

DUAL INDUCTION LOG

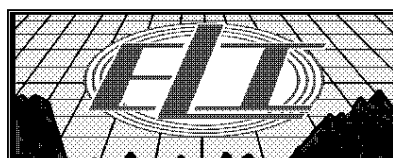
Company		DOWNING - NELSON OIL COMPANY, INC.	
Well		BOLLIG #2-17	
Field		RIGA	
County		TREGO	
State		KANSAS	
Location:		API # : 15-195-23025-0000	
Permanent Datum		GROUND LEVEL	
Log Measured From		KELLY BUSHING 8' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 17 TWP 13S RGE 21W		Elevation	
2191		CDL/CNL	
Elevation		MEL	
Date		7/18/77	
Run Number		ONE	
Depth Driller		3970	
Depth Logger		3970	
Bottom Logged Interval		3968	
Top Log Interval		00	
Casing Driller		8 5/8"@221'	
Casing Logger		222	
Bit Size		7 7/8"	
Type Fluid in Hole		CHEMICAL MUD	
Density / Viscosity		8.9/53	
pH / Fluid Loss		9.5/9.2	
Source of Sample		FLOWLINE	
Rim @ Meas. Temp		.500@94F	
Rmf @ Meas. Temp		.375@94F	
Rmc @ Meas. Temp		.600@94F	
Source of Rmf / Rmc		MEASUREMENT	
Rim @ BHT		.405@116F	
Time Circulation Stopped		8 HOURS	
Time Logger on Bottom		8:30 P.M.	
Maximum Recorded Temperature		116F	
Equipment Number		922339	
Location		HAYS, KANSAS	
Recorded By		JEFF LUEBBERS	
Witnessed By		MARC DOWNING	

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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
RIGA ELEVATOR, S. TO ROUND MOUND, 1W., 1/2N., W. INTO



MAIN SECTION

Database File: 1590ddn.db
Dataset Pathname: pass3.D
Presentation Format: dil2
Dataset Creation: Tue Jul 18 22:43:43 2017
Charted by: Depth in Feet scaled 1:600

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

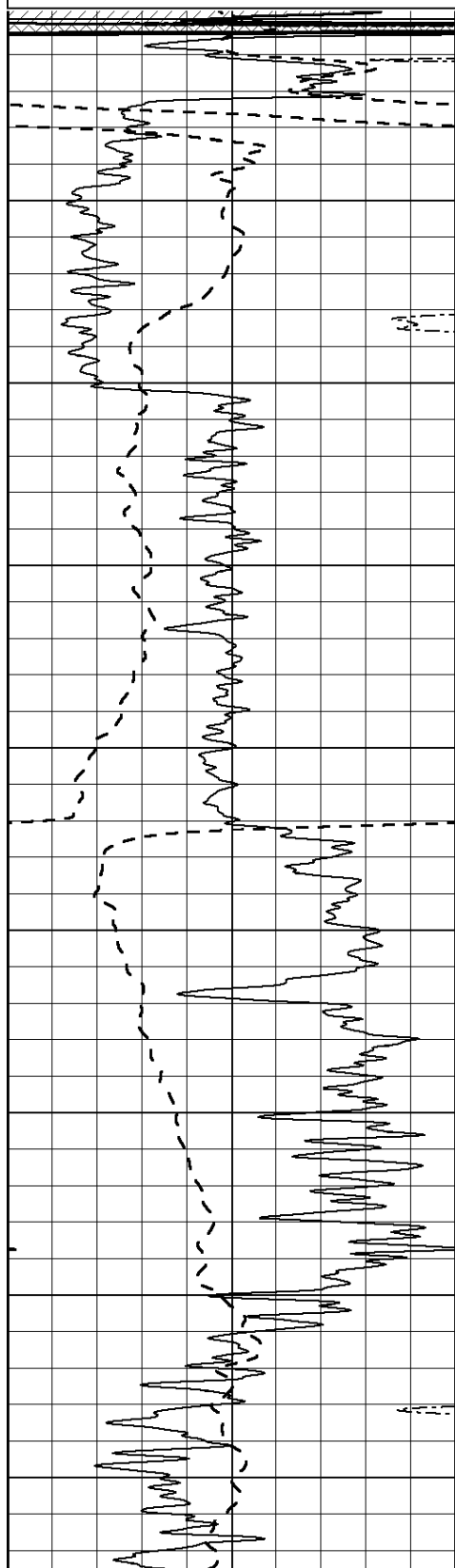
0	RLL3 (Ohm-m)	50
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0	RILD (Ohm-m)	50
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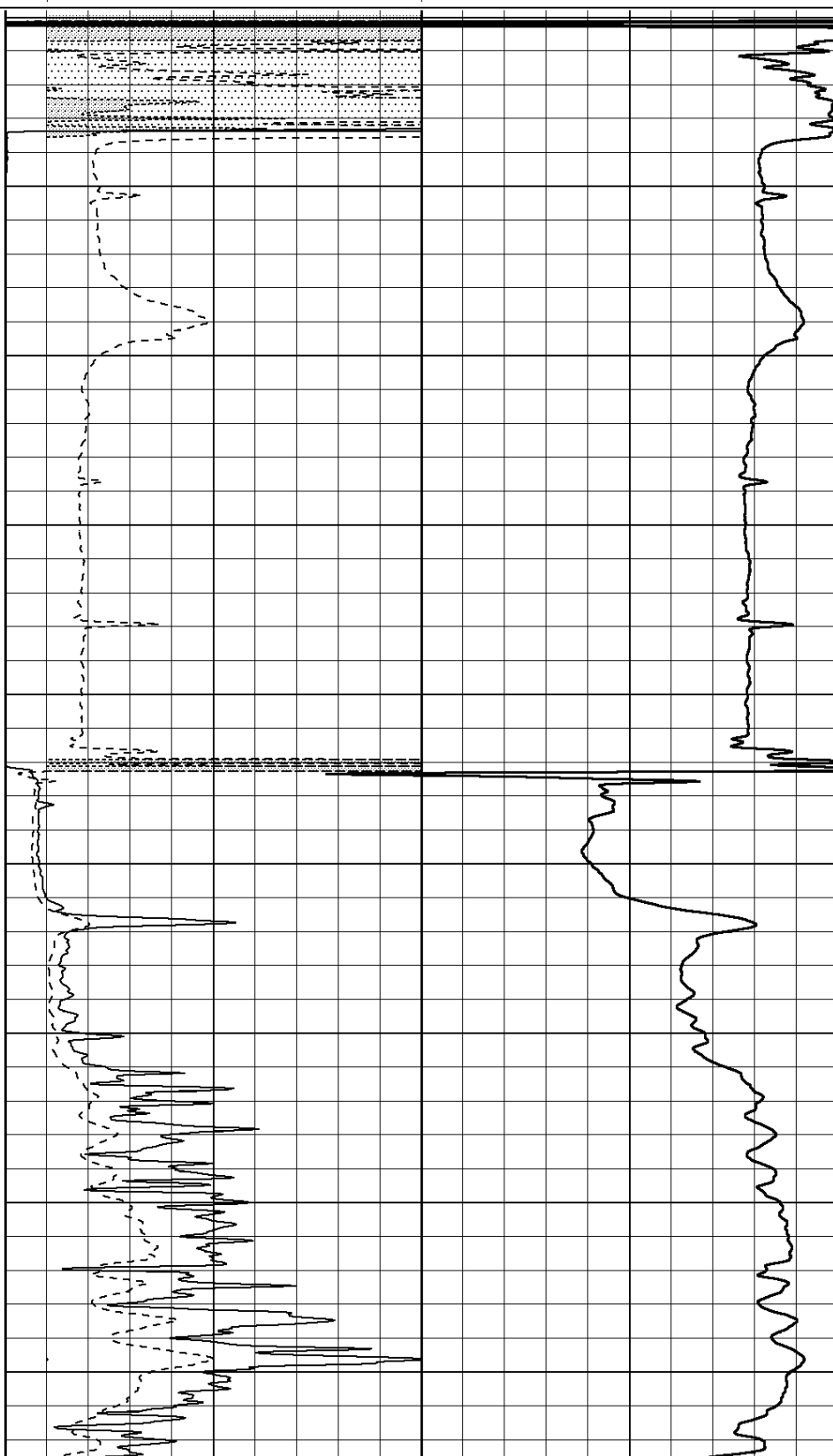
1000	CILD (mmho/m)	0
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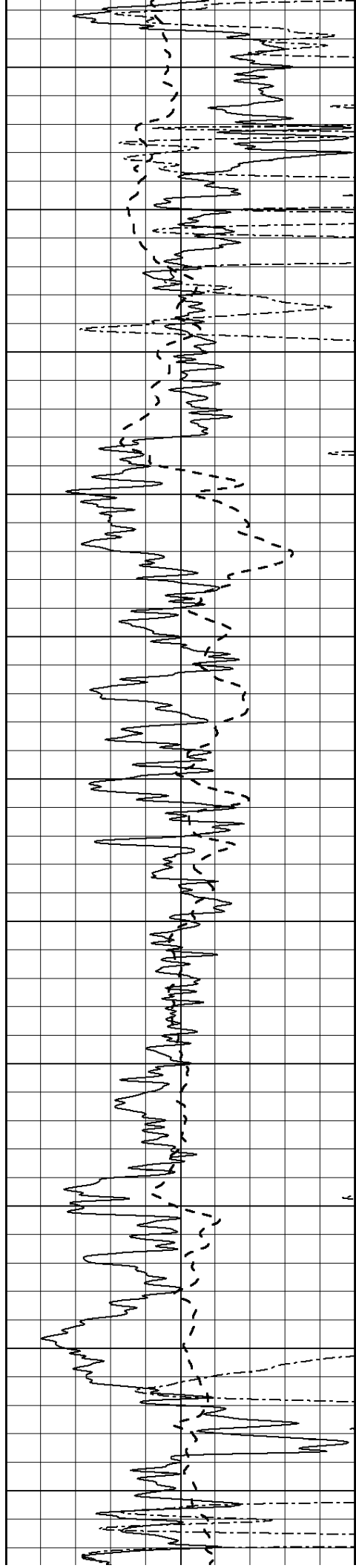
50	RILD X10 (Ohm-m)	500
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50	RLL3 X10 (Ohm-m)	500
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0
50
100
150
200
250
300
350
400





