



DUAL INDUCTION LOG

Company WOOLSEY OPERATING COMPANY, LLC.
 Well HUBBELL #2
 Field BELLEFONT
 County FORD
 State KANSAS

Company WOOLSEY OPERATING COMPANY, LLC.
 Well HUBBELL #2
 Field BELLEFONT
 County FORD State KANSAS

Location: API # : 15-057-20987-00-00
 1578' FNL & 1207' FWL
 SEC 23 TWP 25S RGE 21W
 Permanent Datum GROUND LEVEL Elevation 2310'
 Log Measured From KELLY BUSHING 12' A.G.L.
 Drilling Measured From KELLY BUSHING
 Other Services CDL/CNL/MEL SONIC
 Elevation K.B. 2322'
 D.F. 2320'
 G.L. 2310'

Date	10/31/17
Run Number	ONE
Depth Driller	4900
Depth Logger	4904
Bottom Logged Interval	4902
Top Log Interval	750
Casing Driller	8 5/8" @ 789
Casing Logger	789
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3/54
pH / Fluid Loss	9.5/9.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.60@52
Rmt @ Meas. Temp	.45@52
Rmc @ Meas. Temp	.72@52
Source of Rmt / Rmc	MEASURED
Rm @ BHT	25@124
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	124F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	BILLY 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

THANK YOU FOR USING ELI WIRELINE, HAYS, KS. (785) 628-6395

DIRECTIONS
 OFFERLE WEST TO RD 134,
 SOUTH 1.5 MILES, EAST INTO.



MAIN PASS

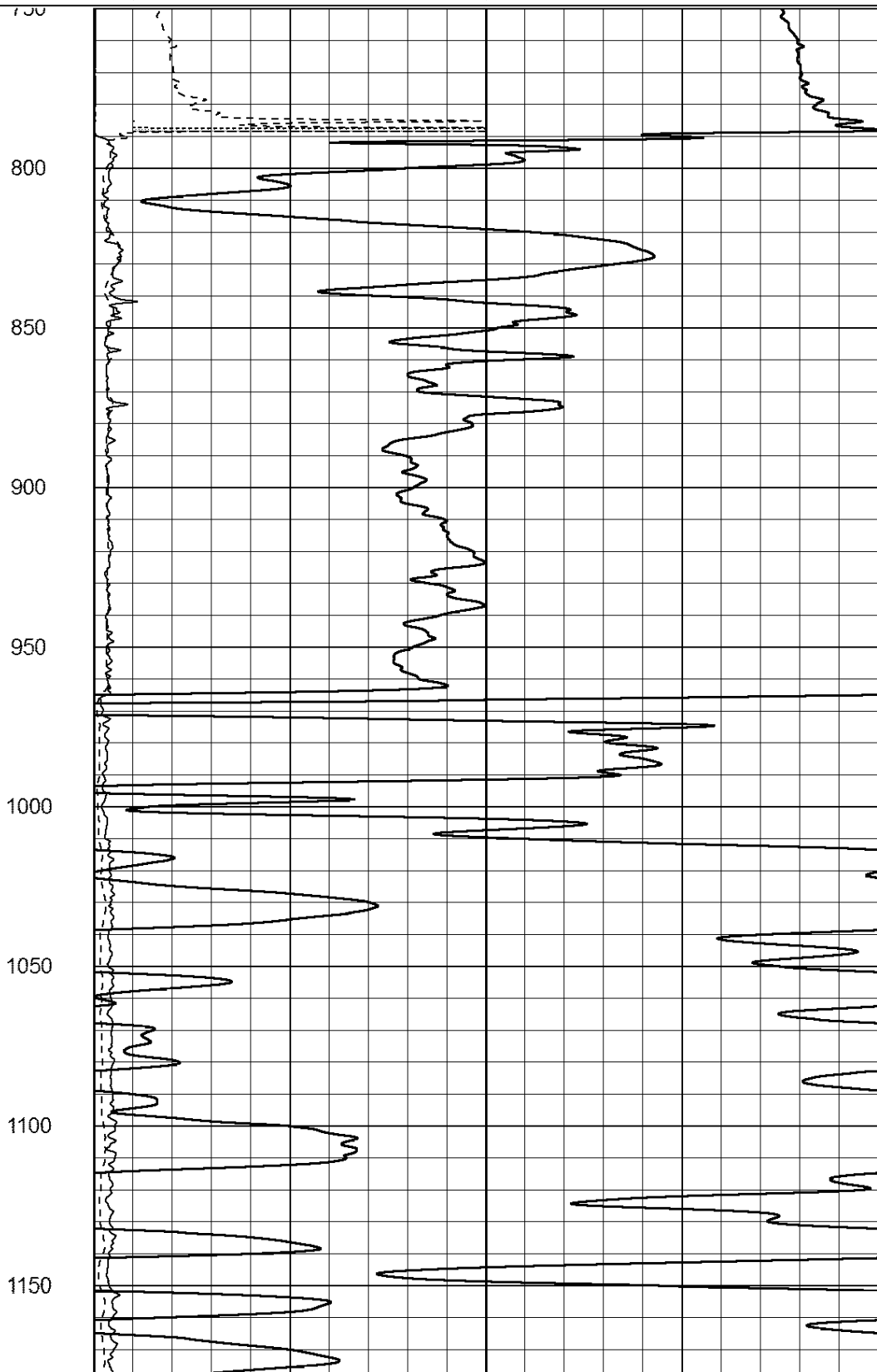
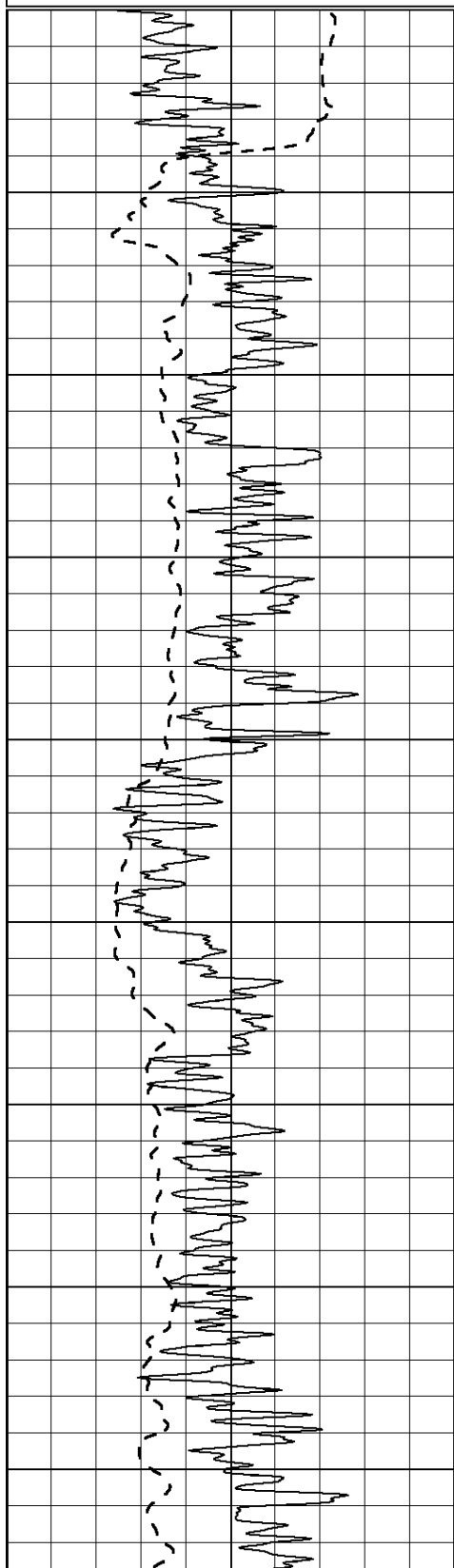
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 Dataset Pathname: pass3.1
 Presentation Format: _dil2
 Dataset Creation: Tue Oct 31 13:29:04 2017 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

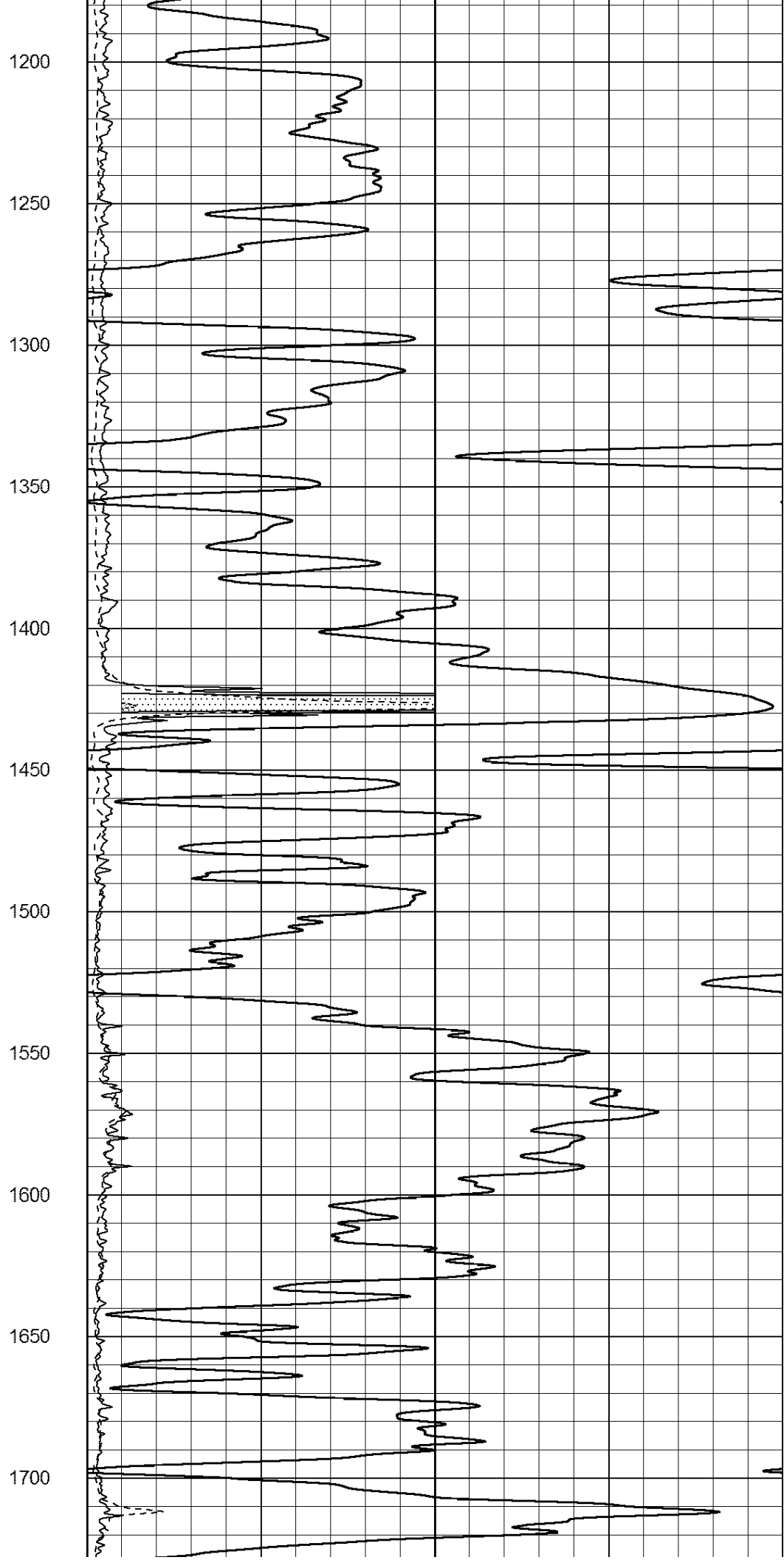
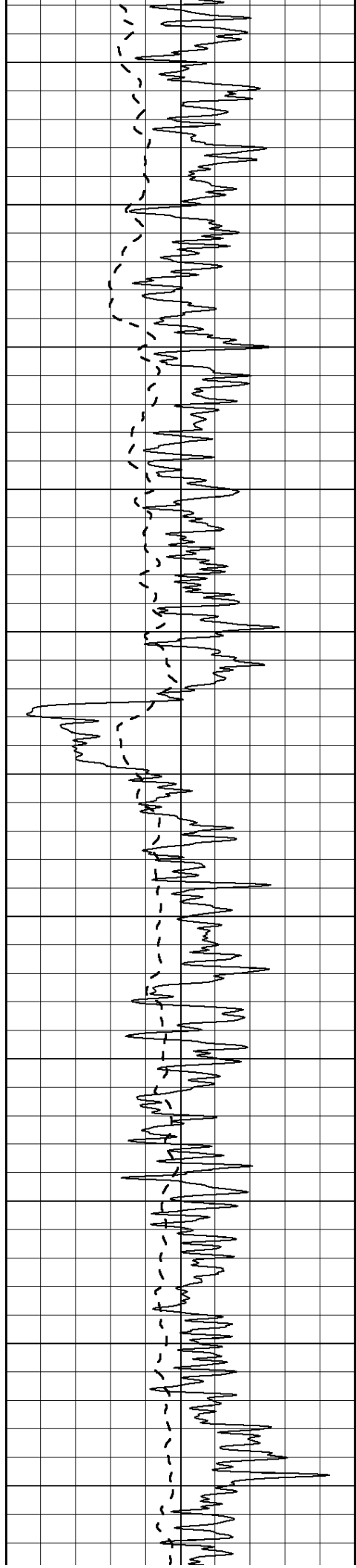
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-100	SP (mV)	100

