NABORS
COMPLETION & PRODUCTION SERVICES CO.

DUAL INDUCTION LOG

Company DOWNING - NELSON OIL CO., INC.

Well LW #1-18

Field RIGA NORTHWEST

County TREGO State KANSAS

Location: API # : 15-195-22817

1225' FNL & 930' FWL

SEC 18 TWP 13S RGE 21W

Other Services
CDL/CNL
MICRO

Elevation
K.B. 2218
D.F.
G.L. 2210

Permanent Datum GROUND LEVEL Elevation 2210
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Company DOWNING - NELSON OIL CO., INC.
Well LW #1-18
Field RIGA NORTHWEST
County TREGO
State KANSAS

Date	10-23-12		
Run Number	ONE		
Depth Driller	4080		
Depth Logger	4080		
Bottom Logged Interval	4078		
Top Log Interval	00		
Casing Driller	220		
Casing Logger	219		
Bit Size	7.875		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.3 / 57		
pH / Fluid Loss	10.0 / 8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.00 @ 62F		
Rmf @ Meas. Temp	0.75 @ 62F		
Rmc @ Meas. Temp	1.20 @ 62F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	.530 @ 116F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	9:45 A.M.		
Maximum Recorded Temperature	116F		
Equipment Number	860		
Location	HAYS, KS.		
Recorded By	RUPP		
Witnessed By	RON NELSON		

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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

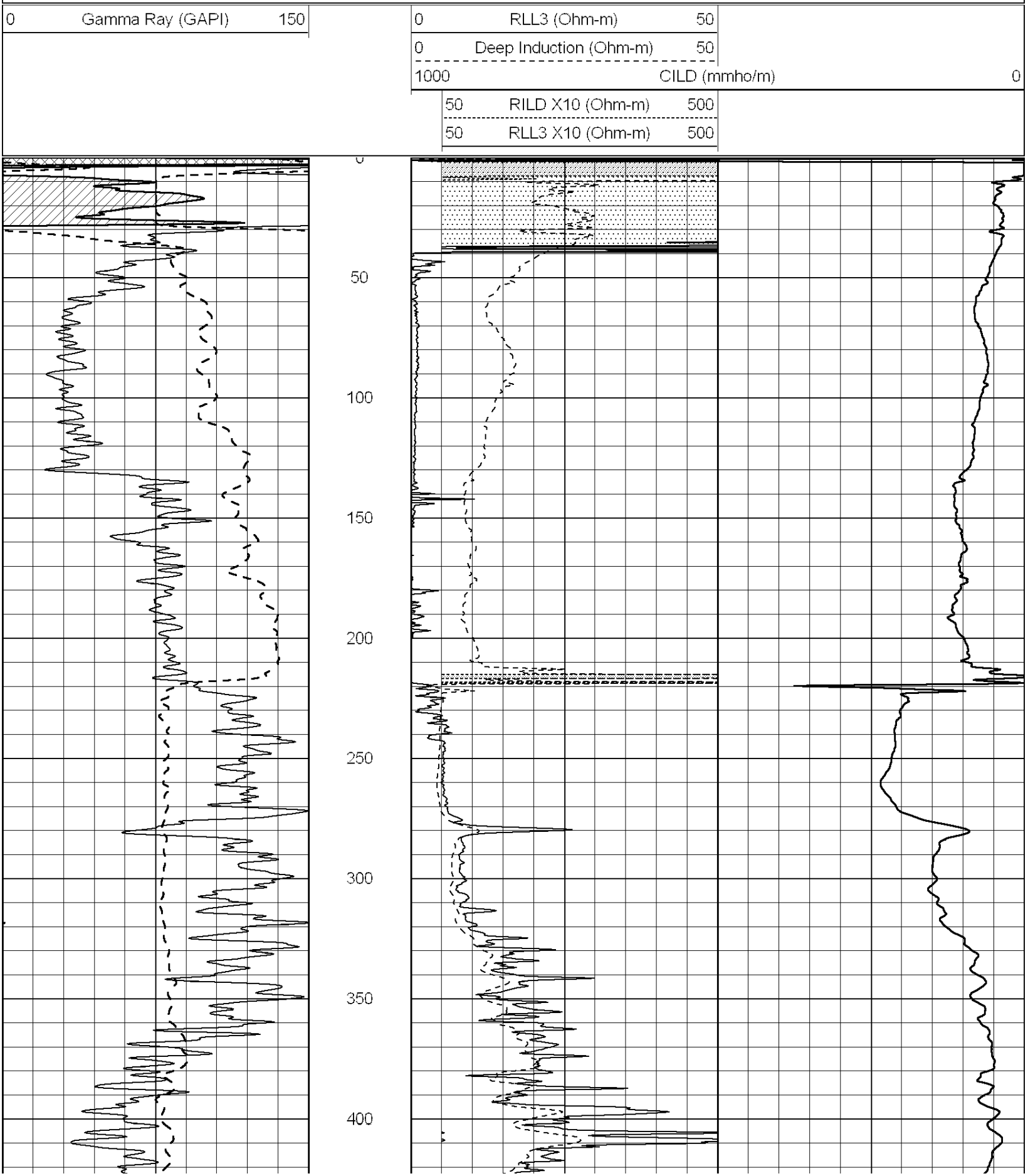
NABORS COMPLETION & PRODUCTION CO.
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: ELLIS & OLD #40, W TO 360th, 2 1/8S TO TANK BATTERIES, 200'W, N & W INTO ON THE LEASE RD.

