



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		EDISON OPERATING COMPANY, LLC.	
Well	COTTRELL #1-8		
Field	WILDCAT		
County	MEADE	State	KANSAS
Location:	APL # : 15-119-21324-0000		Other Services CDL/CNL/PE MEL/SONIC
SEC 8 TWP 33S RGE 29W		Elevation	
Permanent Datum	GROUND LEVEL	Elevation	2622
Log Measured From	KELLY BUSHING 13' A.G.L.		K.B. 2635
Drilling Measured From	KELLY BUSHING		D.F. 2633
			G.L. 2622
Date	10/2/12		
Run Number	ONE		
Depth Driller	6100		
Depth Logger	6098		
Bottom Logged Interval	6096		
Top Log Interval	00		
Casing Driller	8 5/8"@1562'		
Casing Logger	1562		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,800 PPM	
Density / Viscosity	9.2/57		
pH / Fluid Loss	10.0/8.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.850@78F		
Rmt @ Meas. Temp	.636@78F		
Rmc @ Meas. Temp	1.02@78F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.491@135F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	6:15 P.M.		
Maximum Recorded Temperature	135F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	PAUL GERLACH		

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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.

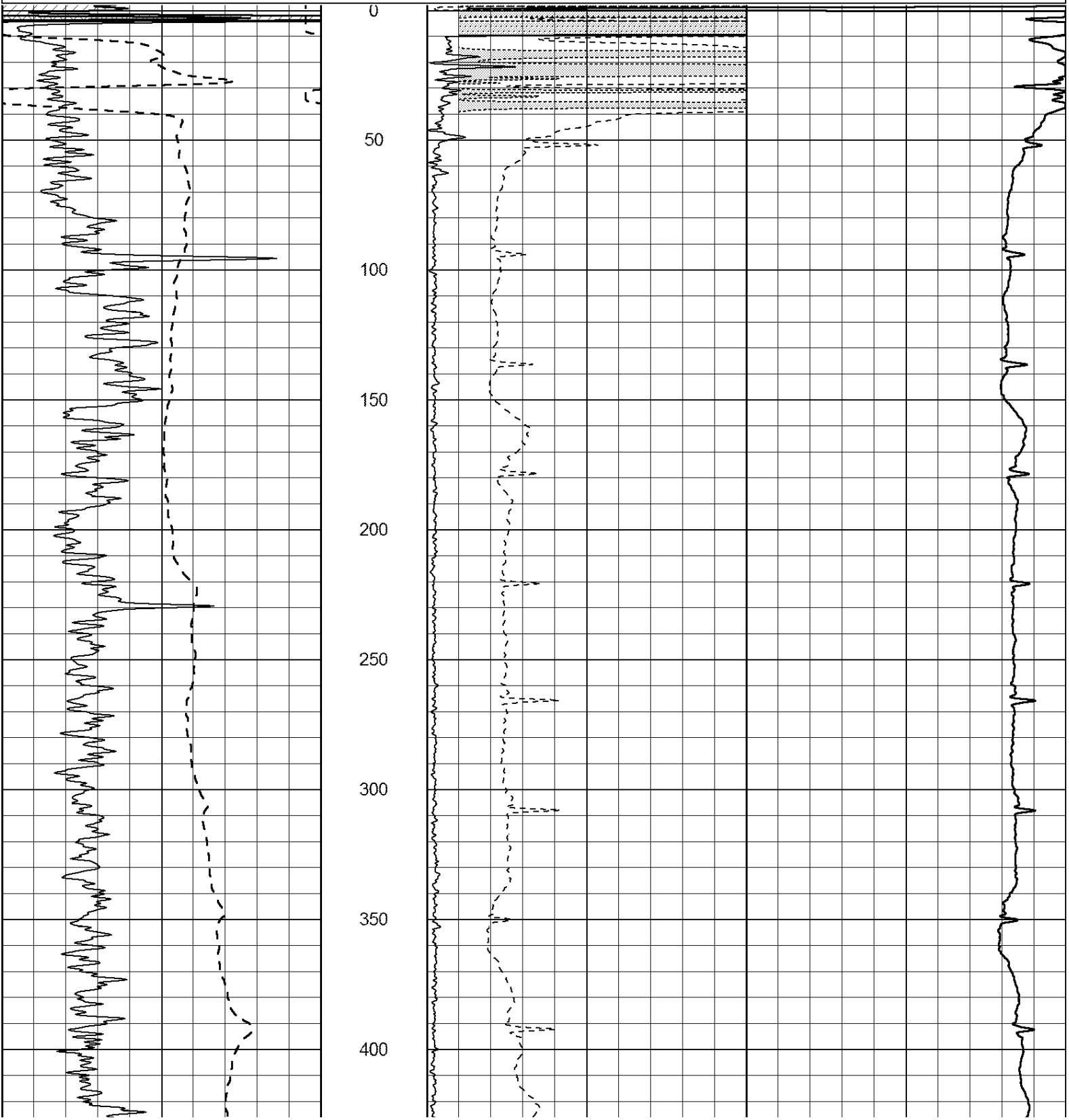
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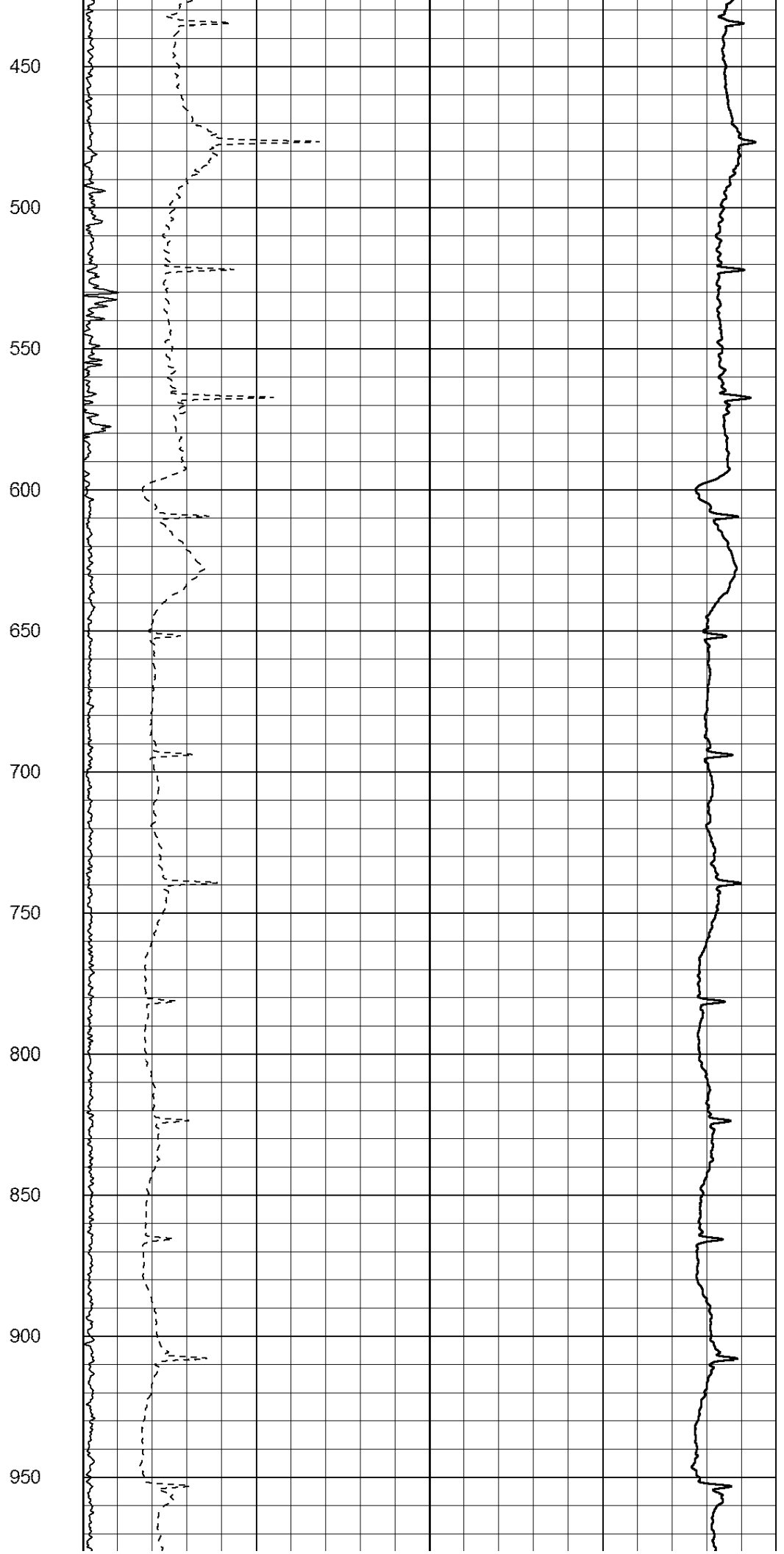
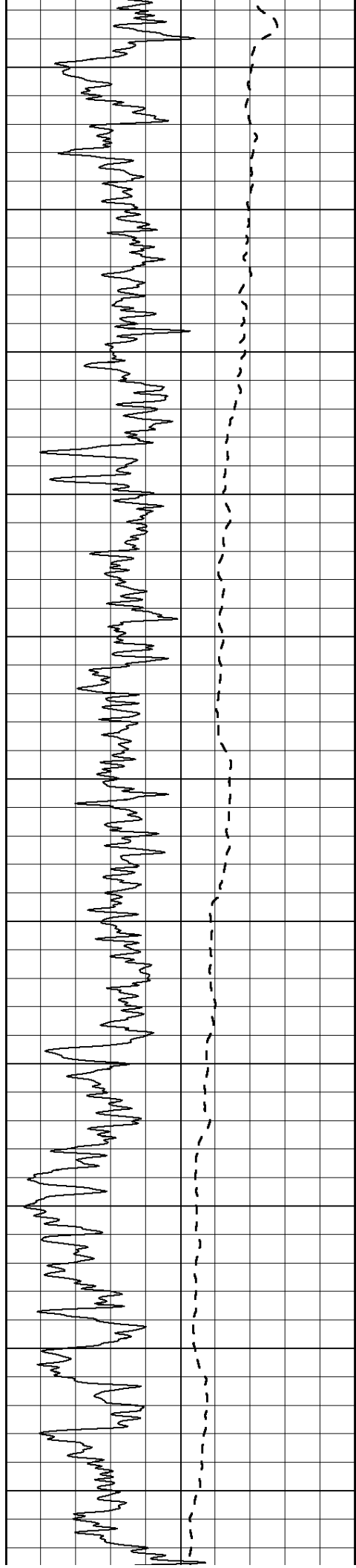
THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395
DIRECTIONS

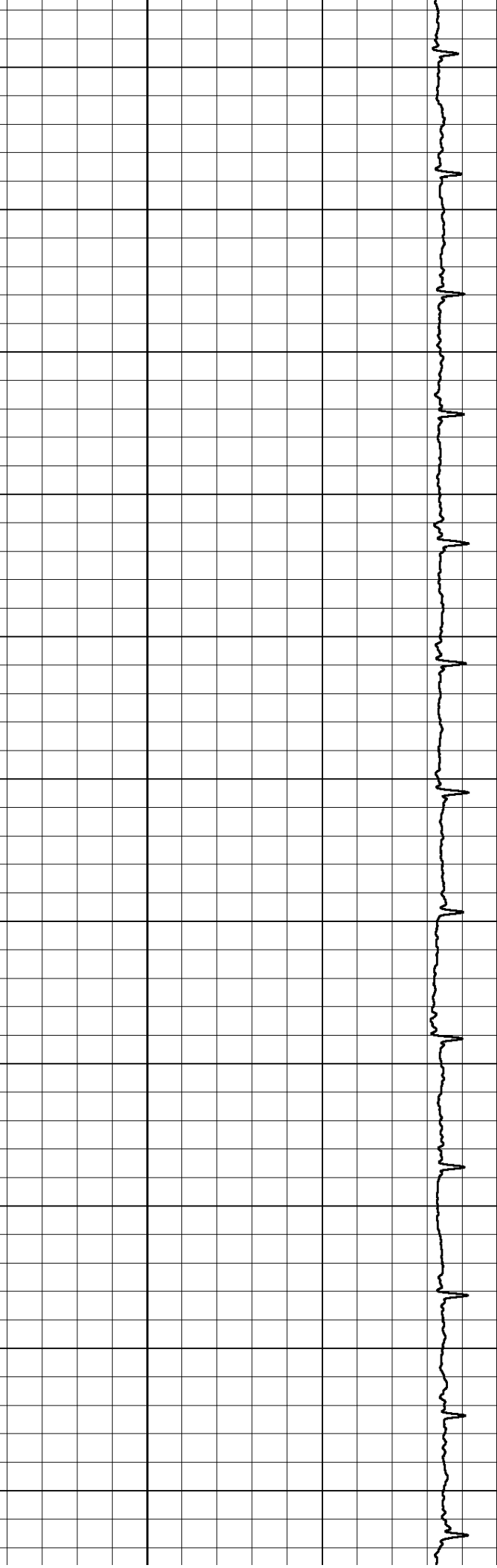
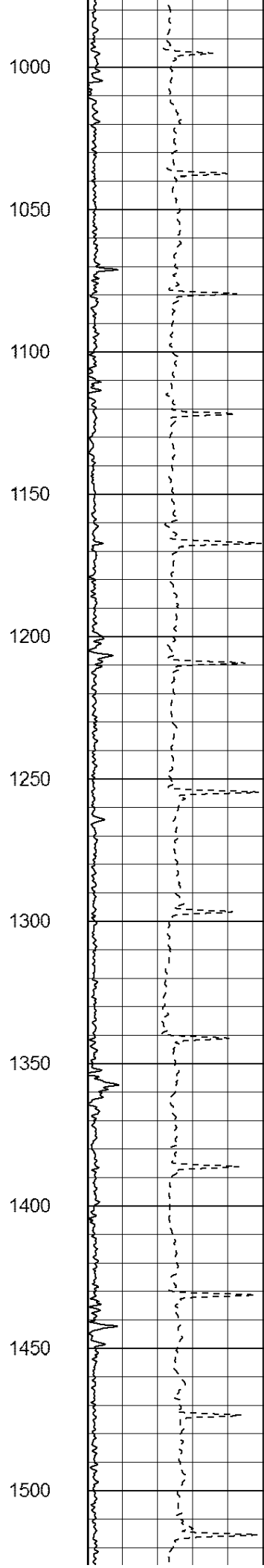
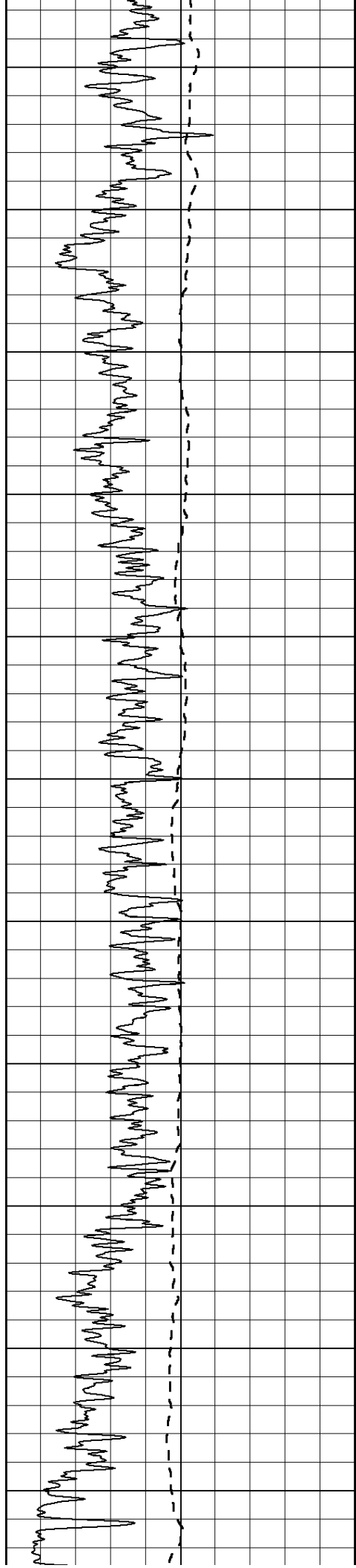
MEADE, KS.(W. EDGE) 7 1/2W. ON HWY 54 TO "RD. 9", 7S., 1E. TO DEAD END, 1N. & W. ON TRAIL