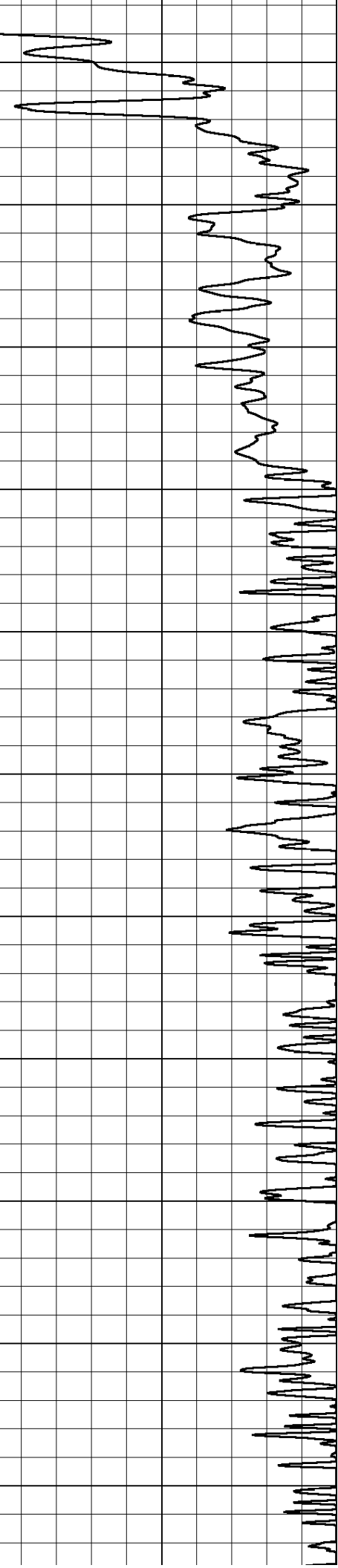
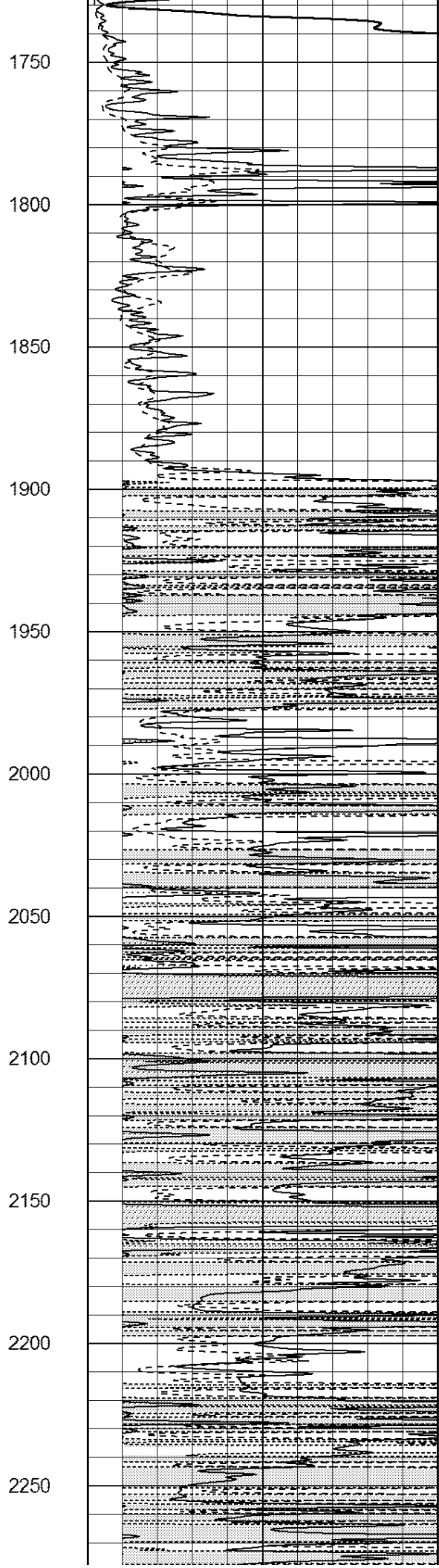
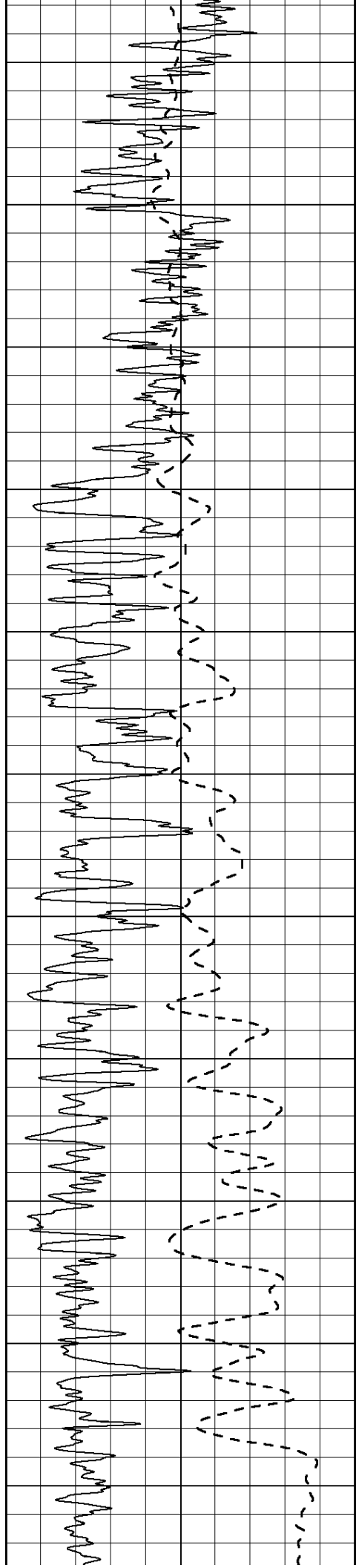
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0	RILD (Ohm-m)	50

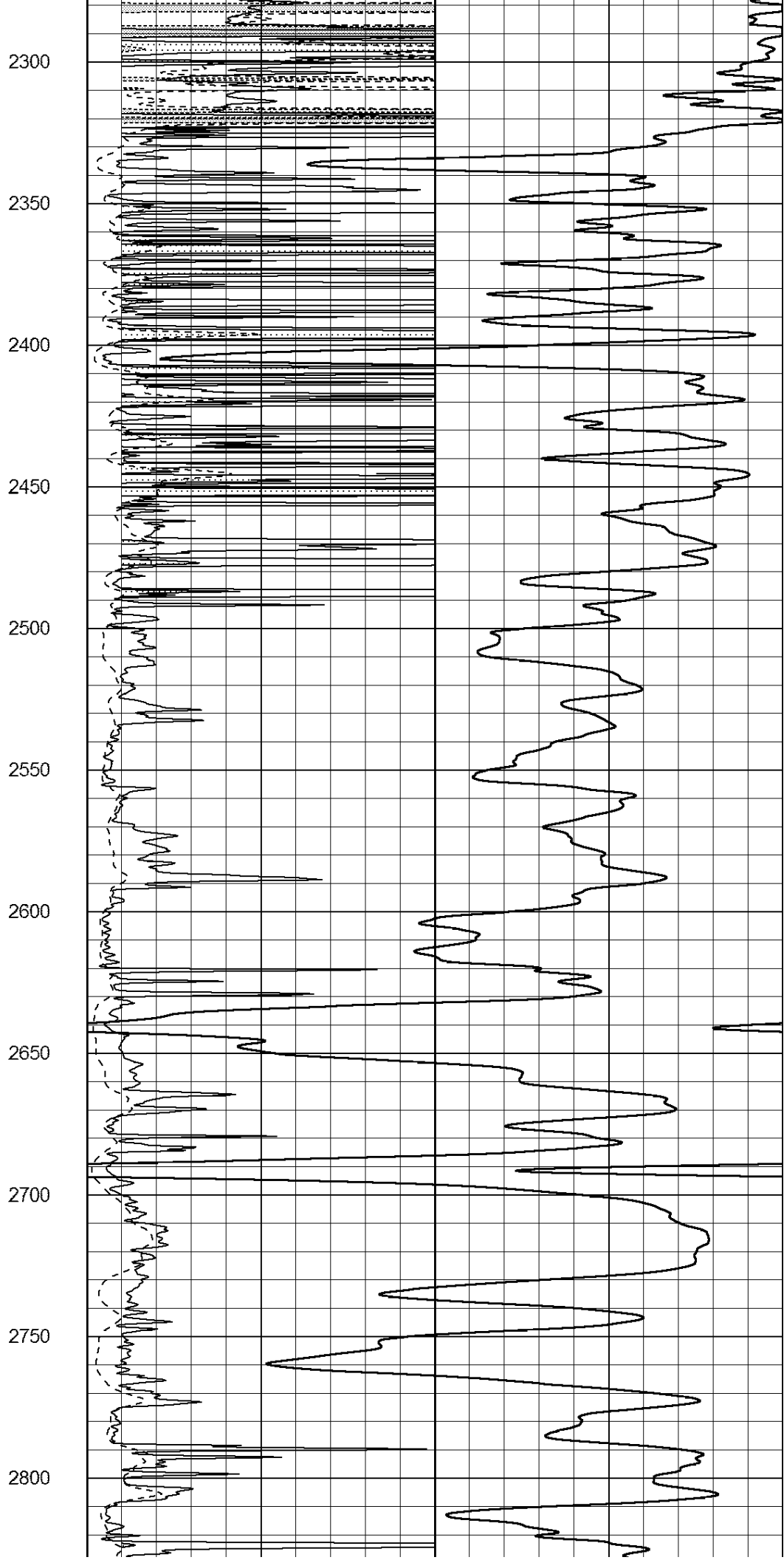
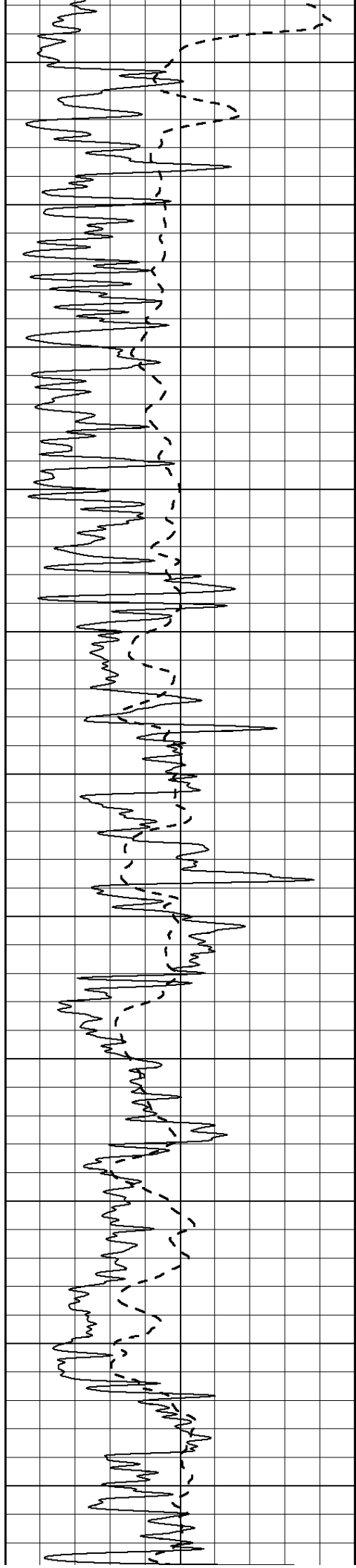
1000	CILD (mmho/m)	0
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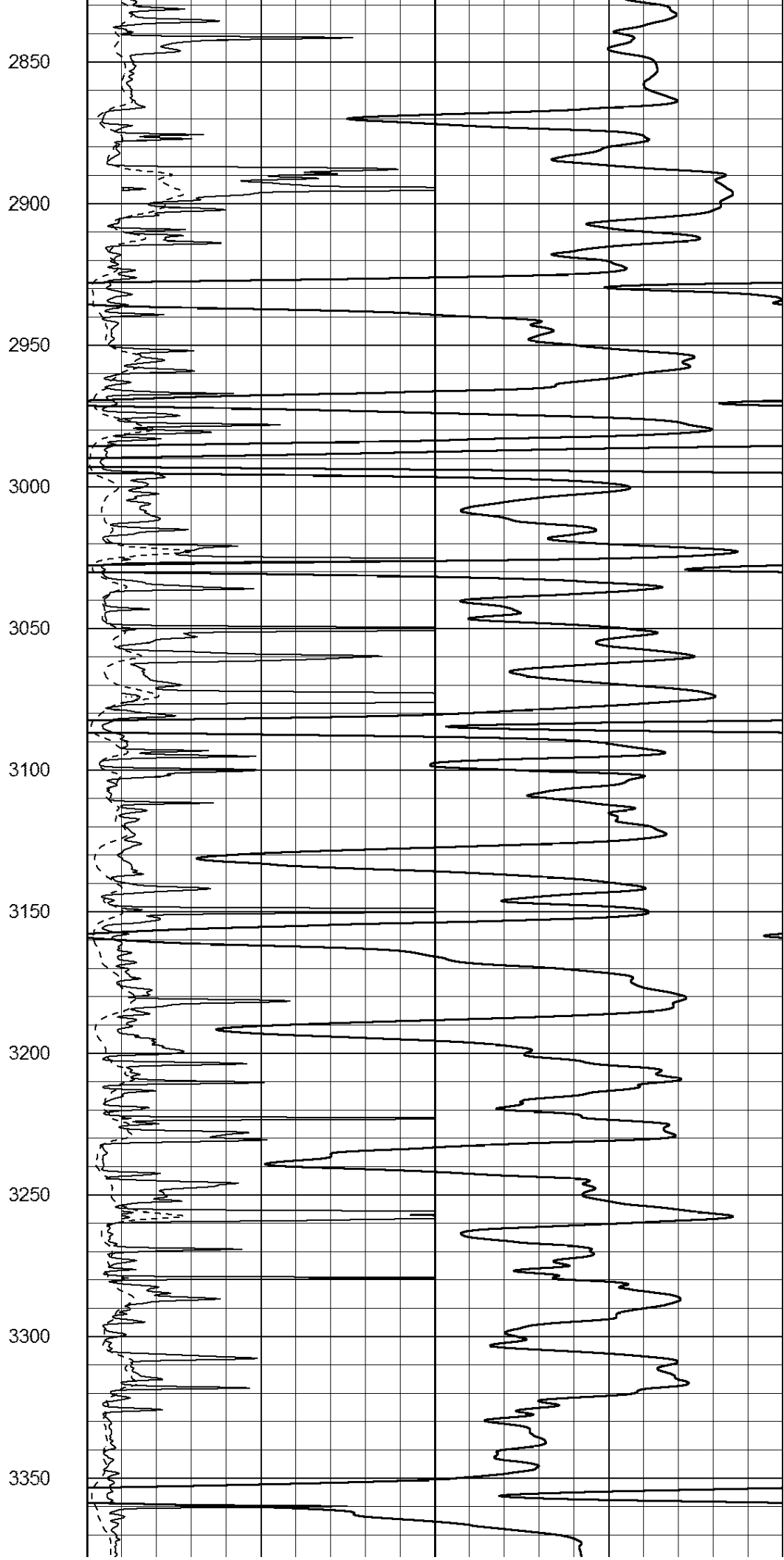
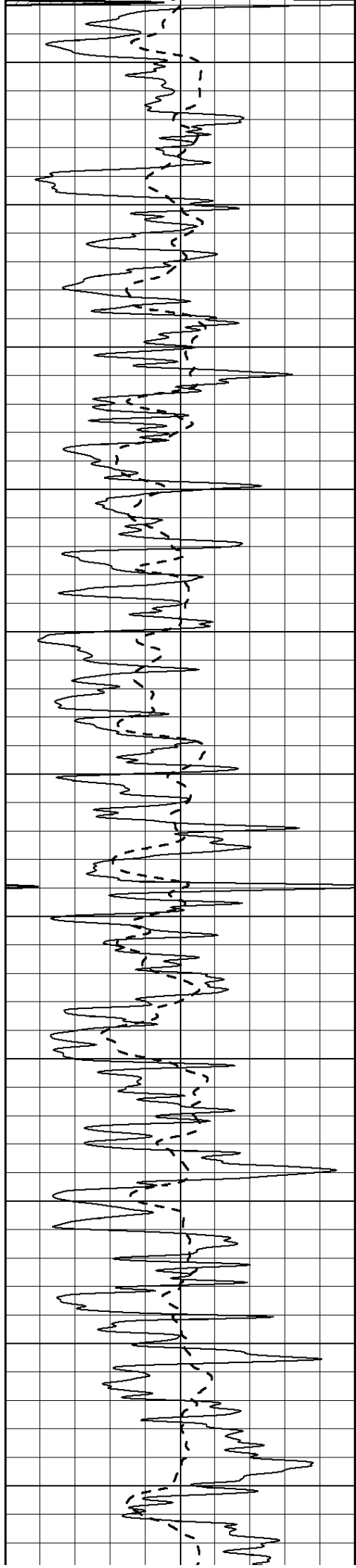
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50	RLL3 X10 (Ohm-m)	500

