



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company LOTUS OPERATING COMPANY, LLC. Well #3 ACHENBACH Field HARDTNER County BARBER State KANSAS		Company LOTUS OPERATING COMPANY, INC. Well #3 ACHENBACH Field HARDTNER County BARBER State KANSAS	
Location: API # : 15-007-24019-0000 965' FSL & 905' FWL		Other Services CDL/CNL/PE MEL/SONIC/FF	
Permanent Datum Log Measured From Drilling Measured From		SEC 1 TWP 35S RGE 13W GROUND LEVEL KELLY BUSHING 13' A.G.L. KELLY BUSHING	
Elevation K.B. 1518 D.F. 1516 G.L. 1505			
Date	5/14/13		
Run Number	ONE		
Depth Driller	5675		
Depth Logger	5675		
Bottom Logged Interval	5673		
Top Log Interval	00		
Casing Driller	8 5/8"@274		
Casing Logger	290		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 3,000 PPM	
Density / Viscosity	9.6/55		
pH / Fluid Loss	9.0/9.6		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.800@92F		
Rinf @ Meas. Temp	.600@92F		
Rmc @ Meas. Temp	.960@92F		
Source of Rinf / Rmc	MEASUREMENT		
Rim @ BHT	.562@131F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	2:15 P.M.		
Maximum Recorded Temperature	131F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	TIM HELLMAN		

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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 "NABORS" HAYS, KANSAS (785) 628-6395
 DIRECTIONS
 HARDTNER, KS., 2W. TO "GYF HILL RD.", 1N., E. INTO

Database File:

010905pe.db

Dataset Pathname:

pass3.8

Presentation Format:

dil2

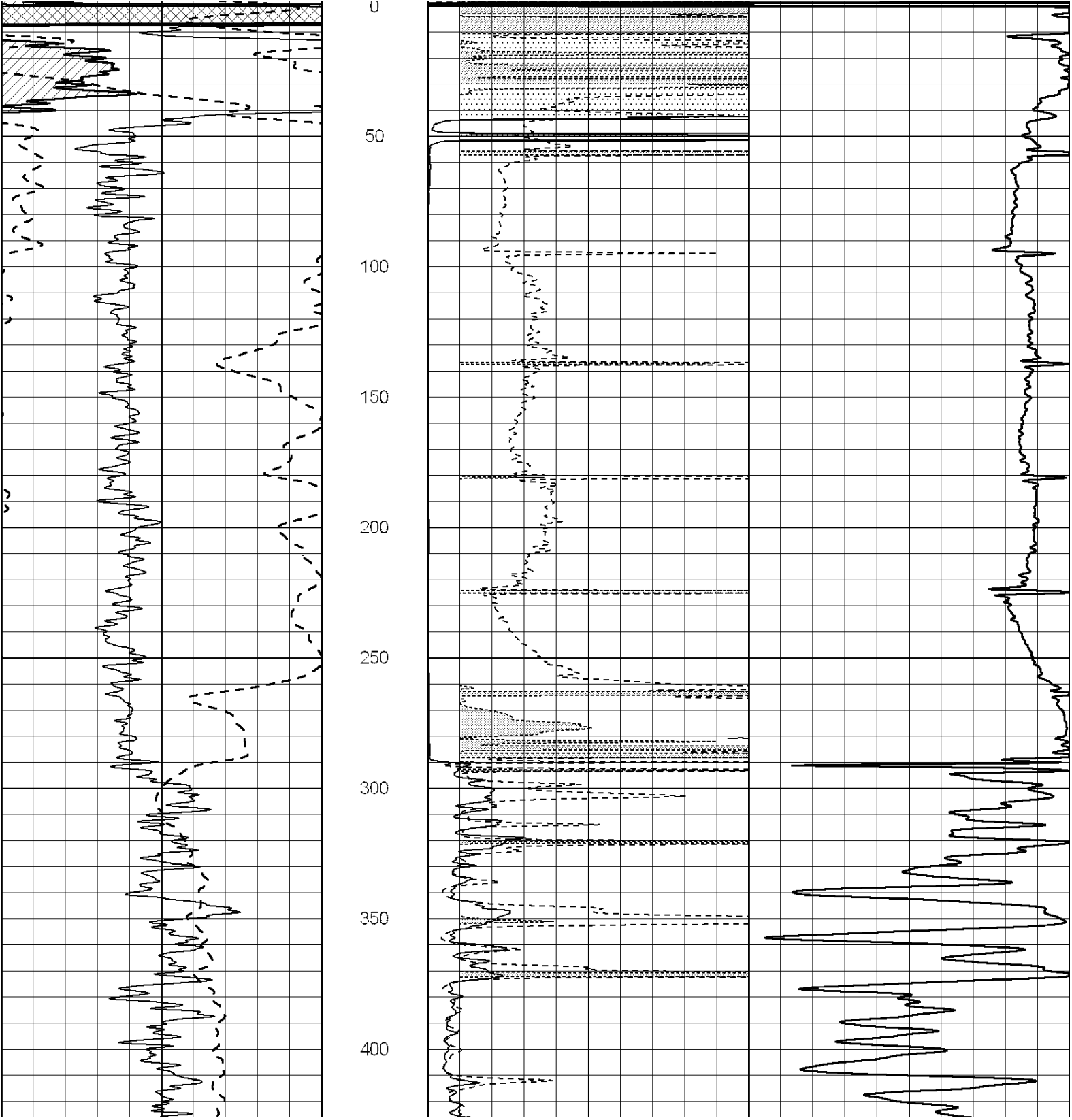
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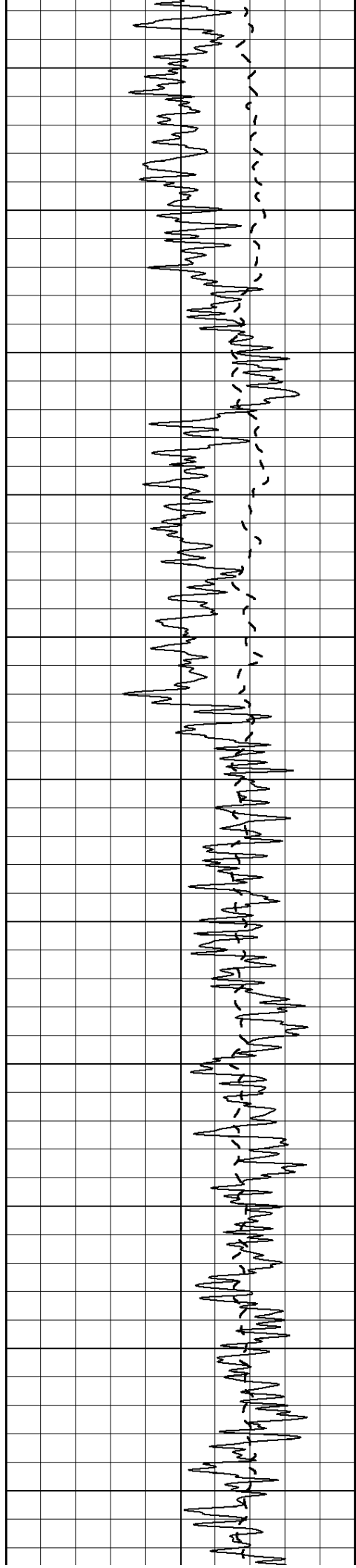
Tue May 14 16:44:50 2013

Charted by:

Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50	
-100	SP (mV)	100	0	RILD (Ohm-m)	50	
-----			-----			
			1000		CILD (mmho/m)	0
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	





450

500

550

600

650

700

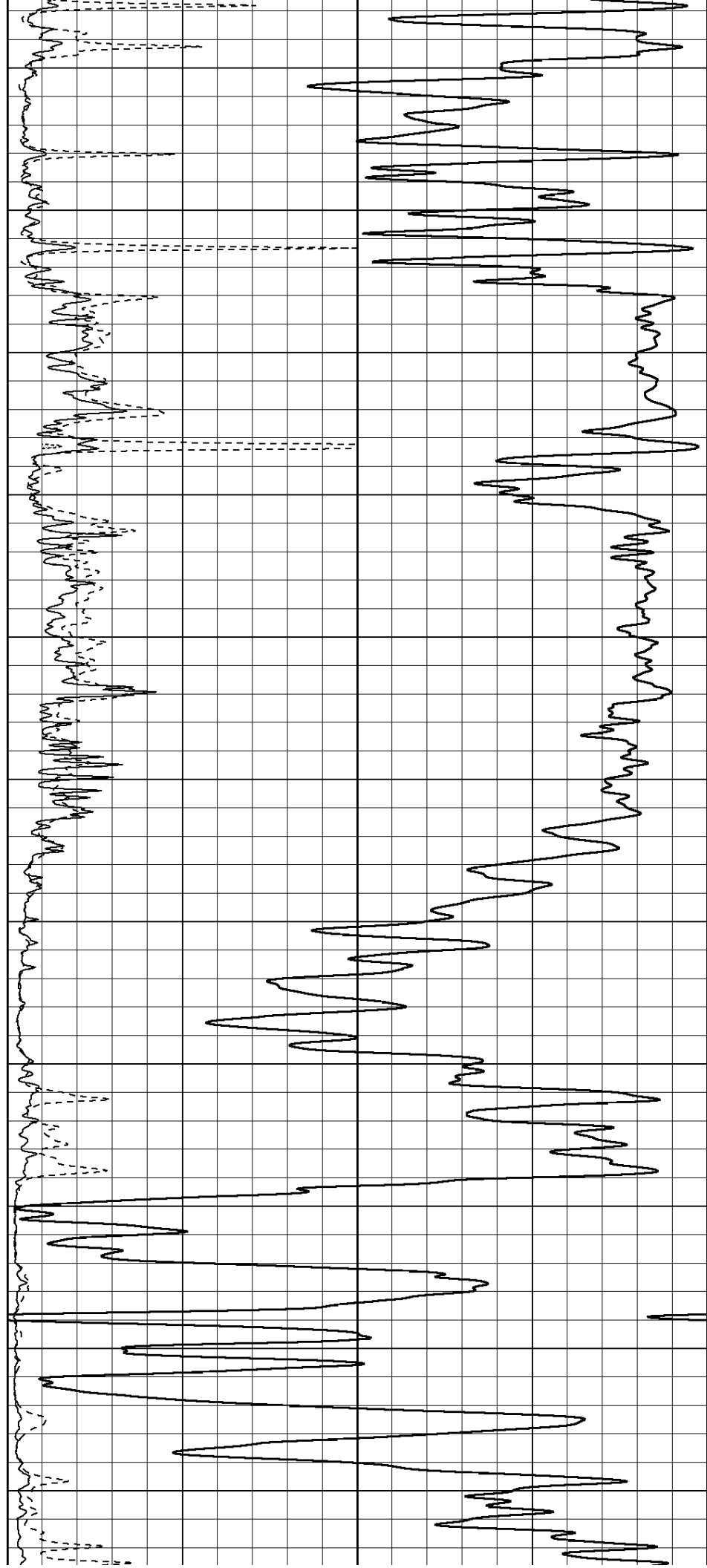
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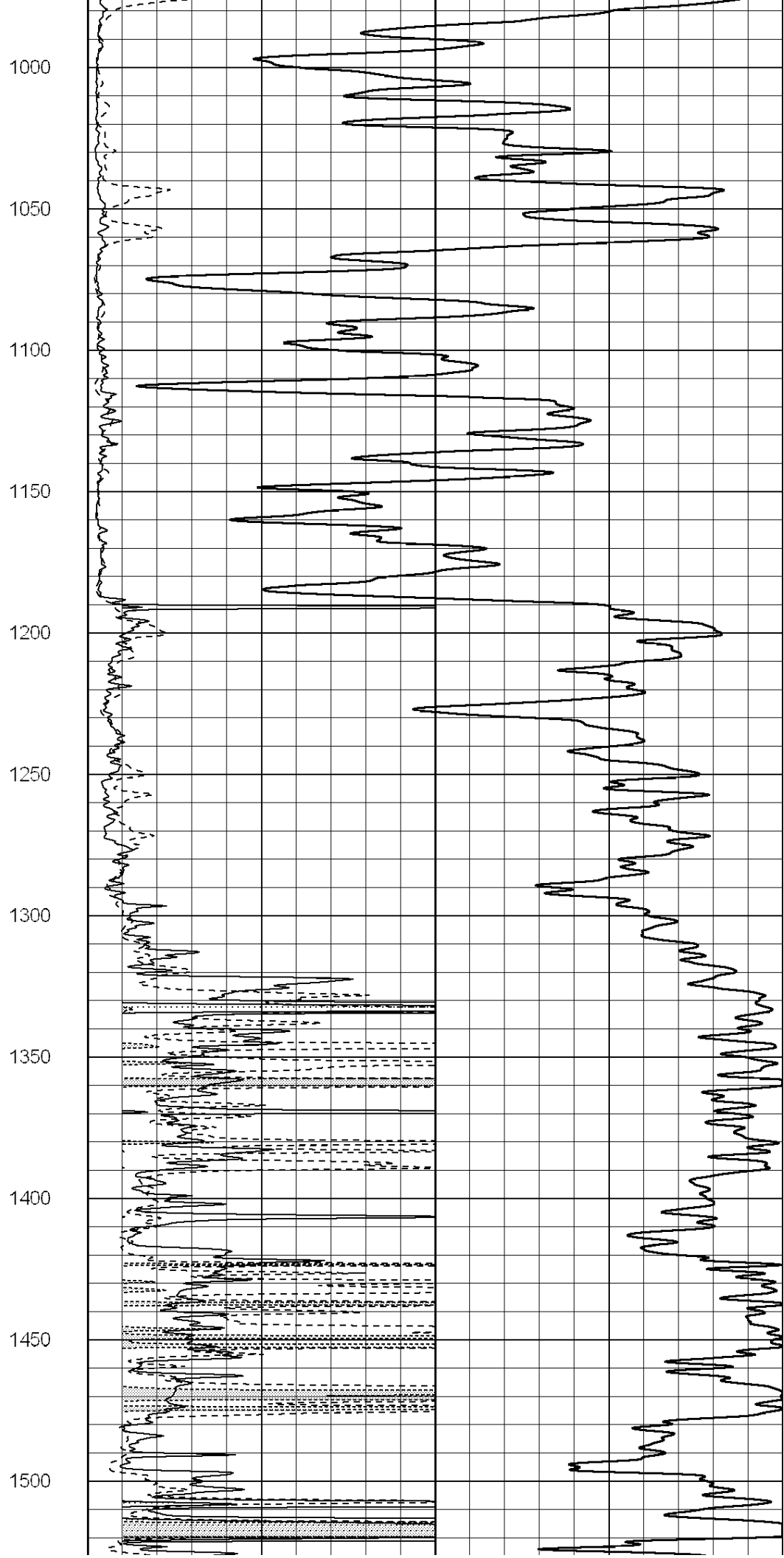
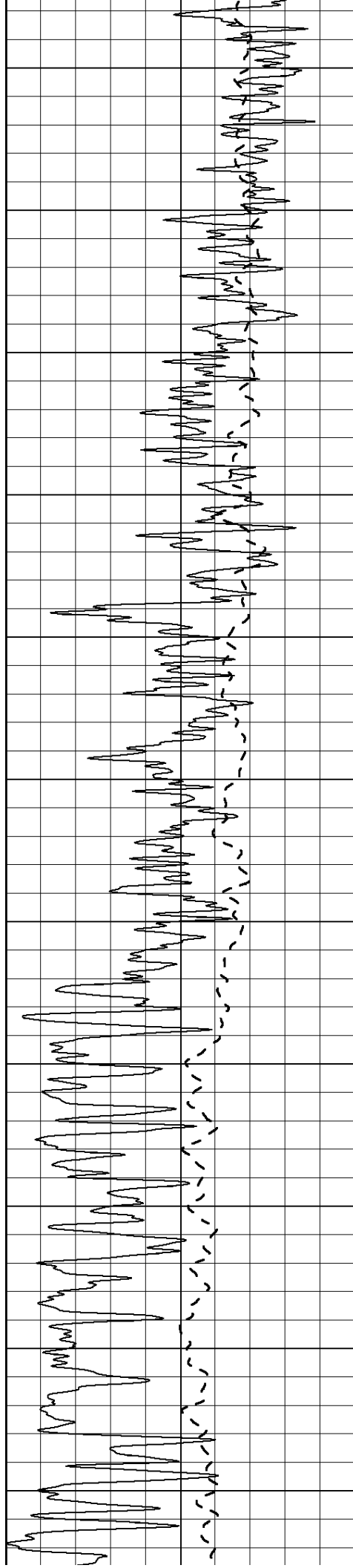
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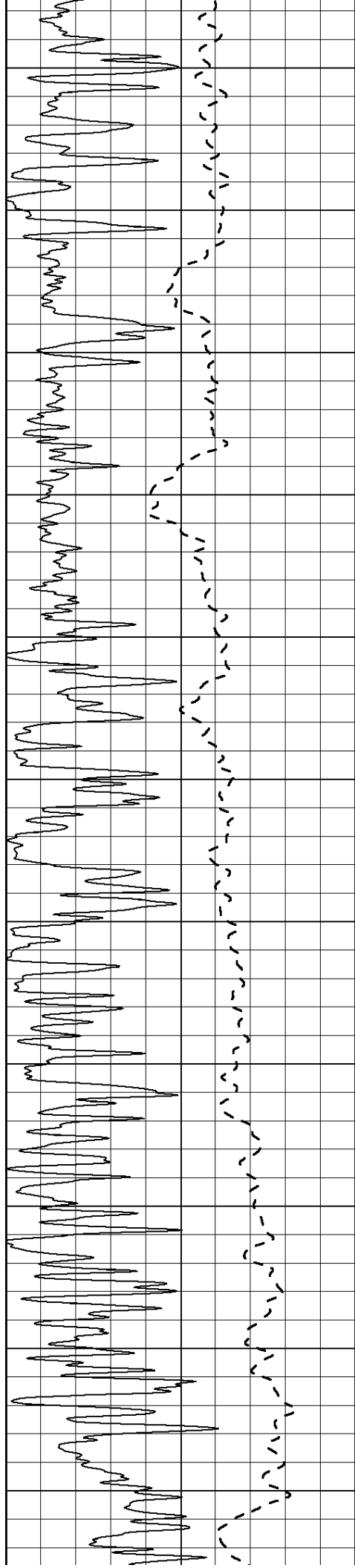
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900

