



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**DUAL  
INDUCTION  
LOG**

Company	CITATION OIL & GAS CORP.	Company	CITATION OIL & GAS CORP.
Well	PUTNAM INV #7	Well	PUTNAM INV #7
Field		Field	
County	GRAHAM	County	GRAHAM
State	KANSAS	State	KANSAS
Location:	AP1 # : 15-065-23887-0000	Location:	SEC 23 TWP 9S RGE 21W GROUND LEVEL Elevation 2303 1650' FNL & 330' FWL KELLY BUSHING 11' A.G.L. NW - SW - NW KELLY BUSHING
Permanent Datum	GROUND LEVEL	Elevation	2303
Log Measured From	KELLY BUSHING 11' A.G.L.	Other Services	CDL/CNL/PE MEL/SON
Drilling Measured From	KELLY BUSHING	Elevation	K.B. 2314 D.F. 2312 G.L. 2303

Date	2/8/13
Run Number	ONE
Depth Driller	3854
Depth Logger	3855
Bottom Logged Interval	3853
Top Log Interval	0
Casing Driller	8 5/8" @ 1761'
Casing Logger	1760'
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3/52
pH / Fluid Loss	10.0/8.0
Source of Sample	FLOWLINE
Rim @ Meas. Temp	1.30 @ 98F
Rmf @ Meas. Temp	0.98 @ 98F
Rmc @ Meas. Temp	1.56 @ 98F
Source of Rmf / Rmc	MEASUREMENT
Rim @ BHT	1.11 @ 115F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	
Maximum Recorded Temperature	115F
Equipment Number	4854
Location	HAYS, KANSAS
Recorded By	JEFF GRONEMEG
Witnessed By	ED GLASSMAN

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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**

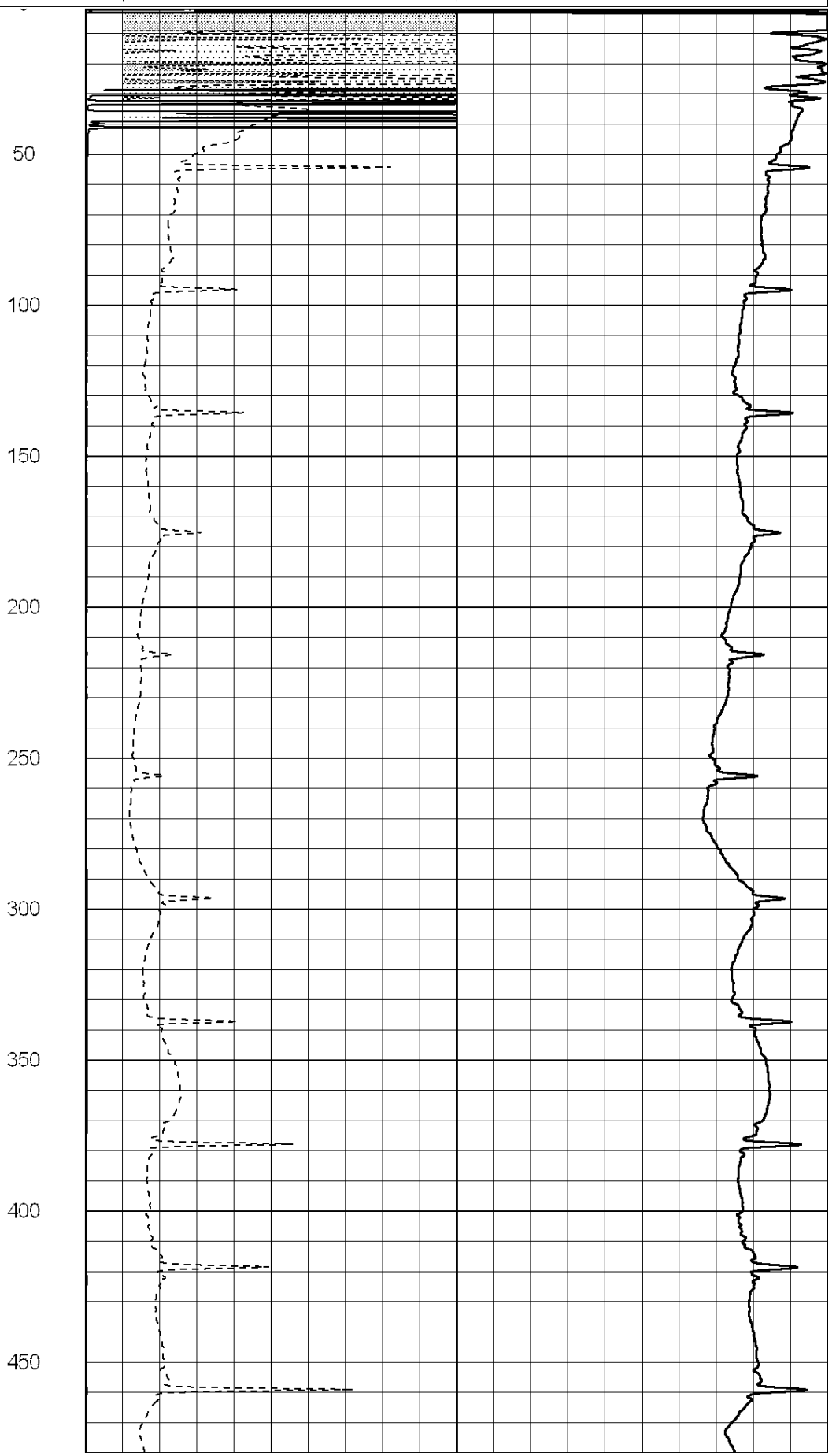
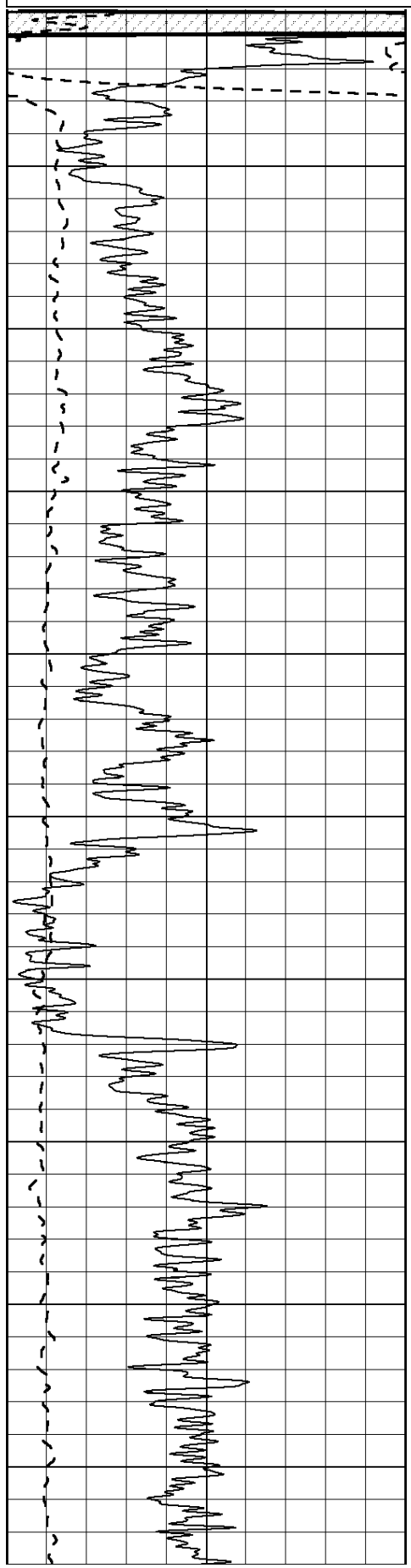
THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395  
 DIRECTIONS  
 PALCO, KS - SOUTH TO RD X (REDLINE RD) - WEST 4 MILES TO CHURCH OF GOD  
 1 1/2 MILES NORTH - EAST INTO

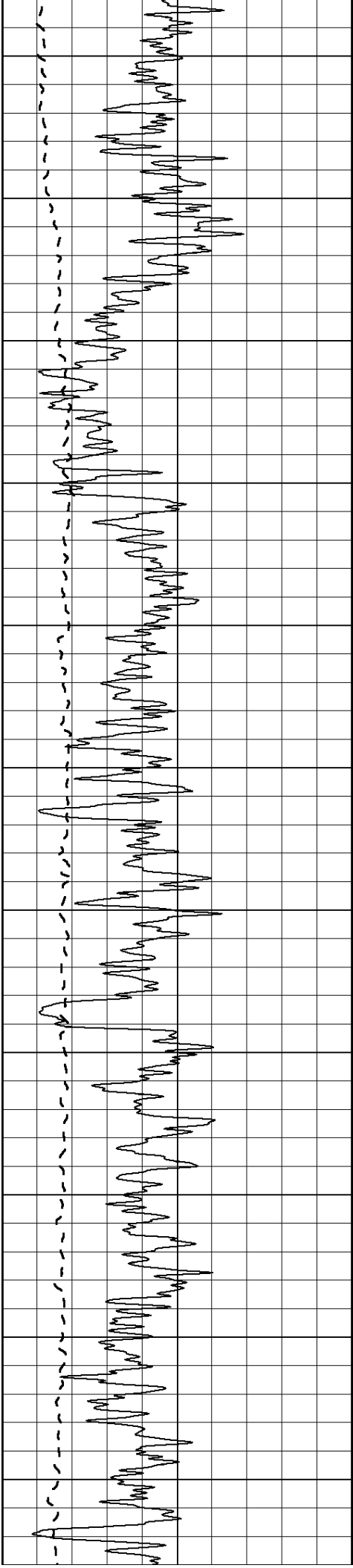
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-100	SP (mV)	100

