



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		MULL DRILLING COMPANY, INC.	
Well	#1-7 TILLITSON		
Field	WILDCAT		
County	NESS	State	KANSAS
Location:	APL # : 15-135-25519-0000		Other Services CDL/CNL/PE MEL/SONIC
SEC 7 TWP 17S RGE 24W		Elevation	
Permanent Datum	GROUND LEVEL	Elevation	2457
Log Measured From	KELLY BUSHING 5' A.G.L.		D.F. 2460
Drilling Measured From	KELLY BUSHING		G.L. 2457
Date	1/9/13		
Run Number	ONE		
Depth Driller	4550		
Depth Logger	4550		
Bottom Logged Interval	4548		
Top Log Interval	00		
Casing Driller	8 5/8"@225'		
Casing Logger	226		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,000 PPM	
Density / Viscosity	9.2/47		
pH / Fluid Loss	9.5/9.0		
Source of Sample	FLOWLINE		
Rin @ Meas. Temp	1.00@90F		
Rinf @ Meas. Temp	.750@90F		
Rinc @ Meas. Temp	1.20@90F		
Source of Rinf / Rinc	MEASUREMENT		
Rin @ BHT	.744@121F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	12:30 P.M.		
Maximum Recorded Temperature	121F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	KEVIN KESSLER		

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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
RANSOM, KS. 3W. ON HWY 4 TO "RD. N", 3S. TO "RD. 230", 3/4W., S. INTO



NABORS
COMPLETION
& PRODUCTION

MAIN SECTION

Database File:

010042pe.db

Dataset Pathname:

pass3.9

Presentation Format:

dil2

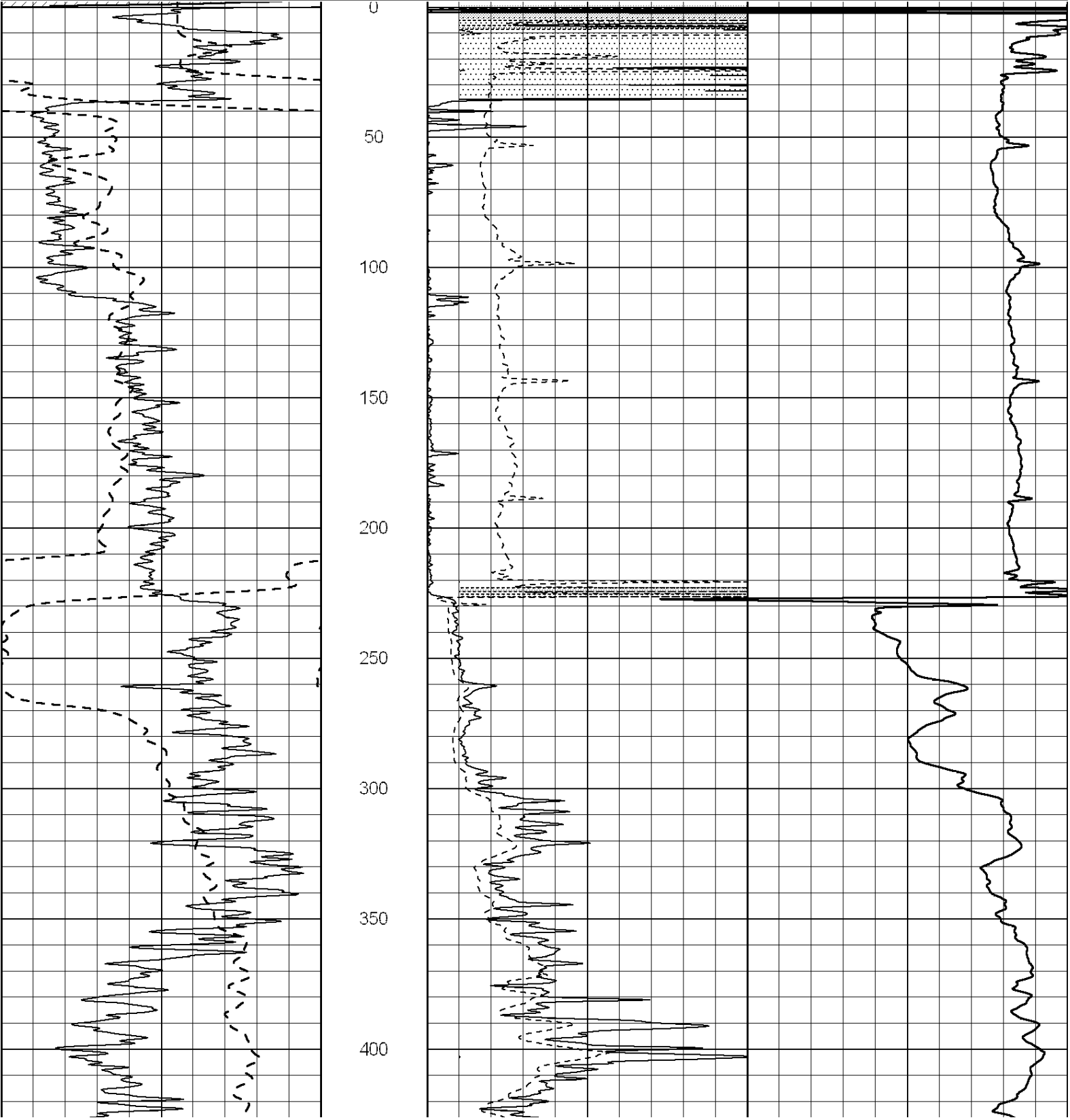
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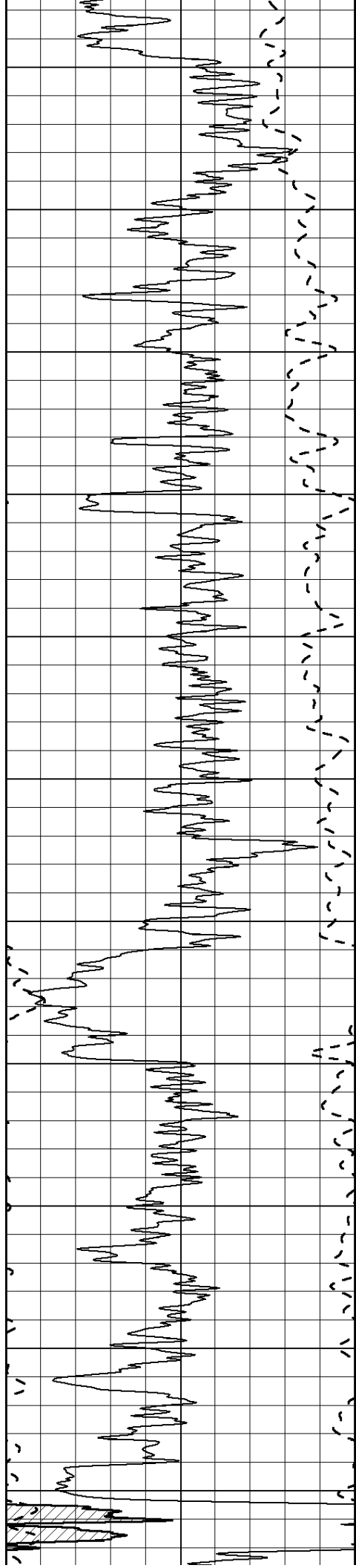
Wed Jan 09 13:45:01 2013

Charted by:

Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50
-100	SP (mV)	100	0	RILD (Ohm-m)	50
-----			1000 CILD (mmho/m)		
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500





