



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL INDUCTION
LOG**

Company LIBERTY OPER. & COMPL. INC.
Well GANOUNG "B" #2
Field WILDCAT
County ROOKS
State KANSAS

Company LIBERTY OPERATIONS & COMPLETIONS, INC.
Well GANOUNG "B" #2
Field WILDCAT
County ROOKS State KANSAS

Location: API # : 15-163-24198-0000
770' FSL & 2310' FWL
S/2 - NE - SE - SW
SEC 28 TWP 10S RGE 17W
Permanent Datum GROUND LEVEL Elevation 2078
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL/PE
MEL/SONIC
Elevation
K.B. 2083
D.F. 2081
G.L. 2078

Date	3/29/14		
Run Number	ONE		
Depth Driller	3780		
Depth Logger	3780		
Bottom Logged Interval	3778		
Top Log Interval	00		
Casing Driller	7 7/8"@220'		
Casing Logger	218		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 12,000 PPM	
Density / Viscosity	9.5/50		
pH / Fluid Loss	10.0/16.0		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.320@70F		
Rmf @ Meas. Temp	.240@70F		
Rmc @ Meas. Temp	.384@70F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.196@114F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	8:45 A.M.		
Maximum Recorded Temperature	114F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	TONY RICHARDSON	ROGER COMEAU	

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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
PLAINVILLE, KS., S. ON HWY 183 TO "CC RD.", E. TO (DEAD END), 1N. TO "BB RD.", 1E. TO "RD. 21",
3/4S. TO CATTLE GUARD, 1/2 S.E.



MAIN SECTION

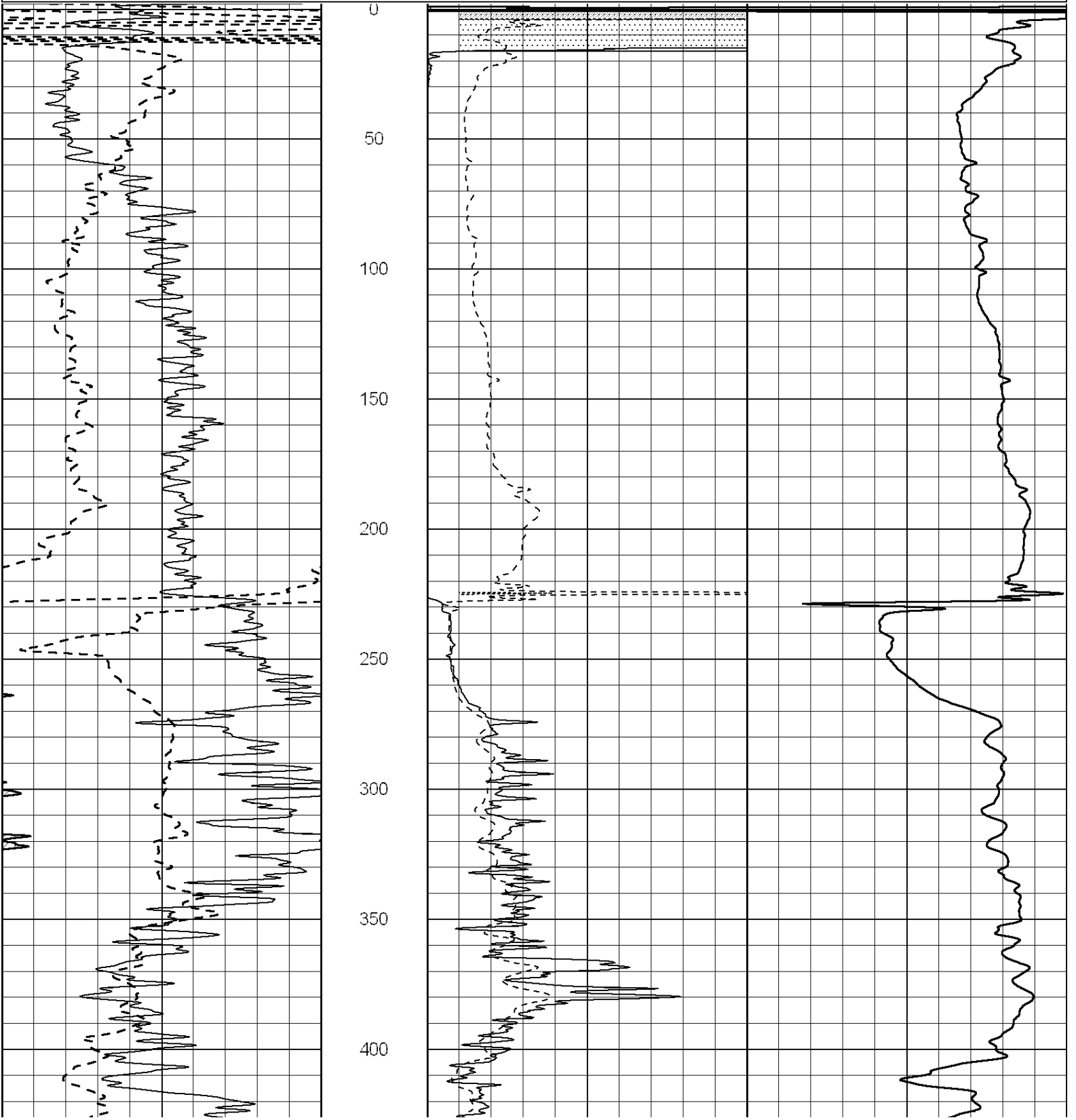
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 Dataset Pathname: pass3.6
 Presentation Format: dil2
 Dataset Creation: Sat Mar 29 10:19:24 2014
 Charted by: Depth in Feet scaled 1:600

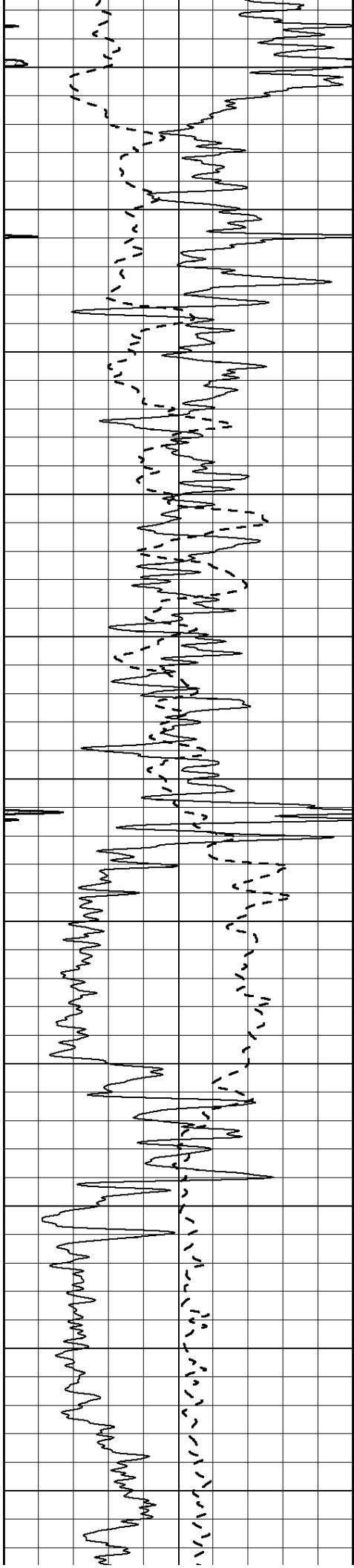
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

