

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company RICHLAN DRILLING
Well SCHREIBER #3
Field
County BARTON State KANSAS

Company RICHLAN DRILLING
Well SCHREIBER #3
Field
County BARTON
State KANSAS

Location: API #: 15-009-25807
370' FSL & 1280' FWL
SEC 17 TWP 16S RGE 12W
Permanent Datum GROUND LEVEL Elevation 1887
Log Measured From KELLY BUSHING 7' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL
MICRO
Elevation
K.B. 1894
D.F.
G.L. 1887

Date	1-30-13
Run Number	ONE
Depth Driller	3443
Depth Logger	3443
Bottom Logged Interval	3441
Top Log Interval	00
Casing Driller	425
Casing Logger	425
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3 / 56
pH / Fluid Loss	10.5 / 8.0
Source of Sample	FLOWLINE
Rim @ Meas. Temp	1.10 @ 58F
Rmf @ Meas. Temp	0.83 @ 58F
Rmc @ Meas. Temp	1.32 @ 58F
Source of Rmf / Rmc	MEASURED
Rim @ BHT	.590 @ 109F
Time Circulation Stopped	10:00 P.M.
Time Logger on Bottom	12:00 A.M.
Maximum Recorded Temperature	109F
Equipment Number	860
Location	HAYS, KS.
Recorded By	RUPP
Witnessed By	BOB SCHREIBER

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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

NABORS PRODUCTION & COMPLETION SERVICES
785-628-6395
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: BEAVER, 1N, 1/2W, N INTO.

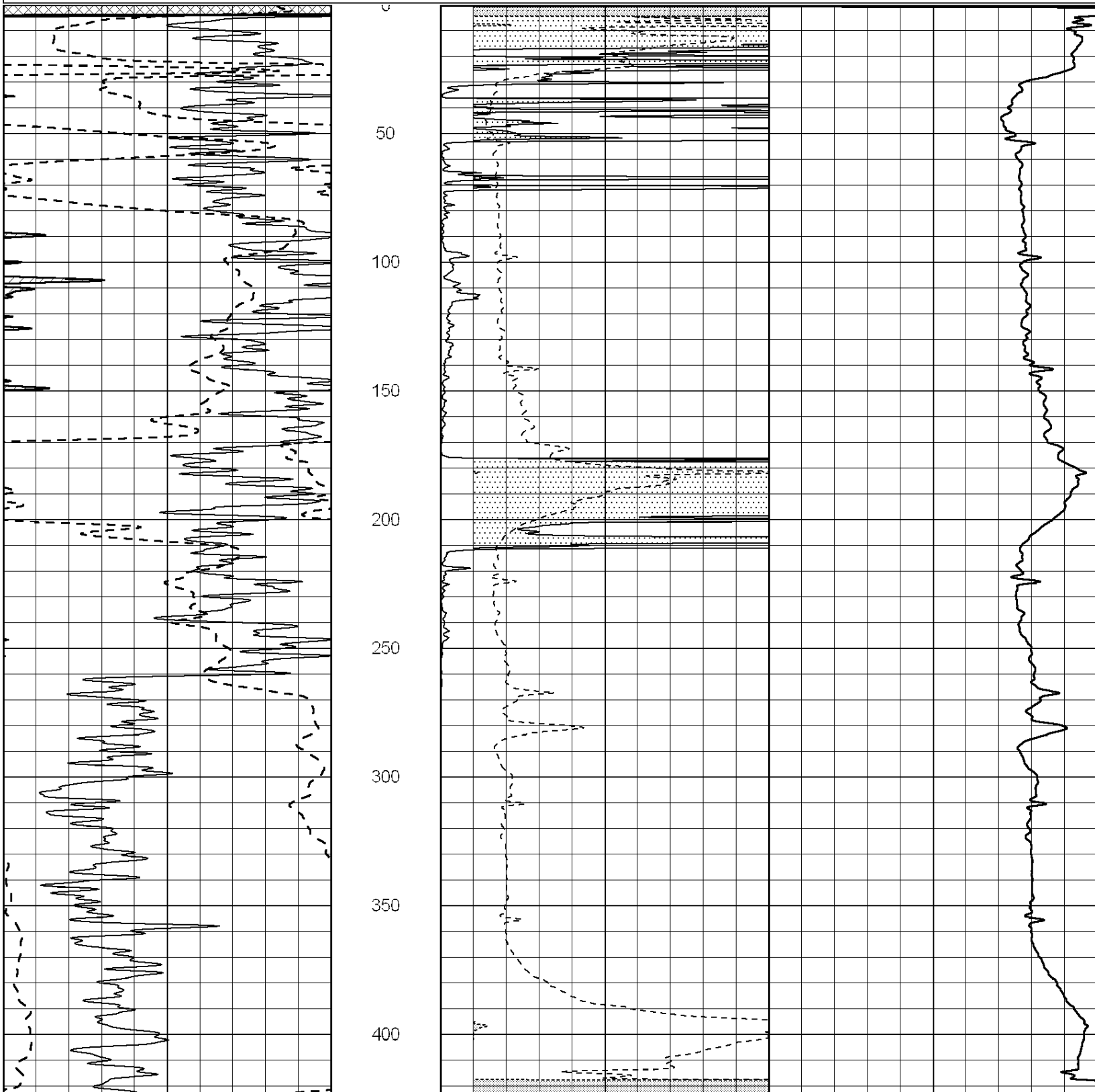


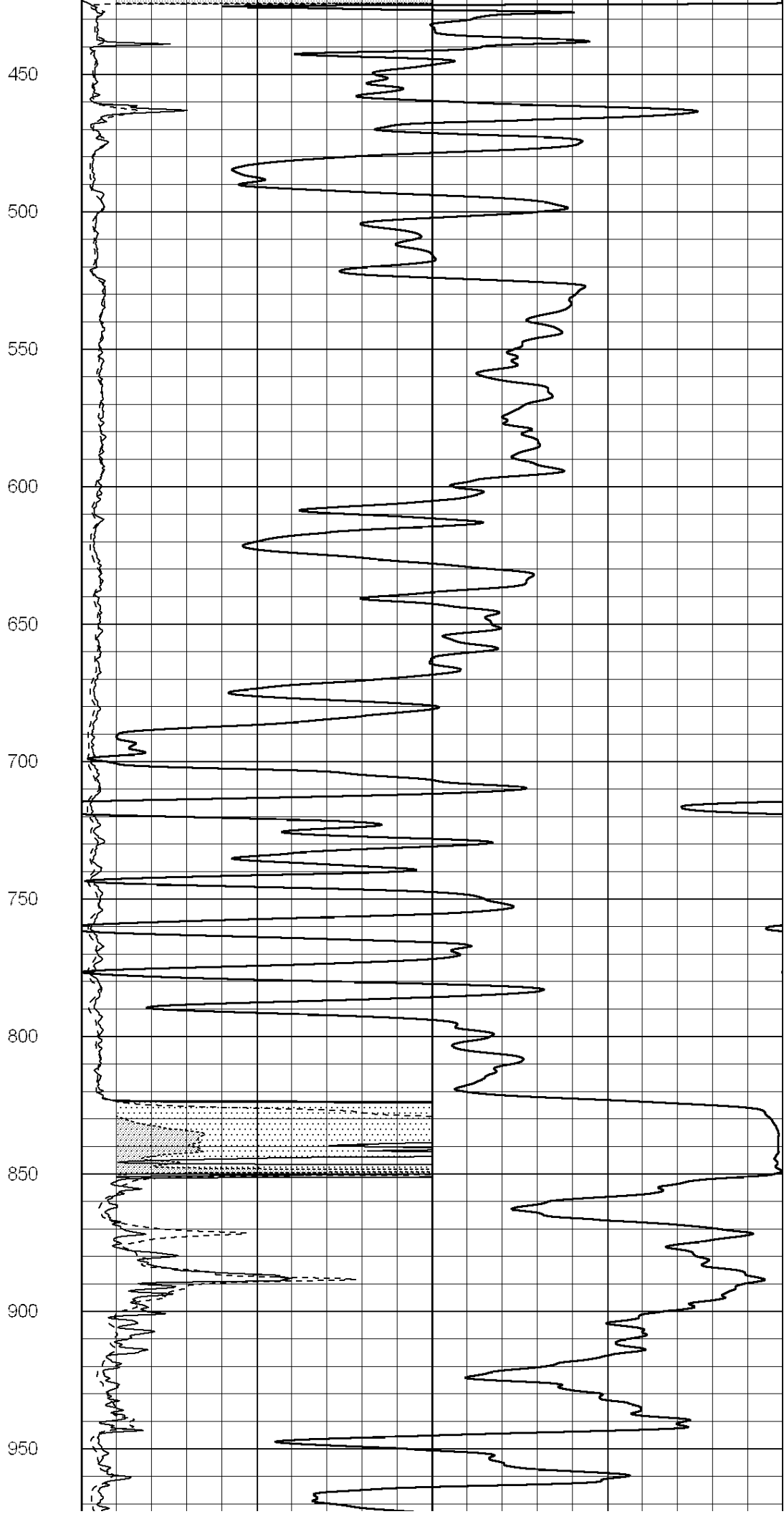
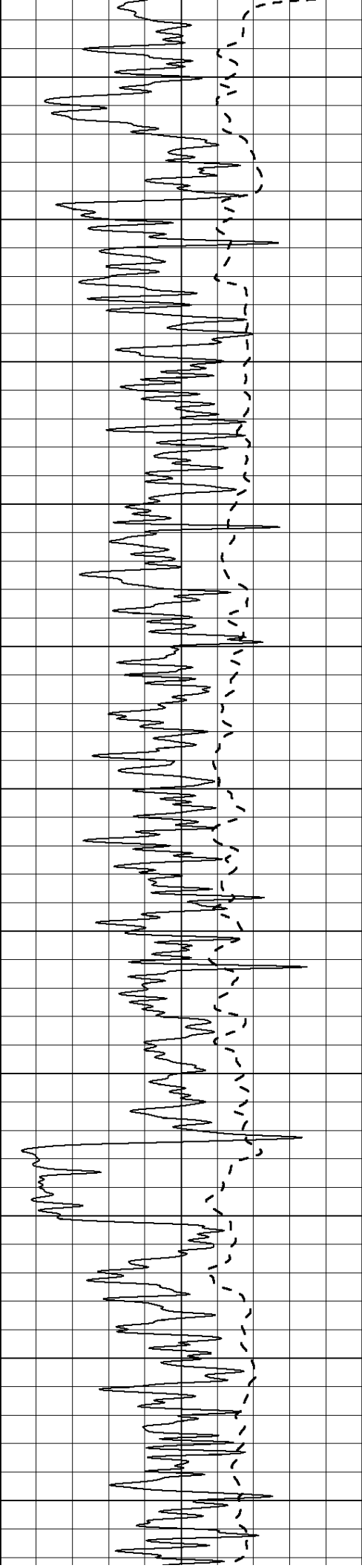
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& PRODUCTION**

