



**SUPERIOR  
Hays,  
Kansas**

**DUAL  
INDUCTION  
LOG**

**Company** MULL DRILLING COMPANY, INC.  
**Well** BERNBECK #1-20  
**Field**  
**County** TREGO **State** KANSAS

**Company** MULL DRILLING CO., INC.  
**Well** BERNBECK #1-20  
**Field**  
**County** TREGO  
**State** KANSAS

**Location:** API #: 15-195-22723  
1350' FSL & 1075' FWL  
SEC 20 TWP 15S RGE 23W  
Permanent Datum GROUND LEVEL Elevation 2379  
Log Measured From KELLY BUSHING 5' A.G.L.  
Drilling Measured From KELLY BUSHING  
Other Services  
CDL/CNL/PE  
SONIC/MEL  
Elevation  
K.B. 2384  
D.F.  
G.L. 2379

Date	8-22-11
Run Number	ONE
Depth Driller	4473
Depth Logger	4474
Bottom Logged Interval	4472
Top Log Interval	00
Casing Driller	215
Casing Logger	215
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3 / 55
pH / Fluid Loss	10.5 / 7.2
Source of Sample	FLOWLINE
Rim @ Meas. Temp	0.80 @ 94F
Rmf @ Meas. Temp	0.60 @ 94F
Rmc @ Meas. Temp	0.96 @ 94F
Source of Rmf / Rmc	MEASURED
Rim @ BHT	.630 @ 119F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	4:15 A.M.
Maximum Recorded Temperature	119F
Equipment Number	860
Location	HAYS, KS.
Recorded By	RUPP
Witnessed By	LARRY FRIEND

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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

SUPERIOR WELL SERVICES  
785-628-6395  
THANK YOU FOR YOUR BUSINESS  
DIRECTIONS: RANSOM JCT. OF #4 & #283, 5N, 1/8W, N INTO.



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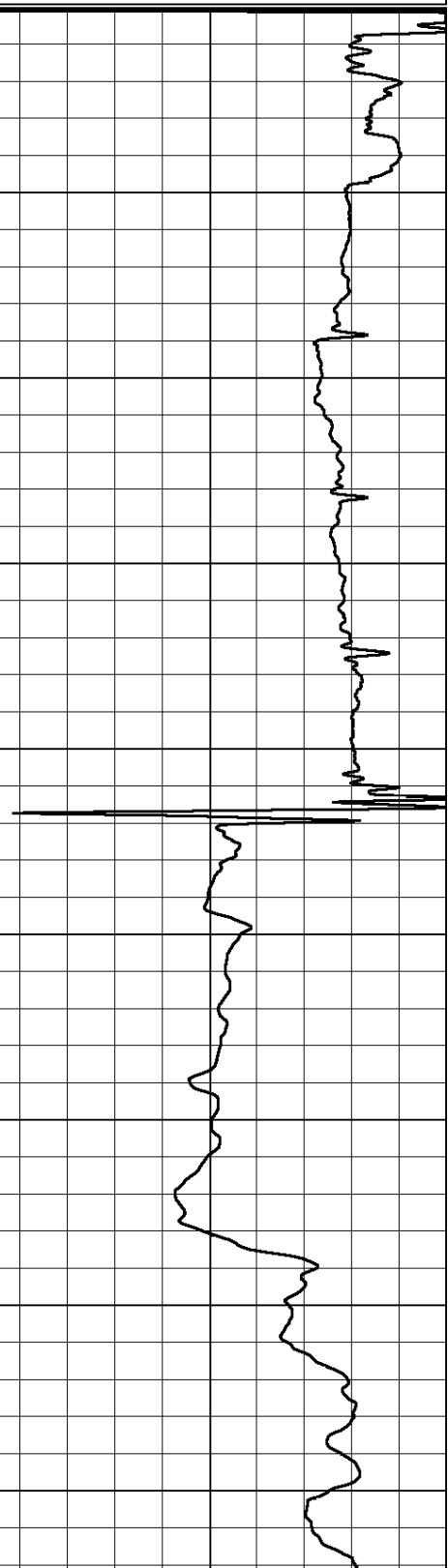
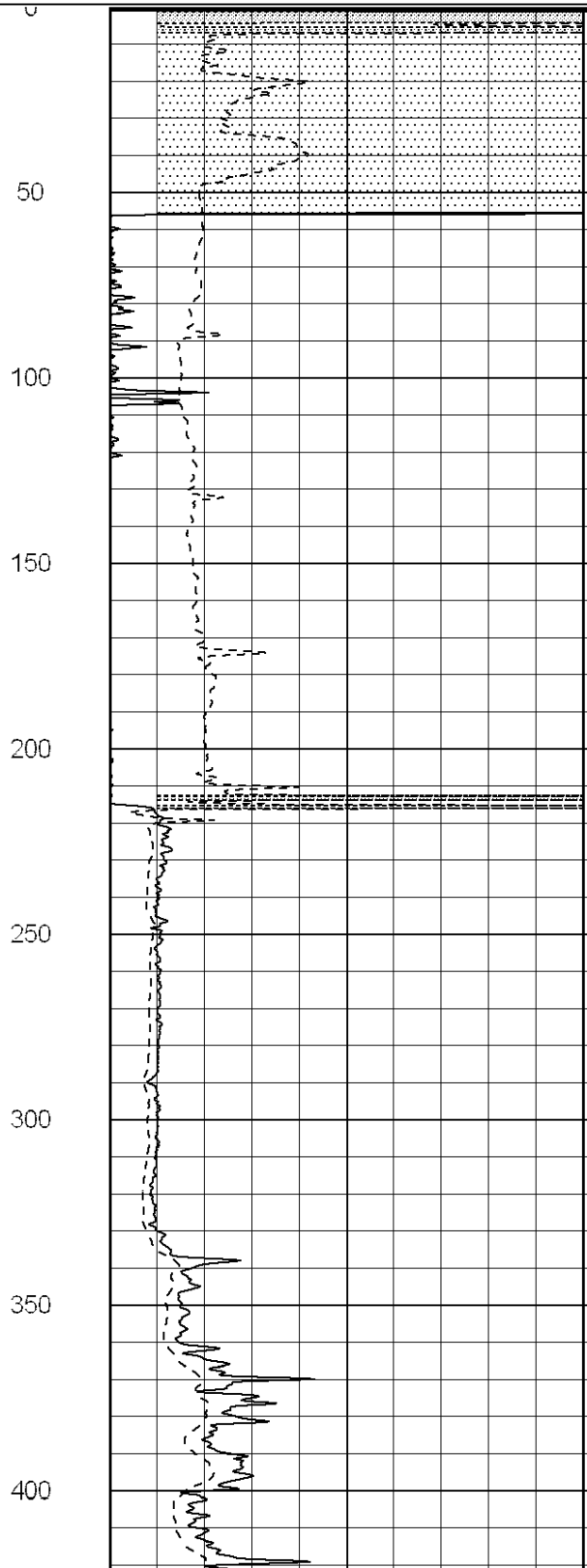
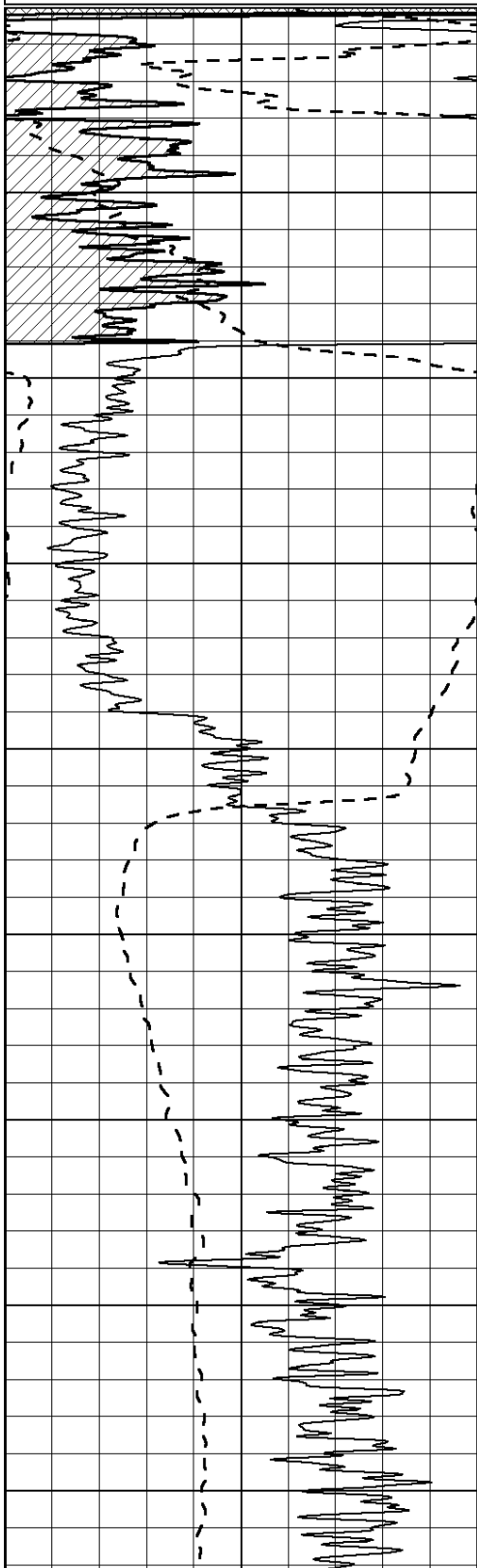
**MAIN SECTION**

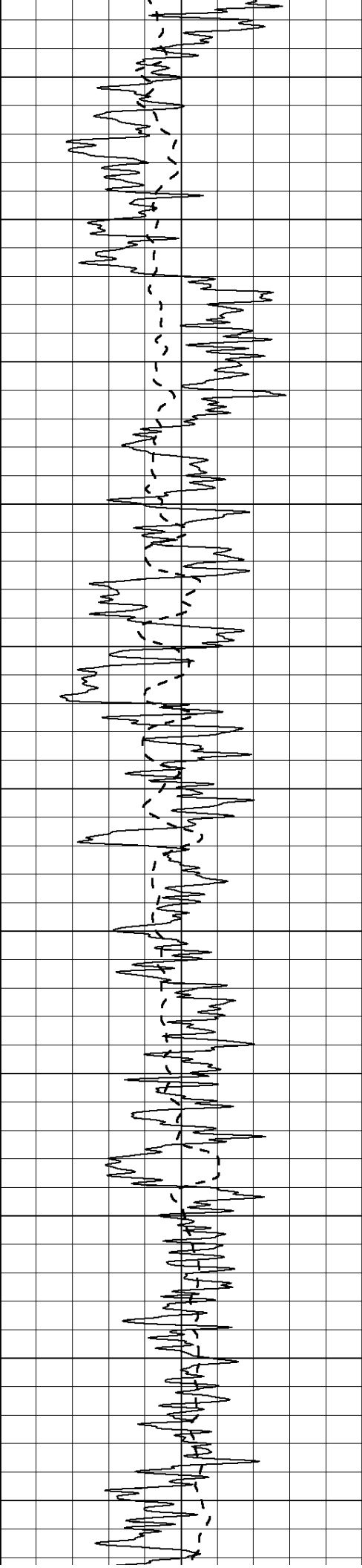
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 Dataset Pathname: pass3.1A  
 Presentation Format: dil2  
 Dataset Creation: Mon Aug 22 06:29:22 2011  
 Charted by: Depth in Feet scaled 1:600