450

500

550

600

650

700

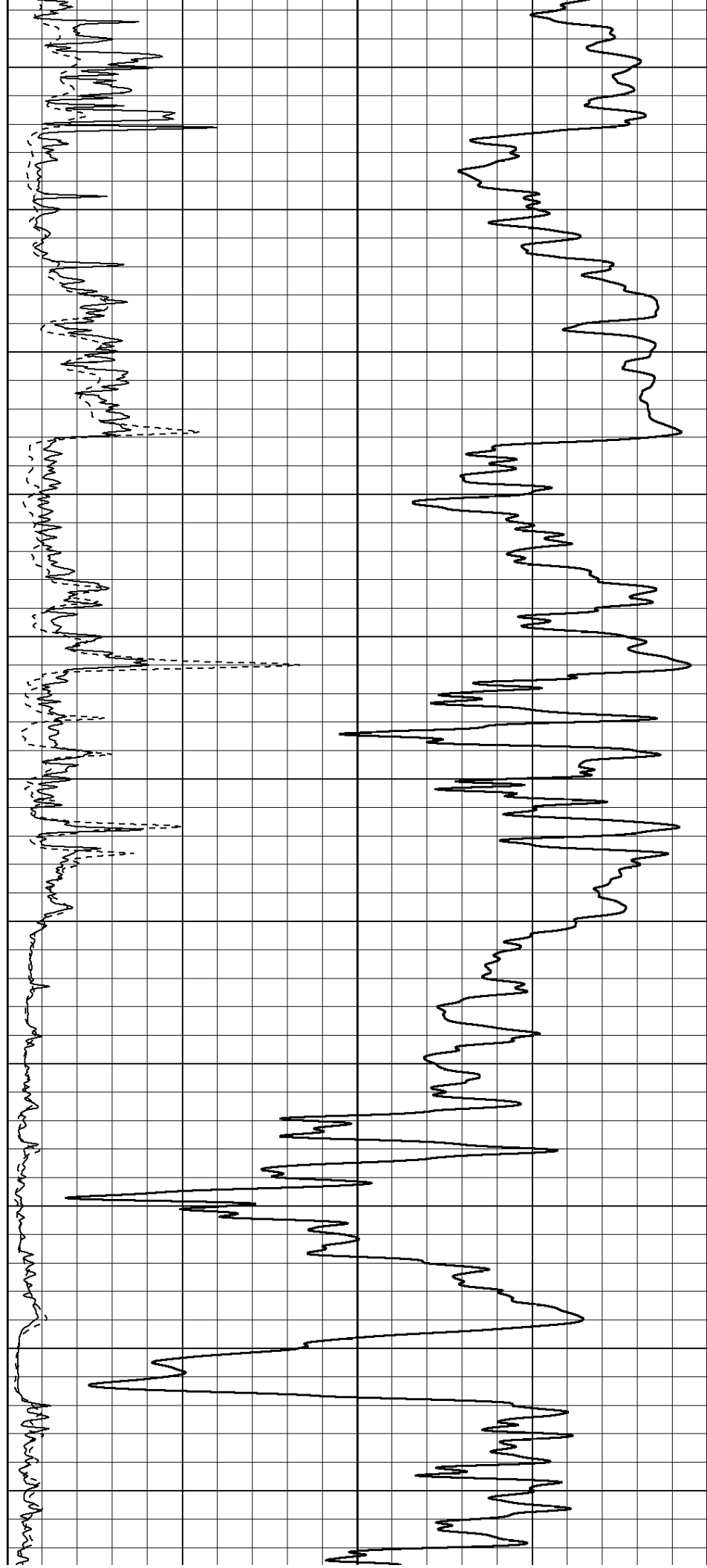
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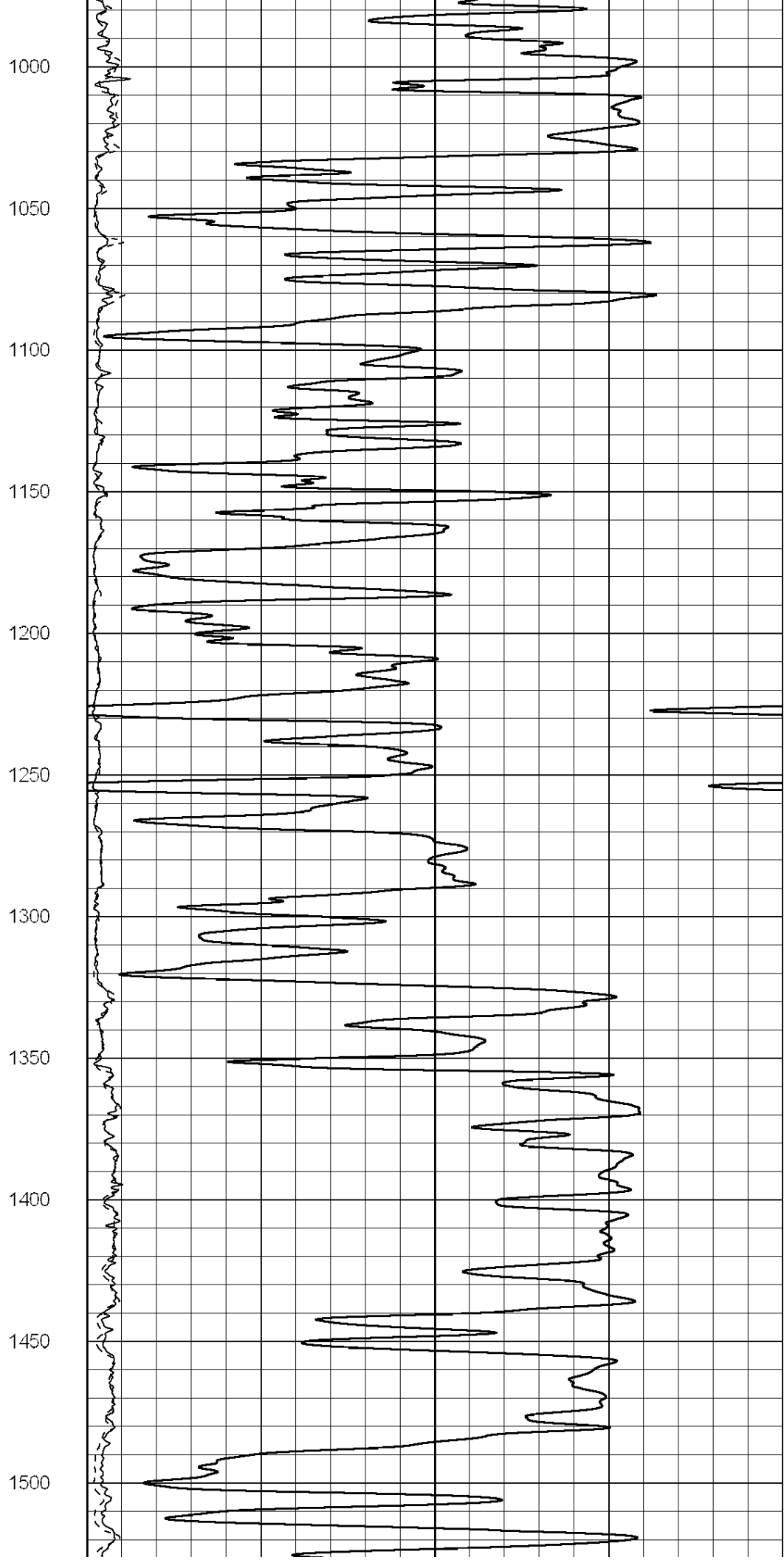
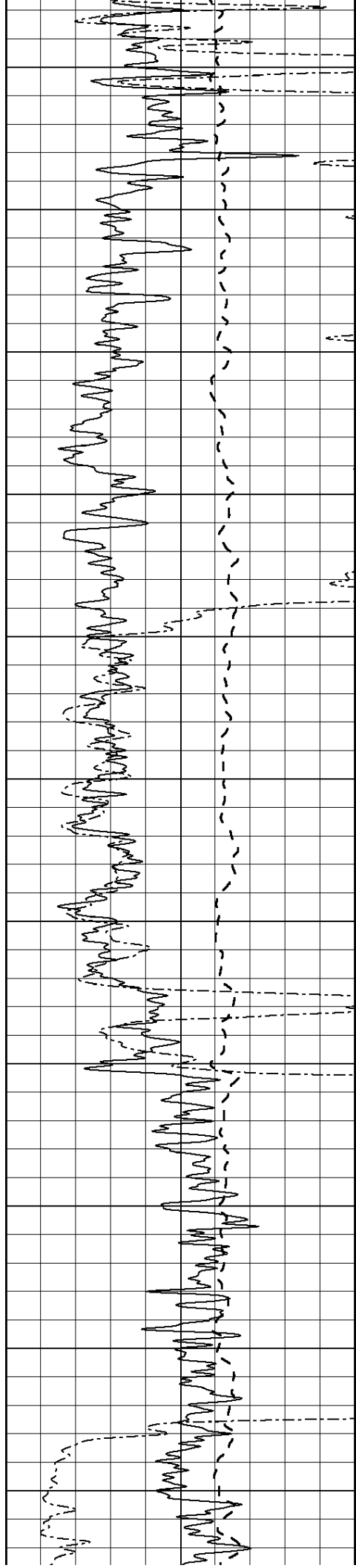
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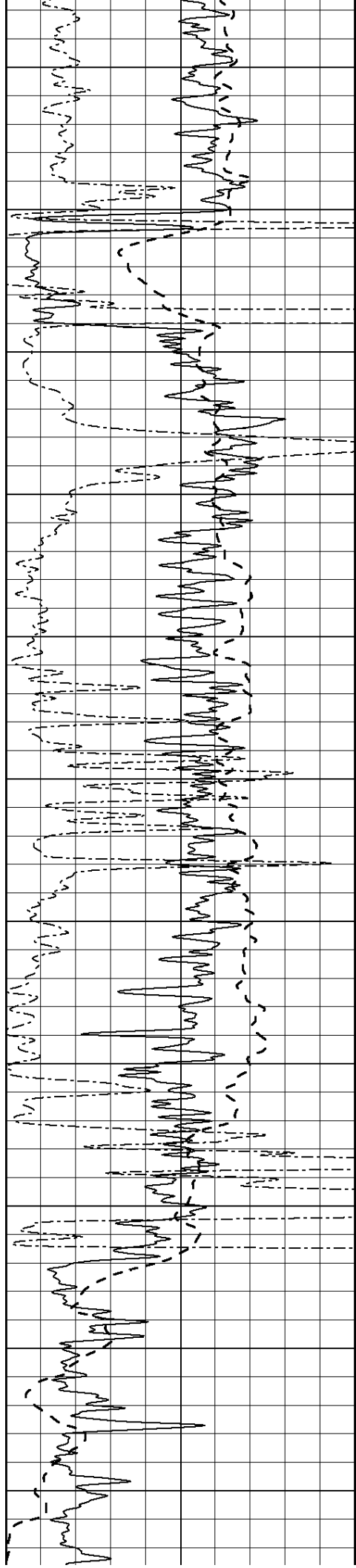
850

