



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**DUAL  
INDDUCTION  
LOG**

Company BOW CREEK OIL COMPANY  
Well WILHELM # 1-25  
Field WILHELM  
County RAWLINGS State KANSAS

Company BOW CREEK OIL COMPANY  
Well WILHELM # 1-25  
Field WILHELM  
County RAWLINGS  
State KANSAS

Location: API #: 15-153-21090-00-00  
1193' FNL & 1439' FEL  
SE - SE - NW - NE  
SEC 25 TWP 1S RGE 33W  
Permanent Datum GROUND LEVEL Elevation 3038  
Log Measured From KELLY BUSHING 10' A.G.L.  
Drilling Measured From KELLY BUSHING  
Other Services  
CNU/CDL  
MEL/SON  
Elevation  
K.B. 3048  
D.F. 3046  
G.L. 3038

Date	1/15/15		
Run Number	ONE		
Depth Driller	4639		
Depth Logger	4640		
Bottom Logged Interval	4638		
Top Log Interval	00		
Casing Driller	8 5/8 @ 300'		
Casing Logger	308'		
Bit Size	7.875		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.6/65	CHLORIDES 500 PPM	
pH / Fluid Loss	10.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.20 @ 79F		
Rmf @ Meas. Temp	0.90 @ 79F		
Rmc @ Meas. Temp	1.44 @ 79F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	0.79 @ 120F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	120F		
Equipment Number	3802		
Location	HAYS, KS.		
Recorded By	IAN MABB		
Witnessed By	LYLE HERRMAN		

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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.

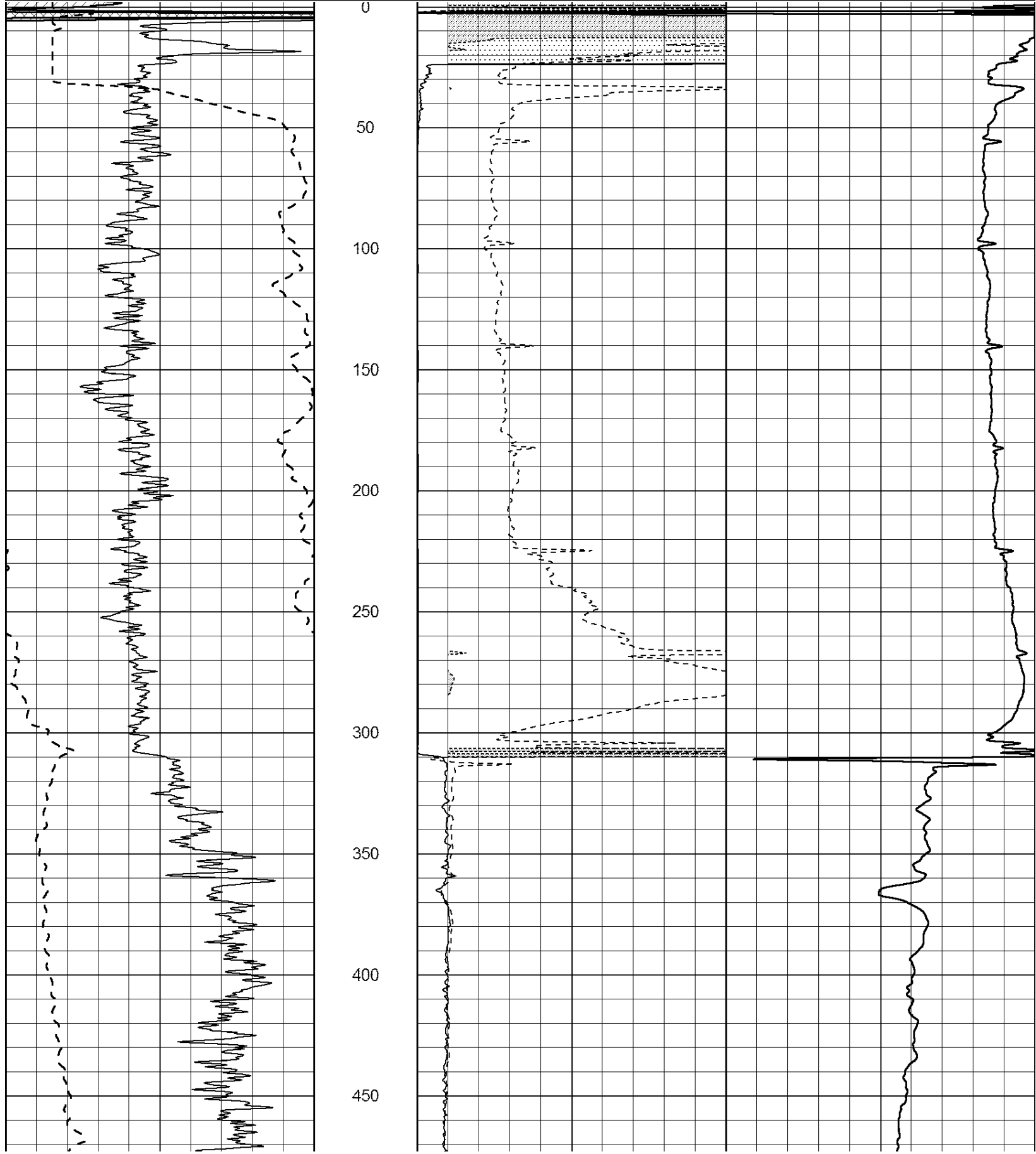
Comments

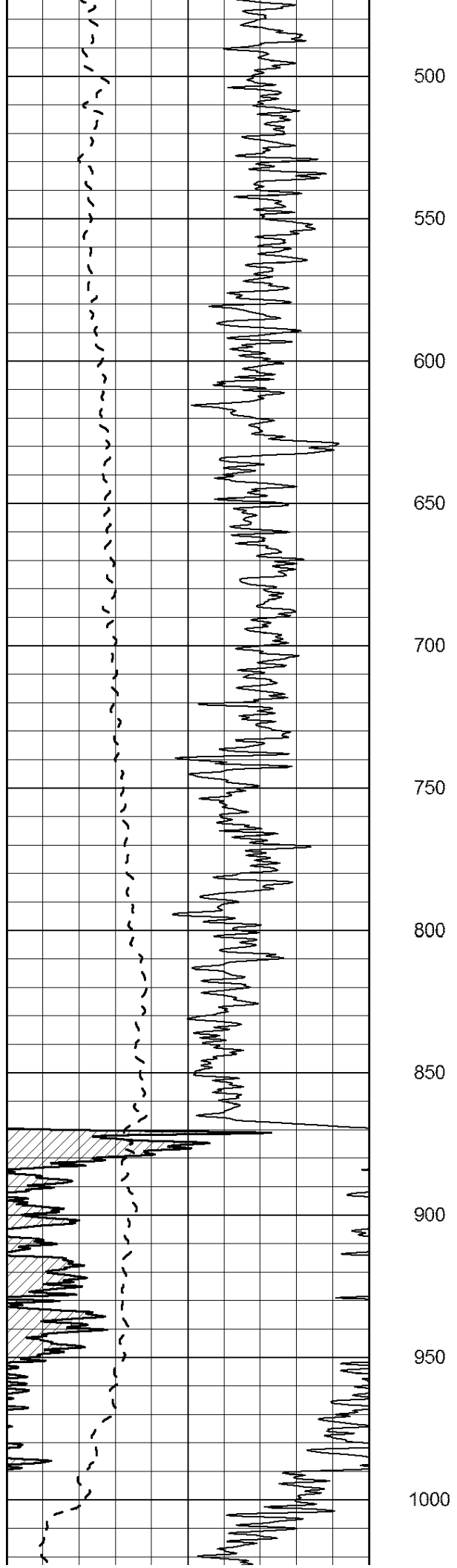
NABORS COMPLETION & PRODUCTION SERVICES CO.  
785 ( 628 - 6395 )  
THANK YOU FOR YOUR BUSINESS  
DIRECTIONS : ATWOOD, KS. - EAST TO LUDELL RD. - TO THE STOP SIGN - JOG WEST THEN BACK  
NORTH 5 MILES - WEST INTO

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

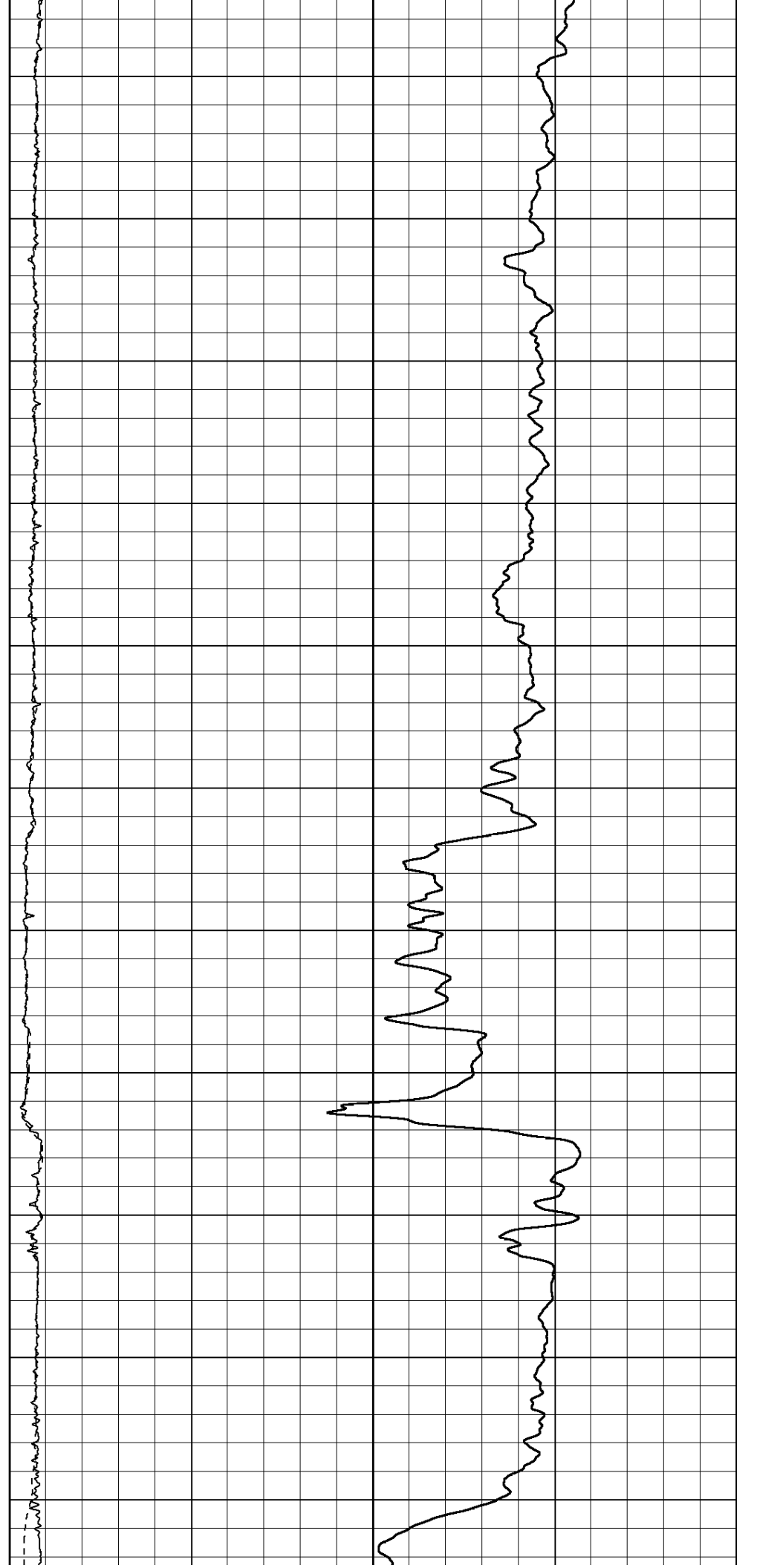
0	RLL3 (Ohm-m)	50
0	Deep Induction (Ohm-m)	50

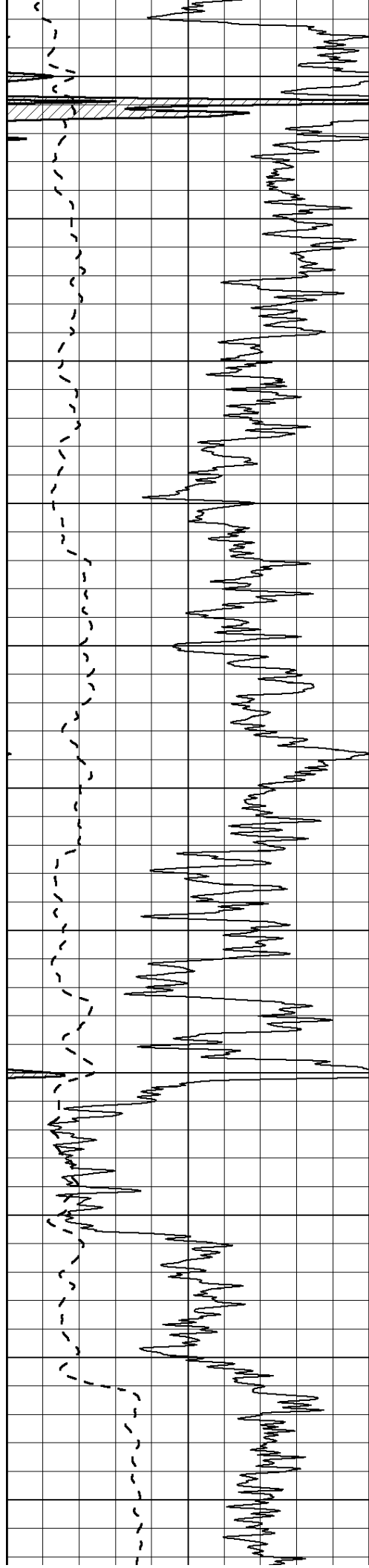
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500



