



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY / NEUTRON
PE LOG**

Company	RICHLAN DRILLING	Location:	API # : 15-135-25699-00-00	Other Services
Well	RAHM #3		1640' FNL & 1170' FEL	DIL
Field	SCHABEN WEST		NW - NW - SE - NE	MEL/SON
County	NESS		State	KANSAS
		SEC 22	TWP 19S	RGE 22W
Permanent Datum	GROUND LEVEL	Elevation	2216	K.B. 2226
Log Measured From	KELLY BUSHING 10' A.G.L.			D.F. 2224
Drilling Measured From	KELLY BUSHING			G.L. 2216
Date	11-29-13			
Run Number	ONE			
Depth Driller	4483			
Depth Logger	4486			
Bottom Logged Interval	4462			
Top Log Interval	3550			
Casing Driller	8 5/8"@257'			
Casing Logger	254'			
Bit Size	7 7/8"			
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES / 1000 PPM		
Density / Viscosity	9.0/58			
pH / Fluid Loss	9.5/8.8			
Source of Sample	FLOWLINE			
Rim @ Meas. Temp	0.65@79F			
Rmf @ Meas. Temp	0.49@71F			
Rmc @ Meas. Temp	0.78@71F			
Source of Rmf / Rmc	MEASUREMENT			
Rim @ BHT	0.38@120F			
Time Circulation Stopped	2 HOURS			
Time Logger on Bottom				
Maximum Recorded Temperature	120F			
Equipment Number	860			
Location	HAYS, KANSAS			
Recorded By	IAN MABB			
Witnessed By	BOB SCHREIBER			