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

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





450

500

550

600

650

700

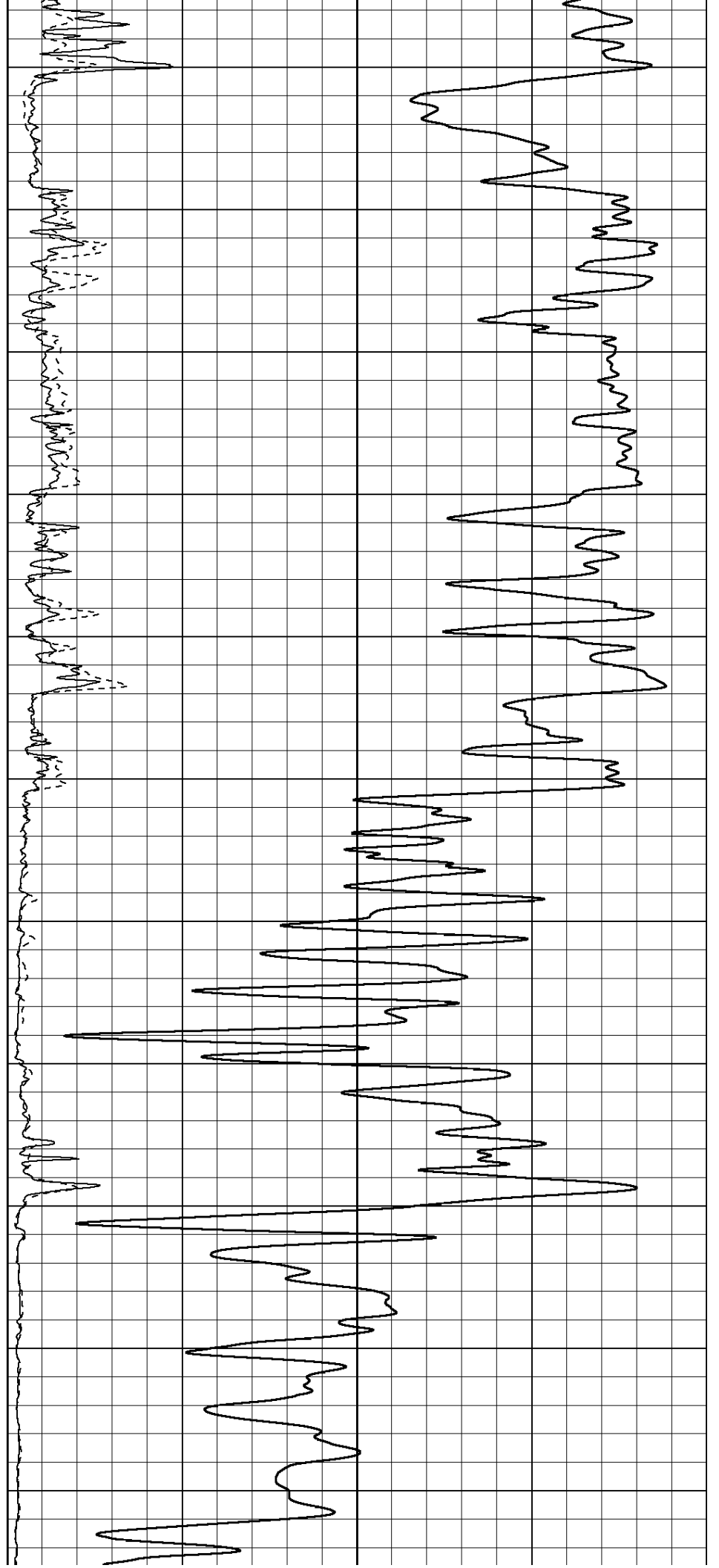
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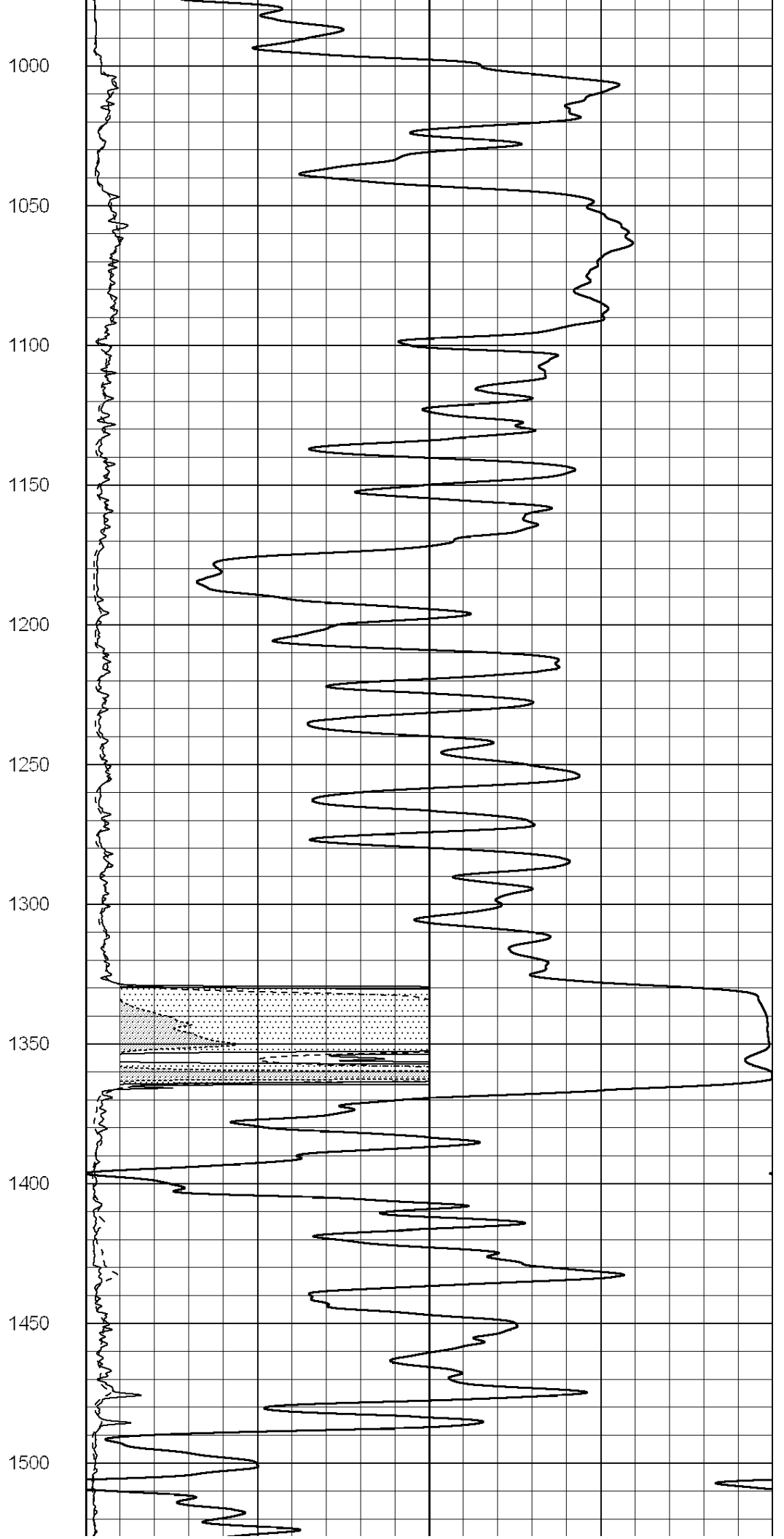
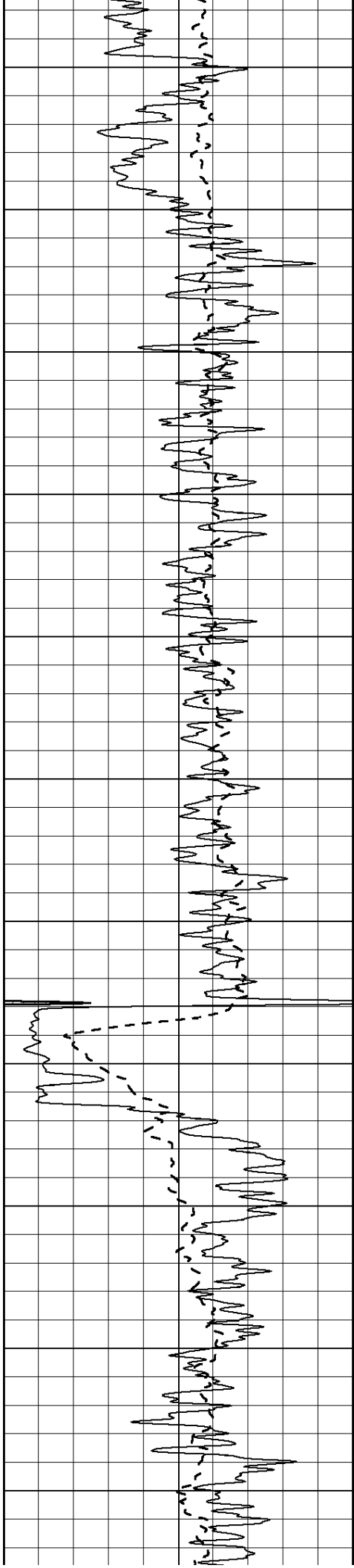
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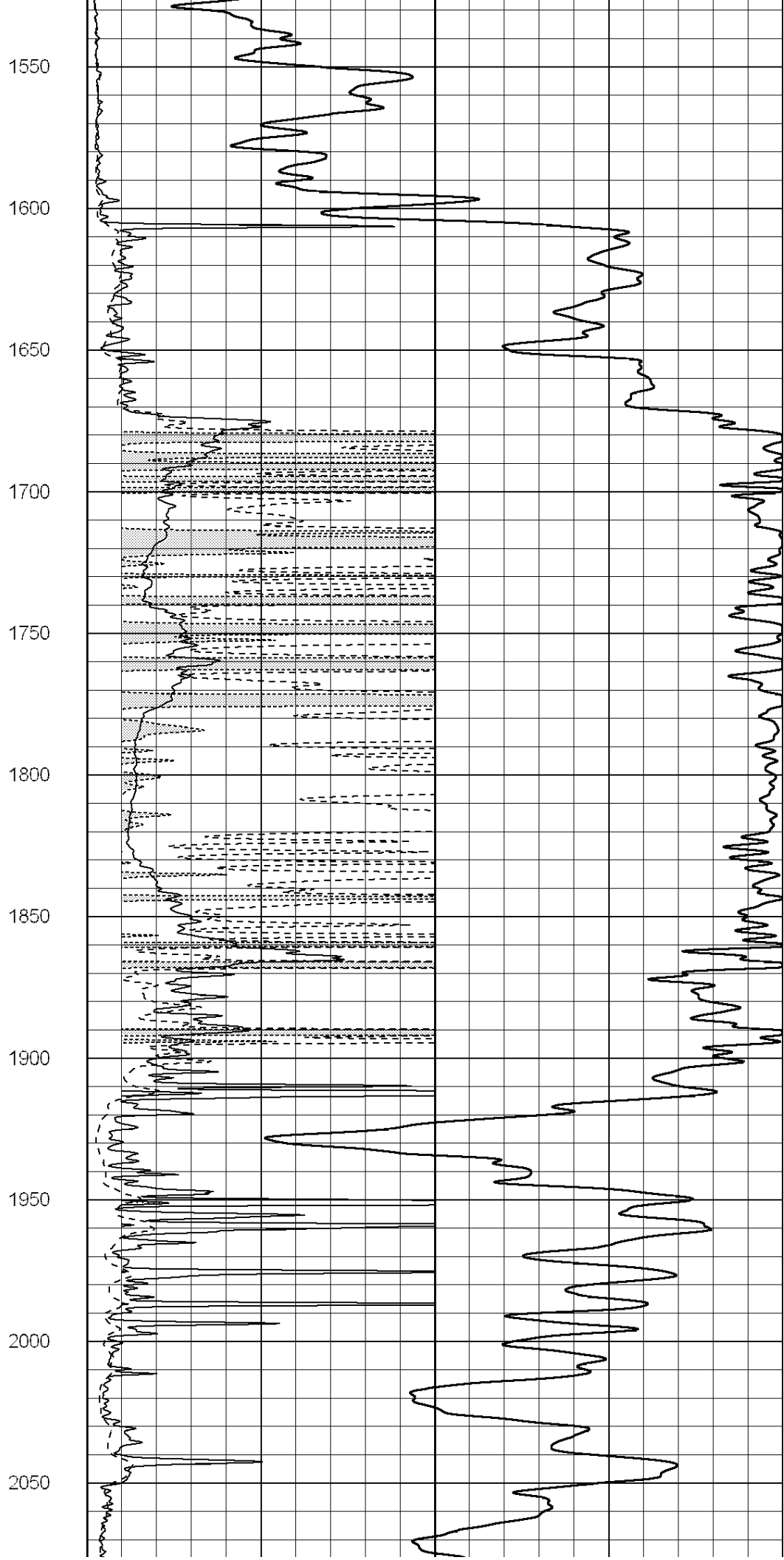
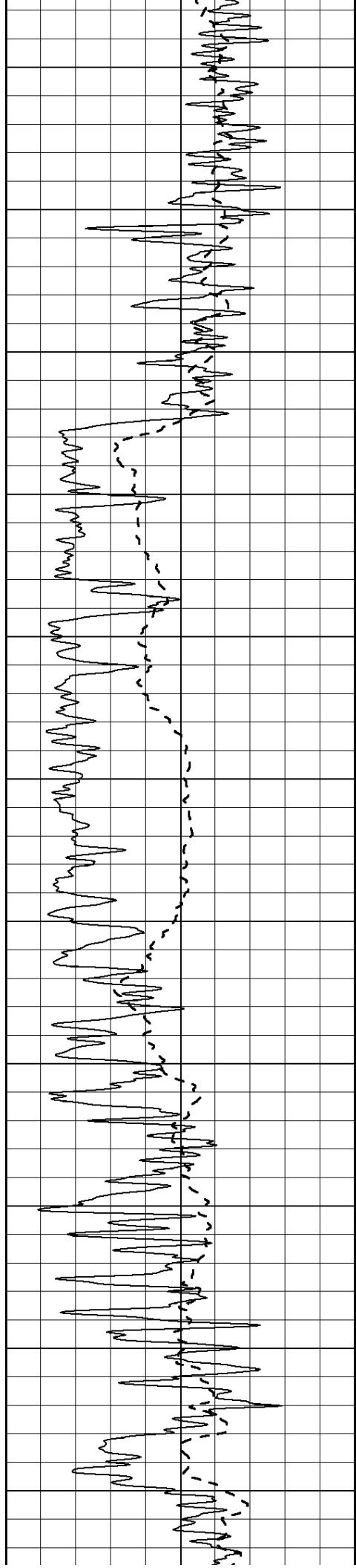
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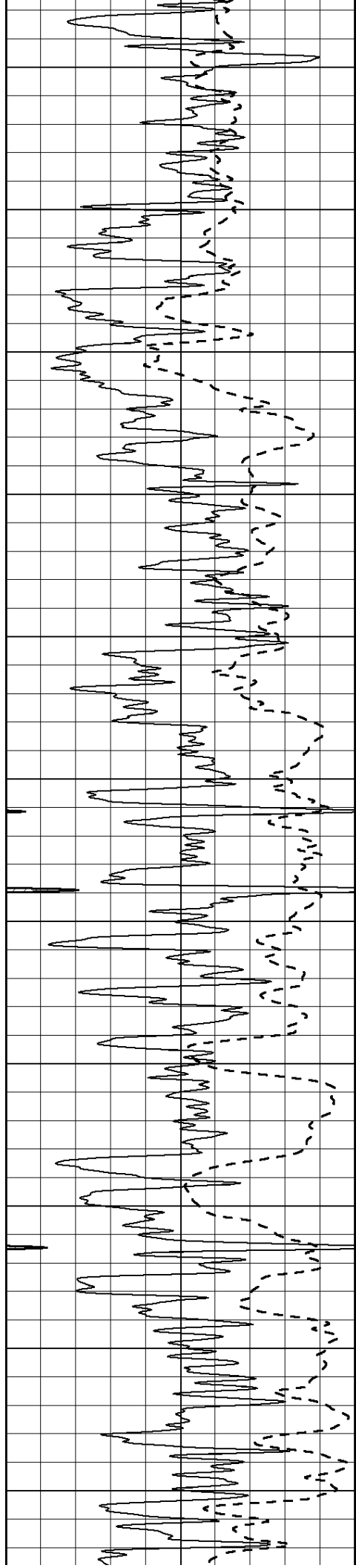
900