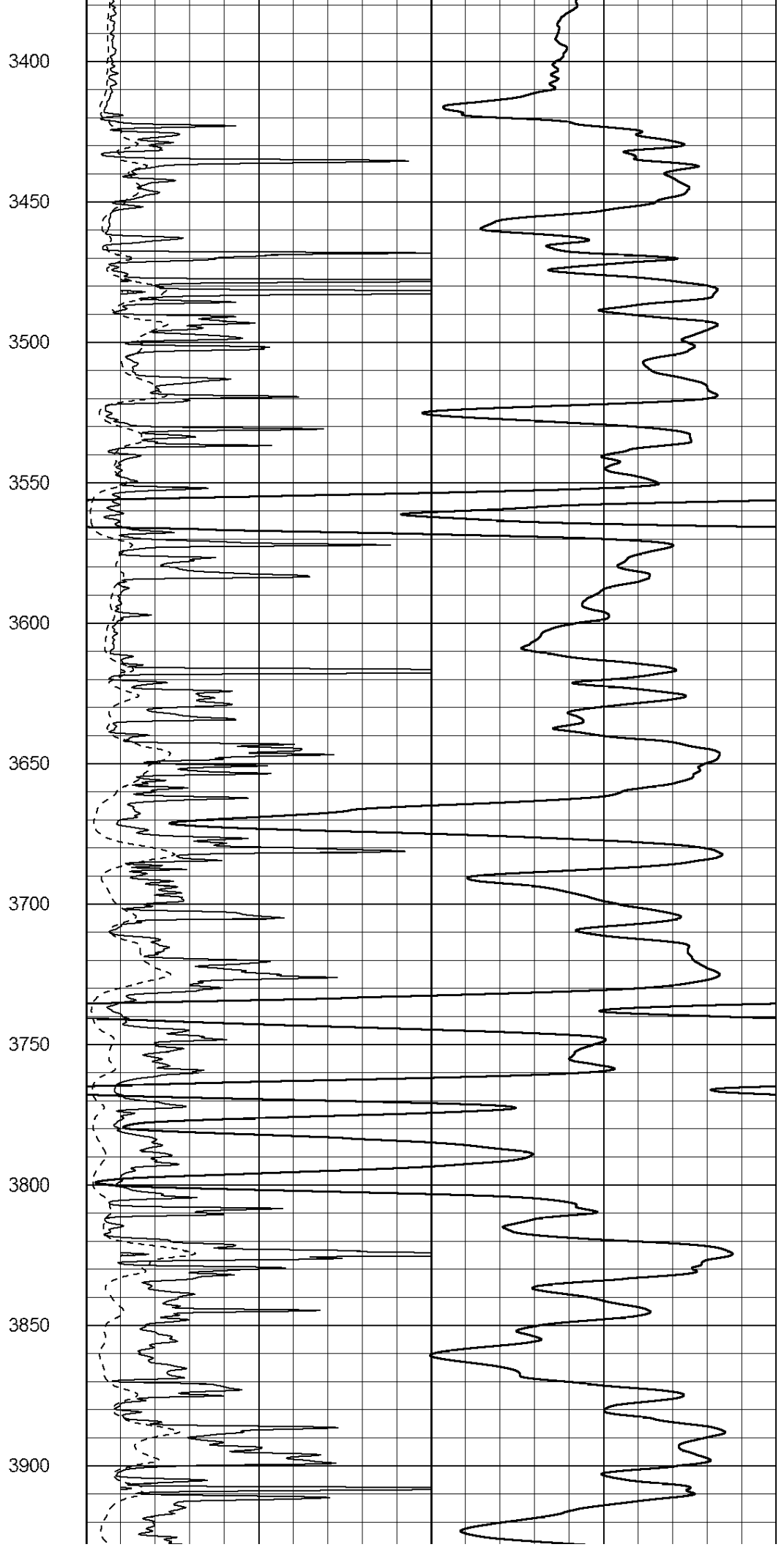
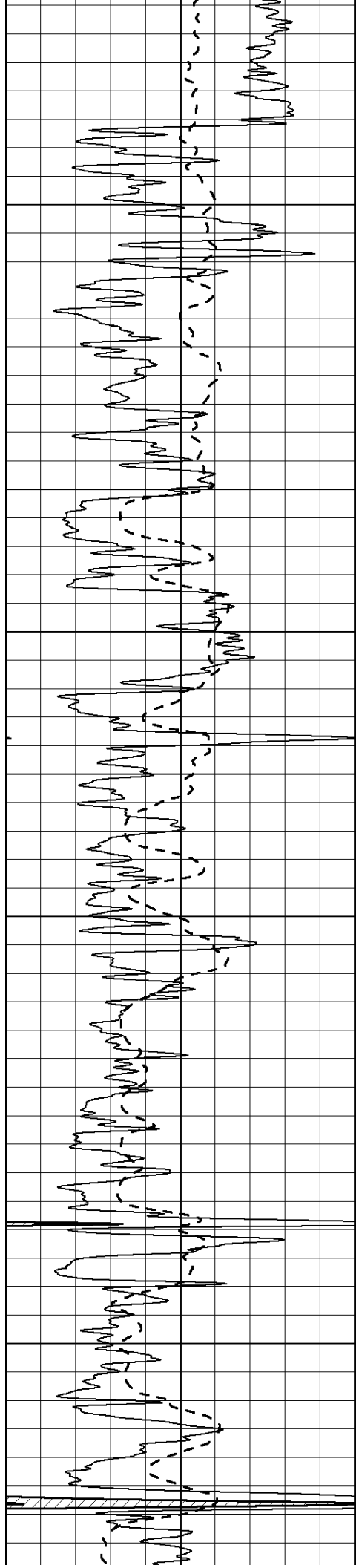


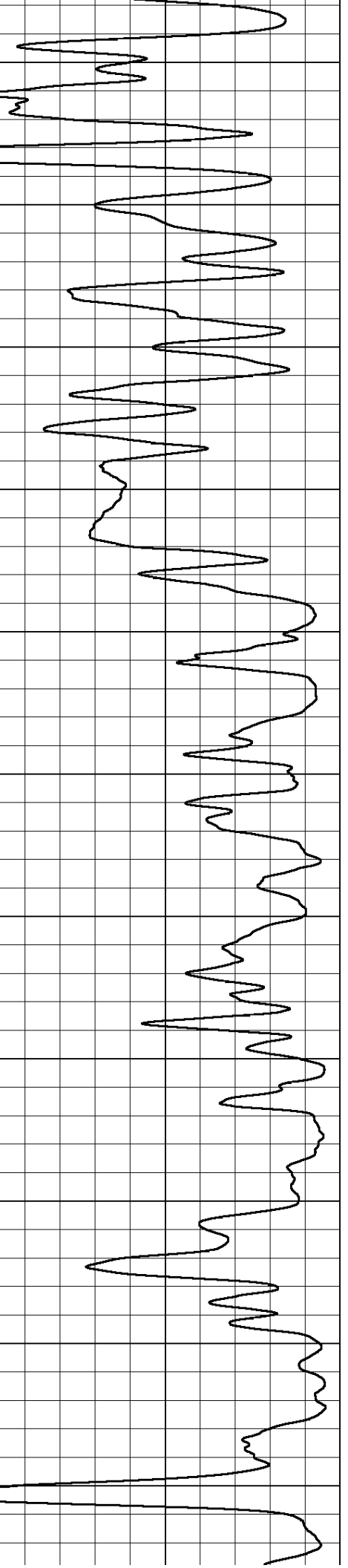
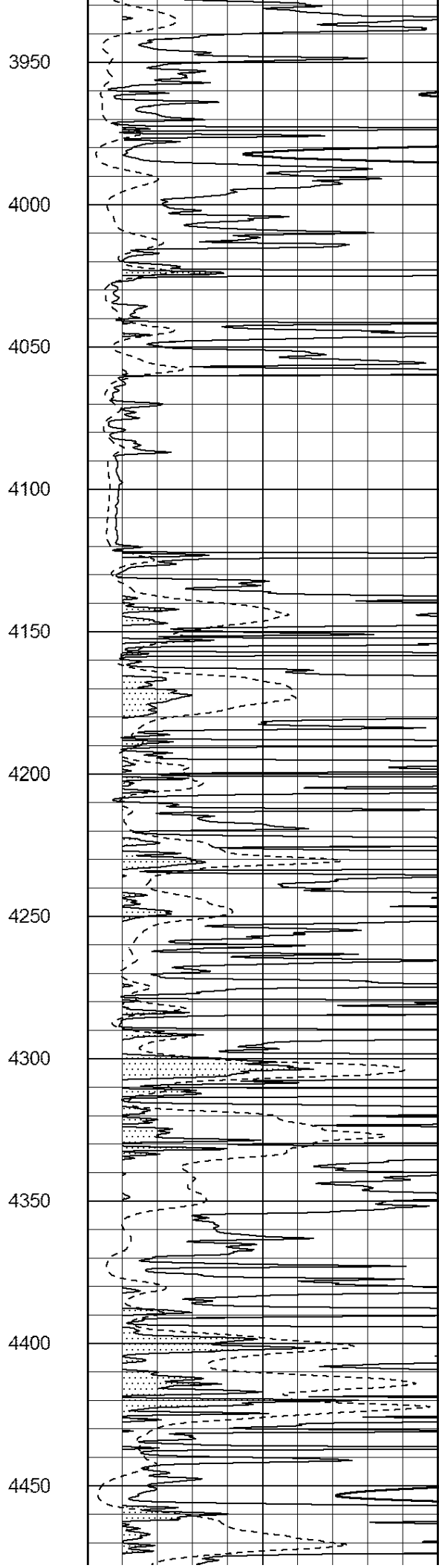
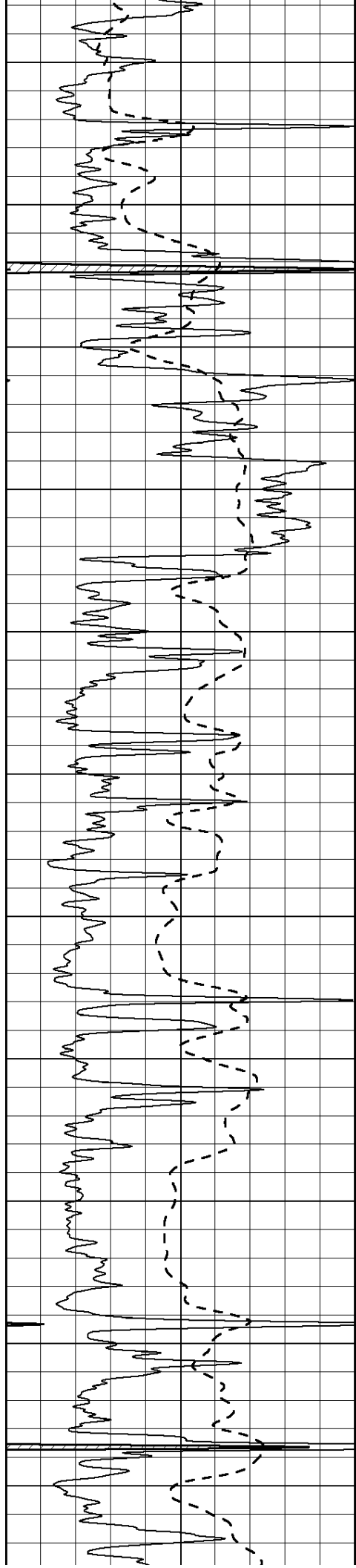


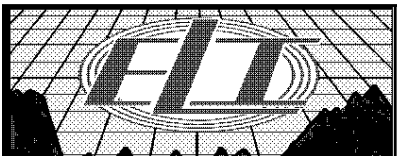
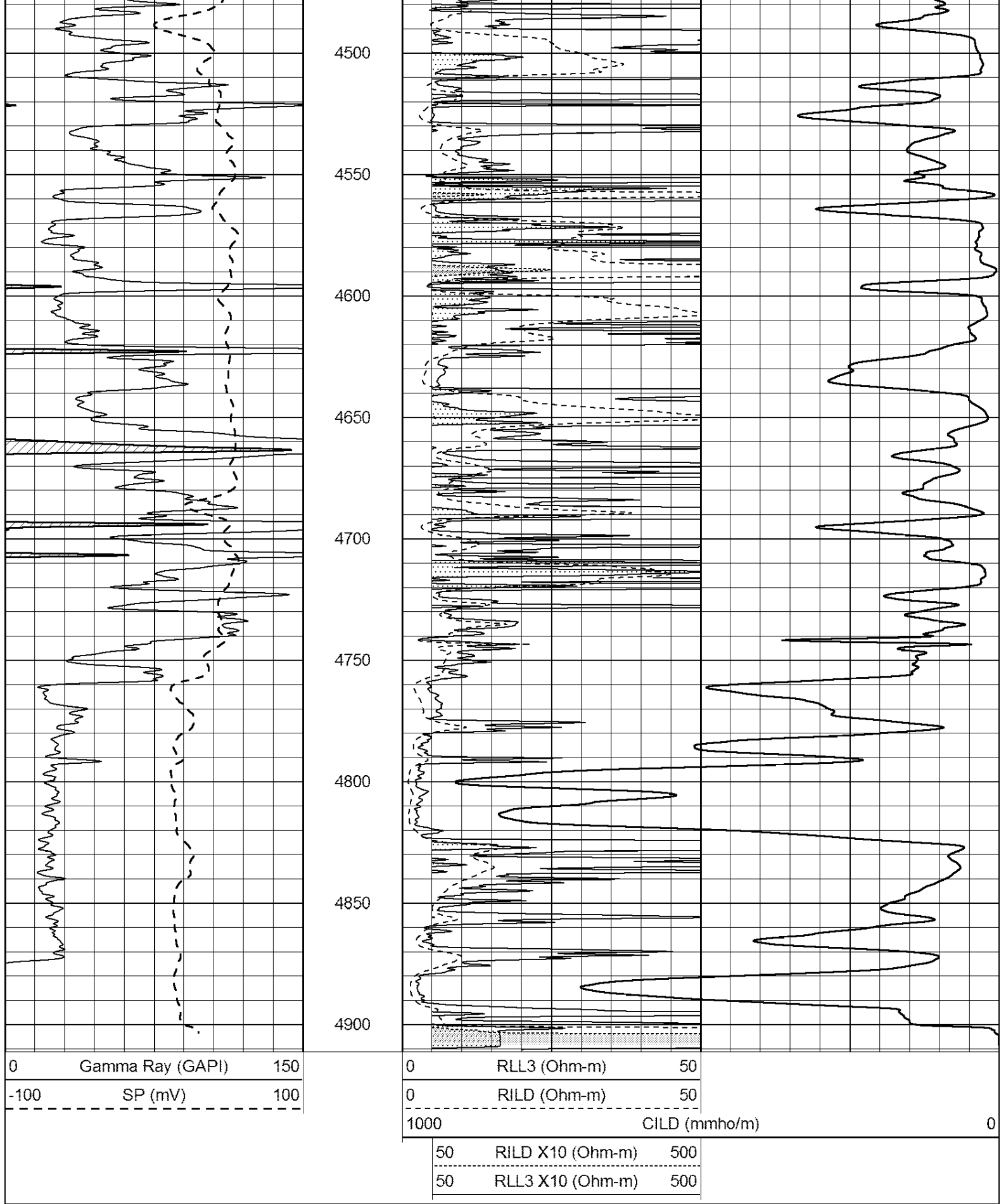










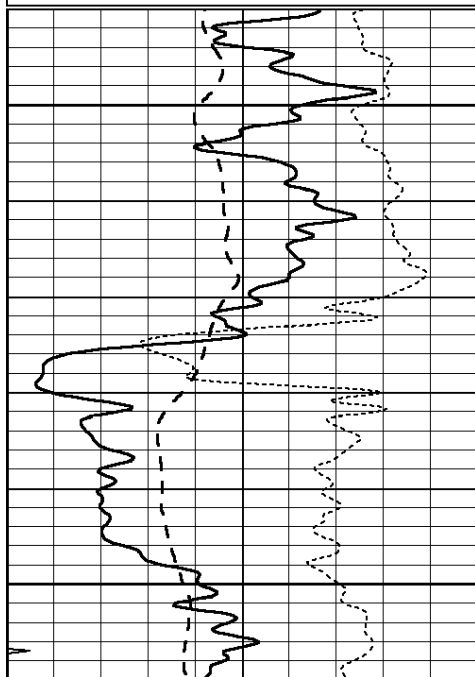


MAIN PASS

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 Presentation Format: _dil
 Dataset Creation: Tue Oct 31 13:29:04 2017 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

