



DUAL INDUCTION LOG

Company INDIAN OIL COMPANY, INC.
 Well ACHENBACH "D" #2
 Field STRANATHAN
 County BARBER
 State KANSAS

Company INDIAN OIL COMPANY, INC.
 Well ACHENBACH "D" #2
 Field STRANATHAN
 County BARBER State KANSAS

Location: API # : 15-007-24334-0000
 1415' FSL & 2155' FVL
 SE - NE - SW
 Permanent Datum GROUND LEVEL Elevation 1405
 Log Measured From KELLY BUSHING 12' A.G.L.
 Drilling Measured From KELLY BUSHING
 SEC 1 TWP 35S RGE 12W
 Other Services
 CDL/CNL/PE
 MEL
 Elevation
 K.B. 1417
 D.F. 1415
 G.L. 1405

Date	7/16/18		
Run Number	ONE		
Depth Driller	5600		
Depth Logger	5598		
Bottom Logged Interval	5596		
Top Log Interval	00		
Casing Driller	8 5/8"@307'		
Casing Logger	307		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,000 PPM	
Density / Viscosity	9.2/57		
pH / Fluid Loss	9.5/10.8		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.850@90F		
Rmf @ Meas. Temp	.638@90F		
Rmc @ Meas. Temp	1.02@90F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.588@130F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	6:00 A.M.		
Maximum Recorded Temperature	130F		
Equipment Number	922339		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	AARON YOUNG		

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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 ELI WIRELINE HAYS, KANSAS (785) 628-6395
 DIRECTIONS
 HARDTNER, KS., E. ON HWY 160 TO "CLAIRMONT RD.", 1/2N., E. INTO



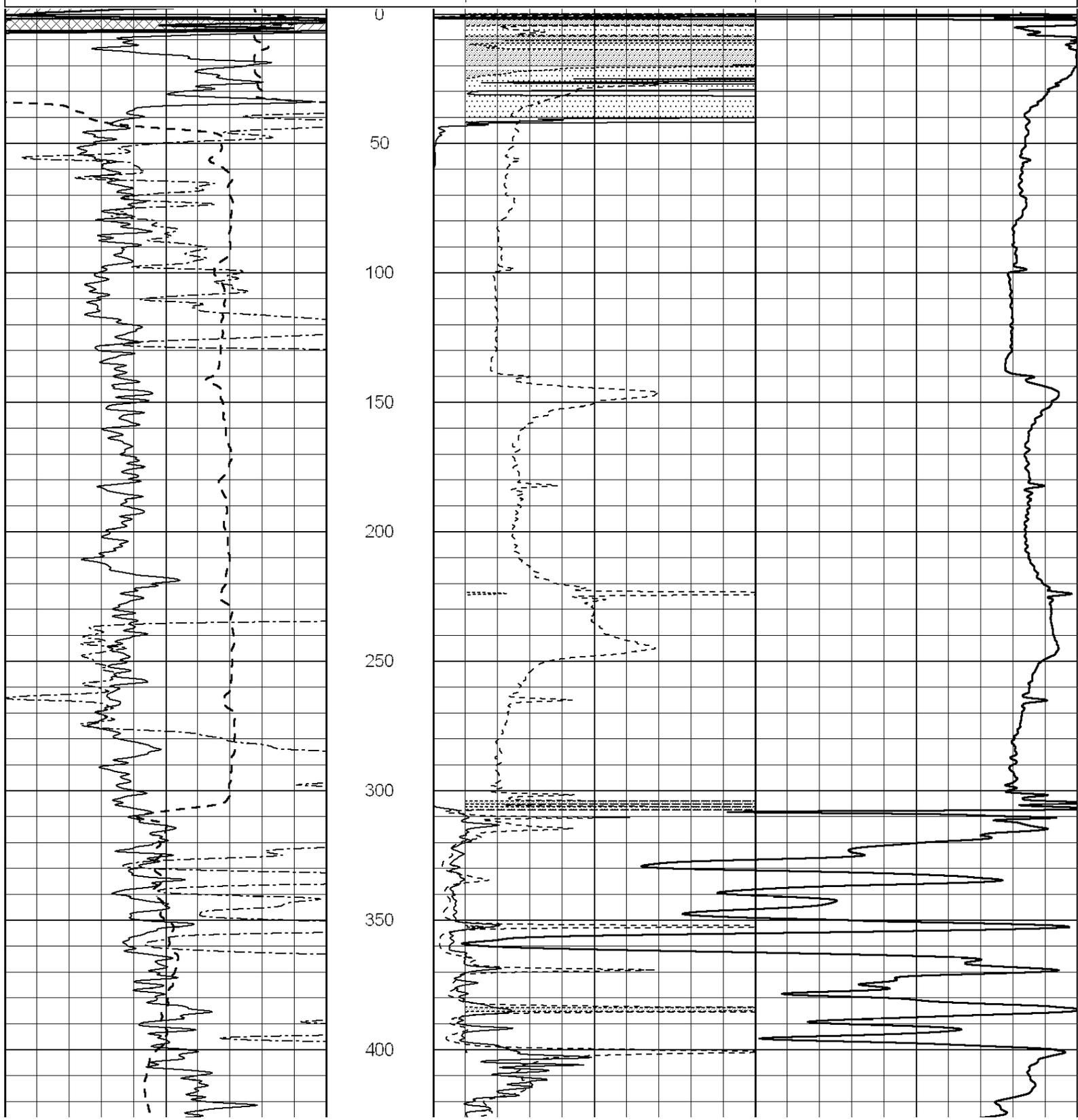
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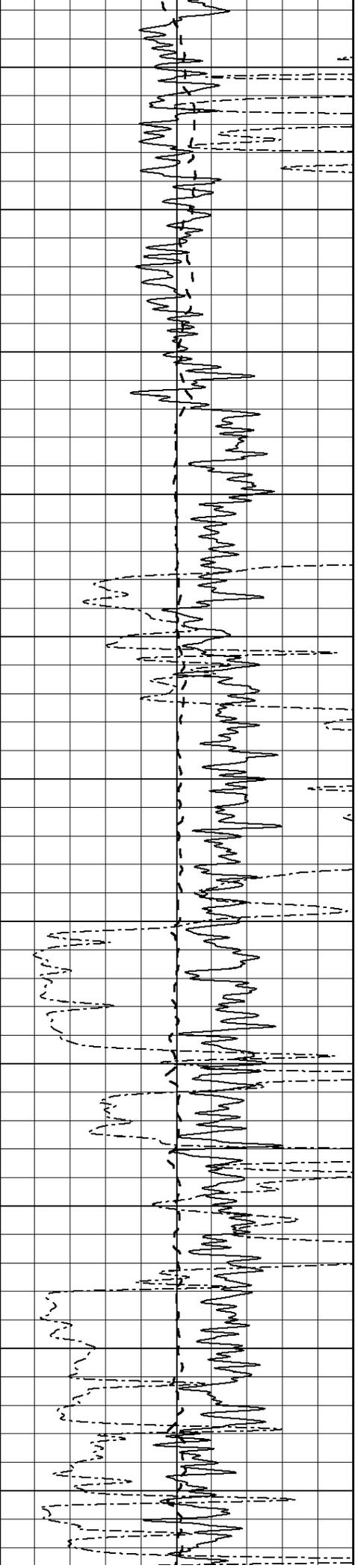
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 Dataset Pathname: pass3.10
 Presentation Format: dil2
 Dataset Creation: Mon Jul 16 07:45:37 2018 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1

0	RLL3 (Ohm-m)	50
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

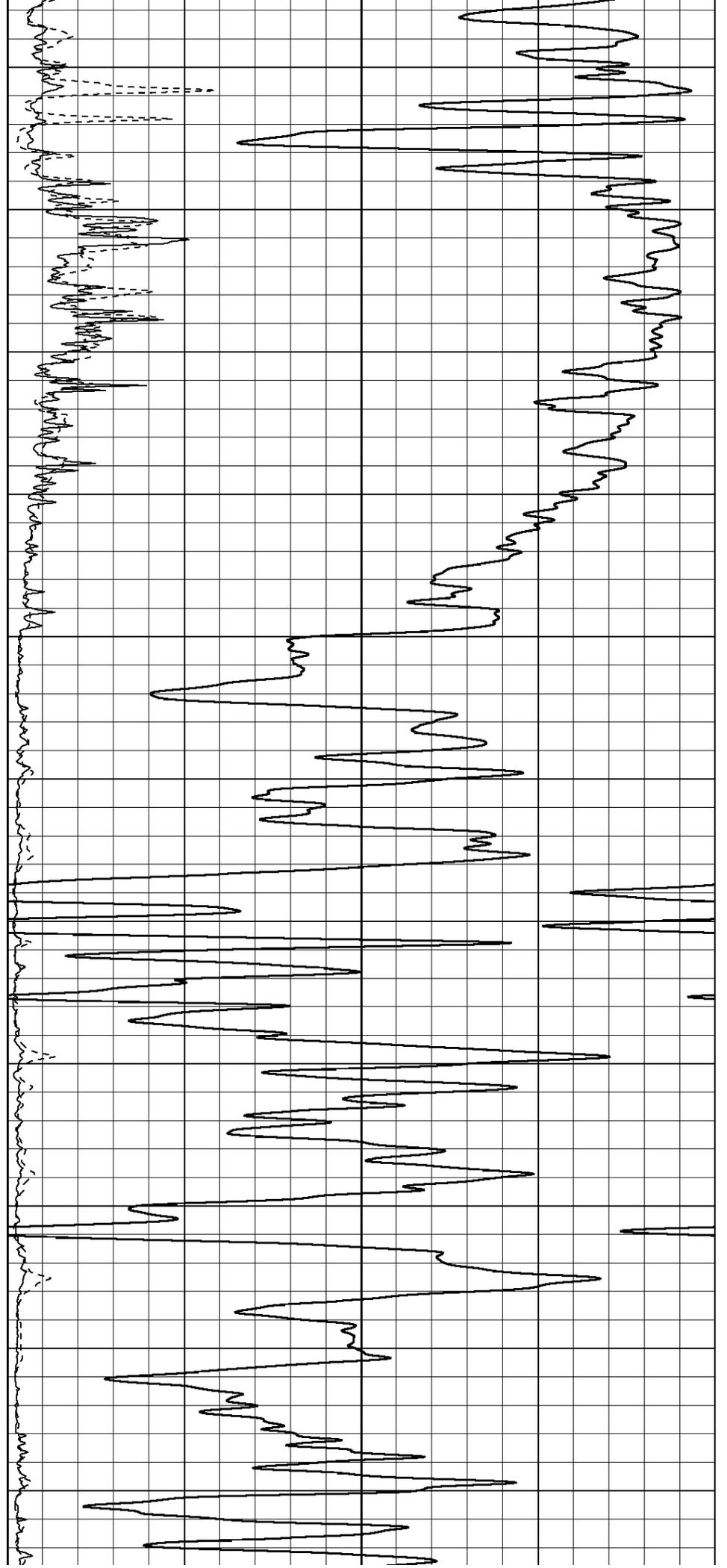
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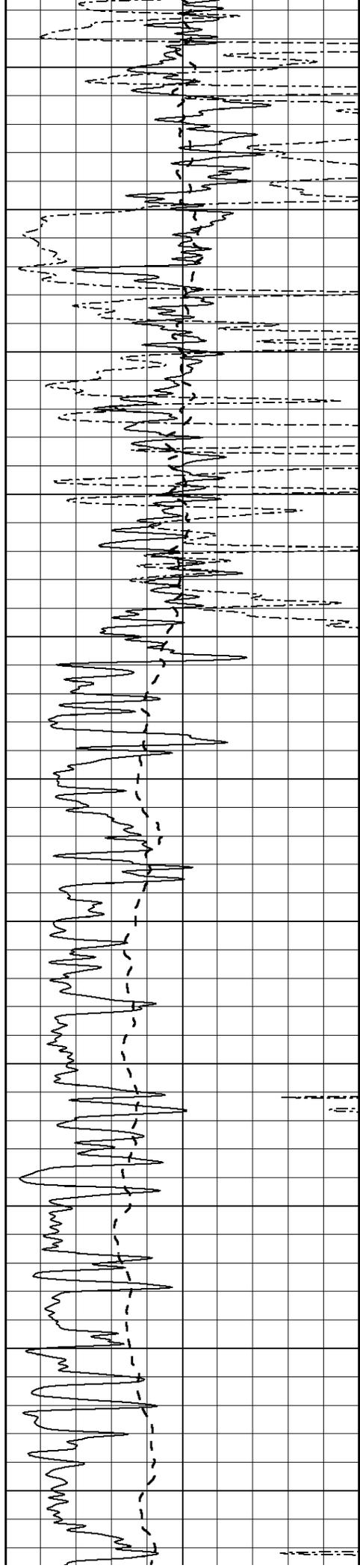
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850

