



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company	WOOLSEY OPERATING COMPANY, LLC		
Well	STERNBERGER B-1		
Field	STRANATHAN		
County	BARBER	State	KANSAS
Location:	AP1 #: 15-007-24128-0000		Other Services
	330' FSL & 1090' FWL		CDL/CNL/PE
Permanent Datum	SEC 12 TWP 35S RGE 12W	Elevation	
Log Measured From	GROUND LEVEL	Elevation	1357
Drilling Measured From	KELLY BUSHING 12' A.G.L.	K.B. 1369	
	KELLY BUSHING	D.F. 1367	
		G.L. 1357	
Date	2/14/14		
Run Number	ONE		
Depth Driller	5460		
Depth Logger	5459		
Bottom Logged Interval	5457		
Top Log Interval	00		
Casing Driller	13 3/8" @ 224	8 5/8" @ 840'	
Casing Logger	NA	849'	
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 4000 PPM	
Density / Viscosity	9.174		
pH / Fluid Loss	12.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.75 @ 74F		
Rmt @ Meas. Temp	.56 @ 74F		
Rmc @ Meas. Temp	.90 @ 74F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.43 @ 129F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	129F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
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

THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS:
HARDTNER, KS. - 3 EAST - SOUTH INTO



NABORS
COMPLETION
& PRODUCTION

MAIN SECTION

Database File:

23894pe.db

Dataset Pathname:

pass3.2

Presentation Format:

_dil2

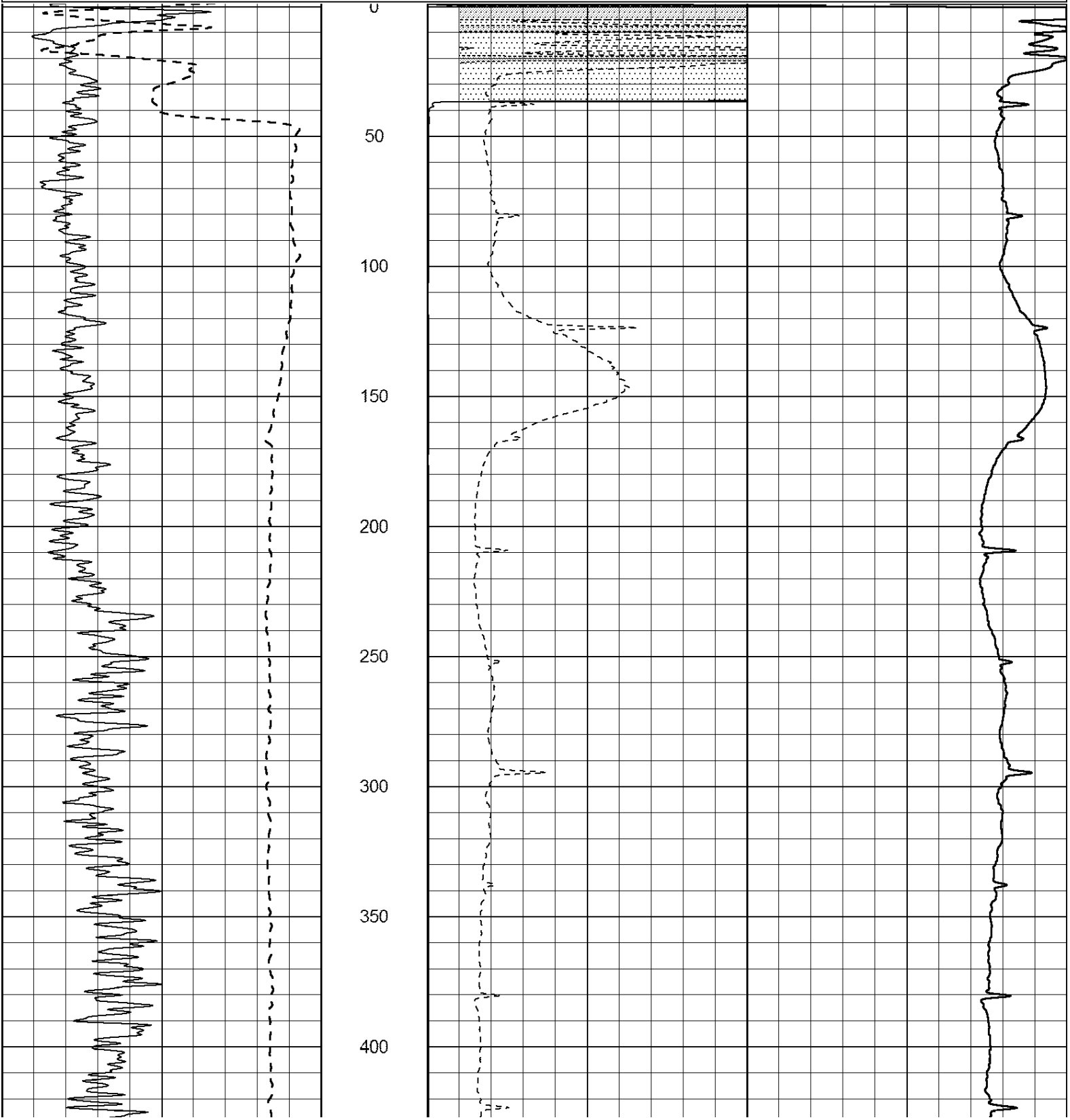
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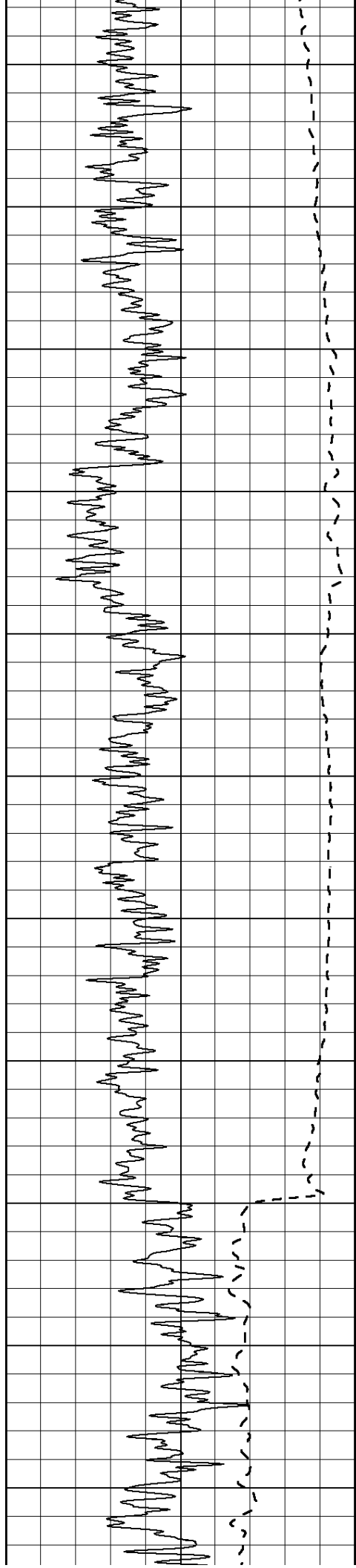
Fri Feb 14 19:56:51 2014 by Calc Open-Cased 090629

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)
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	





450

500

550

600

650

700

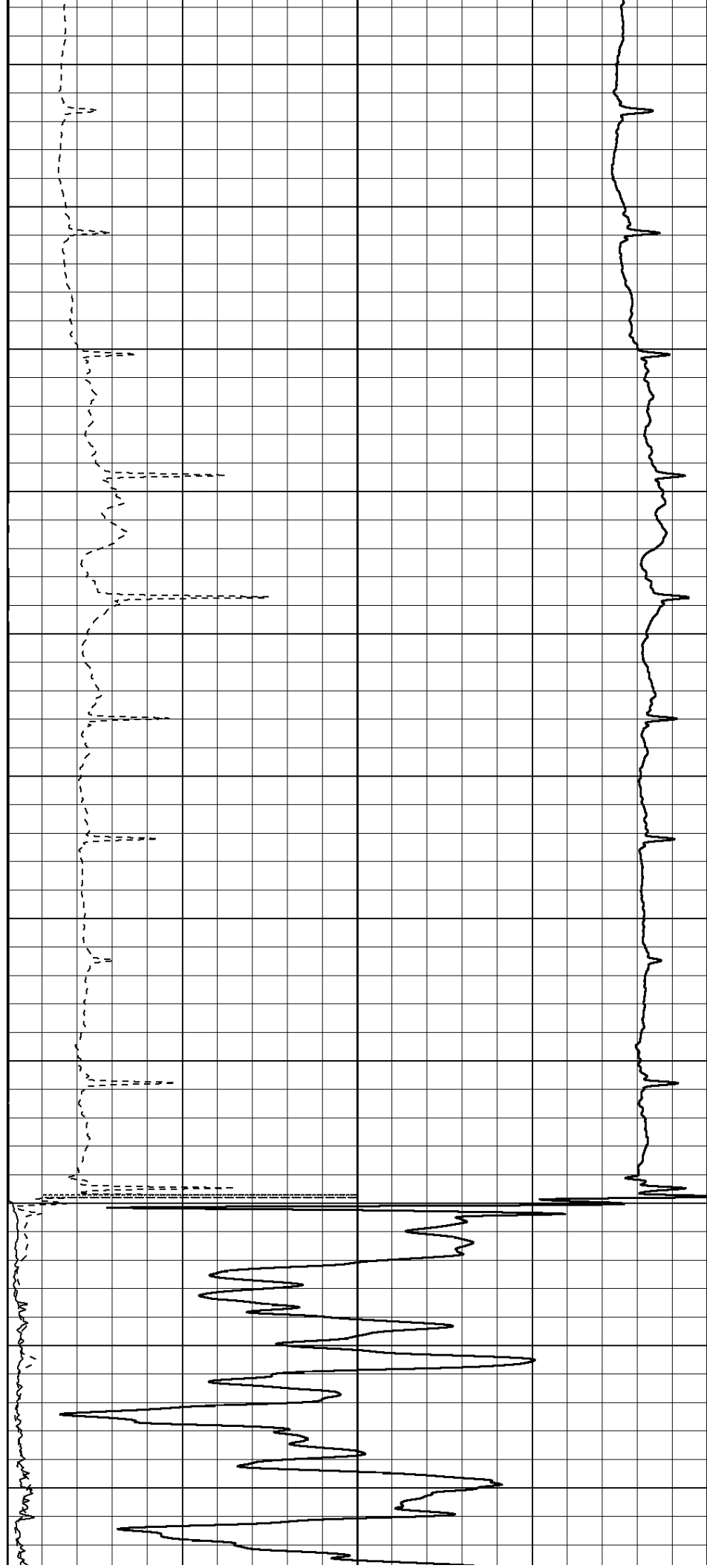
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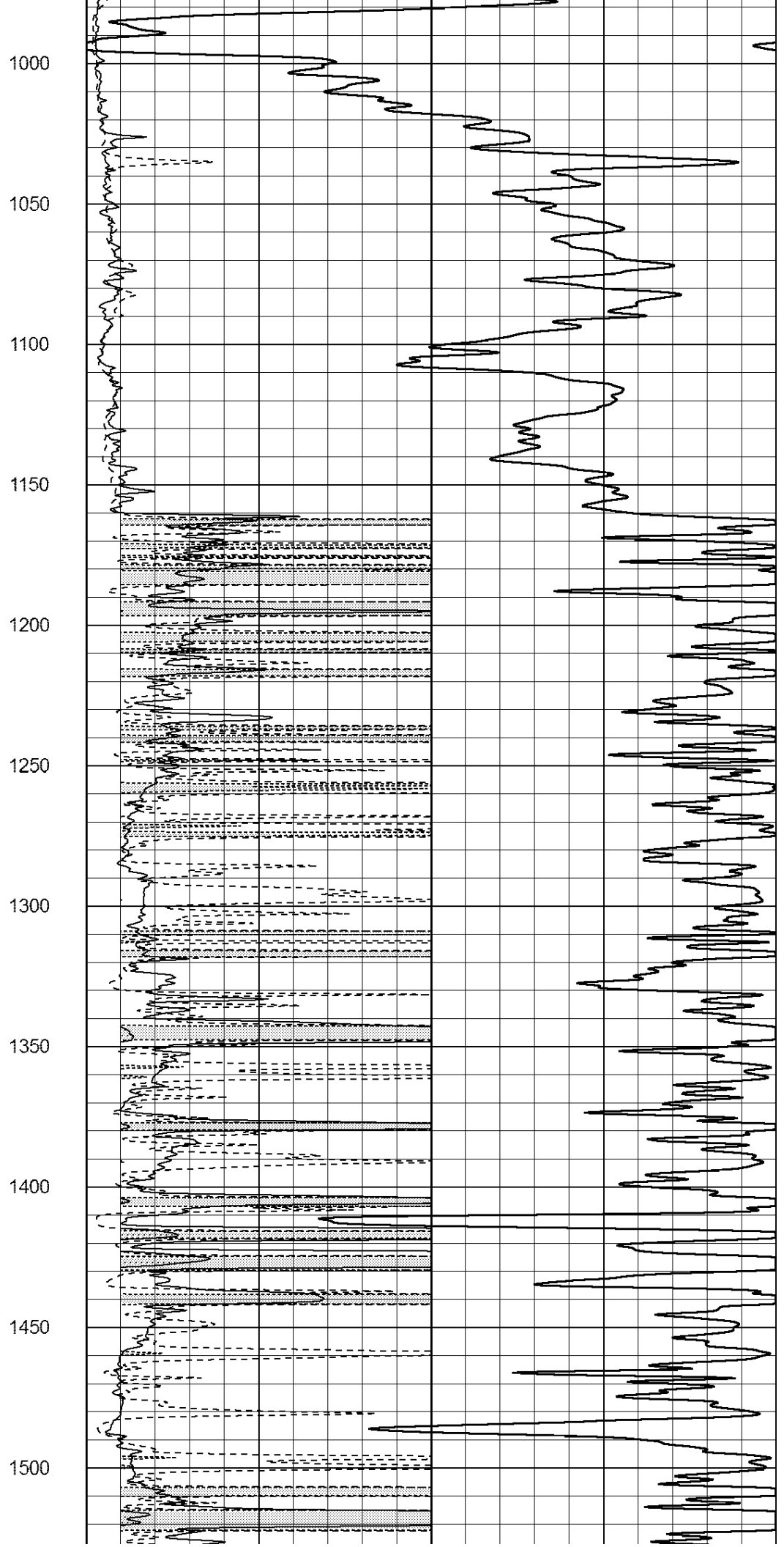
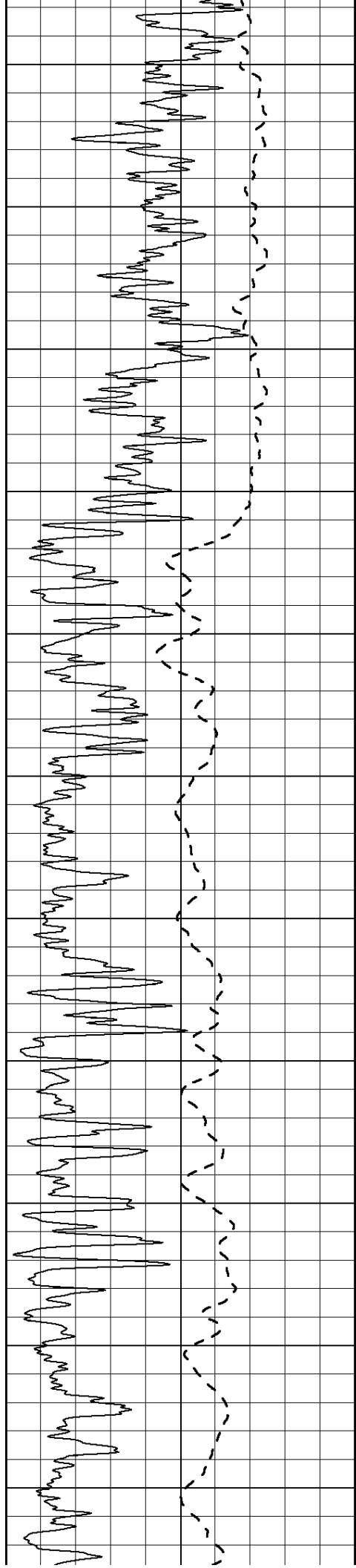
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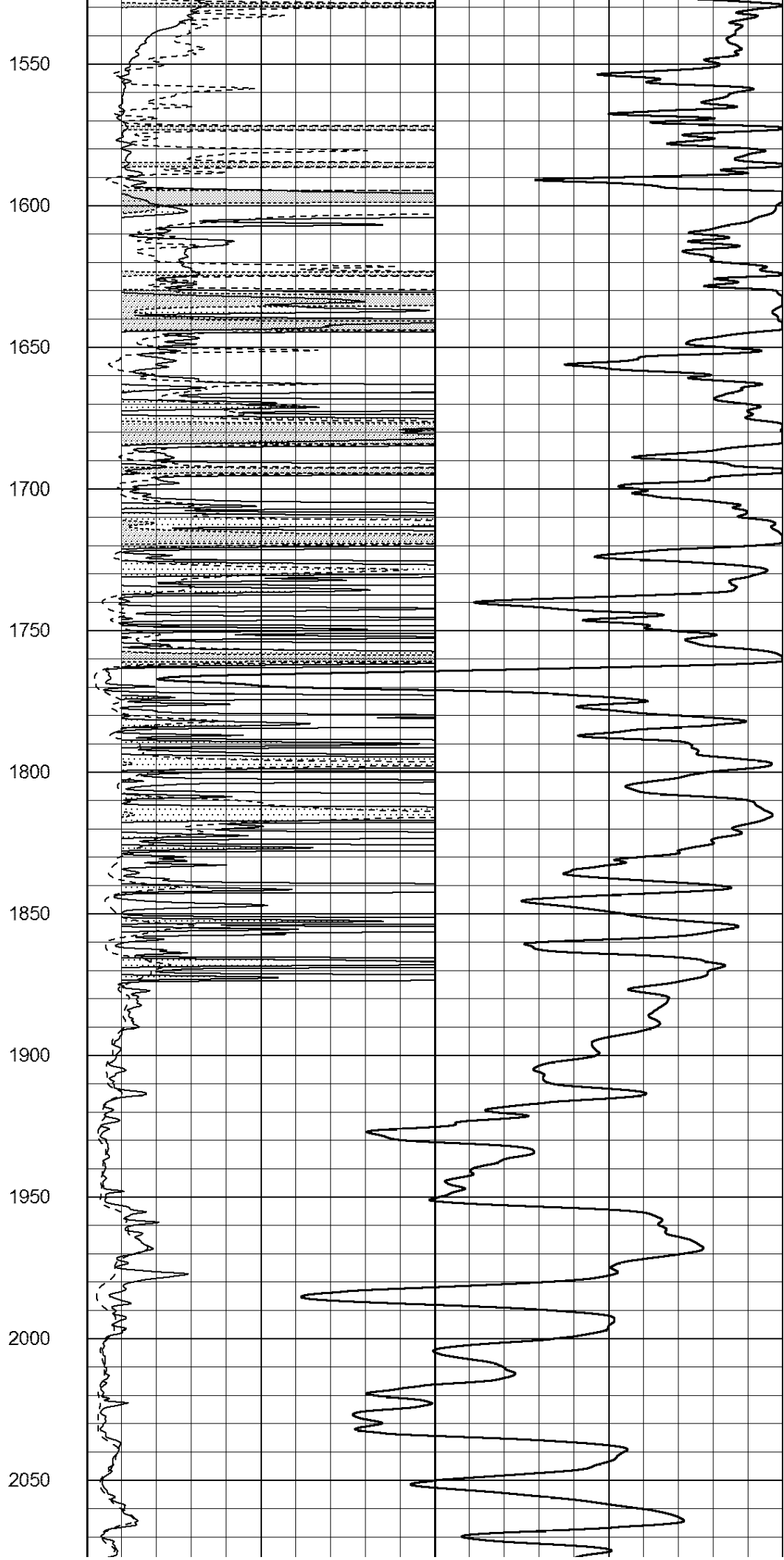
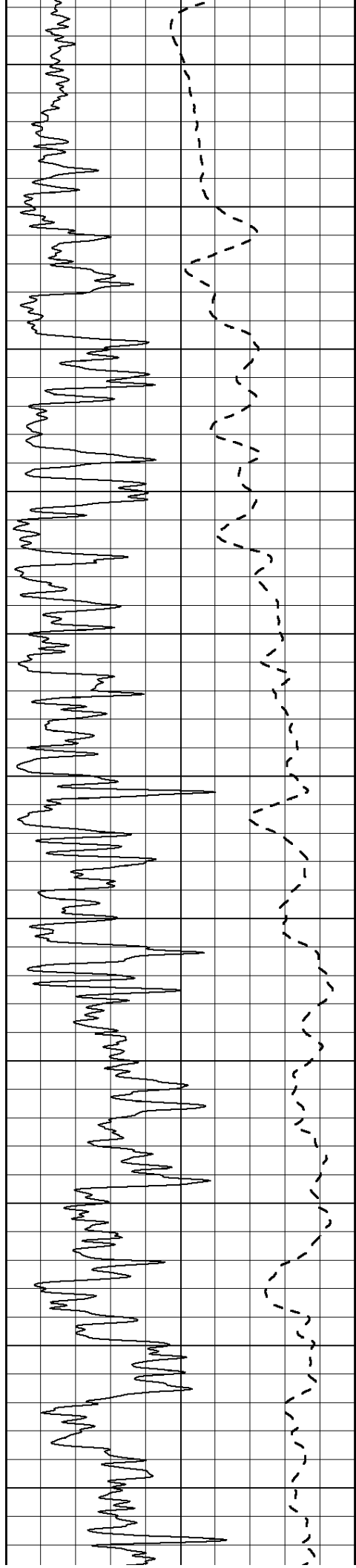
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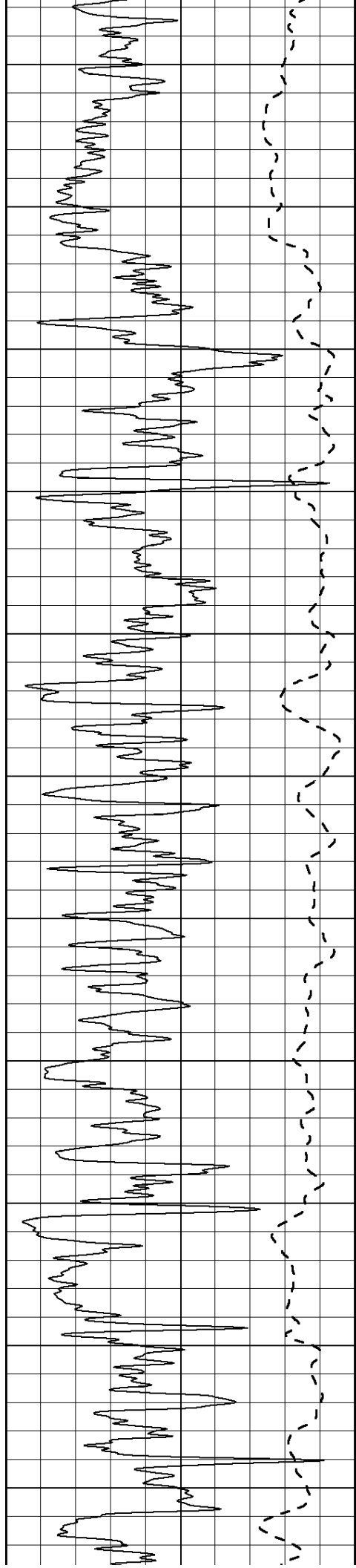
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2100