450

500

550

600

650

700

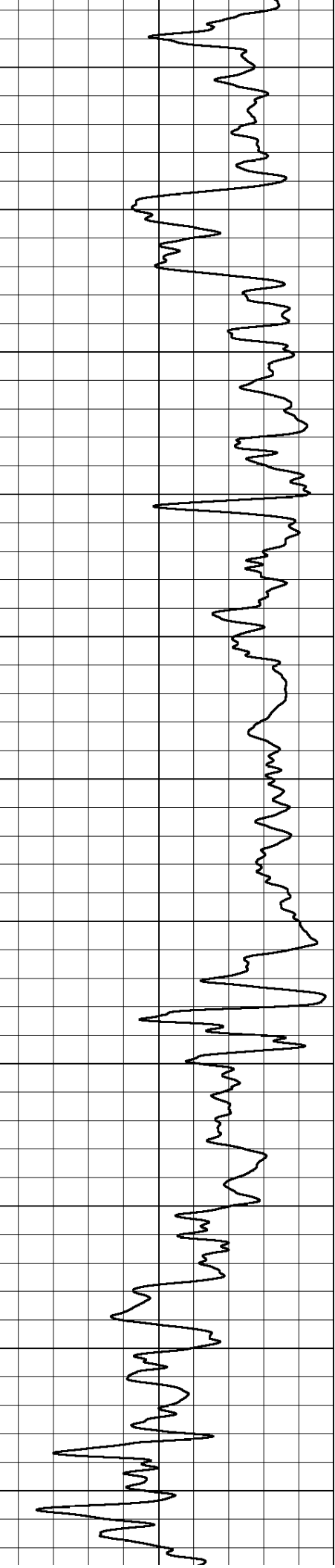
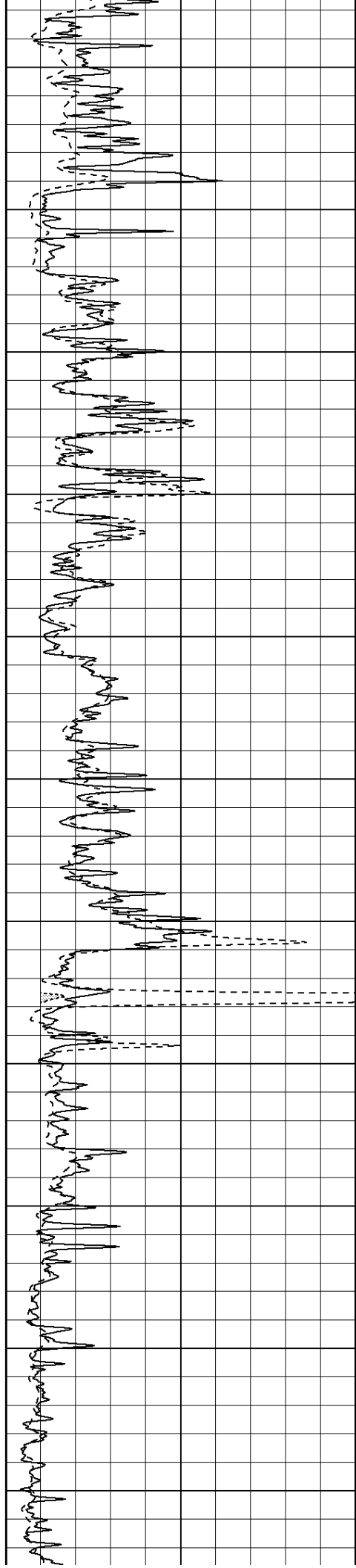
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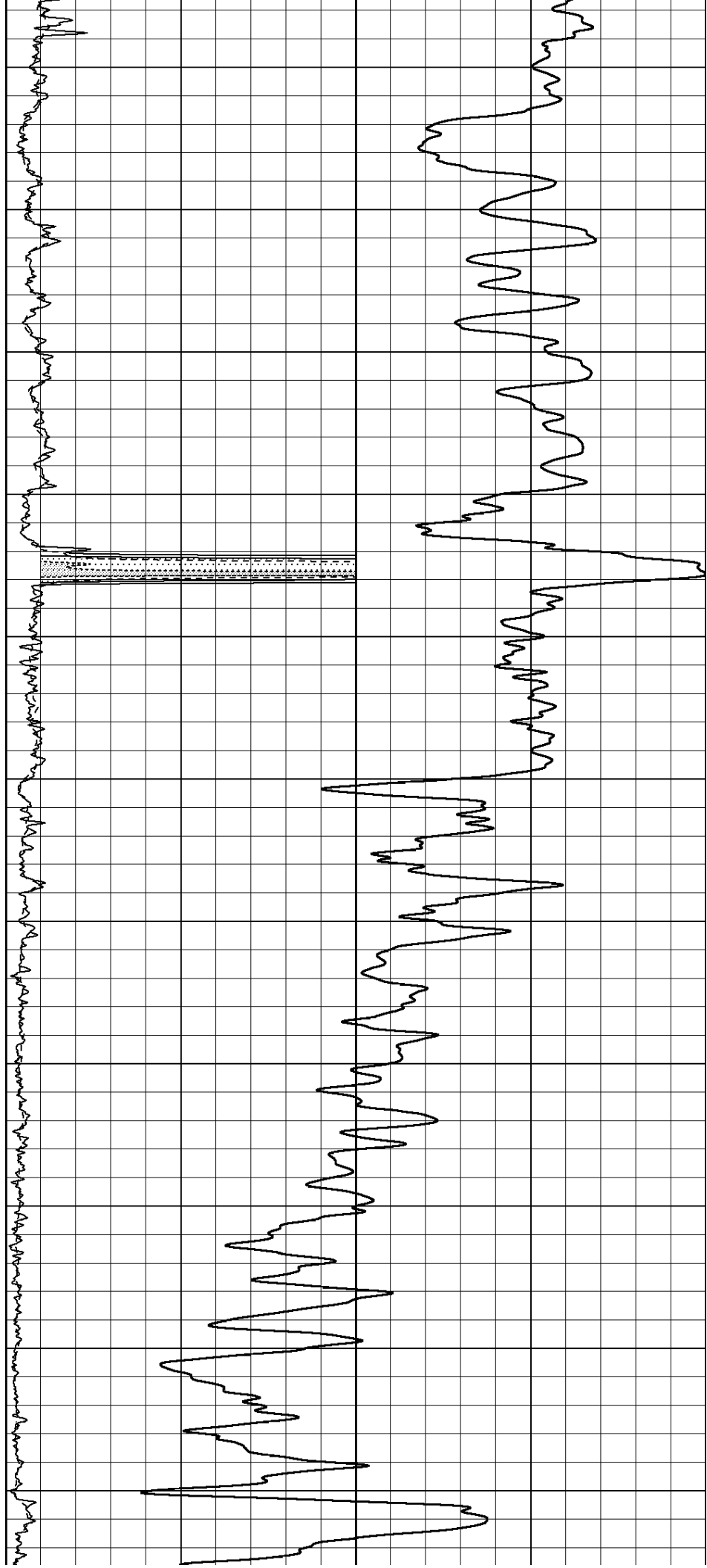
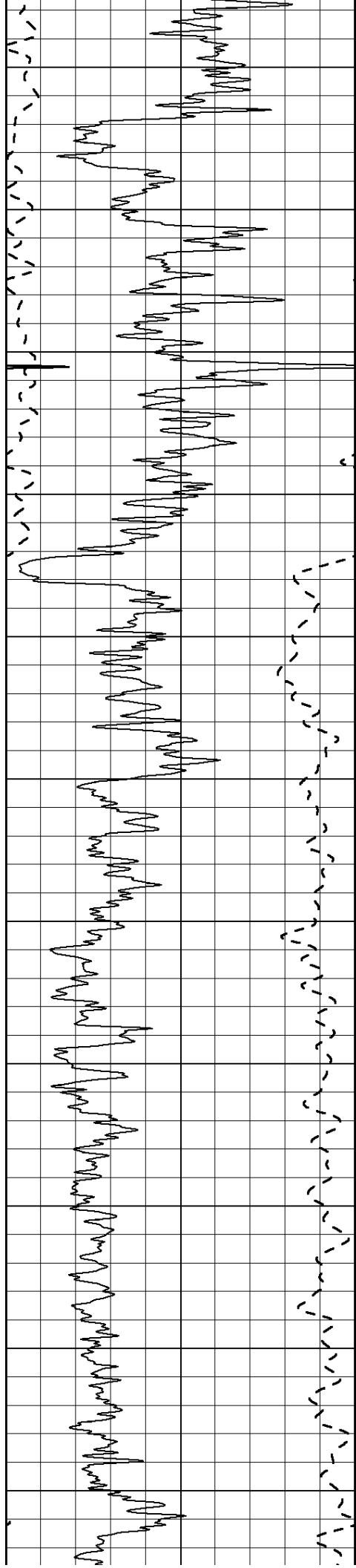
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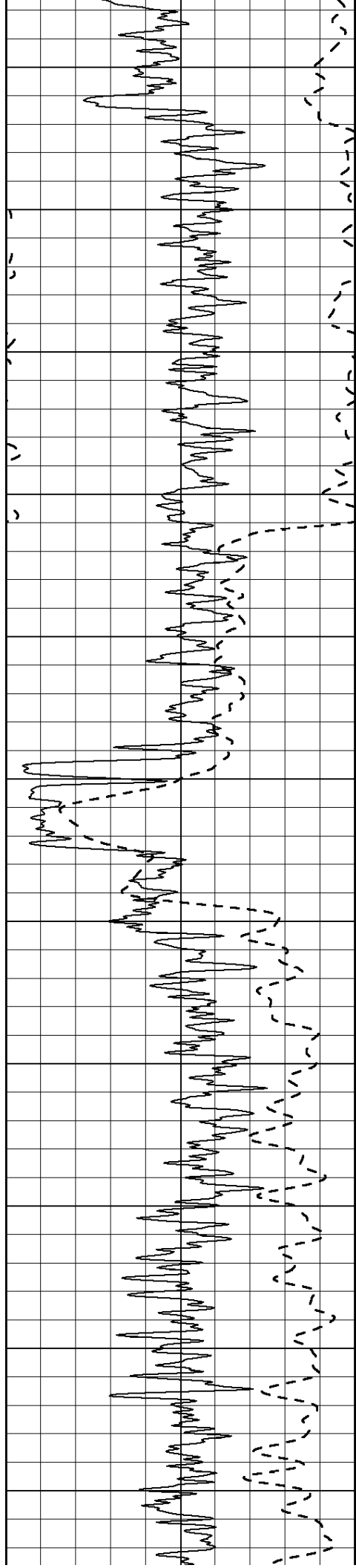
900

950



1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

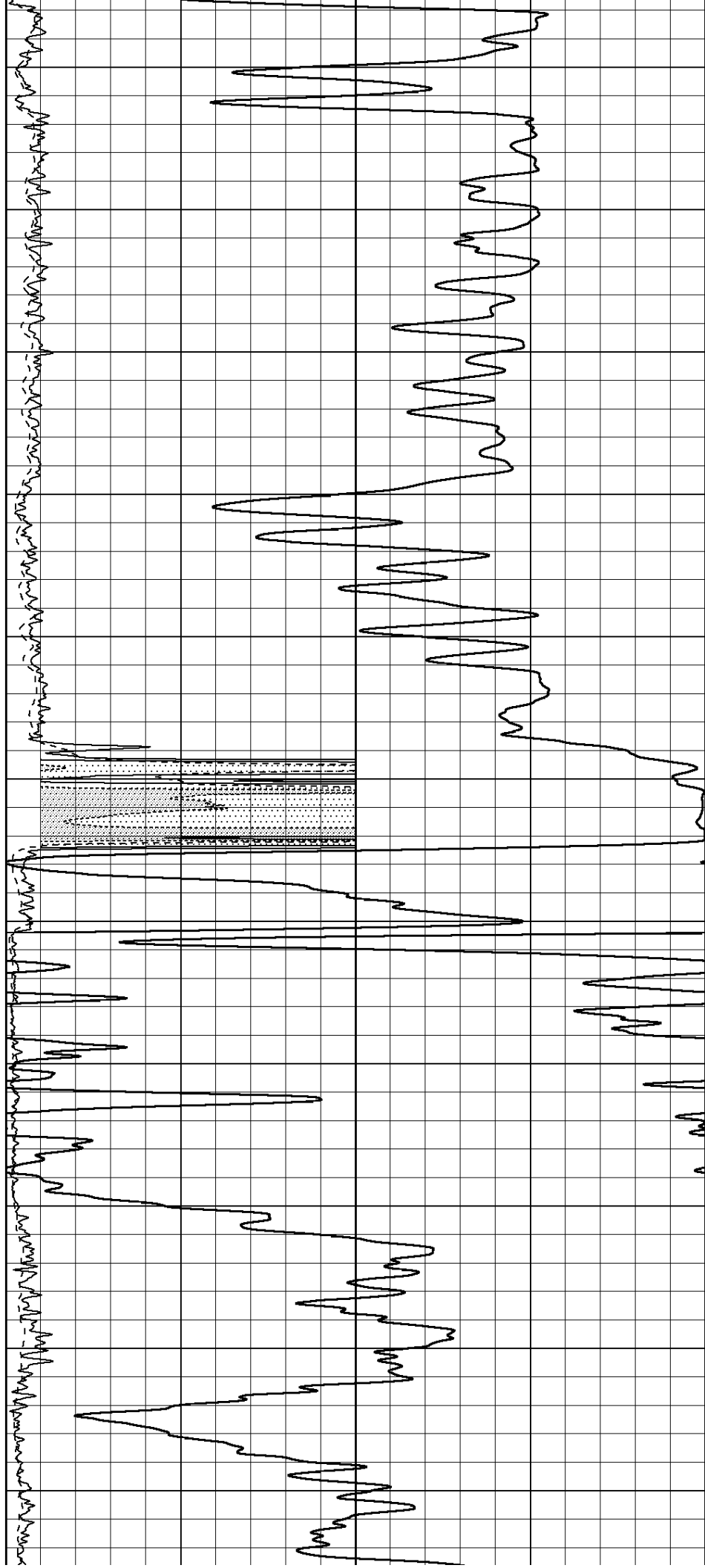
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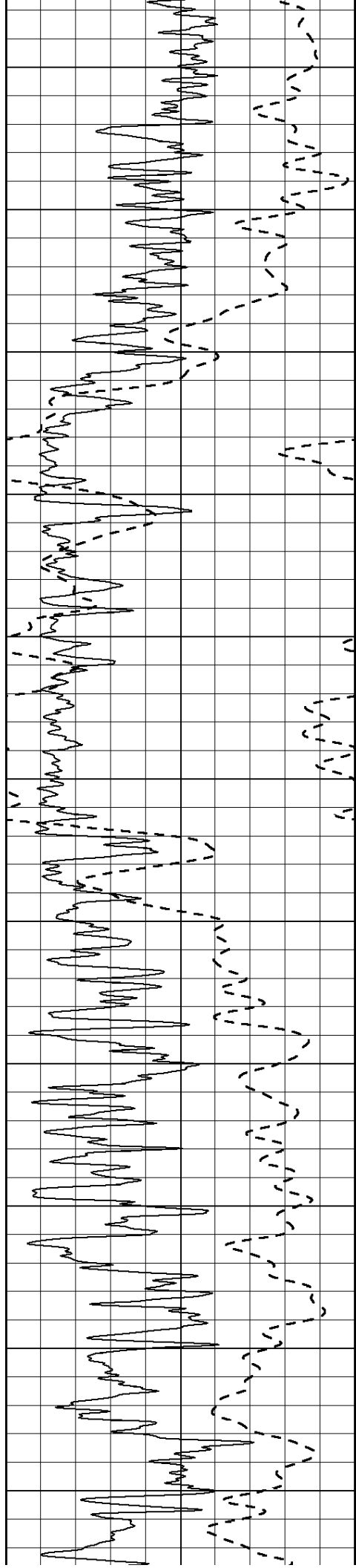
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1950

