



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company	WOOLSEY OPERATING CO., LLC.	Company	WOOLSEY OPERATING CO., LLC.
Well	NUSSER #4	Well	NUSSER #4
Field	HARDTNER	Field	HARDTNER
County	BARBER	County	BARBER
State	KANSAS	State	KANSAS
Location:	API # : 15-007-24067 1320' FSL & 330' FWL	Other Services CDL/CNL/PE	
Permanent Datum Log Measured From Drilling Measured From	GROUND LEVEL KELLY BUSHING 13' A.G.L. KELLY BUSHING	Elevation K.B. 1400 D.F. G.L. 1387	
Date	10-9-13		
Run Number	ONE		
Depth Driller	5490		
Depth Logger	5491		
Bottom Logged Interval	5489		
Top Log Interval	00		
Casing Driller	217		
Casing Logger	217		
Bit Size	7.875		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.2 / 53		
pH / Fluid Loss	9.5 / 9.6		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	0.90 @ 88F		
Rmf @ Meas. Temp	0.68 @ 88F		
Rmc @ Meas. Temp	1.08 @ 88F		
Source of Rmf / Rmc	MEASURED		
Rim @ BHT	.610 @ 130F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	12:00P M.		
Maximum Recorded Temperature	130F		
Equipment Number	860		
Location	HAYS, KS.		
Recorded By	RUPP		
Witnessed By	BILL KLAVER		

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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

NABORS COMPLETION & PRODUCTION SERVICES
785-628-6395
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: HARDTNER, 2E, 1/2S.



**COMPLETION
& PRODUCTION**

MAIN SECTION

Database File: 010213pdn.db
 Dataset Pathname: pass3.B
 Presentation Format: _dil2
 Dataset Creation: Wed Oct 09 15:06:00 2013
 Charted by: Depth in Feet scaled 1:600

0 Gamma Ray (GAPI) 150

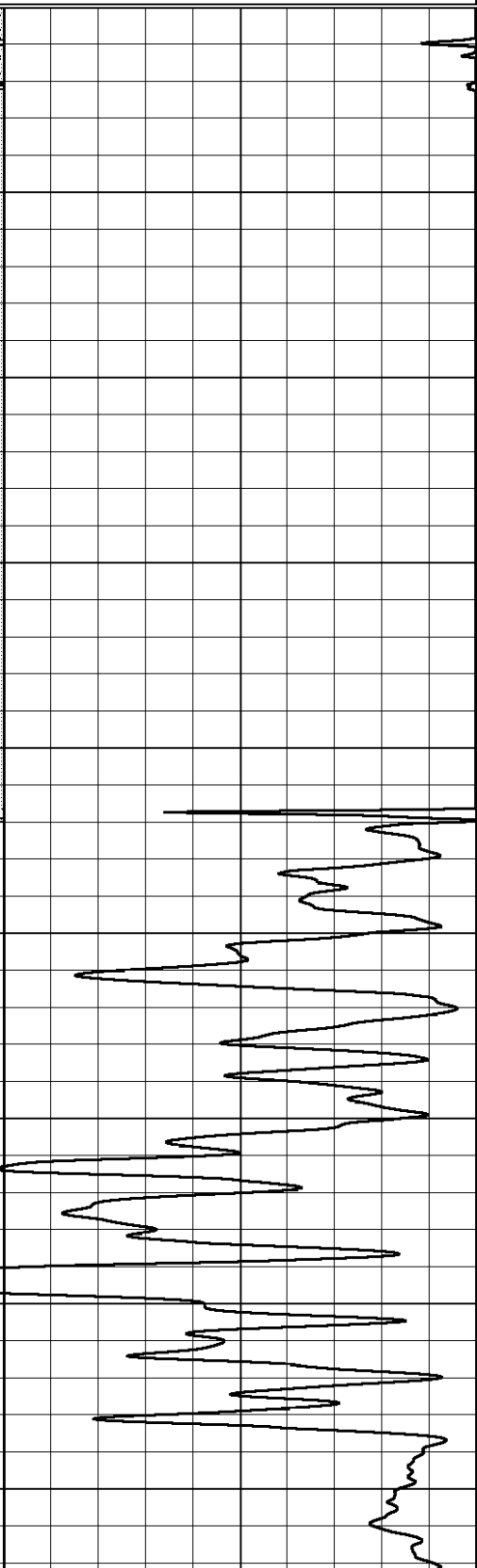
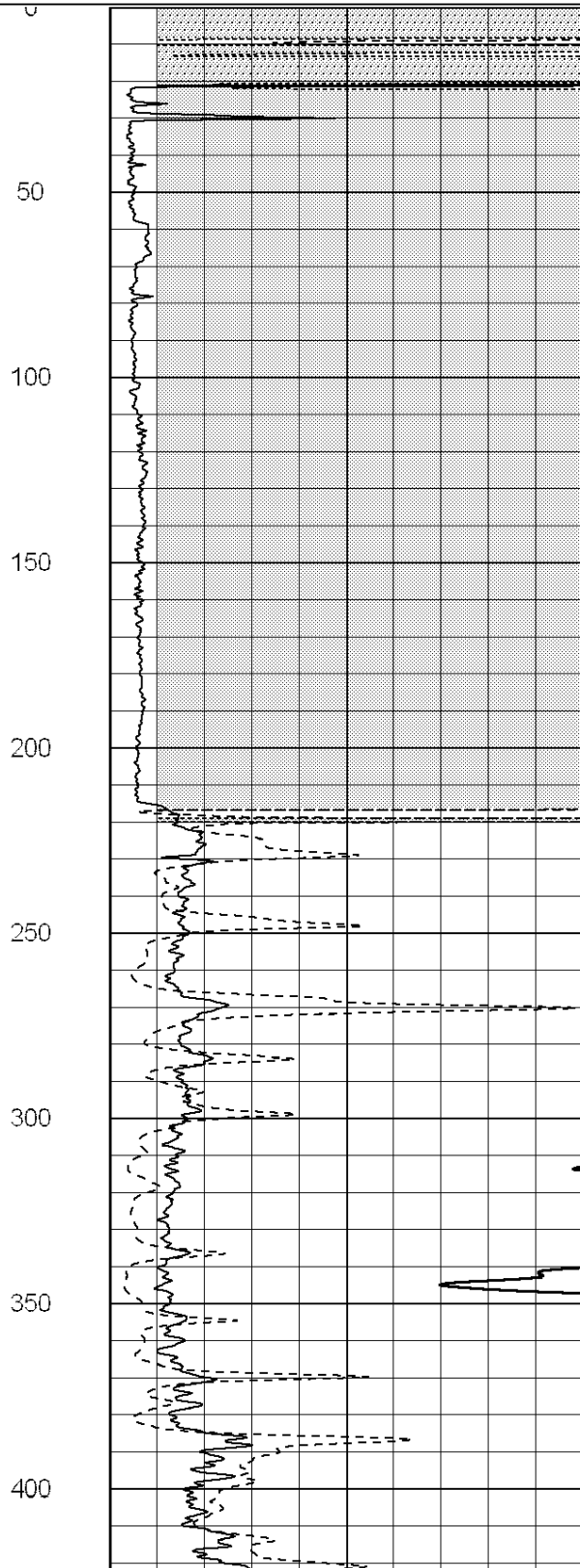
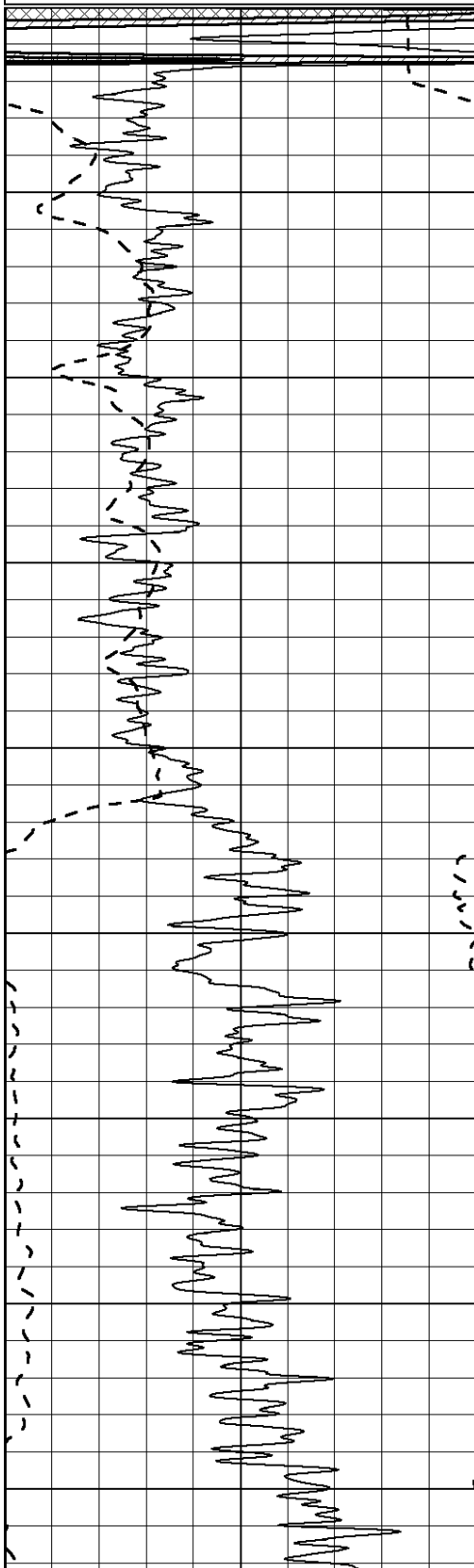
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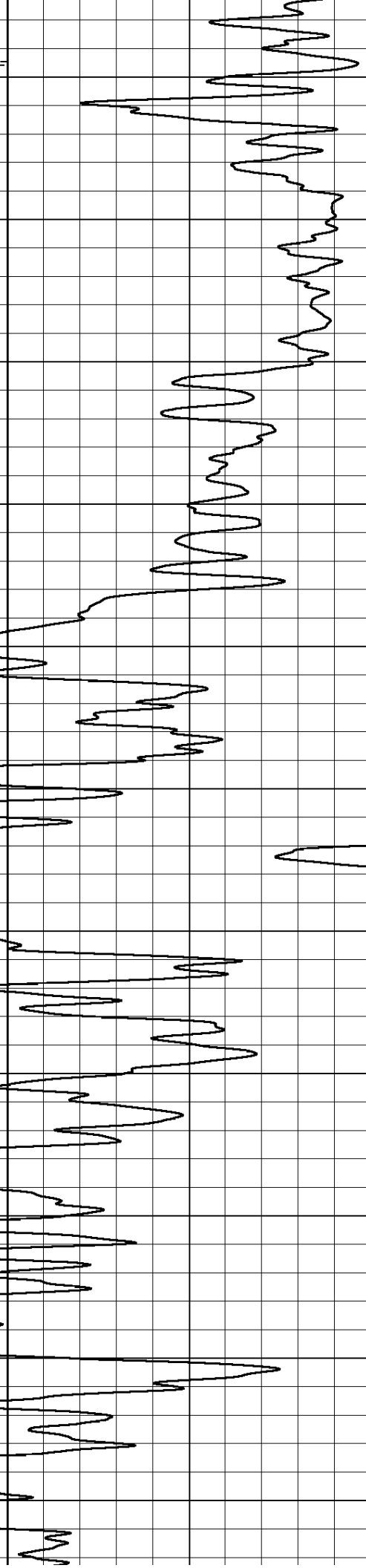
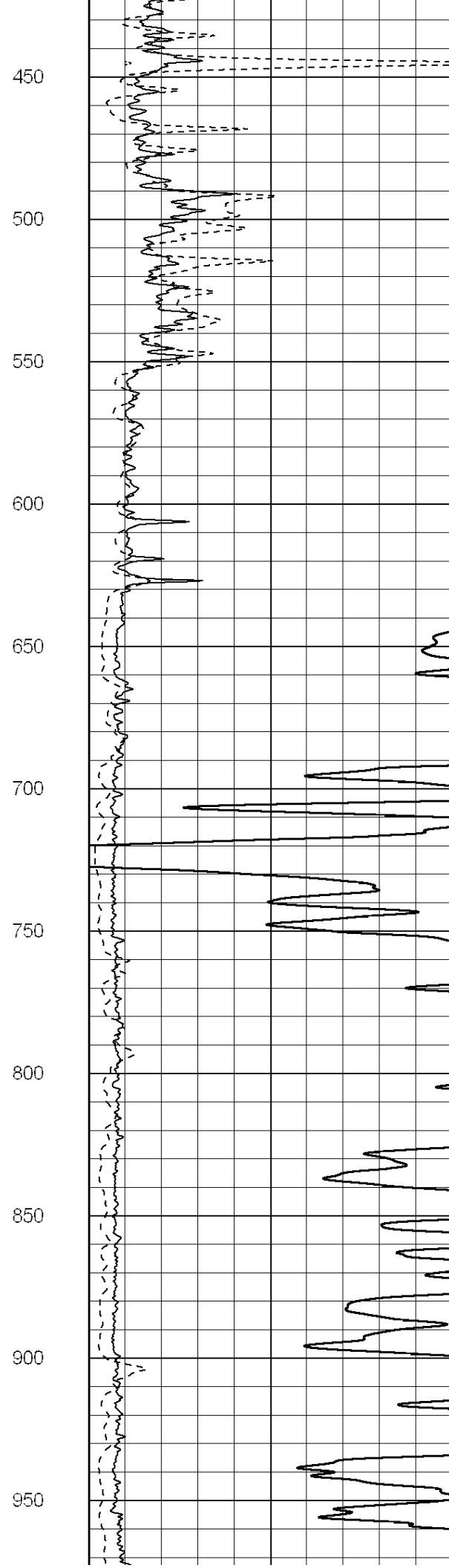
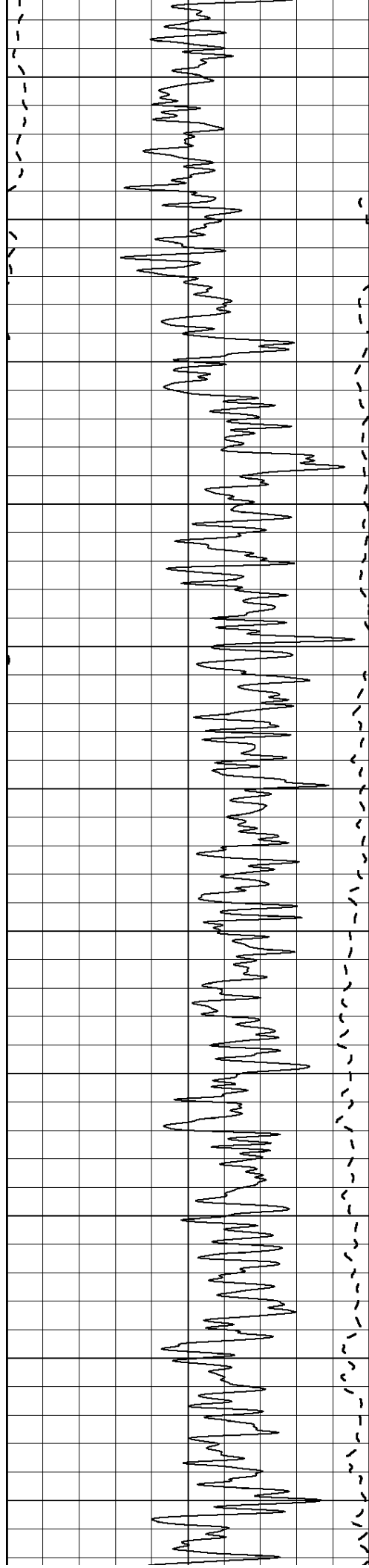
0 Deep Induction (Ohm-m) 50

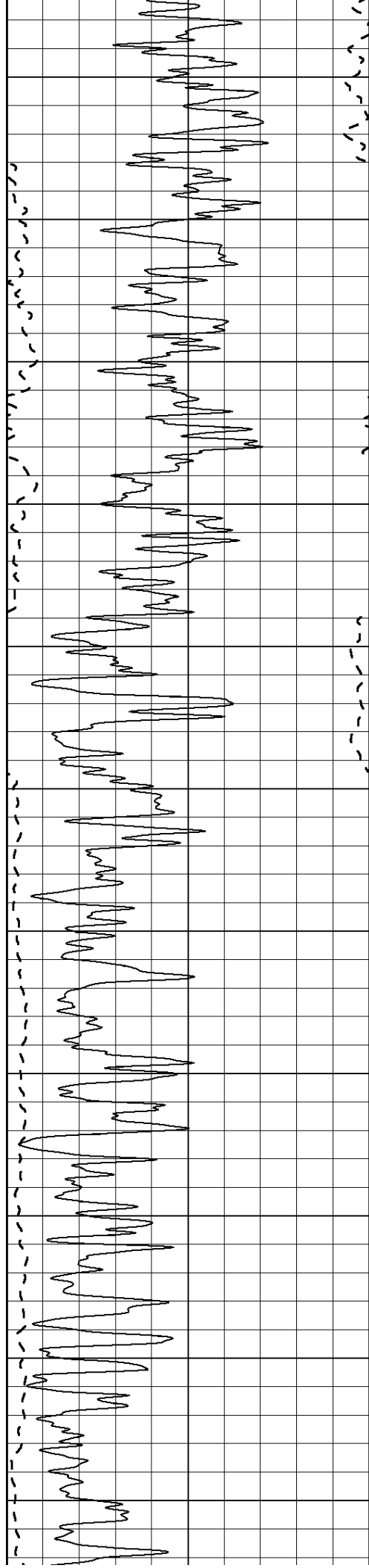
1000 CILD (mmho/m) 0

50 RILD X10 (Ohm-m) 500

50 RLL3 X10 (Ohm-m) 500







1000

1050

1100

1150

1200

1250

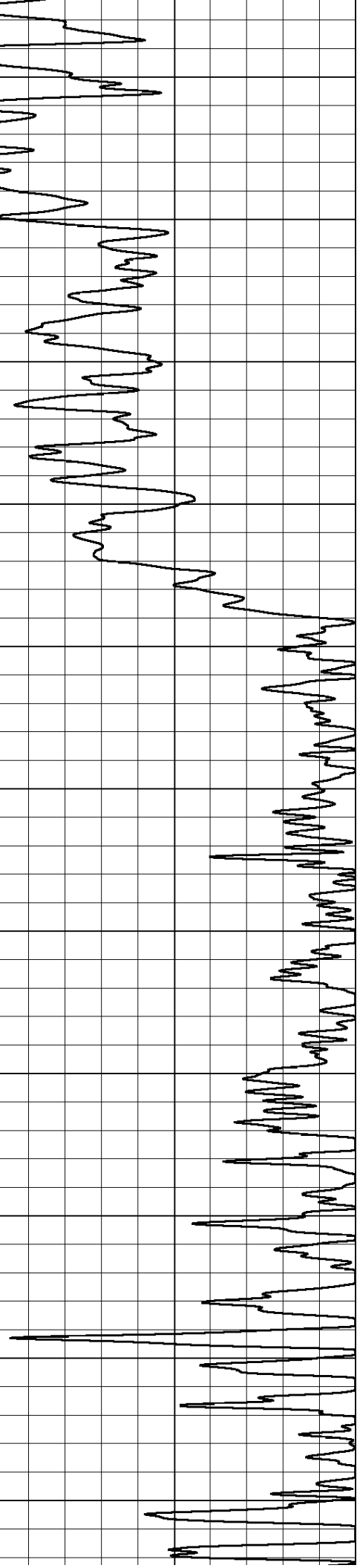
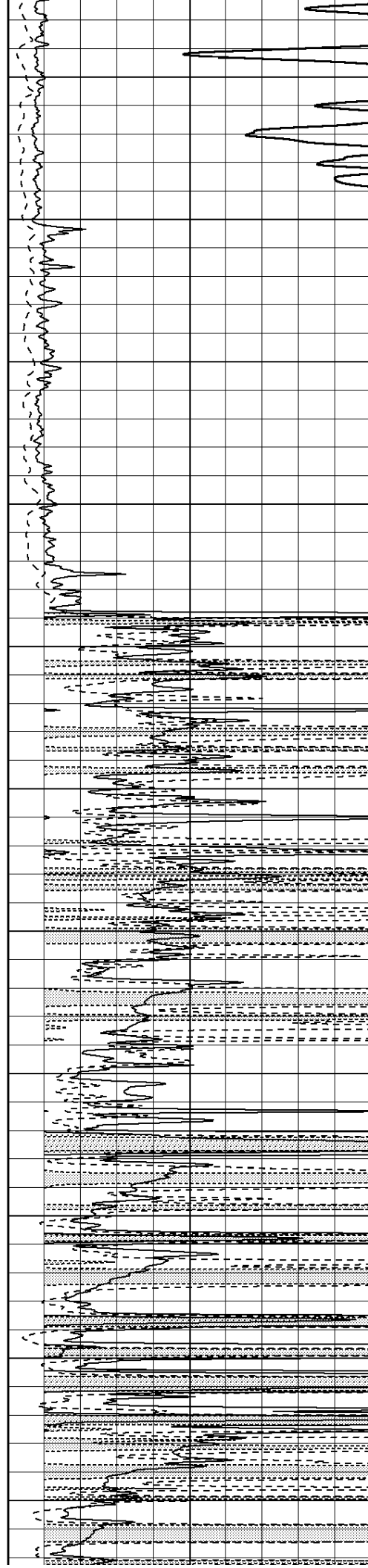
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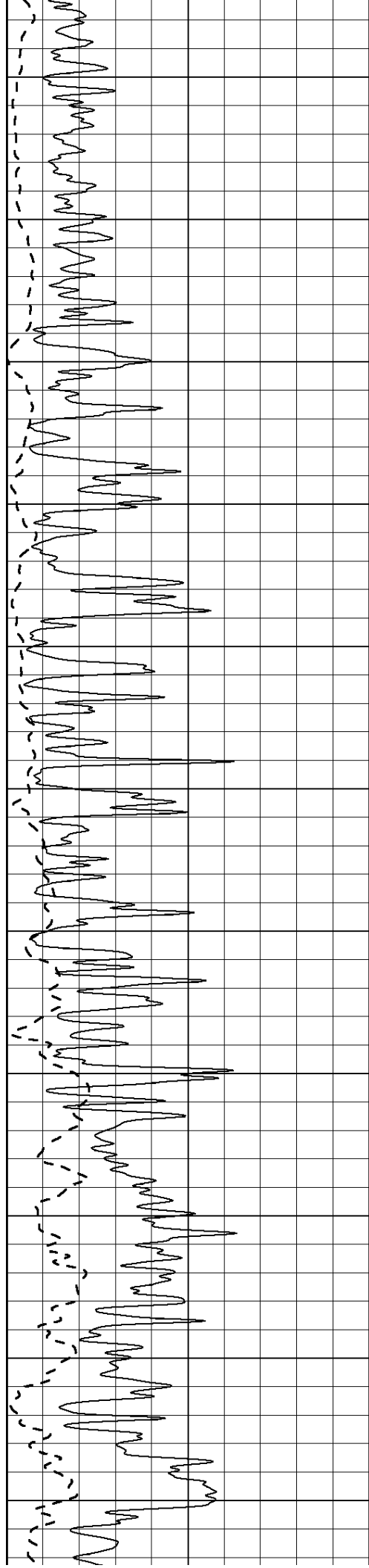
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1500