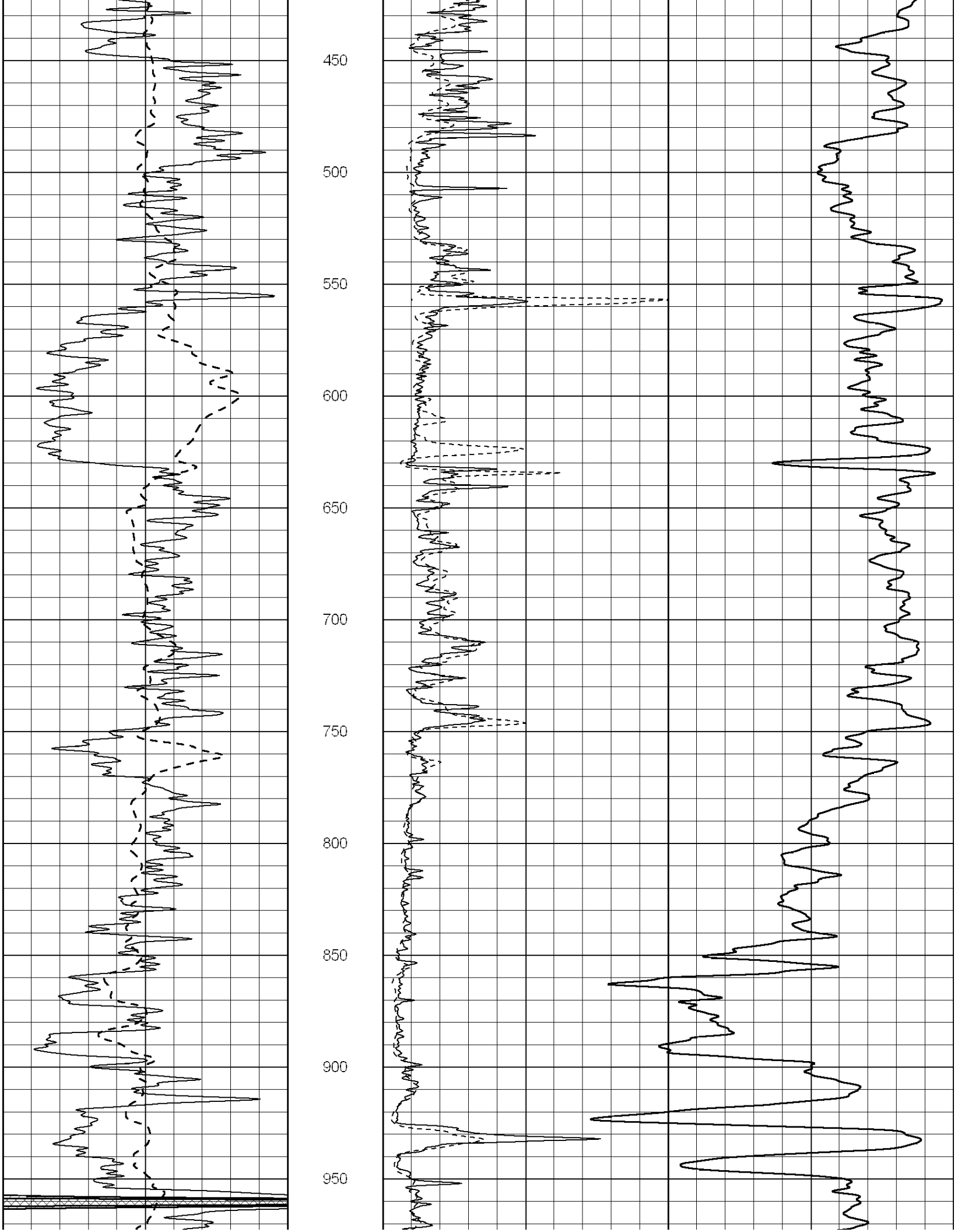
MAIN SECTION

NABORS COMPLETION & PRODUCTION

& PRODUCTION
SERVICES CO.

Database File:	009937ddn.db
Dataset Pathname:	pass3.2
Presentation Format:	dil2
Dataset Creation:	Tue Oct 23 11:40:11 2012
Charted by:	Depth in Feet scaled 1:600