950









2100

2150

2200

2250

2300

2350

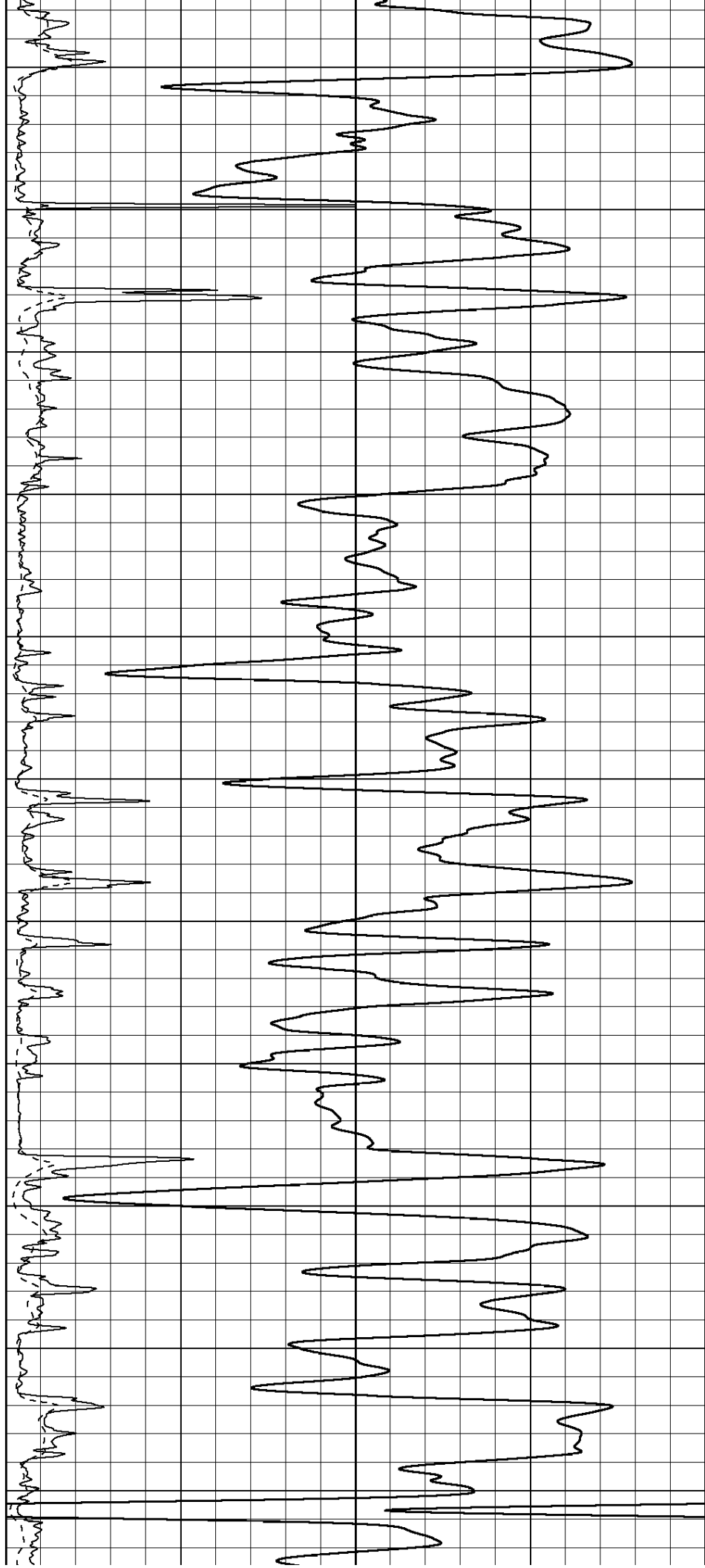
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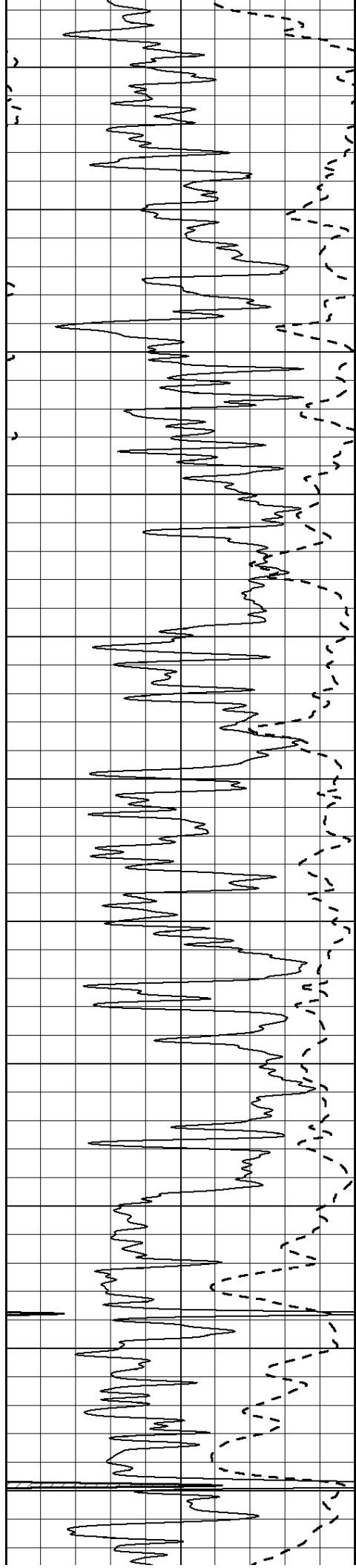
2450

