



SUPERIOR
Hays,
Kansas

DUAL INDUCTION LOG

Company	MULL DRILLING COMPANY, INC.	Company	MULL DRILLING COMPANY, INC.
Well	TUBS UNIT #1-21	Well	TUBS UNIT #1-21
Field	WILDCAT	Field	WILDCAT
County	KIOWA	County	KIOWA
State	COLORADO	State	COLORADO
Location:	API # : 05-061-06849	Other Services CDL/CNL/PE MEL/SONIC	
Permanent Datum	GROUND LEVEL	Elevation	3903
Log Measured From	KELLY BUSHING 13' A.G.L.		
Drilling Measured From	KELLY BUSHING		
SEC 21 TWP 18S RGE 45W			
378' FSL & 1319' FEL			
11/17/10			
Run Number	ONE		
Depth Driller	5000		
Depth Logger	4998		
Bottom Logged Interval	4996		
Top Log Interval	00		
Casing Driller	8 5/8"@327'		
Casing Logger	324		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 3,500 PPM	
Density / Viscosity	9.2/53		
pH / Fluid Loss	10.5/9.6		
Source of Sample	FLOWLINE		
Rin @ Meas. Temp	.850@100F		
Rmf @ Meas. Temp	.638@100F		
Rmc @ Meas. Temp	1.02@100F		
Source of Rmf / Rmc	MEASUREMENT		
Rin @ BHT	.680@125F		
Time Circulation Stopped	4.5 HOURS		
Time Logger on Bottom	11:00 P.M.		
Maximum Recorded Temperature	125F		
Equipment Number	0836		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	MACKLIN ARMSTRONG		

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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 SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395
DIRECTIONS
BRANDON, CO. 1W. ON HWY 96 TO "RD. 58", 1 1/2N., 1/4W., N. INTO



SUPERIOR
Hays,
Kansas

MAIN SECTION

Database File: 005803pe.db
Dataset Pathname: pass5.10
Presentation Format: dil2
Dataset Creation: Tue Nov 02 03:32:10 2010
Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

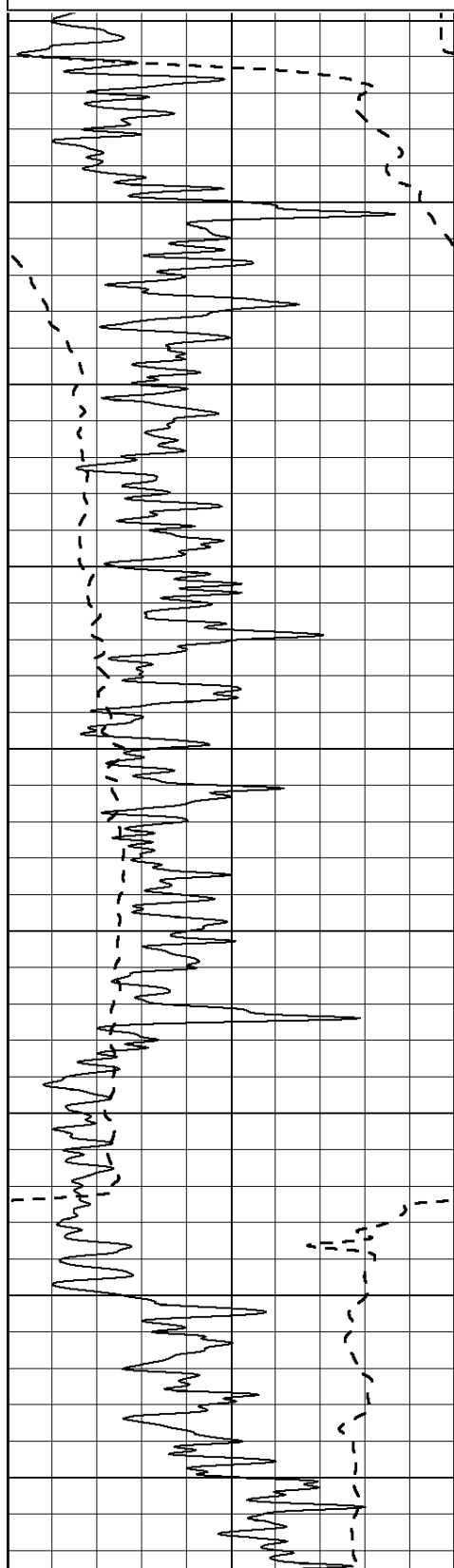
0	RLL3 (Ohm-m)	50
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0	RILD (Ohm-m)	50
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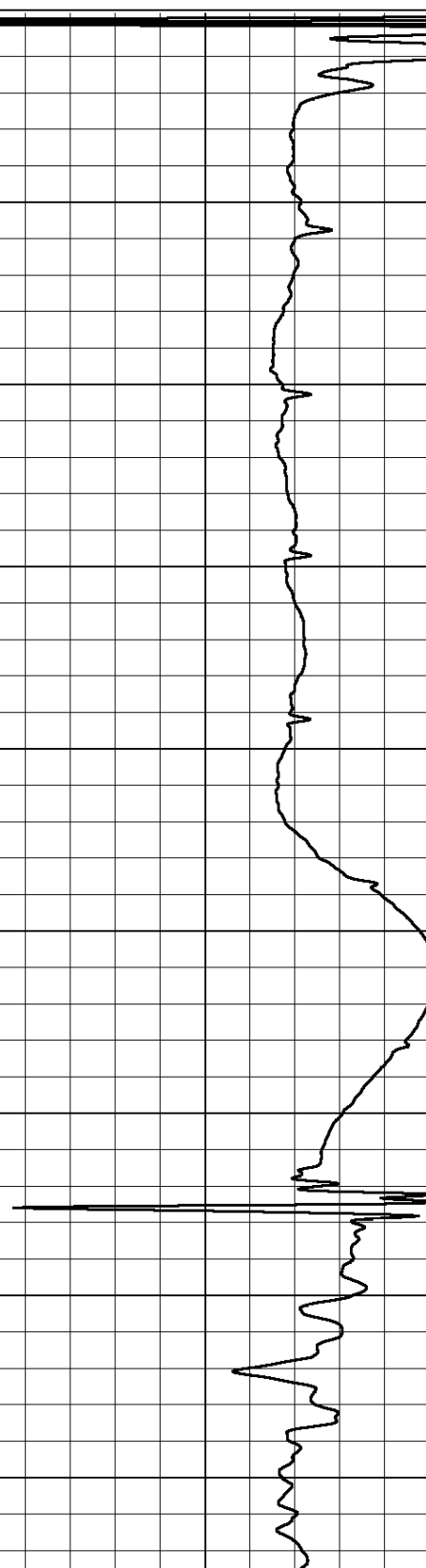
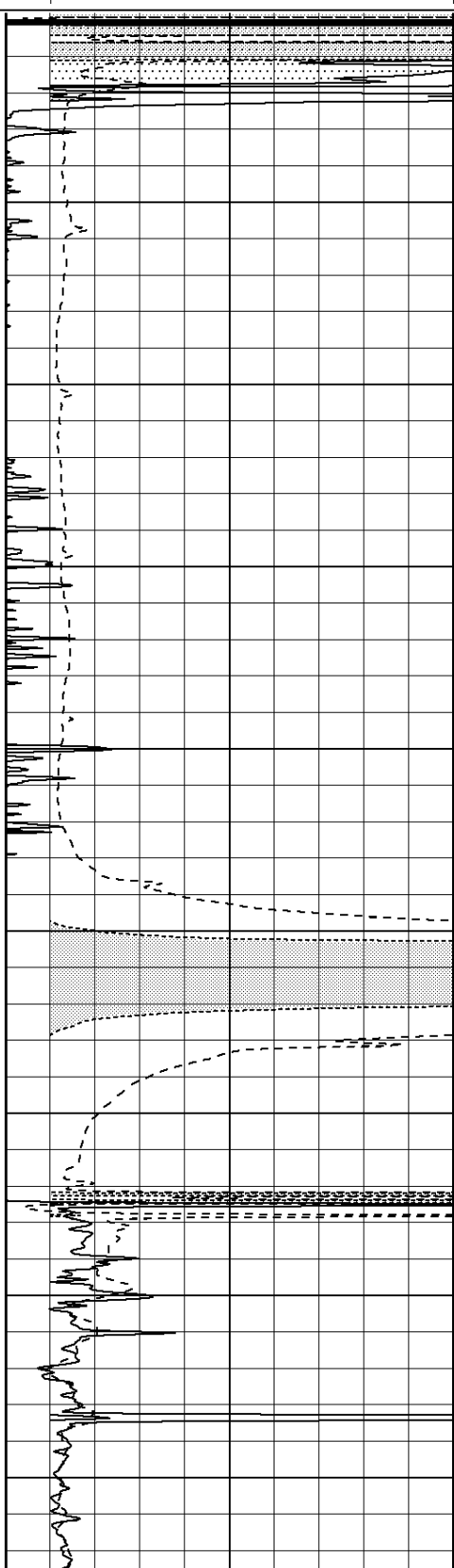
1000	CILD (mmho/m)	0
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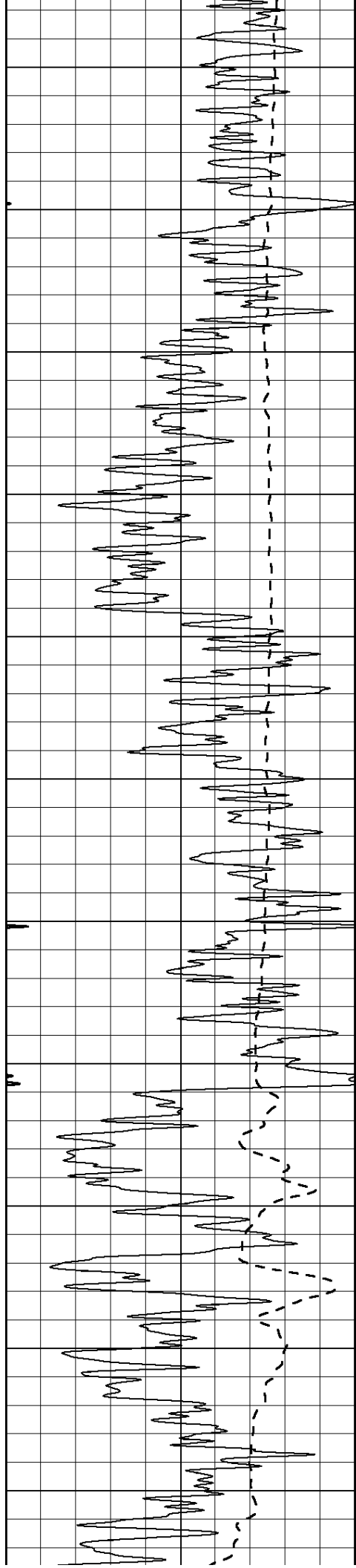
50	RILD X10 (Ohm-m)	500
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50	RLL3 X10 (Ohm-m)	500
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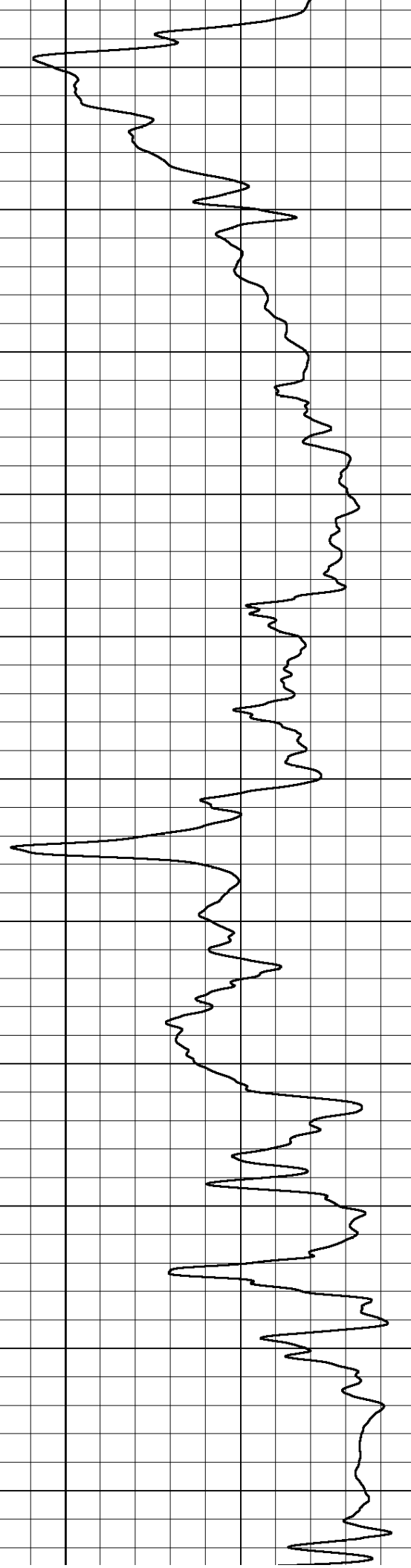
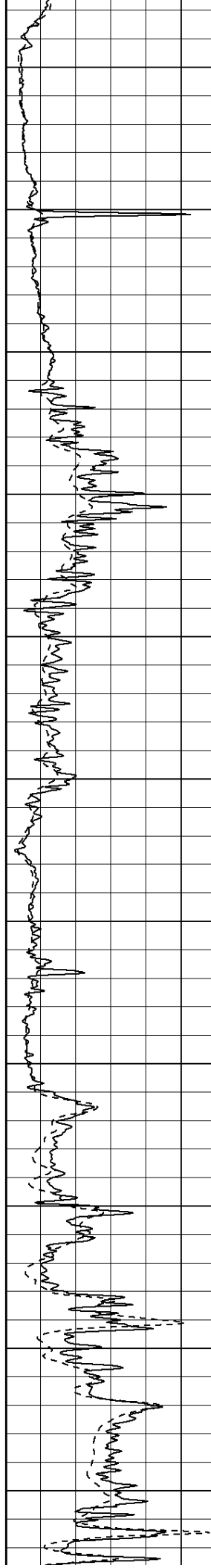