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

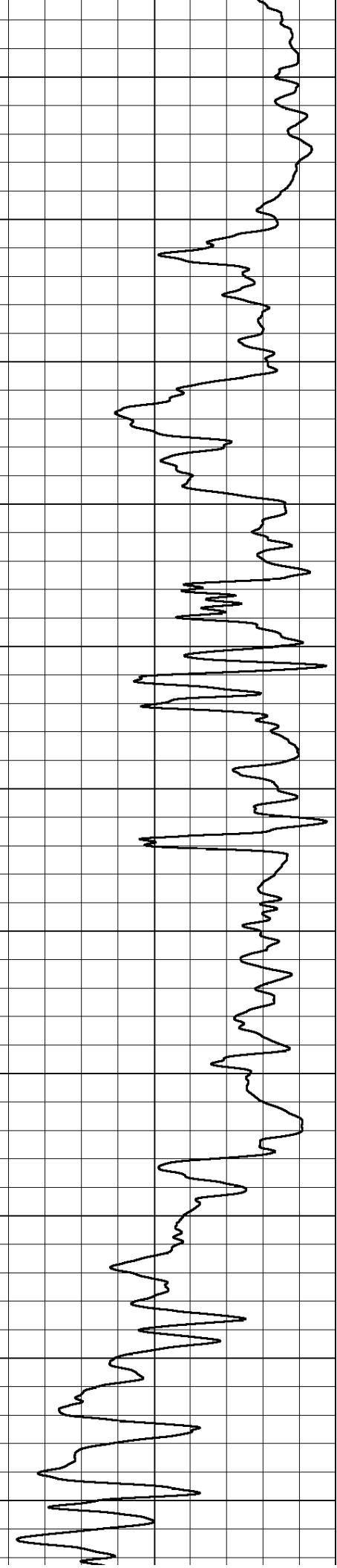
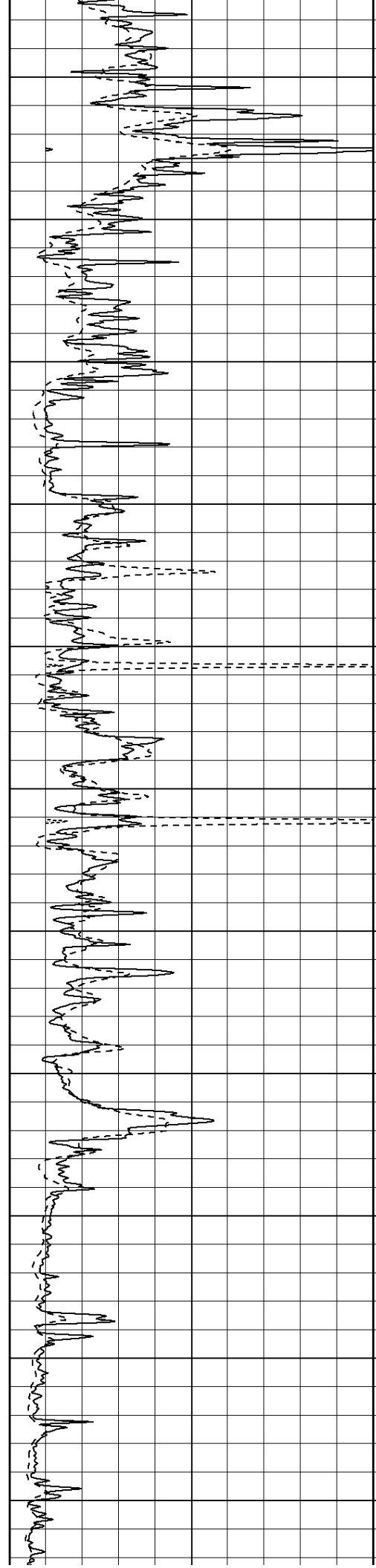
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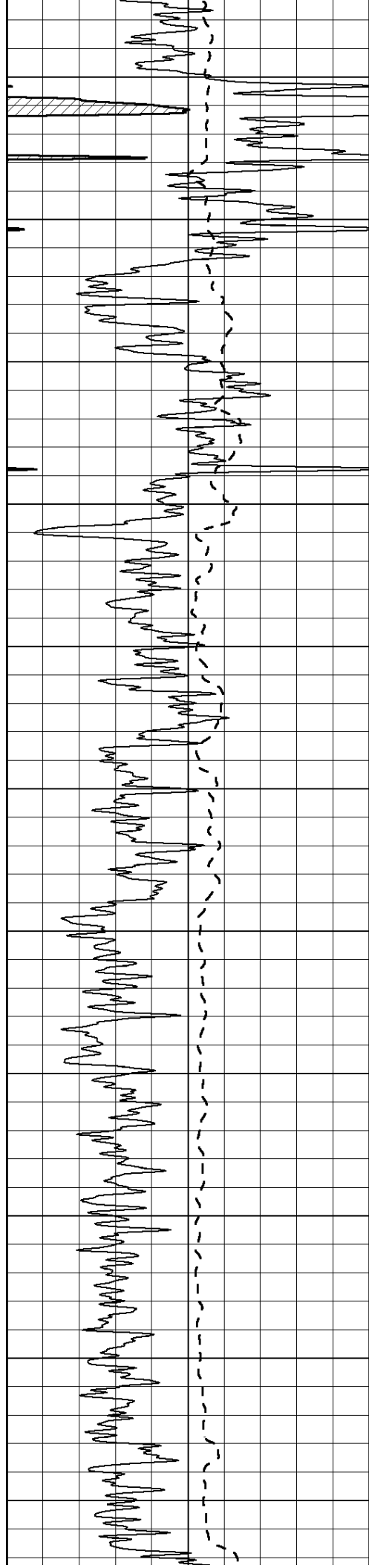
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50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500



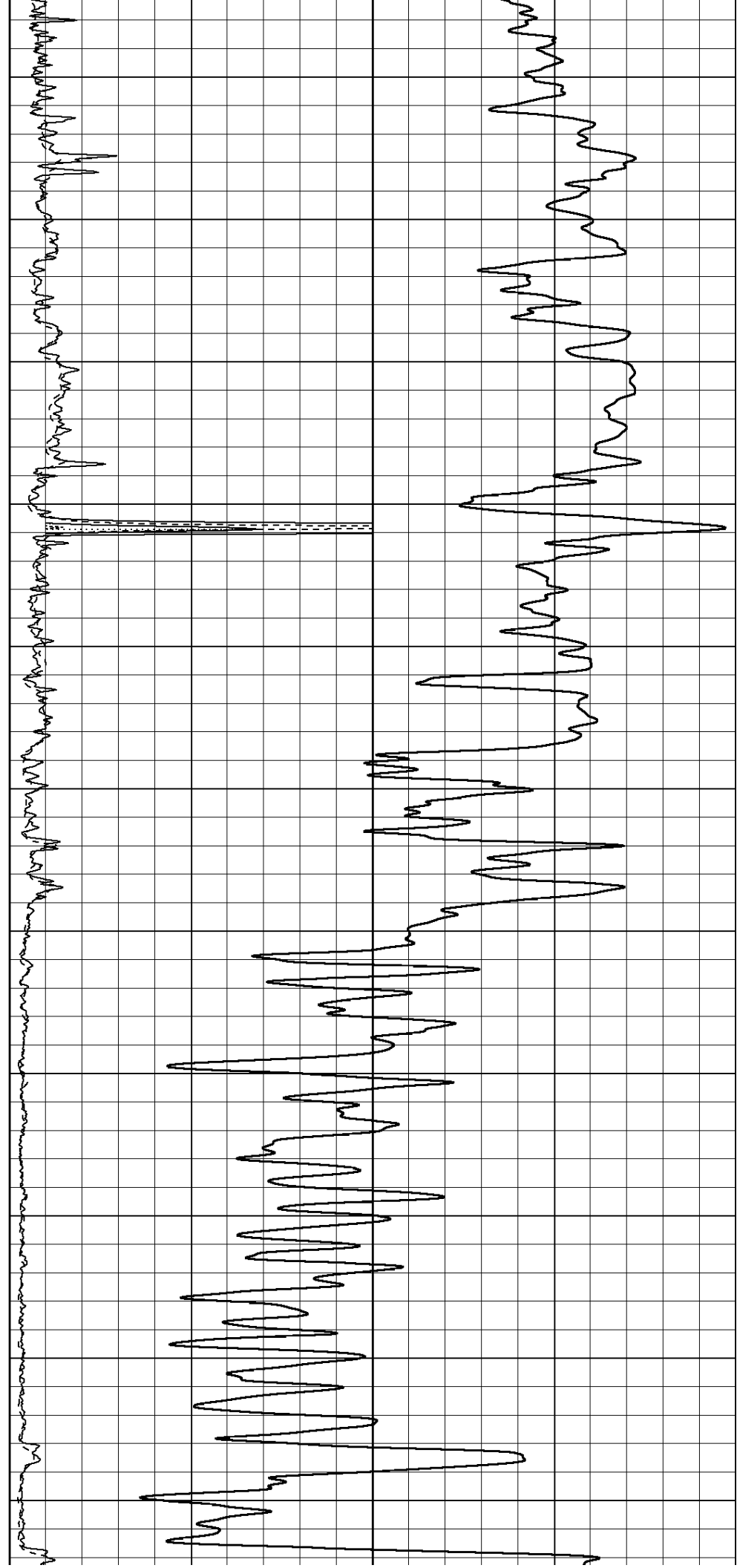


450  
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550  
600  
650  
700  
750  
800  
850  
900  
950





1000  
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1100  
1150  
1200  
1250  
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1350  
1400  
1450  
1500



