NABORS COMPLETION & PRODUCTION SERVICES CO.

DUAL INDUCTION LOG

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

Company BLACK DIAMOND OIL, INC.

Well MULDER #1

Field WILDCAT

County NORTON State KANSAS

Location: API # : 15-137-20633-0000

335' FSL & 1185' FEL
NW - SW - SE - SE
SEC 21 TWP 3S RGE 21W

Other Services
CDL/CNL
MEL

Permanent Datum GROUND LEVEL Elevation 2305
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2313
D.F. 1311
G.L. 1305

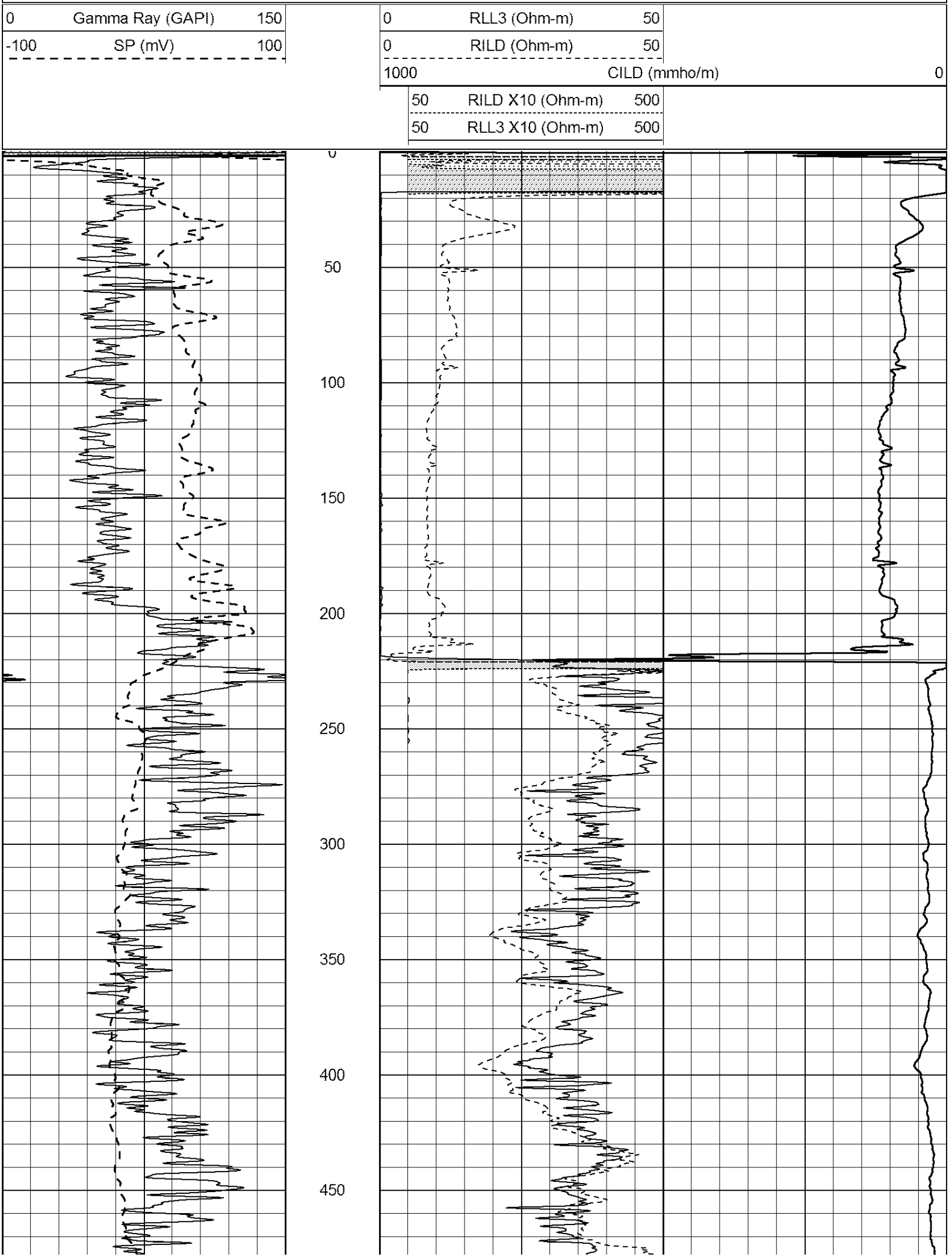
Date	2/27/13		
Run Number	ONE		
Depth Driller	3830		
Depth Logger	3831		
Bottom Logged Interval	3829		
Top Log Interval	0		
Casing Driller	8 5/8" @ 221		
Casing Logger	220		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 800 PPM	
Density / Viscosity	9.2/47		
pH / Fluid Loss	10.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.95@ 69F		
Rmf @ Meas. Temp	0.71 @ 69F		
Rmc @ Meas. Temp	1.14 @ 69F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.58 @ 114F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	114F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEWEG		
Witnessed By	JEFF LAWLER		

<<< Fold Here >>>

Comments

THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS:
LOGAN, KS - 6 MILES WEST TO RD 12 - 7 MILES NORTH TO RD R
1 MILE WEST - 1 MILE NORTH - WEST INTO

