NABORS COMPLETION & PRODUCTION SERVICES CO.

COMPENSATED DENSITY / NEUTRON PE LOG

Company	MULL DRILLING COMPANY, INC.
Well	#3 TJADEN "C"
Field	SPIVEY - GRABS - BASIL
County	KINGMAN
State	KANSAS

Company MULL DRILLING COMPANY, INC.

Well #3 TJADEN "C"

Field SPIVEY - GRABS - BASIL

County KINGMAN State KANSAS

Location: API # : 15-095-22272-0000

1980' FNL & 660' FWL

SEC 18 TWP 30S RGE 7W

Permanent Datum GROUND LEVEL Elevation 1472

Log Measured From KELLY BUSHING 10' A.G.L.

Drilling Measured From KELLY BUSHING

Other Services: DIL/MEL, SONIC

Elevation: K.B. 1482, D.F. 1480, G.L. 1472

Date	6/5/13		
Run Number	ONE		
Depth Driller	4400		
Depth Logger	4401		
Bottom Logged Interval	4377		
Top Log Interval	2900		
Casing Driller	8 5/8"@226'		
Casing Logger	226		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 4,000 PPM	
Density / Viscosity	9.4/50		
pH / Fluid Loss	8.5/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.950@85F		
Rmf @ Meas. Temp	.713@85F		
Rmc @ Meas. Temp	1.14@85F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.673@120F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	5:45 P.M.		
Maximum Recorded Temperature	120F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	KEVIN KESSLER		

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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 "NABORS" HAYS, KANSAS (785) 628-6395

DIRECTIONS

RAGO, KS. 2S. ON HWY 14 TO "RD. SE 150", 3W. TO CATTLE GUARD, 3/4N. INTO

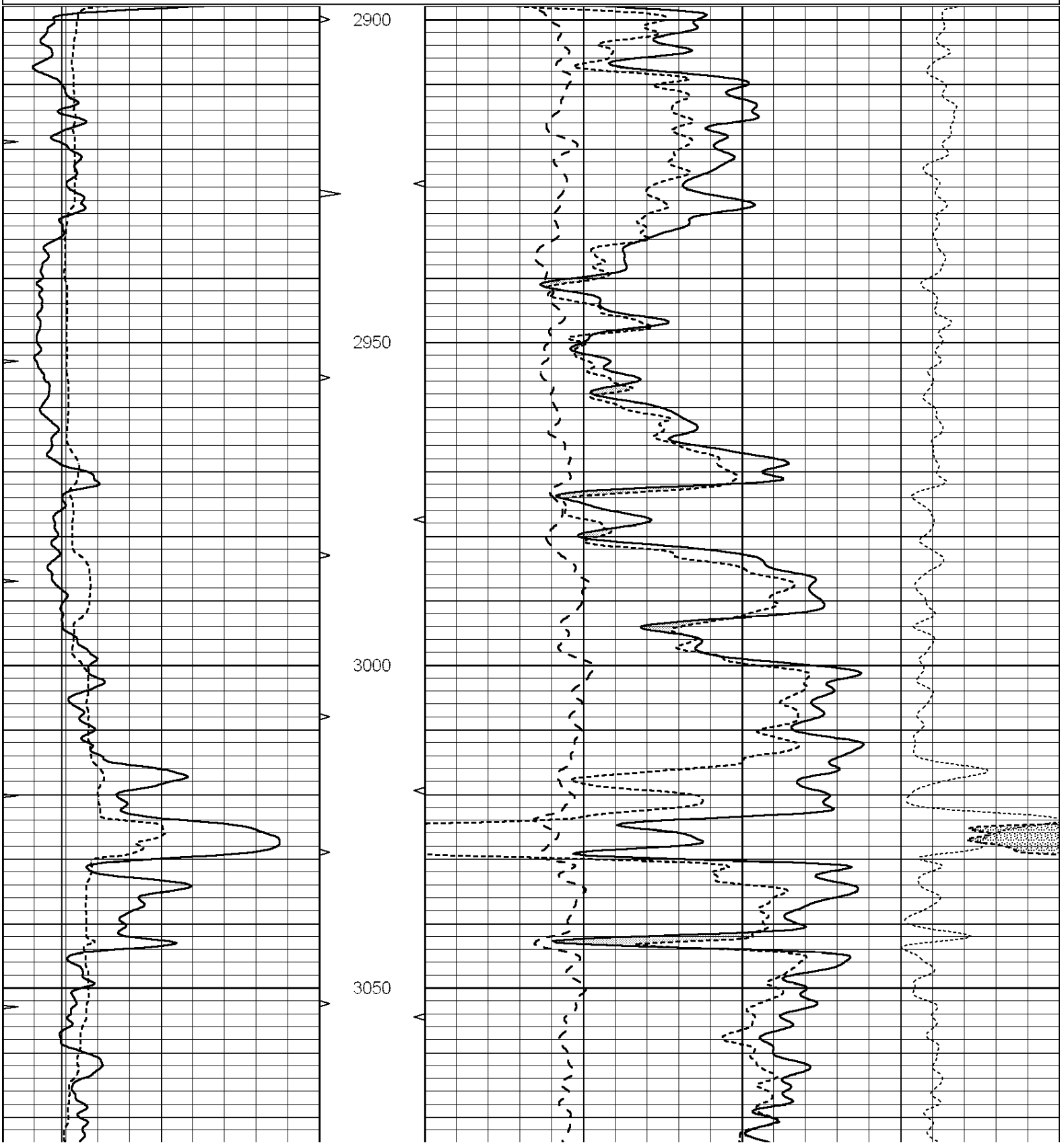
NABORS COMPLETION & PRODUCTION SERVICES CO.

