



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		GATEWAY RESOURCES, LLC	
Well		BOWLING #1-8	
Field		WILDCAT	
County		CLARK	
State		KANSAS	
Location:		API # : 15-025-21571-00-00	
Permanent Datum		GROUND LEVEL Elevation 2529	
Log Measured From		KELLY BUSHING 10' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 8 TWP 30S RGE 23W		Elevation K.B. 2539 D.F. 2537 G.L. 2529	
CNL/CDL/PE			
Date 2/25/14			
Run Number ONE			
Depth Driller 6589			
Depth Logger 6592			
Bottom Logged Interval 6590			
Top Log Interval 00			
Casing Driller 8 5/8" @ 534			
Casing Logger 526			
Bit Size 7 7/8"			
Type Fluid in Hole CHEMICAL MUD CHLORIDES 4800 PPM			
Density / Viscosity 9.2/54			
pH / Fluid Loss 12.5/9.0			
Source of Sample FLOWLINE			
Rm @ Meas. Temp .80 @ 64F			
Rmt @ Meas. Temp .60 @ 64F			
Rmc @ Meas. Temp .89 @ 64F			
Source of Rmt / Rmc MEASUREMENT			
Rm @ BHT .36 @ 139F			
Time Circulation Stopped 2 HOURS			
Time Logger on Bottom 139F			
Maximum Recorded Temperature 4010			
Equipment Number HAYS, KANSAS			
Location IAN MABB			
Recorded By GARY F. GENSCH			
Witnessed By			

<<< Fold Here >>>

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:

BLOOM, KS. - REST AREA AT RD 118 - 1 1/2 MILES SOUTH - 3/4 EAST - 1 SOUTH TO THE SHELTER BELT - 1/4 EAST TO THE CURVE GOING SE - SOUTH INTO

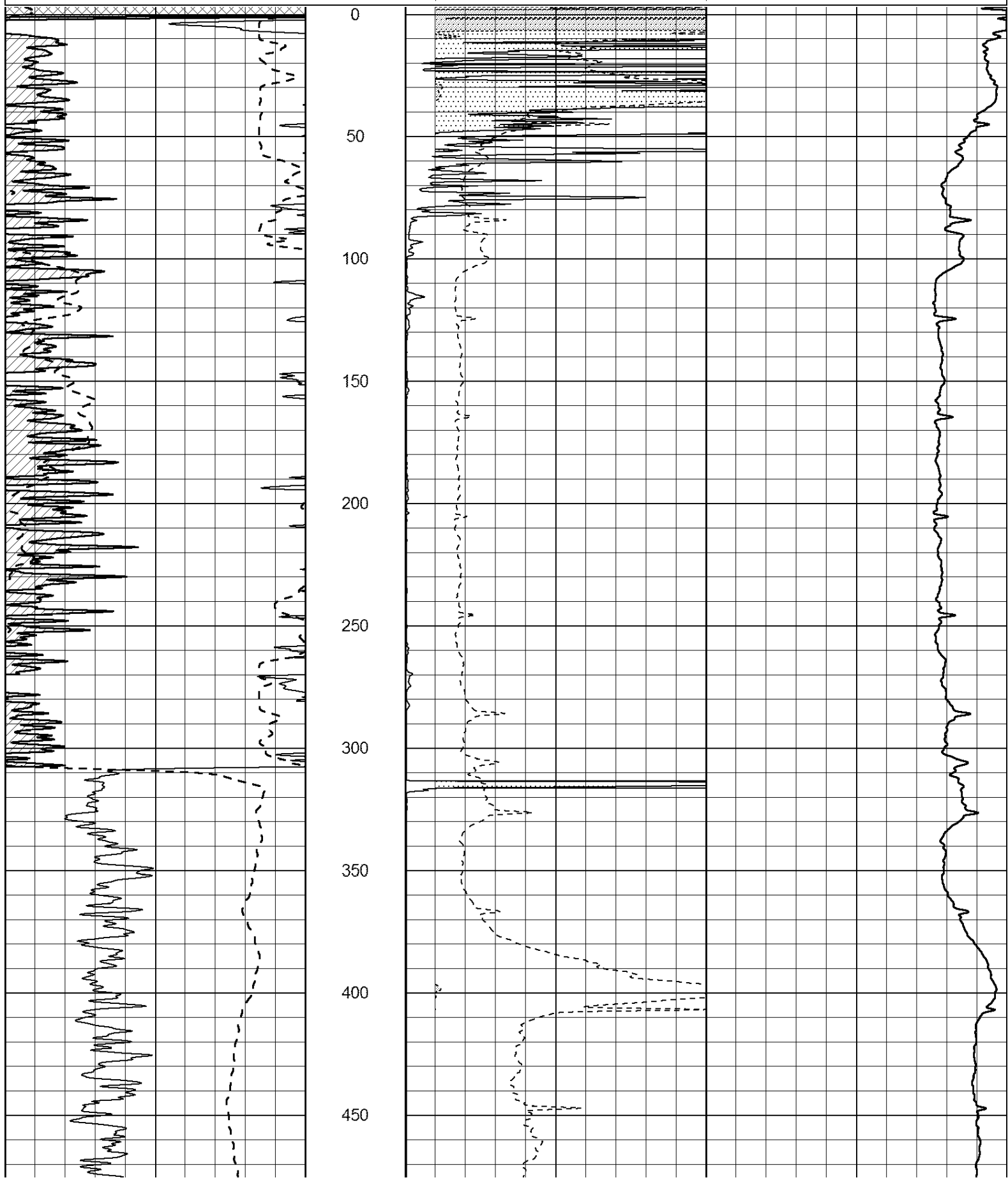
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 Dataset Pathname: pass3.8
 Presentation Format: _dil2
 Dataset Creation: Tue Feb 25 16:30:49 2014
 Charted by: Depth in Feet scaled 1:600

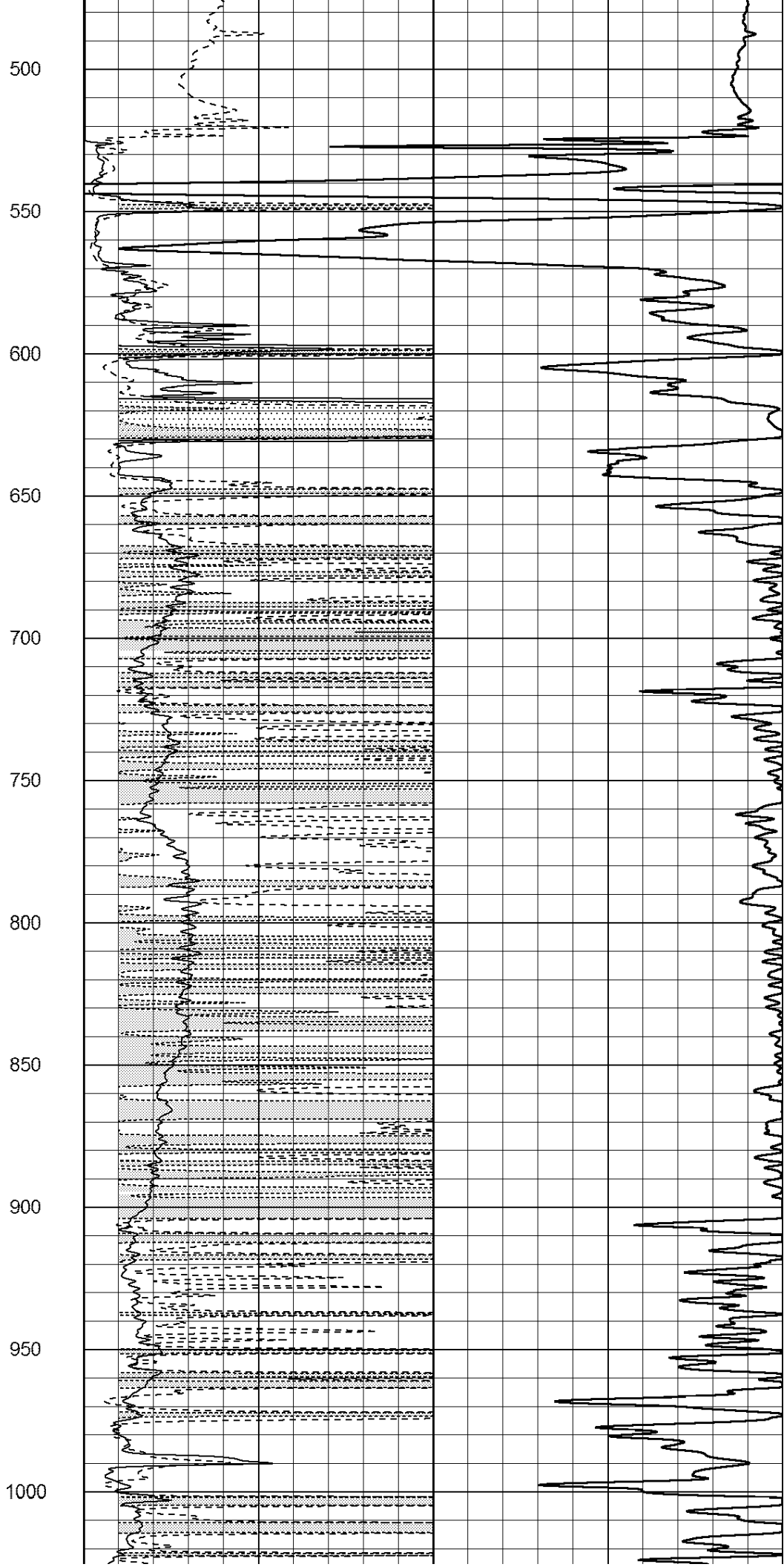
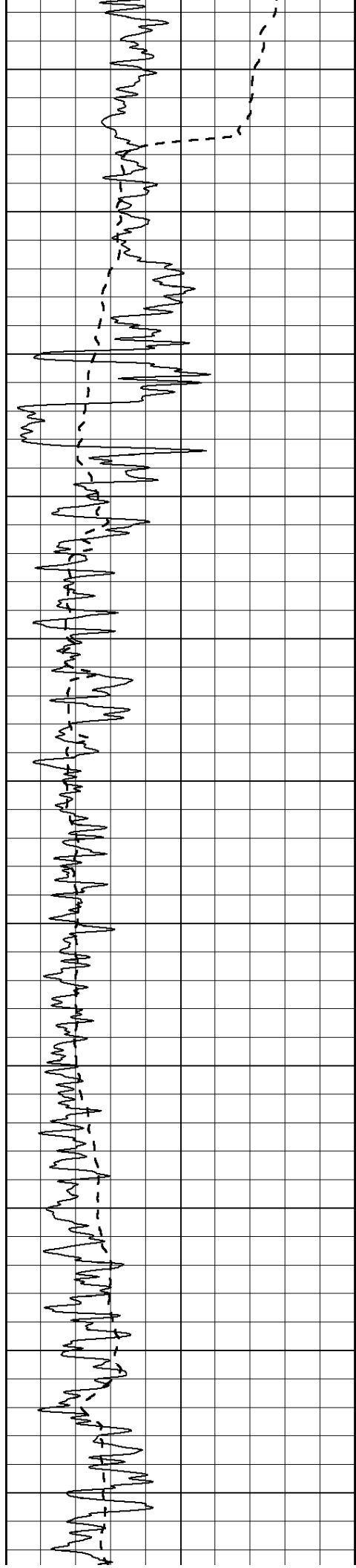
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-100	SP (mV)	100

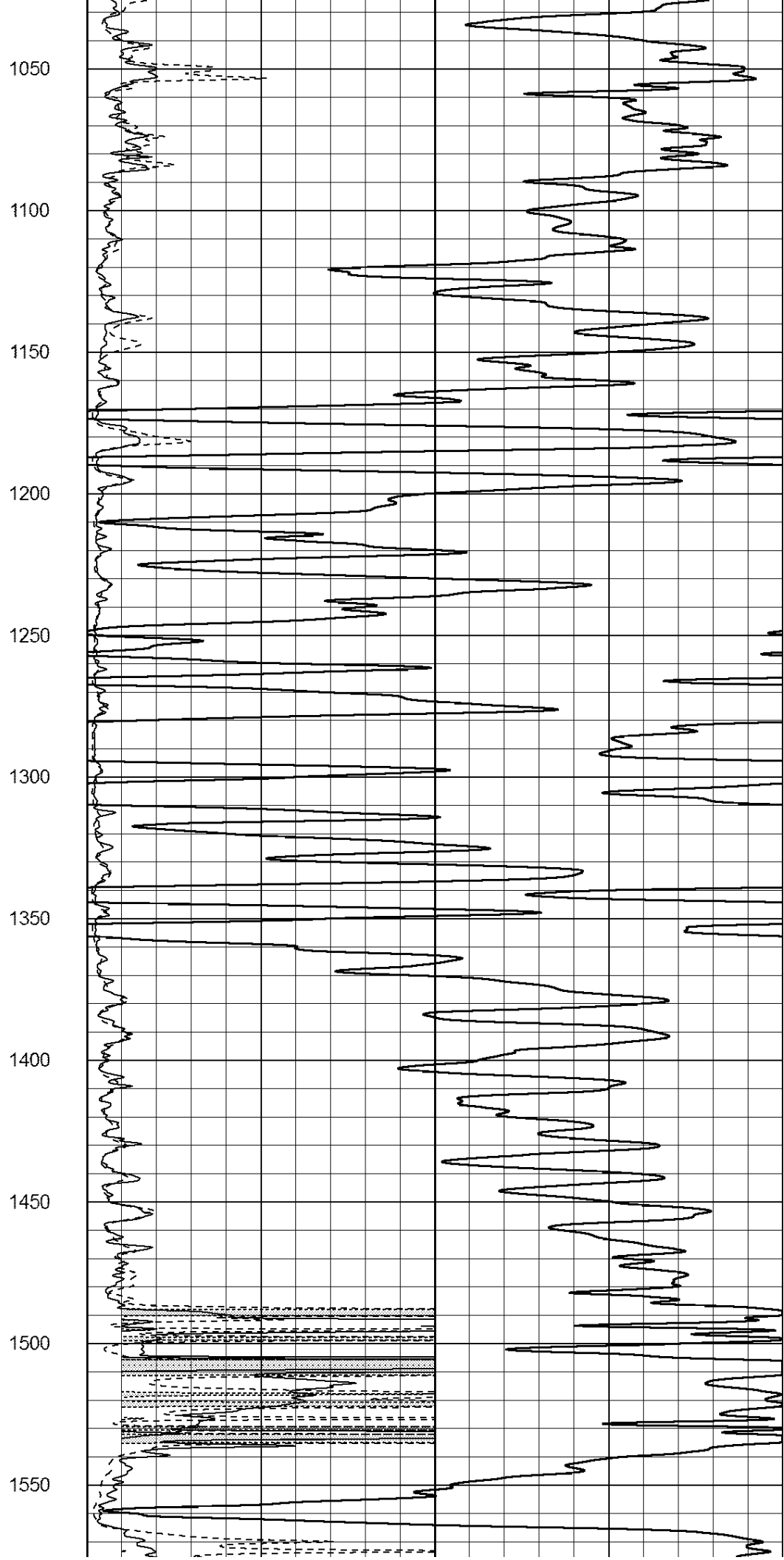
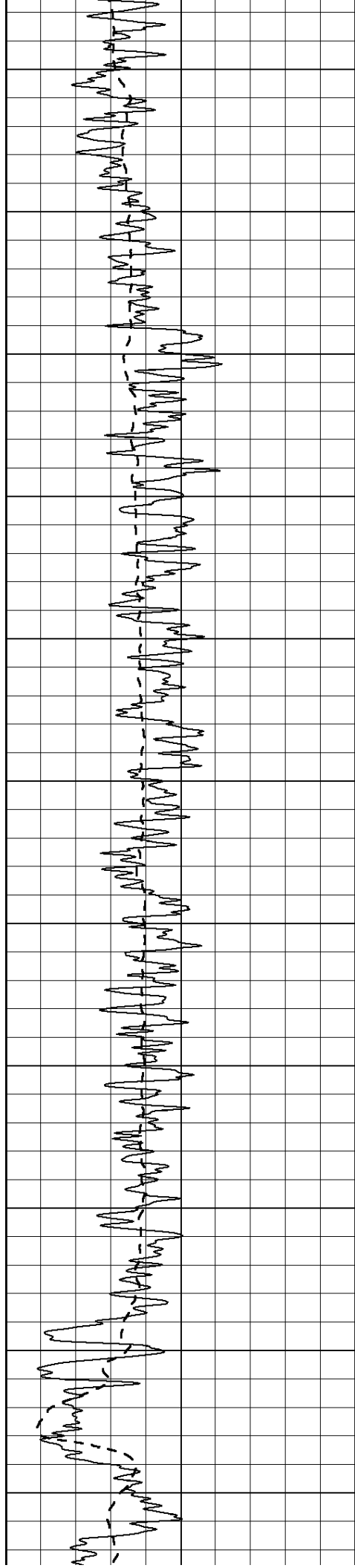
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

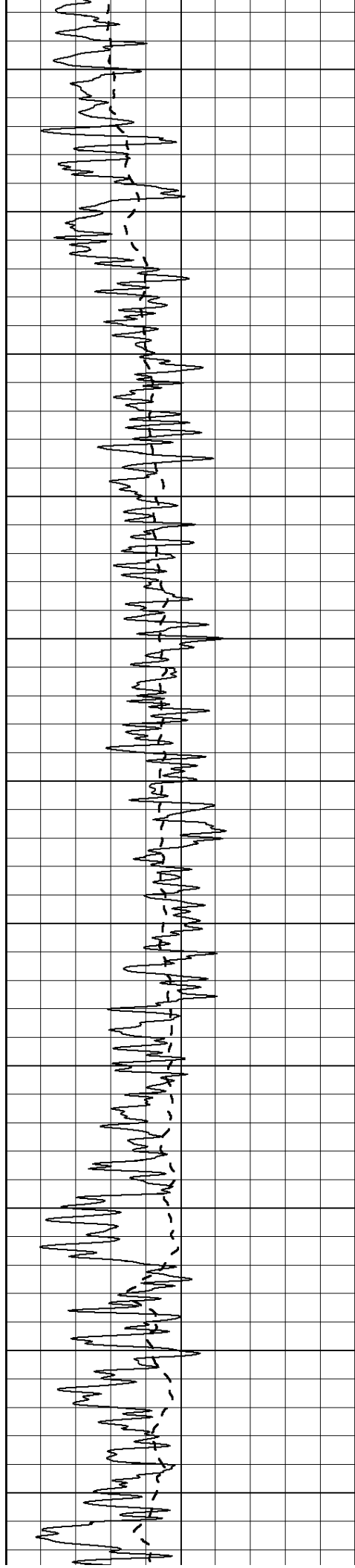
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500

