



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company BLACK DIAMOND OIL, INC.
Well LOGAN NW #1
Field WILDCAT
County NORTON State KANSAS

Company BLACK DIAMOND OIL, INC.
Well LOGAN NW #1
Field WILDCAT
County NORTON
State KANSAS

Location: API #: 15-137-20725-00-00
2310' FSL & 1600' FEL
E2 - NE - NW - SE
SEC 24 TWP 3S RGE 21W
GROUND LEVEL Elevation 2196
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CNL/CDL
MEL
Elevation
K.B. 2201
D.F. 2199
G.L. 2196

Date	12/8/14		
Run Number	ONE		
Depth Driller	3770		
Depth Logger	3769		
Bottom Logged Interval	3767		
Top Log Interval	00		
Casing Driller	8 5/8 @ 220'		
Casing Logger	218'		
Bit Size	7.875		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.3/5.1	CHLORIDES 500 PPM	
pH / Fluid Loss	10.0/7.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.80 @ 41F		
Rmf @ Meas. Temp	1.35 @ 41F		
Rmc @ Meas. Temp	2.16 @ 41F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	0.66 @ 114F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	114F		
Equipment Number	3802		
Location	HAYS, KS.		
Recorded By	IAN MABB		
Witnessed By	JEFF LAWLER		

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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 COMPLETION & PRODUCTION SERVICES CO.

785 (628 - 6395)

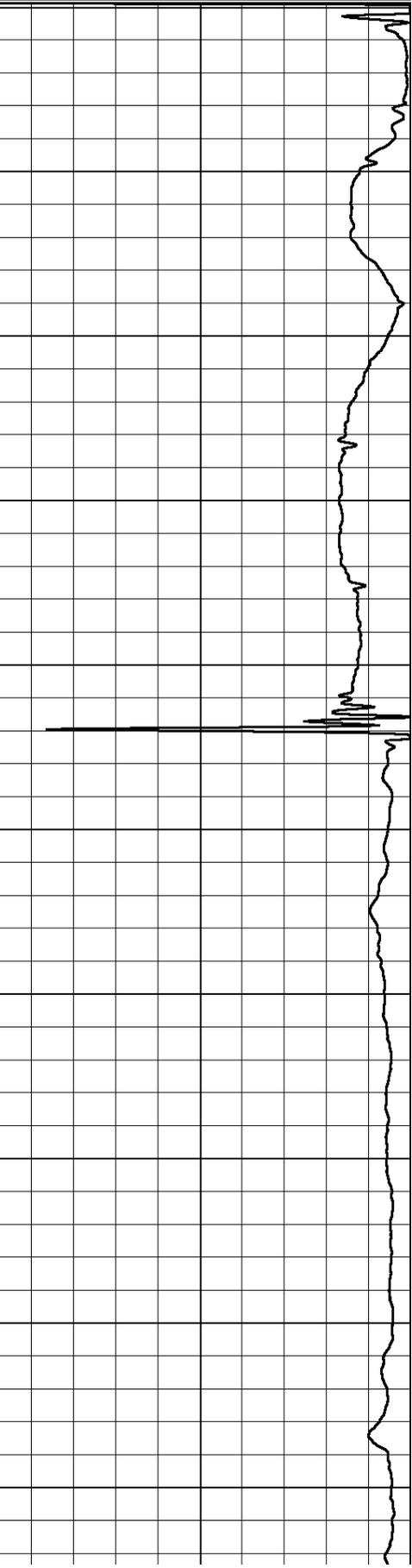
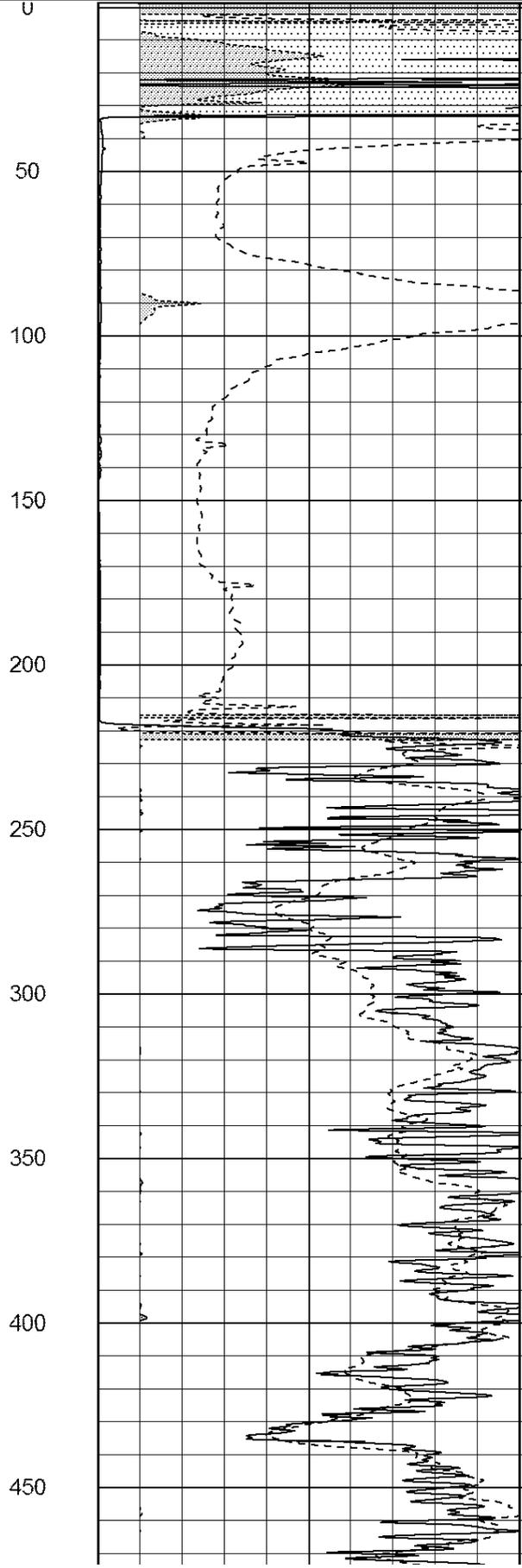
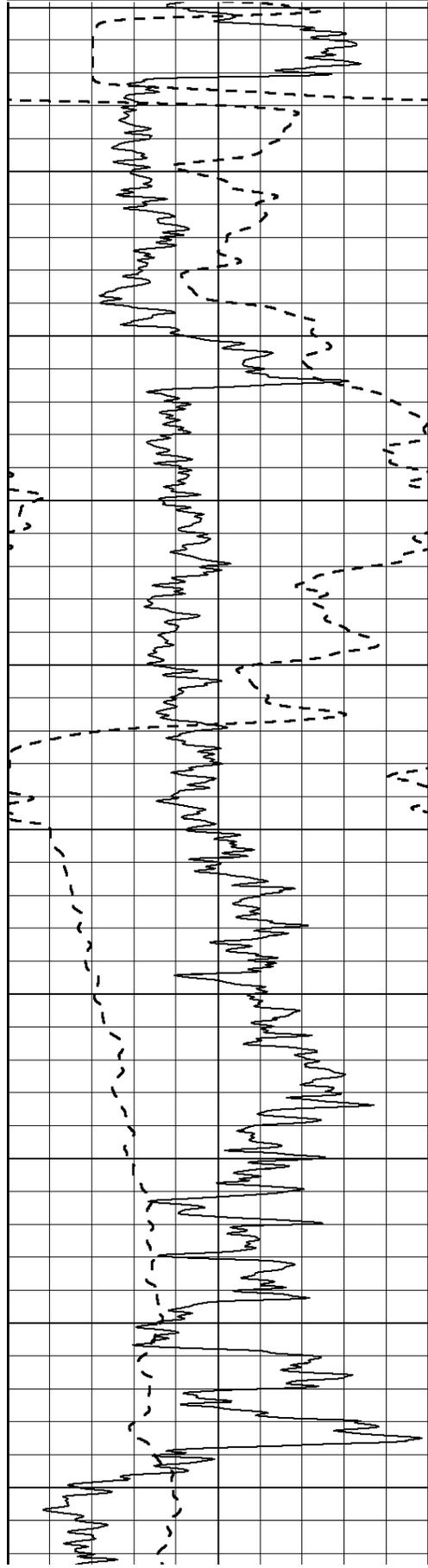
THANK YOU FOR YOUR BUSINESS