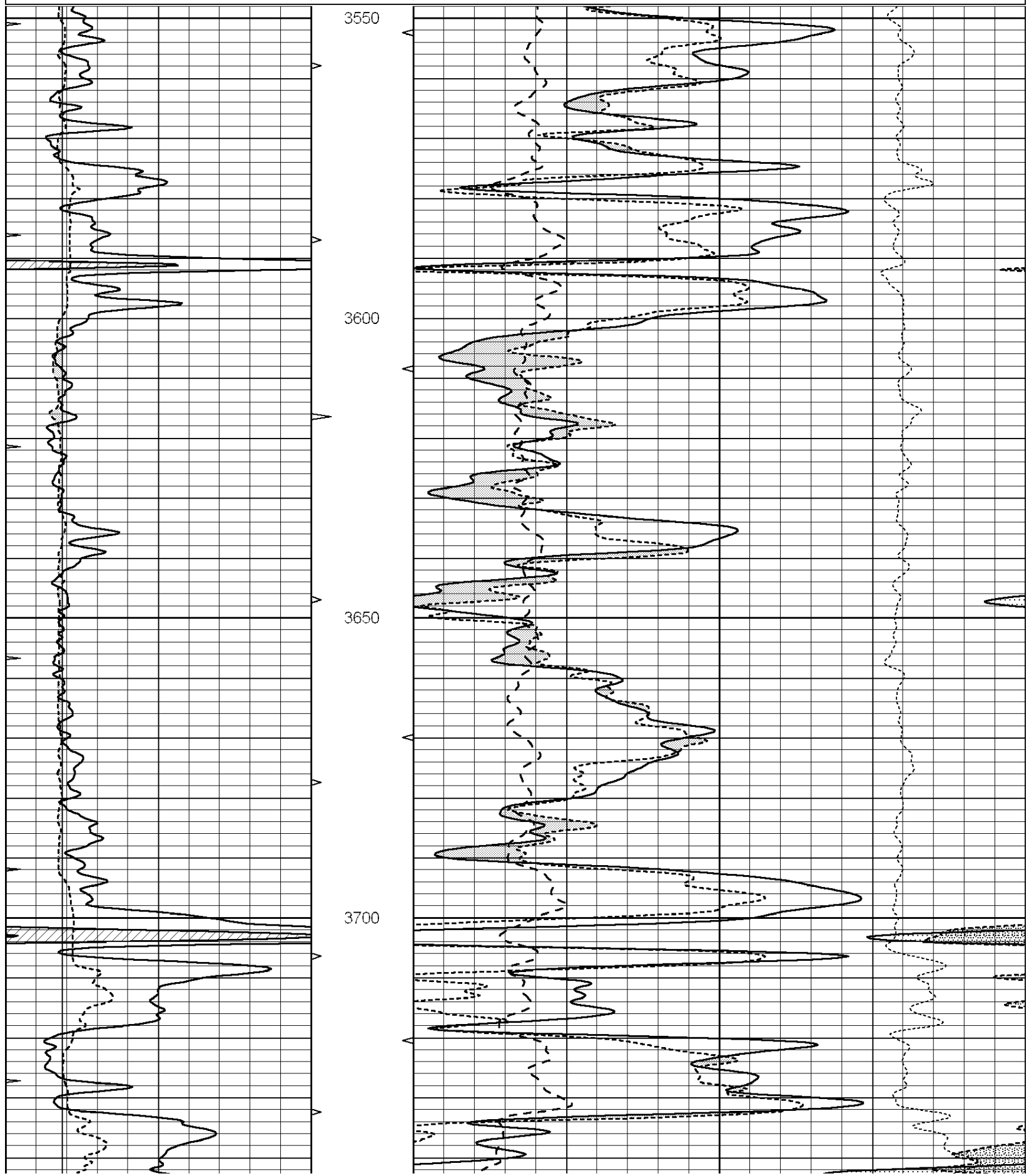
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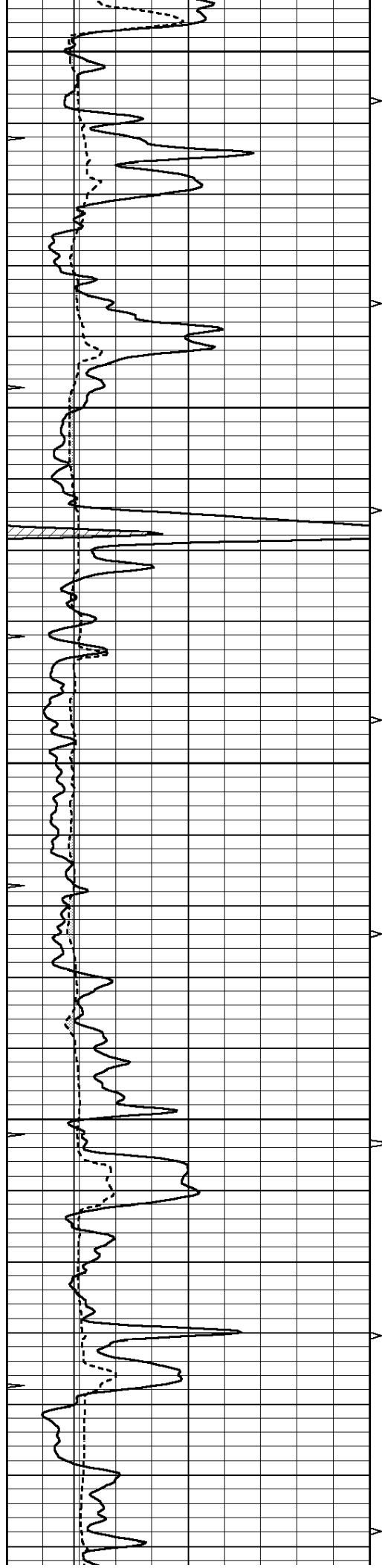
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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

THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395
DIRECTIONS
BAZINE, KS. - 2 WEST TO RD BB - SOUTH 4 MILES WEST INTO

