



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company		MULL DRILLING CO., INC.	
Well		NEWBERRY FARMS #1-36	
Field		SPIVEY-GRABS-BASIL	
County		HARPER	
State		KANSAS	
Location:		APL # : 15-077-22112-00-00 575' FNL & 1675' FWL	
Permanent Datum		GROUND LEVEL Elevation 1574	
Log Measured From		KELLY BUSHING 10' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 36 TWP 31S RGE 9W		Other Services CNL/CDL MEL/SON	
Elevation		K.B. 1584 D.F. 1582 G.L. 1574	
Date	11/6/14		
Run Number	ONE		
Depth Driller	4600		
Depth Logger	4601		
Bottom Logged Interval	4599		
Top Log Interval	00		
Casing Driller	8 5/8" @ 225		
Casing Logger	218		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5000 PPM	
Density / Viscosity	9.4/45		
pH / Fluid Loss	10.0/9.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.75 @ 70F		
Rmt @ Meas. Temp	0.56 @ 70F		
Rmc @ Meas. Temp	0.90 @ 70F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	0.43 @ 121F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	121F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	JERRY A. SMITH		

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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, KS. (785) 628-6395
DIRECTIONS:

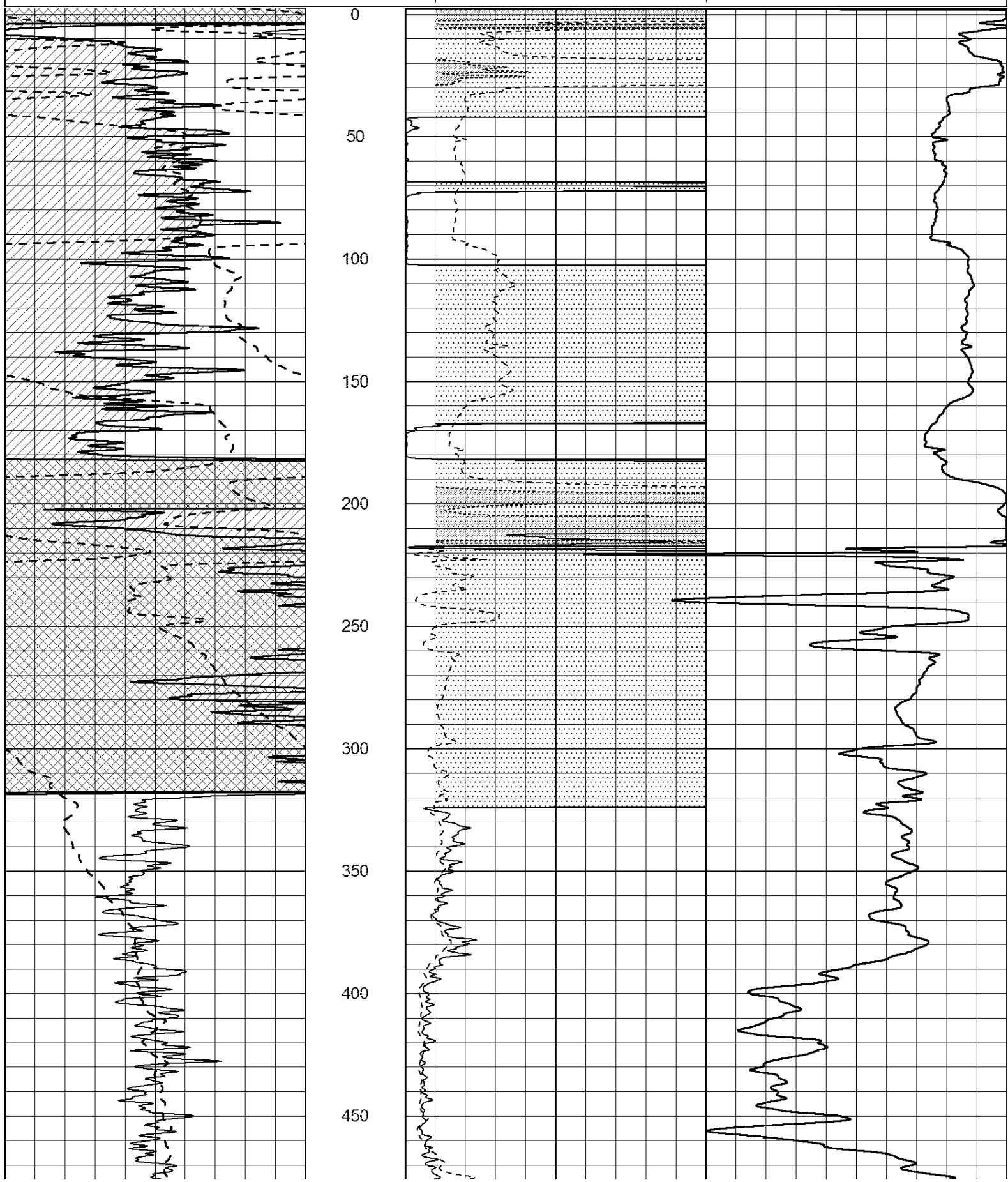
ZENDA, KS. - SOUTH TO NW 150 RD - EAST TO 1 MILE TO NW 120 AVE - SOUTH 4 1/4 - EAST INTO

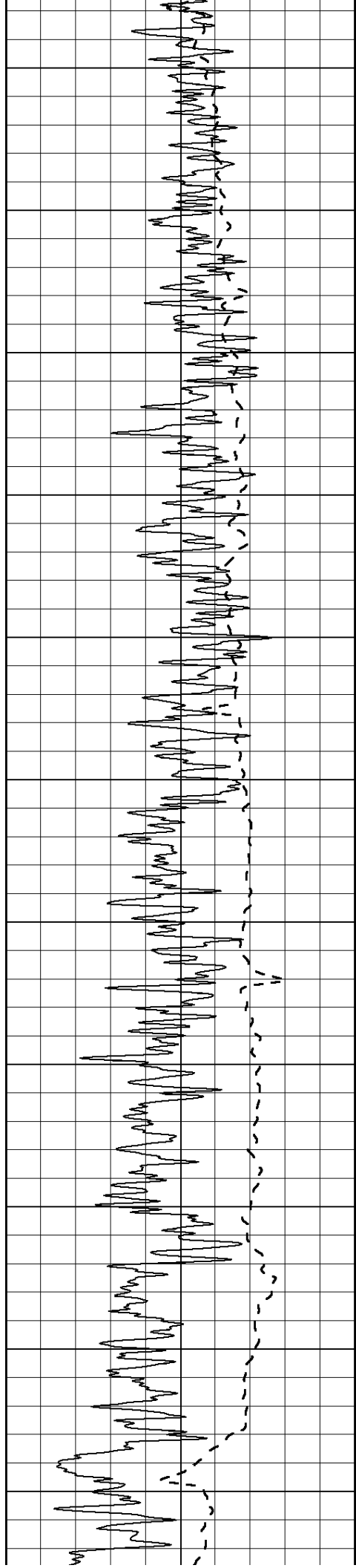
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Dataset Pathname: pass3.3
Presentation Format: _dil2
Dataset Creation: Thu Nov 06 08:03:46 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:600

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

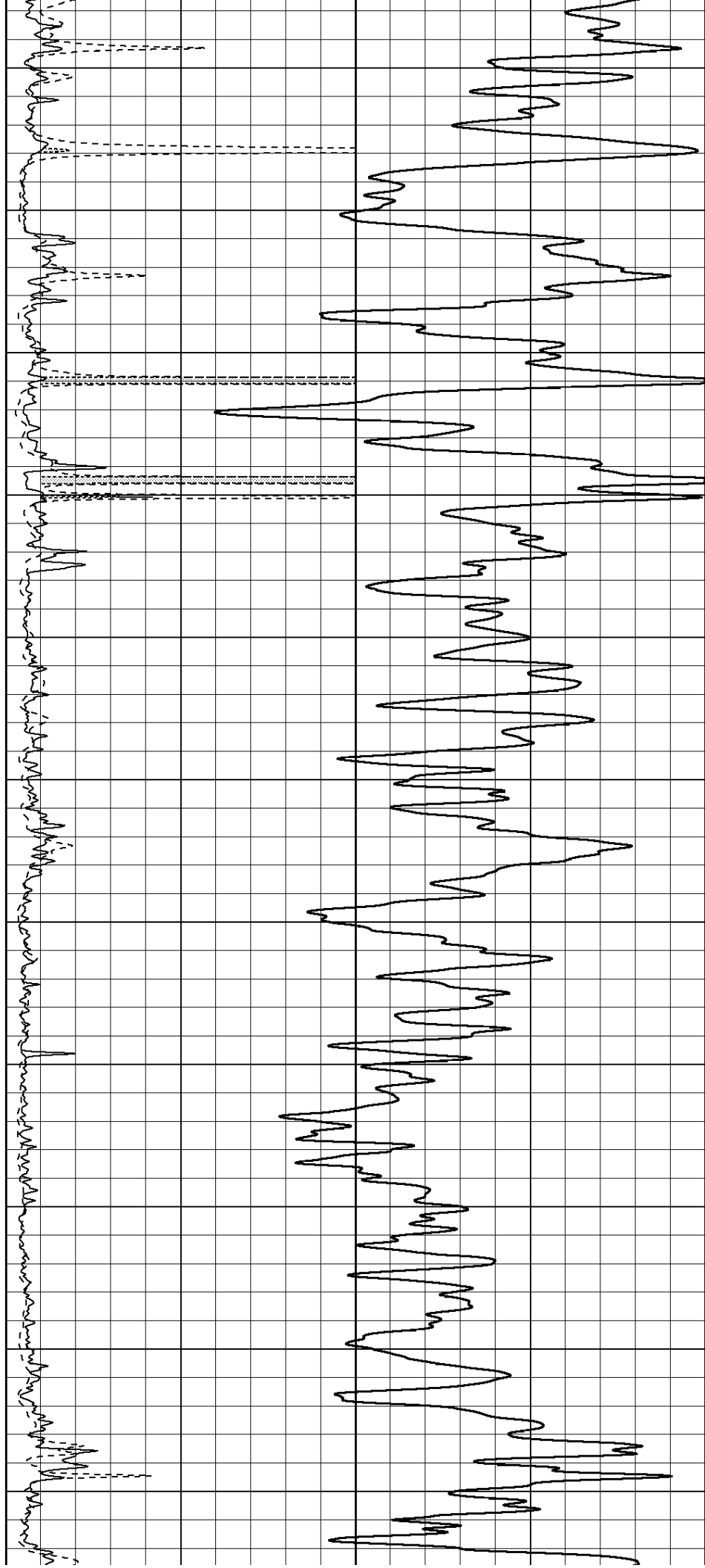
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

