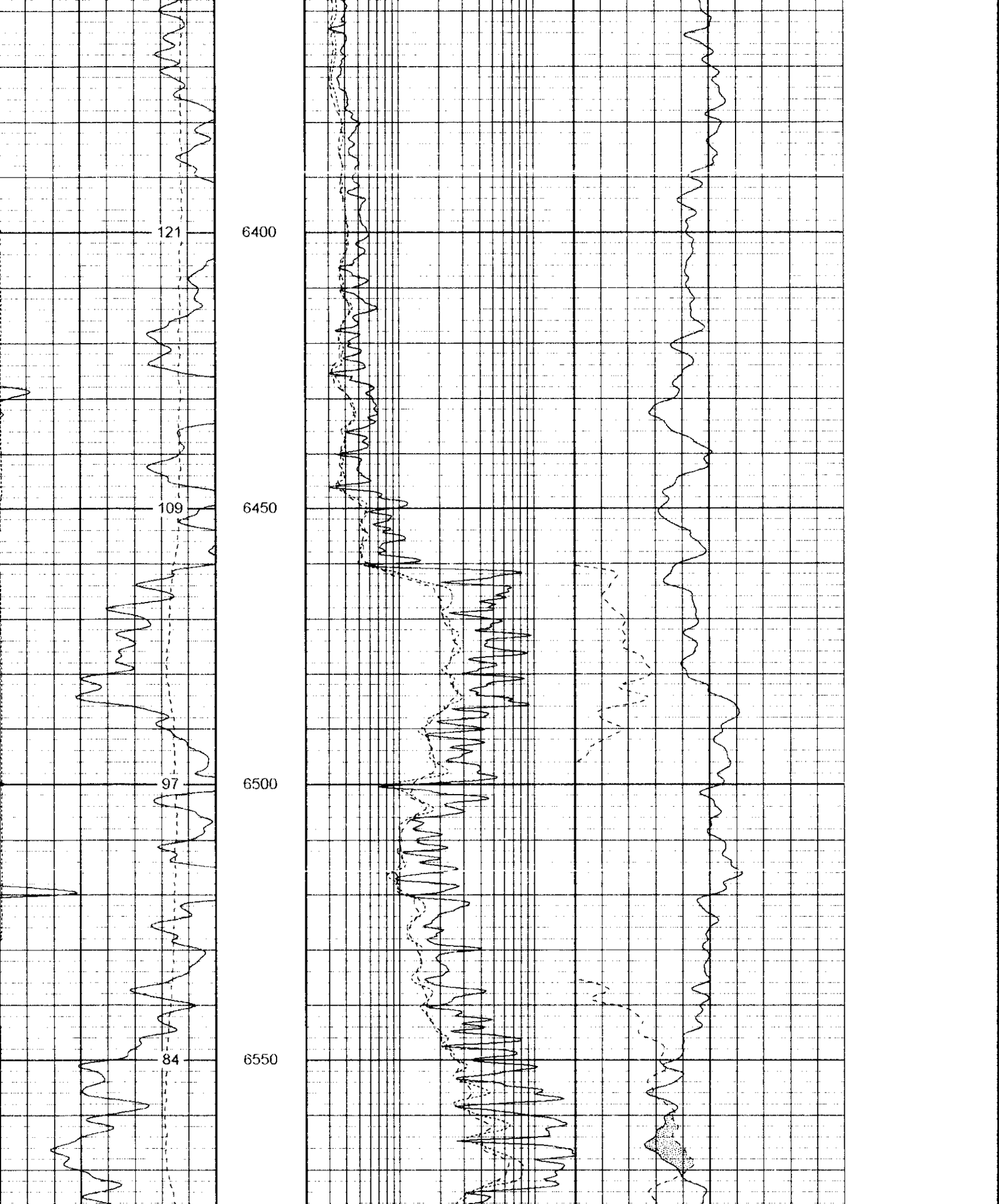


Density Caliper (in)	16	2	Deep Resistivity (Ohm-m)	200	20	Density Porosity (pu)	0
Gamma Ray (GAPI)	130	2	Medium Resistivity (Ohm-m)	200	20	Neutron Porosity (pu)	0
SP (mV)	100	2	Shallow Resistivity (Ohm-m)	200			

ase File: 3806.db
et Pathname: pass4
ntation Format: splitpdc
et Creation: Sat May 24 09:16:31 2003 by Log 6.2_B4
ed by: Depth in Feet scaled 1:240

Density Caliper (in)	16	2	Deep Resistivity (Ohm-m)	200	20	Density Porosity (pu)	0
Gamma Ray (GAPI)	200	2	Medium Resistivity (Ohm-m)	200	20	CN Porosity (pu)	0
SP (mV)	200	2	Shallow Resistivity (Ohm-m)	200			