900

950





1000

1050

1100

1150

1200

1250

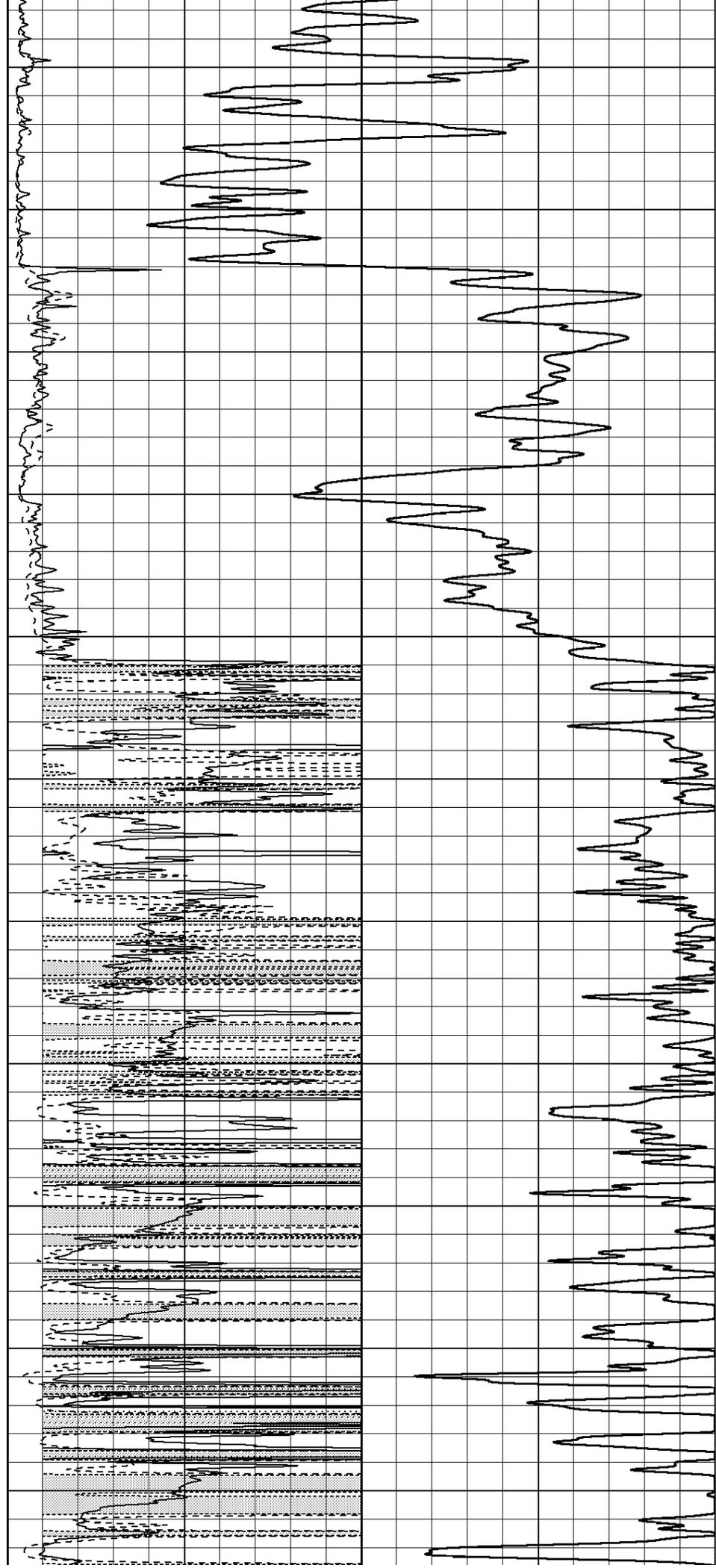
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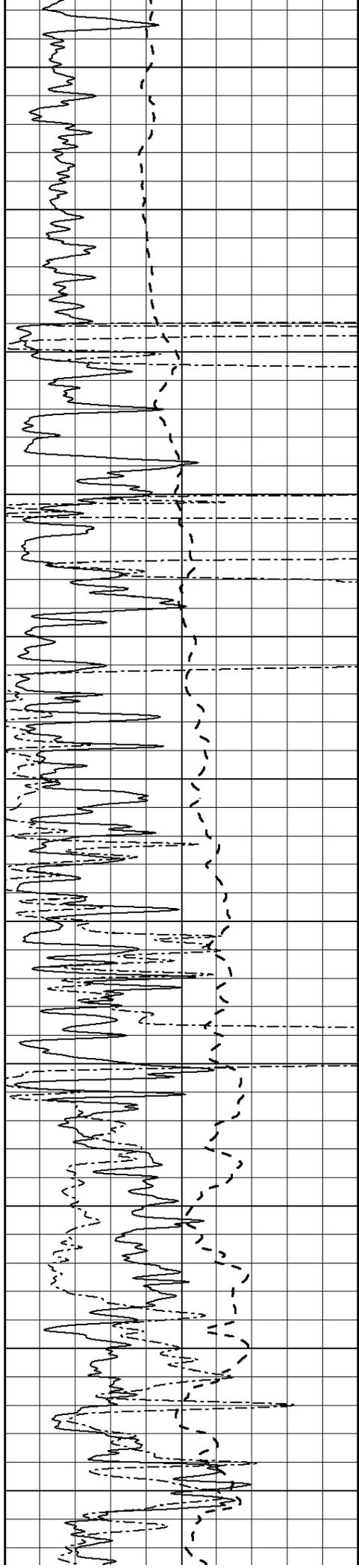
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1400

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1500





1550

1600

1650

1700

1750

1800

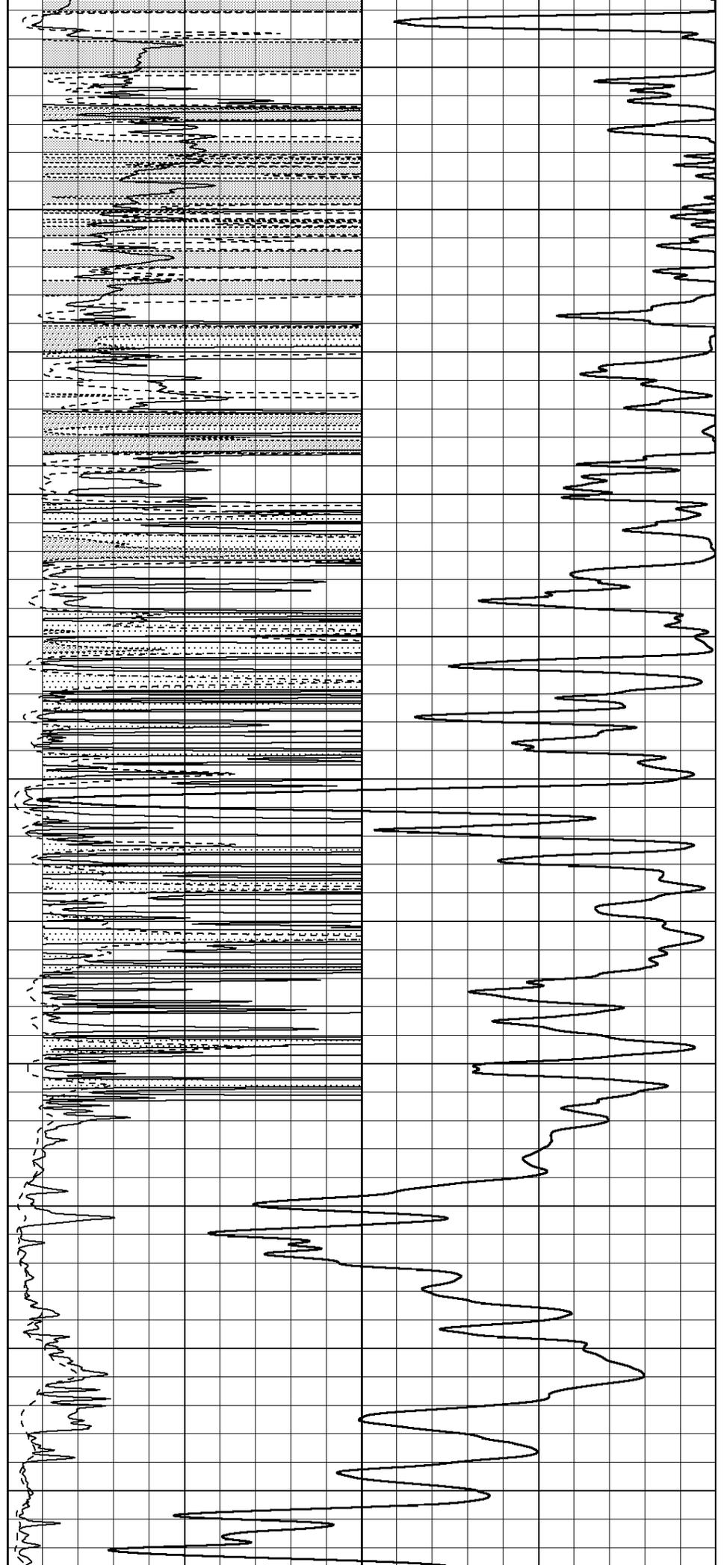
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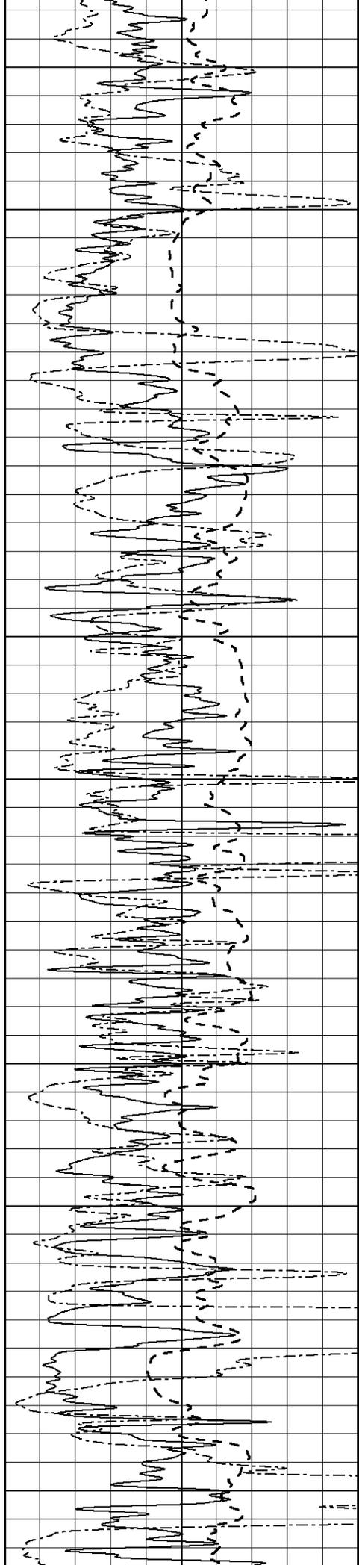
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2000

2050





2100

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2250

2300

2350

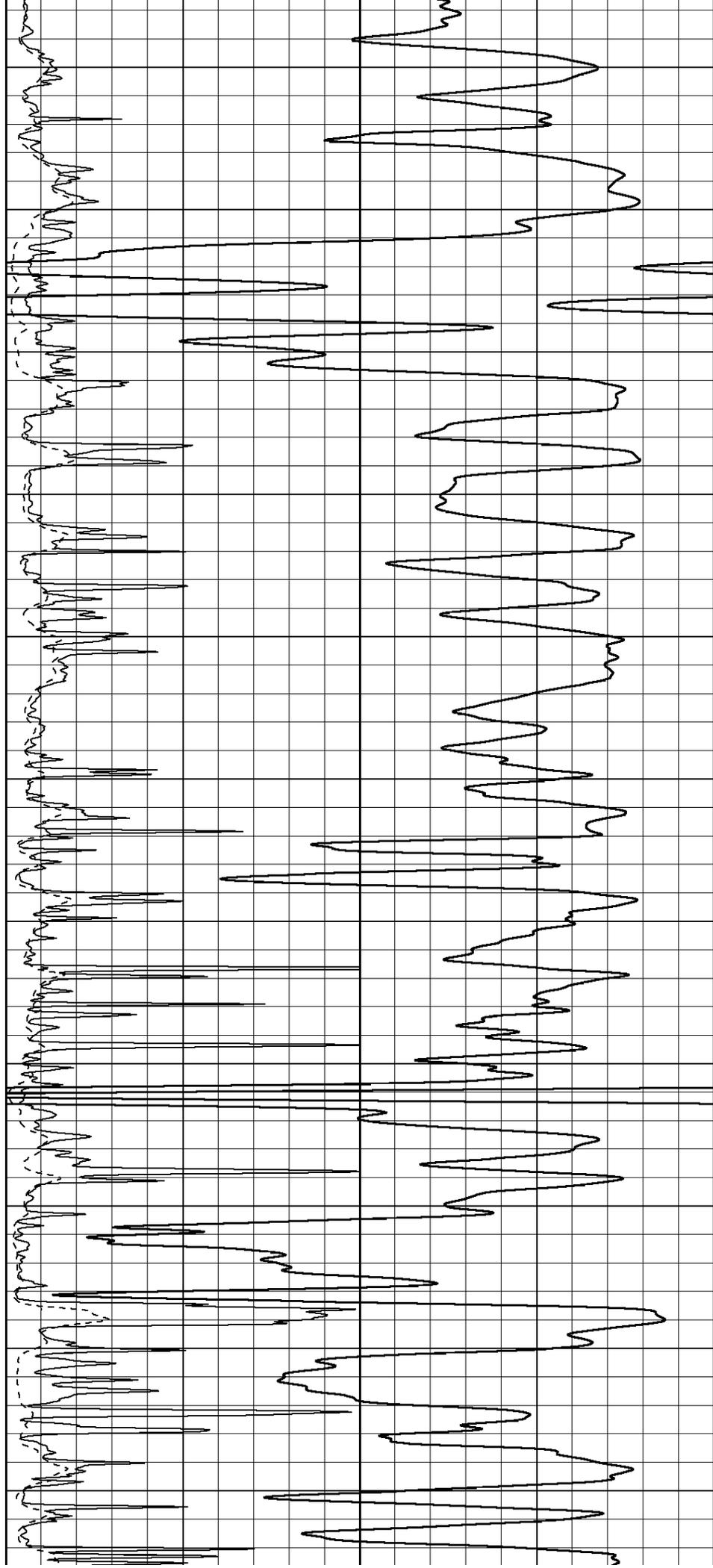
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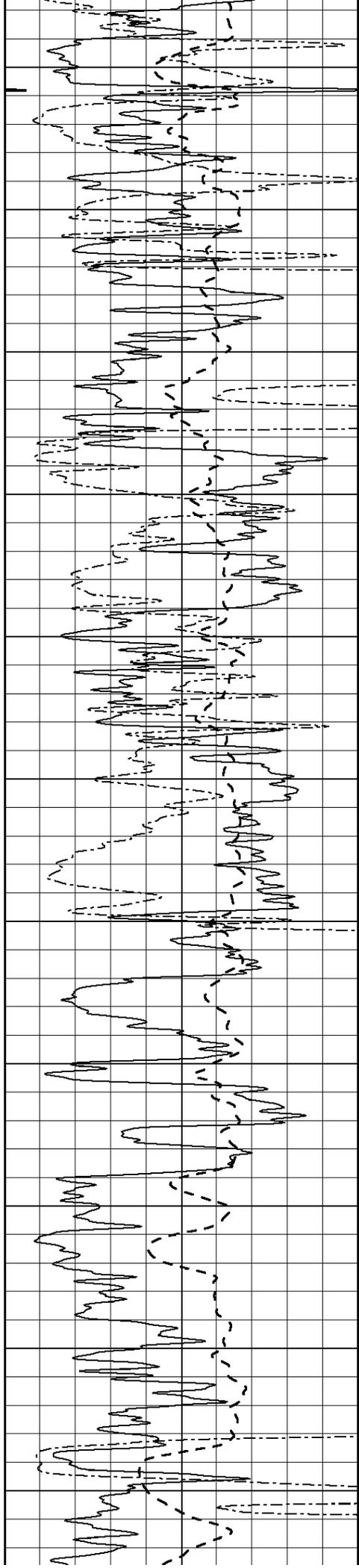
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2500