900

950







1550

1600

1650

1700

1750

1800

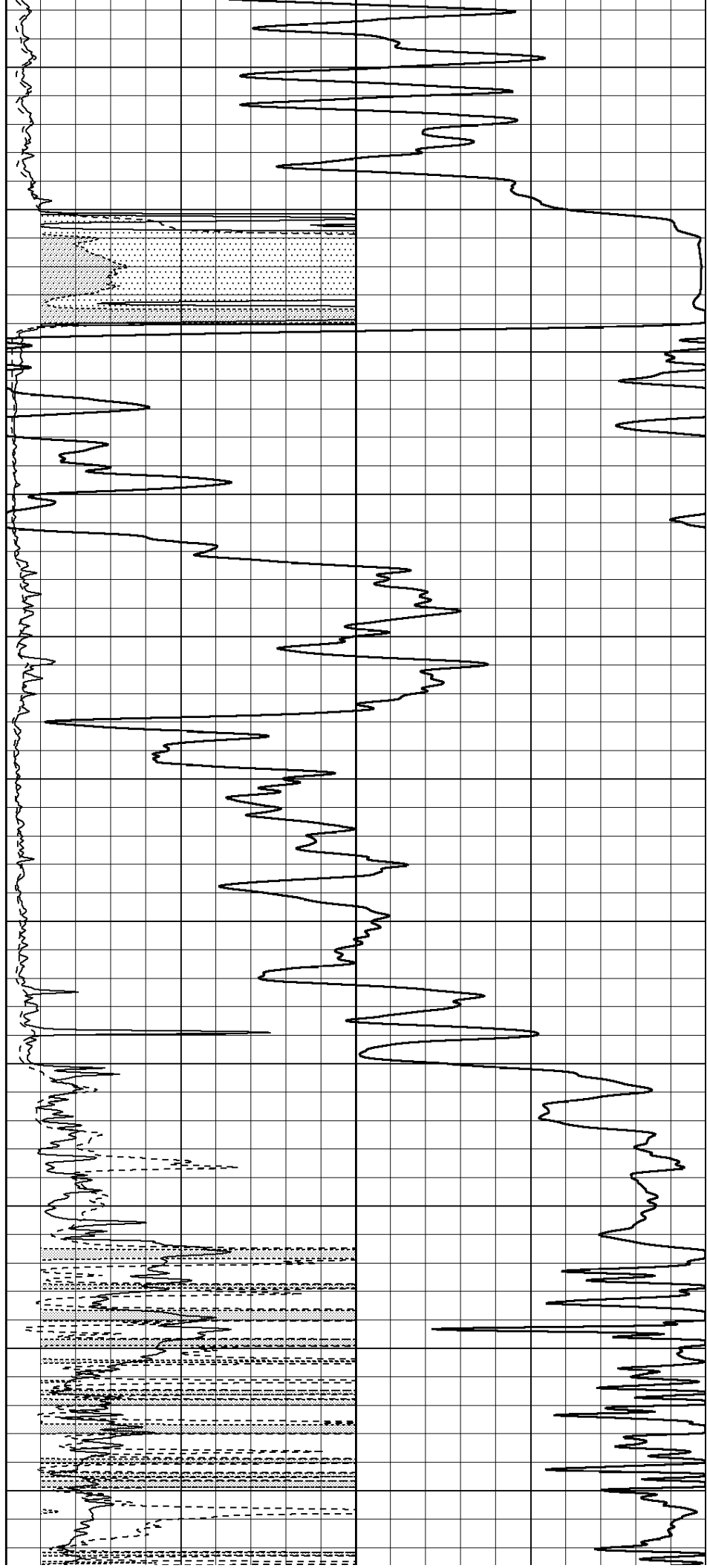
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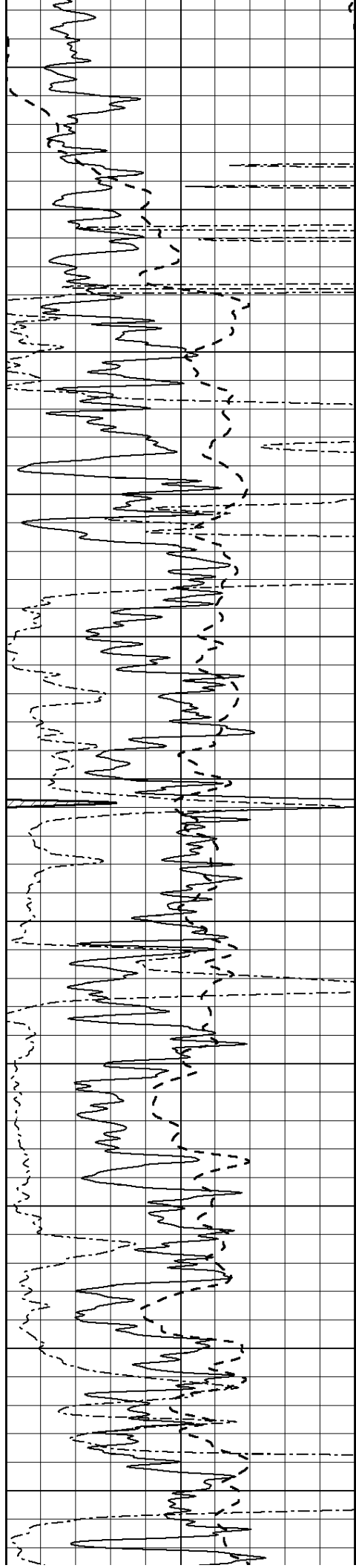
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1950

2000

2050





2100

2150

2200

2250

2300

2350

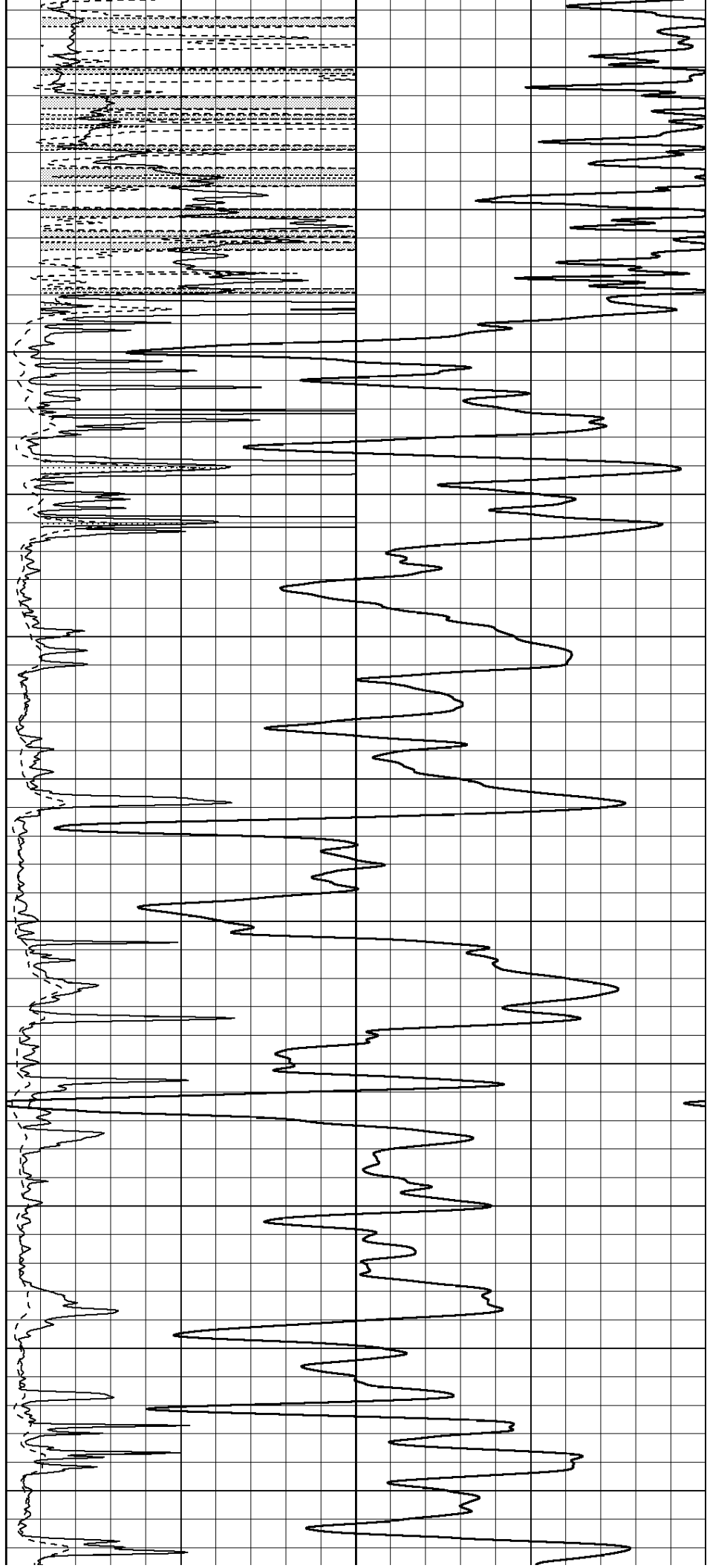
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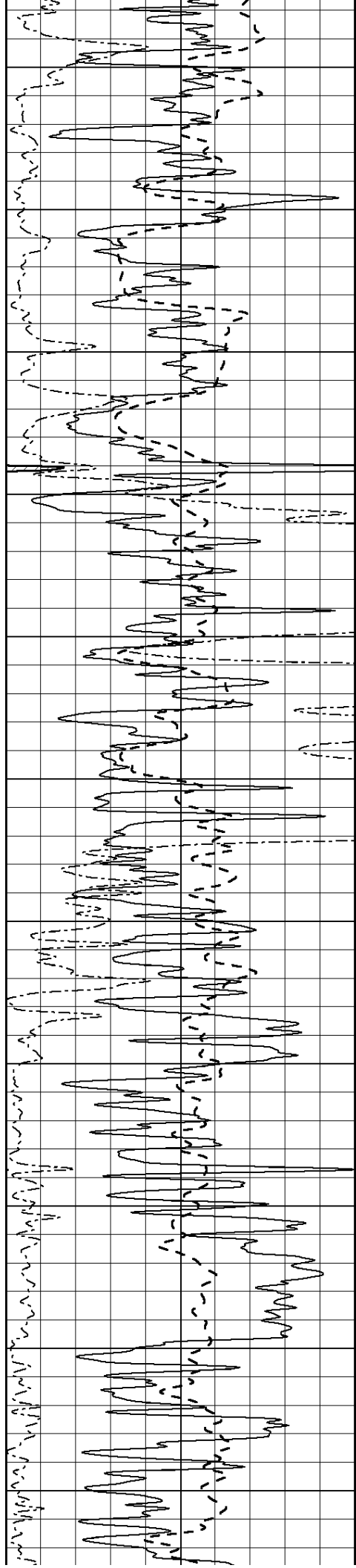
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2500