2000

2050





2100

2150

2200

2250

2300

2350

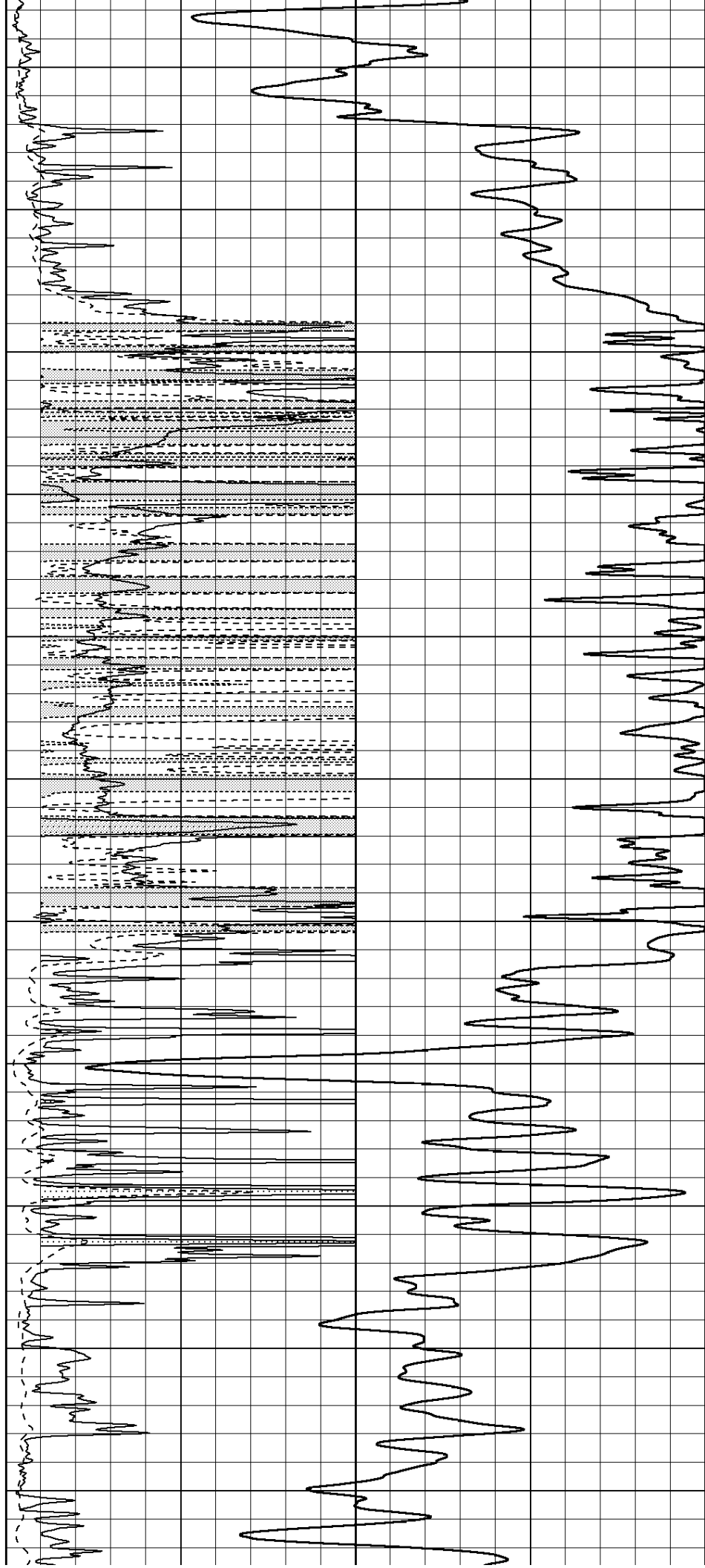
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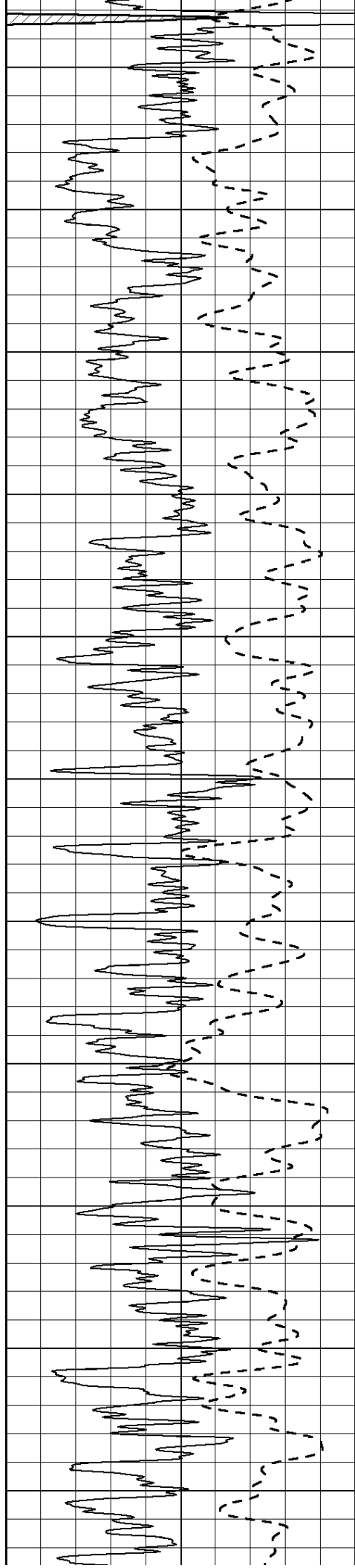
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2500