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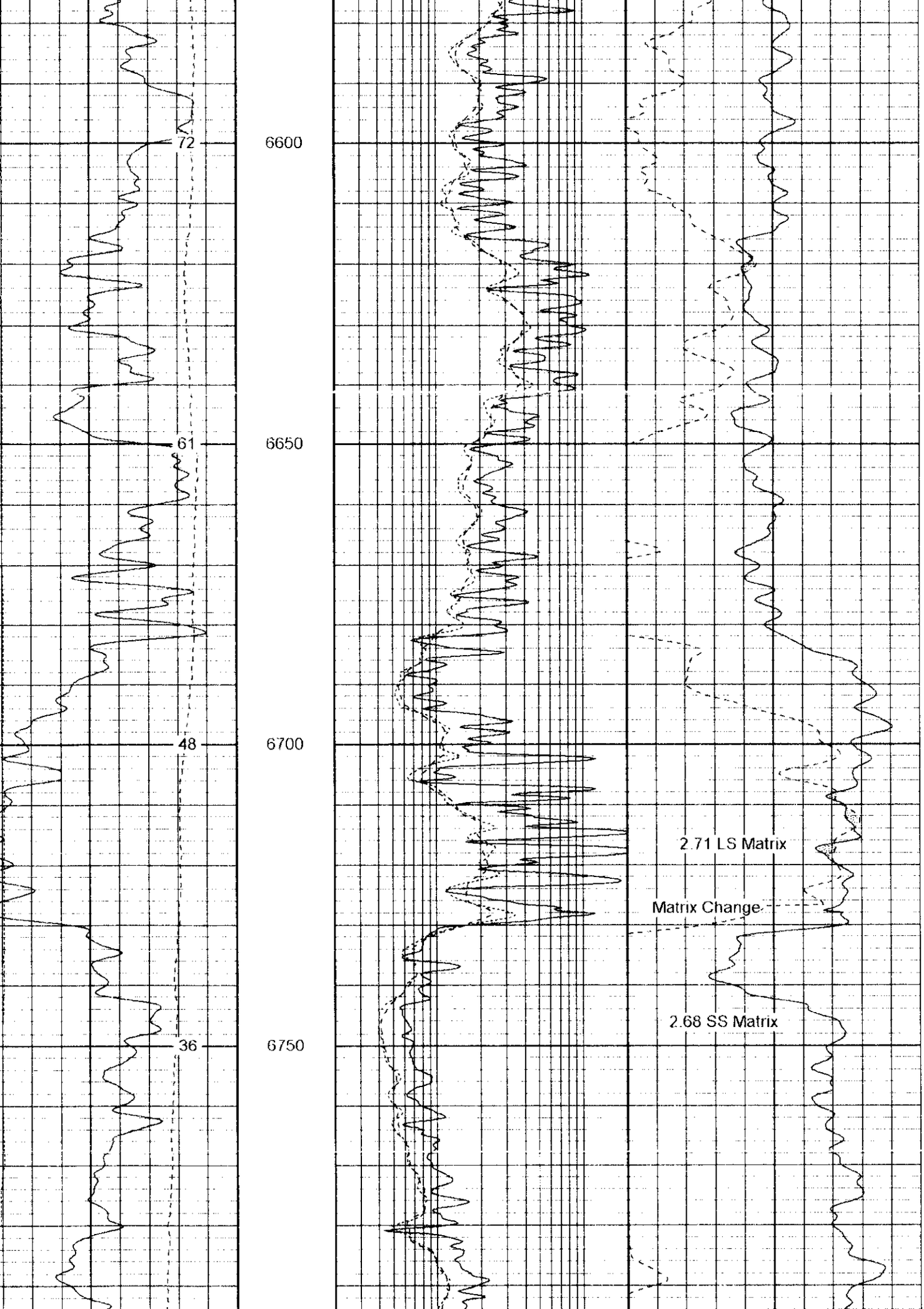
97
84
6400
6450
6500
6550