



DUAL INDUCTION LOG

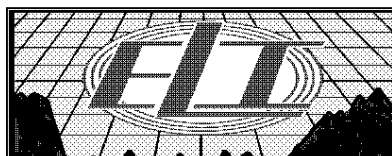
Company	PHILLIPS EXPLORATION CO. L.C.		
Well	TG MILLER #1-4 SHR		
Field	WILDCAT		
County	TREGO		
State	KANSAS		
Company	PHILLIPS EXPLORATION COMPANY, L.C.		
Well	TG MILLER #1-4 SHR		
Field	WILDCAT		
County	TREGO		
State	KANSAS		
Location:	API # : 15-195-23007-0000		
Permanent Datum	GROUND LEVEL	Elevation	2573
Log Measured From	KELLY BUSHING	5' A.G.L.	
Drilling Measured From	KELLY BUSHING		
Date	9/21/16		
Run Number	ONE		
Depth Driller	4520		
Depth Logger	4520		
Bottom Logged Interval	4518		
Top Log Interval	00		
Casing Driller	8 5/8"@218'		
Casing Logger	218		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,200 PPM	
Density / Viscosity	9.5/60		
pH / Fluid Loss	10.5/7.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.500@95F		
Rmf @ Meas. Temp	.375@95F		
Rmc @ Meas. Temp	.600@95F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.393@121F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	7:45 P.M.		
Maximum Recorded Temperature	121F		
Equipment Number	922339		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	PAT DEENIHAN		

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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, KANSAS (785) 628-6395
DIRECTIONS
COLLYER, KS. & I-70, 1N. TO STOP SIGN, 1/4E., N. INTO



MAIN SECTION

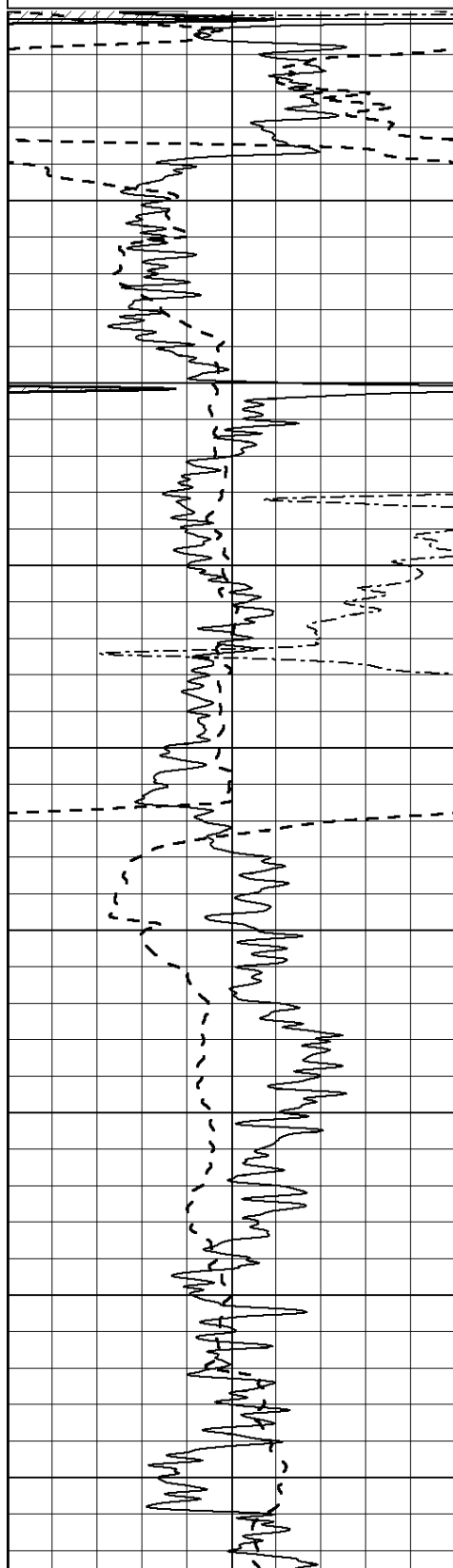
Database File: 30773ddn.db
Dataset Pathname: pass3.8
Presentation Format: dil2
Dataset Creation: Wed Sep 21 21:16:13 2016 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1

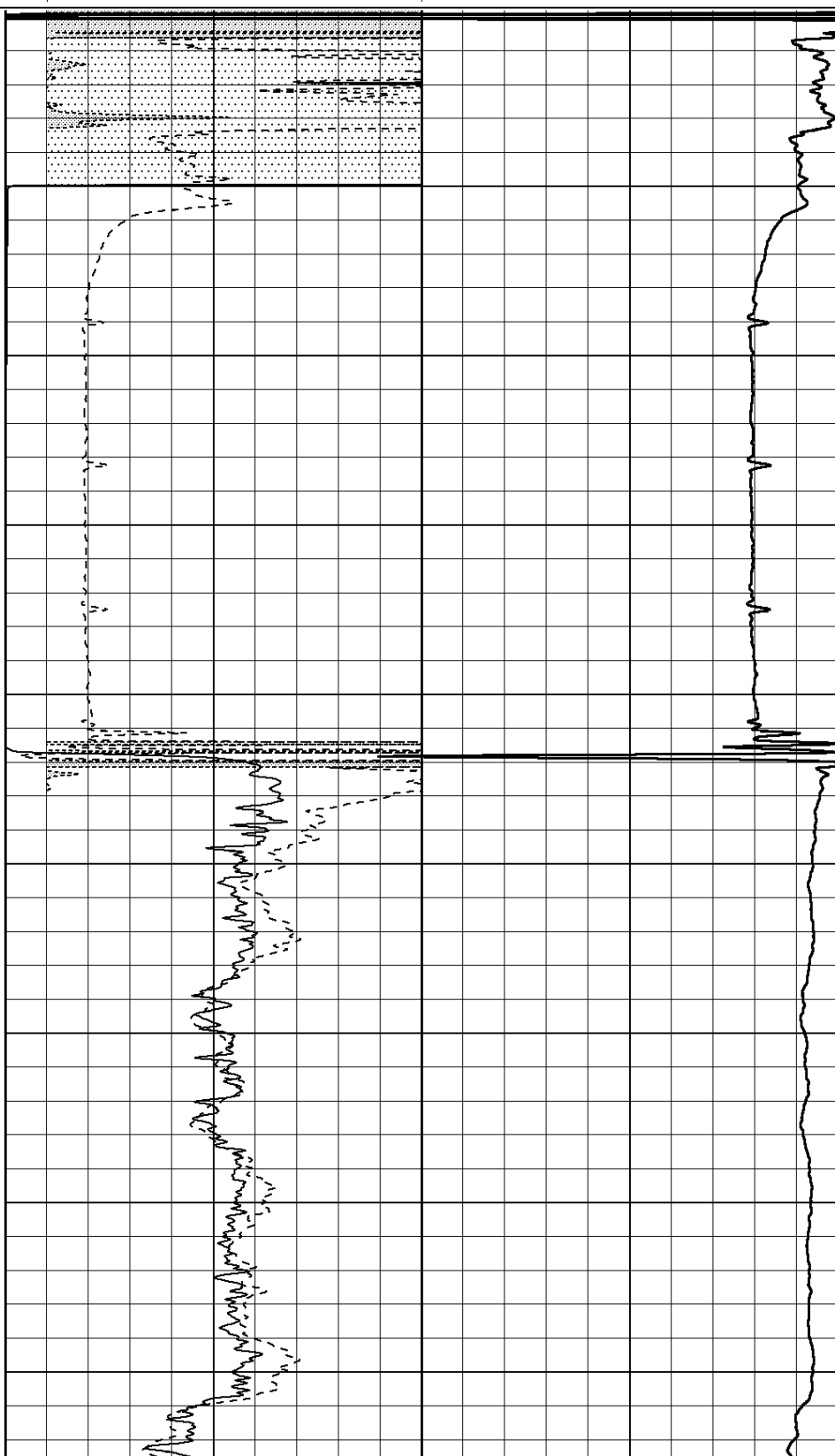
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

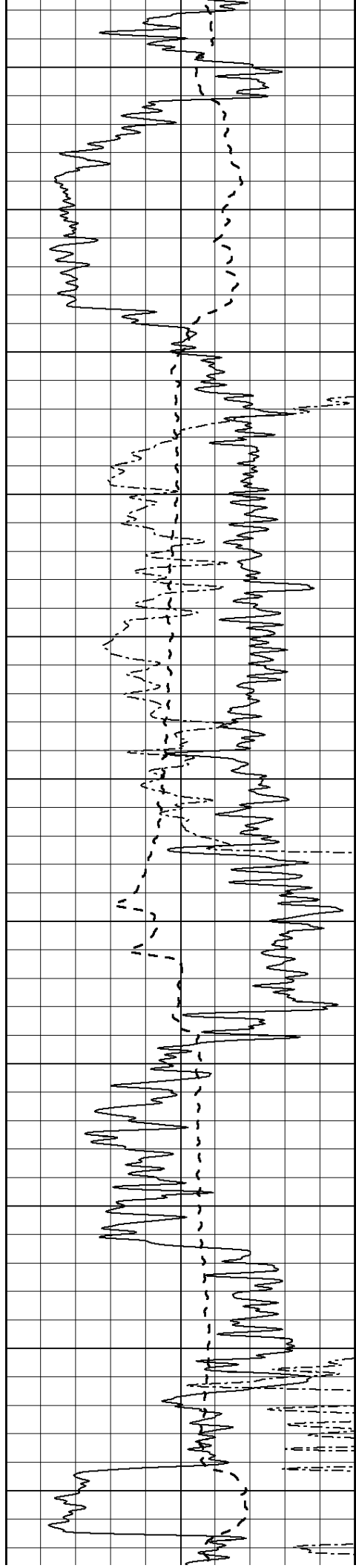
1000	CILD (mmho/m)	0
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50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500



