



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company		EDISON OPERATING CO., LLC.	
Well		BARBARA #1-31	
Field		SEEVERS NW	
County		STAFFORD	
State		KANSAS	
Company		EDISON OPERATING COMPANY, LLC.	
Well		BARBARA #1-31	
Field		SEEVERS NW	
County		STAFFORD	
State		KANSAS	
Location:		API # : 15-185-23781-0000	
Permanent Datum		GROUND LEVEL	
Log Measured From		660' FSL & 660' FWL	
Drilling Measured From		SW - SW	
SEC 31 TWP 24S RGE 13W		Elevation	
K.B. 1958		CDL/CNL/PE	
D.F. 1956		MEL/SON	
G.L. 1948			
Date	12/22/12		
Run Number	ONE		
Depth Driller	4230		
Depth Logger	4232		
Bottom Logged Interval	4208		
Top Log Interval	3250		
Casing Driller	8 5/8"@296'		
Casing Logger	296'		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 7,200 PPM	
Density / Viscosity	9.0/60		
pH / Fluid Loss	8.0/9.2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	0.60@80F		
Rmf @ Meas. Temp	0.45@80F		
Rmc @ Meas. Temp	0.72@80F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	0.41@118F		
Time Circulation Stopped	2.5 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	118F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEMEG		
Witnessed By	DEREK PATTERSON		

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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
ST. JOHN, KS - SOUTH TO INTERSECTION OF HWYS 281 & 50
3 MILES WEST TO RD 30 - 3 MILES SOUTH - EAST INTO

Database File: 010037pe.db
Dataset Pathname: pass4.5
Presentation Format: _dil2
Dataset Creation: Sat Dec 22 20:53:32 2012 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:600

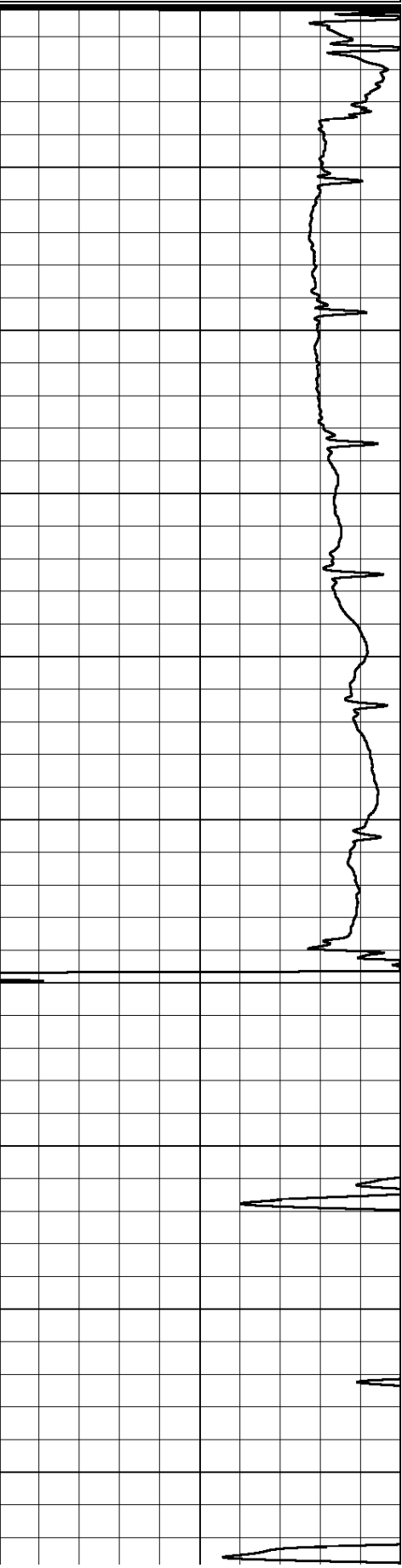
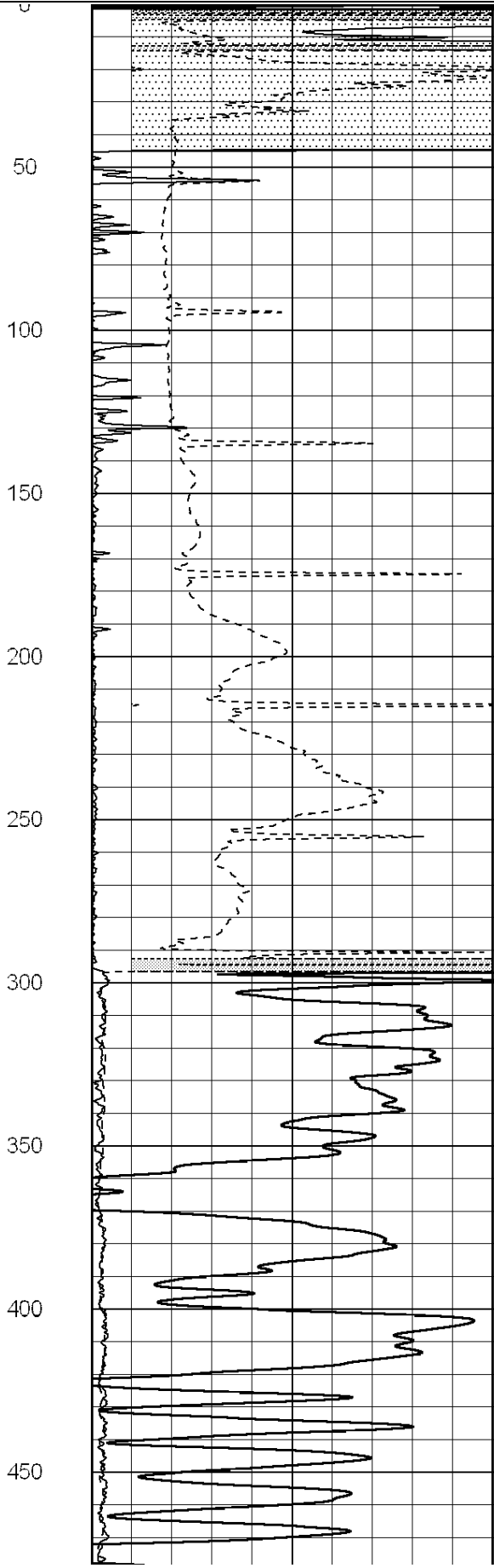
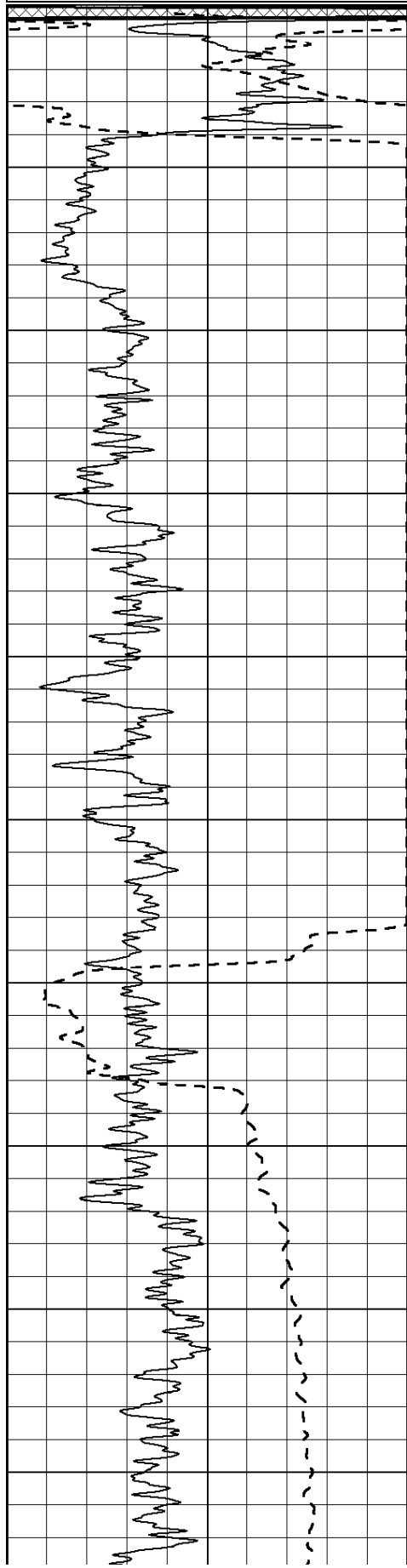
Charted by: Depth in Feet scaled 1:600		
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