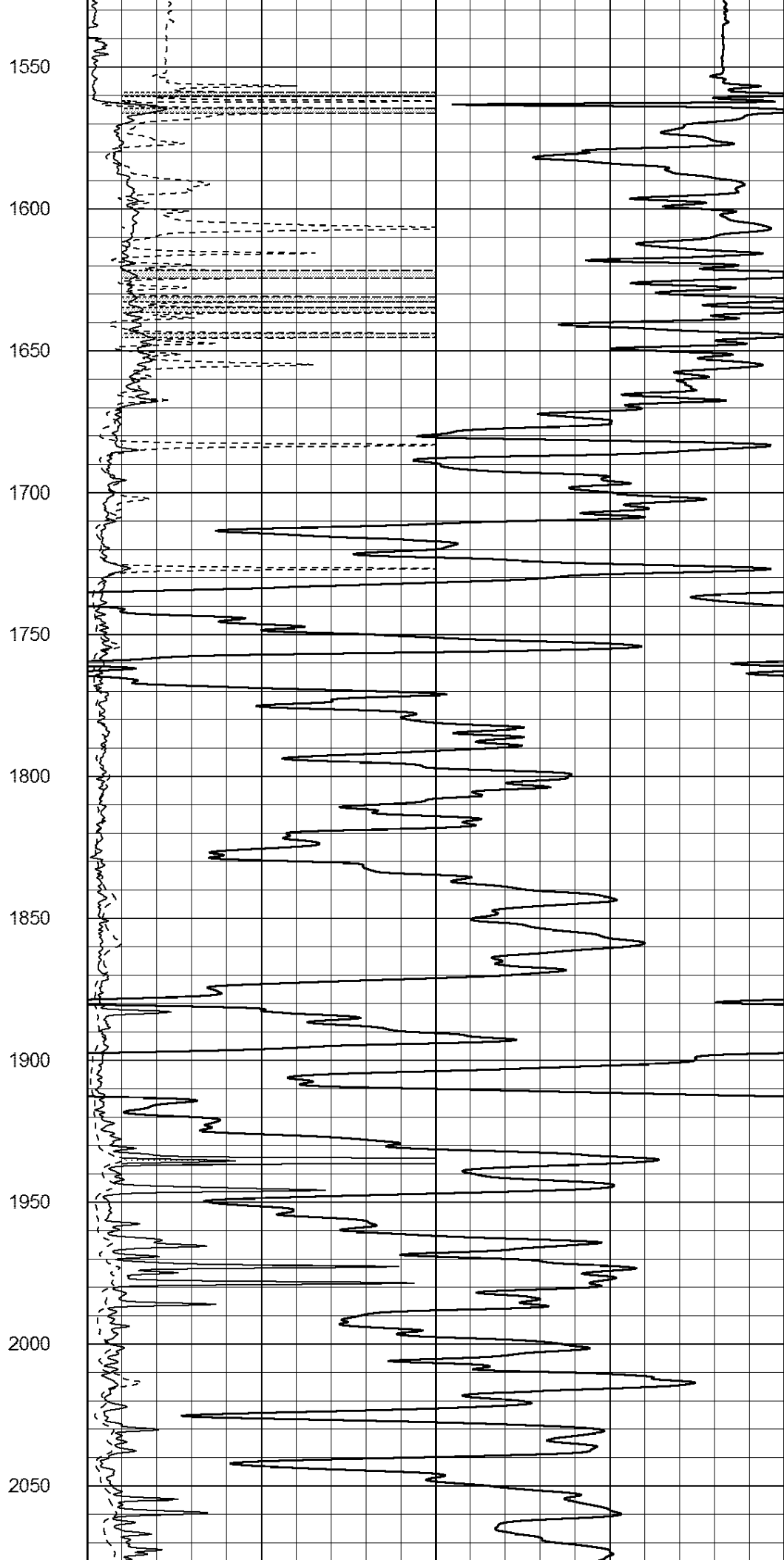
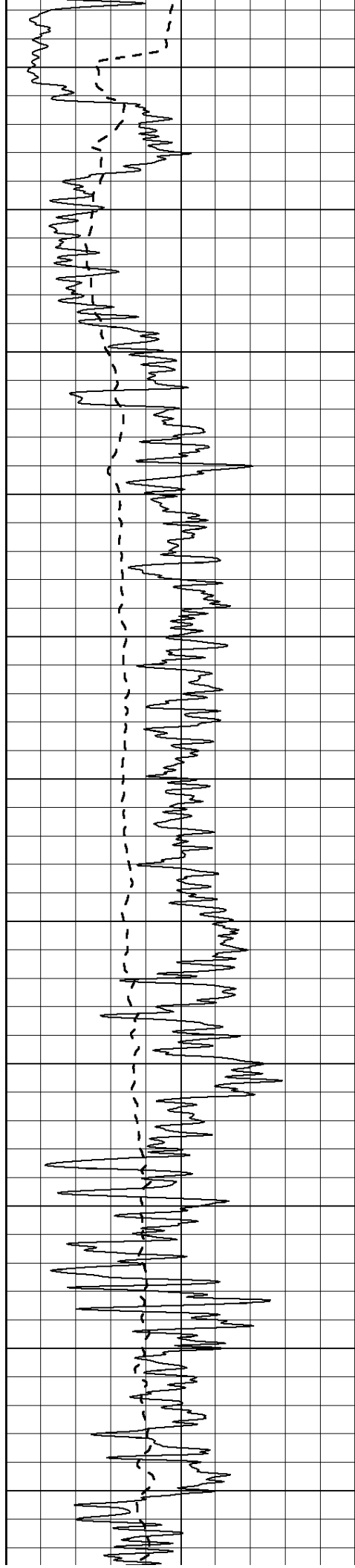
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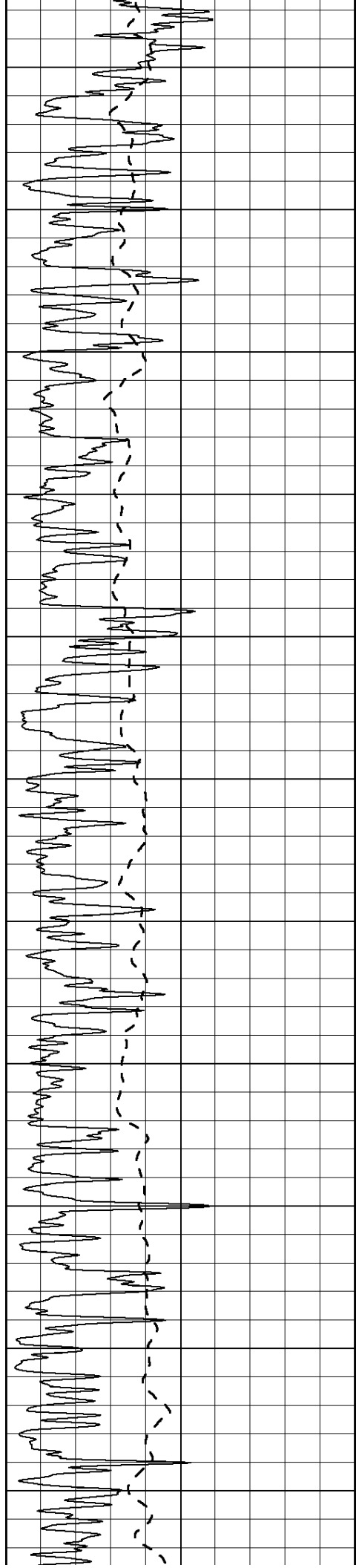
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-100	SP (mV)	100	0	RILD (Ohm-m)	50	
			1000	CILD (mmho/m)		0
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	