0
50
100
150
200
250
300
350
400





450

500

550

600

650

700

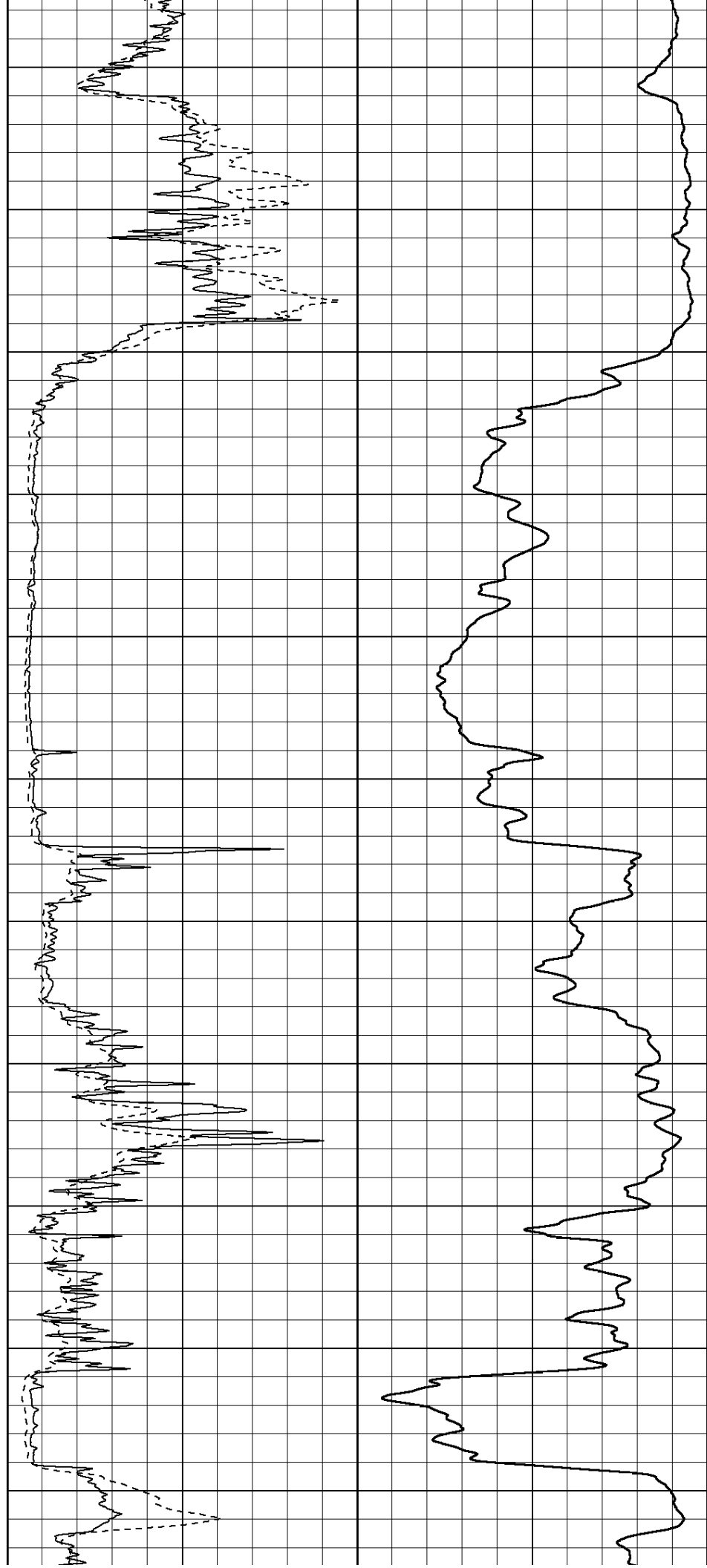
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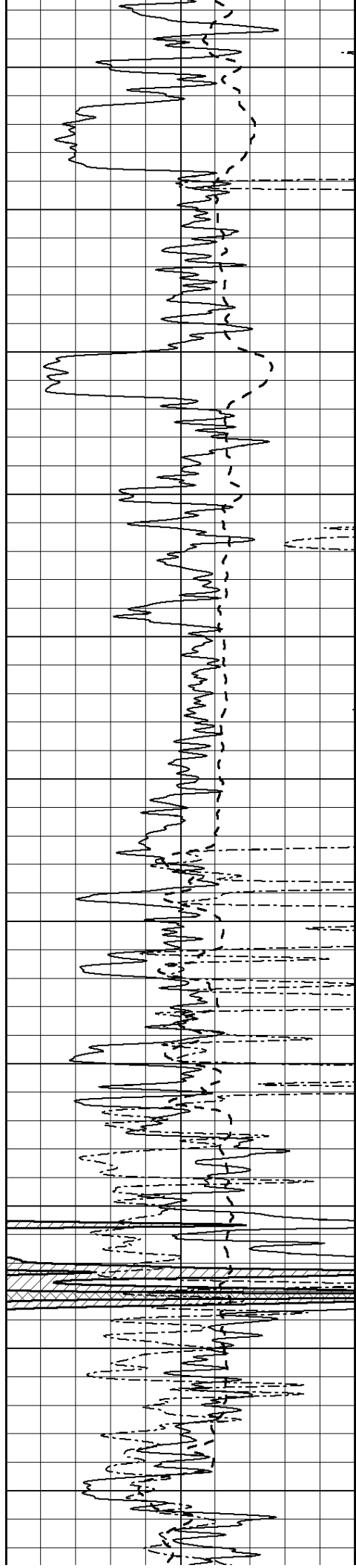
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850

900

950





1000

1050

1100

1150

1200

1250

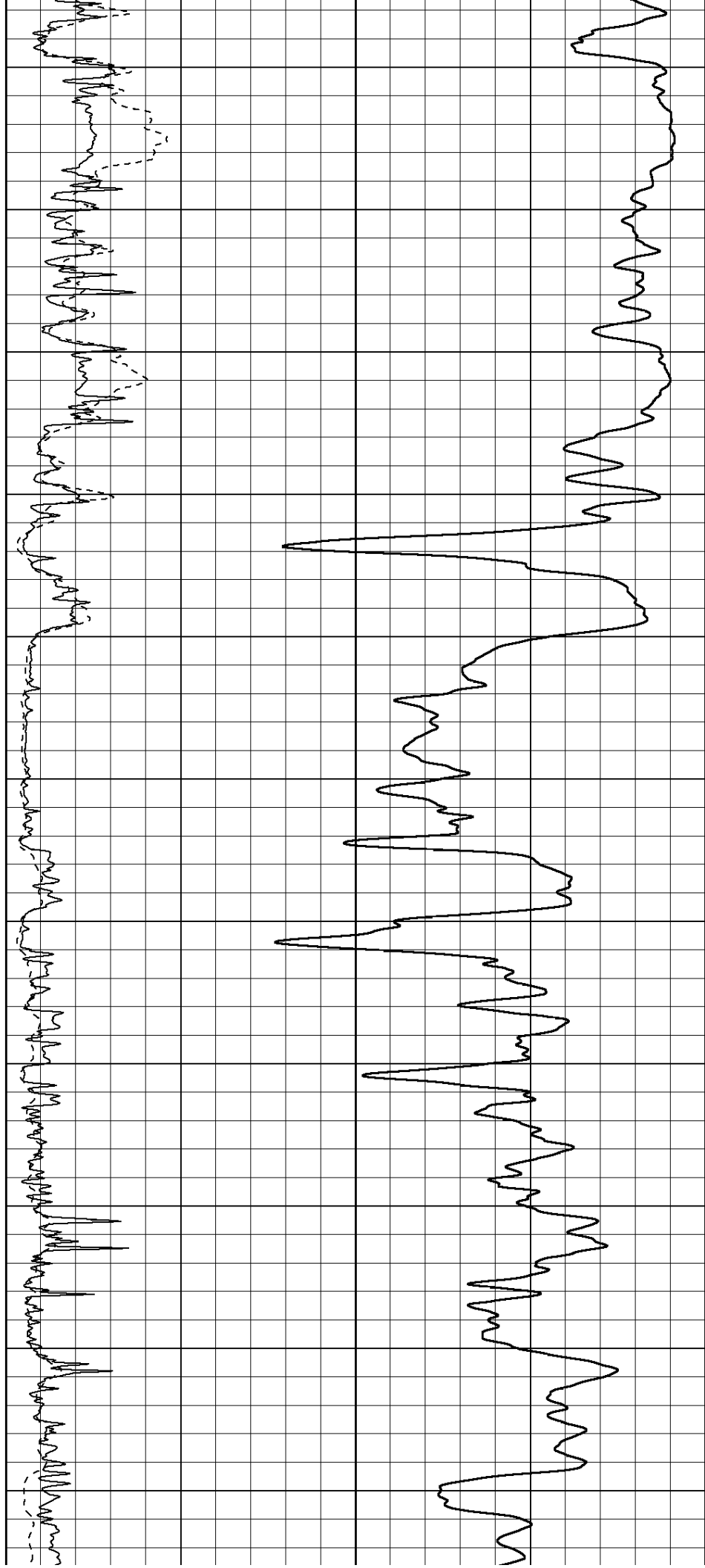
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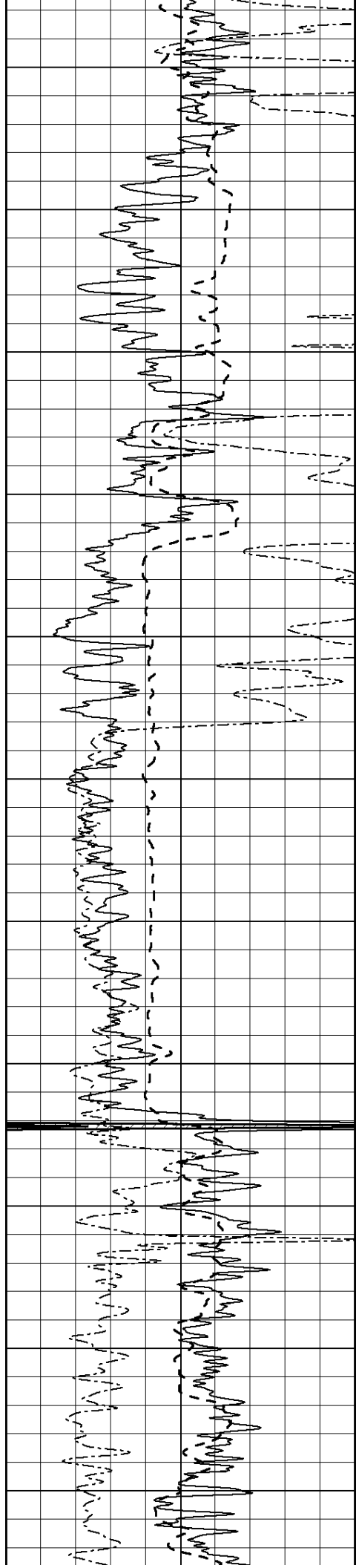
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1400

1450

1500





1550

1600

1650

1700

1750

1800

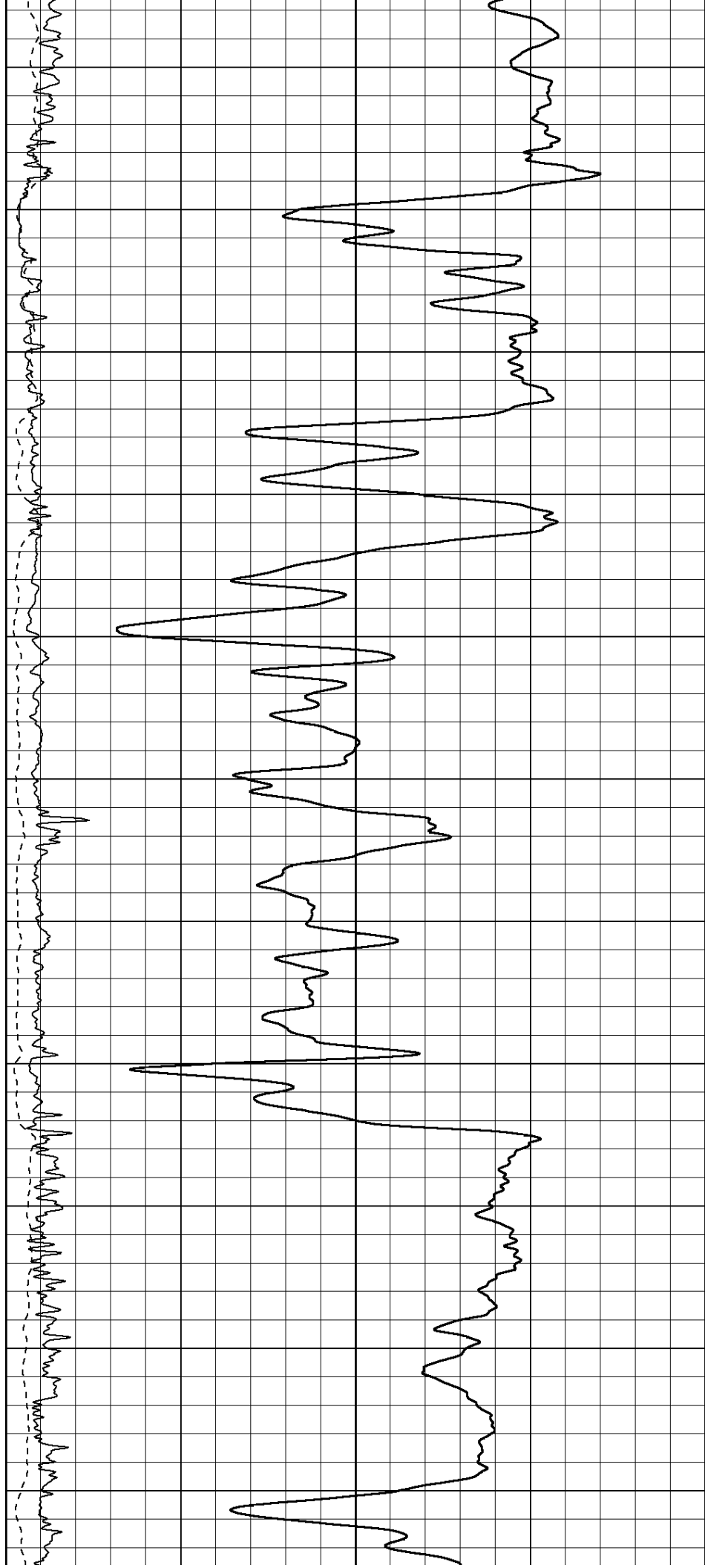
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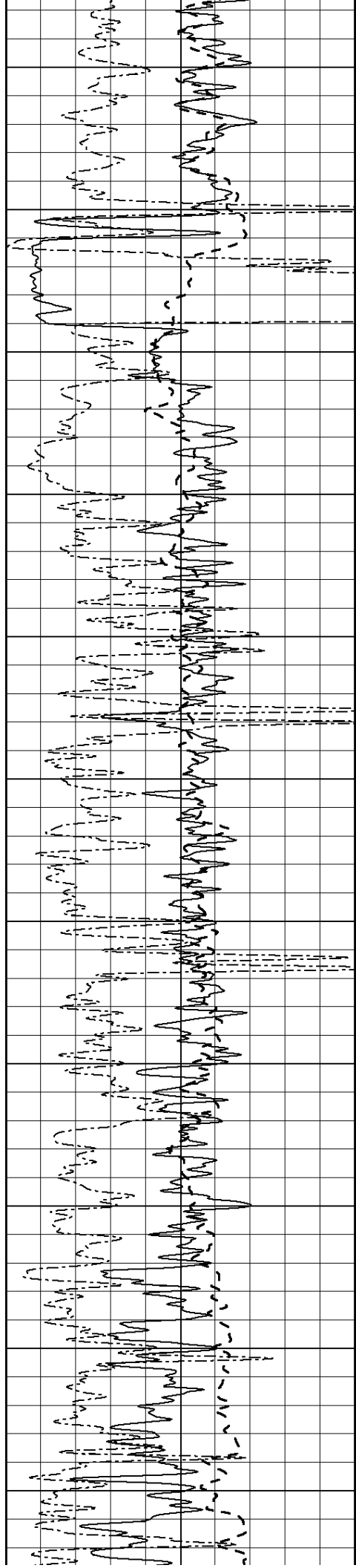
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1950

