



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company MULL DRILLING COMPANY, INC. Well #1-3 GLASIR UNIT Field WILDCAT County SCOTT State KANSAS		Location: API # : 15-171-20934-00-00 110' FSL & 2530' FWL SE - SE - SE-SW SEC 3 TWP 16S RGE 32W Other Services CDL/CNL/PE MEL/SONIC	
Permanent Datum Log Measured From Drilling Measured From		GROUND LEVEL KELLY BUSHING 5' A.G.L. KELLY BUSHING	
Elevation		2994	
Date	3/19/13		
Run Number	ONE		
Depth Driller	4740		
Depth Logger	4740		
Bottom Logged Interval	4738		
Top Log Interval	00		
Casing Driller	8 5/8" @ 222'		
Casing Logger	220		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 3,800 PPM	
Density / Viscosity	9.3/55		
pH / Fluid Loss	10.5/4.8		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.95 @ 72F		
Rmf @ Meas. Temp	.71 @ 72F		
Rmc @ Meas. Temp	1.14 @ 72F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.56 @ 123F		
Time Circulation Stopped	2.5 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	123F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	KEVIN KESSLER		

<<< Fold Here >>>

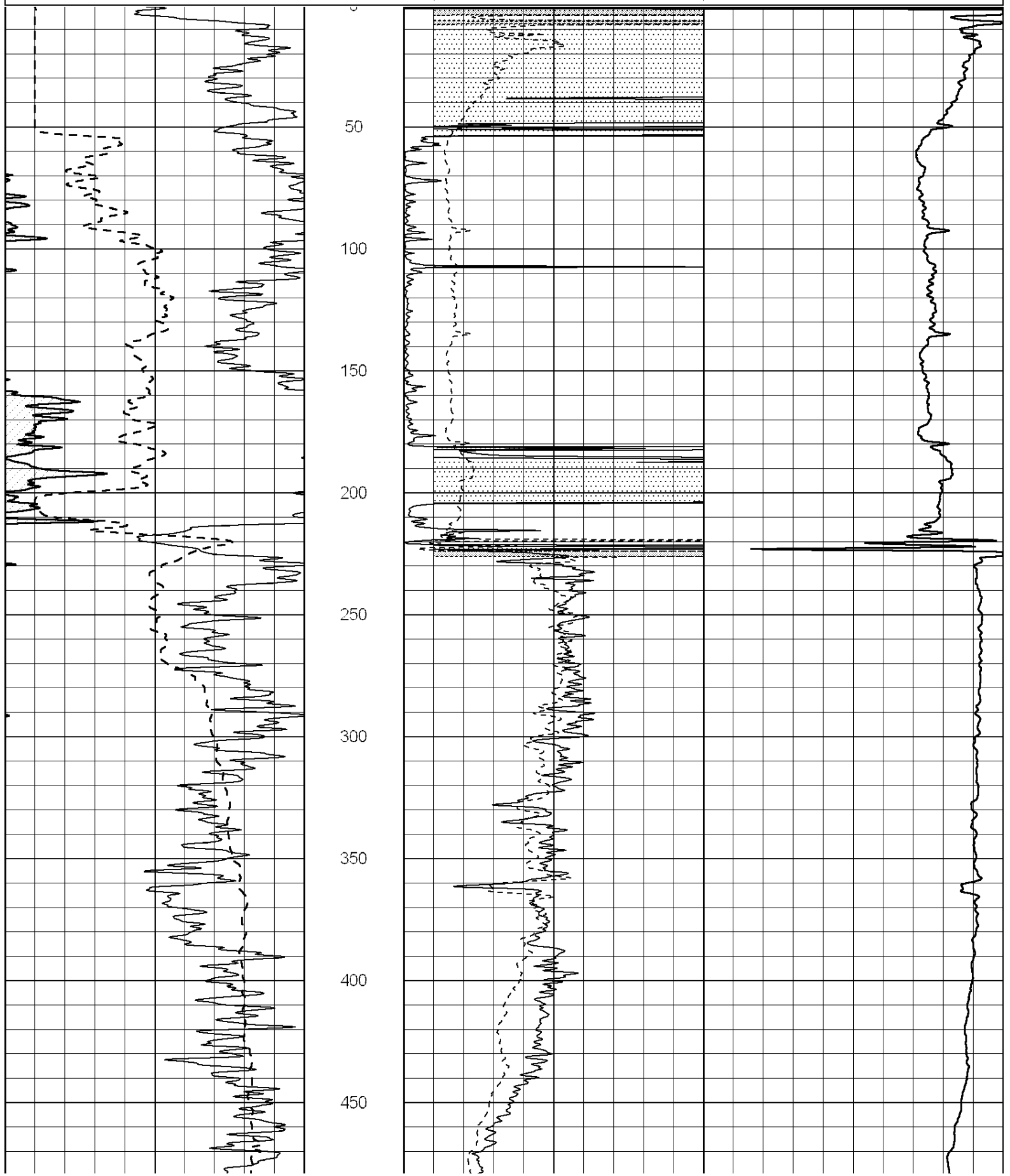
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

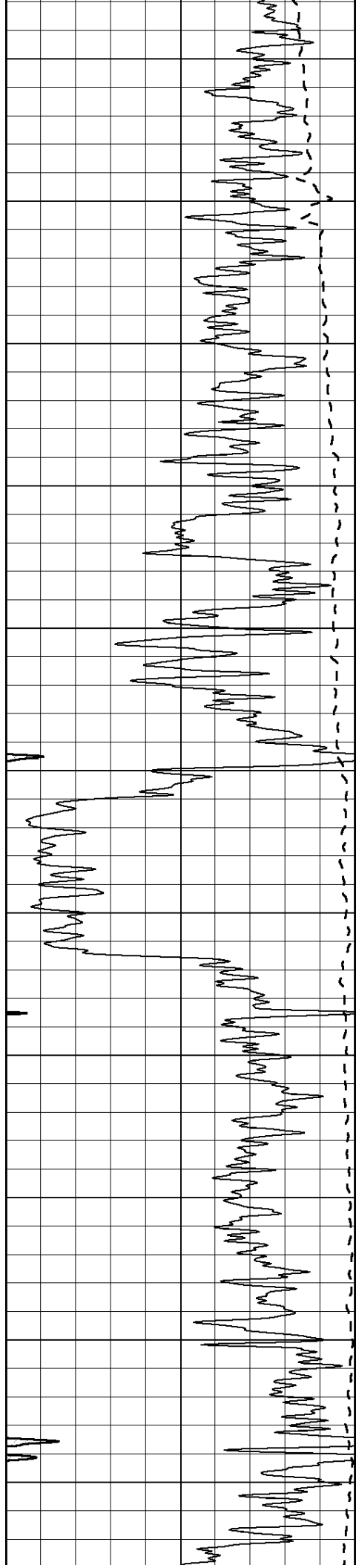
Comments

THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395
 DIRECTIONS
 SCOTT CITY, KS. - 15 MILES NORTH TO RD 290 - 1 1/2 MILES EAST - NORTH INTO

Database File: 010727pe.db
 Dataset Pathname: pass3.3
 Presentation Format: _dil2
 Dataset Creation: Tue Mar 19 04:24:55 2013 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:600

Charted by: _____			Depth (m) not scaled (feet)		
0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50
-100	SP (mV)	100	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

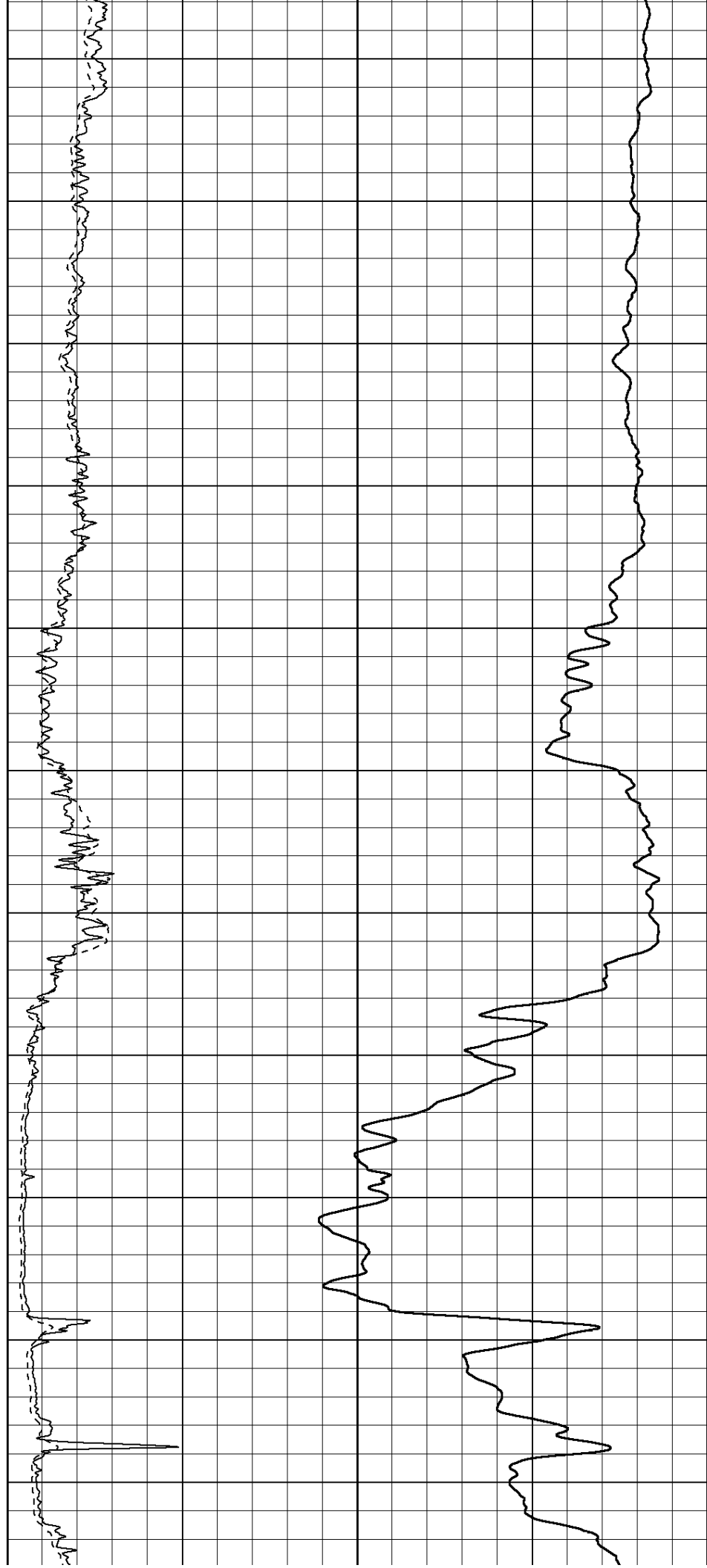
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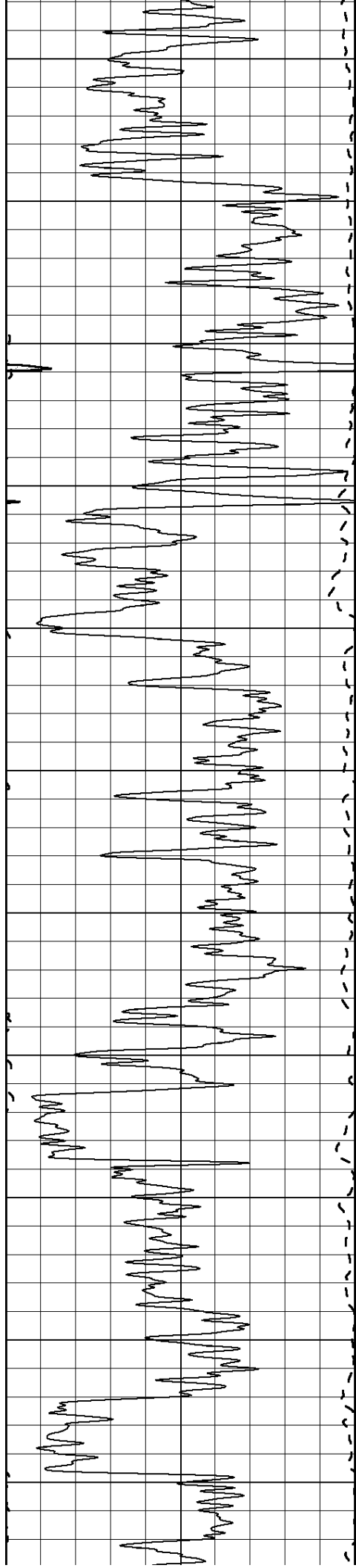
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900