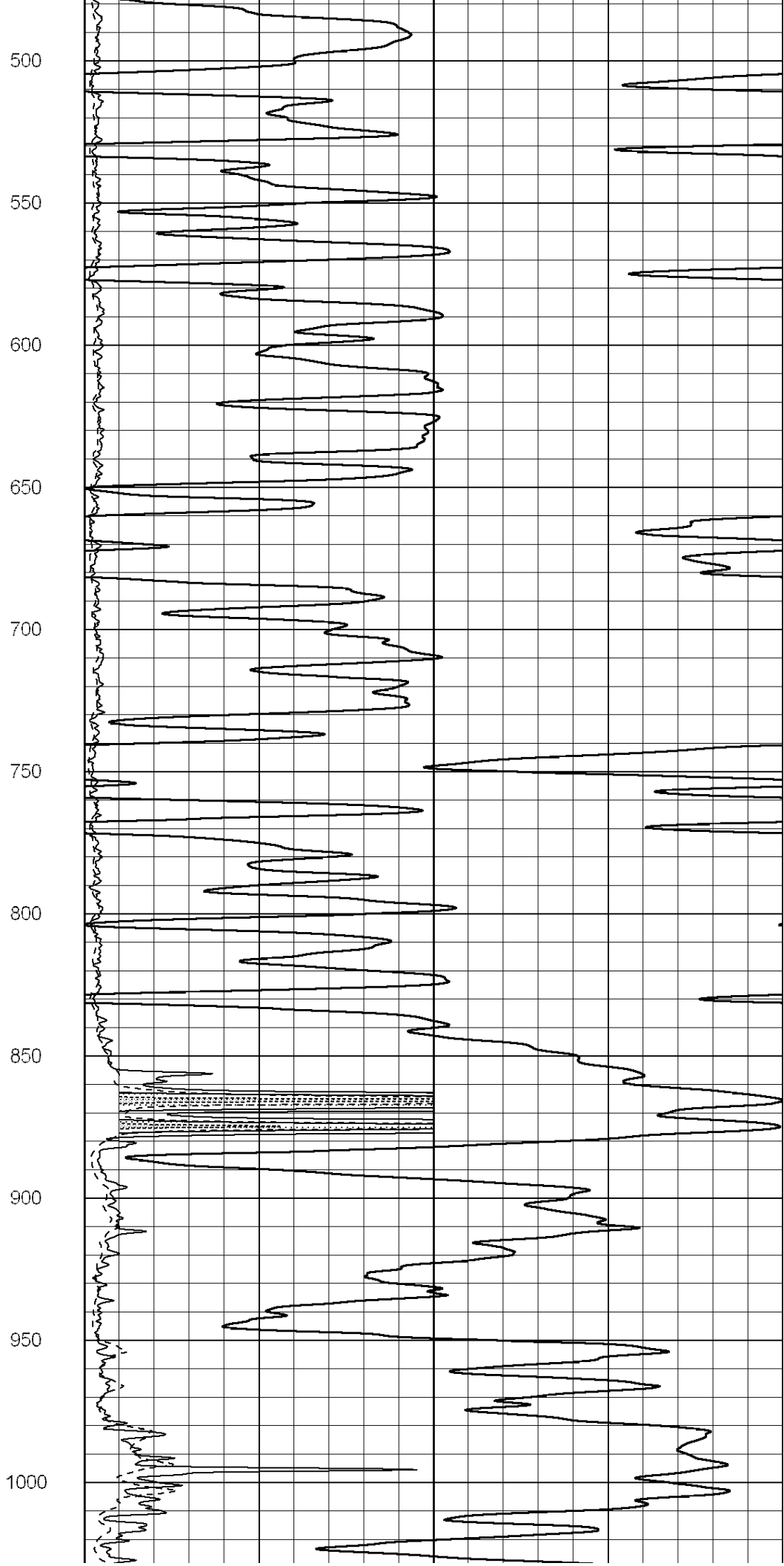
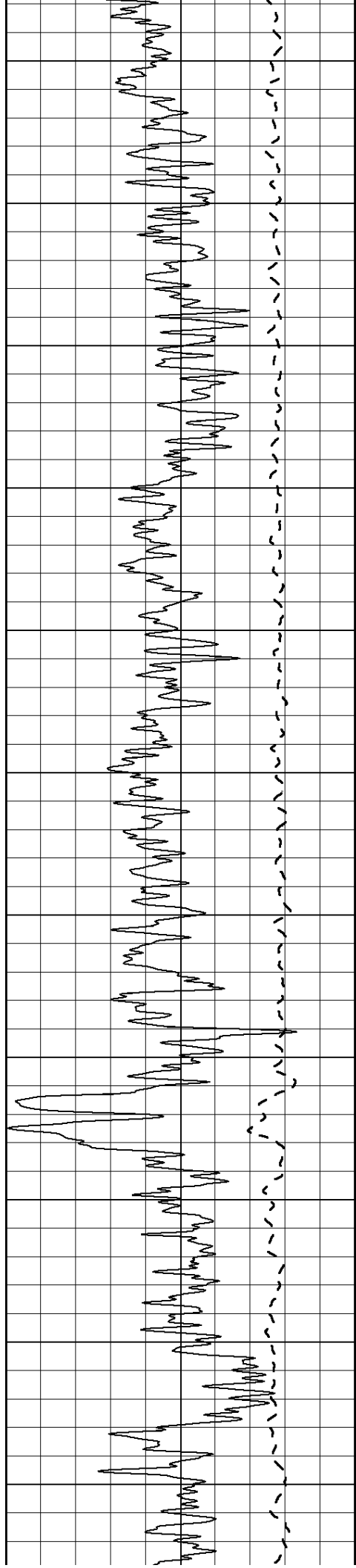
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

