



**SUPERIOR**  
**Hays,**  
**Kansas**

## DUAL INDUCTION LOG

Company MULL DRILLING COMPANY, INC.  
Well CHAMPLIN - FIGGINS #3  
Field SMOKEY CREEK  
County CHEYENNE  
State COLORADO

Company MULL DRILLING COMPANY, INC.  
Well CHAMPLIN - FIGGINS #3  
Field SMOKEY CREEK  
County CHEYENNE State COLORADO

Location: API # : 05-017-07721-0000

1980' FSL & 660' FWL

SEC 27 TWP 13S RGE 44W

Permanent Datum GROUND LEVEL Elevation 4280  
Log Measured From KELLY BUSHING 11' A.G.L.  
Drilling Measured From KELLY BUSHING

Other Services  
CDL/CNL/PE  
MEL/SONIC  
Elevation  
K.B. 4291  
D.F. 4289  
G.L. 4280

Date	9/5/12		
Run Number	ONE		
Depth Driller	5610		
Depth Logger	5612		
Bottom Logged Interval	5610		
Top Log Interval	00		
Casing Driller	8 5/8"@1715'	13 3/8"@389'	
Casing Logger	1714		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,100 PPM	
Density / Viscosity	9.3/56		
pH / Fluid Loss	9.5/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.800@80F		
Rmt @ Meas. Temp	.600@80F		
Rmc @ Meas. Temp	.960@80F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.489@131F		
Time Circulation Stopped	4 HOURS		
Time Logger on Bottom	3:45 A.M.		
Maximum Recorded Temperature	131F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	PHIL ASKEY		

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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.

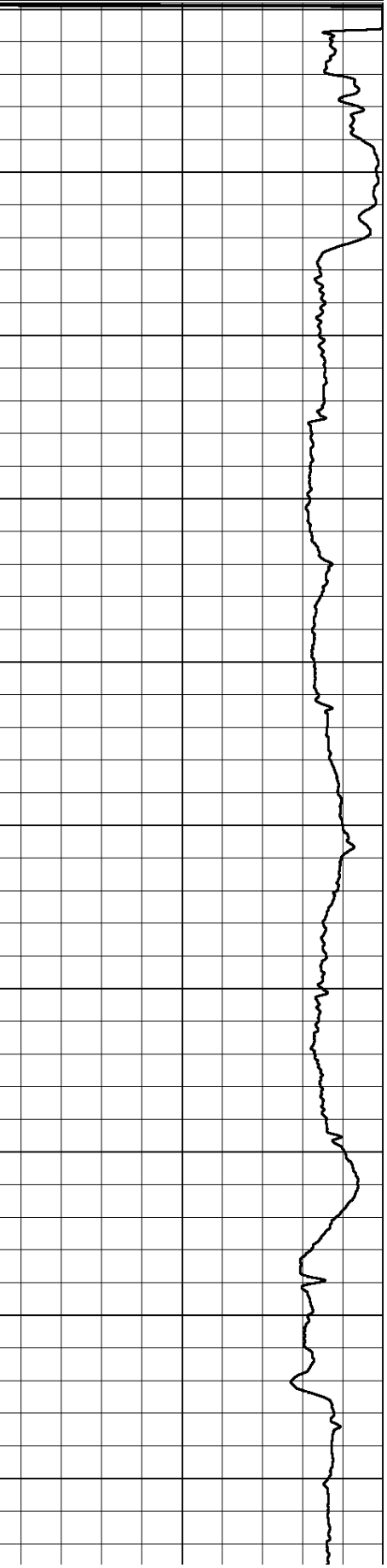
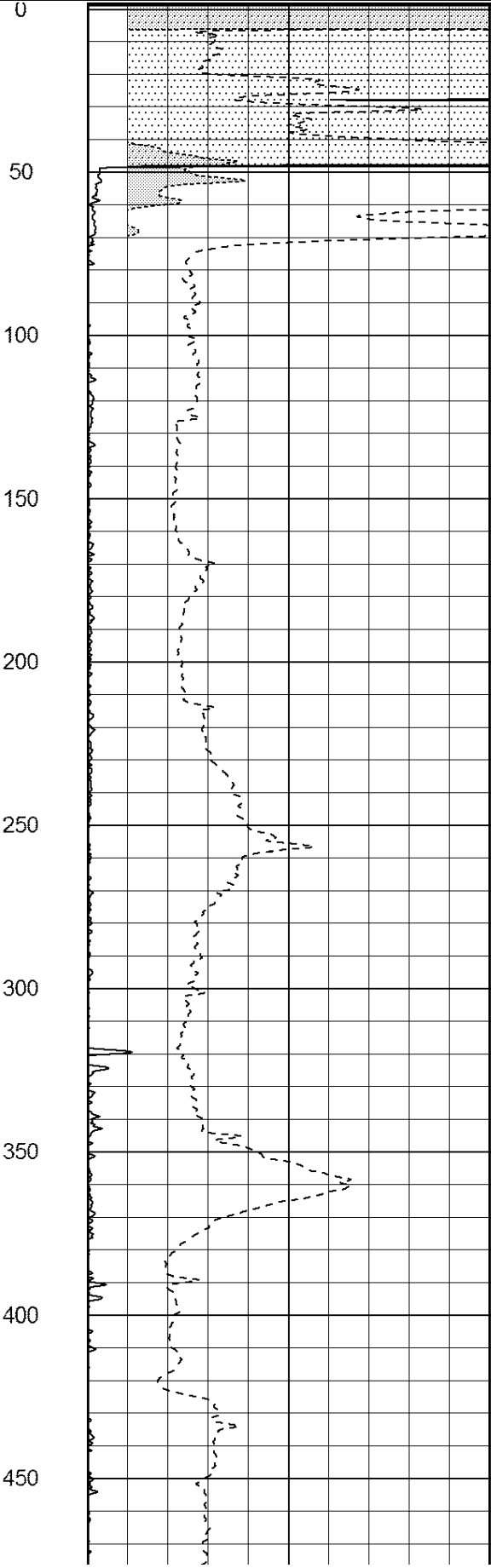
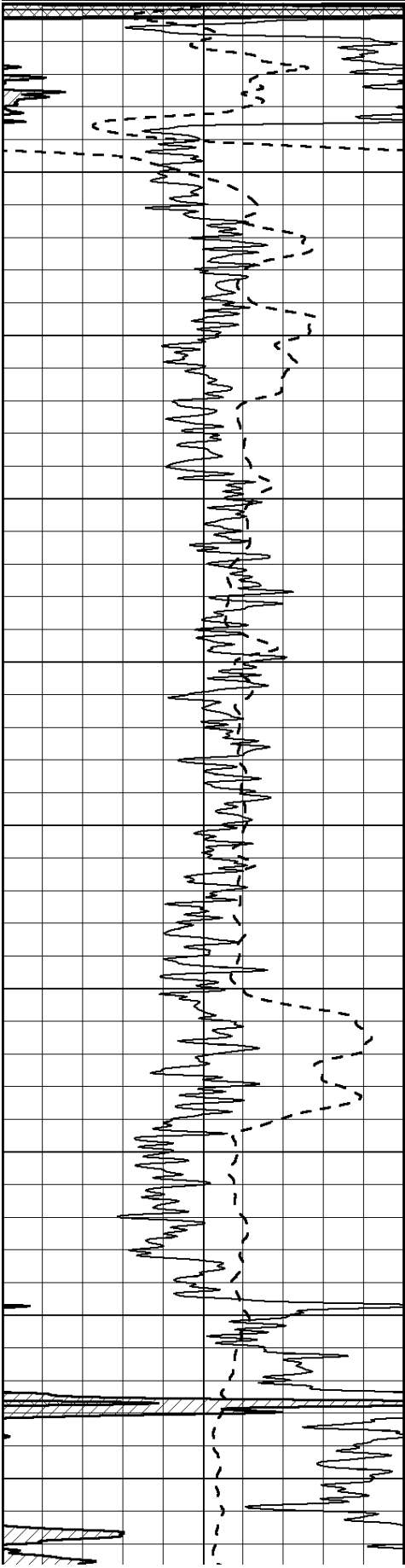
### Comments

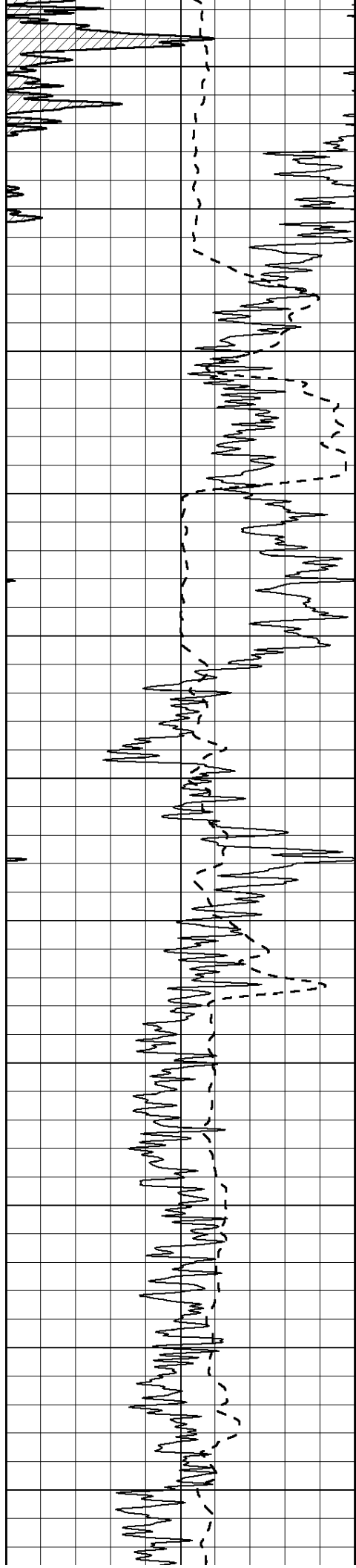
THANK YOU FOR USING SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
CHEYENNE WELLS, CO., 4N. ON HWY 385 TO "RD. V", 1E., 1/2N., E. INTO

Database File: 409518pe.db  
Dataset Pathname: pass3.14  
Presentation Format: dil2  
Dataset Creation: Wed Sep 05 06:20:57 2012  
Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-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





