



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL INDUCTION
LOG**

Company MID-CONTINENT ENERGY OPER. CO.
Well SLEEPER #1-20
Field WILDCAT
County LANE
State KANSAS

Company MID-CONTINENT ENERGY OPERATING, CO.
Well SLEEPER #1-20
Field WILDCAT
County LANE State KANSAS

Location: API # : 15-101-22408-0000
1000' FNL & 850' FEL
SE - SW - NE - NE
SEC 20 TWP 19S RGE 27W
Permanent Datum GROUND LEVEL Elevation 2718
Log Measured From KELLY BUSHING 10' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL/PE
MEL
Elevation
K.B. 2728
D.F. 2726
G.L. 2718

Date	11/9/12
Run Number	ONE
Depth Driller	4700
Depth Logger	4703
Bottom Logged Interval	4701
Top Log Interval	00
Casing Driller	8 5/8" @ 307'
Casing Logger	307
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/58
pH / Fluid Loss	10.5/7.6
Source of Sample	FLOWLINE
Rim @ Meas. Temp	.750 @ 100F
Rmf @ Meas. Temp	.563 @ 100F
Rmc @ Meas. Temp	.900 @ 100F
Source of Rmf / Rmc	MEASUREMENT
Rim @ BHT	.553 @ 122F
Time Circulation Stopped	3 HOURS
Time Logger on Bottom	9:15 P.M.
Maximum Recorded Temperature	122F
Equipment Number	4854
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	LARRY NICHLOSON

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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
ALAMOTA, KS. (HWY 96 & TURKEY RED RD.) 6S. TO "RD. 90", 1W., S. INTO



MAIN SECTION

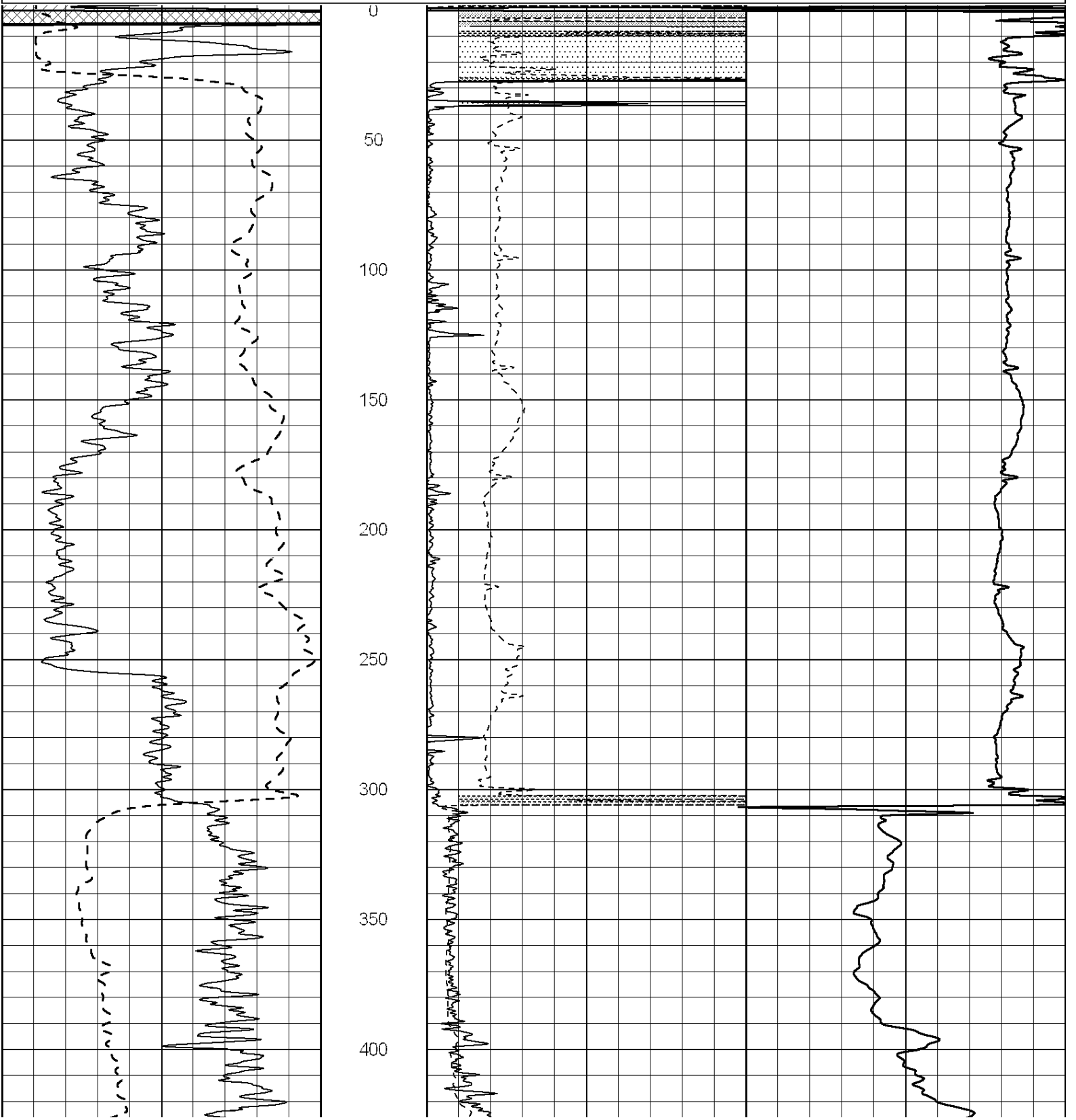
Database File: 010009pe.db
 Dataset Pathname: pass3.6
 Presentation Format: dil2
 Dataset Creation: Thu Nov 08 22:51:41 2012 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:600

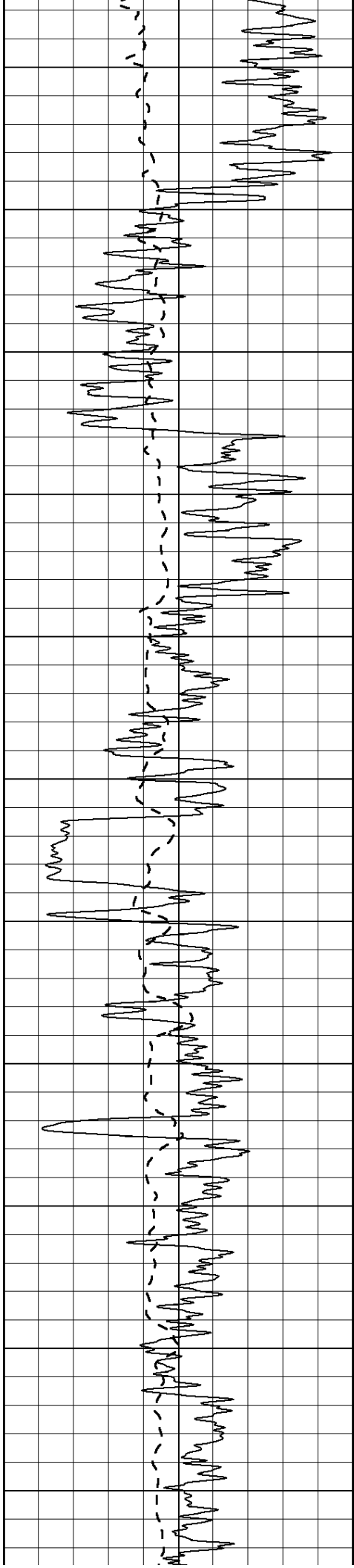
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-100	SP (mV)	100

0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

1000	CILD (mmho/m)	0
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50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500





