



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		RITCHIE EXPLORATION, INC.	
Well	#1 WINDERLIN 36D		
Field	WILDCAT		
County	GOVE	State	KANSAS
Location:	1610' FSL & 860' FEL		Other Services CDL/CNL
SEC 36 TWP 15S RGE 31W		Elevation	
Permanent Datum	GROUND LEVEL	Elevation	2800
Log Measured From	KELLY BUSHING 5' A.G.L.		K.B. 2805
Drilling Measured From	KELLY BUSHING		D.F. 2803
			G.L. 2800
Date	12/2/13		
Run Number	ONE		
Depth Driller	4617		
Depth Logger	4624		
Bottom Logged Interval	4622		
Top Log Interval	00		
Casing Driller	8 5/8"@232'		
Casing Logger	232		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,800 PPM	
Density / Viscosity	9.2/49		
pH / Fluid Loss	11.0/7.2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.980@70F		
Rinf @ Meas. Temp	.735@70F		
Rmc @ Meas. Temp	1.18@70F		
Source of Rinf / Rmc	MEASUREMENT		
Rim @ BHT	.562@122F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	9:30 P.M.		
Maximum Recorded Temperature	122F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	MAX LOVELY		

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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
HEALY, KS. 10W. TO "TAOS RD.", 6N. TO "RD. 280", 3E. TO "WILLOW RD.", CURVE 3N., W. INTO

Database File: 011818ddn.db
Dataset Pathname: pass3.11
Presentation Format: dil2
Dataset Creation: Tue Dec 03 00:10:52 2013
Charted by: Depth in Feet scaled 1:600

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

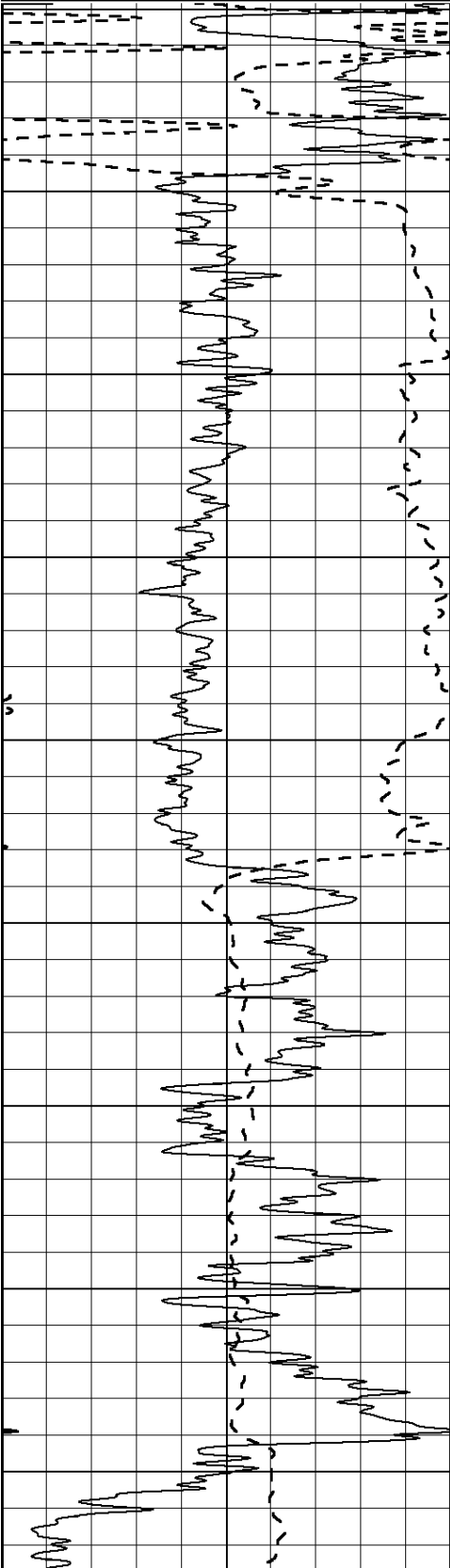
0 RLL3 (Ohm-m) 50

0 RILD (Ohm-m) 50

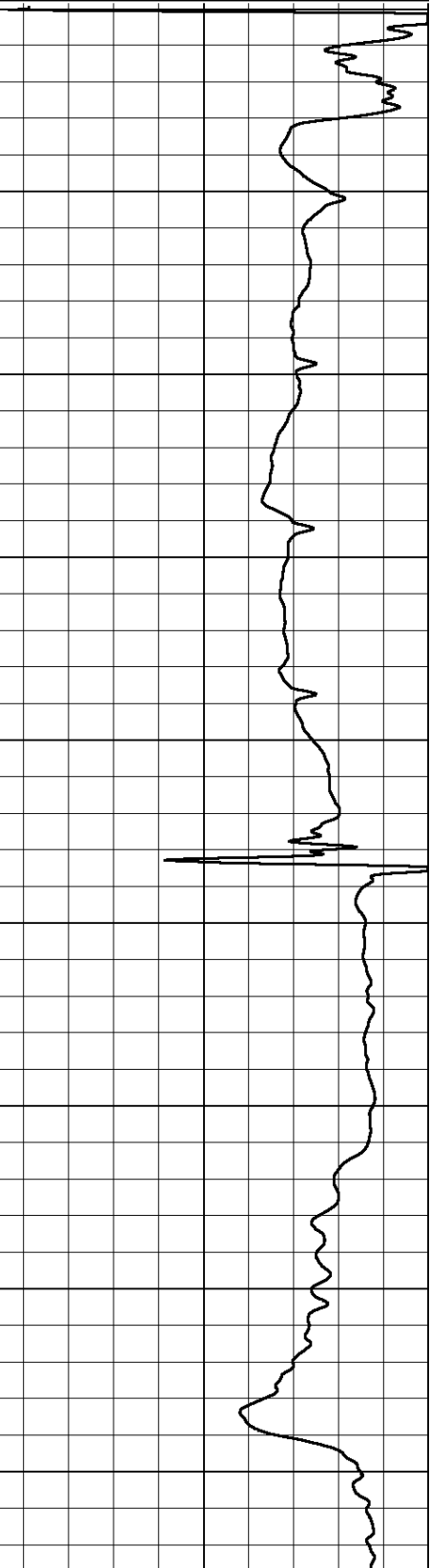
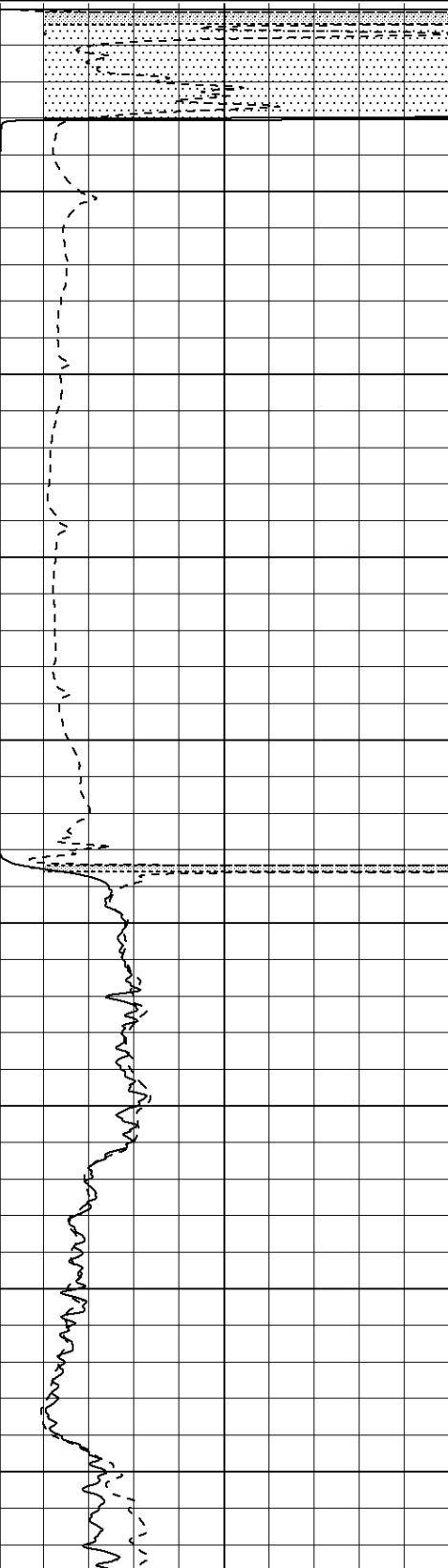
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50 RILD X10 (Ohm-m) 500

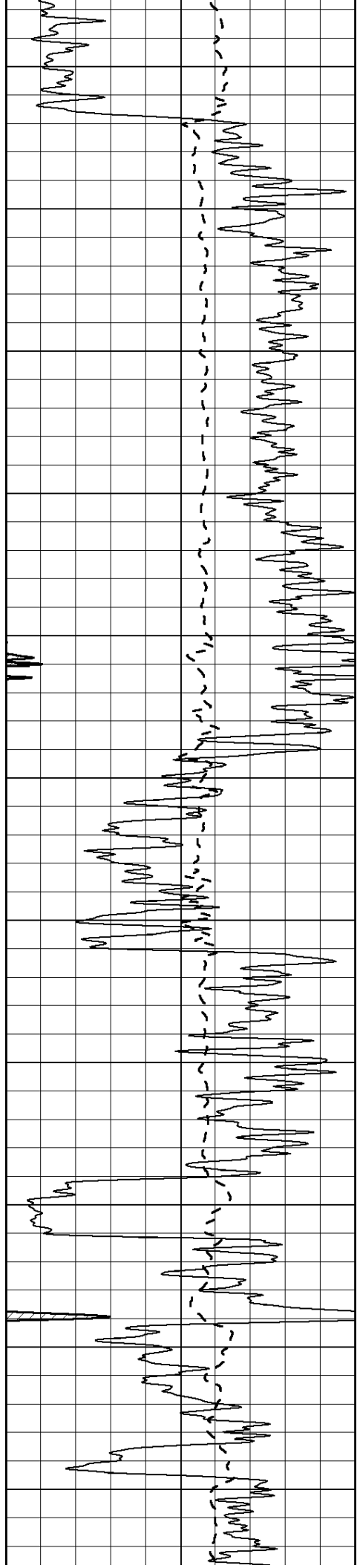
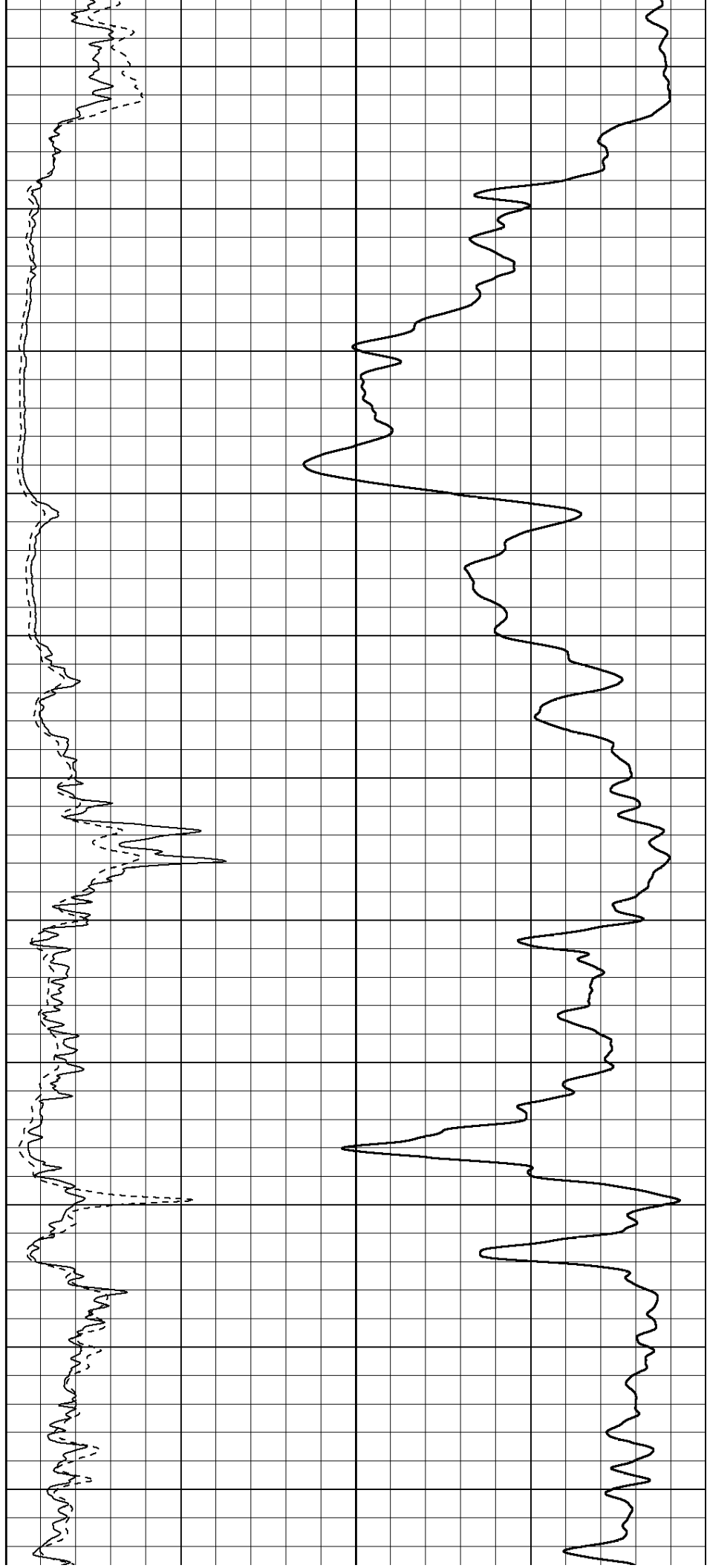
50 RLL3 X10 (Ohm-m) 500