2550

2600





2650

2700

2750

2800

2850

2900

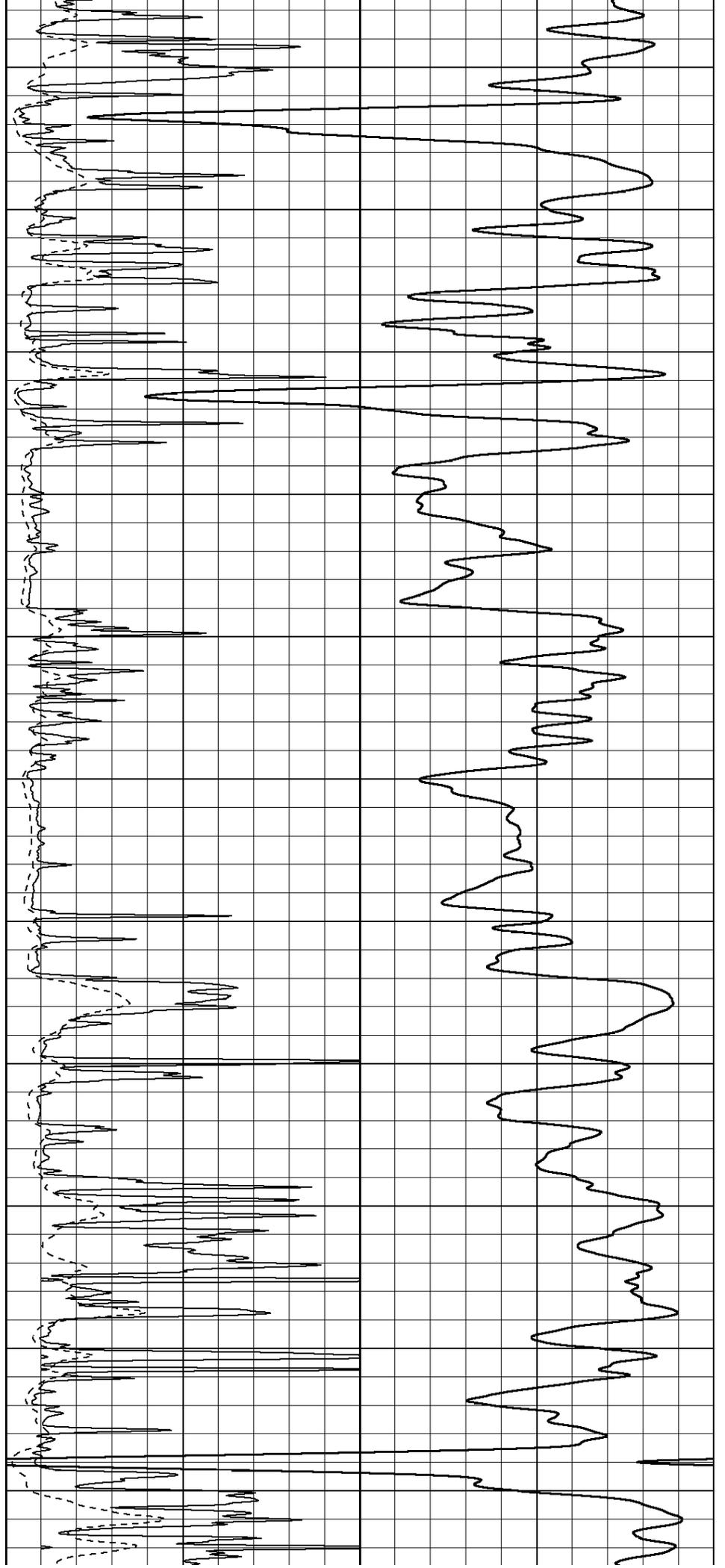
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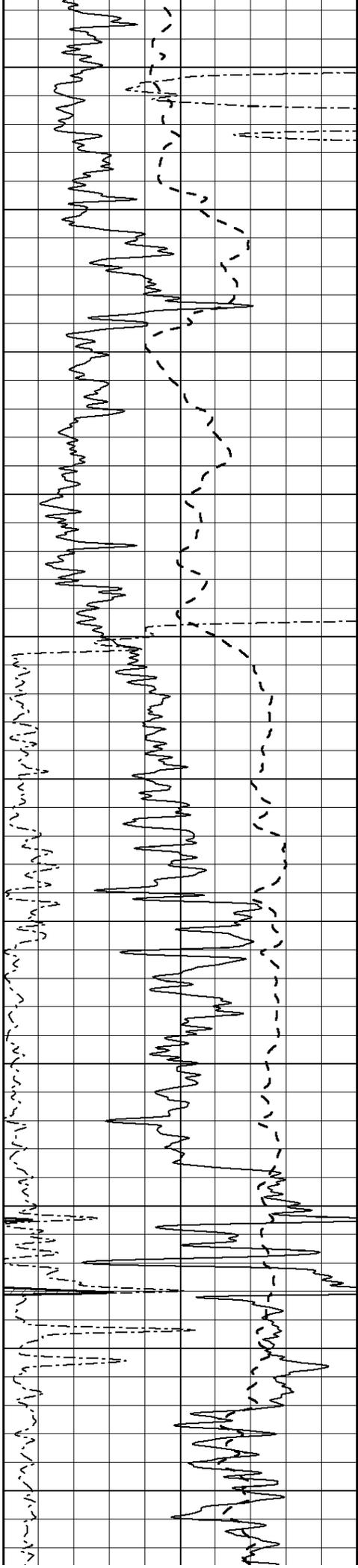
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3050

3100

3150





3200

3250

3300

3350

3400

3450

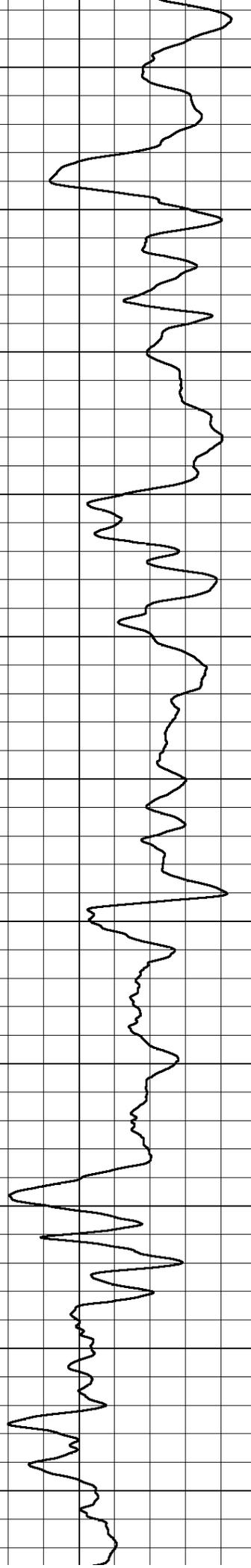
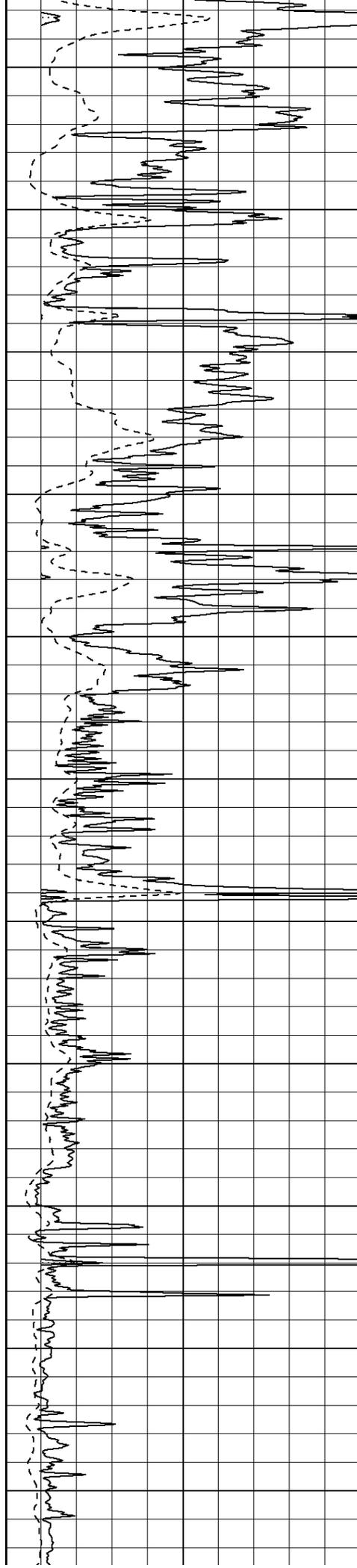
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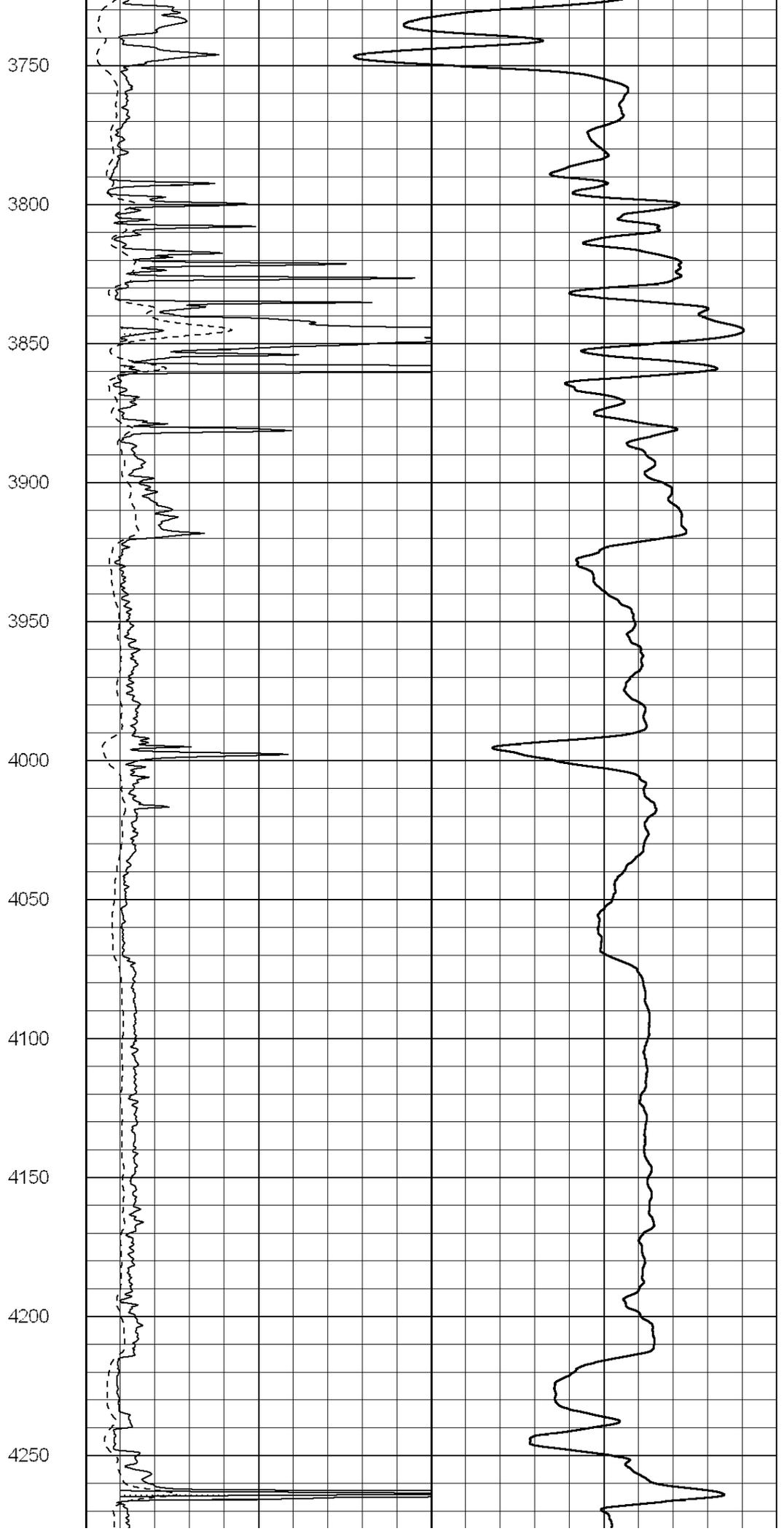
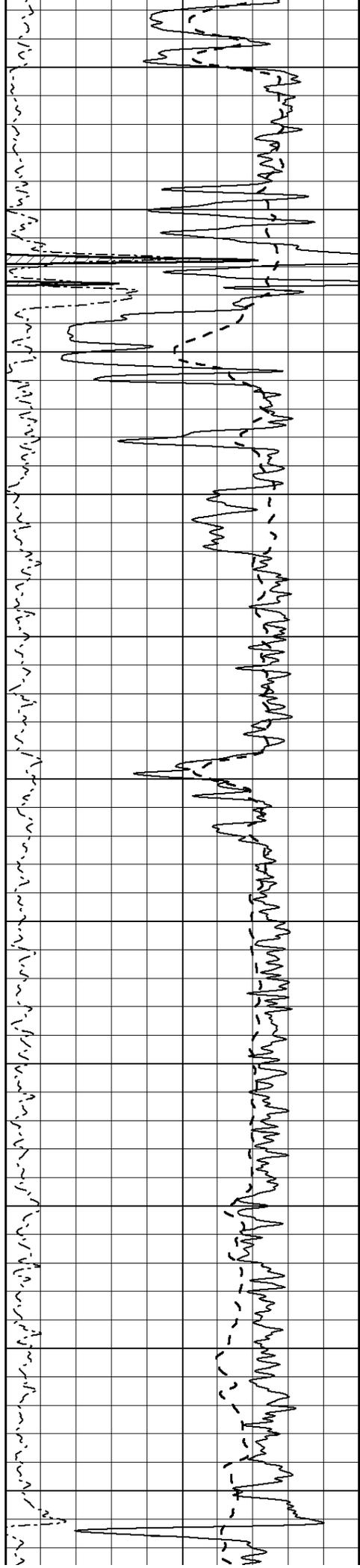
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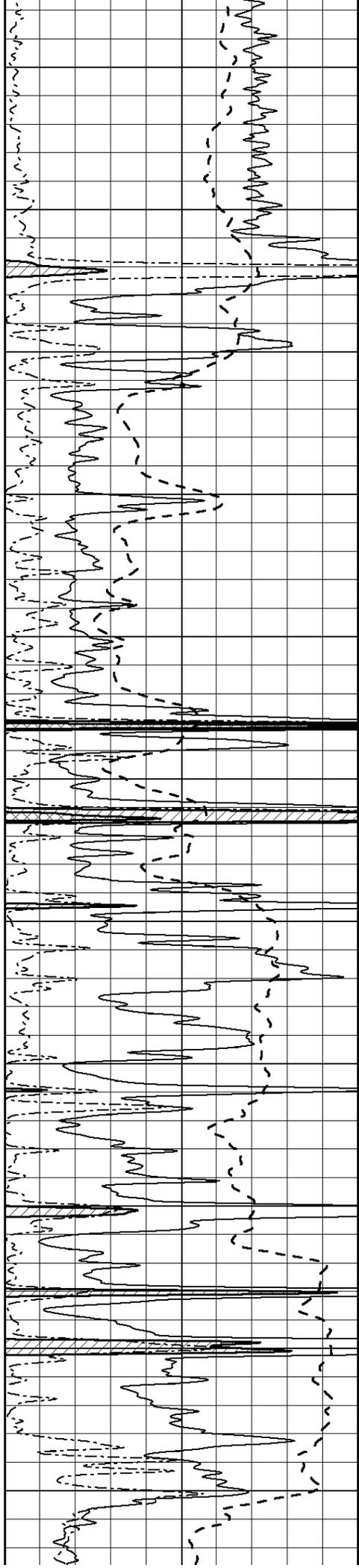
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3700