1550

1600

1650

1700

1750

1800

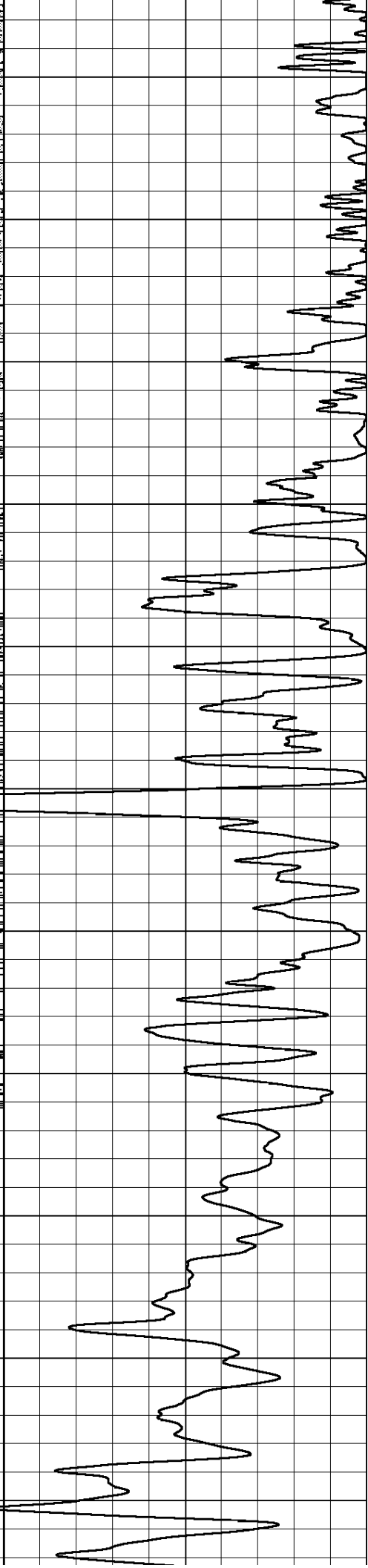
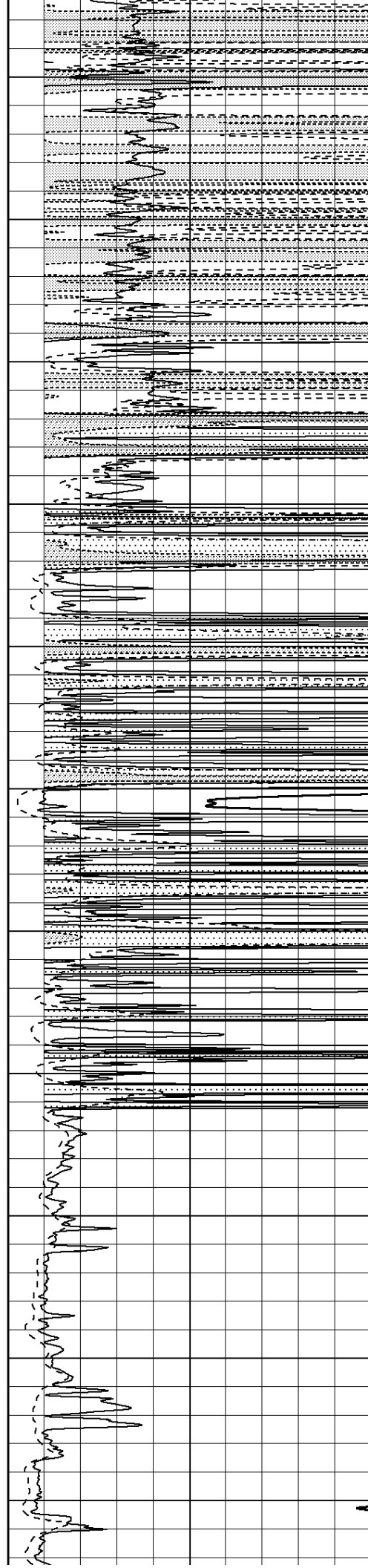
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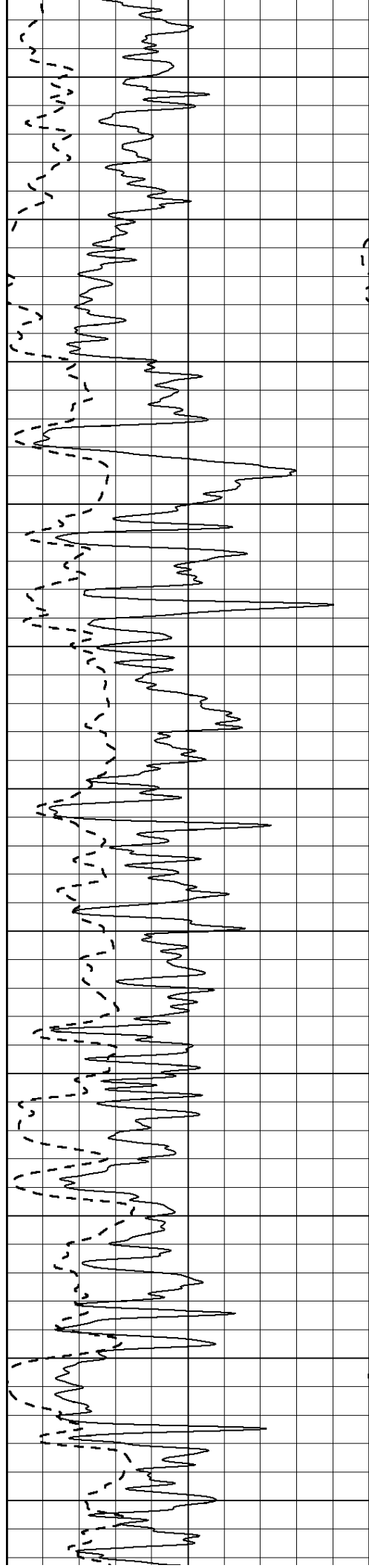
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1950

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2100

2150

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2250

2300

2350

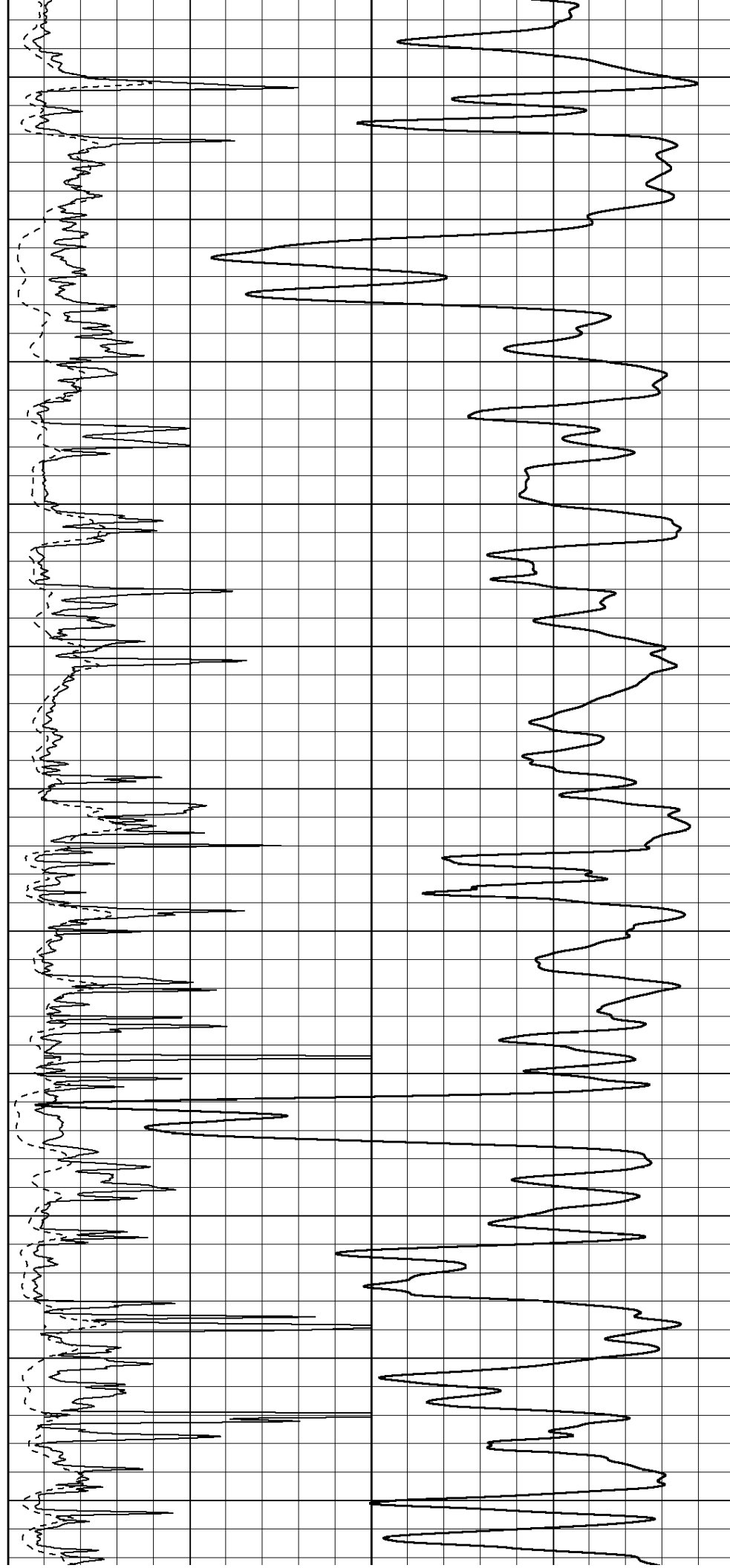
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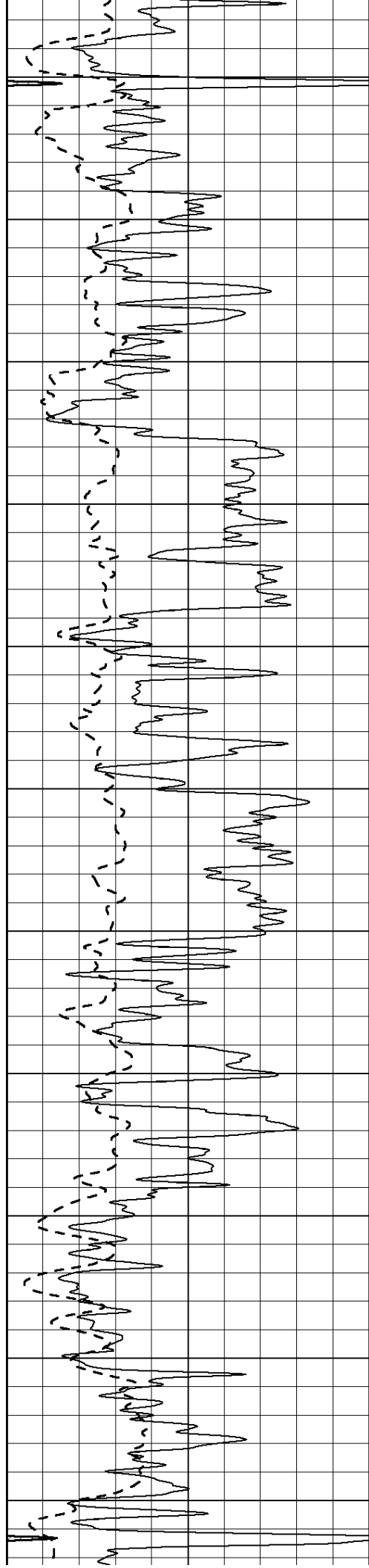
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2600





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2700

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2800

2850

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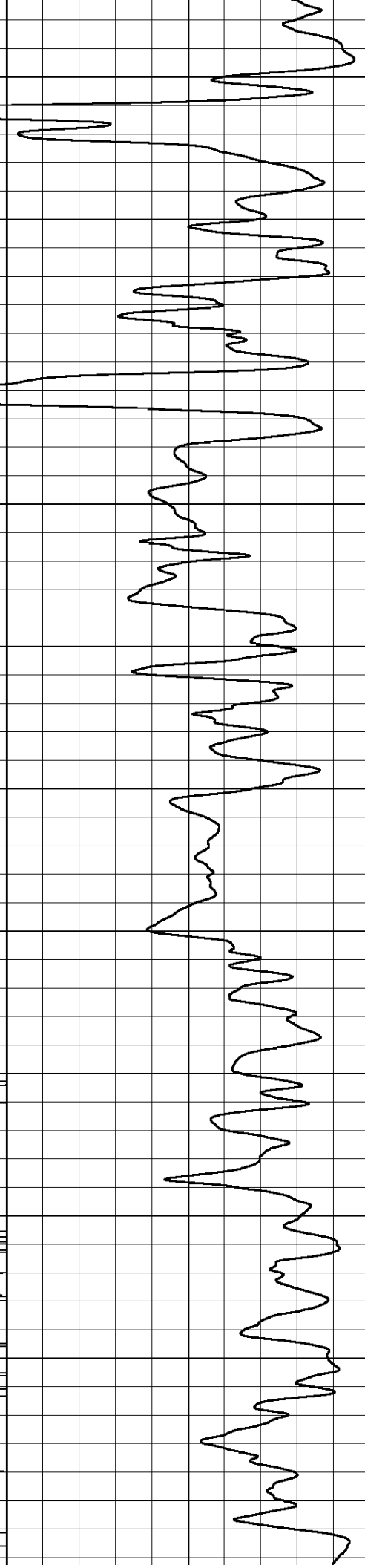
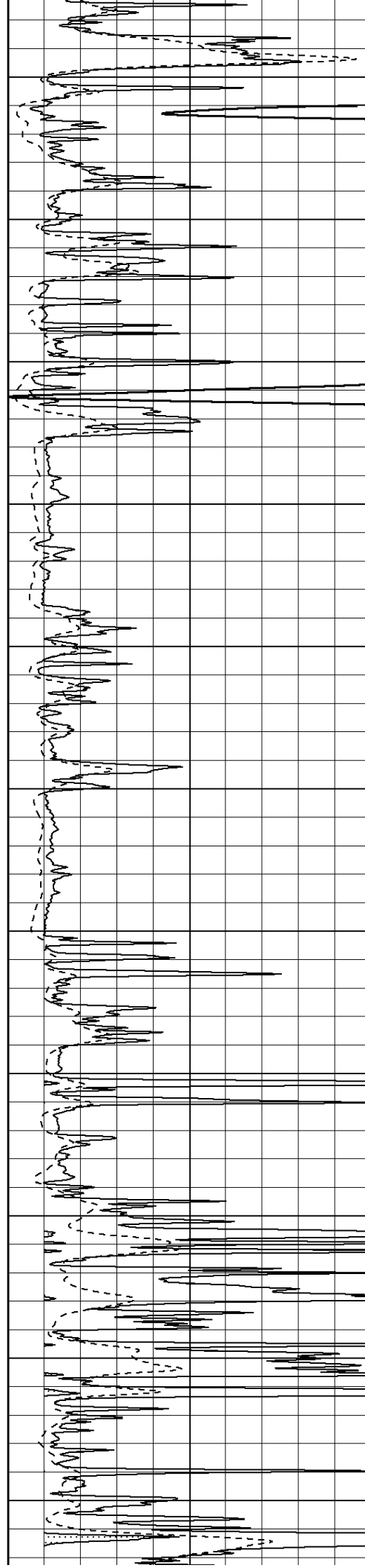
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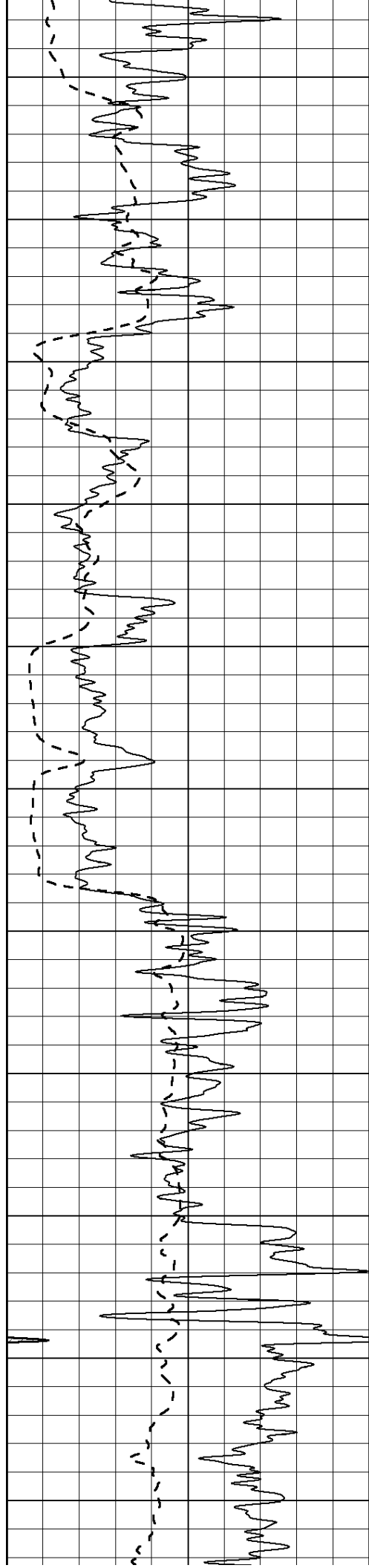
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3100

