



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company		RESOURCE DEVELOPMENT	
Well		NININGER #11-1-1645	
Field			
County		CHEYENNE	
State		COLORADO	
Company		RESOURCE DEVELOPMENT TECHNOLOGY, LLC.	
Well		NININGER #11-1-1645	
Field			
County		CHEYENNE	
State		COLORADO	
Location:		API # : 05-017-07763-00	
Permanent Datum		GROUND LEVEL	
Log Measured From		KELLY BUSHING 11' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 1		TWP 16S RGE 45W	
600' FNL & 600' FWL		Elevation 4345	
Other Services		CDL/CNL	
PE/SON		Elevation	
K.B. 4356		D.F. 4354	
G.L. 4345			
Date	10/19/13		
Run Number	ONE		
Depth Driller	5590		
Depth Logger	5591		
Bottom Logged Interval	5589		
Top Log Interval	00		
Casing Driller	8 5/8" @ 681		
Casing Logger	678		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2900 PPM	
Density / Viscosity	9.2/67		
pH / Fluid Loss	10.5/7.2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.70 @ 80F		
Rmf @ Meas. Temp	.52 @ 80F		
Rmc @ Meas. Temp	.84 @ 80F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.43 @ 130F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	130F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	PHIL ASKEY	TOM BOWMAN	

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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 "NABORS" HAYS, KANSAS (785) 628-6395
DIRECTIONS
CHEYENNE WELLS, CO. - EAST EDGE GO 8 3/4 S. TO RD. G - 4 3/4 W. - S. & E. INTO

Database File: 011691pe.db
 Dataset Pathname: pass4.3
 Presentation Format: _dil2
 Dataset Creation: Sat Oct 19 19:11:36 2013 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:600

0 Gamma Ray (GAPI) 150
 -100 SP (mV) 100

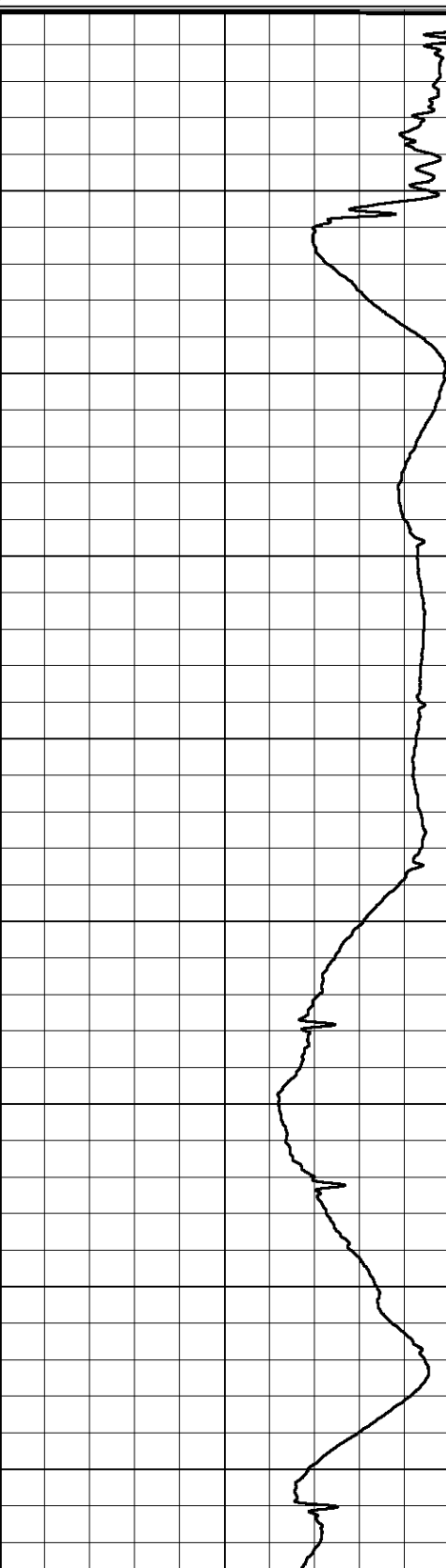
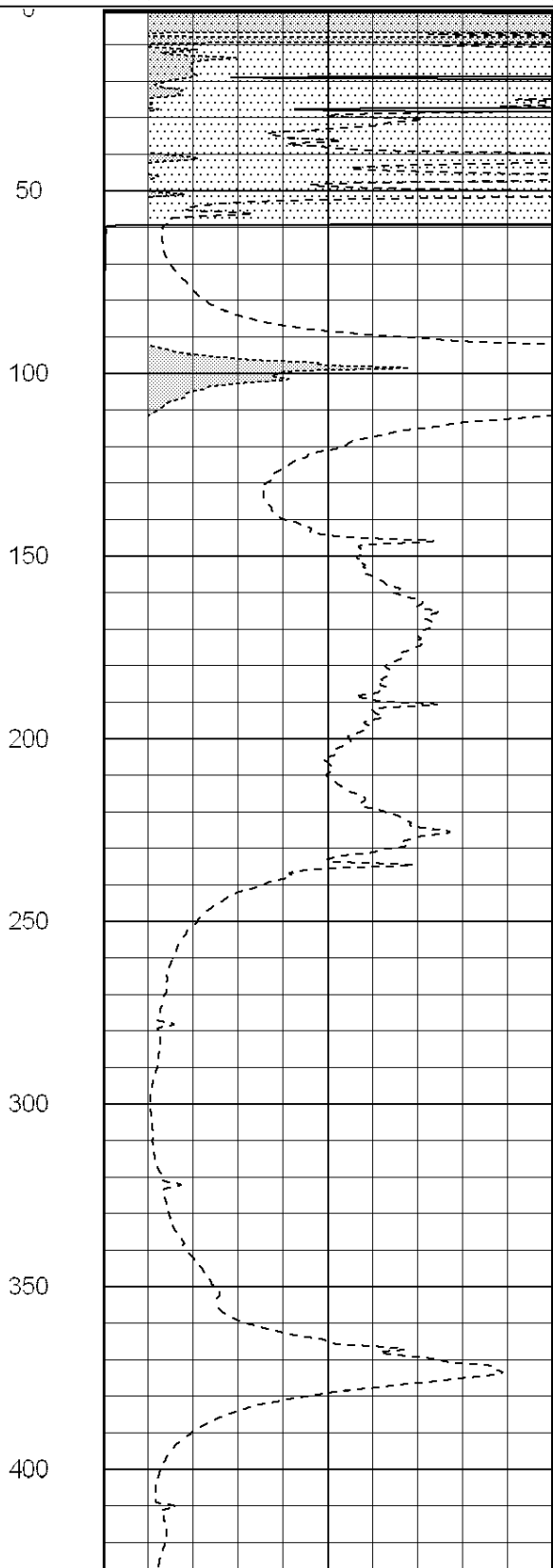
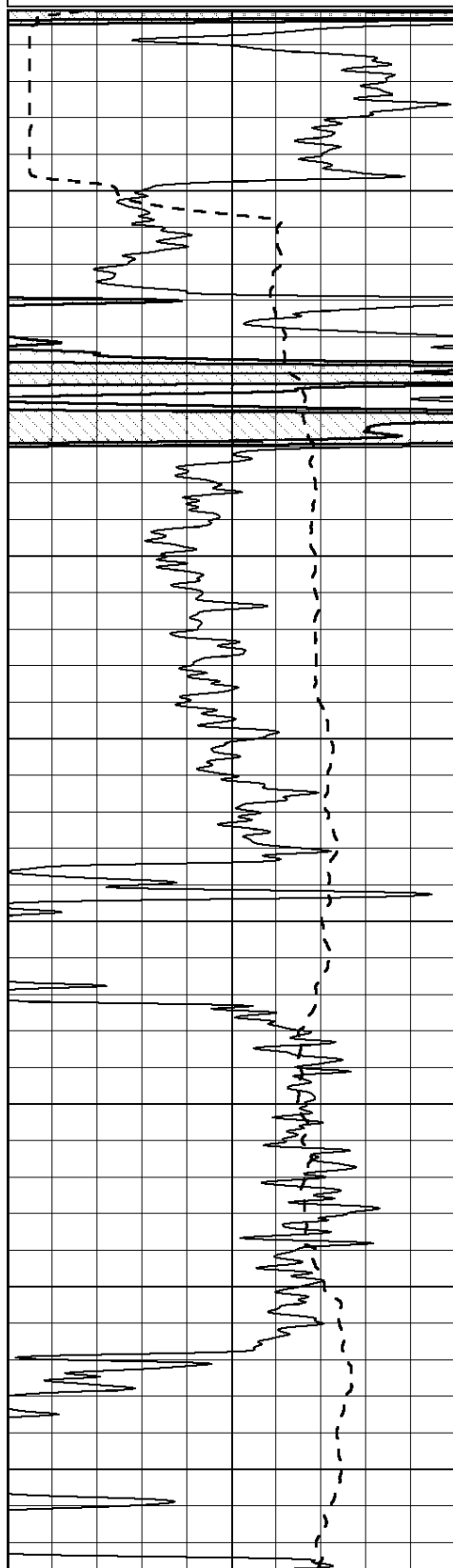
0 RLL3 (Ohm-m) 50

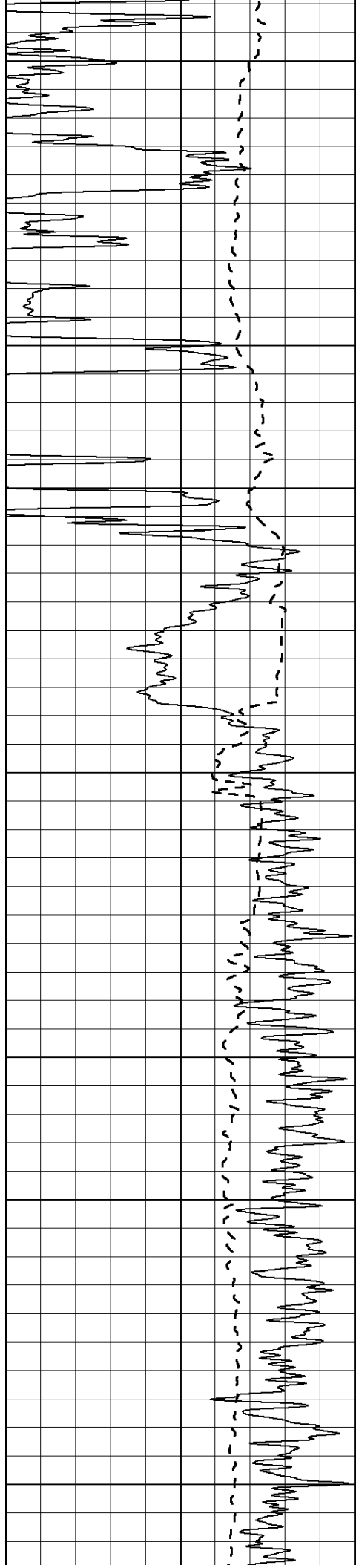
0 RILD (Ohm-m) 50

1000 CILD (mmho/m) 0

50 RILD X10 (Ohm-m) 500

50 RLL3 X10 (Ohm-m) 500





450

500

550

600

650

700

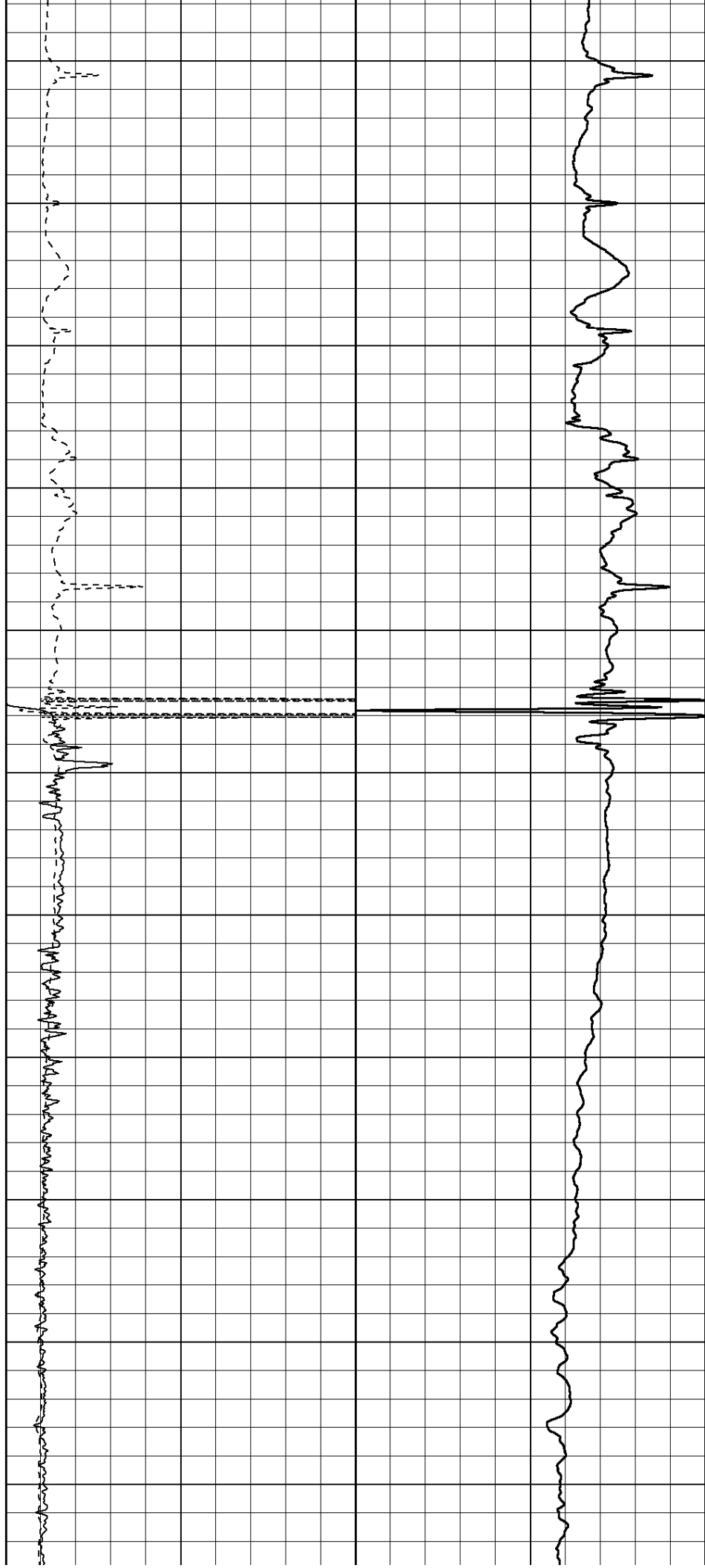
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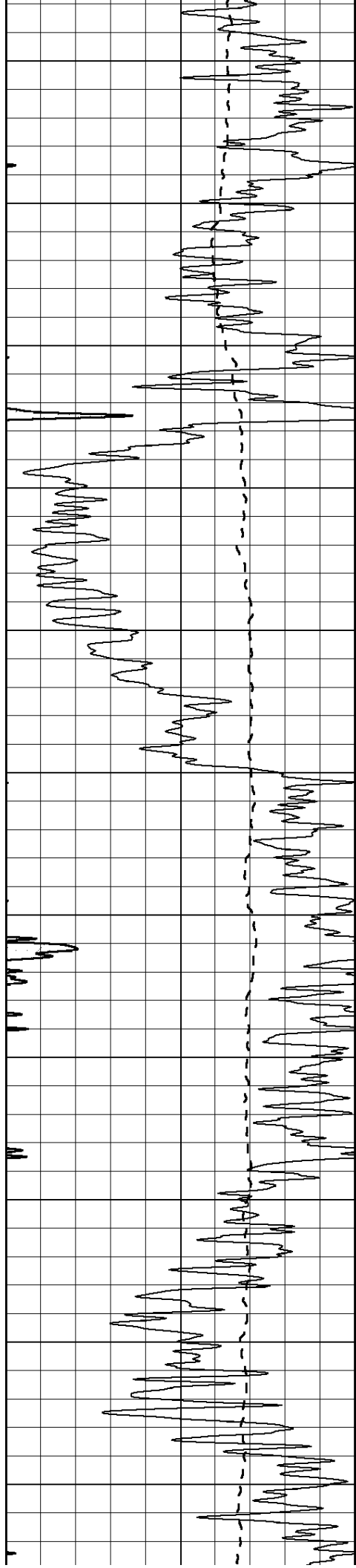
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850