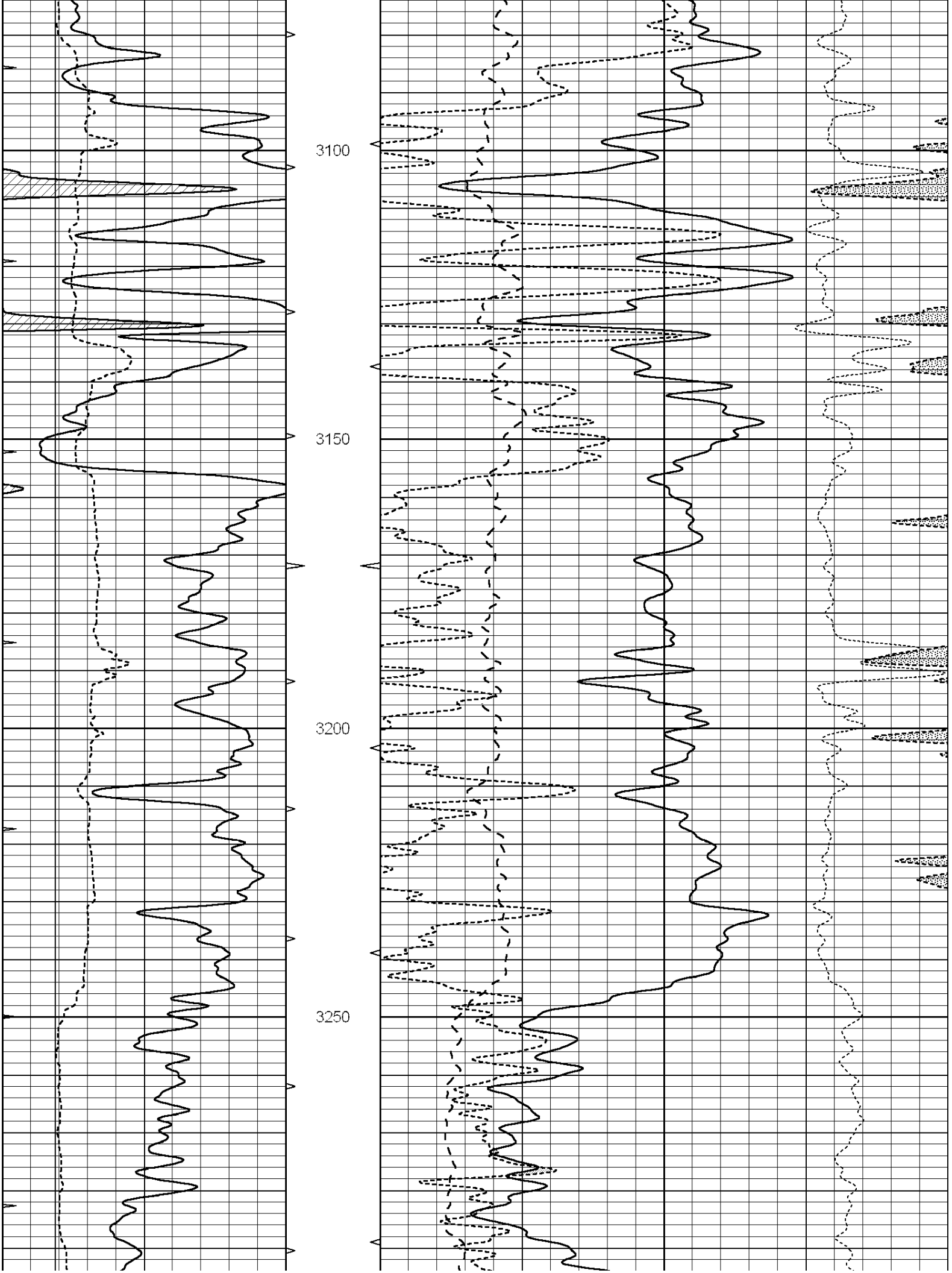
MAIN SECTION

SERVICES CO.