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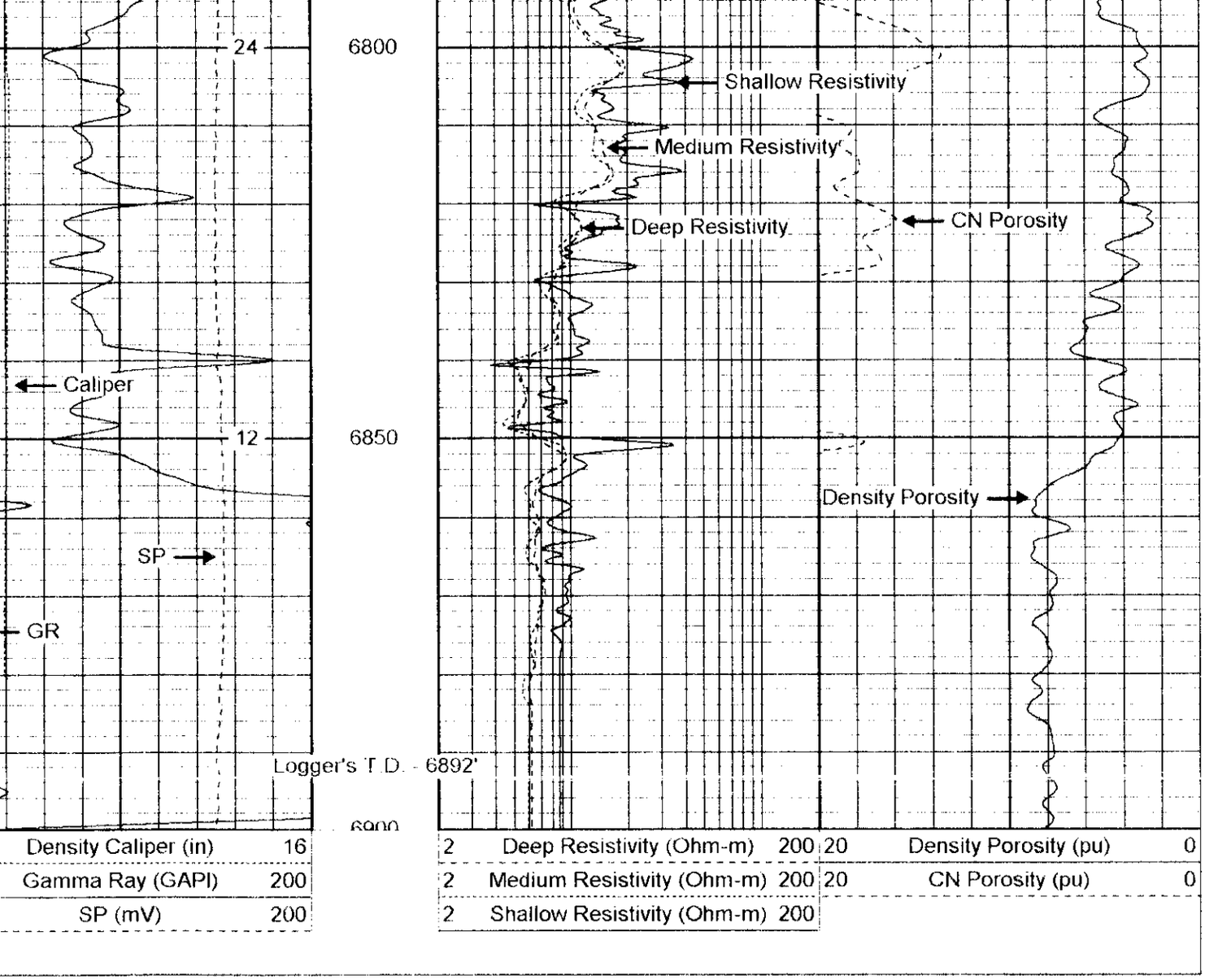
61
48
36
6600
6650
6700
6750
2.71 LS Matrix
Matrix Change
2.68 SS Matrix