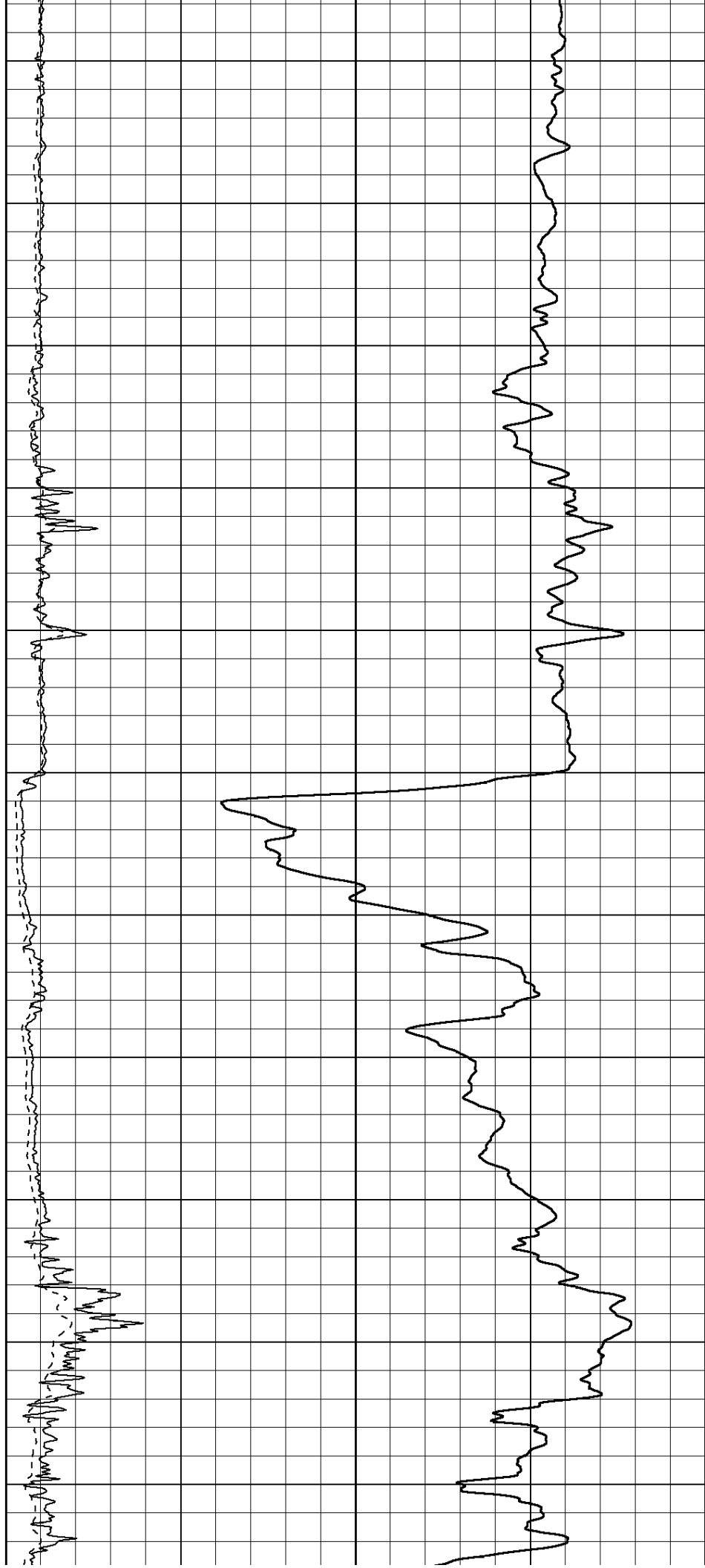
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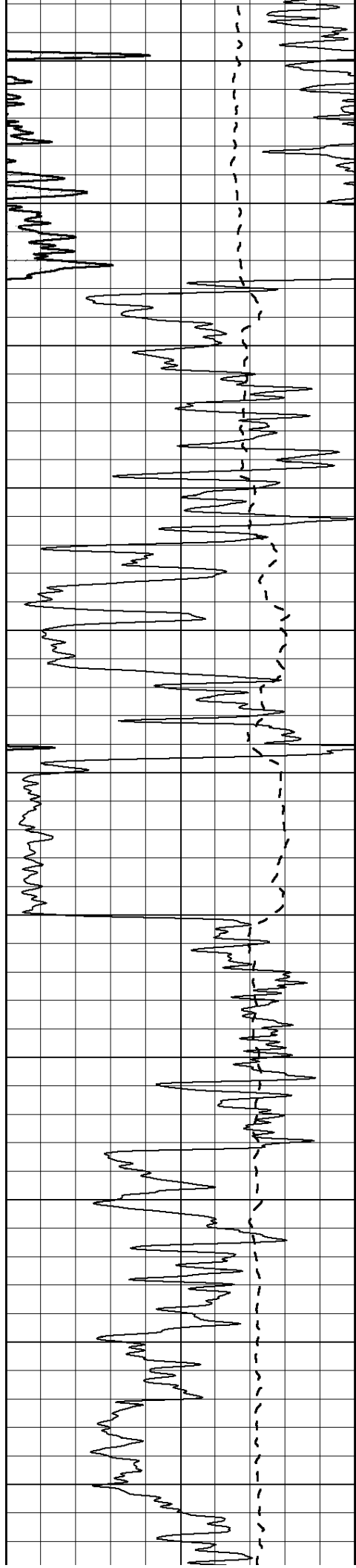
950





1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

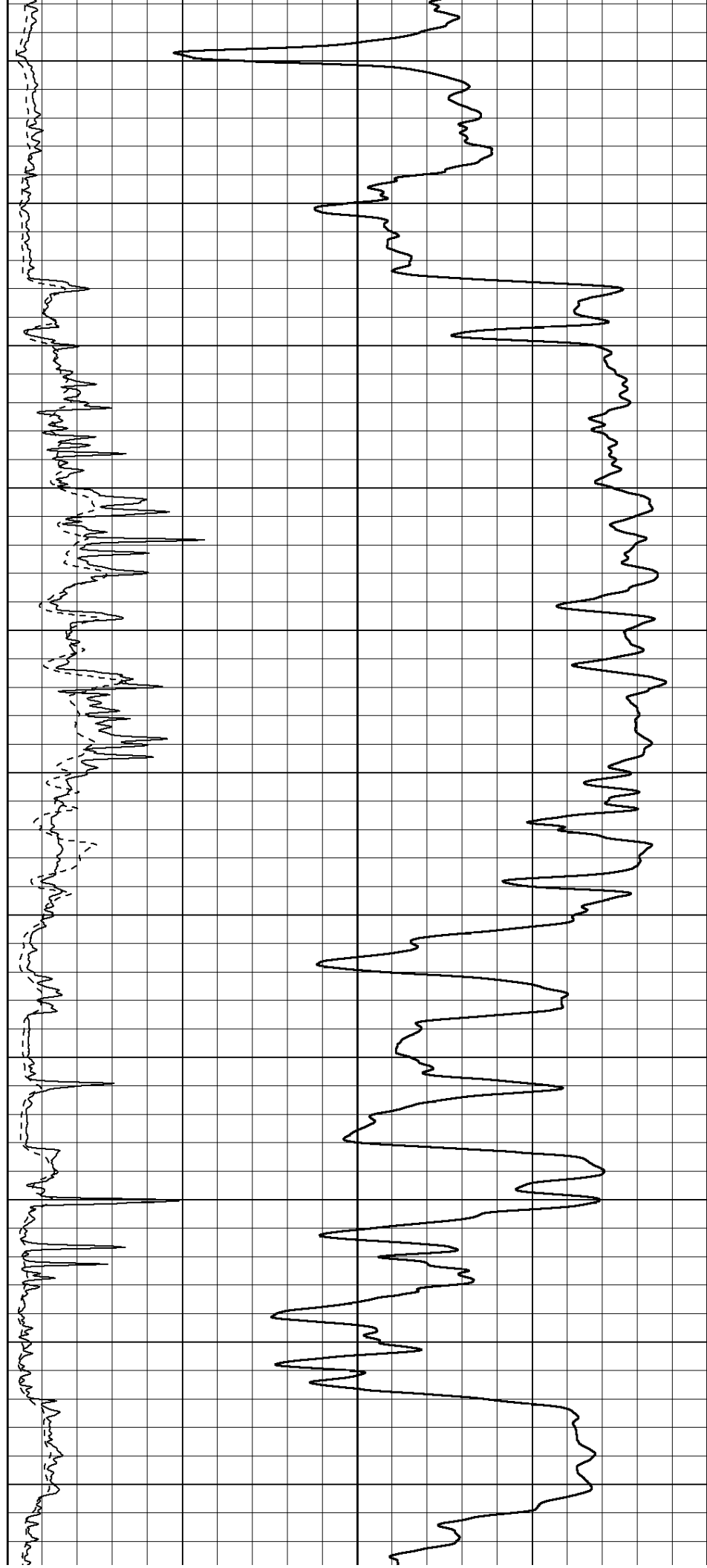
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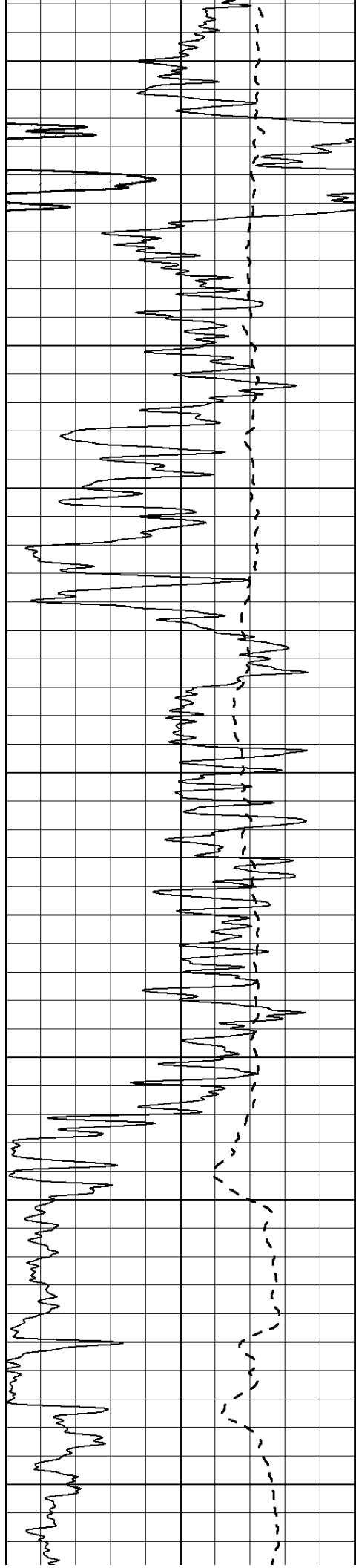
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1950

2000

2050





2100

2150

2200

2250

2300

2350

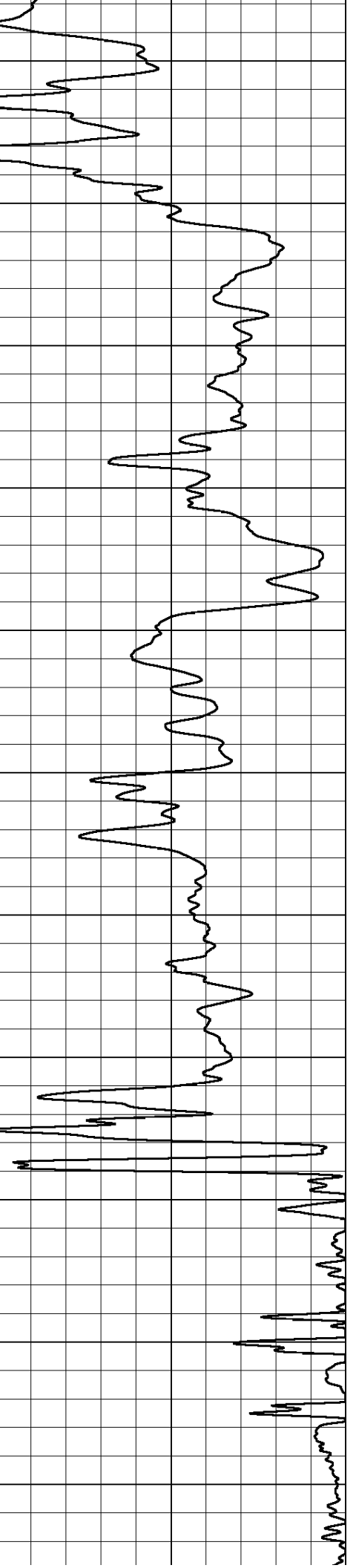
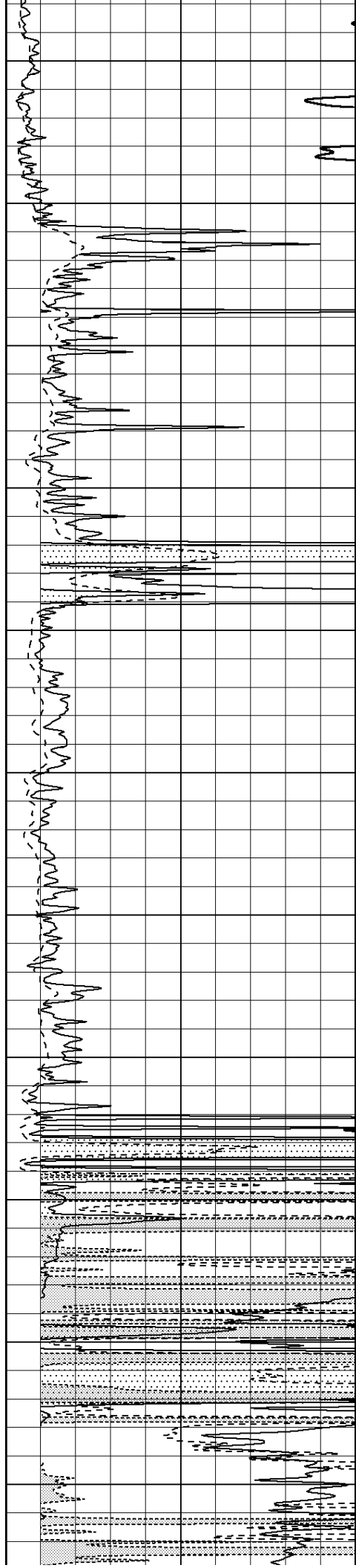
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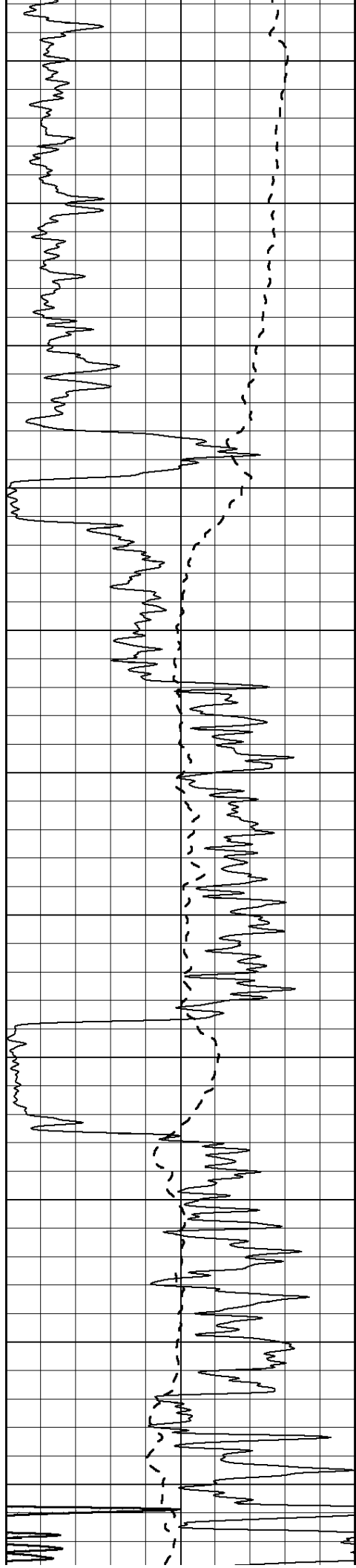
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2500