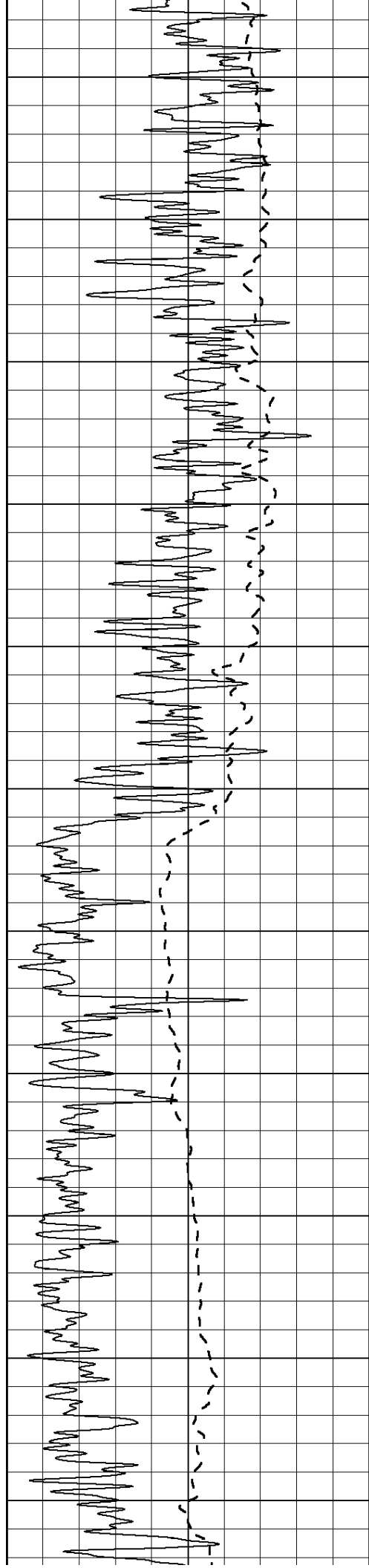
MAIN SECTION

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 Presentation Format: dil2
 Dataset Creation: Thu Jan 31 00:55:22 2013
 Charted by: Depth in Feet scaled 1:600

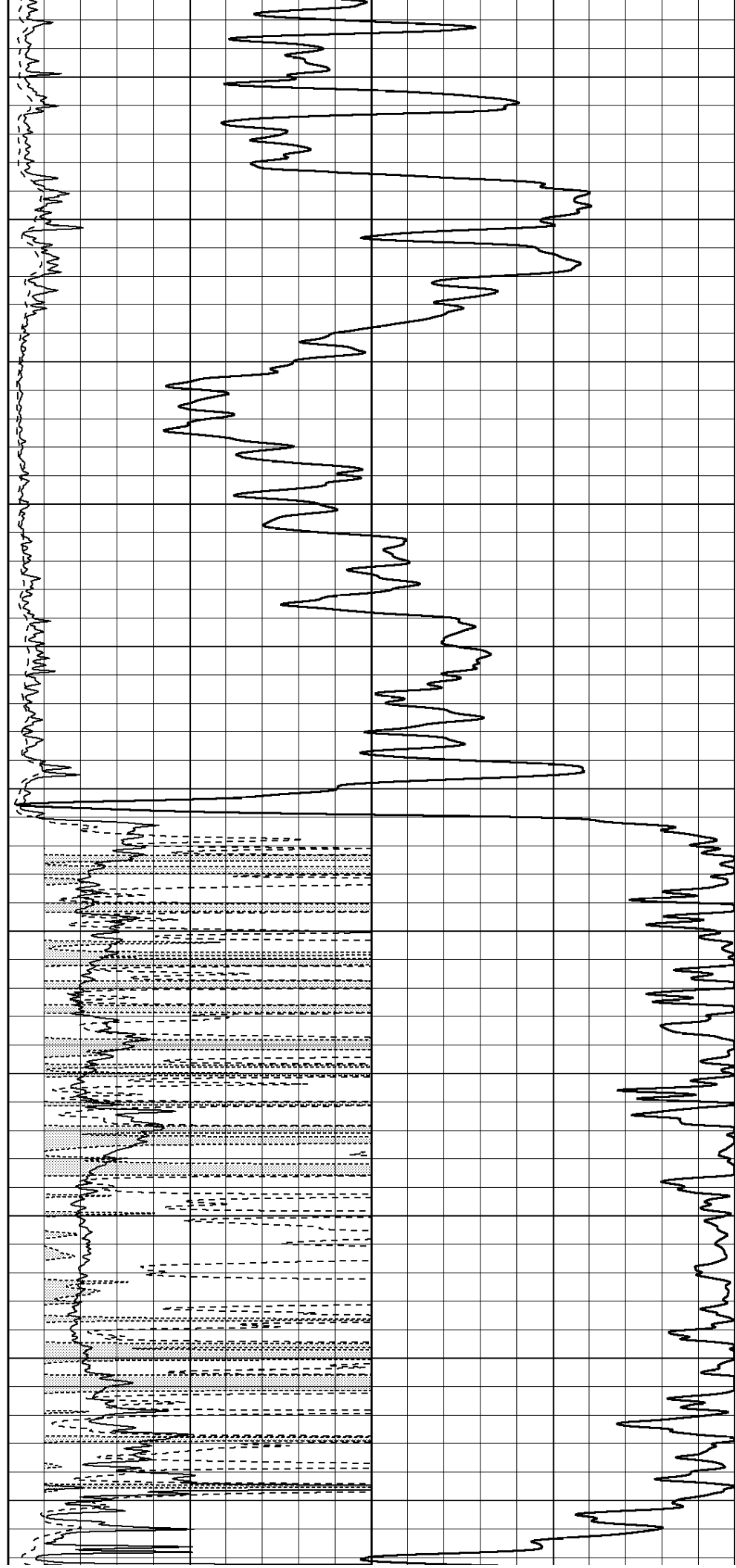
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			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500