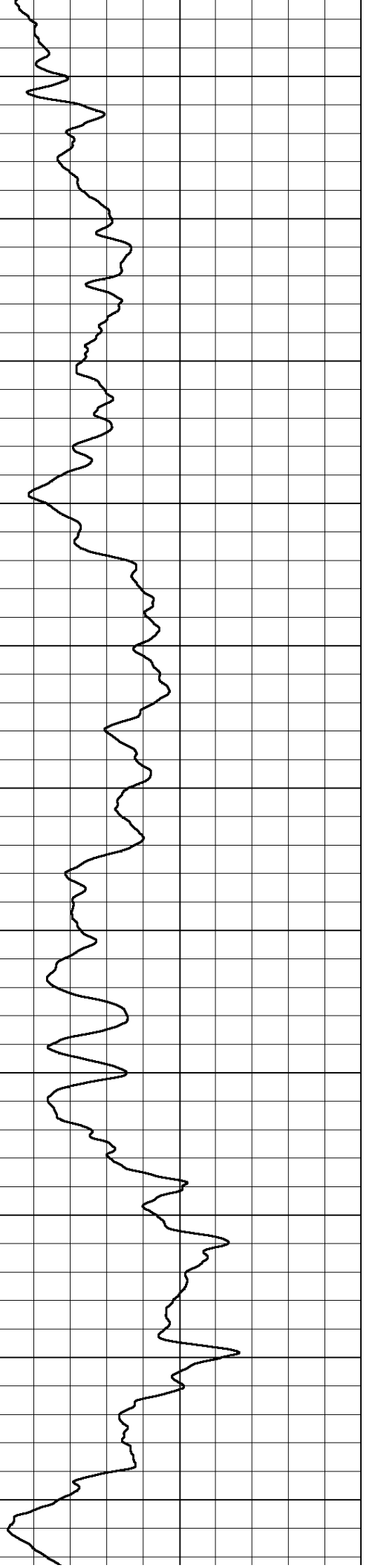
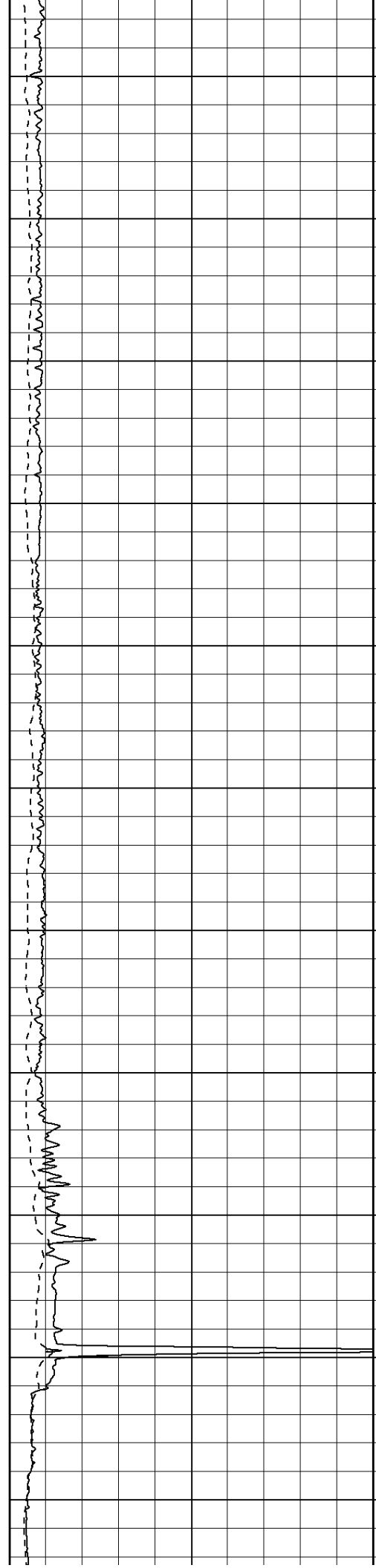


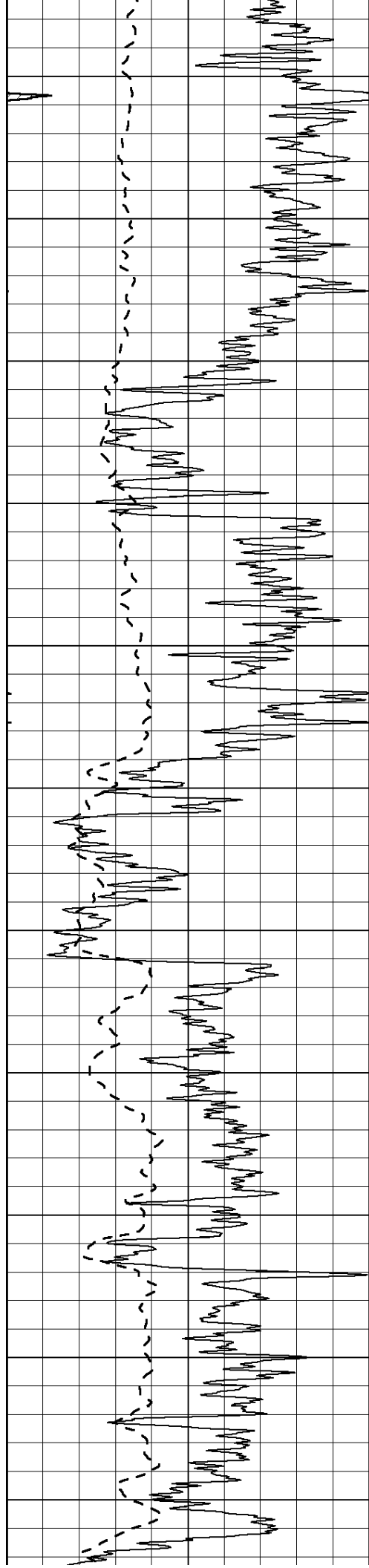
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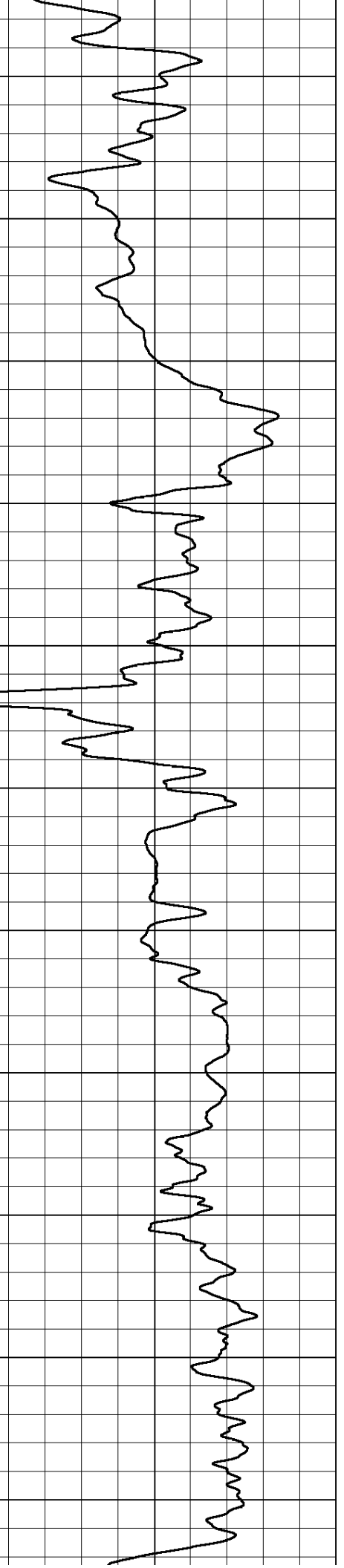
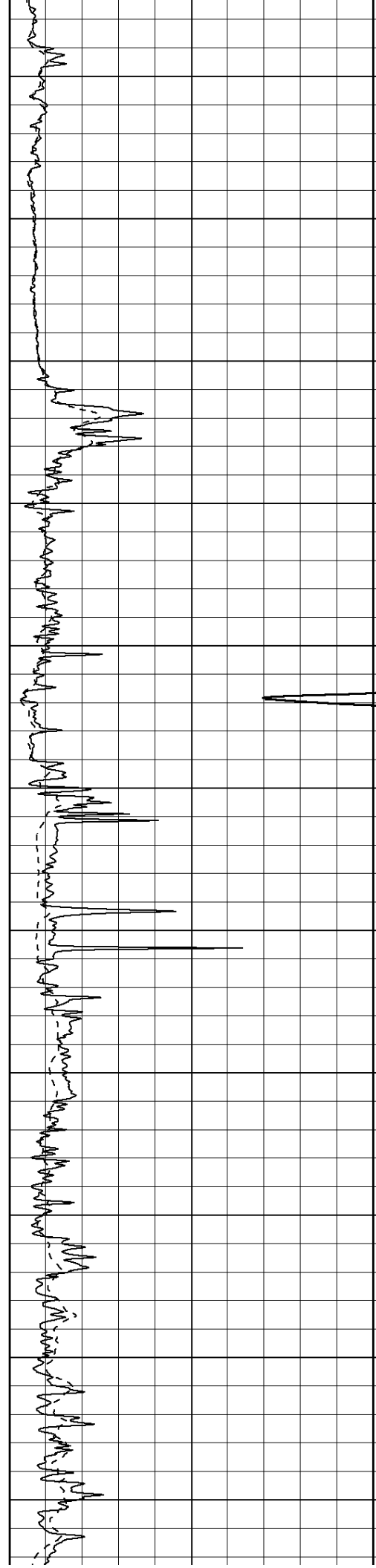


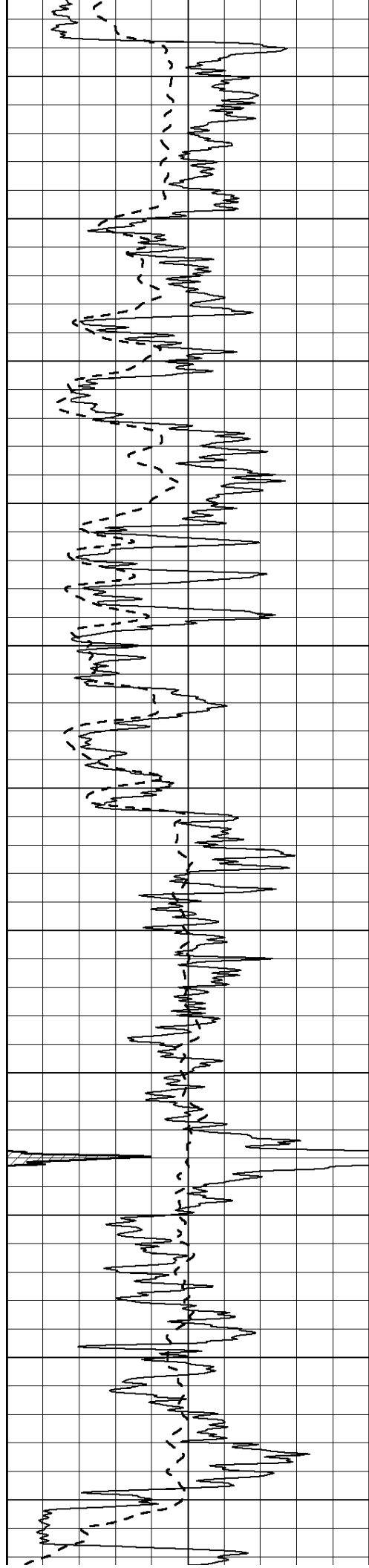
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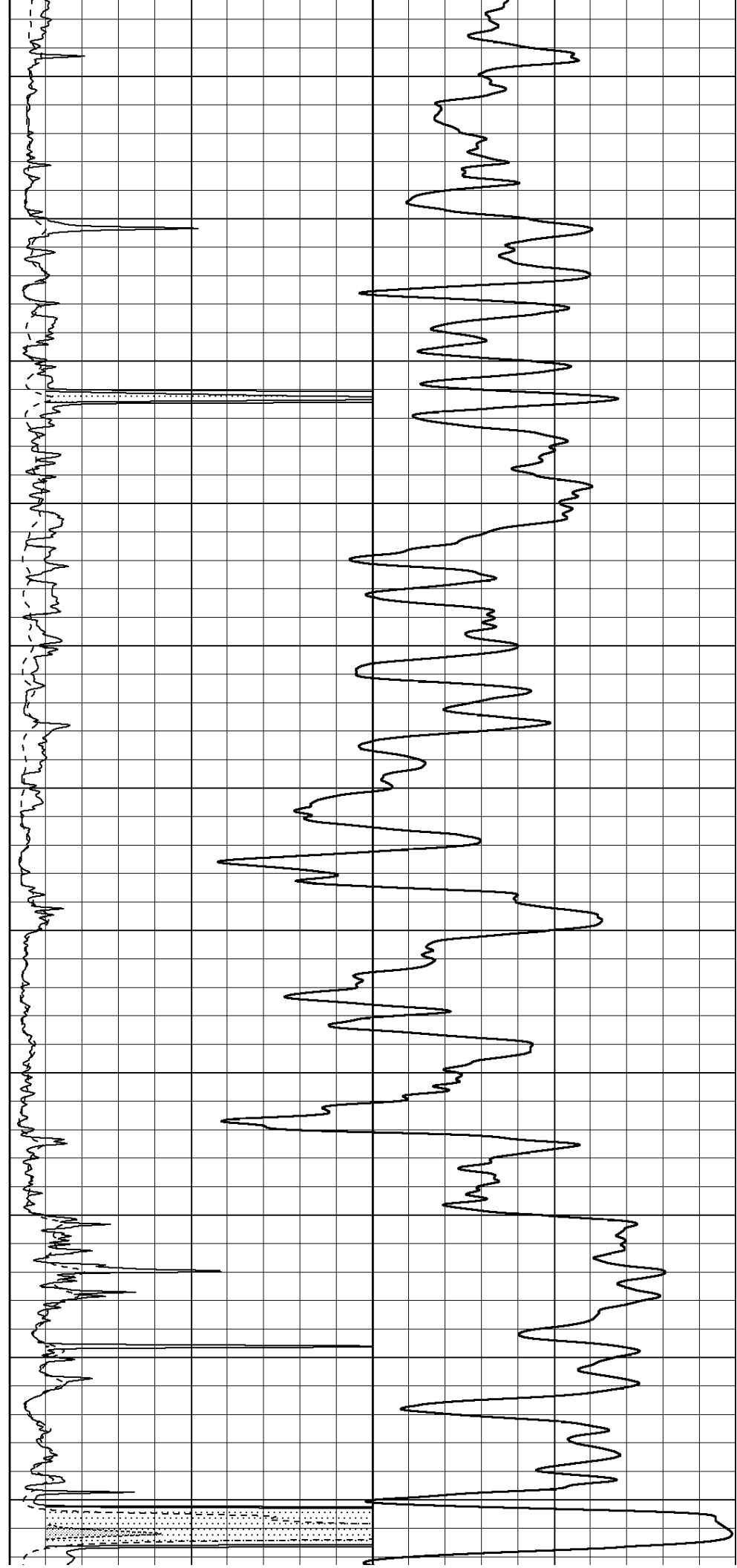