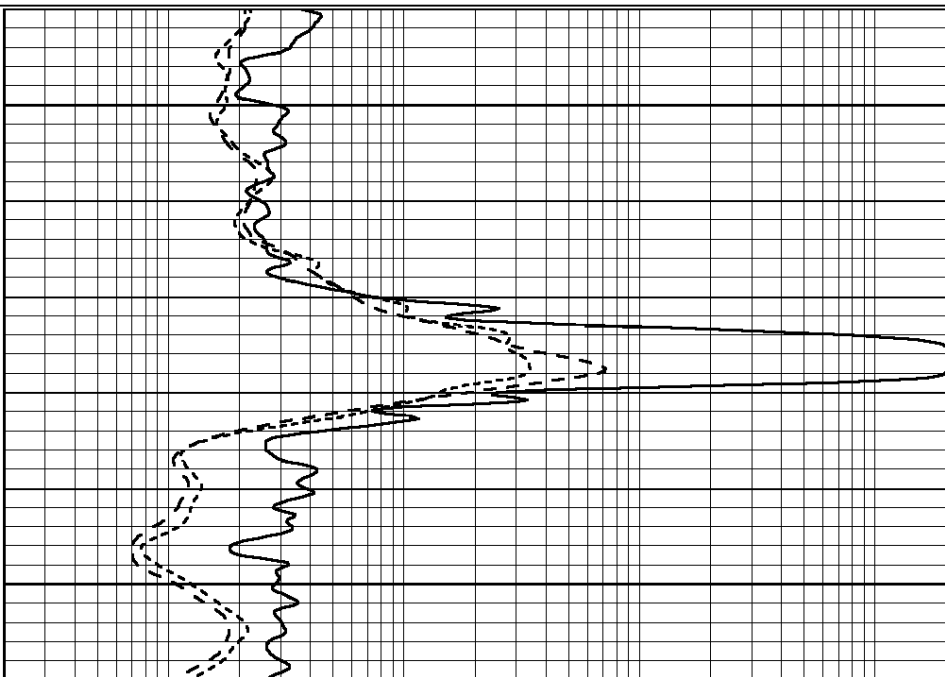
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



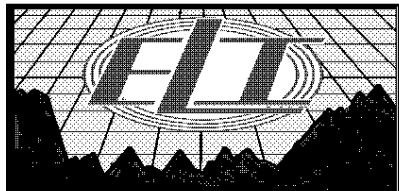
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1450



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

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

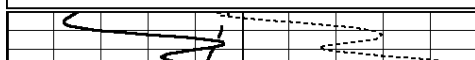


MAIN PASS

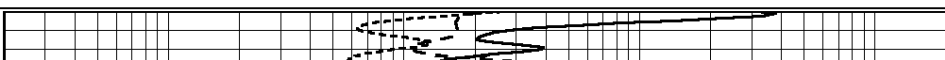
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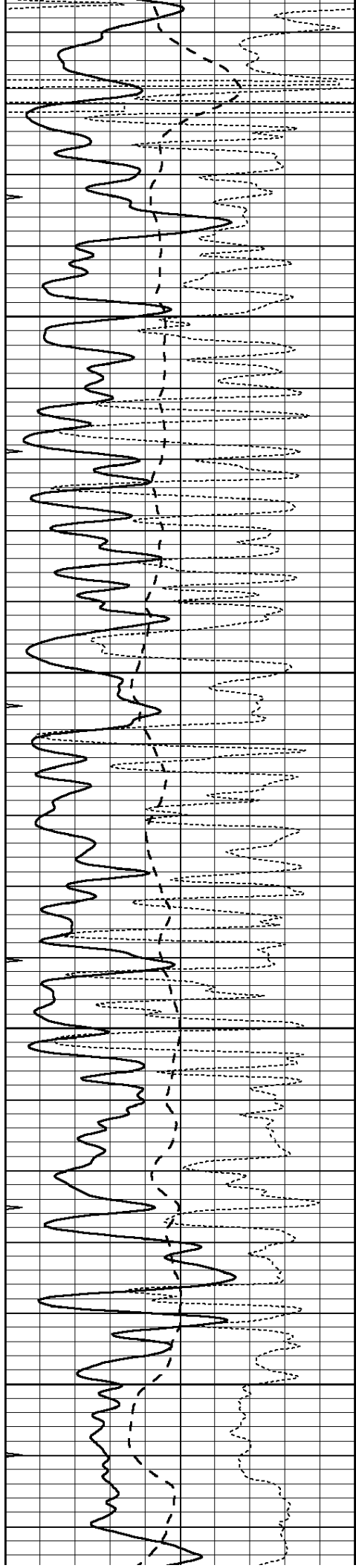
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



2500



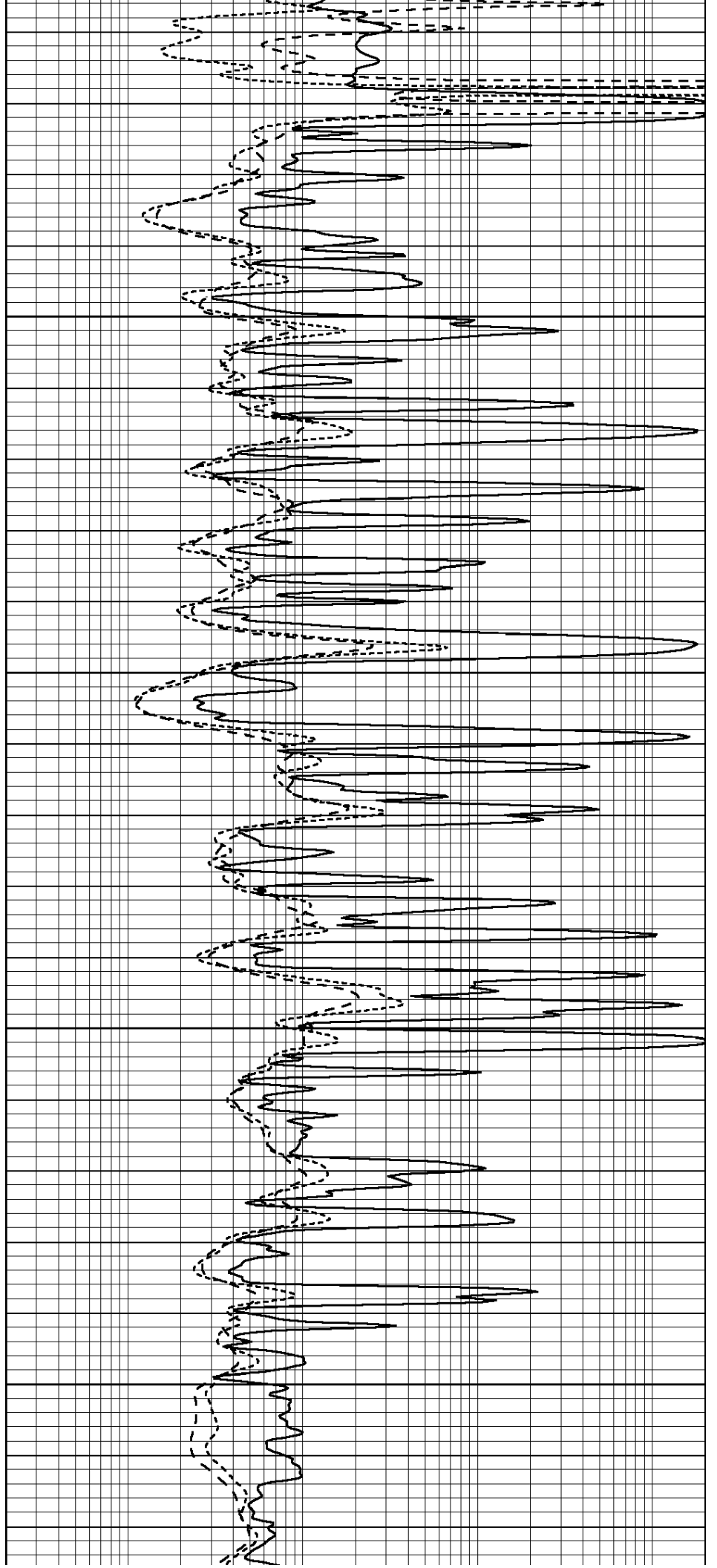


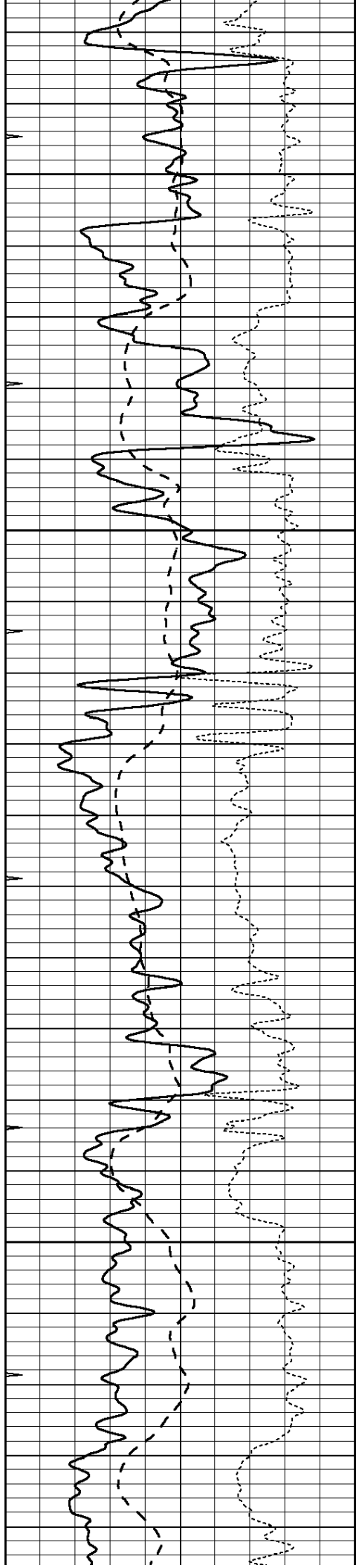
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2400

2450

2500



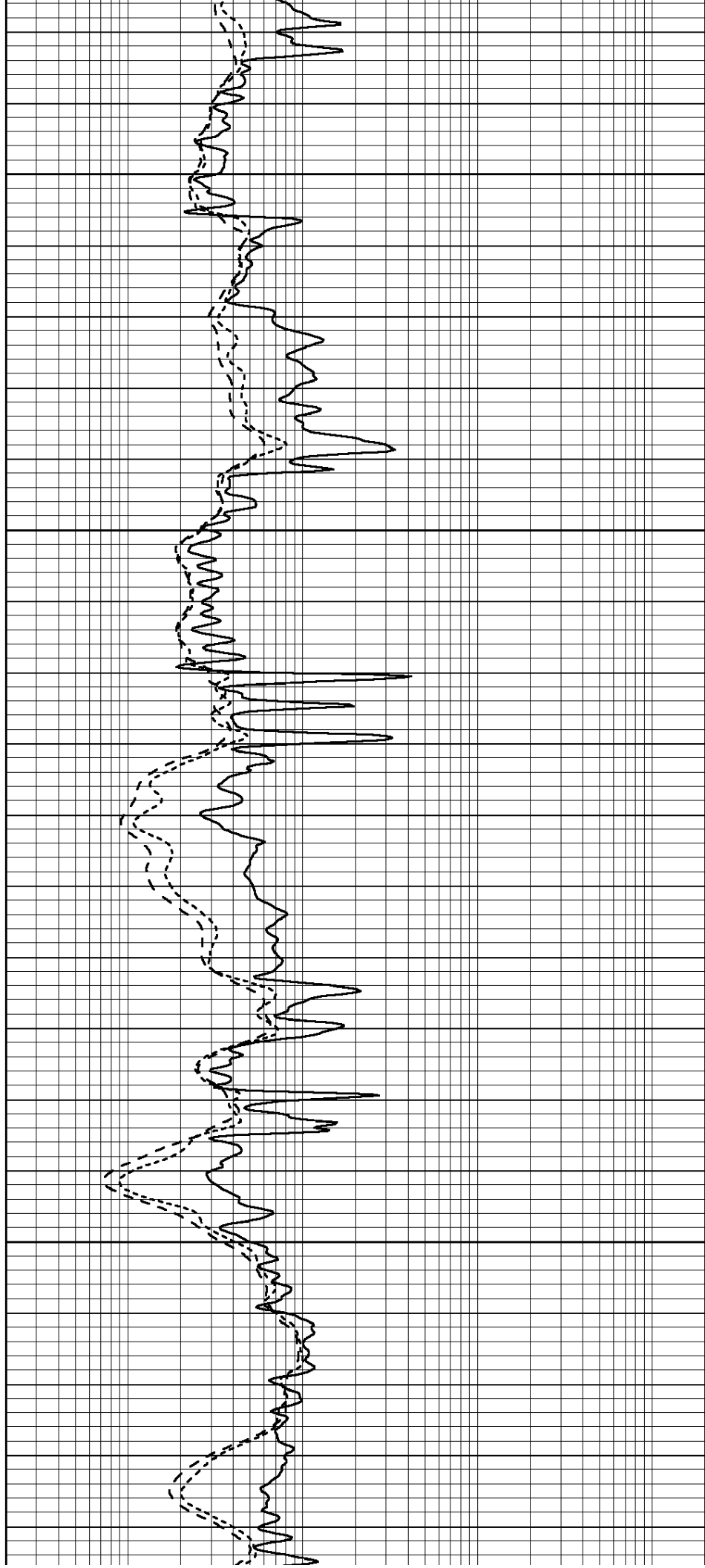


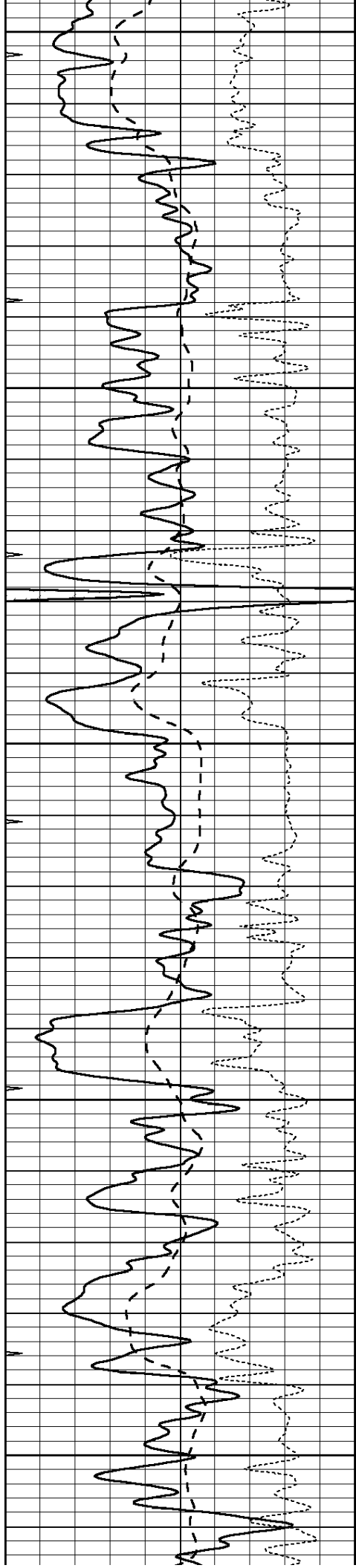
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2600