50	RLL3 X10 (Ohm-m)	500









1600

1650

1700

1750

1800

1850

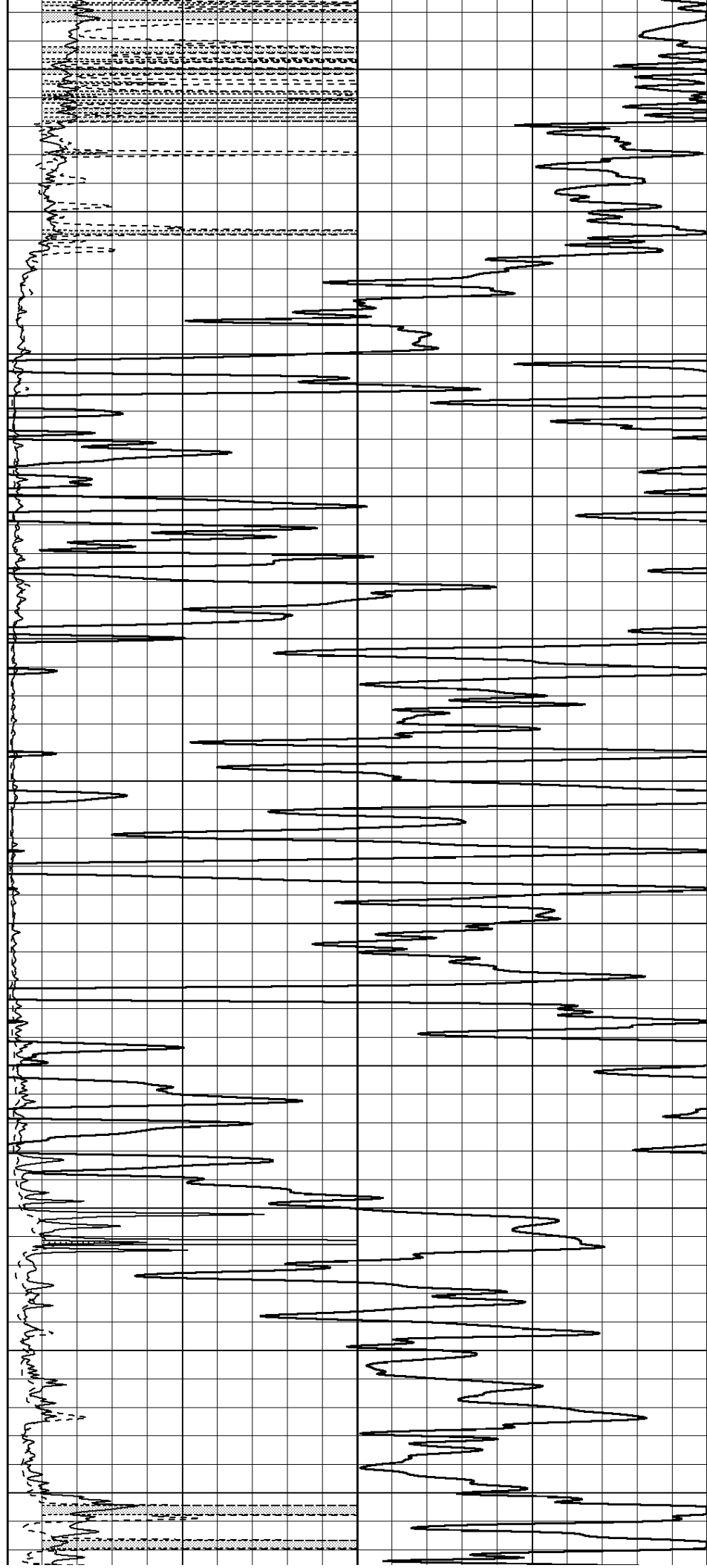
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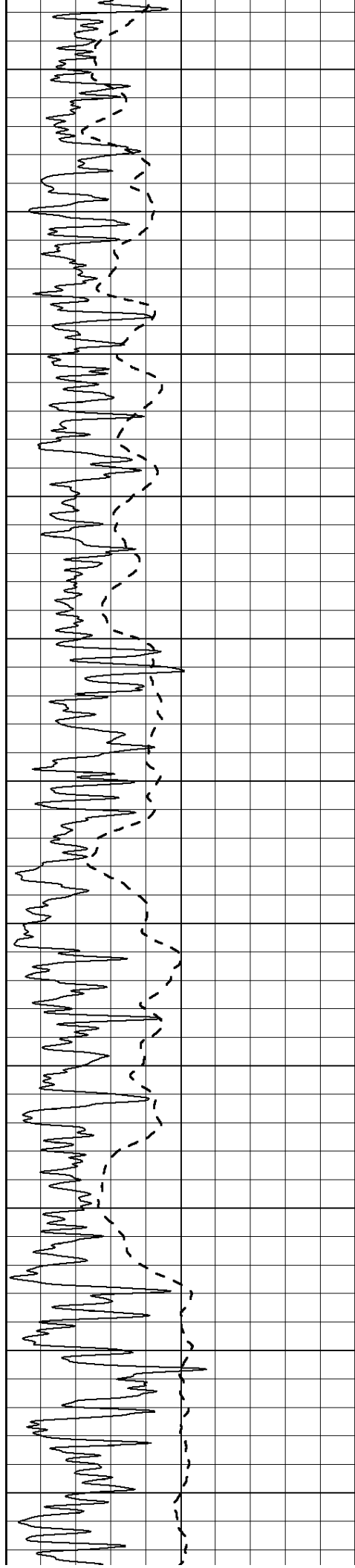
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2000

2050

2100





2150

2200

2250

2300

2350

2400

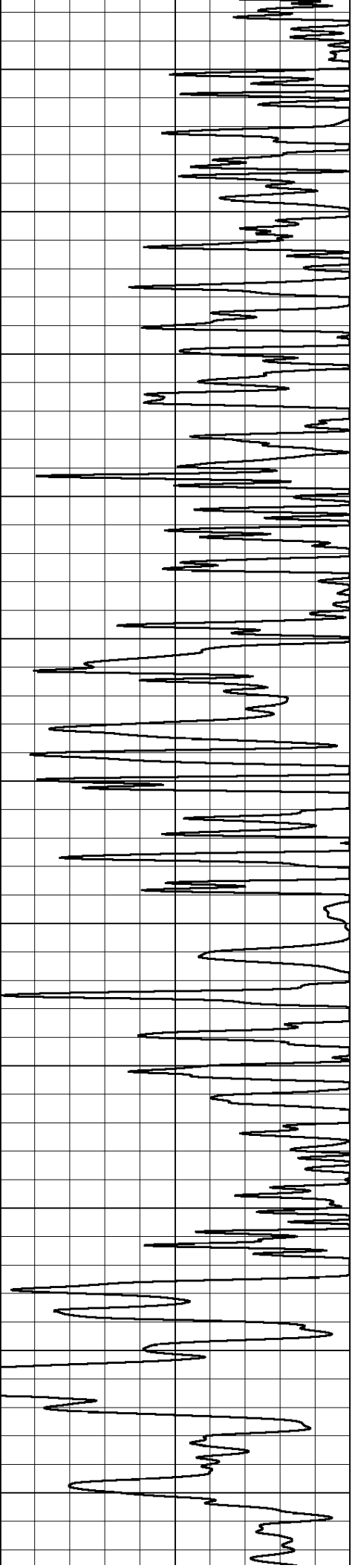
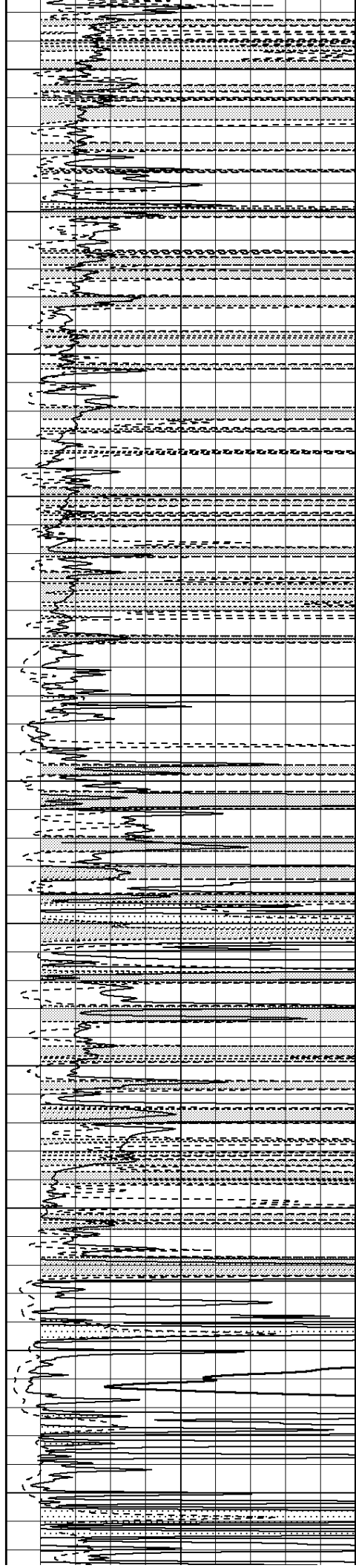
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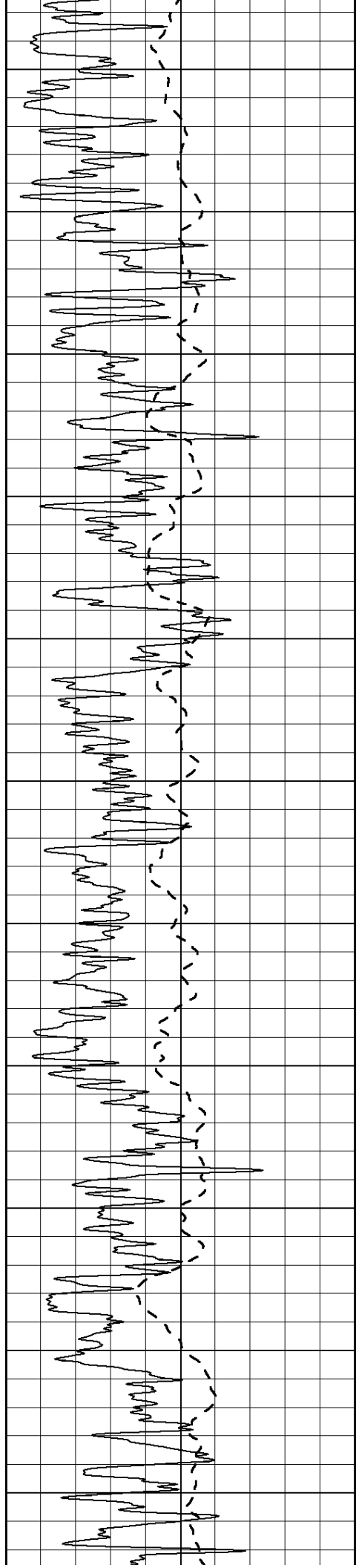
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2550

2600

2650





2700

2750

2800

2850

2900

2950

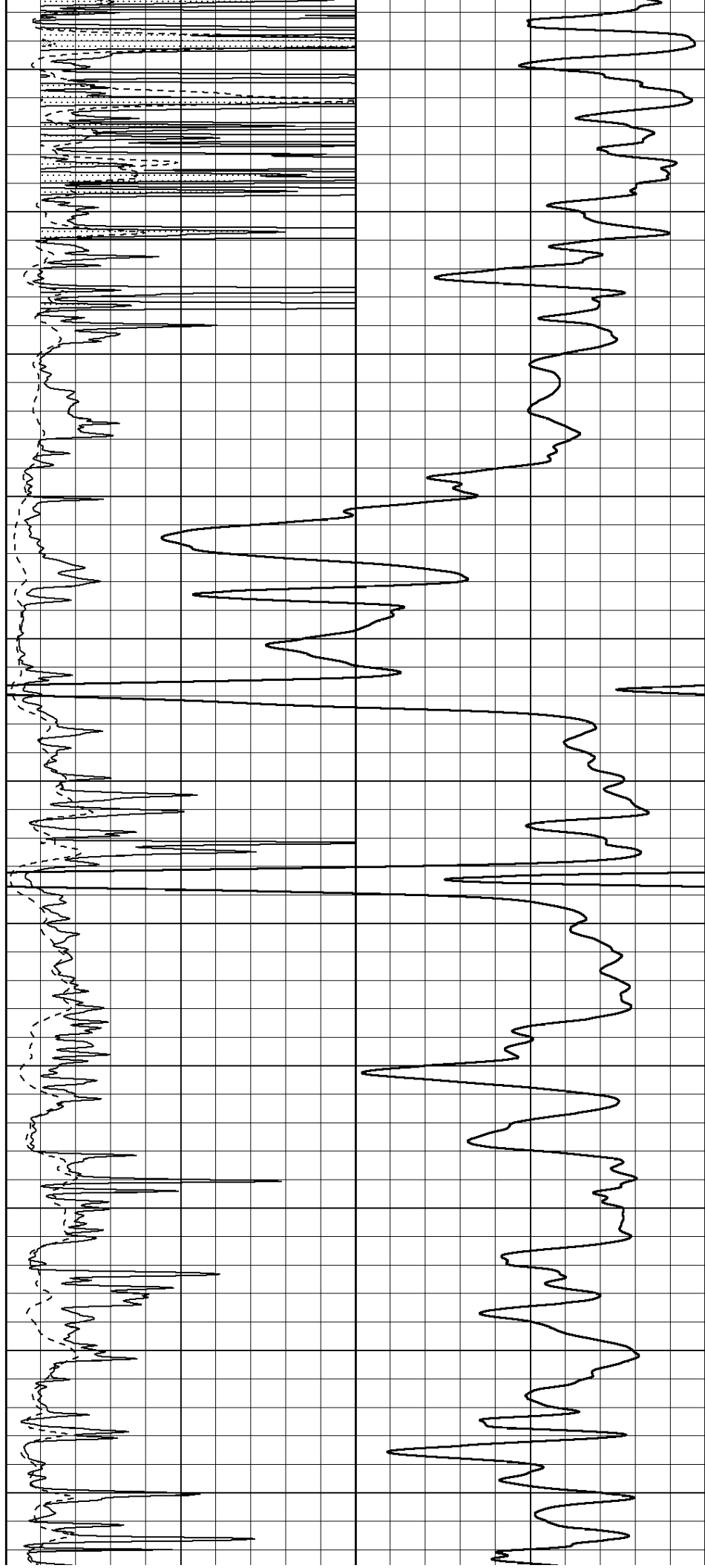
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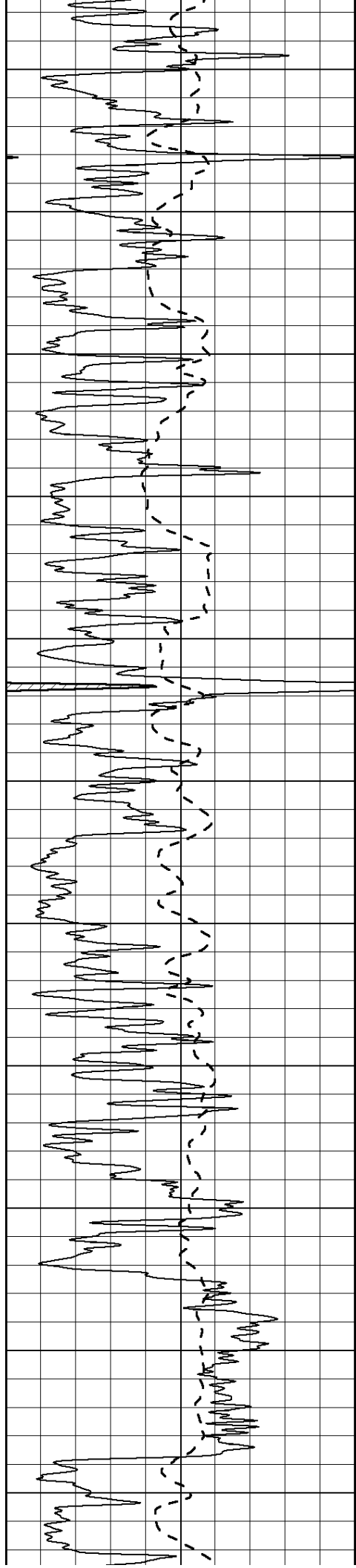
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3200





