



SUPERIOR
Hays,
Kansas

**DUAL
INDUCTION
LOG**

Company HERMAN L. LOEB, LLC
Well REDETZKE #5-22
Field HALLET
County HODGEMAN
State KANSAS

Company HERMAN L. LOEB, LLC
Well REDETZKE #5-22
Field HALLET
County HODGEMAN State KANSAS

Location: API # : 15-083-21826-0000
1070' FNL & 1520' FEL
SE - SE - NW - NE
SEC 22 TWP 22S RGE 25W
Permanent Datum GROUND LEVEL Elevation 2519
Log Measured From KELLY BUSHING 11' A.G.L.
Drilling Measured From KELLY BUSHING
Elevation
K.B. 2530
D.F. 2528
G.L. 2519

Date	8/16/12
Run Number	ONE
Depth Driller	4720
Depth Logger	4720
Bottom Logged Interval	4718
Top Log Interval	0
Casing Driller	8 5/8" @ 583
Casing Logger	581
Bit Size	7 7/8
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4/52
pH / Fluid Loss	10.5/8.8
Source of Sample	FLOWLINE
Rin @ Meas. Temp	0.80 @ 81F
Rmf @ Meas. Temp	0.60 @ 81F
Rmc @ Meas. Temp	0.96 @ 81F
Source of Rmf / Rmc	MEASURED
Rin @ BHT	0.52 @ 122F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	
Maximum Recorded Temperature	122F
Equipment Number	680
Location	HAYS, KS.
Recorded By	JEFF GRONEMEG
Witnessed By	JON CHRISTENSEN

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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

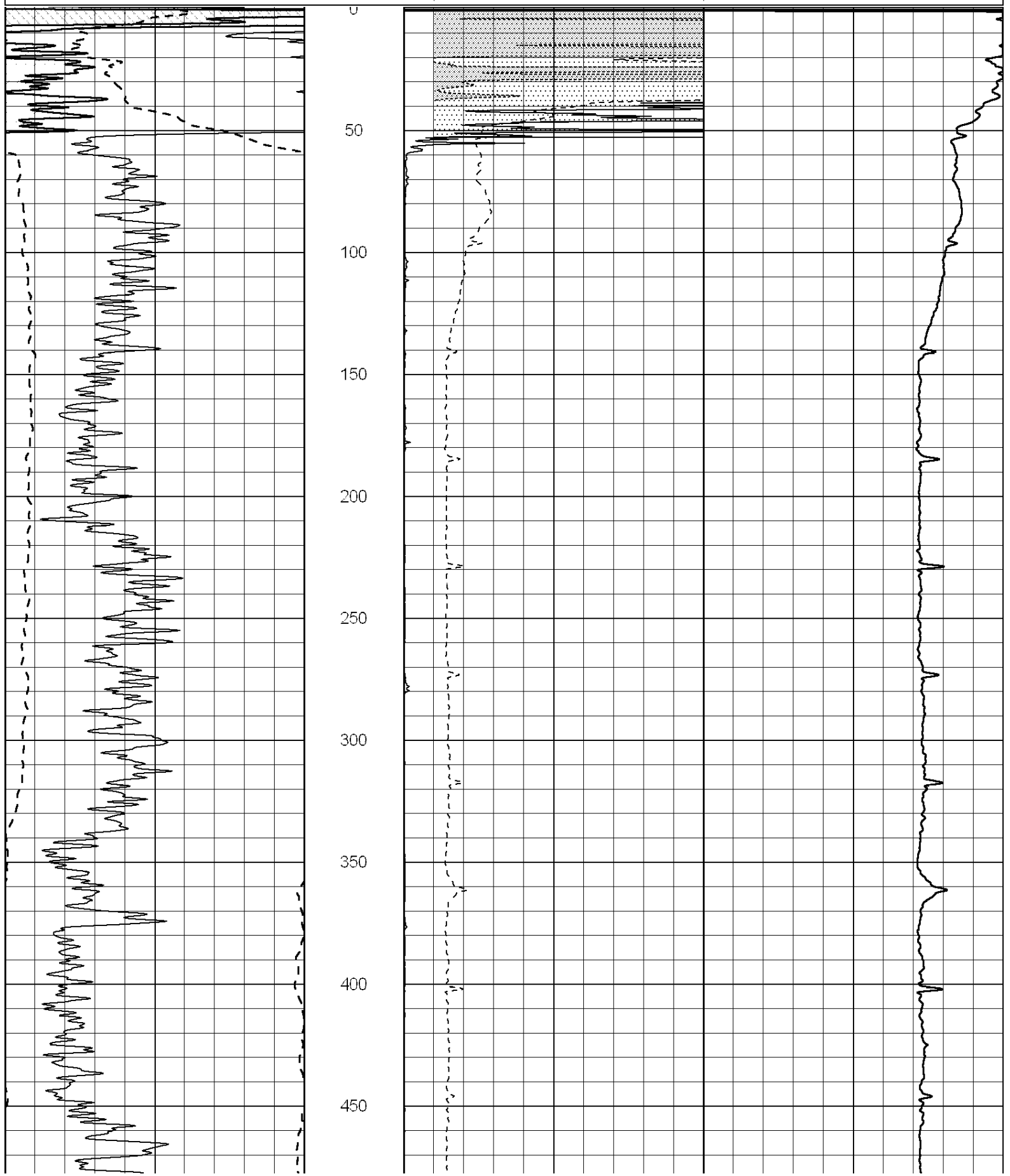
THANK YOU FOR USING SUPERIOR WELL SERVICE (785) 628-6395
DIRECTIONS
JETMORE, KS - 8 MILES WEST TO RD 210 - 3 1/2 MILES NORTH
WEST INTO

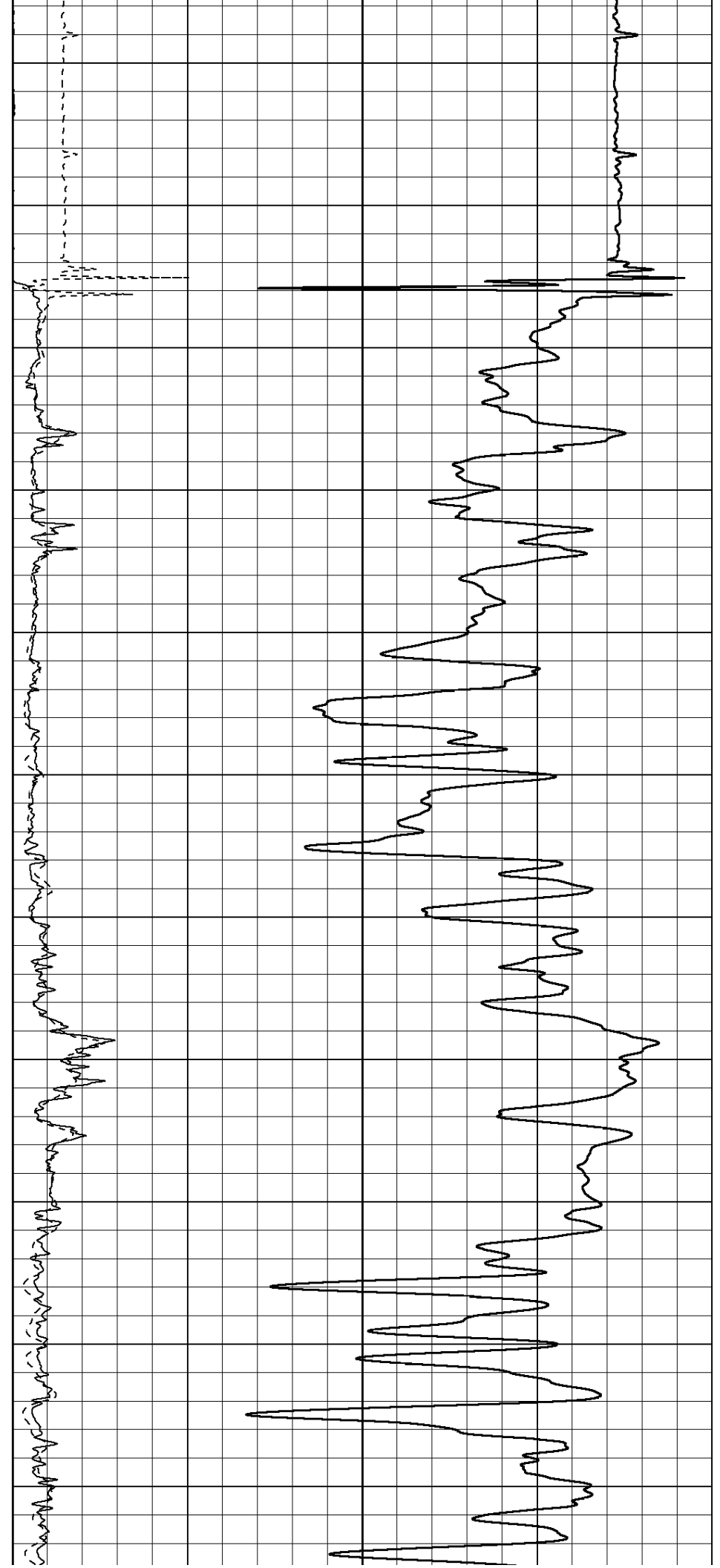
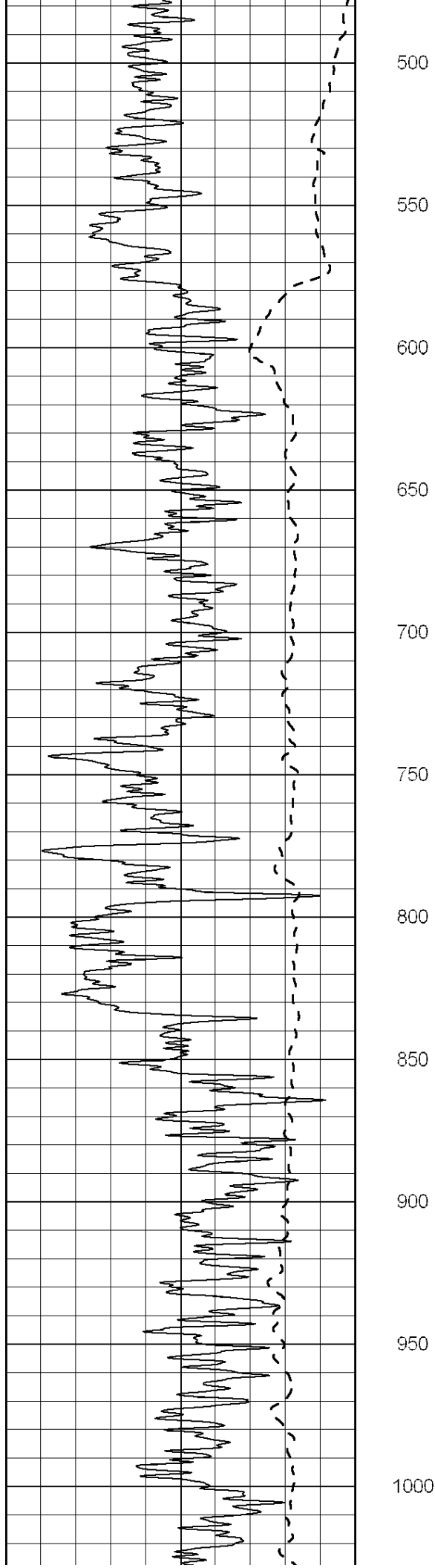
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