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			





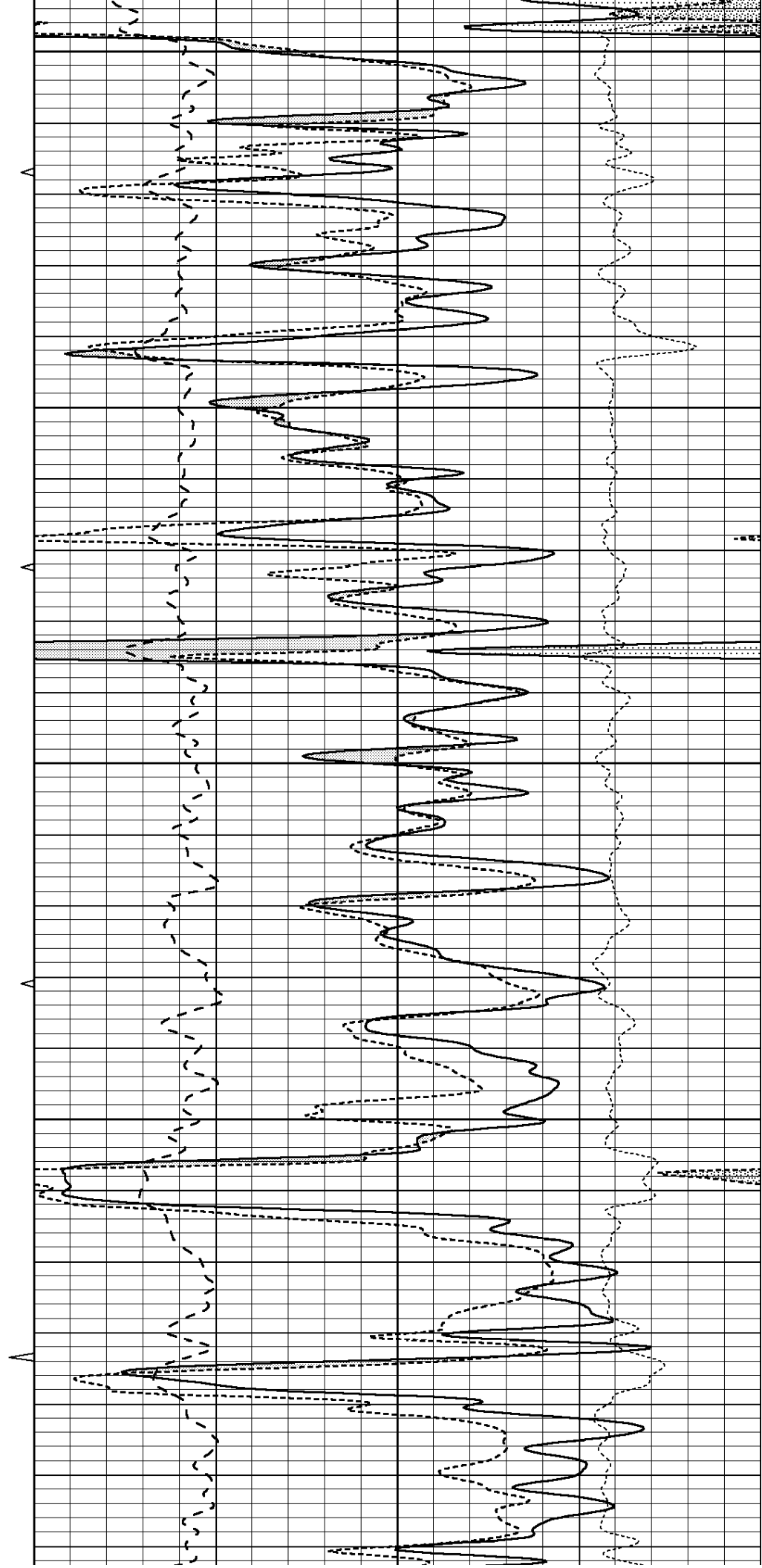
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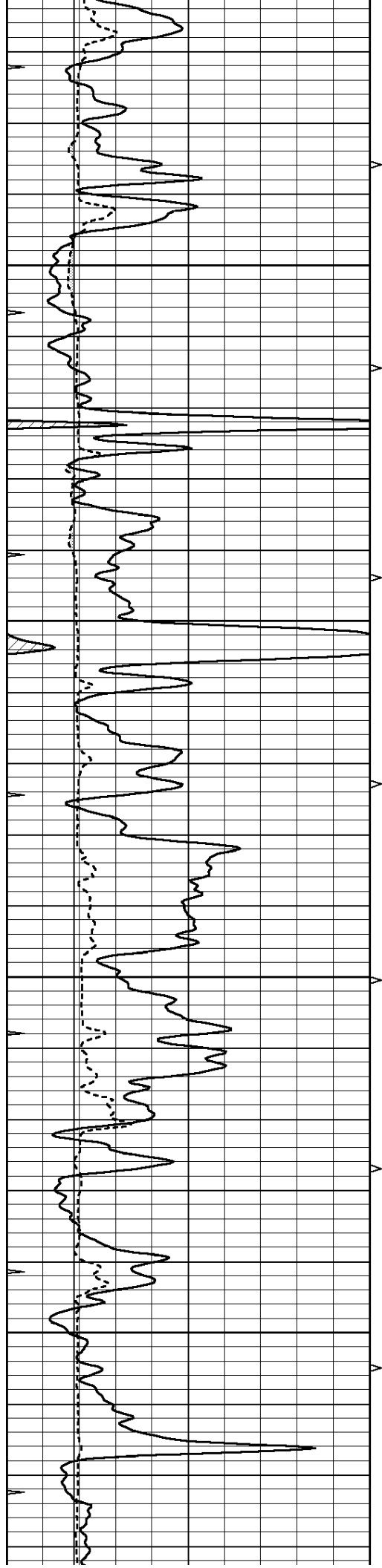
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3850