3250

3300

3350

3400

3450

3500

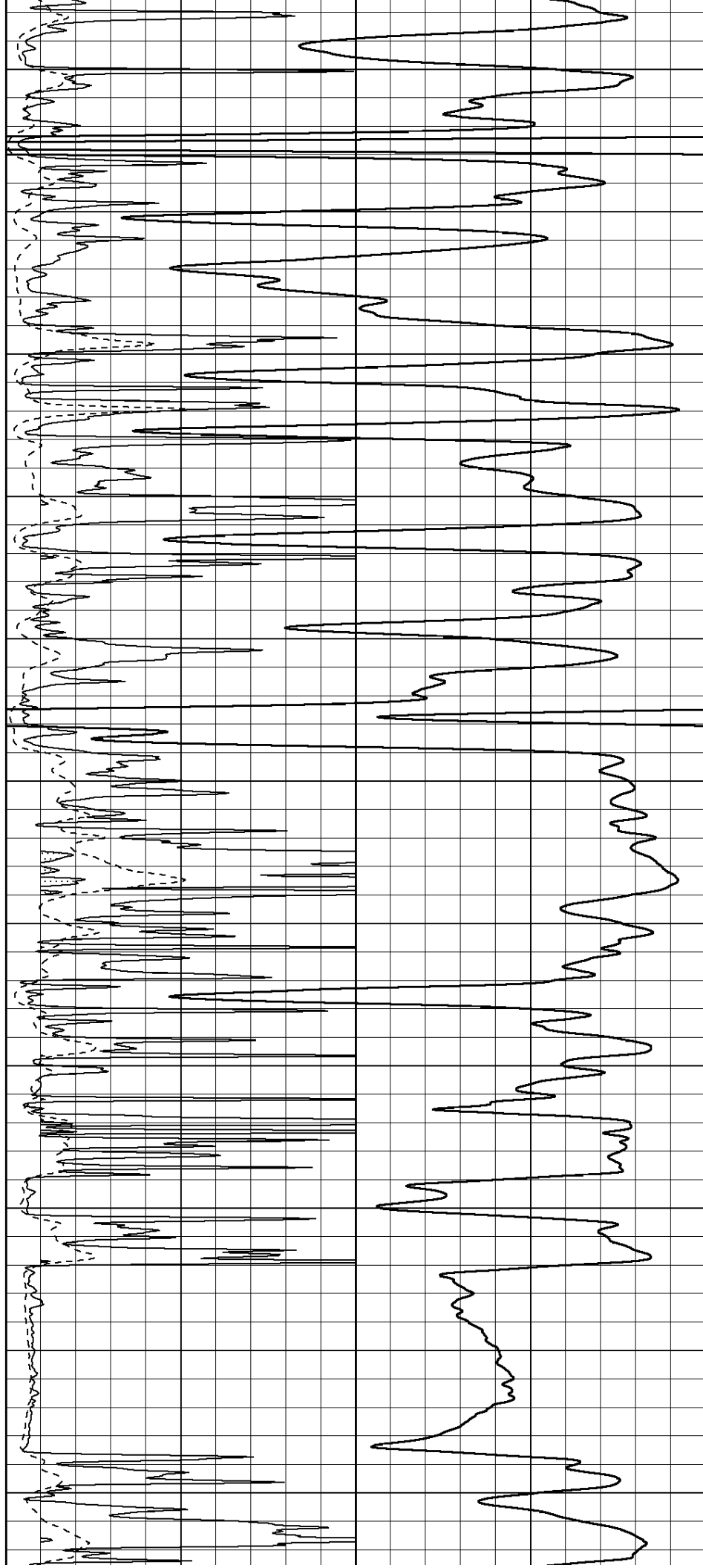
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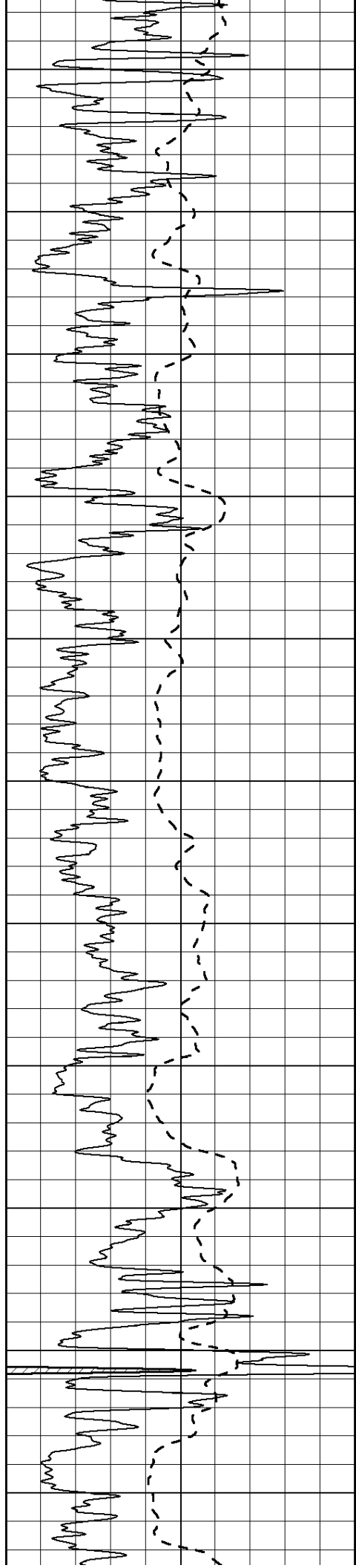
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3700

3750





3800

3850

3900

3950

4000

4050

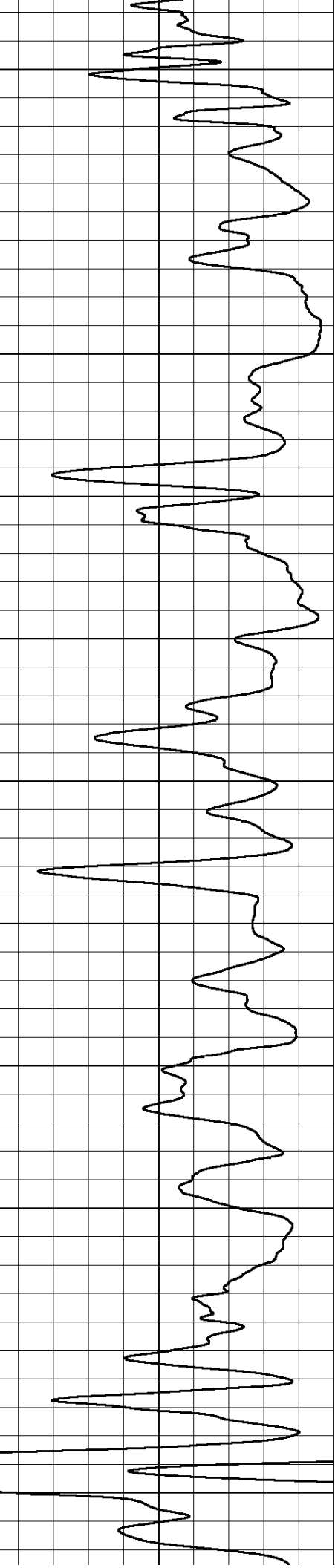
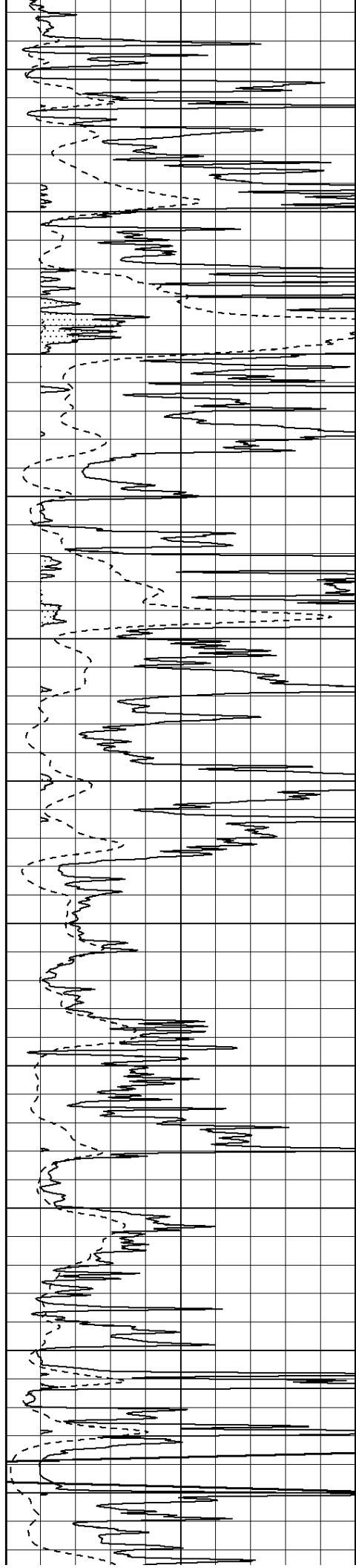
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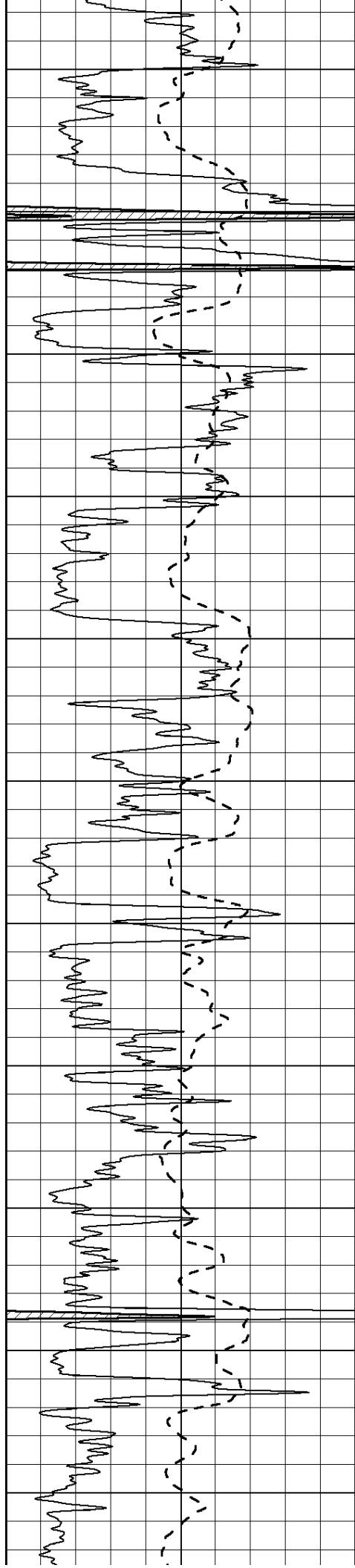
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4400

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4500

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4600

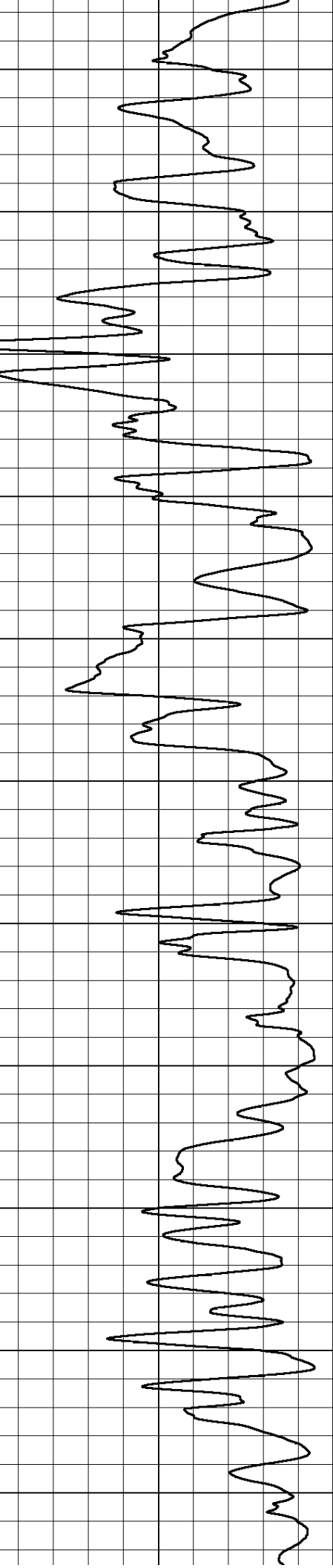
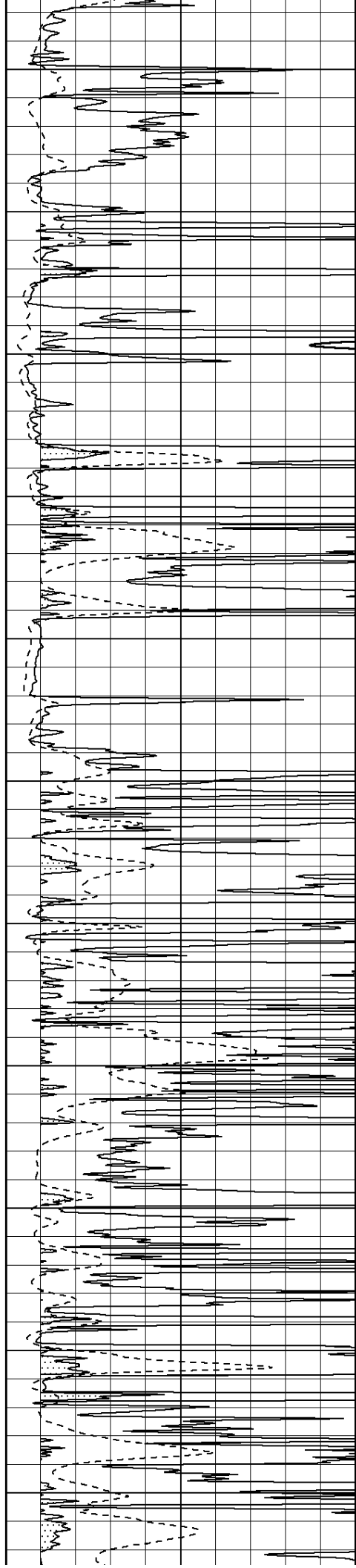
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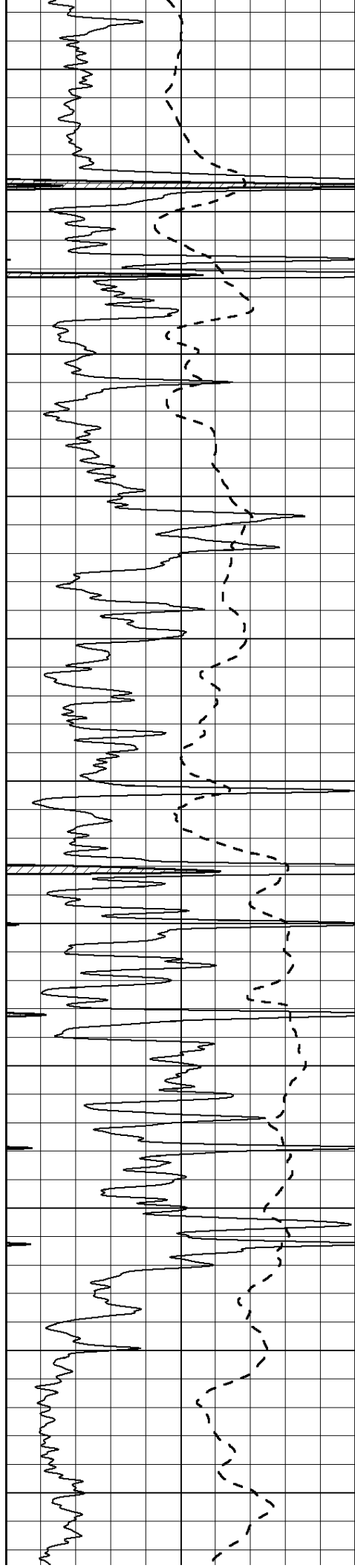
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5050