2100

2150

2200

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2350

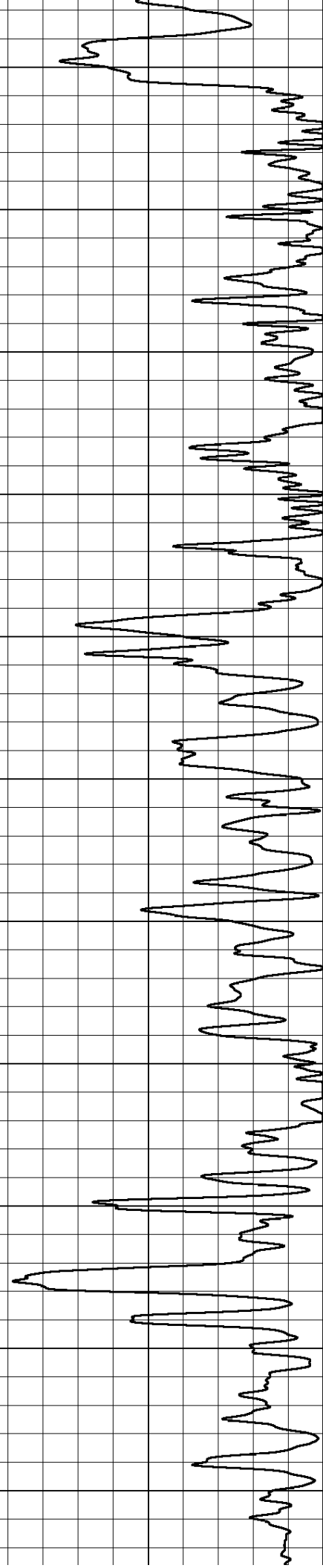
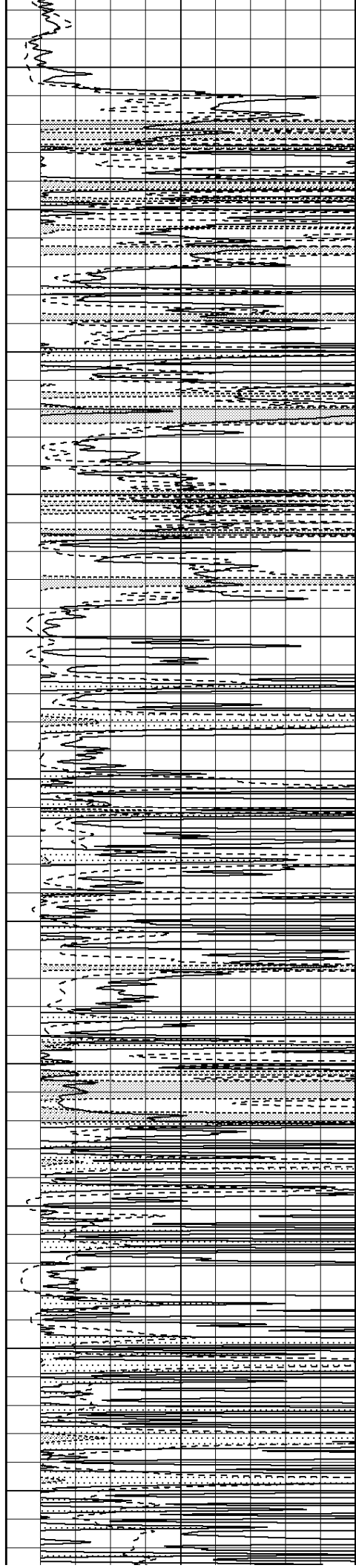
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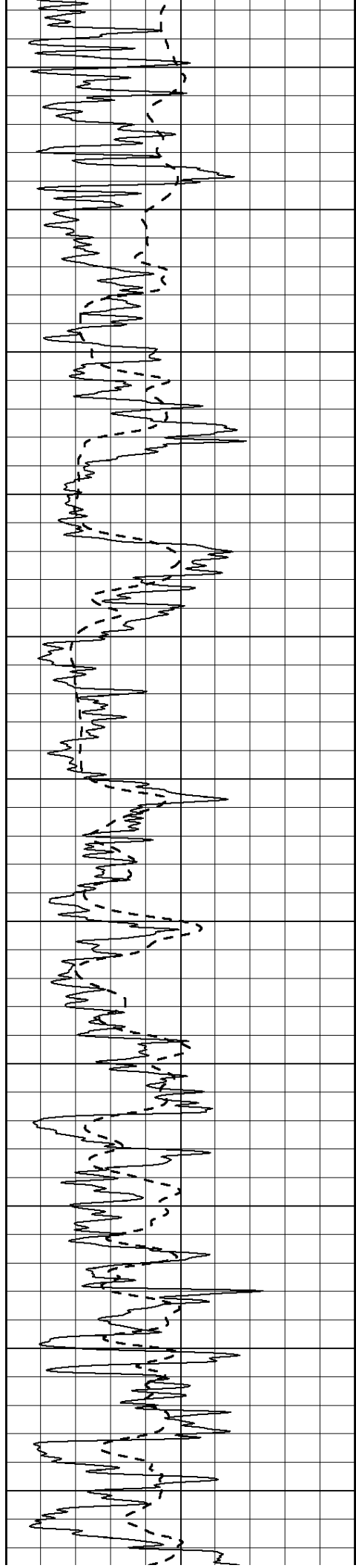
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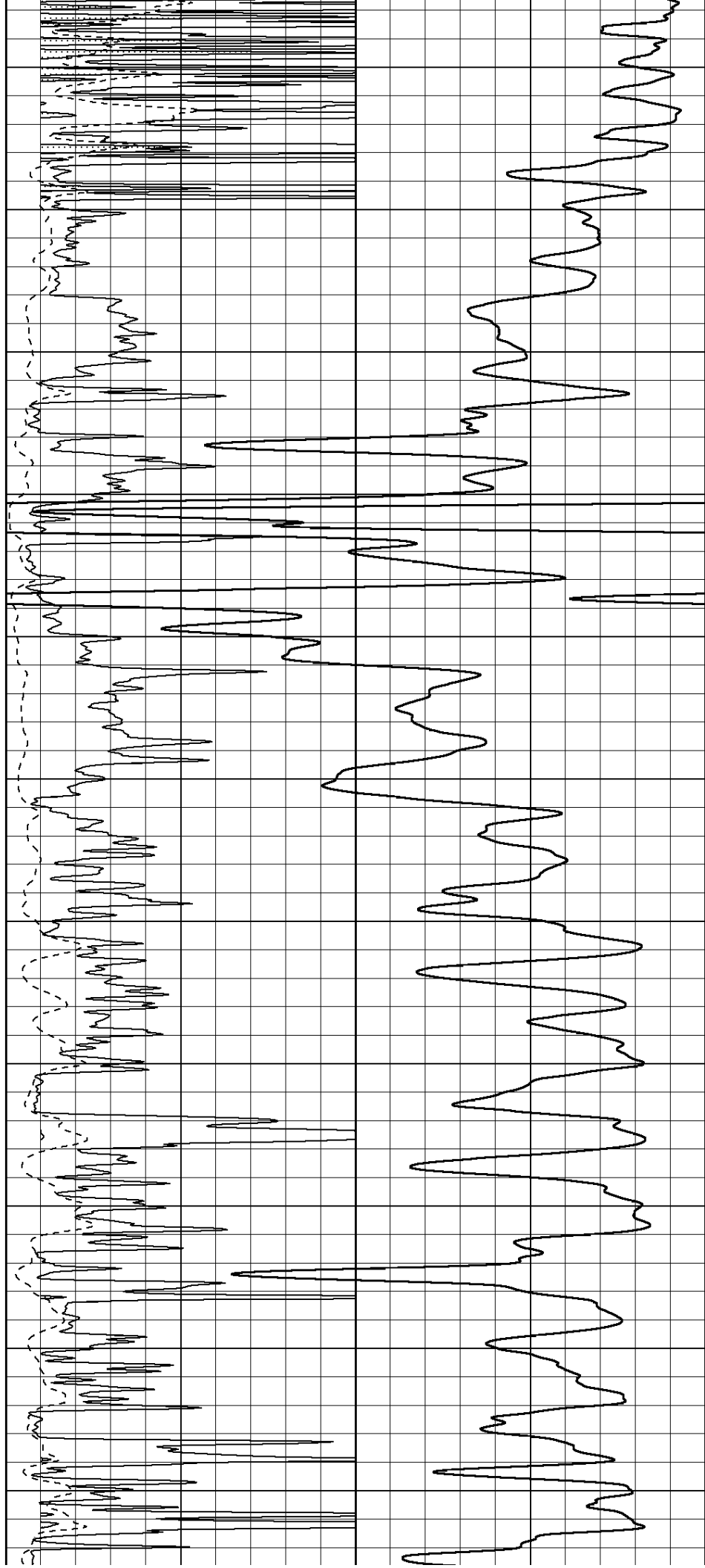
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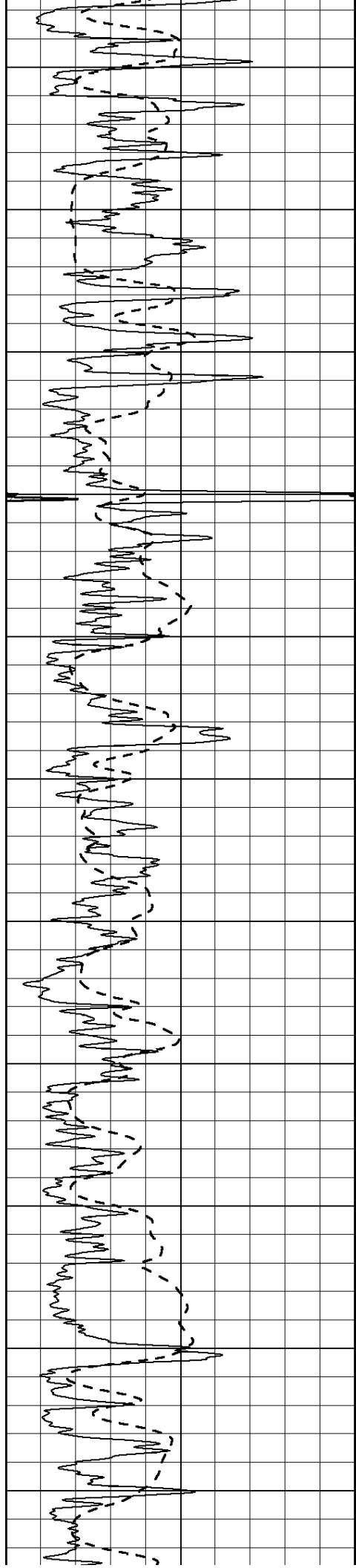
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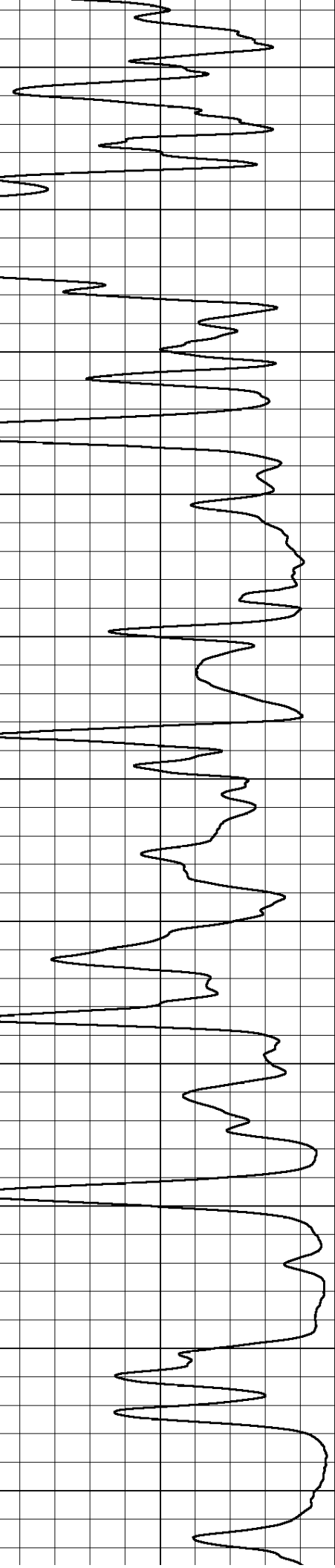
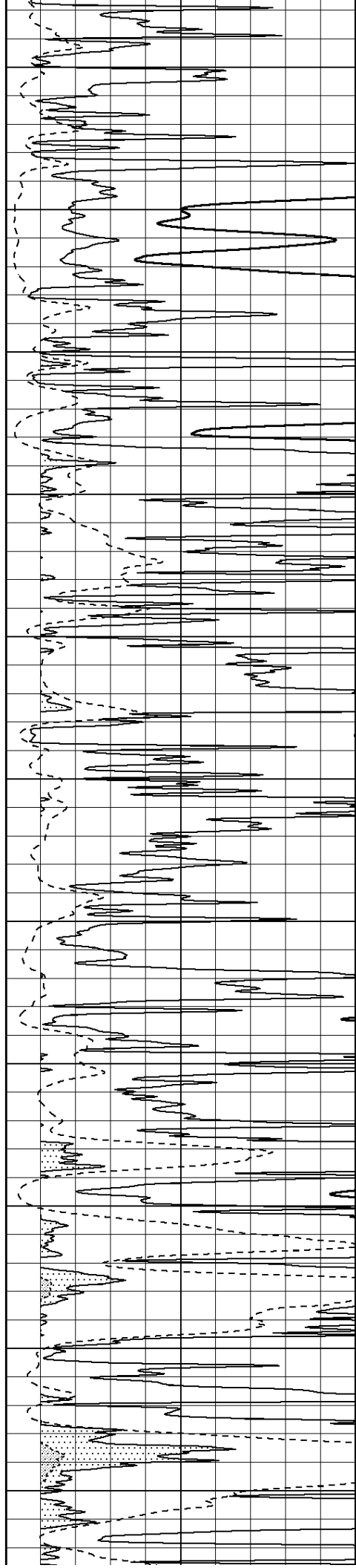
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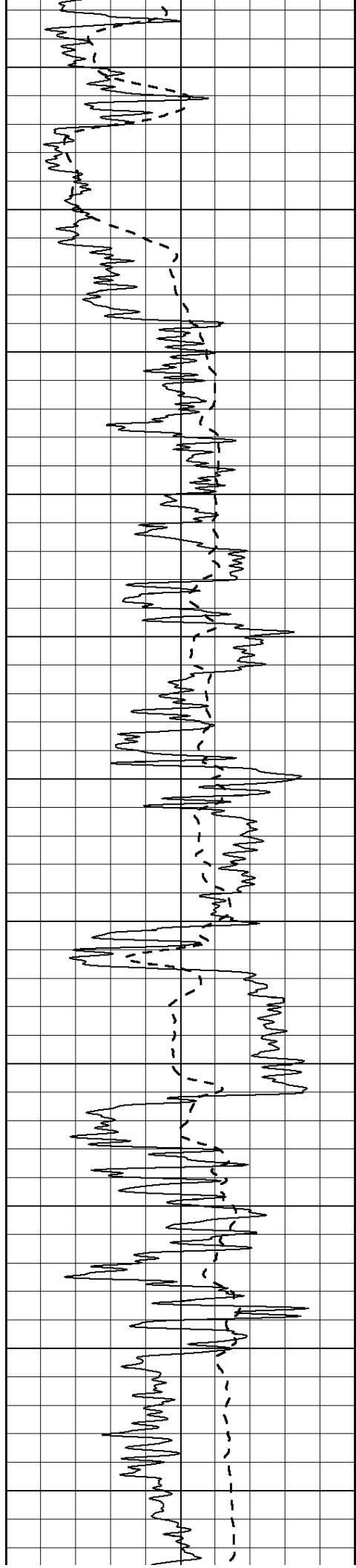
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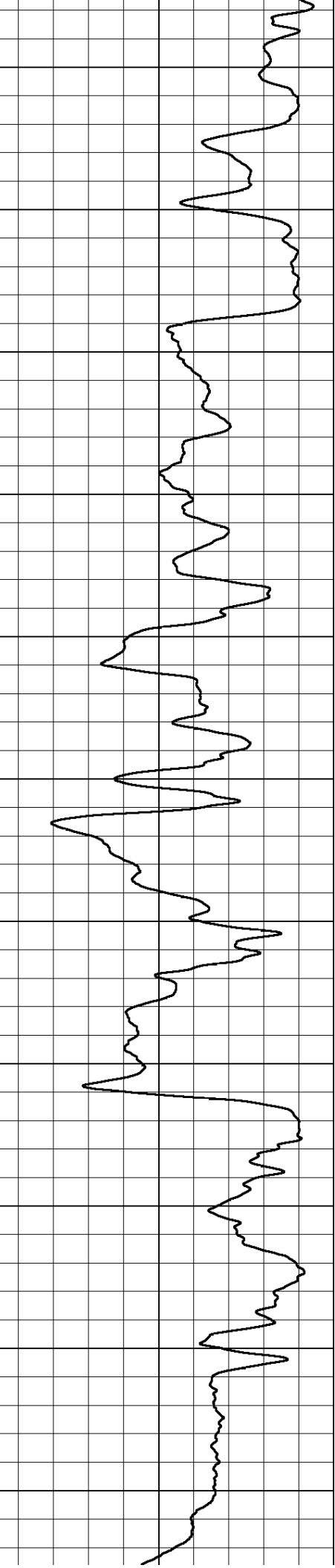
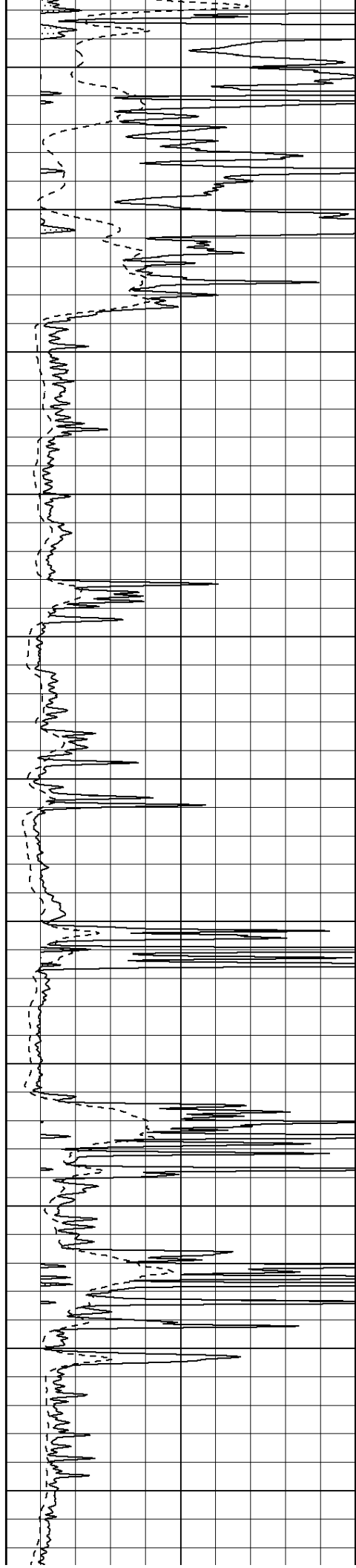
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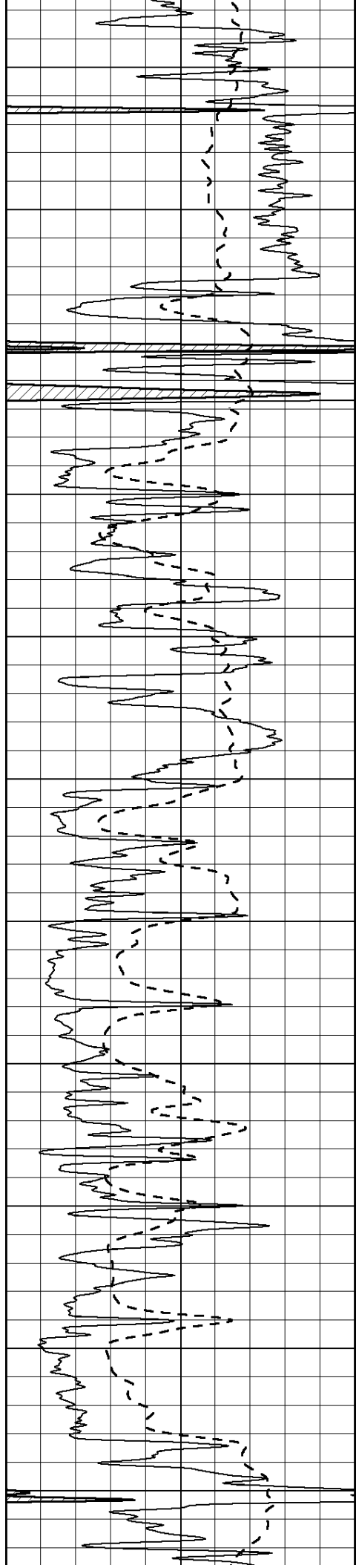
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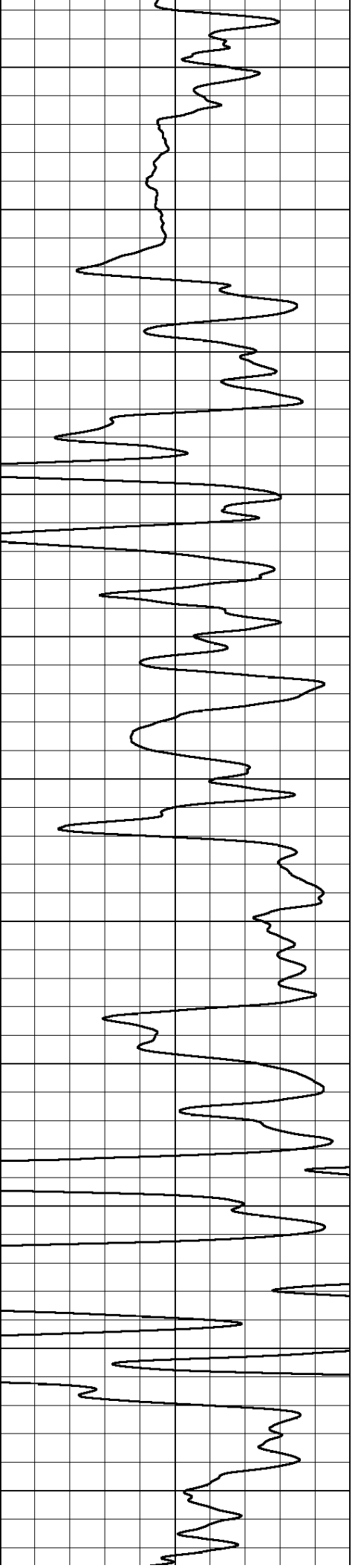
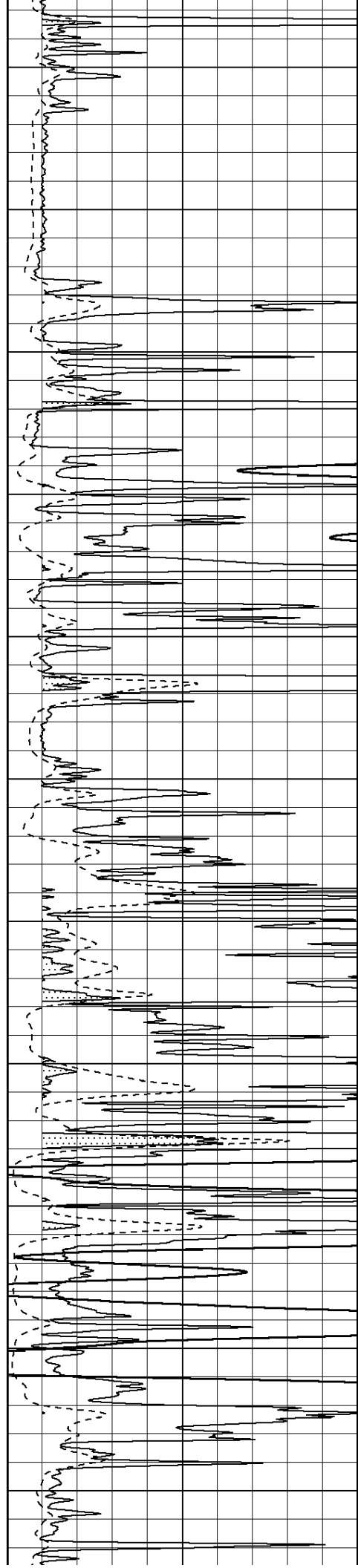
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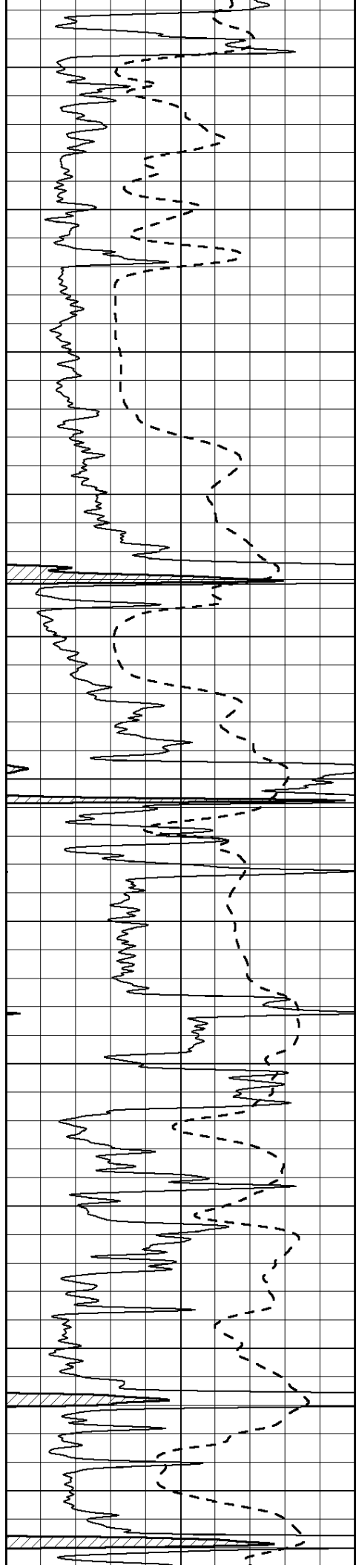
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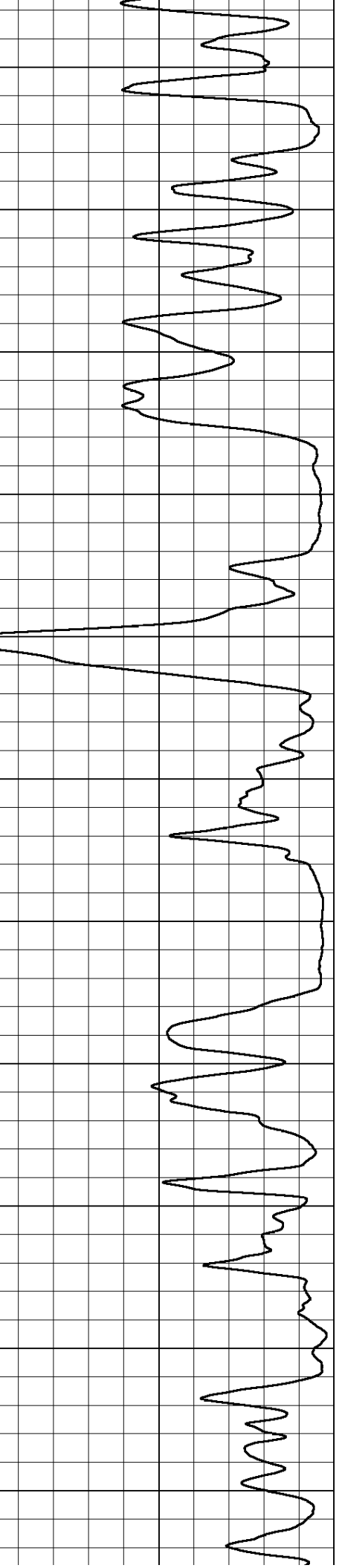
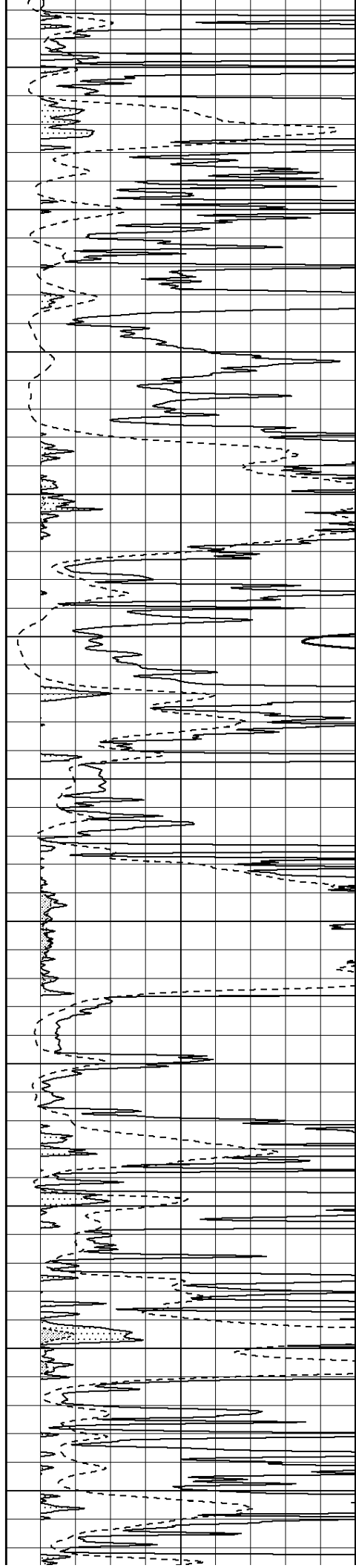
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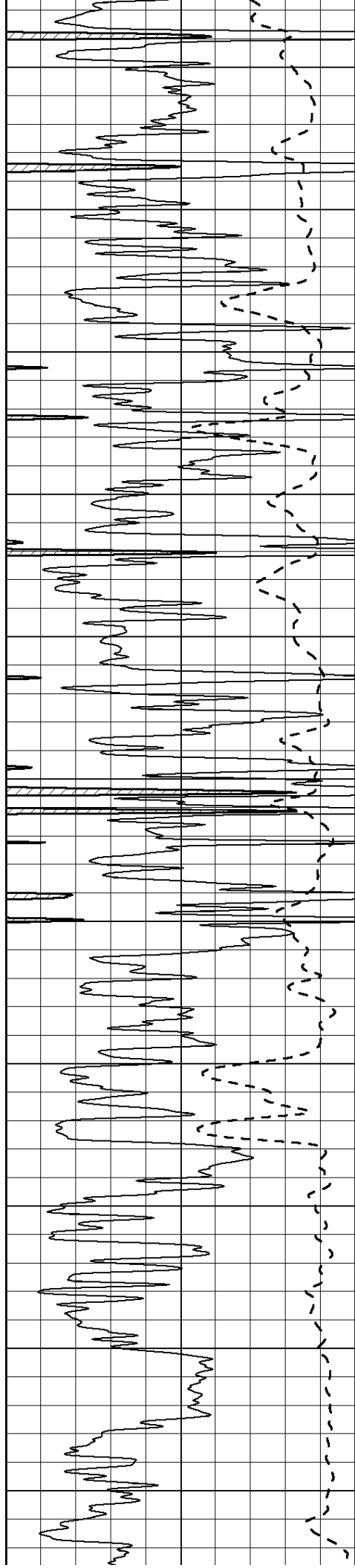
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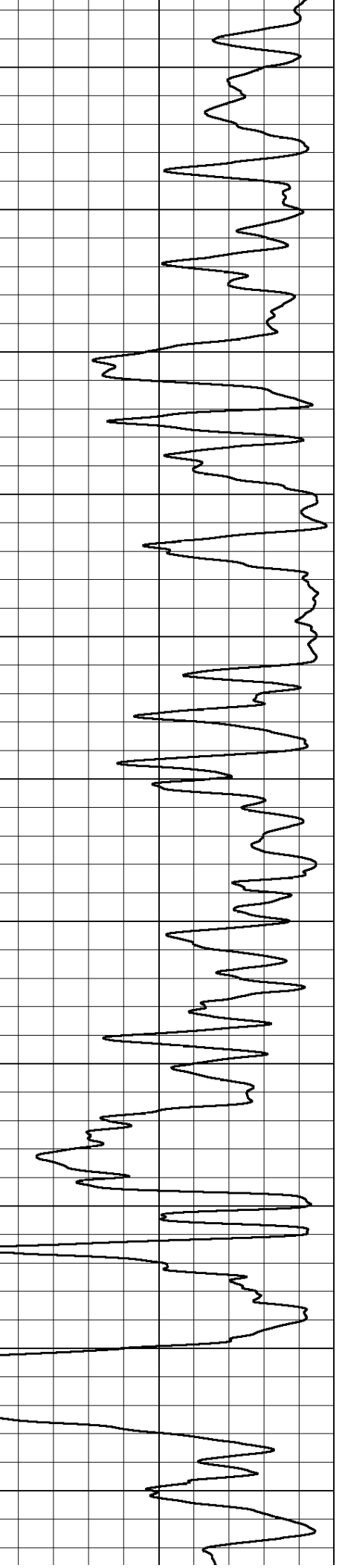
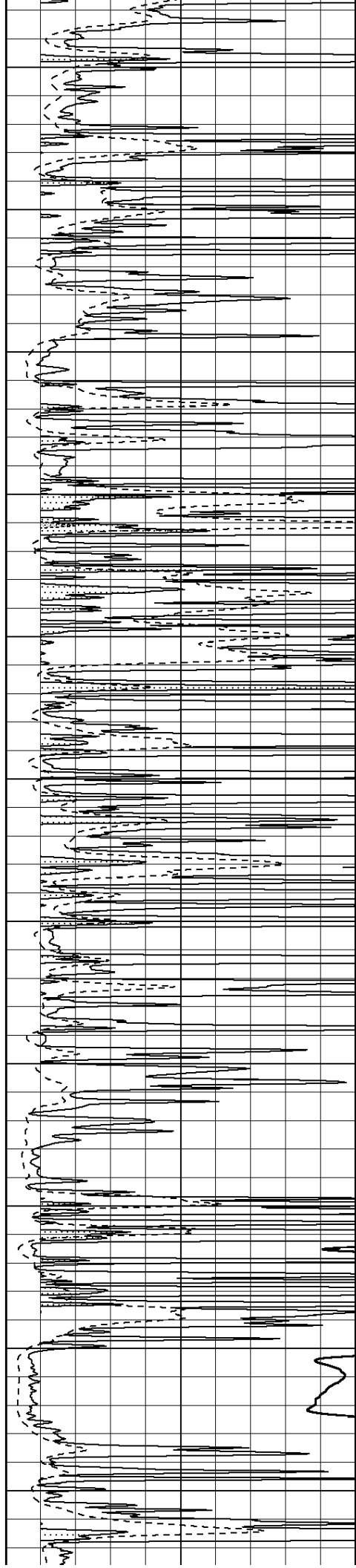
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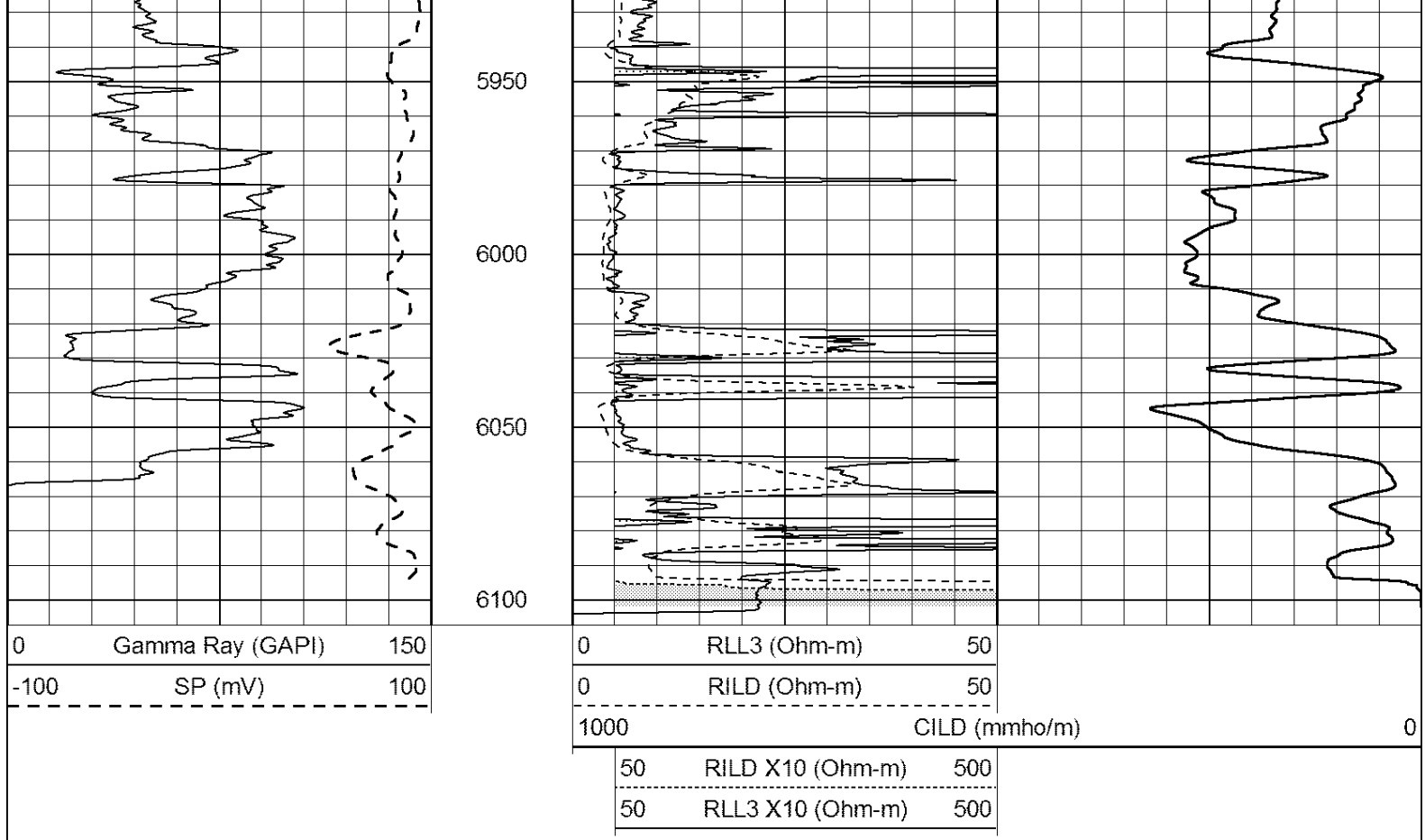
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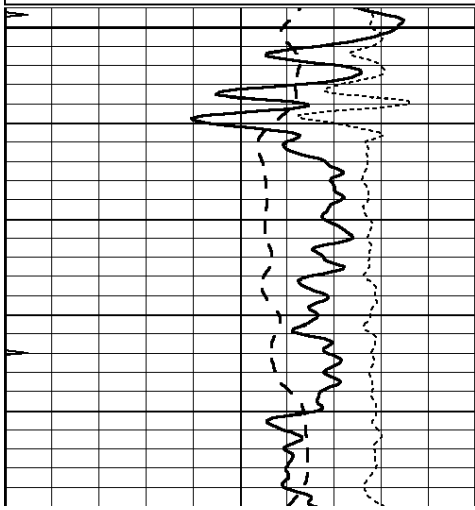
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MAIN SECTION

