



SUPERIOR
Hays,
Kansas

DUAL
INDUCTION
LOG

Company	ATLAS OPERATING, LLC
Well	SANDERS - SCHMISSEUR #5
Field	SPIVEY - GRAB - BASIL
County	HARPER
State	KANSAS
Location:	API # : 15-077-21840-0000 2310' FWL & 990' FWL SE - SW - NW
Permanent Datum Log Measured From Drilling Measured From	GROUND LEVEL KELLY BUSHING 10' A.G.L. KELLY BUSHING
Other Services CDL/CNL PE/MEI	Elevation K.B. 1566 D.F. 1568 G.L. 1556
Date	5-17-12
Run Number	ONE
Depth Driller	4570
Depth Logger	4573
Bottom Logged Interval	4571
Top Log Interval	0
Casing Driller	268
Casing Logger	268
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4 / 52
pH / Fluid Loss	11.5 / 10.0
Source of Sample	FLOWLINE
Rim @ Meas. Temp	0.70 @ 83F
Rmf @ Meas. Temp	0.37 @ 83F
Rmc @ Meas. Temp	0.59 @ 83F
Source of Rmf / Rmc	MEASURED
Rim @ BHT	0.48 @ 121F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	
Maximum Recorded Temperature	121F
Equipment Number	860
Location	HAYS, KS.
Recorded By	JEFF GRONEWEG
Witnessed By	SAMAN SHARITALE
	PAT DEENIHAN

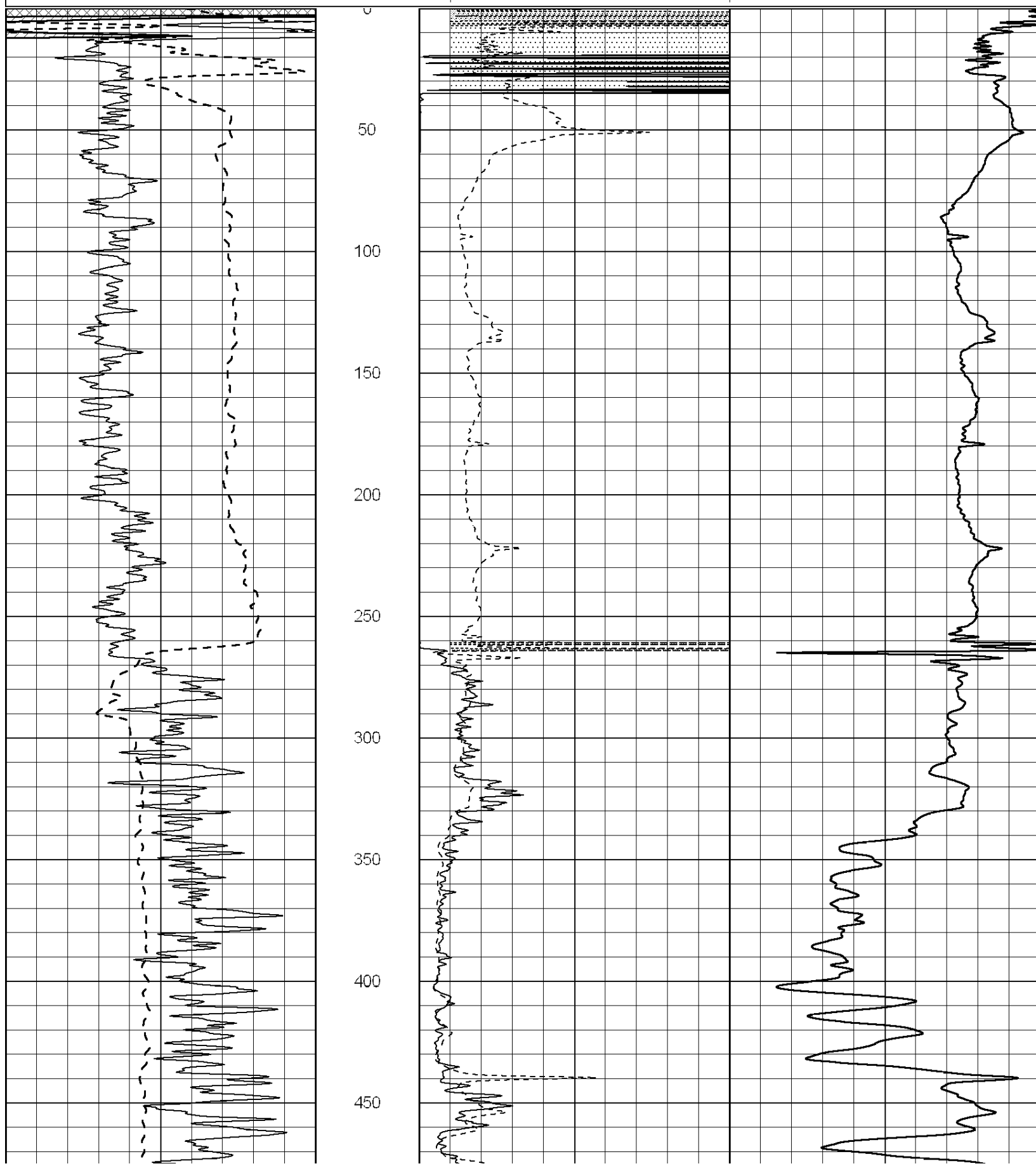
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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

SUPERIOR WELL SERVICES
785-628-6395
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: ZENDA, KS - 4 MILES EAST TO RD 50 - SOUTH TO SPIVEY GAS PLANT
3 MILES SOUTH TO RD 120 - 1 MILE EAST - 1/2 MILE SOUTH - EAST INTO

0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50	
			0	Deep Induction (Ohm-m)	50	
			1000		CILD (mmho/m)	0
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	



500

550

600

650

700

750

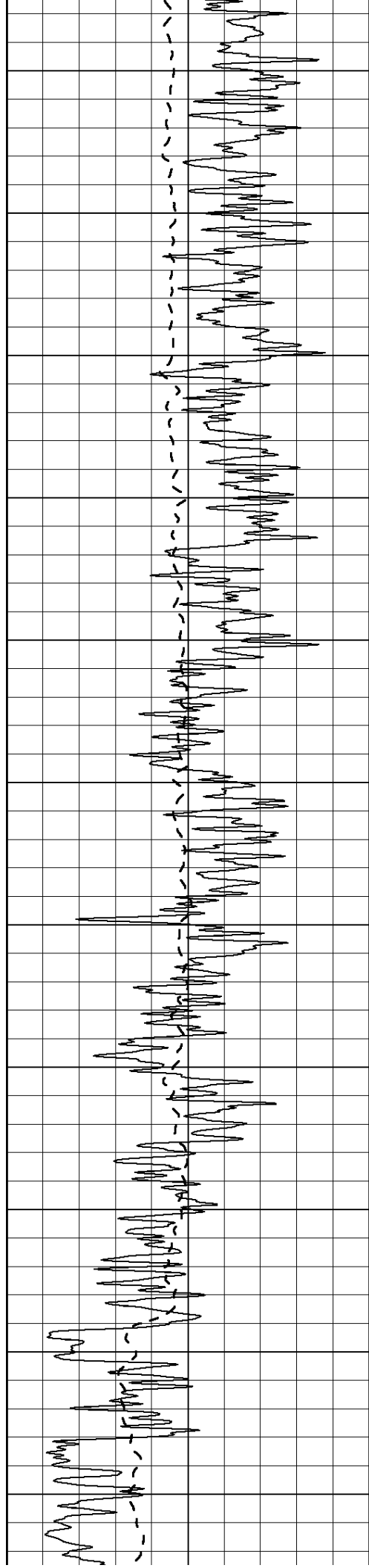
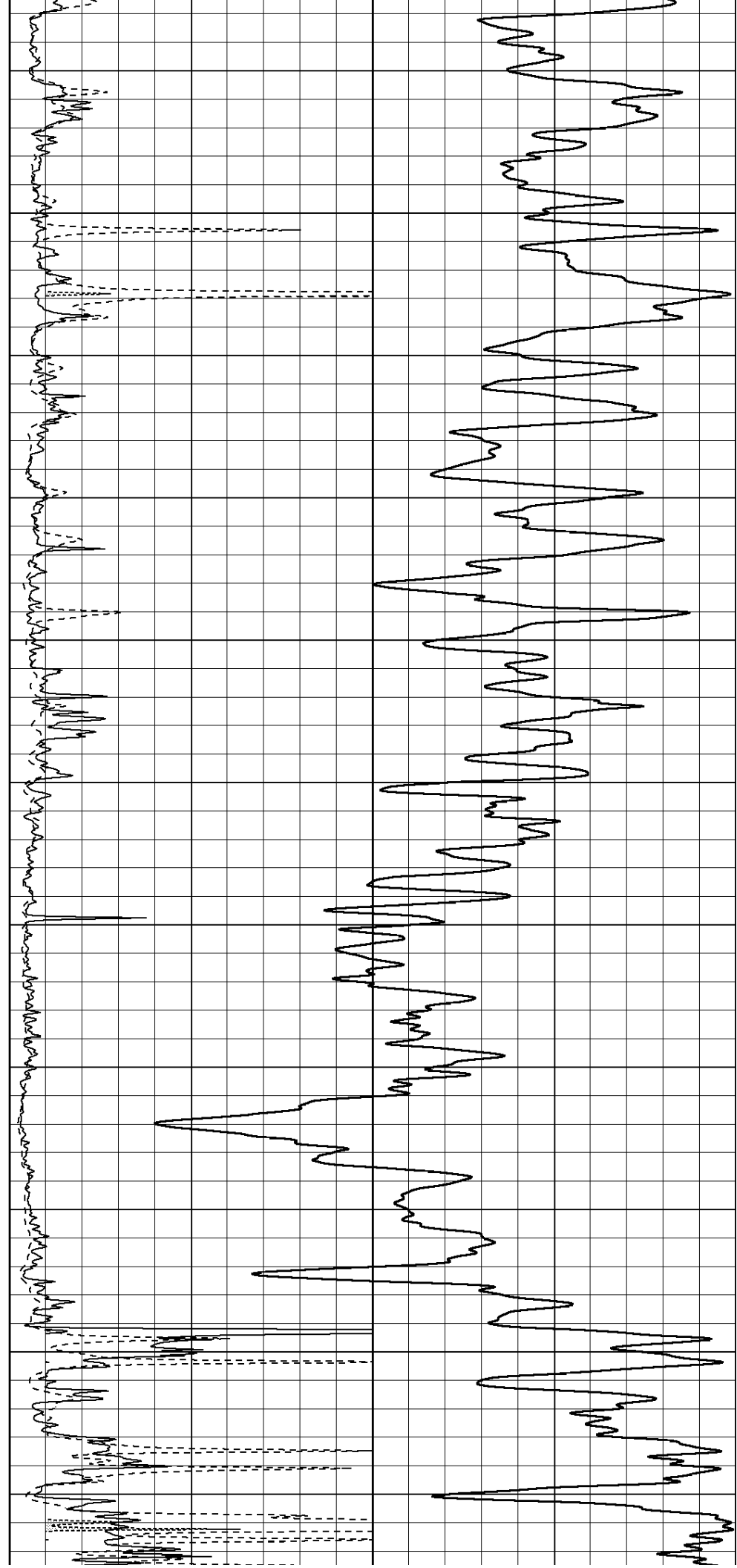
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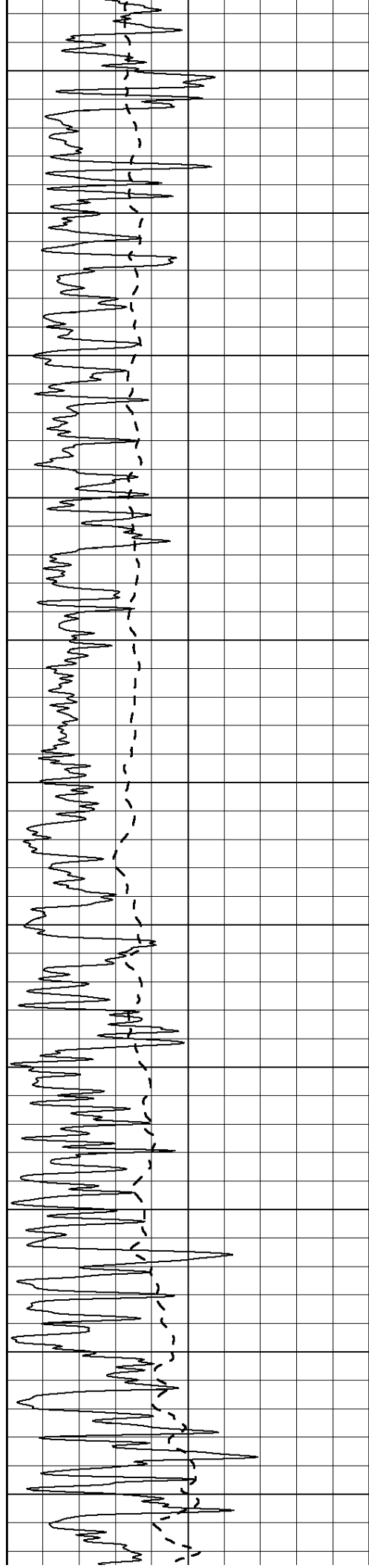
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900