2150

2200

2250

2300

2350

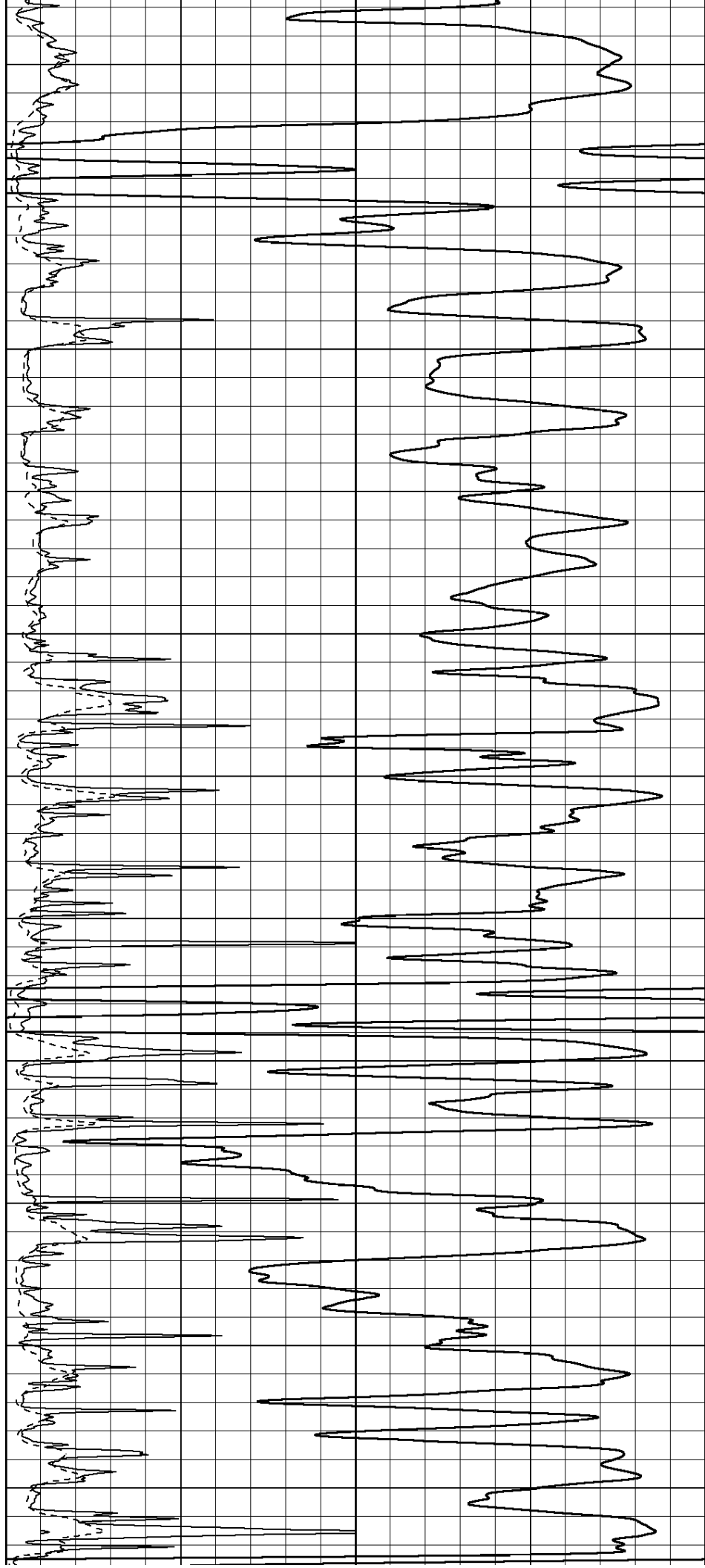
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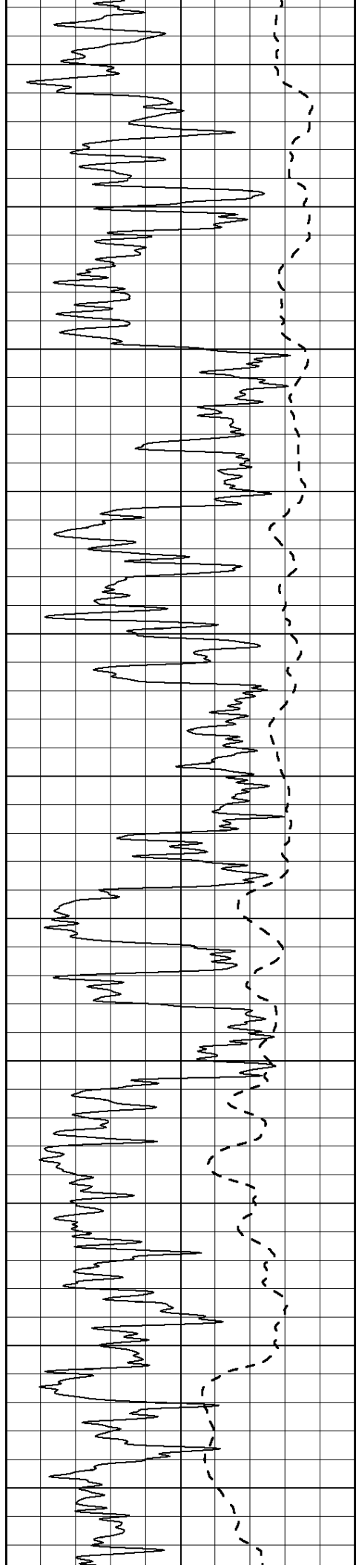
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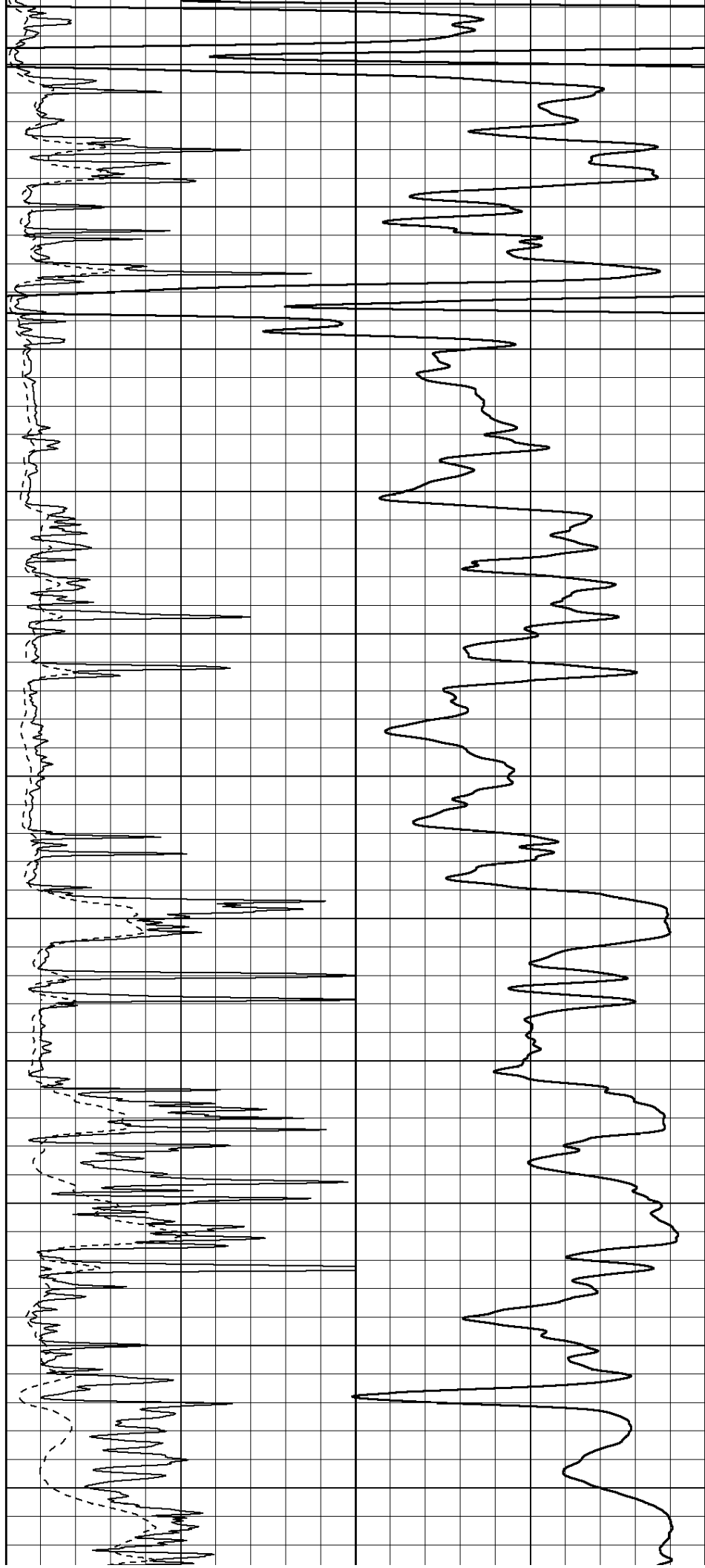
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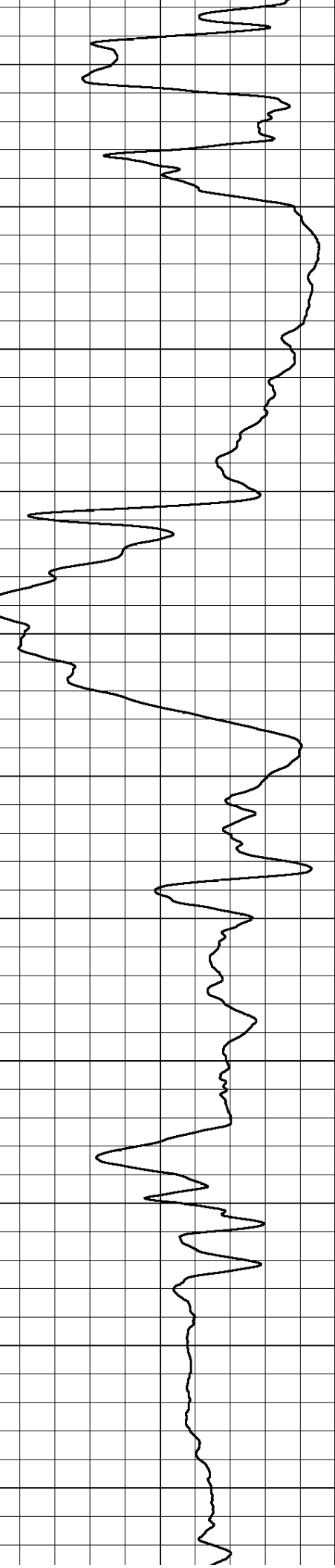
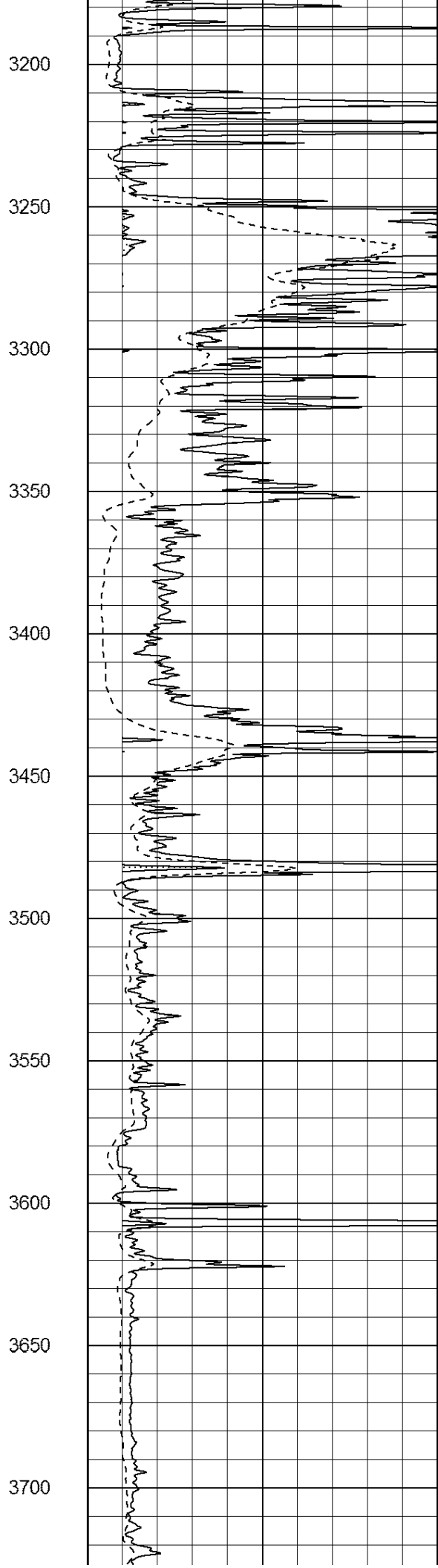
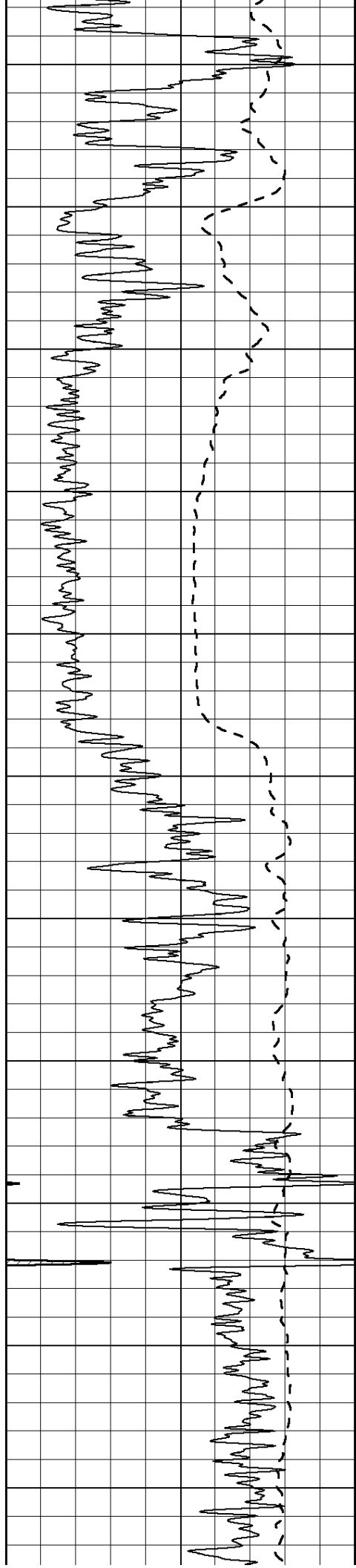
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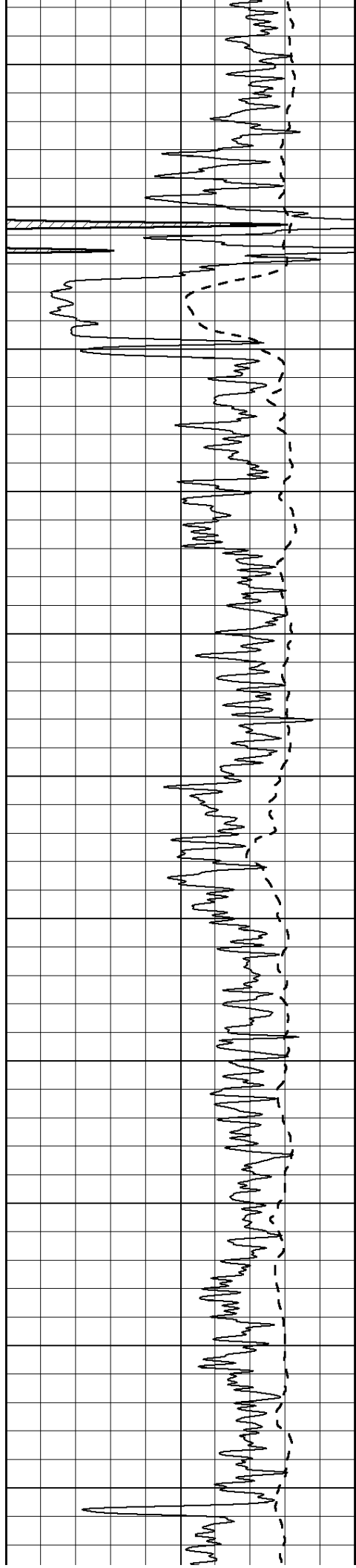
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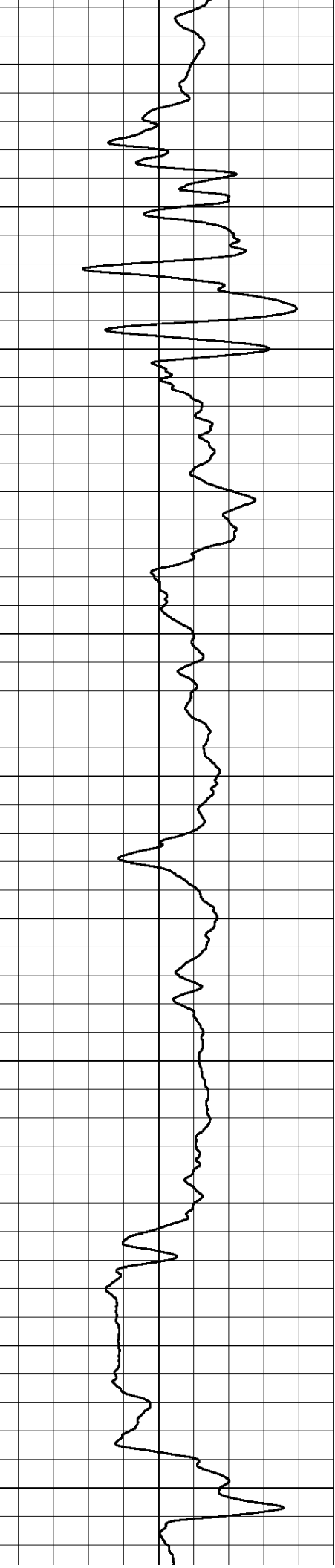
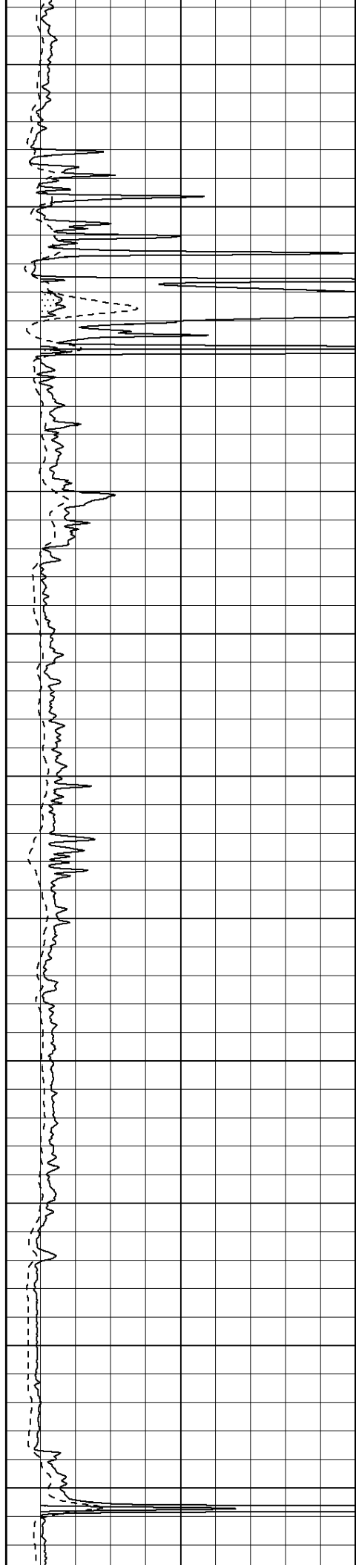
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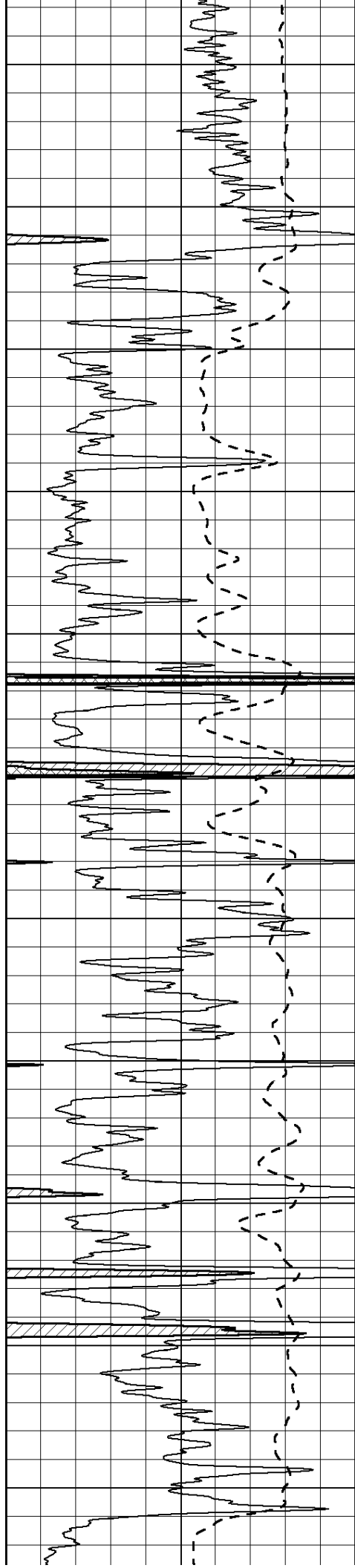