500

550

600

650

700

750

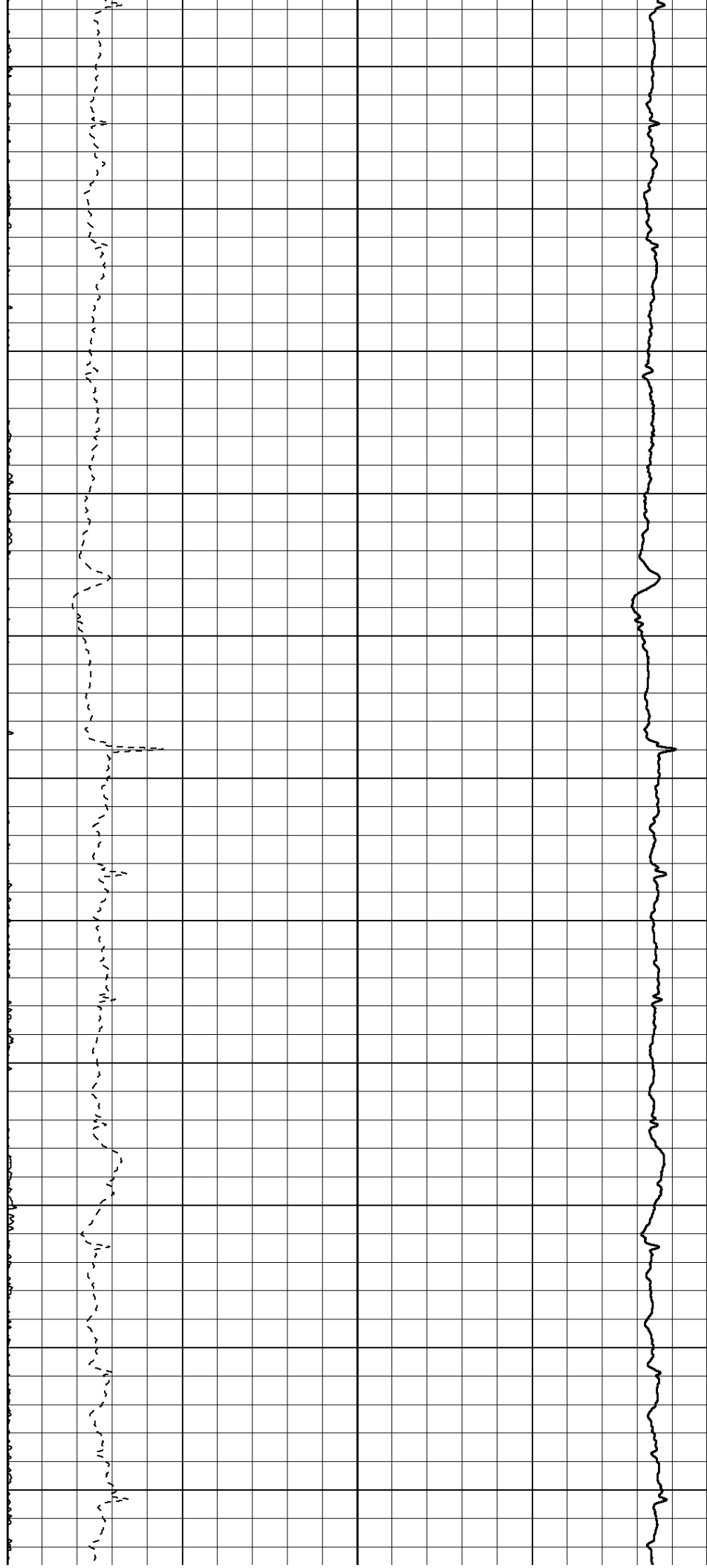
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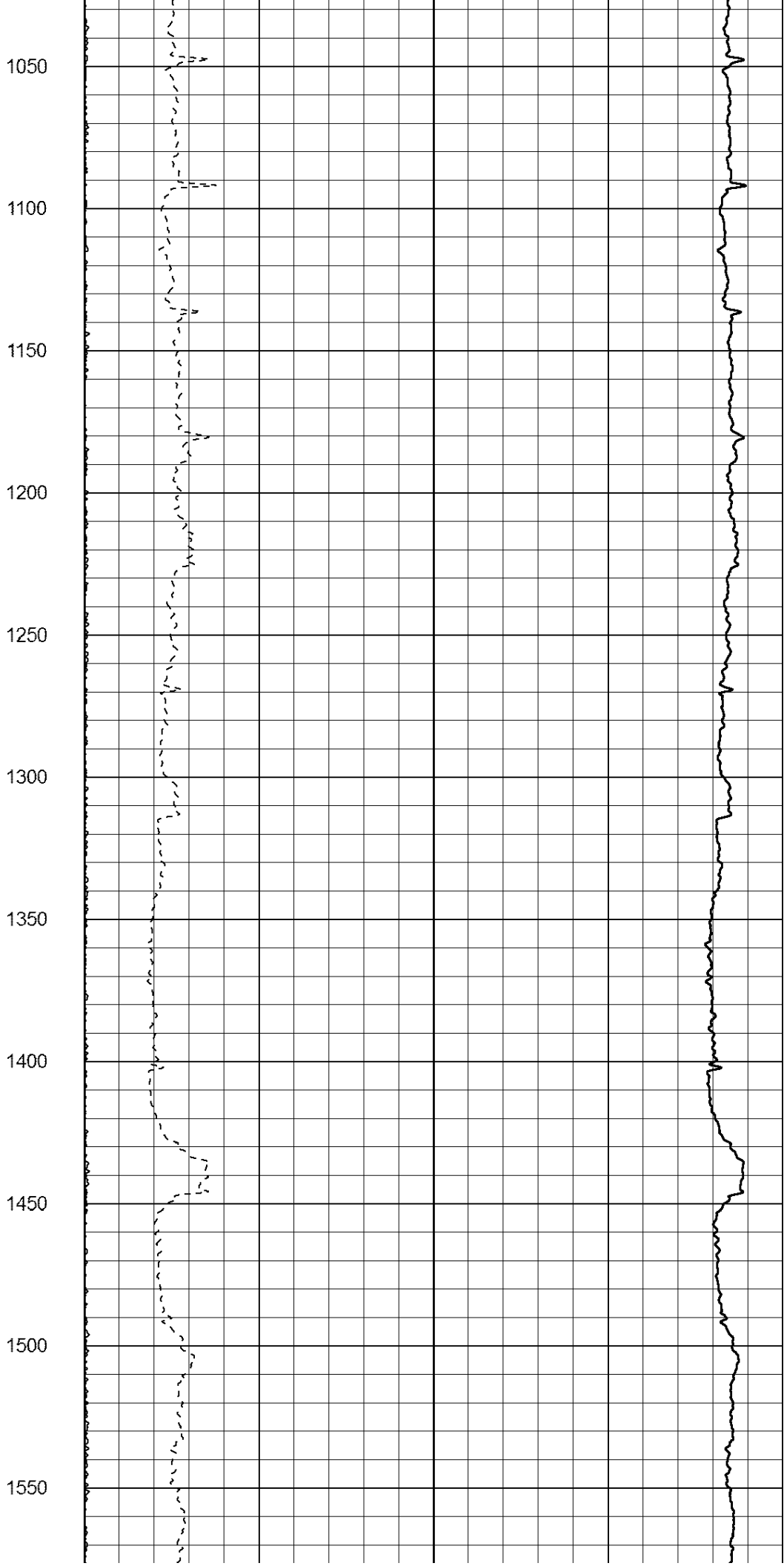
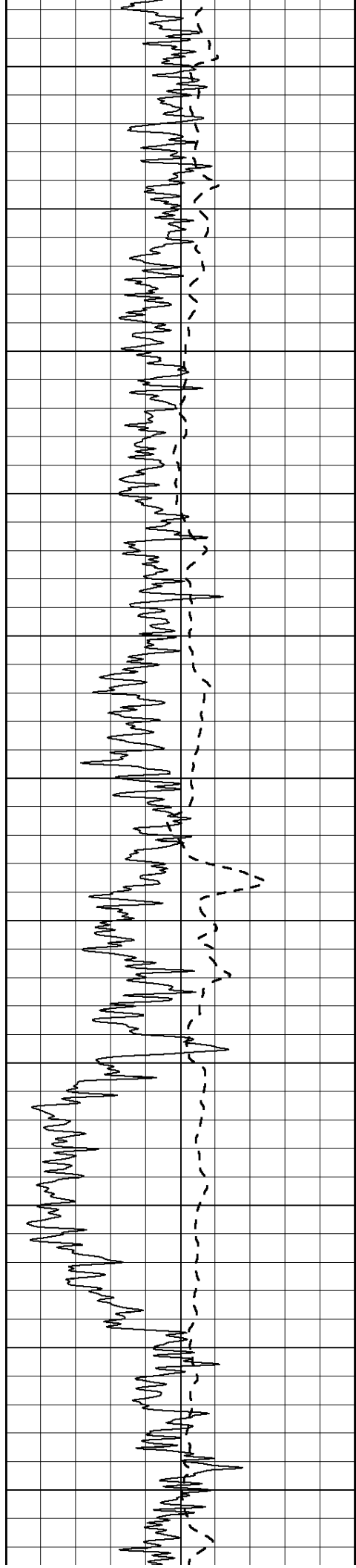
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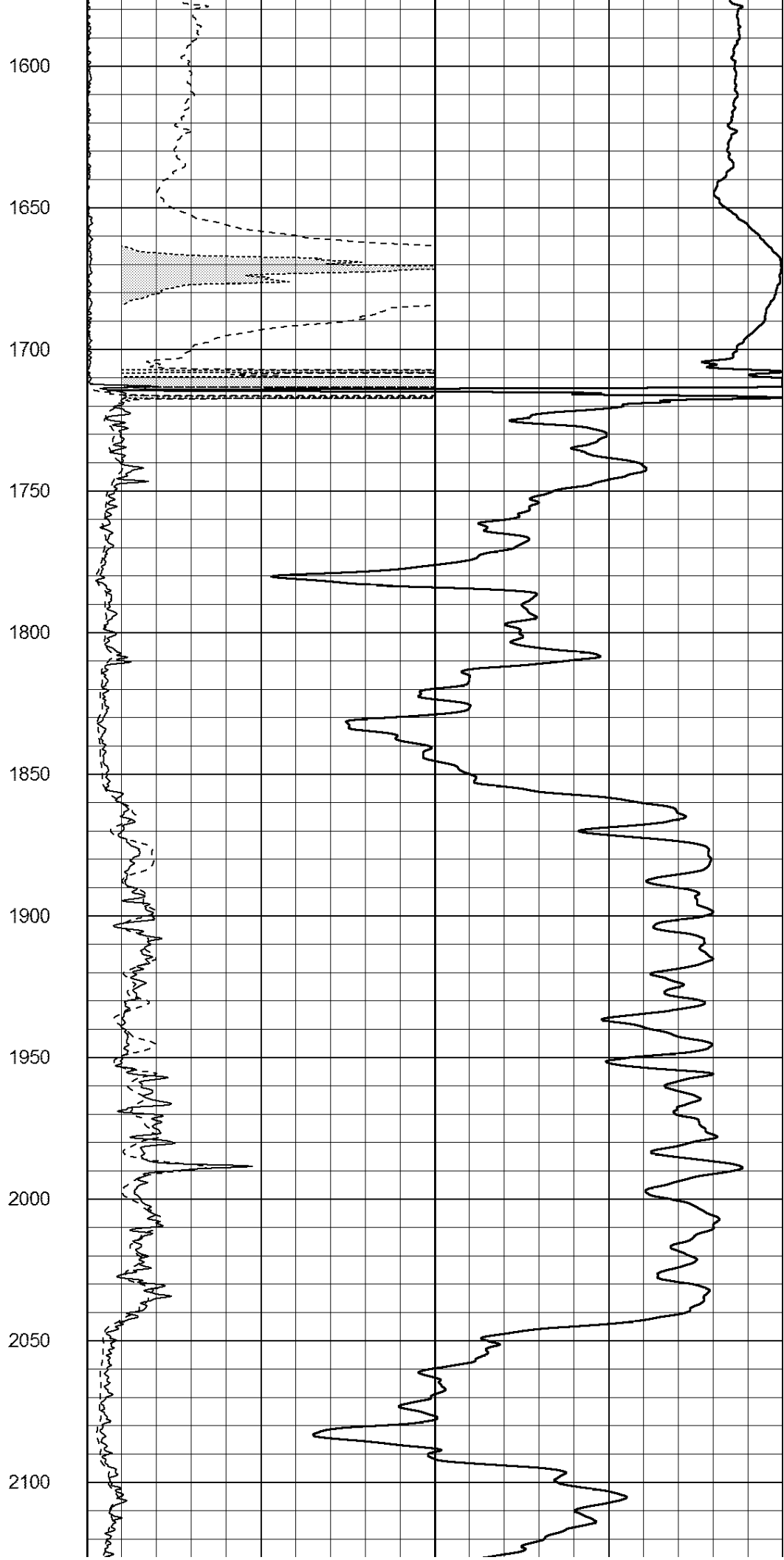
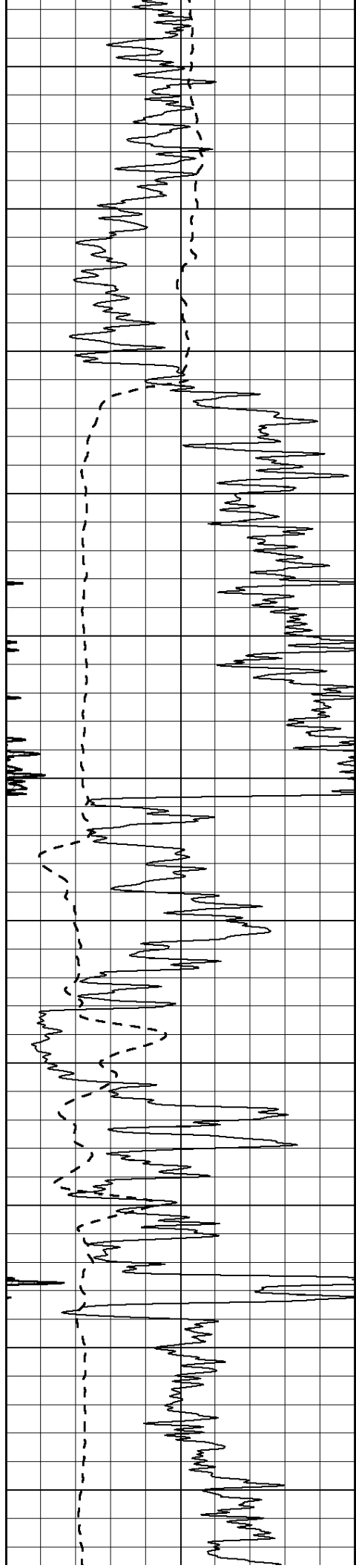
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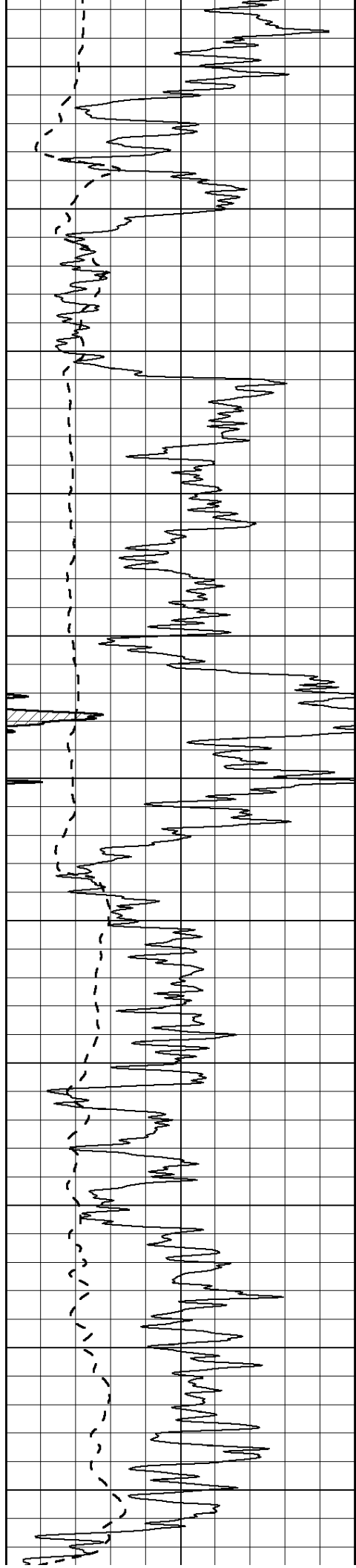
950

1000









2150

2200

2250

2300

2350

2400

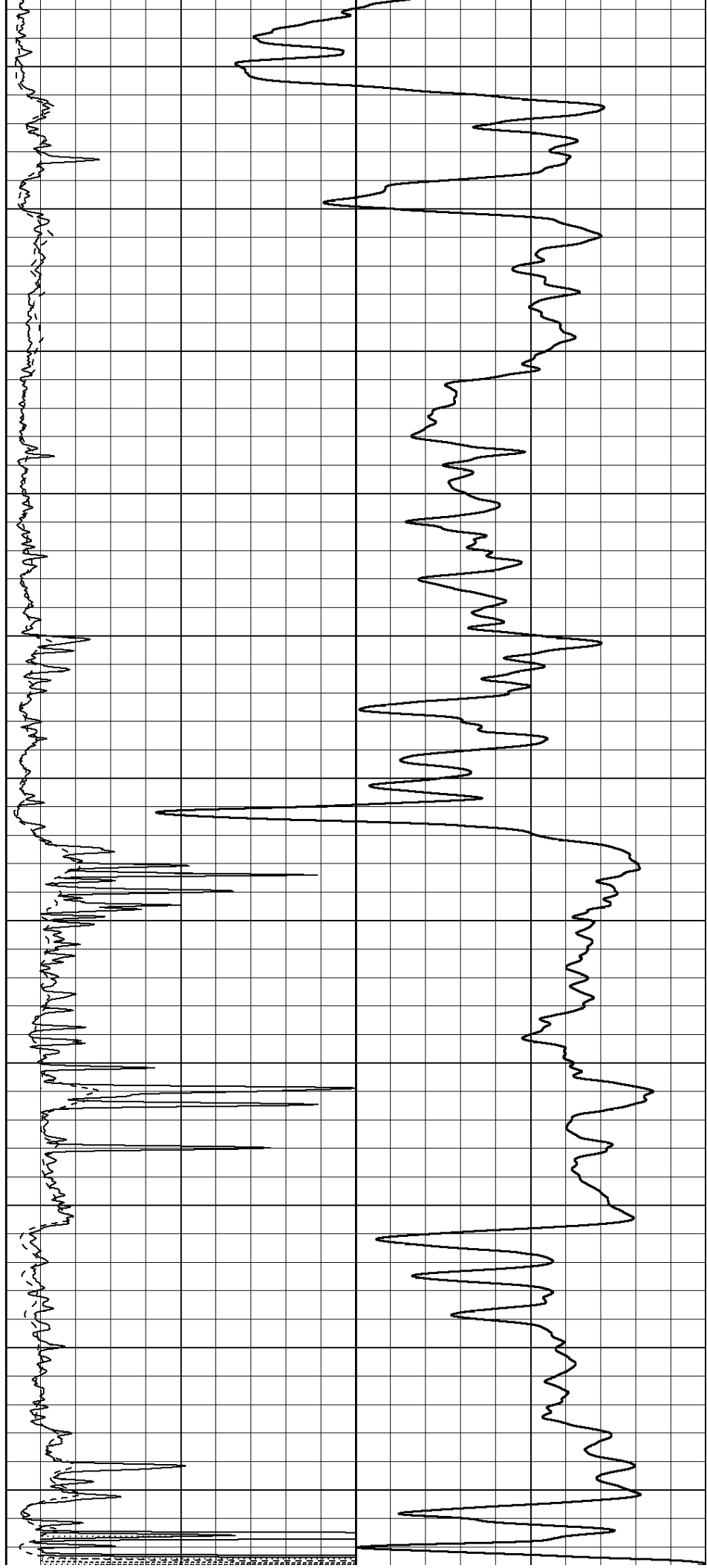
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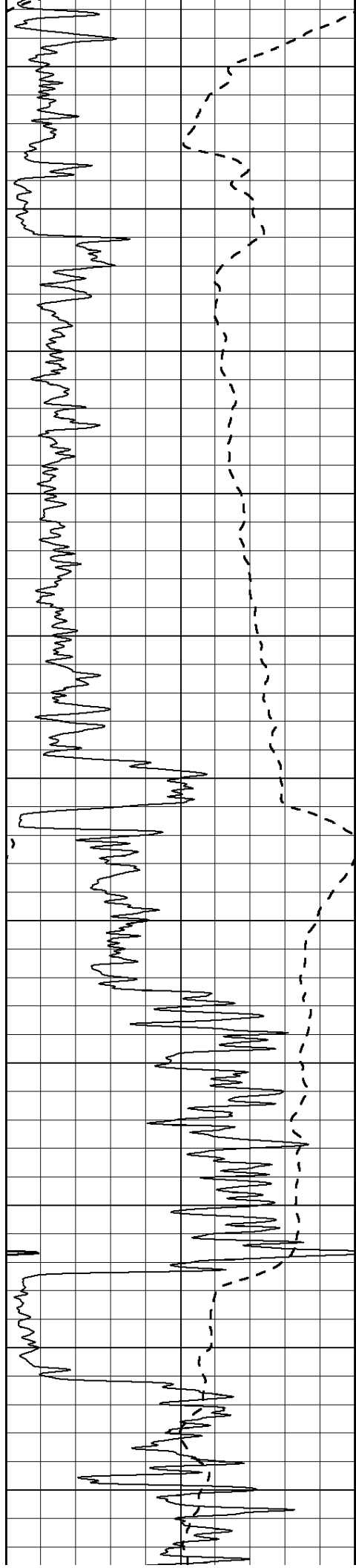
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2550