950

1000





1050

1100

1150

1200

1250

1300

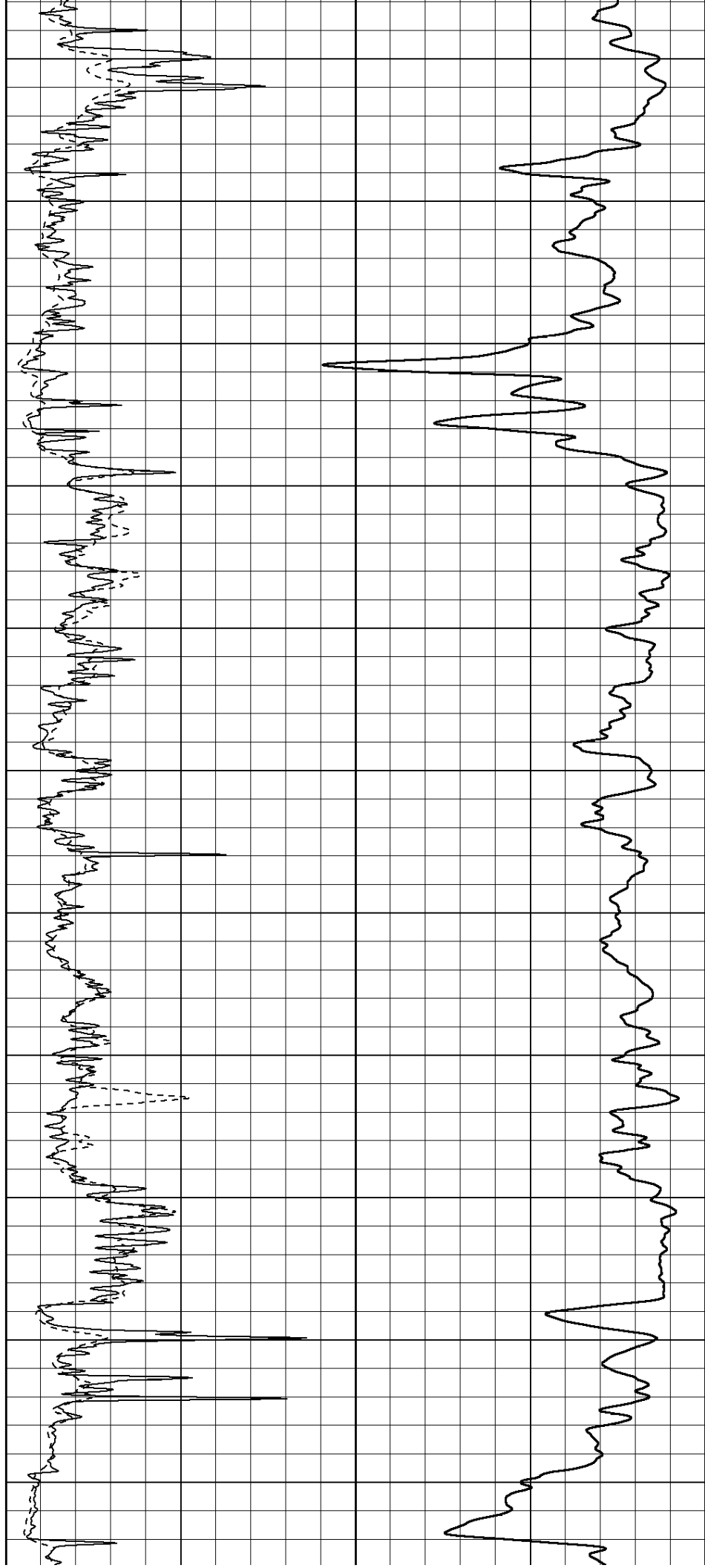
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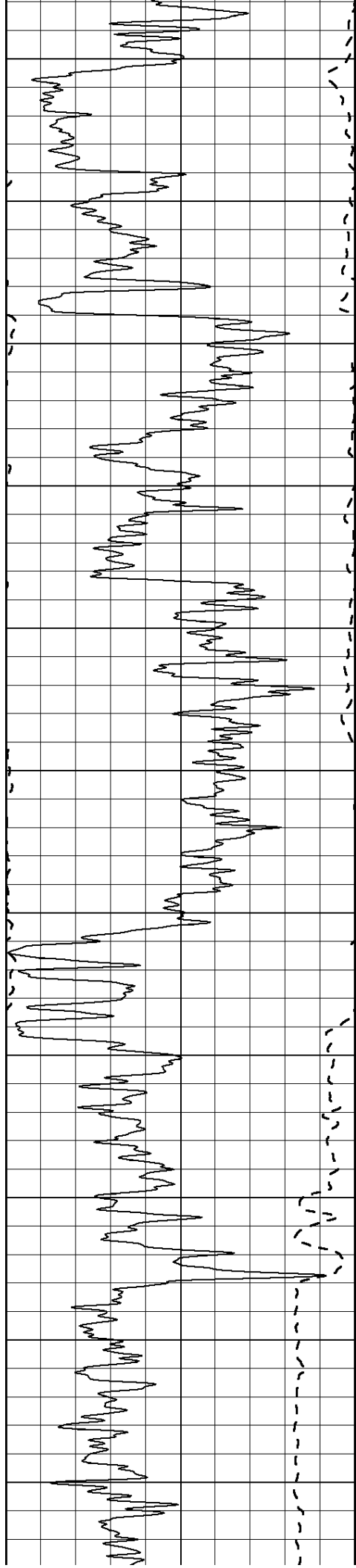
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1450