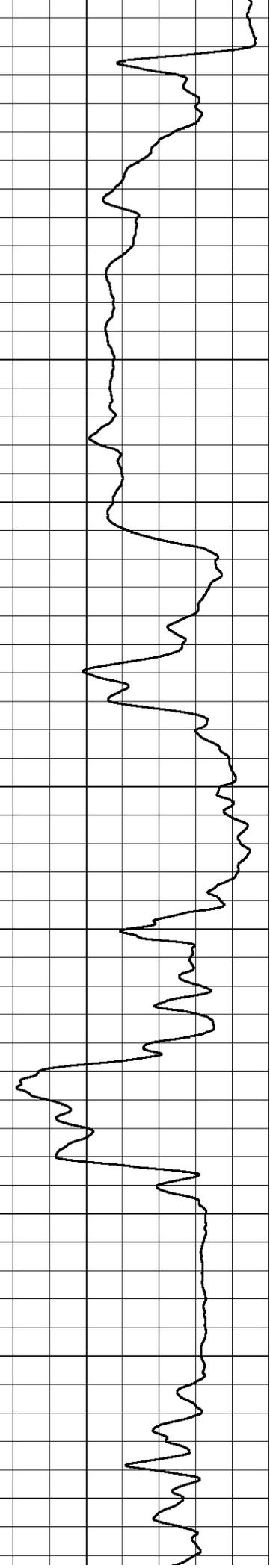
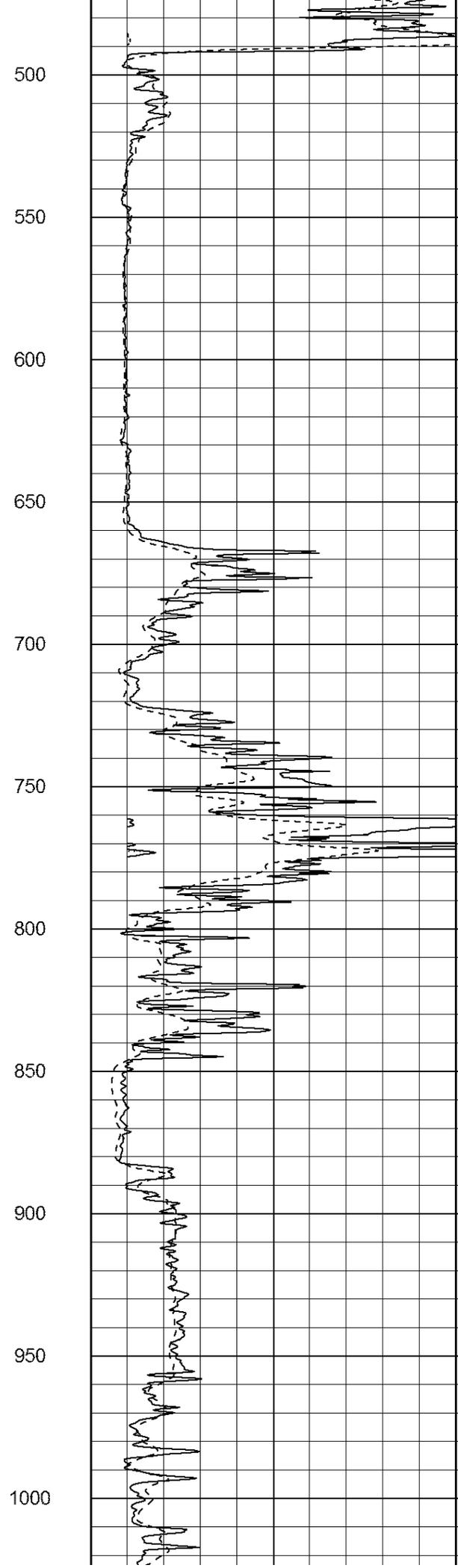
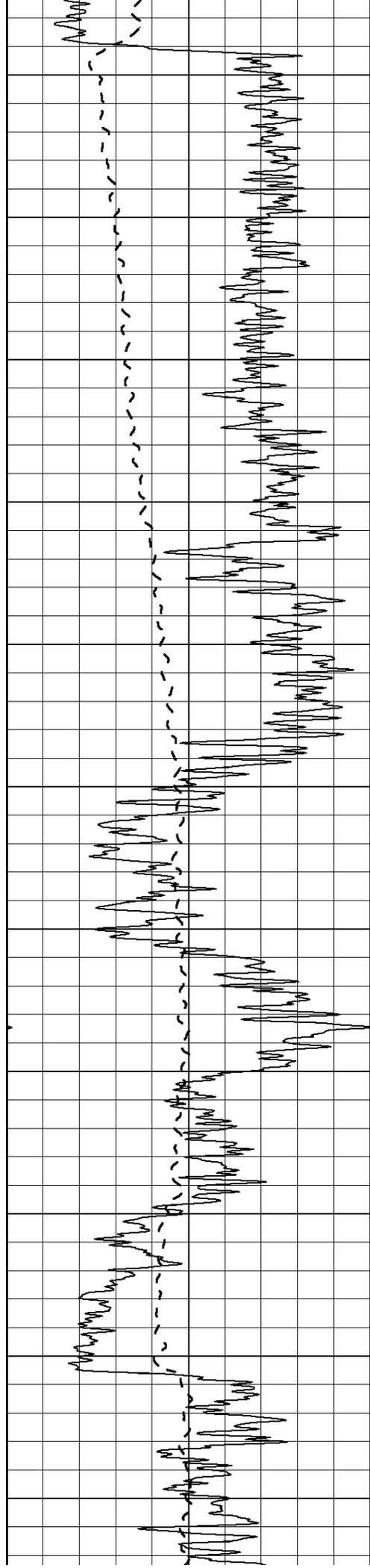
DIRECTIONS : PHILLIPSBURG, KS. - WEST TO THE NORTON CO. LINE - SOUTH 3 1/2 MILES - WEST INTO

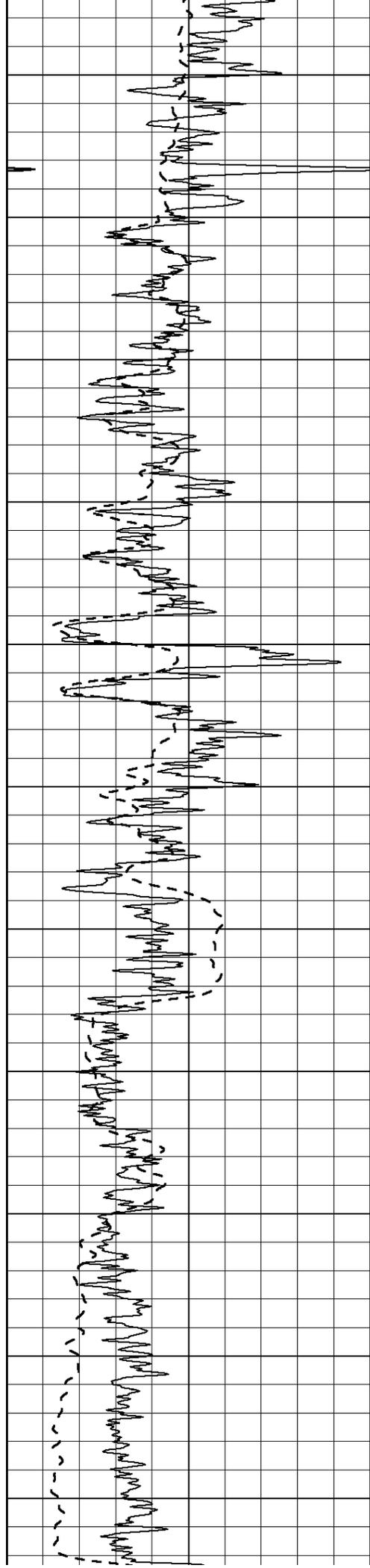
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-100	SP (mV)	100

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

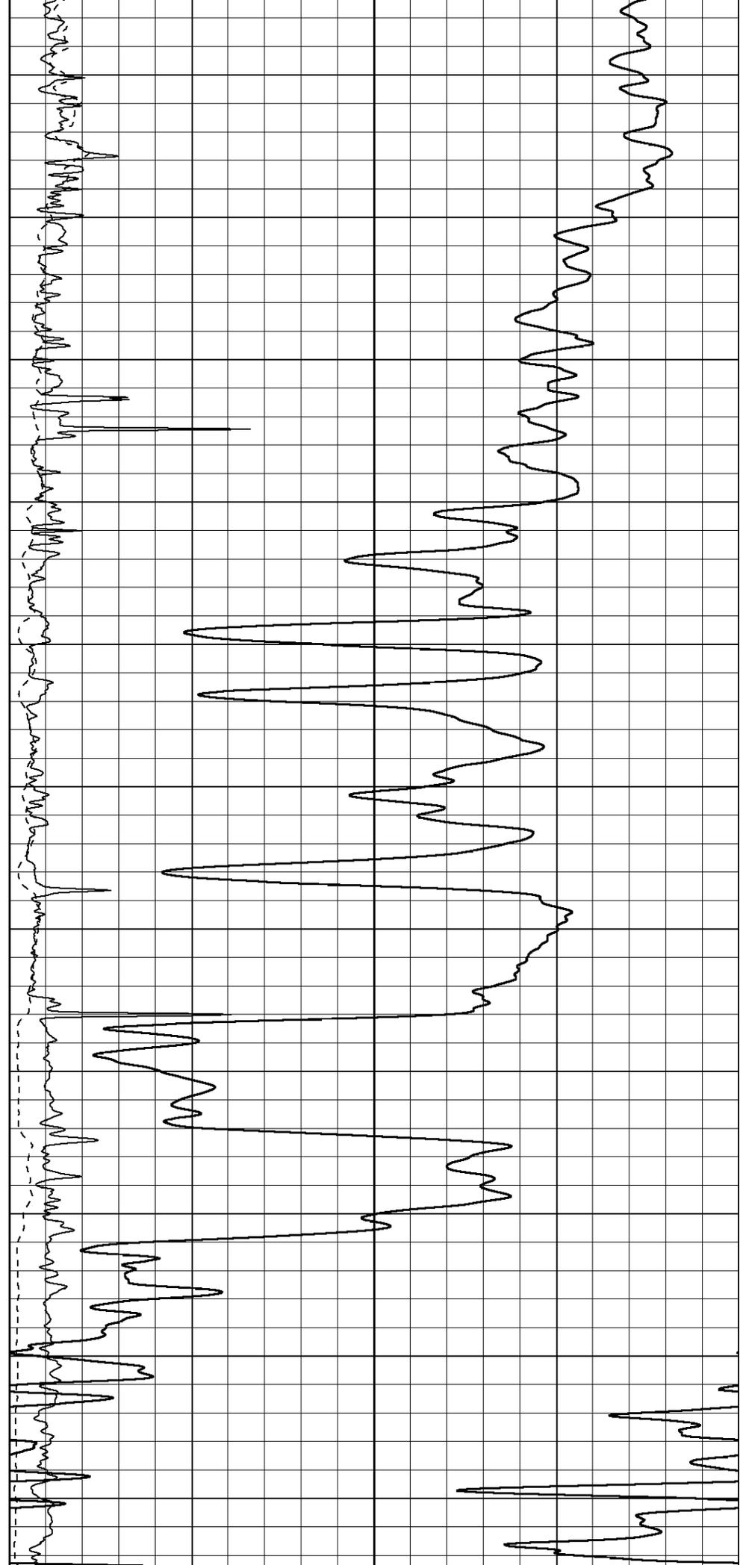
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50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

