



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION**

Company WOOLSEY OPERATING COMPANY, LLC
Well CUNNINGHAM #7
Field BLOOM NORTH
County BARBER
State KANSAS

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Location: API # : 15-007-24232-00-00
405' FSL & 810' FEL
NE - SW - SE - SE
SEC 10 TWP 32S RGE 12W
Permanent Datum GROUND LEVEL Elevation 1512
Log Measured From KELLY BUSHING 12' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services CNL/CDL/PE
Elevation K.B. 1524
D.F. 1522
G.L. 1512

Date	11/9/14
Run Number	ONE
Depth Driller	4770
Depth Logger	4770
Bottom Logged Interval	4768
Top Log Interval	00
Casing Driller	13 3/8" @ 234'
Casing Logger	231'
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	8.9/70
pH / Fluid Loss	9.5/10.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.90 @ 50F
Rmt @ Meas. Temp	1.43 @ 50F
Rmc @ Meas. Temp	2.28 @ 50F
Source of Rmf / Rmc	MEASURED
Rm @ BHT	0.77 @ 123F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	
Maximum Recorded Temperature	123F
Equipment Number	4010
Location	HAYS, KS.
Recorded By	IAN MABB
Witnessed By	BILL KLAVER

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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
785-628-6395**

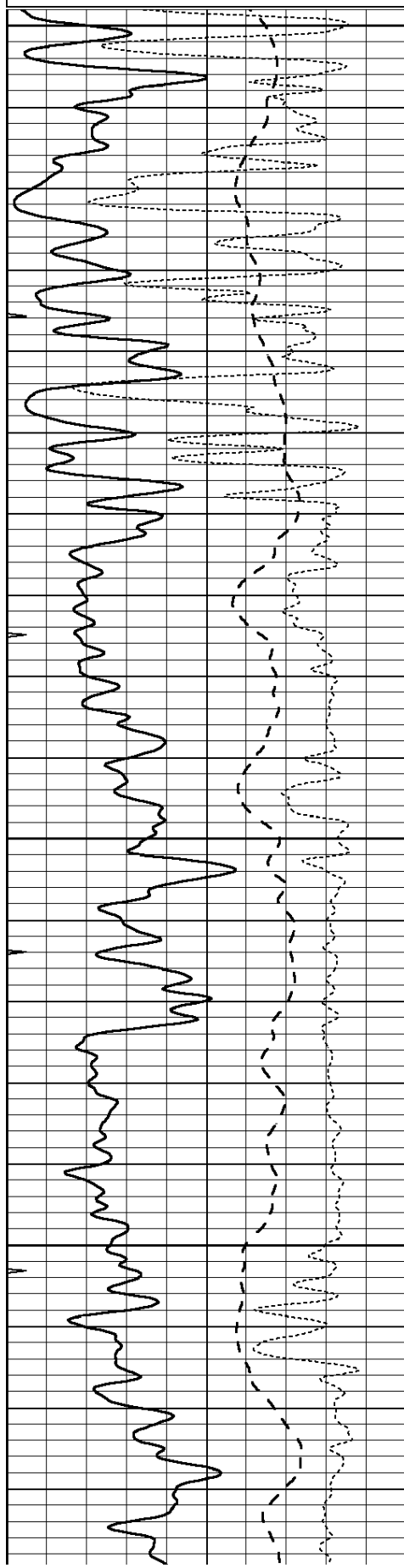
THANK YOU FOR YOUR BUSINESS

MEDICINE LODGE, KS. - WEST 1 1/2 MILE TO RED ROCK RD. - SOUTH 1/2 MILE WEST AND SOUTH INT

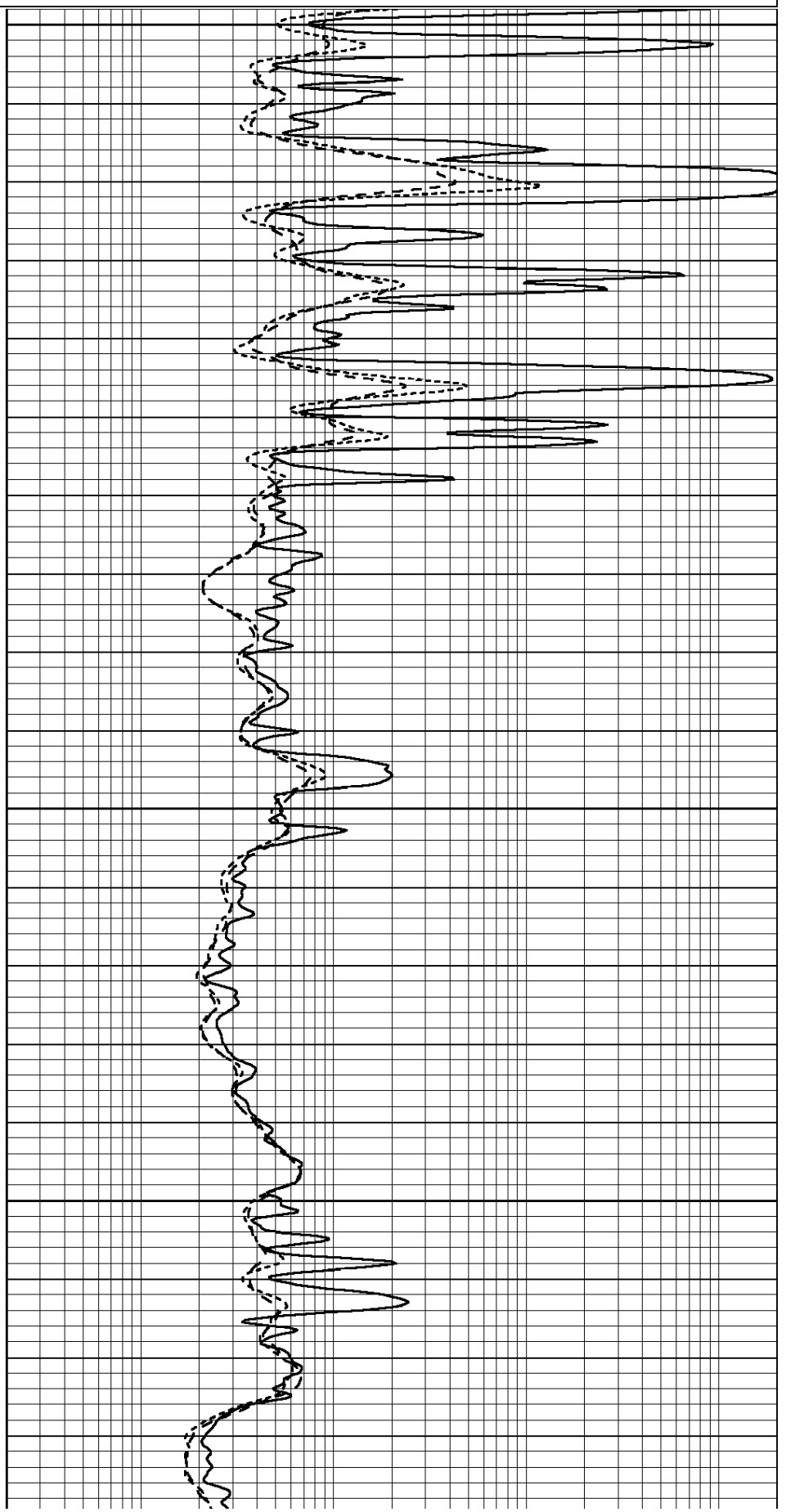
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Dataset Pathname: pass3.3
Presentation Format: _dil
Dataset Creation: Sun Nov 09 08:03:32 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

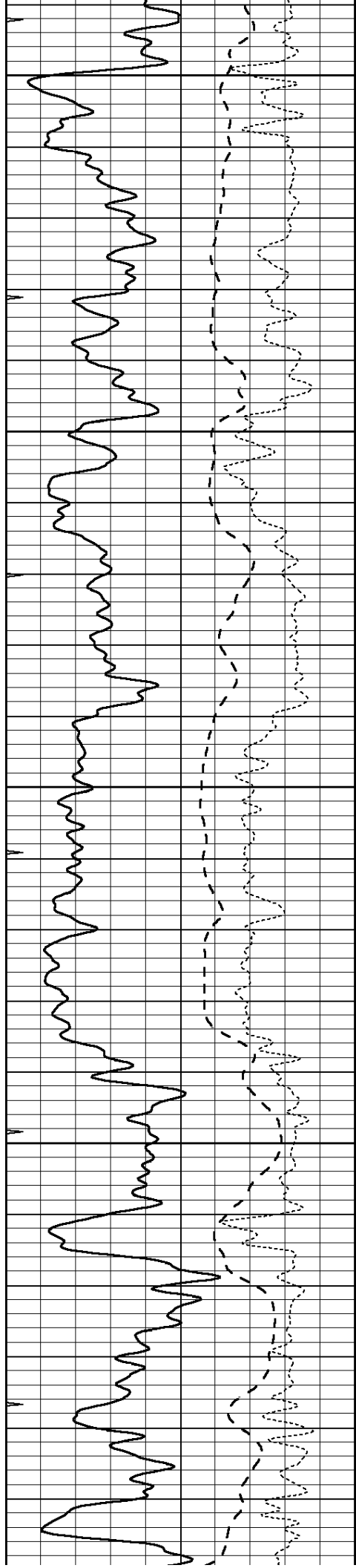
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