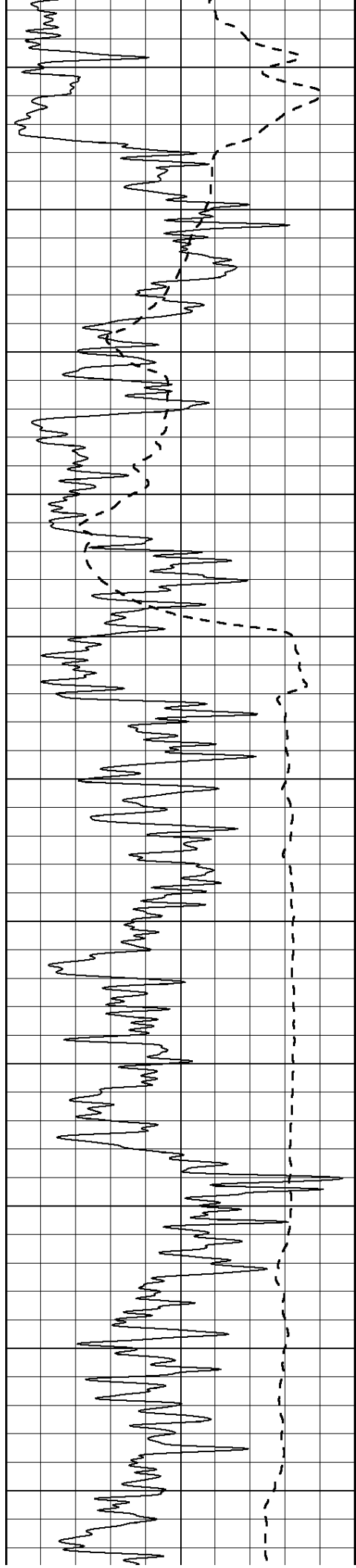
0
50
100
150
200
250
300
350
400



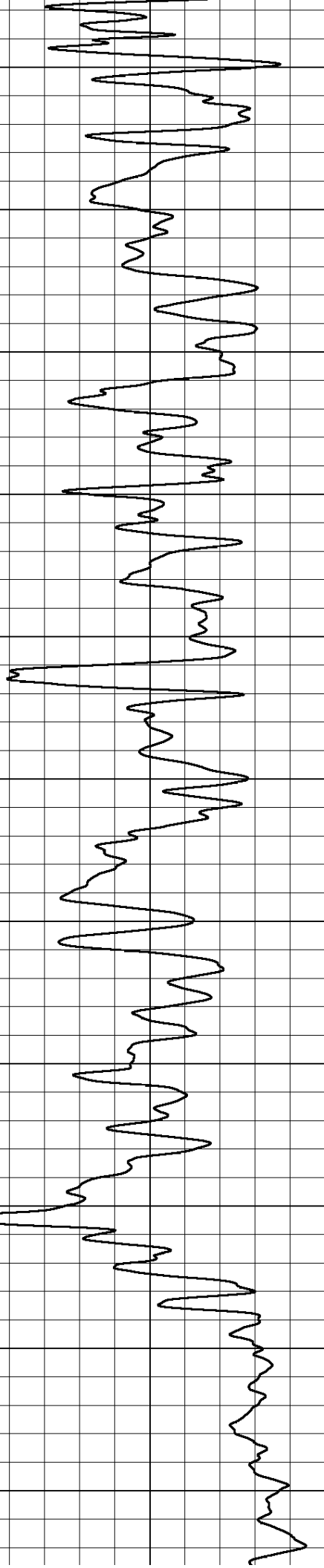
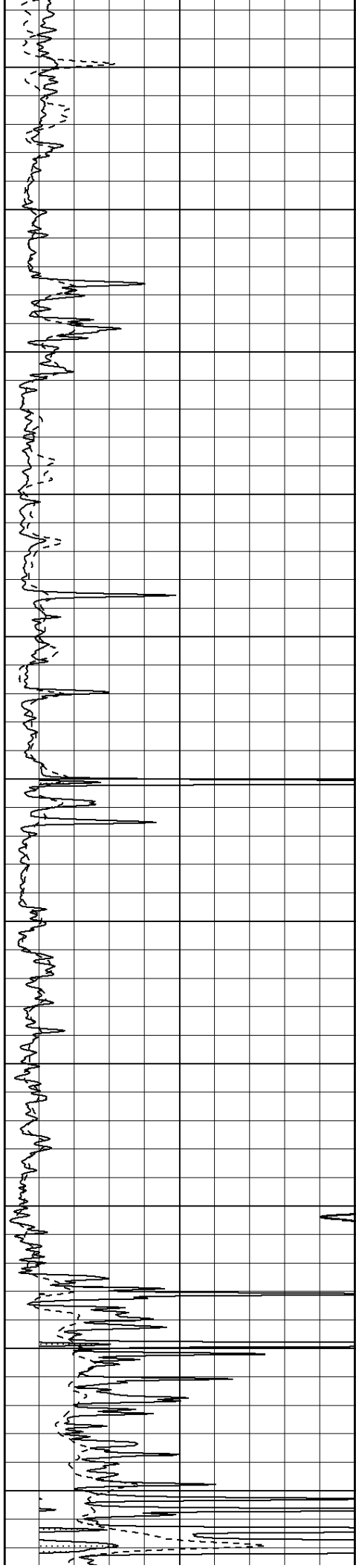


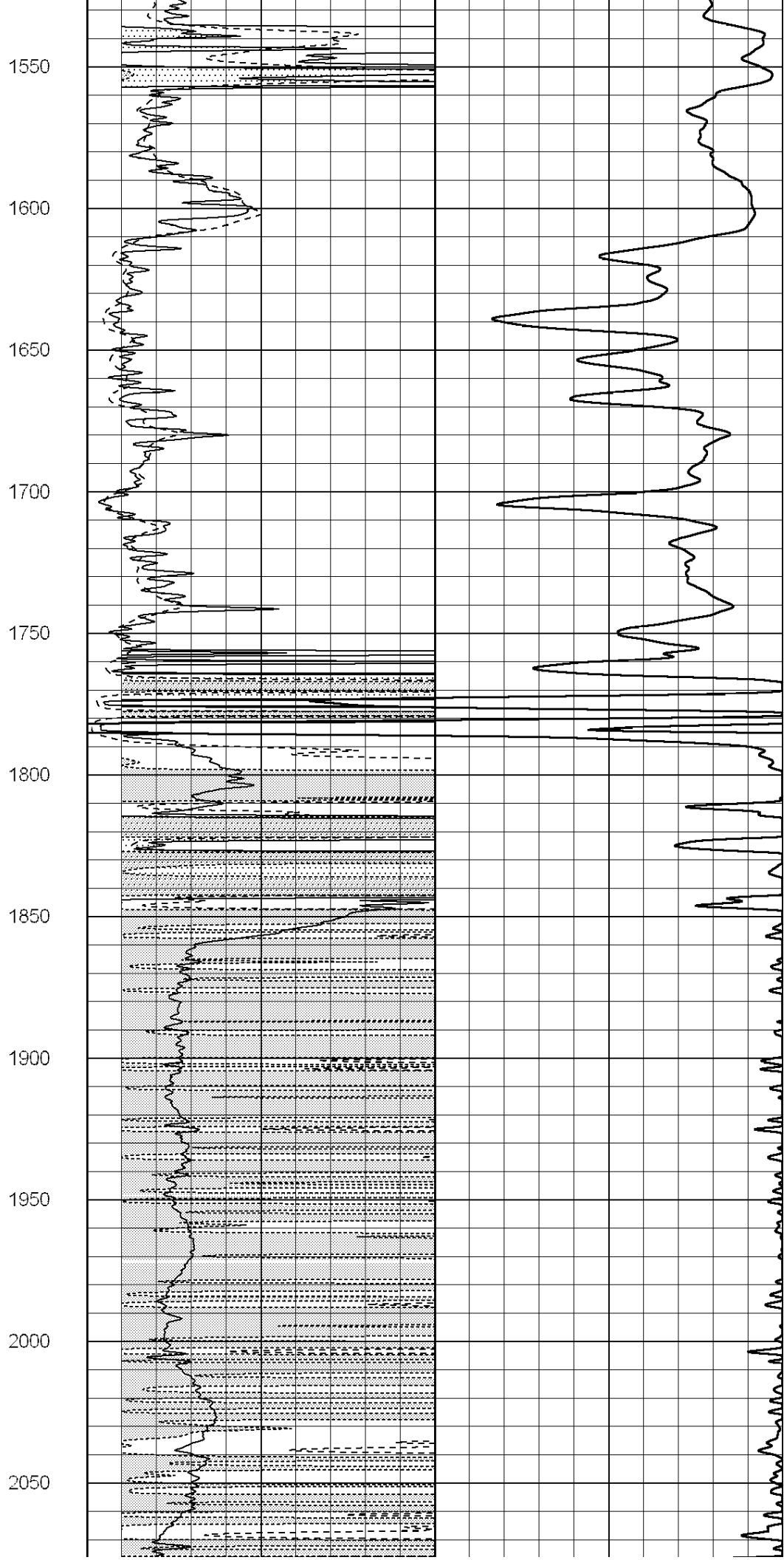
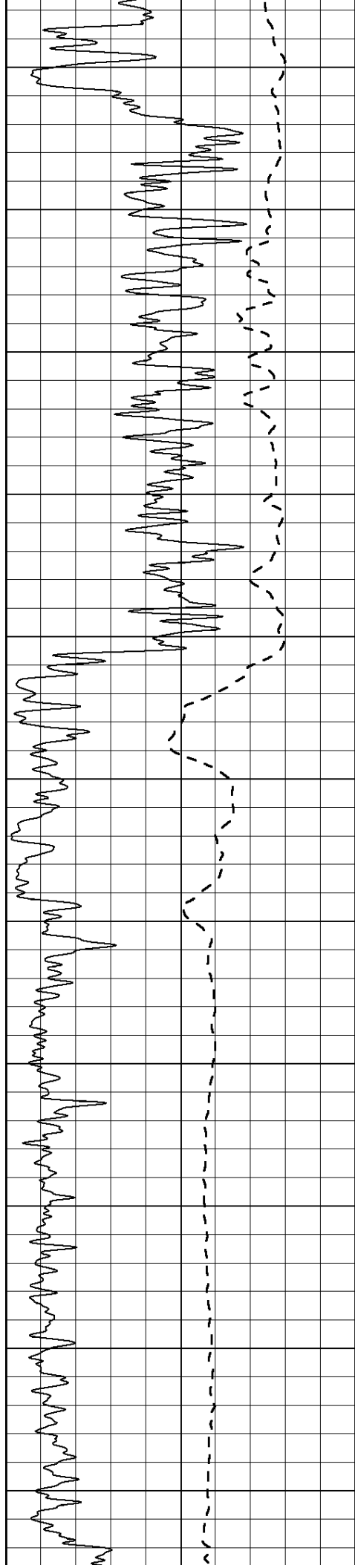
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500
550
600
650
700
750
800
850
900
950