2500

2550

2600





2650

2700

2750

2800

2850

2900

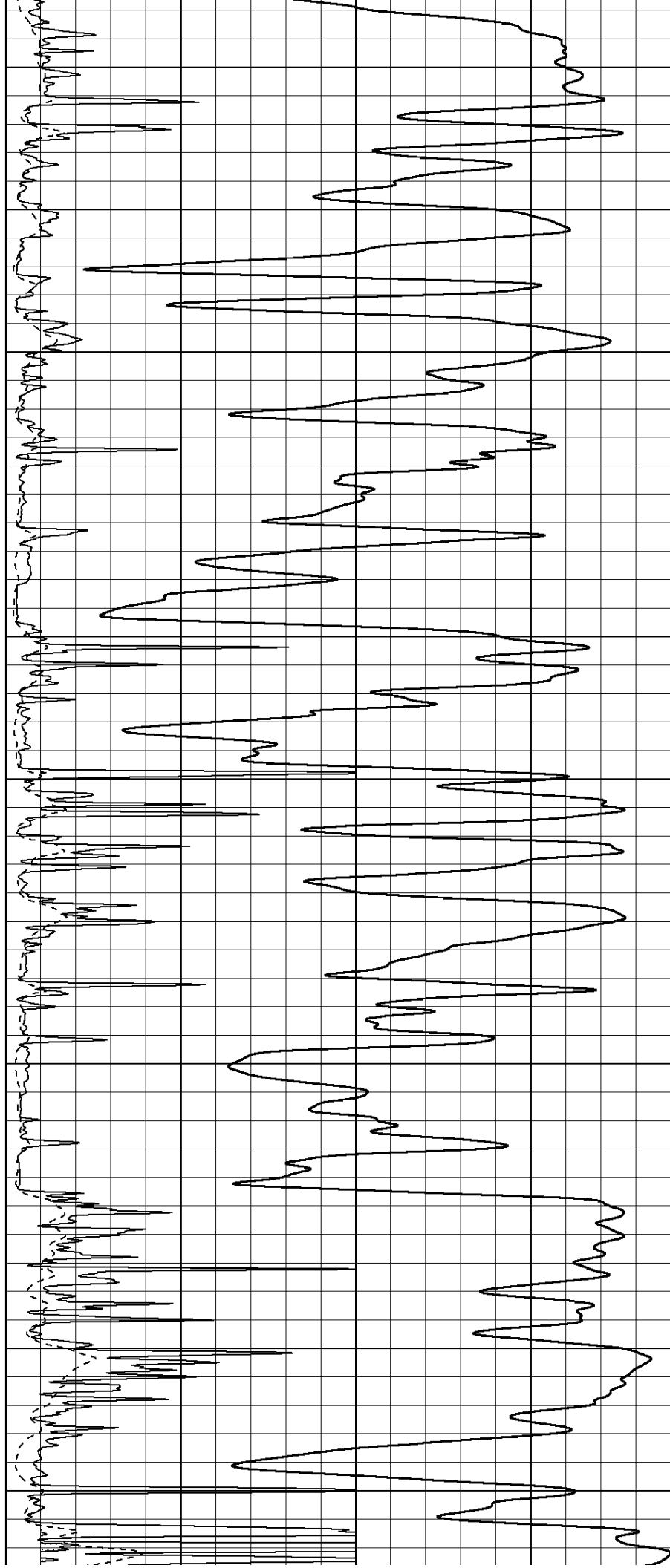
2950

3000

3050

3100

3150



2650

2700

2750

2800

2850

2900

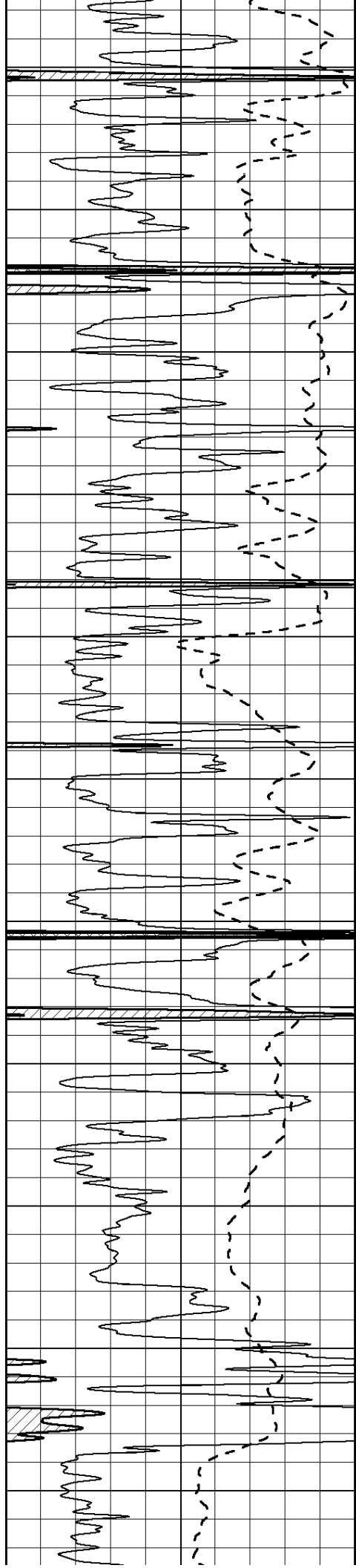
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3000

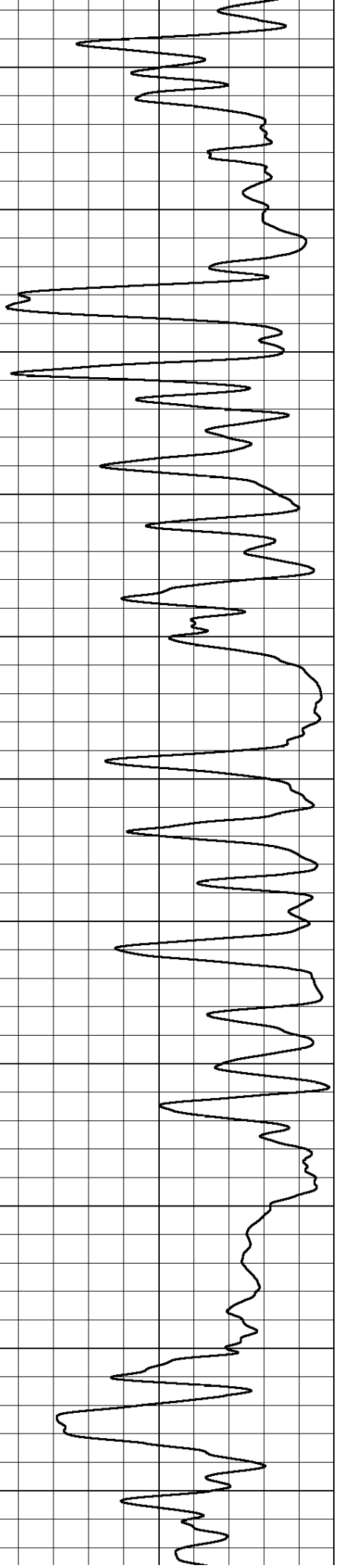
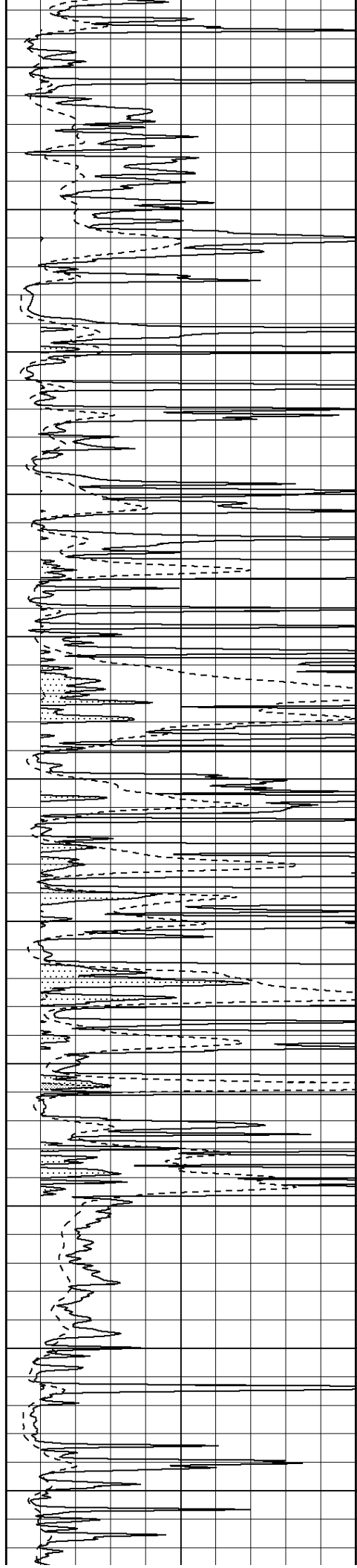
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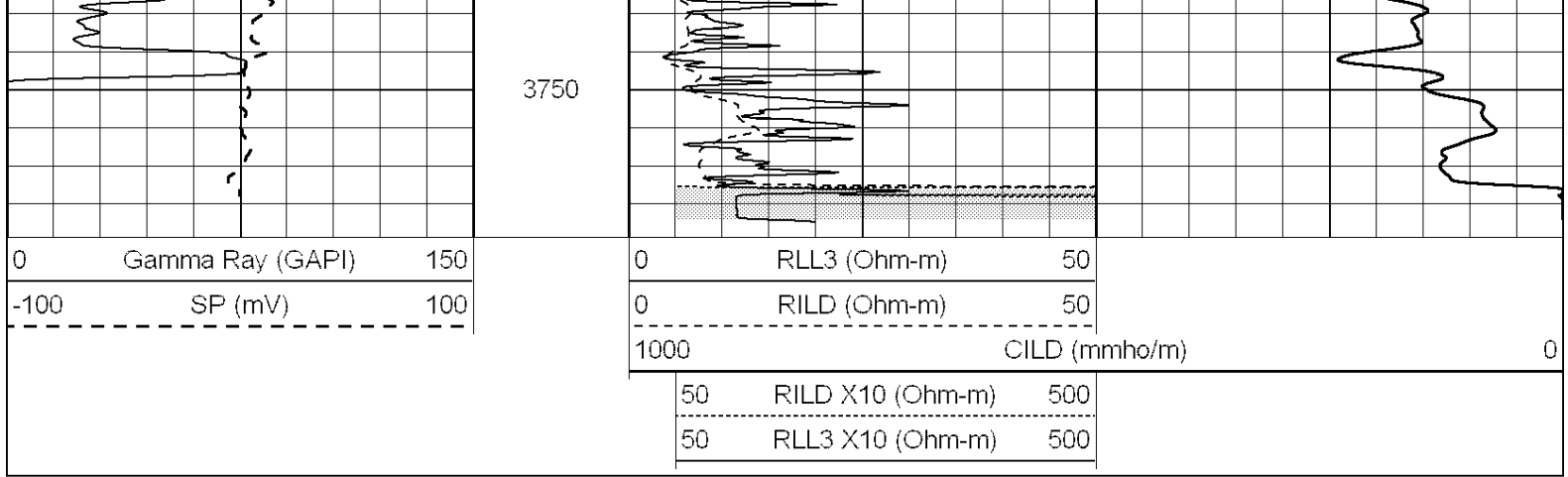
3100

3150



3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700





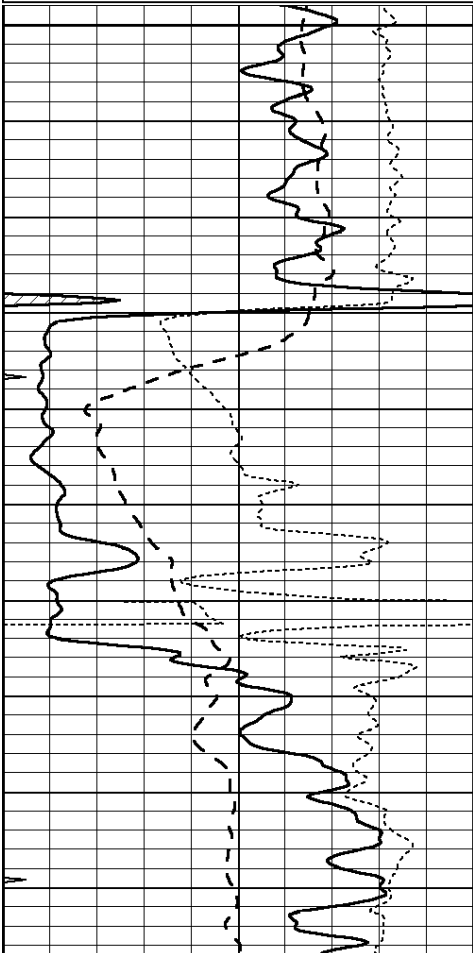
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ANHYDRITE