1550

1600

1650

1700

1750

1800

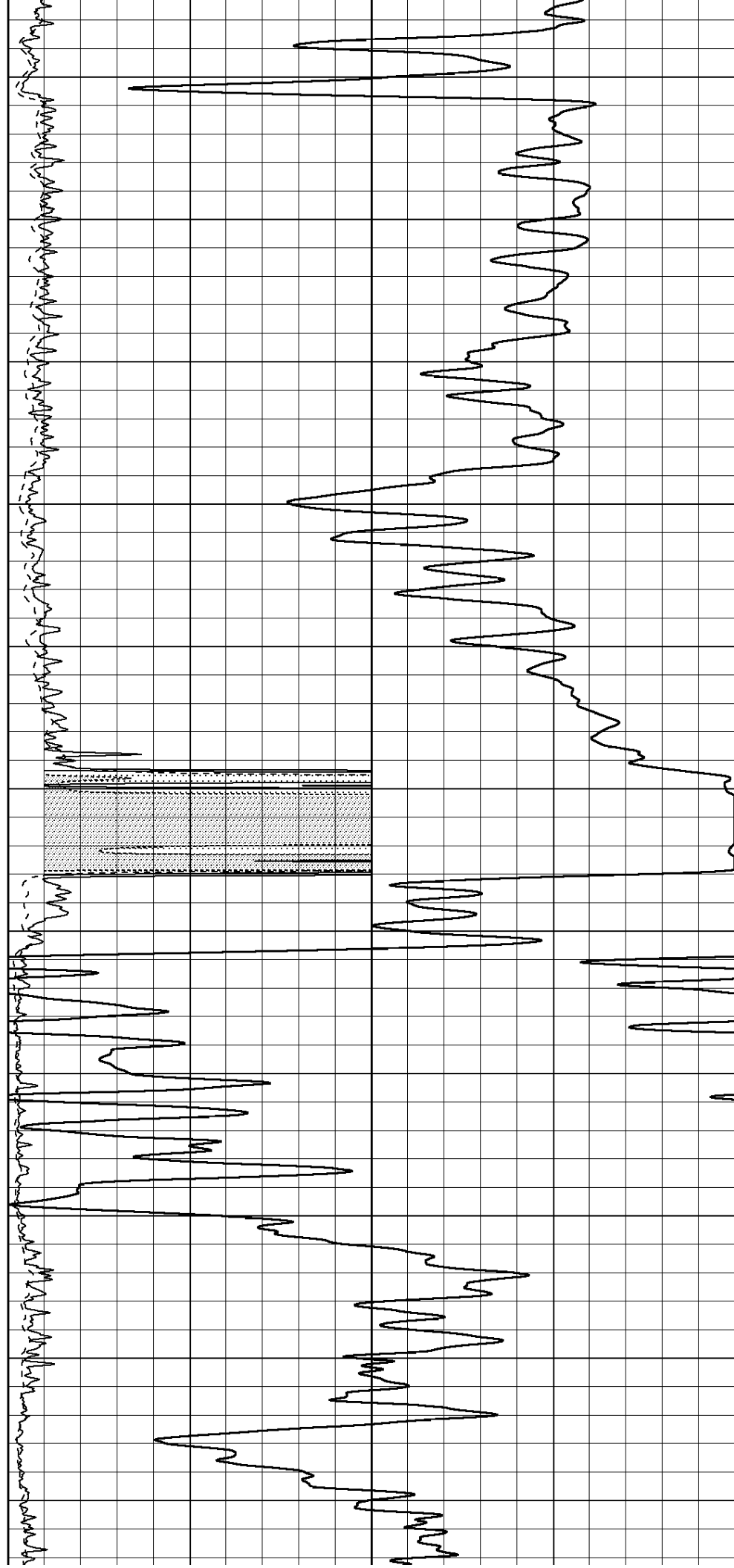
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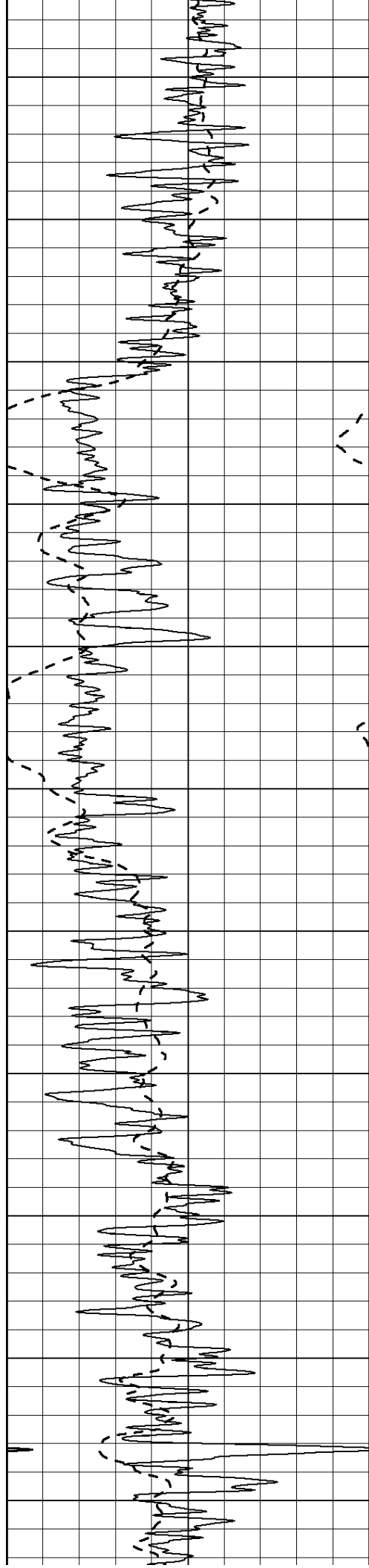
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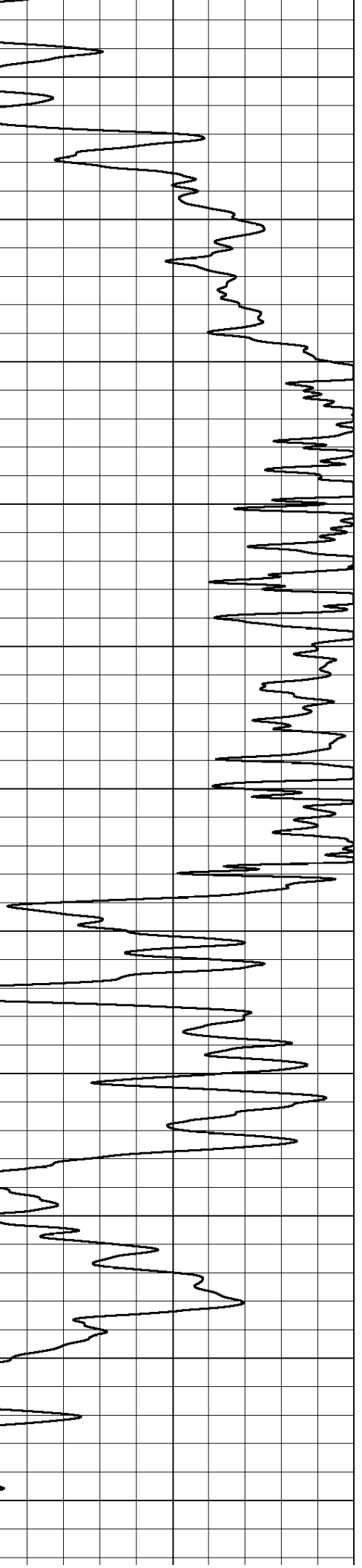
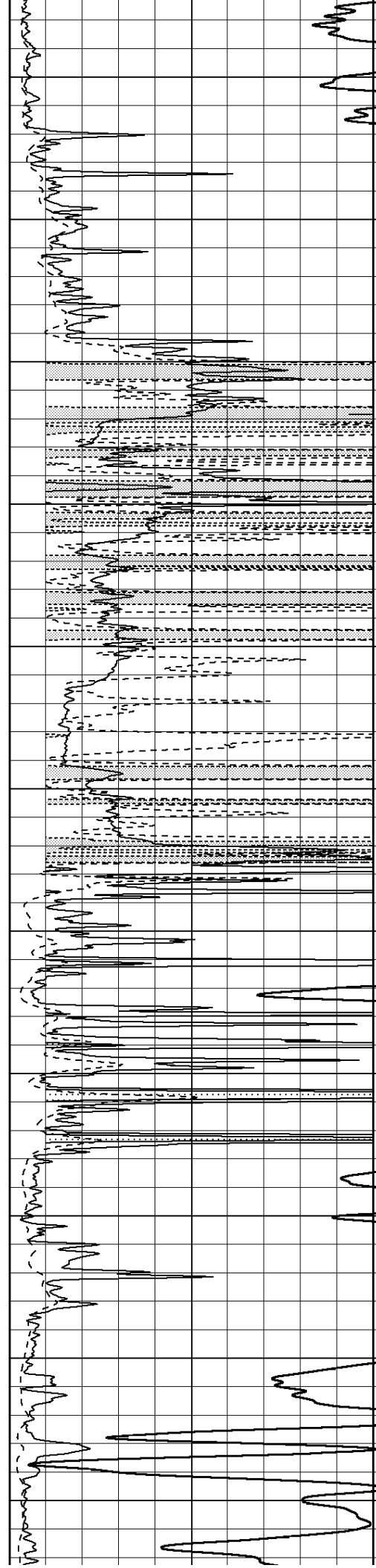
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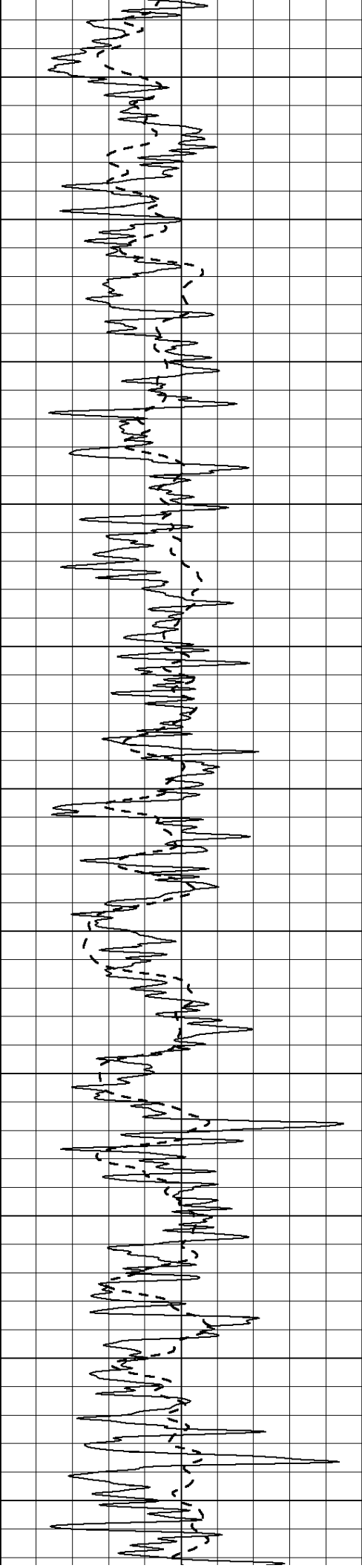
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2100  
2150  
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2250  
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2450  
2500  
2550  
2600





2650

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2800

2850

2900

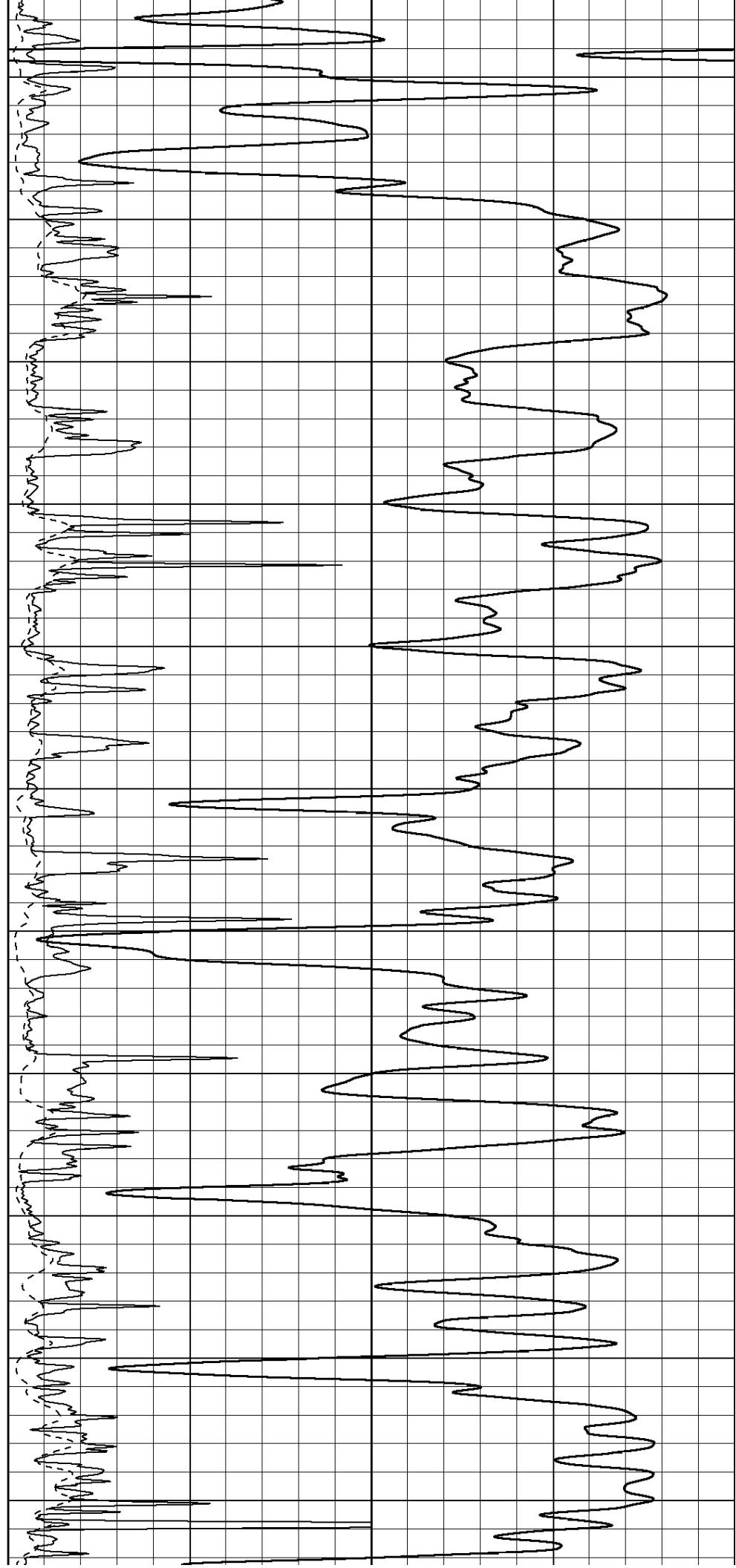
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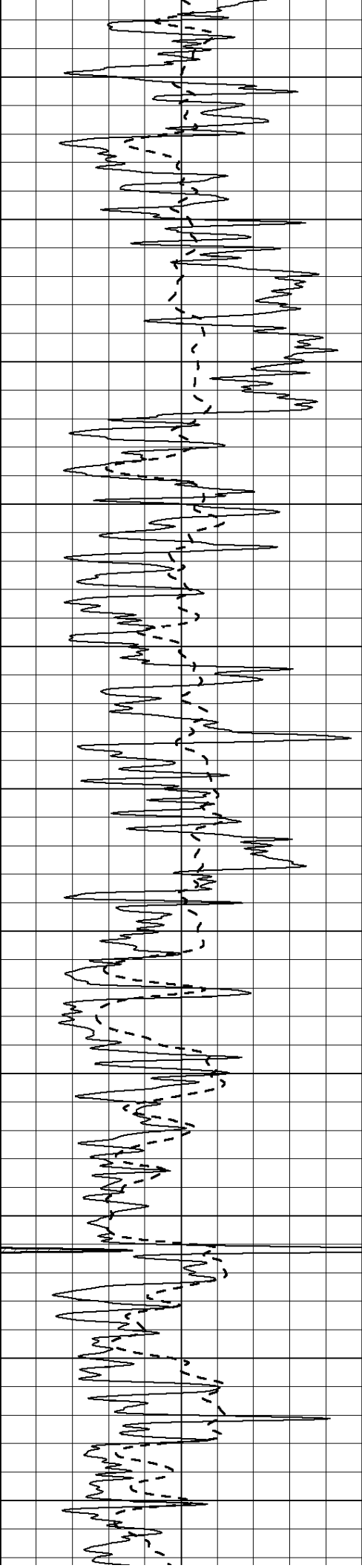
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3050