950

1000





1050

1100

1150

1200

1250

1300

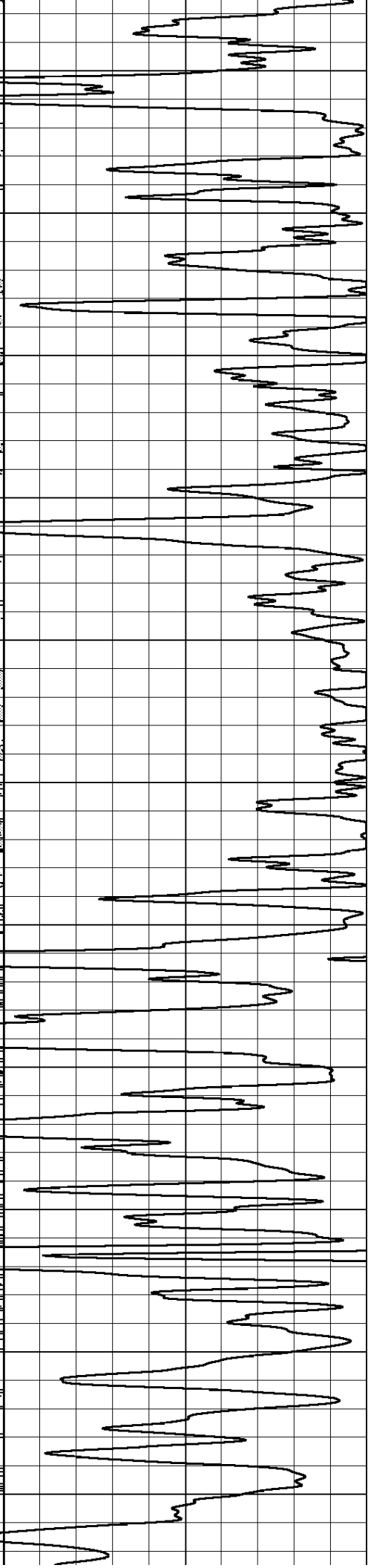
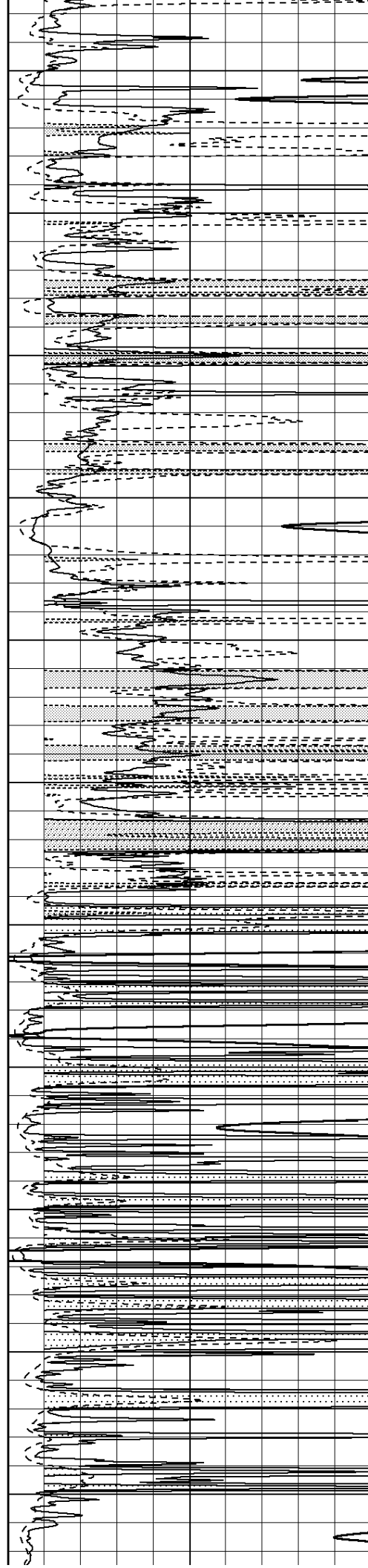
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1400

1450

1500

1550



1600

1650

1700

1750

1800

1850

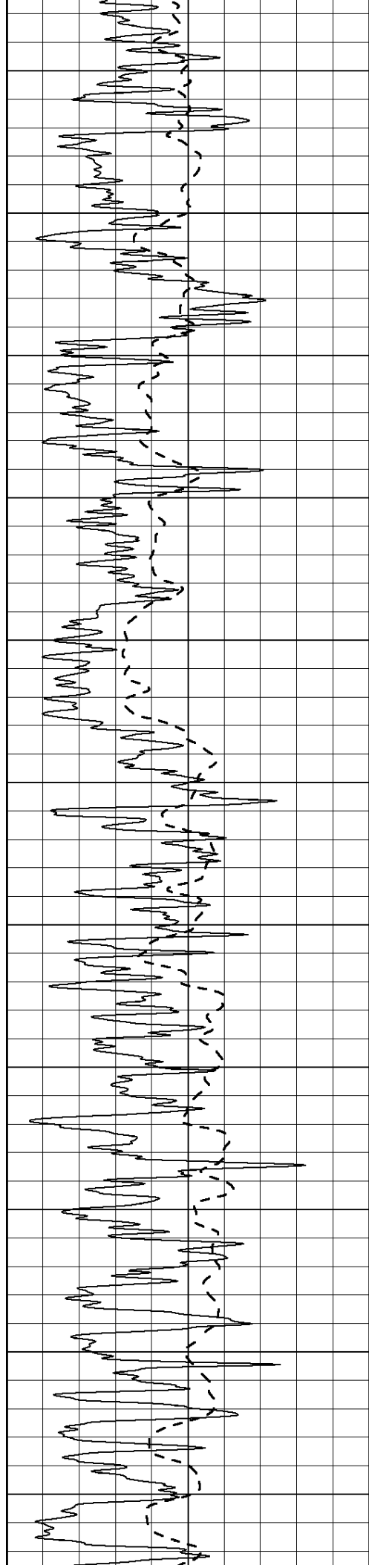
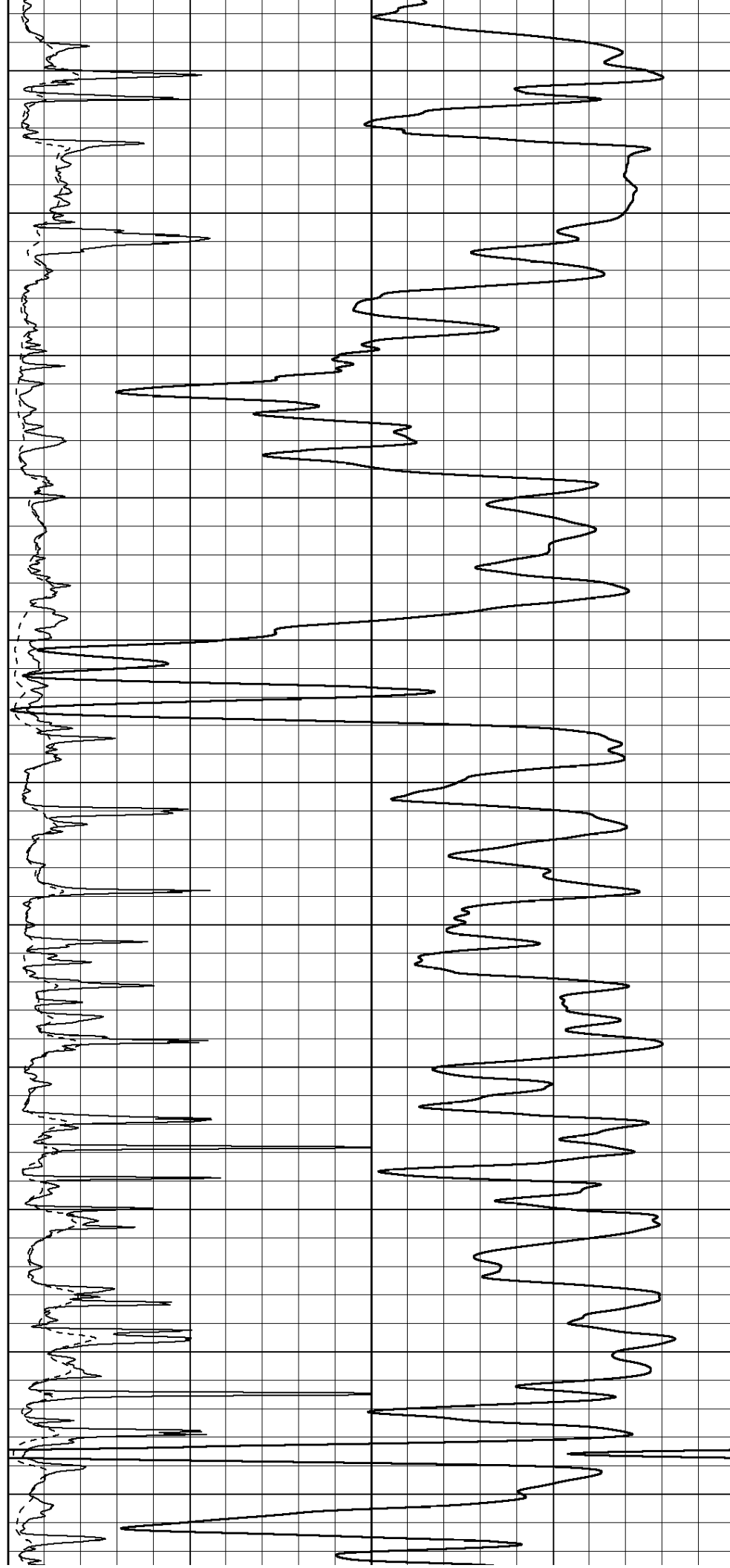
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1950

2000

2050

2100



2150

2200

2250

2300

2350

2400

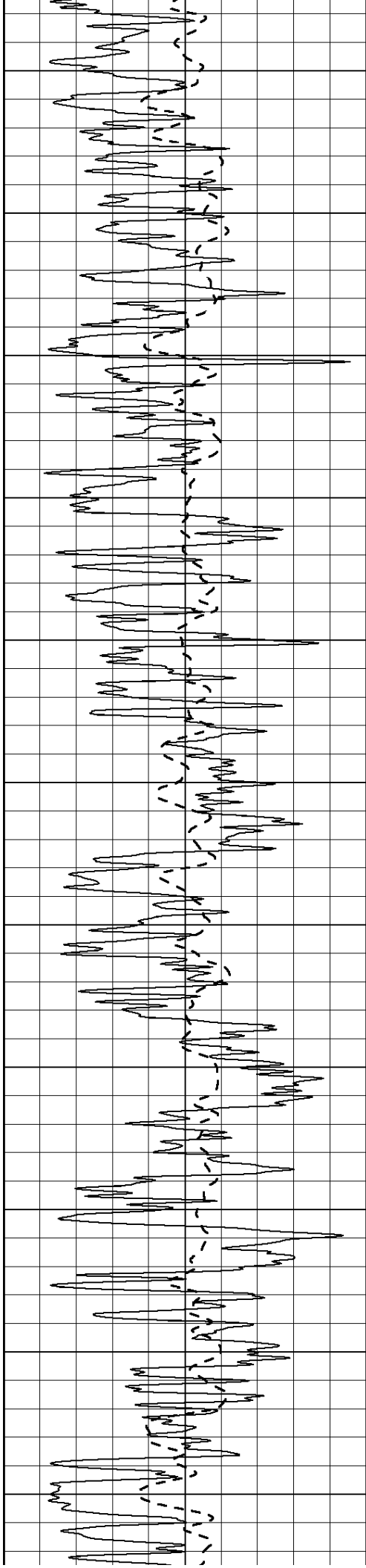
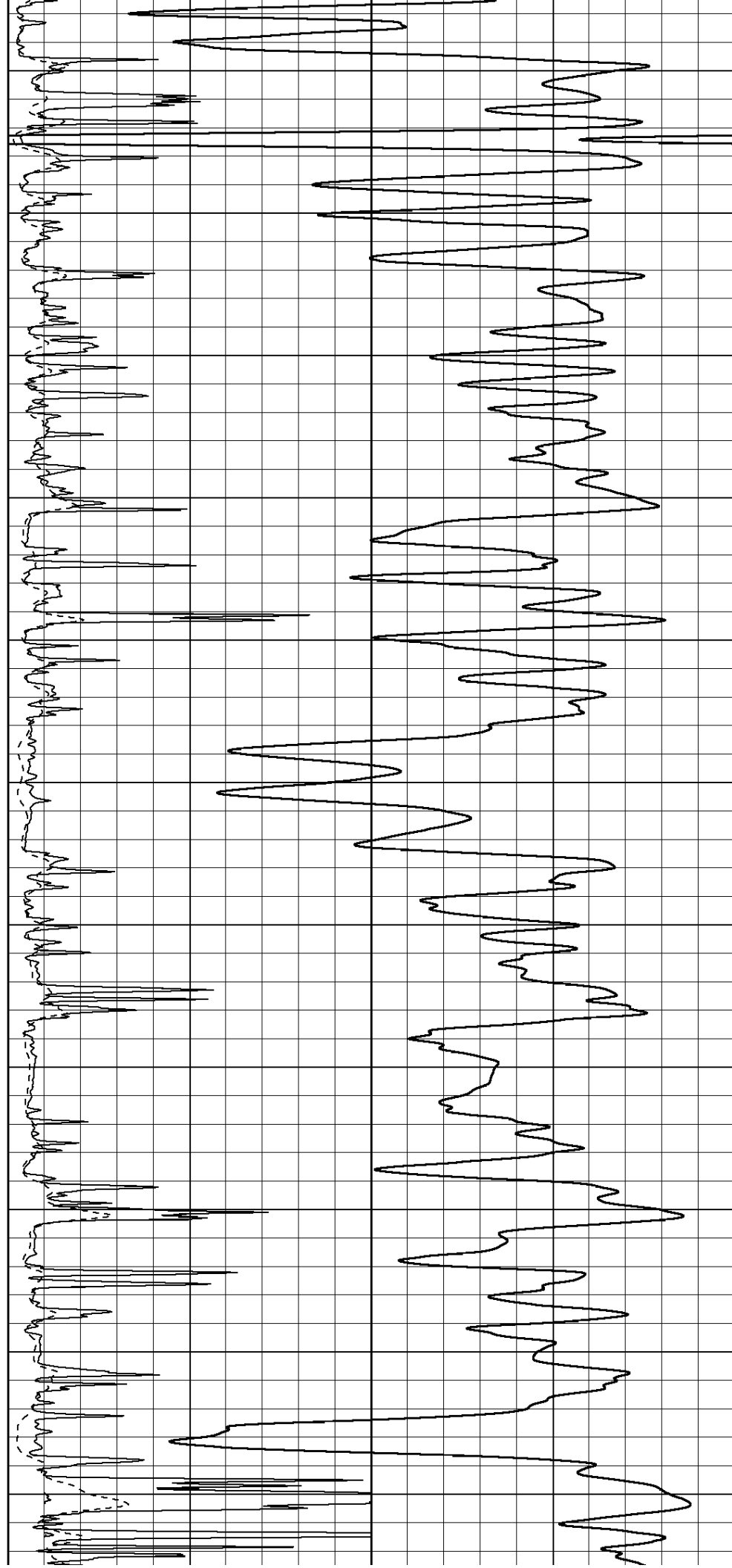
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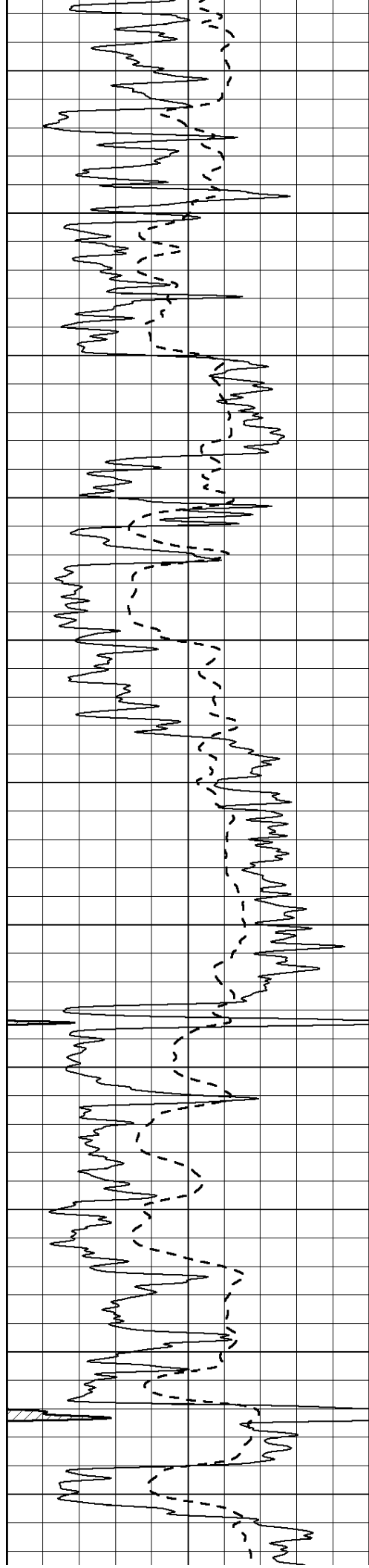
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2550