3150





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3400

3450

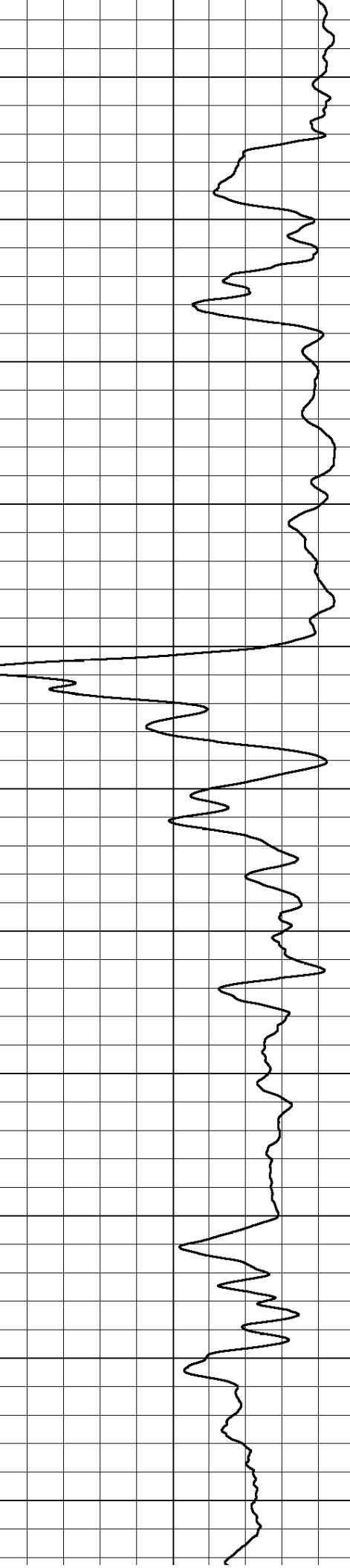
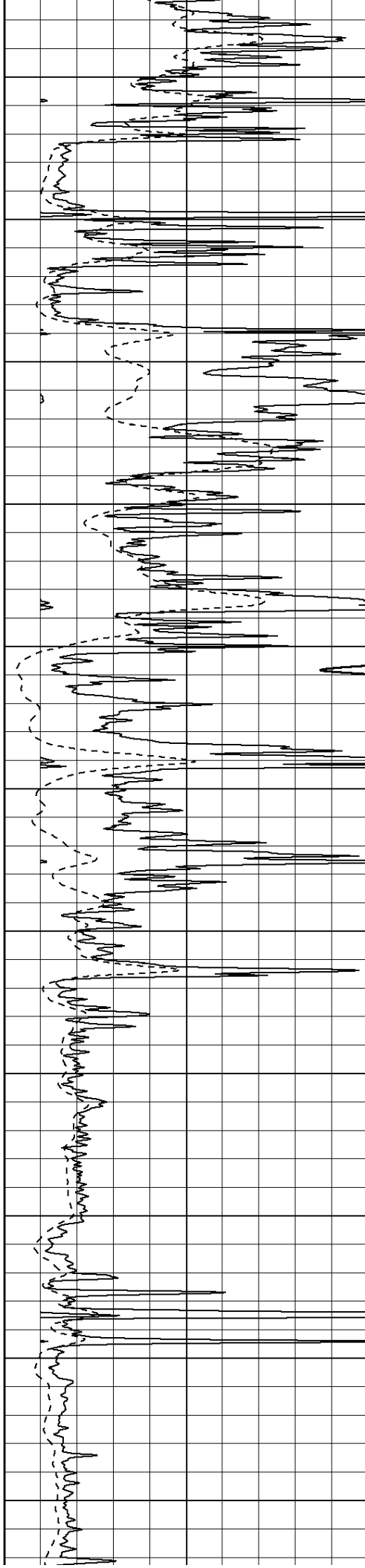
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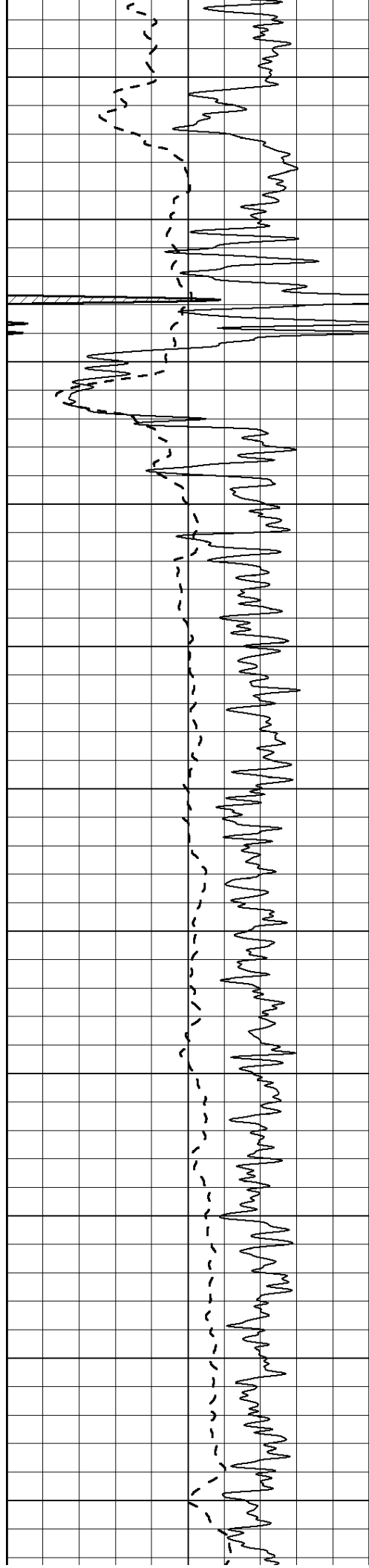
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3700





3750

3800

3850

3900

3950

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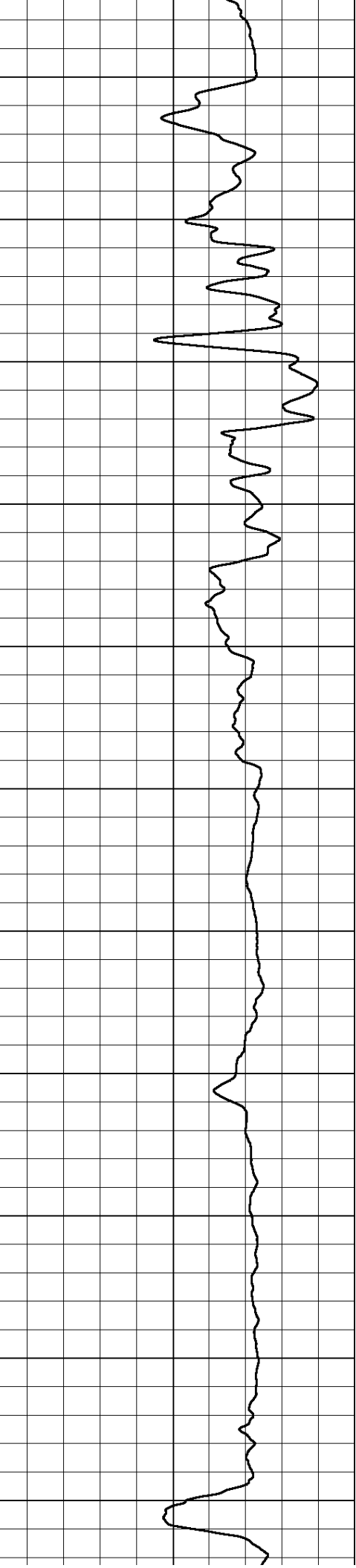
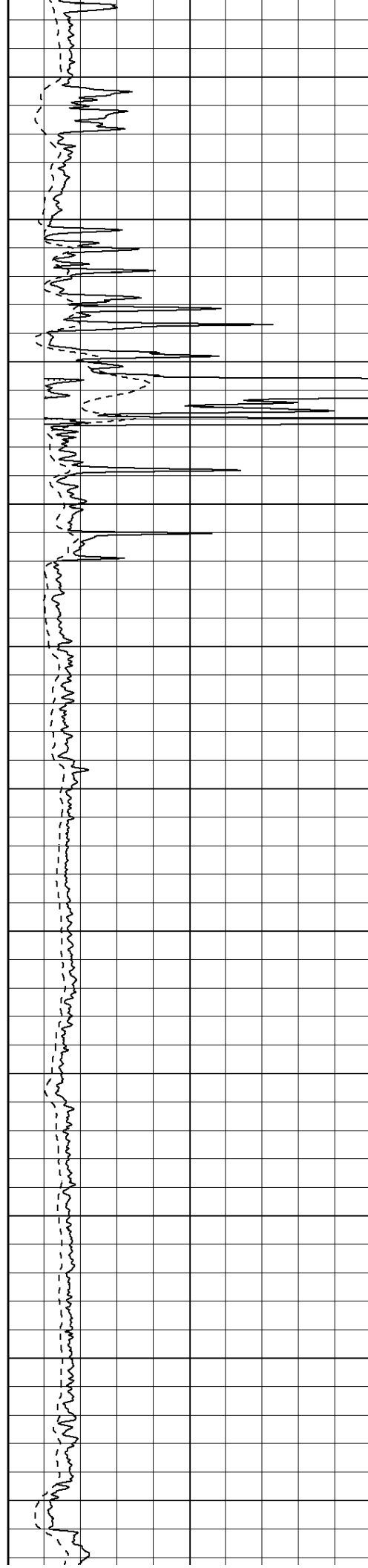
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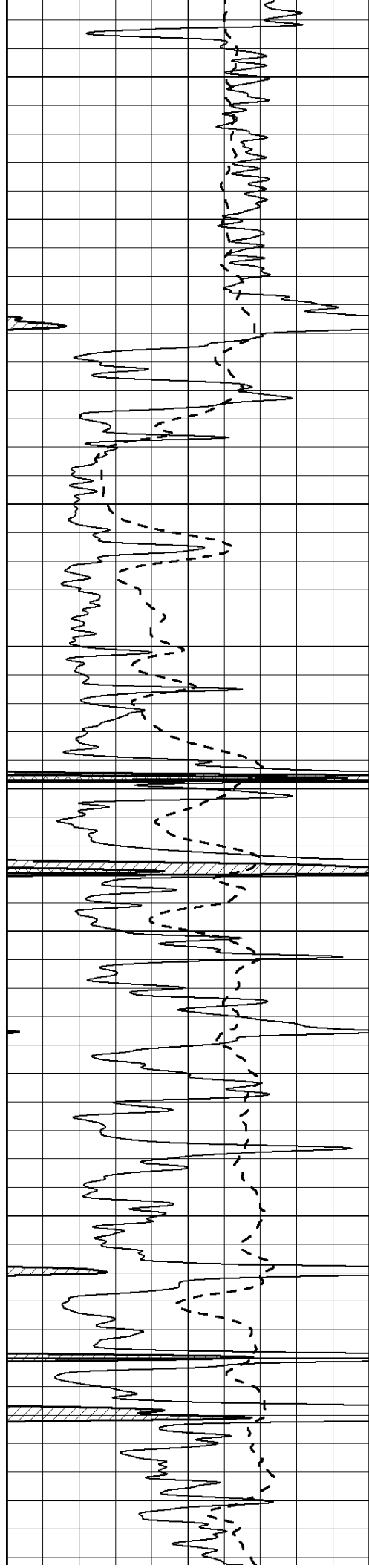
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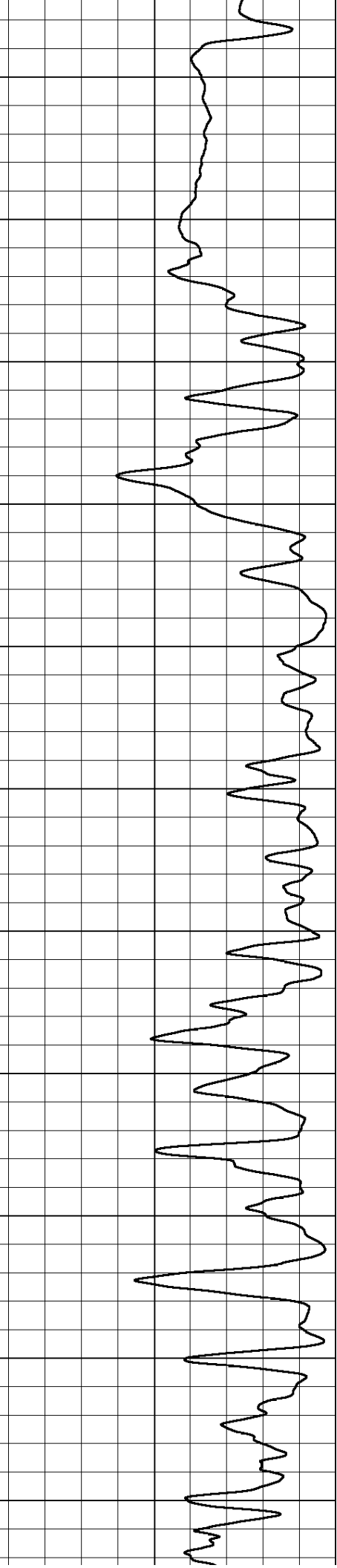
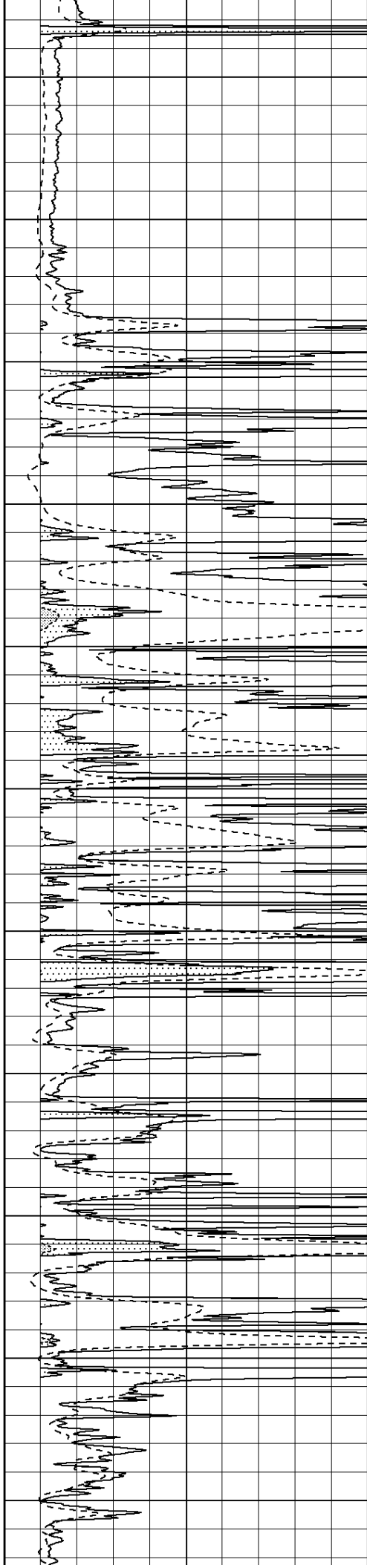
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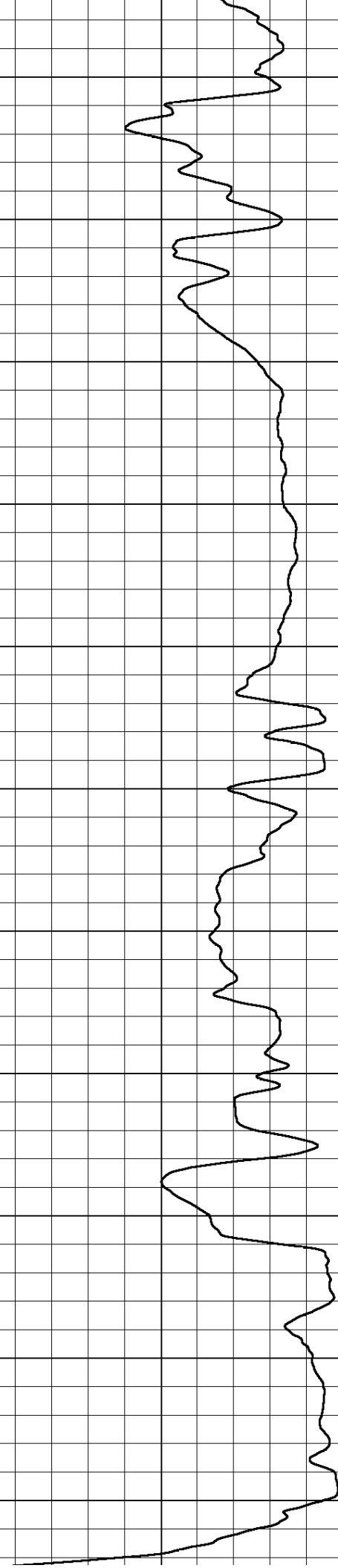
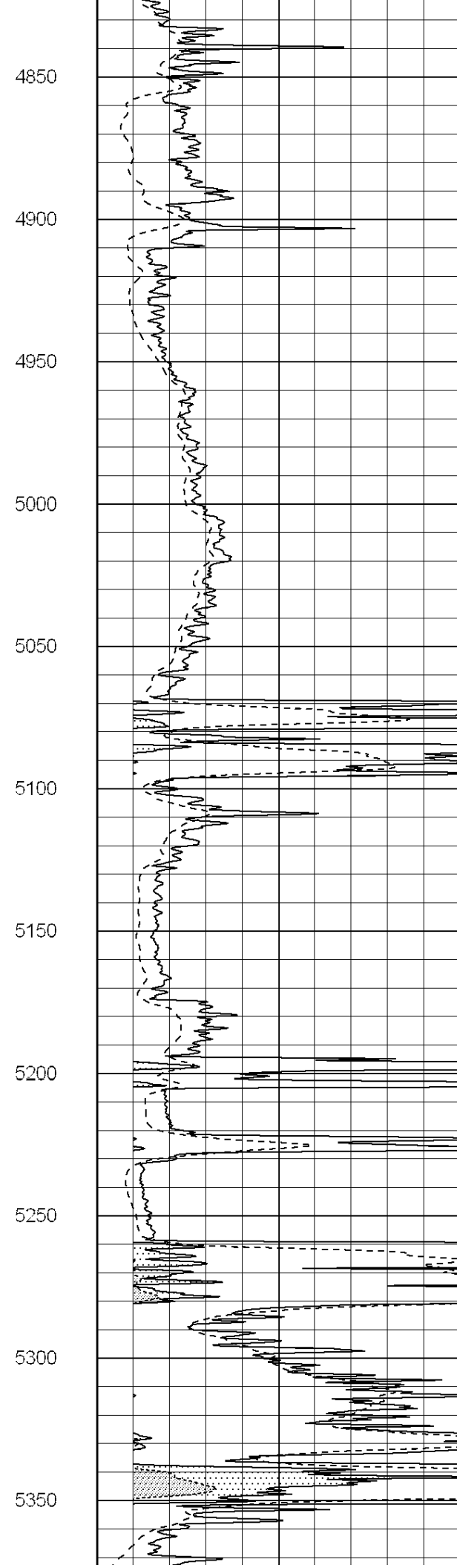
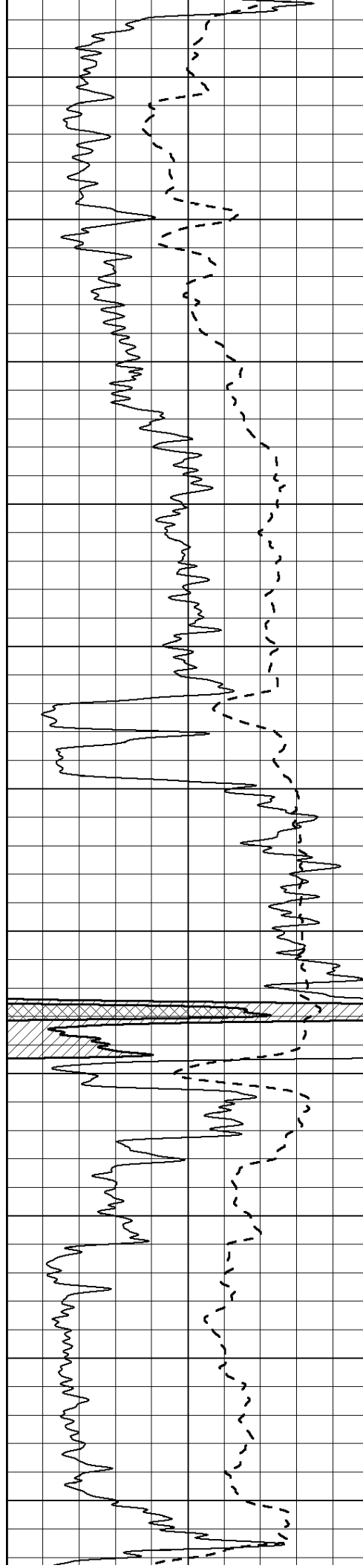
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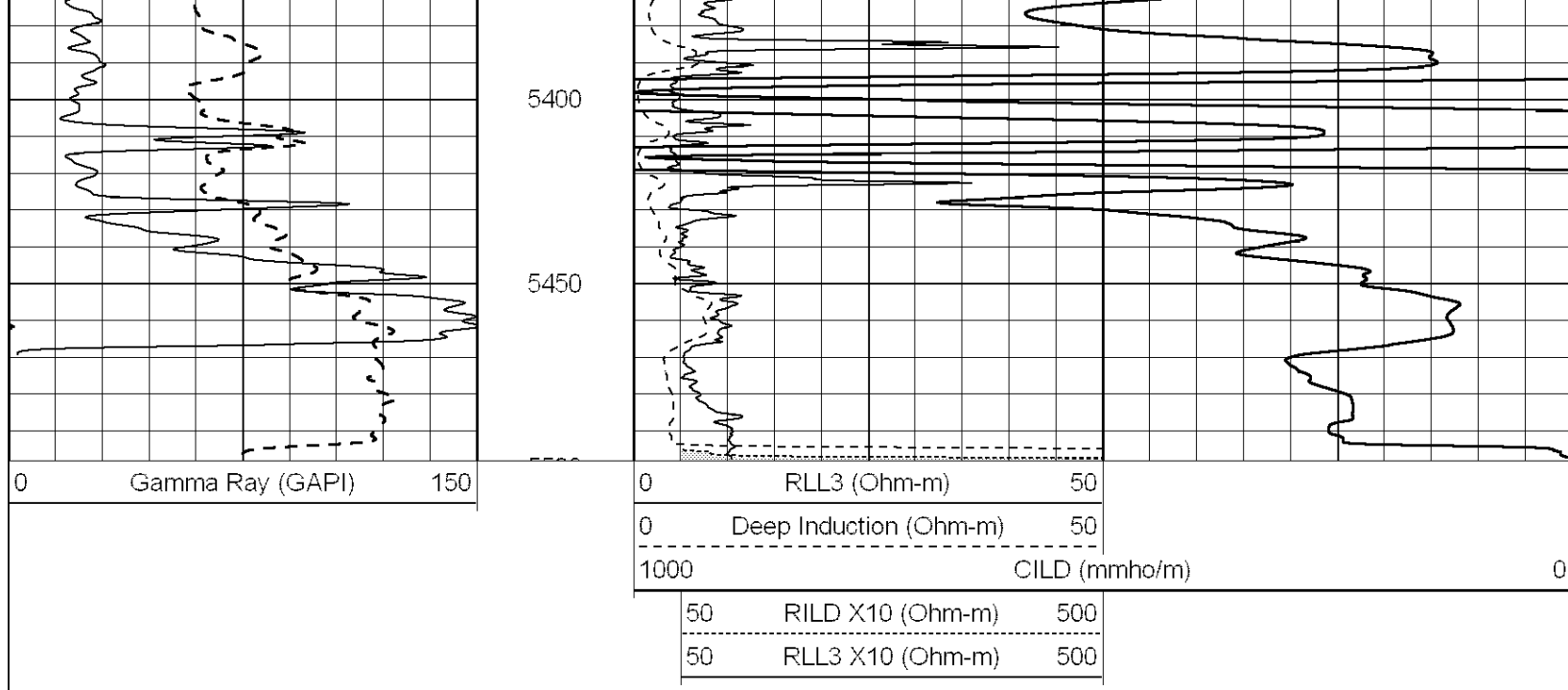




