



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company RITCHIE EXPLORATION, INC.
Well HELL CREEK 20D #1
Field
County SCOTT State KANSAS

Company RITCHIE EXPLORATION, INC.
Well HELL CREEK 20D #1
Field
County SCOTT
State KANSAS

Location: API #: 15-171-20987
1785' FSL & 1775' FEL
SEC 20 TWP 16S RGE 31W
Permanent Datum GROUND LEVEL Elevation 2933
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL
Elevation
K.B. 2938
D.F.
G.L. 2933

Date	10-10-13
Run Number	ONE
Depth Driller	4735
Depth Logger	4736
Bottom Logged Interval	4734
Top Log Interval	00
Casing Driller	211
Casing Logger	210
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4 / 54
pH / Fluid Loss	10.0 / 7.0
Source of Sample	FLOWLINE
Rim @ Meas. Temp	1.30 @ 81F
Rmf @ Meas. Temp	0.98 @ 81F
Rmc @ Meas. Temp	1.56 @ 81F
Source of Rmf / Rmc	MEASURED
Rim @ BHT	.860 @ 122F
Time Circulation Stopped	3 HOURS
Time Logger on Bottom	11:30 A.M.
Maximum Recorded Temperature	122F
Equipment Number	860
Location	HAYS, KS.
Recorded By	RUPP
Witnessed By	MAC ARMSTRONG

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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

NABORS COMPLETION & PRODUCTION SERVICES
785-628-6395
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: HEALY, 8W TO TAOS RD., 3 1/2N, W INTO.

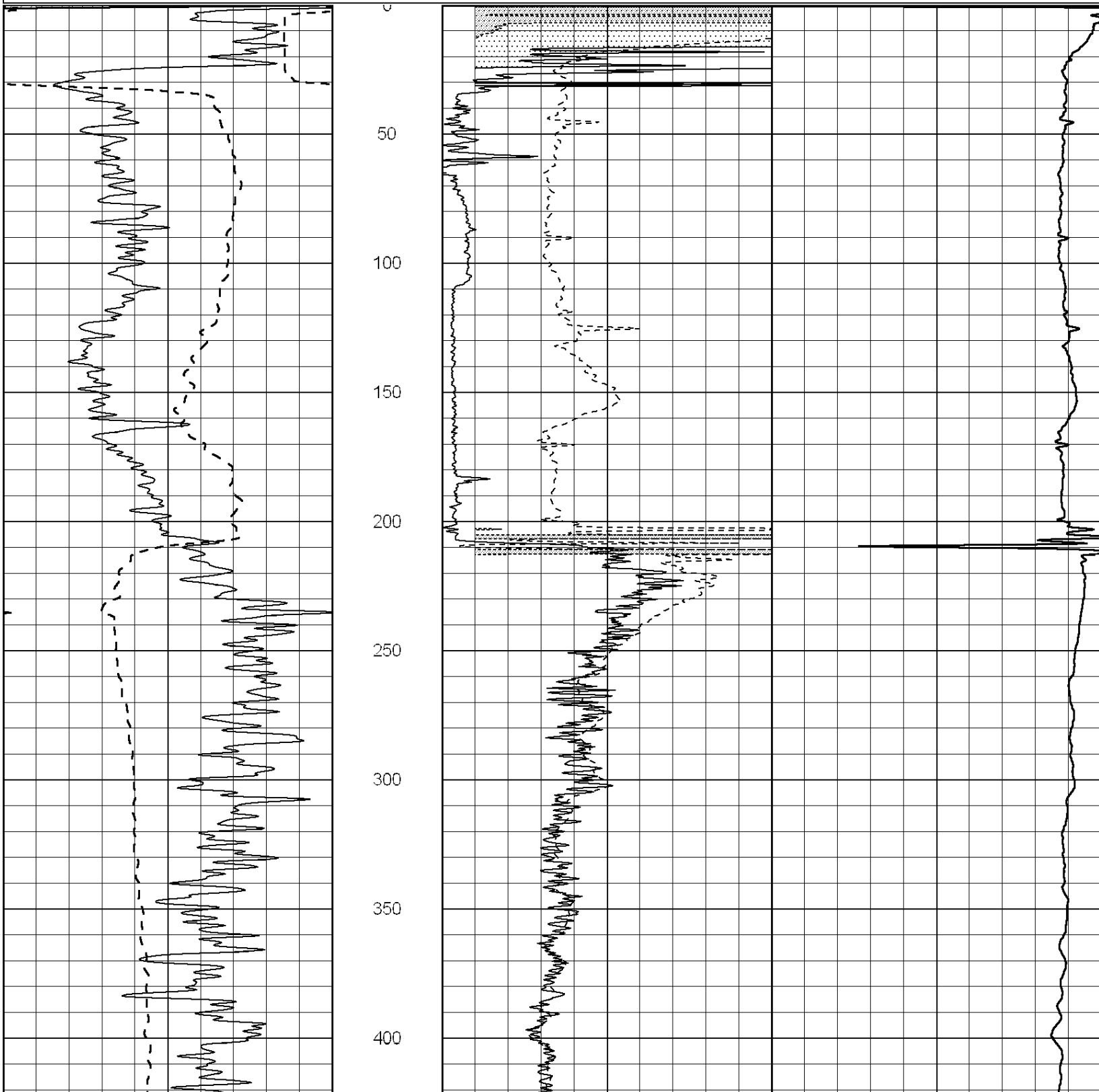


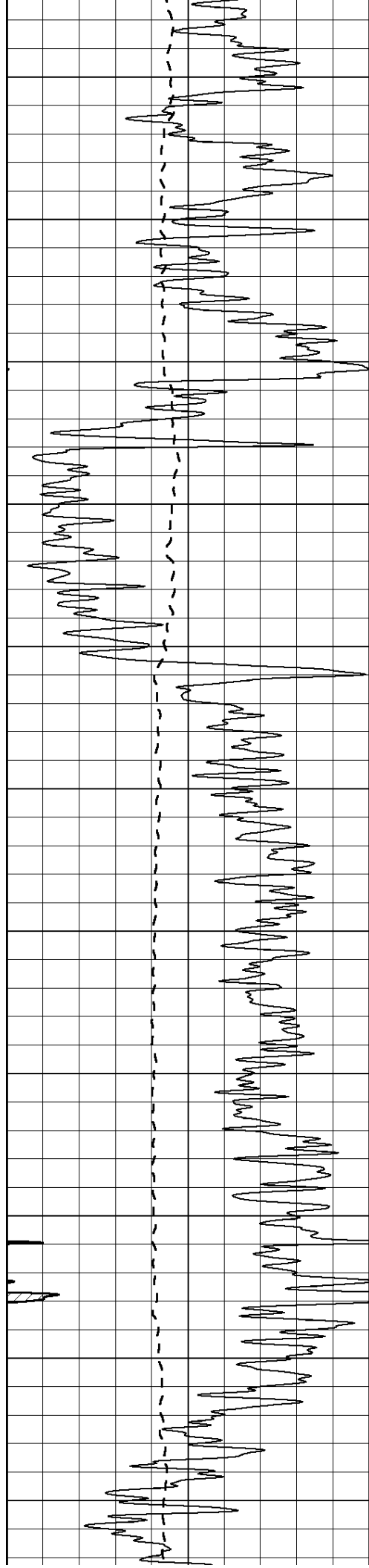
**COMPLETION
& PRODUCTION**

MAIN SECTION

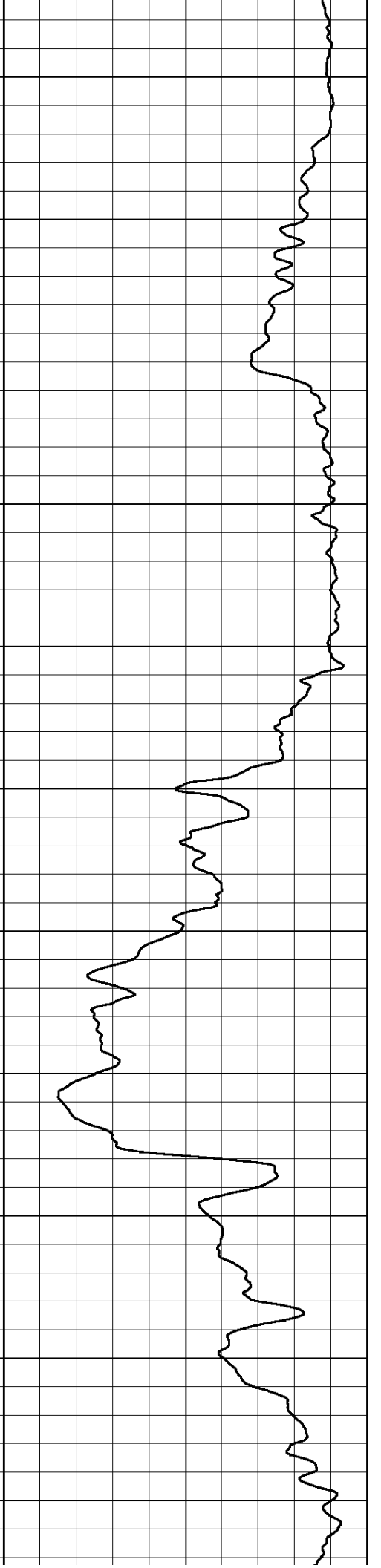
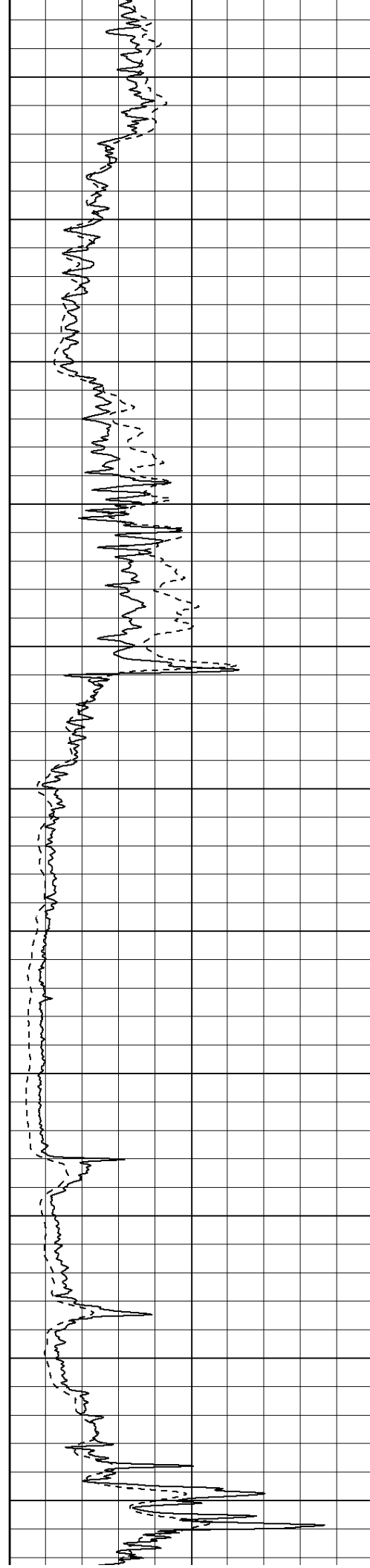
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 Dataset Pathname: pass3.A
 Presentation Format: _dil2
 Dataset Creation: Thu Oct 10 13:38:52 2013
 Charted by: Depth in Feet scaled 1:600

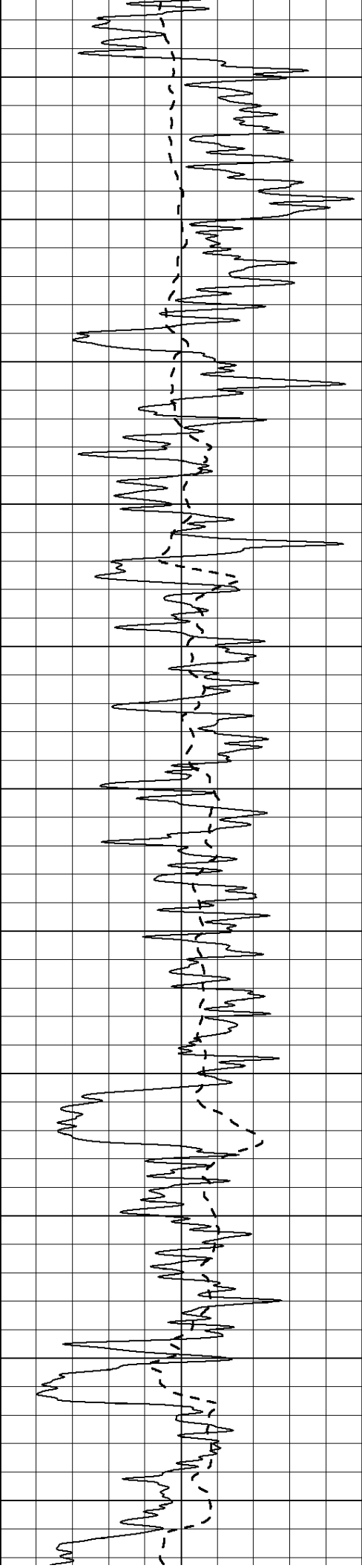
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			0	Deep Induction (Ohm-m)	50
			1000	CILD (mmho/m)	0
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500