450

500

550

600

650

700

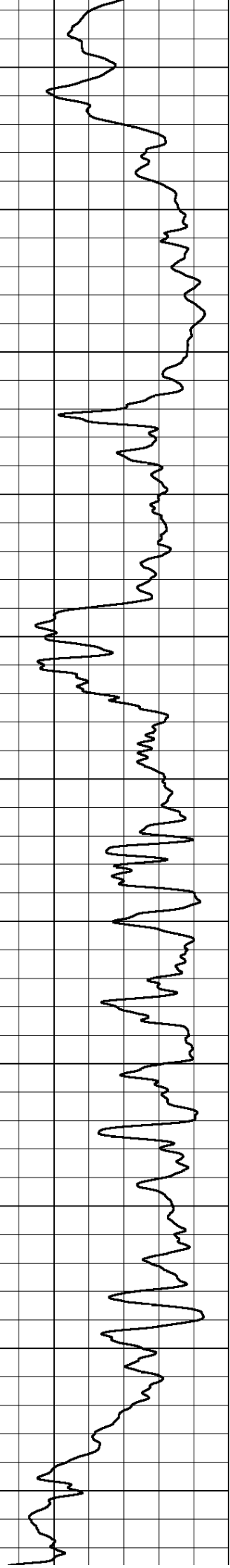
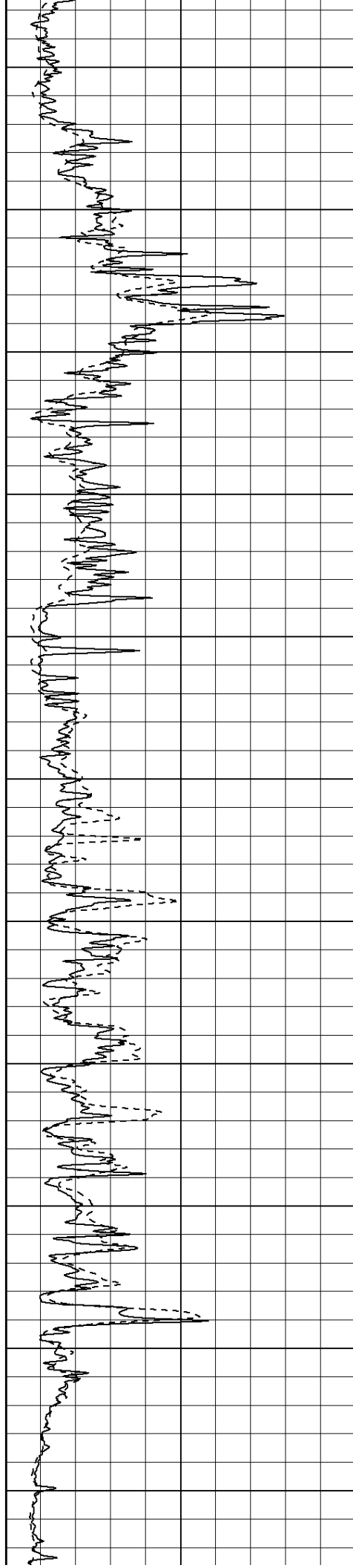
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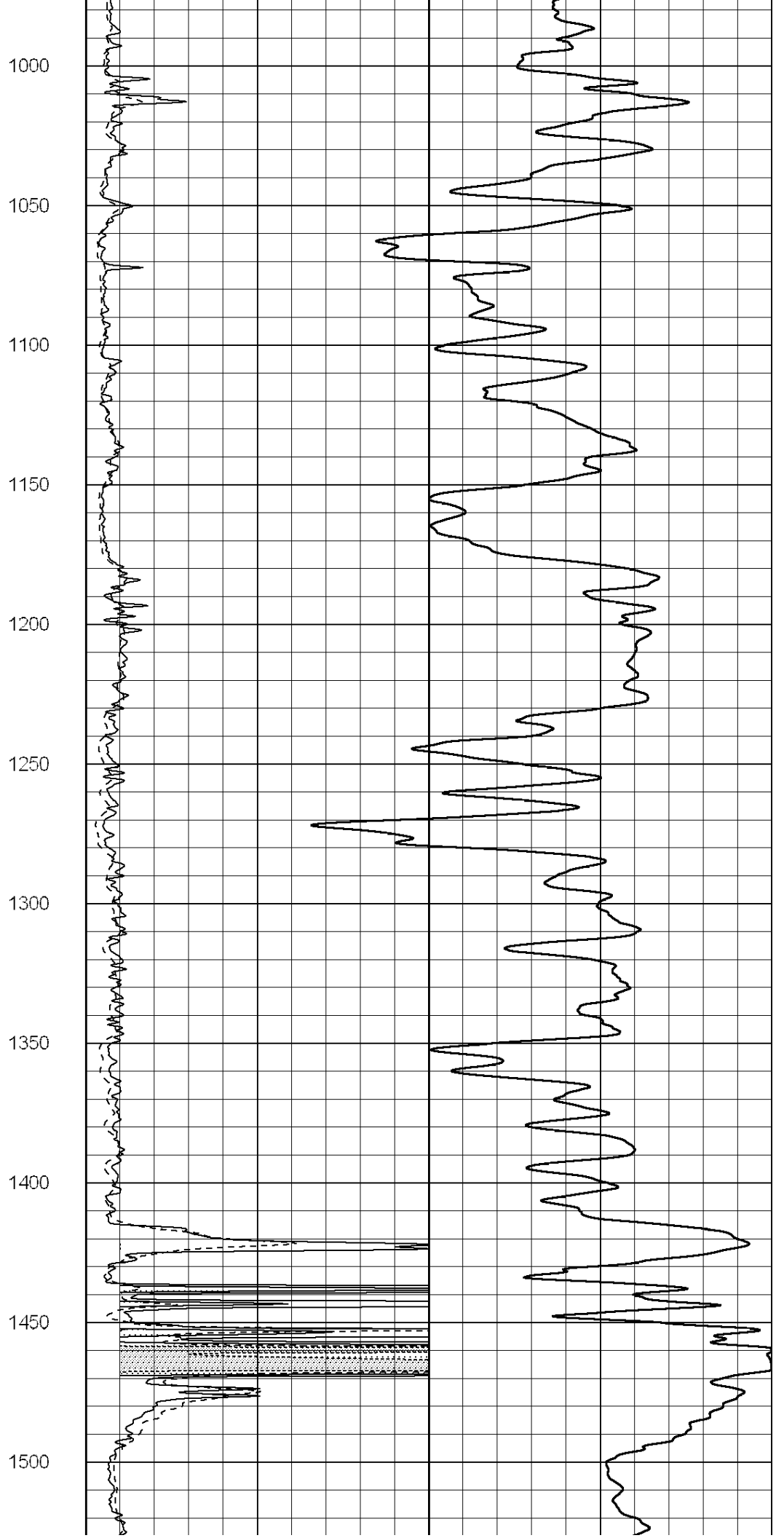
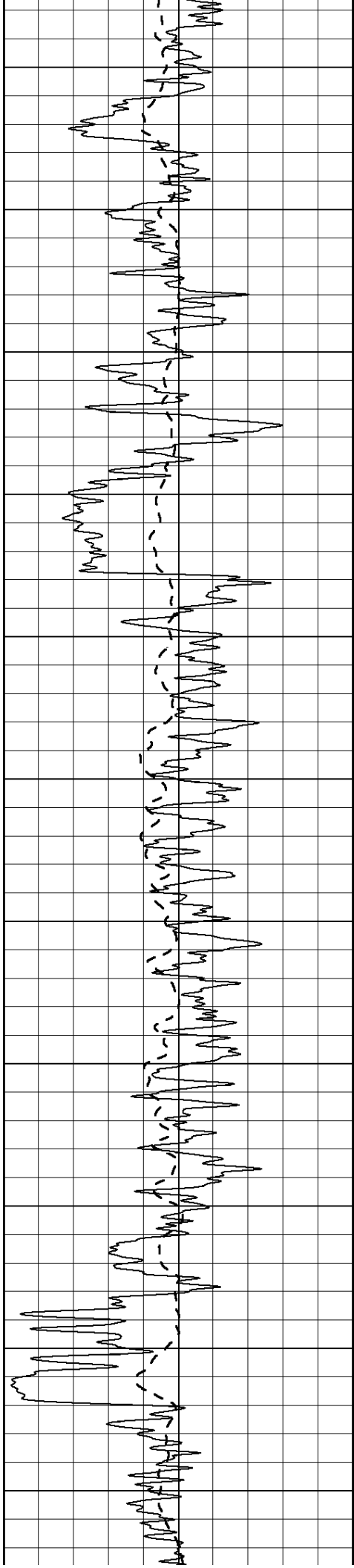
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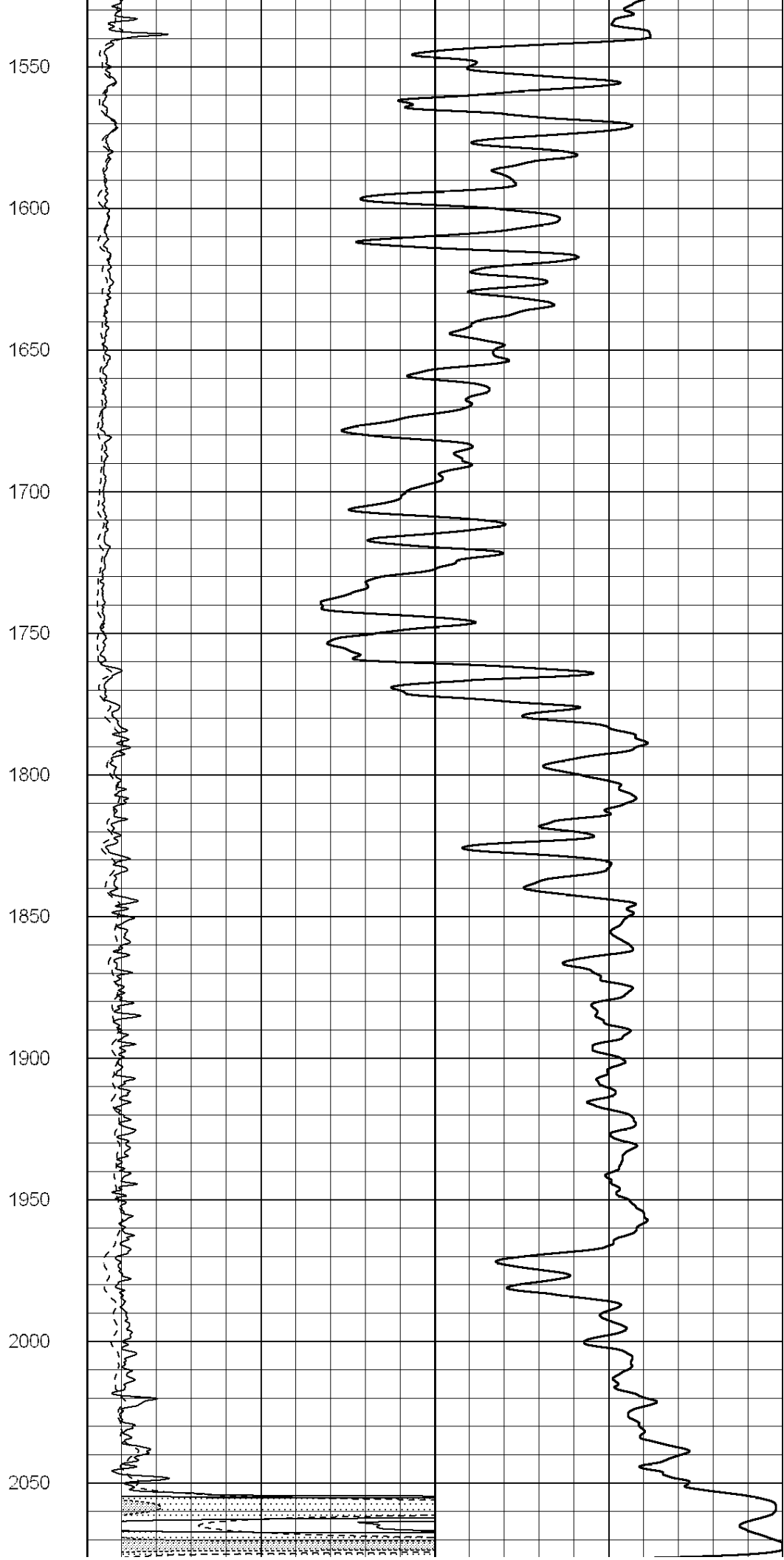