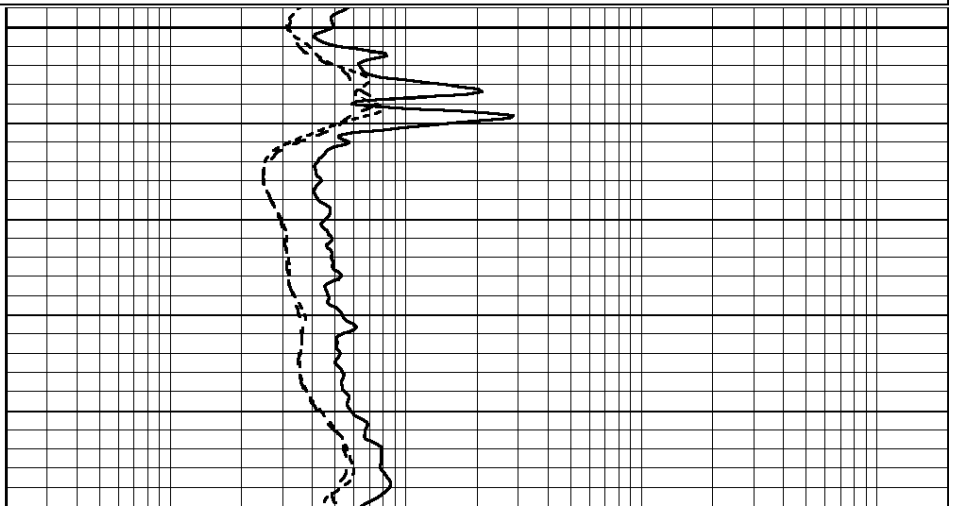
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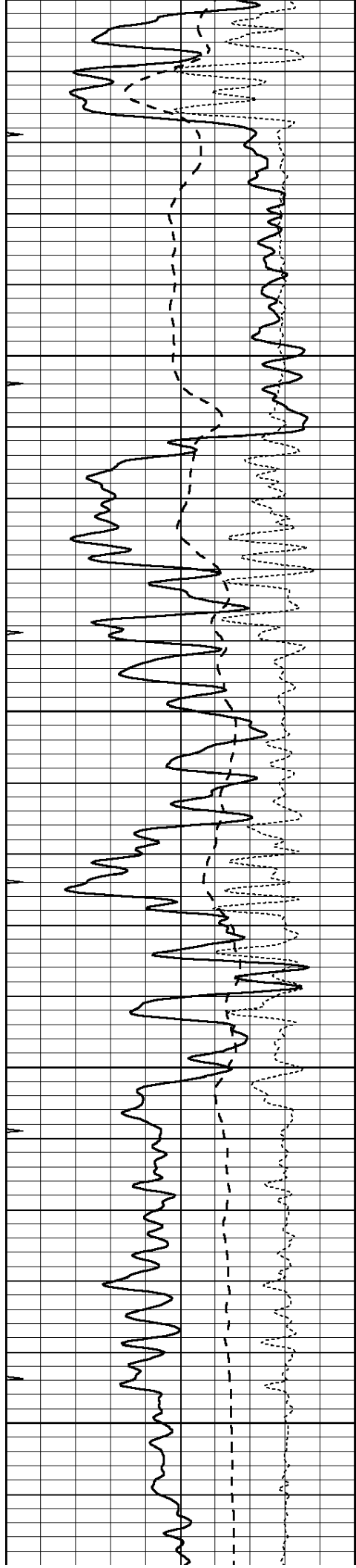
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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