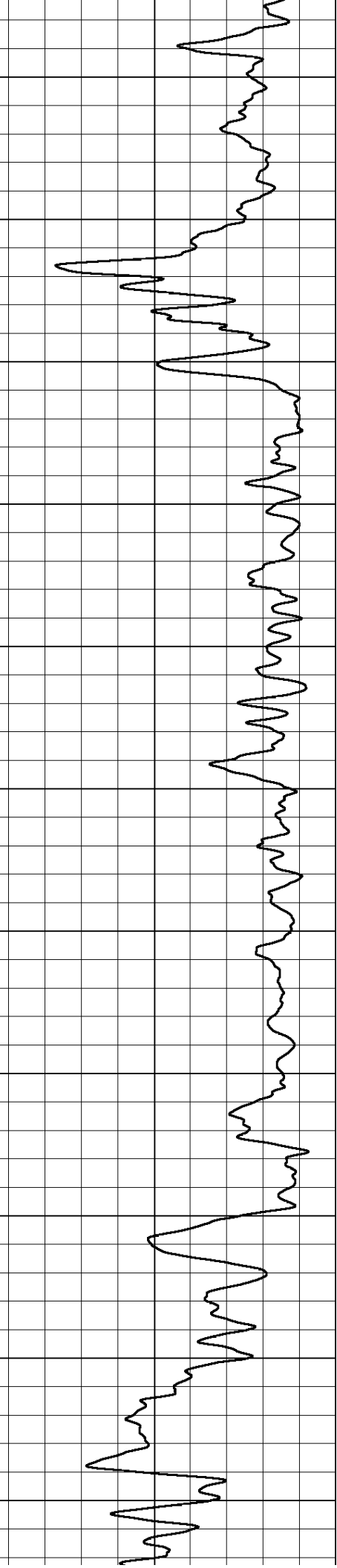
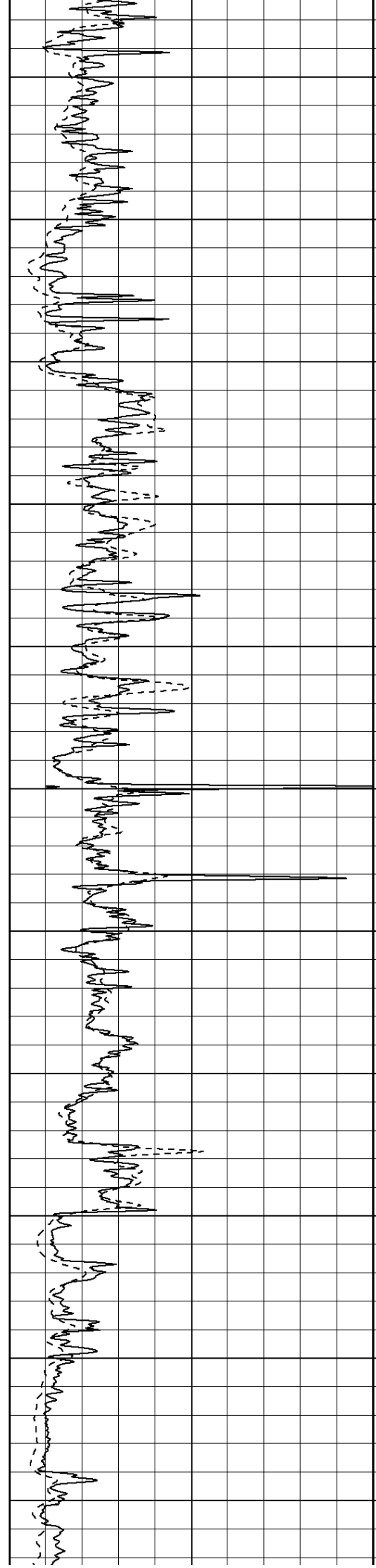


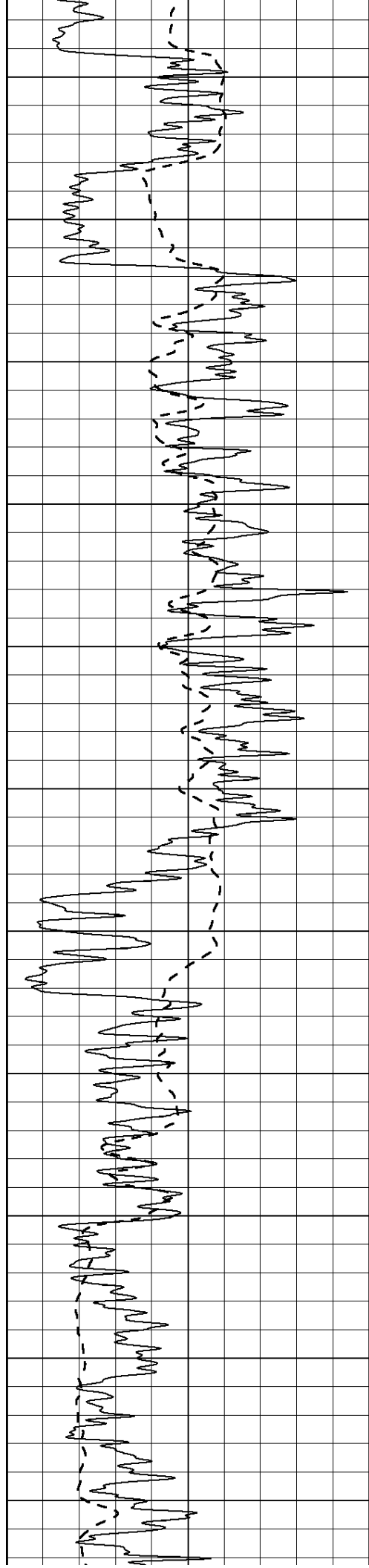
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850
900
950



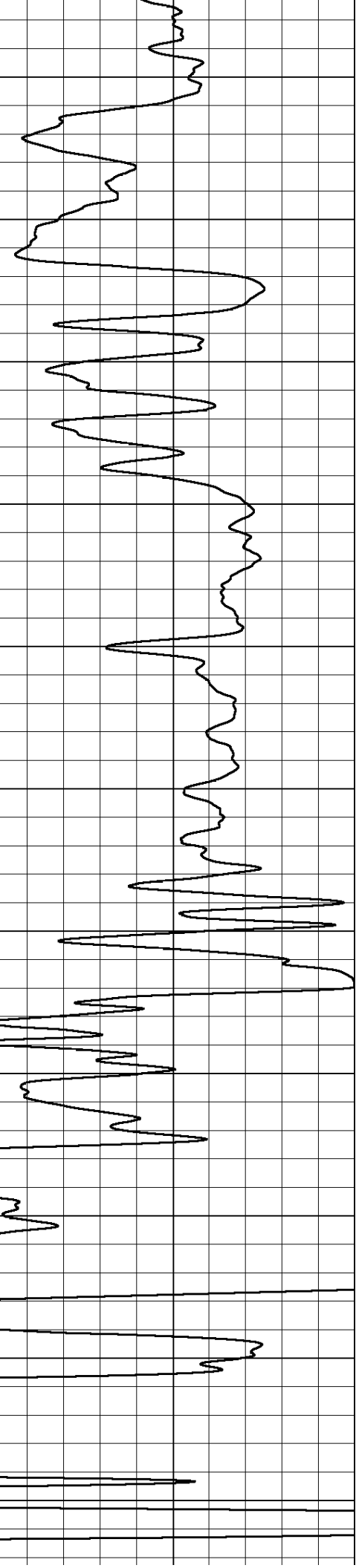
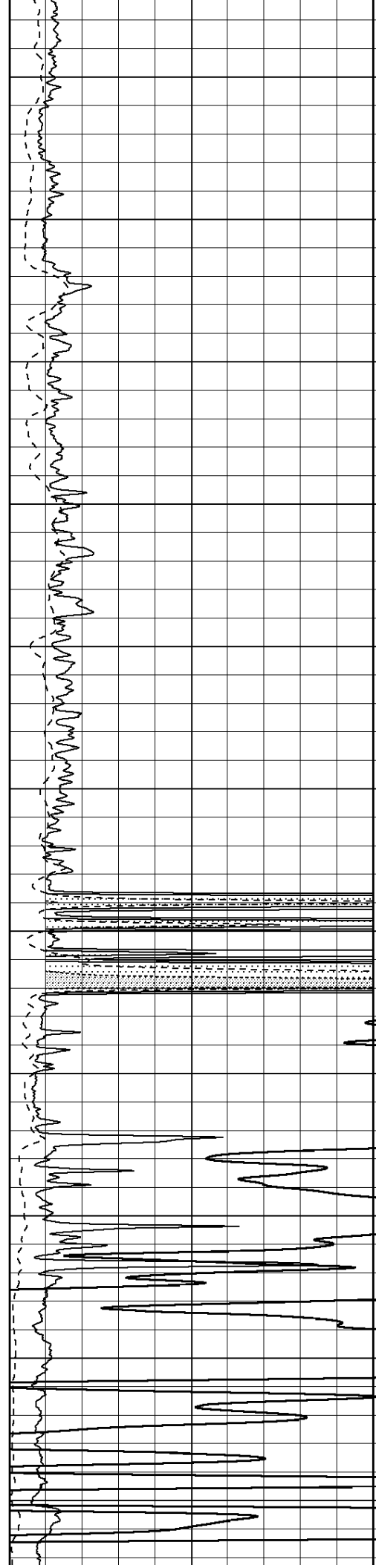