2000

2050





2100

2150

2200

2250

2300

2350

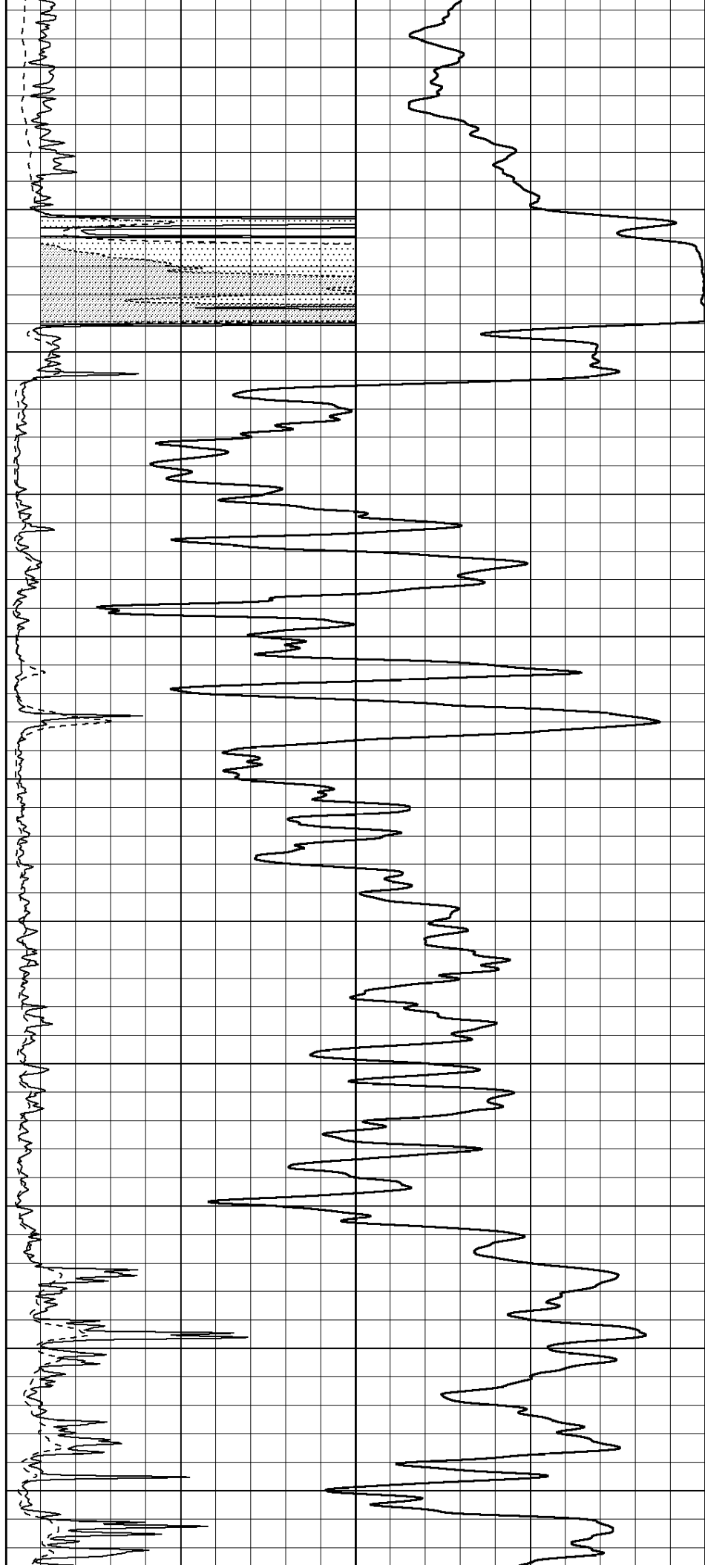
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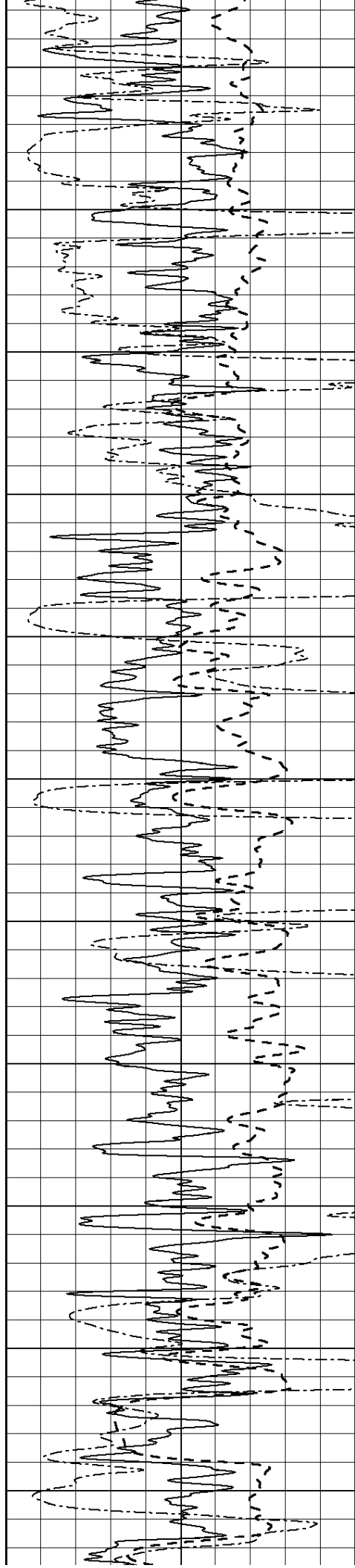
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2500

2550

2600





2650

2700

2750

2800

2850

2900

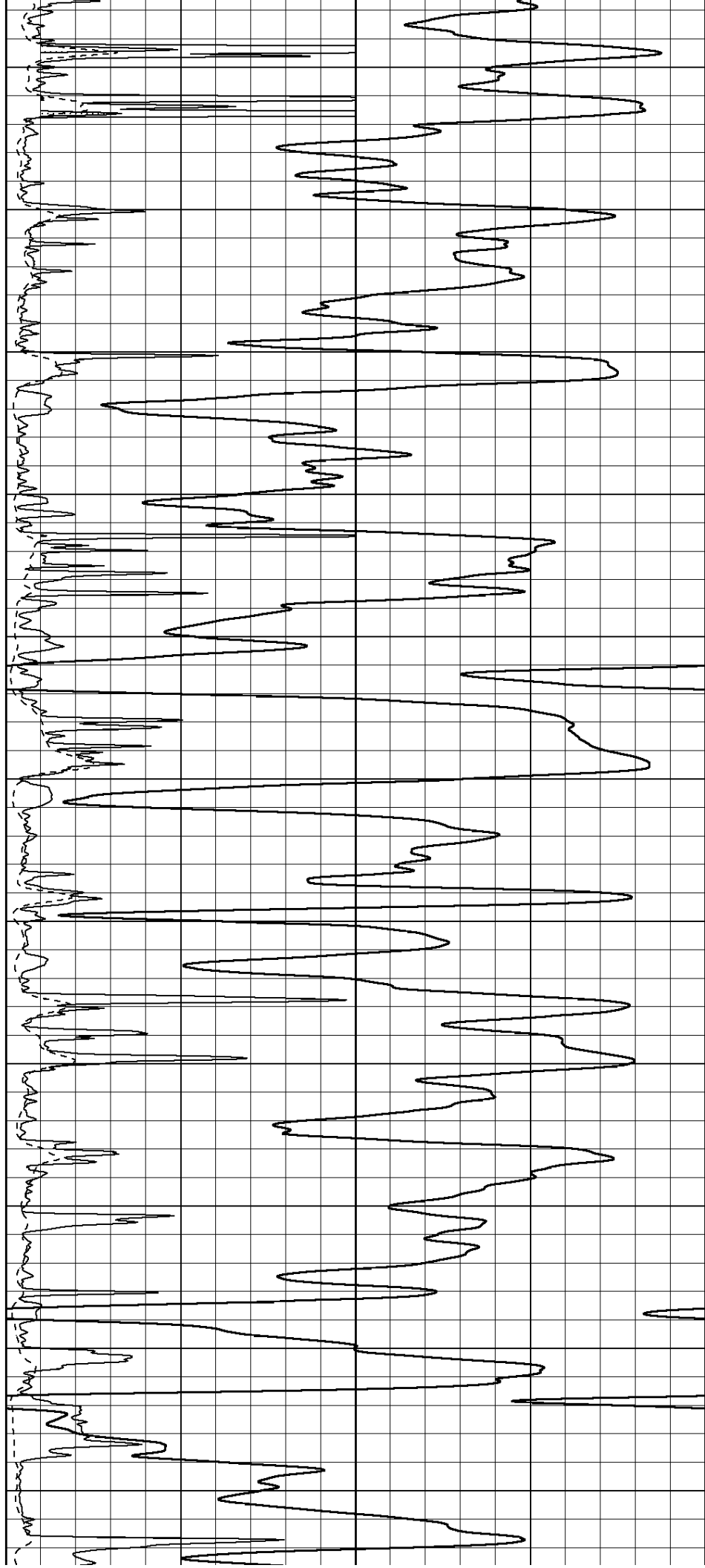
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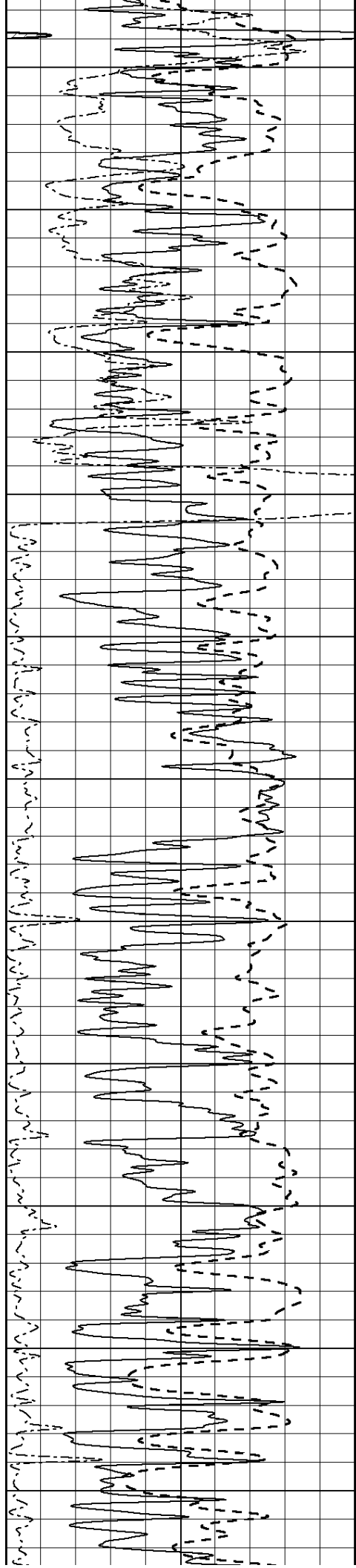
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3050