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4350
4400
4450
4500
4550
4600
4650
4700
4750
4800



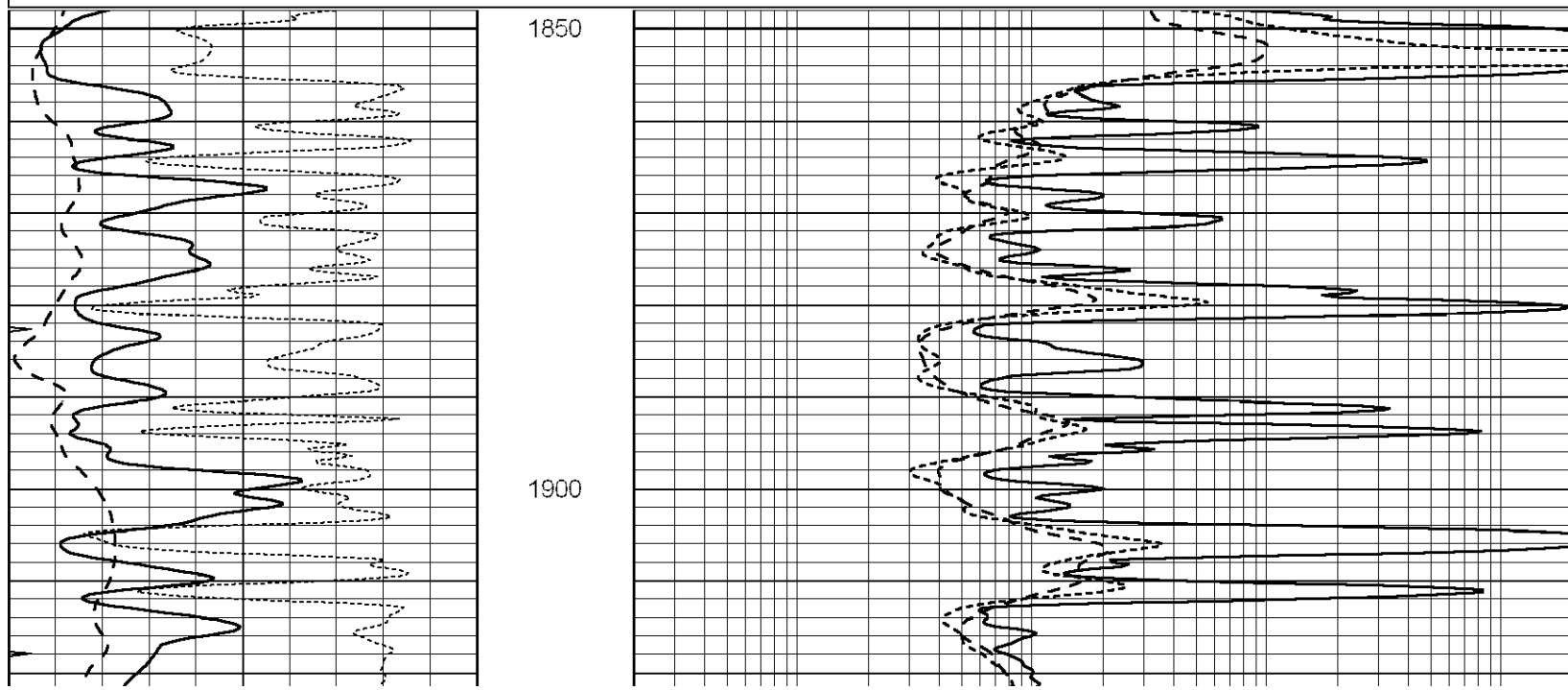


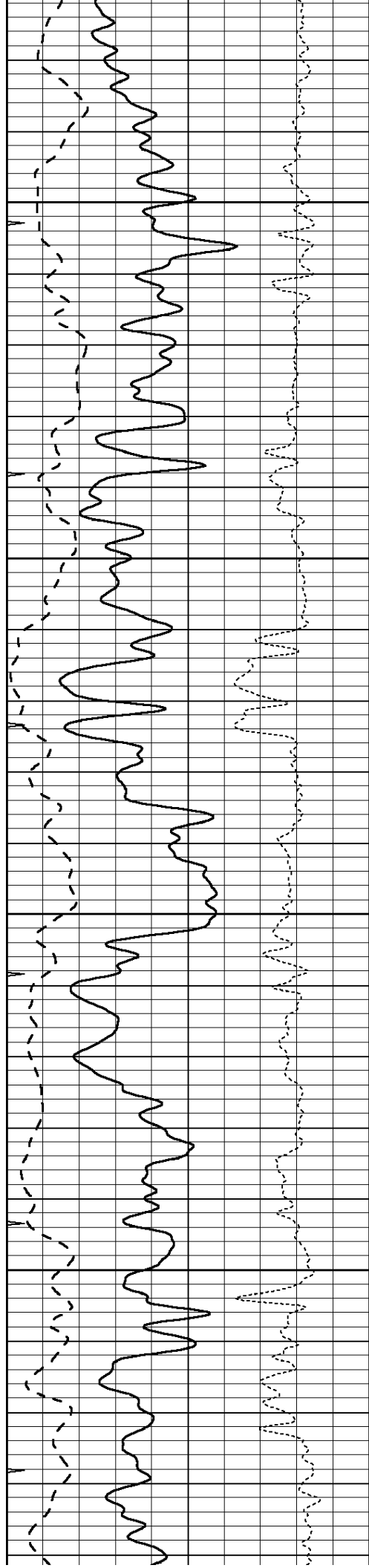


MAIN SECTION

Database File: 010213pdm.db
Dataset Pathname: pass3.B
Presentation Format: _dil
Dataset Creation: Wed Oct 09 15:06:00 2013
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	RLL3 (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	RxoRt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			



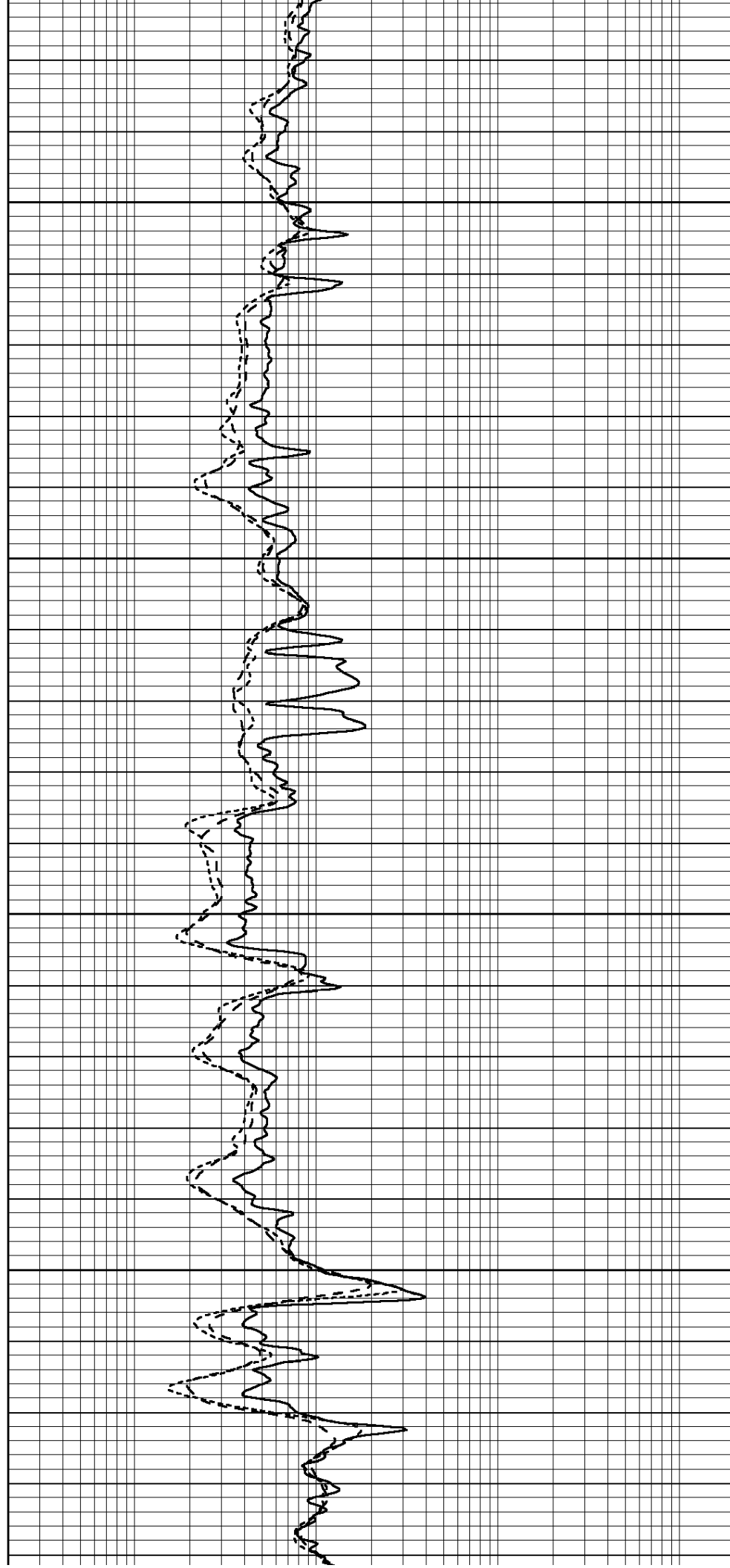


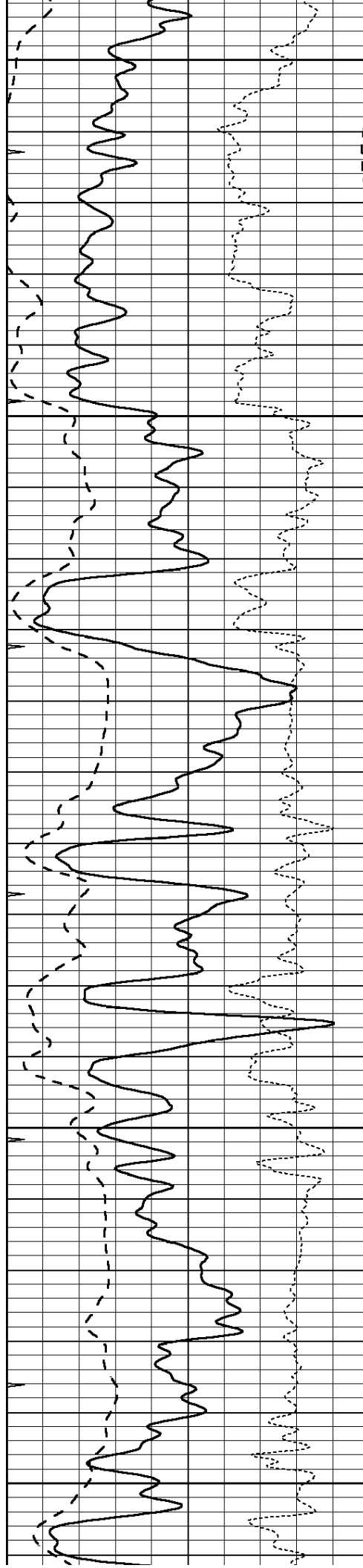
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2000

2050

2100





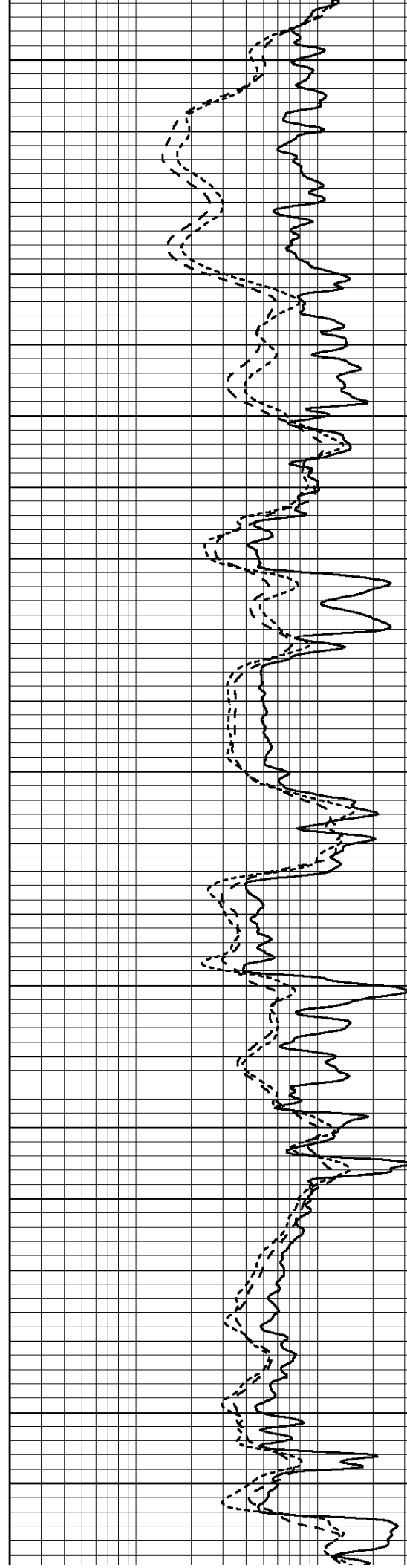
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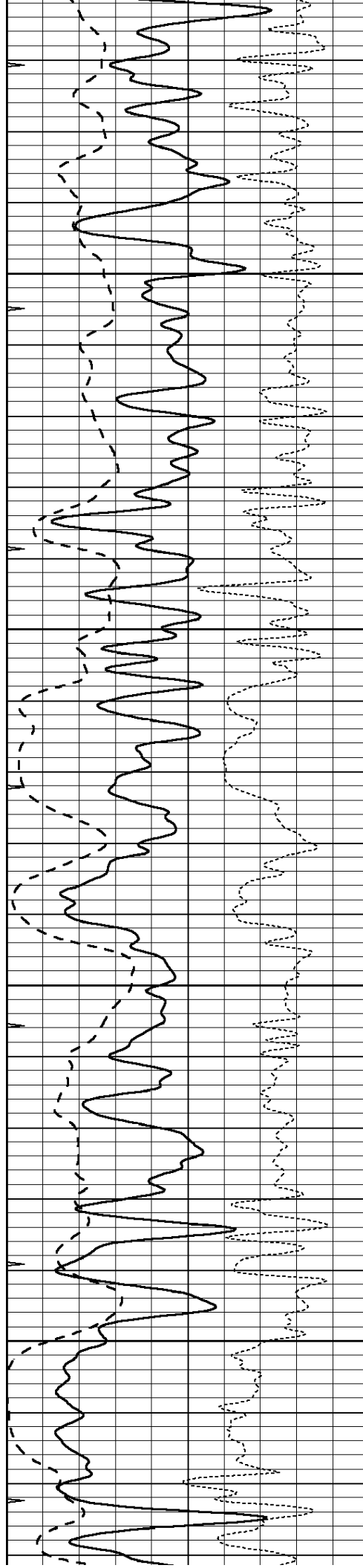
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2250