1500

1550





1600

1650

1700

1750

1800

1850

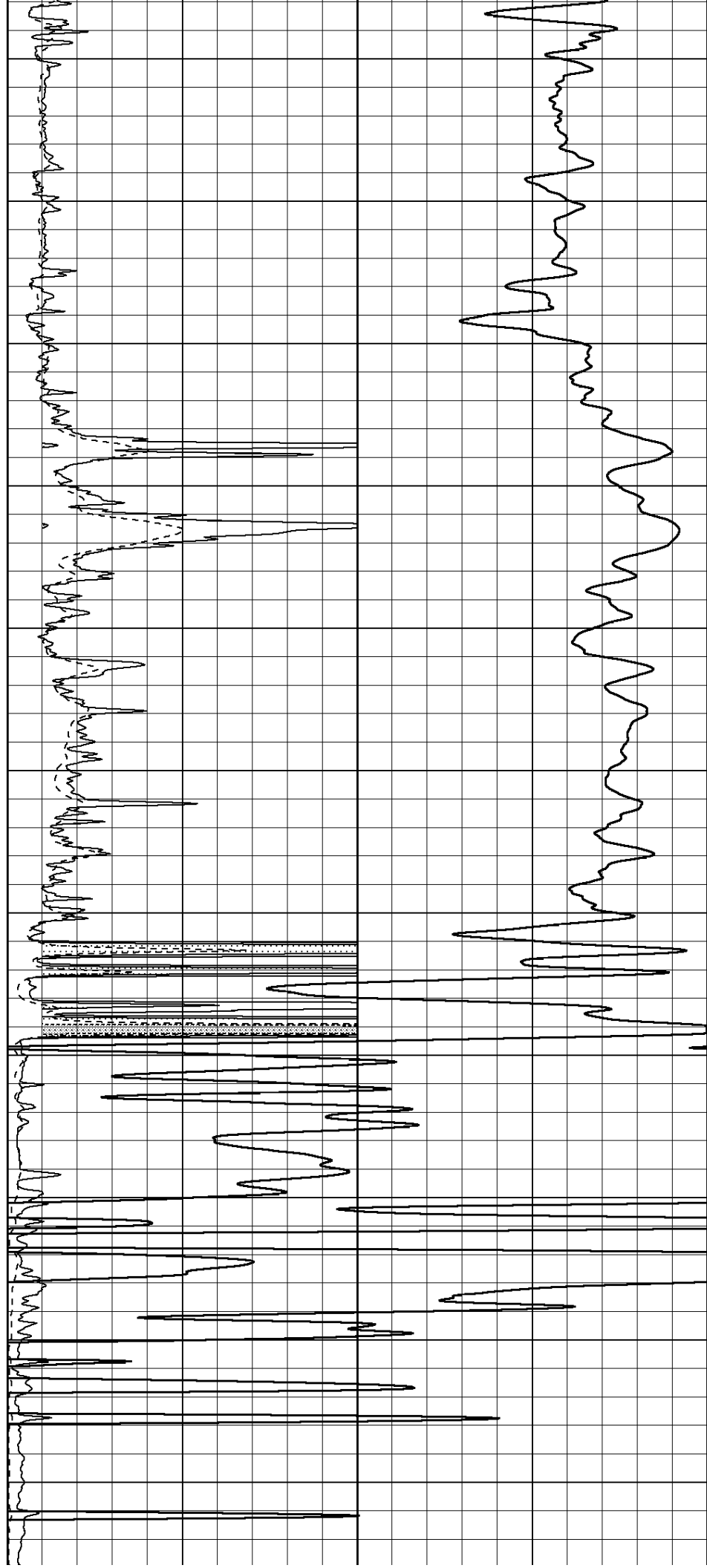
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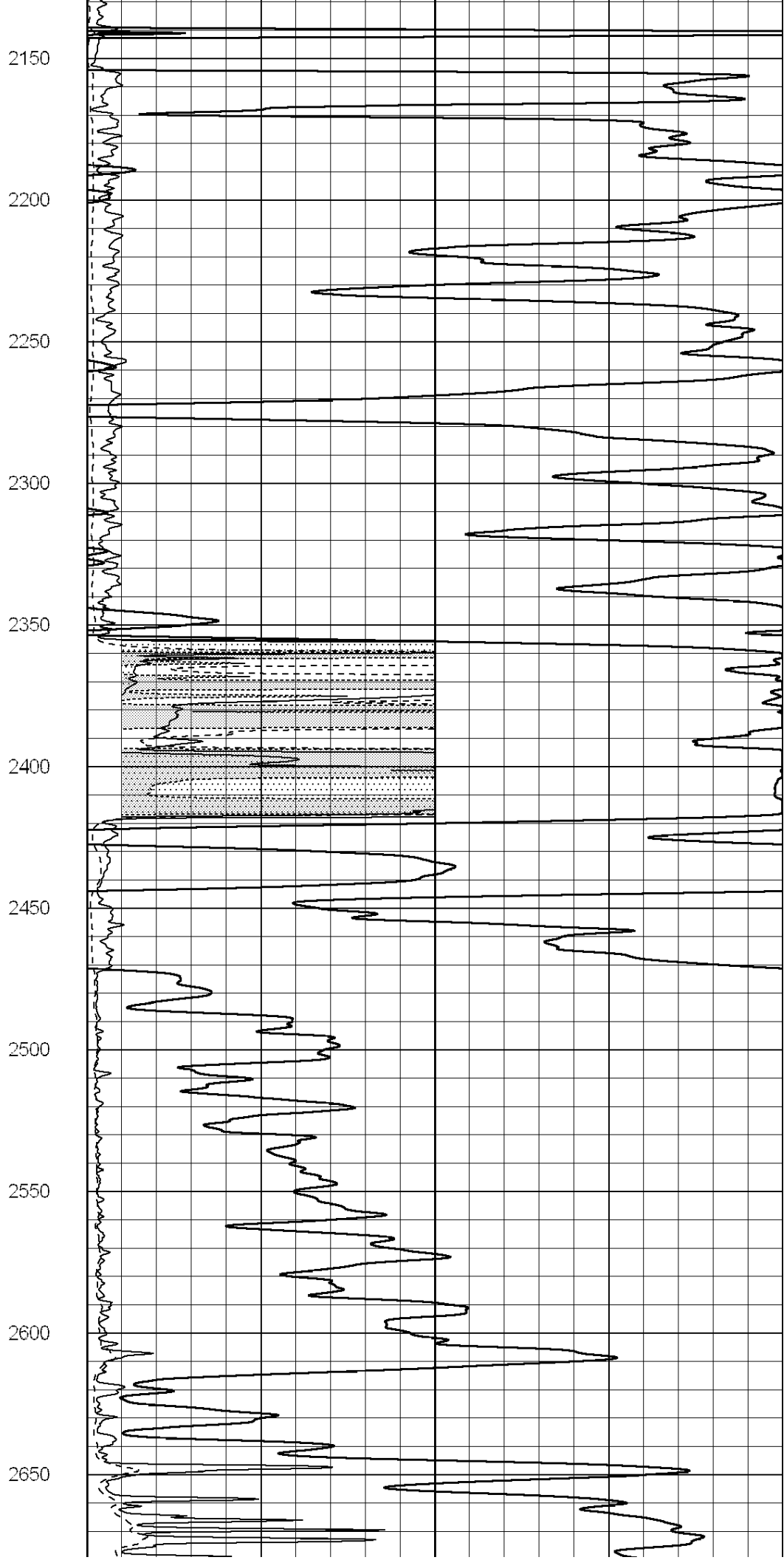
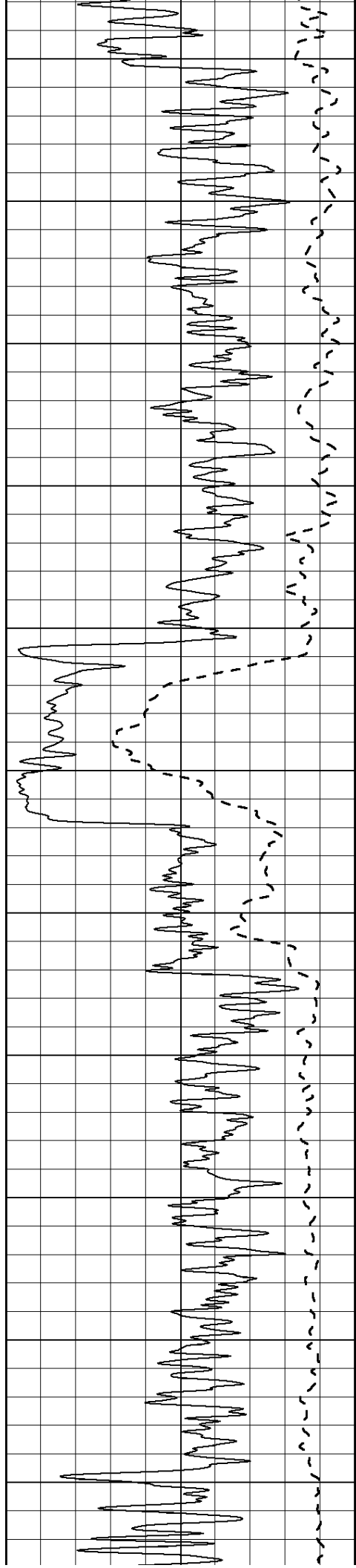
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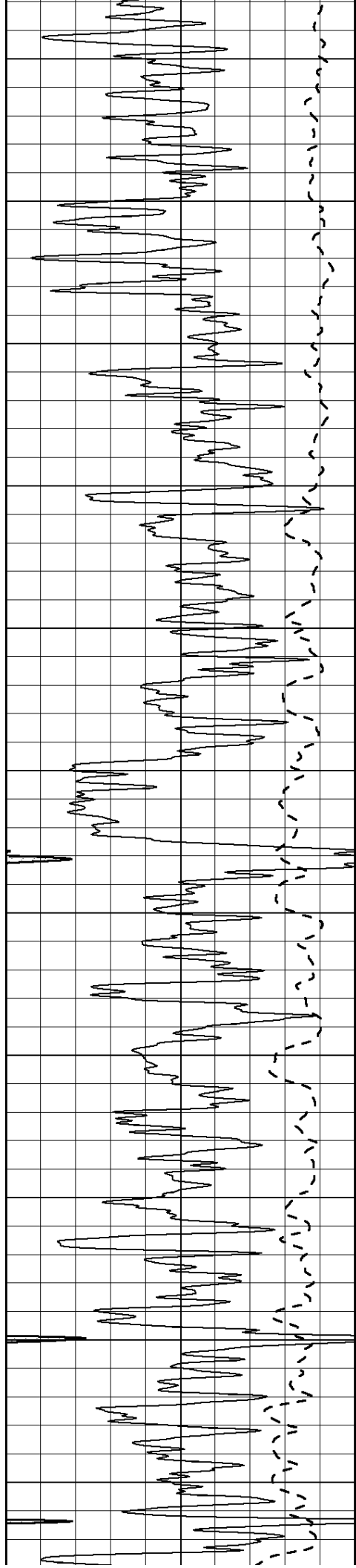
2000

2050

2100







2700

2750

2800

2850

2900

2950

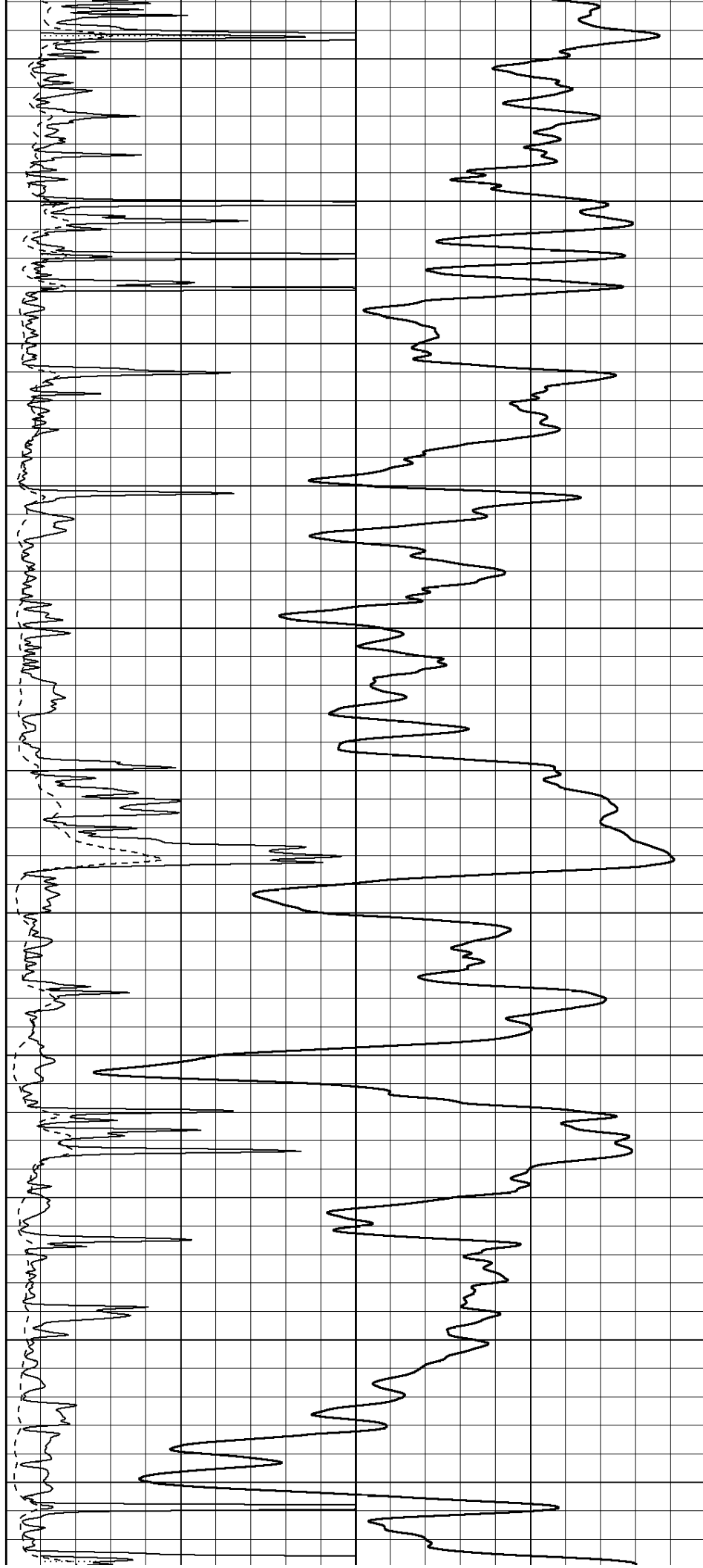
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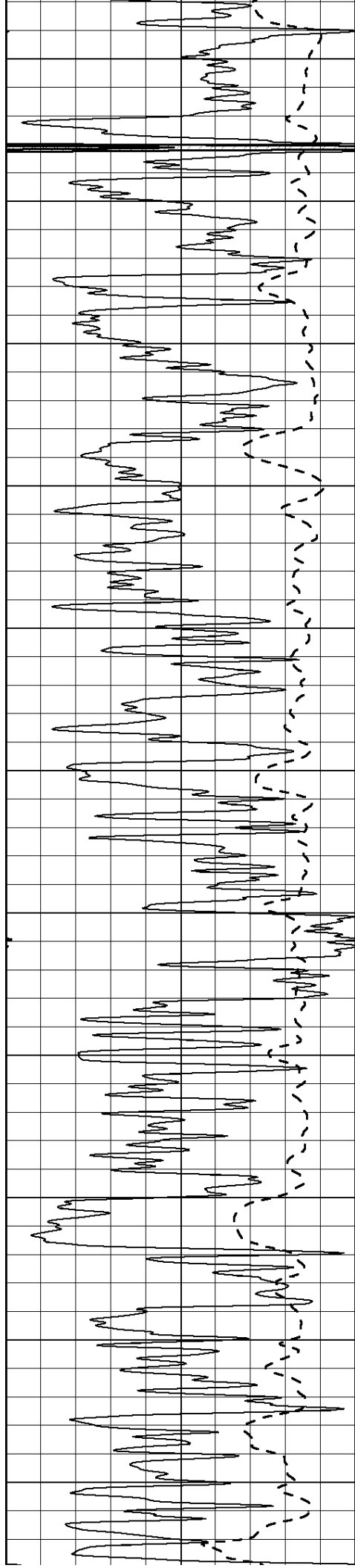
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3100