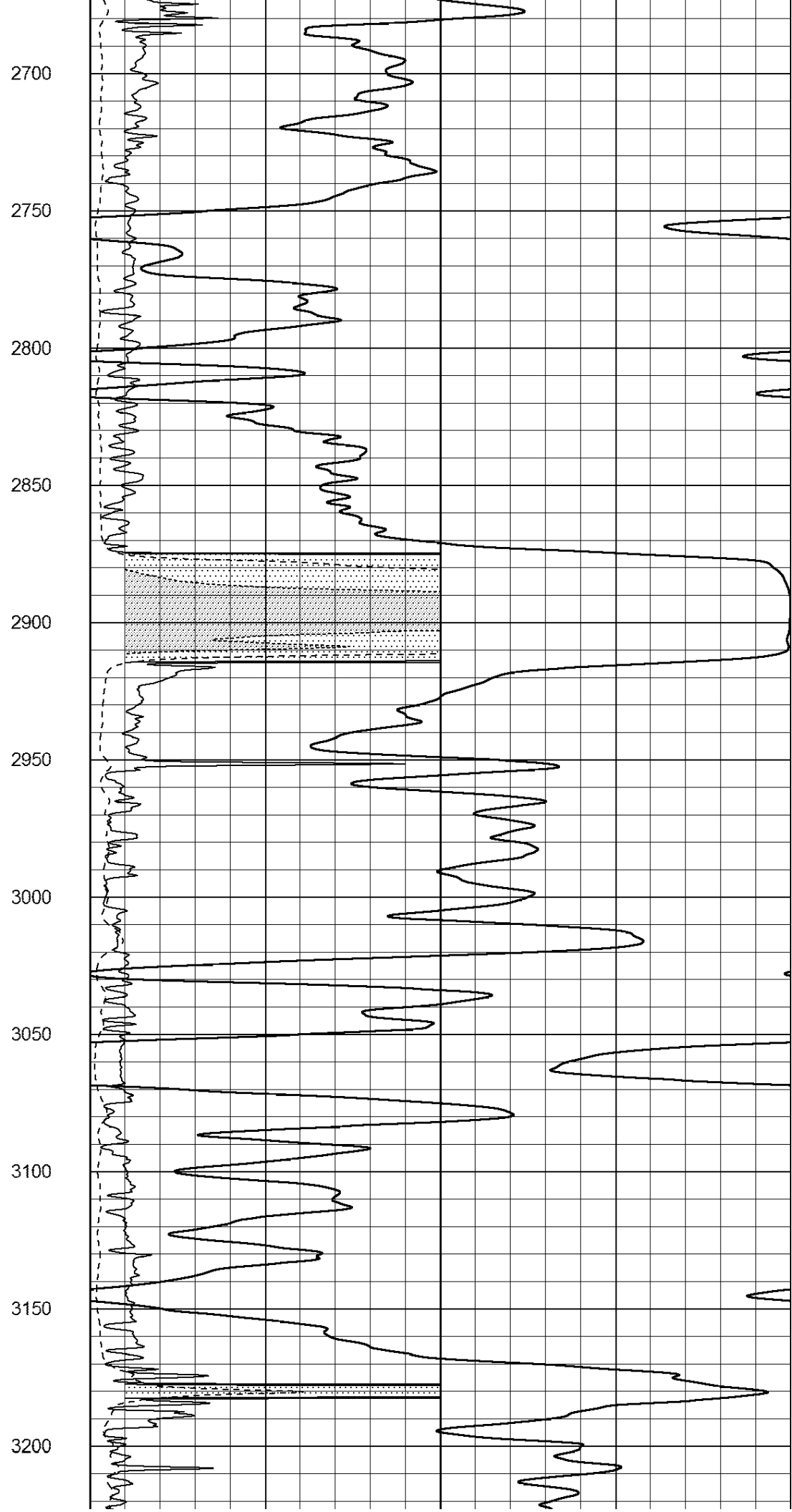
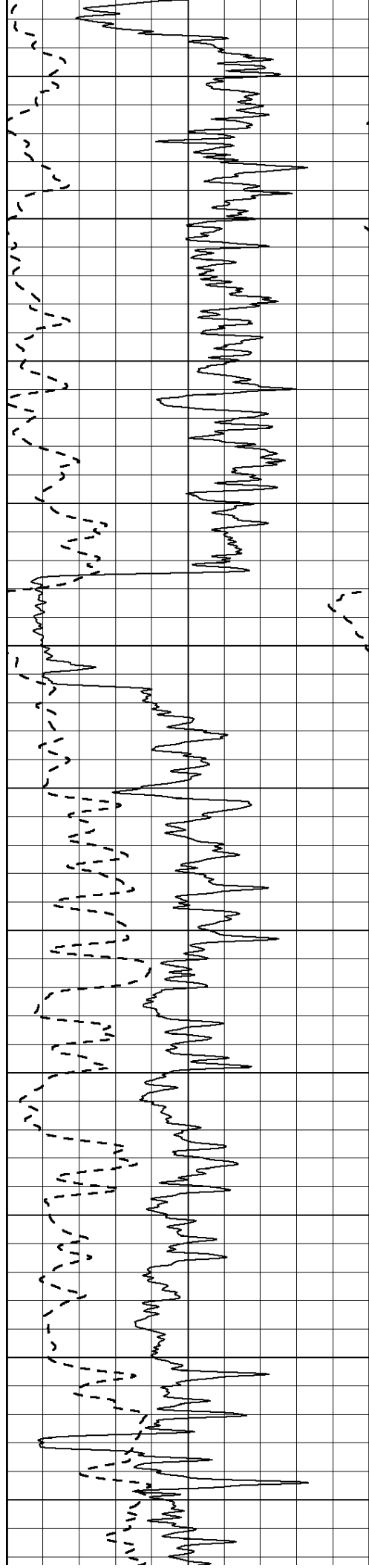
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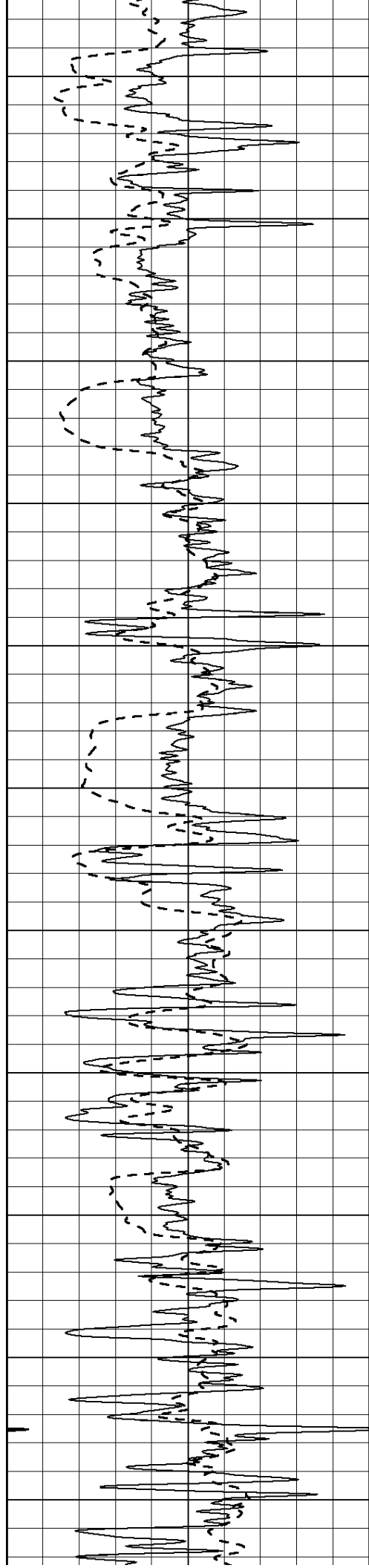