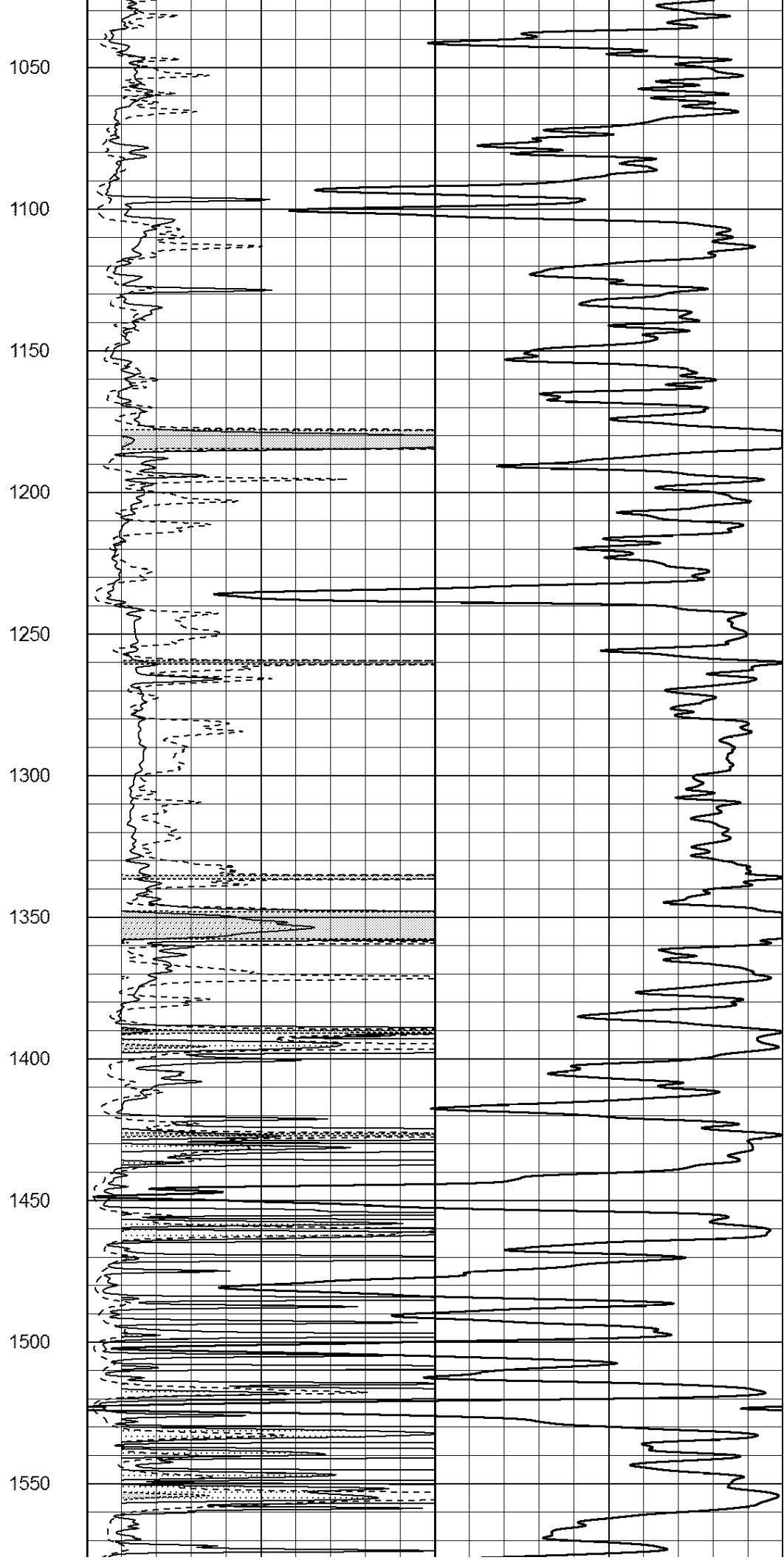
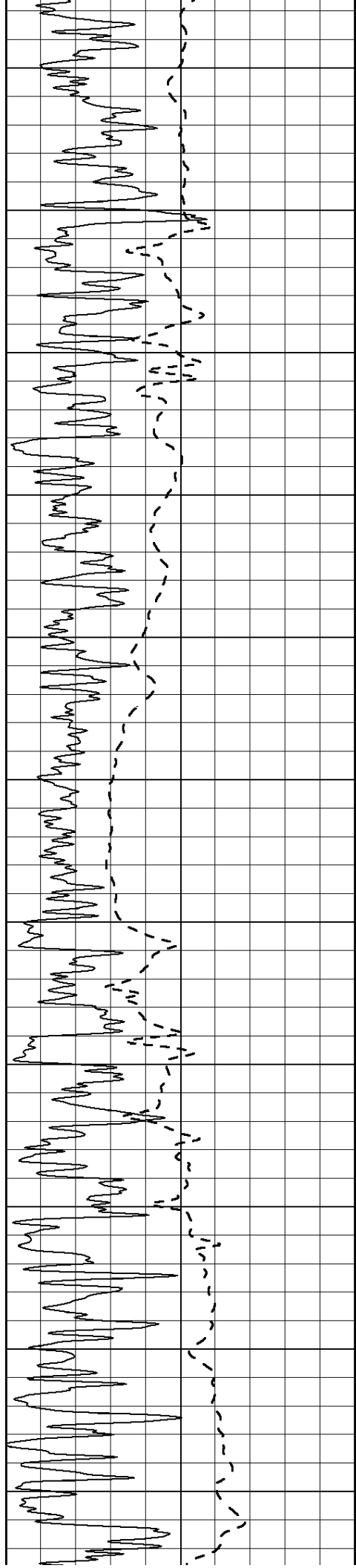
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

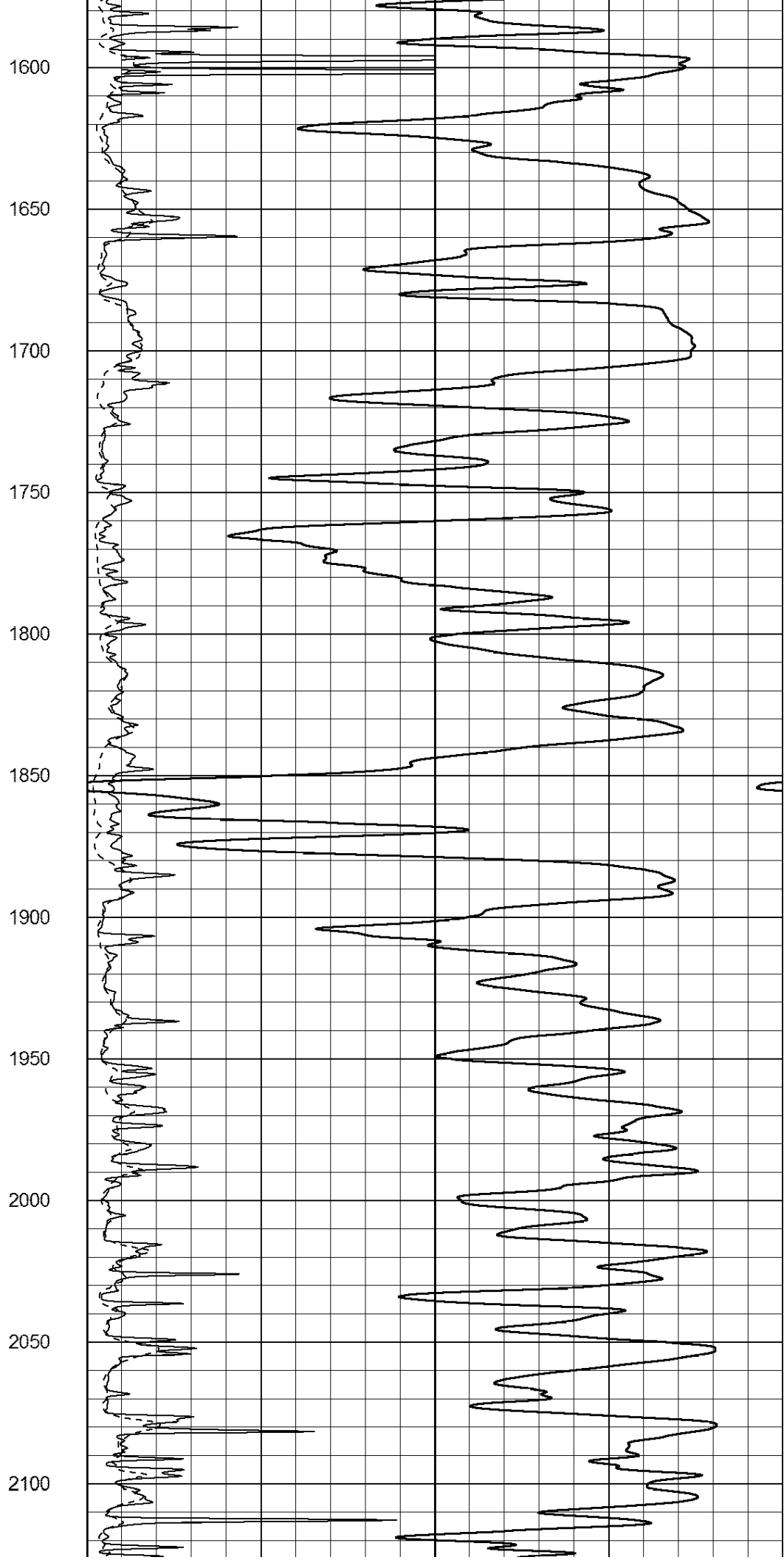
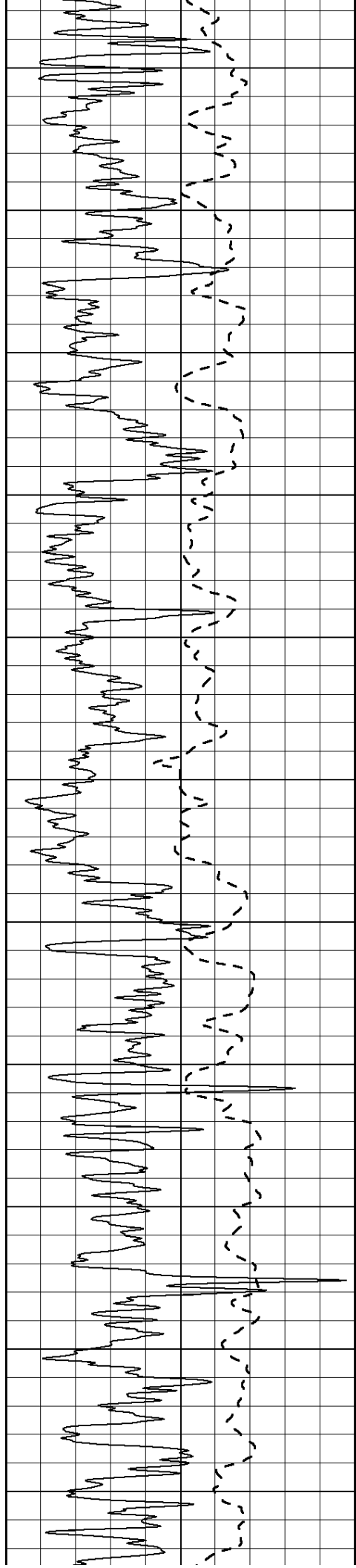