2550

2600





2650

2700

2750

2800

2850

2900

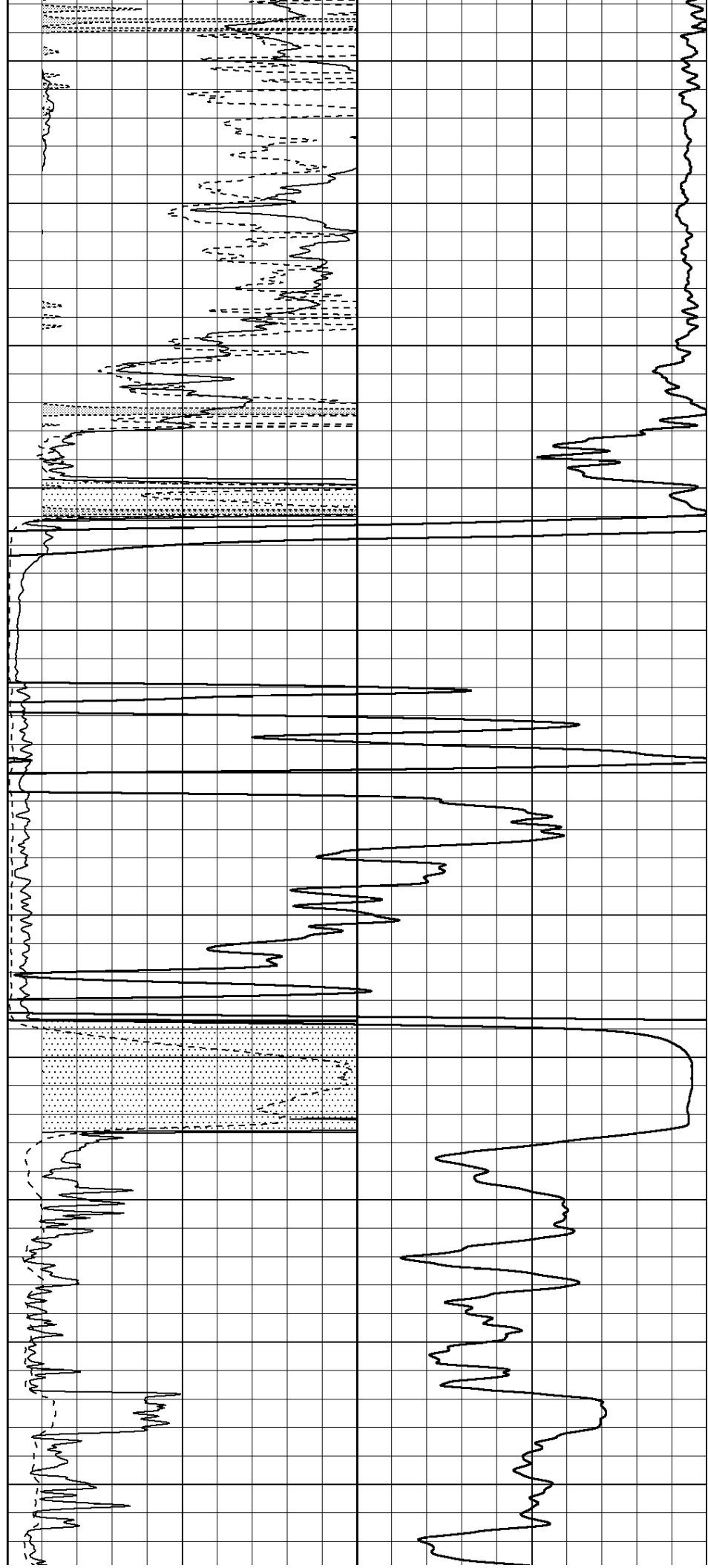
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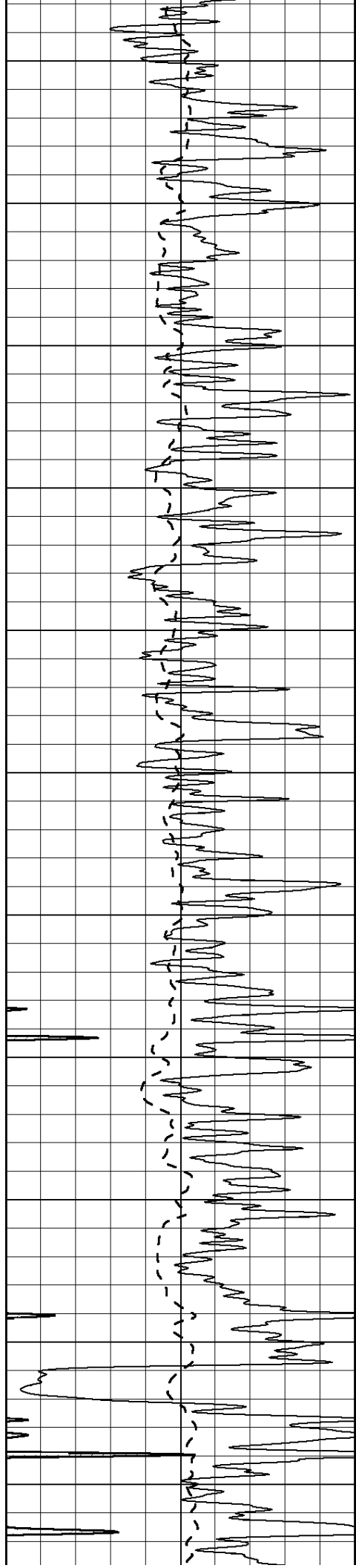
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3050

3100

3150





3200

3250

3300

3350

3400

3450

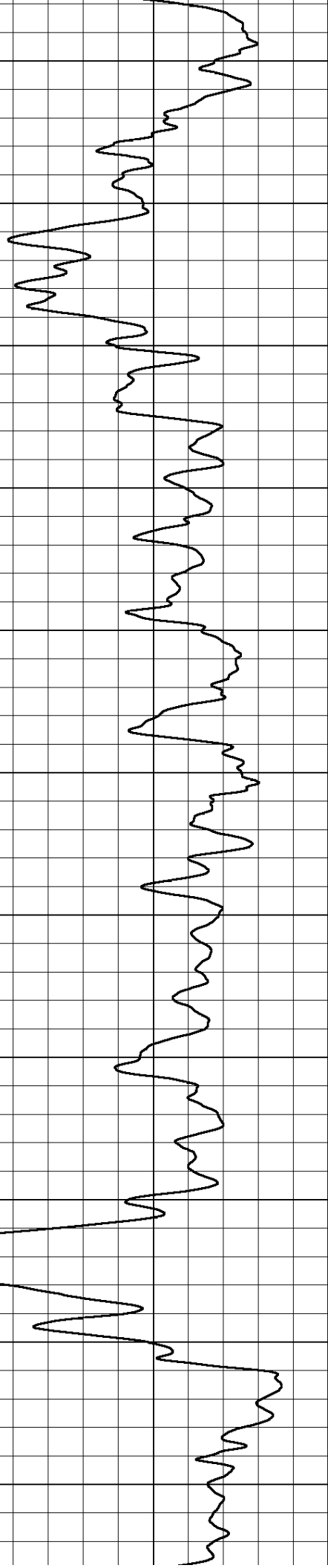
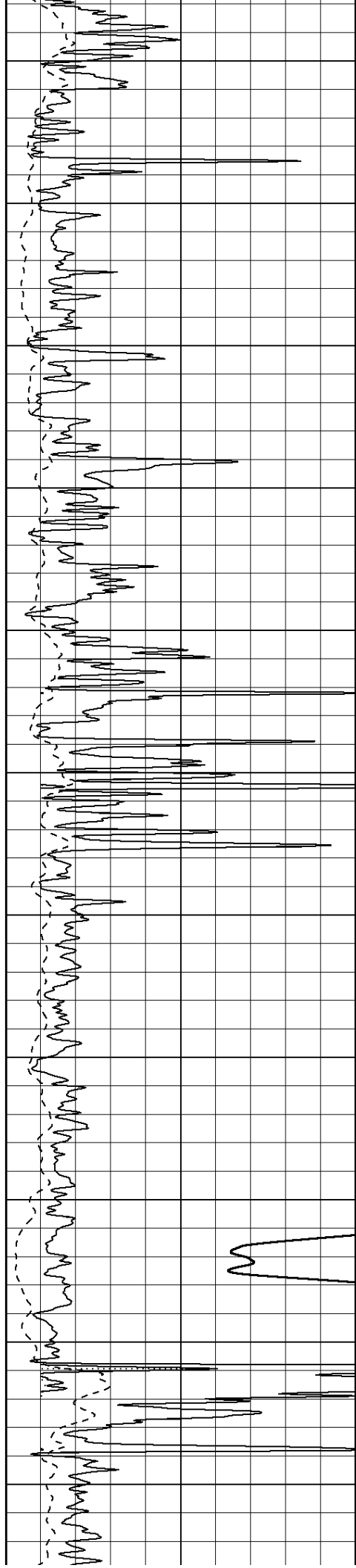
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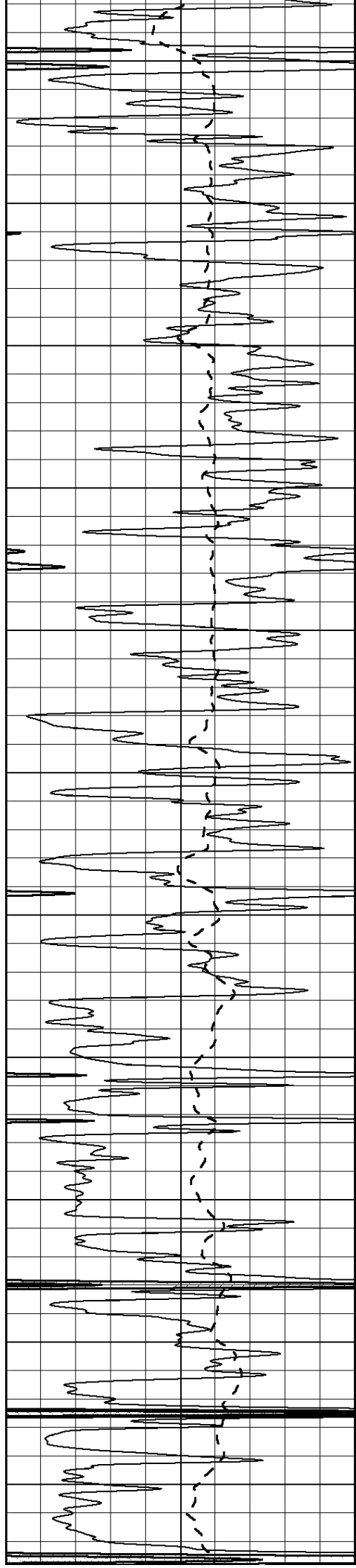
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3600

3650

3700





3750

3800

3850

3900

3950

4000

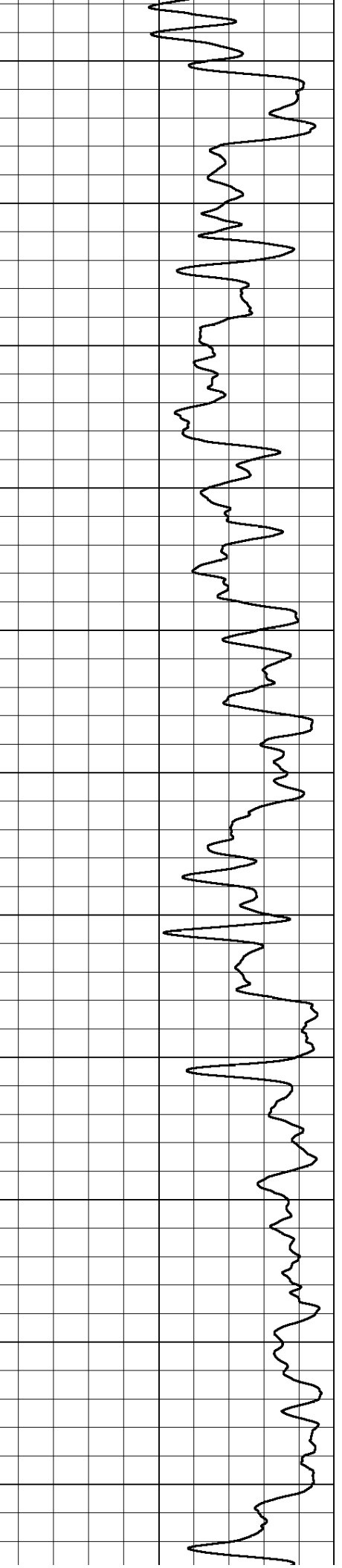
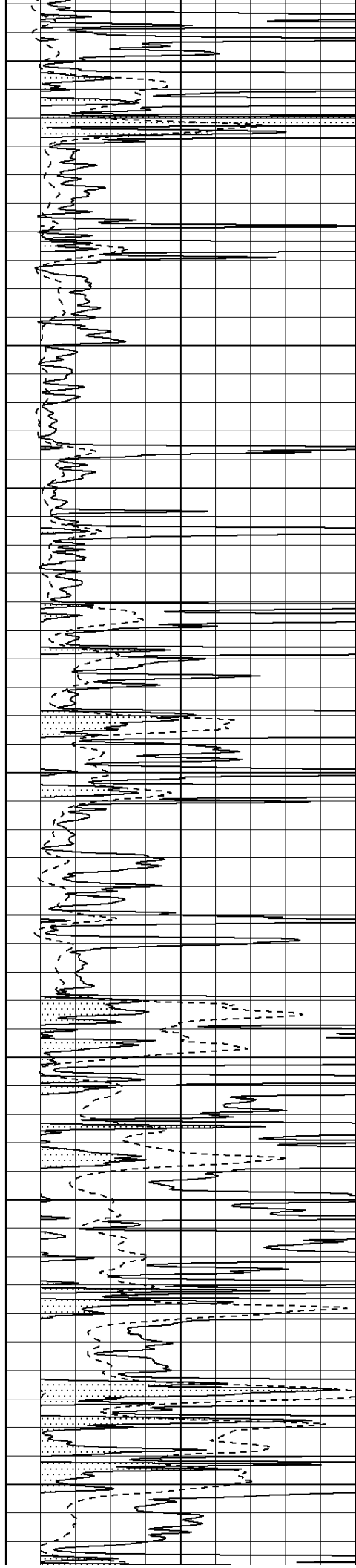
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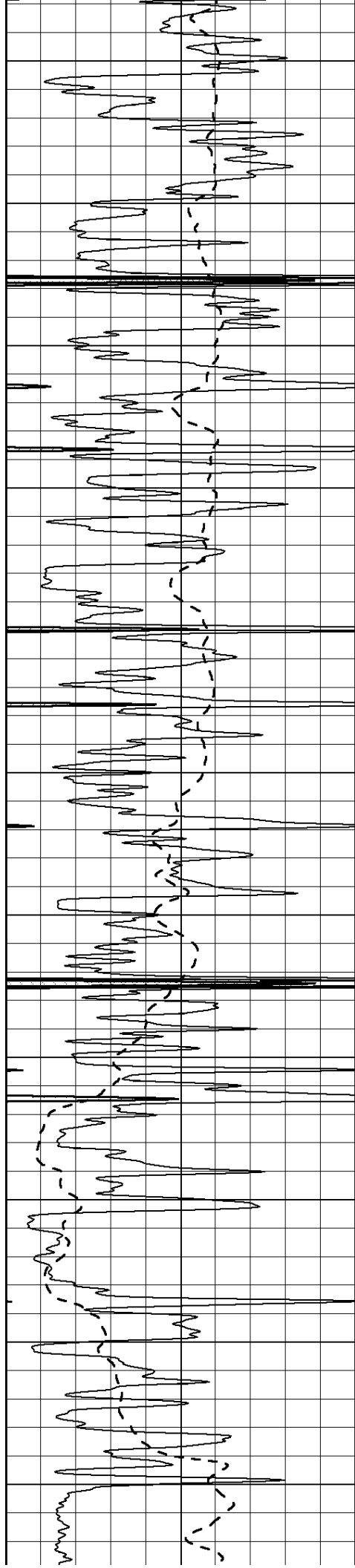
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4150