950







1550

1600

1650

1700

1750

1800

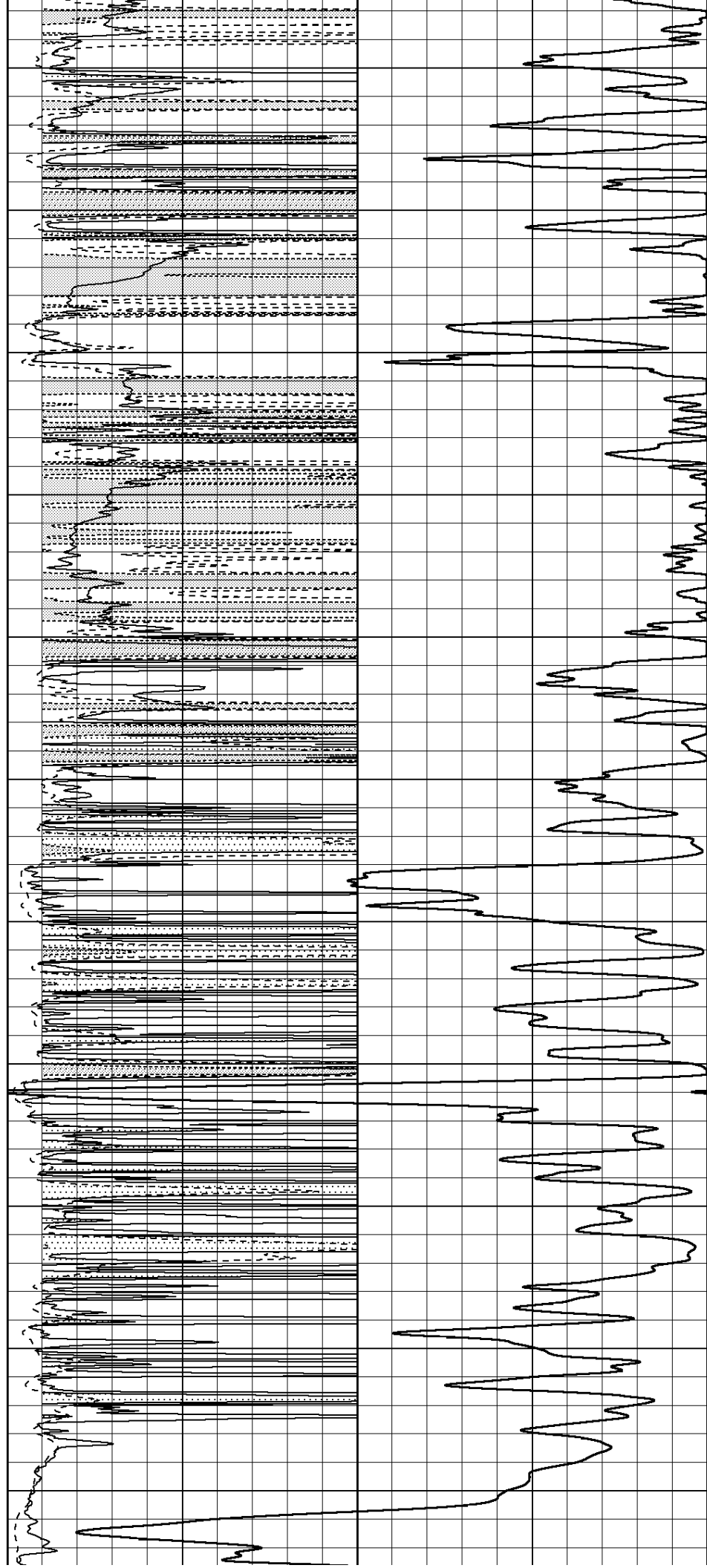
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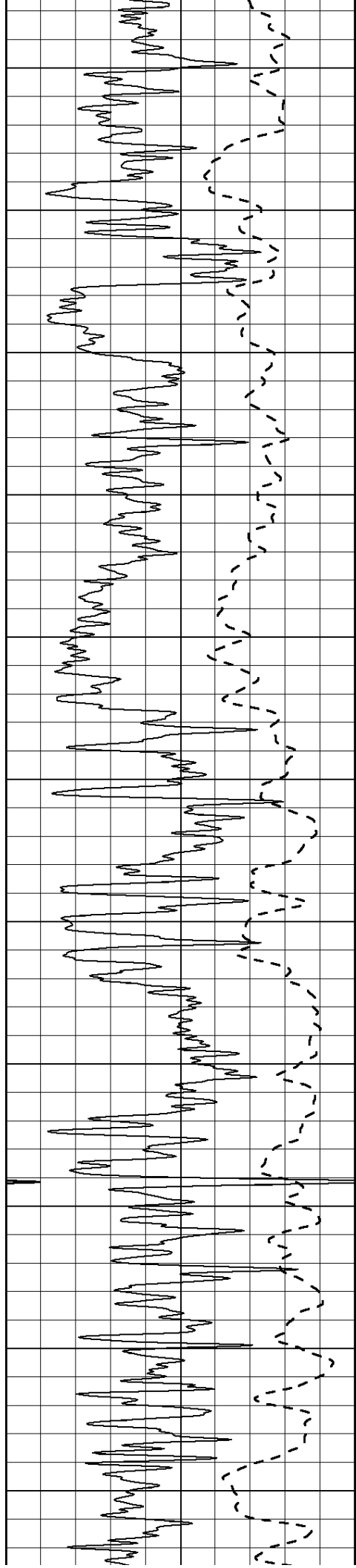
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2000

2050





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2150

2200

2250

2300

2350

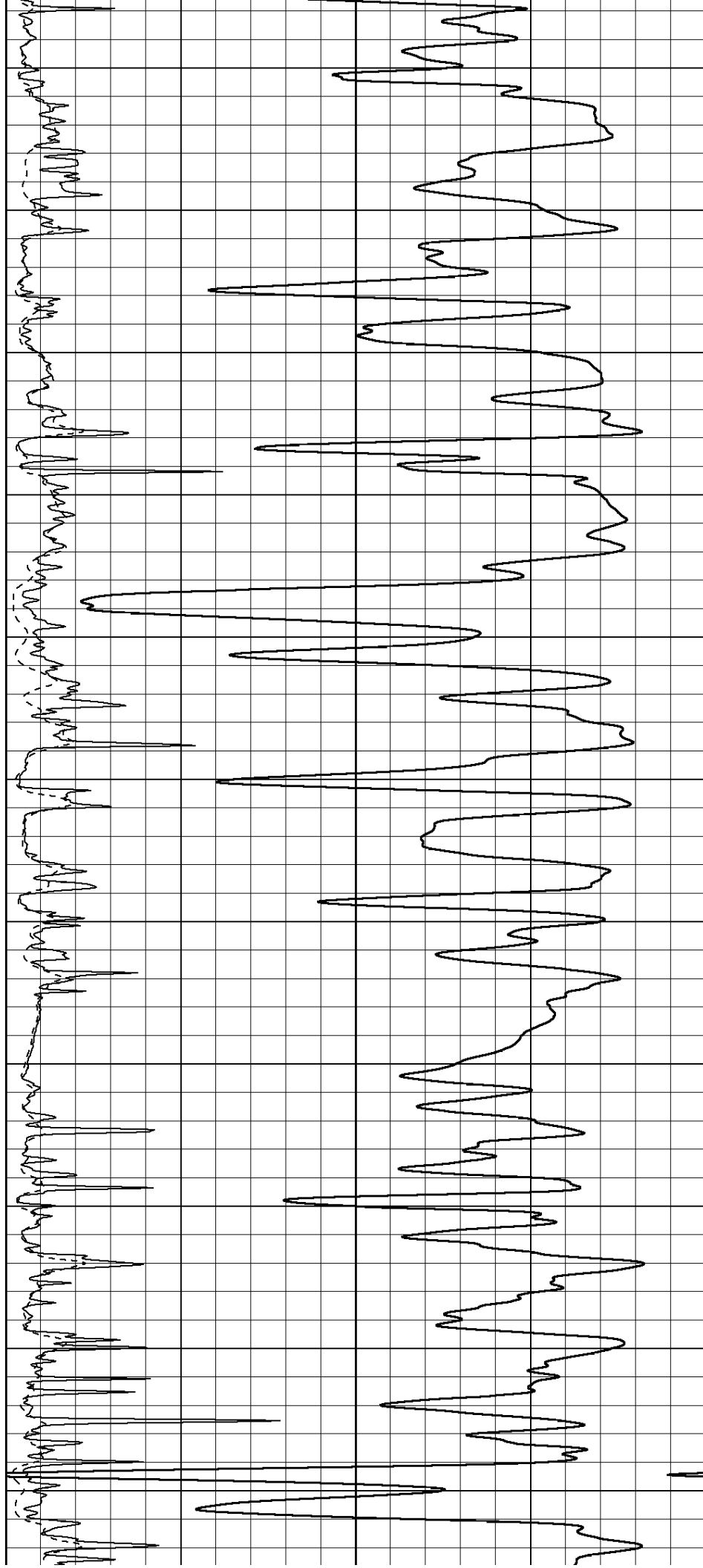
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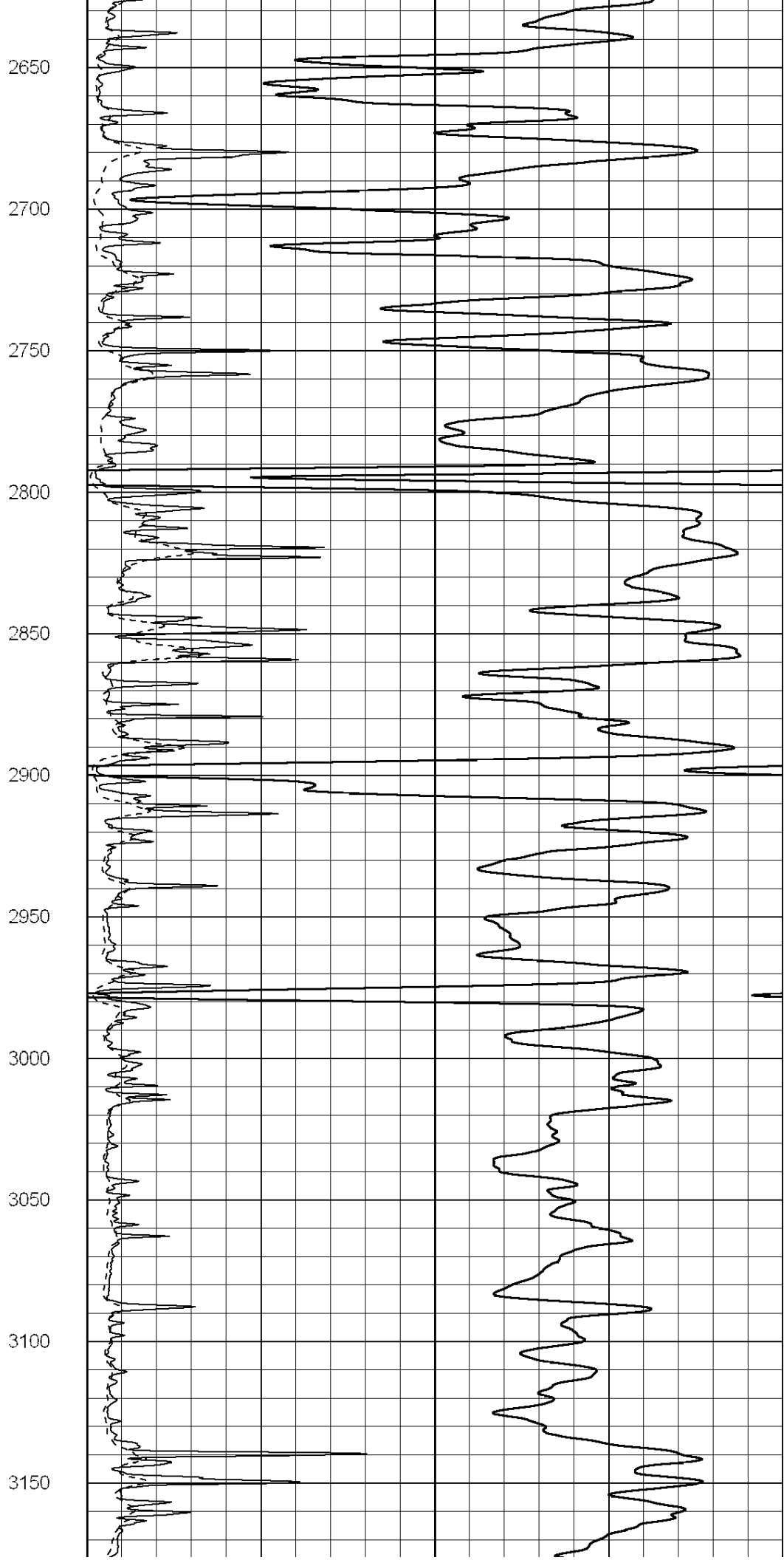
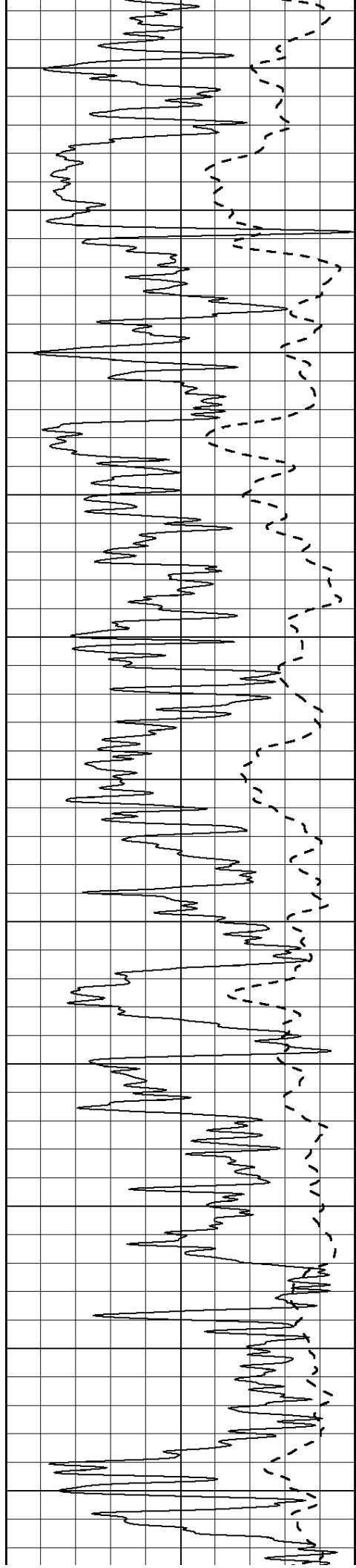
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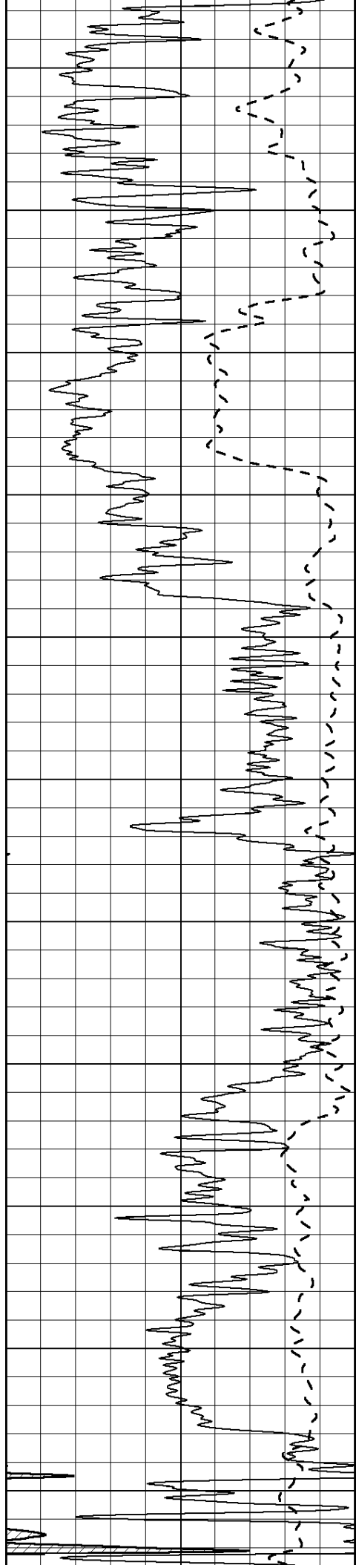
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2550