2550

2600





2650

2700

2750

2800

2850

2900

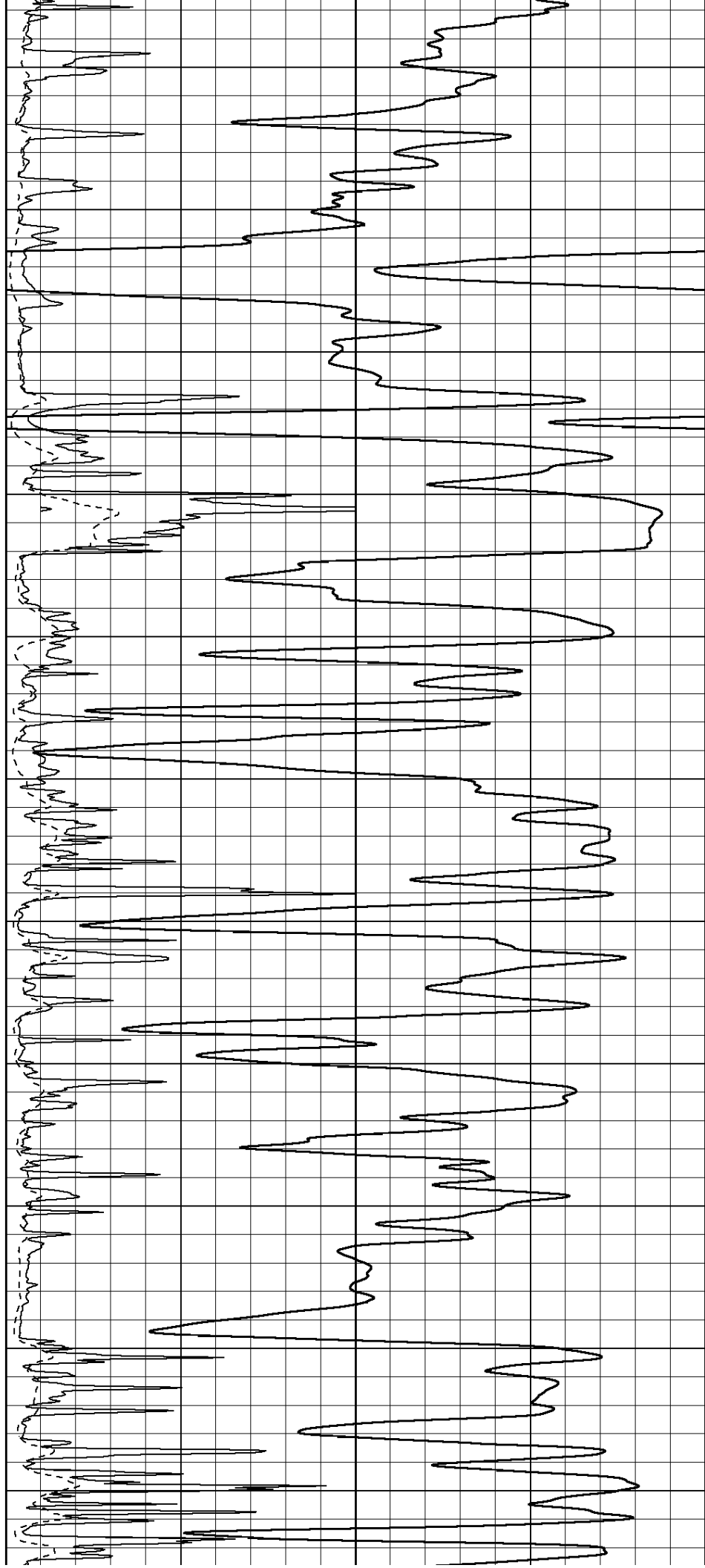
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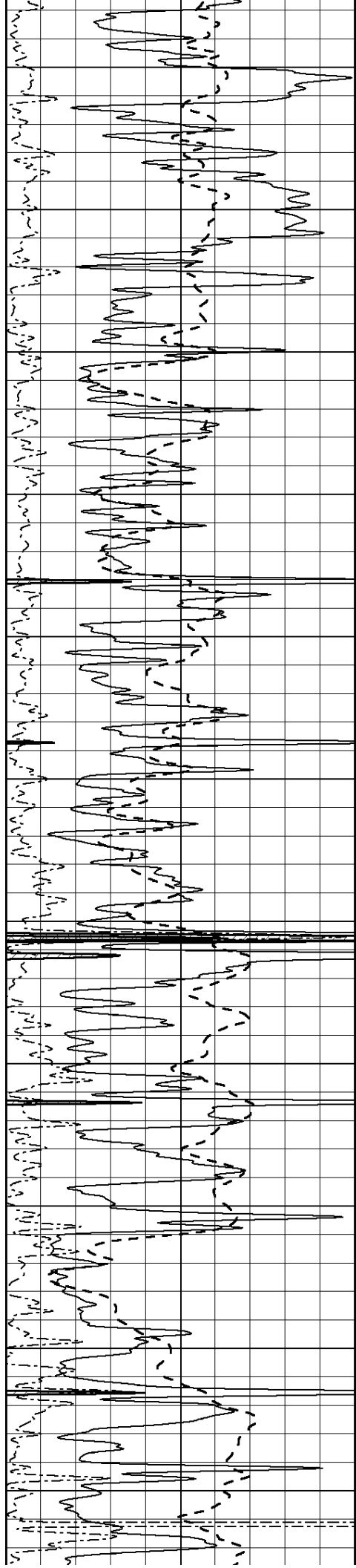
3000

3050

3100

3150





3200

3250

3300

3350

3400

3450

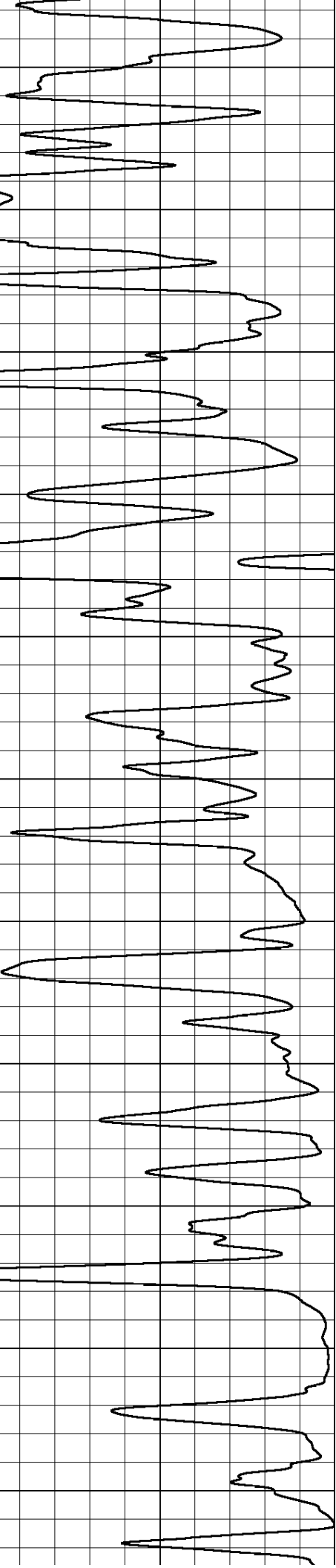
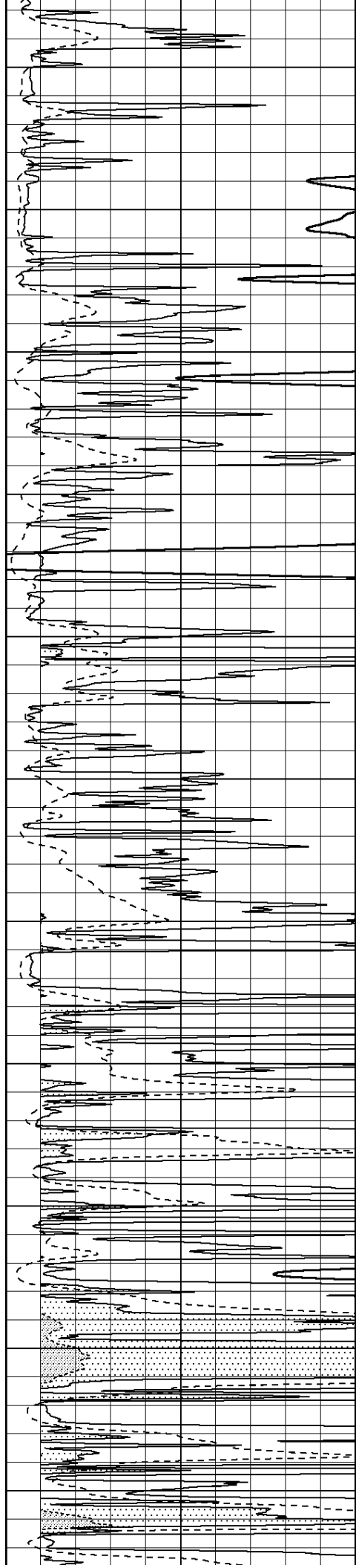
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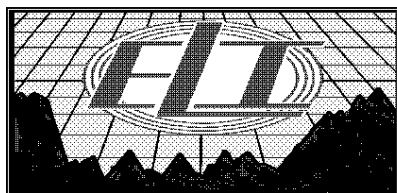
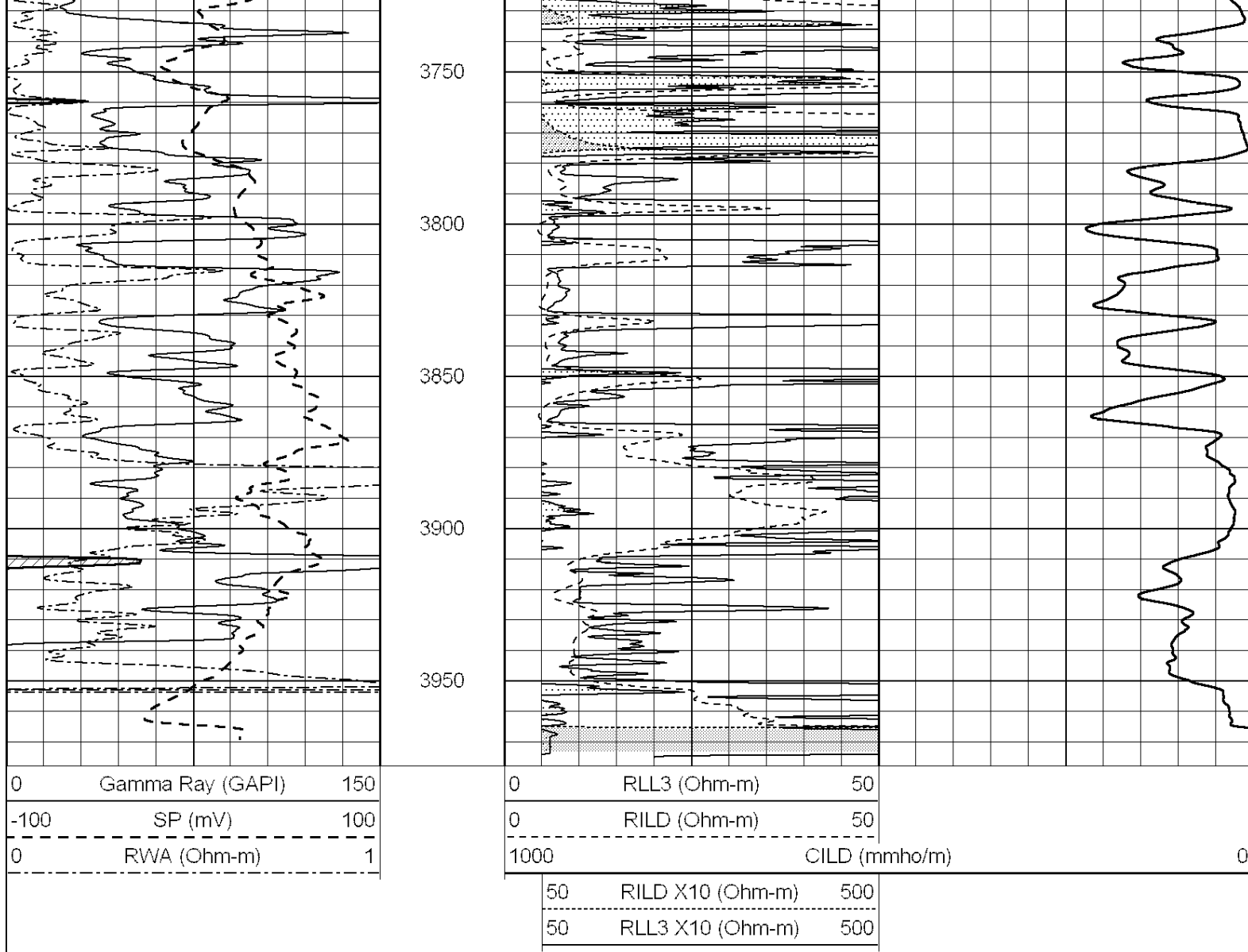
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3600