2550

2600





2650

2700

2750

2800

2850

2900

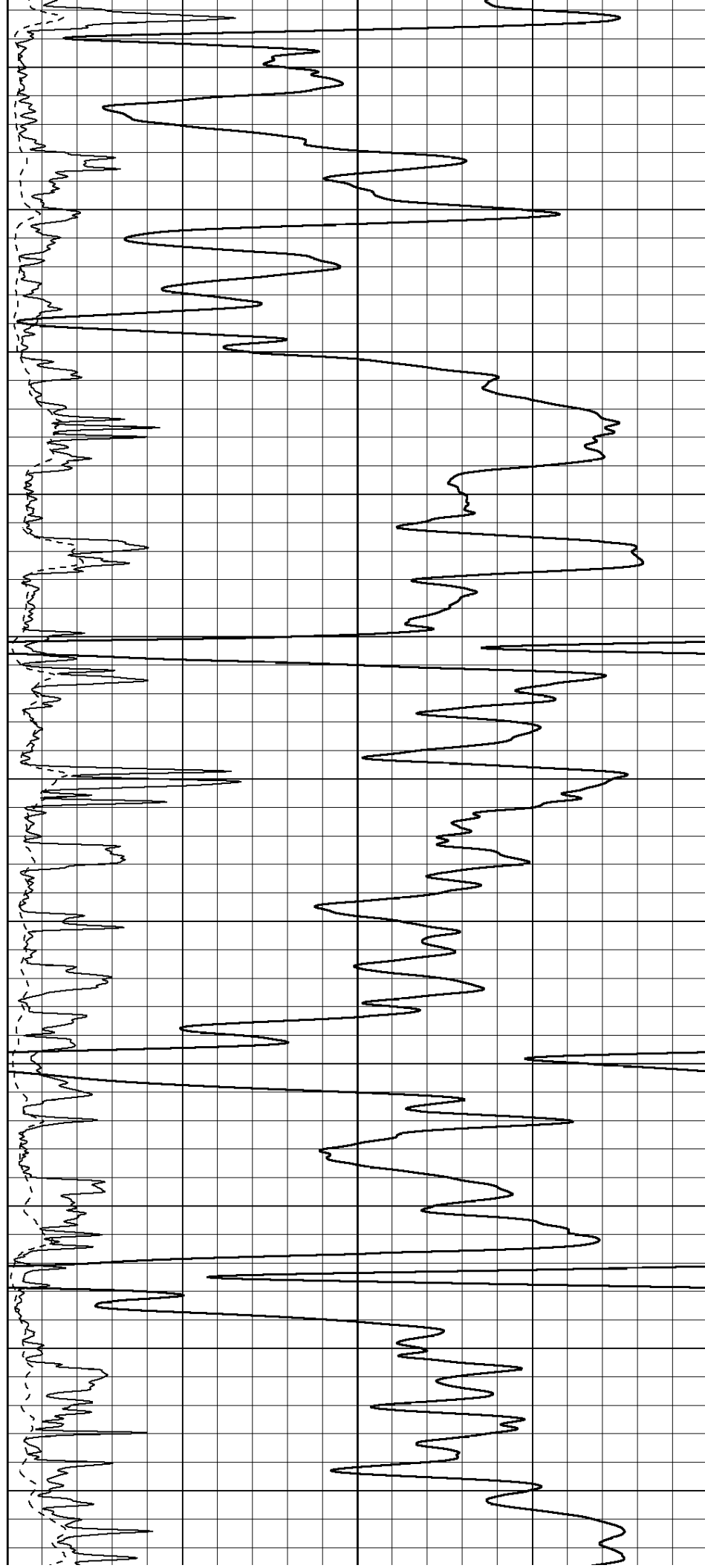
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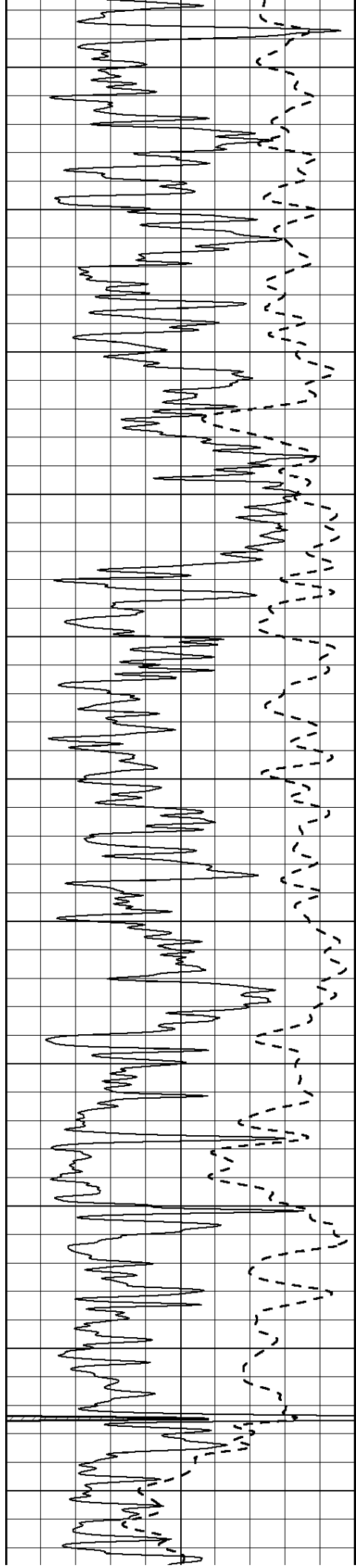
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3050

3100

3150





3200

3250

3300

3350

3400

3450

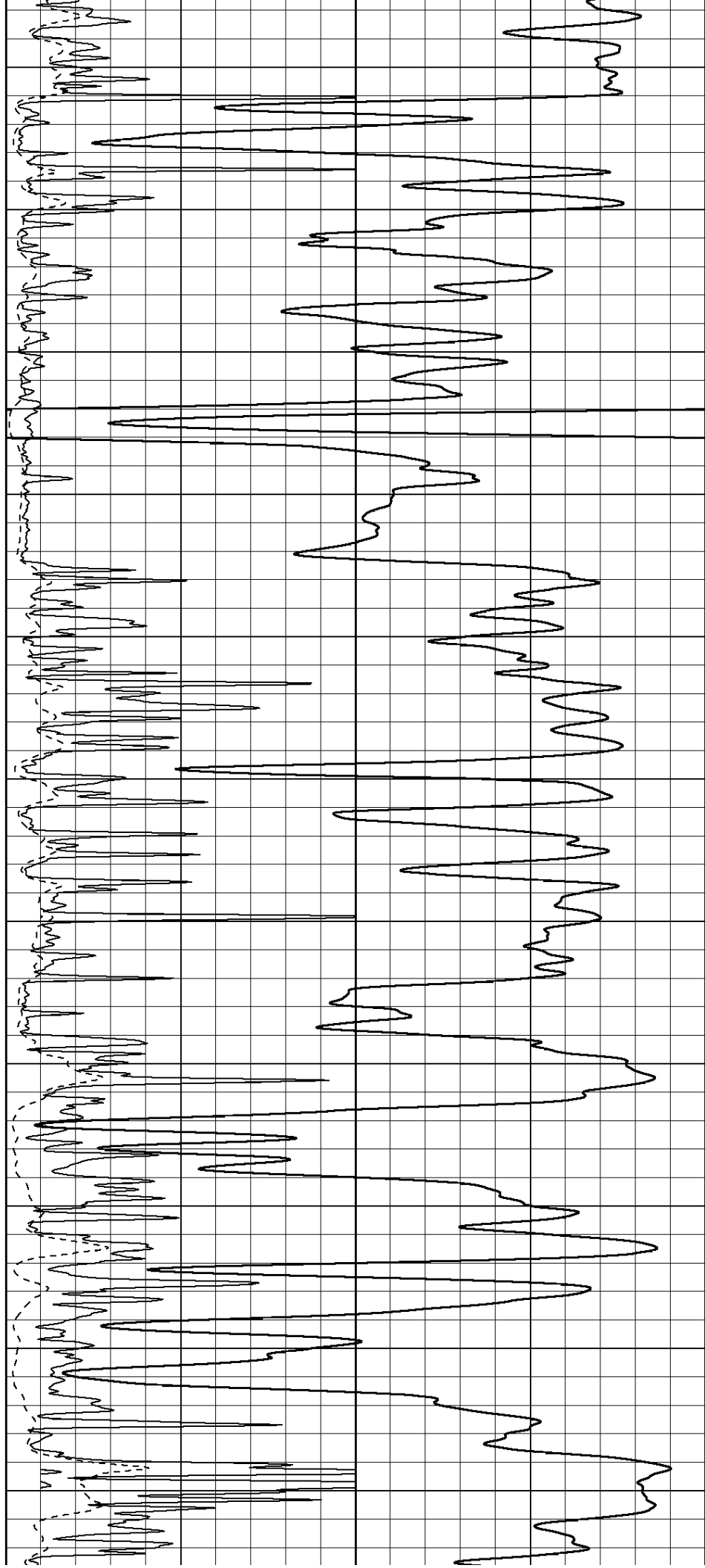
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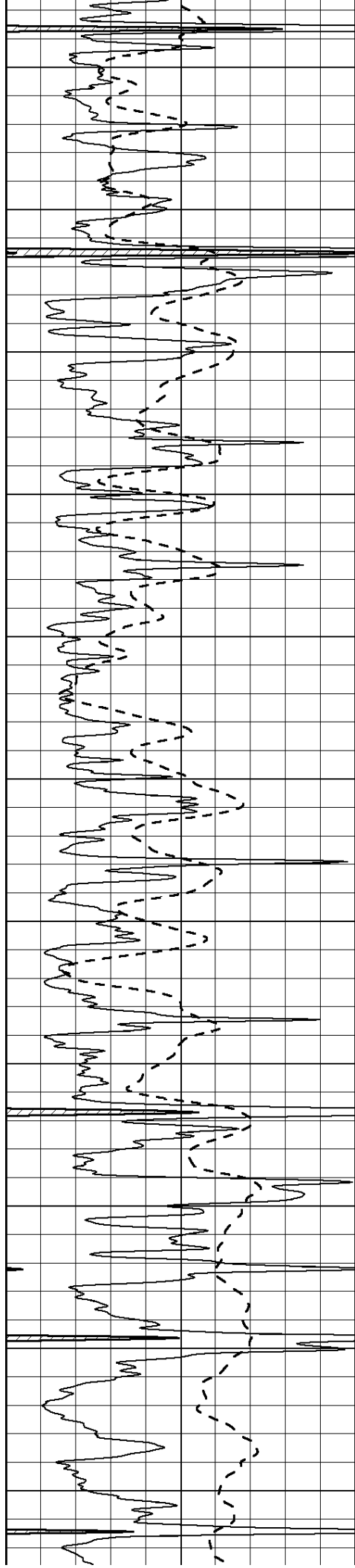
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3600