1750
1800
1850
1900





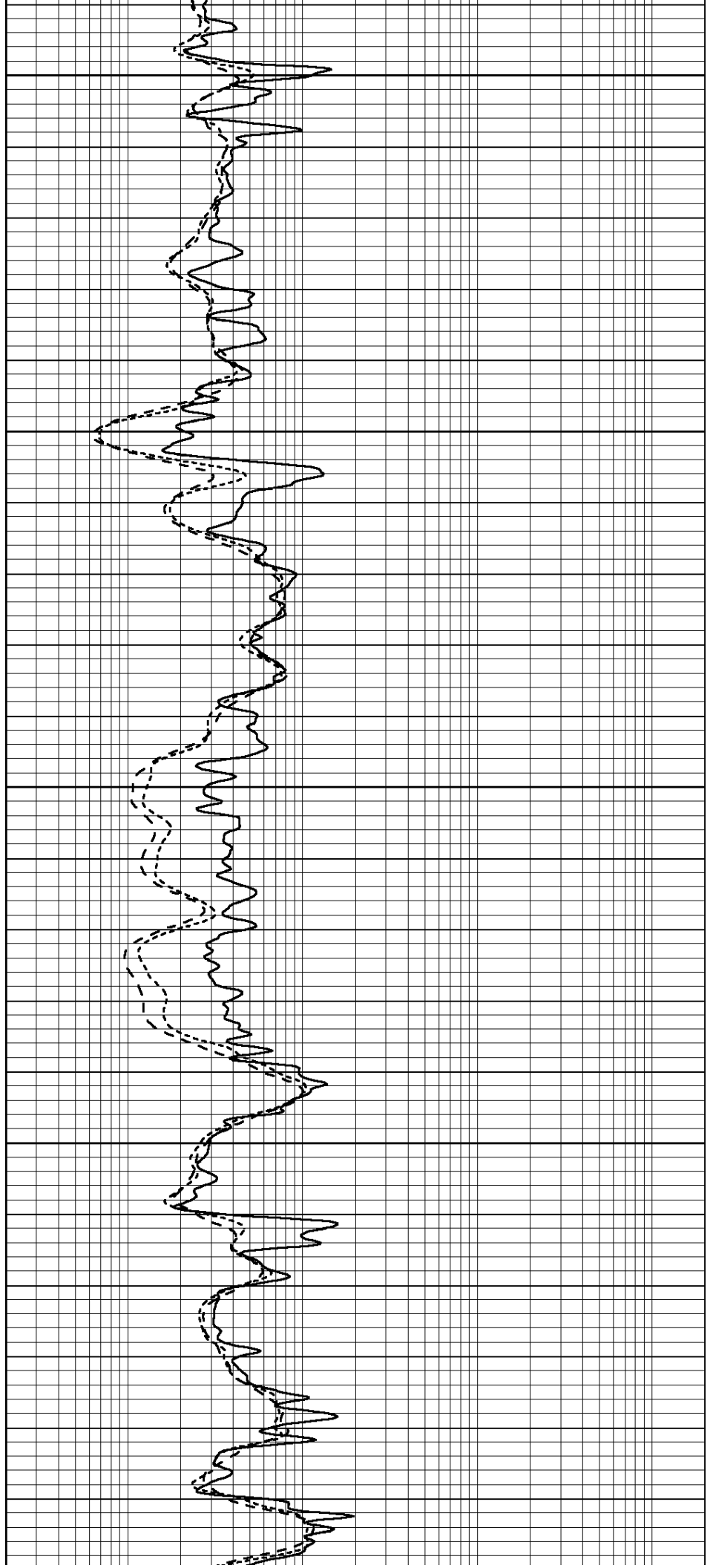
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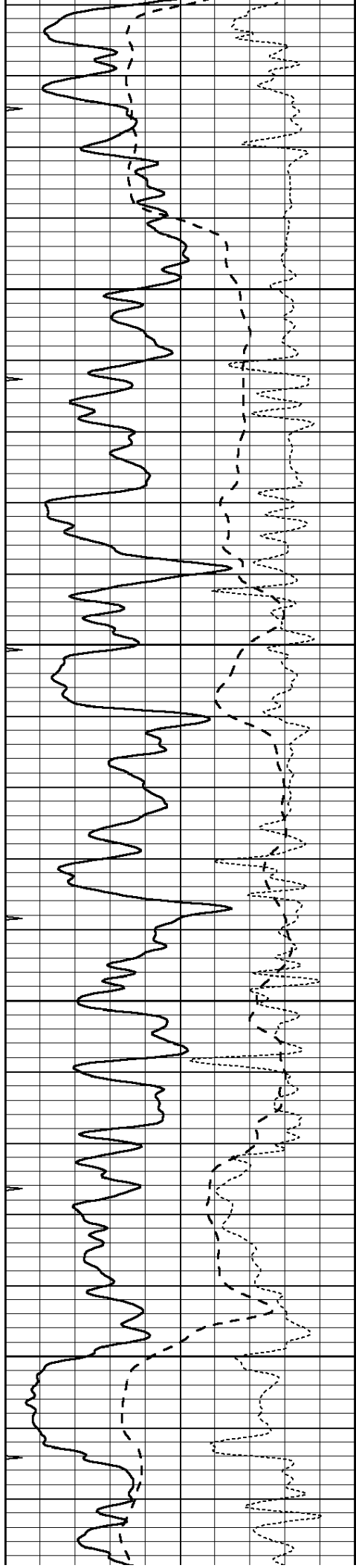
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2050