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





500

550

600

650

700

750

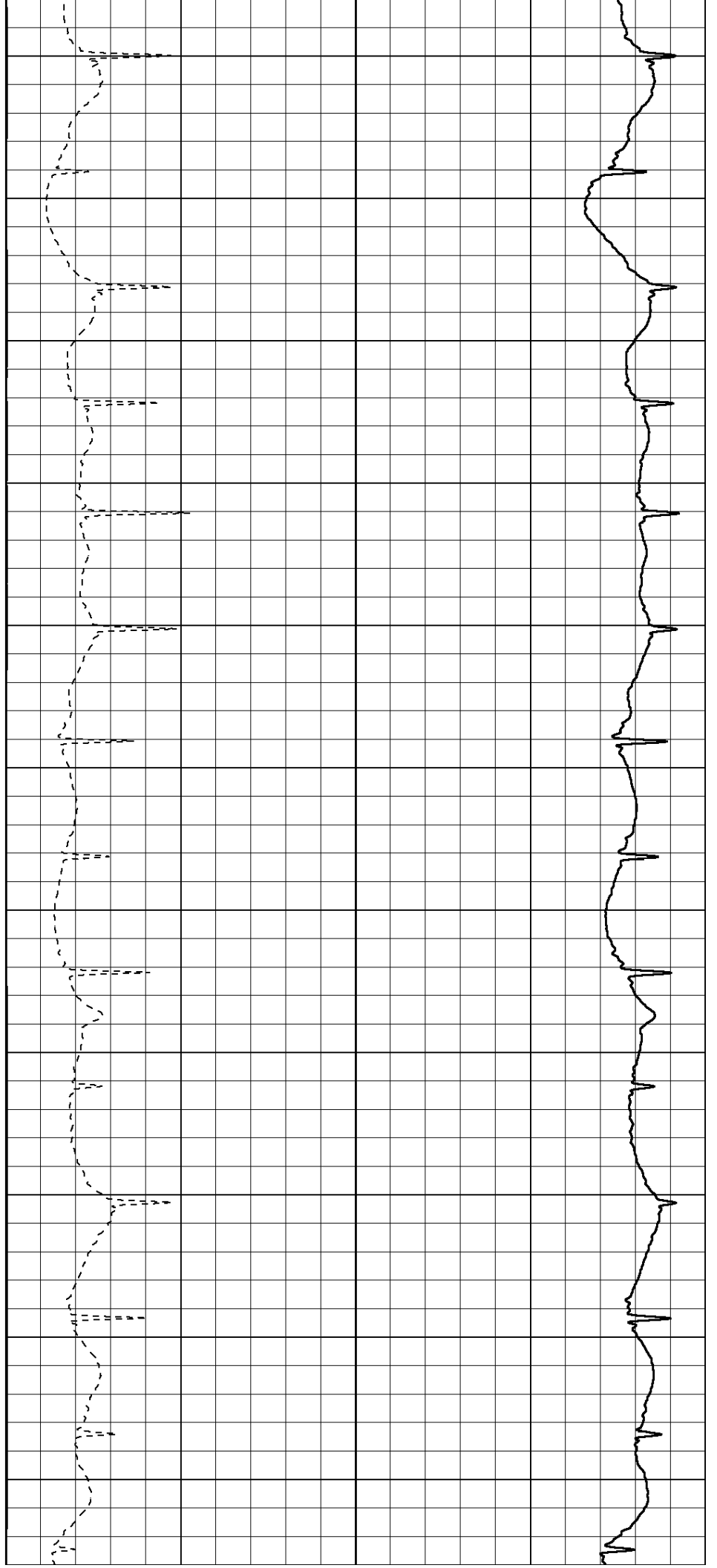
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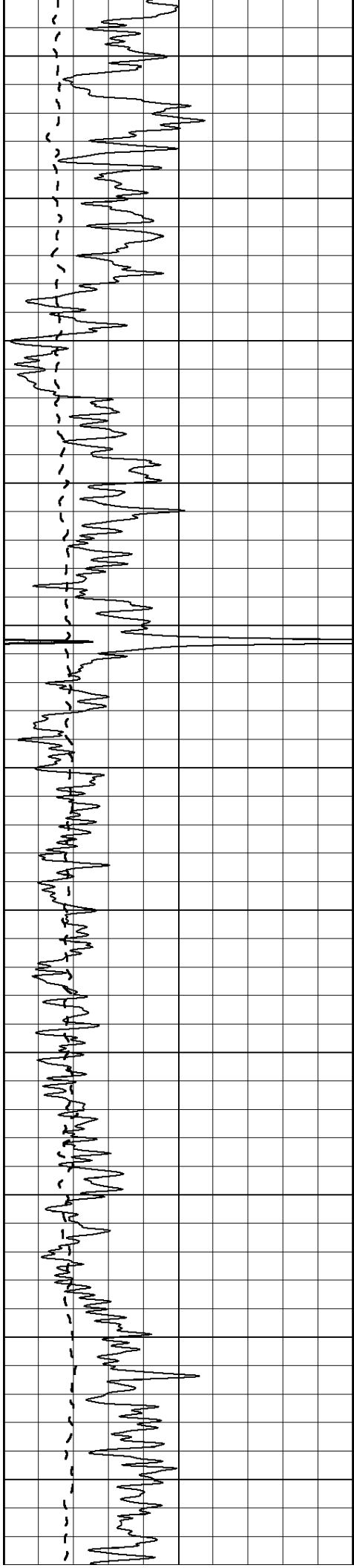
850

900

950

1000





1050

1100

1150

1200

1250

1300

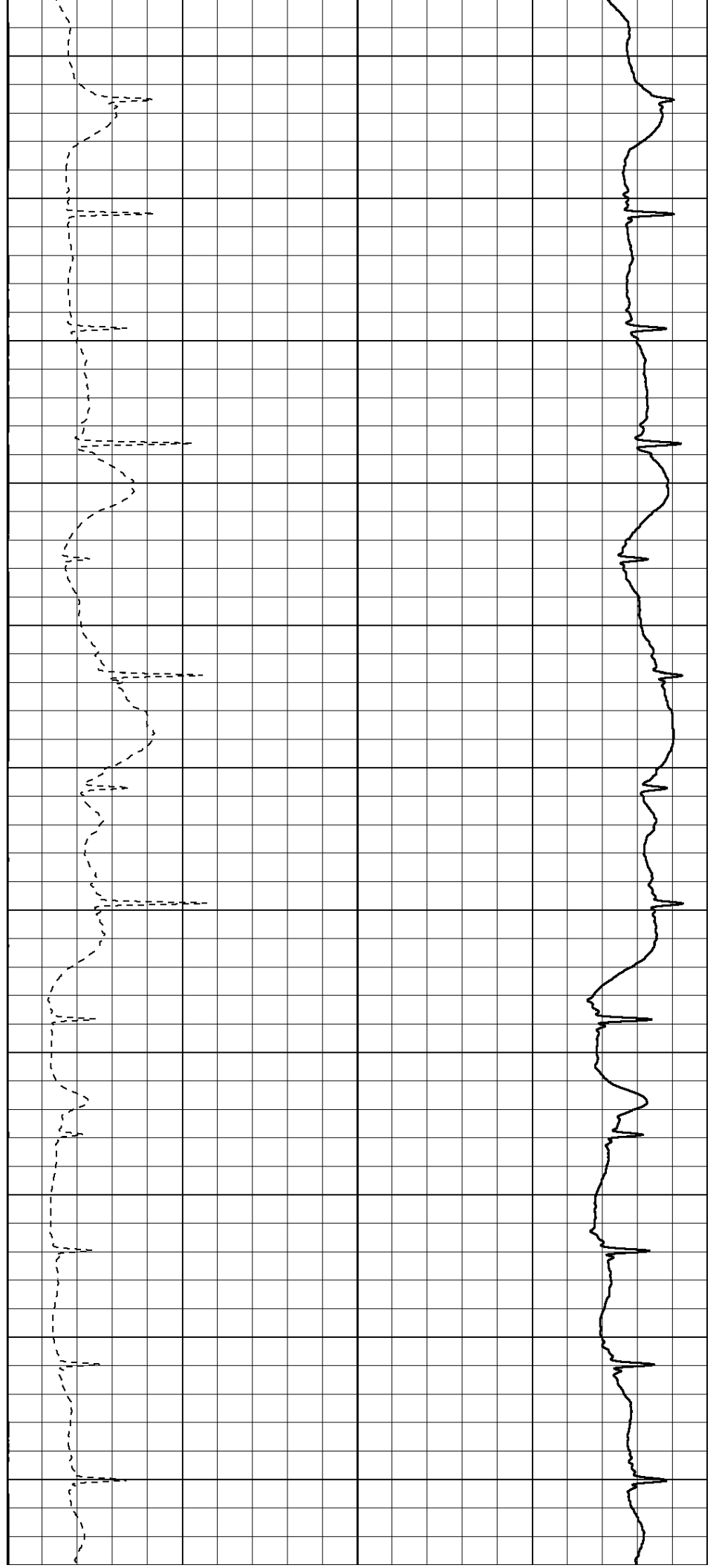
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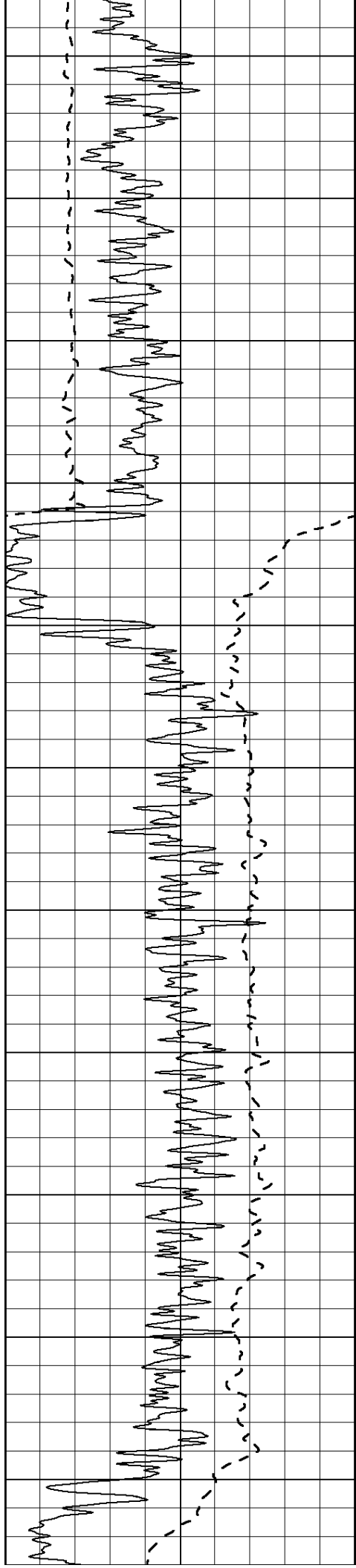
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1450