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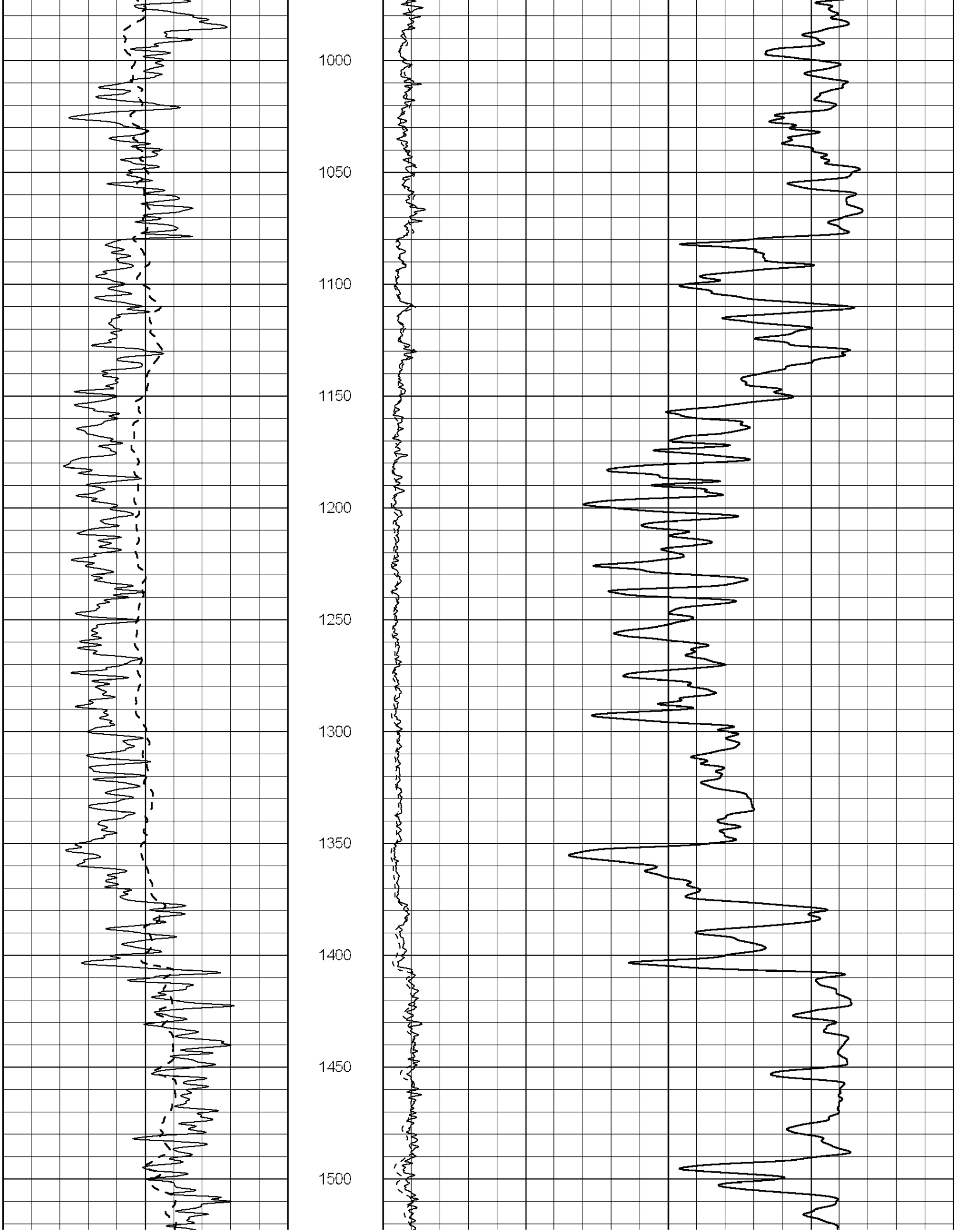
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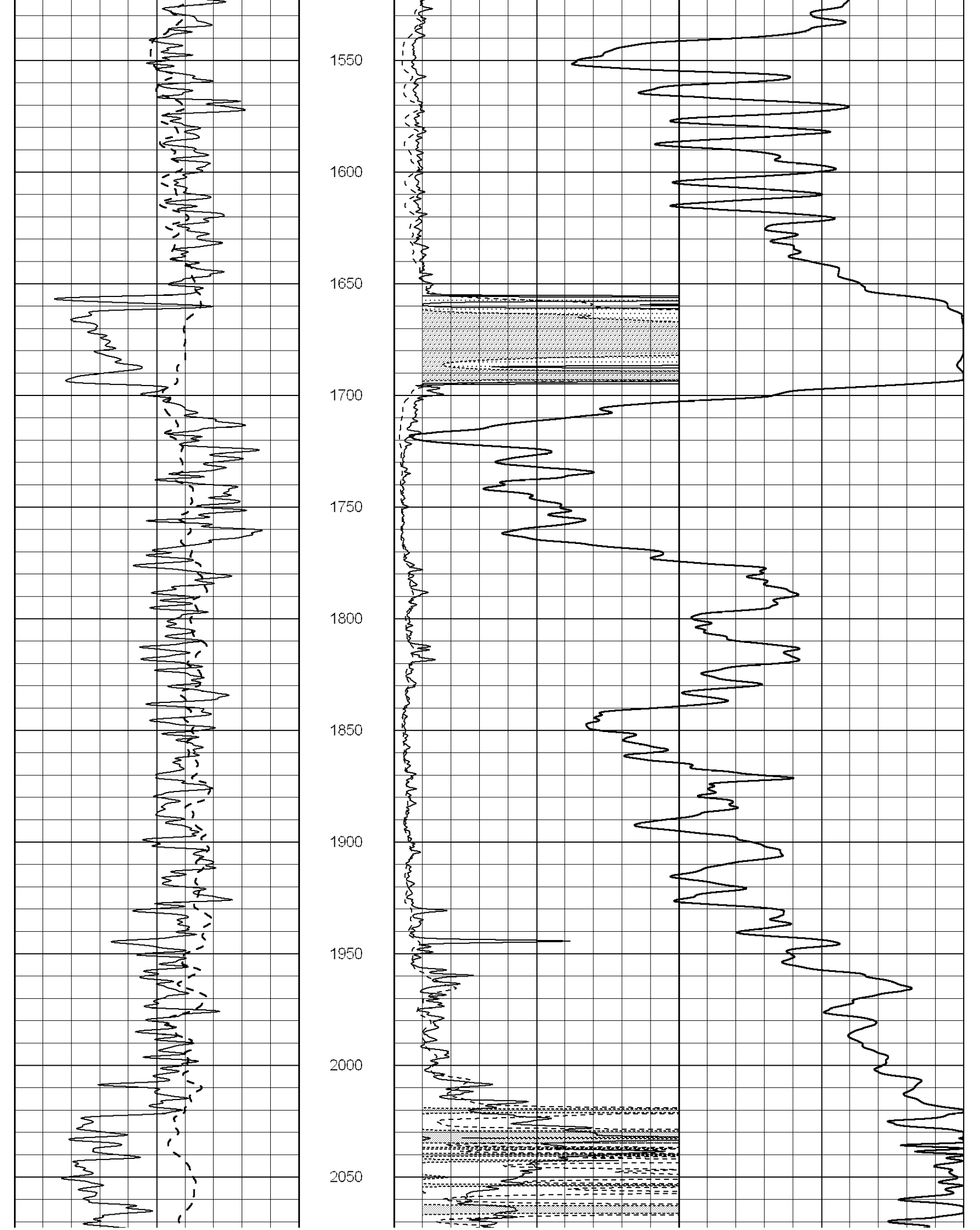
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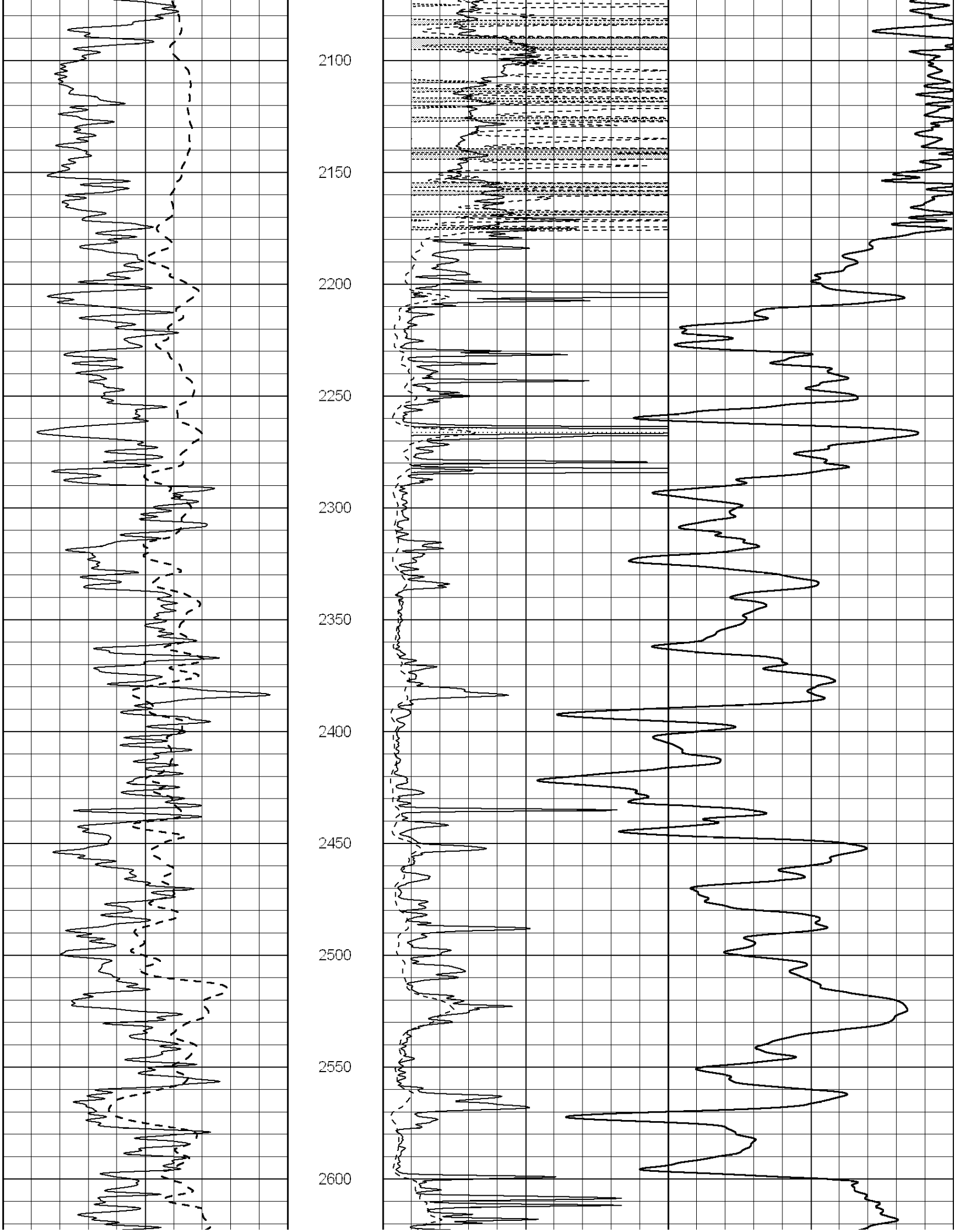