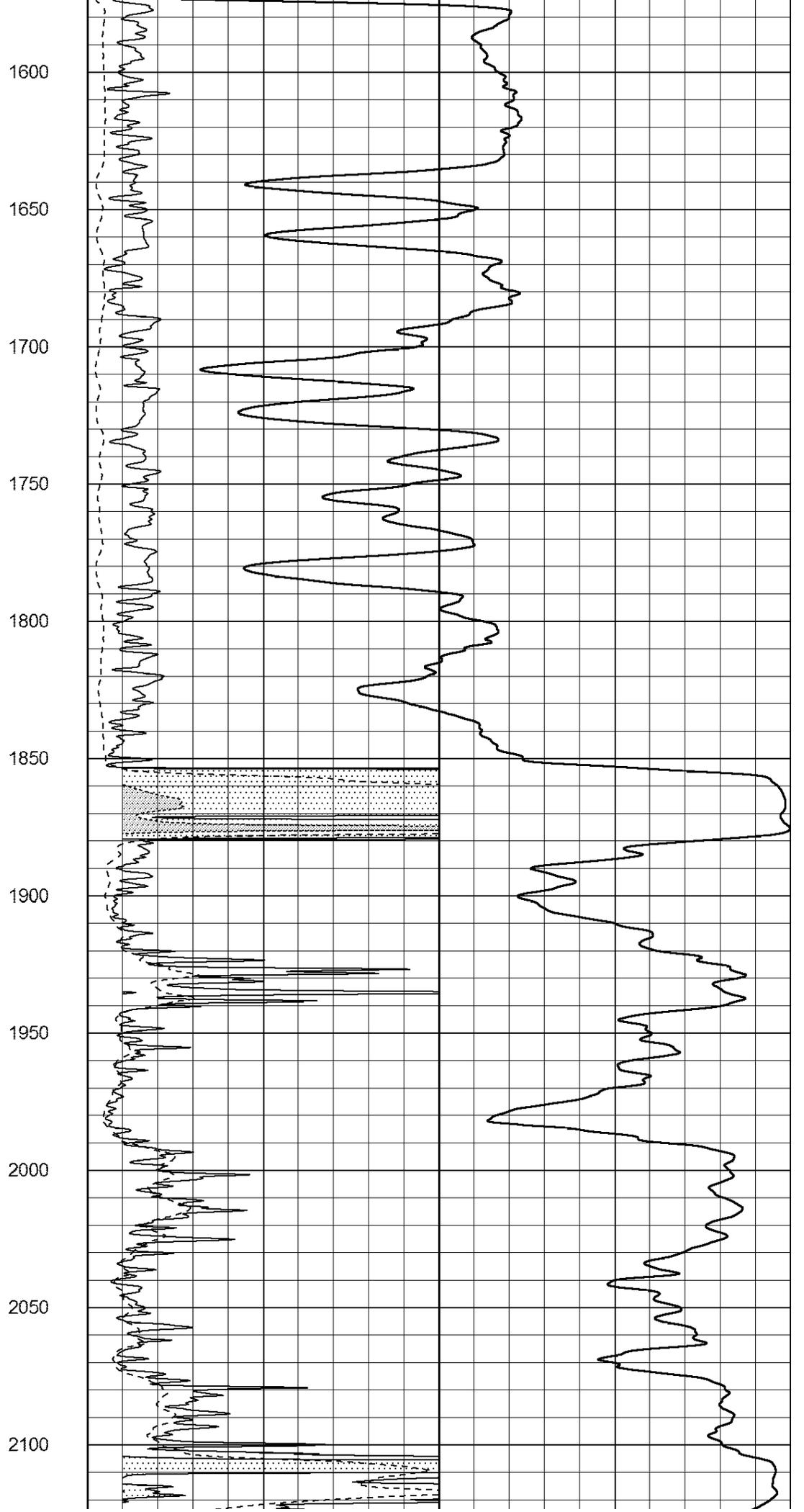
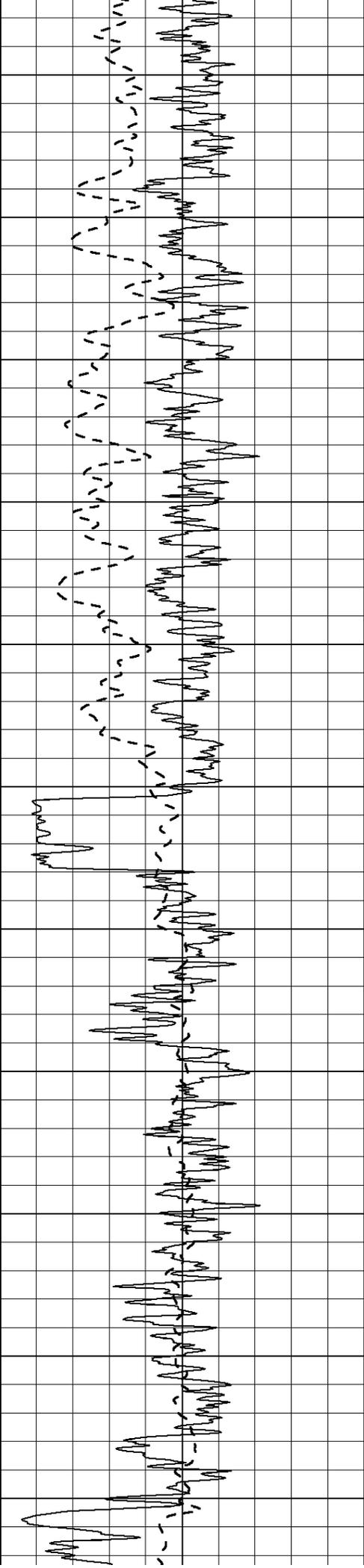


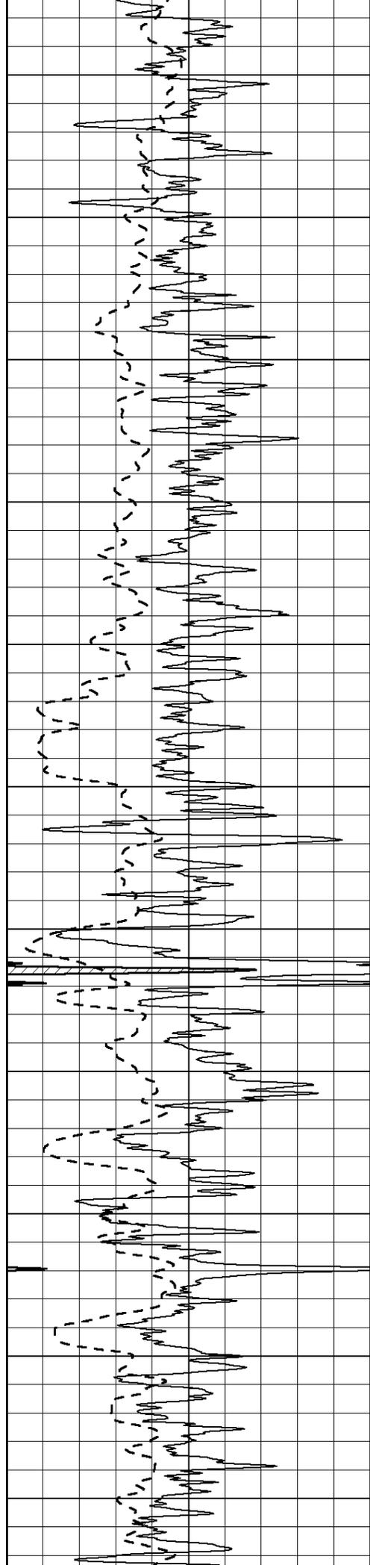




1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550







2150

2200

2250

2300

2350

2400

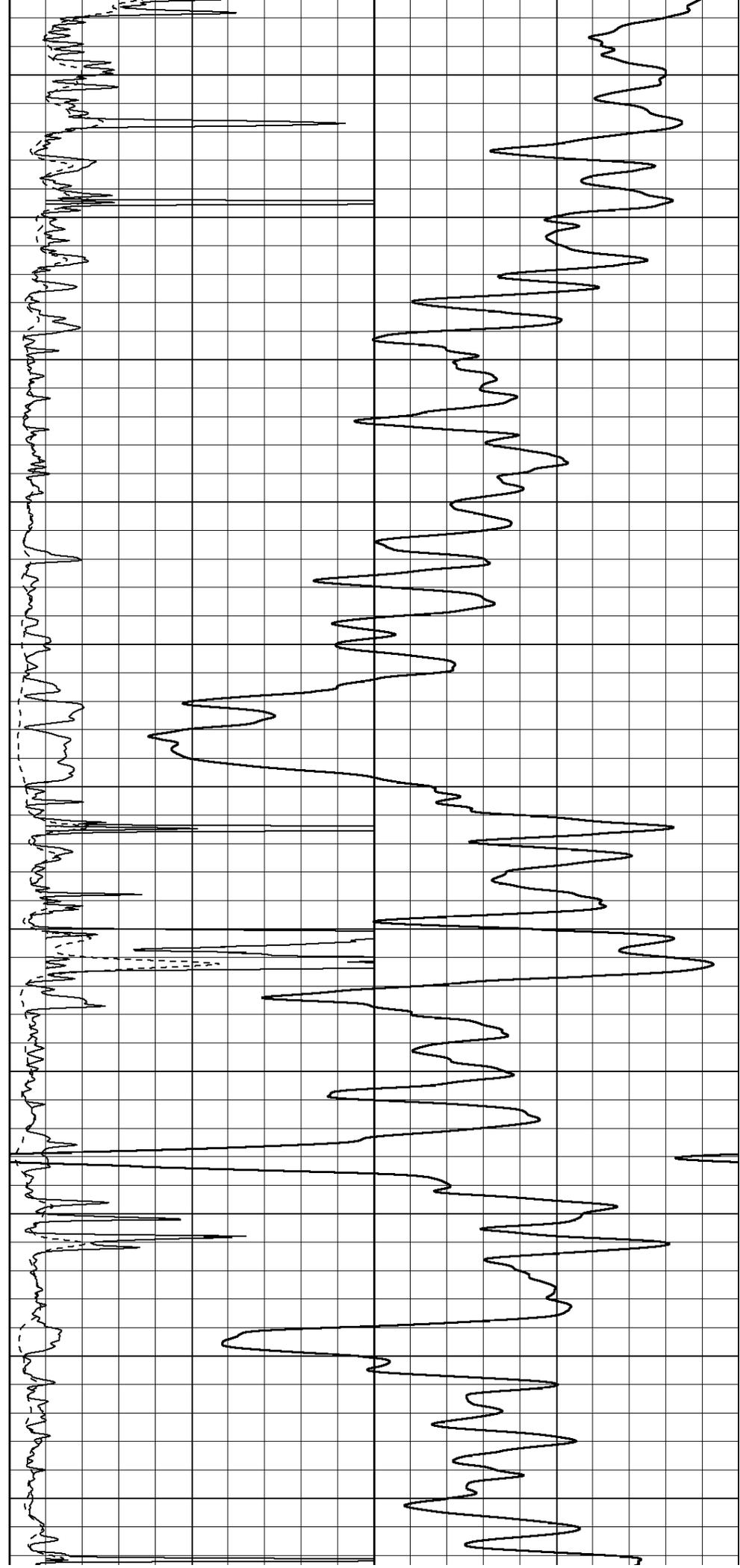
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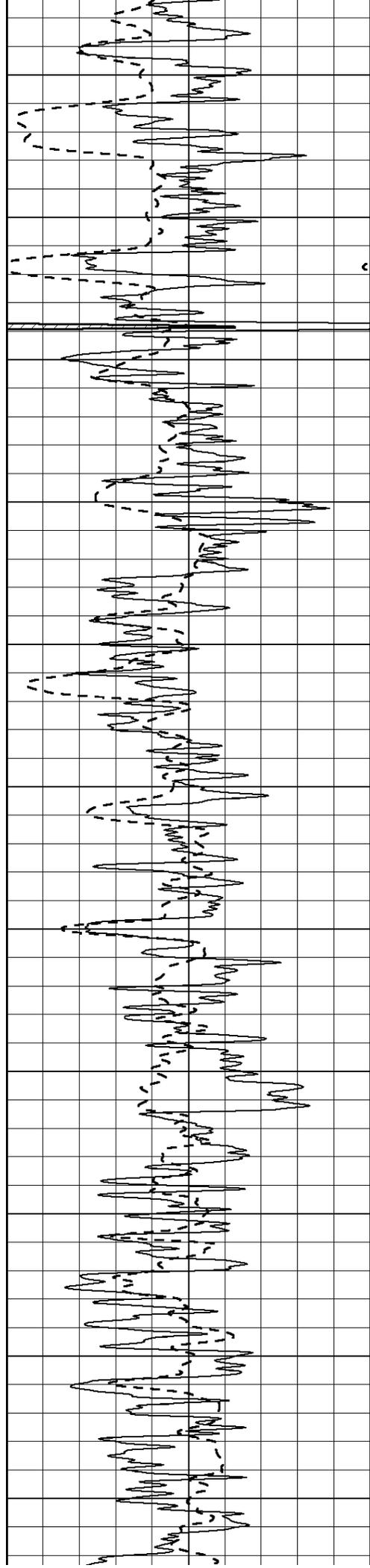
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2550