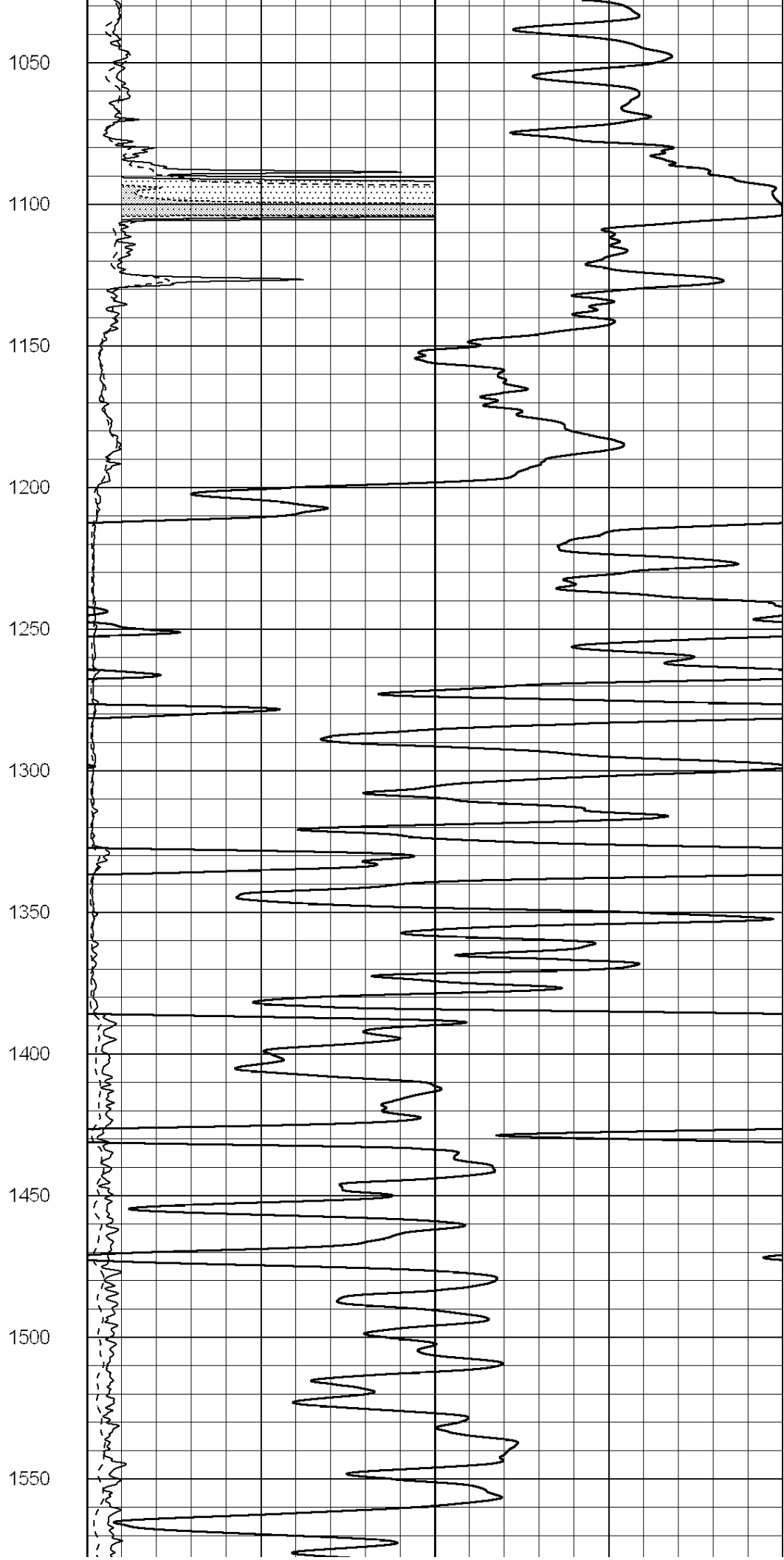
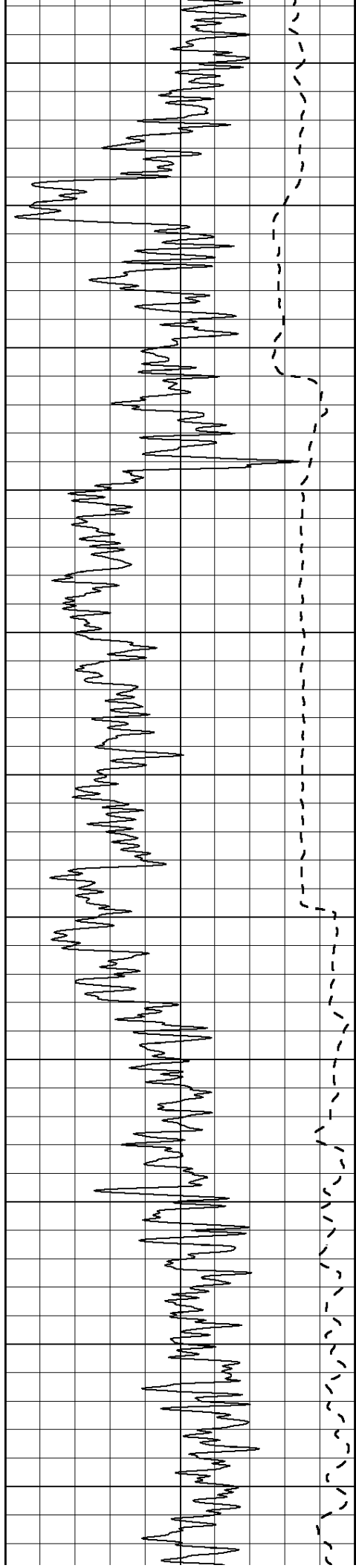
0	RLL3 (Ohm-m)	50
0	Deep Induction (Ohm-m)	50

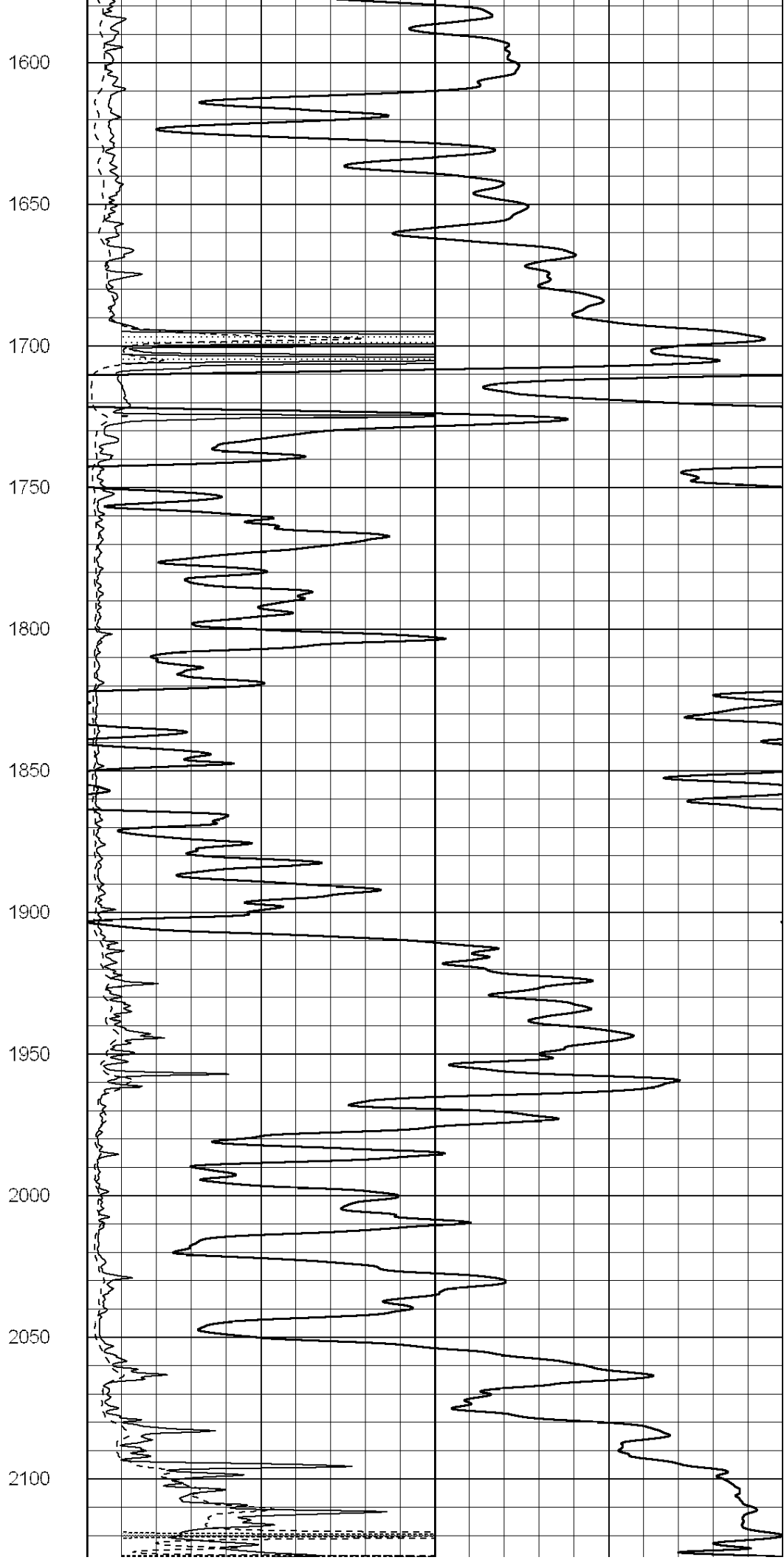
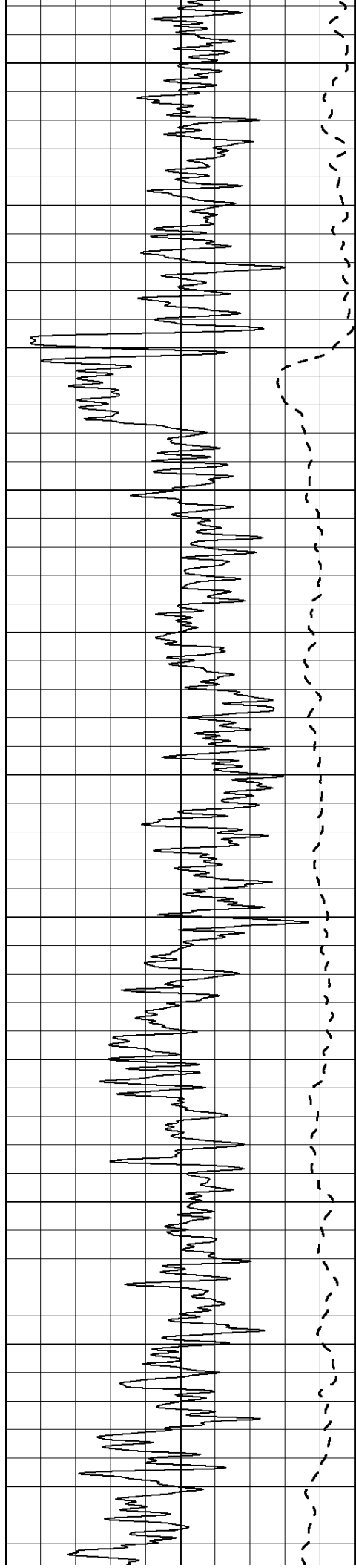
1000	CILD (mmho/m)	0
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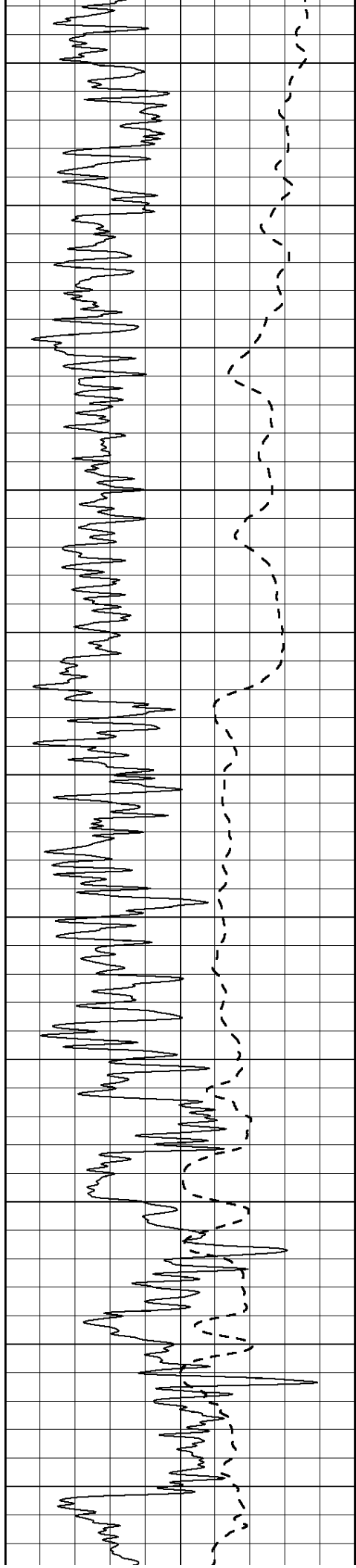
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500