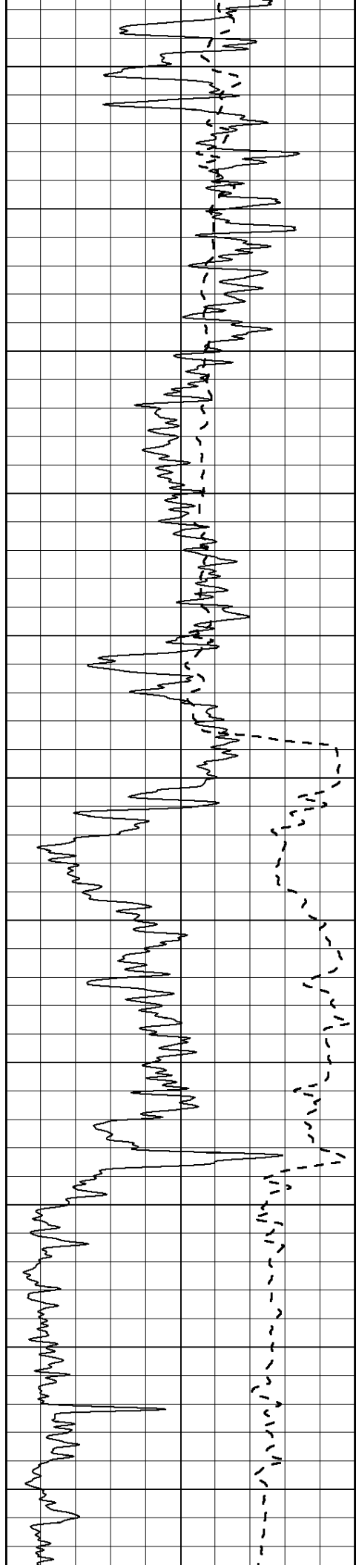


0
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850
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950





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1100

1150

1200

1250

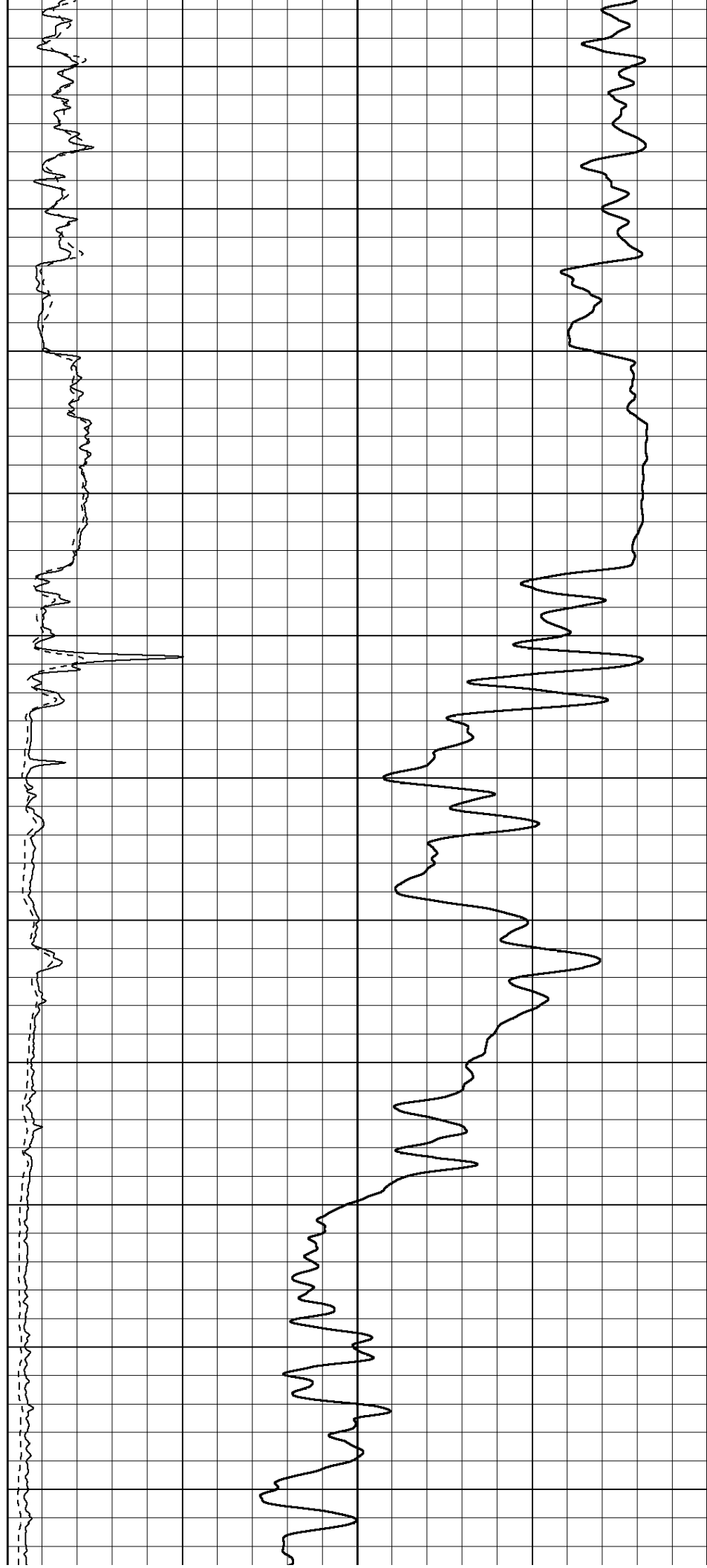
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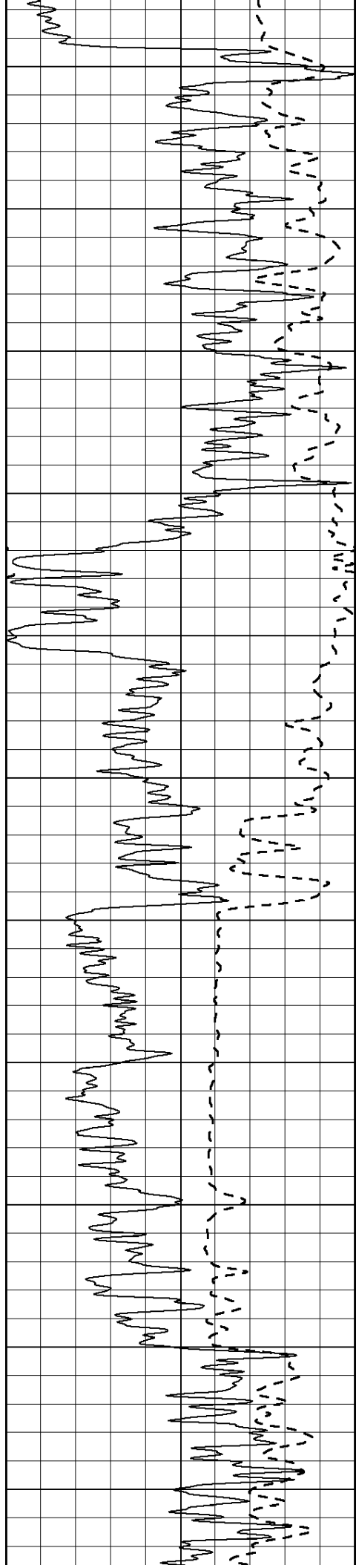
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1500





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1600

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1750

1800

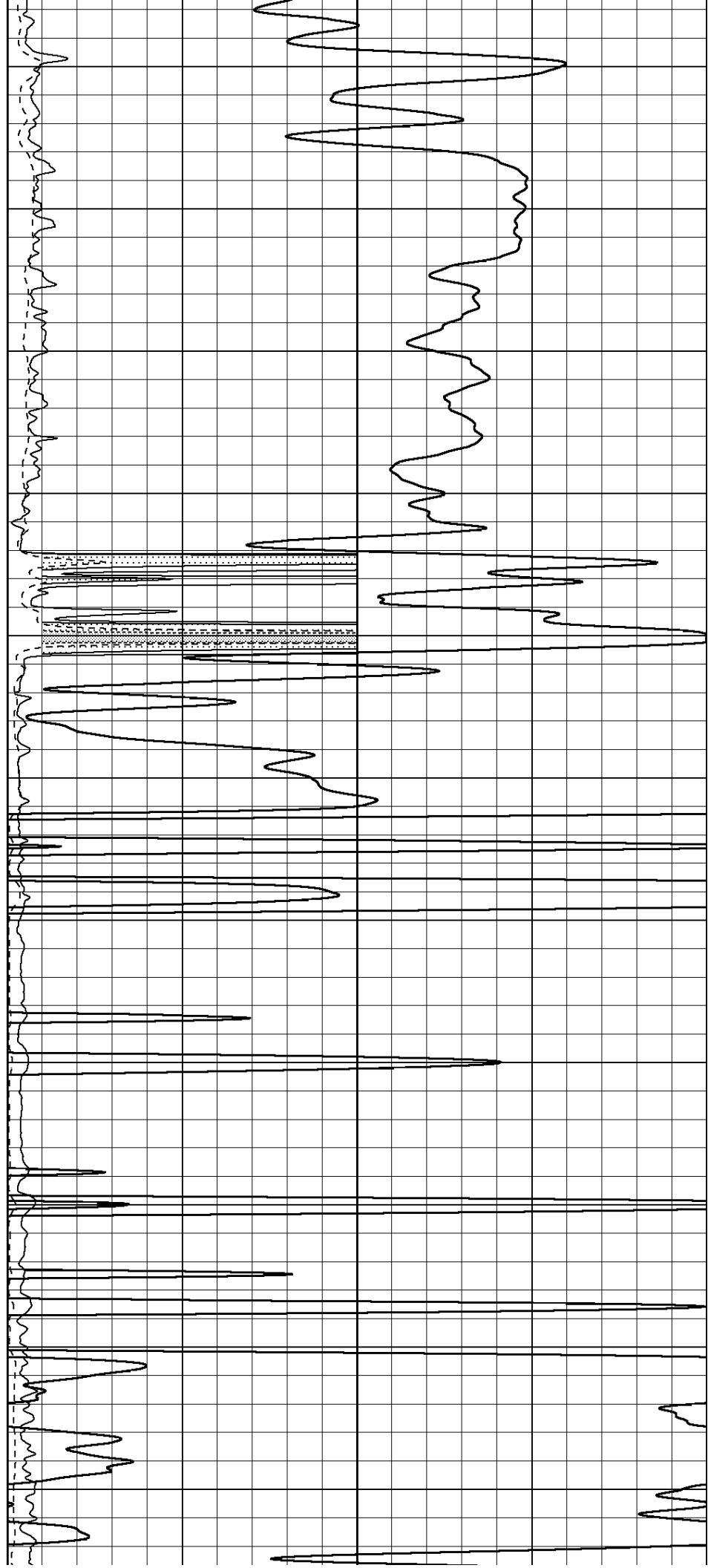
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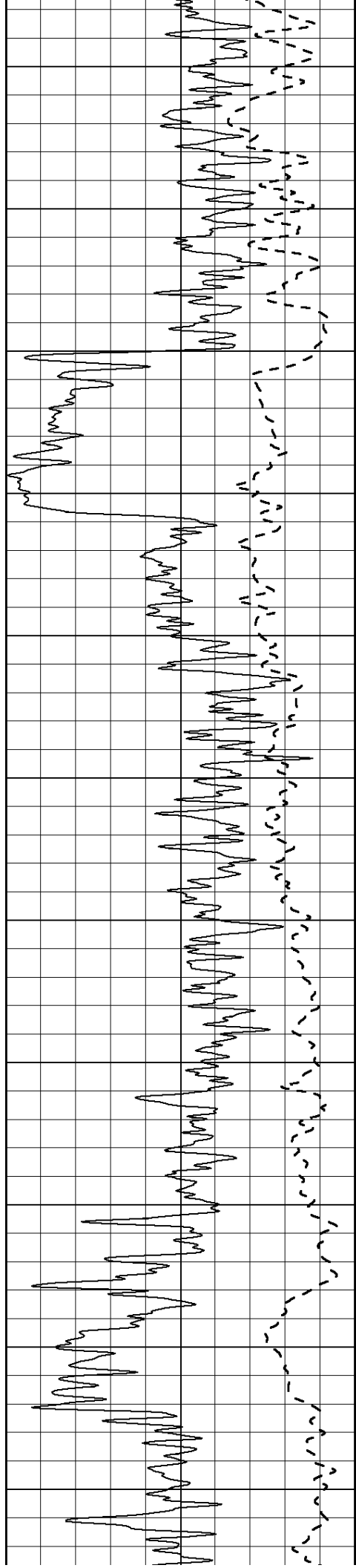
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2000

