



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company BEAR PETROLEUM, LLC.
Well EBERHARDT # 2-24
Field REICHEL
County RUCH State KANSAS

Company BEAR PETROLEUM, LLC.
Well EBERHARDT # 2-24
Field REICHEL
County RUCH
State KANSAS

Location: API #: 15-165-22091-00-00
1980' FSL & 3300' FEL
NE - SW
SEC 24 TWP 17S RGE 17W
Permanent Datum GROUND LEVEL Elevation 2048
Log Measured From KELLY BUSHING 14' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CNL/CDL
MEL
Elevation
K.B. 2062
D.F. 2060
G.L. 2048

Date	9/30/14		
Run Number	ONE		
Depth Driller	3650		
Depth Logger	3646		
Bottom Logged Interval	3644		
Top Log Interval	00		
Casing Driller	8 5/8" @ 1128		
Casing Logger	1130		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,000 PPM	
Density / Viscosity	9.4/5.1		
pH / Fluid Loss	8.0/10.2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	0.60 @ 90F		
Rmf @ Meas. Temp	0.45 @ 90F		
Rmc @ Meas. Temp	0.72 @ 90F		
Source of Rmf / Rmc	MEASURED		
Rim @ BHT	0.48 @ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	113F		
Equipment Number	3802		
Location	HAYS, KS.		
Recorded By	IAN MABB		
Witnessed By	ROD ANDERSON		

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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

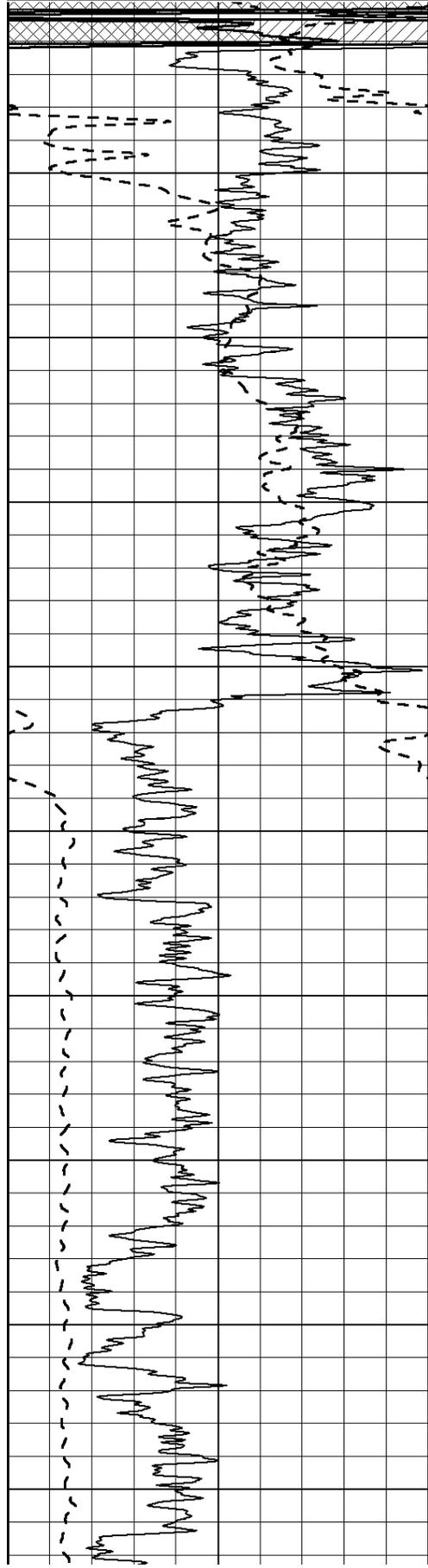
THANK YOU FOR USING NABORS COMPLETION & PRODUCTION SVCS. (785) 628-6395

DIRECTIONS: BISON, KS. & HWY 4 - 2 MILES EAST TO CR 330 - NORTH 1 1/2 MILES EAST INTO

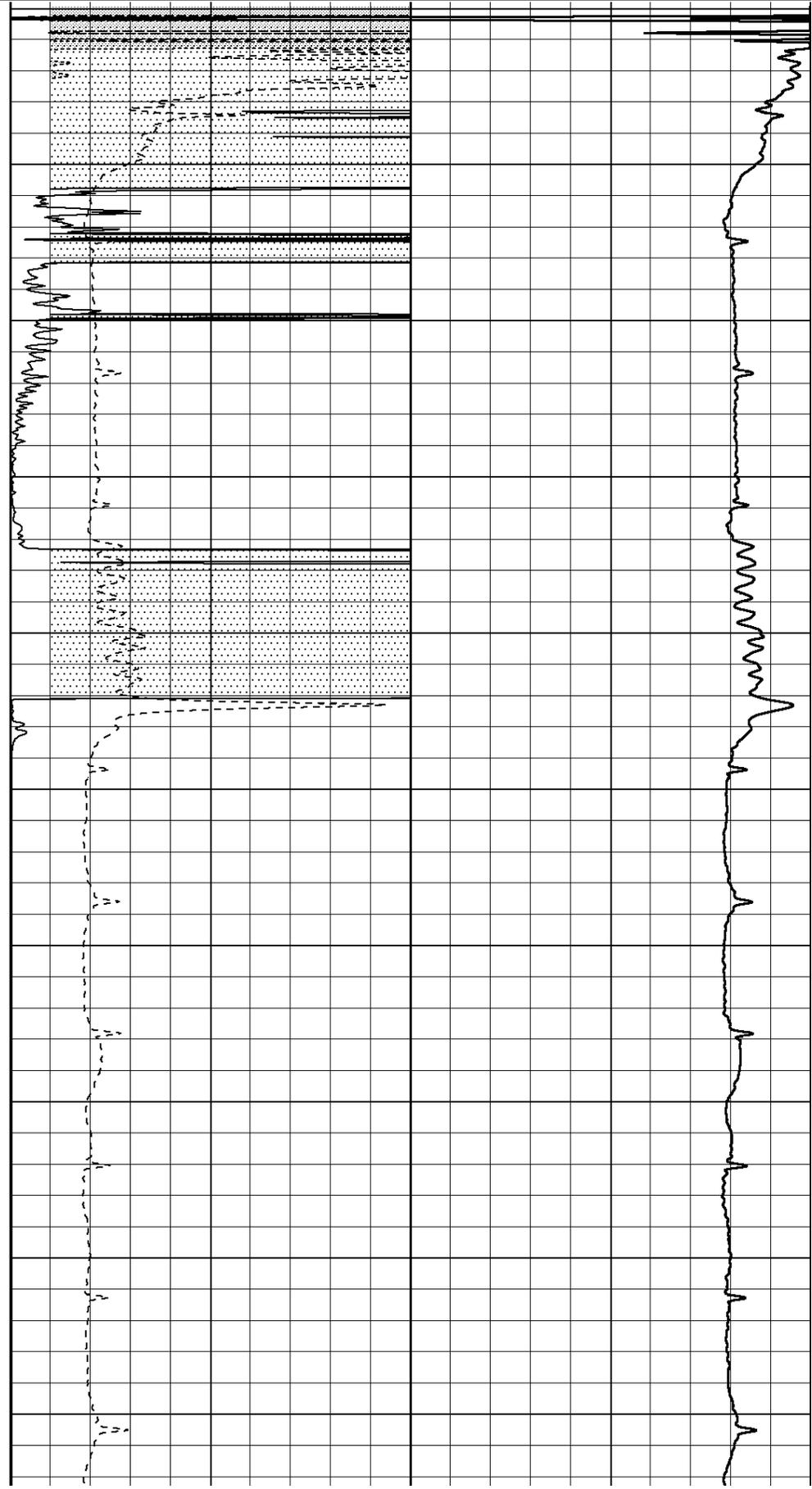
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-100	SP (mV)	100

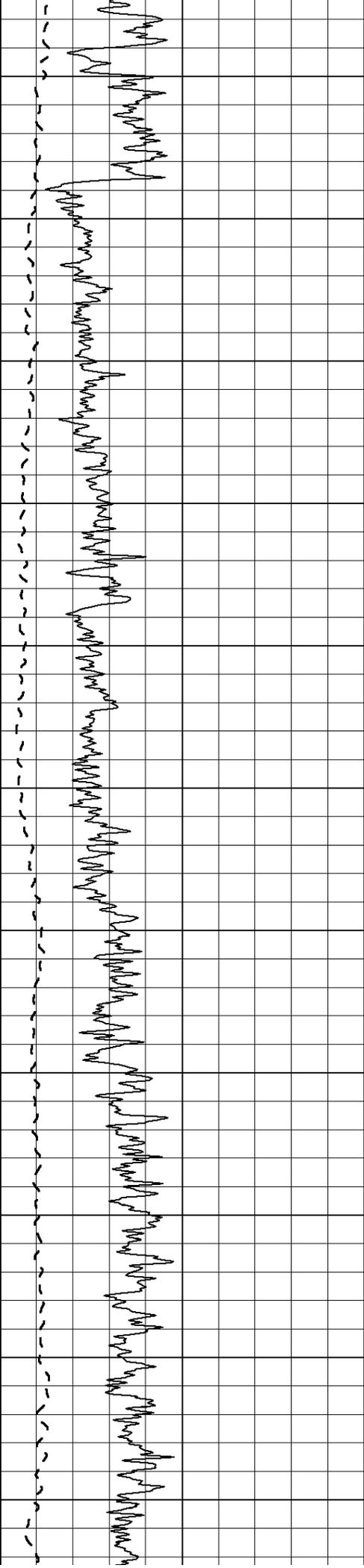
0	RLL3 (Ohm-m)	50
0	Deep Induction (Ohm-m)	50