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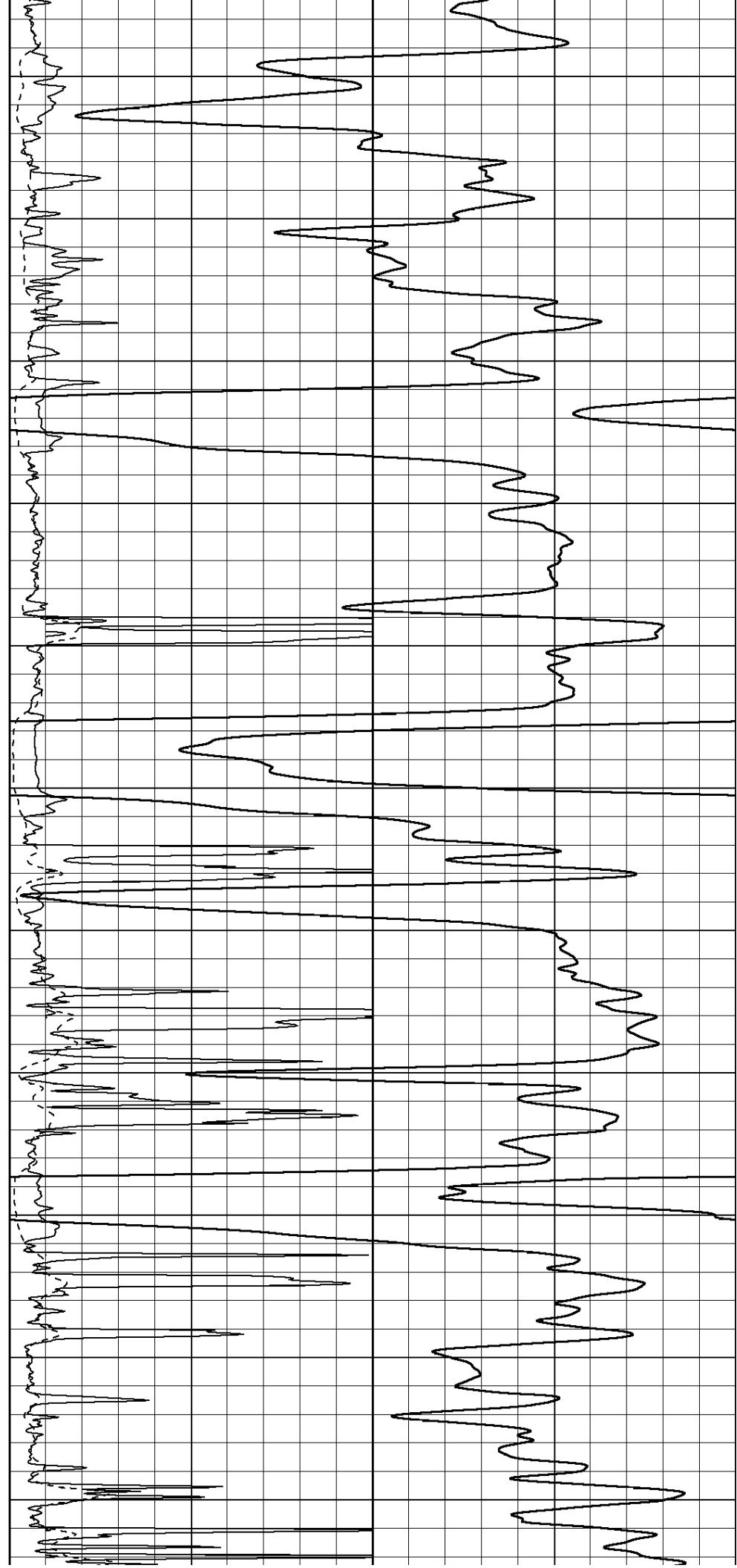
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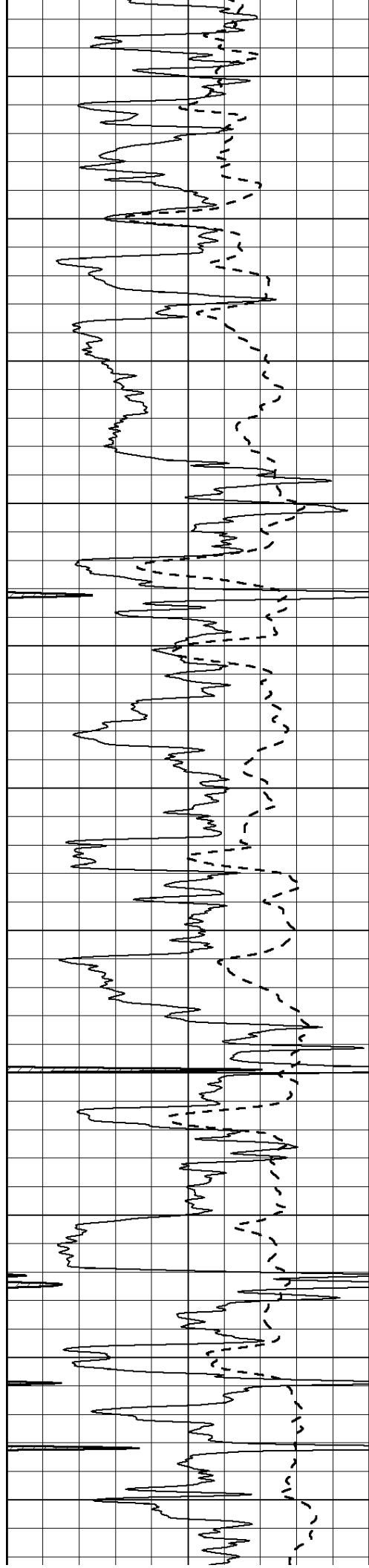
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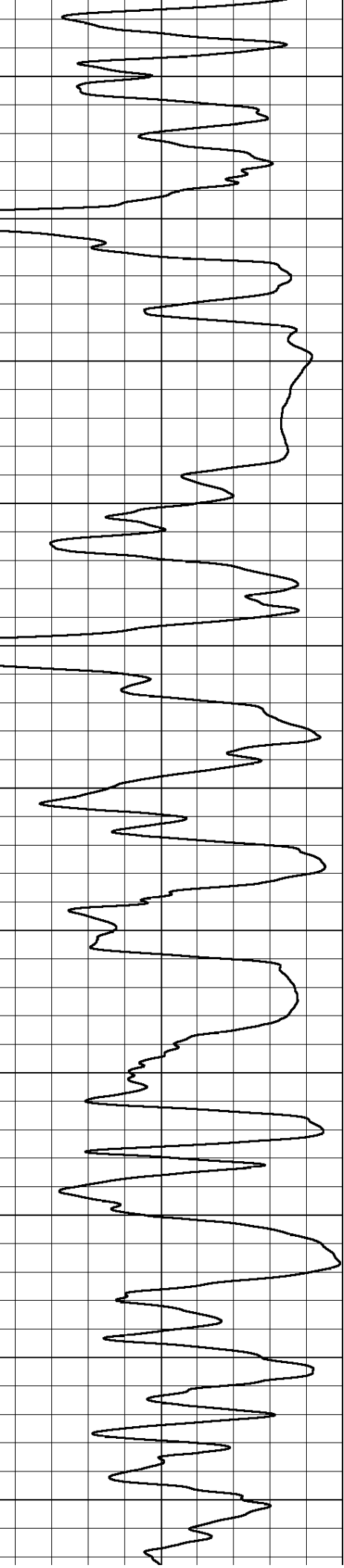
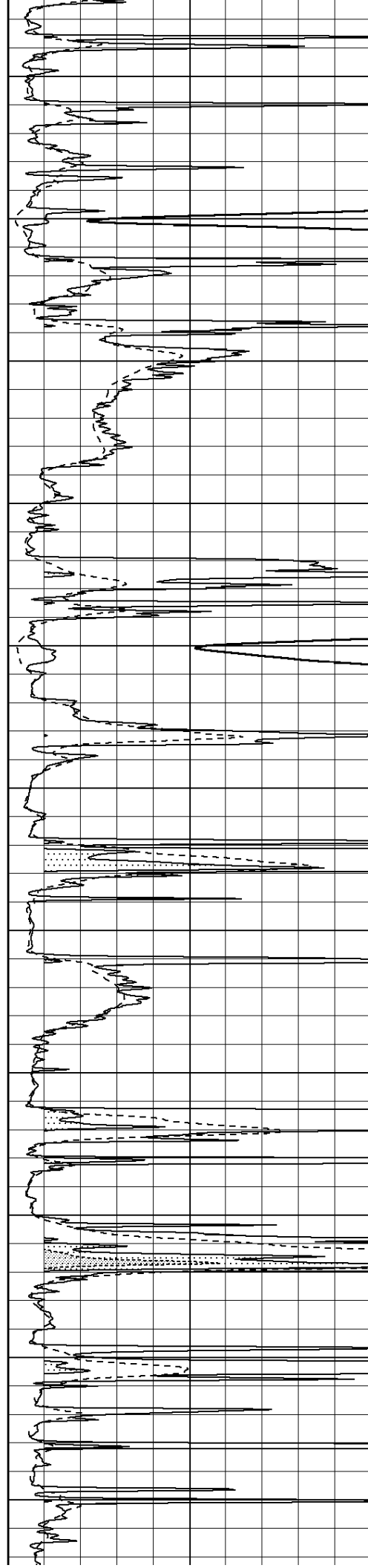
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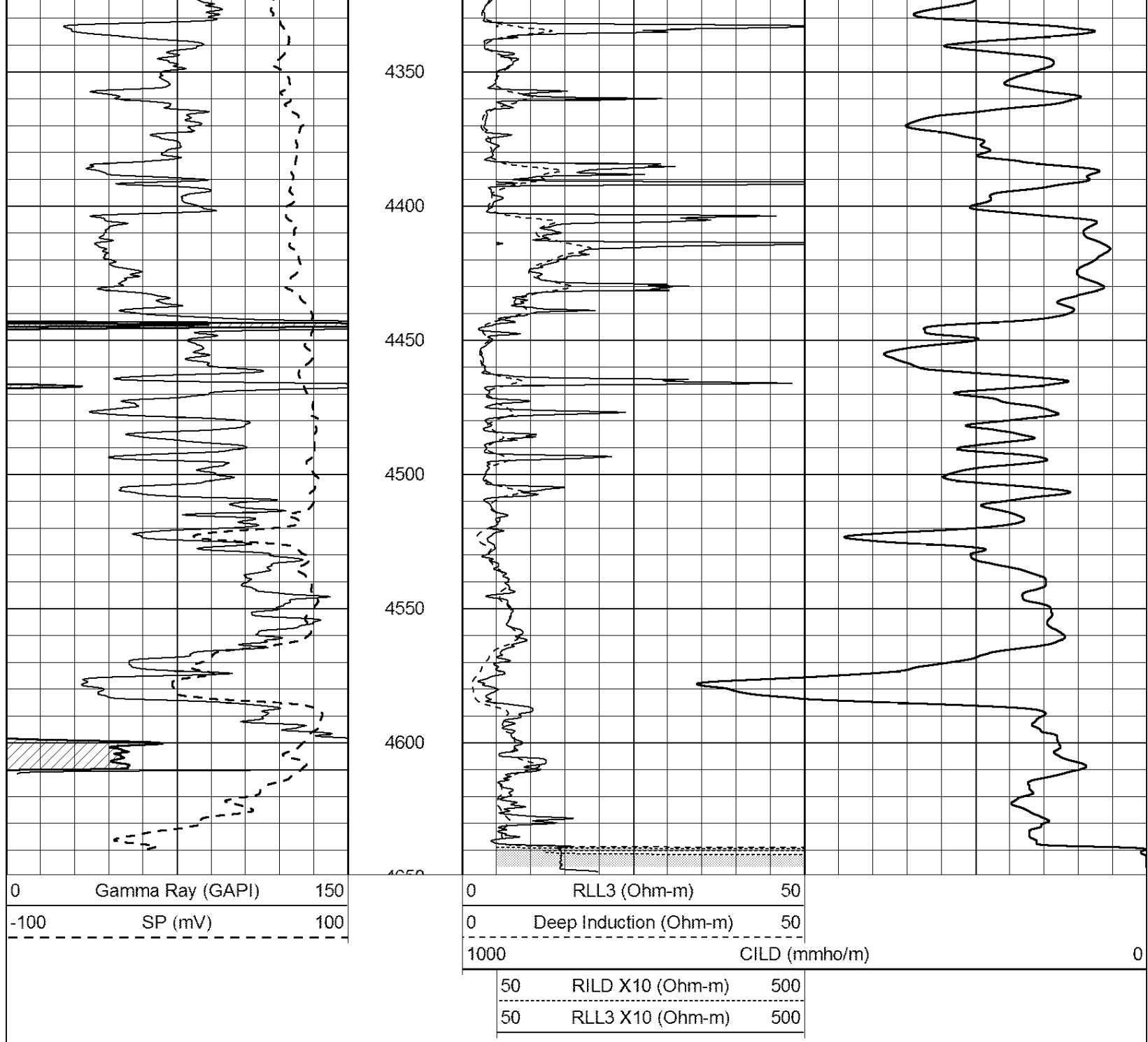
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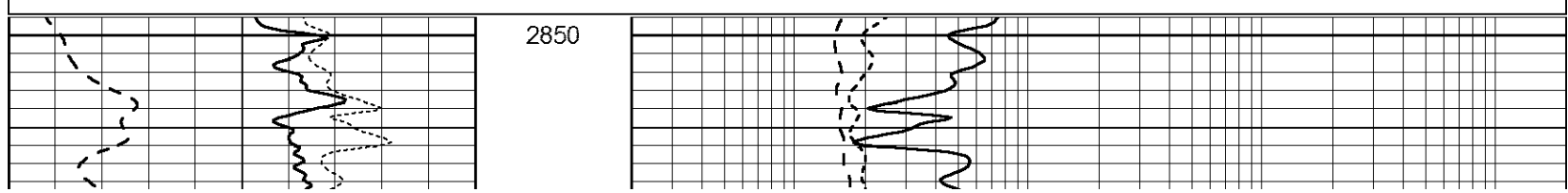
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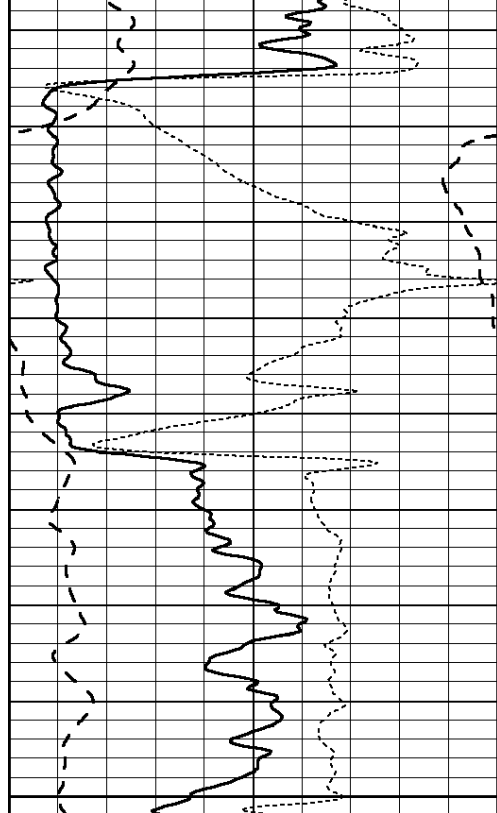




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 Dataset Pathname: pass4.2  
 Presentation Format: \_dil  
 Dataset Creation: Thu Jan 15 08:22:11 2015 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

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

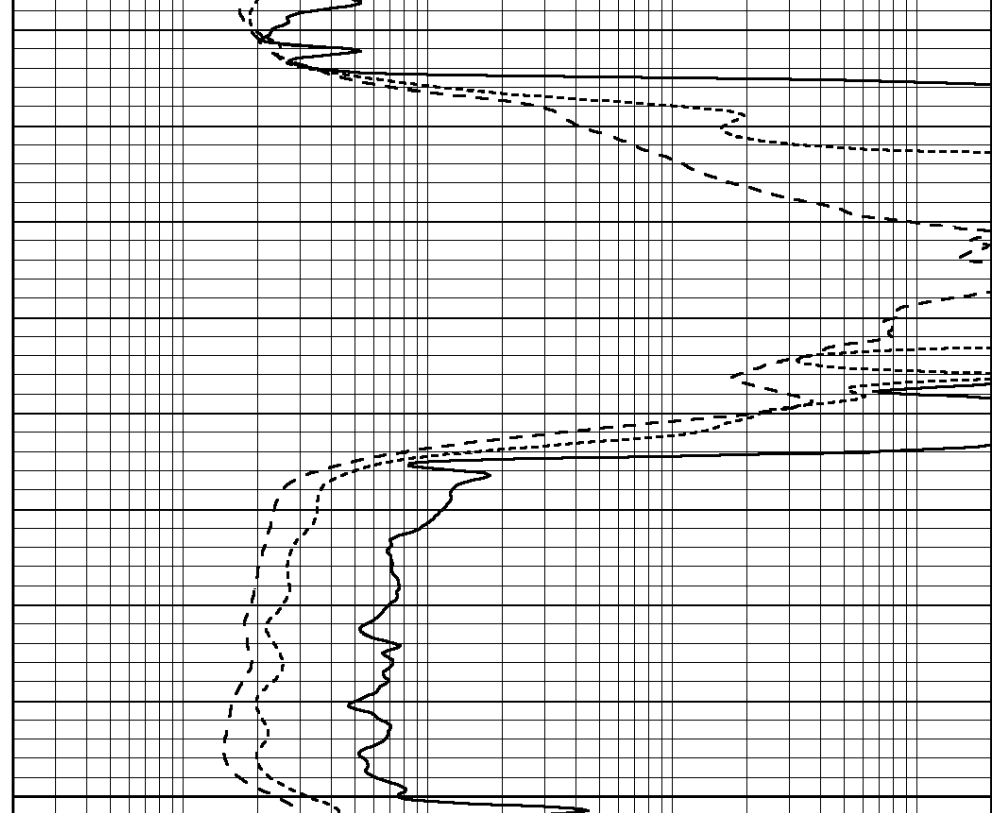




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-100	SP (mV)	100
-250	Rxo/Rt	50