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5150

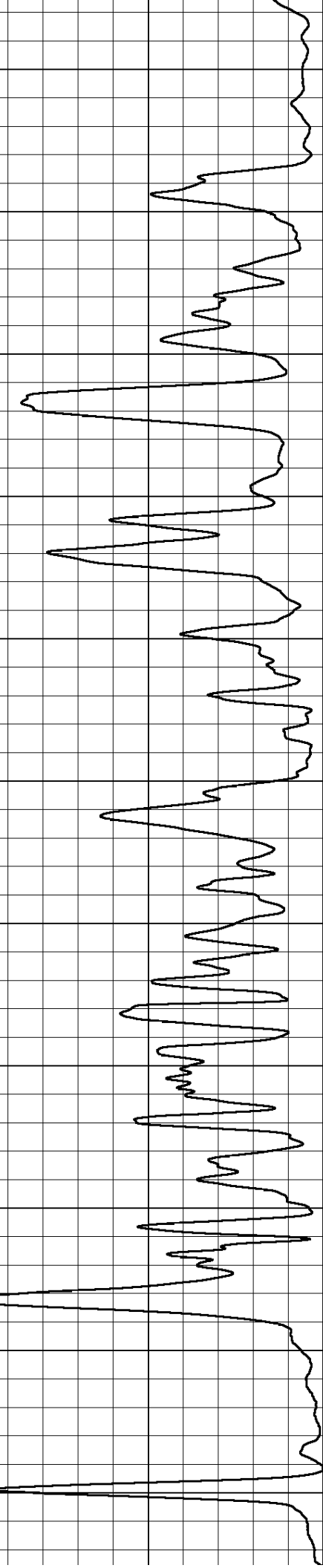
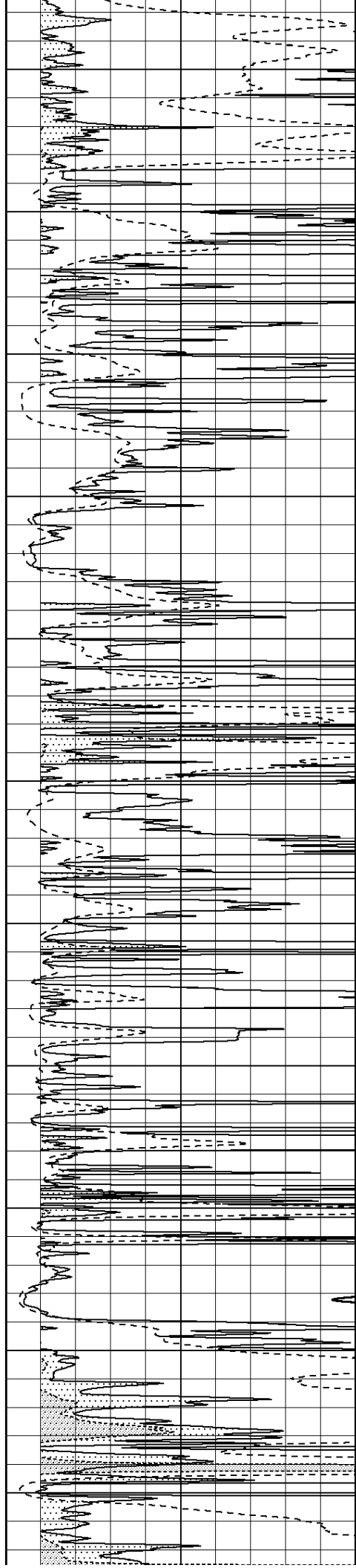
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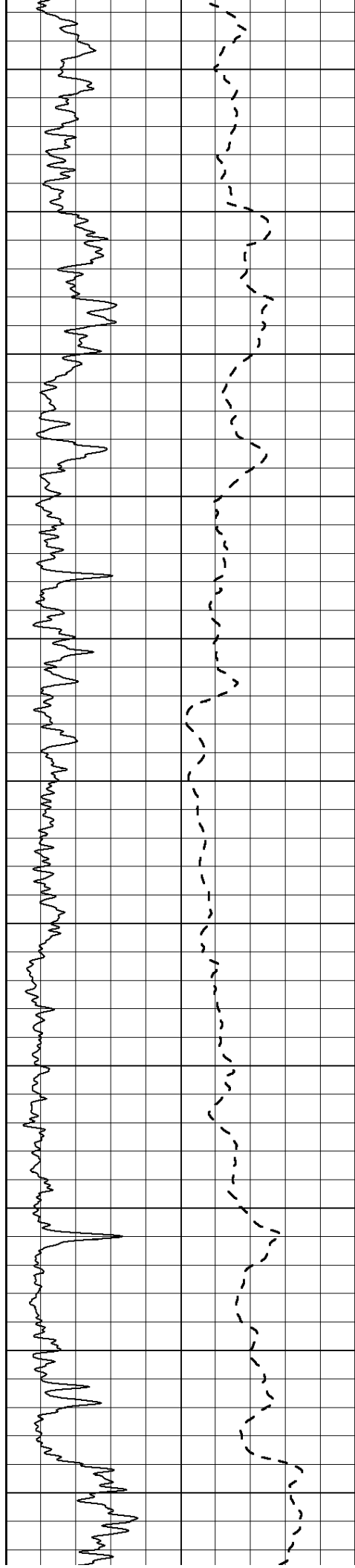
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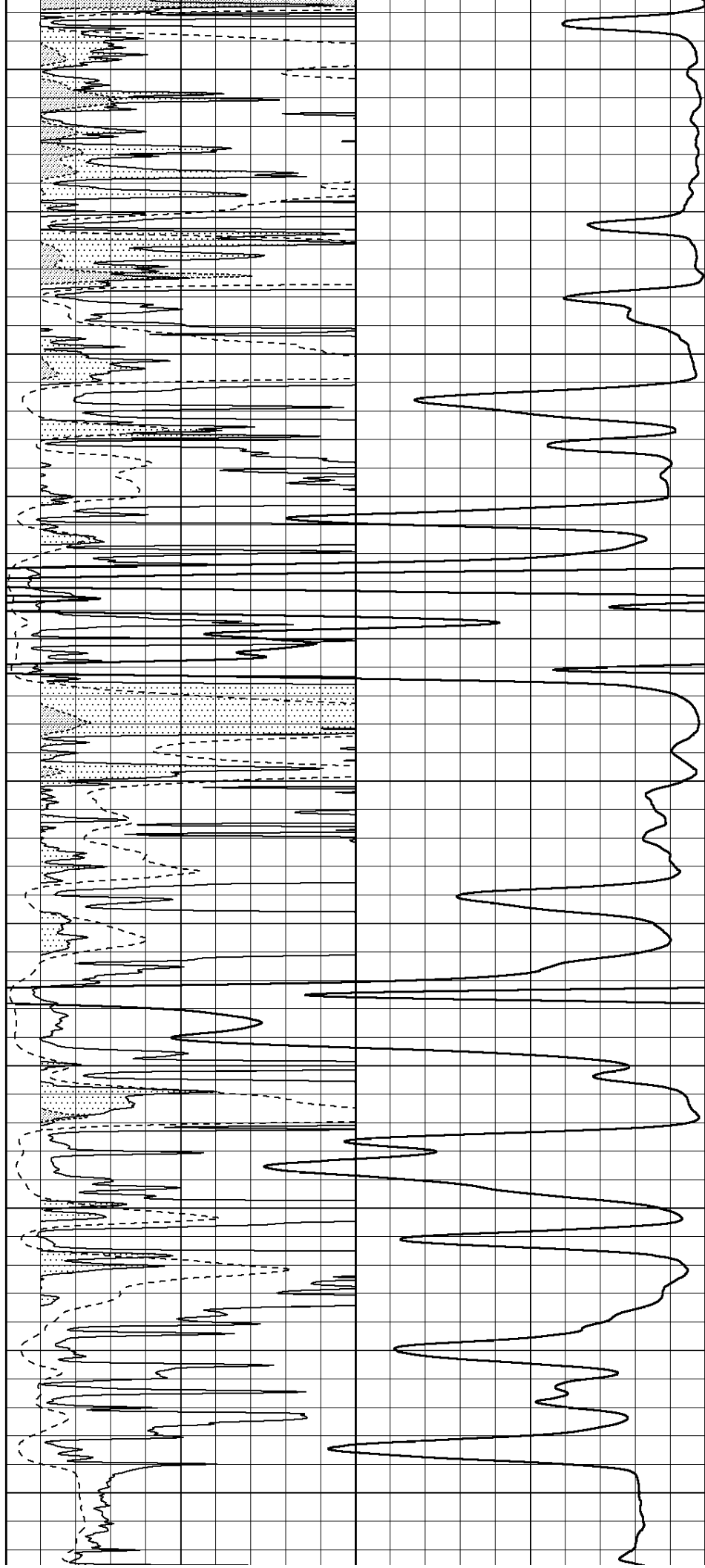
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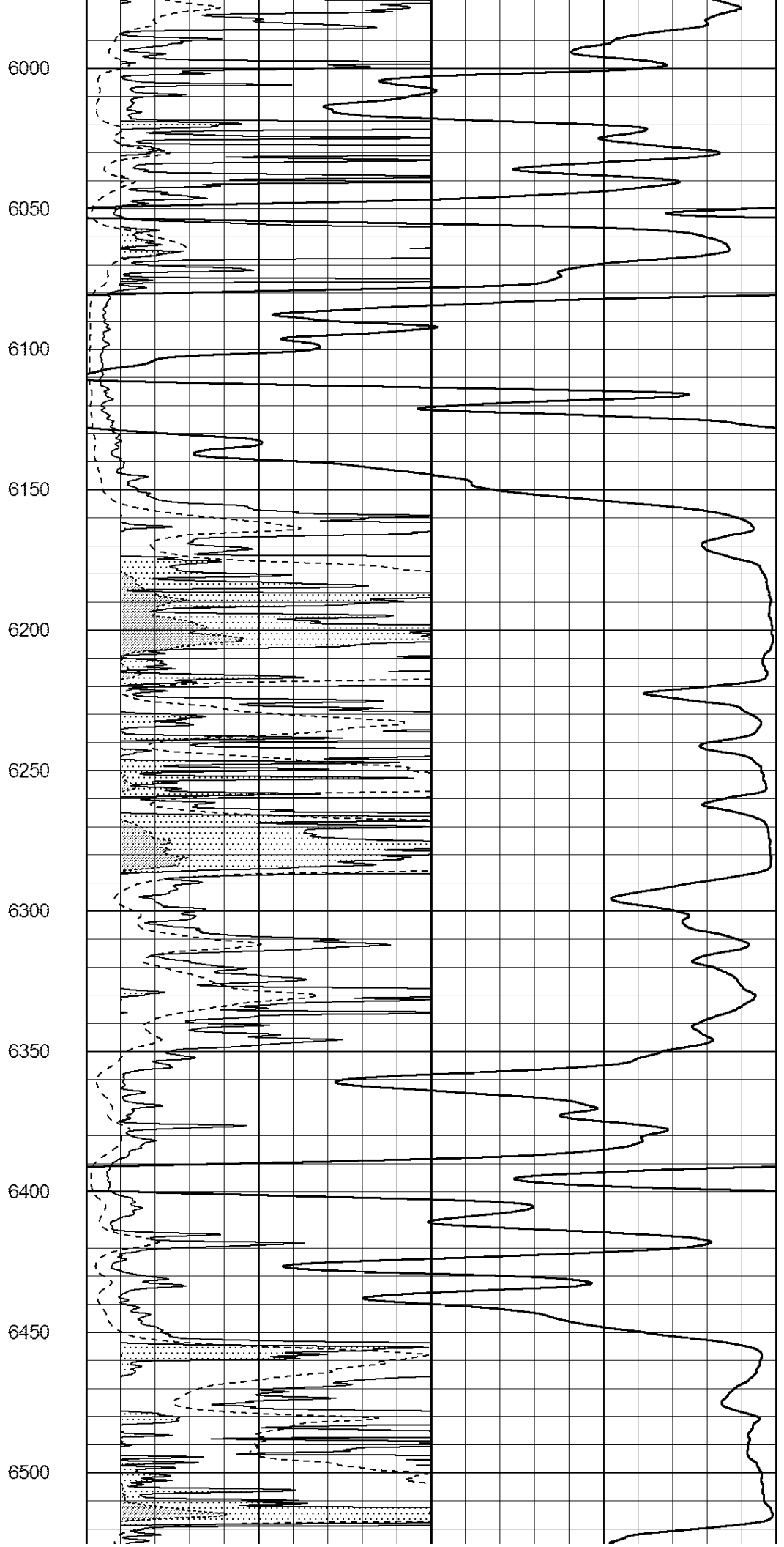
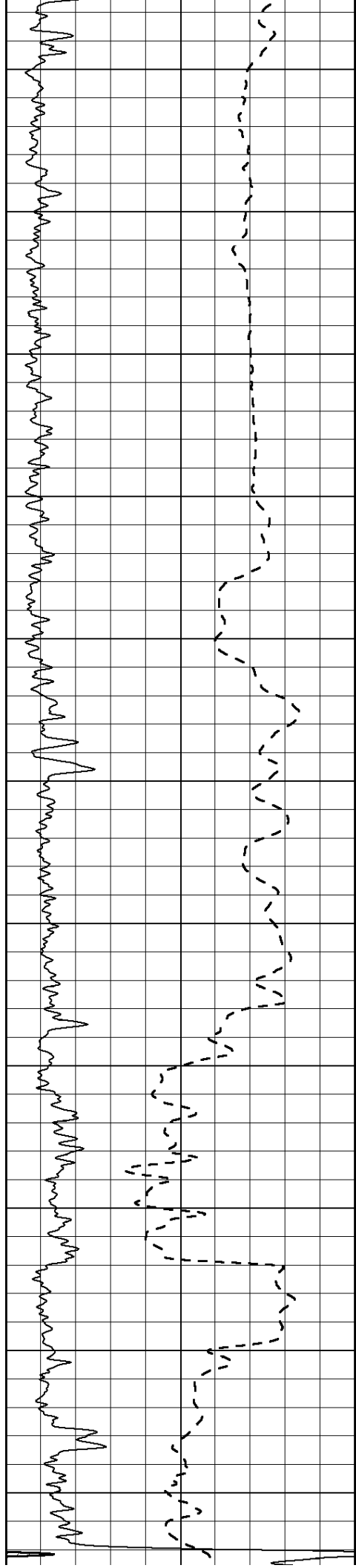
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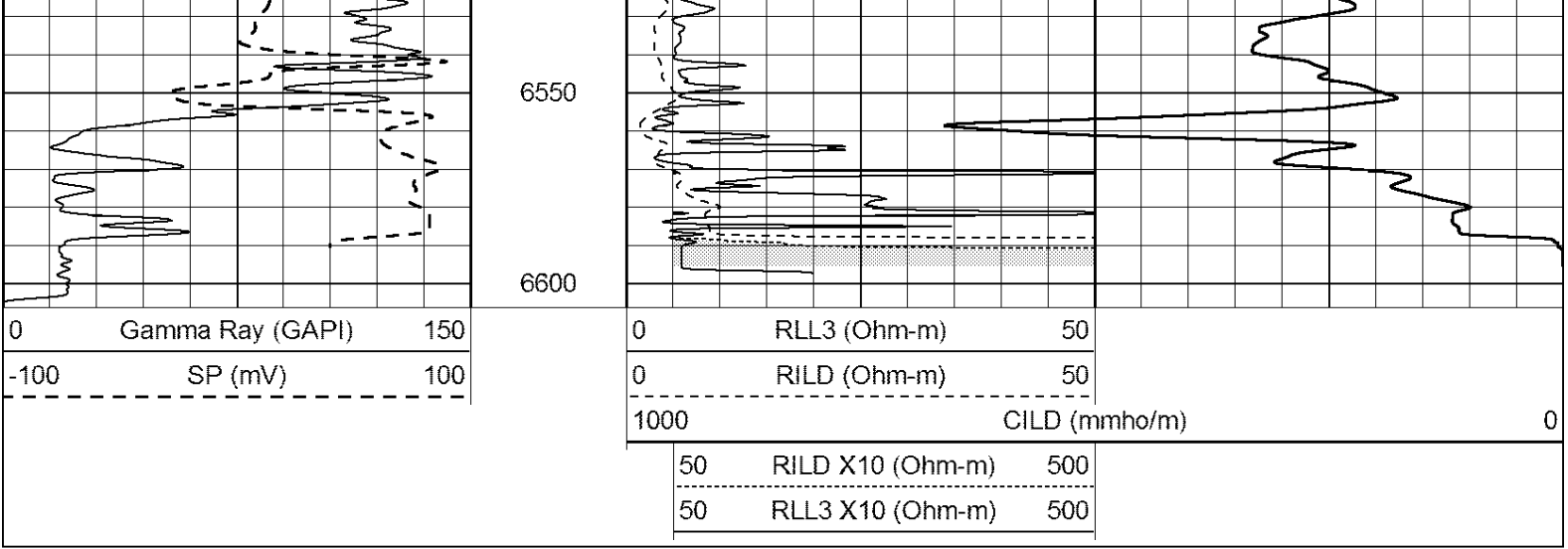
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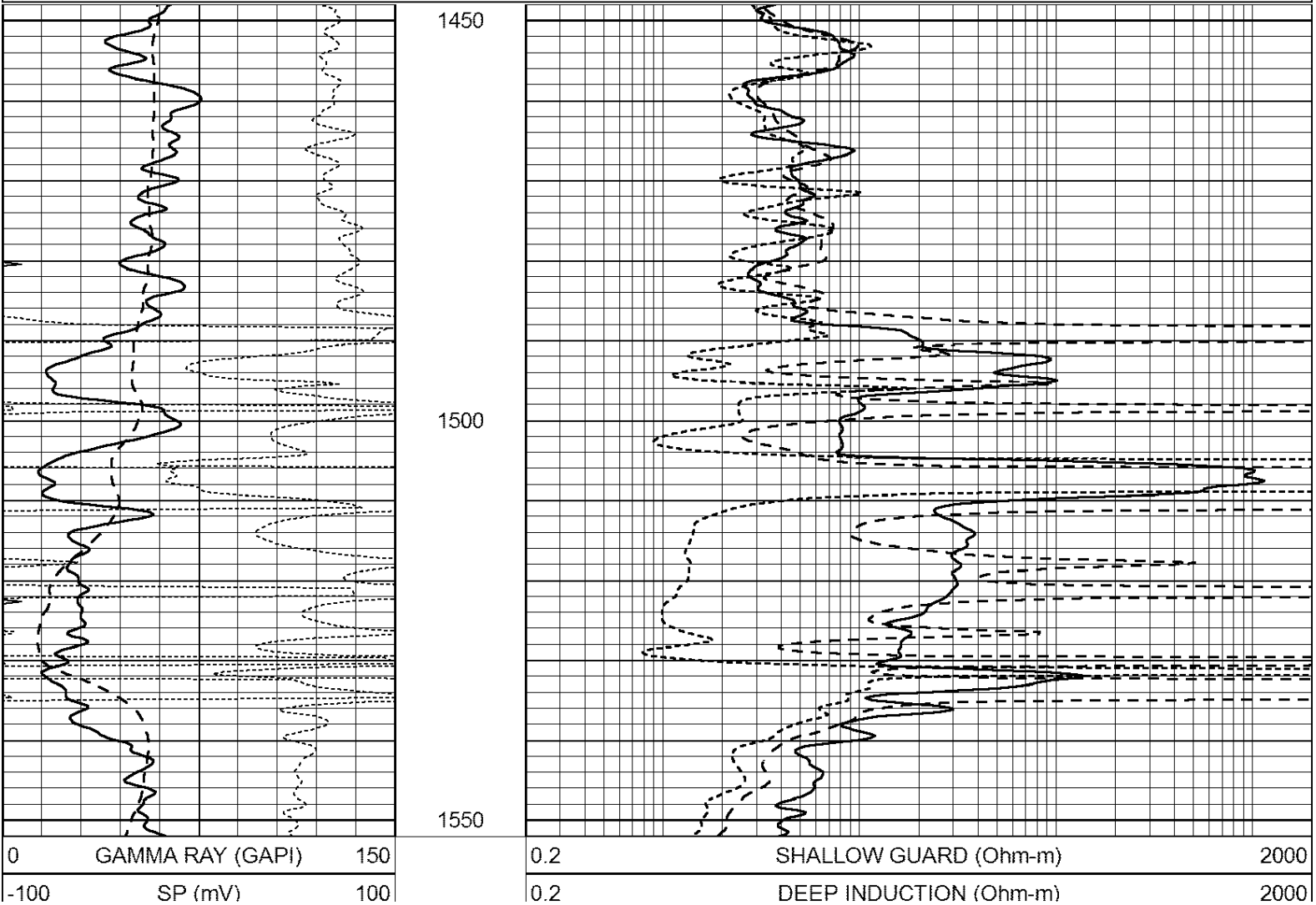
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Dataset Pathname: pass3.8					
Presentation Format: _dil					
Dataset Creation: Tue Feb 25 16:30:49 2014					
Charted by: Depth in Feet scaled 1:240					
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-100	SP (mV)		100	0.2	DEEP INDUCTION (Ohm-m) 2000
-250	Rxo/Rt		50	0.2	MEDIUM INDUCTION (Ohm-m) 2000
0	MINMK		20		