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

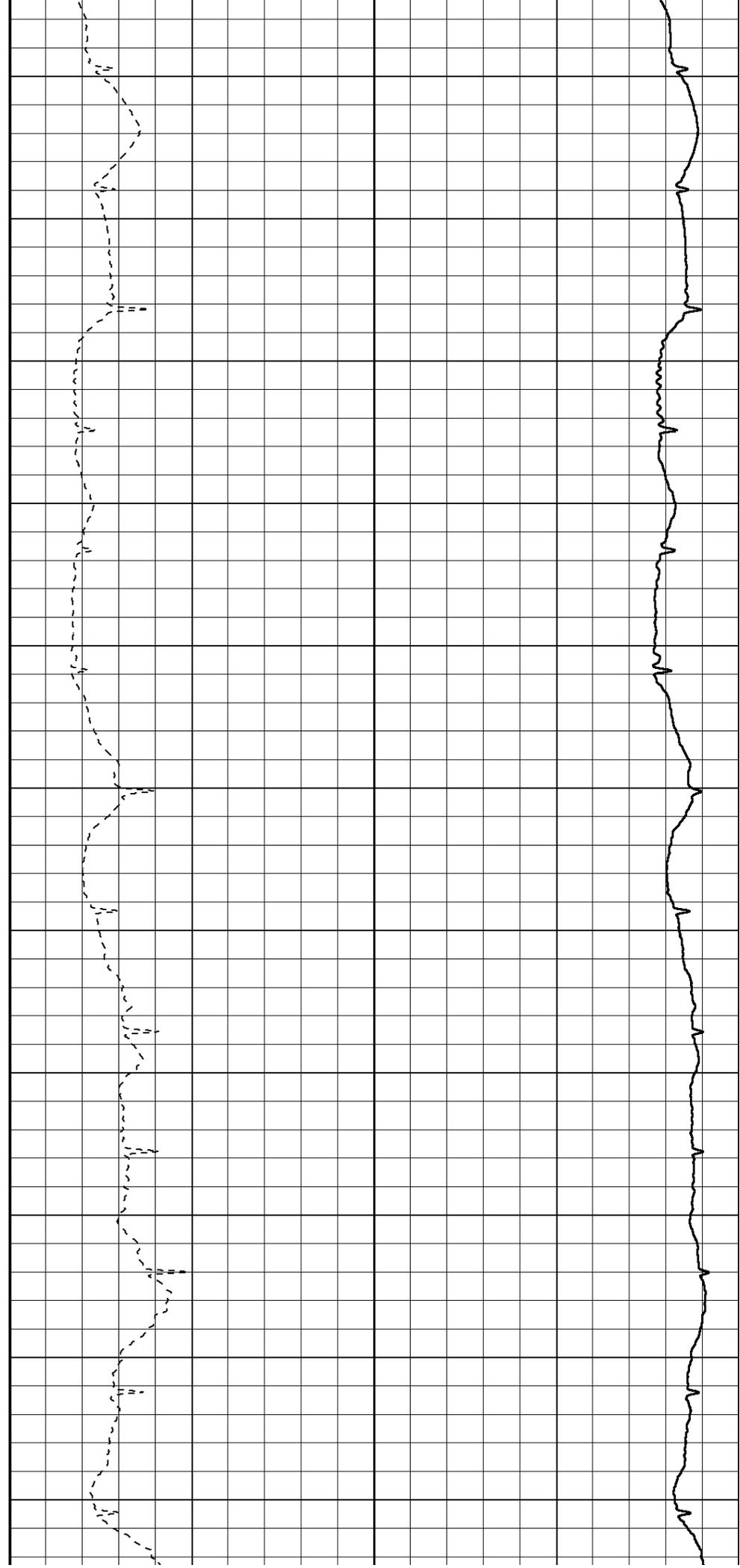


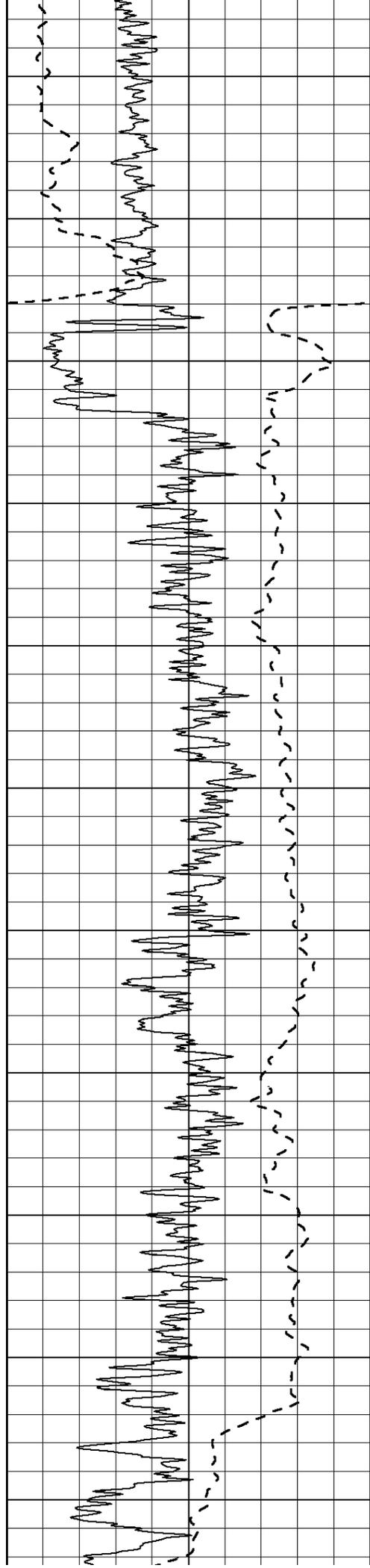
0
50
100
150
200
250
300
350
400
450





500
550
600
650
700
750
800
850
900
950
1000





1050

1100

1150

1200

1250

1300

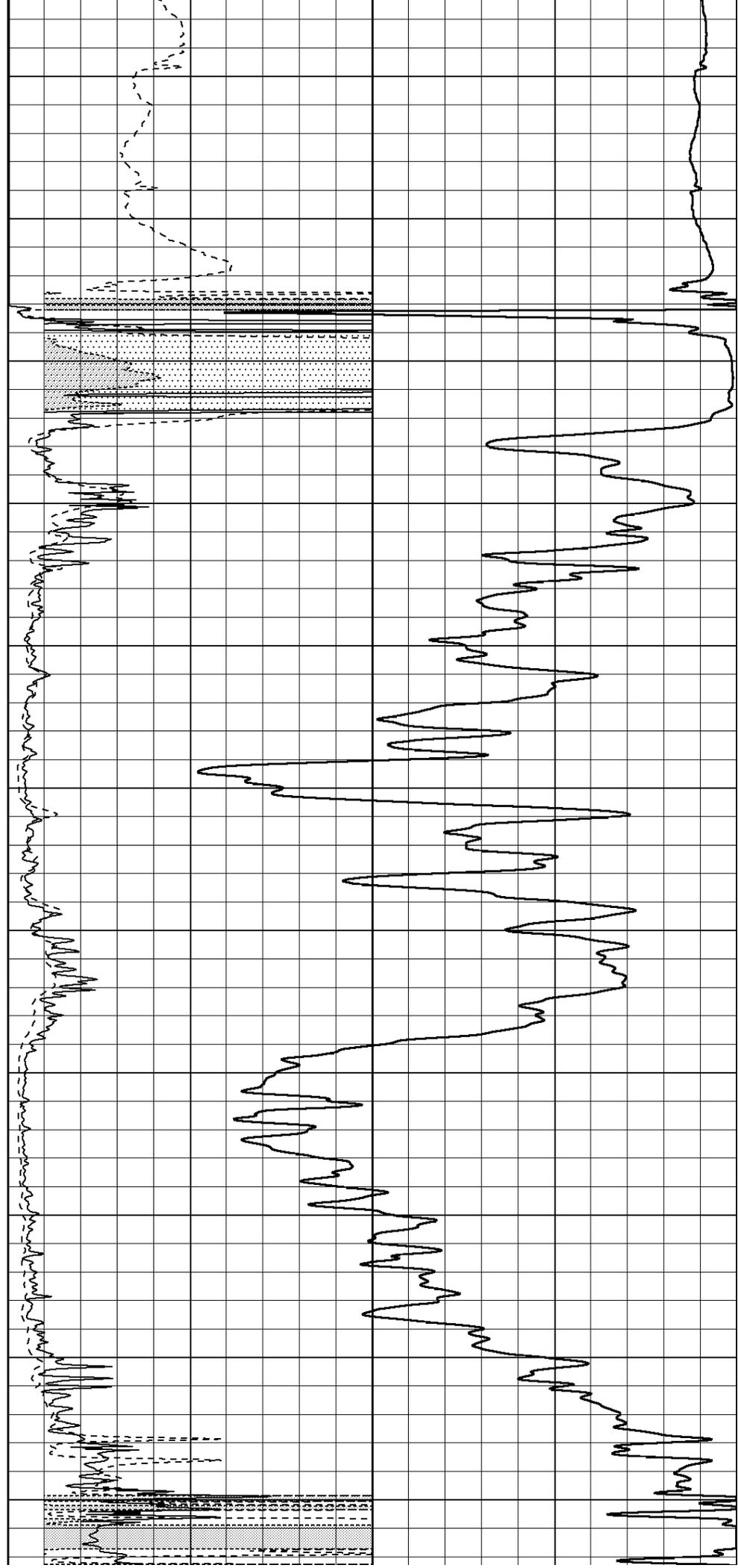
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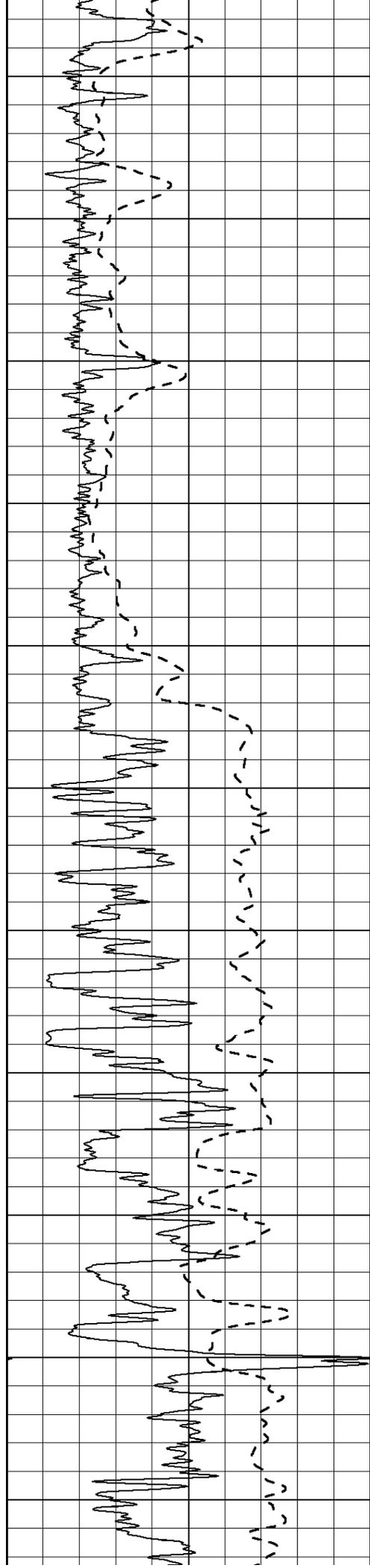
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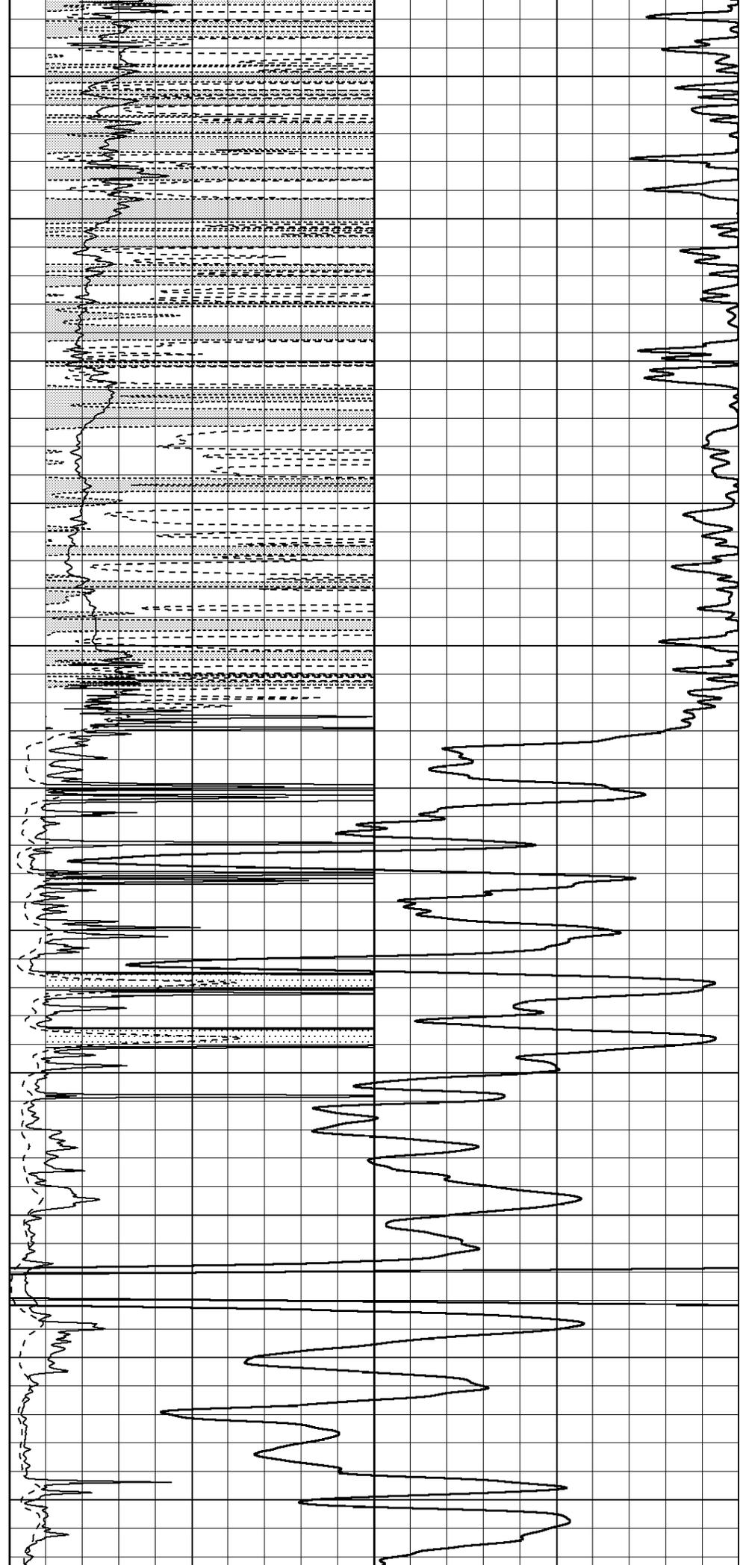
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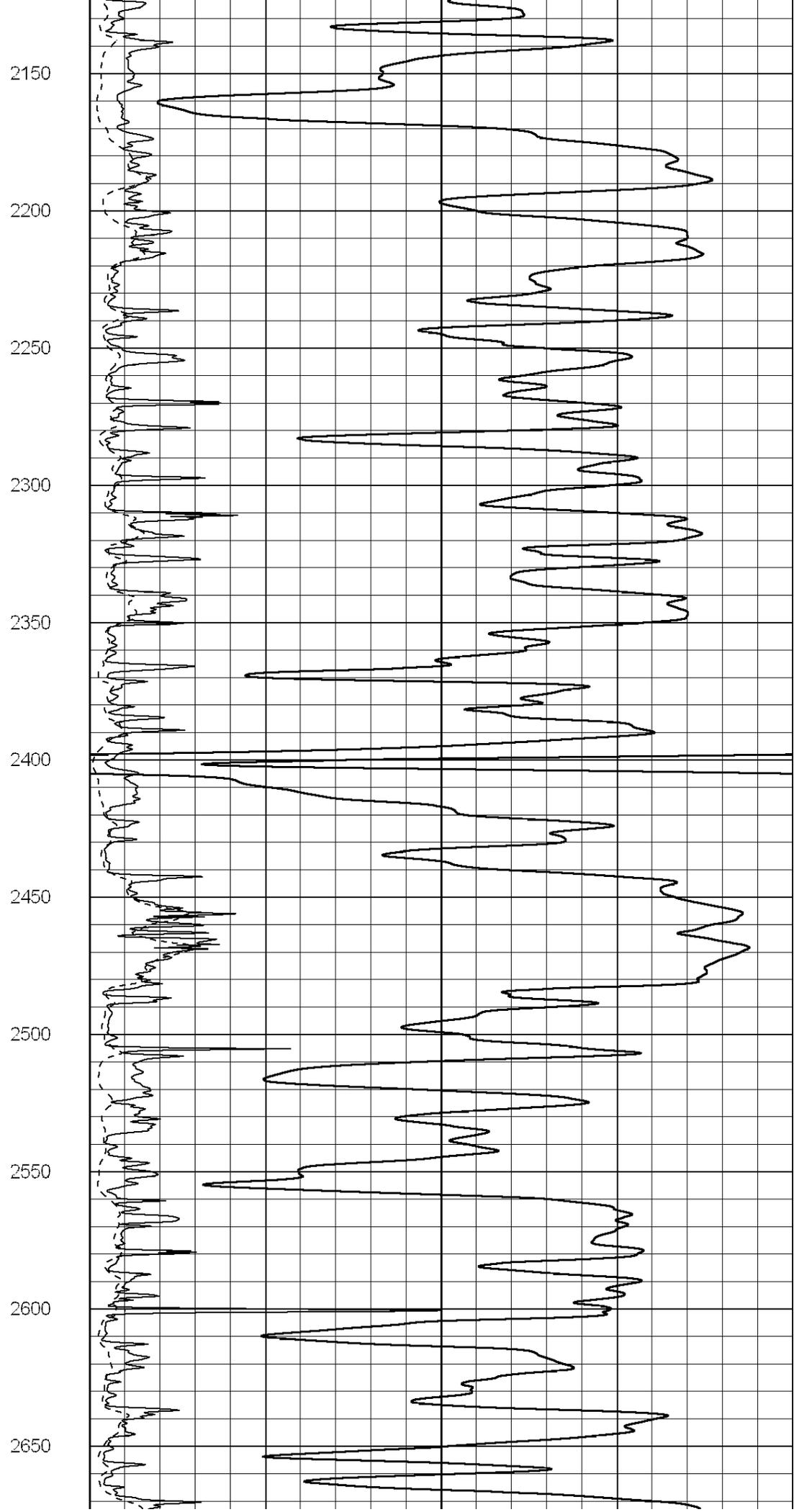
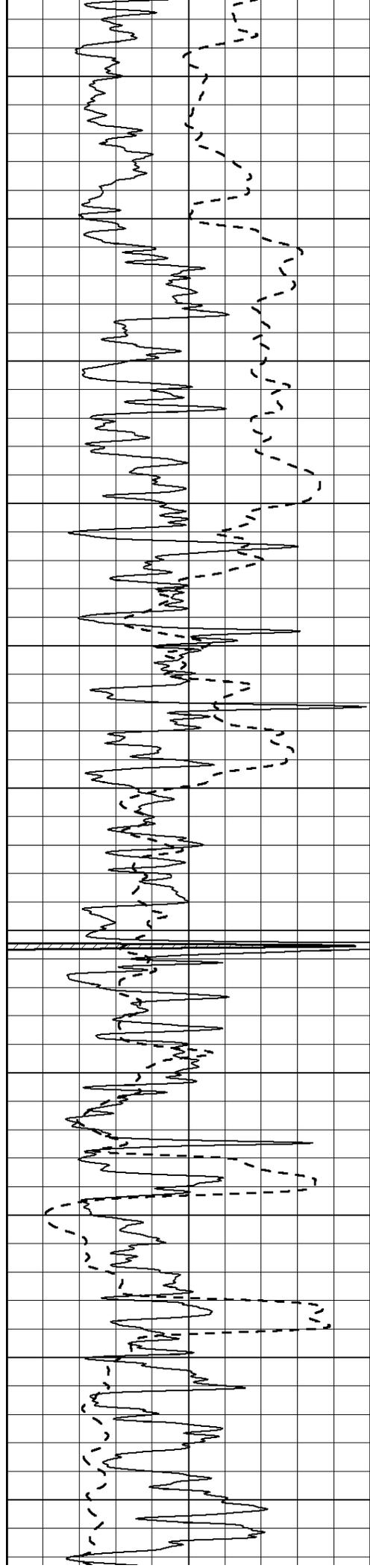
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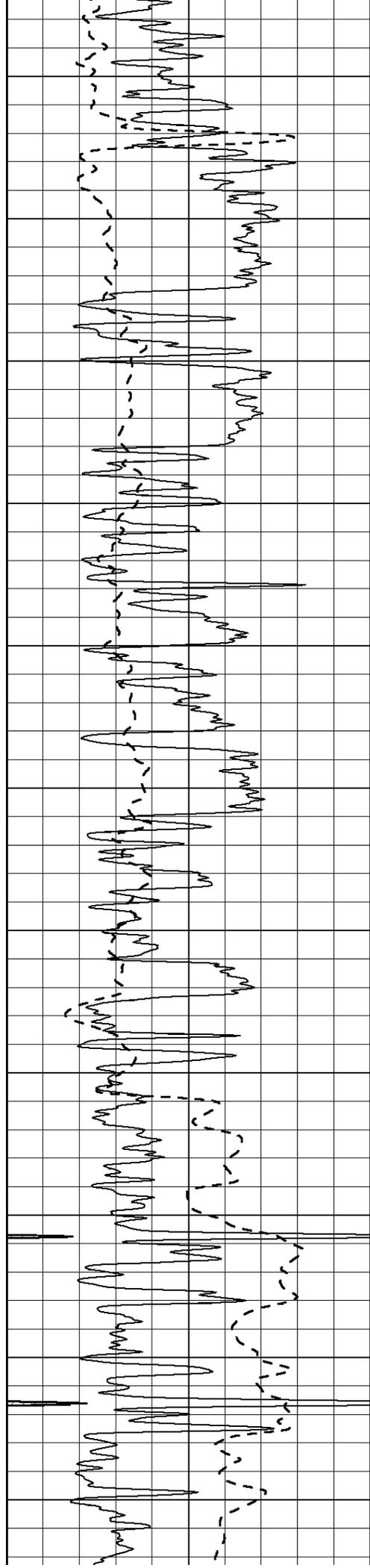