2300

2350



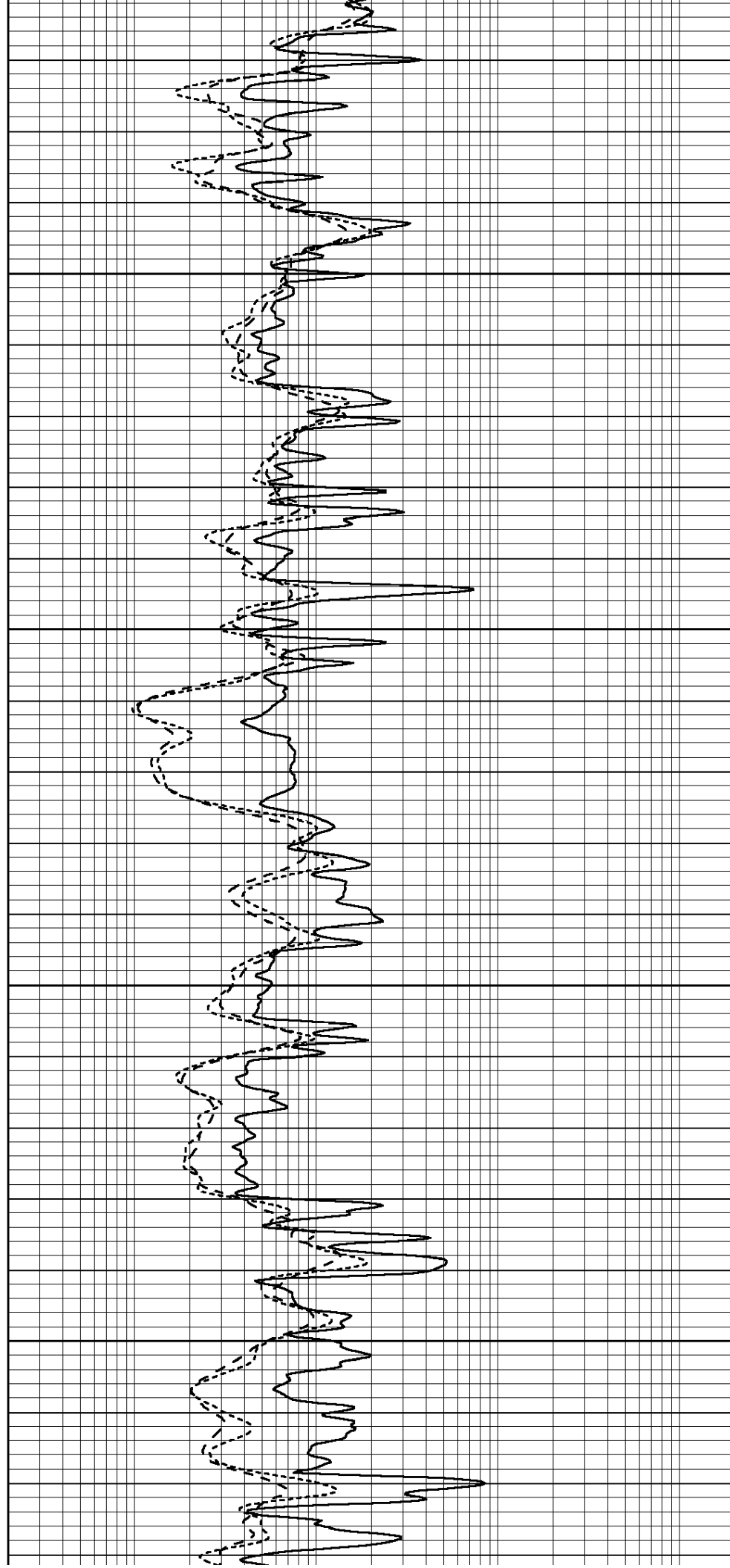


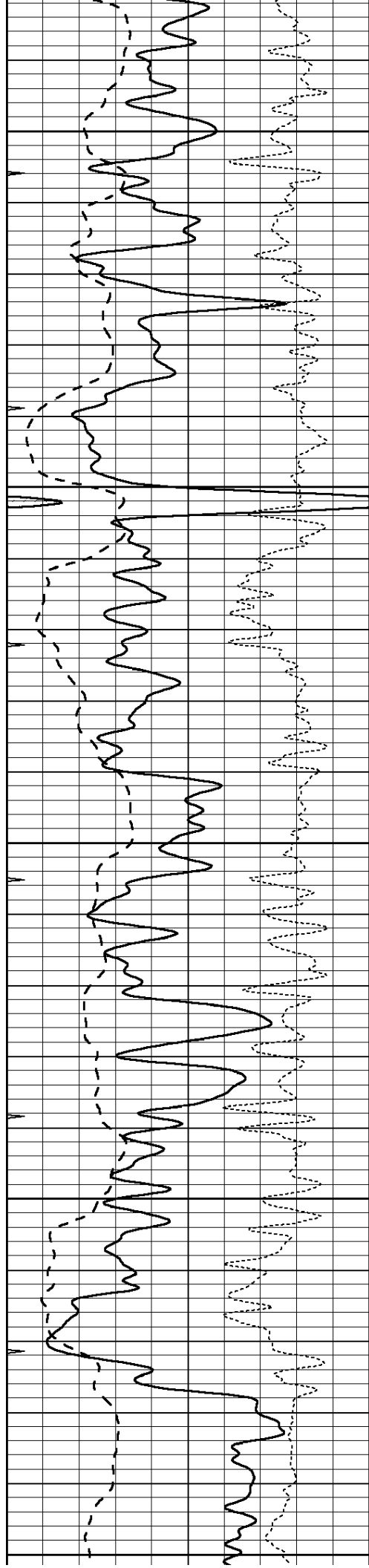
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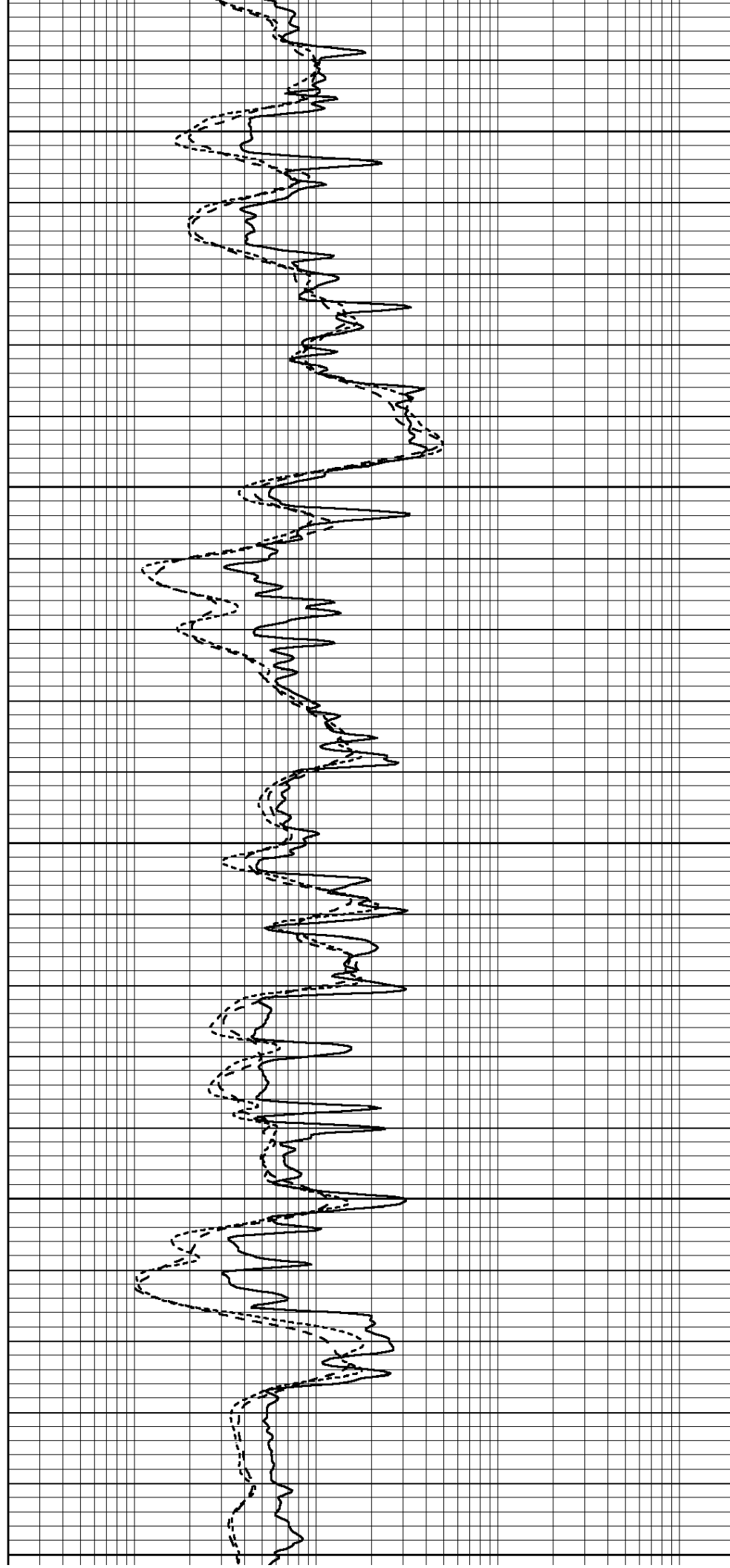
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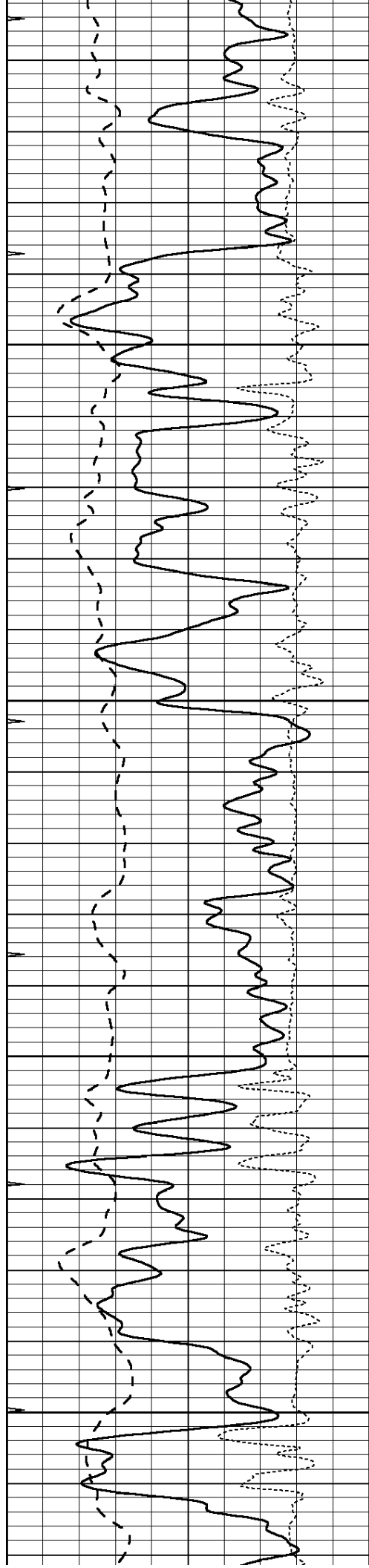
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2750

2800



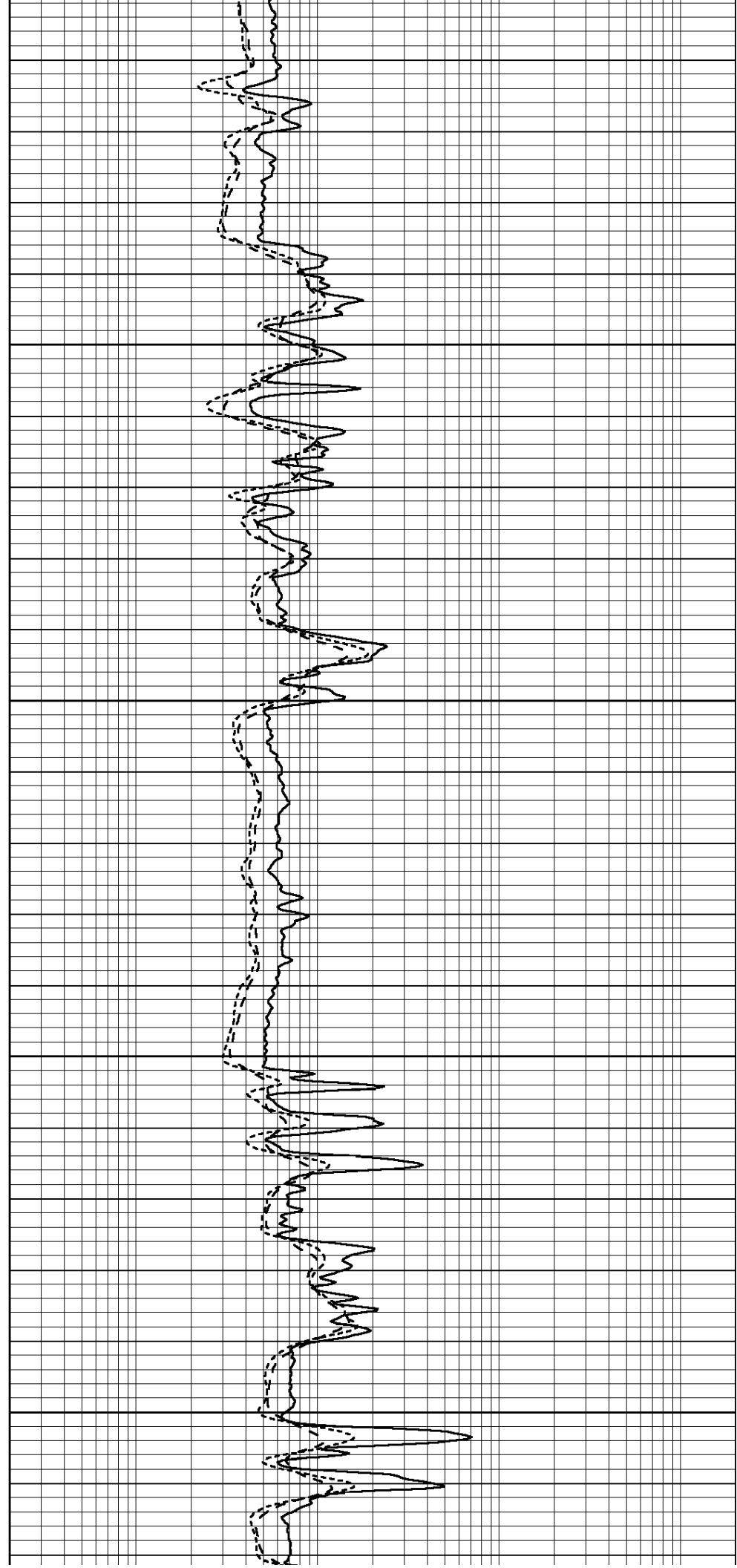


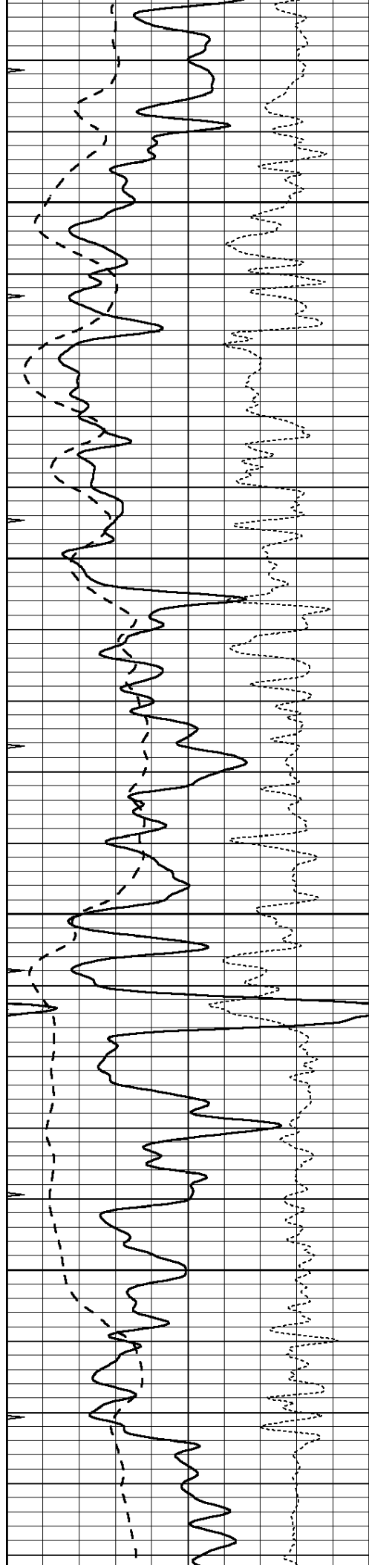
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2900

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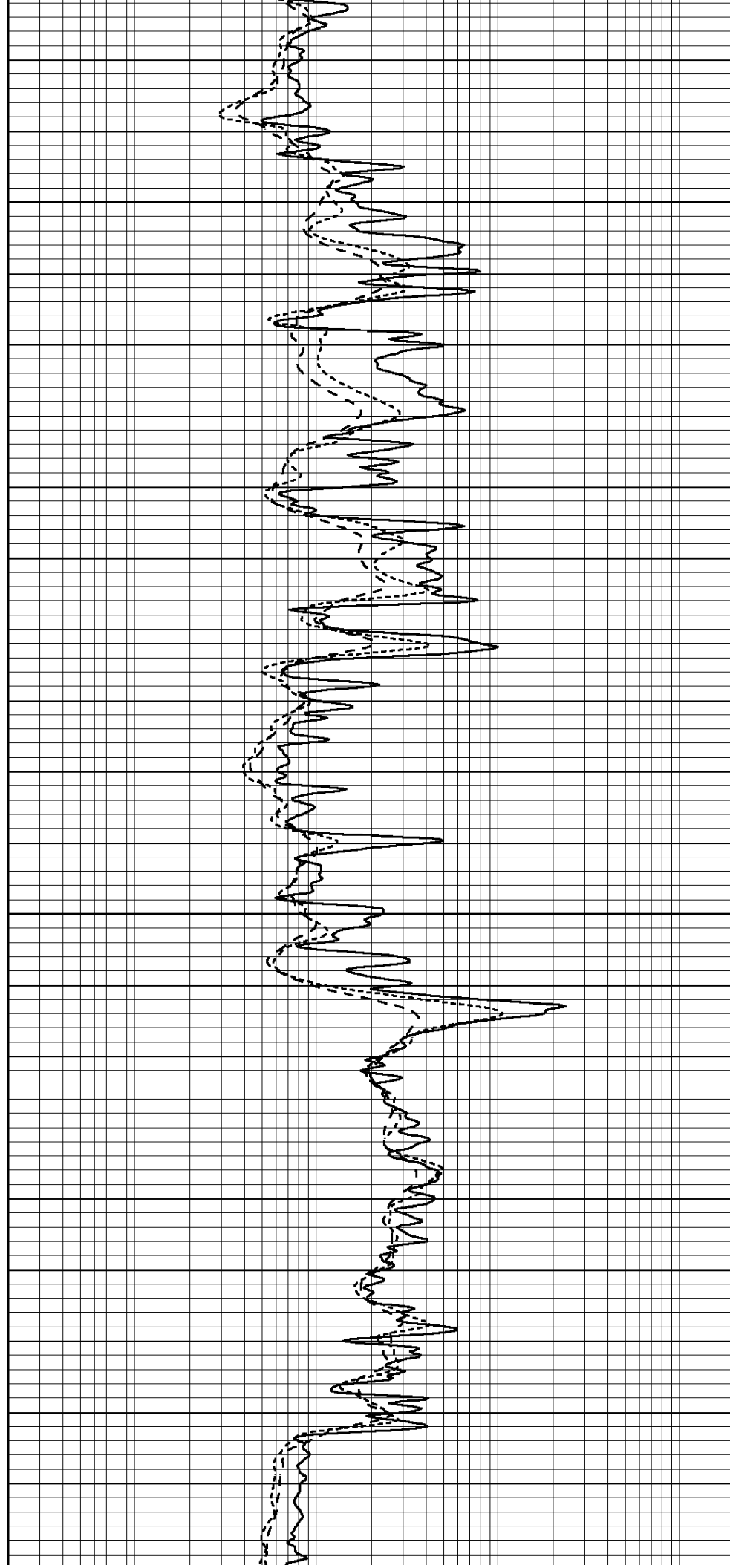


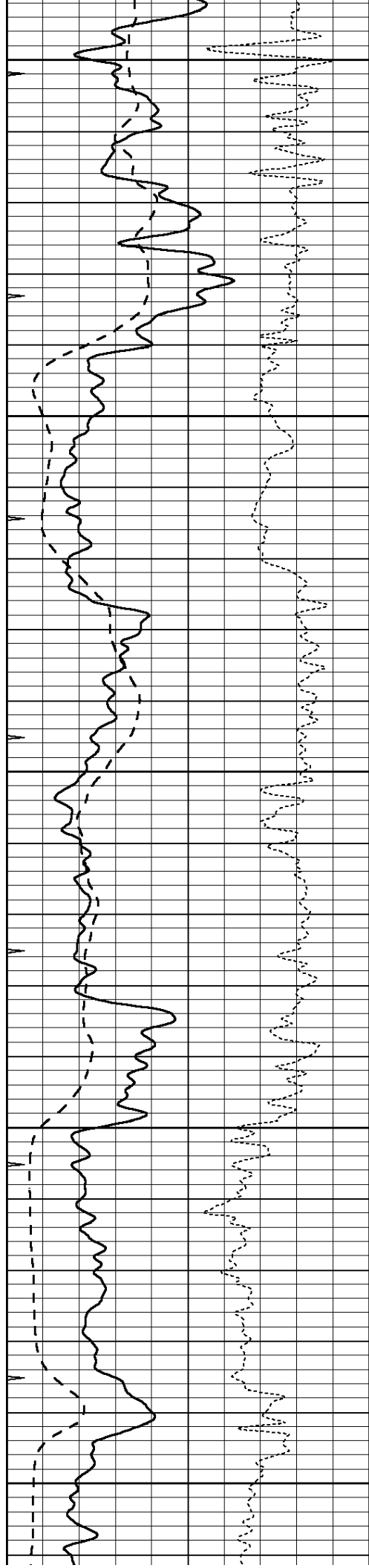
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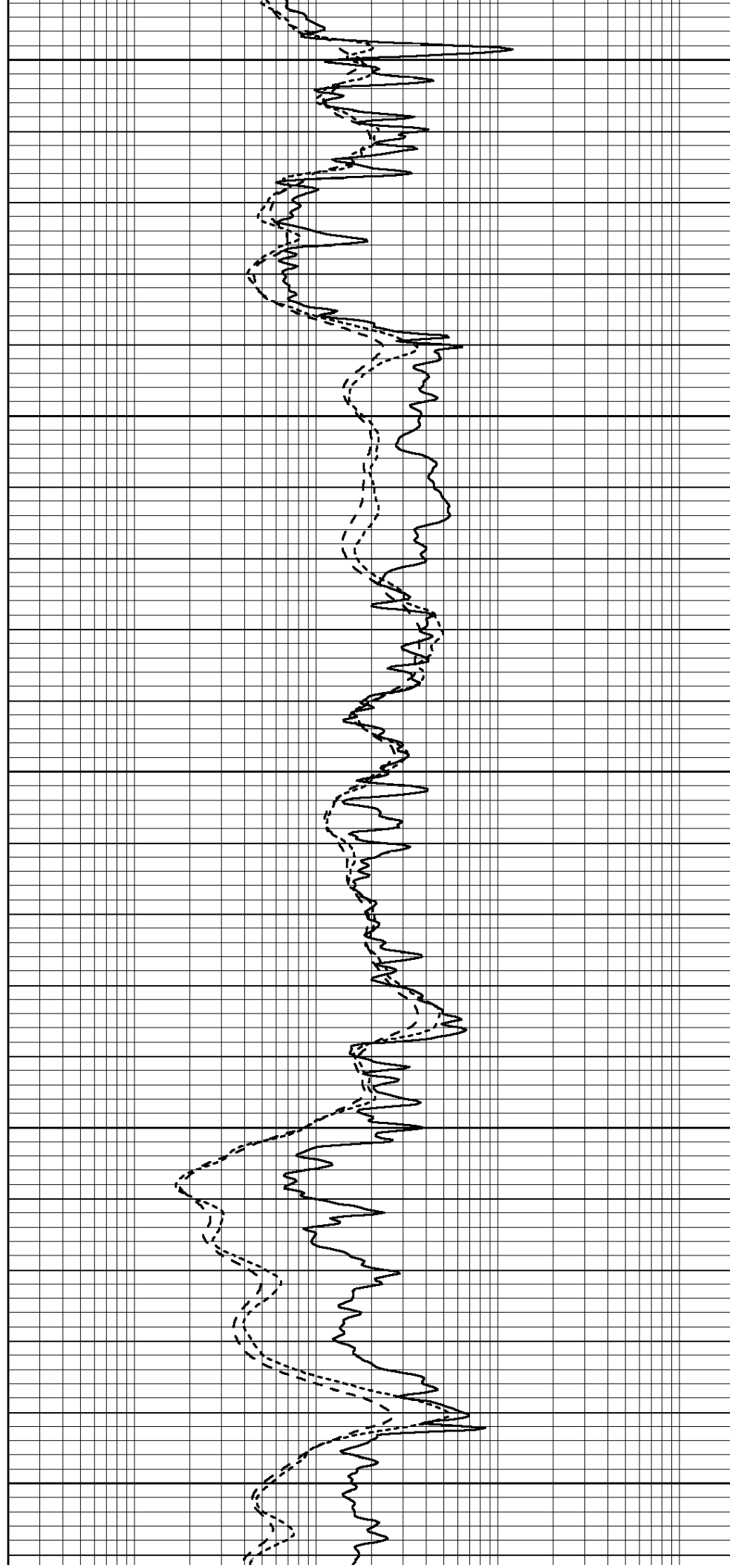
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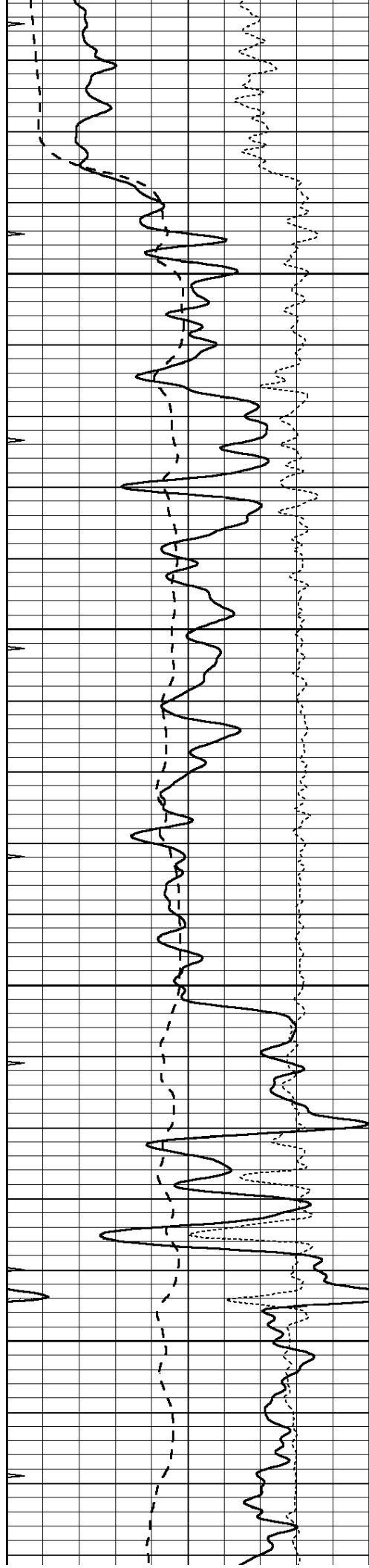
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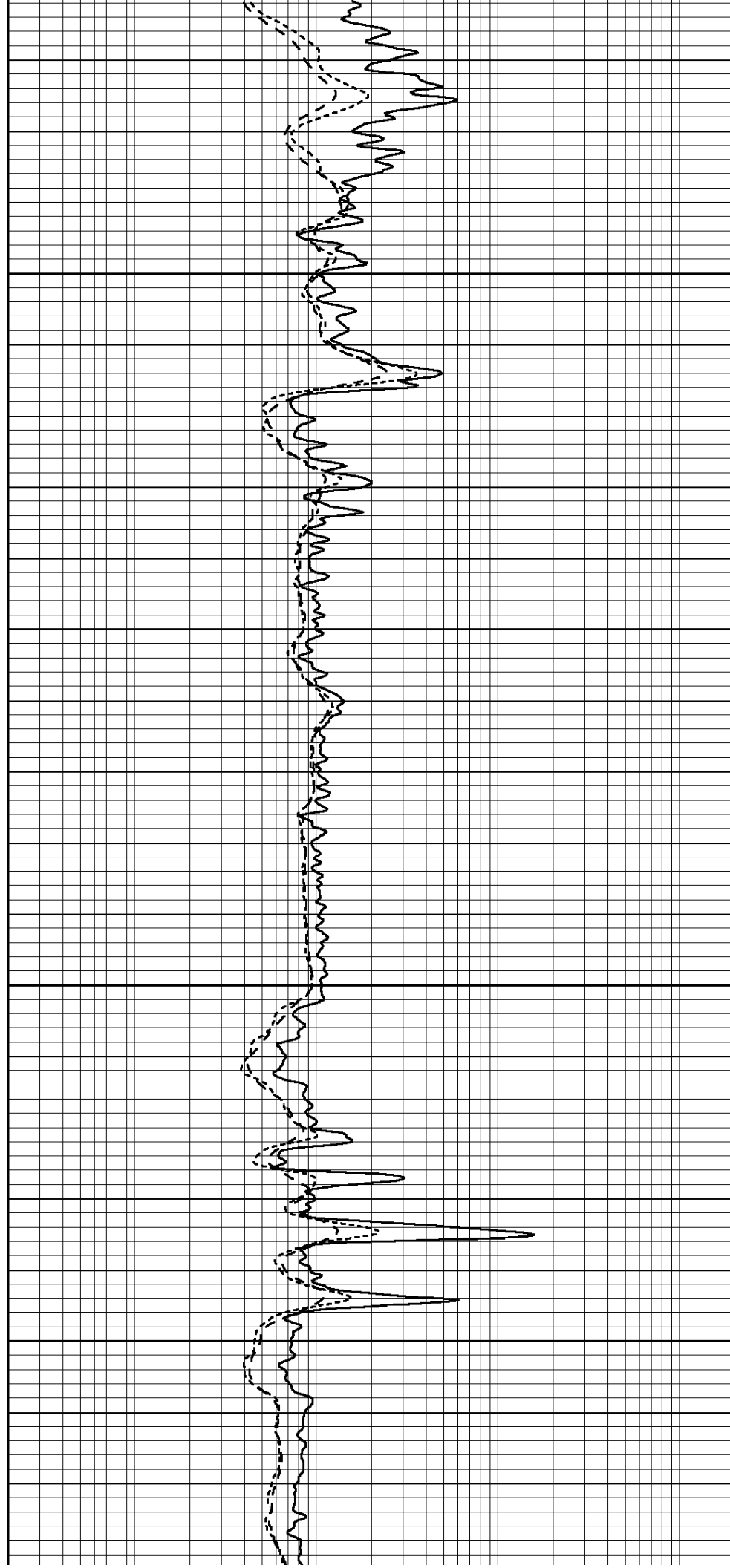