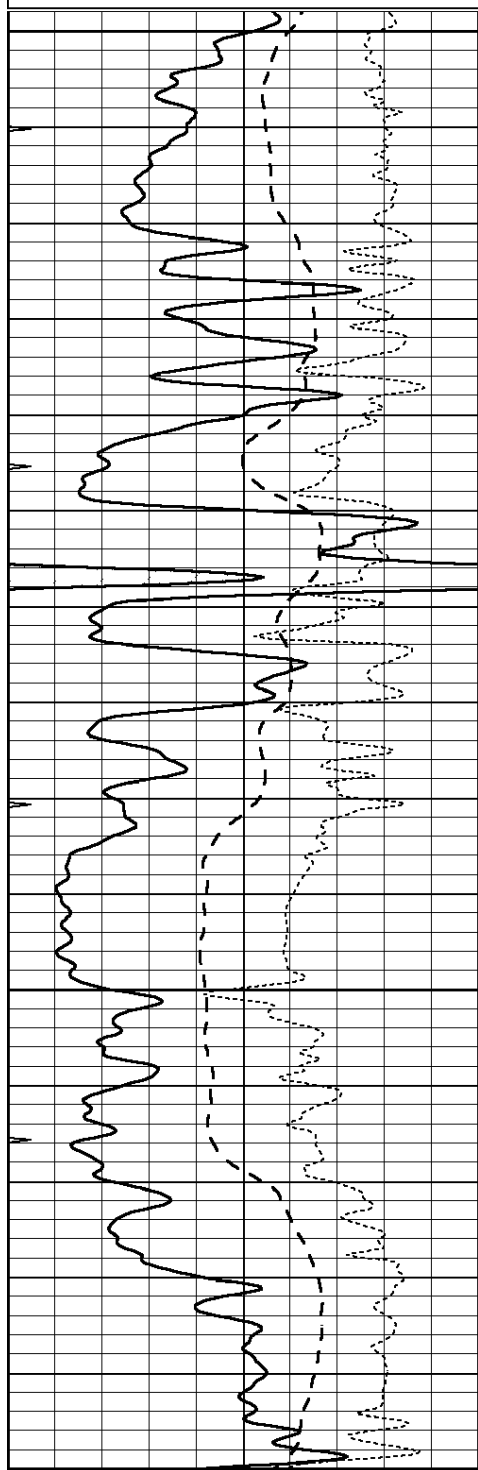
-250	Rxo/Rt	50
0	MINMK	20

0.2	MEDIUM INDUCTION (Ohm-m)	2000
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Database File: 24001pe.db
 Dataset Pathname: pass3.8
 Presentation Format: _dil
 Dataset Creation: Tue Feb 25 16:30:49 2014
 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

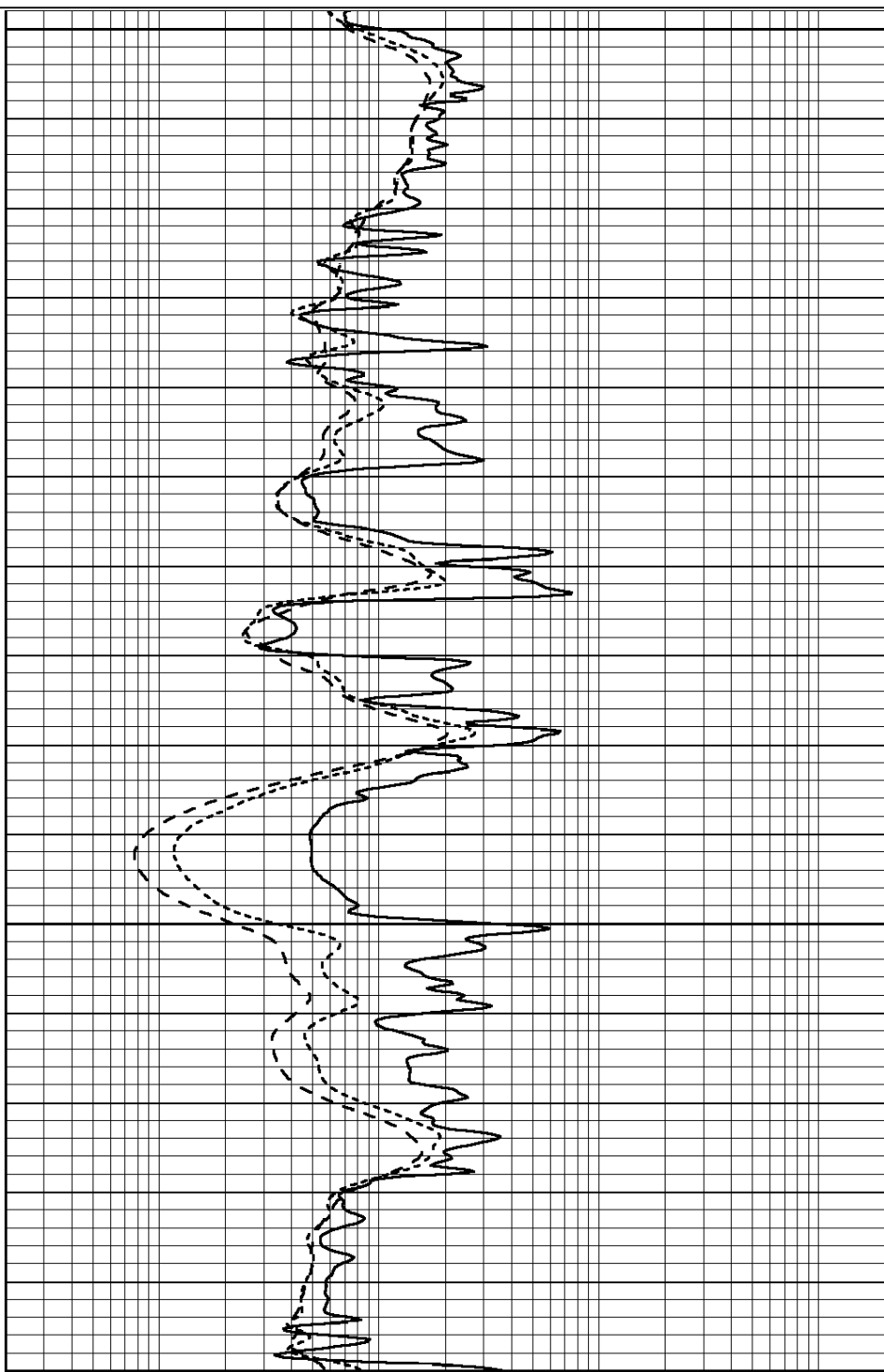


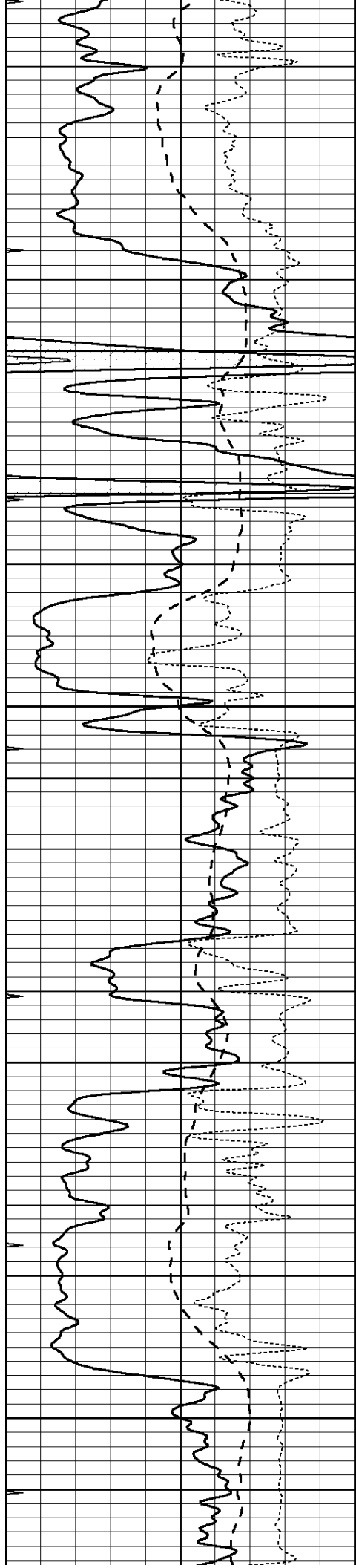
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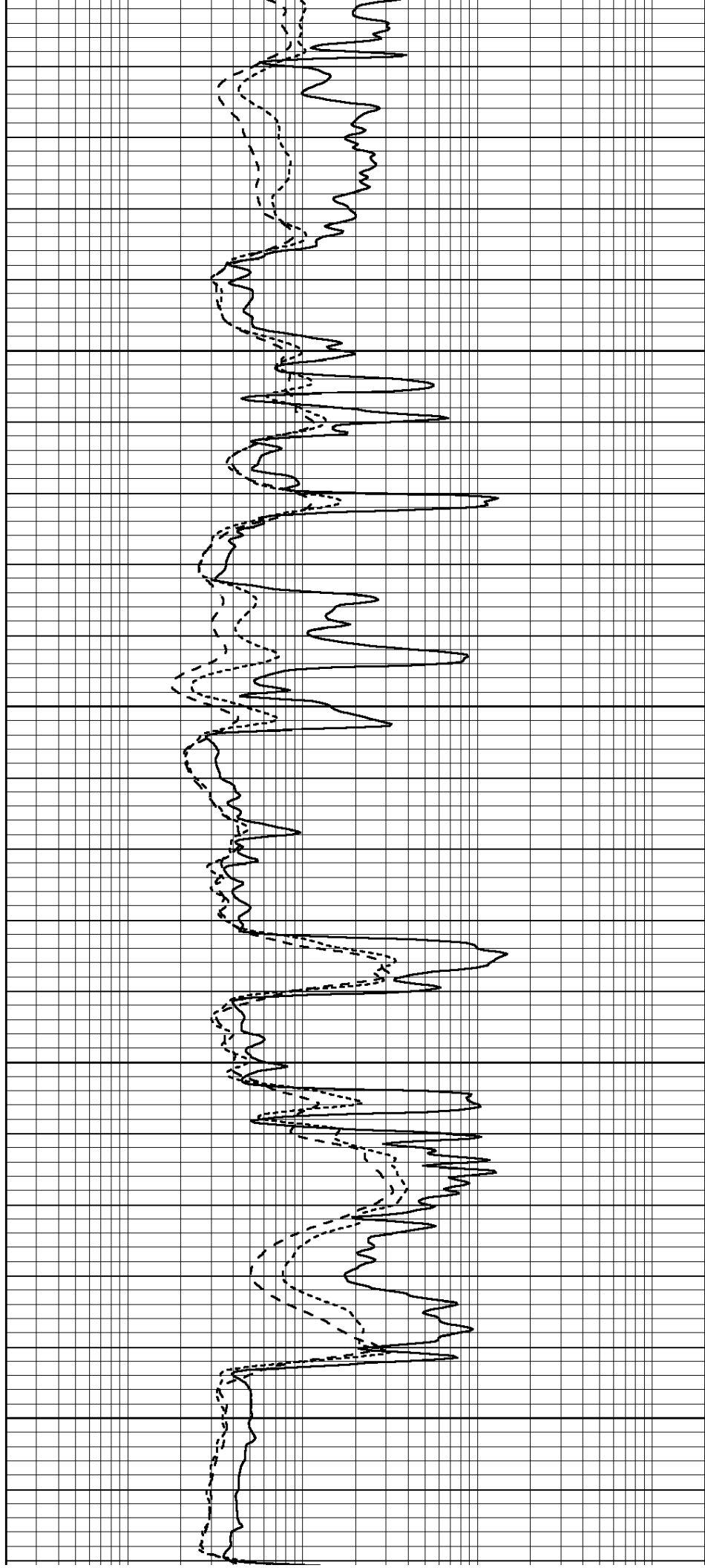


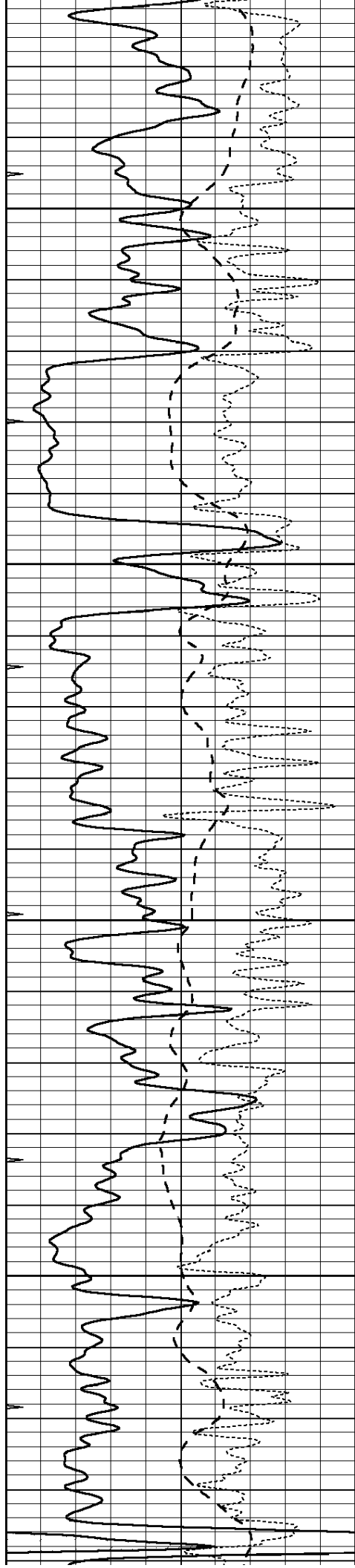
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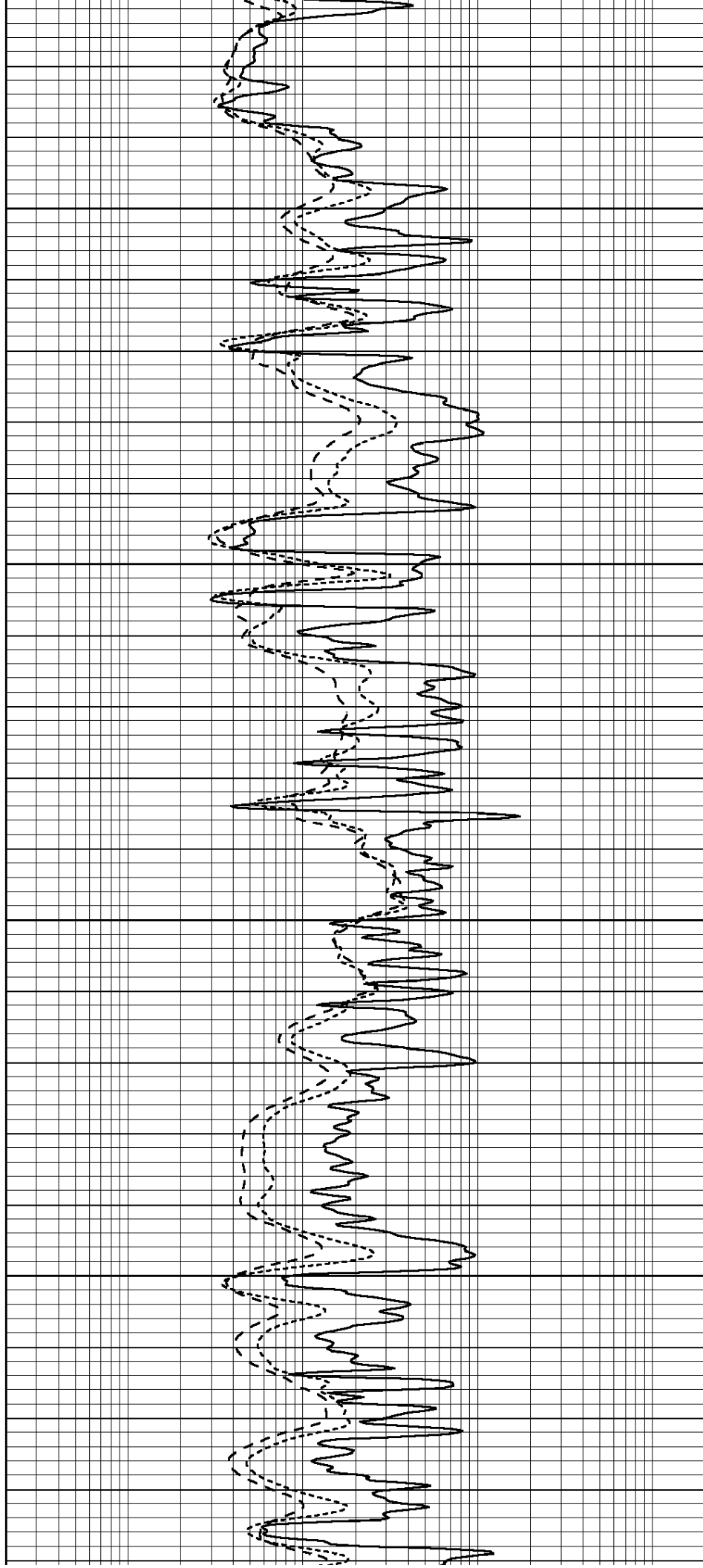