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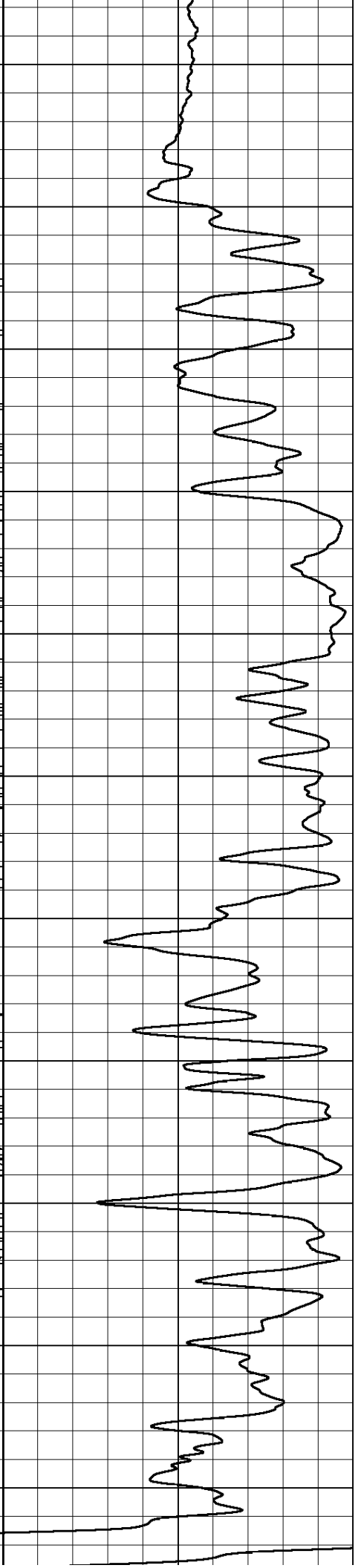
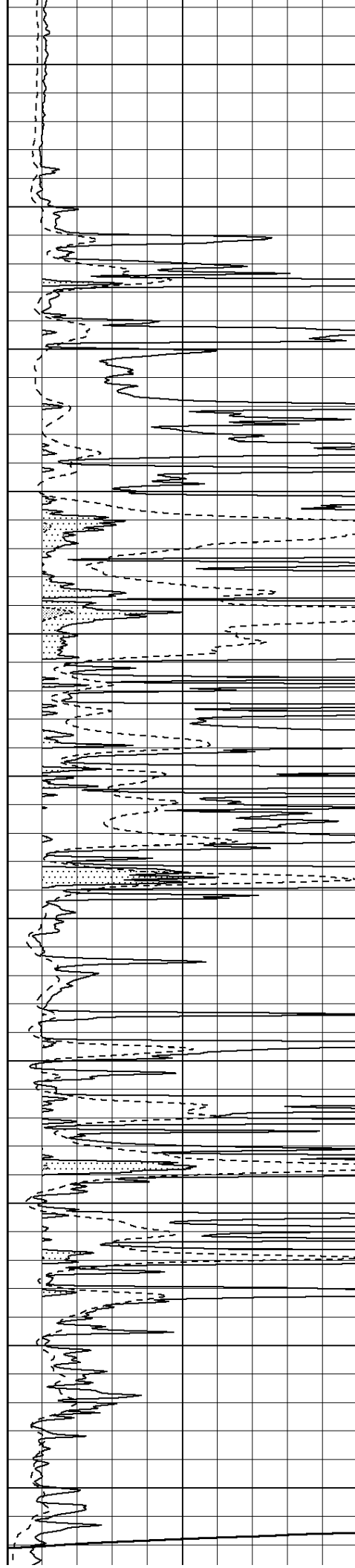
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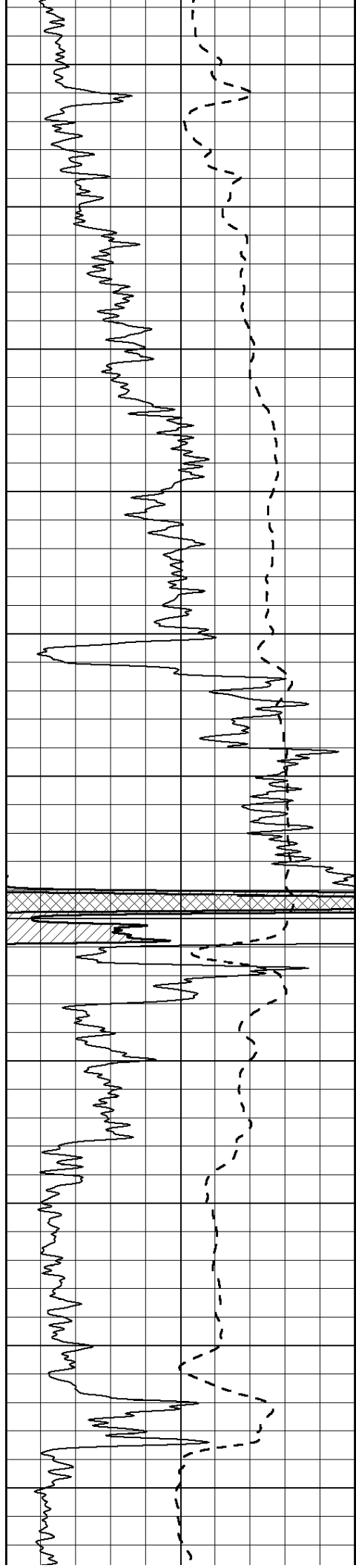
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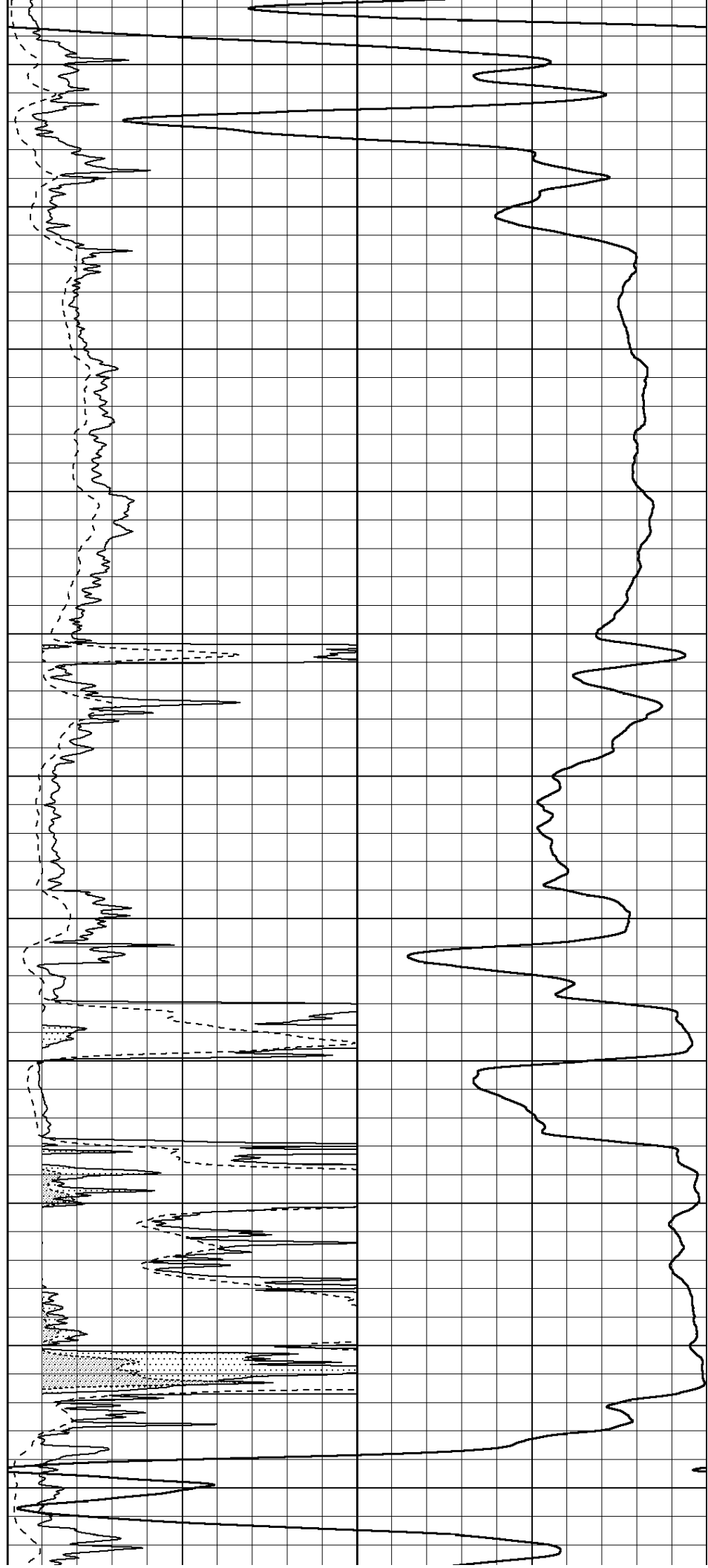
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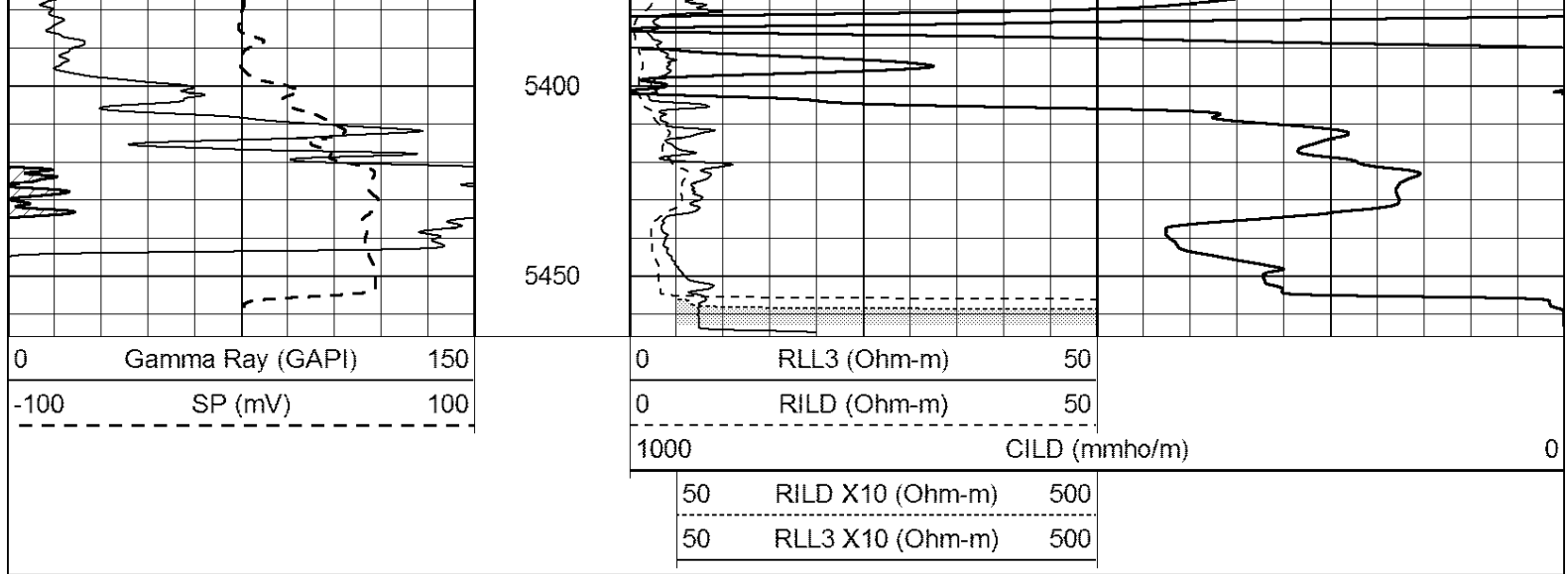
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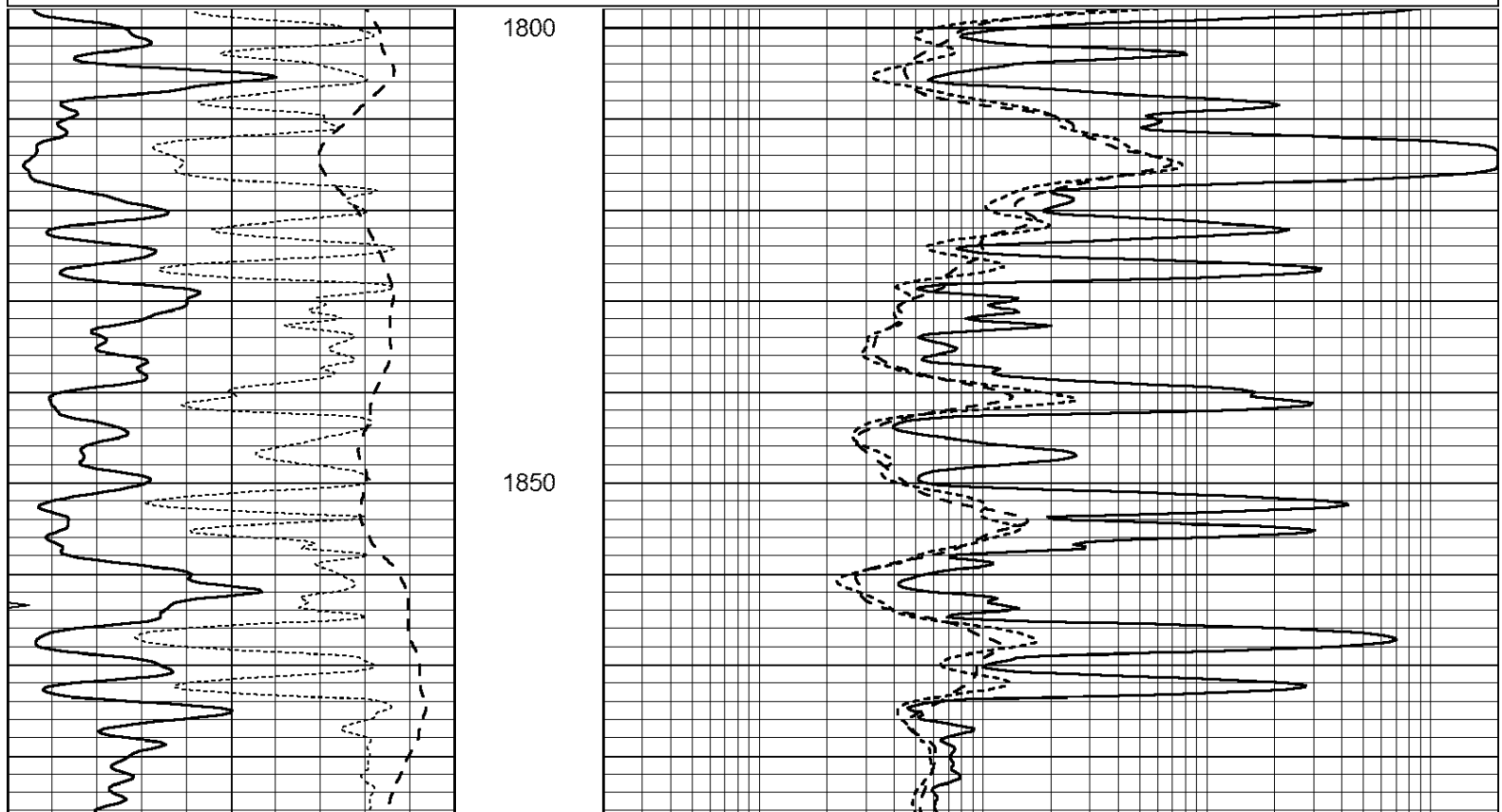
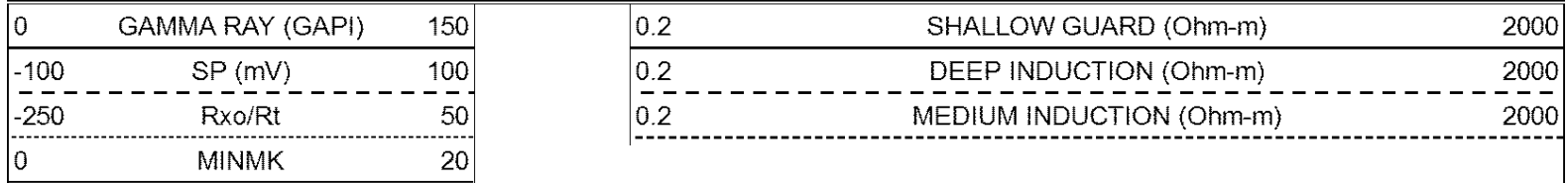
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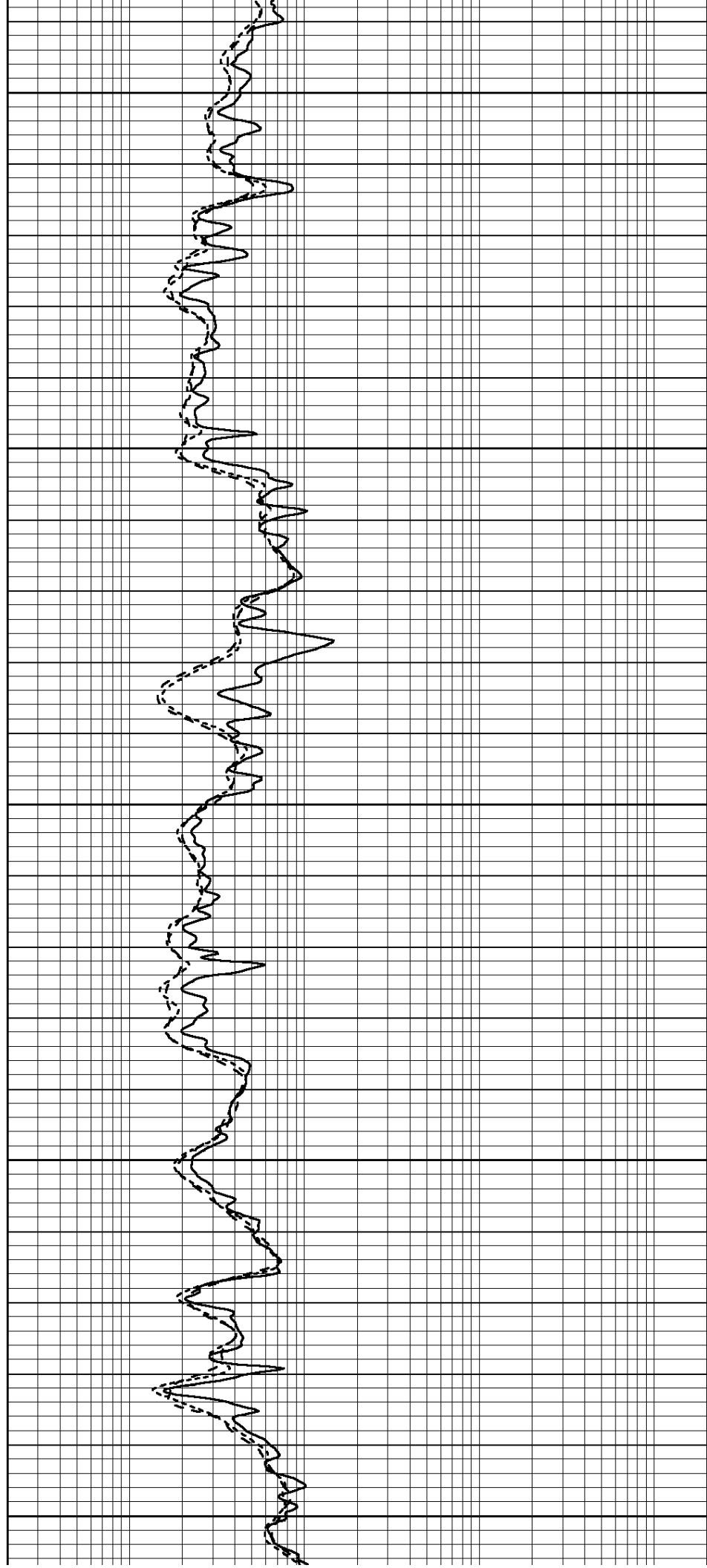
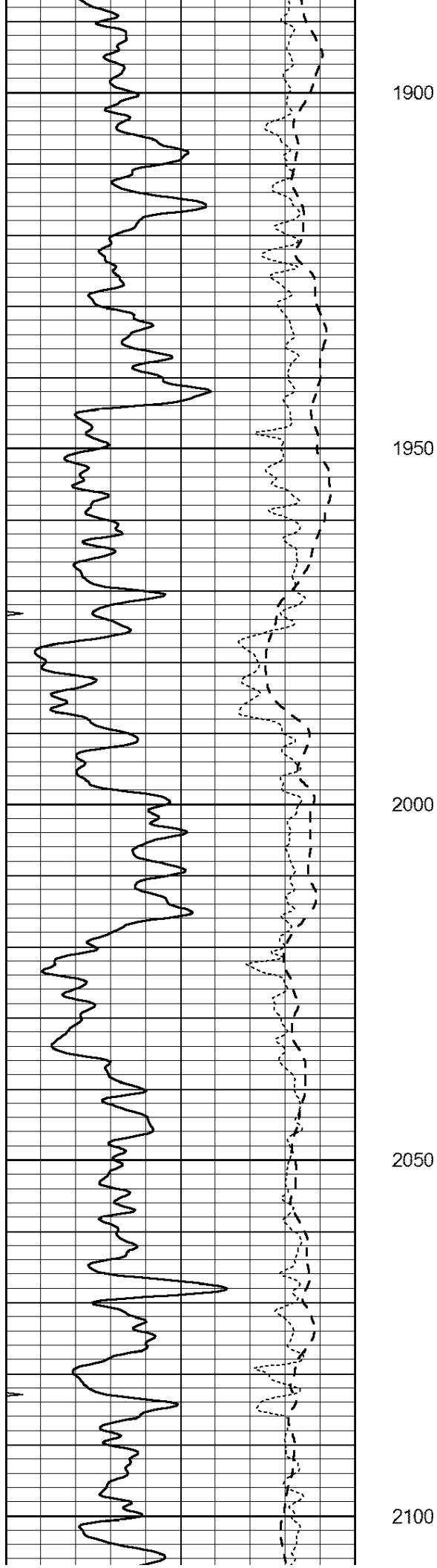