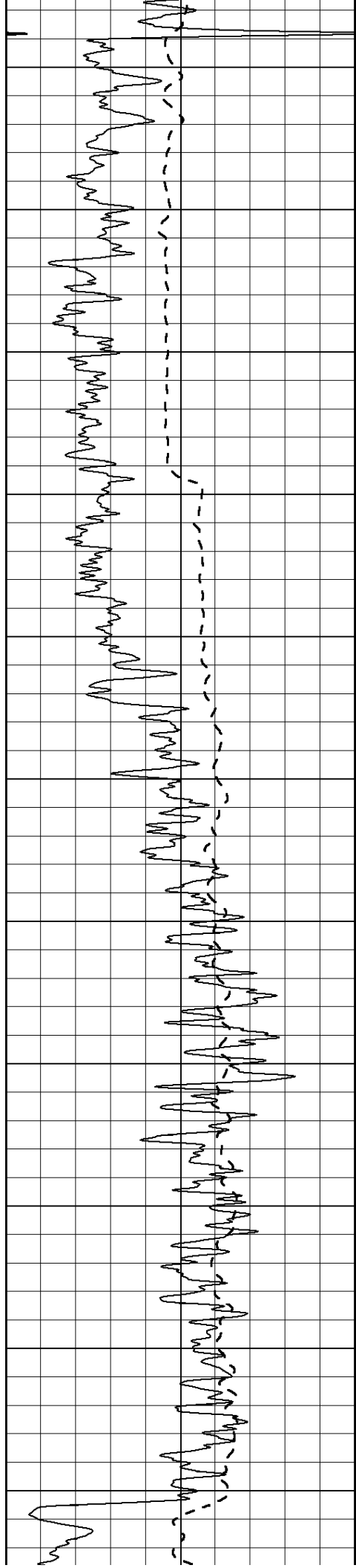
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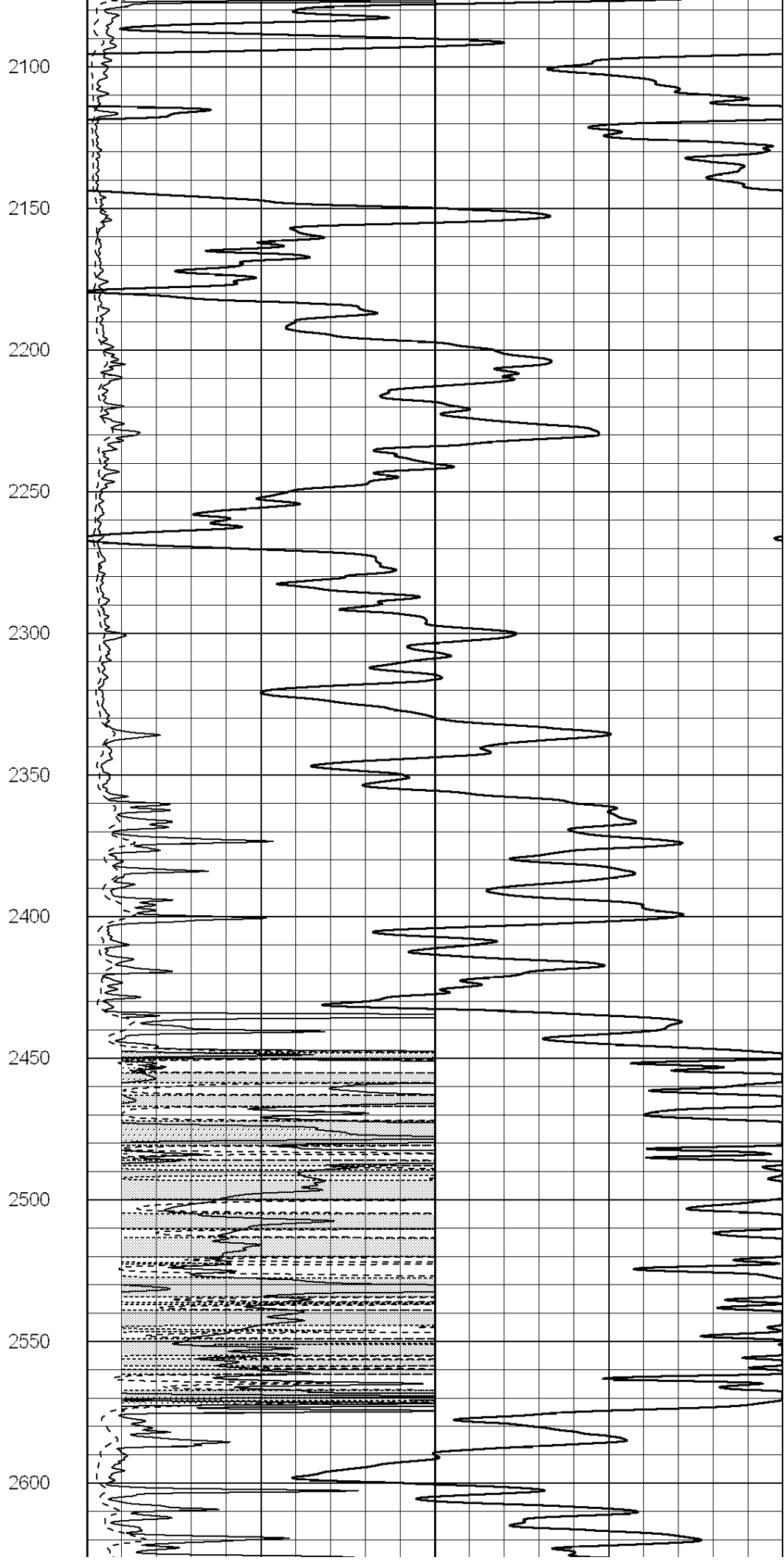
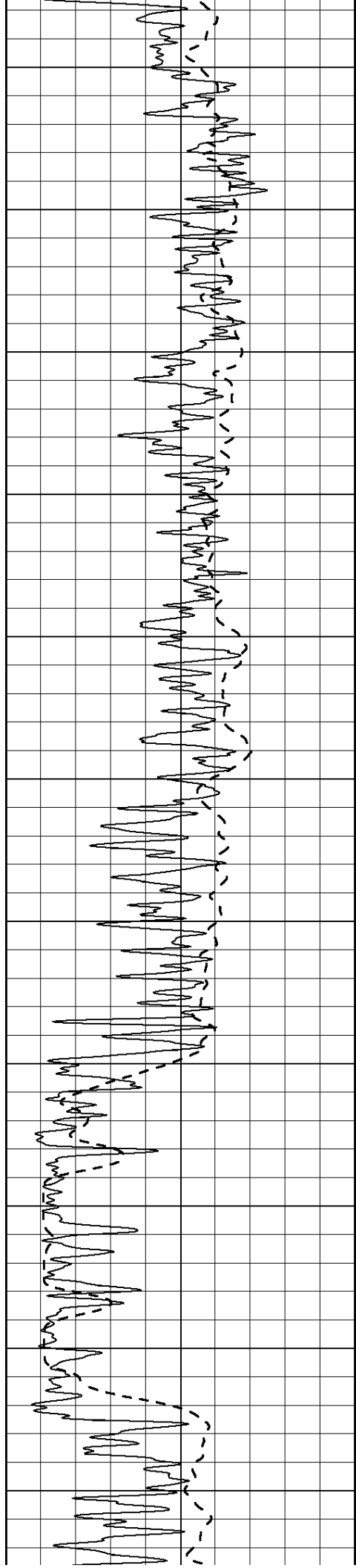
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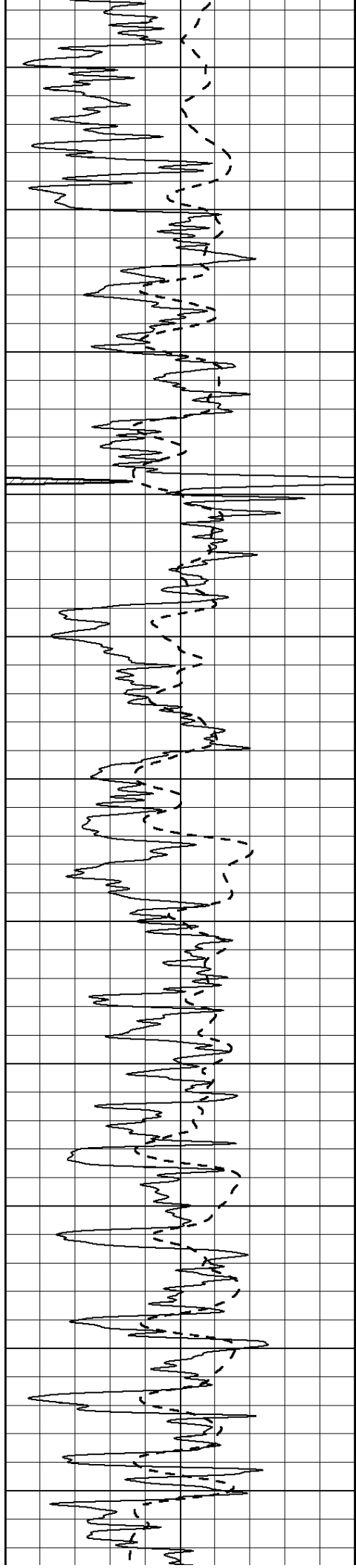
950