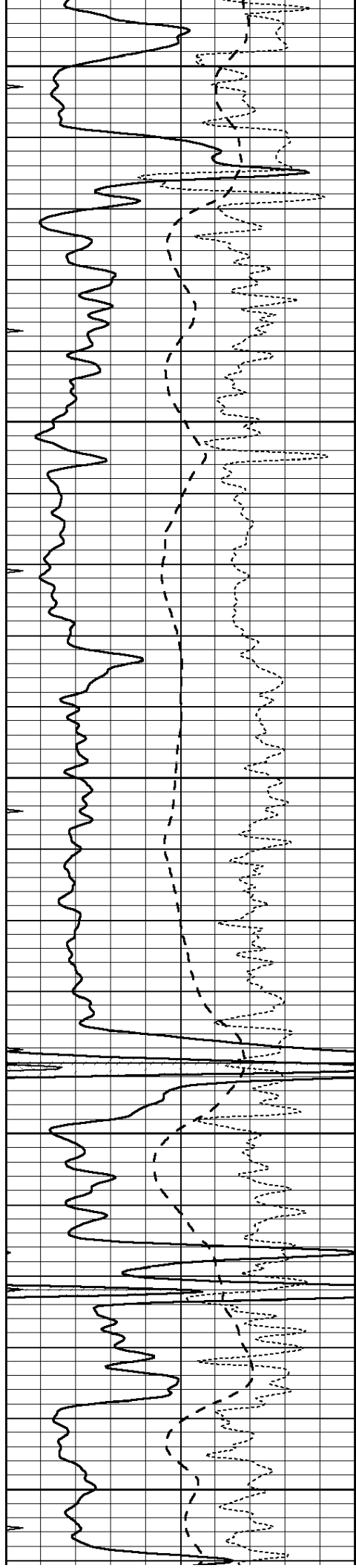
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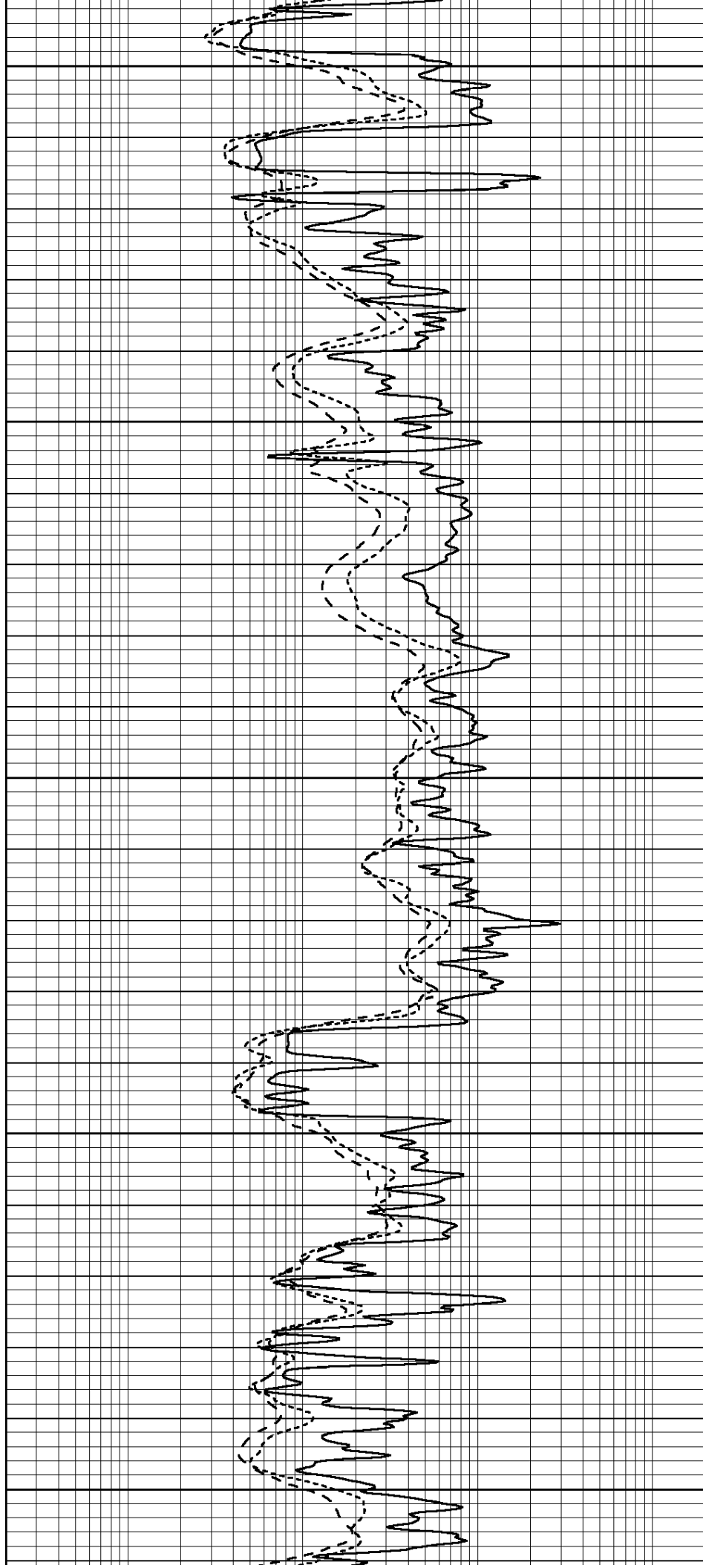
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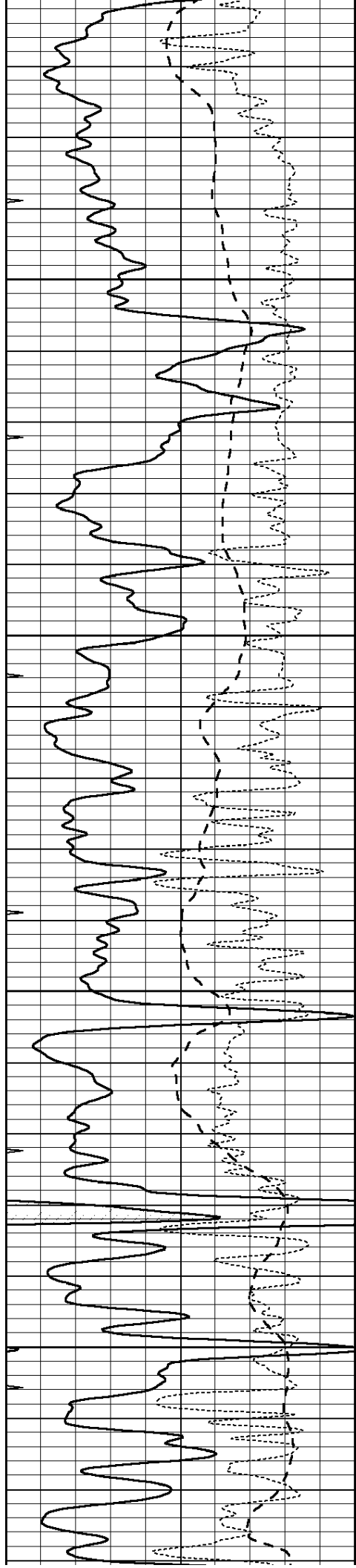
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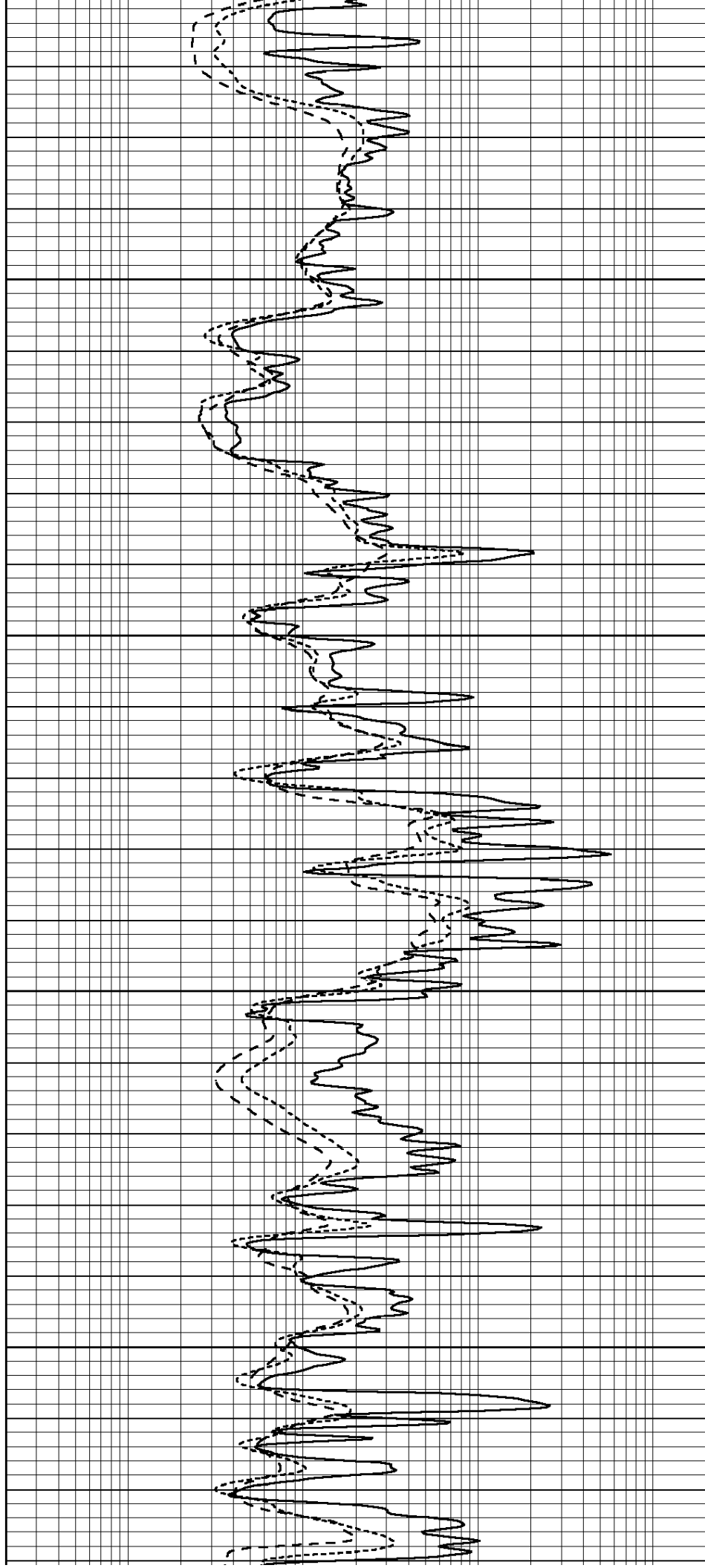


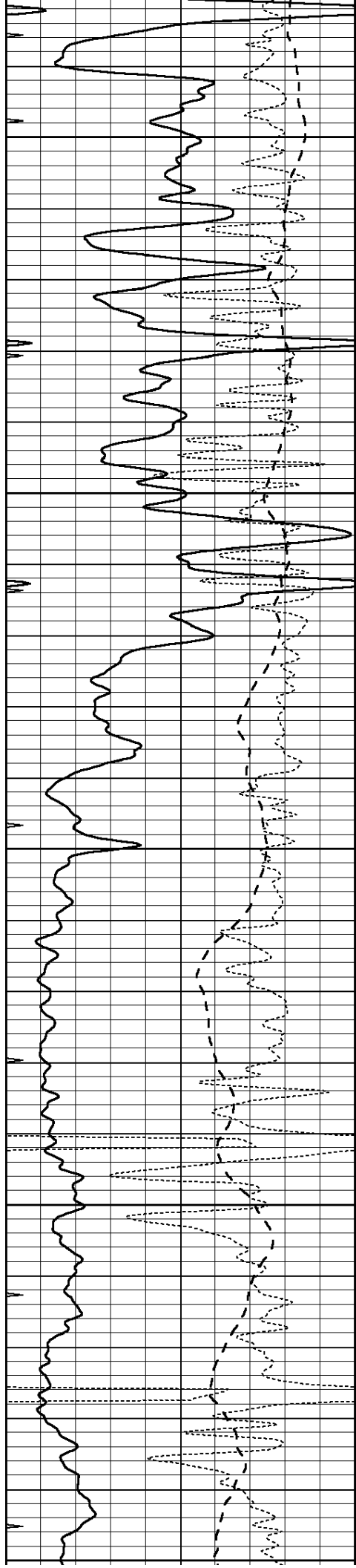
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5200





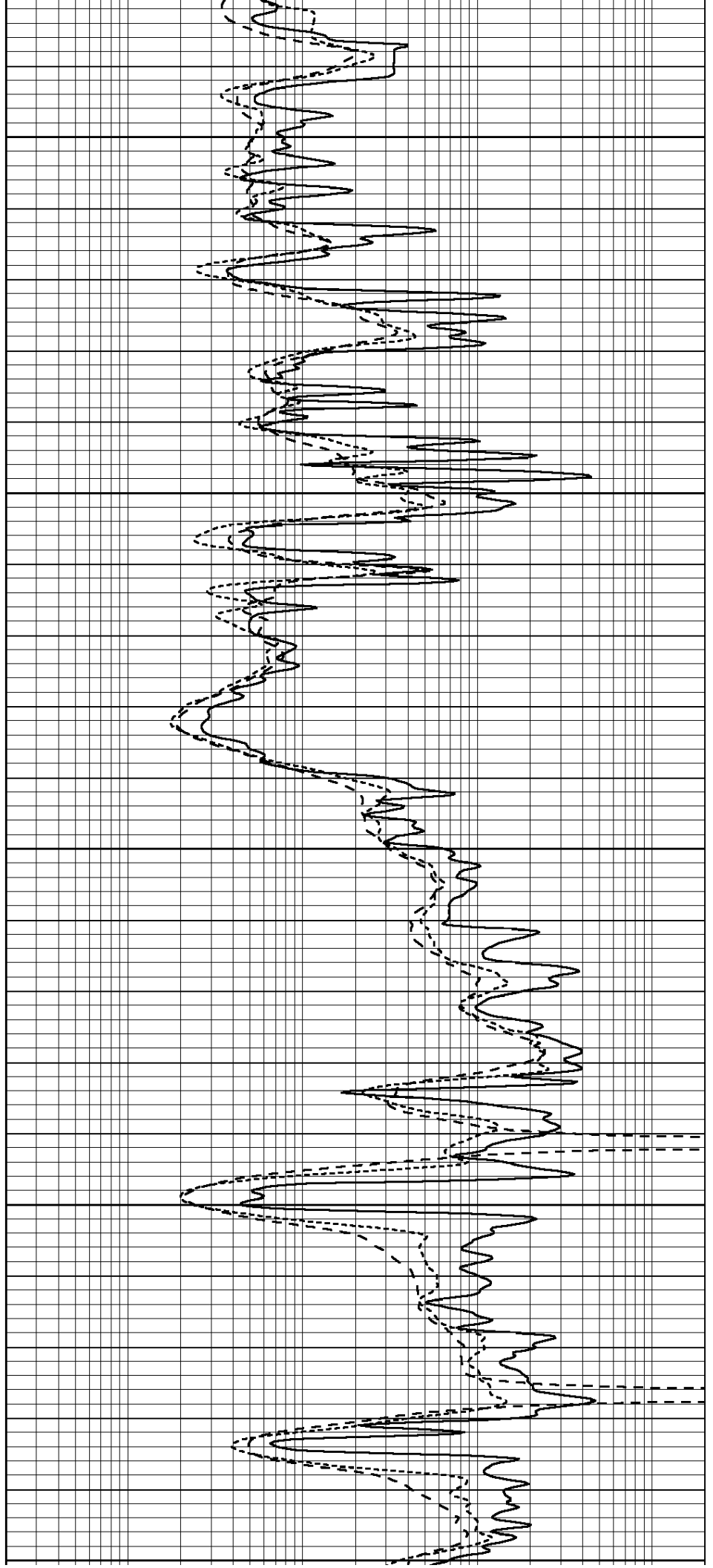
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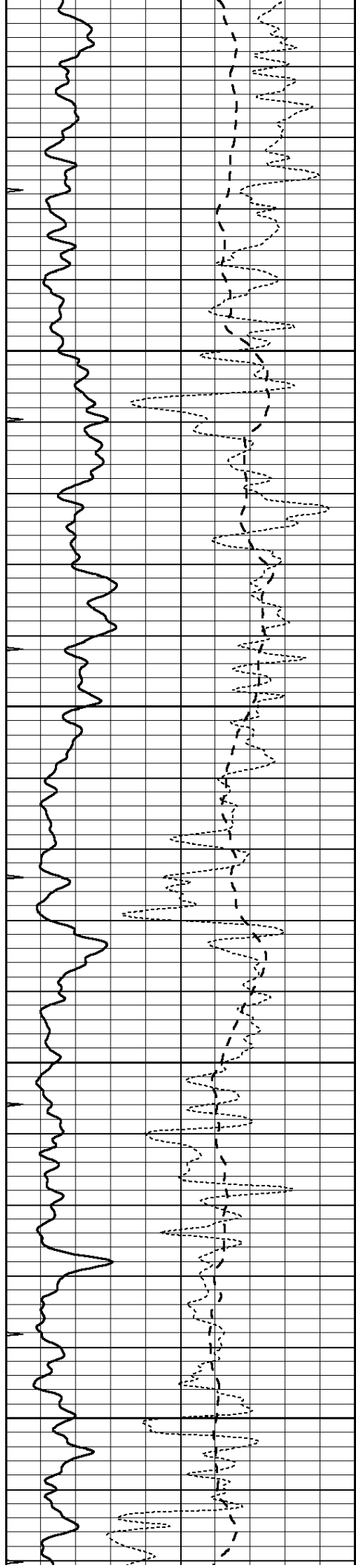
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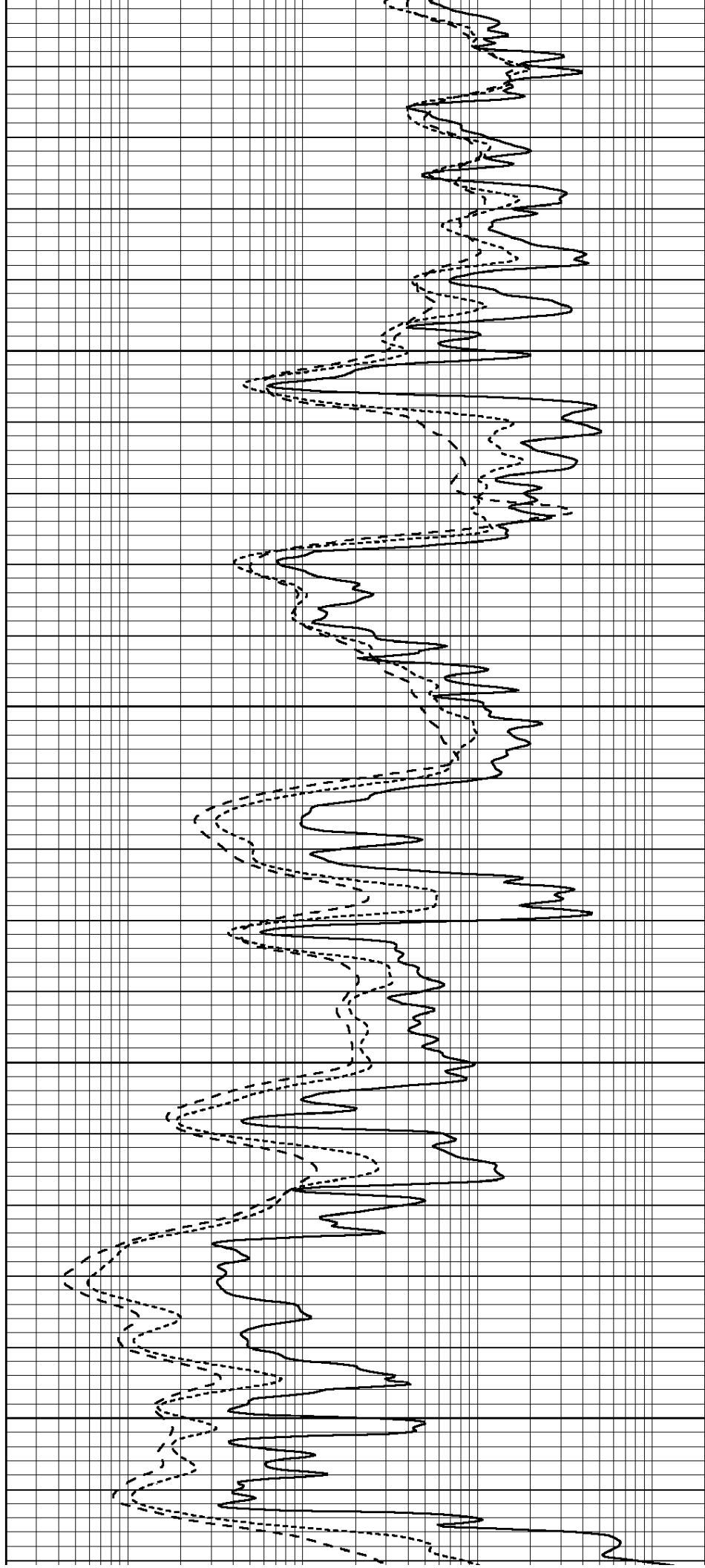