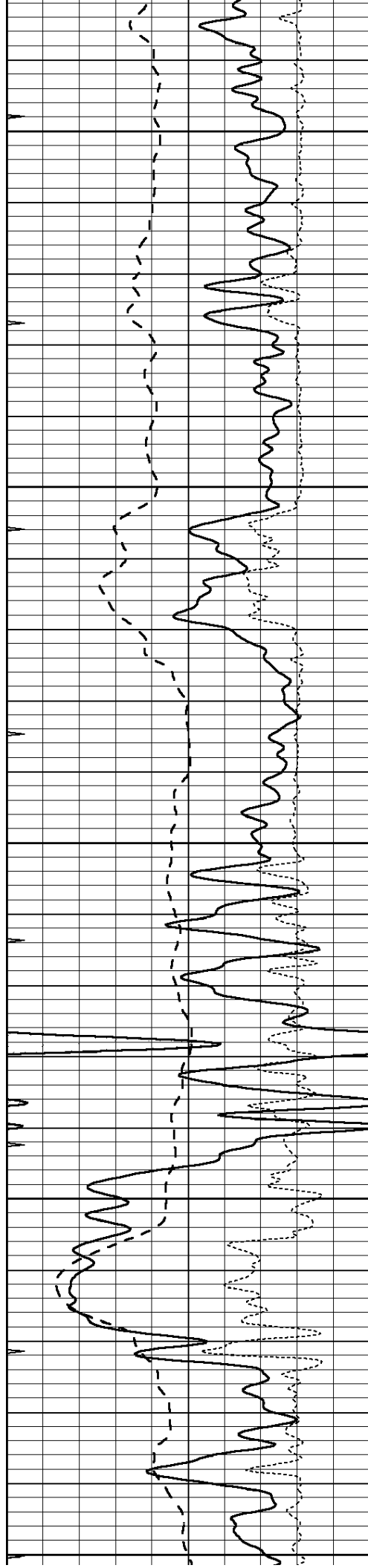
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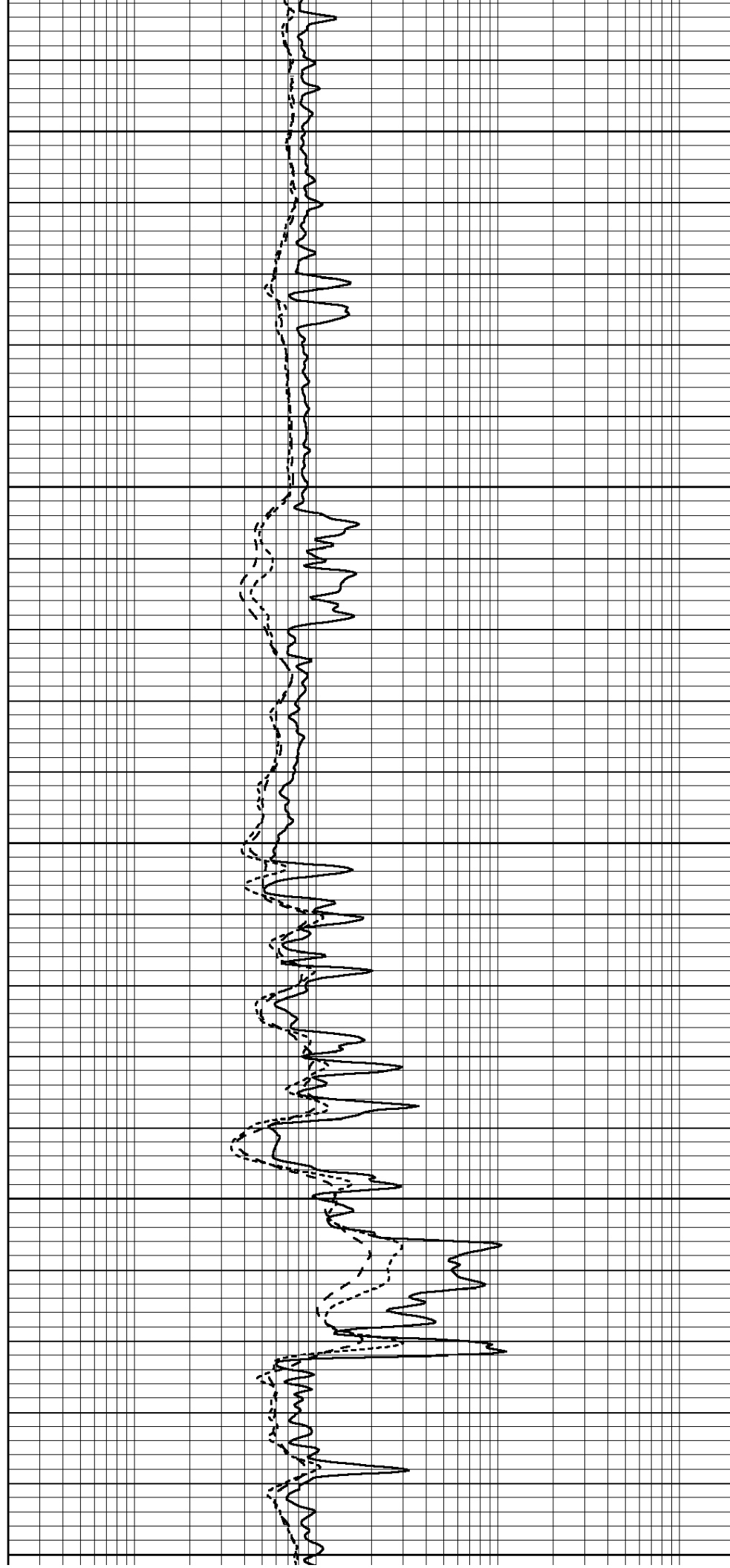
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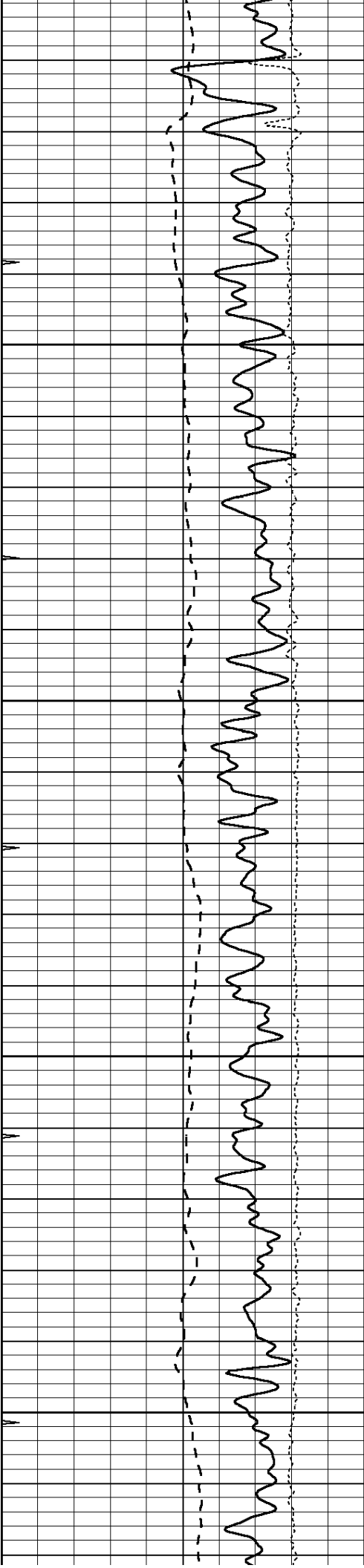
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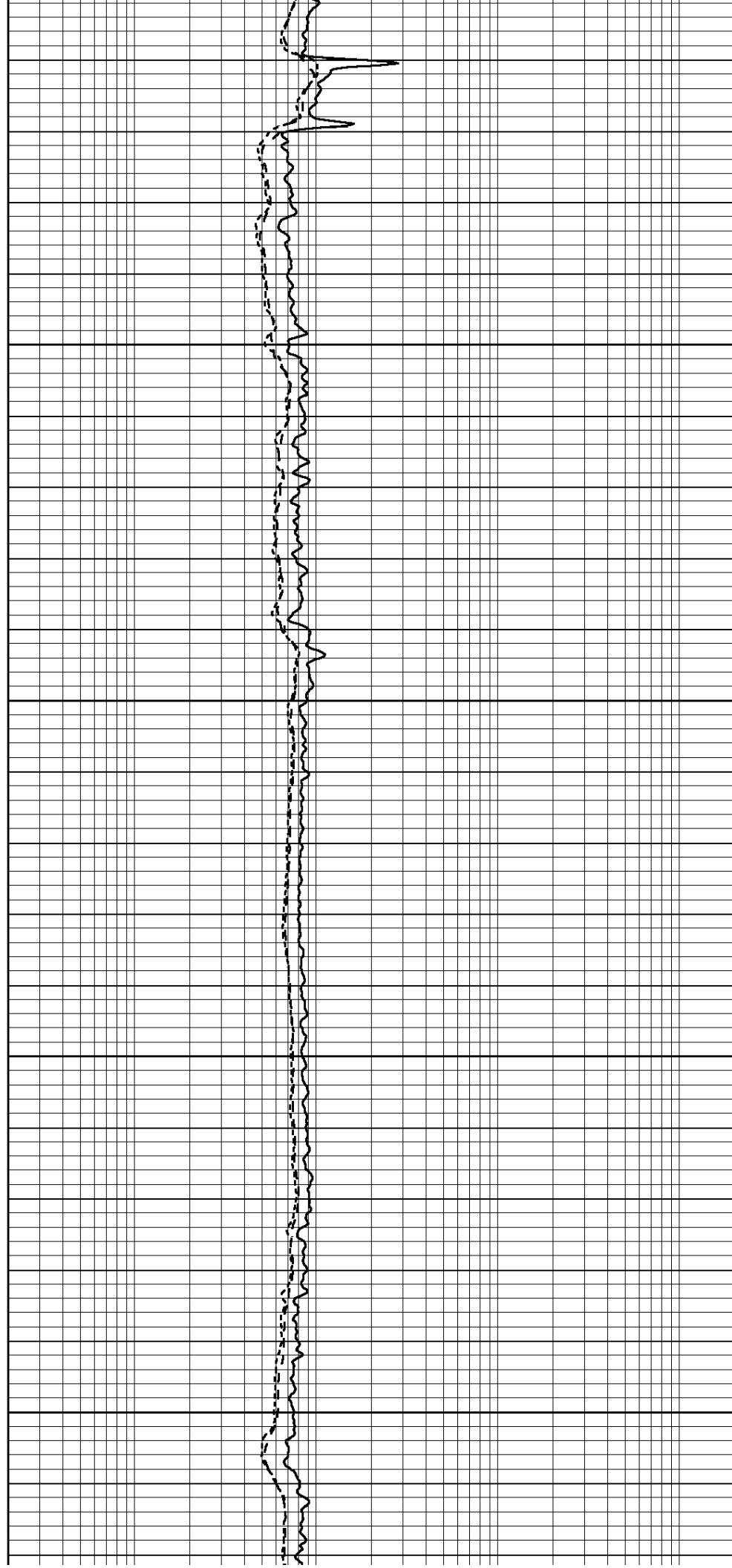


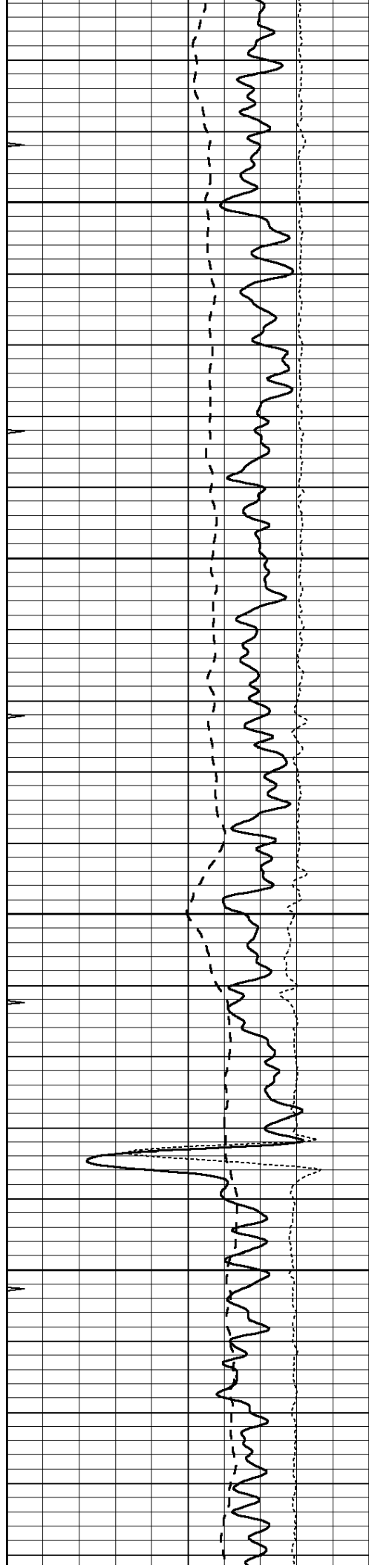
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4050

4100



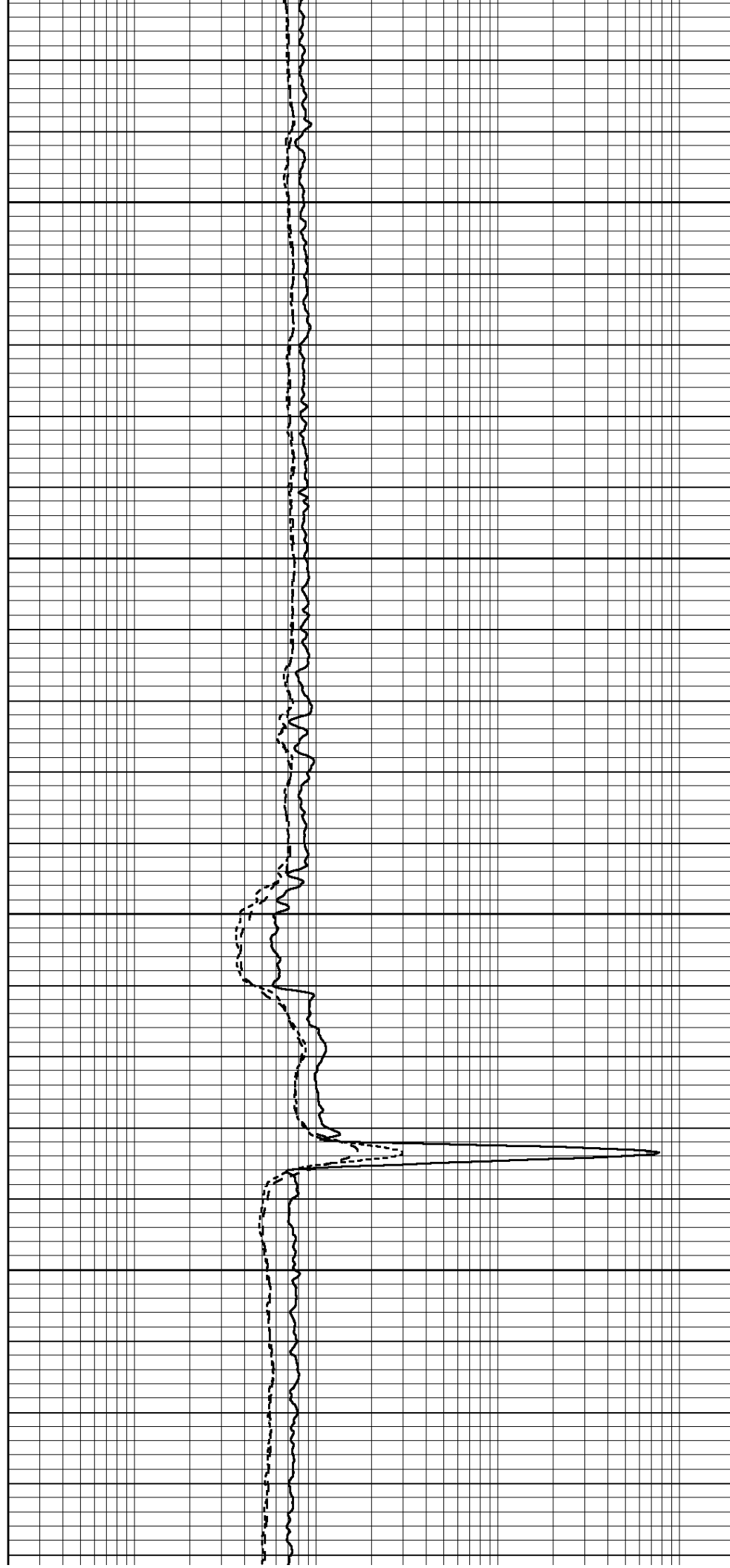


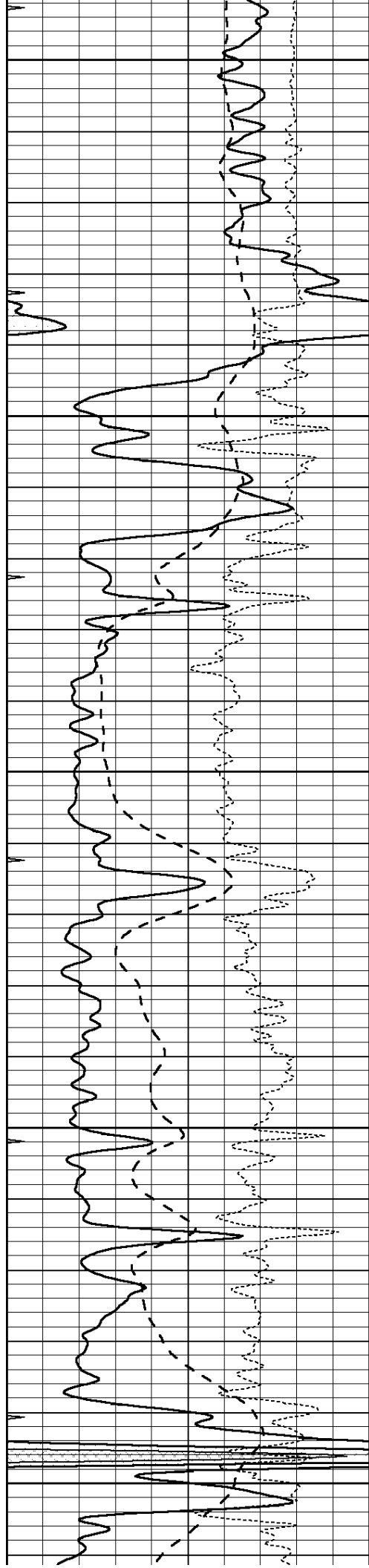
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4200