2600

2650





2700

2750

2800

2850

2900

2950

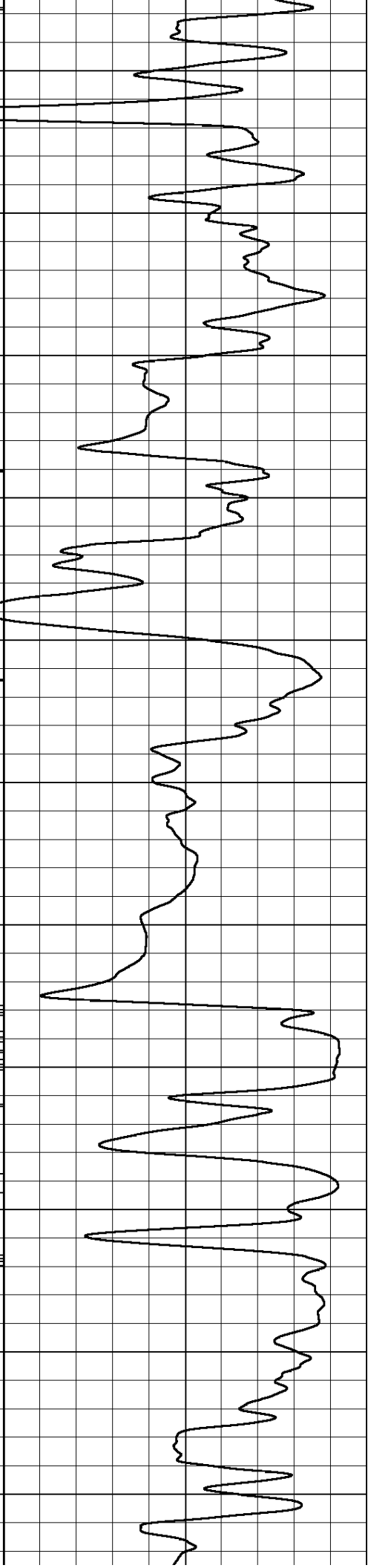
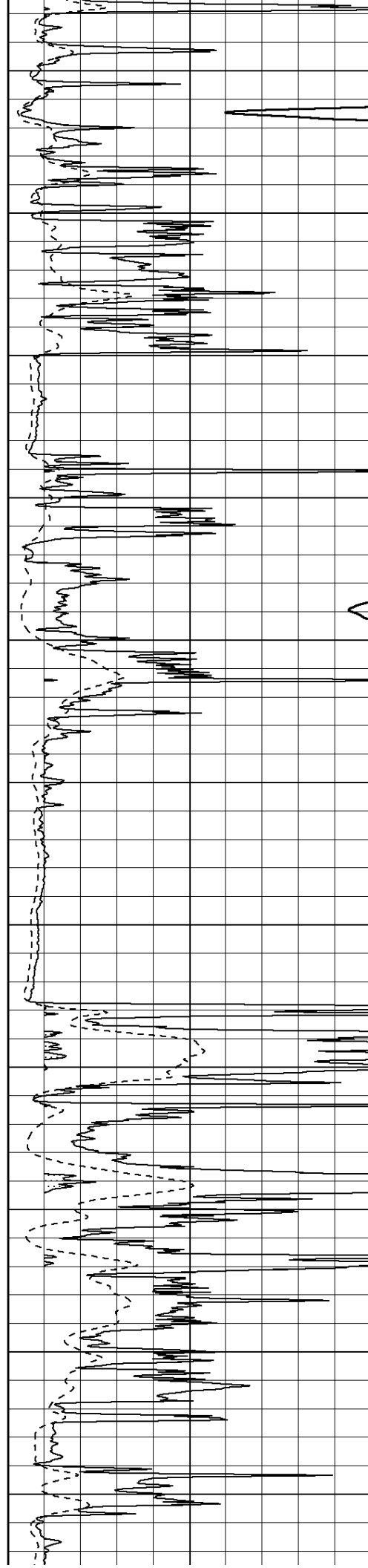
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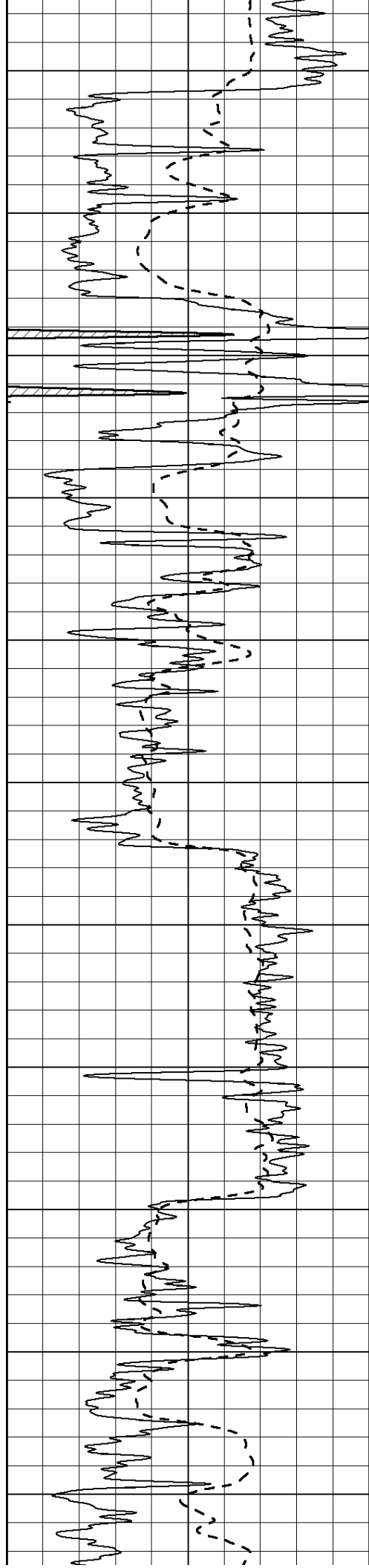
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3150

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3350

3400

3450

3500

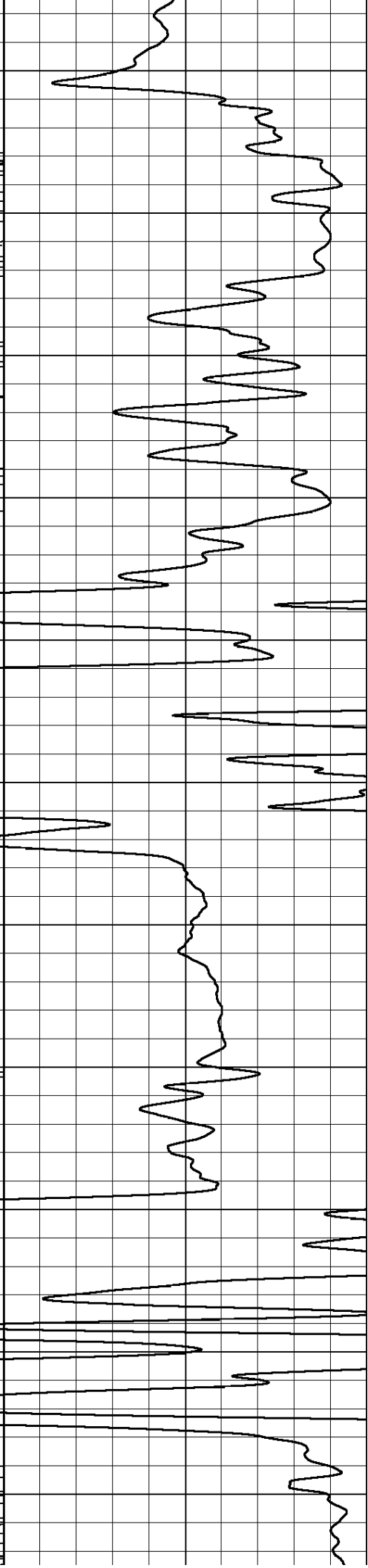
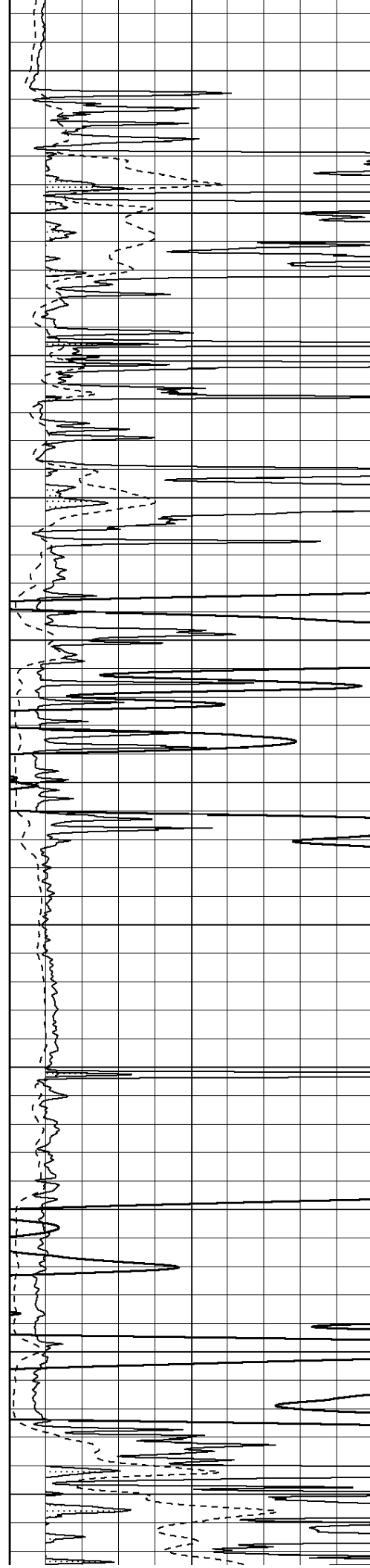
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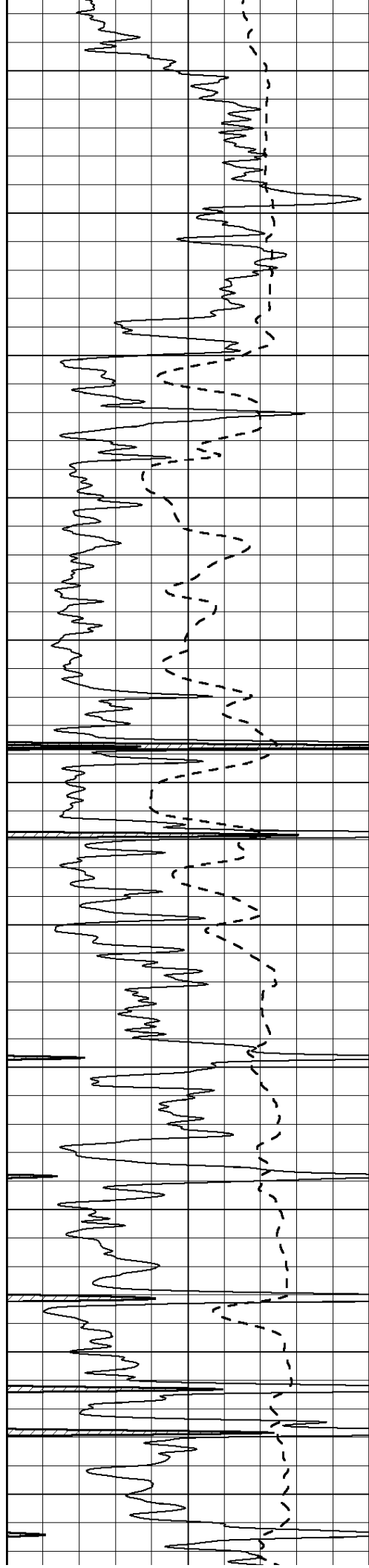
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3850