3100

3150





3200

3250

3300

3350

3400

3450

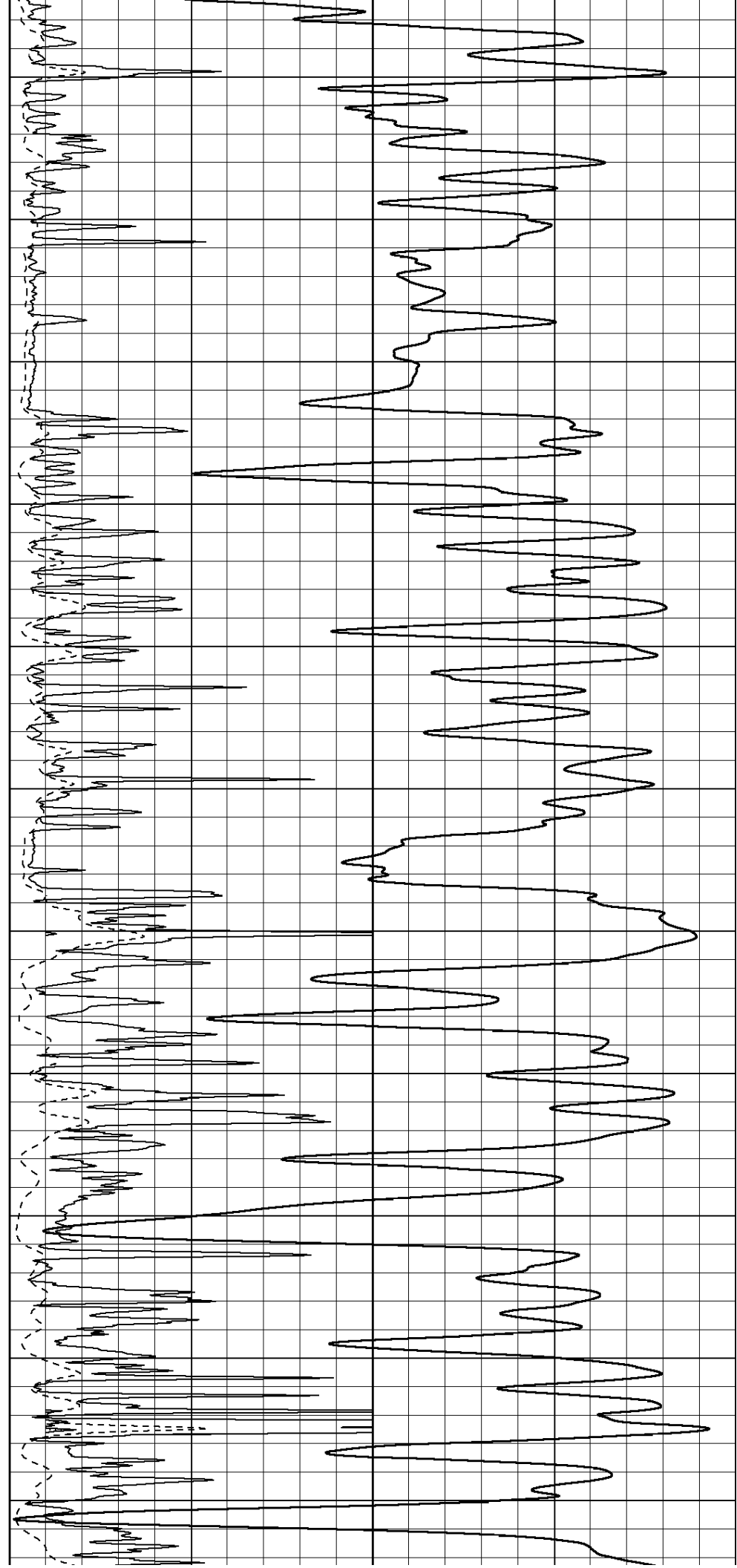
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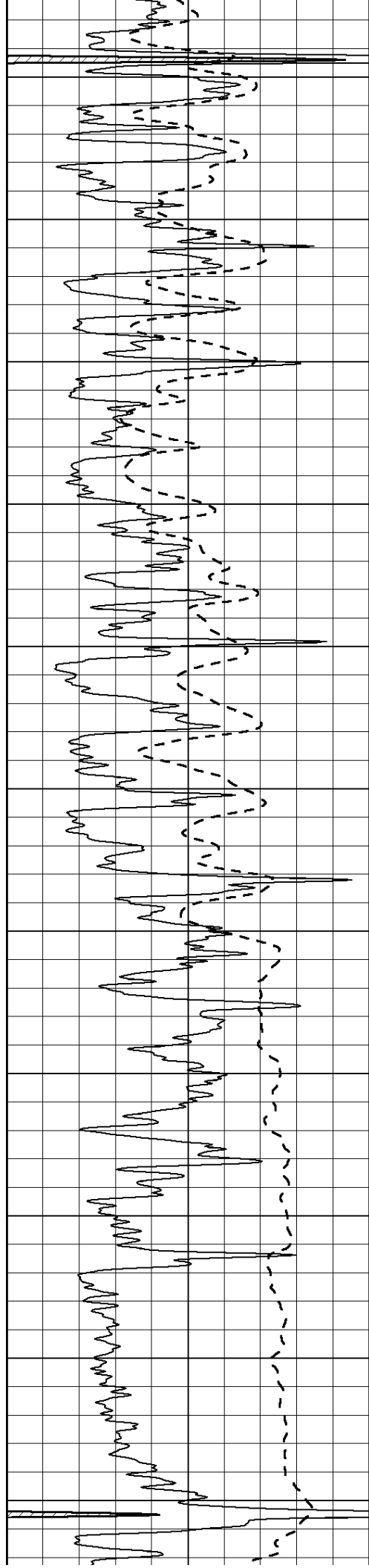
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3600