3900

3950



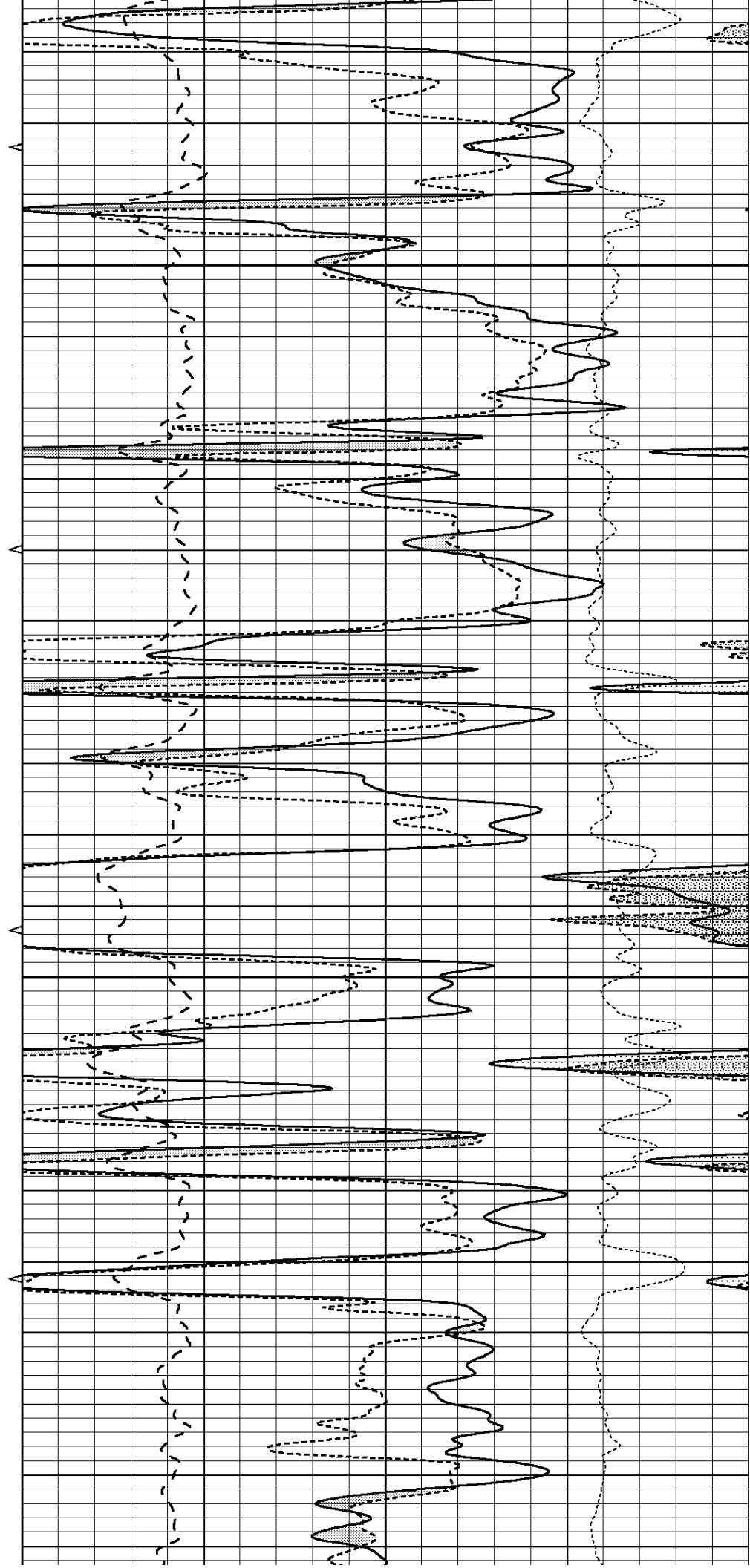


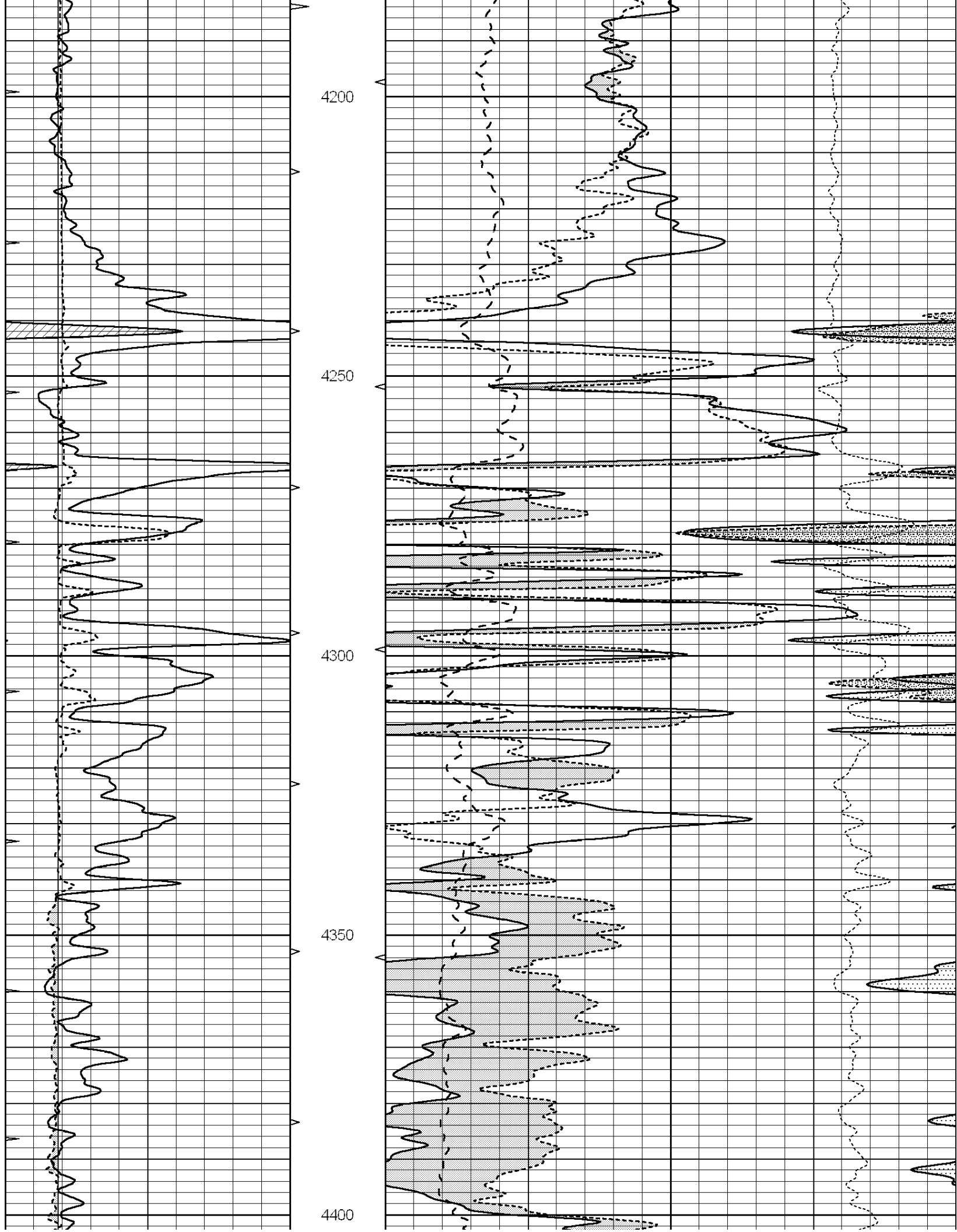