3650

3700





3750

3800

3850

3900

3950

4000

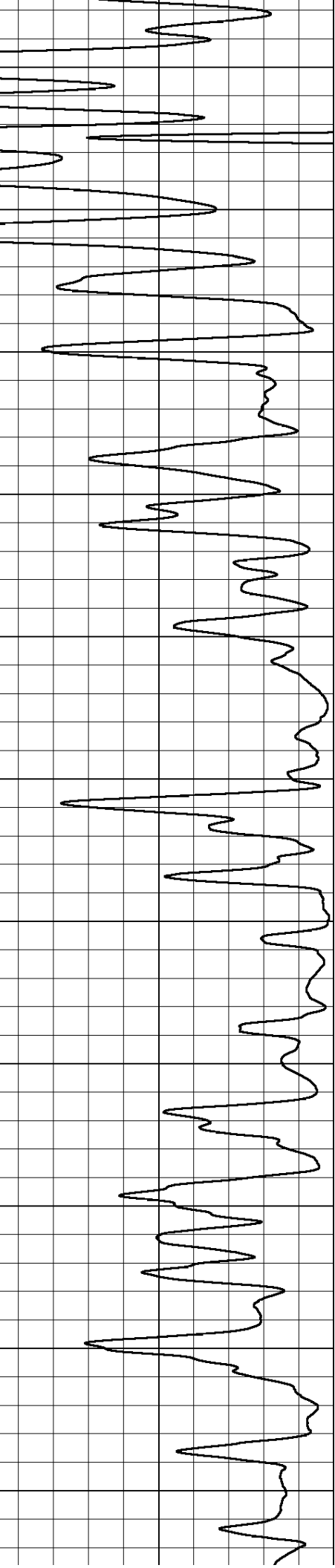
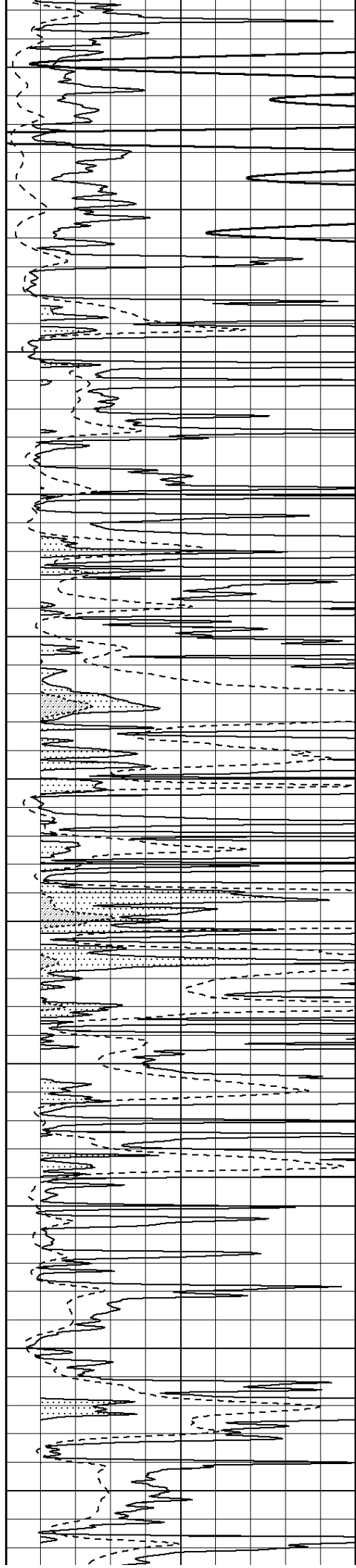
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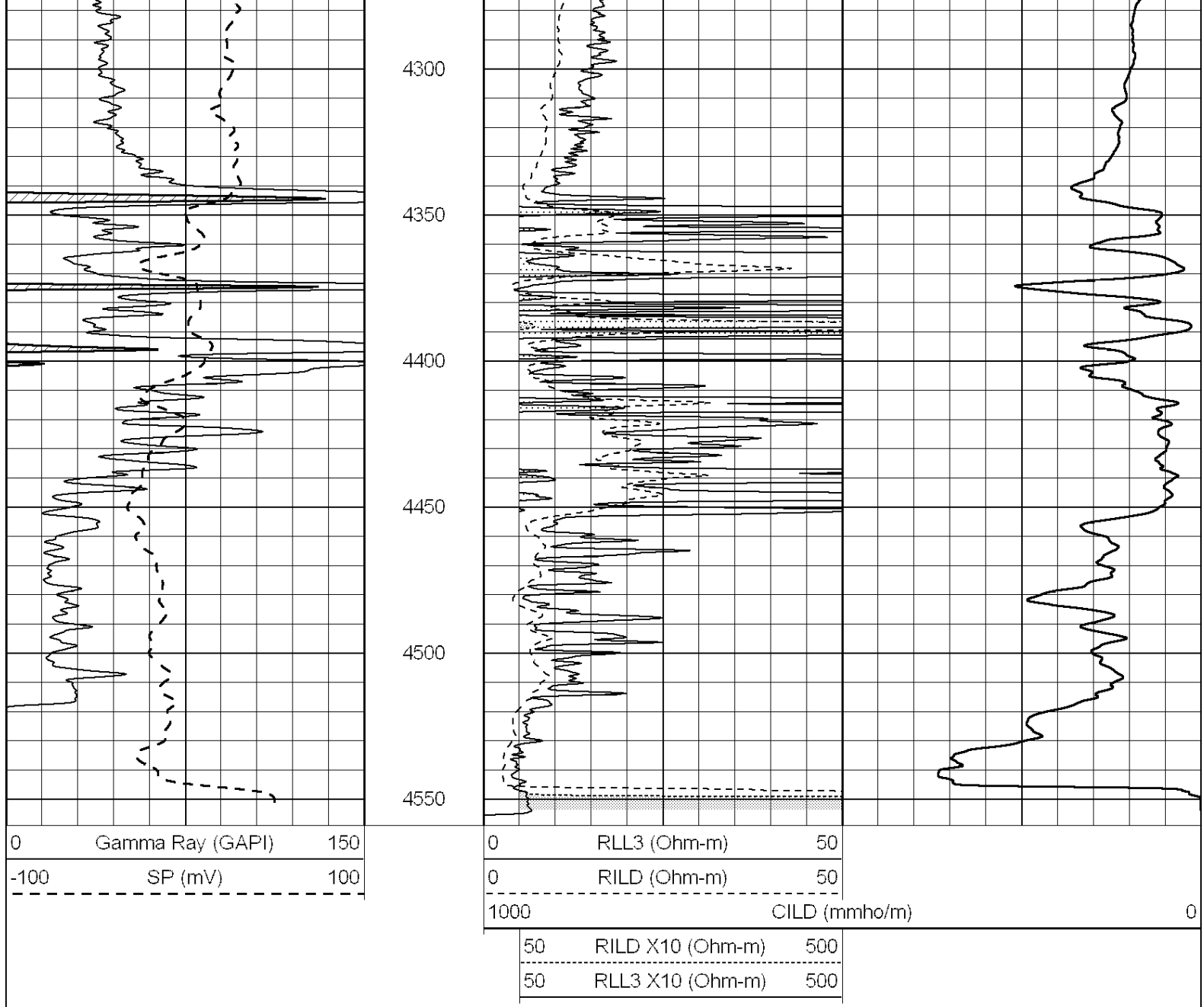
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4150

4200

4250





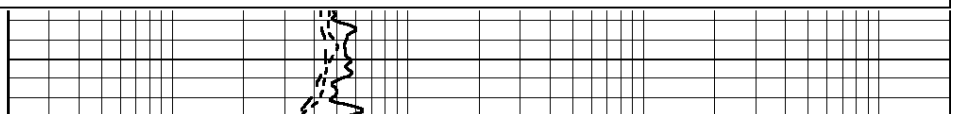
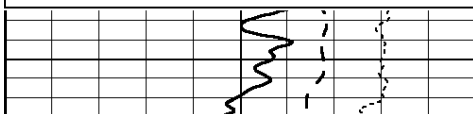
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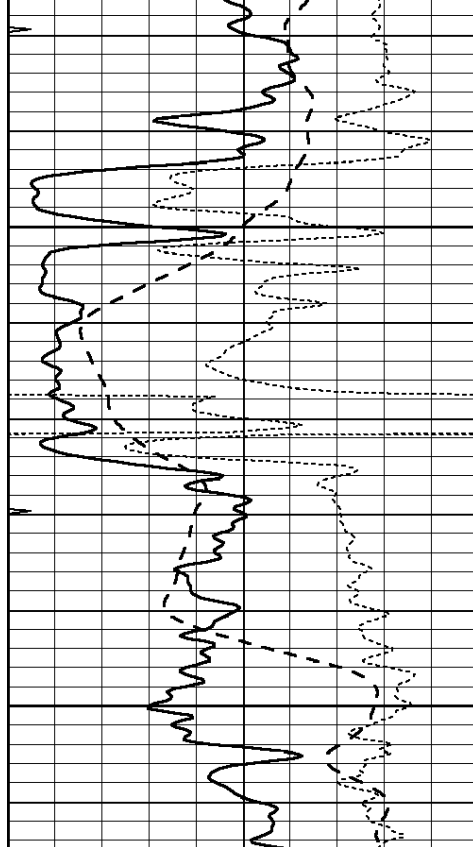
ANHYDRITE

Database File: 010042pe.db
Dataset Pathname: pass3.10
Presentation Format: _dil
Dataset Creation: Wed Jan 09 13:45:14 2013
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

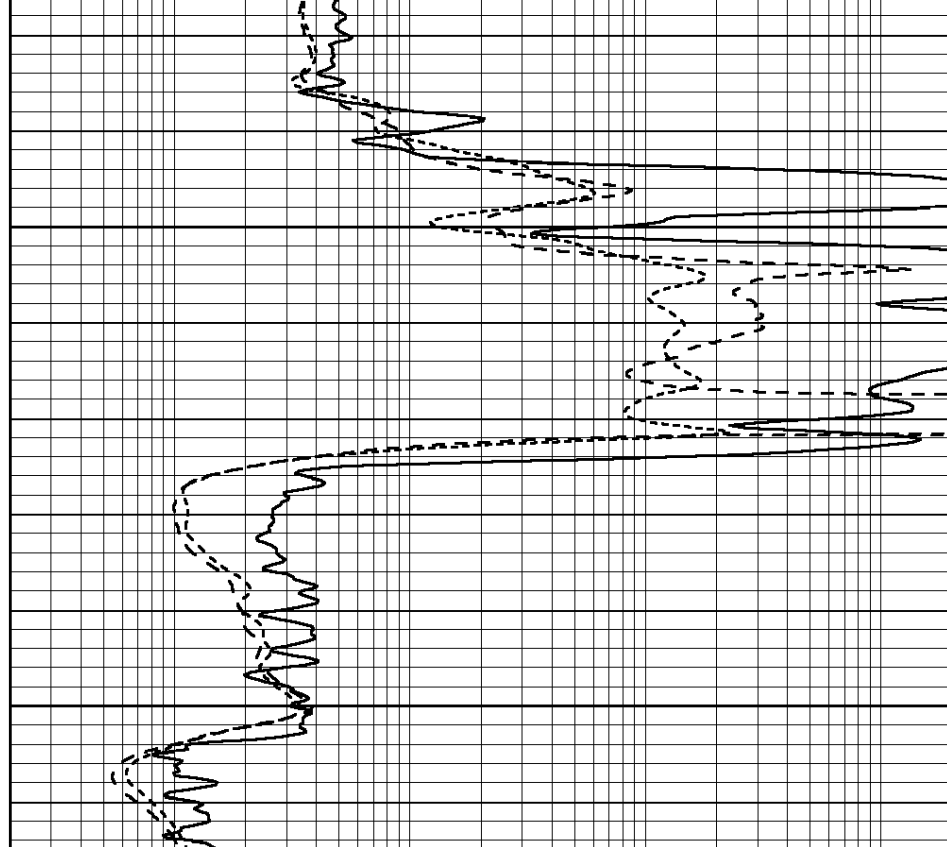




0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

1800

1850



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



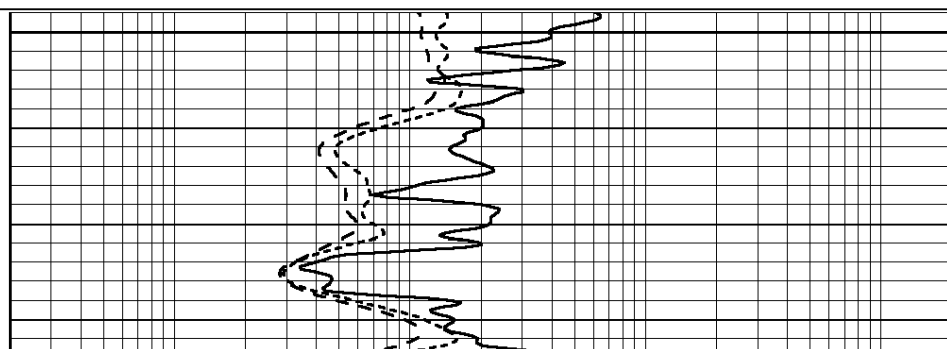
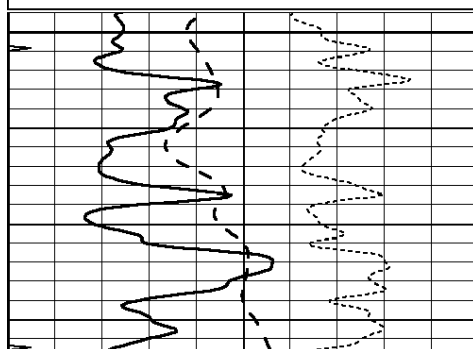
MAIN SECTION