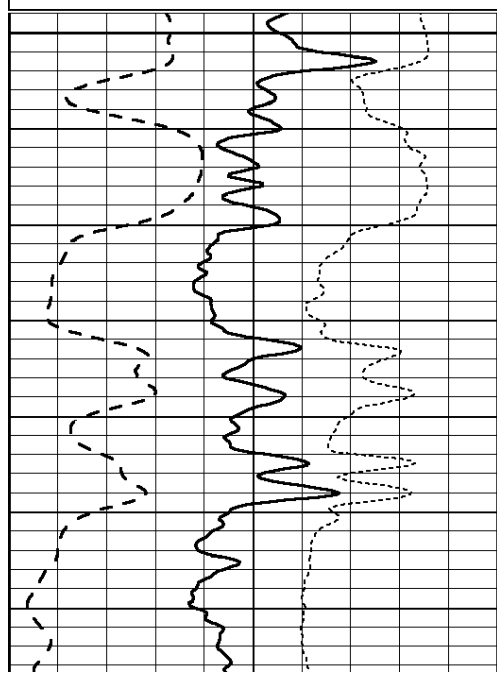


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

Database File: 26431ddn.db  
 Dataset Pathname: pass4.2  
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 Dataset Creation: Thu Jan 15 08:22:11 2015 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

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

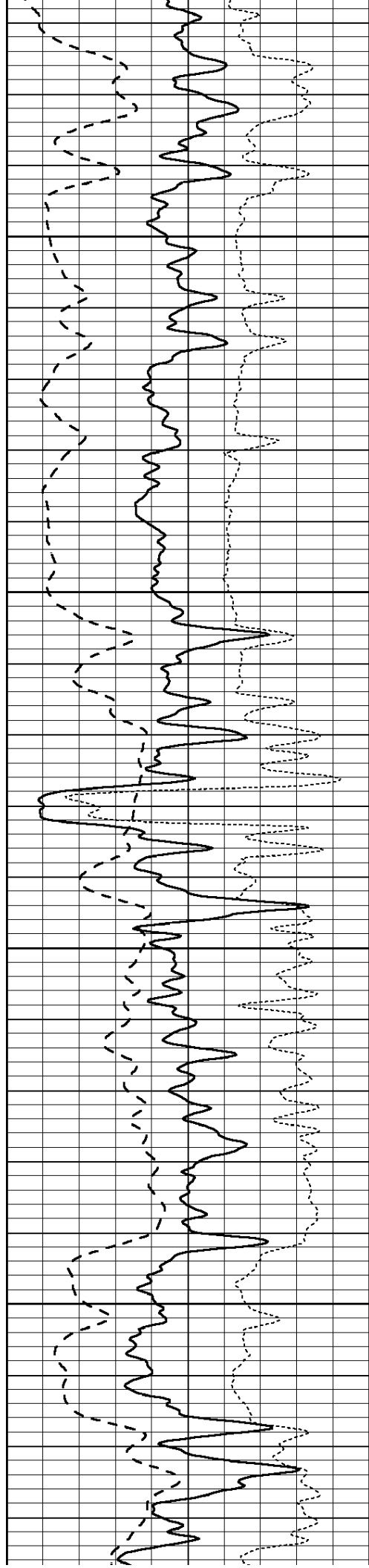
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0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



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3050



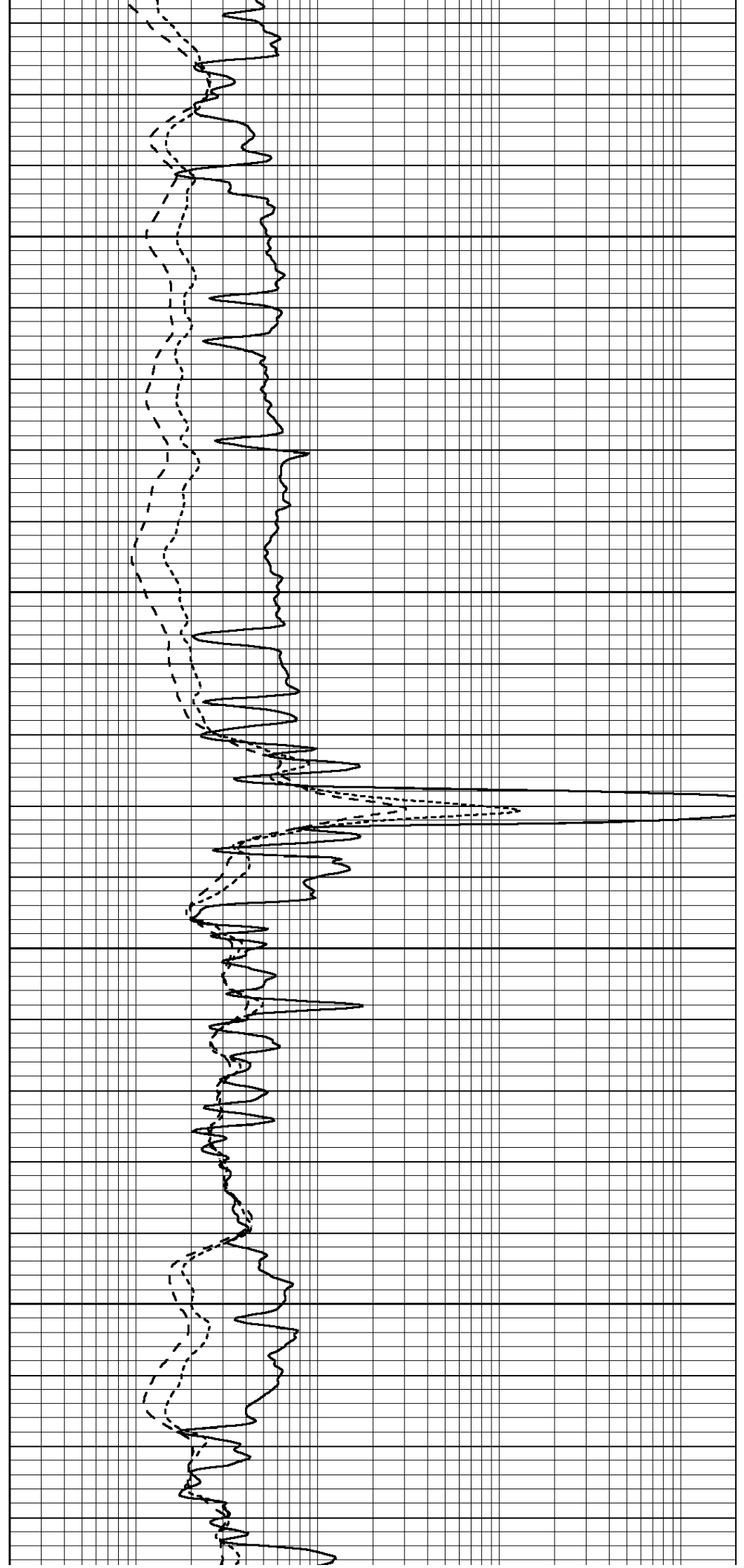


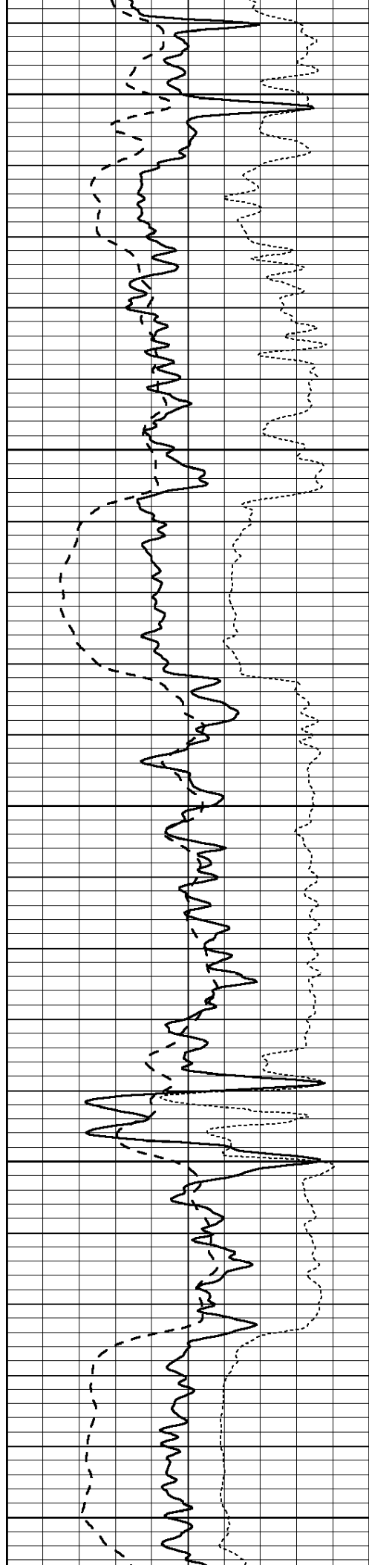
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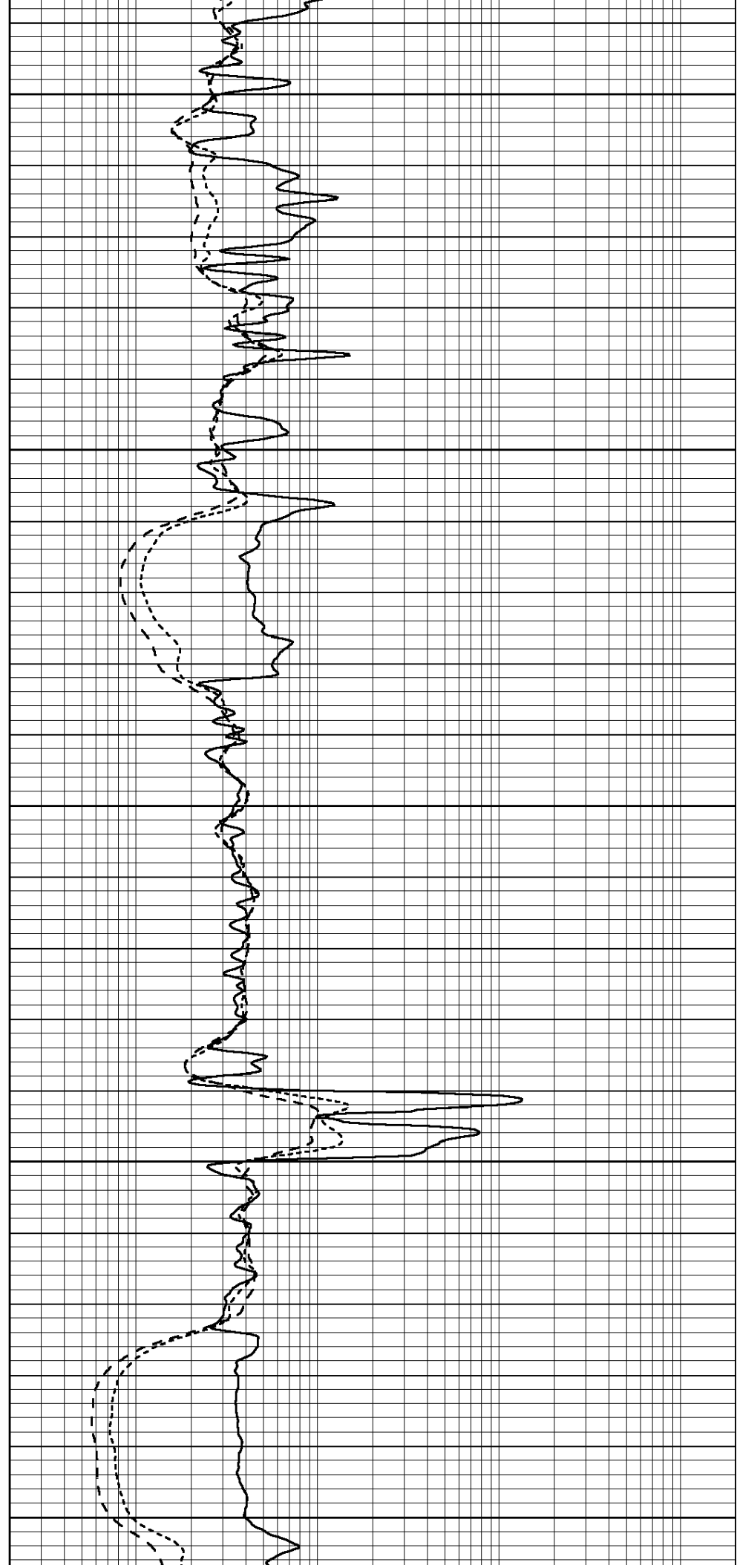
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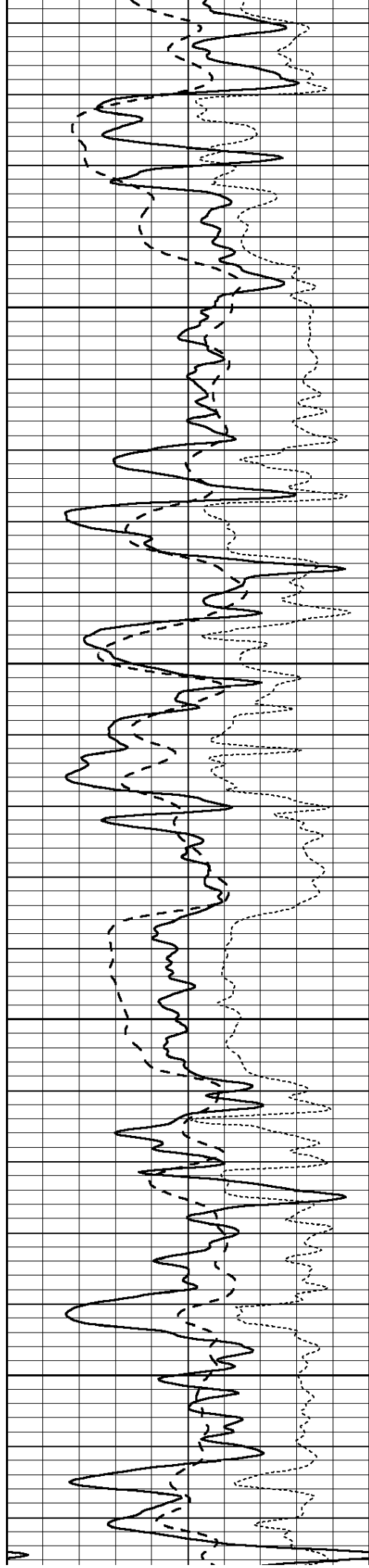
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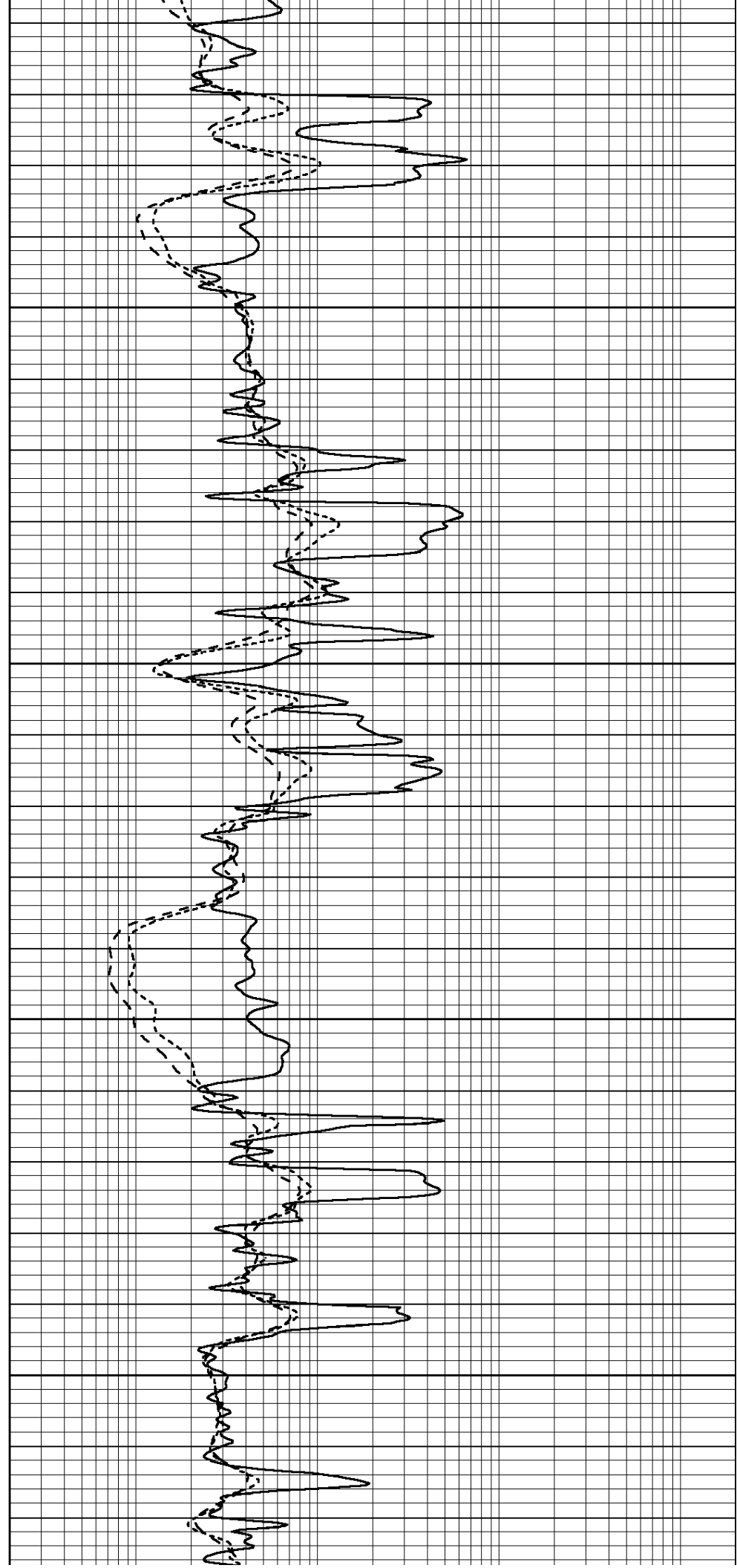