2100

2150



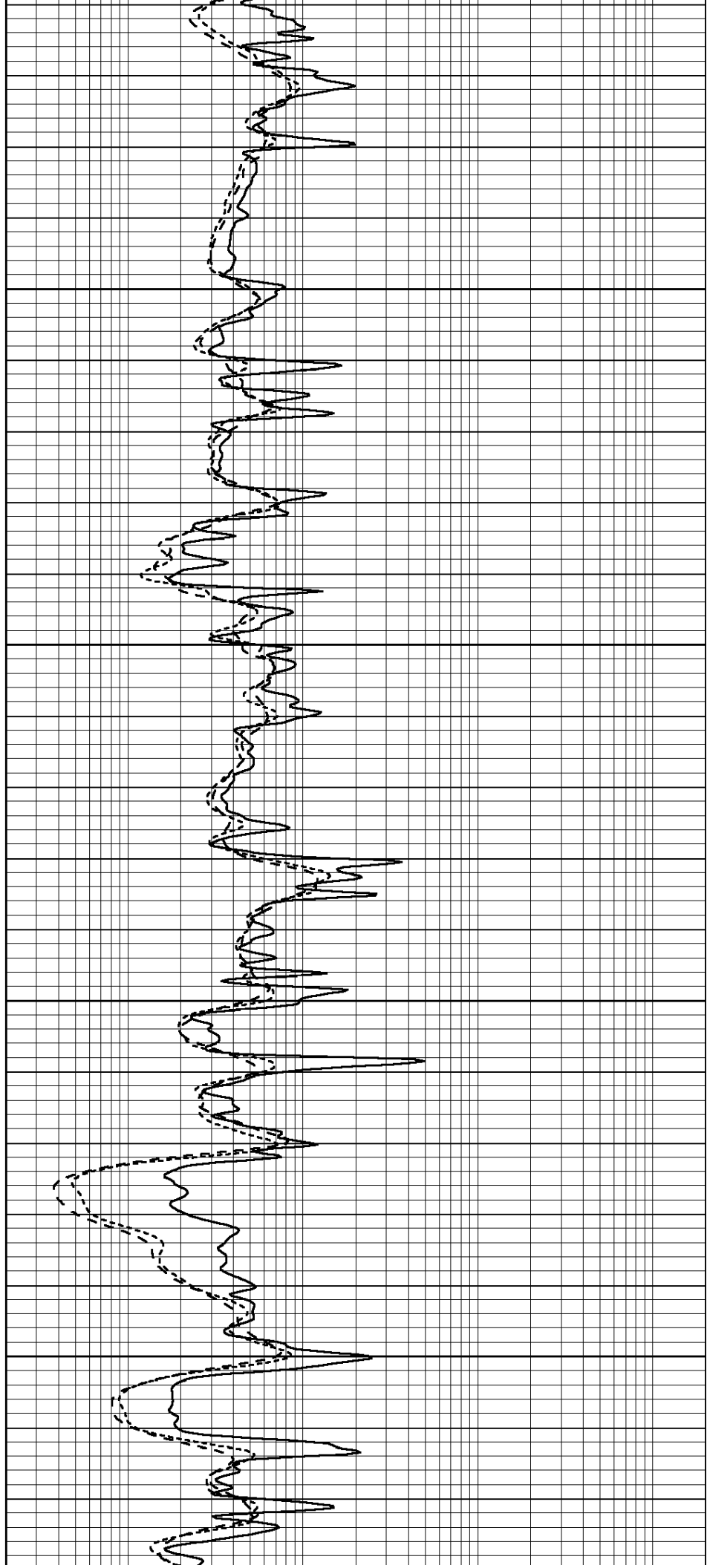


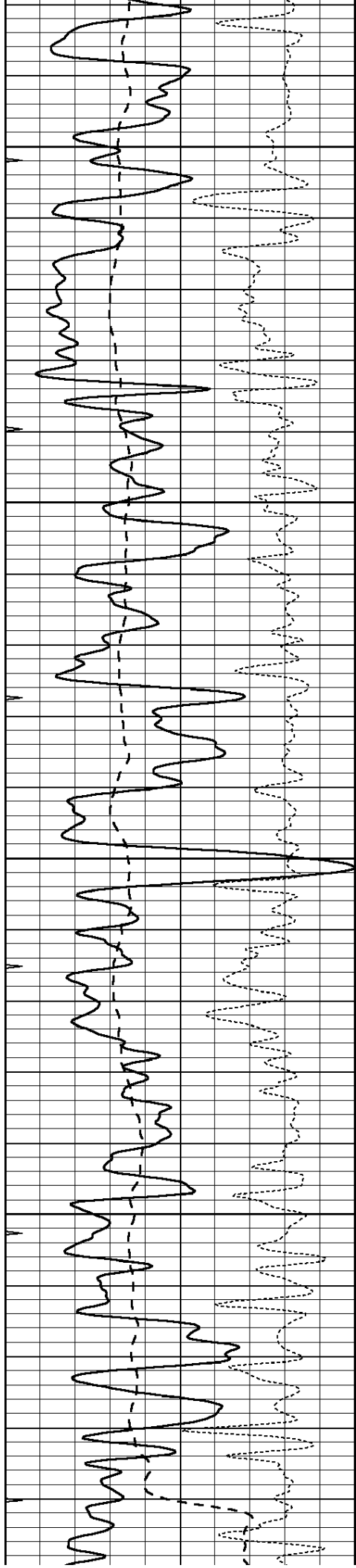
2200

2250

2300

2350



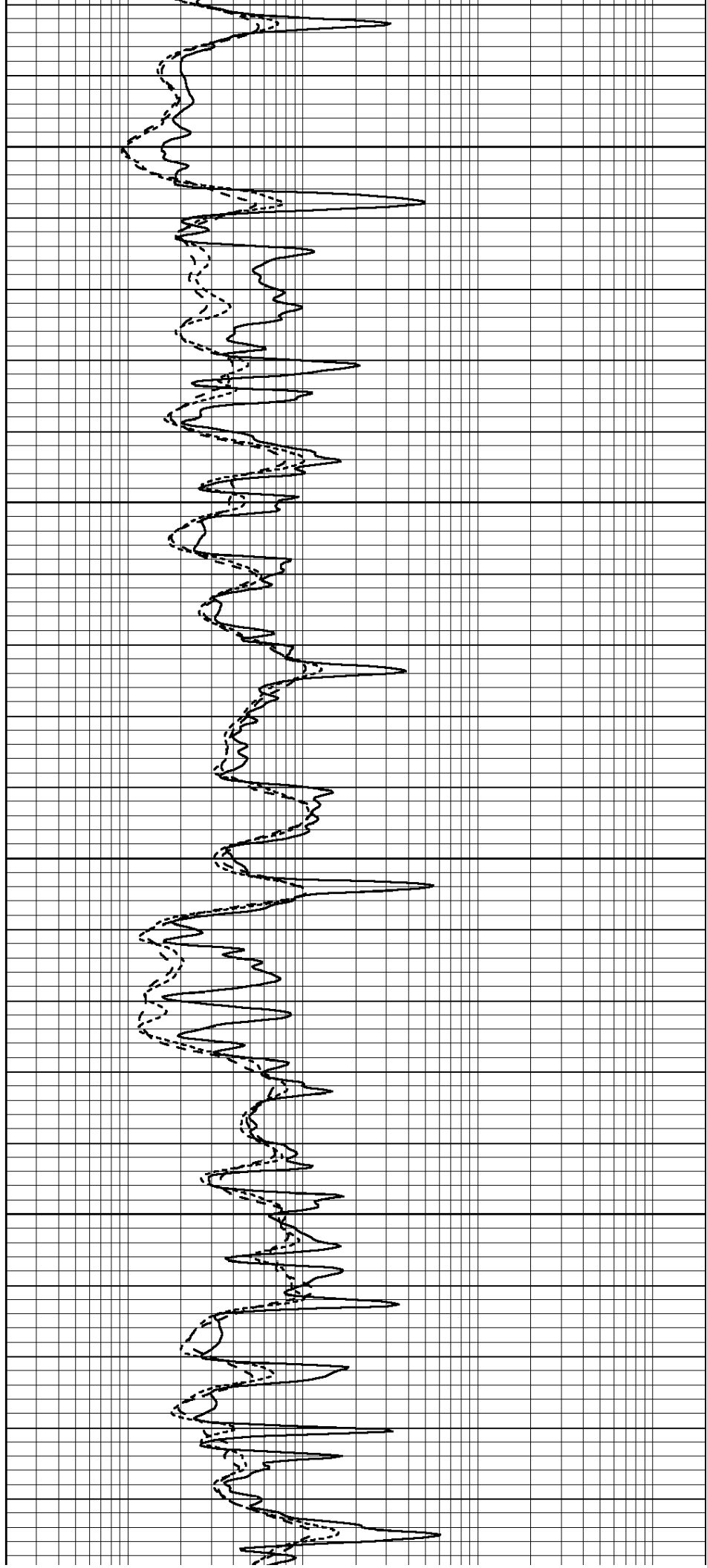


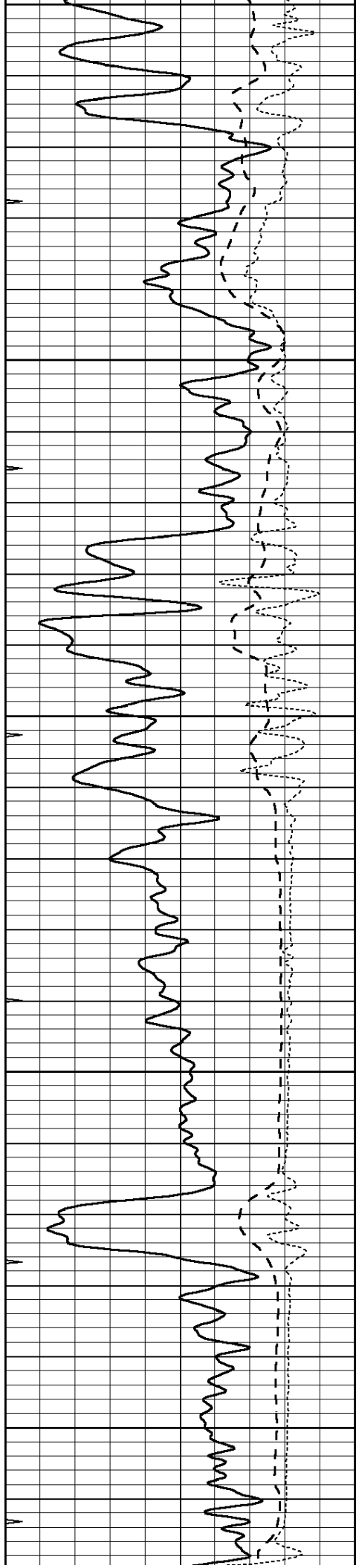
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2450

2500

2550





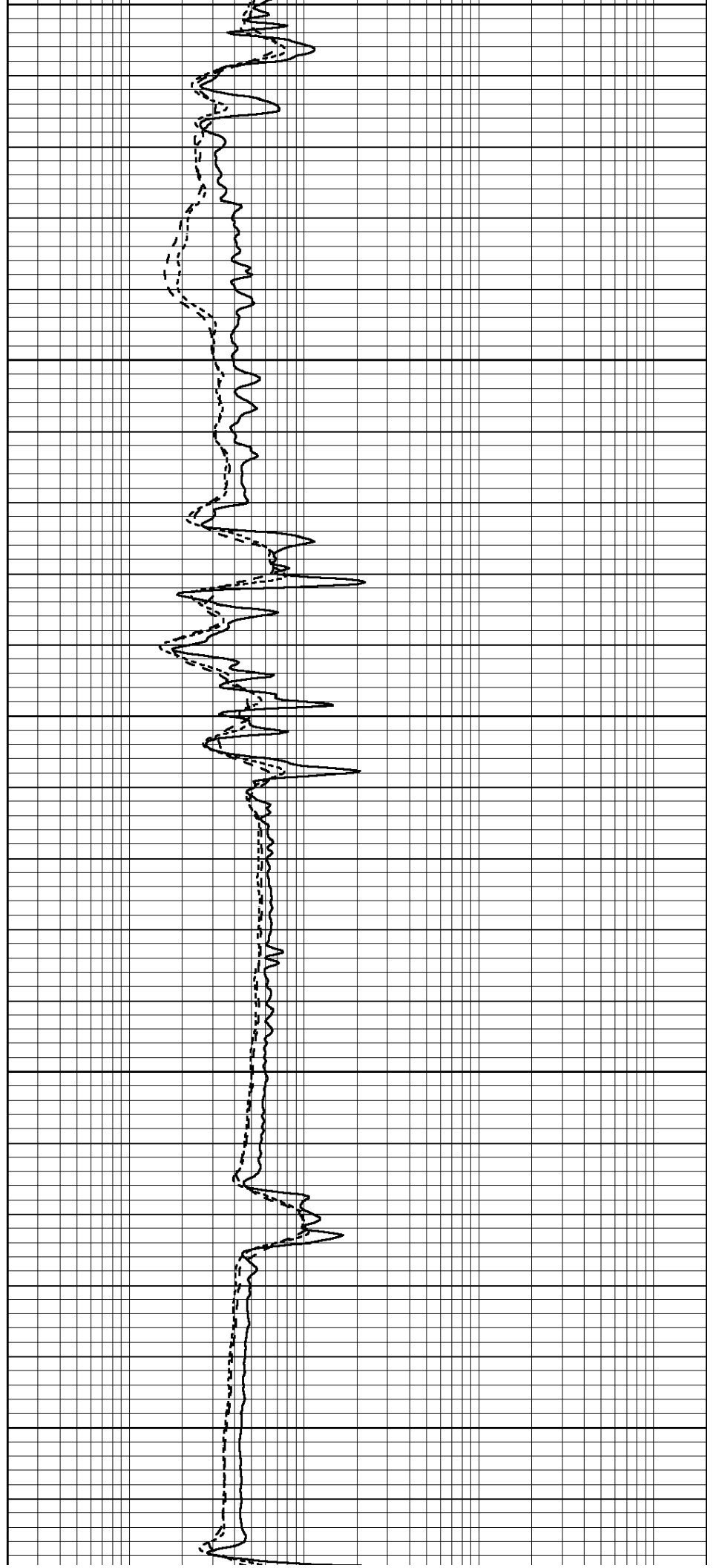
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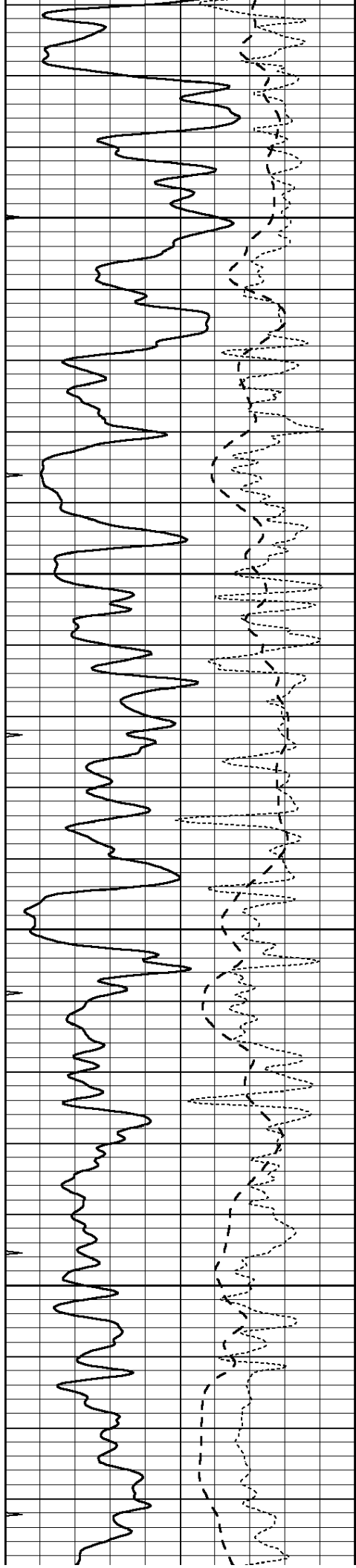
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2700