base File: 3806.db
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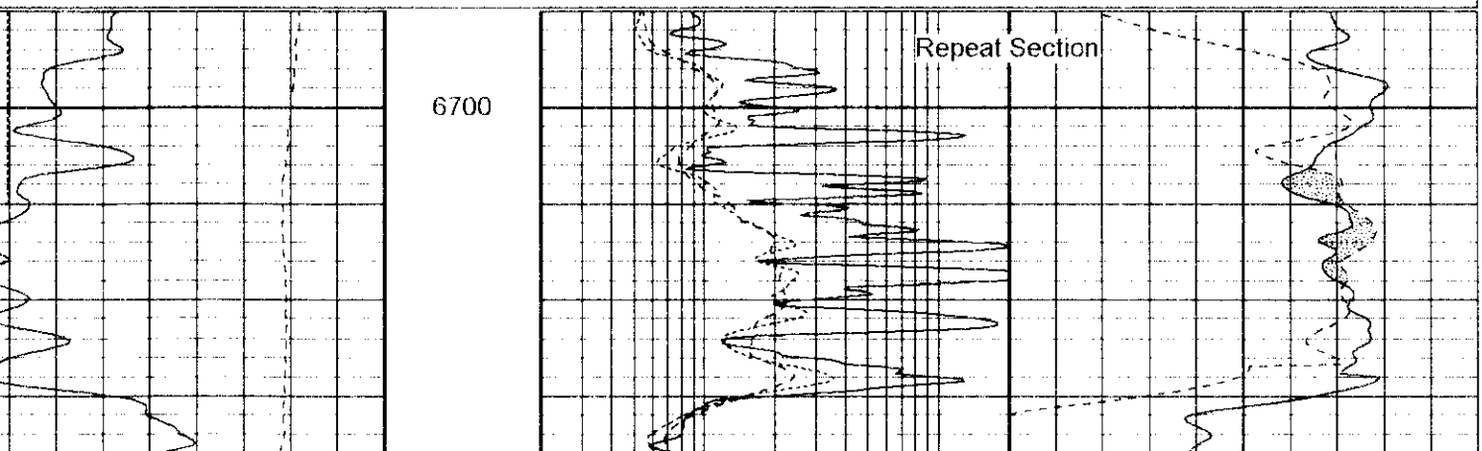
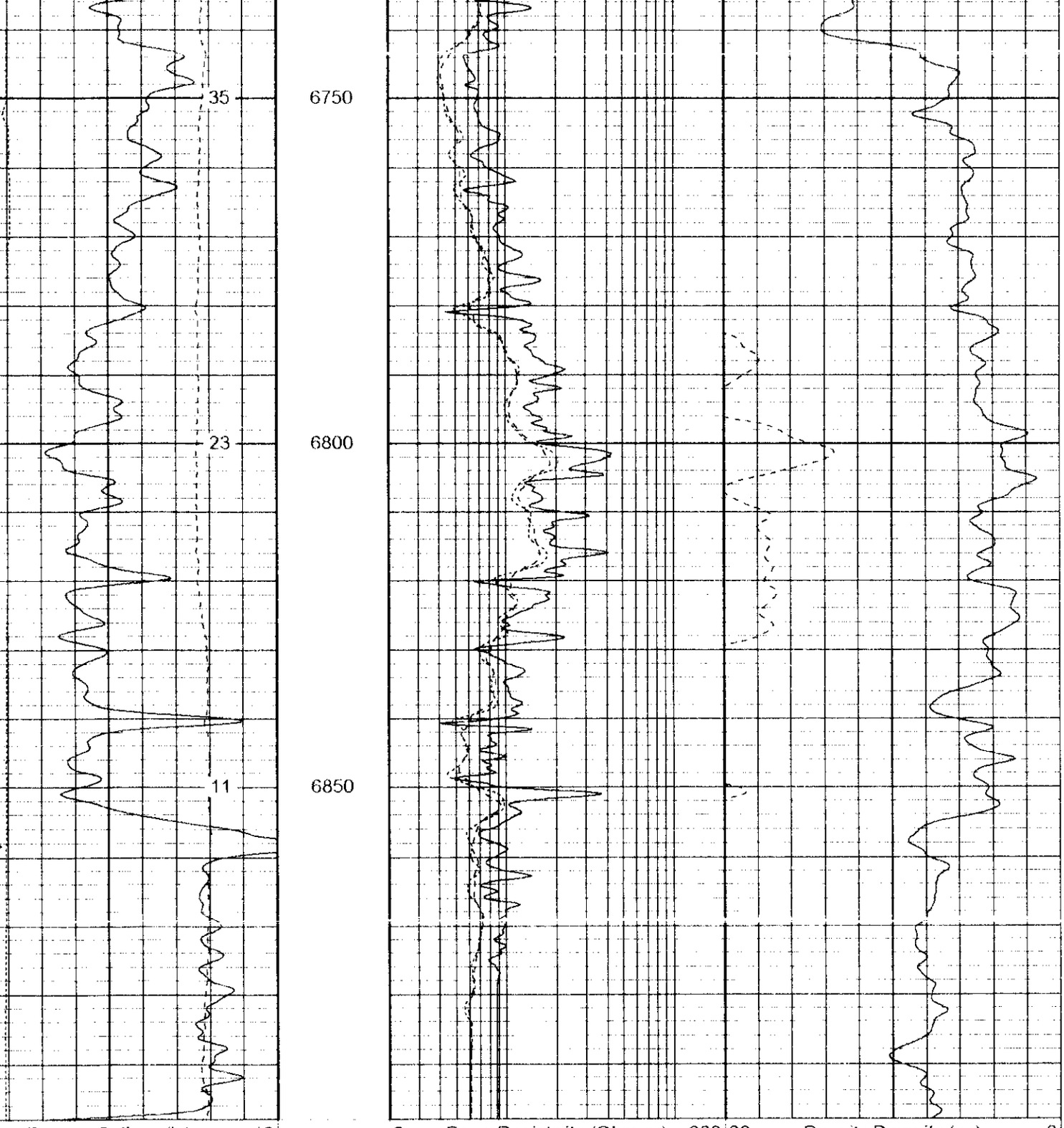
entation Format: splitpdc
set Creation: Sat May 24 09:11:50 2003 by Calc 6.2_B4
ted by: Depth in Feet scaled 1:240