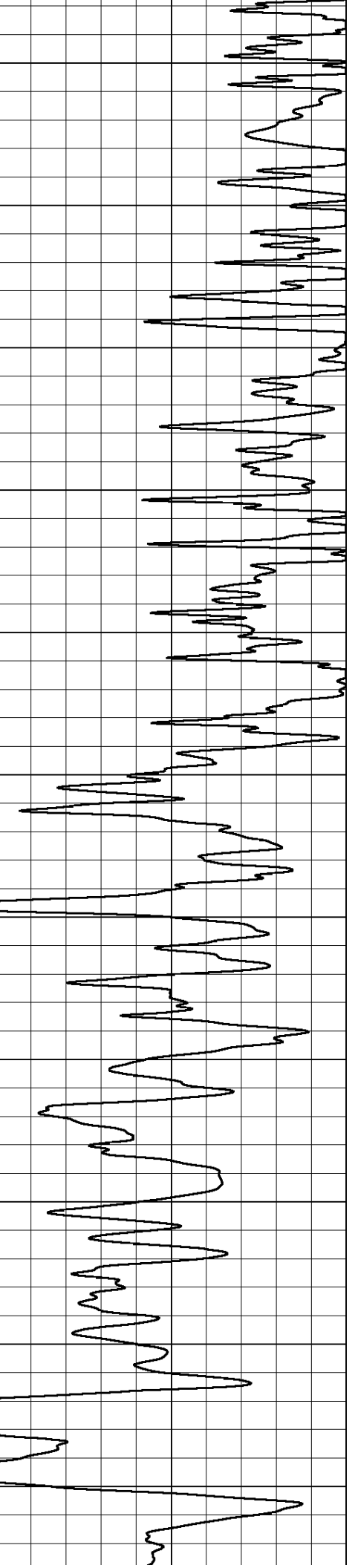
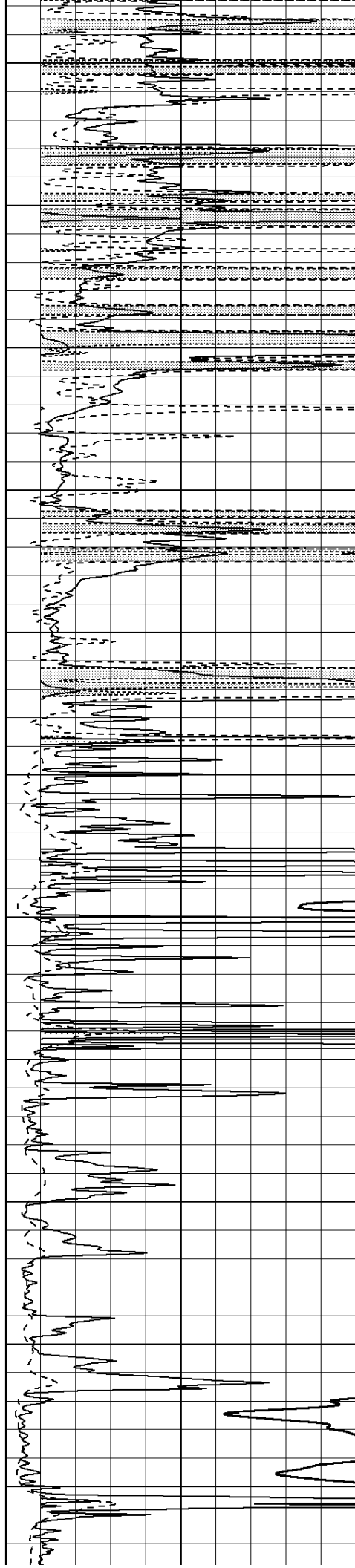


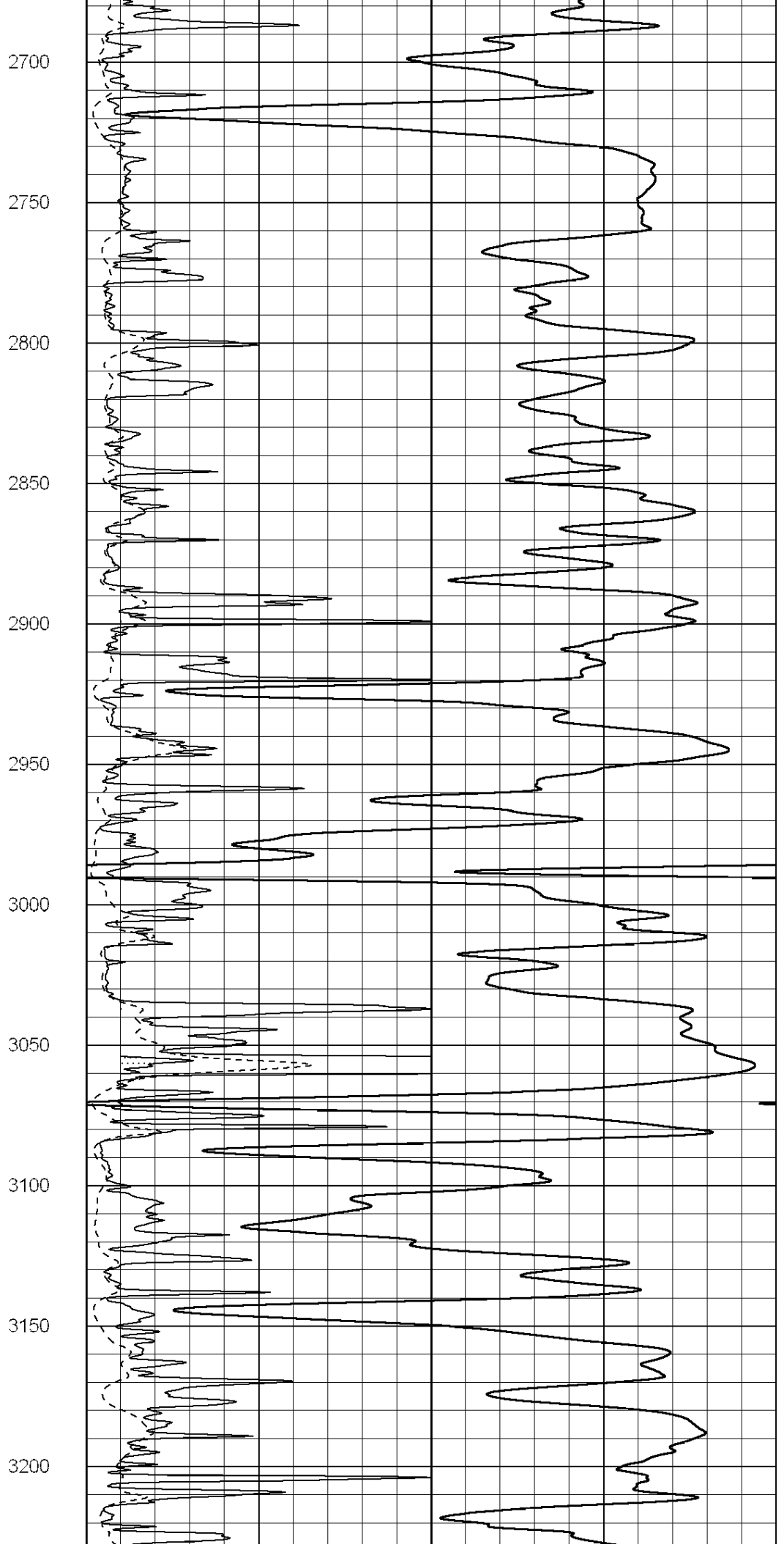
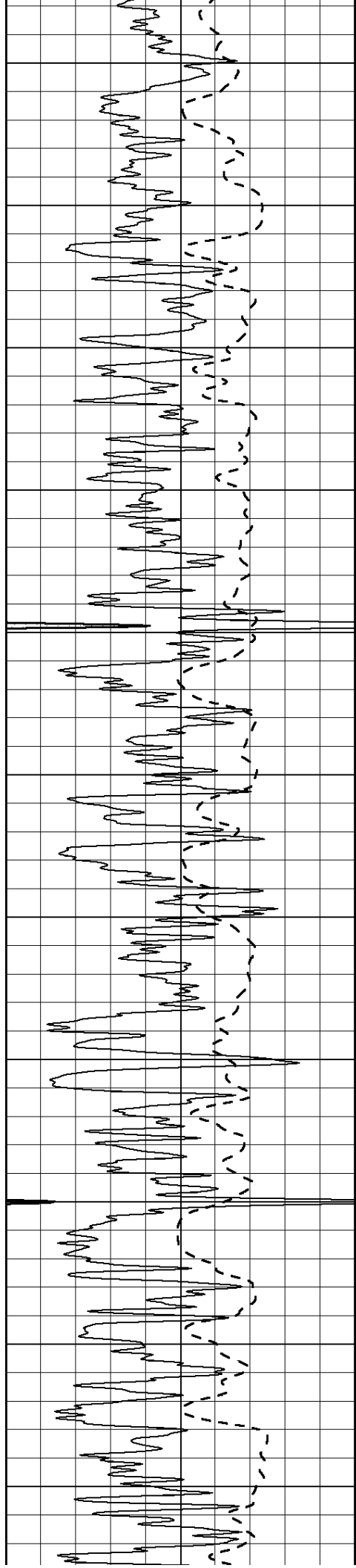