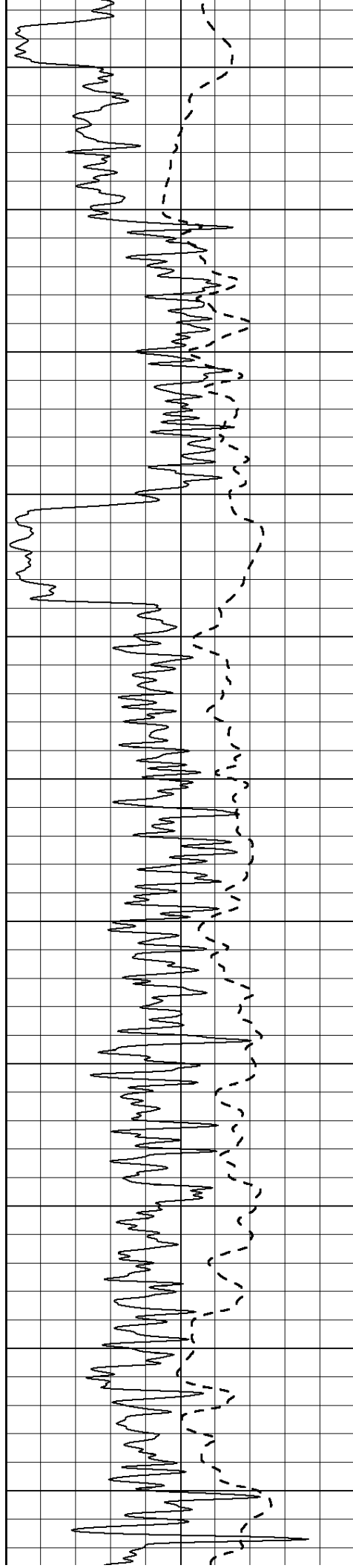




1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500







2100

2150

2200

2250

2300

2350

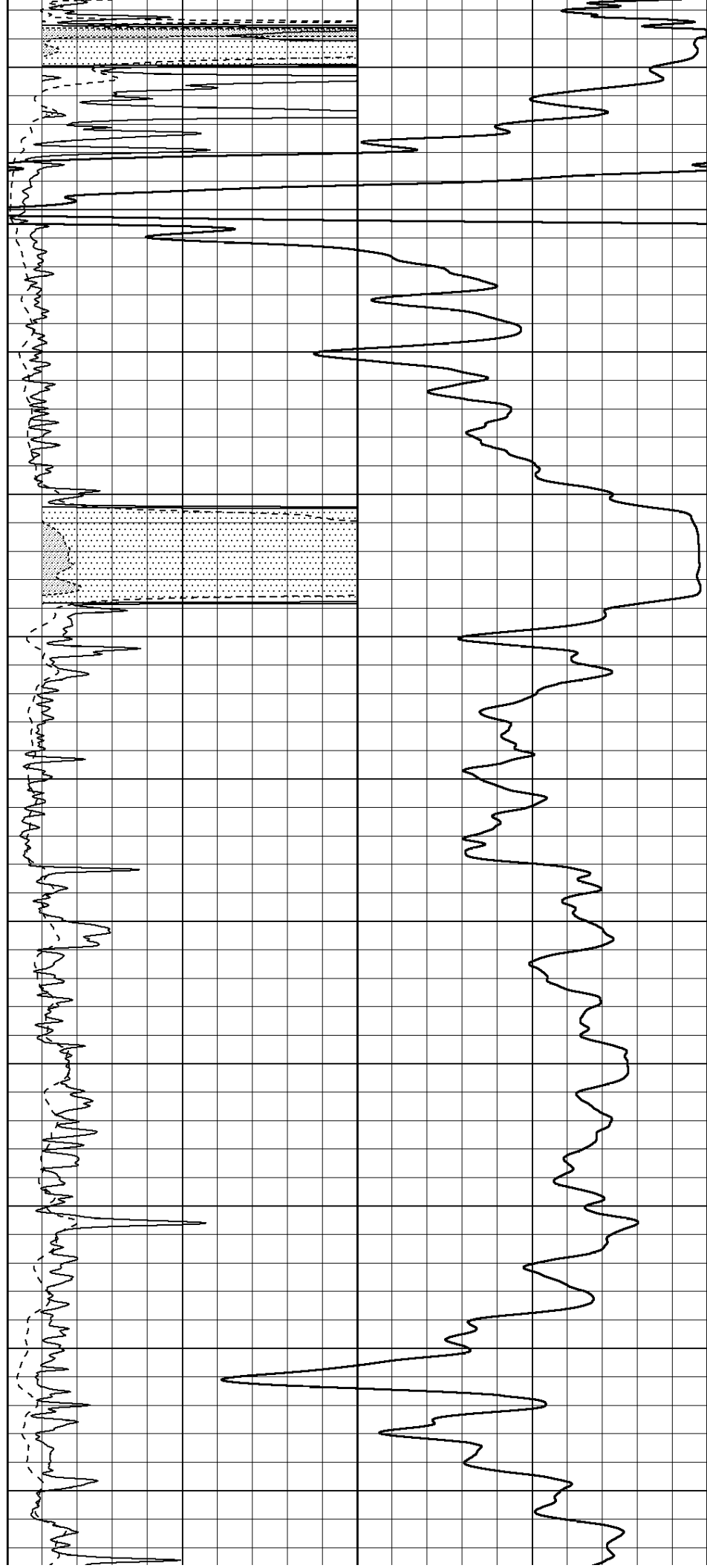
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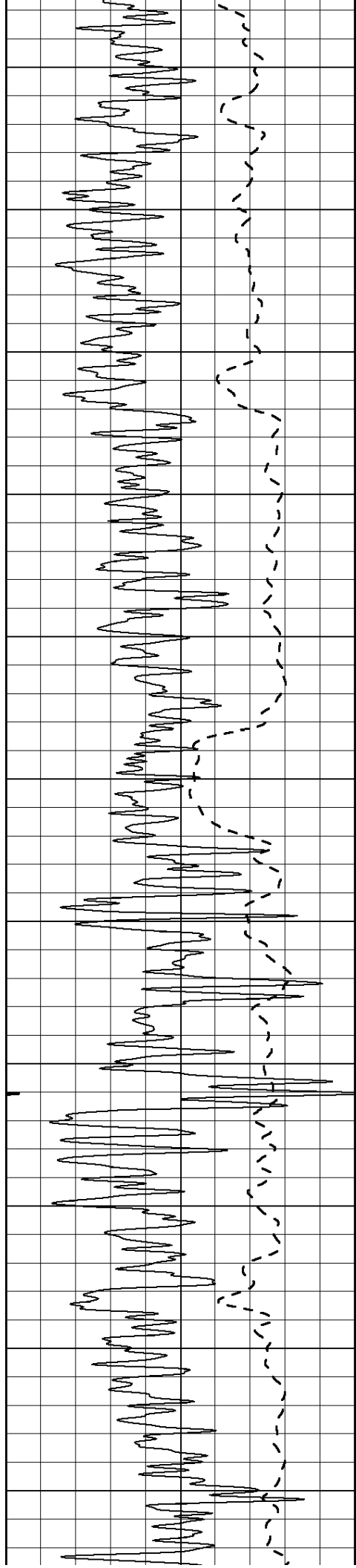
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2500

2550

2600





2650

2700

2750

2800

2850

2900

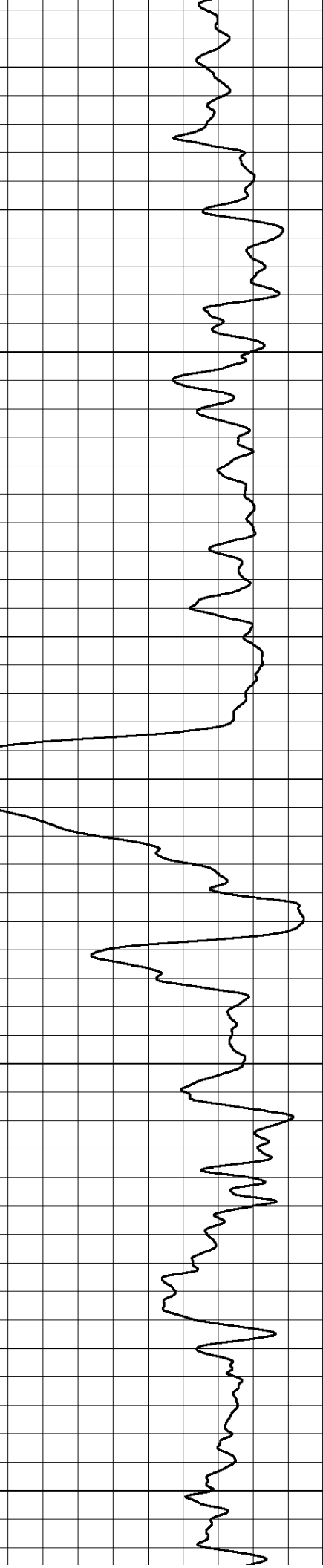
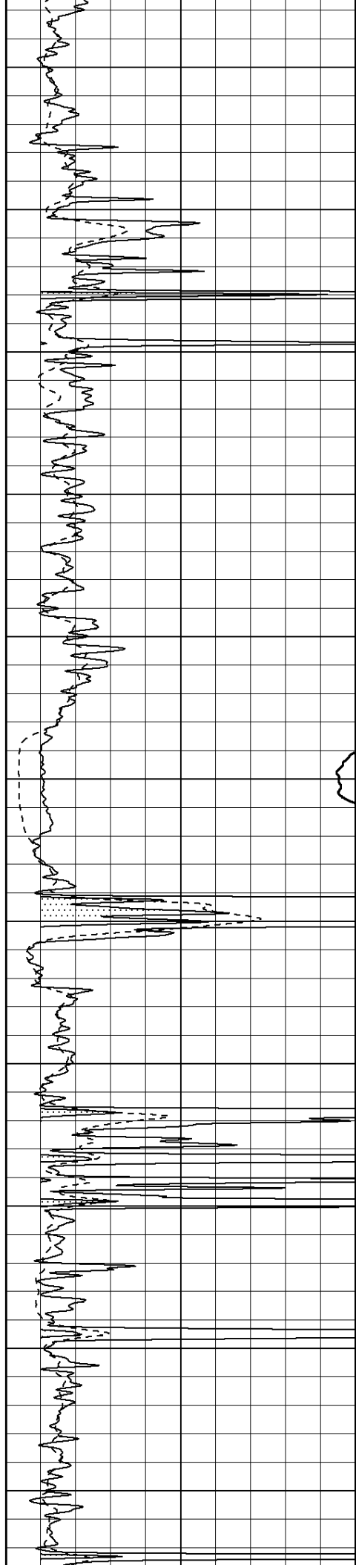
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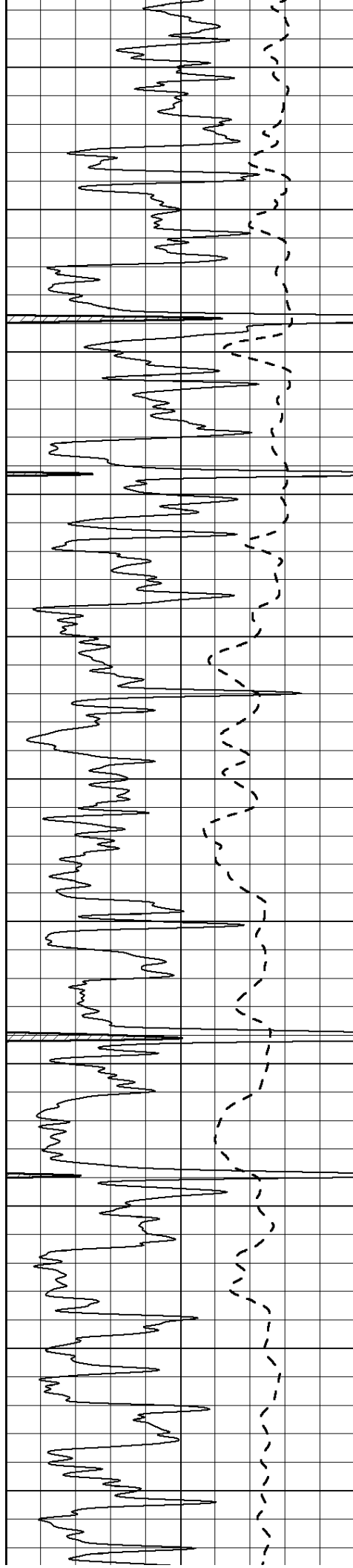
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3050

3100

3150





3200

3250

3300

3350

3400

3450

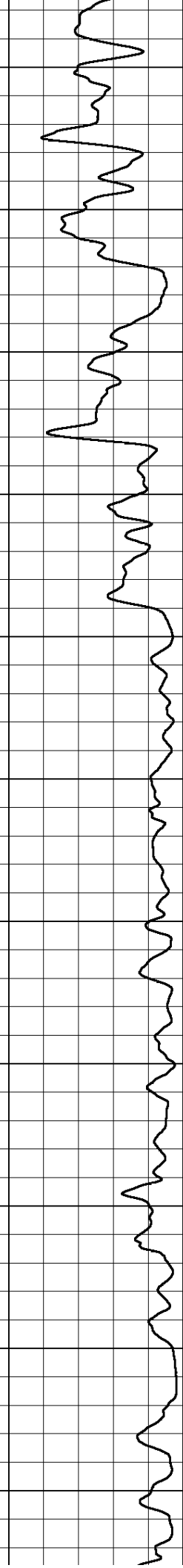
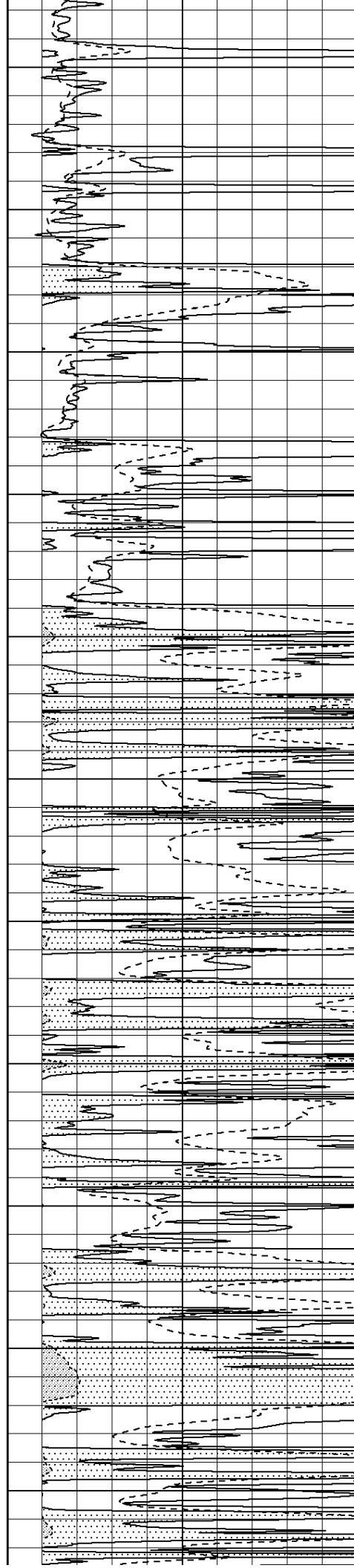
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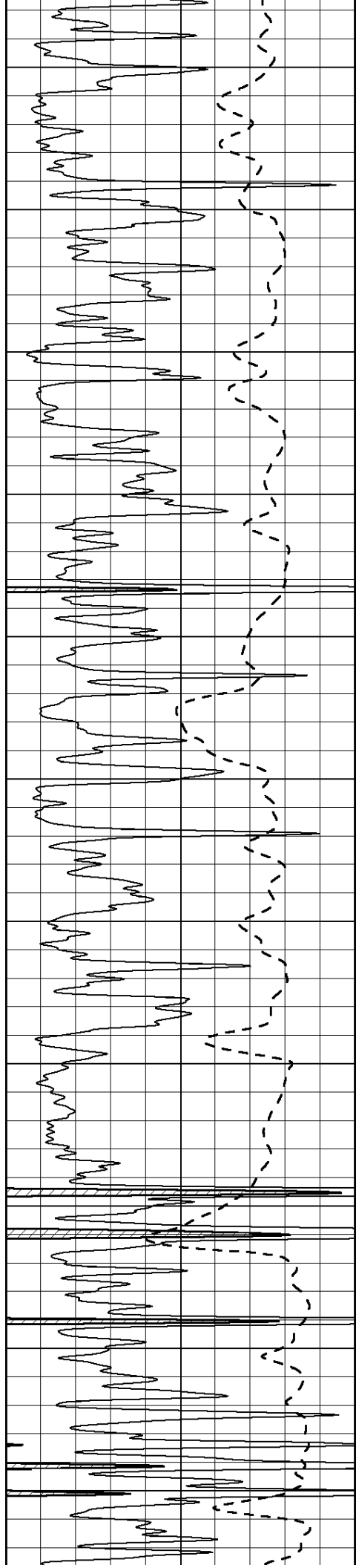
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3600