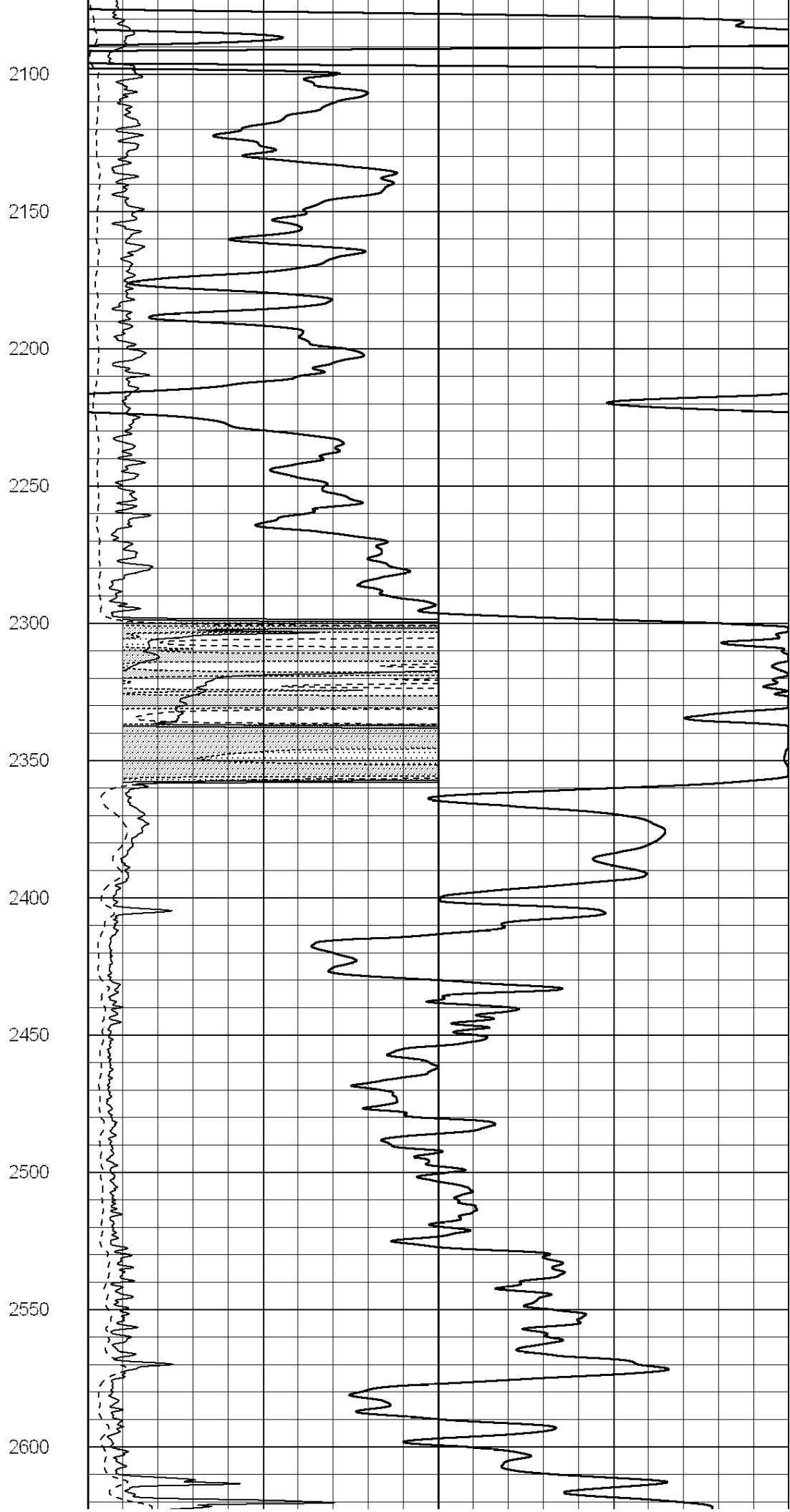
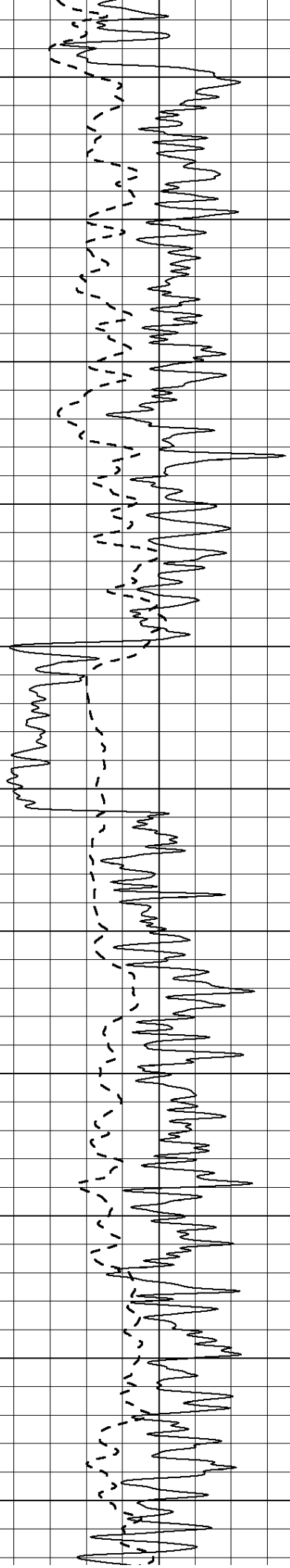
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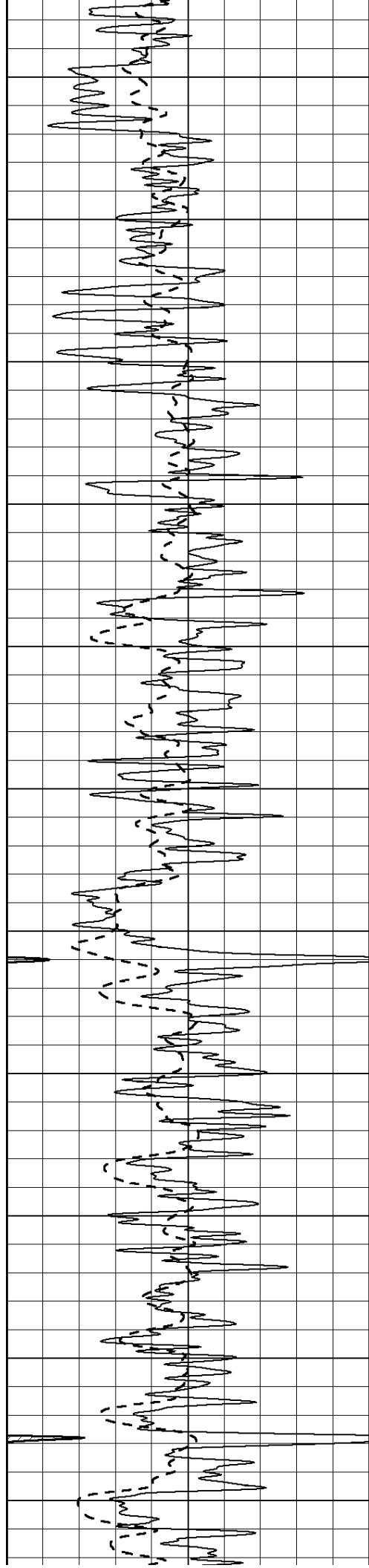




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1800
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1900
1950
2000
2050







2650

2700

2750

2800

2850

2900

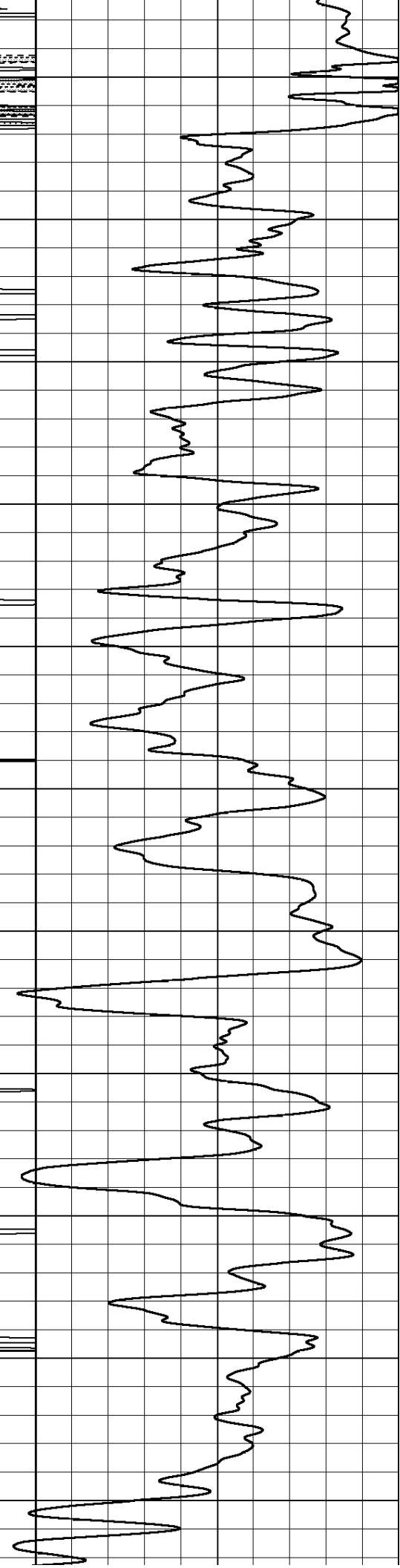
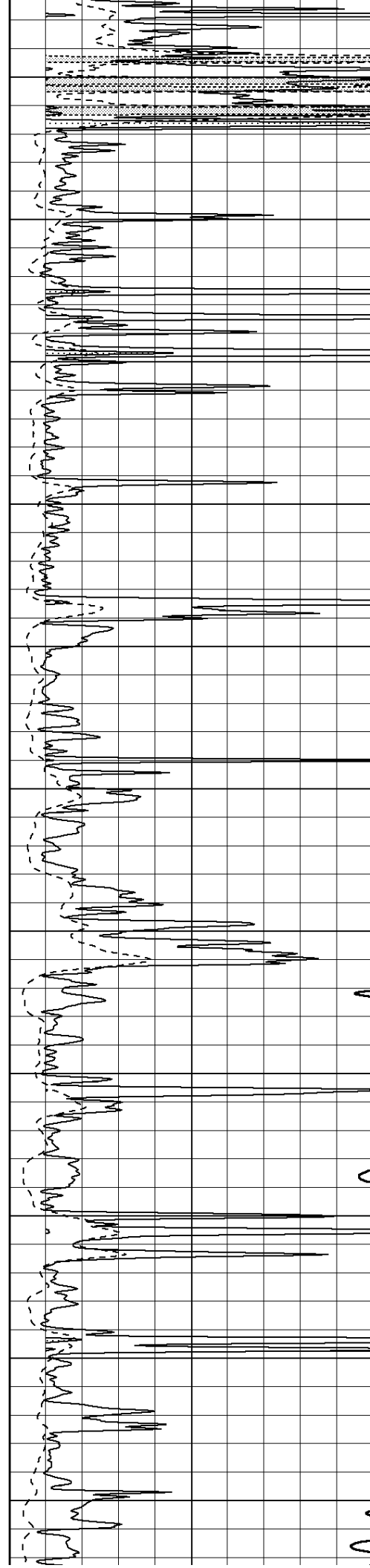
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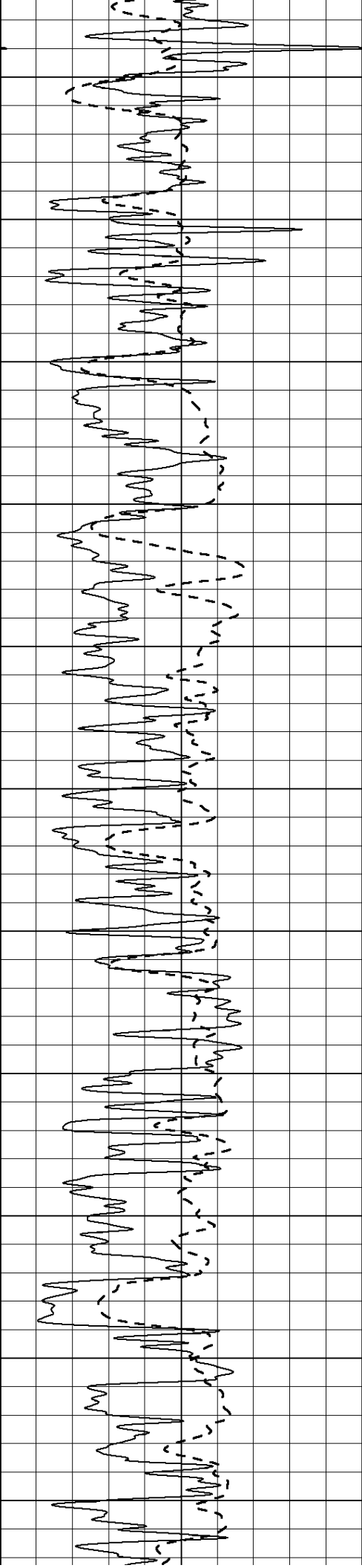
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3250

3300

3350

3400

3450

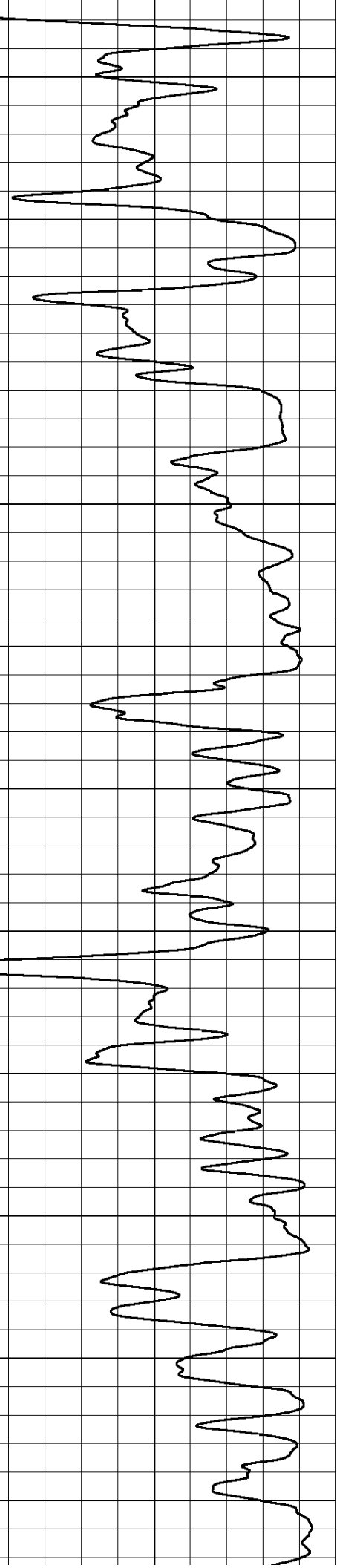
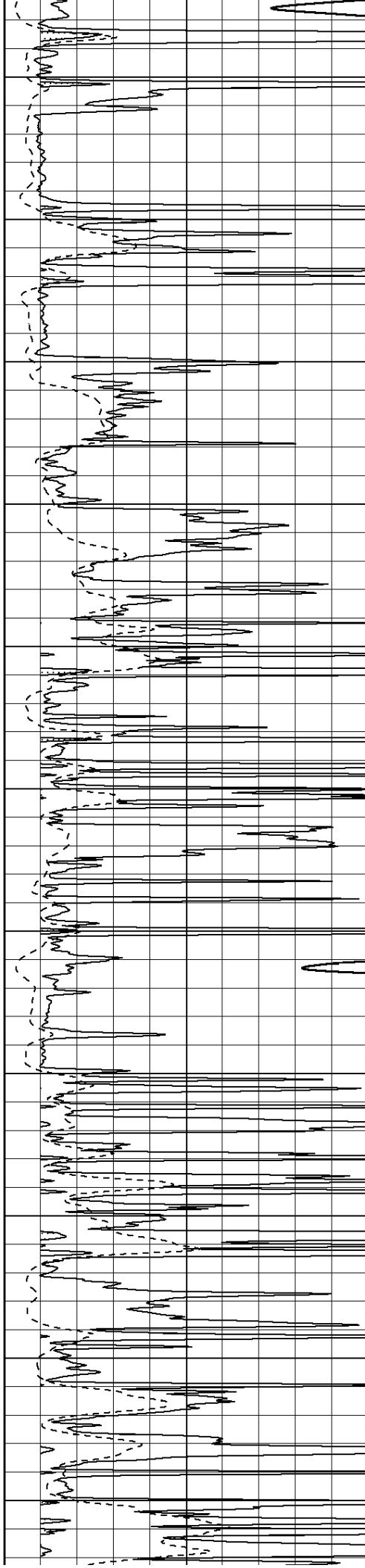
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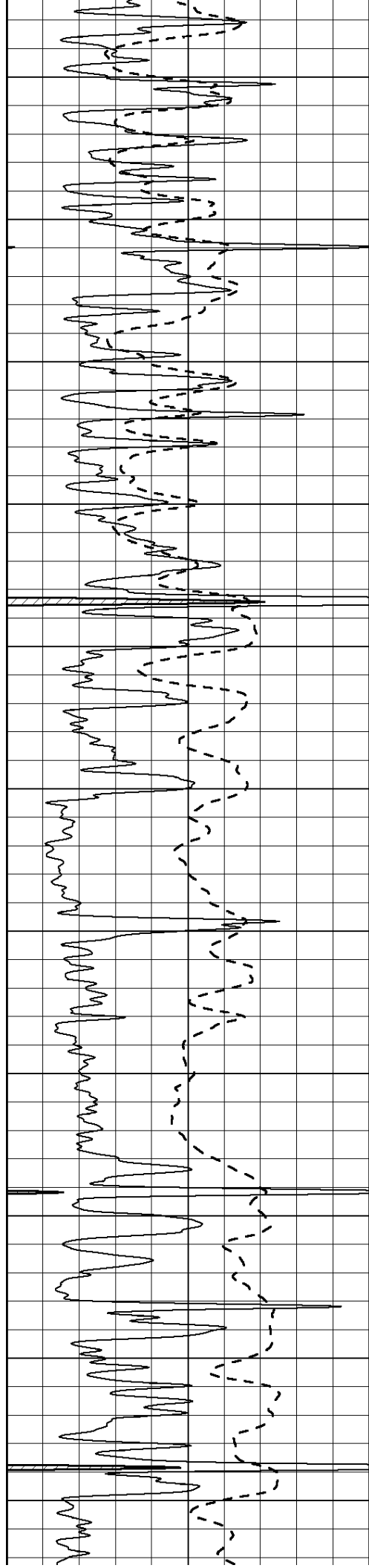
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3700