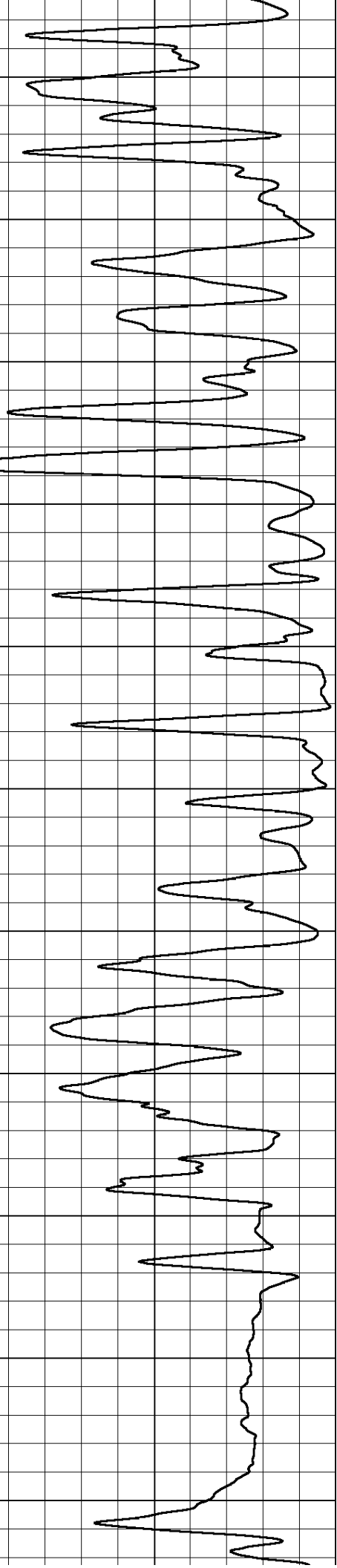
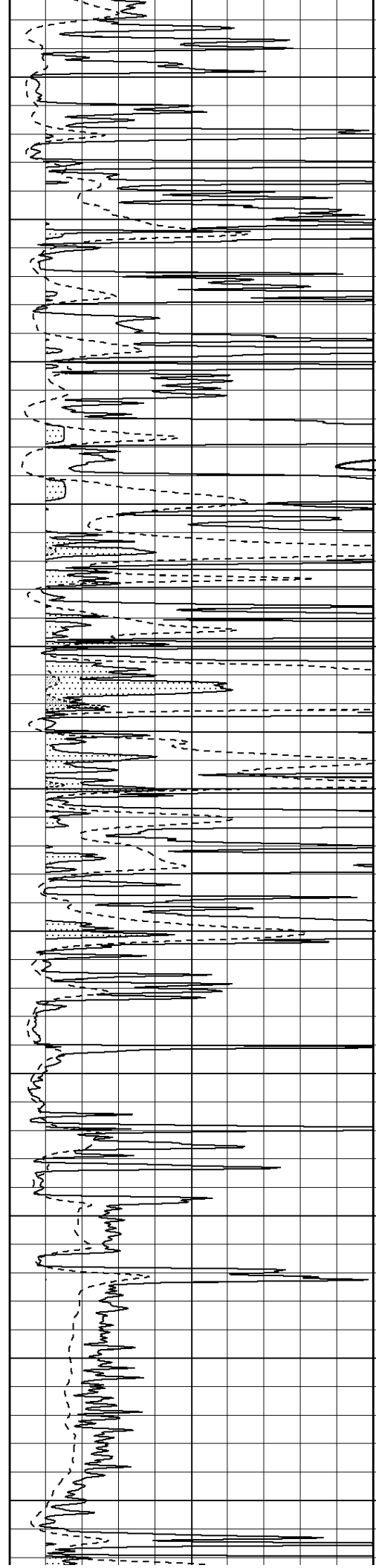
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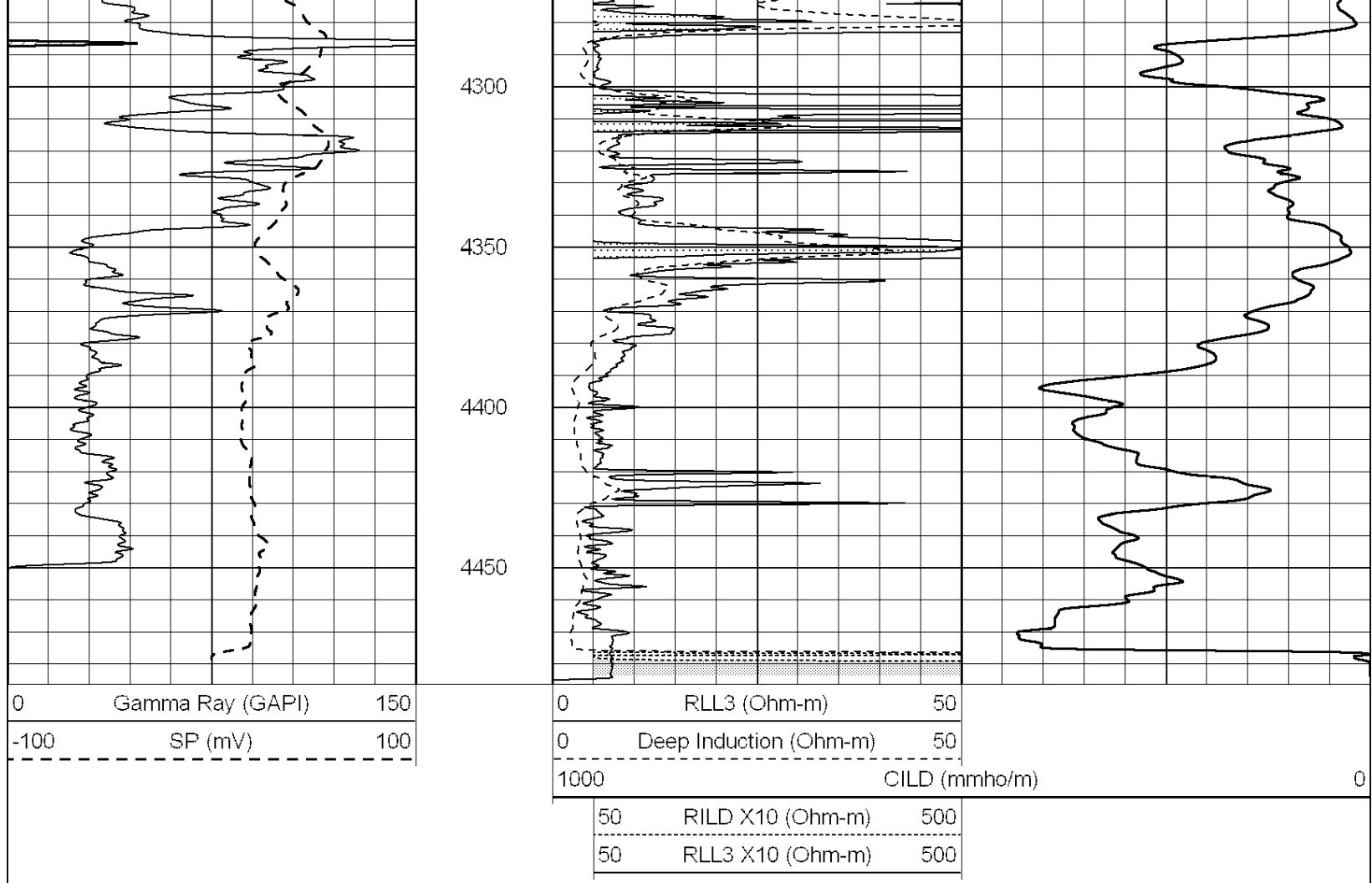
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3750  
3800  
3850  
3900  
3950  
4000  
4050  
4100  
4150  
4200  
4250



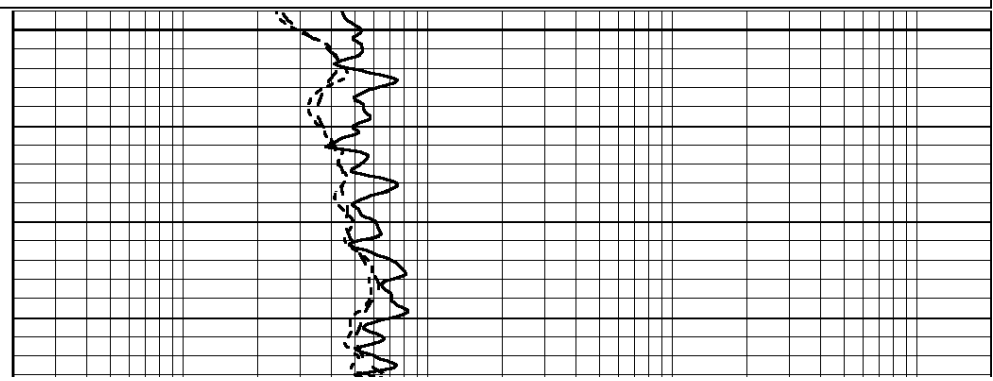
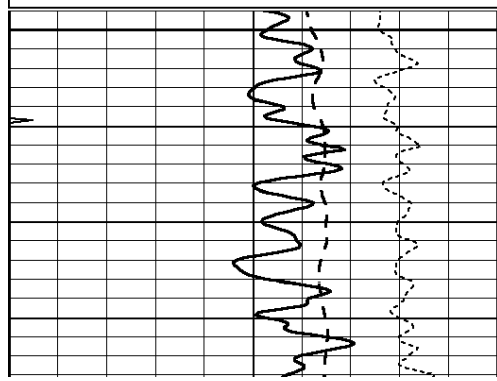


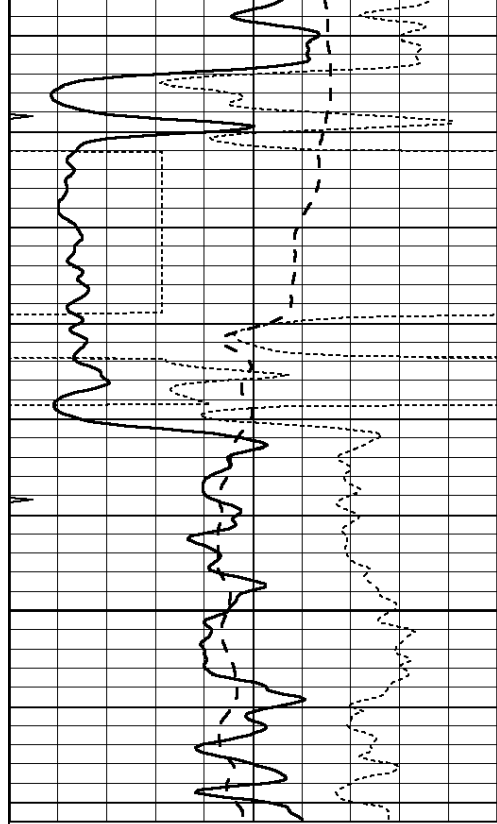
SUPERIOR  
Hays,  
Kansas

# MAIN SECTION

Database File: 007350pdn.db  
 Dataset Pathname: pass3.1A  
 Presentation Format: dil  
 Dataset Creation: Mon Aug 22 06:29:22 2011  
 Charted by: Depth in Feet scaled 1:240

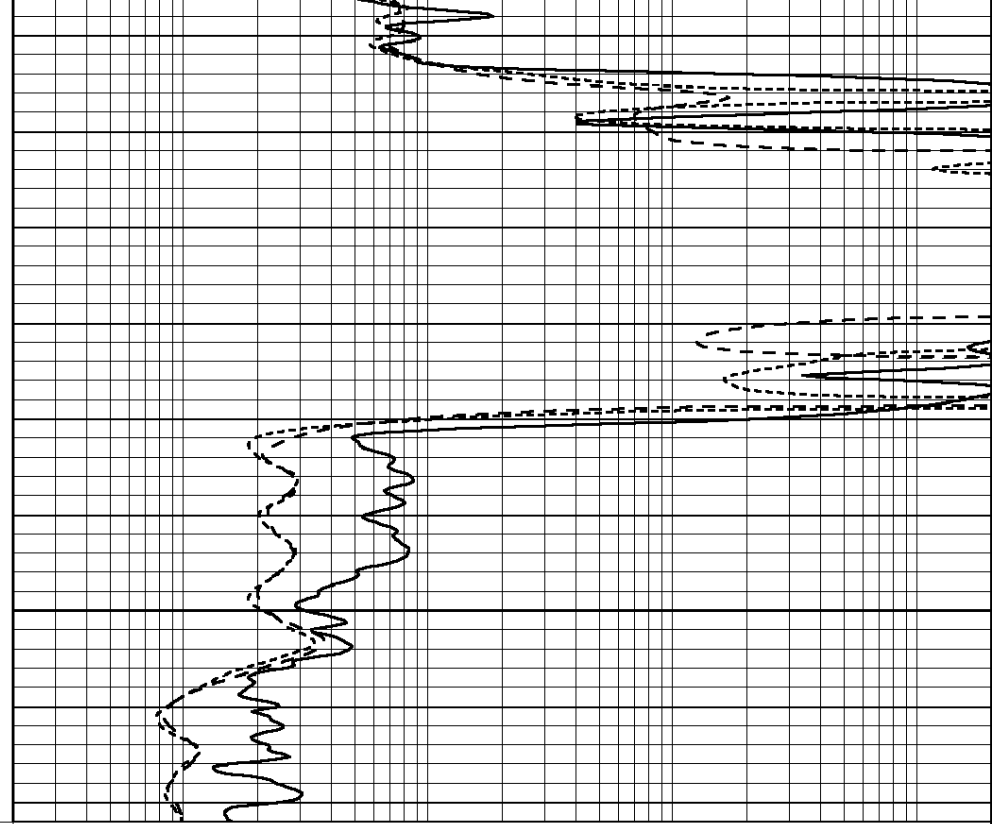
0	GAMMA RAY (GAPI)	150	0.2	RLL3 (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	RxoRt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			





1800  
1850

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



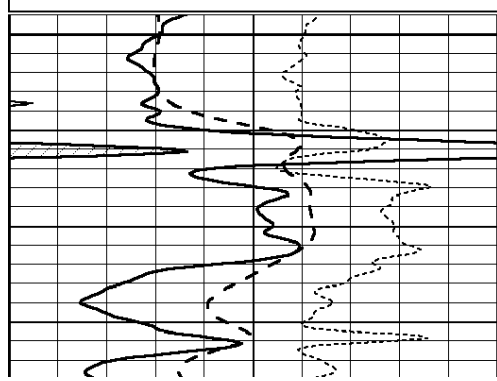
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# MAIN SECTION

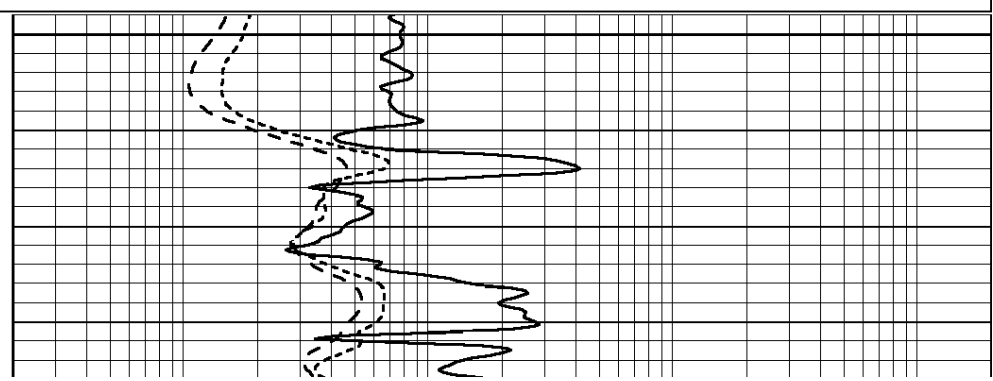
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 Presentation Format: dil  
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 Charted by: Depth in Feet scaled 1:240