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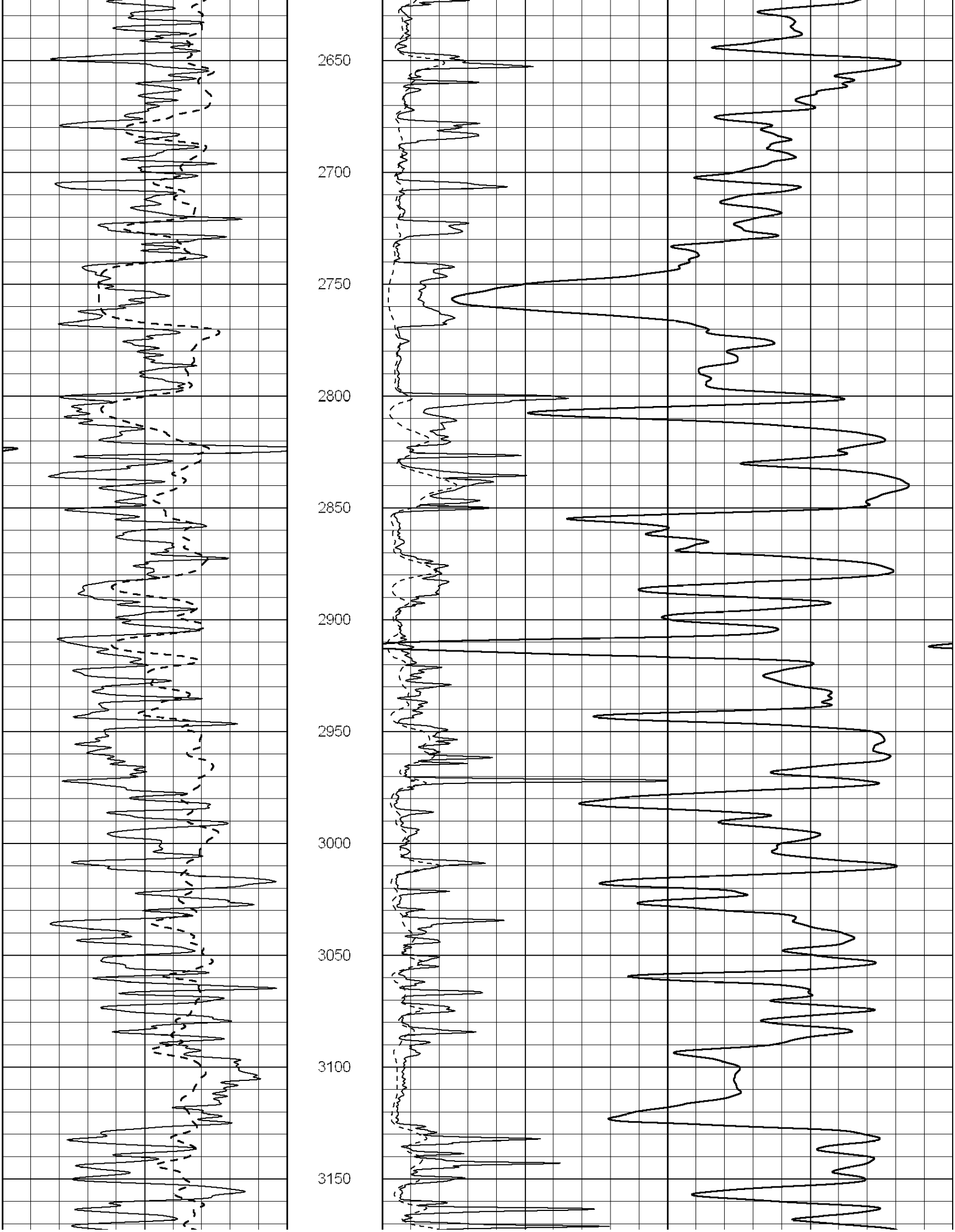
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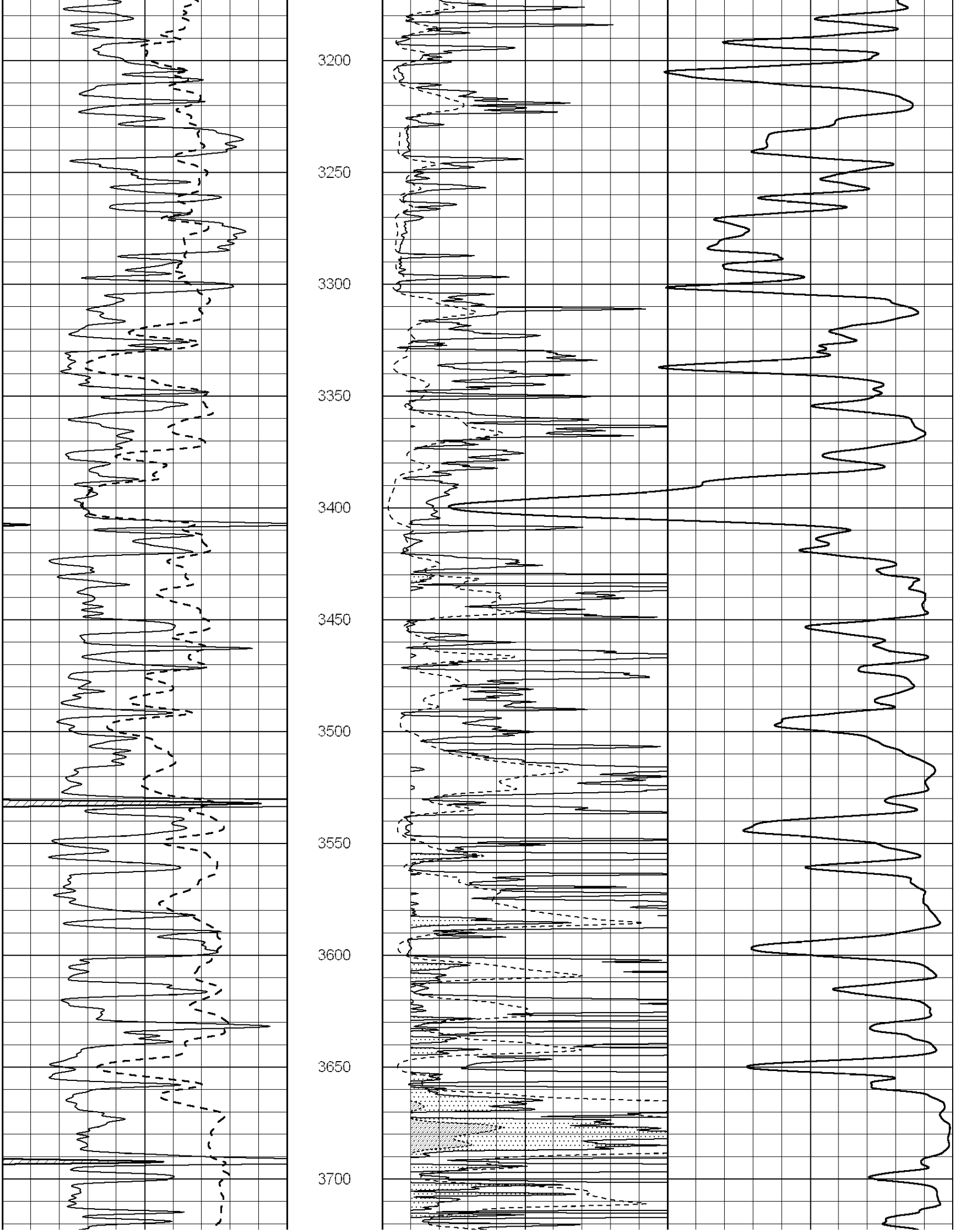
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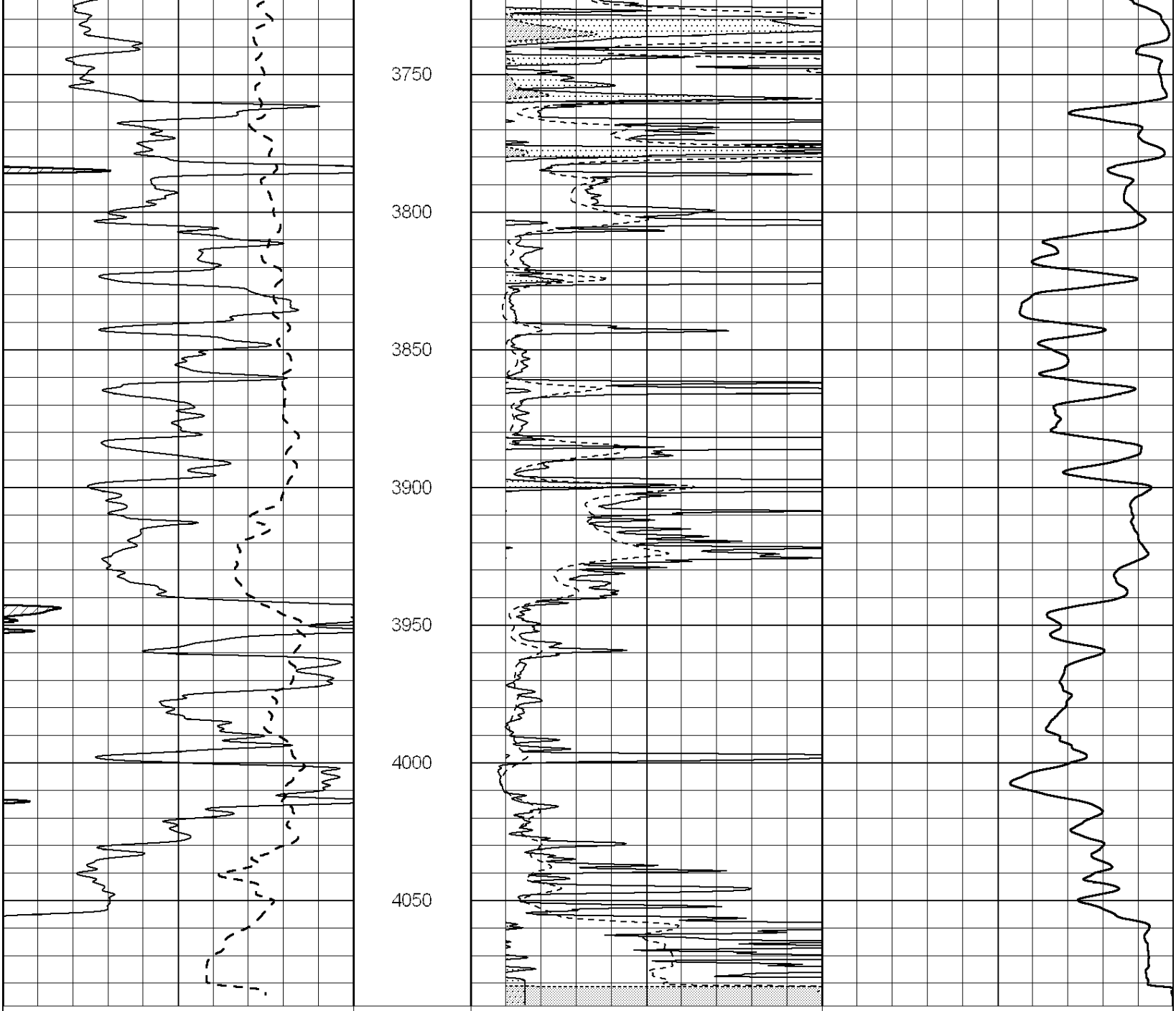