1500

1550





1600

1650

1700

1750

1800

1850

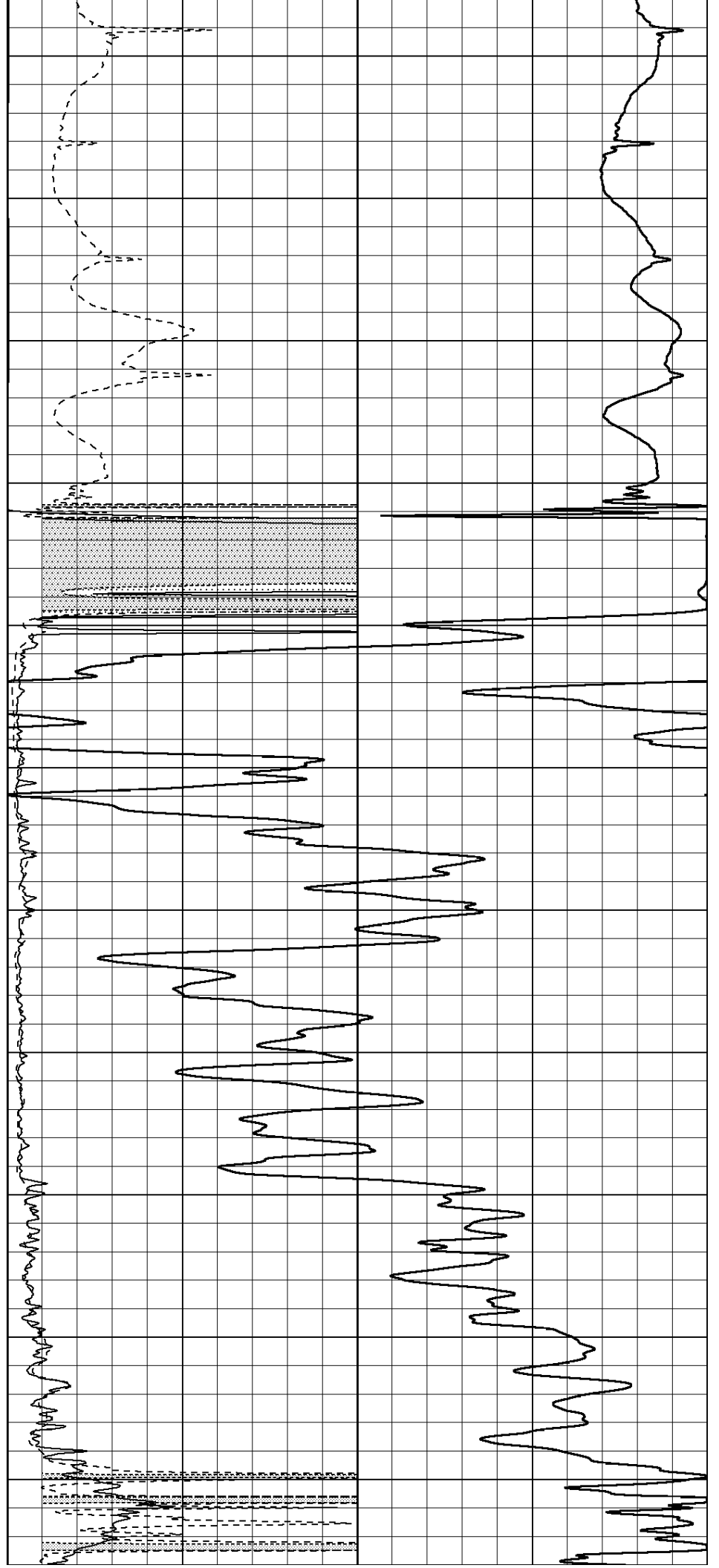
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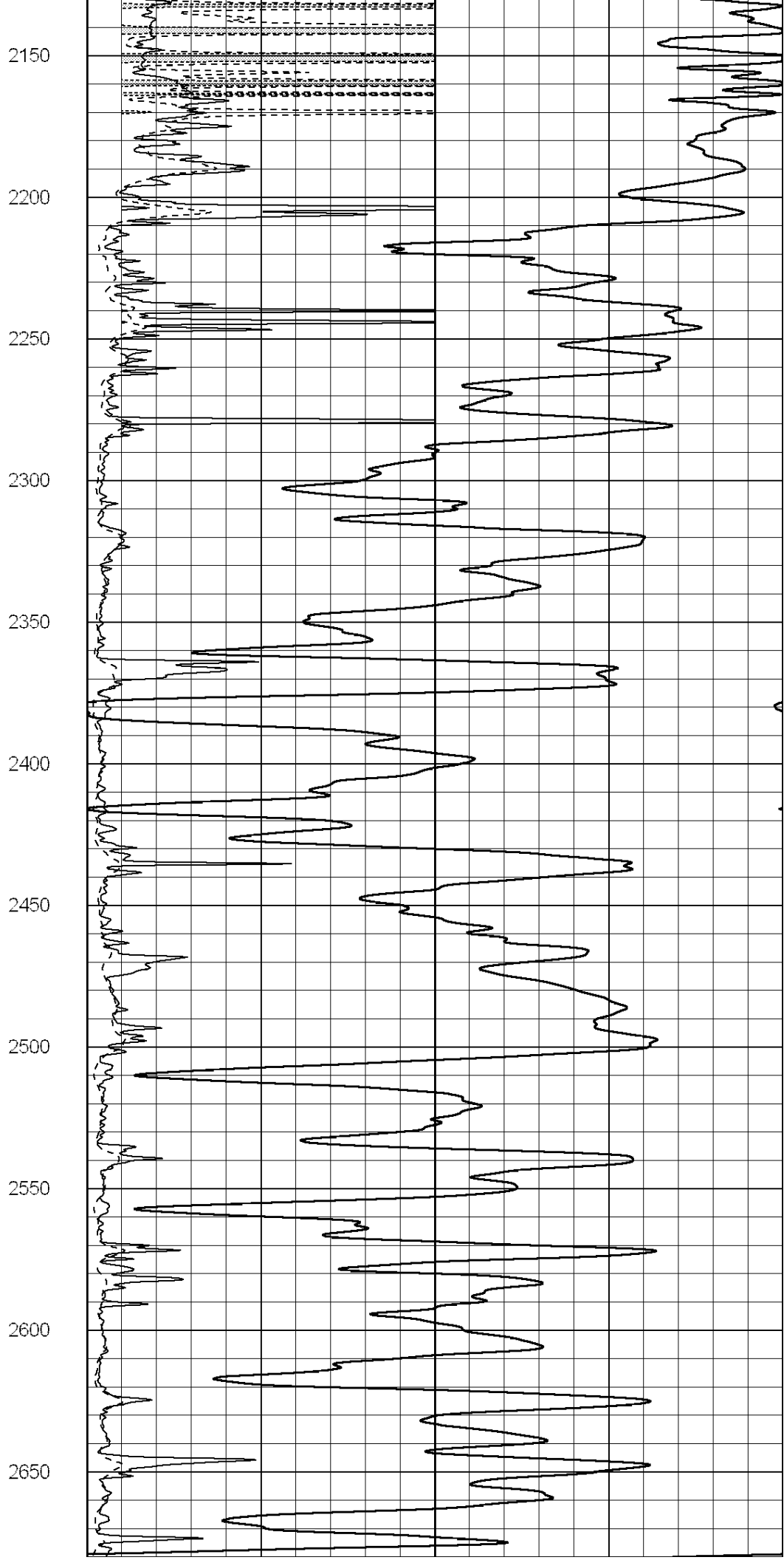
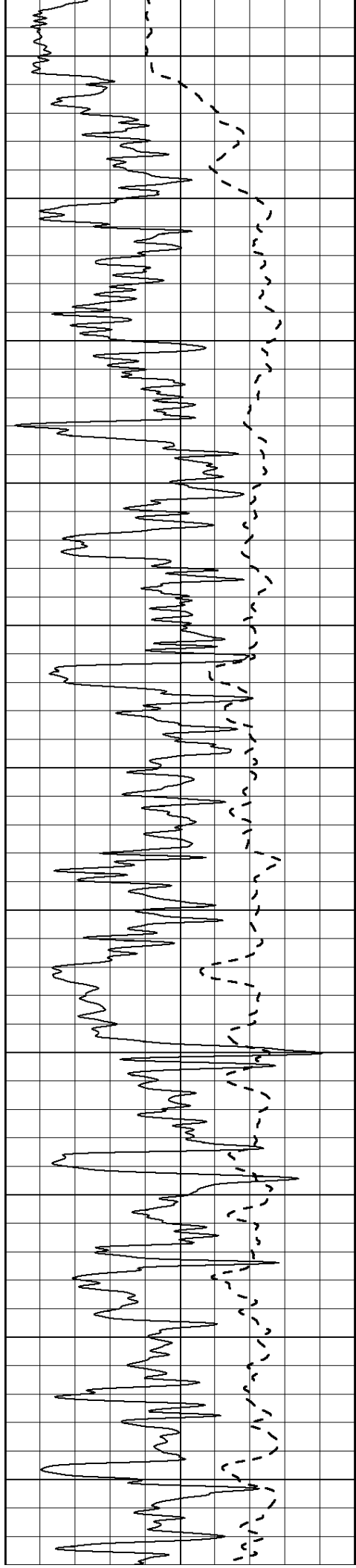
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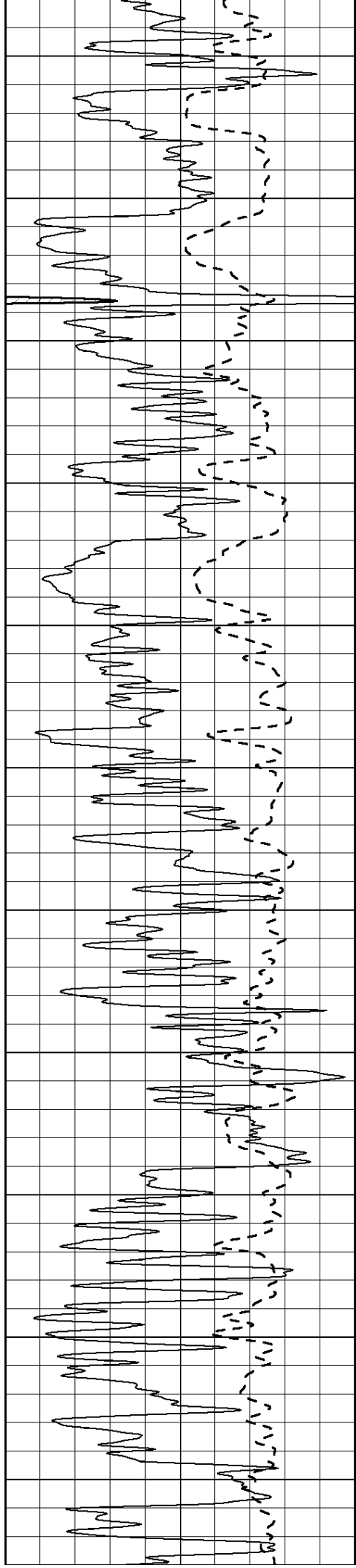
2000

2050

2100







2700

2750

2800

2850

2900

2950

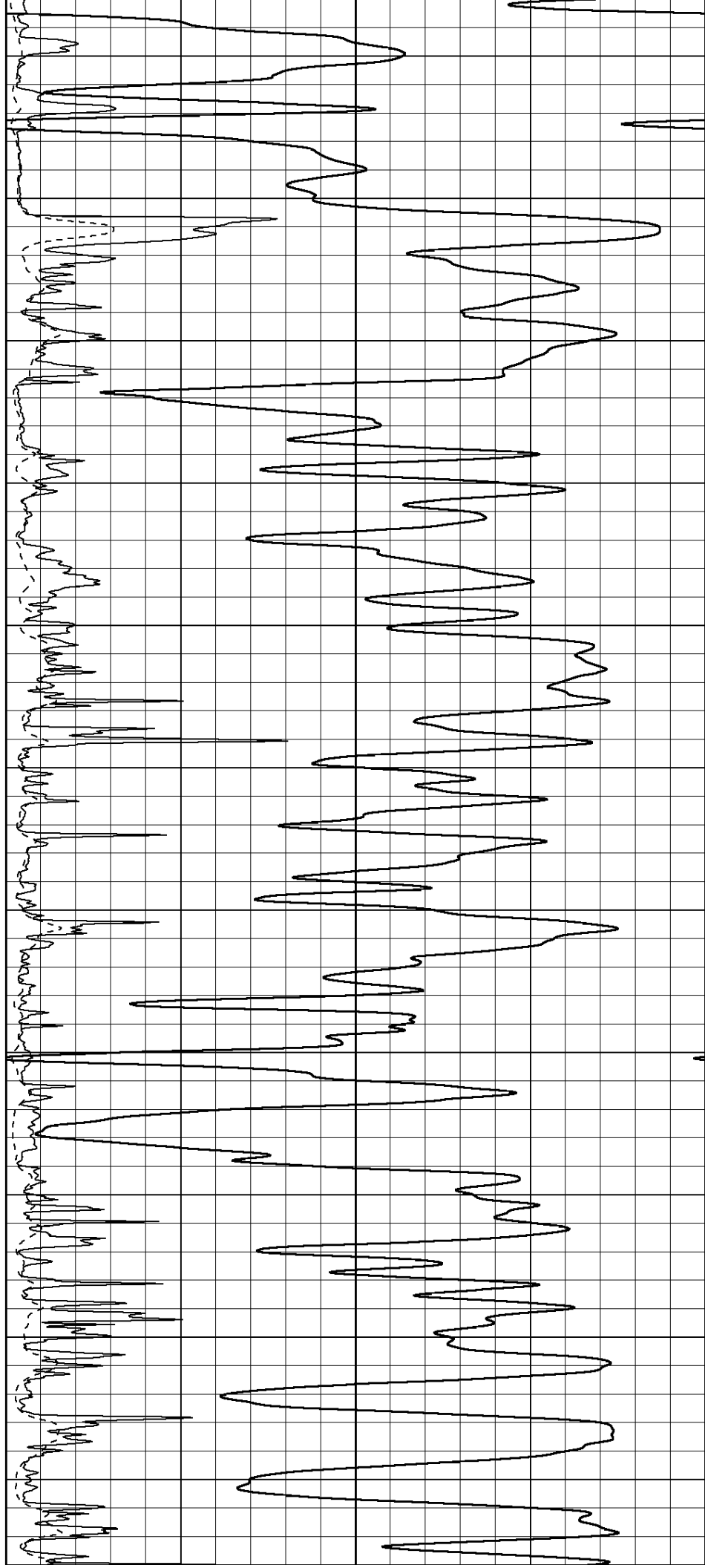
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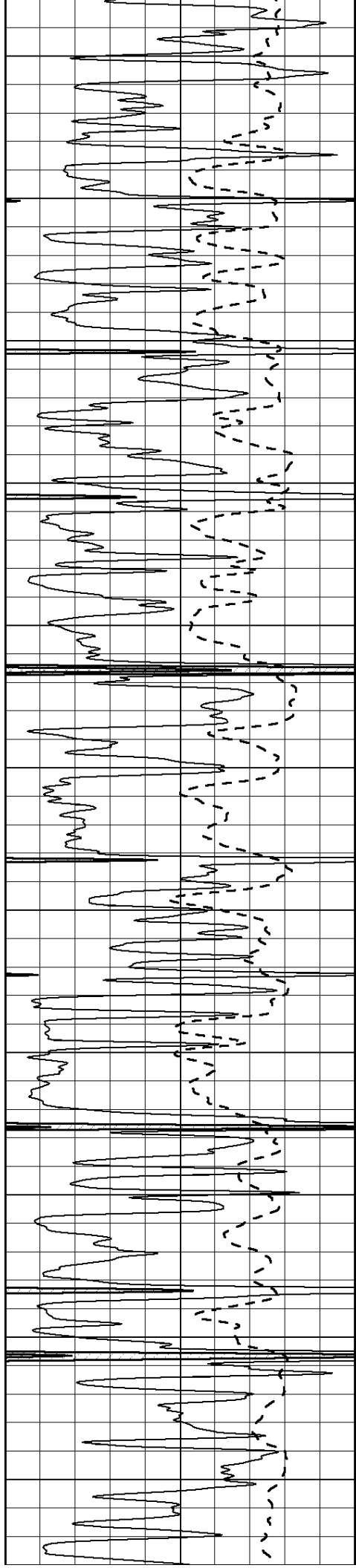
3050