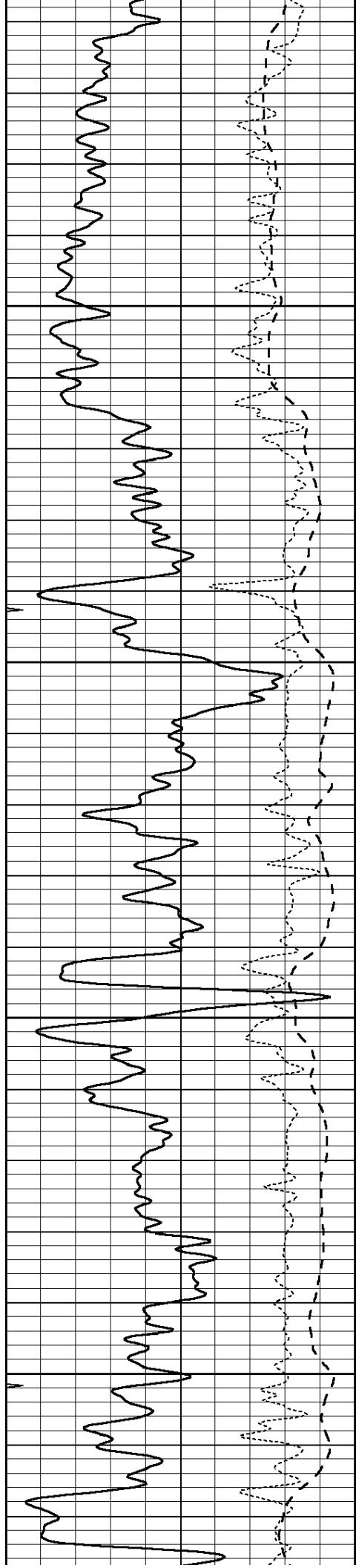


MAIN SECTION

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Presentation Format: _dil
Dataset Creation: Fri Feb 14 19:40:43 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240





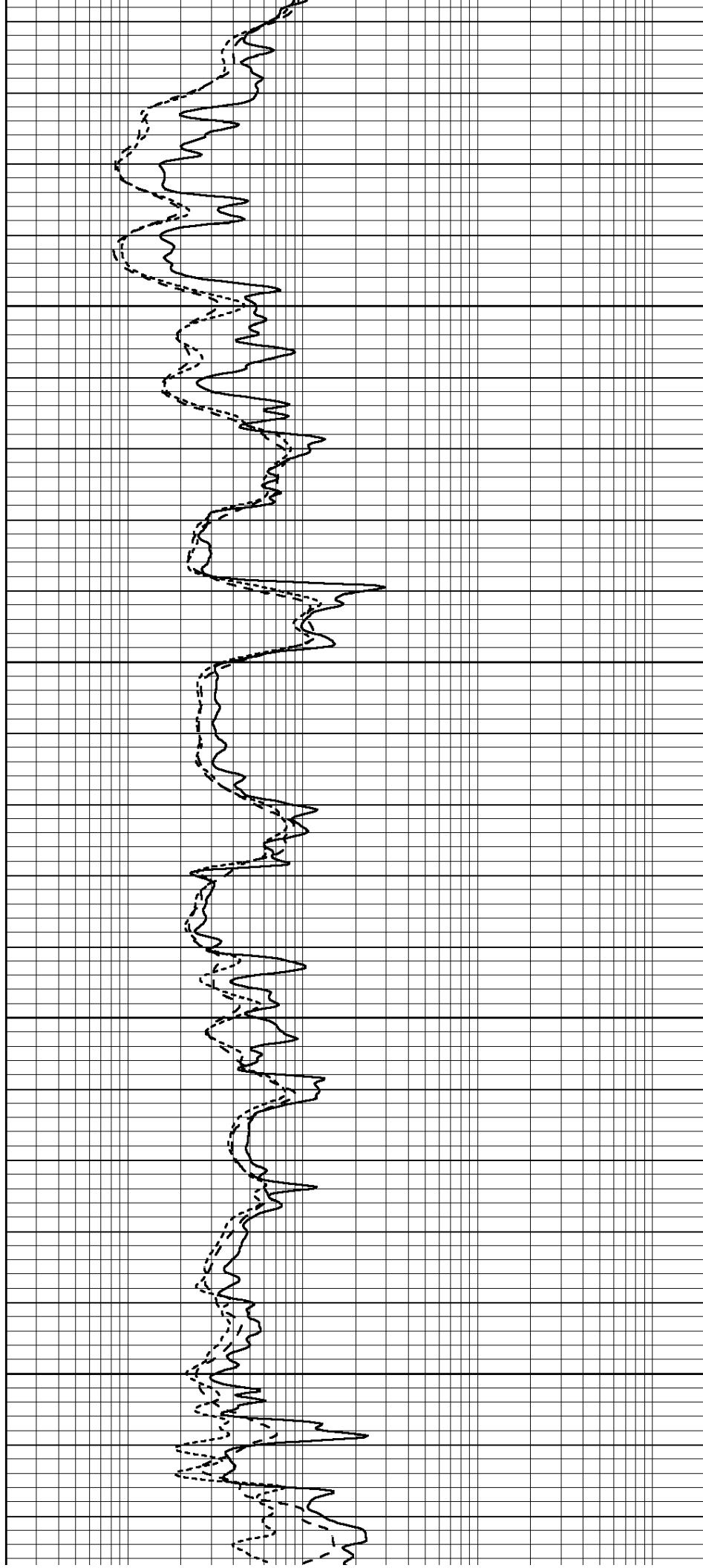


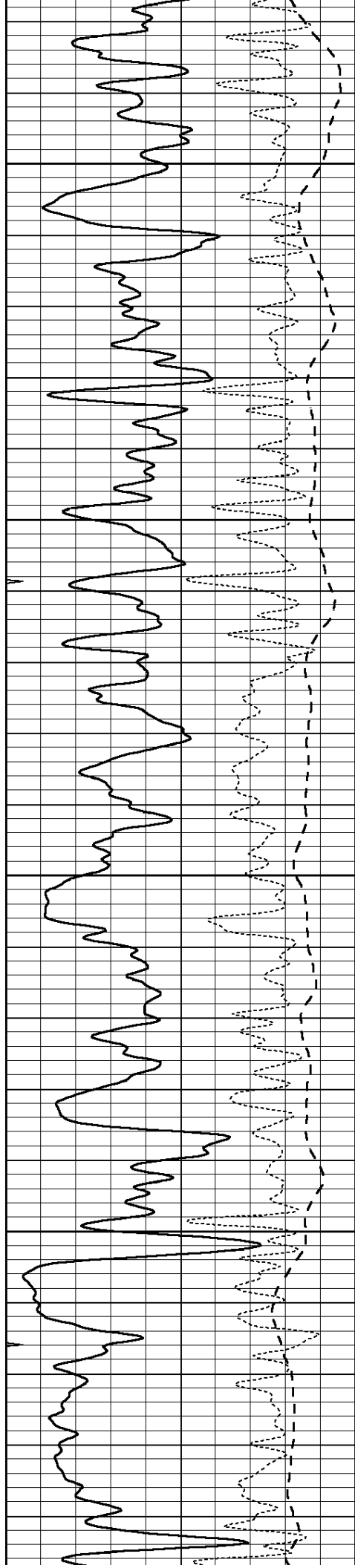
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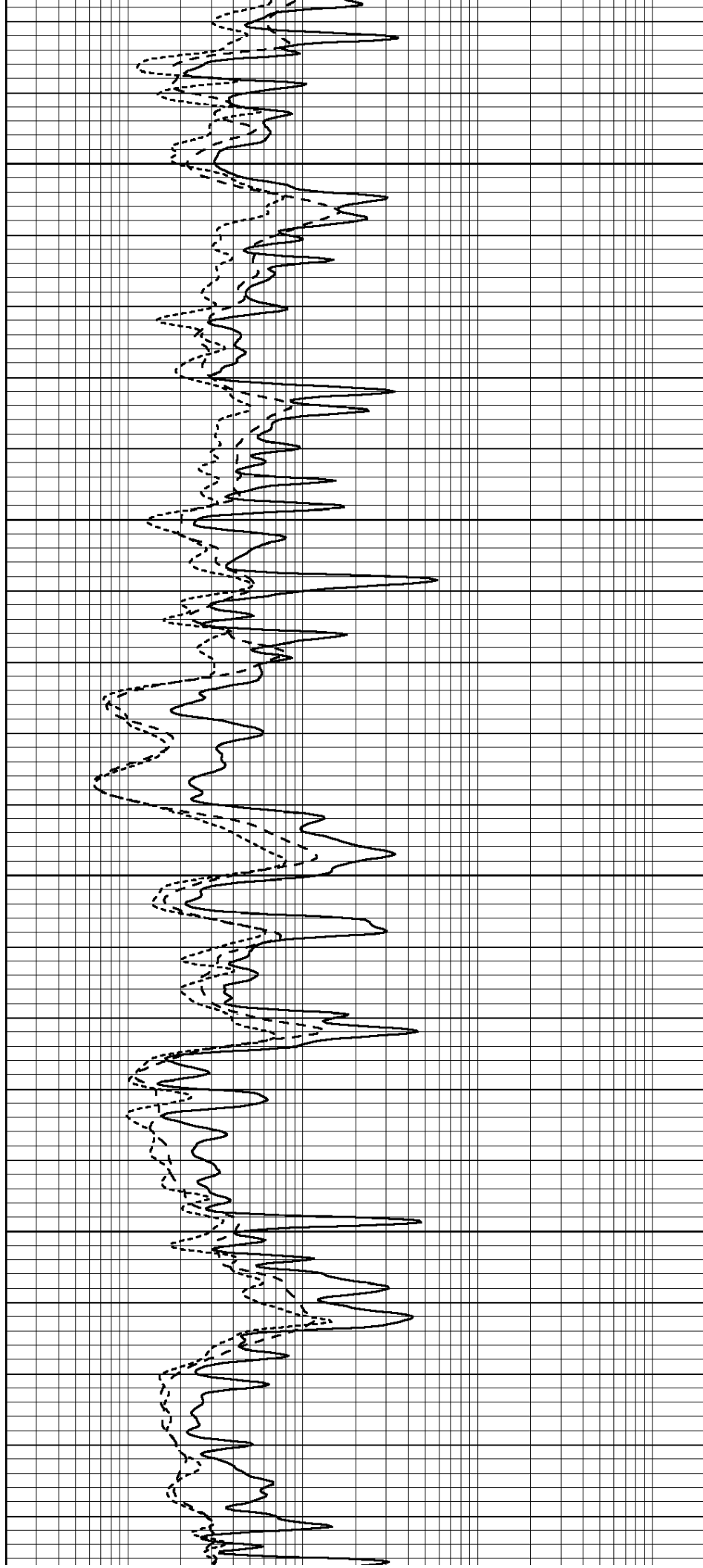