1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100







2700

2750

2800

2850

2900

2950

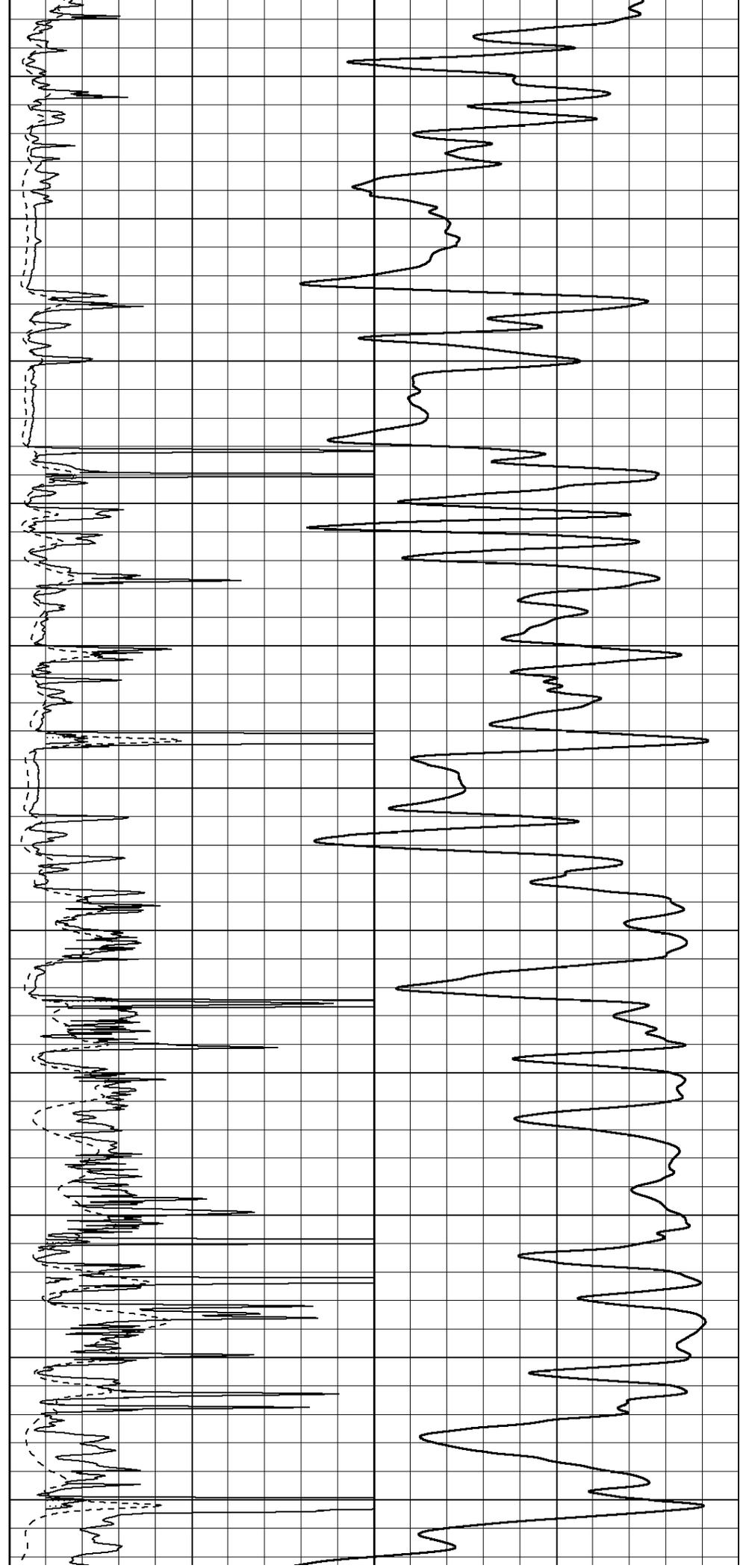
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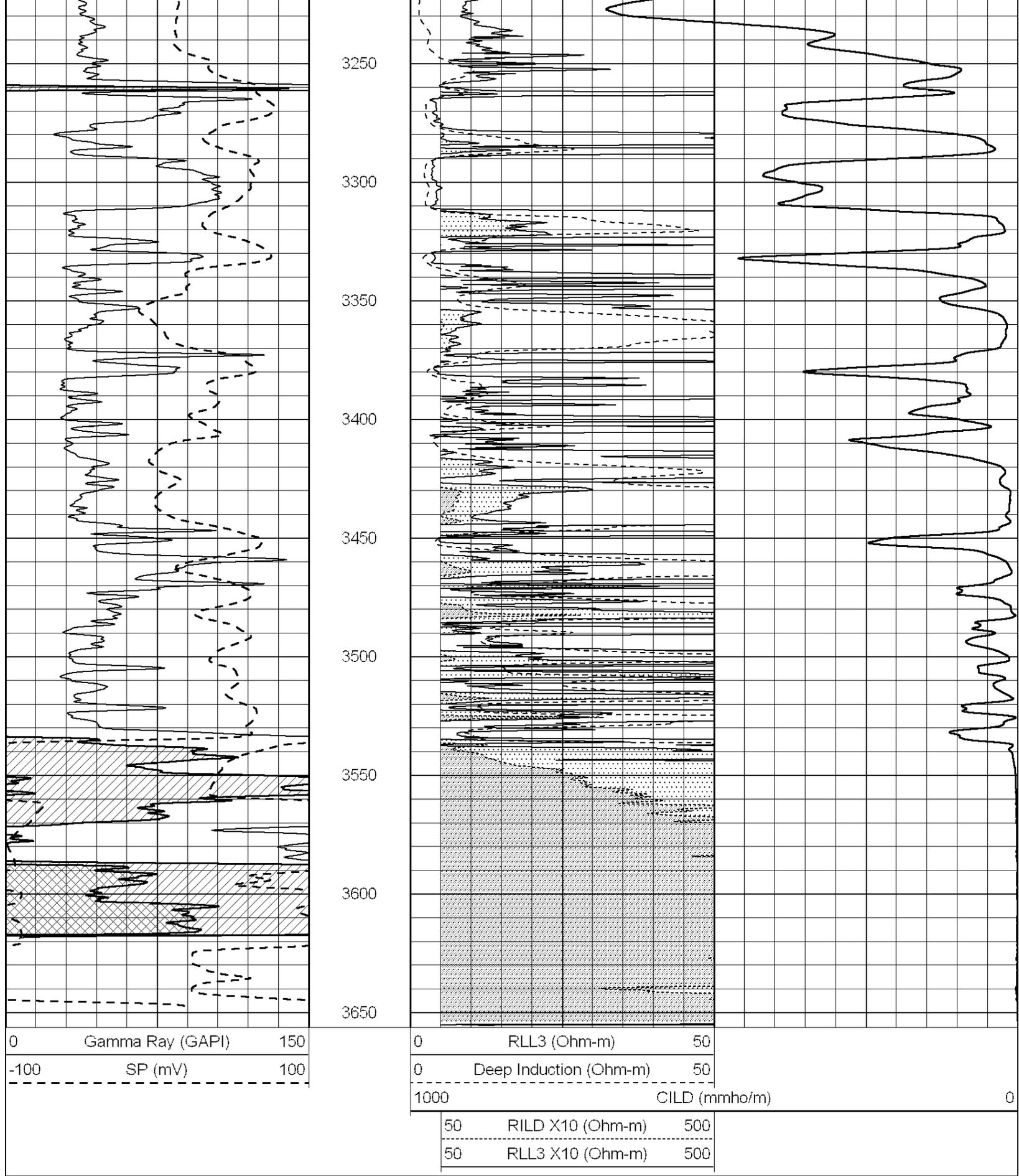
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3100