3100

3150

3200





3250

3300

3350

3400

3450

3500

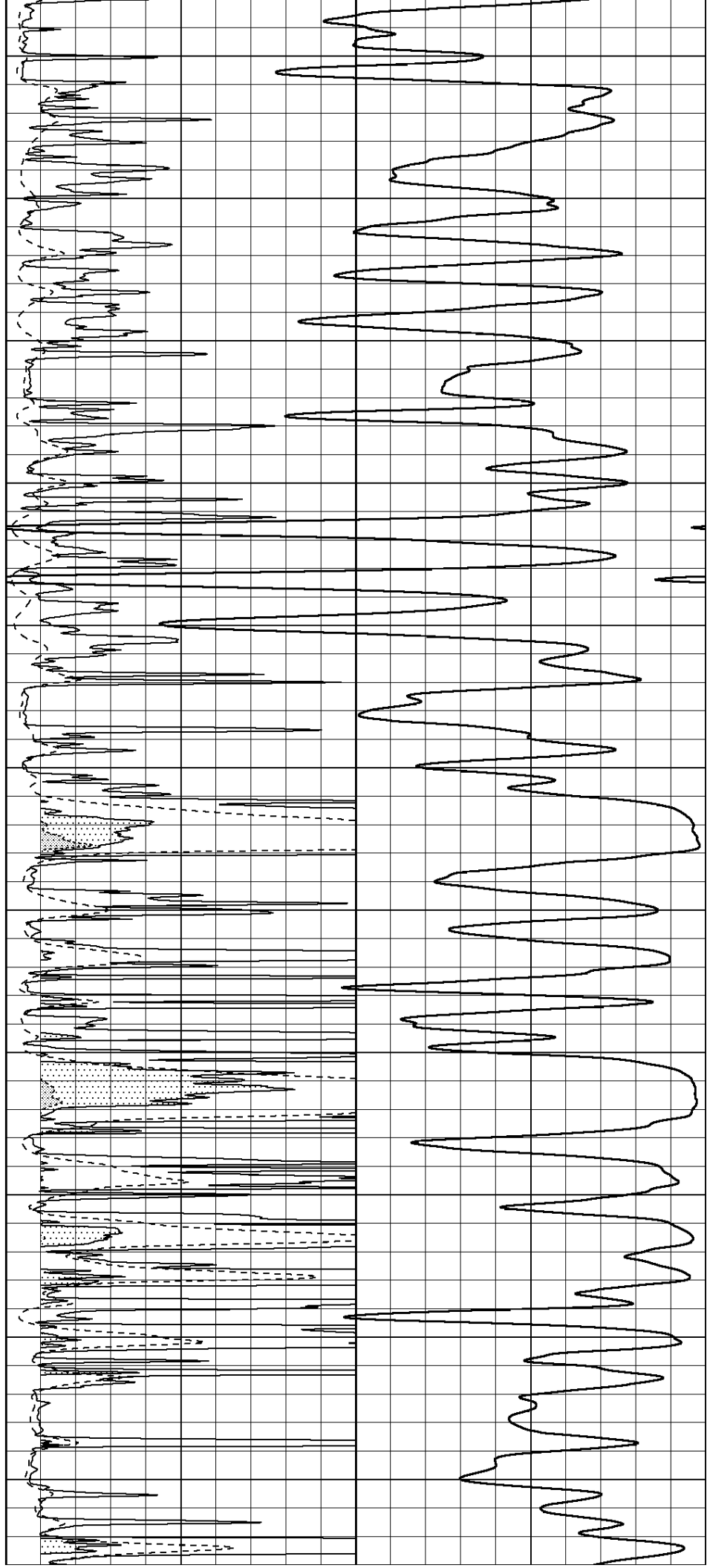
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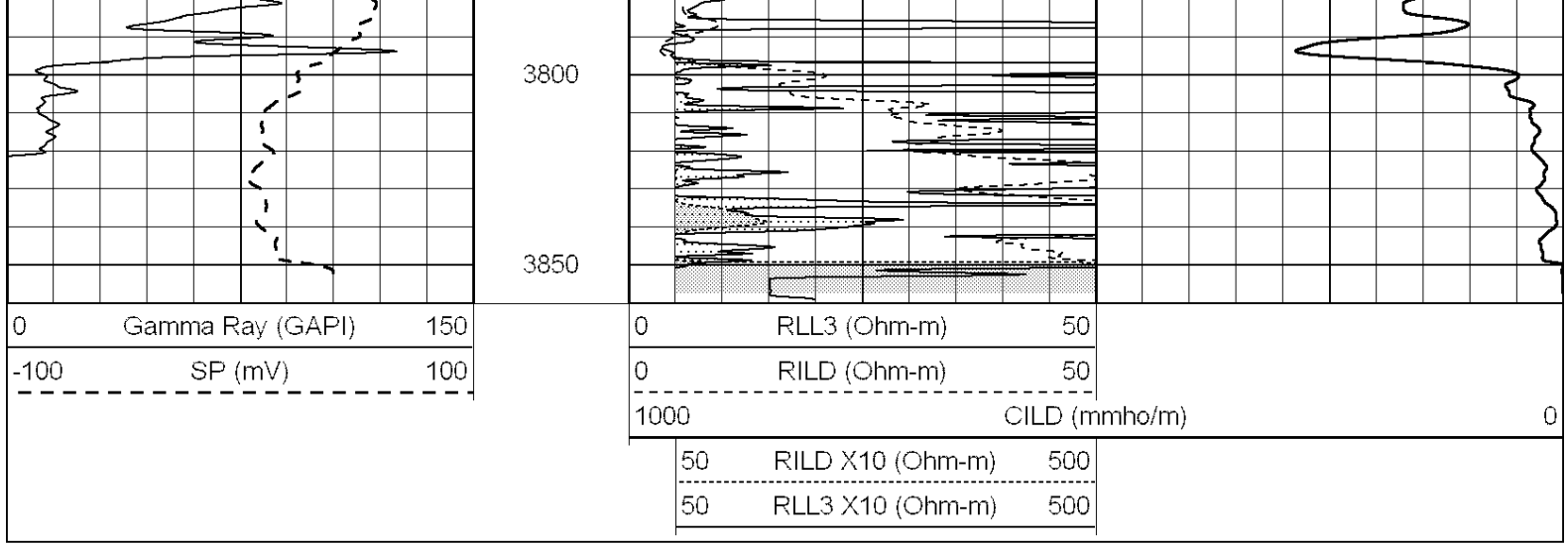
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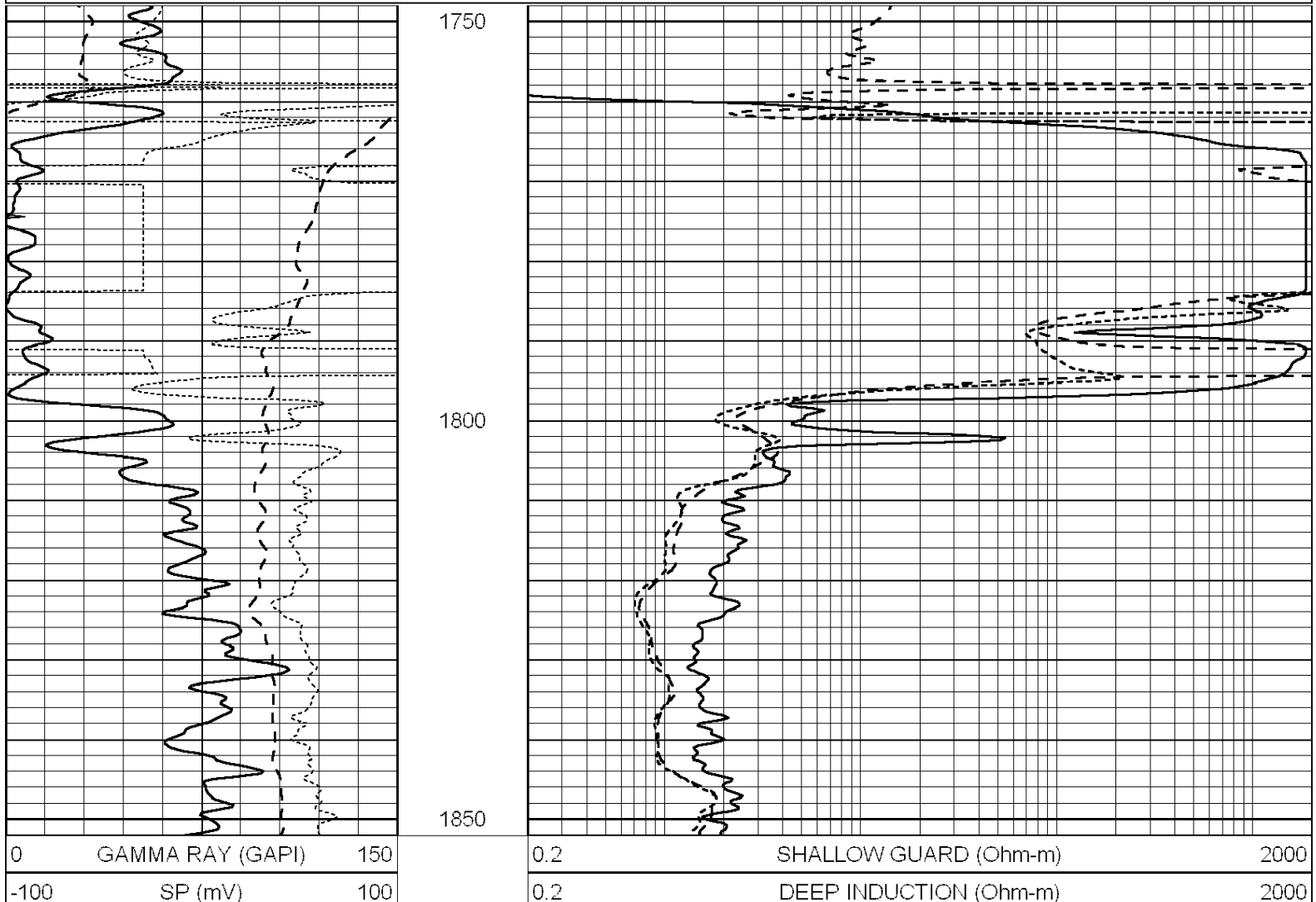
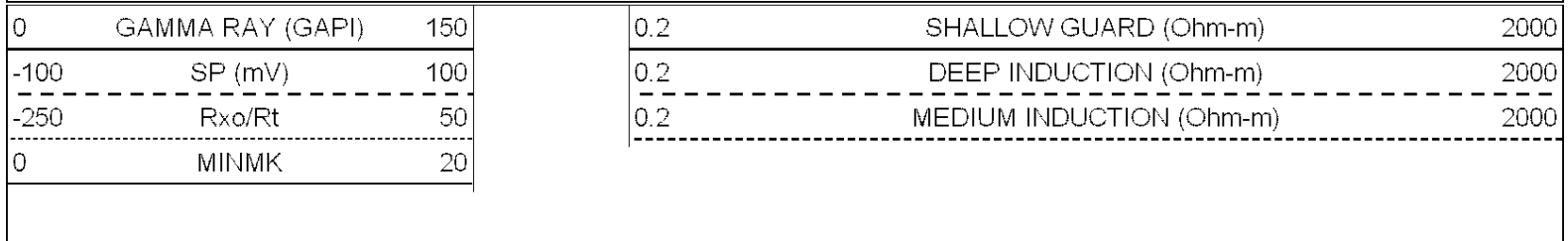
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3750