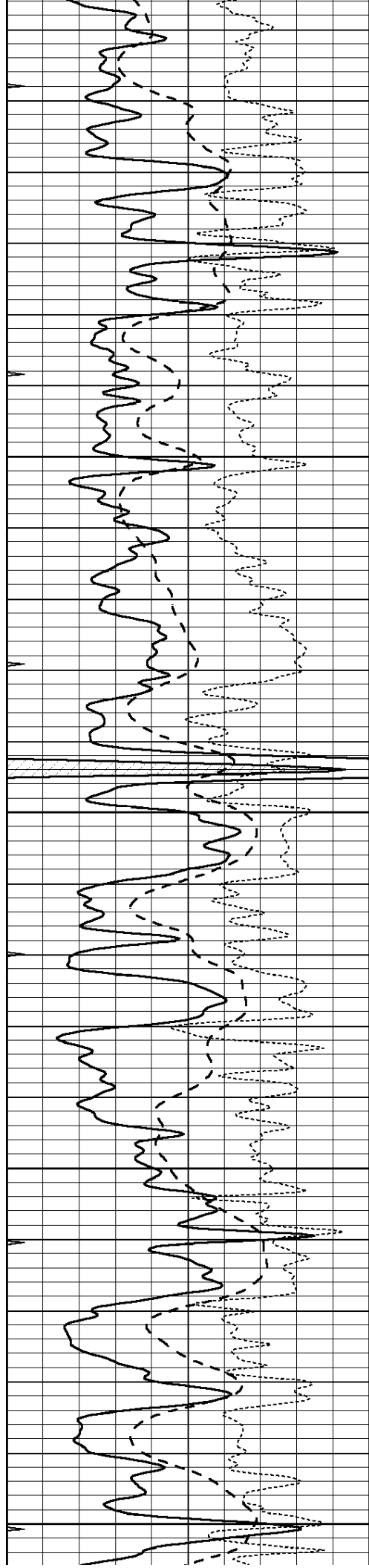
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

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



3600





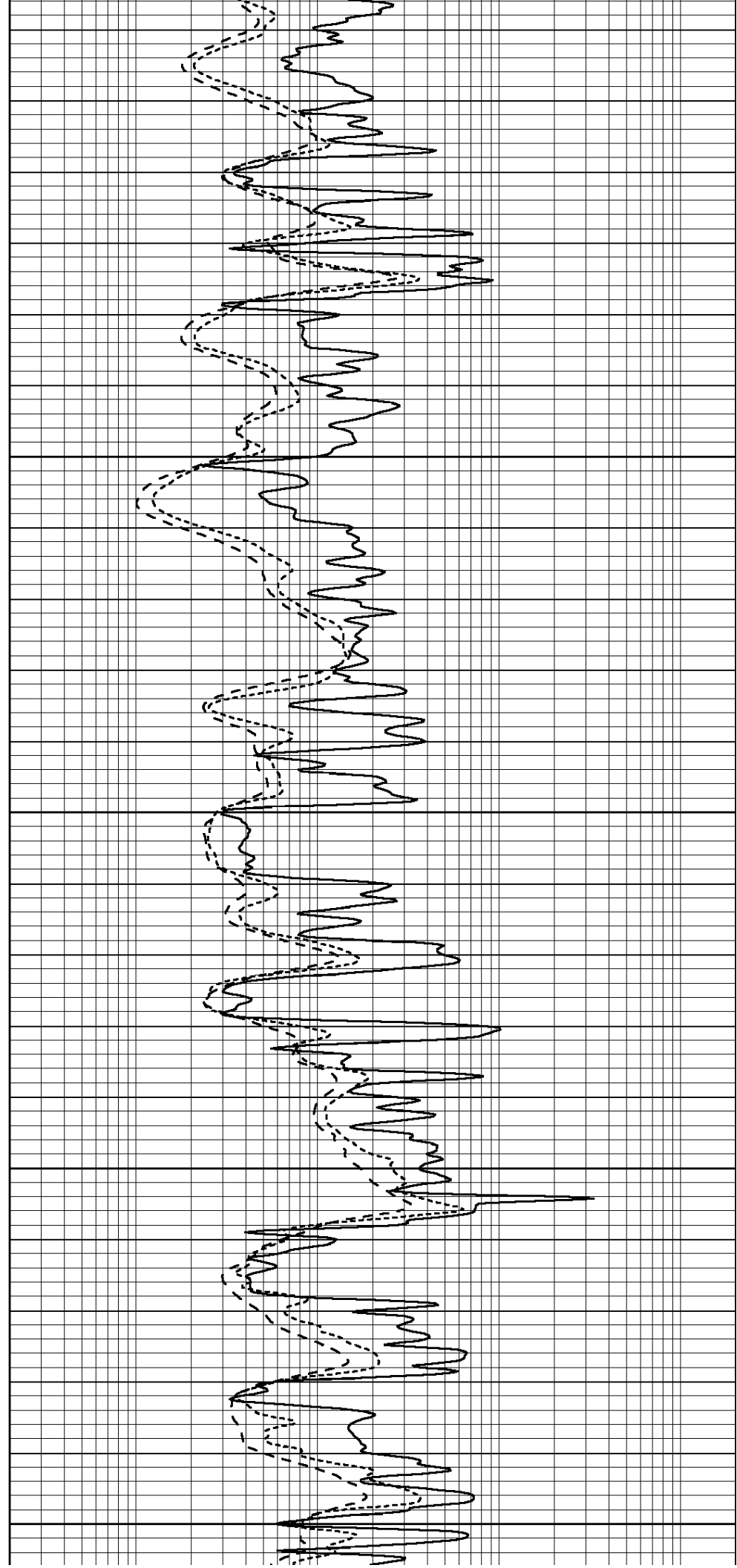
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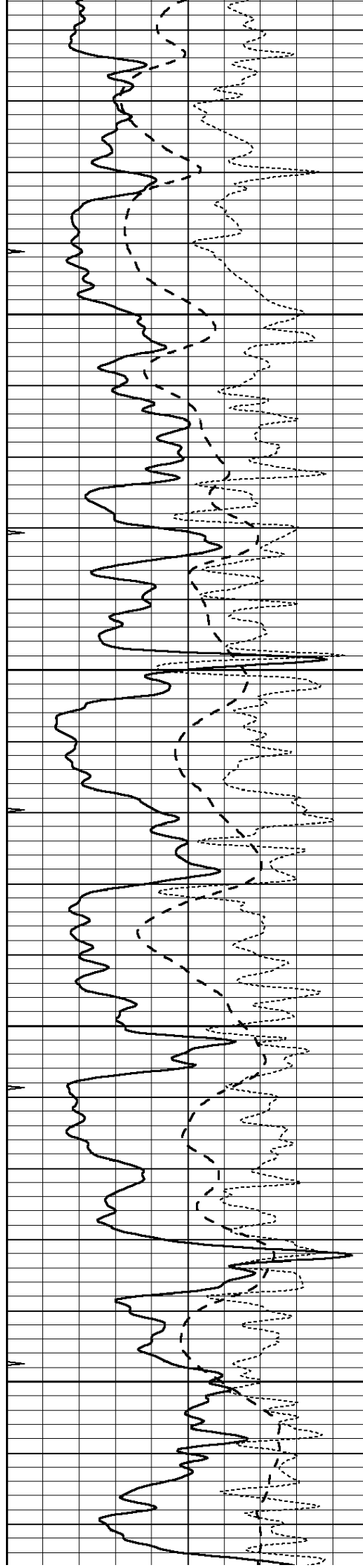
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3800

3850



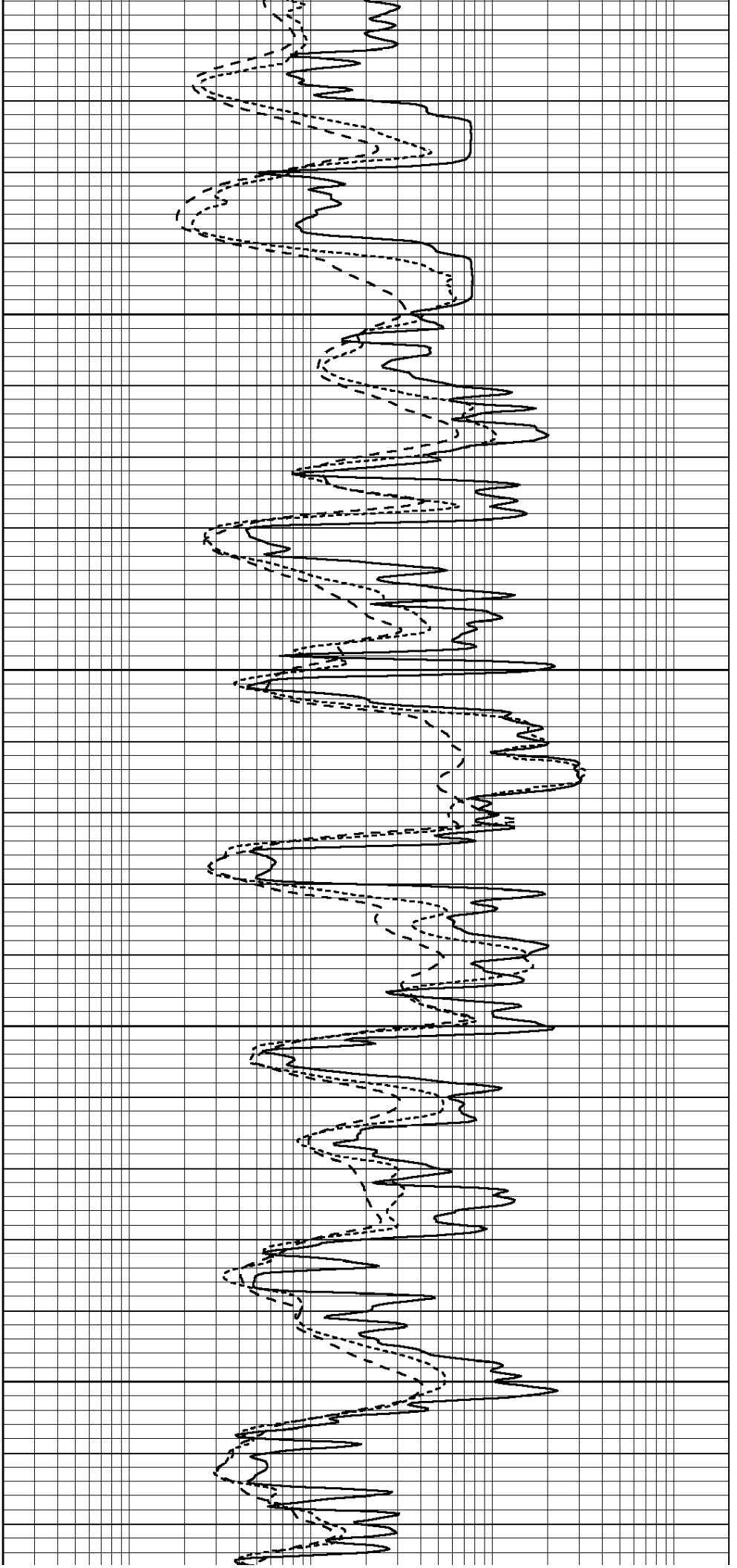


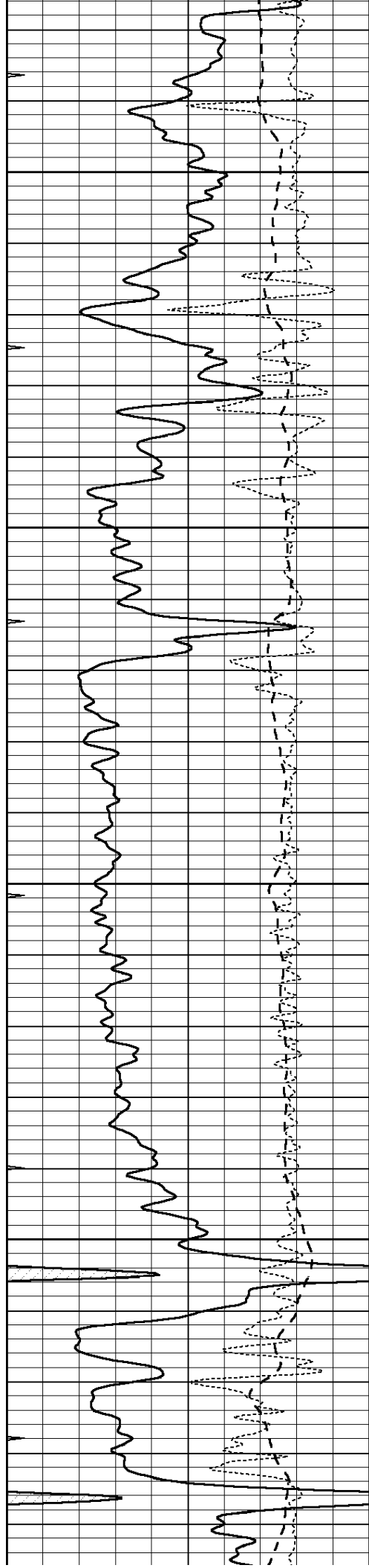
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3950