2750

2800



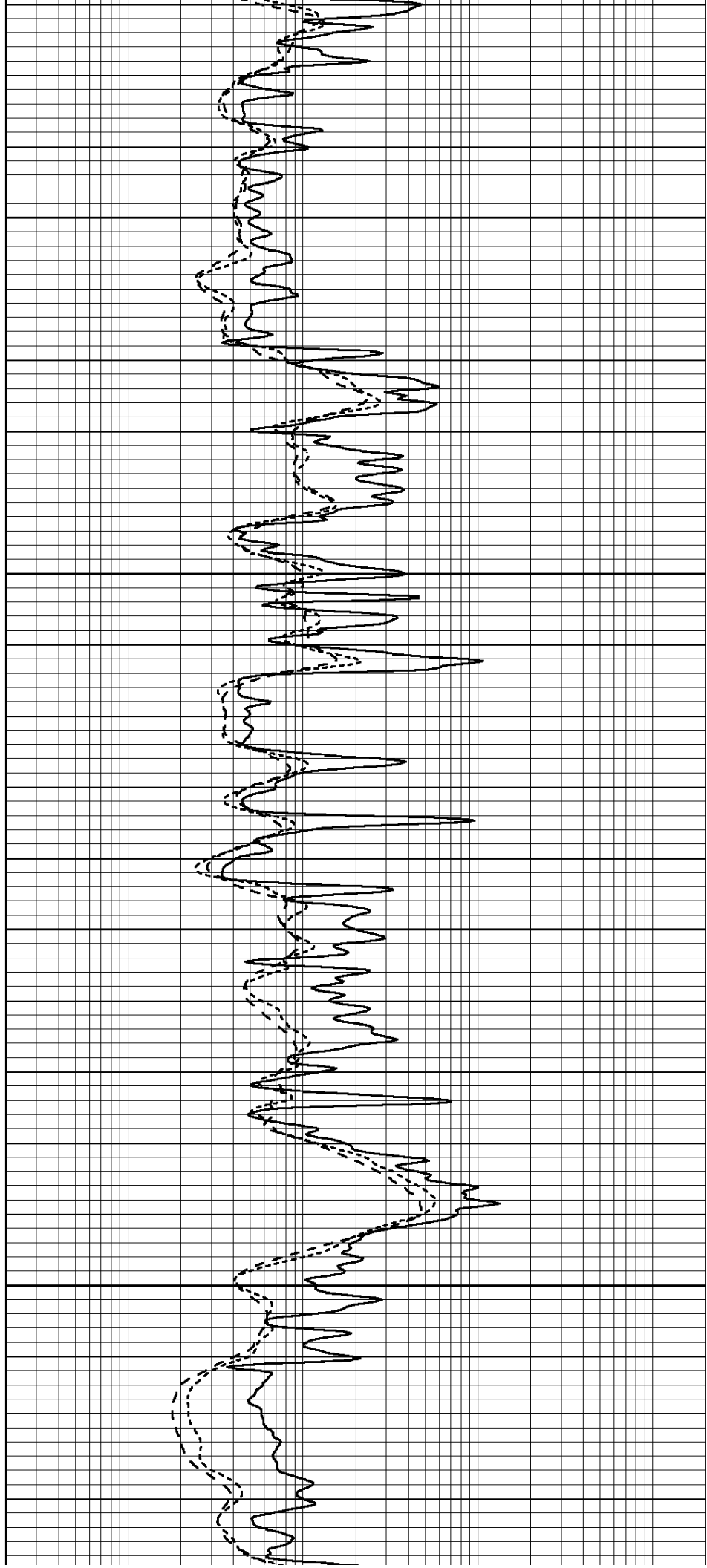


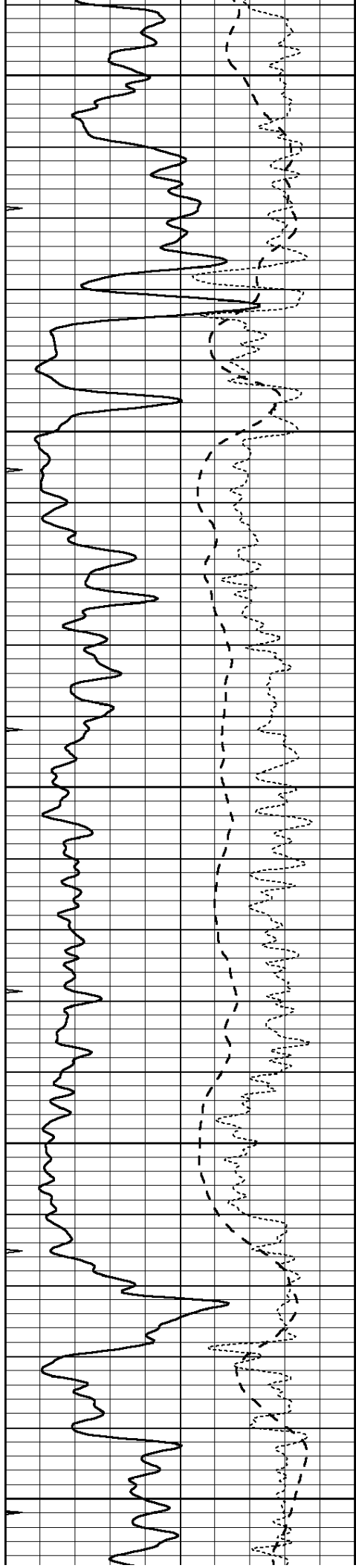
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2900

2950

3000





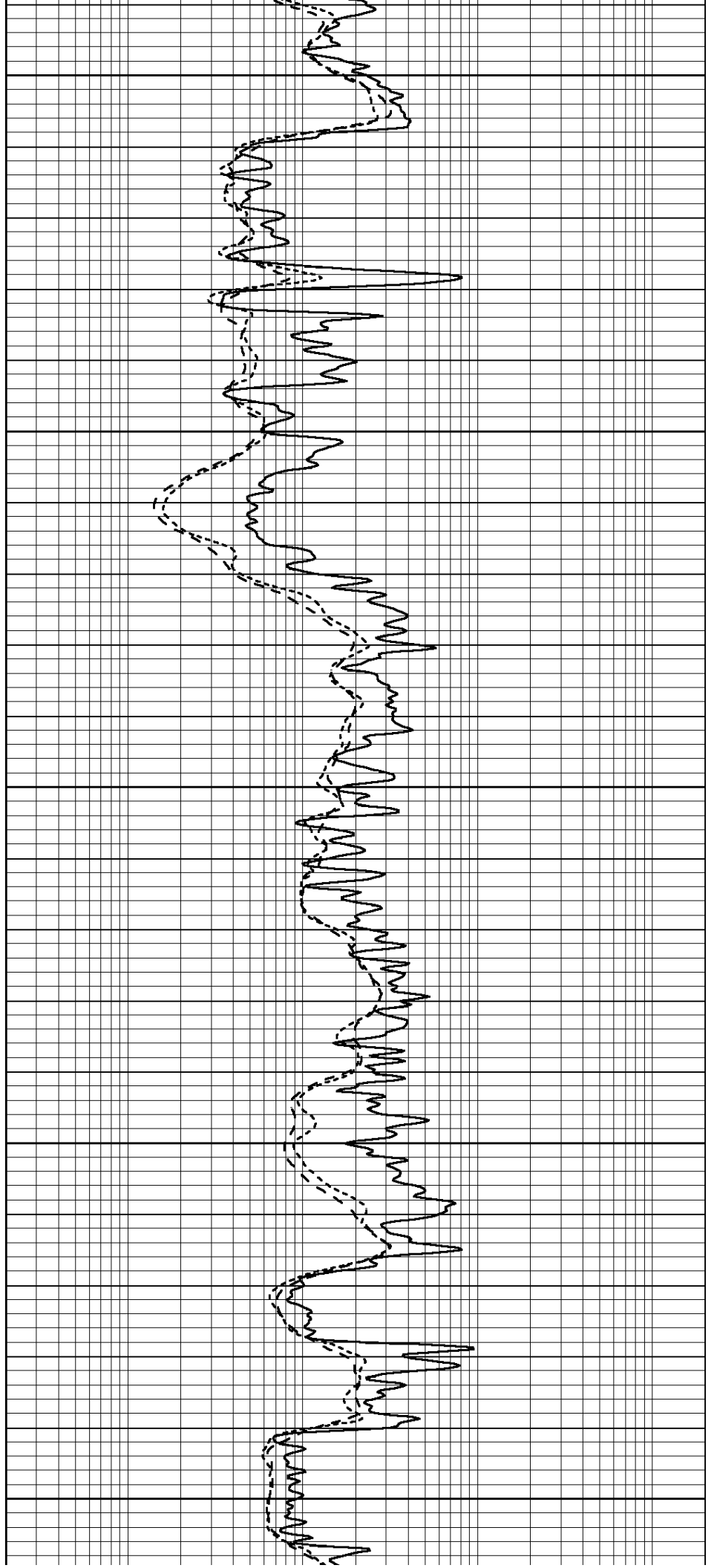
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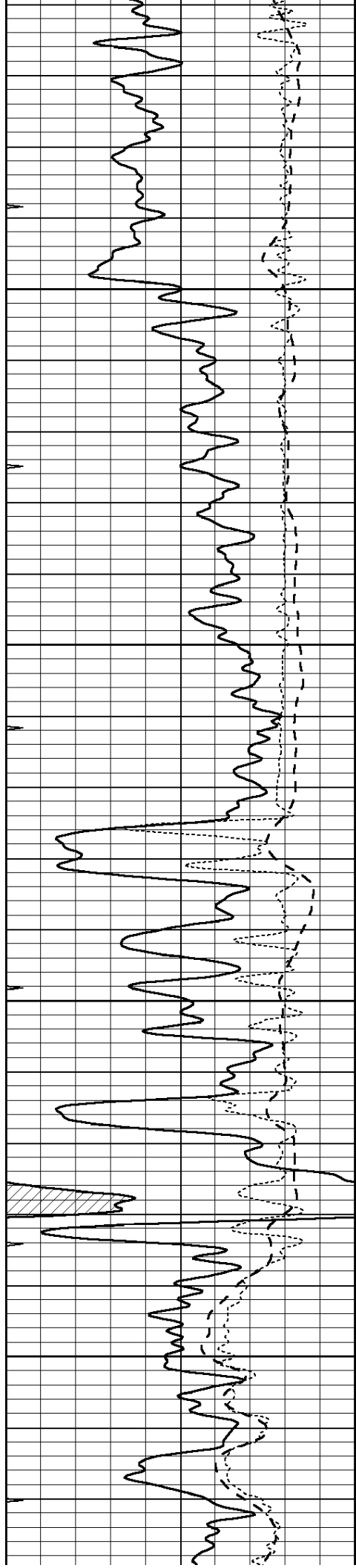
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3150

