

COMPENSATED DENSITY COMPENSATED NEUTRON DUAL INDUCTION

INC

Petroleum Development Corporation

Wells Ranch #31 - 5

Wattenberg

Weld State Colorado

645' FNL & 1966' FEL

NW NE

Sec - 5, Twp - 5N, Rge - 63W

Elevation 4710

Other Services
None
Elevation
K.B. 4725
D.F. 4724
G.L. 4710

December 4, 2002

1	
6962	
6969	
6969	
Casing	
423	
423	
7-7/8"	
Chem Gel	
9.3 / 53	
9.0 / 90	
Flowline	
3.71 @ 59' F	
2.78 @ 59' F	
4.83 @ 59' F	
Meas. / Calc	
1.11 @ 197' F	
0600	
1300	
197' F	
4041	
Brighton, CO	
Stephen Cox	
Dick Olsen	

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

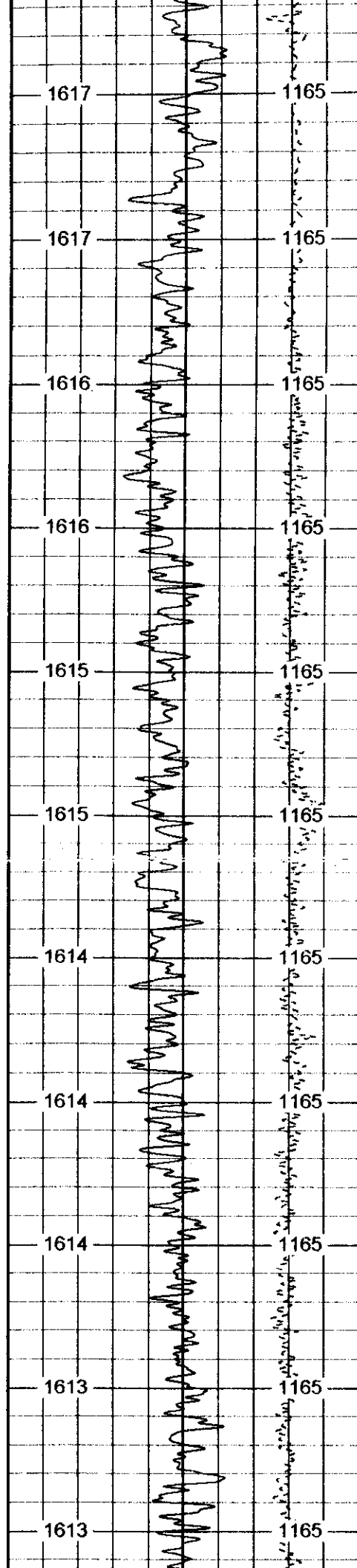
Comments

Thank you for using Phoenix Surveys.
Fort Drilling Rig 2.
Annular volume is calculated for 4.5" casing.

Database File: 3549.db
Dataset Pathname: main
Presentation Format: dilin5
Dataset Creation: Wed Dec 04 14:04:01 2002
Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	200
6	Caliper (in)	16
0	SP (mV)	200