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2100

2150

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2300

2350

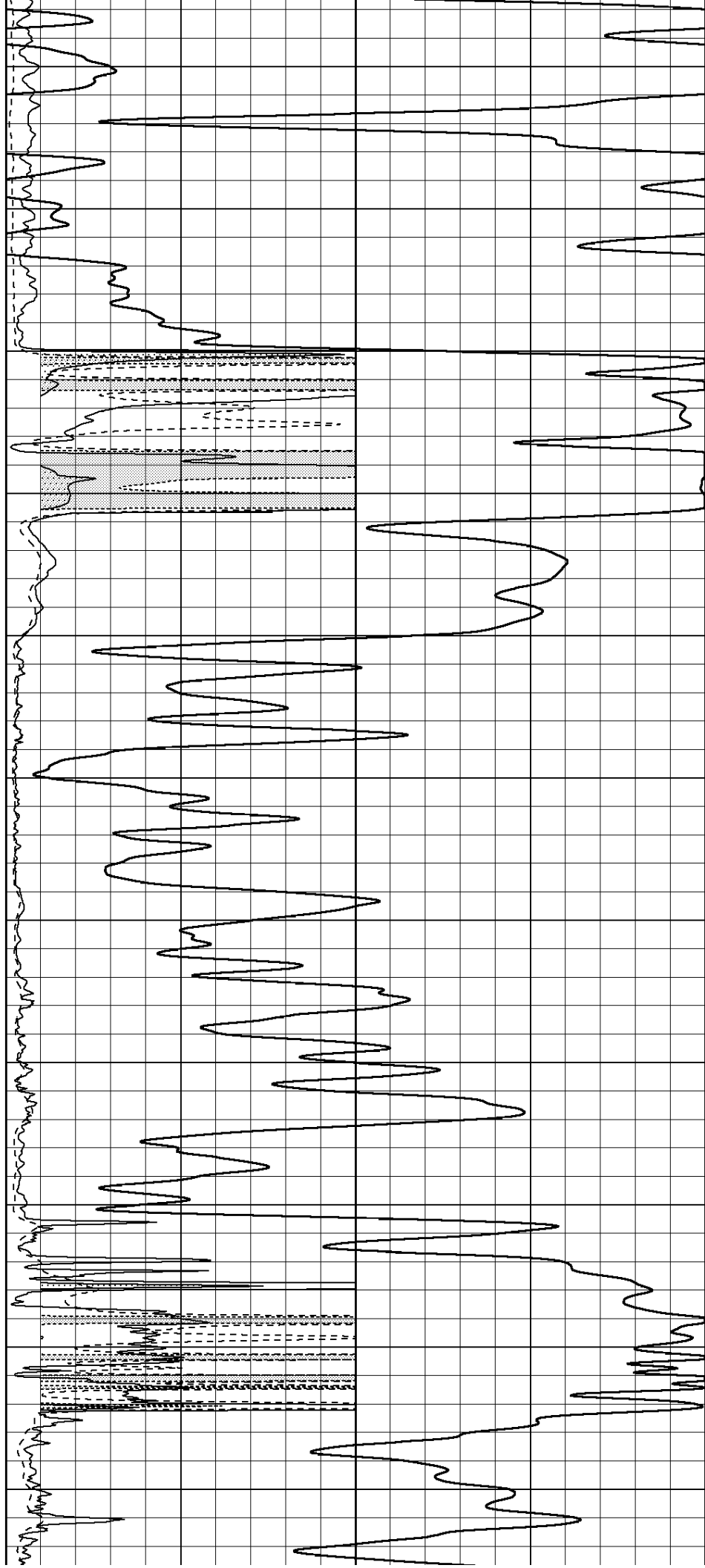
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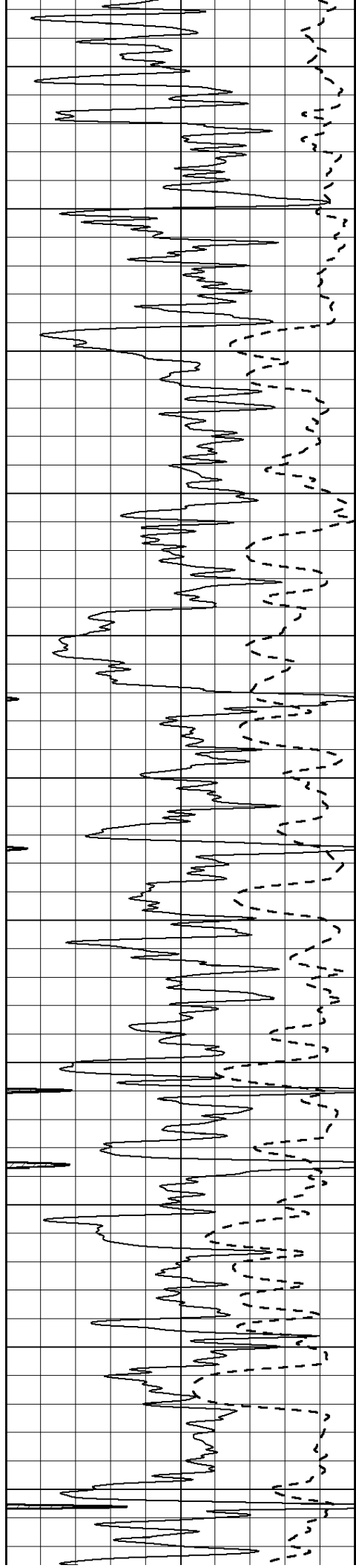
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2600





2650

2700

2750

2800

2850

2900

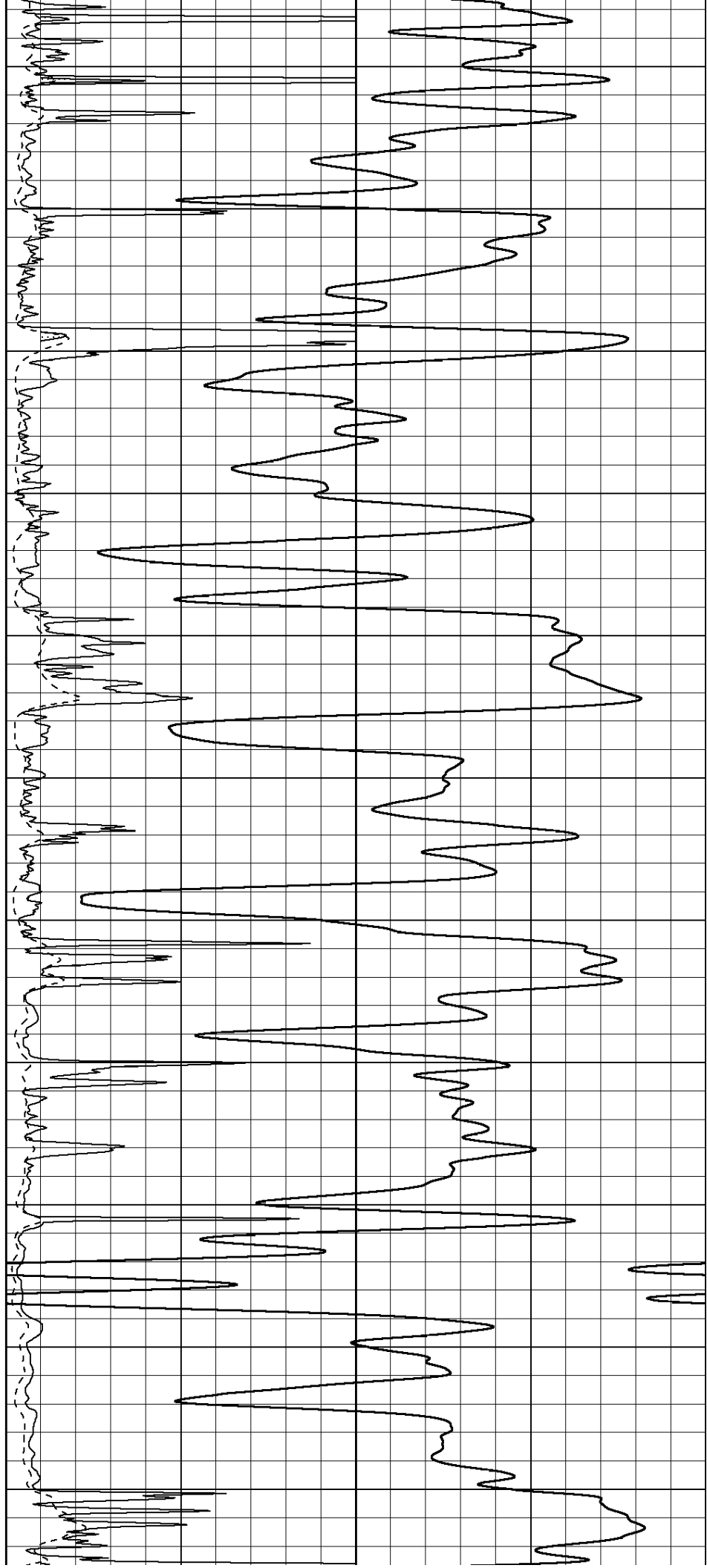
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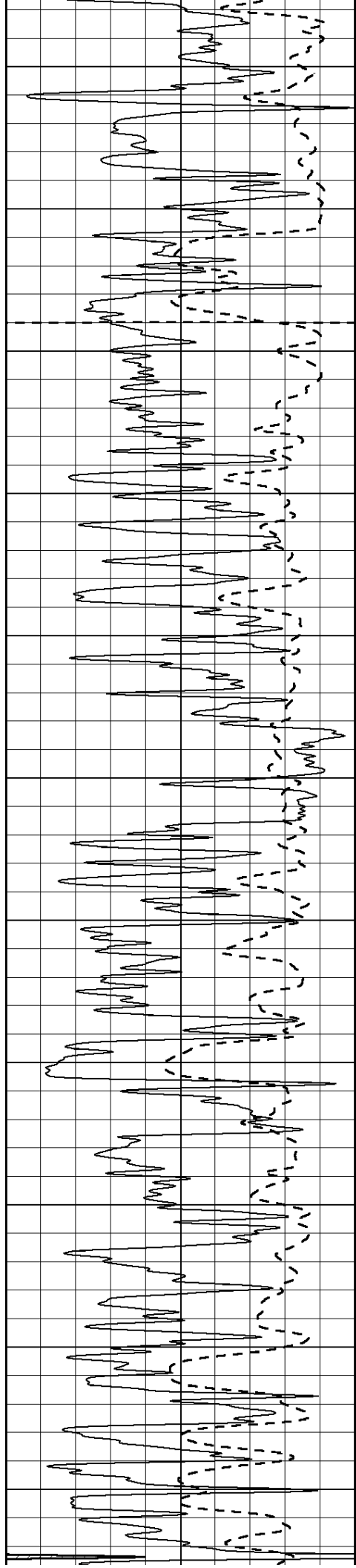
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3150