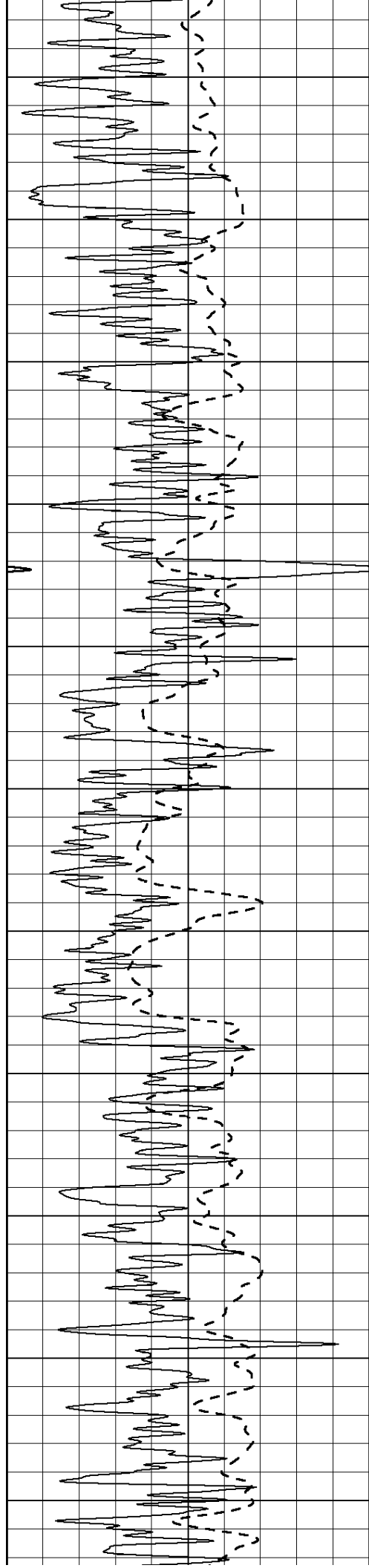






1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

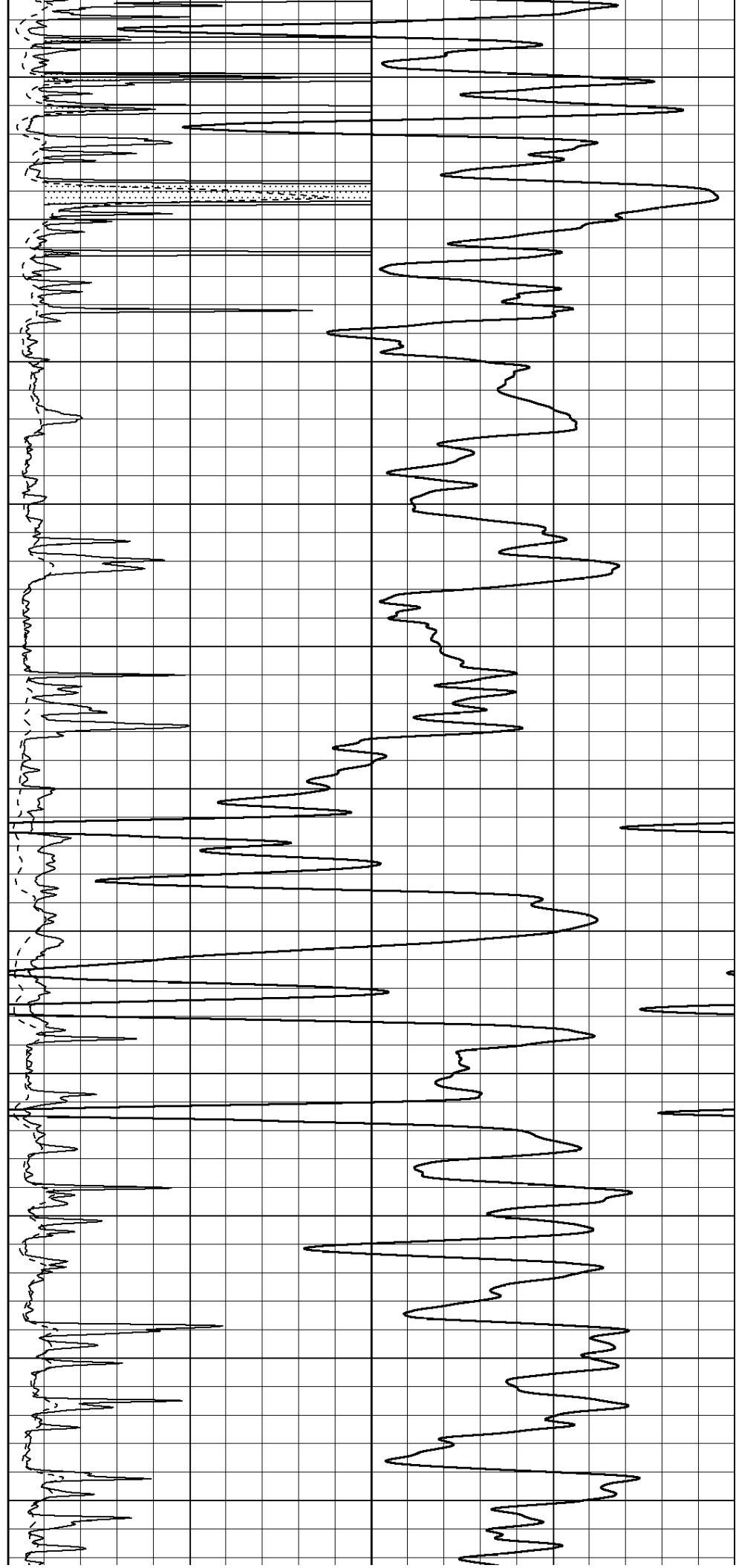
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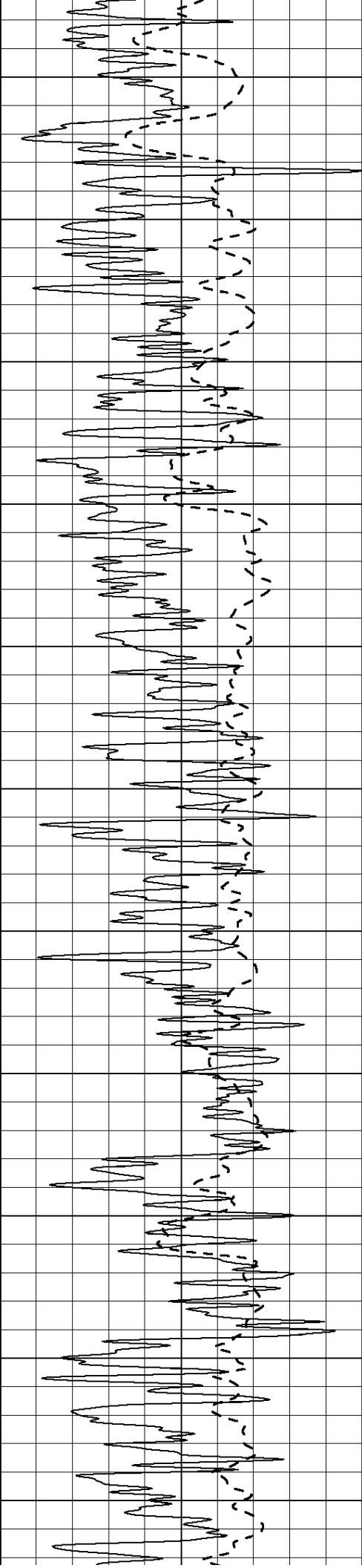
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1950