0	Deep Resistivity (Ohm-m)	50
0	Shallow Resistivity (Ohm-m)	50



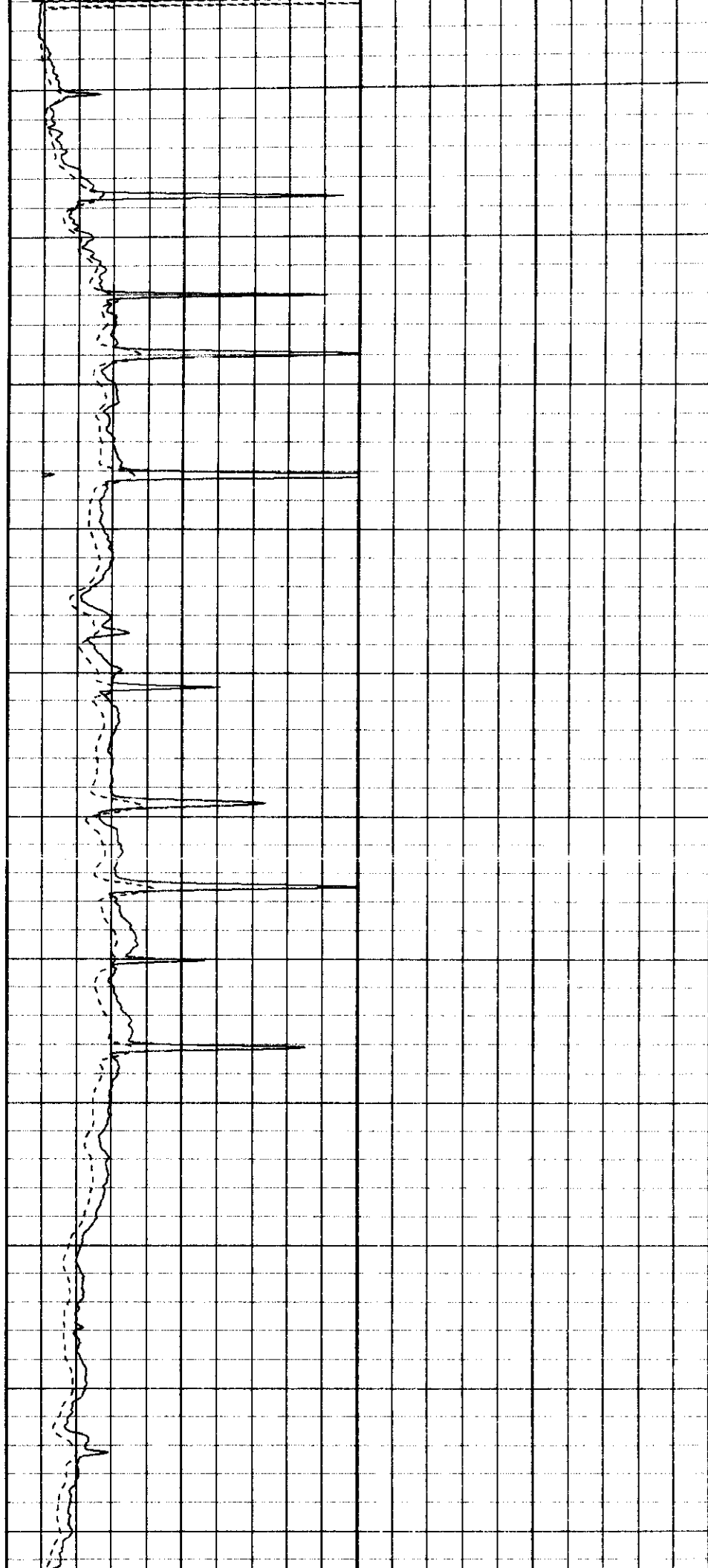
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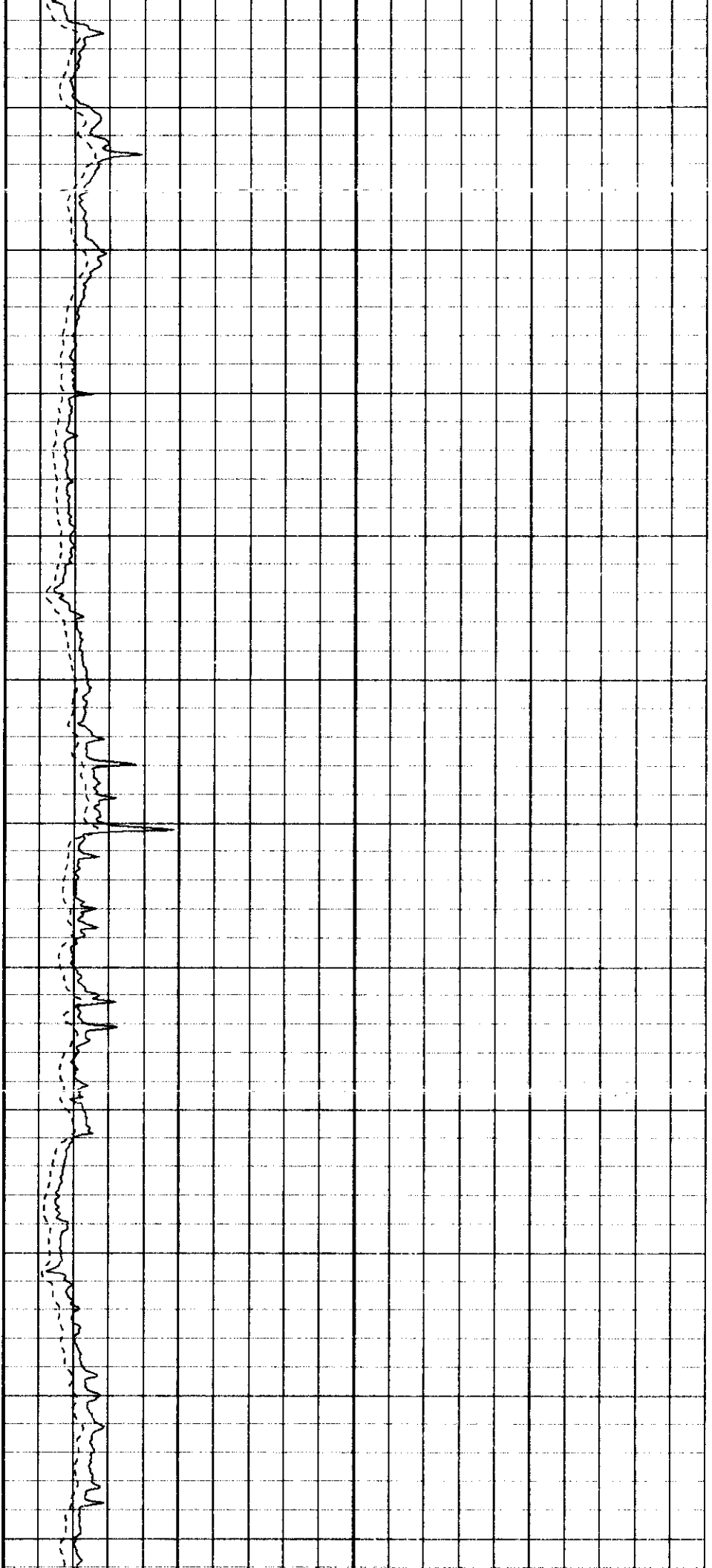
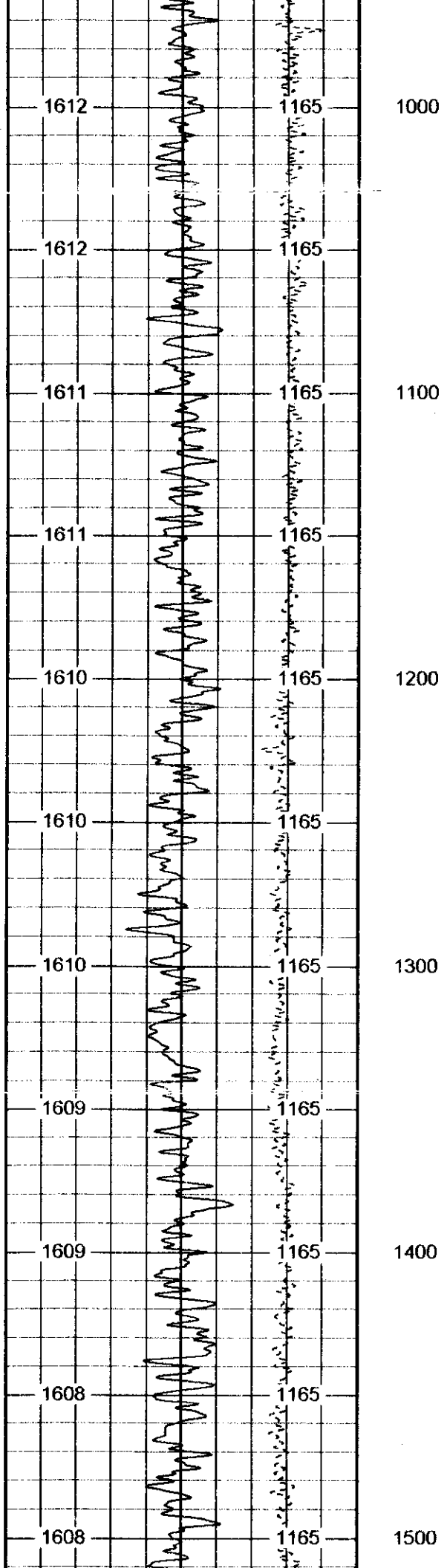
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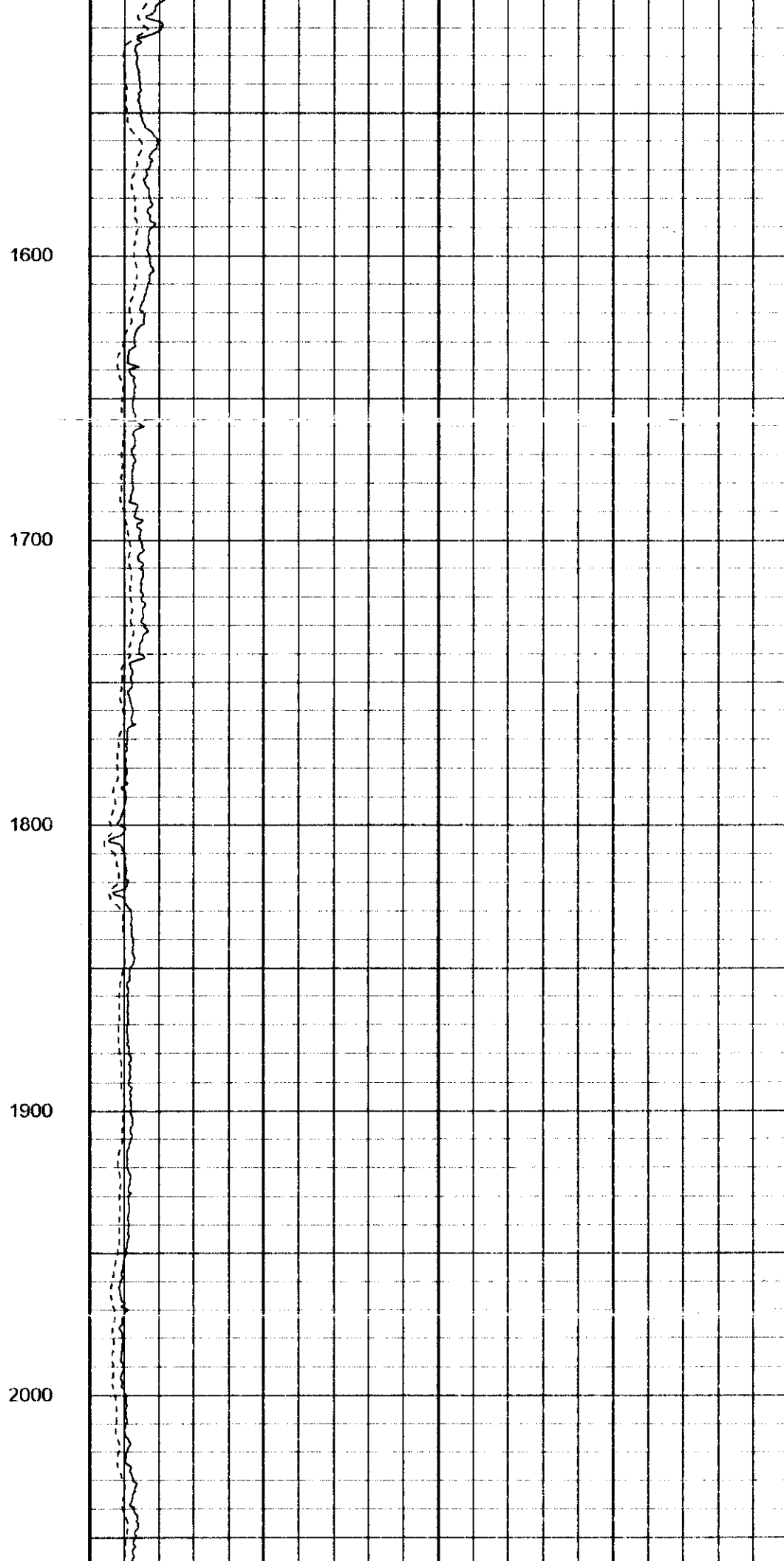
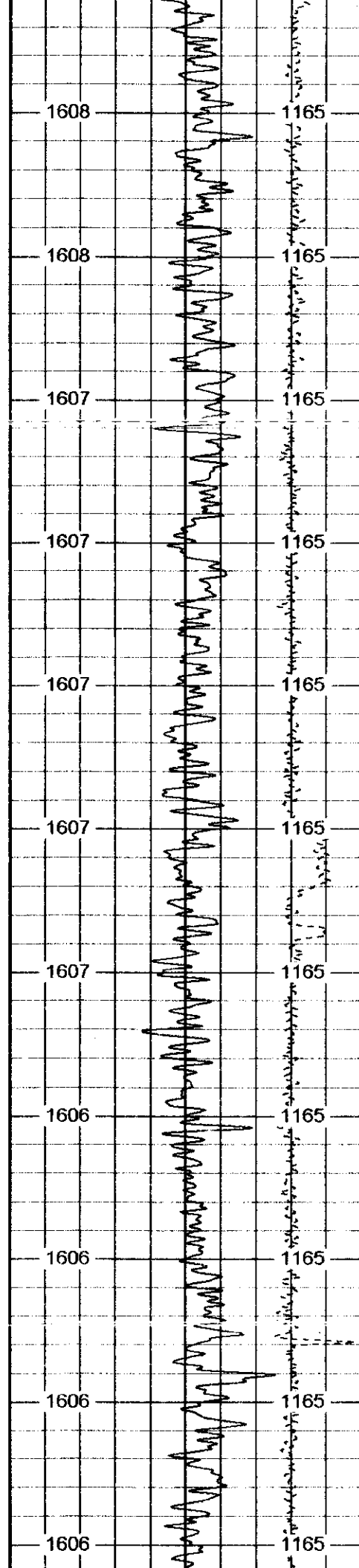
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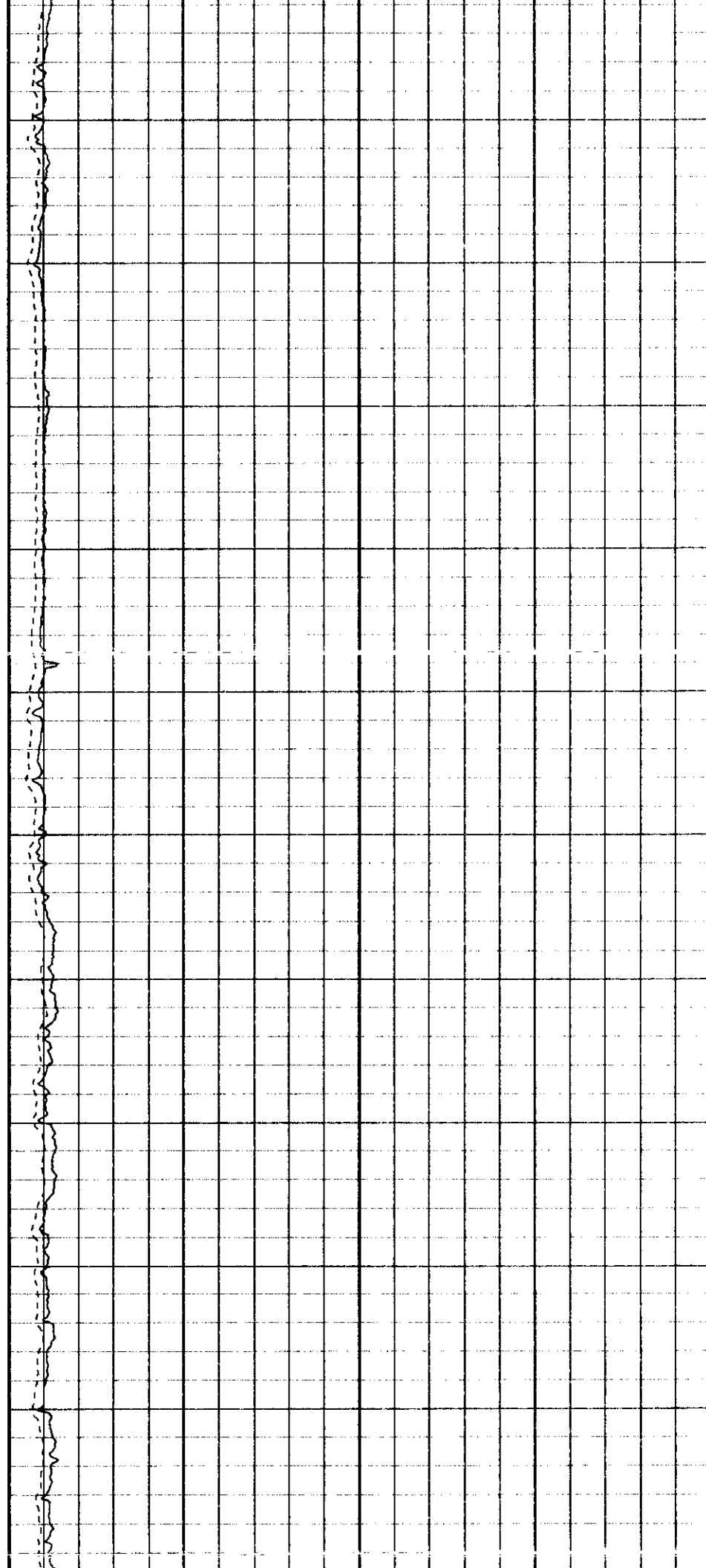
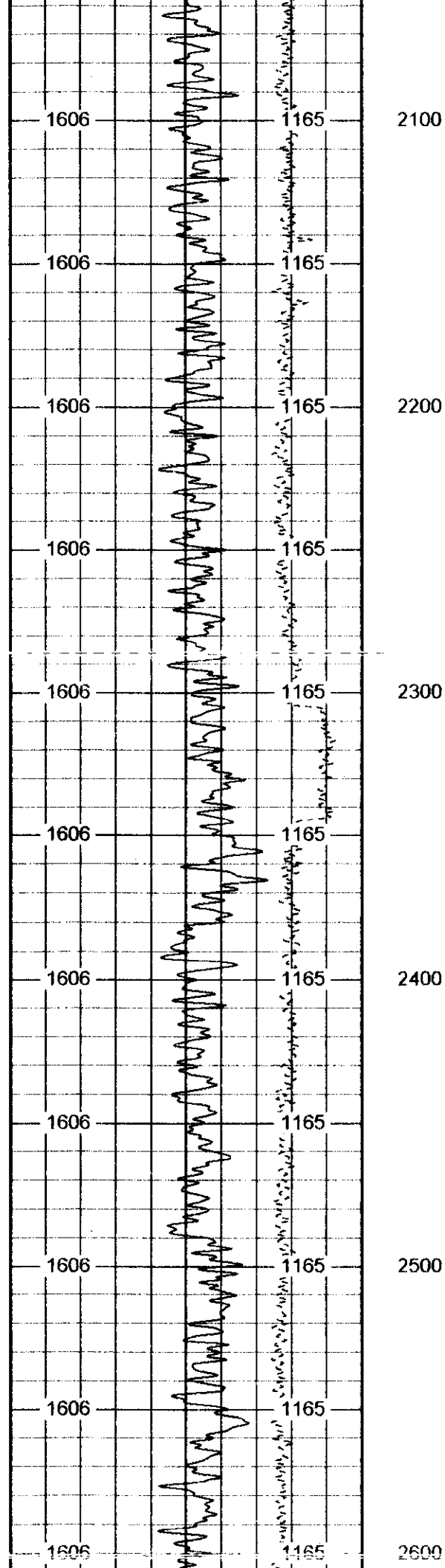
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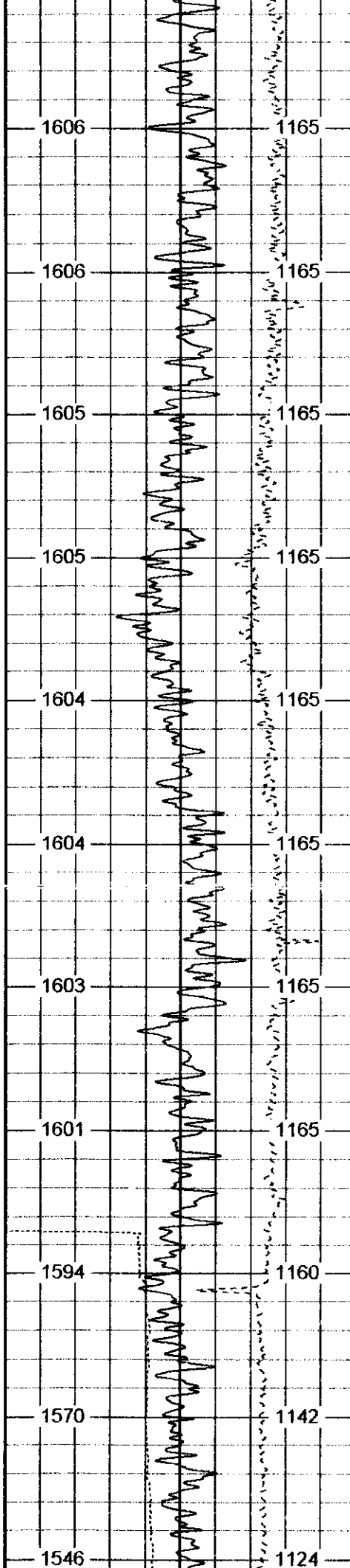
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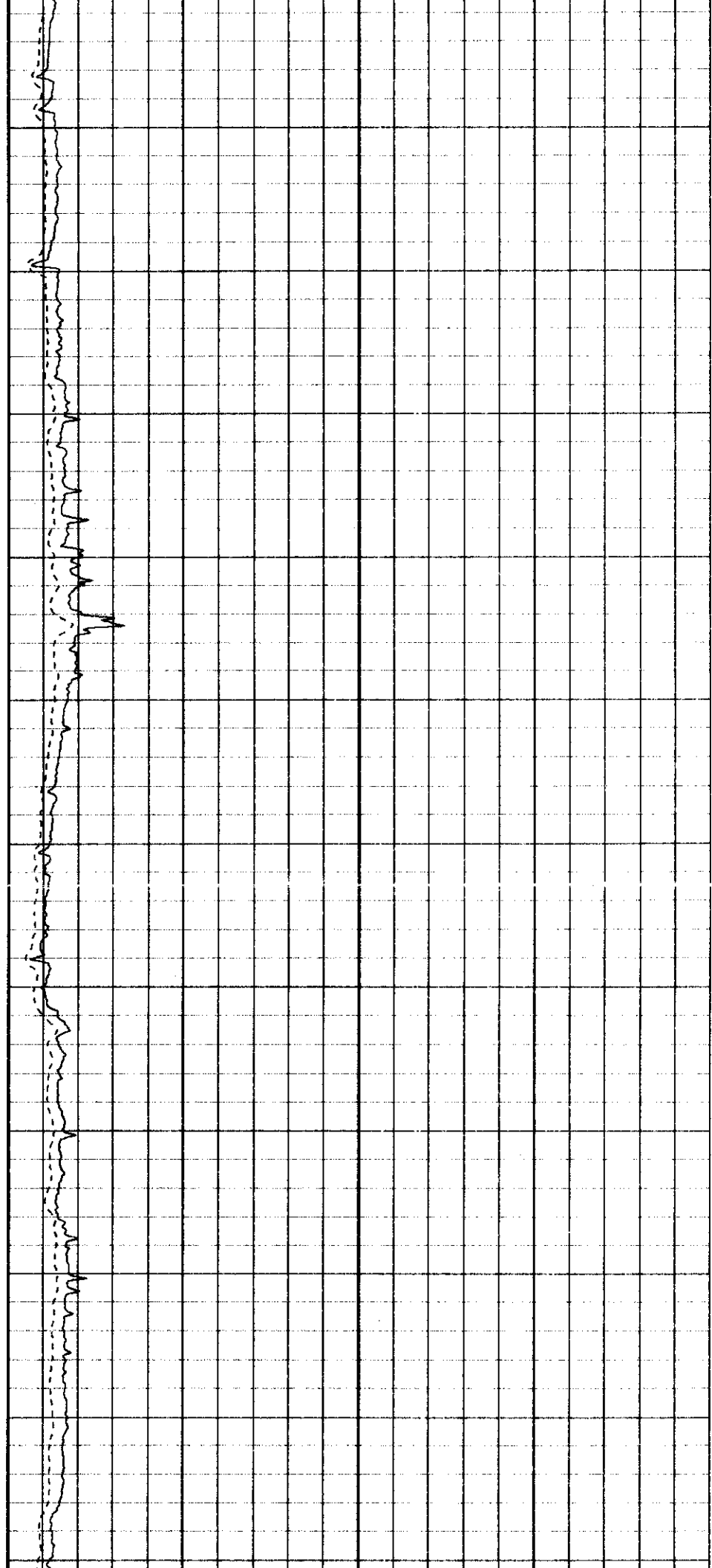
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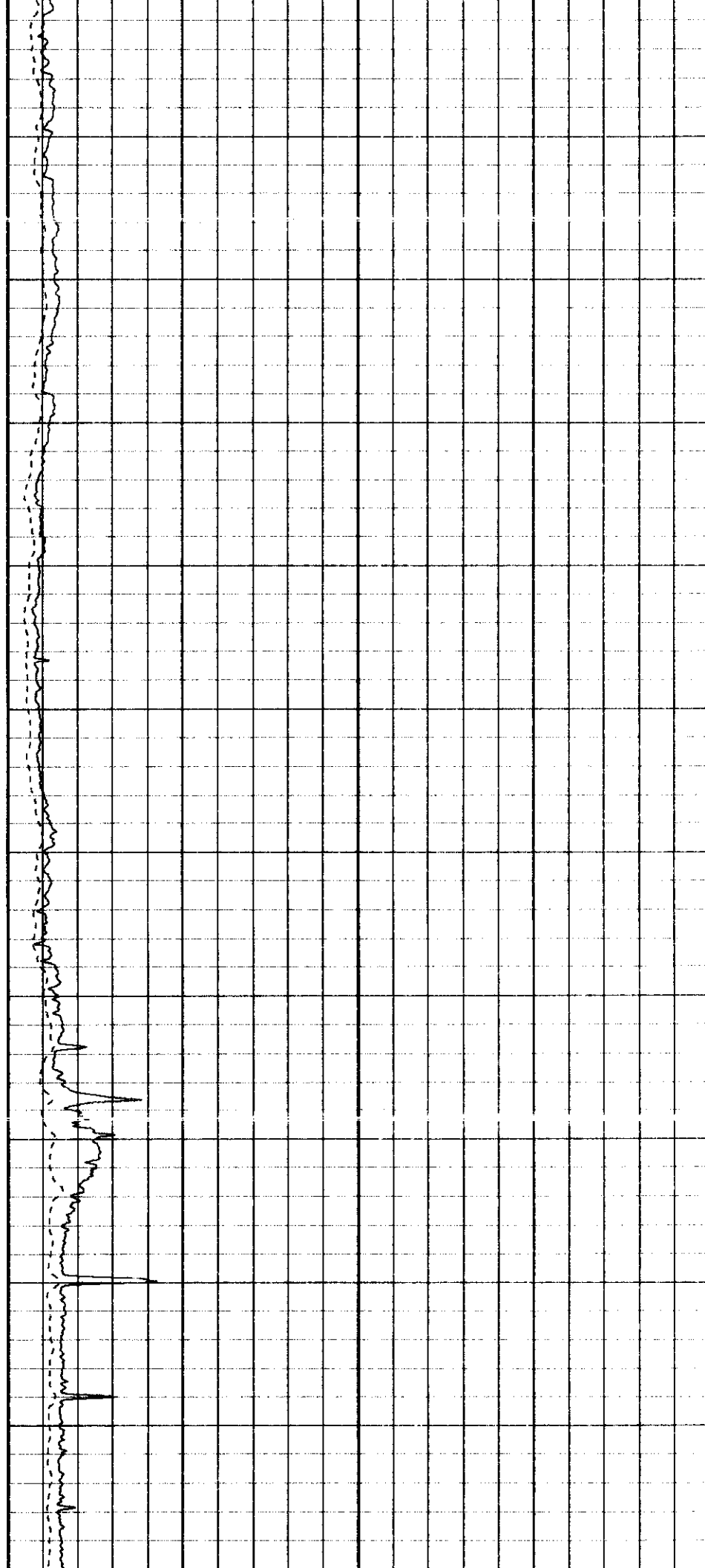
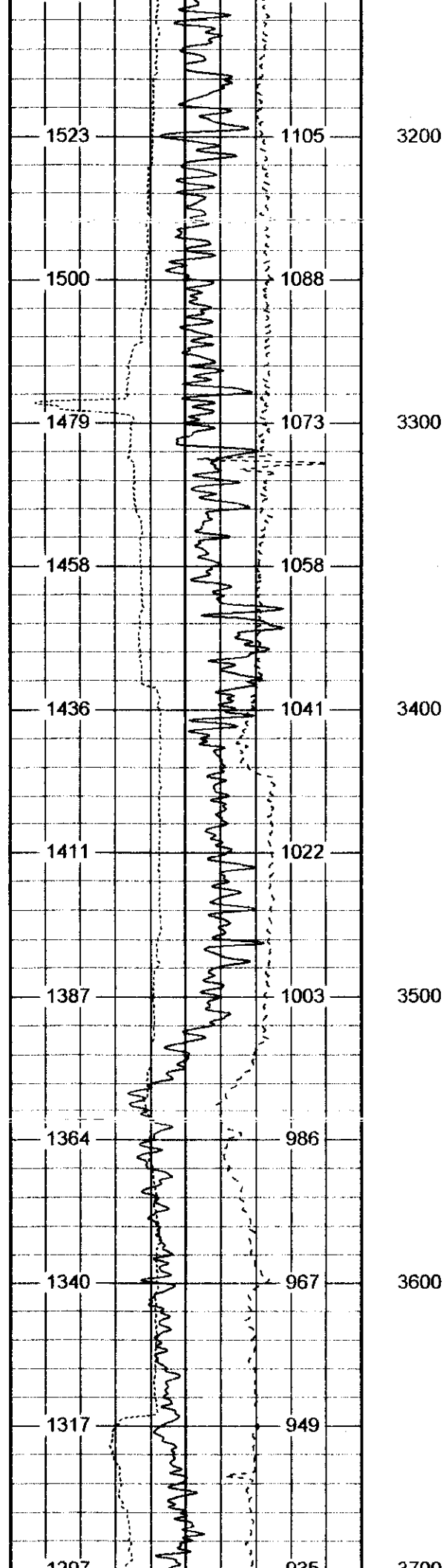
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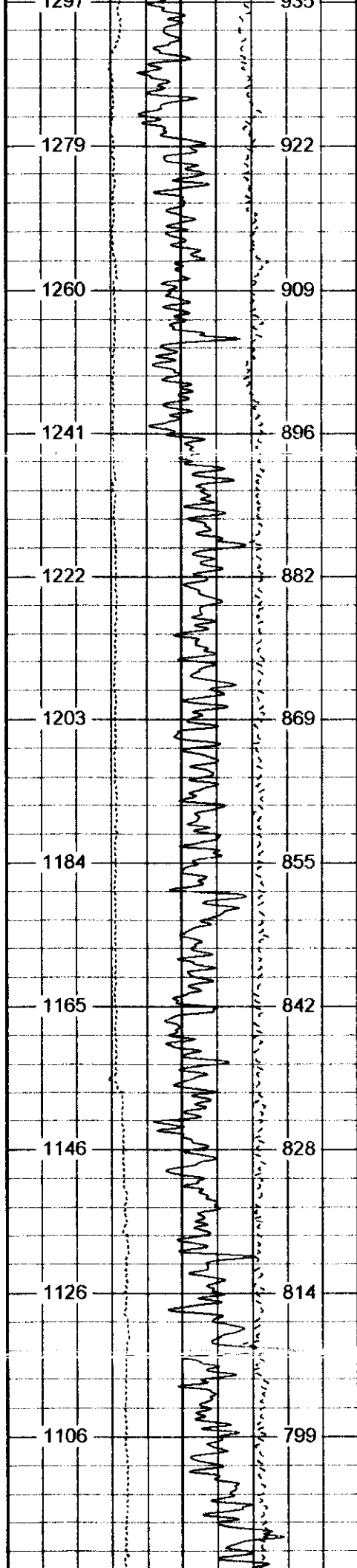
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3000