3900

3950

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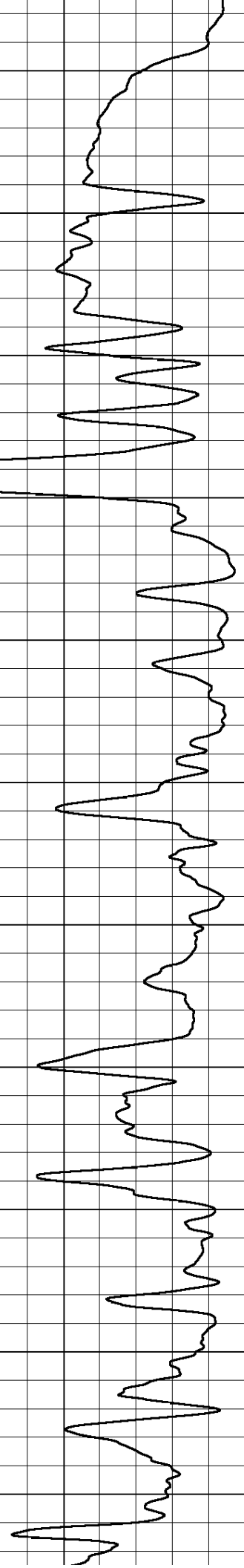
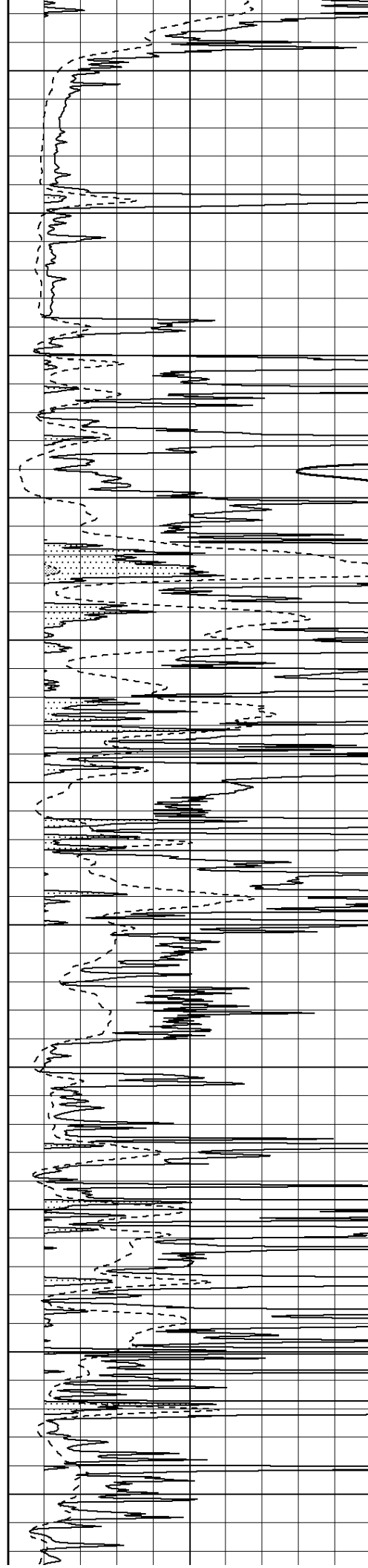
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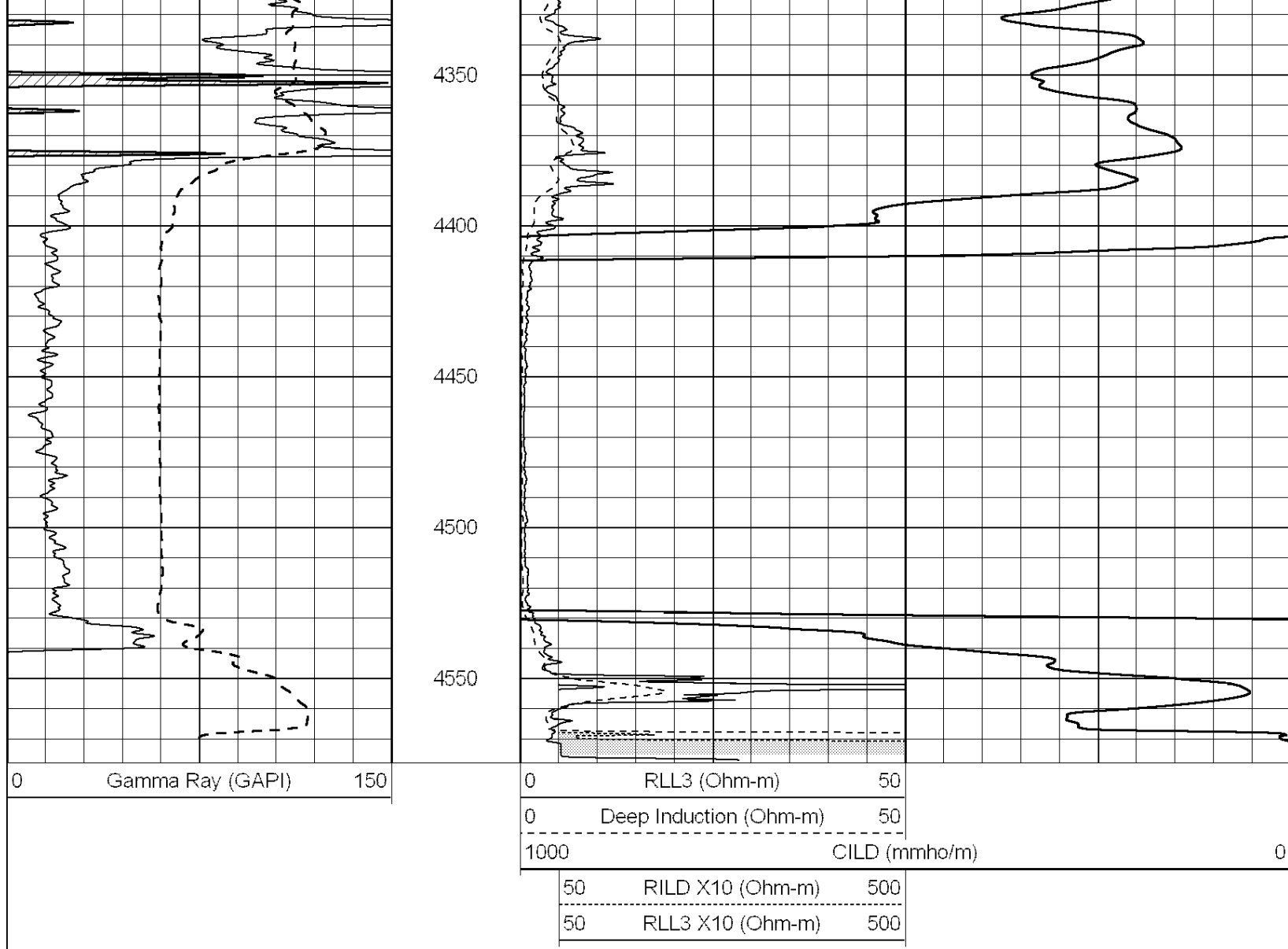
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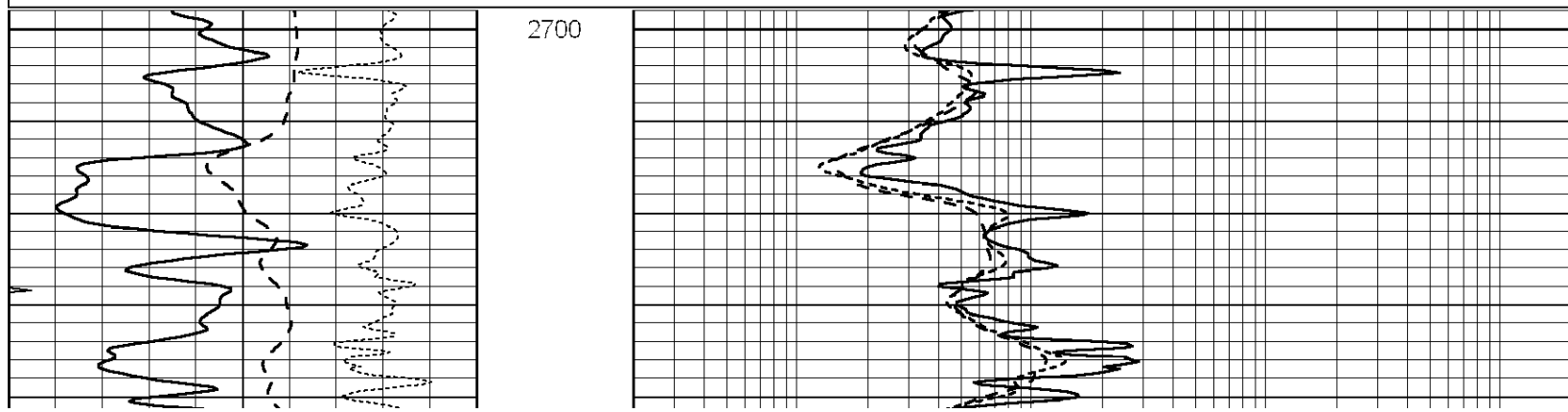
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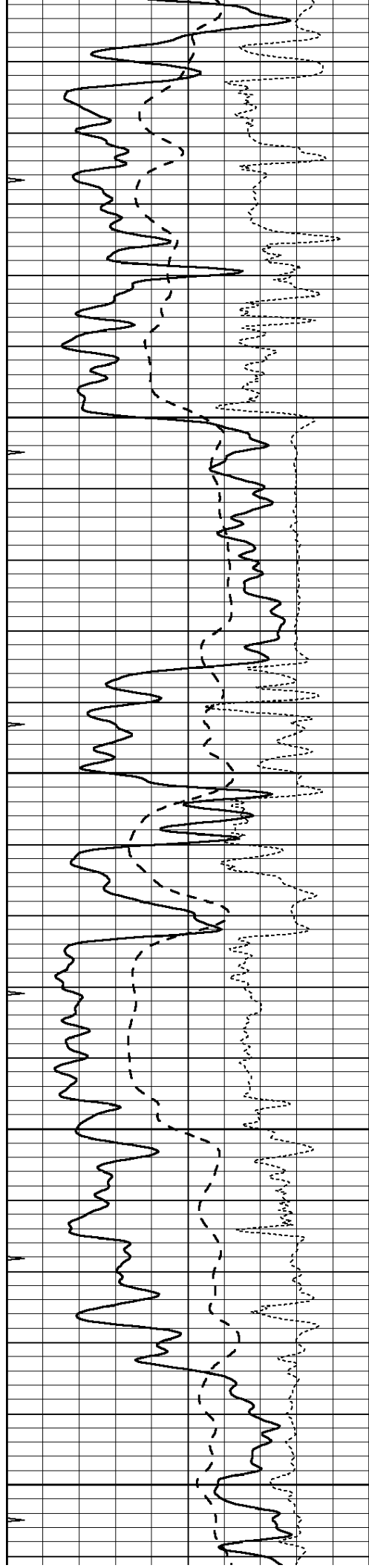




Database File: 009119pe.db
 Dataset Pathname: pass3.1
 Presentation Format: dil
 Dataset Creation: Thu May 17 22:36:40 2012 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	RLL3 (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	RxoRt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			





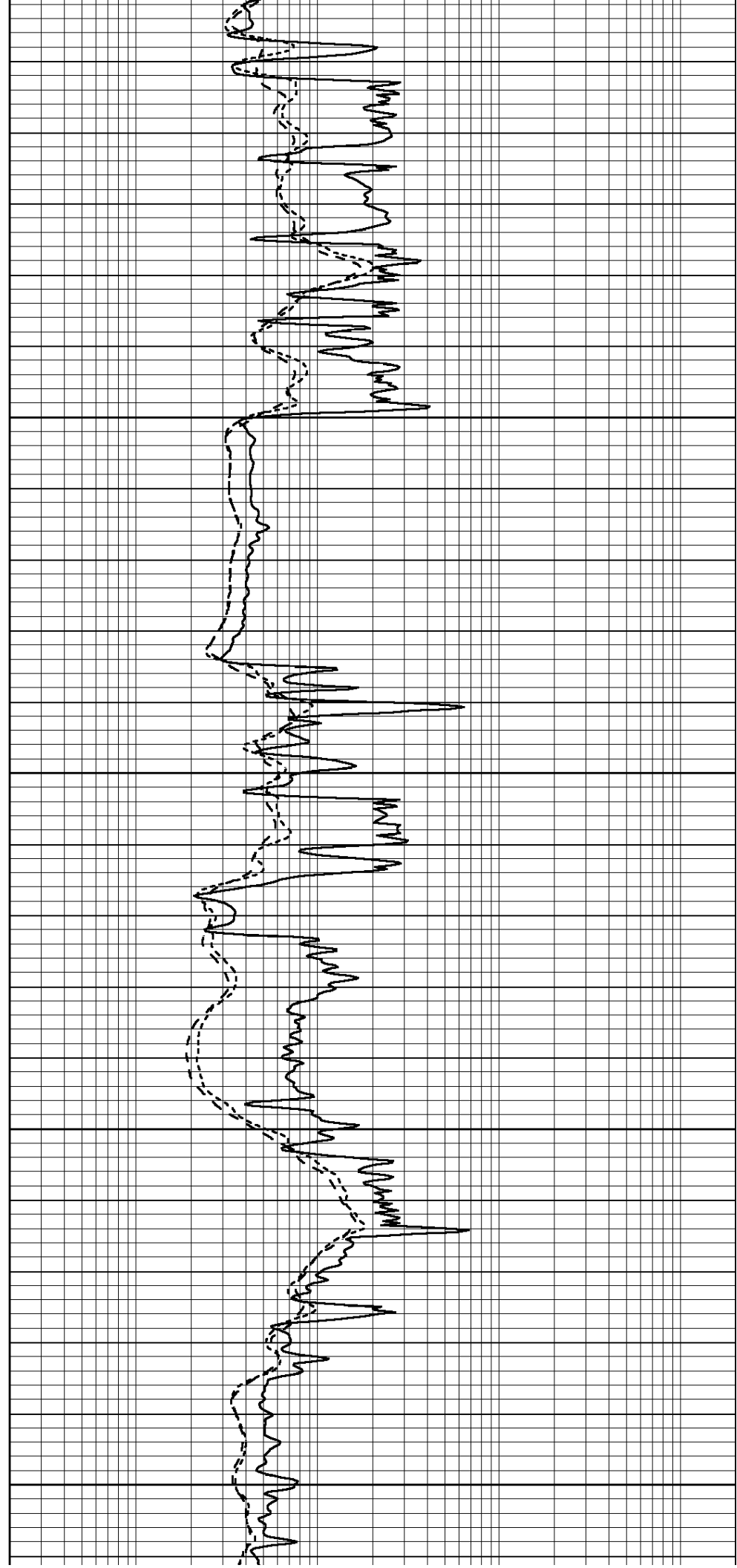
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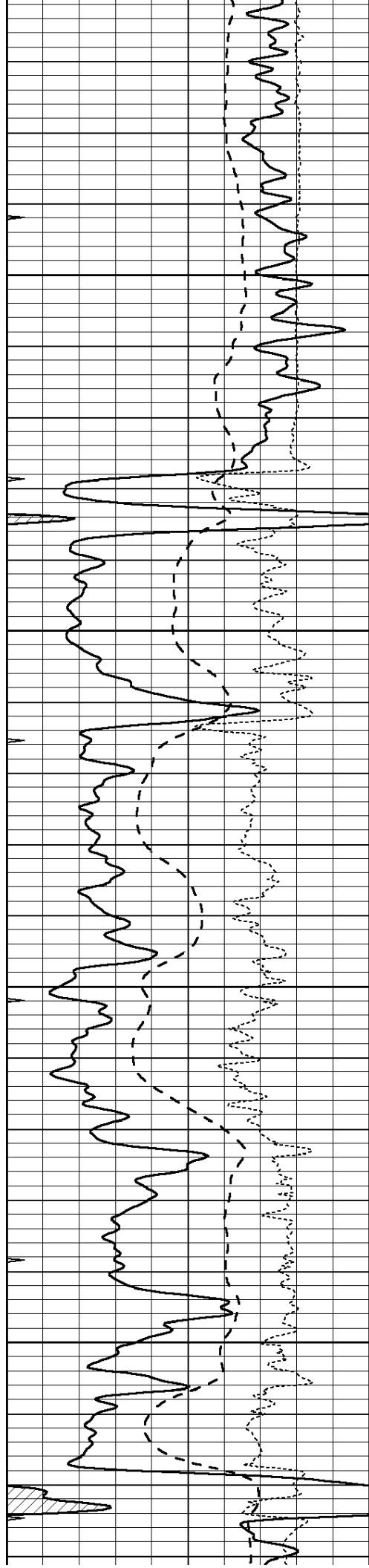
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2900