2600

2650





2700

2750

2800

2850

2900

2950

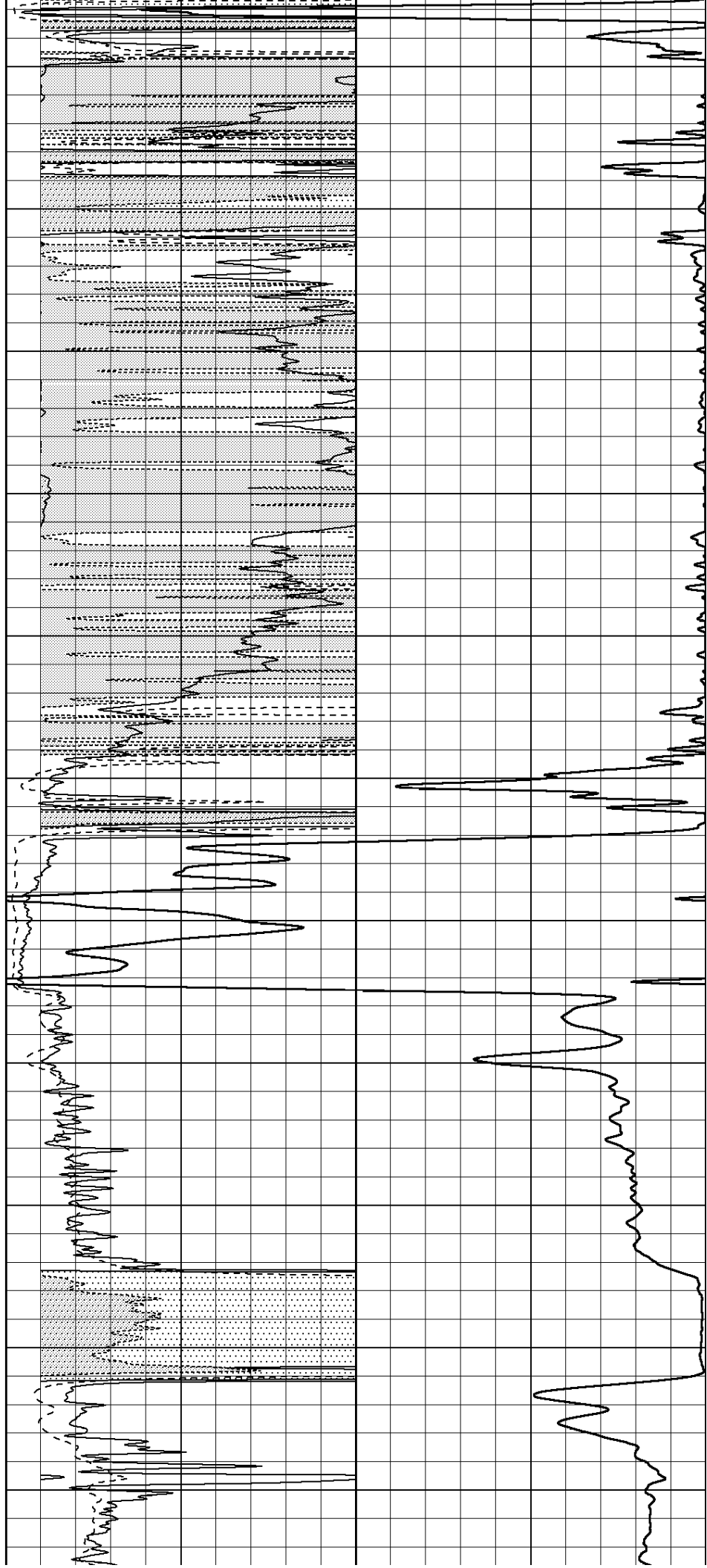
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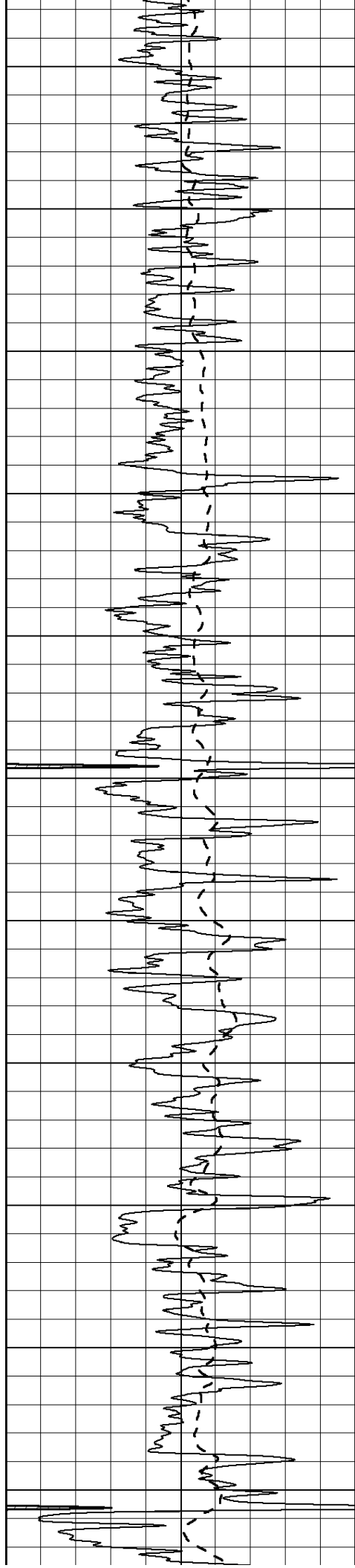
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3100

3150

3200





3250

3300

3350

3400

3450

3500

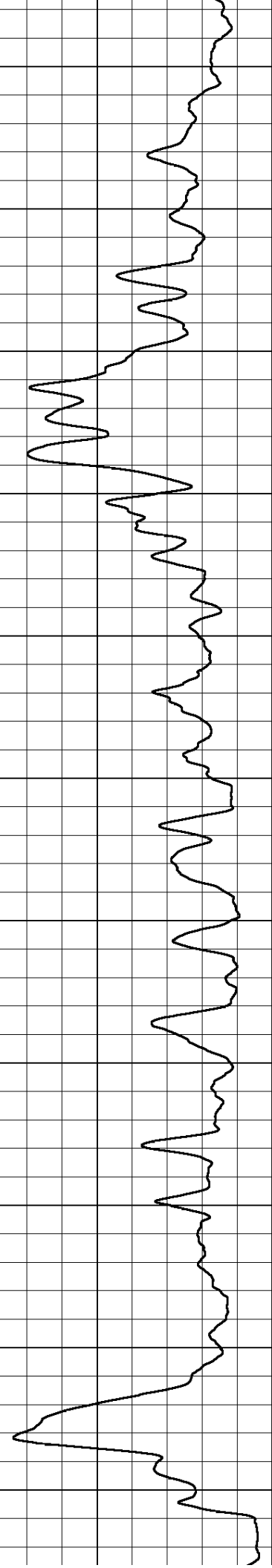
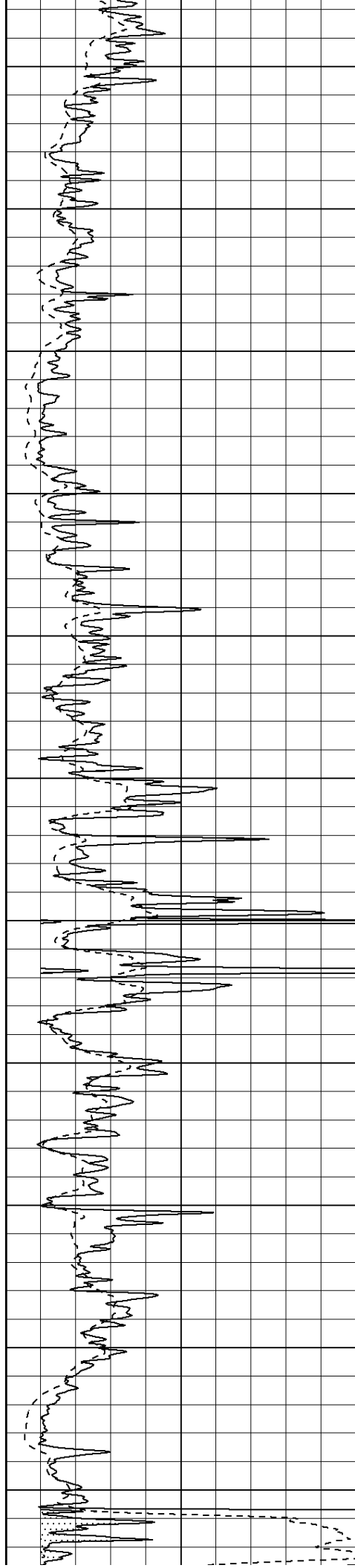
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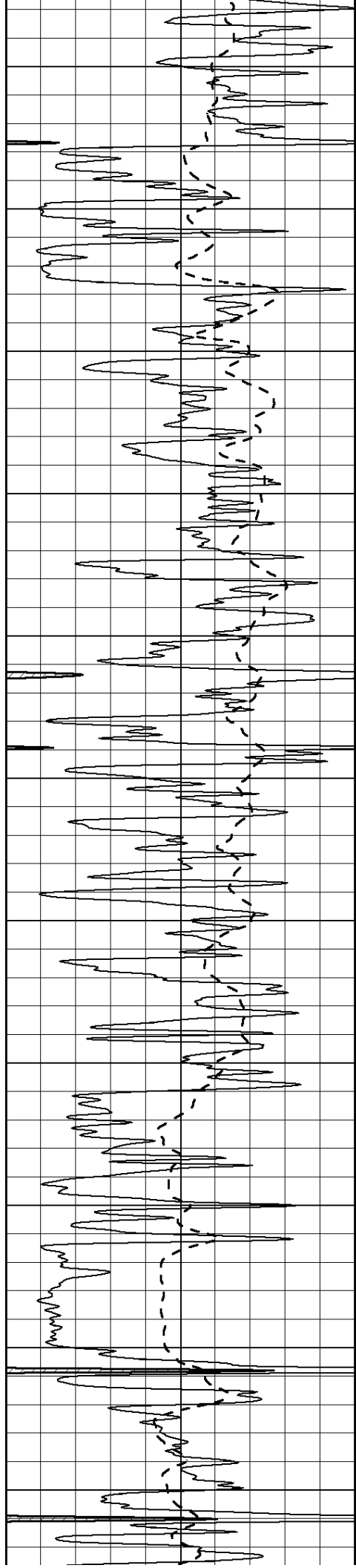
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3700

3750







3800

3850

3900

3950

4000

4050

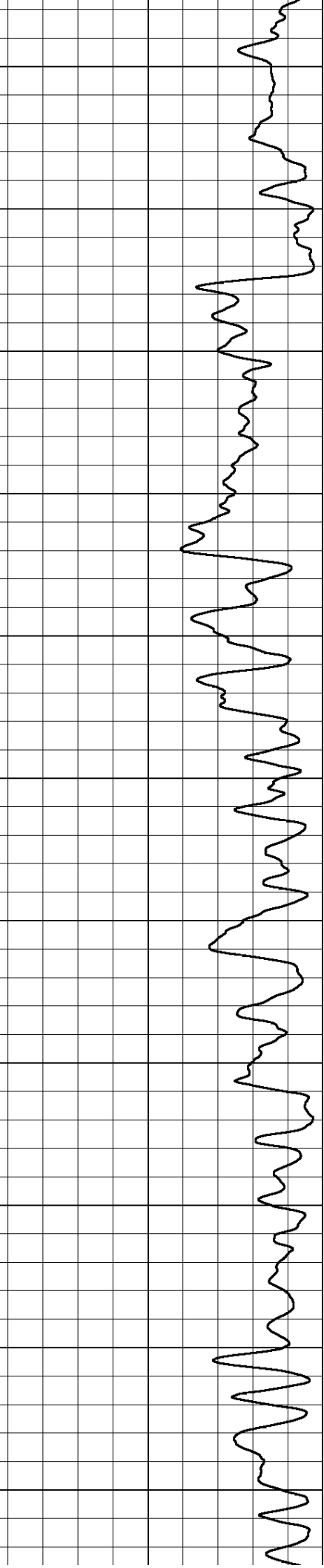
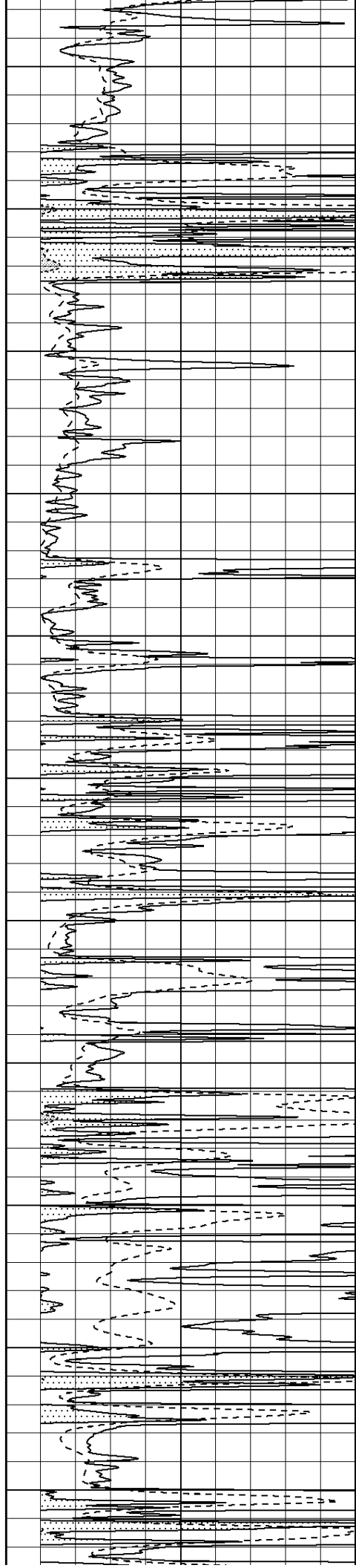
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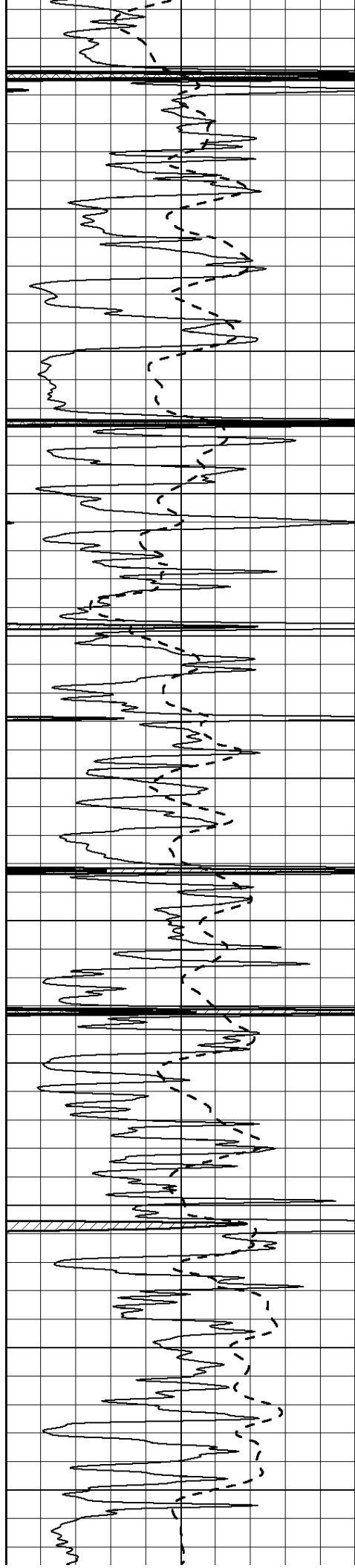
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4200