4200

4250





4300

4350

4400

4450

4500

4550

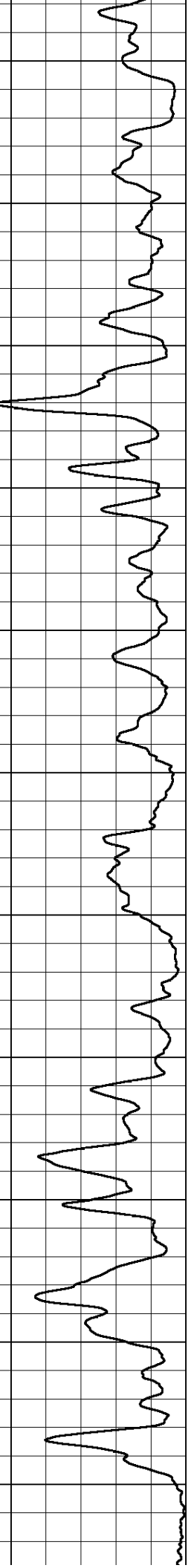
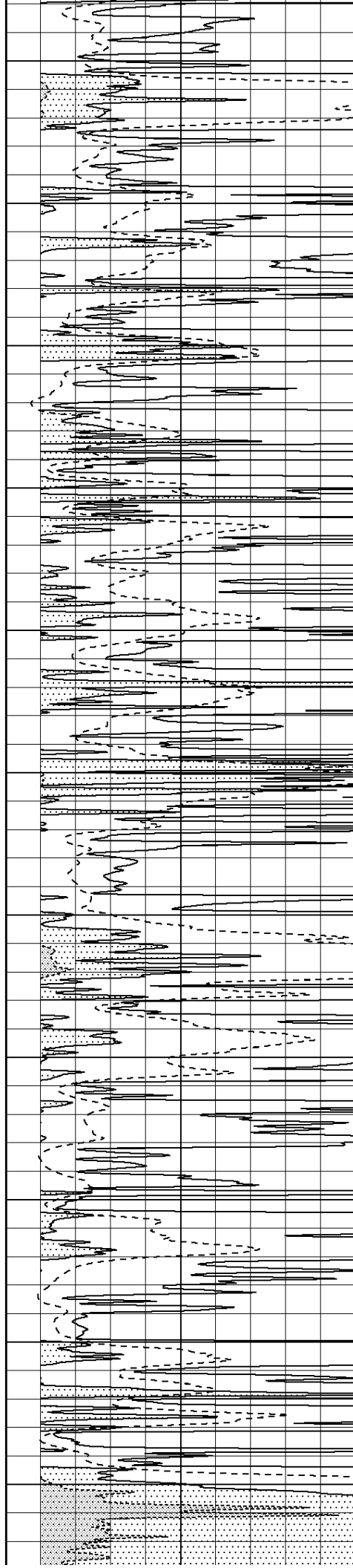
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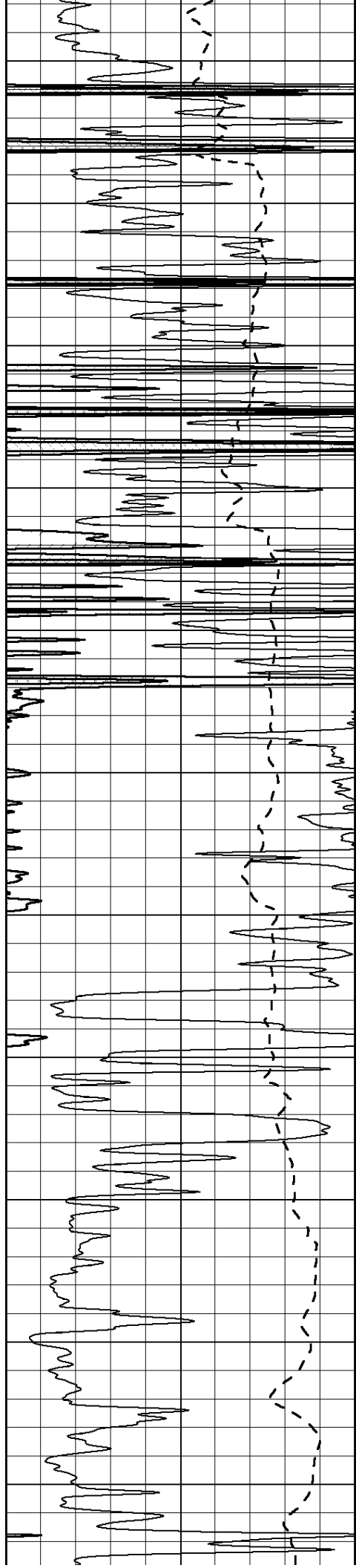
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4700

4750

4800





4850

4900

4950

5000

5050

5100

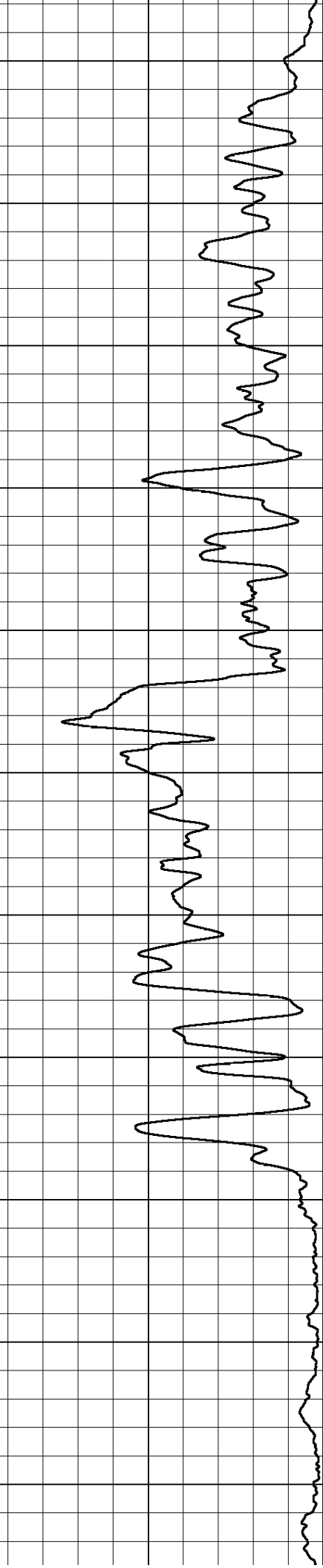
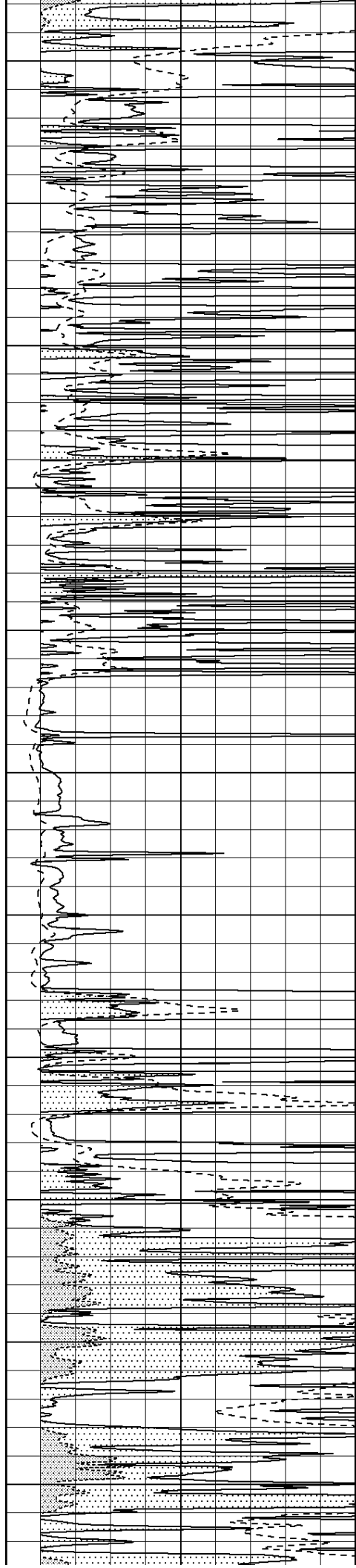
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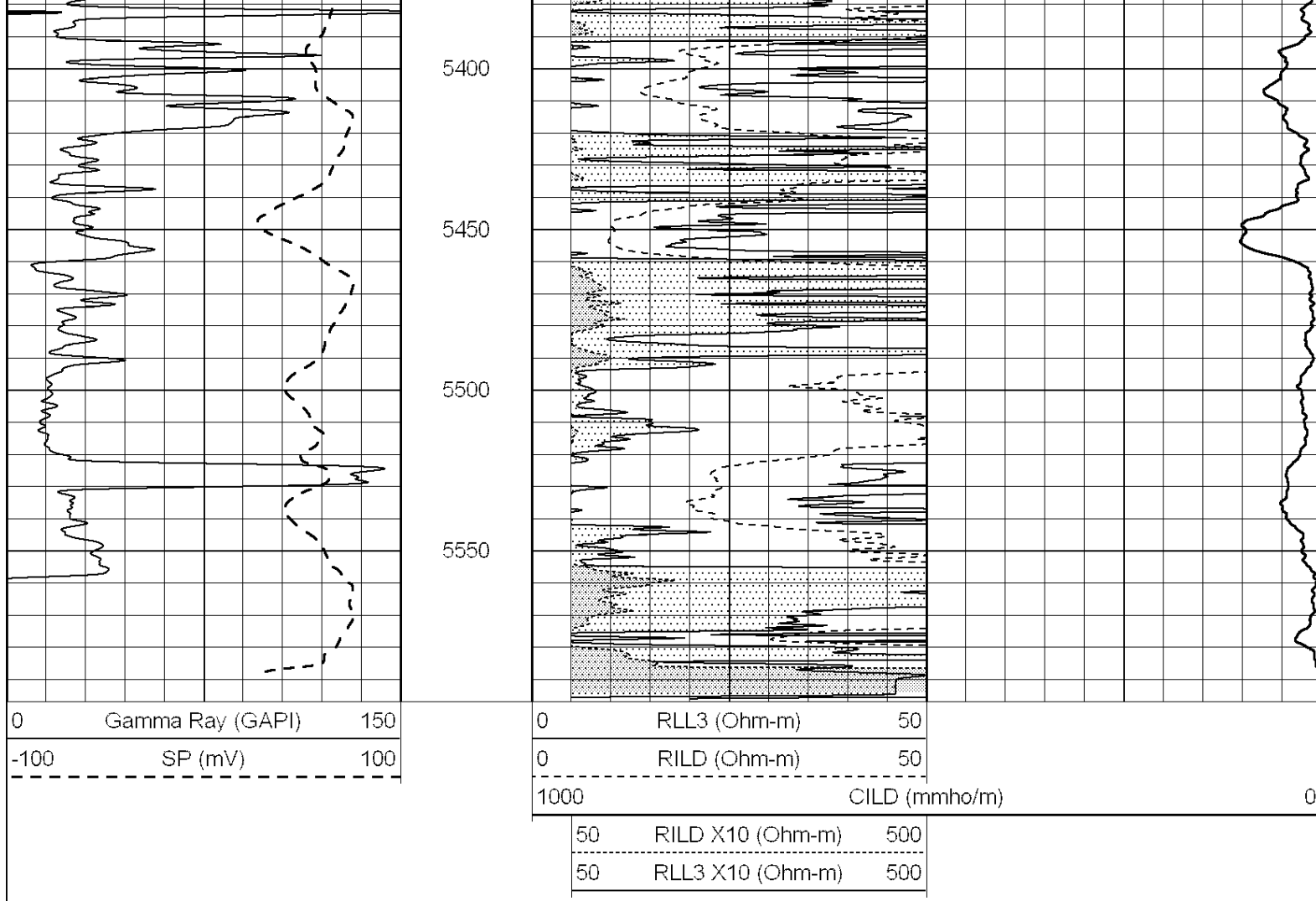
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5250

5300

5350



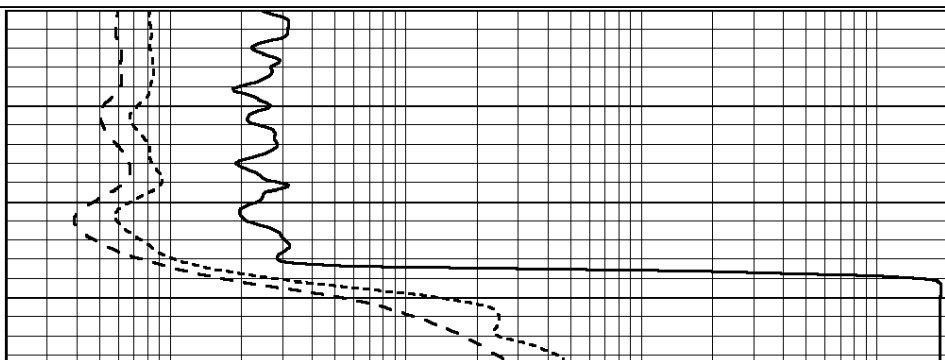
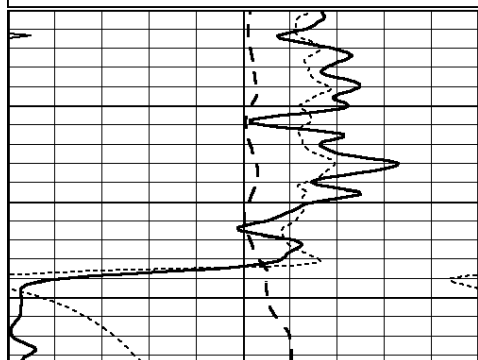


