



**COMPENSATED  
DENSITY / NEUTRON  
PE LOG**

Company	INDIAN OIL COMPANY, INC.	Company	INDIAN OIL COMPANY, INC.
Well	ACHENBACH "D" #2	Well	ACHENBACH "D" #2
Field	STRANATHAN	Field	STRANATHAN
County	BARBER	County	BARBER
State	KANSAS	State	KANSAS
Location:	APL # : 15-007-24334-0000 1415' FSL & 2155' FVL SE - NE - SW	Other Services	DIL/MEL
Permanent Datum	GROUND LEVEL	Elevation	1405
Log Measured From	KELLY BUSHING 12' A.G.L.	K.B.	1417
Drilling Measured From	KELLY BUSHING	D.F.	1415
		G.L.	1405
	SEC 1 TWP 35S RGE 12W		

Date	7/16/18
Run Number	ONE
Depth Driller	5600
Depth Logger	5598
Bottom Logged Interval	5574
Top Log Interval	3600
Casing Driller	8 5/8" @ 307'
Casing Logger	307
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/57
pH / Fluid Loss	9.5/10.8
Source of Sample	FLOWLINE
Rim @ Meas. Temp	.850 @ 90F
Rmf @ Meas. Temp	.638 @ 90F
Rmc @ Meas. Temp	1.02 @ 90F