Database File:	010650ddn.db
Dataset Pathname:	pass3.6
Presentation Format:	_dil2
Dataset Creation:	Wed Feb 27 09:20:27 2013 by Calc Open-Cased 090629
Charted by:	Depth in Feet scaled 1:600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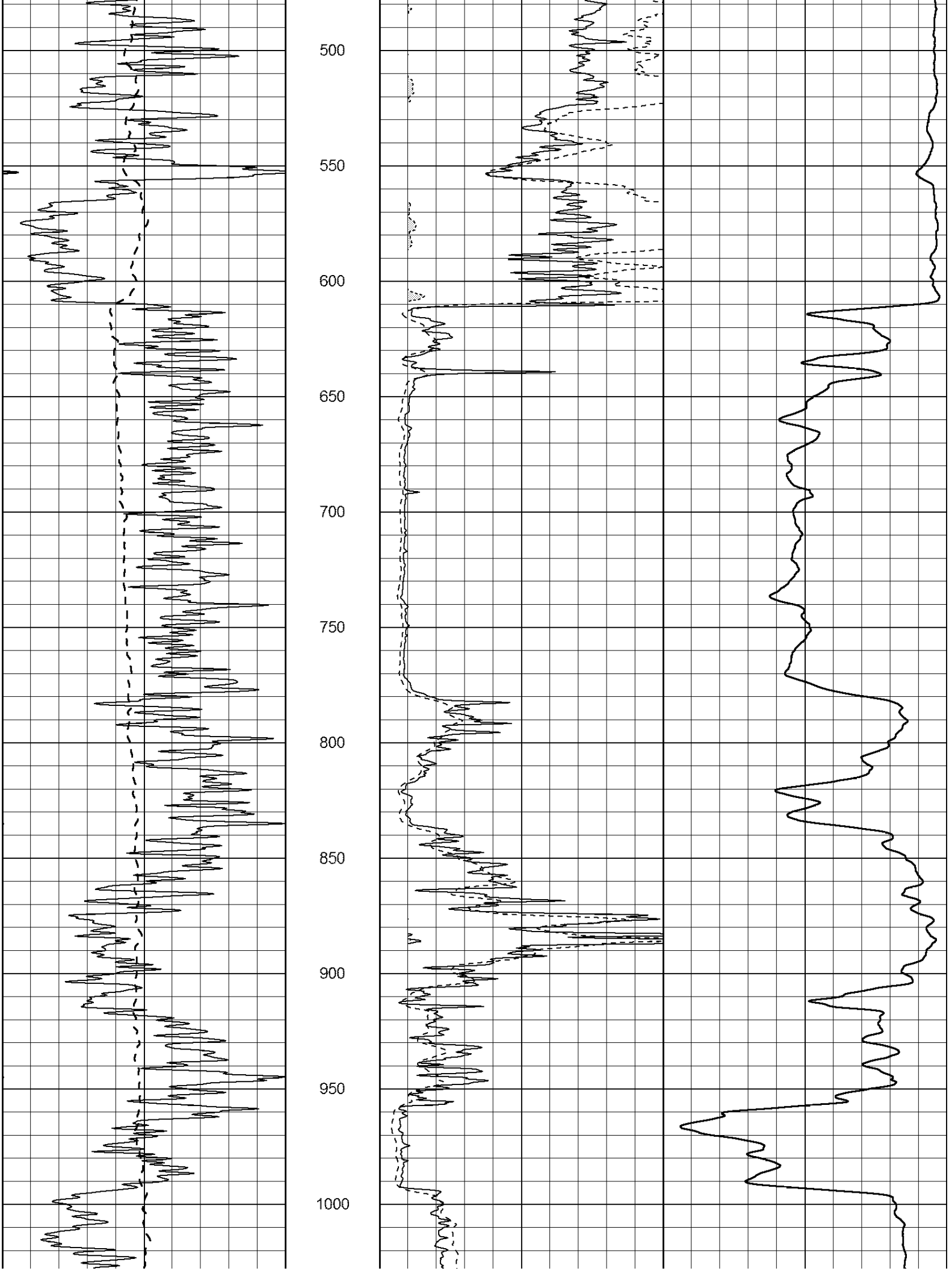
-100 SP (mV) 100
0 RLL3 (Ohm-m) 50
0 RILD (Ohm-m) 50
1000 CILD (mmho/m) 0