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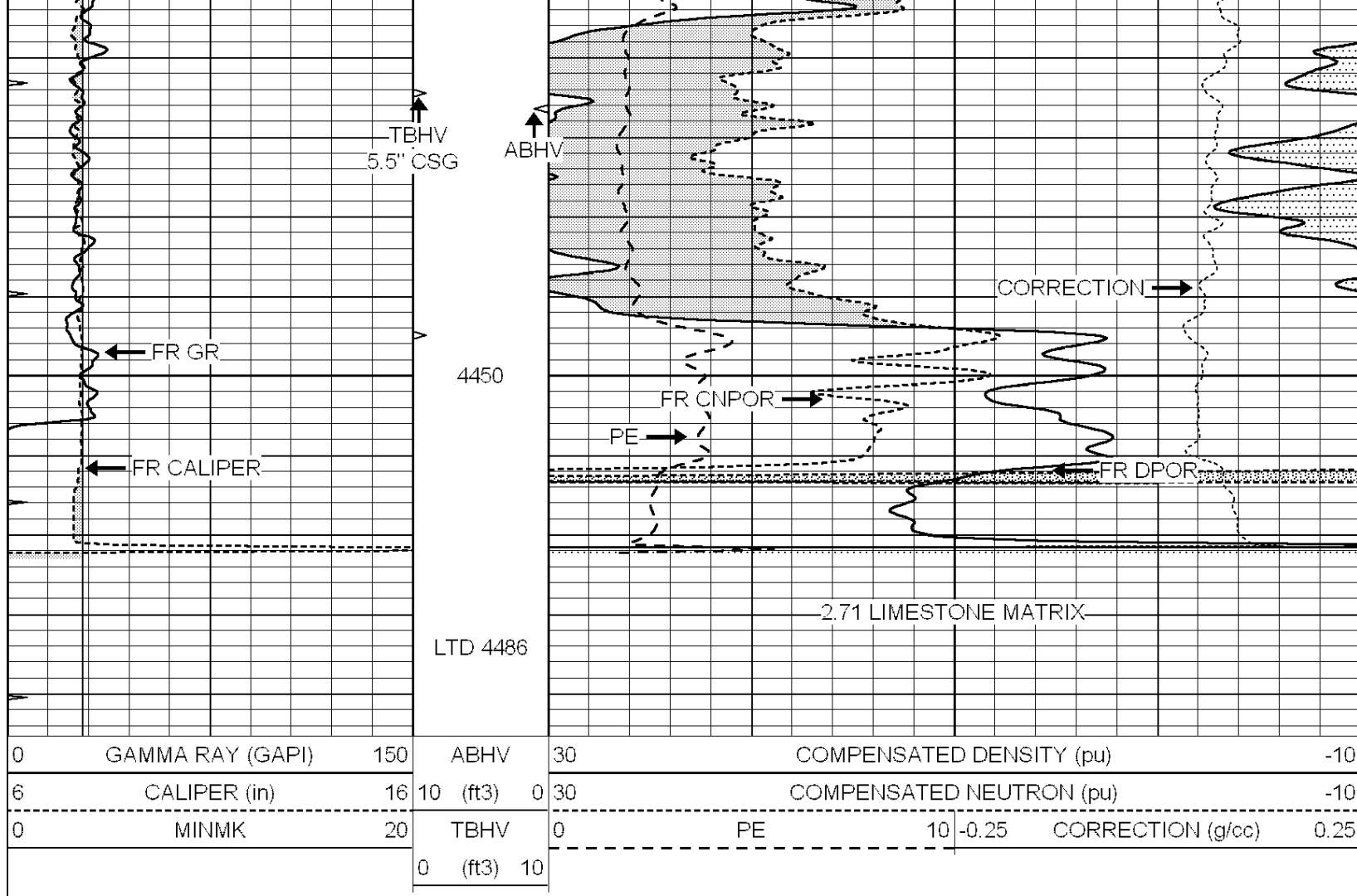