Database File: 010918pe.db
Dataset Pathname: pass3.6
Presentation Format: ldt_neu
Dataset Creation: Wed Jun 05 19:21:16 2013
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 150	ABHV	30 COMPENSATED DENSITY (pu) -10
6 CALIPER (in) 16	10 (ft3) 0	30 COMPENSATED NEUTRON (pu) -10
0 MINMK 20	TBHV	0 PE 10 -0.25 CORRECTION (g/cc) 0.25
	0 (ft3) 10	

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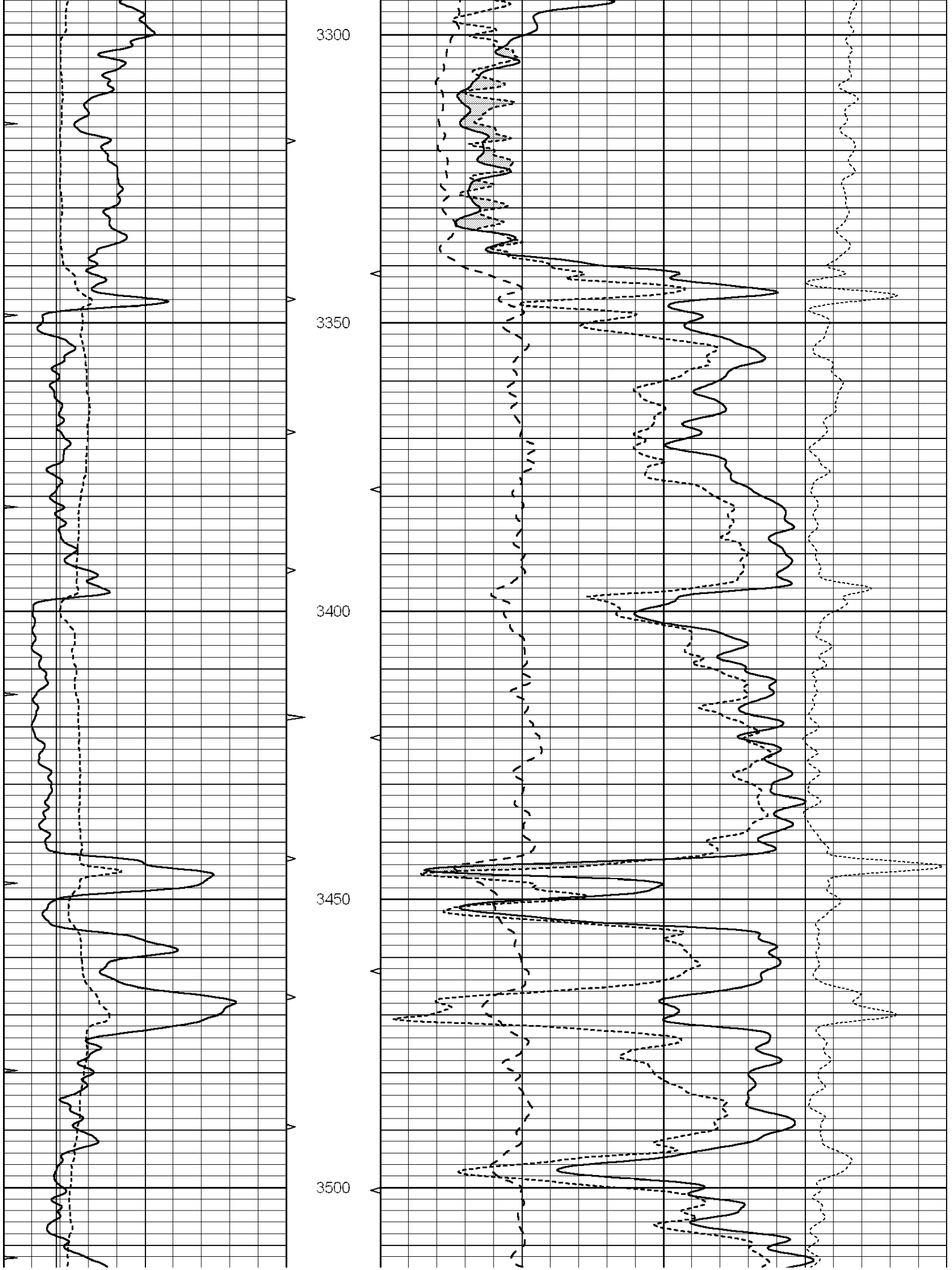