50 RILD X10 (Ohm-m) 500
50 RLL3 X10 (Ohm-m) 500
0
50
100
150
200
250
300
350
400
450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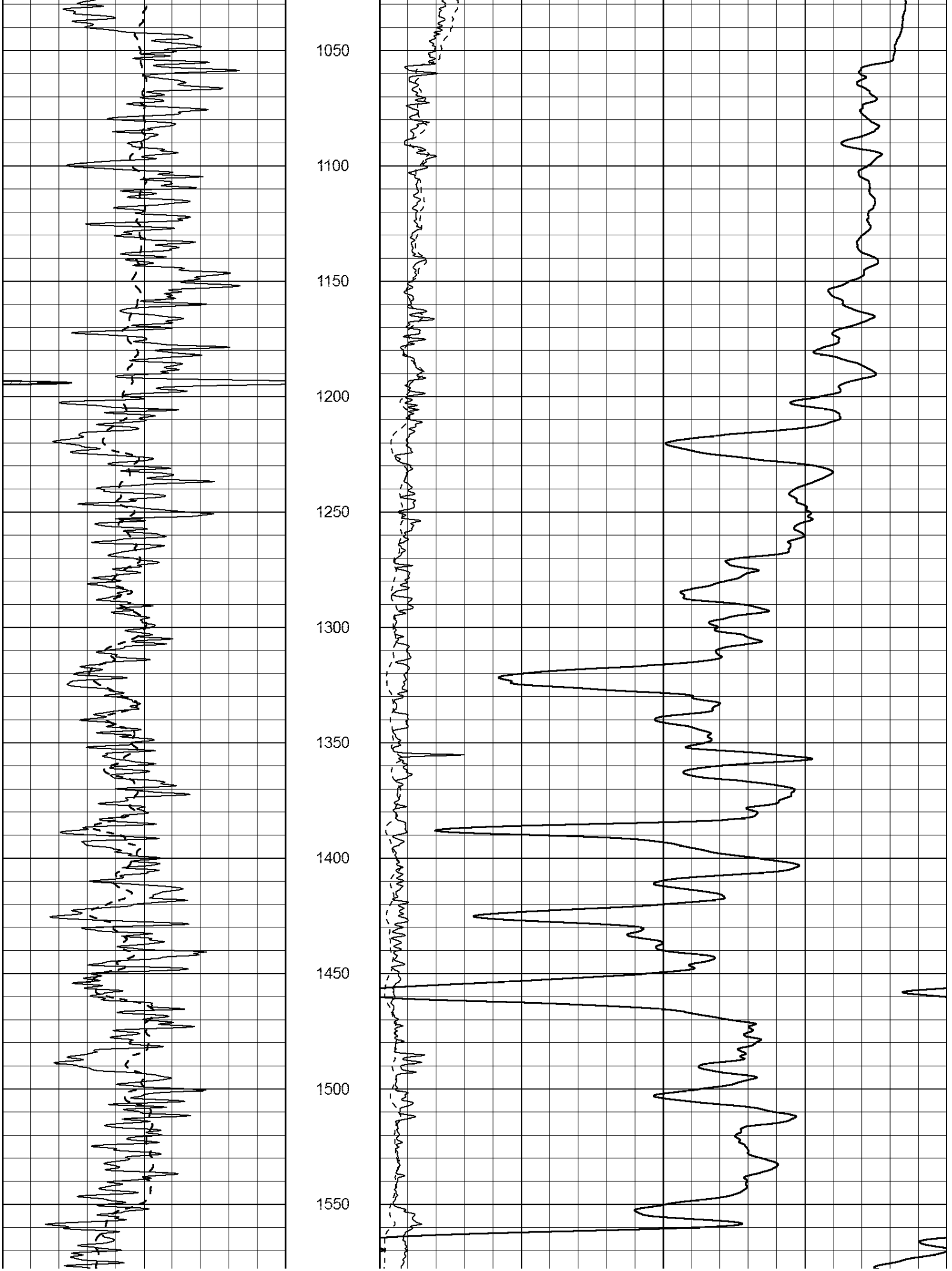
550
600
650
700
750
800
850
900
950
1000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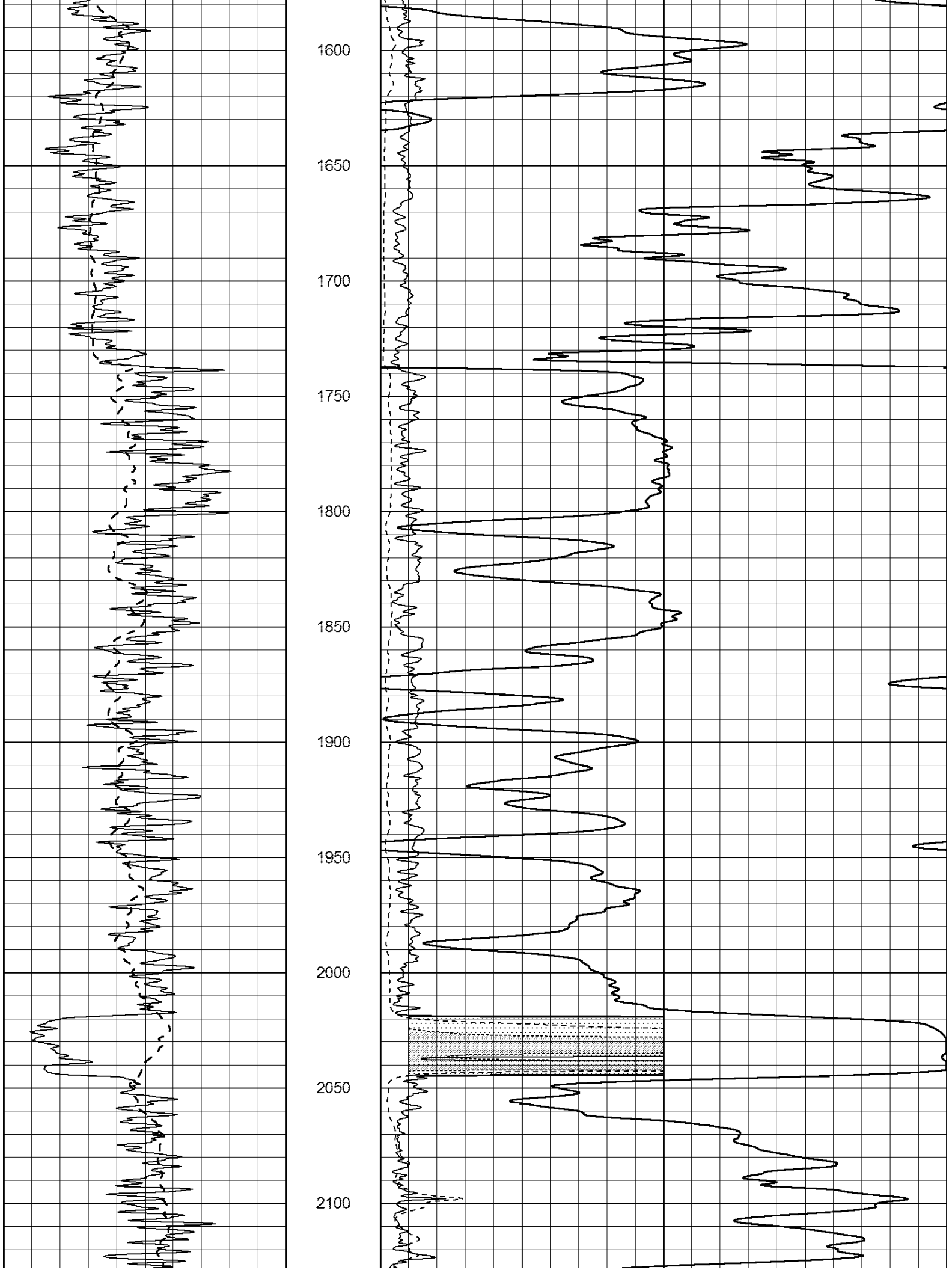
1150
1200
1250
1300
1350