3150

3200





3250

3300

3350

3400

3450

3500

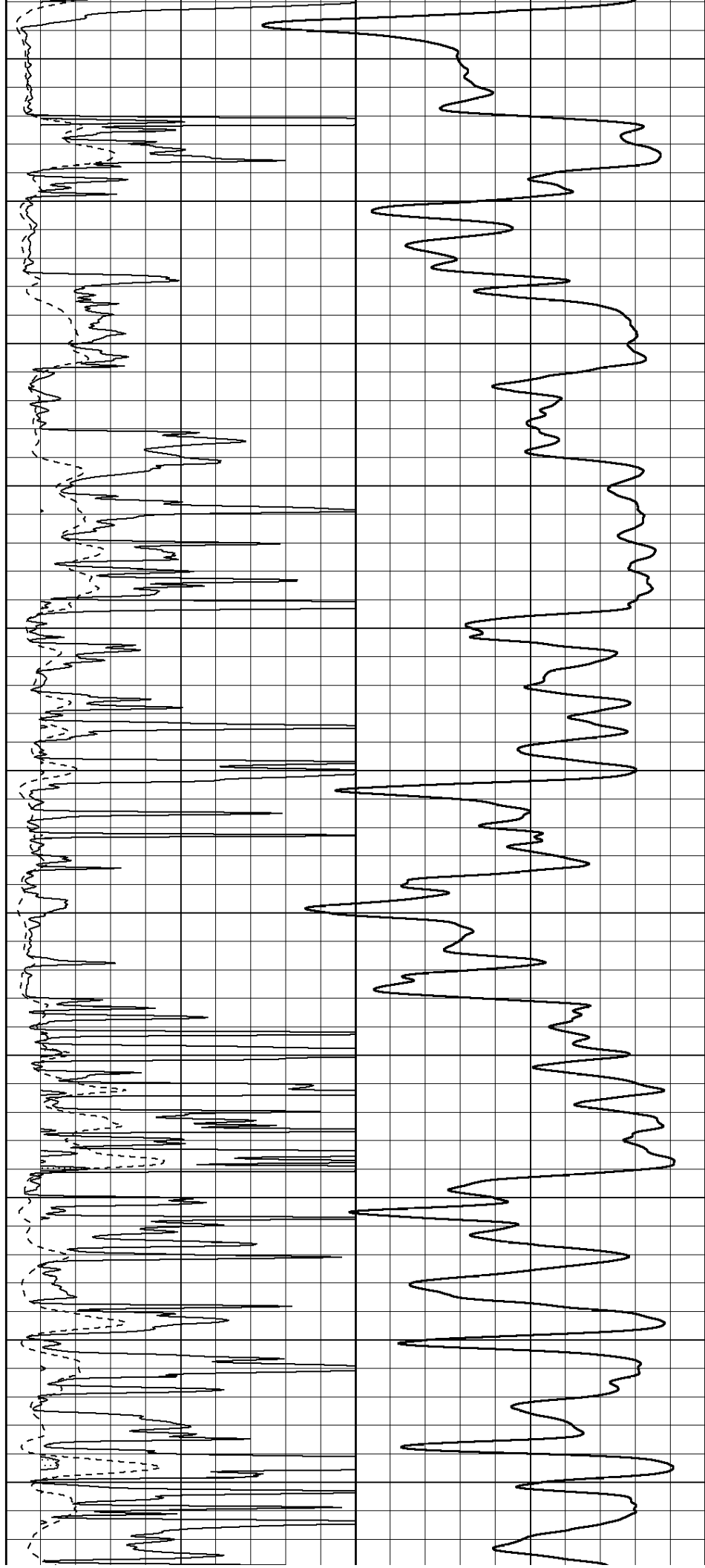
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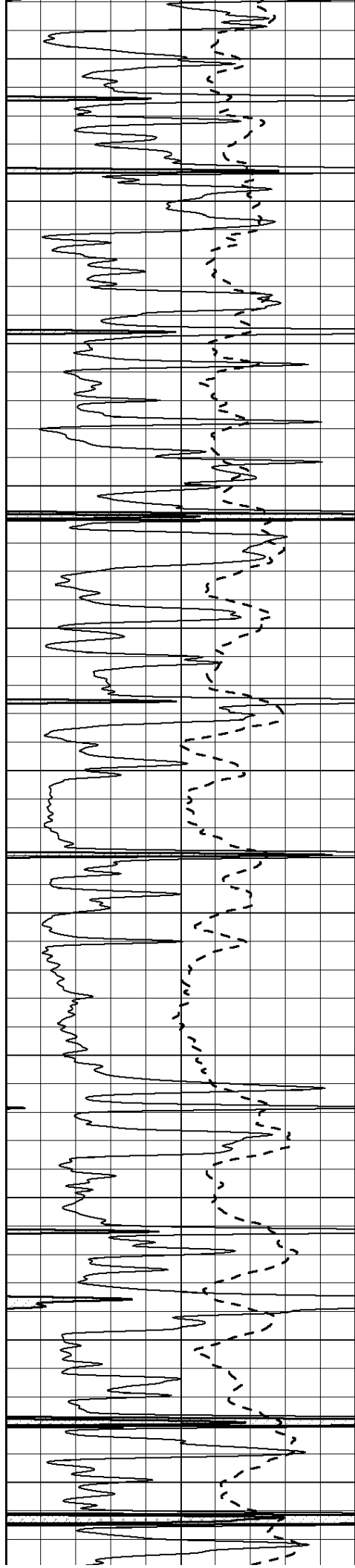
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3650