4250

4300





4350

4400

4450

4500

4550

4600

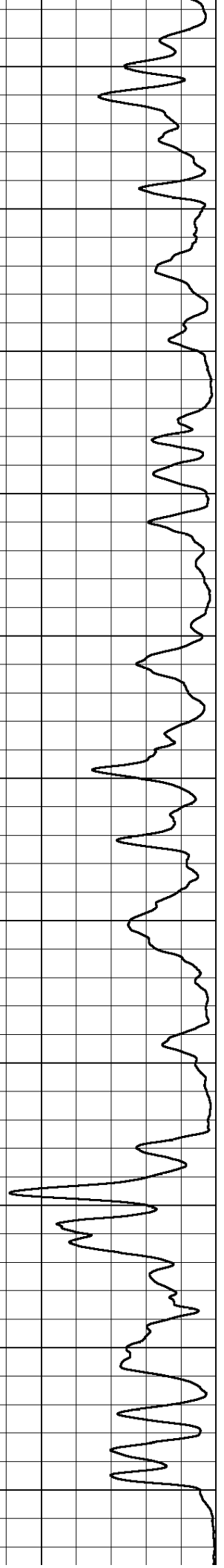
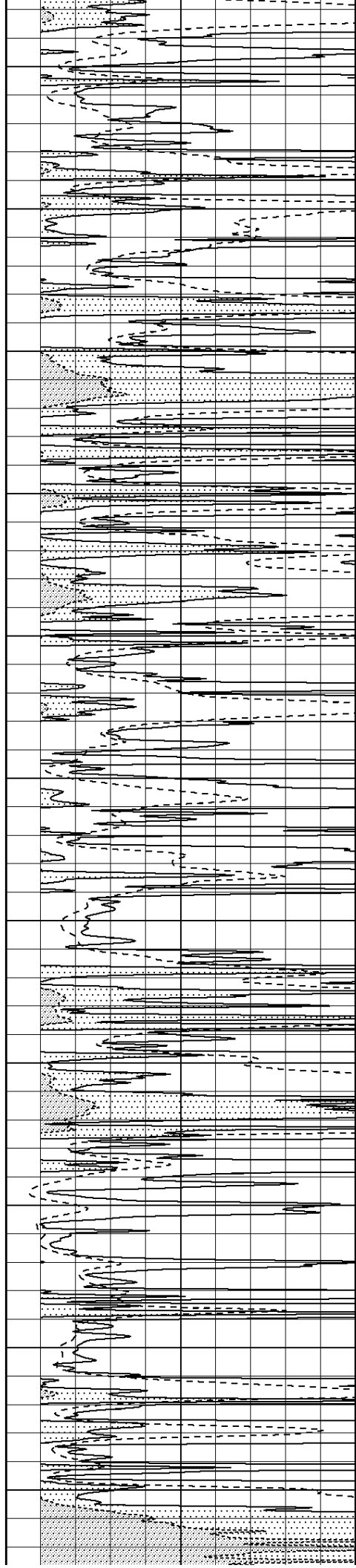
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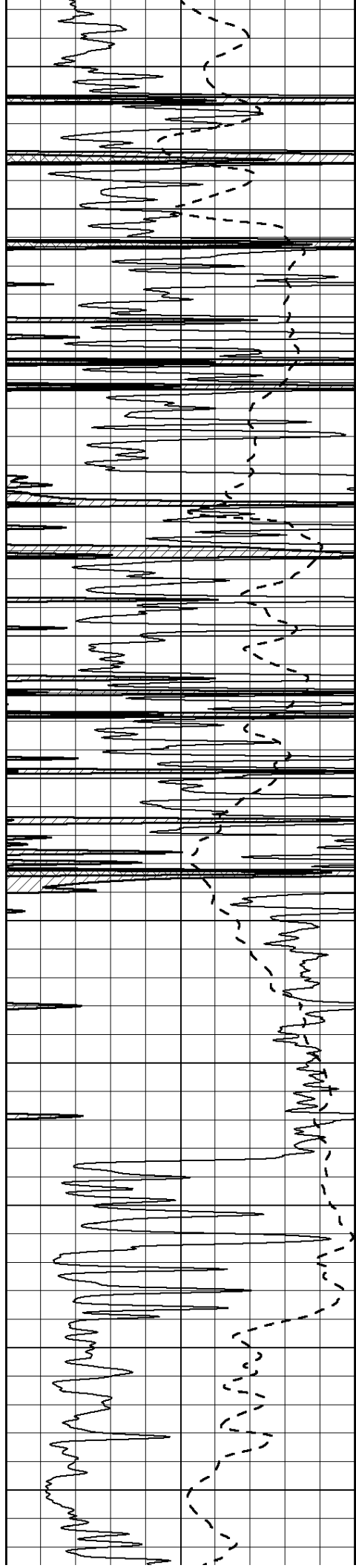
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4750

4800

4850





4900

4950

5000

5050

5100

5150

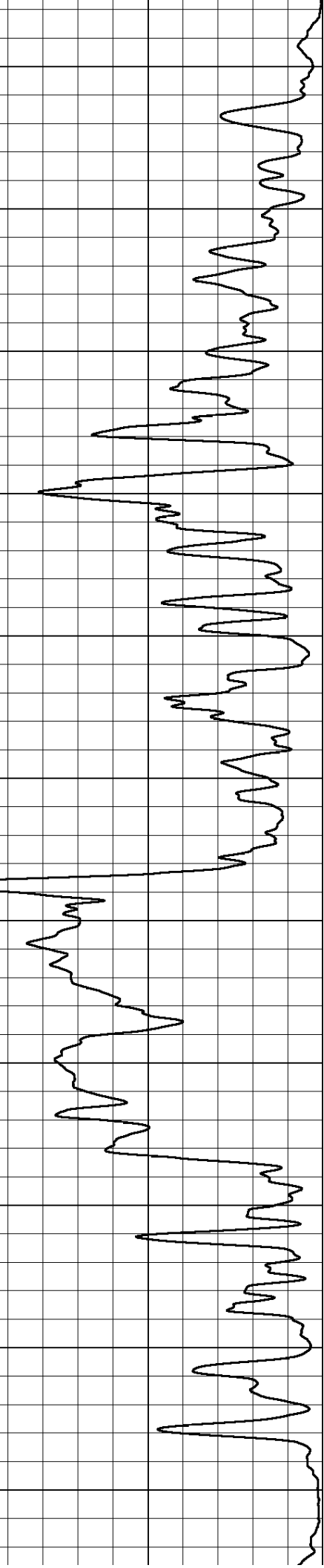
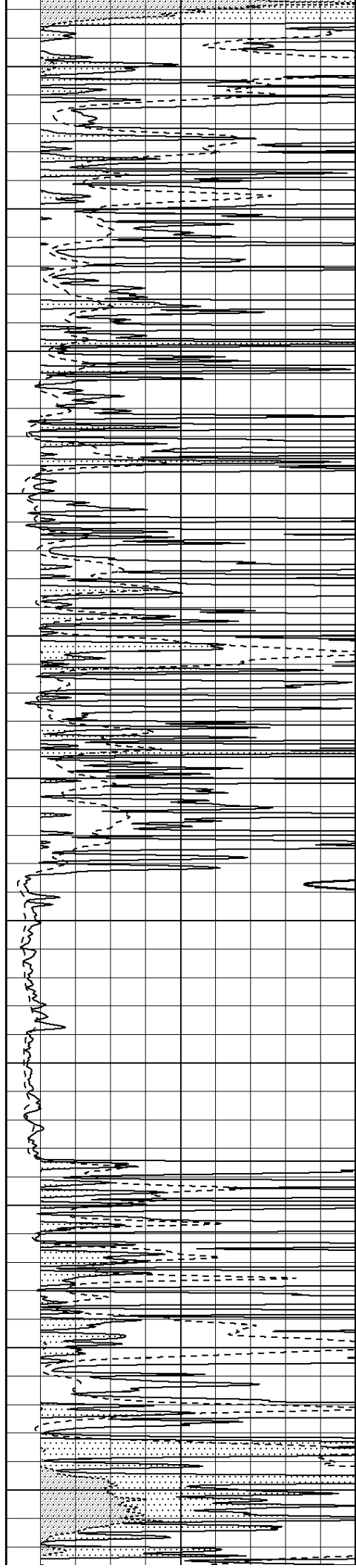
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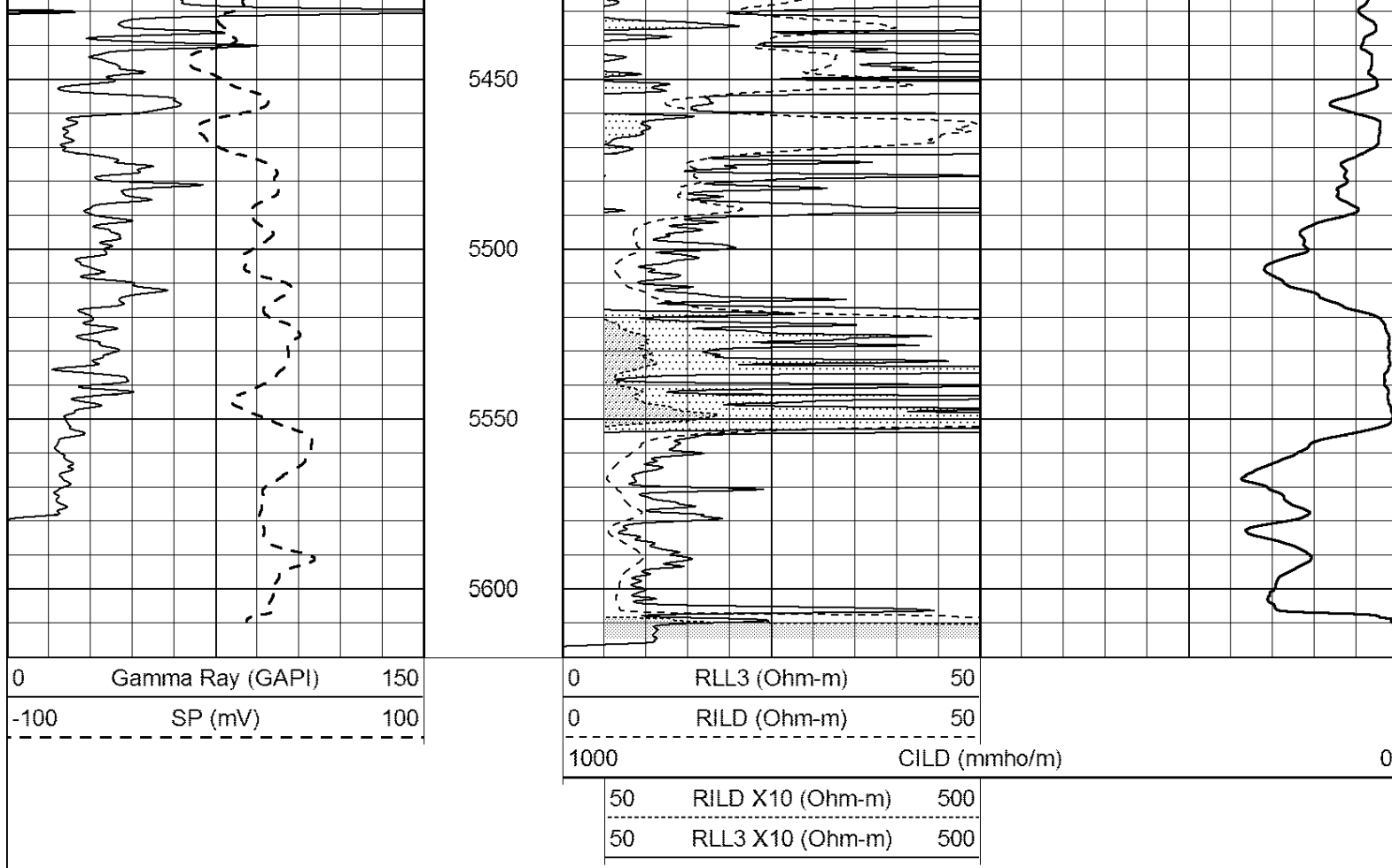
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5300

5350

5400



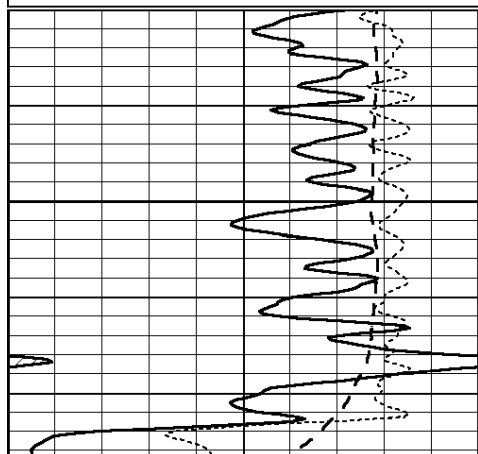


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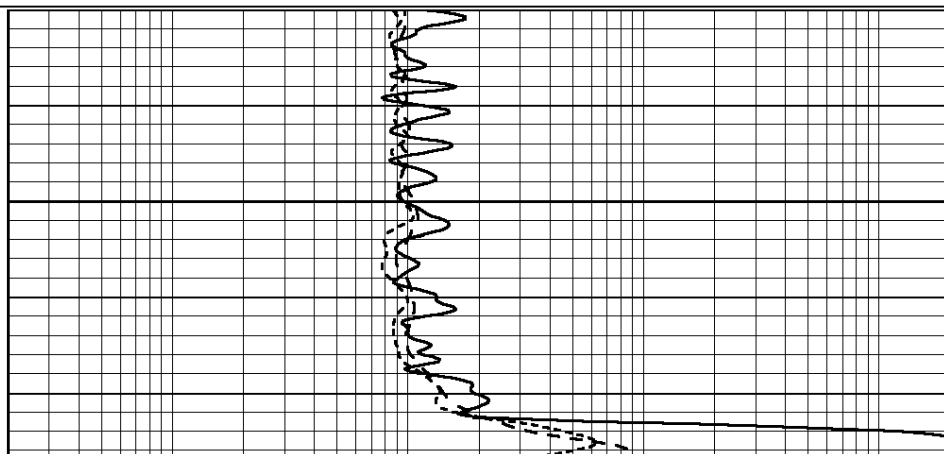
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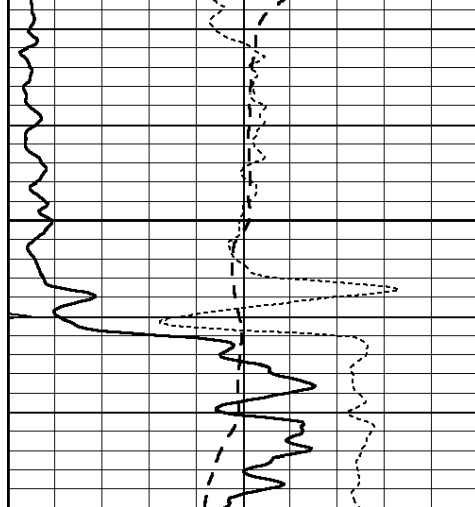
Database File: 409518pe.db  
Dataset Pathname: pass3.11  
Presentation Format: dil  
Dataset Creation: Wed Sep 05 05:47:18 2012  
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-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			