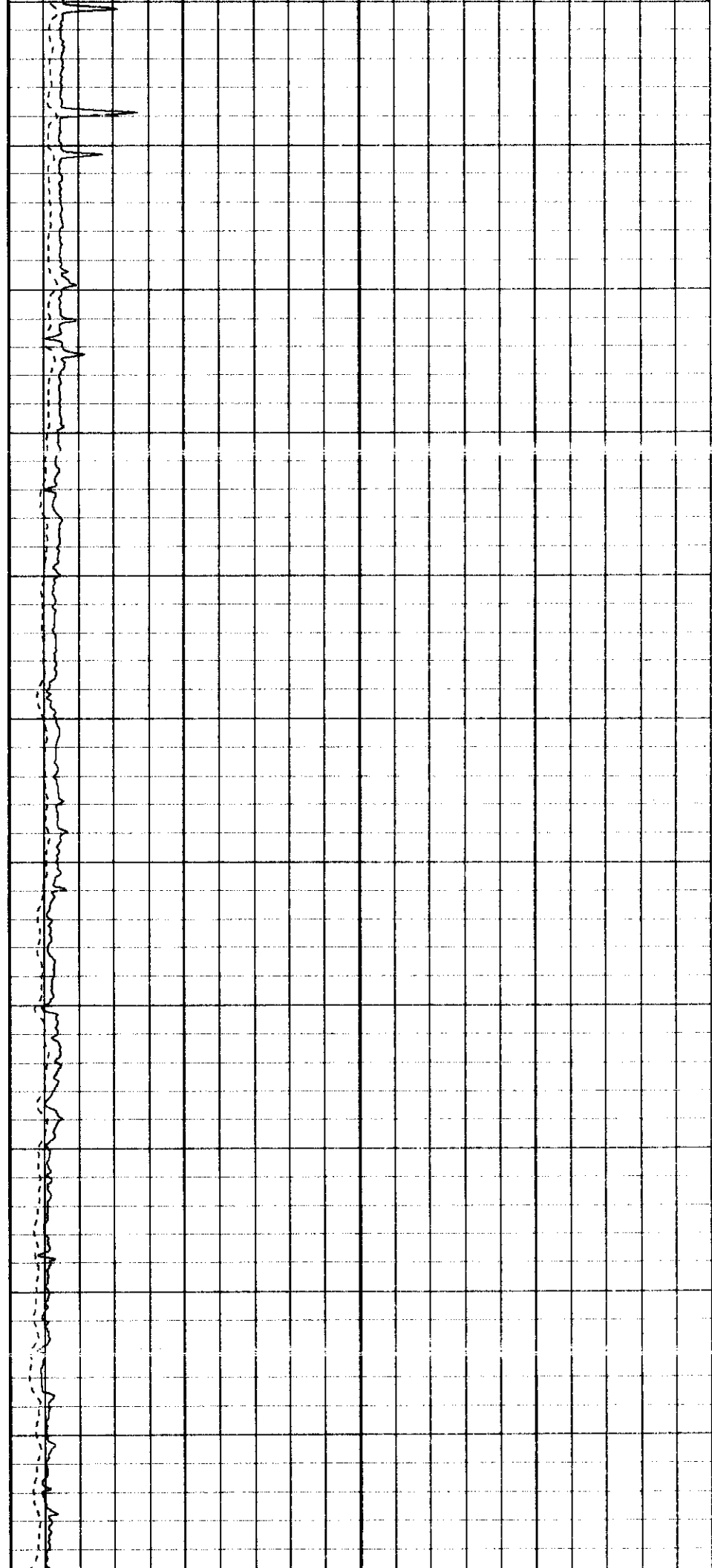
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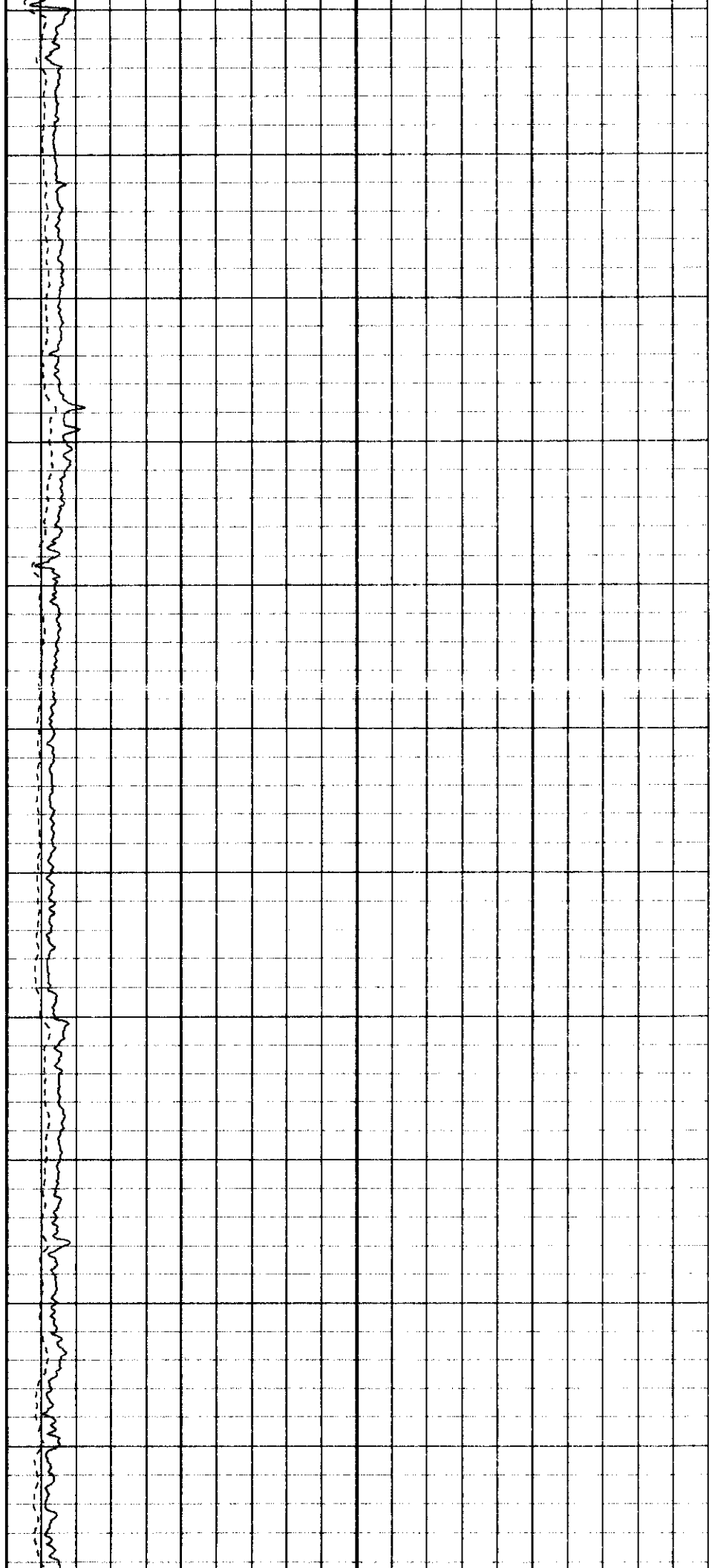
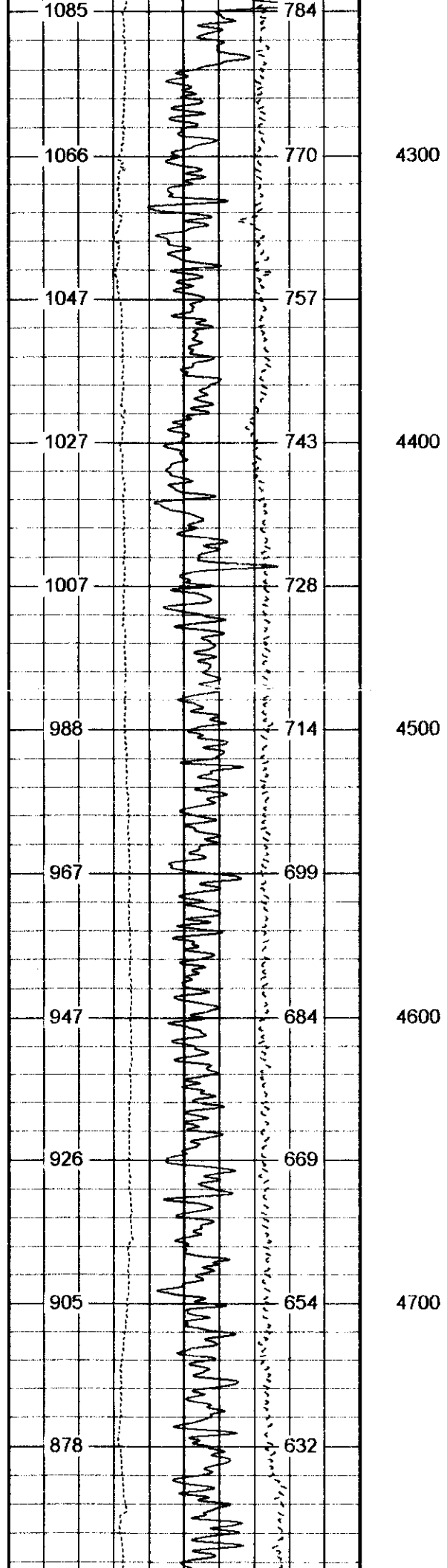