2650

2700

2750

2800

2850

2900

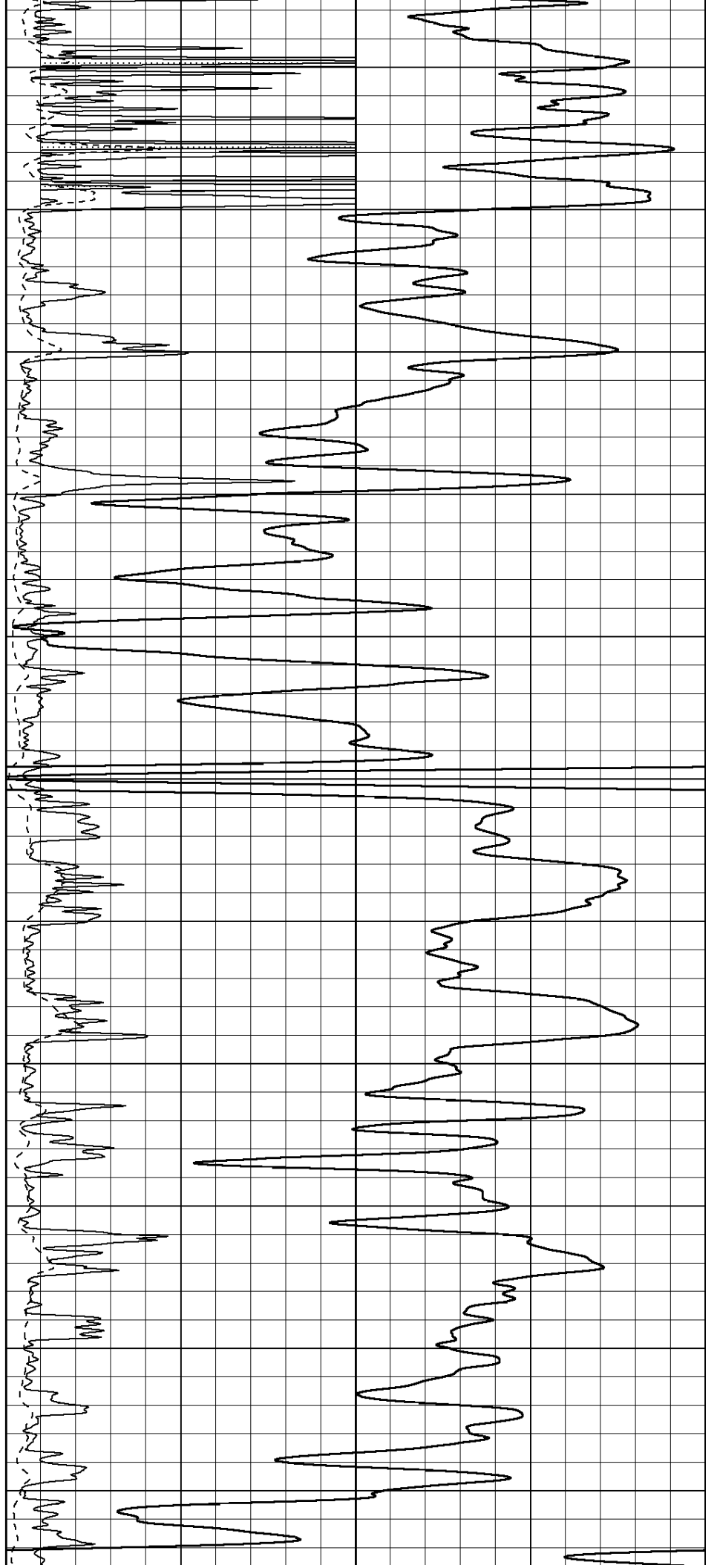
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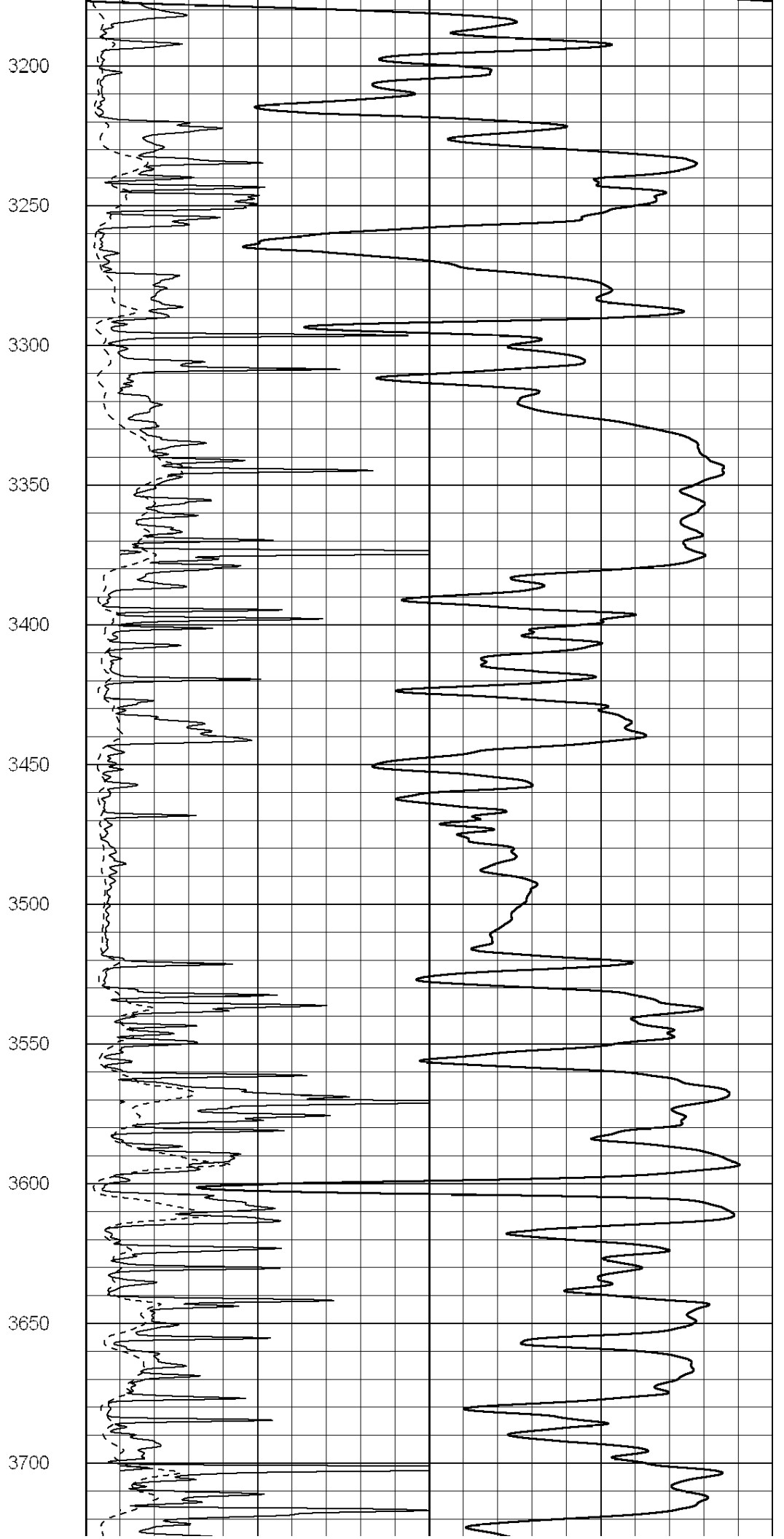
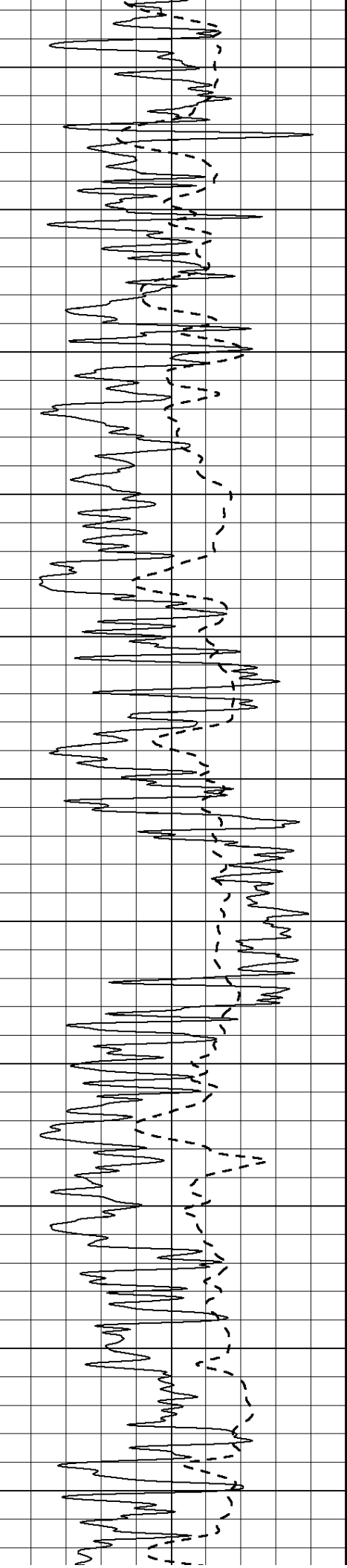
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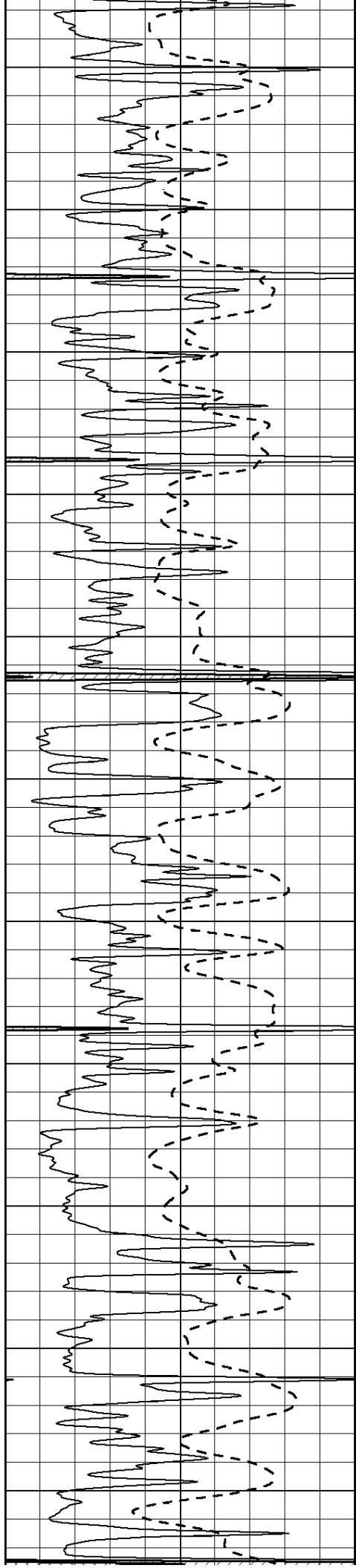
3050

3100

3150







3750

3800

3850

3900

3950

4000

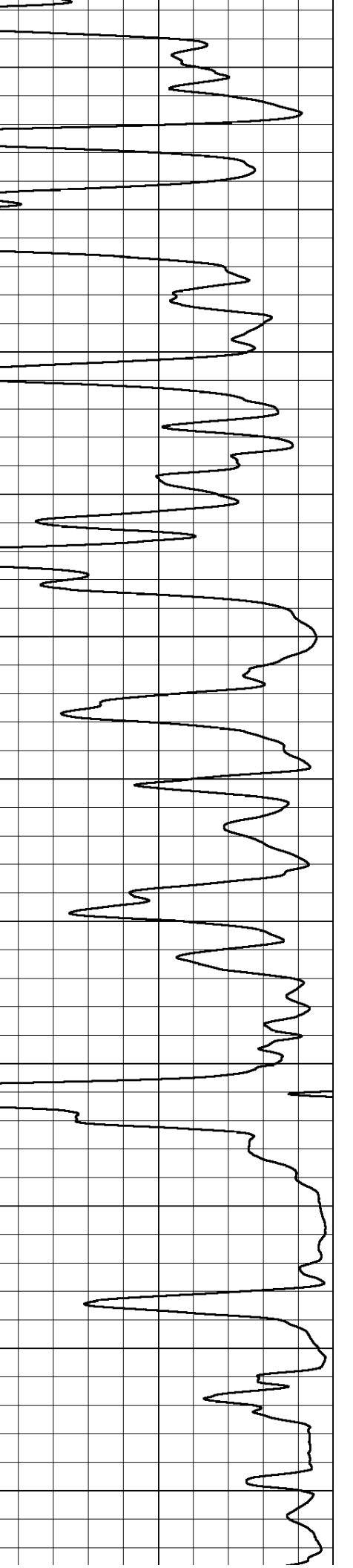
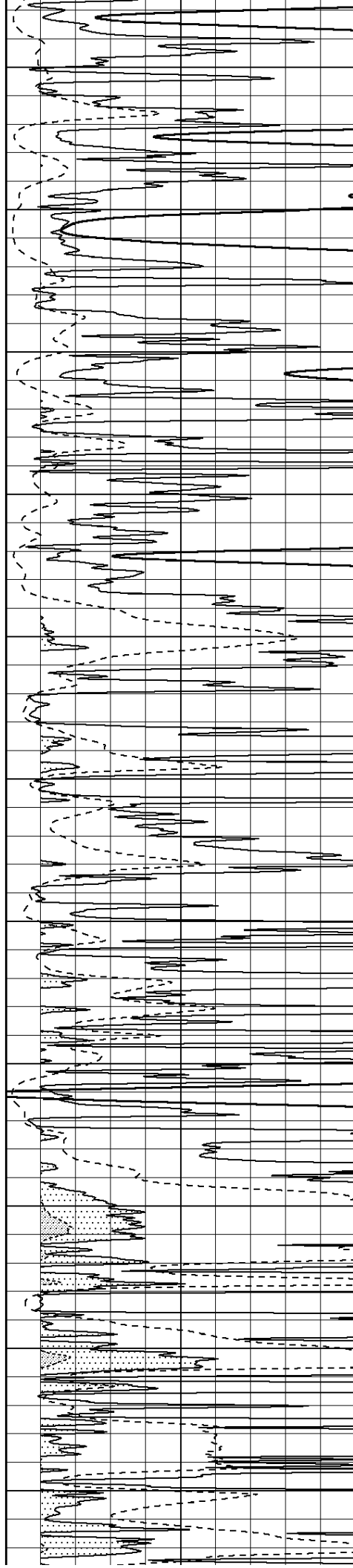
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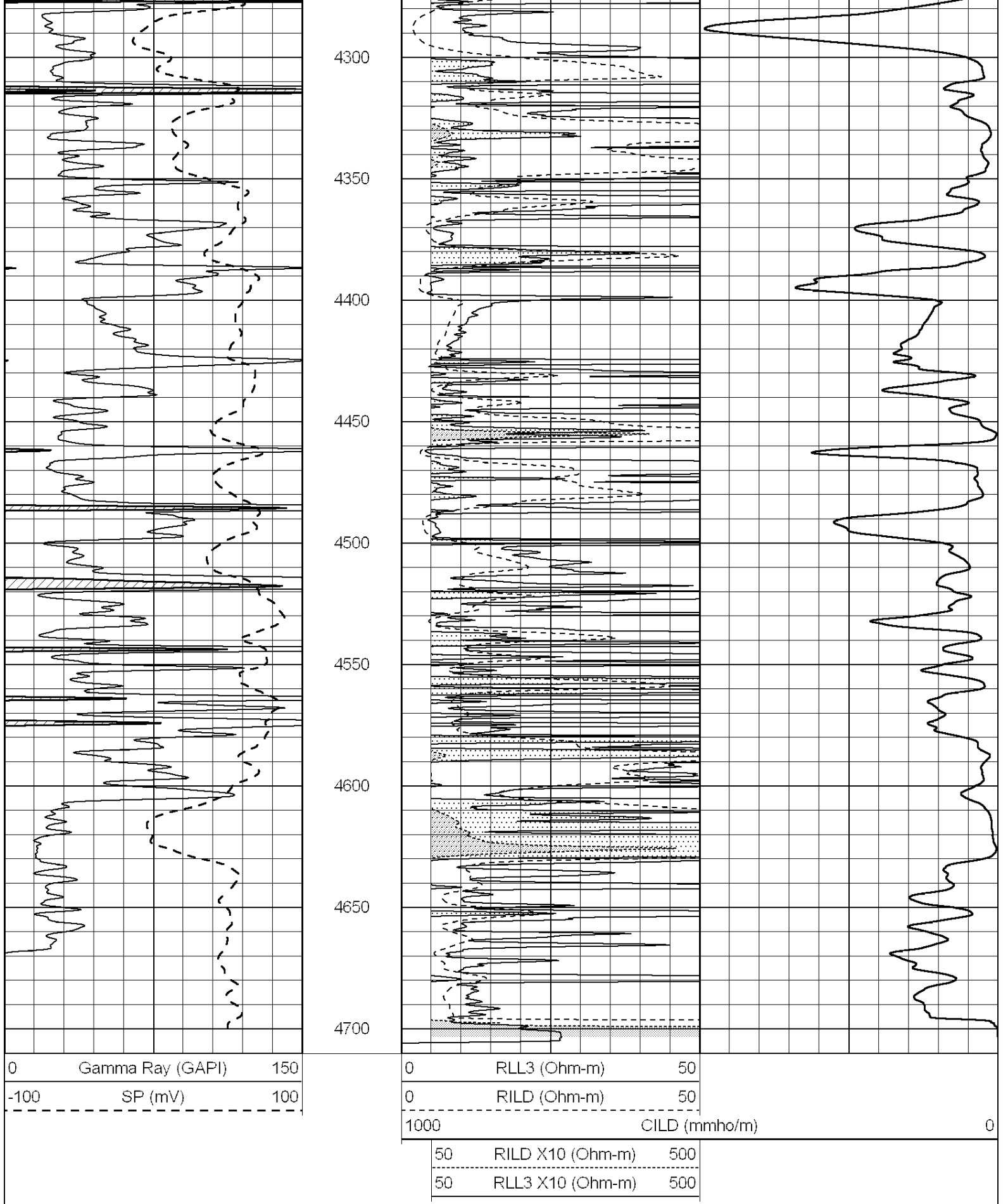
4100