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3250

3300

3350

3400

3450

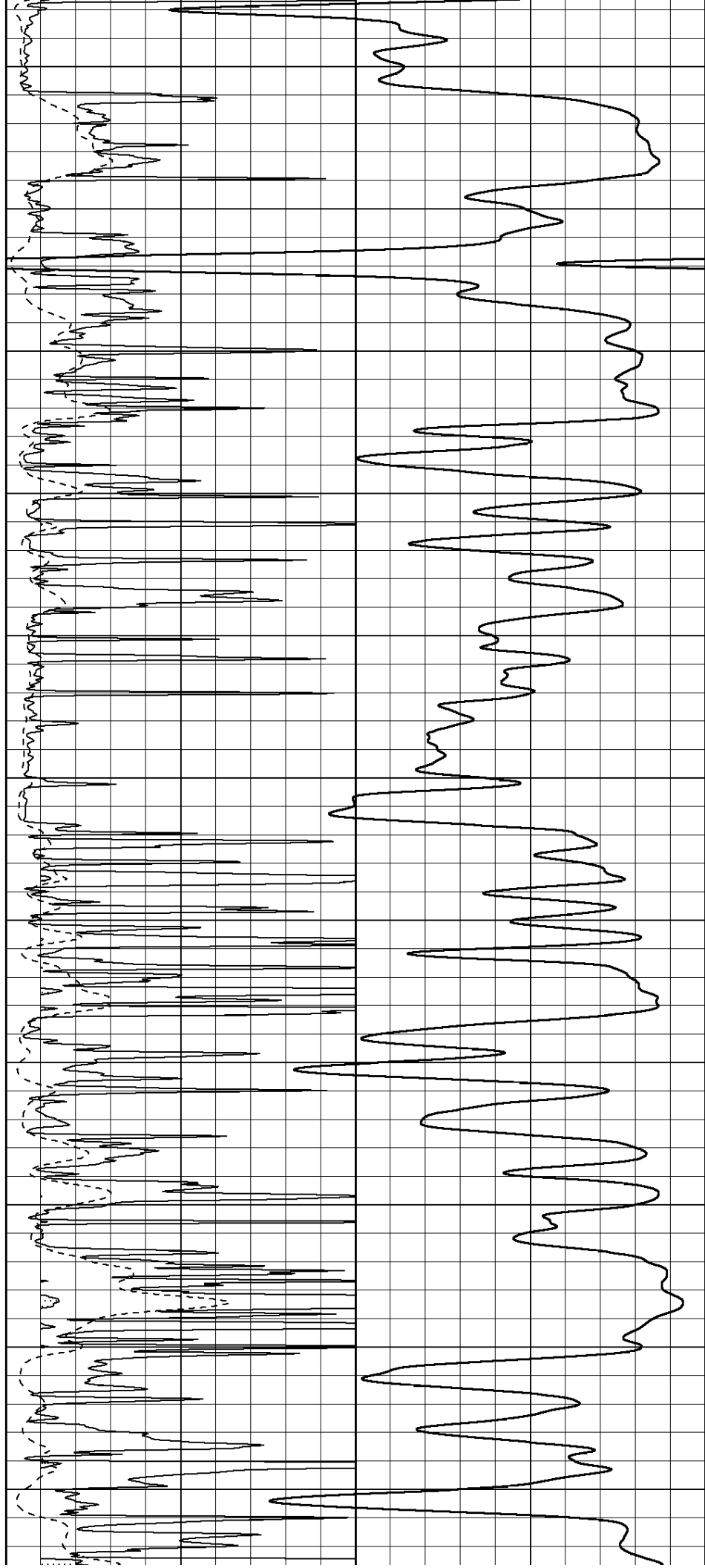
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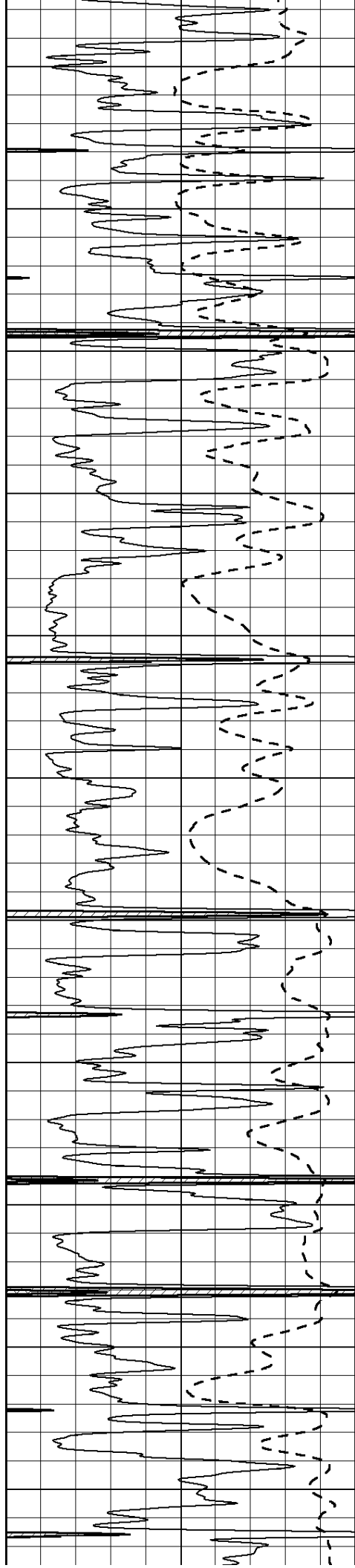
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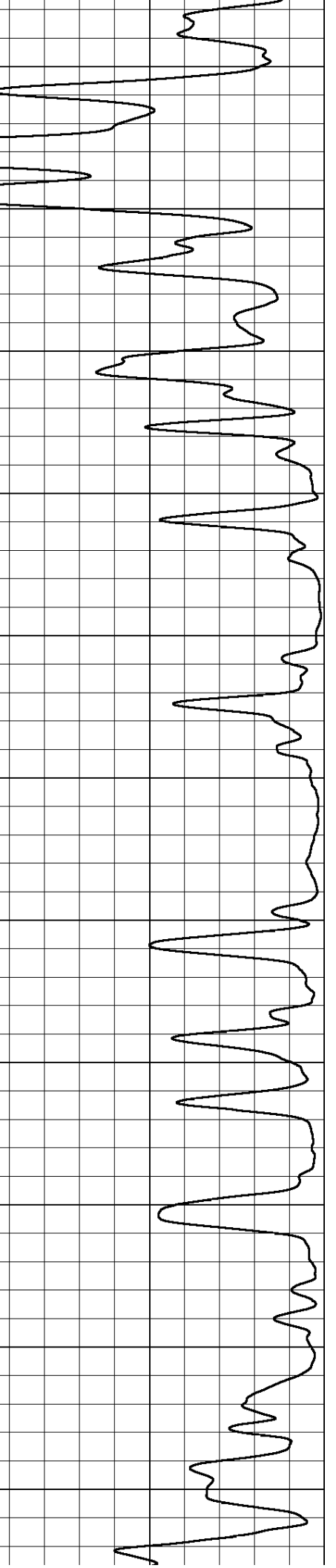
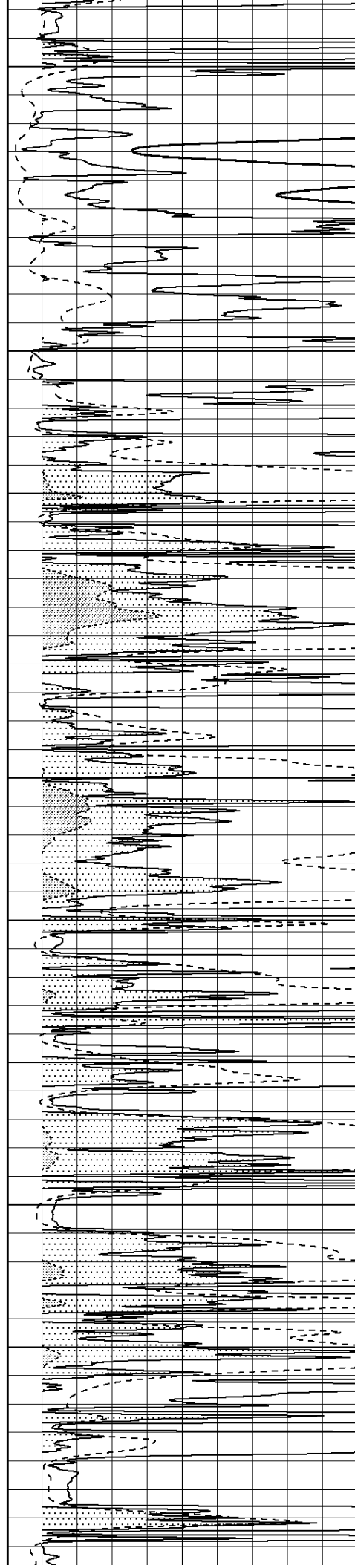
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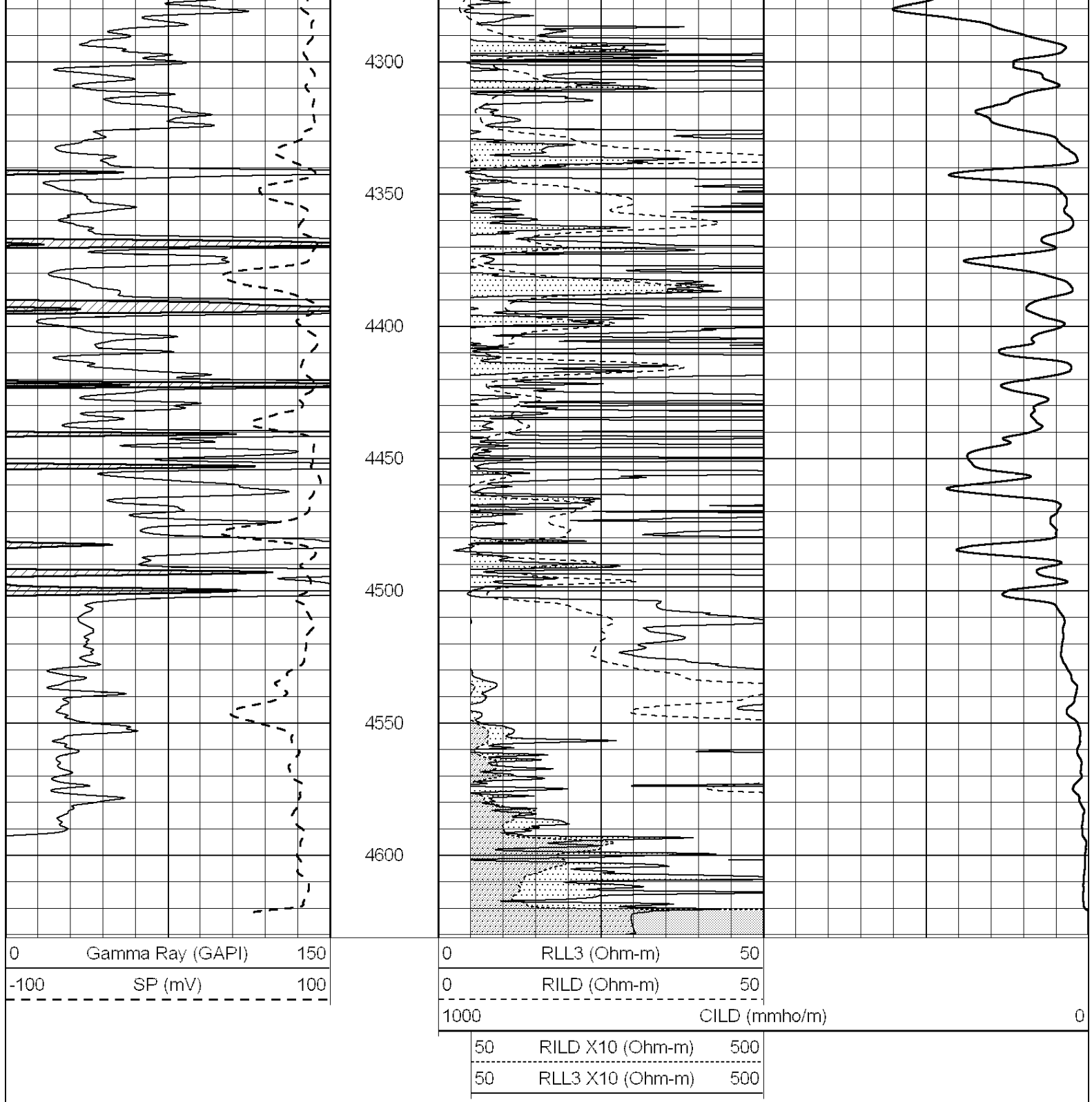
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4150