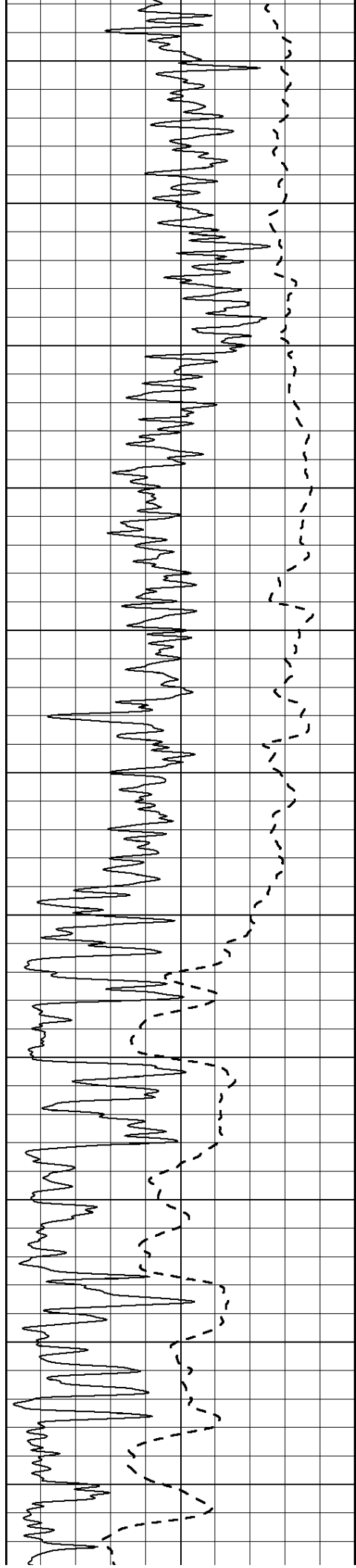
1000	CILD (mmho/m)	0

50	RILD X10 (Ohm-m)	500

50	RLL3 X10 (Ohm-m)	500







1050

1100

1150

1200

1250

1300

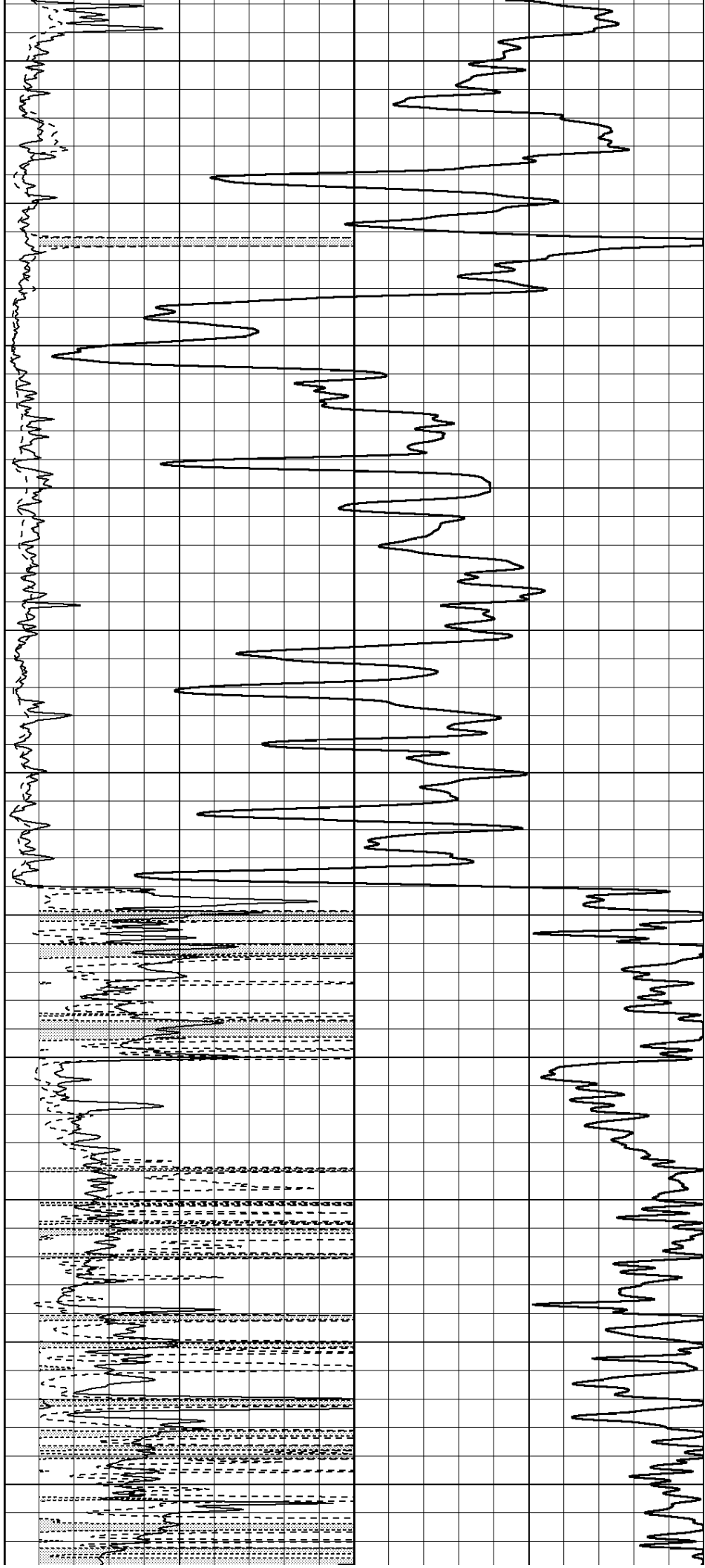
1350

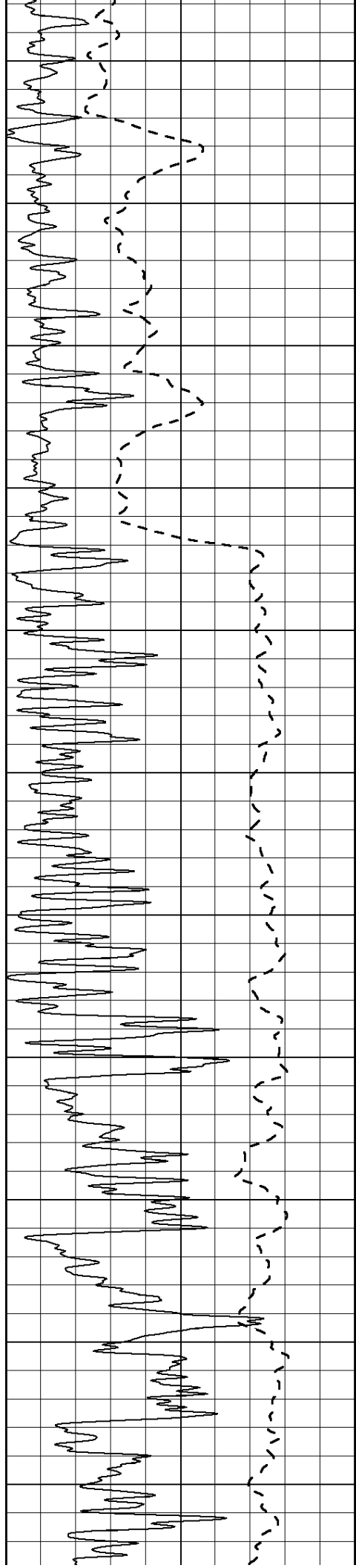
1400

1450

1500

1550





1600

1650

1700

1750

1800

1850

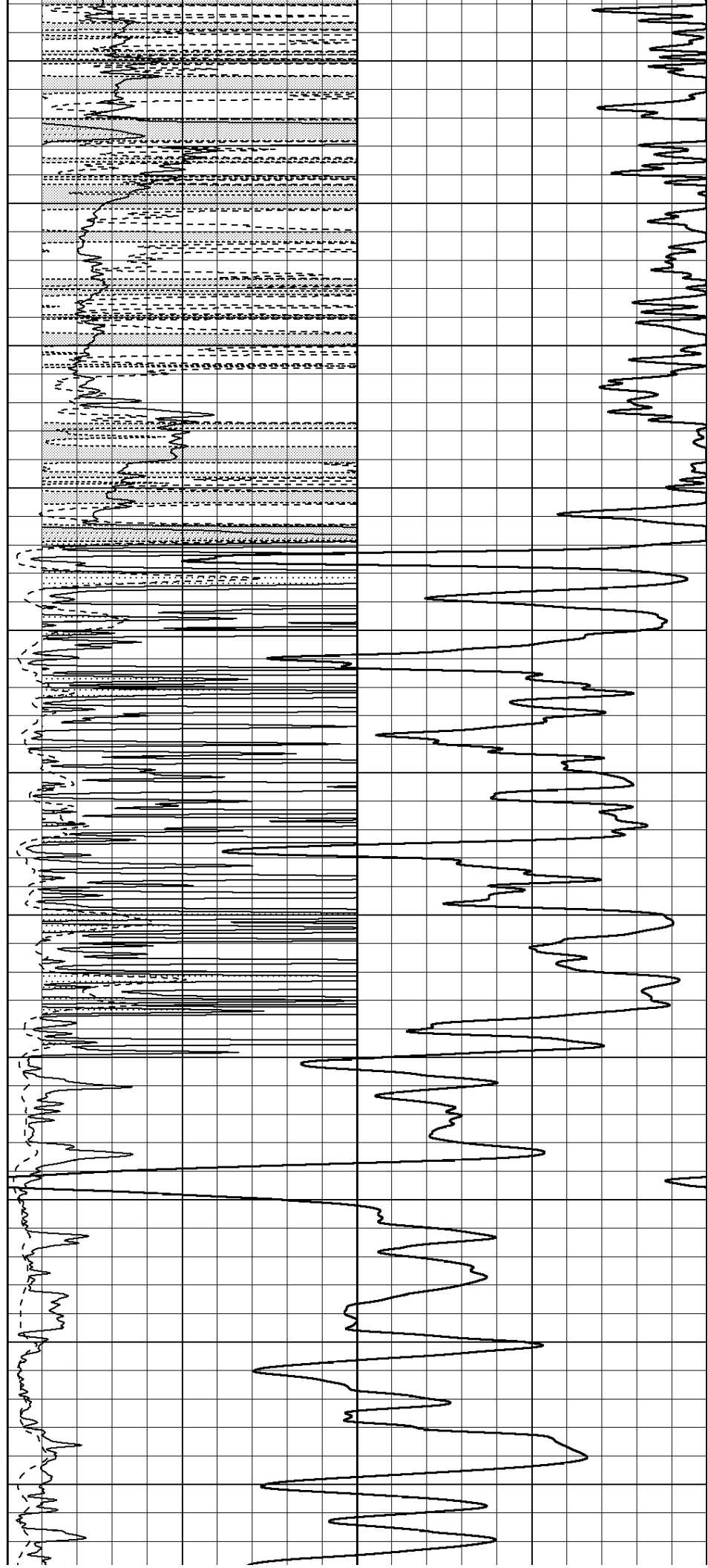
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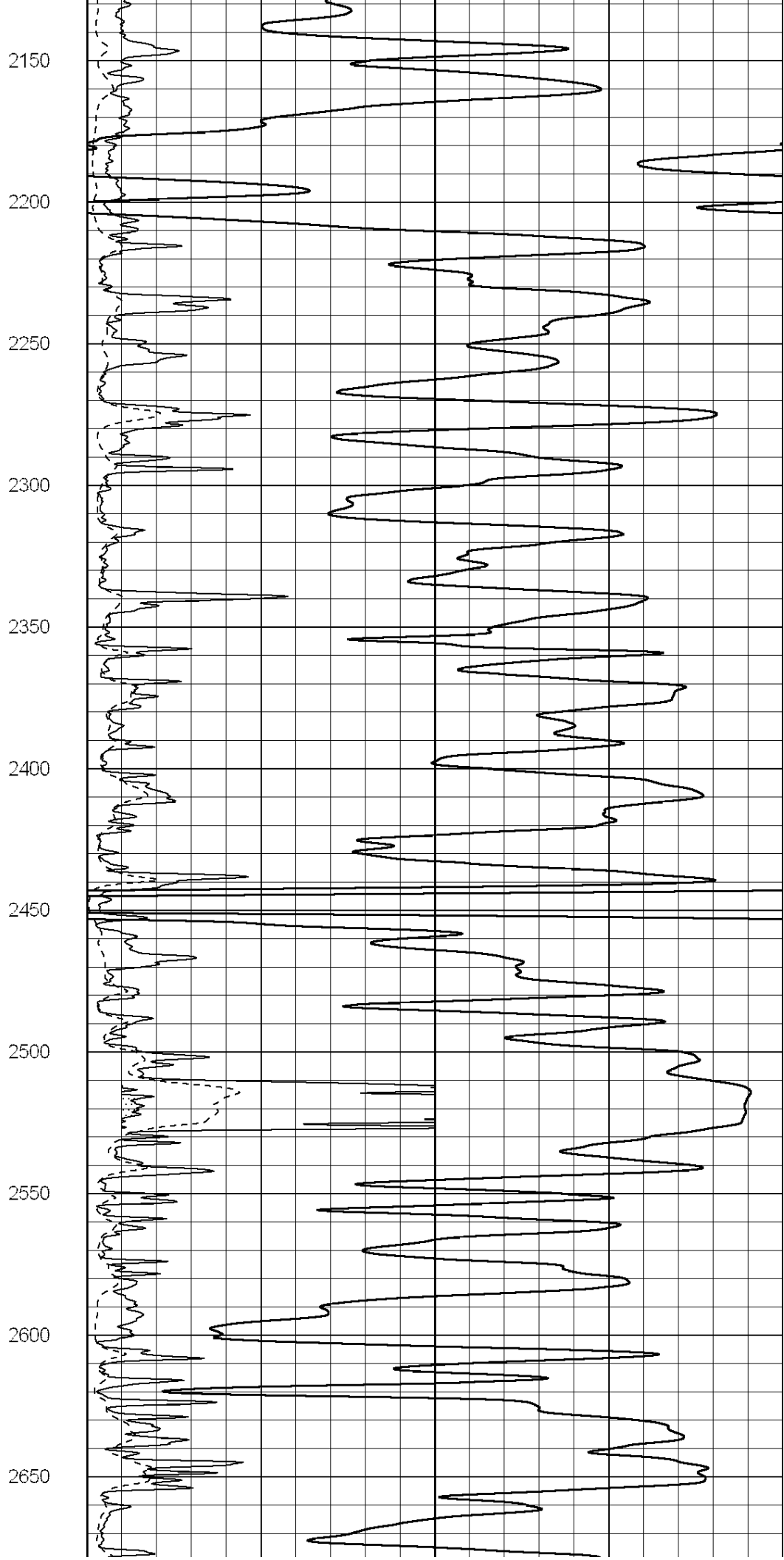
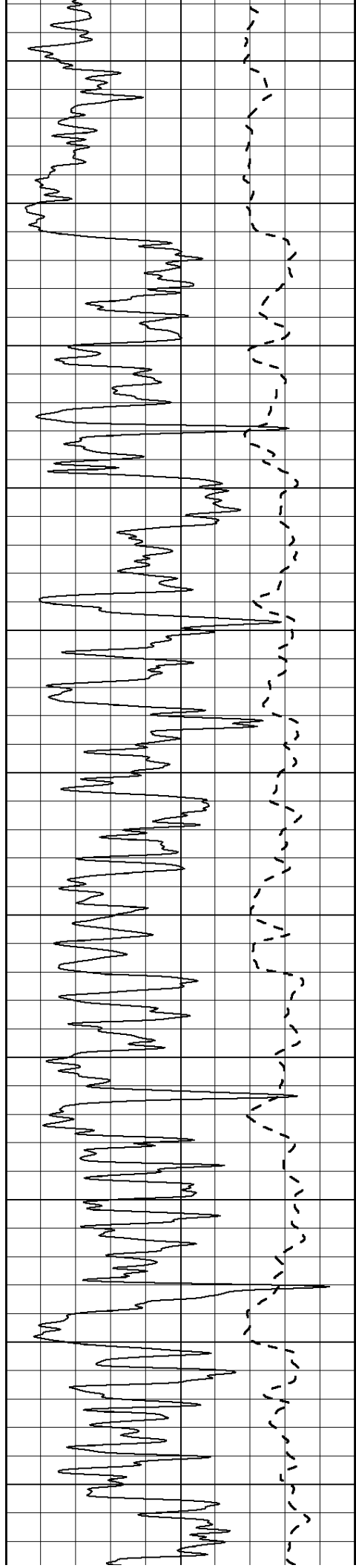
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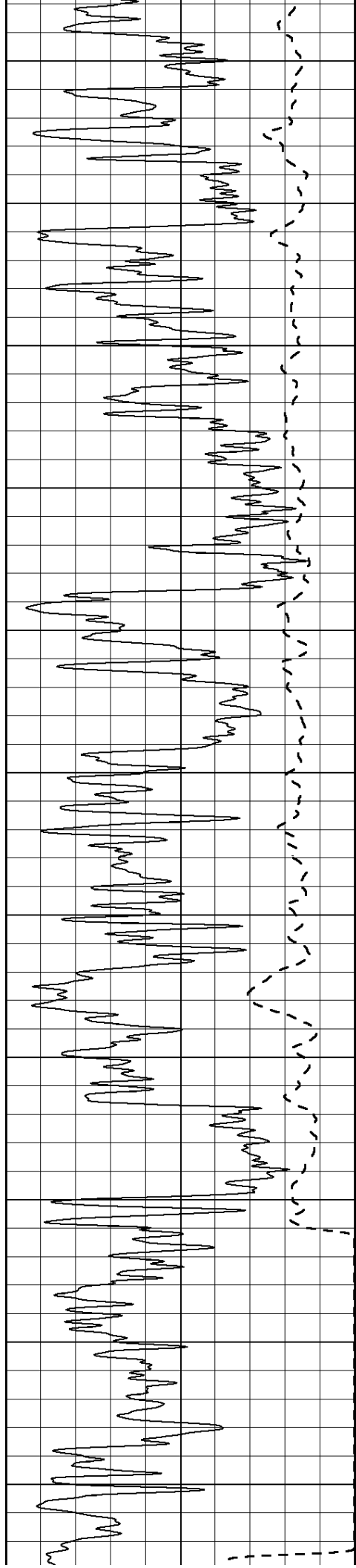
2000