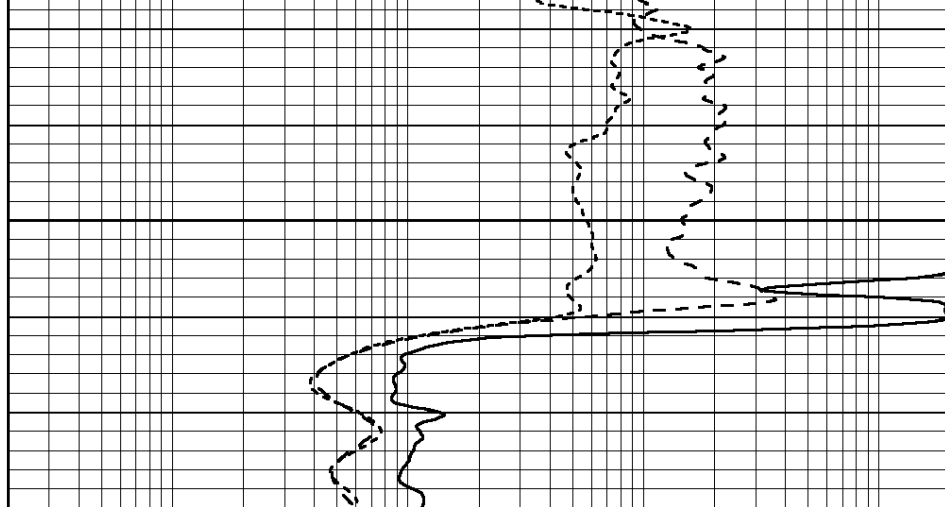
3100





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

3150

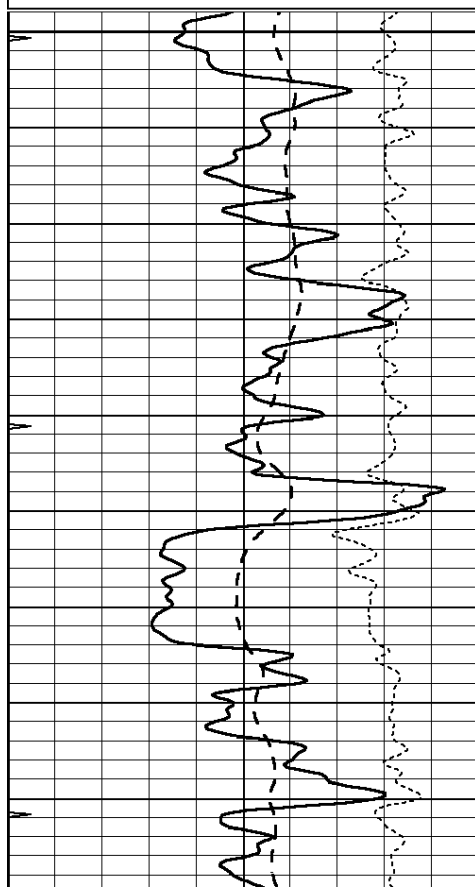


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Database File: 409518pe.db  
 Dataset Pathname: pass3.14  
 Presentation Format: dil  
 Dataset Creation: Wed Sep 05 06:20:57 2012  
 Charted by: Depth in Feet scaled 1:240

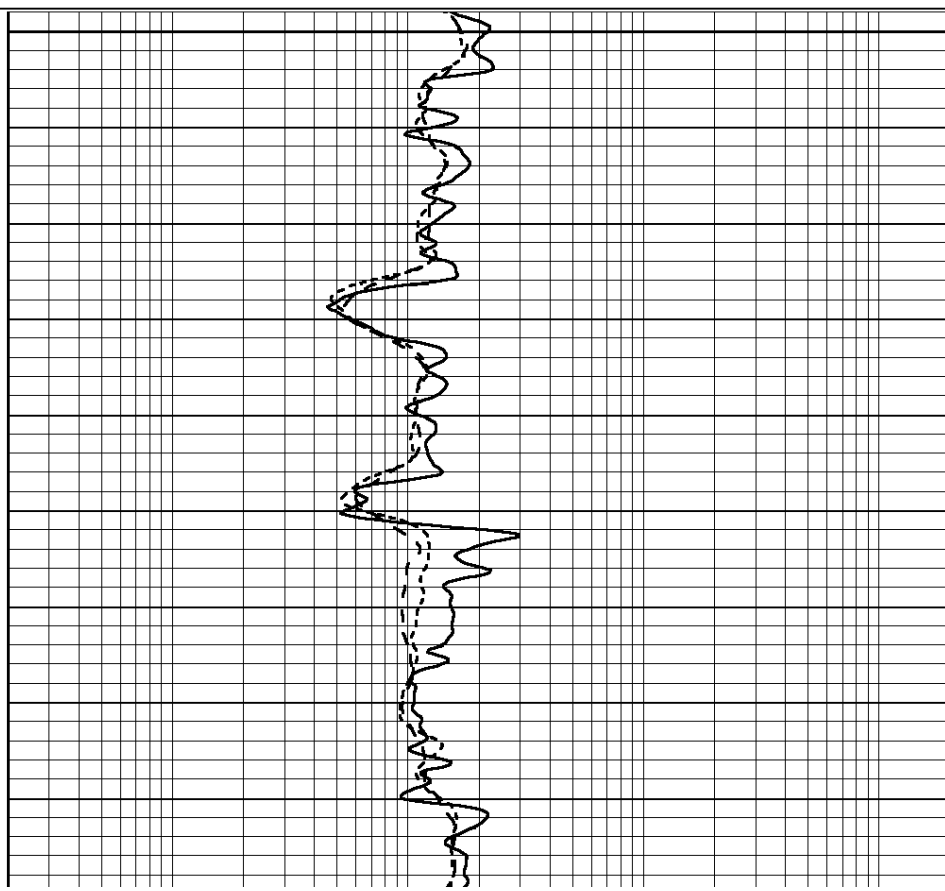
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

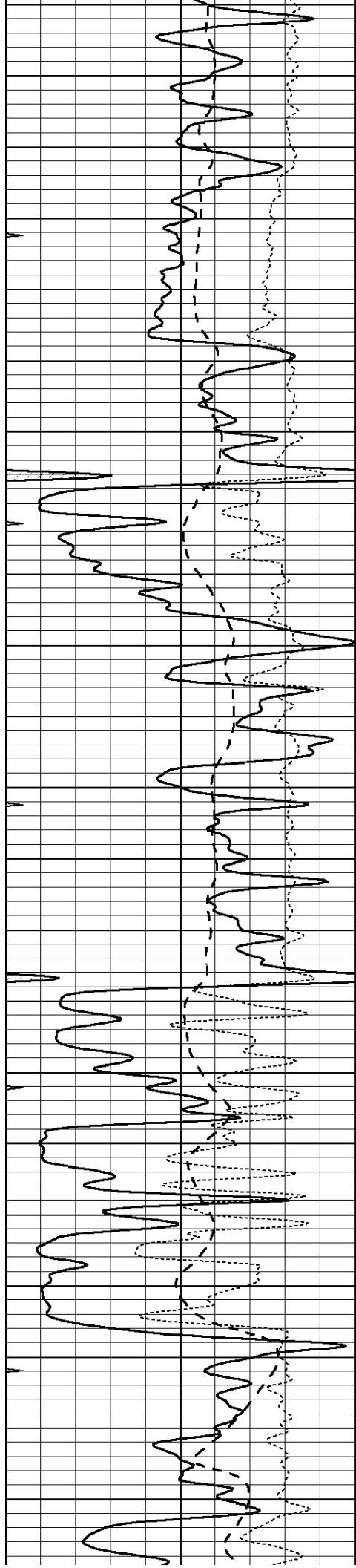
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



3600

3650





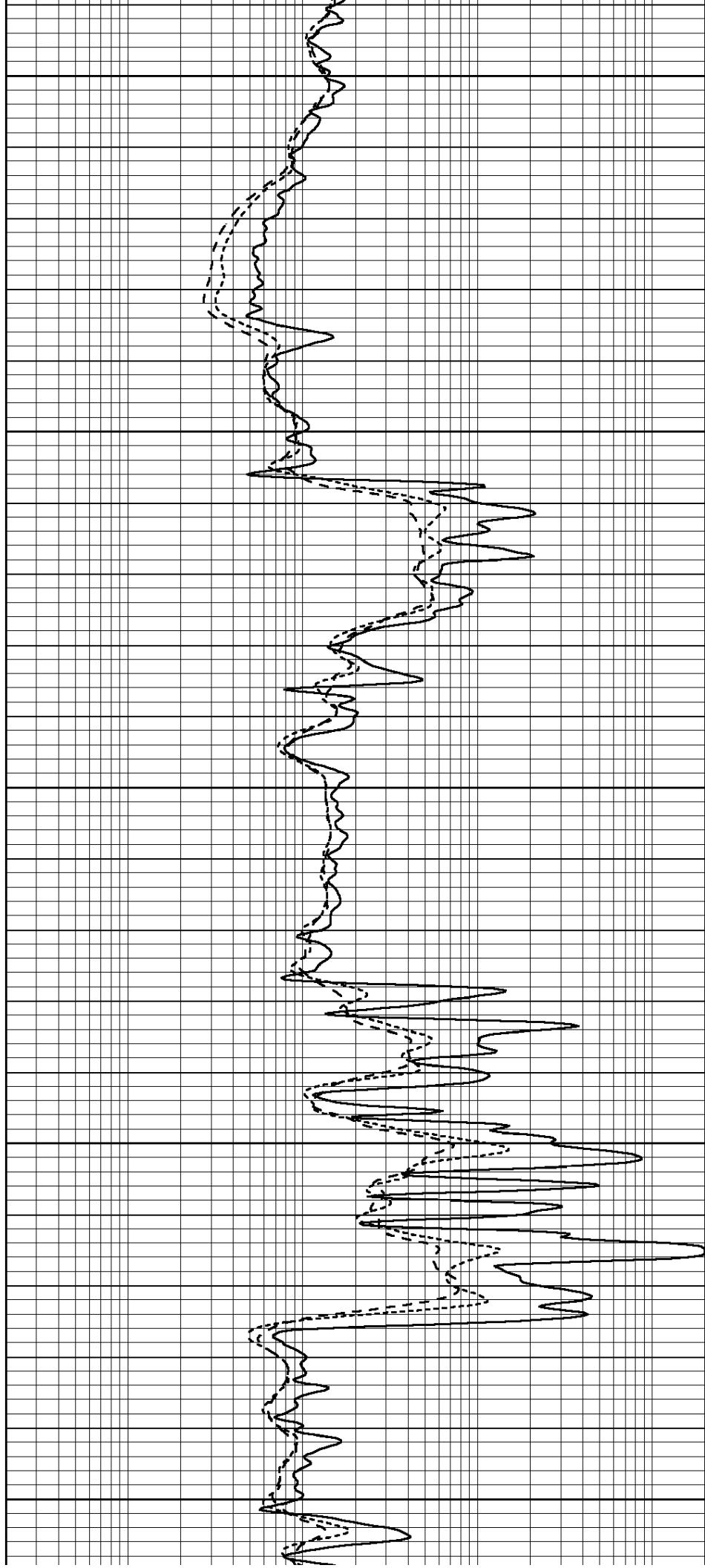
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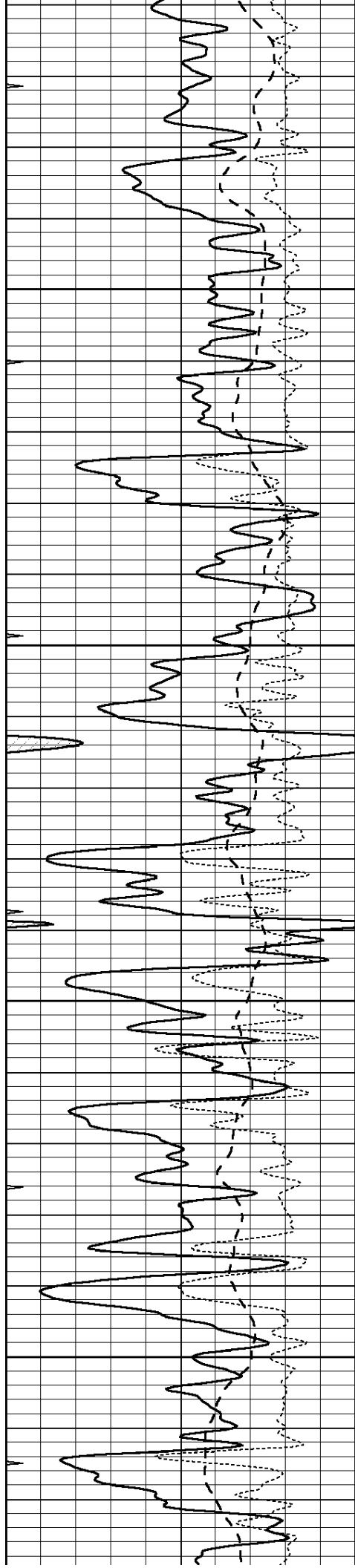
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3800

3850

3900



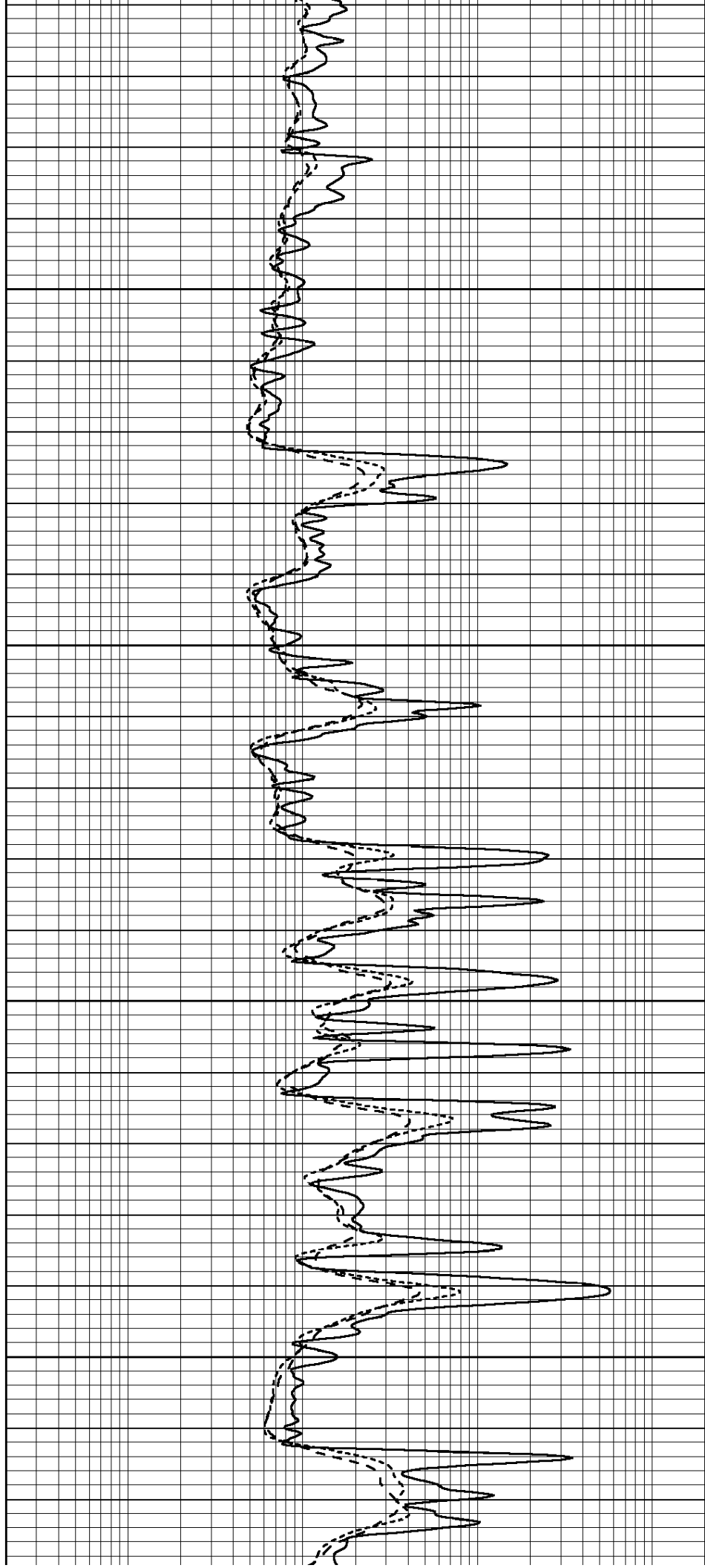


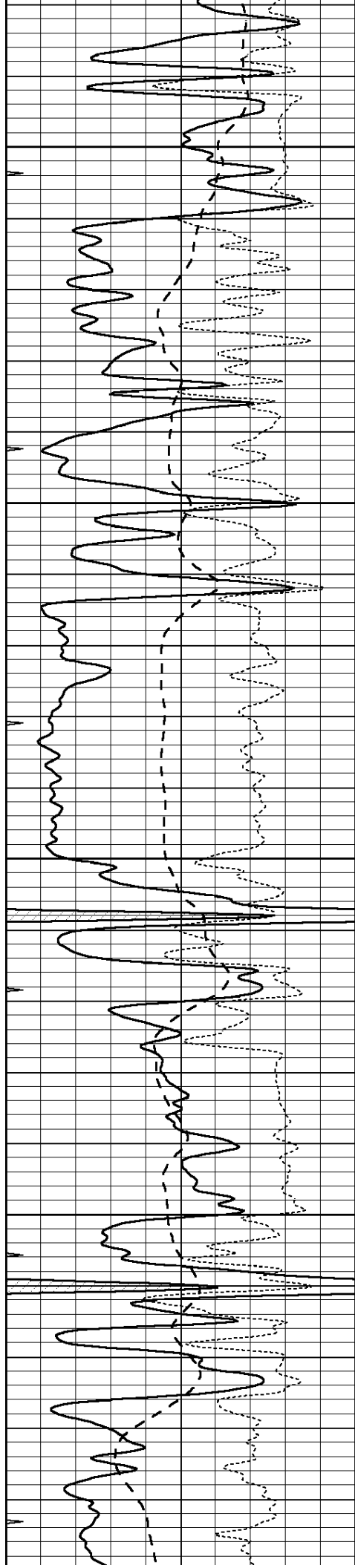
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4000