Source of Rmf / Rmc	MEASUREMENT
Rim @ BHT	.588 @ 130F
Time Circulation Stopped	3 HOURS
Time Logger on Bottom	6:00 A.M.
Maximum Recorded Temperature	130F
Equipment Number	922339
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	AARON YOUNG

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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**

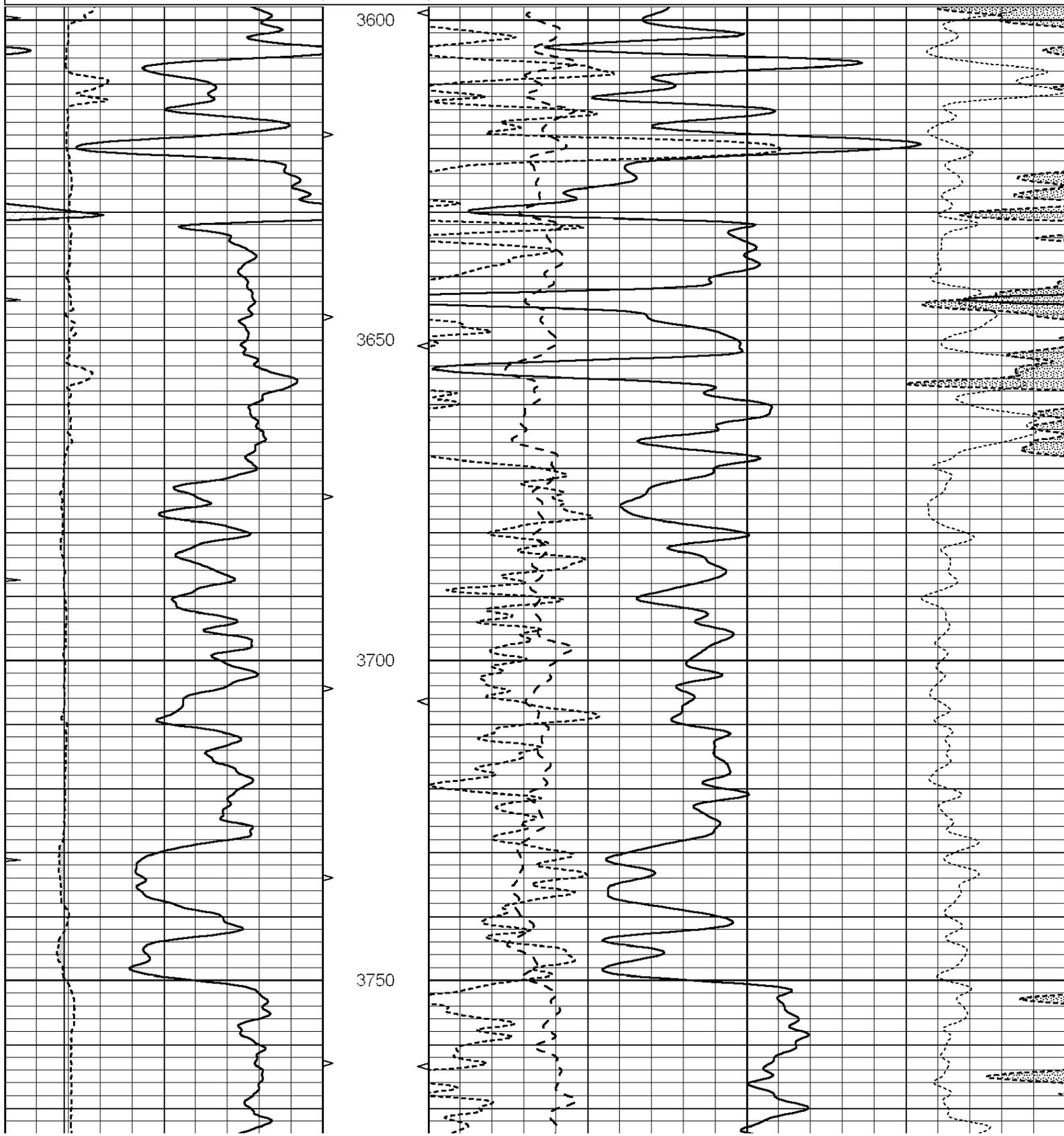
THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
HARDTNER, KS., E. ON HWY 160 TO "CLAIRMONT RD.", 1/2N., E. INTO

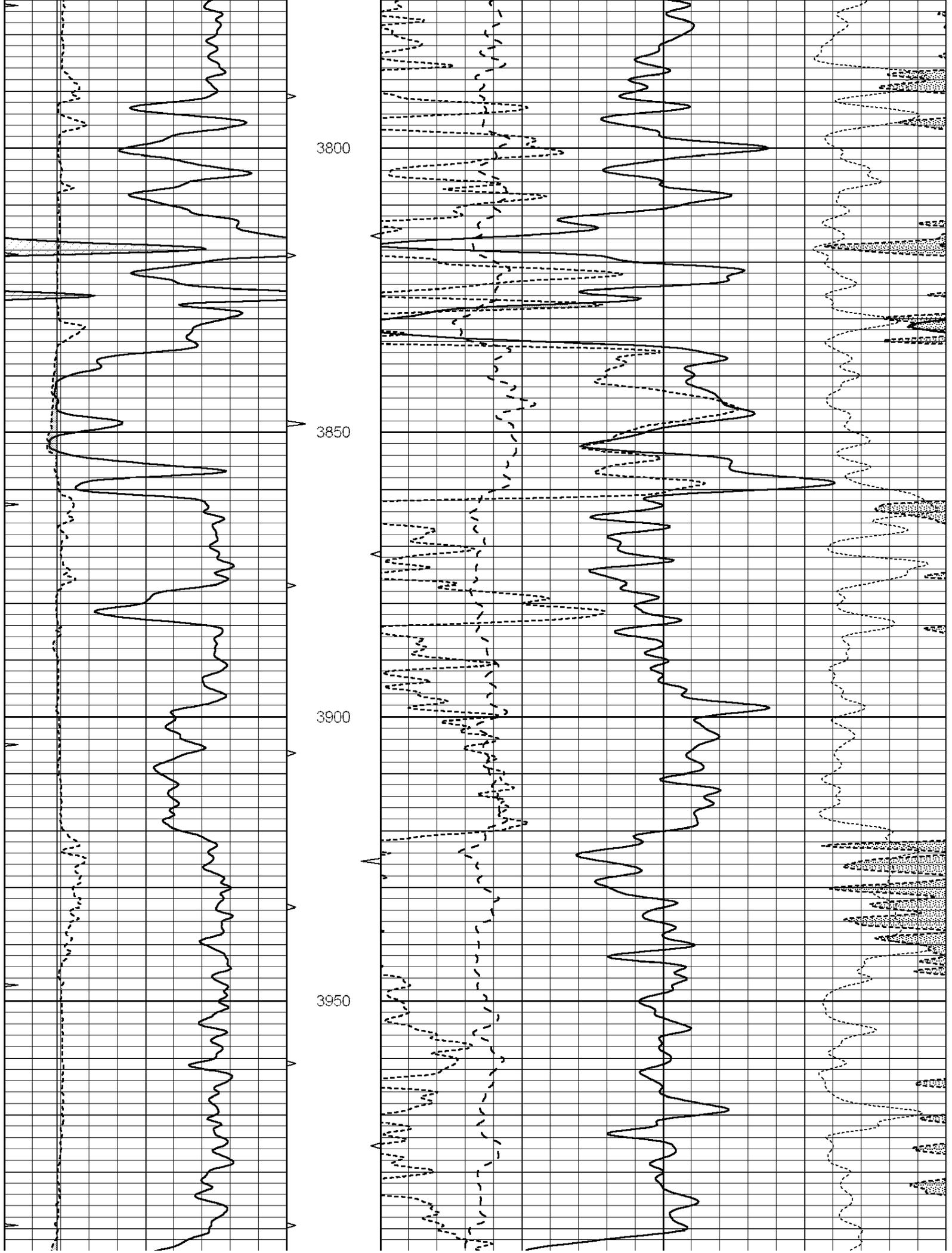


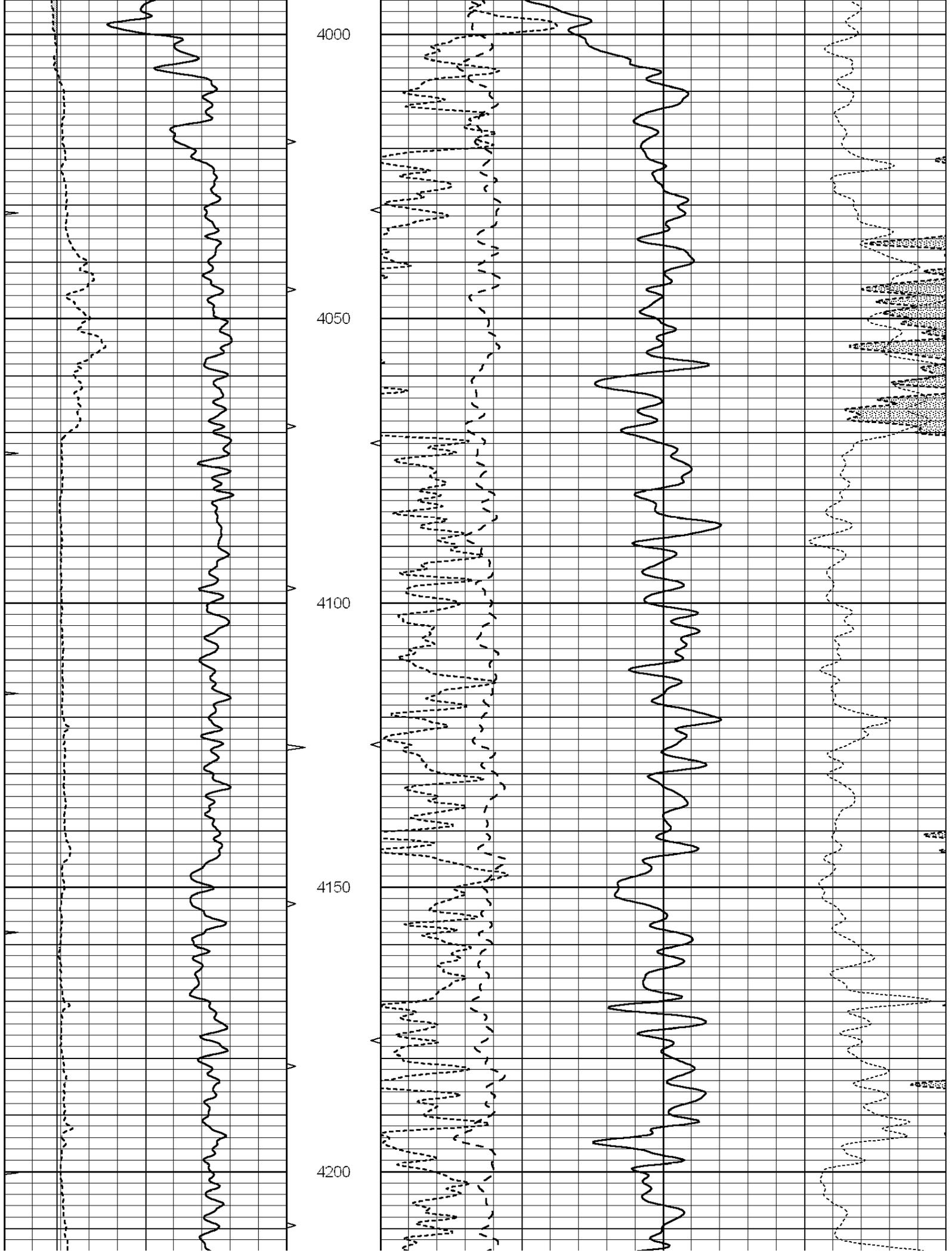