1400
1450
1500
1550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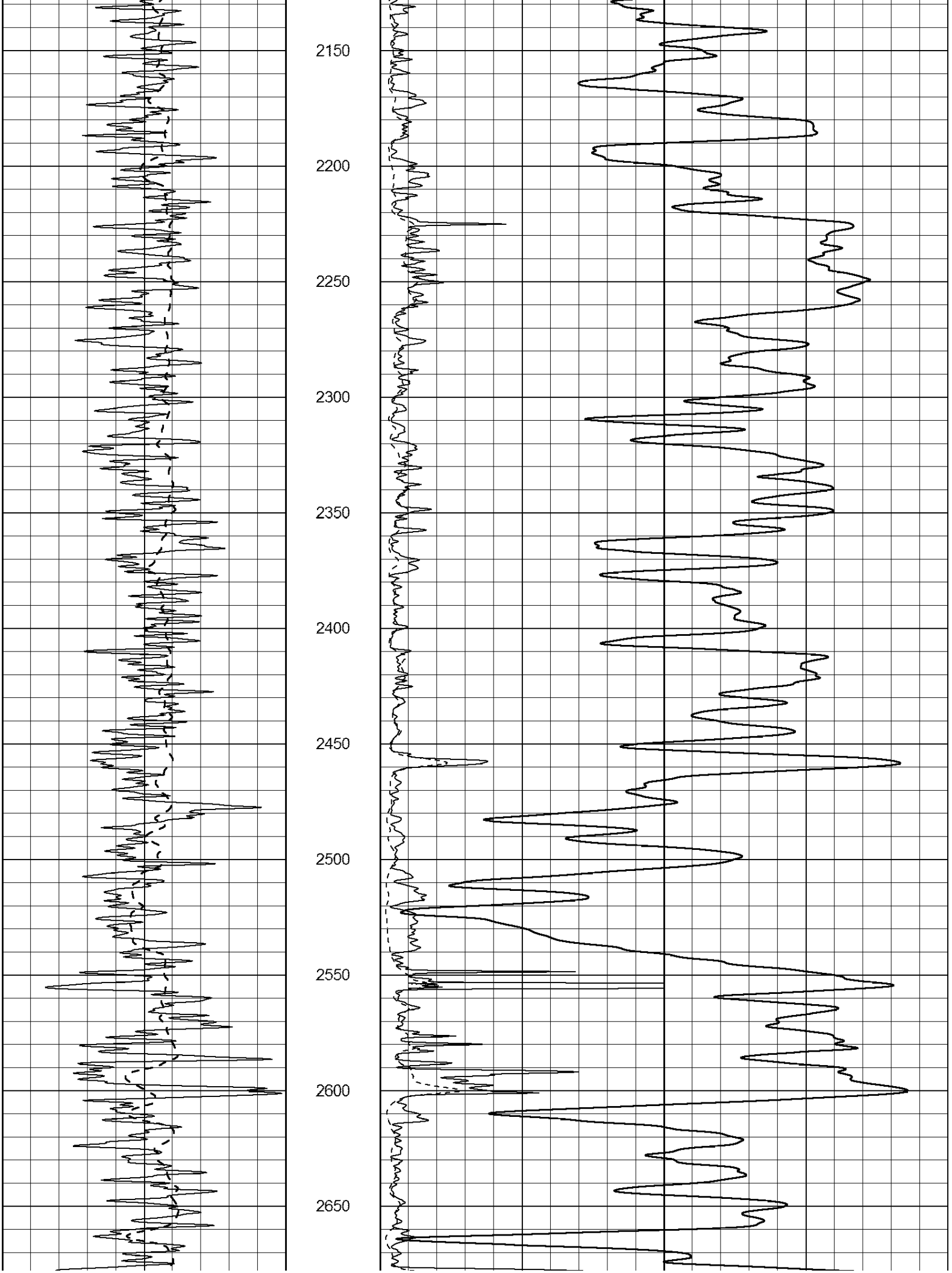
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100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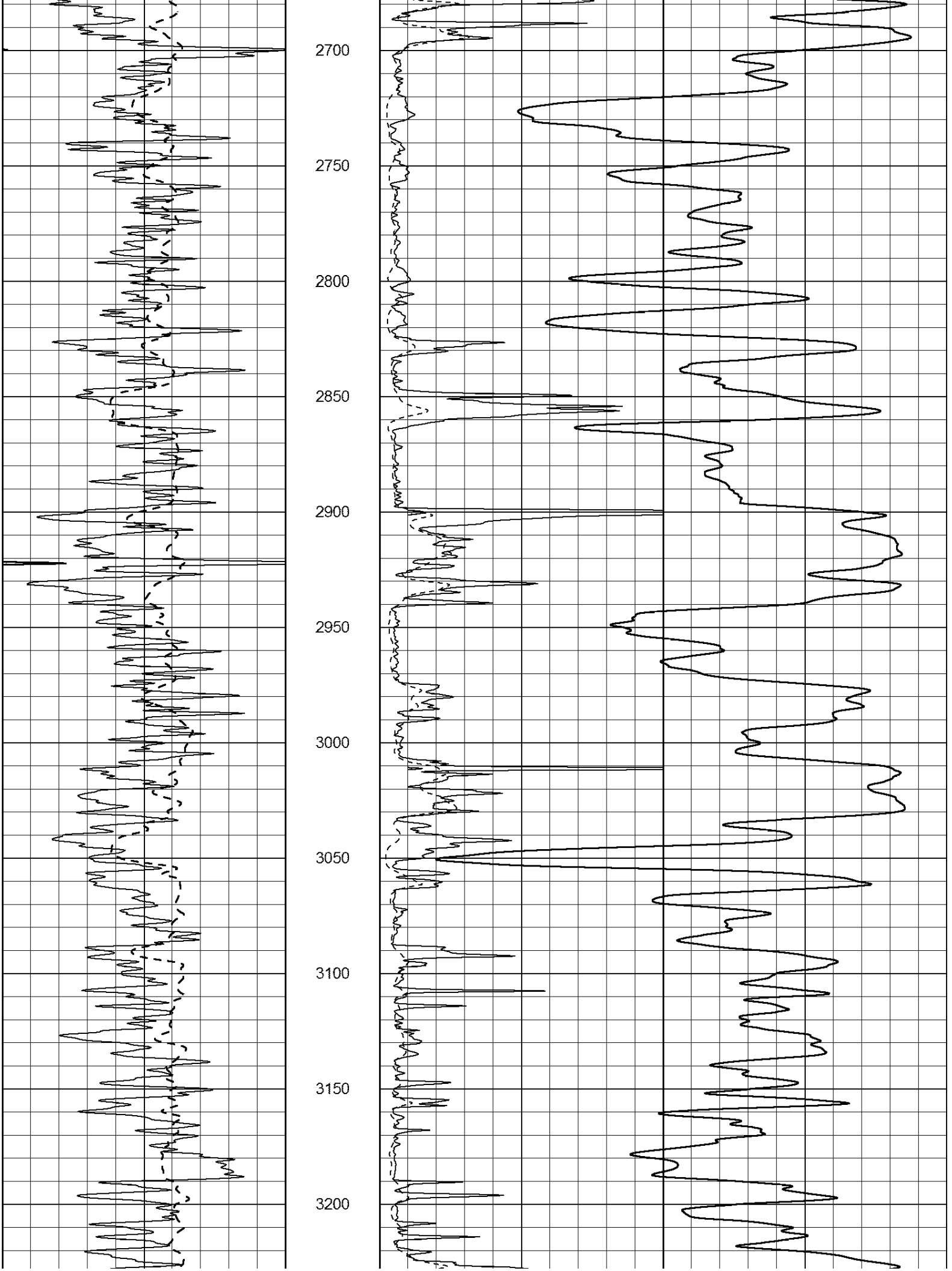
2250
2300
2350
2400
2450
2500
2550
2600
2650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2750