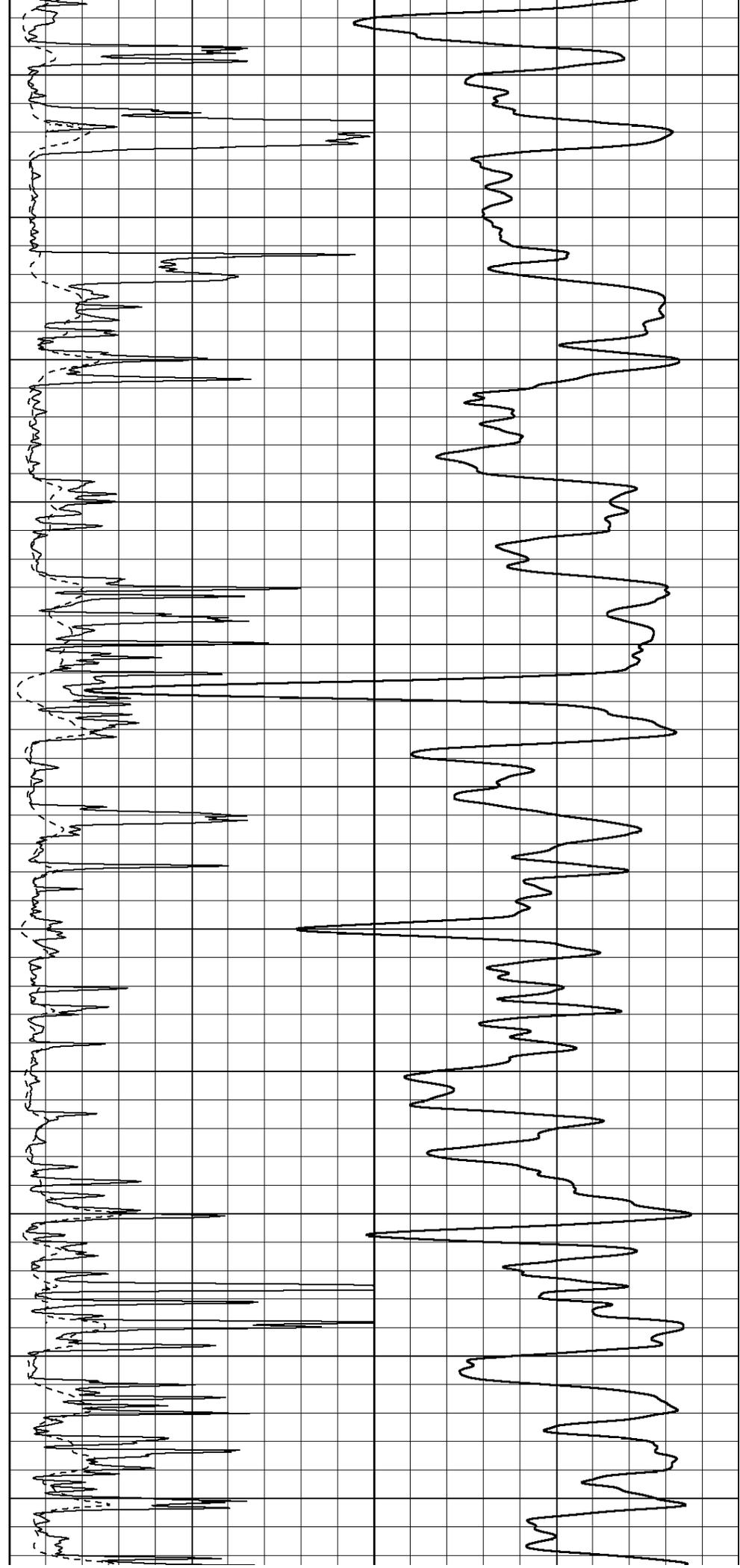
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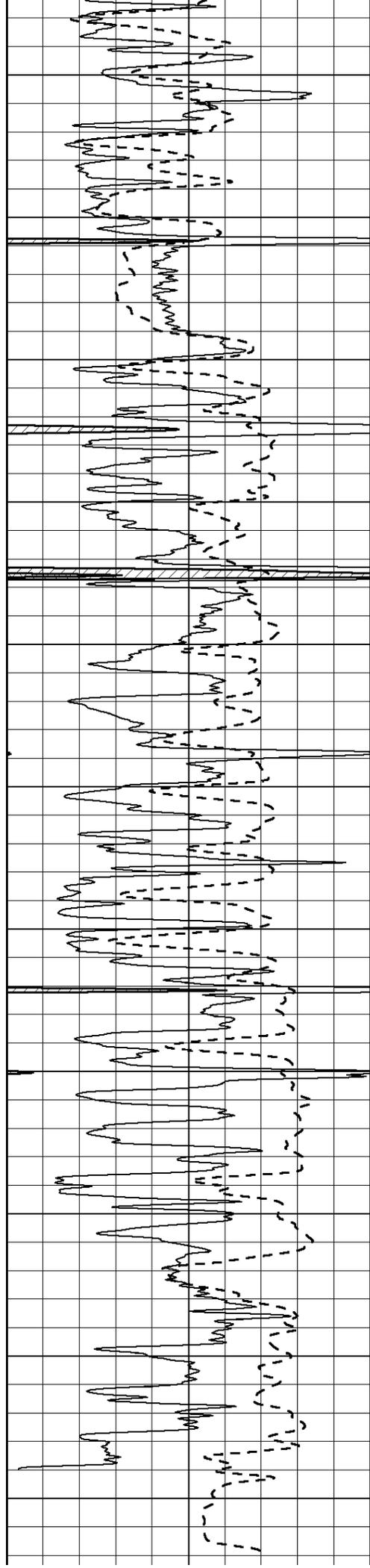
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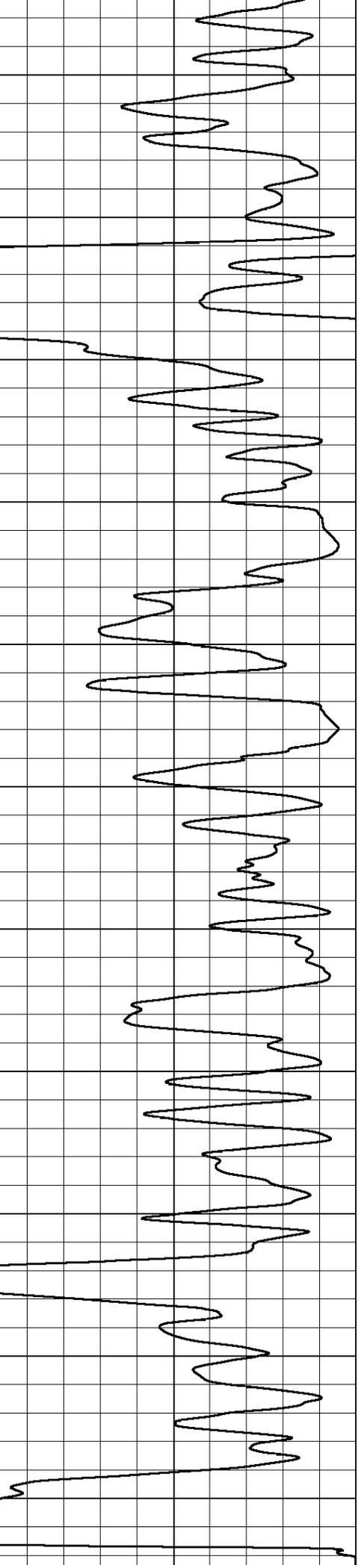
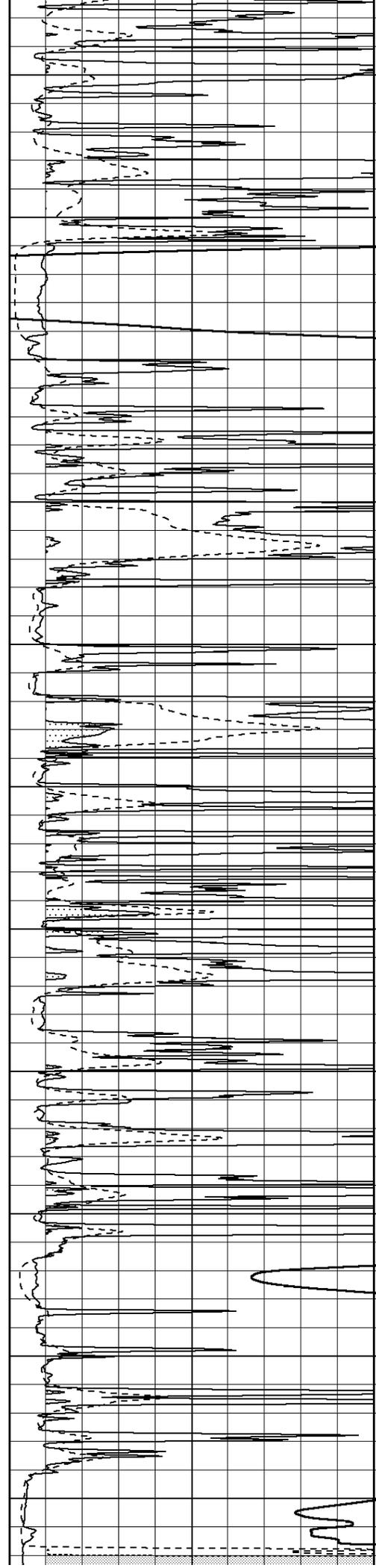