3650

3700





3750

3800

3850

3900

3950

4000

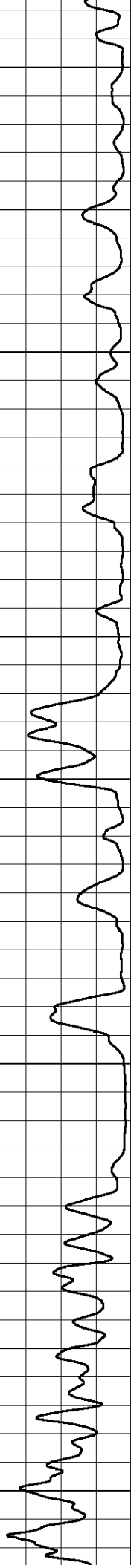
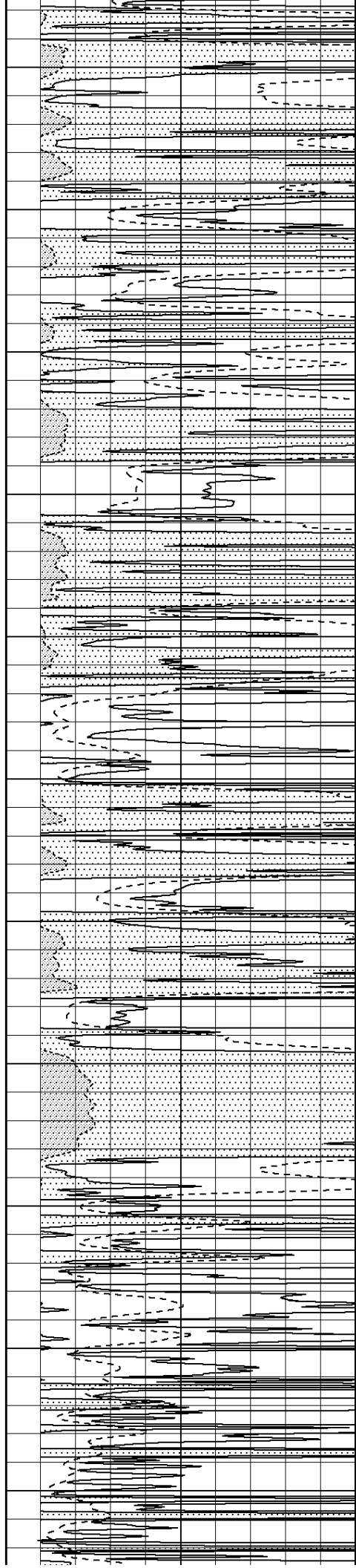
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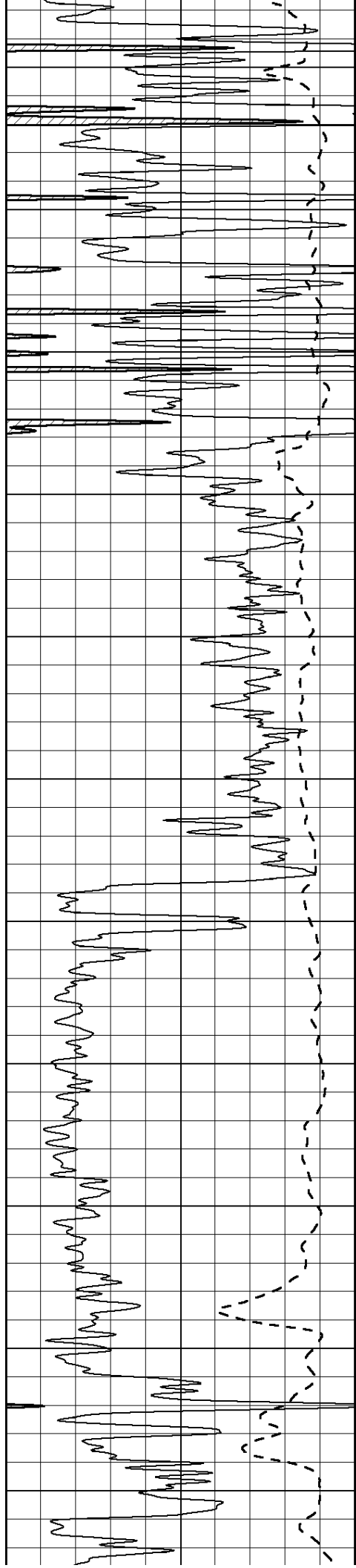
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4150

4200

4250





4300

4350

4400

4450

4500

4550

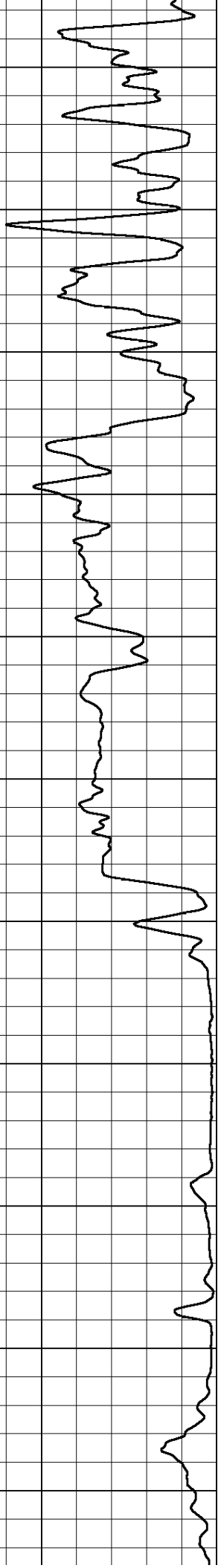
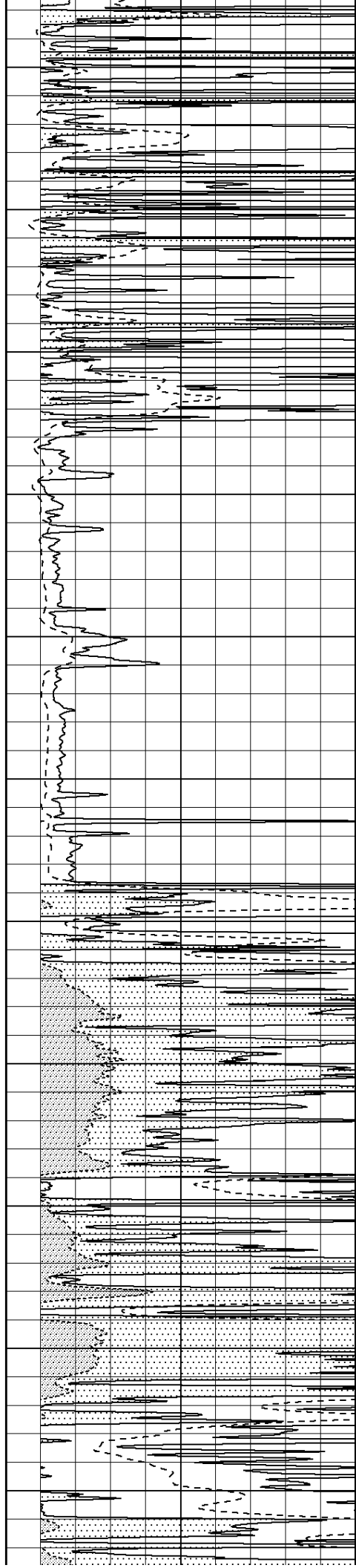
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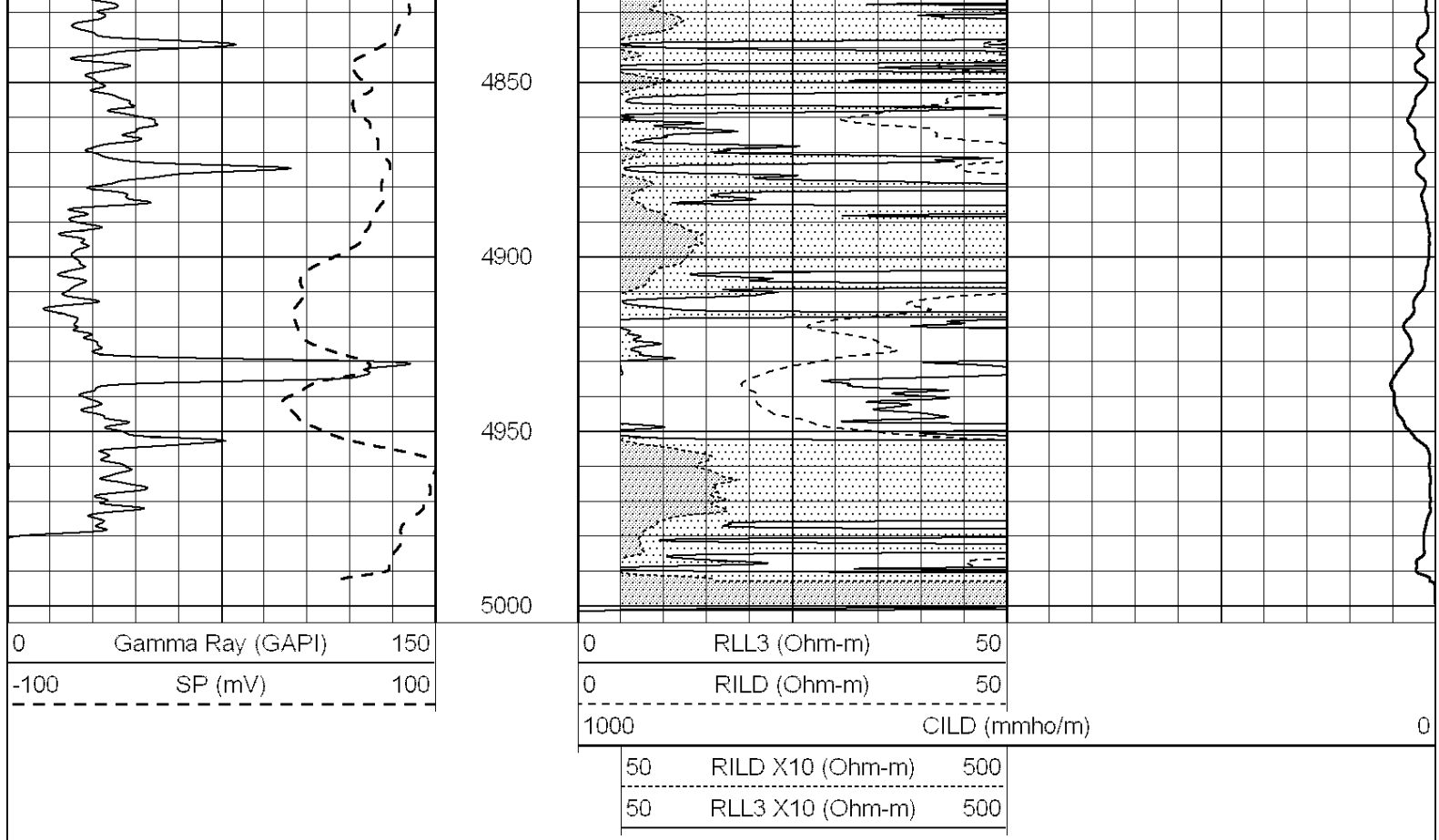
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4700

4750

4800



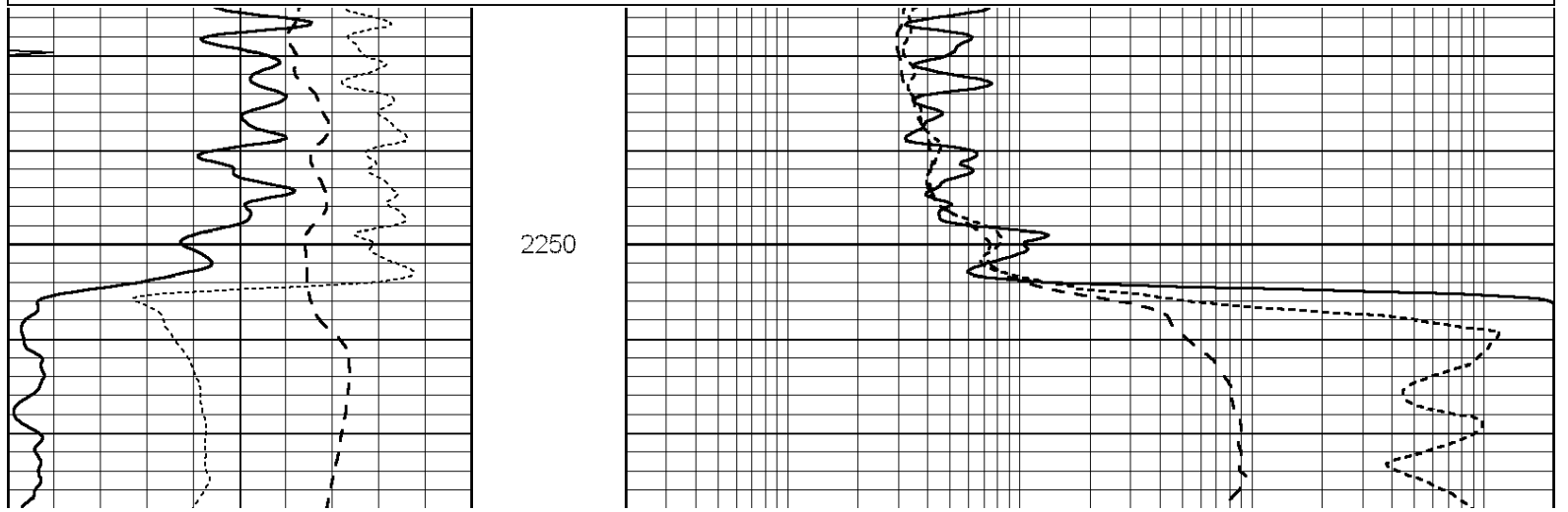


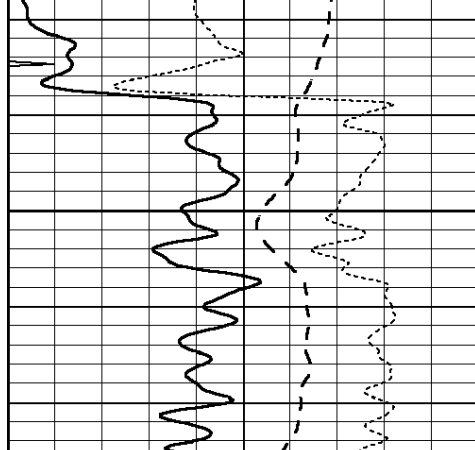
SUPERIOR
Hays,
Kansas

ANHYDRITE

Database File: 005803pe.db
Dataset Pathname: pass5.11
Presentation Format: dil
Dataset Creation: Tue Nov 02 03:50:08 2010
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	10			





0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	10

2300



0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



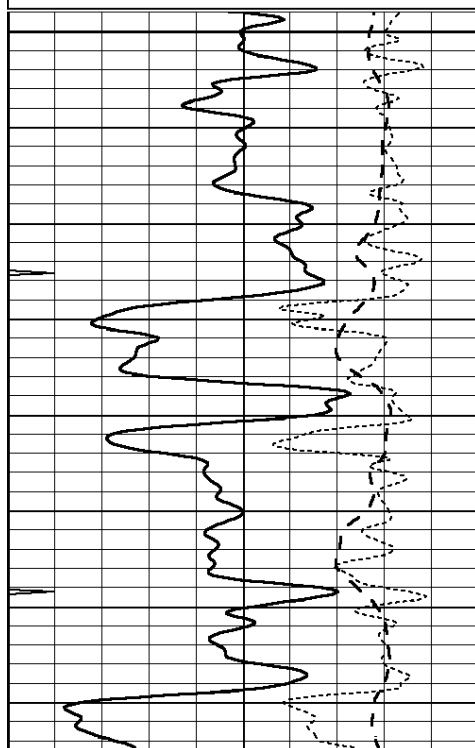
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Hays,
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MAIN SECTION