3650

3700

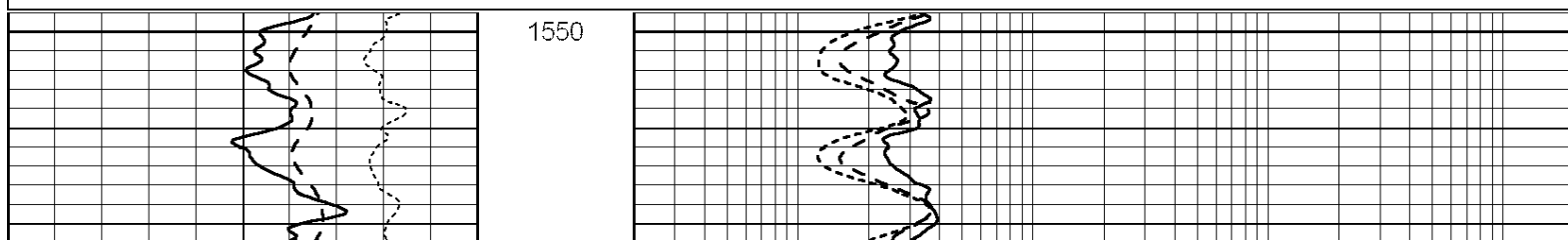


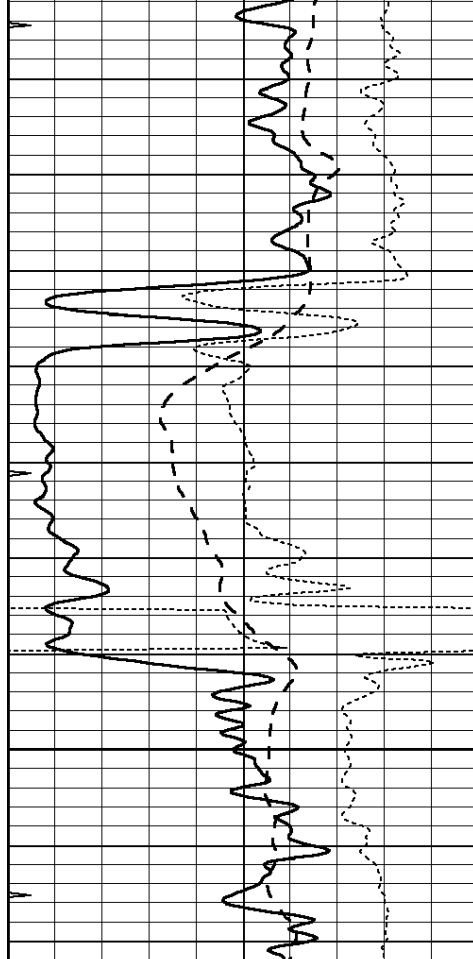


ANHYDRITE

Database File: 1590ddn.db
 Dataset Pathname: pass3.A
 Presentation Format: _dil
 Dataset Creation: Tue Jul 18 22:43:57 2017
 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			

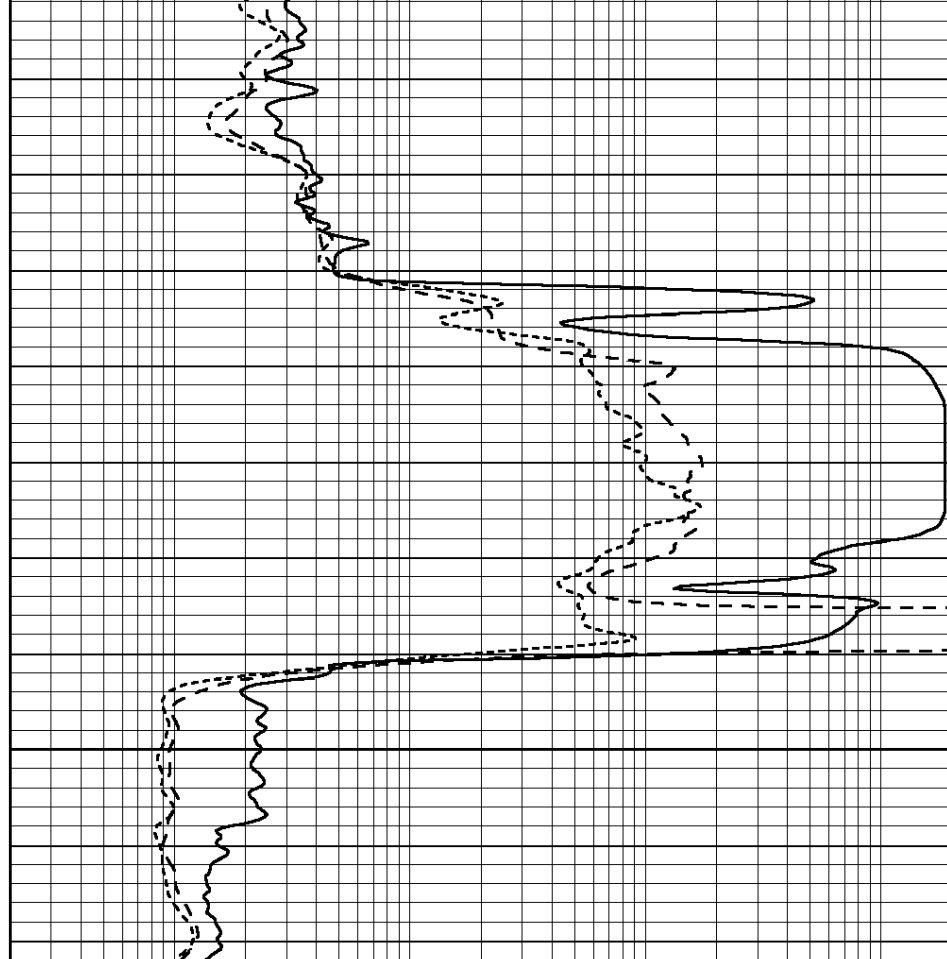




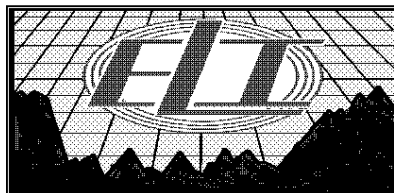
1600

1650

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



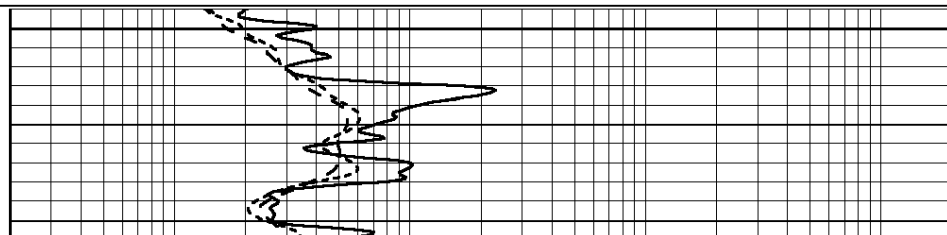
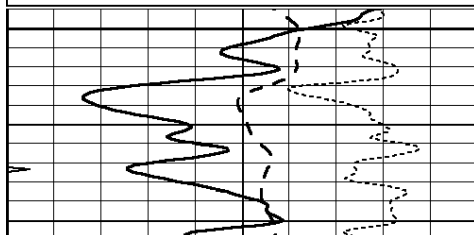
MAIN SECTION

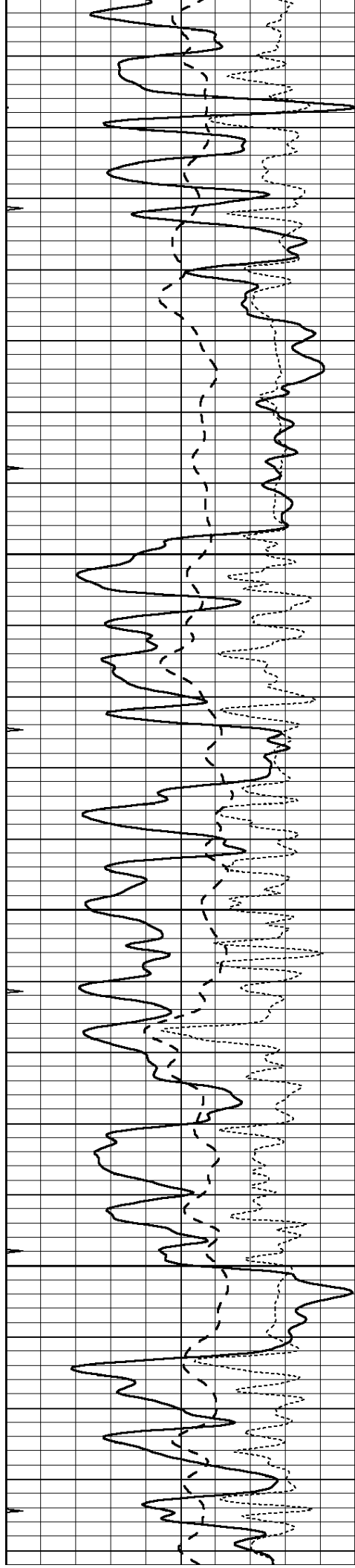
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 Dataset Pathname: pass3.D
 Presentation Format: _dil
 Dataset Creation: Tue Jul 18 22:43:43 2017
 Charted by: Depth in Feet scaled 1:240