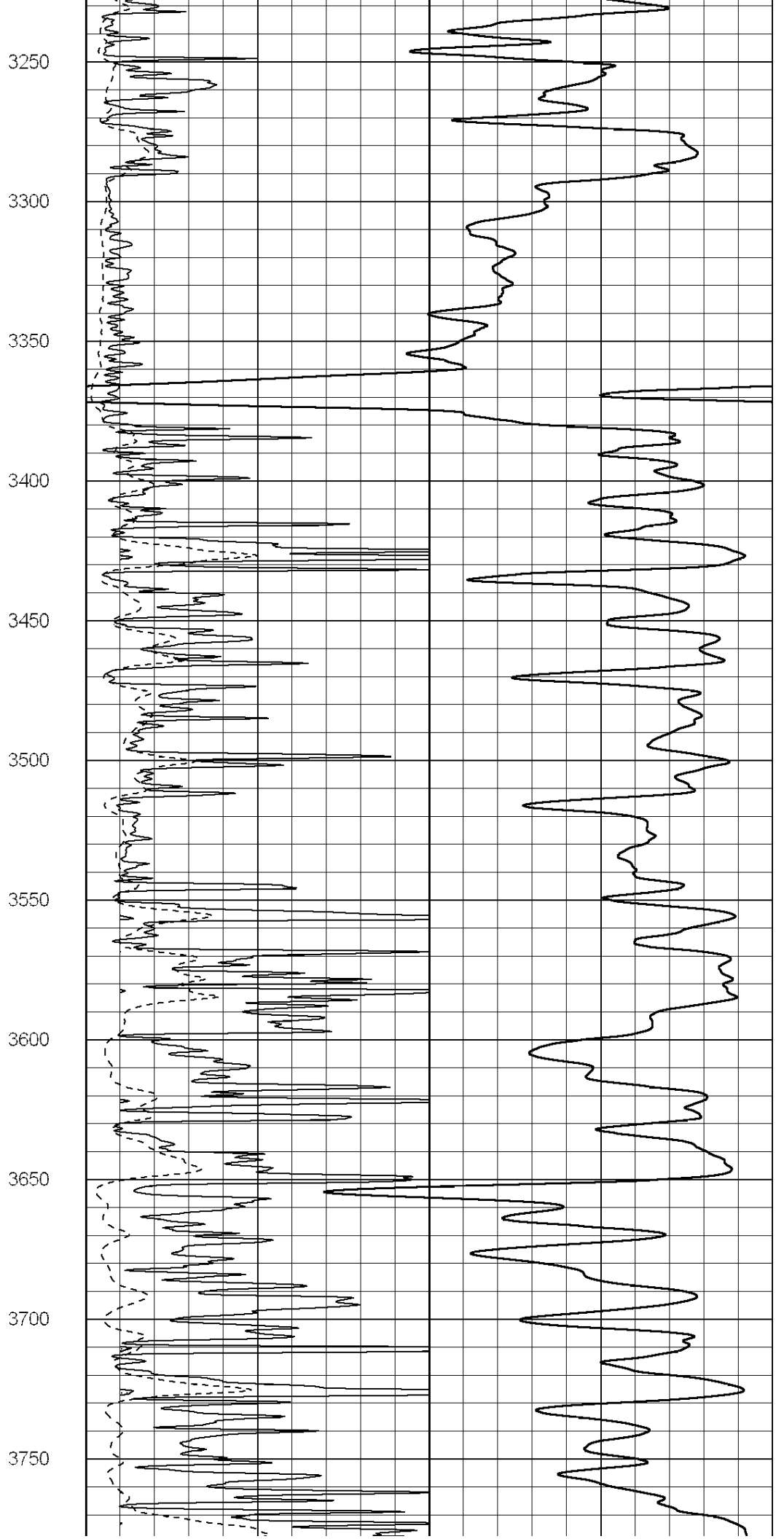
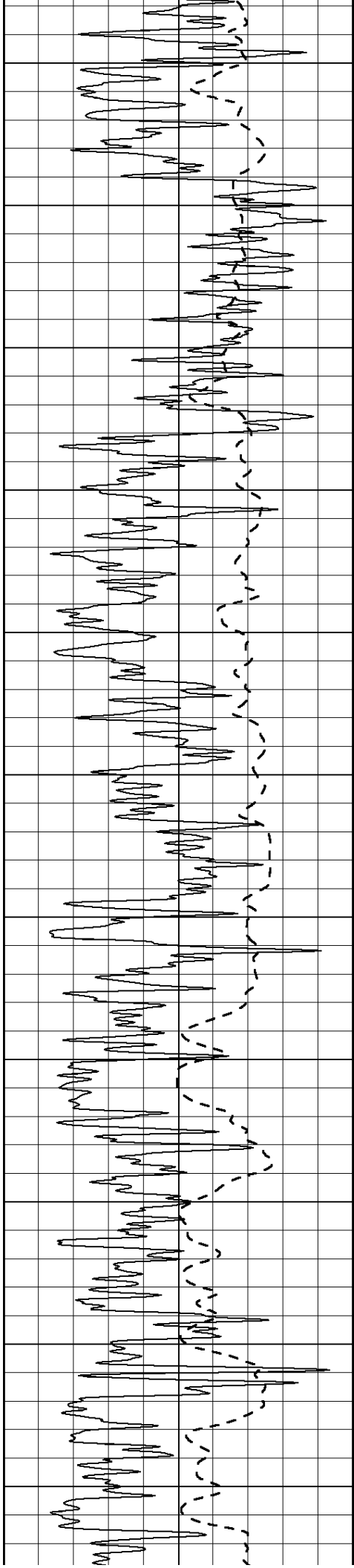


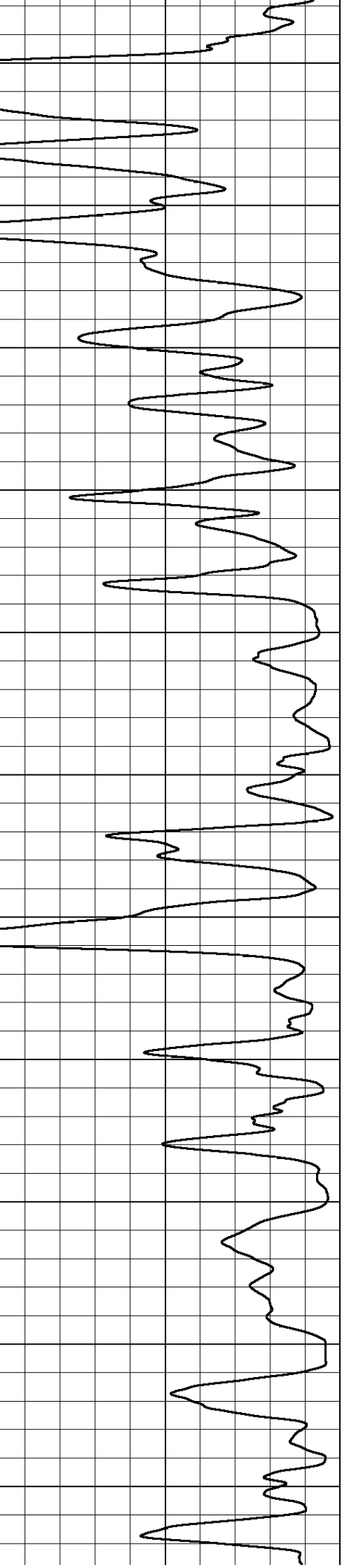
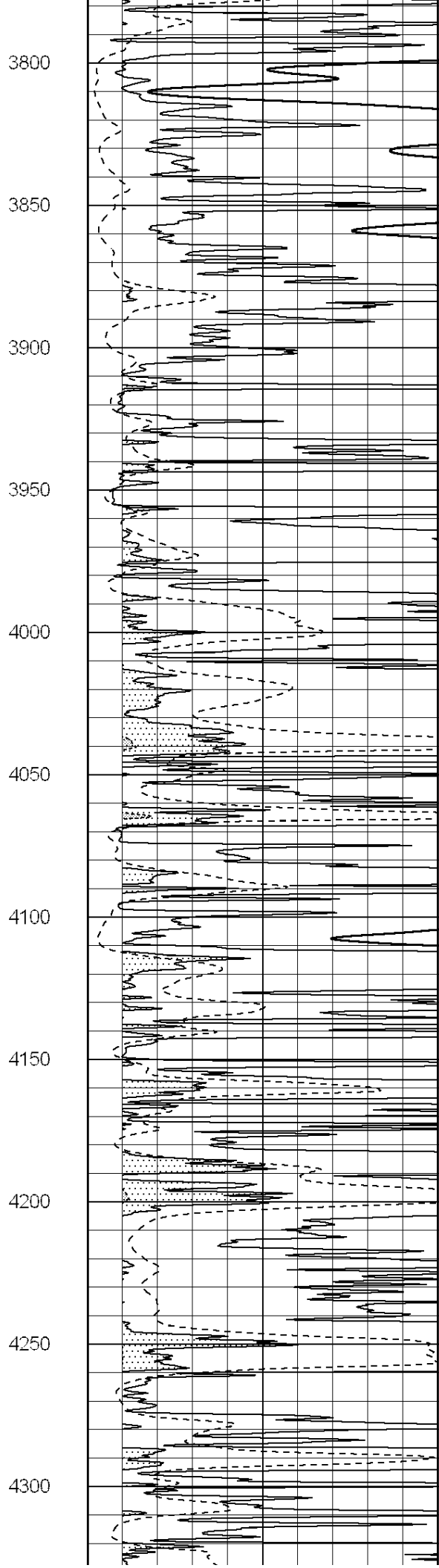
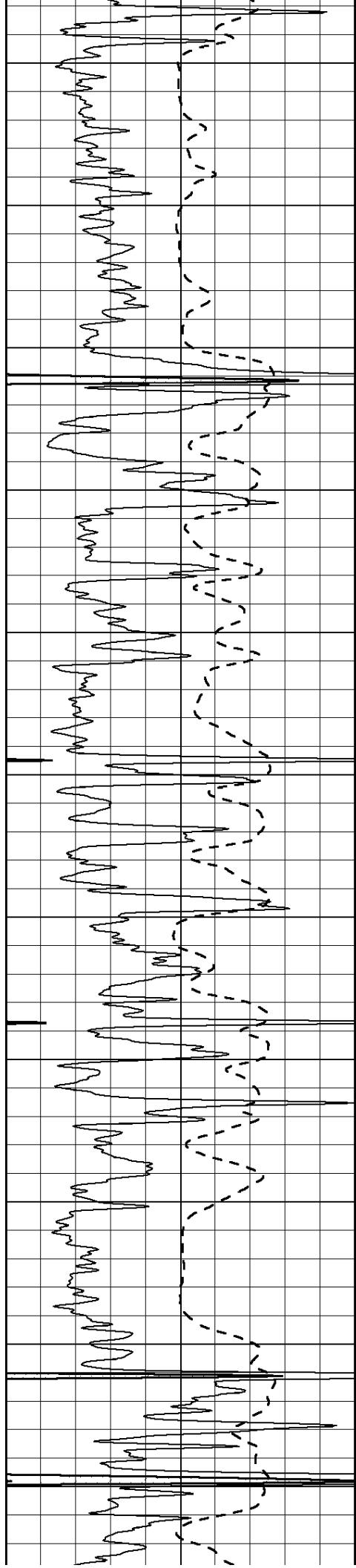