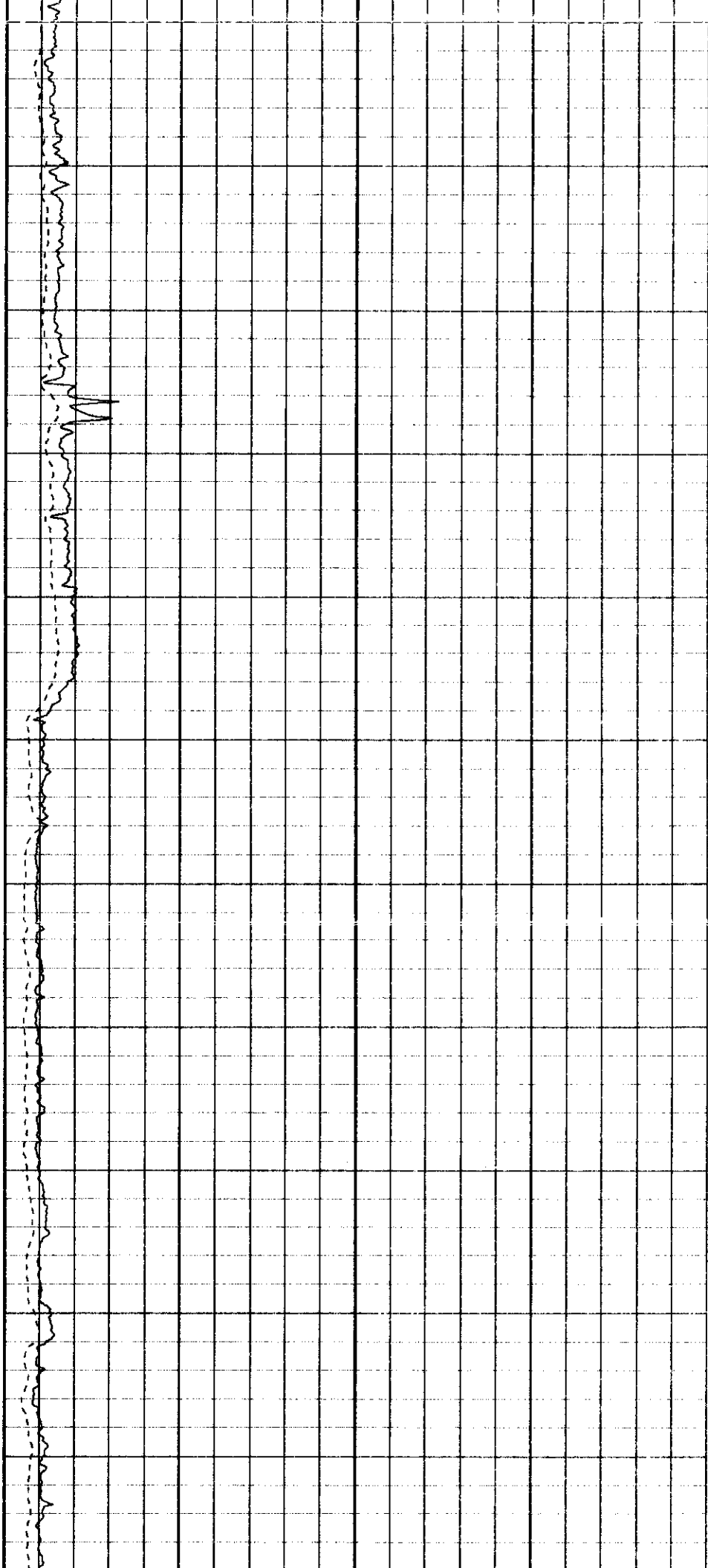
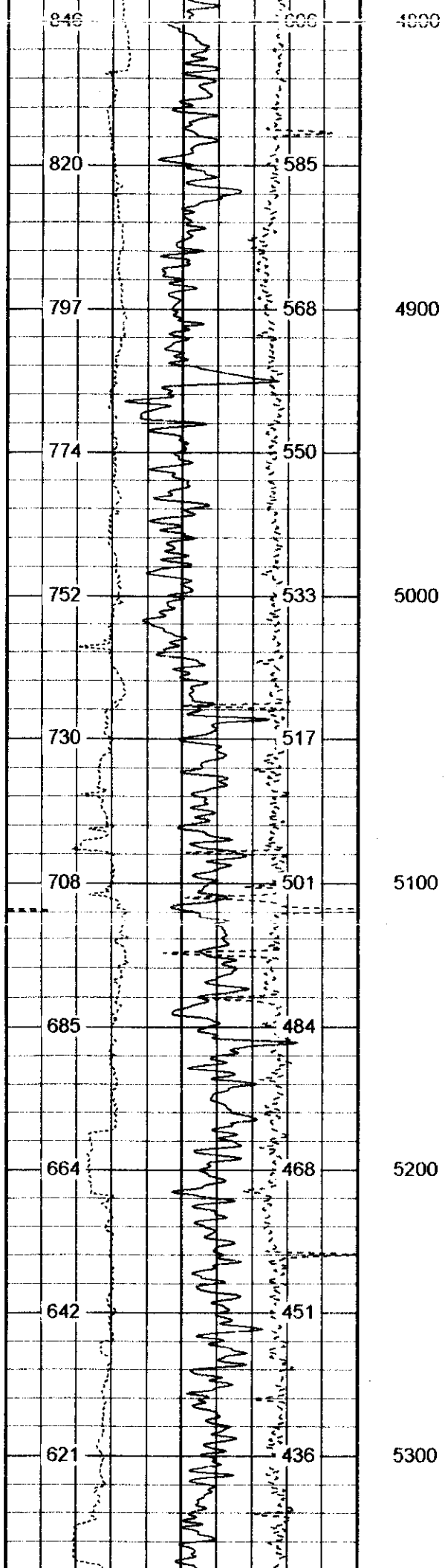


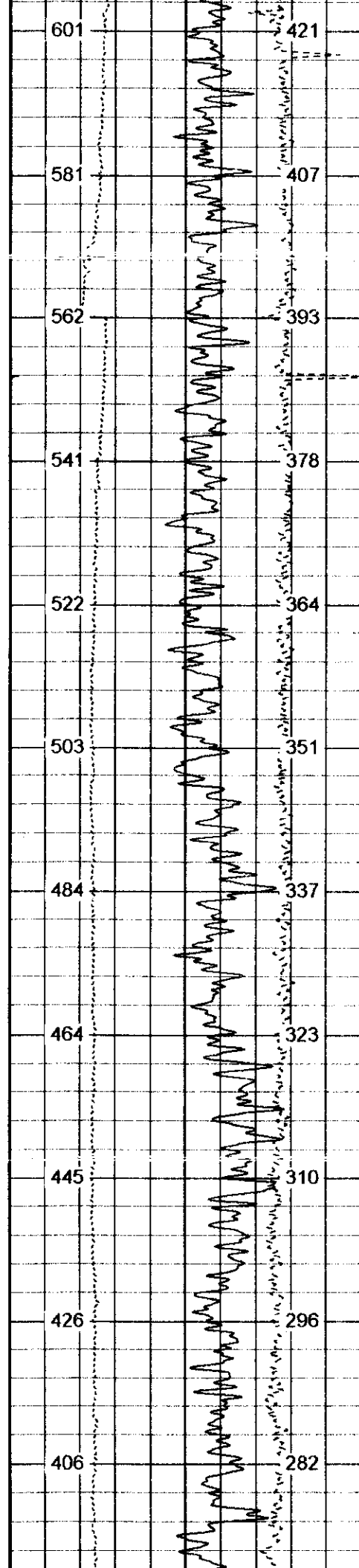


3700
3800
3900
4000
4100
4200









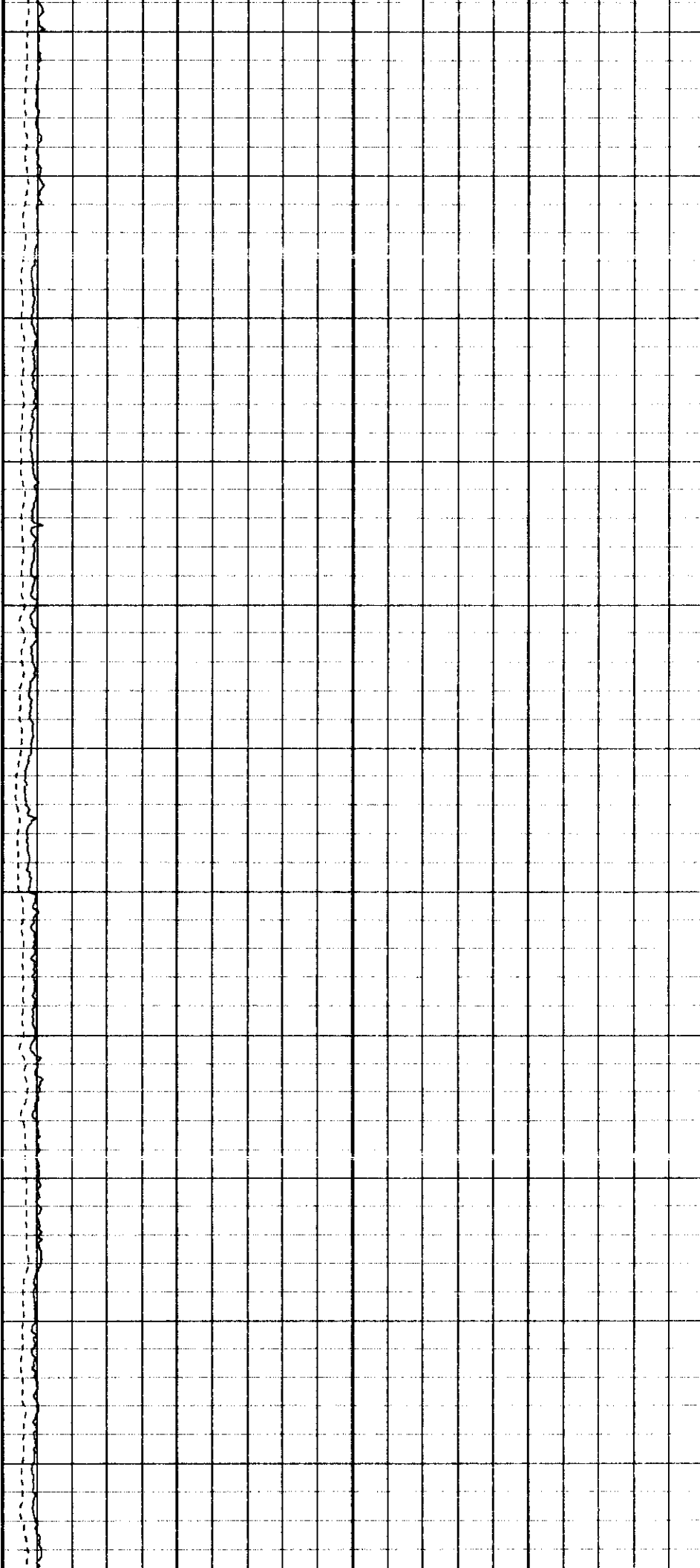
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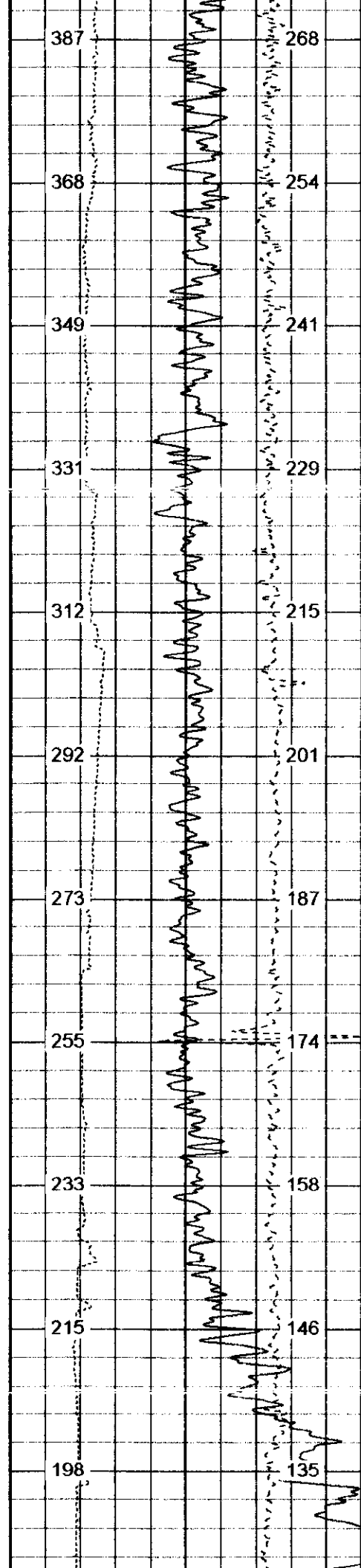
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5600

5700

5800





5900

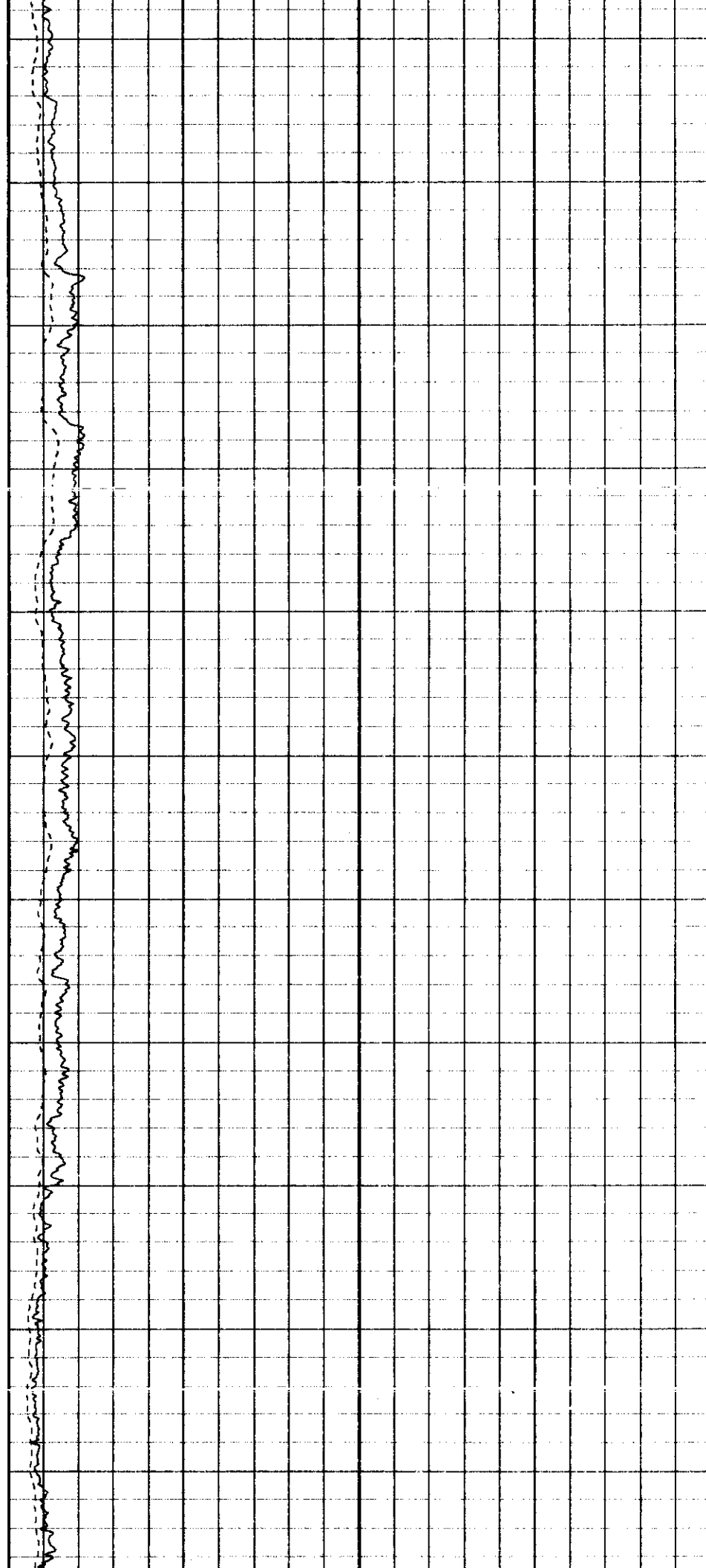
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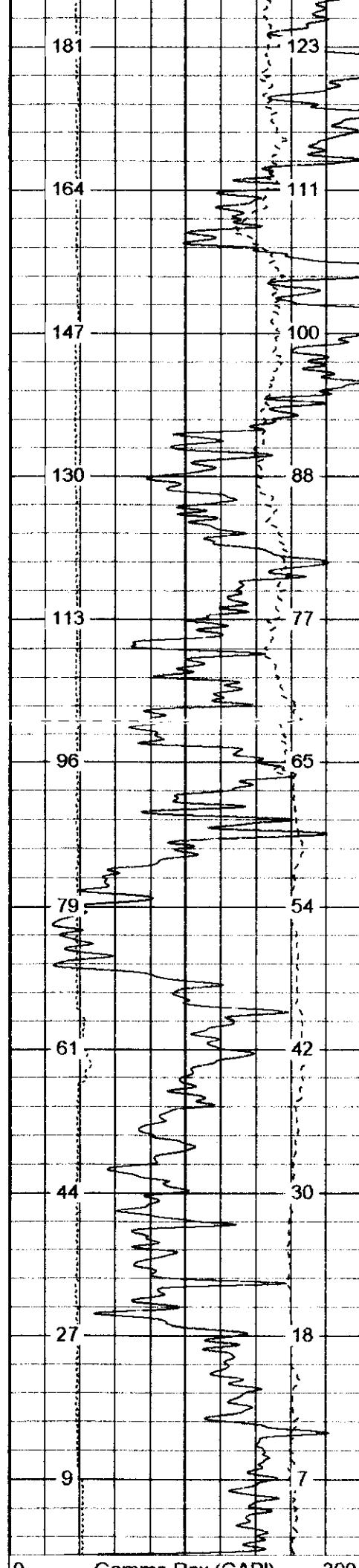
6100