2700
2750
2800
2850
2900
2950
3000
3050
3100
3150
3200





3250
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750



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

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

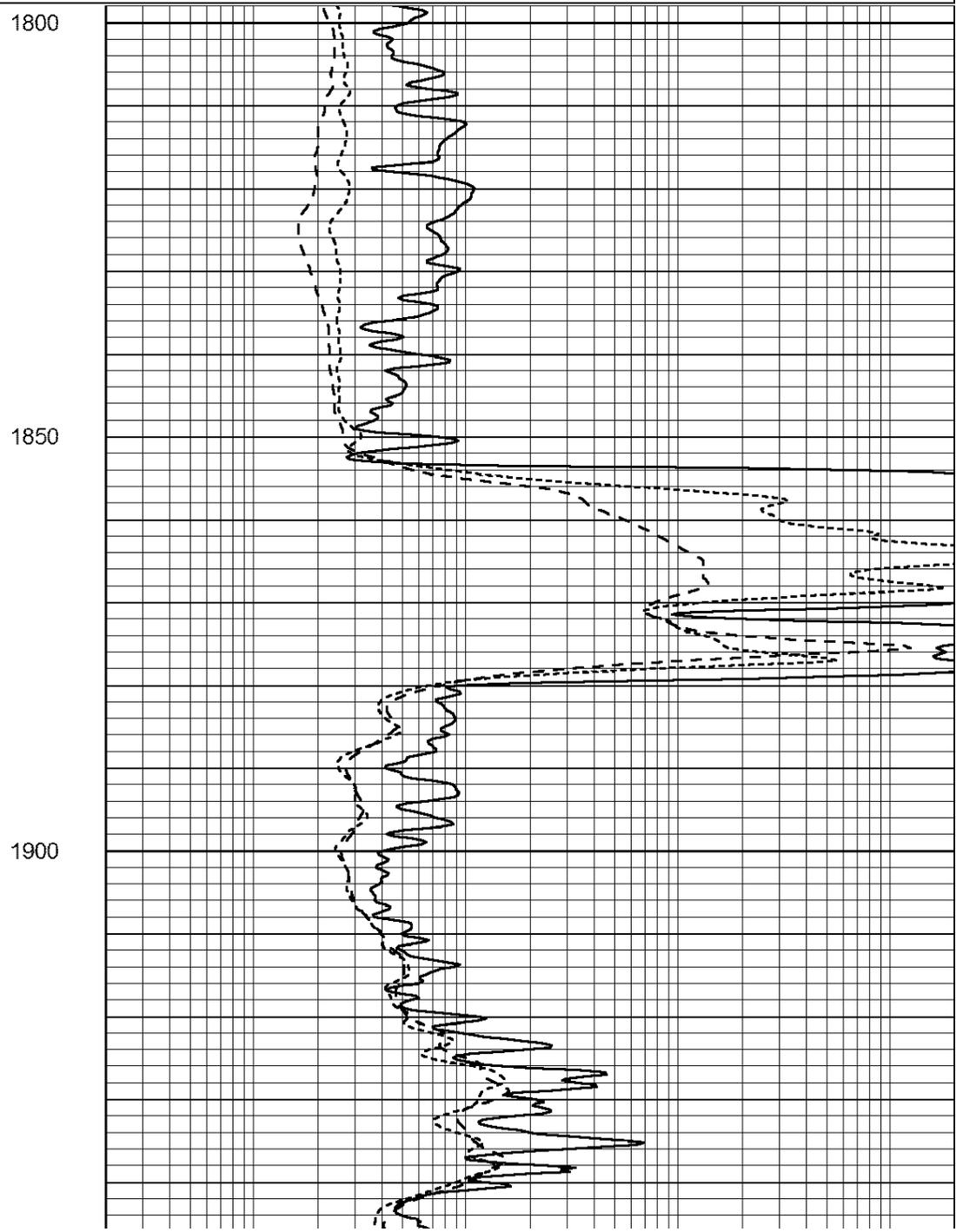
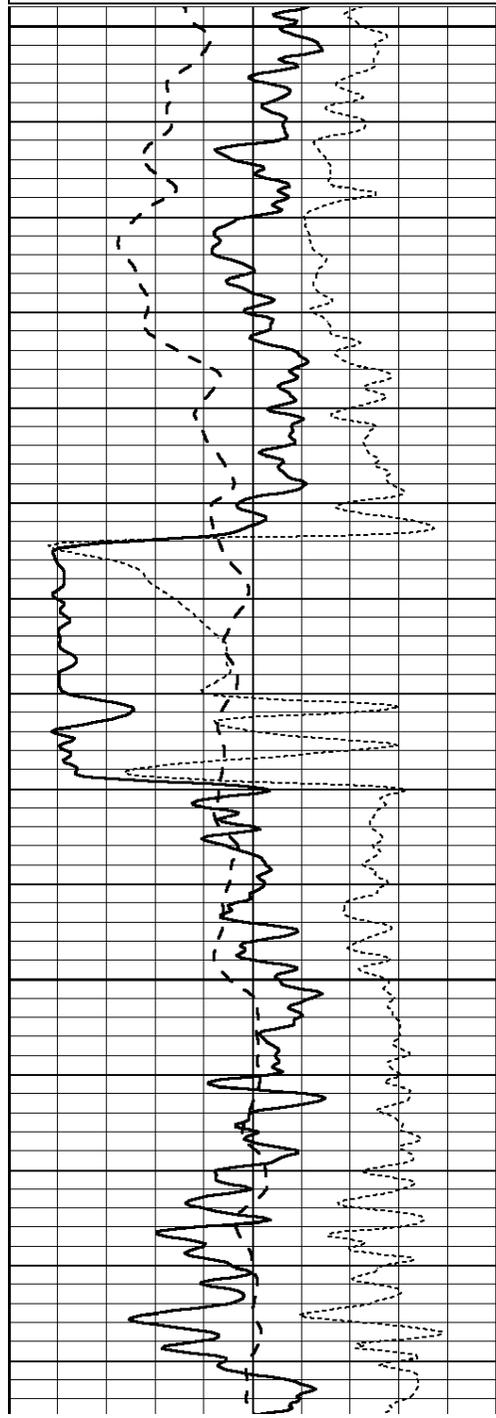
1000	CILD (mmho/m)	0
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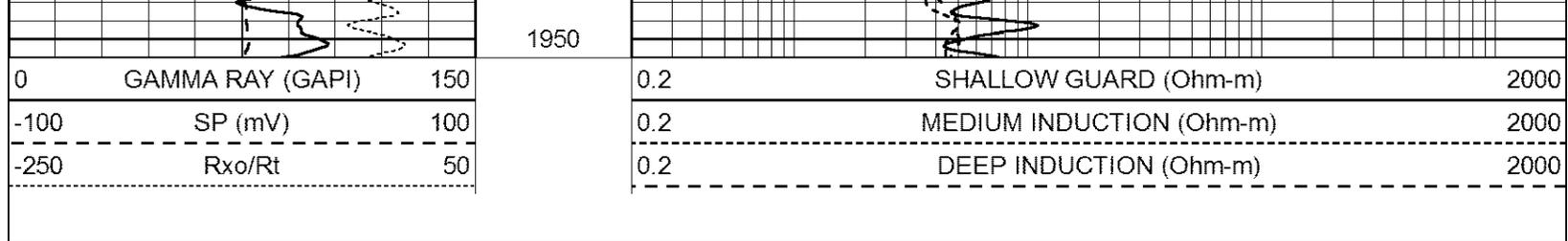
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

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 Presentation Format: _dil
 Dataset Creation: Mon Dec 08 05:08:48 2014 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

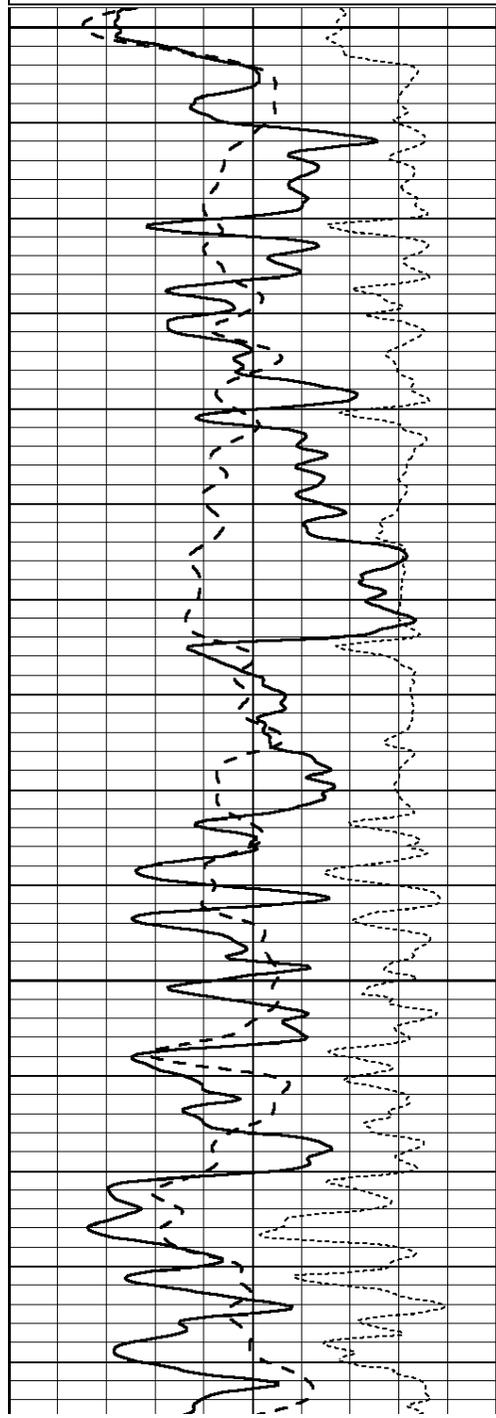
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