4300

4350

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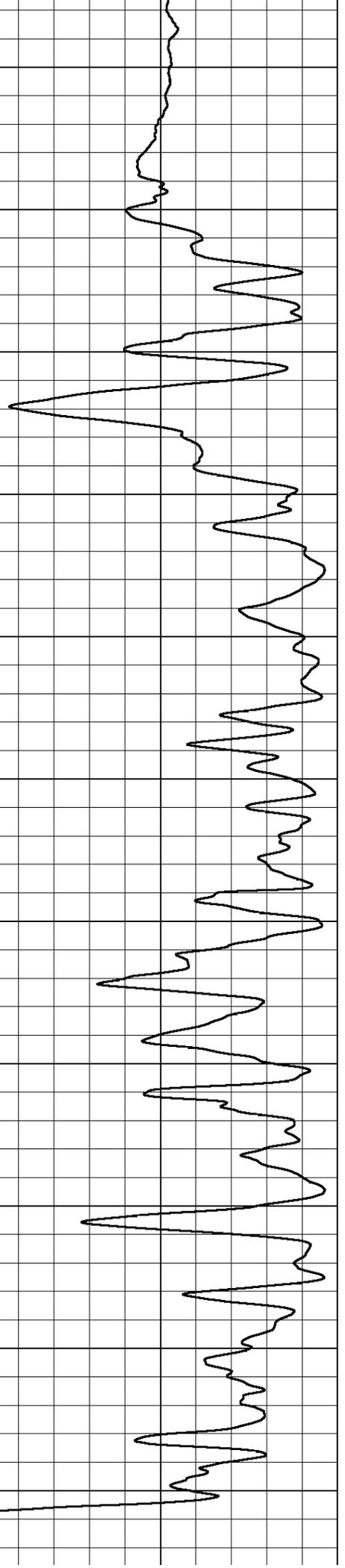
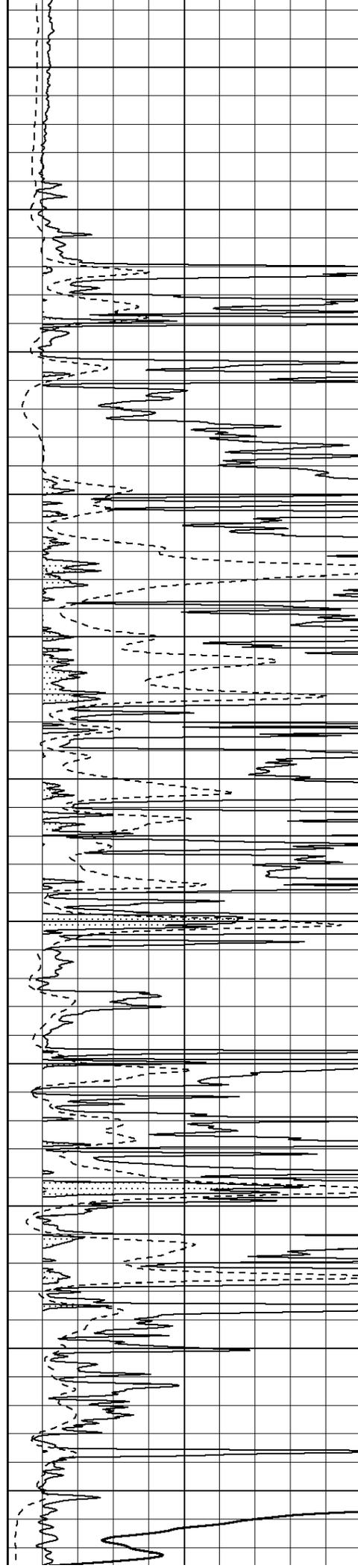
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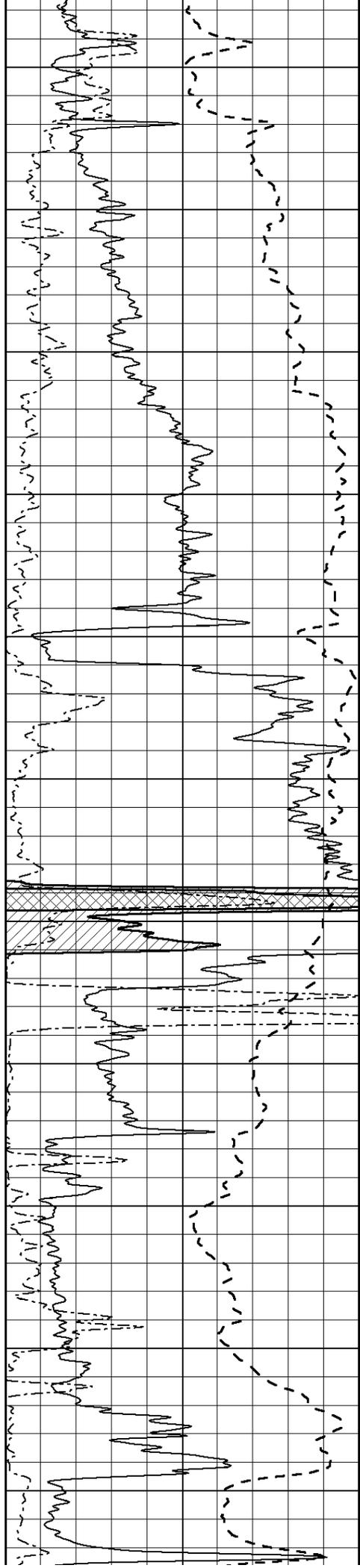
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4750

4800





4850

4900

4950

5000

5050

5100

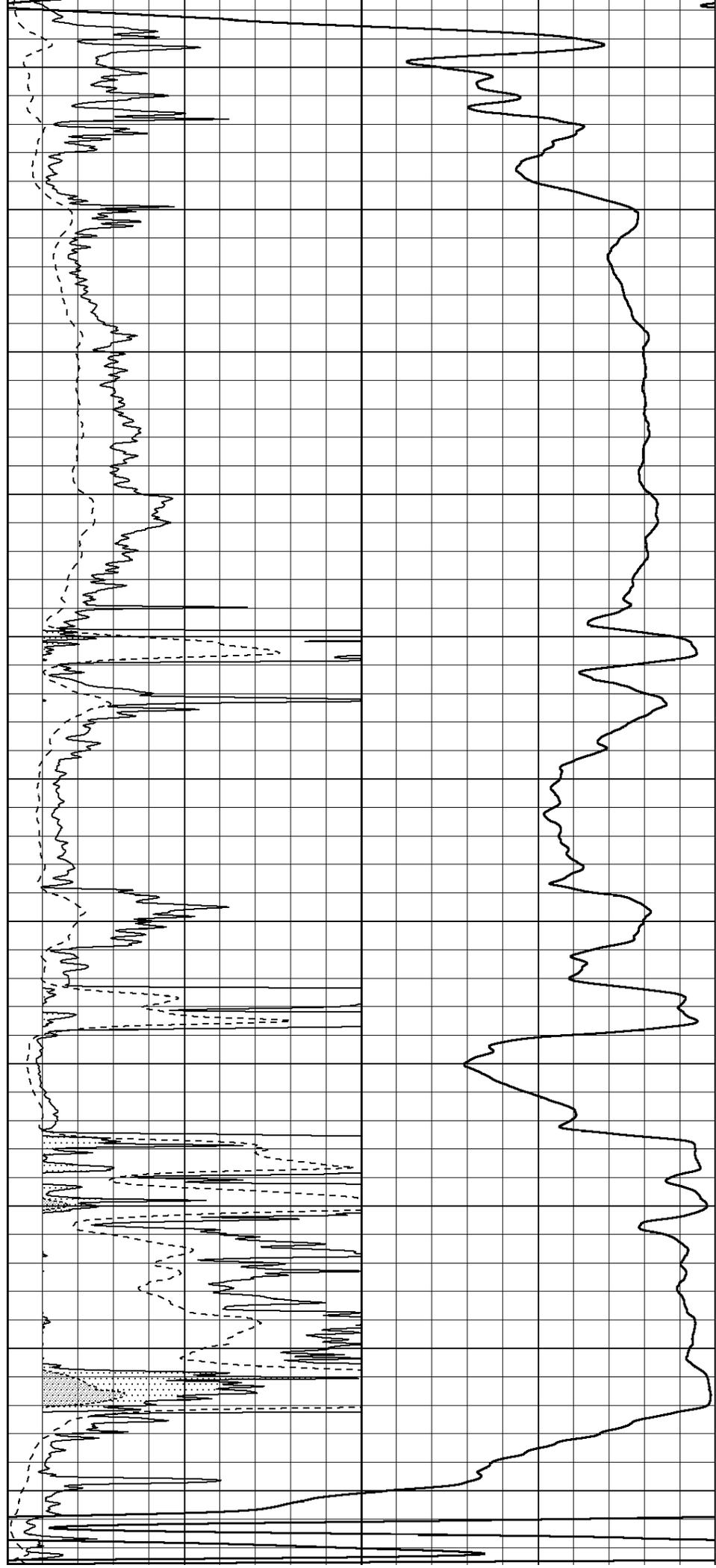
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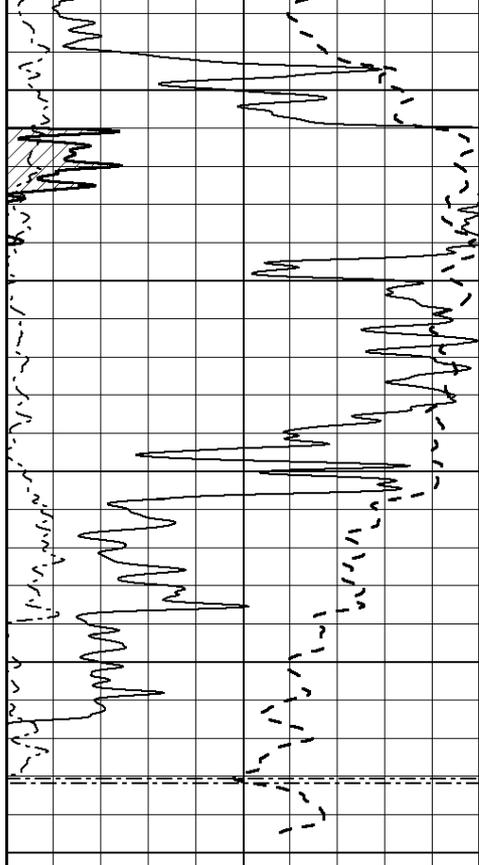
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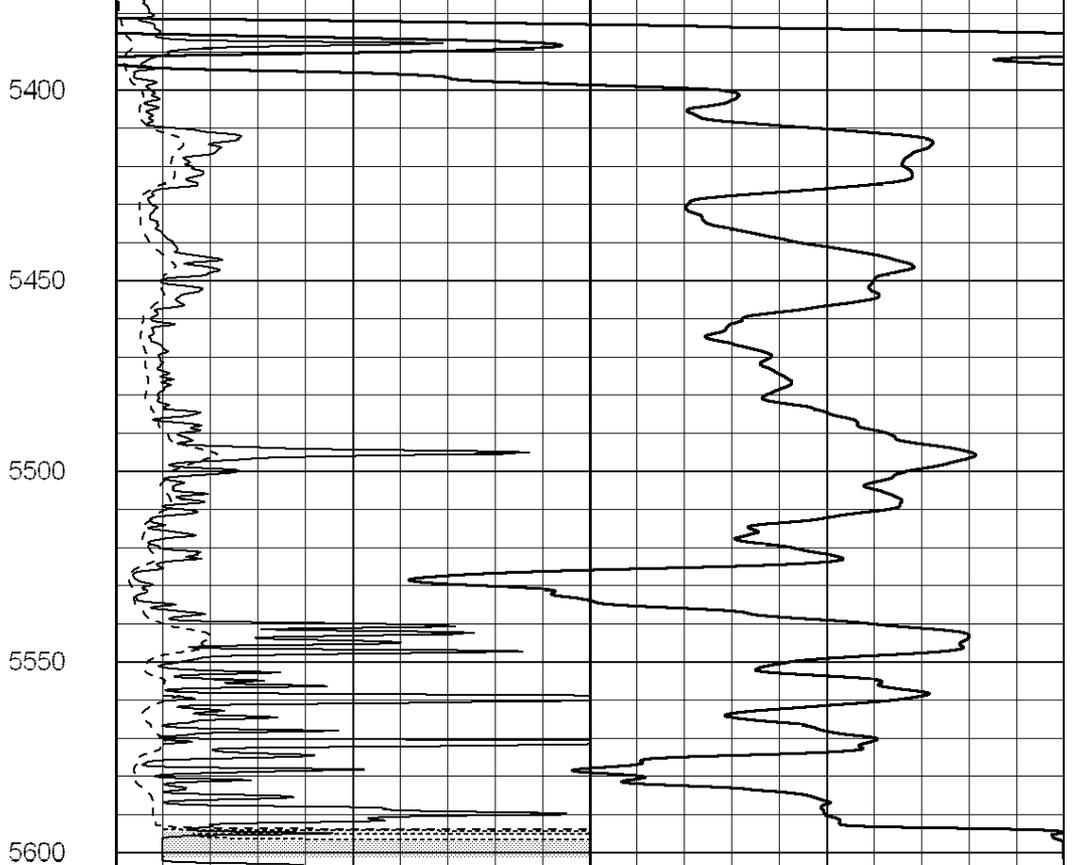
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0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1



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

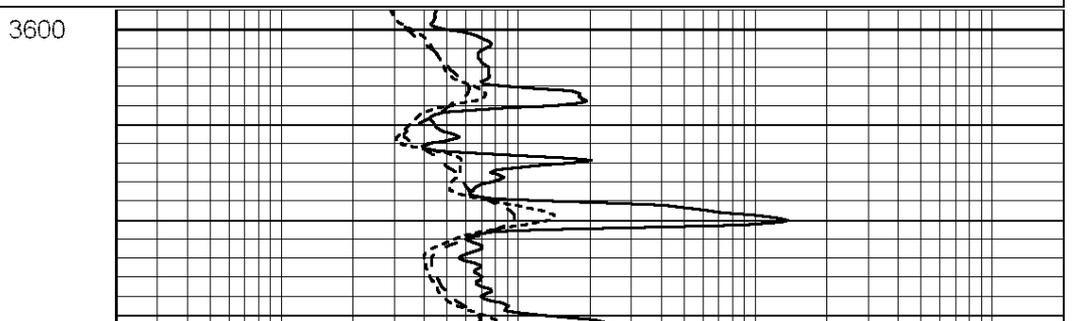
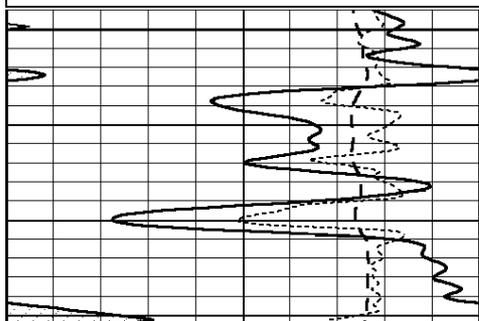