2650

2700





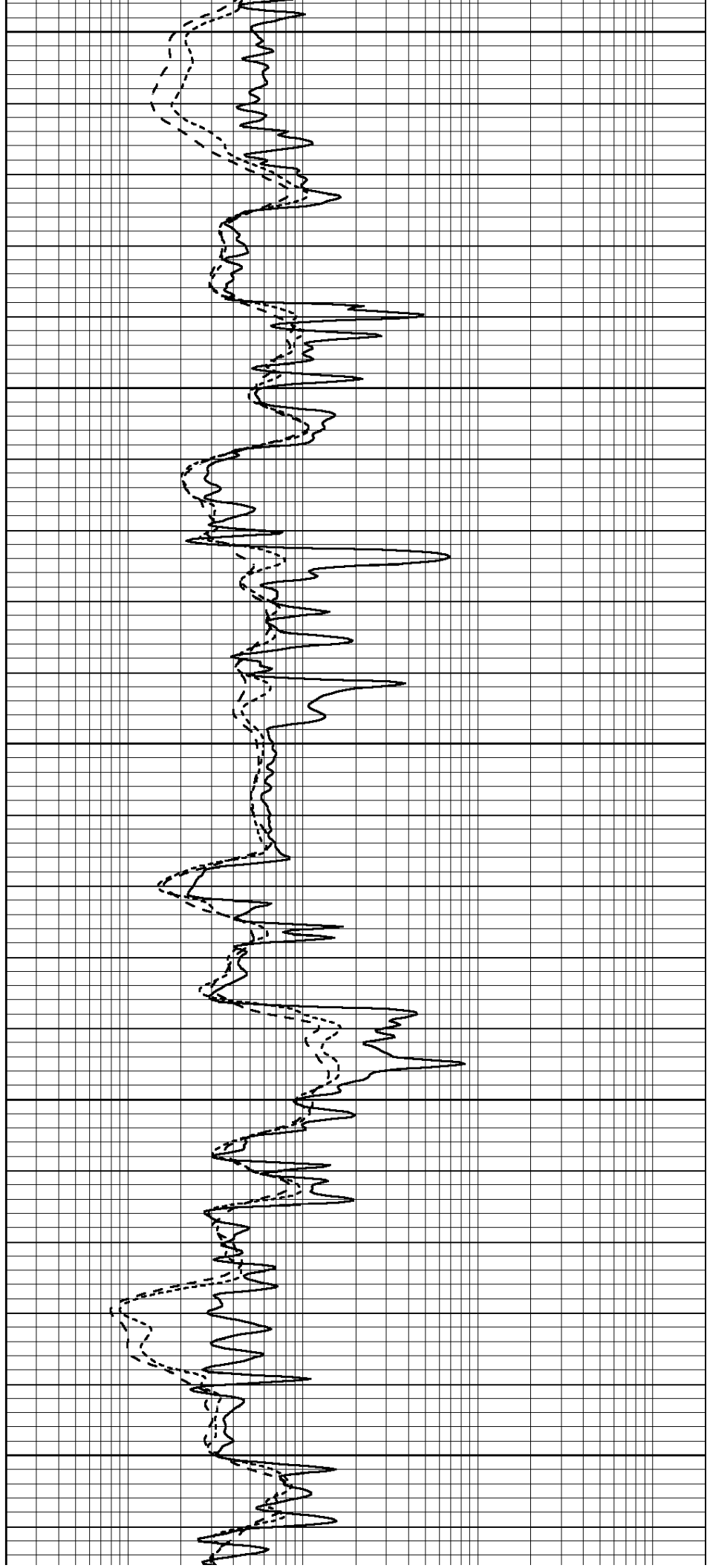
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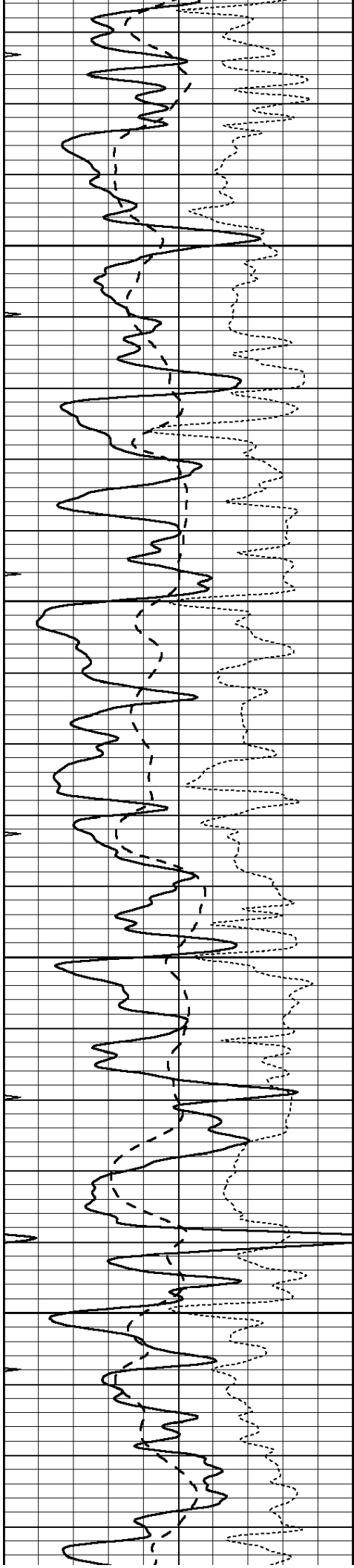
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2850

2900

2950



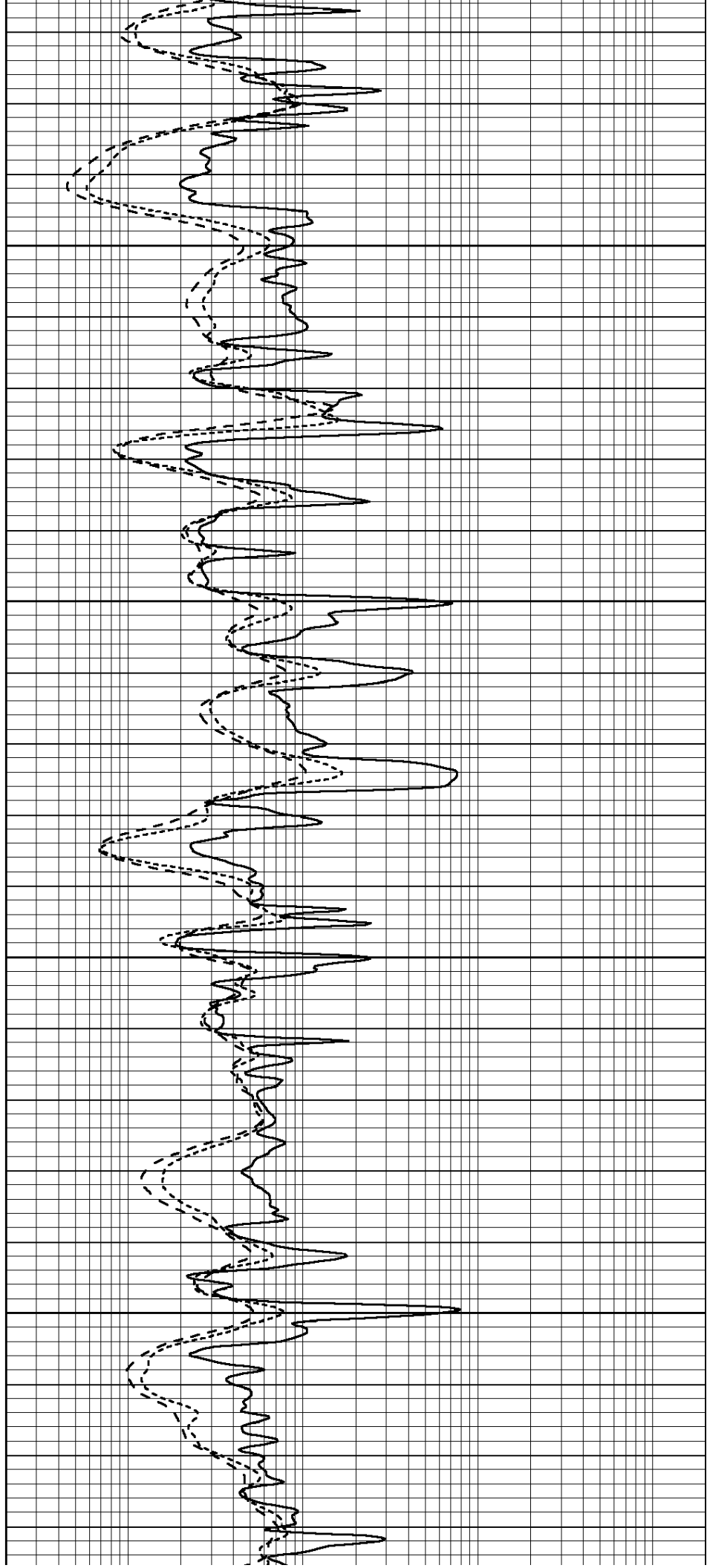


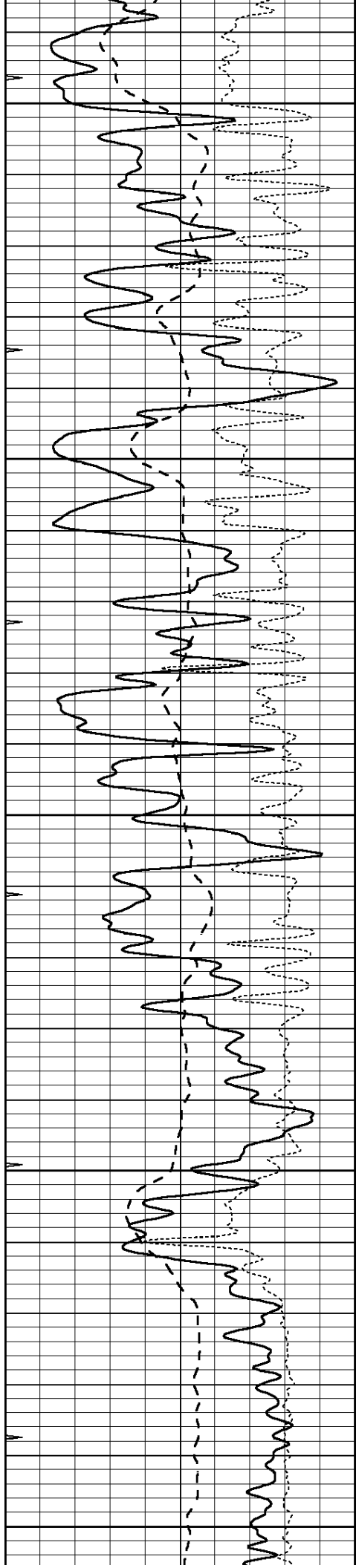
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3050

3100

3150





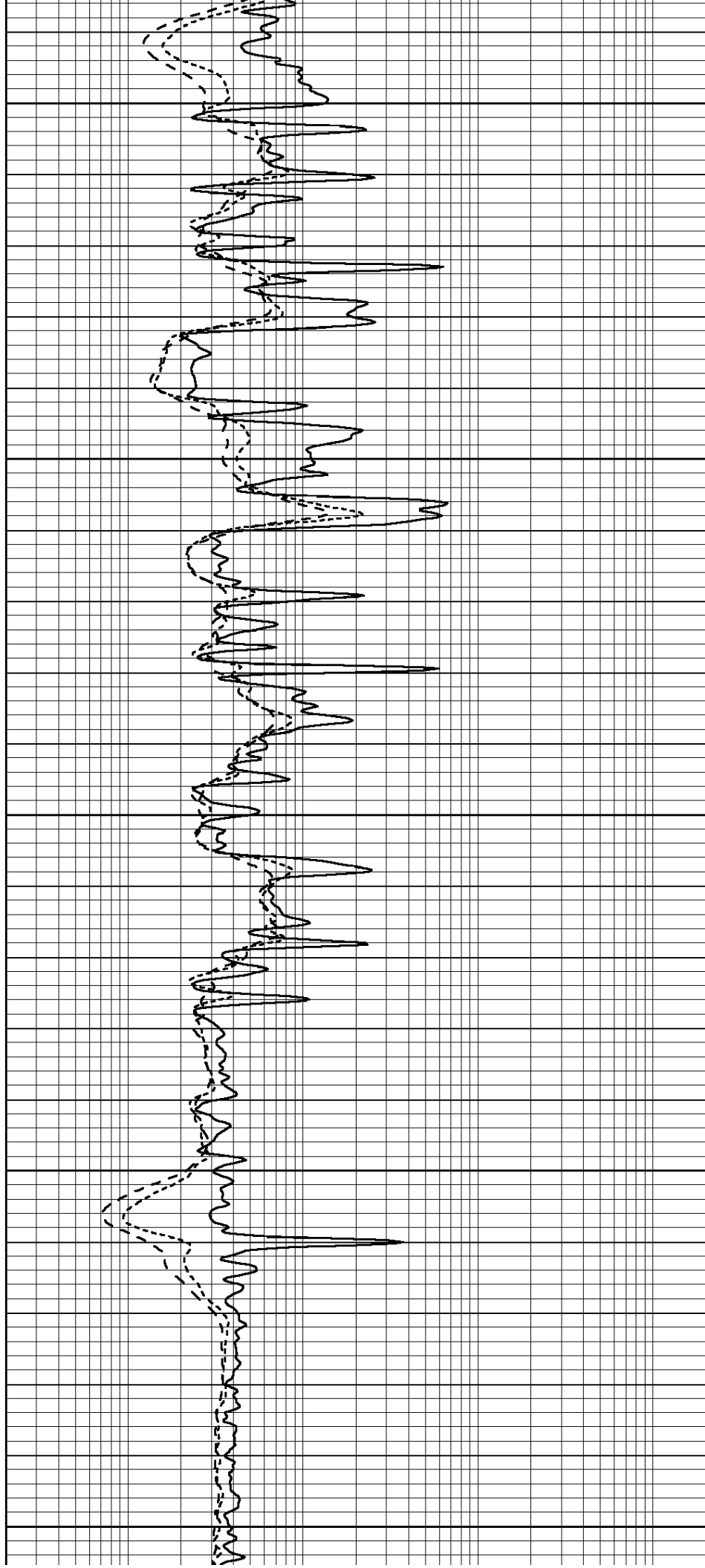
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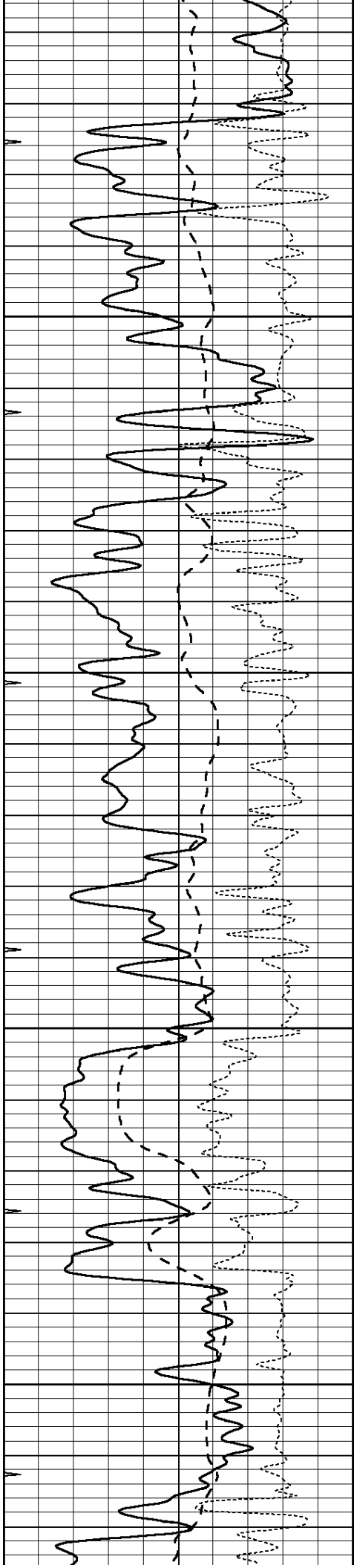
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3300