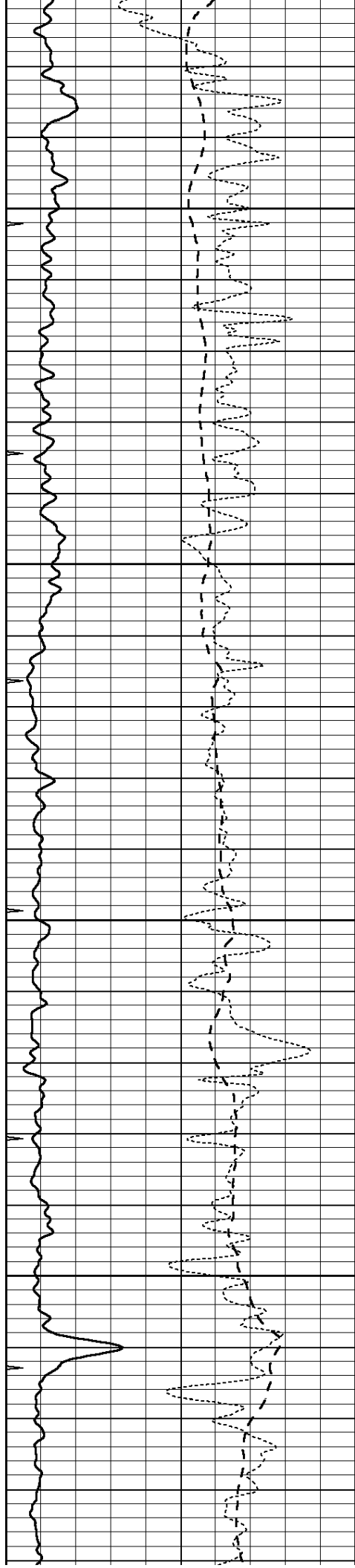
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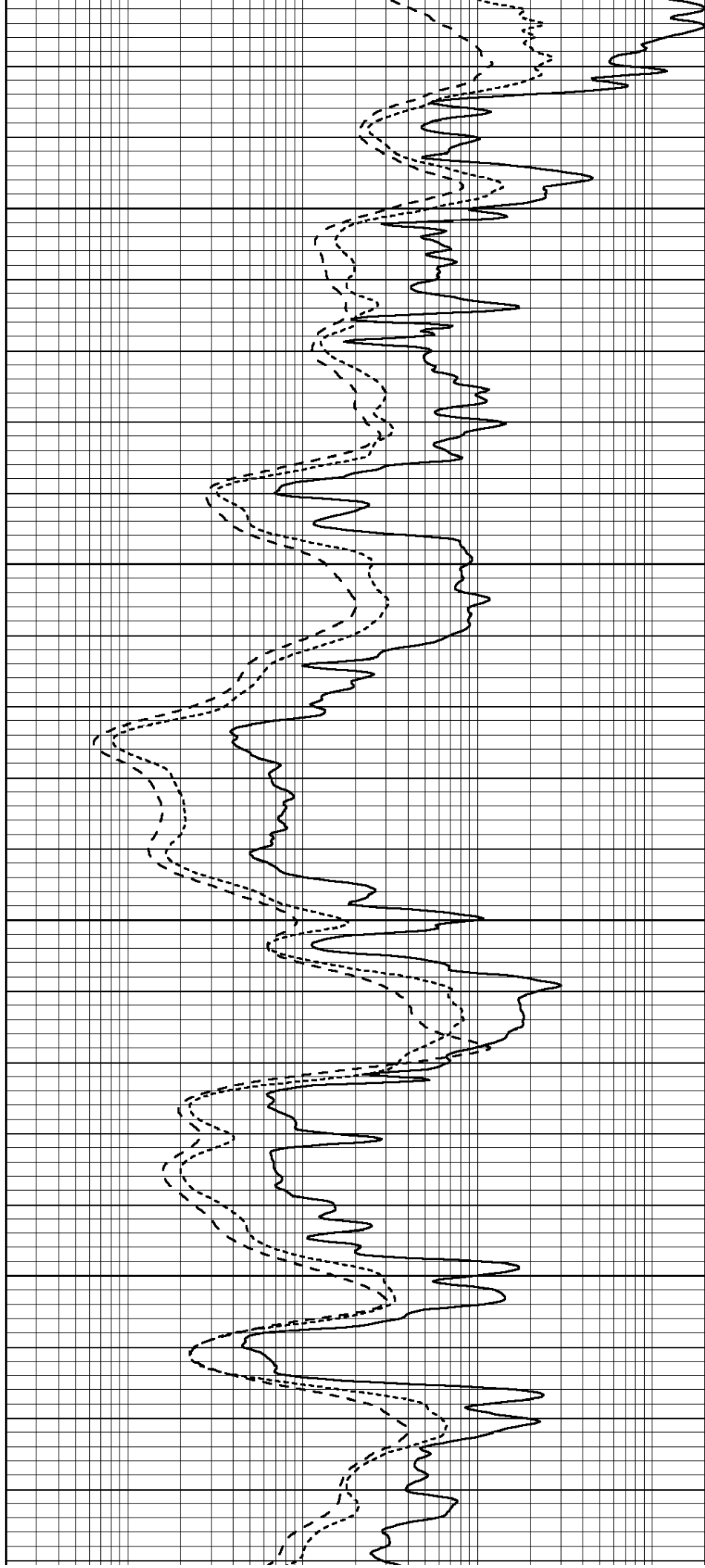


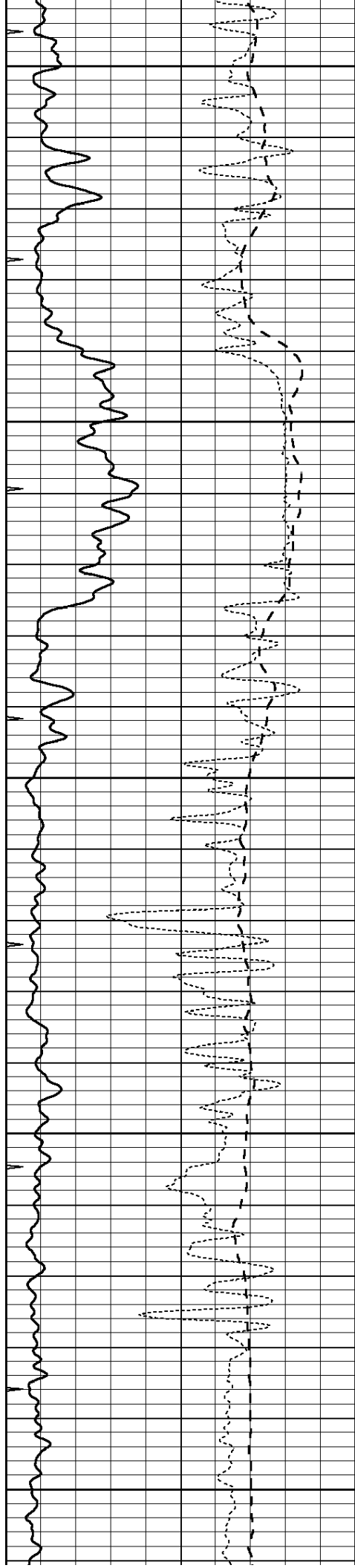
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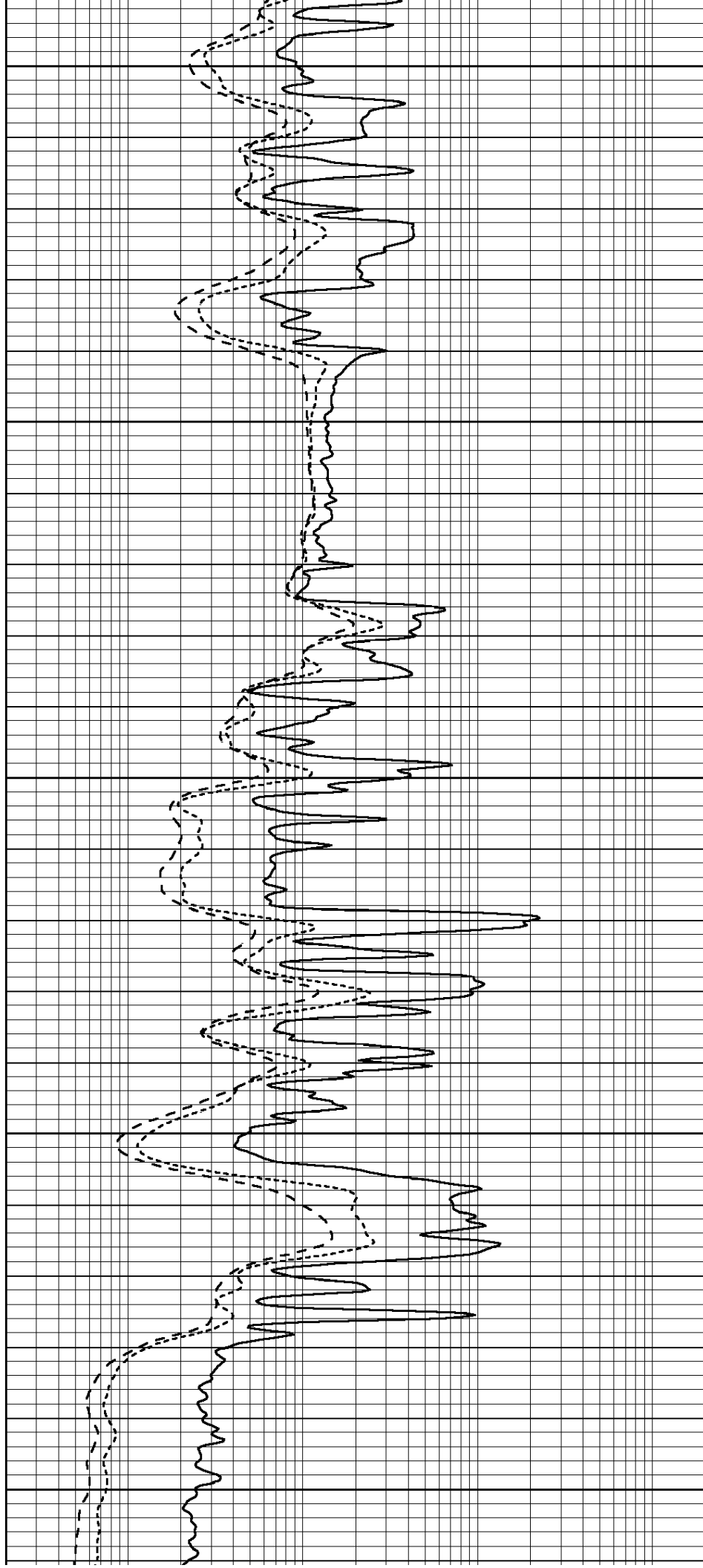
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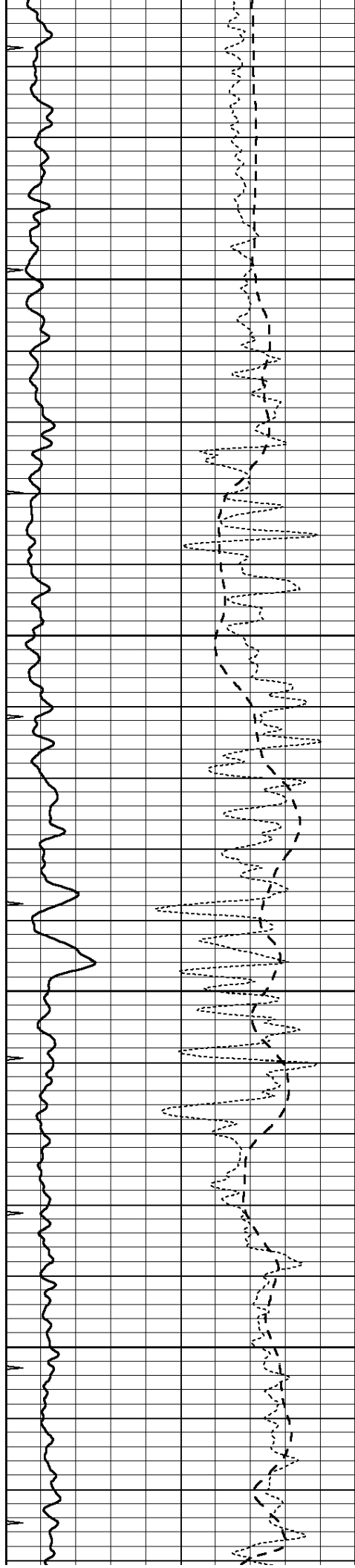
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6050