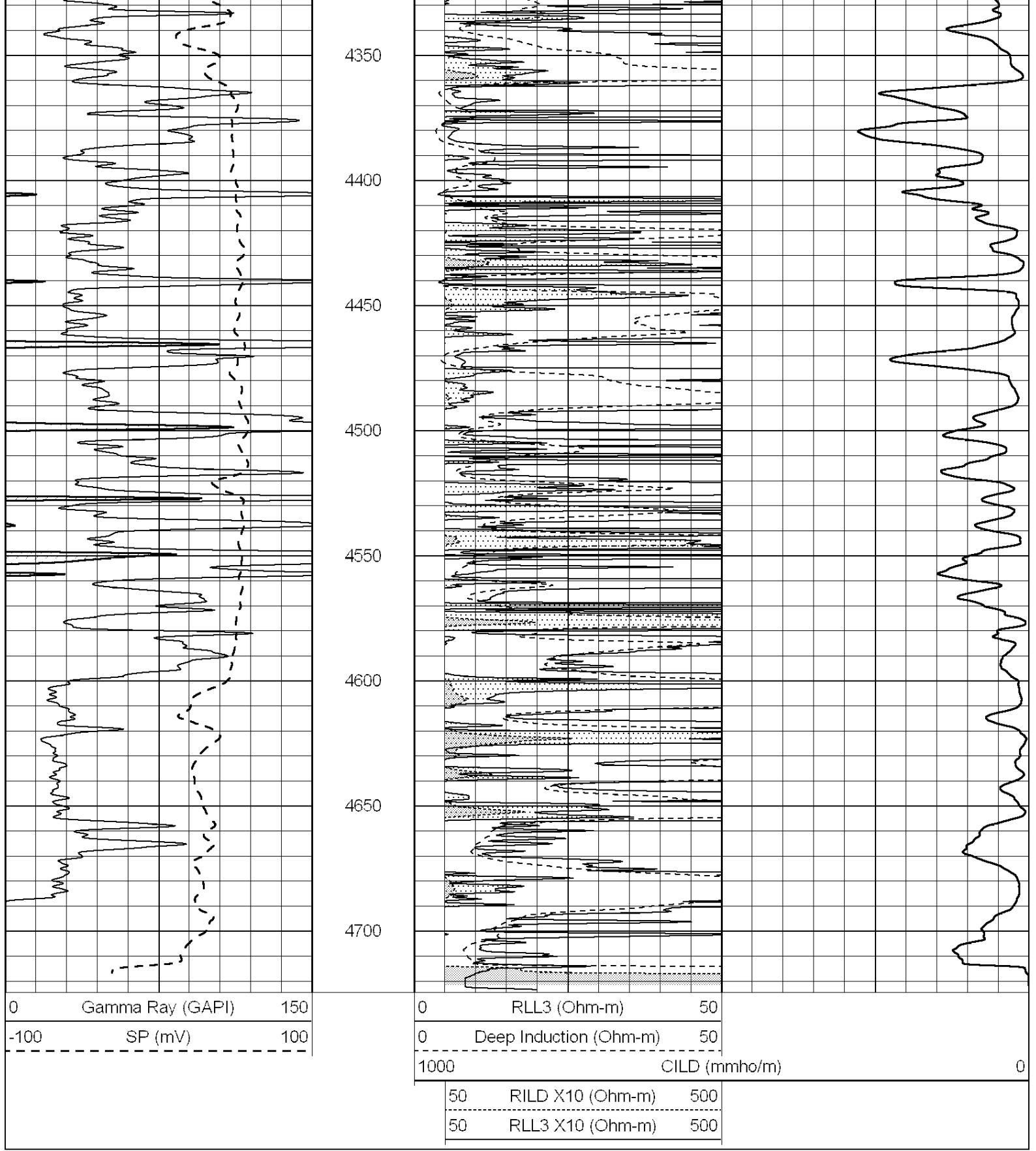
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
2650





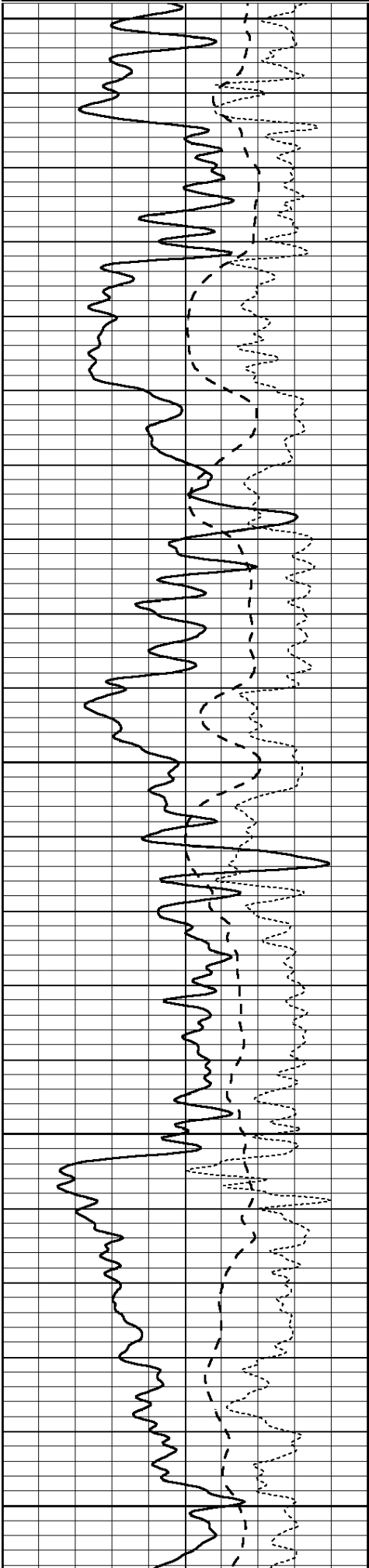






Database File: 009581pe.db
 Dataset Pathname: pass3.2
 Presentation Format: _dil
 Dataset Creation: Thu Aug 16 02:51:03 2012 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	MEDIUM INDUCTION (Ohm-m)	2000
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500		500	0.2	DEEP INDUCTION (Ohm-m)	2000



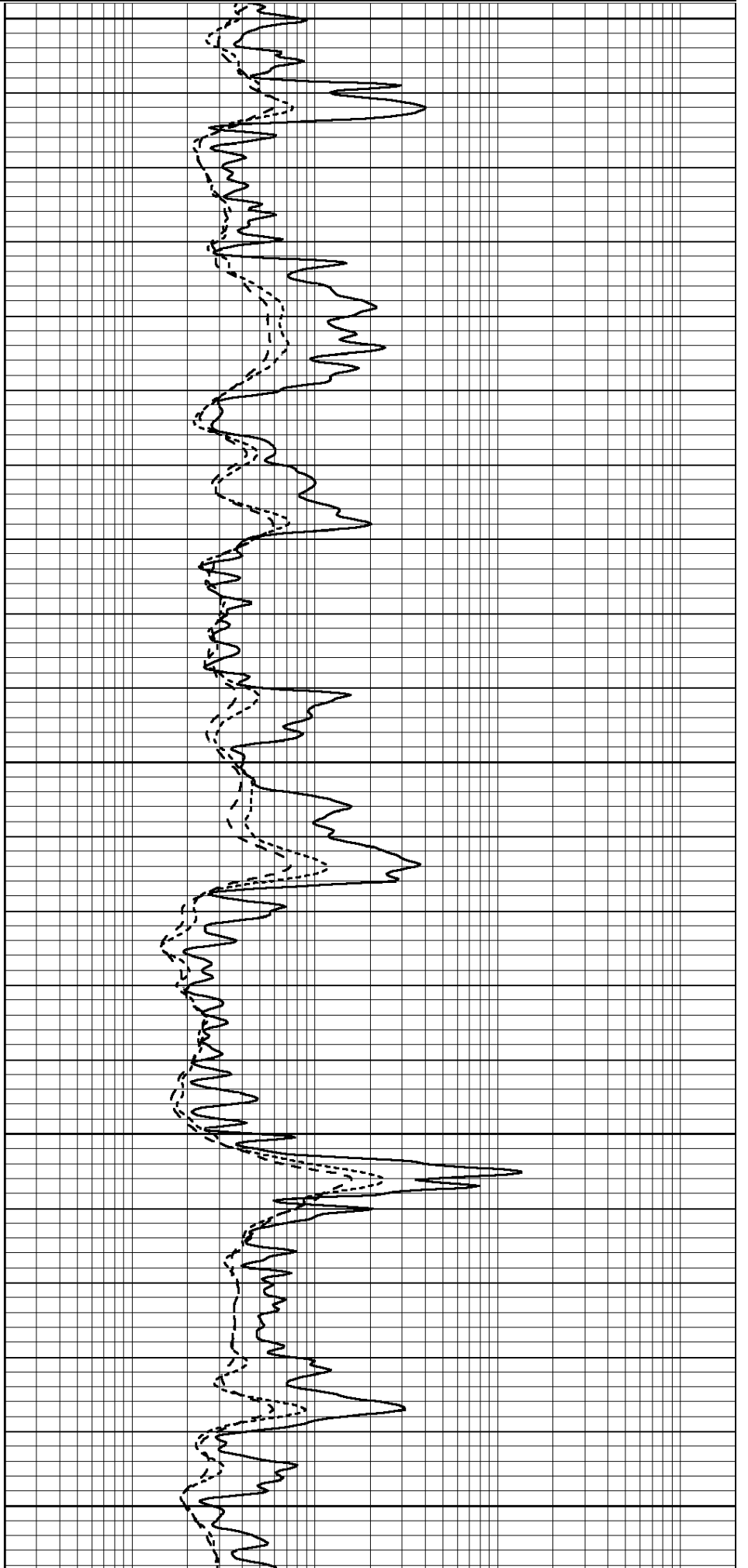
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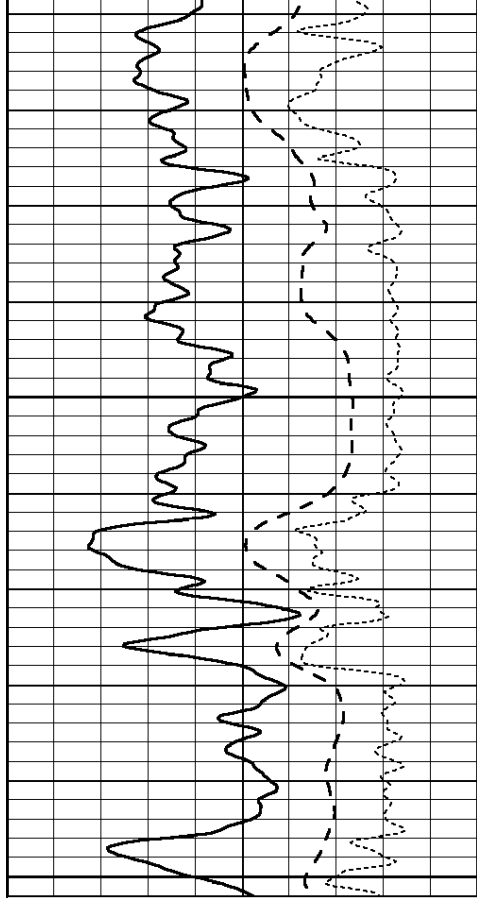
2550