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

3000



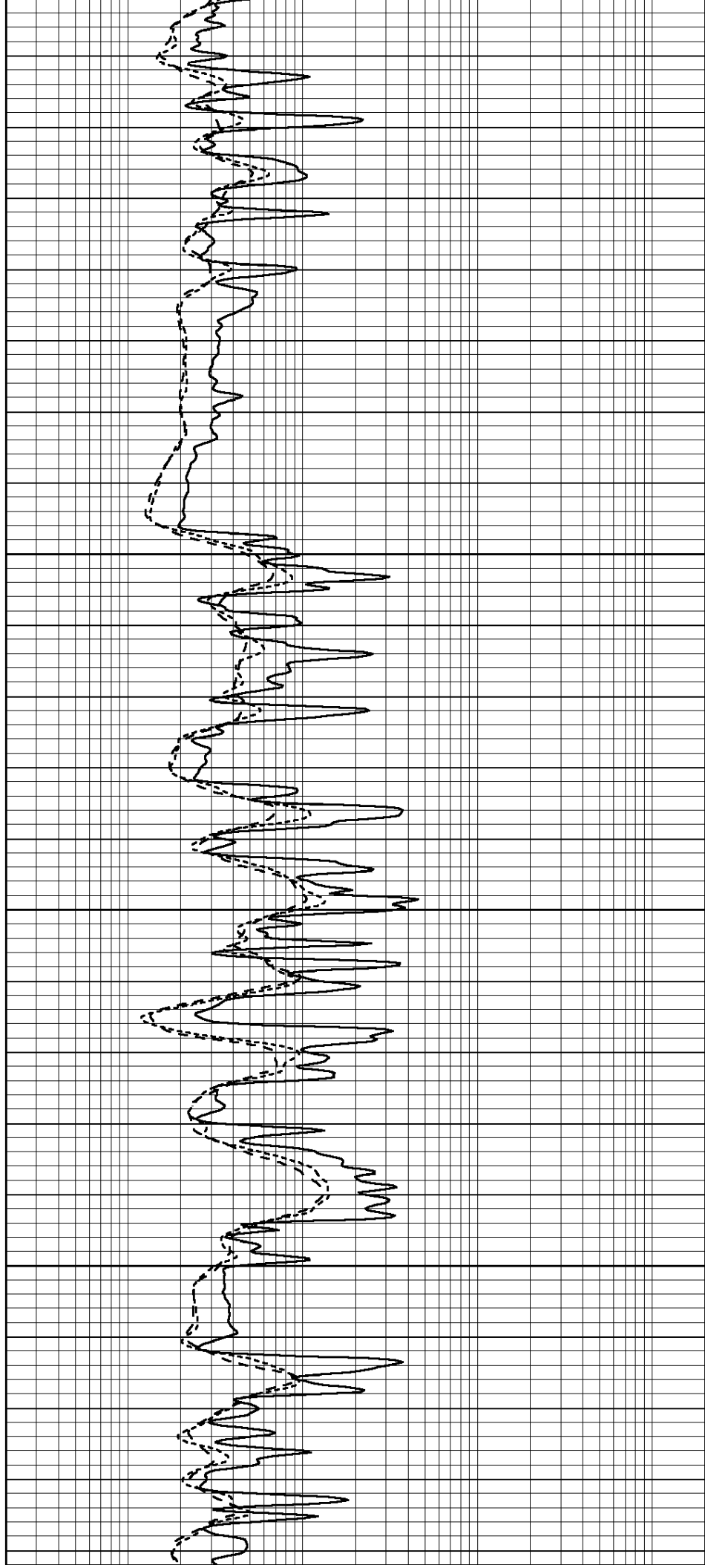


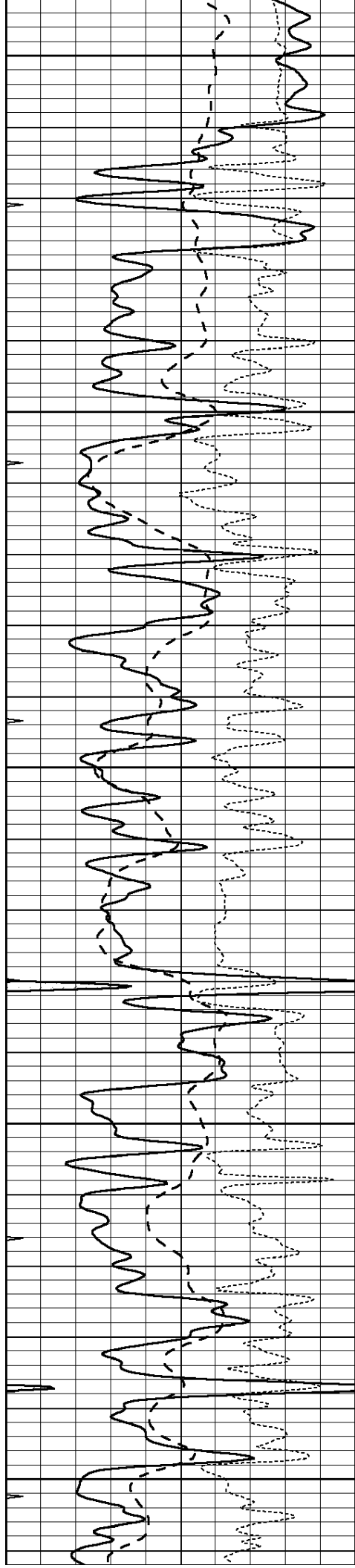
3050

3100

3150

3200





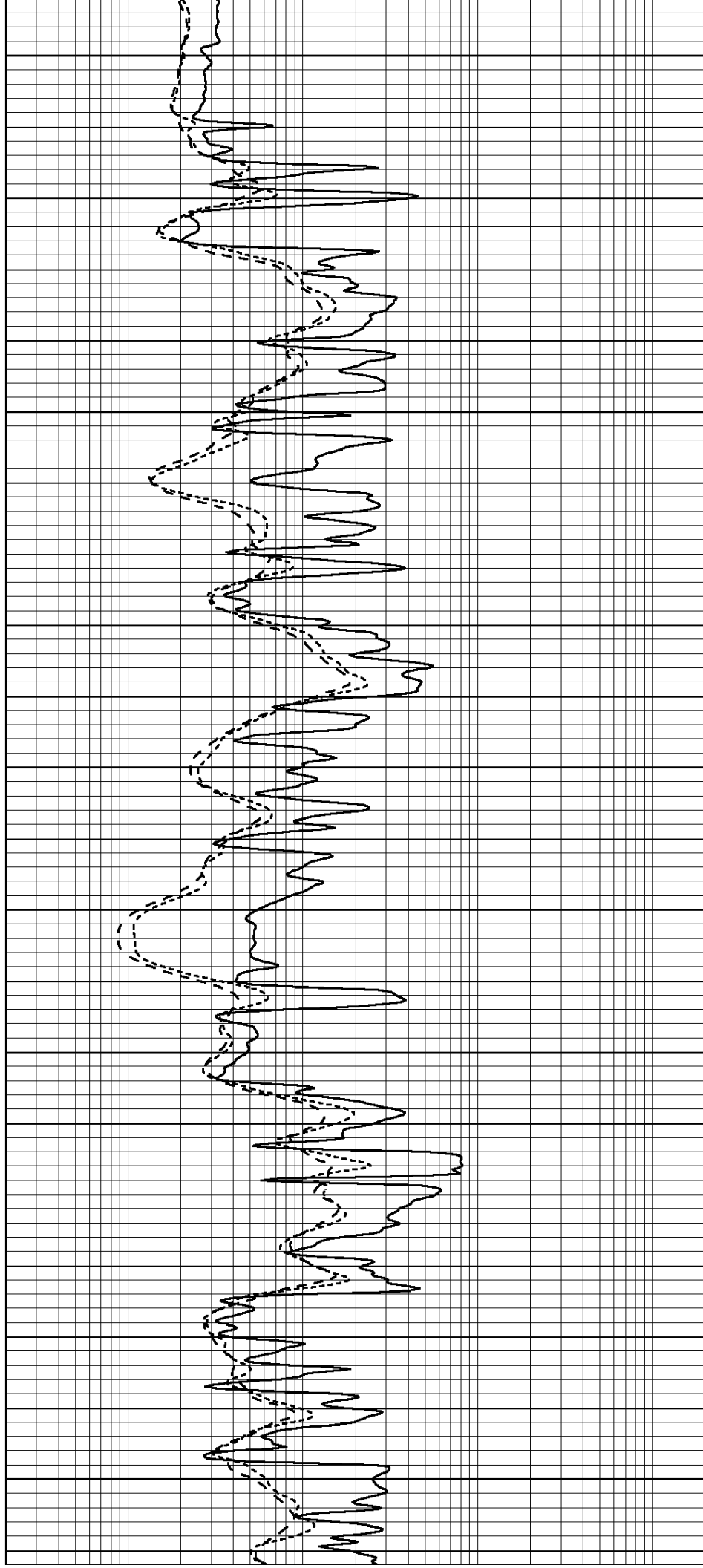
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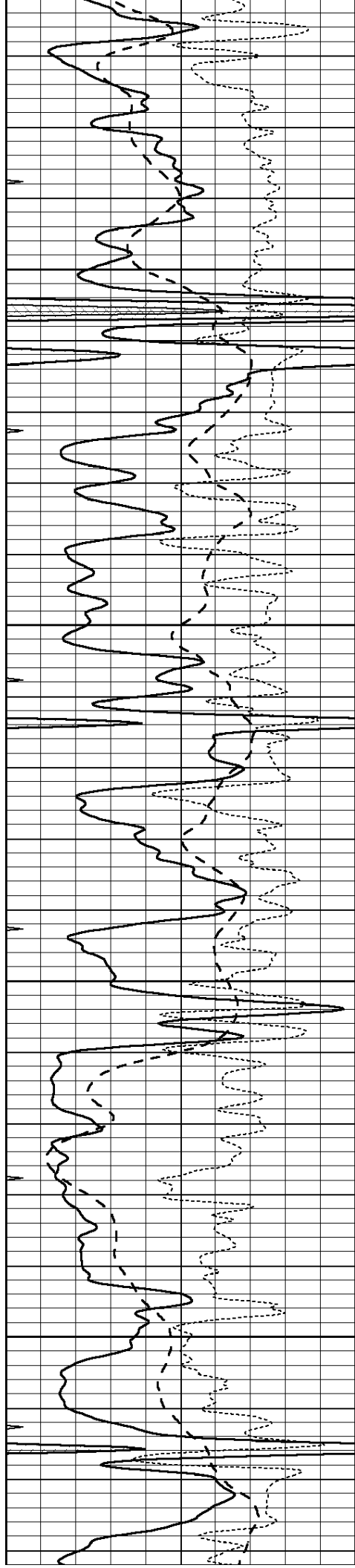
3300