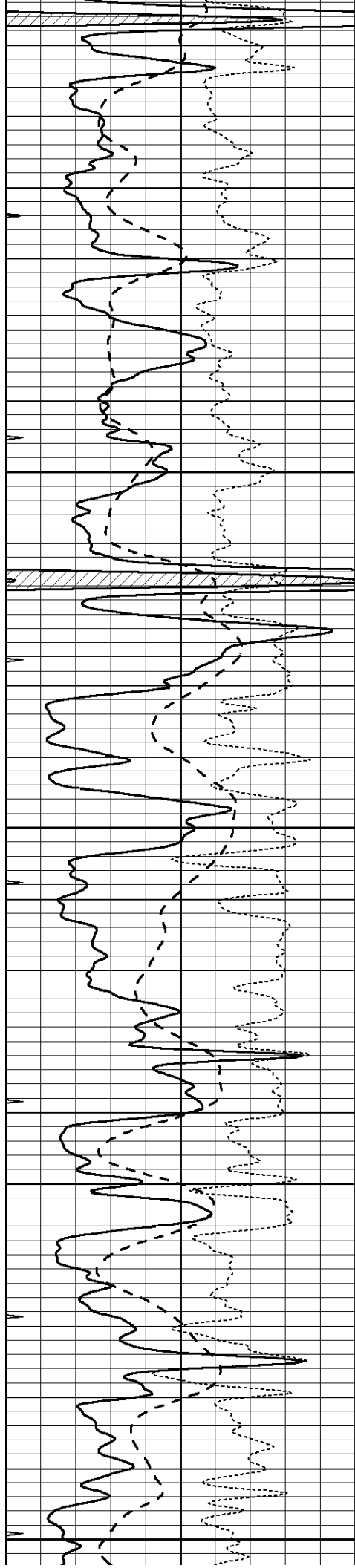
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 Dataset Pathname: pass3.9
 Presentation Format: _dil
 Dataset Creation: Wed Jan 09 13:45:01 2013
 Charted by: Depth in Feet scaled 1:240

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

3700





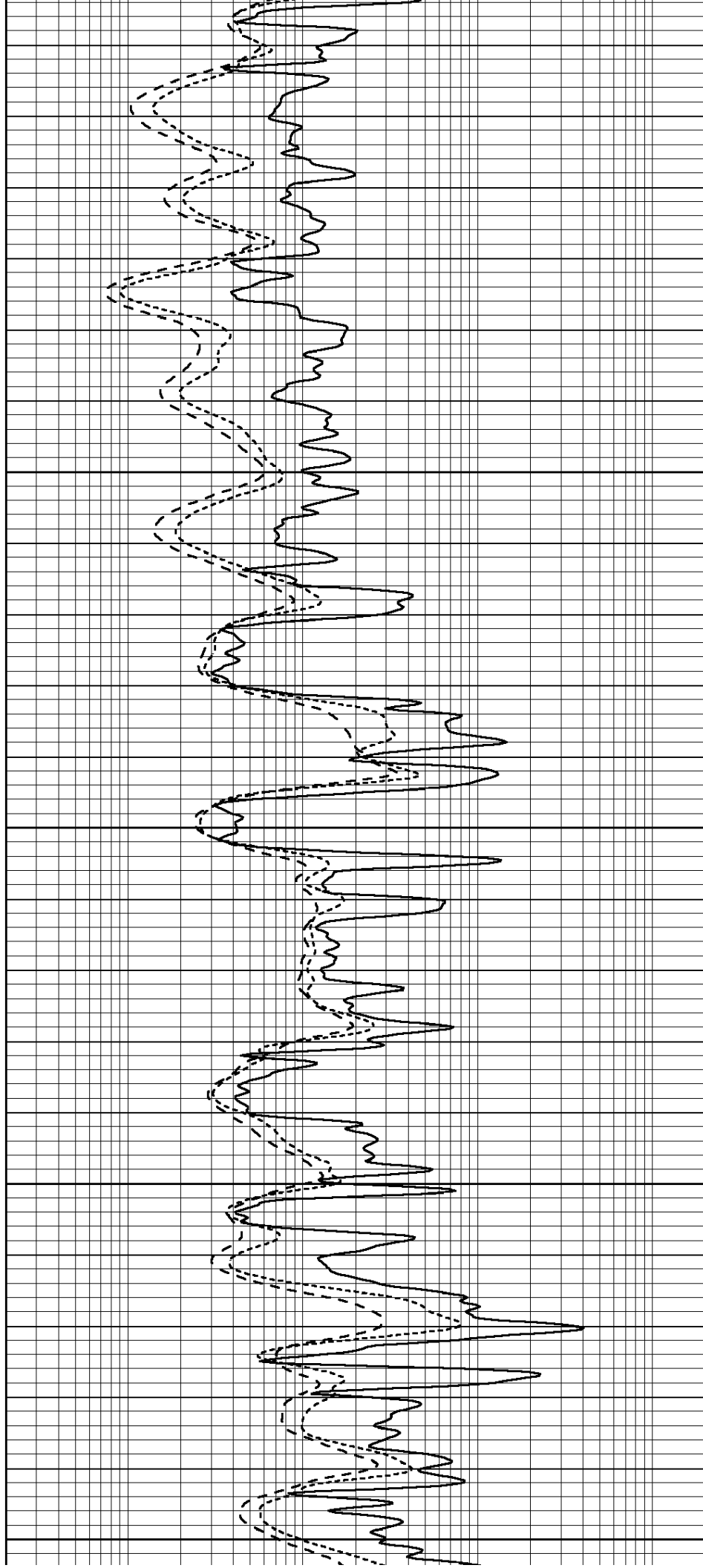
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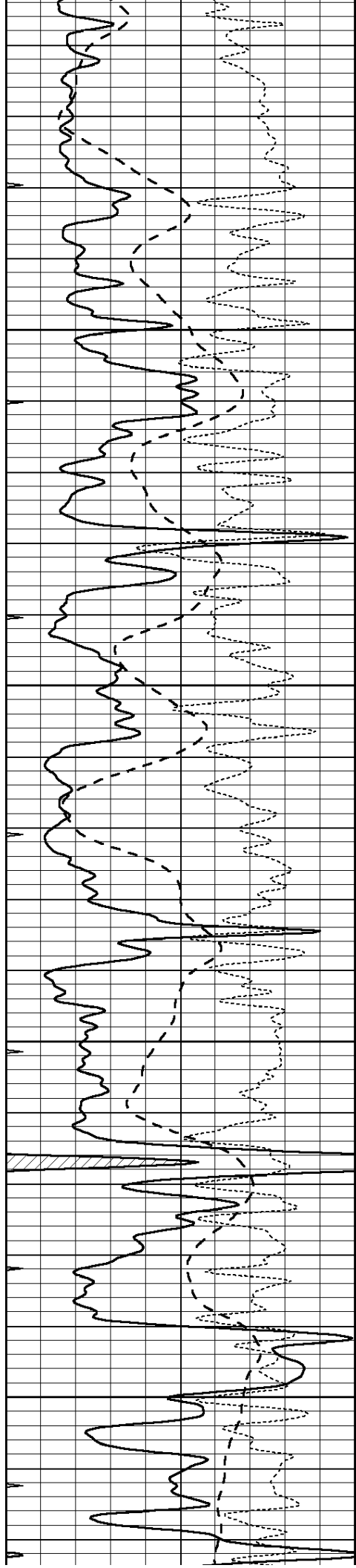
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3850