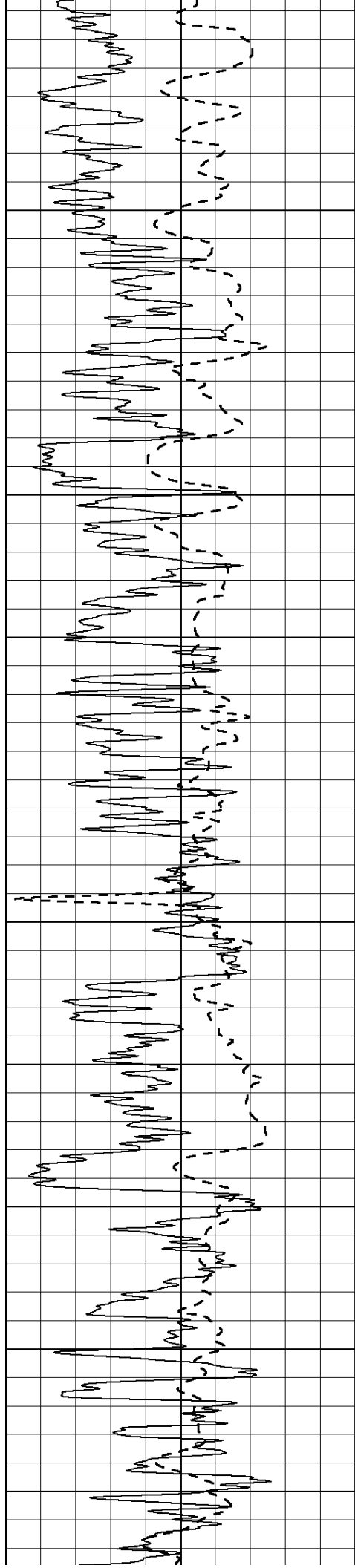


500
550
600
650
700
750
800
850
900
950
1000









2150

2200

2250

2300

2350

2400

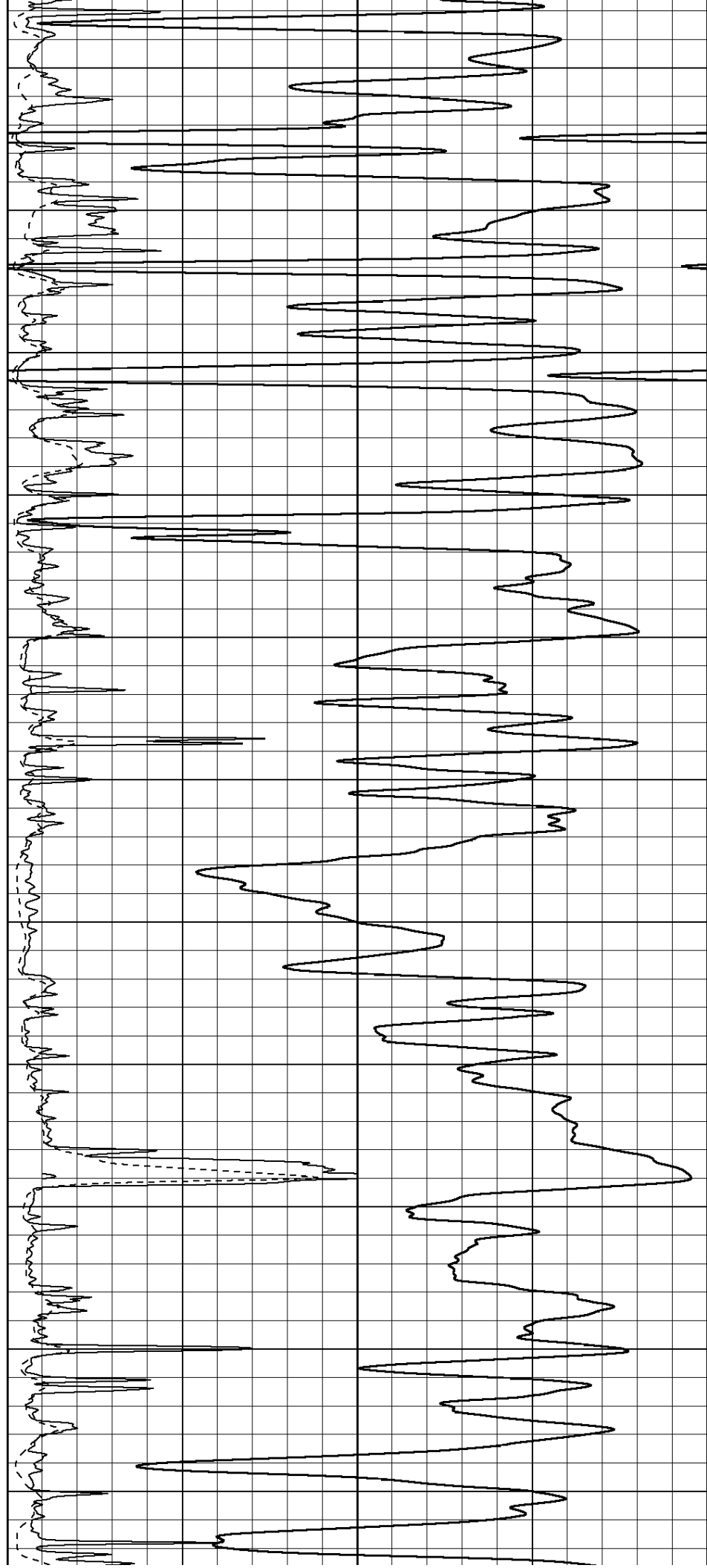
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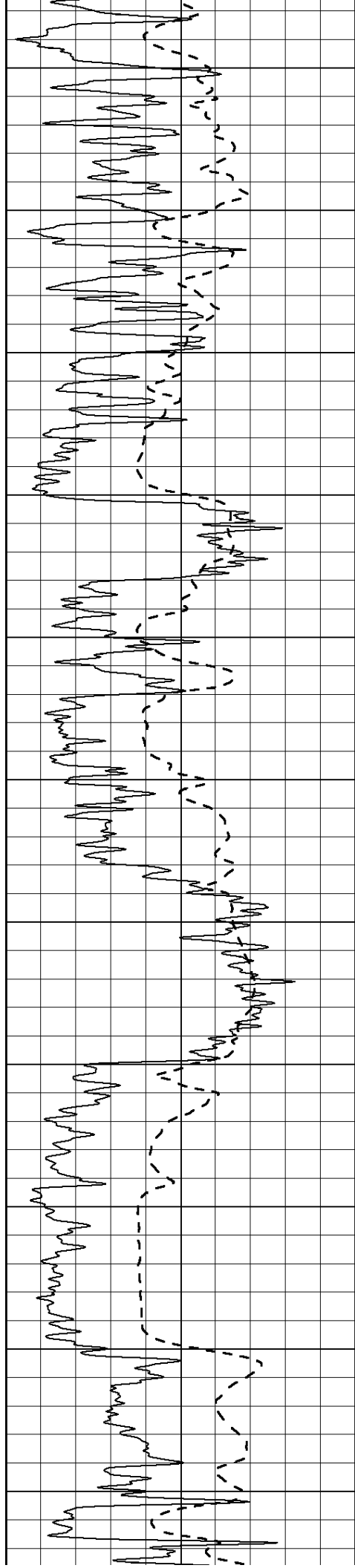
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2550

2600

2650





2700

2750

2800

2850

2900

2950

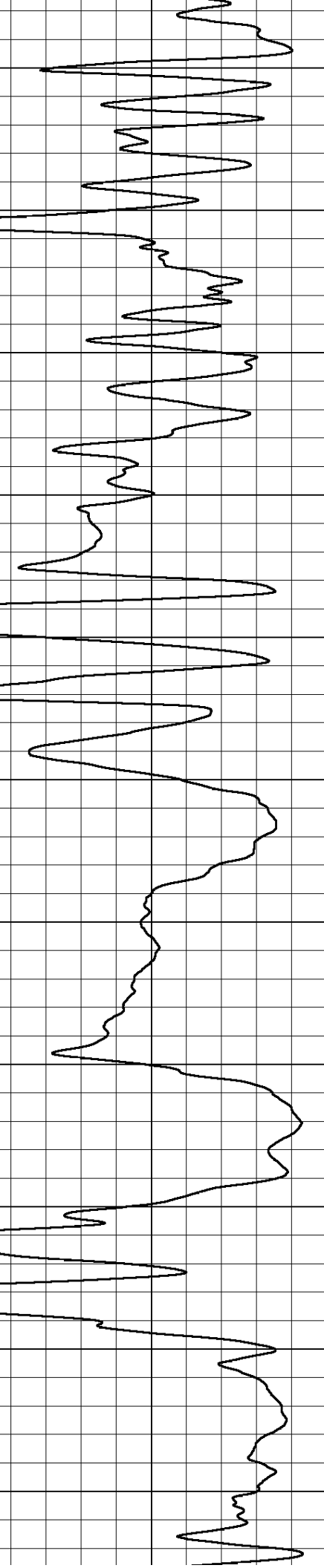
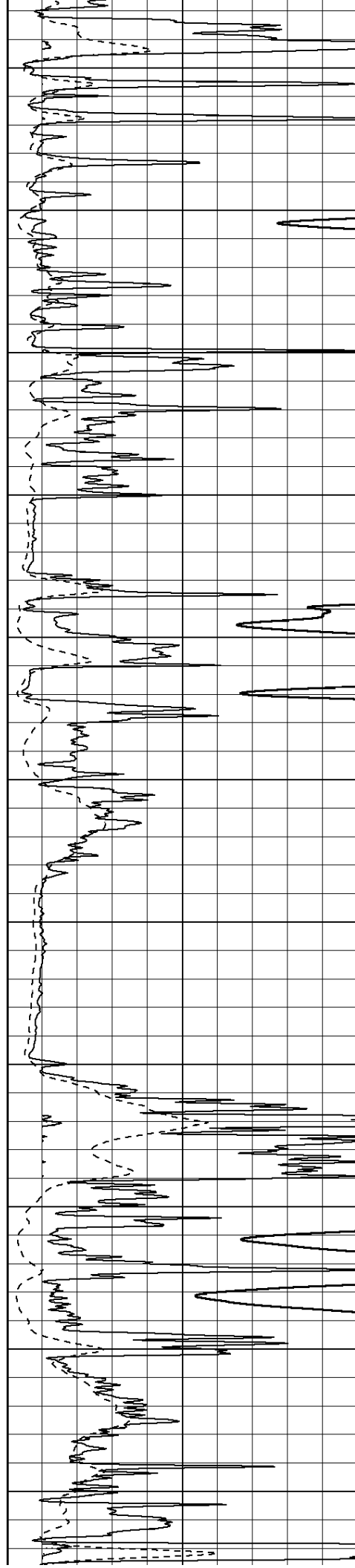
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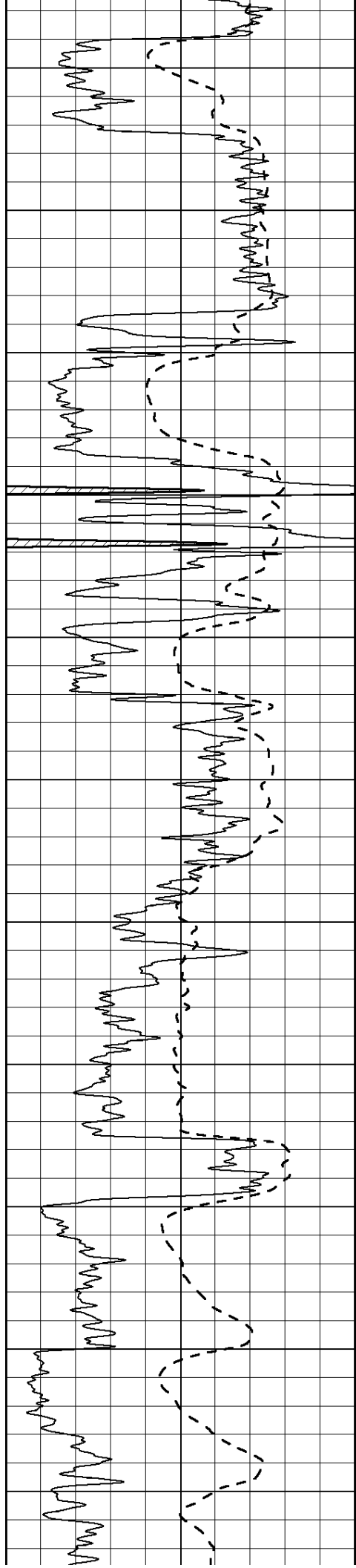
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3100

3150

3200





3250

3300

3350

3400

3450

3500

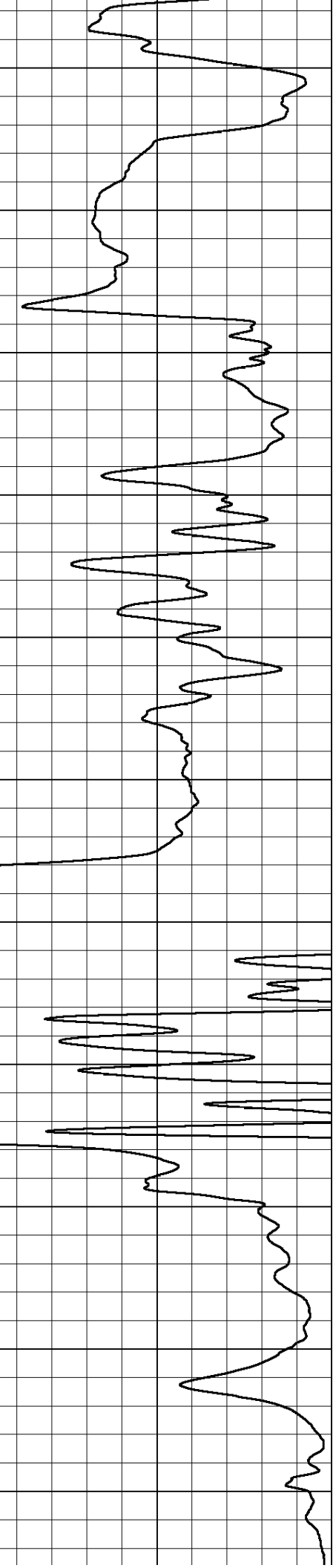
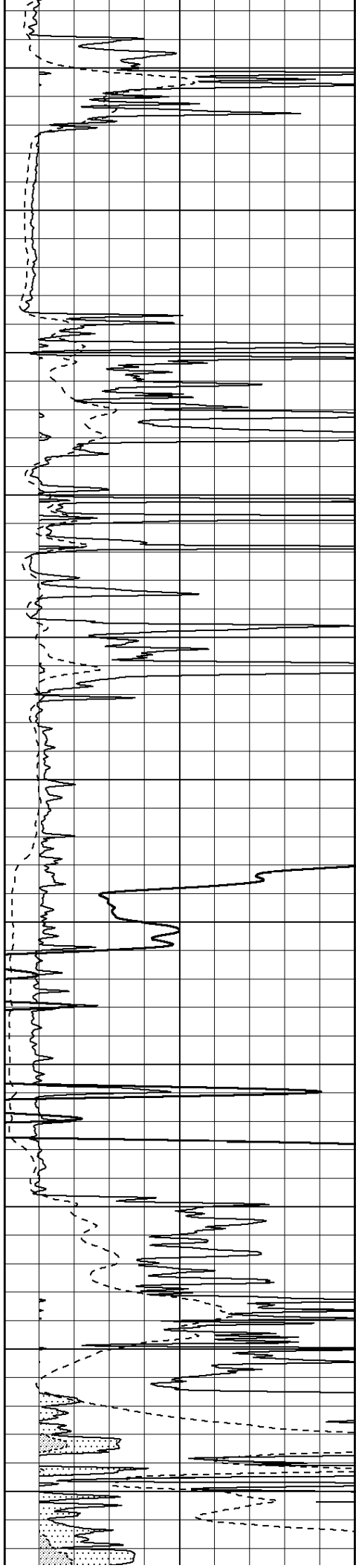
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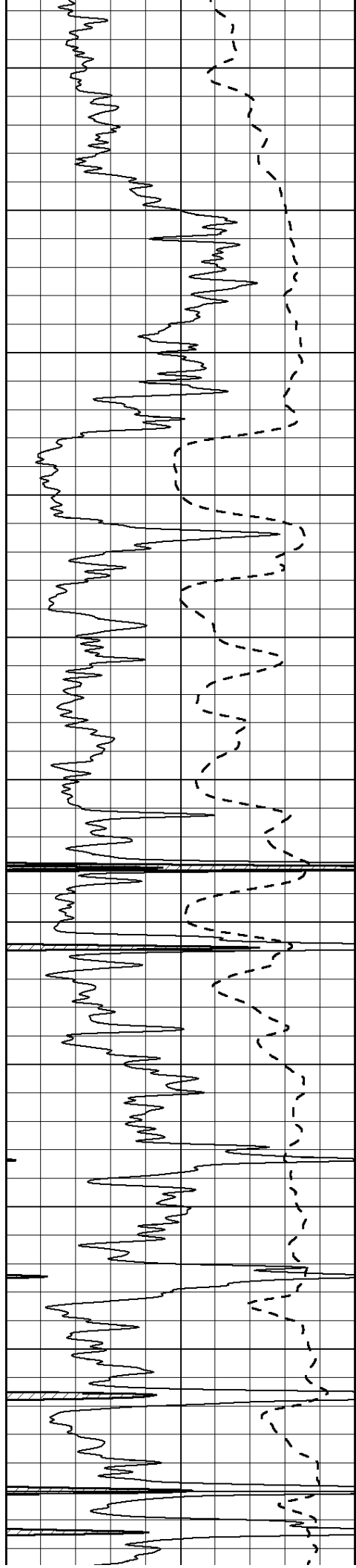
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3650