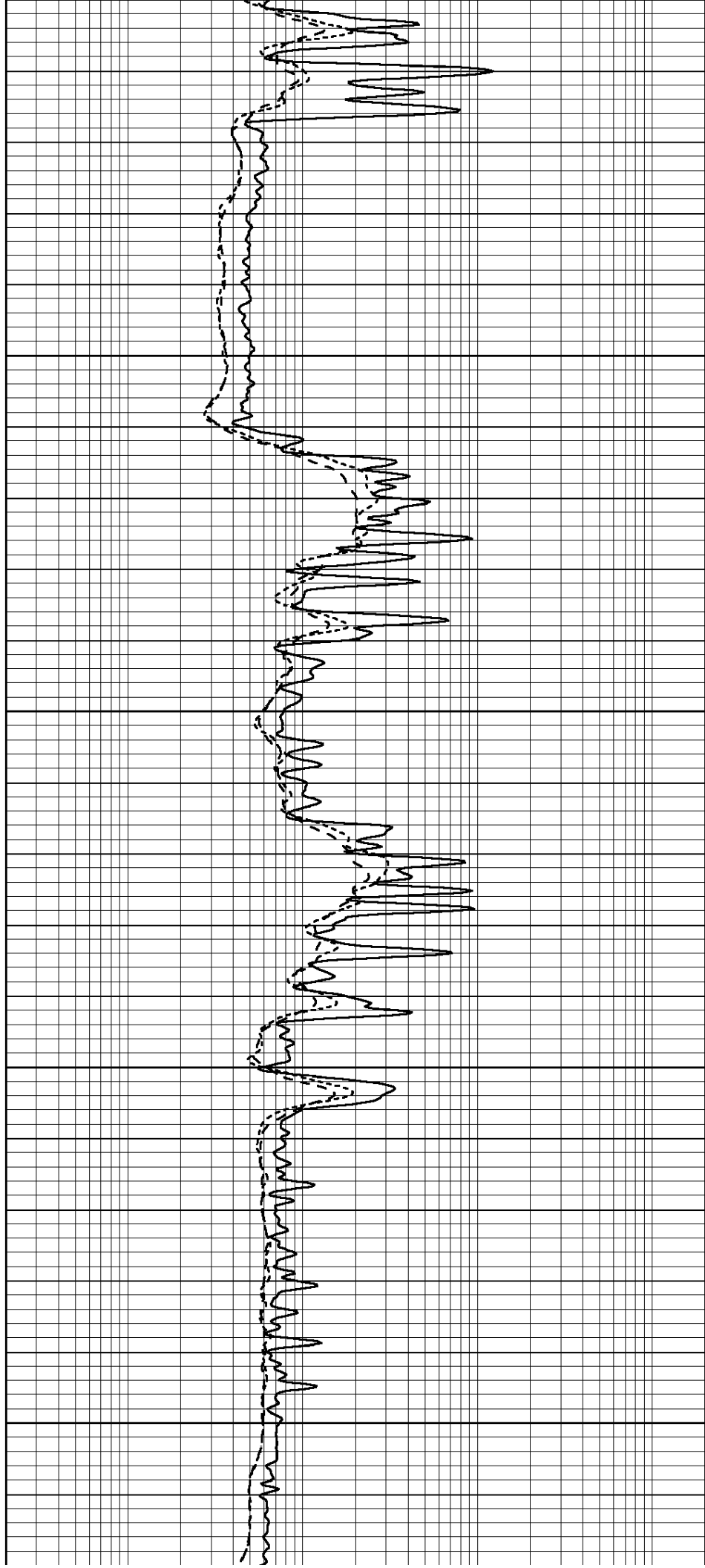


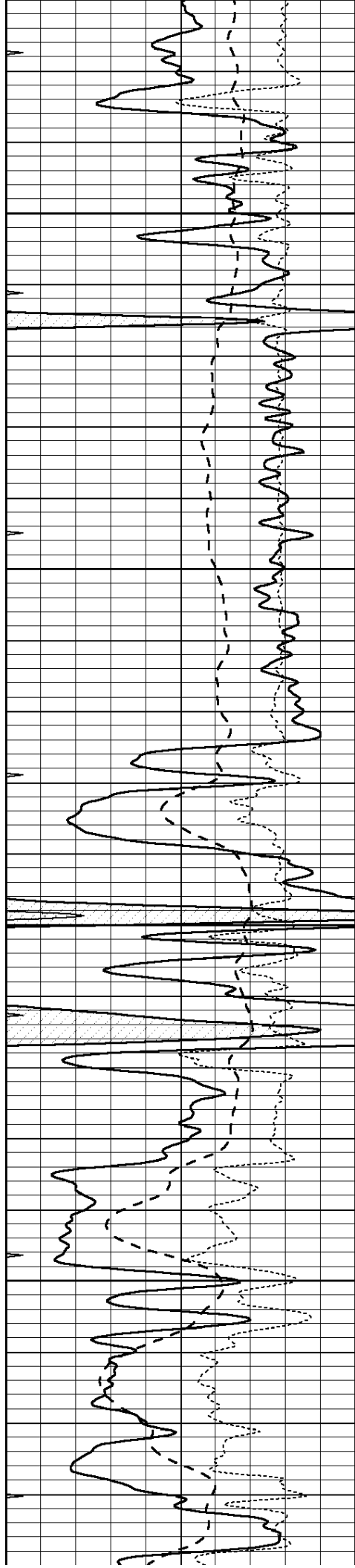
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4100
4150
4200
4250



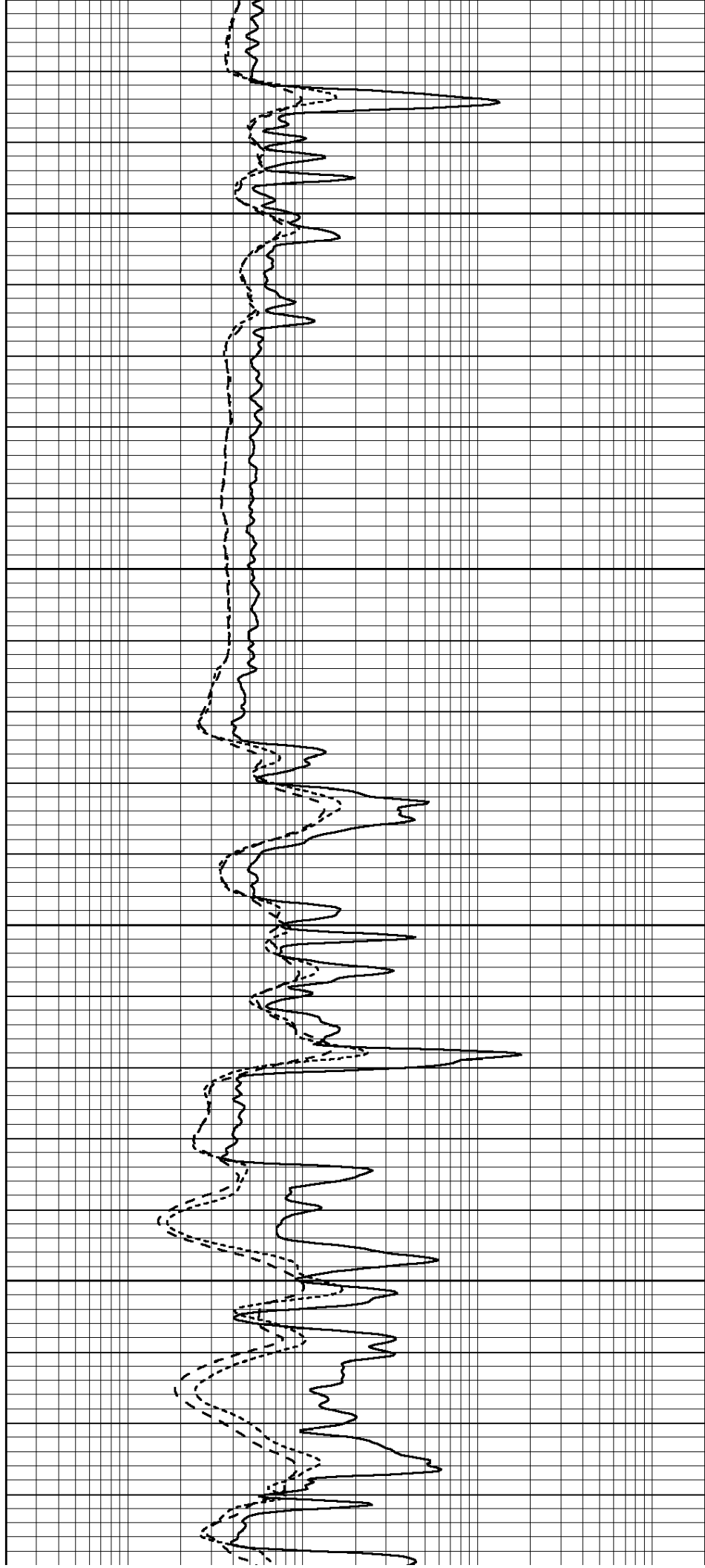


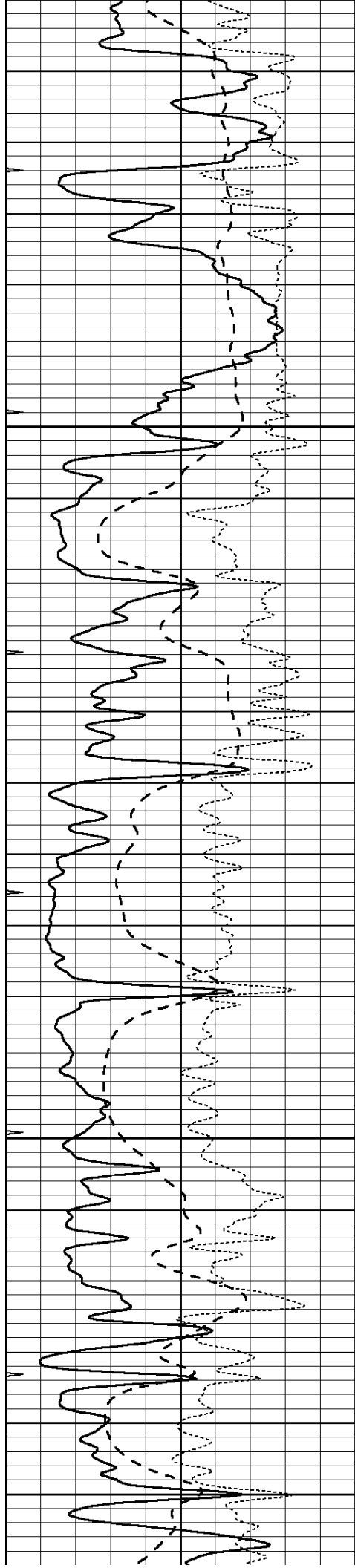
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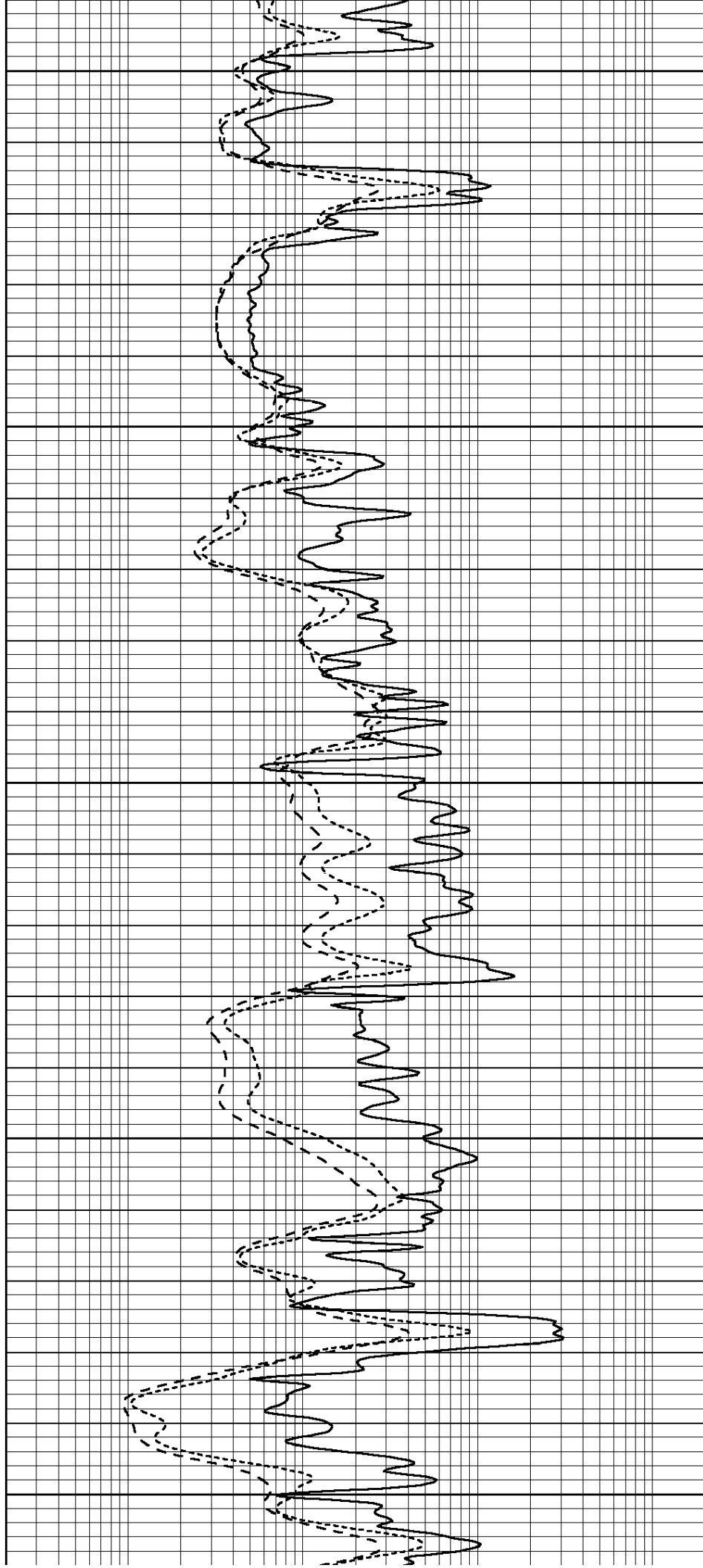
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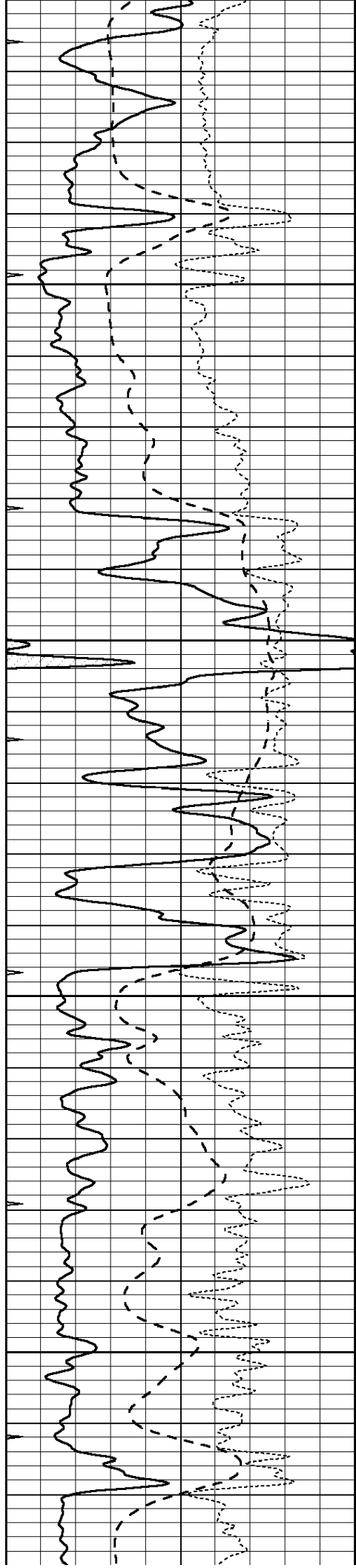
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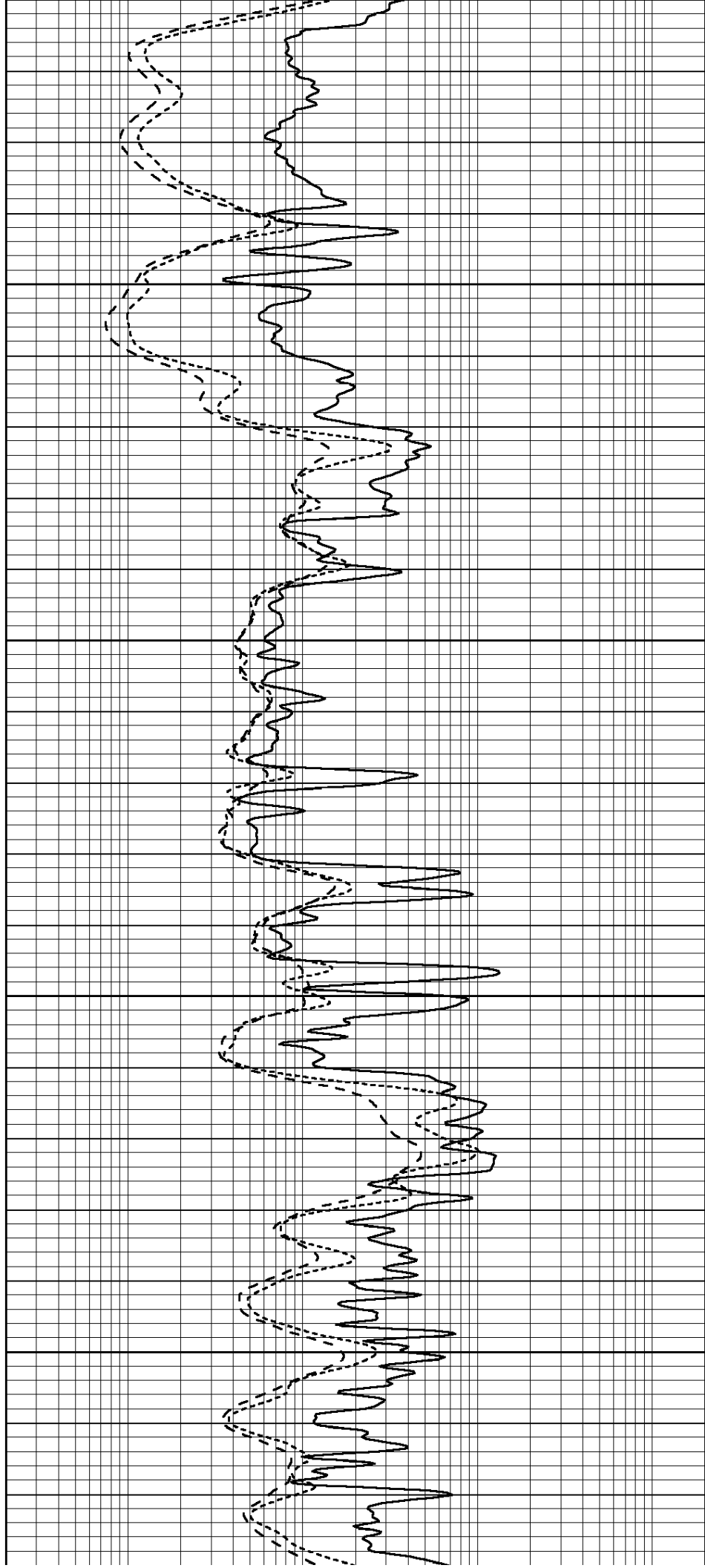