Database File: 22274pe.db
 Dataset Pathname: pass3.7
 Presentation Format: _dil
 Dataset Creation: Sat Mar 29 10:19:41 2014
 Charted by: Depth in Feet scaled 1:240

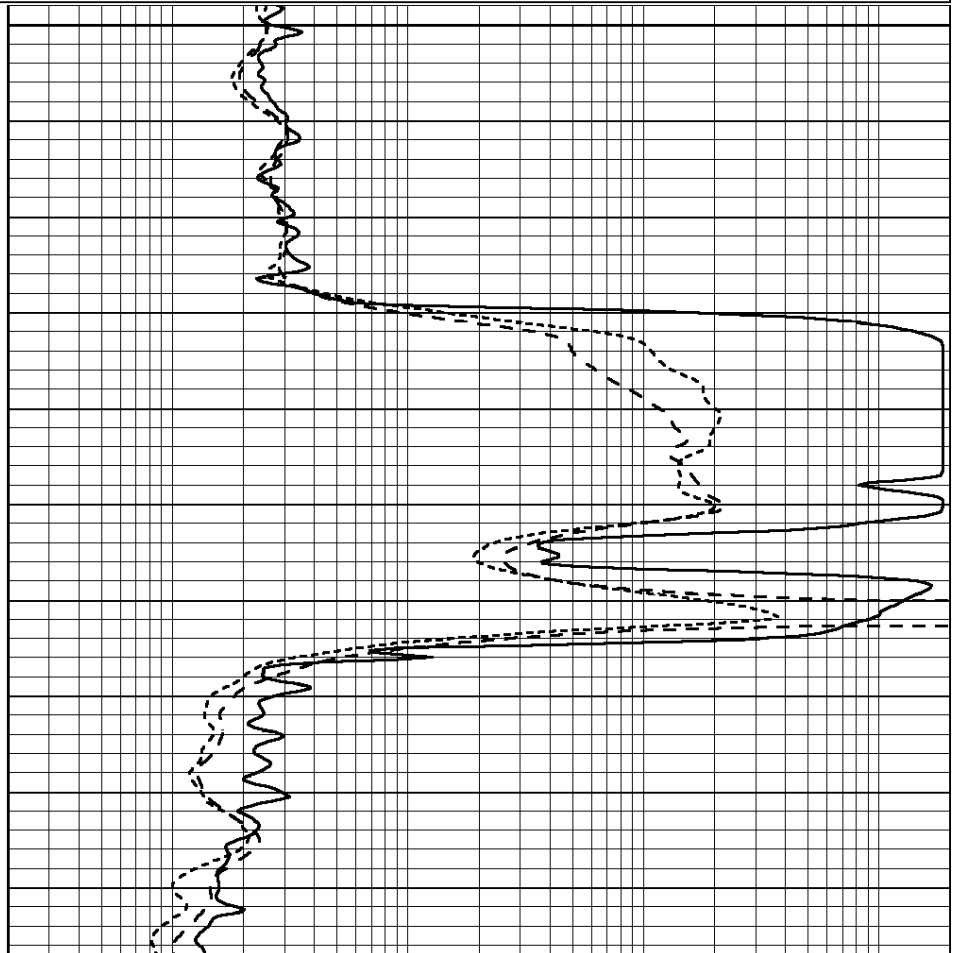
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



1300

1350



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

1400

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

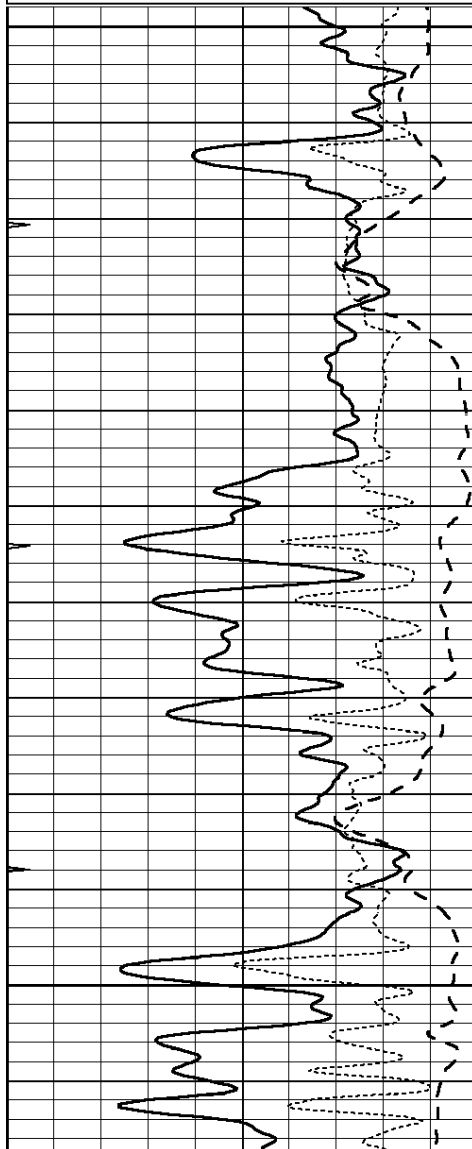


MAIN SECTION

Database File: 22274pe.db
 Dataset Pathname: pass3.6
 Presentation Format: _dil
 Dataset Creation: Sat Mar 29 10:19:24 2014
 Charted by: Depth in Feet scaled 1:240

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

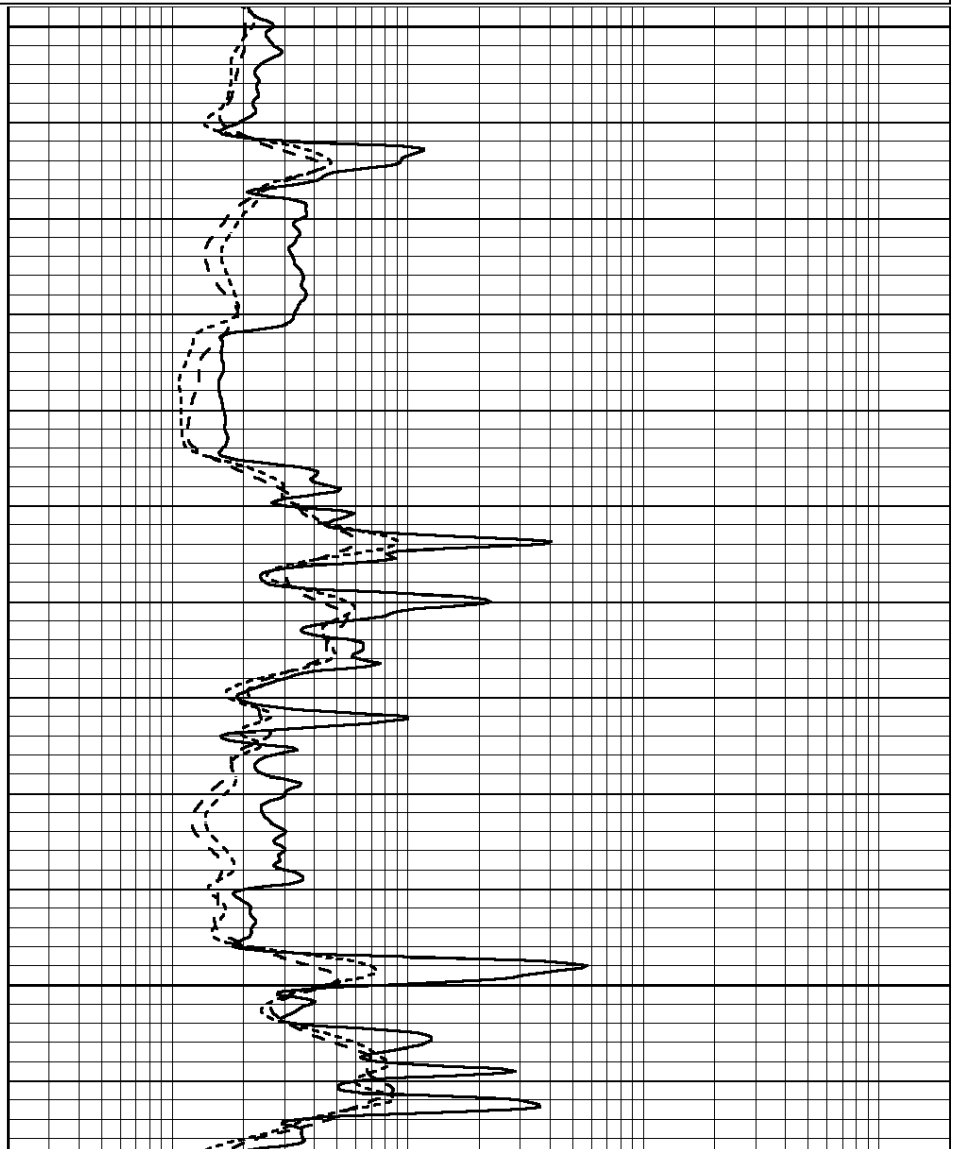
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