Database File: 010409pe.db  
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 Presentation Format: \_dil  
 Dataset Creation: Fri Feb 08 15:10:26 2013 by Calc SOC 120430  
 Charted by: Depth in Feet scaled 1:240



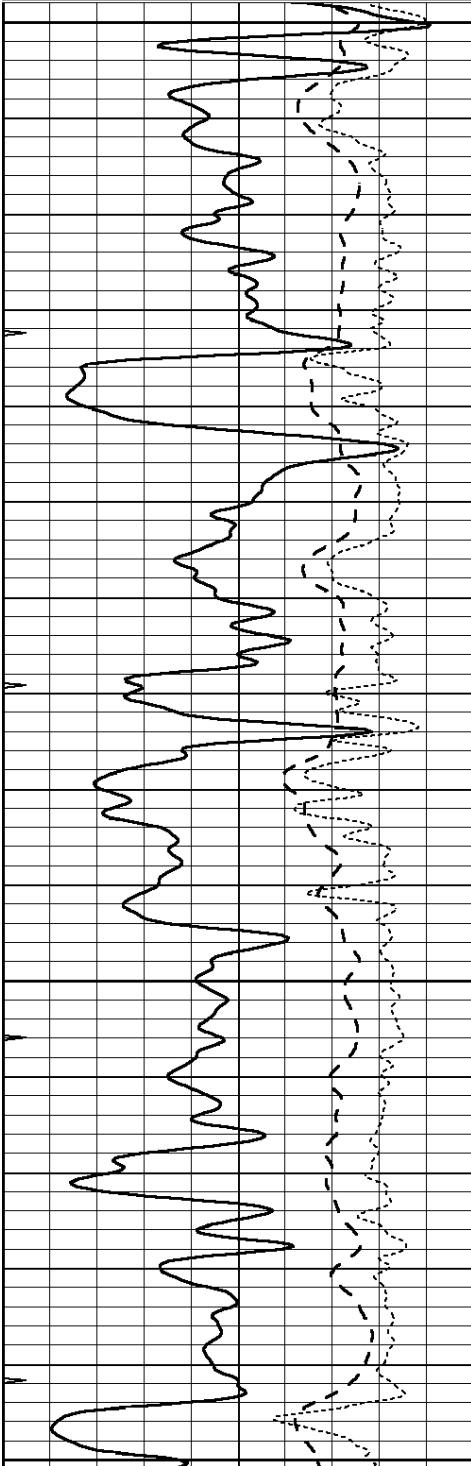
-250	Rxo/Rt	50
0	MINMK	20

0.2 MEDIUM INDUCTION (Ohm-m) 2000

Database File: 010409pe.db  
 Dataset Pathname: pass3.3  
 Presentation Format: \_dil  
 Dataset Creation: Fri Feb 08 14:01:49 2013 by Calc SOC 120430  
 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