2950



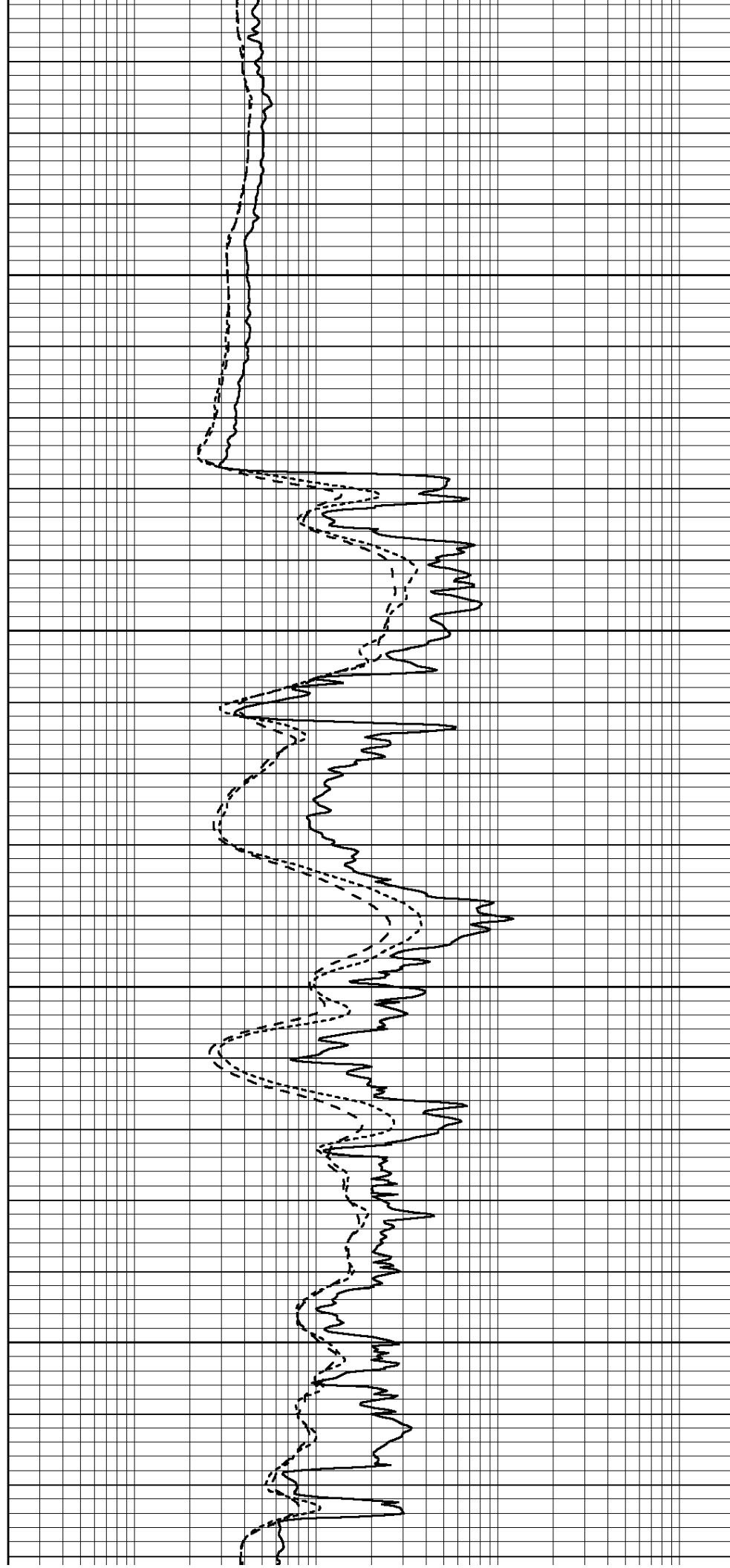


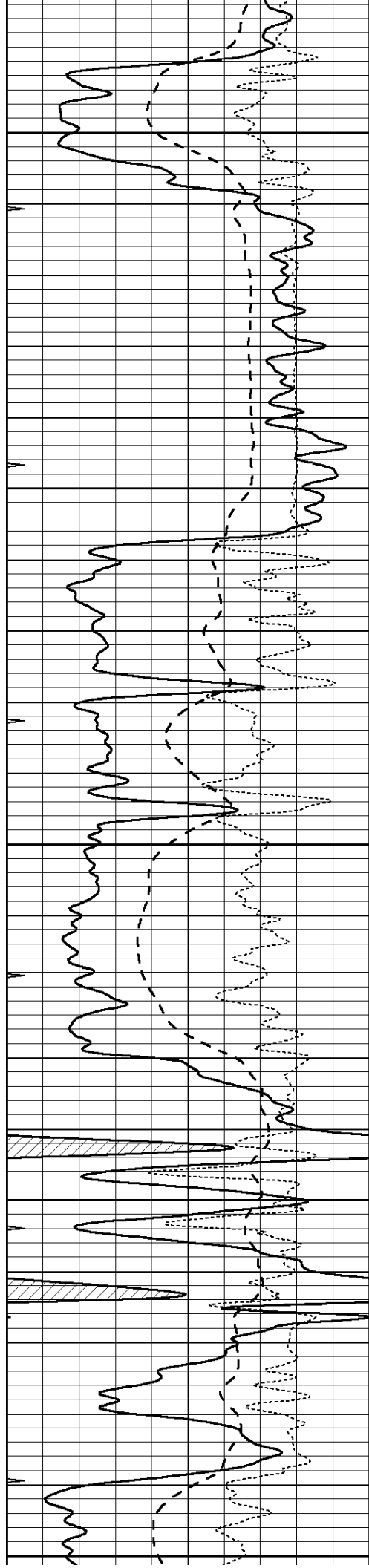
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3050

3100

3150





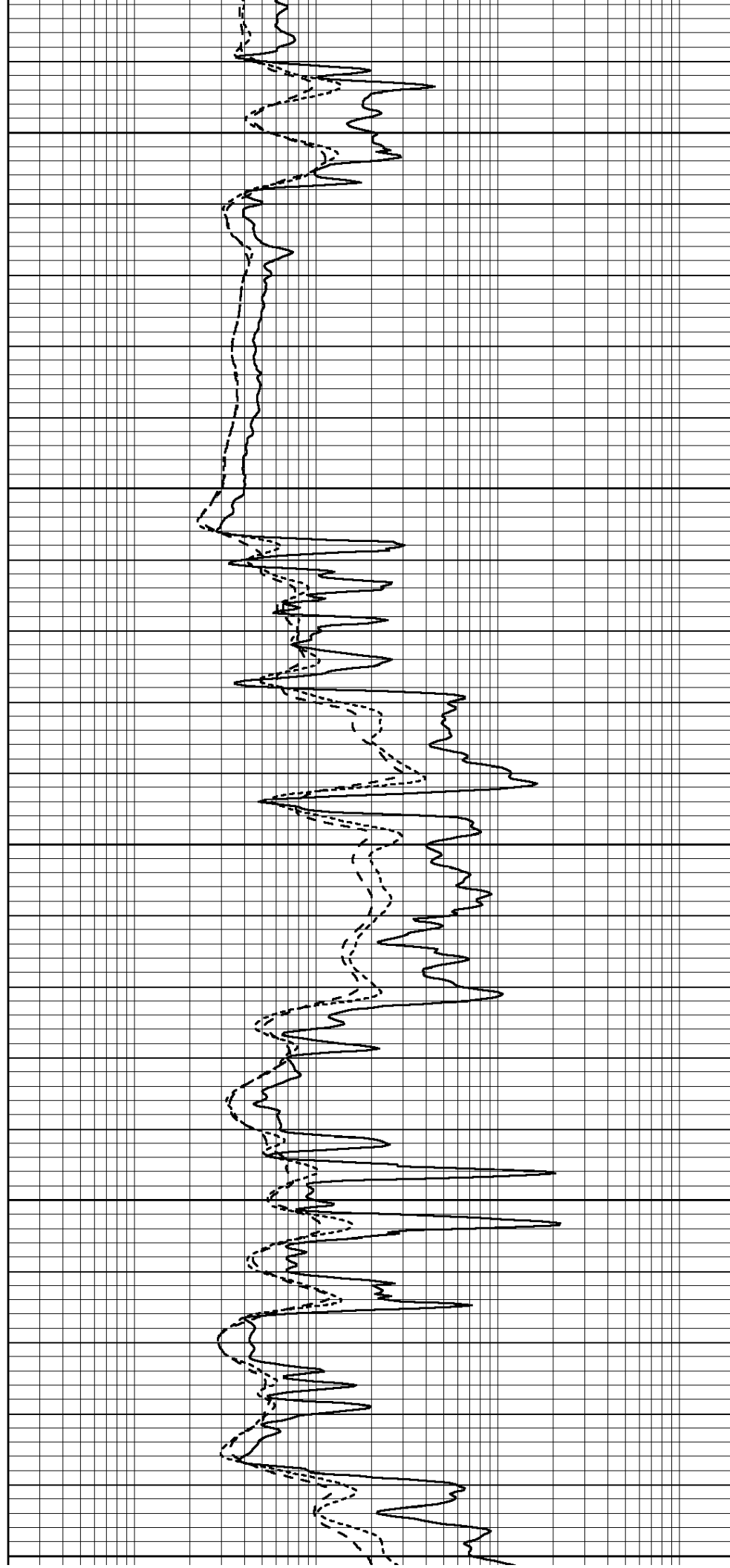
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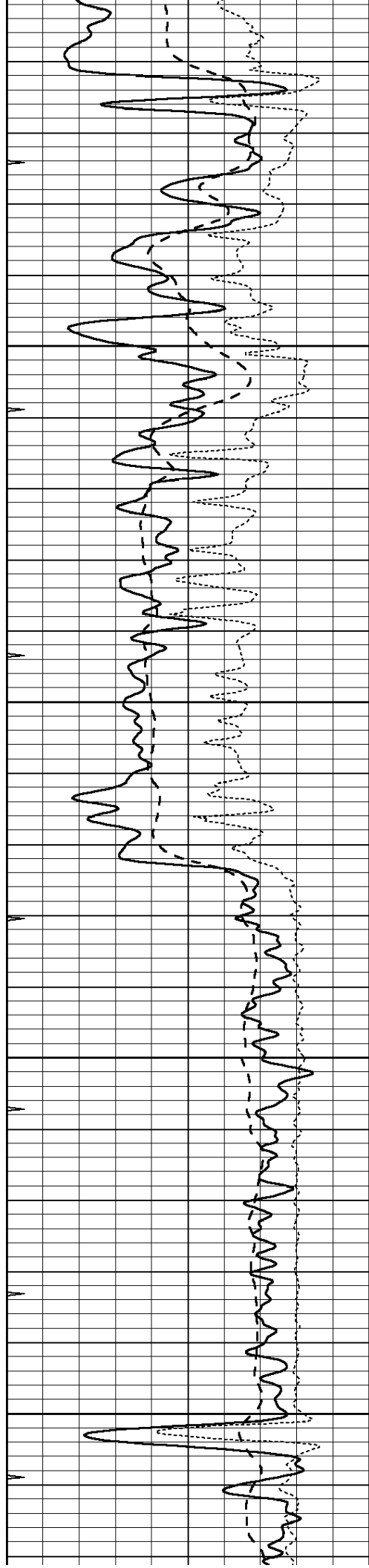
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3300