3250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3450
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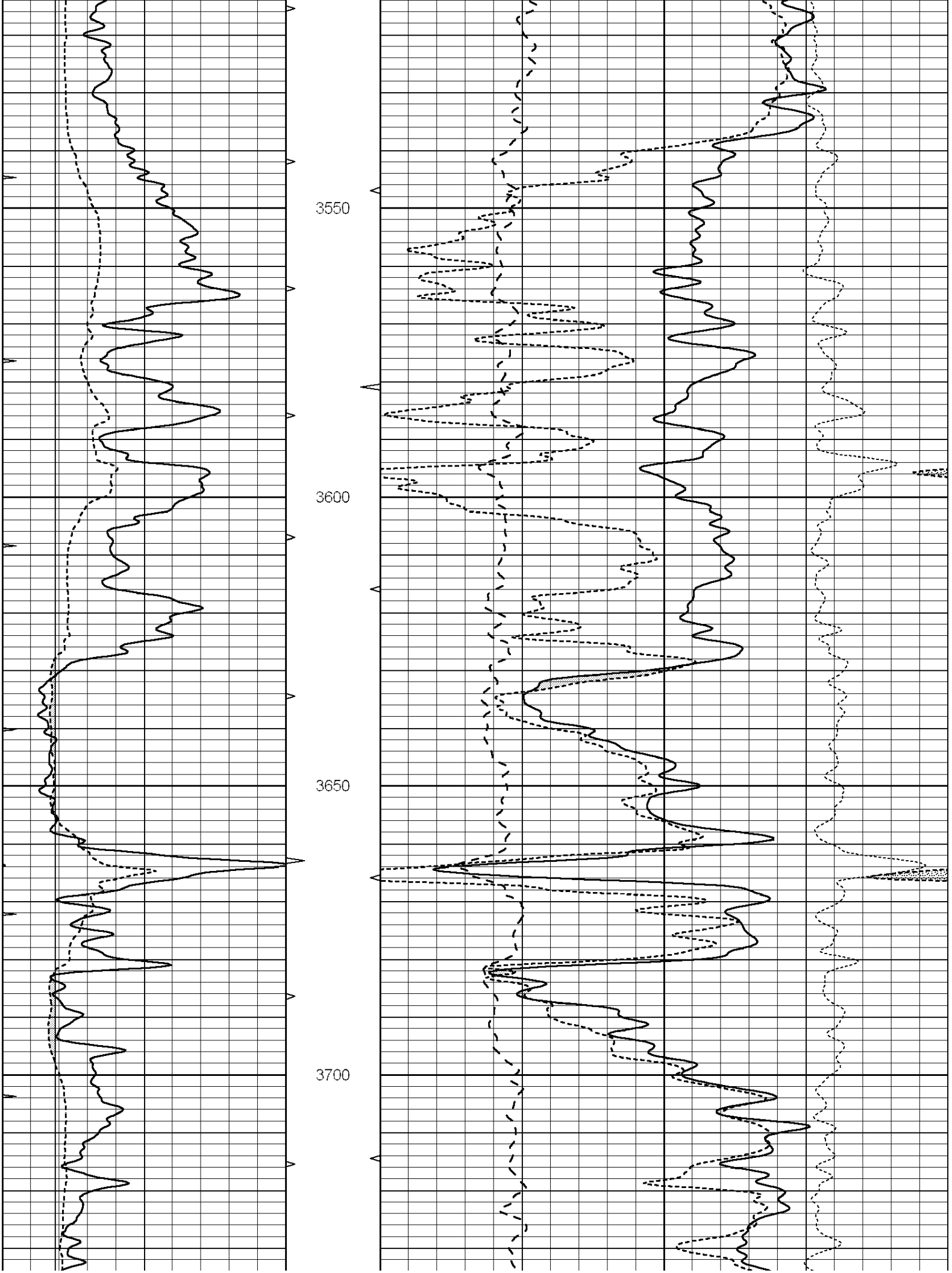
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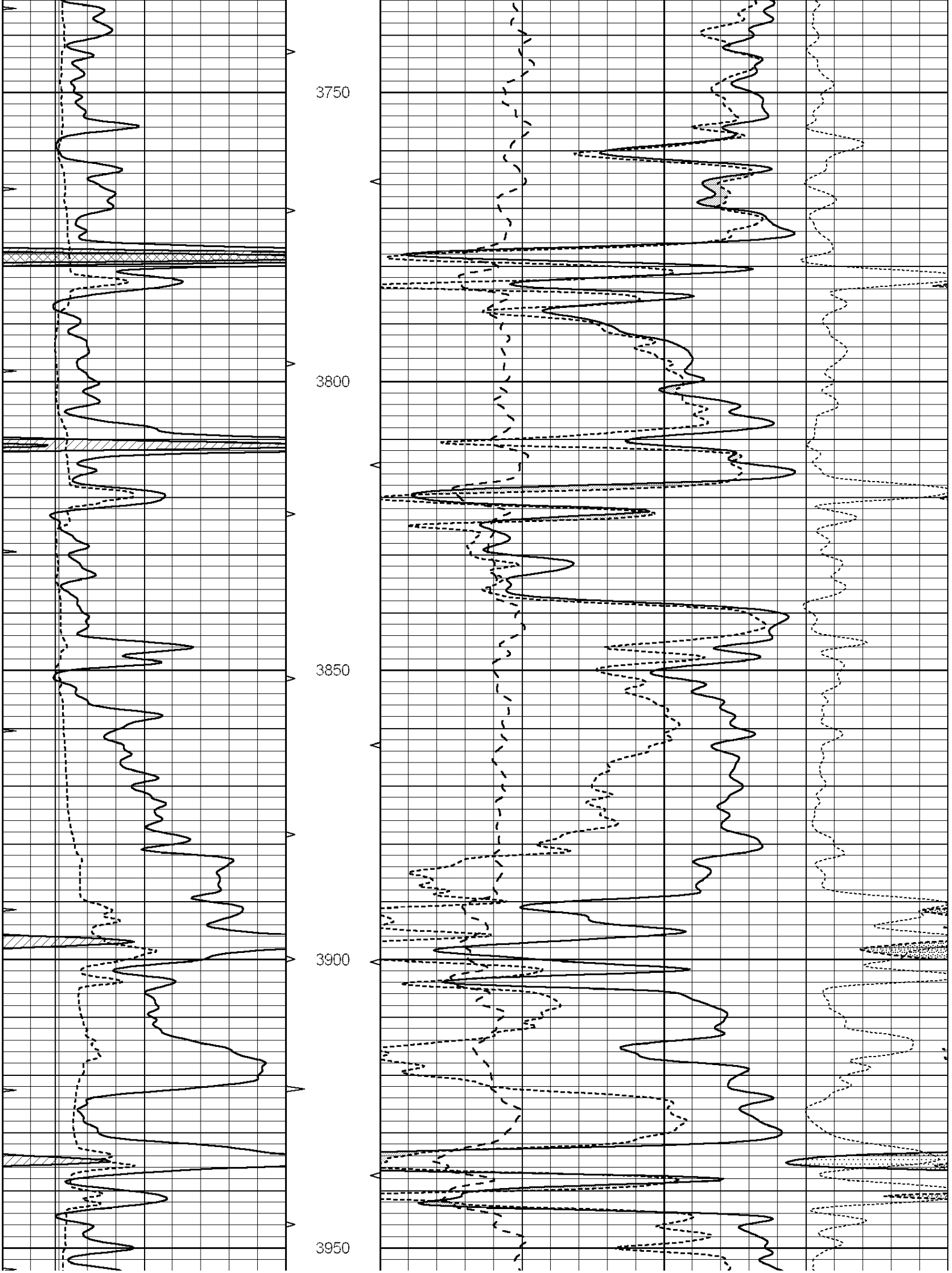