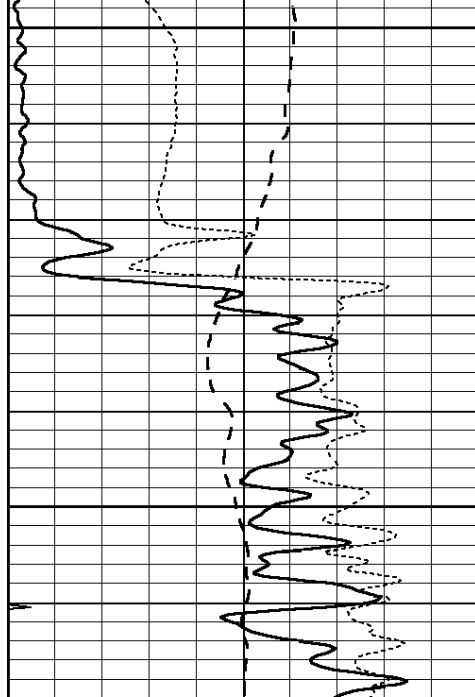
ANHYDRITE

Database File: 011691pe.db
 Dataset Pathname: pass4.2
 Presentation Format: _dil
 Dataset Creation: Sat Oct 19 18:16:22 2013 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

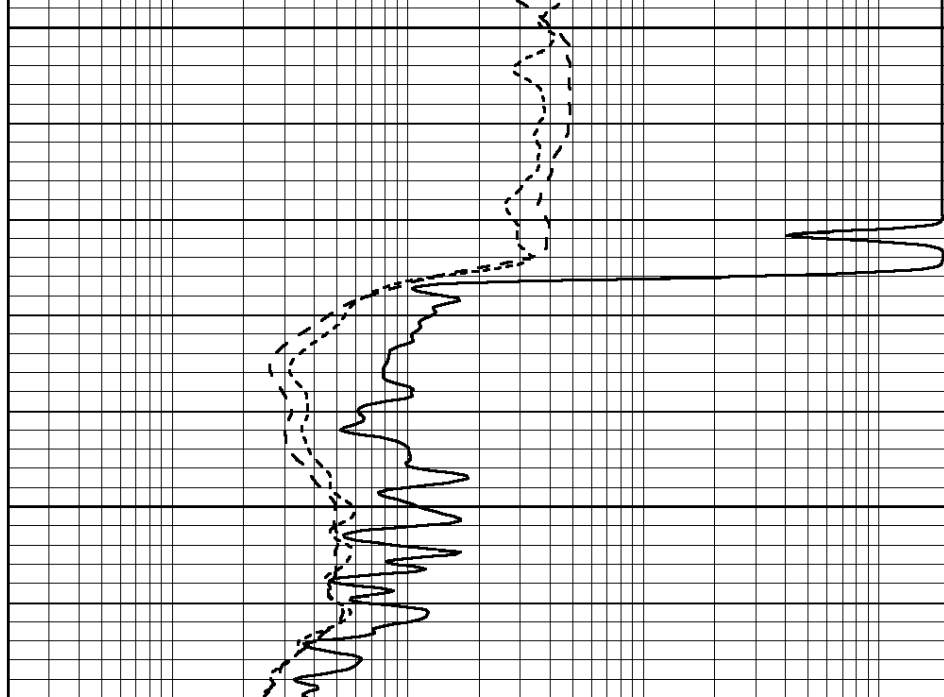




0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3000

3050



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

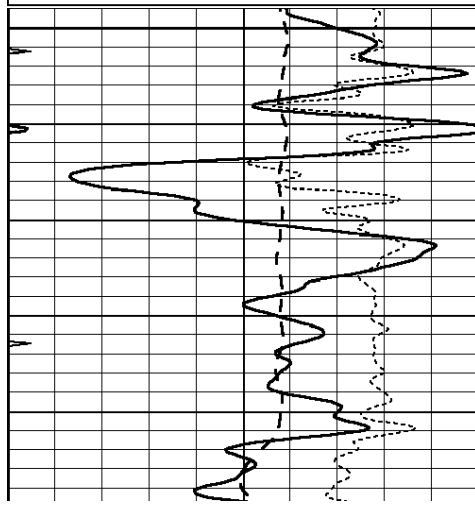


MAIN SECTION

Database File: 011691pe.db
 Dataset Pathname: pass4.1
 Presentation Format: _dil
 Dataset Creation: Sat Oct 19 18:08:48 2013 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

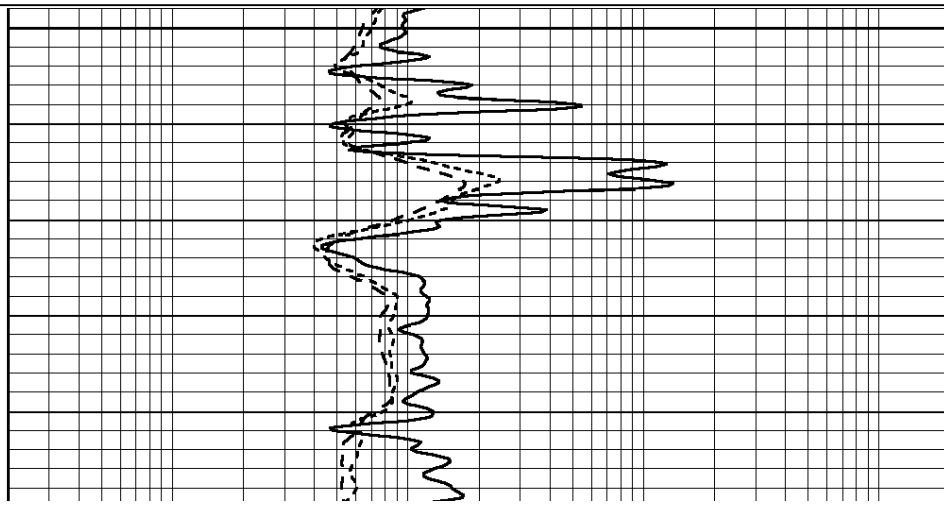
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

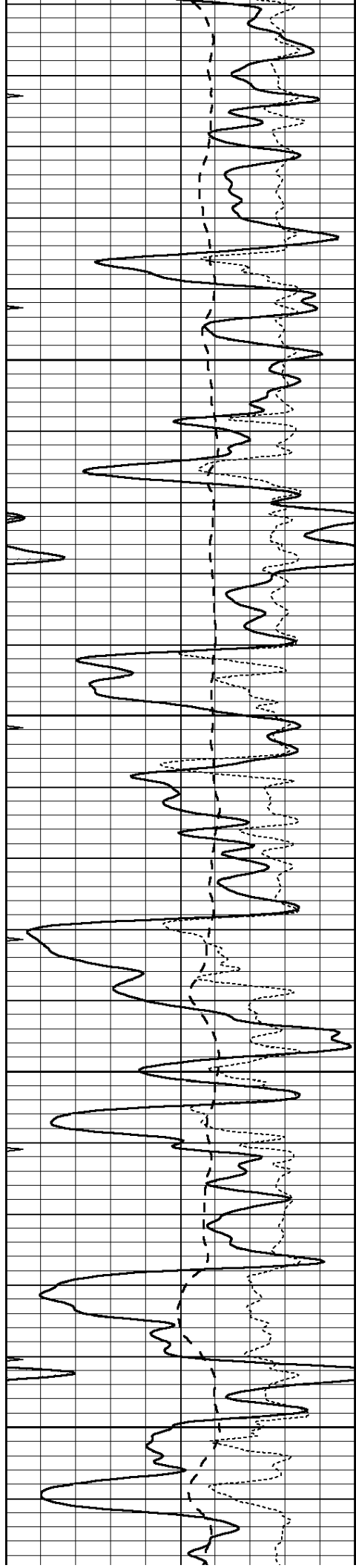
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



3800

3850





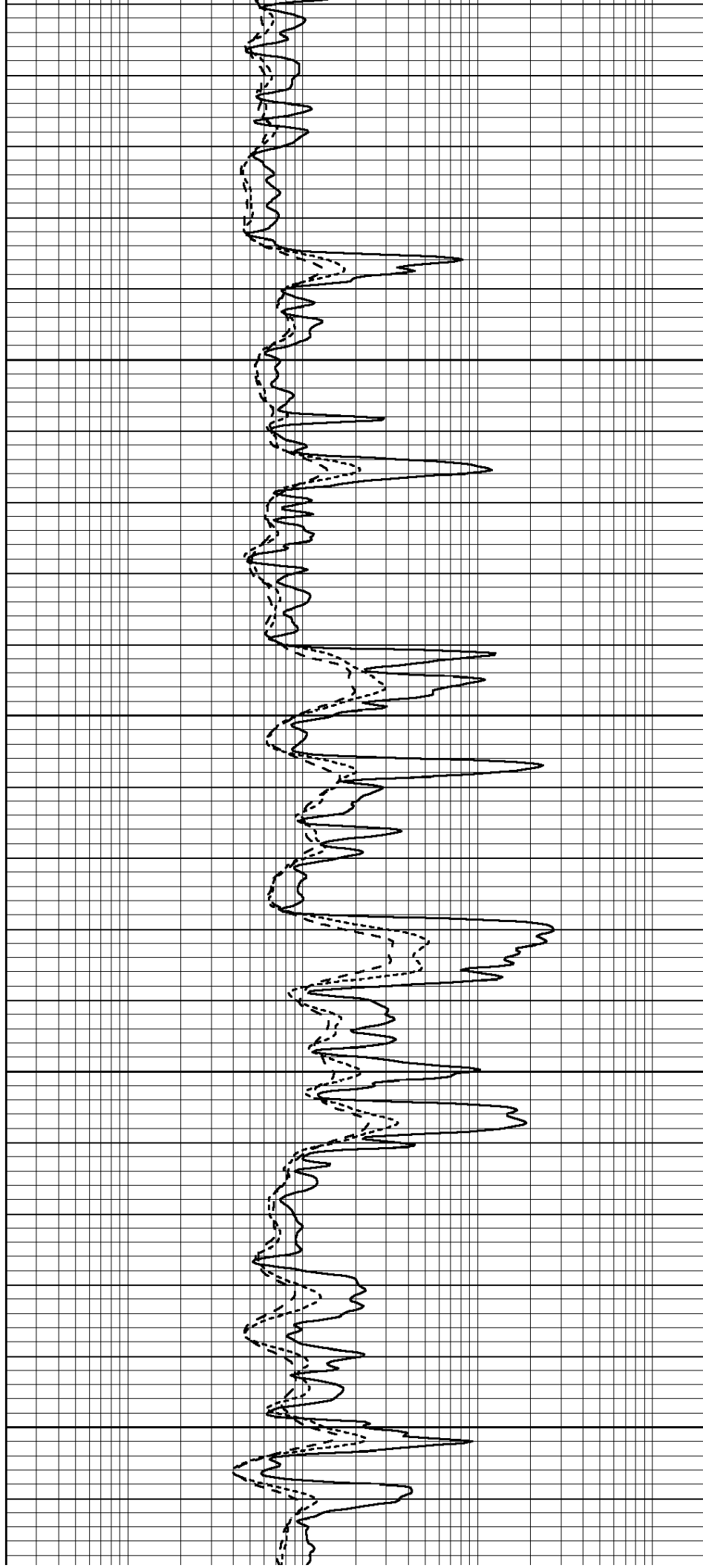
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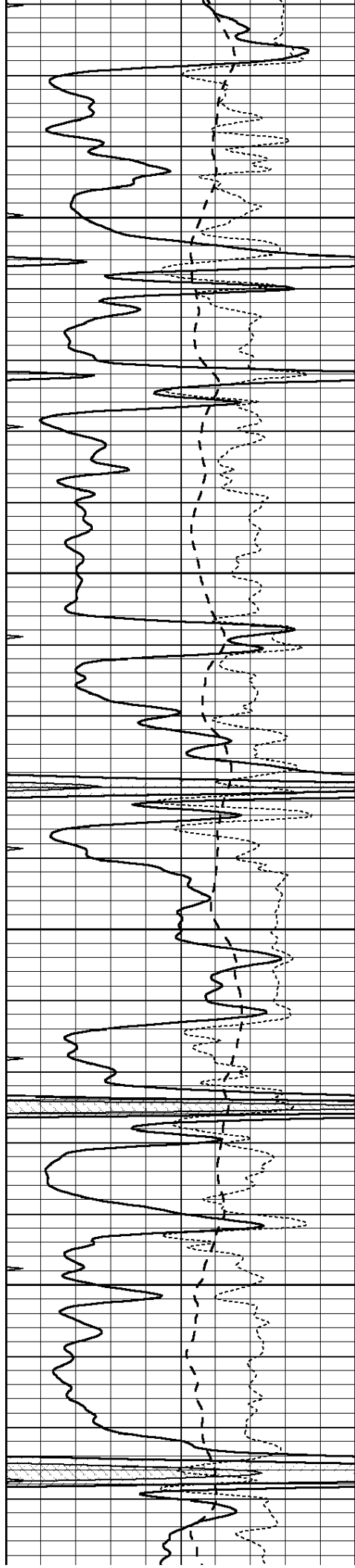
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3950