Density Caliper (in)	16	2 Deep Resistivity (Ohm-m)	200	20 Density Porosity (pu)	0
Gamma Ray (GAPI)	200	2 Medium Resistivity (Ohm-m)	200	20 CN Porosity (pu)	0
SP (mV)	200	2 Shallow Resistivity (Ohm-m)	200		

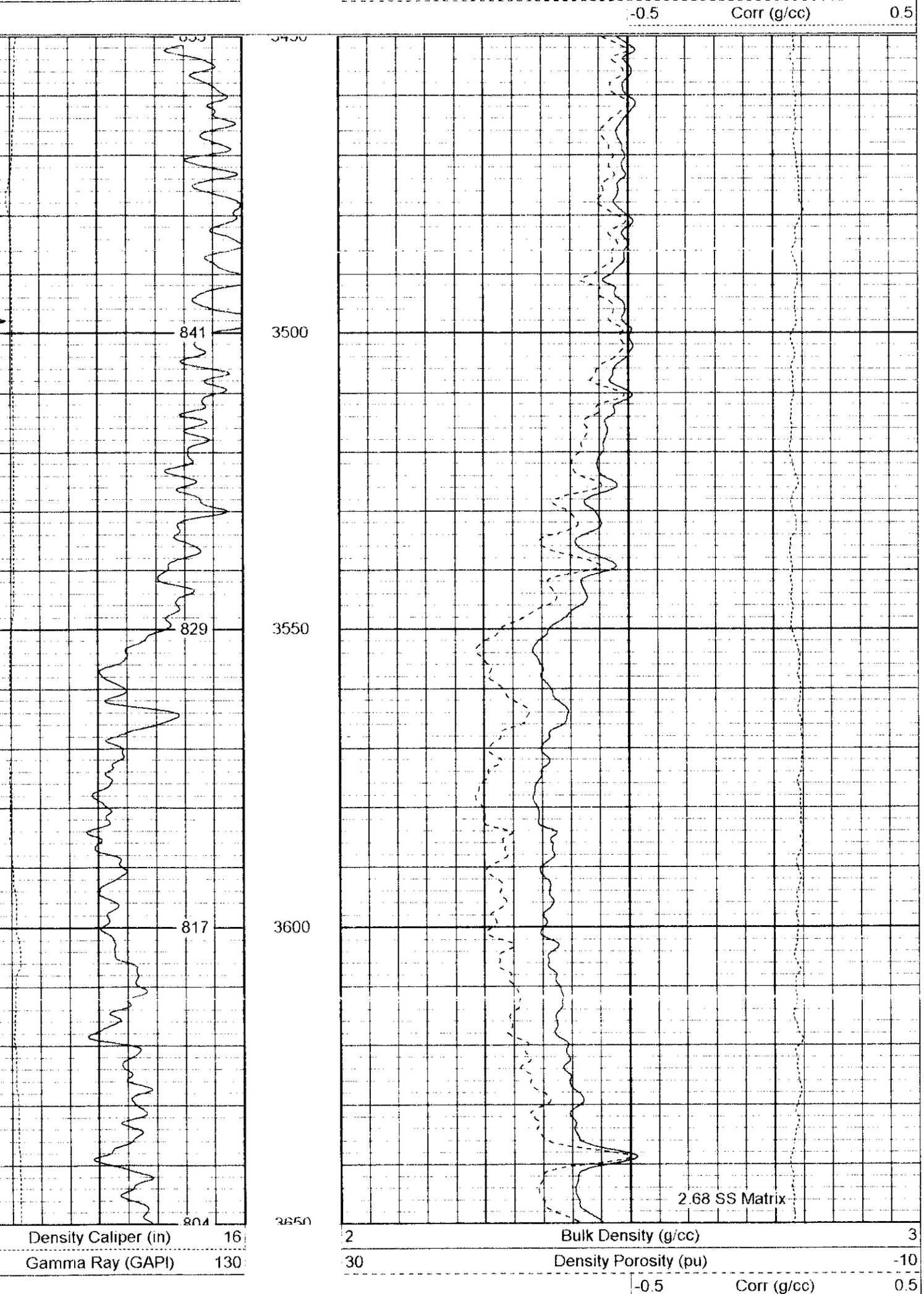




Density Caliper (in)	16	2	Deep Resistivity (Ohm-m) 200	20	Density Porosity (pu) 0
Gamma Ray (GAPI)	200	2	Medium Resistivity (Ohm-m) 200	20	CN Porosity (pu) 0
SP (mV)	200	2	Shallow Resistivity (Ohm-m) 200		