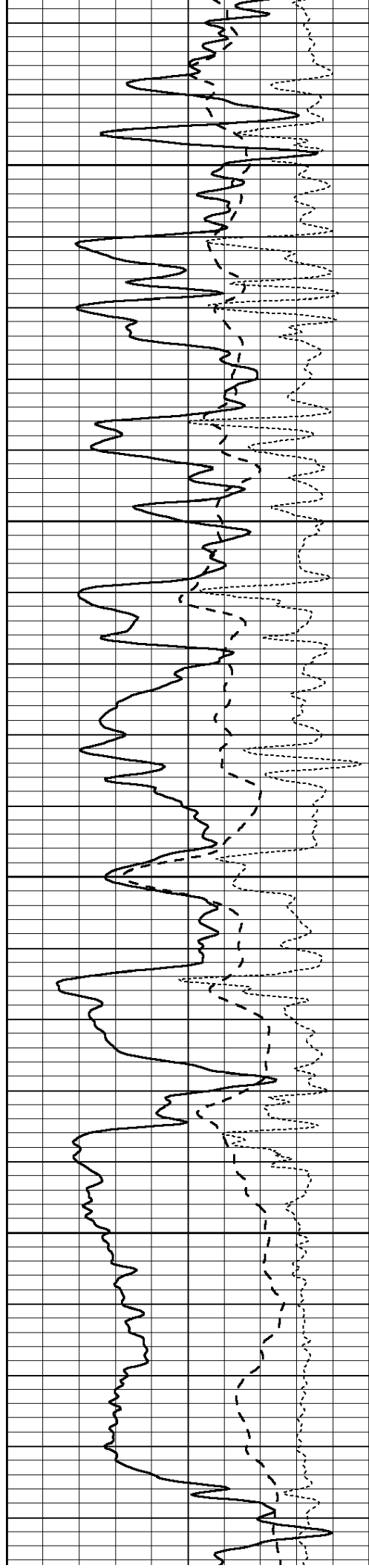
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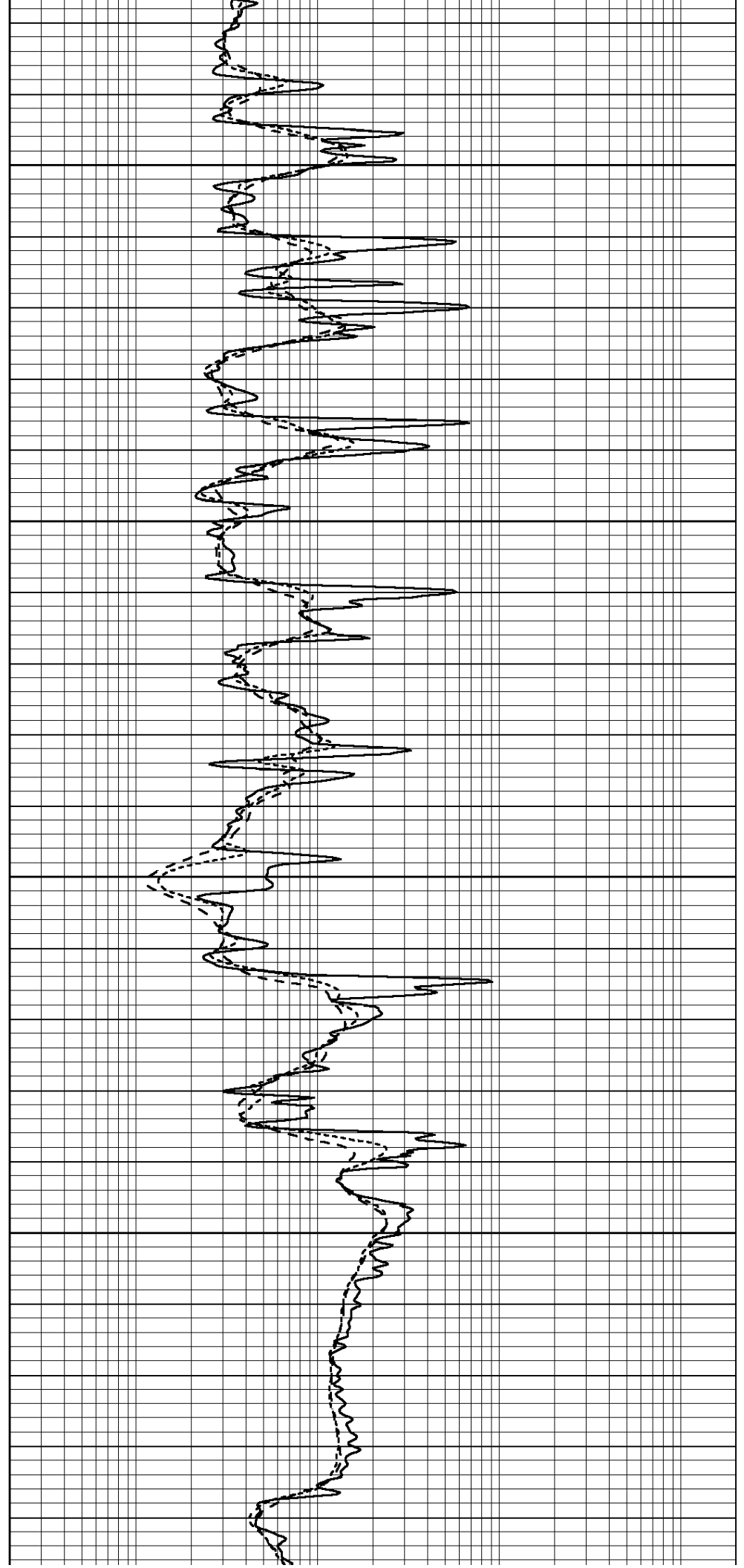