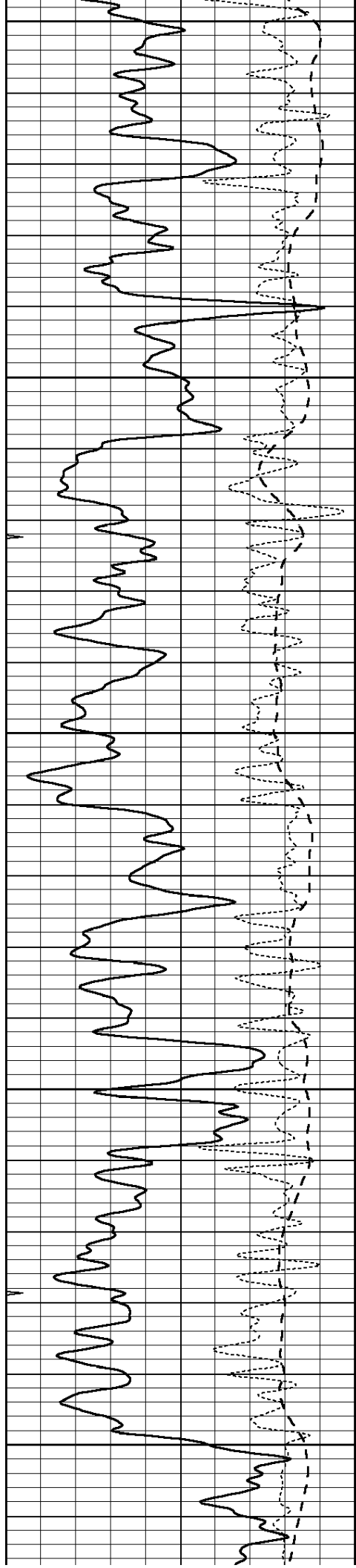
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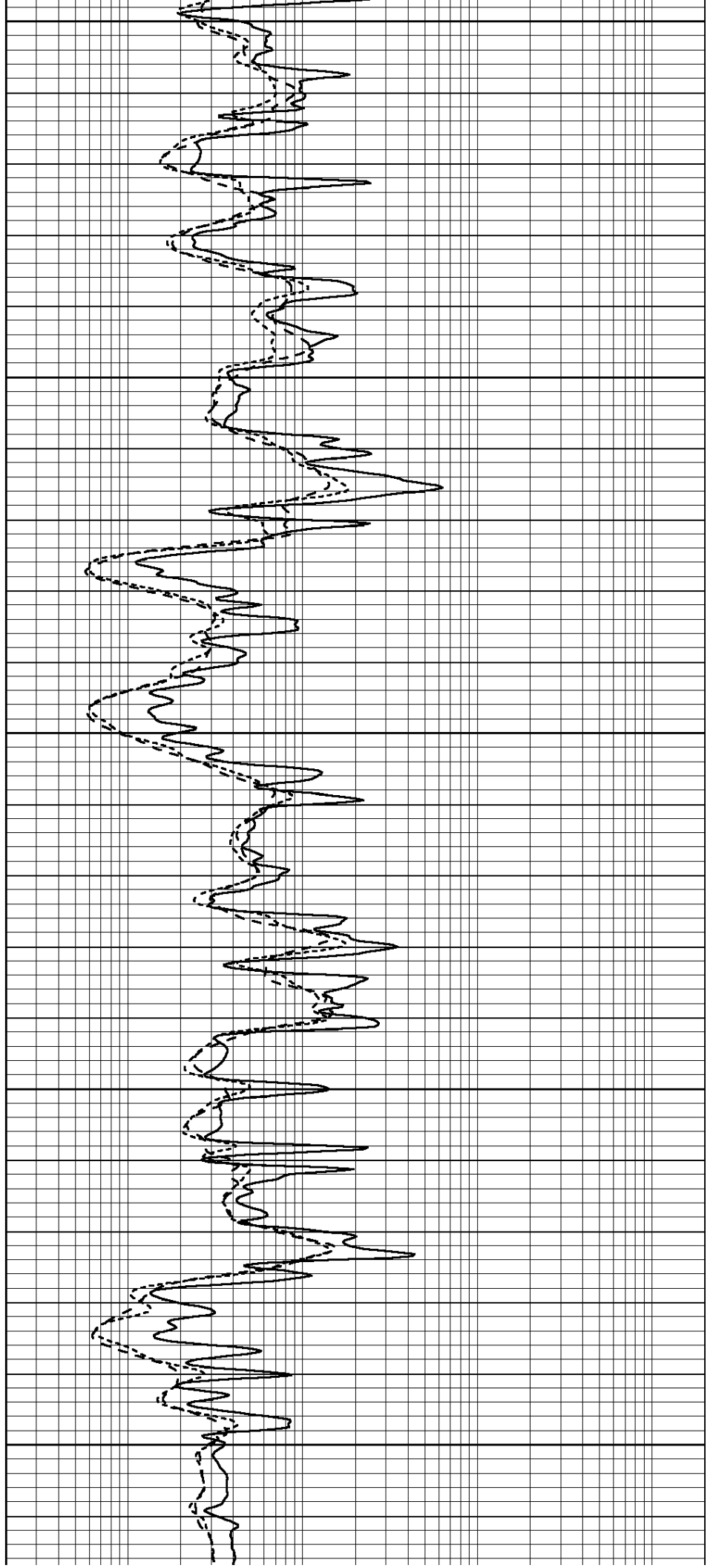
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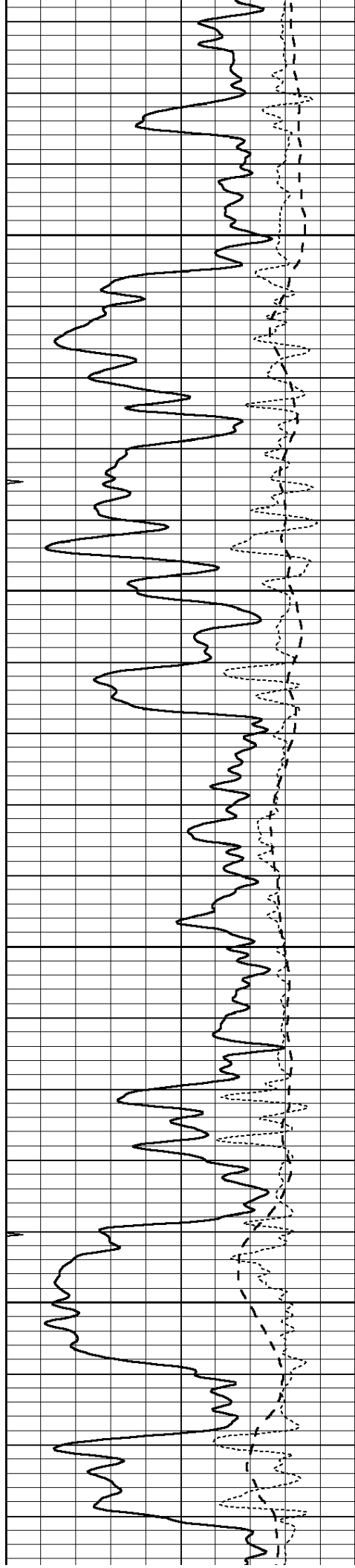
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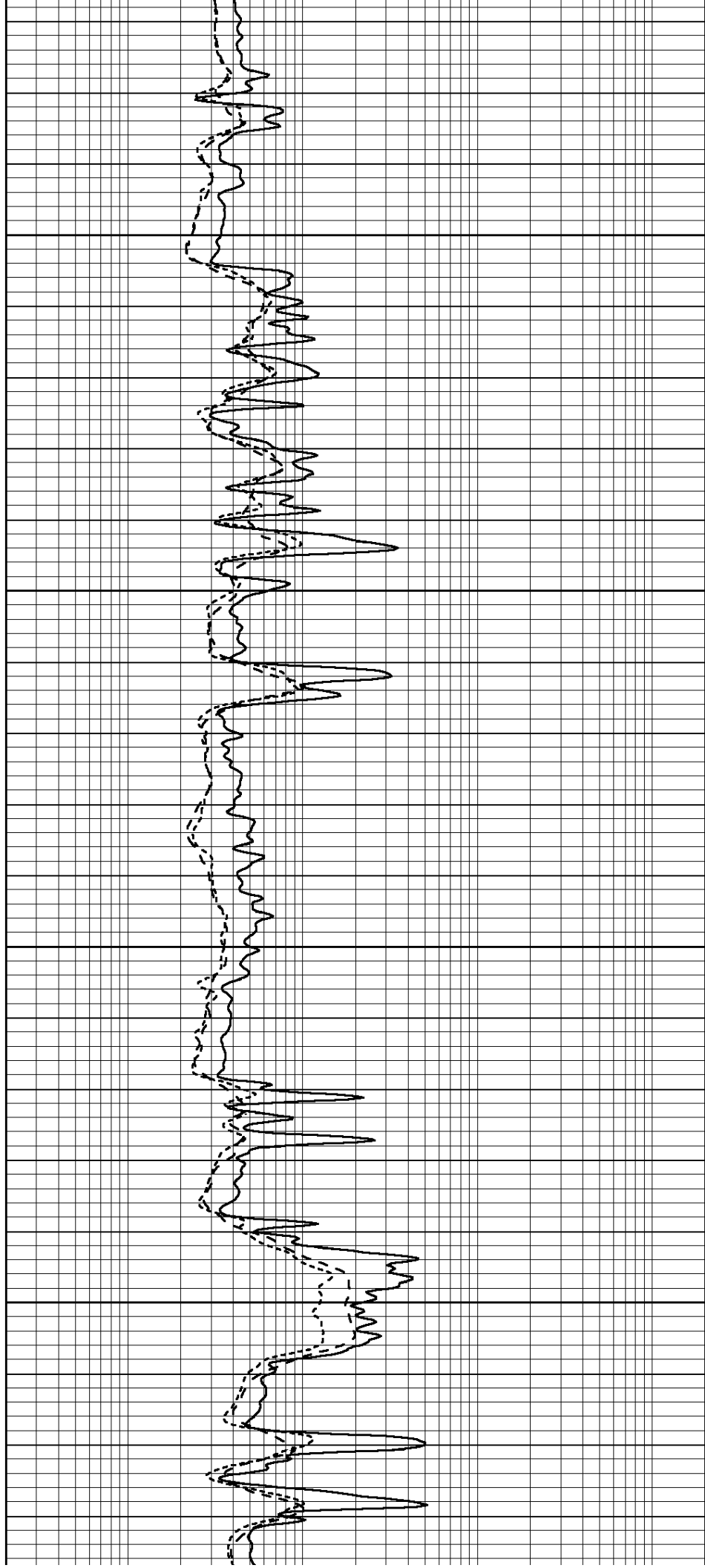


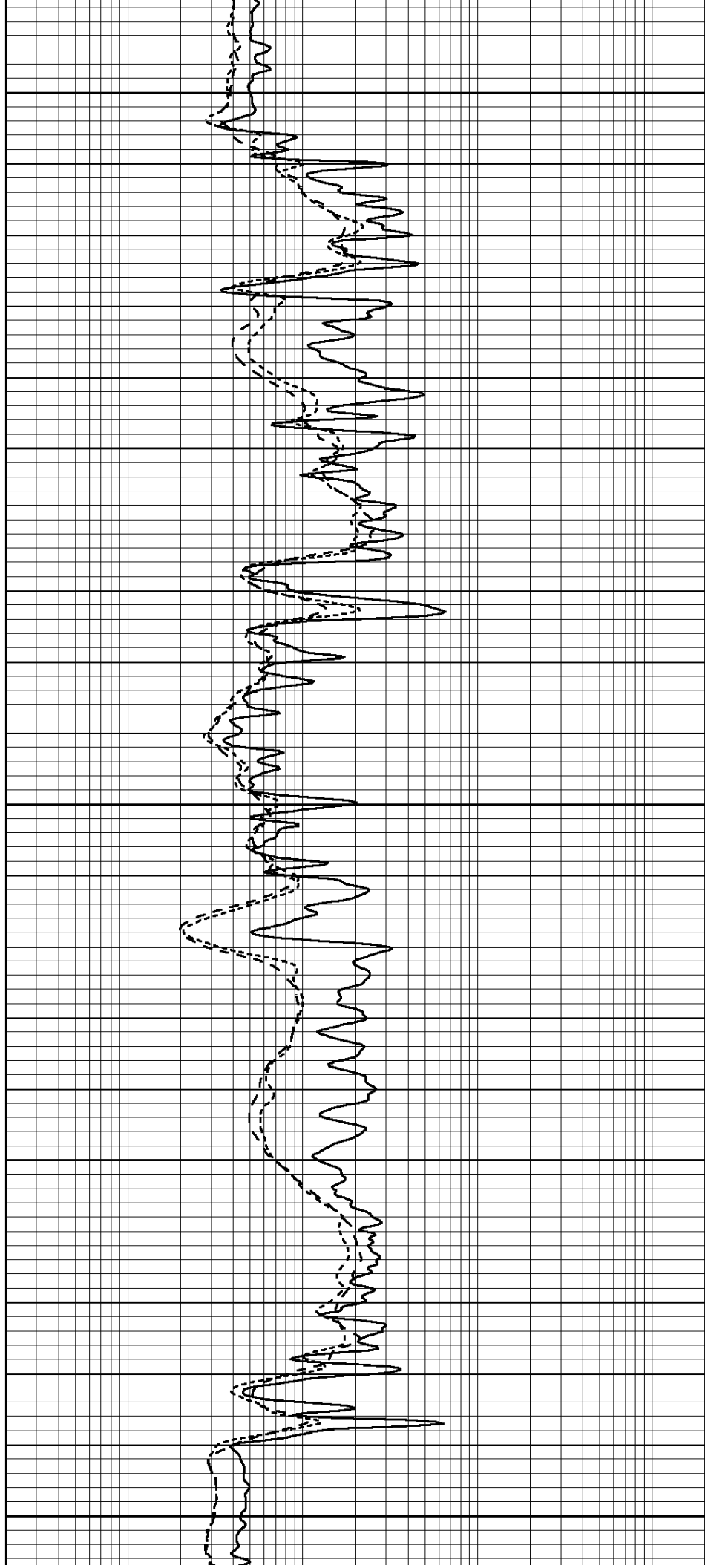
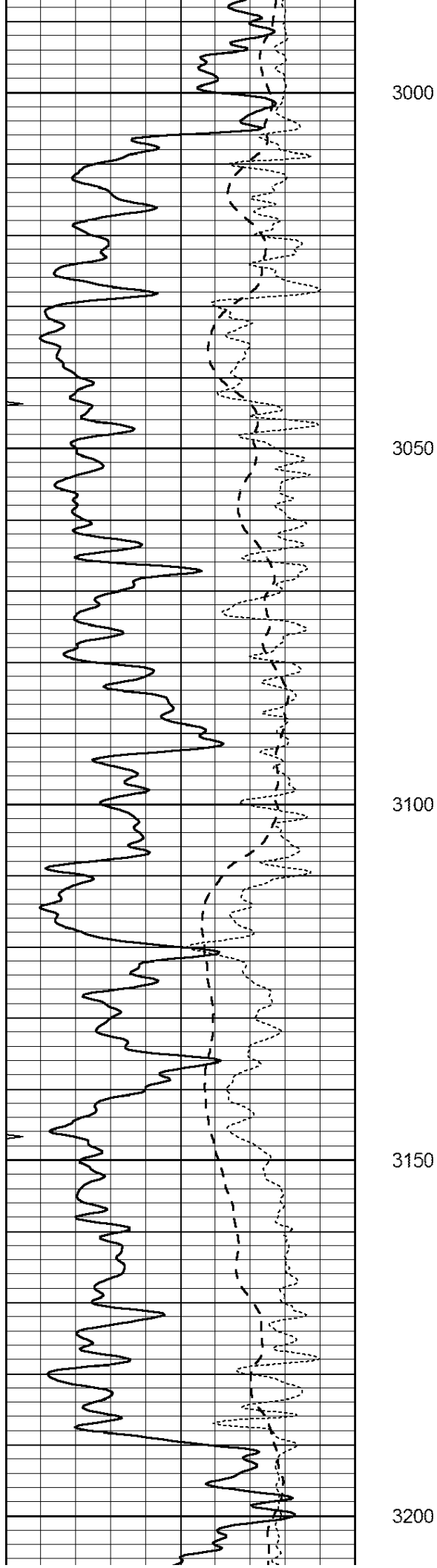
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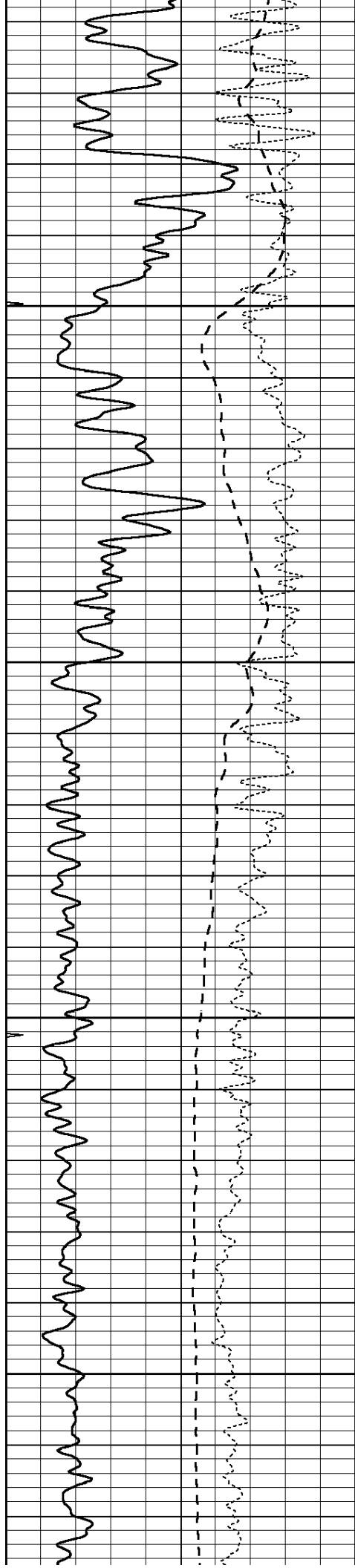
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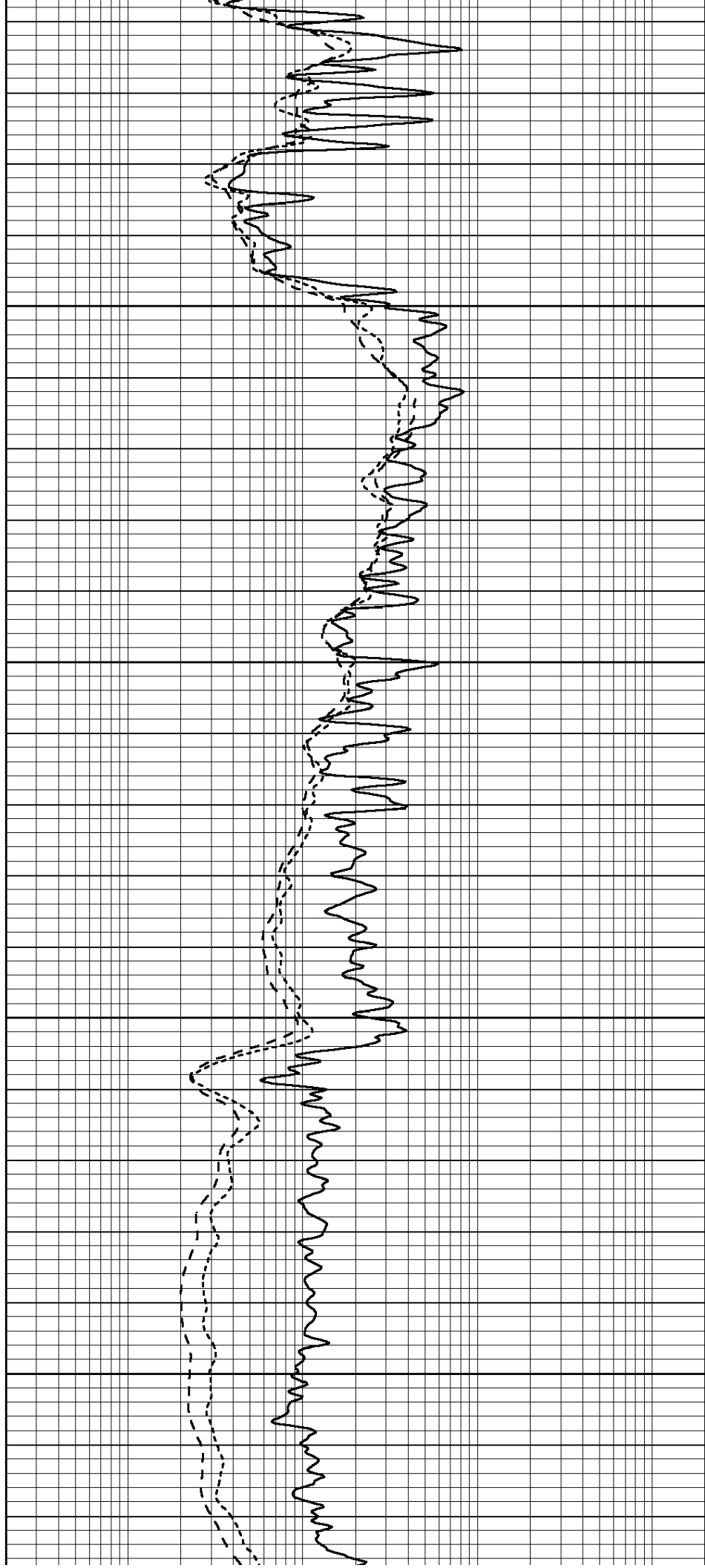