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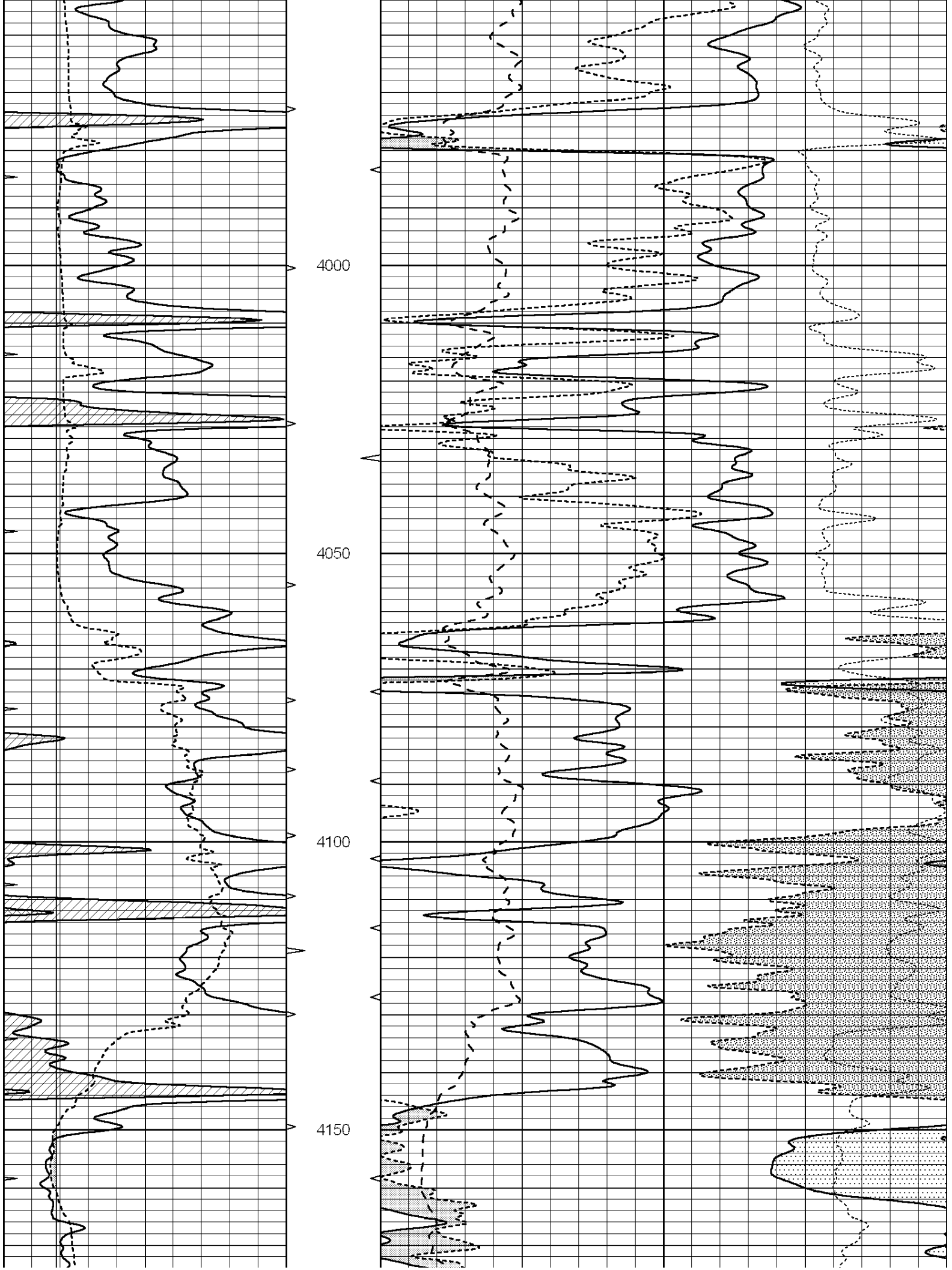
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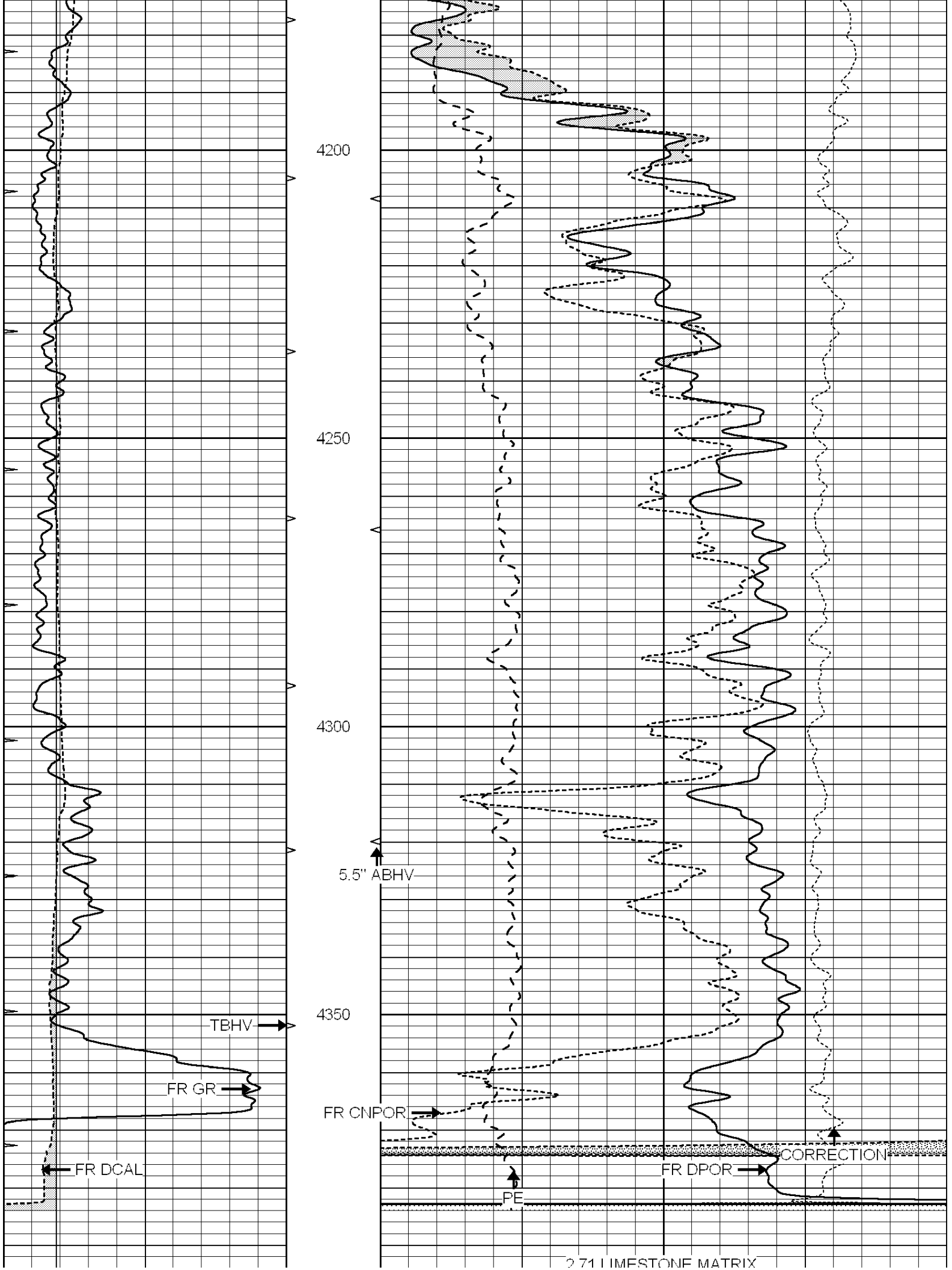
4150