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4050



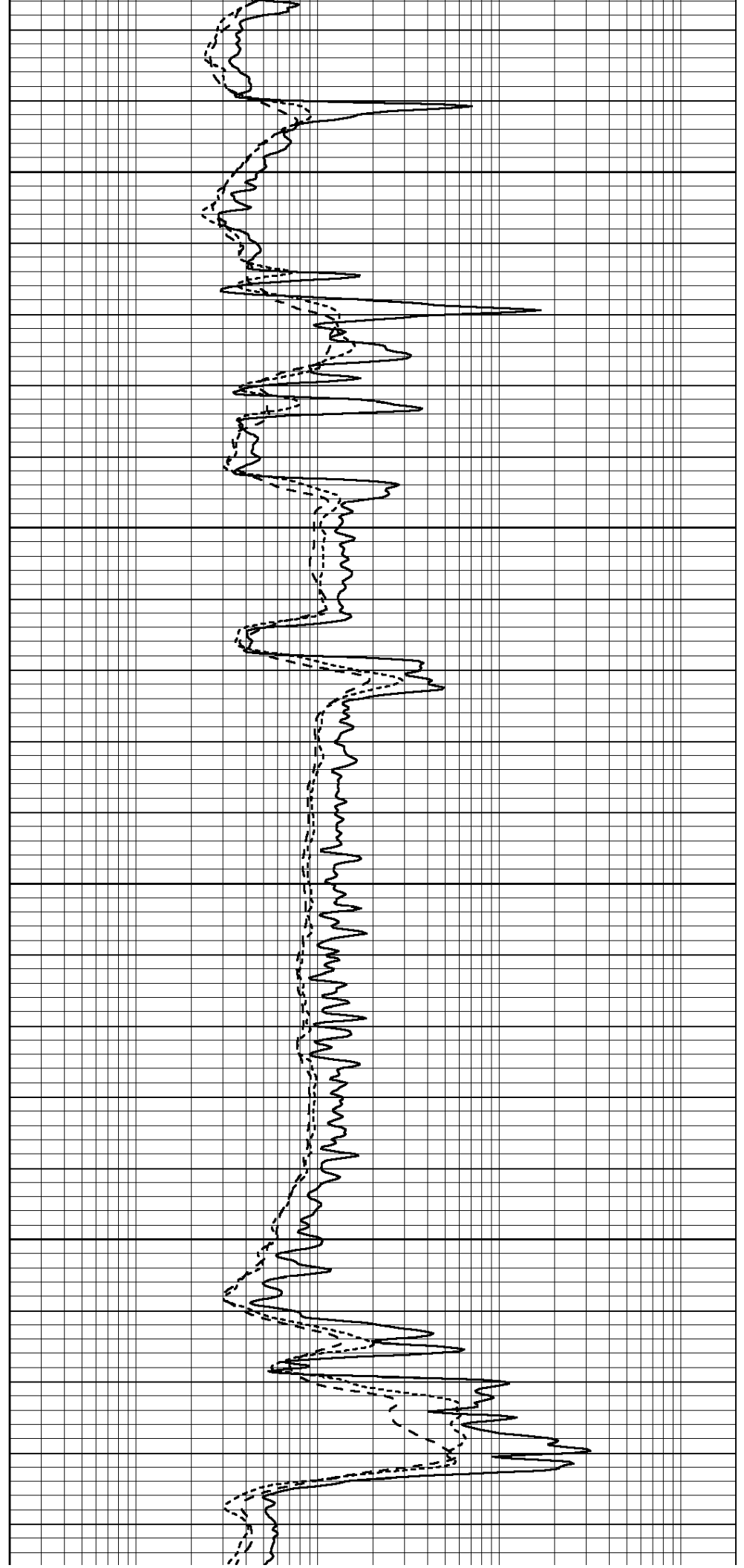


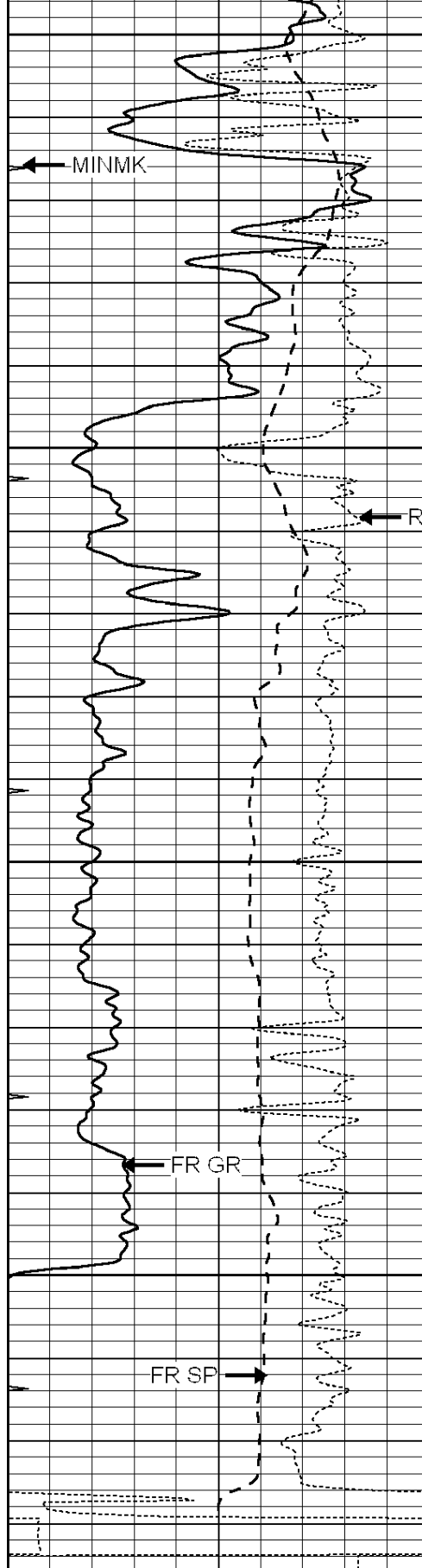
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4150