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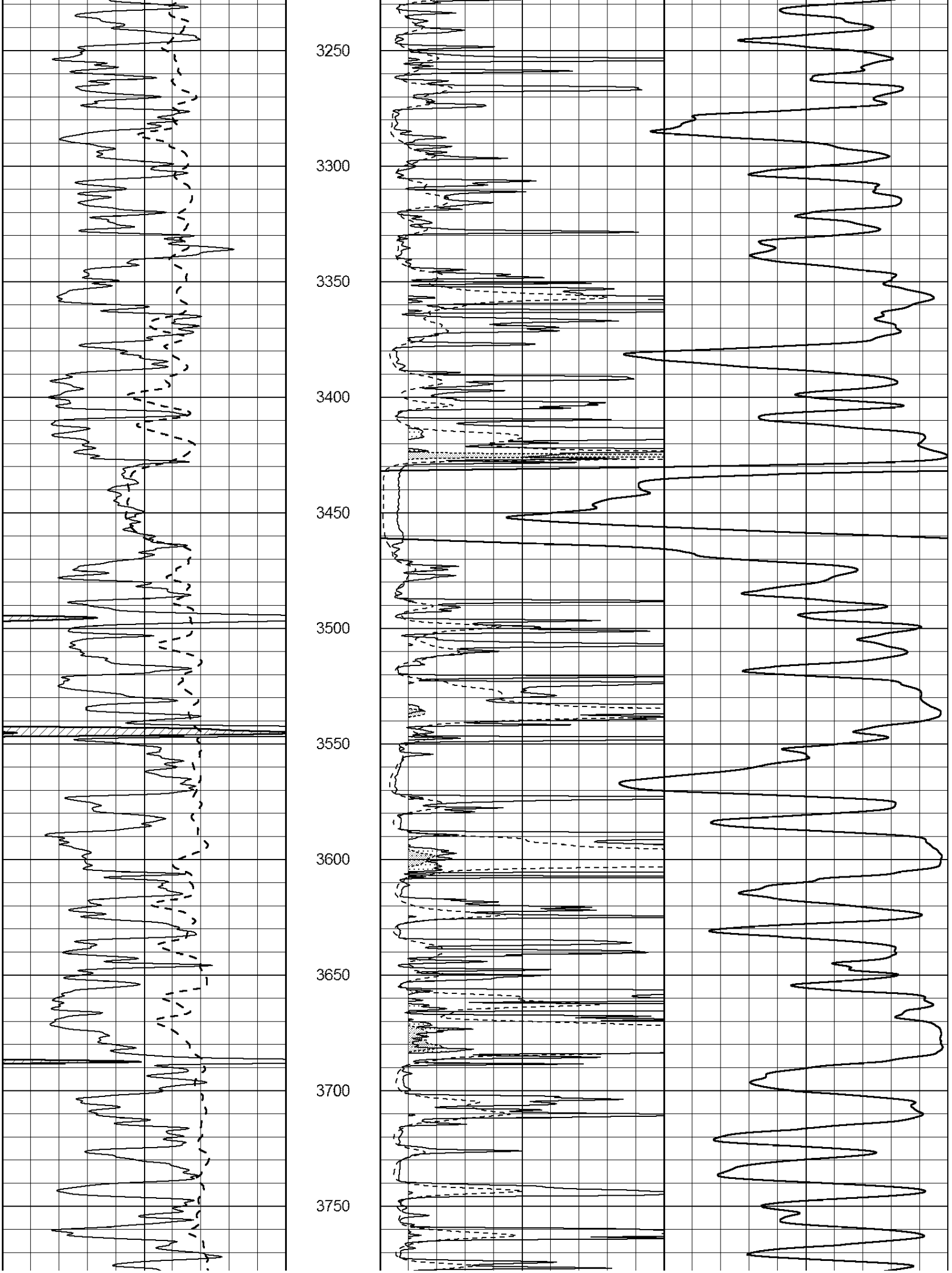
2850
2900
2950
3000
3050
3100
3150
3200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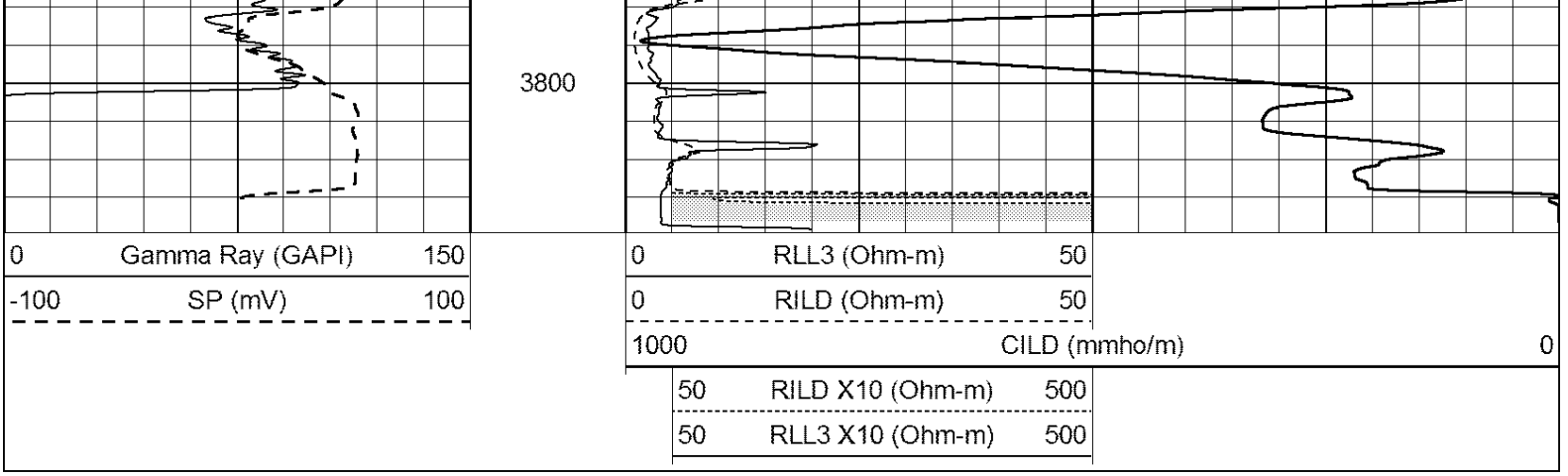
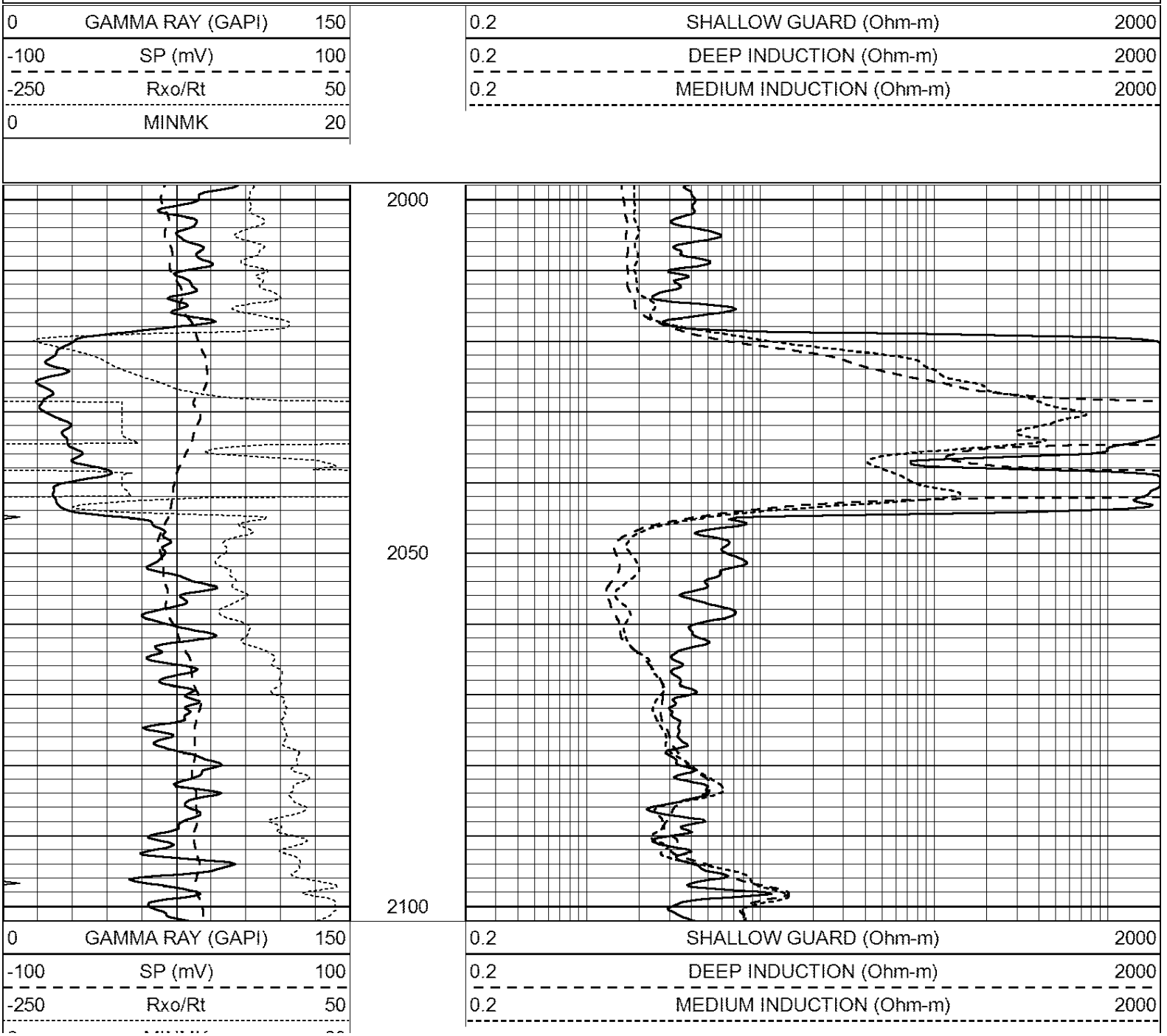
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750