4050

4100



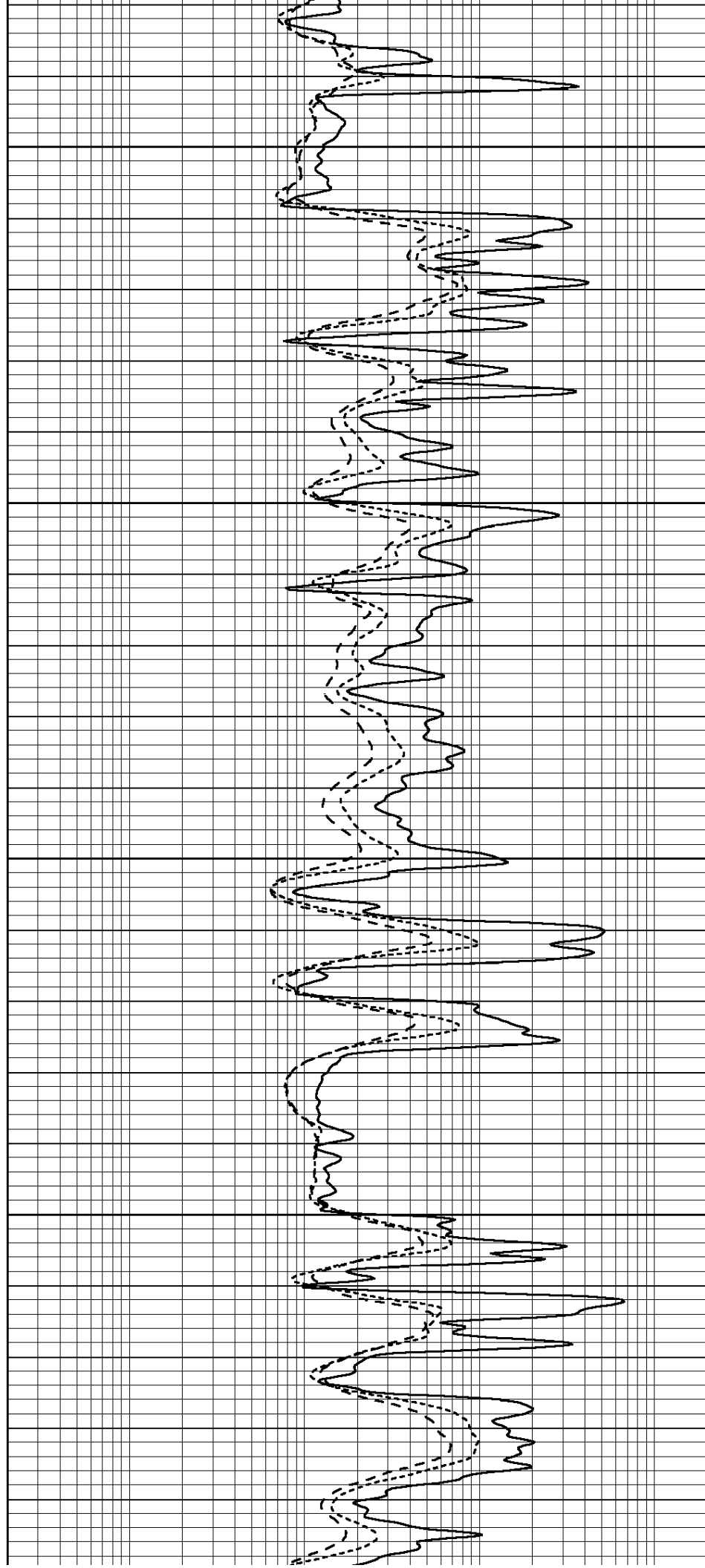


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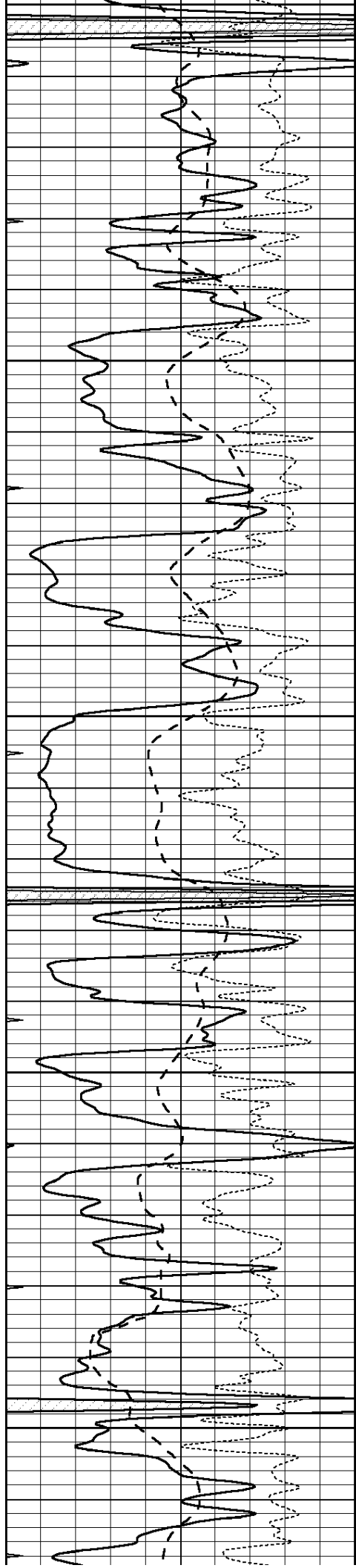
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4250

4300







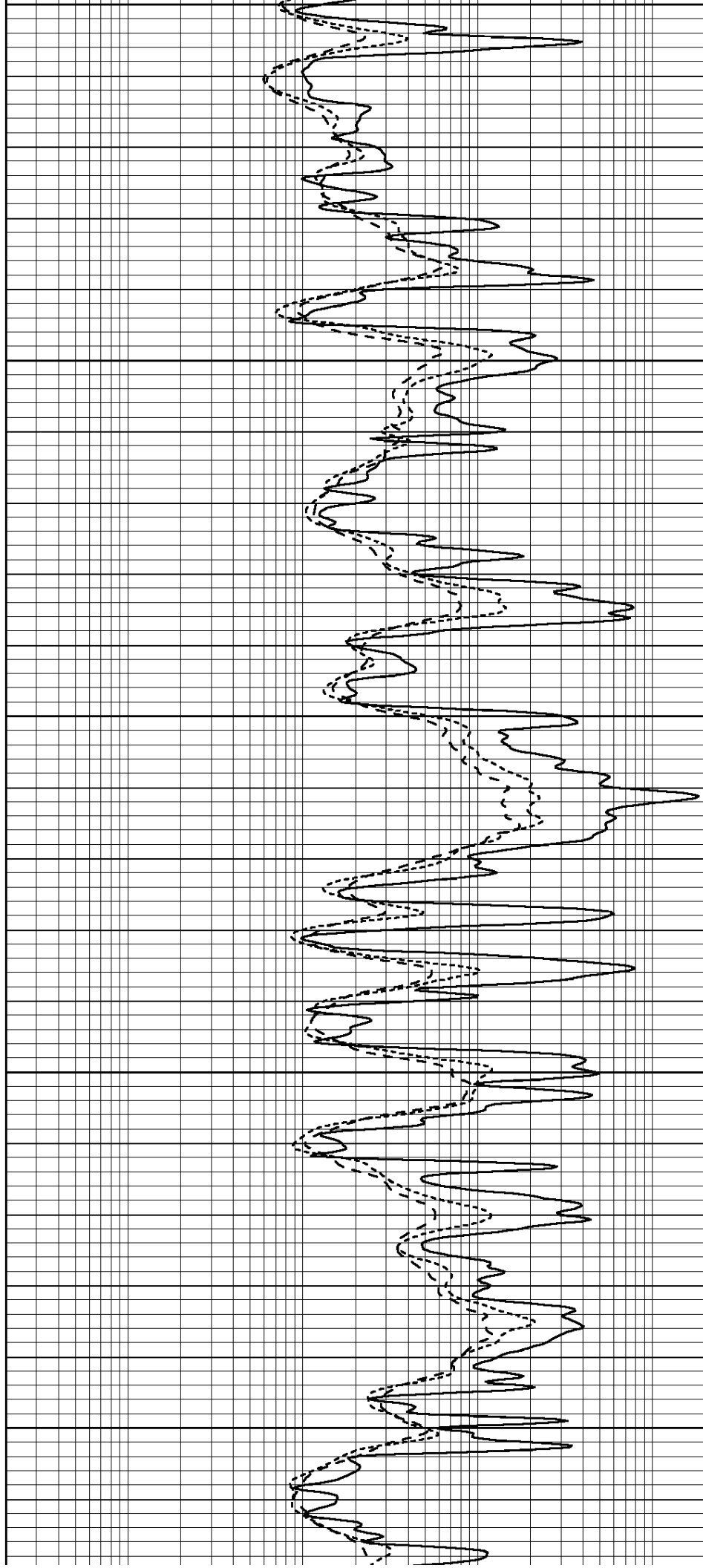
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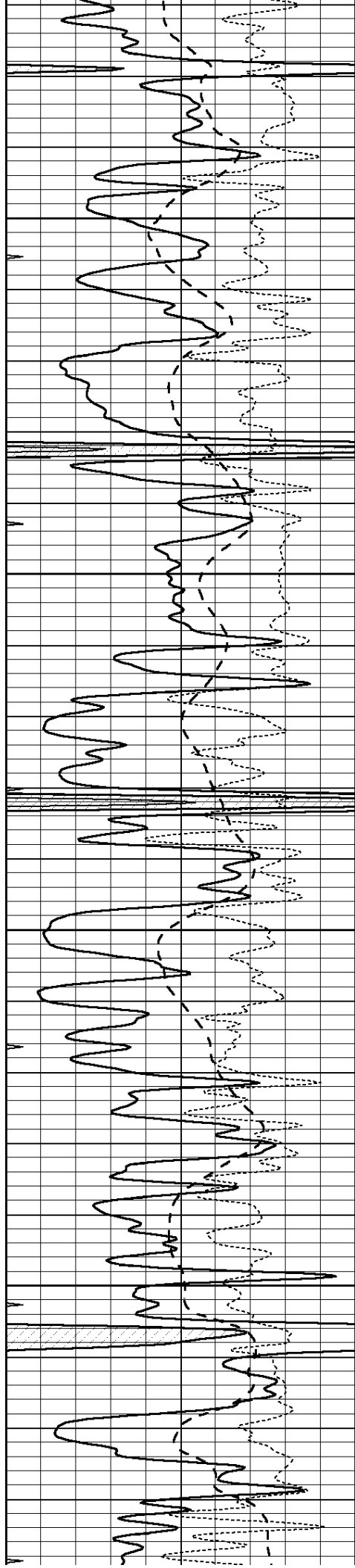
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4500

4550



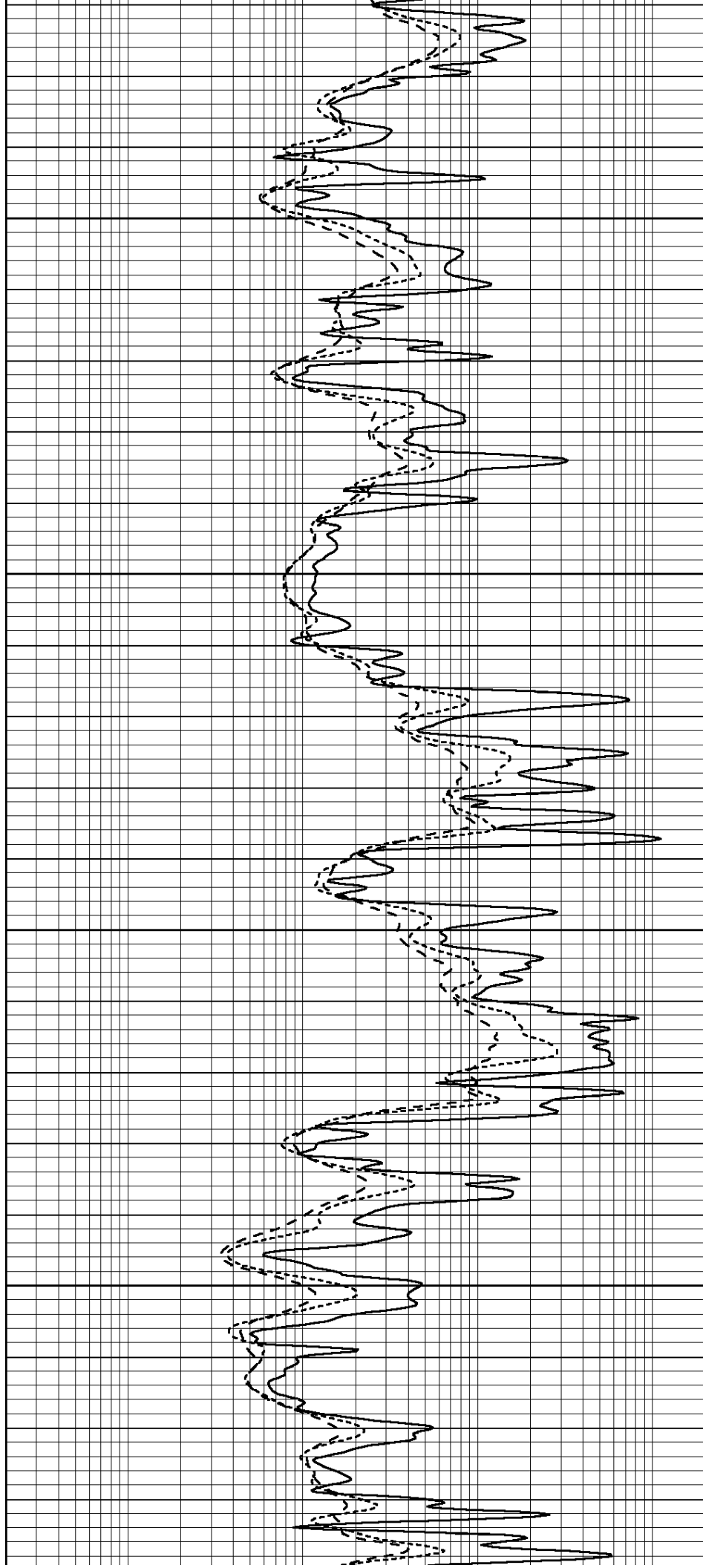


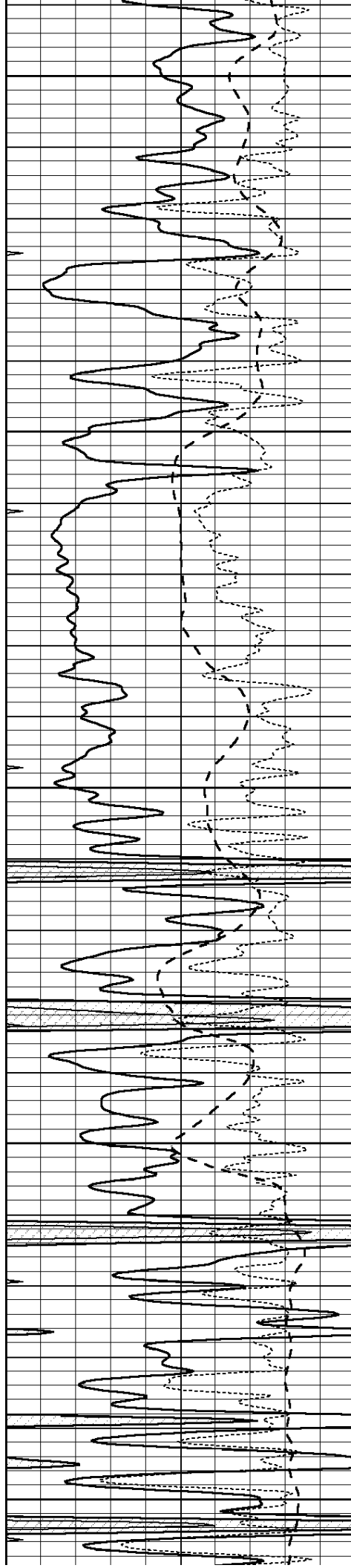
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4650