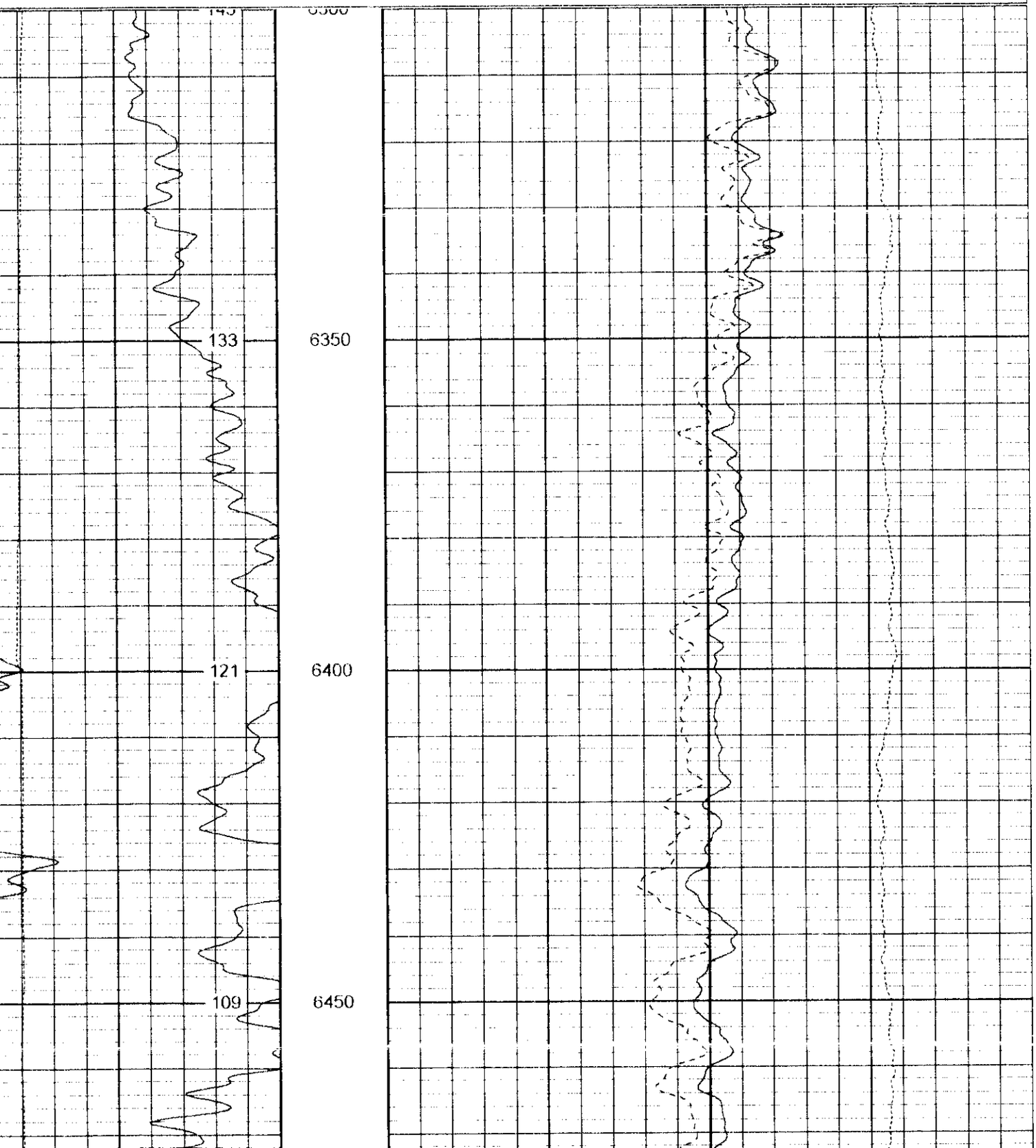
base File:	3806.db
set Pathname:	pass4
sentation Format:	cdl1
set Creation:	Sat May 24 09:16:31 2003 by Log 6.2_B4
ted by	Depth in Feet scaled 1:240