3700

3750





3800

3850

3900

3950

4000

4050

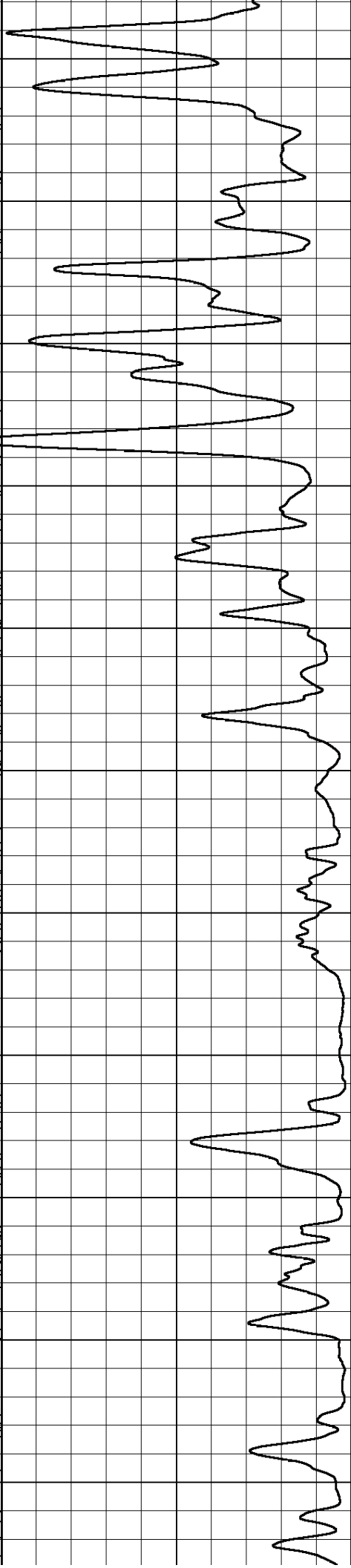
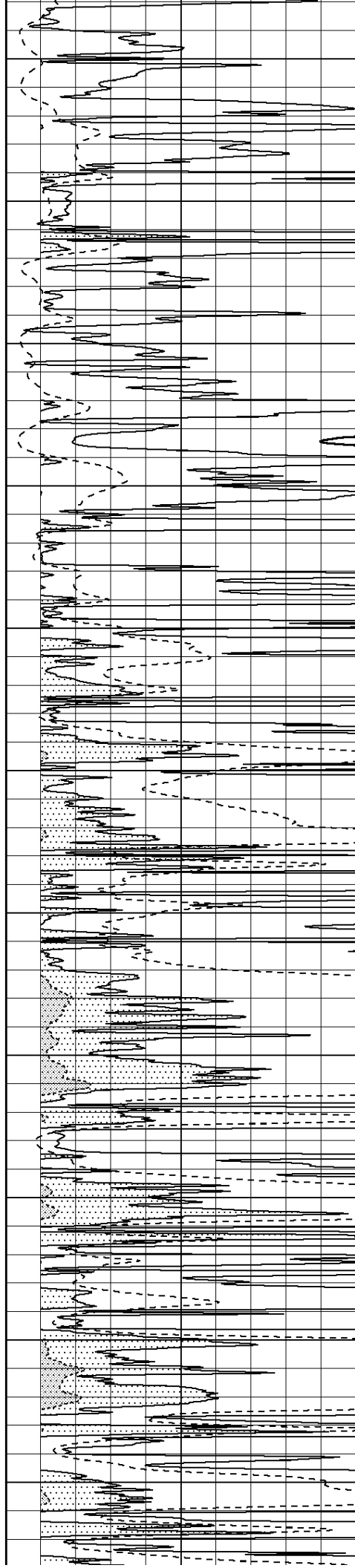
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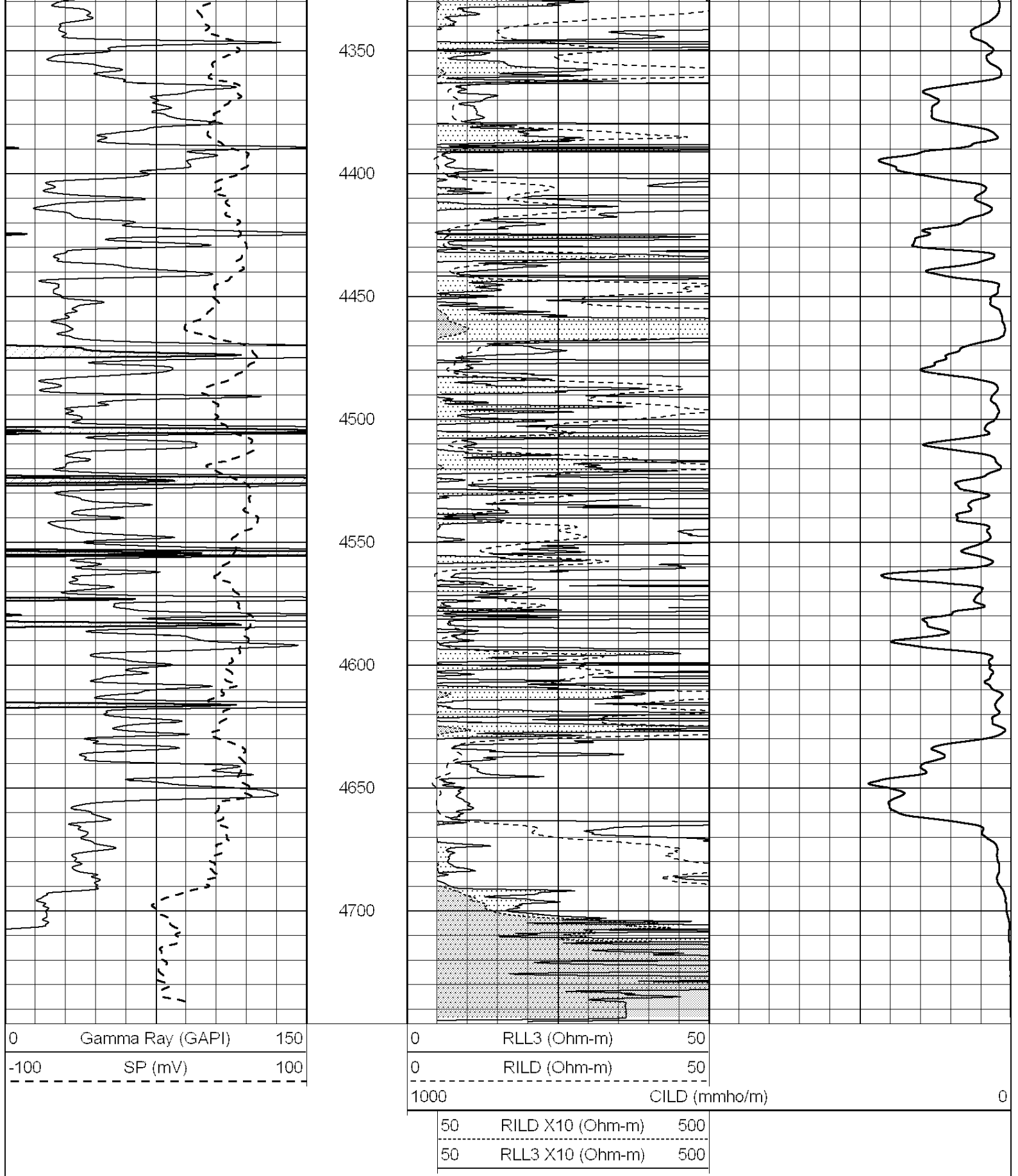
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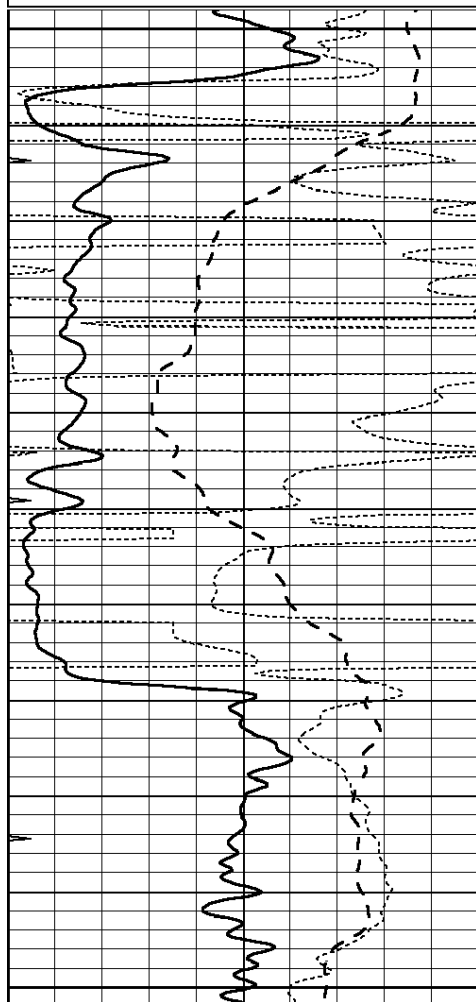
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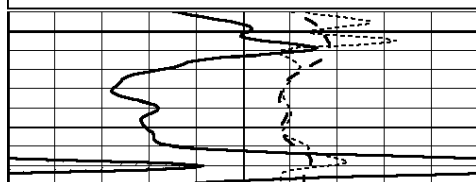


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Presentation Format: _dil
Dataset Creation: Tue Mar 19 04:24:55 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

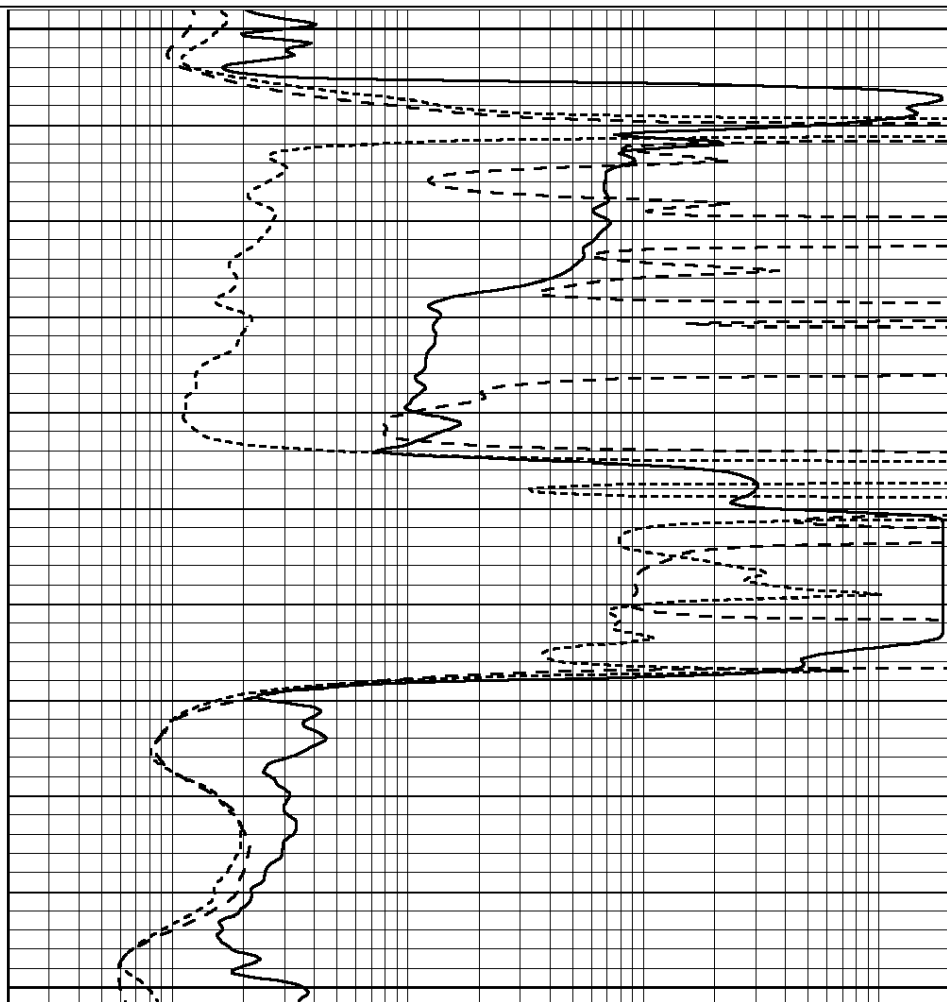
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



0	GAMMA RAY (GAPI)	150
-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



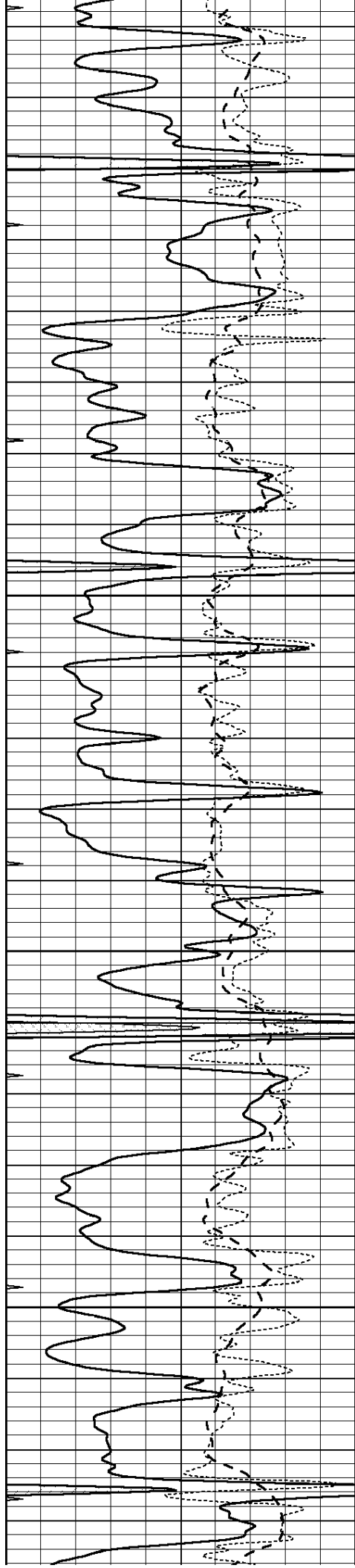
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



Database File: 010727pe.db
Dataset Pathname: pass3.2
Presentation Format: _dil
Dataset Creation: Tue Mar 19 03:30:31 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