3350

3400



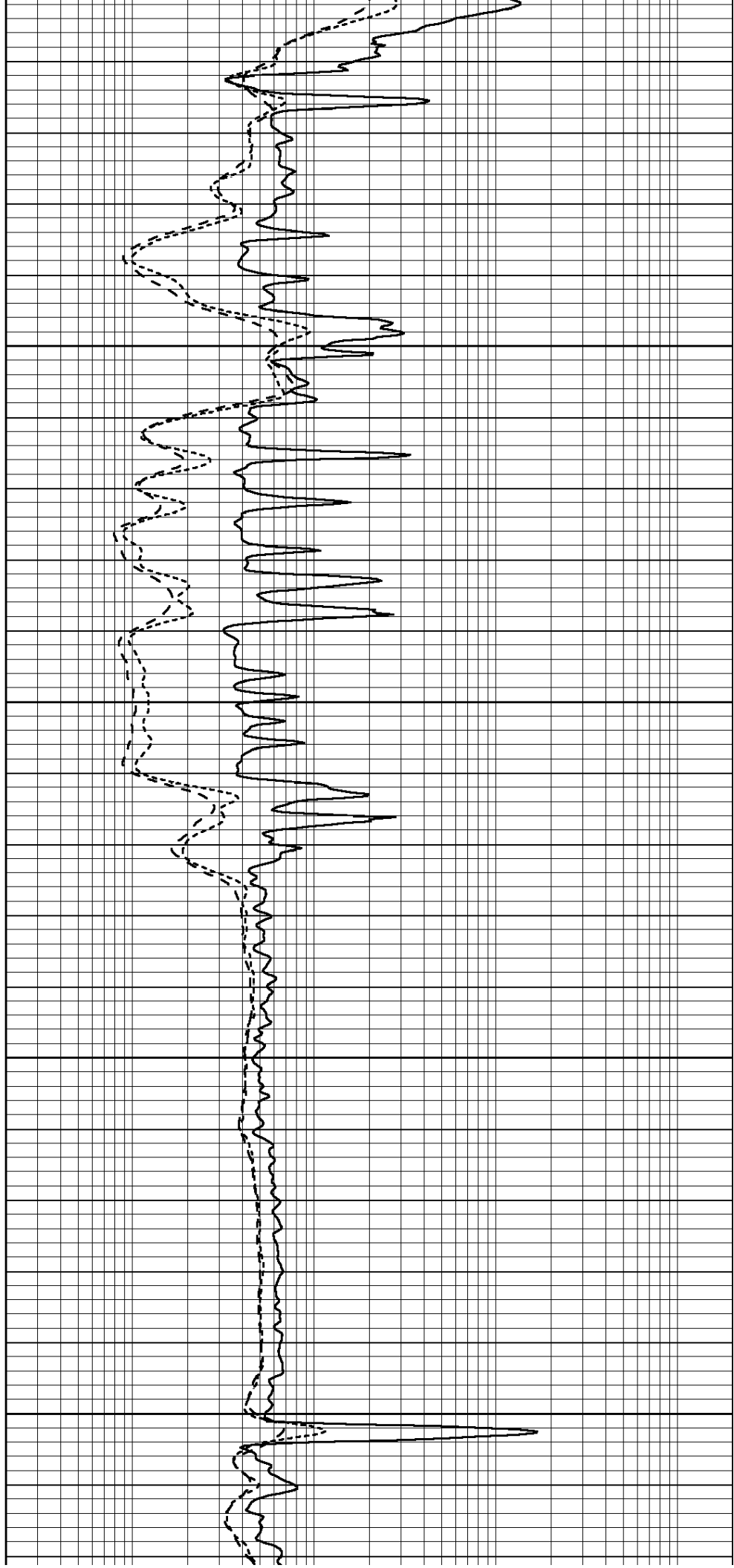


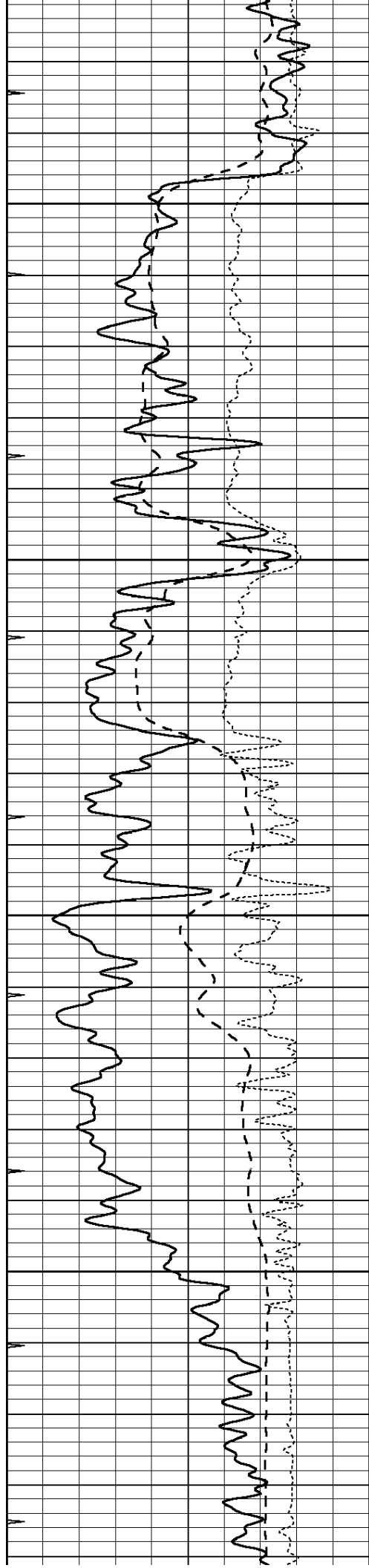
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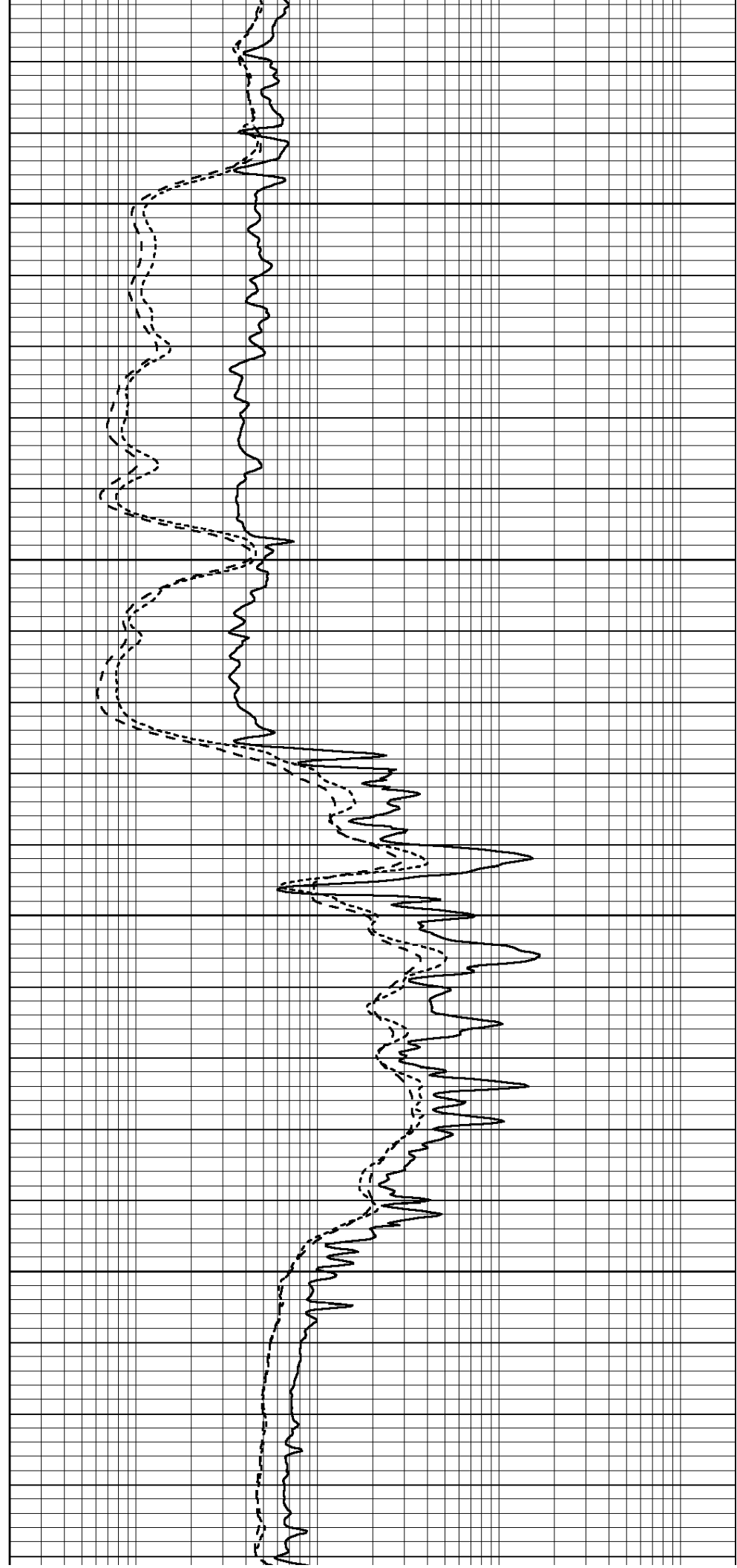


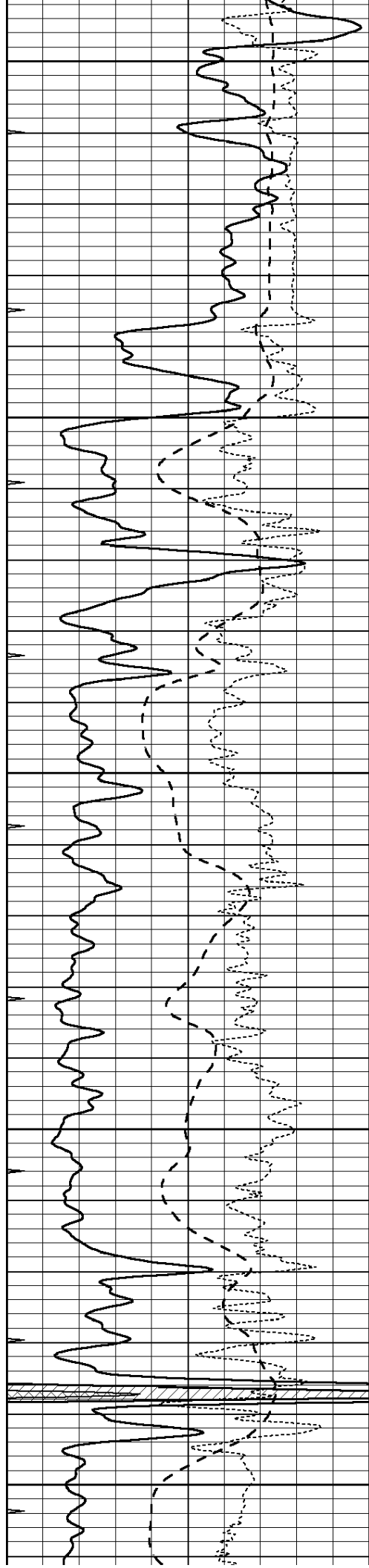
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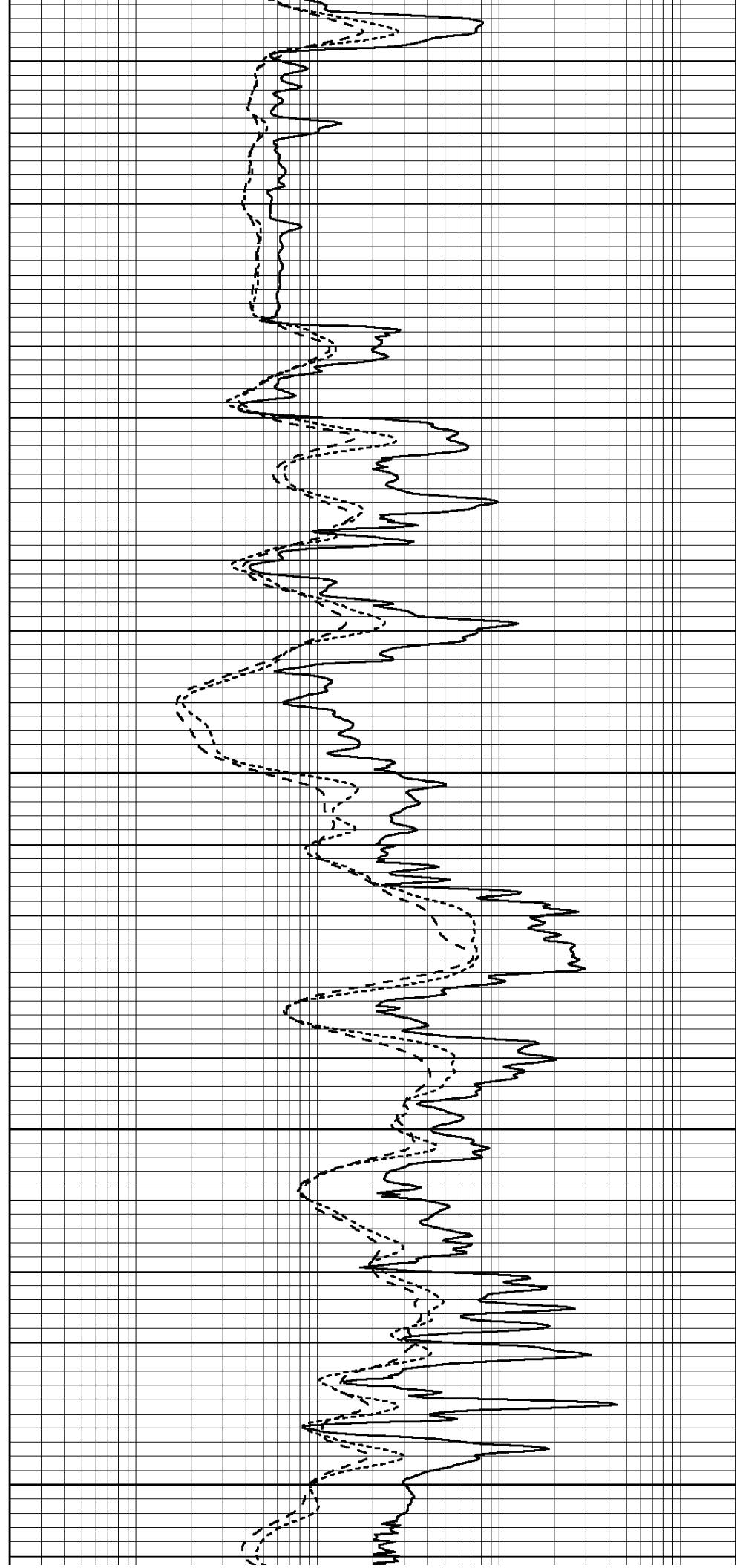
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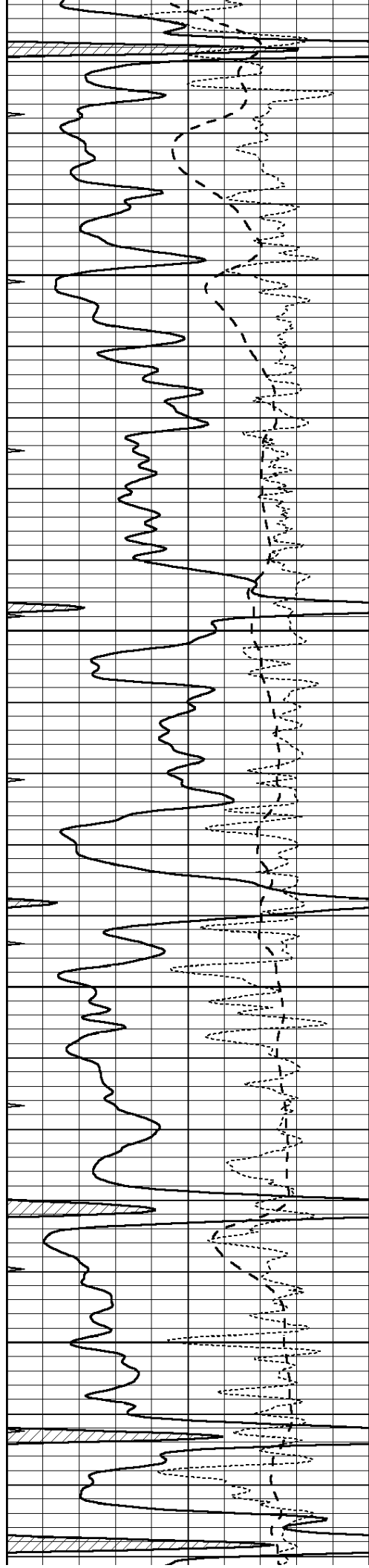
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4000