4150

4200

4250



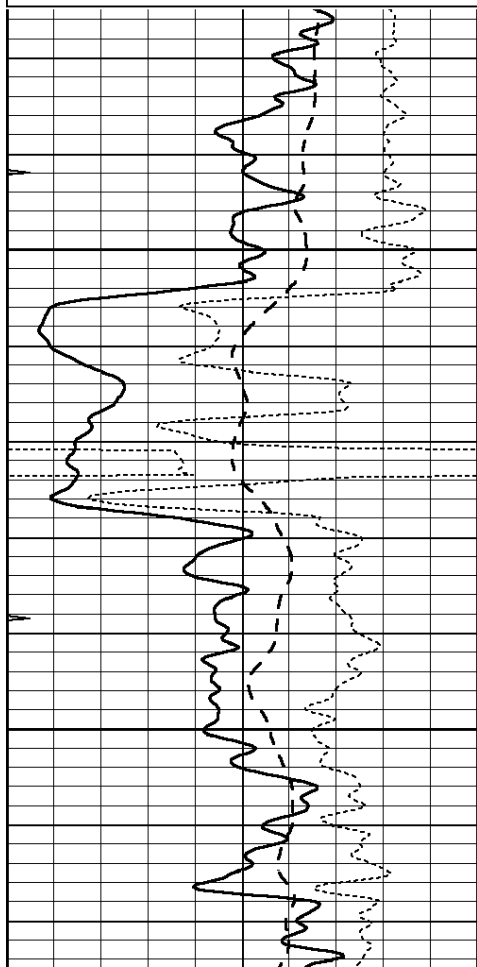


SERVICES CO.

Database File: 010009pe.db
 Dataset Pathname: pass3.7
 Presentation Format: _dil
 Dataset Creation: Thu Nov 08 22:52:02 2012 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

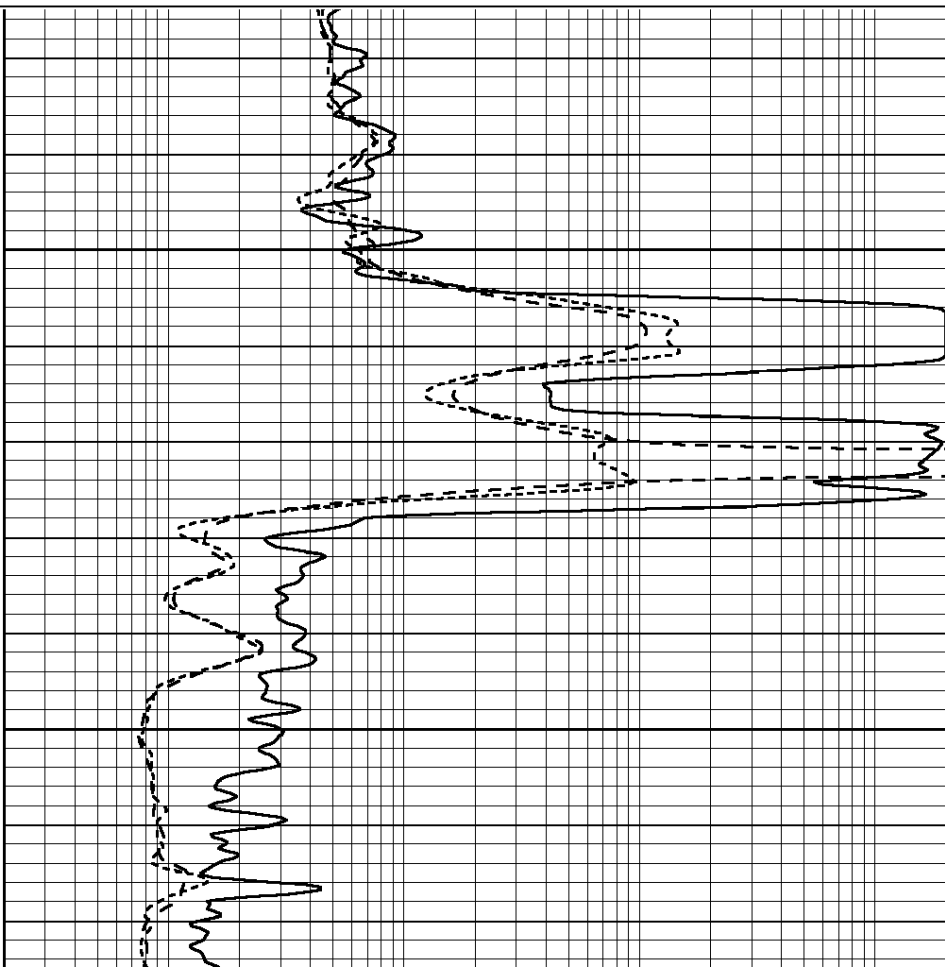
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



2050

2100



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



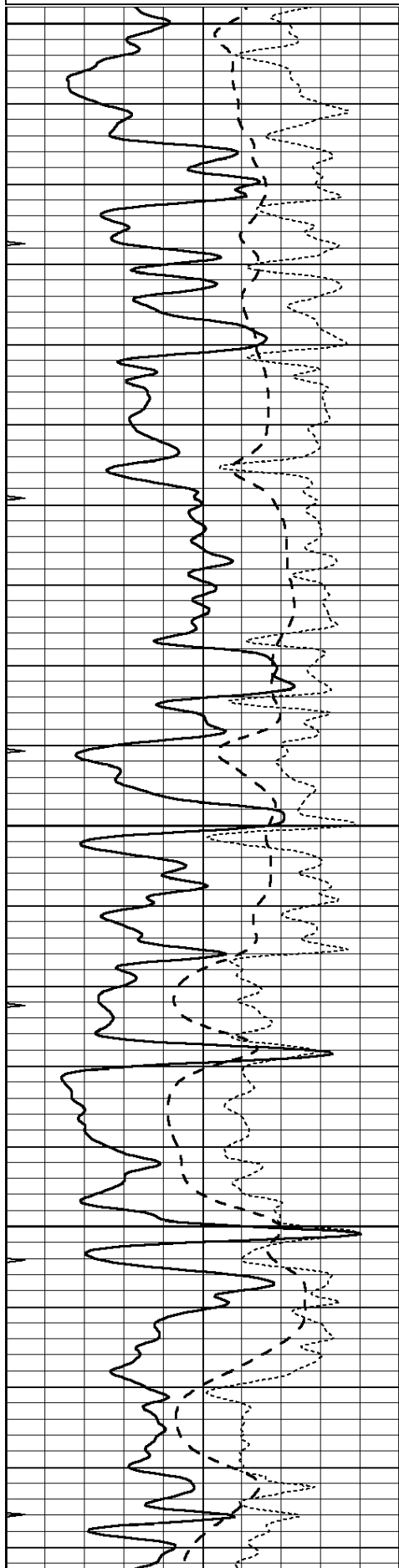
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MAIN SECTION

Database File: 010009pe.db
 Dataset Pathname: pass3.6
 Presentation Format: dil
 Dataset Creation: Thu Nov 08 22:51:41 2012 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