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





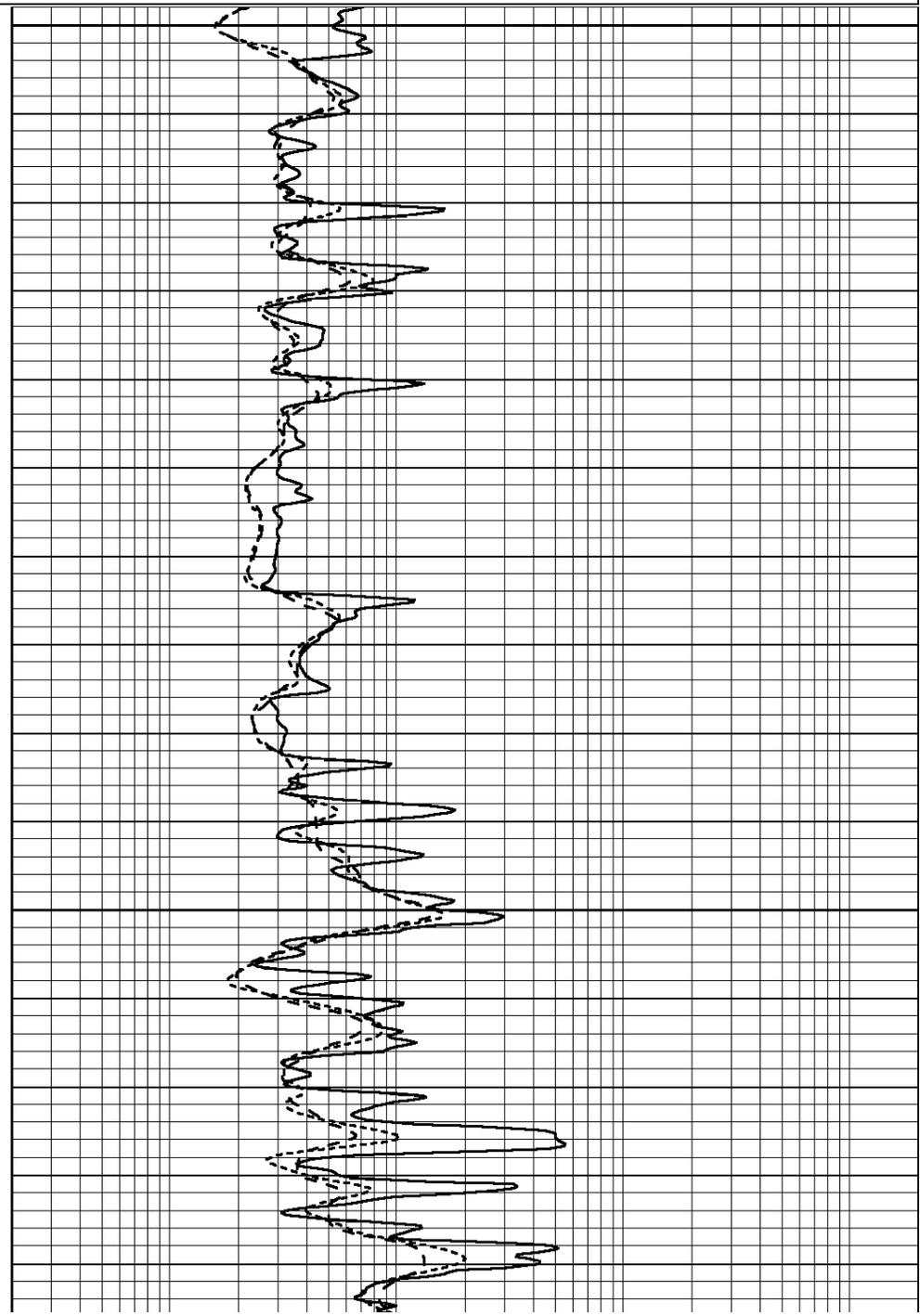
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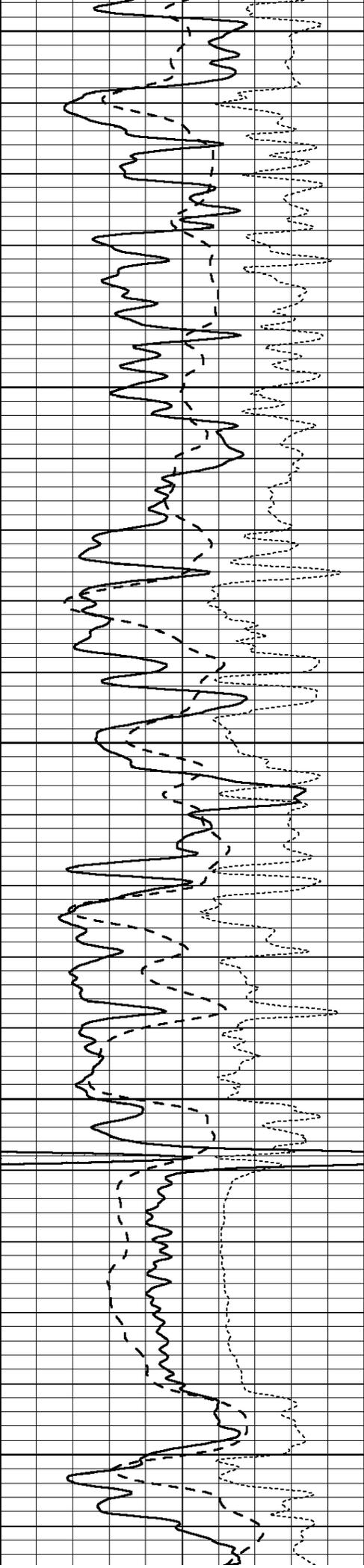


3000

 3050

 3100





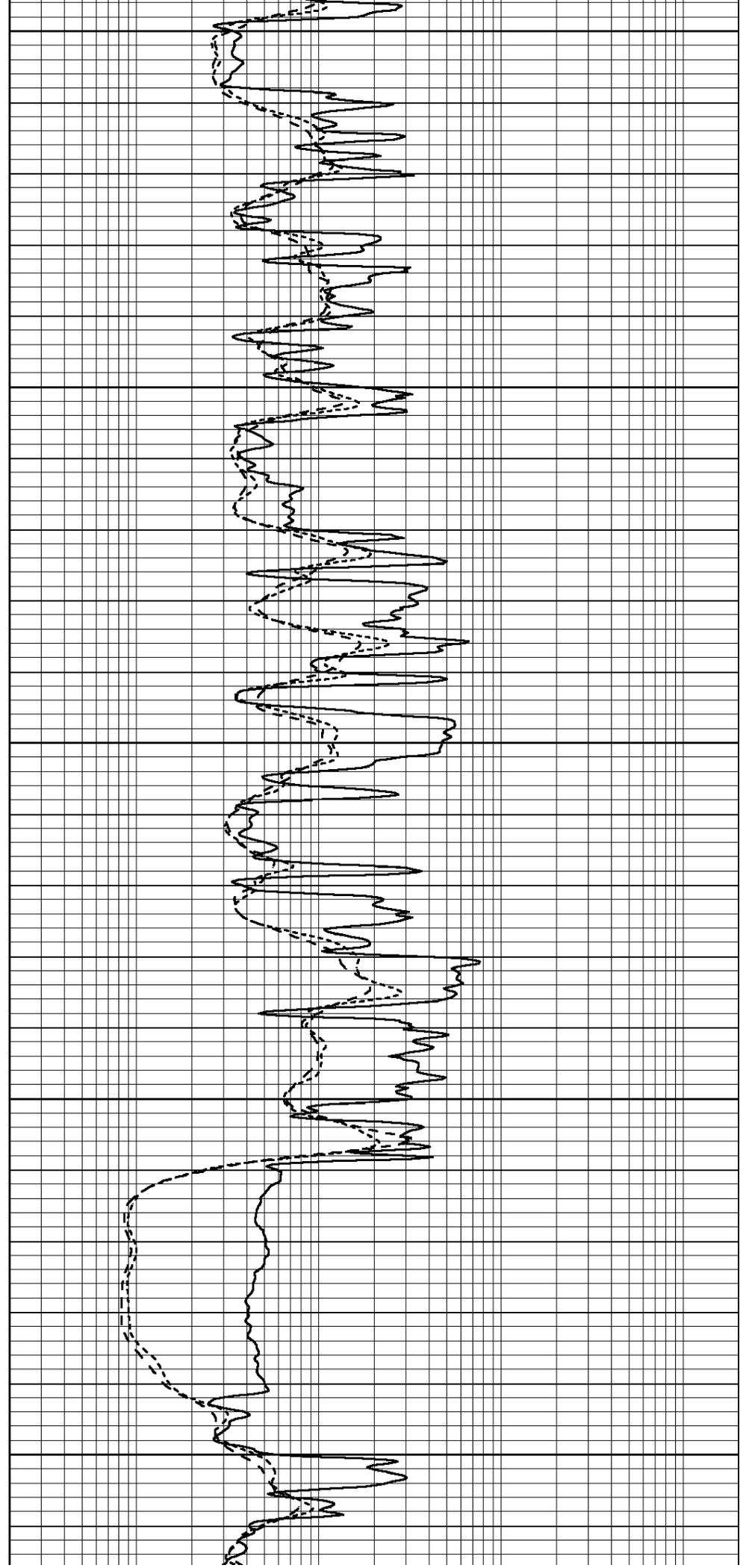
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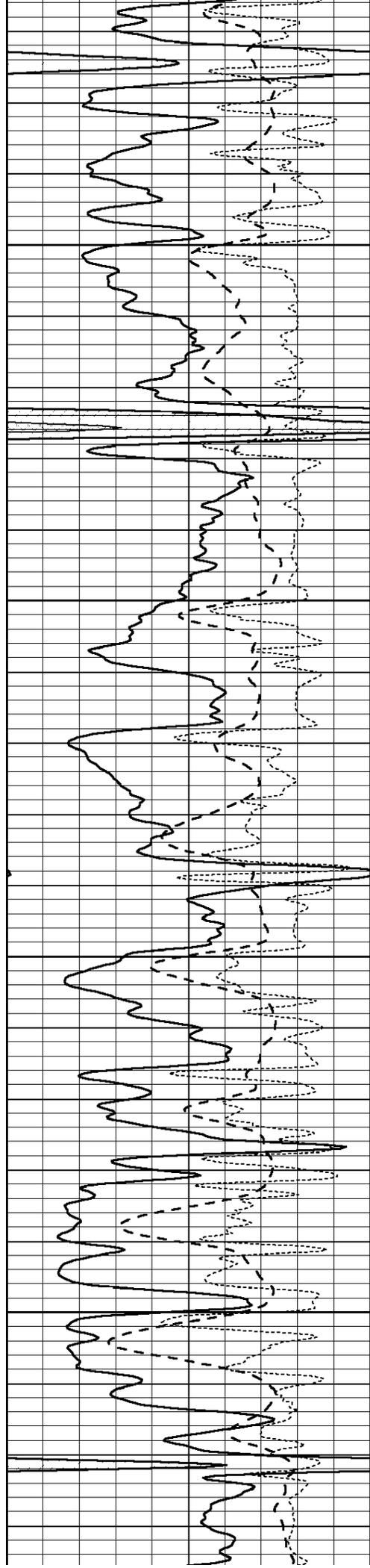
3200