2600







3200

3250

3300

3350

3400

3450

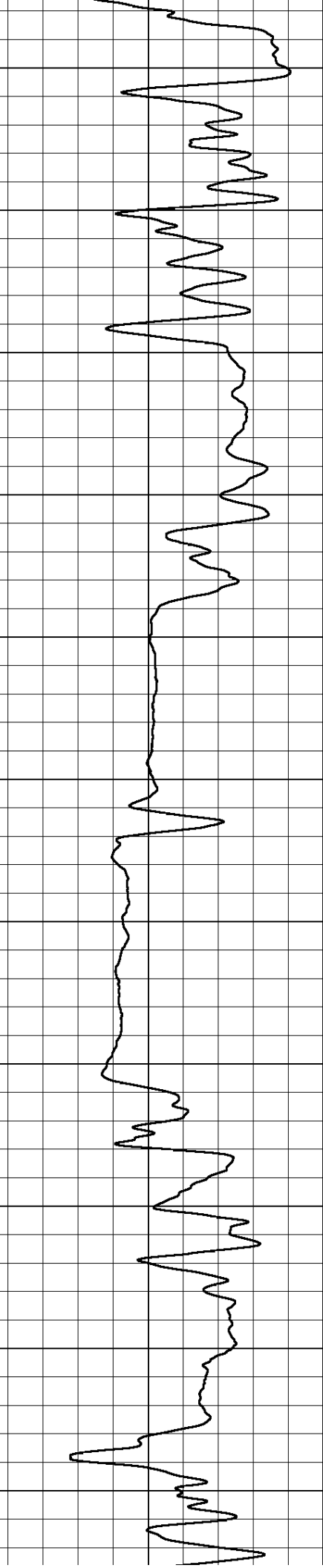
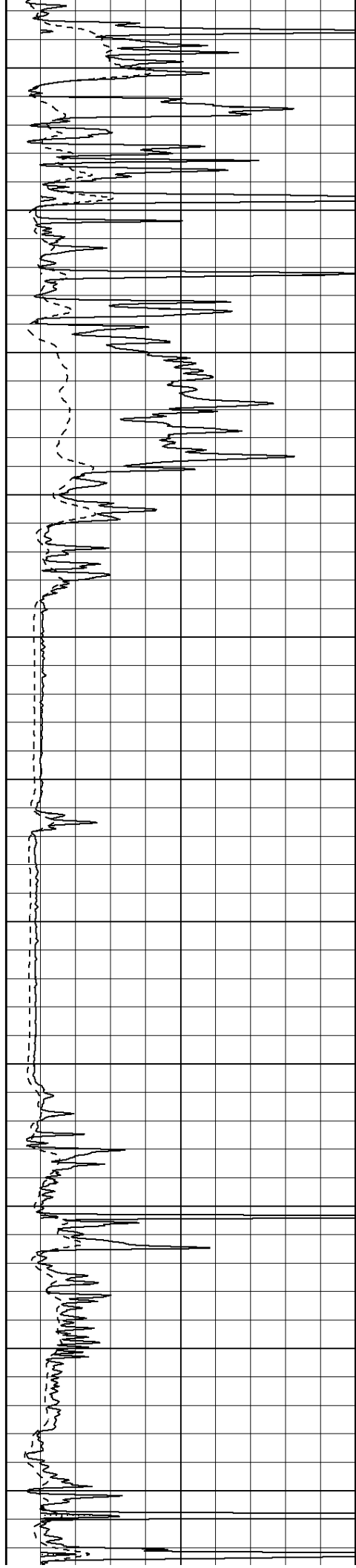
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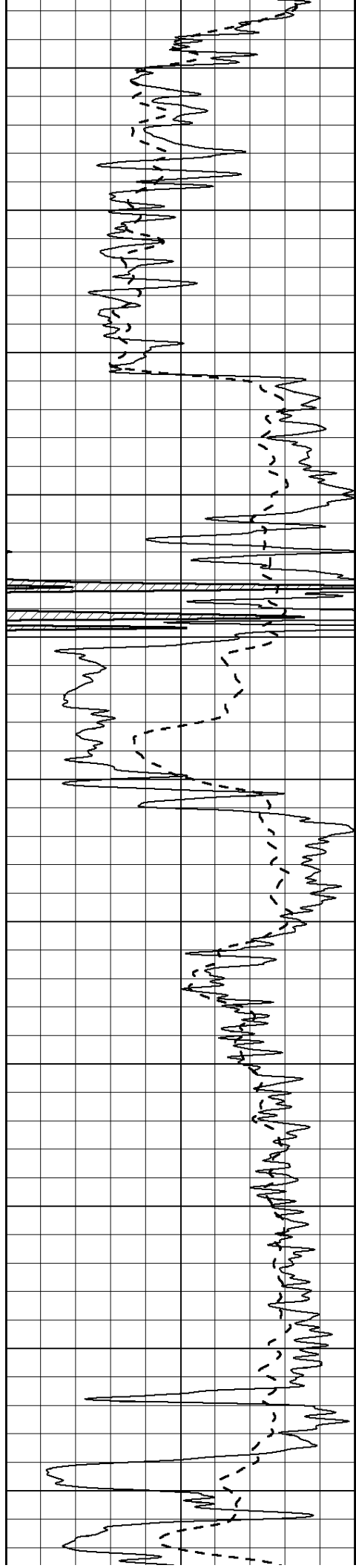
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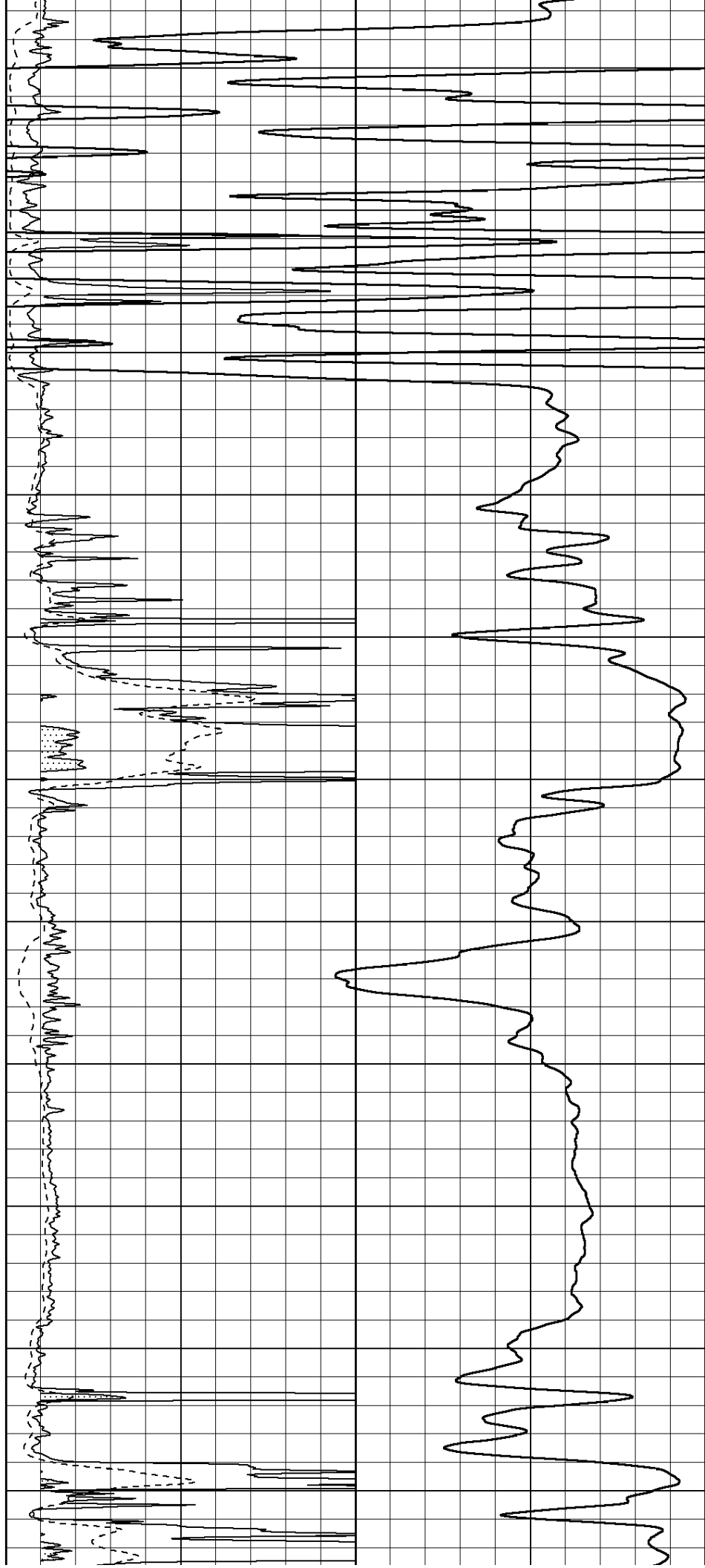
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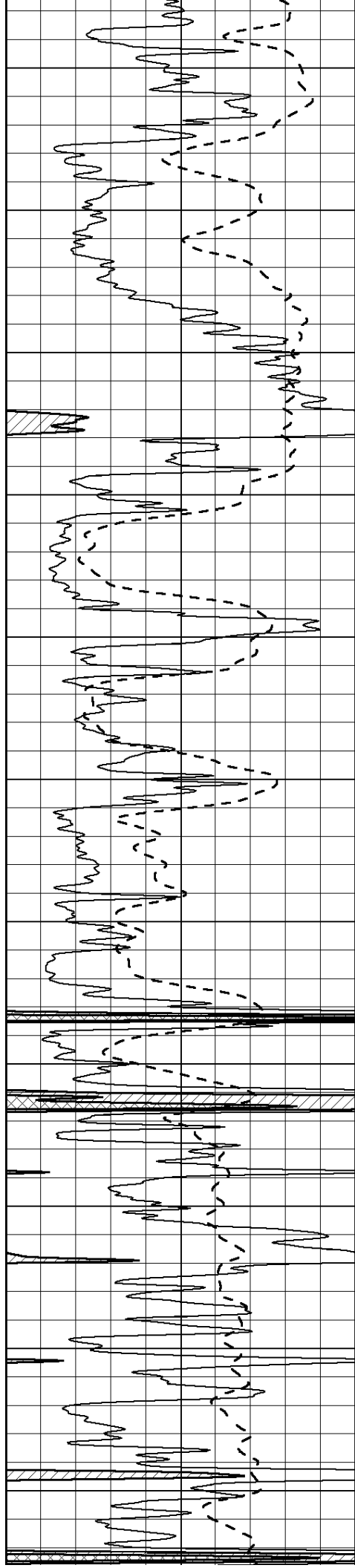
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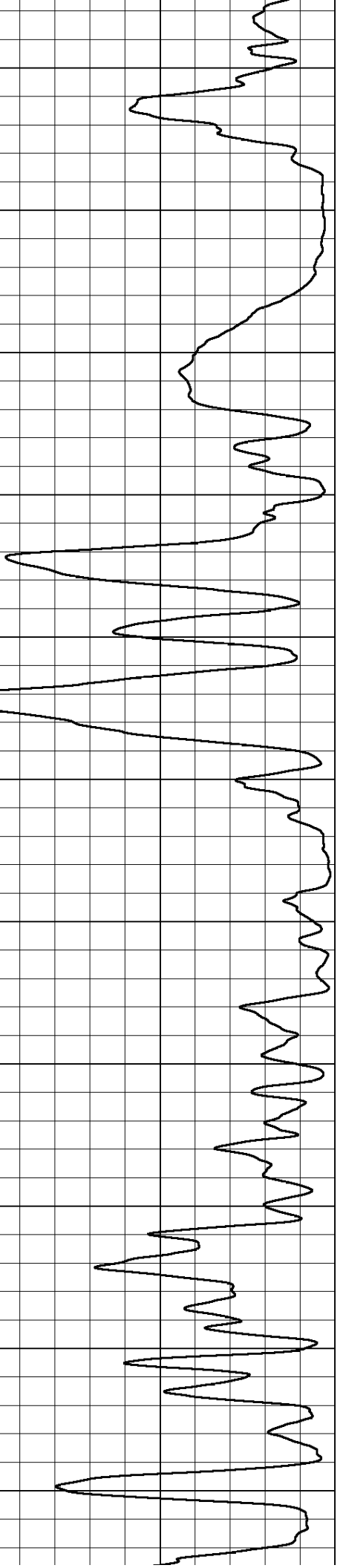
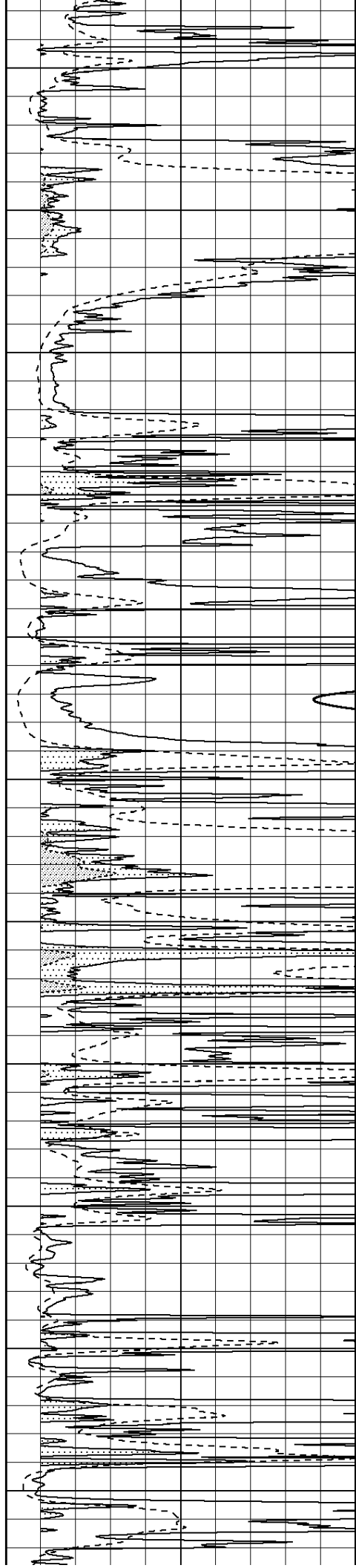
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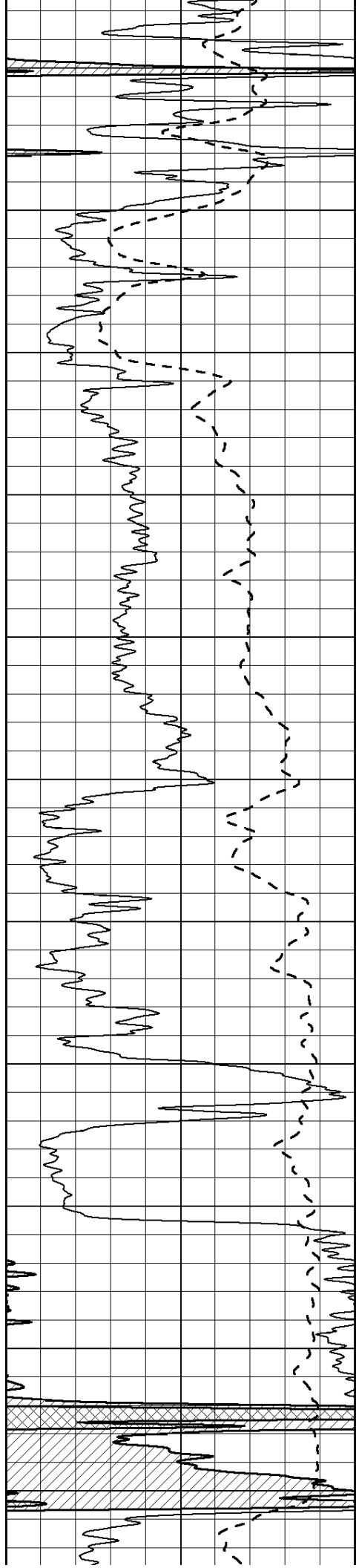
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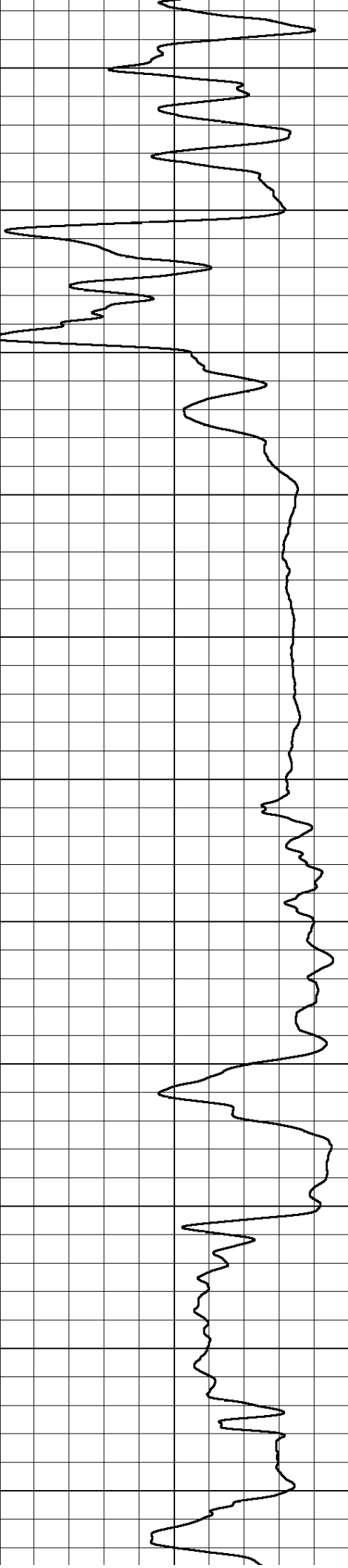
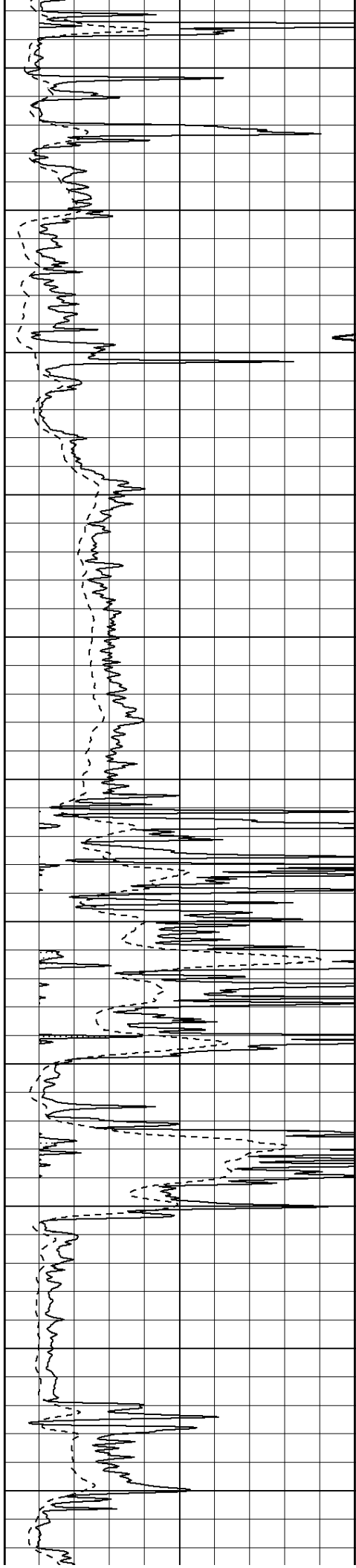
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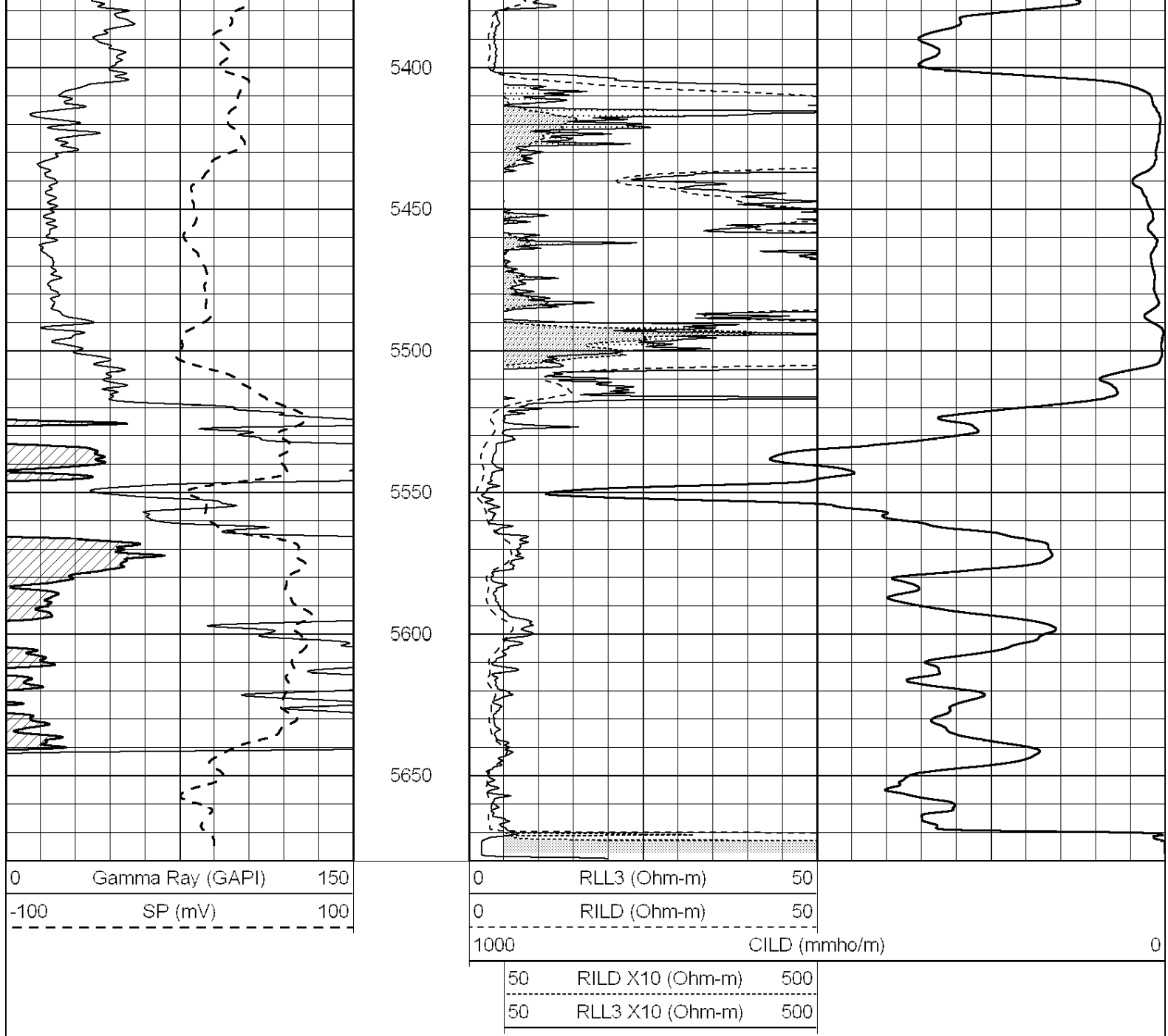
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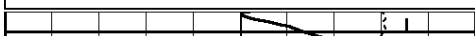
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MAIN SECTION