6200

6300

6400





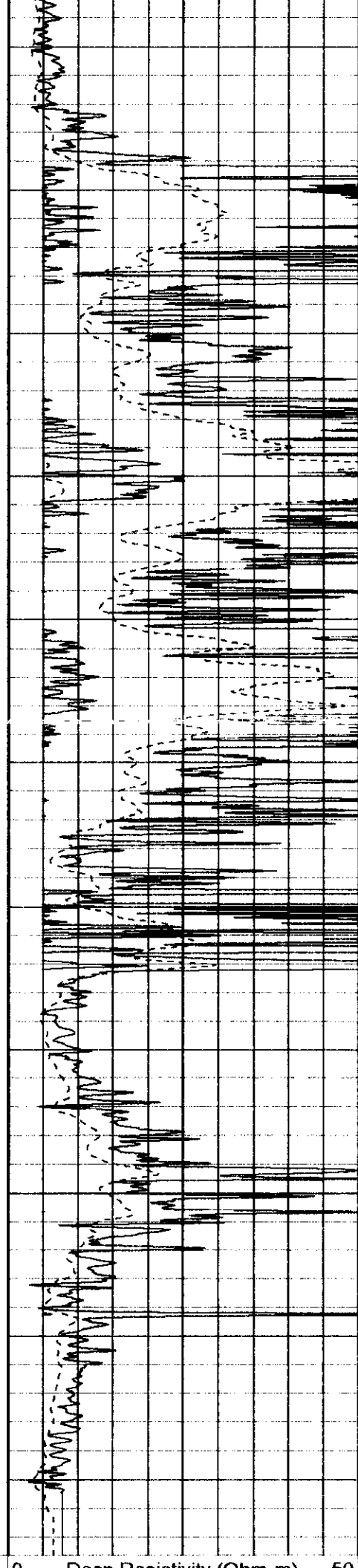
6500

6600

6700

6800

6900



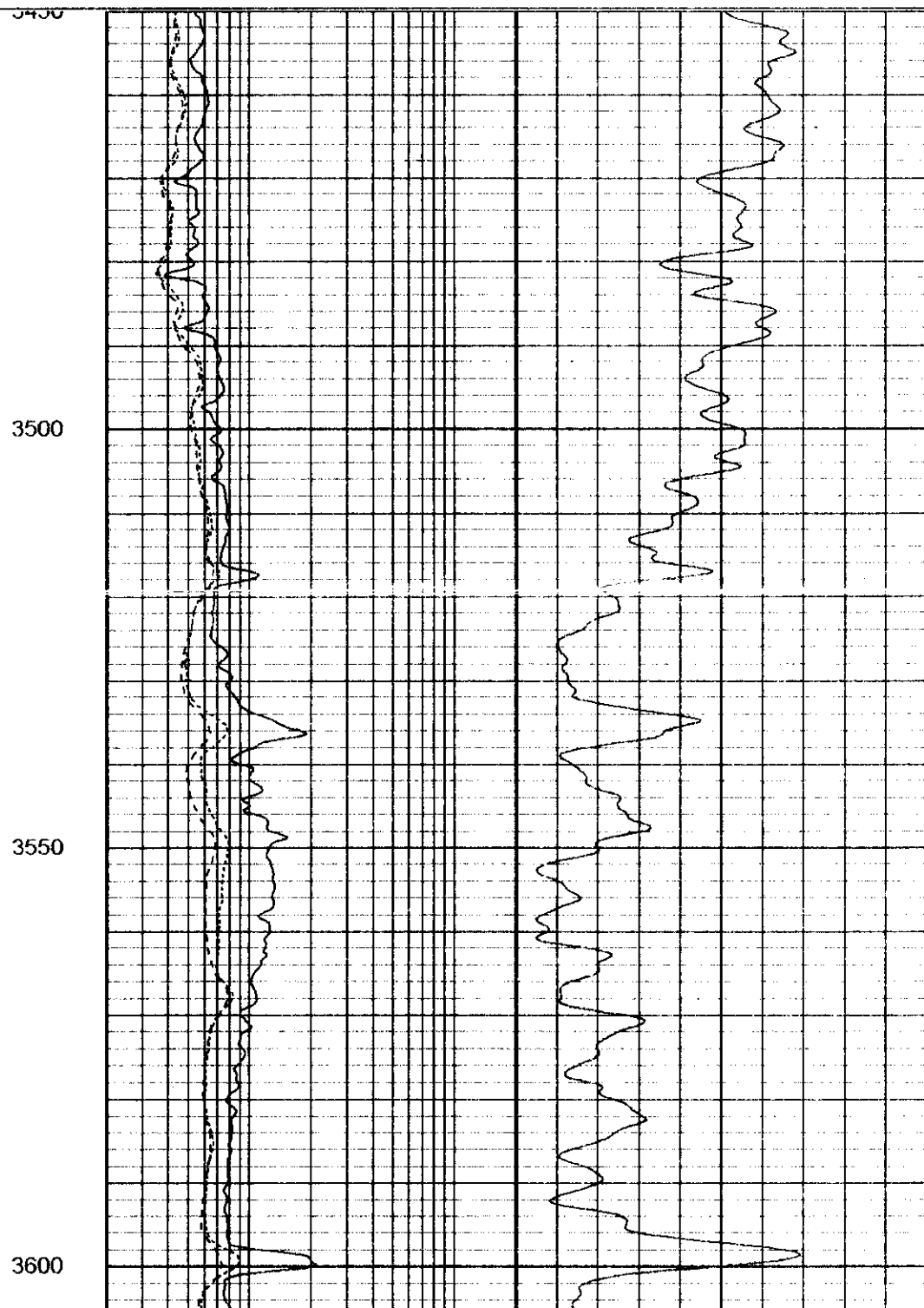
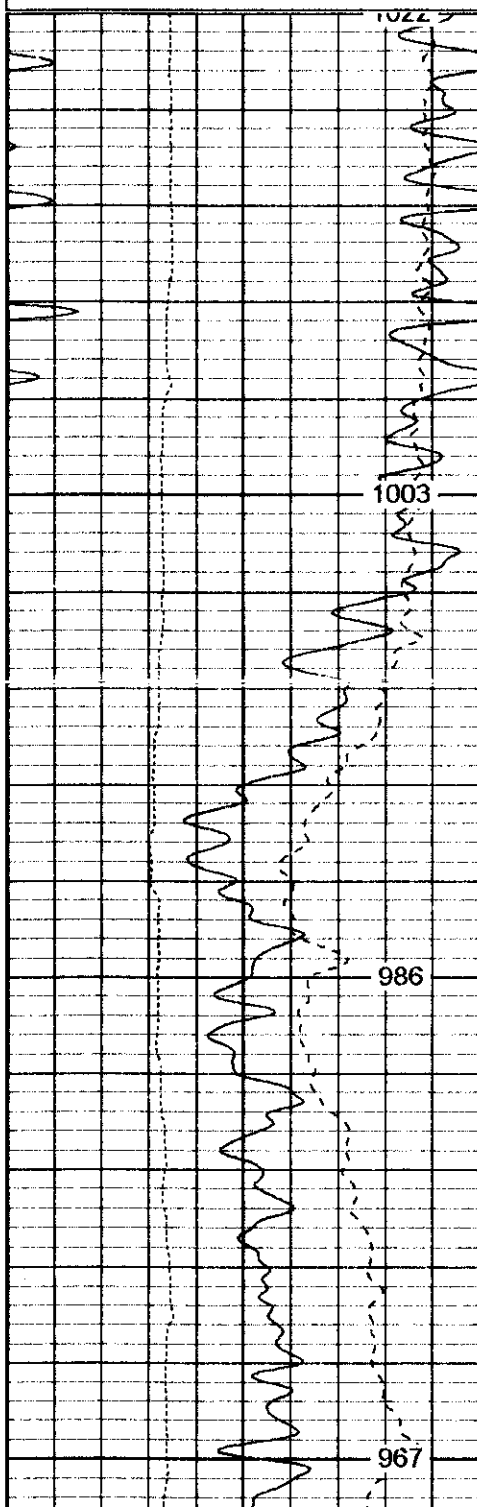
0	Gamma Ray (GAPI)	200
6	Caliper (in)	16
0	SP (mV)	200

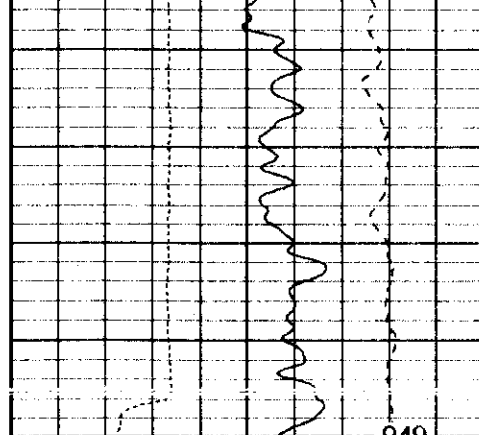
0	Deep Resistivity (Ohm-m)	50
0	Shallow Resistivity (Ohm-m)	50

Database File: 3549.db
 Dataset Pathname: pass4
 Presentation Format: spltpdc
 Dataset Creation: Wed Dec 04 12:49:16 2002 by Log 6.2_B4
 Charted by: Depth in Feet scaled 1:240

6	Density Caliper (in)	16
30	Gamma Ray (GAPI)	130
60	SP (mV)	160

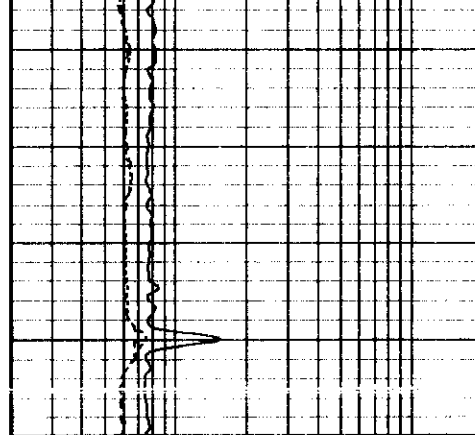
2	Deep Resistivity (Ohm-m)	200	20	Density Porosity (pu)	0
2	Medium Resistivity (Ohm-m)	200	20	Neutron Porosity (pu)	0
2	Shallow Resistivity (Ohm-m)	200			



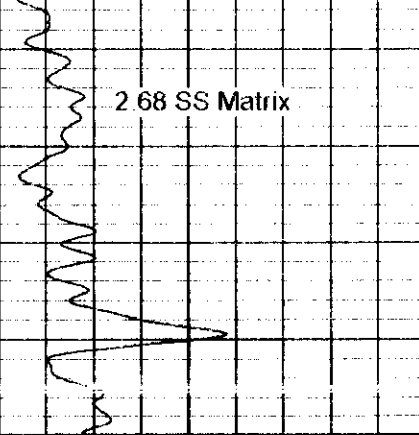


6	Density Caliper (in)	16
30	Gamma Ray (GAPI)	130
60	SP (mV)	160

3650



2	Deep Resistivity (Ohm-m)	200
2	Medium Resistivity (Ohm-m)	200
2	Shallow Resistivity (Ohm-m)	200



2 68 SS Matrix

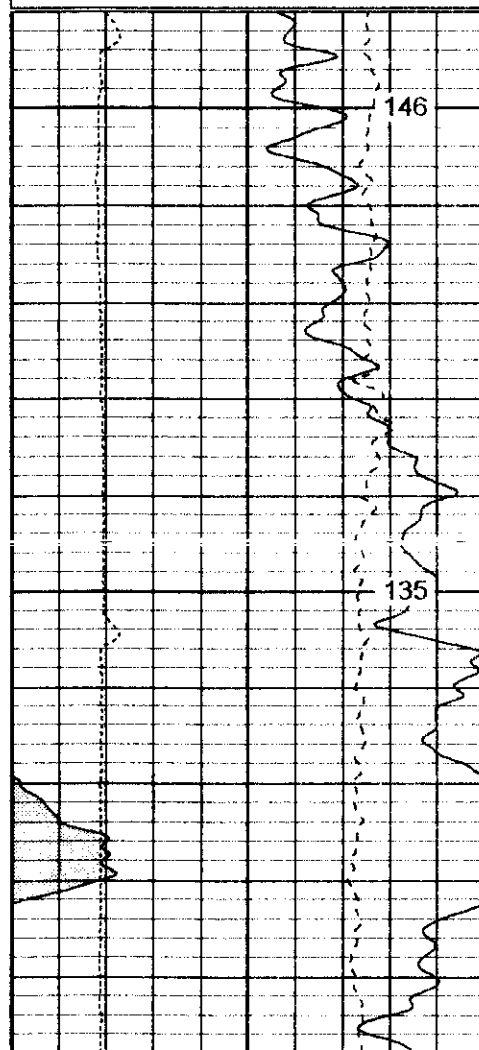
20	Density Porosity (pu)	0
20	Neutron Porosity (pu)	0

Database File: 3549.db
 Dataset Pathname: main
 Presentation Format: splitpdc
 Dataset Creation: Wed Dec 04 14:04:01 2002
 Charted by: Depth in Feet scaled 1:240