4000

4050



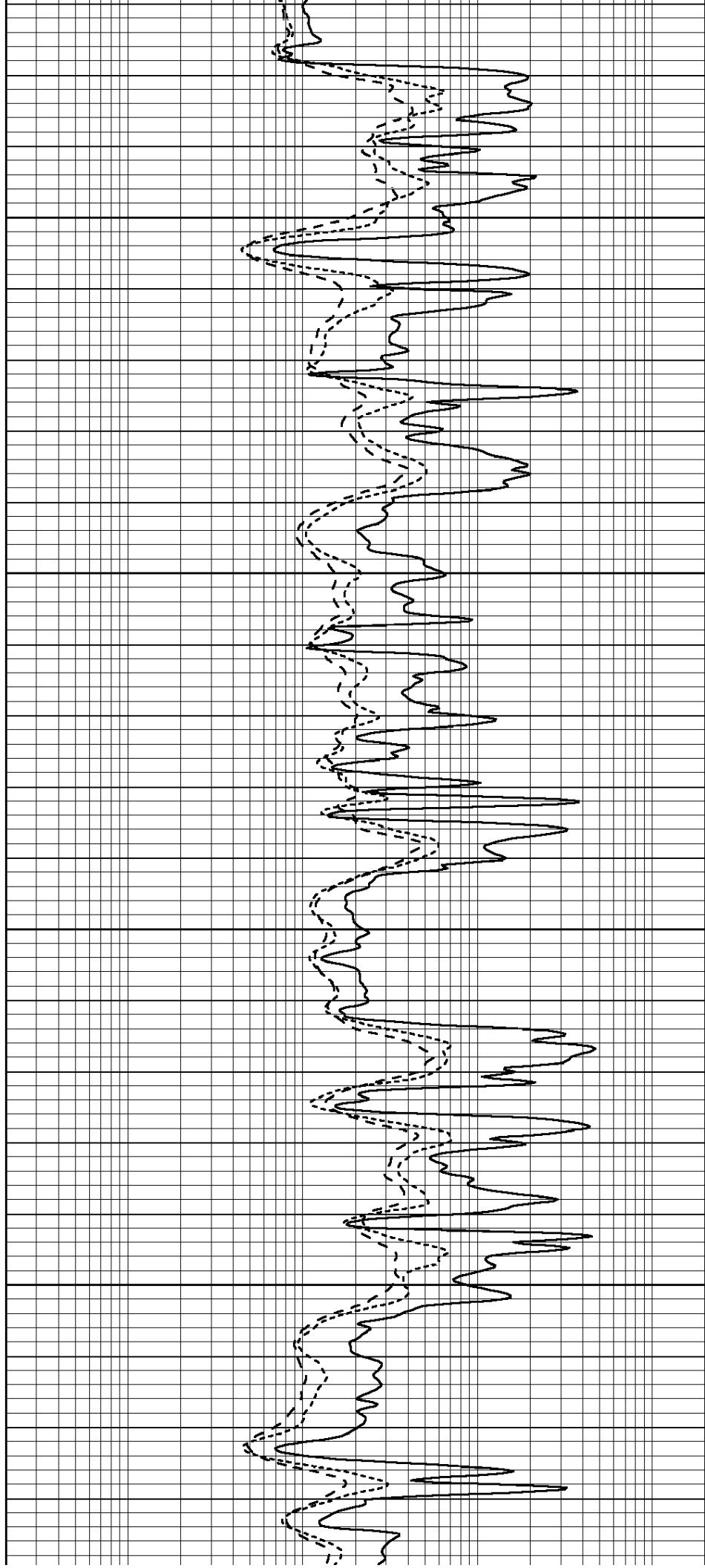


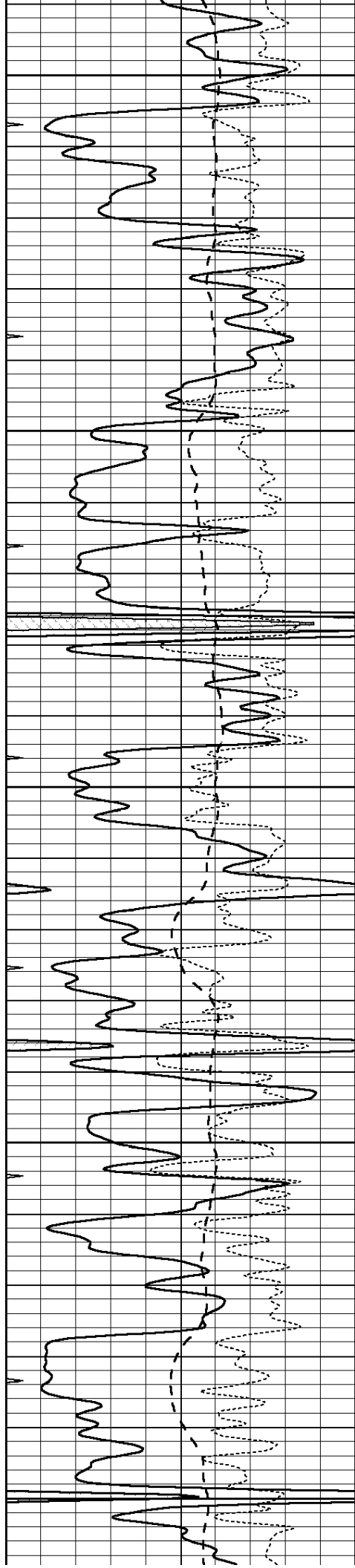
4100

4150

4200

4250





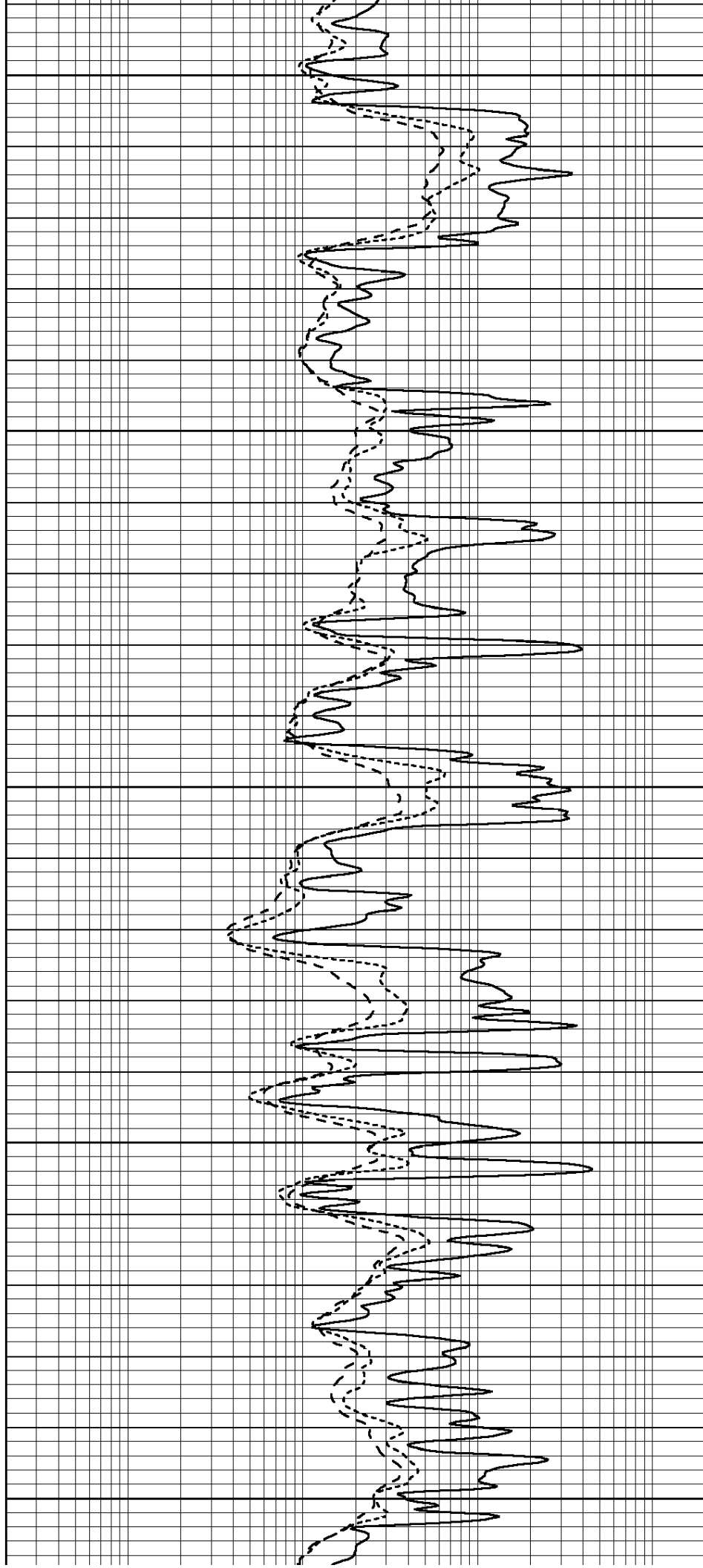
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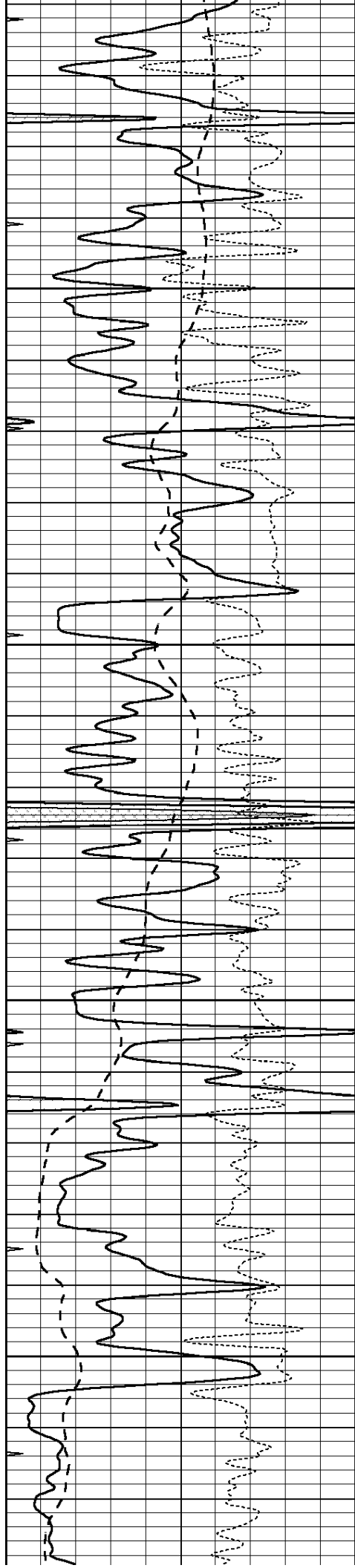
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4400

4450

4500



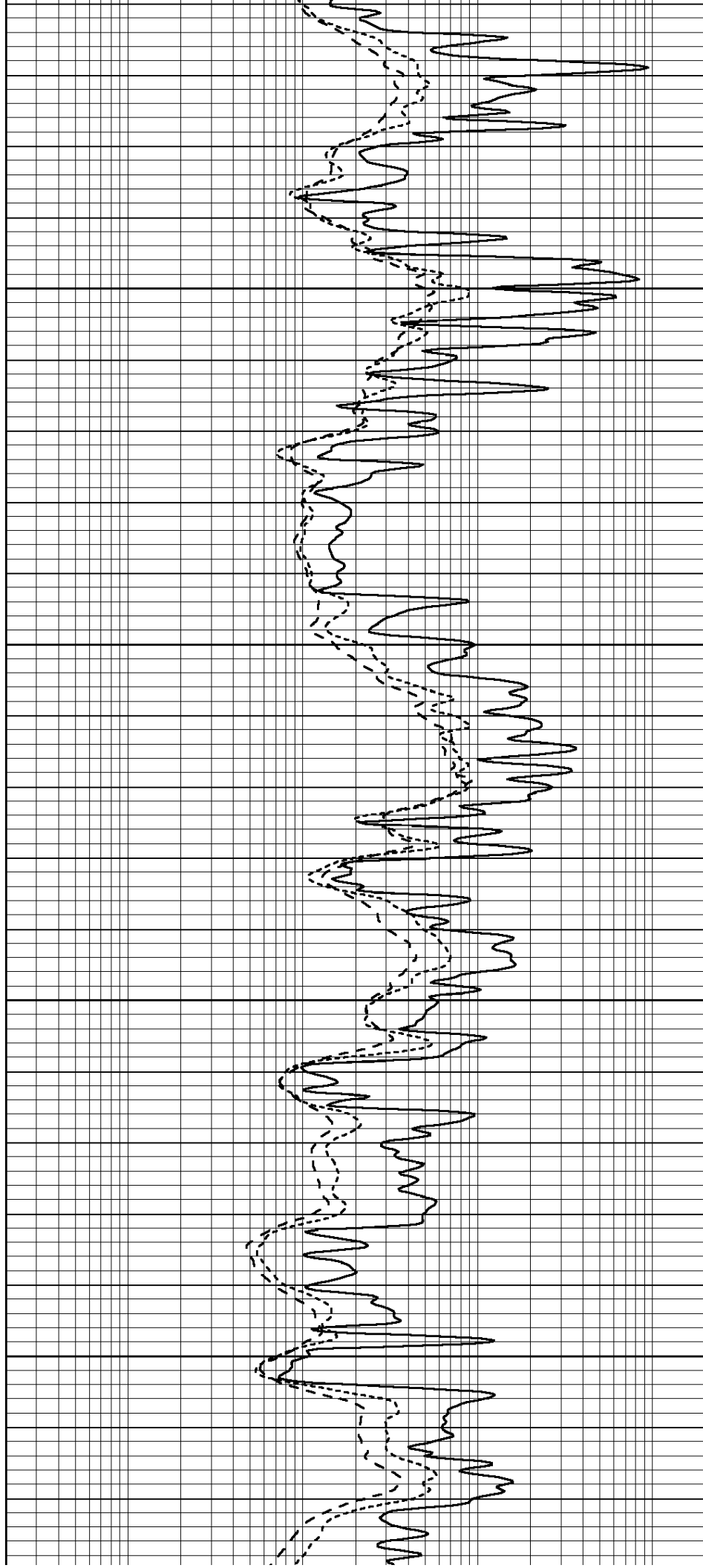


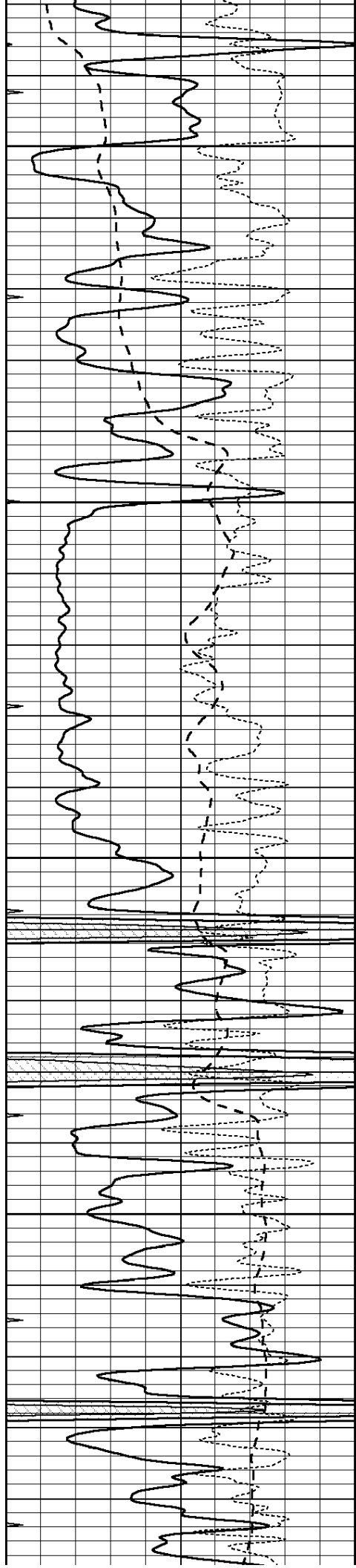
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4600