2600

2650

2700

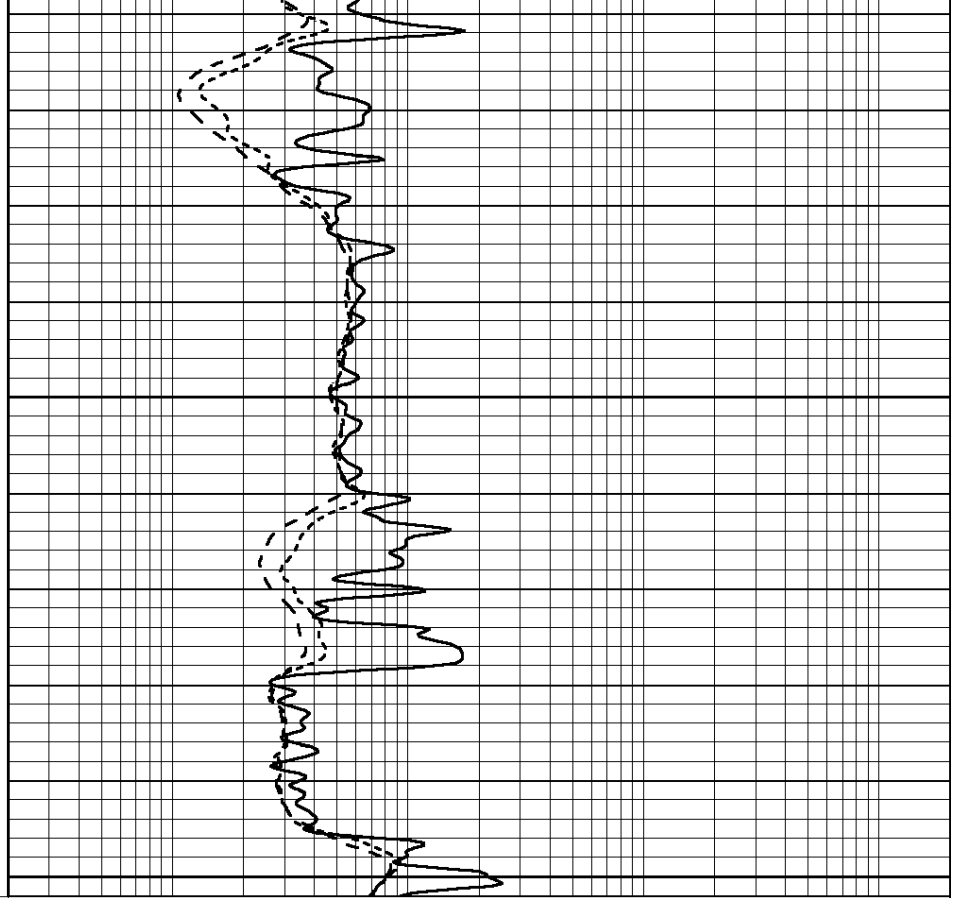




2750

2800

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

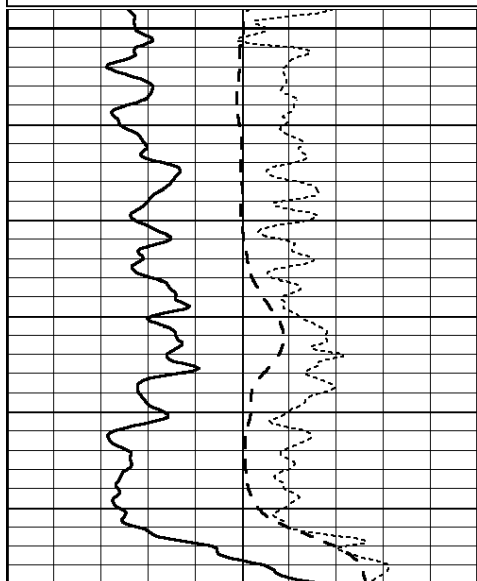


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

Database File: 009581pe.db
 Dataset Pathname: pass3.2
 Presentation Format: _dil
 Dataset Creation: Thu Aug 16 02:51:03 2012 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

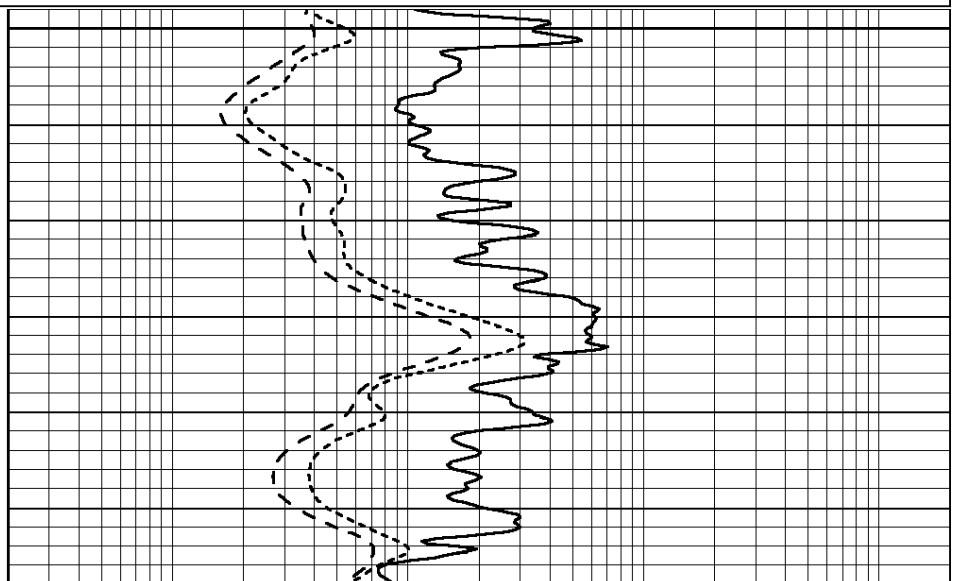
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

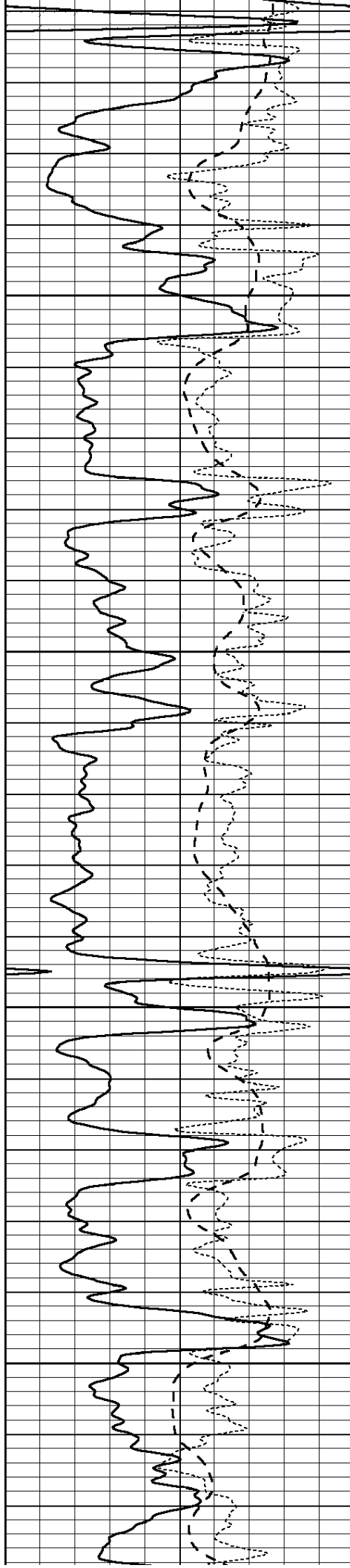
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0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



3850

3900



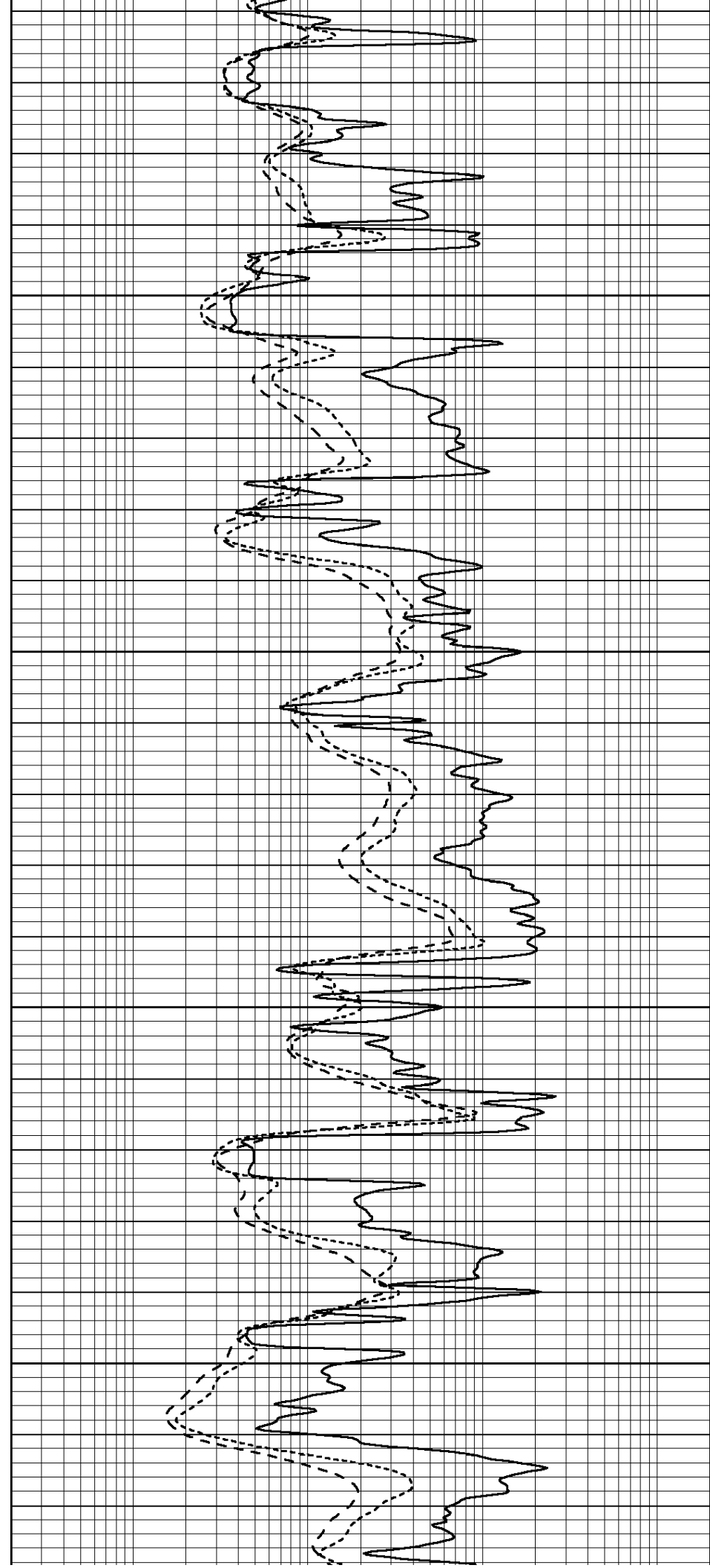


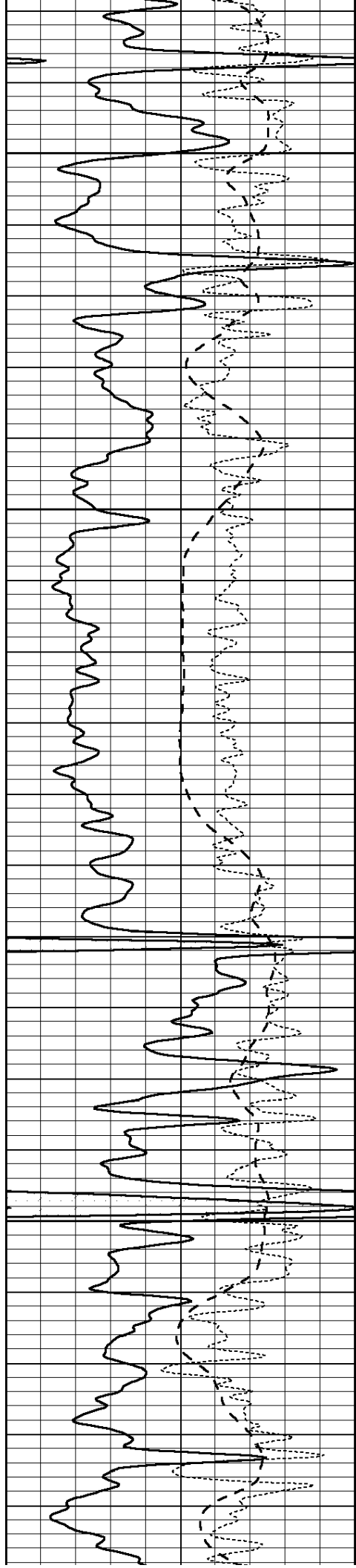
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4000