3100

3150





3200

3250

3300

3350

3400

3450

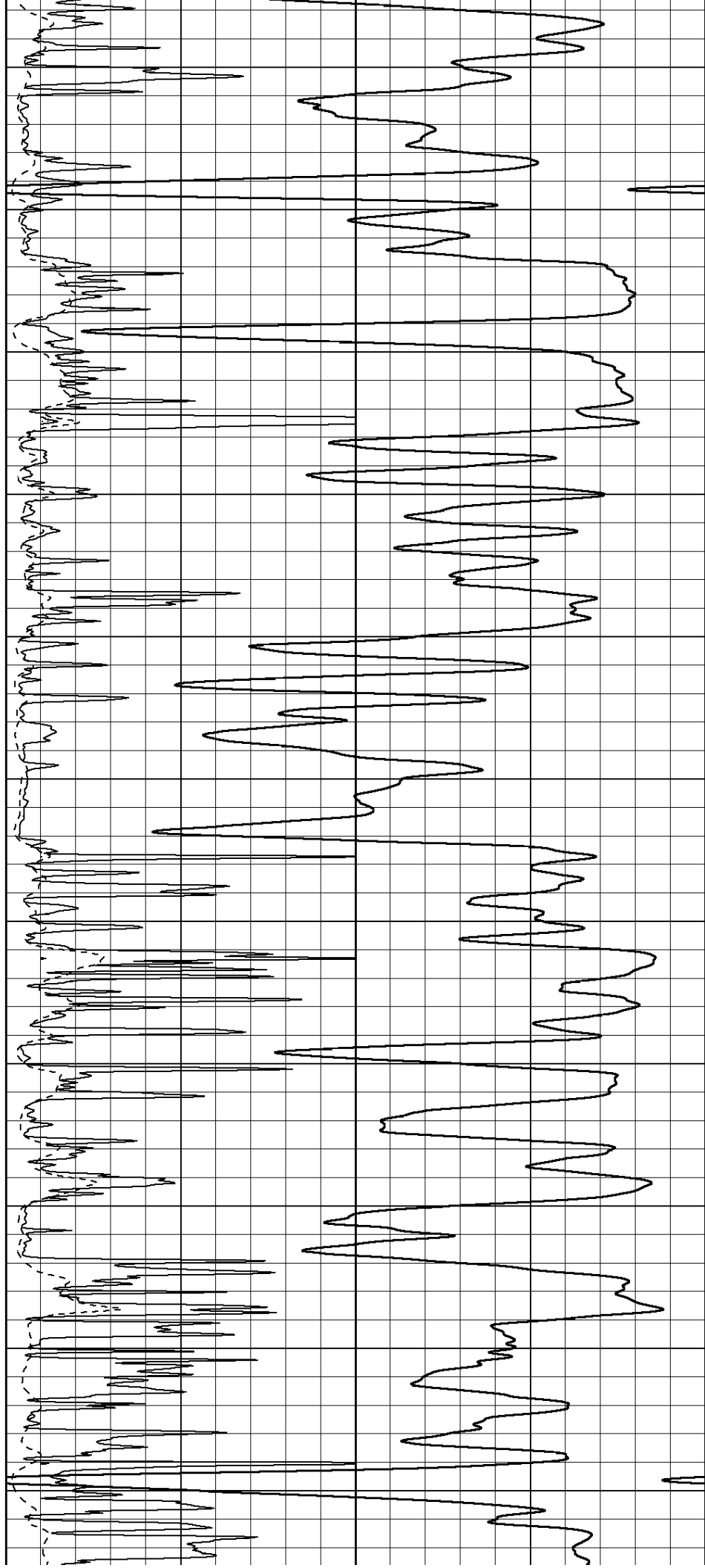
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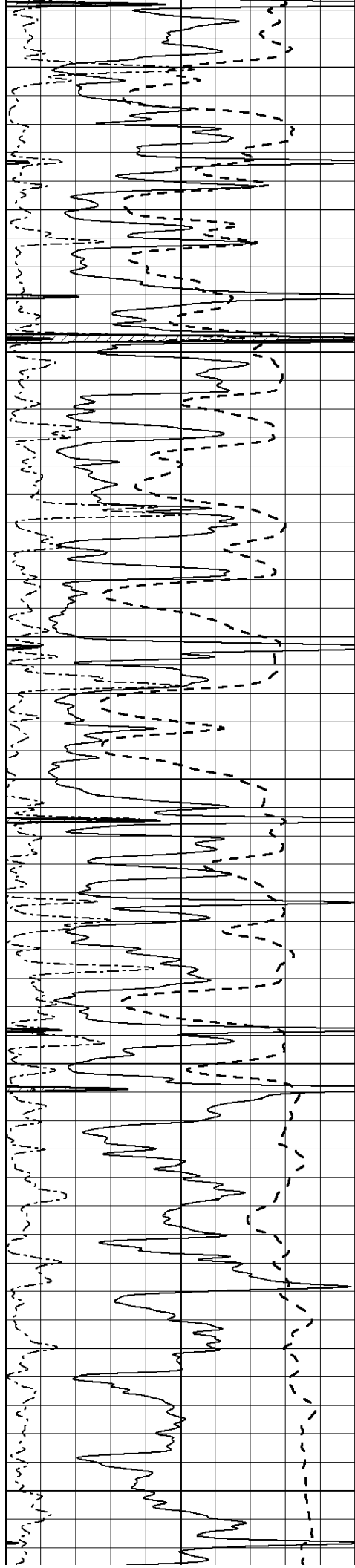
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3600

3650

3700





3750

3800

3850

3900

3950

4000

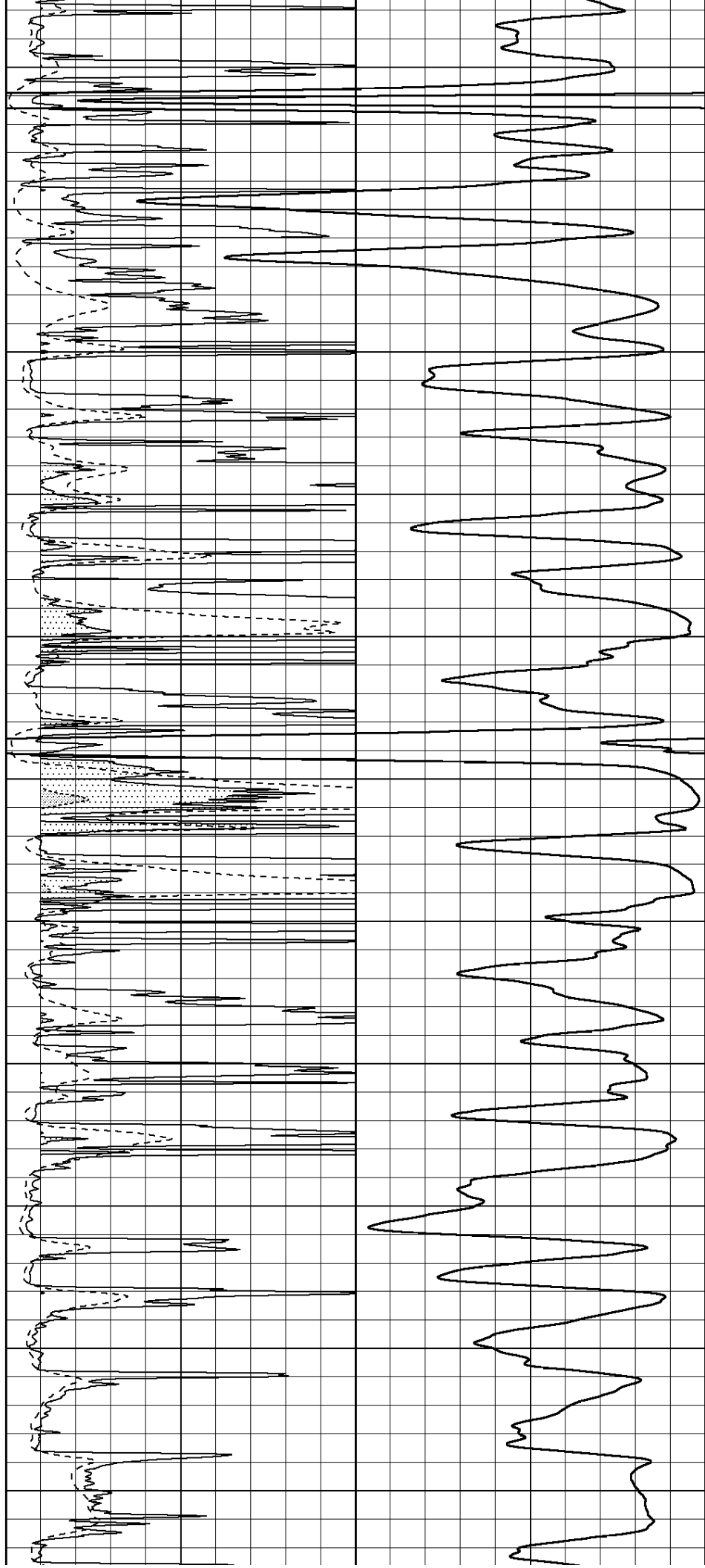
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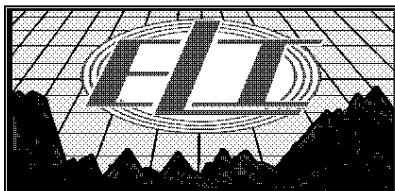
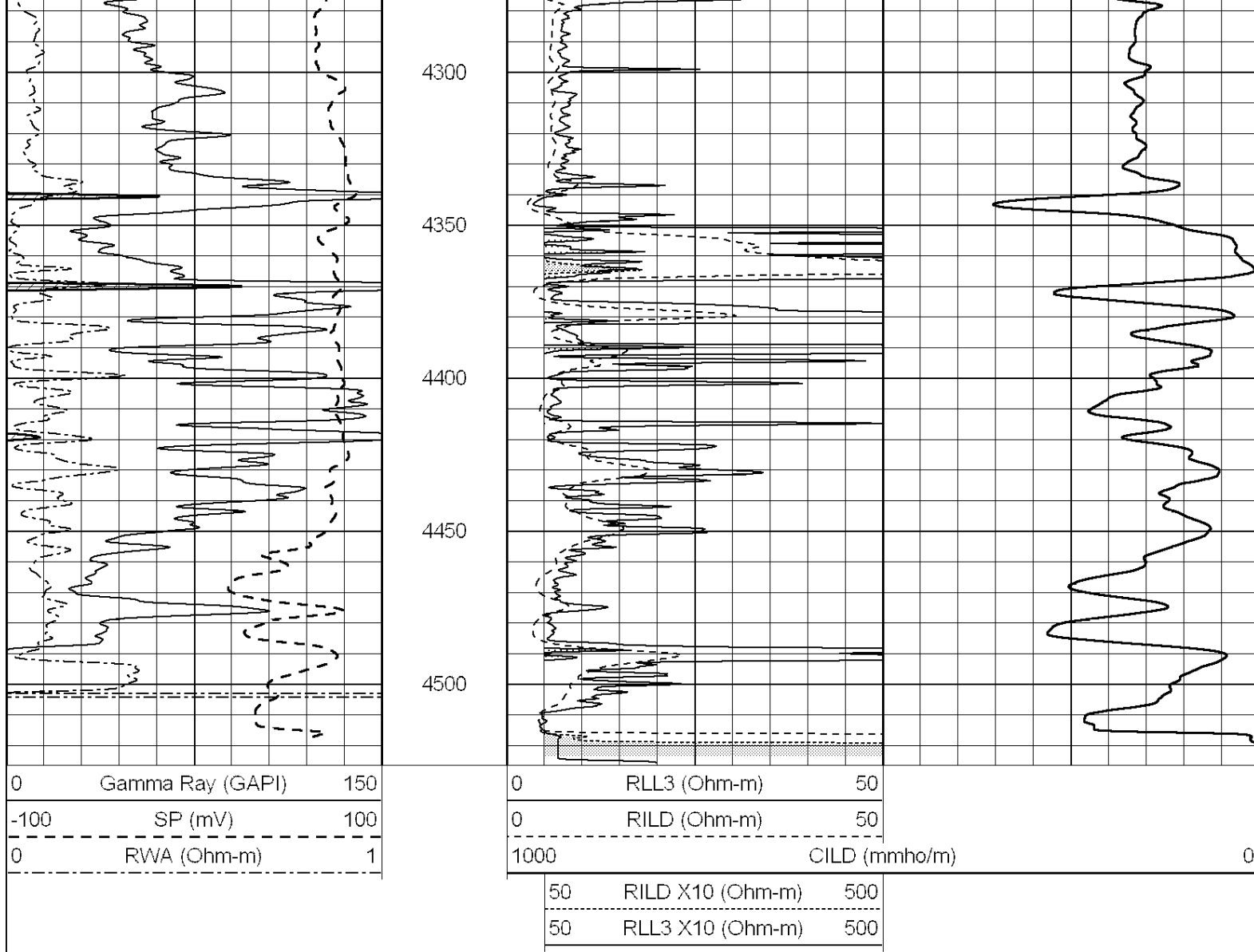
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4150