4250

4300





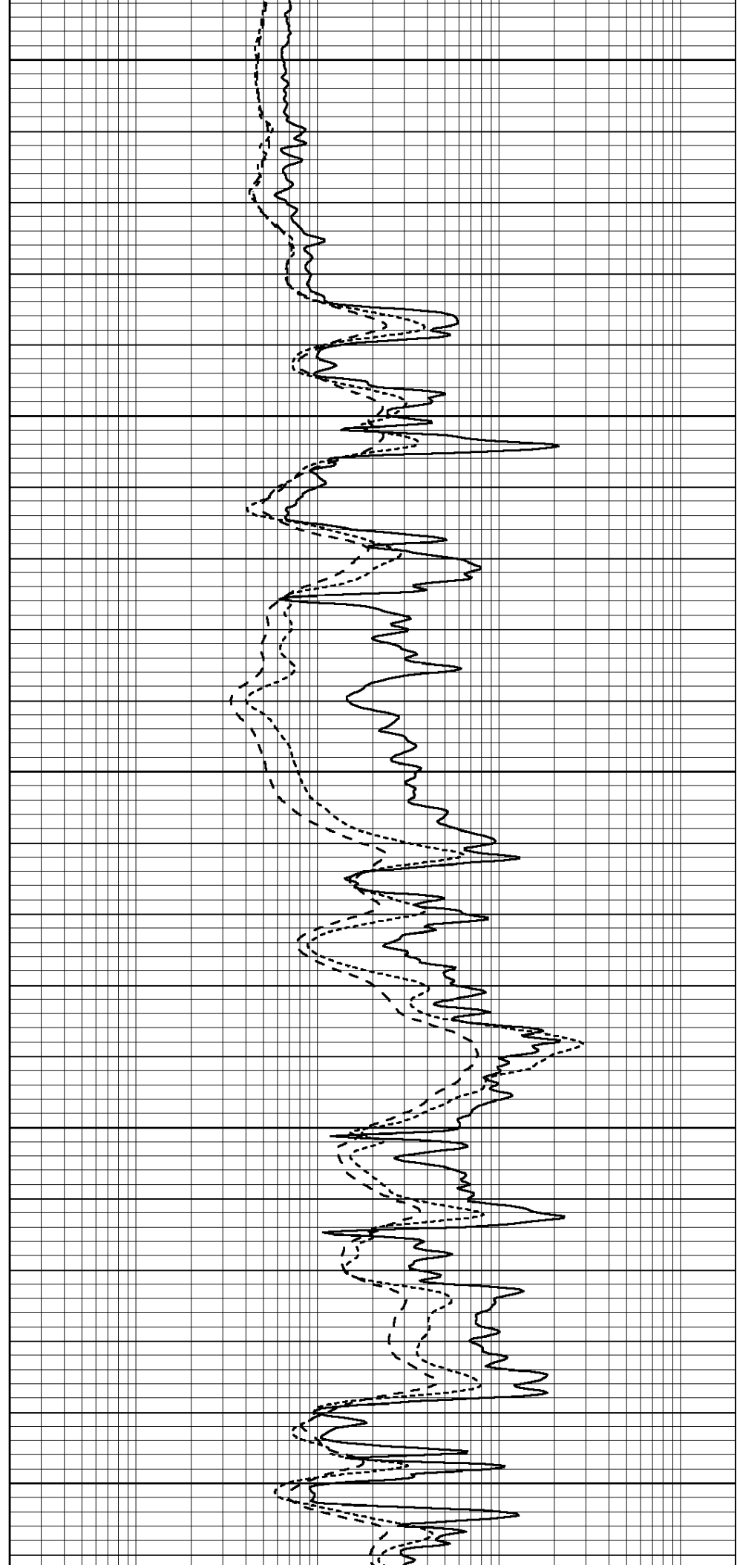
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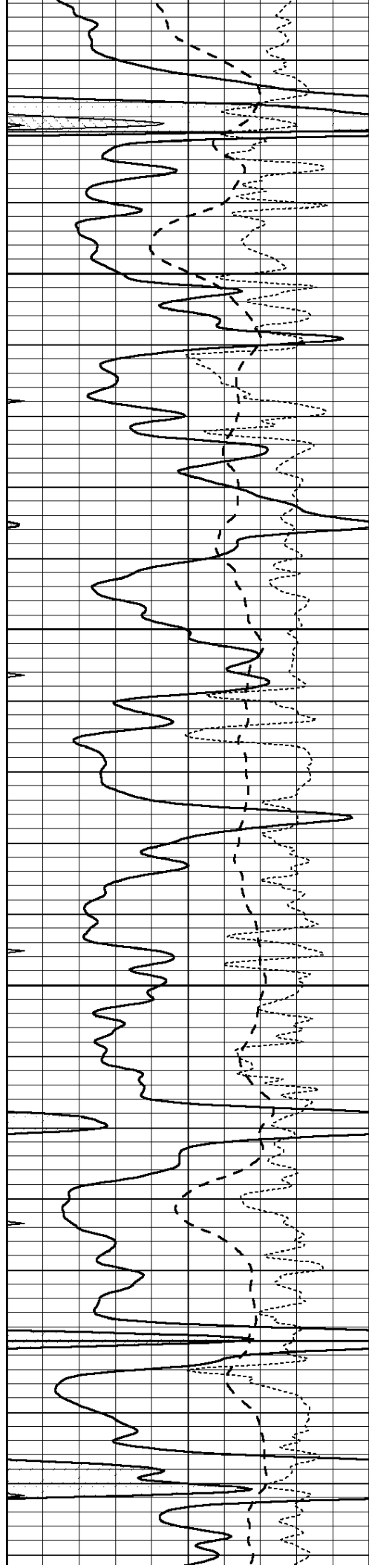
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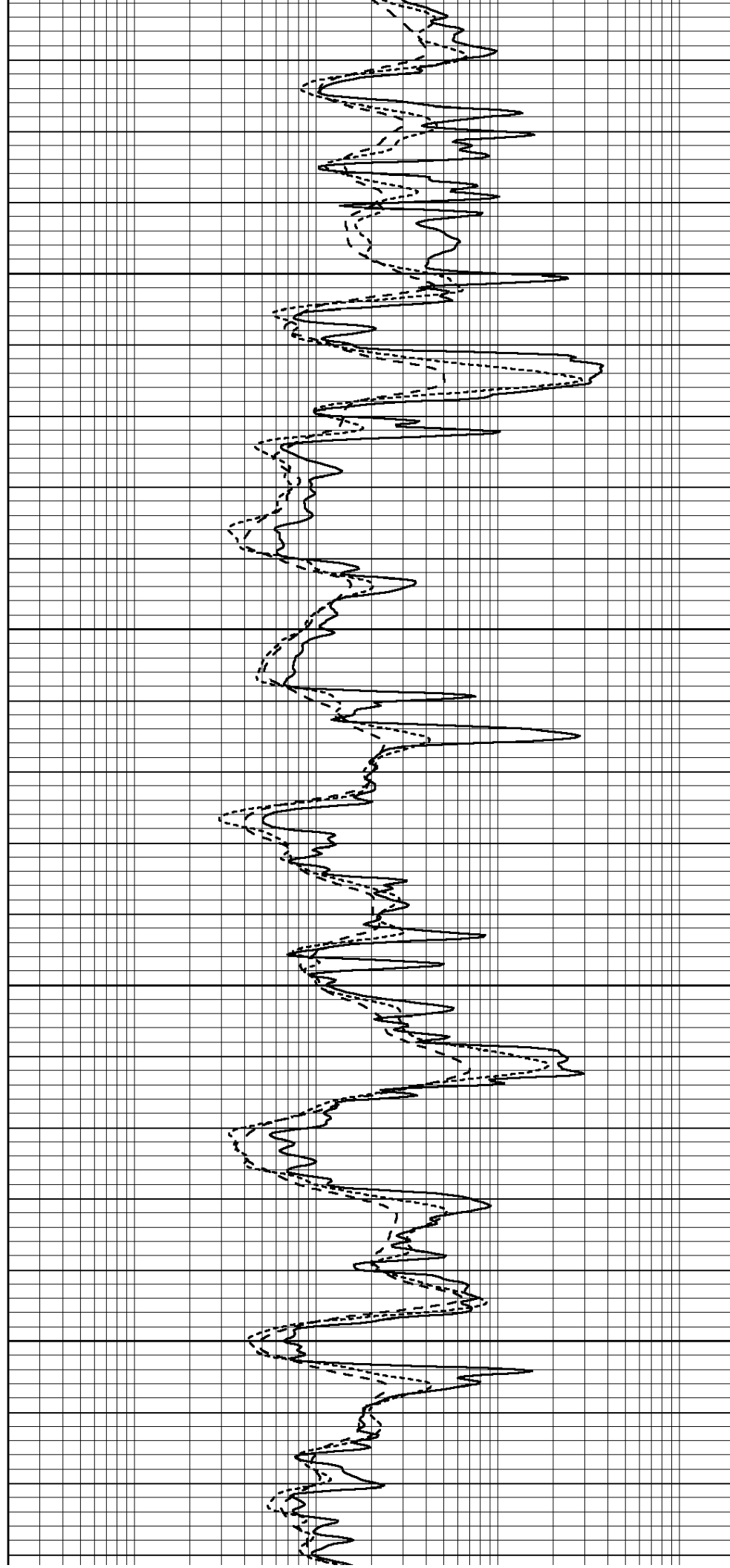


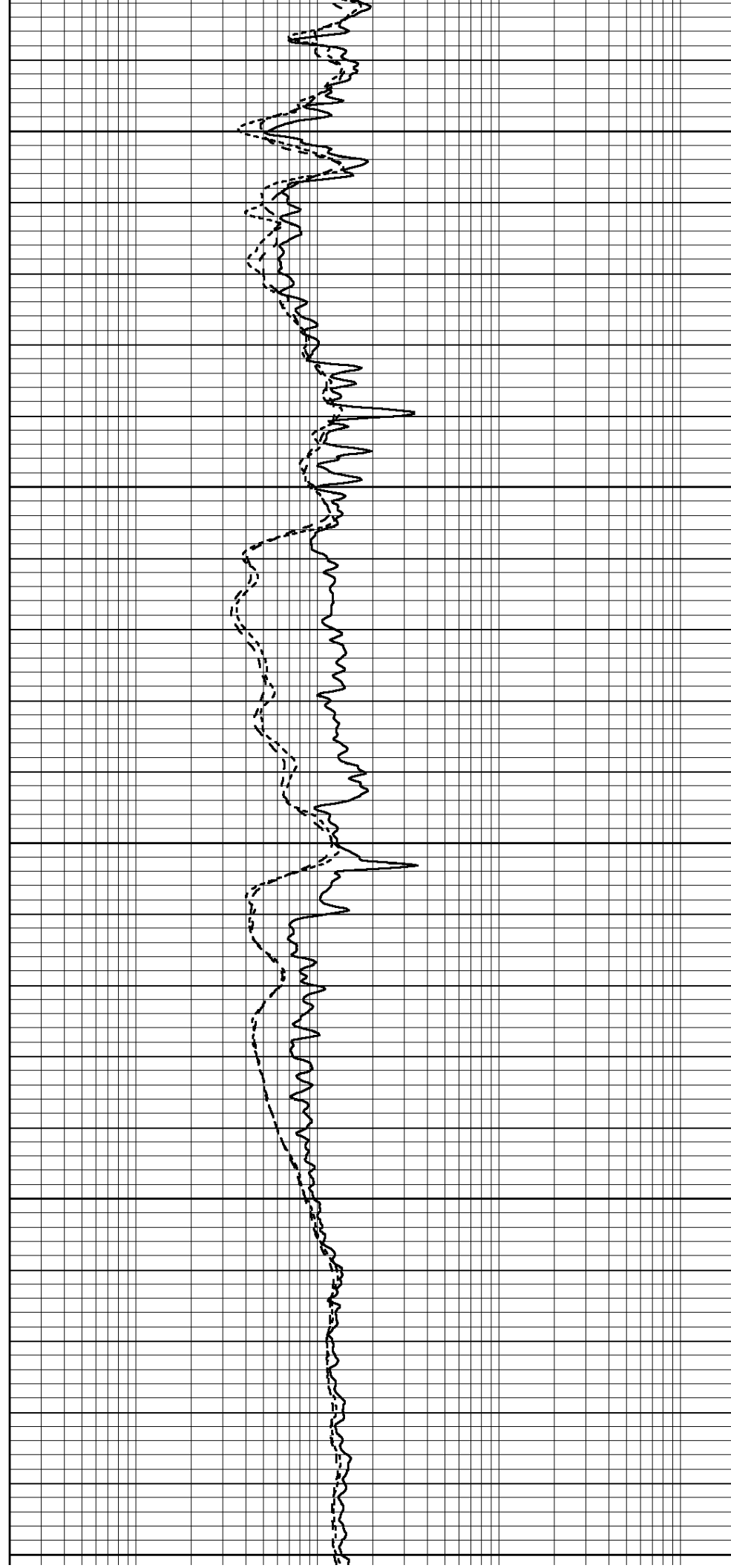
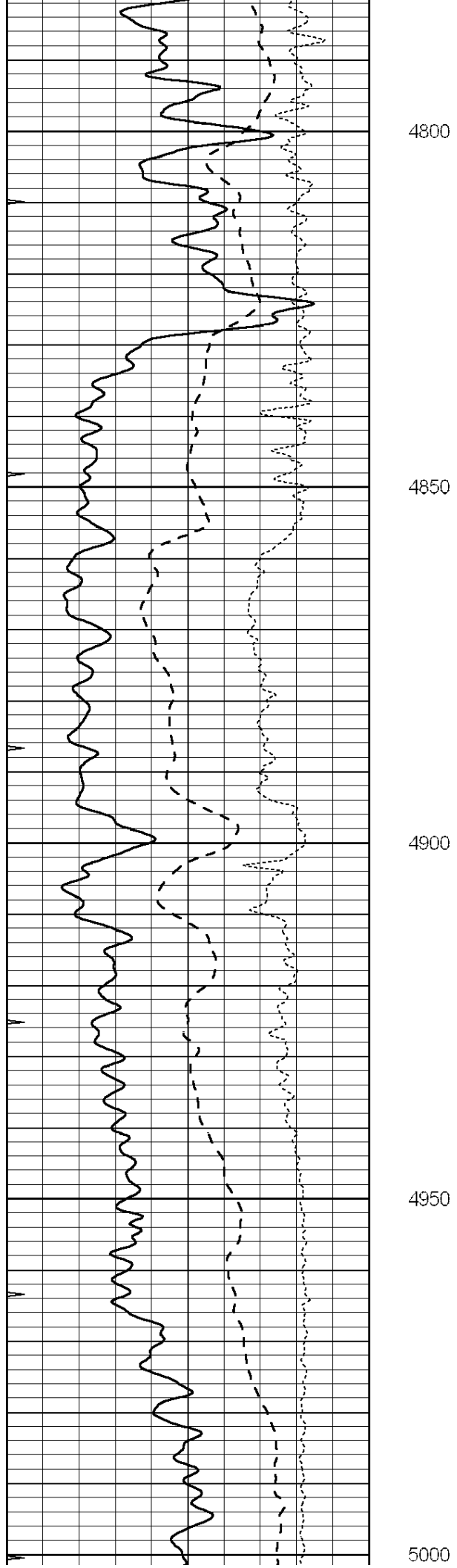
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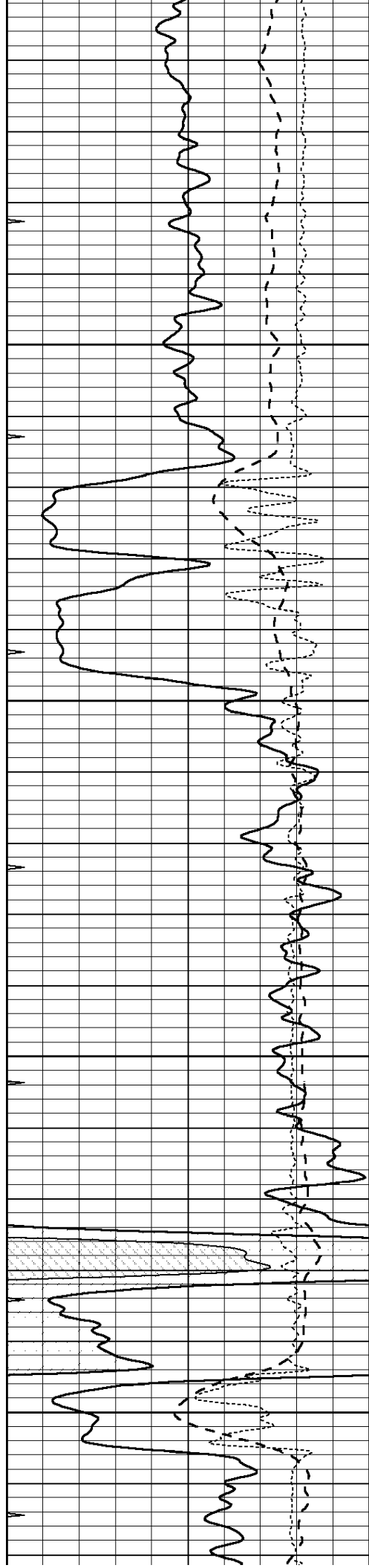
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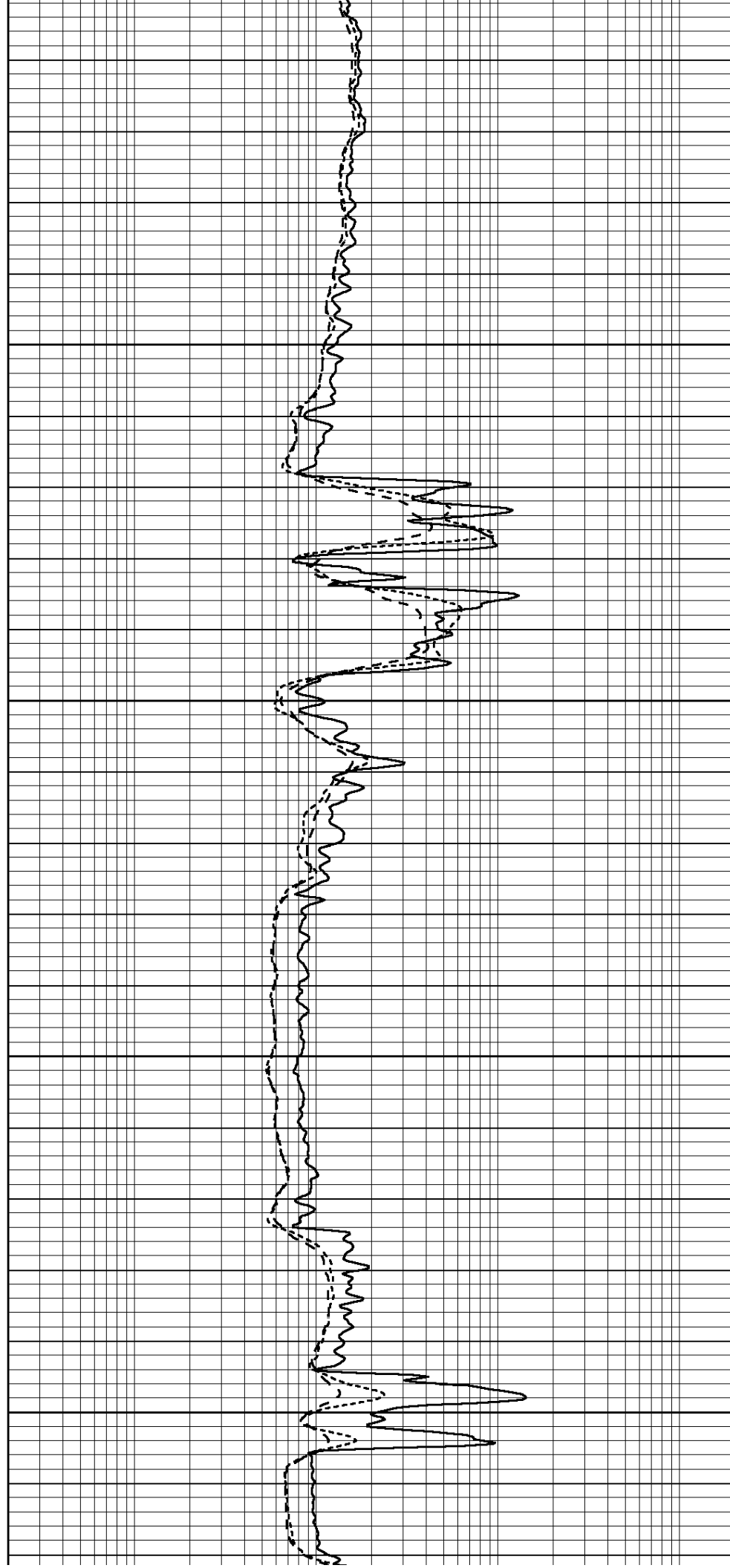