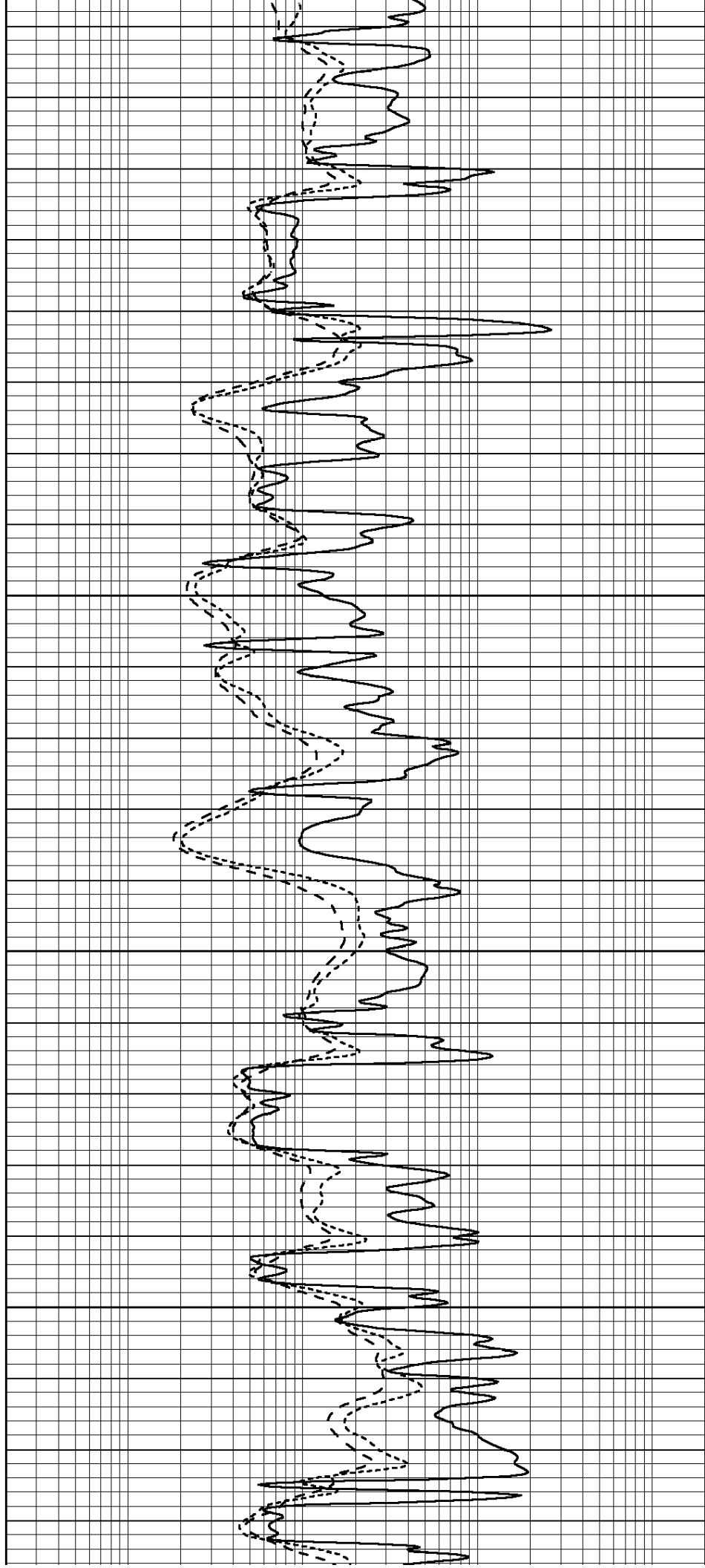


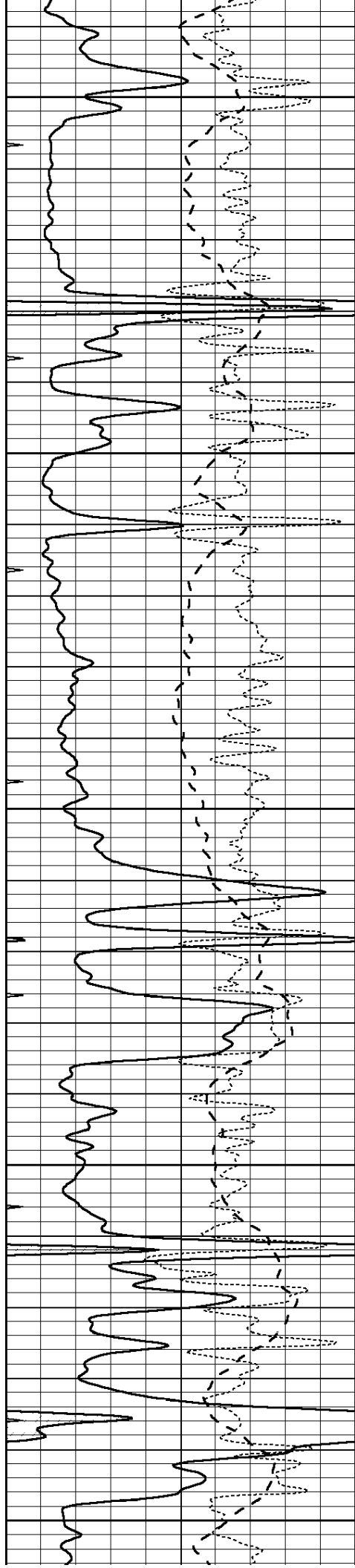
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3900

3950

4000





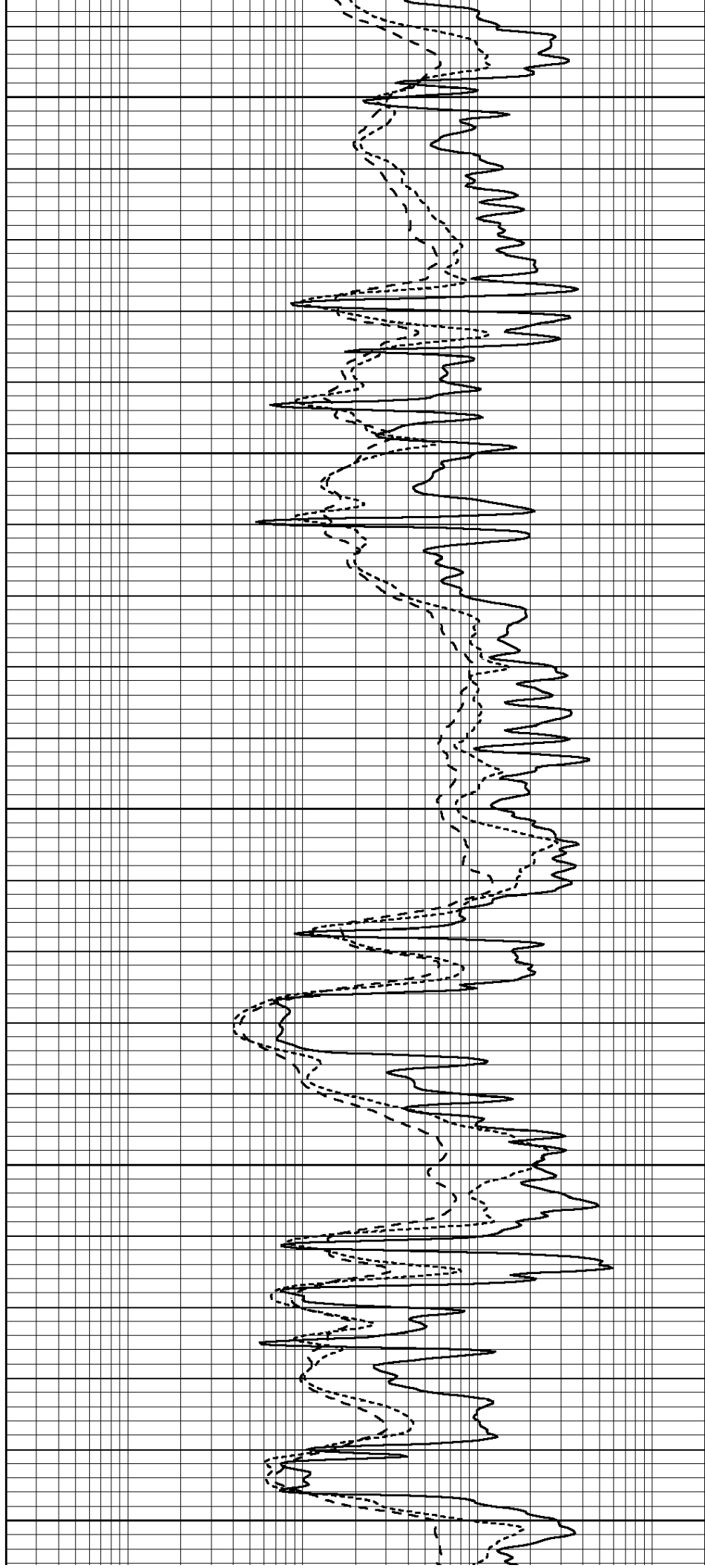
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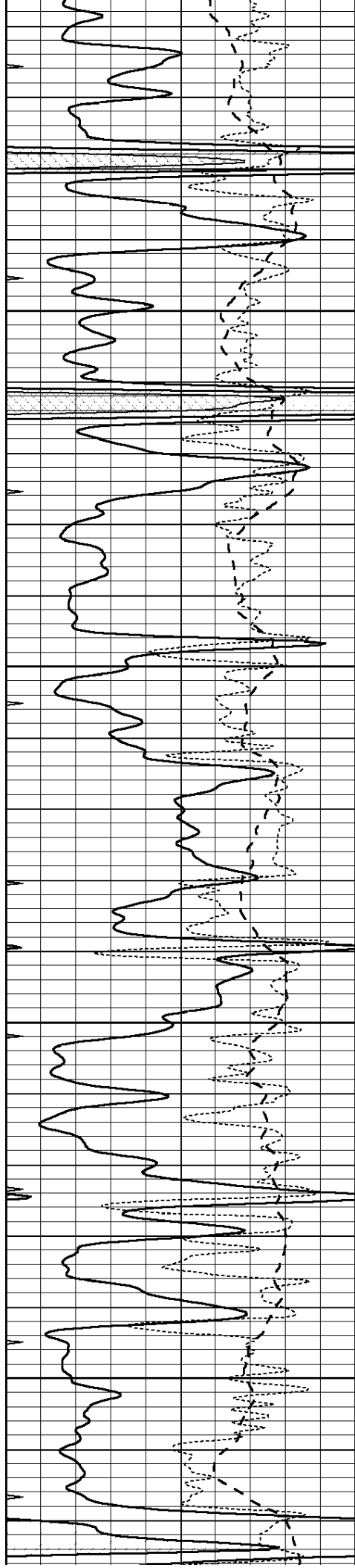
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4150