4050

4100



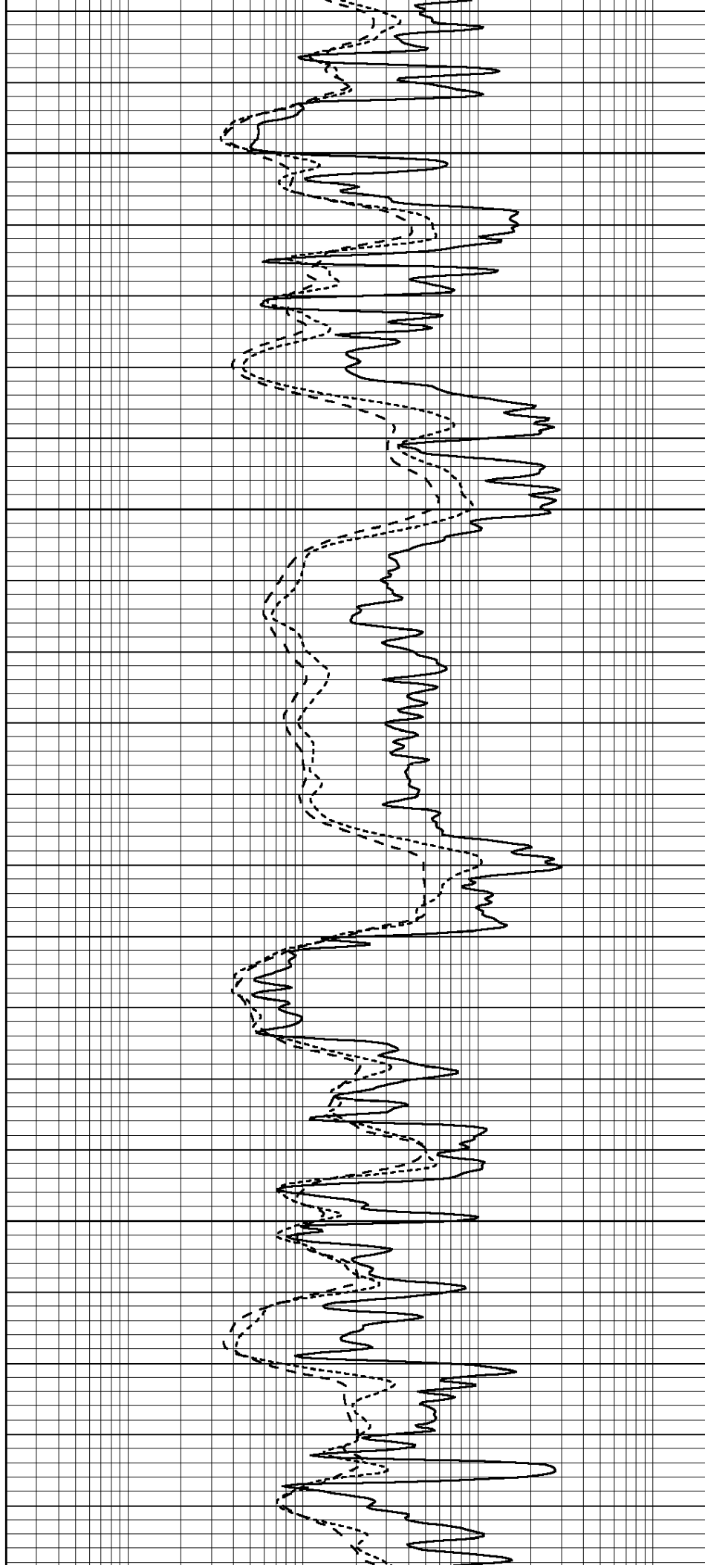


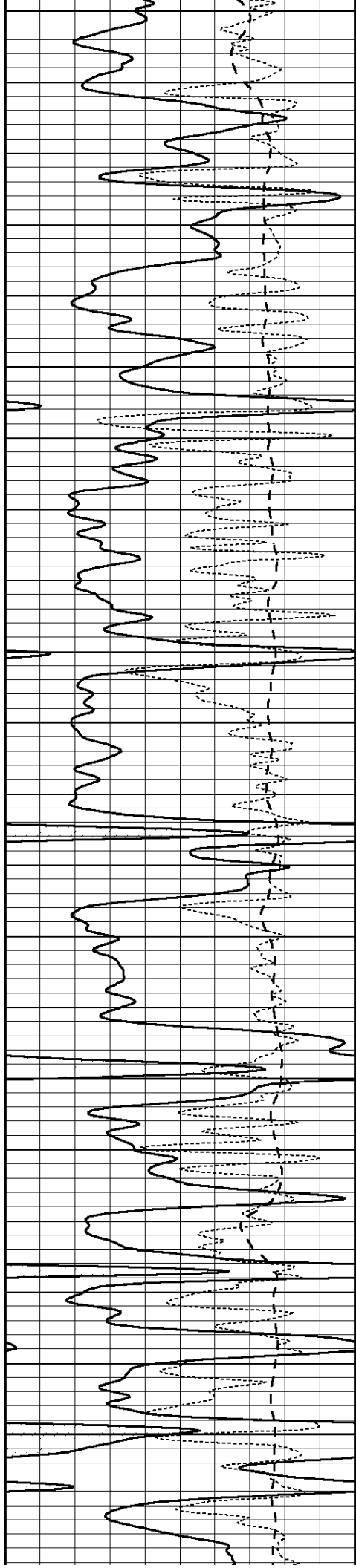
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4200

4250

4300





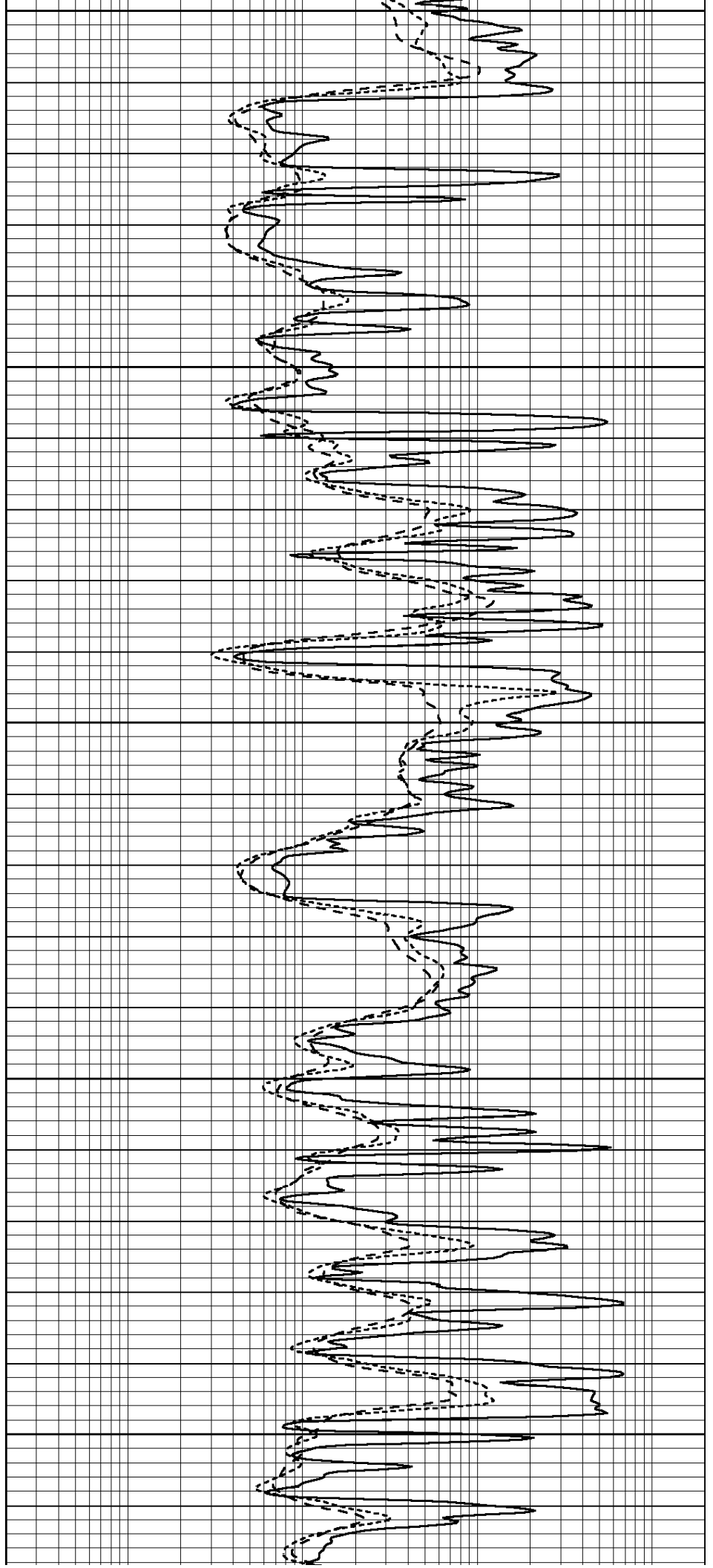
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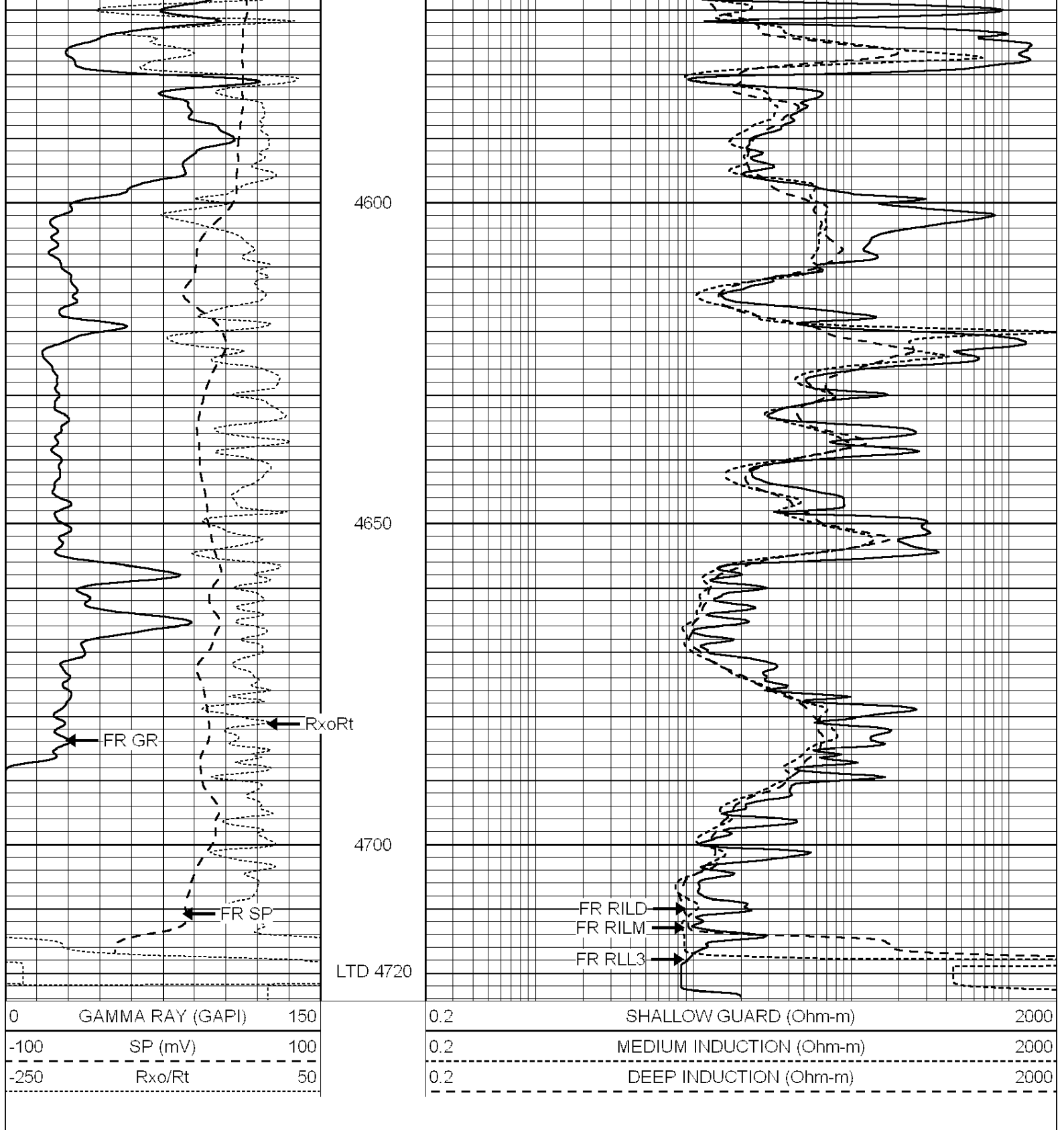
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4450