3750

3800

3850

3900

3950

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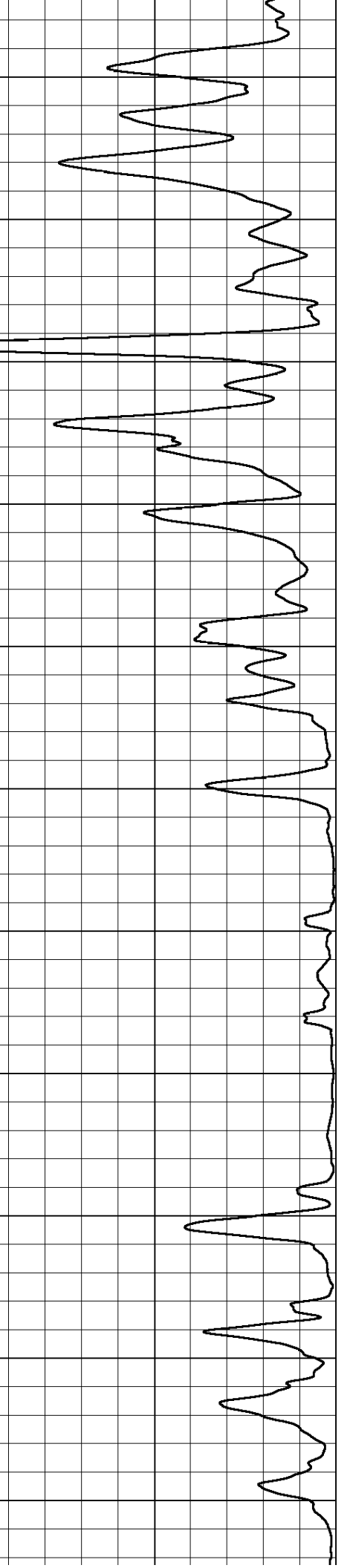
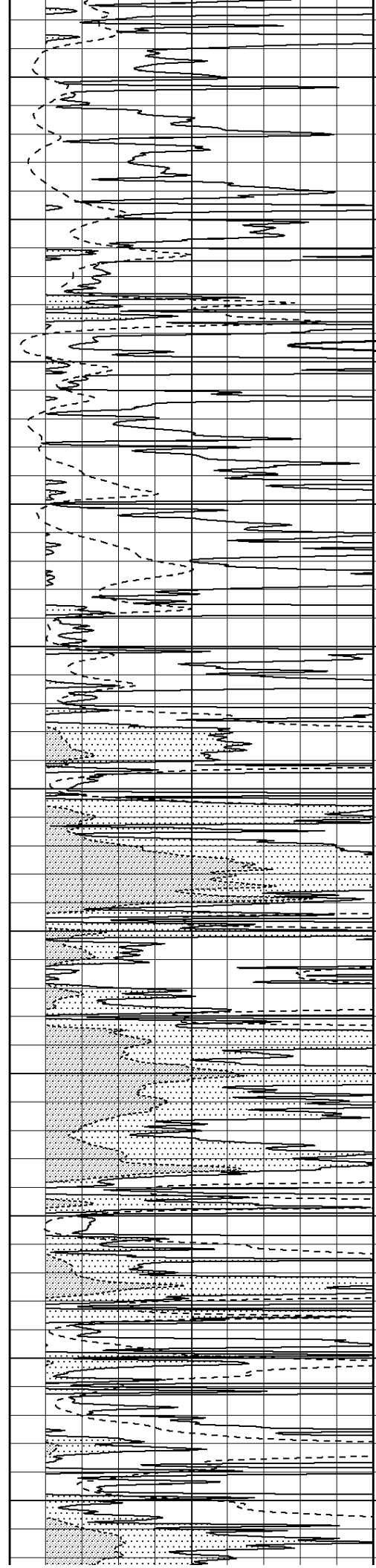
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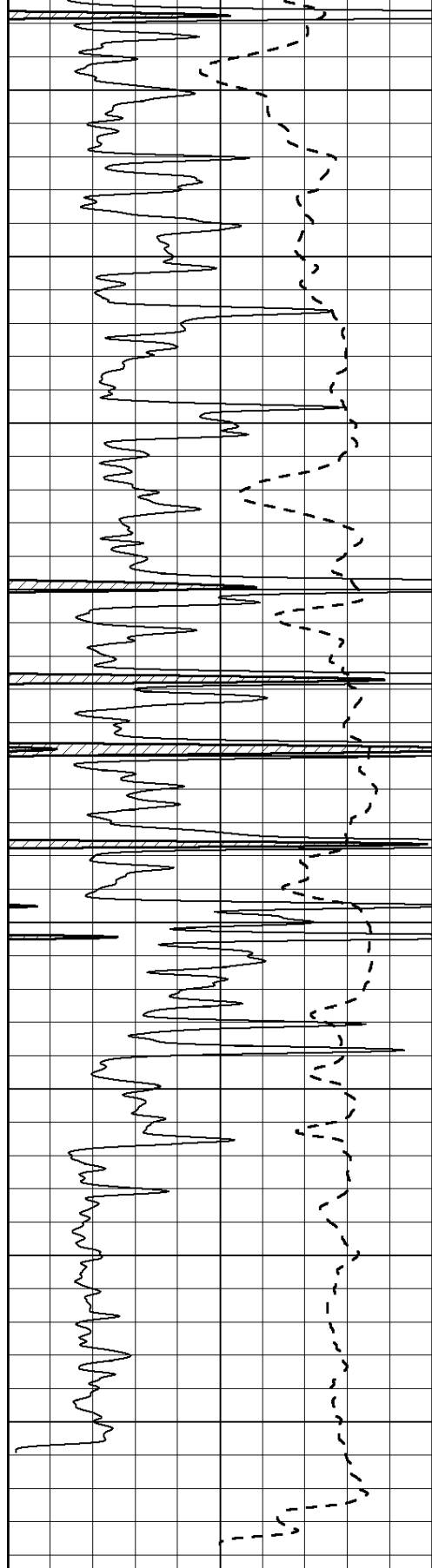
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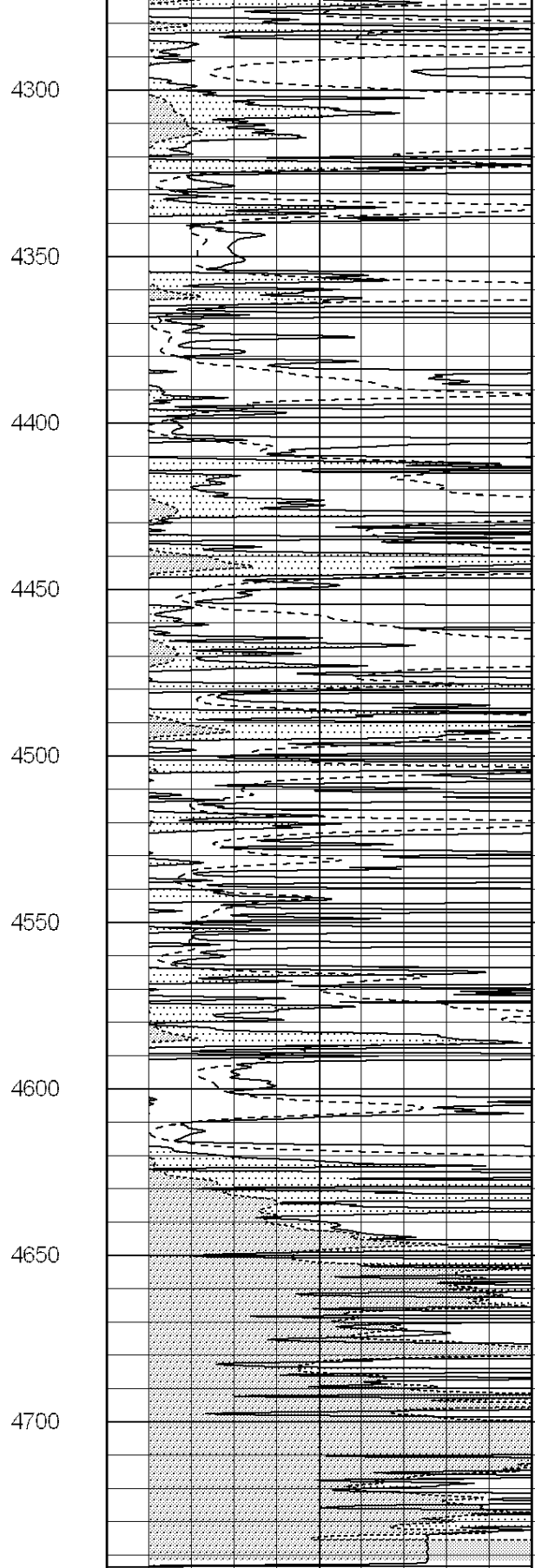
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0 Gamma Ray (GAPI) 150