3350

3400



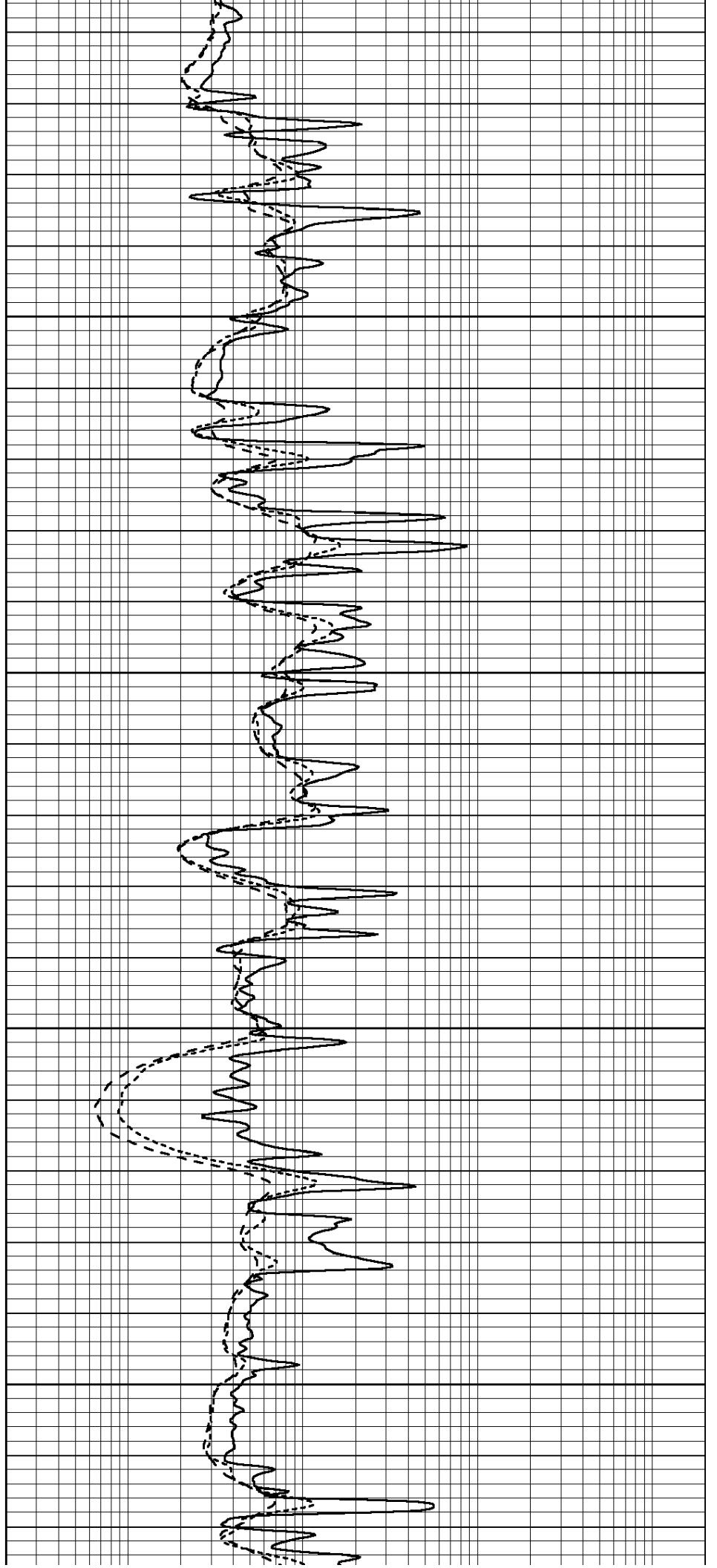


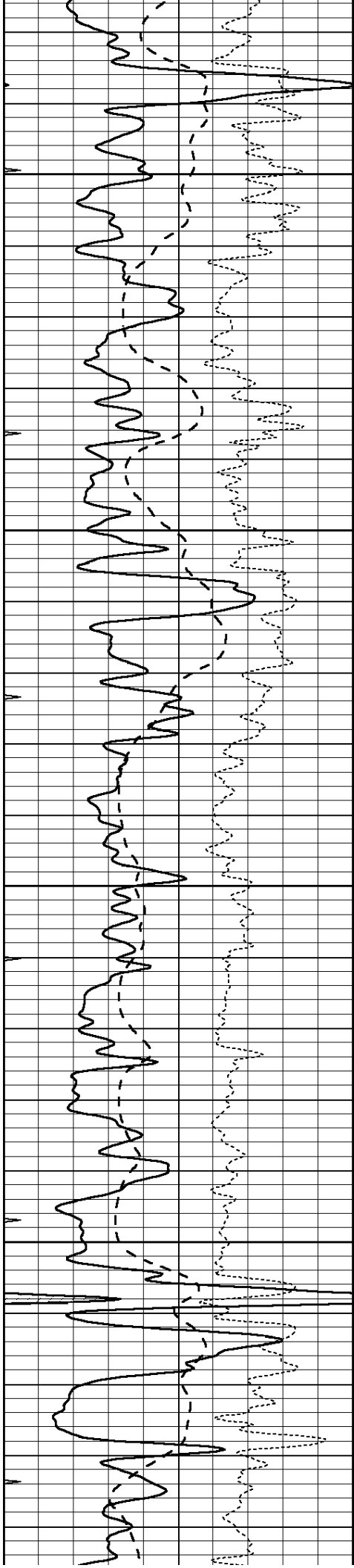
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3500

3550

3600



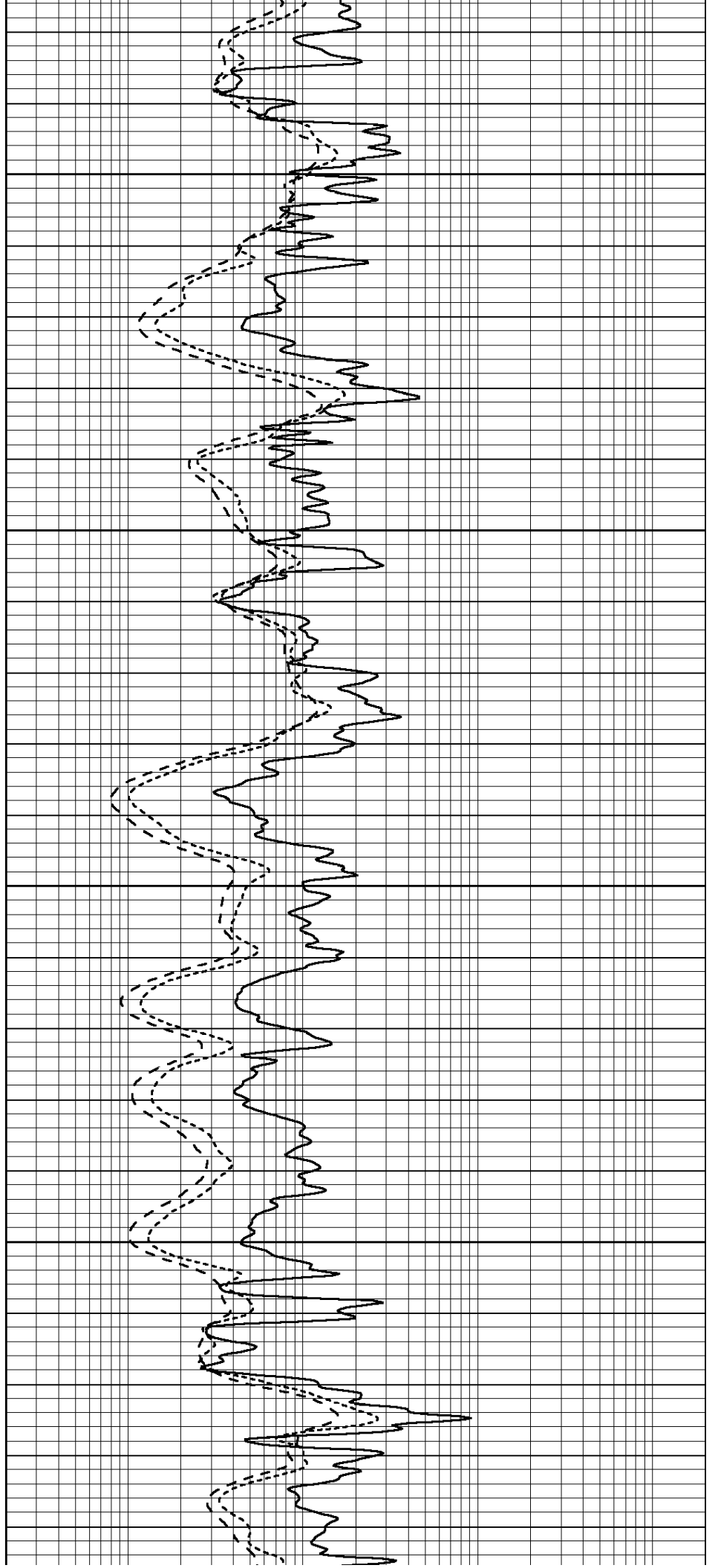


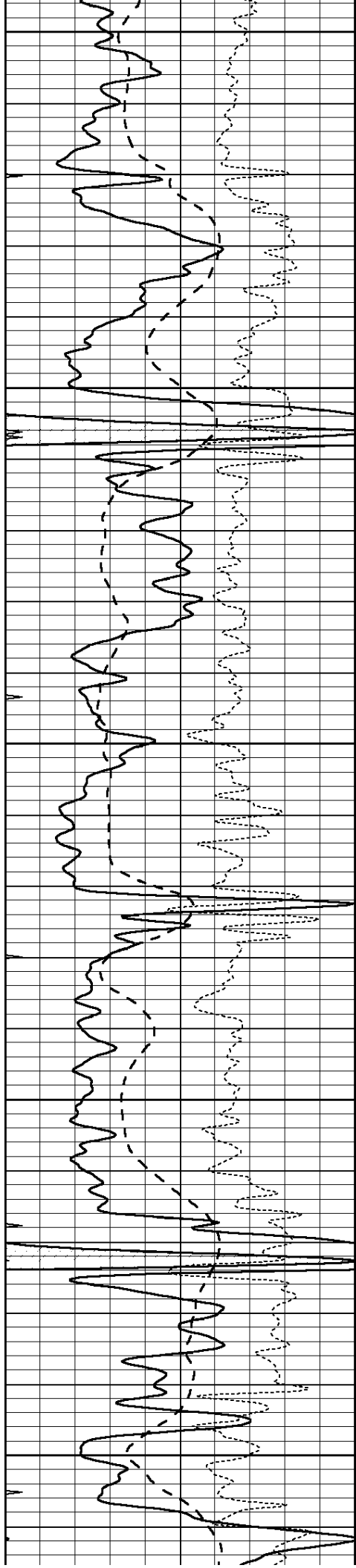
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3700

3750

3800





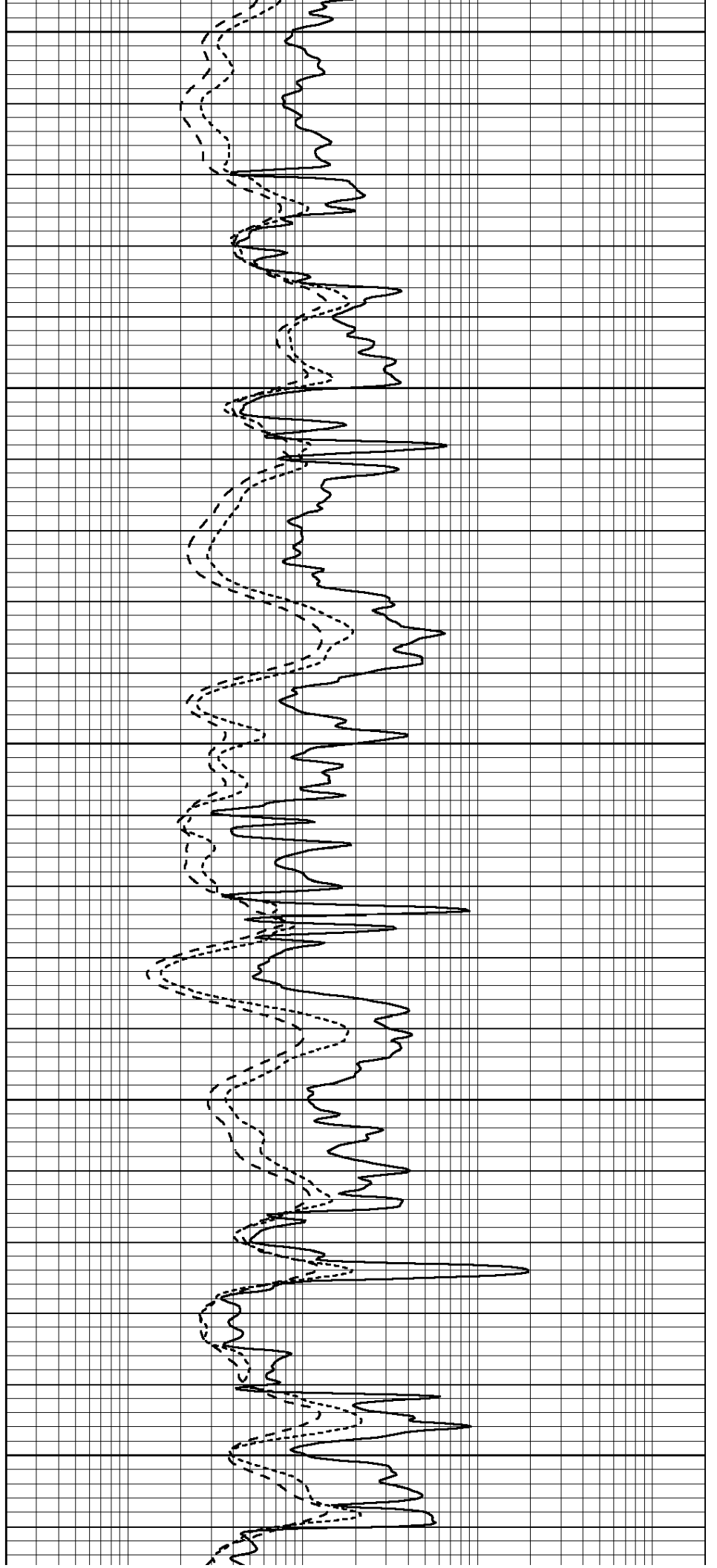
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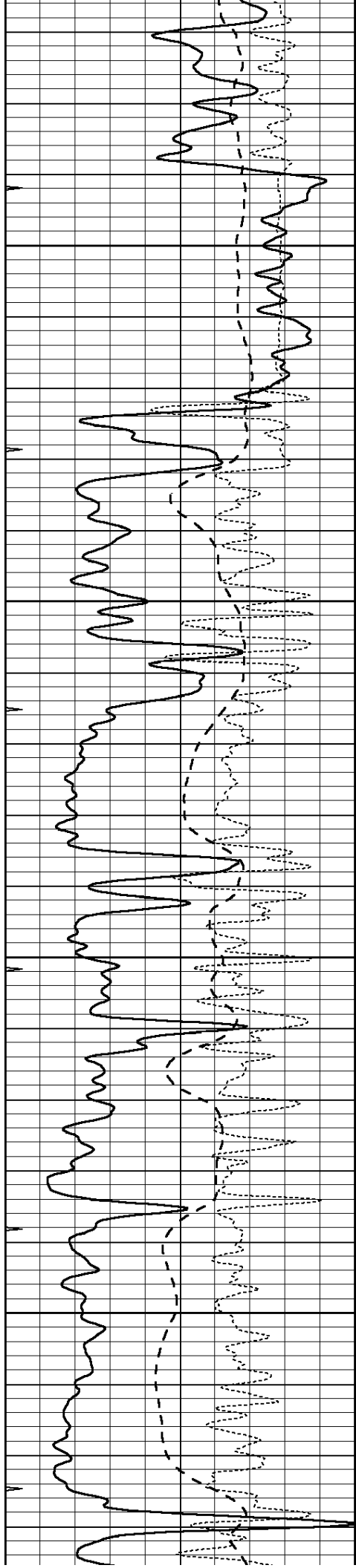
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3950