4200

4250

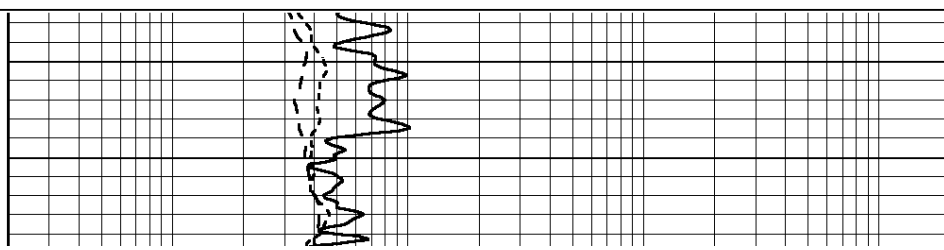
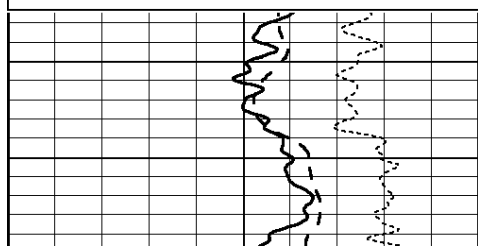


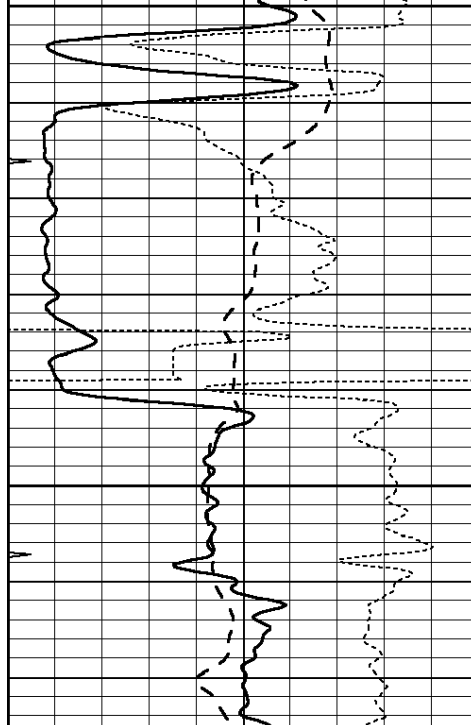


ANHYDRITE

Database File: 30773ddn.db
 Dataset Pathname: pass3.9
 Presentation Format: _dil
 Dataset Creation: Wed Sep 21 21:16:48 2016 by Calc SOC 120430
 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			

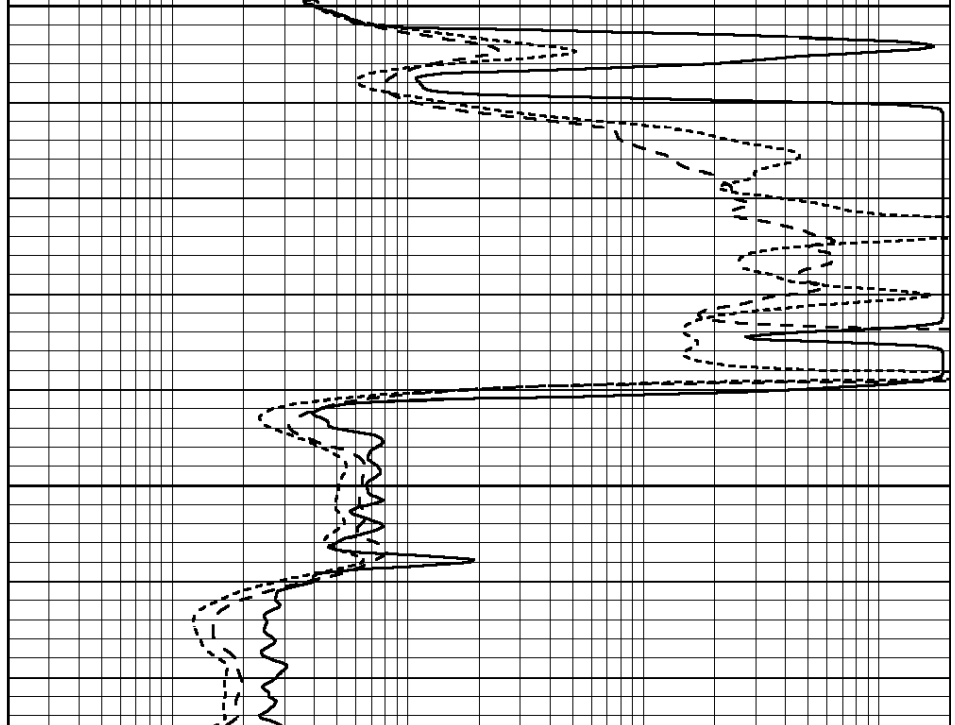




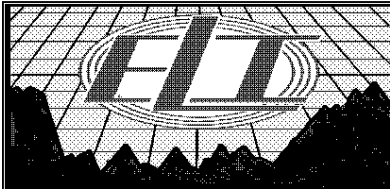
2150

2200

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

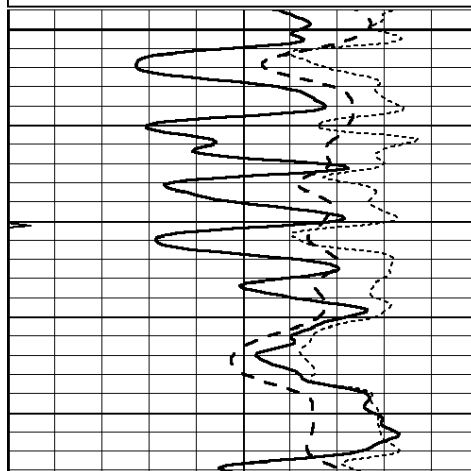


MAIN SECTION

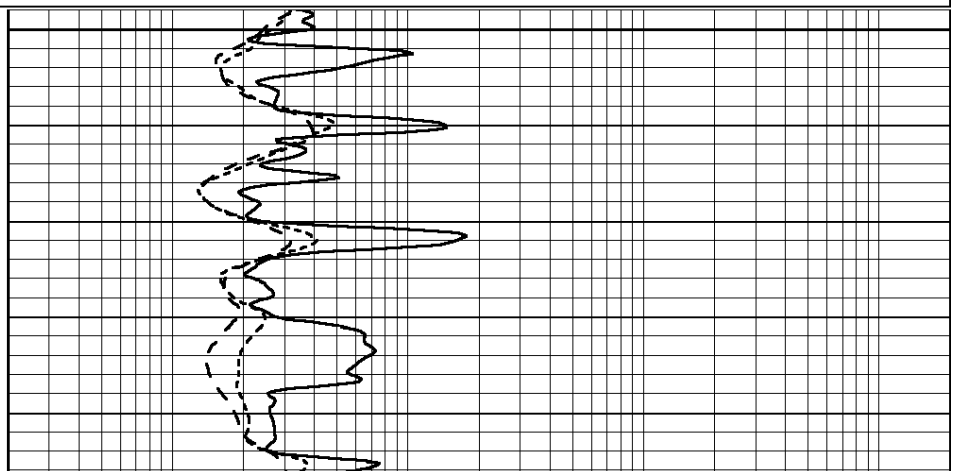
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 Dataset Pathname: pass3.8
 Presentation Format: _dil
 Dataset Creation: Wed Sep 21 21:16:13 2016 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

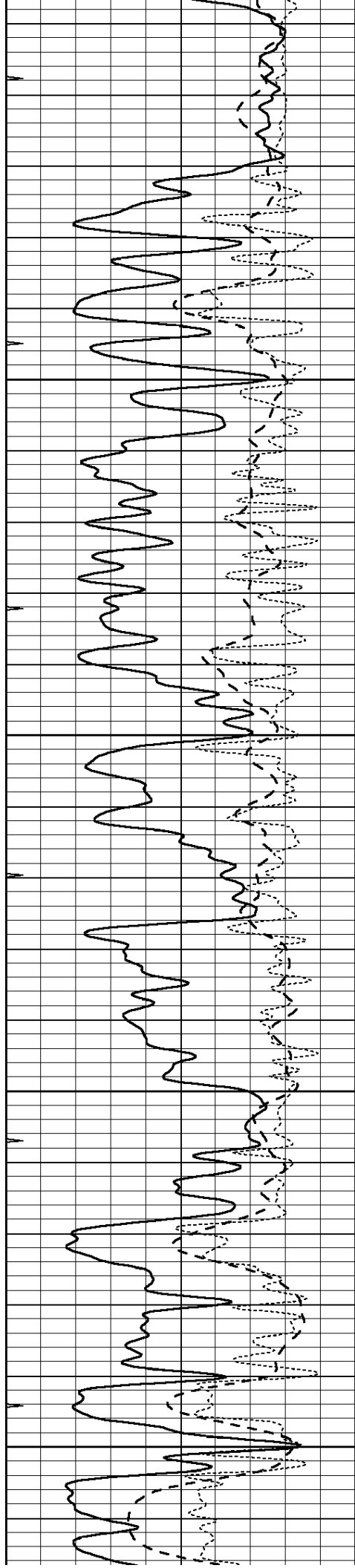
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3400