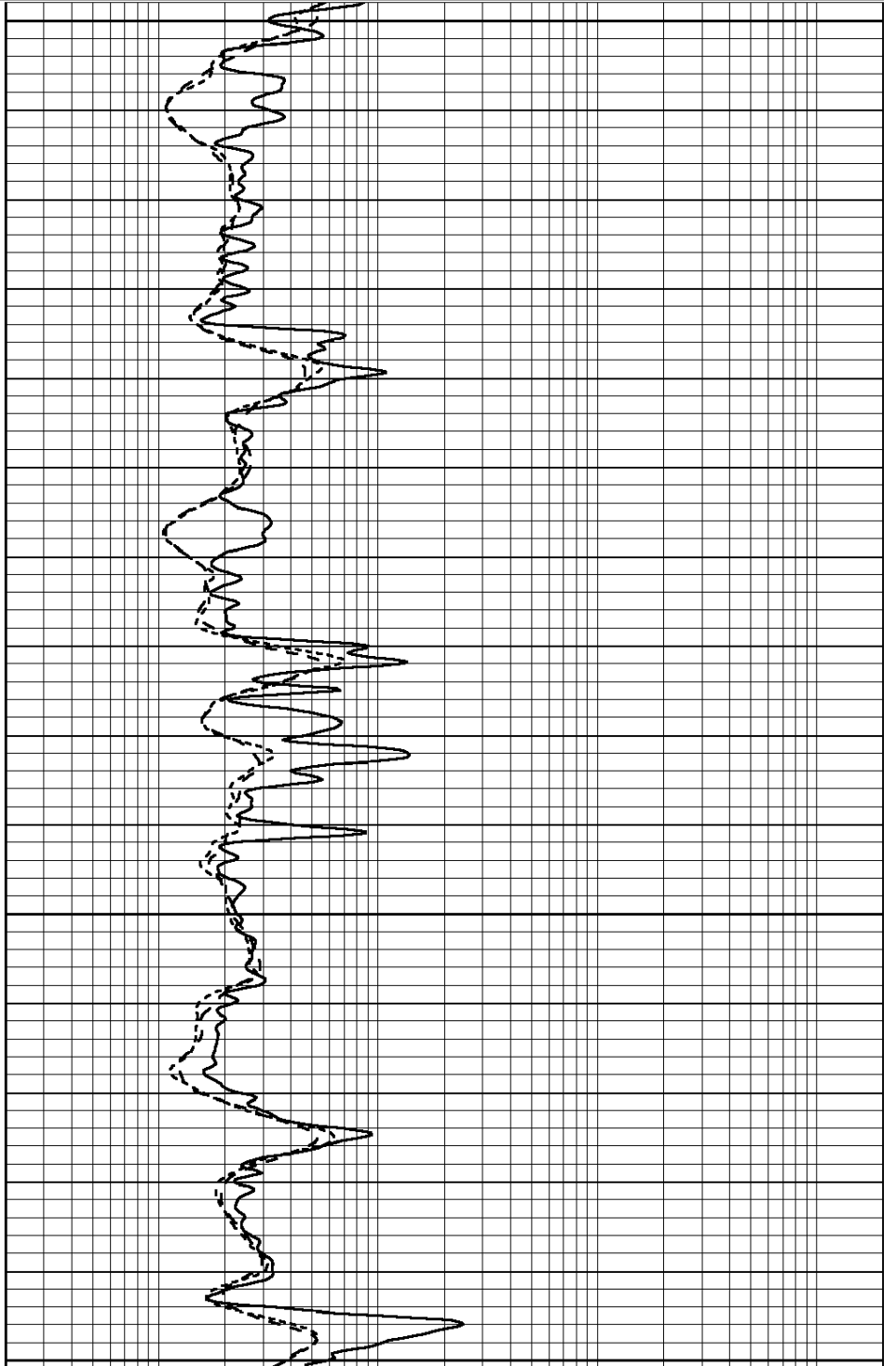


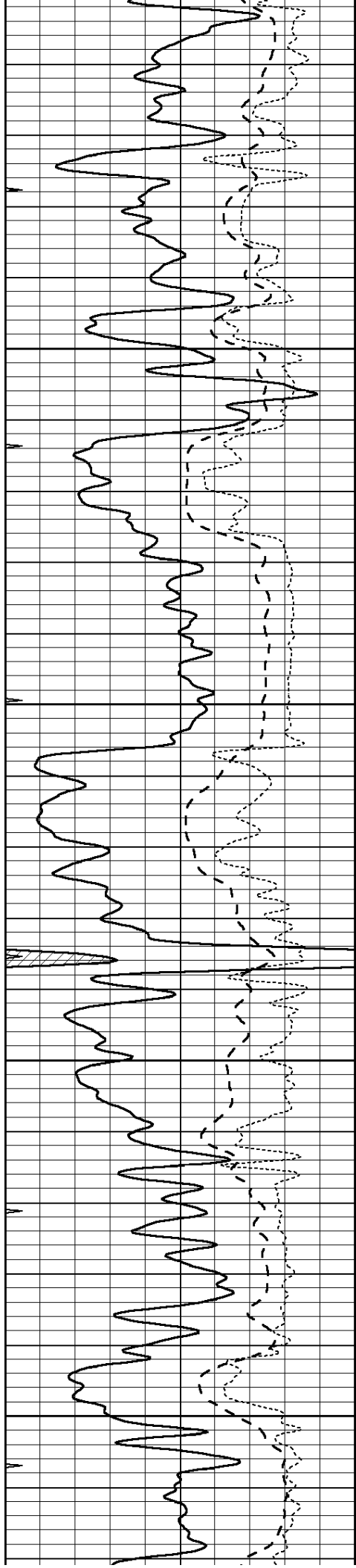
2500

2550

2600

2650



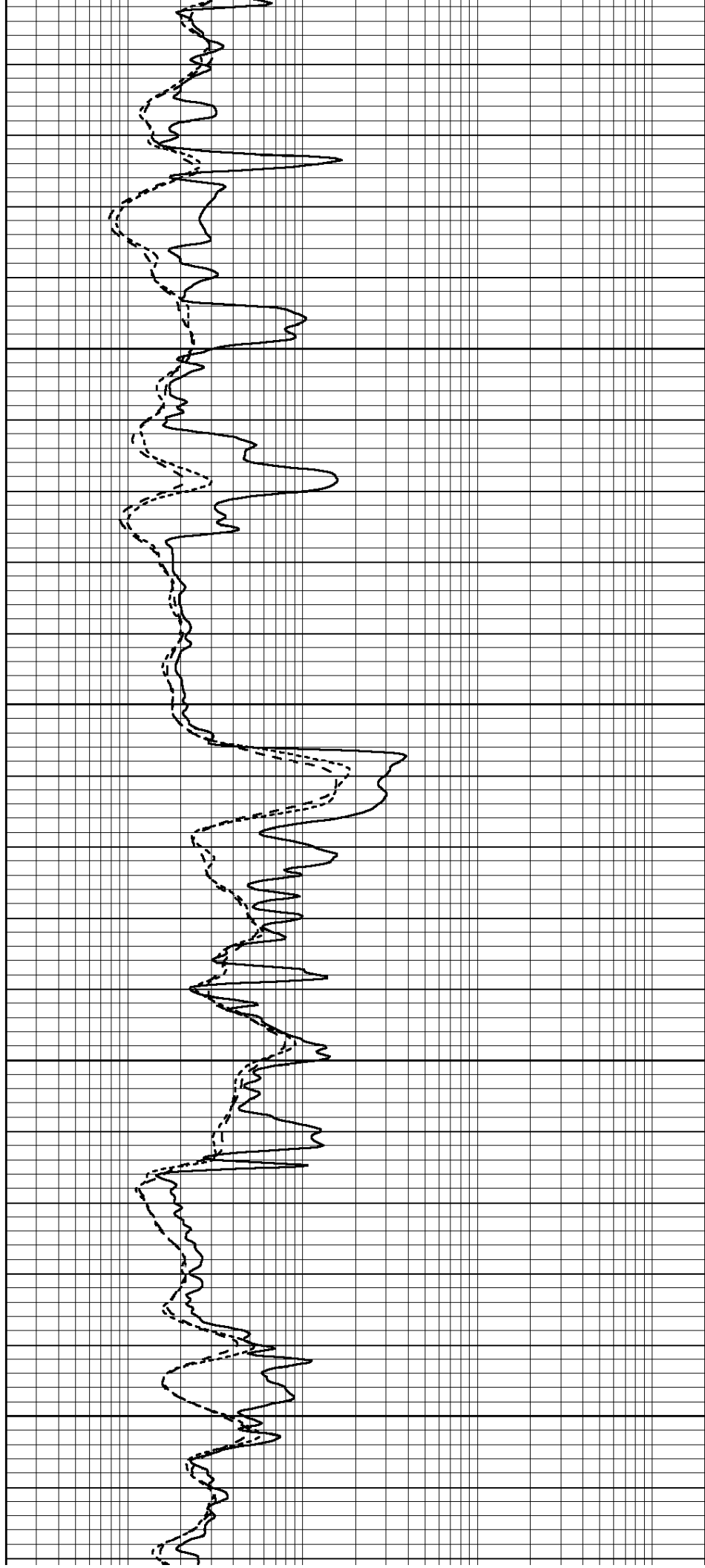


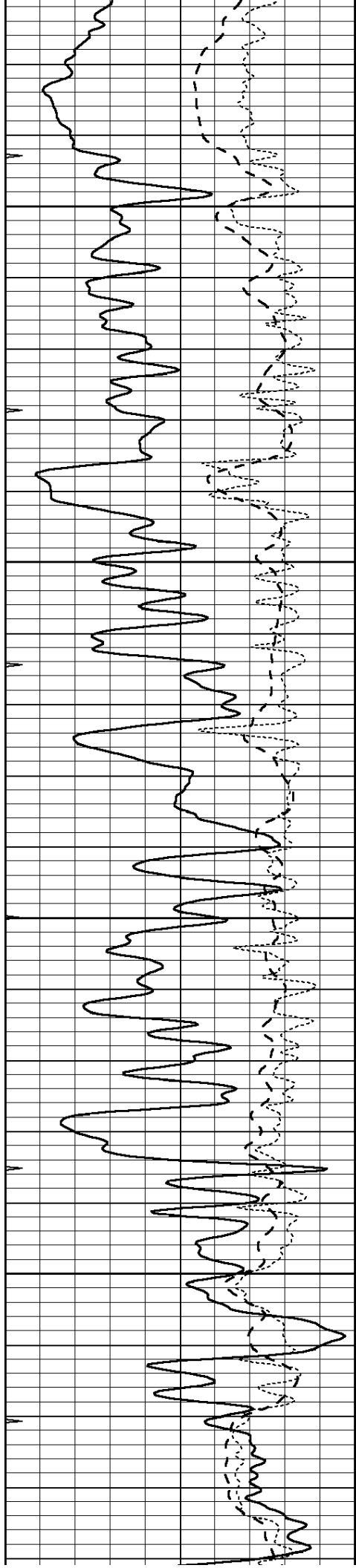
2700

2750

2800

2850



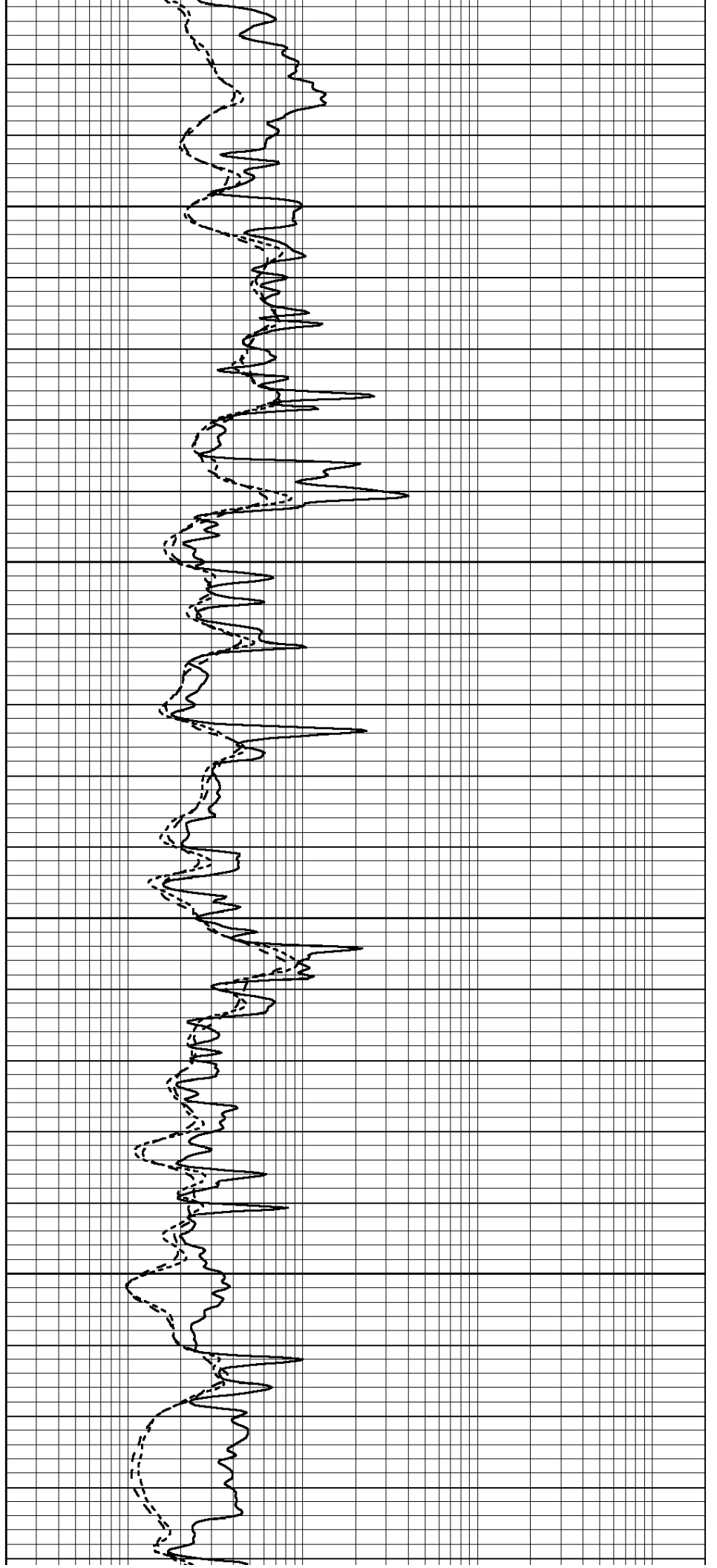


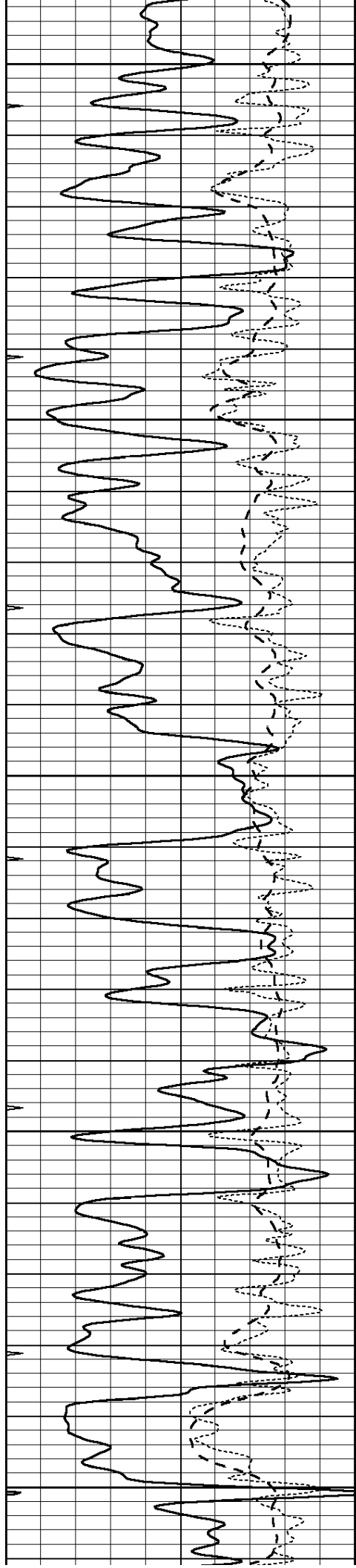
2900

2950

3000

3050





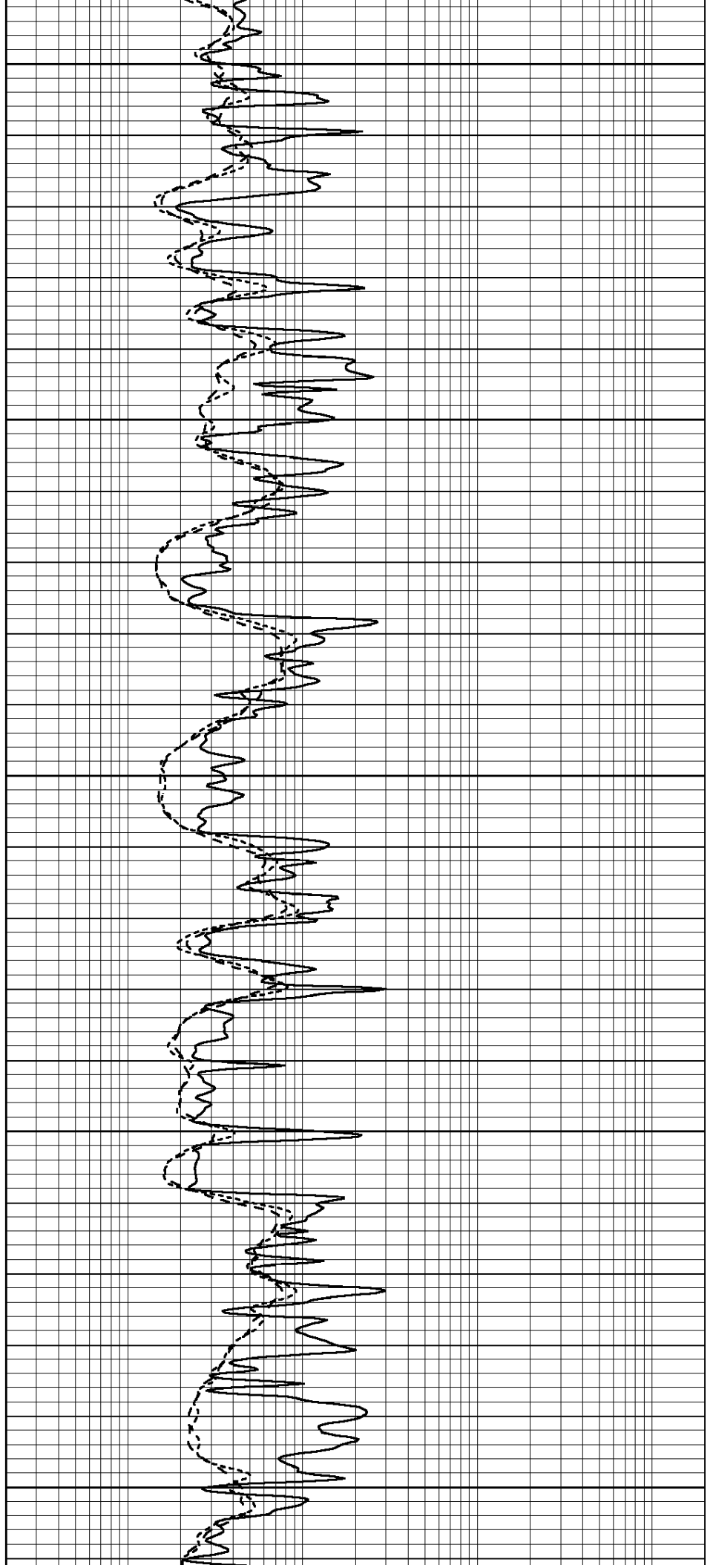
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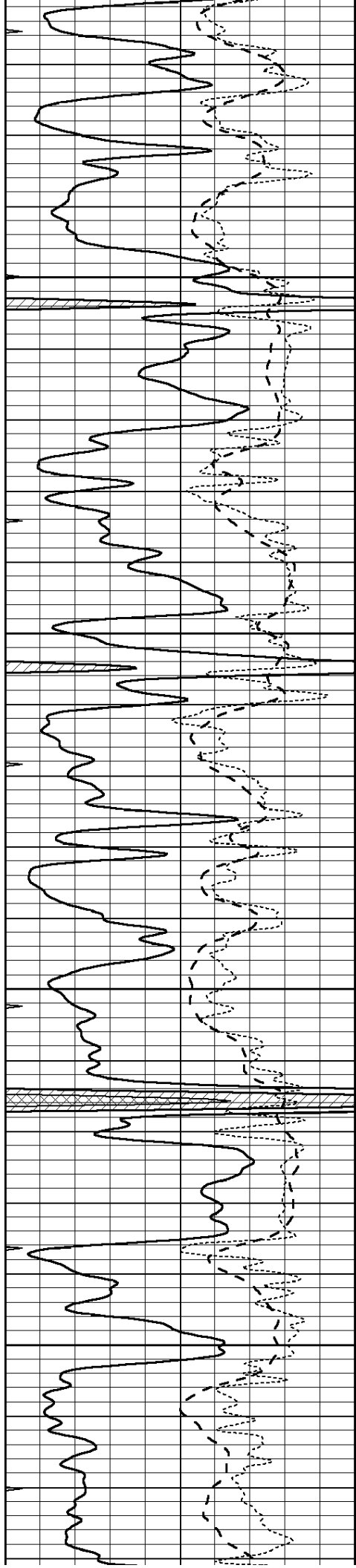
3150