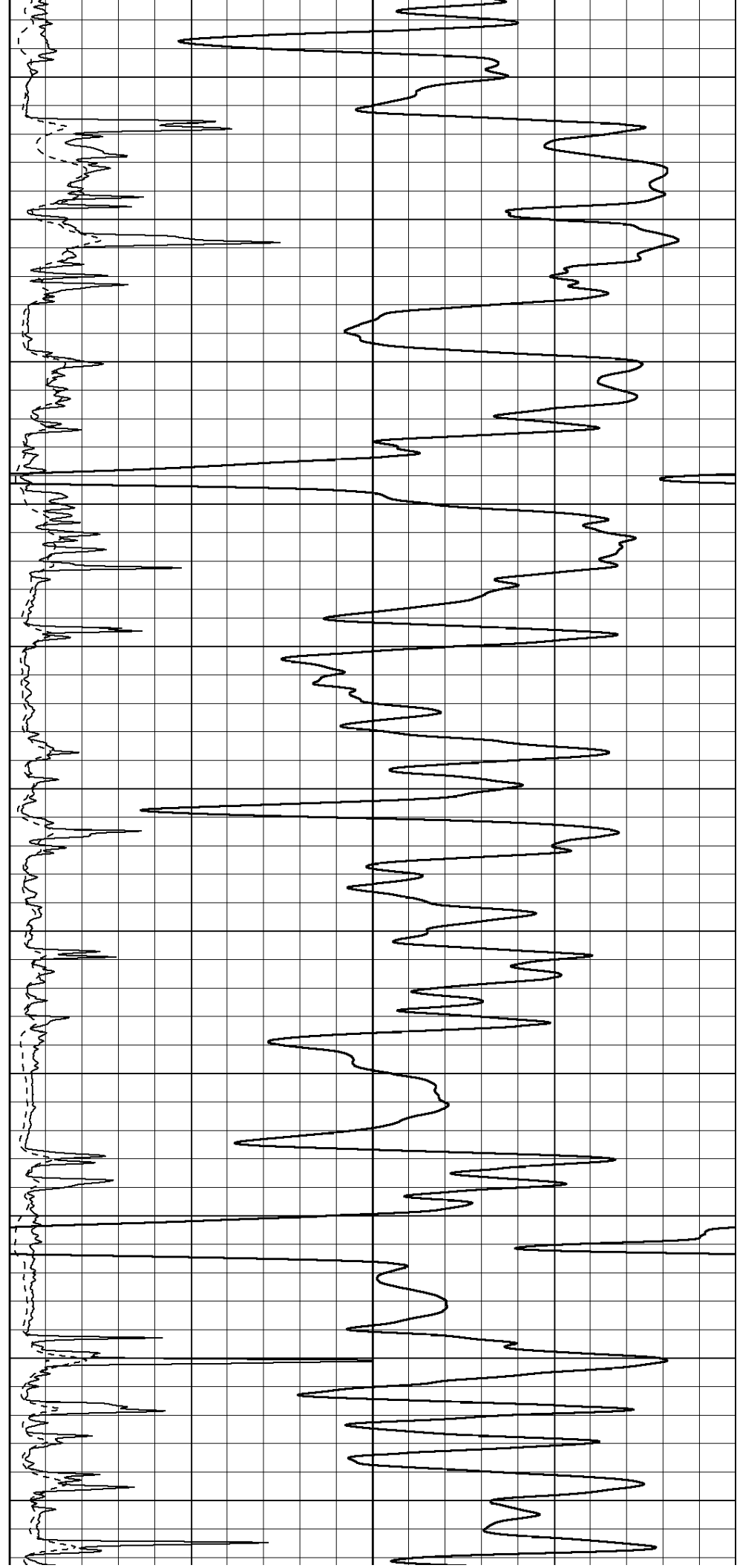
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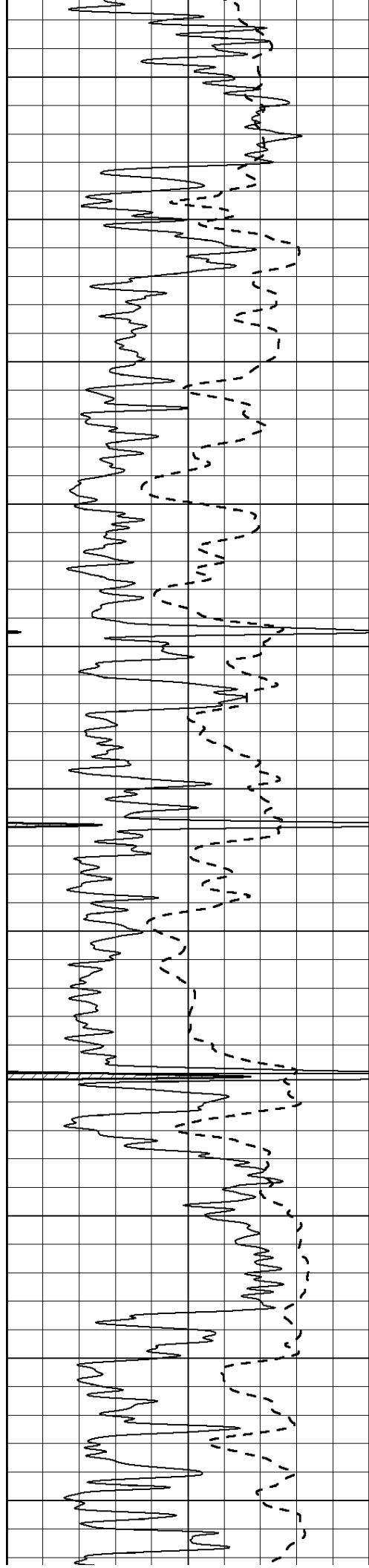
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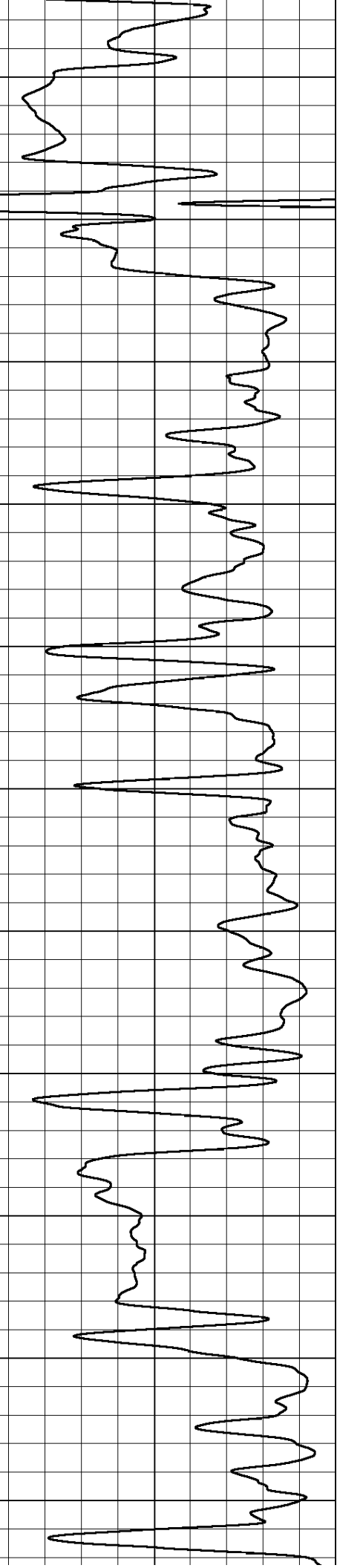
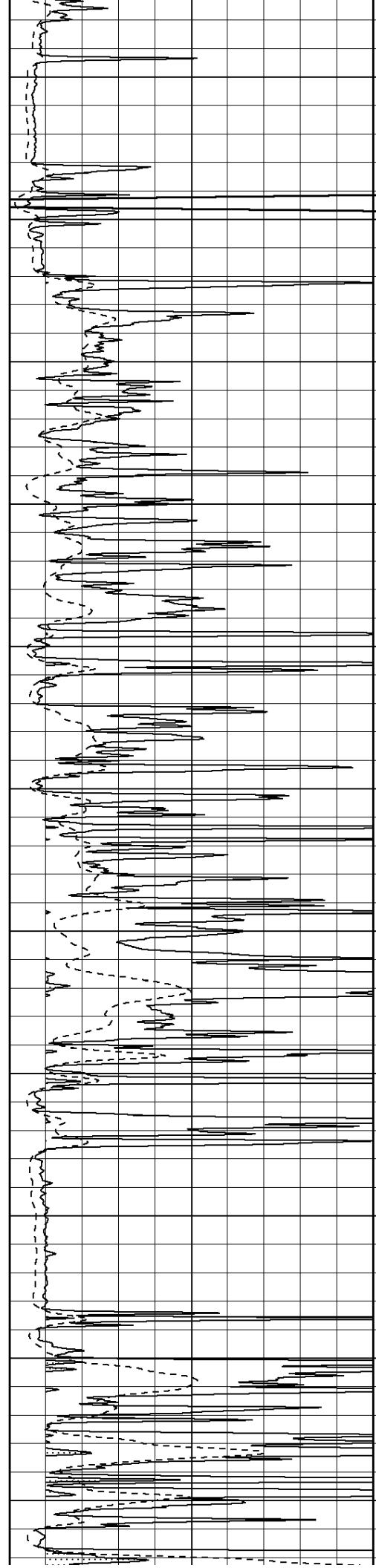


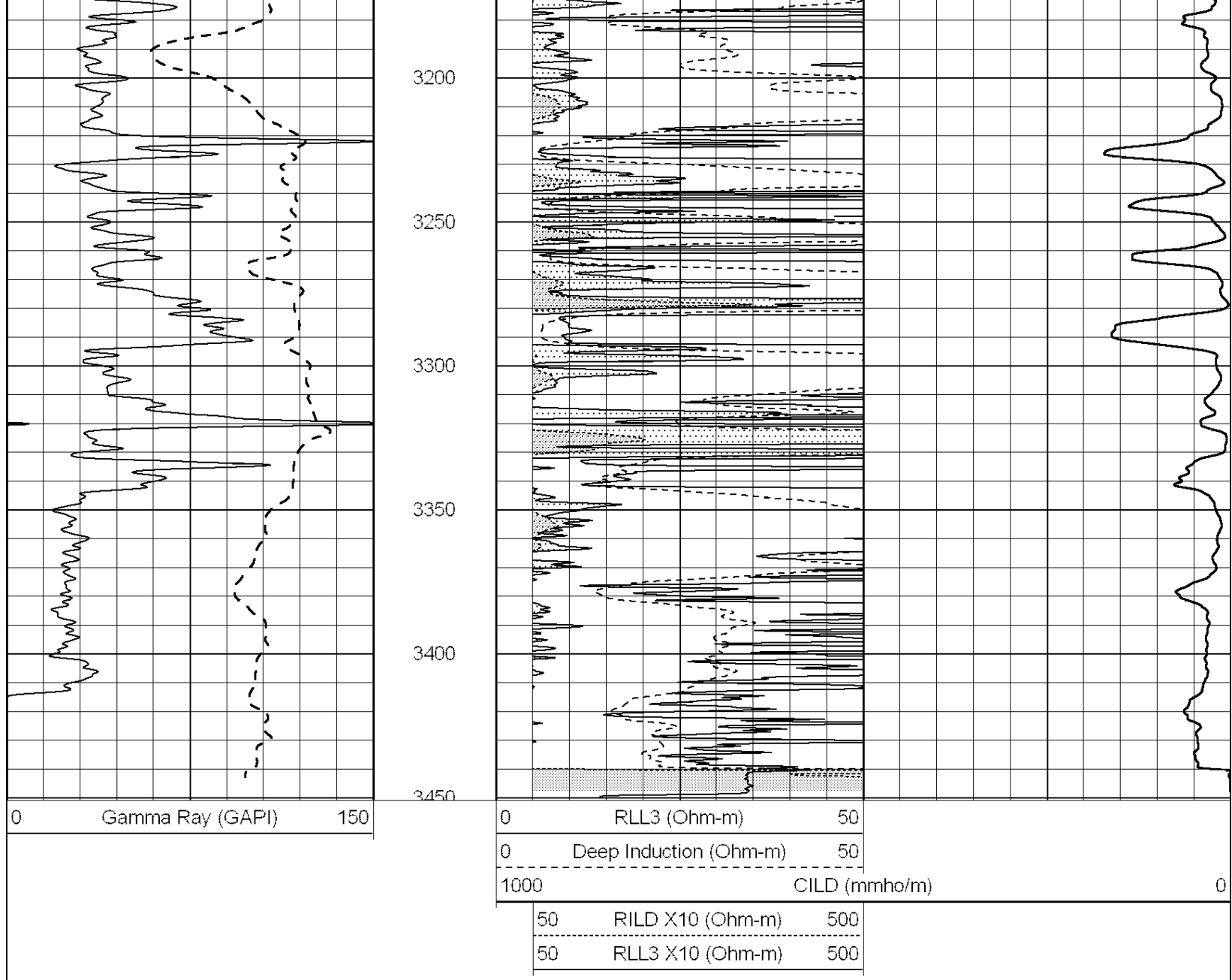
2100
2150
2200
2250
2300
2350
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2500
2550
2600