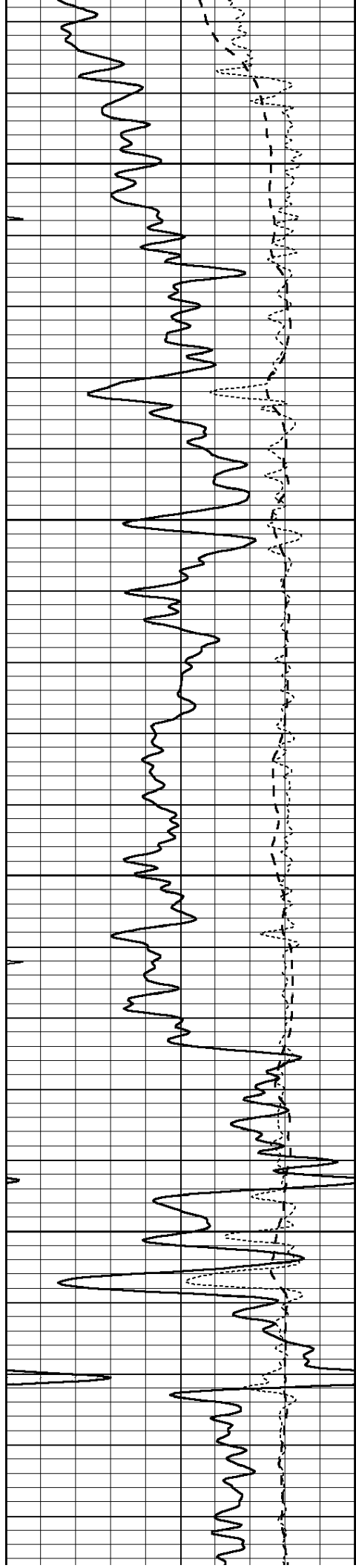
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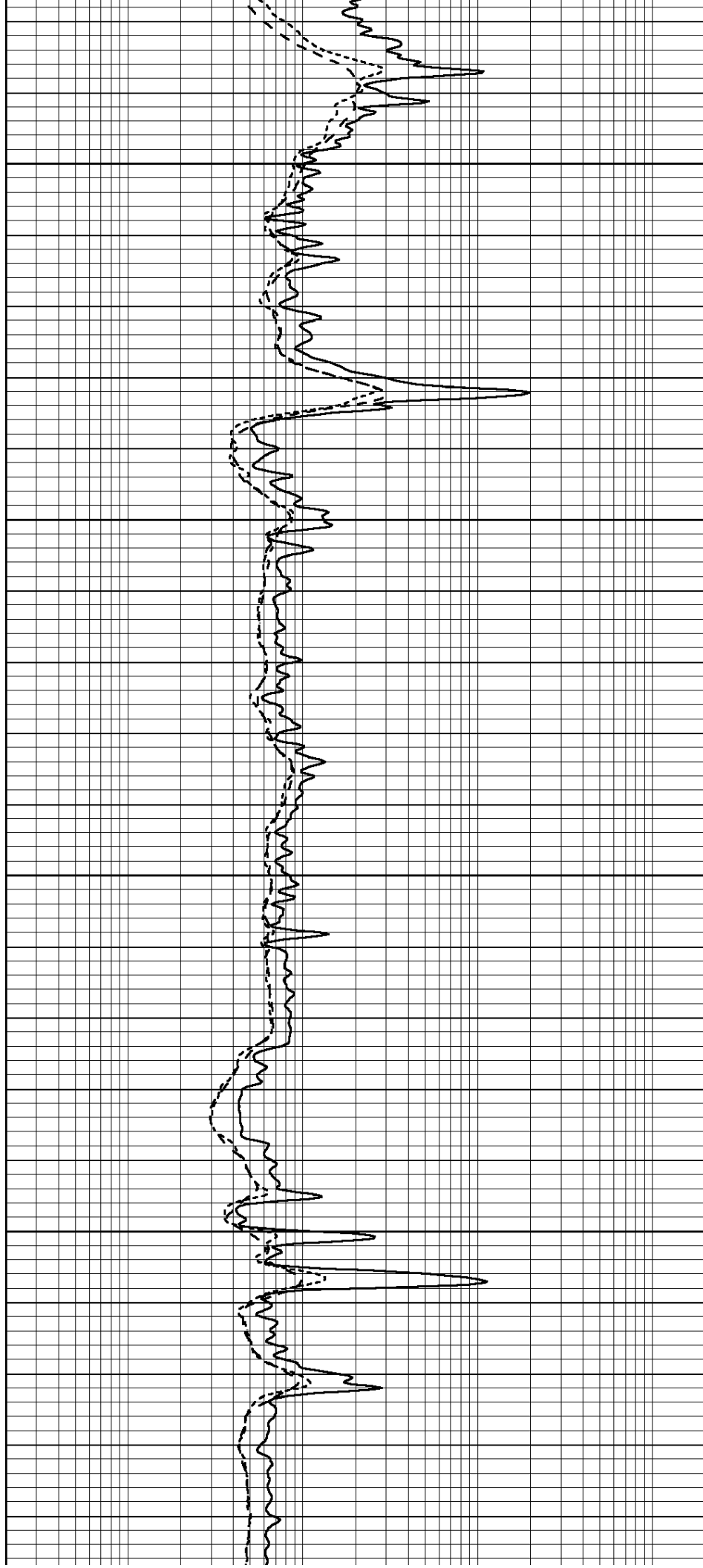


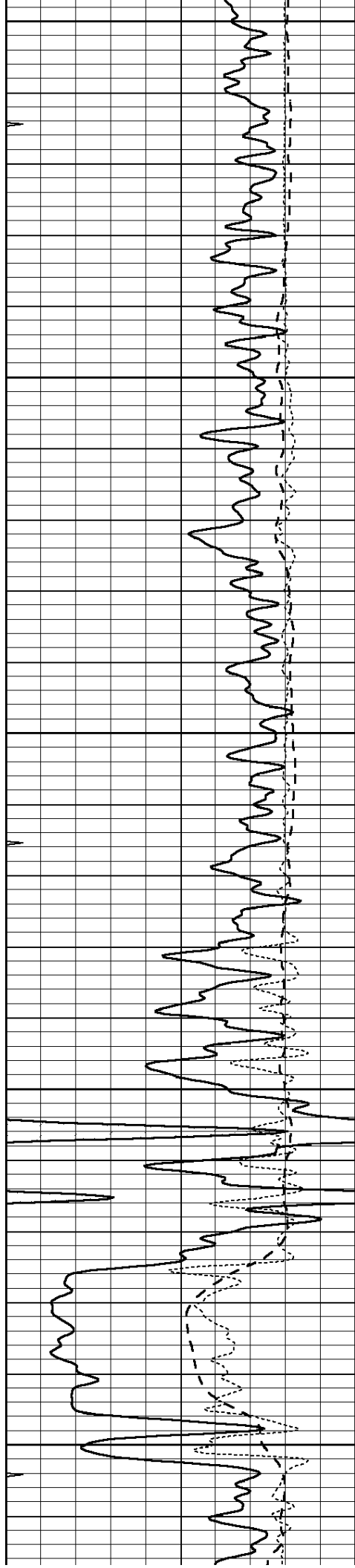
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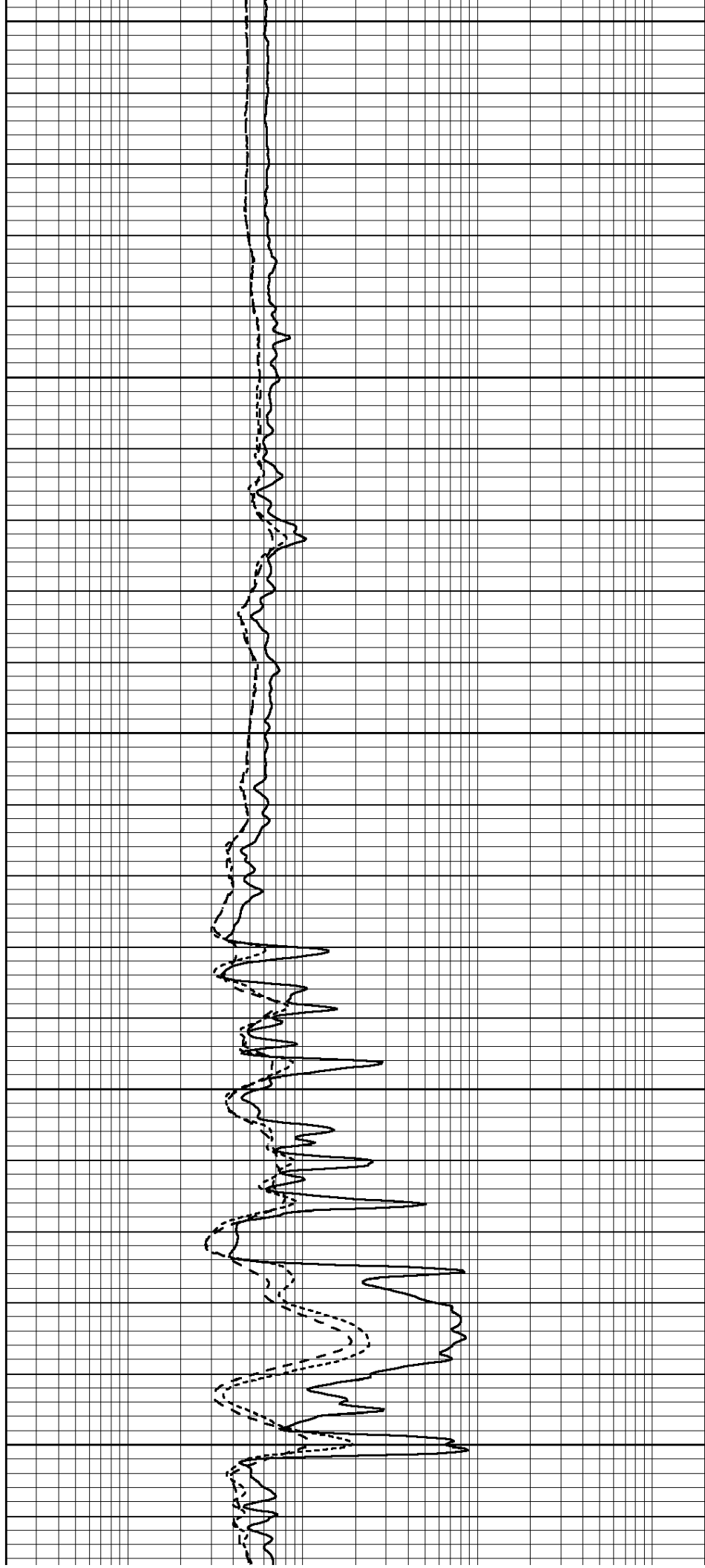
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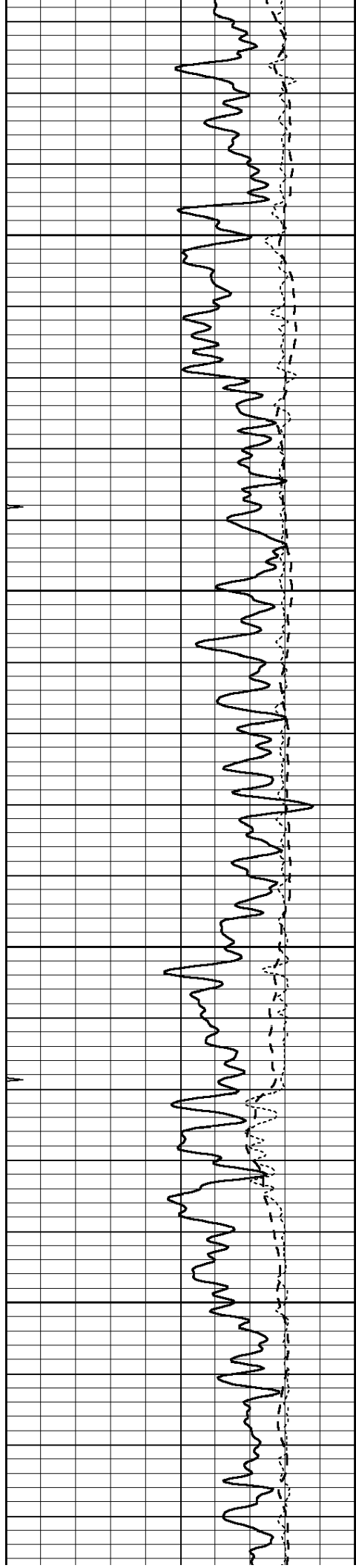
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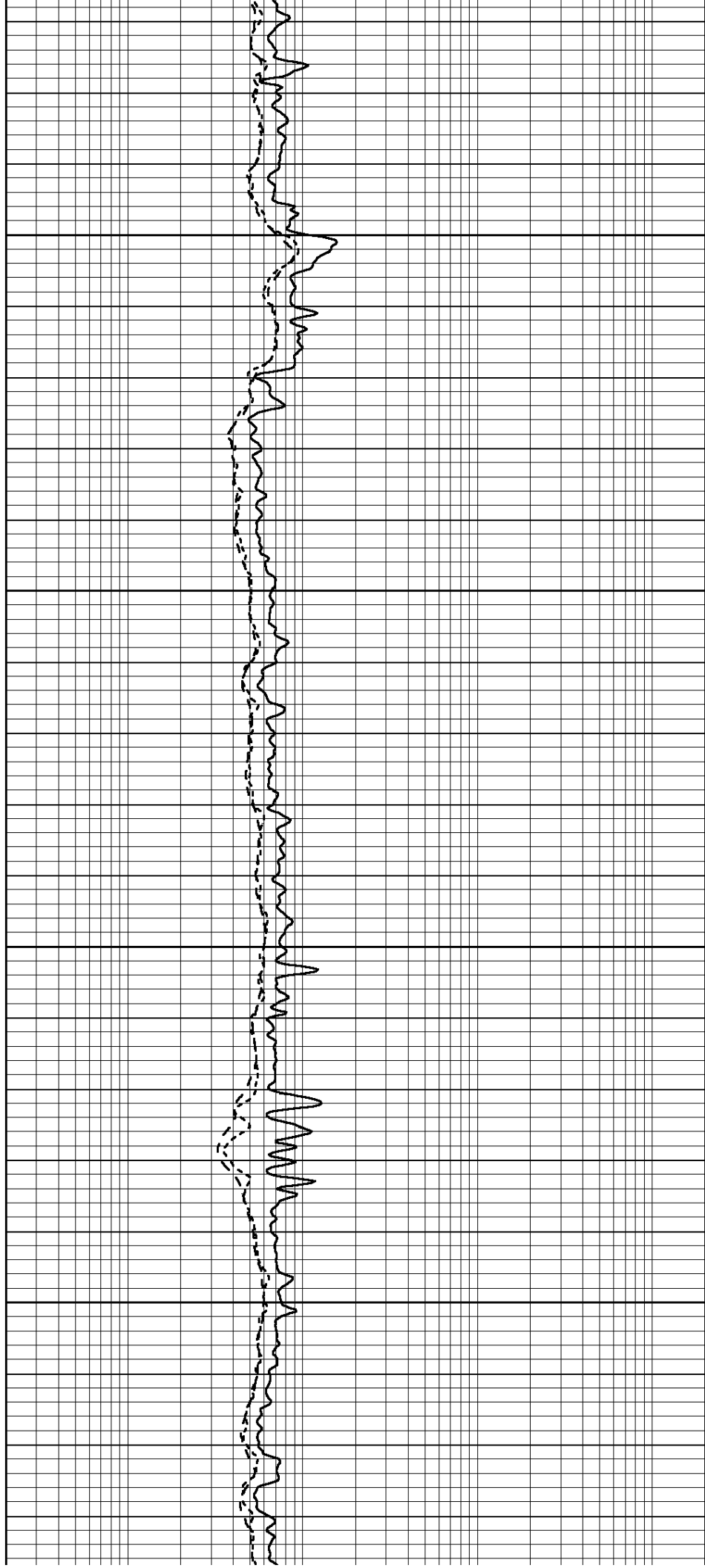