3900

3950



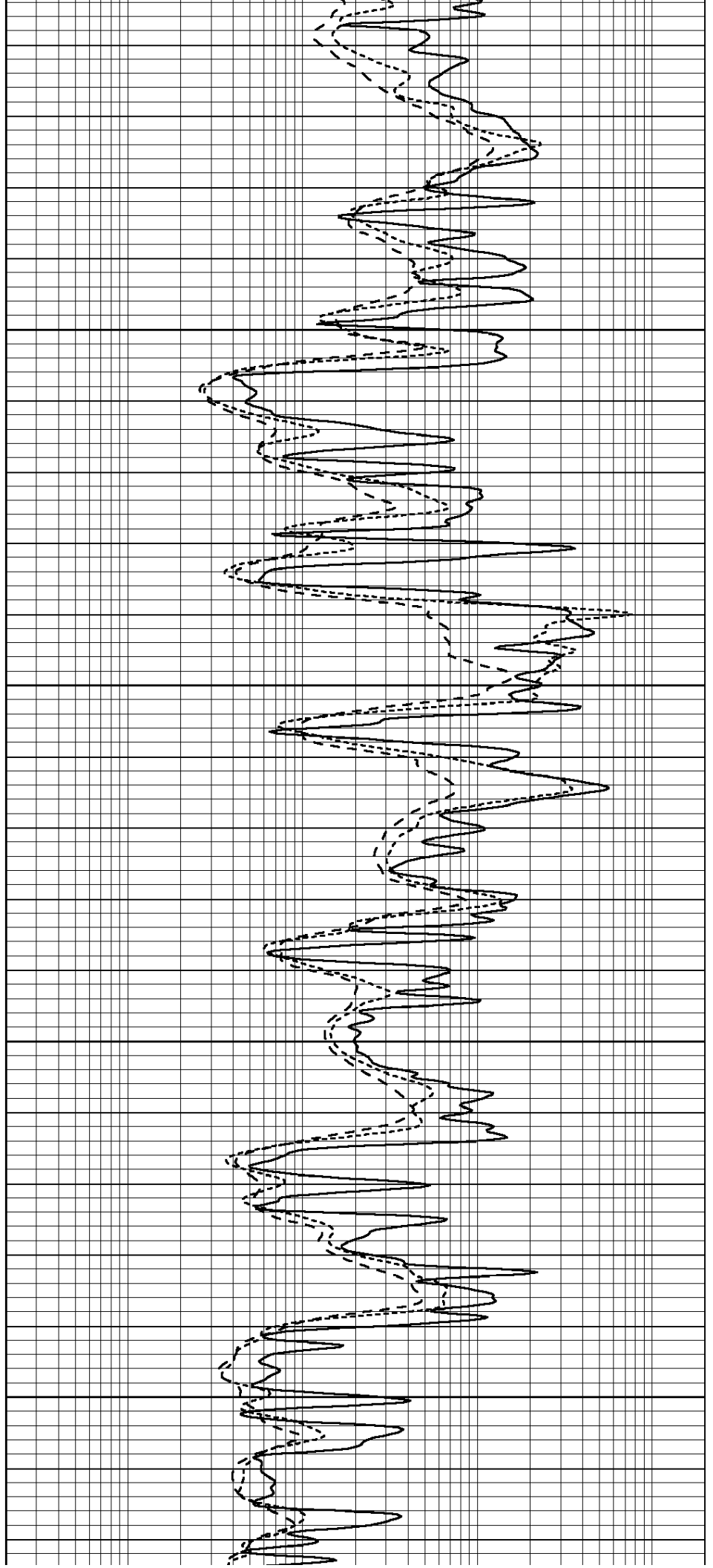


4000

4050

4100

4150



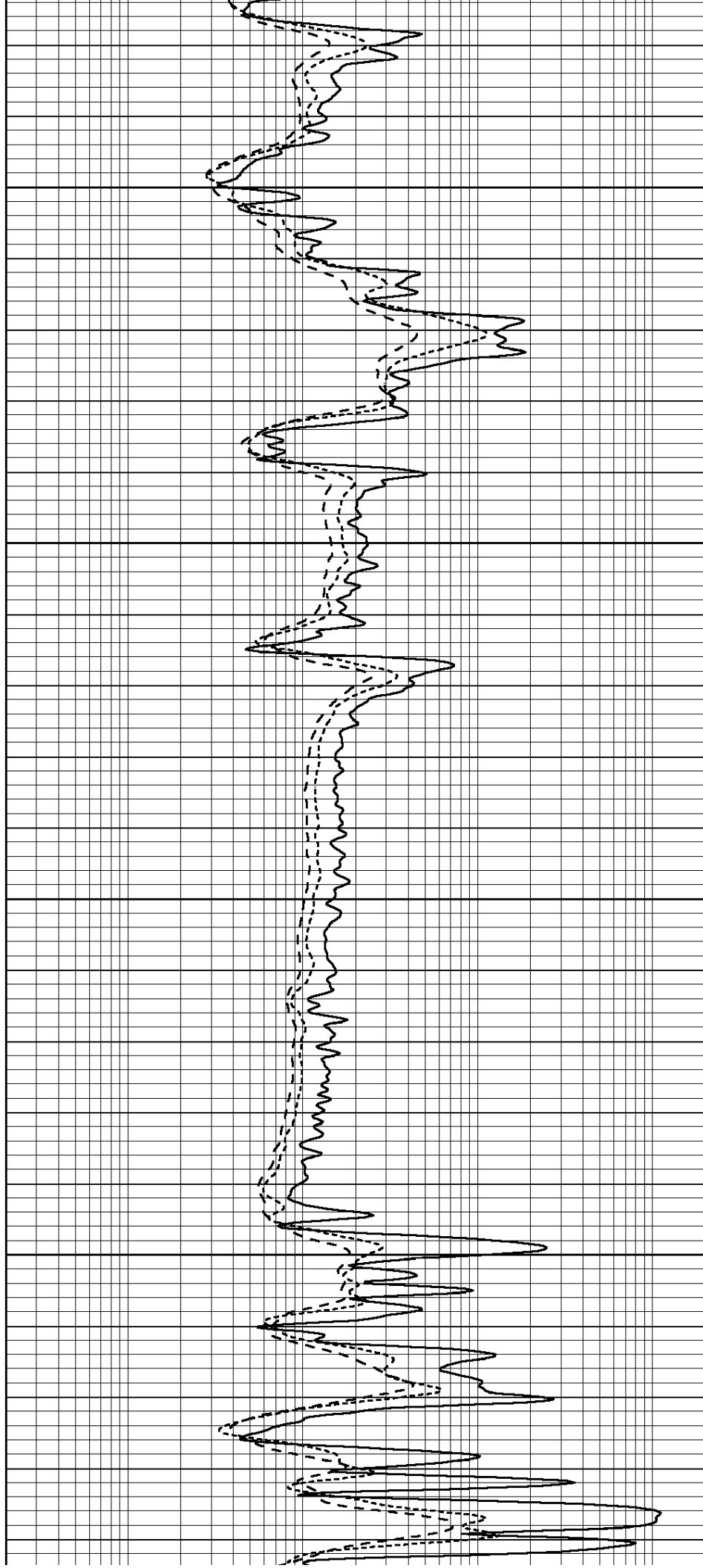


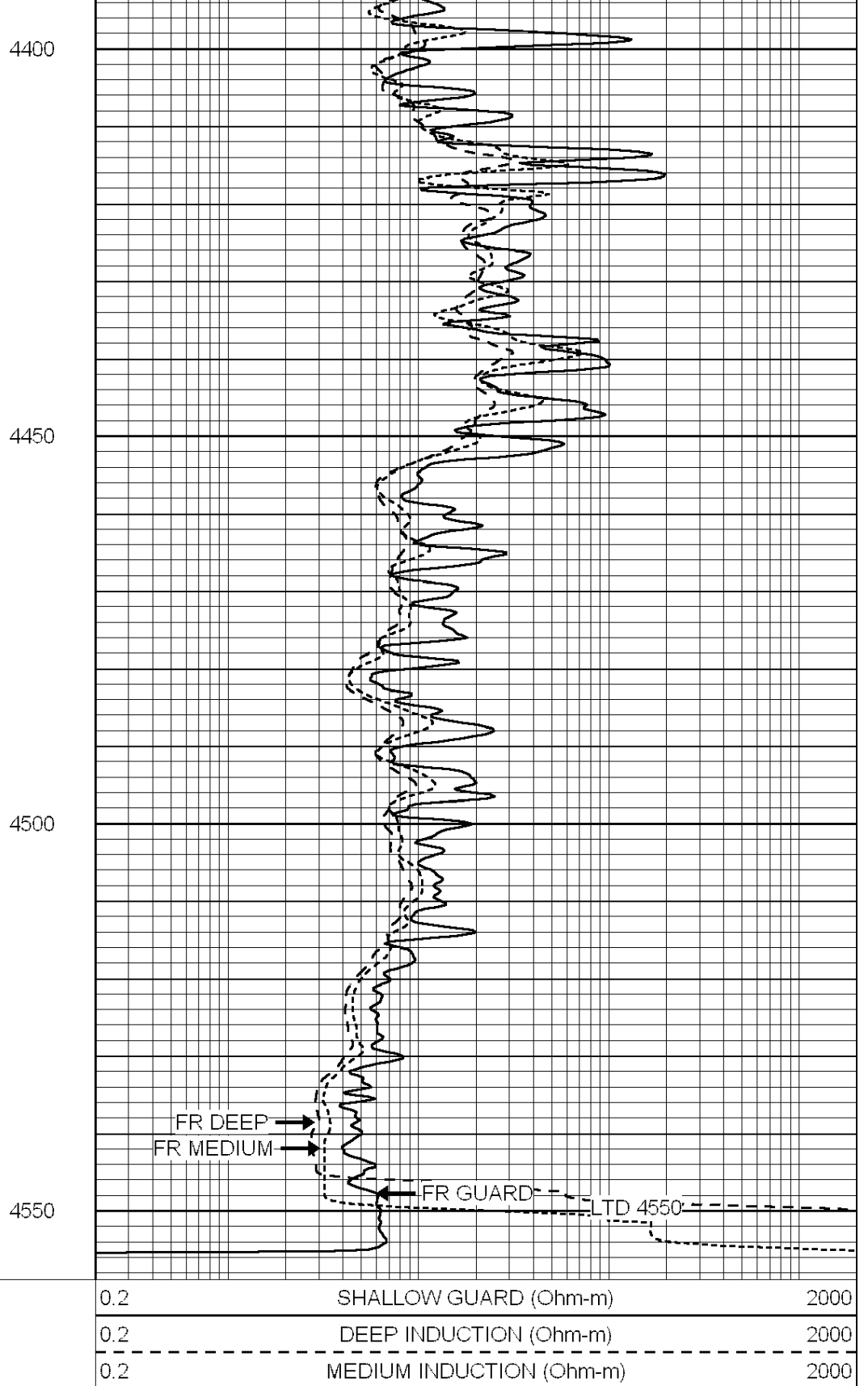
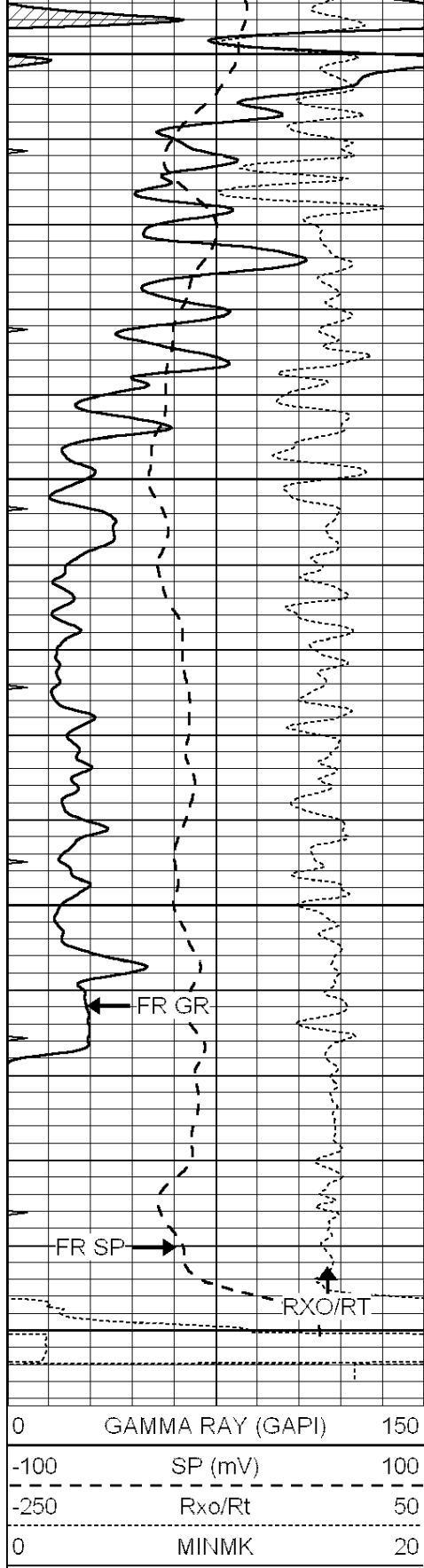
4200