2650
2700
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2800
2850
2900
2950
3000
3050
3100
3150

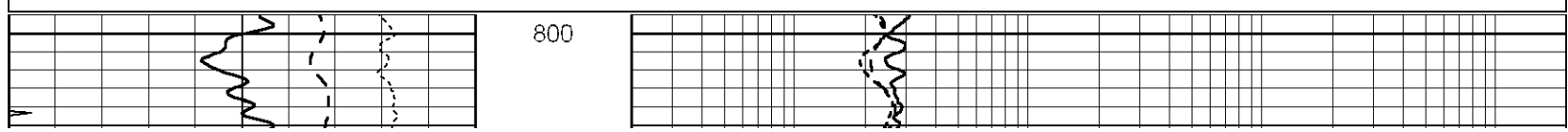


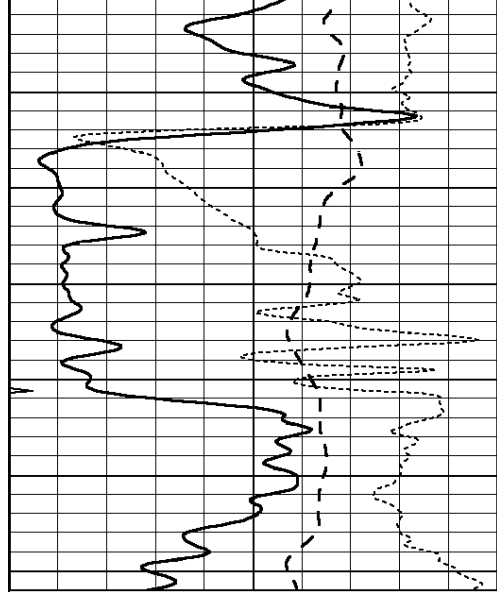


MAIN SECTION

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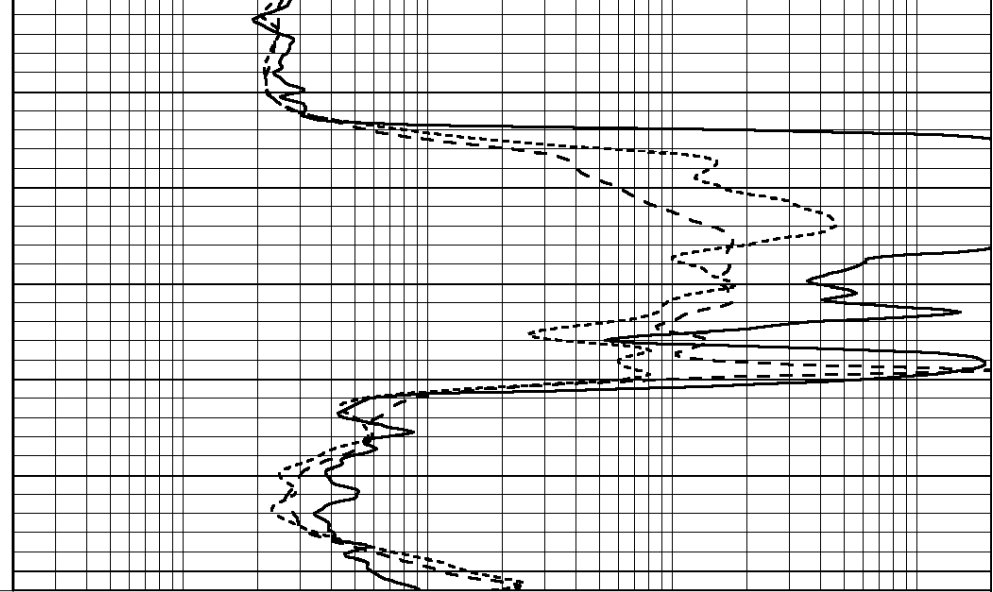
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-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	RxoRt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			





850

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20



0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

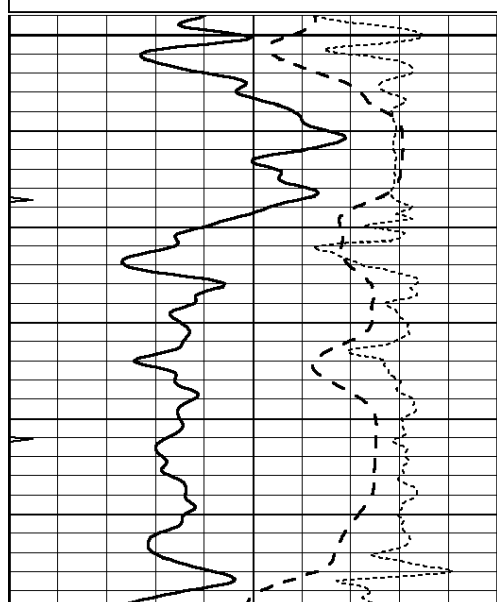


MAIN SECTION

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 Dataset Pathname: pass3.1A
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 Dataset Creation: Thu Jan 31 00:55:22 2013
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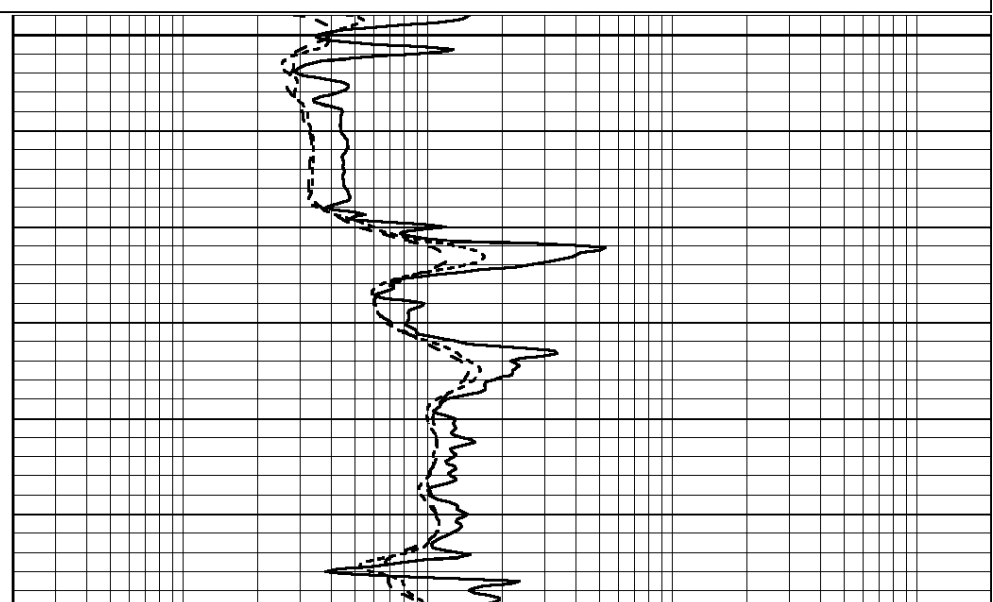
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

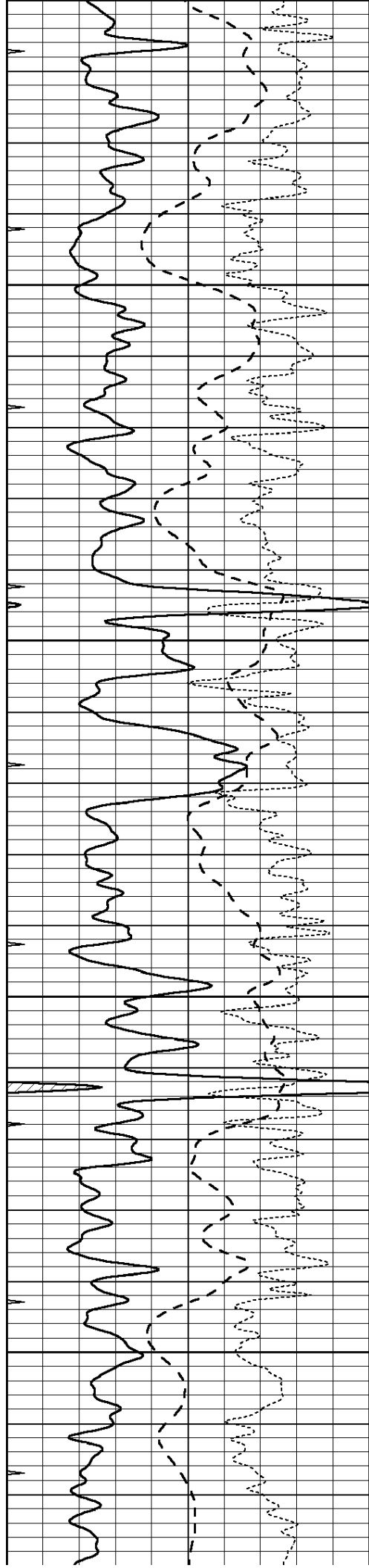
0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