Database File: 010650ddn.db
Dataset Pathname: pass3.6
Presentation Format: _dil
Dataset Creation: Wed Feb 27 09:20:27 2013 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

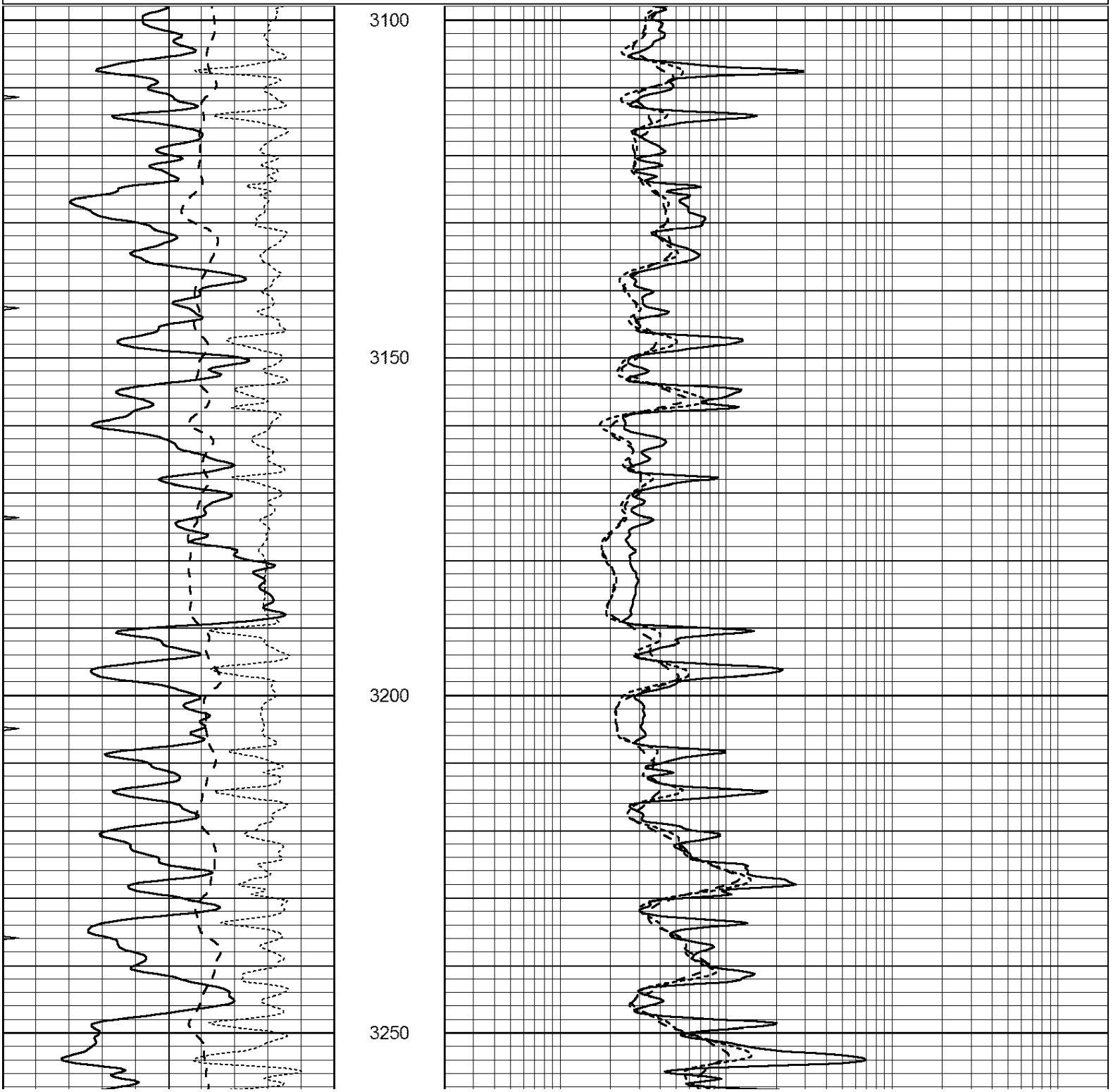


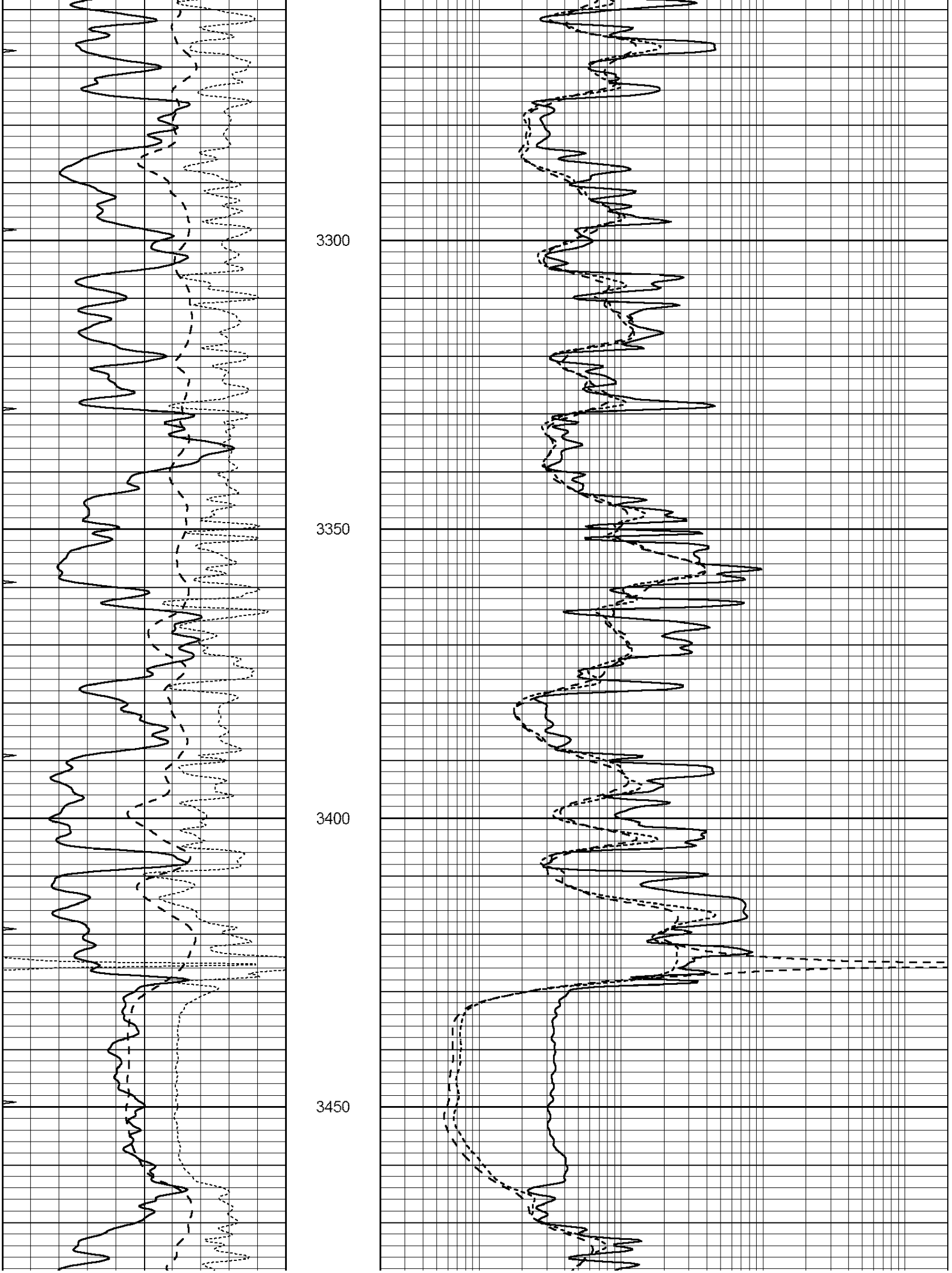
0	MINMK	20

Database File:	010650ddn.db
Dataset Pathname:	pass3.5
Presentation Format:	_dil
Dataset Creation:	Wed Feb 27 07:36:16 2013 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	MINMK	20