3150

3200





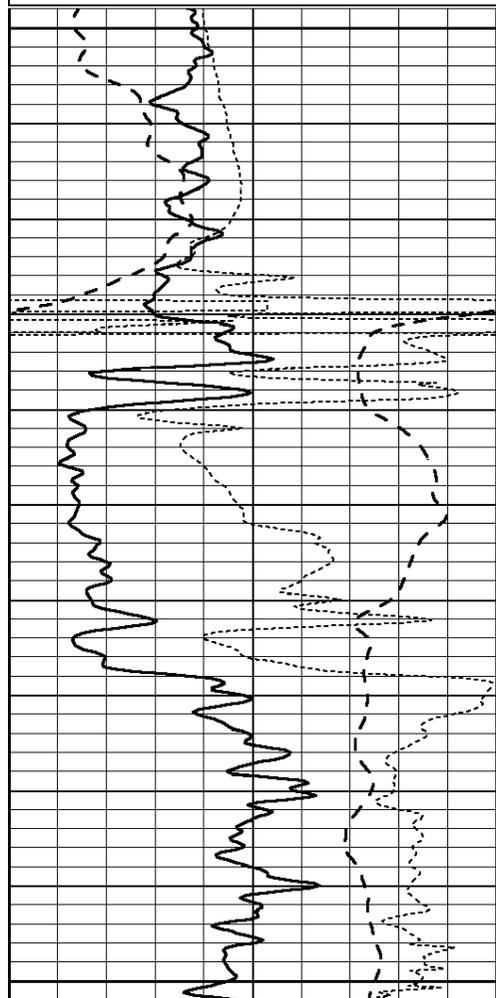
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Charted by:

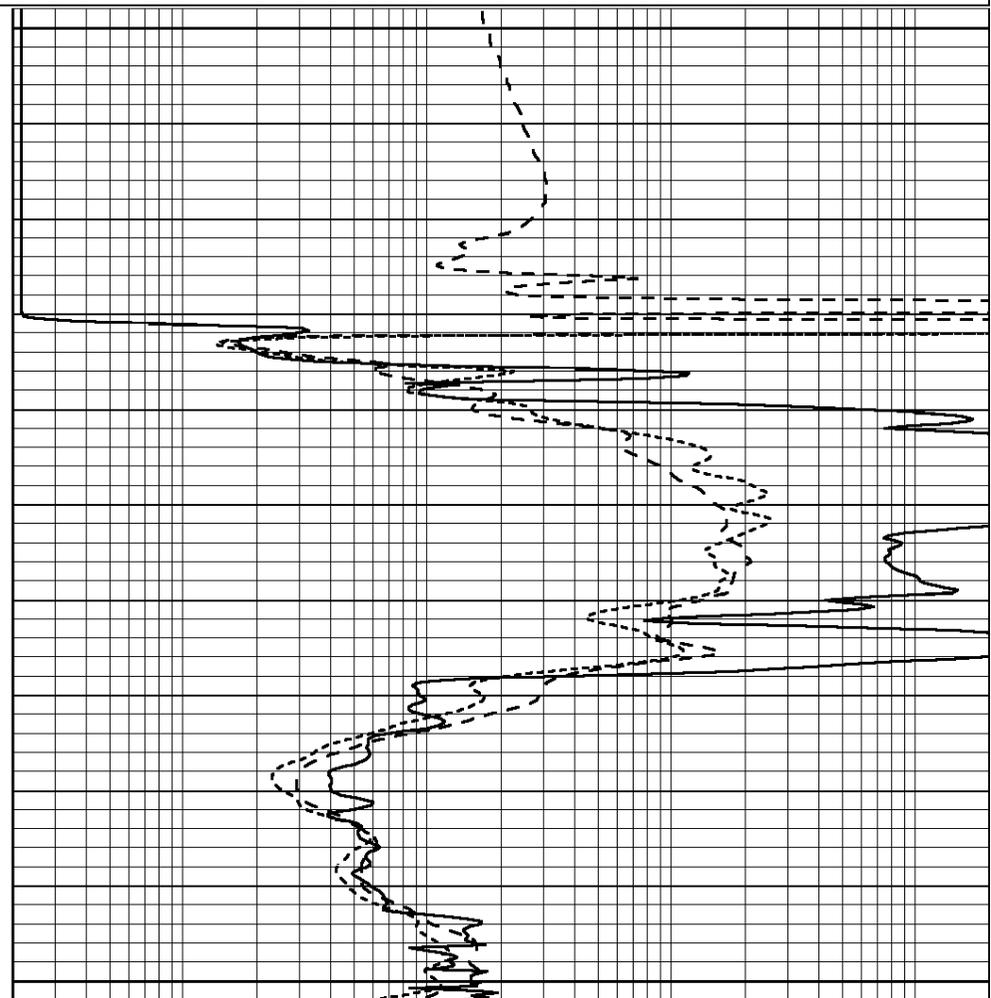
Depth in Feet scaled 1:240

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

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



1100
1150
1200



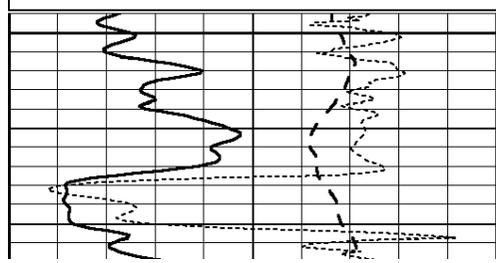
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-100	SP (mV)	100
-250	Rxo/Rt	50

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

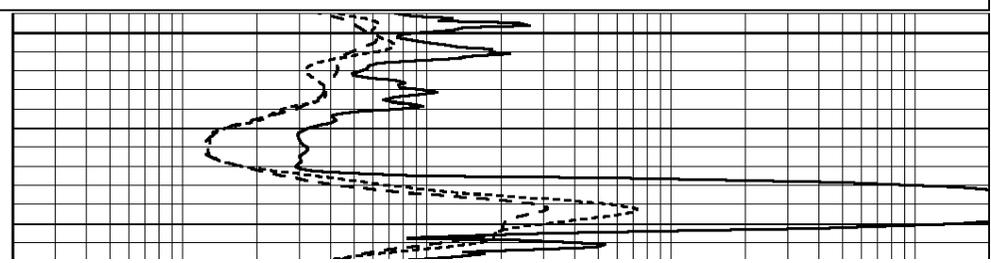
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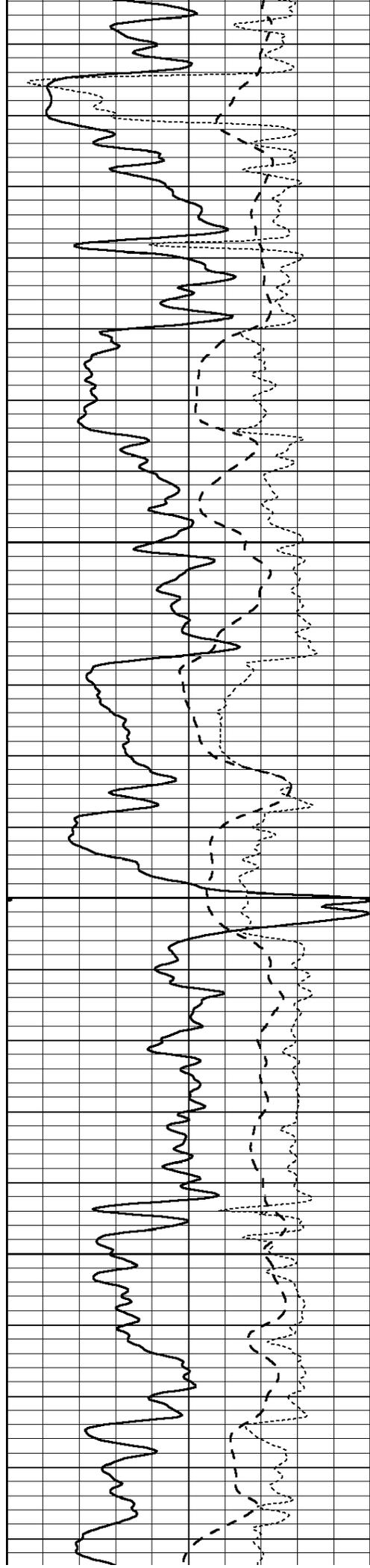
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