4650

4700





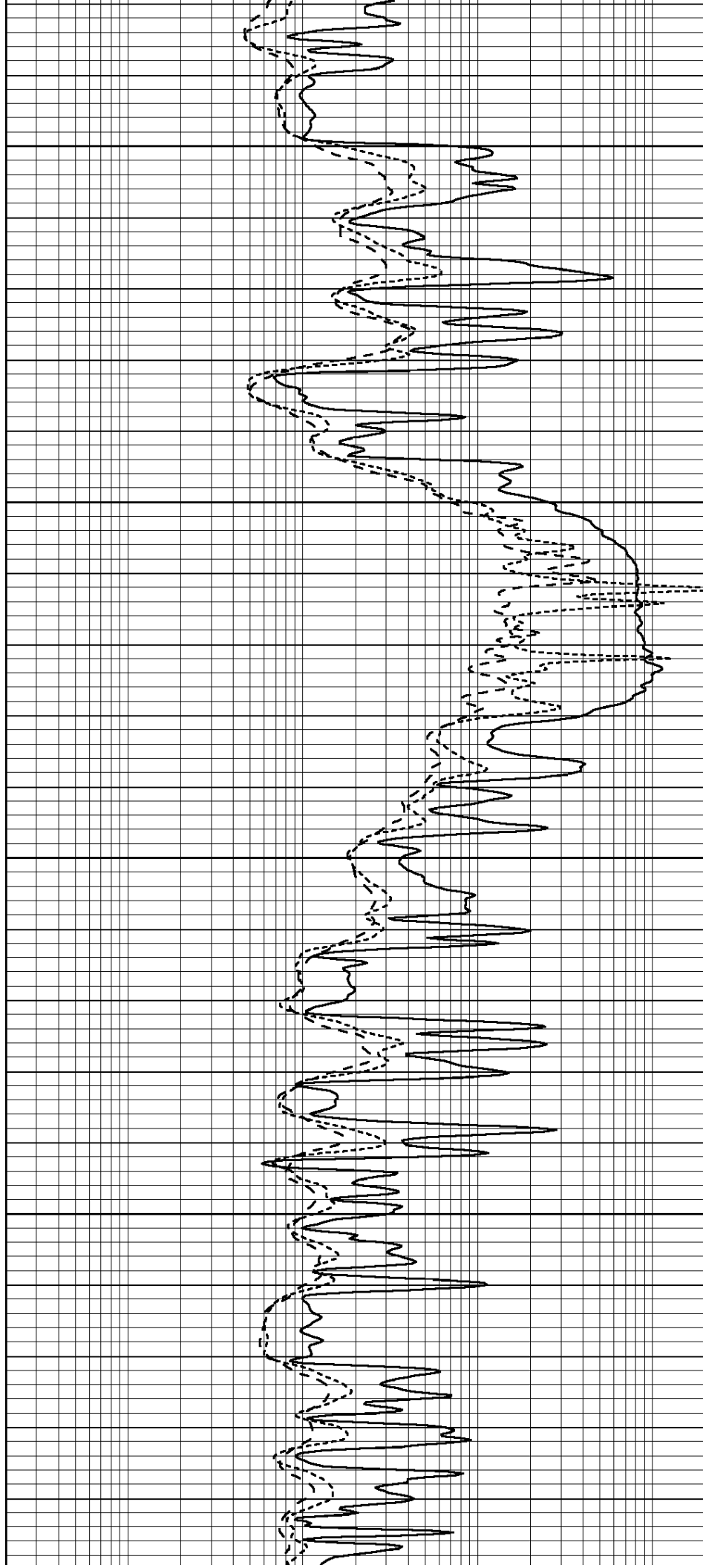
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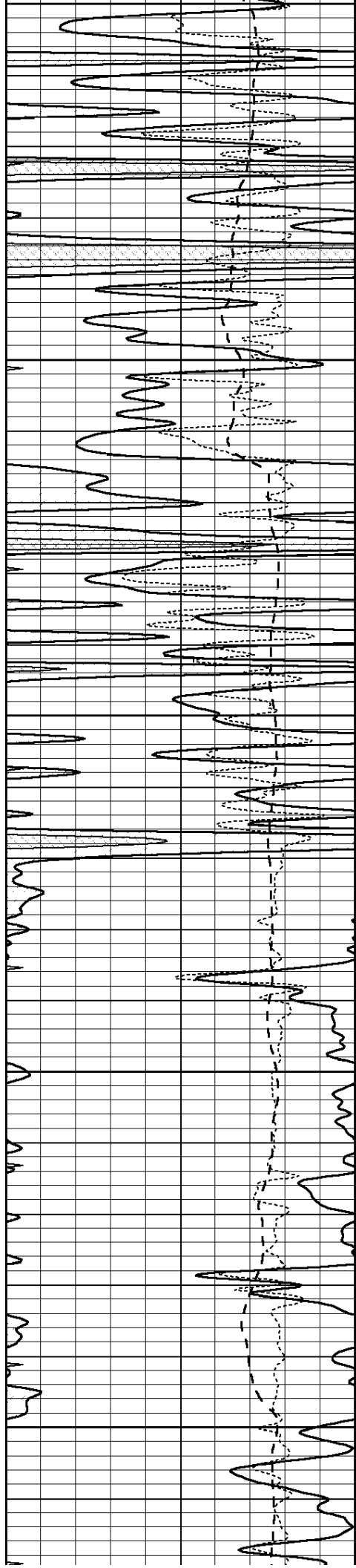
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4850

4900

4950





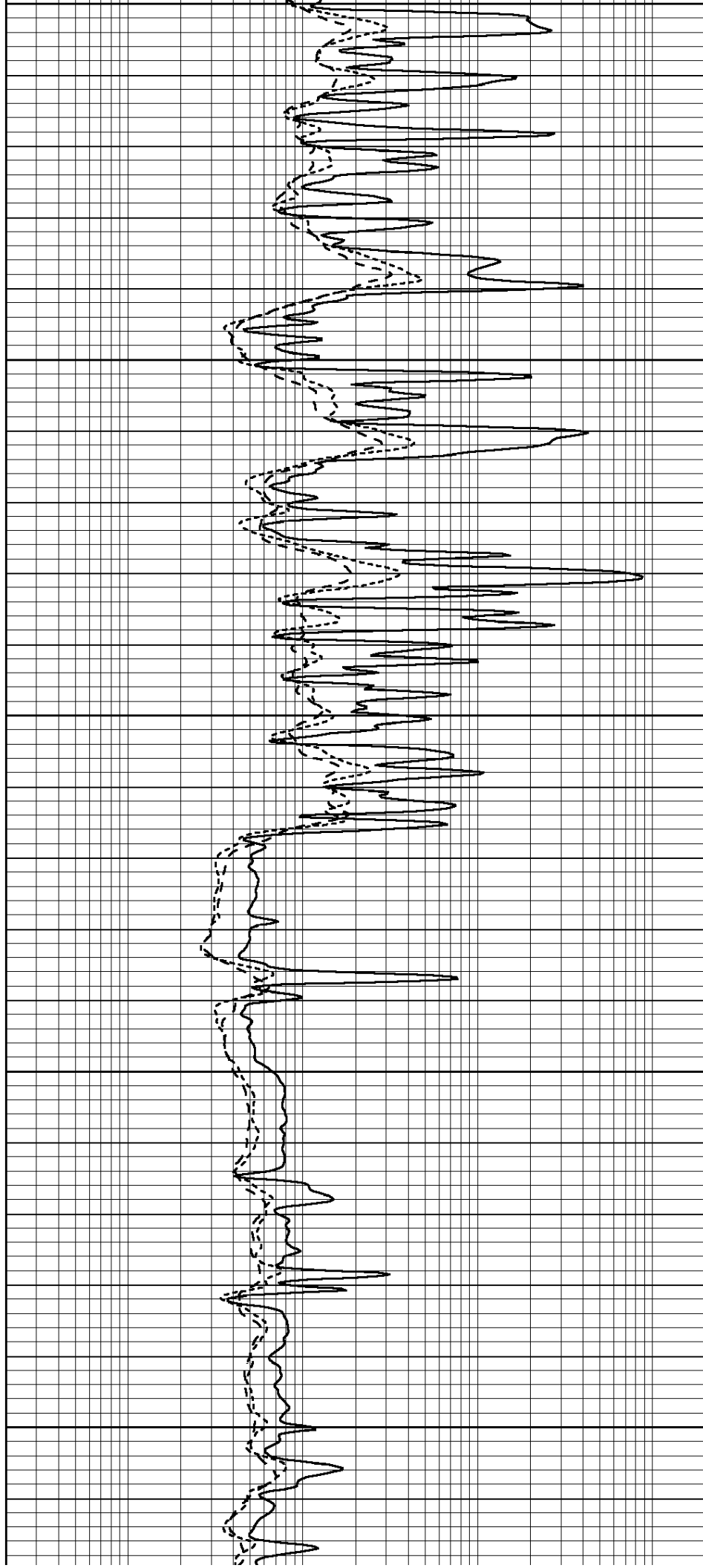
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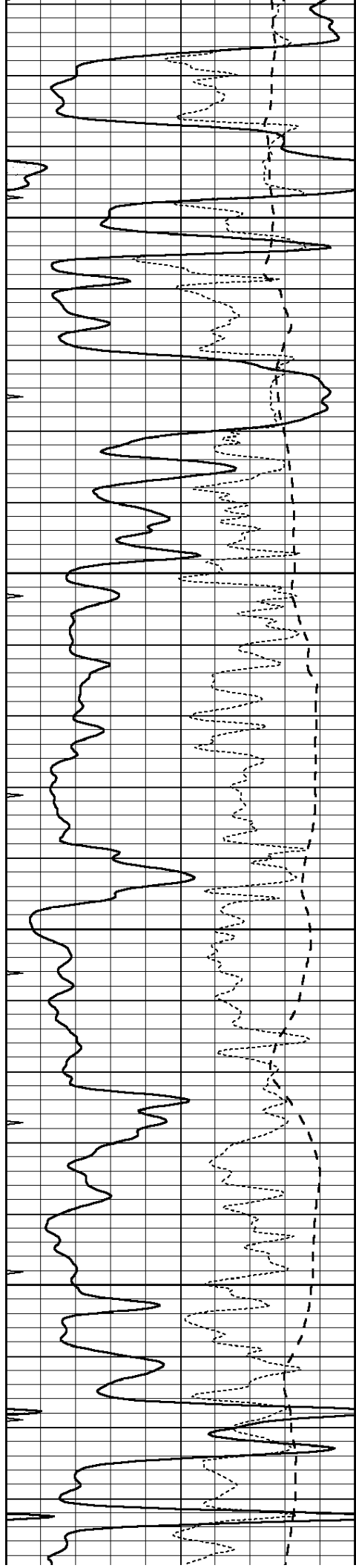
5000

5050

5100

5150



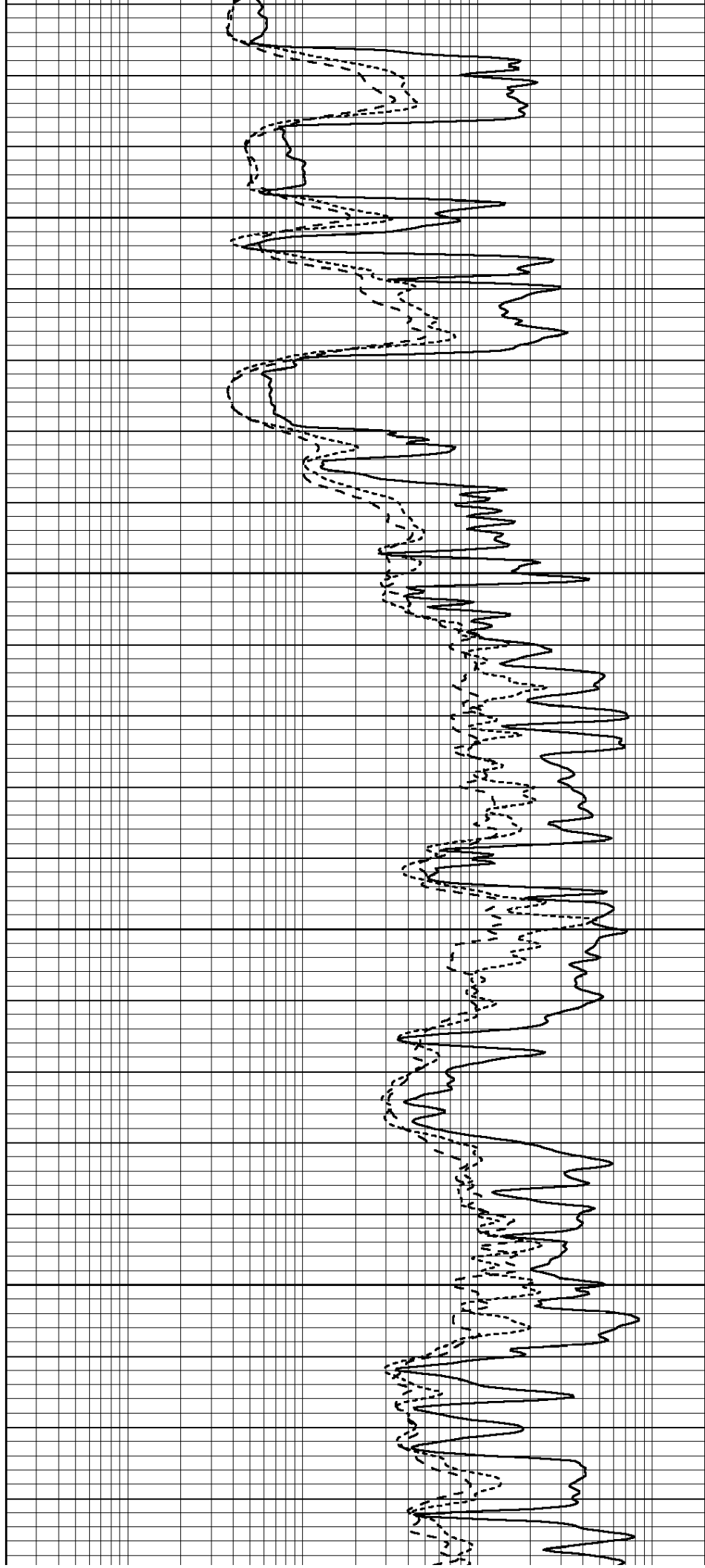


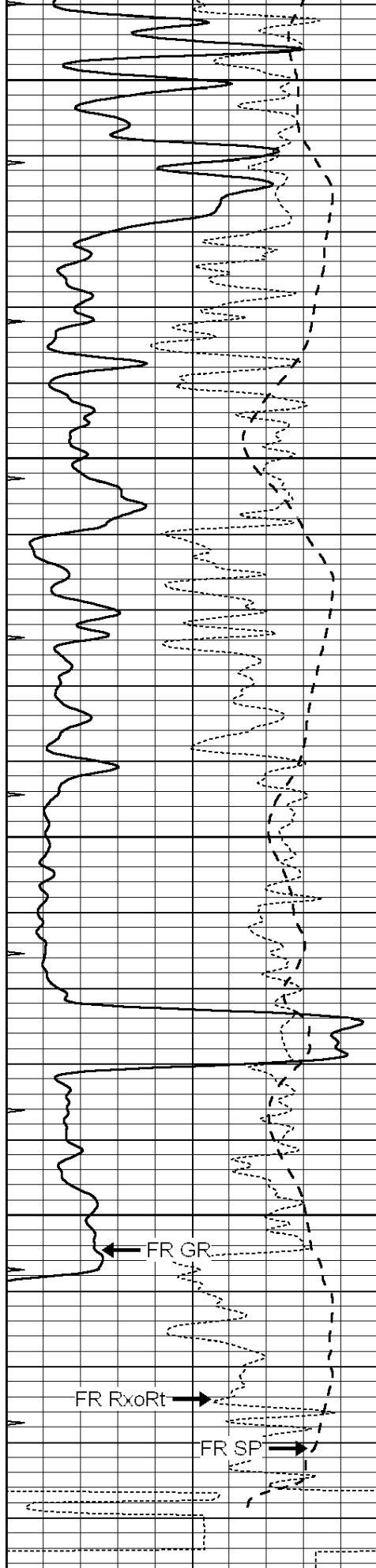
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5250