NABORS
COMPLETION & PRODUCTION SERVICES CO.

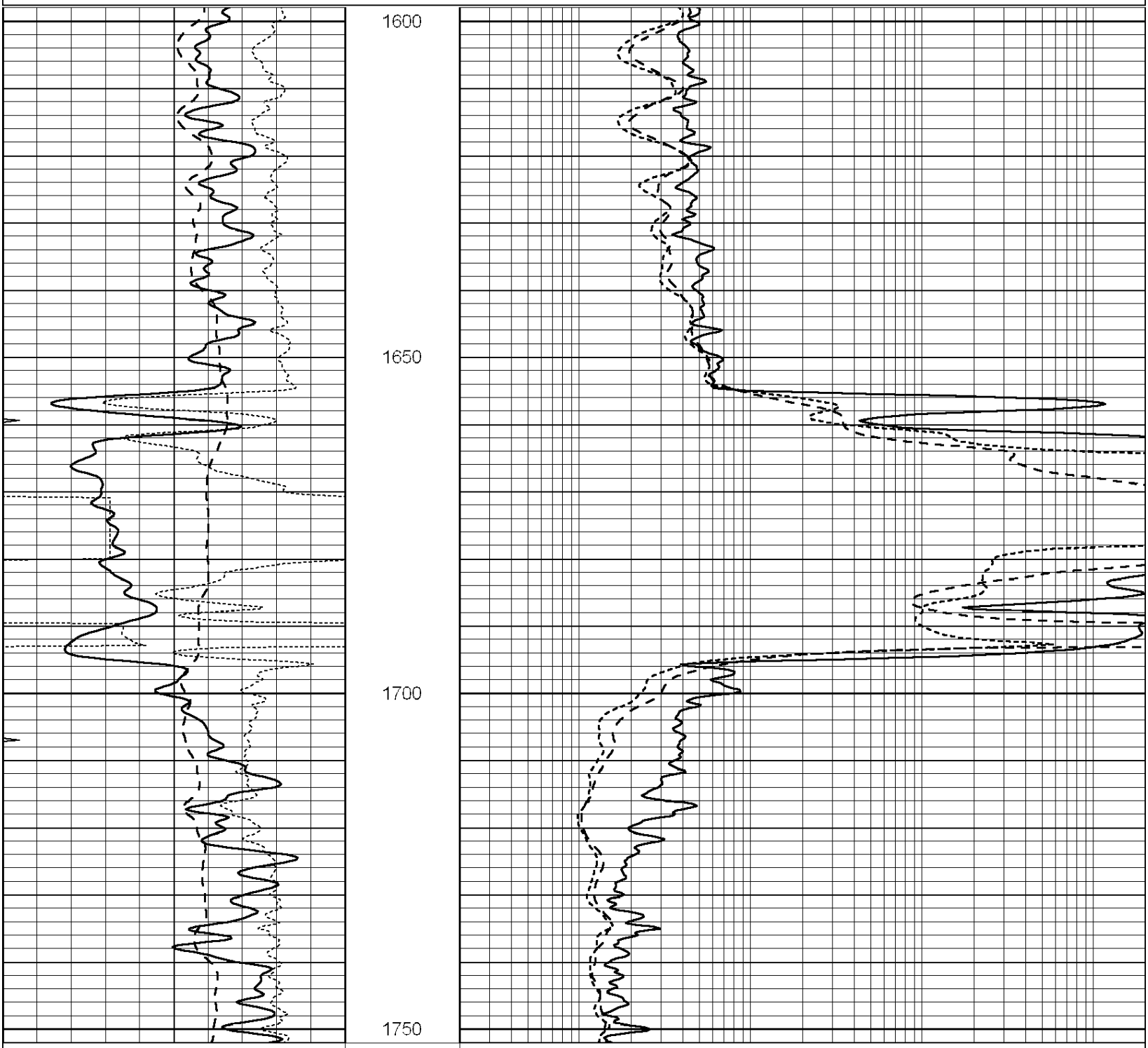
MAIN SECTION

Database File:	009937ddn.db
Dataset Pathname:	pass3.2
Presentation Format:	dil
Dataset Creation:	Tue Oct 23 11:40:11 2012
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
0.2	RLL3 (Ohm-m)	2000