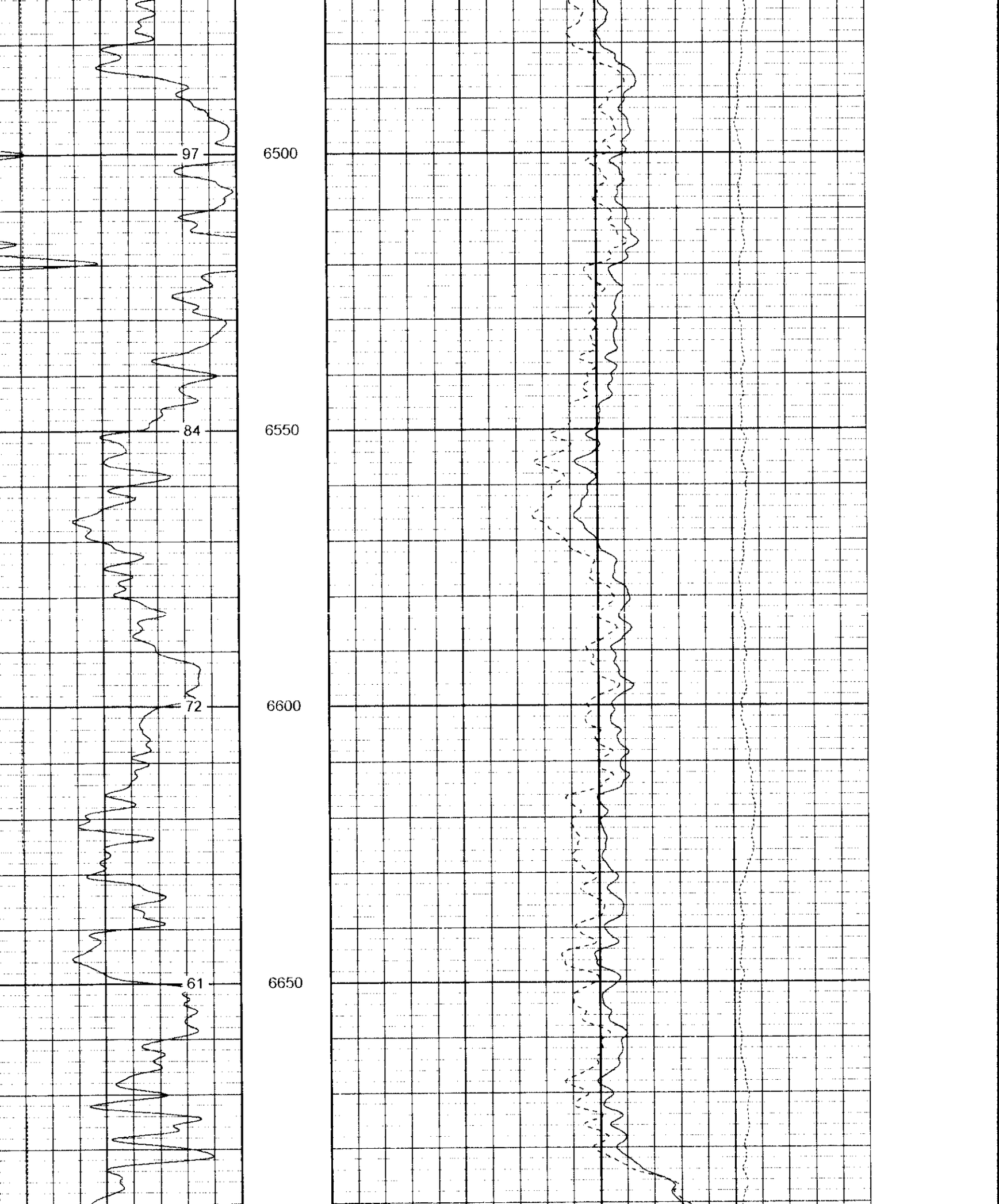
Density Caliper (in)	16	2	Bulk Density (g/cc)	3
Gamma Ray (GAPI)	130	30	Density Porosity (pu)	-10


-0.5
Corr (g/cc)
0.5
841
829
817
804
3500
3550
3600
3650
2.68 SS Matrix
Density Caliper (in)
16
Gamma Ray (GAPI)
130
2
Bulk Density (g/cc)
3
30
Density Porosity (pu)
-10
-0.5
Corr (g/cc)
0.5

abase File:	3806.db
aset Pathname:	pass4
sentation Format:	cdl
aset Creation:	Sat May 24 09:16:31 2003 by Log 6.2_B4
arted by:	Depth in Feet scaled 1:240

GR (GAPI)	200	2	Bulk Density (g/cc)	3
Density Caliper (in)	16	30	Density Porosity (pu)	-10
		-0.5	Corr (g/cc)	0.5