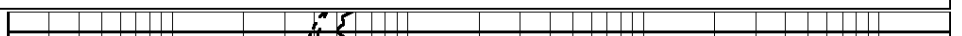
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Presentation Format: dil
Dataset Creation: Tue May 14 16:44:50 2013
Charted by: Depth in Feet scaled 1:240

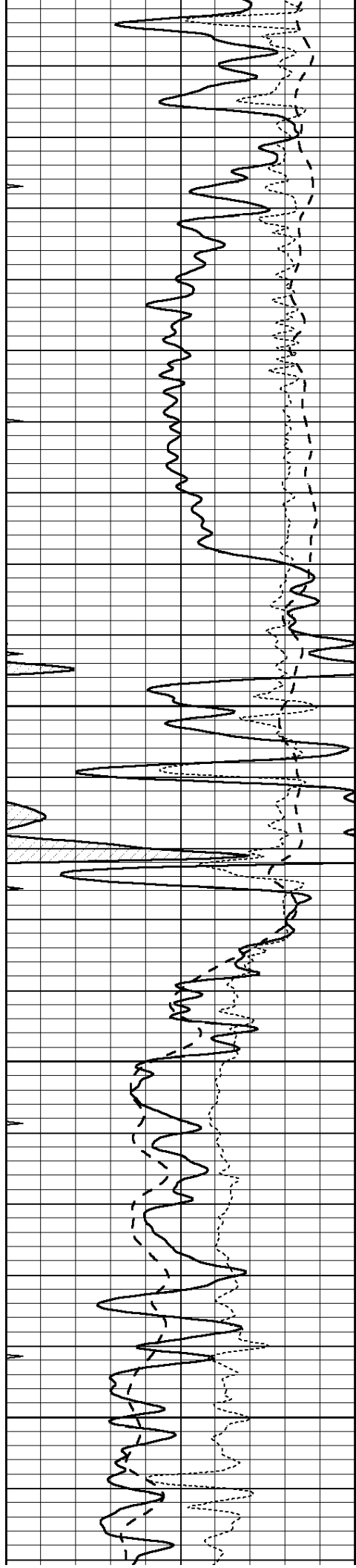
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3600