3700

3750





3800

3850

3900

3950

4000

4050

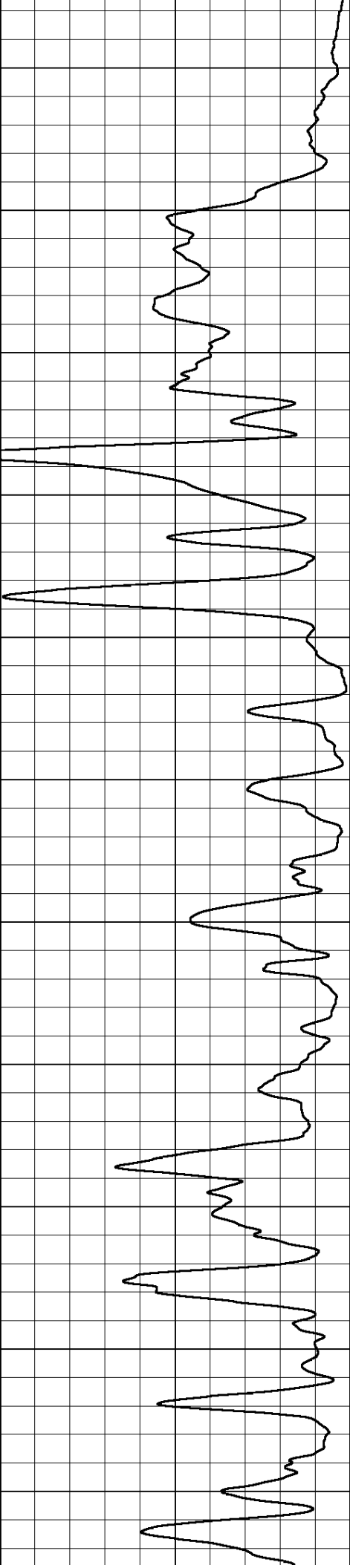
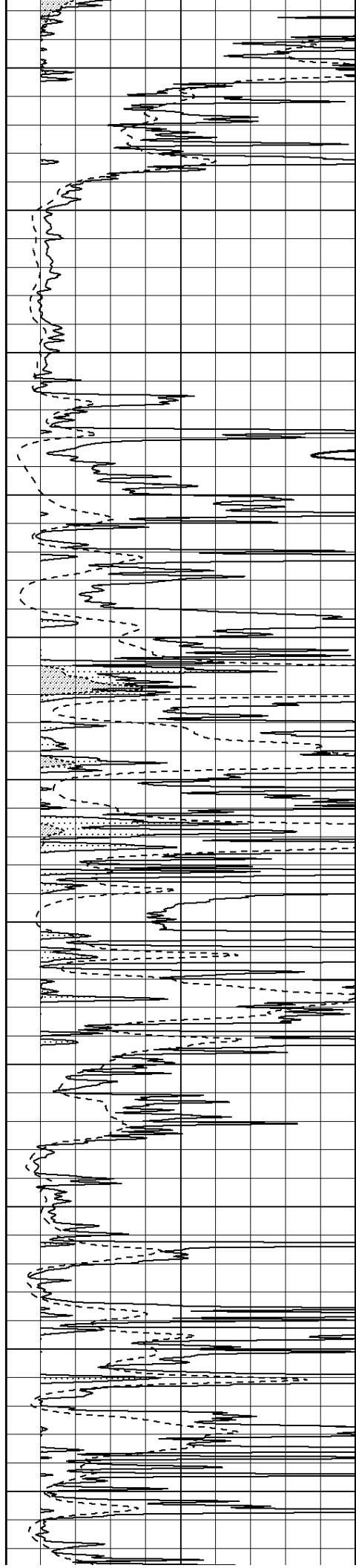
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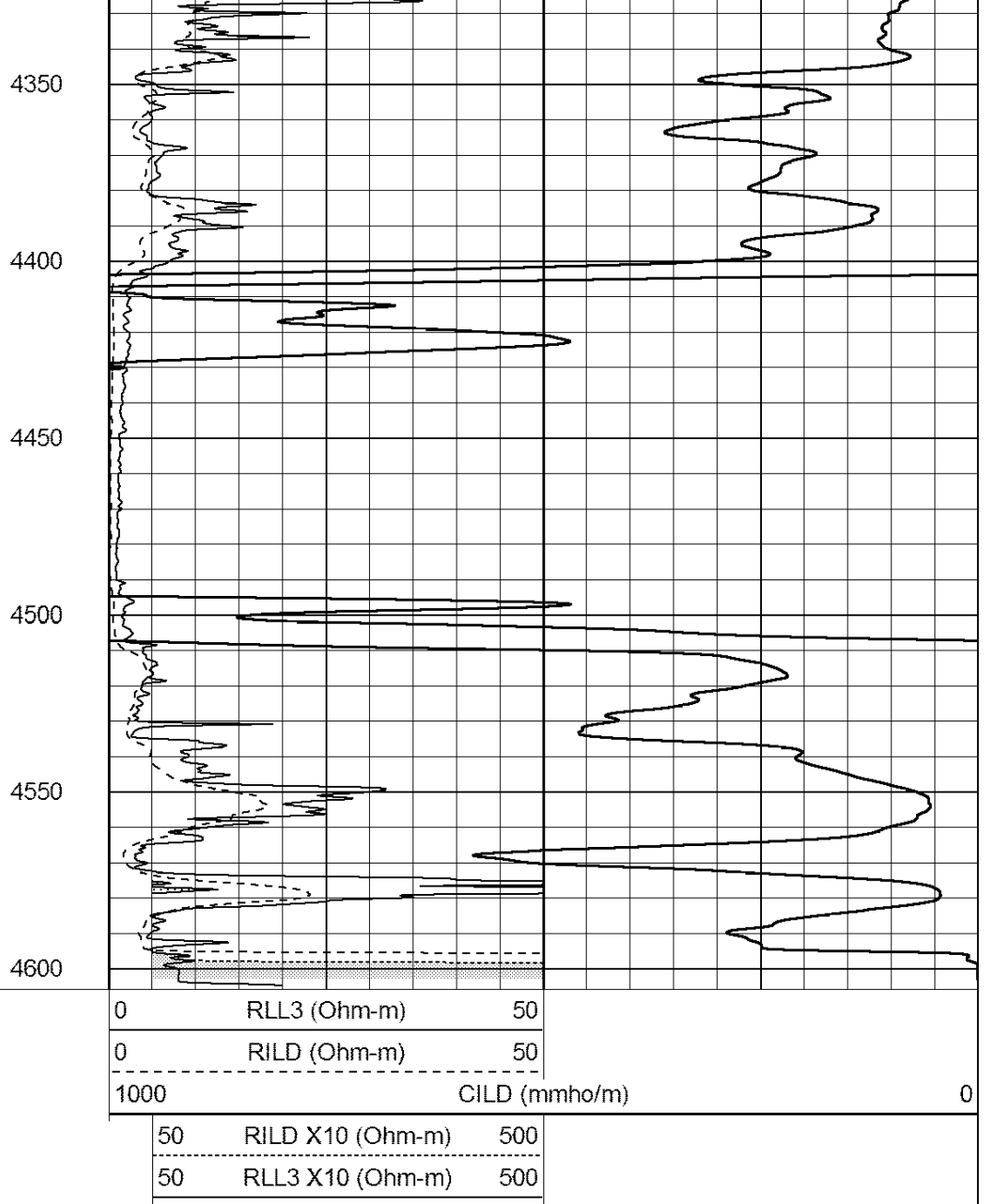
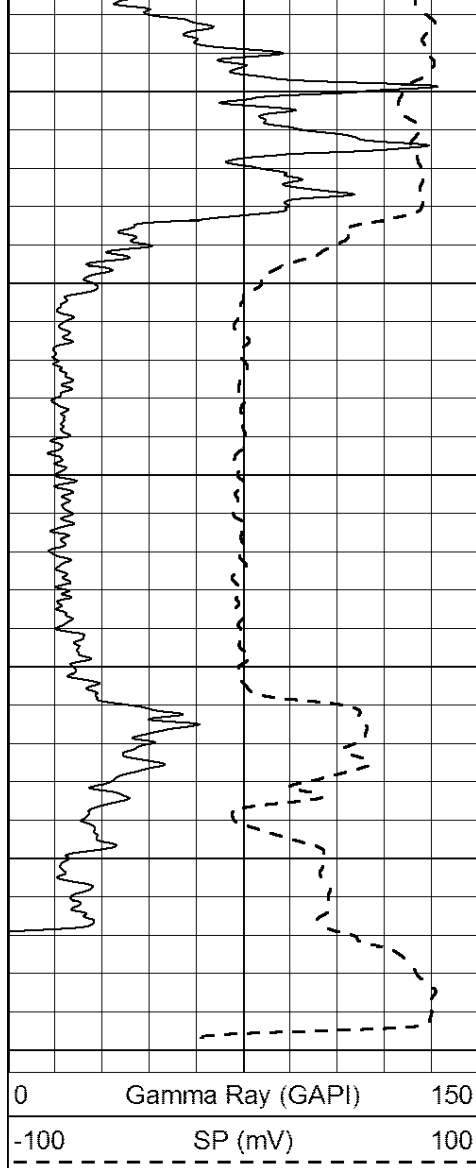
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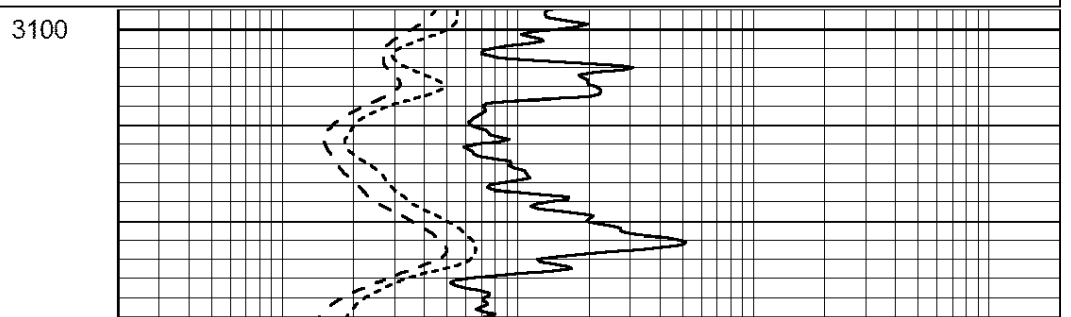
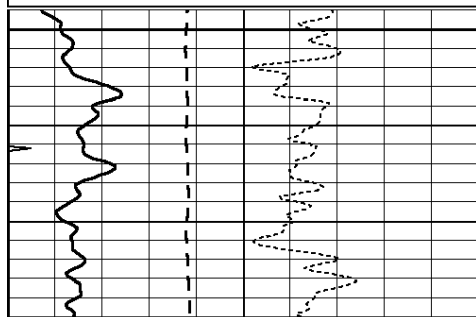
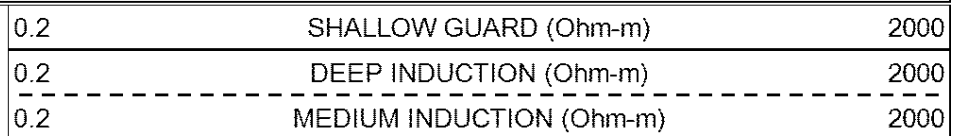
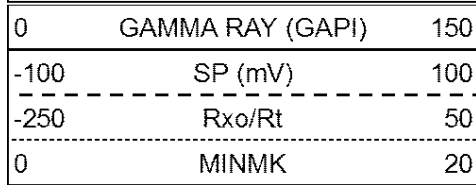
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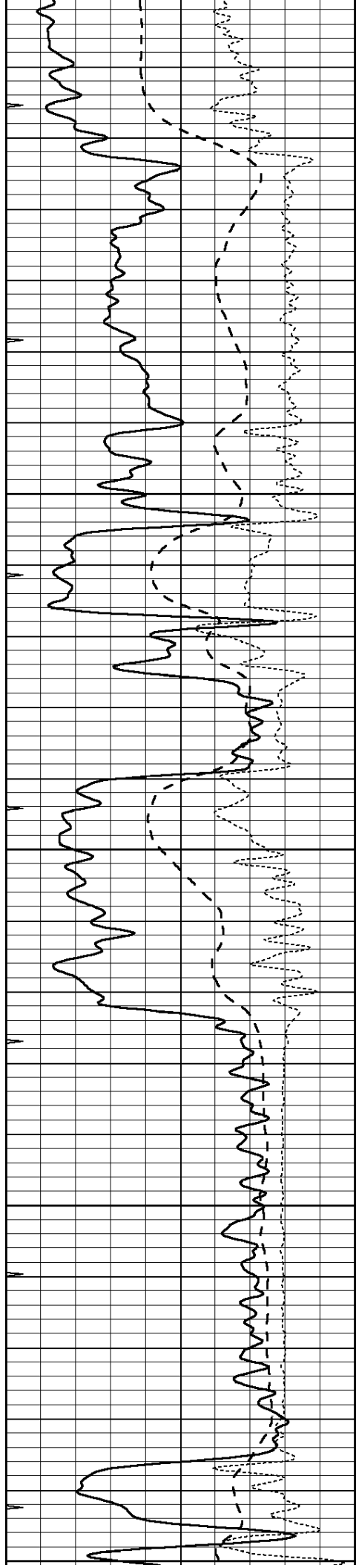
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 Charted by: Depth in Feet scaled 1:240