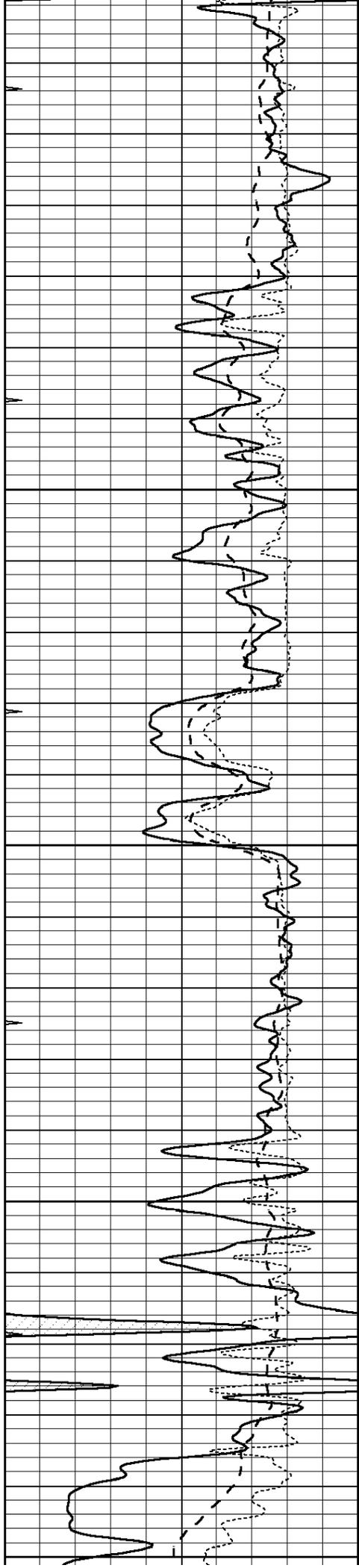
MAIN SECTION

Database File: 2662pe.db
 Dataset Pathname: pass3.10
 Presentation Format: _dil
 Dataset Creation: Mon Jul 16 07:45:37 2018 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

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





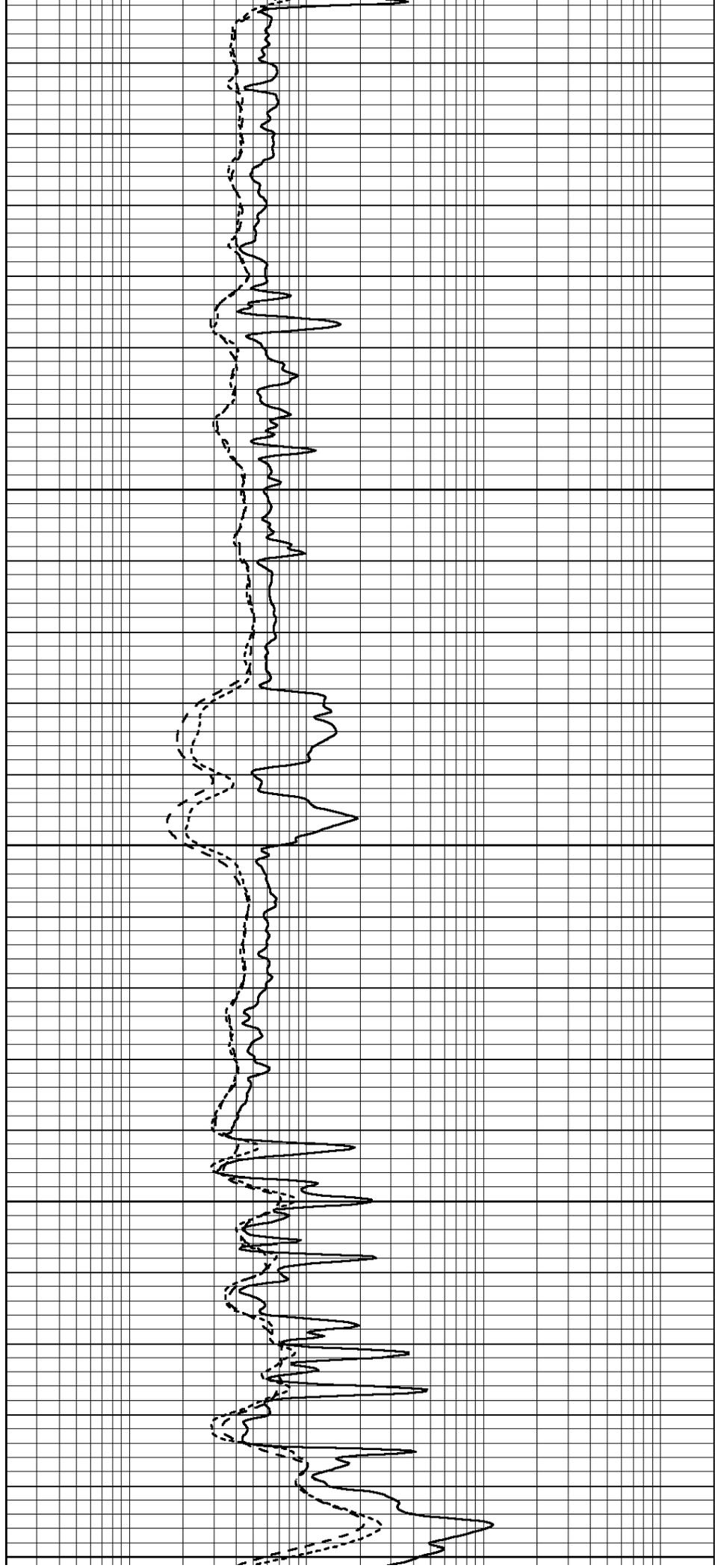
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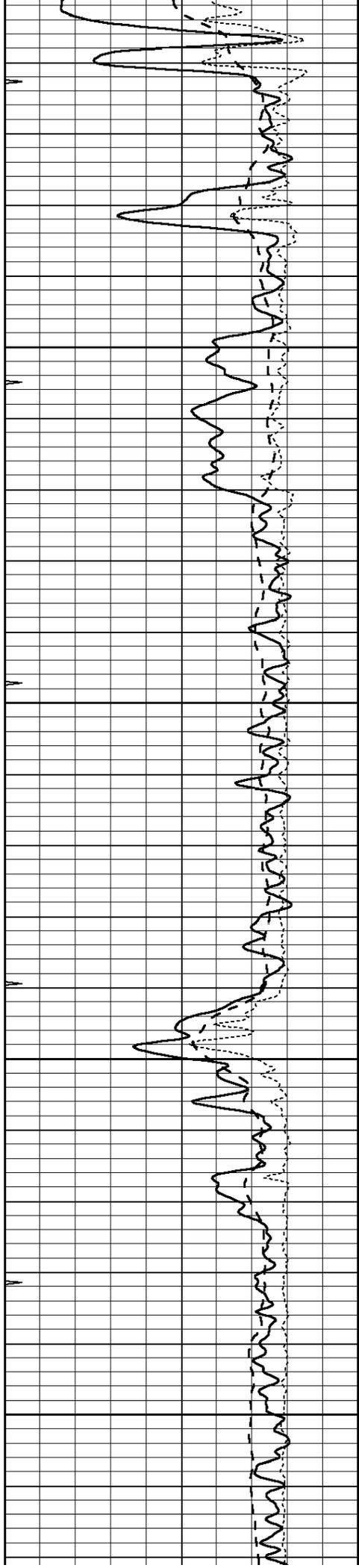
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3800

3850



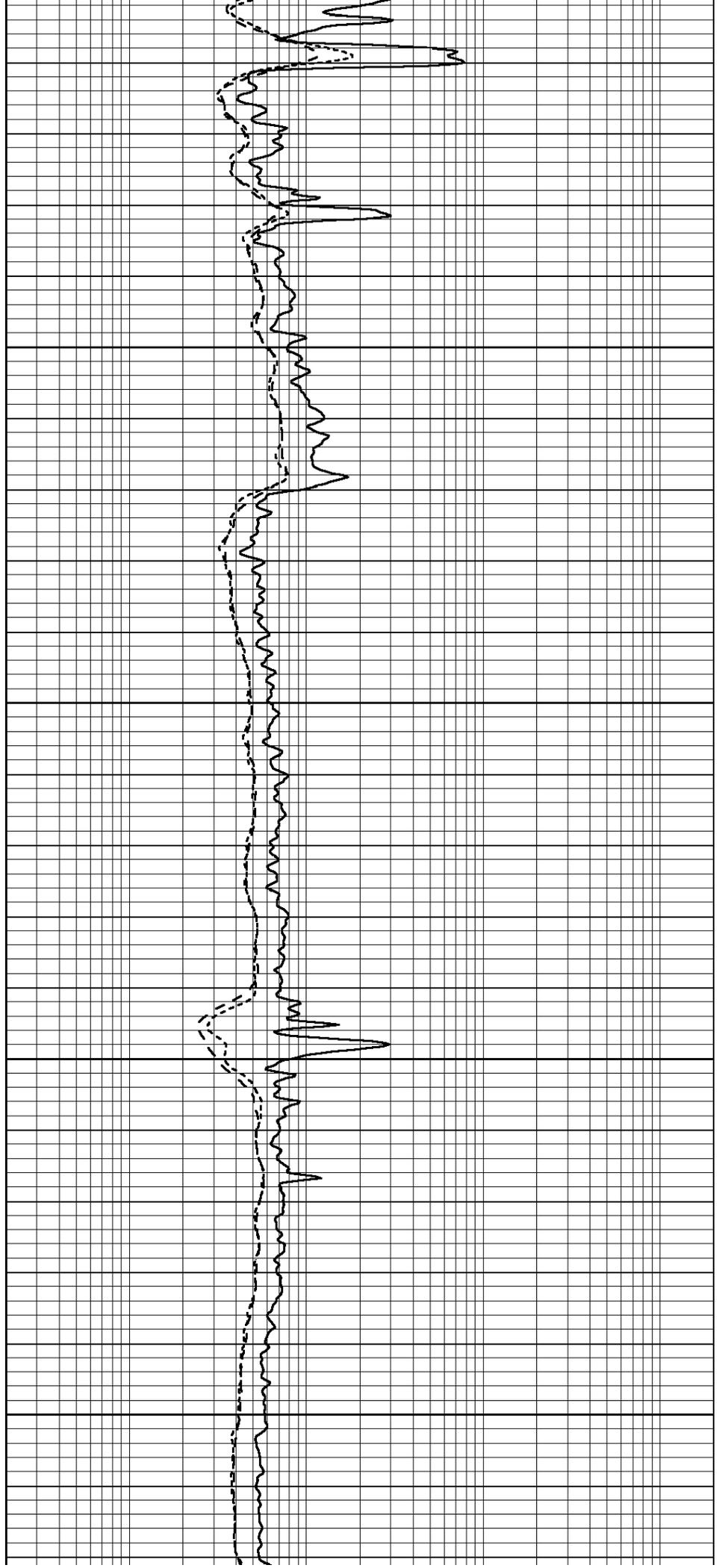


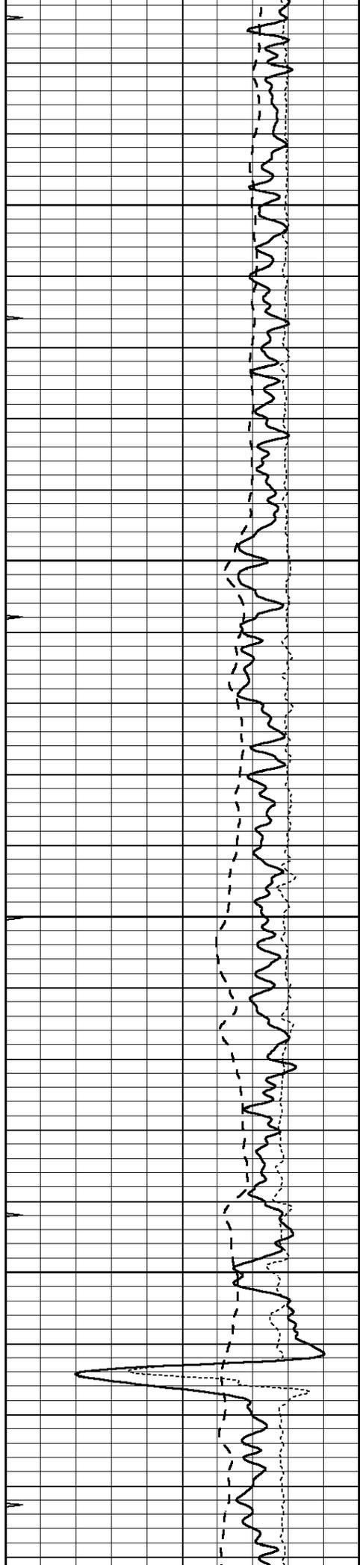
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3950