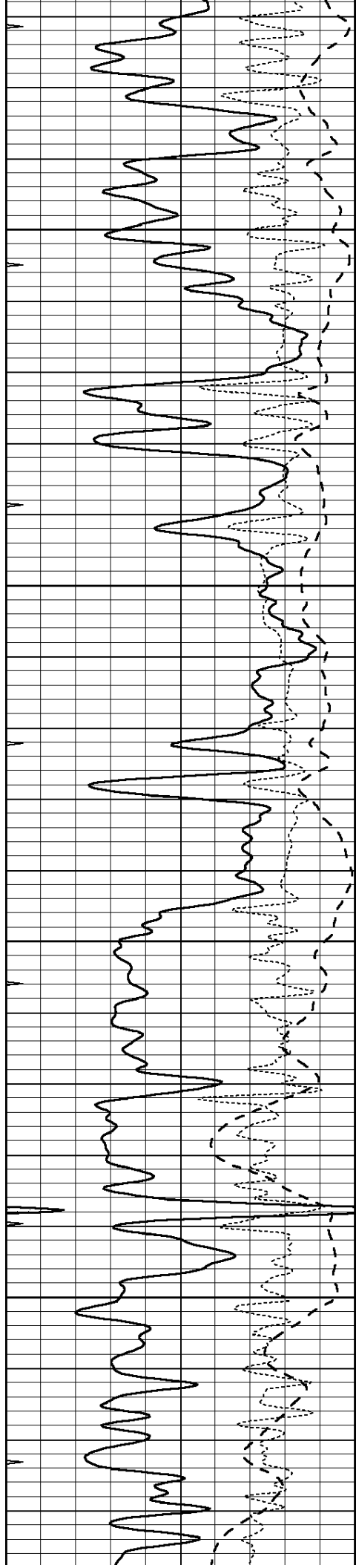


2800

2850

2900



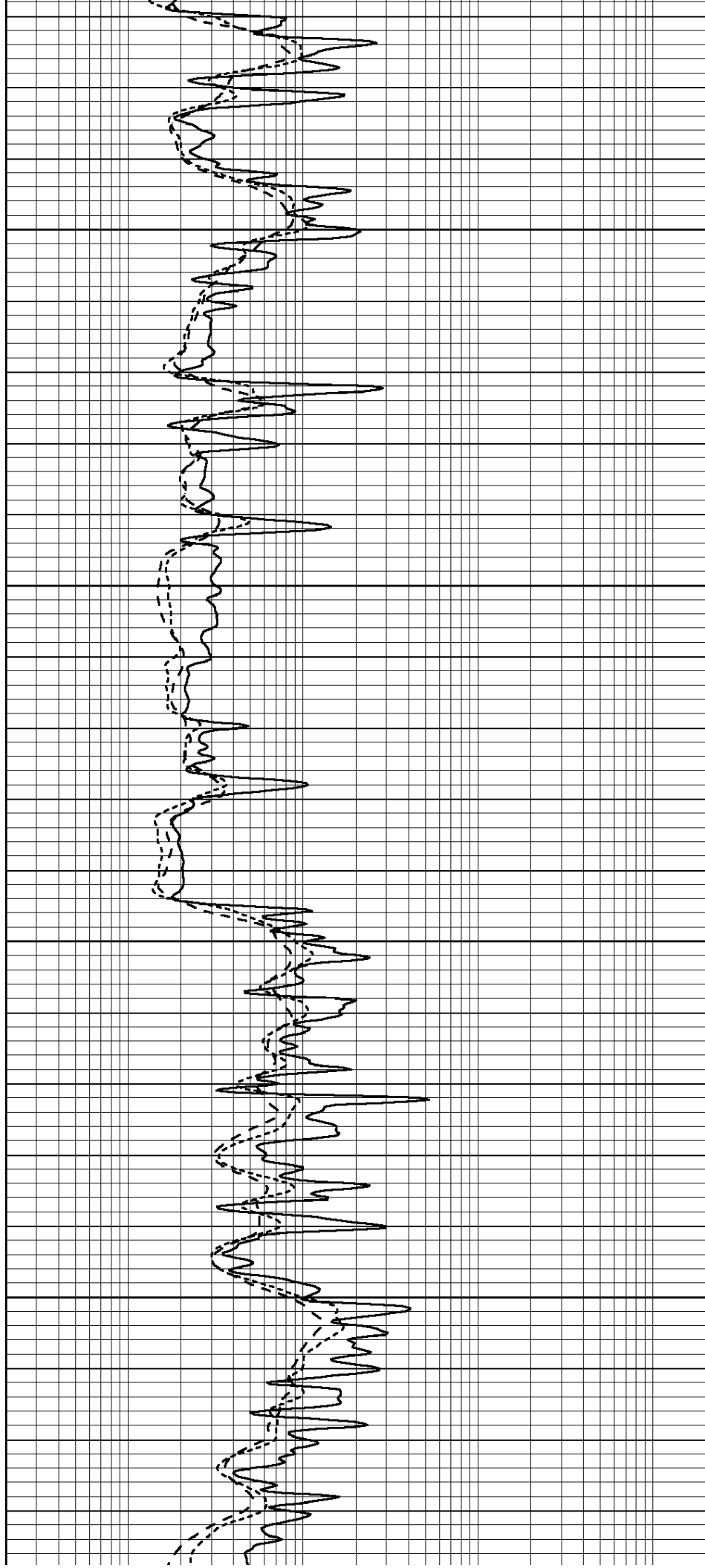


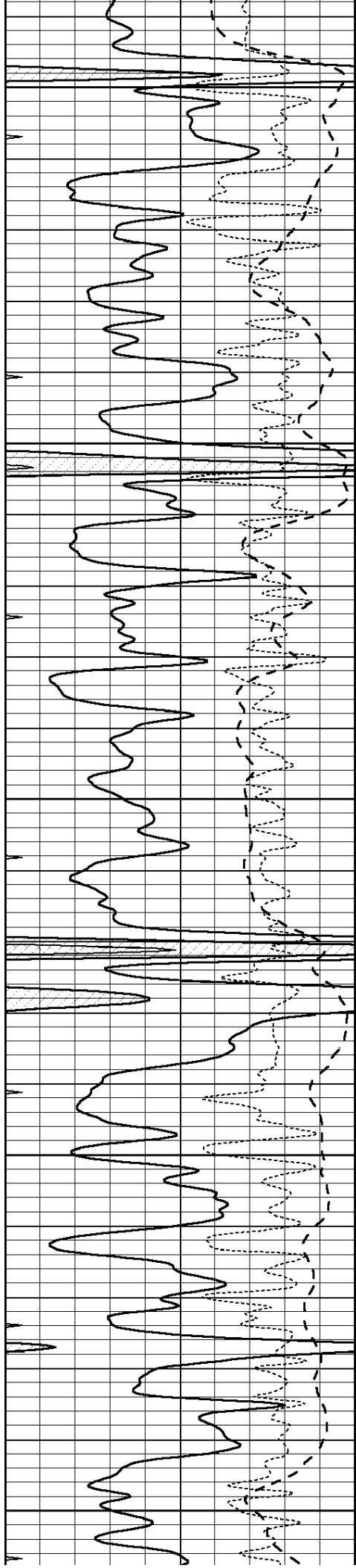
2950

3000

3050

3100





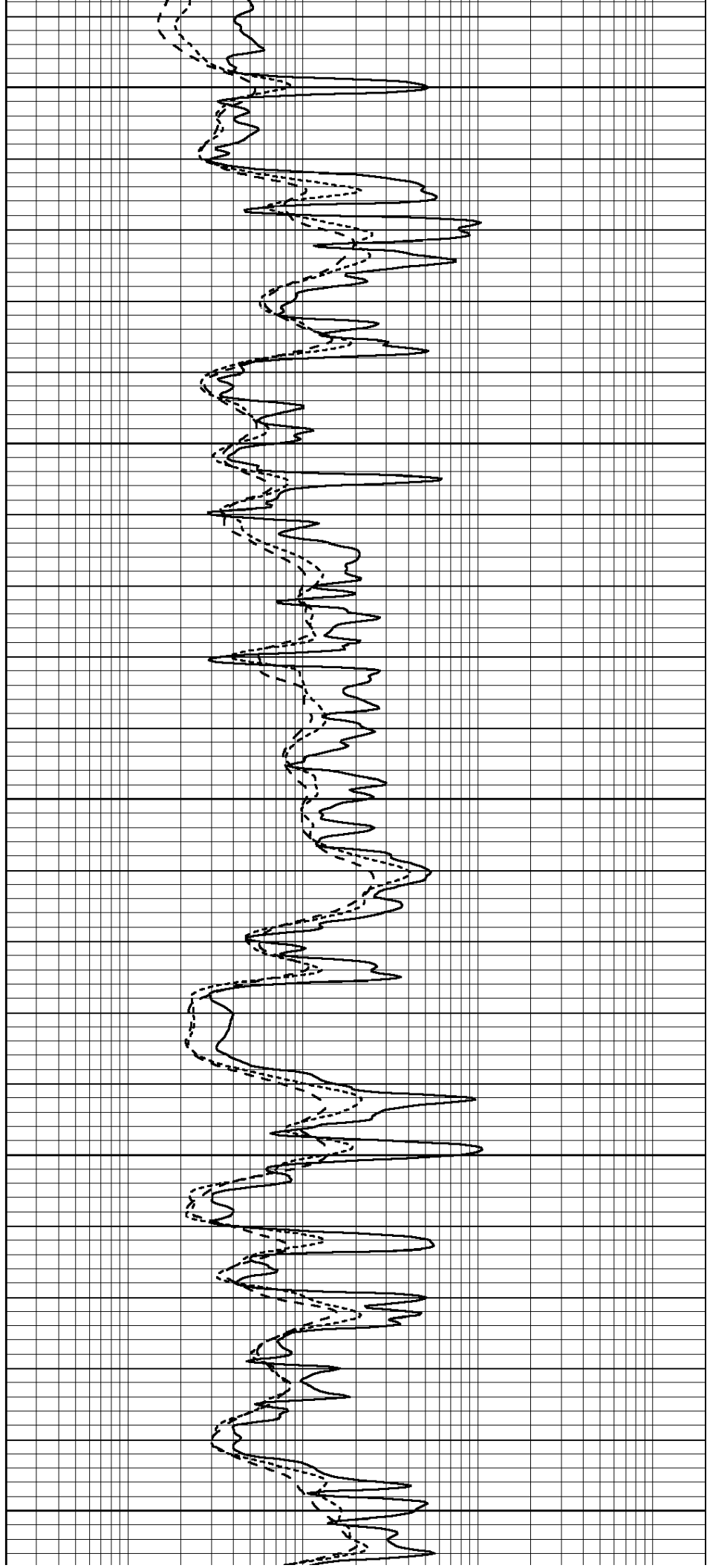
3150

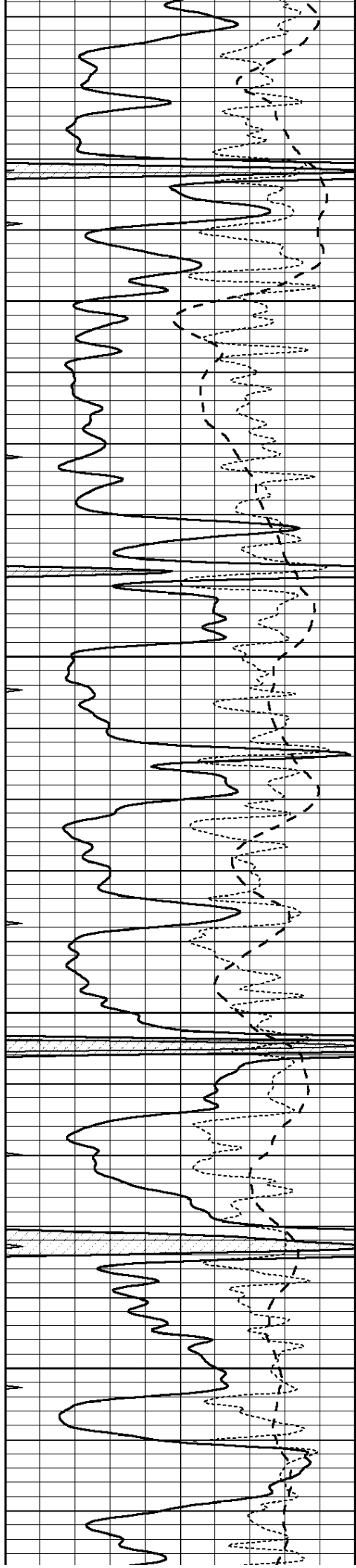
3200

3250

3300

3350



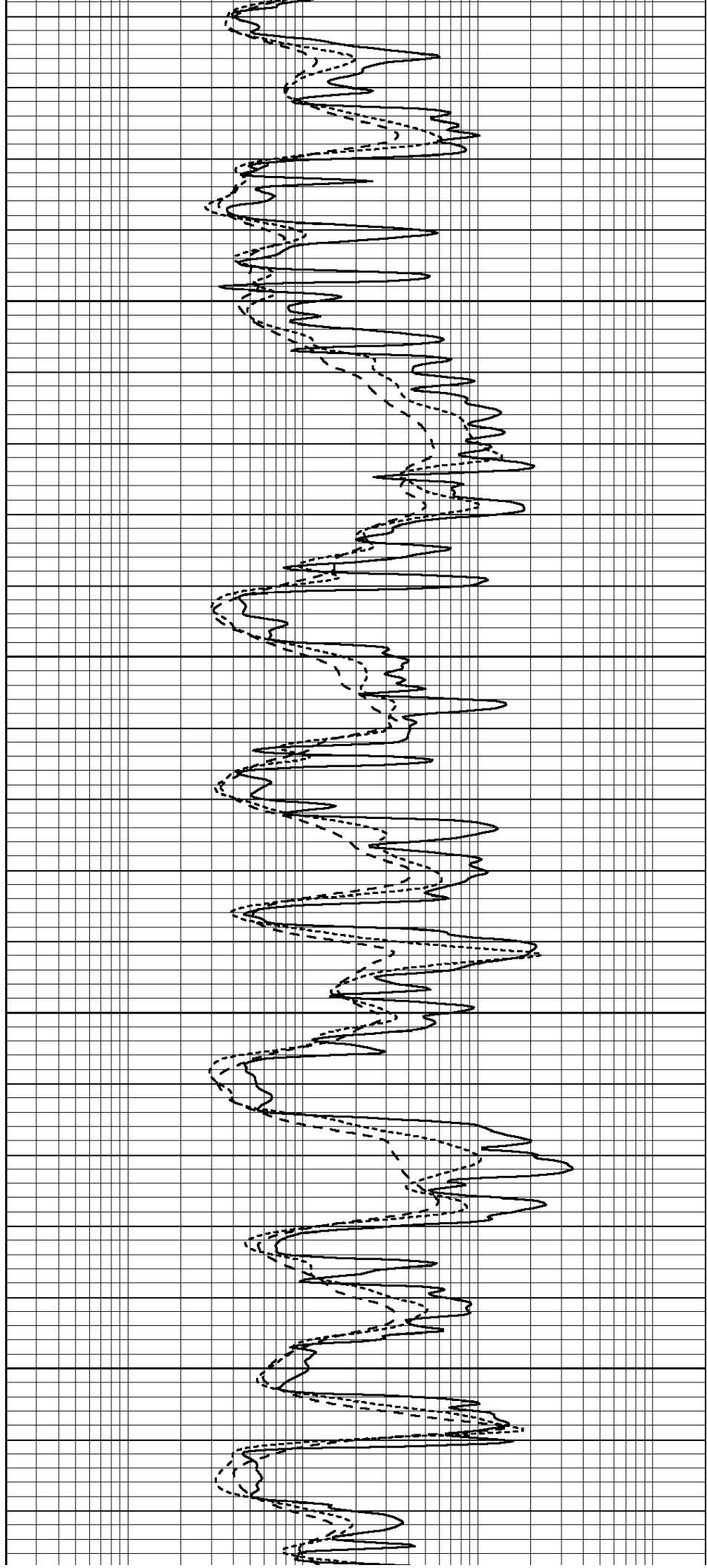


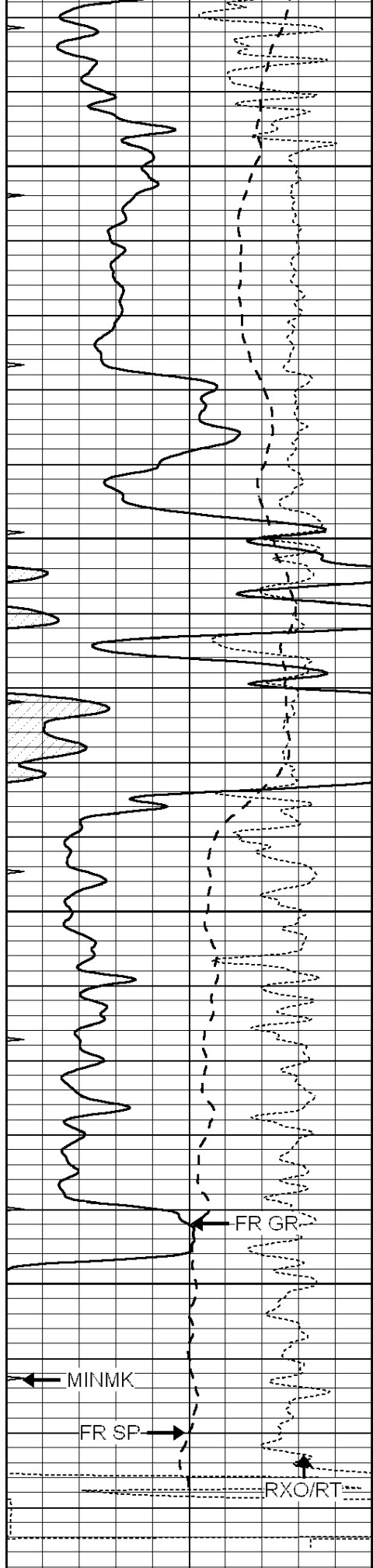