# MAIN SECTION

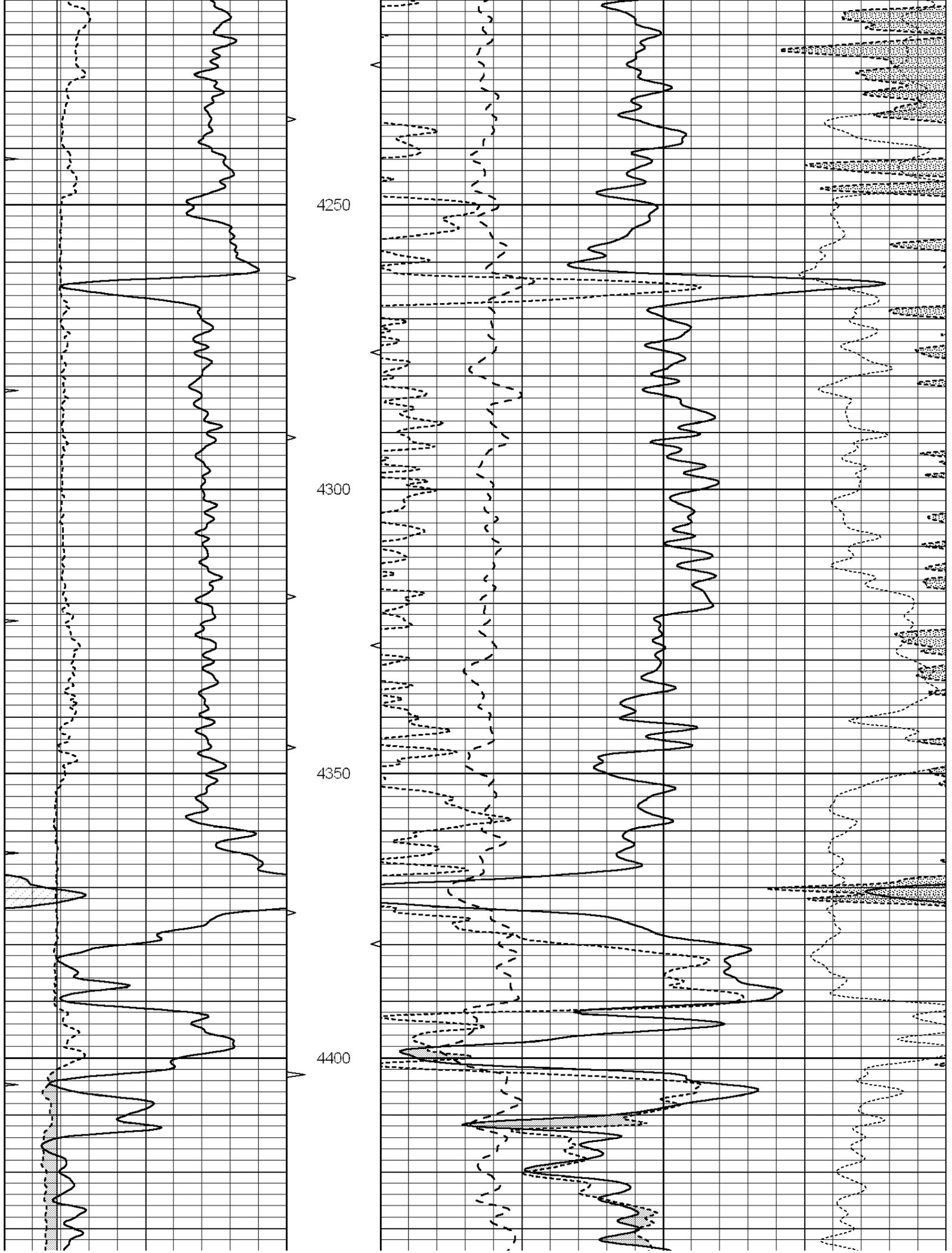
Database File: 2662pe.db  
 Dataset Pathname: pass3.10  
 Presentation Format: ldt\_neu  
 Dataset Creation: Mon Jul 16 07:45:37 2018 by Calc SOC 120430  
 Charted by: Depth in Feet scaled 1:240

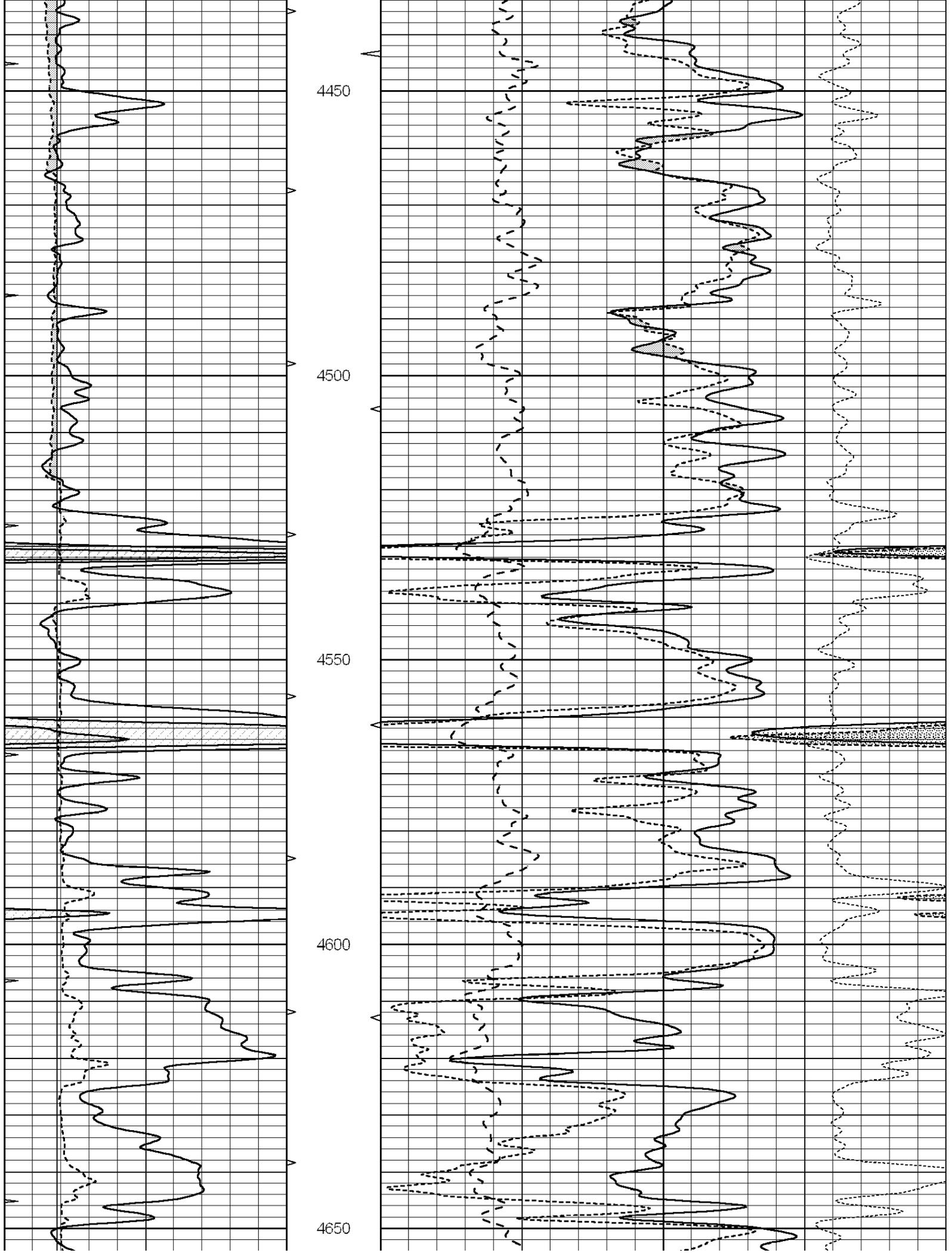