6	Density Caliper (in)	16
0	Gamma Ray (GAPI)	200
0	SP (mV)	200

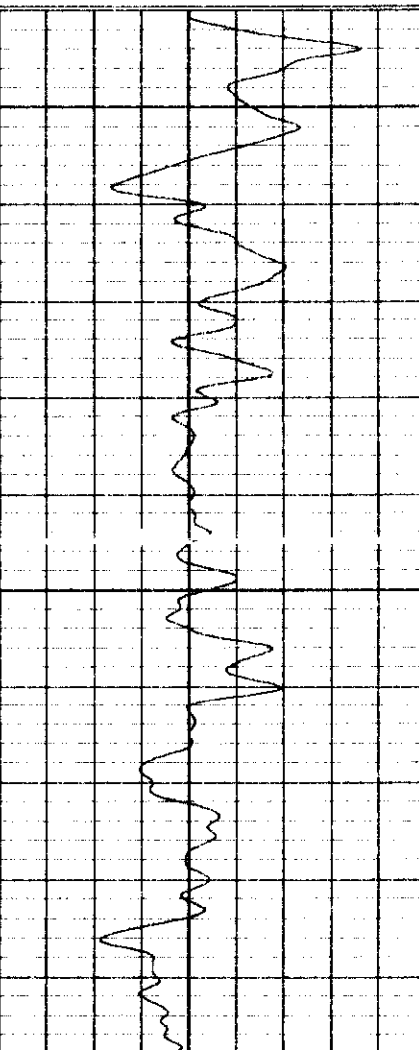
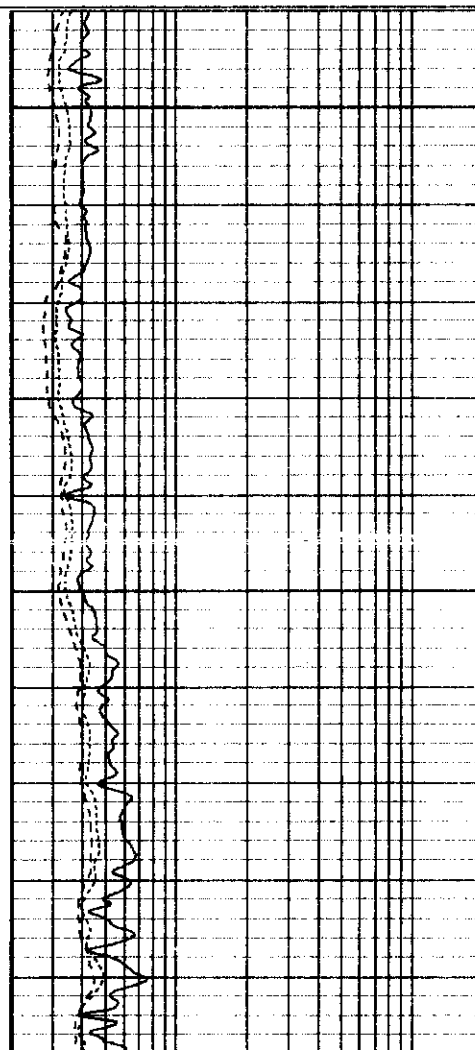
2	Deep Resistivity (Ohm-m)	200
2	Medium Resistivity (Ohm-m)	200
2	Shallow Resistivity (Ohm-m)	200

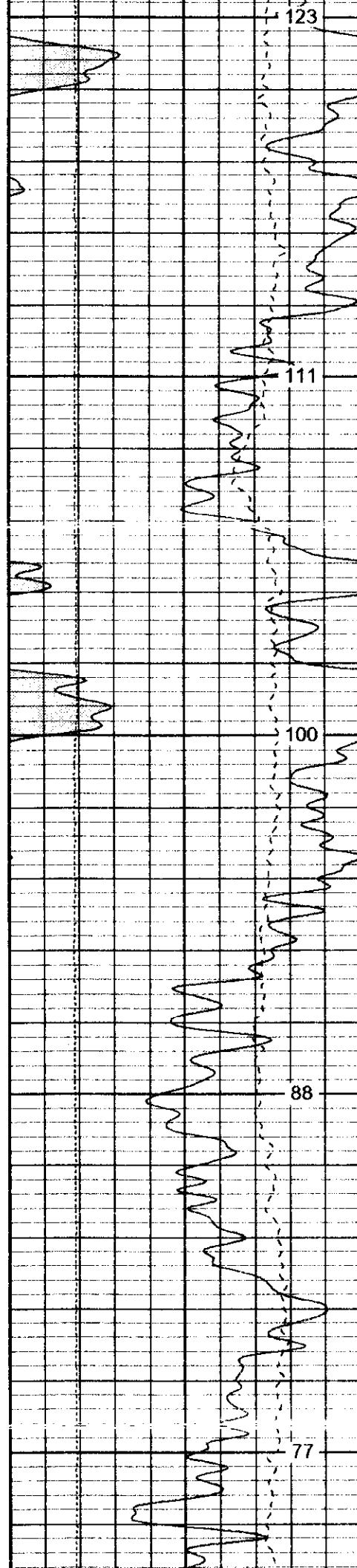
20	Density Porosity (pu)	0
20	CN Porosity (pu)	0



6350

6400





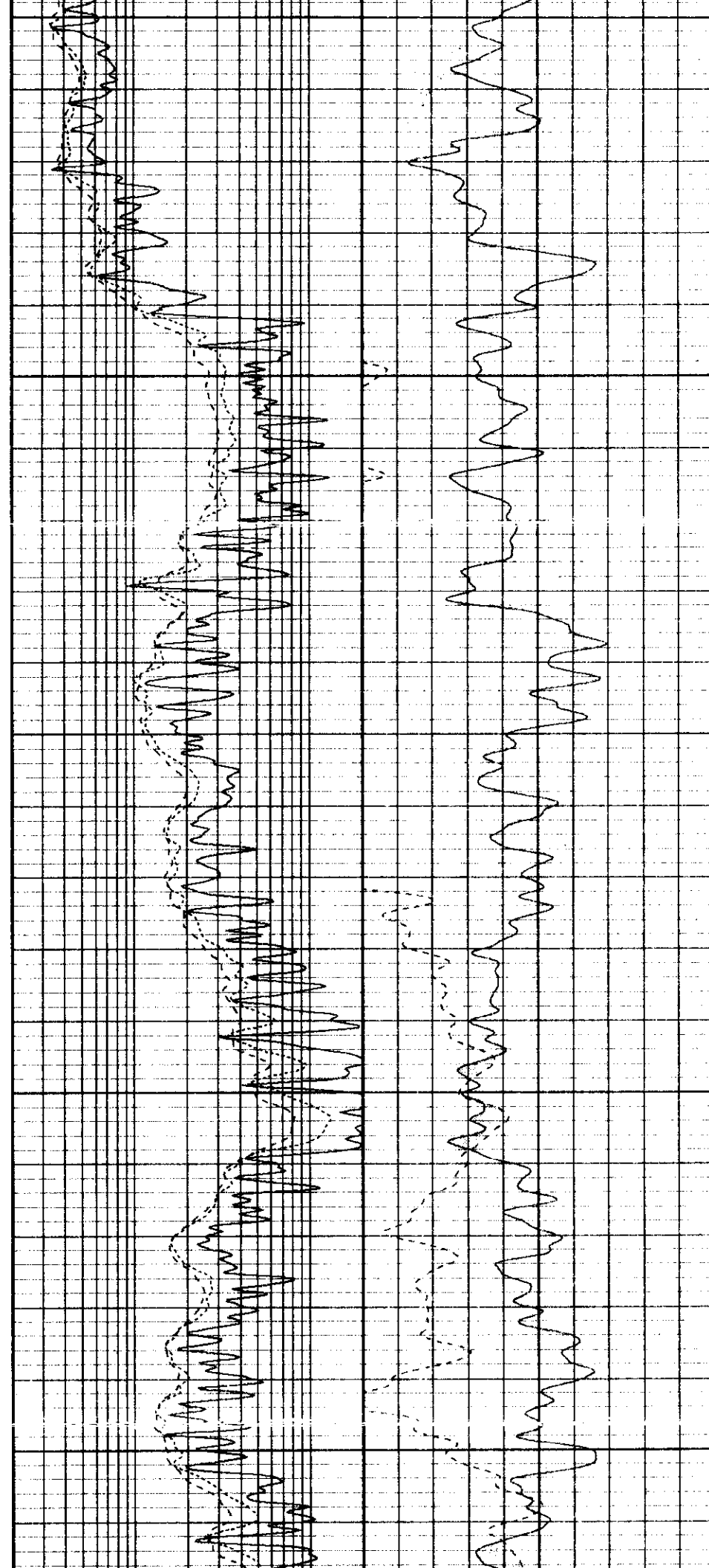
6450

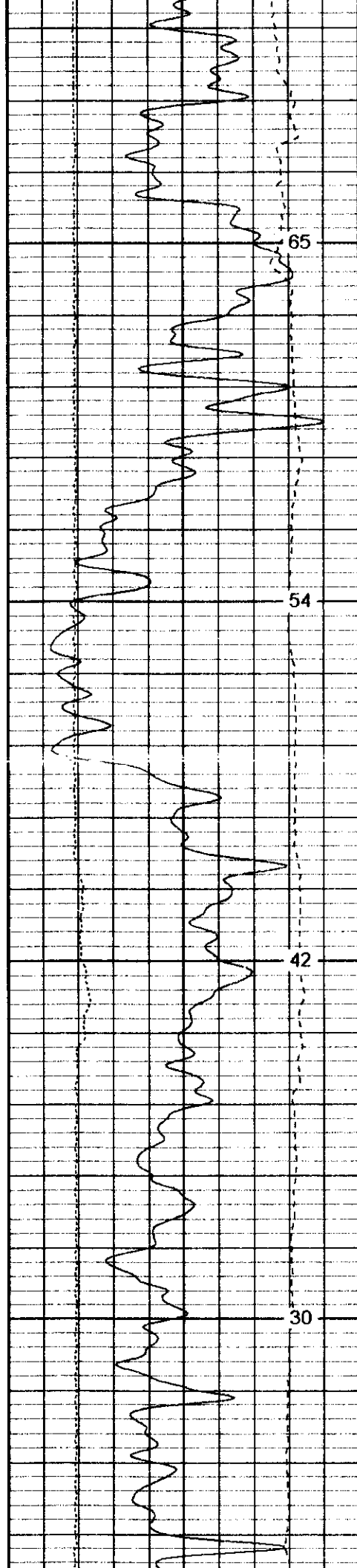
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6550

6600

6650





6700

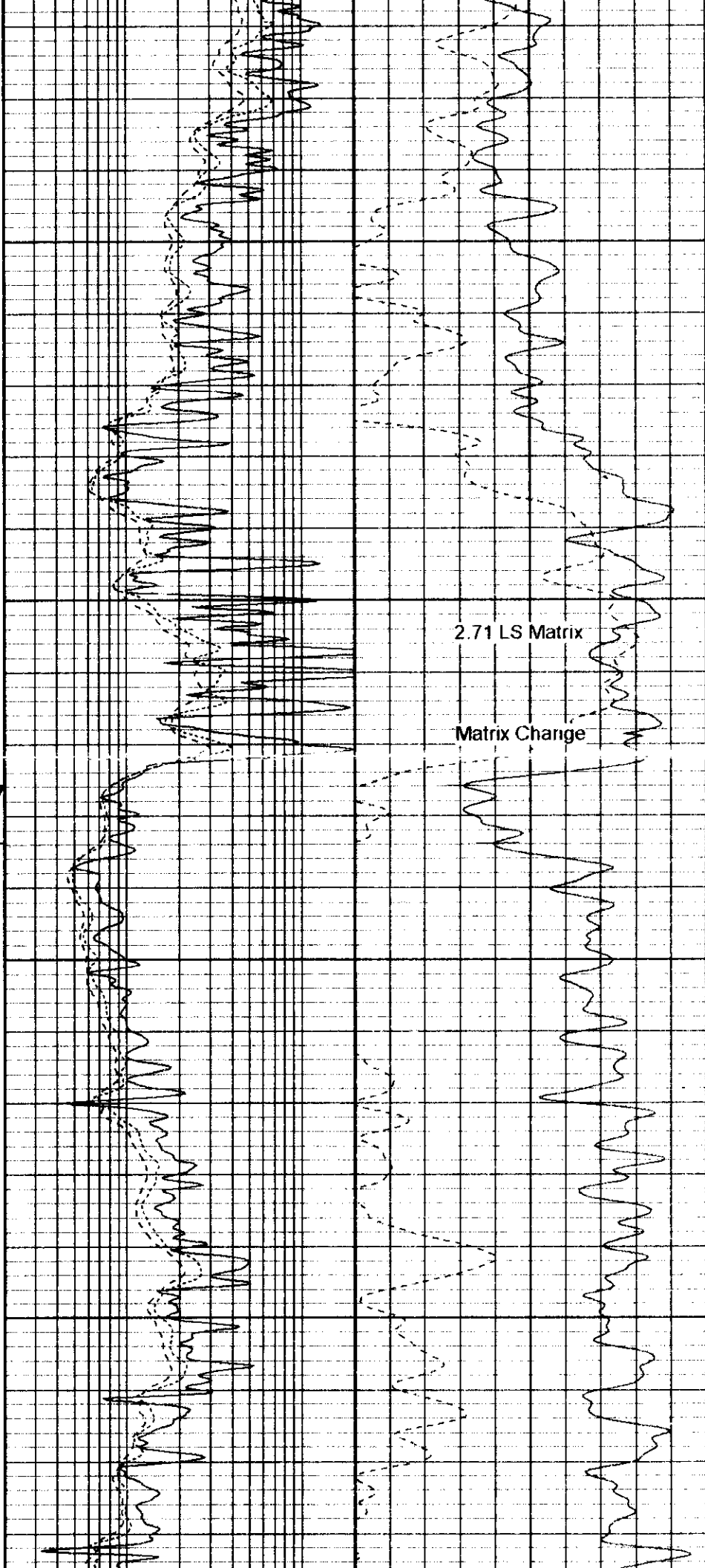
6750

6800

6850

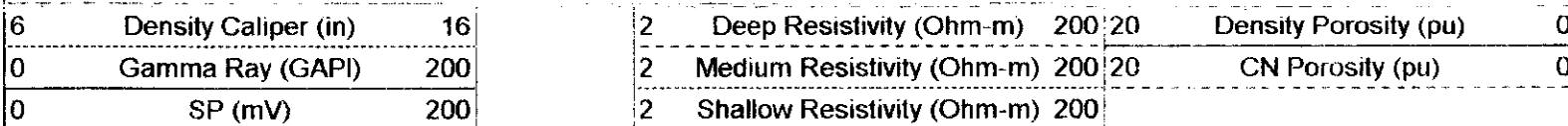
(24)