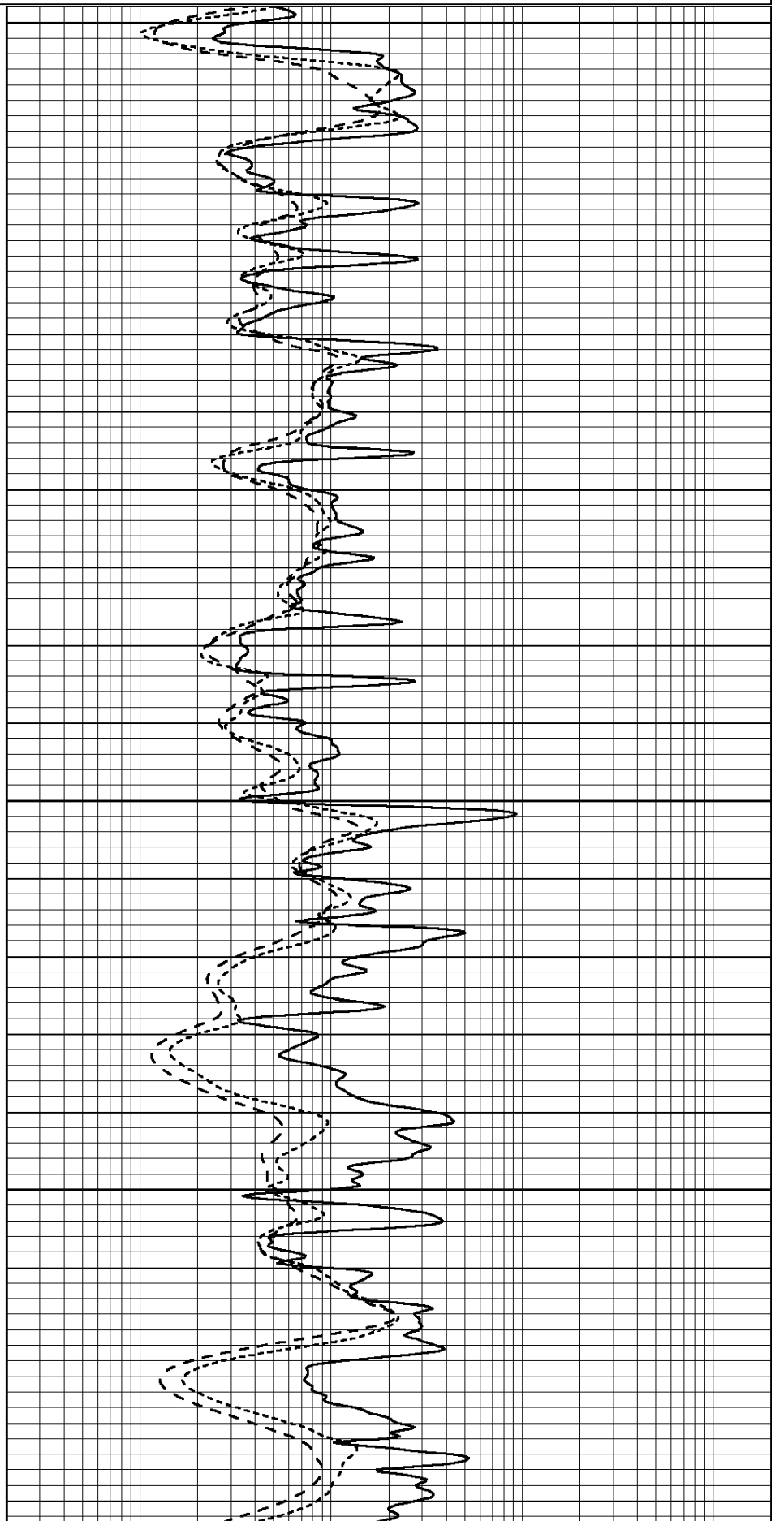


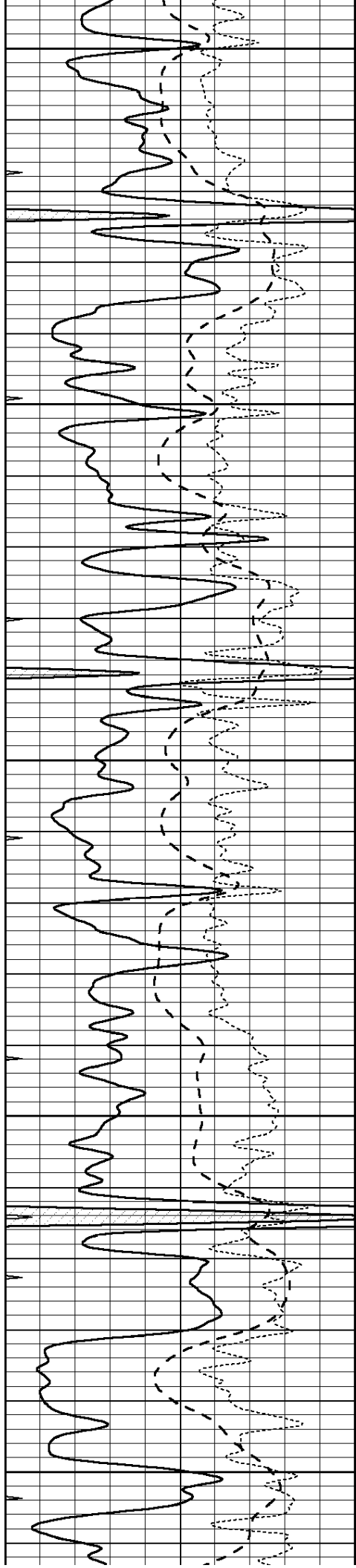
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3650

3700

3750





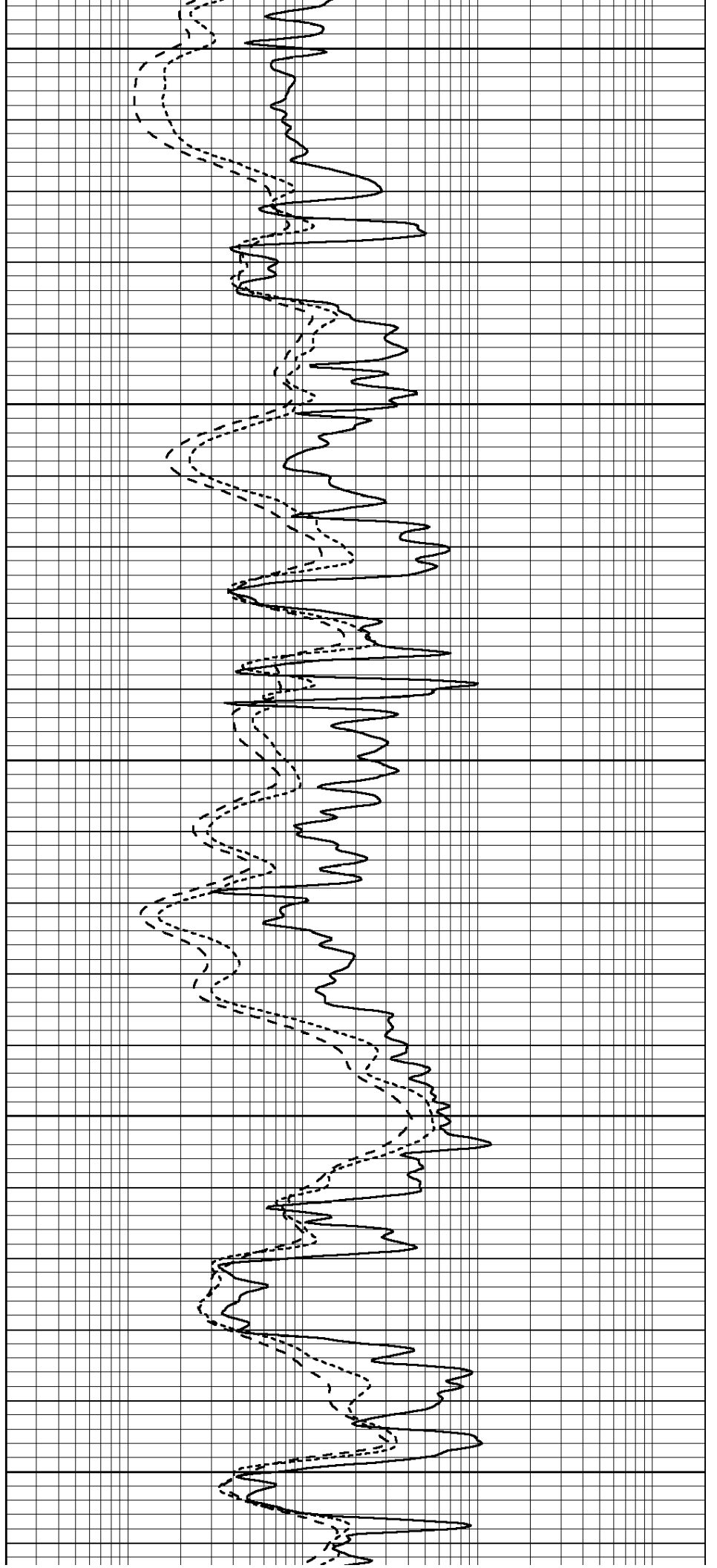
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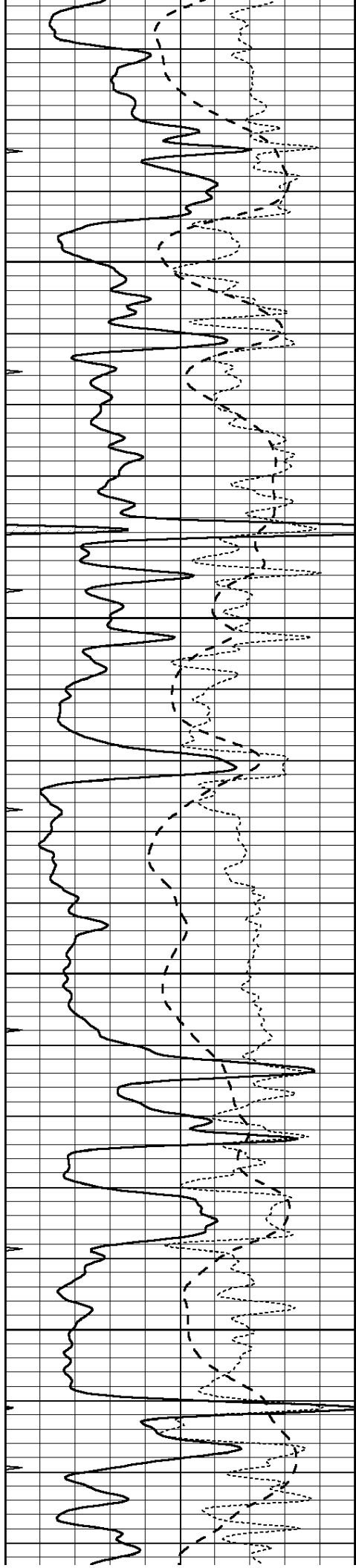
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3900