Database File: 005803pe.db
Dataset Pathname: pass5.10
Presentation Format: dil
Dataset Creation: Tue Nov 02 03:32:10 2010
Charted by: Depth in Feet scaled 1:240

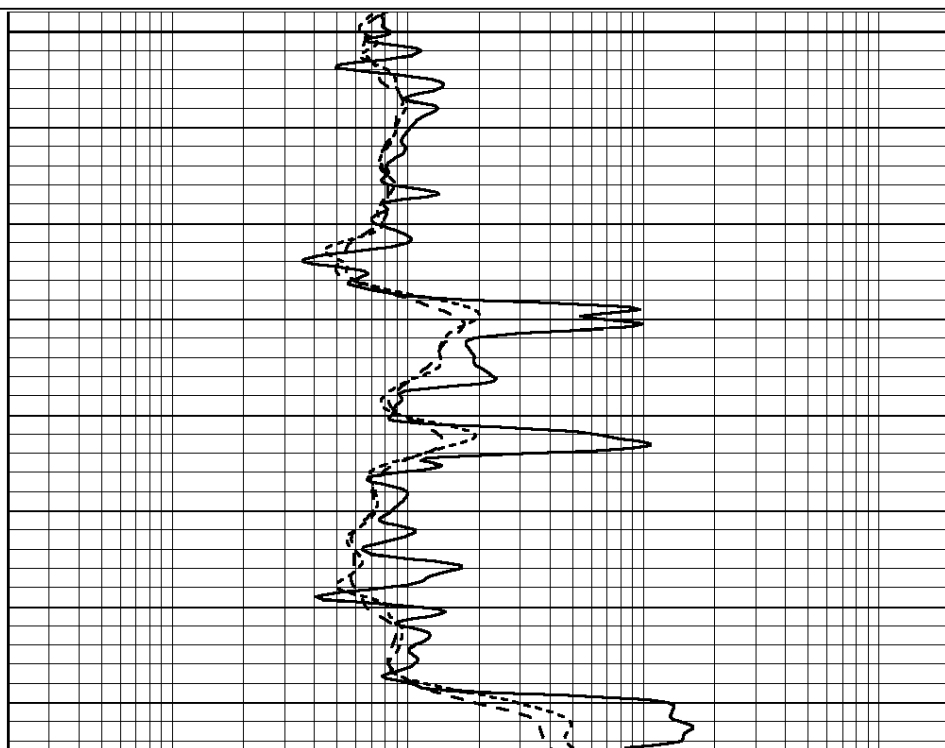
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	10

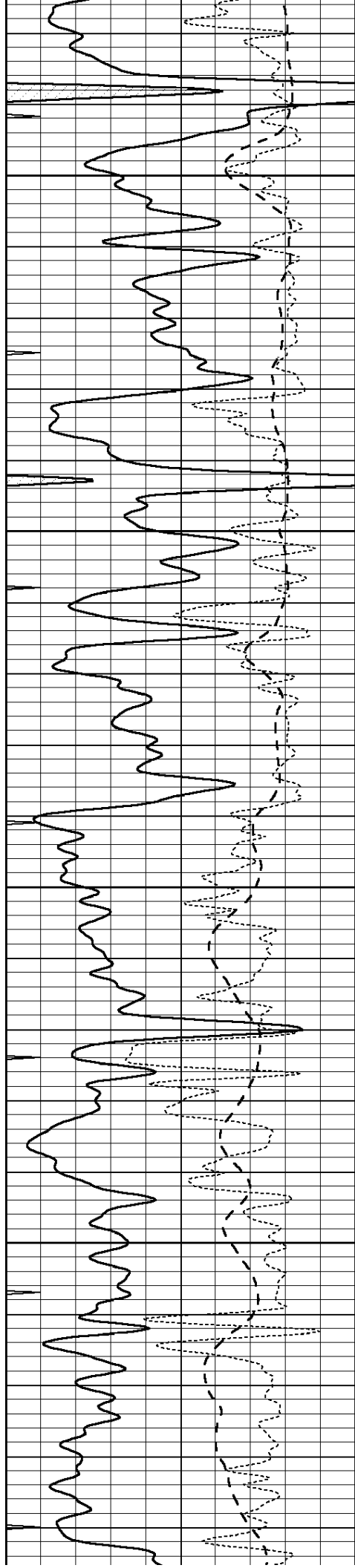
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



3200

3250



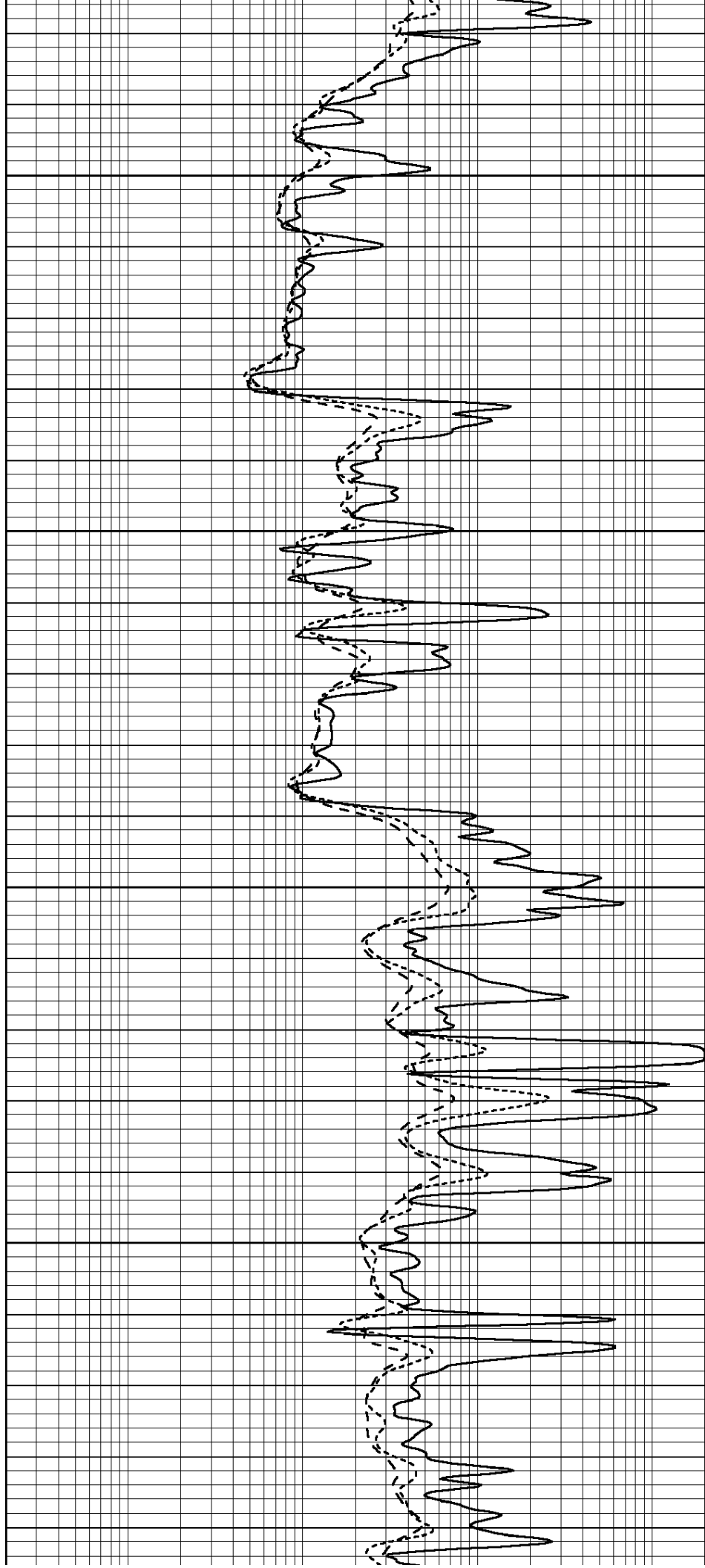


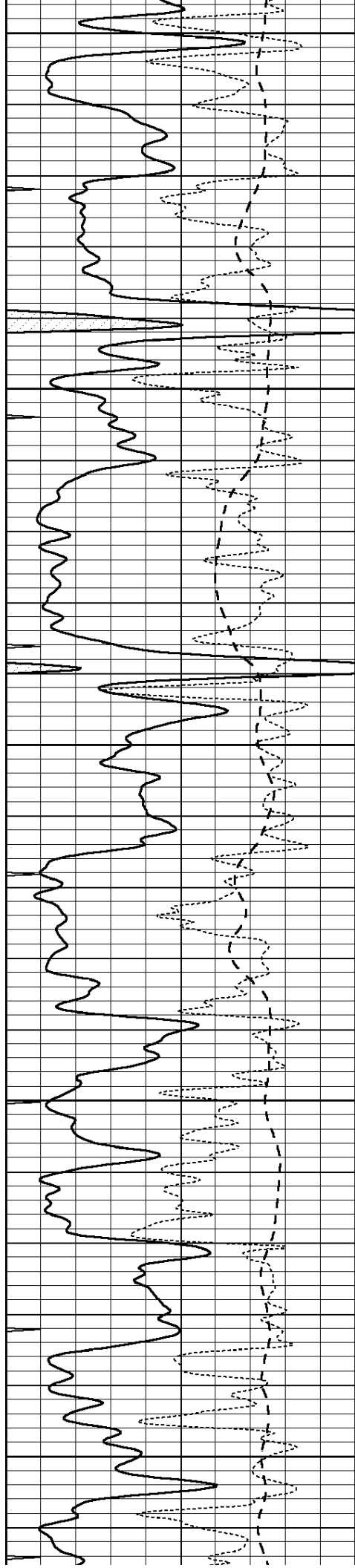
3300

3350

3400

3450





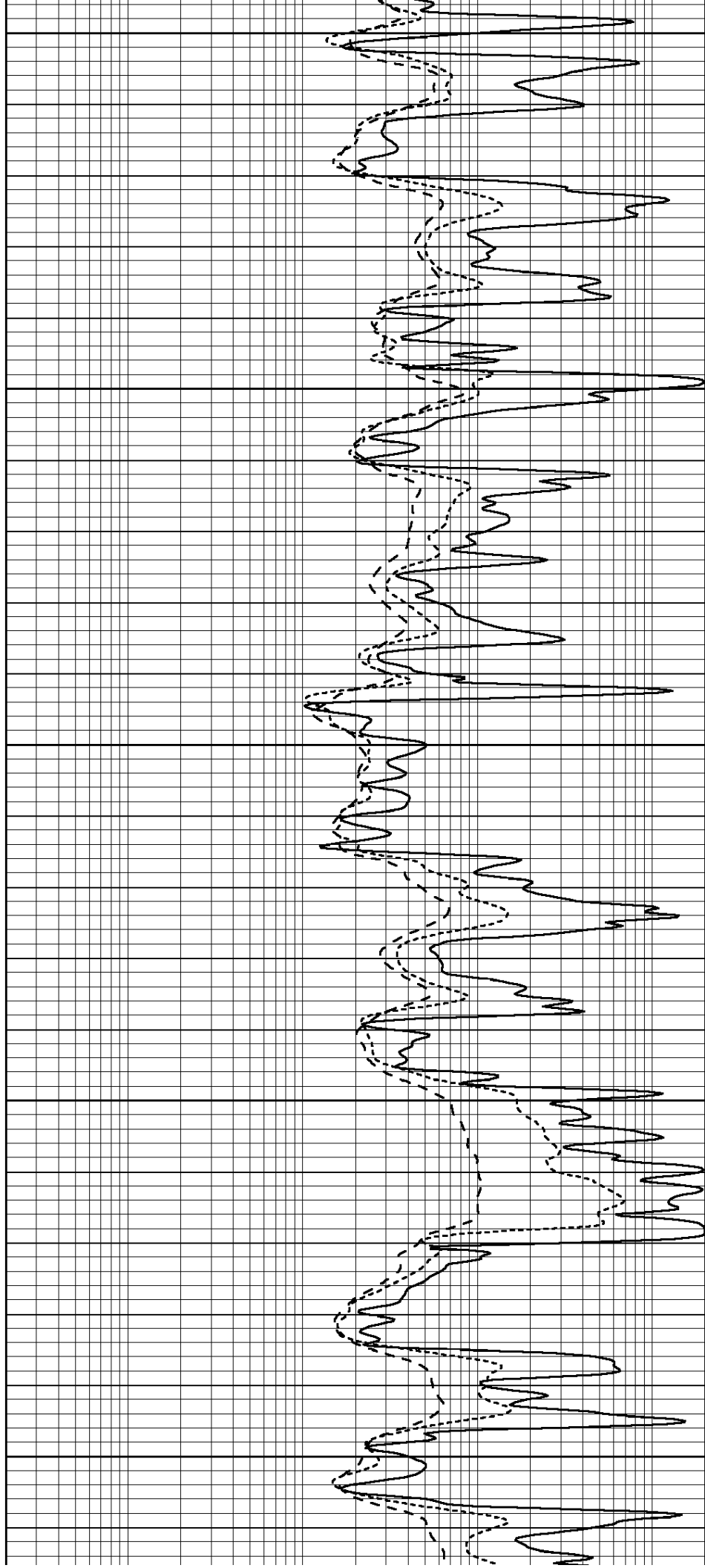
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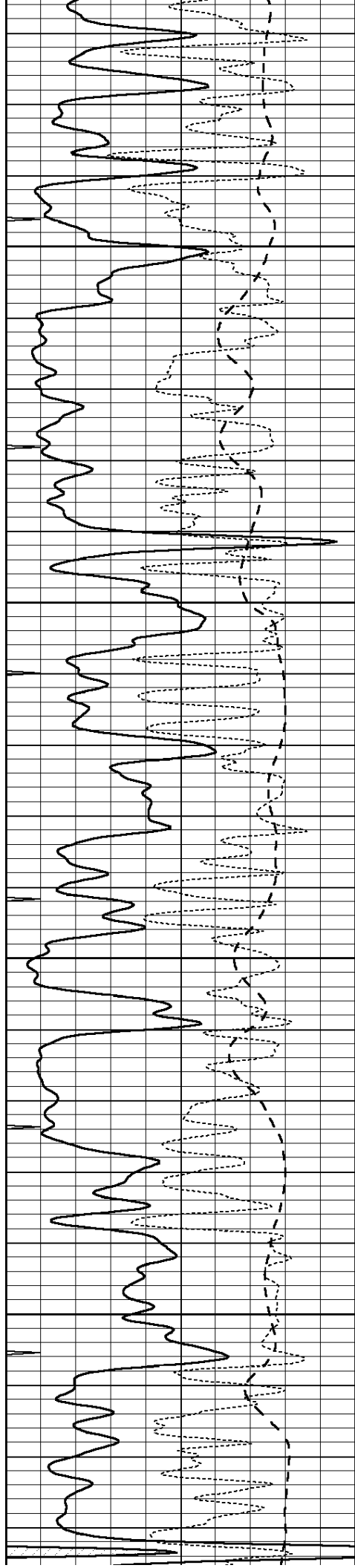
3550