Z

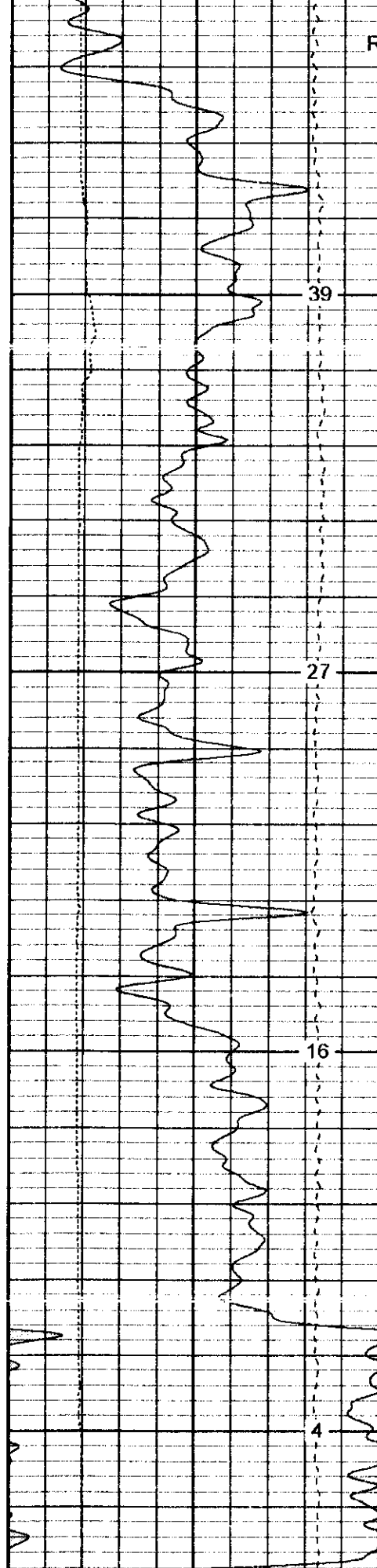


2.71 LS Matrix

Matrix Change



Repeat Section



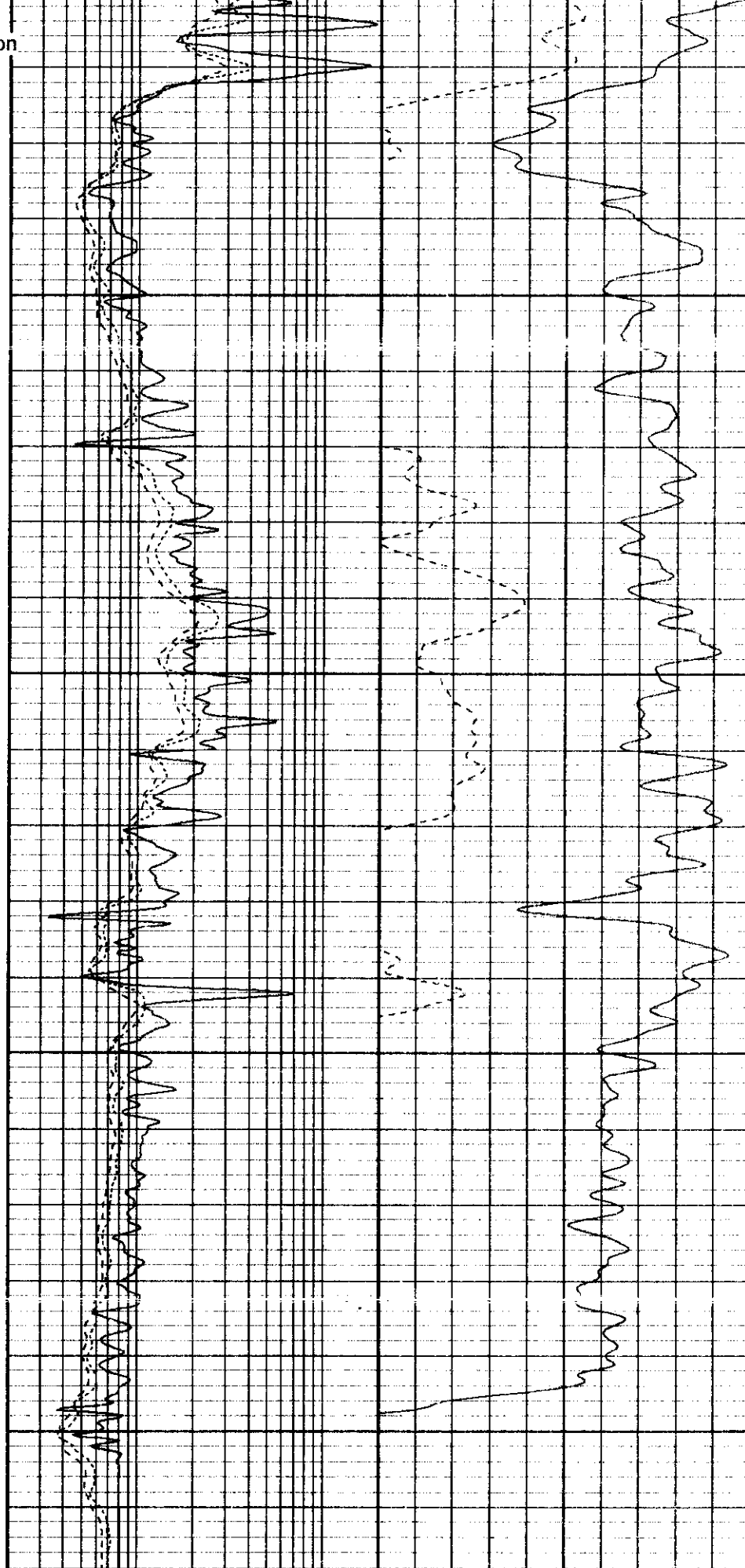
6	Density Caliper (in)	16
0	Gamma Ray (GAPI)	200
0	SP (mV)	200

6800

6850

6900

6950

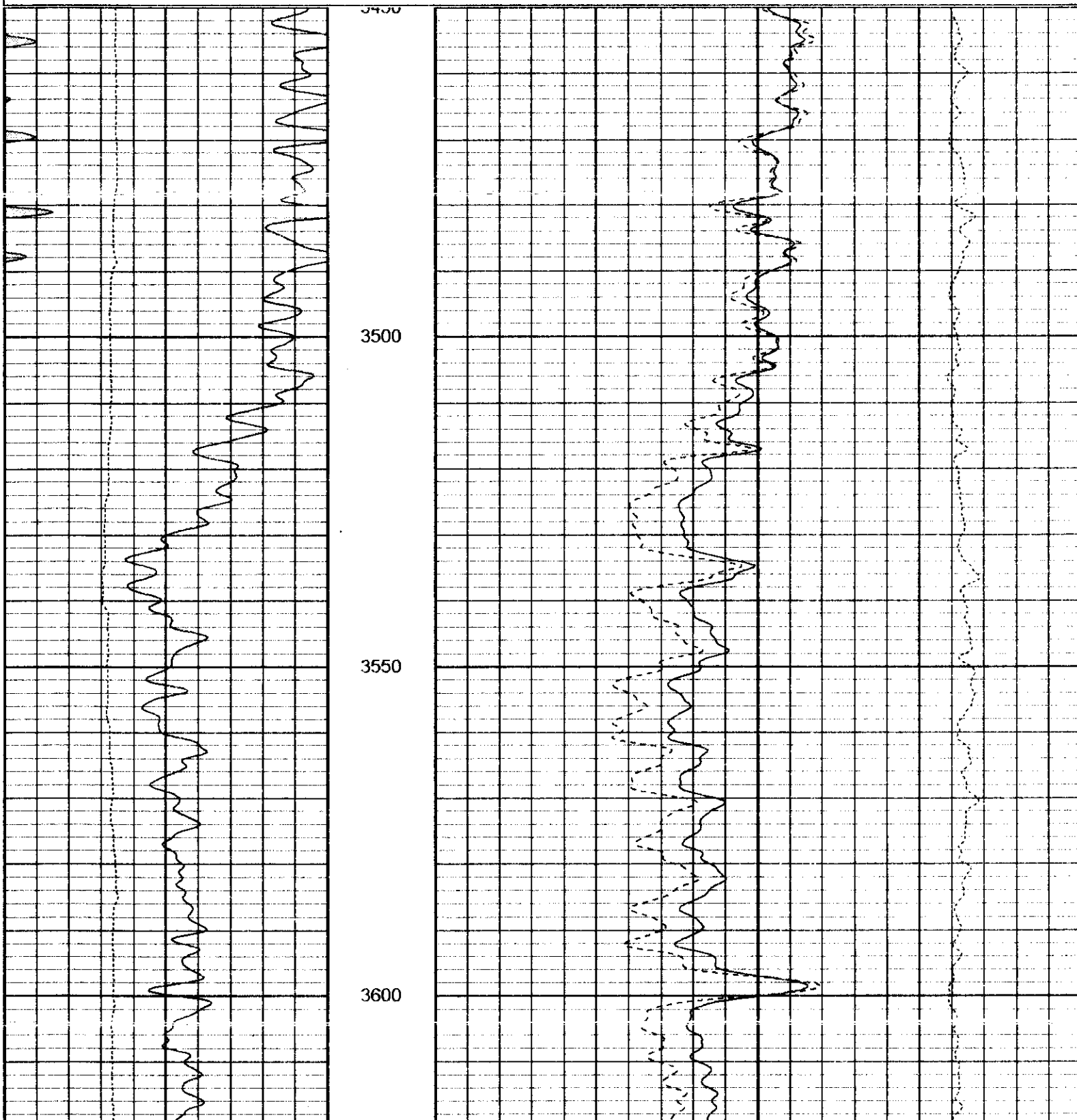


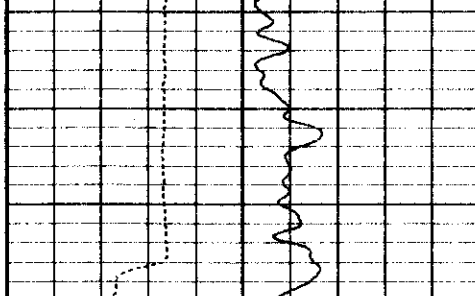
2	Deep Resistivity (Ohm-m)	200	20	Density Porosity (pu)	0
2	Medium Resistivity (Ohm-m)	200	20	CN Porosity (pu)	0
2	Shallow Resistivity (Ohm-m)	200			

Database File: 3549.db
 Dataset Pathname: pass4
 Presentation Format: cdl1
 Dataset Creation: Wed Dec 04 12:49:16 2002 by Log 6 2_B4
 Charted by: Depth in Feet scaled 1:240

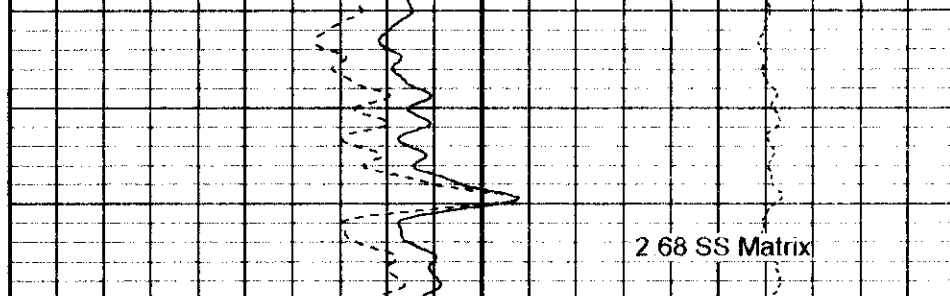
6	Density Caliper (in)	16
30	Gamma Ray (GAPI)	130

2	Bulk Density (g/cc)	3	
30	Density Porosity (pu)	-10	
	-0.5	Corr (g/cc)	0.5





6	Density Caliper (in)	16
30	Gamma Ray (GAPI)	130



2	Bulk Density (g/cc)	3
30	Density Porosity (pu)	-10
-0.5	Corr (g/cc)	0.5

Database File: 3549.db
 Dataset Pathname: main
 Presentation Format: cdl
 Dataset Creation: Wed Dec 04 14:04:01 2002
 Charted by: Depth in Feet scaled 1:240

6	Density Caliper (in)	16
0	Gamma Ray (GAPI)	200

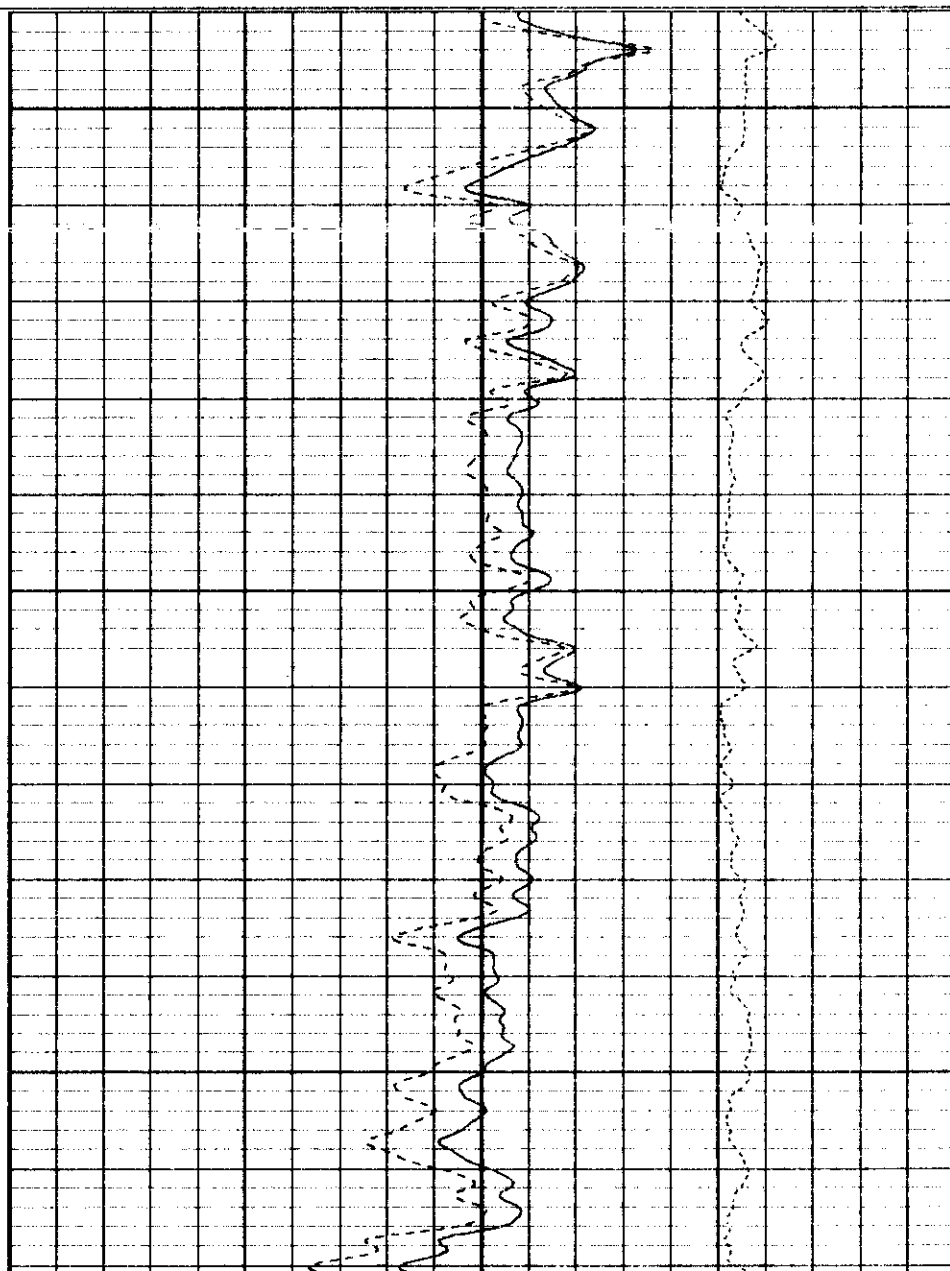
2	Bulk Density (g/cc)	3
30	Density Porosity (pu)	-10
-0.5	Corr (g/cc)	0.5