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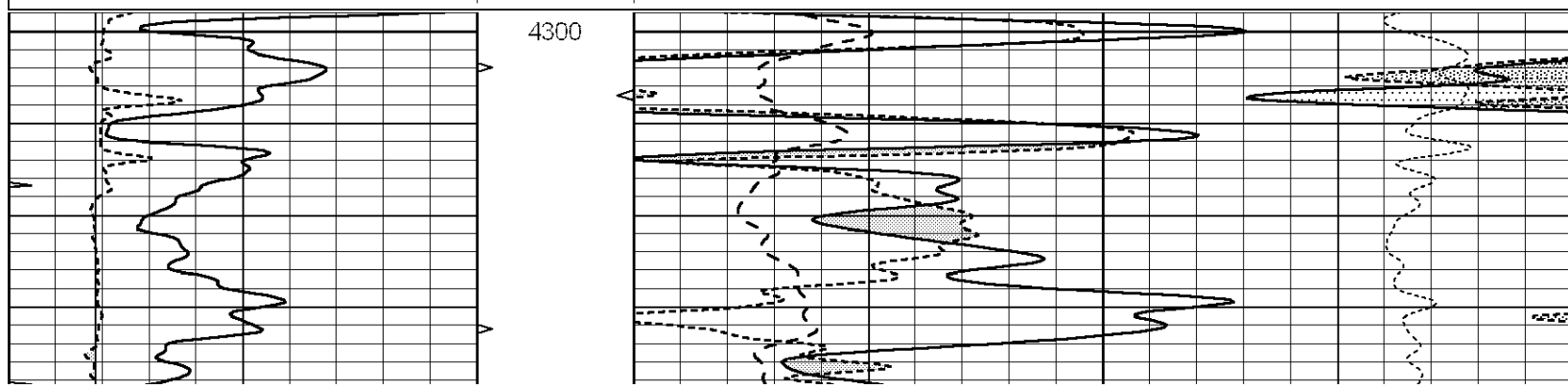