2700

2750



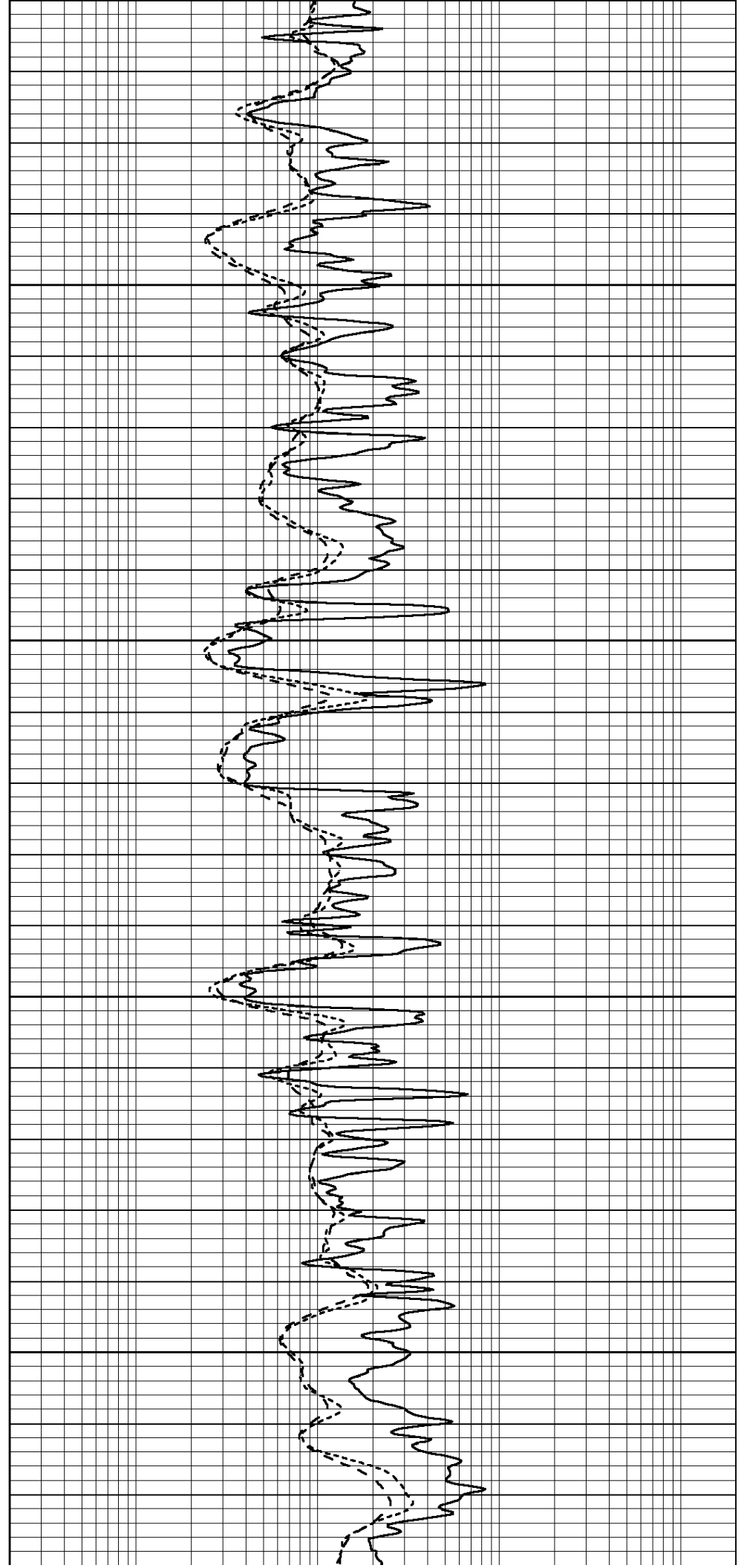


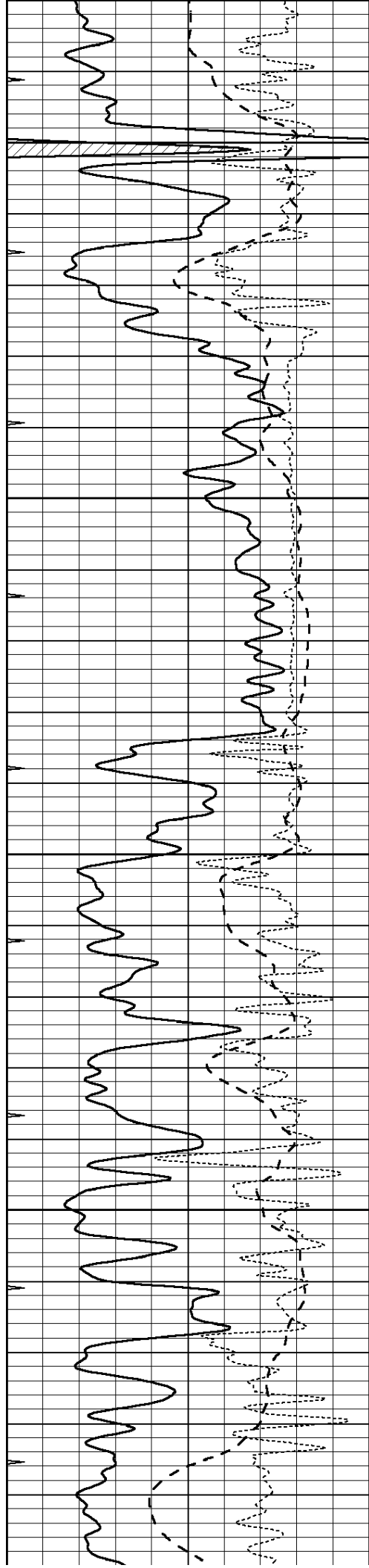
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2850