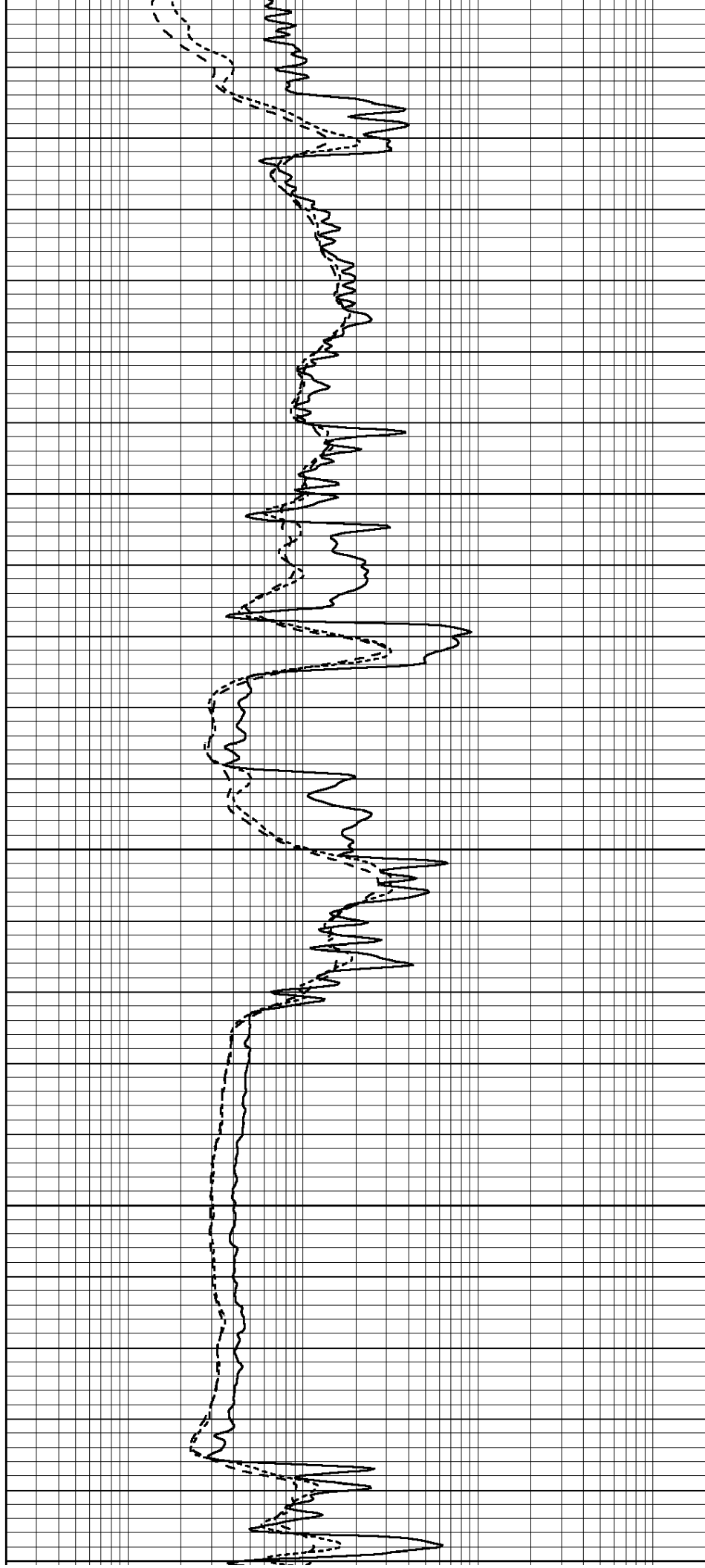
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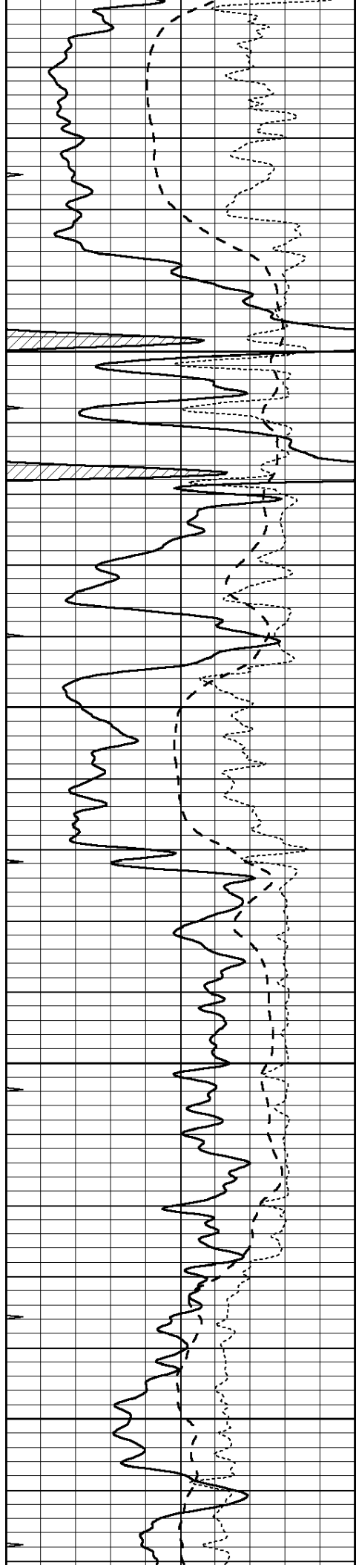
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3300