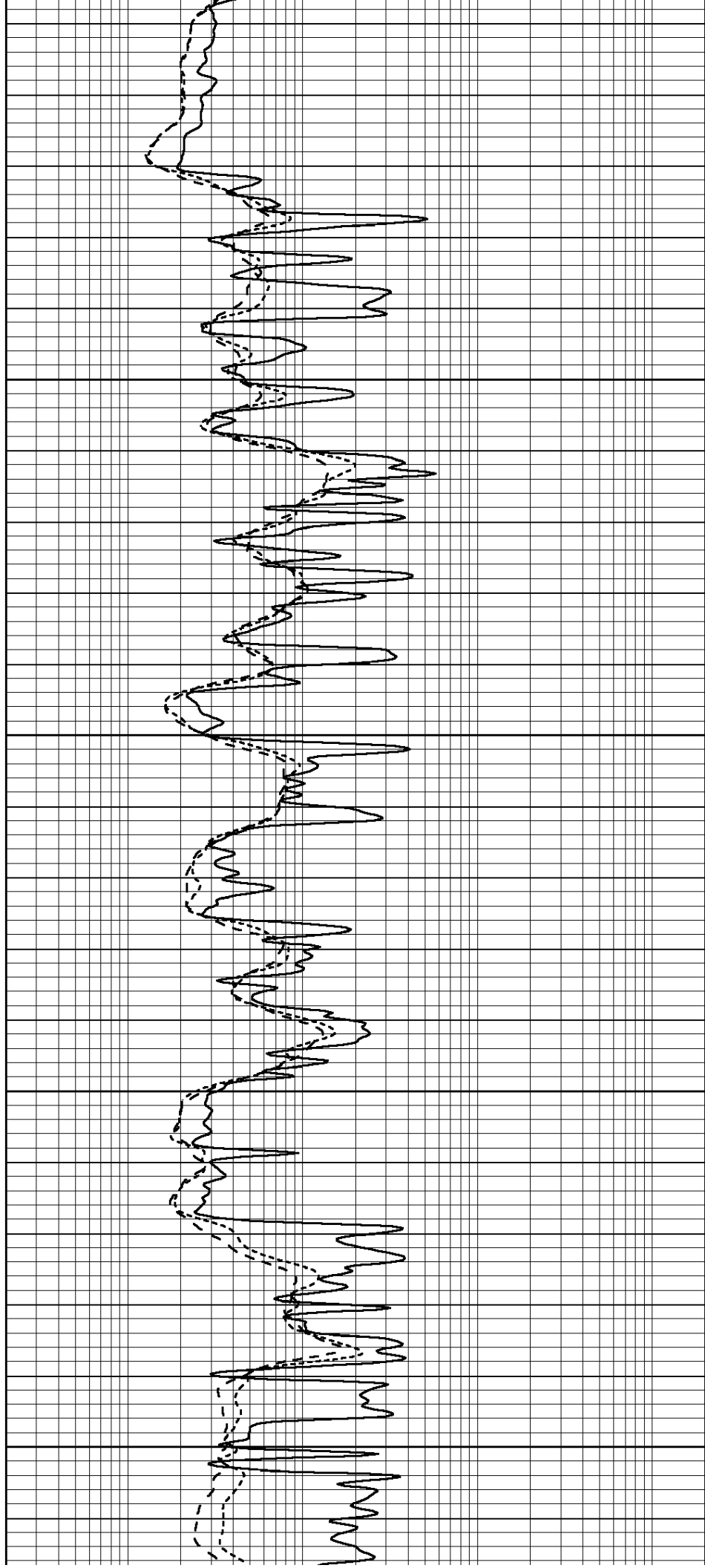
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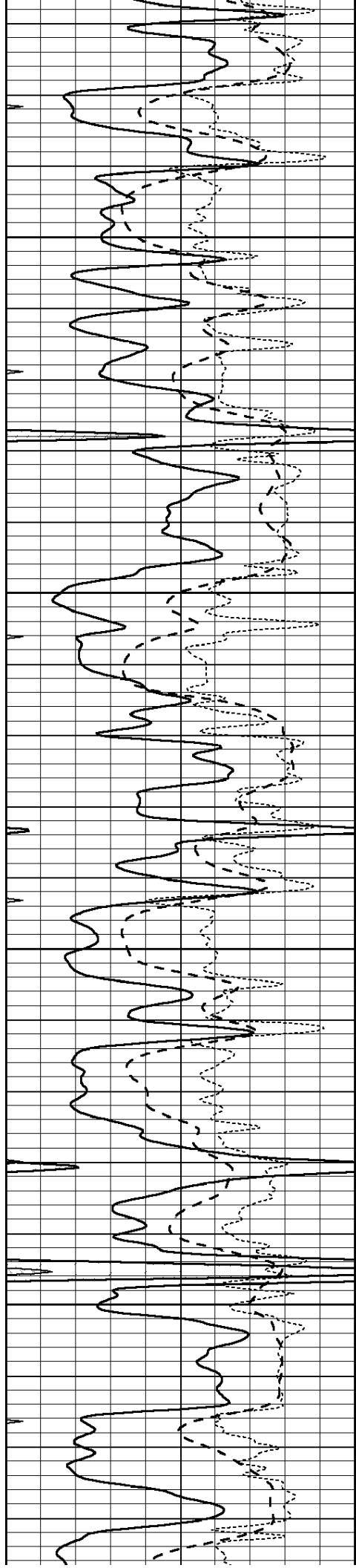
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3550