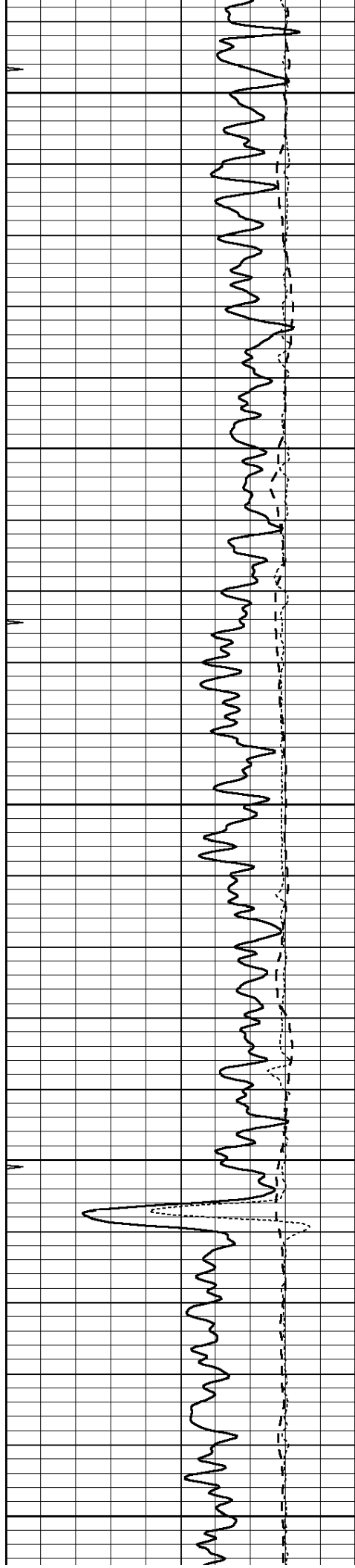
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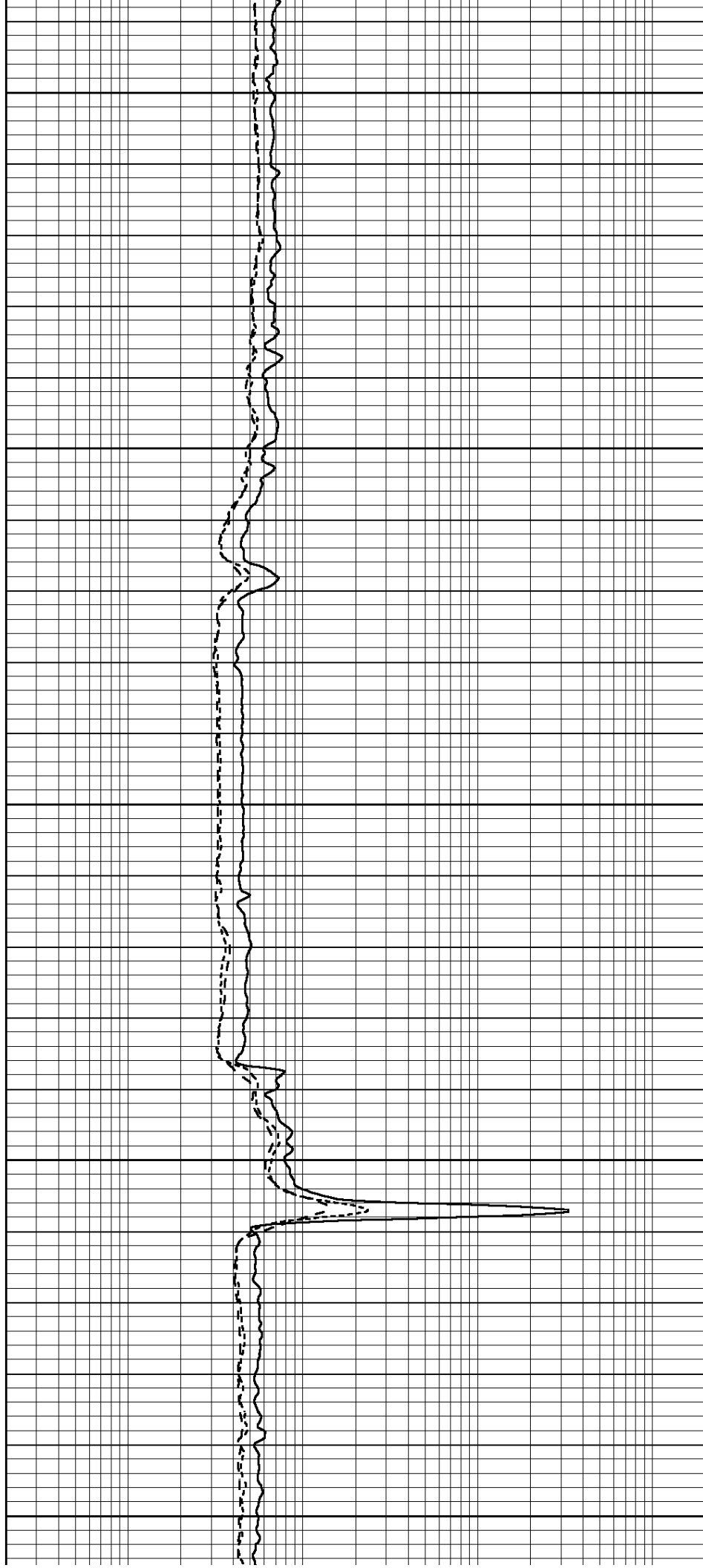
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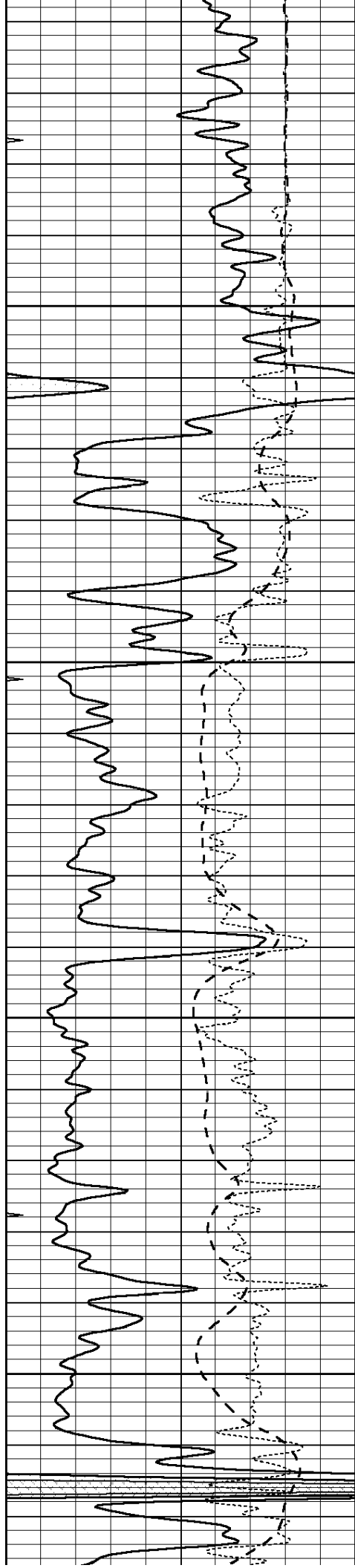
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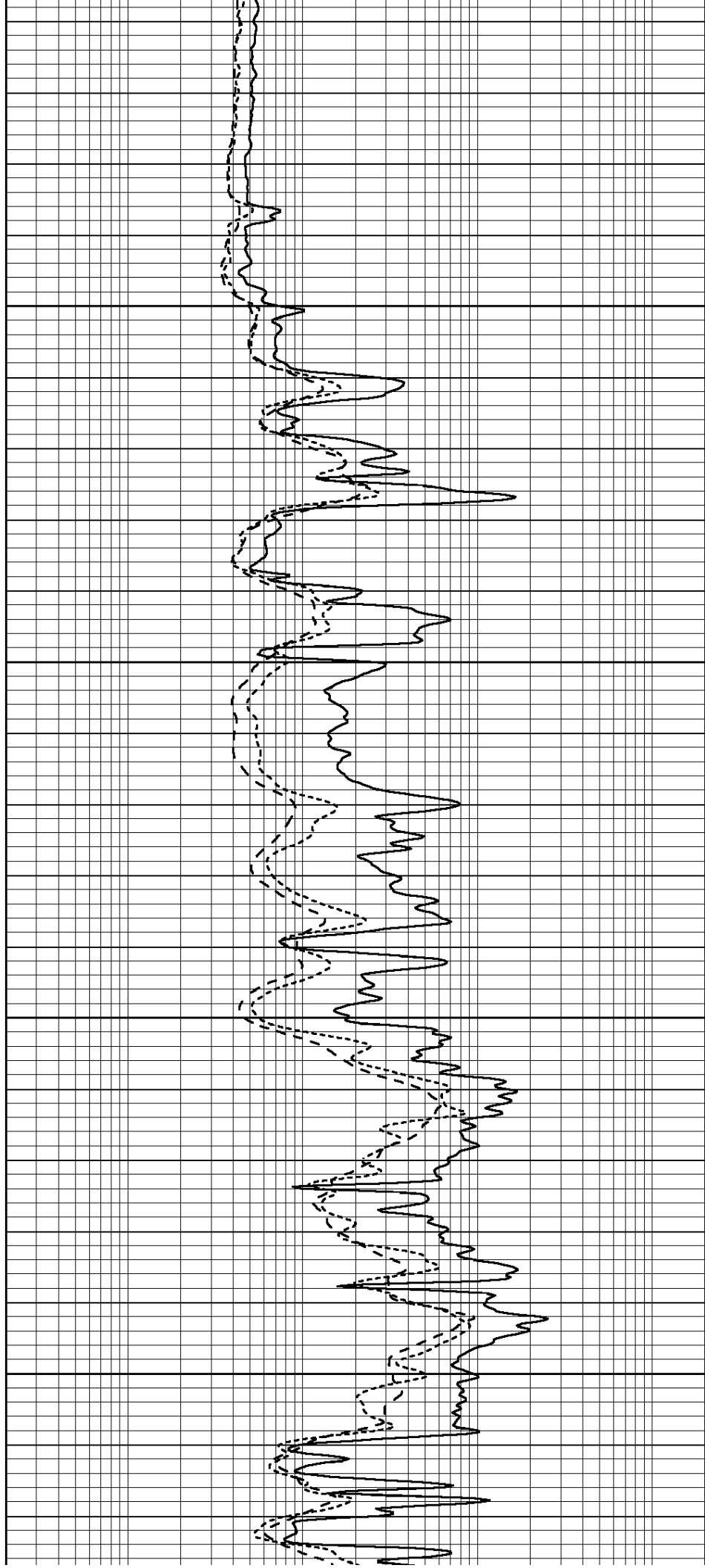


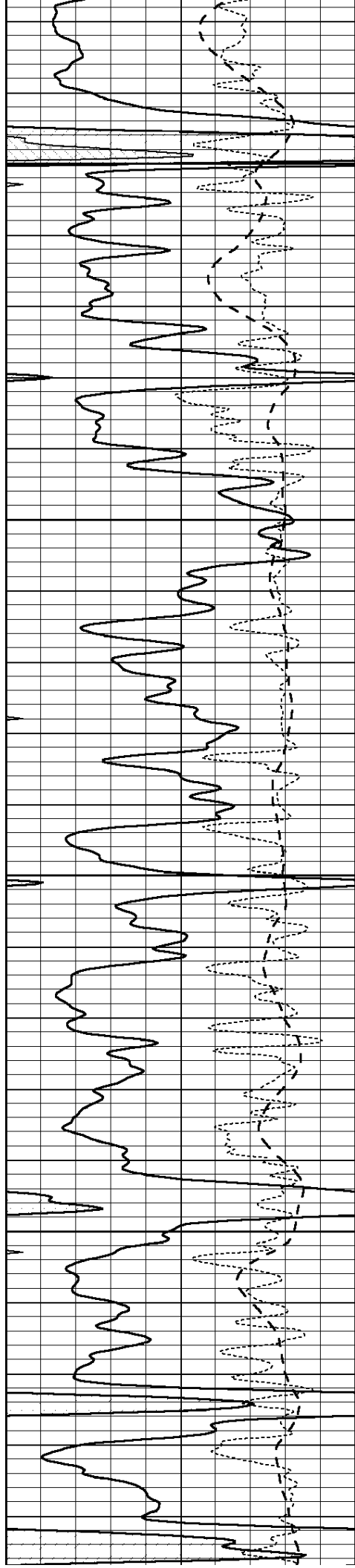
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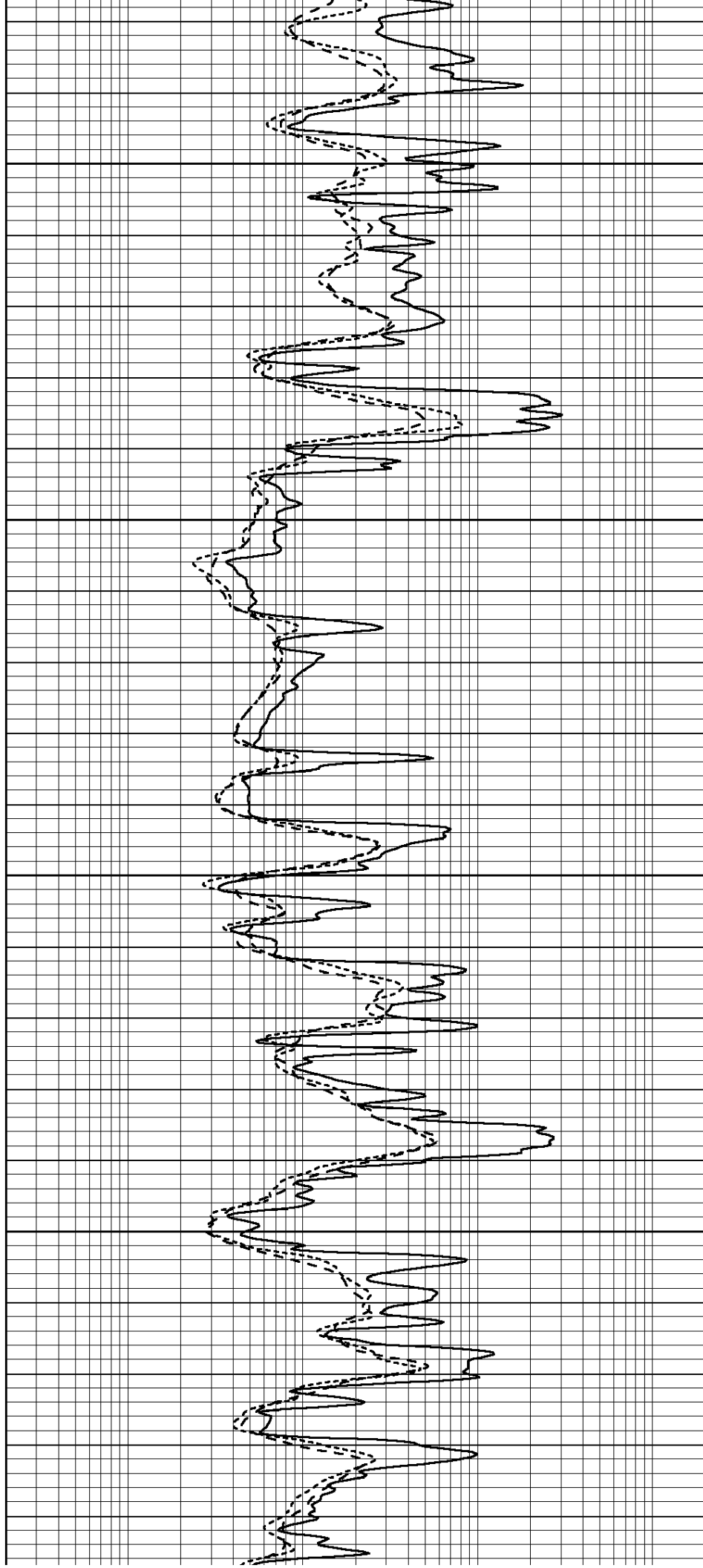


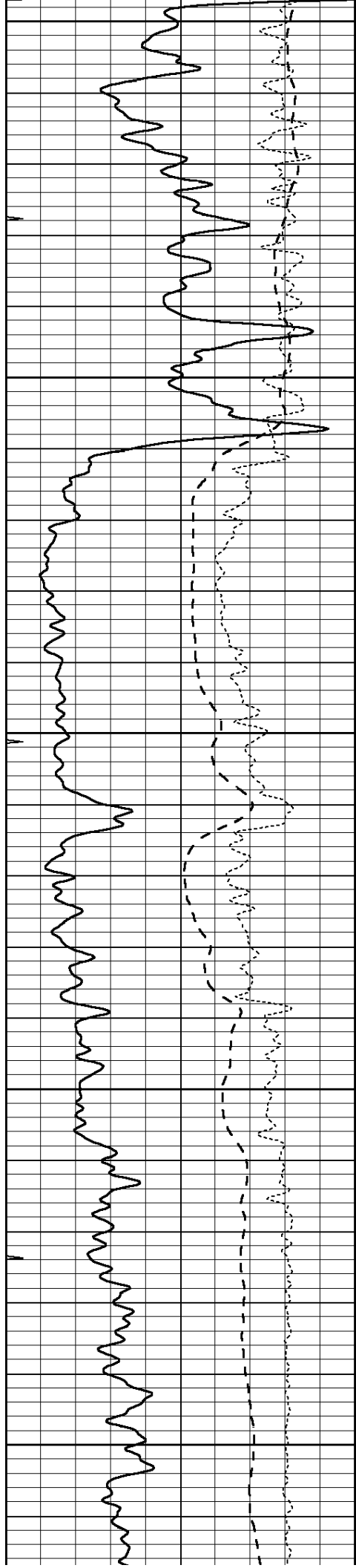
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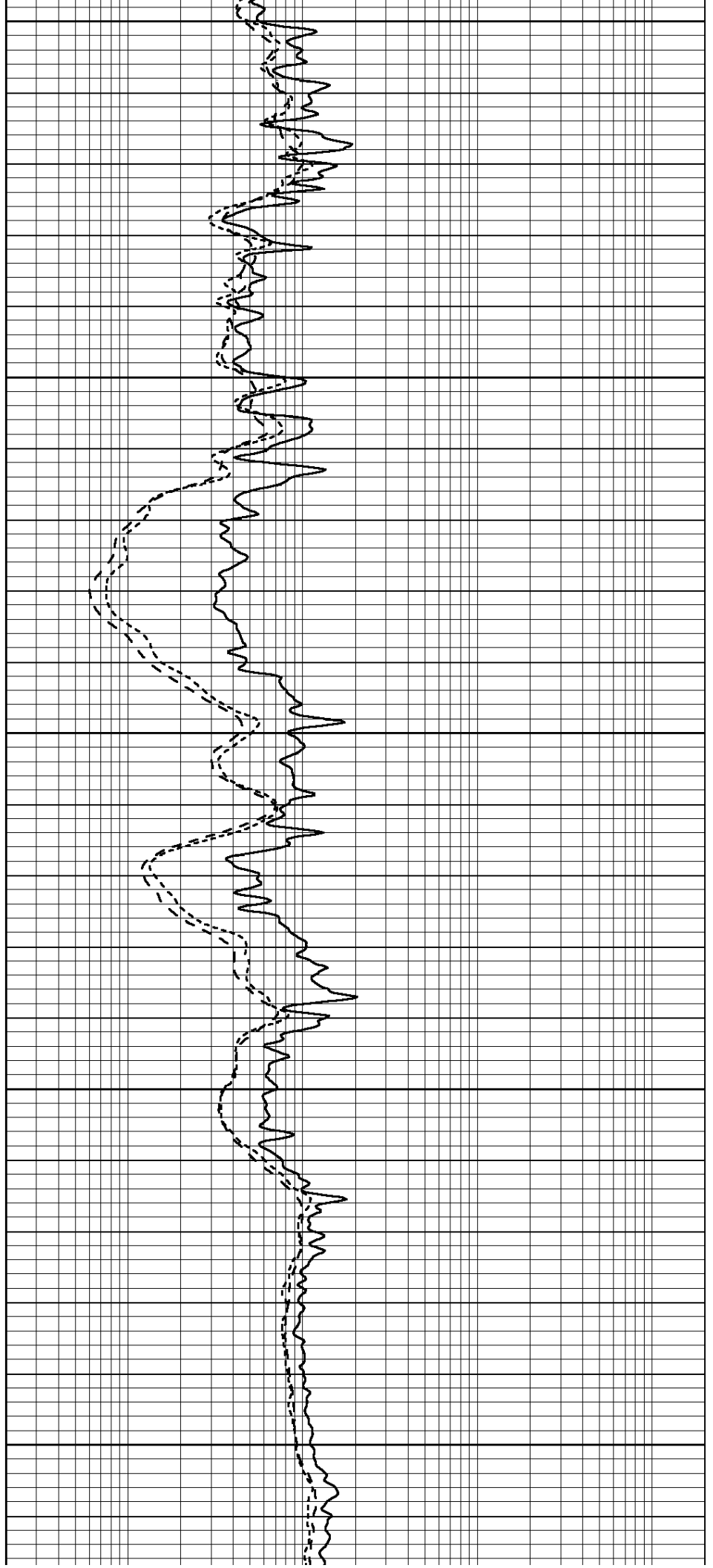
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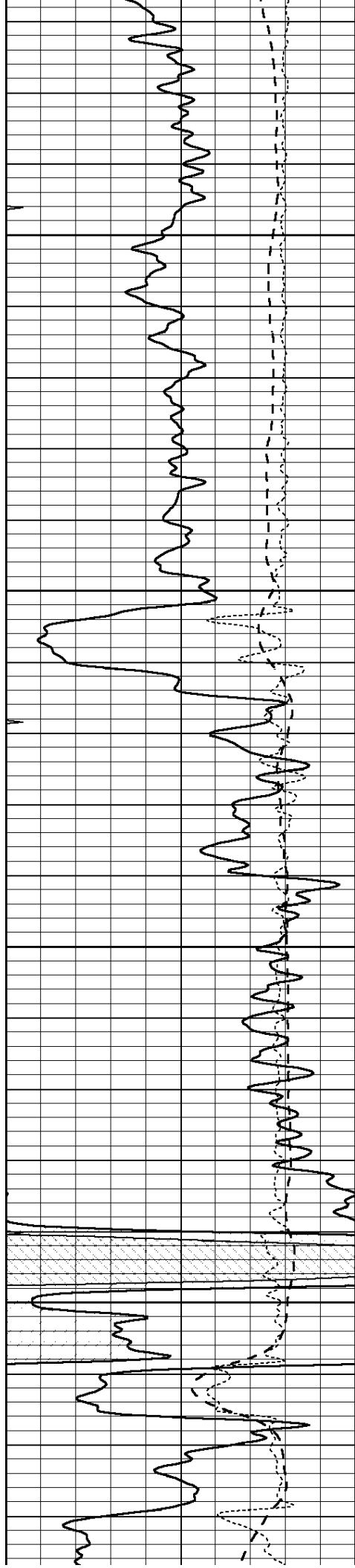
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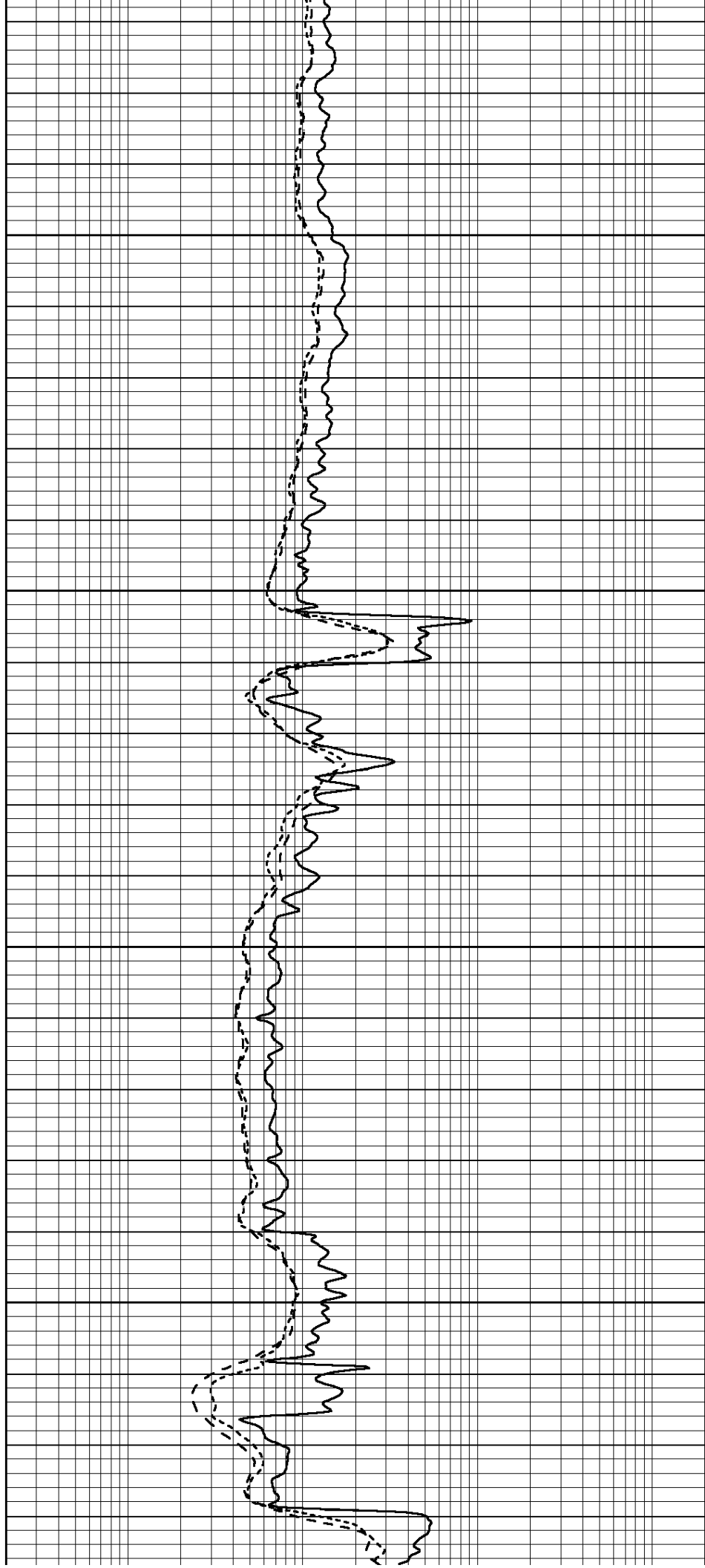