4250

4300

4350



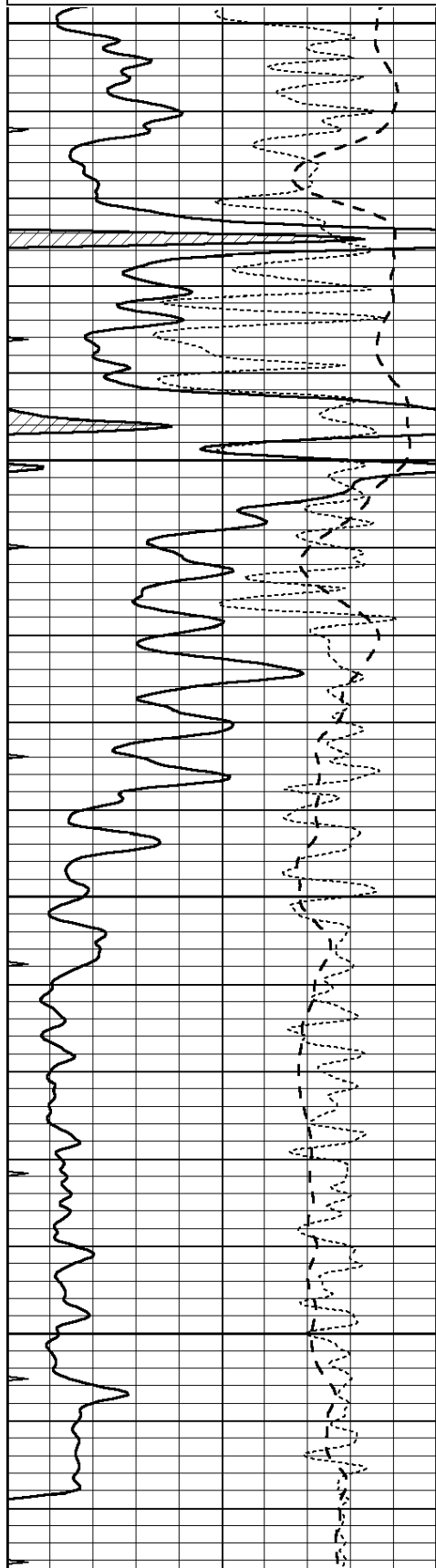


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REPEAT SECTION

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

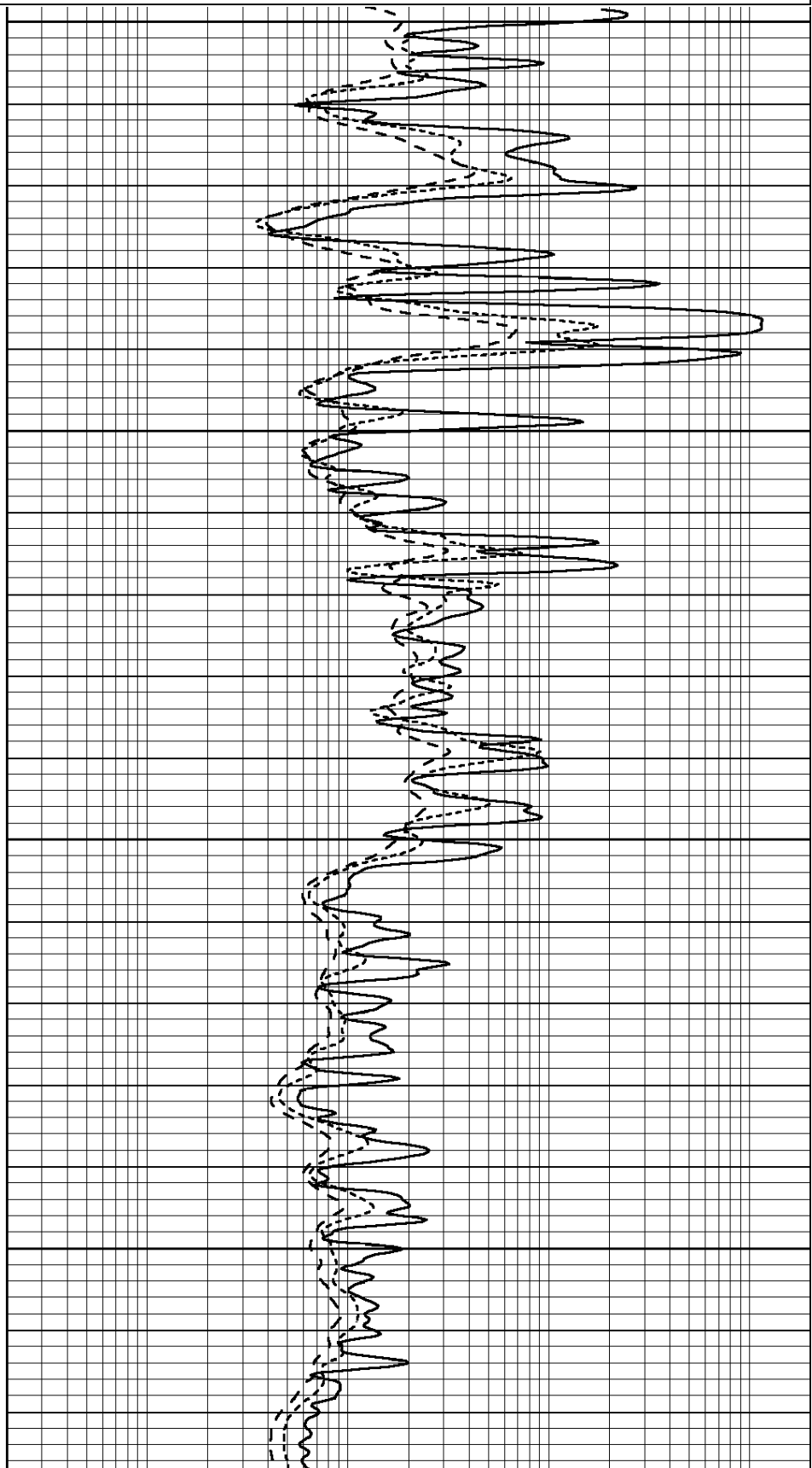


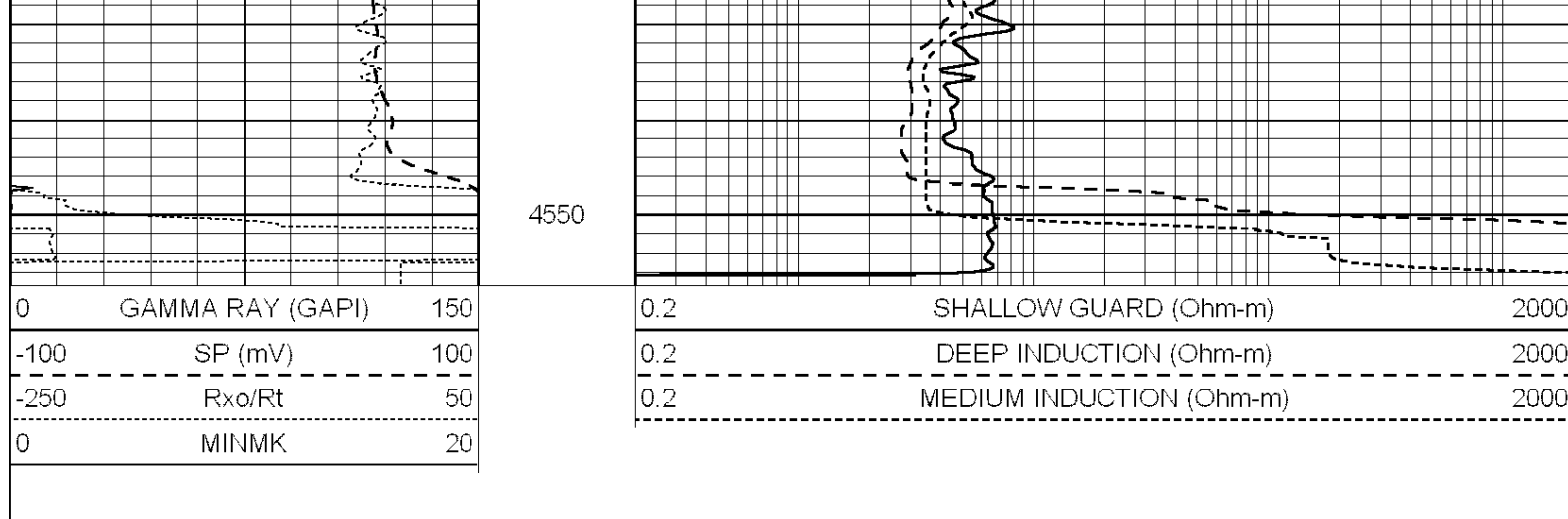
4350

4400

4450

4500





Calibration Report

Database File: 010042pe.db
 Dataset Pathname: pass3.9
 Dataset Creation: Wed Jan 09 13:45:01 2013

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
 Surface Cal Performed: Wed Jan 09 12:28:38 2013
 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	8.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	720.000	4.000
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

Litho Density Calibration Report
 Serial: 006 Model: PRB

	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	

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Compensated Neutron Calibration Report
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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 GP

Room Model: OPEN_OR
Performed: Wed Jan 09 12:24:50 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps

Calibrator Reading: 1.0 cps

Sensitivity: 0.3000 GAPI/cps