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



1900



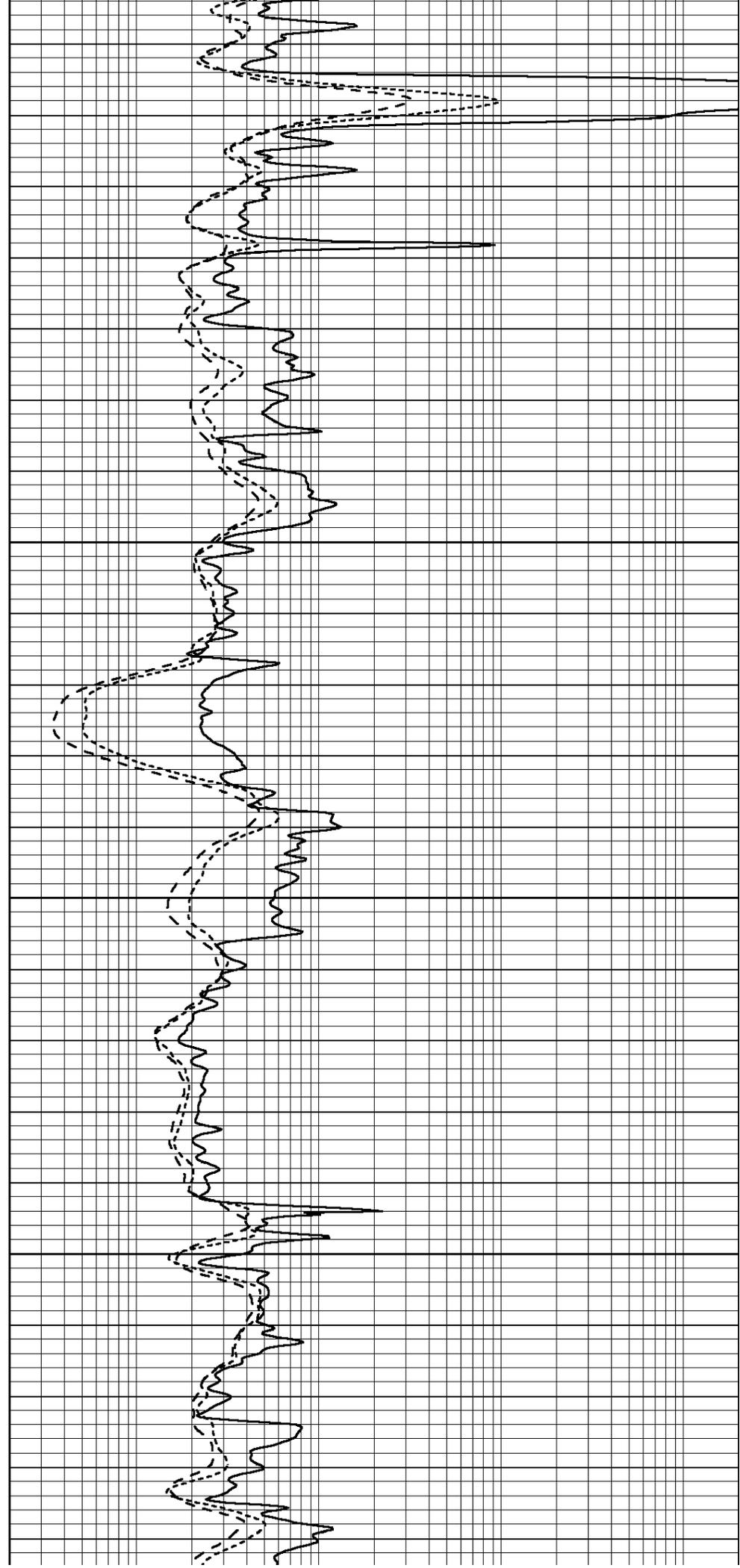


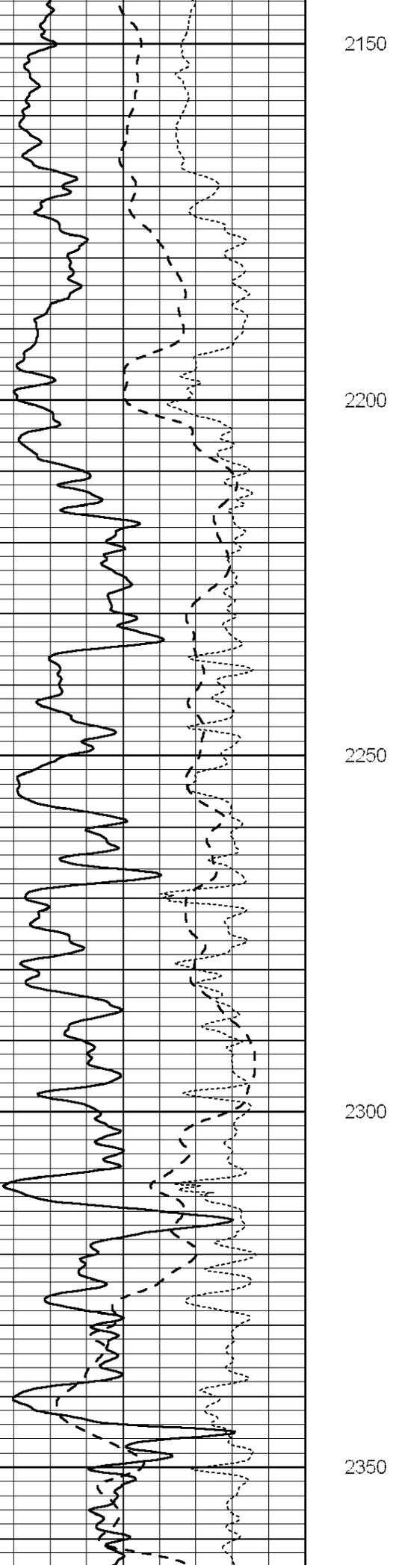
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2000

2050

2100





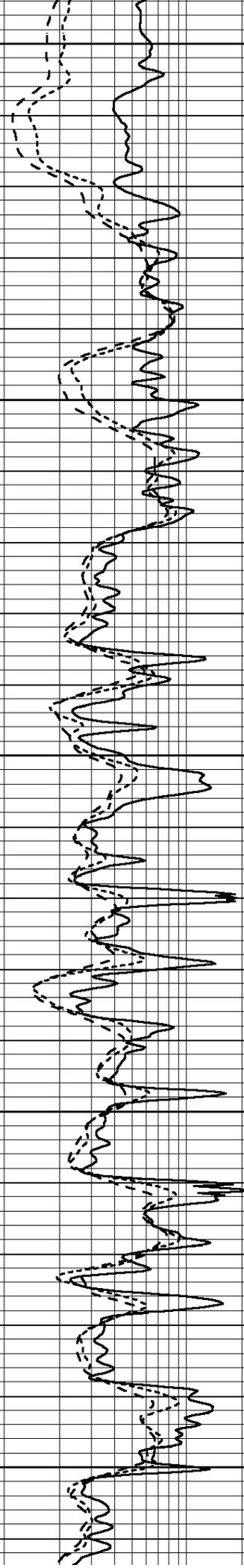
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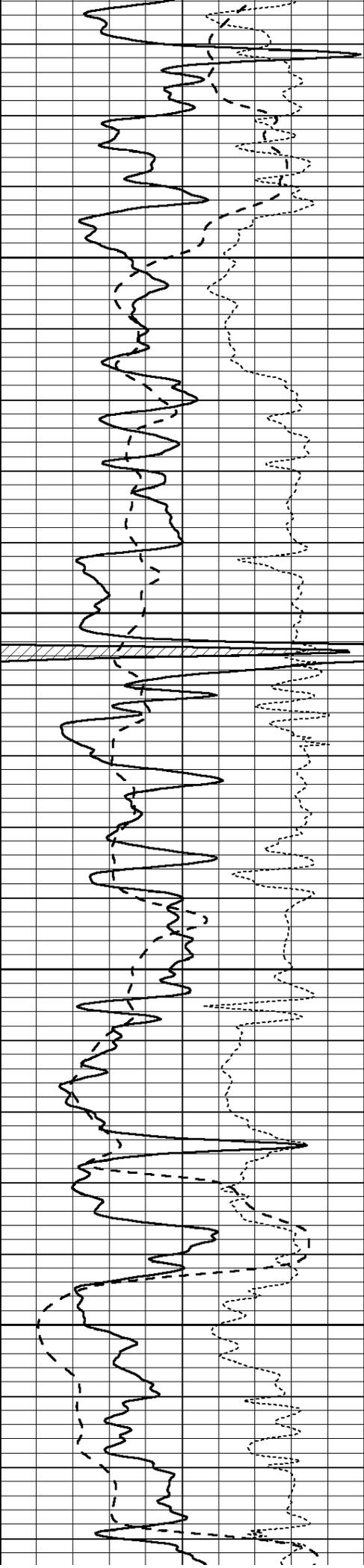
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2250