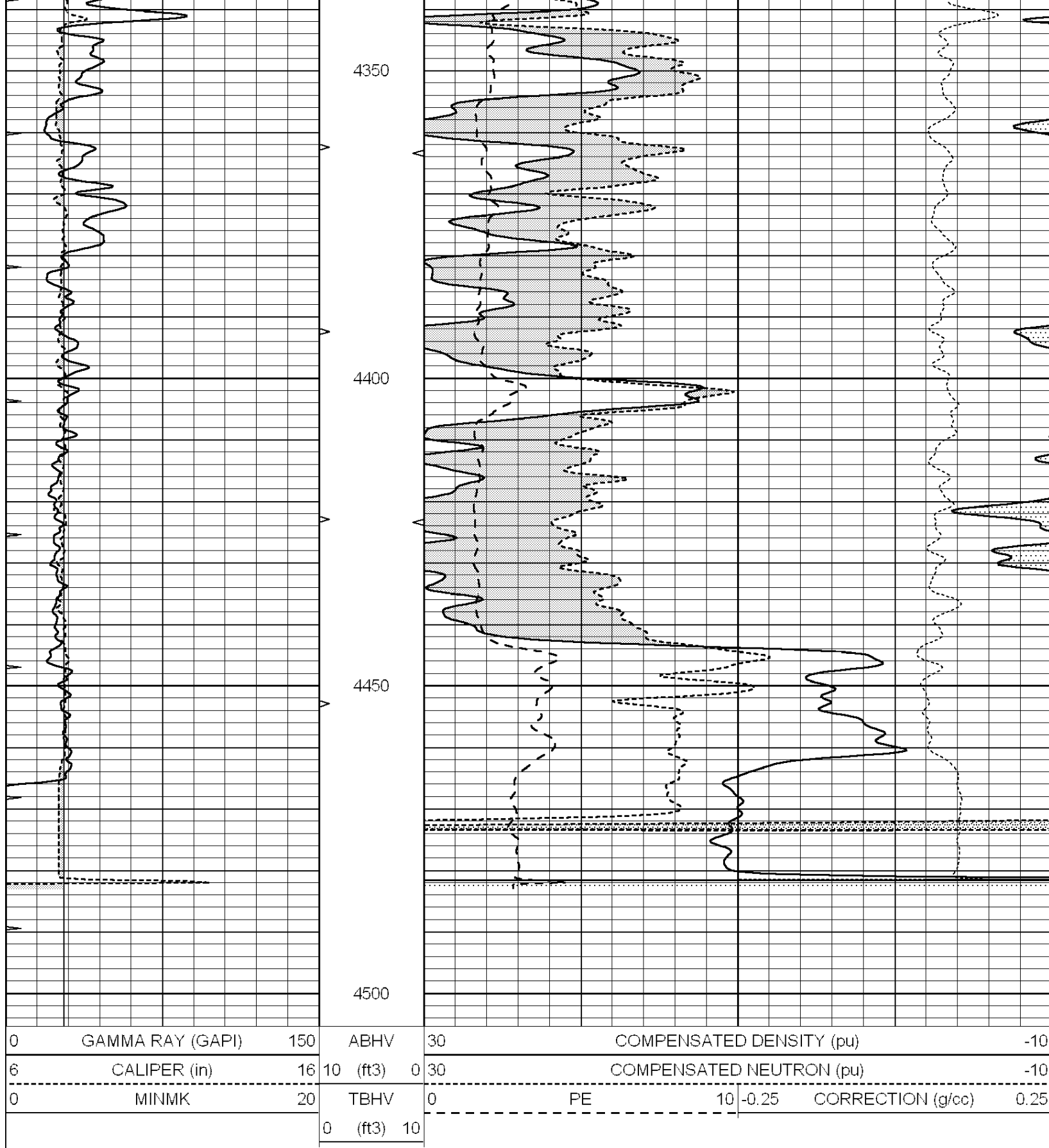


REPEAT SECTION

Database File: 012047pe.db
 Dataset Pathname: pass2.1.4
 Presentation Format: _ldt_neu
 Dataset Creation: Fri Nov 29 15:10:17 2013 by Calc Open-Cased 090629
 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
			0 (ft3) 10			CORRECTION (g/cc) 0.25





Calibration Report

Database File: 012047pe.db
 Dataset Pathname: pass3.1.2
 Dataset Creation: Fri Nov 29 15:44:30 2013 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:

DIL3-GEAR

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	500.000	5.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	580.000	5.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	560.000	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	540.000	-4.000

Litho Density Calibration Report
Serial: 001 Model: PRB
Performed Tue Jul 03 11:37:32 2007

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	2170.6	9915.1	3855.3	11241.6	cps
Window 2	2029.2	8716.5	3483.5	9750.8	cps
Window 3	1665.0	4929.7	2356.8	5332.0	cps
Window 4	493.3	492.1	490.0	486.8	cps
Long Space	0.0	6687.3	1454.3	7721.6	cps
Short Space	1.9	2149.3	1403.9	2354.5	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio	: 0.556
Spine Angle	: 74.4	Spine Slope	: 3.583	Spine Intercept	: -18.7

Caliper

	Readings	Reference
Low Ref	3.5	8.3
High Ref	5.4	14.0
	Gain: 2.9	Offset: -1.2

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: 7
Tool Model: Probe1
Performed: Tue Apr 16 01:45:59 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Calibrator Reading:

1.0

cps

Sensitivity:

0.4000

GAPI/cps