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

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



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

NABORS
COMPLETION

MAIN SECTION

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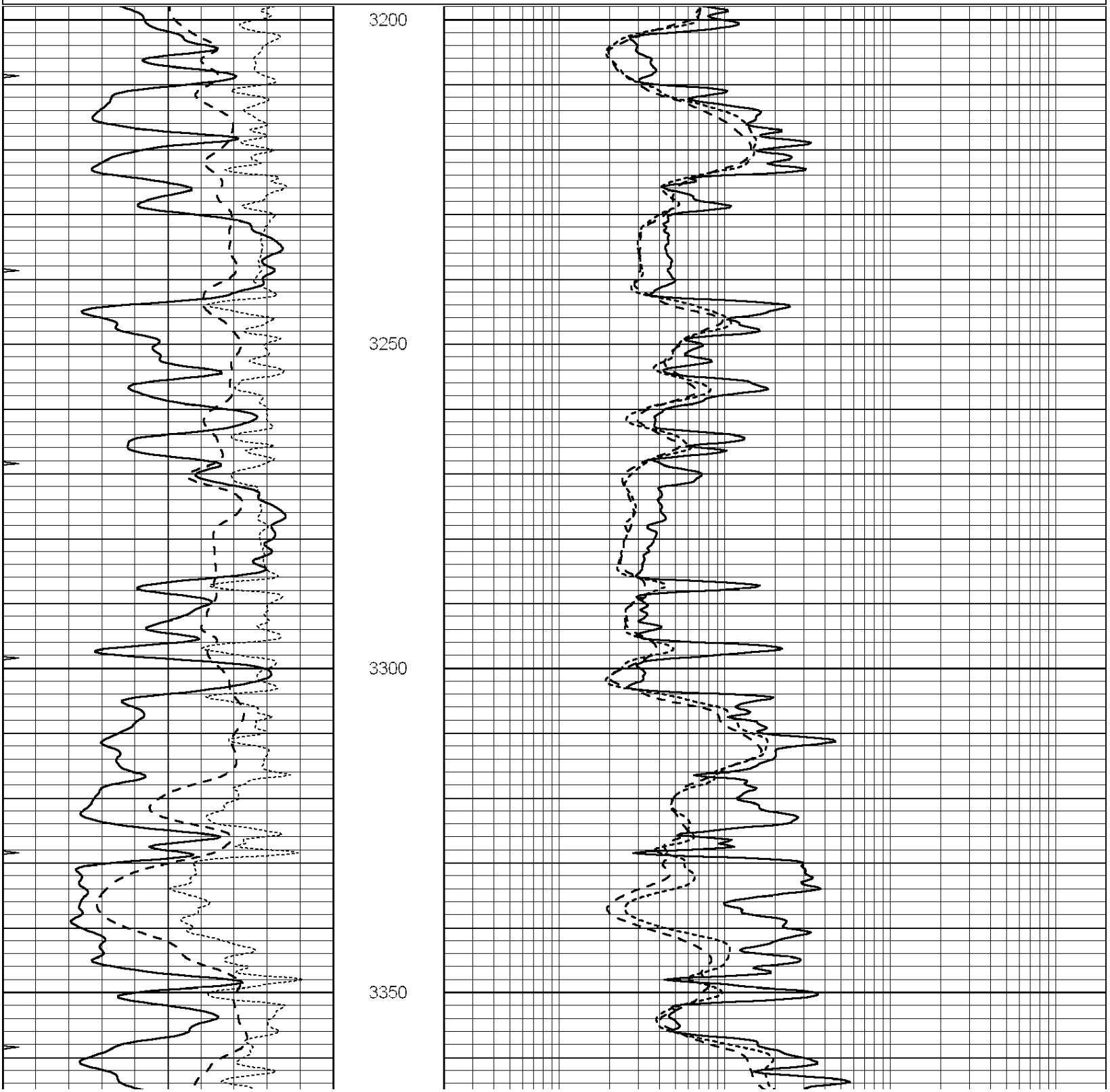
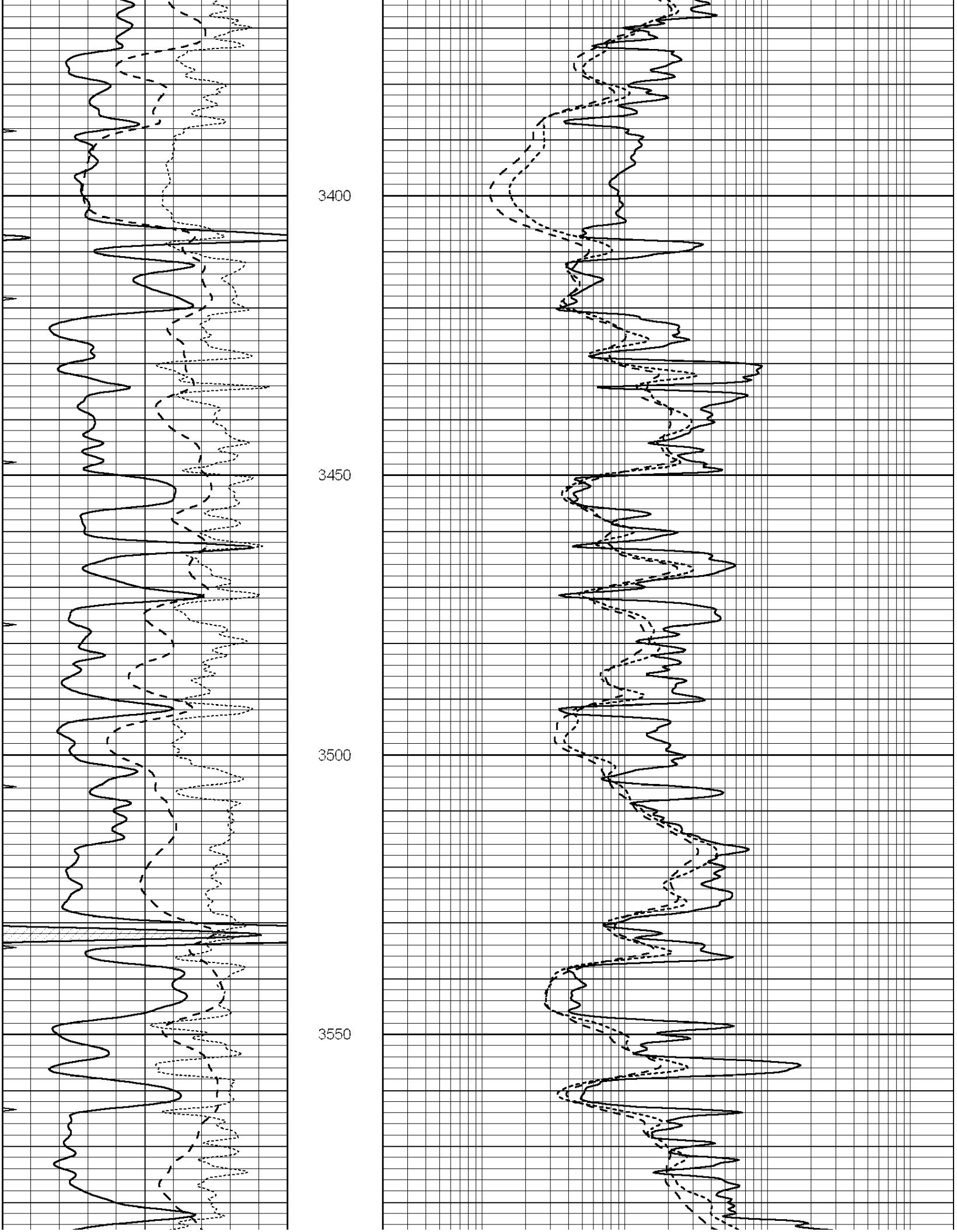
MAIN SECTION

Database File:	009937ddn.db
Dataset Pathname:	pass3.2
Presentation Format:	dil
Dataset Creation:	Tue Oct 23 11:40:11 2012
Charted by:	Depth in Feet scaled 1:240