4200

4250



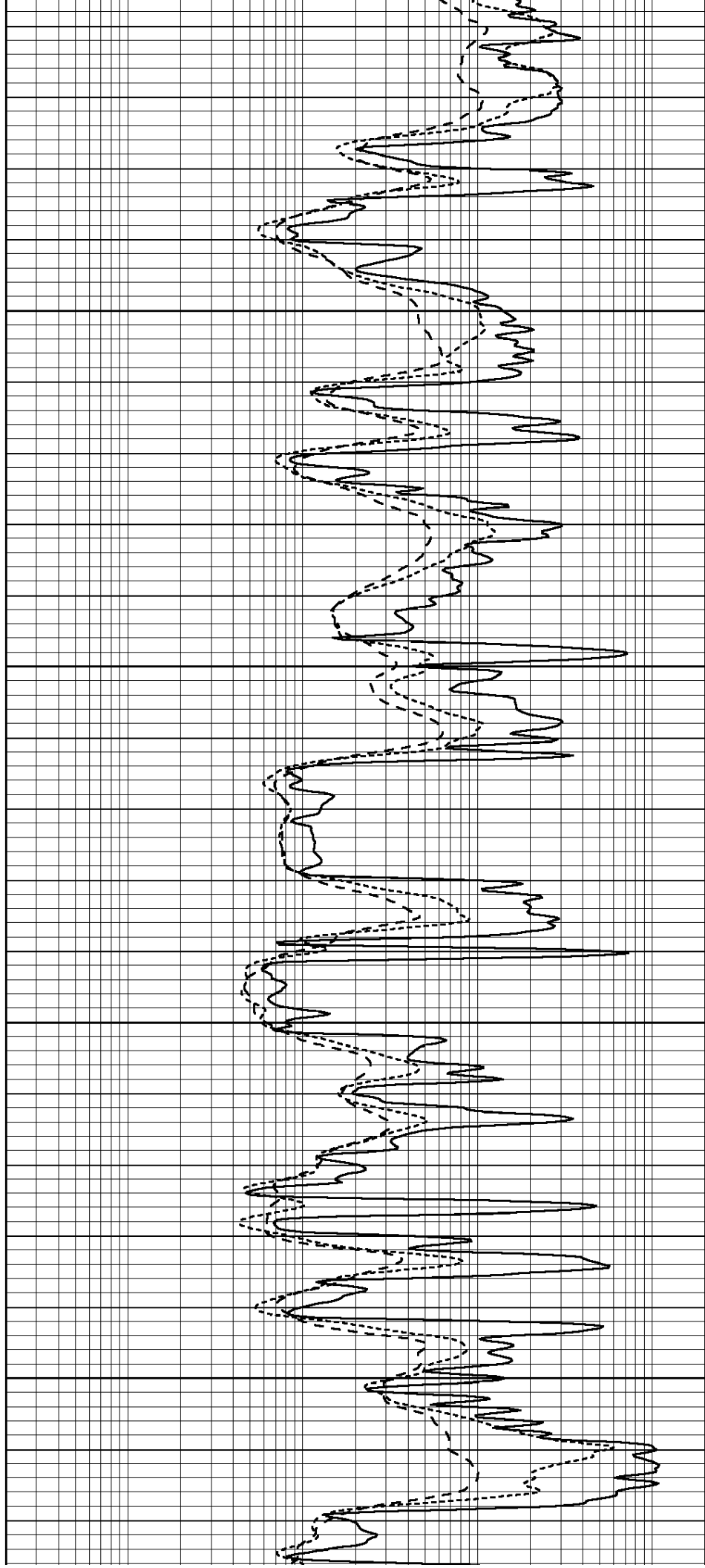


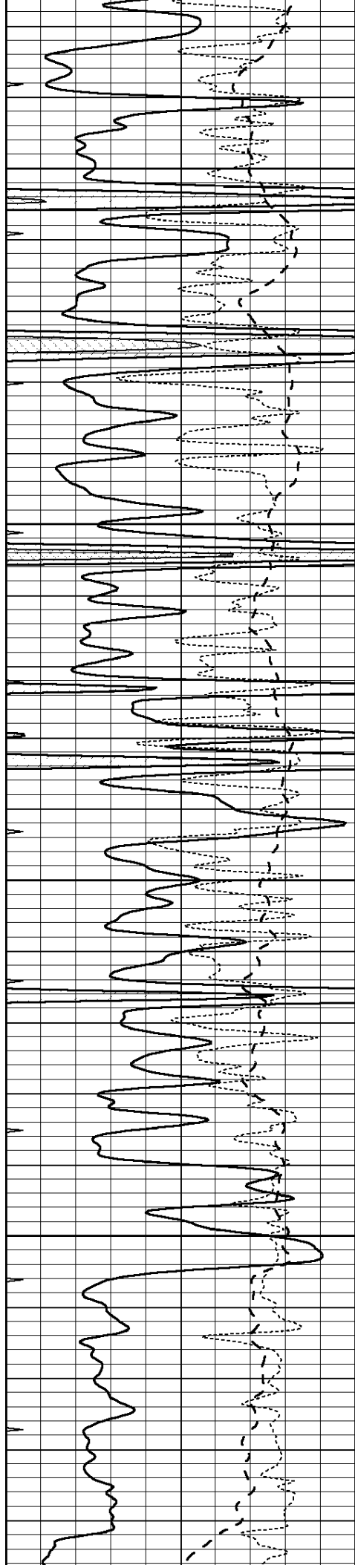
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4400