4050



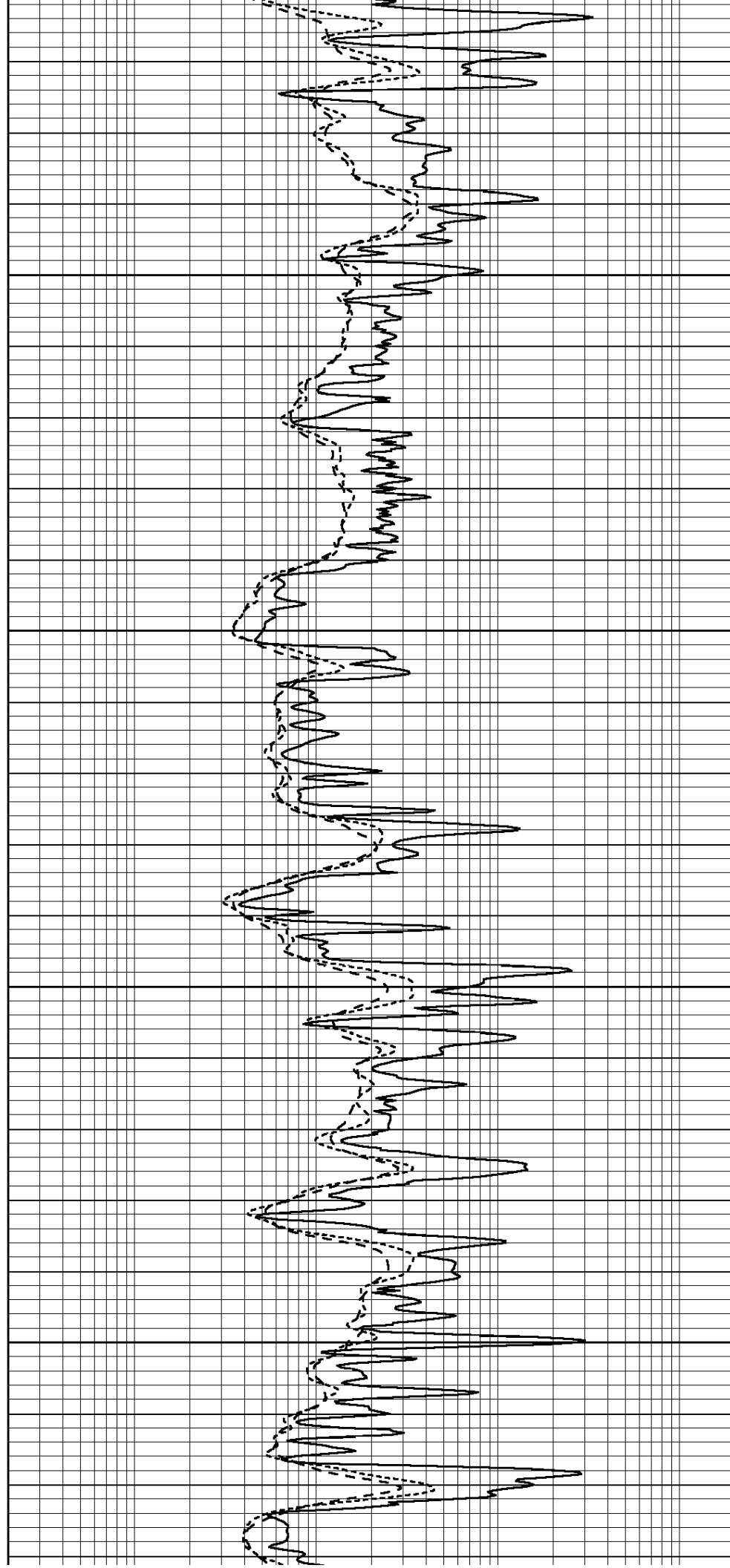


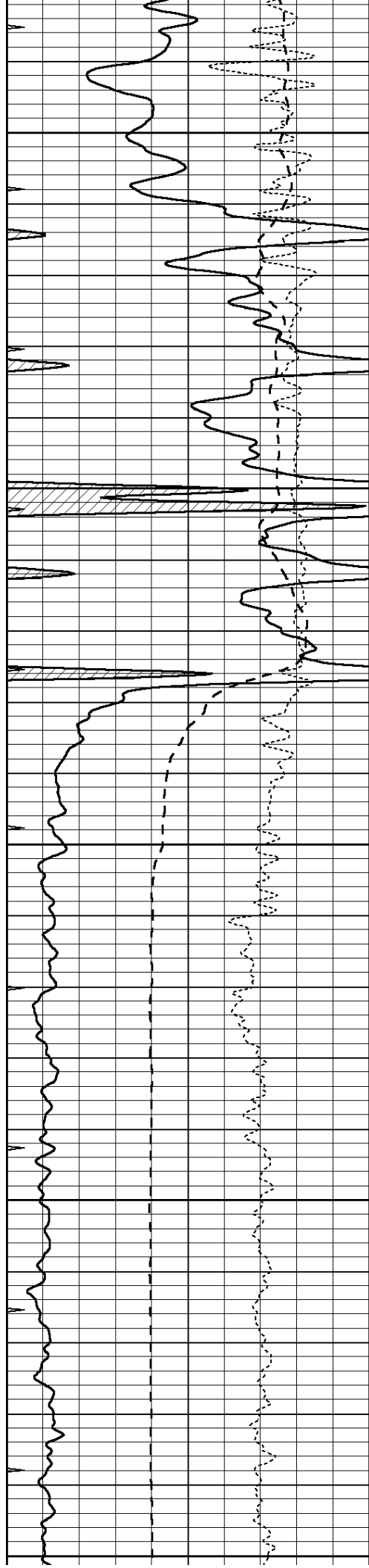
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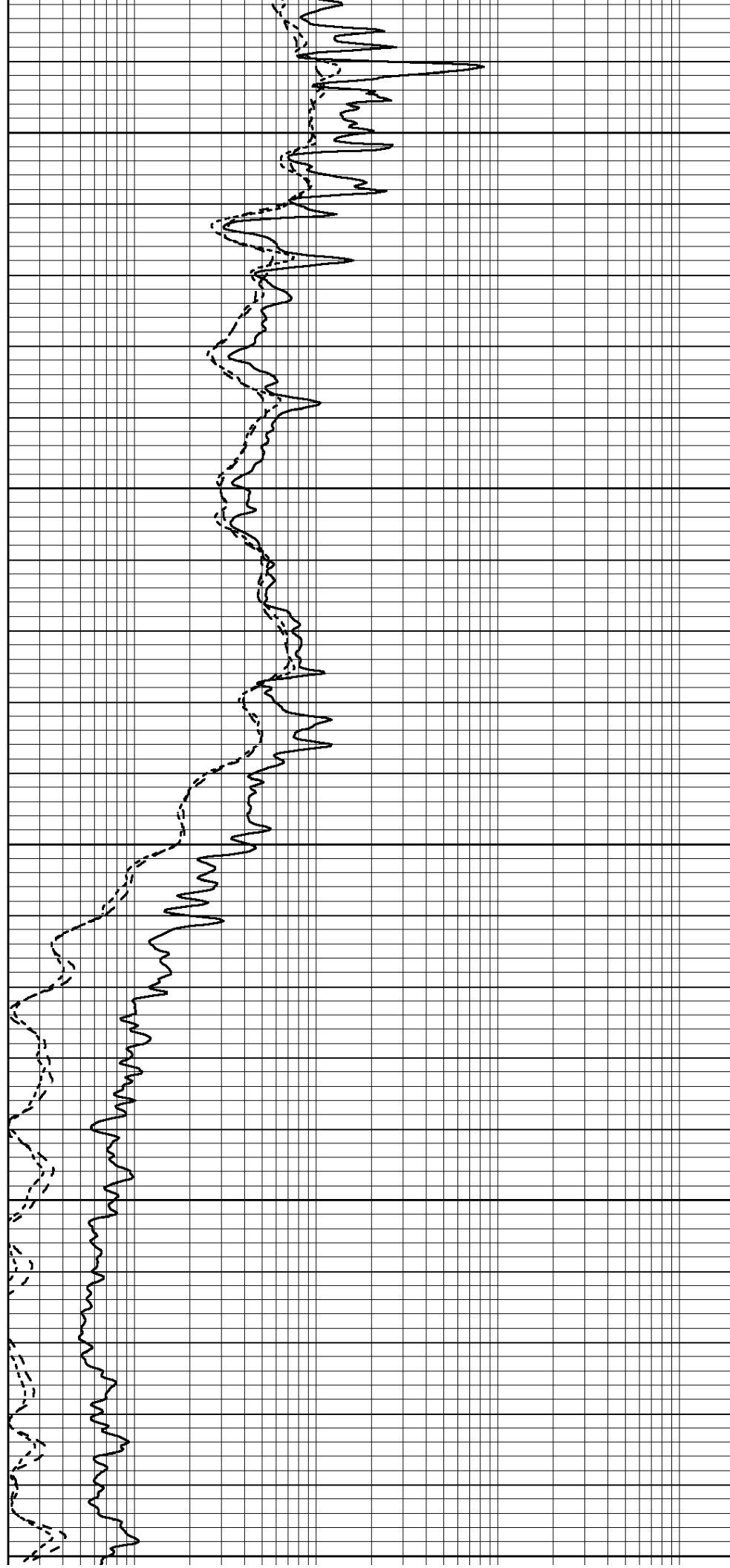
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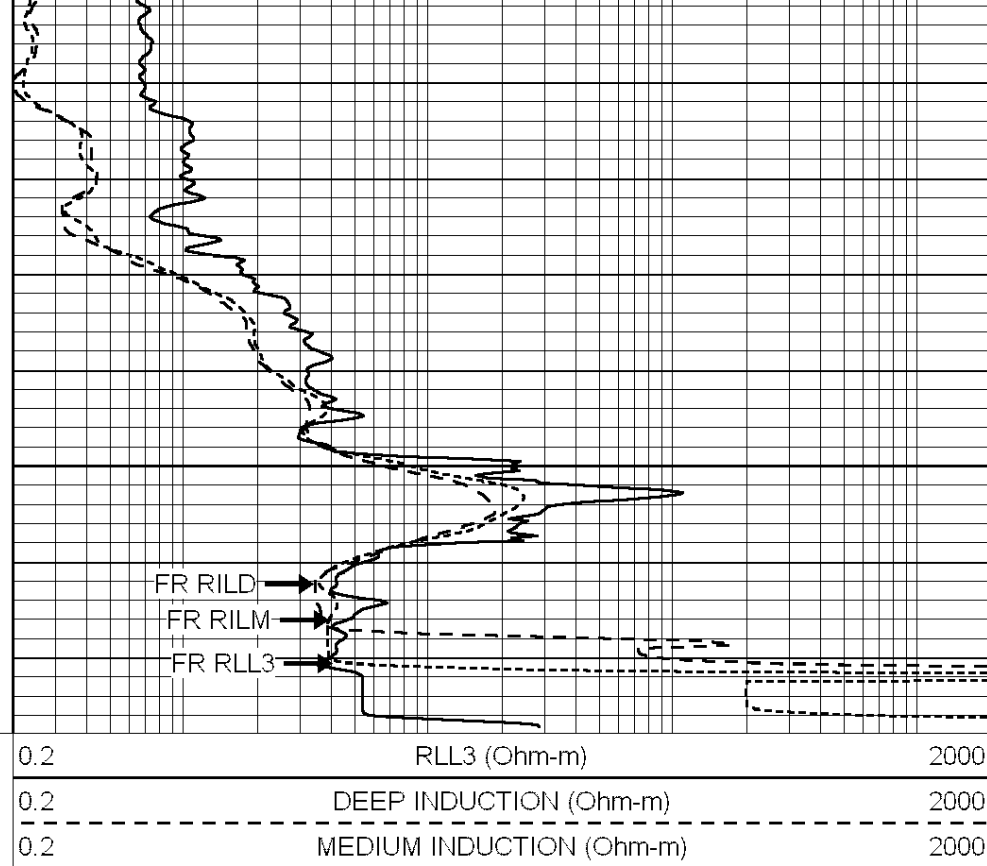
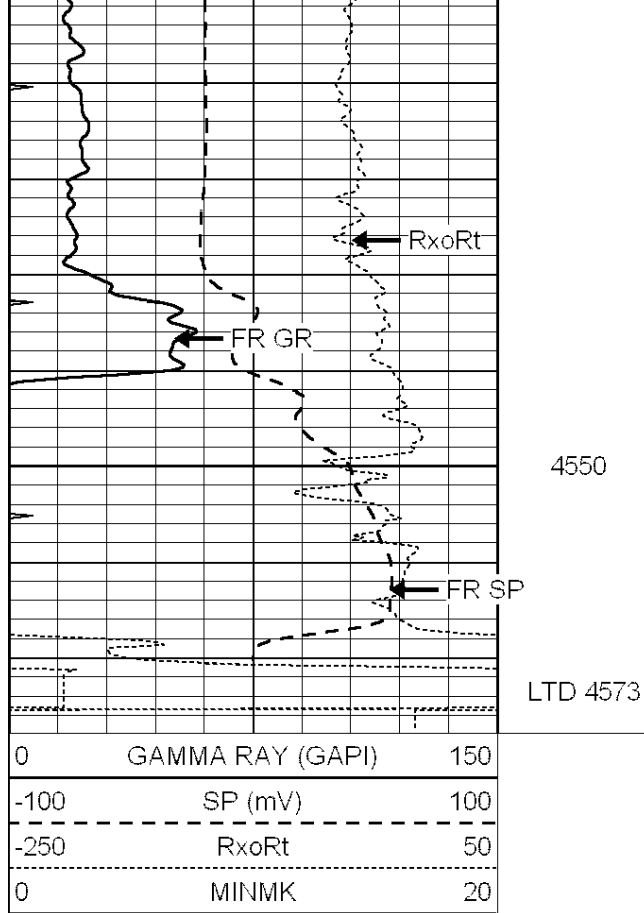
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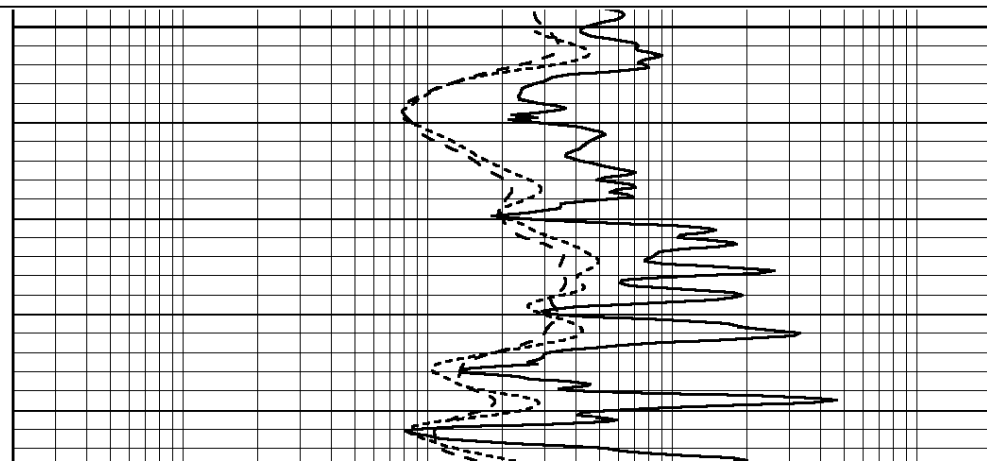
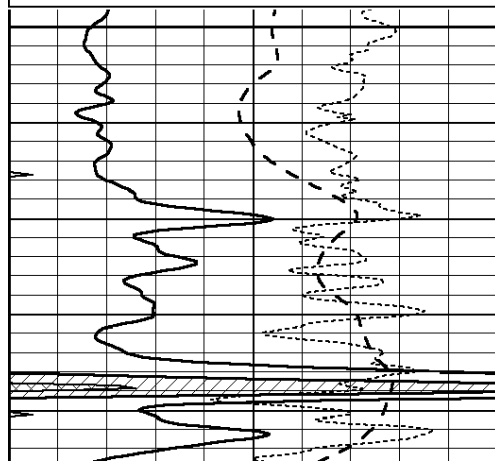
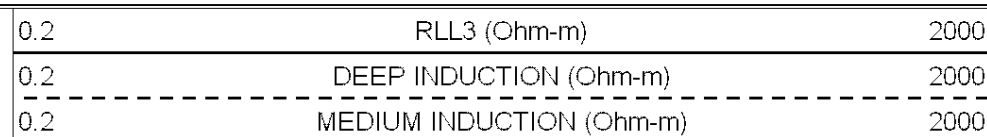
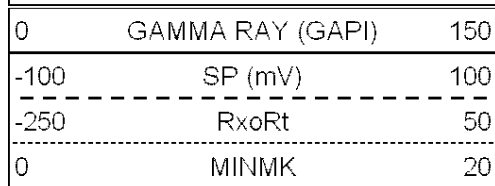


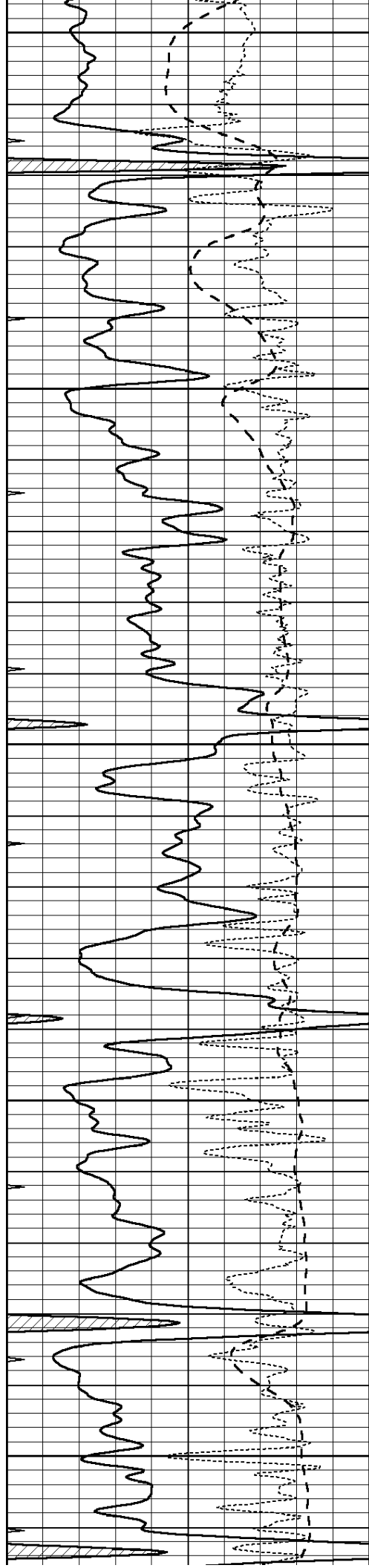


SUPERIOR
Hays,
Kansas

REPEAT SECTION

Database File: 009119pe.db
 Dataset Pathname: pass2.3
 Presentation Format: dil
 Dataset Creation: Thu May 17 21:25:40 2012 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240





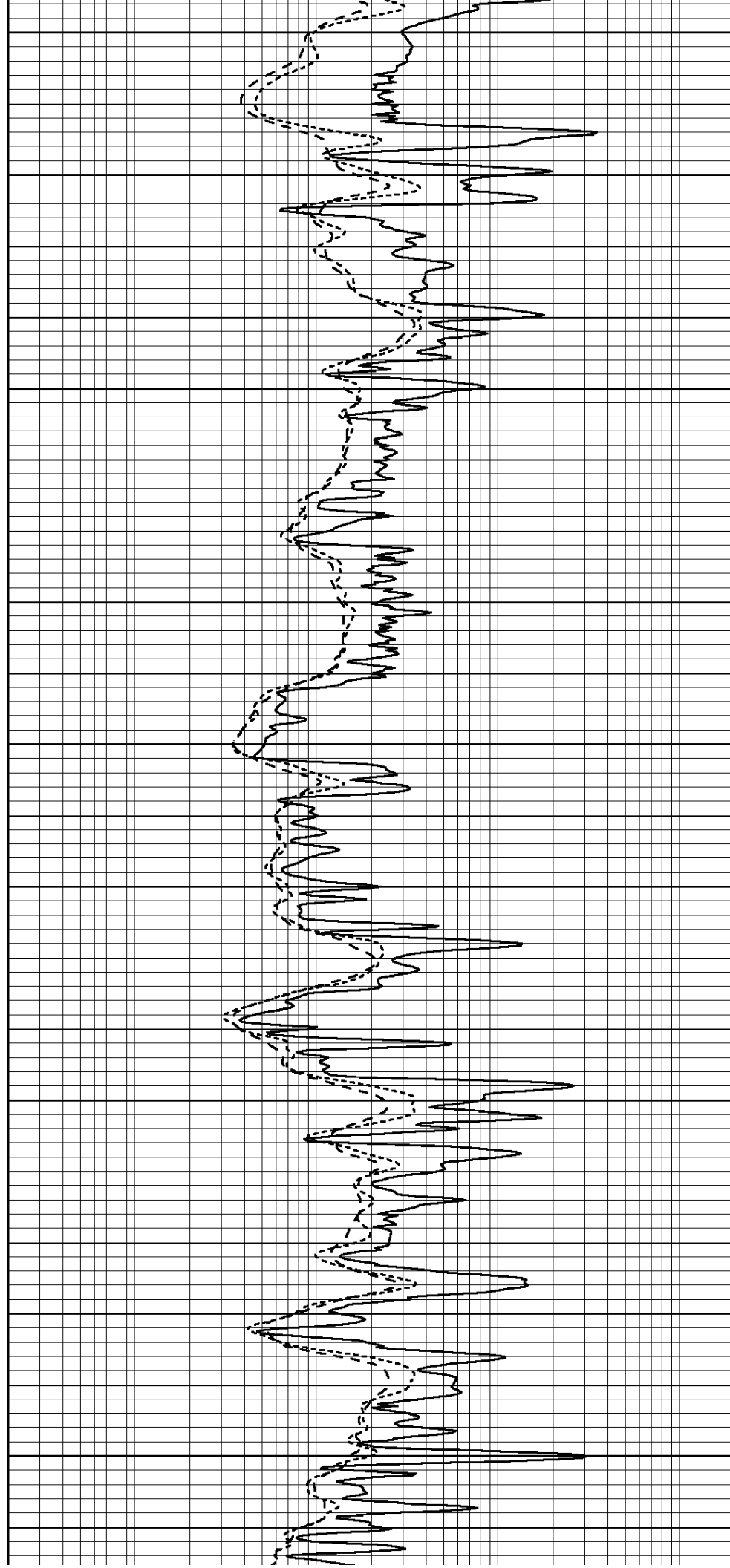
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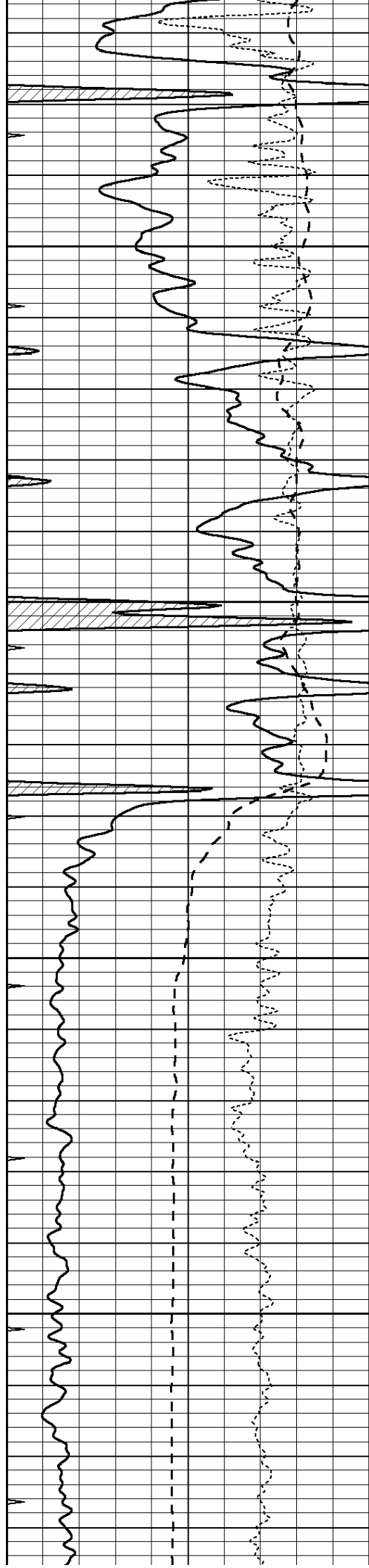
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4150

4200

4250



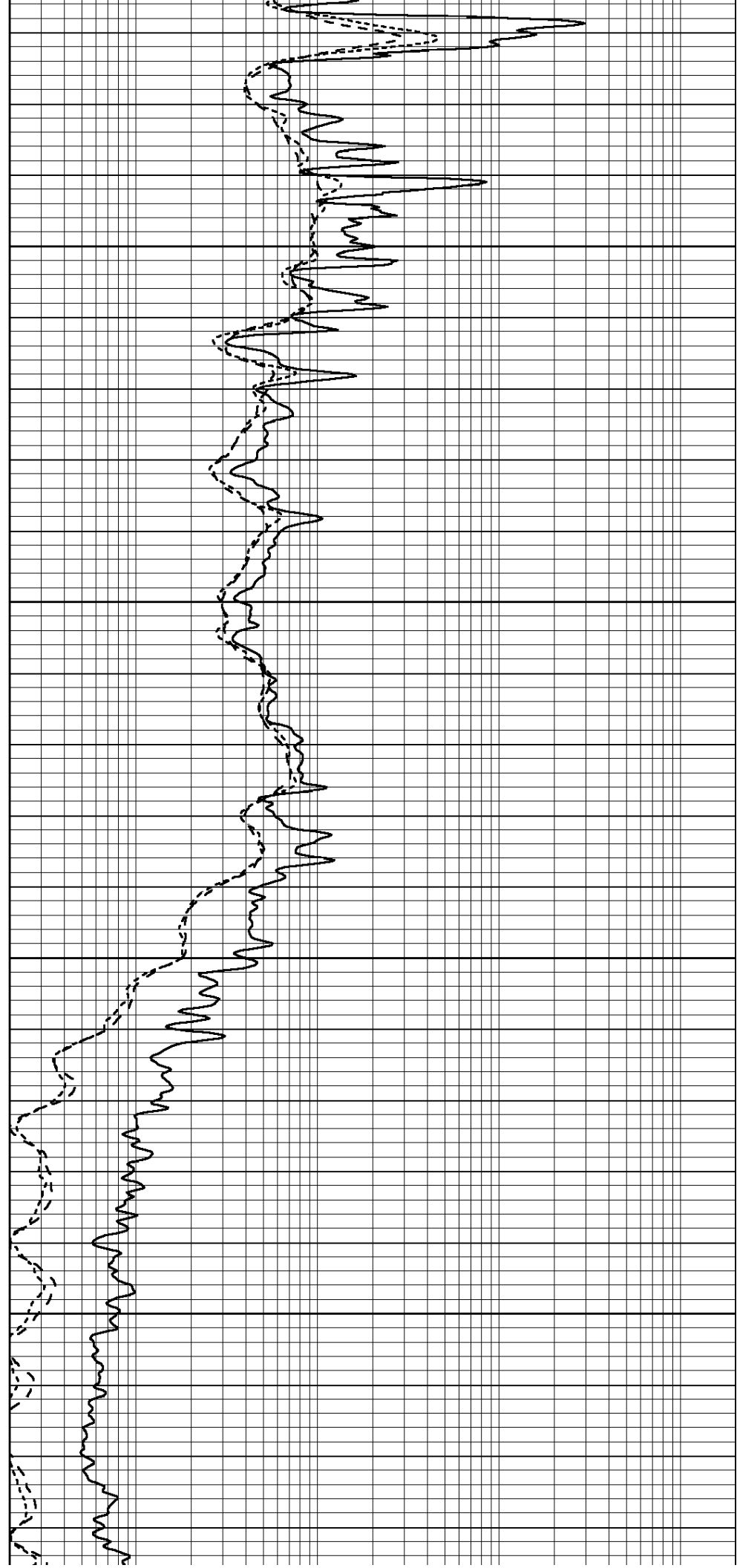


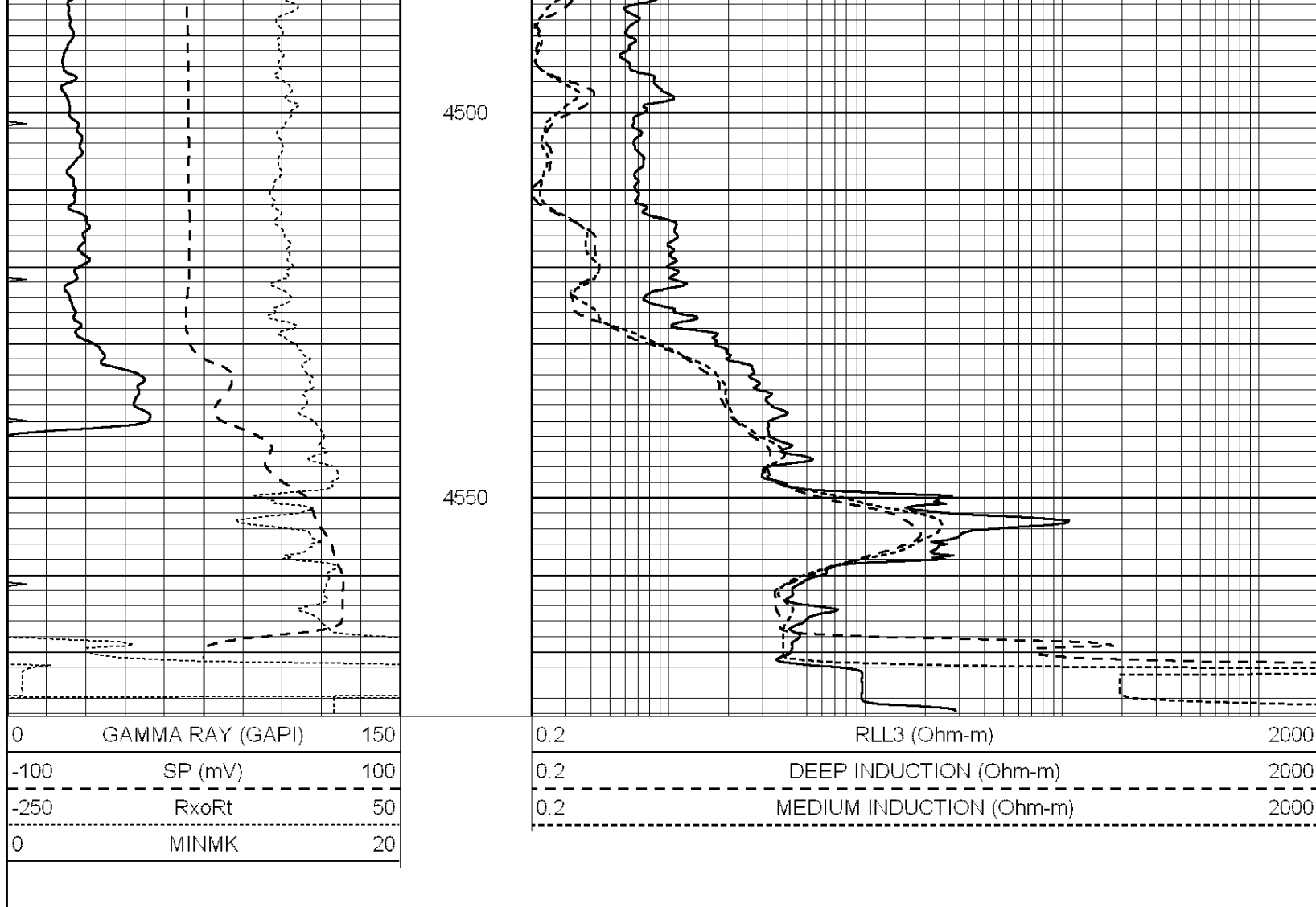
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4400

4450





Calibration Report

Database File: 009119pe.db
 Dataset Pathname: pass3.2
 Dataset Creation: Fri May 18 00:11:57 2012 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Thu May 10 04:20:47 2012
 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	550.000	-8.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	540.000	-10.000
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		3970.000	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 Performed Tue Jul 03 11:37:32 2007								
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Litho Density Calibration								
		Background	Magnesium		Aluminum	Sandstone		
Window 1	2170.6		9915.1		3855.3	11241.6		cps
Window 2	2029.2		8716.5		3483.5	9750.8		cps
Window 3	1665.0		4929.7		2356.8	5332.0		cps
Window 4	493.3		492.1		490.0	486.8		cps
Long Space	0.0		6687.3		1454.3	7721.6		cps
Short Space	1.9		2149.3		1403.9	2354.5		cps
Rho			1.7100		2.5900	1.3800		g/cc
Pe					2.5700	1.5500		
Rib Angle	: 44.4		Rib Slope	: 0.979	Density/Spine Ratio		: 0.556	
Spine Angle	: 74.4		Spine Slope	: 3.583	Spine Intercept		: -18.7	

Caliper	Readings		Reference					
Low Ref	3.5		8.4					
High Ref	5.4		14.0					
	Gain: 2.9				Offset: -2.0			

Compensated Neutron Calibration Report								
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			Serial Number:		NUE_2I			
			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	

Gamma Ray Calibration Report								
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Serial Number:	GR5							
Tool Model:	OPEN							
Performed:	Sun May 13 08:39:20 2012							
Calibrator Value:	1.0		GAPI					
Background Reading:	0.0		cps					
Calibrator Reading:	1.0		cps					
Sensitivity:	0.6500		GAPI/cps					