3200

3250



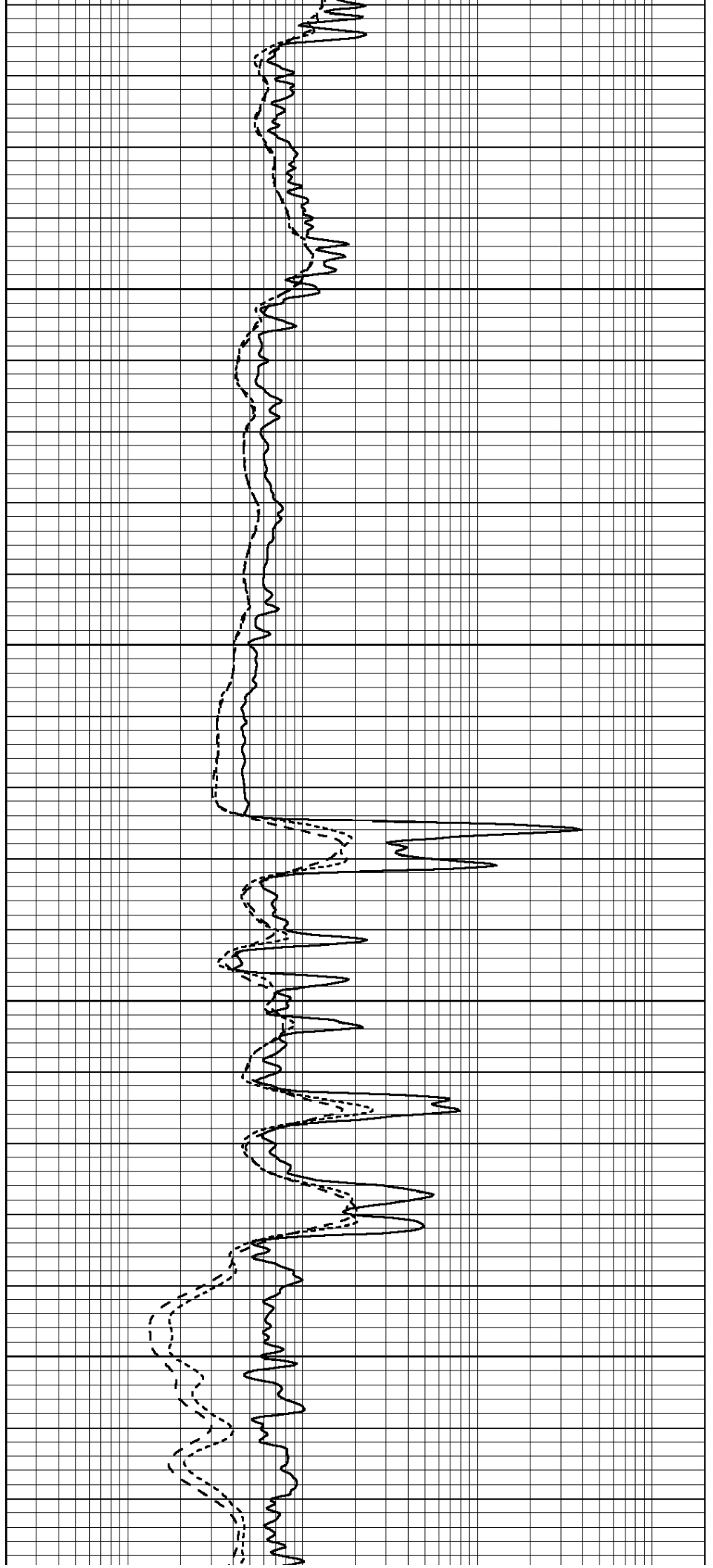


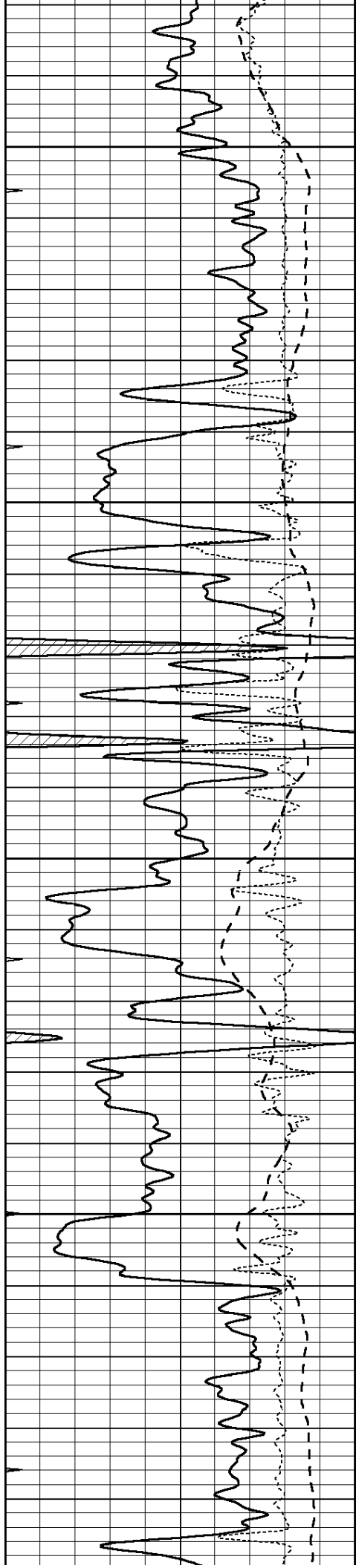
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3350