4700

4750





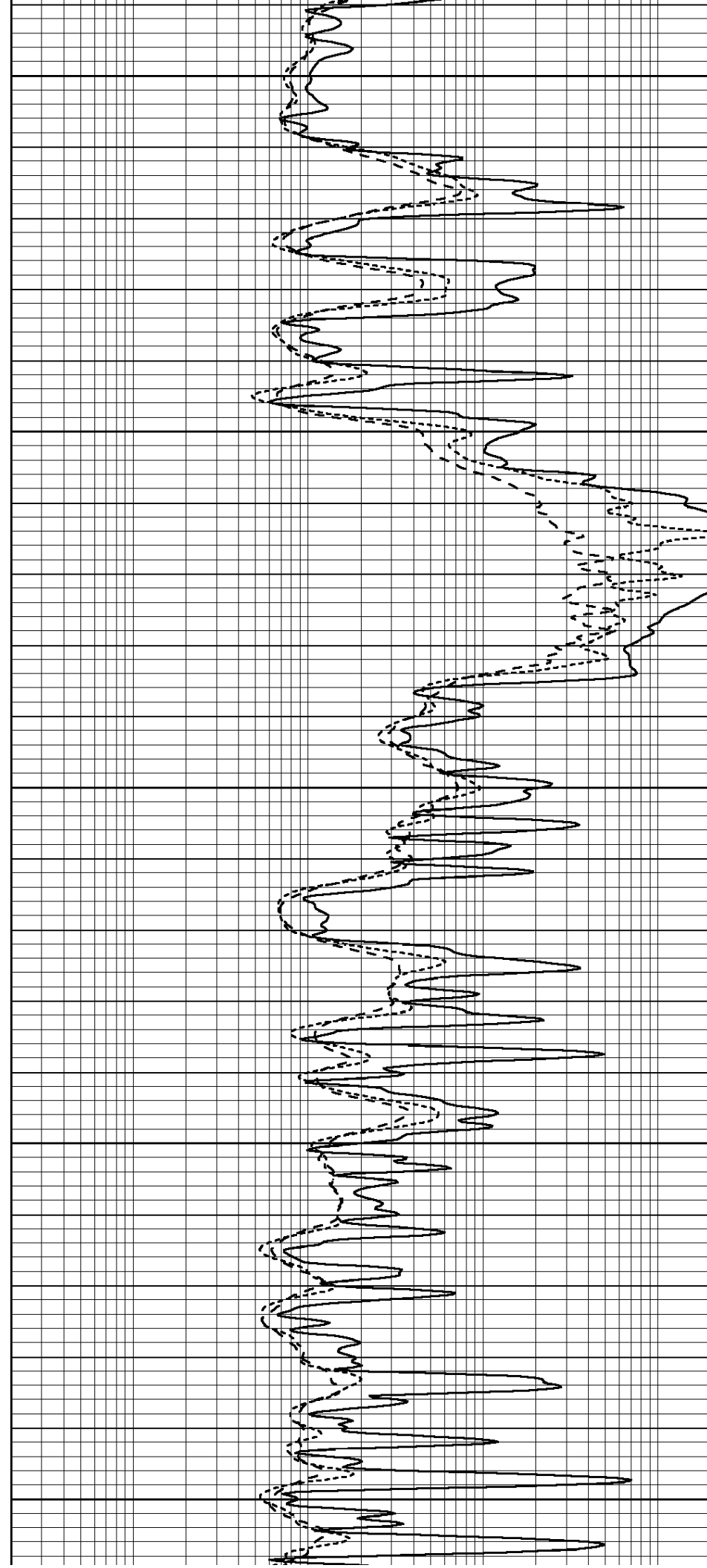
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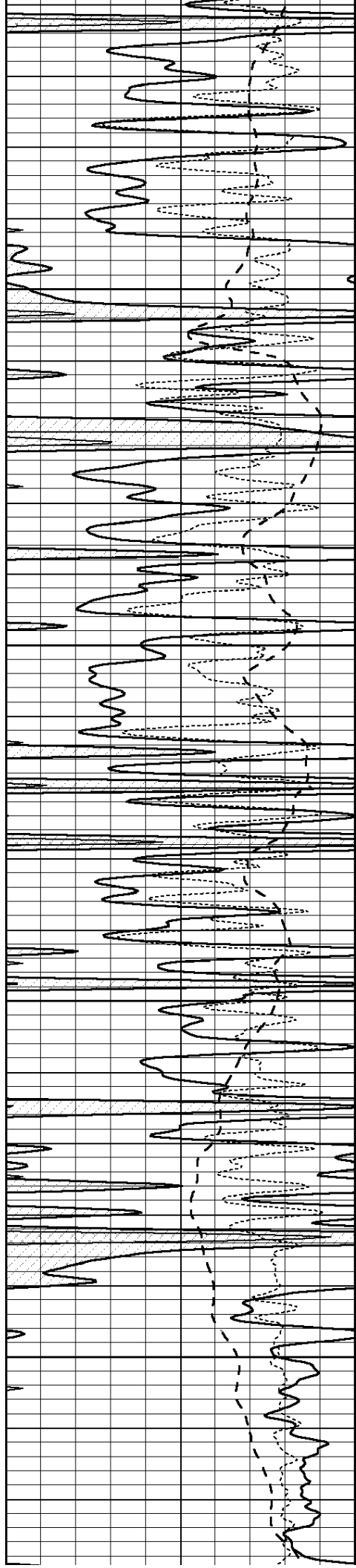
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4900

4950

5000



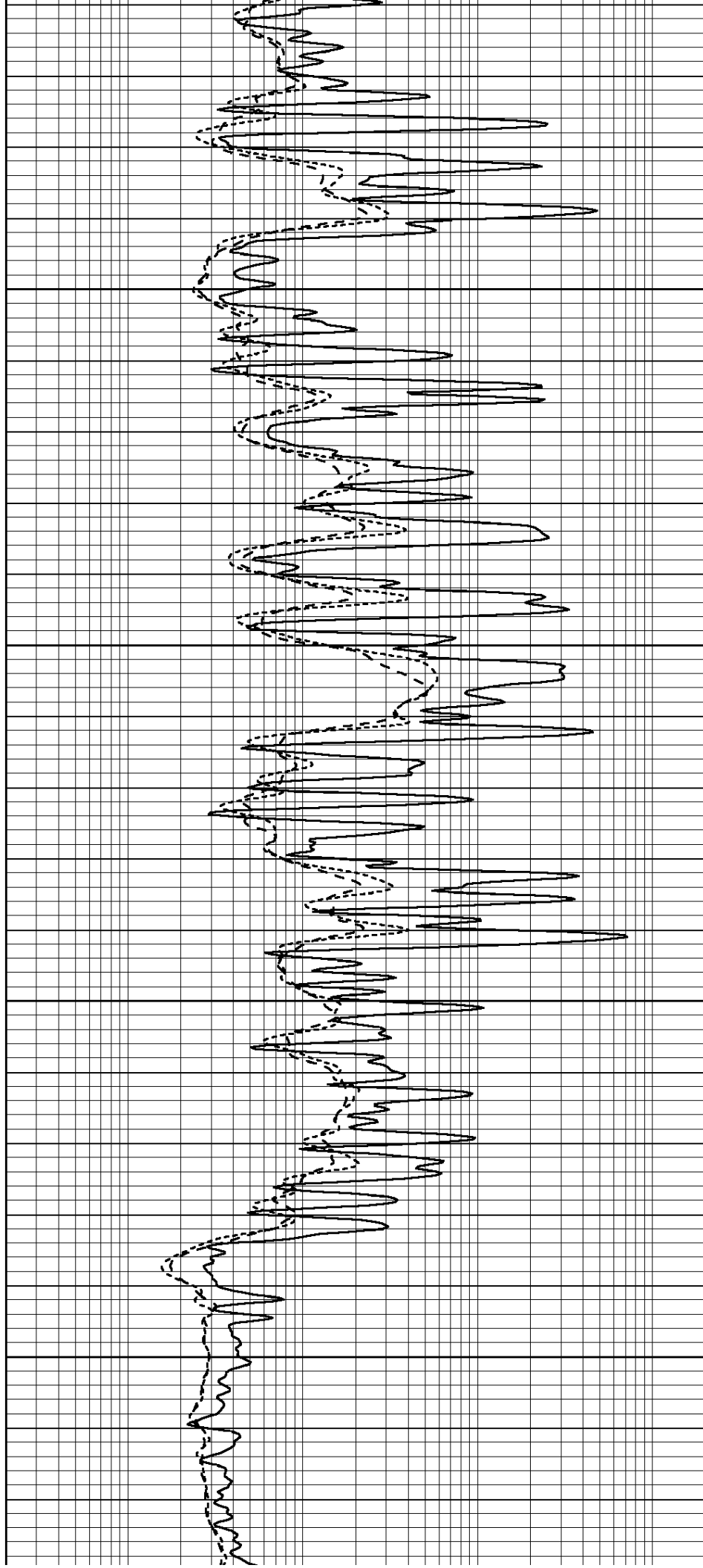


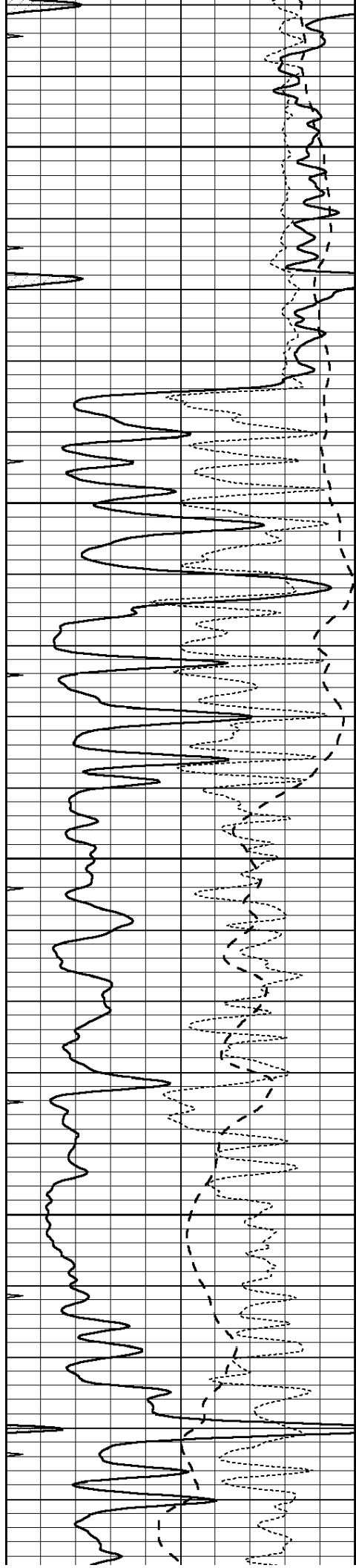
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5100

5150

5200



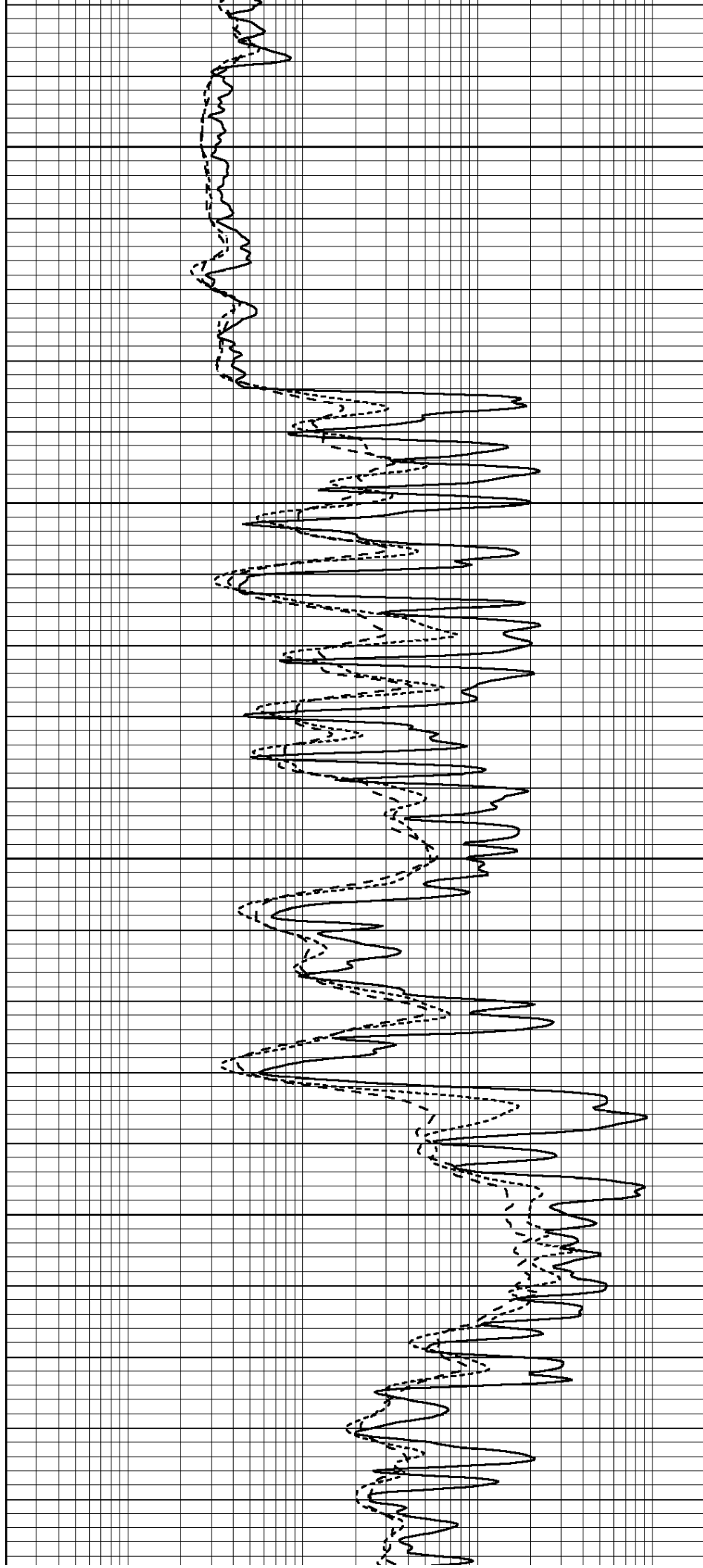


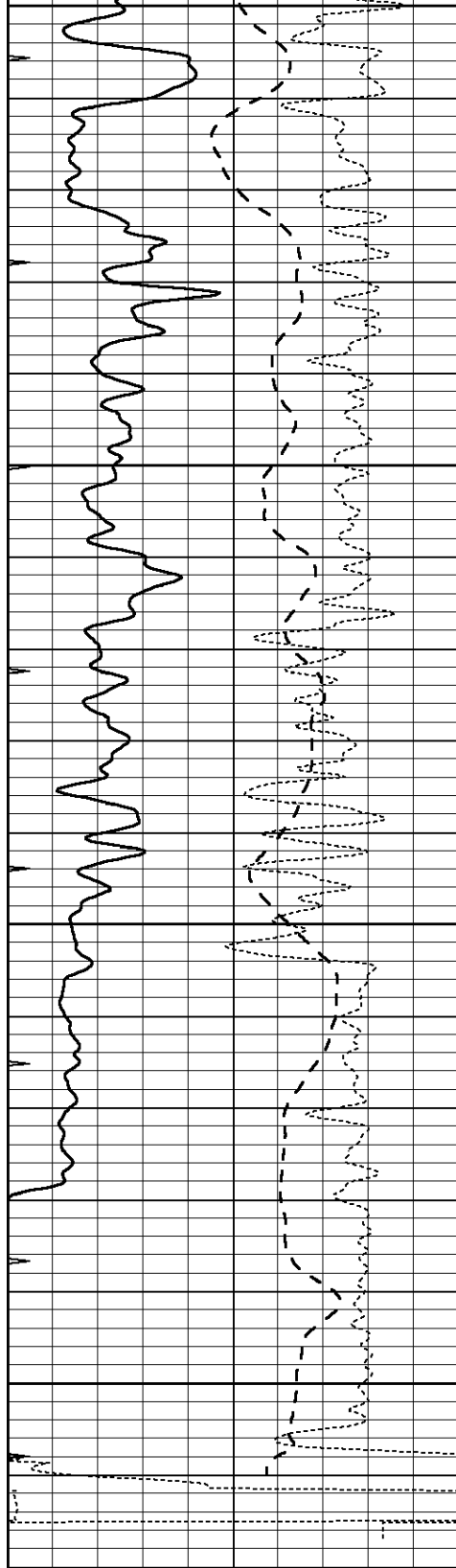
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5300