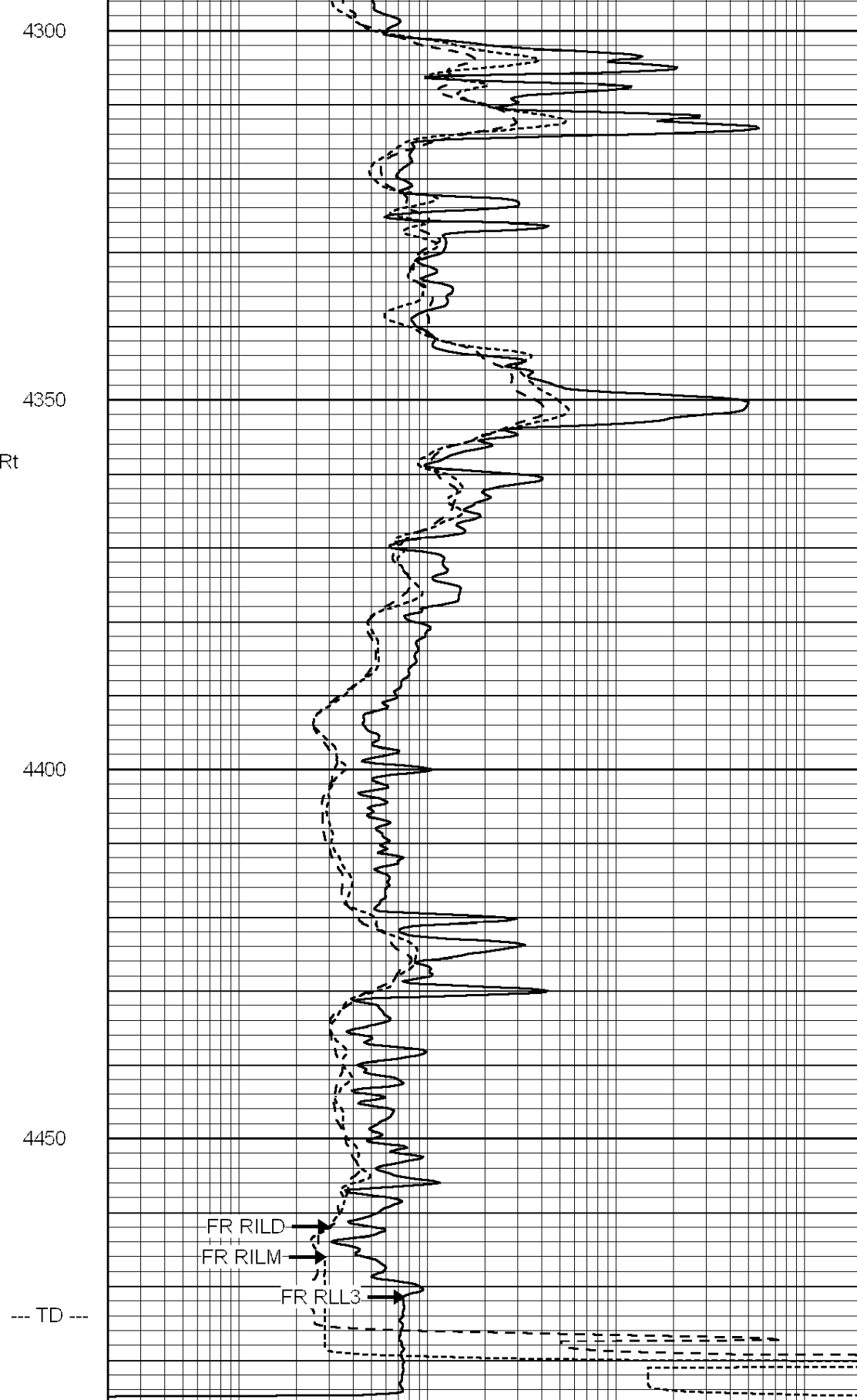
4200

4250





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

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SUPERIOR

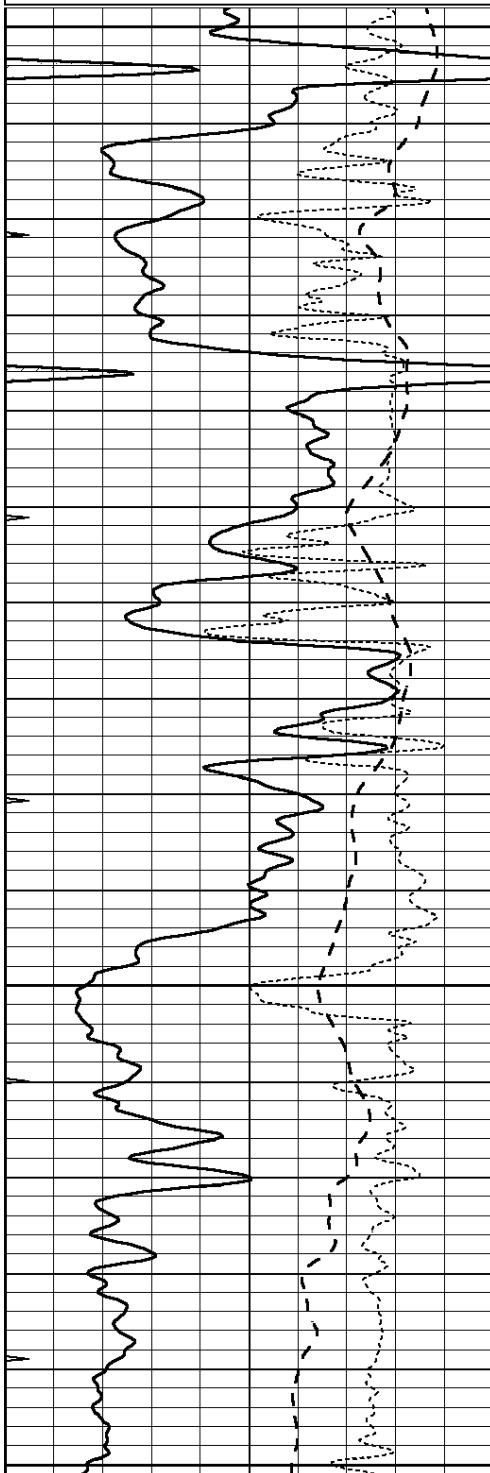
Hays,  
Kansas

# REPEAT SECTION

Database File: 007350pdn.db  
 Dataset Pathname: pass2.A  
 Presentation Format: dil  
 Dataset Creation: Mon Aug 22 06:35:00 2011 by Calc Open-Cased 090629  
 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

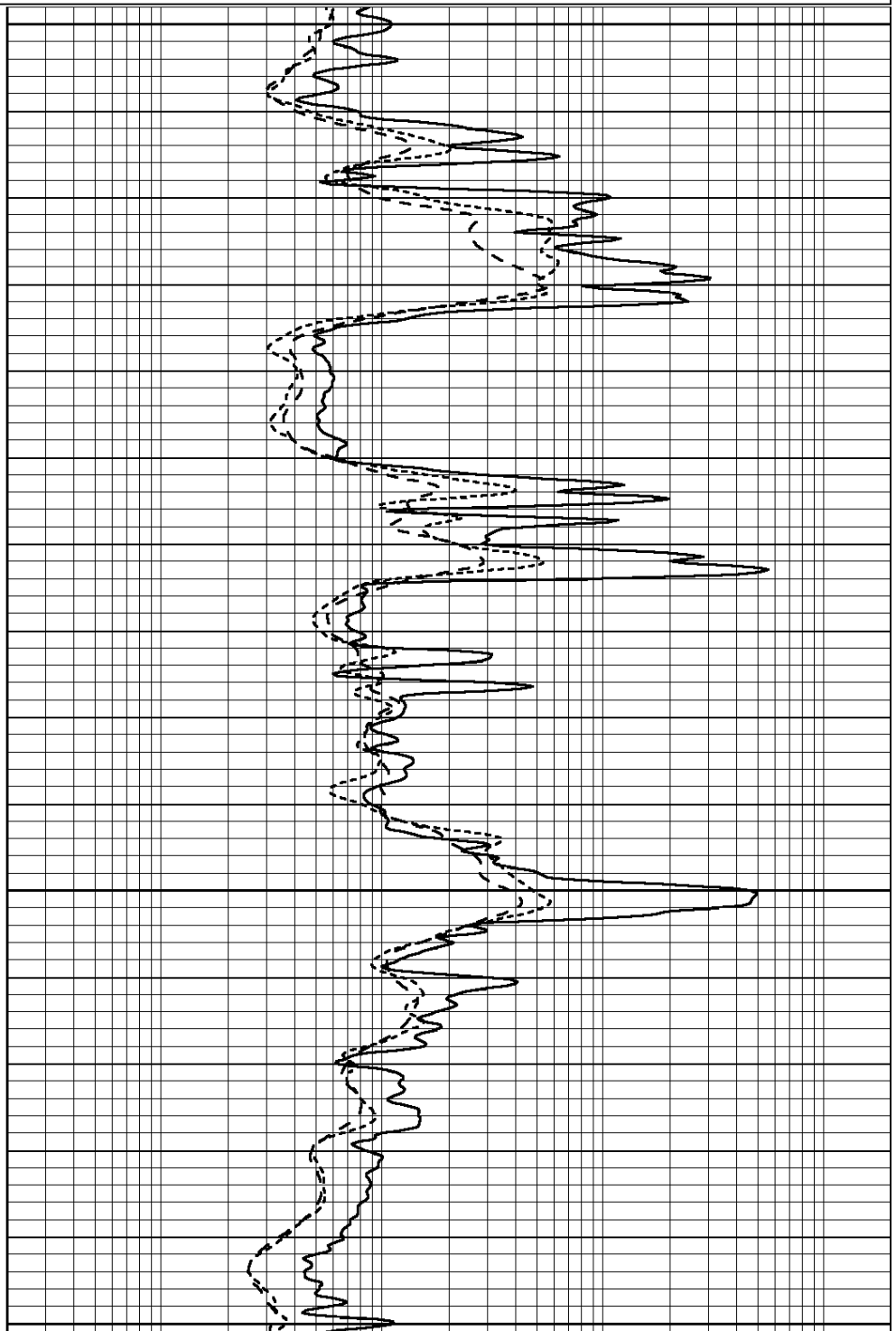


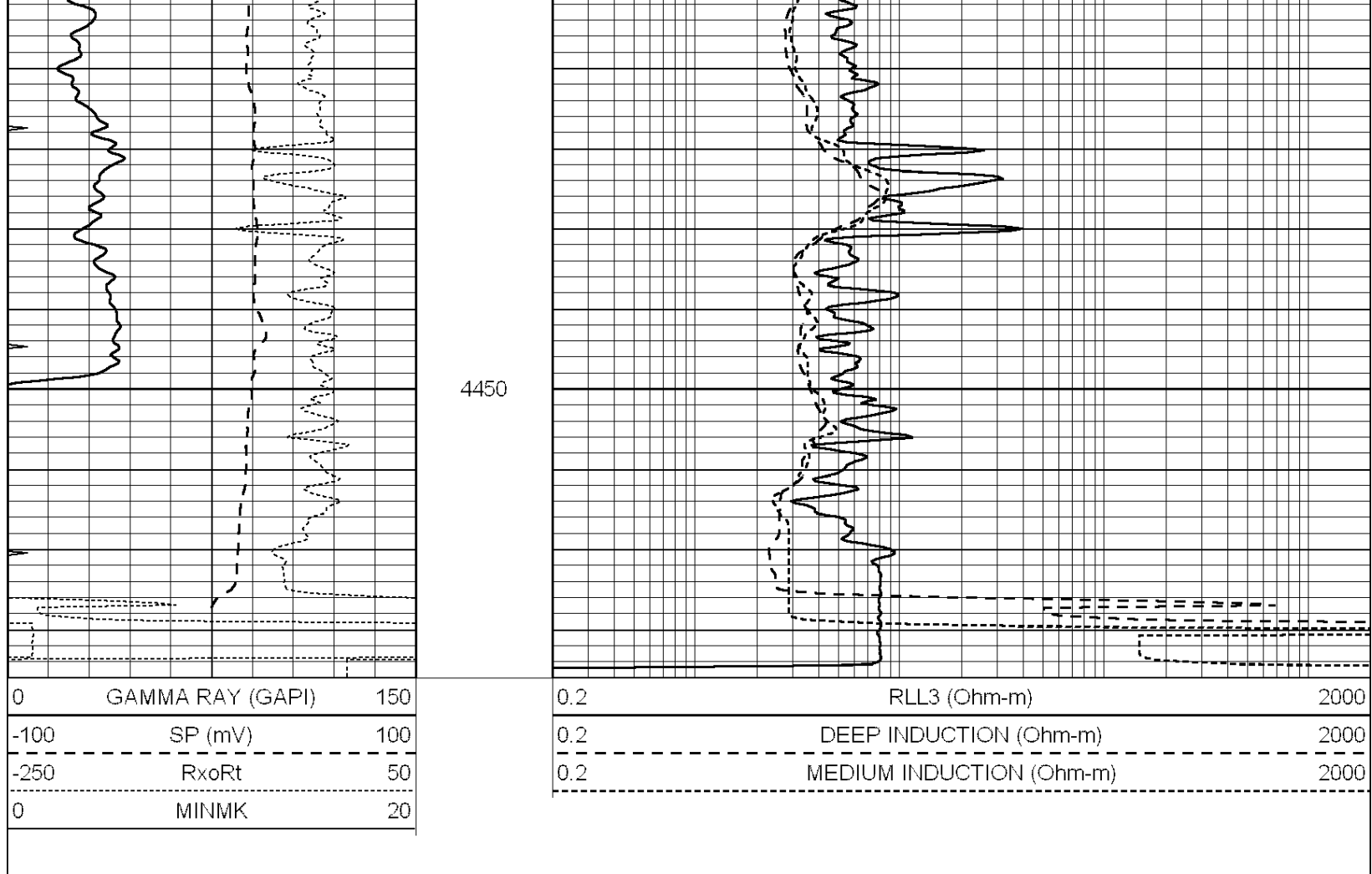
4250

4300

4350

4400





### Calibration Report

Database File: 007350pdn.db  
 Dataset Pathname: pass3.1A  
 Dataset Creation: Mon Aug 22 06:29:22 2011

### Dual Induction Calibration Report

Serial-Model: DIL5-GEAR  
 Performed: Mon Aug 22 04:57:07 2011

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.004	0.654	V	0.000	400.000	mmho/m	540.000	-18.000
Medium	-0.005	0.737	V	0.000	462.500	mmho/m	560.000	-16.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.006	0.655	V	0.000	400.000	mmho/m	615.668	-3.483
Medium	0.010	0.747	V	0.000	462.500	mmho/m	627.607	-6.064

### Litho Density Calibration Report

Serial: 002 Model: PRB  
 Performed Tue Jul 03 11:12:28 2007

#### Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1059.5	9172.0	2859.6	10210.6	cps
Window 2	976.0	7793.2	2486.1	8515.6	cps
Window 3	689.8	2930.5	1159.0	3096.2	cps

Window 3	231.9	237.2	231.1	234.0	cps
Window 4	0.0	6817.1	1510.1	7539.6	cps
Long Space	1.6	1758.1	1188.6	1898.8	cps
Short Space		1.7100	2.5960	1.3800	g/cc
Rho			2.5700	1.5500	
Pe					

Rib Angle	: 45.4	Rib Slope	: 1.015	Density/Spine Ratio	: 0.569
Spine Angle	: 75.4	Spine Slope	: 3.850	Spine Intercept	: -19.9

Caliper		
	Readings	Reference
Low Ref	2.5	6.0
High Ref	3.9	11.6
	Gain: 3.9	Offset: -3.9

Compensated Neutron Calibration Report

Serial Number: NUE\_2I  
Tool Model: G

CALIBRATION

Detector	Readings	Target	Normalization
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: Mon Aug 22 04:57:22 2011

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 0.6500 GAPI/cps