5300

5350





5400

5450

5500

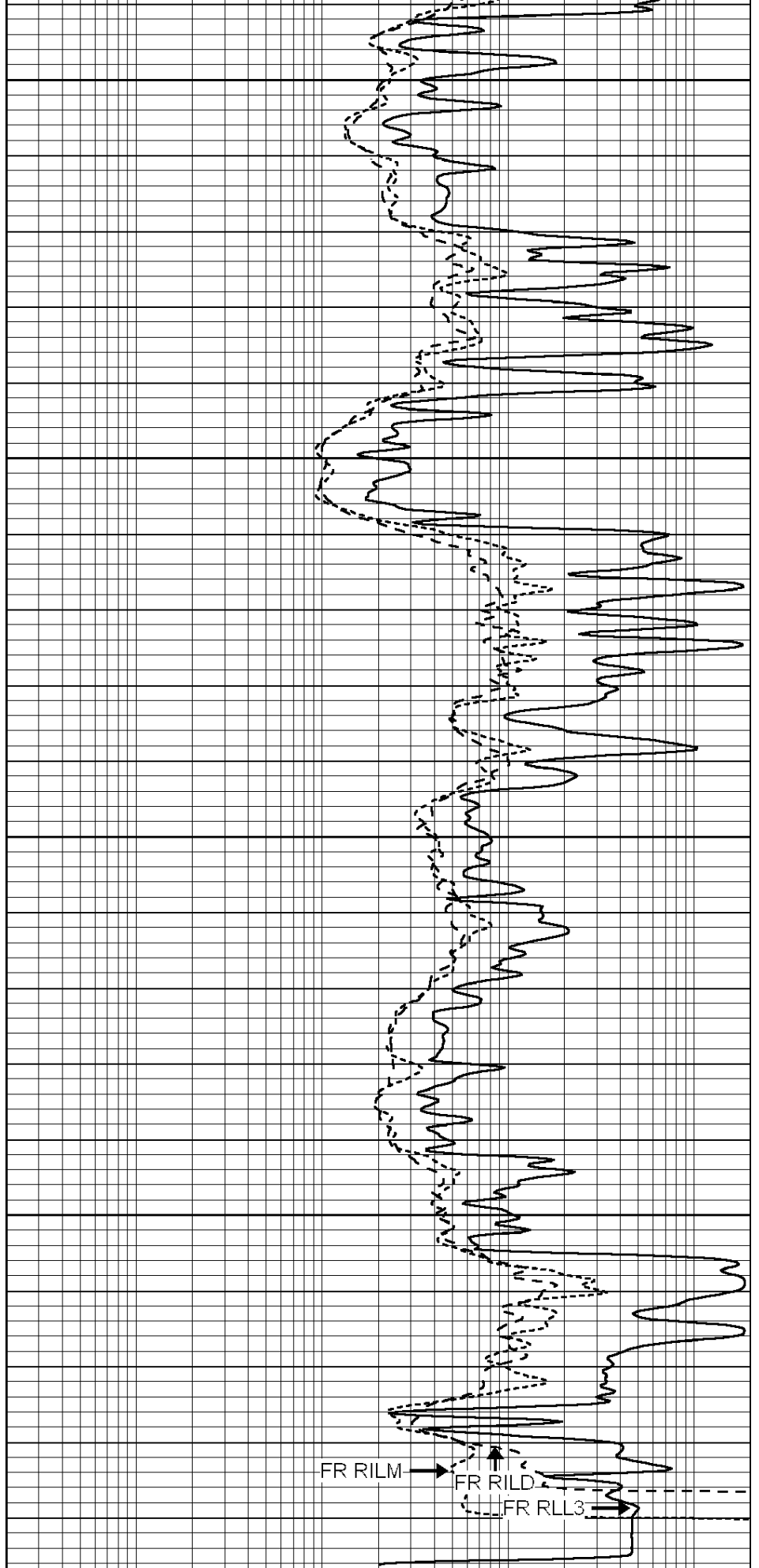
5550

LTD 5591

0 GAMMA RAY (GAPI) 150

-100 SP (mV) 100

-250 Rxo/Rt 50



0.2 SHALLOW GUARD (Ohm-m) 2000

0.2 DEEP INDUCTION (Ohm-m) 2000

0.2 MEDIUM INDUCTION (Ohm-m) 2000

0	MINMK	20



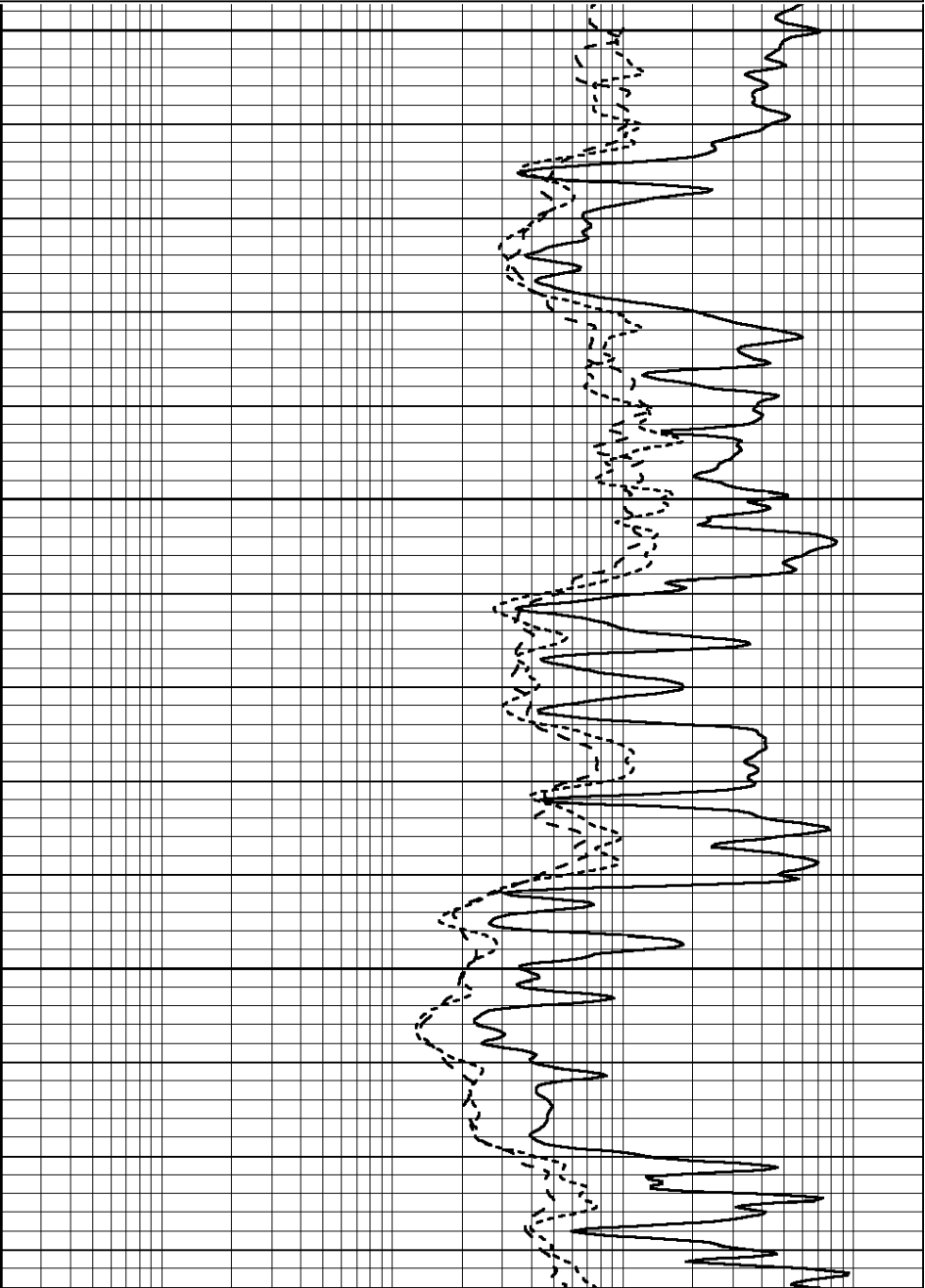
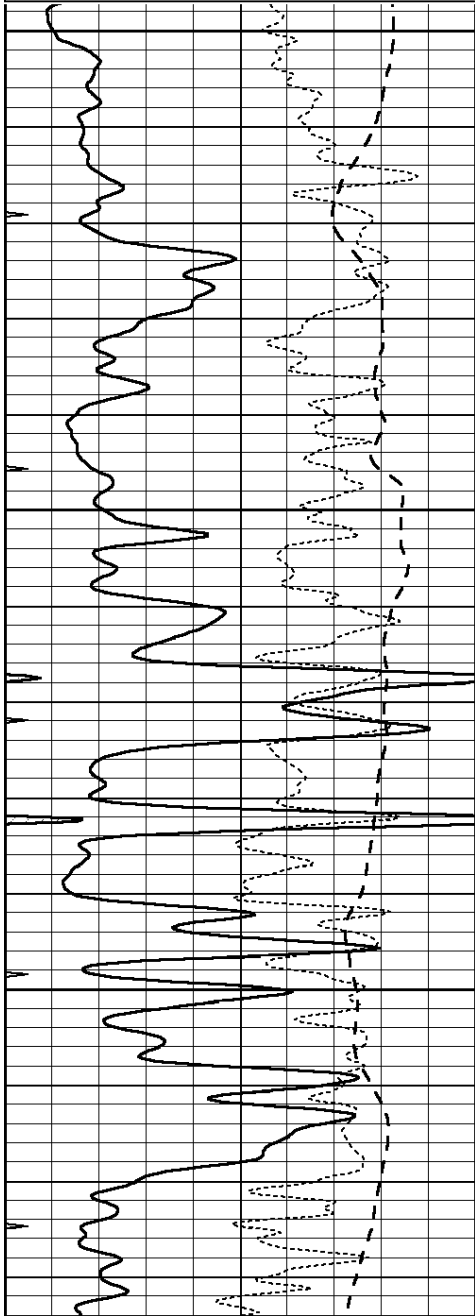
NABORS
 COMPLETION
 & PRODUCTION
 SERVICES CO.

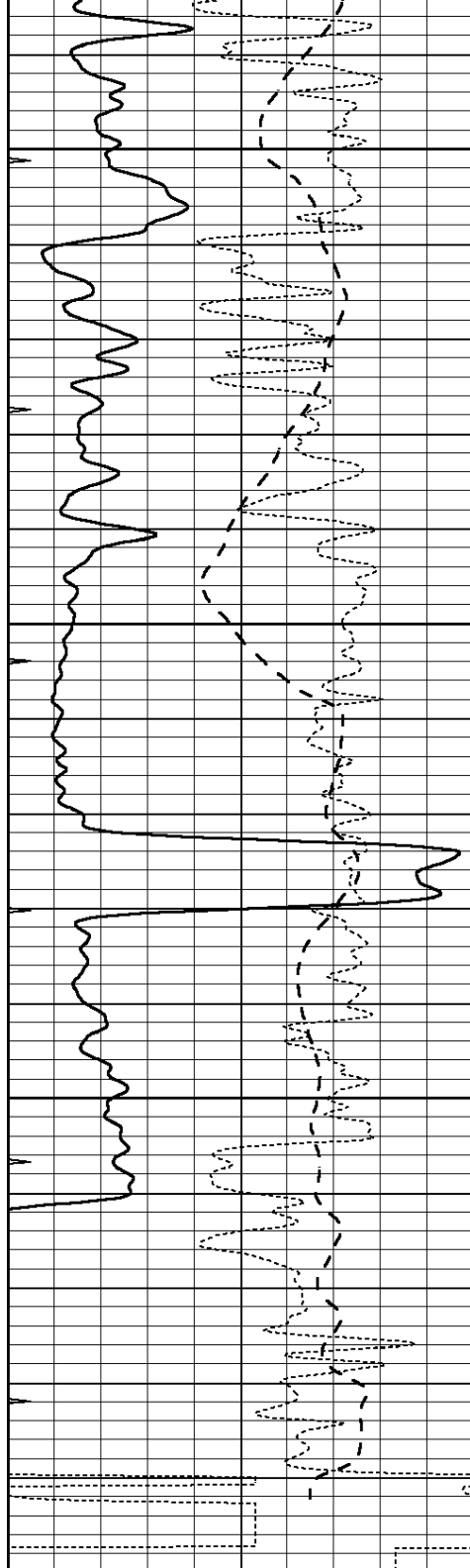
REPEAT SECTION

Database File: 011691pe.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Sat Oct 19 17:58:38 2013 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





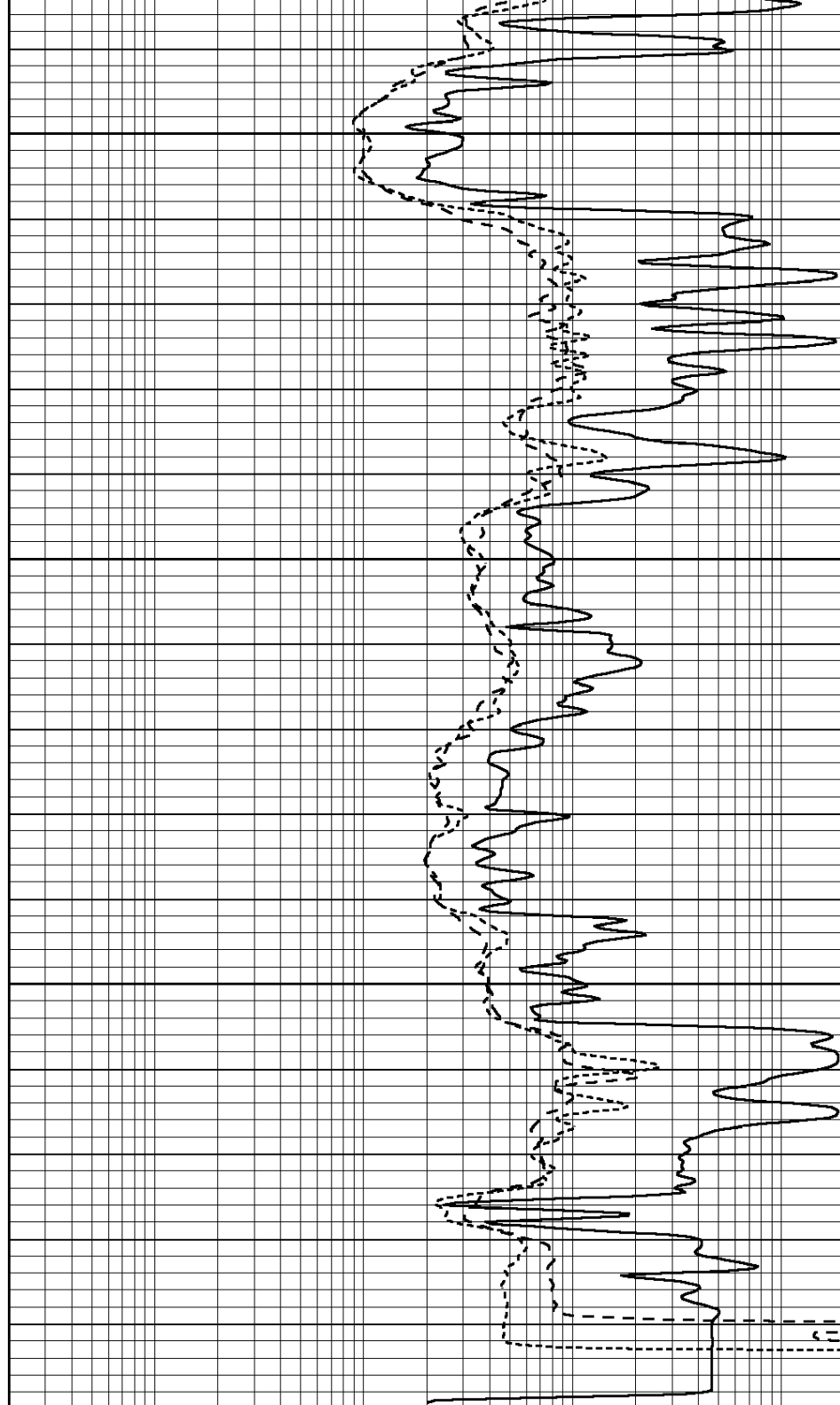
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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

Calibration Report

Database File: 011691pe.db
 Dataset Pathname: pass3.1
 Dataset Creation: Sat Oct 19 17:58:38 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Wed Oct 16 00:28:49 2013
 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	650.000	-4.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-9.000
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		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: 004N				Model: PRB				

Master Calibration					Performed Mon Jun 03 09:36:56 2013			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1417.6	10391.4	3464.6	11537.5				cps
Window 2	1295.0	8959.7	3050.1	9816.4				cps
Window 3	1105.1	5464.2	2051.0	5838.8				cps
Window 4	315.0	317.7	312.9	319.8				cps
Long Space	0.0	7664.6	1755.0	8521.3				cps
Short Space	1.8	1582.4	1040.8	1699.4				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 44.1	Rib Slope	: 0.970	Density/Spine Ratio			: 0.574	
Spine Angle	: 74.1	Spine Slope	: 3.519	Spine Intercept			: -17.0	

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

Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho	0.0000	0.0000	0.0000	0.0000	g/cc
Measured Correction	0.0000	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			
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 Oct 16 03:19:01 2013		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	