3600

3650

3700



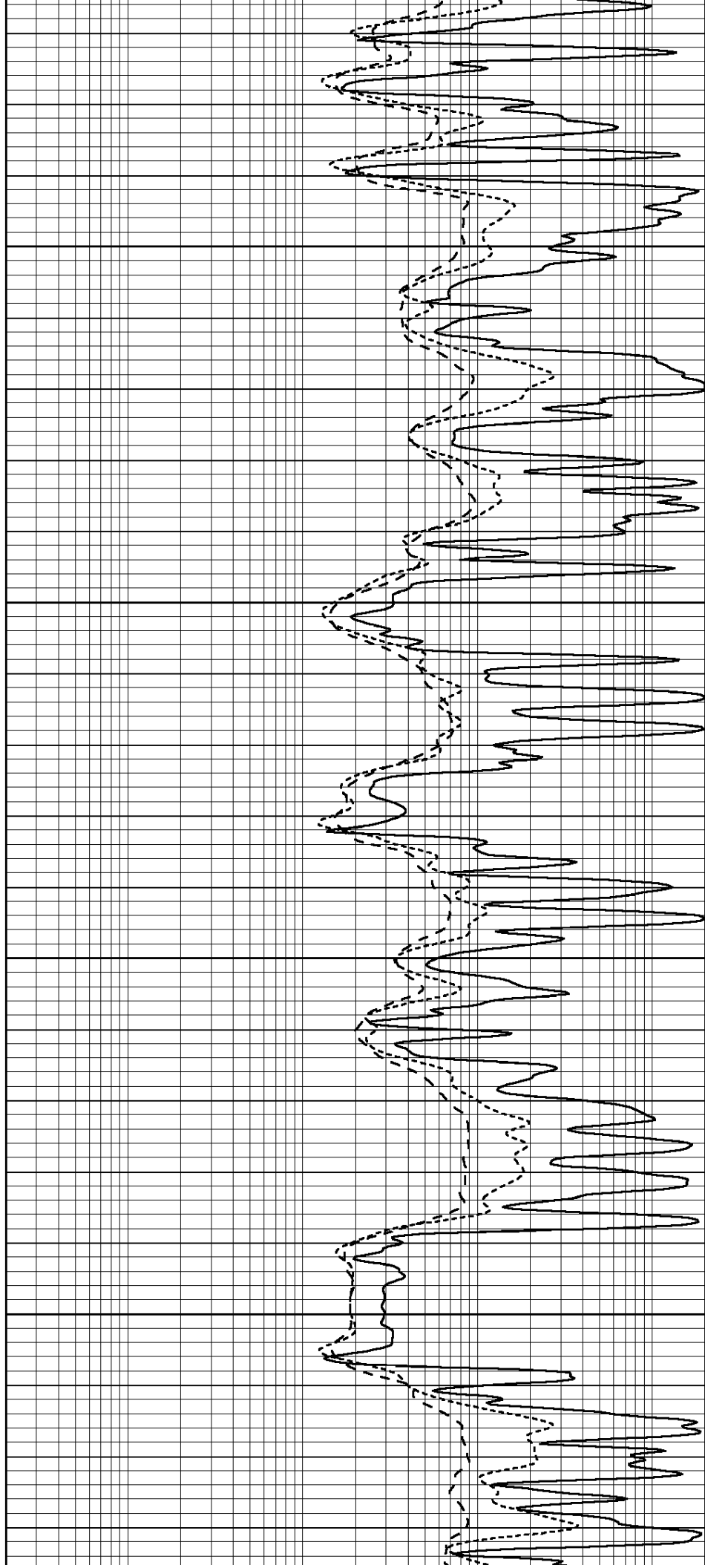


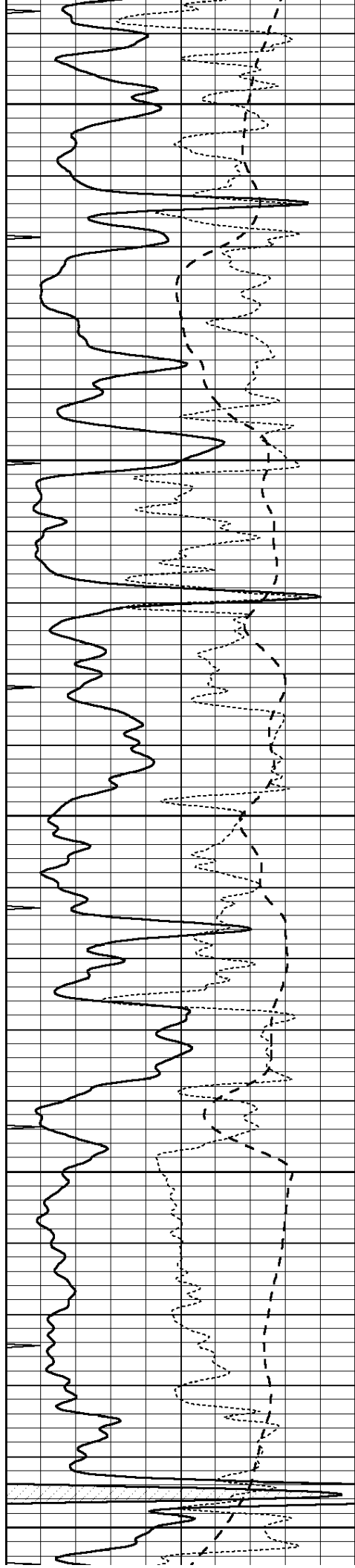
3750

3800

3850

3900





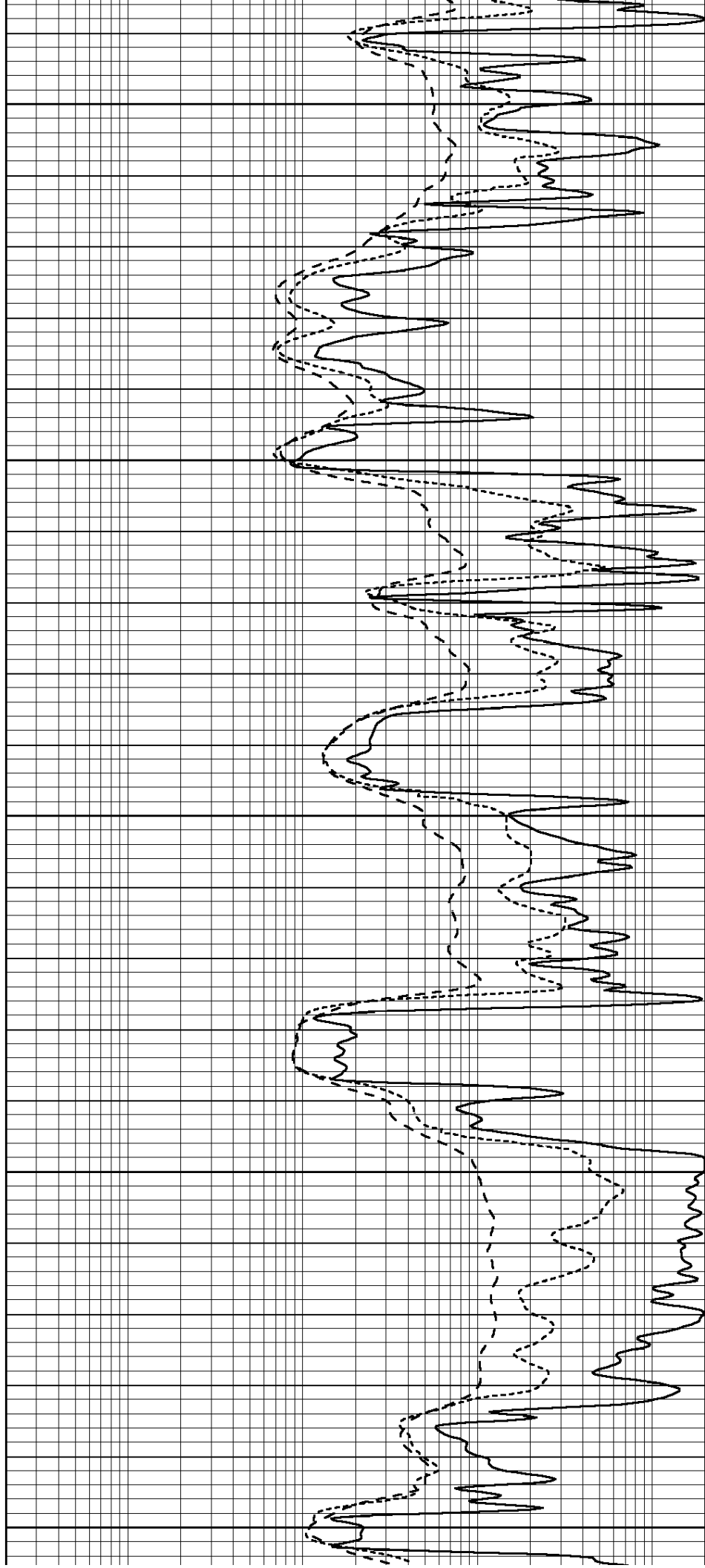
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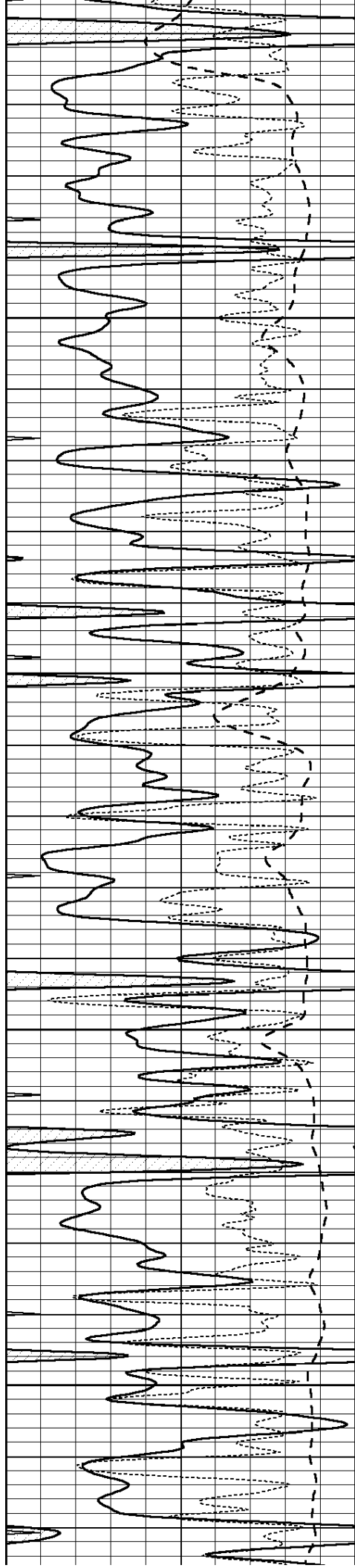
4000

4050

4100

4150



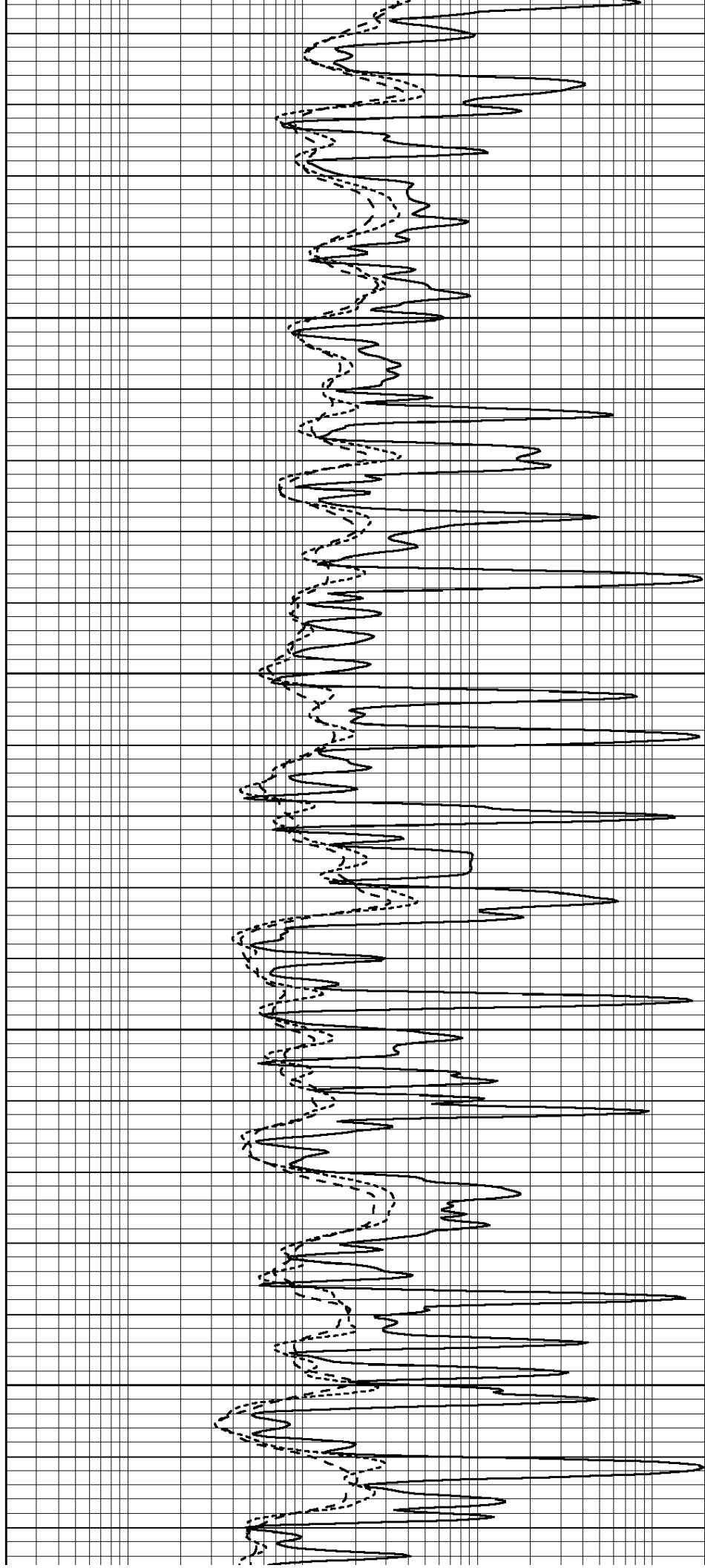


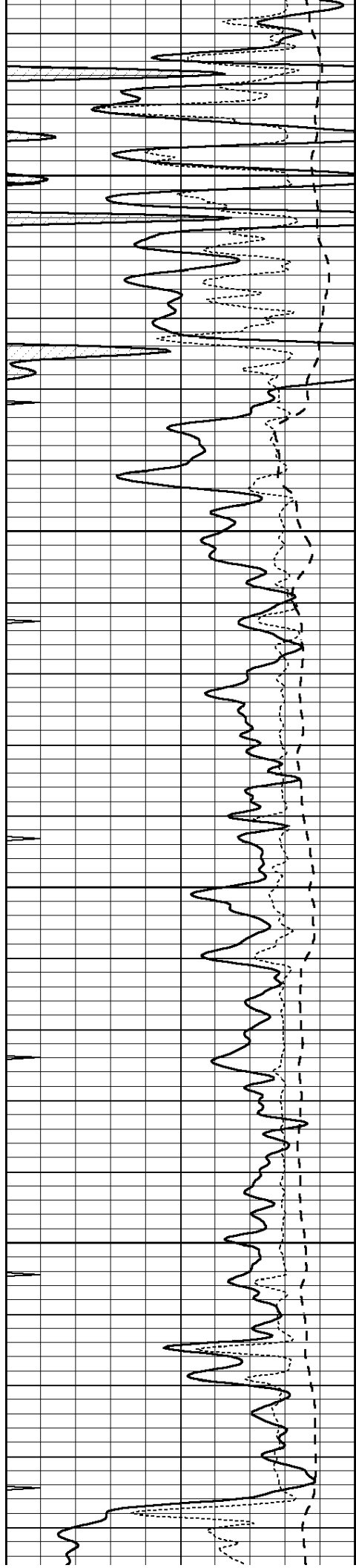
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4250