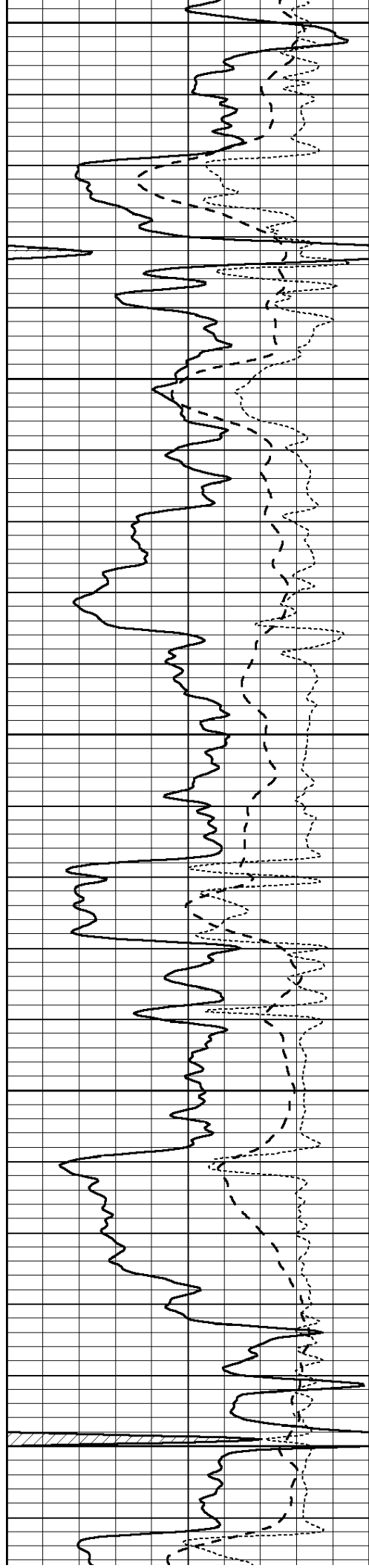
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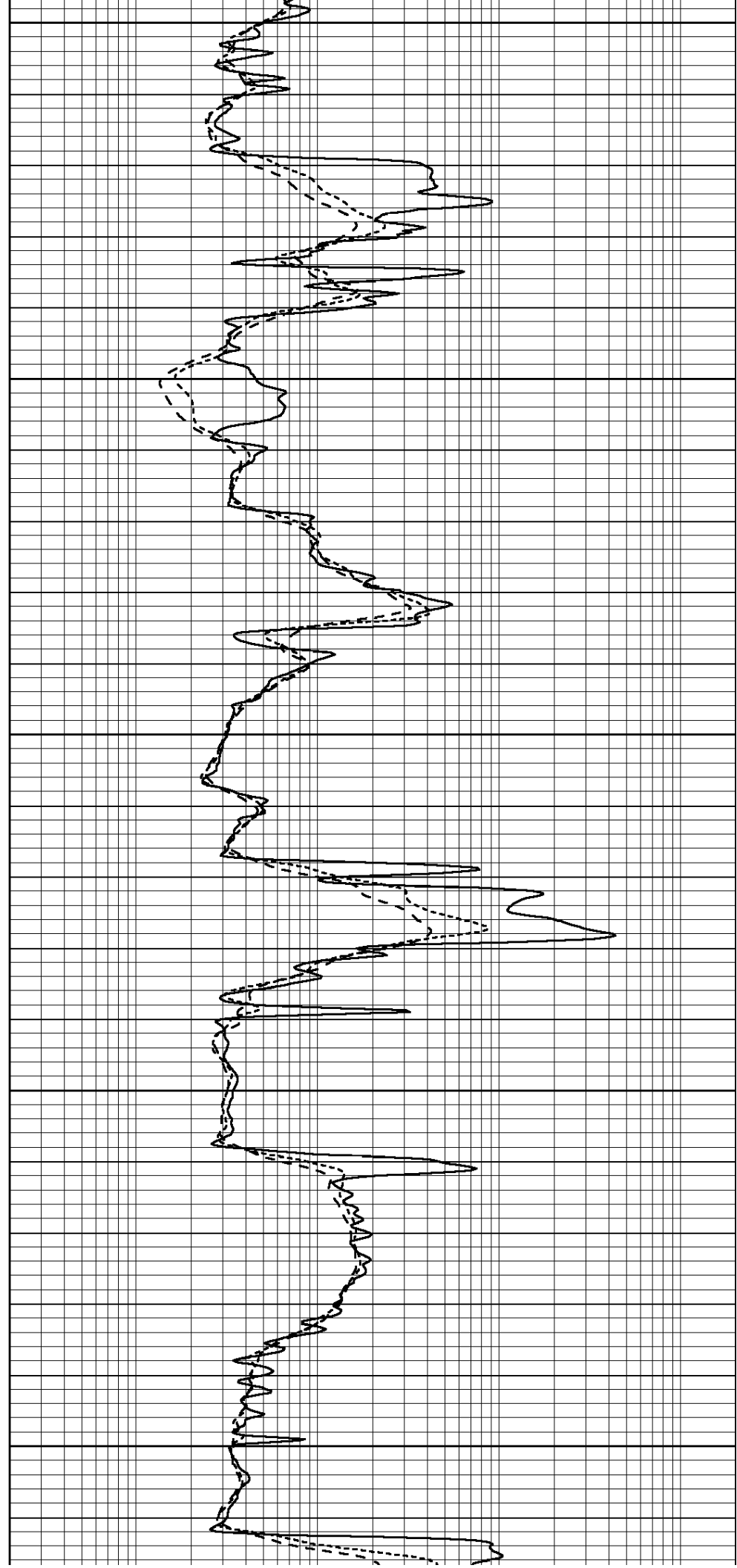
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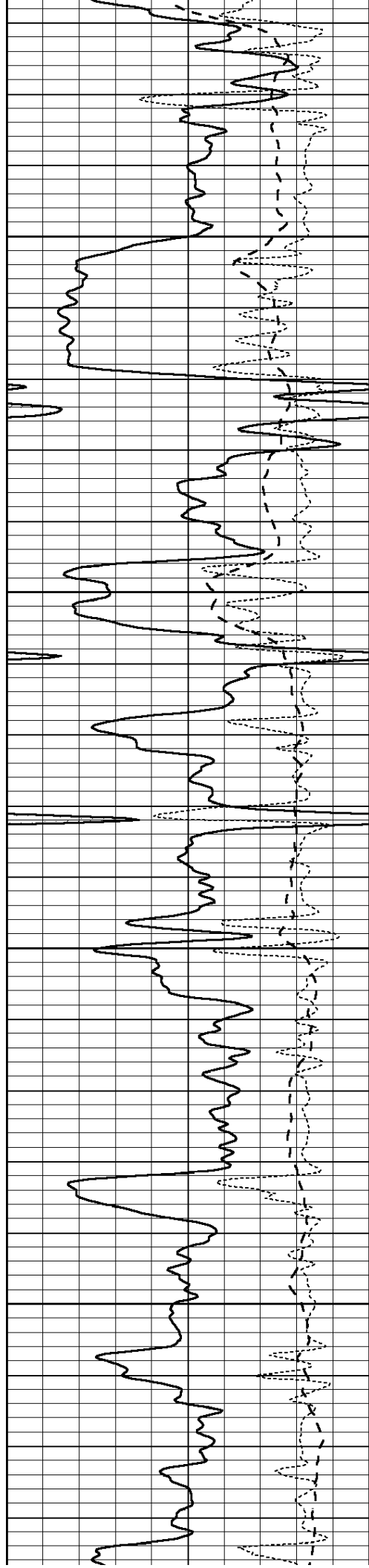
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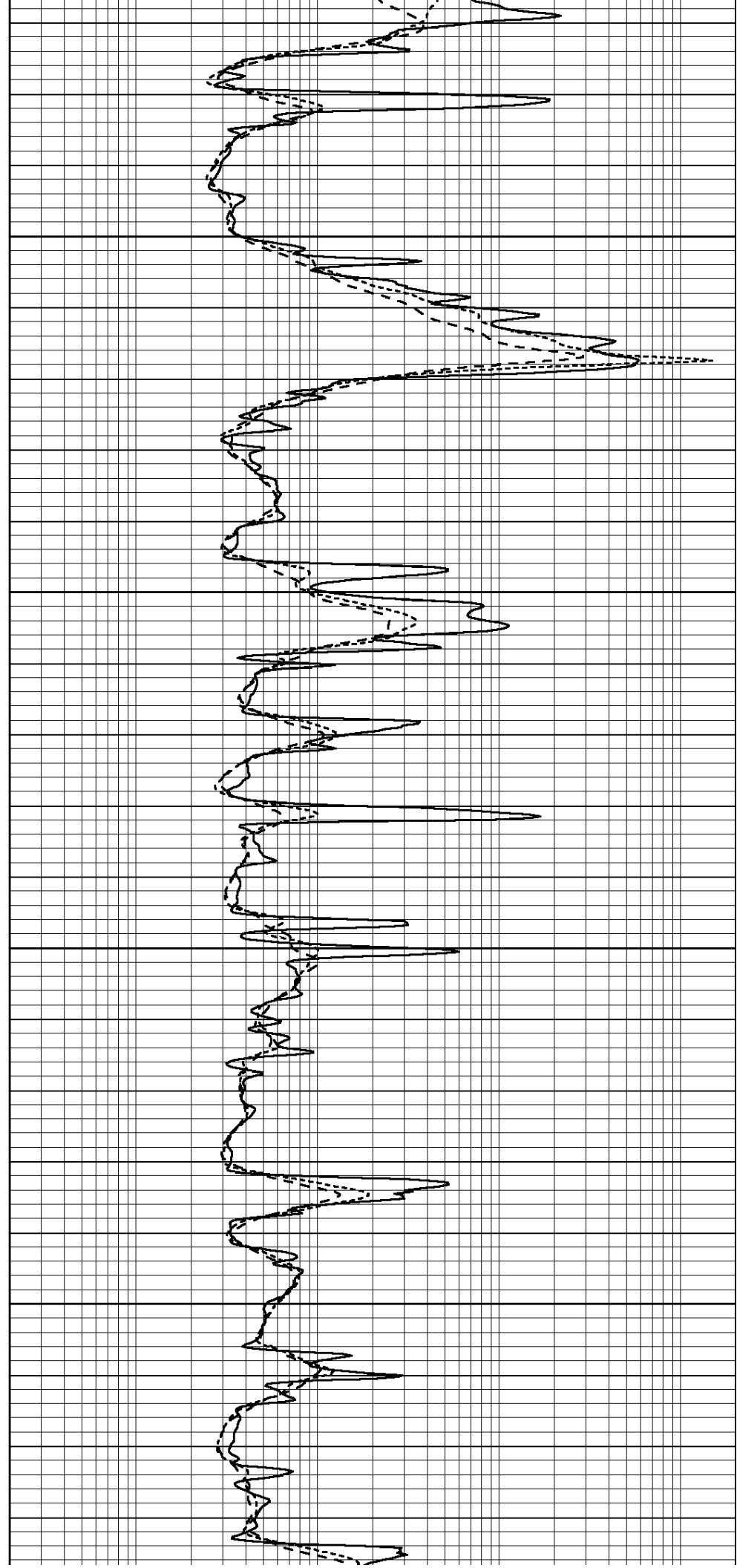


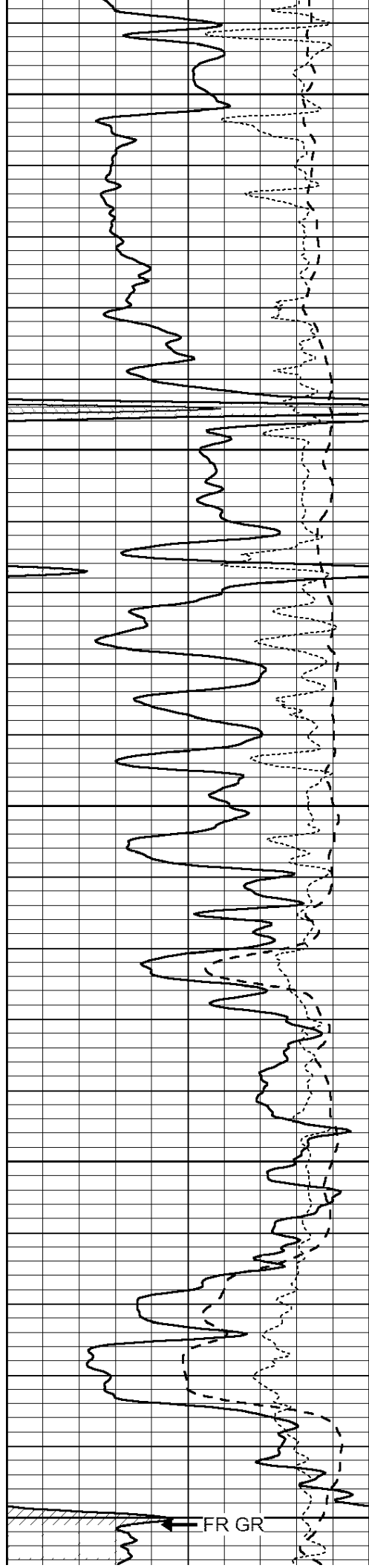
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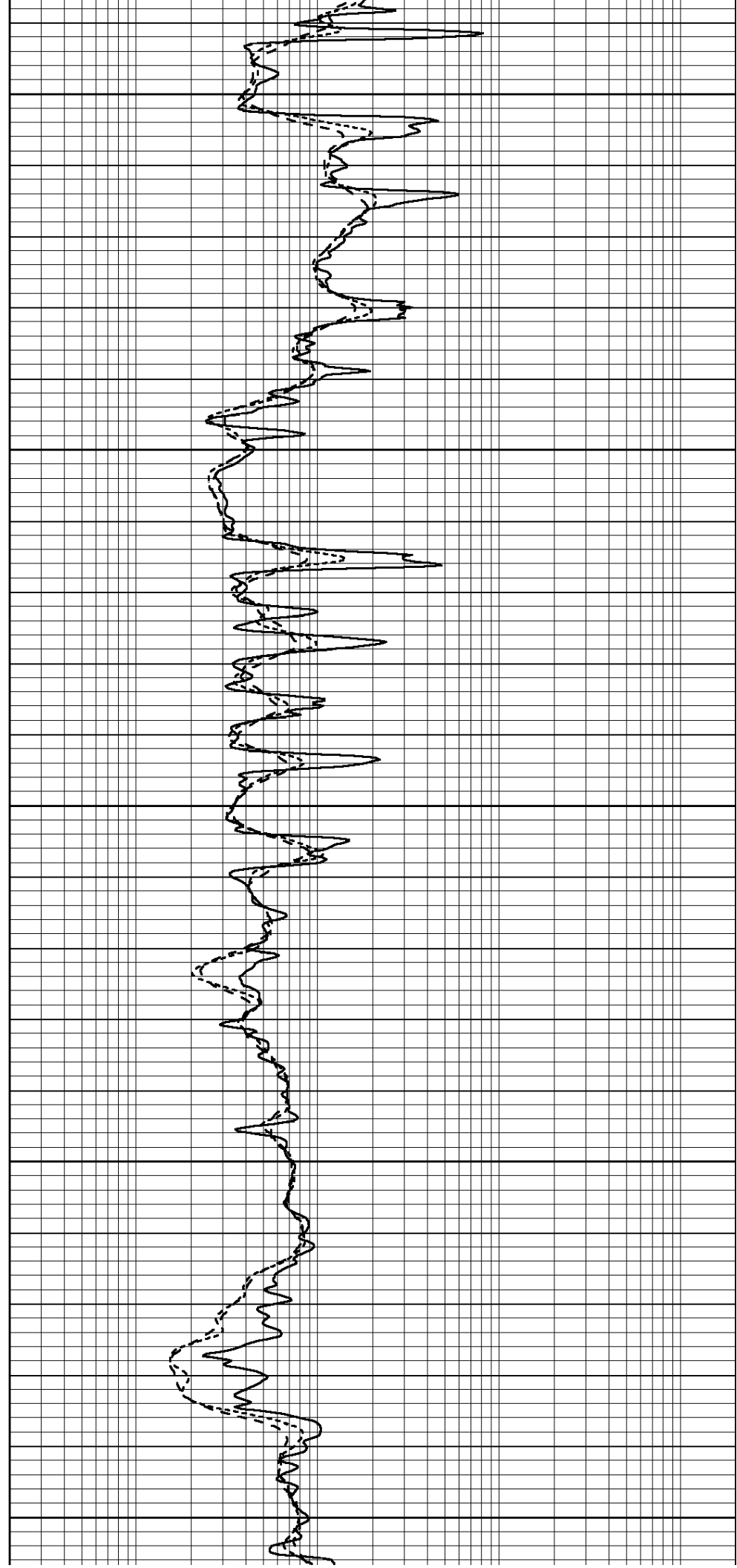
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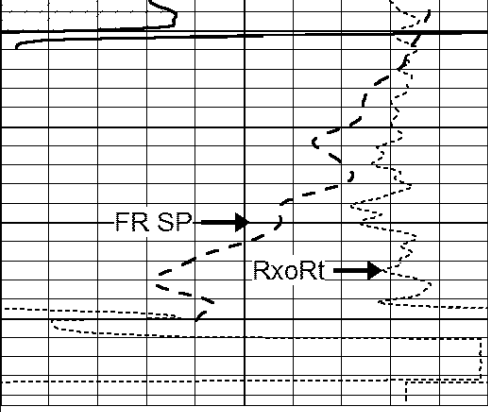
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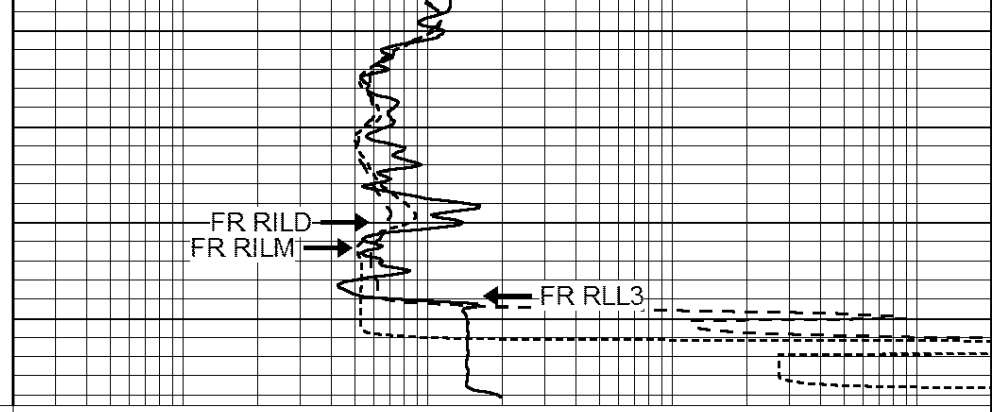
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FR GR