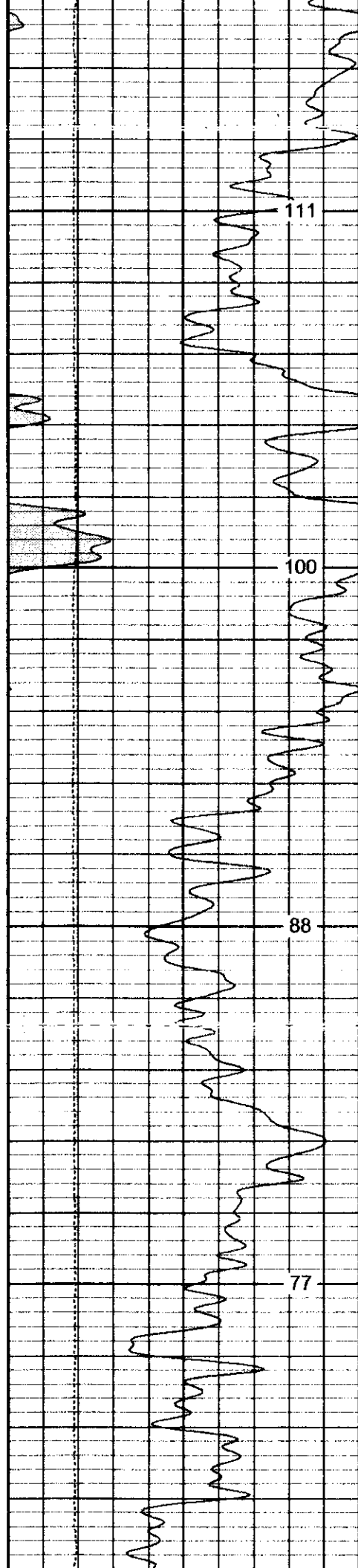


6350

6400

6450



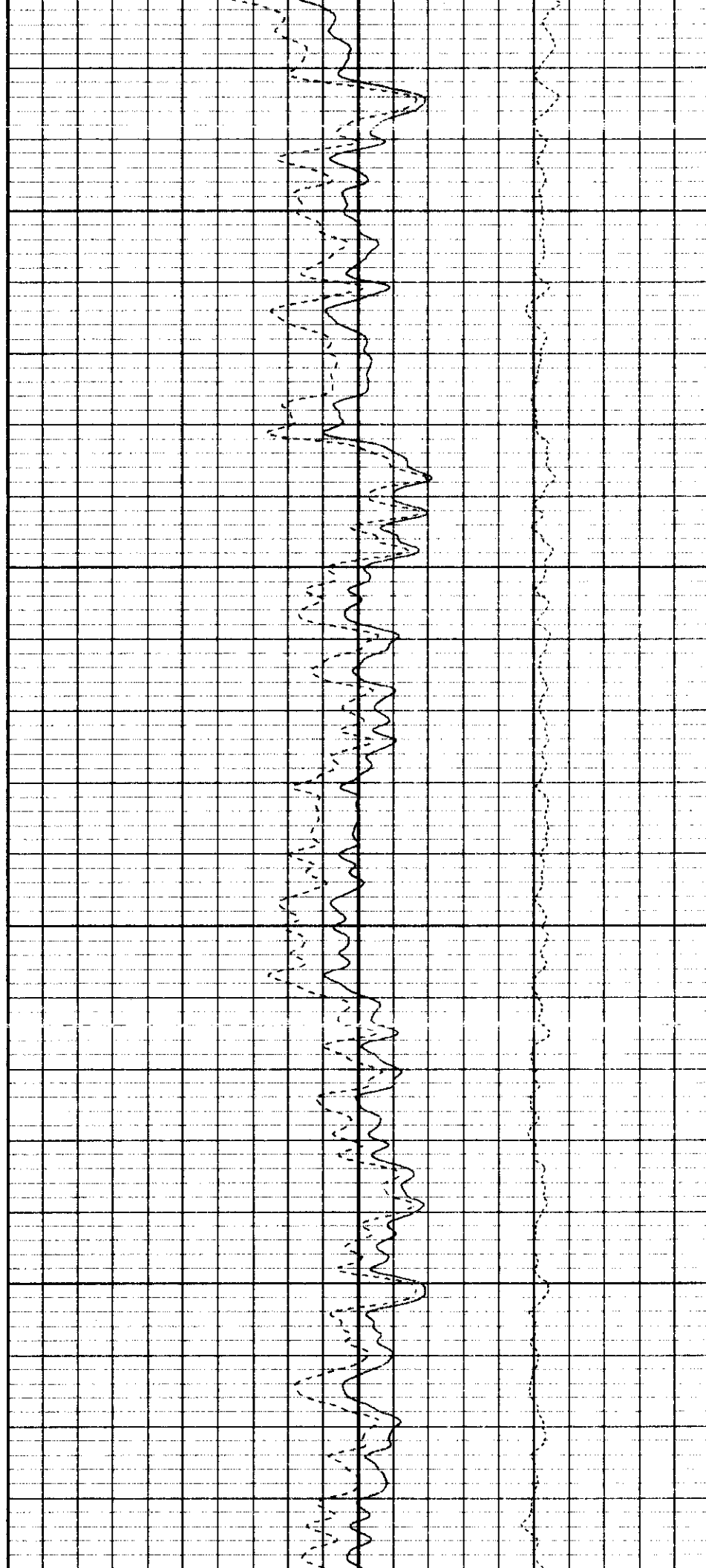


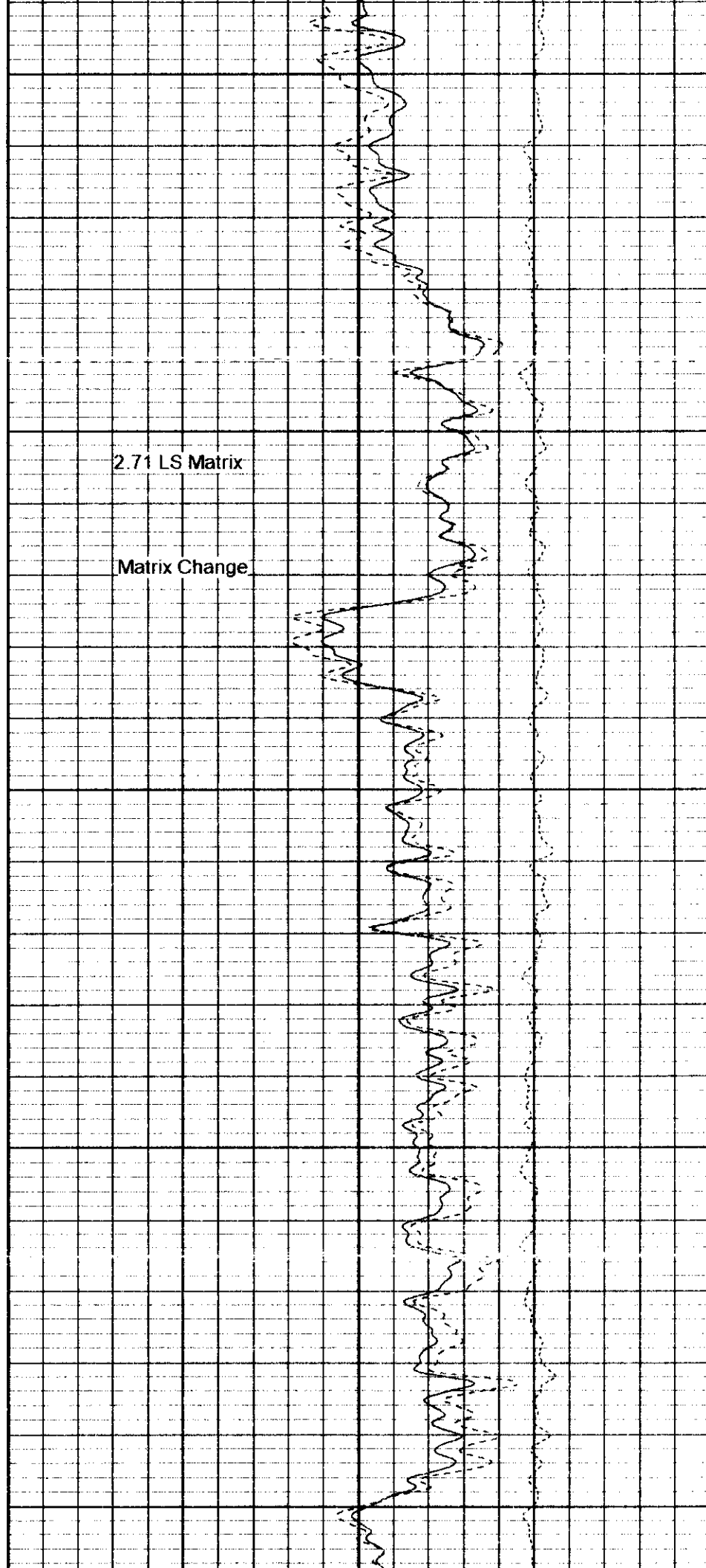
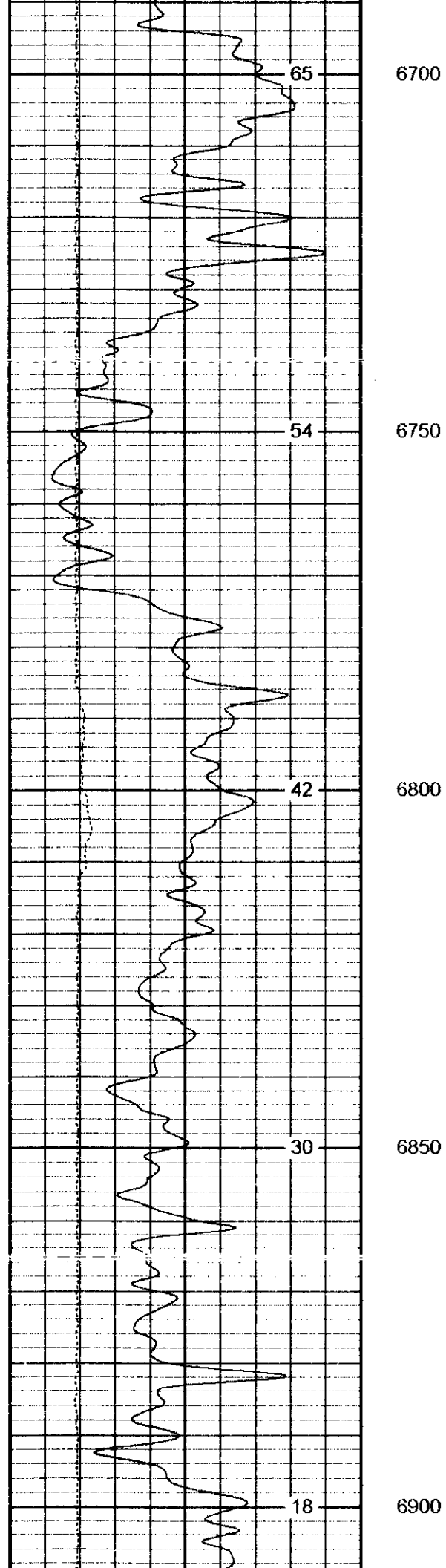
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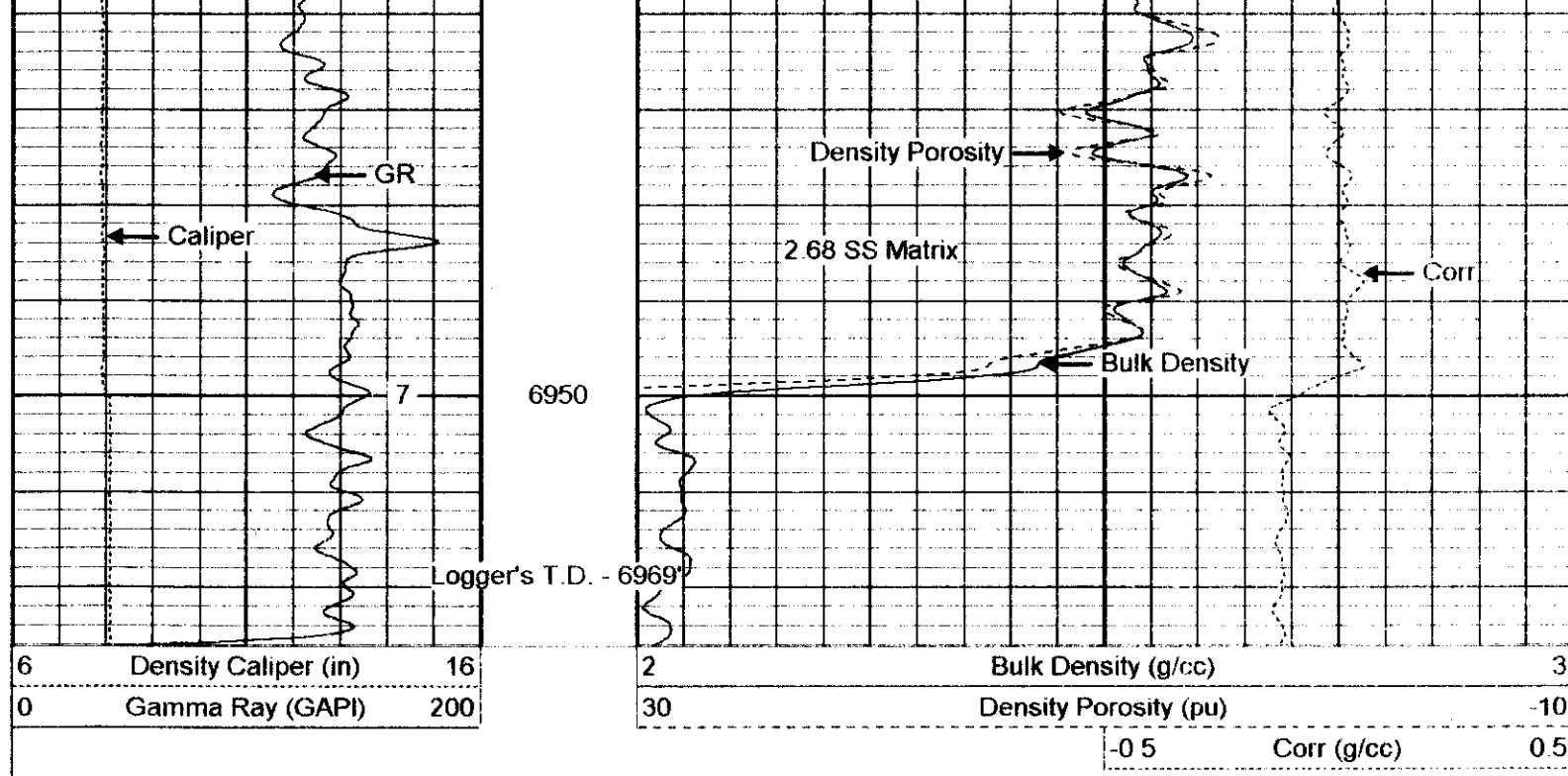
6550

6600

6650







Dual Induction Calibration Report

Serial-Model: 188-PSI
 Surface Cal Performed: Fri Nov 22 12:57:20 2002

Loop:	Readings		References		Results	
	Air	Loop	Air	Loop	m	b
Deep	89.571	1004.860	4.000	250.000	0.250	-10.000
Medium	157.023	432.779	10.000	100.000	0.310	-30.000

Compensated Density Calibration Report

Serial-Model: 226-PSI
 Master Calibration Performed: Sun Jun 16 09:16:39 2002
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector
Magnesium	1.750	g/cc	1488.00	1240.00
Aluminum	2.690	g/cc	291.00	822.00
	Size		Reading	
Small Ring	8.00	in	1.54	
Large Ring	17.00	in	1.30	

Compensated Neutron Calibration Report

Serial Number: 251
 Tool Model: PSI

CALIBRATION

Detector	Readings		Target	Normalization	
Short Space	1.00	cps	1.00	cps	1.3700
Long Space	1.00	cps	1.00	cps	2.5000

Gamma Ray Calibration Report					
Serial Number:	197				
Tool Model:	PSI				
Performed:	Fri Nov 22 12:56:43 2002				
Calibrator Value:	253	GAPI			
Background Reading:	25	cps			
Calibrator Reading:	385	cps			
Sensitivity:	0.53	GAPI/cps			