4450



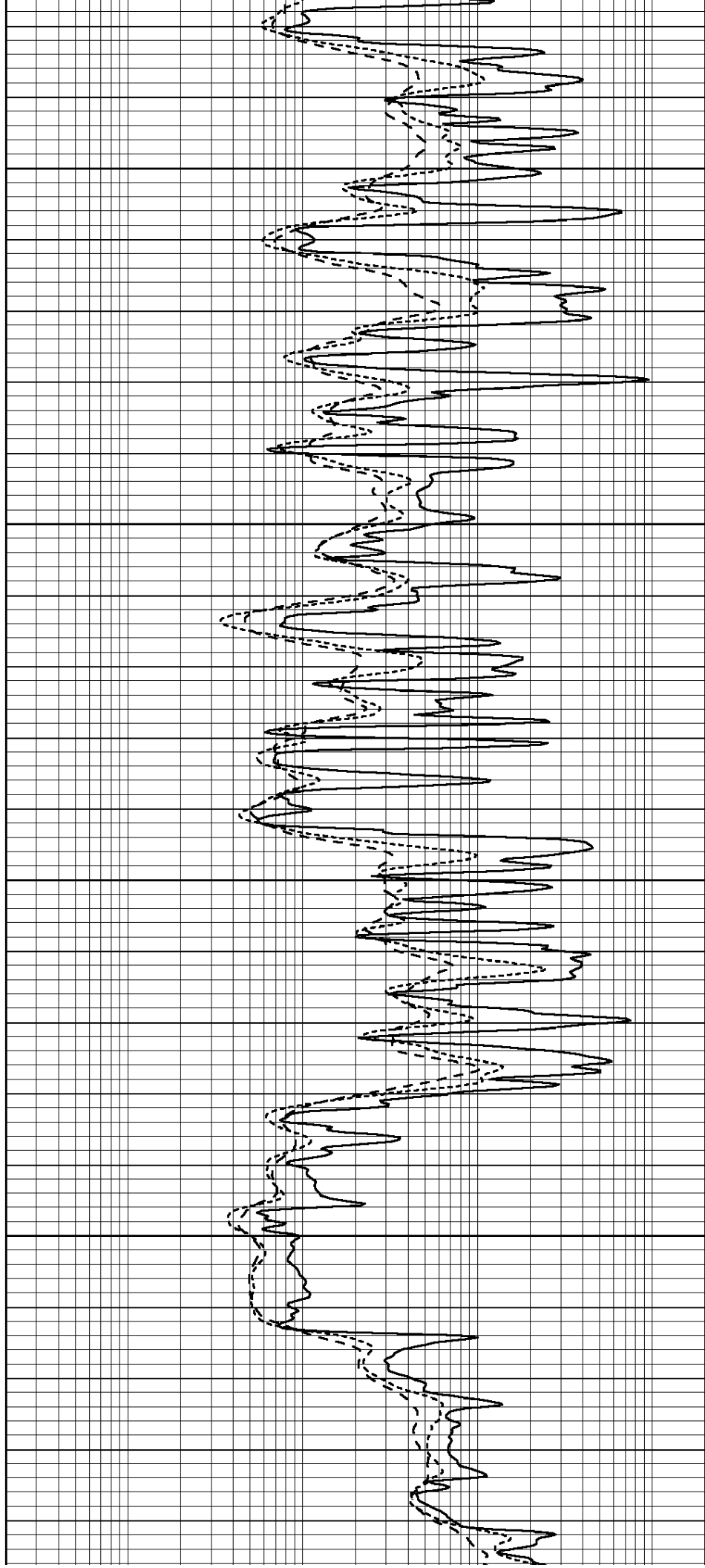


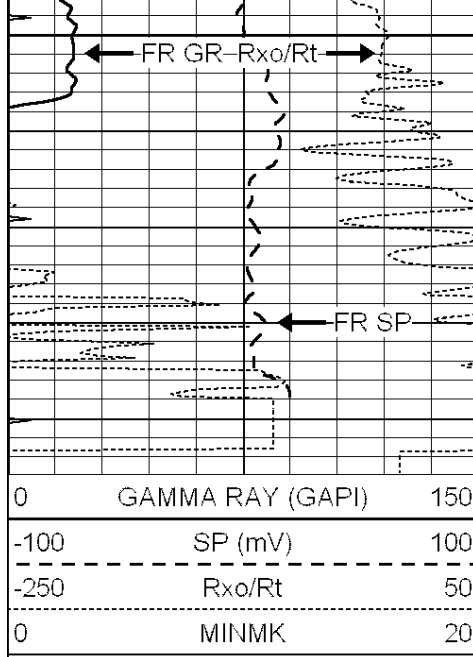
4500

4550

4600

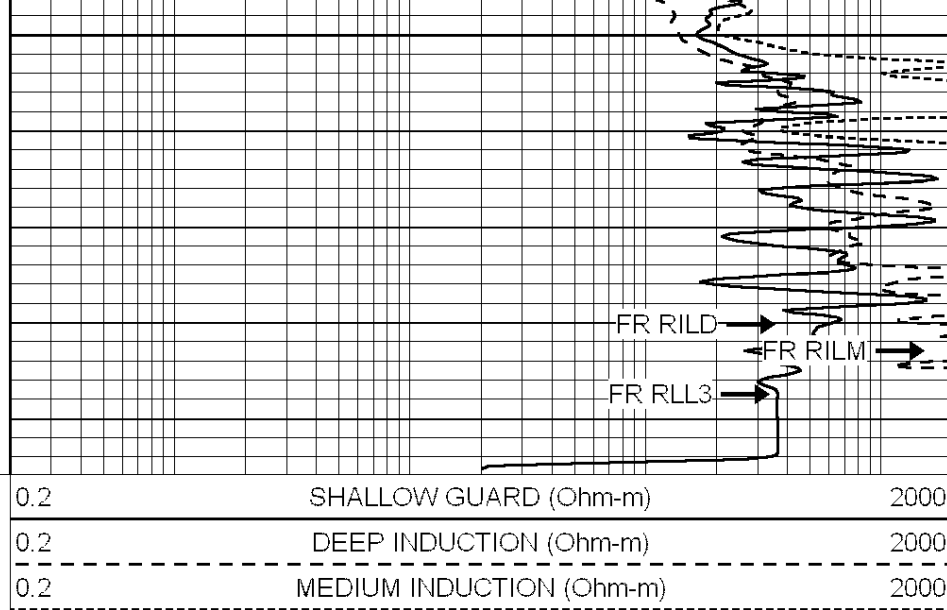
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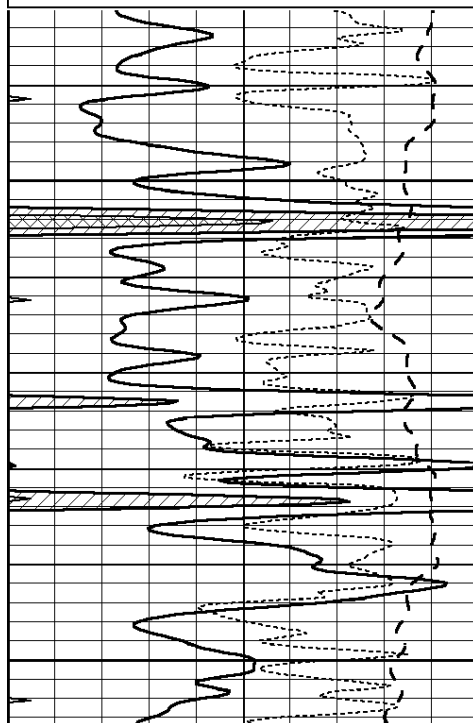
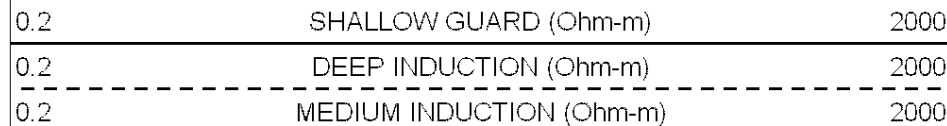
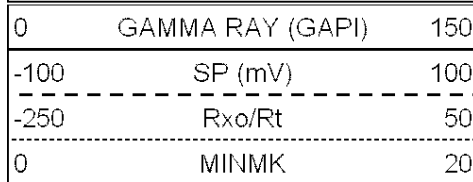
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LTD 4740



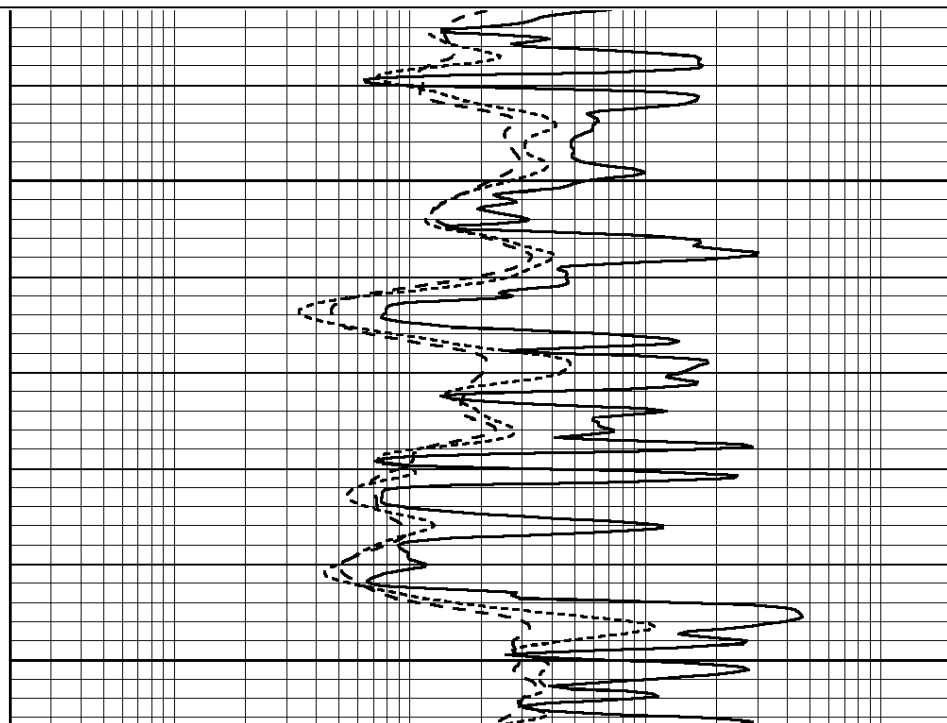
REPEAT SECTION

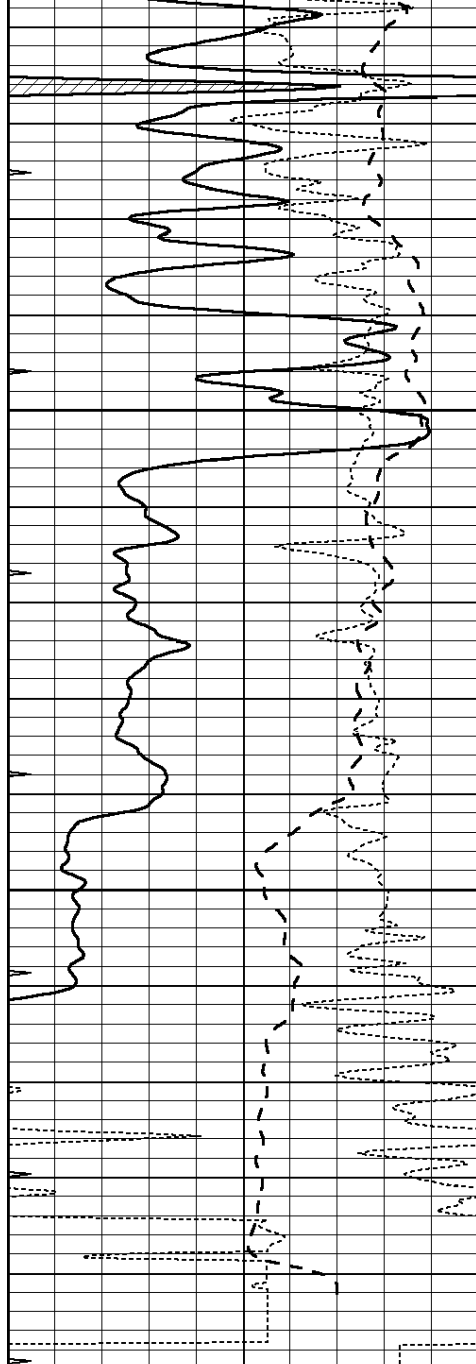
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 Presentation Format: _dil
 Dataset Creation: Tue Mar 19 03:14:17 2013 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240



4550

4600



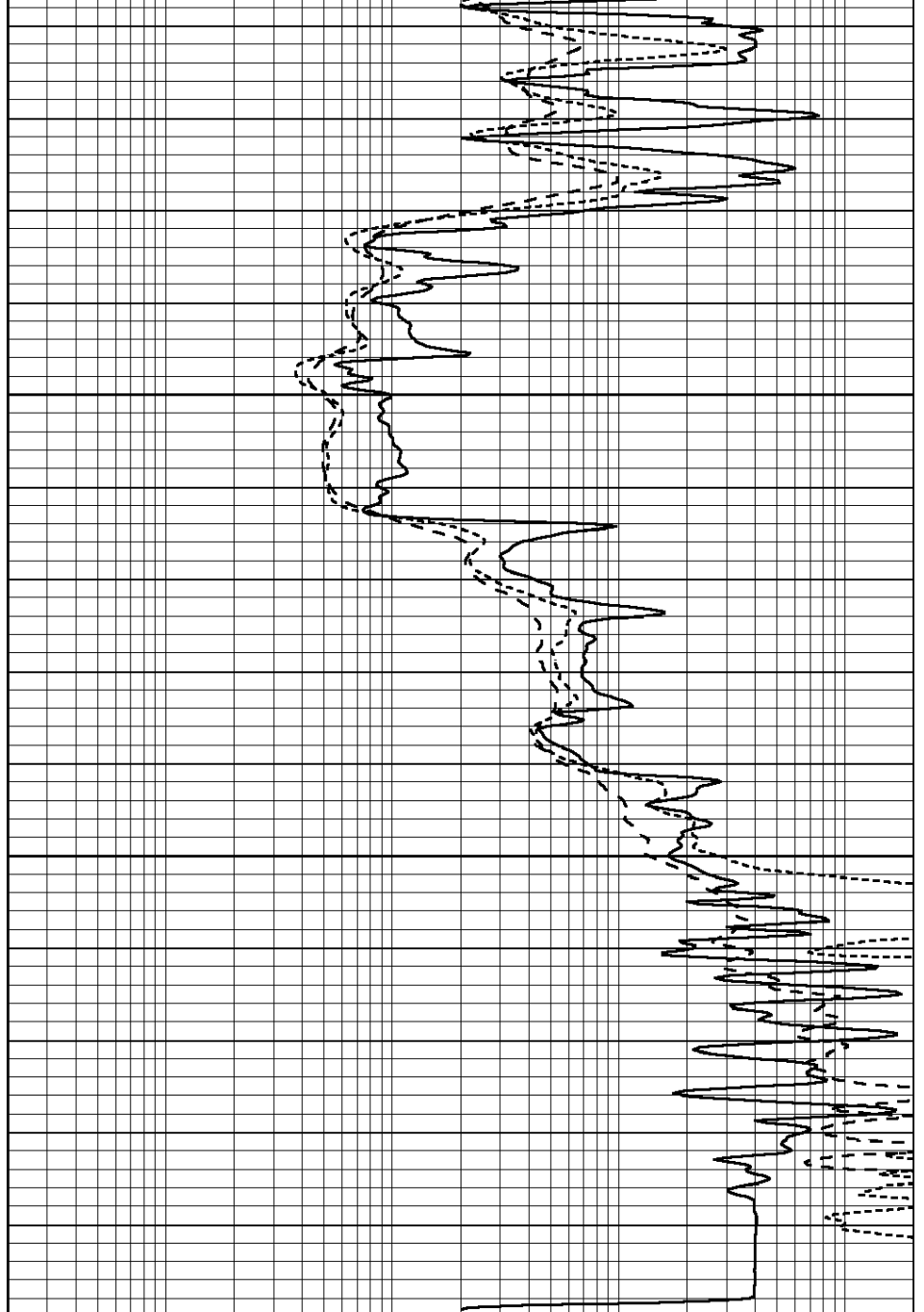


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

4650

4700

4750



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: 010727pe.db
 Dataset Pathname: pass3.3
 Dataset Creation: Tue Mar 19 04:24:55 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Sun Mar 10 00:44:14 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	621.923	-11.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-19.000
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: 006			Model: PRB					

Master Calibration				Performed Sun Aug 15 09:48:41 2010				
	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		0.0000		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		

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				
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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:	Sun Mar 10 00:43:54 2013	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3500	GAPI/cps