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

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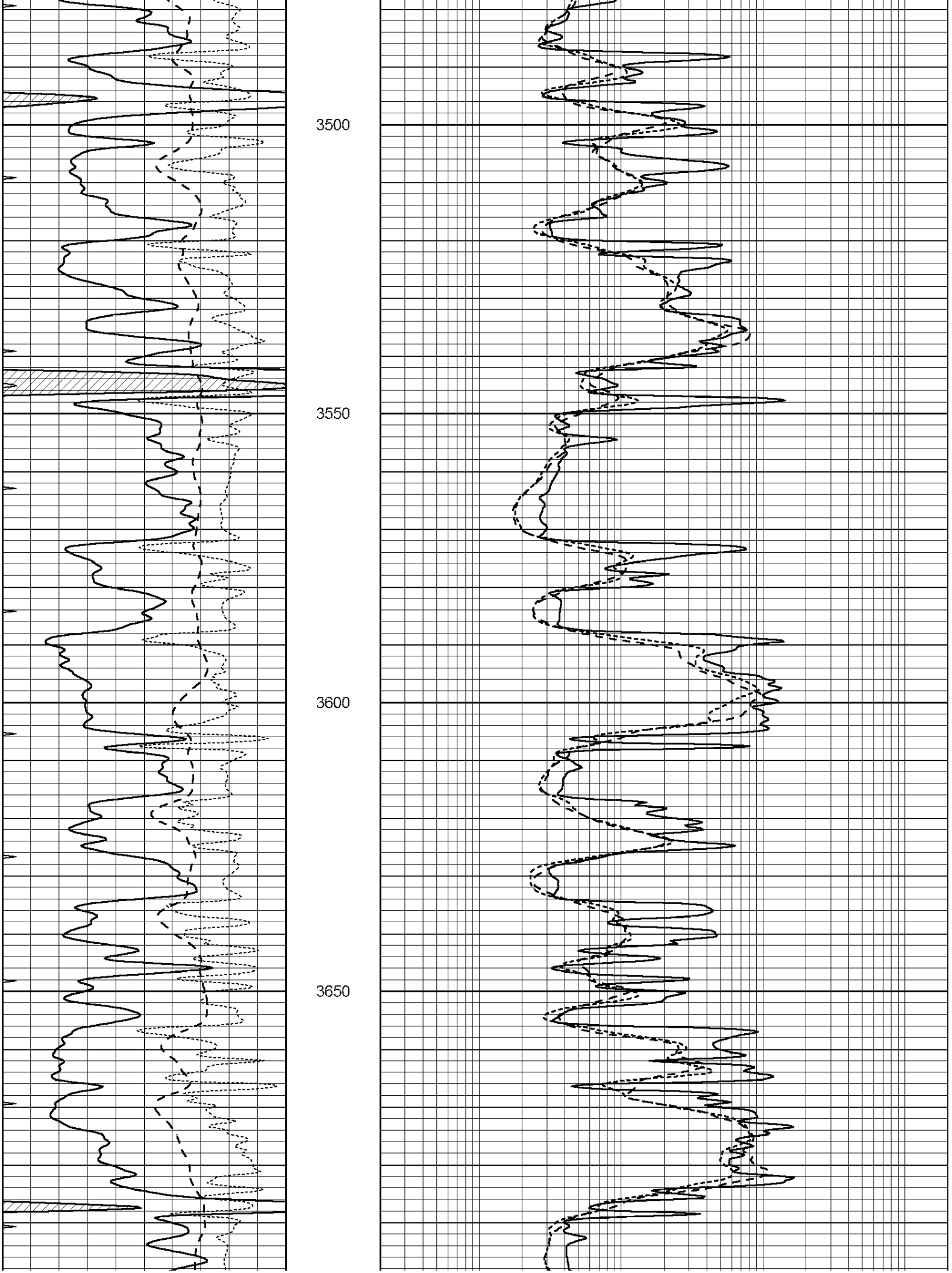
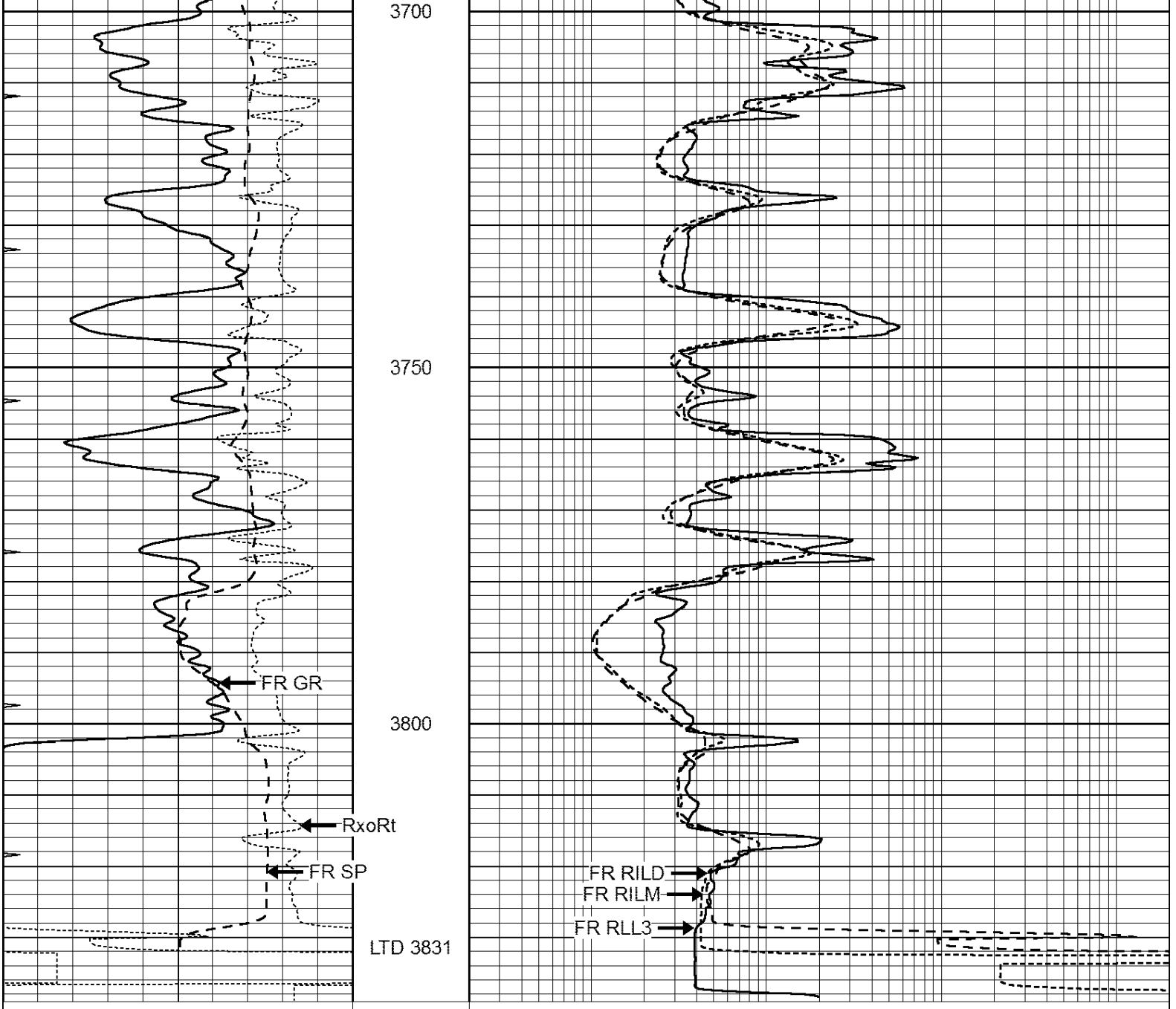
3350
3400
3450