3350

3400

3450



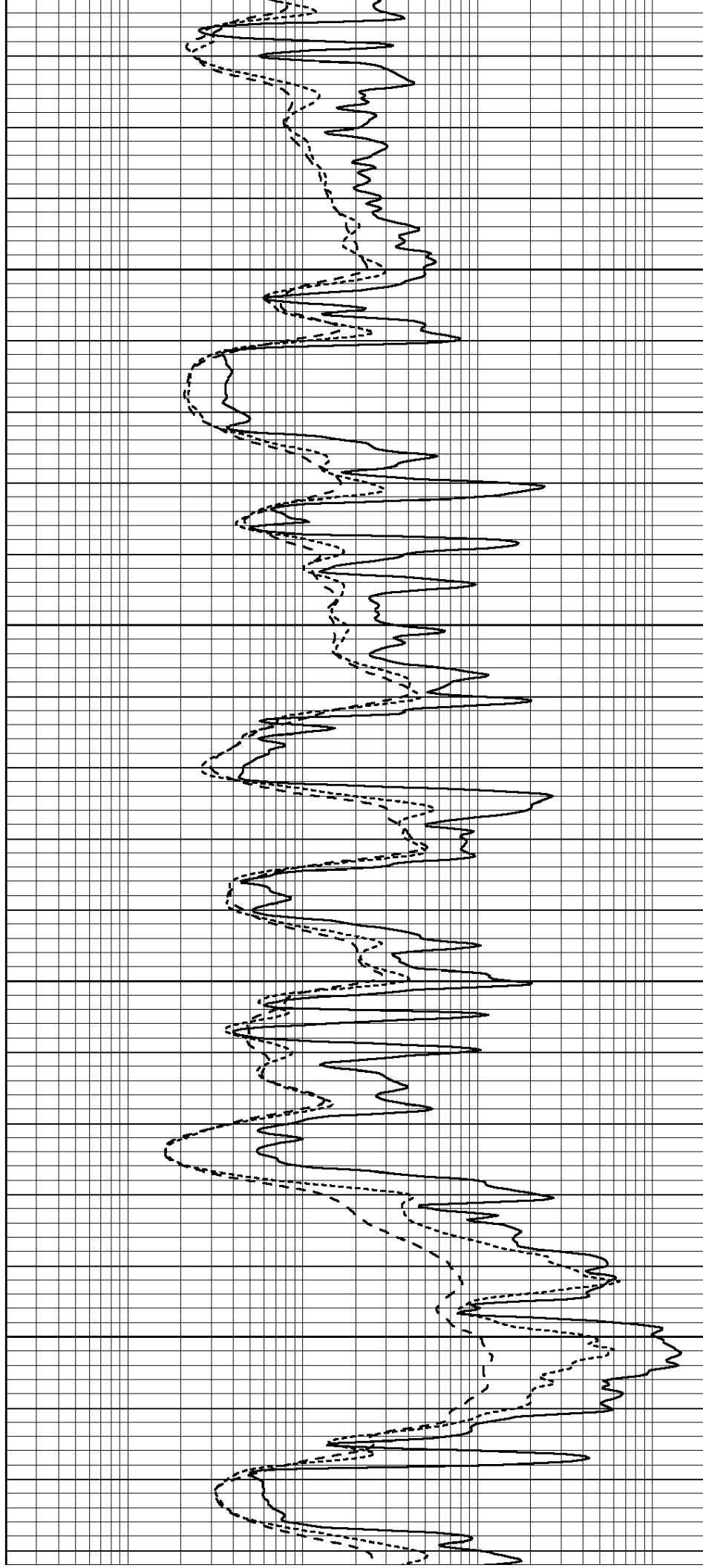


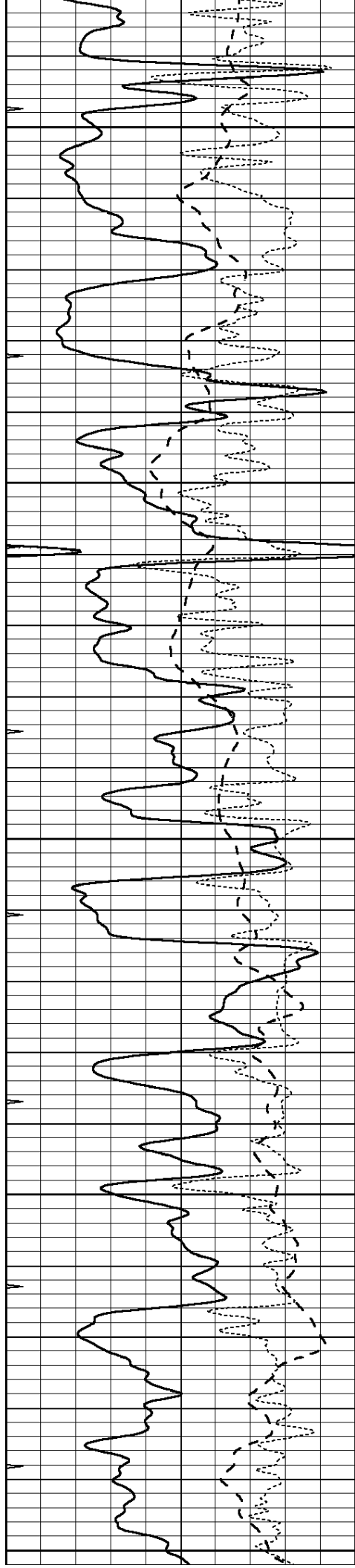
3500

3550

3600

3650





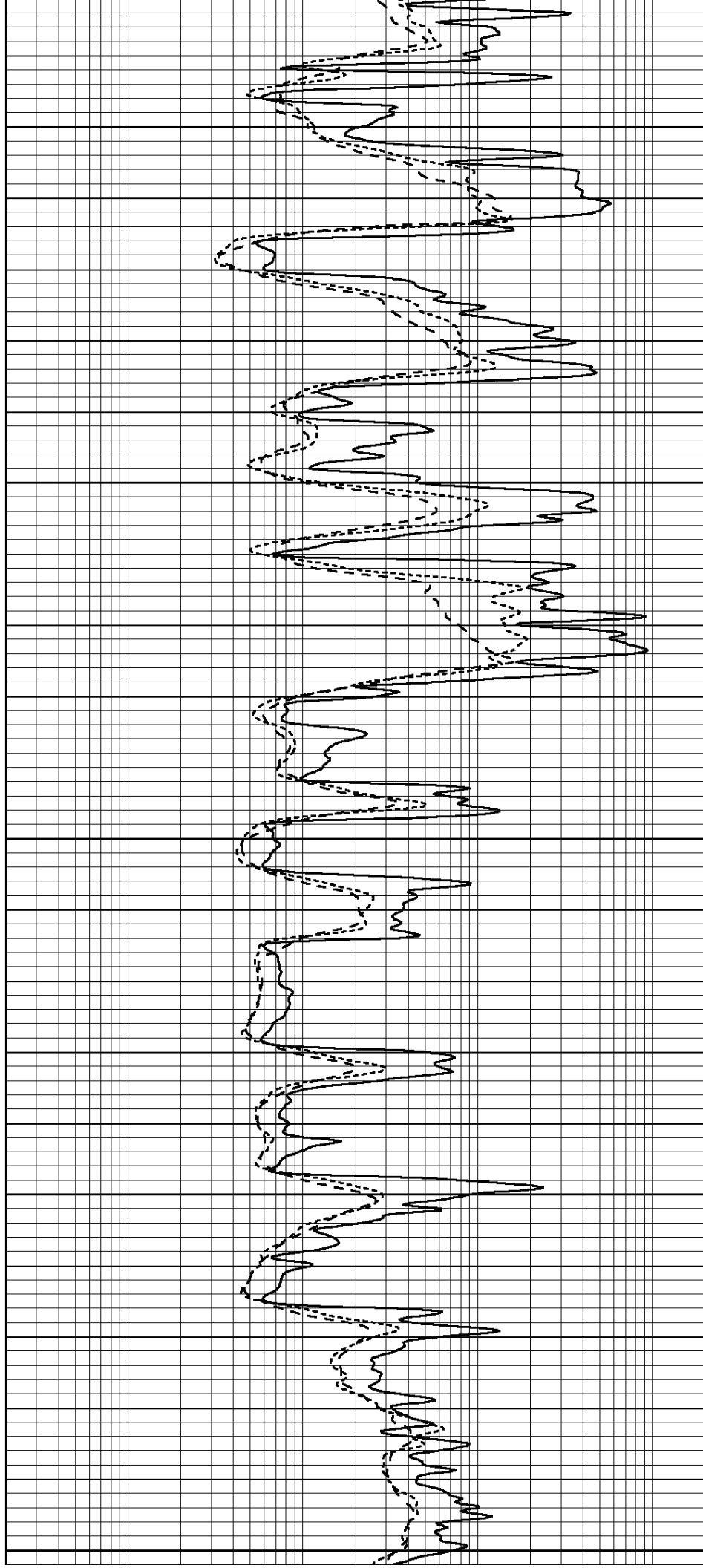
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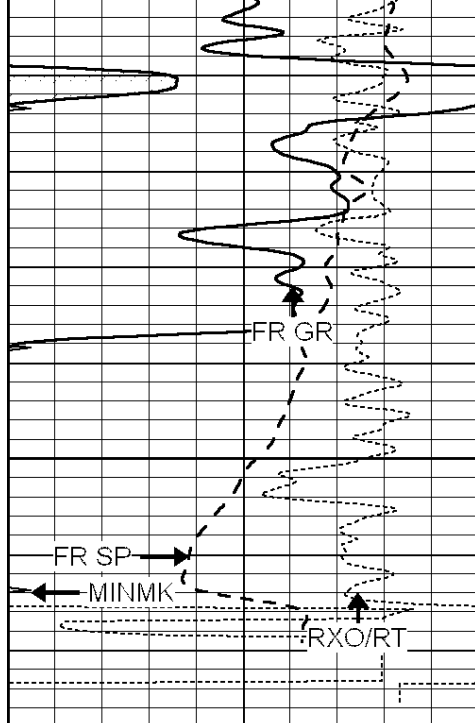
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3800