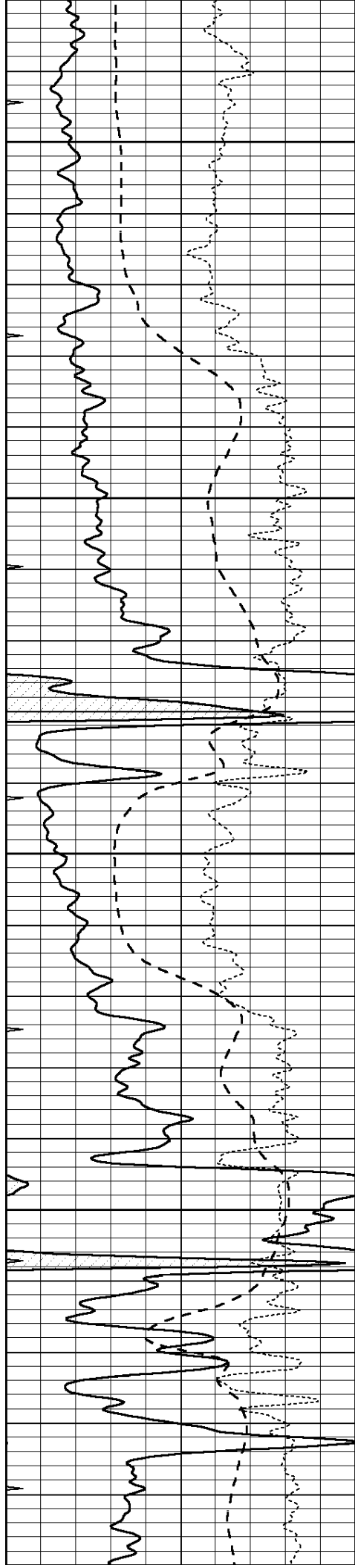
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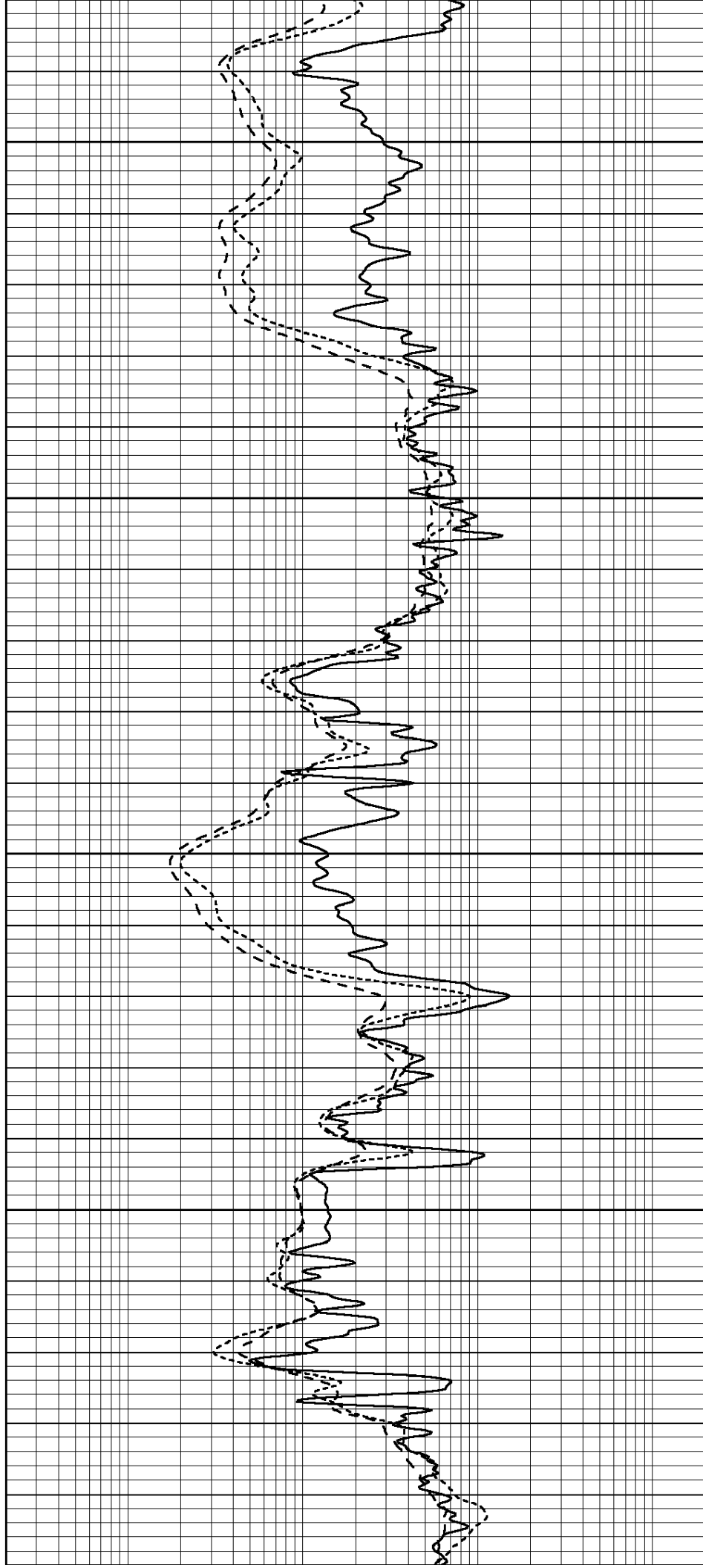
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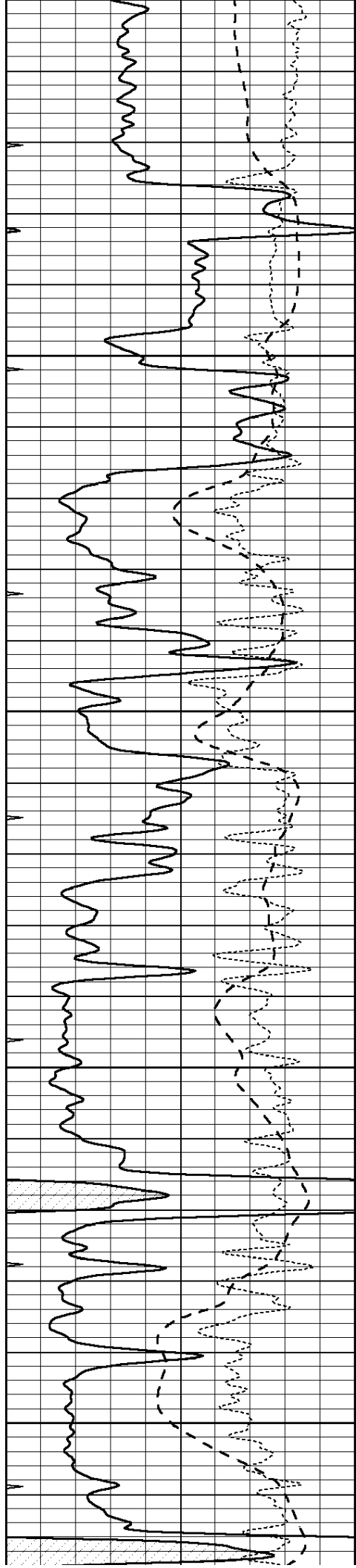
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5050