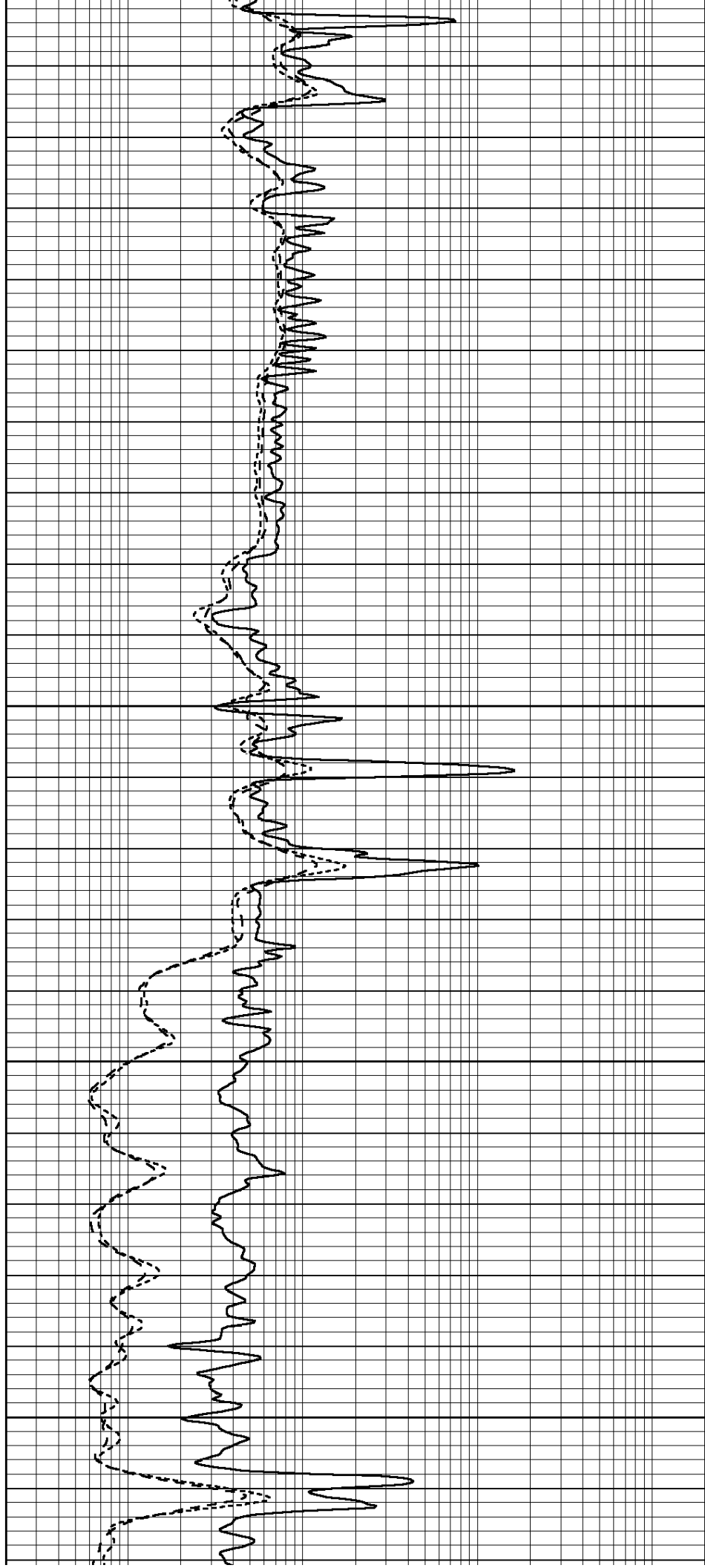


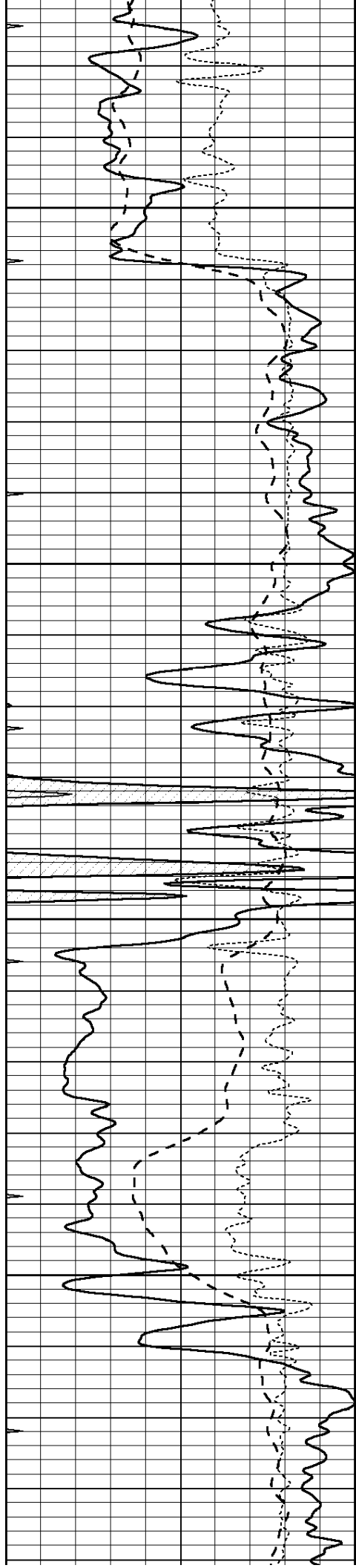
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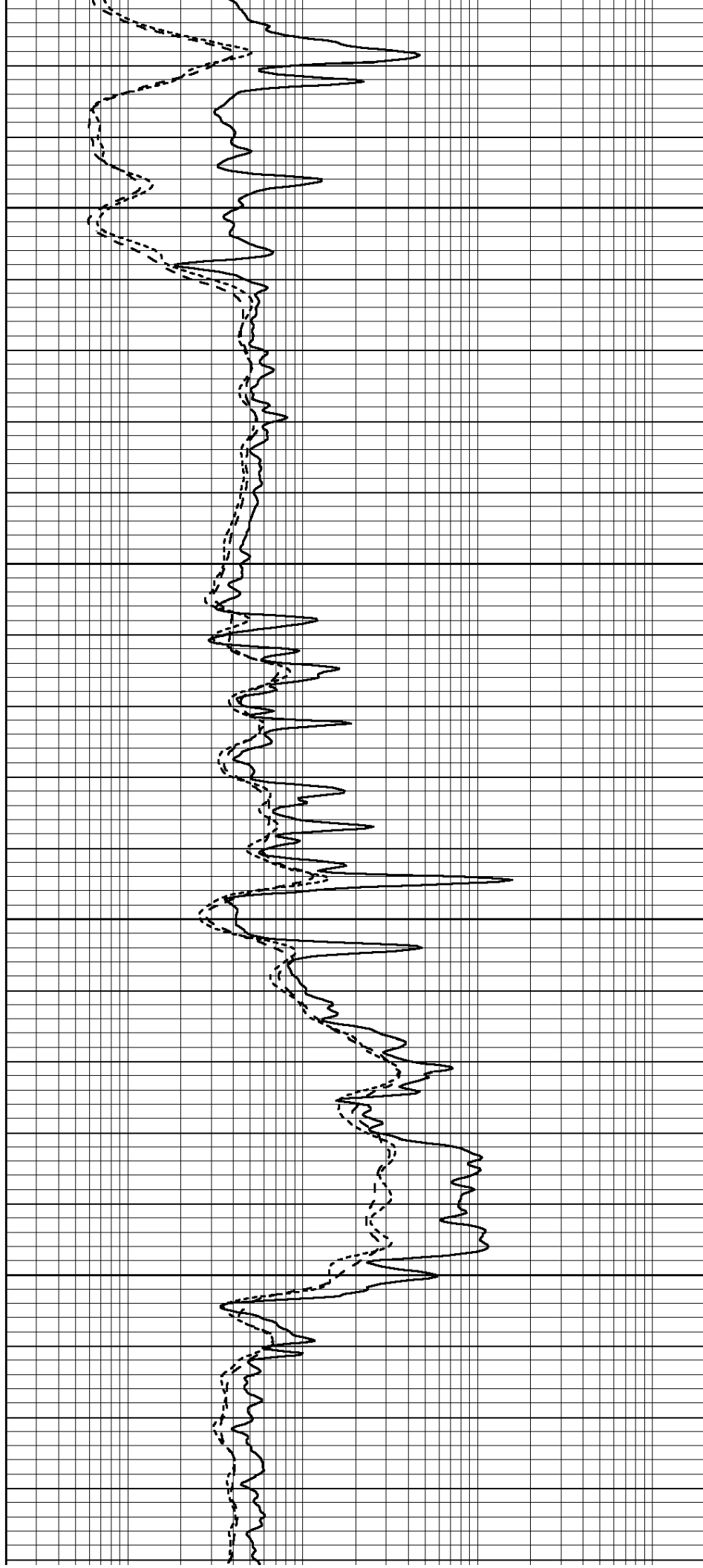


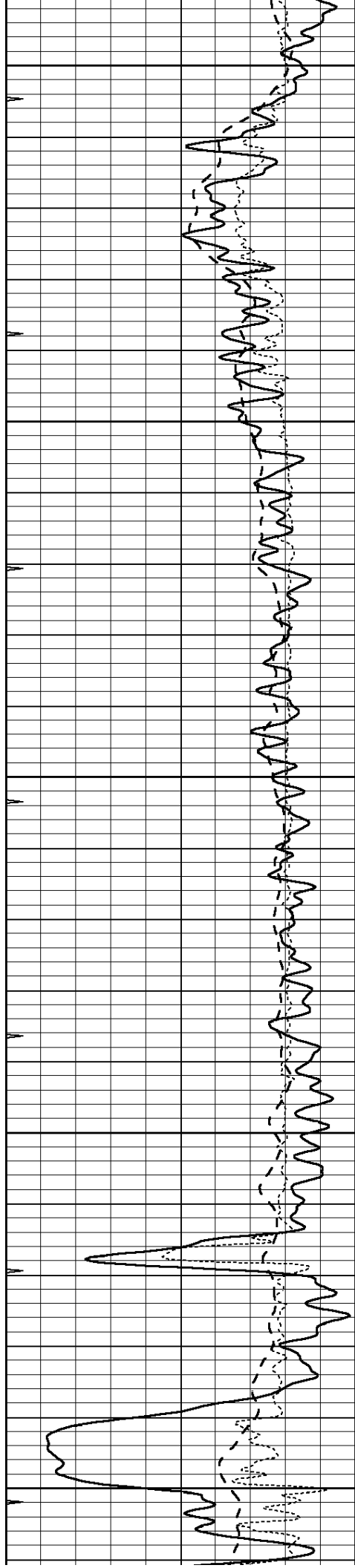
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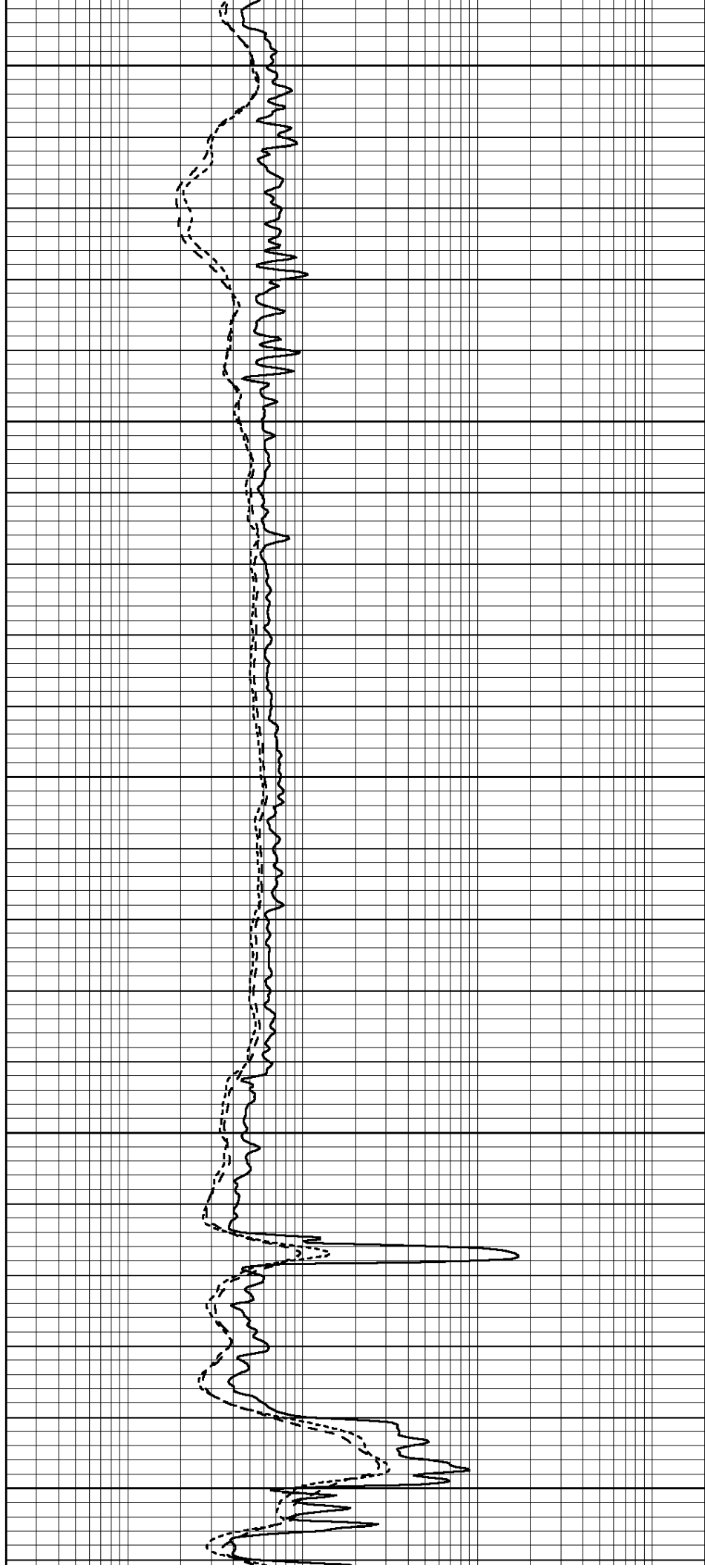
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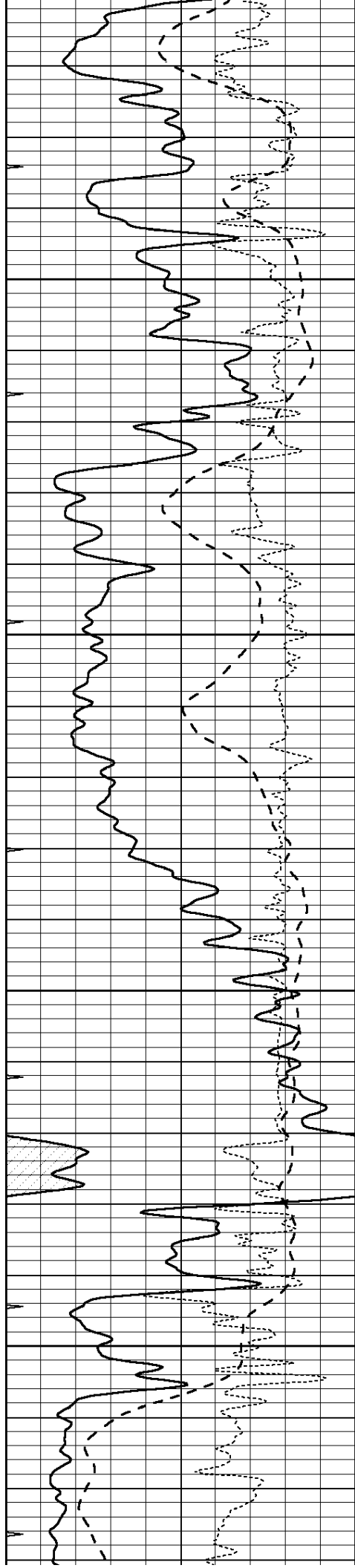
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4150

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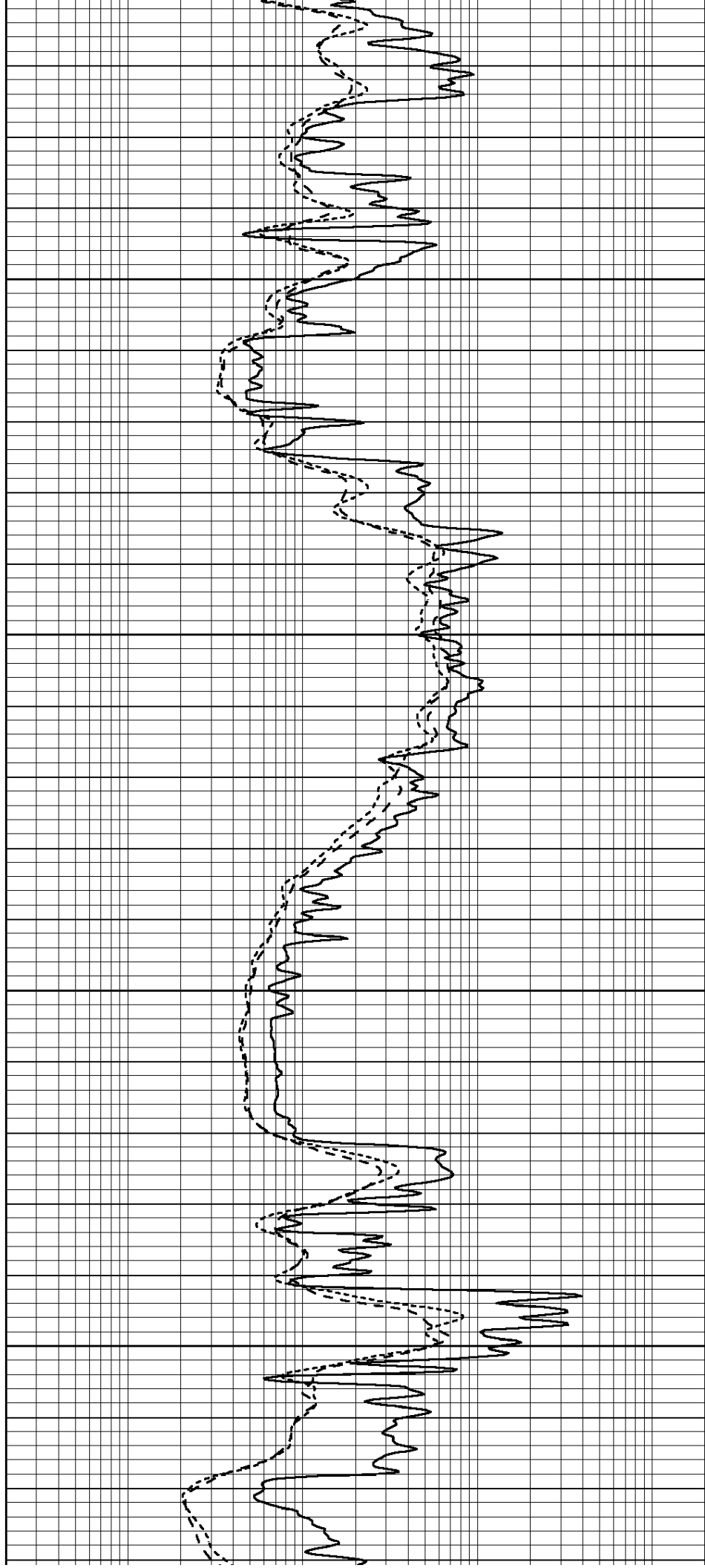