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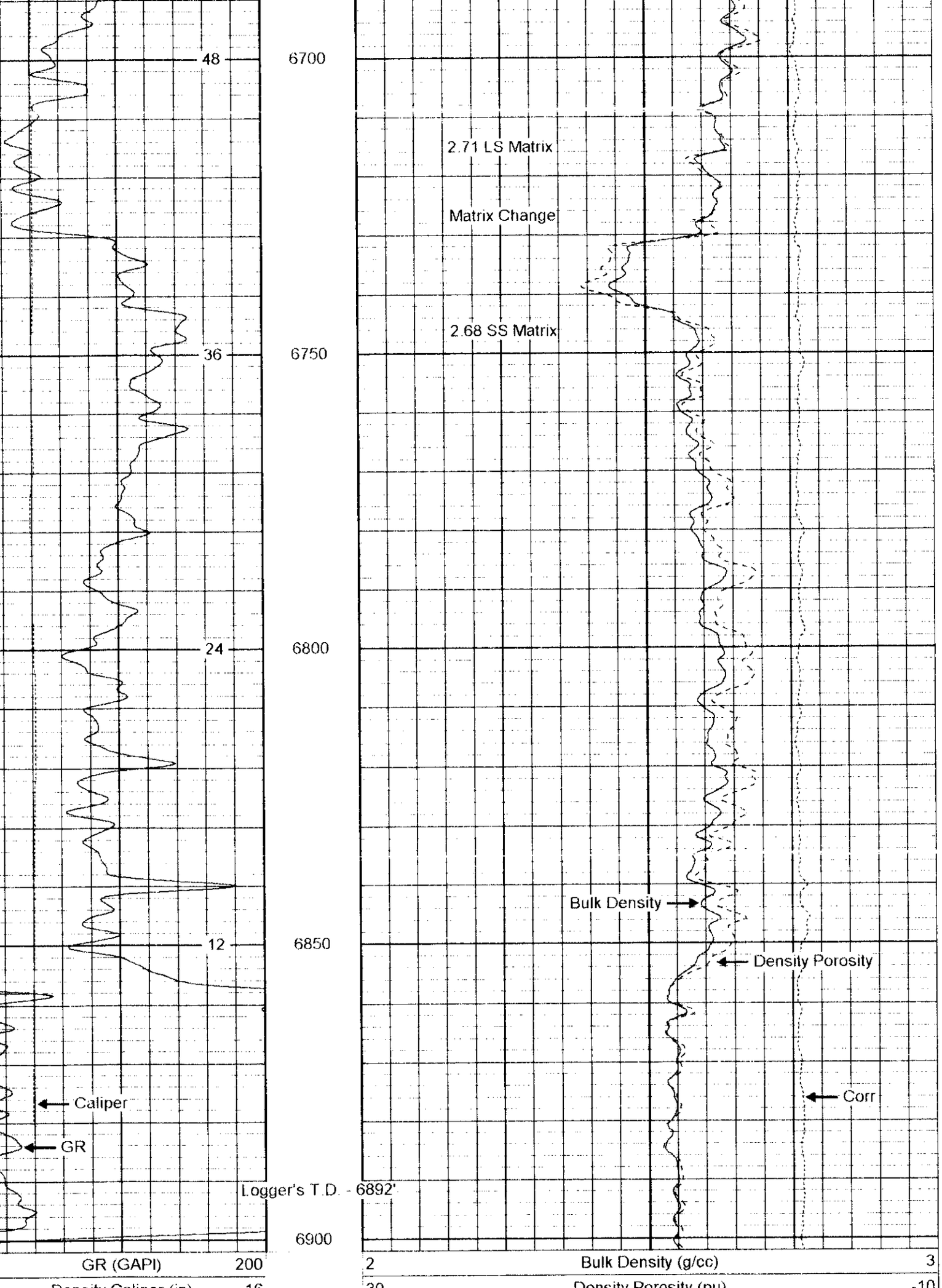
84
72
61
6500
6550
6600
6650


48
36
24
12
6700
6750
6800
6850
6900
2.71 LS Matrix
Matrix Change
2.68 SS Matrix
Bulk Density
Density Porosity
Corr
Caliper
GR
Logger's T.D. - 6892'
GR (GAPI)
200
2
Bulk Density (g/cc)
3

Density Caliper (in)	16	30	Density Porosity (pu)		10
			-0.5	Corr (g/cc)	0.5

Dual Induction Calibration Report

Serial-Model: 246-PSI
Surface Cal Performed:

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		m	b
Deep	104.821	515.704	9.000	250.000	mmho-m	0.530	-36.000
Medium	78.213	507.770	9.000	110.000	mmho-m	0.270	-16.000

Compensated Density Calibration Report

Serial-Model: 230-PSI
Master Calibration Performed: Sat May 17 11:17:09 2003
Before Survey Verification Performed:
After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.750	g/cc	4004.89	3466.44	cps
Aluminum	2.690	g/cc	738.13	2198.94	cps

	Size		Reading
Small Ring	0.00	in	0.68
Large Ring	1.00	in	0.28

Compensated Neutron Calibration Report

Serial Number: 25
Tool Model: PSI

CALIBRATION

Detector	Readings		Target		Normalization
Short Space	1.00	cps	1.00	cps	1.6500
Long Space	1.00	cps	1.00	cps	2.0500

Gamma Ray Calibration Report

Serial Number: 232
Tool Model: PSI
Performed: Thu May 01 19:43:31 2003

Calibrator Value: 253 GAPI

Background Reading: 30 cps
Calibrator Reading: 380 cps

Sensitivity: 0.56 GAPI/cps