4000

4050



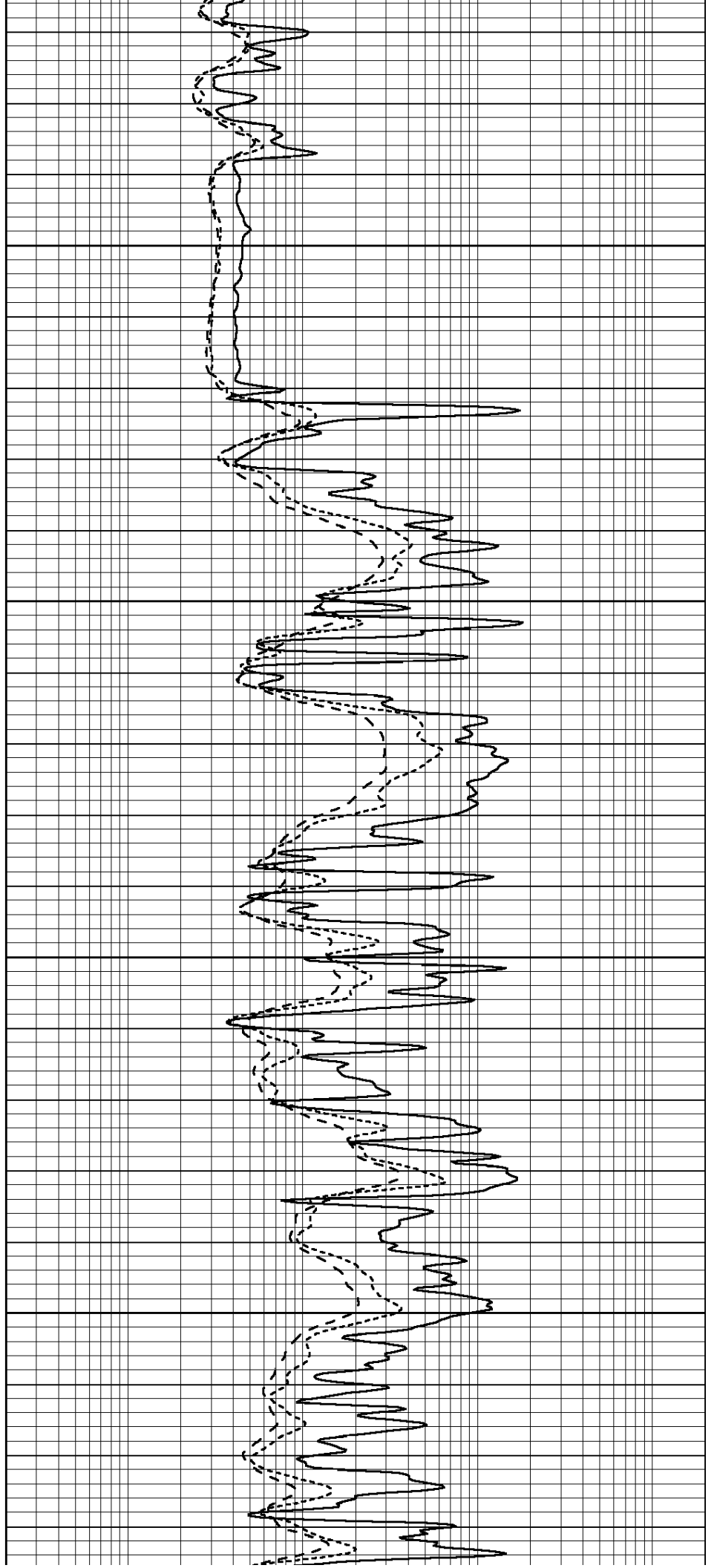


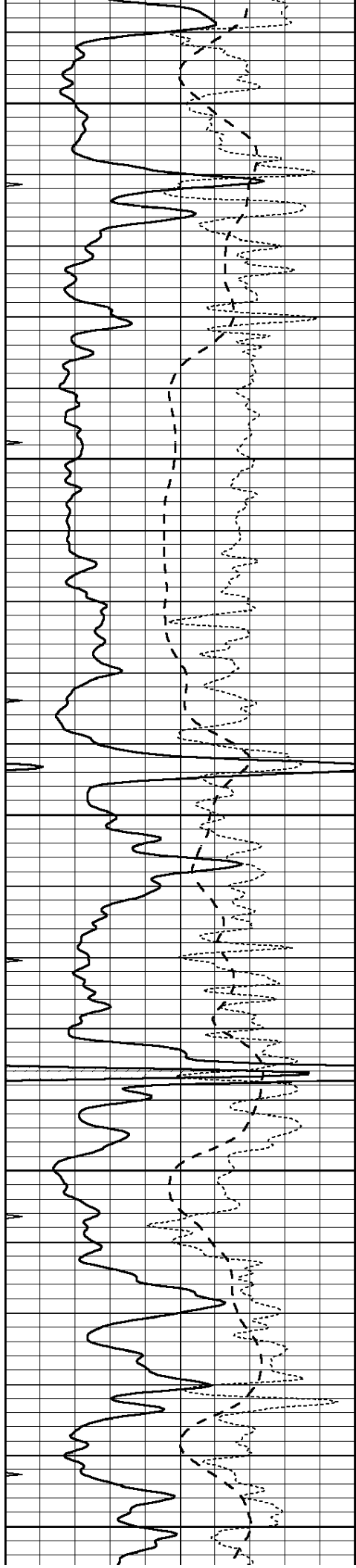
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4150

4200

4250





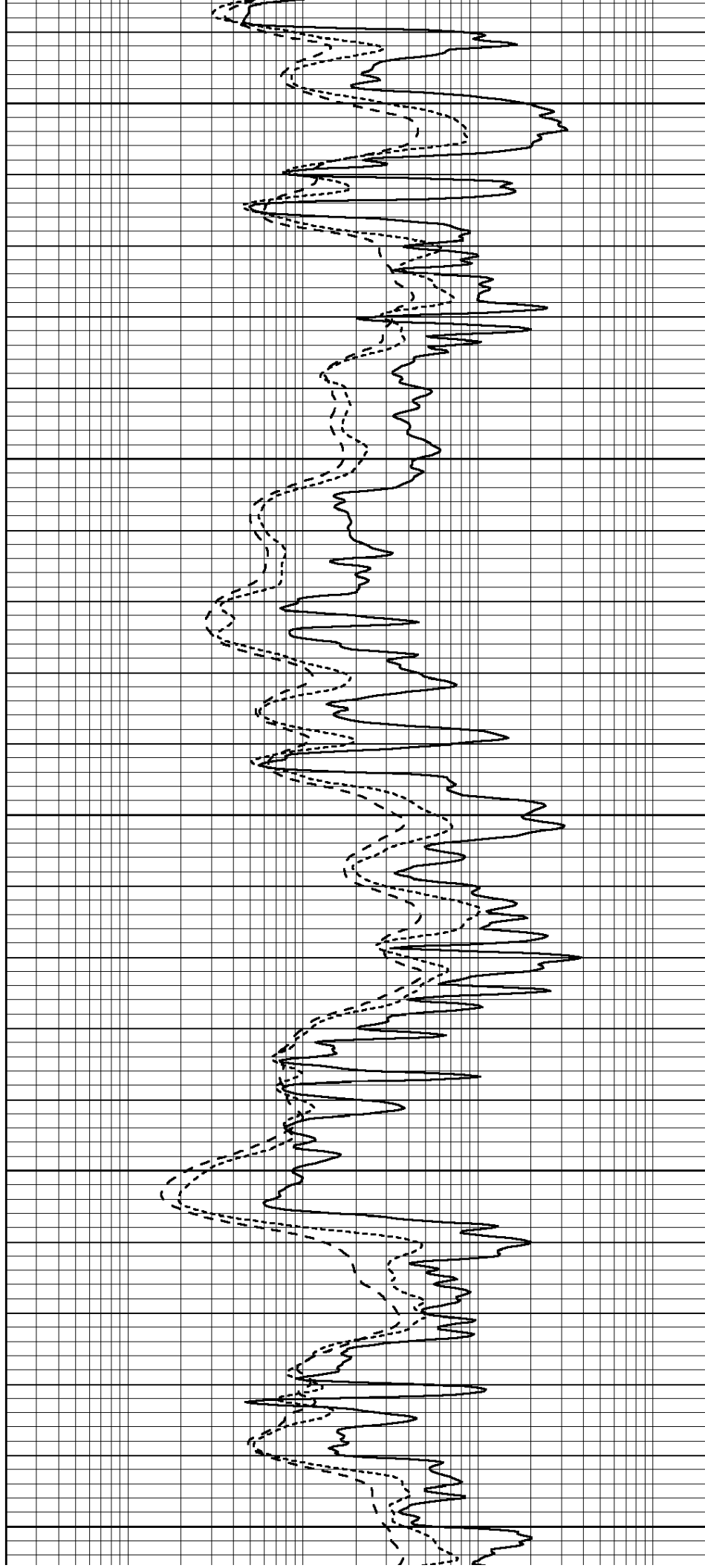
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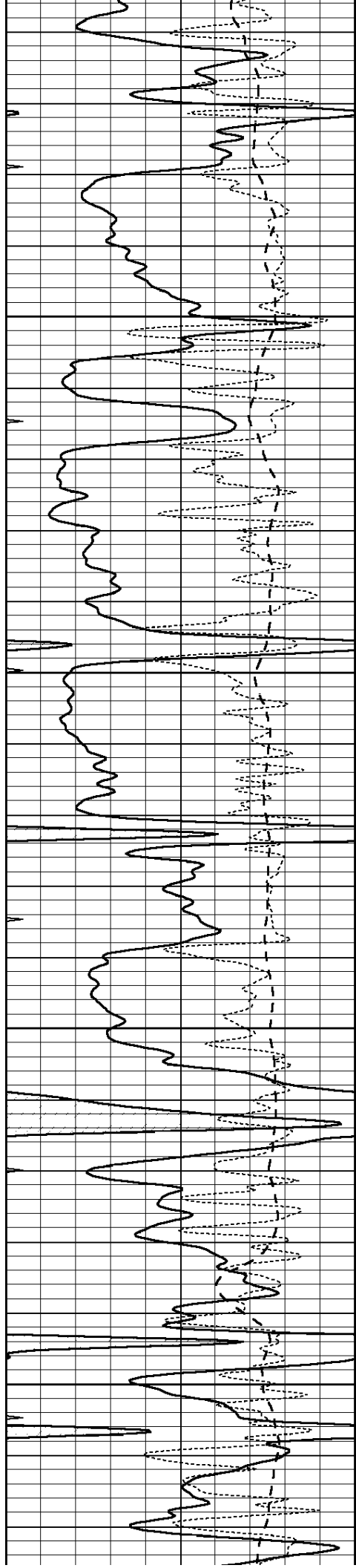
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4400

4450

4500



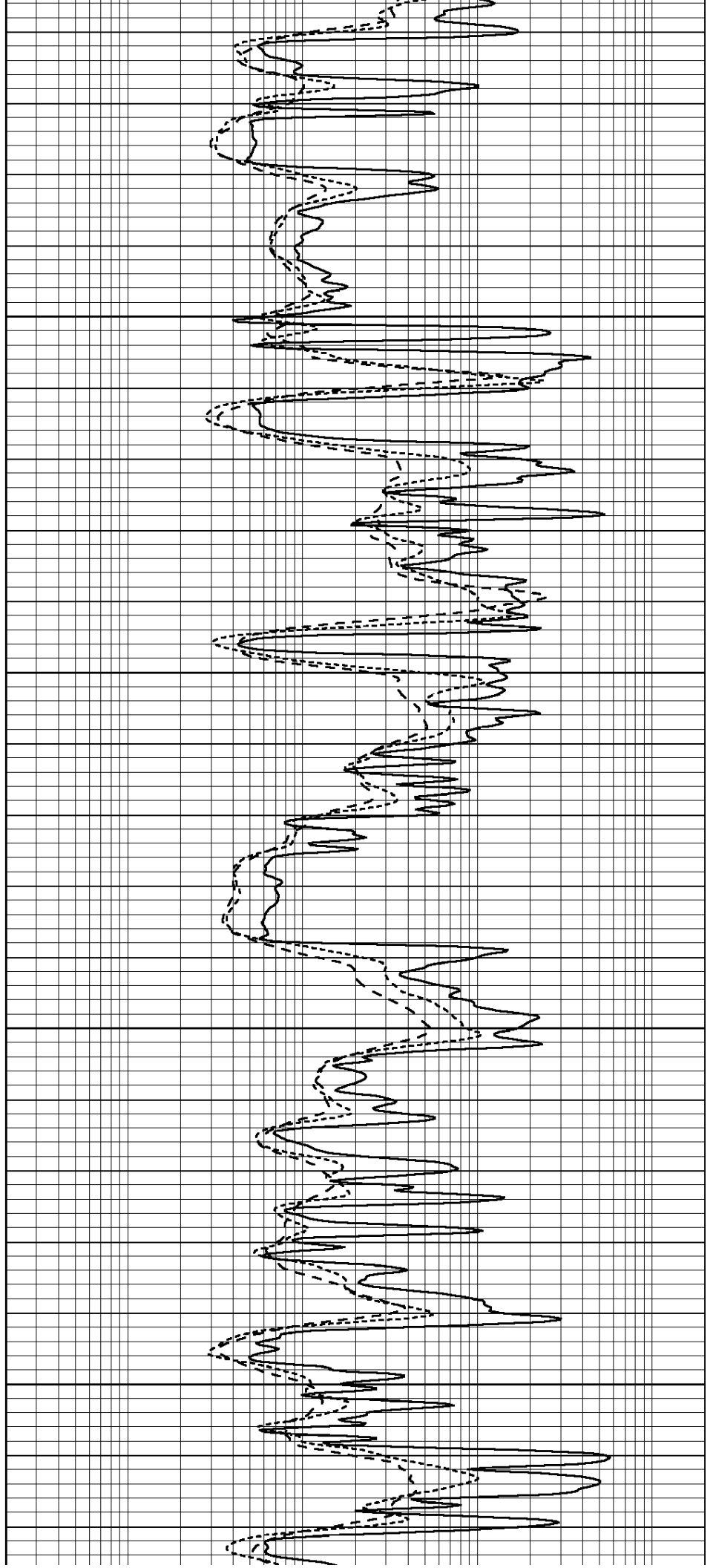


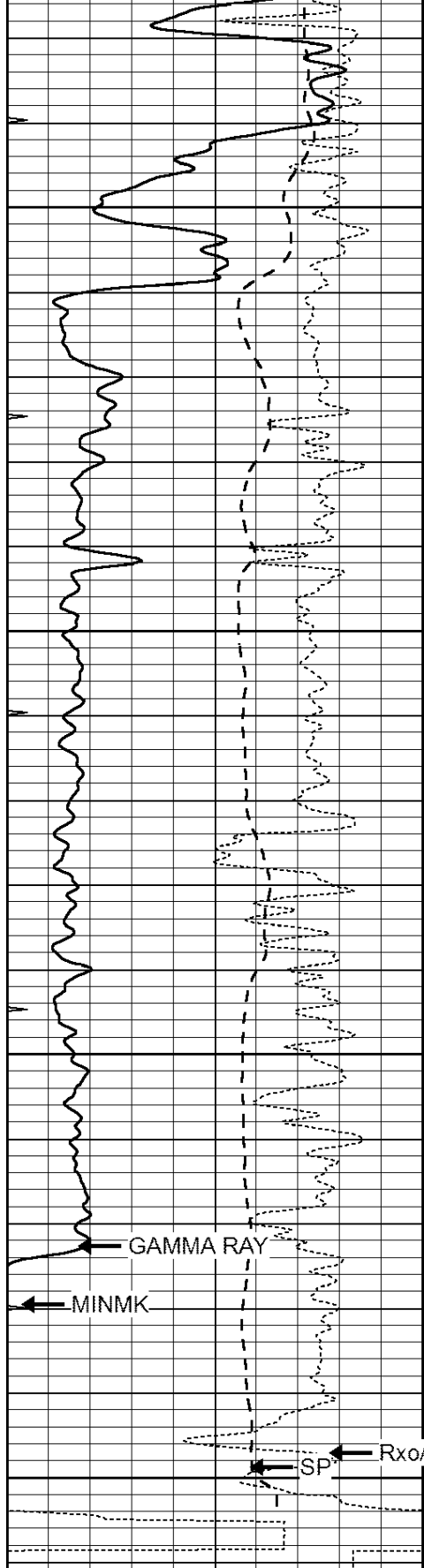
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4600