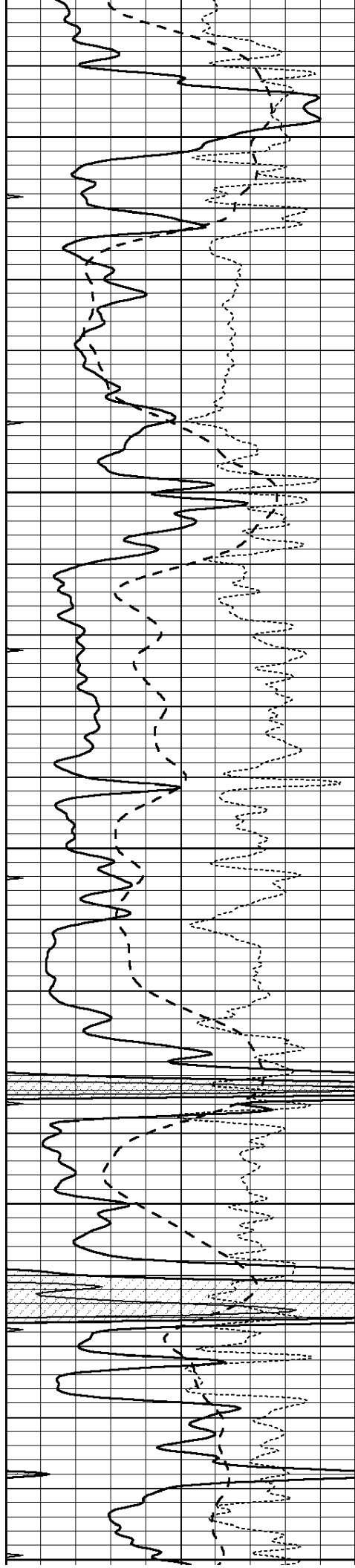
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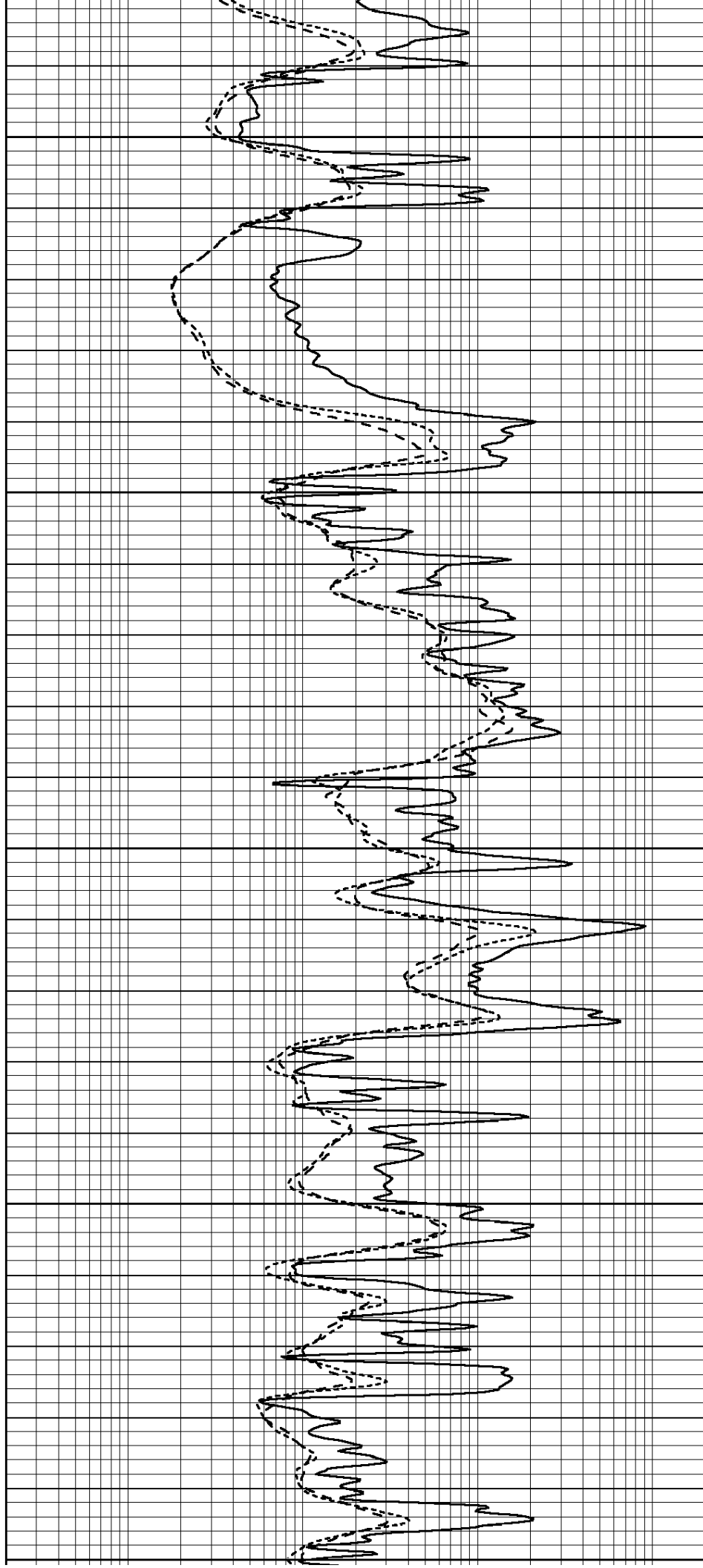
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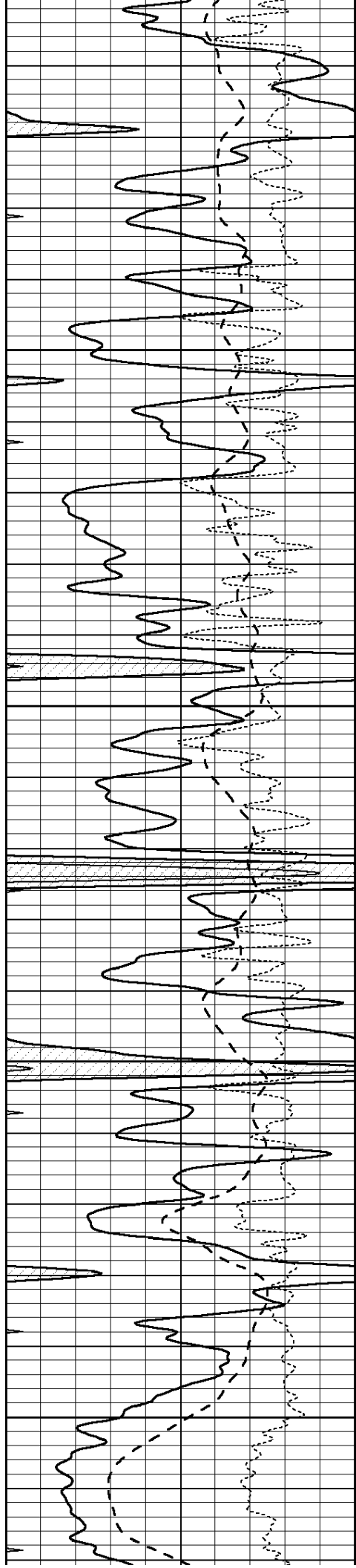
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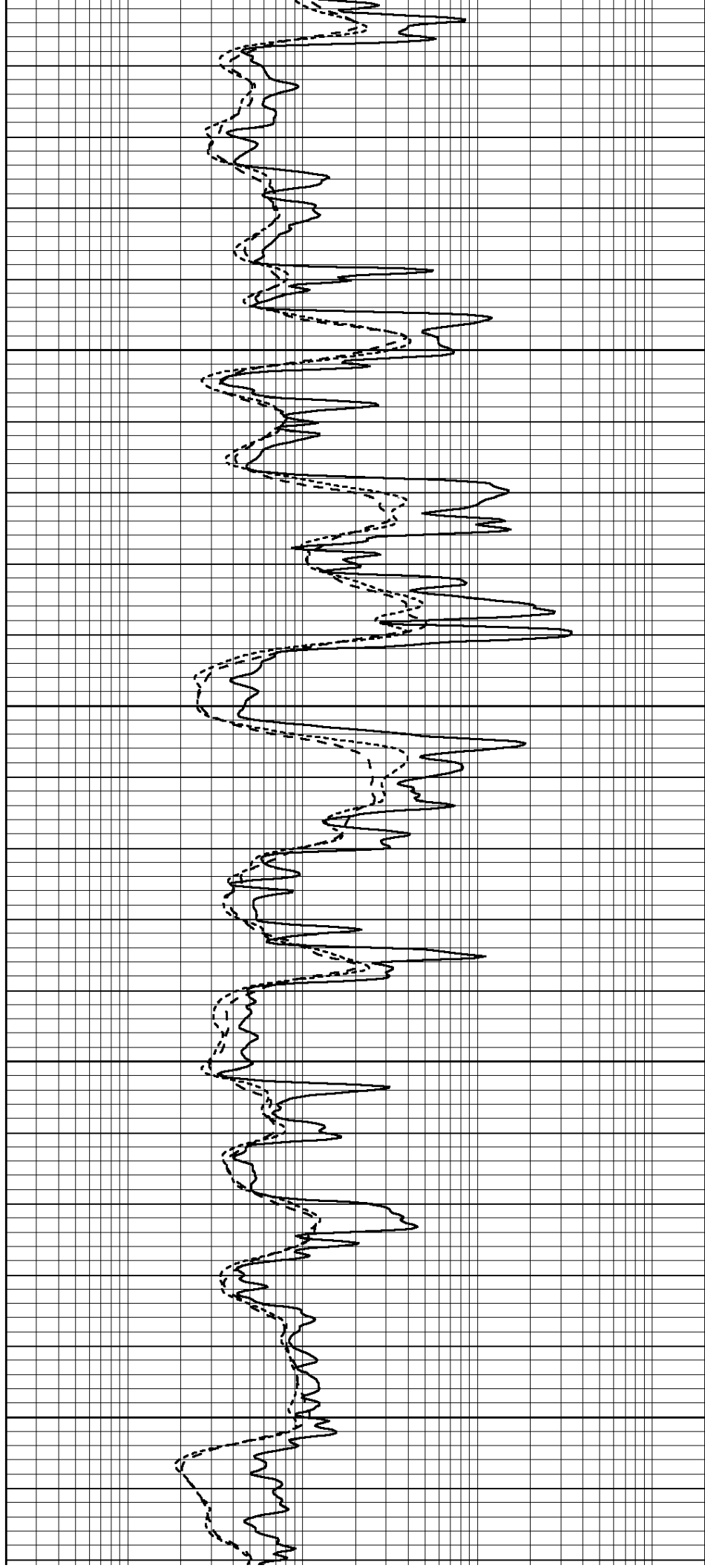


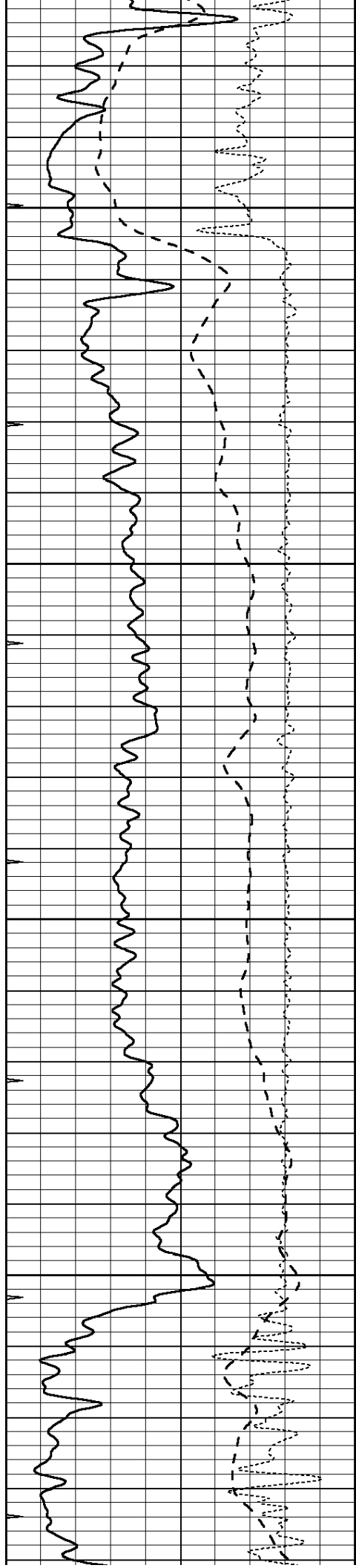
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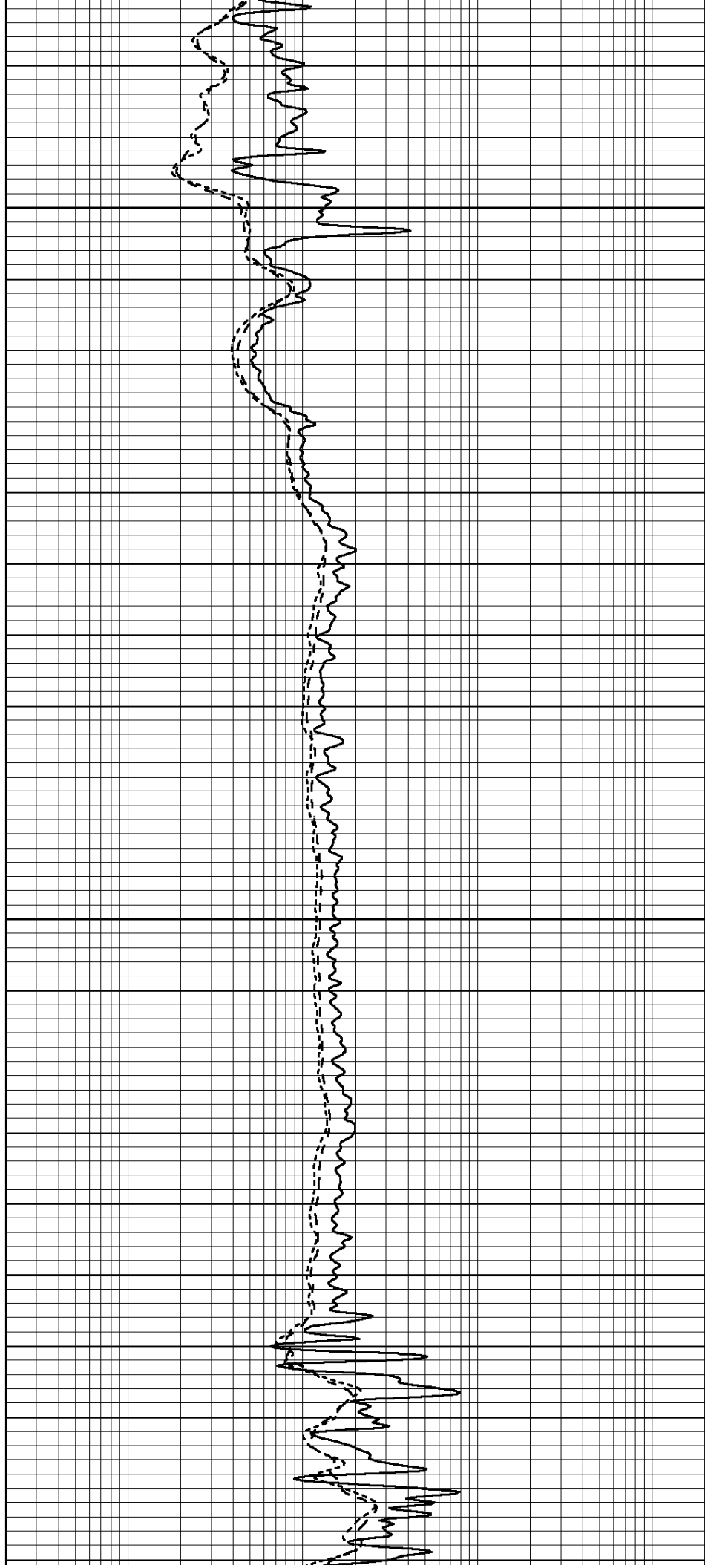