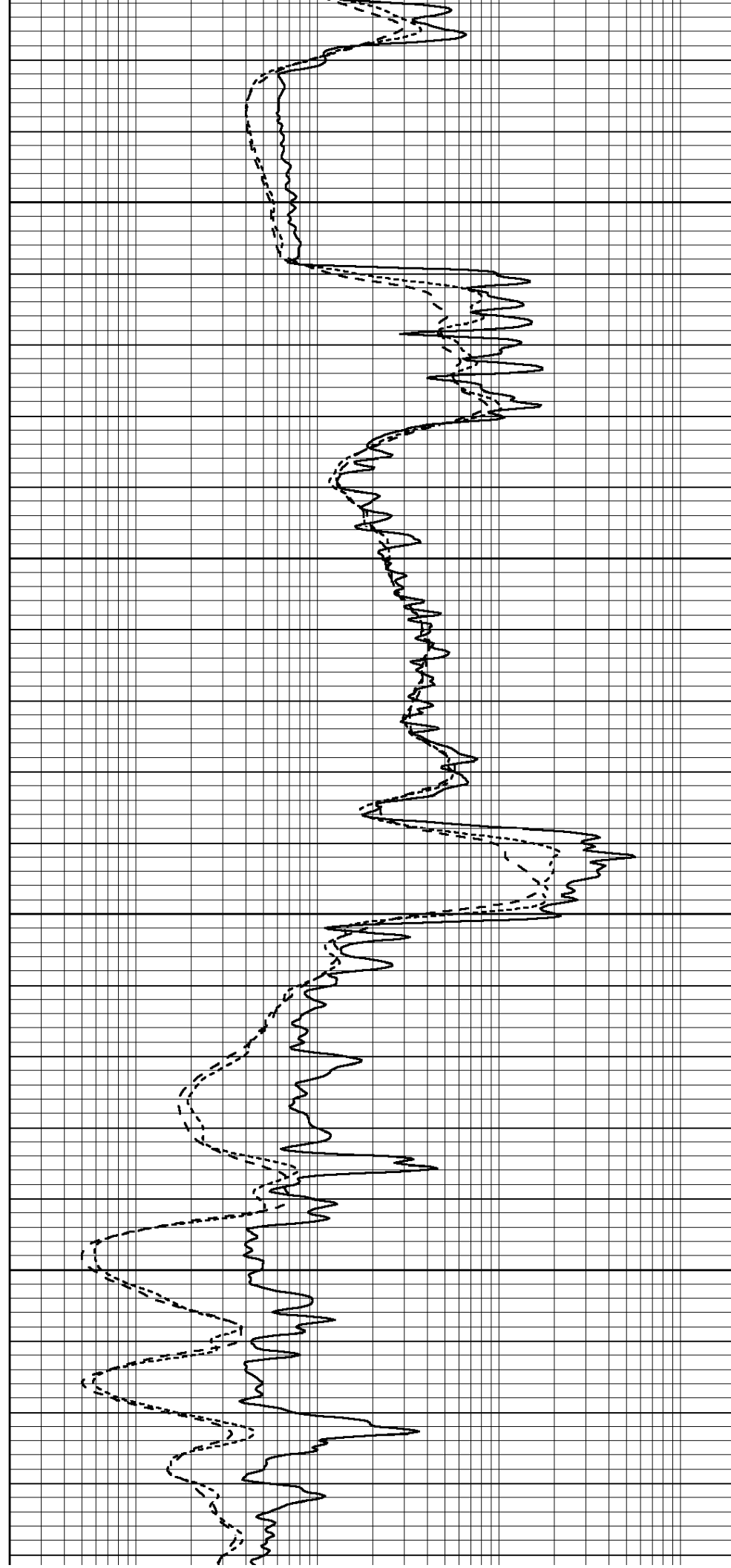
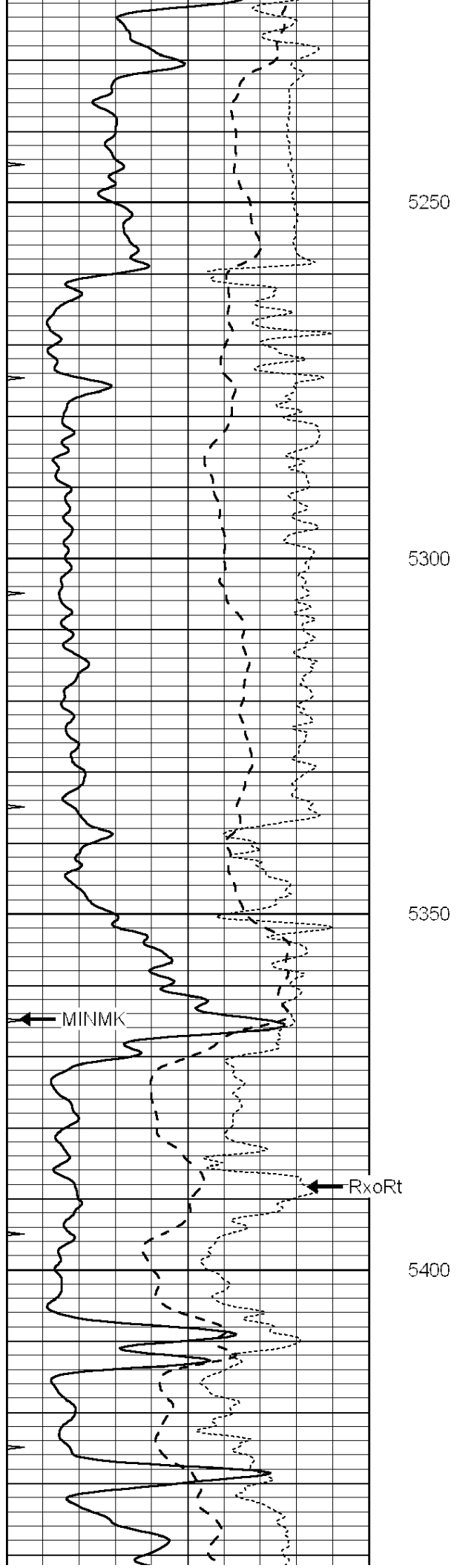
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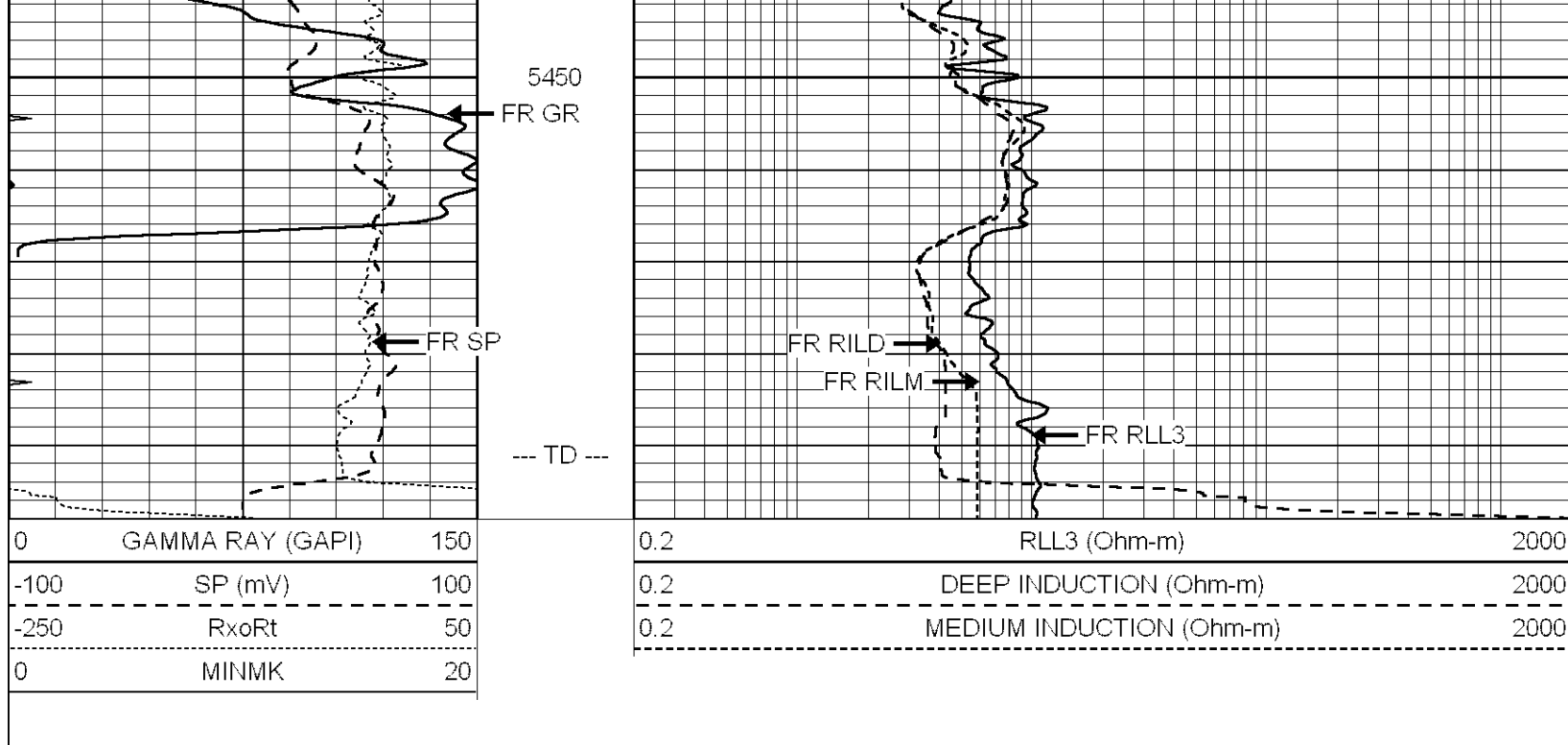
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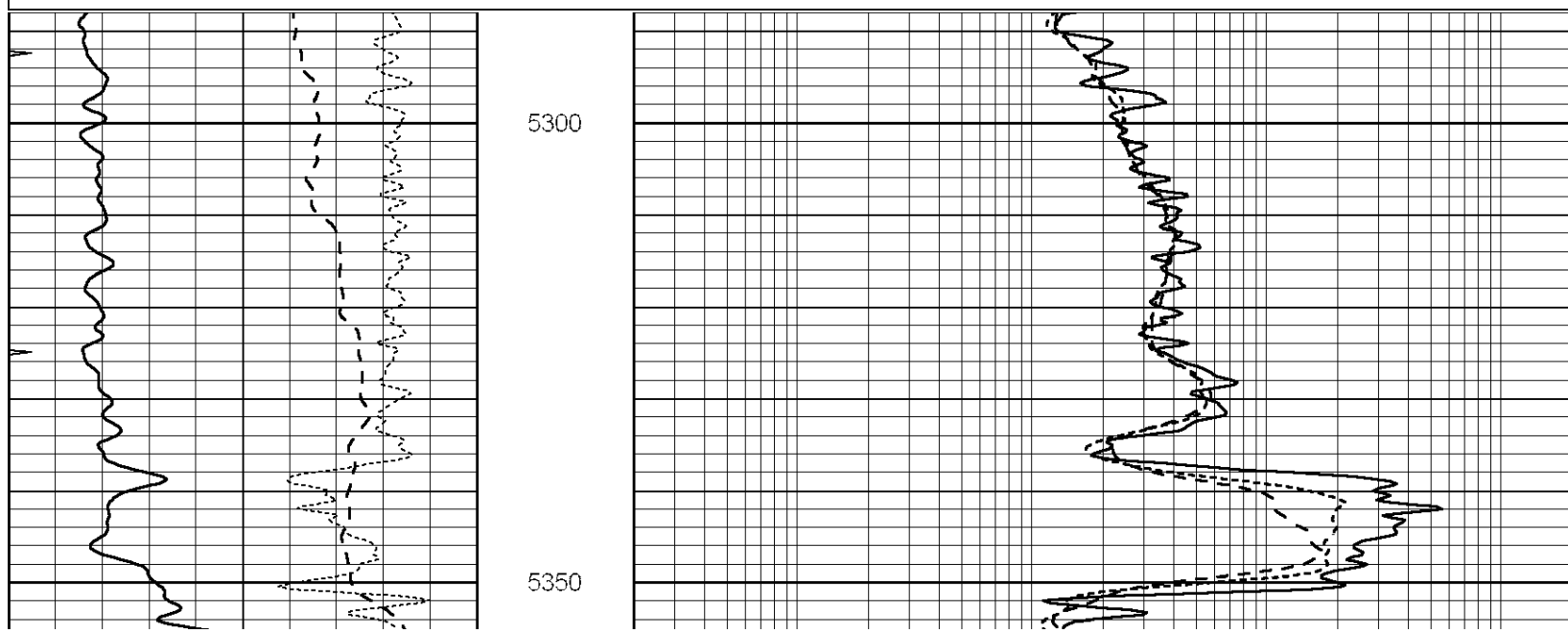
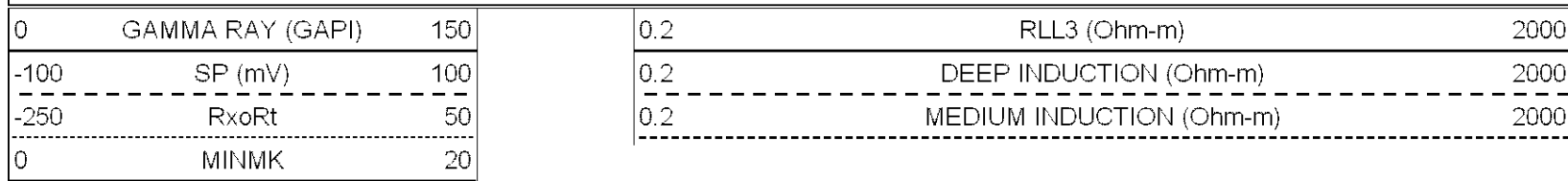


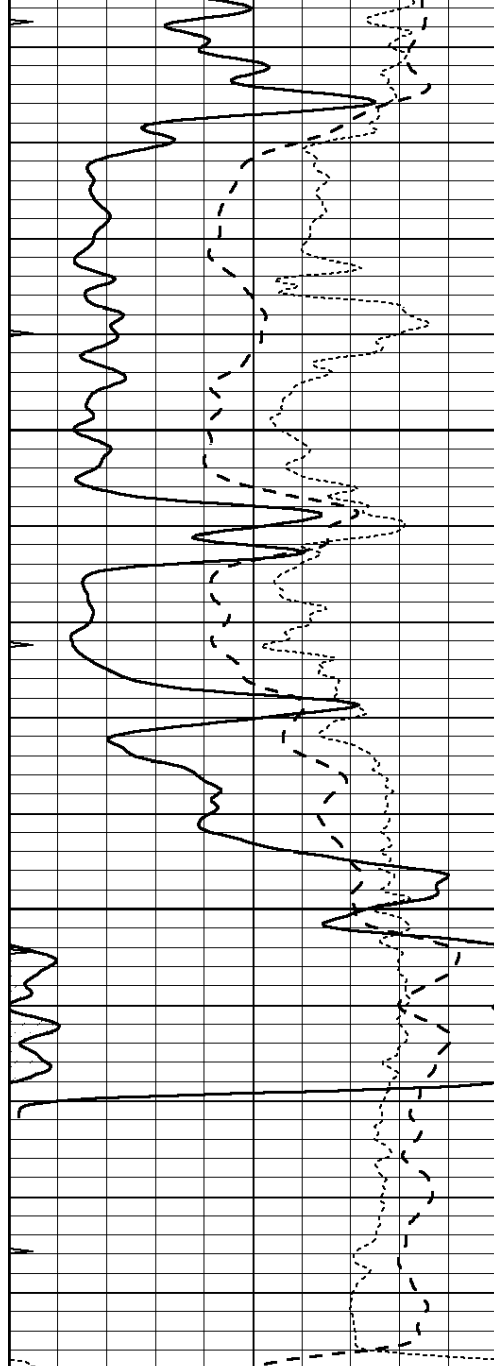




REPEAT SECTION

Database File: 010213pdn.db
 Dataset Pathname: pass2.B
 Presentation Format: _dil
 Dataset Creation: Wed Oct 09 15:01:50 2013
 Charted by: Depth in Feet scaled 1:240

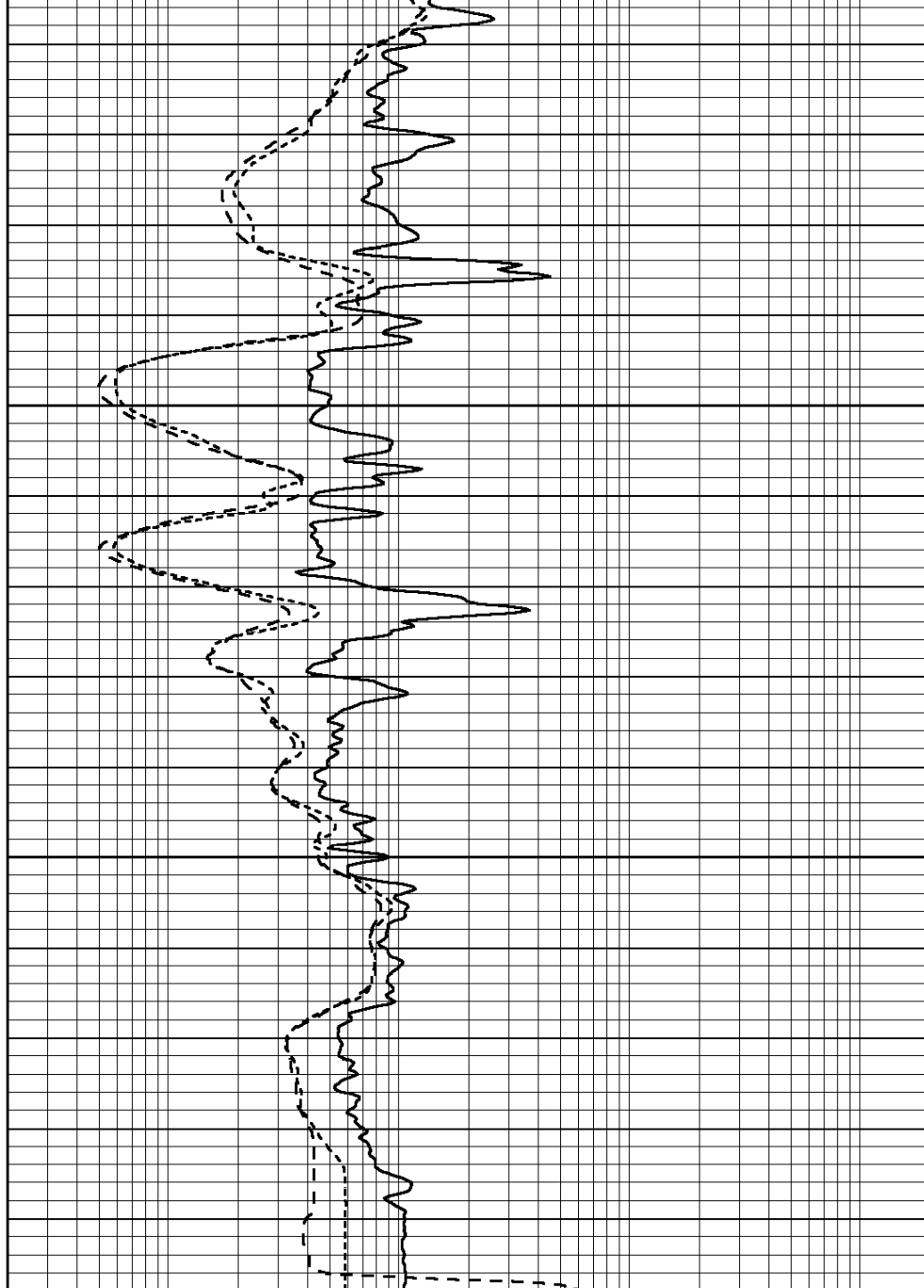




5400

5450

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20



0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 010213pdm.db
 Dataset Pathname: pass3.B
 Dataset Creation: Wed Oct 09 15:06:00 2013

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
 Performed: Wed Oct 09 14:06:14 2013

Readings			References		Results	
Loop:	Air	Loop	Air	Loop	m	b

Deep	0.011	0.656	V	0.000	400.000	mmho/m	480.000	6.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	580.000	-1.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	560.000	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	540.000	-4.000

Litho Density Calibration Report Serial: 003 Model: PRB Performed Wed Jul 04 10:22:38 2007								
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Litho Density Calibration								
	Background	Magnesium		Aluminum		Sandstone		
Window 1	2144.3	13444.8		4620.5		14880.2		cps
Window 2	1924.8	10385.3		3771.1		11195.2		cps
Window 3	1678.5	6720.2		2754.2		7127.5		cps
Window 4	493.4	500.3		495.4		500.6		cps
Long Space	0.0	8460.5		1846.3		9270.4		cps
Short Space	3.8	3471.0		2267.7		3697.5		cps
Rho		1.7100		2.5960		1.3800		g/cc
Pe				2.5700		1.5500		
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio				: 0.561
Spine Angle	: 74.4	Spine Slope	: 3.576	Spine Intercept				: -20.1

Caliper	Readings	Reference						
Low Ref	2.4	8.6						
High Ref	4.4	13.8						
	Gain: 2.7			Offset: 0.0				

Compensated Neutron Calibration Report								
Serial Number:			NEU_4I					
Tool Model:			G					

CALIBRATION								
	Detector	Readings		Target		Normalization		
	Short Space	1.00 cps		1.00 cps		1.0000		
	Long Space	1.00 cps		1.00 cps		1.0000		

Gamma Ray Calibration Report								
Serial Number:			GR5					
Tool Model:			OPEN					
Performed:			Wed Oct 09 14:03:16 2013					
Calibrator Value:			1.0			GAPI		
Background Reading:			0.0			cps		
Calibrator Reading:			1.0			cps		
Sensitivity:			1.0000			GAPI/cps		