2050

2100







2700

2750

2800

2850

2900

2950

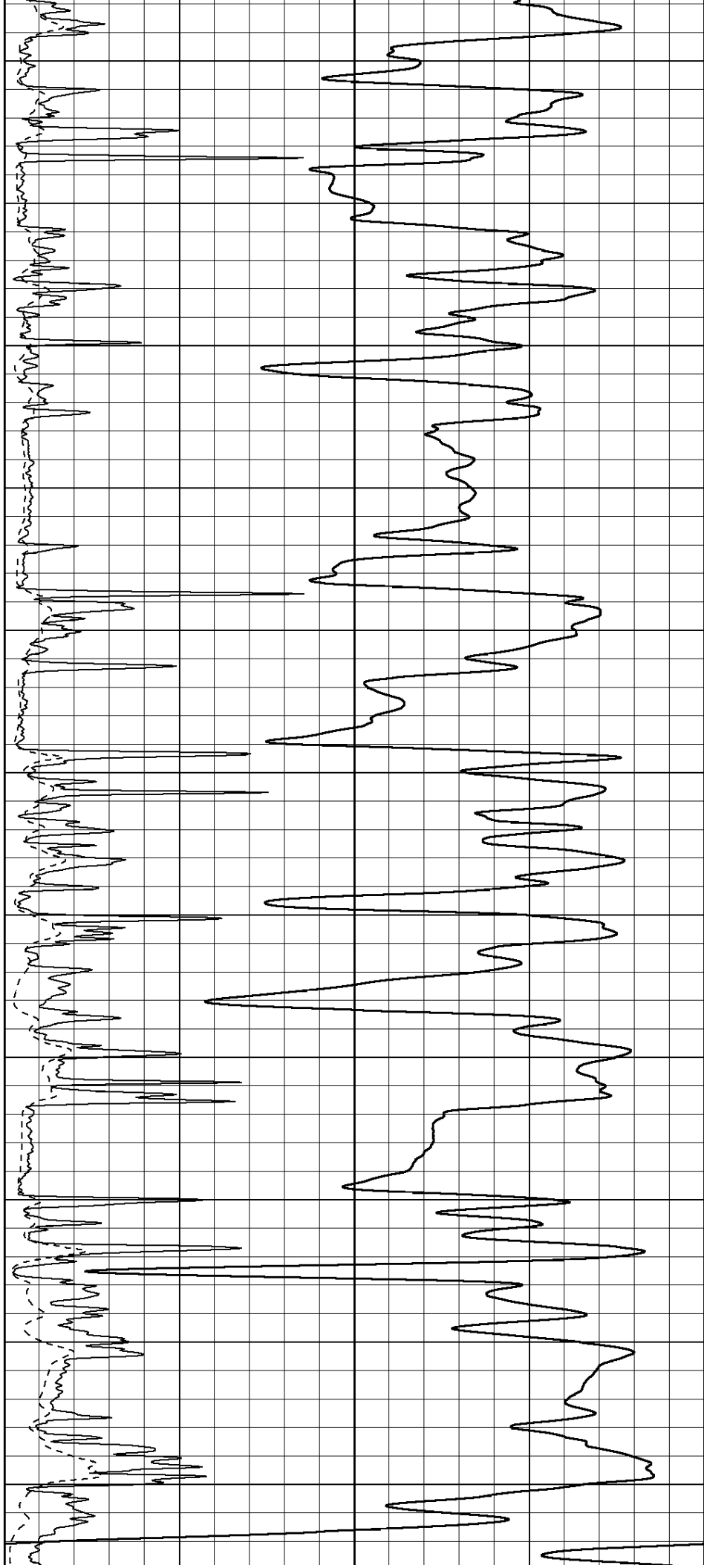
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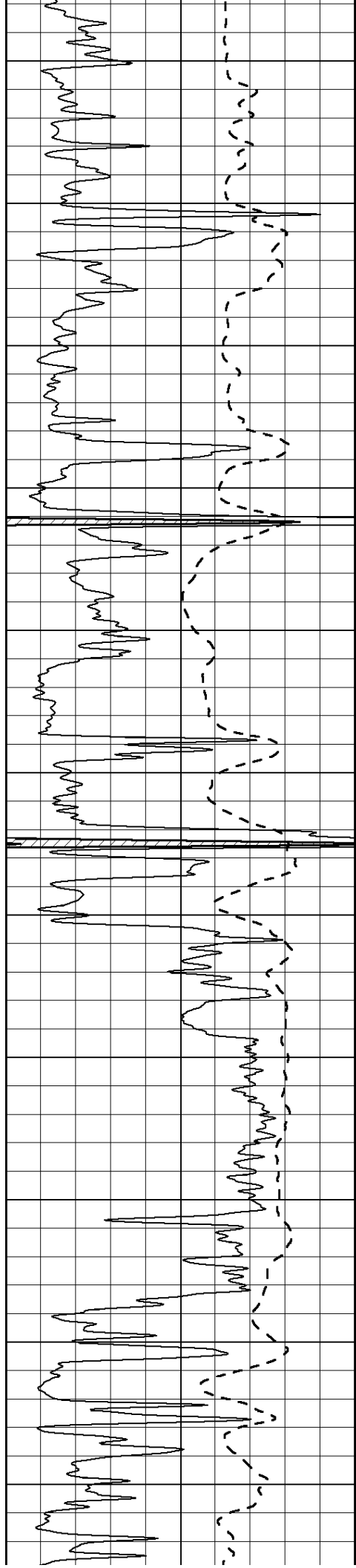
3050

3100

3150

3200





3250

3300

3350

3400

3450

3500

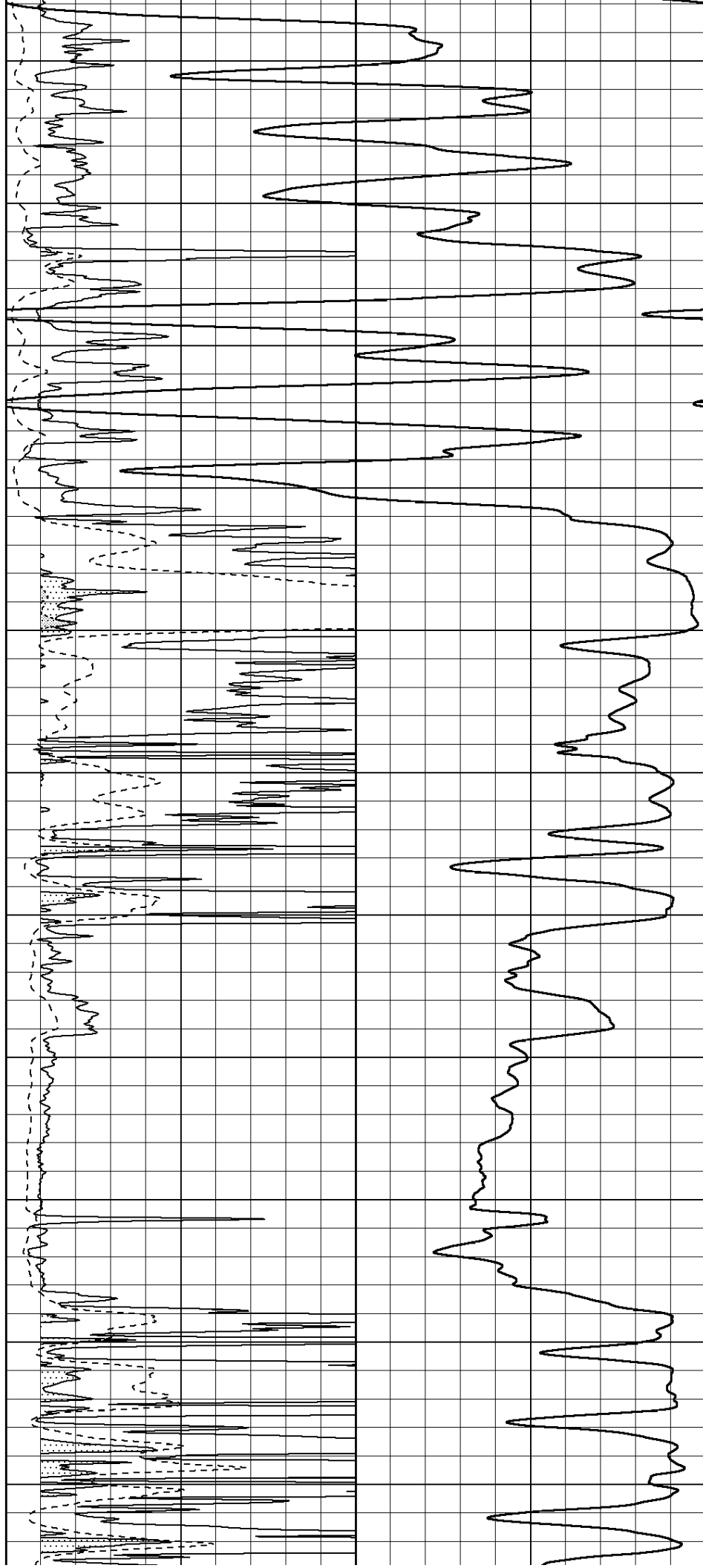
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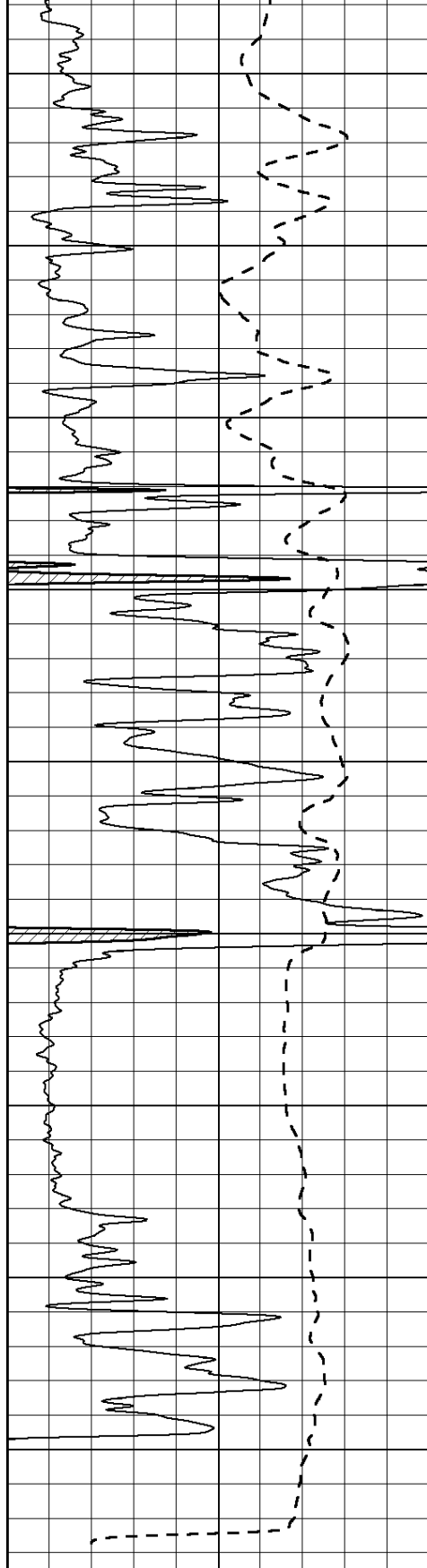
3600