3600

3650



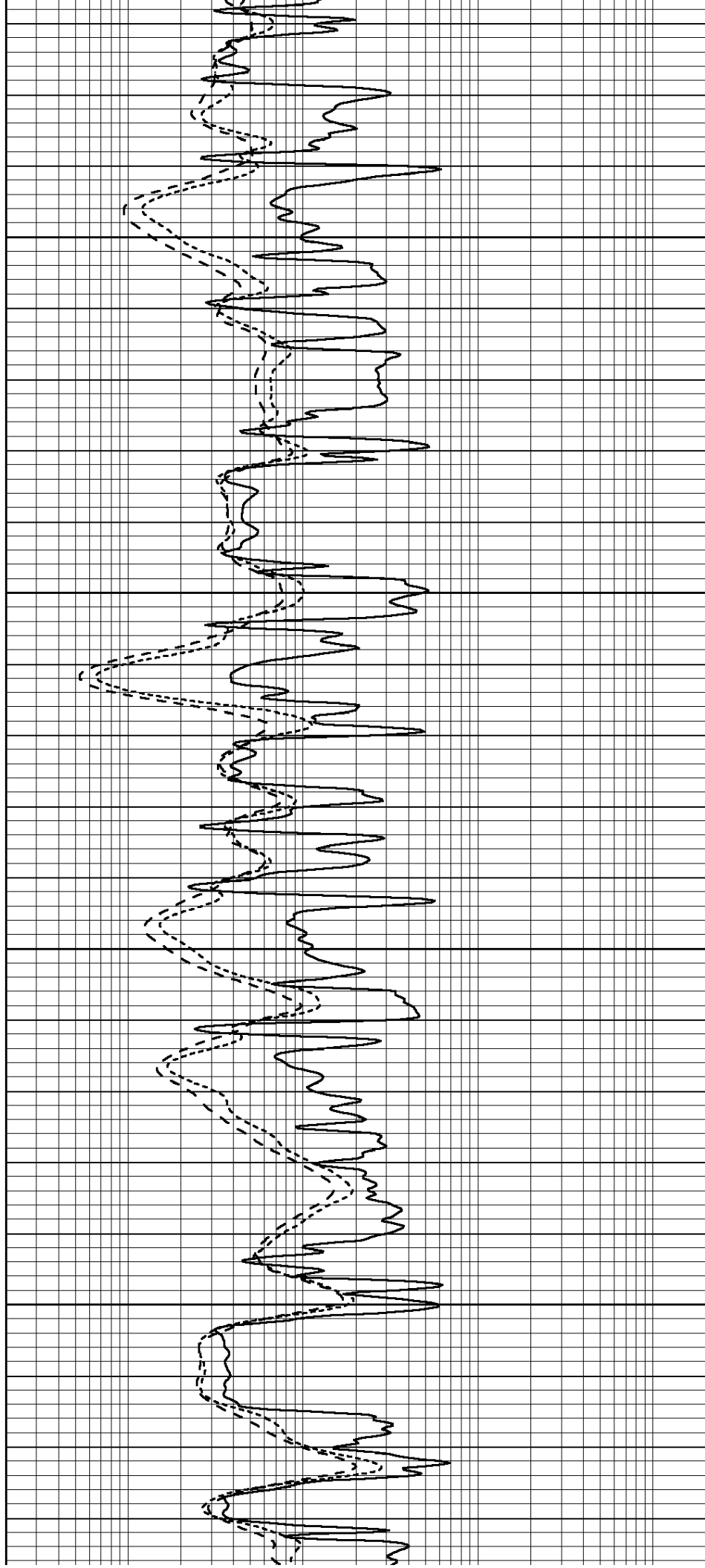


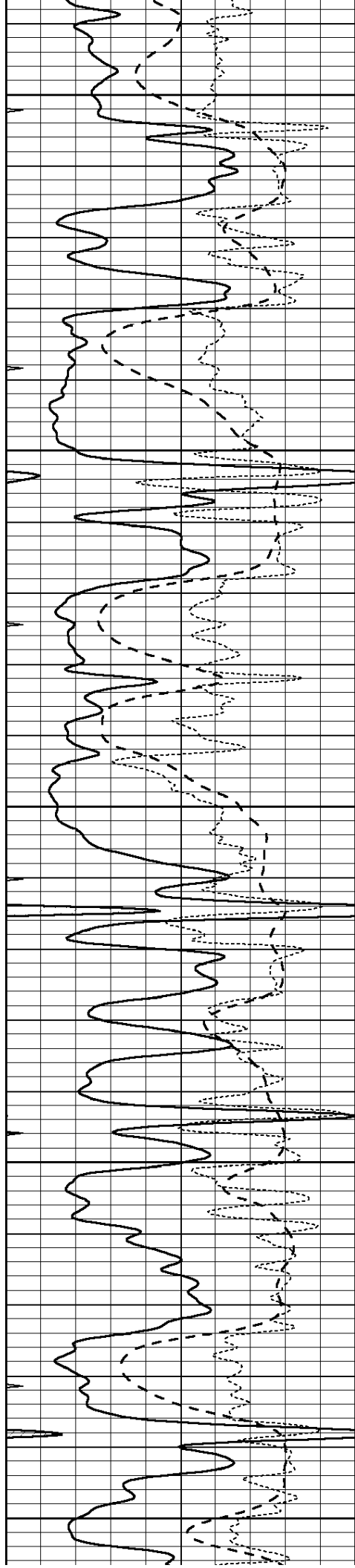
3700

3750

3800

3850





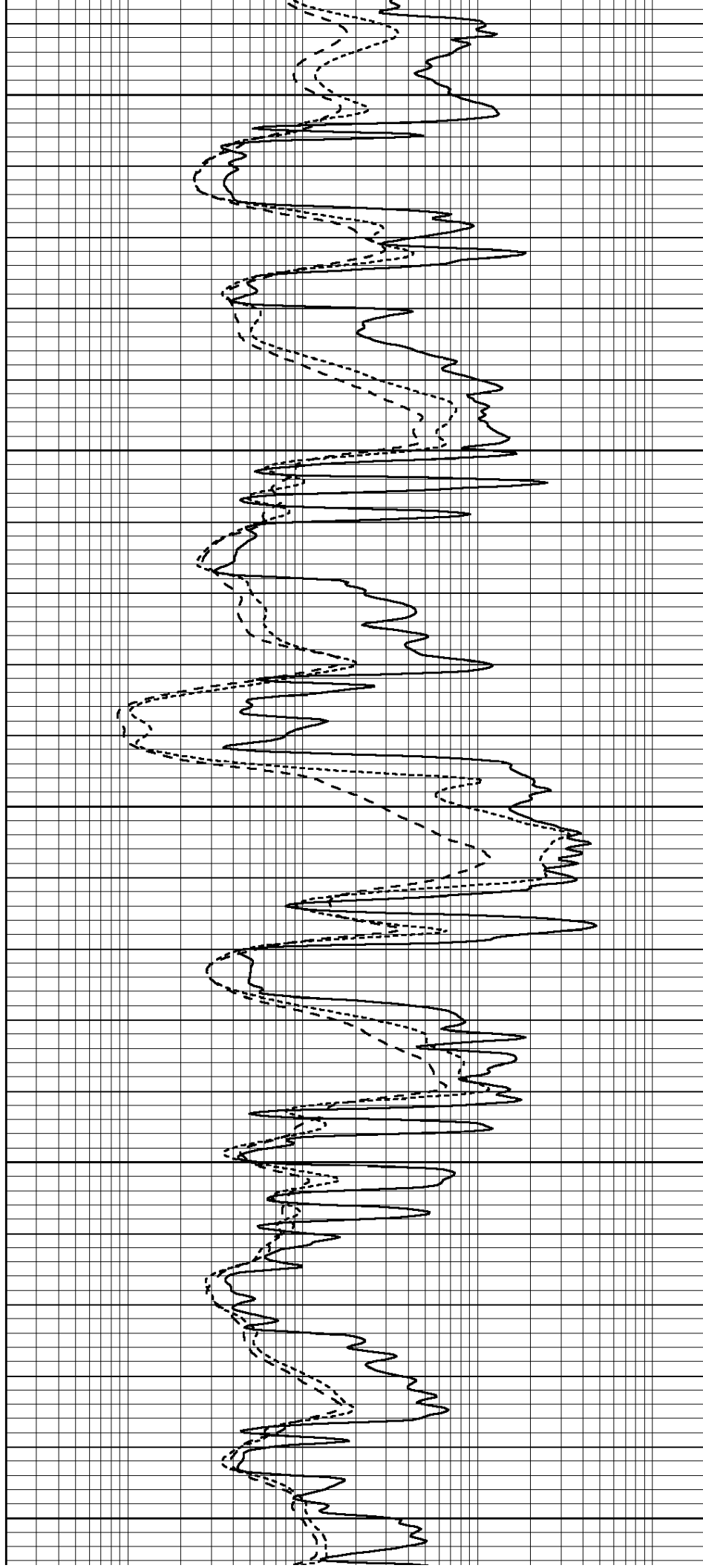
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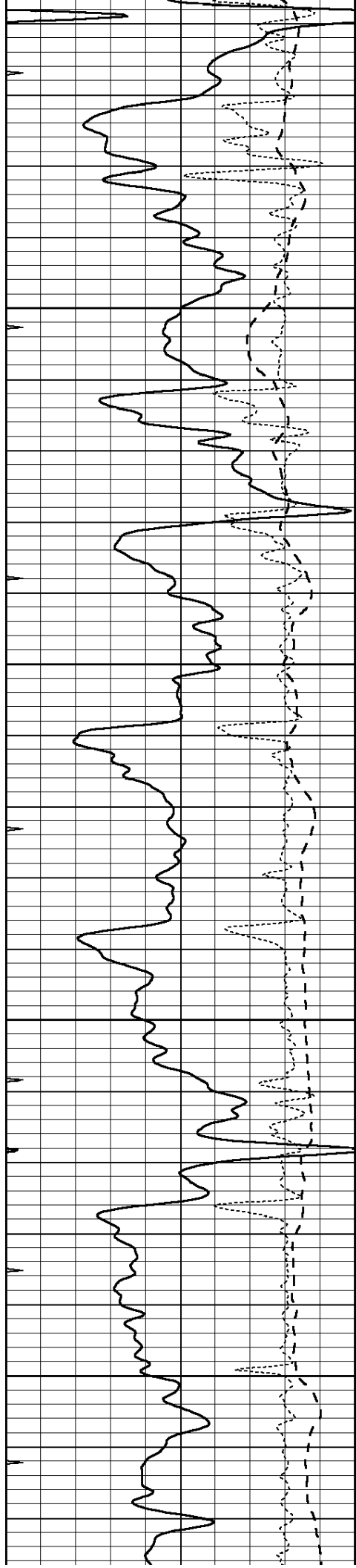
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4000

4050

4100



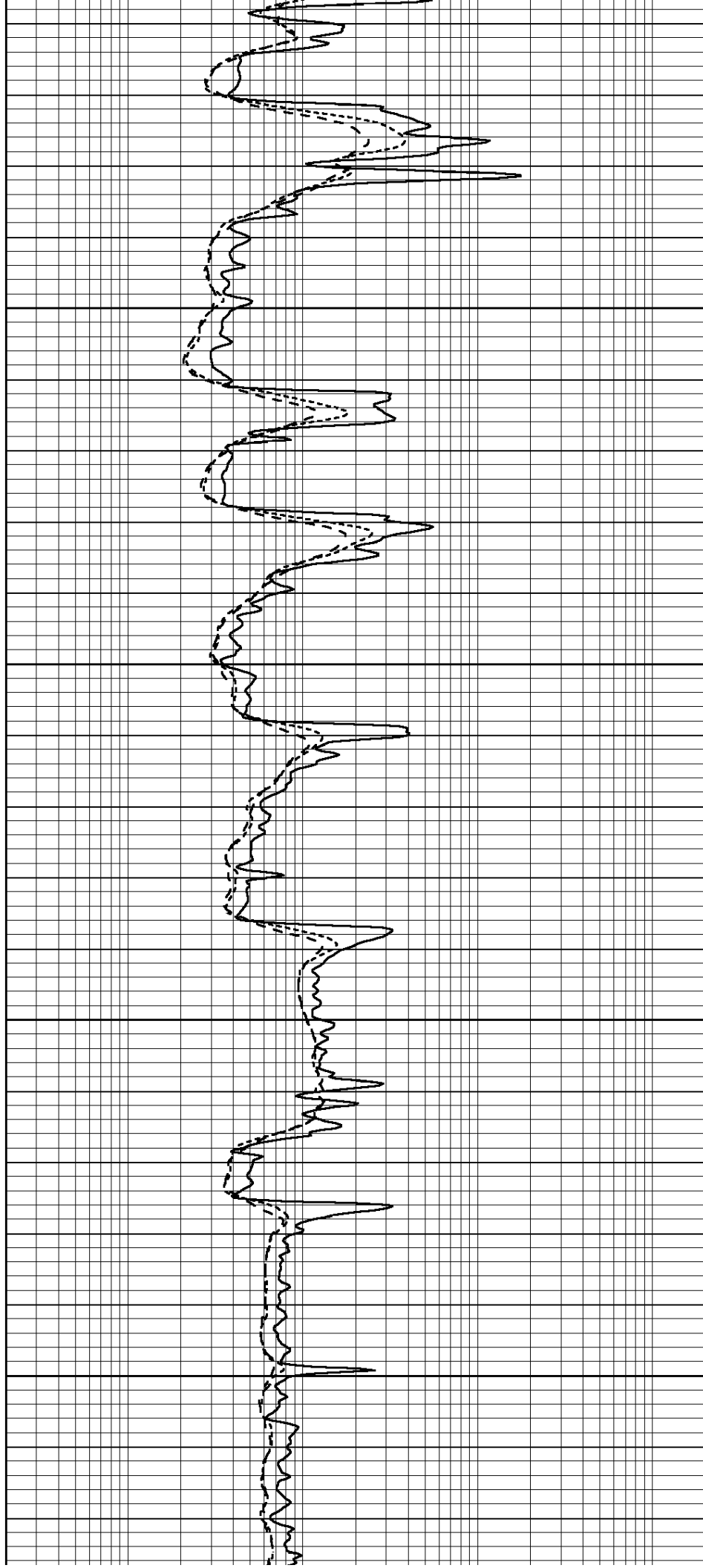


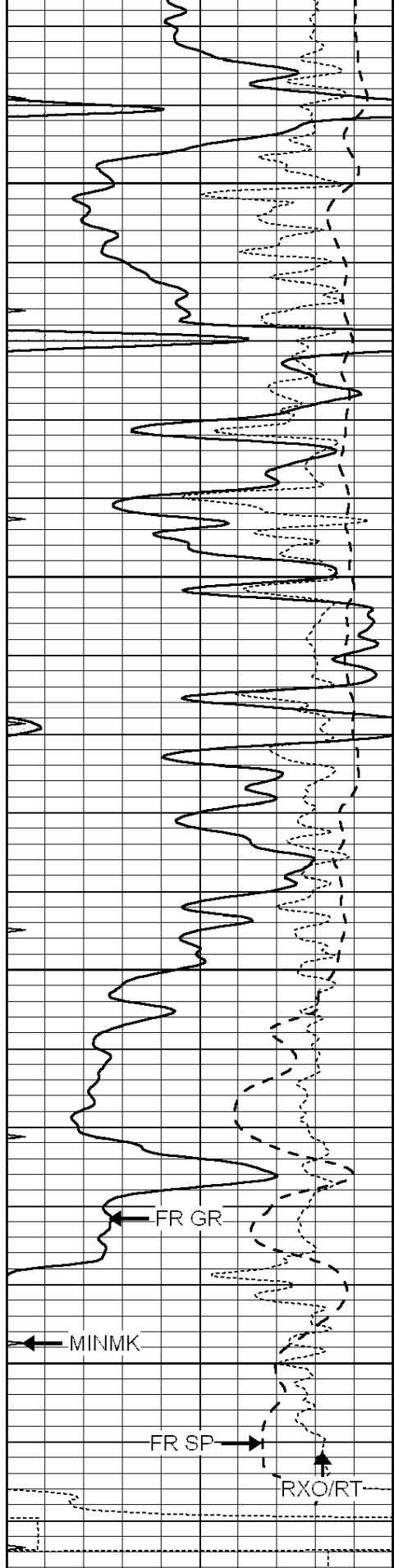
4150

4200

4250

4300





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

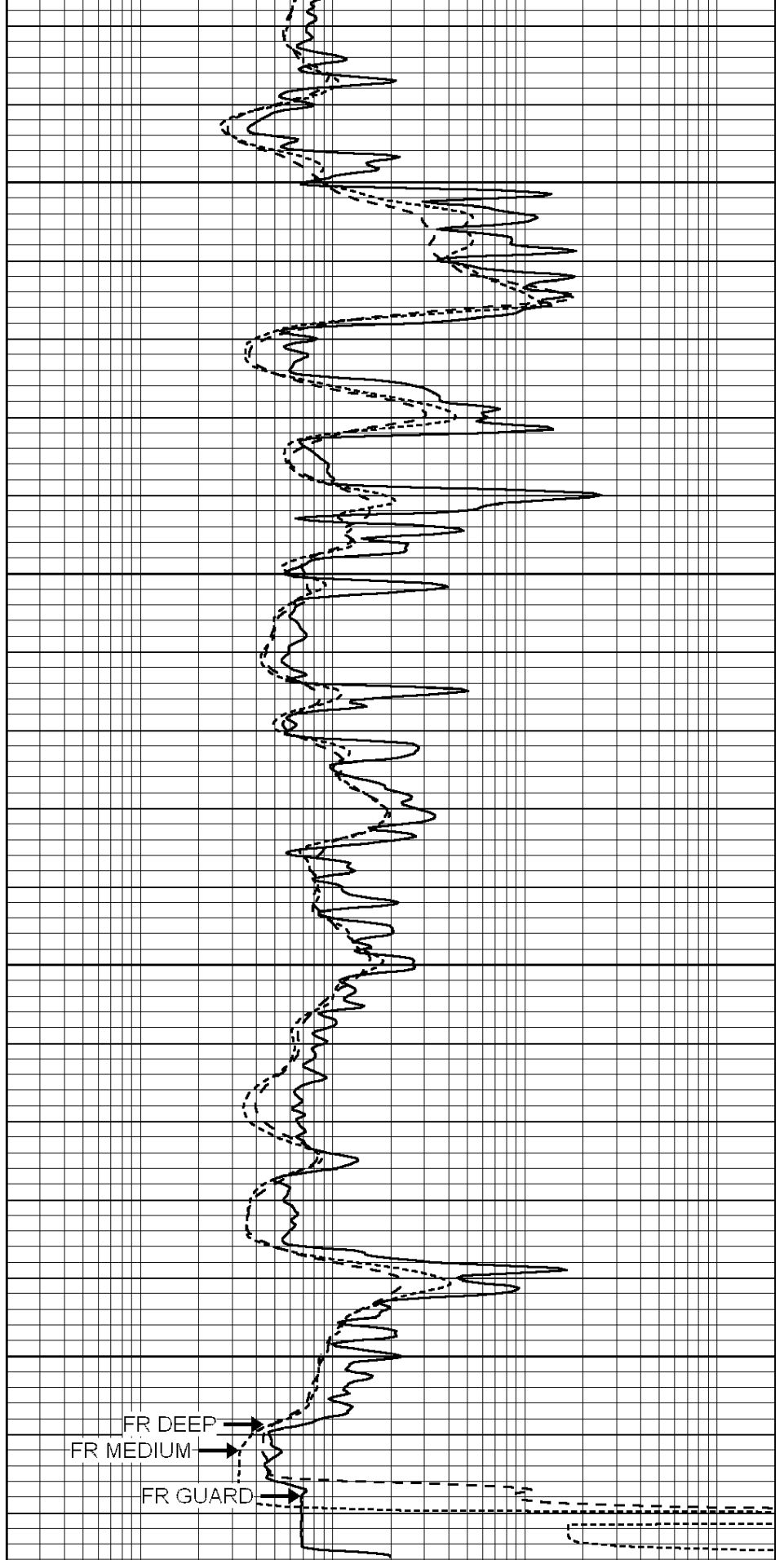
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4400