3400

3450

3500

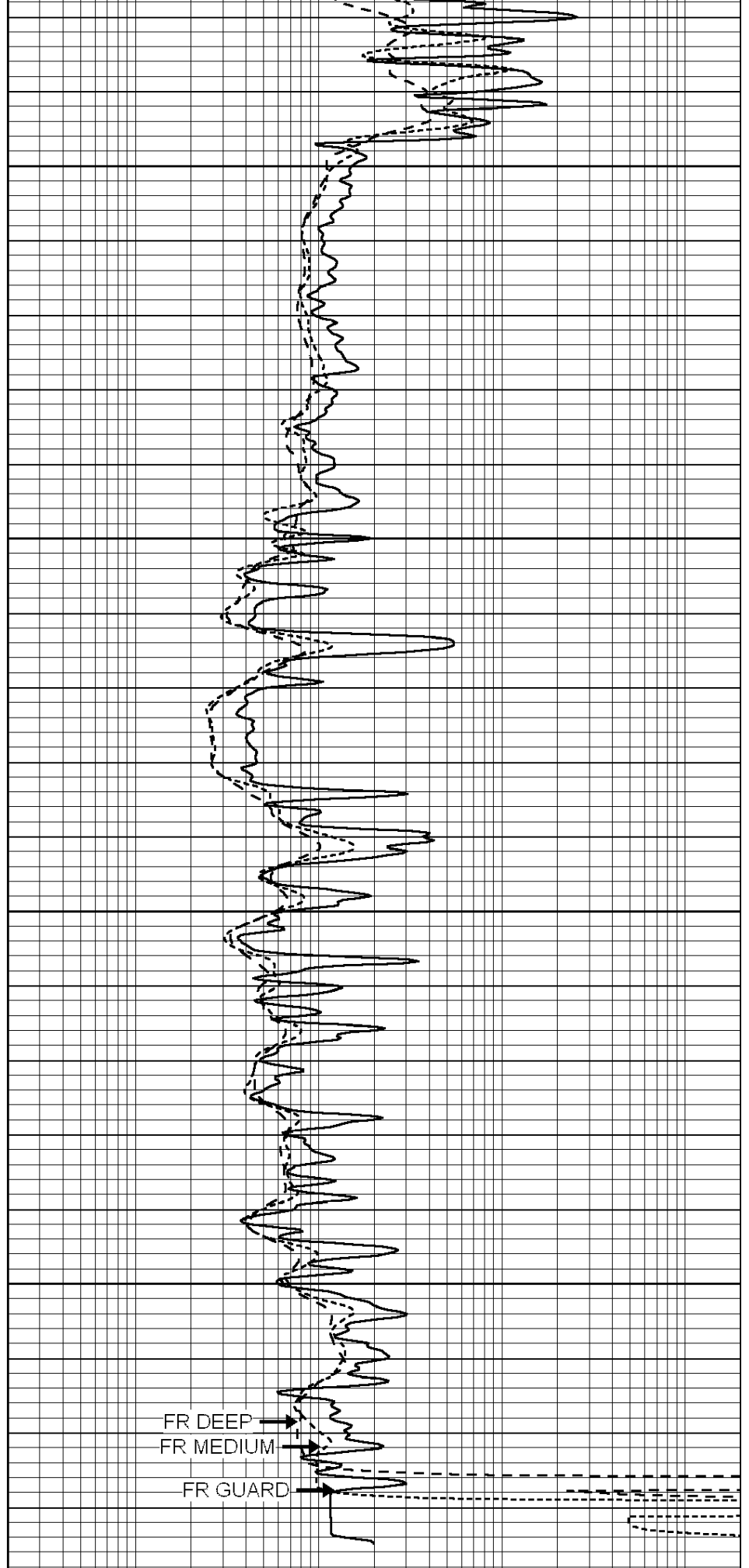
3550





3600
 3650
 3700
 3750
 LTD 3780

0 GAMMA RAY (GAPI) 150
 -100 SP (mV) 100



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

-250	Rxo/Rt	50
0	MINMK	20

0.2 MEDIUM INDUCTION (Ohm-m) 2000



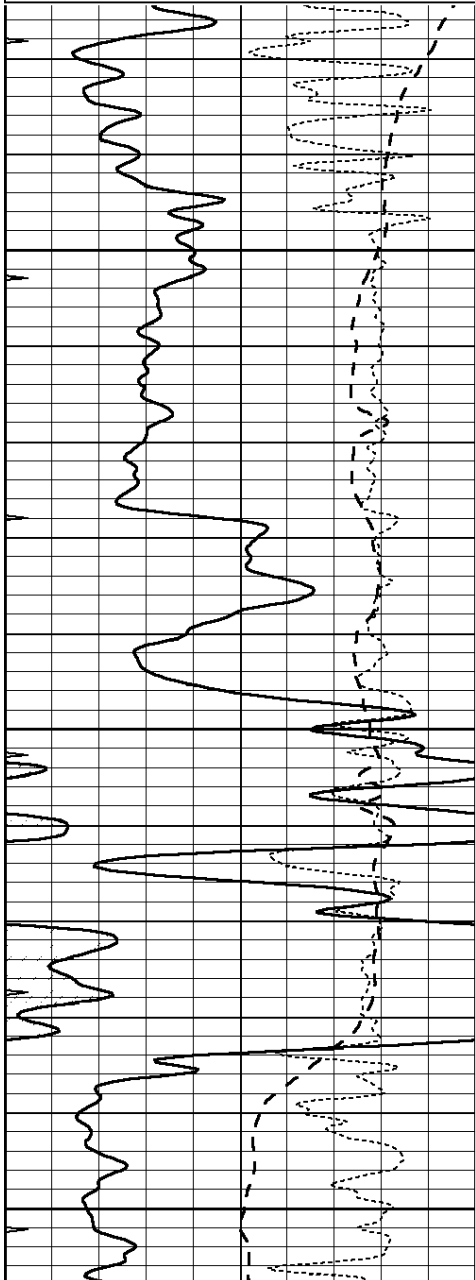
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REPEAT SECTION