3350



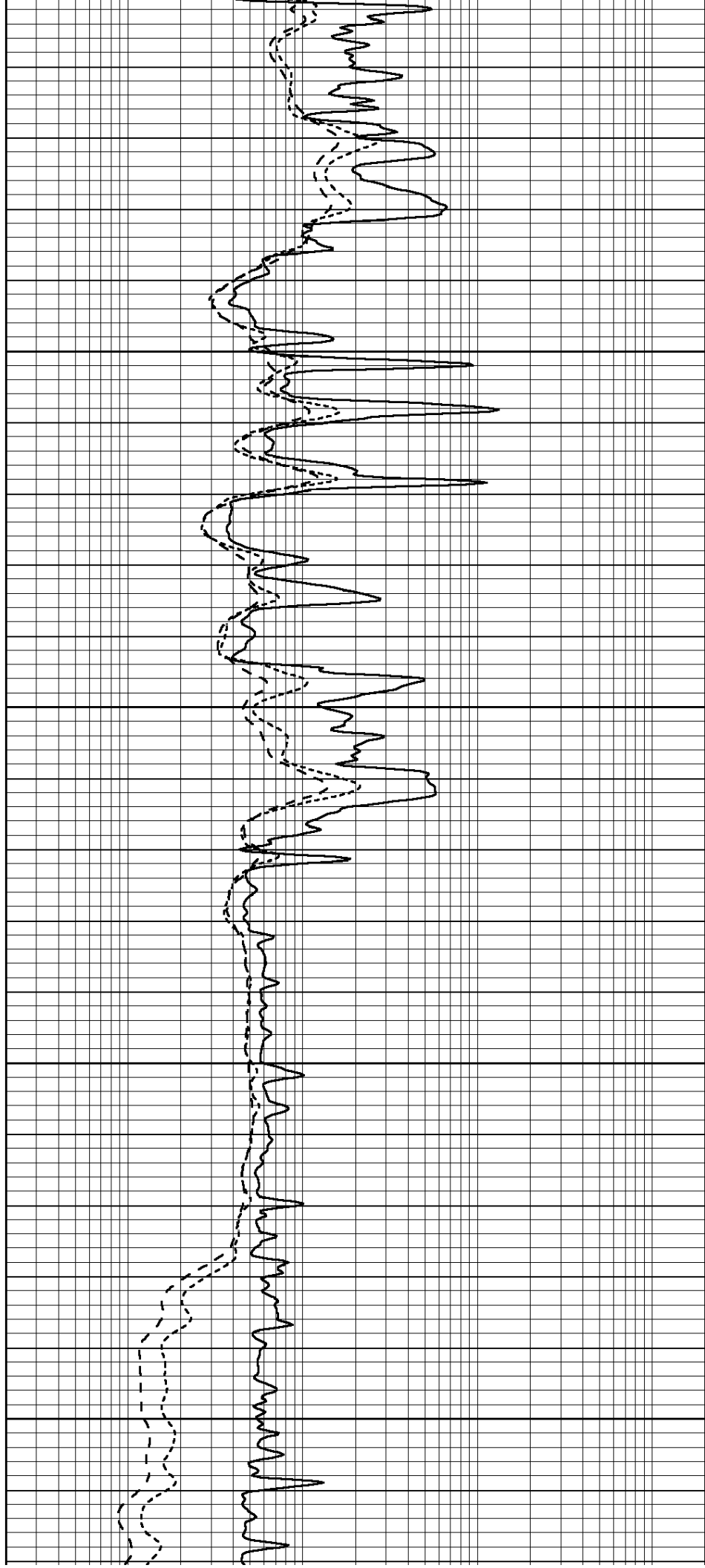


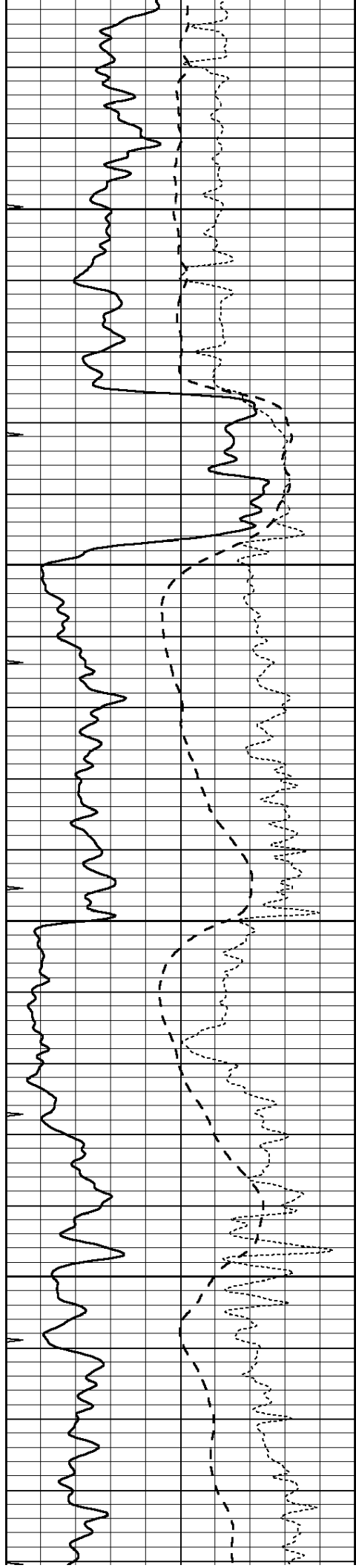
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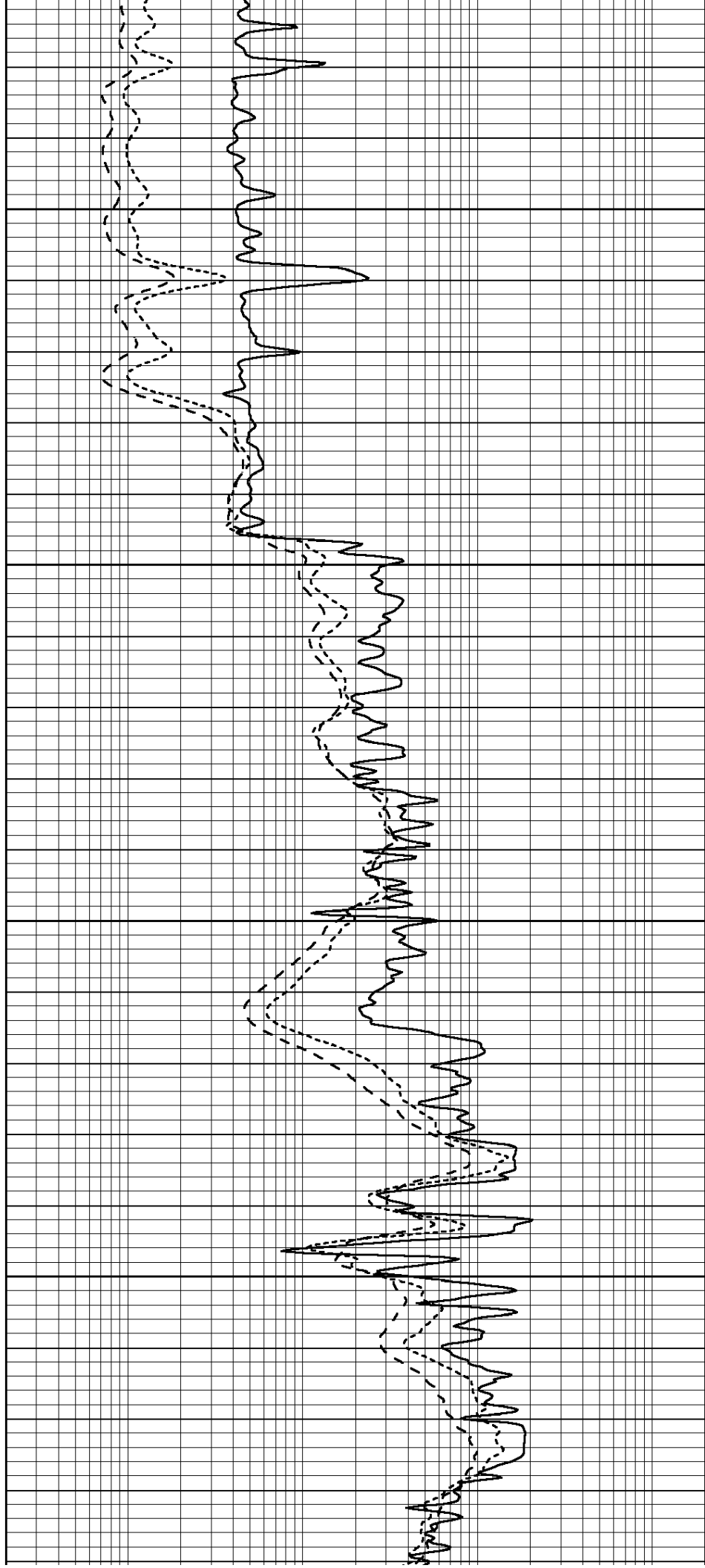


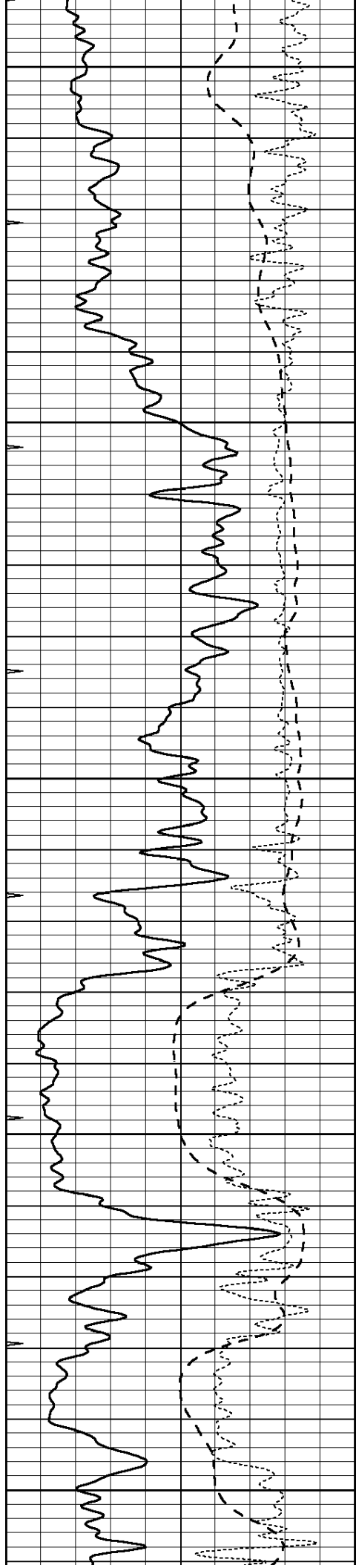
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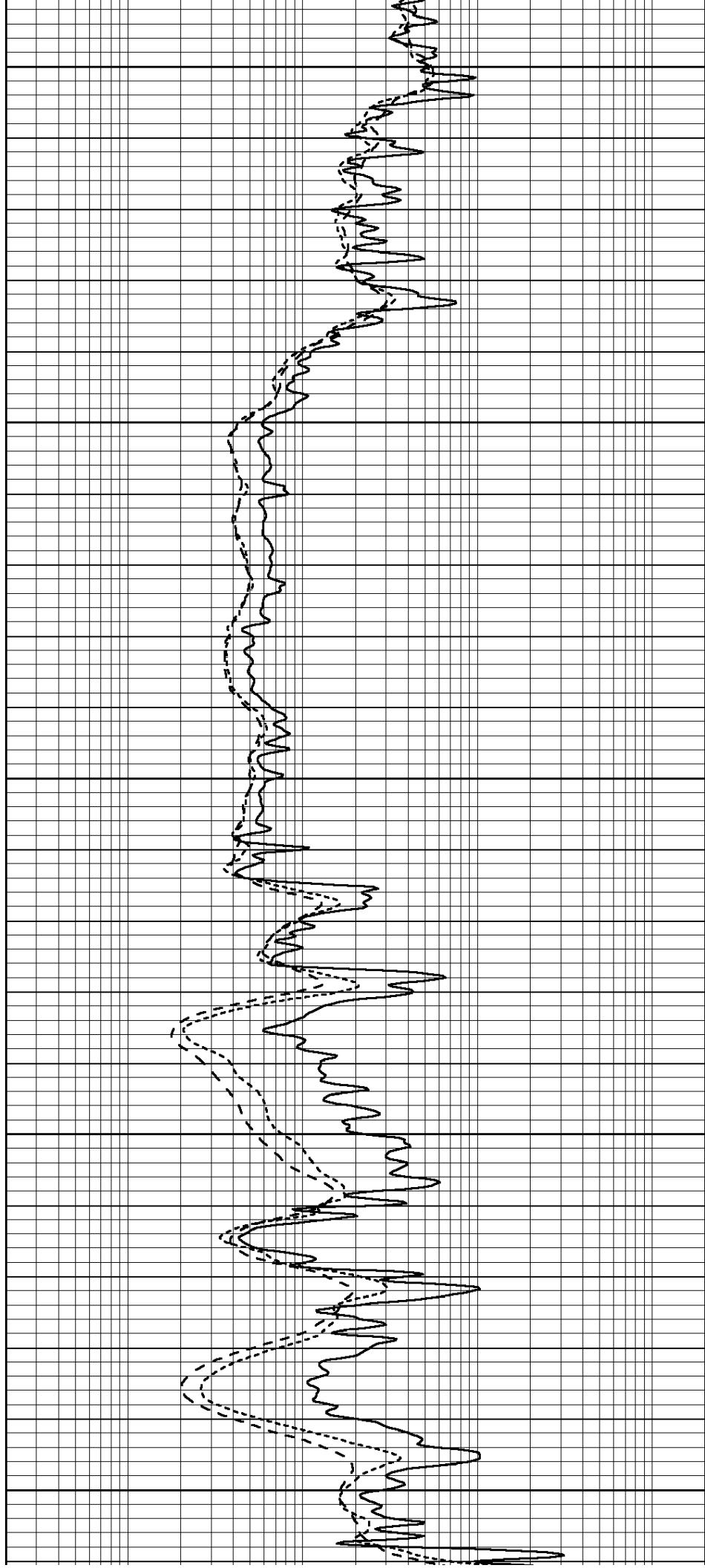
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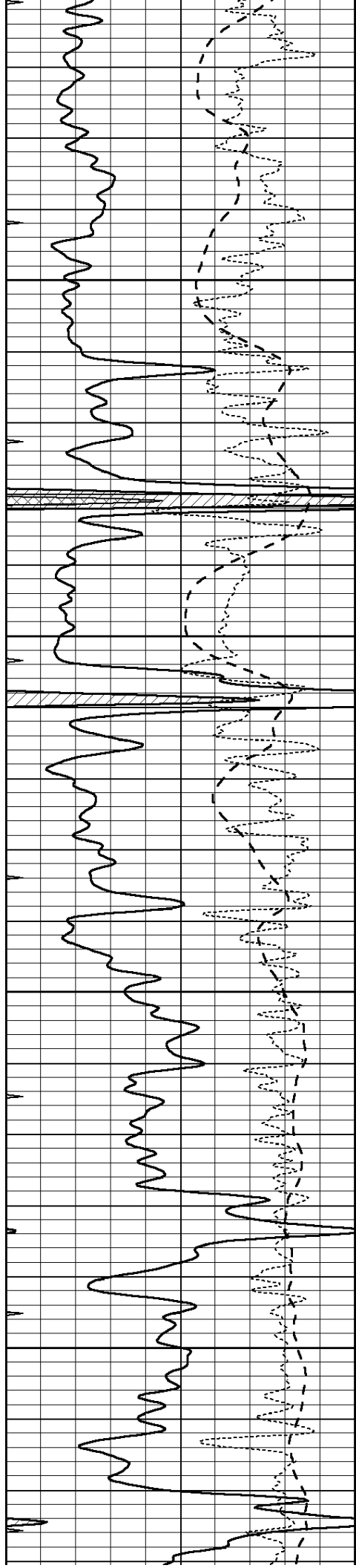
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3950

4000



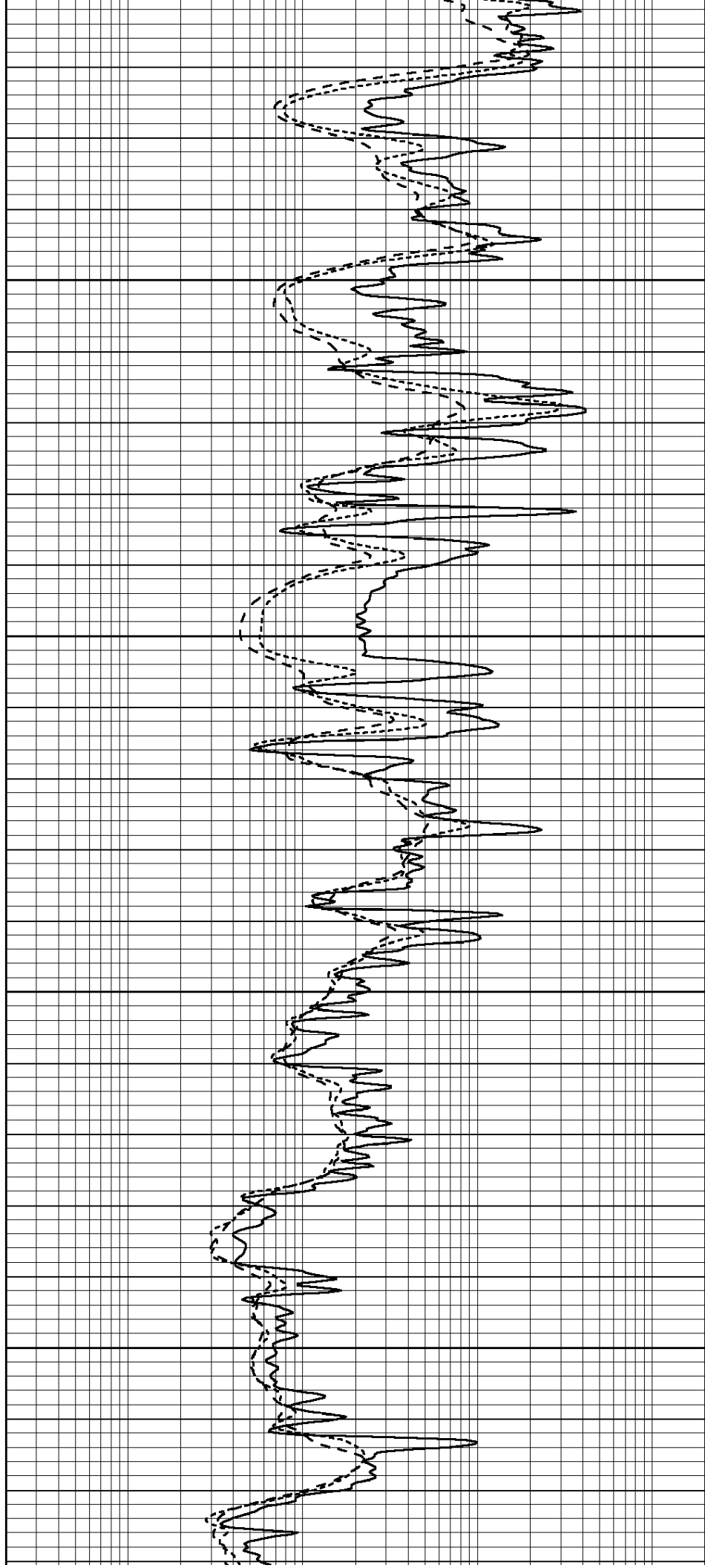


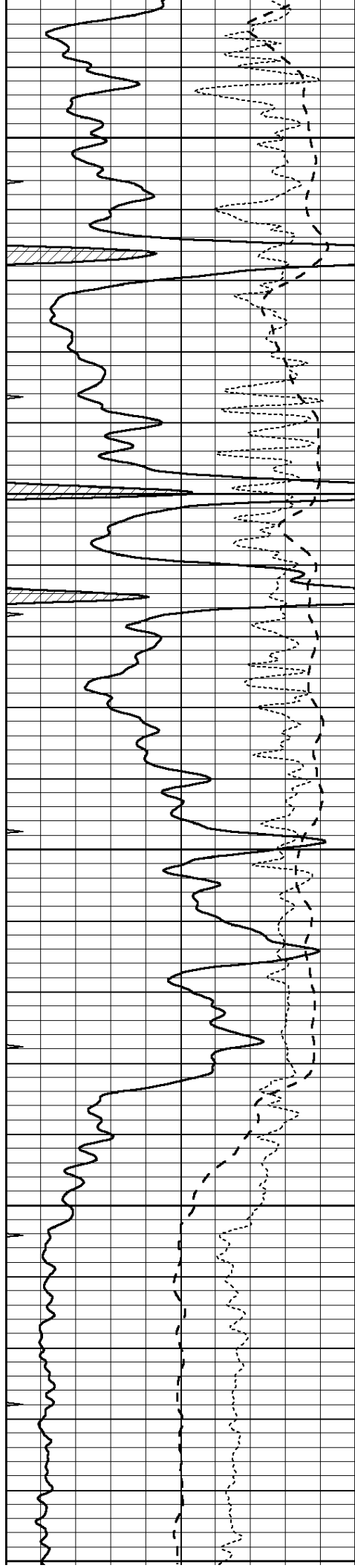
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4200





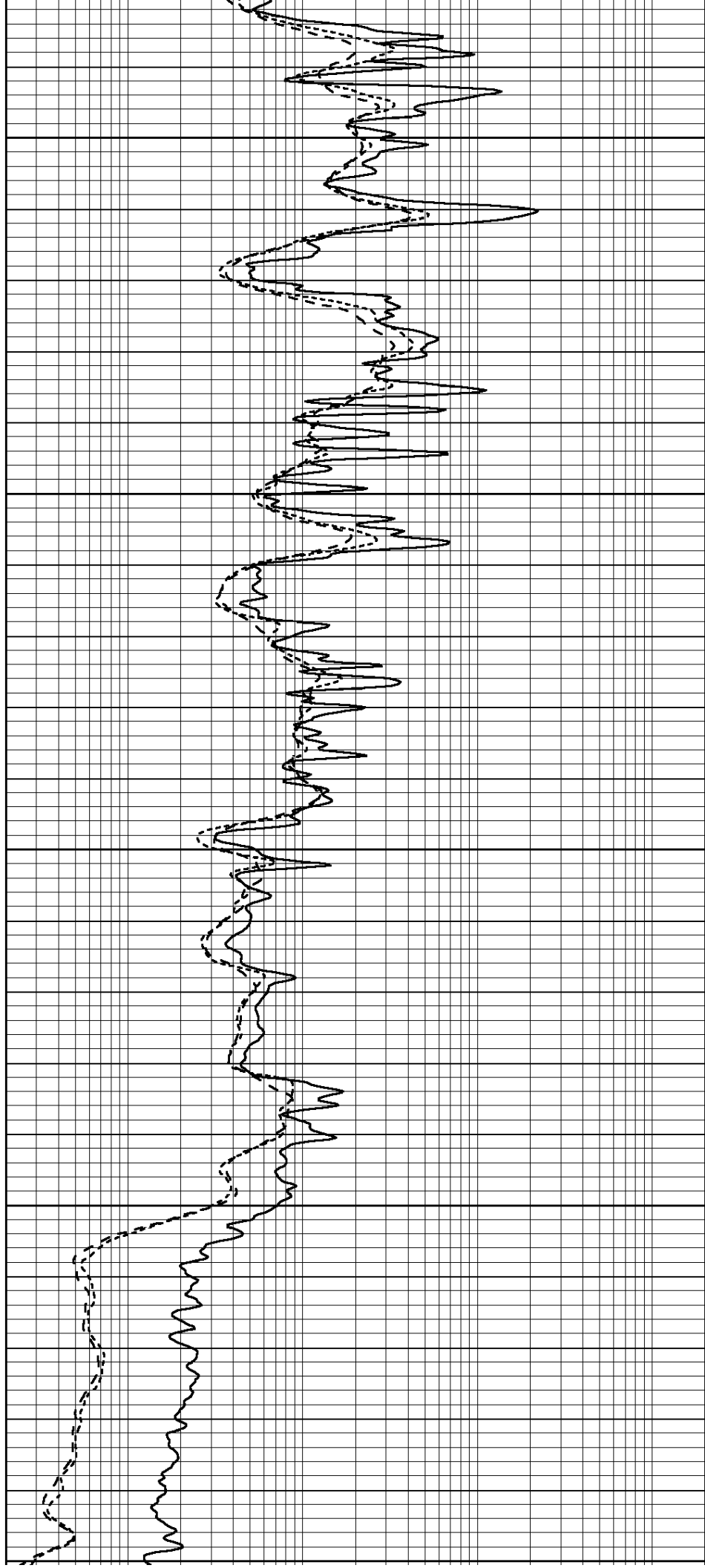
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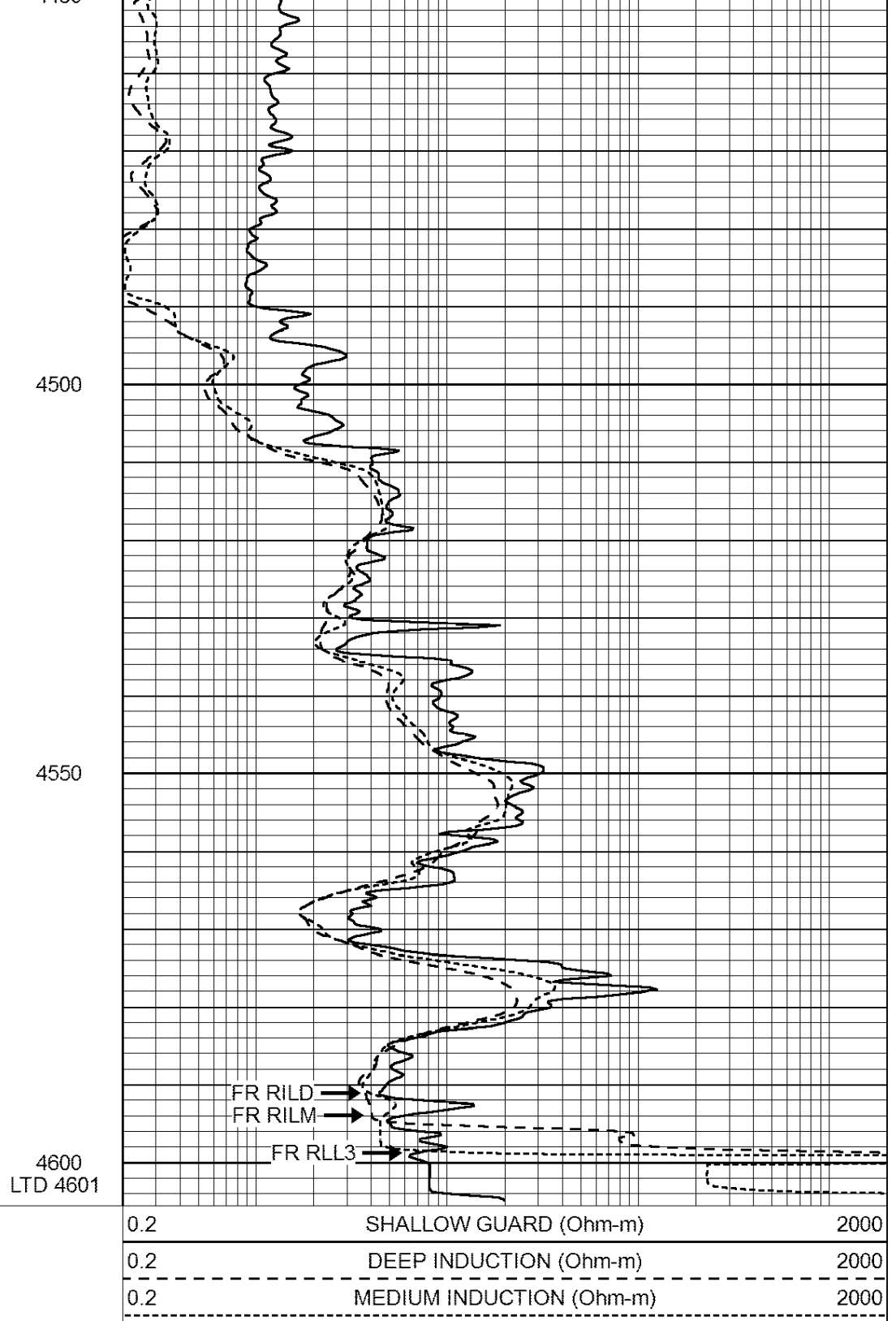
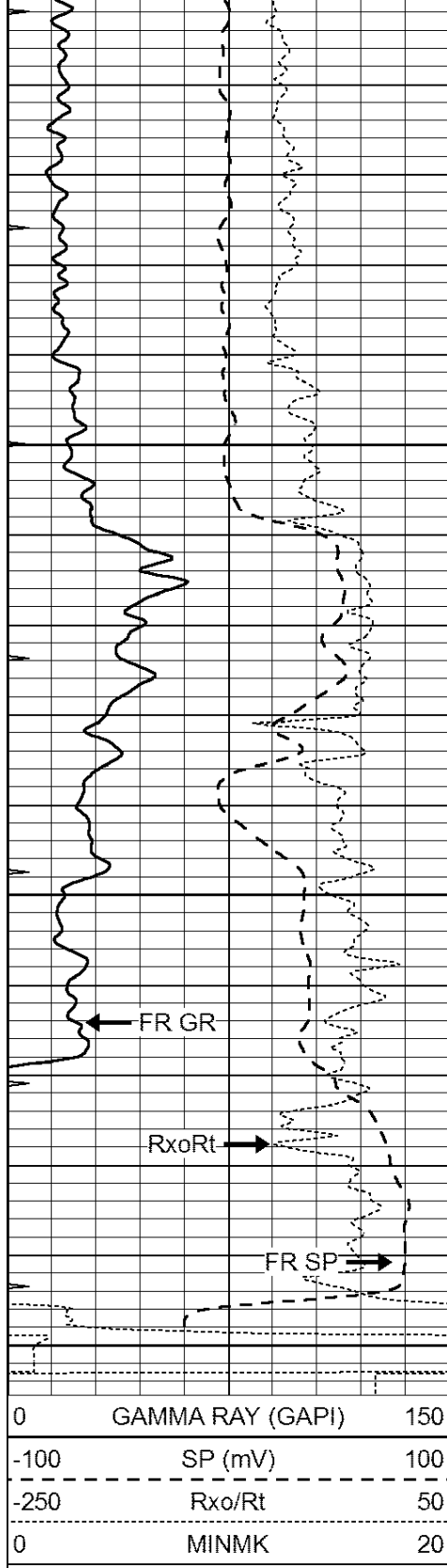
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4450





REPEAT SECTION

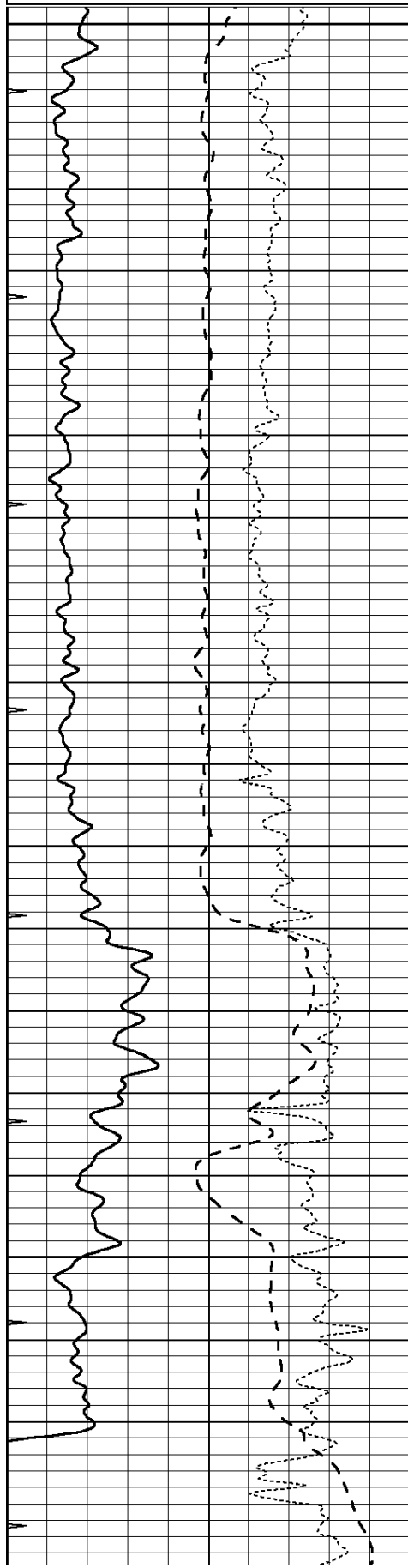
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 Presentation Format: _dil
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Charted by:

Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	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

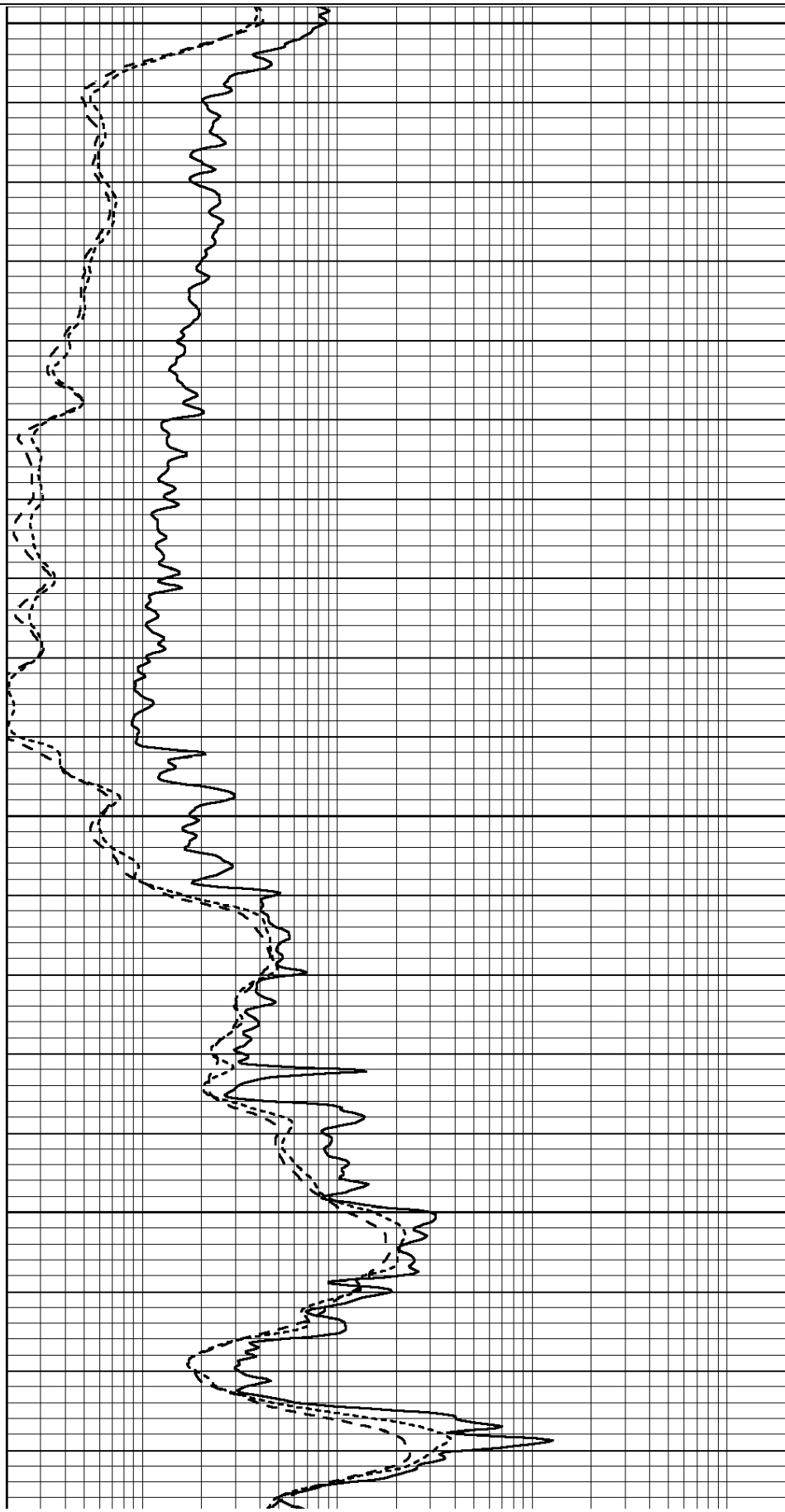


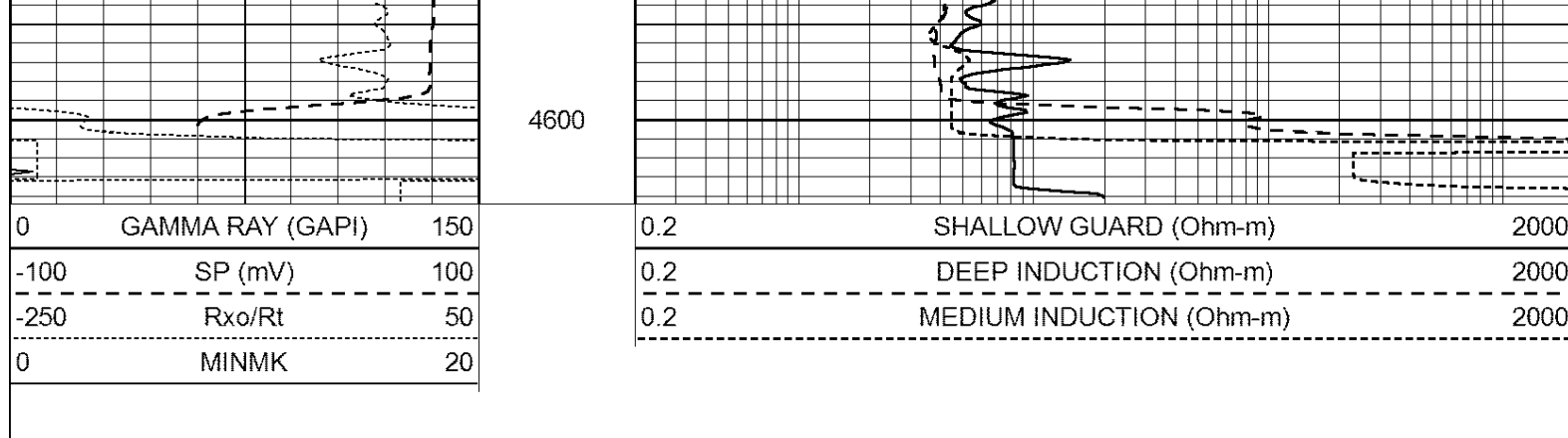
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4500

4550





Calibration Report									
Database File:		26224ddn.db							
Dataset Pathname:		pass3.3							
Dataset Creation:		Thu Nov 06 08:03:46 2014 by Calc Open-Cased 090629							
Dual Induction Calibration Report									
Serial-Model:					PROBE8-DILG				
Surface Cal Performed:					Sun Aug 17 08:09:53 2014				
Downhole Cal Performed:					Mon Jul 28 11:08:27 2008				
After Survey Verification Performed:					Mon Jul 28 11:08:27 2008				
Surface Calibration									
Readings				References			Results		
Loop:	Air	Loop		Air	Loop		m	b	
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	-2.000	
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-16.000	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619	
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739	
Downhole Calibration									
Readings				References			Results		
	Zero	Cal		Zero	Cal		m'	b'	
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000	
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000	
LL3		7.500	V		1500.000	Ohm-m			
		0.000	V		20.000	Ohm-m			
		-7.200	V		3800.000	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			
Compensated Density Calibration Report									
Serial-Model:					GEAR4-GEARHART				
Source / Verifier:					143 / 143				
Master Calibration Performed:					Wed Sep 18 03:03:09 2013				
Before Survey Verification Performed:									

Master Calibration					
	Density		Far Detector		Near Detector
Magnesium	1.710	g/cc	1075.98	532.39	cps
Aluminum	2.560	g/cc	286.51	422.88	cps
Spine Angle = 80.13			Density/Spine Ratio = 0.633		
	Size		Reading		
Small Ring	8.00	in	3.21	V	
Large Ring	14.00	in	5.46	V	

Before Survey Verification					
	Target		Measured		
		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

Compensated Neutron Calibration Report

Serial Number:	6l
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

PRE-SURVEY VERIFICATION					
Detector		Readings		Measured	Target
1)	Short Space		cps		
	Long Space		cps	pu	pu
2)	Short Space		cps		
	Long Space		cps	pu	
3)	Short Space		cps		
	Long Space		cps	pu	

POST-SURVEY VERIFICATION					
Detector		Readings		Measured	Target
1)	Short Space		cps		
	Long Space		cps	pu	pu
2)	Short Space		cps		
	Long Space		cps	pu	pu
3)	Short Space		cps		
	Long Space		cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	GR6	
Tool Model:	OPEN	
Performed:	Sun Aug 17 15:23:09 2014	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.7000	GAPI/cps