4650

4700





4750

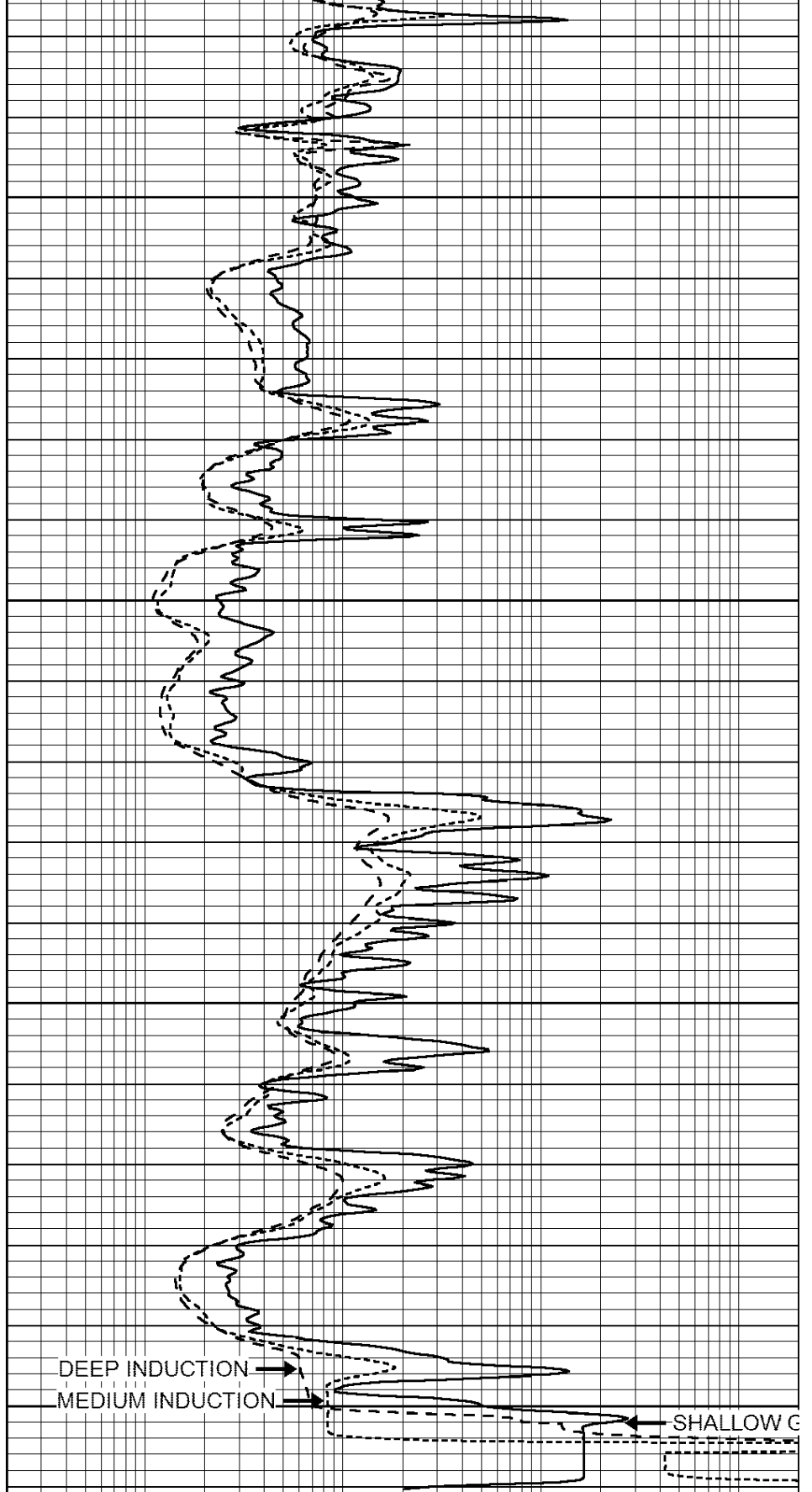
4800

4850

4900

LDT 4904

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

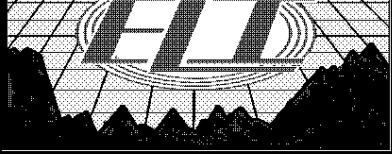


DEEP INDUCTION
MEDIUM INDUCTION

SHALLOW GUARD

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



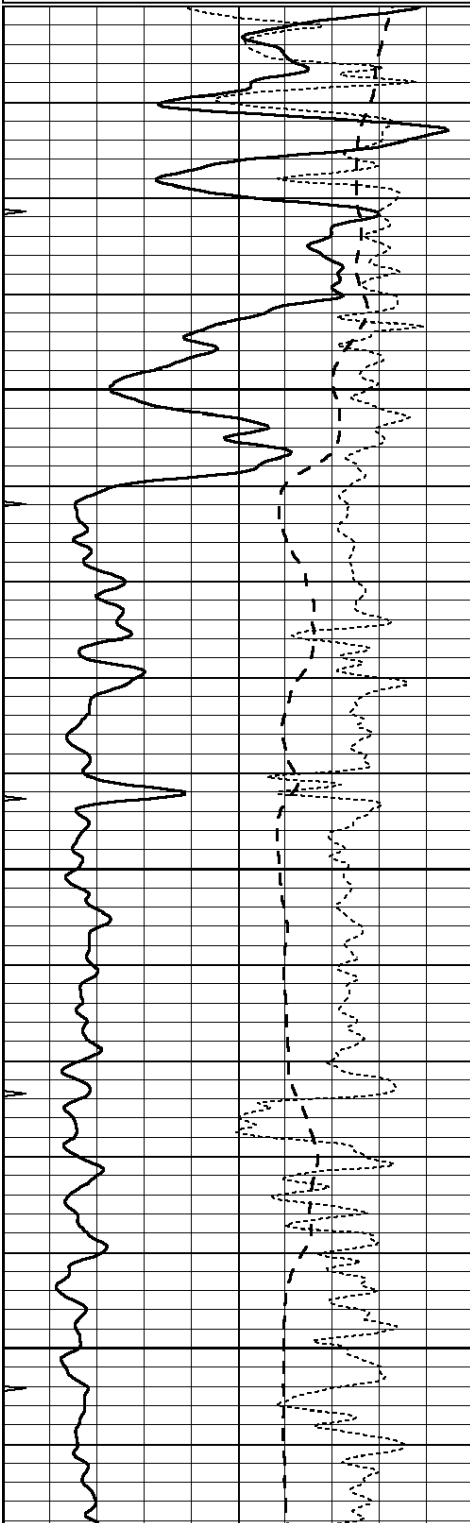


REPEAT SECTION

Database File: 2105pe.db
 Dataset Pathname: pass2.1
 Presentation Format: _dil
 Dataset Creation: Tue Oct 31 12:20:22 2017 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
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0	MINMK	20

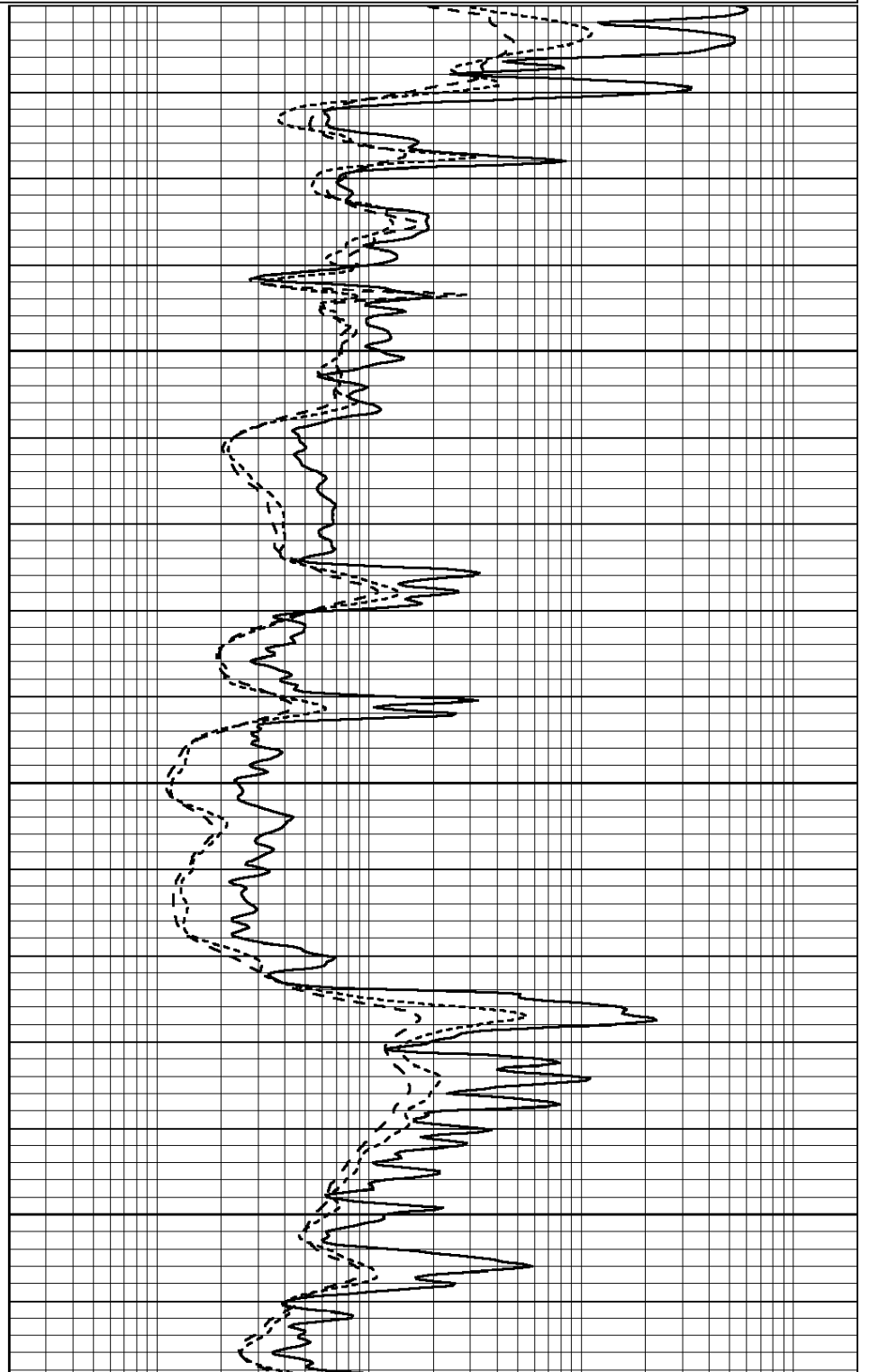
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0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

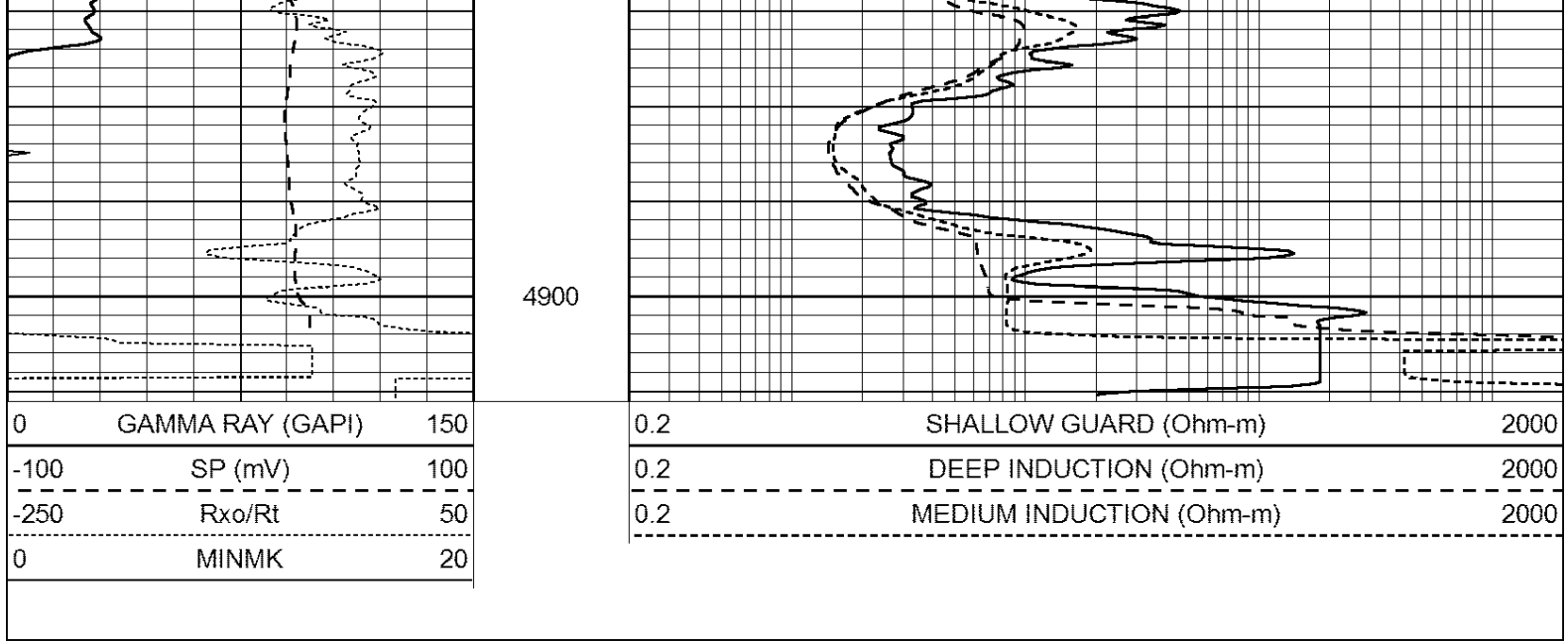


4750

4800

4850





Calibration Report

Database File: pe2.db
 Dataset Pathname: pass2
 Dataset Creation: Mon Aug 21 11:58:02 2017 by Log Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Mon Aug 21 11:58:18 2017
 Downhole Cal Performed: Mon Aug 21 11:58:21 2017
 After Survey Verification Performed: Mon Aug 21 11:58:23 2017

Surface Calibration

Loop:	Readings				References		Results	
	Air	Loop			Air	Loop	m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
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		

Litho Density Calibration Report
Serial: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:56:41 2017

	Background	Magnesium	Aluminum	Sandstone	
Window 1	833.6	7394.2	2287.3	8111.8	cps
Window 2	768.9	6322.3	1995.6	6800.0	cps
Window 3	621.5	3261.9	1186.4	3380.9	cps
Window 4	184.2	185.7	184.9	184.8	cps
Long Space	0.0	5553.4	1226.6	6031.1	cps
Short Space	1.2	1307.5	903.9	1387.7	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 46.3	Rib Slope	: 1.045	Density/Spine Ratio	: 0.566
Spine Angle	: 76.3	Spine Slope	: 4.090	Spine Intercept	: -20.7

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		

	Long Space	cps	pu	pu
2)	Short Space Long Space	cps cps	pu	
3)	Short Space Long Space	cps cps	pu	

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

Gamma Ray Calibration Report

Serial Number:	GR6	
Tool Model:	OPEN	
Performed:	Mon Aug 21 11:59:01 2017	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.5500	GAPI/cps