2900

2950





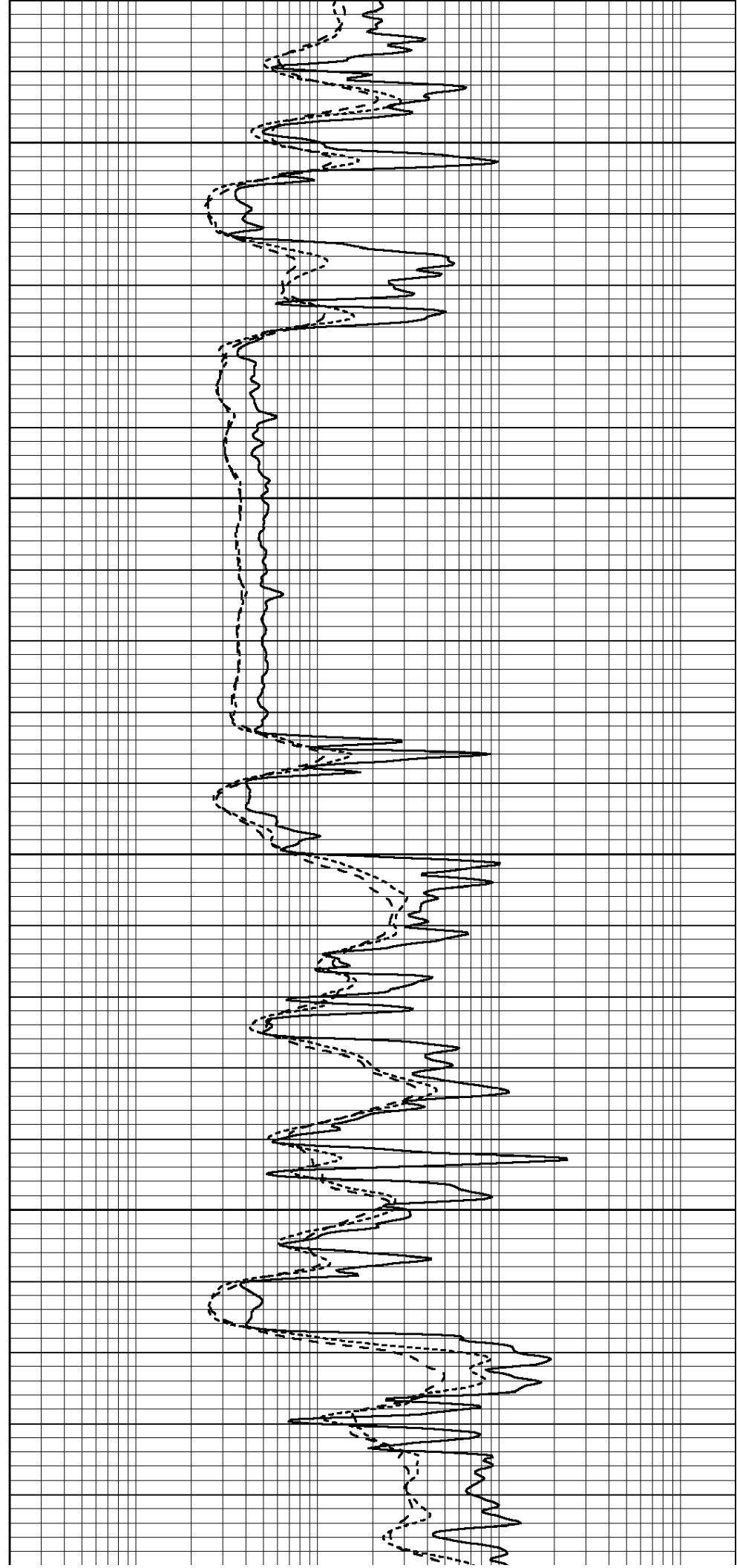
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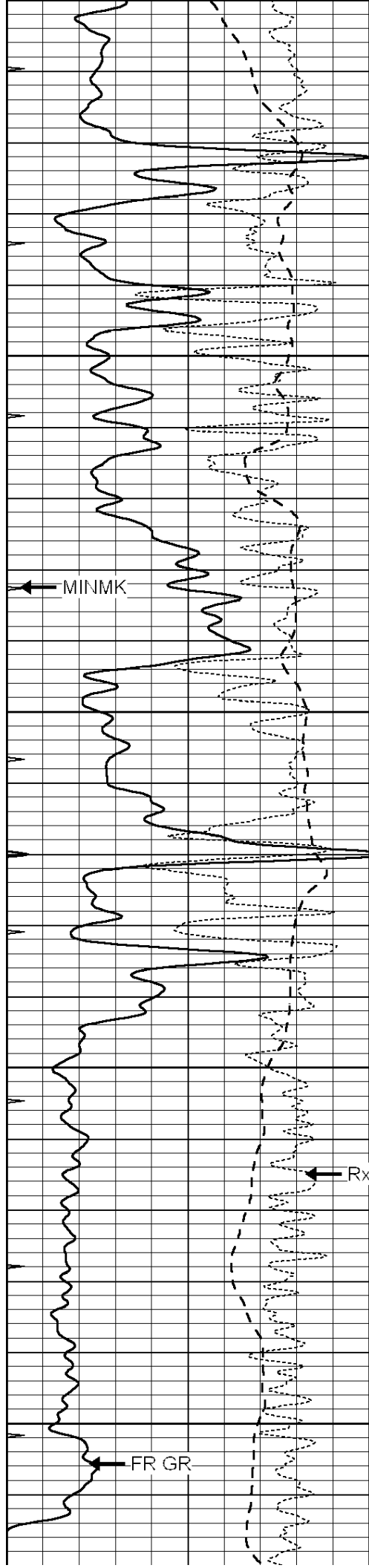
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3100

3150

3200





3200

3250

3300

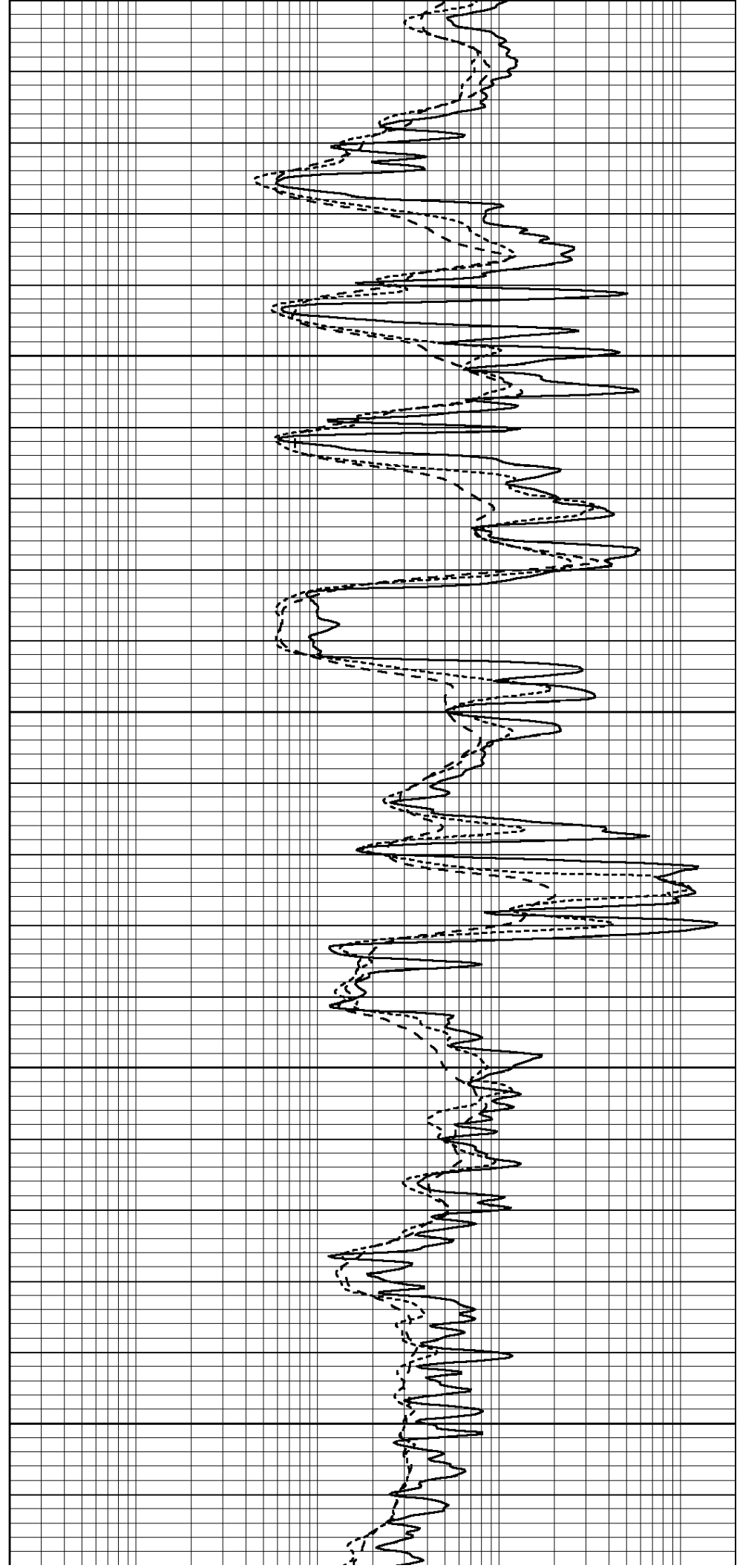
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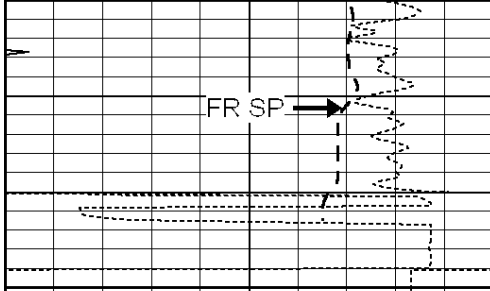
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← MINMK

← FR GR

← RxoRt

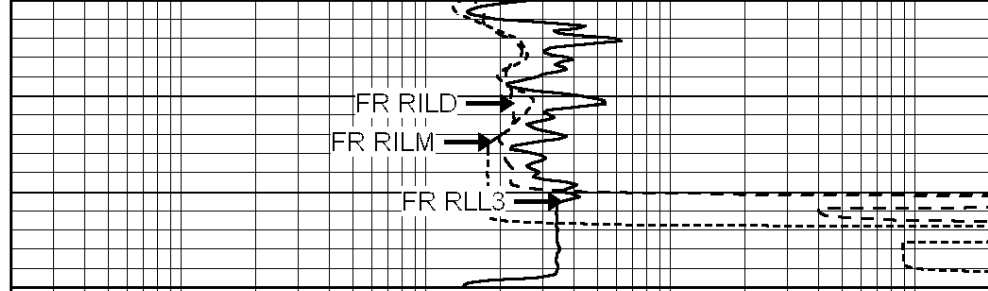




--- TD ---

3450

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20



0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



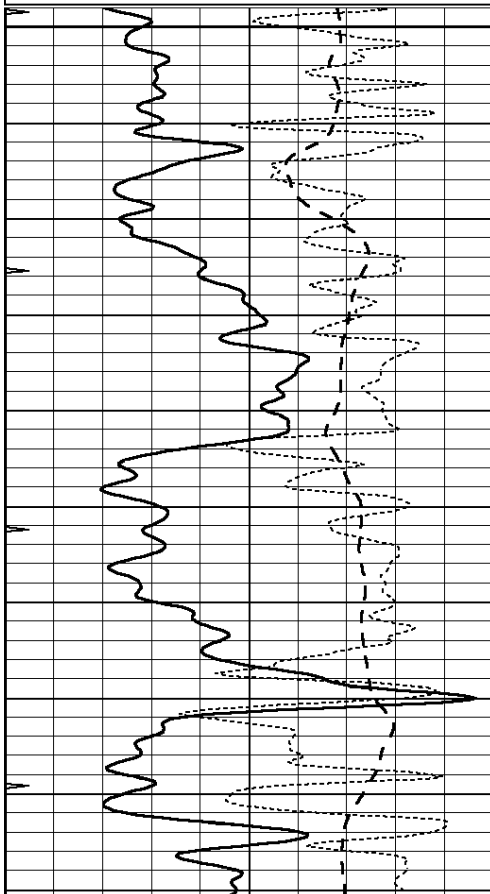
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REPEAT SECTION