3250

3300

3350



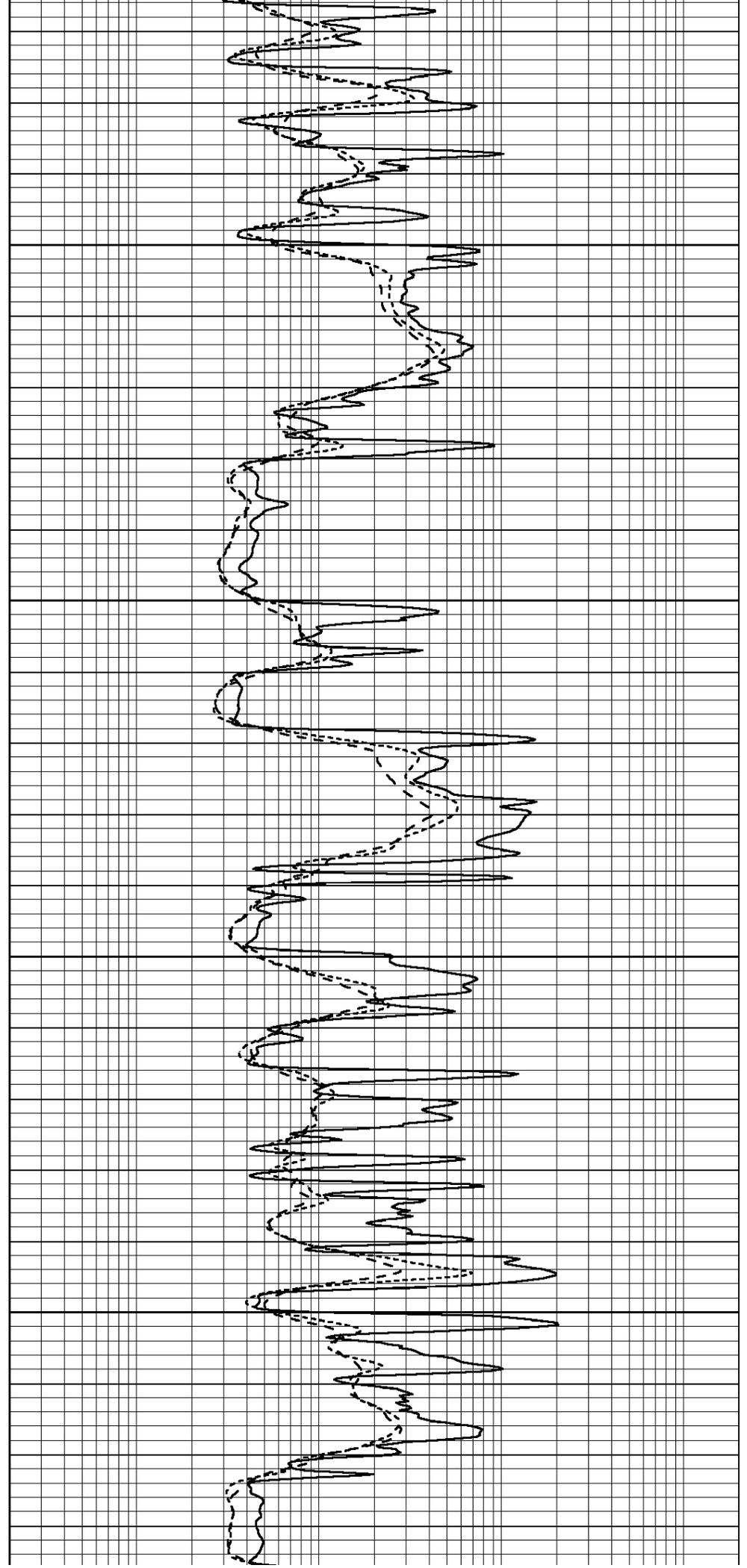


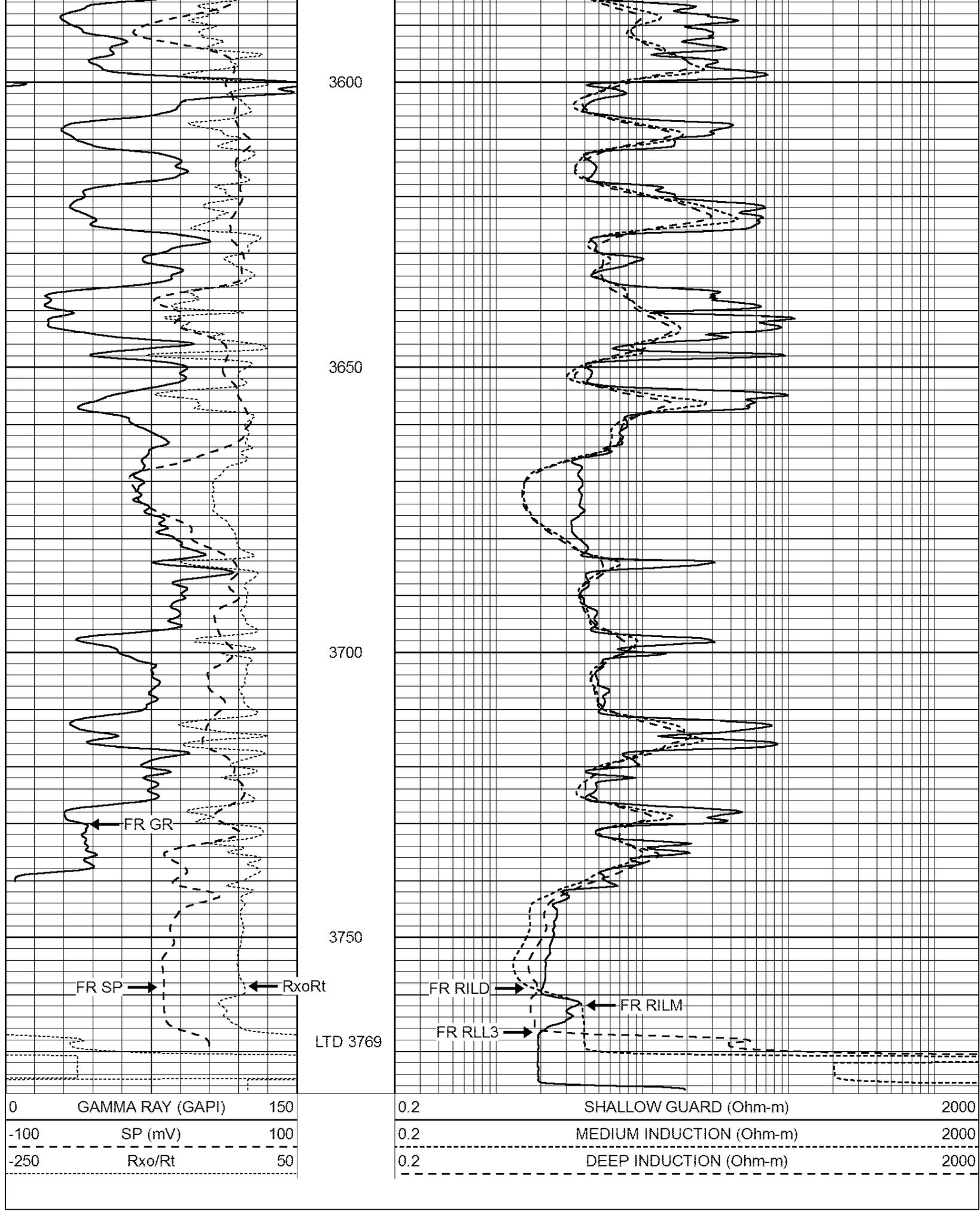
3400

3450

3500

3550



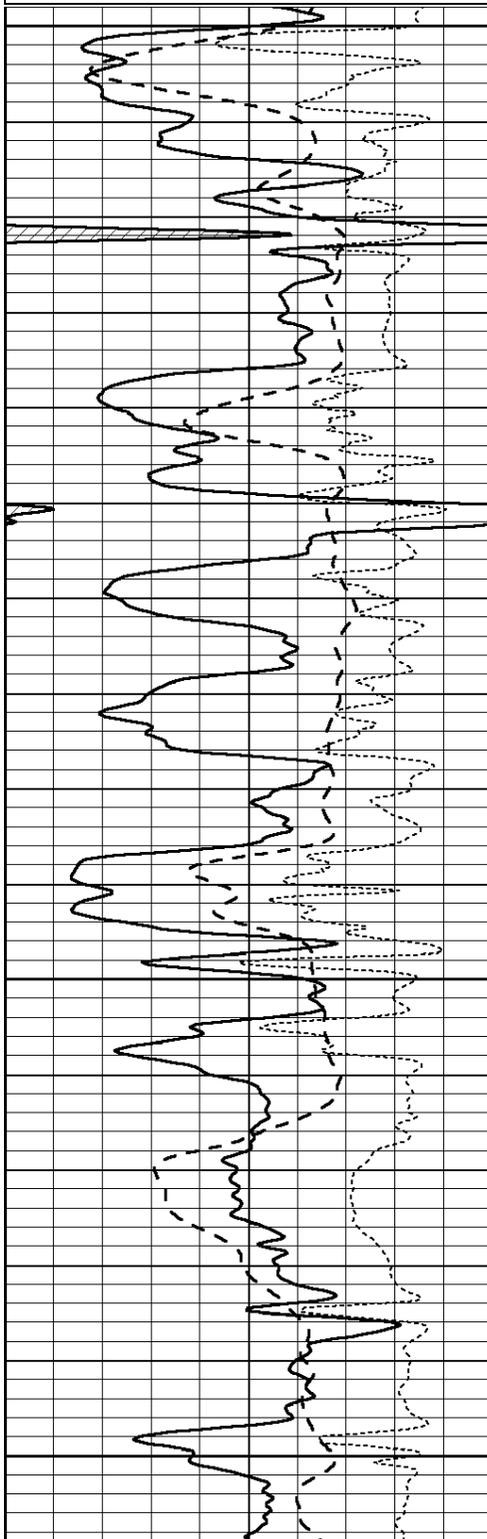


REPEAT SECTION

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Dataset Pathname: pass3.1
Presentation Format: _dil
Dataset Creation: Mon Dec 08 04:02:32 2014 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