2300

2350



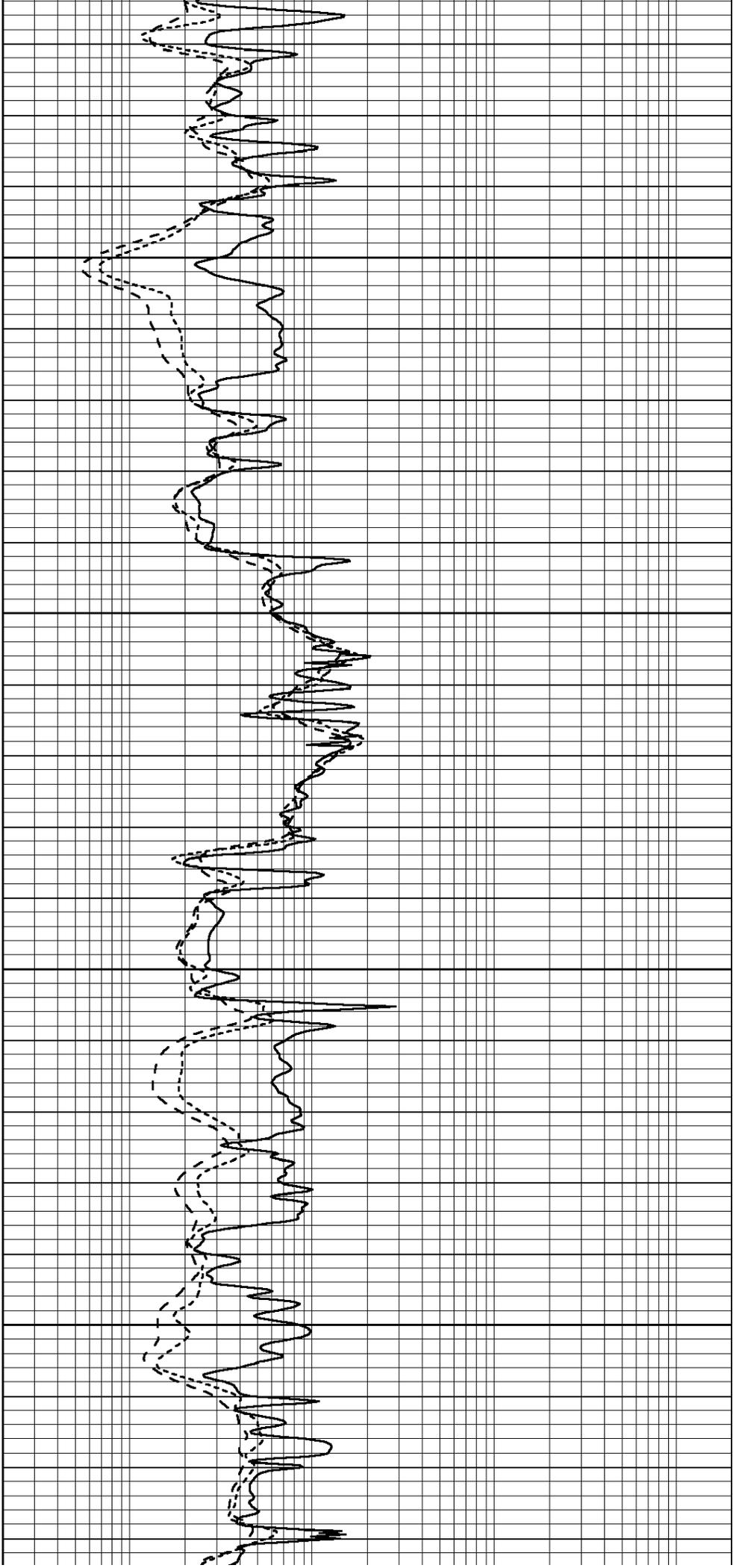


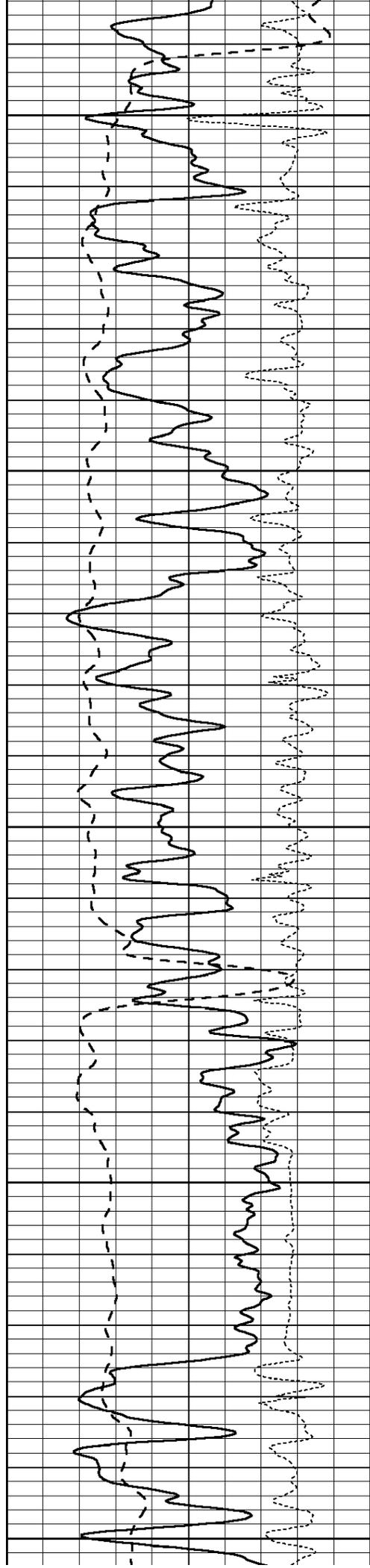
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2450

2500

2550





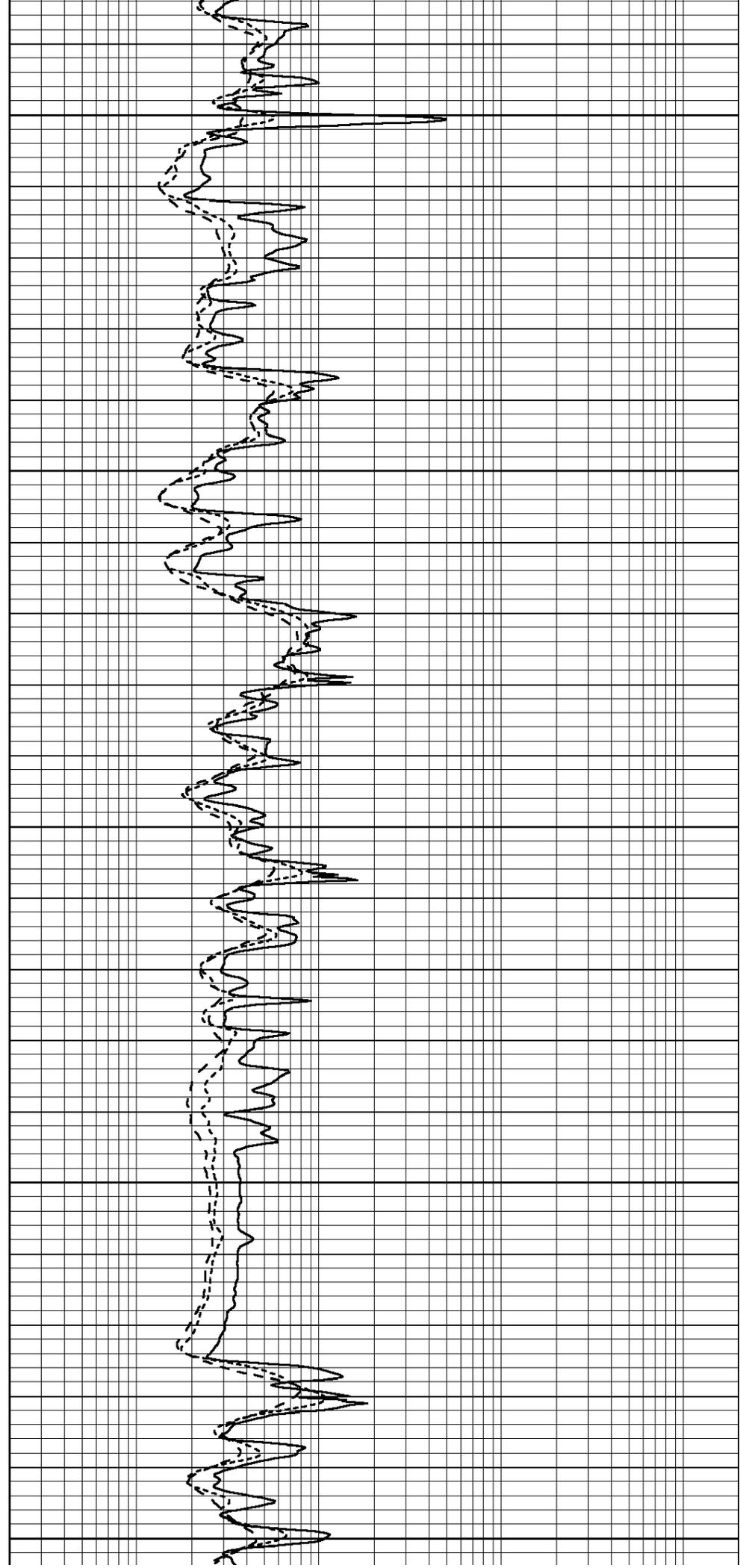
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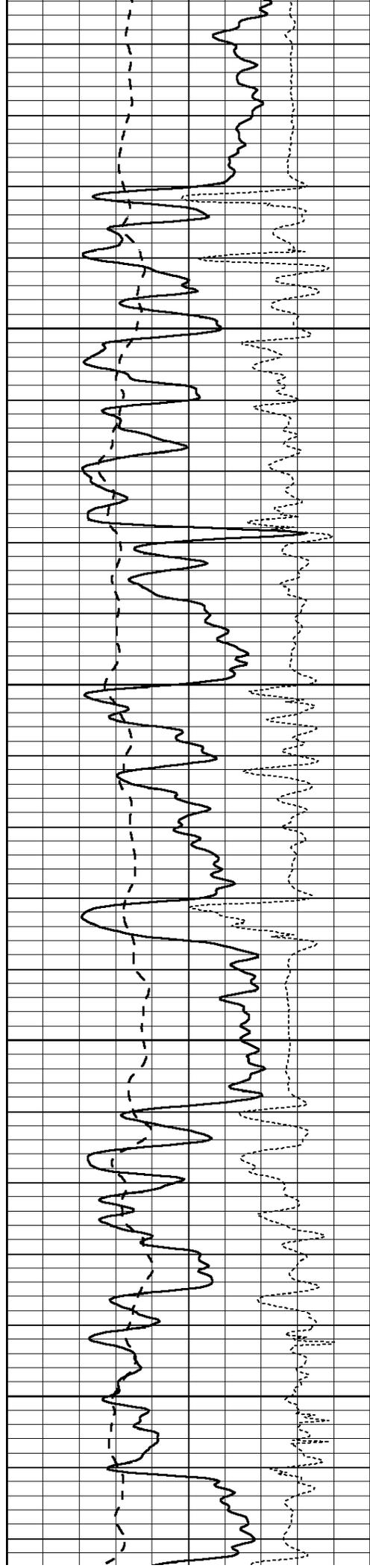
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2700

2750

2800



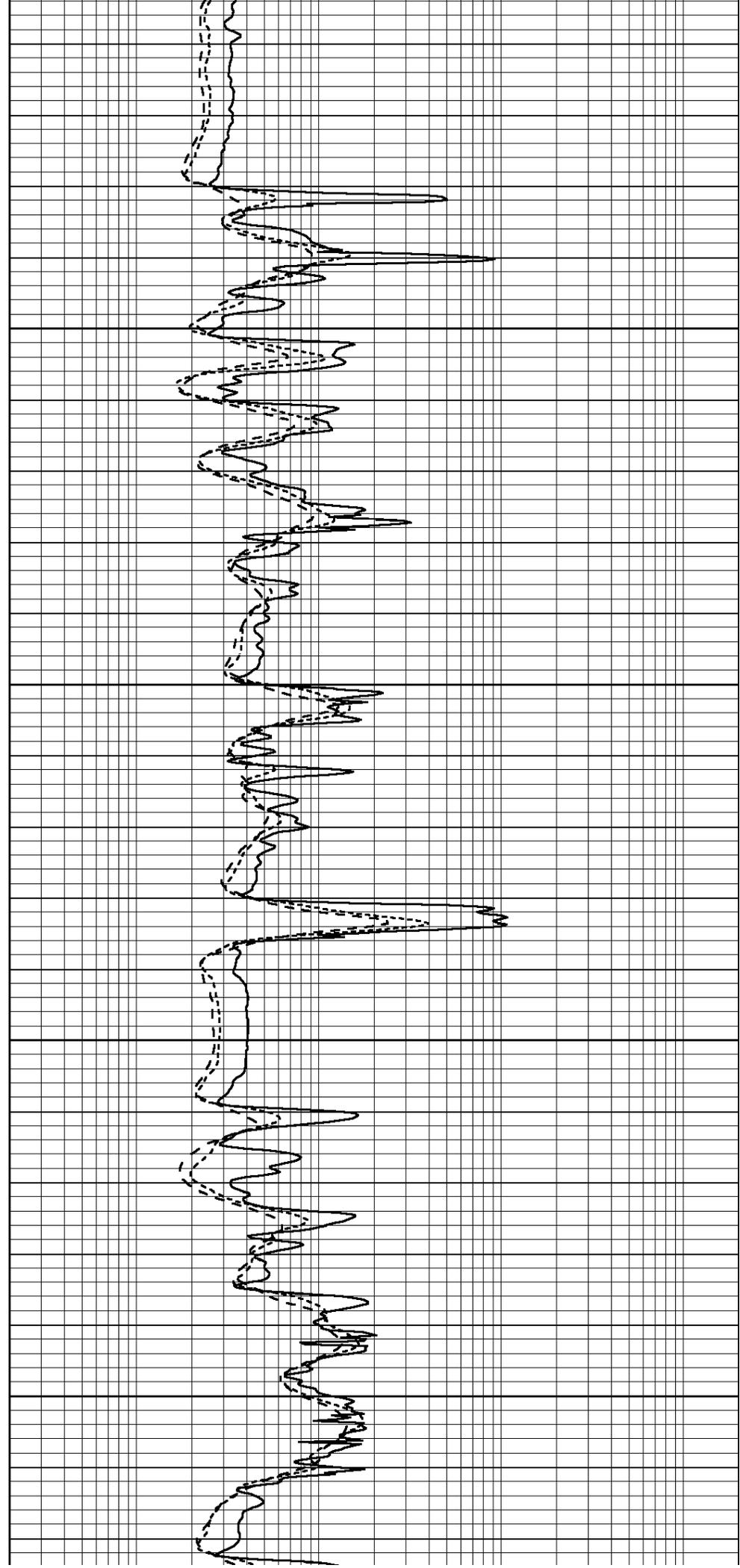


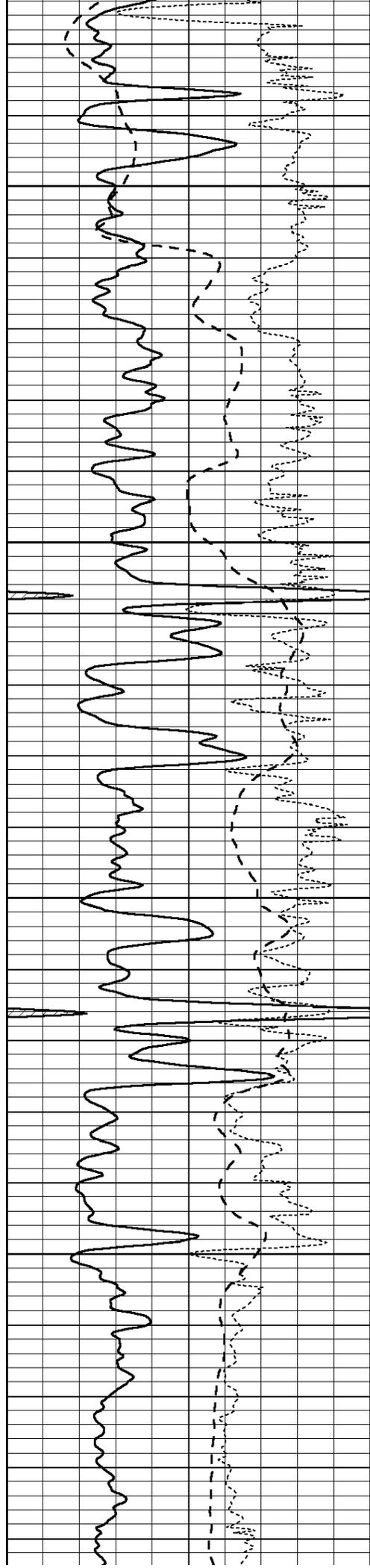
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2900