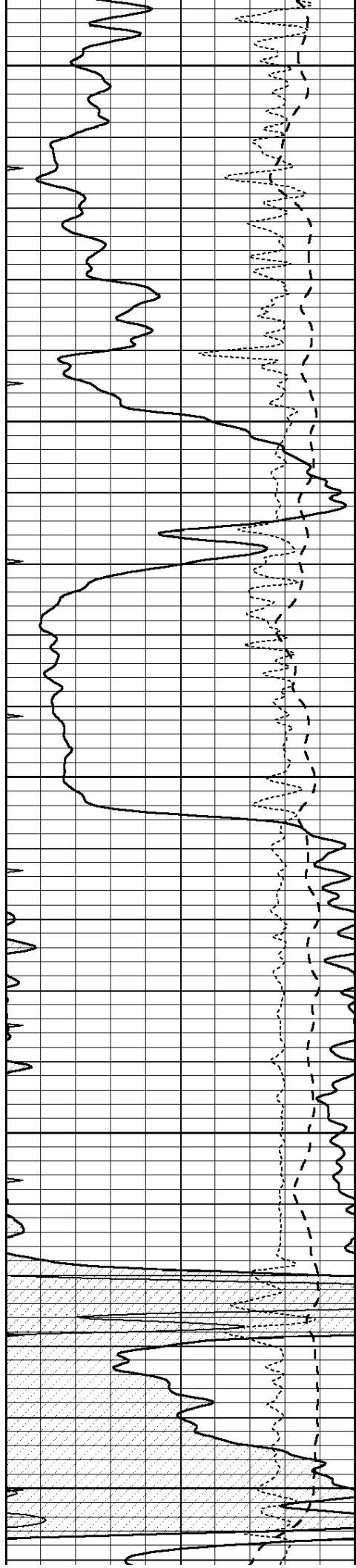
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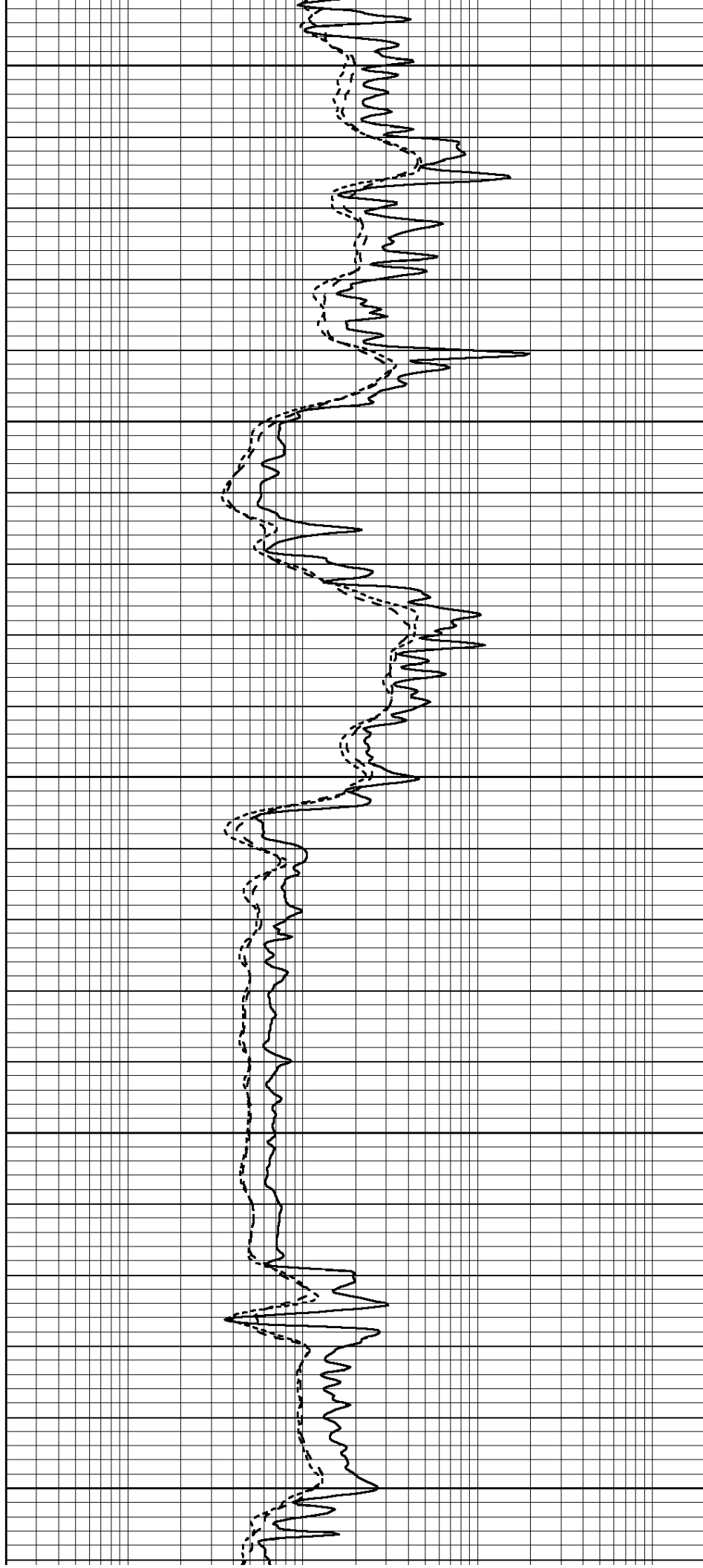
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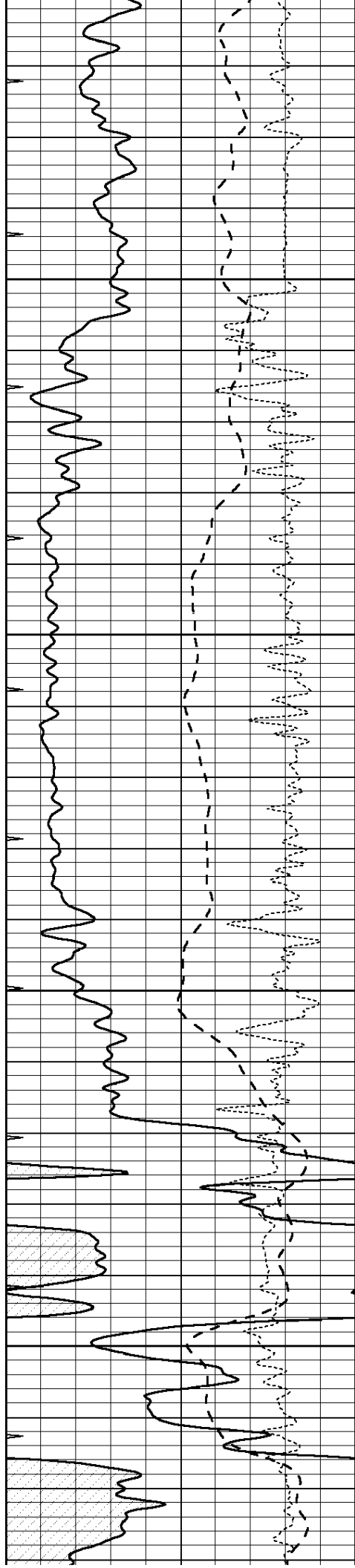
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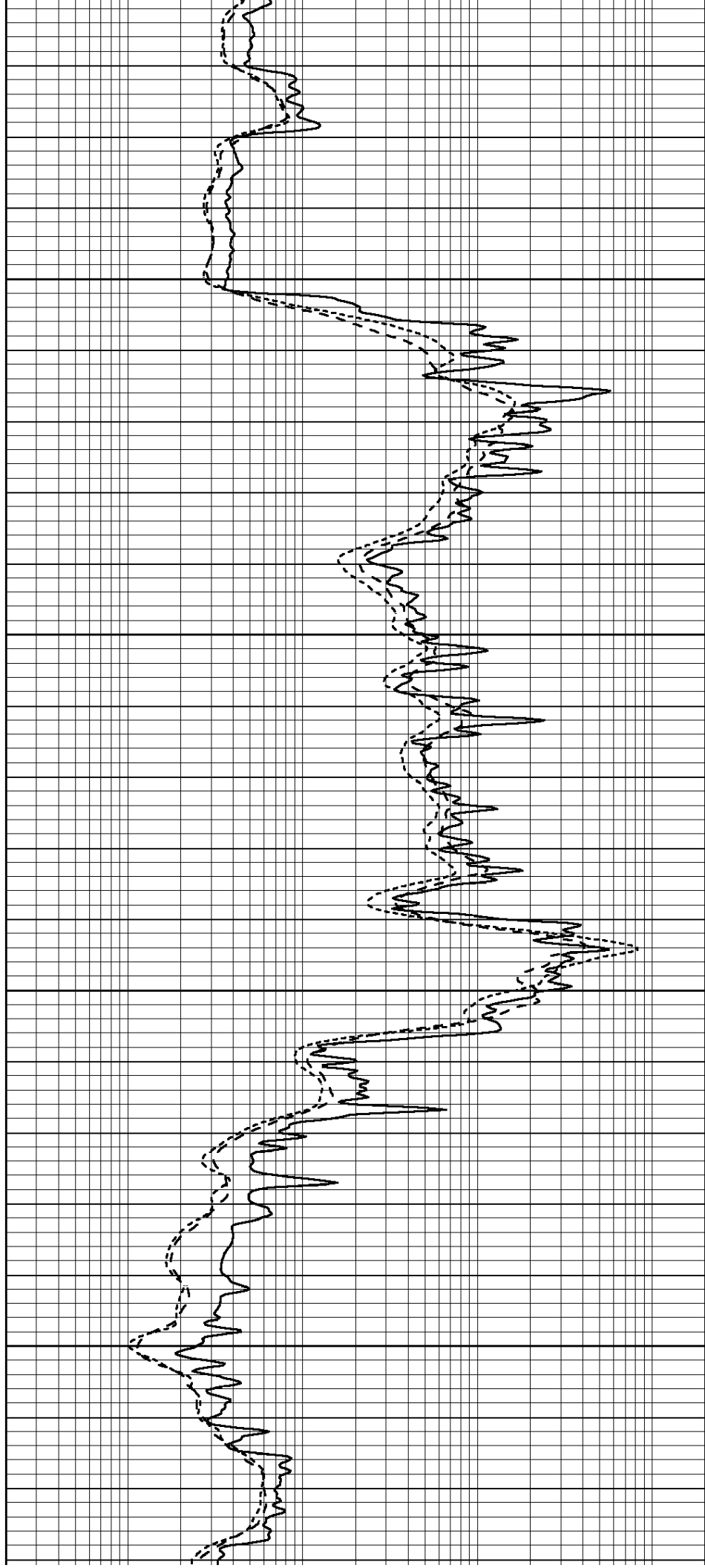


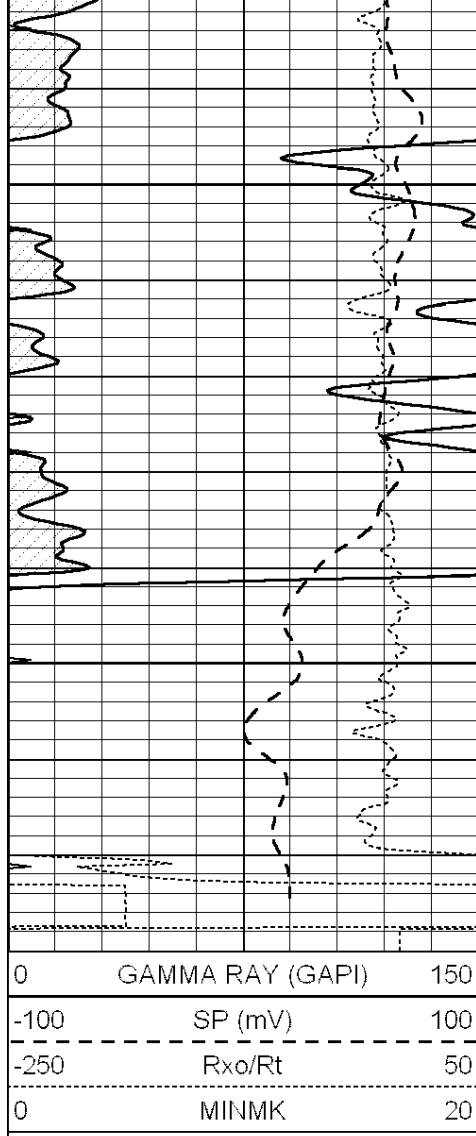
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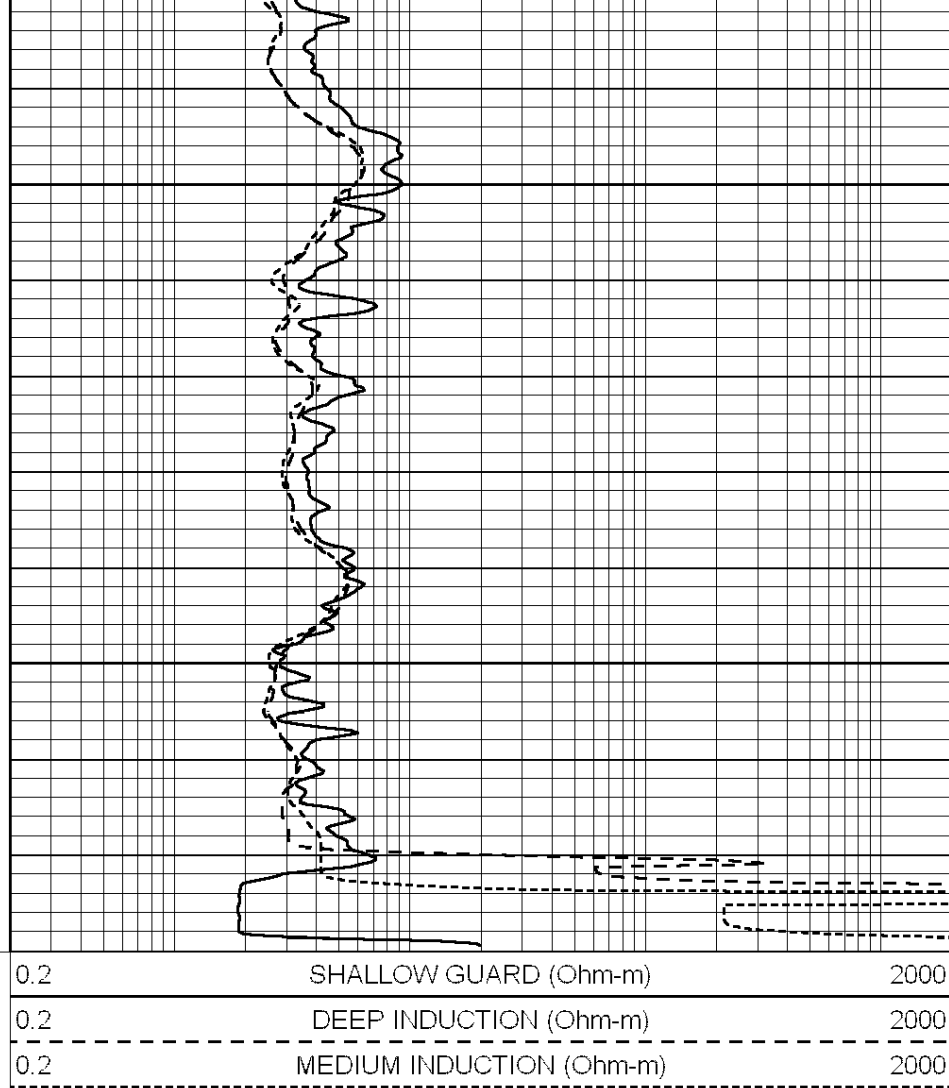
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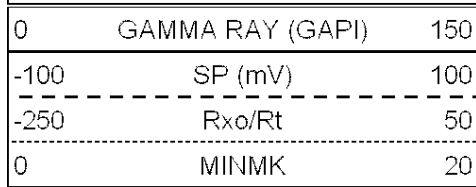
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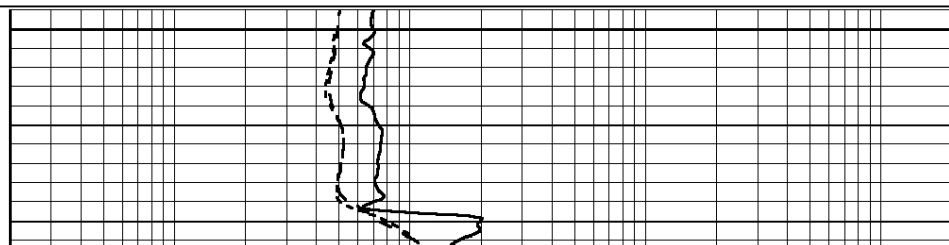
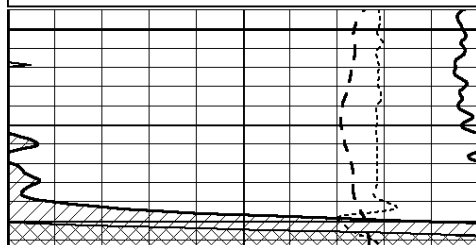
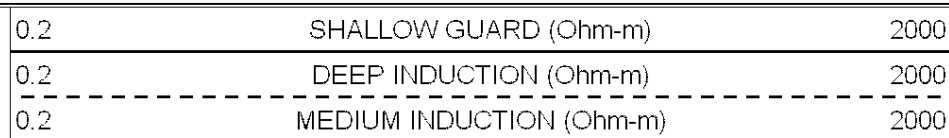