4300

4350



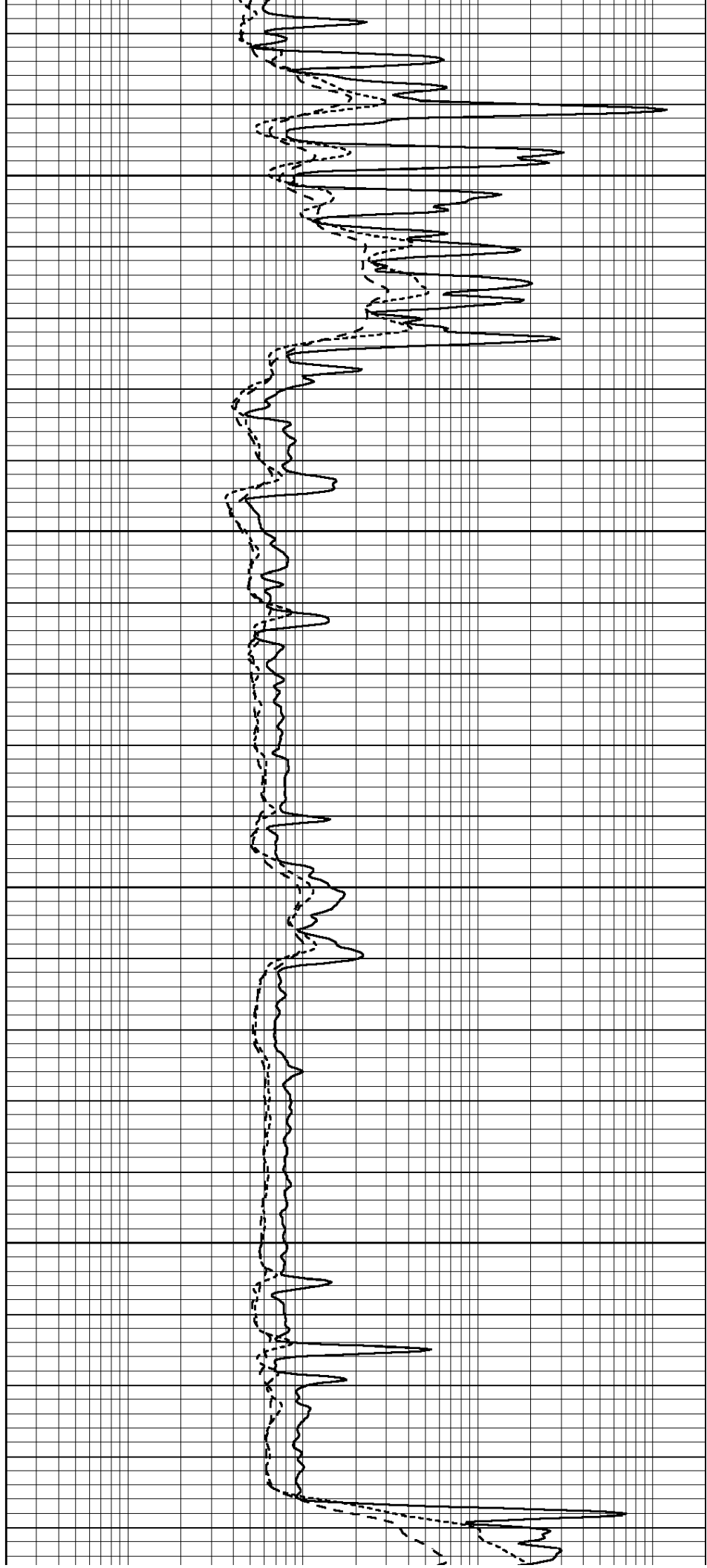


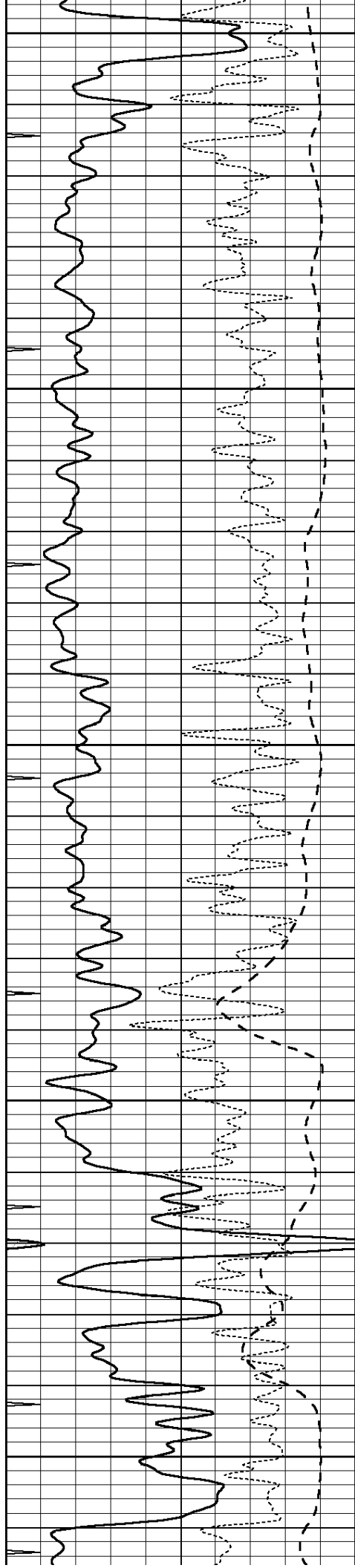
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4450