2950

3000



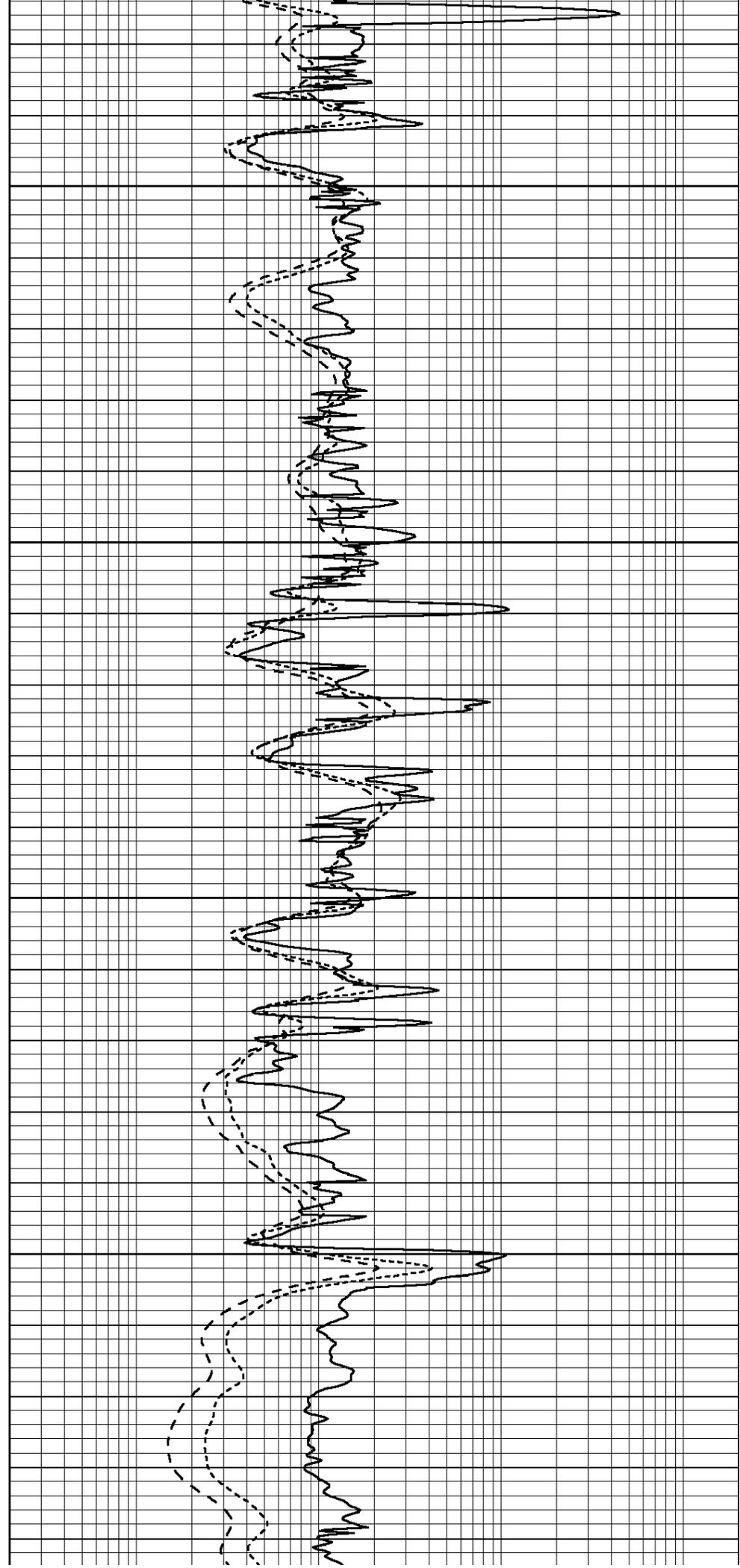


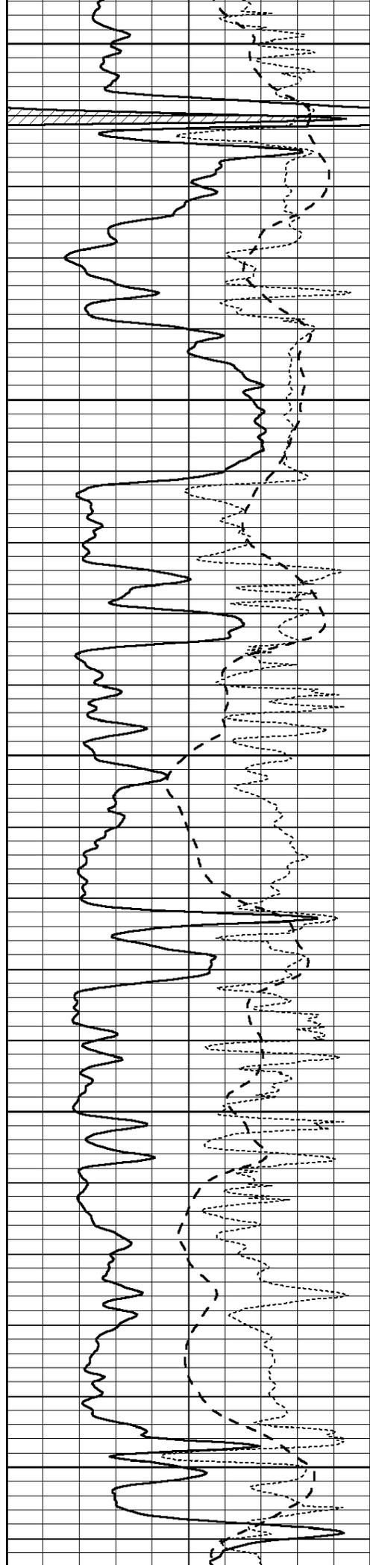
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3100

3150

3200





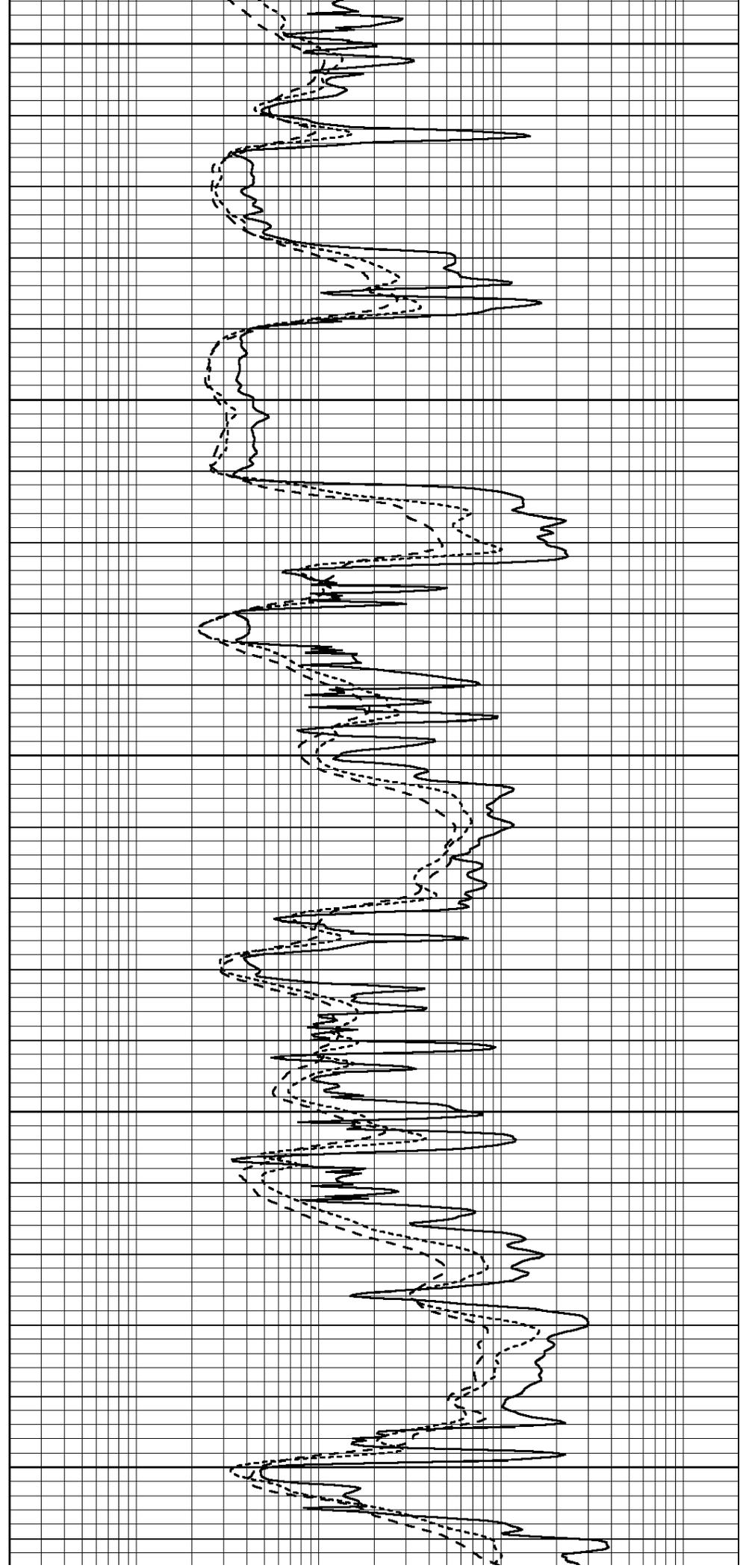
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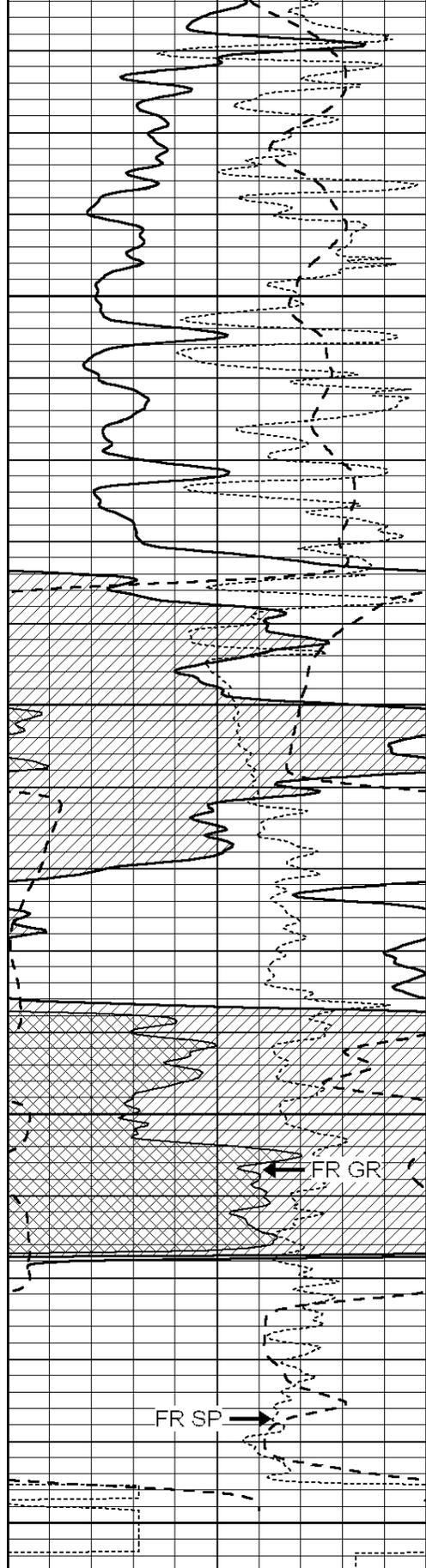
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3350