Database File: 22274pe.db
 Dataset Pathname: pass2.3
 Presentation Format: _dil
 Dataset Creation: Sat Mar 29 10:20:52 2014 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

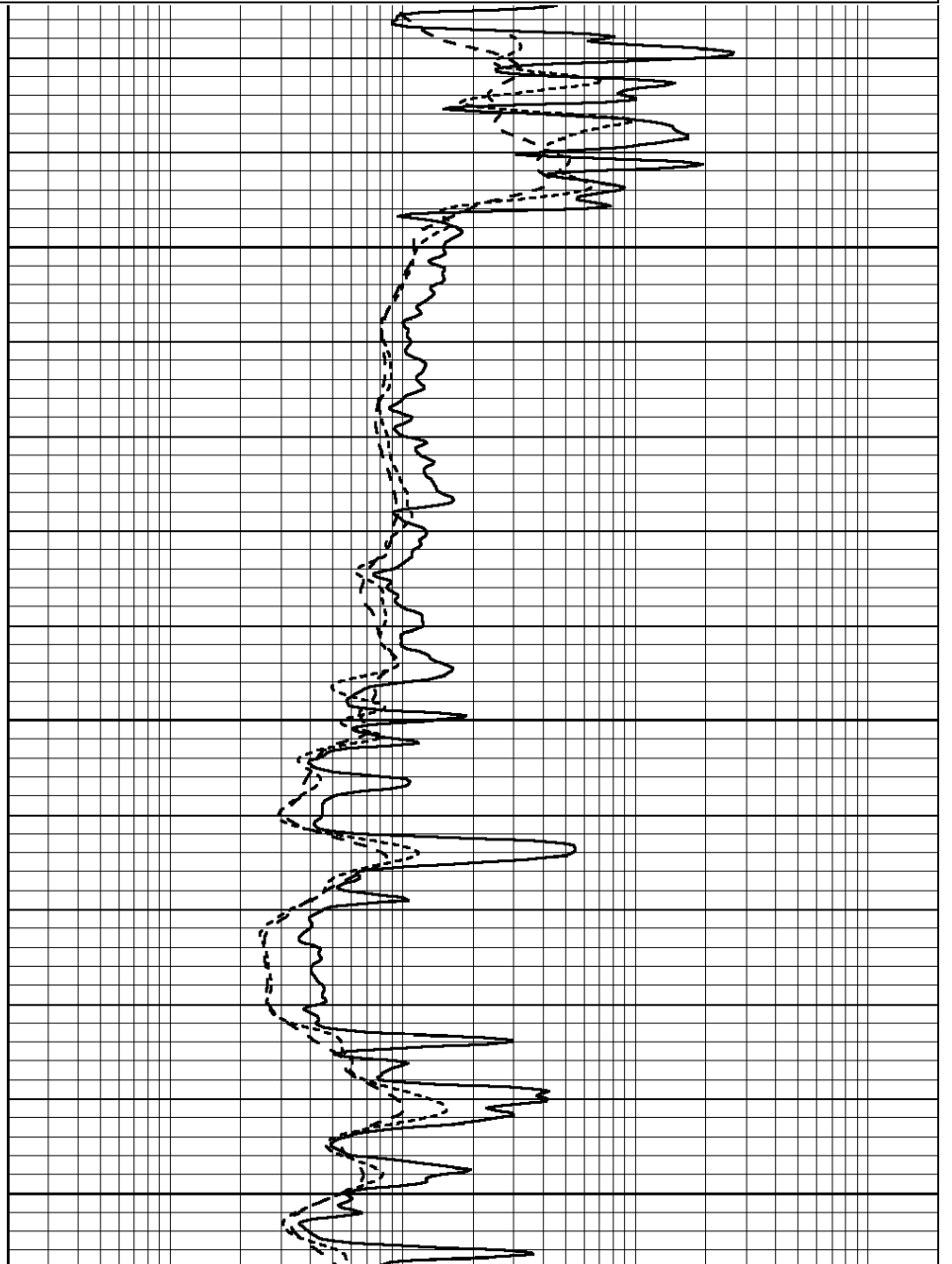
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

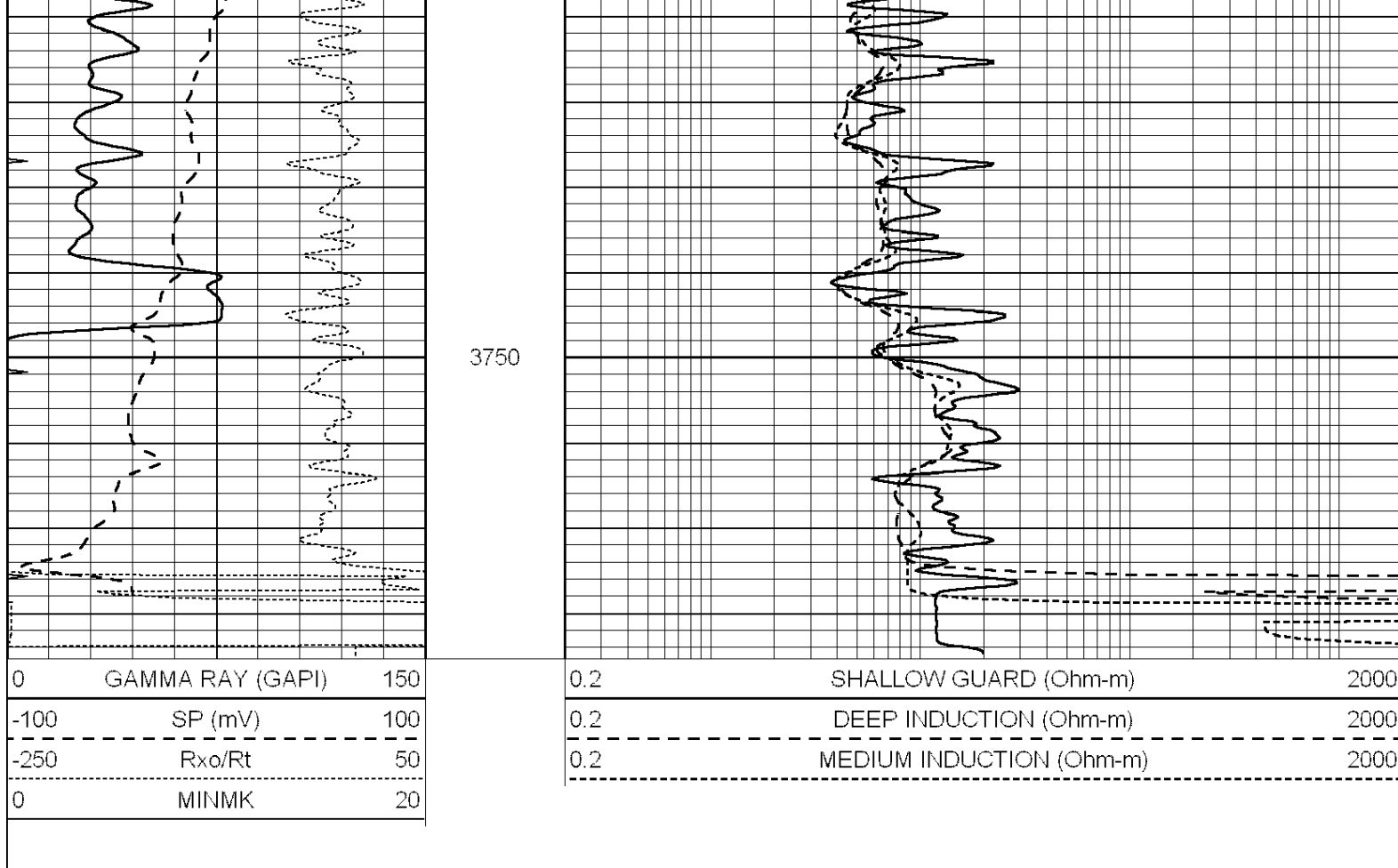


3600

3650

3700





Calibration Report

Database File: 22274pe.db
 Dataset Pathname: pass3.6
 Dataset Creation: Sat Mar 29 10:19:24 2014

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Sat Mar 08 04:15:46 2014
 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	650.000	-16.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	660.000	-31.000
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 Tue Sep 08 14:14:44 2009				
	Background	Magnesium	Aluminum	Sandstone		
Window 1	2042.6	12312.8	4225.8	13758.4	cps	
Window 2	1855.8	10134.7	3624.2	11113.1	cps	
Window 3	1639.4	6760.2	2716.3	7260.3	cps	
Window 4	466.4	469.2	466.1	476.5	cps	
Long Space	0.0	8278.9	1768.4	9257.4	cps	
Short Space	2.2	2377.3	1544.1	2574.2	cps	
Rho		1.7100	2.5900	1.3800	g/cc	
Pe		0.0000	2.5700	1.5500		
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio	: 0.549	
Spine Angle	: 74.4	Spine Slope	: 3.577	Spine Intercept	: -18.8	

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:	070558		
Tool Model:	OPEN_GR		
Performed:	Mon Mar 24 01:53:40 2014		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	