3200

3250

3300



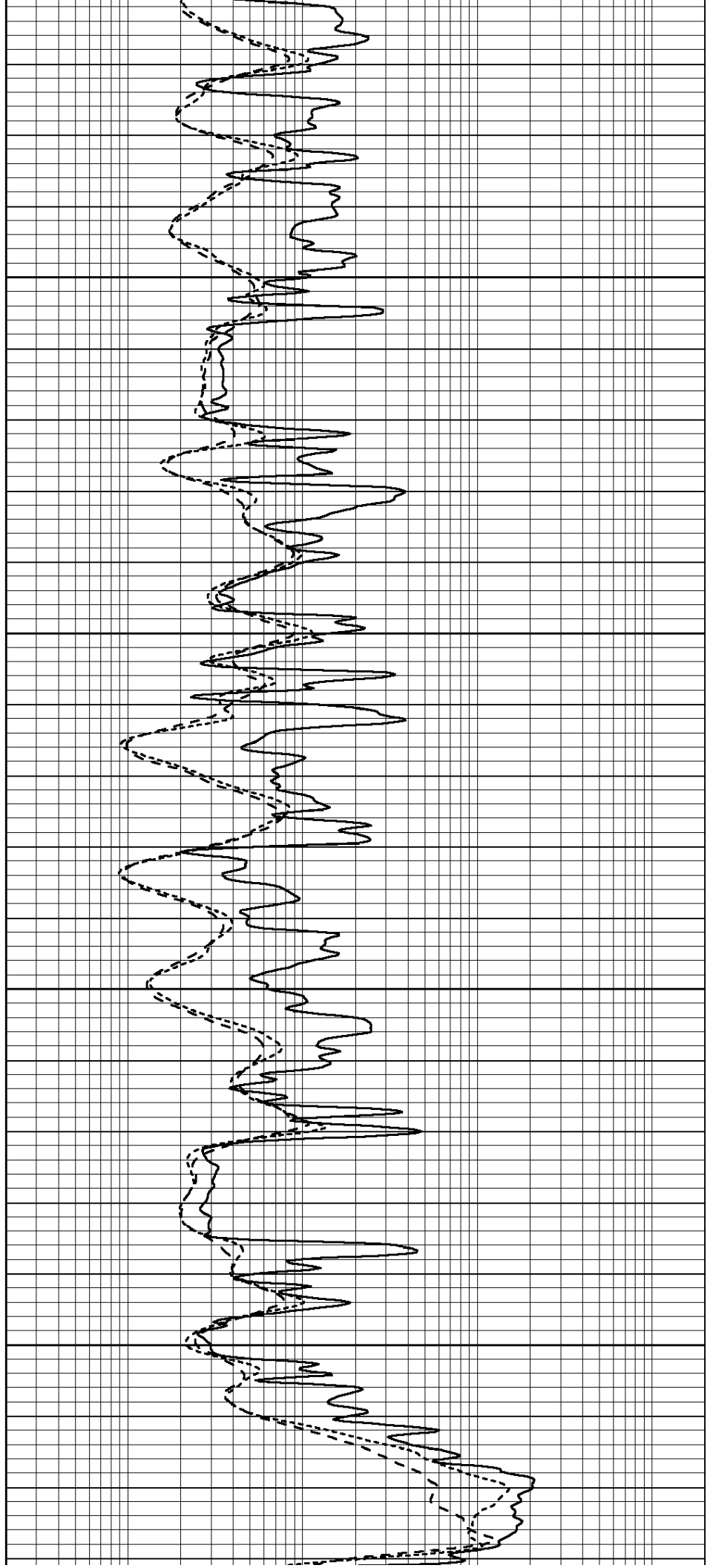


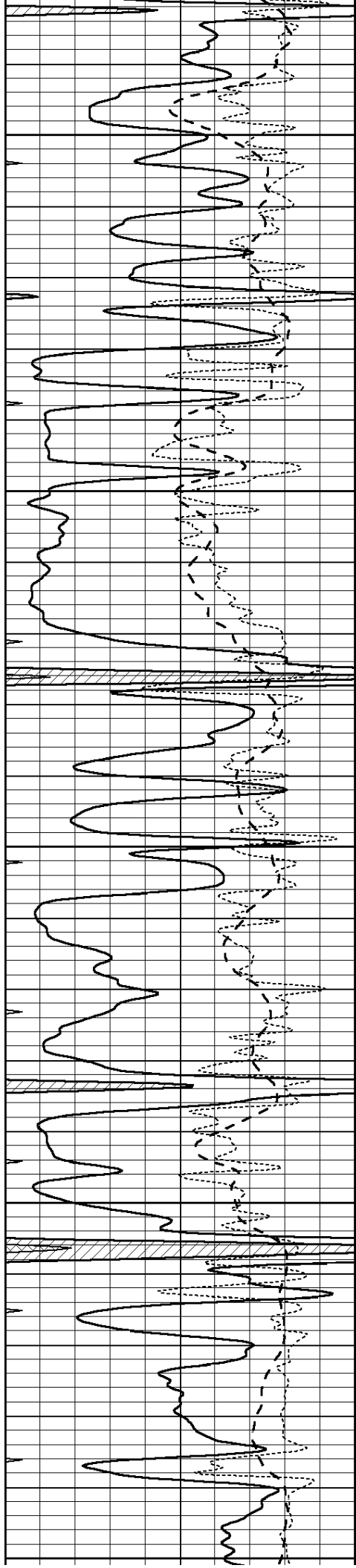
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3400

3450

3500





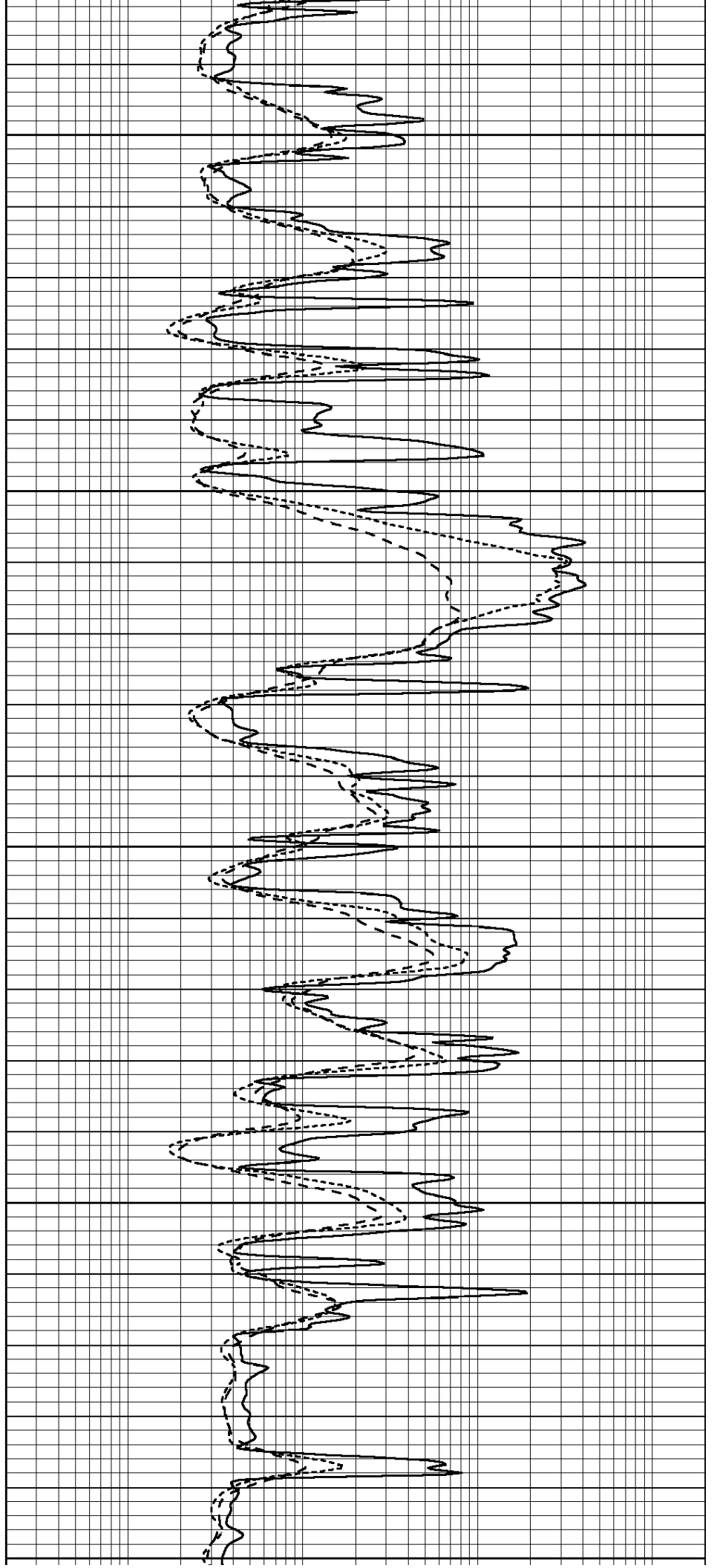
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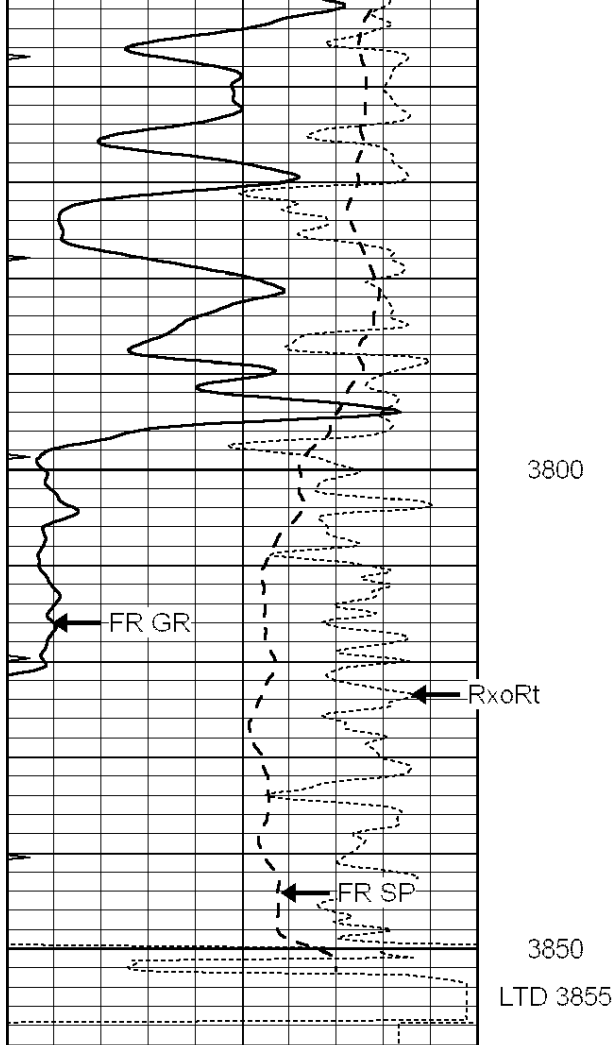
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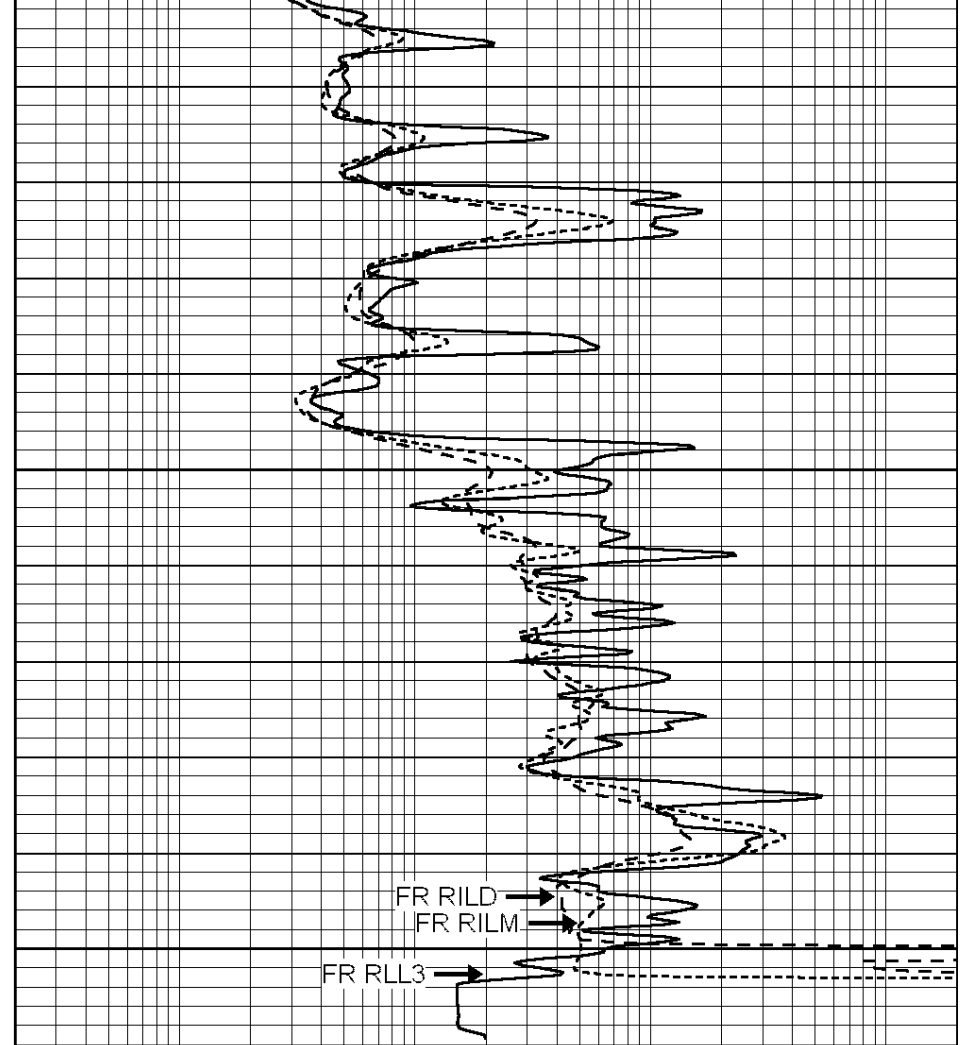
3700