3400

3450



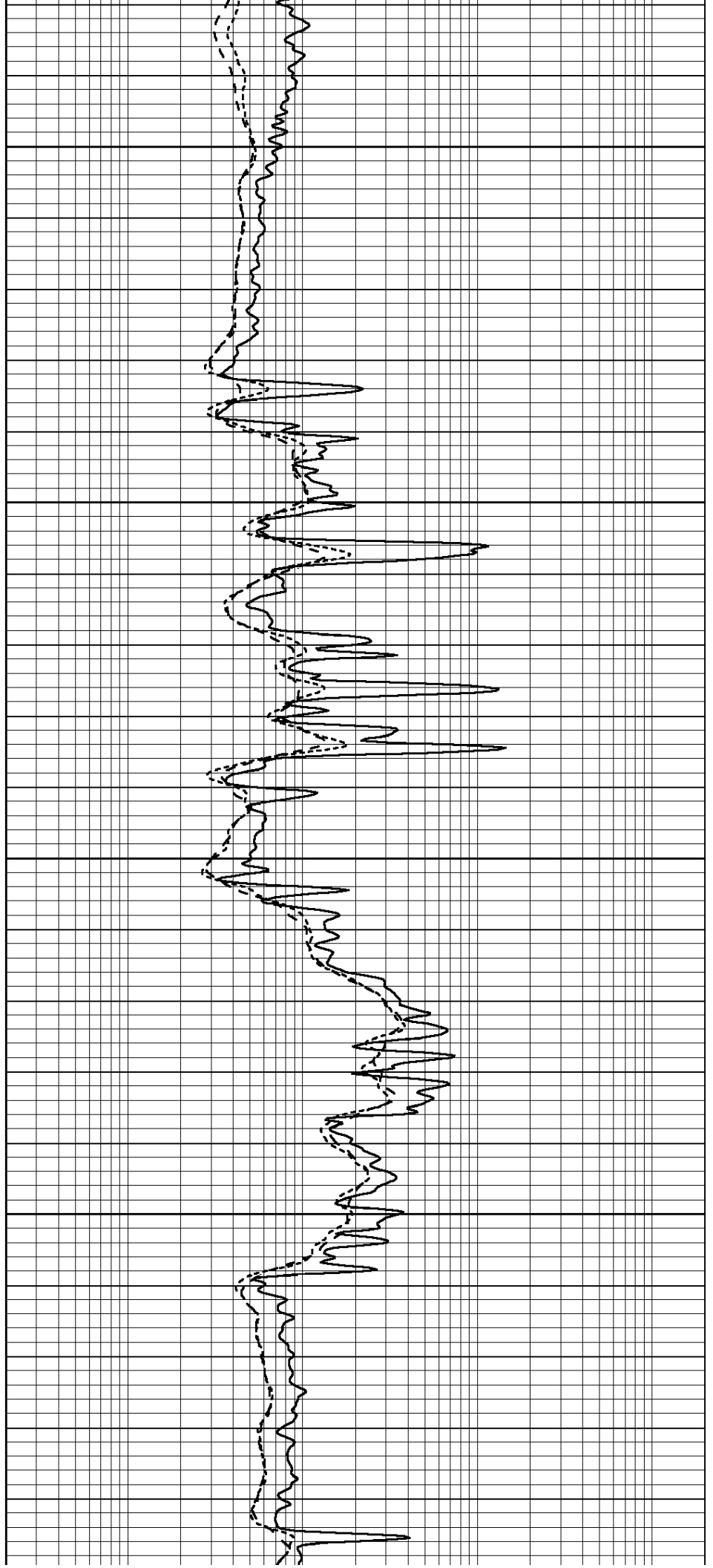


3500

3550

3600

3650

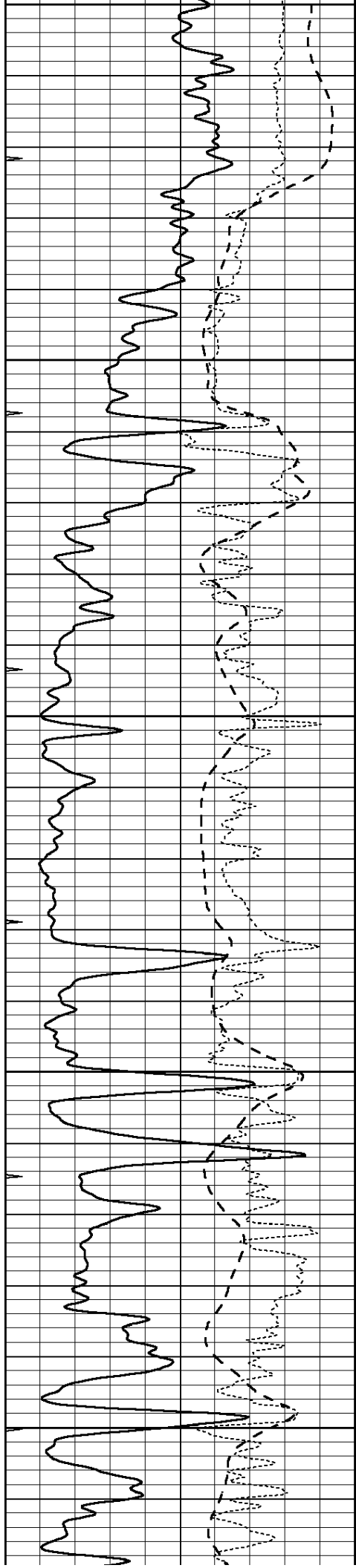


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3550

3600

3650



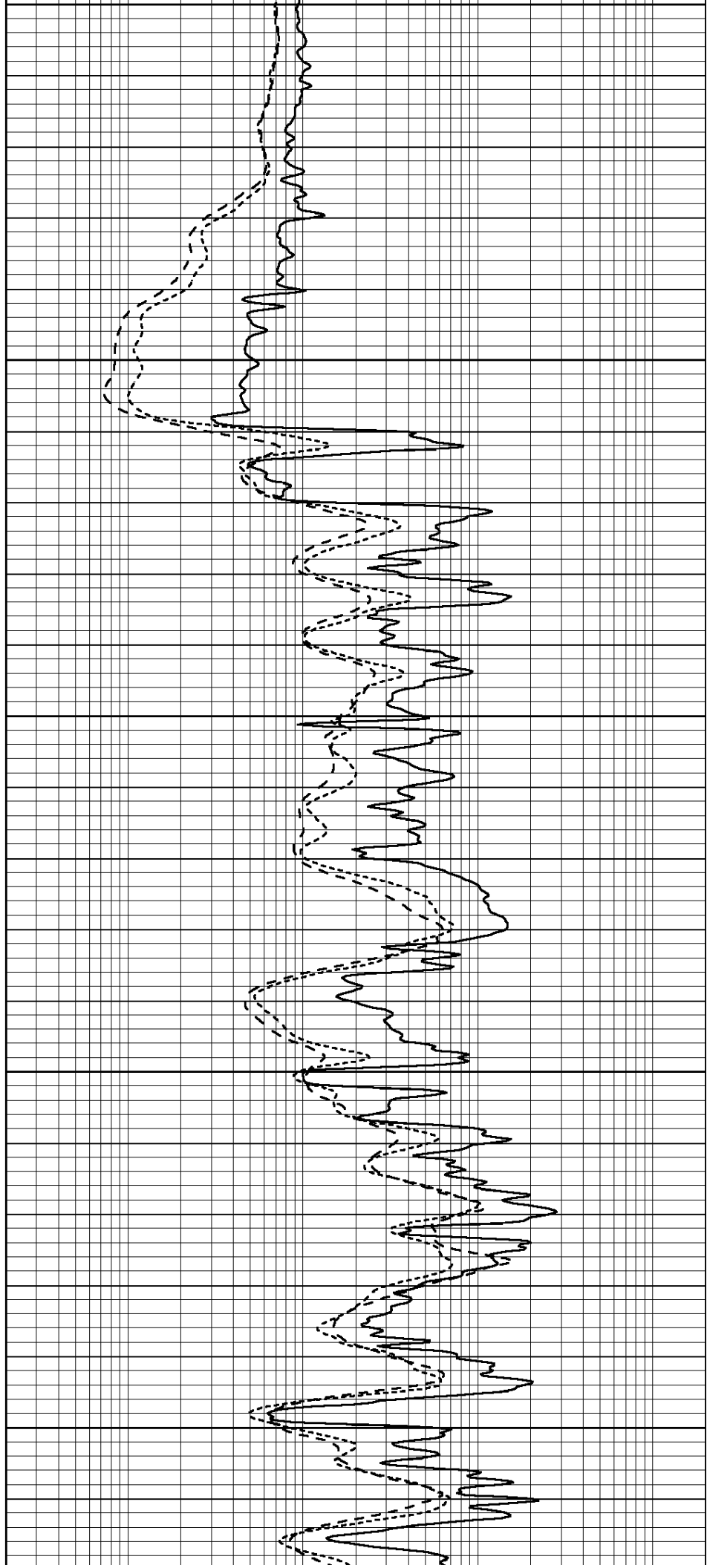
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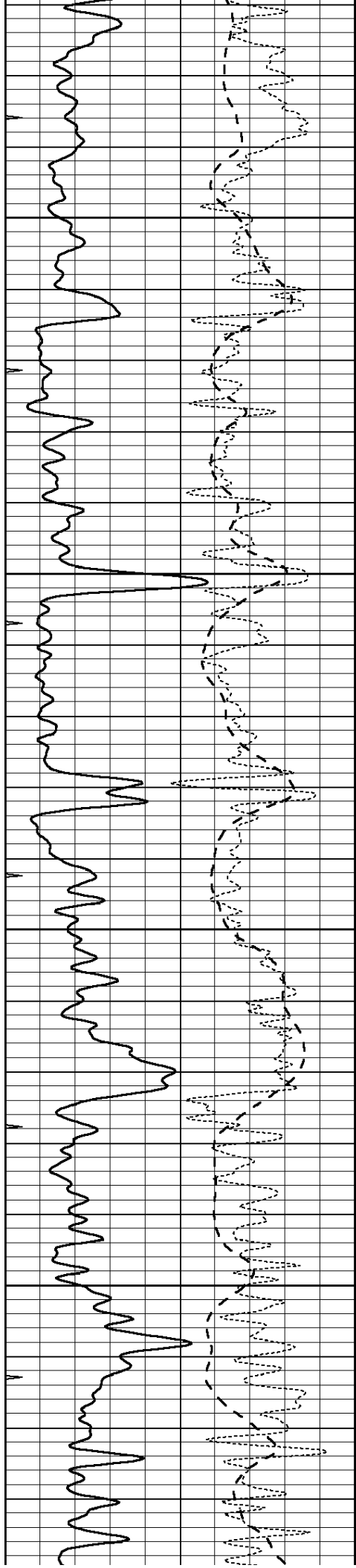
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3800