4200

4250





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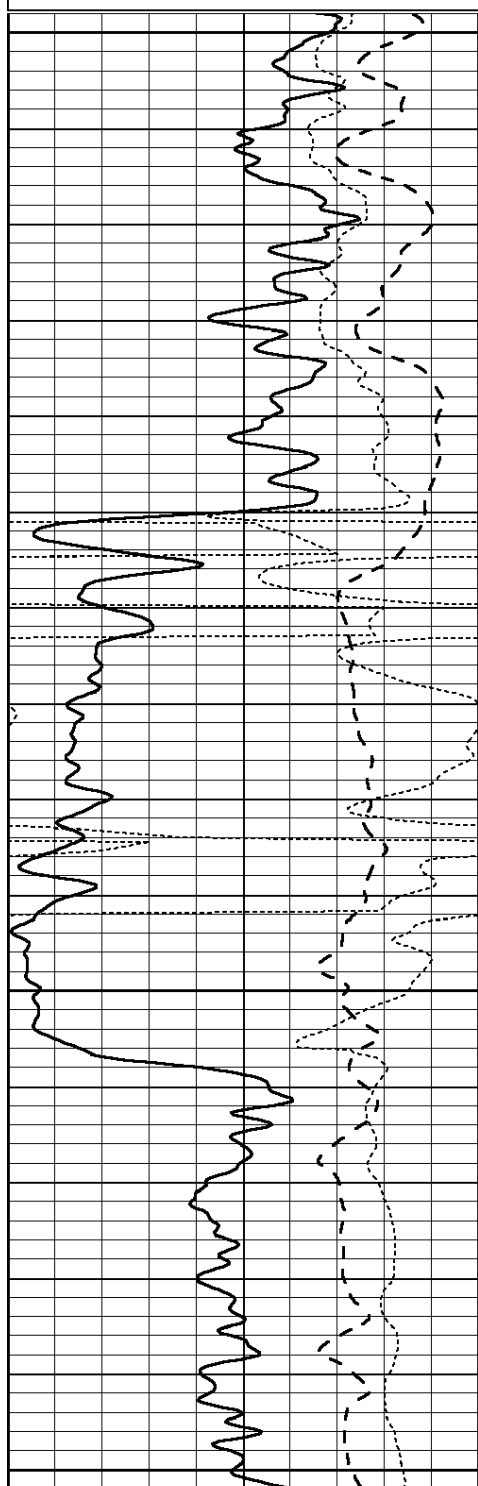
ANHYDRITE

Database File: 011818ddn.db
Dataset Pathname: pass3.12
Presentation Format: _dil
Dataset Creation: Tue Dec 03 00:11:04 2013
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	MINMK	20

0.2	MEDIUM INDUCTION (Ohm-m)	2000
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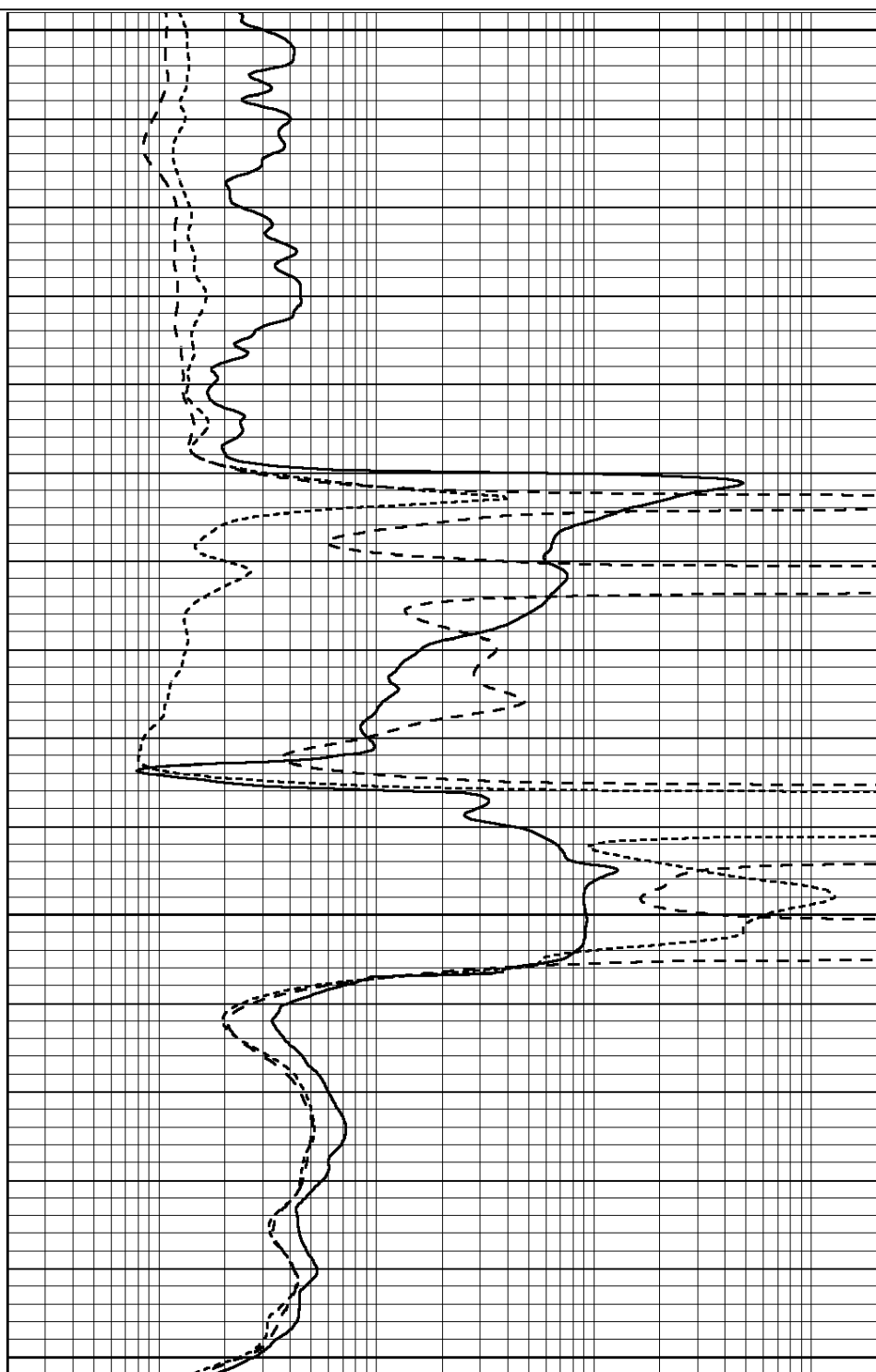
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

2150

2200

2250

2300

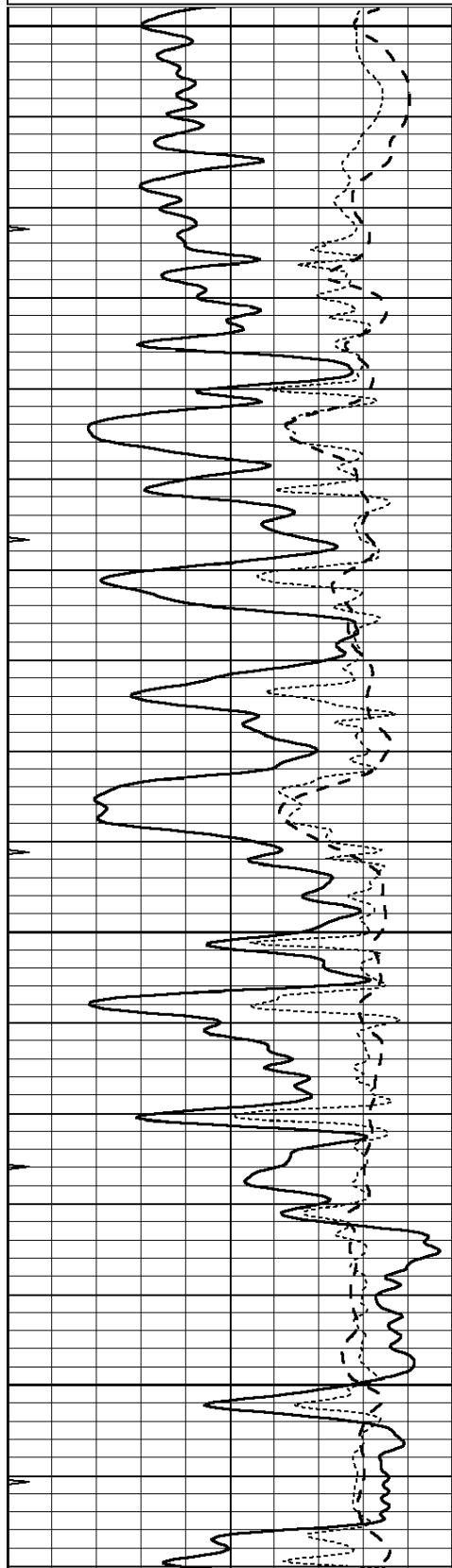


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Database File: 011818ddn.db
Dataset Pathname: pass3.11
Presentation Format: dil
Dataset Creation: Tue Dec 03 00:10:52 2013
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	<i>Rxo/Rt</i>	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

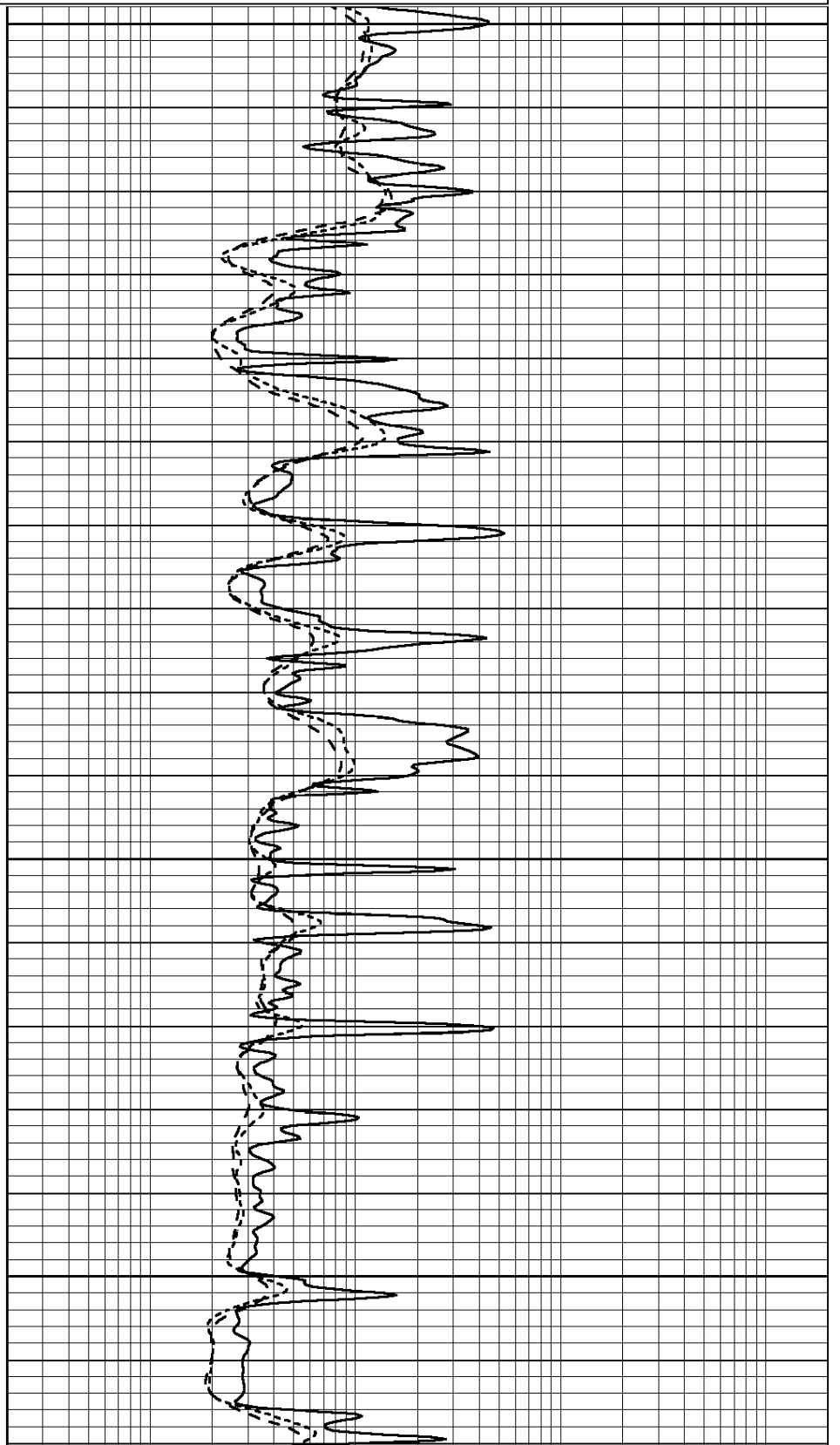


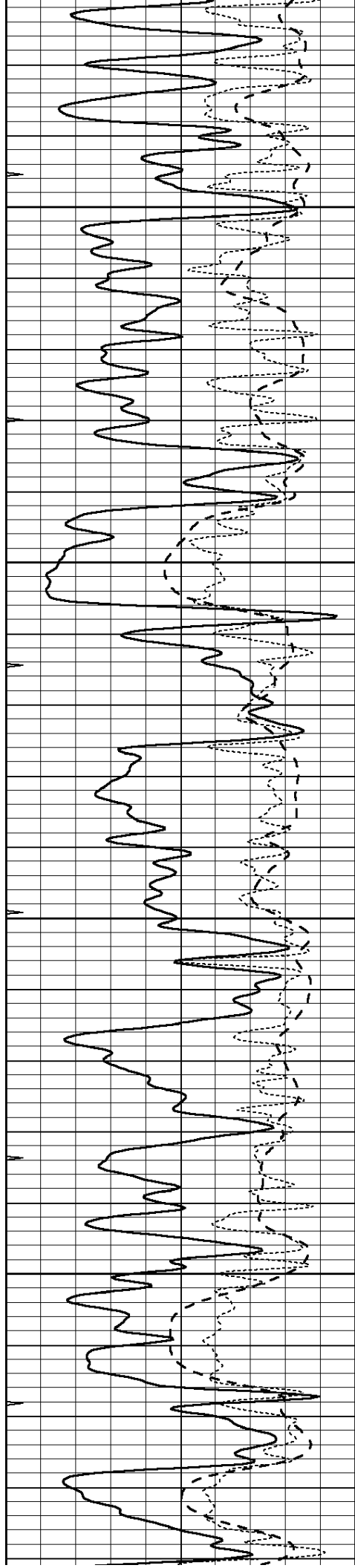
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3450