4000

4050



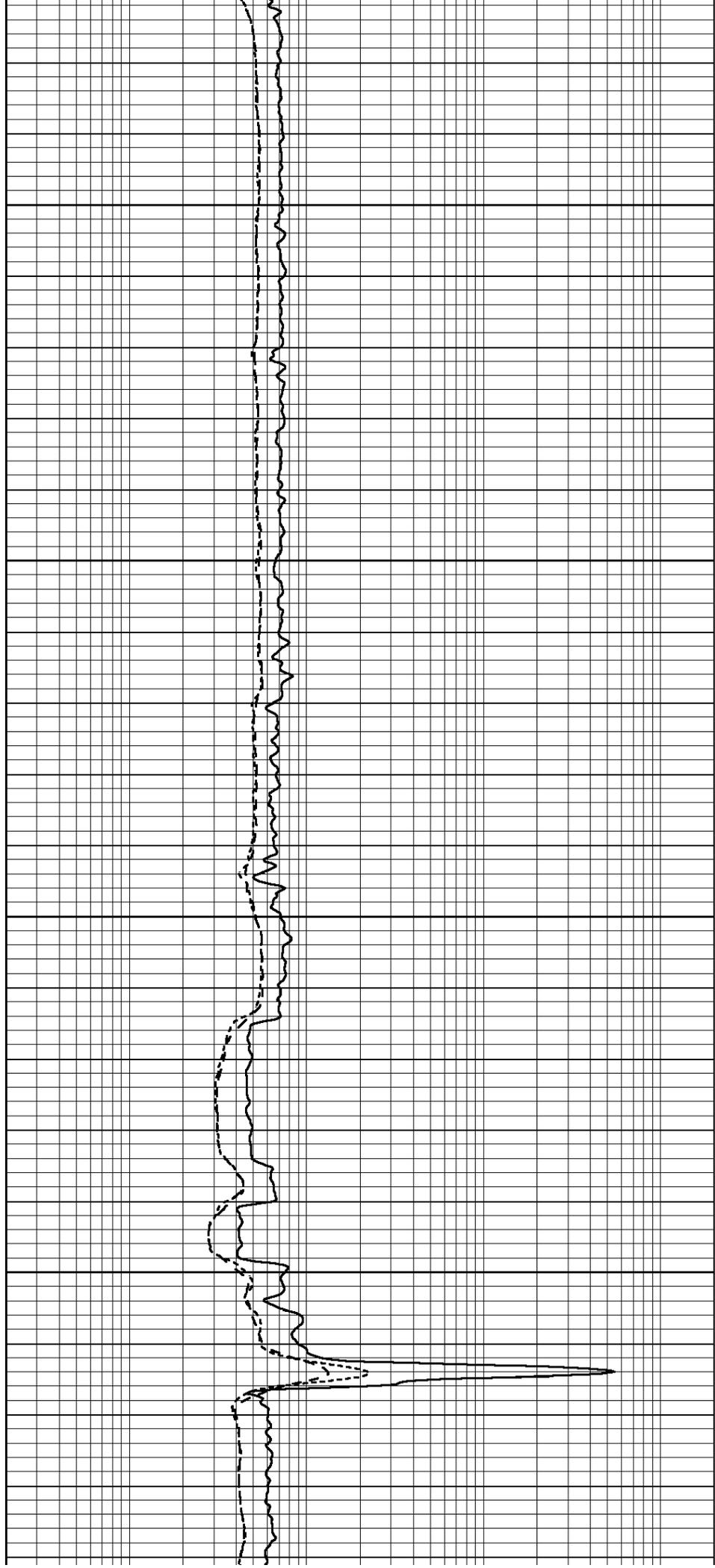


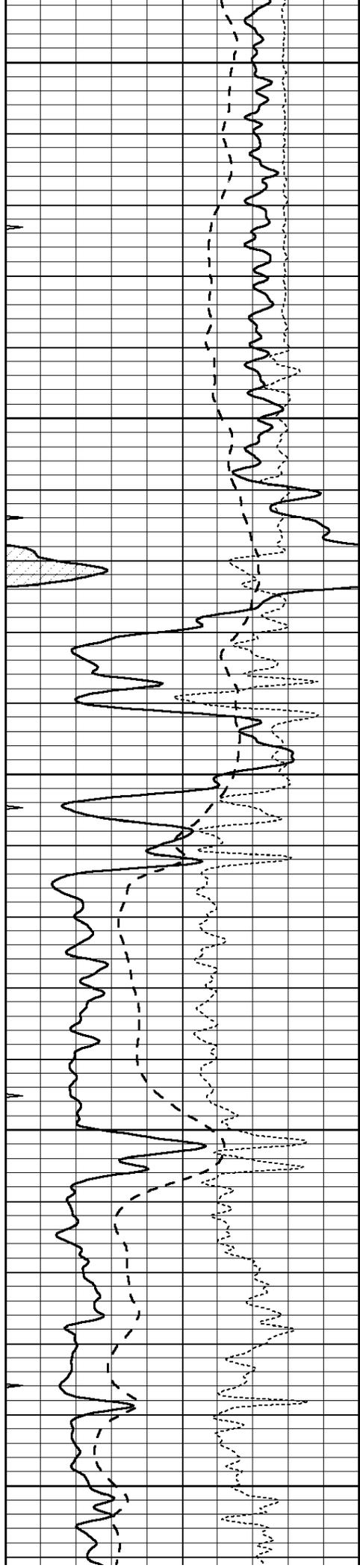
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4150

4200

4250





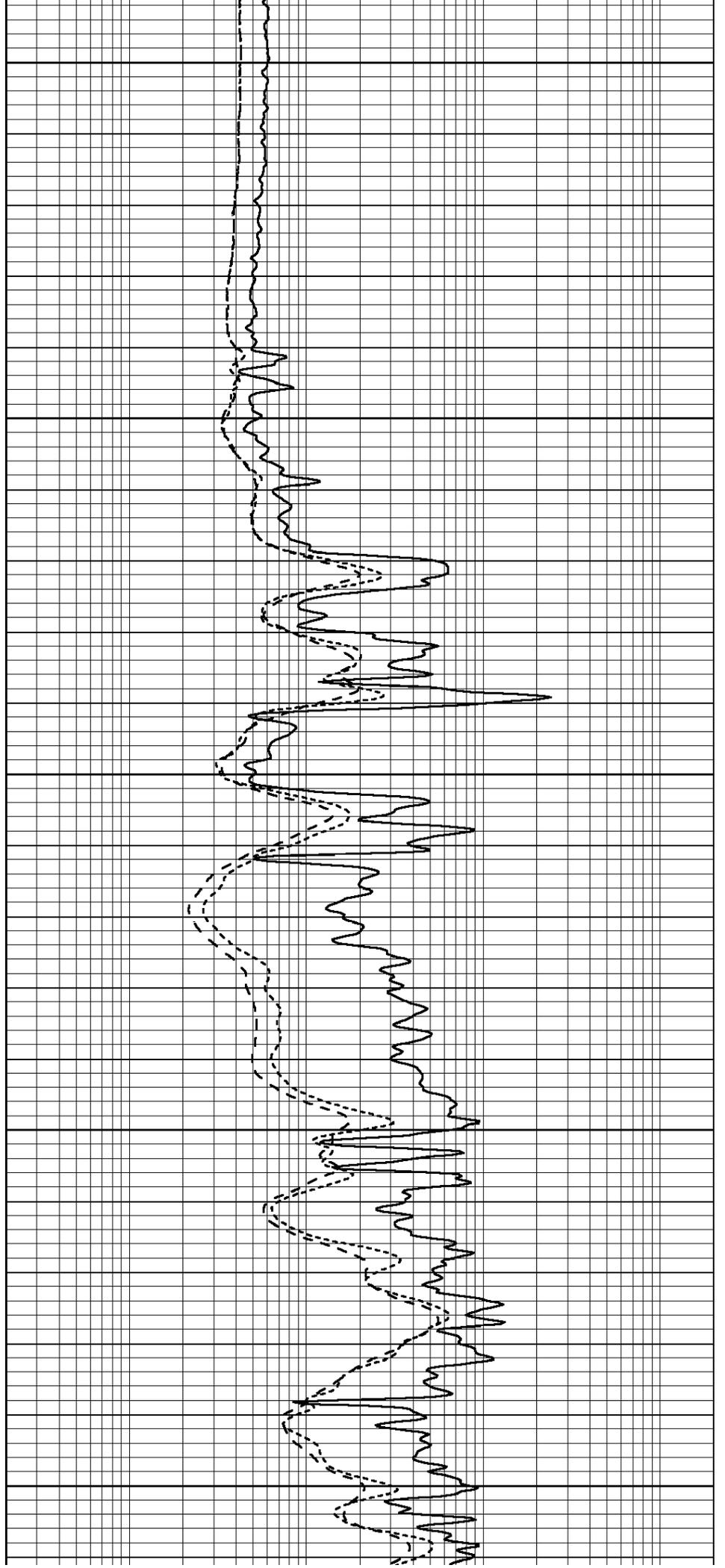
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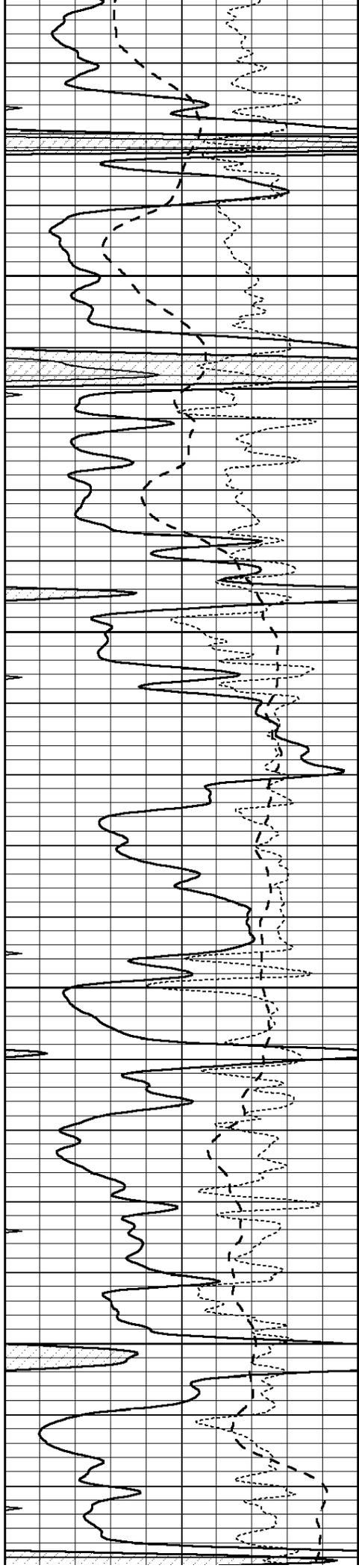
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4500



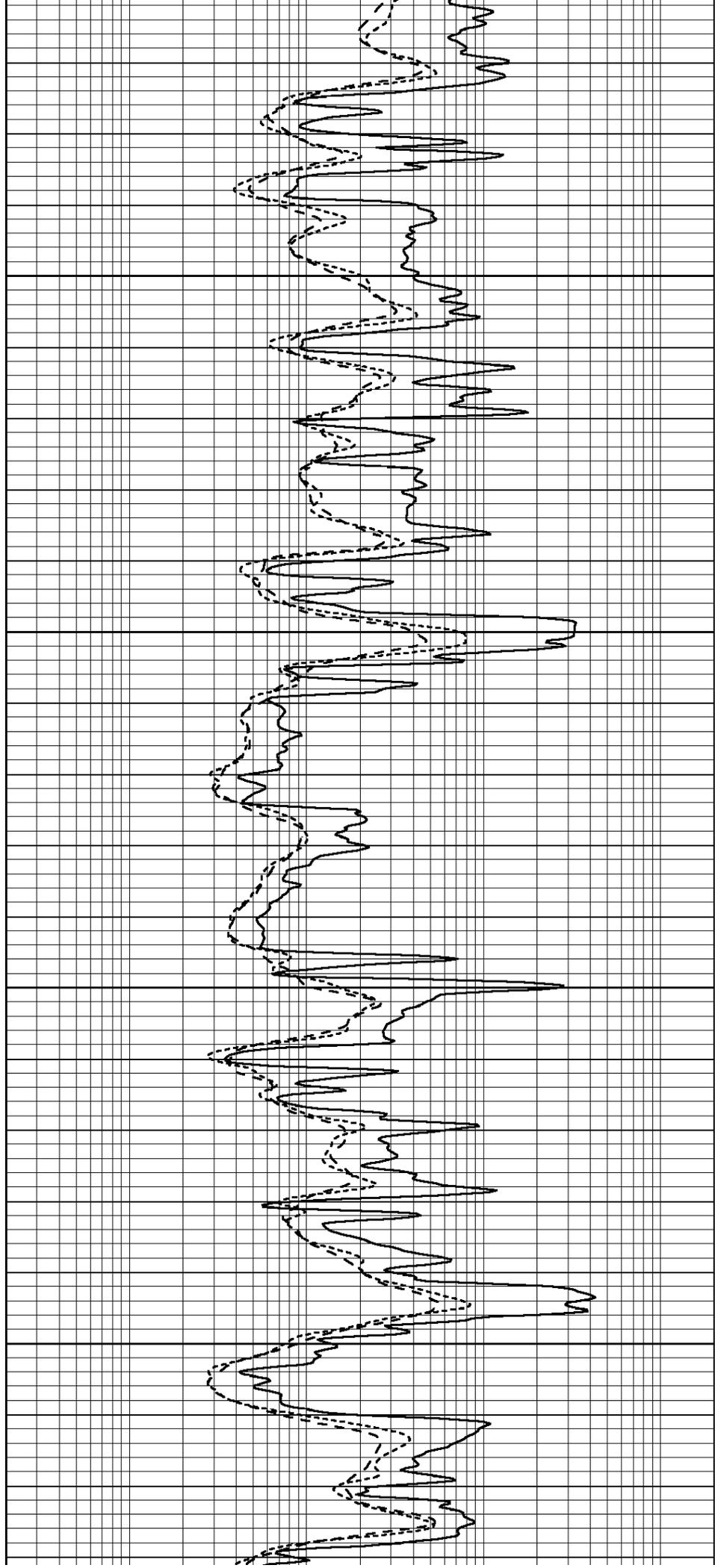


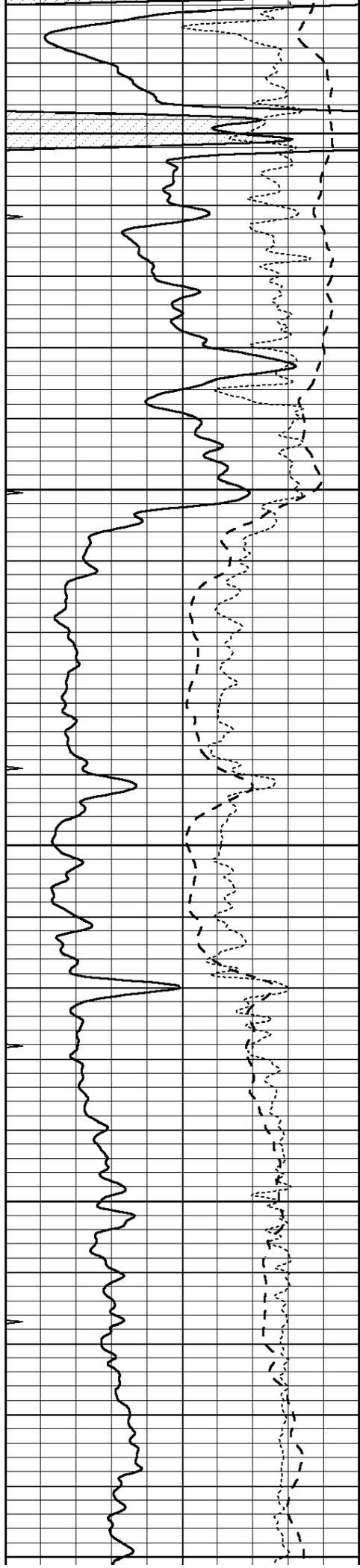
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4650