5100

5150





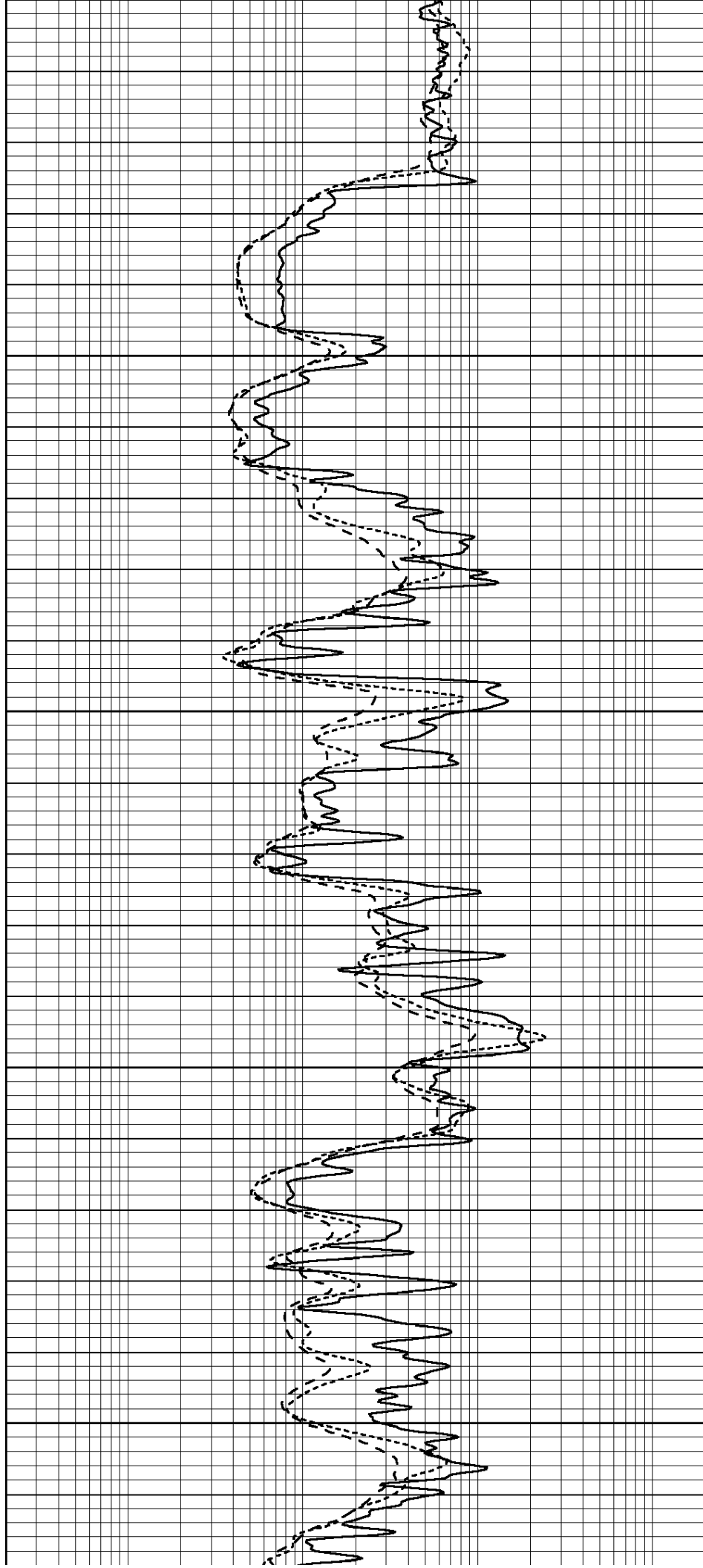
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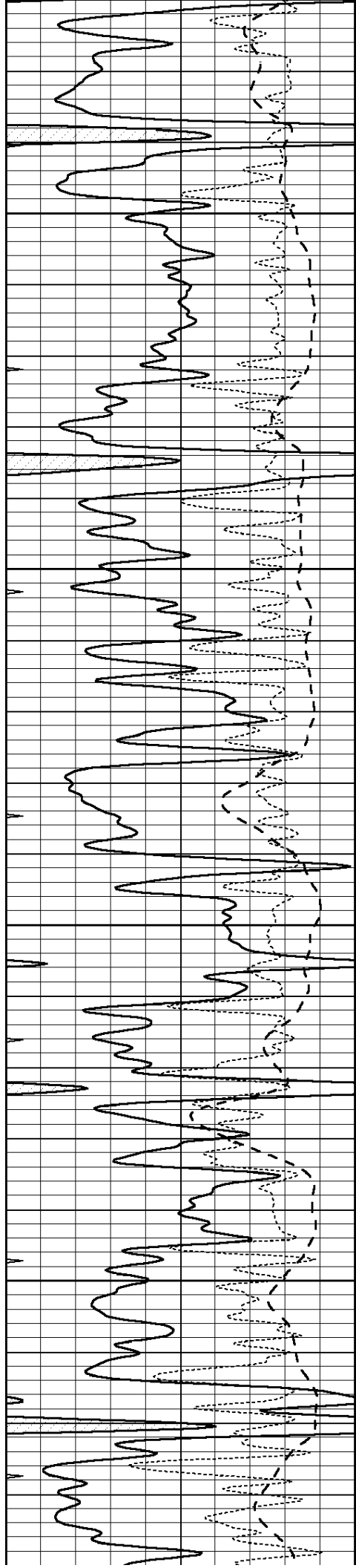
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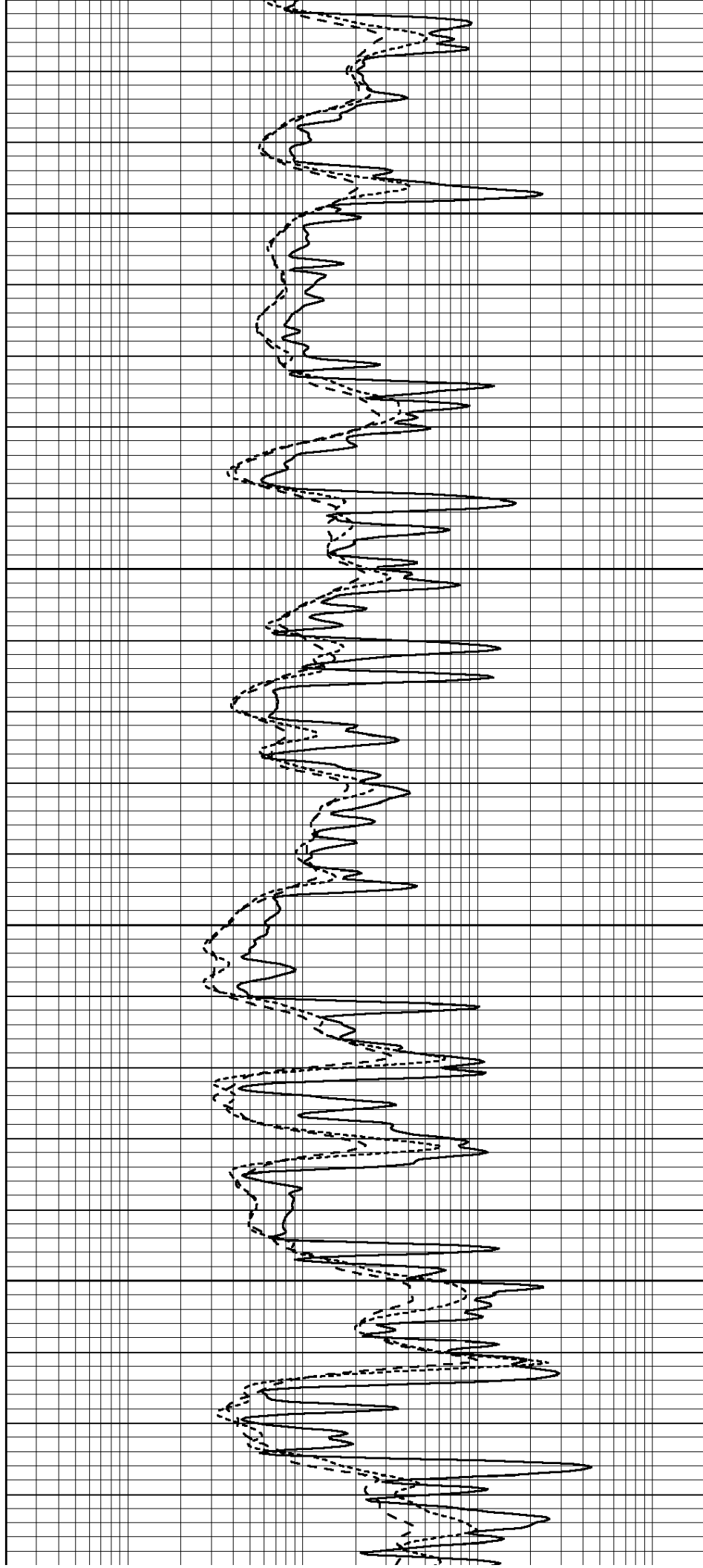


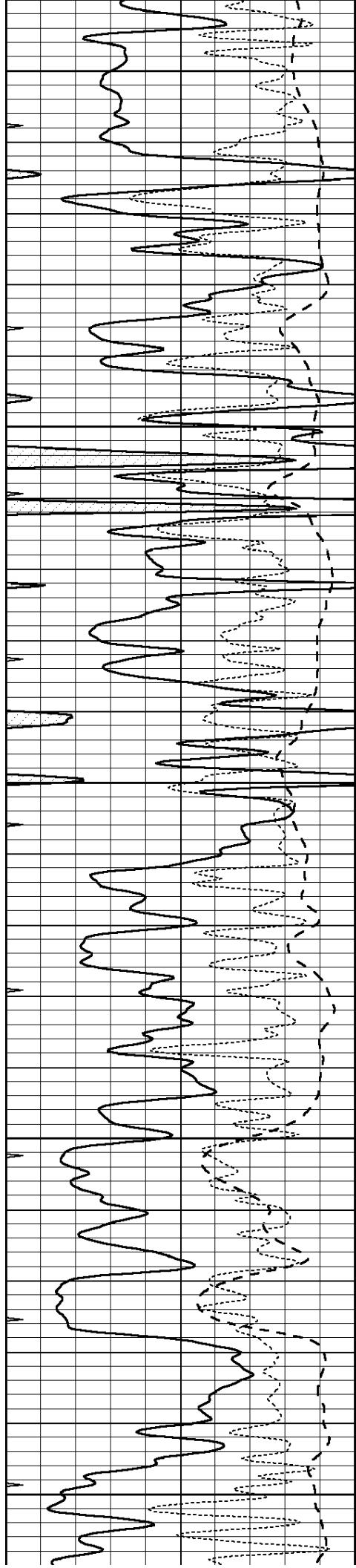
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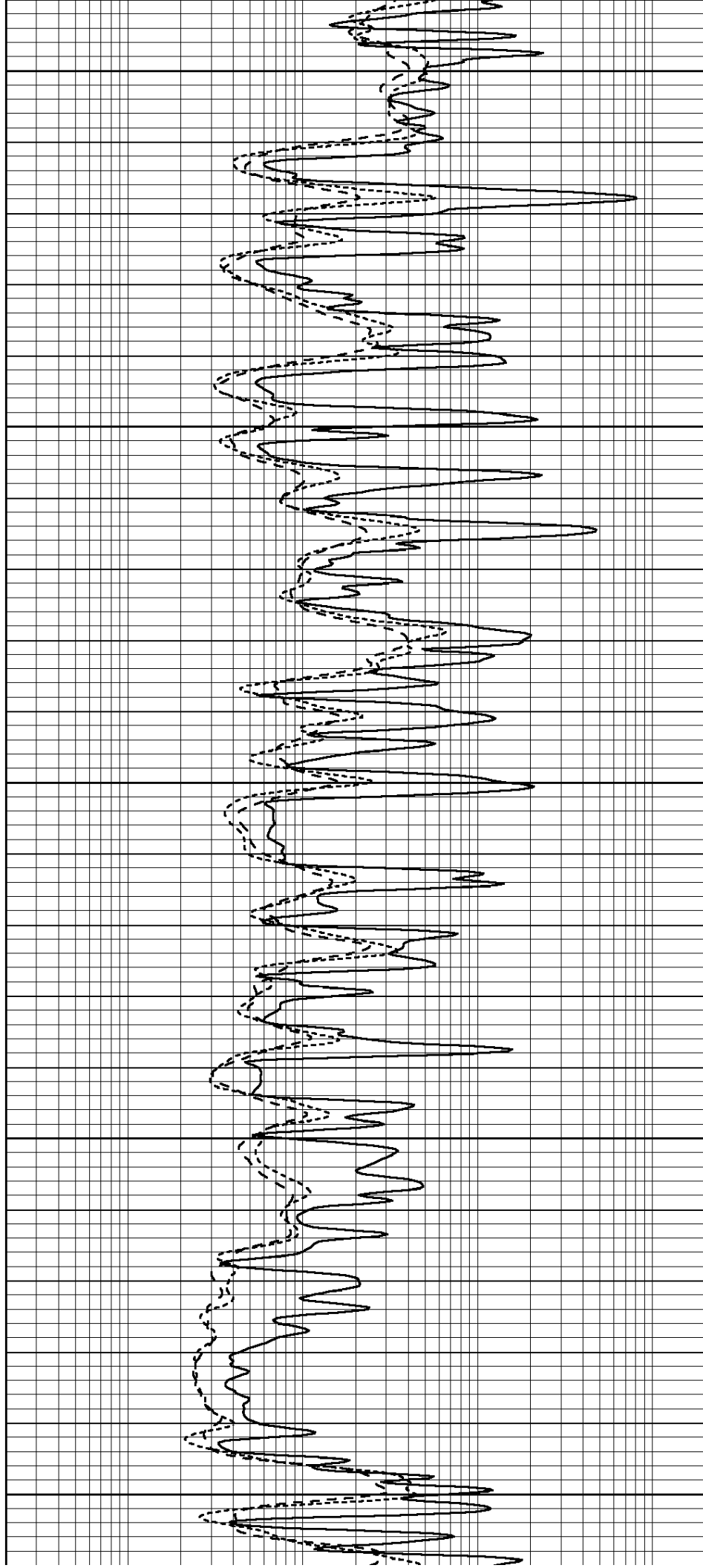
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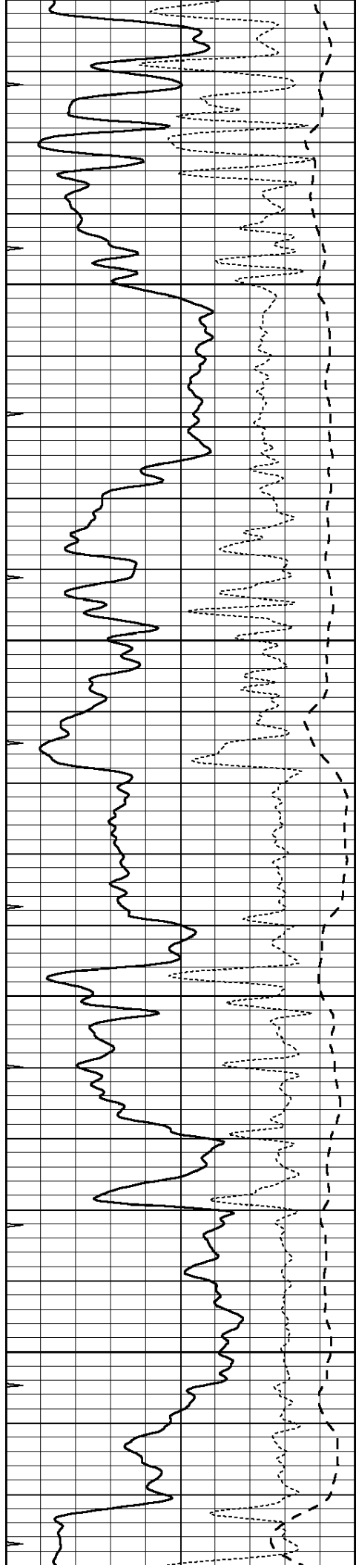
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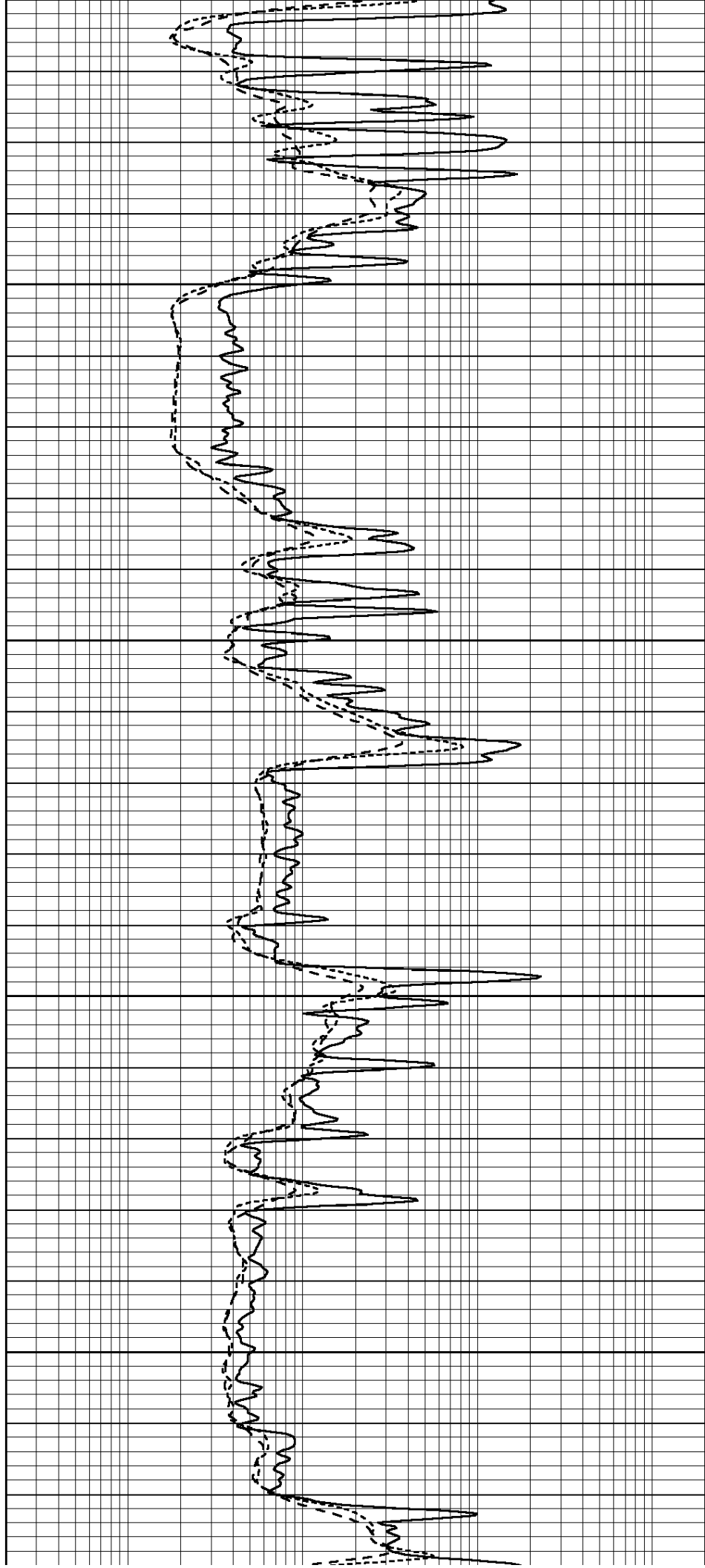