4500

4550





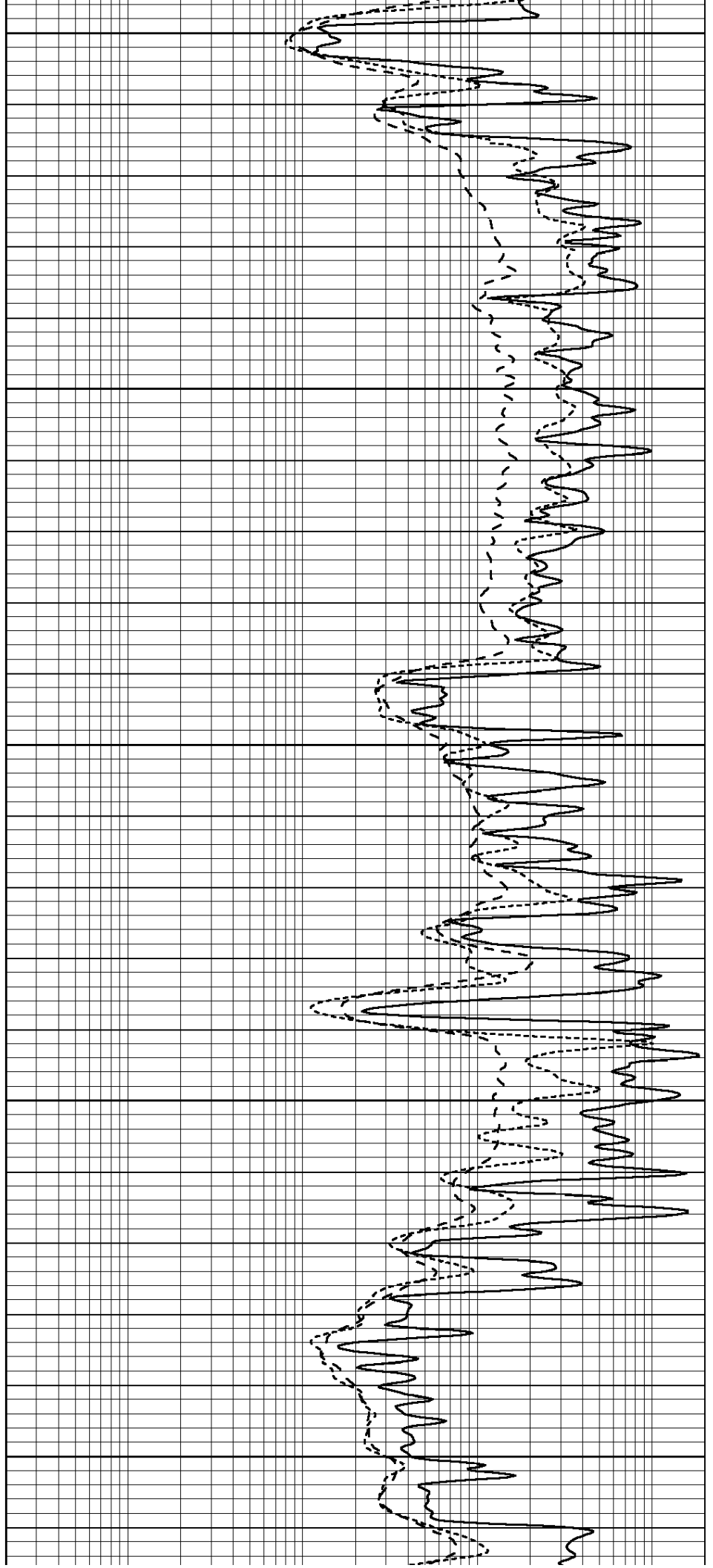
4600

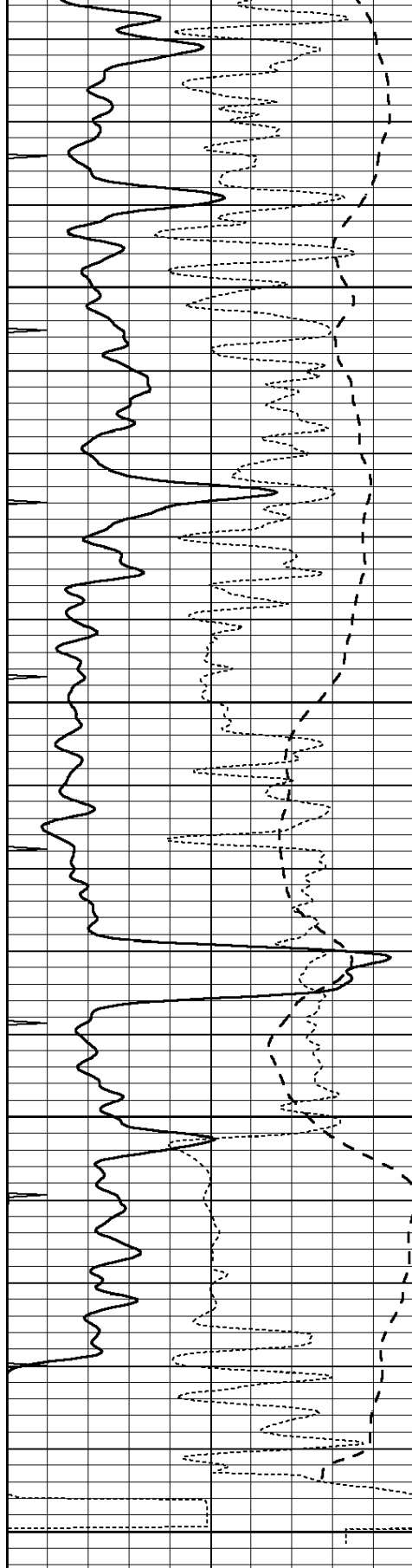
4650

4700

4750

4800





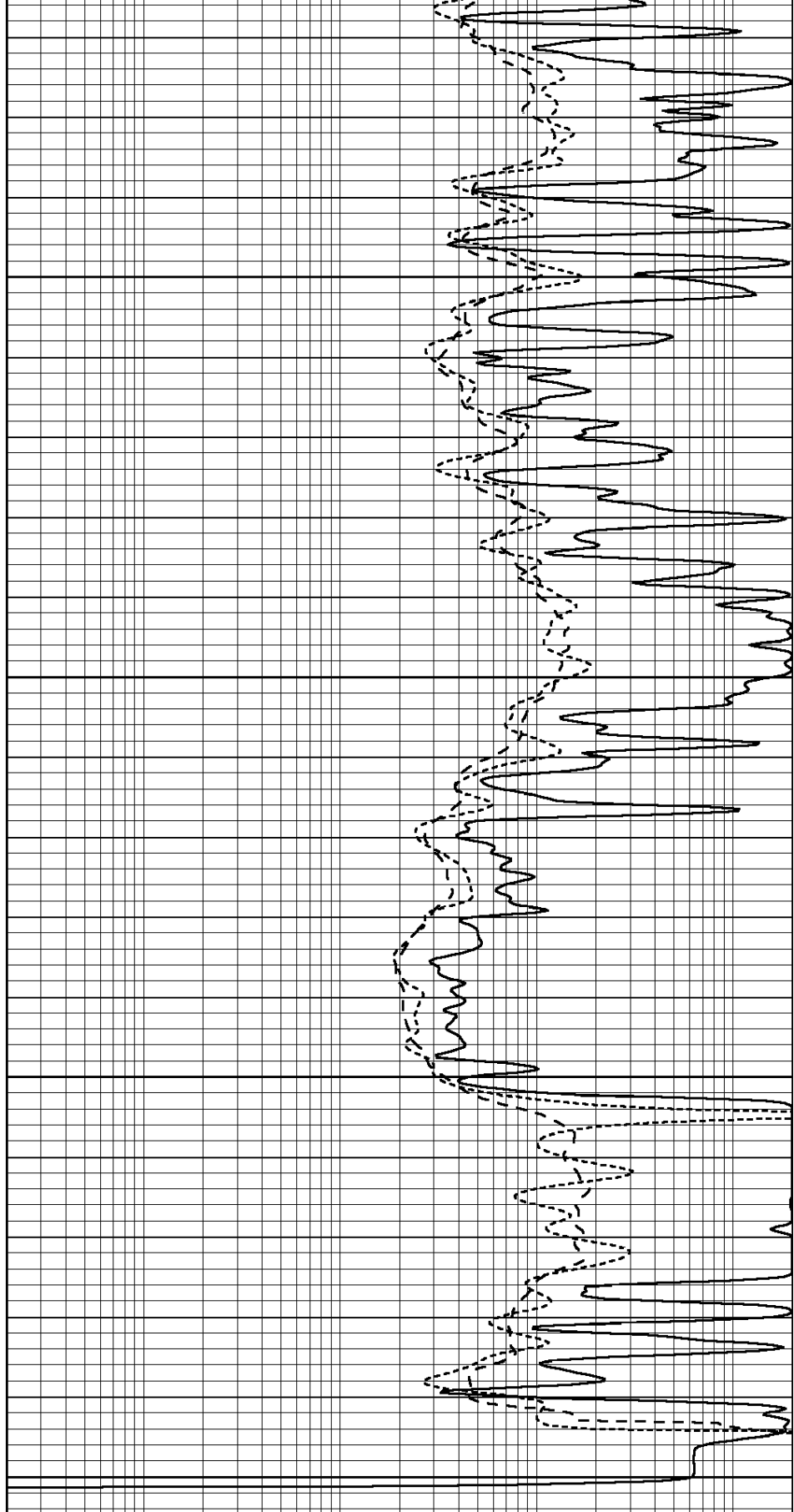
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	10

4850

4900

4950

5000



0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



SUPERIOR

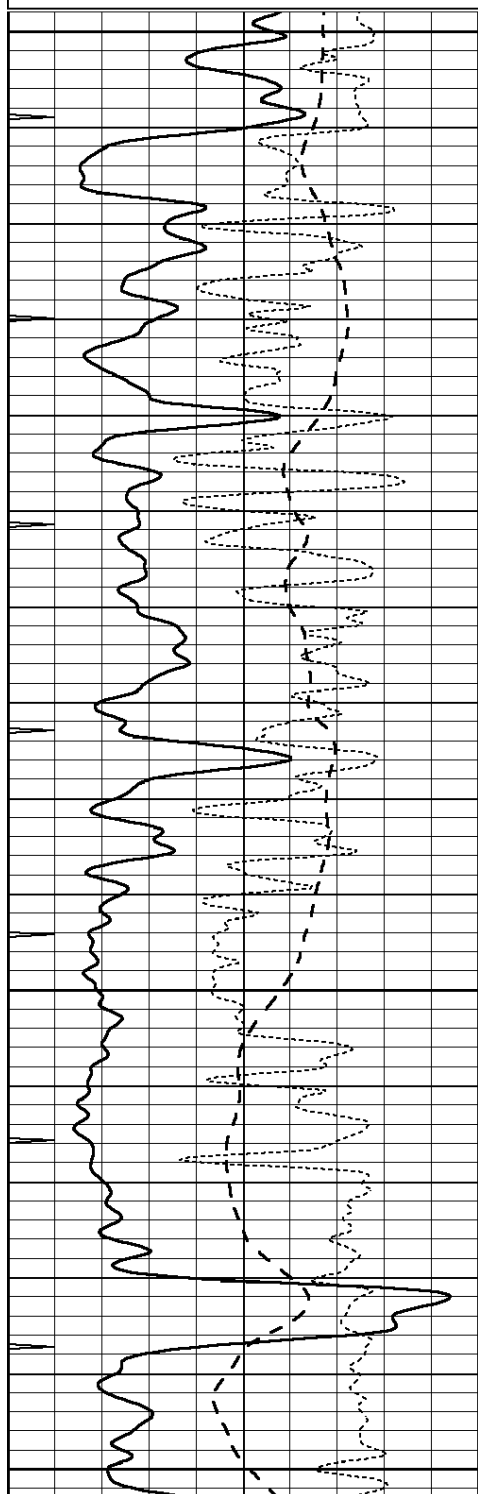
Hays,
Kansas

REPEAT SECTION

Database File: 005803pe.db
Dataset Pathname: pass4.8
Presentation Format: dil
Dataset Creation: Tue Nov 02 01:52:16 2010
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	10

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

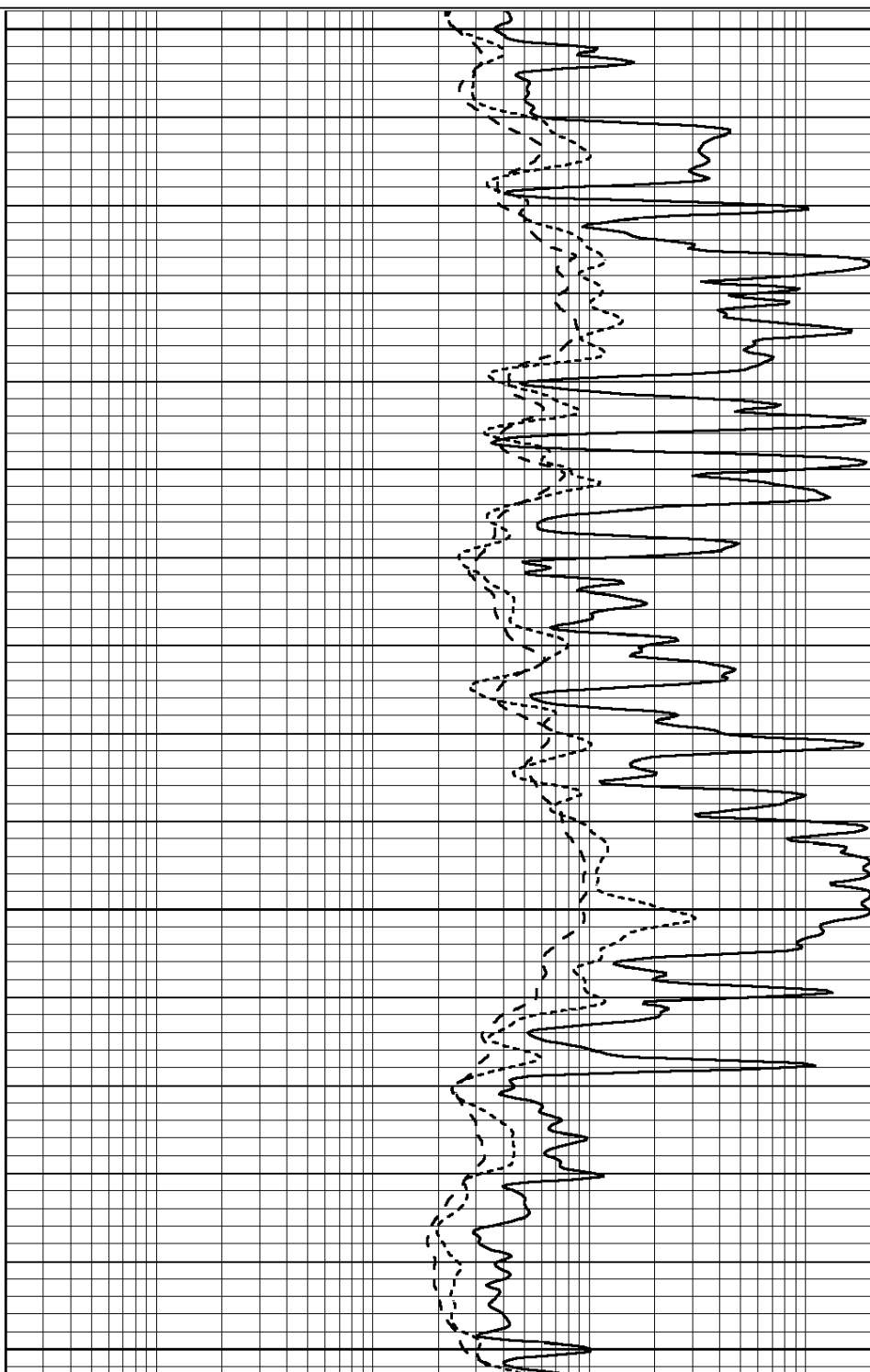


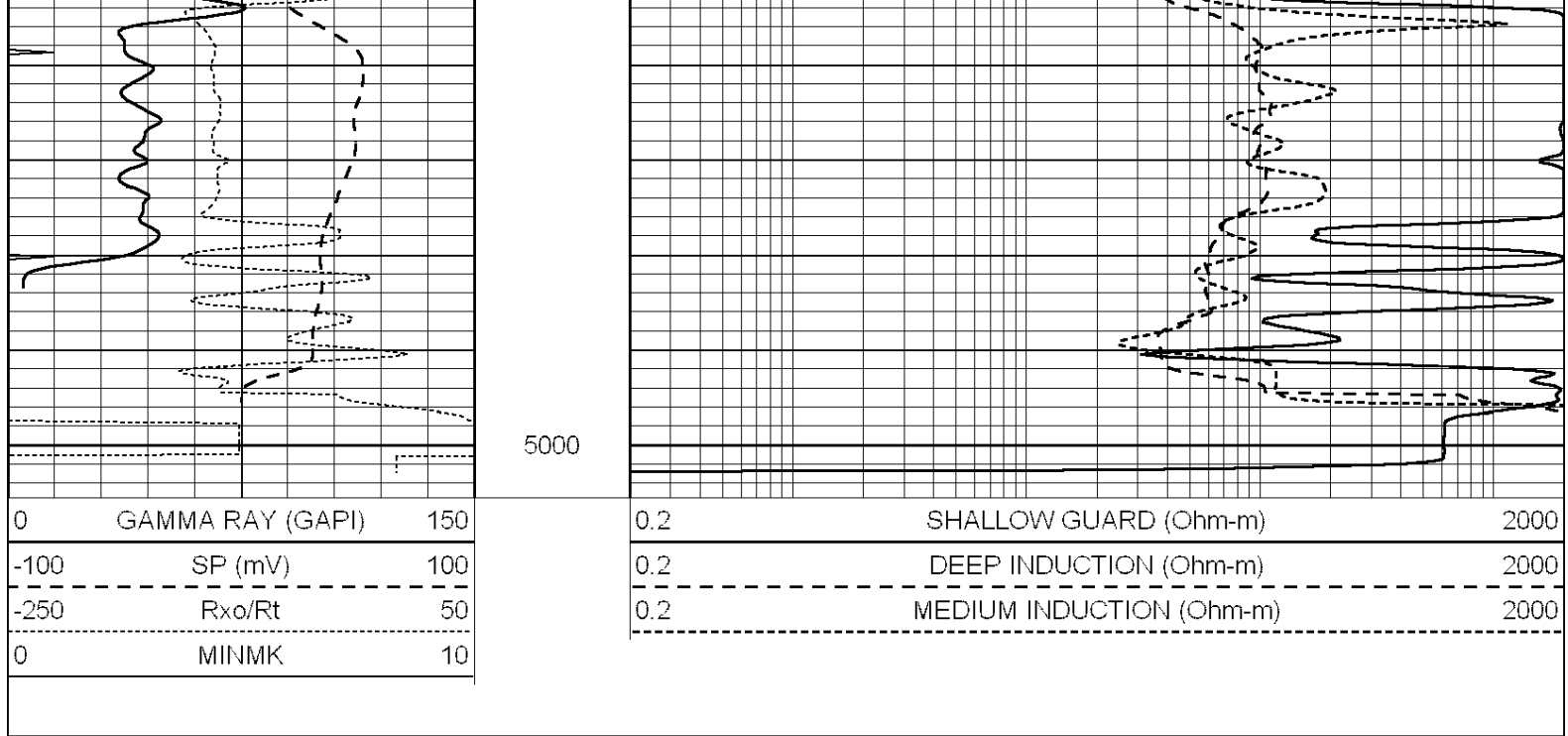
4800

4850

4900

4950





Calibration Report

Database File: 005803pe.db
 Dataset Pathname: pass5.10
 Dataset Creation: Tue Nov 02 03:32:10 2010

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
 Performed: Mon Nov 01 22:58:38 2010

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	2.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-13.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	622.059	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	631.393	-4.555

Litho Density Calibration Report

Serial: 006 Model: PRB
 Performed Sun Aug 15 09:48:41 2010

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1686.6	11612.8	3932.0	12718.8	cps
Window 2	1531.4	9204.7	3267.8	9851.9	cps
Window 3	1198.3	4733.6	1952.5	4920.6	cps
Window 4	317.3	321.2	325.9	303.6	cps
Long Space	0.0	7673.3	1736.4	8320.4	cps
Short Space	1.7	2548.5	1657.2	2628.8	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	
Rib Angle	: 43.8	Rib Slope	: 0.961	Density/Spine Ratio	: 0.569
Spine Angle	: 73.8	Spine Slope	: 3.453	Spine Intercept	: -18.1

Caliper	Readings	Reference	
Low Ref	3.2	7.0	
High Ref	6.2	14.0	
	Gain: 2.3		Offset: -0.2
Compensated Neutron Calibration Report			
	Serial Number:	NEU_3I	
	Tool Model:	G	
CALIBRATION			
	Detector	Readings	Target
			Normalization
	Short Space	997.00 cps	1000.00 cps
	Long Space	986.00 cps	1000.00 cps
Gamma Ray Calibration Report			
	Serial Number:	GR4	
	Tool Model:	OPEN	
	Performed:	Mon Nov 01 22:56:35 2010	
	Calibrator Value:	200.0	GAPI
	Background Reading:	0.0	cps
	Calibrator Reading:	189.0	cps
	Sensitivity:	1.5000	GAPI/cps