3500
3550
3600
3650



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

NABORS
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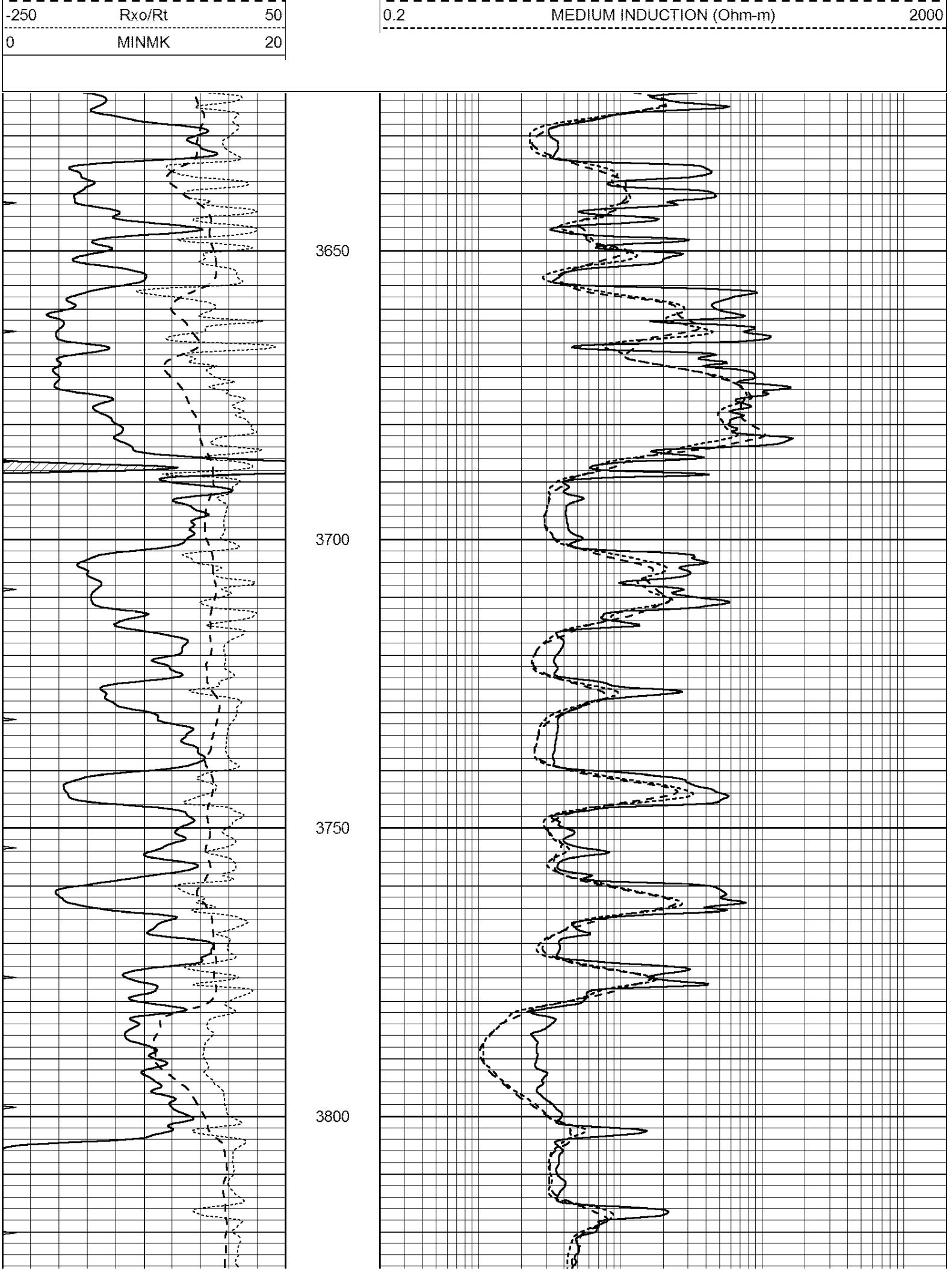
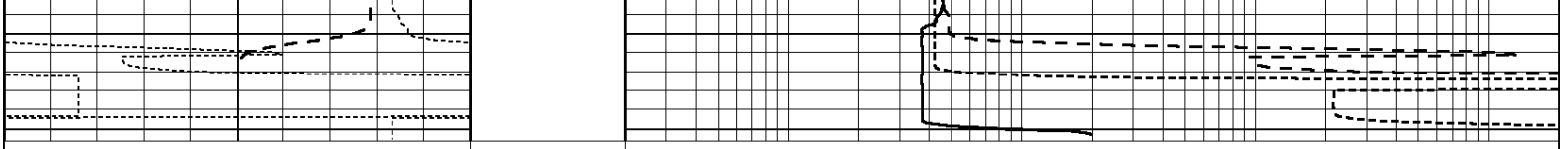
REPEAT SECTION

Database File: 010650ddn.db
Dataset Pathname: pass2.1
Presentation Format: _dil
Dataset Creation: Wed Feb 27 07:53:43 2013 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

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
3650
3700
3750
3800



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

Calibration Report

Database File: 010650ddn.db
Dataset Pathname: pass3.6
Dataset Creation: Wed Feb 27 09:20:27 2013 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

	Readings			References			Results	
Loop:	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		

Compensated Density Calibration Report

Serial-Model: GEAR3-GEARHART
Source / Verifier: 143 / 143
Master Calibration Performed: Fri Jan 04 15:48:16 2013
Before Survey Verification Performed:
After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	935.36	501.55	cps
Aluminum	2.580	g/cc	209.32	357.01	cps

Spine Angle = 77.21 Density/Spine Ratio = 0.567

	Size		Reading	
Small Ring	8.00	in	4.29	V
Large Ring	14.00	in	6.24	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: 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

PRE-SURVEY VERIFICATION

	Detector	Readings		Measured		Target	
1)	Short Space		cps				
	Long Space		cps		pu		pu
2)	Short Space		cps				
	Long Space		cps		pu		
3)	Short Space		cps				
	Long Space		cps		pu		

POST-SURVEY VERIFICATION

	Detector	Readings		Measured		Target	
1)	Short Space		cps				
	Long Space		cps		pu		pu
2)	Short Space		cps				
	Long Space		cps		pu		pu
3)	Short Space		cps				
	Long Space		cps		pu		pu

Gamma Ray Calibration Report

Serial Number:	GR6	
Tool Model:	OPEN	
Performed:	Thu Mar 10 03:46:42 2011	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	1.3348	GAPI/cps