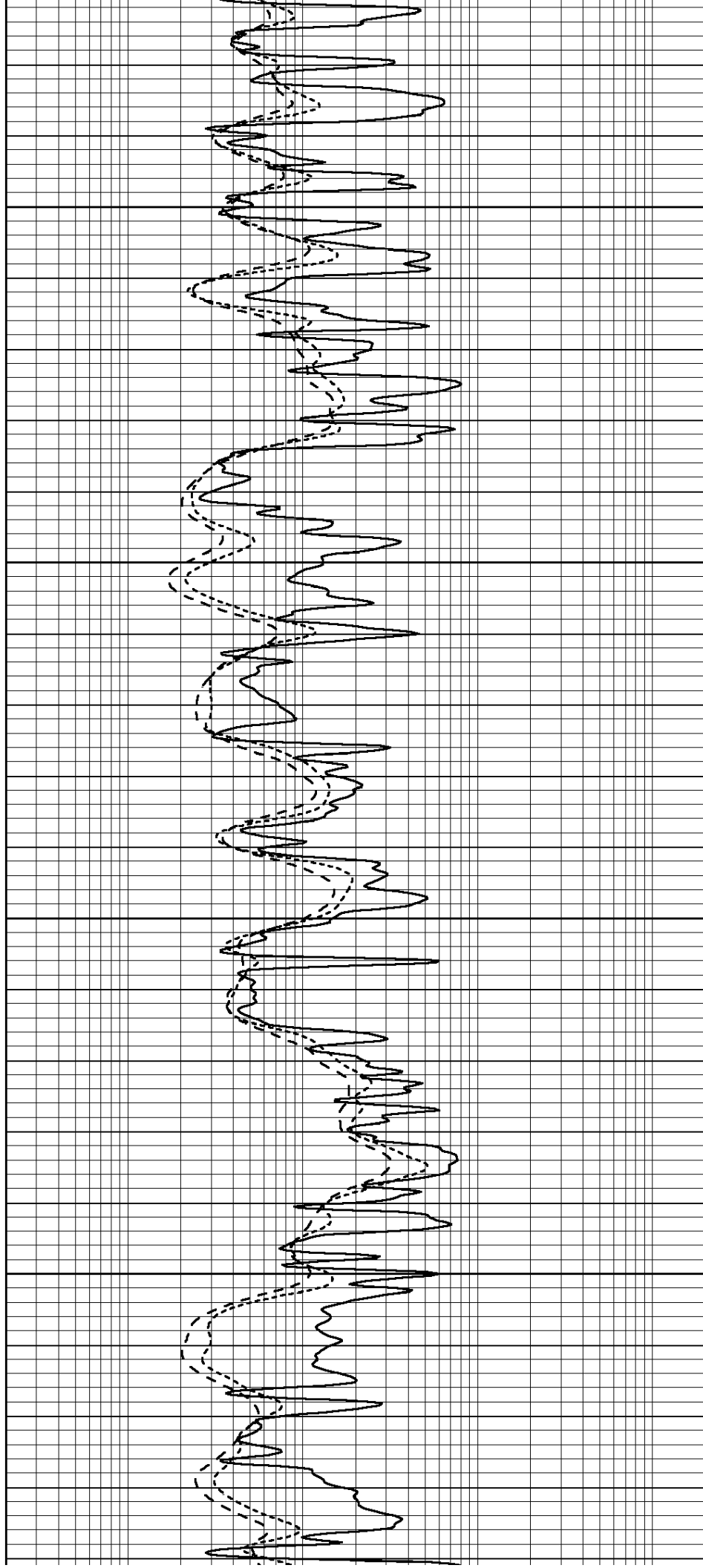


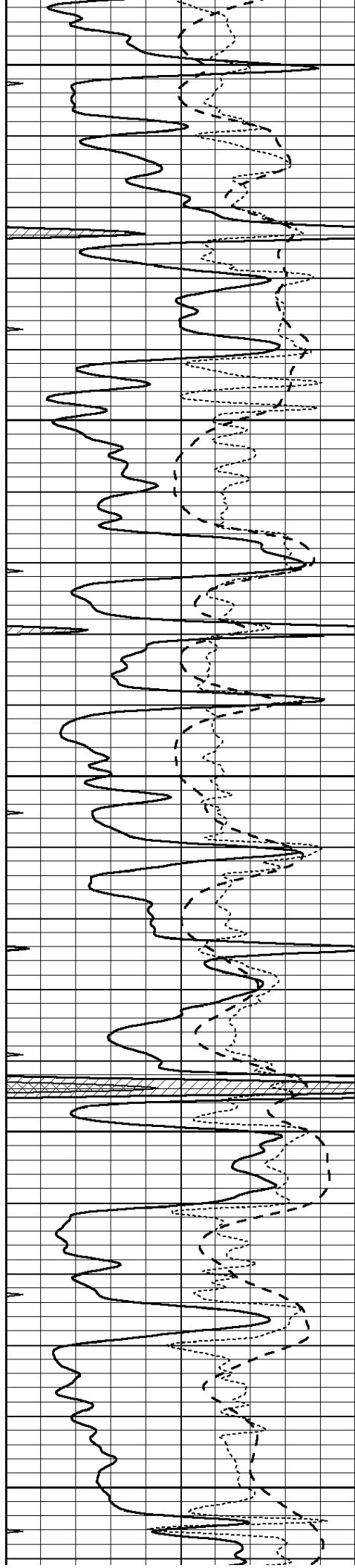
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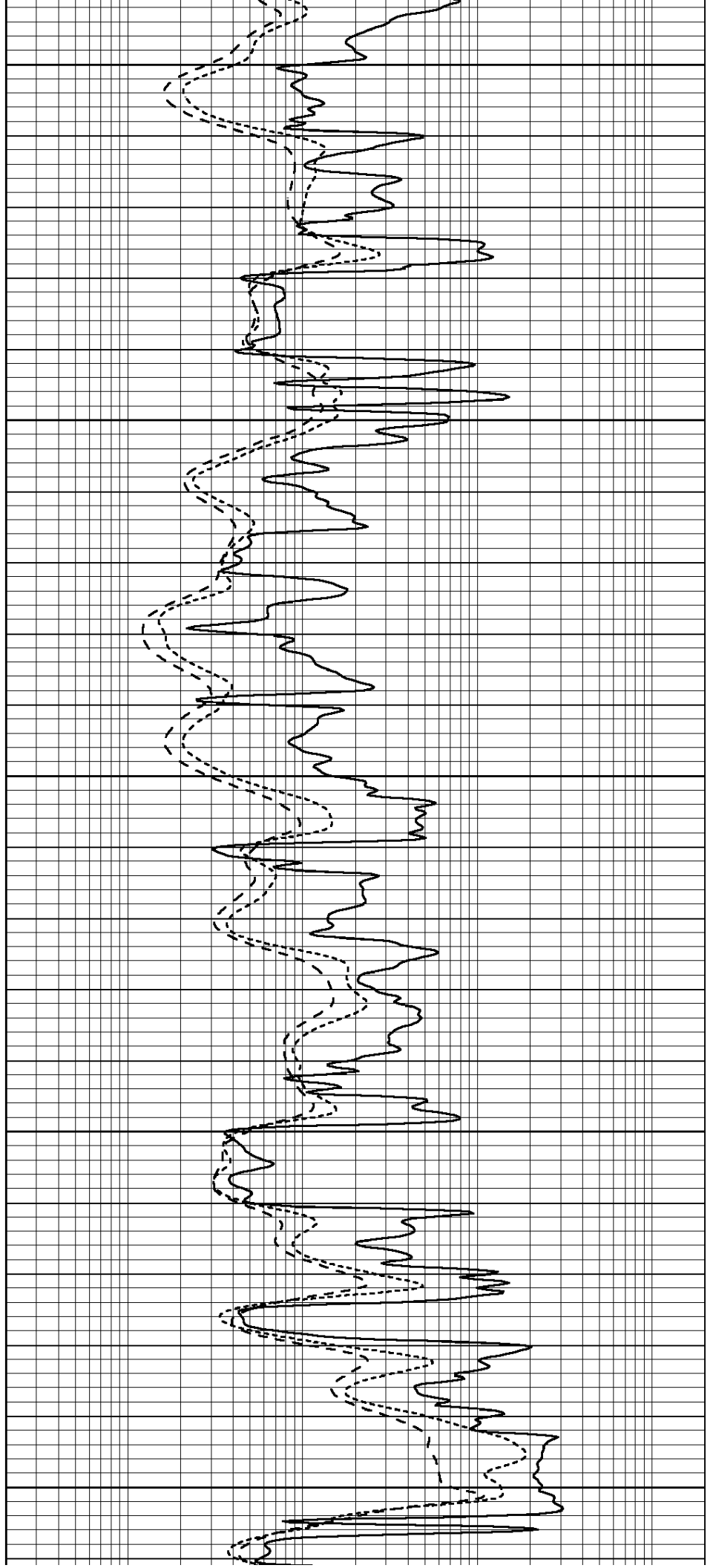
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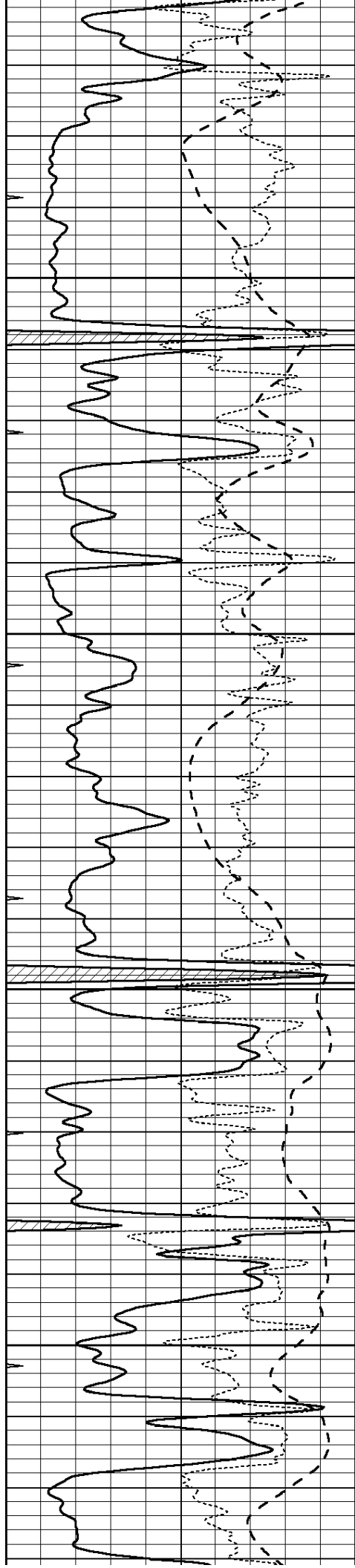
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3850