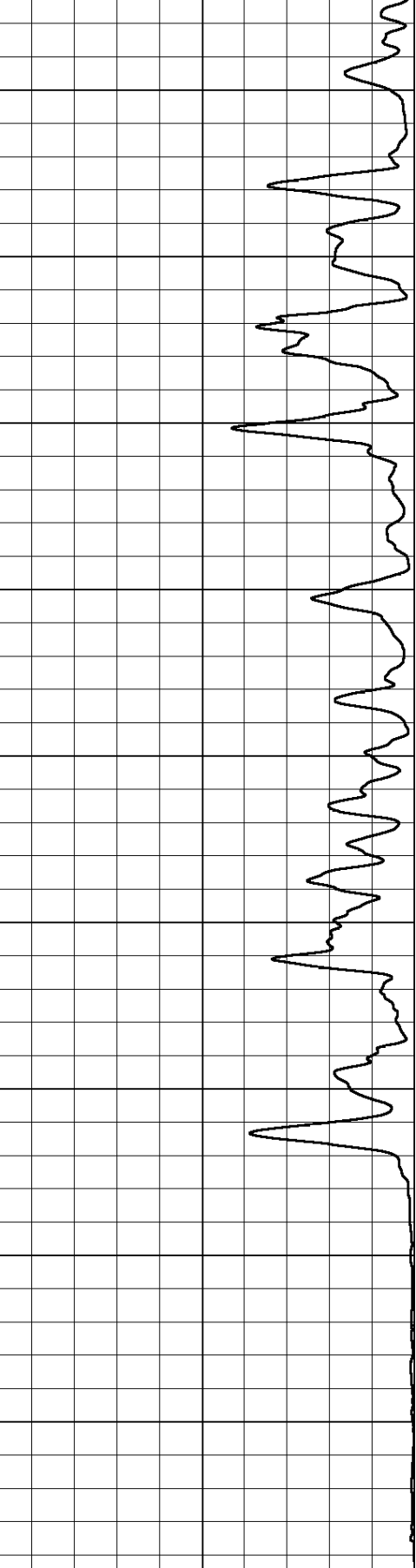
0 RLL3 (Ohm-m) 50

0 Deep Induction (Ohm-m) 50

1000 CILD (mmho/m) 0

50 RILD X10 (Ohm-m) 500

50 RLL3 X10 (Ohm-m) 500



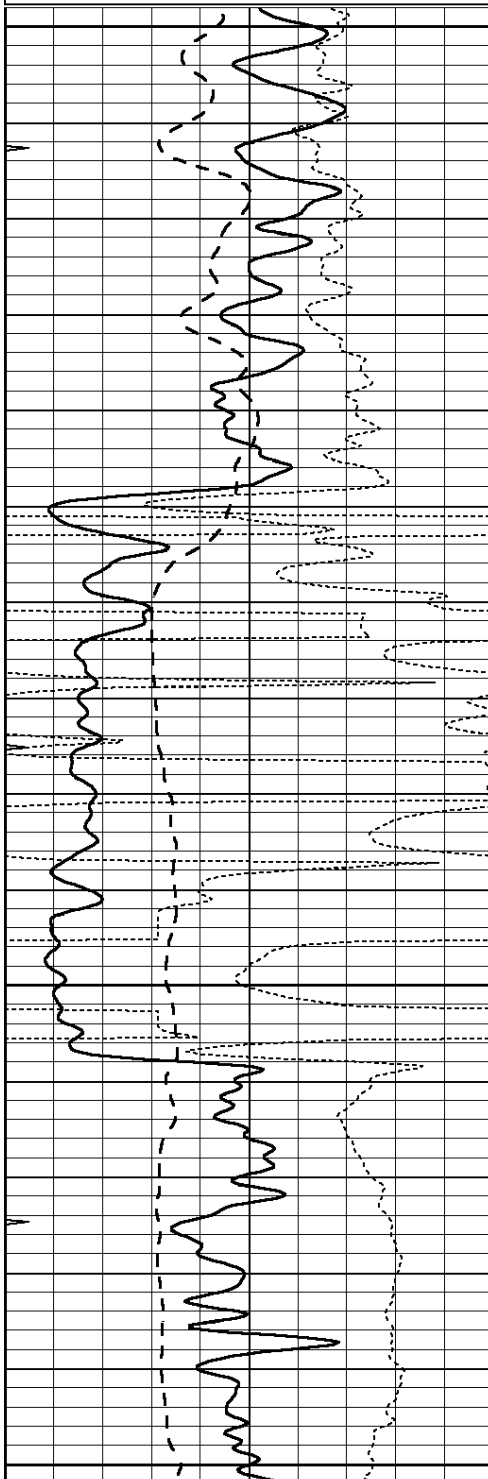
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MAIN SECTION

Database File: 010214ddn.db
 Dataset Pathname: pass3.A
 Presentation Format: _dil
 Dataset Creation: Thu Oct 10 13:38:52 2013
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

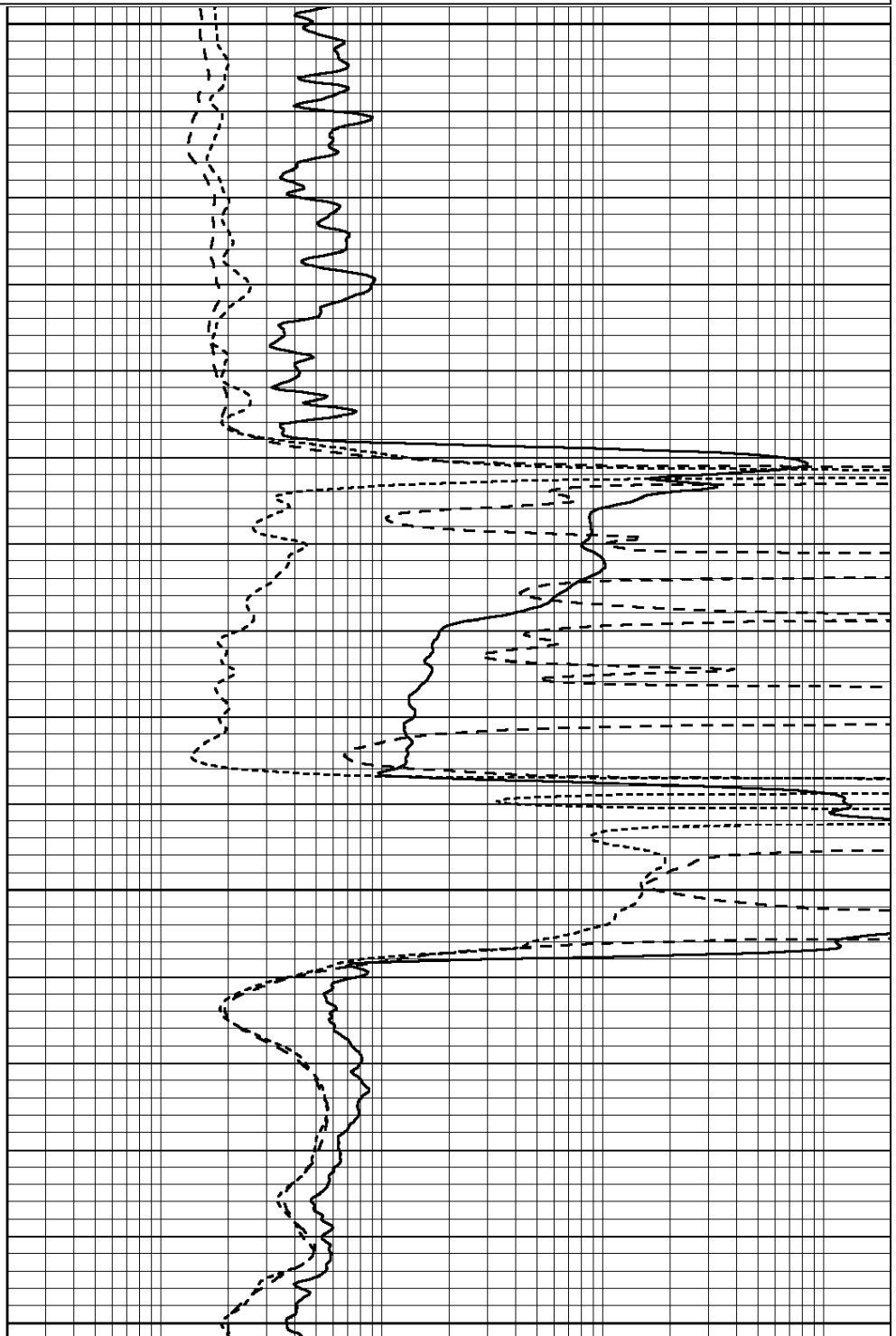


2250

2300

2350

2400



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

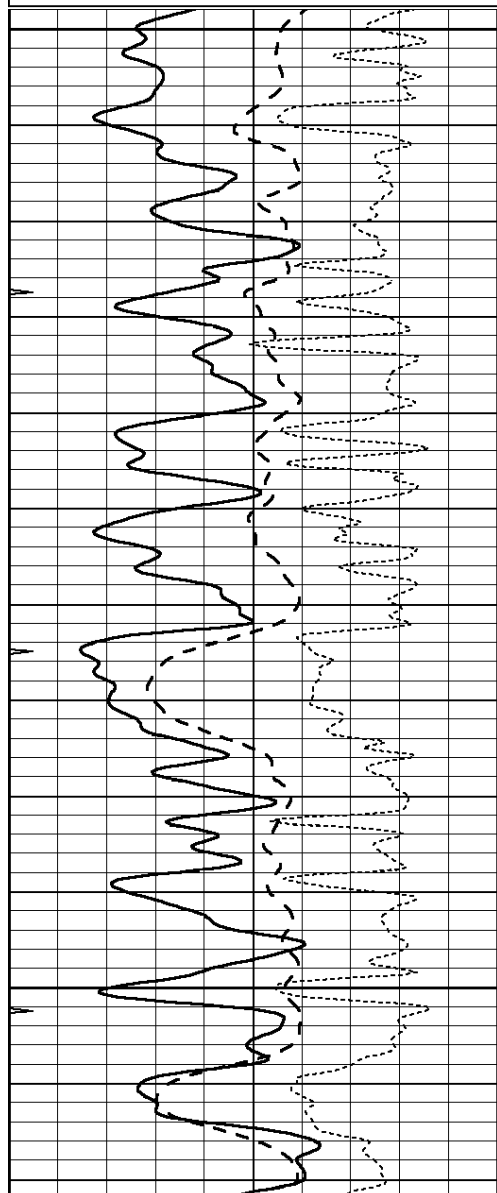


MAIN SECTION

Database File: 010214ddn.db
 Dataset Pathname: pass3.A
 Presentation Format: _dil
 Dataset Creation: Thu Oct 10 13:38:52 2013
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

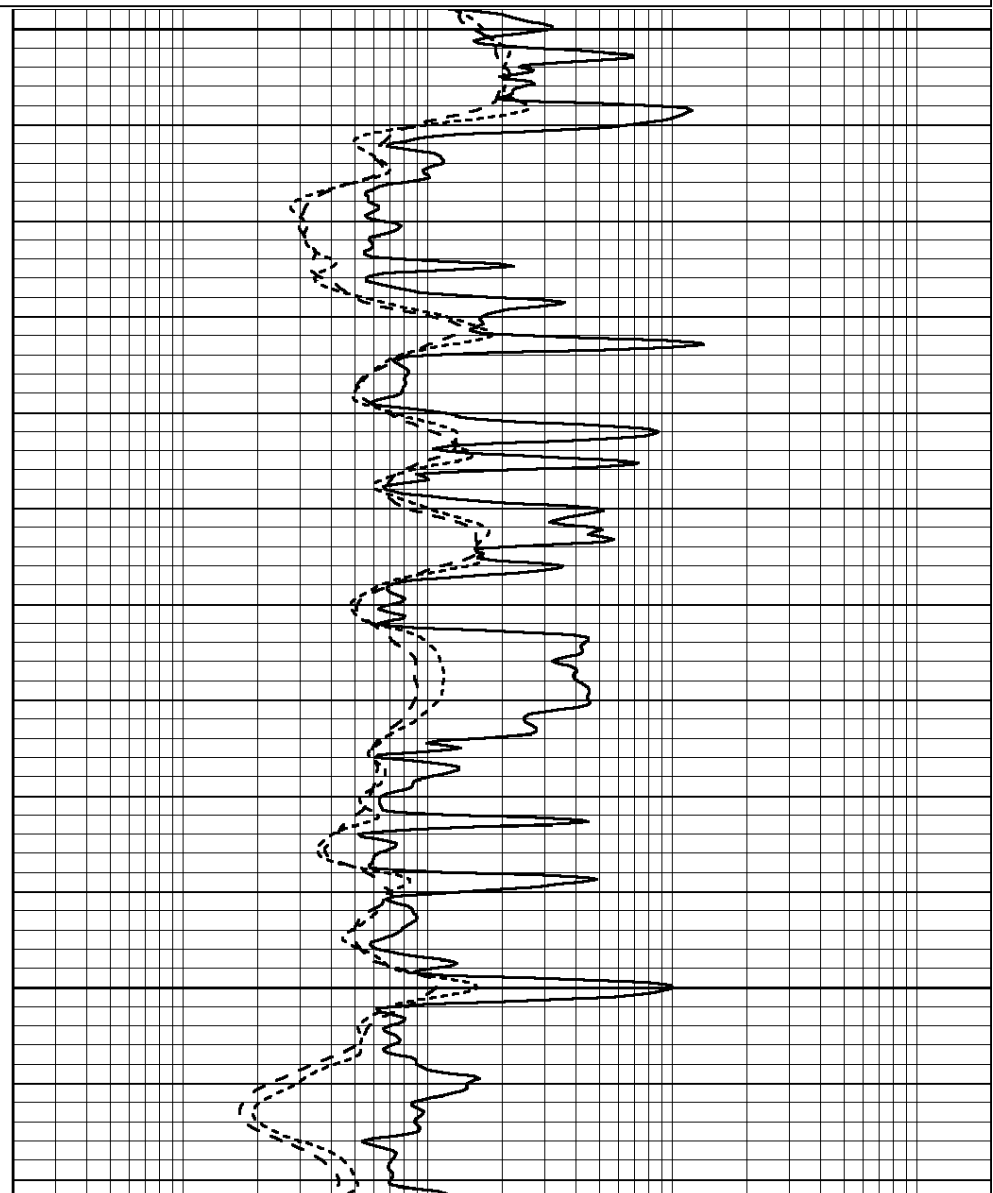
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0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