3650

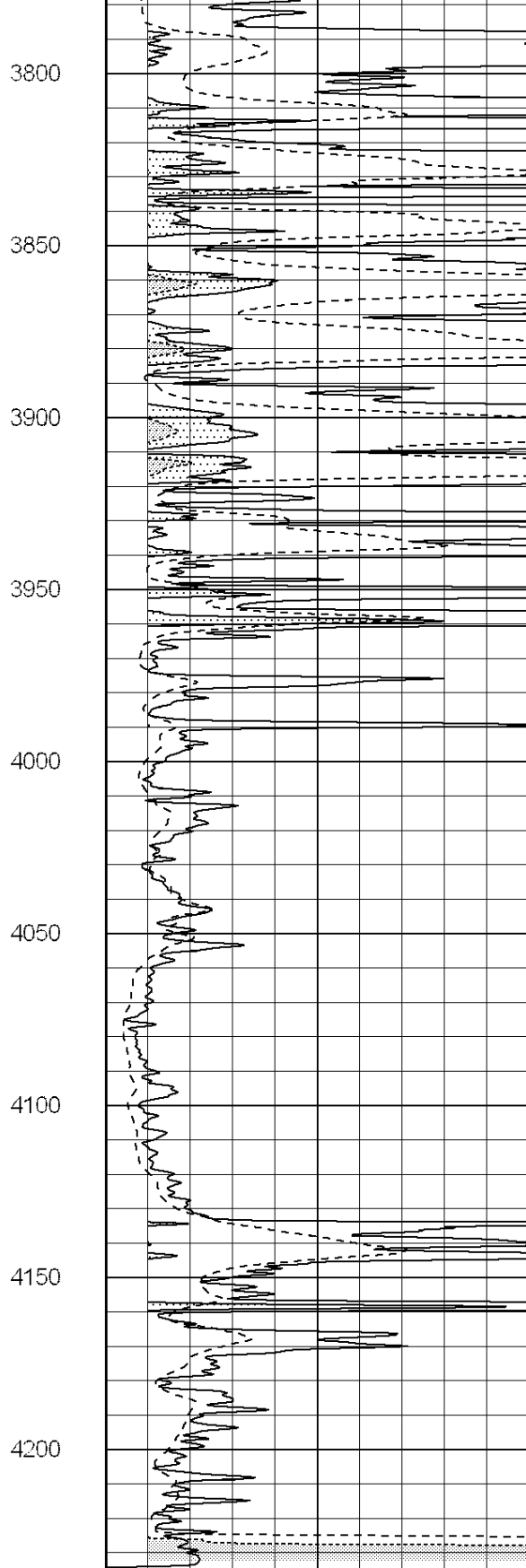
3700

3750

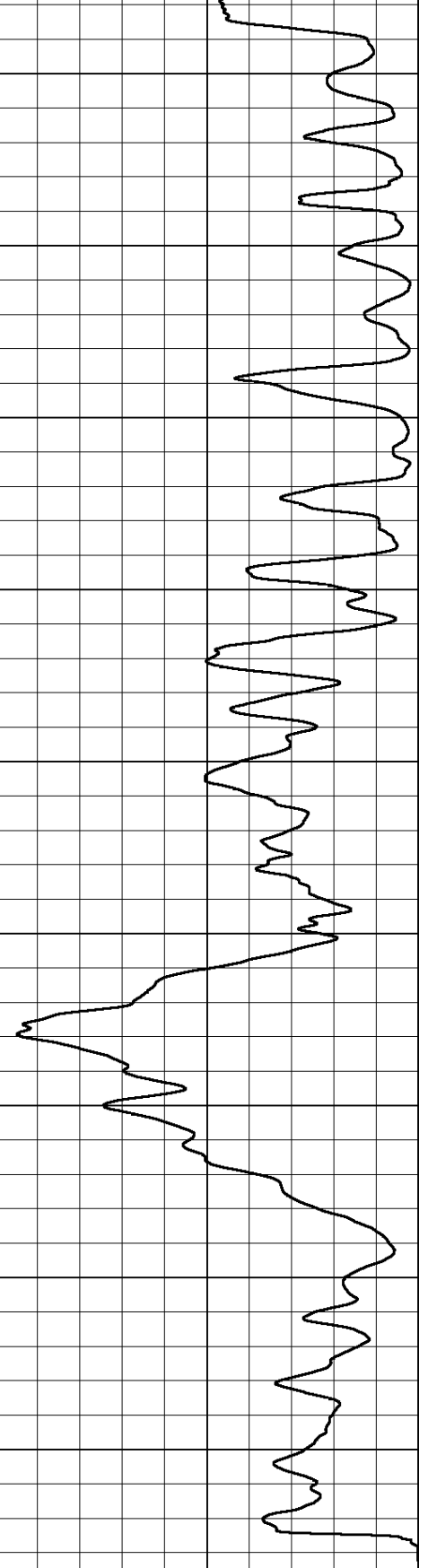




0 Gamma Ray (GAPI) 150
 -100 SP (mV) 100

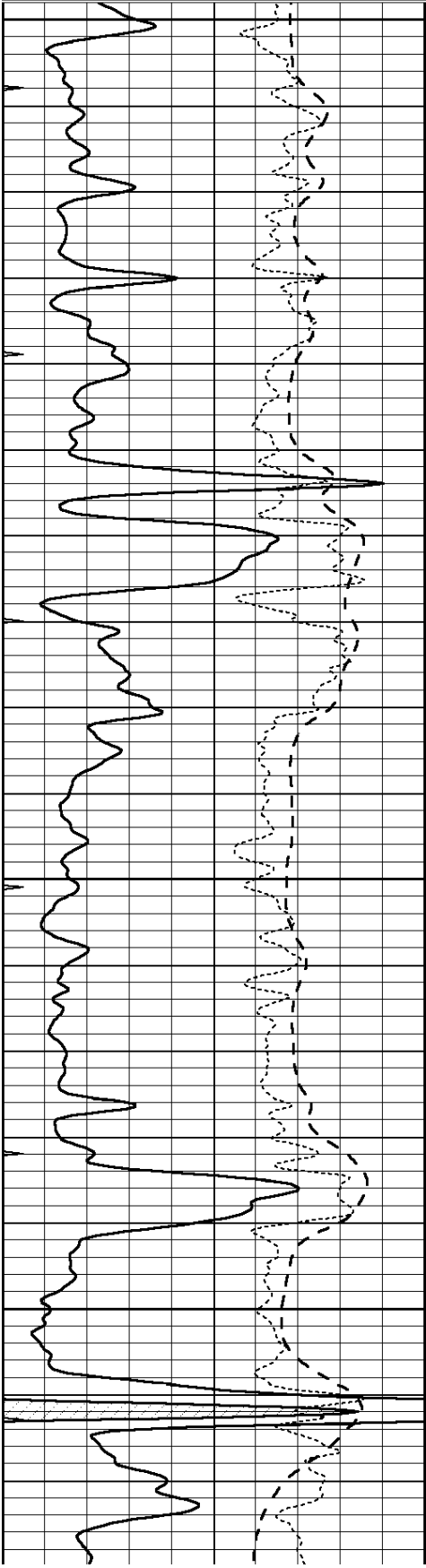


0 RLL3 (Ohm-m) 50
 0 RILD (Ohm-m) 50
 1000 CILD (mmho/m) 0
 50 RILD X10 (Ohm-m) 500
 50 RLL3 X10 (Ohm-m) 500



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

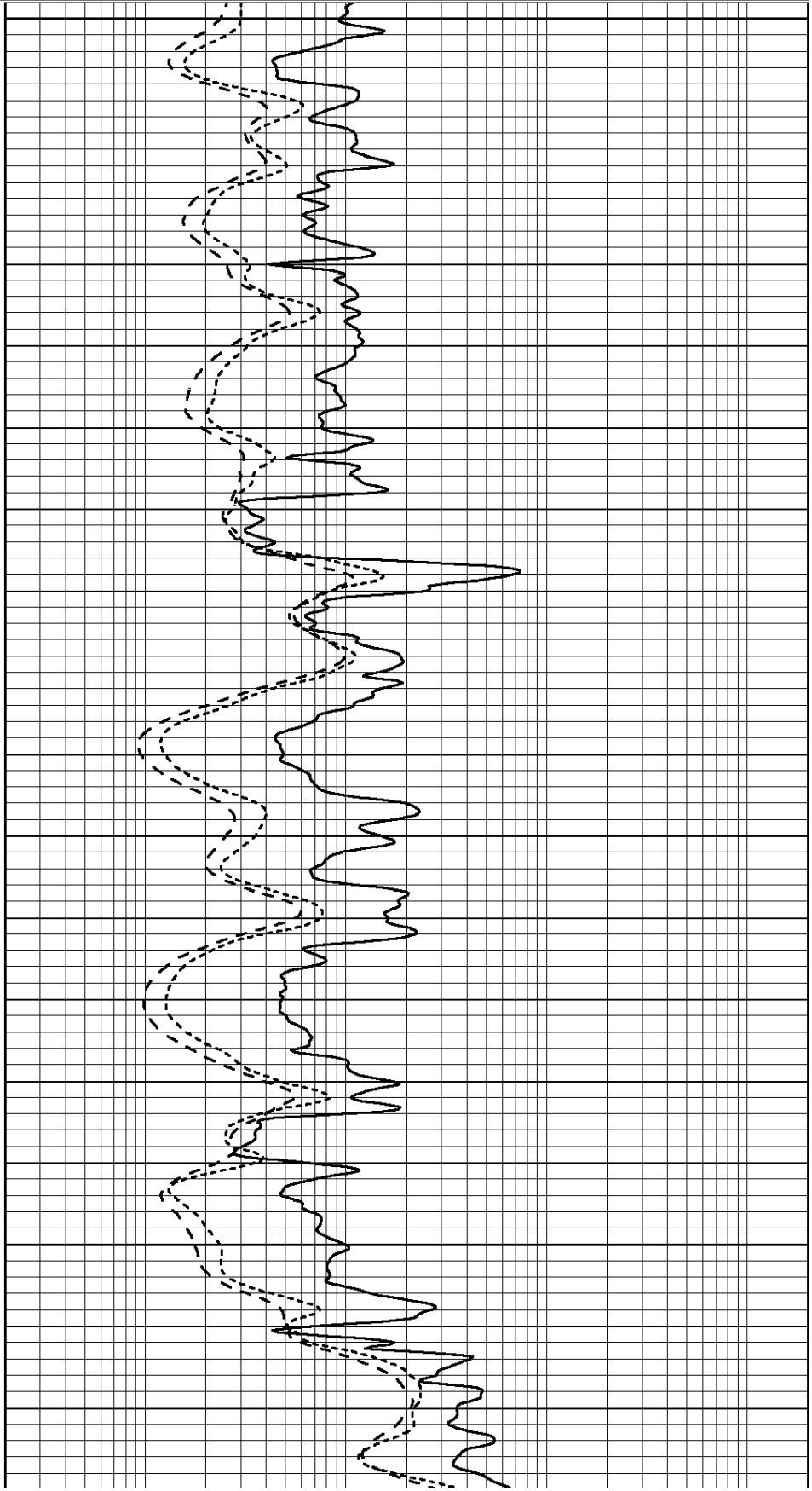