3950

4000



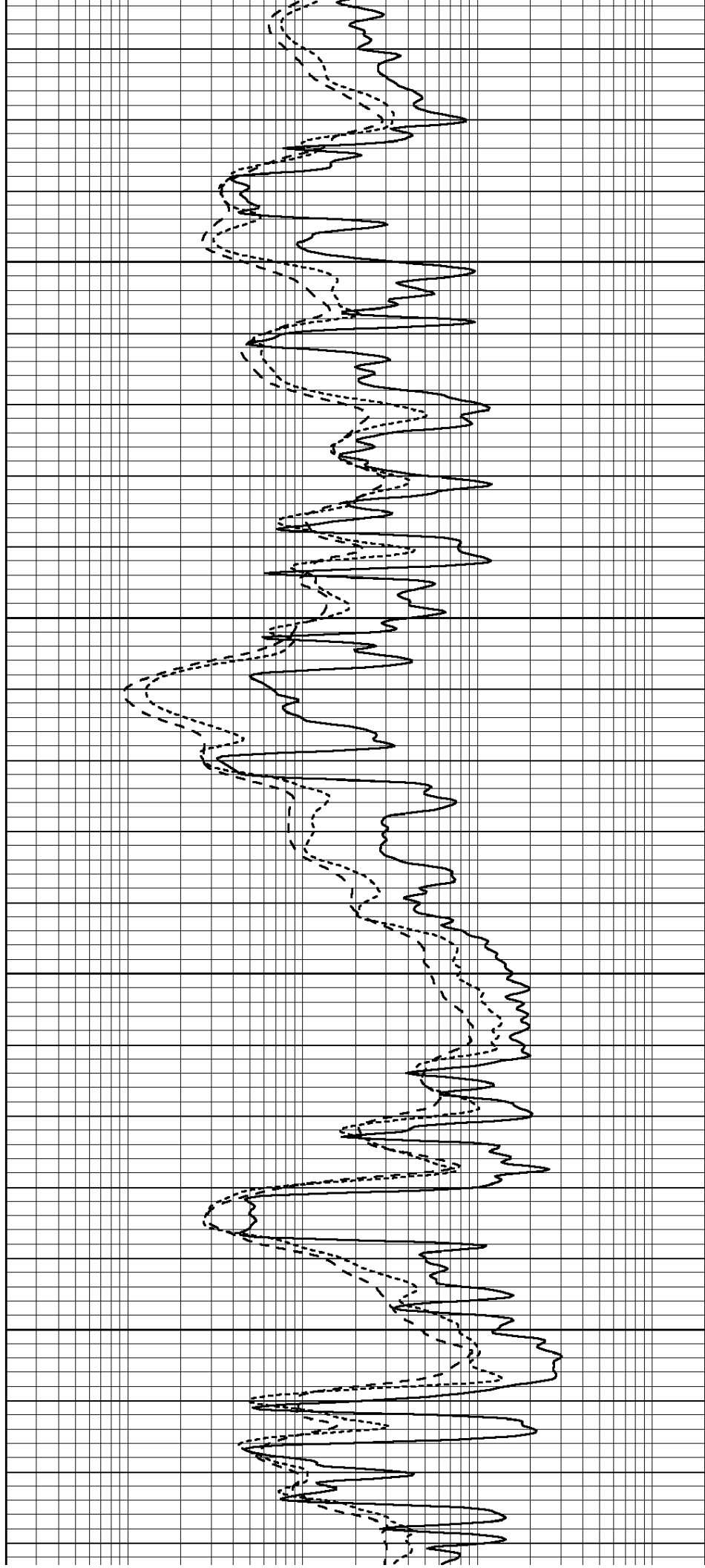


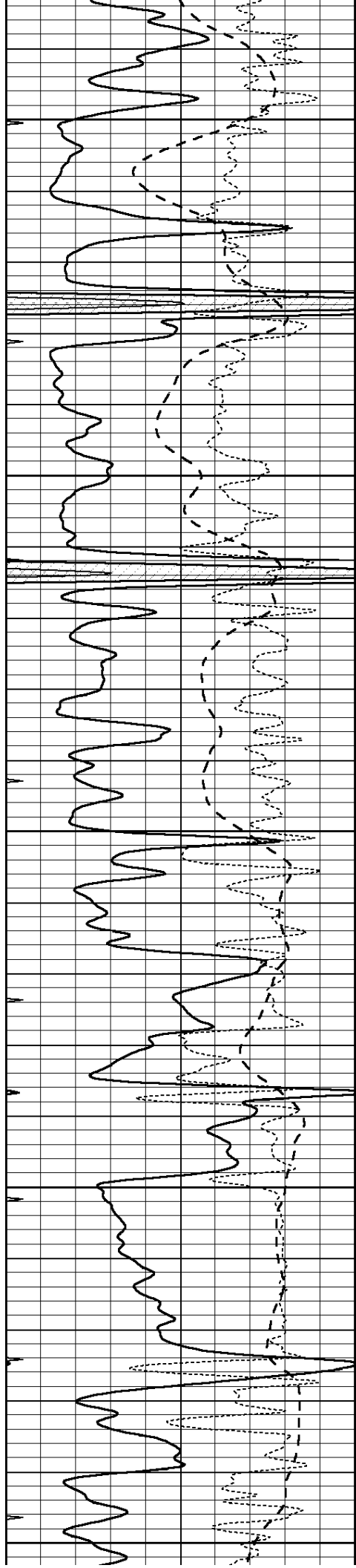
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4100

4150

4200





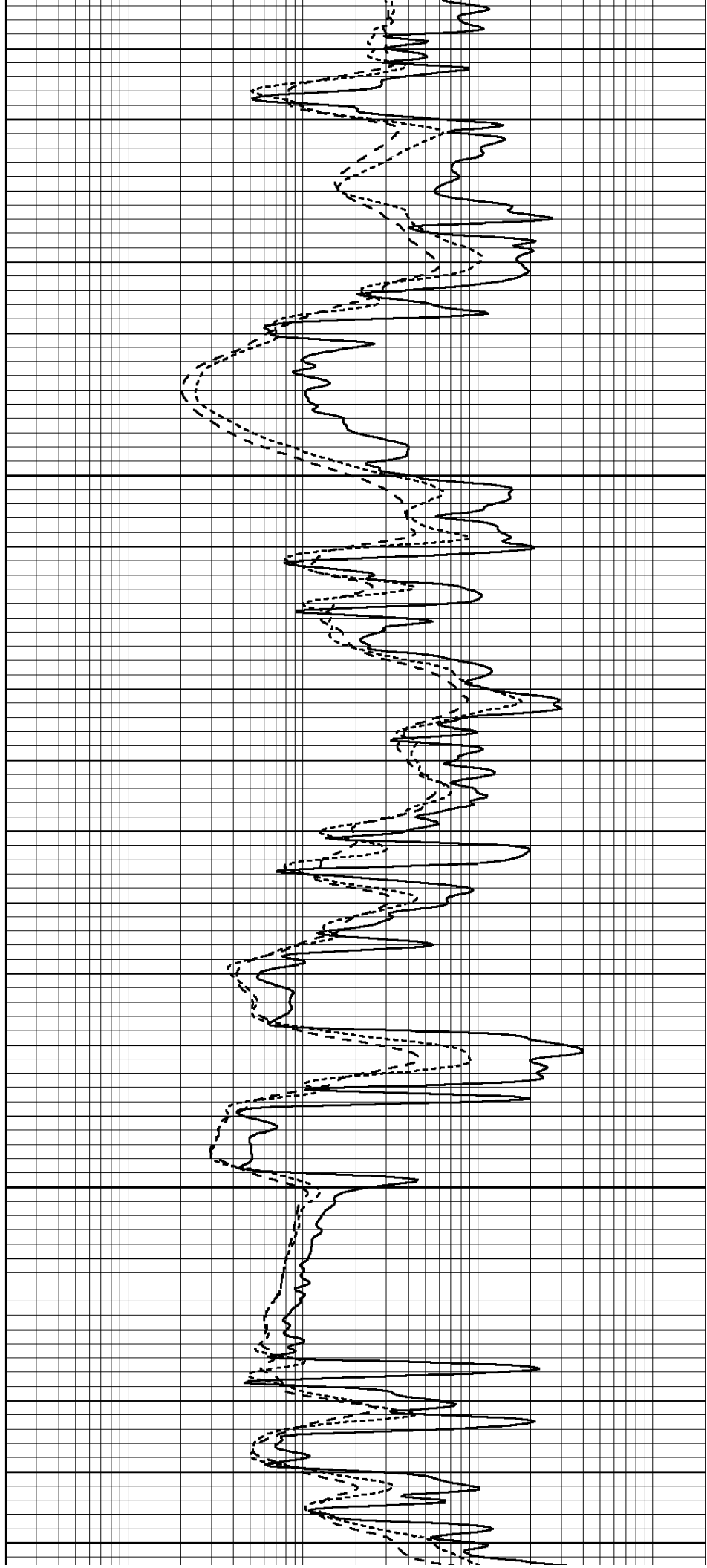
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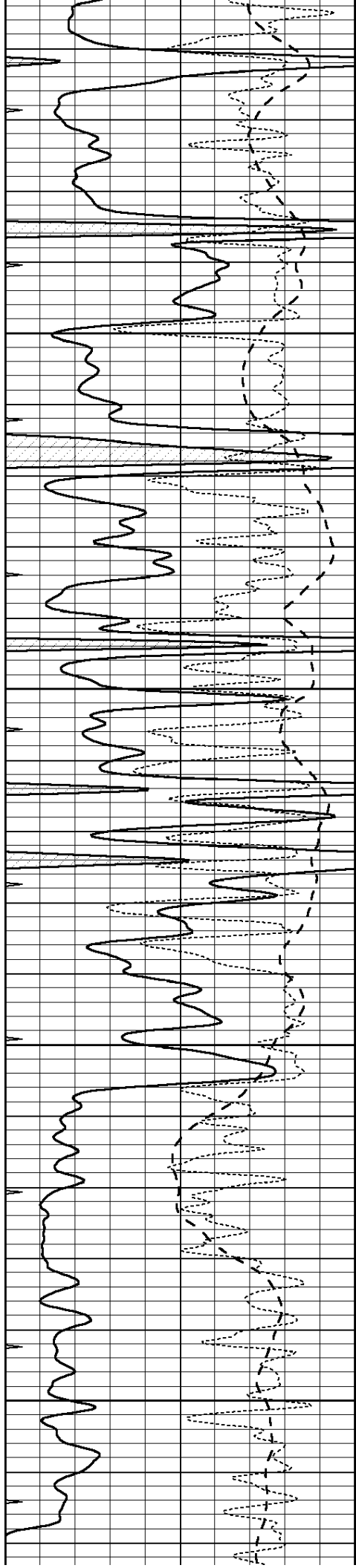
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4350

4400

4450



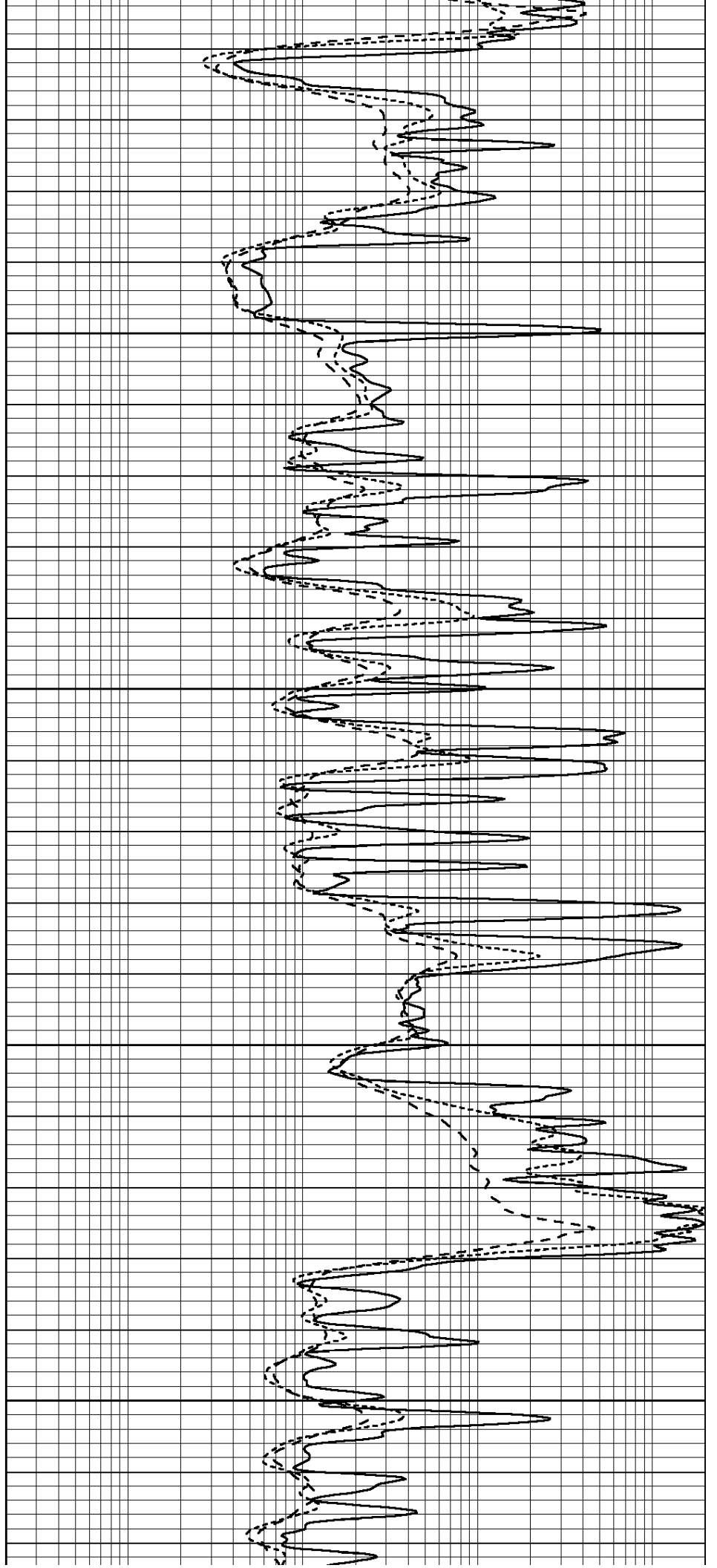


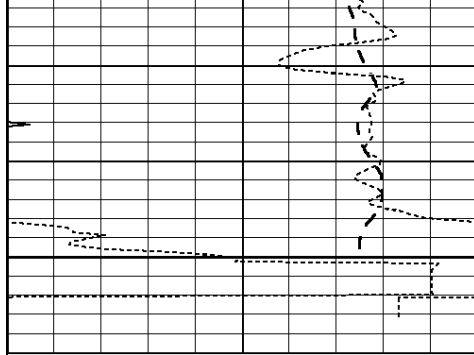
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4550