3900



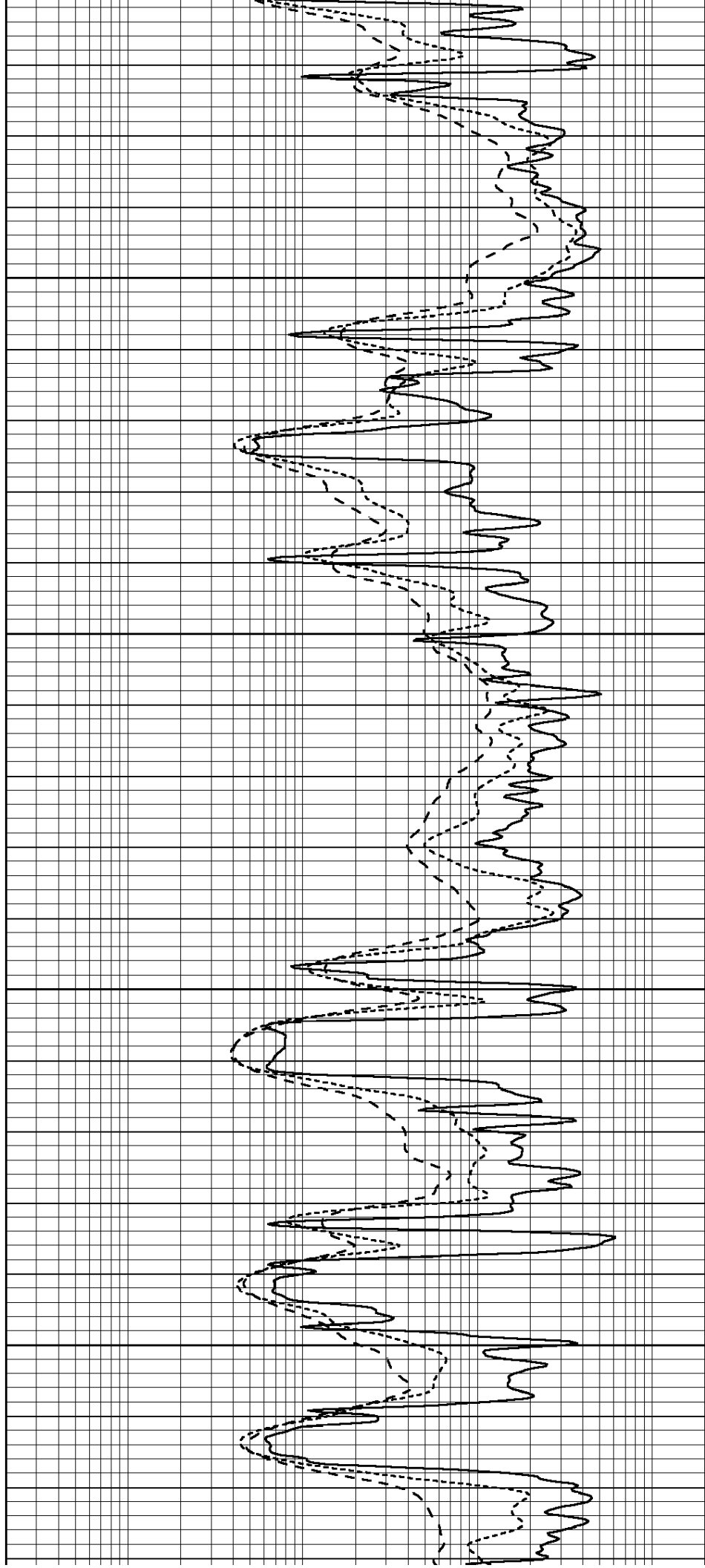


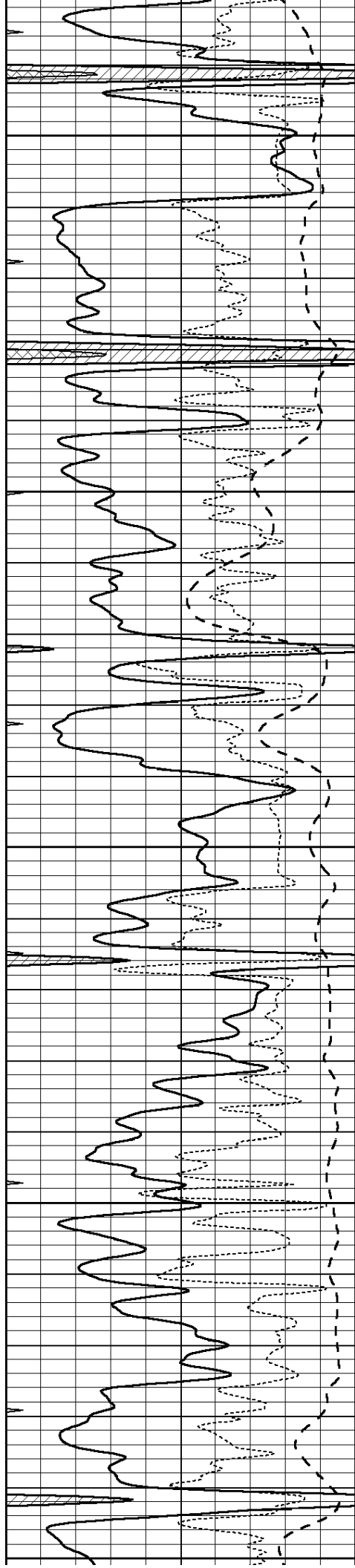
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4000

4050

4100





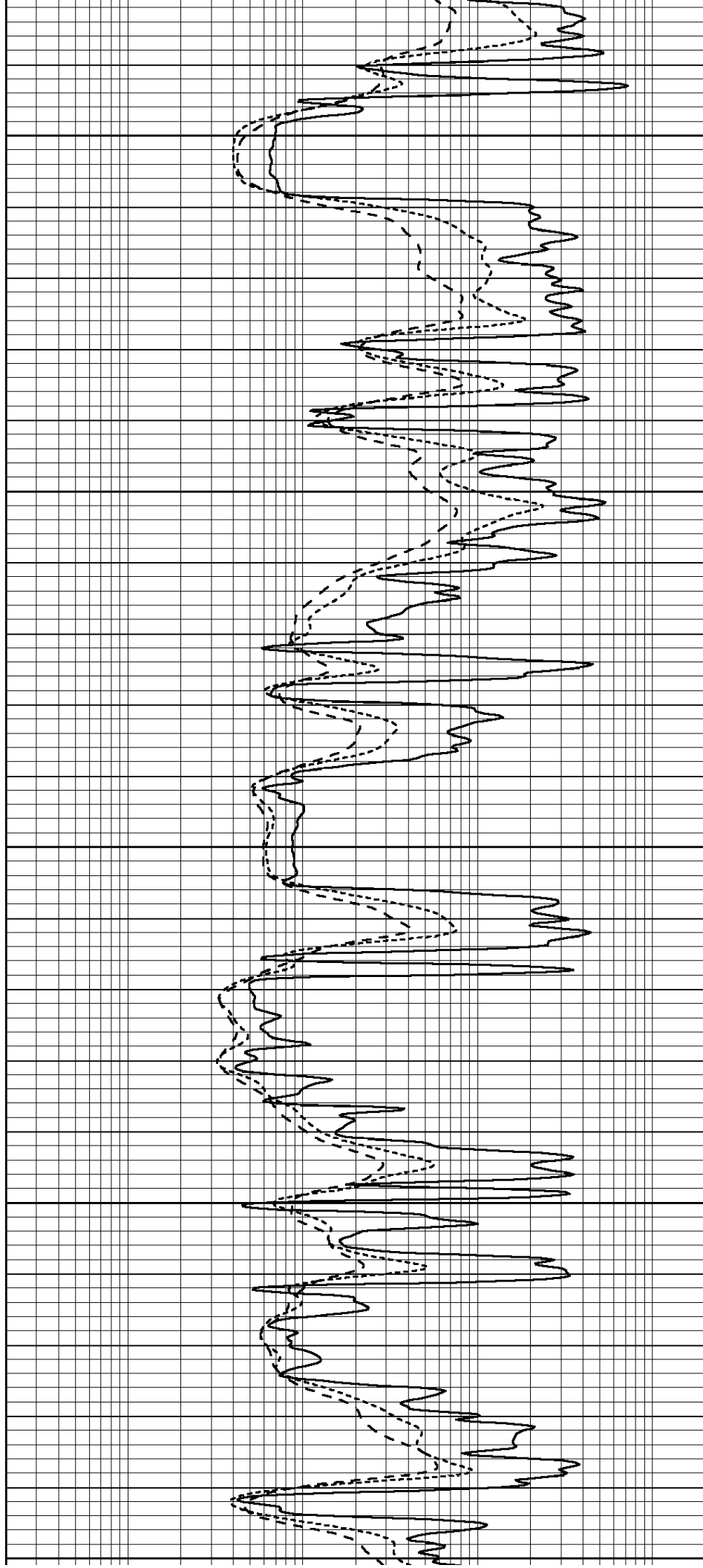
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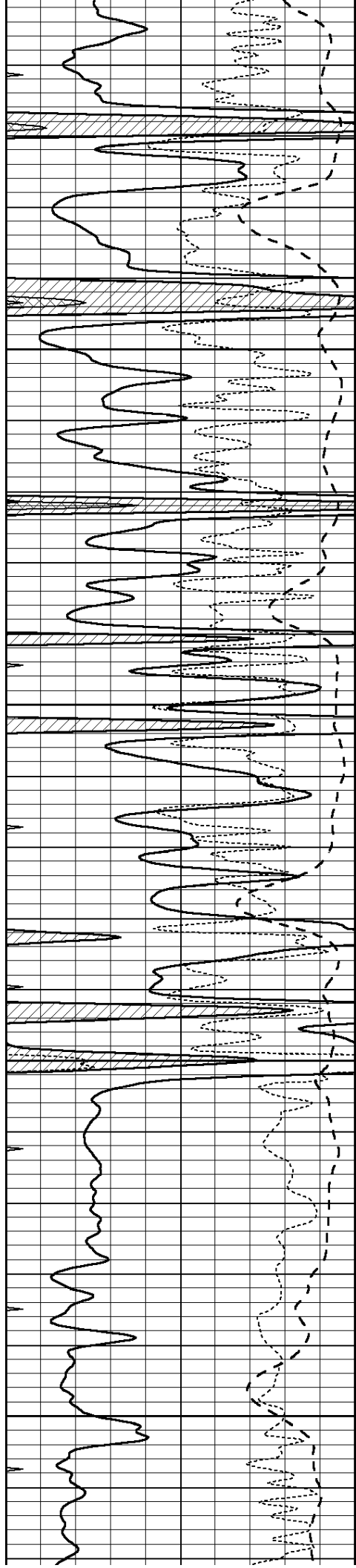
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4350



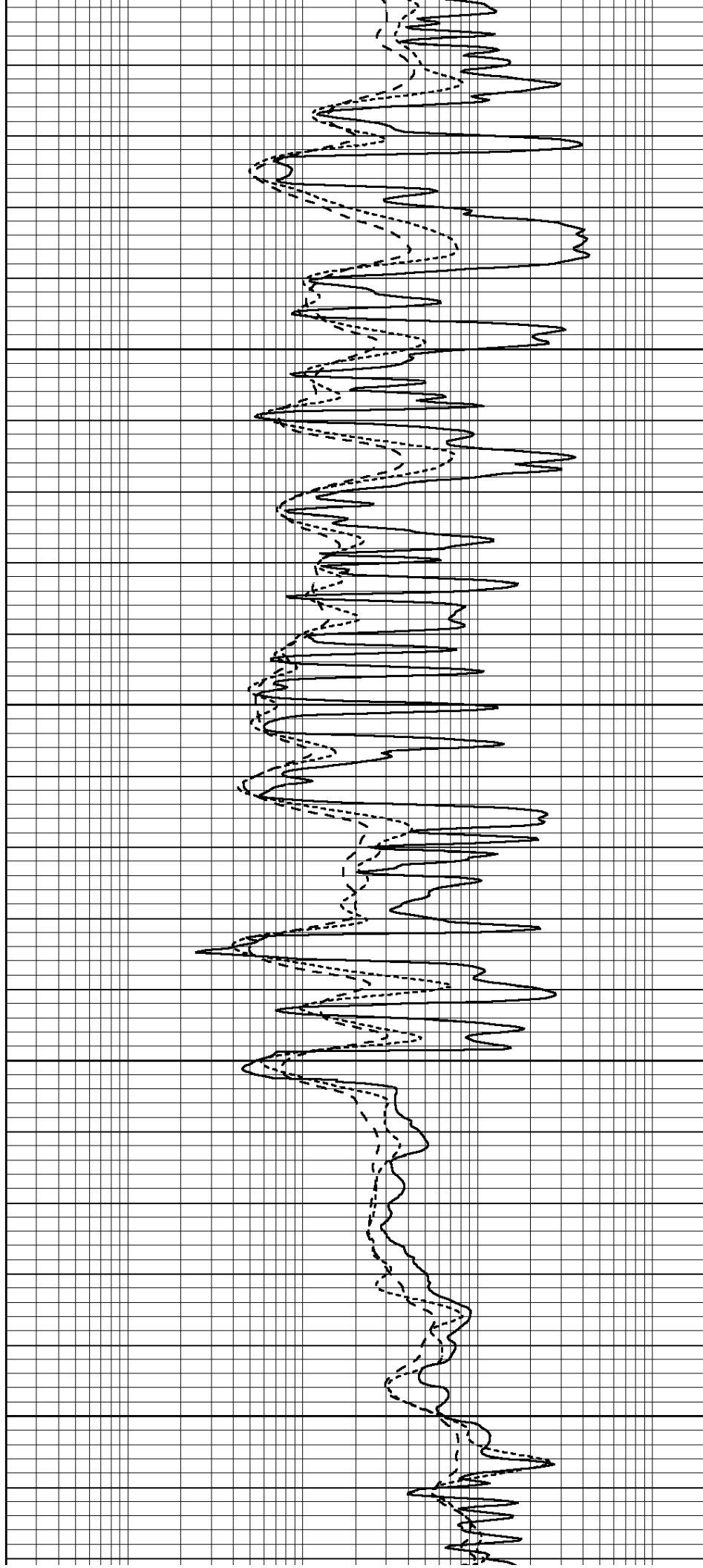


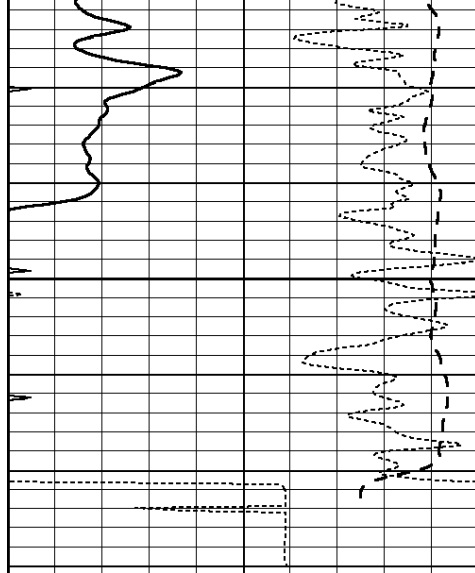
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4450