3400

3450





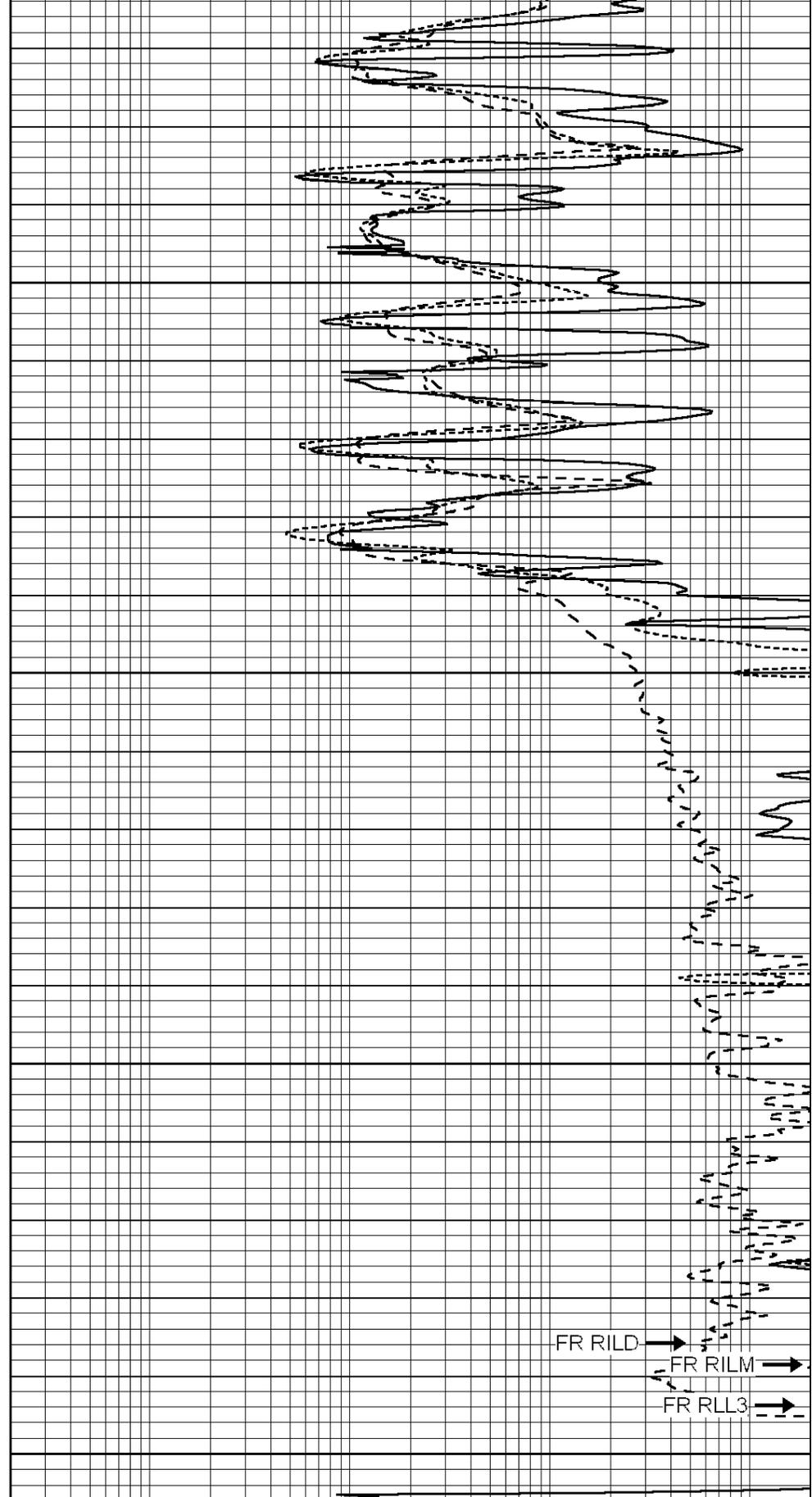
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3550

3600

LTD 3646
3650

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



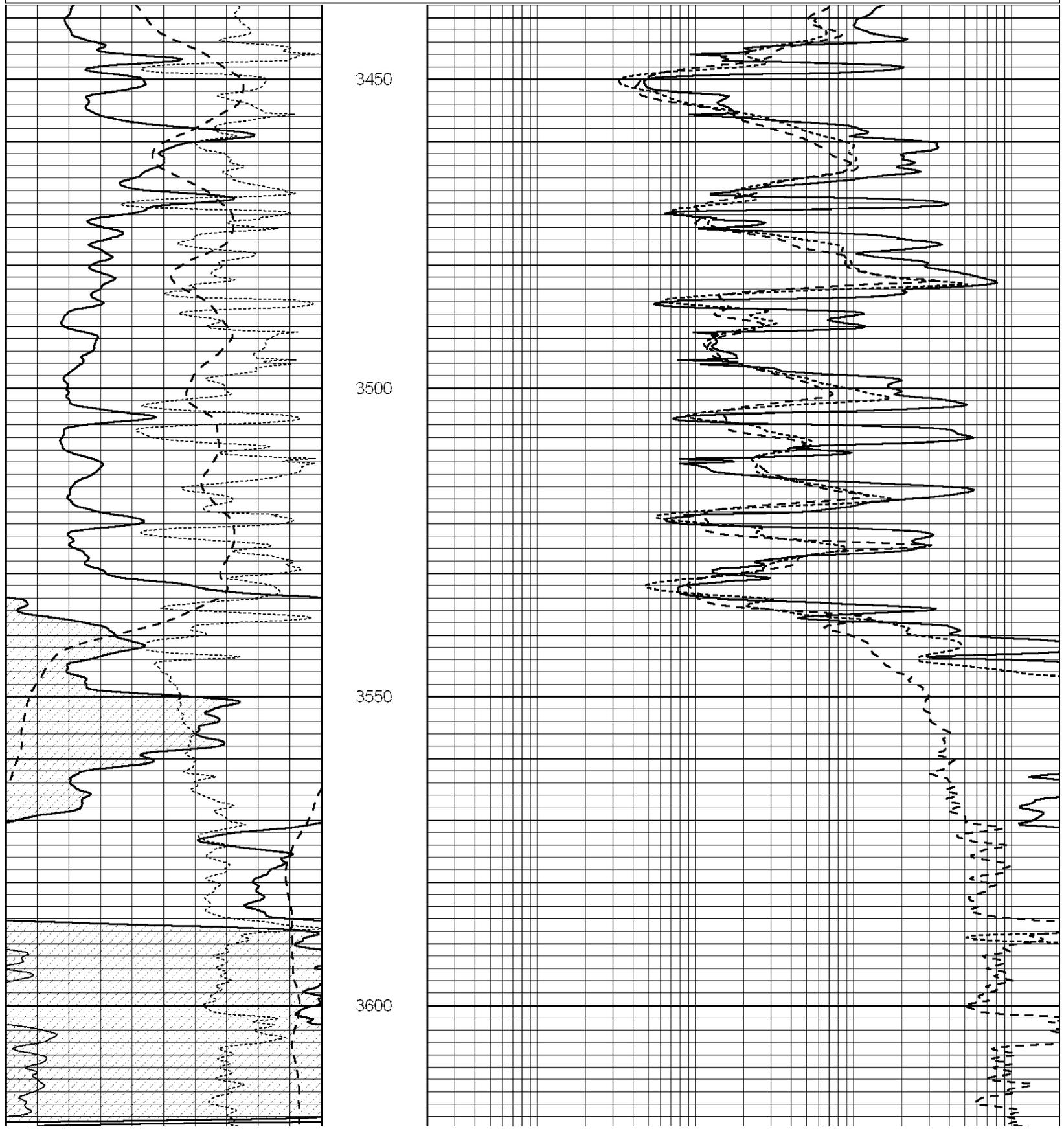
FR RILD →
FR RILM →
FR RLL3 →

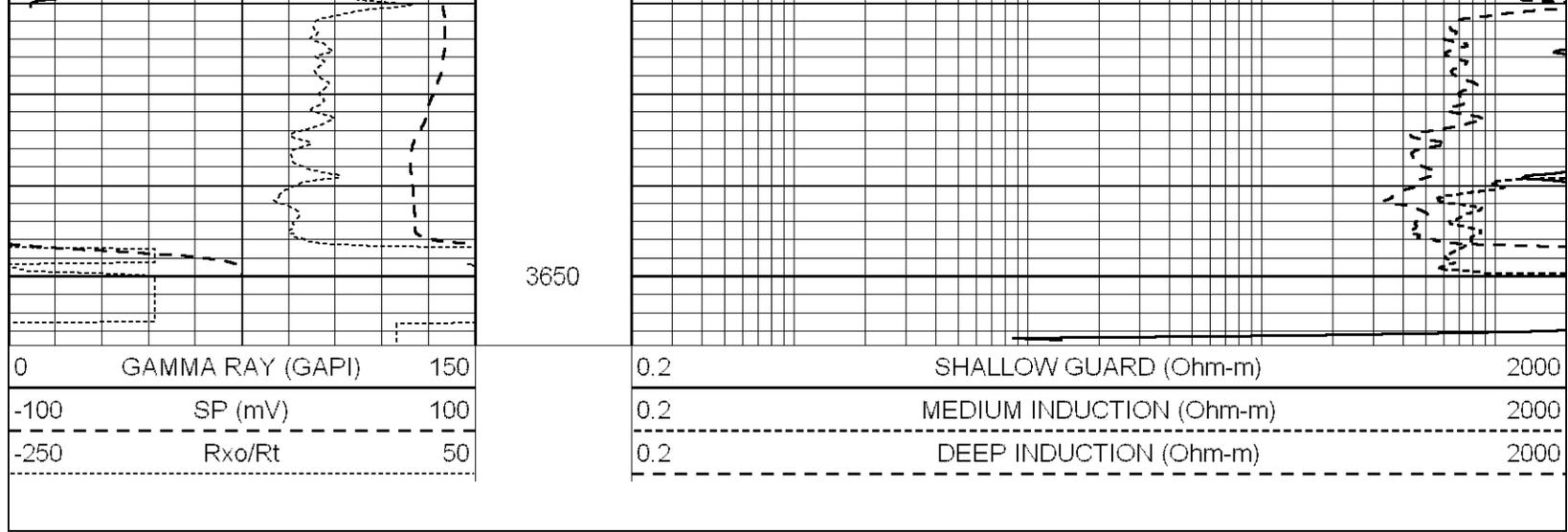
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

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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

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





Calibration Report

Database File: 26227ddn.db
 Dataset Pathname: pass3.3
 Dataset Creation: Tue Sep 30 19:50:30 2014 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Tue Sep 02 02:19:29 2014
 Downhole Cal Performed: Tue Sep 02 01:11:23 2014
 After Survey Verification Performed: Tue Sep 02 01:28:35 2014

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.593	0.593	V	0.000	400.000	mmho/m	620.000	-7.000
Medium	0.668	0.668	V	0.000	464.000	mmho/m	630.000	-44.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.030	0.644	V	0.000	400.000	mmho/m	651.380	-19.739
Medium	0.027	0.815	V	0.000	464.000	mmho/m	588.755	-16.048

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	3353890.000	-304691.000	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	16235500.000	-3735510.000	mmho/m	1.000	0.000
LL3		2.500	V		1400.000	Ohm-m		
		0.022	V		20.000	Ohm-m		
		-7.278	V		4000.000	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		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

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	943.83	576.01	cps
Aluminum	2.600	g/cc	212.01	399.19	cps
Spine Angle = 76.20			Density/Spine Ratio = 0.579		
	Size		Reading		
Small Ring	8.00	in	1.77	V	
Large Ring	14.00	in	2.90	V	

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: Tue Sep 02 02:32:49 2014

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.2300 GAPI/cps