4600

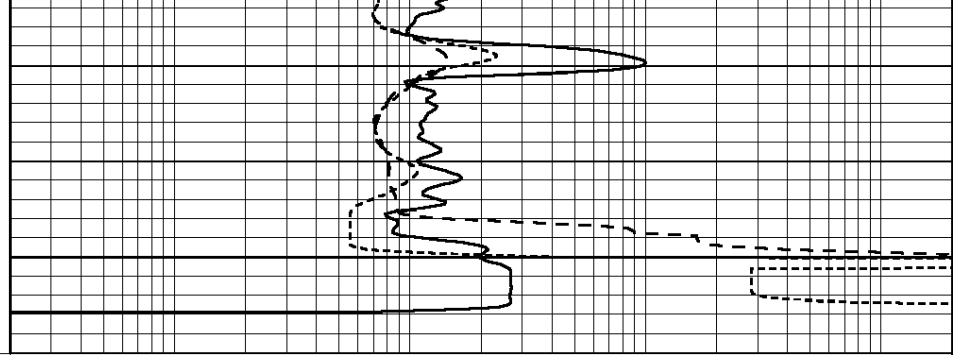
4650





4700

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

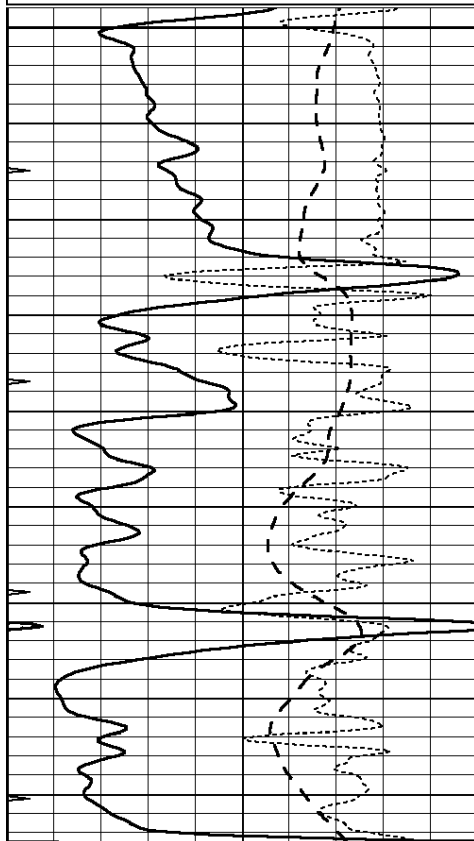


REPEAT SECTION

Database File: 010009pe.db
 Dataset Pathname: pass2.4
 Presentation Format: dil
 Dataset Creation: Thu Nov 08 21:51:10 2012 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

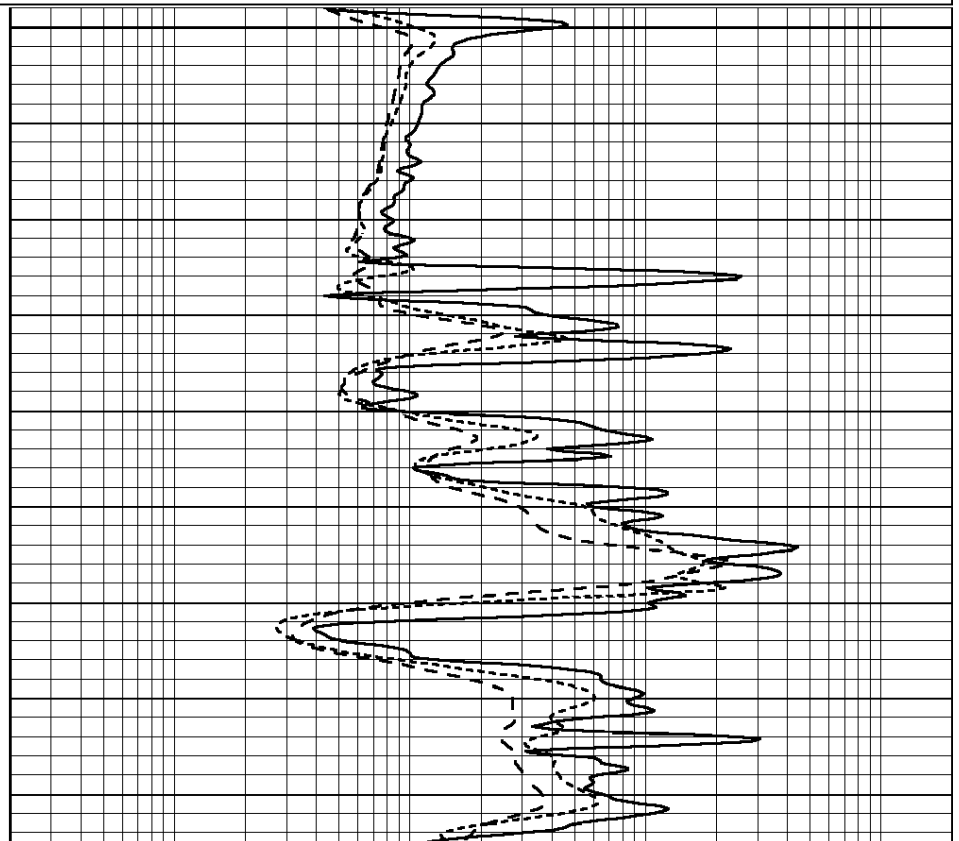
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

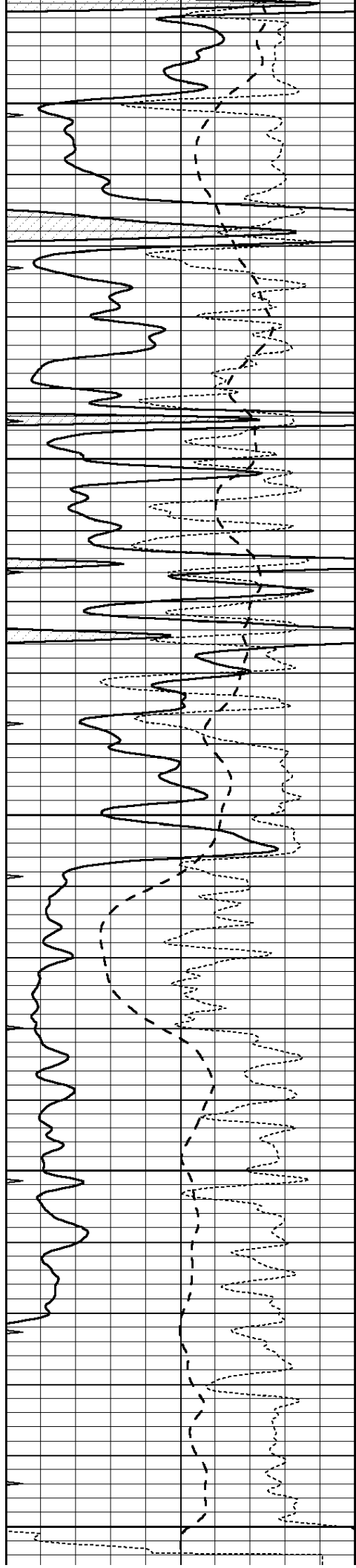
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



4400

4450





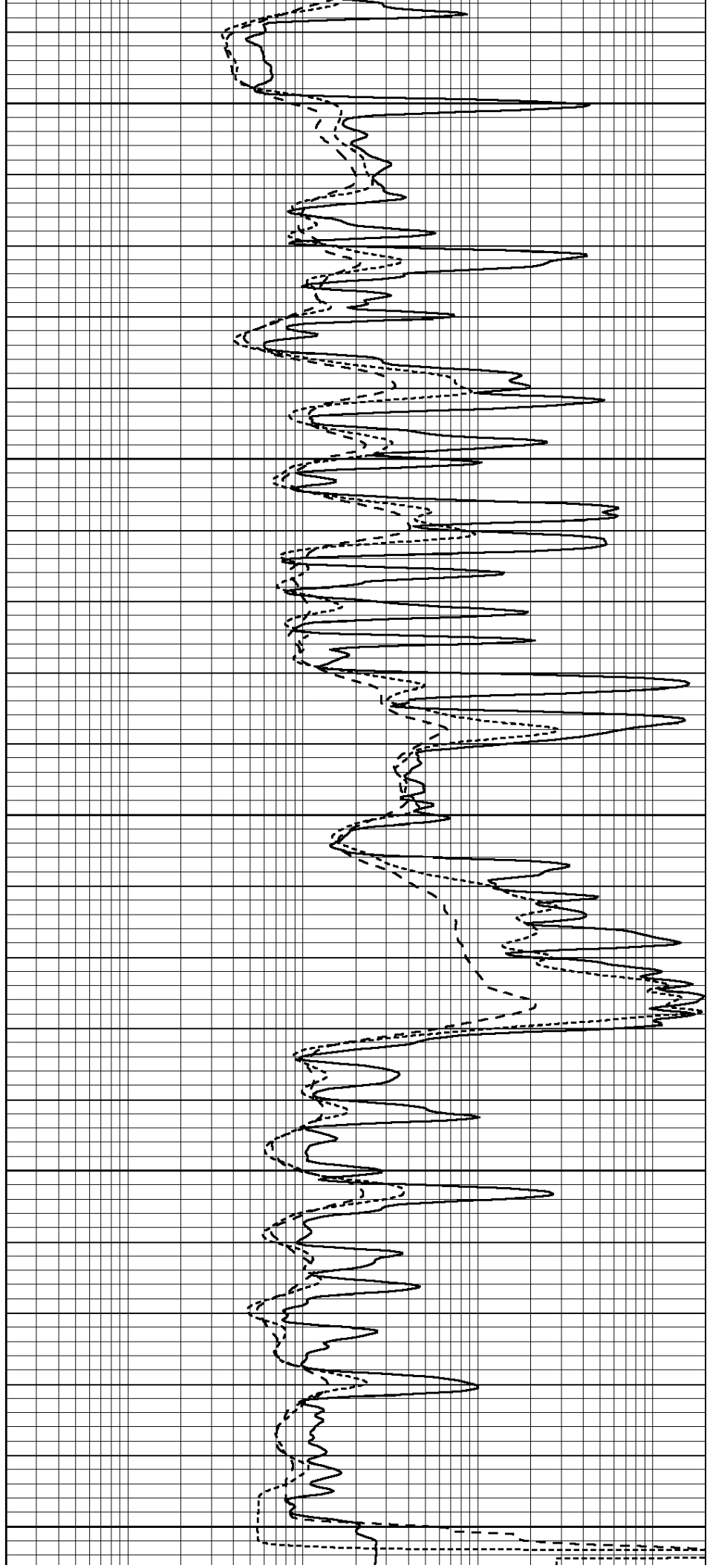
4500

4550

4600

4650

4700



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			

Calibration Report

Database File: 010009pe.db
Dataset Pathname: pass3.6
Dataset Creation: Thu Nov 08 22:51:41 2012 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
Performed: Thu Nov 08 04:46:11 2012

Loop:	Readings				References		Results	
	Air	Loop			Air	Loop	m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	5.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-12.500
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	
Low Ref	3.5	6.5	
High Ref	5.5	15.0	
	Gain: 4.4		Offset: -9.1

Compensated Neutron Calibration Report

Serial Number: 070808
Tool Model: Probe

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
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Short Space
Long Space

cps
cps

pu

pu

POST-SURVEY VERIFICATION

Detector

Readings

Measured

Target

Short Space
Long Space

cps
cps

pu

pu

Gamma Ray Calibration Report

Serial Number: 070559
Tool Model: OPEN_GR
Performed: Wed Sep 19 15:58:00 2012

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.3000 GAPI/cps