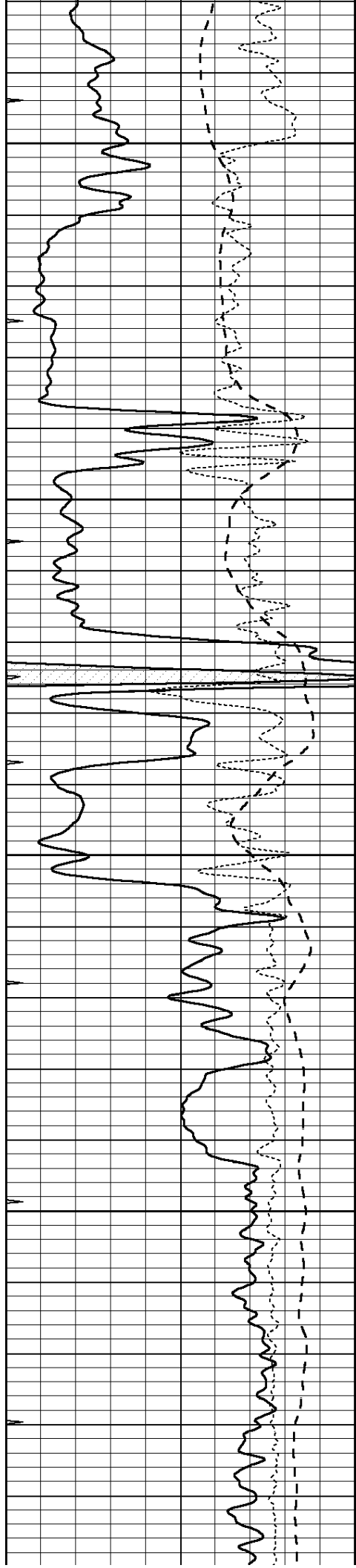
3250

3300

3350

3400





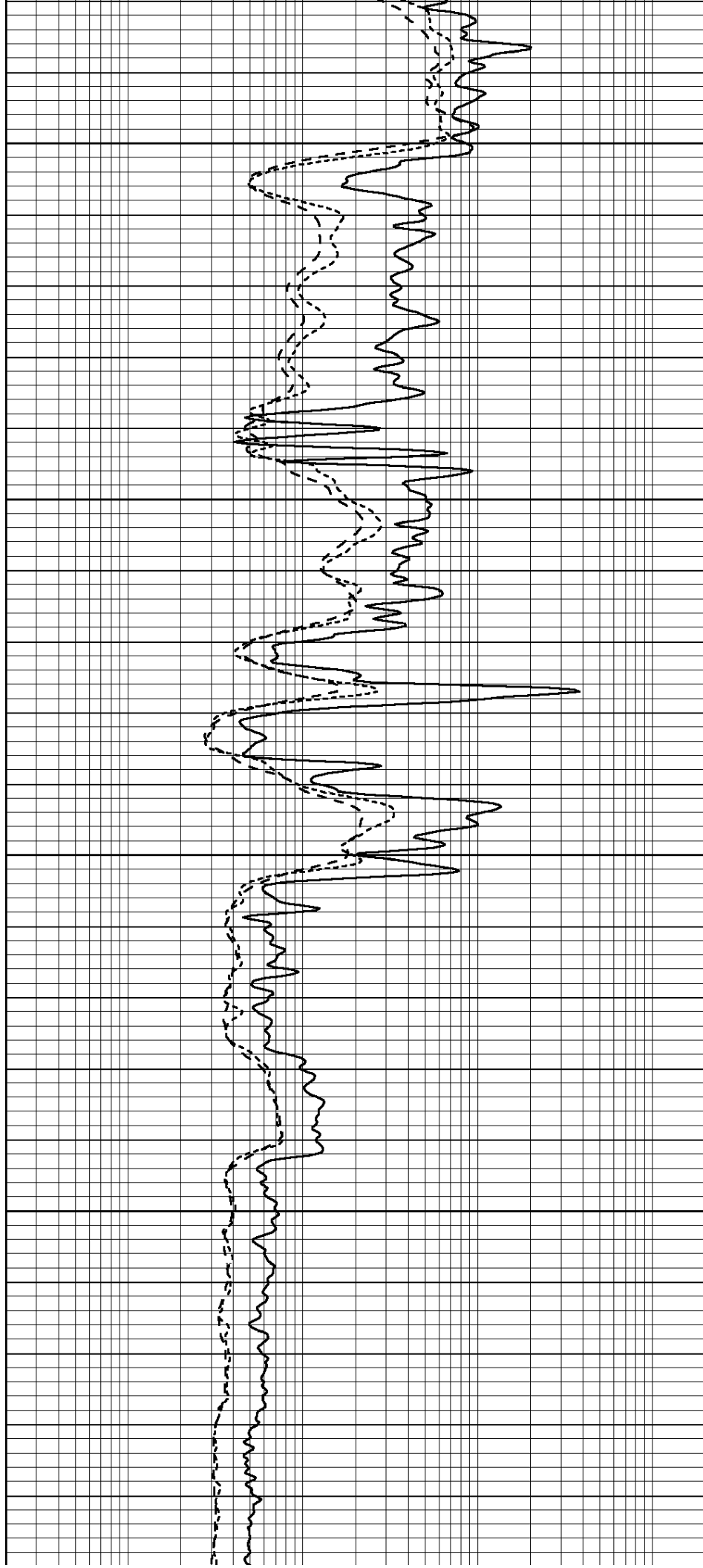
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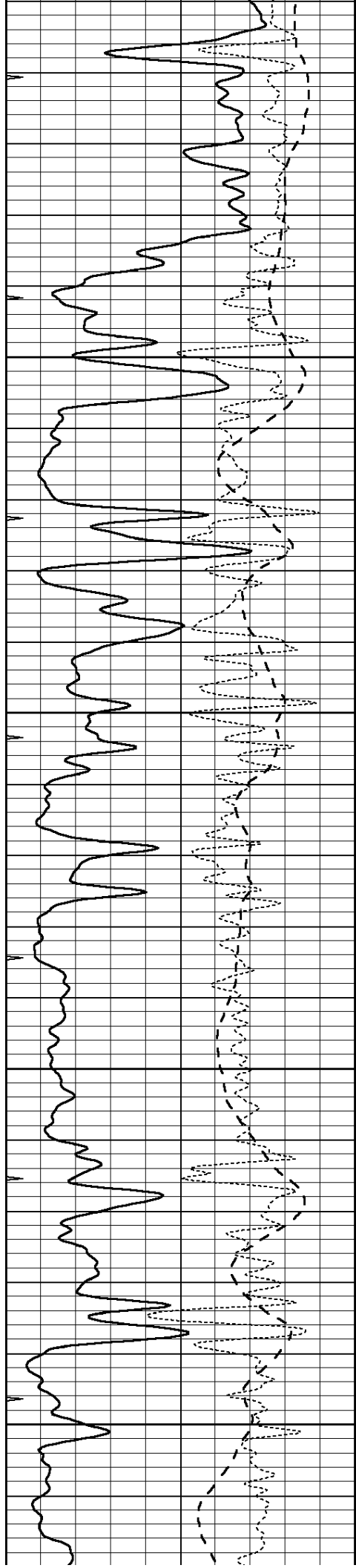
3500

3550

3600

3650





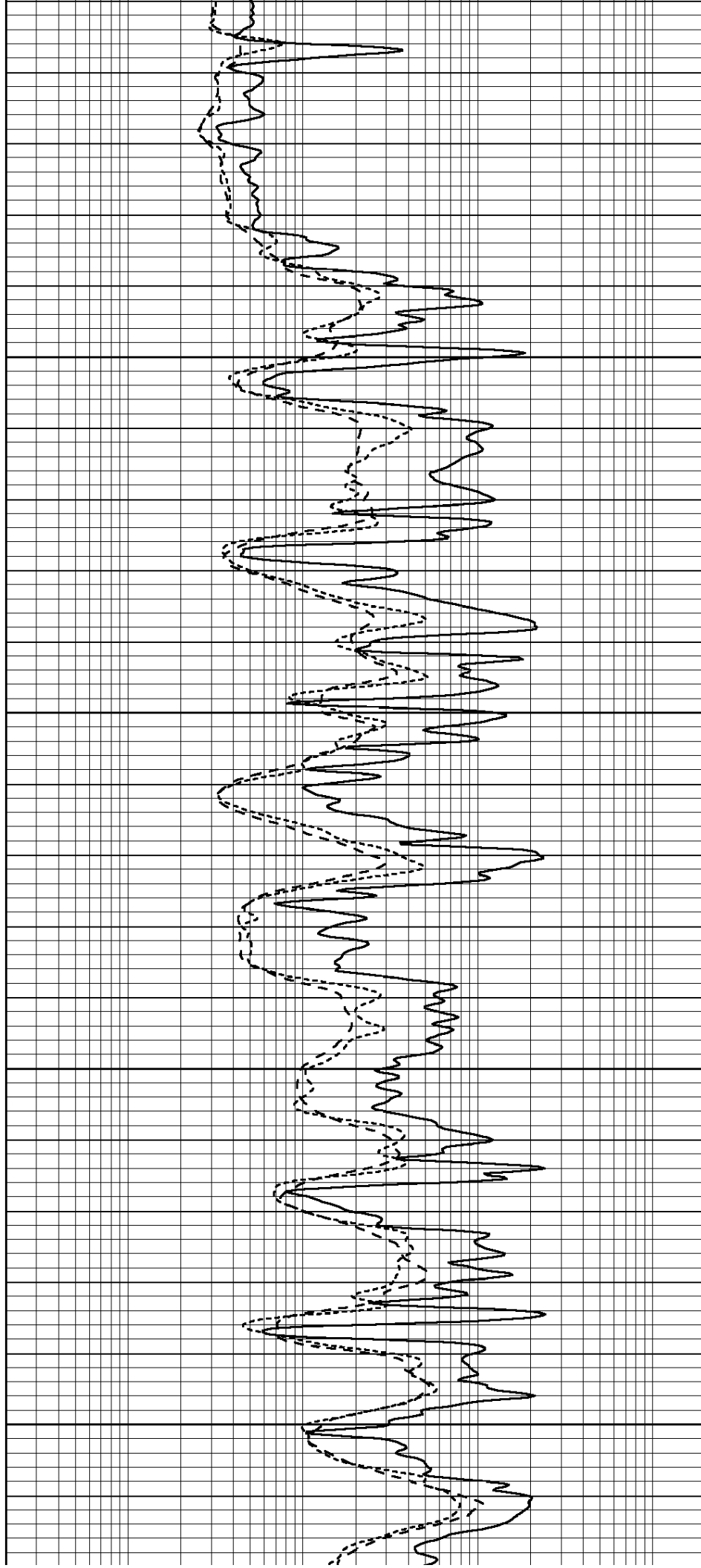
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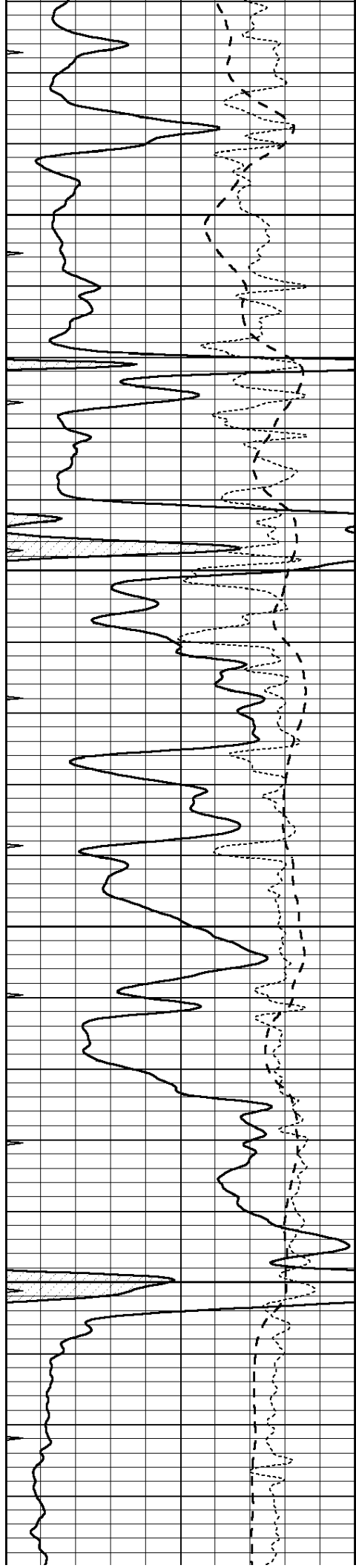
3700