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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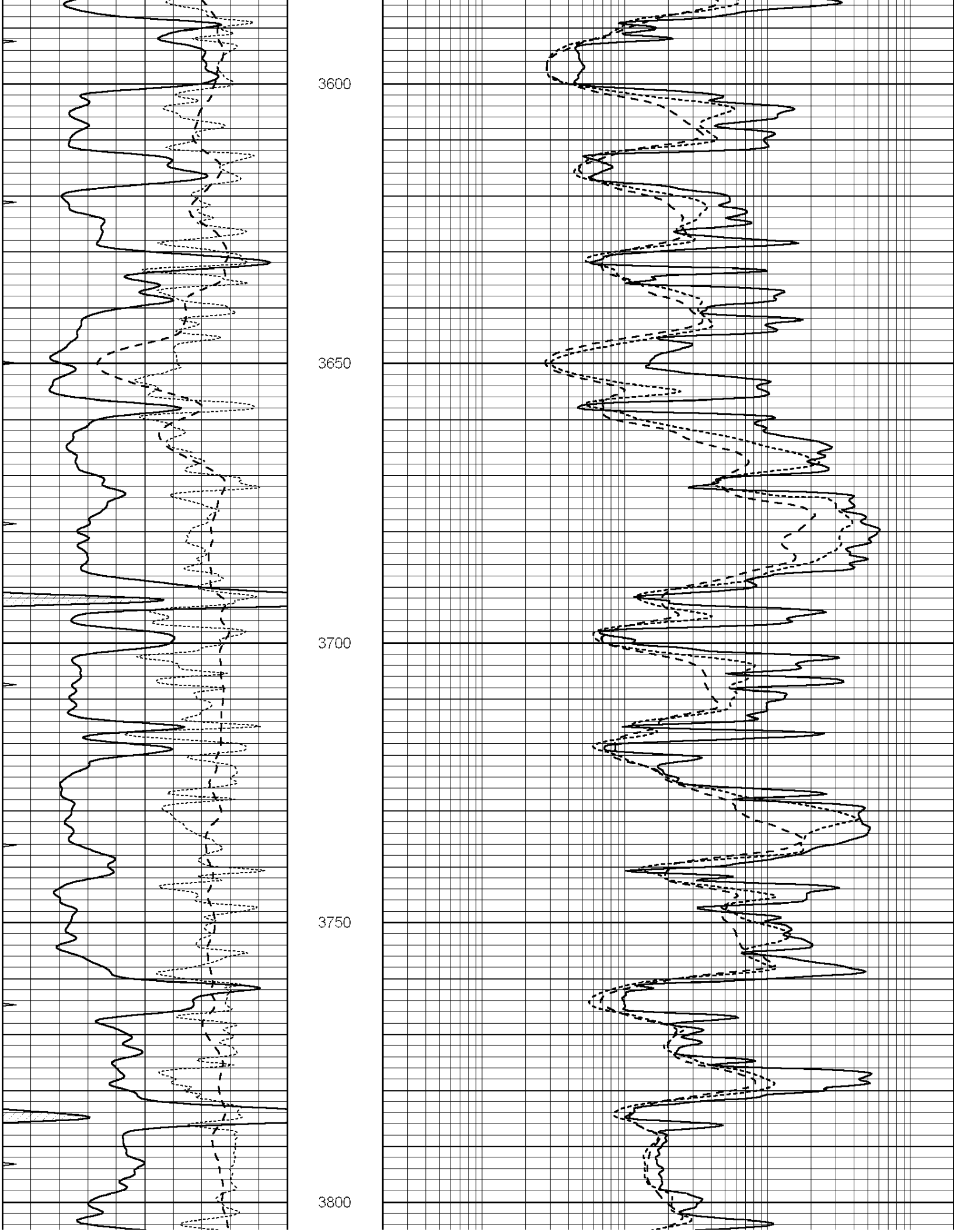
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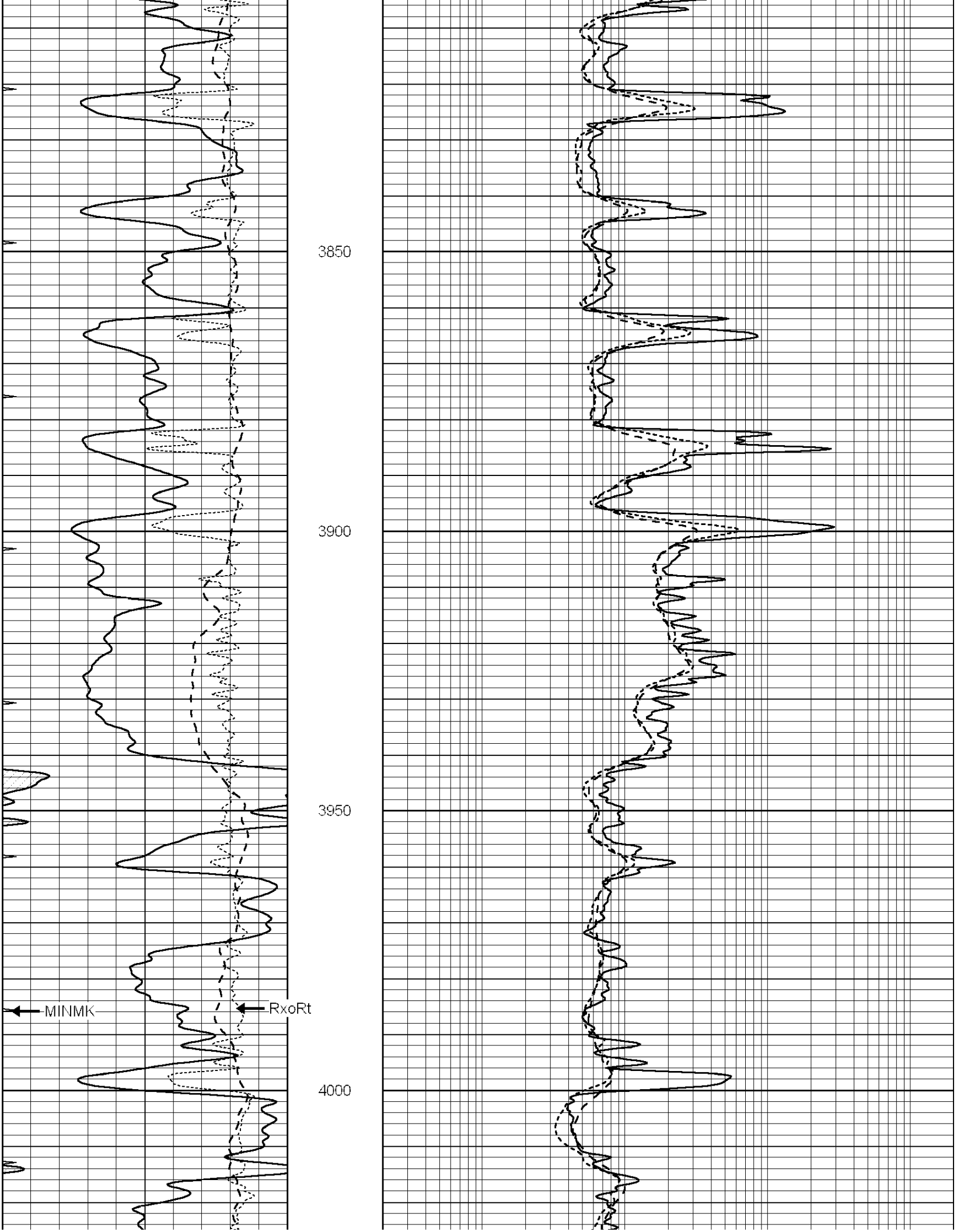
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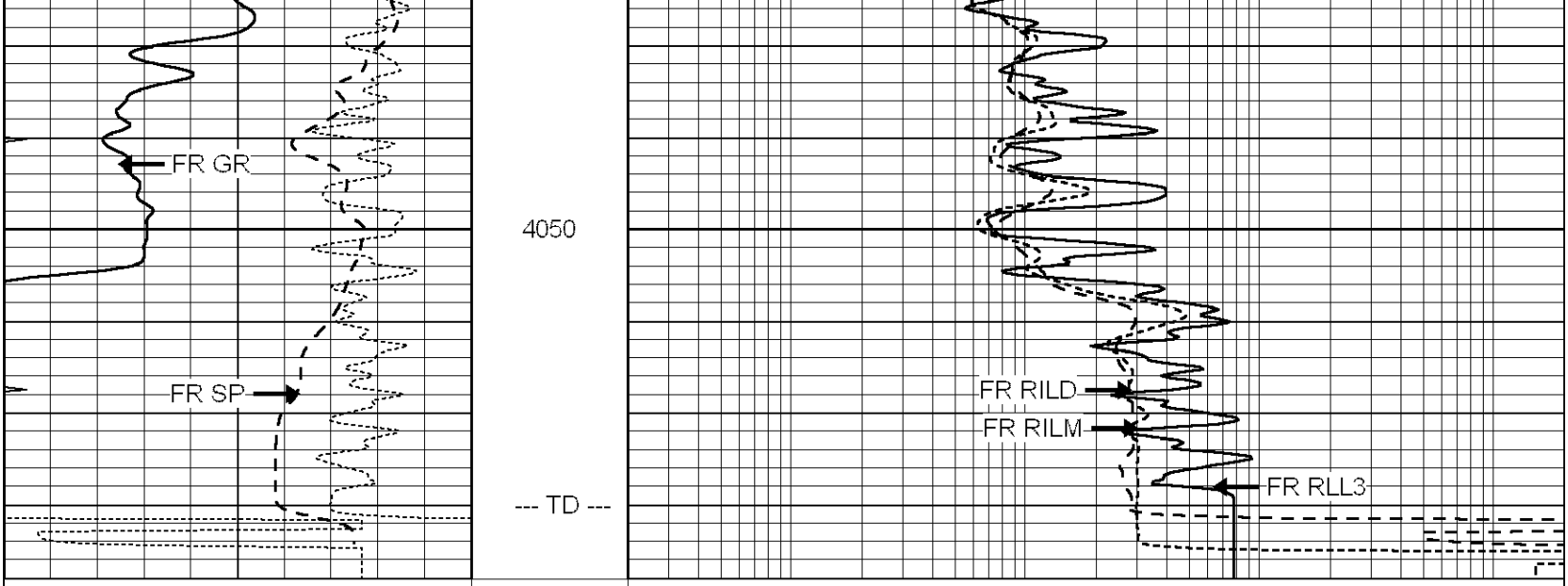