4200
4250
4300
4350
5.5" ABHV
TBHV
FR GR
FR CNPOR
FR DCAL
PE
CORRECTION
FR DPOR
2.71 LIMESTONE MATRIX

MINMK

4400

LTD 4401

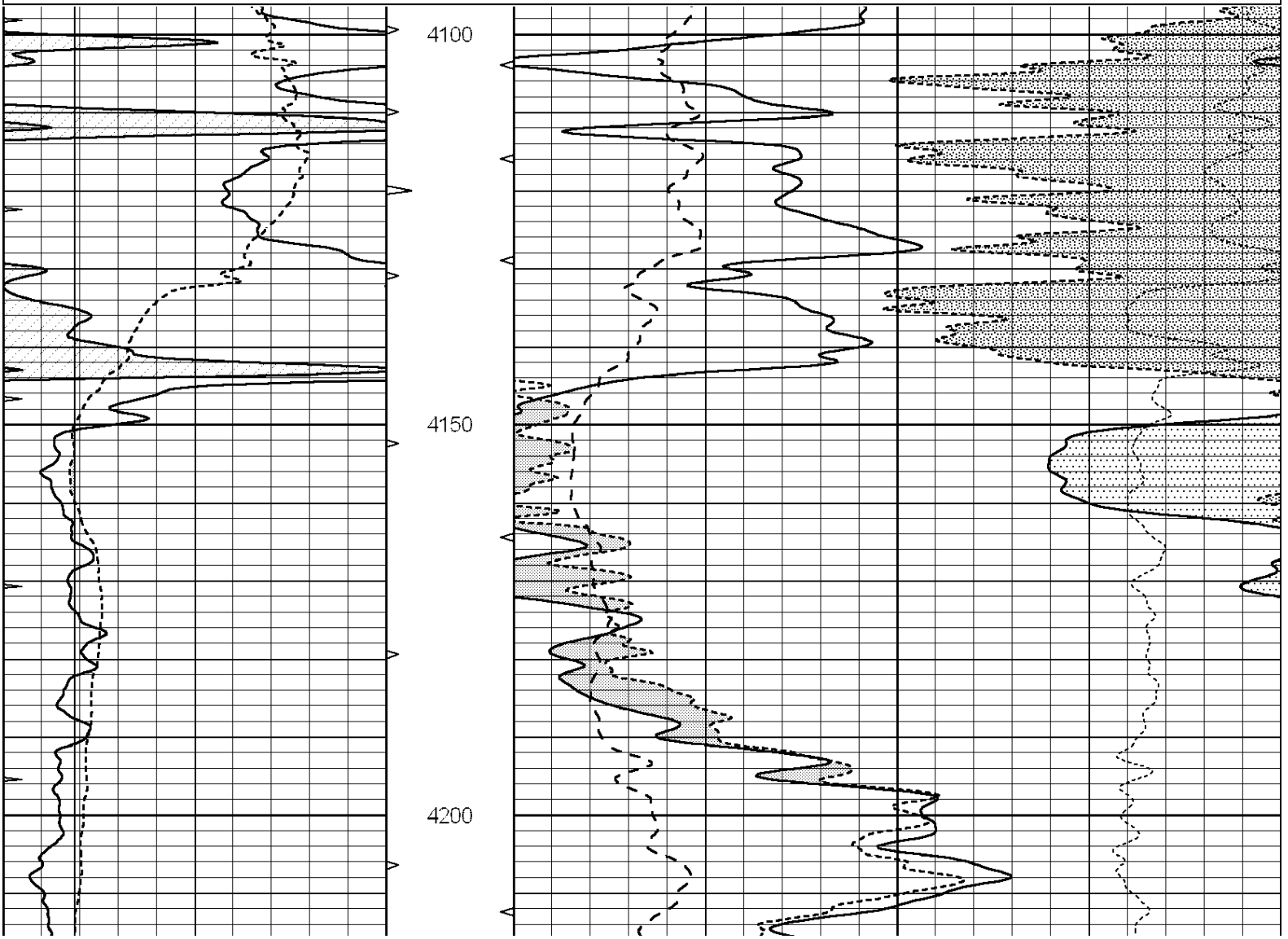
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)		-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)		-10
0	MINMK	20	TBHV	0	PE 10	-0.25 CORRECTION (g/cc)	0.25
			0 (ft3) 10				