3750

3800

3850



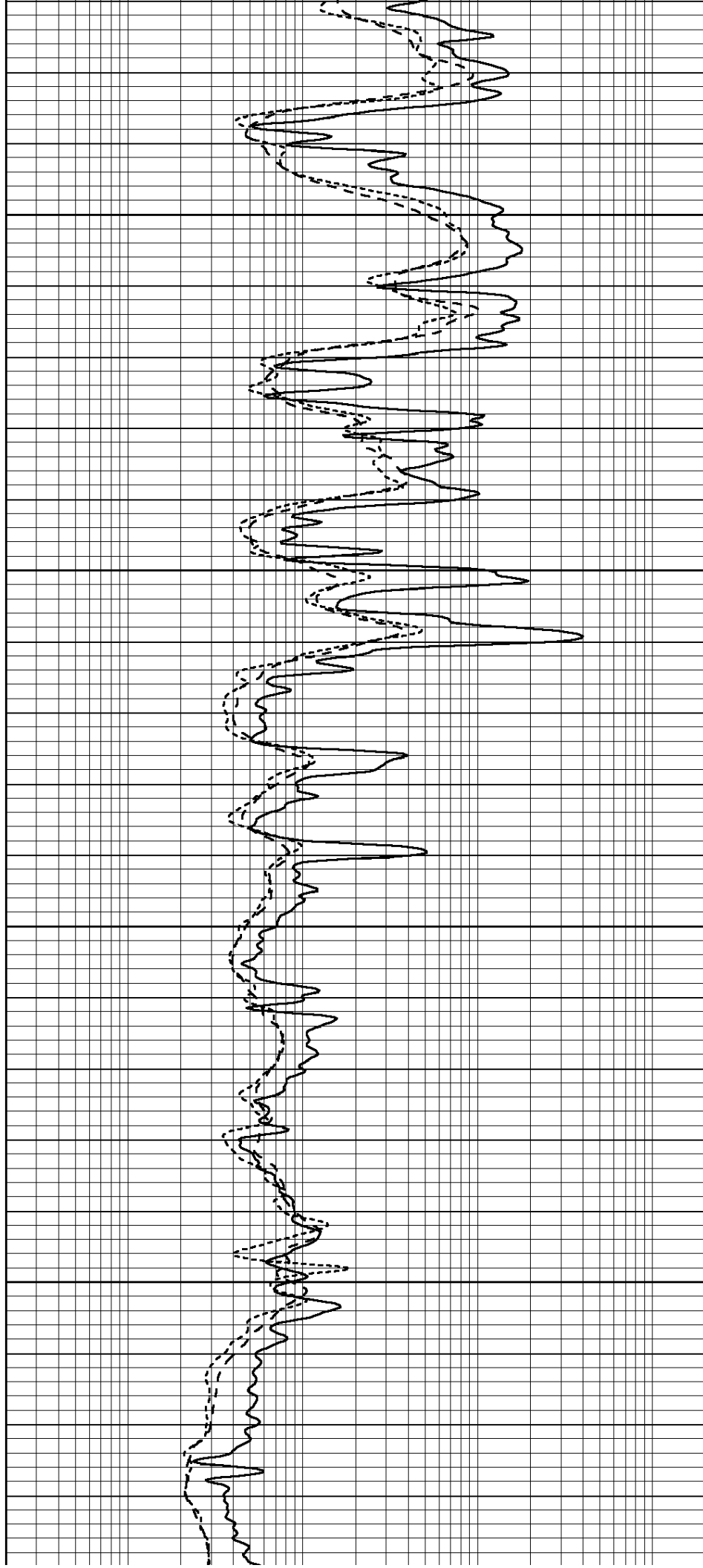


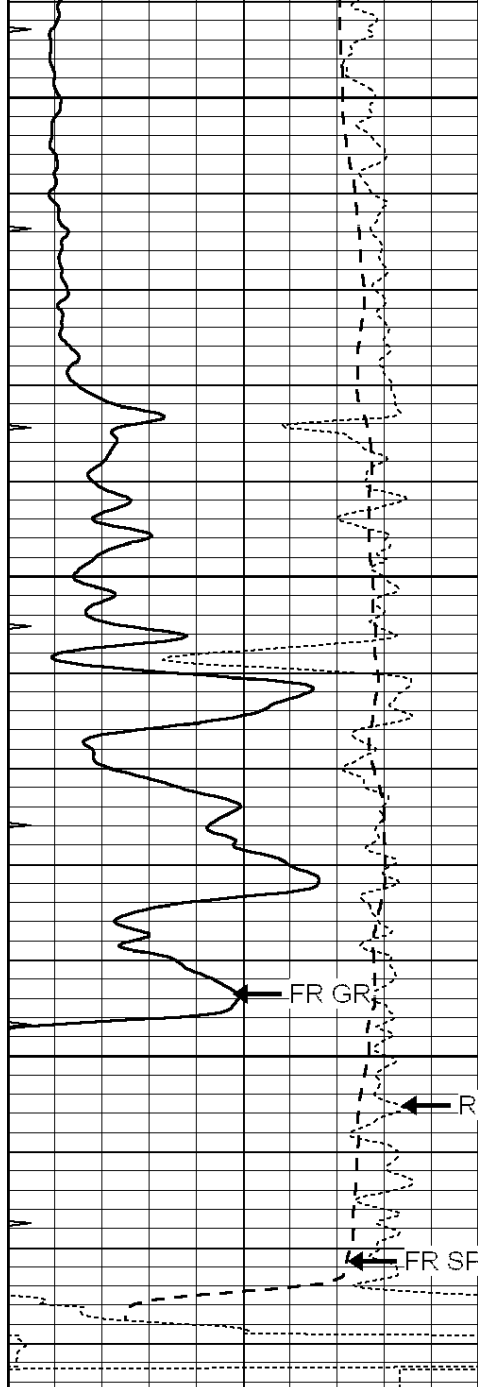
3900

3950

4000

4050





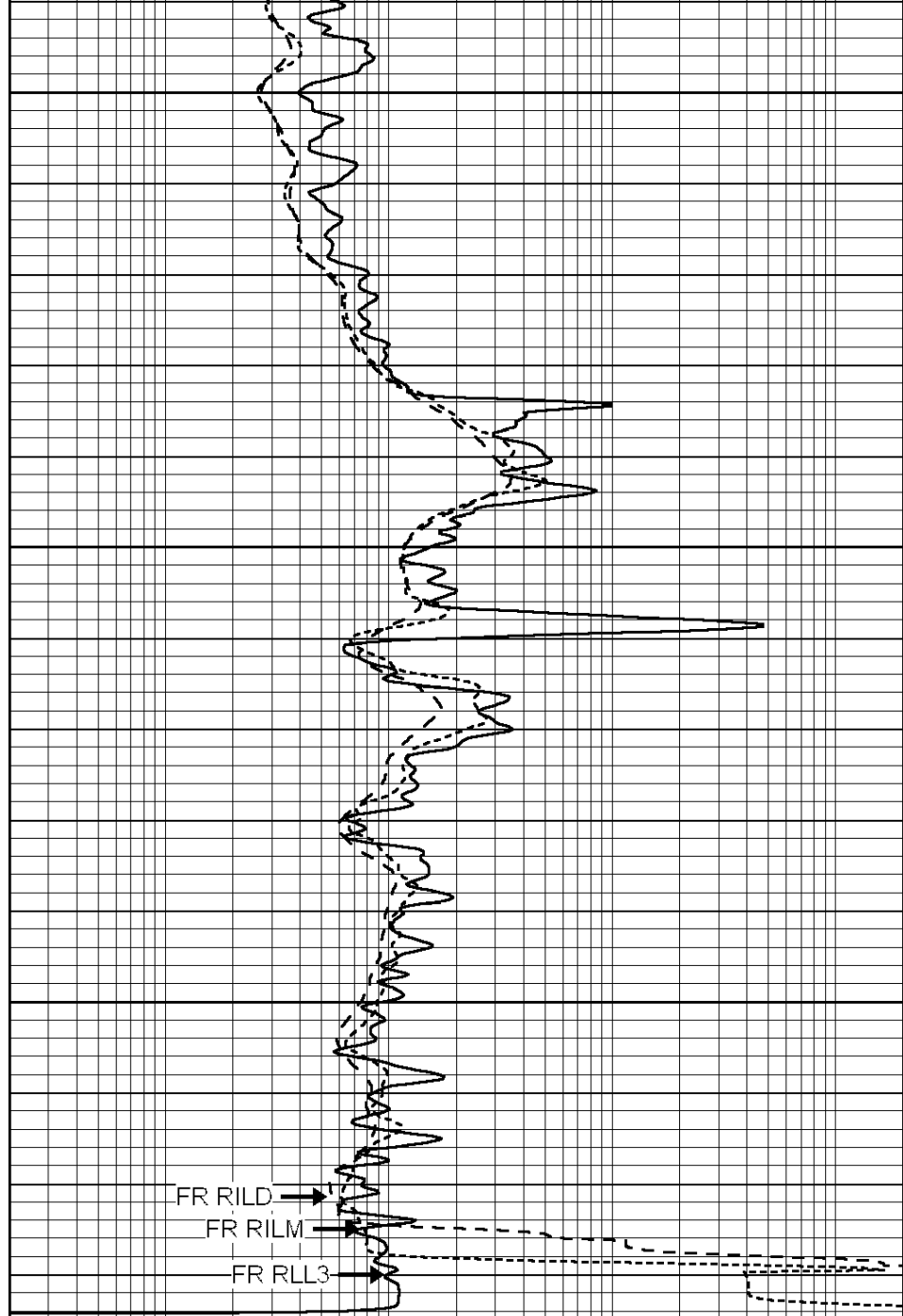
4100

4150

4200

LTD 4232

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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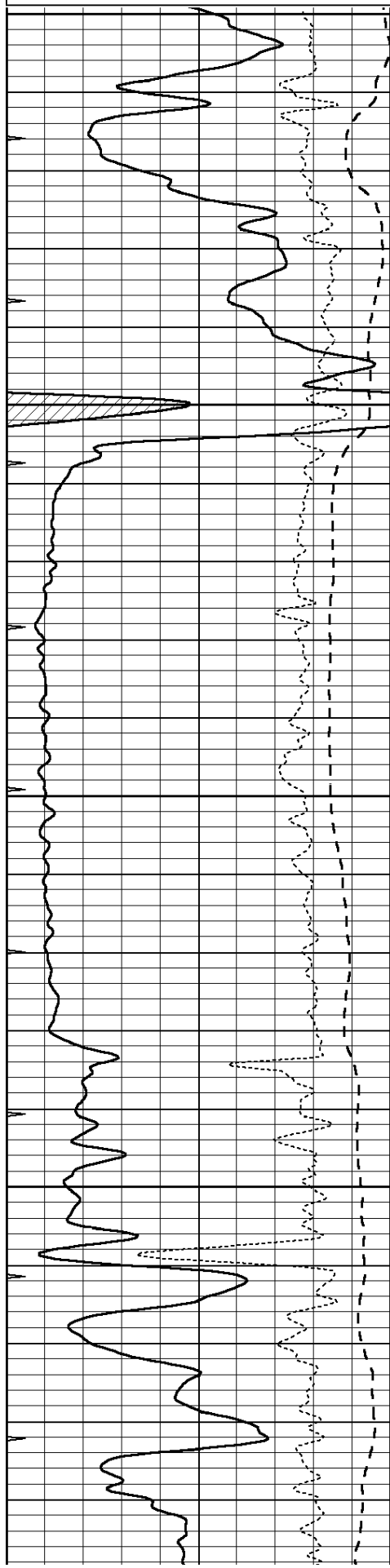
REPEAT SECTION

Database File: 010037pe.db
Dataset Pathname: pass3.2
Presentation Format: _dil
Dataset Creation: Sat Dec 22 19:02:29 2012 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

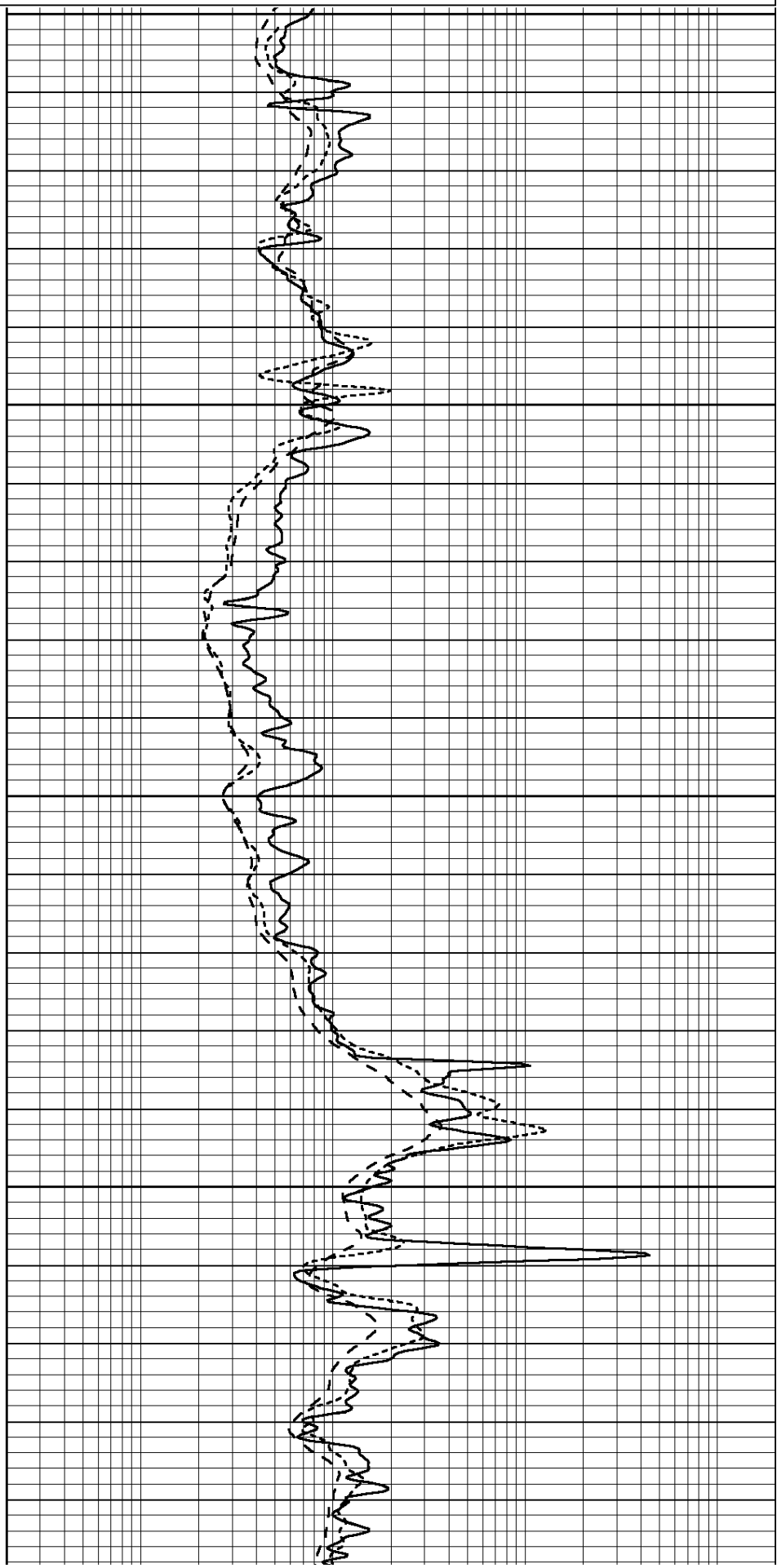
0	GAMMA RAY (GAPI)	150
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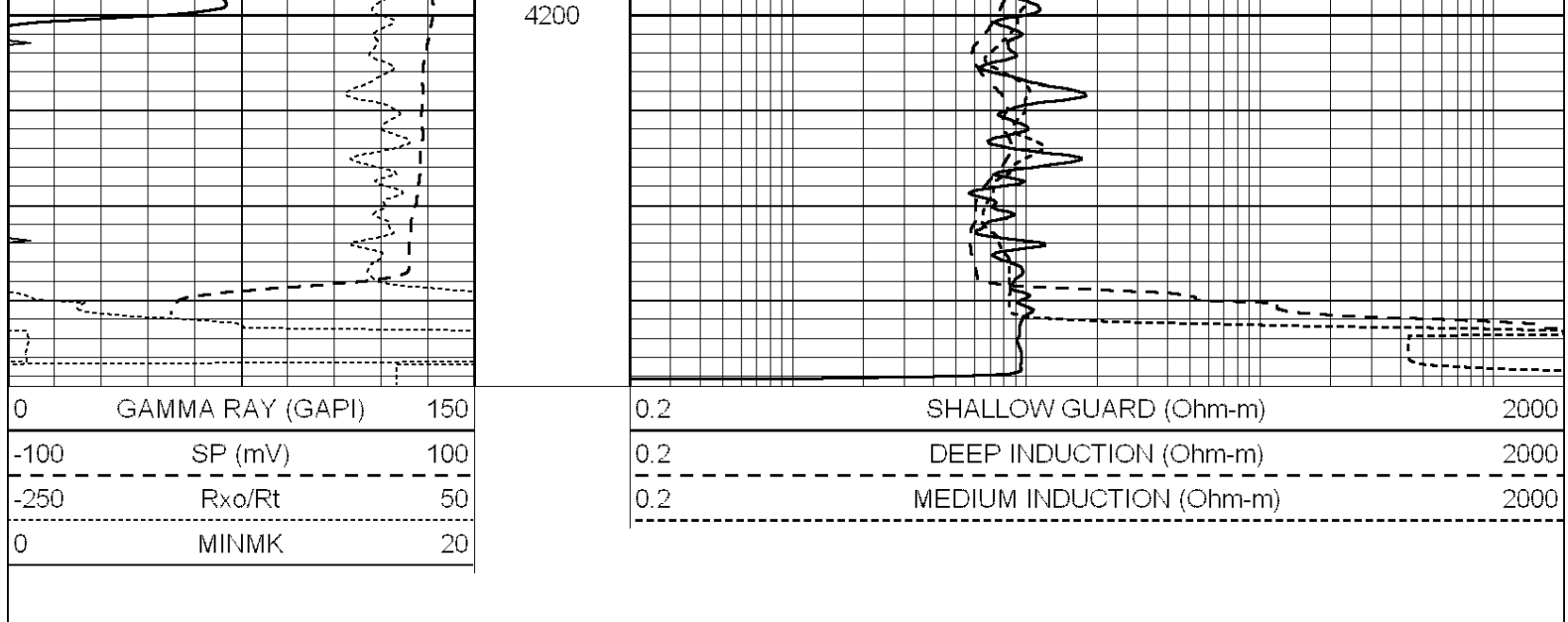
0.2	SHALLOW GUARD (Ohm-m)	2000
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



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





Calibration Report									
Database File:		010037pe.db							
Dataset Pathname:		pass4.4							
Dataset Creation:		Sat Dec 22 20:48:56 2012 by Calc SOC 120430							
Dual Induction Calibration Report									
Serial-Model:		DIL3-GEAR							
Surface Cal Performed:		Fri Dec 14 17:06:35 2012							
Downhole Cal Performed:		Fri Mar 21 02:34:00 2003							
After Survey Verification Performed:		Tue Apr 13 17:49:23 2010							
Surface Calibration									
		Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b	
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	10.000	
Medium	0.013	0.740	V	0.000	462.500	mmho/m	720.000	-7.000	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.002	0.645	V	0.000	400.000	mmho/m	622.059	-1.071	
Medium	0.007	0.740	V	0.000	462.500	mmho/m	631.393	-4.555	
Downhole Calibration									
		Readings			References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000	
Medium	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000	
Shallow	2.503	0.050	V	500.000	2.000	Ohm-m	250.000	-3.500	
After Survey Verification									
		Readings			Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'	
Deep	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000	
Medium	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000	
Shallow	0.000	0.000	Ohm-m	500.000	2.000	Ohm-m	1.000	0.000	

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 Nov 28 18:32:17 2012

Calibrator Value:	1.0	GAPI
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Background Reading:	0.0	cps
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Calibrator Reading:	1.0	cps
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Sensitivity:	0.3000	GAPI/cps
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