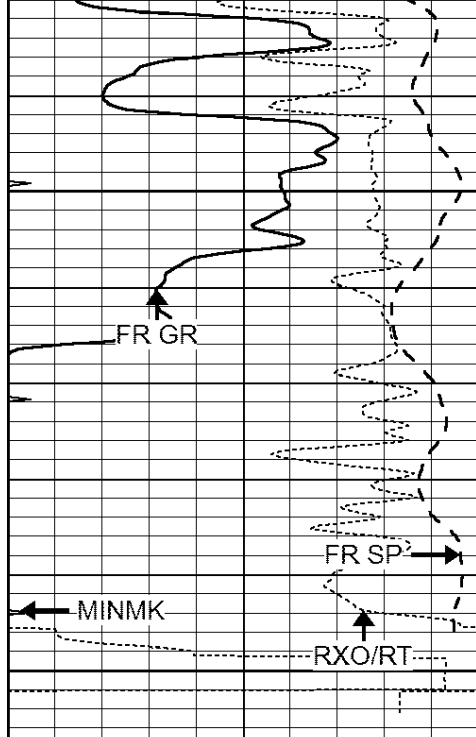
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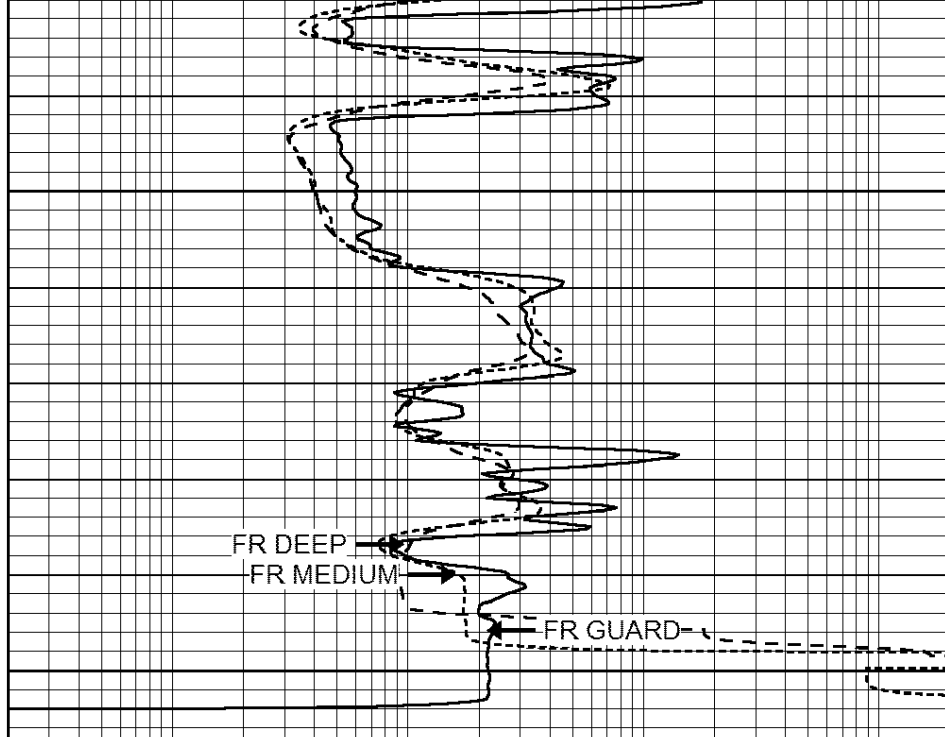




6050

LTD 6098
6100

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

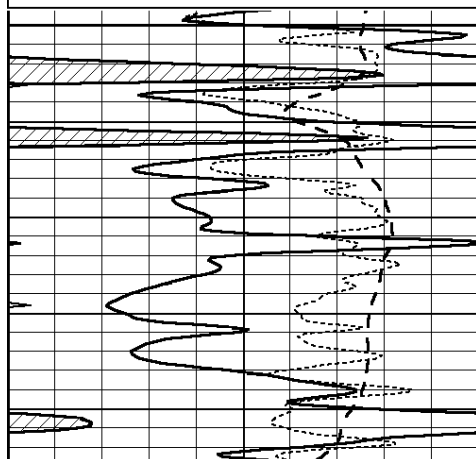


REPEAT SECTION

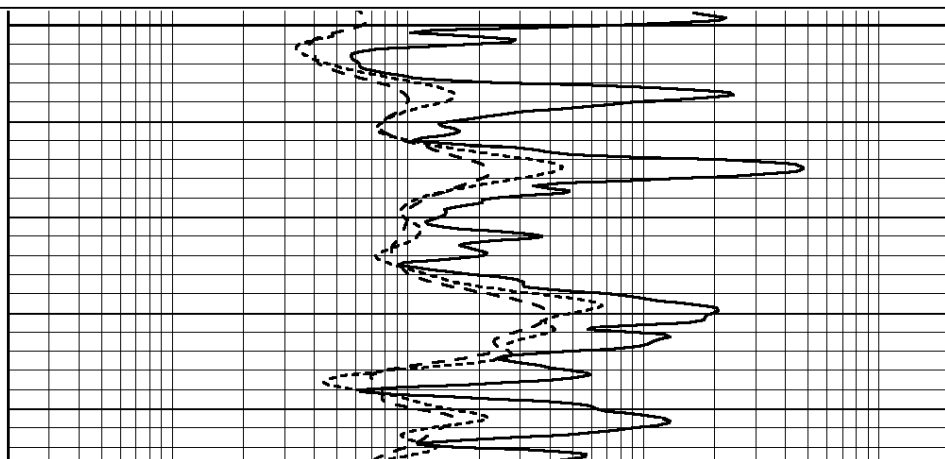
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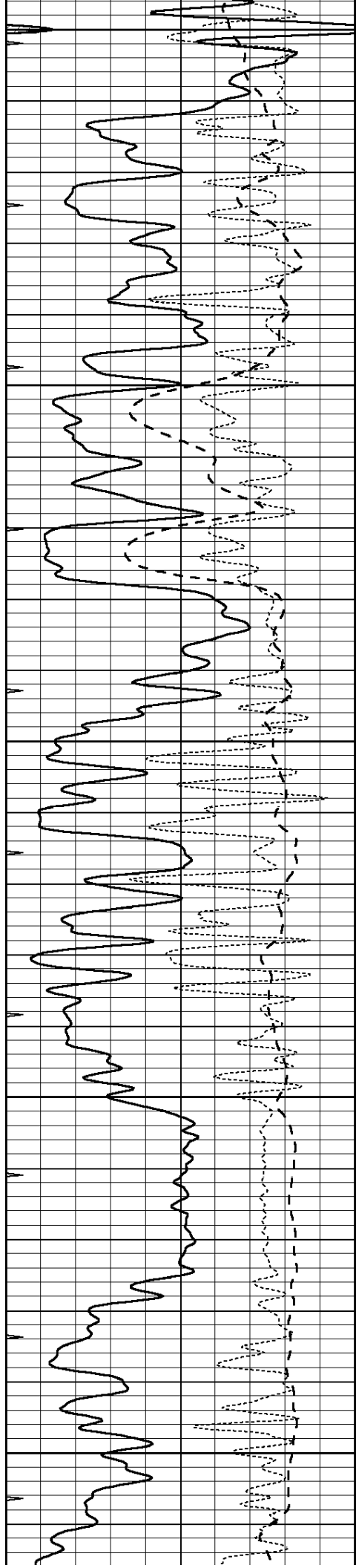
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



5650





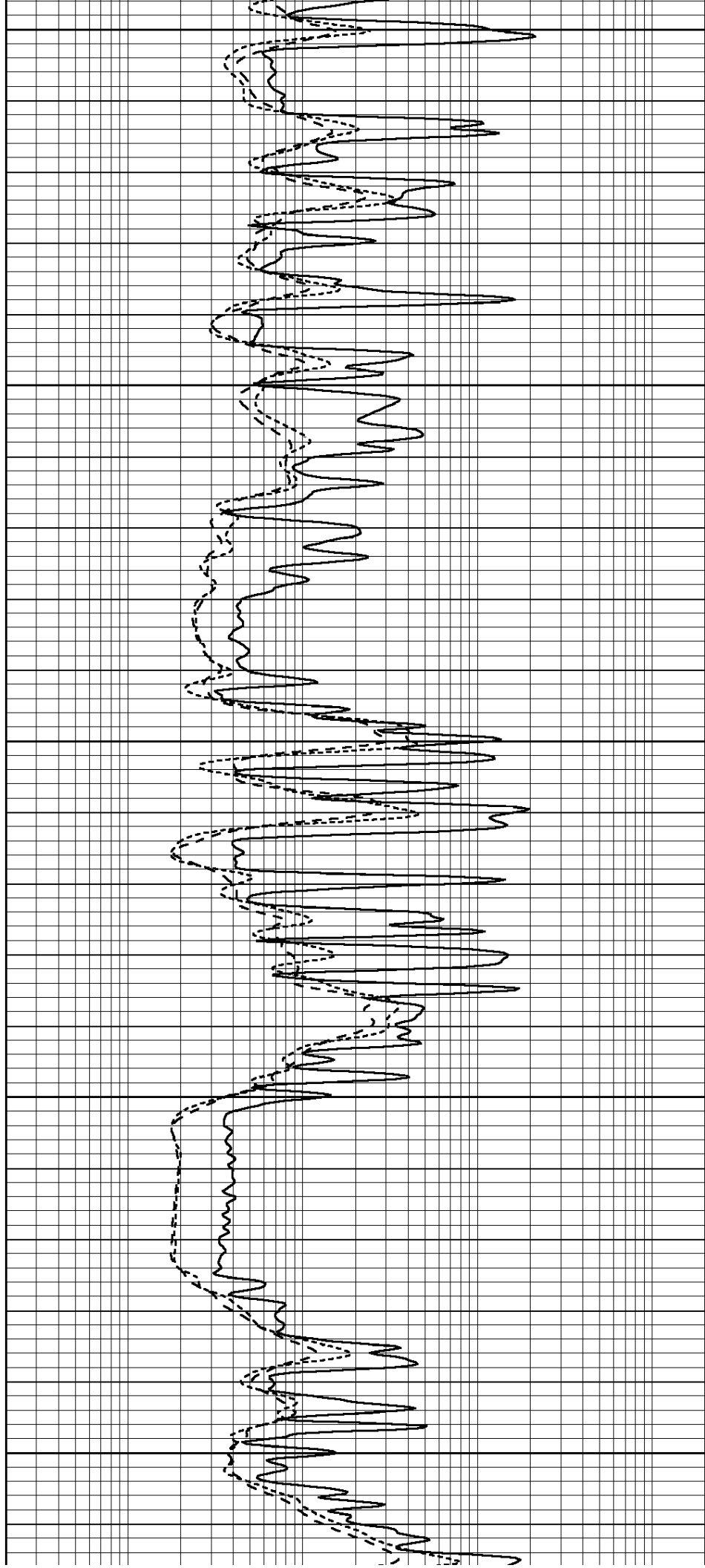
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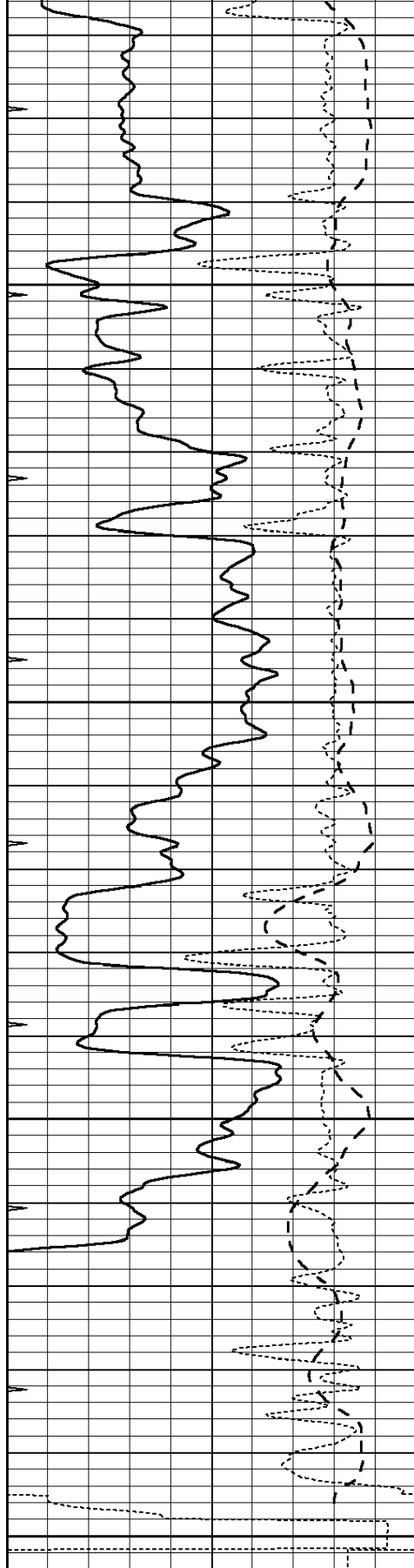
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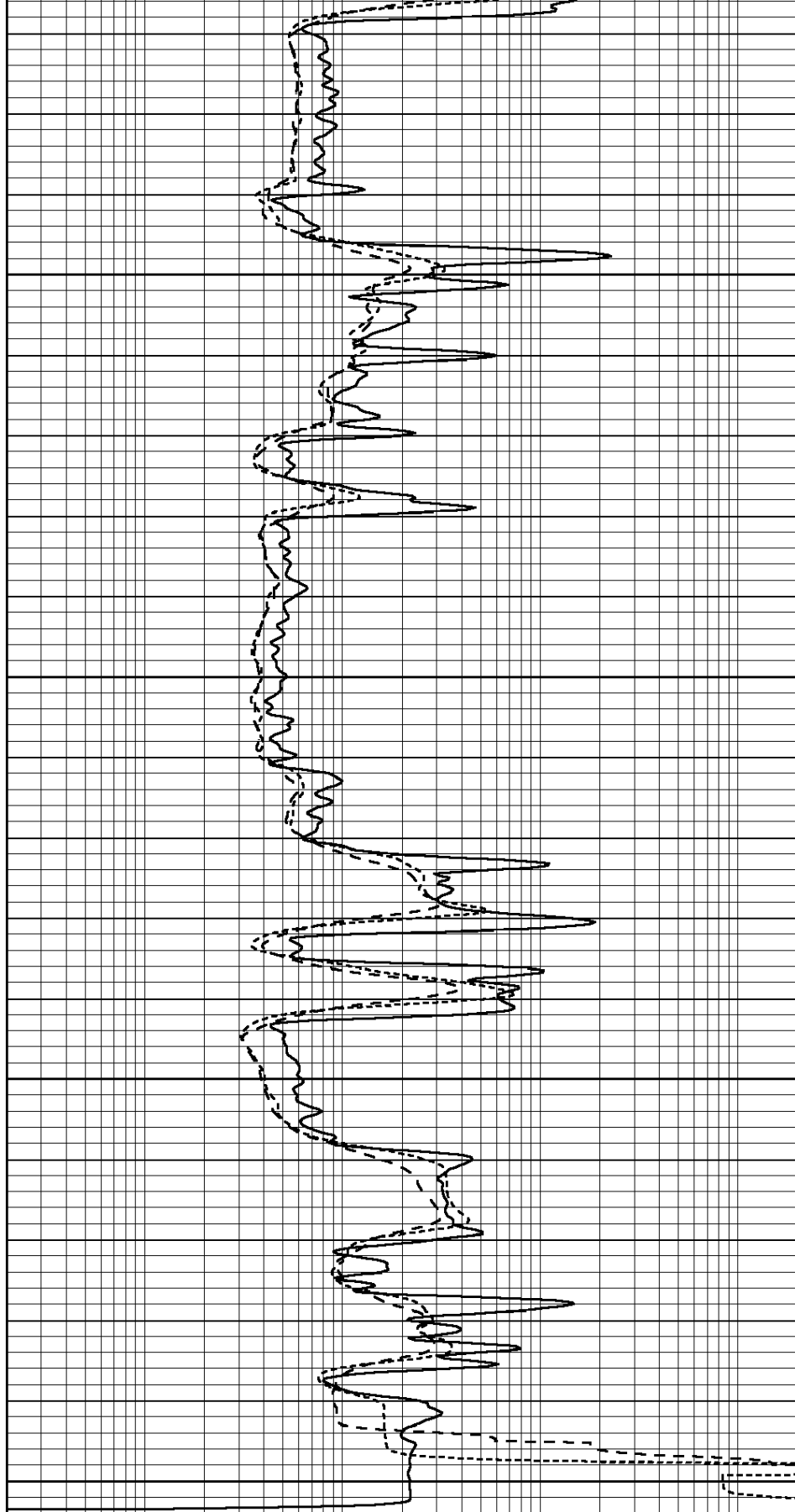
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

5950

6000

6050

6100



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: 409685pe.db
 Dataset Pathname: pass3.10
 Dataset Creation: Mon Oct 01 21:17:59 2012

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
 Performed: Mon Oct 01 18:43:03 2012

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	10.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-8.000
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	3.5	6.7
High Ref	5.5	15.0
Gain: 4.3		Offset: -8.5

Compensated Neutron Calibration Report

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:	Wed Sep 19 15:58:00 2012

Calibrator Value:	1.0	GAPI
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Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps

Sensitivity:	0.3000	GAPI/cps
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