4450

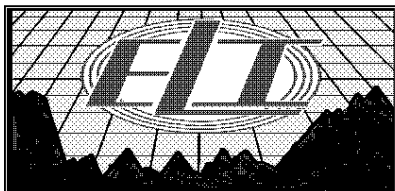
4500

LTD 4520



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

FR DEEP
FR MEDIUM
FR GUARD

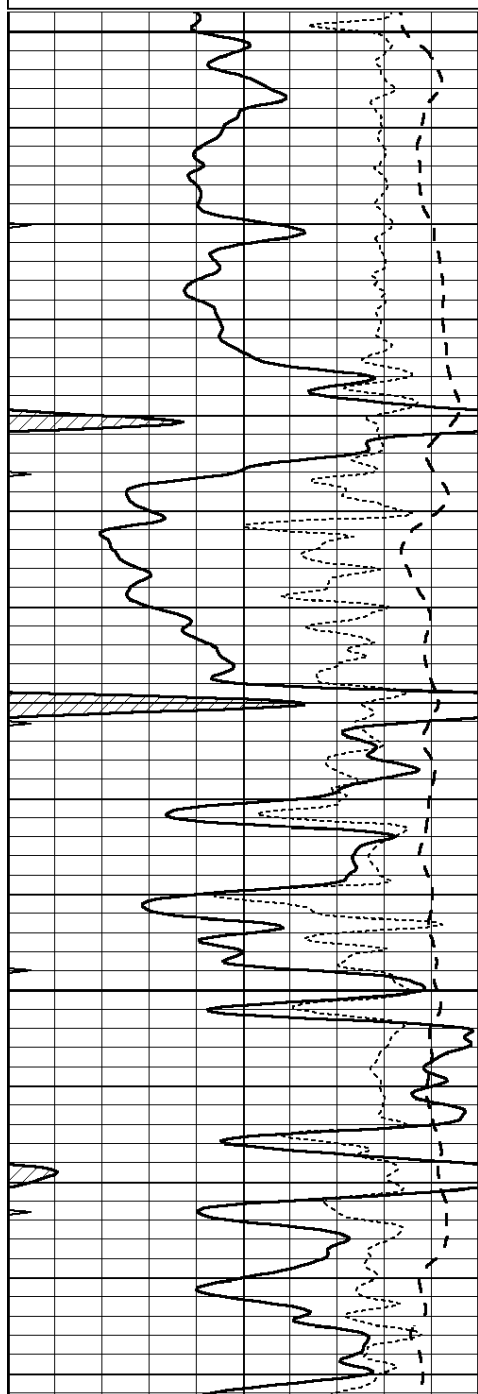


REPEAT SECTION

Database File: 30773ddn.db
Dataset Pathname: pass2.4
Presentation Format: _dil
Dataset Creation: Wed Sep 21 20:16:40 2016
Charted by: Depth in Feet scaled 1:240

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

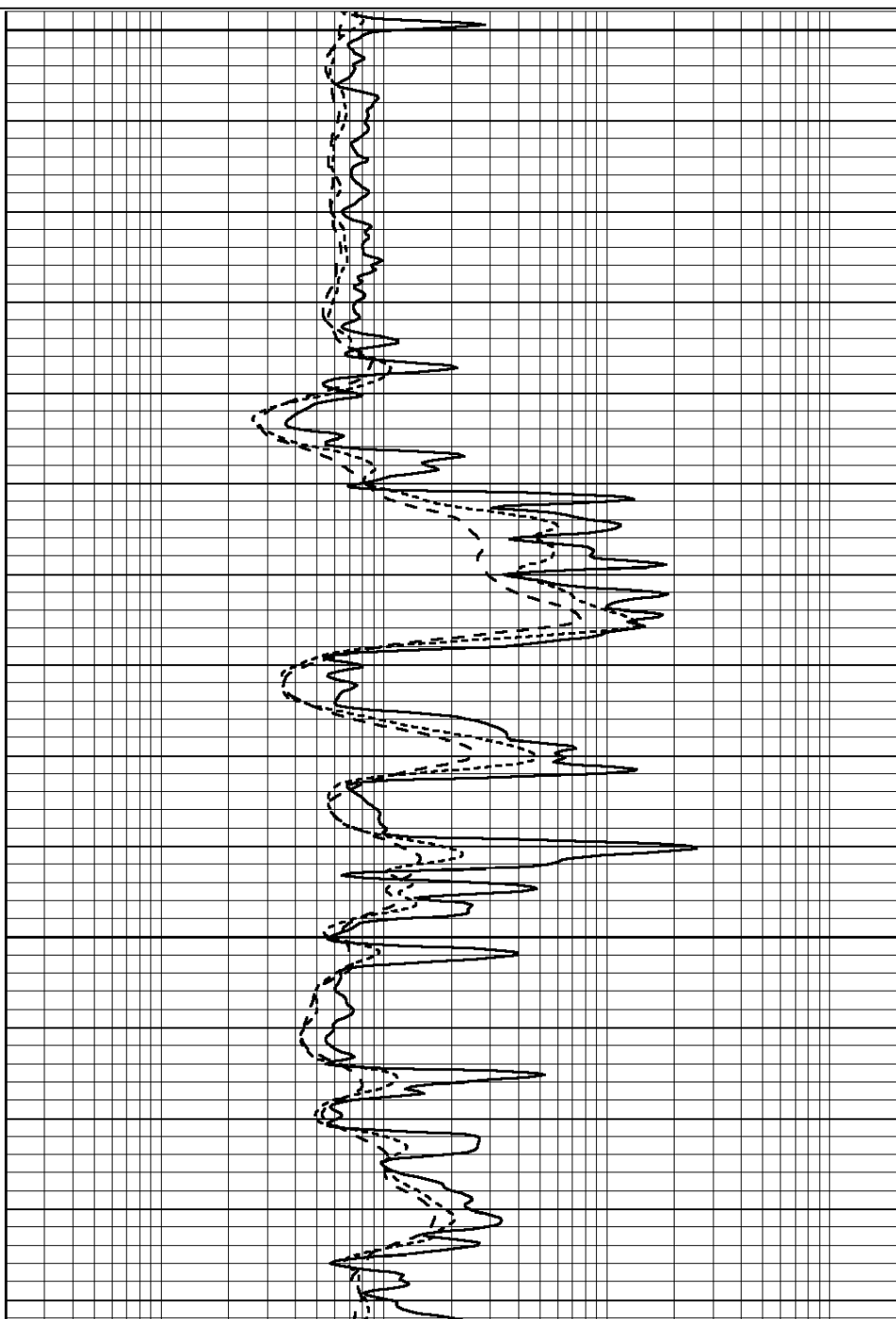
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

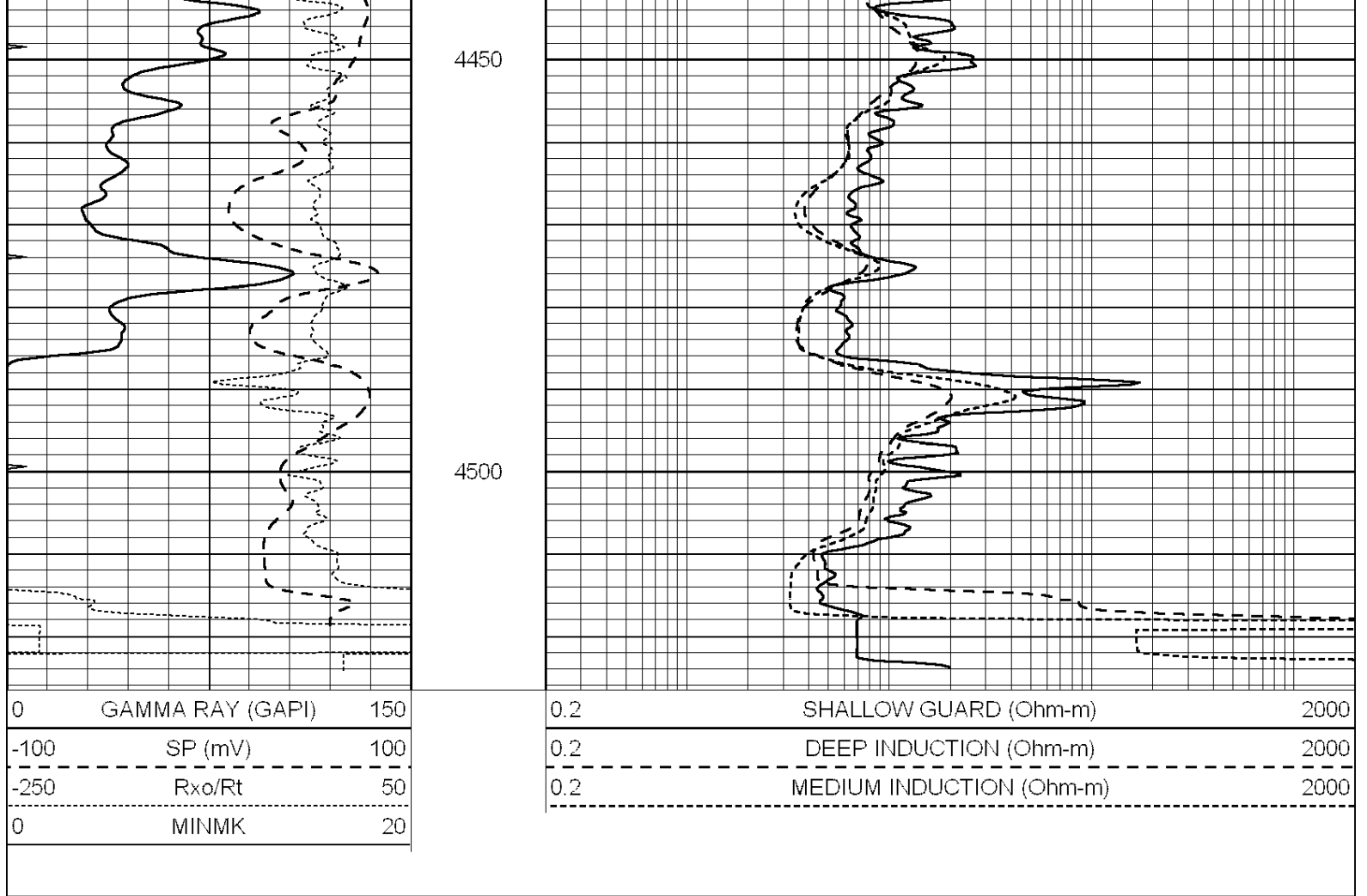


4300

4350

4400





Calibration Report									
Database File:		30773ddn.db							
Dataset Pathname:		pass3.8							
Dataset Creation:		Wed Sep 21 21:16:13 2016 by Calc SOC 120430							
Dual Induction Calibration Report									
Serial-Model:		PROBE7-DILG							
Surface Cal Performed:		Wed Sep 21 19:37:33 2016							
Downhole Cal Performed:		Mon Jul 28 12:02:56 2008							
After Survey Verification Performed:		Mon Jul 28 12:02:56 2008							
Surface Calibration									
		Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b	
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	625.000	-2.000	
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-43.000	
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: 003N			Model: PRB					

Master Calibration					Performed Mon Mar 14 08:48:13 2016			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1751.3	11741.0	3857.3	12907.8				cps
Window 2	1589.4	9536.2	3267.6	10282.0				cps
Window 3	1413.4	6466.1	2463.2	6828.7				cps
Window 4	399.5	407.1	405.1	406.5				cps
Long Space	0.0	7946.7	1678.1	8692.6				cps
Short Space	2.2	3366.2	2134.1	3410.2				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 43.7	Rib Slope	: 0.954	Density/Spine Ratio				: 0.543
Spine Angle	: 73.7	Spine Slope	: 3.412	Spine Intercept				: -18.7

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								
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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:	070558		
Tool Model:	OPEN_GR		
Performed:	Mon Aug 22 01:00:15 2016		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.2800	GAPI/cps	