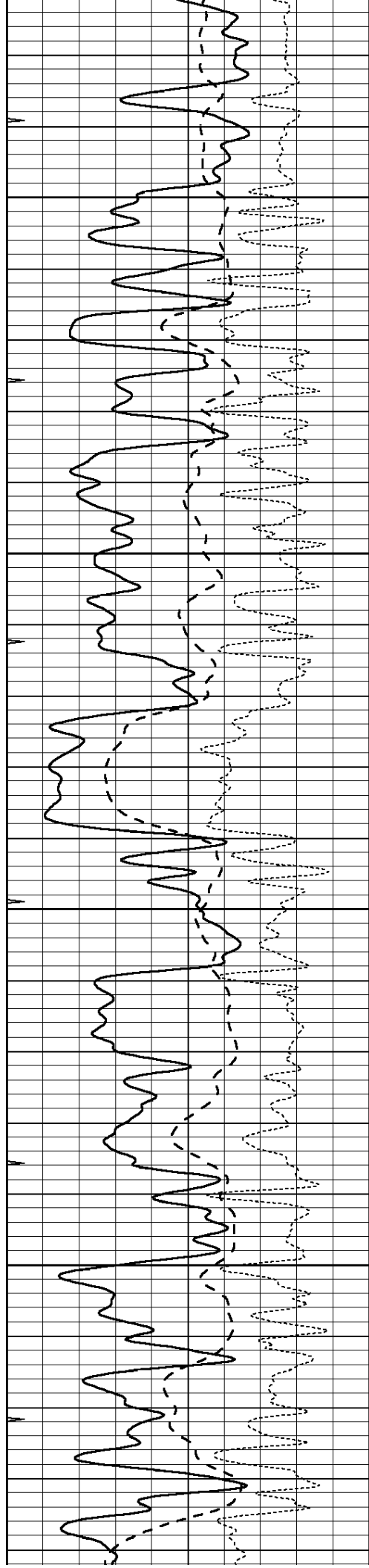


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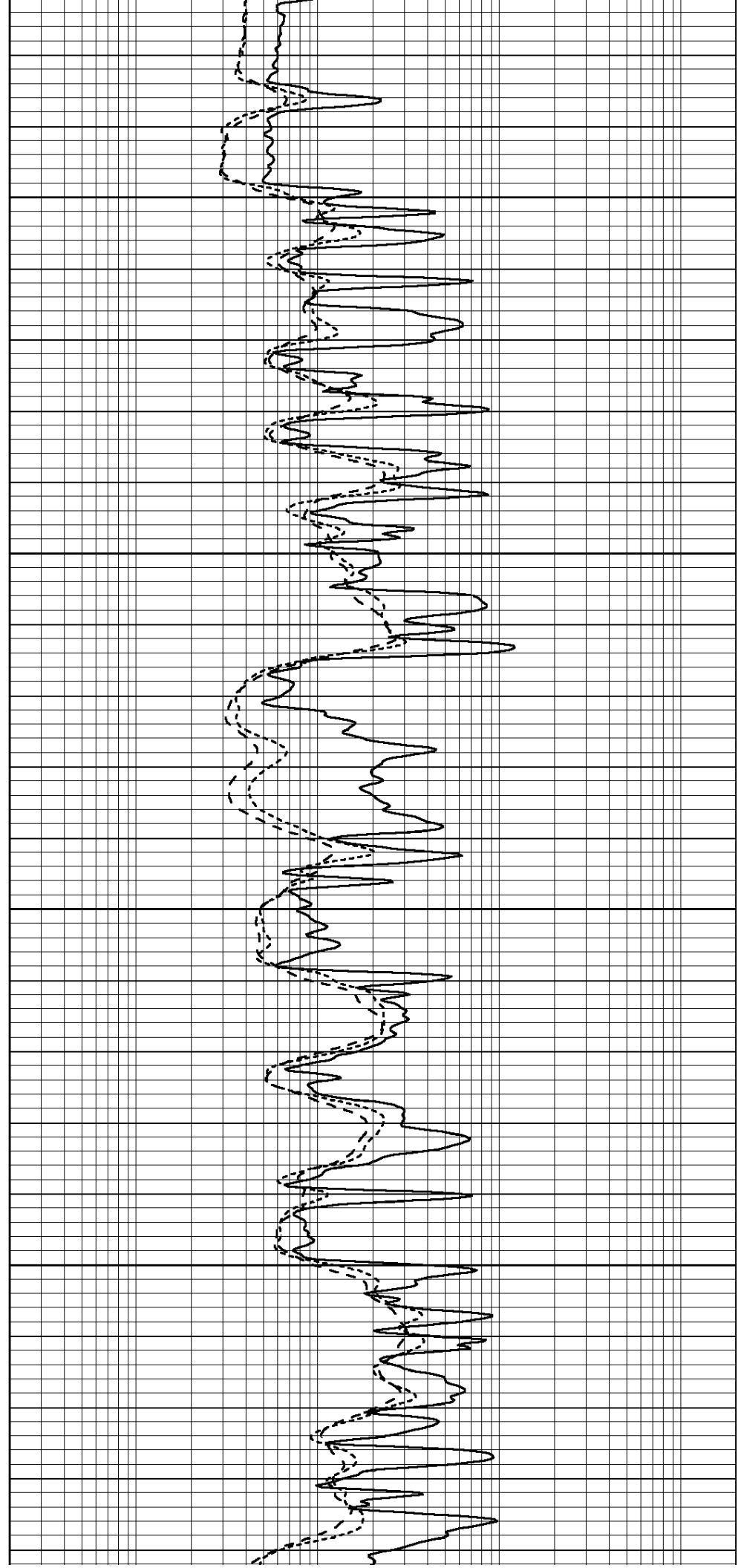


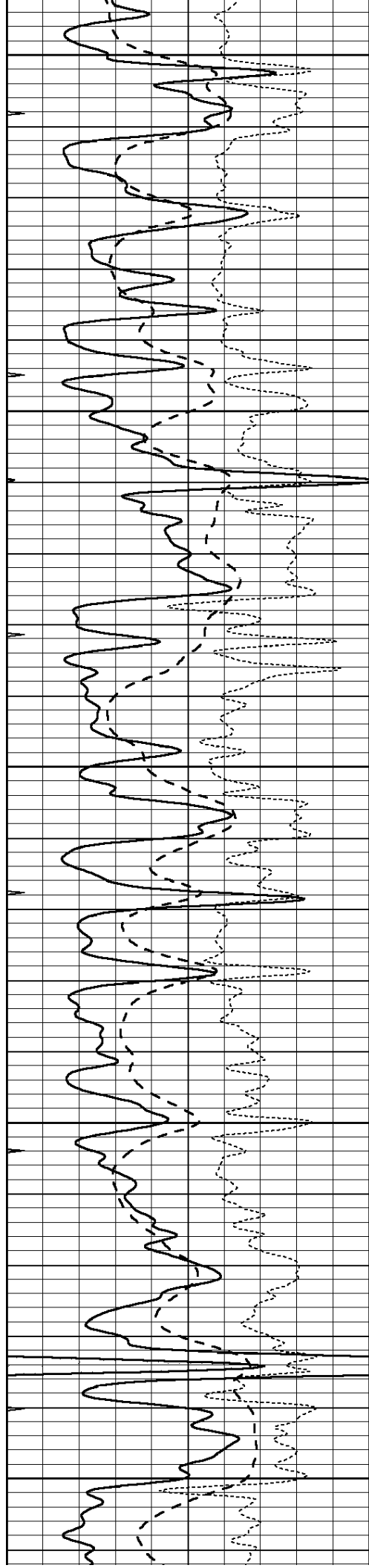
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3700





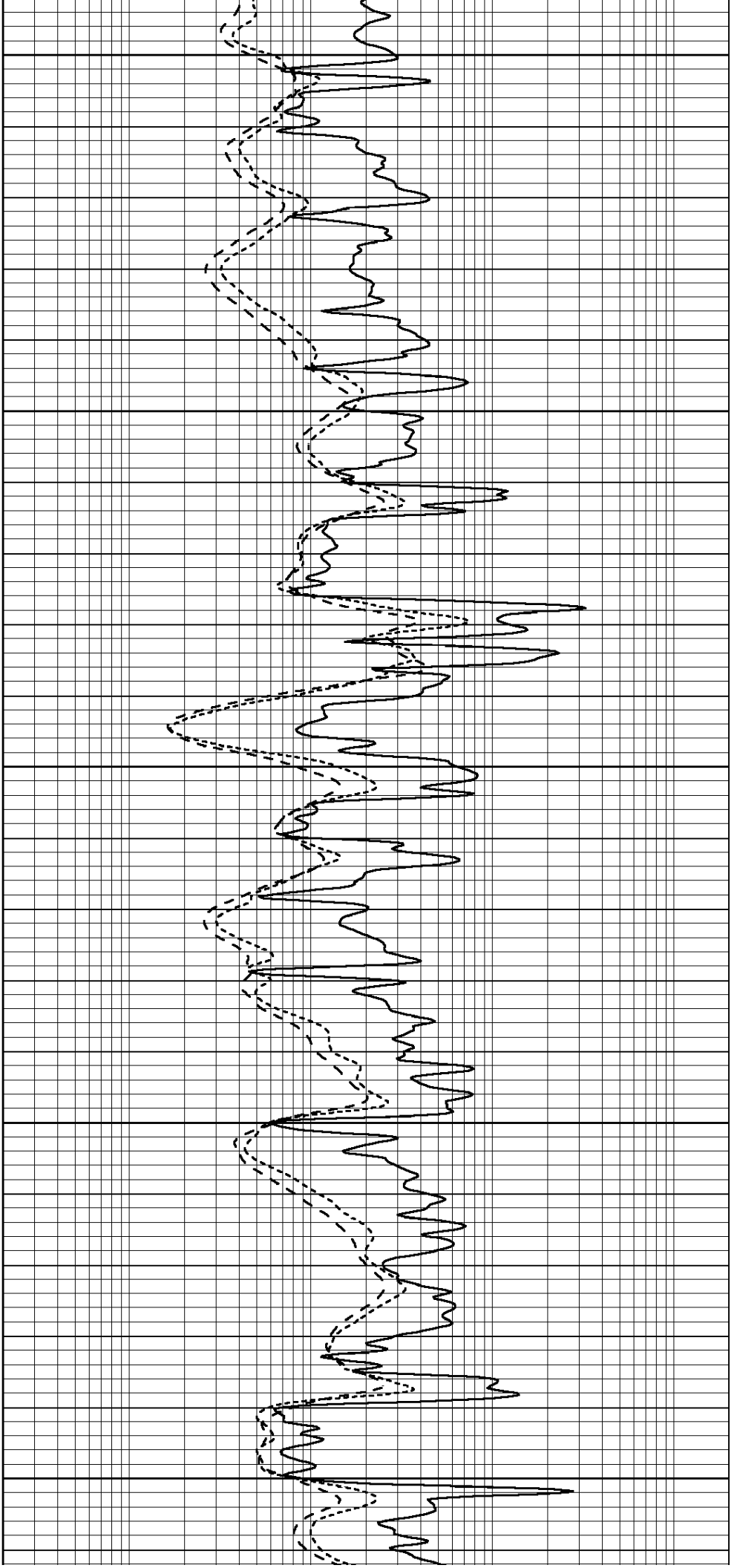
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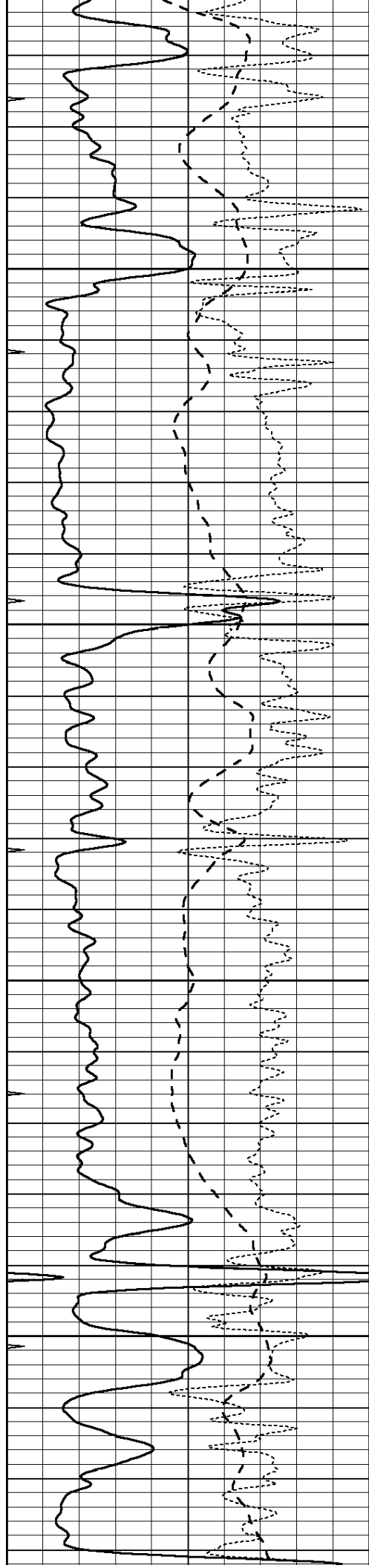
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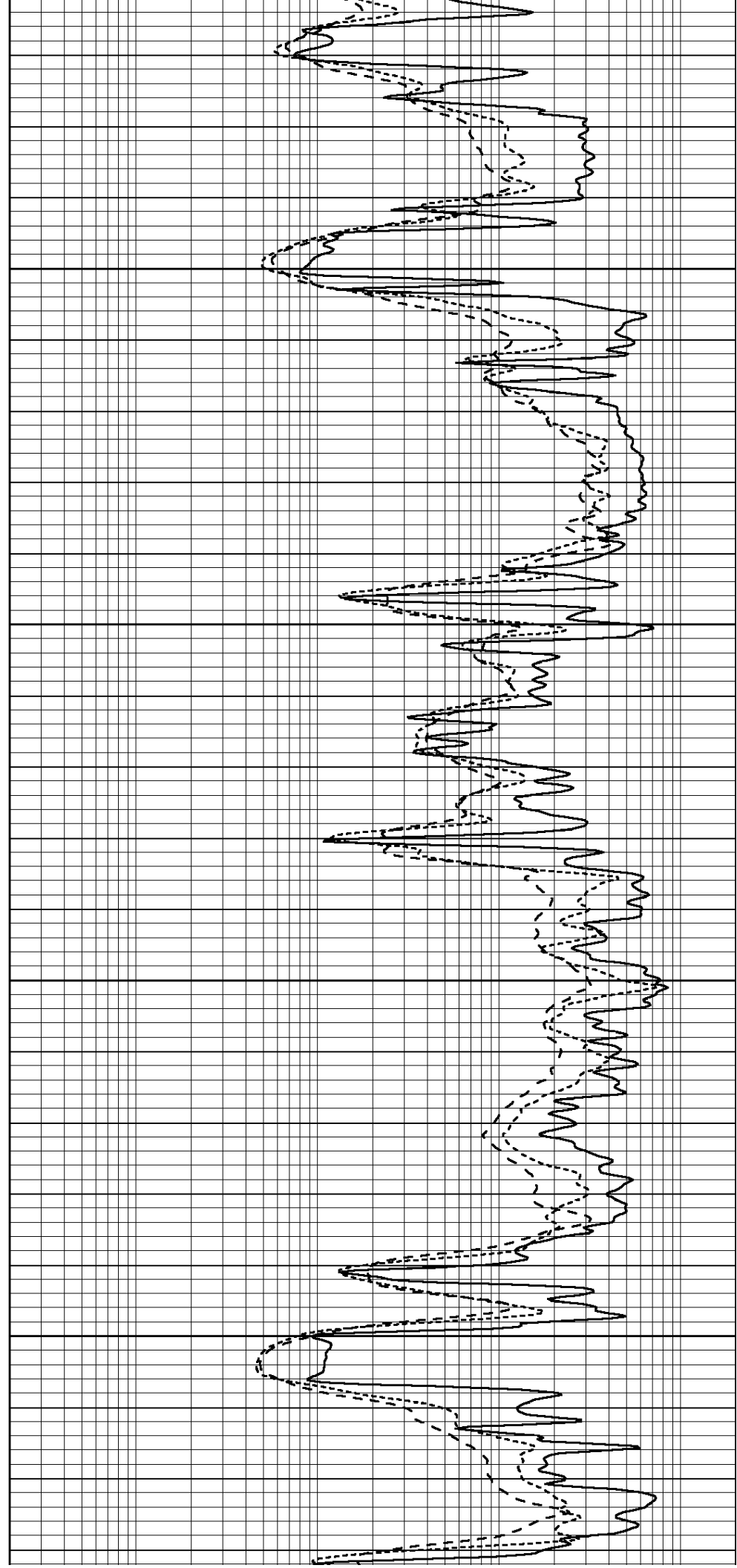