3850

3900



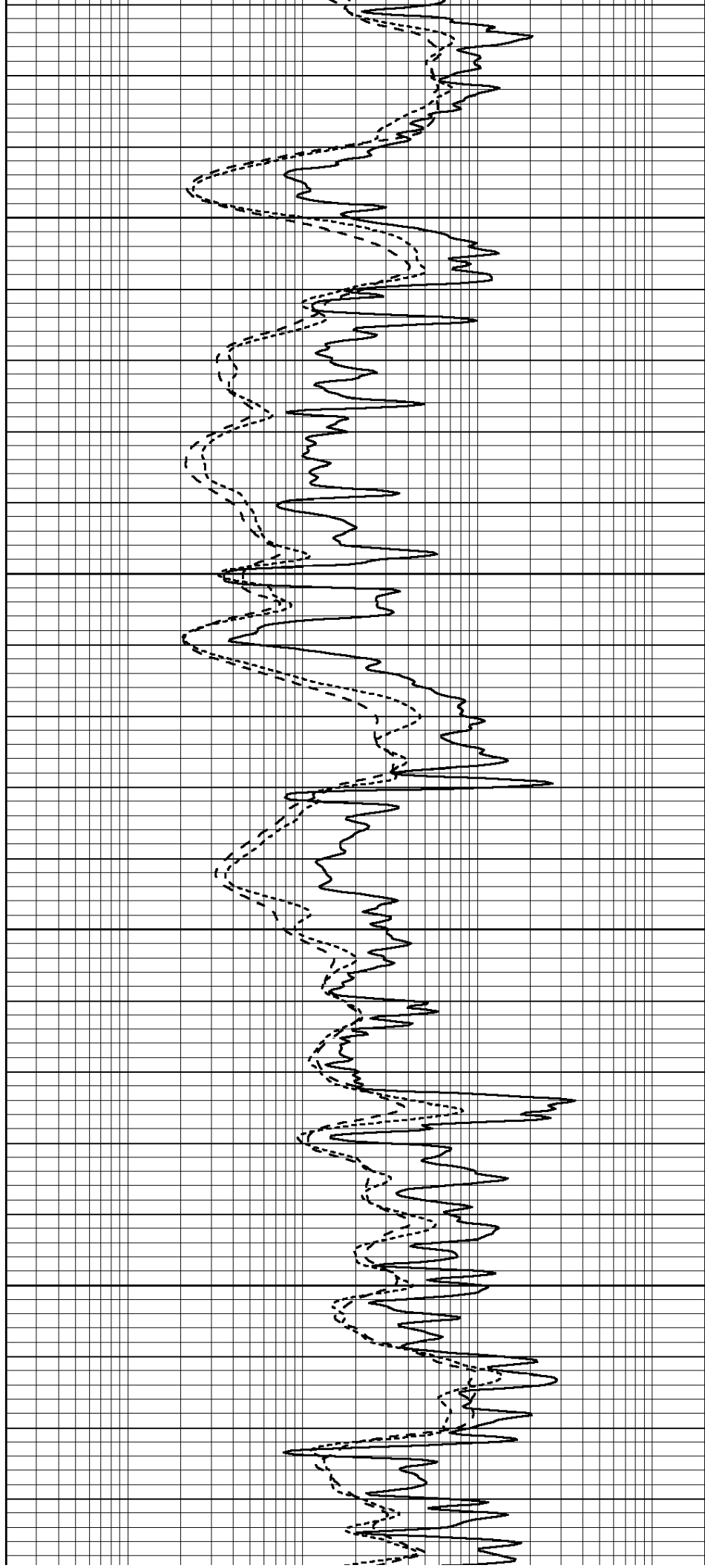


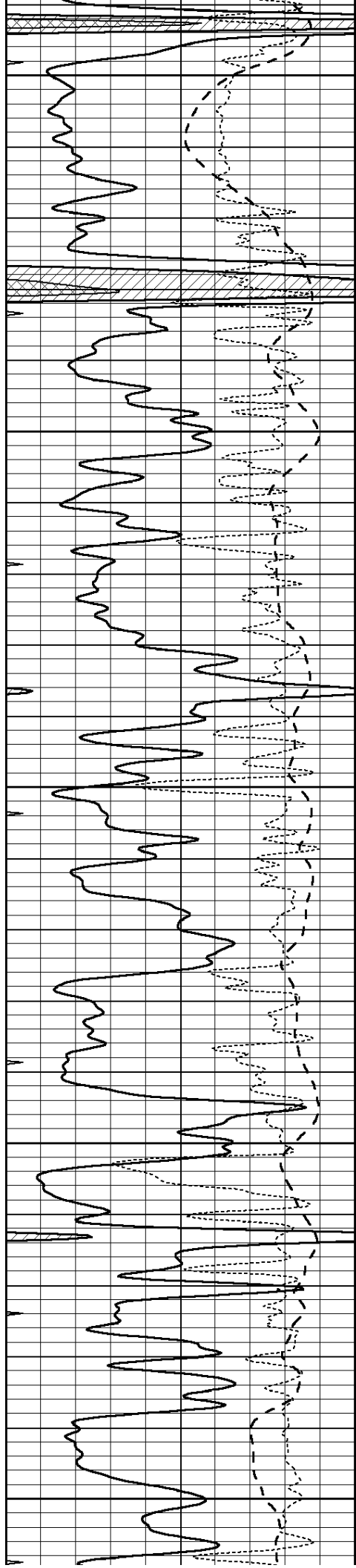
3950

4000

4050

4100





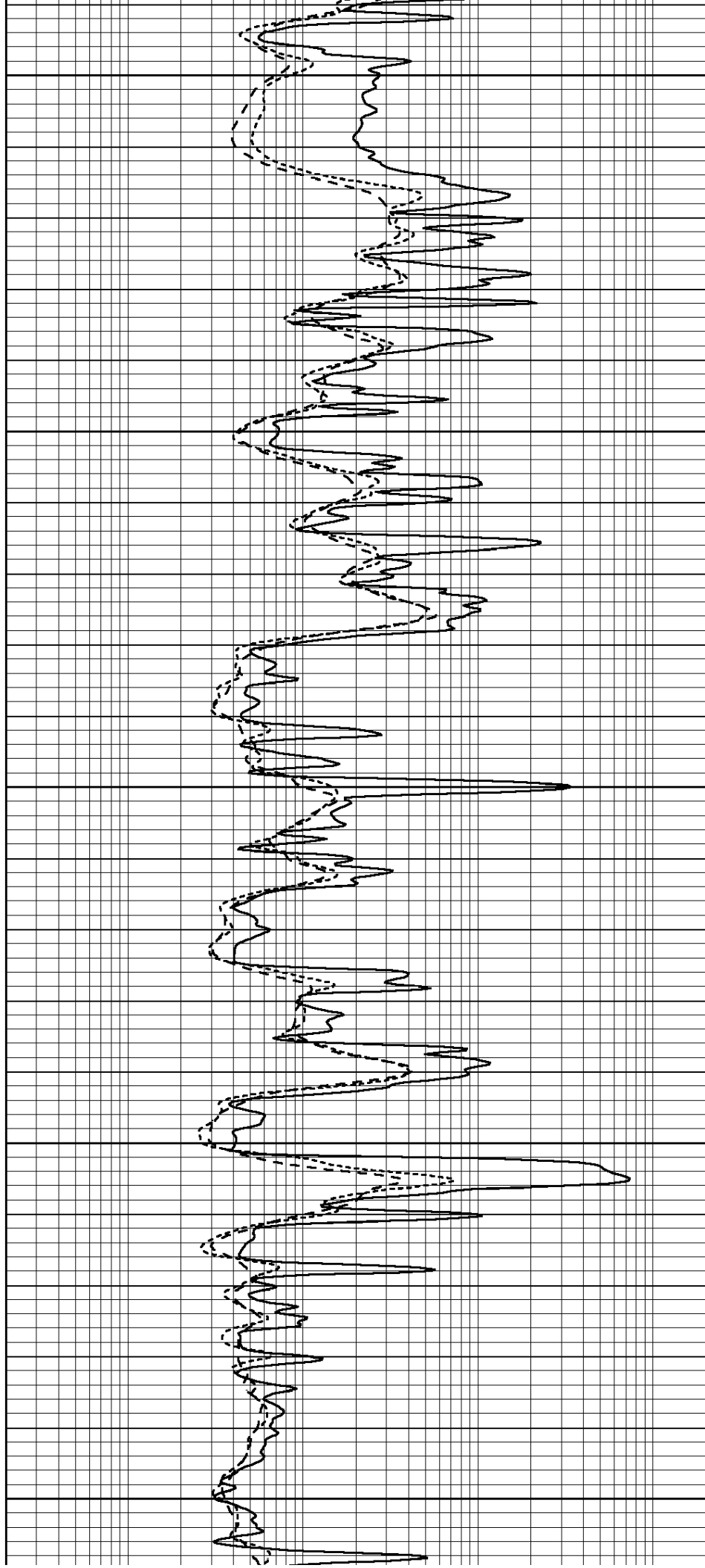
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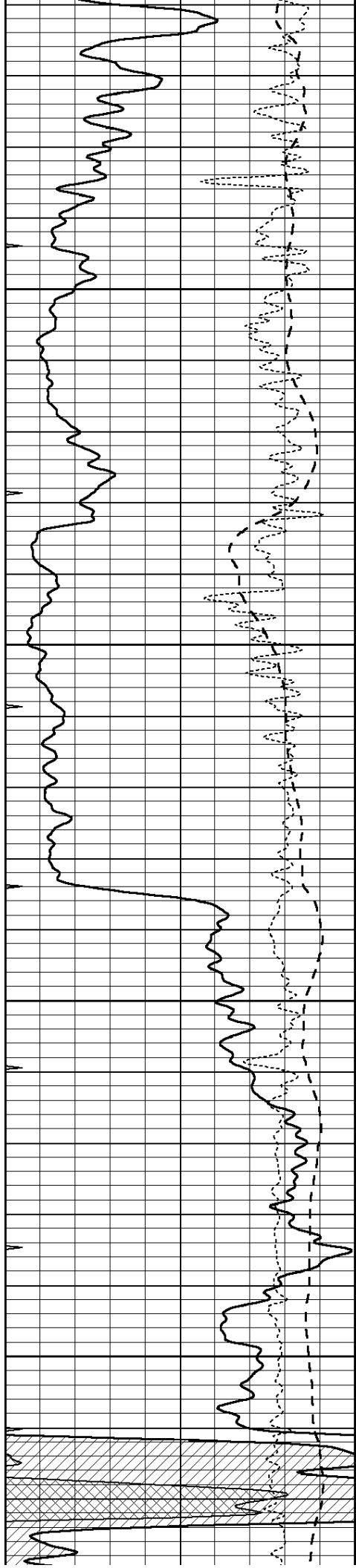
4200

4250

4300

4350



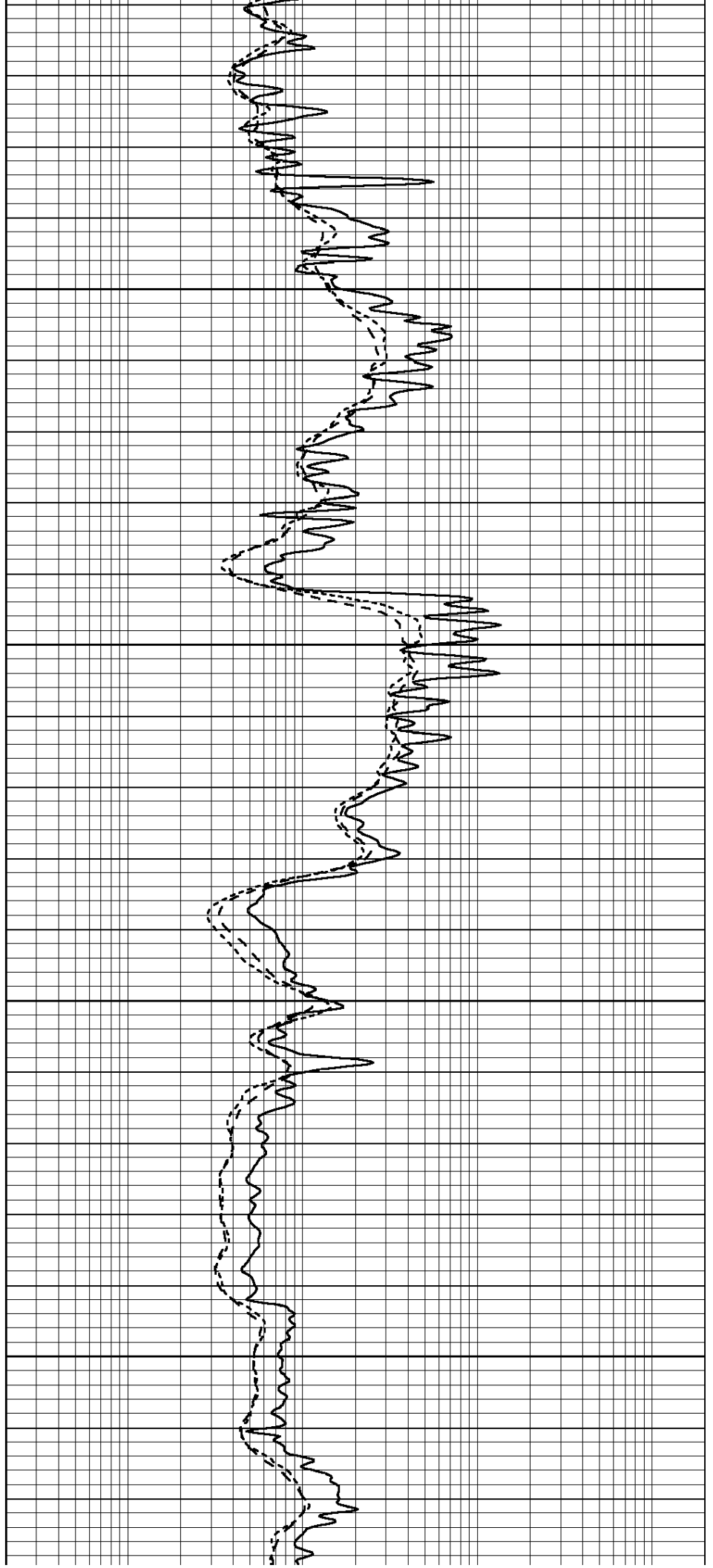


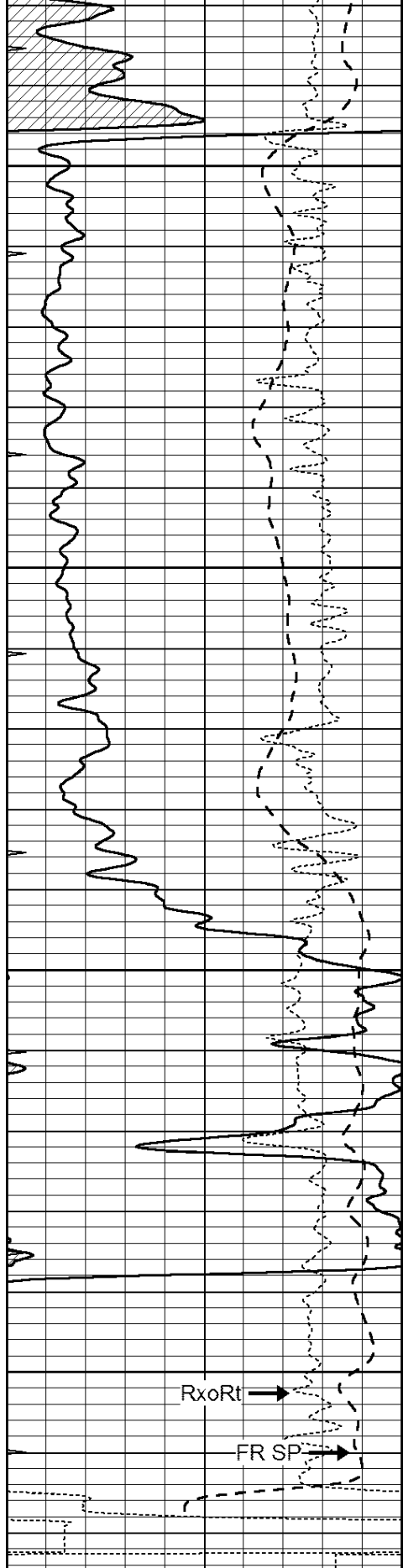
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4450