6100



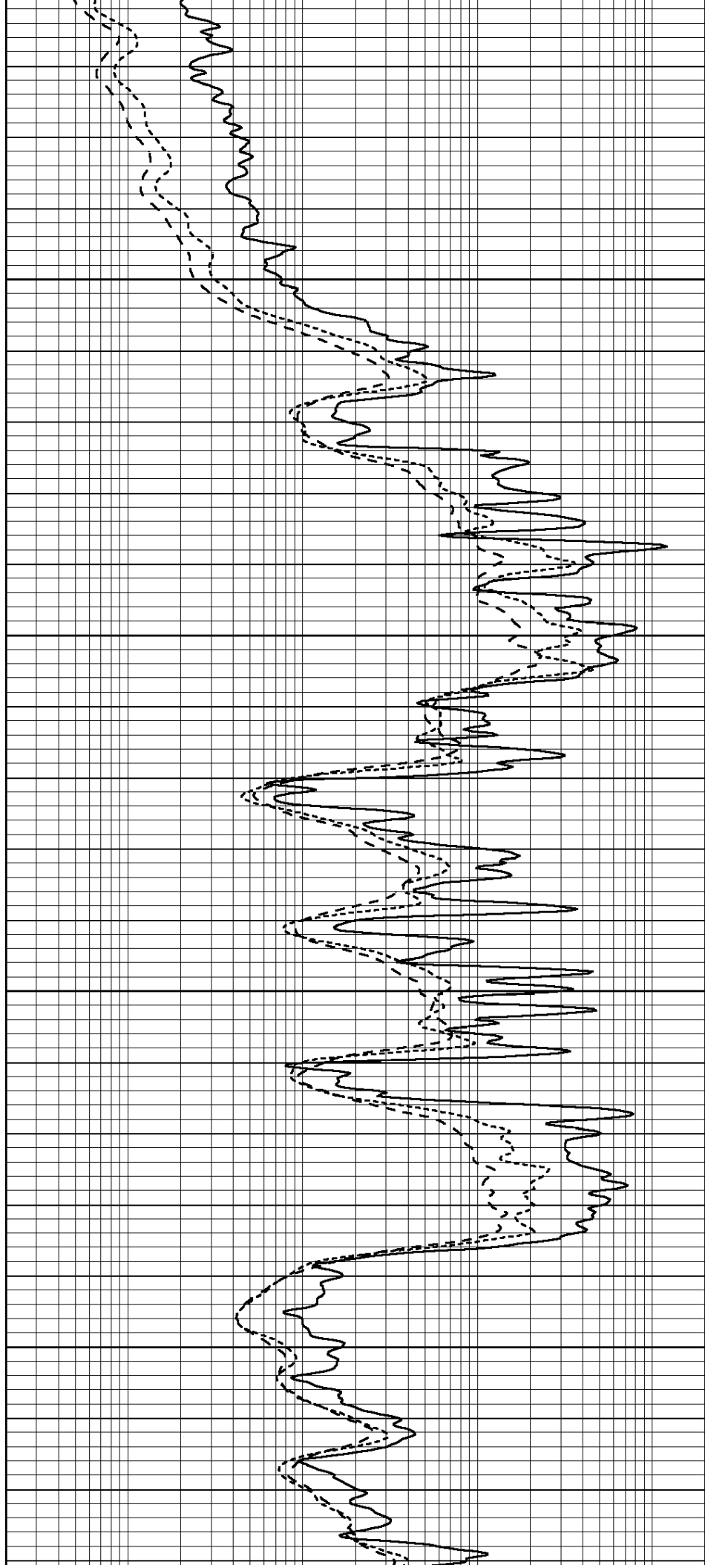


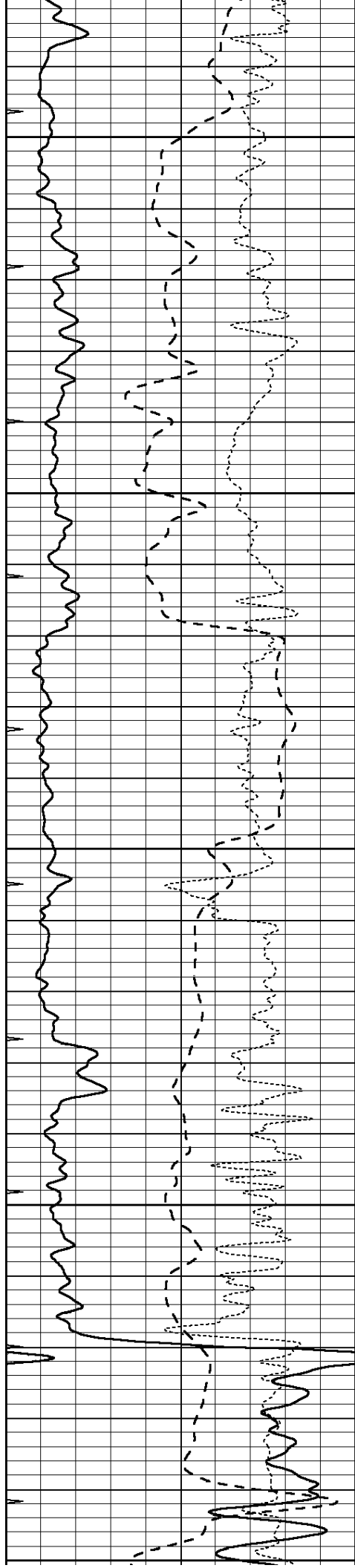
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6200

6250

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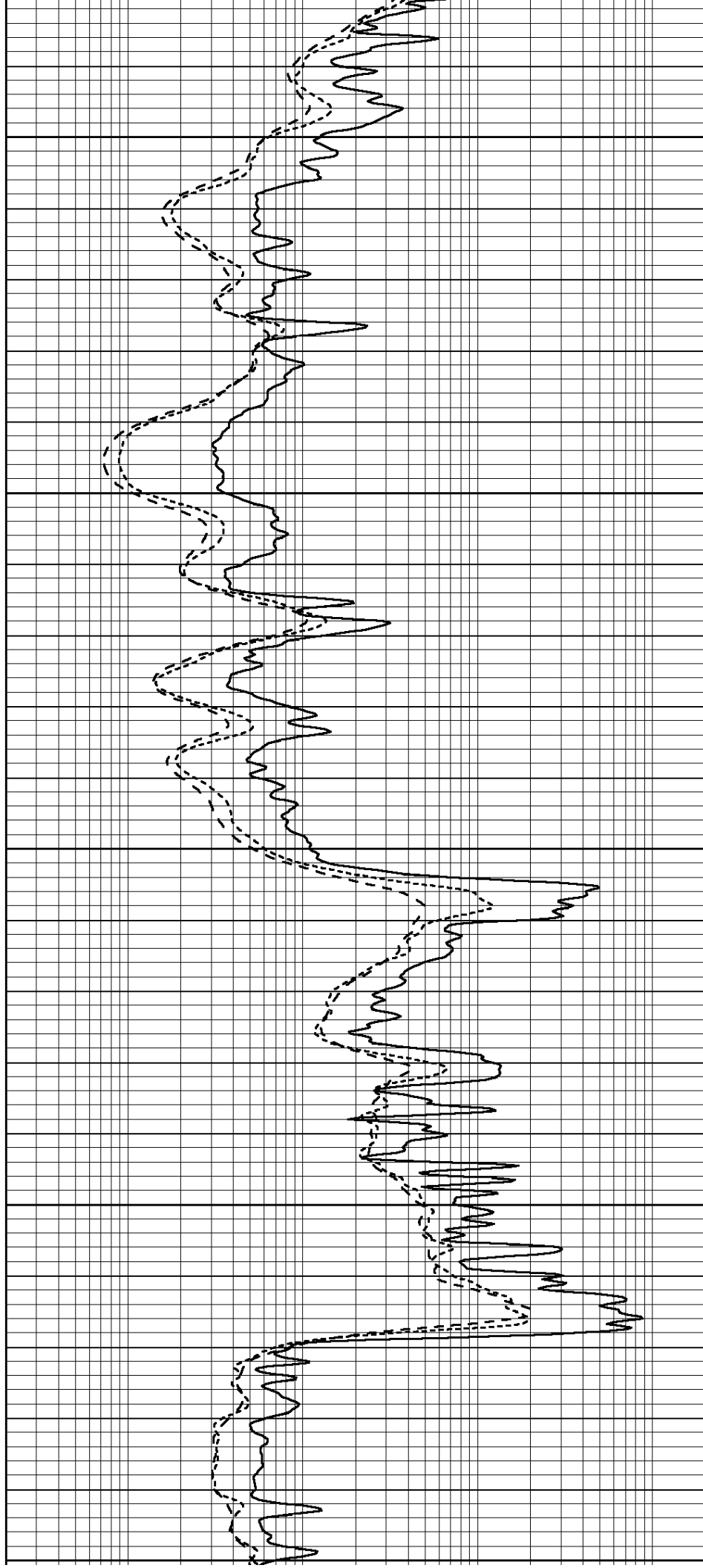
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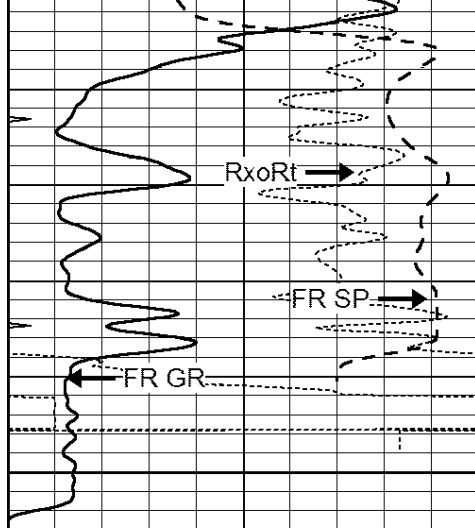
6400

6450

6500

6550





LTD 6592

6600

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

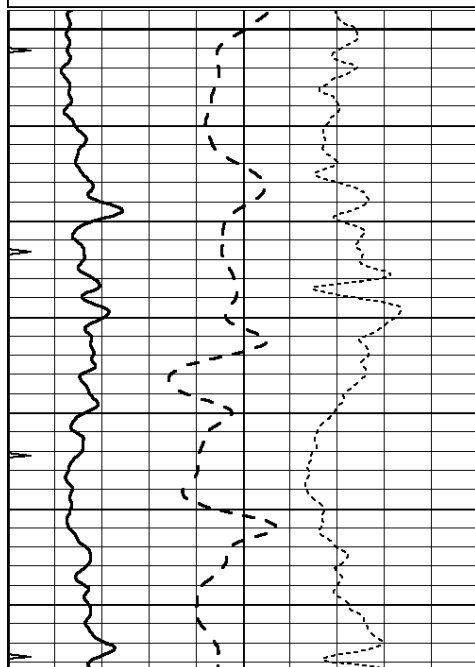


REPEAT SECTION

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 Presentation Format: _dil
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 Charted by: Depth in Feet scaled 1:240

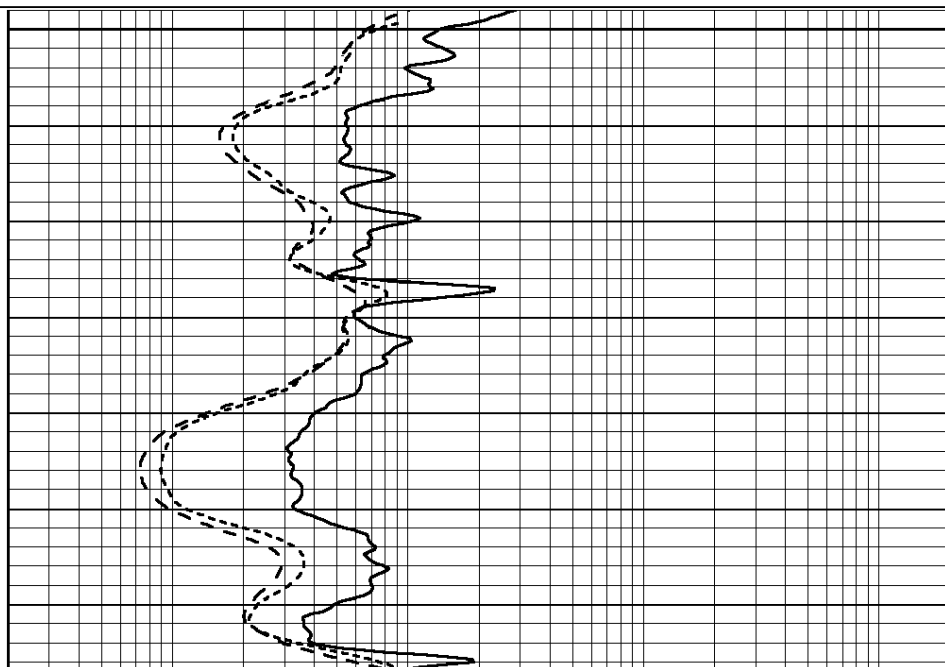
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0	MINMK	20

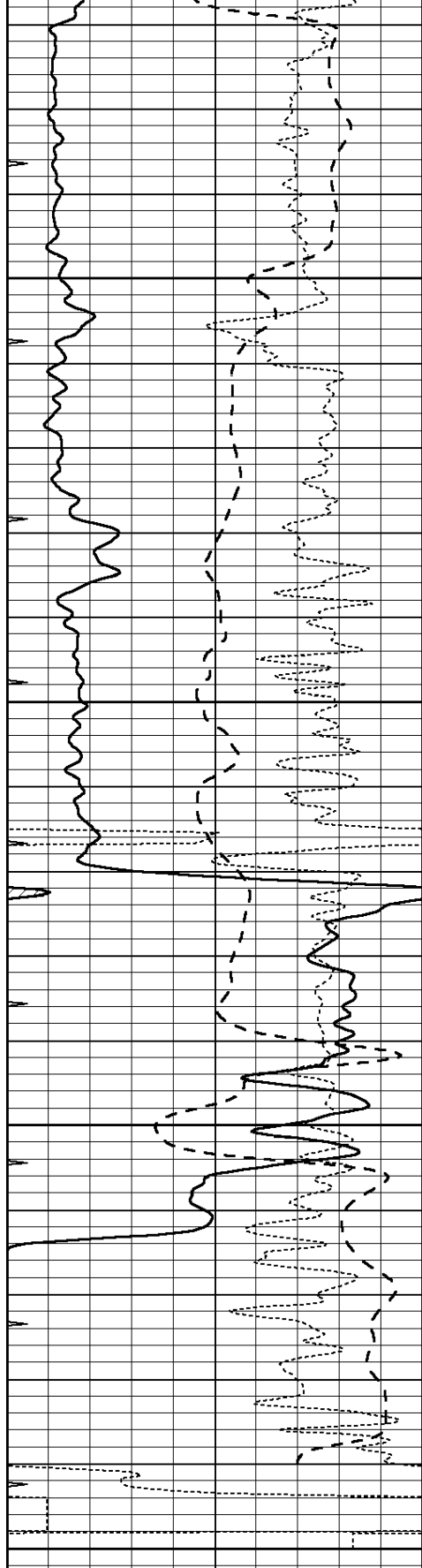
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



6350

6400





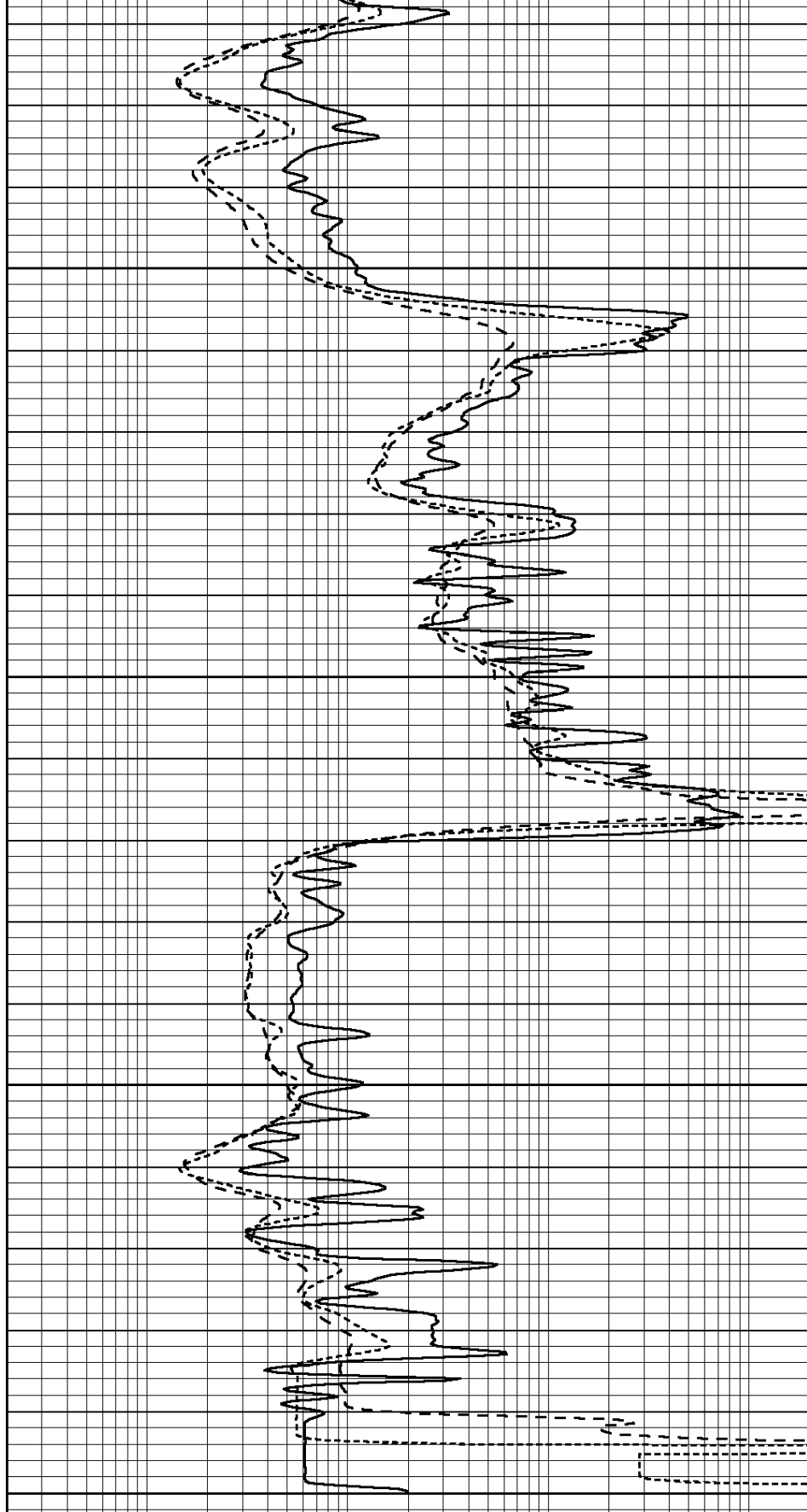
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

6450

6500

6550

6600



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

Database File: 24001pe.db
Dataset Pathname: pass3.8
Dataset Creation: Tue Feb 25 16:30:49 2014

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		

Litho Density Calibration Report

Serial: 001 Model: PRB

Master Calibration

Performed Thu Sep 17 09:57:21 2009

	Background	Magnesium	Aluminum	Sandstone	
Window 1	2056.0	9796.8	3673.1	10821.3	cps
Window 2	1920.0	8541.1	3303.5	9307.2	cps
Window 3	1563.1	4735.7	2212.8	5017.5	cps
Window 4	466.0	466.1	465.6	471.5	cps
Long Space	0.0	6621.1	1383.5	7387.2	cps
Short Space	2.5	2361.7	1523.2	2534.0	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.4	Rib Slope	: 0.978	Density/Spine Ratio	: 0.541
Spine Angle	: 74.4	Spine Slope	: 3.570	Spine Intercept	: -18.9

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	

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	

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Compensated Neutron Calibration Report

Serial Number:	6I
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

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

PRE-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

POST-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

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