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

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

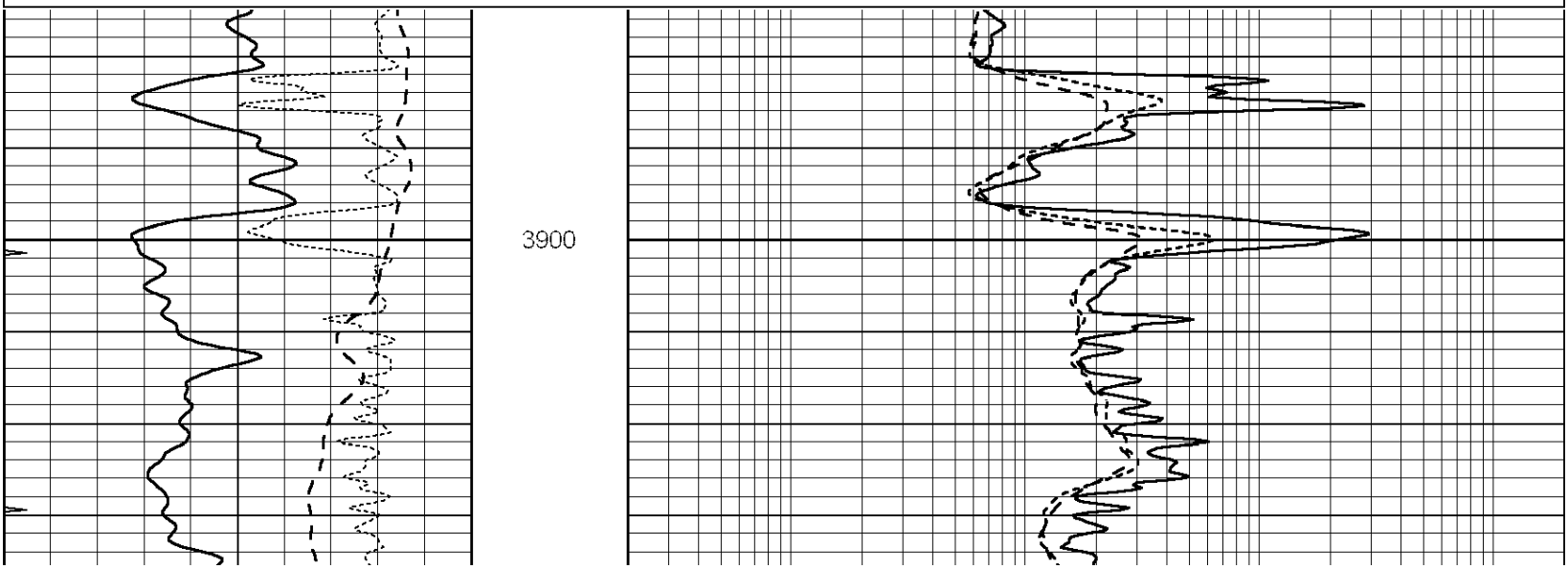
NABORS
COMPLETION & PRODUCTION SERVICES CO.

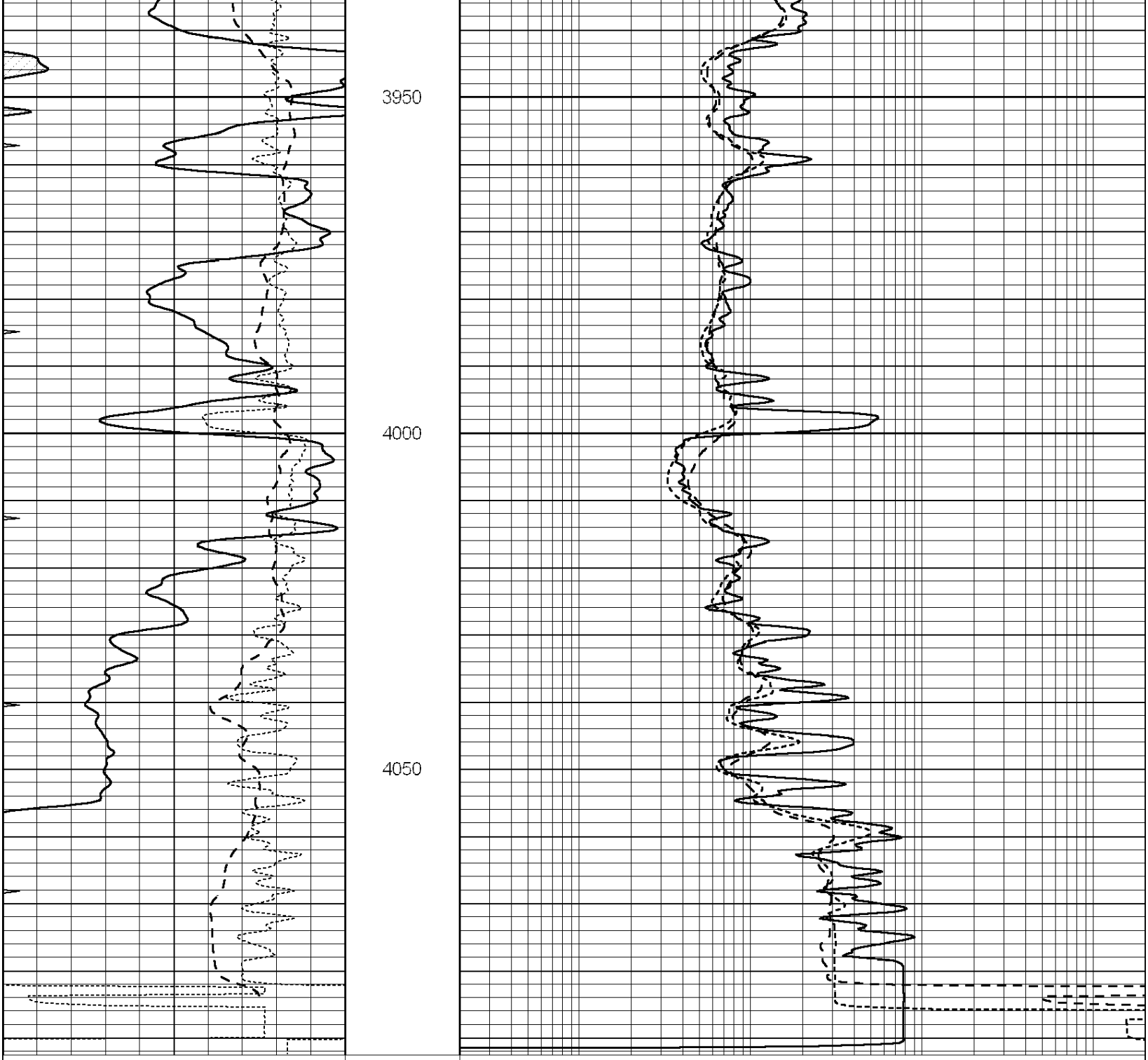
REPEAT SECTION

Database File:	009937ddn.db
Dataset Pathname:	pass2.2
Presentation Format:	dil
Dataset Creation:	Tue Oct 23 11:15:56 2012 by Calc Open-Cased 090629
Charted by:	Depth in Feet scaled 1:240

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





Calibration Report

Database File: 009937ddn.db
Dataset Pathname: pass3.2
Dataset Creation: Tue Oct 23 11:40:11 2012

Dual Induction Calibration Report

Serial-Model:	DIL5-GEAR
Performed:	Tue Oct 23 09:24:49 2012

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.004	0.654	V	0.000	400.000	mmho/m	470.000	-11.000
Medium	-0.005	0.737	V	0.000	462.500	mmho/m	500.000	-7.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.006	0.655	V	0.000	400.000	mmho/m	615.668	-3.483
Medium	0.010	0.747	V	0.000	462.500	mmho/m	627.607	-6.064

Compensated Density Calibration Report

Serial-Model: GEAR1-GEARHART
Source / Verifier: 147 / 147
Master Calibration Performed: Tue Oct 23 10:17:51 2012

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1205.67	613.10	cps
Aluminum	2.590	g/cc	277.64	430.46	cps

Spine Angle = 76.46 Density/Spine Ratio = 0.583

	Size		Reading	
Small Ring	9.50	in	4.69	V
Large Ring	14.00	in	6.52	V

Compensated Neutron Calibration Report

Serial Number: NUE_2I
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: Tue Oct 23 09:24:00 2012

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.7500 GAPI/cps