3750





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

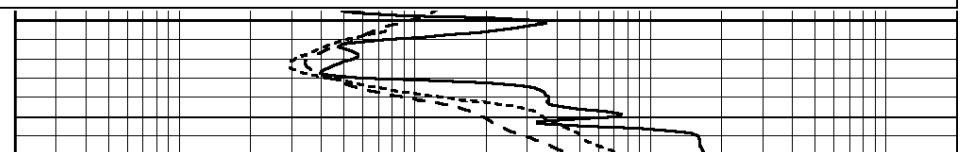
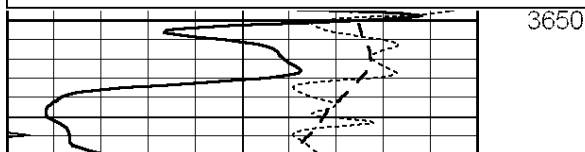


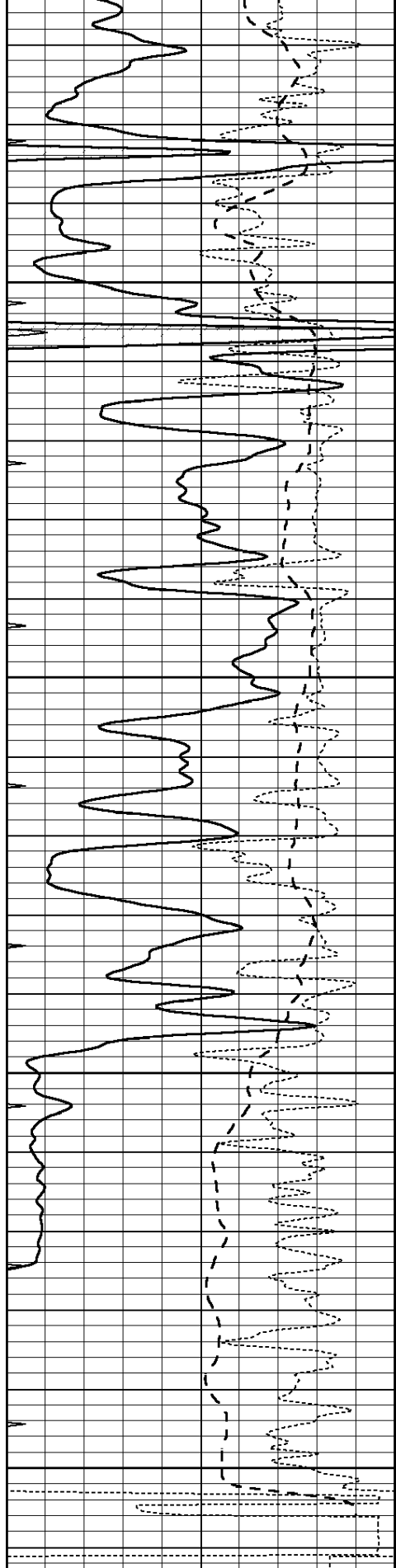
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Database File: 010409pe.db  
 Dataset Pathname: pass2.2  
 Presentation Format: \_dil  
 Dataset Creation: Fri Feb 08 13:13:10 2013 by Calc SOC 120430  
 Charted by: Depth in Feet scaled 1:240

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

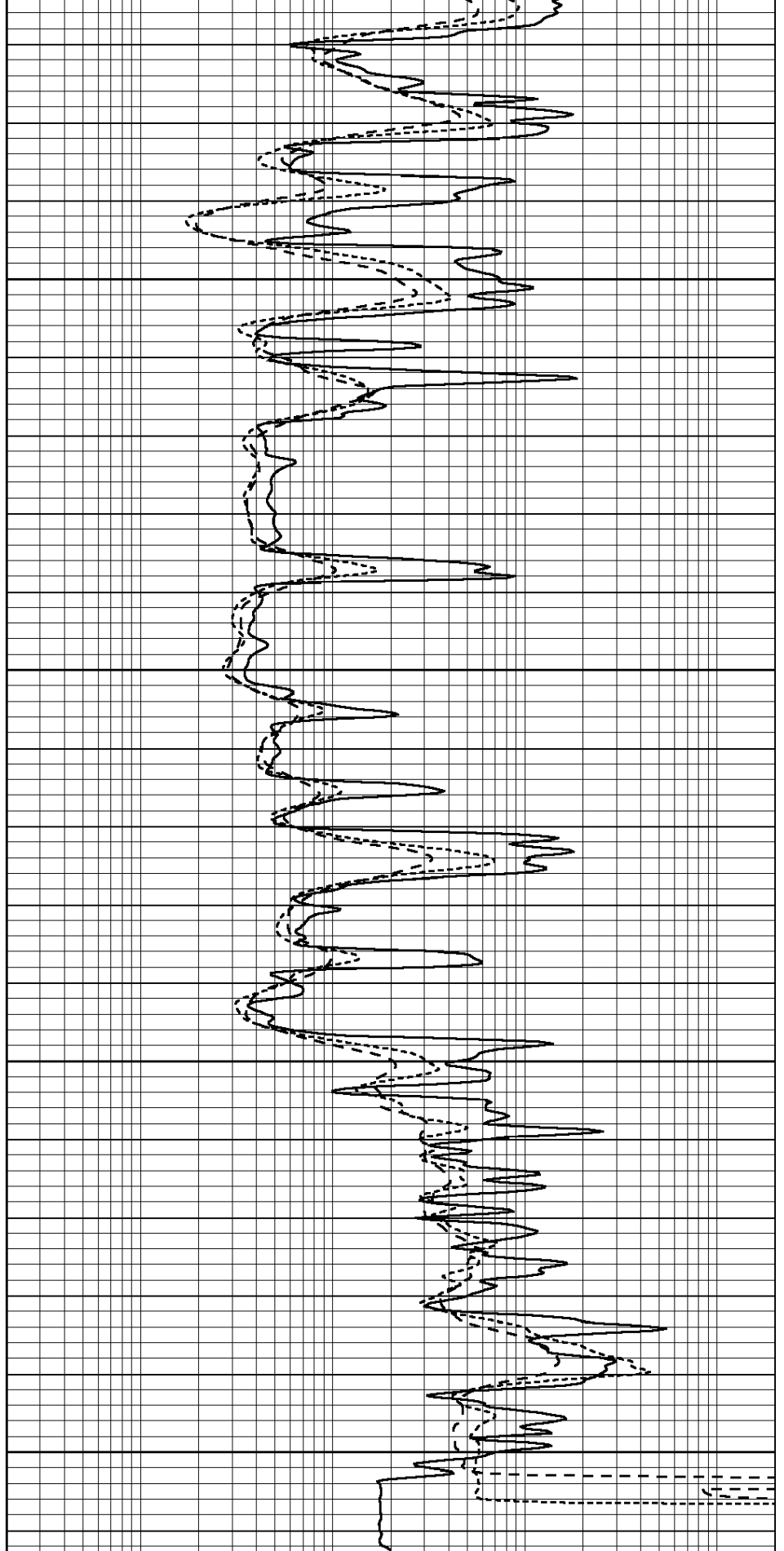
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000





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

3700  
3750  
3800  
3850



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

Calibration Report

Database File: 010409pe.db  
 Dataset Pathname: pass3.4  
 Dataset Creation: Fri Feb 08 15:10:26 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG  
 Surface Cal Performed: Fri Feb 01 20:16:08 2013  
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008  
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-12.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-20.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	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		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 Sun Aug 15 09:48:41 2010

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1686.6	11612.8	3932.0	12718.8	cps
Window 2	1531.4	9204.7	3267.8	9851.9	cps
Window 3	1198.3	4733.6	1952.5	4920.6	cps
Window 4	317.3	321.2	325.9	303.6	cps
Long Space	0.0	7673.3	1736.4	8320.4	cps
Short Space	1.7	2548.5	1657.2	2628.8	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 43.8	Rib Slope	: 0.961	Density/Spine Ratio	: 0.569
Spine Angle	: 73.8	Spine Slope	: 3.453	Spine Intercept	: -18.1

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: 070808  
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: 070559  
 Tool Model: OPEN\_GR  
 Performed: Wed Jan 30 12:02:17 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.3500 GAPI/cps