3850

3900

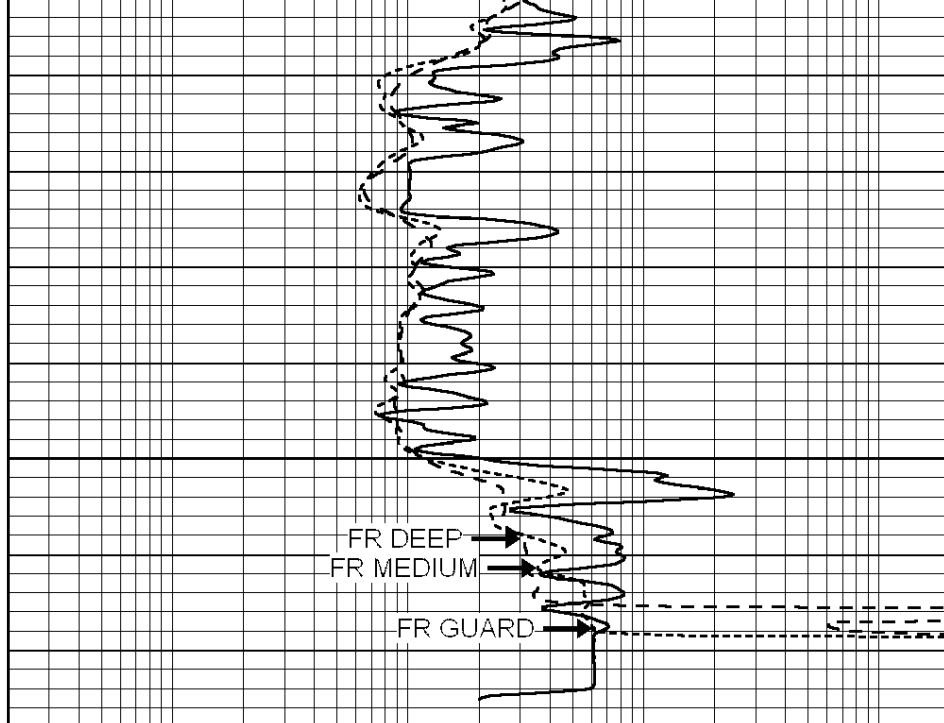




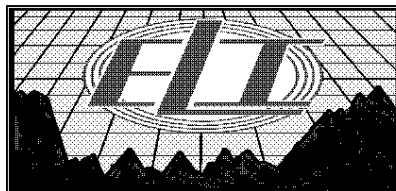
3950

LTD 3970

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

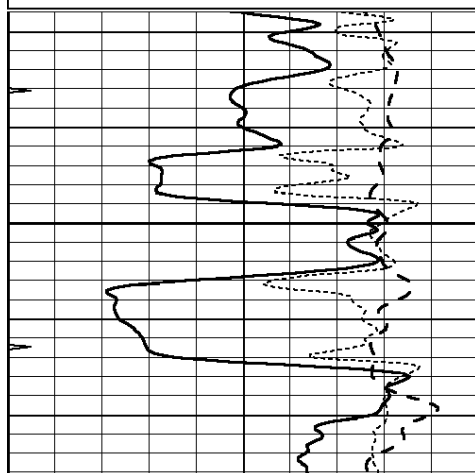


REPEAT SECTION

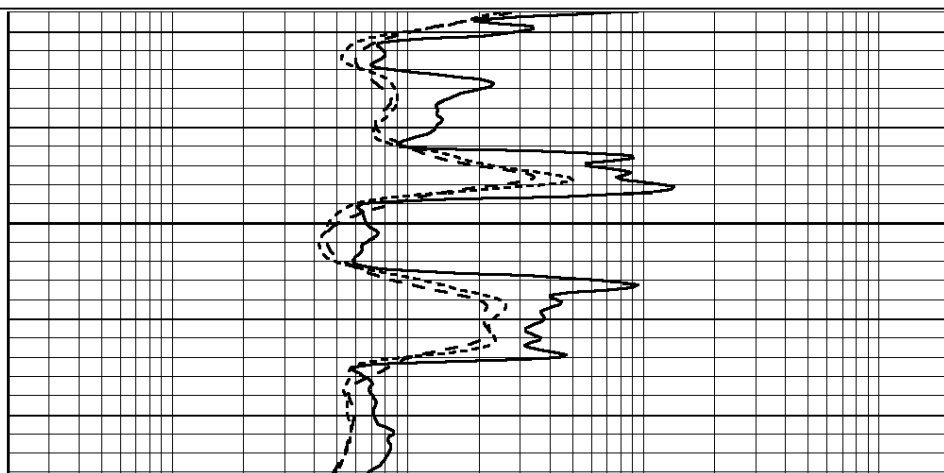
Database File: 1590ddn.db
 Dataset Pathname: pass2.9
 Presentation Format: _dil
 Dataset Creation: Tue Jul 18 21:24:06 2017
 Charted by: Depth in Feet scaled 1:240

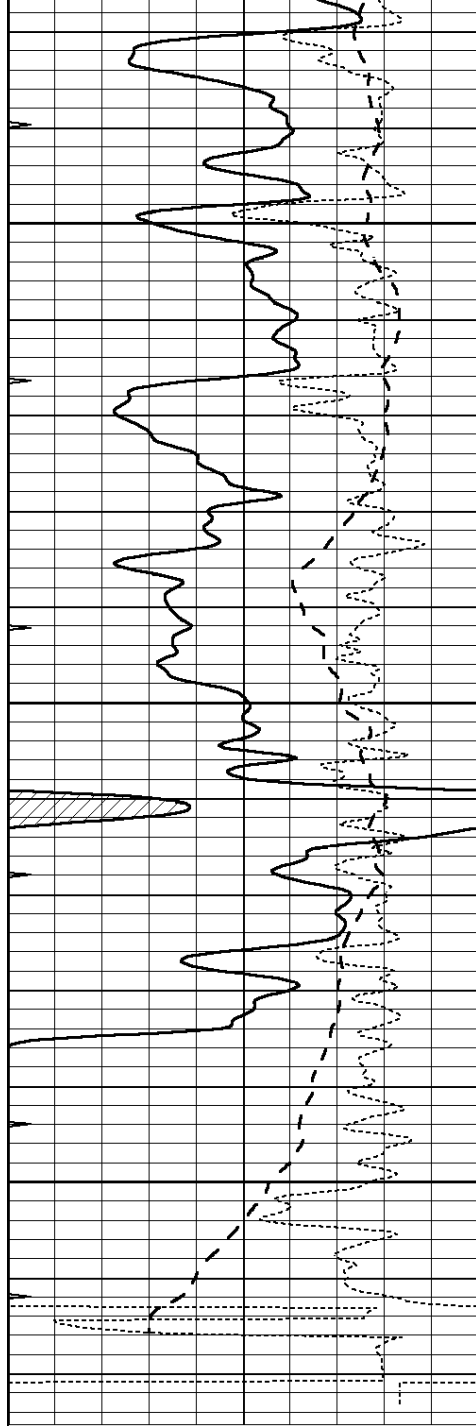
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3800



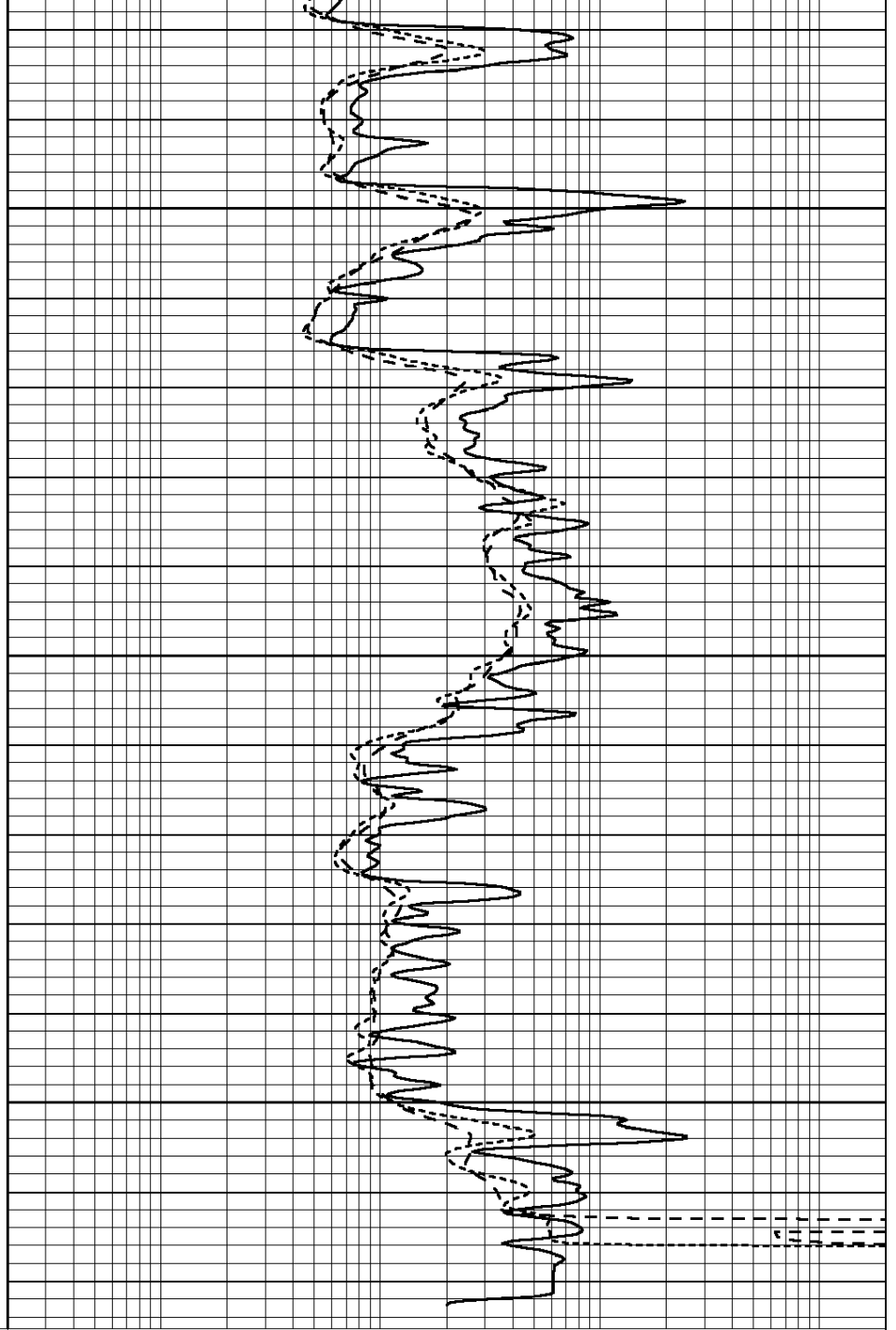


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3850

3900

3950



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: 1590ddn.db
 Dataset Pathname: pass3.D
 Dataset Creation: Tue Jul 18 22:43:43 2017

Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Tue Jul 18 21:06:38 2017
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008

Surface Calibration							Results	
Loop:	Readings			References				
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	-8.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-55.000
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: 004N				Model: PRB				

Master Calibration					Performed Fri May 30 11:01:00 2014			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1378.8	10804.6	3492.0	12453.4	cps			
Window 2	1262.4	9313.5	3076.7	10594.7	cps			
Window 3	1077.6	5668.7	2076.0	6314.8	cps			
Window 4	306.4	313.0	306.4	315.6	cps			
Long Space	0.0	8051.0	1814.3	9332.3	cps			
Short Space	1.9	1706.1	1146.0	1707.6	cps			
Rho		1.7100	2.5900	1.3800	g/cc			
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 45.0	Rib Slope	: 1.002	Density/Spine Ratio	: 0.571			
Spine Angle	: 75.0	Spine Slope	: 3.745	Spine Intercept	: -18.9			

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				

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: 070558
Tool Model: OPEN_GR
Performed: Wed May 31 00:09:32 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.2800 GAPI/cps