4500

4550





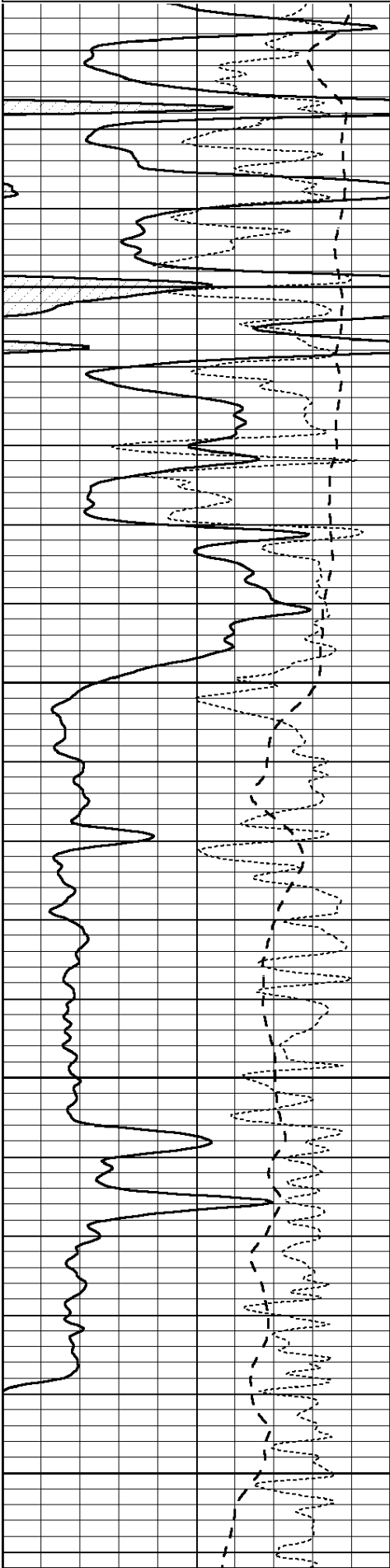
SUPERIOR
Hays,
Kansas

REPEAT SECTION

Database File: 009581pe.db
 Dataset Pathname: pass2.4
 Presentation Format: _dil
 Dataset Creation: Thu Aug 16 02:25:59 2012 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

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

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

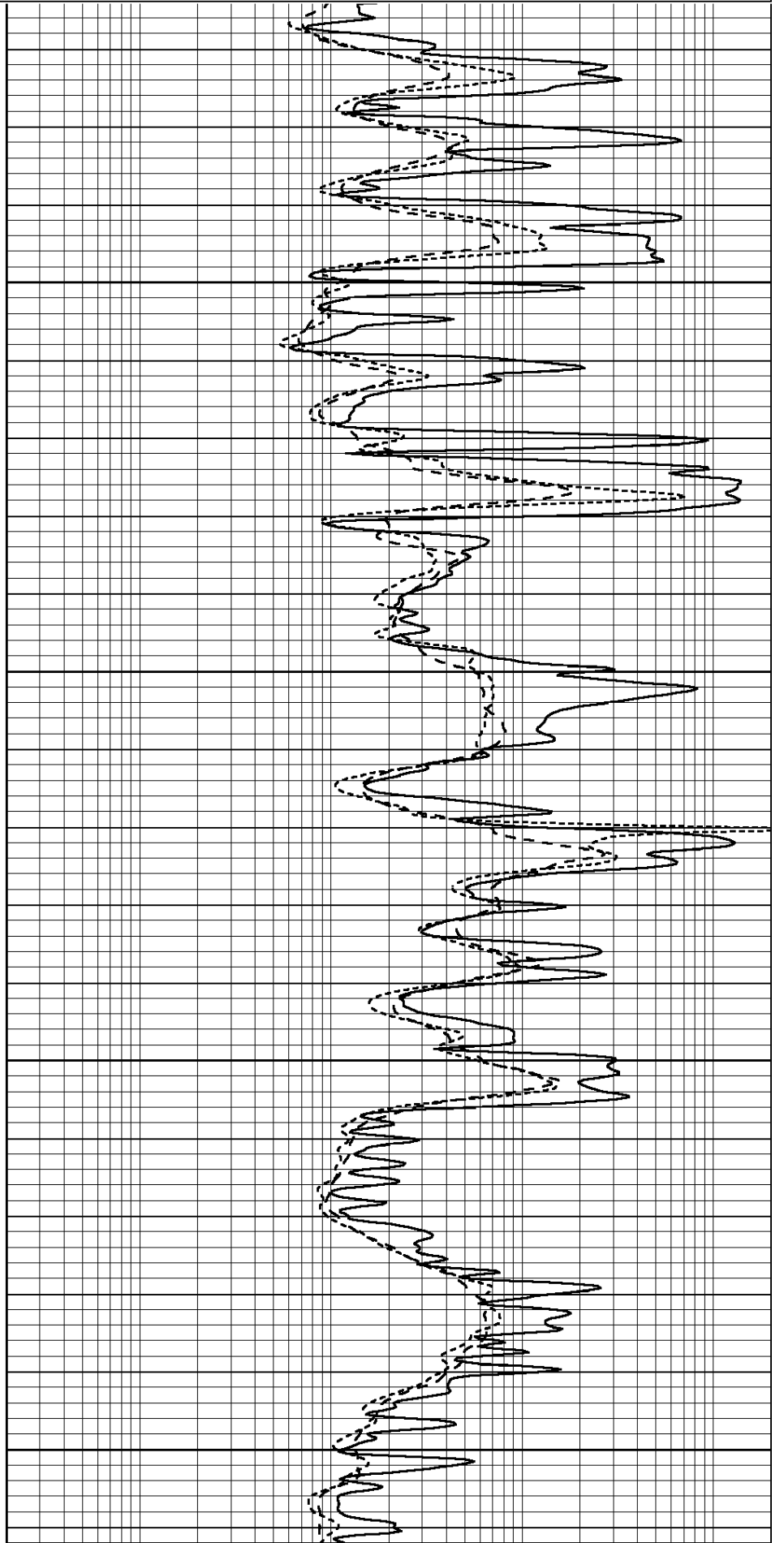


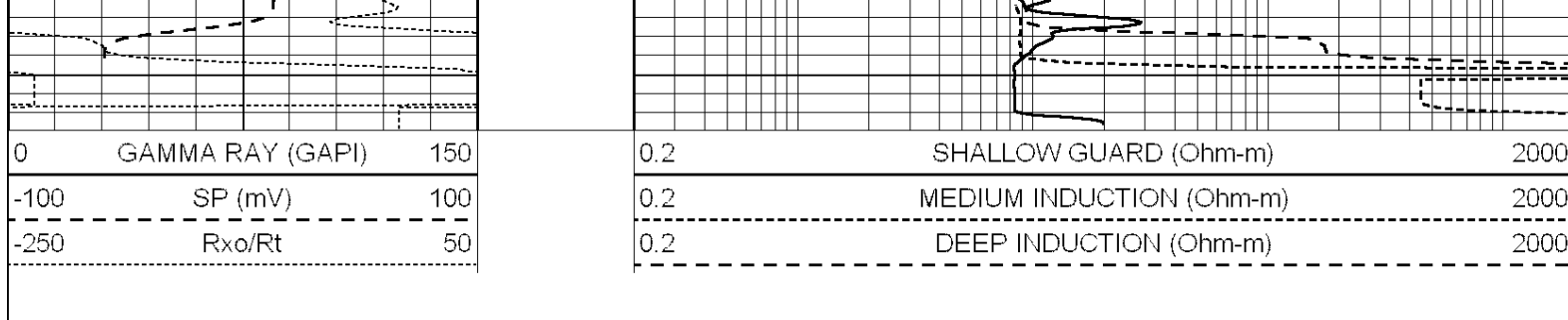
4550

4600

4650

4700





Calibration Report

Database File: 009581pe.db
 Dataset Pathname: pass3.3
 Dataset Creation: Thu Aug 16 03:56:42 2012 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Fri Aug 01 06:33:19 2008
 Downhole Cal Performed: Mon Jul 28 11:08:27 2008
 After Survey Verification Performed: Mon Jul 28 11:08:27 2008

Surface Calibration

Loop:	Readings				References		Results	
	Air	Loop			Air	Loop	m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	632.616	-9.730
Medium	0.029	0.796	V	0.000	464.000	mmho/m	605.049	-17.680
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739

Downhole Calibration

	Readings				References		Results	
	Zero	Cal			Zero	Cal	m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	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: 001 Model: PRB
 Performed Thu Sep 17 09:57:21 2009

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	2056.0	9796.8	3673.1	10821.3	cps
Window 2	1920.0	8511.1	3303.5	9307.2	cps

Window 2	1529.0	6841.1	2212.8	5017.2	cps
Window 3	1563.1	4735.7	2212.8	5017.5	cps
Window 4	466.0	466.1	465.6	471.5	cps
Long Space	0.0	6621.1	1383.5	7387.2	cps
Short Space	2.5	2361.7	1523.2	2534.0	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	

Rib Angle	: 44.4	Rib Slope	: 0.978	Density/Spine Ratio	: 0.541
Spine Angle	: 74.4	Spine Slope	: 3.570	Spine Intercept	: -18.9

Caliper			
Low Ref	Readings	Reference	
High Ref	3.1	8.4	
	4.3	14.3	
	Gain: 4.6		Offset: -7.7

Compensated Neutron Calibration Report

Serial Number: 6I
Tool Model: G

CALIBRATION

Detector	Readings	Target	Normalization
Short Space	1.00 cps	1.00 cps	1.0000
Long Space	1.00 cps	1.00 cps	1.0000

Gamma Ray Calibration Report

Serial Number:	#8
Tool Model:	OPEN
Performed:	Mon Jun 13 16:56:43 2011
Calibrator Value:	150.0 GAPI
Background Reading:	0.0 cps
Calibrator Reading:	175.0 cps
Sensitivity:	0.8371 GAPI/cps