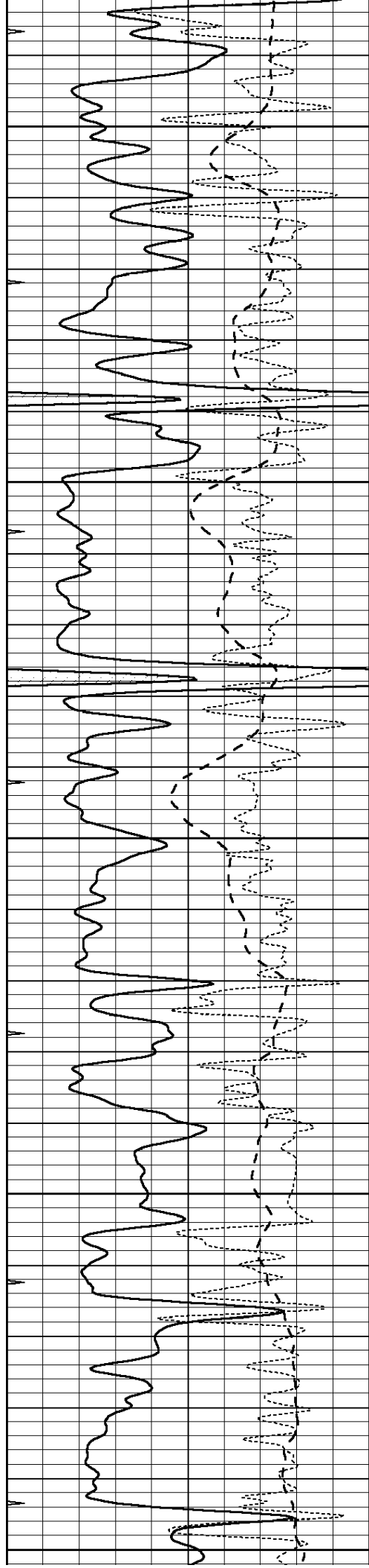
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4100

4150





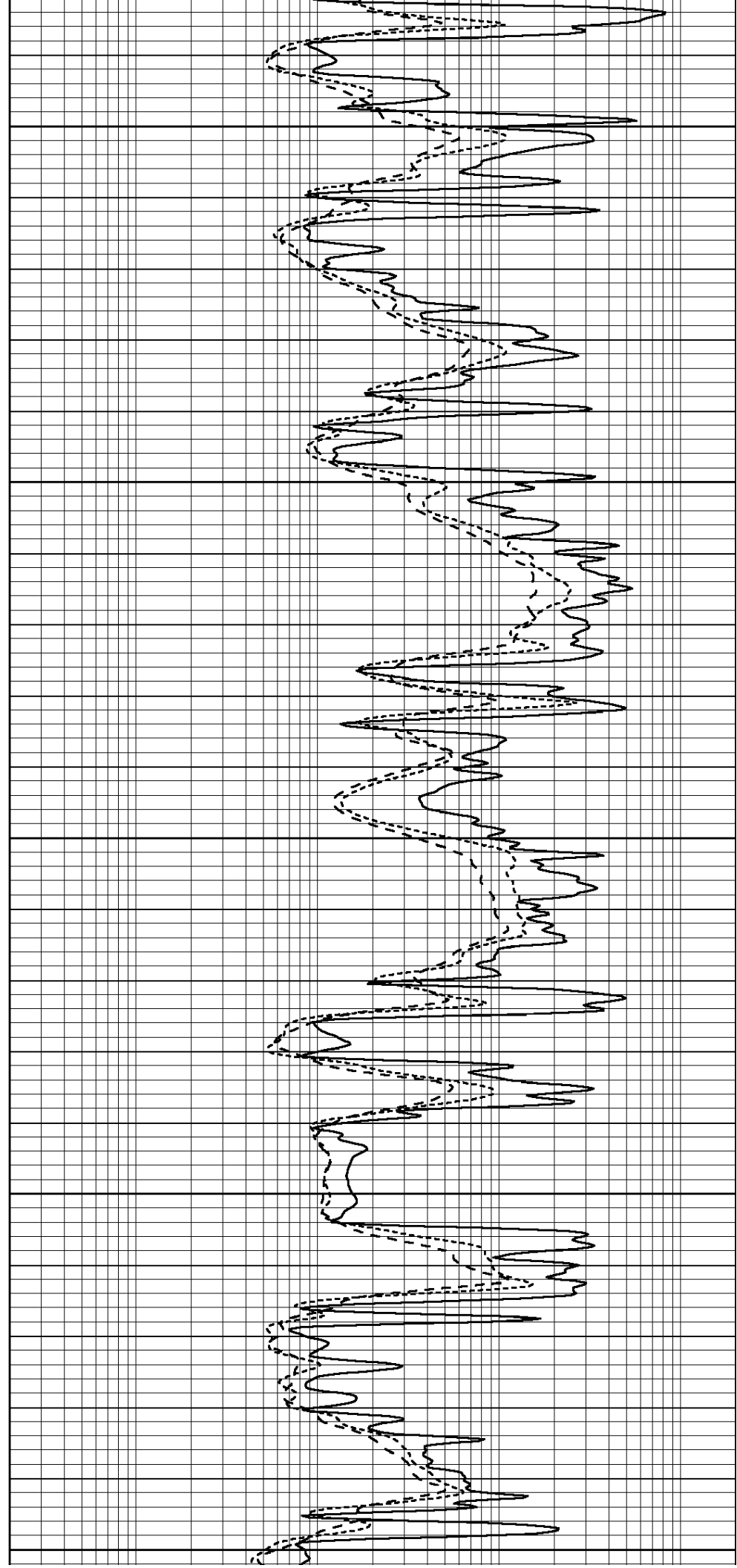
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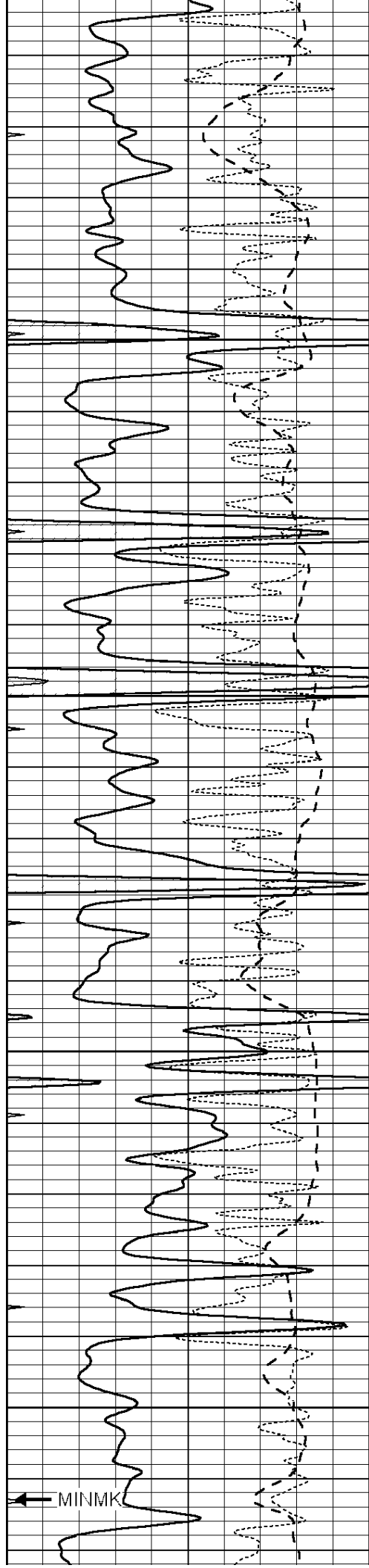
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4350