5350

5400





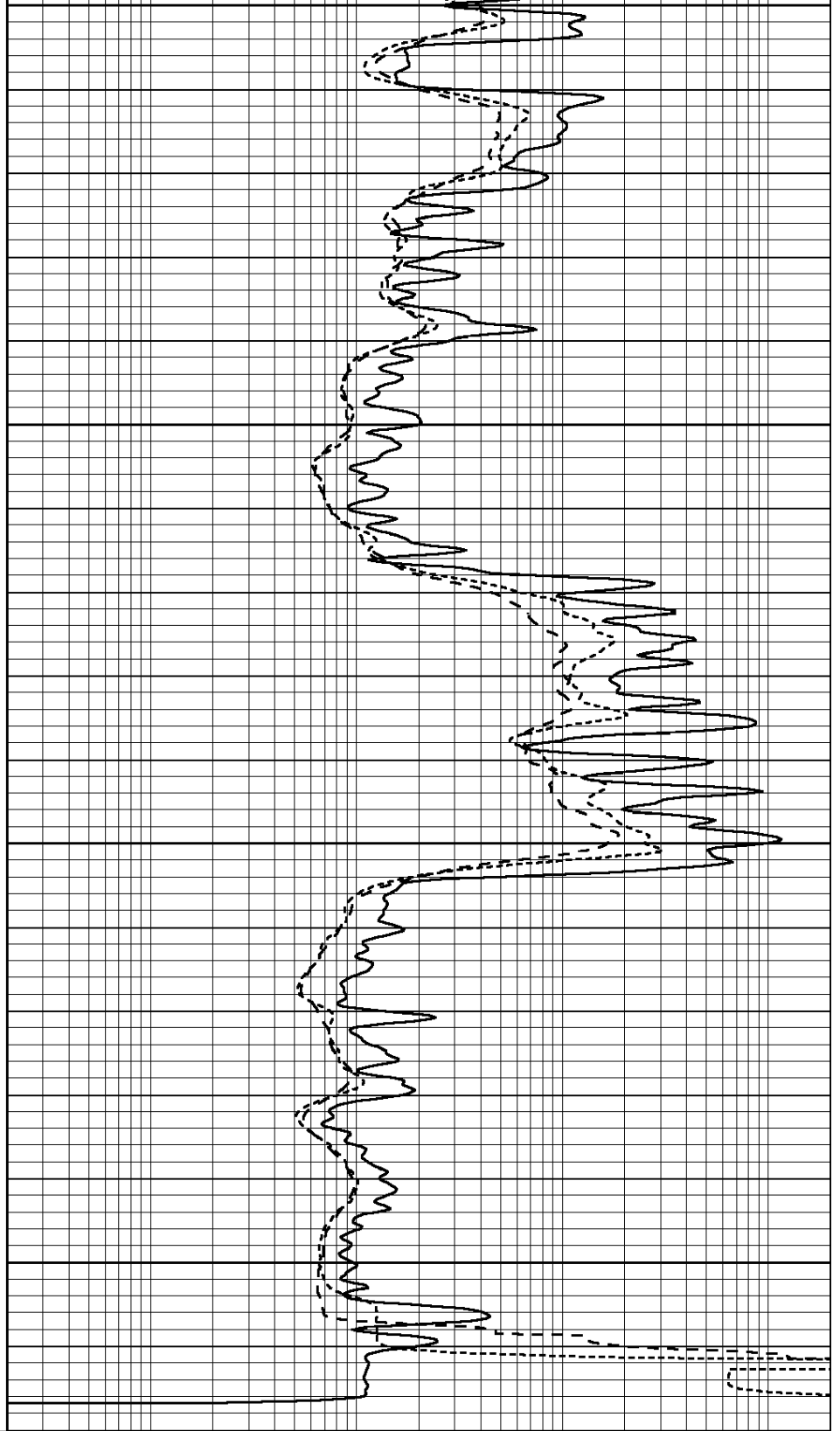
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

5450

5500

5550

5600



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



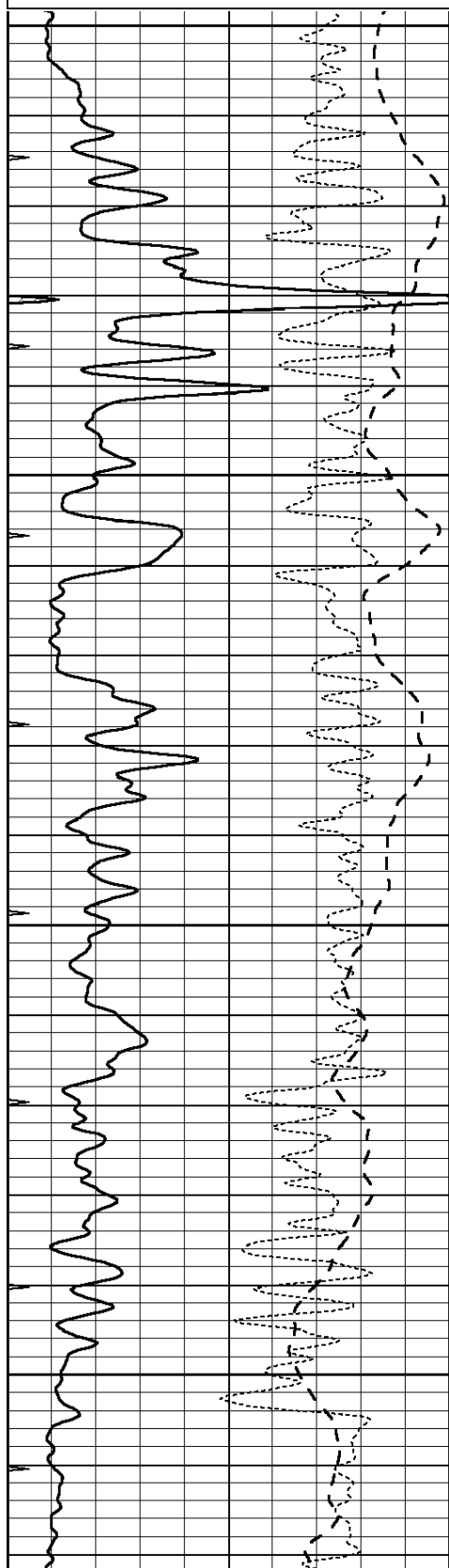
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Kansas

# REPEAT SECTION

Database File: 409518pe.db  
Dataset Pathname: pass2.7  
Presentation Format: dil  
Dataset Creation: Wed Sep 05 06:15:21 2012 by Calc Open-Cased 110302  
Charted by: Depth in Feet scaled 1:240

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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

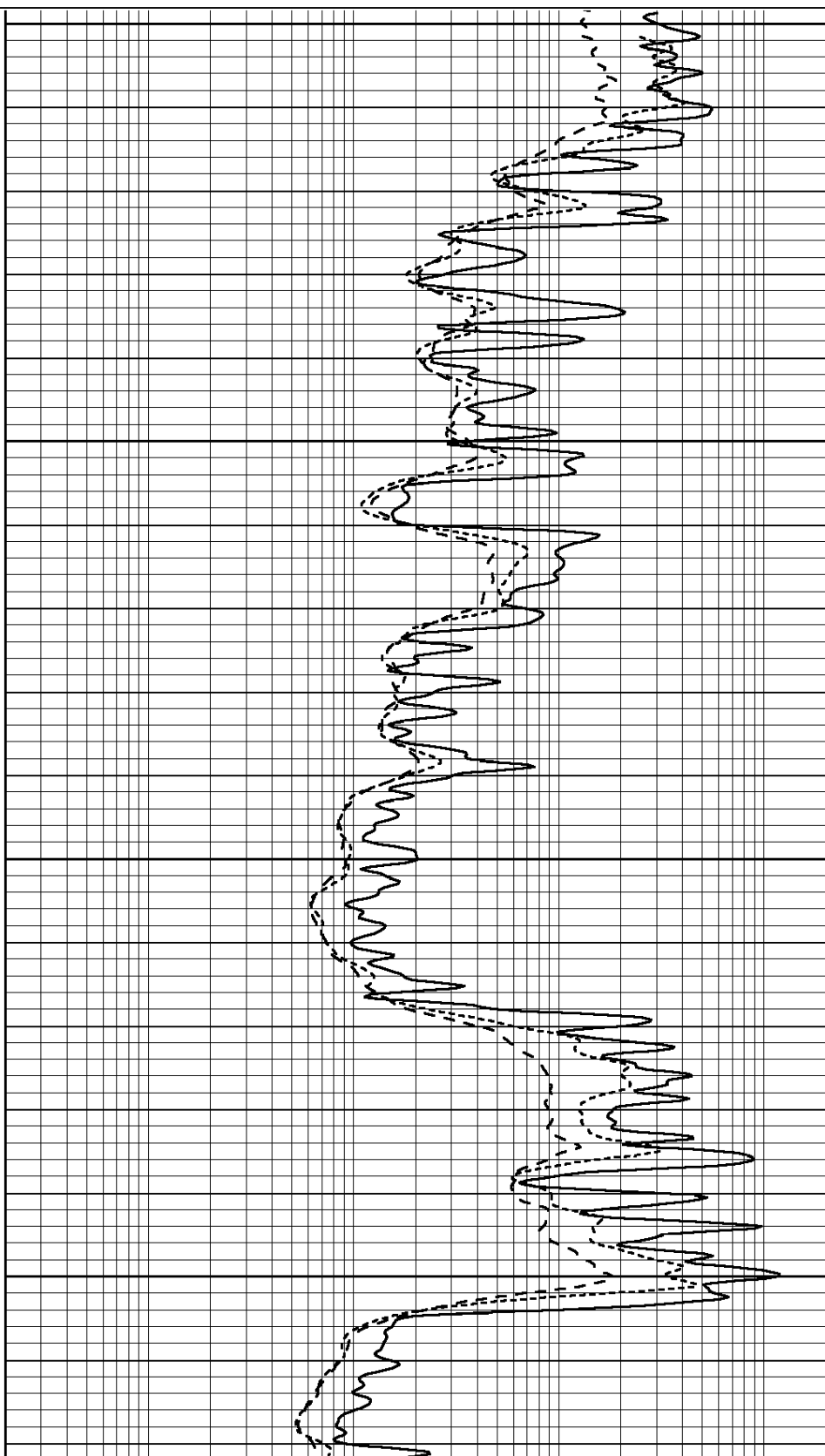


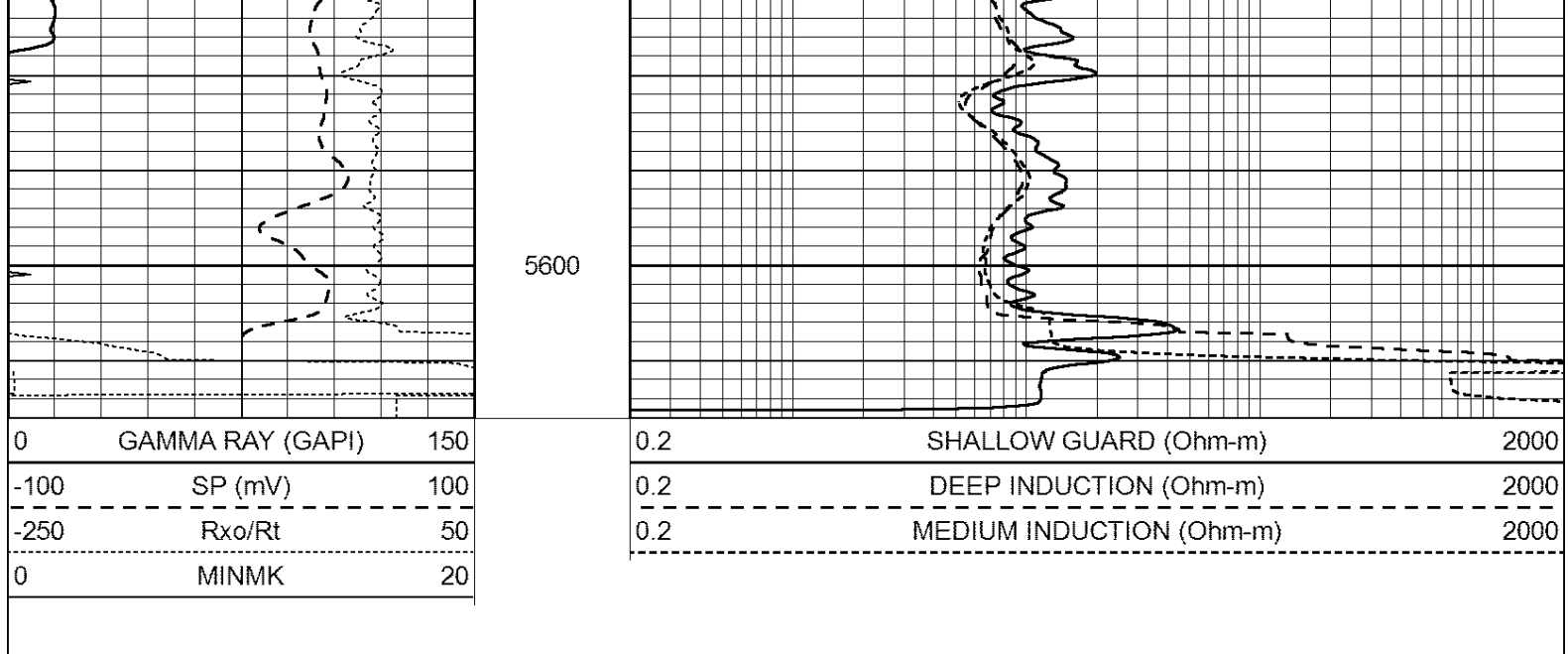
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5450

5500

5550





### Calibration Report

Database File: 409518pe.db  
 Dataset Pathname: pass3.14  
 Dataset Creation: Wed Sep 05 06:20:57 2012

### Dual Induction Calibration Report

Serial-Model: DIL3-GEAR  
 Performed: Wed Sep 05 04:06:52 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	13.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-3.000
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
2.5	7.7



Low Ref	5.5	15.0	Offset: -5.7	
High Ref	Gain: 3.8			
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:		Tue Sep 04 17:31:06 2012		
Calibrator Value:	1.0	GAPI		
Background Reading:	0.0	cps		
Calibrator Reading:	1.0	cps		
Sensitivity:	0.3000	GAPI/cps		