4700





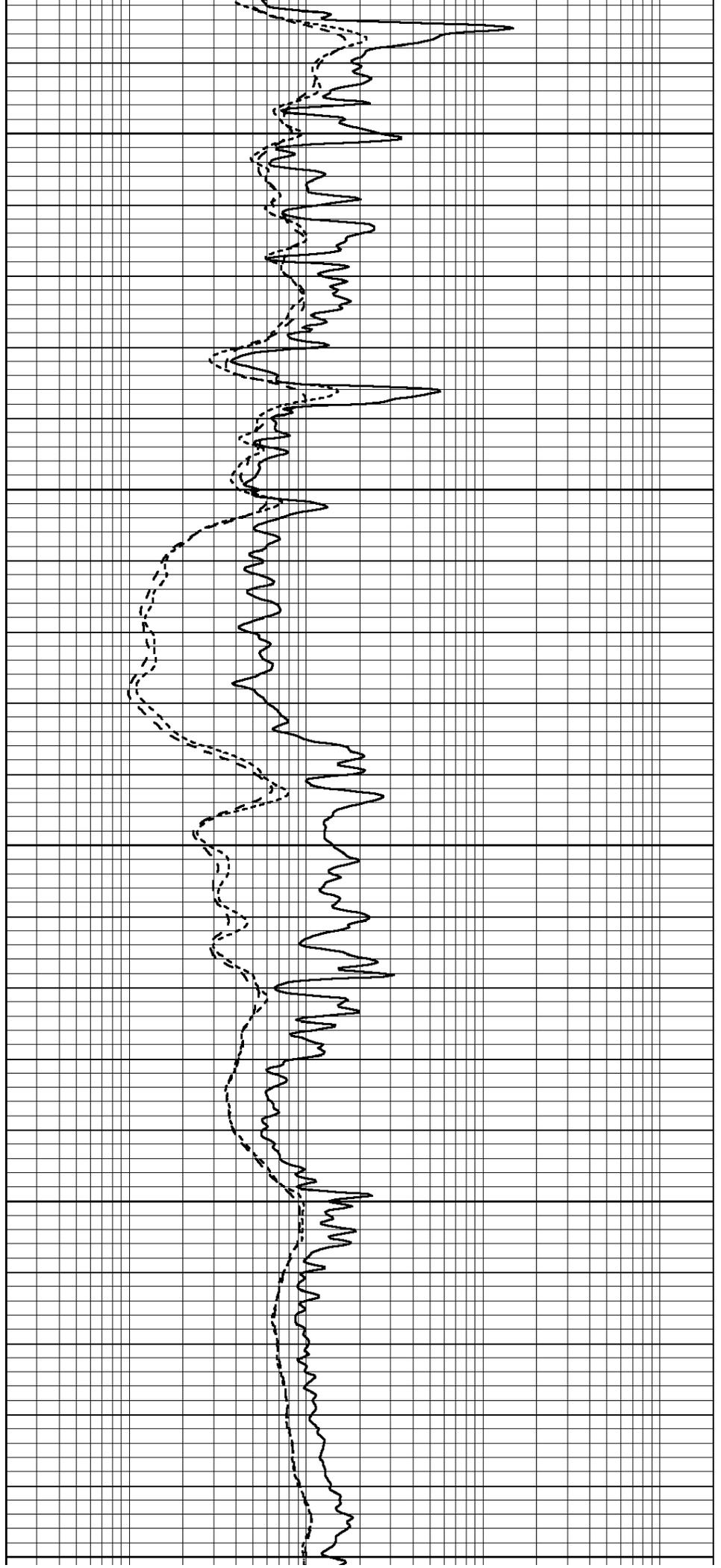
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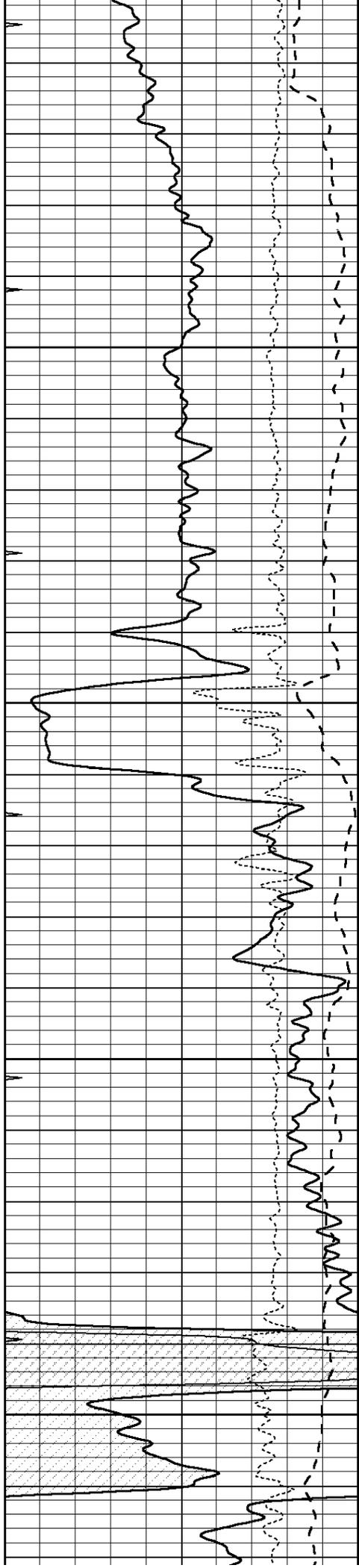
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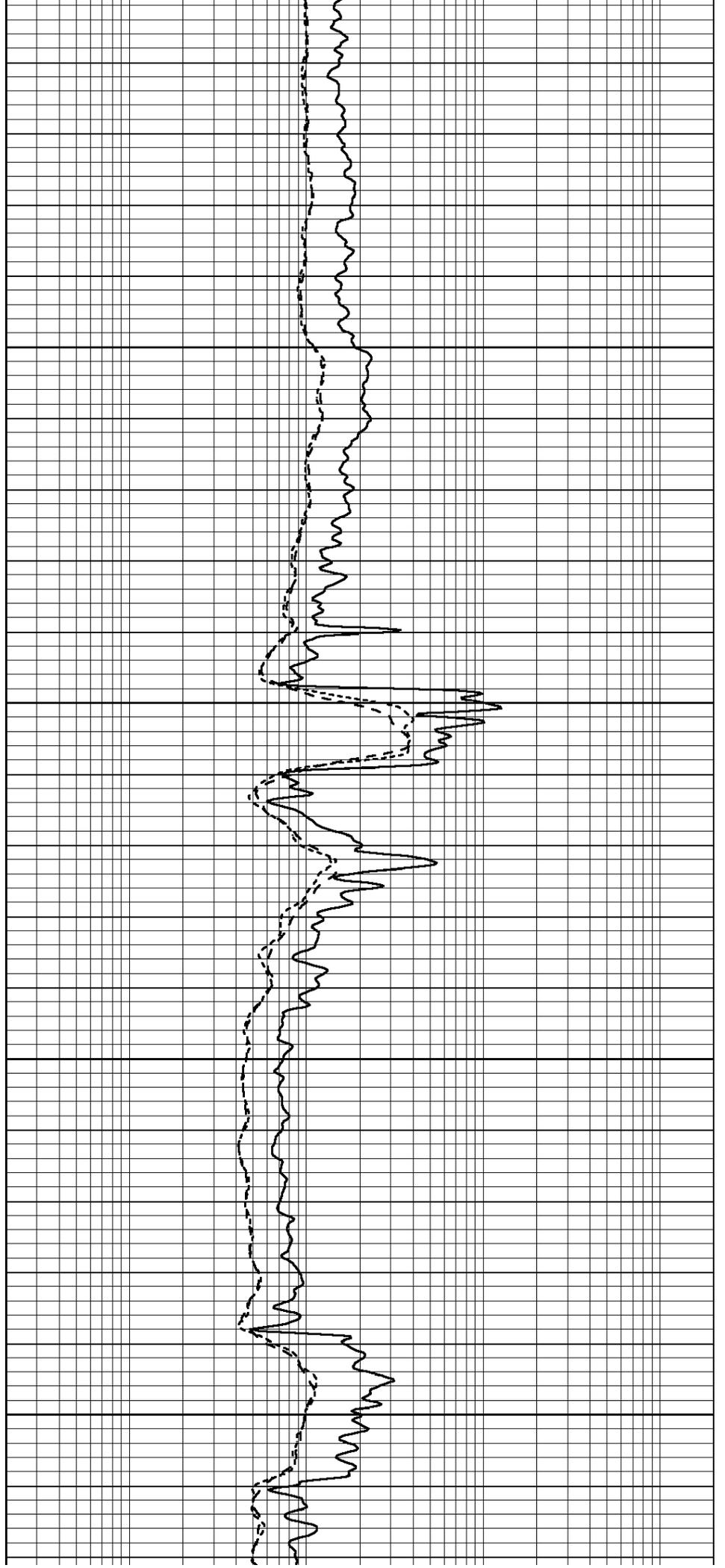


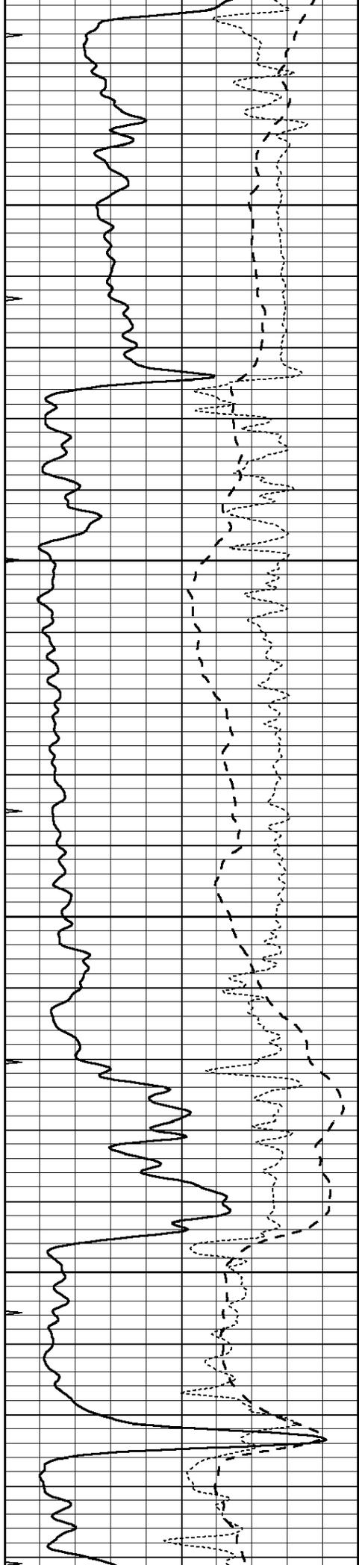
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5050

5100

5150



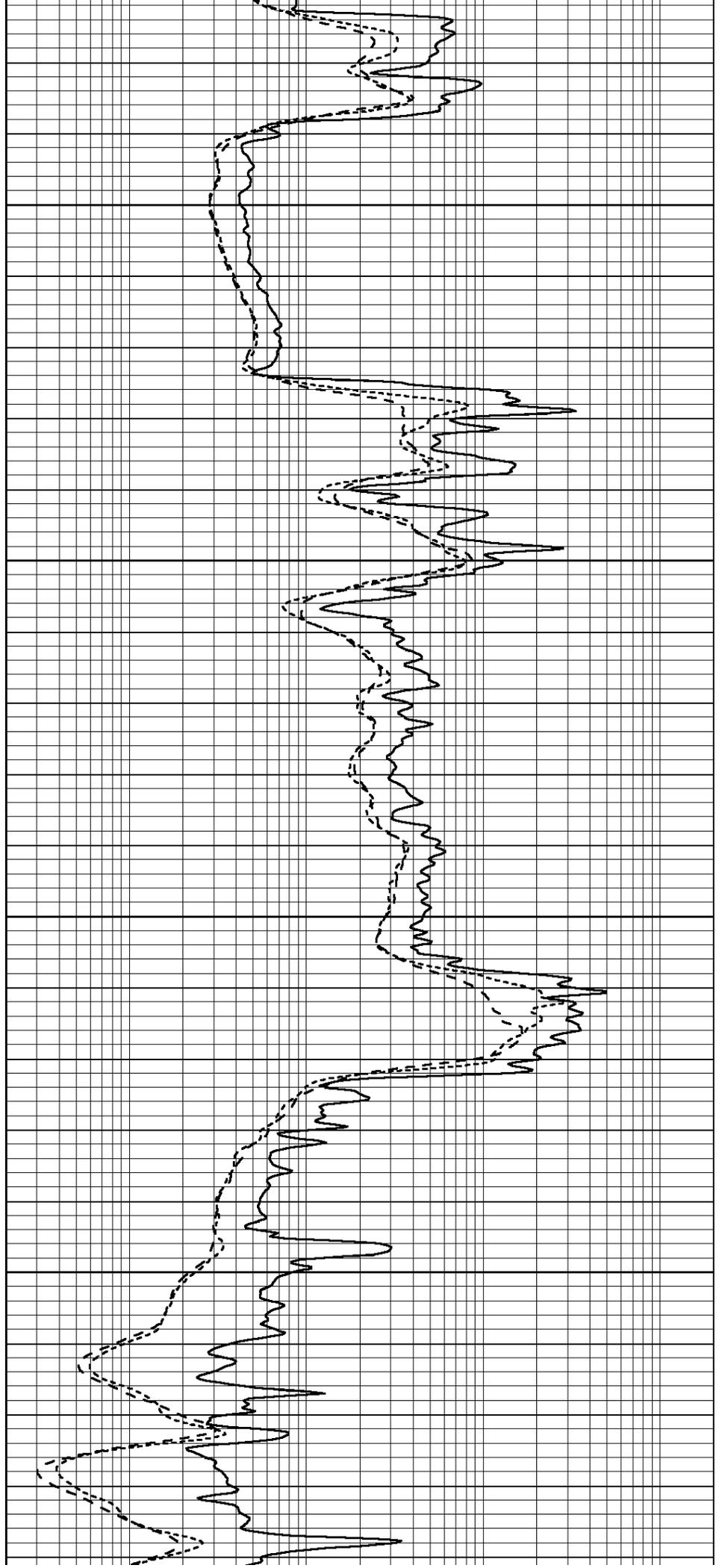


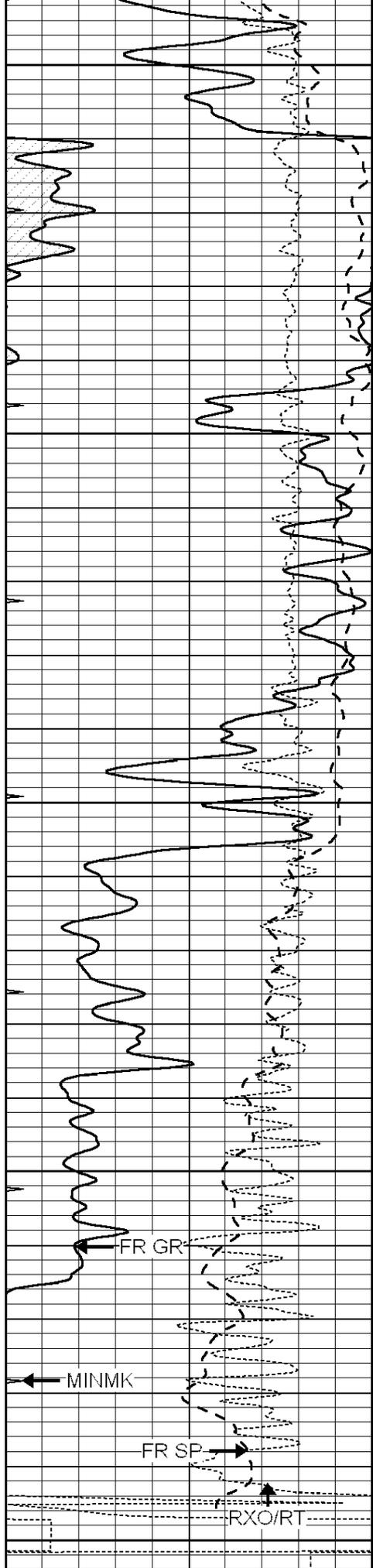
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5250