Database File: 010663ddn.db
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 Charted by: Depth in Feet scaled 1:240

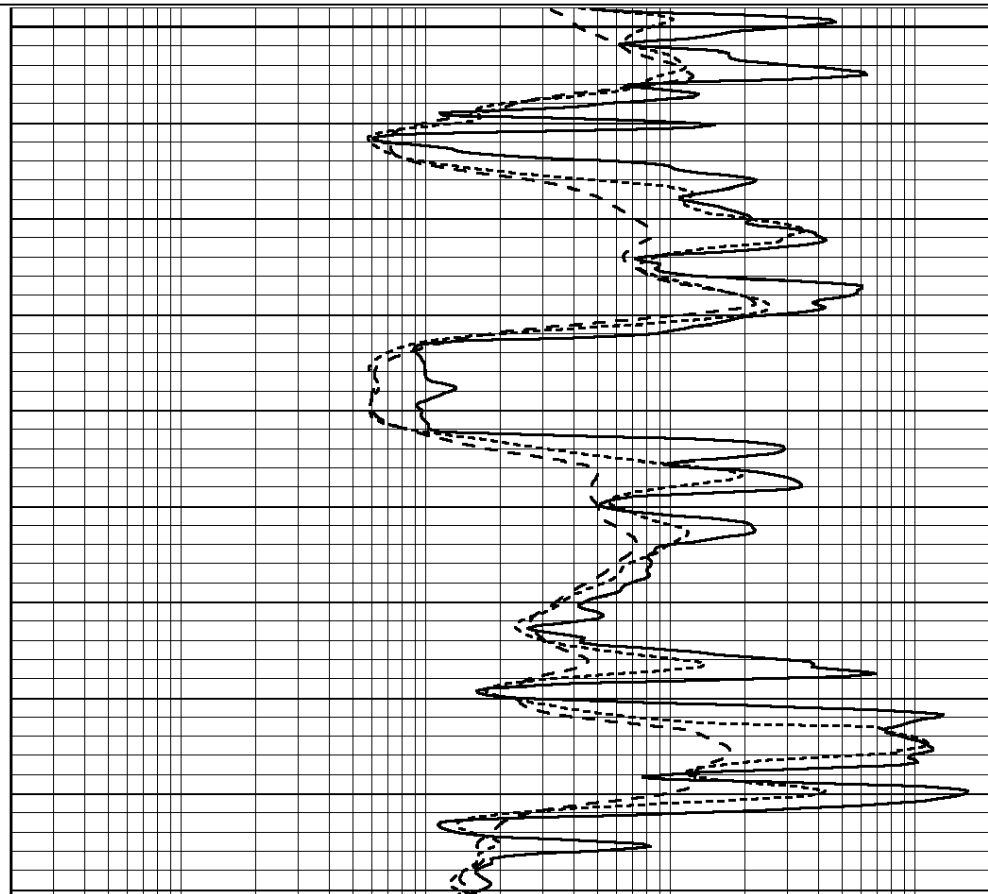
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-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

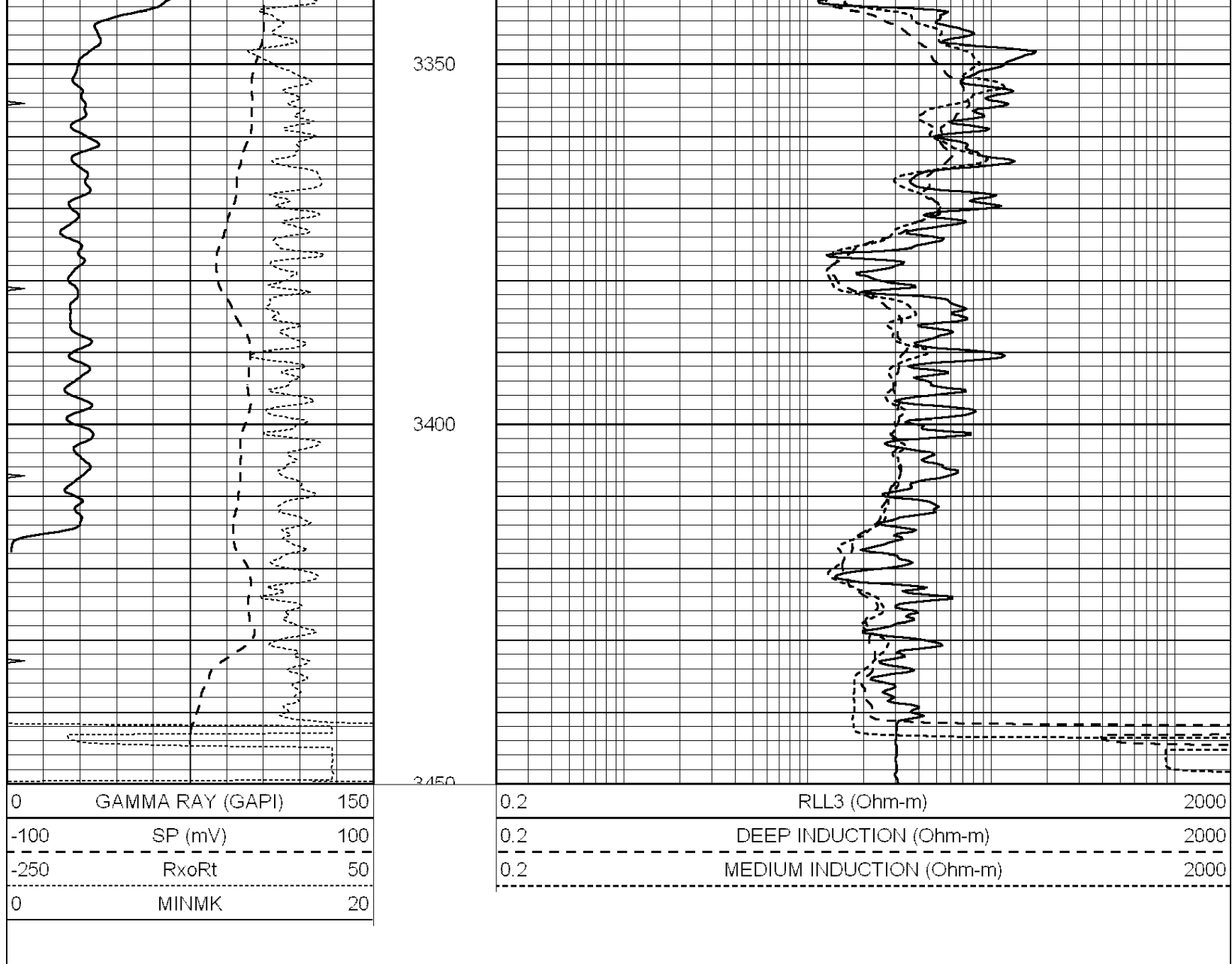
0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



3250

3300





Calibration Report

Database File: 010663ddn.db
 Dataset Pathname: pass3.1A
 Dataset Creation: Thu Jan 31 00:55:22 2013

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Thu Jan 31 00:06:17 2013
 Downhole Cal Performed: Sat Jan 19 19:51:38 2013
 After Survey Verification Performed: Sat Jan 19 19:51:38 2013

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	0.793	0.790	V	0.000	400.000	mmho/m	630.000	0.000
Medium	0.992	1.002	V	0.000	464.000	mmho/m	700.000	-50.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.041	0.642	V	0.000	400.000	mmho/m	664.874	-27.011
Medium	0.035	0.802	V	0.000	464.000	mmho/m	604.936	-21.367

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	135384.000	27094.500	mmho/m	135400.000	27082.400	mmho/m	1.000	-19.259
Medium	-47330.100	-9381.740	mmho/m	-47327.100	-9389.280	mmho/m	1.000	-10.154
LL3		7.322	V		1400.000	Ohm-m		
		0.038	V		20.000	Ohm-m		
		-7.273	V		4000.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	135384.000	27094.500	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	-47330.100	-9381.740	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1400.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		4000.000	mmho-m		

Compensated Density Calibration Report

Serial-Model: GEAR1-GEARHART
 Source / Verifier: 147 / 147
 Master Calibration Performed: Wed Jan 30 22:25:35 2013

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1205.77	610.74	cps
Aluminum	2.590	g/cc	271.21	419.72	cps
Spine Angle = 75.89			Density/Spine Ratio = 0.572		
	Size		Reading		
Small Ring	7.00	in	4.69	V	
Large Ring	14.00	in	6.52	V	

Compensated Neutron Calibration Report

Serial Number: NEU_4I
 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: GR5
 Tool Model: OPEN
 Performed: Thu Jan 31 00:13:22 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 2.4000 GAPI/cps