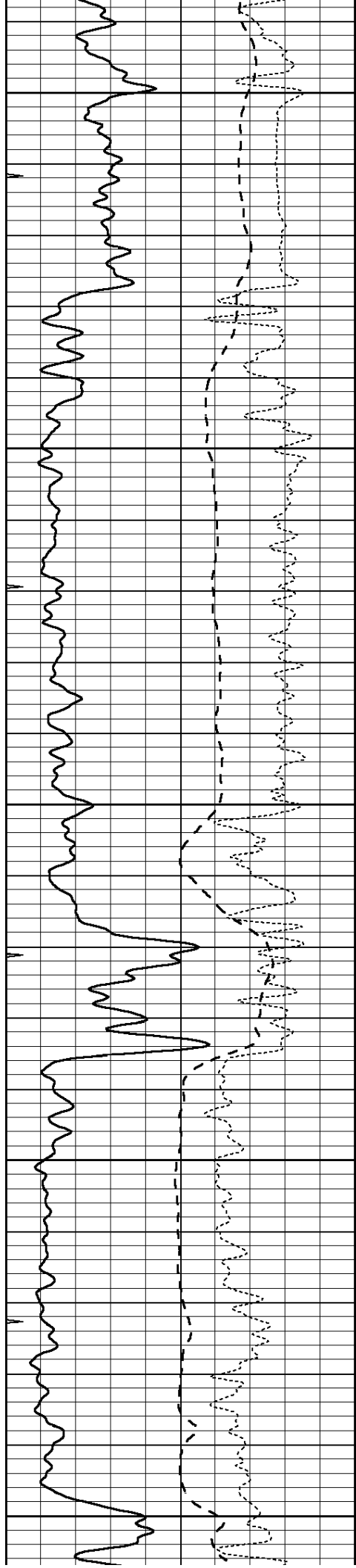
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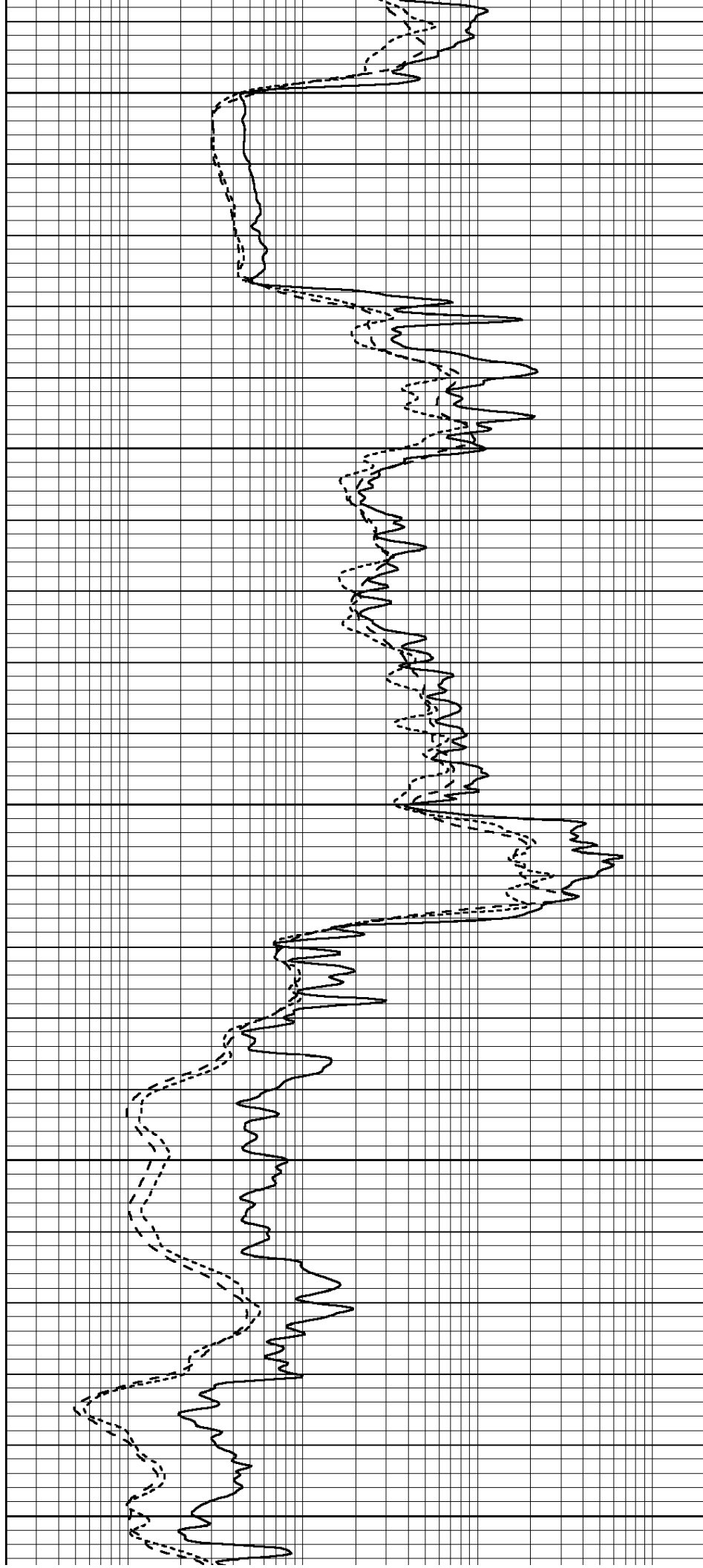
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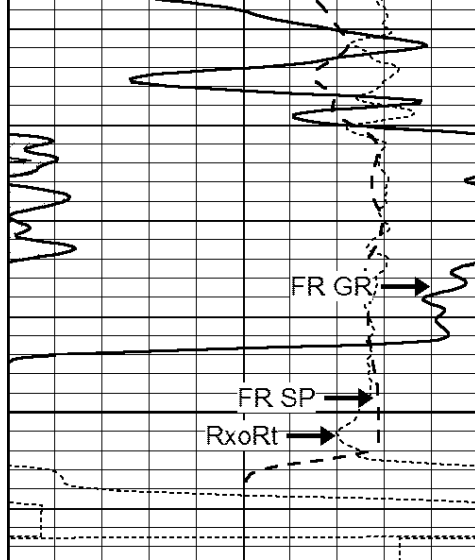
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5350

5400





5450
LTD 5459

0	GAMMA RAY (GAPI)	150
-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

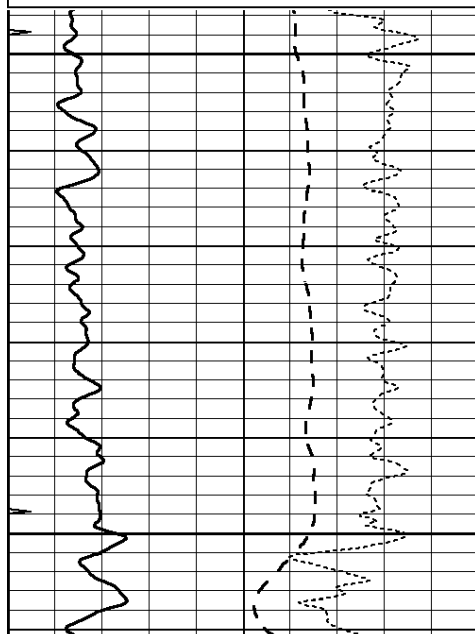


REPEAT SECTION

Database File: 23894pe.db
Dataset Pathname: pass2.1
Presentation Format: _dil
Dataset Creation: Fri Feb 14 19:18:40 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

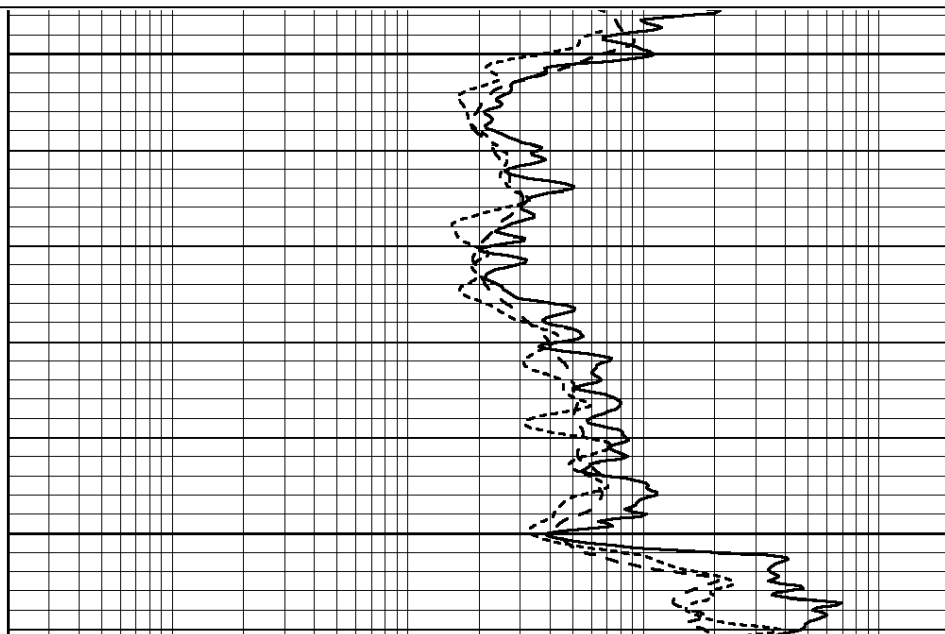
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

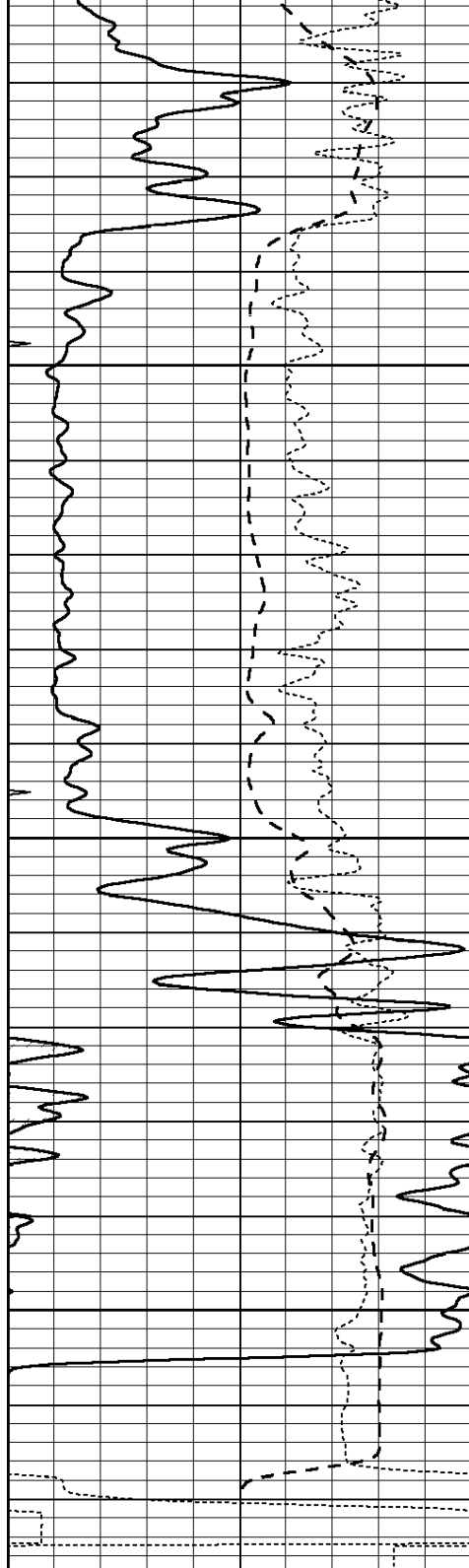
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0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



5250

5300



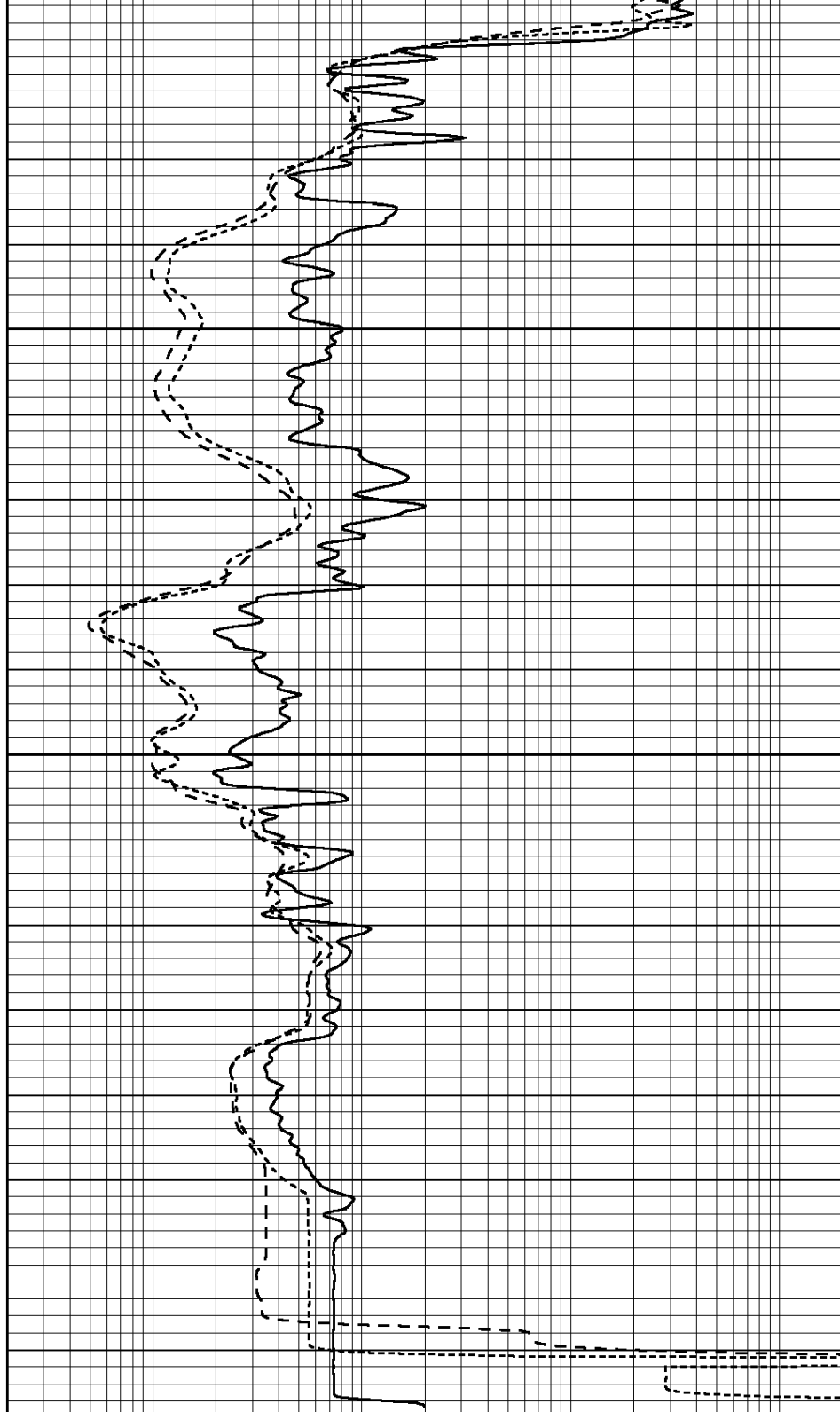


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

5350

5400

5450



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: 23894pe.db
 Dataset Pathname: pass2.1
 Dataset Creation: Fri Feb 14 19:18:40 2014 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Fri Aug 01 06:33:19 2008
 Downhole Cal Performed: Mon Jul 28 11:08:27 2008
 After Survey Verification Performed: Mon Jul 28 11:08:27 2008

Surface Calibration								
Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	632.616	-9.730
Medium	0.029	0.796	V	0.000	464.000	mmho/m	605.049	-17.680
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739
Downhole Calibration								
Readings				References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	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		
Gamma Ray Calibration Report								
Serial Number:			GR6					
Tool Model:			OPEN					
Performed:			Fri Nov 29 08:34:37 2013					
Calibrator Value:			150.0		GAPI			
Background Reading:			0.0		cps			
Calibrator Reading:			276.0		cps			
Sensitivity:			0.6035		GAPI/cps			