5300

5350





5400

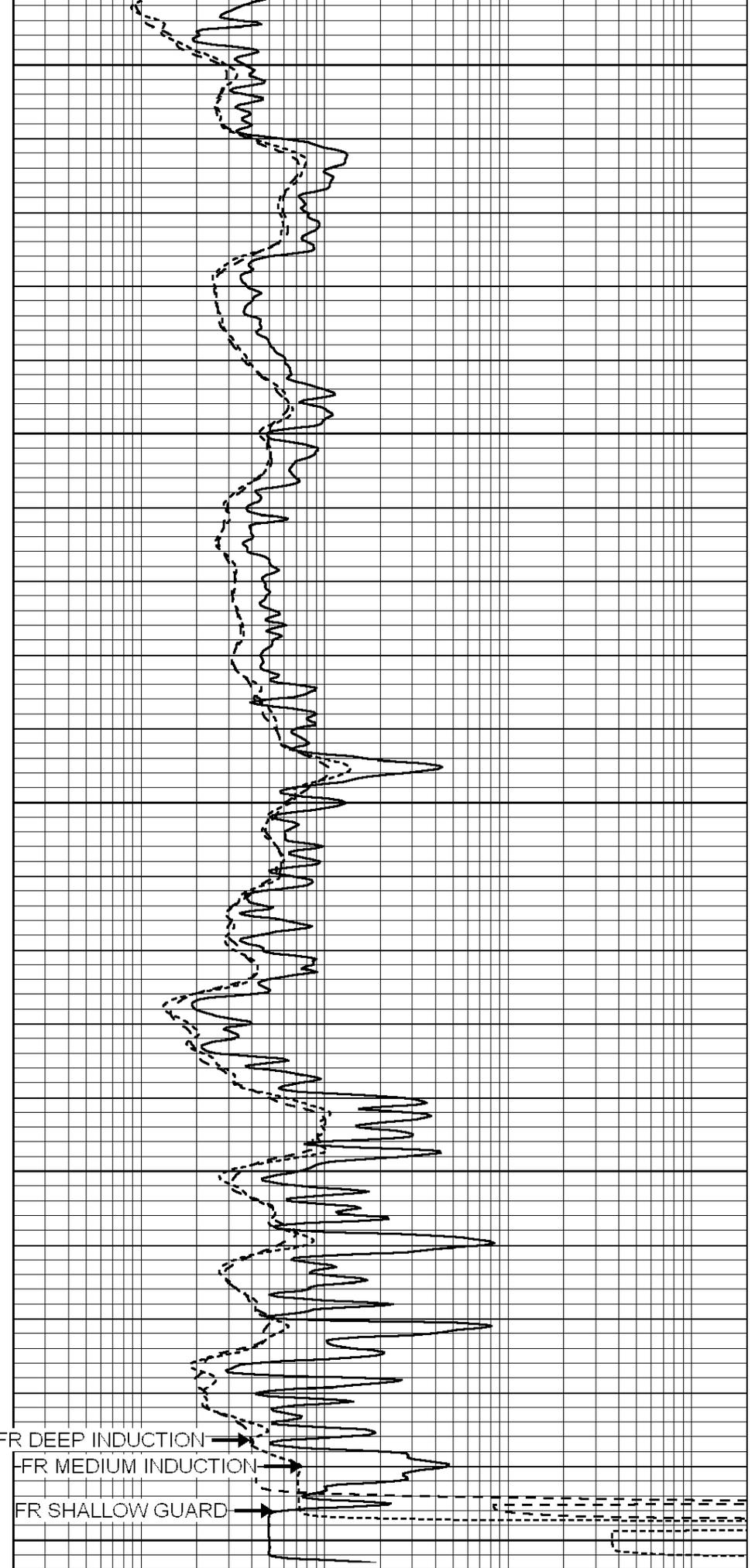
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5500

5550

LTD 5598
5600

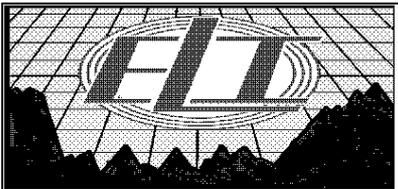
0 GAMMA RAY (GAPI) 150
100 SP (mV) 100



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

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

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

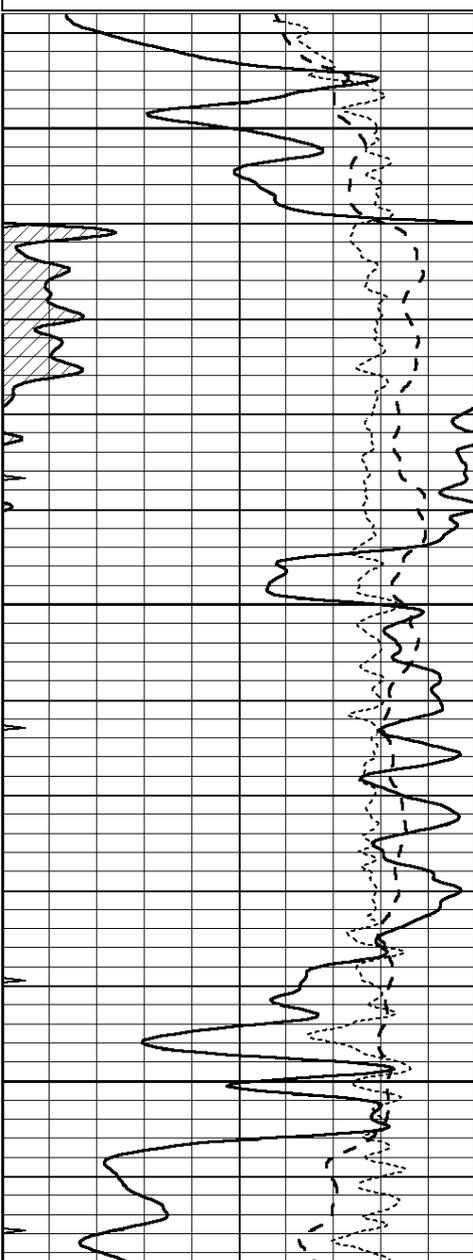


REPEAT SECTION

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 Presentation Format: _dil
 Dataset Creation: Mon Jul 16 06:42:06 2018
 Charted by: Depth in Feet scaled 1:240

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

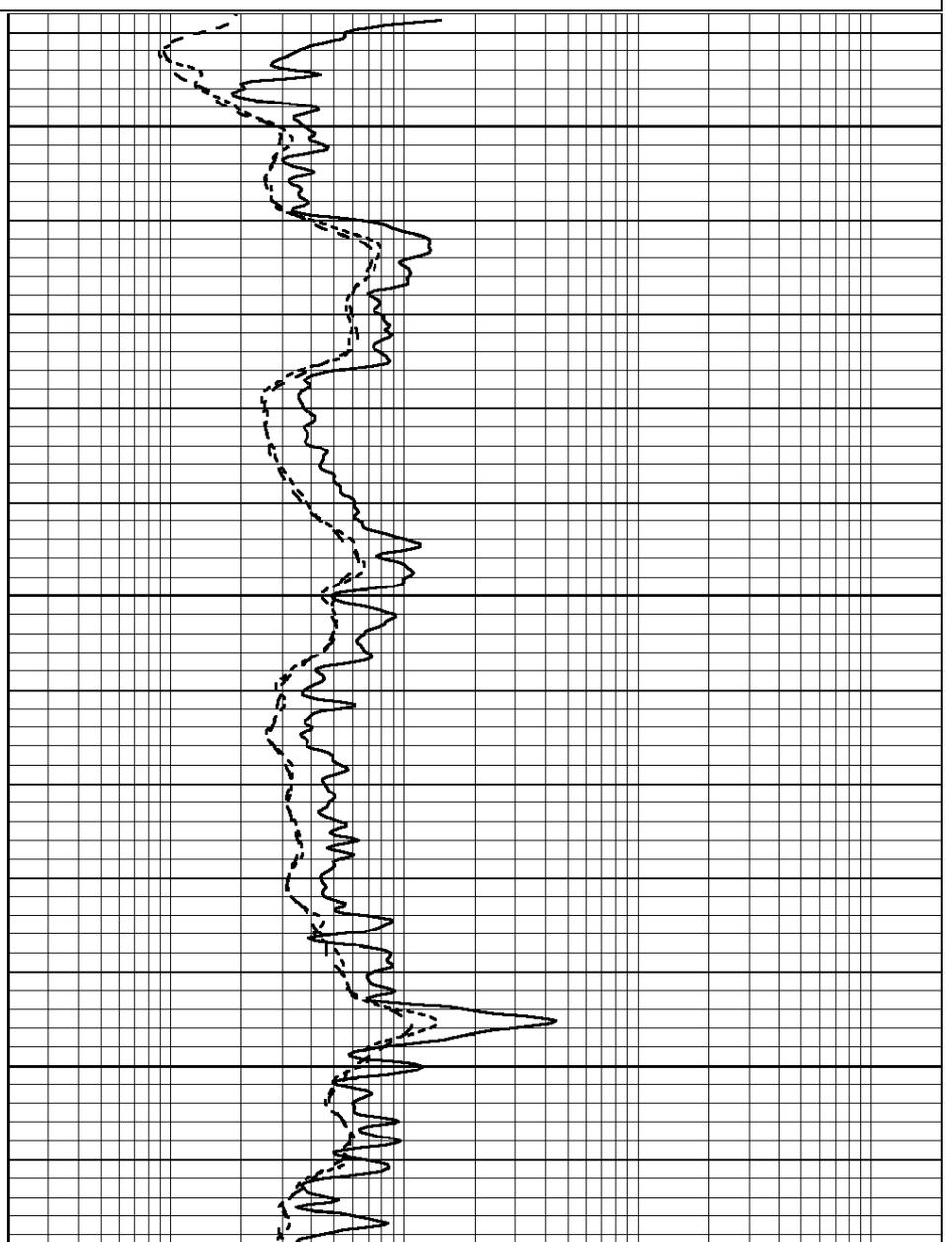
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

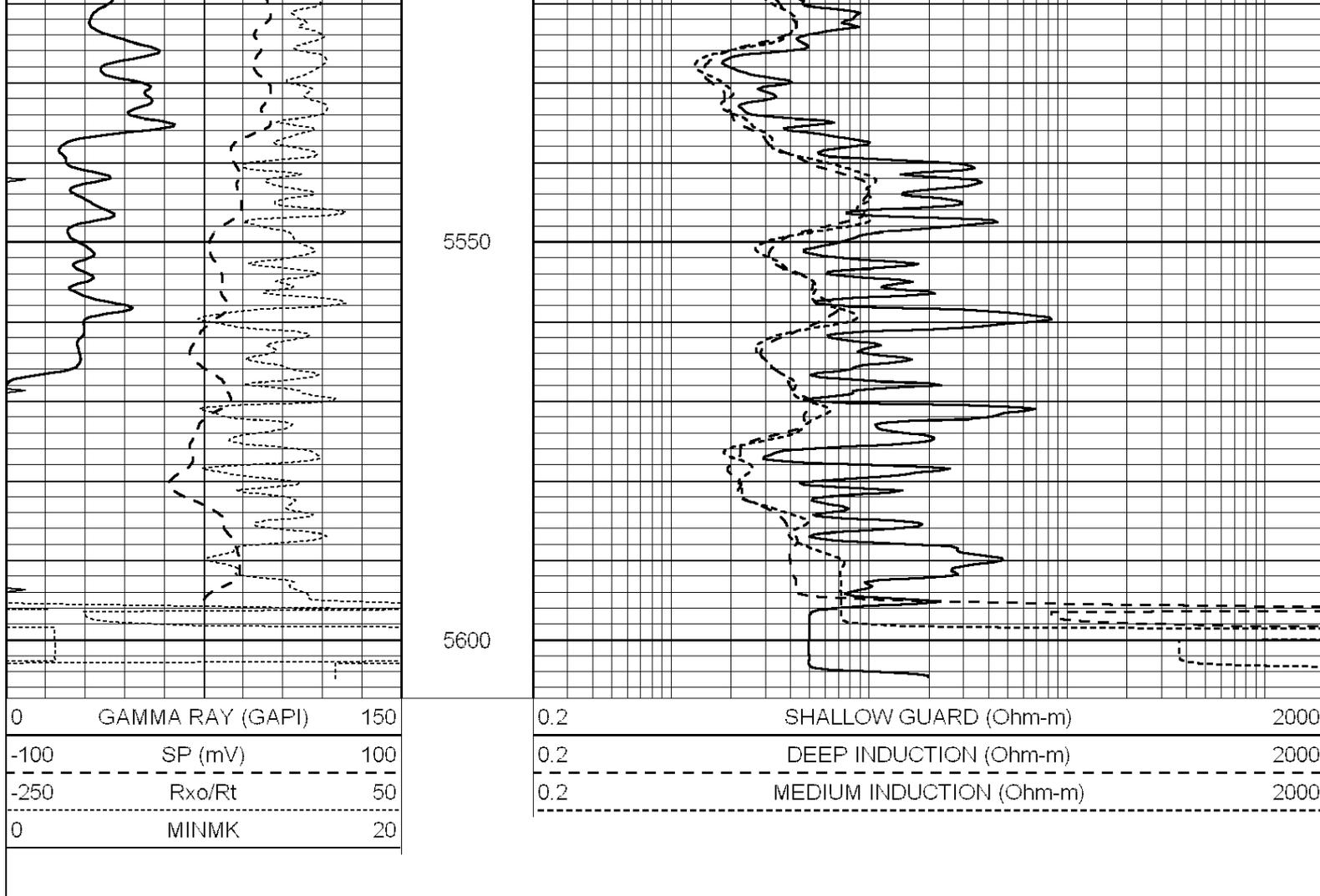


5400

5450

5500





Calibration Report

Database File: 1598ddn.db
 Dataset Pathname: pass4
 Dataset Creation: Wed Aug 30 02:13:00 2017 by Log SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Wed Aug 30 00:06:33 2017
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-44.000
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	mmho/m	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

Medium	0.000	7.500	V	1400.000	Ohm-m
LL3	0.000	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: 002 Model: PRB

Master Calibration		Performed Mon Aug 21 11:27:42 2017				
	Background	Magnesium	Aluminum	Sandstone		
Window 1	837.1	10632.5	2945.1	12110.1	cps	
Window 2	772.0	9117.4	2570.1	10197.3	cps	
Window 3	631.7	4669.0	1481.9	5042.9	cps	
Window 4	187.0	187.5	185.9	189.9	cps	
Long Space	0.0	8345.4	1798.1	9425.3	cps	
Short Space	1.1	1927.9	1285.9	2050.2	cps	
Rho		1.7100	2.5960	1.3800	g/cc	
Pe		0.0000	2.5700	1.5500		
Rib Angle	: 45.2	Rib Slope	: 1.008	Density/Spine Ratio	: 0.558	
Spine Angle	: 75.2	Spine Slope	: 3.790	Spine Intercept	: -19.6	

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				
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

Serial Number: 070808

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:	070558	
Tool Model:	OPEN_GR	
Performed:	Wed May 31 00:09:32 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.2800	GAPI/cps