4500

4550





4600

4650

4700

4750

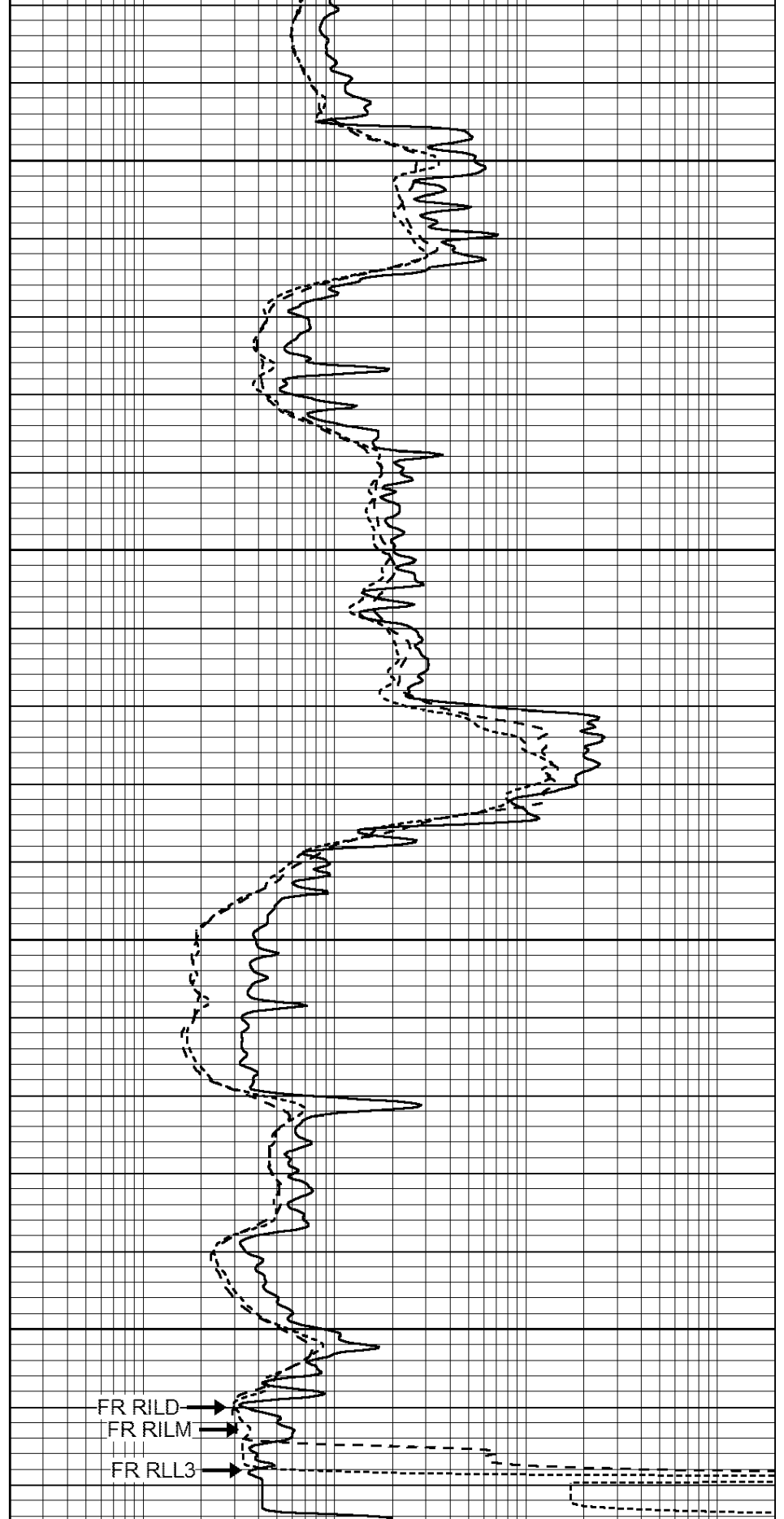
LTD 4770

FR GR

RxoRt

FR SP

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



FR RILD

FR RILM

FR RLL3

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

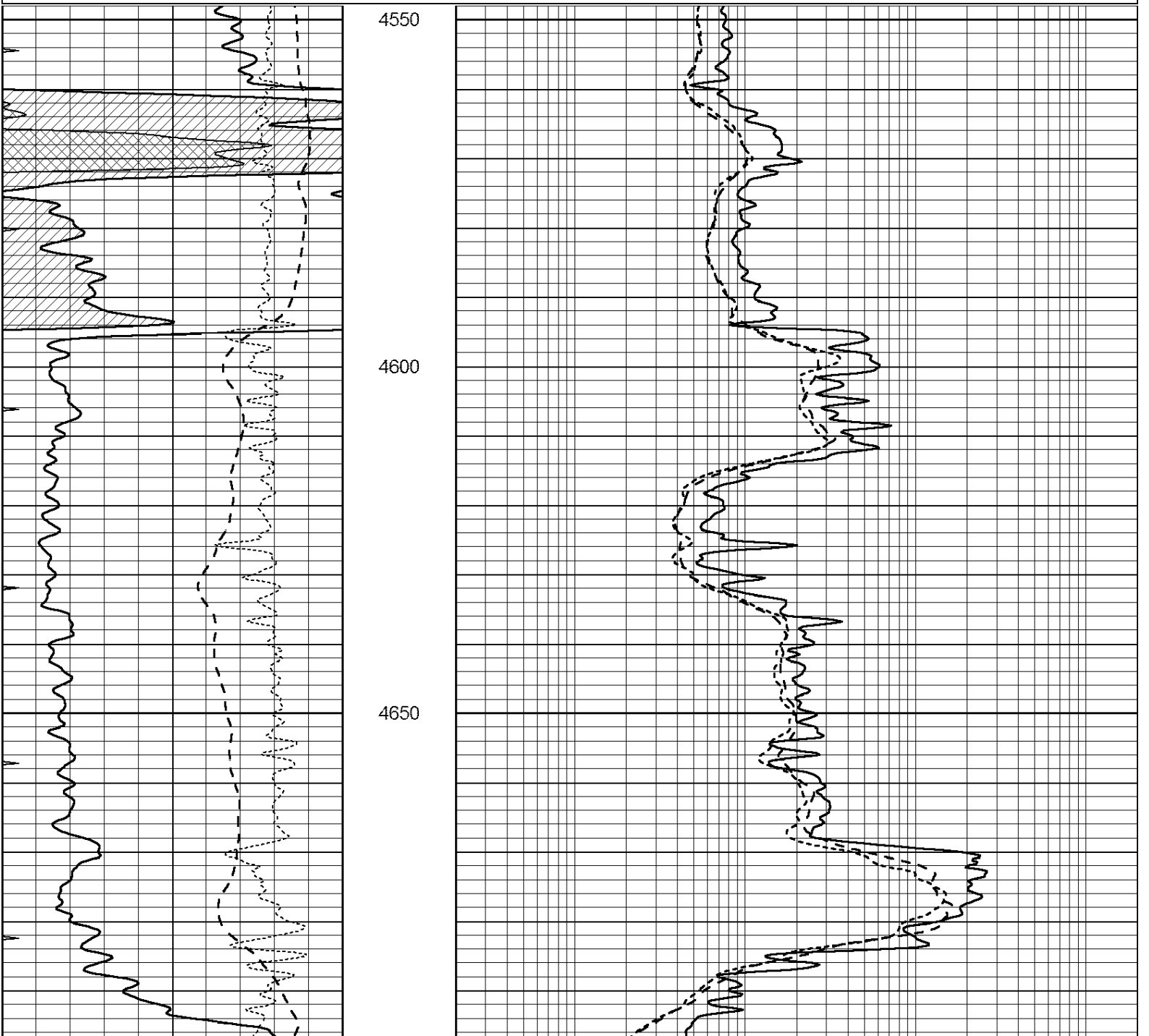


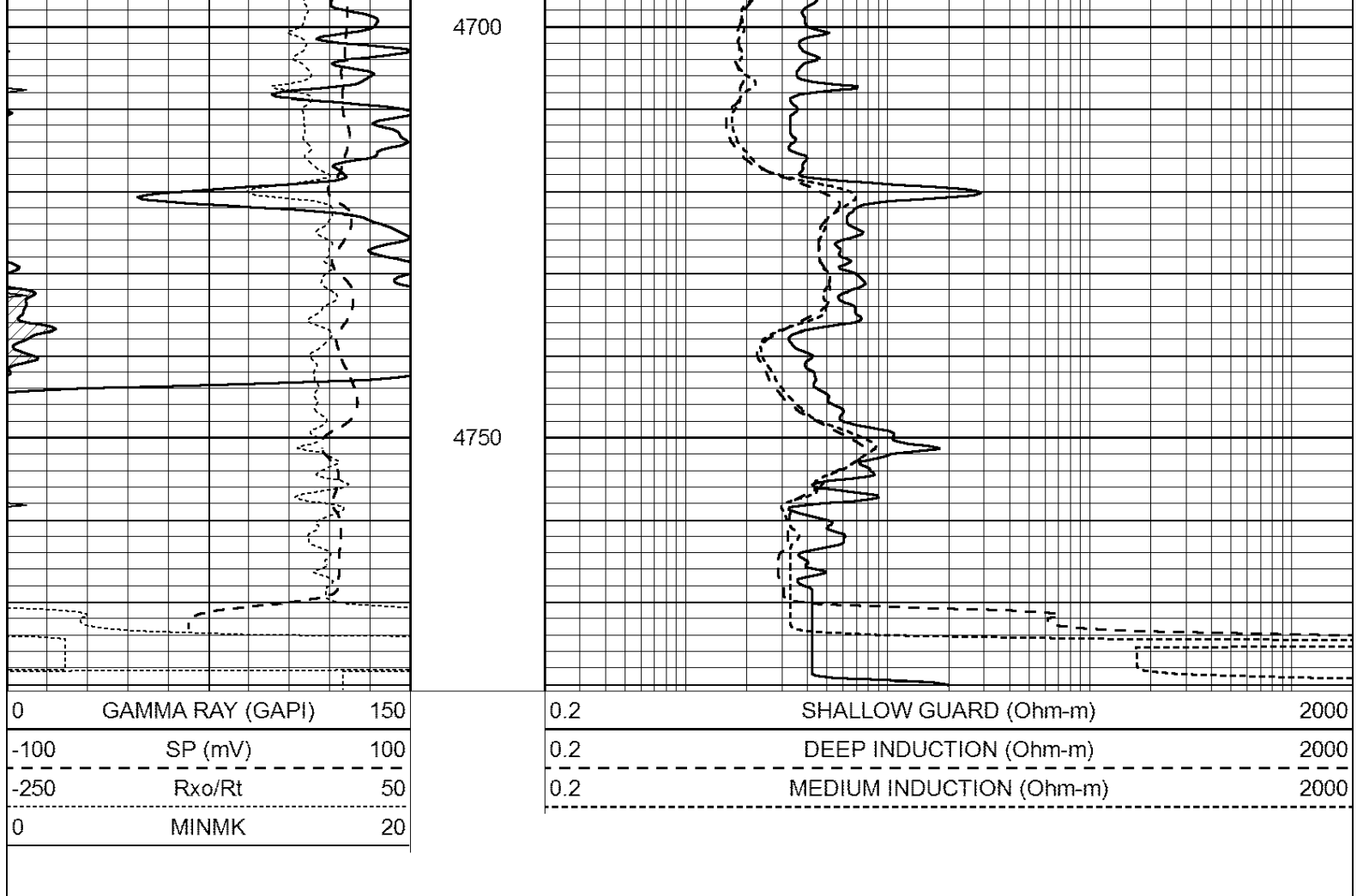
**COMPLETION
& PRODUCTION
SERVICES CO.**

REPEAT SECTION

Database File: 26401pe.db
 Dataset Pathname: pass2.4
 Presentation Format: _dil
 Dataset Creation: Sun Nov 09 06:29:10 2014 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	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			





Calibration Report

Database File: 26401pe.db
 Dataset Pathname: pass3.4
 Dataset Creation: Sun Nov 09 08:23:46 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

Loop:	Readings			V	References			Results	
	Air	Loop			Air	Loop		m	b
Deep	0.015	0.648		0.000	400.000	mmho/m	620.000	-2.000	
Medium	0.029	0.796		0.000	464.000	mmho/m	590.000	-16.000	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.017	0.657		0.000	400.000	mmho/m	625.153	-10.619	
Medium	0.016	0.757		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		

Litho Density Calibration Report
 Serial: 006 Model: PRB

Master Calibration

Performed Wed Mar 12 14:26:38 2014

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1296.6	7199.0	2625.4	7833.2	cps
Window 2	1218.8	5956.6	2257.8	6372.0	cps
Window 3	926.7	2990.0	1318.7	3107.7	cps
Window 4	314.3	319.6	320.3	326.2	cps
Long Space	0.0	4737.9	1039.0	5153.3	cps
Short Space	1.3	1655.6	1074.2	1728.4	cps
Rho		1.7100	2.5960	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.1	Rib Slope	: 0.969	Density/Spine Ratio	: 0.562
Spine Angle	: 74.1	Spine Slope	: 3.507	Spine Intercept	: -17.5

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

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