4400



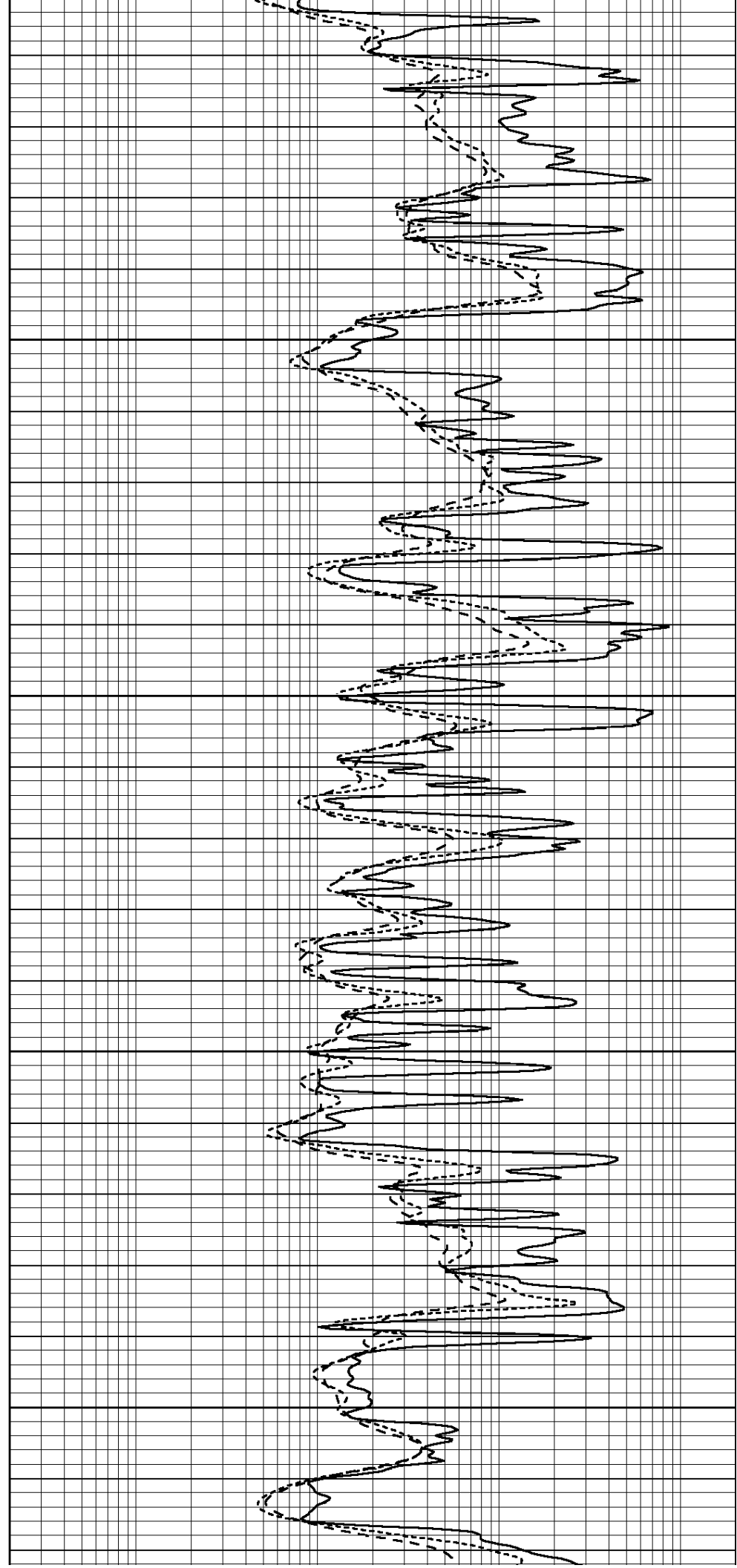


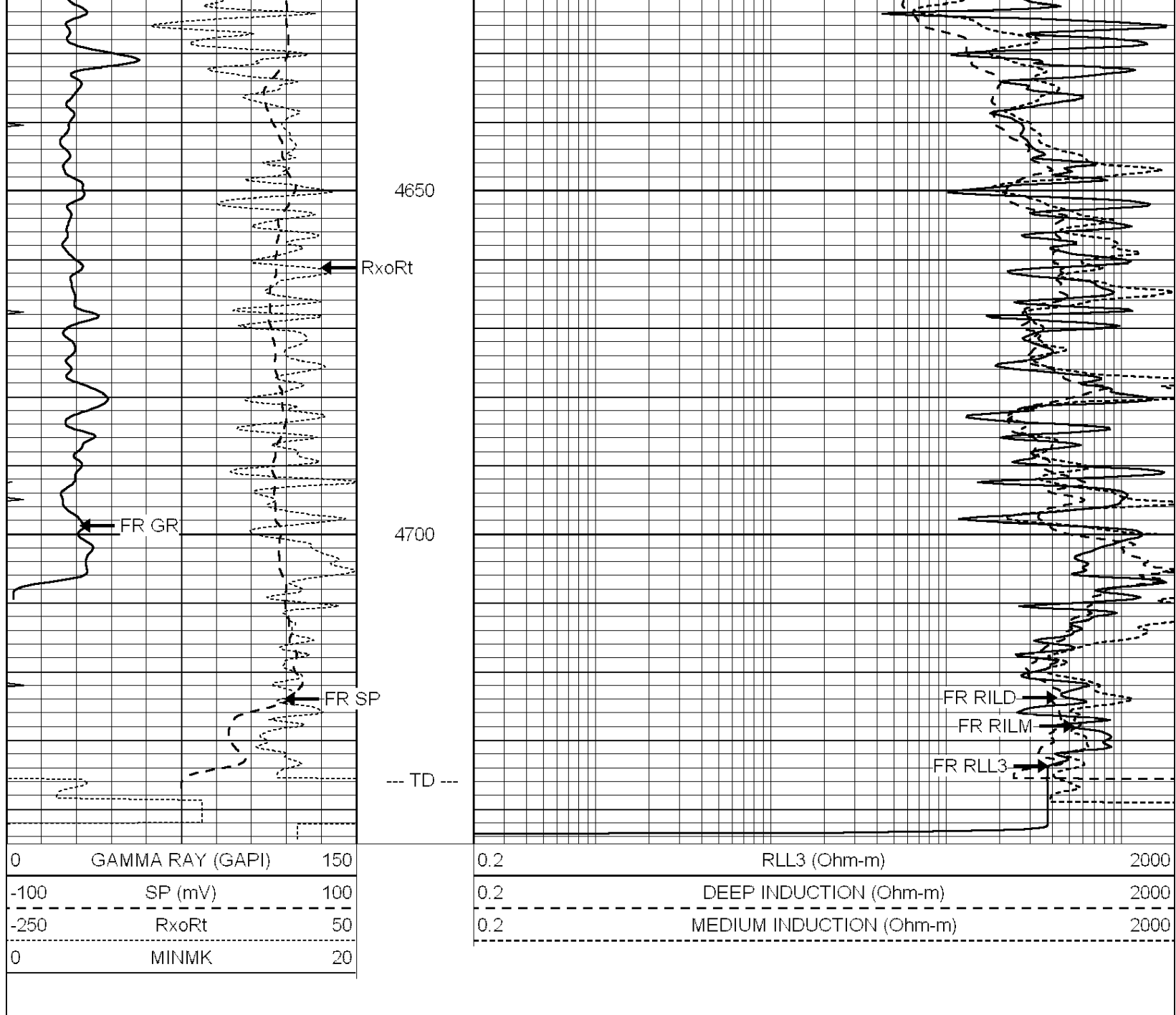
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4500

4550

4600

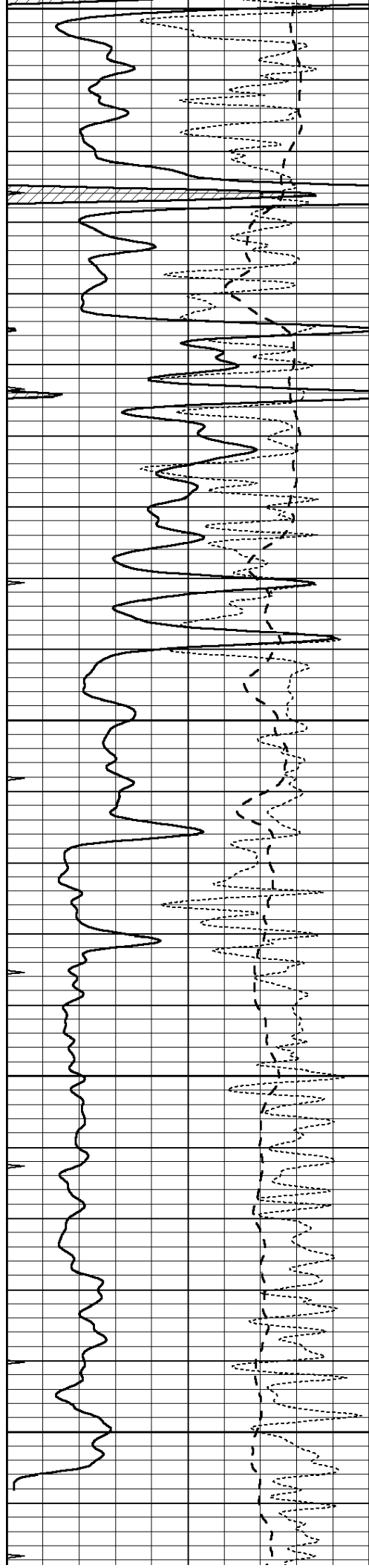




REPEAT SECTION

Database File: 010214ddn.db
 Dataset Pathname: pass2.1A
 Presentation Format: _dil
 Dataset Creation: Thu Oct 10 12:10:44 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	RLL3 (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	RxoRt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			



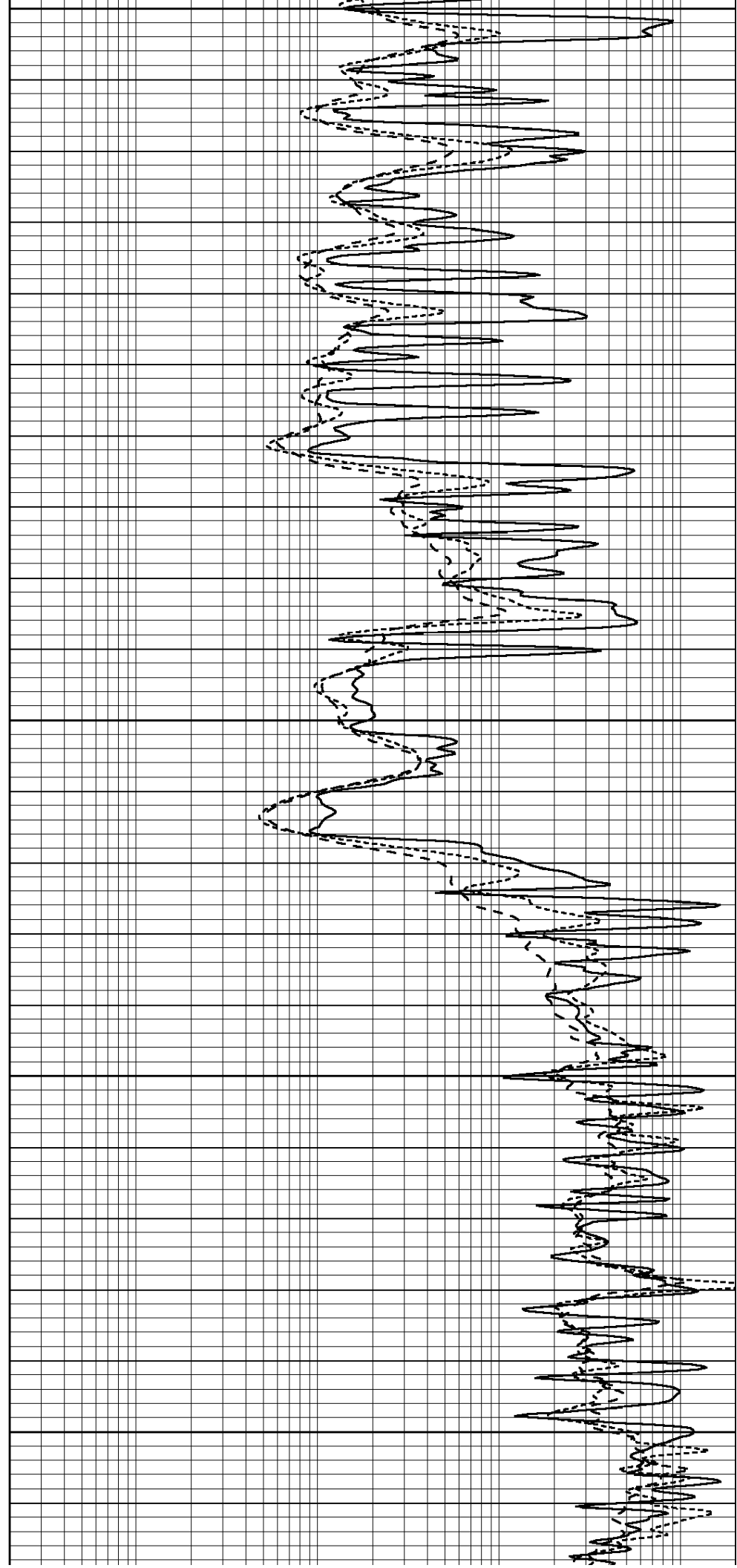
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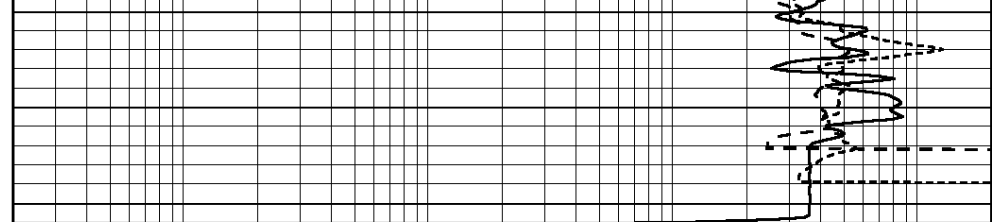
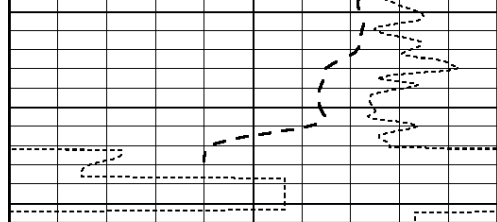
4550

4600

4650

4700





0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 010214ddn.db
 Dataset Pathname: pass3.A
 Dataset Creation: Thu Oct 10 13:38:52 2013

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
 Performed: Thu Oct 10 12:05:57 2013

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	480.000	4.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	550.000	2.500
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	560.000	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	540.000	-4.000

Compensated Density Calibration Report

Serial-Model: GEAR1-GEARHART
 Source / Verifier: 147 / 147
 Master Calibration Performed: Thu Oct 10 12:15:56 2013

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1205.77	610.74	cps
Aluminum	2.580	g/cc	271.21	419.72	cps
Spine Angle = 75.89			Density/Spine Ratio = 0.566		
	Size		Reading		
Small Ring	8.20	in	4.83	V	
Large Ring	14.00	in	7.01	V	

Compensated Neutron Calibration Report

Serial Number: NEU_4I
 Tool Model: G

CALIBRATION

Detector	Readings	Target	Normalization
Short Space	1.00 cps	1.00 cps	1.0000

Short Space

1.00

cps

1.00

cps

1.0000

Long Space

1.00

cps

1.00

cps

1.0000

Gamma Ray Calibration Report

Serial Number:	GR5	
Tool Model:	OPEN	
Performed:	Thu Oct 10 11:53:52 2013	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps