

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company PHILLIPS EXPLORATION COMPANY, L.C.
Well #1 ROSEMARY SHR
Field
County TREGO
State KANSAS

Company PHILLIPS EXPLORATION COMPANY, L.C.
Well #1 ROSEMARY SHR
Field
County TREGO State KANSAS

Location: 660' FNL & 1650' FEL
API #: 15-195-22965-0000
Permanent Datum GROUND LEVEL Elevation 2386'
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Elevation
K.B. 2391
D.F. 2389
G.L. 2386

Date	10/22/14		
Run Number	ONE		
Depth Driller	4470		
Depth Logger	4471		
Bottom Logged Interval	4469		
Top Log Interval	00		
Casing Driller	8 5/8" @ 220		
Casing Logger	220		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 1500 PPM	
Density / Viscosity	9.4/55		
pH / Fluid Loss	10.5/7.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.0 @ 75F		
Rmt @ Meas. Temp	.75 @ 75F		
Rmc @ Meas. Temp	1.20 @ 75F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.62 @ 120F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	7:25 A.M.		
Maximum Recorded Temperature	120F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	PAT DEENIHAN		

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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:
I 70 & COLLYER EXIT - 13 SOUTH TO U RD. - 3/4 MORE SOUTH - WEST INTO



MAIN SECTION

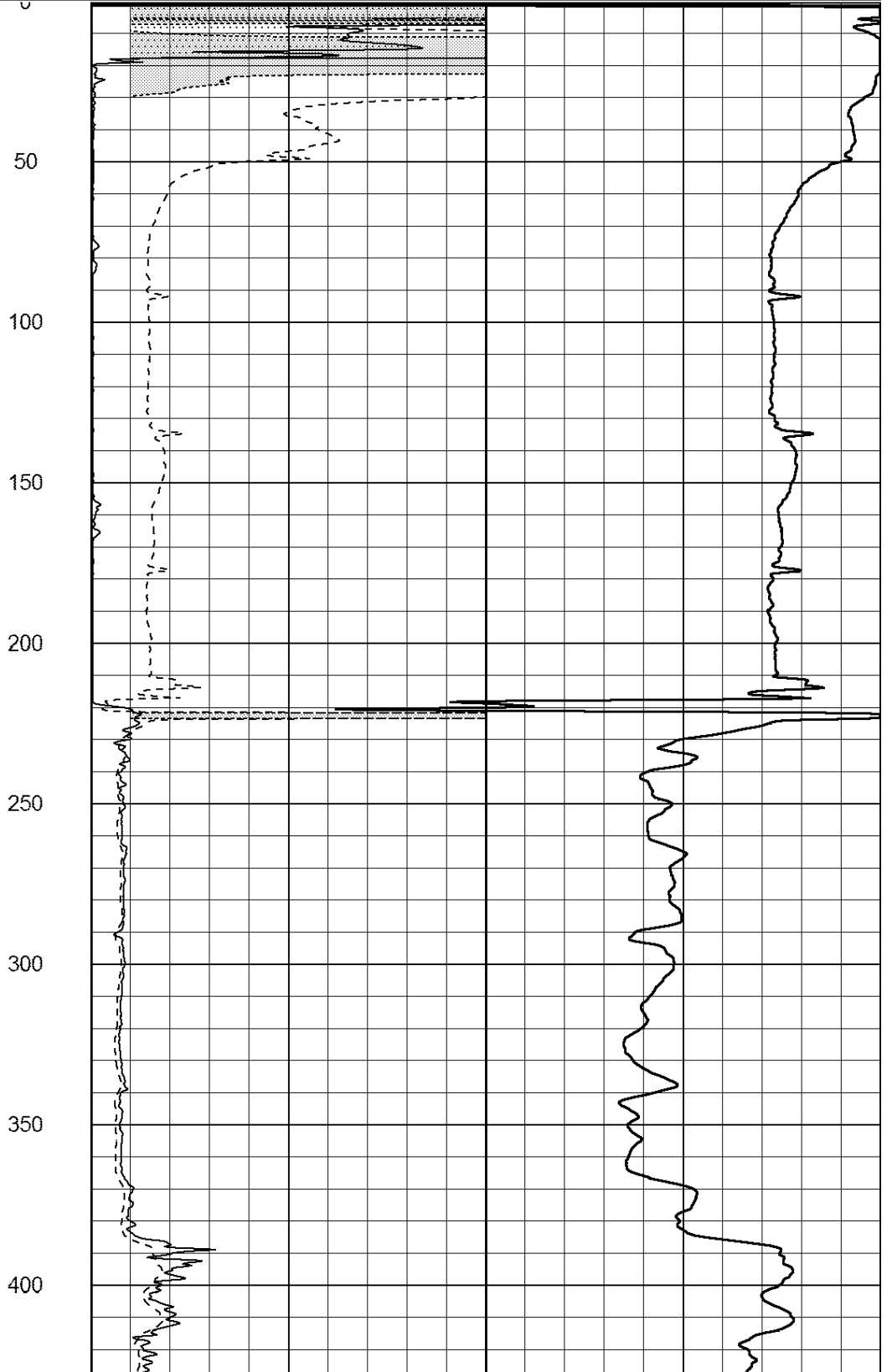
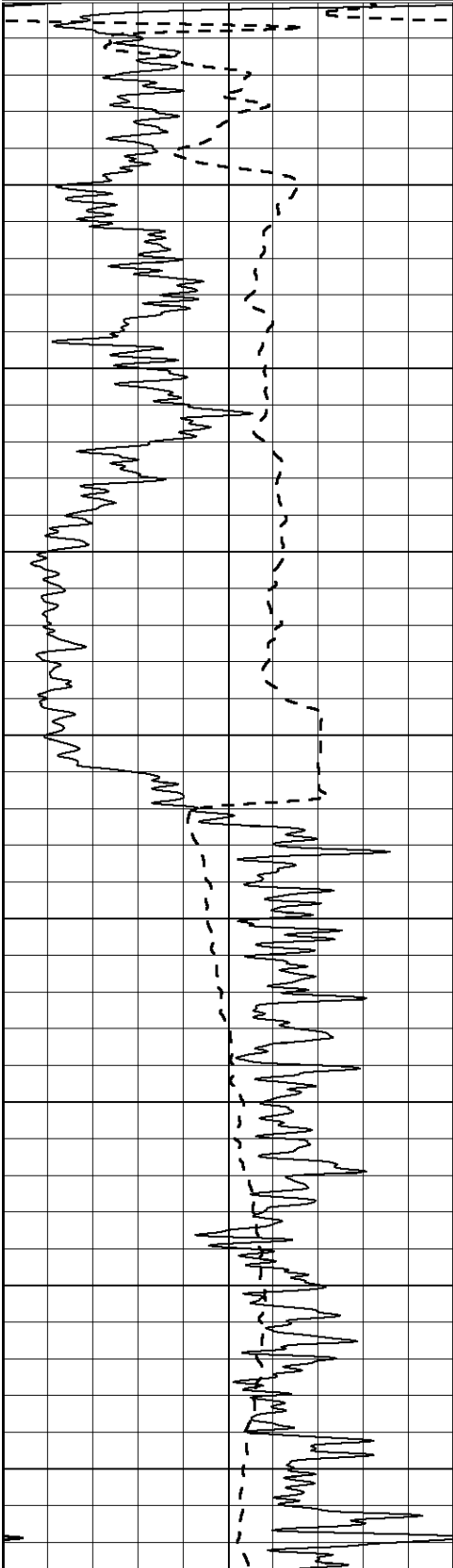
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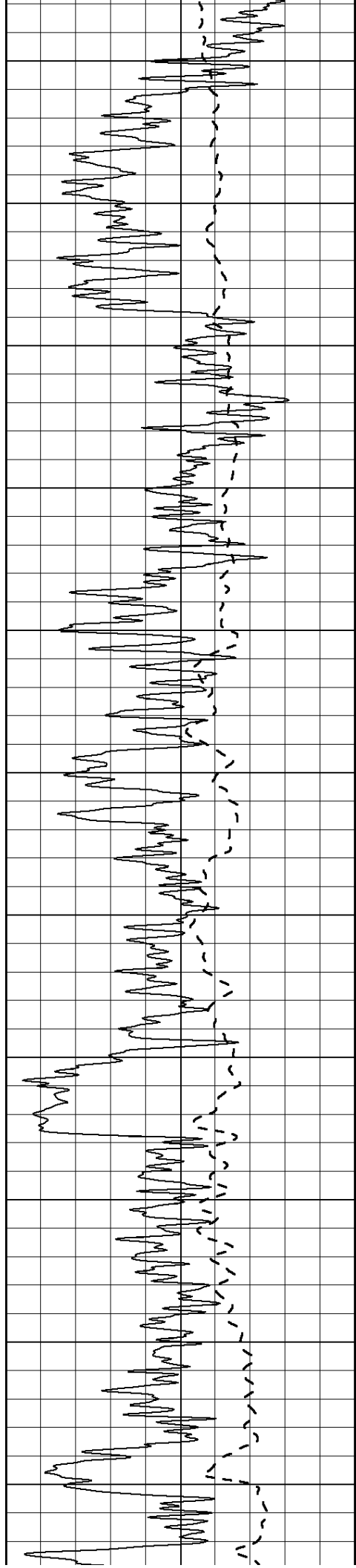
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-100	SP (mV)	100

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

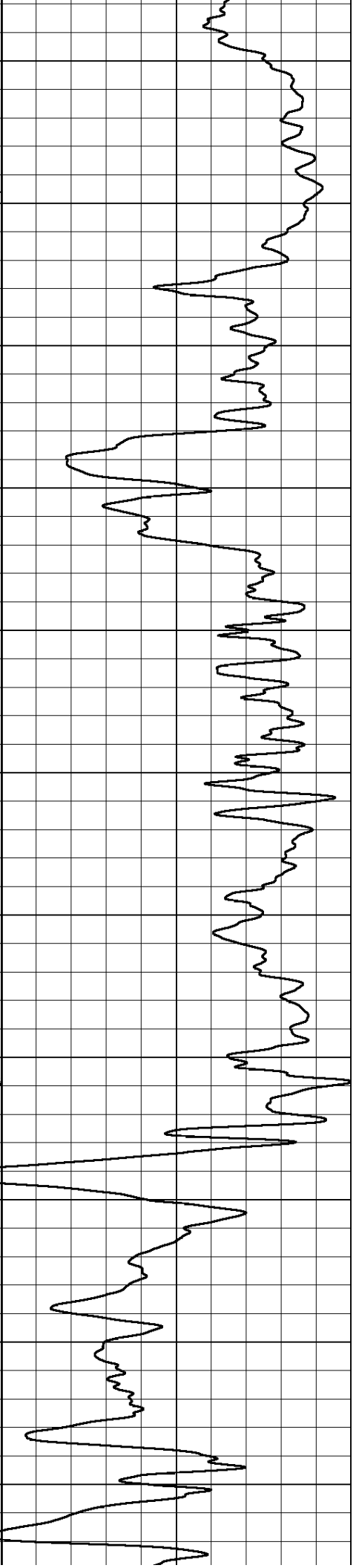
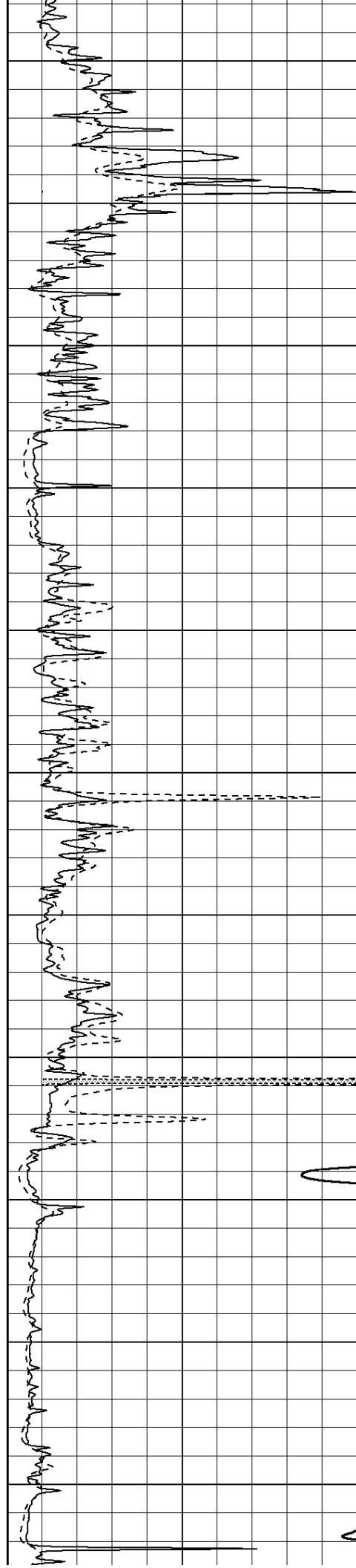
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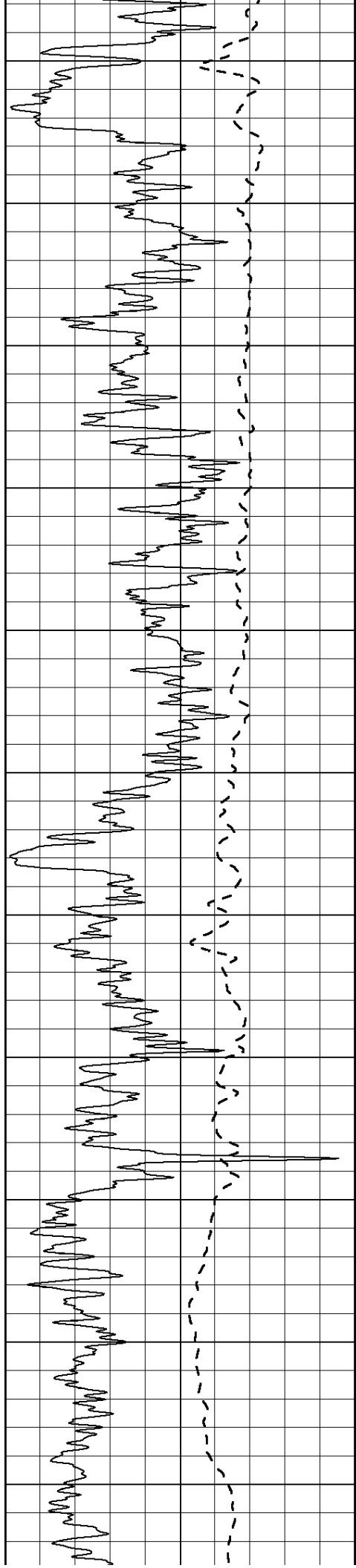
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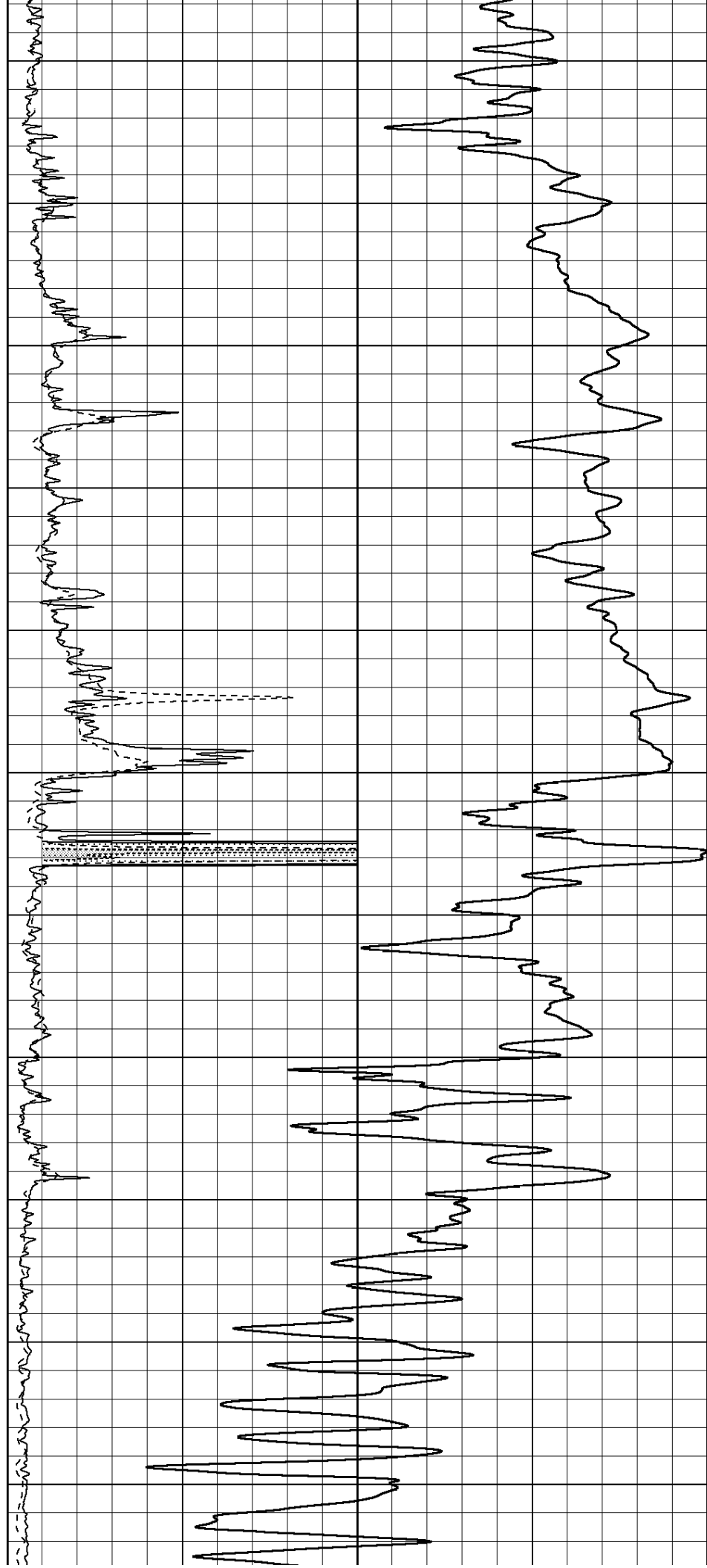
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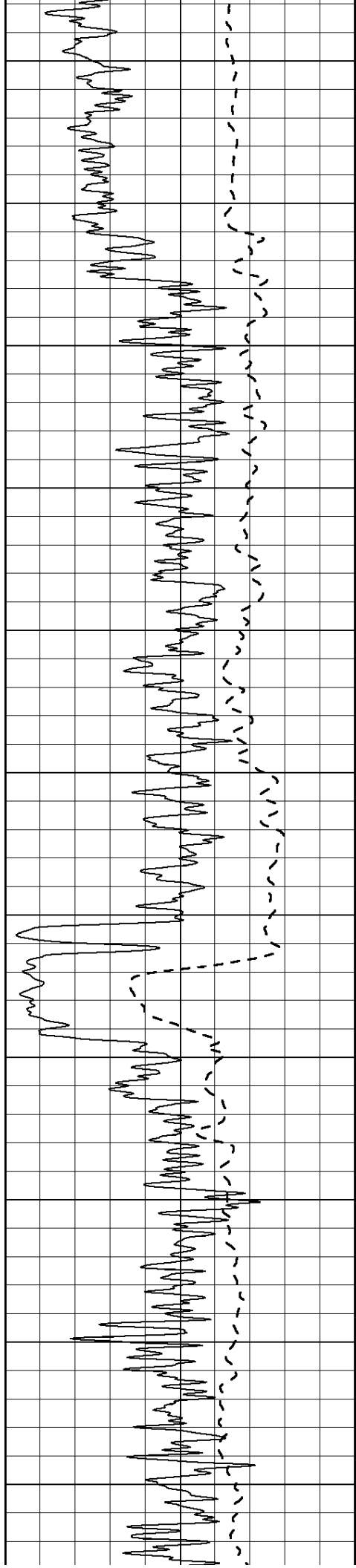
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1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

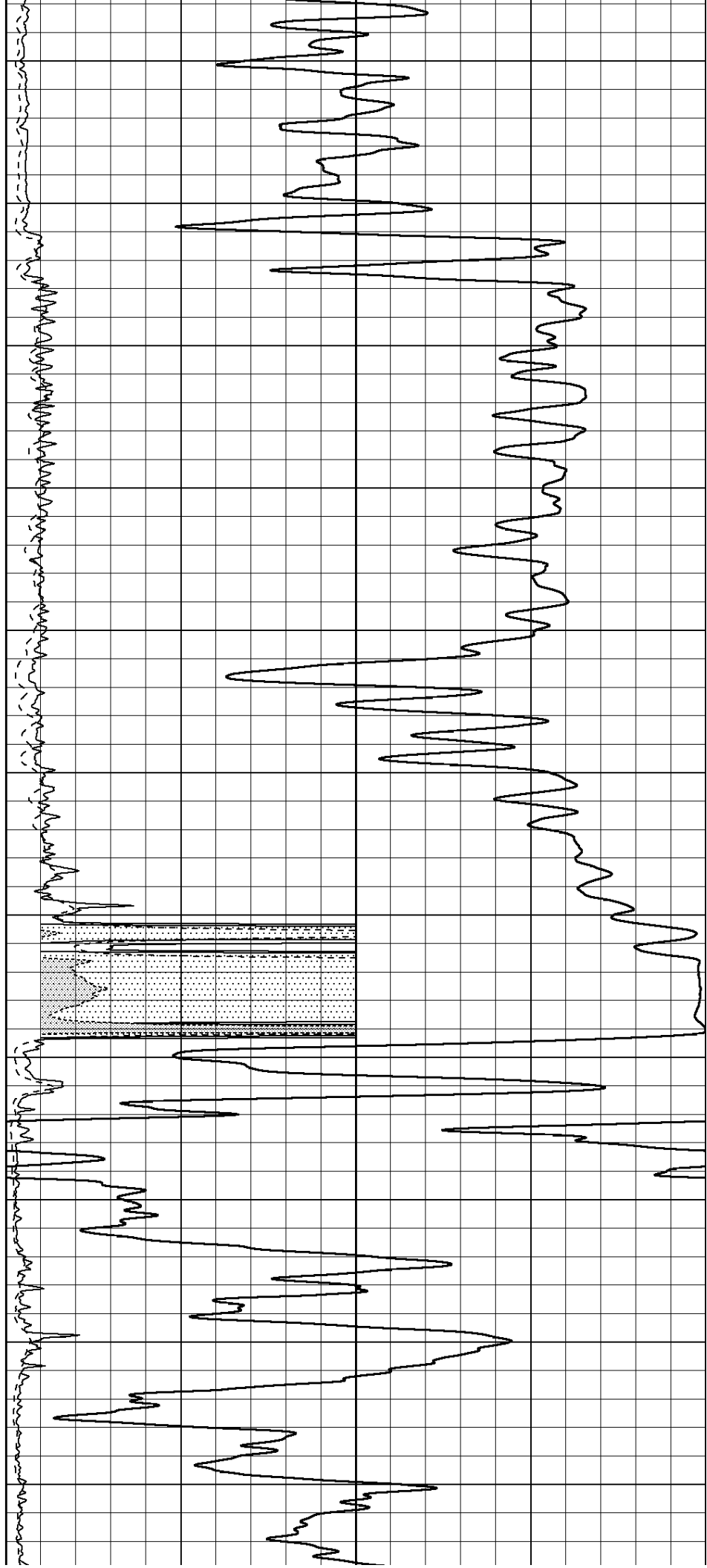
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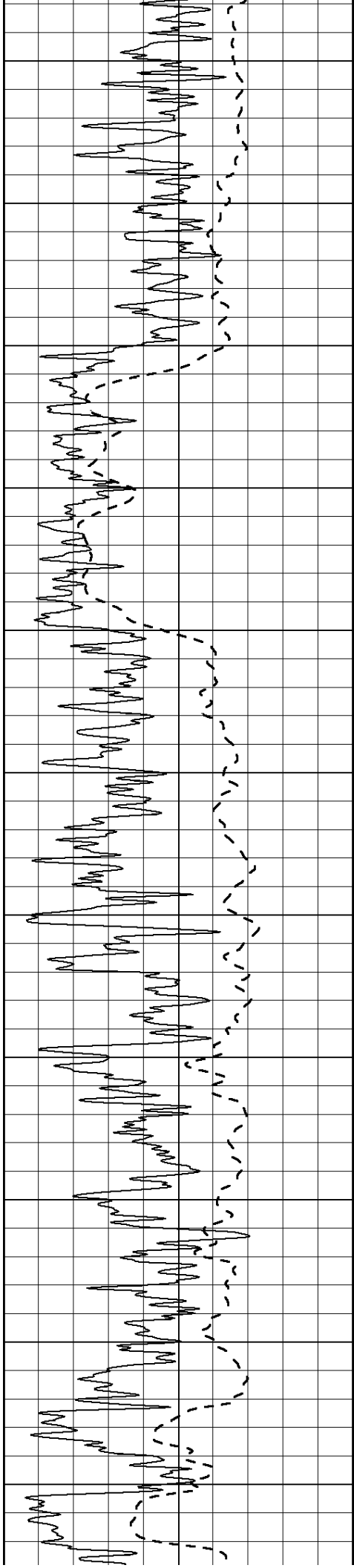
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1950

2000

2050





2100

2150

2200

2250

2300

2350

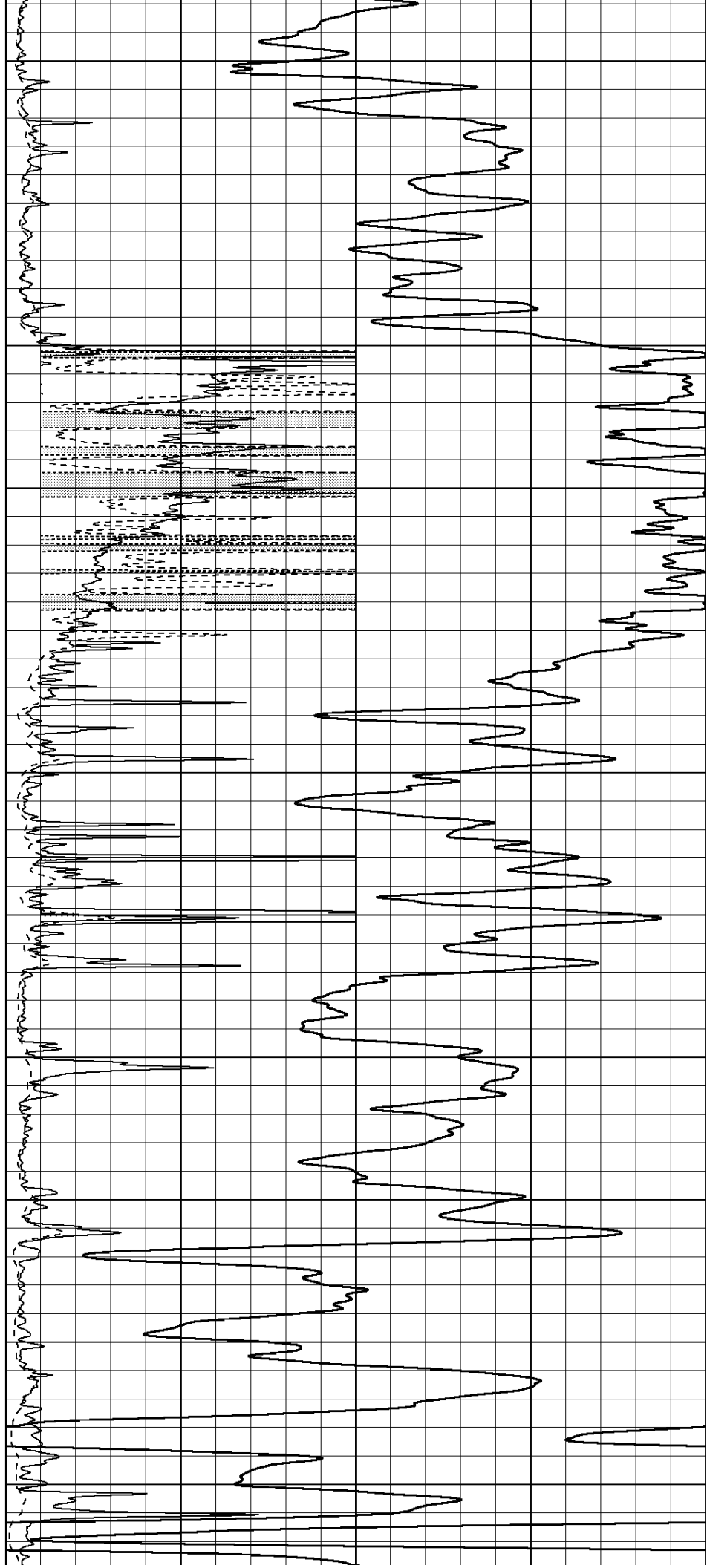
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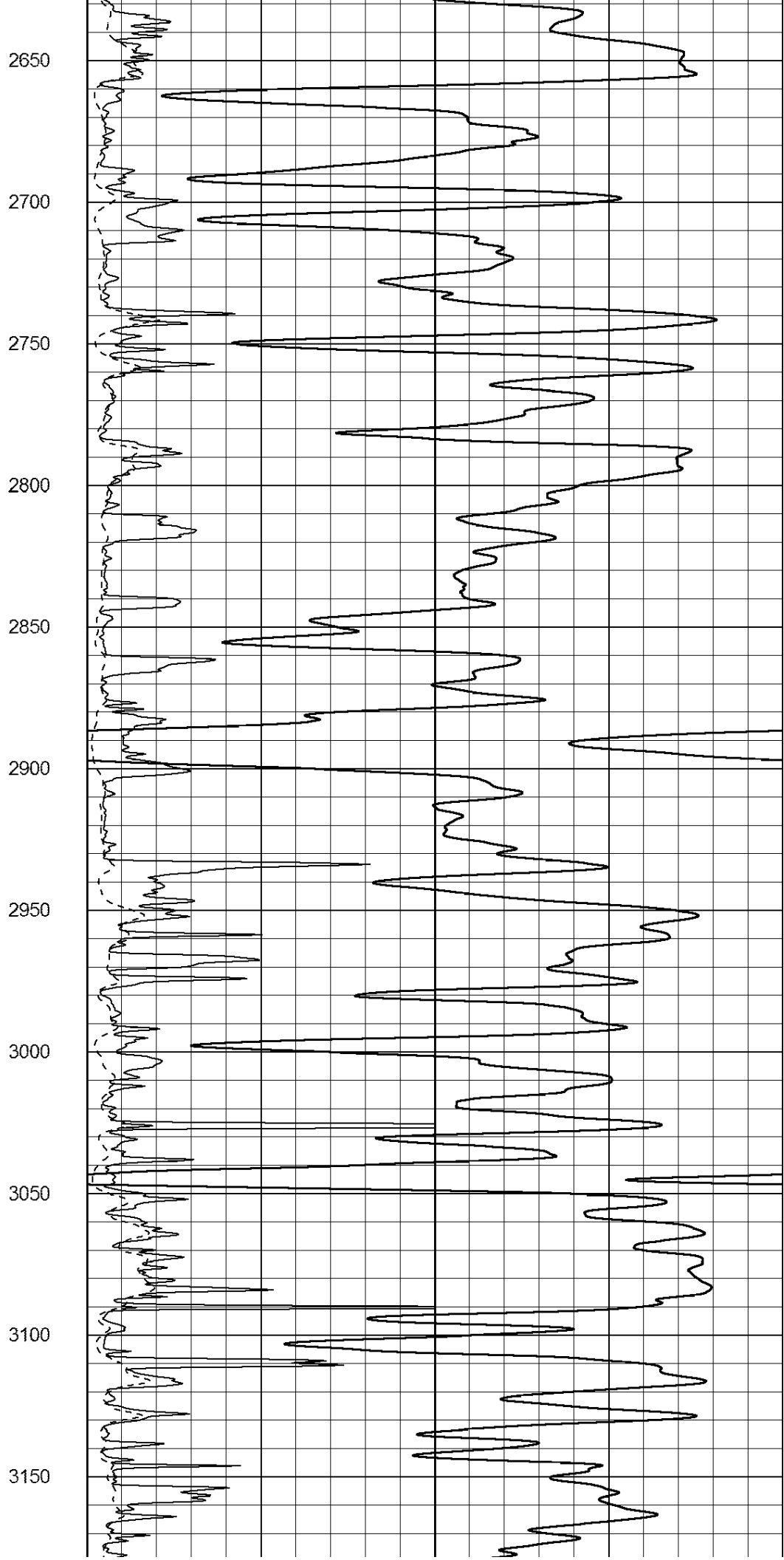
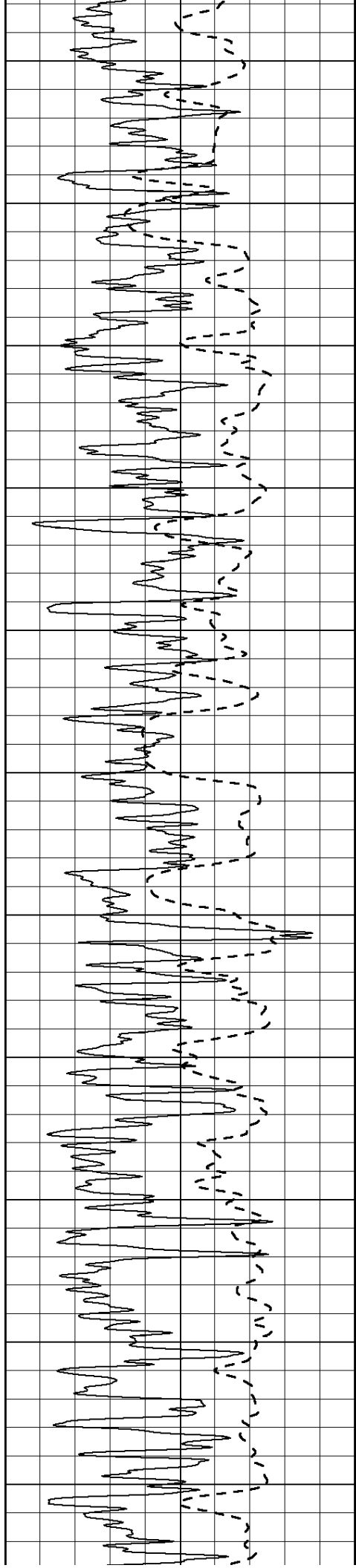
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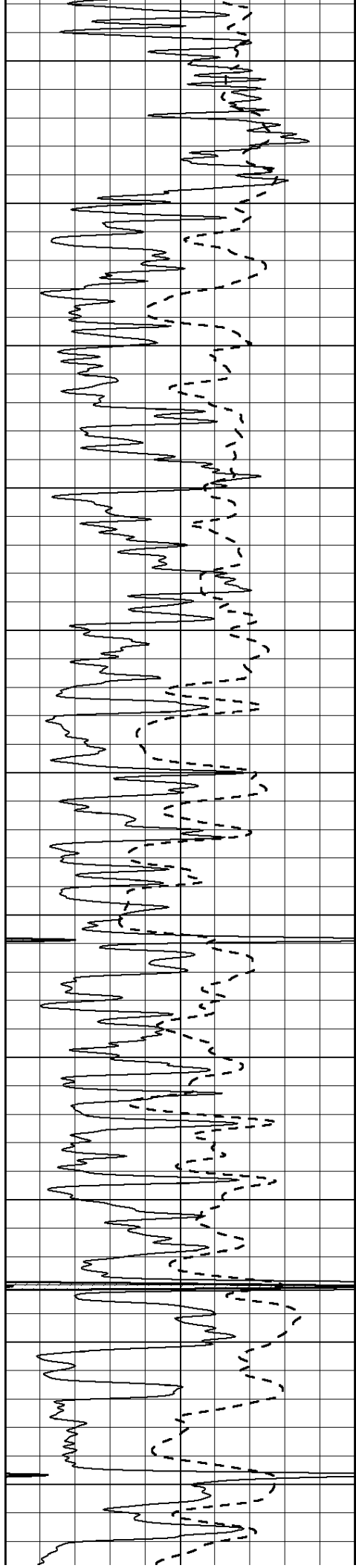
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2550

2600







3200

3250

3300

3350

3400

3450

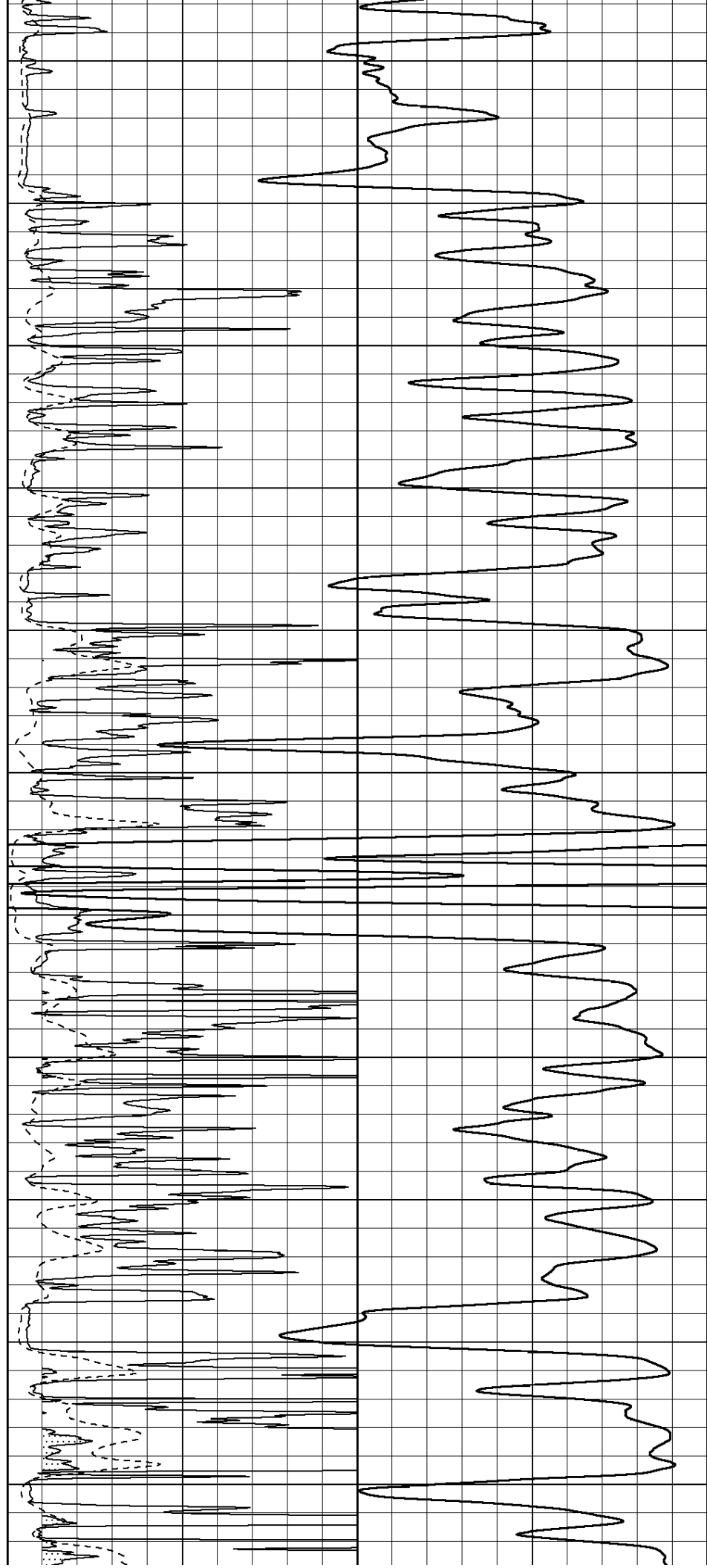
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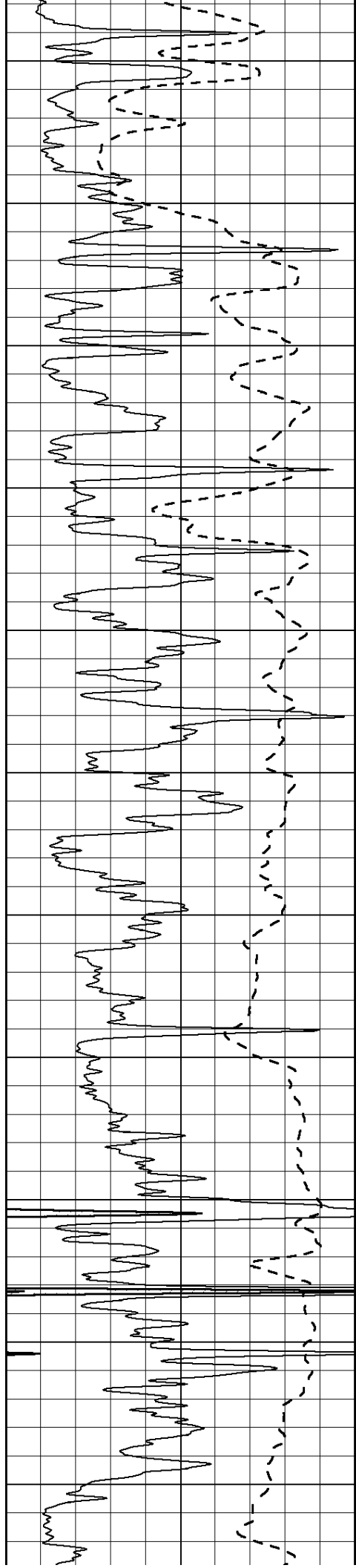
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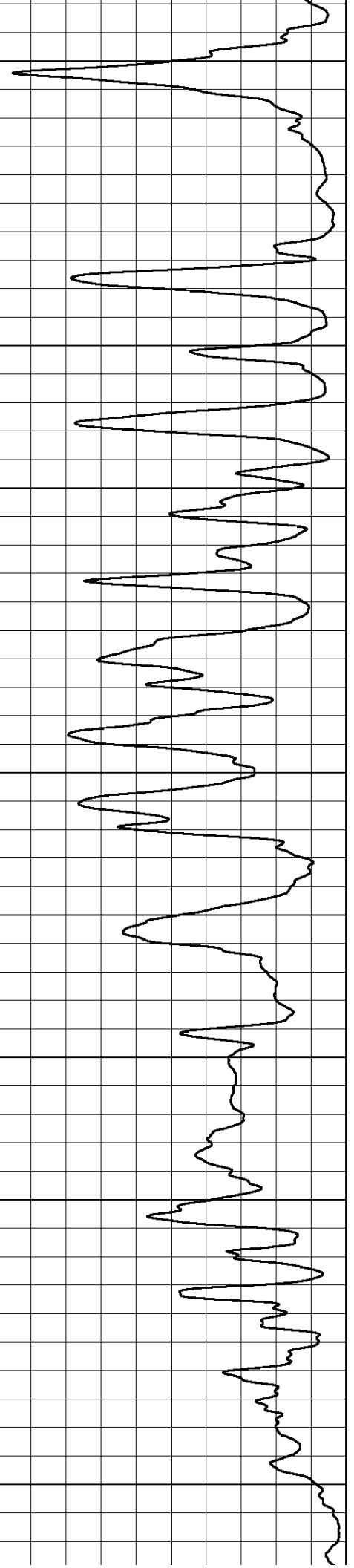
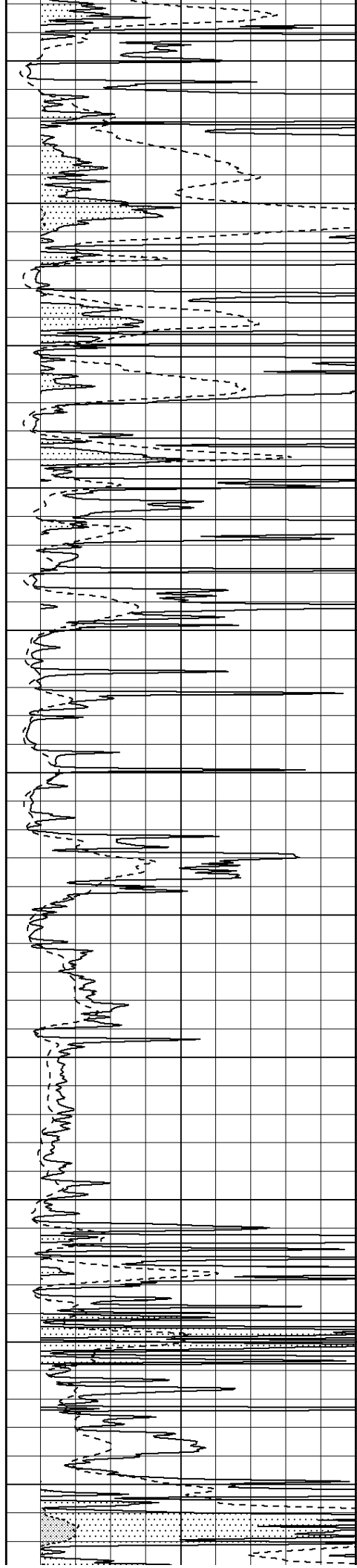
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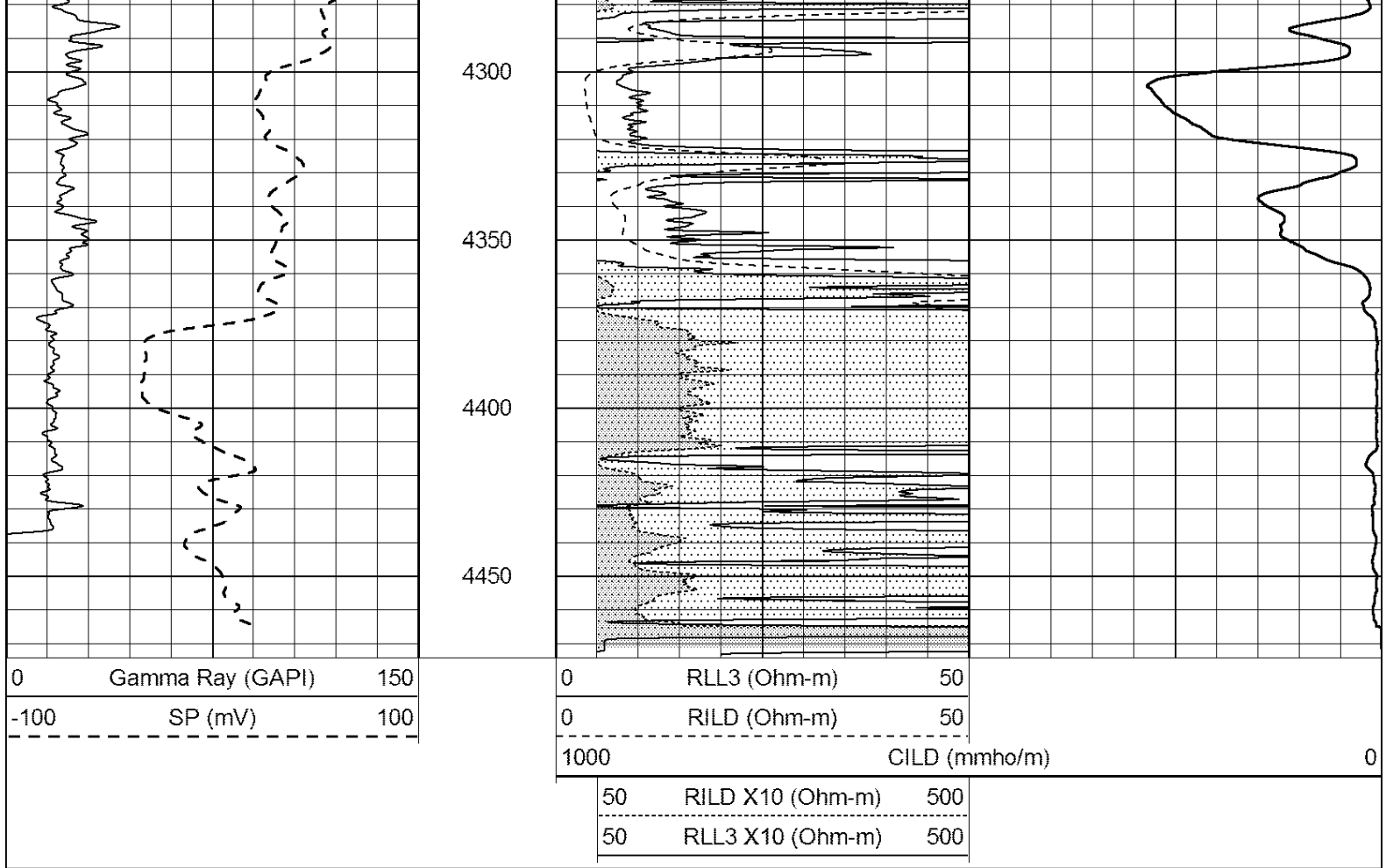
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3750
3800
3850
3900
3950
4000
4050
4100
4150
4200
4250

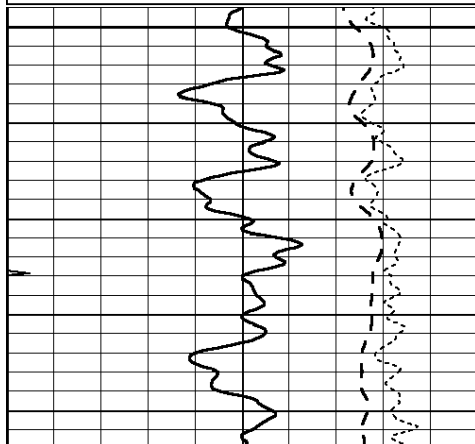




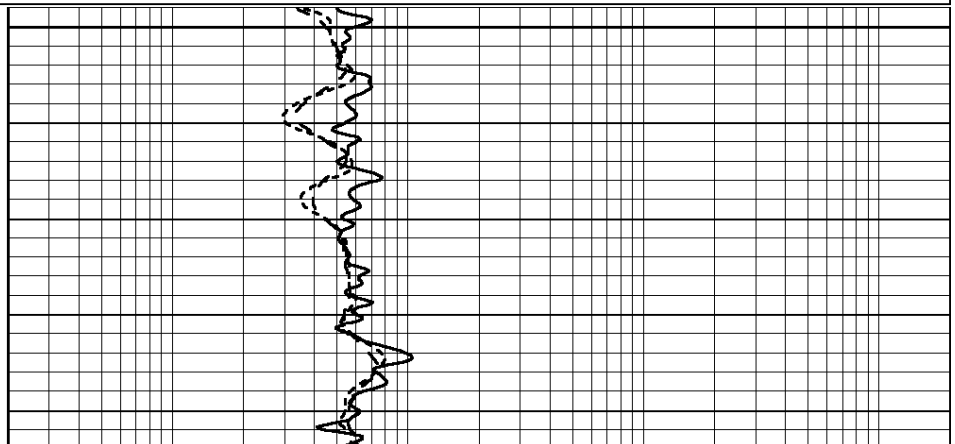
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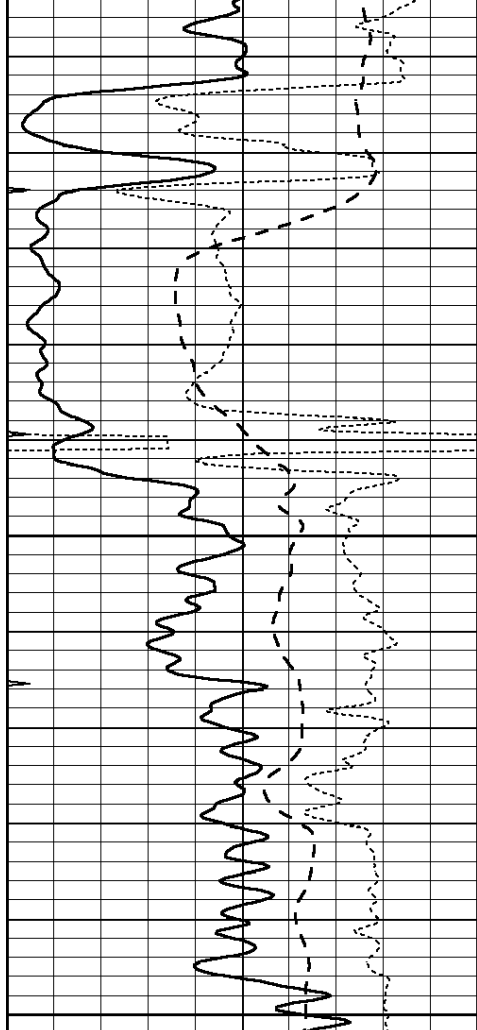
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 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			



1800



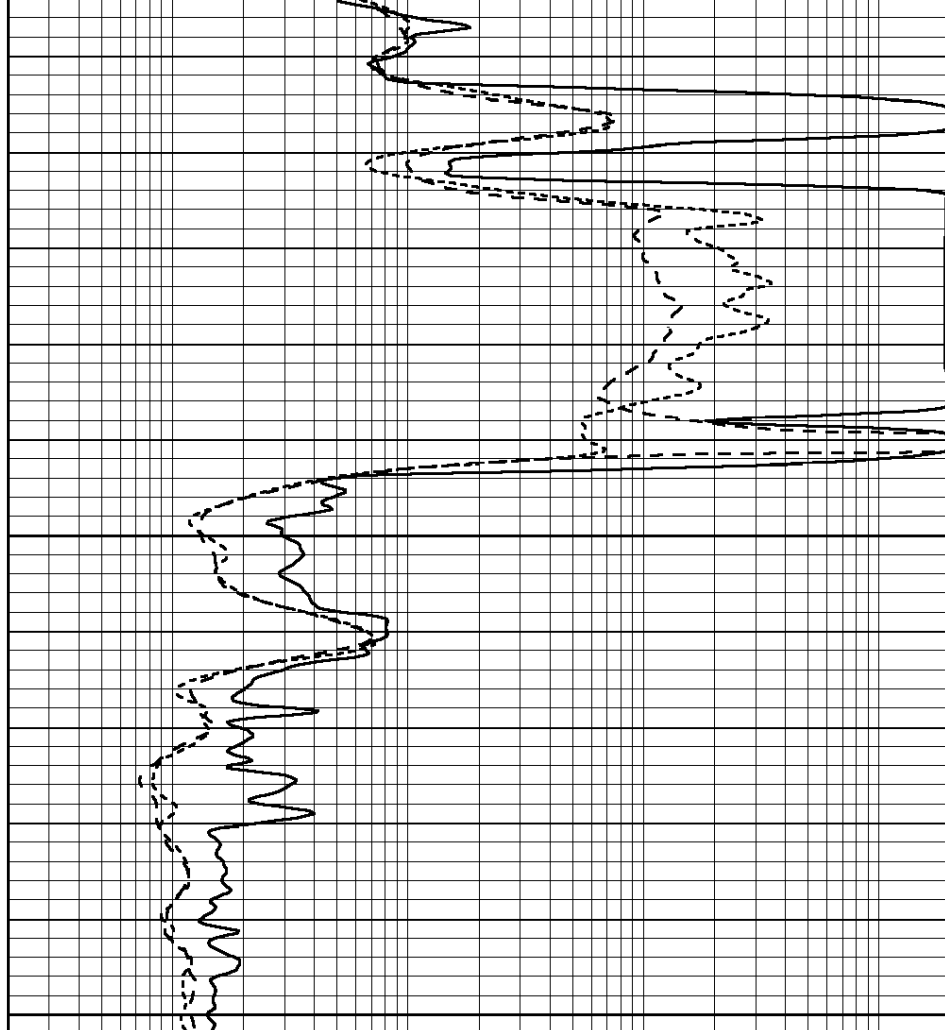


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

1850

1900

1950



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

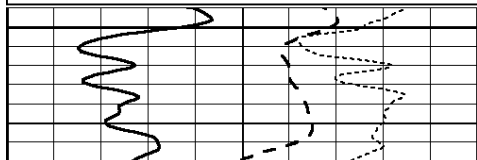


MAIN SECTION

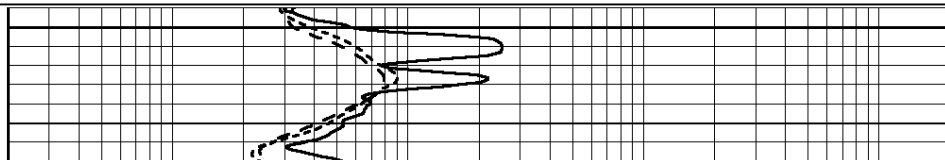
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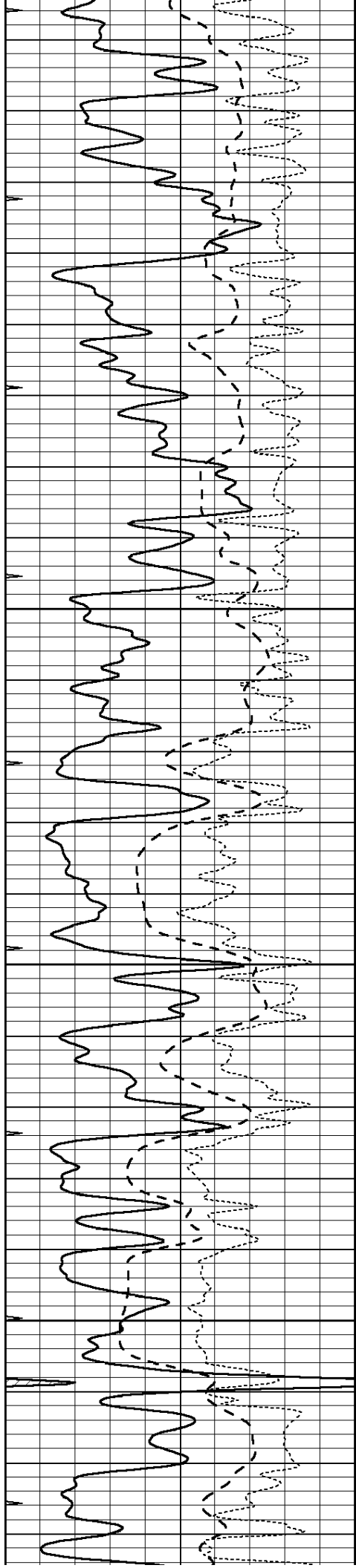
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3300



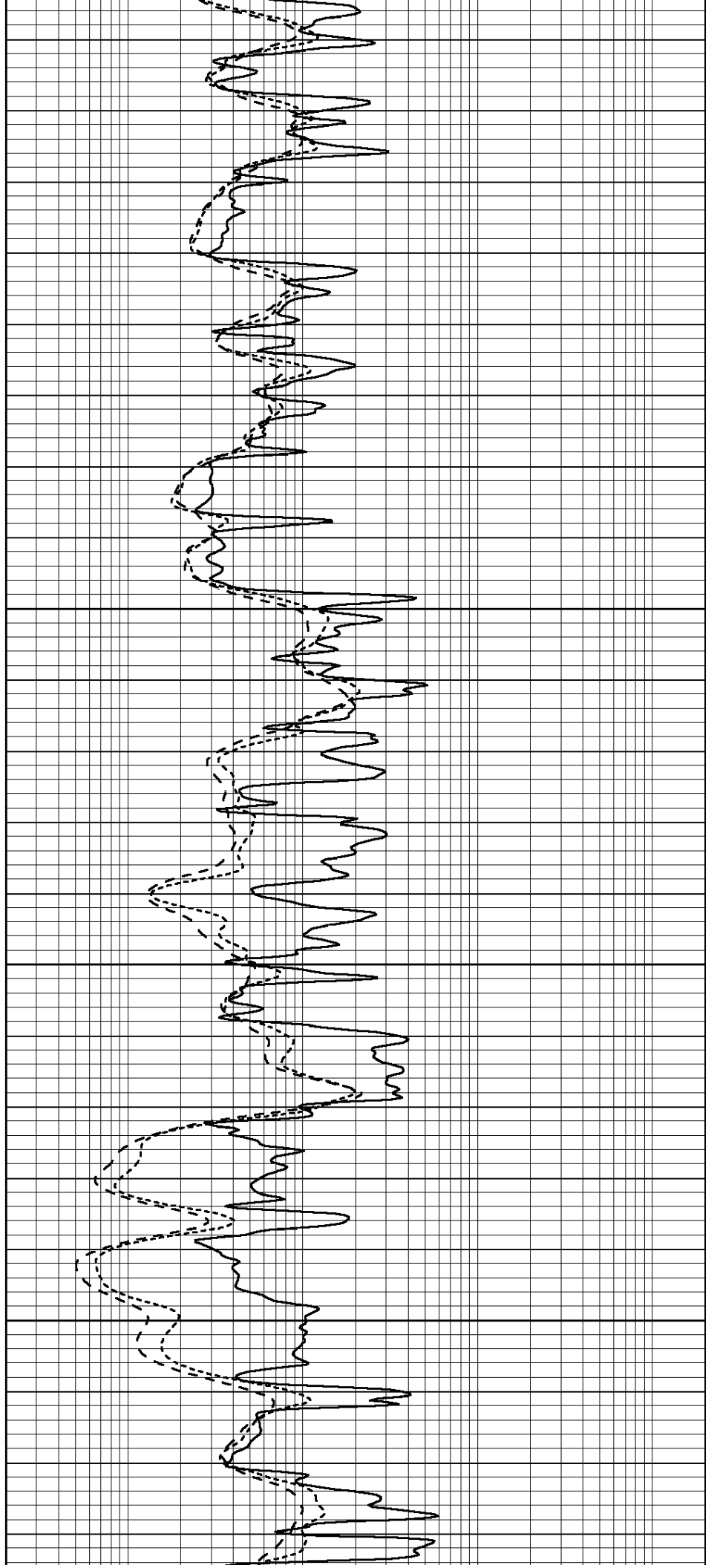


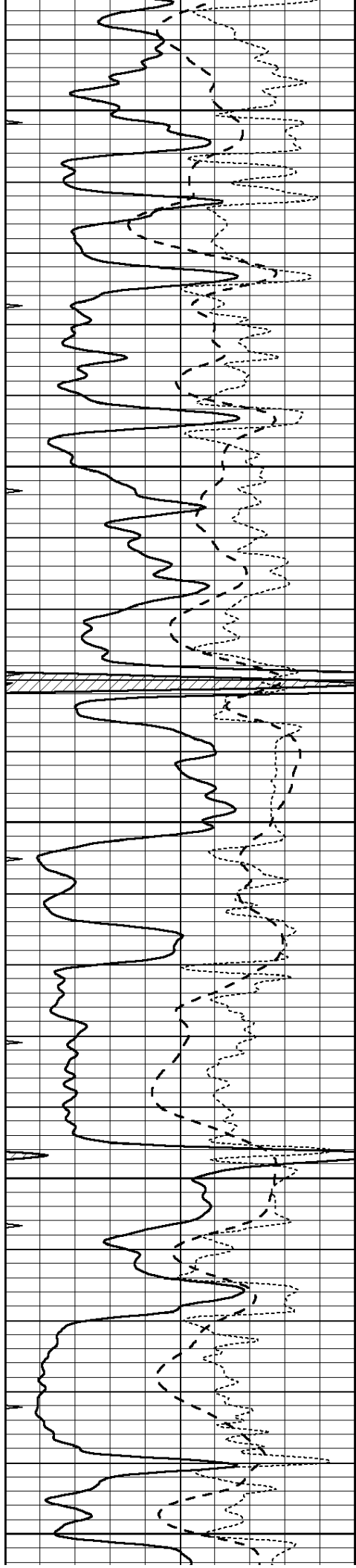
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3400

3450

3500





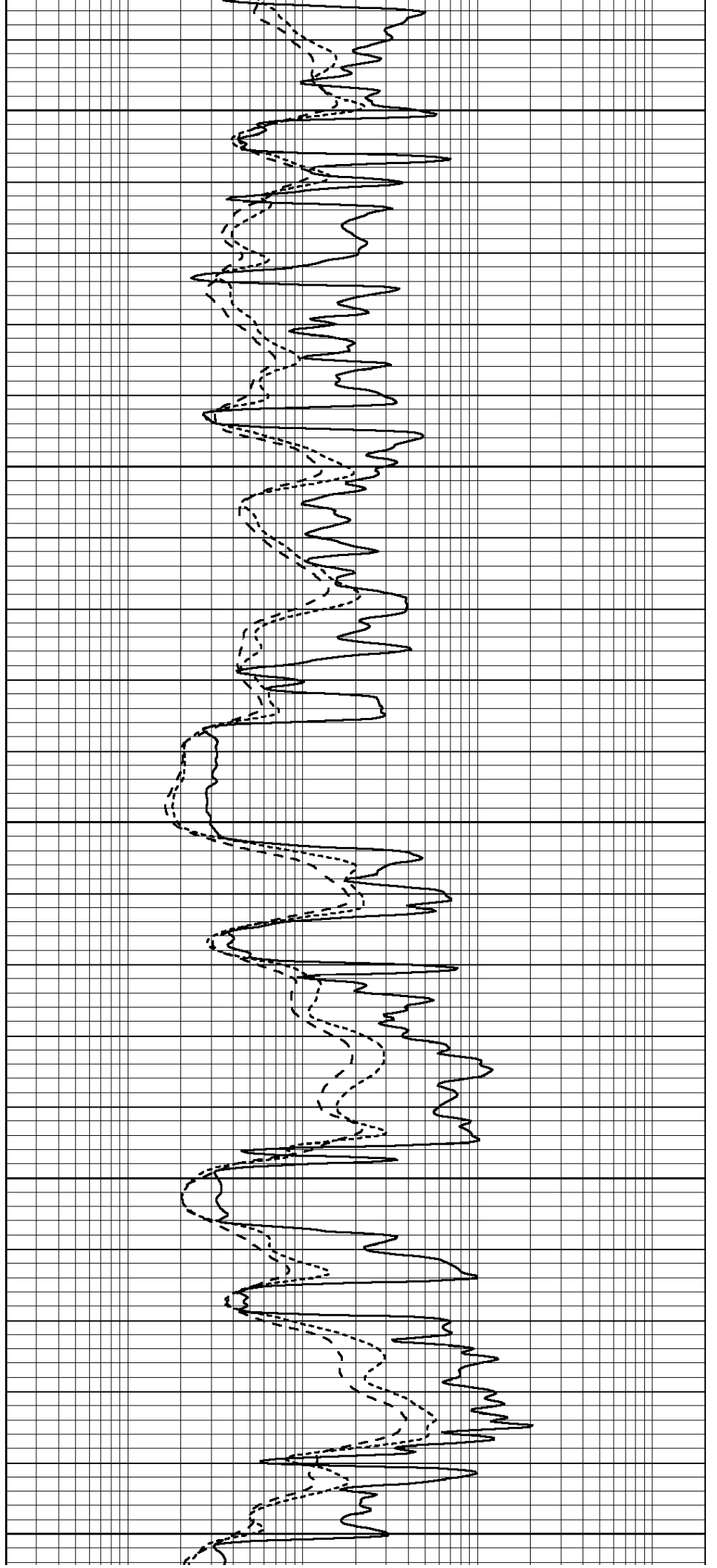
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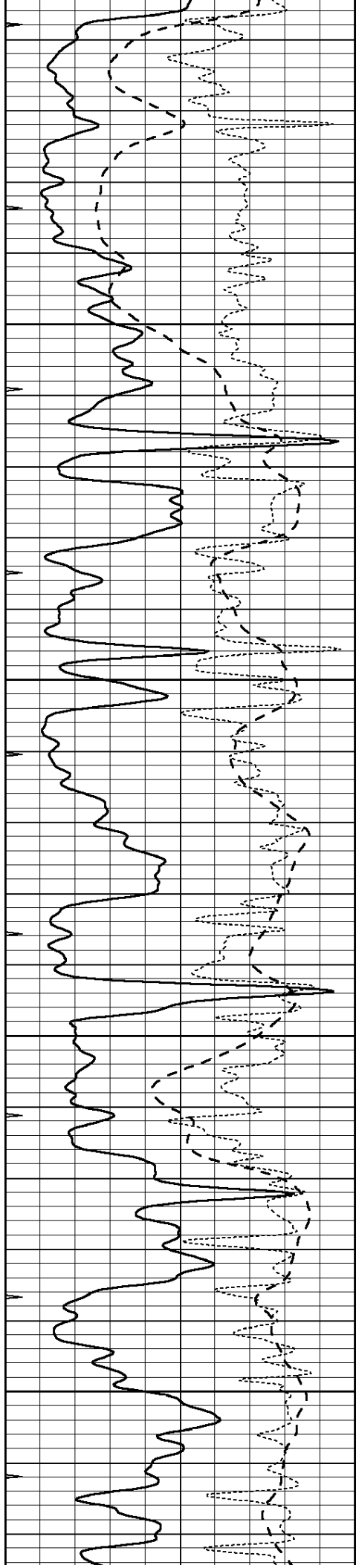
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3700

3750



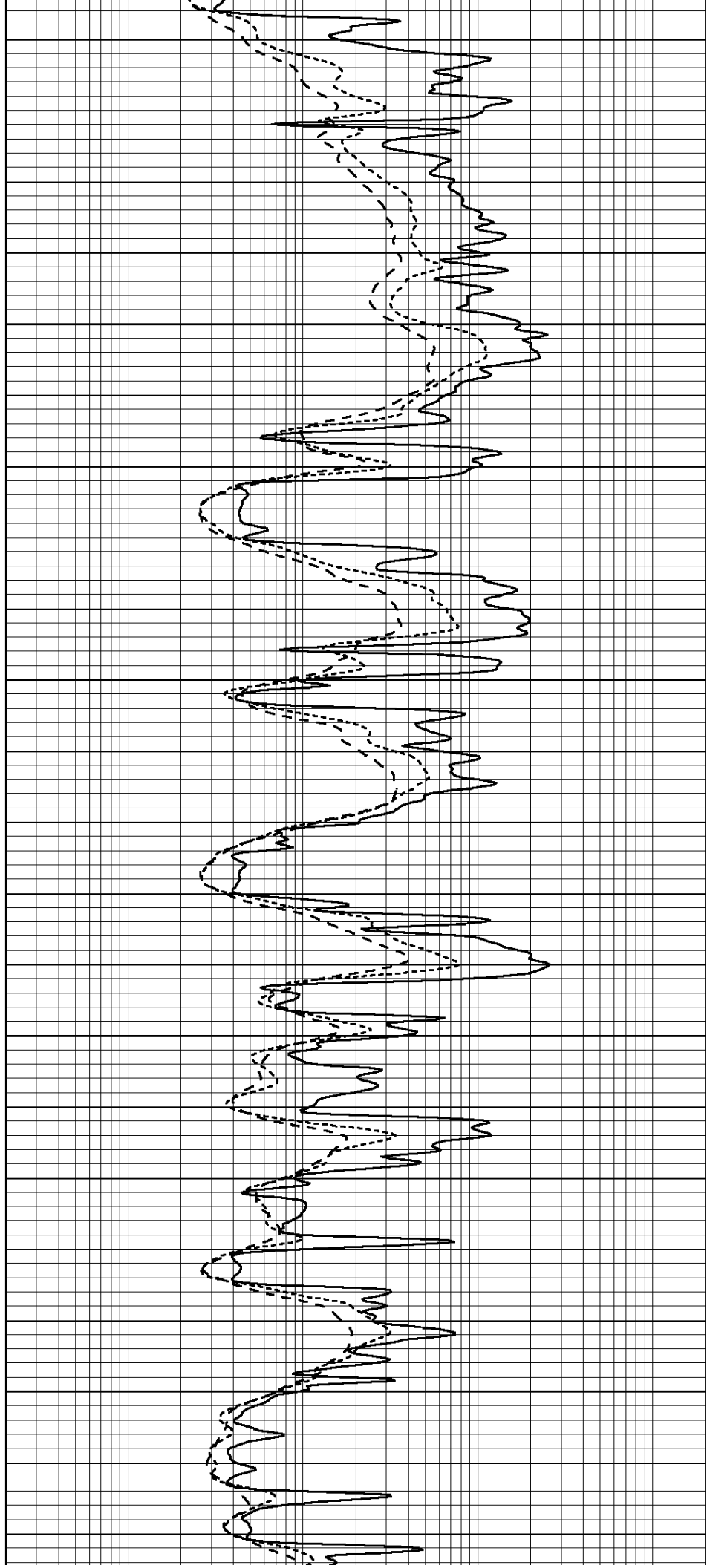


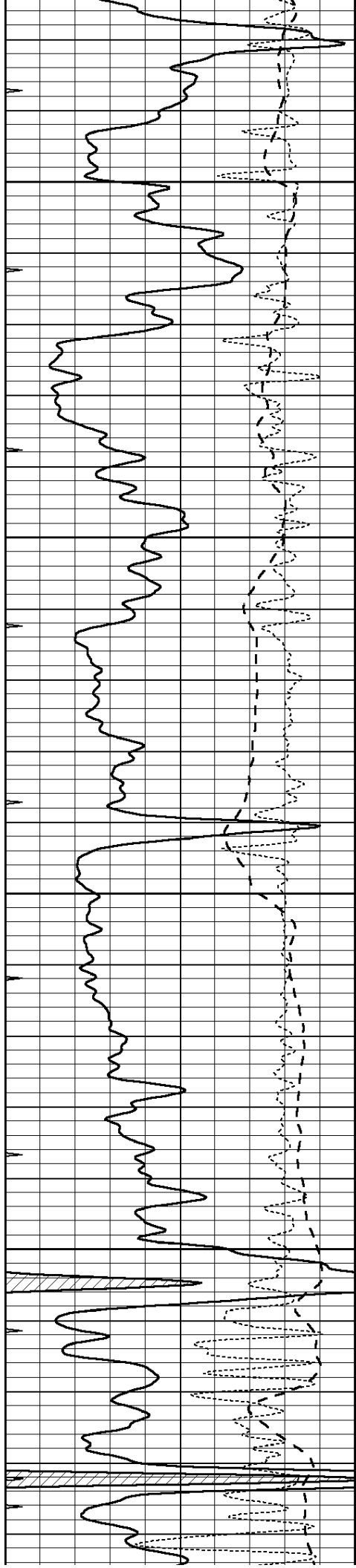
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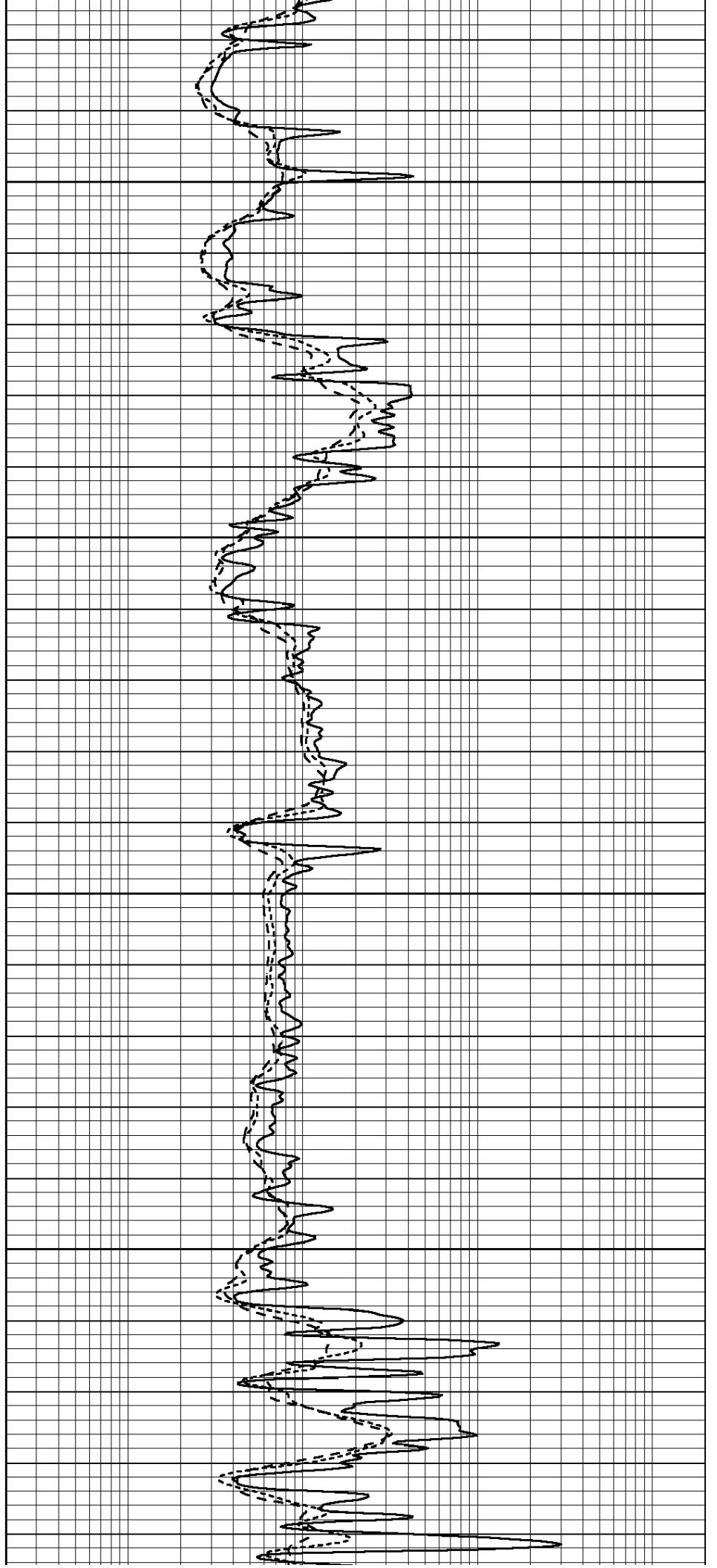


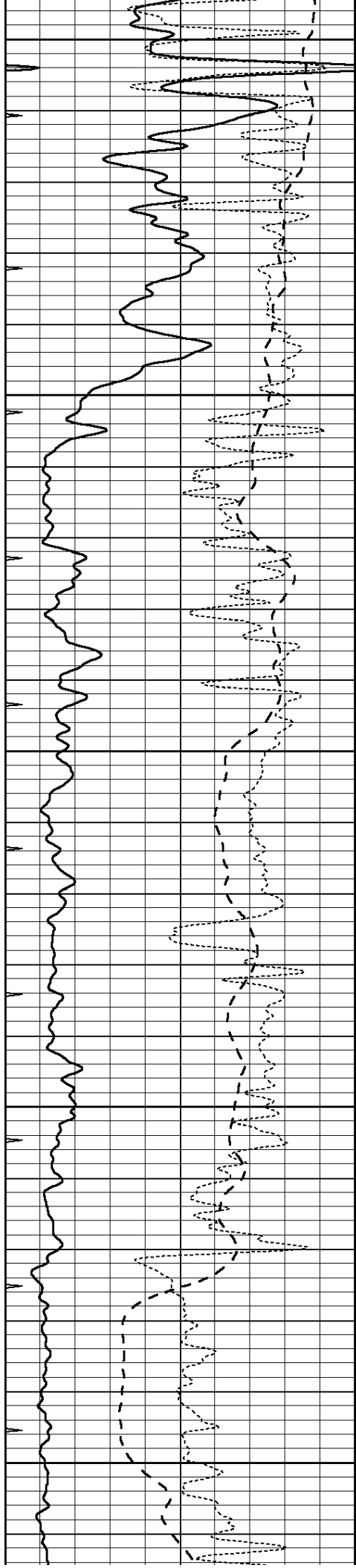
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4050

4100

4150





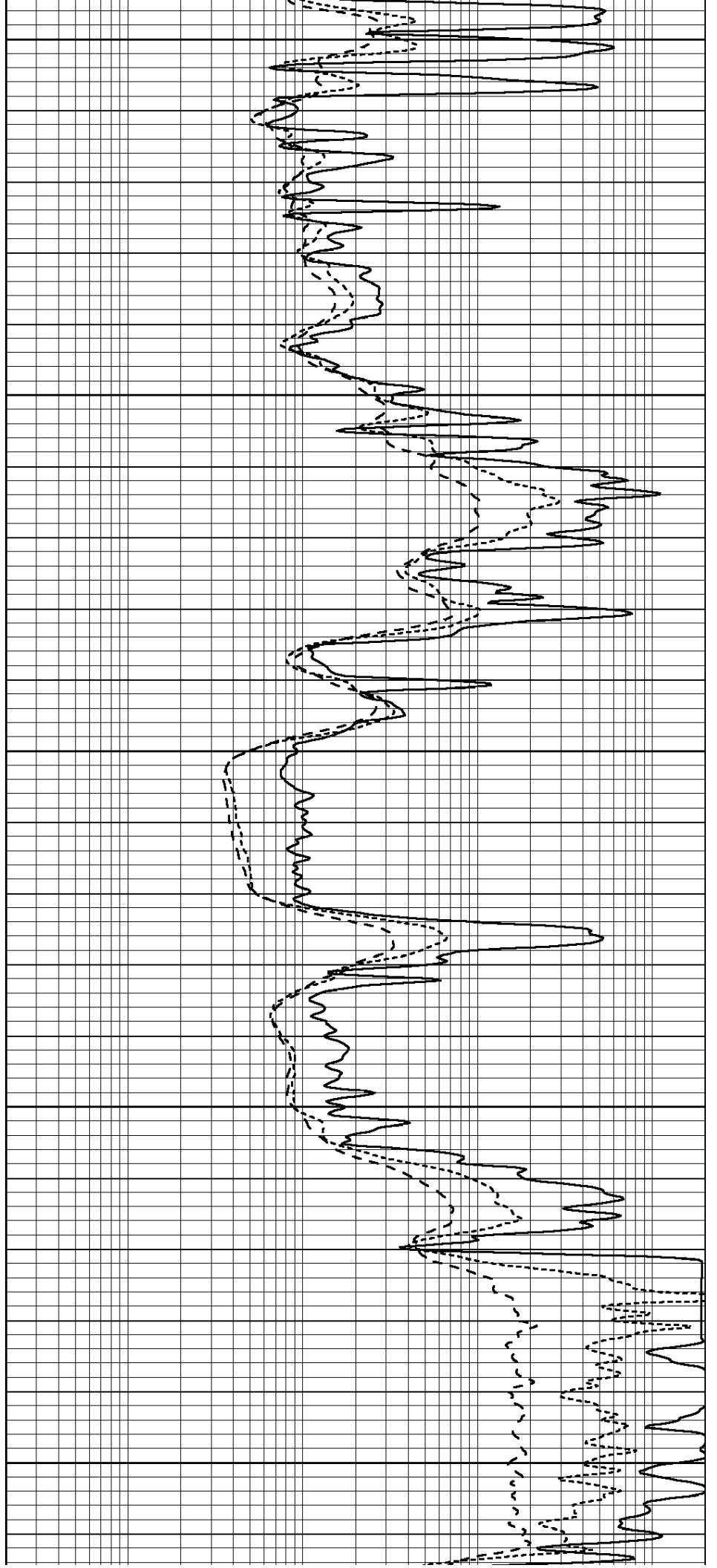
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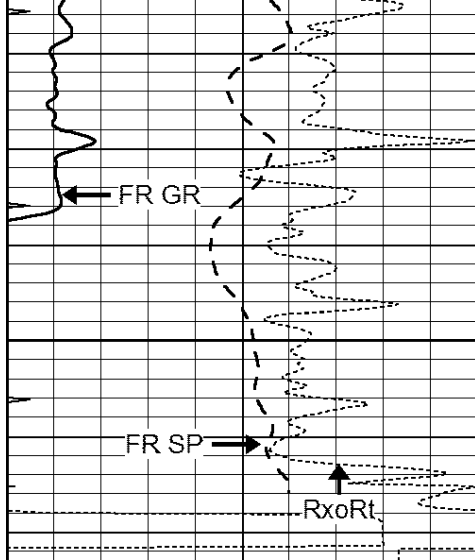
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4300

4350

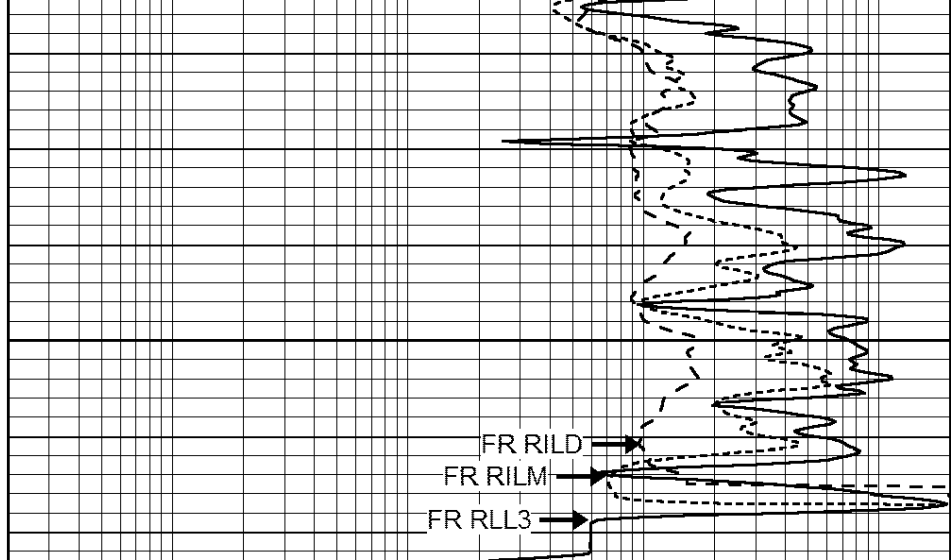
4400





4450
LTD 4471

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

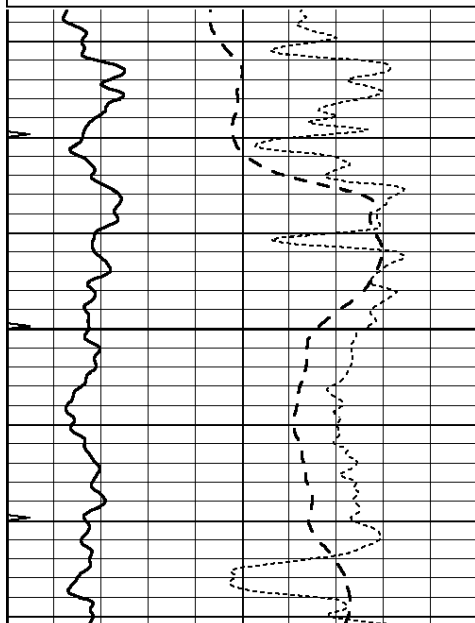


REPEAT SECTION

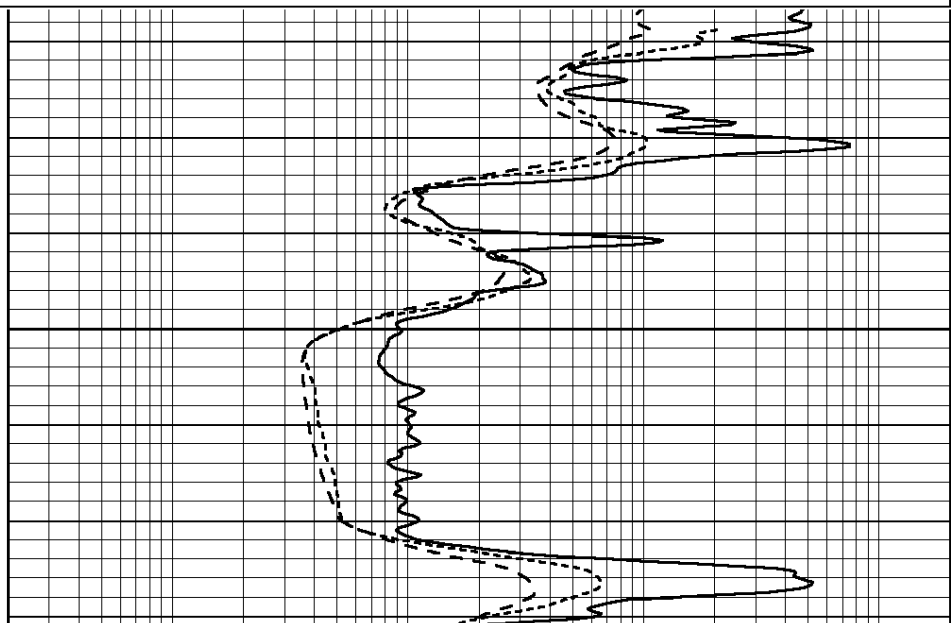
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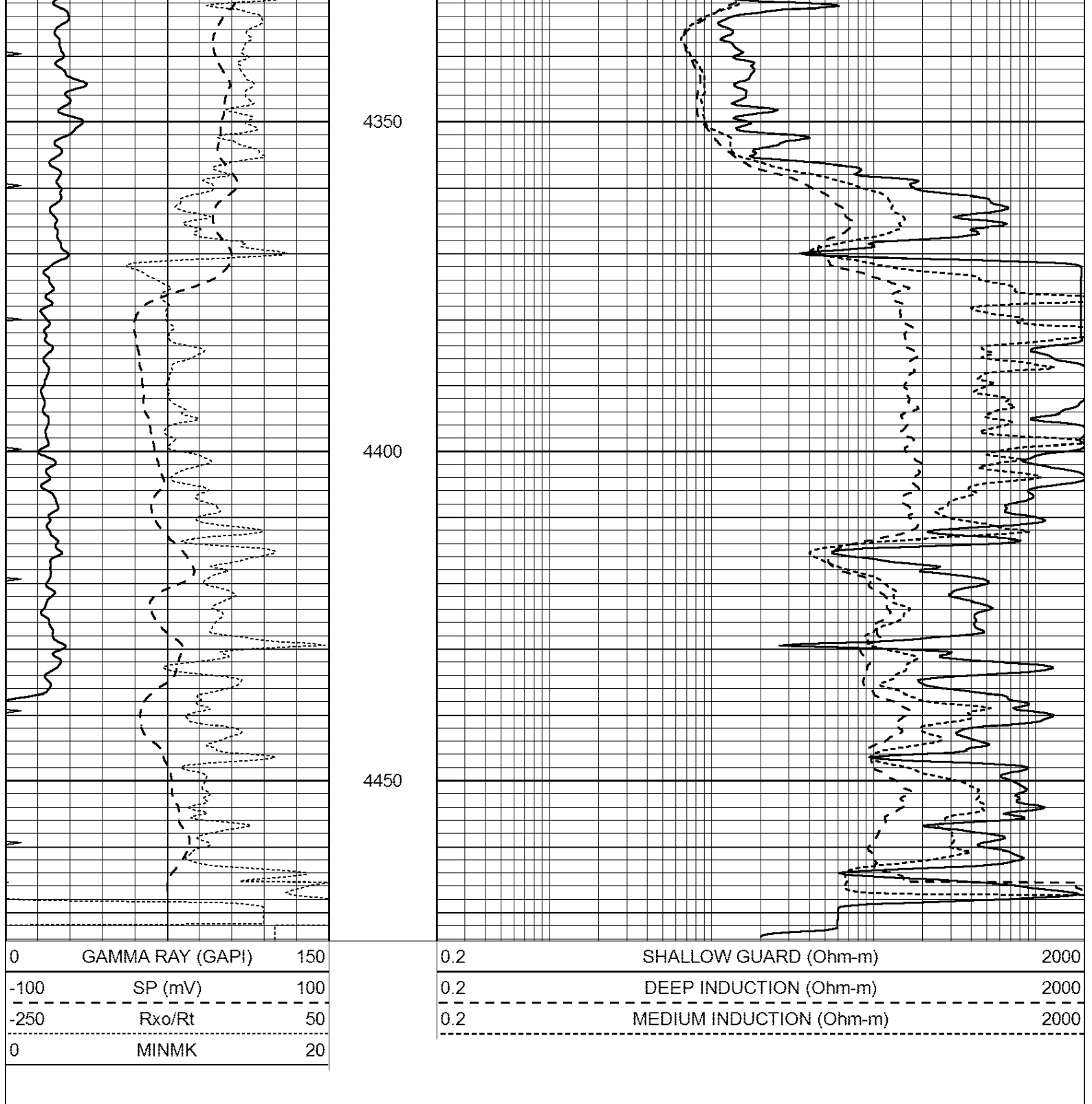
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



4300





Calibration Report

Database File: 26214ddn.db
 Dataset Pathname: pass2.1
 Dataset Creation: Wed Oct 22 08:27:29 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:	GEAR3-GEARHART
Source / Verifier:	143 / 143
Master Calibration Performed:	Sun Aug 17 08:09:42 2014
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration						
	Density			Far Detector	Near Detector	
Magnesium	1.710	g/cc		935.36	501.55	cps
Aluminum	2.580	g/cc		209.32	357.01	cps
Spine Angle = 77.21			Density/Spine Ratio = 0.567			
	Size			Reading		
Small Ring	8.00	in		4.29	V	
Large Ring	14.00	in		6.24	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: 6I
 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