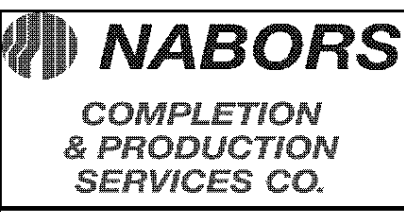


LTD 4640



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

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

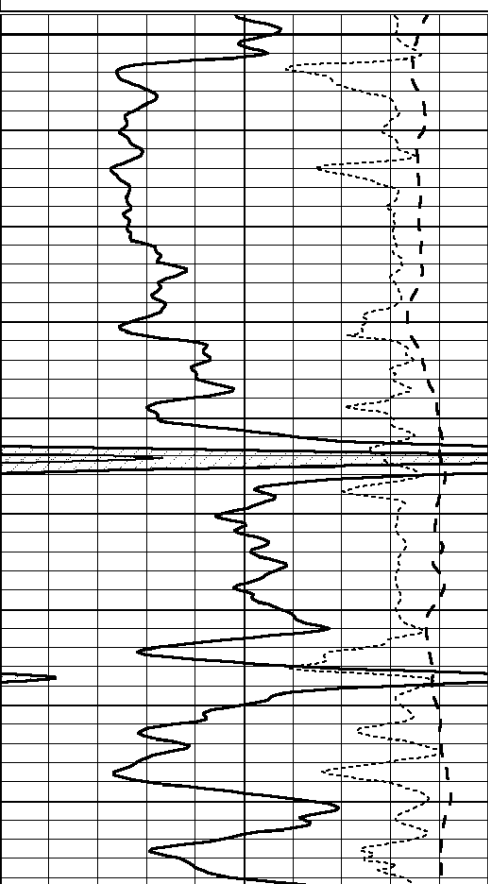


# REPEAT SECTION

Database File: 26431ddn.db  
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 Charted by: Depth in Feet scaled 1:240

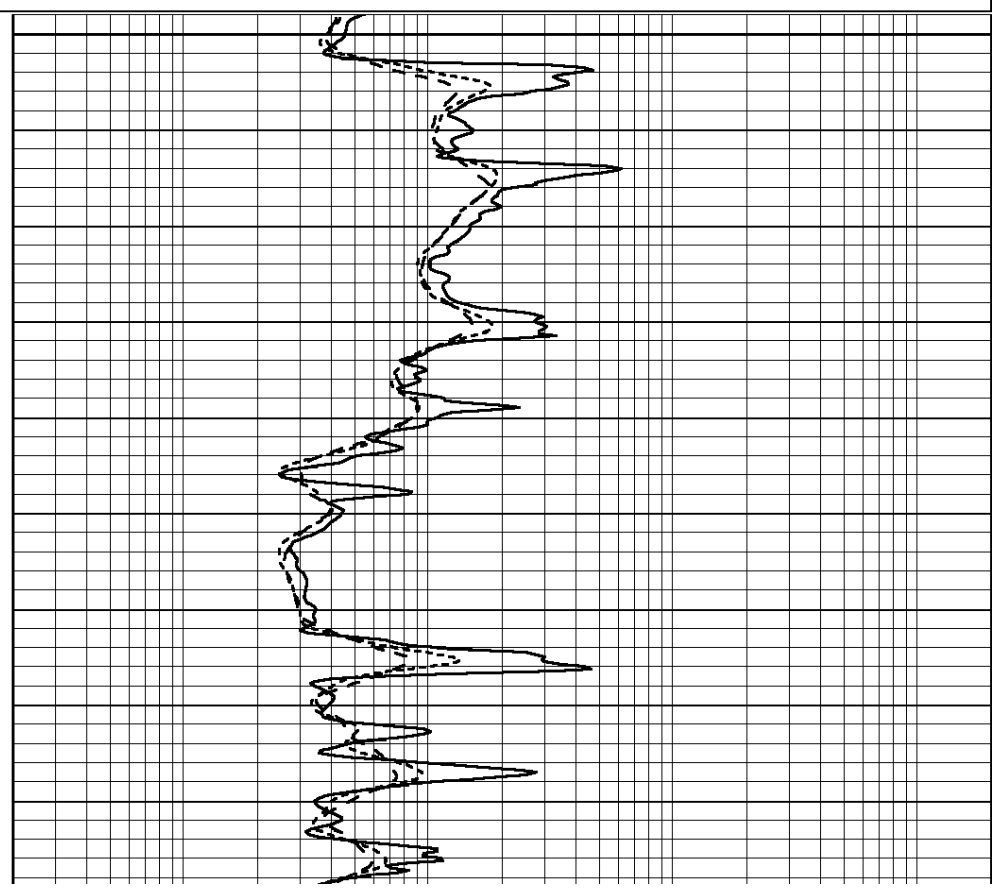
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-250	Rxo/Rt	50

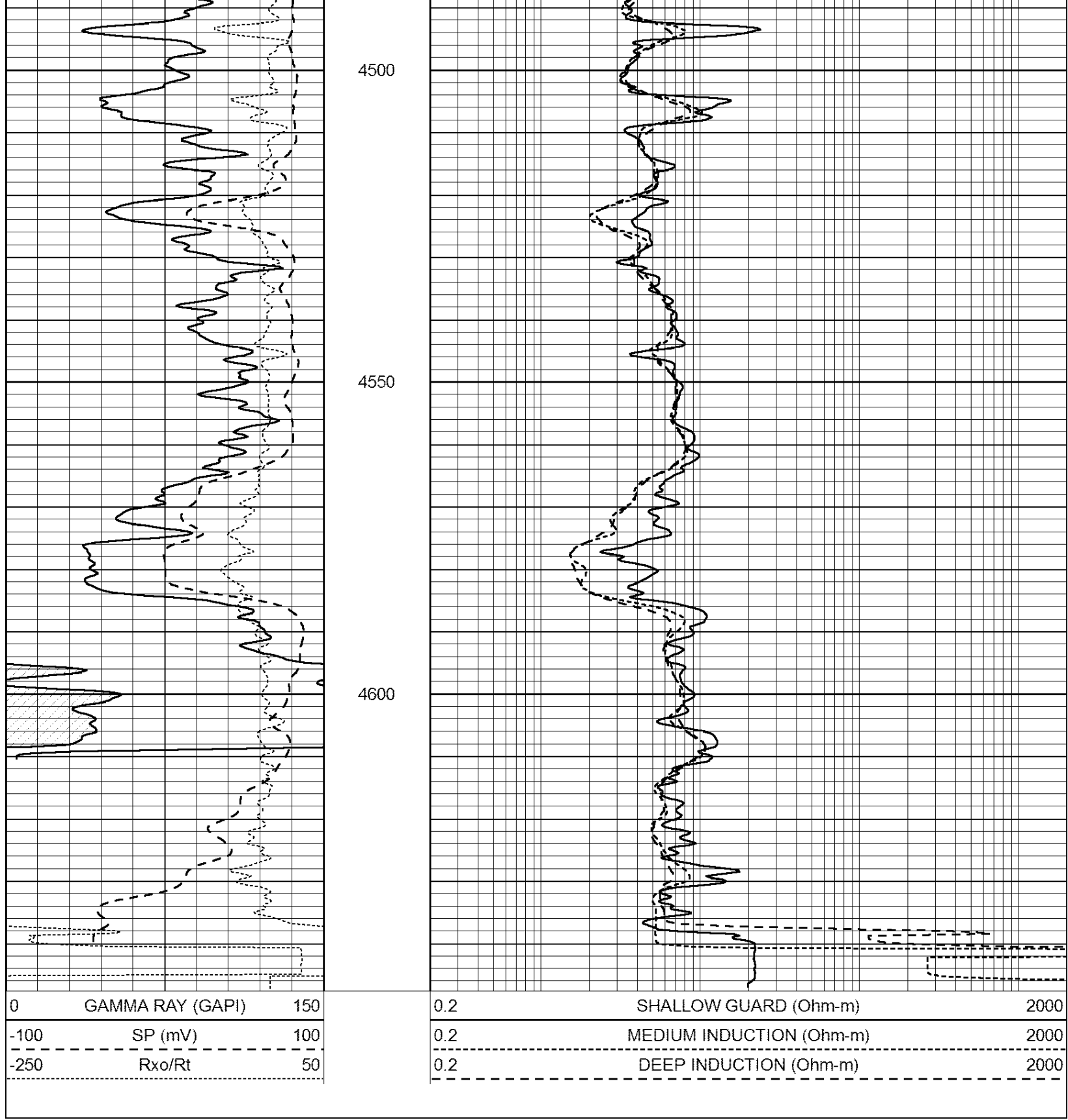
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



4400

4450





Calibration Report

Database File: 26431ddn.db  
 Dataset Pathname: pass4.2  
 Dataset Creation: Thu Jan 15 08:22:11 2015 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Fri Dec 05 11:16:41 2014
Downhole Cal Performed:	Sat Jan 19 19:51:38 2013
After Survey Verification Performed:	Sat Jan 19 19:51:38 2013

Surface Calibration								
Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.793	0.790	V	0.000	400.000	mmho/m	520.000	12.000
Medium	0.992	1.002	V	0.000	464.000	mmho/m	570.000	-32.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.041	0.642	V	0.000	400.000	mmho/m	664.874	-27.011
Medium	0.035	0.802	V	0.000	464.000	mmho/m	604.936	-21.367

Downhole Calibration								
	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	135384.000	27094.500	mmho/m	135400.000	27082.400	mmho/m	1.000	-19.259
Medium	-47330.100	-9381.740	mmho/m	-47327.100	-9389.280	mmho/m	1.000	-10.154
LL3		7.322	V		1400.000	Ohm-m		
		0.038	V		20.000	Ohm-m		
		-7.273	V		4000.000	mmho-m		

After Survey Verification								
	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	135384.000	27094.500	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	-47330.100	-9381.740	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1400.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		4000.000	mmho-m		

**Compensated Density Calibration Report**

Serial-Model:	GEAR5-GEARHART
Source / Verifier:	147 / 147
Master Calibration Performed:	Wed Dec 17 11:46:19 2014
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration						
	Density		Far Detector		Near Detector	
		g/cc				cps
Magnesium	1.710	g/cc	894.82	531.60		cps
Aluminum	2.600	g/cc	199.46	368.39		cps
Spine Angle = 76.27			Density/Spine Ratio = 0.576			
	Size		Reading			
Small Ring	8.20	in	1.64	V		
Large Ring	14.00	in	2.93	V		

Before Survey Verification						
	Target		Measured			
		g/cc				g/cc
		g/cc				g/cc
		g/cc				g/cc
		g/cc				g/cc

After Survey Verification						
	Target		Measured			
		g/cc				g/cc
		g/cc				g/cc
		g/cc				g/cc
		g/cc				g/cc

g/cc  
g/cc  
g/cc

g/cc  
g/cc  
g/cc

Compensated Neutron Calibration Report

Serial Number: 080620  
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: 46001  
Tool Model: Probe1  
Performed: Mon Nov 24 09:45:18 2014

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 0.2600 GAPI/cps