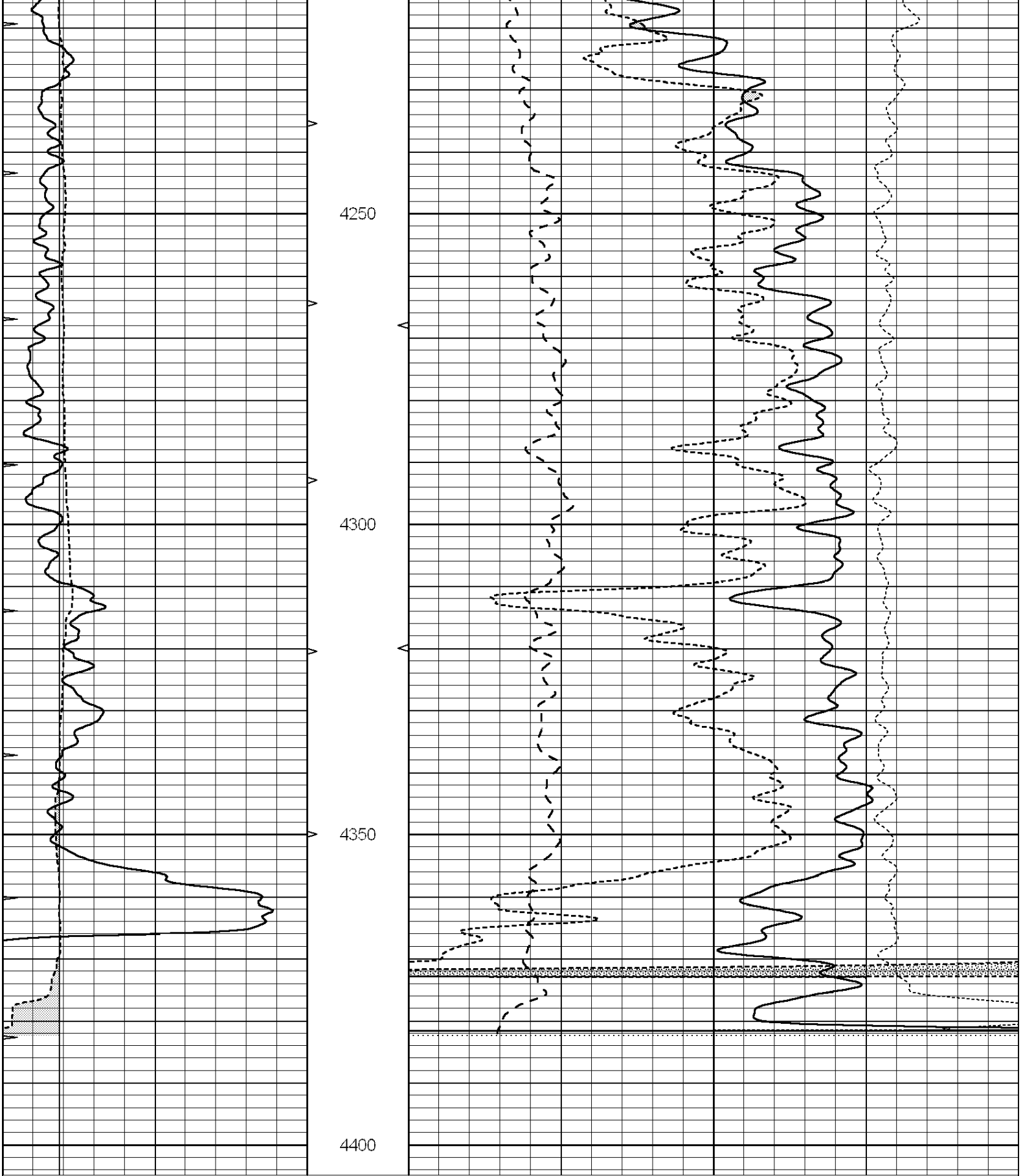
NABORS
COMPLETION & PRODUCTION SERVICES CO.

REPEAT SECTION

Database File: 010918pe.db
Dataset Pathname: pass2.4
Presentation Format: ldt_neu
Dataset Creation: Wed Jun 05 18:19:38 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)		-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)		-10
0	MINMK	20	TBHV	0	PE 10	-0.25 CORRECTION (g/cc)	0.25
			0 (ft3) 10				





Calibration Report

Database File: 010918pe.db
Dataset Pathname: pass3.6
Dataset Creation: Wed Jun 05 19:21:16 2013

Dual Induction Calibration Report

Serial-Model:	PROBE9-DILG
Surface Cal Performed:	Mon May 20 12:15:25 2013
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-14.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-19.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	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

Master Calibration

Performed Tue May 28 08:54:22 2013

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1890.3	12786.5	4236.7	13497.2	cps
Window 2	1764.1	11051.7	3765.5	11456.4	cps
Window 3	1442.8	5894.4	2376.2	5911.4	cps
Window 4	428.0	428.9	420.8	426.5	cps
Long Space	0.0	9287.6	2001.3	9692.3	cps
Short Space	3.2	3351.1	2186.8	3398.0	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	

Rib Angle	: 44.5	Rib Slope	: 0.981	Density/Spine Ratio	: 0.552
Spine Angle	: 74.5	Spine Slope	: 3.596	Spine Intercept	: -20.1

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification — Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report

Serial Number: 070808
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: 070559
Tool Model: OPEN_GR
Performed: Mon Apr 15 10:30:52 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.3500 GAPI/cps