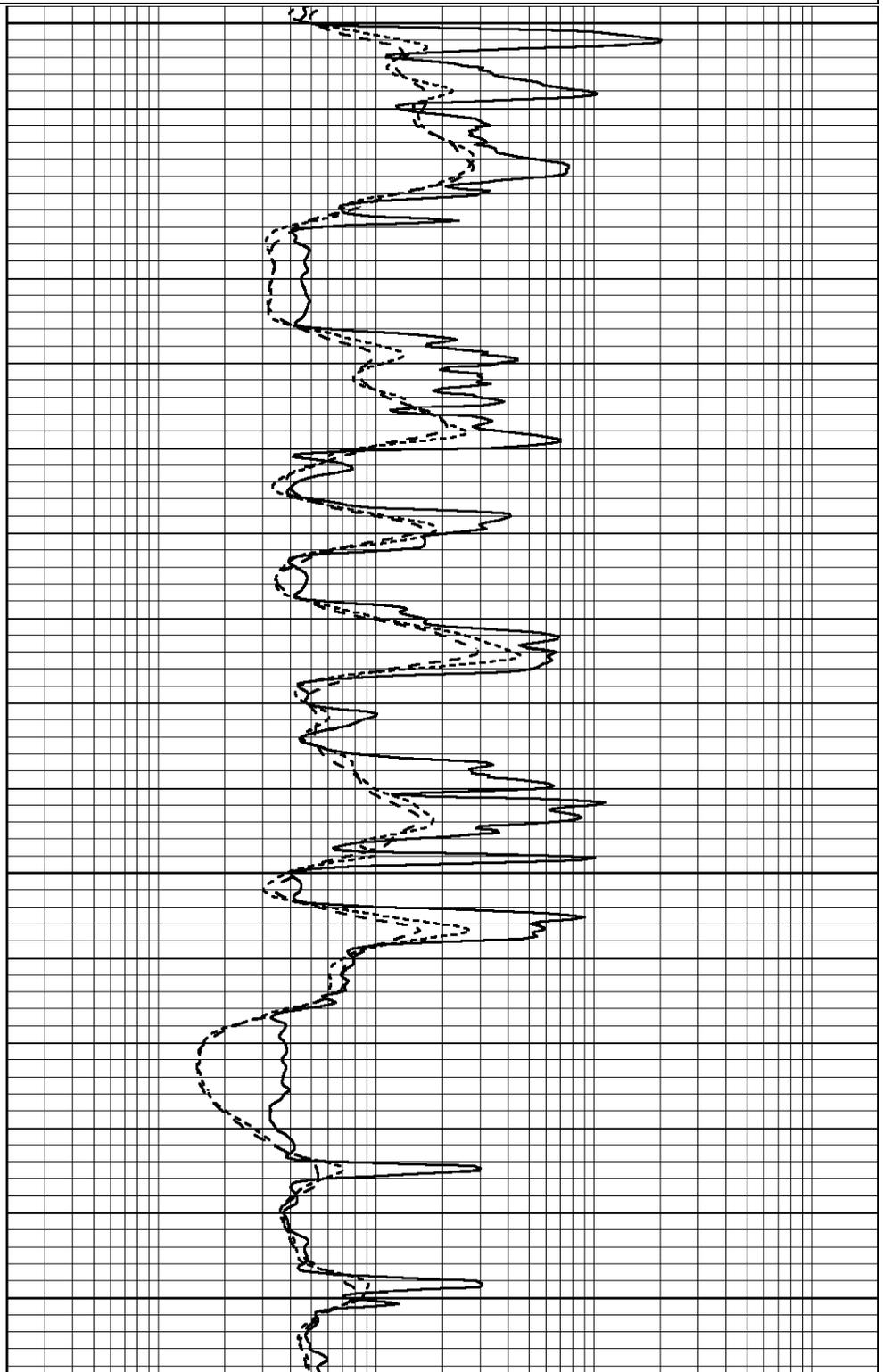


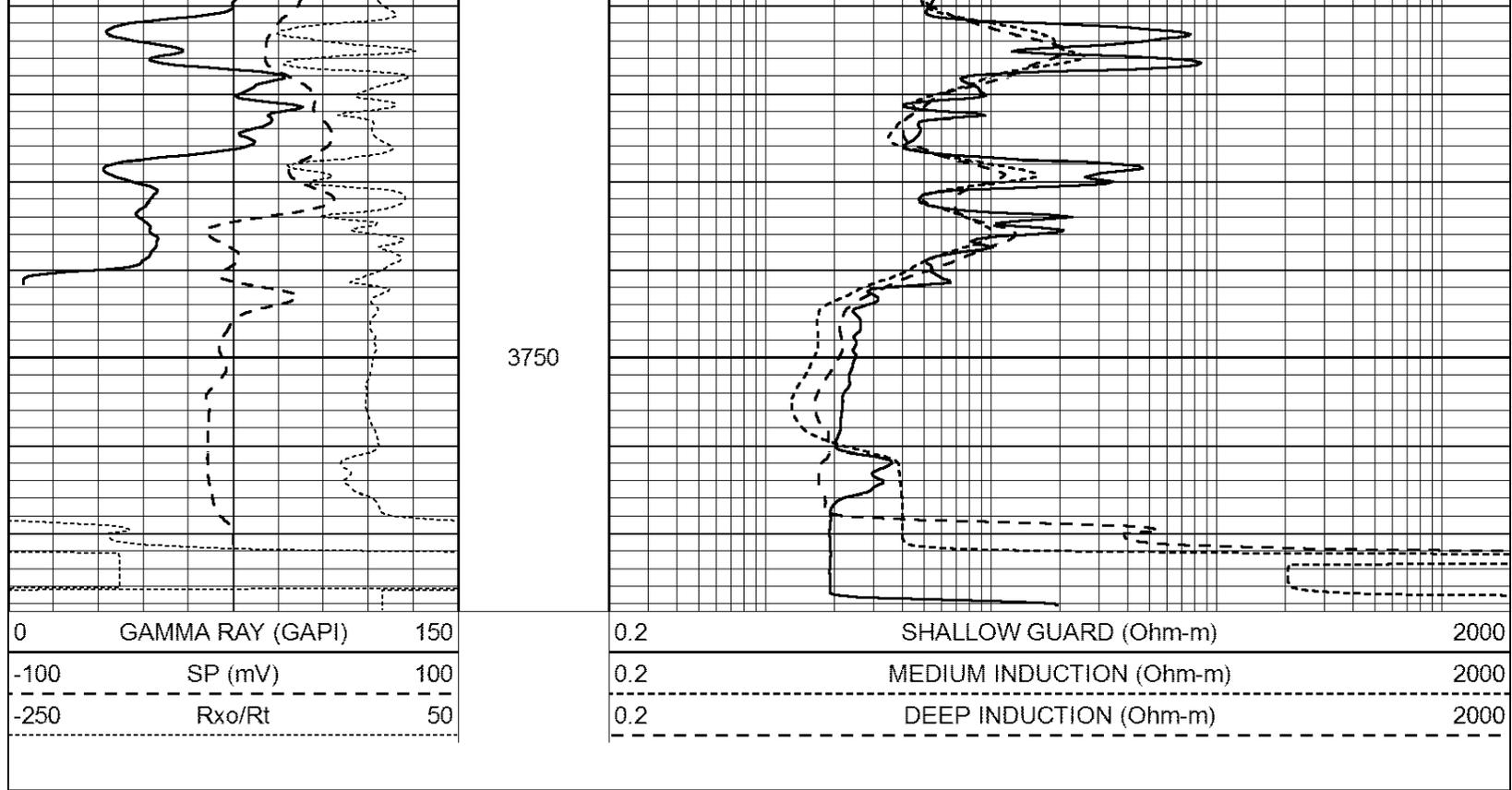
3550

3600

3650

3700





Calibration Report

Database File: 26270ddn.db
 Dataset Pathname: pass4.3
 Dataset Creation: Mon Dec 08 05:08:48 2014 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Fri Dec 05 11:16:41 2014
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		Air	Loop		m	b
Deep	0.793	0.790	V	0.000	400.000	mmho/m	520.000	12.000
Medium	0.992	1.002	V	0.000	464.000	mmho/m	570.000	-32.000
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
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	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: GEAR5-GEARHART
 Source / Verifier: 147 / 147
 Master Calibration Performed: Sat Nov 29 00:24:07 2014
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	848.07	511.00	cps
Aluminum	2.610	g/cc	183.22	341.84	cps
Spine Angle = 75.30			Density/Spine Ratio = 0.568		
	Size		Reading		
Small Ring	8.20	in	1.64	V	
Large Ring	14.00	in	2.93	V	

Before Survey Verification

Target	Measured
g/cc	g/cc
g/cc	g/cc
g/cc	g/cc

After Survey Verification

Target	Measured
g/cc	g/cc
g/cc	g/cc
g/cc	g/cc

Compensated Neutron Calibration Report

Serial Number: 080620
 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: 46001
 Tool Model: Probe1
 Performed: Mon Nov 24 00:15:18 2014

Performed:

MON NOV 24 09:43:18 2014

Calibrator Value:

1.0

GAPI

Background Reading:

0.0

cps

Calibrator Reading:

1.0

cps

Sensitivity:

0.2600

GAPI/cps