4500

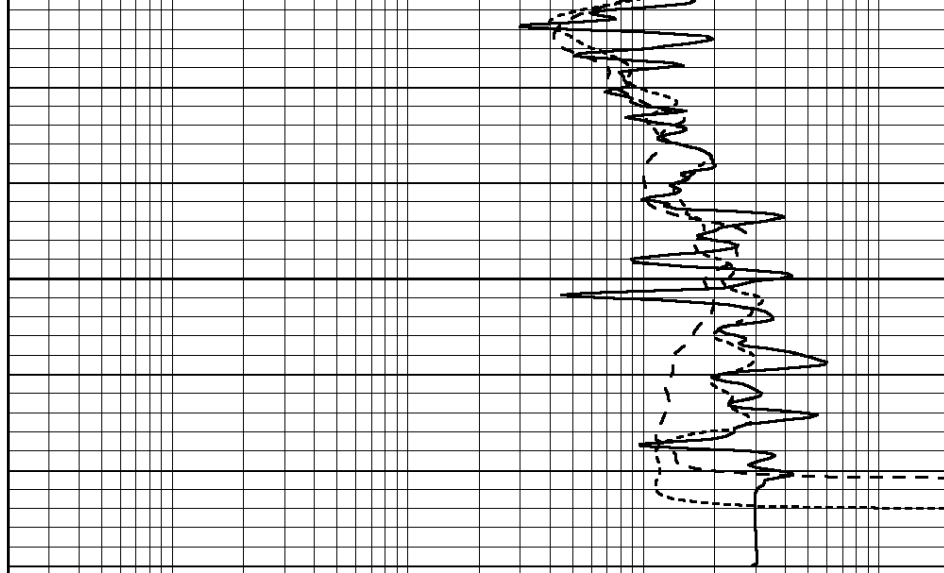
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4600

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

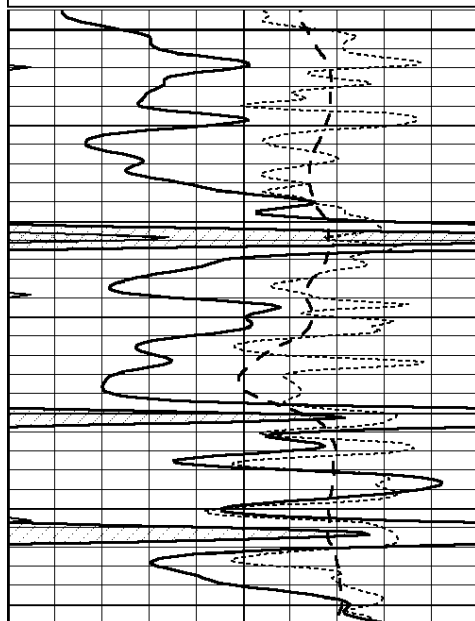


REPEAT SECTION

Database File: 011818ddn.db
 Dataset Pathname: pass2.7
 Presentation Format: dil
 Dataset Creation: Mon Dec 02 22:48:35 2013
 Charted by: Depth in Feet scaled 1:240

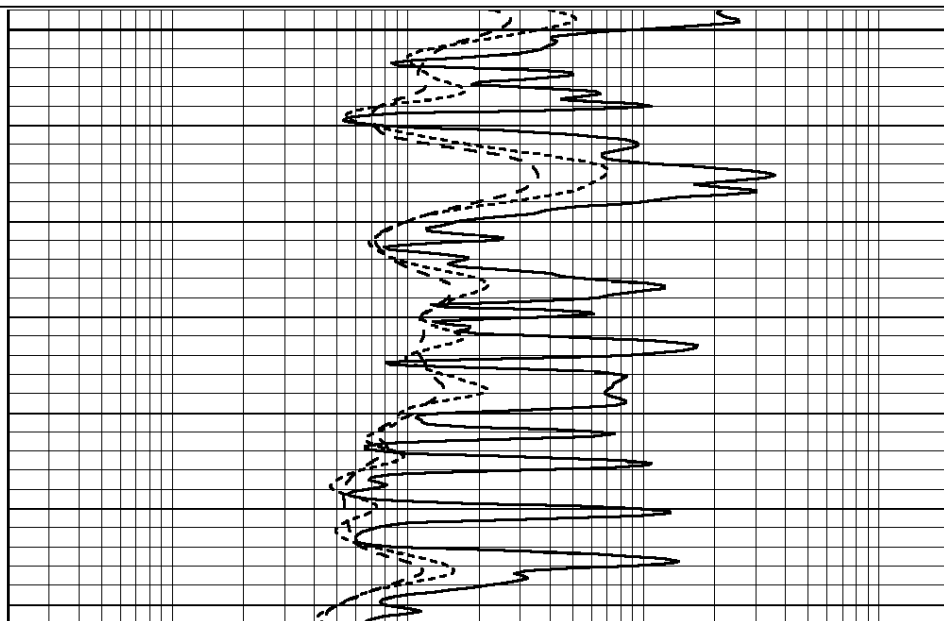
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

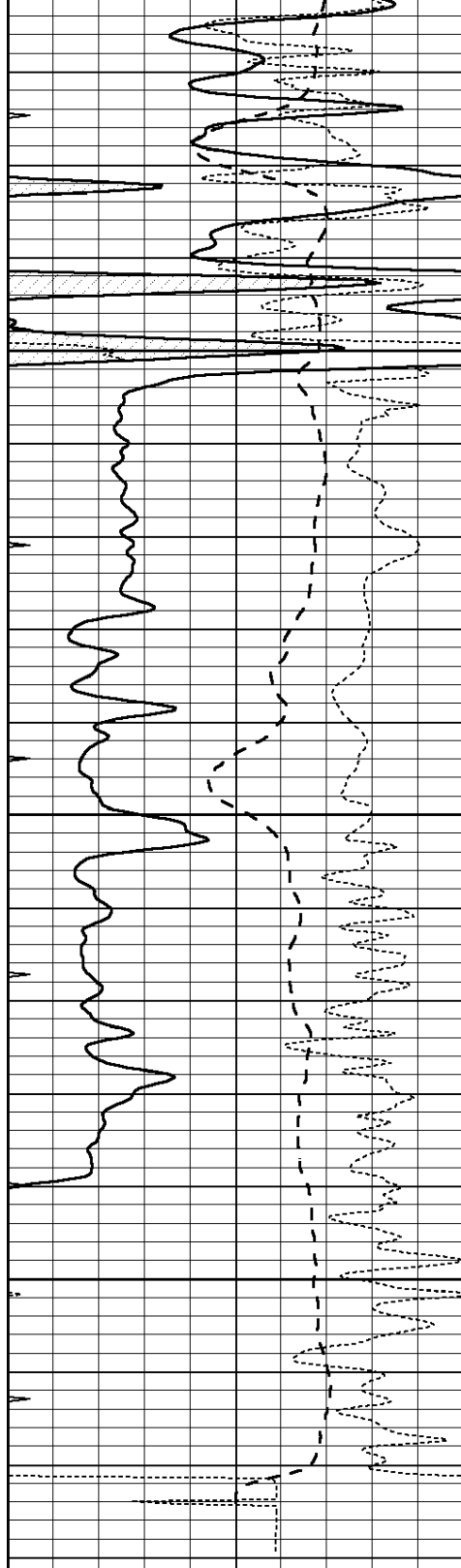
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



4400

4450



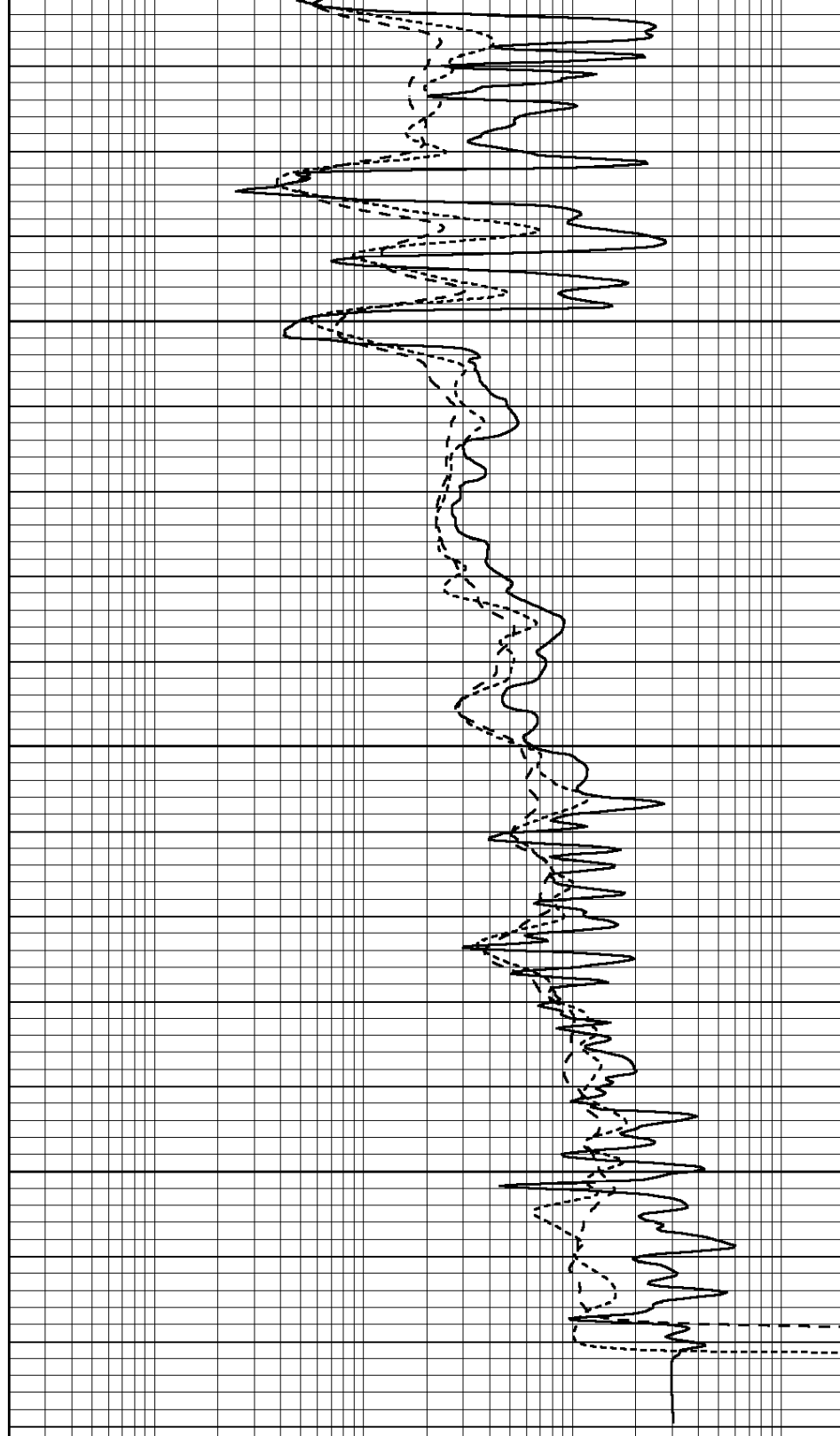


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

4500

4550

4600



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: 011818ddn.db
 Dataset Pathname: pass3.11
 Dataset Creation: Tue Dec 03 00:10:52 2013

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Tue Nov 19 06:44:33 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	-11.000
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

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	

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 Nov 03 21:08:13 2013		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	