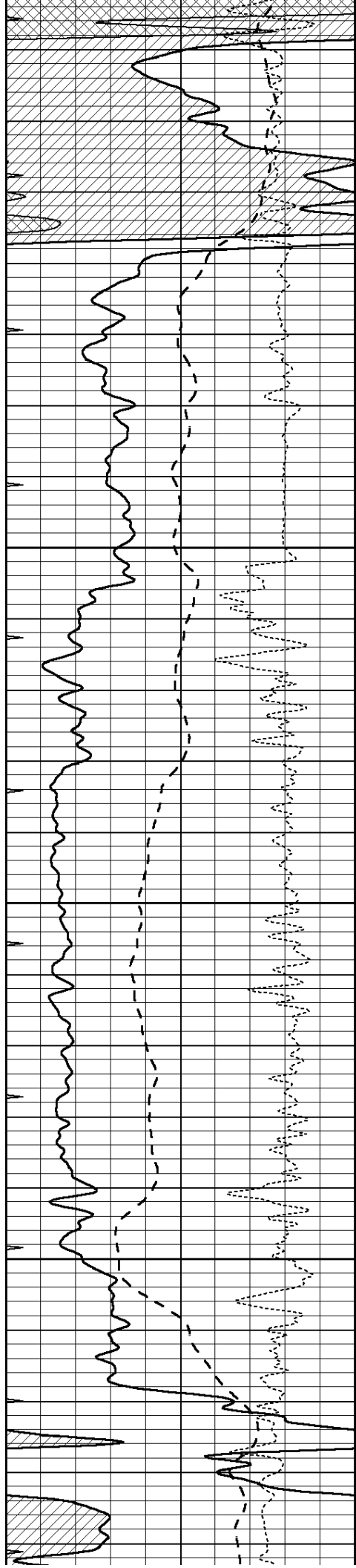
REPEAT SECTION

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 Presentation Format: _dil
 Dataset Creation: Tue May 14 15:23:32 2013
 Charted by: Depth in Feet scaled 1:240



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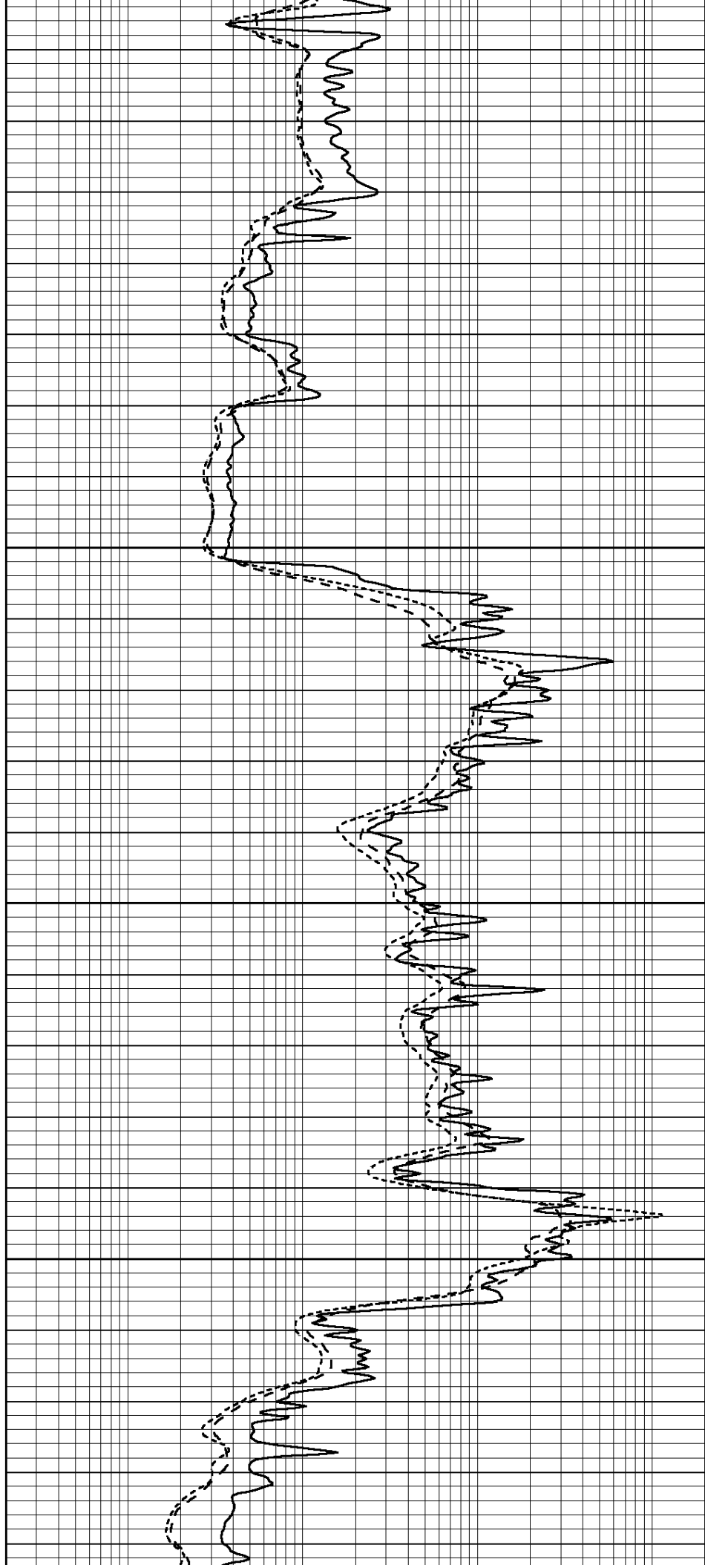


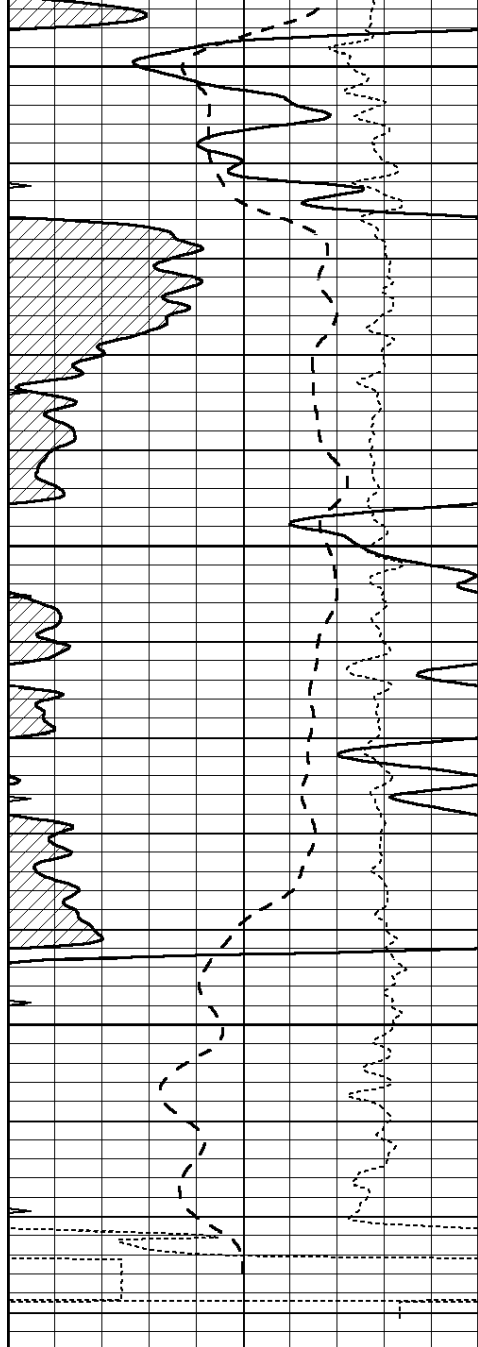
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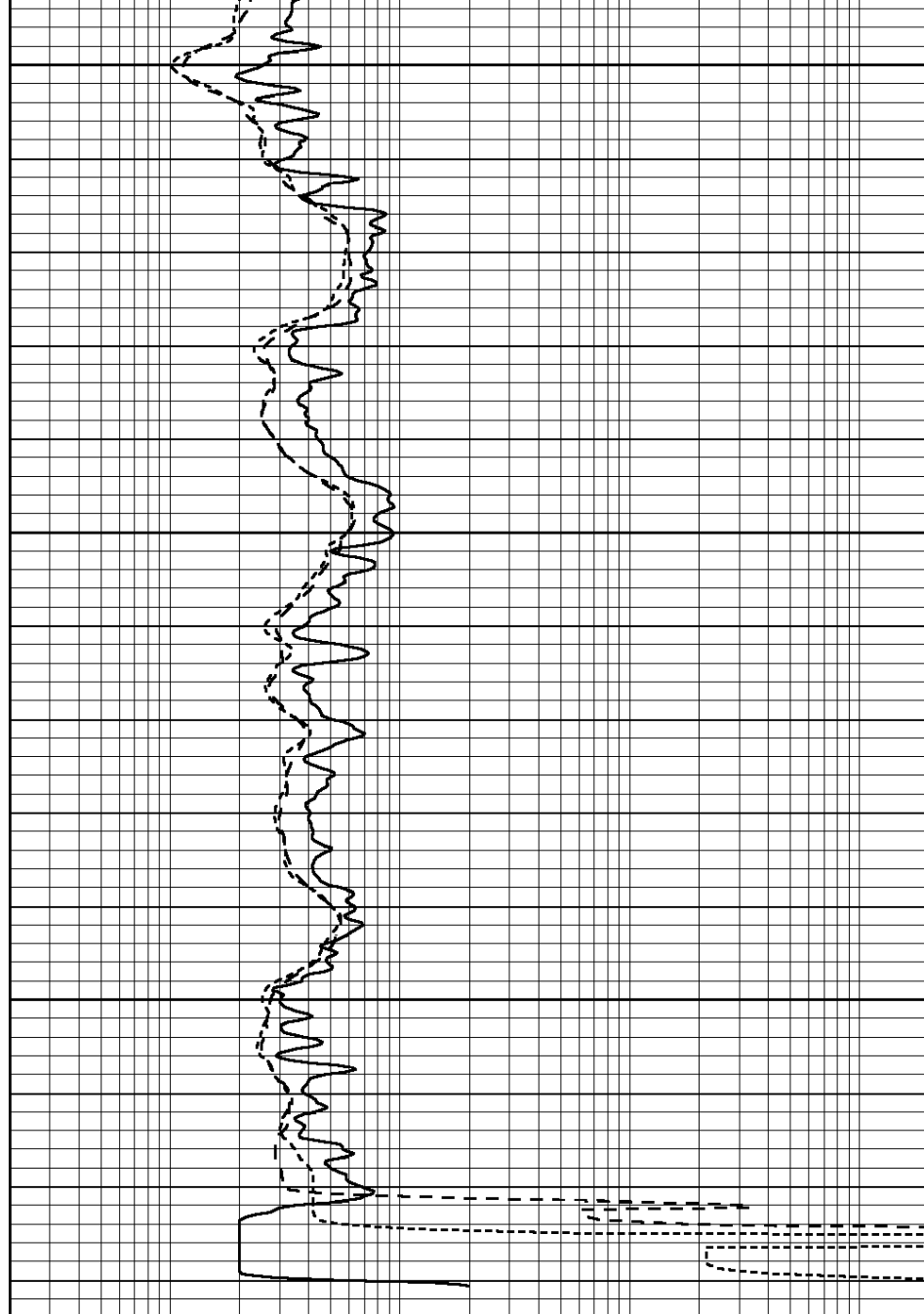


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

5550

5600

5650



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

Calibration Report

Database File: 010905pe.db
 Dataset Pathname: pass3.8
 Dataset Creation: Tue May 14 16:44:50 2013

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Thu Apr 25 06:19:30 2013
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

Readings

References

Results

Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-13.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-14.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration								
Readings			References			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	mmho-m		

After Survey Verification								
Readings			Targets			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		1.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		1.000	mmho-m		1.000	mmho-m		

Litho Density Calibration Report								
Serial: 006				Model: PRB				

Master Calibration				Performed Sun Aug 15 09:48:41 2010				
	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		0.0000		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	

Before Survey Verification				Performed Wed Dec 31 18:00:00 1969				
Window 1	0.0	0.0		0.0		0.0		cps
Window 2	0.0	0.0		0.0		0.0		cps
Window 3	0.0	0.0		0.0		0.0		cps
Window 4	0.0	0.0		0.0		0.0		cps
Long Space	0.0	0.0		0.0		0.0		cps
Short Space	0.0	0.0		0.0		0.0		cps
Measured Rho		0.0000		0.0000		0.0000		g/cc
Measured Correction		0.0000		0.0000		0.0000		g/cc
Measured Pe				0.0000		0.0000		

After Survey Verification				Performed Wed Dec 31 18:00:00 1969				
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Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report
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Serial Number:	070808
Tool Model:	Probe

PRE-SURVEY VERIFICATION				
Detector	Readings	Measured	Target	
Short Space	cps			
Long Space	cps	pu	pu	

POST-SURVEY VERIFICATION				
Detector	Readings	Measured	Target	
Short Space	cps			
Long Space	cps	pu	pu	

Gamma Ray Calibration Report

Serial Number:	070559	
Tool Model:	OPEN_GR	
Performed:	Mon Apr 15 10:30:52 2013	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3500	GAPI/cps