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)		-10
6	CALIPER (in)	16	10 (ft3)	0	COMPENSATED NEUTRON (pu)		-10
0	MINMK	20	TBHV	0	PE	10	-0.25 CORRECTION (g/cc) 0.25
			0 (ft3)	10			

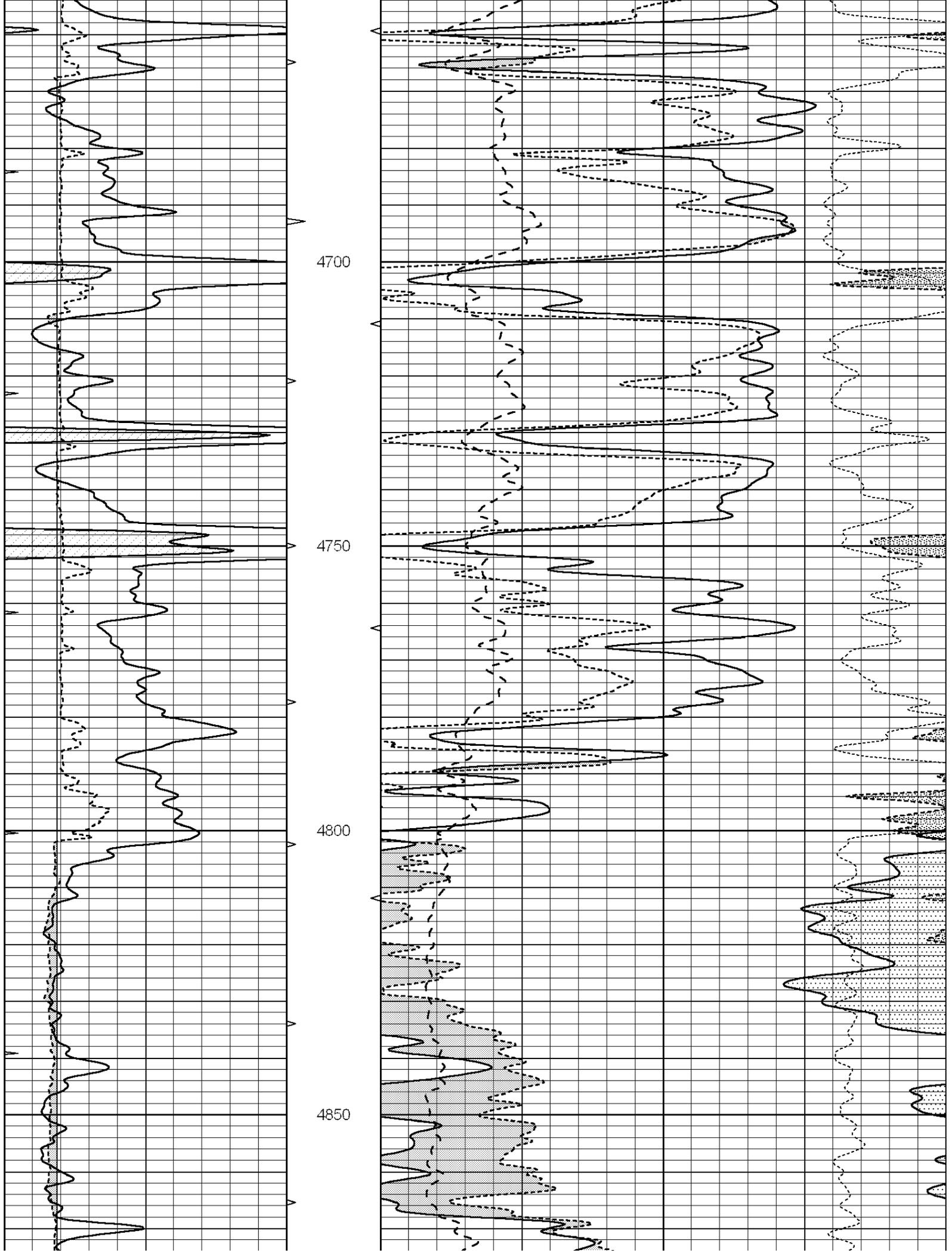


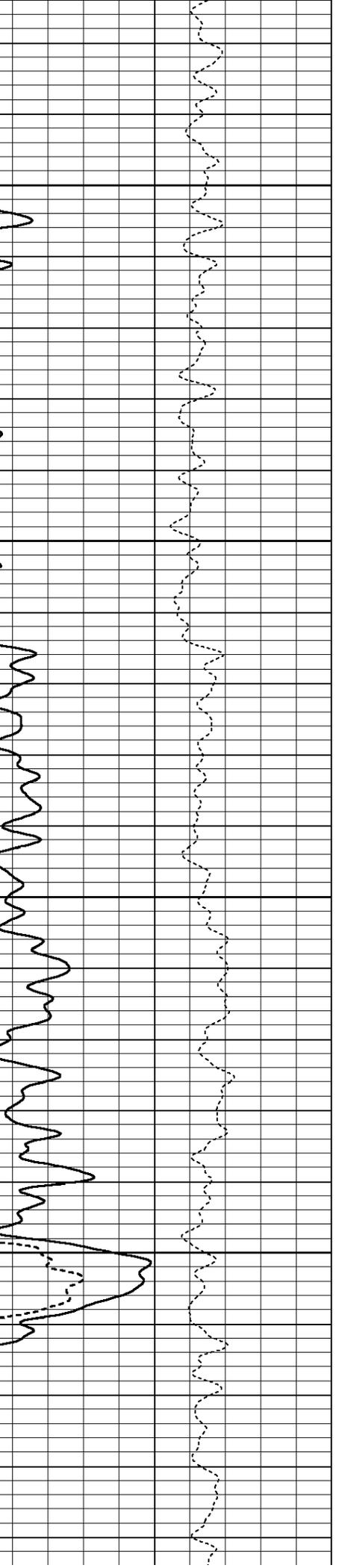
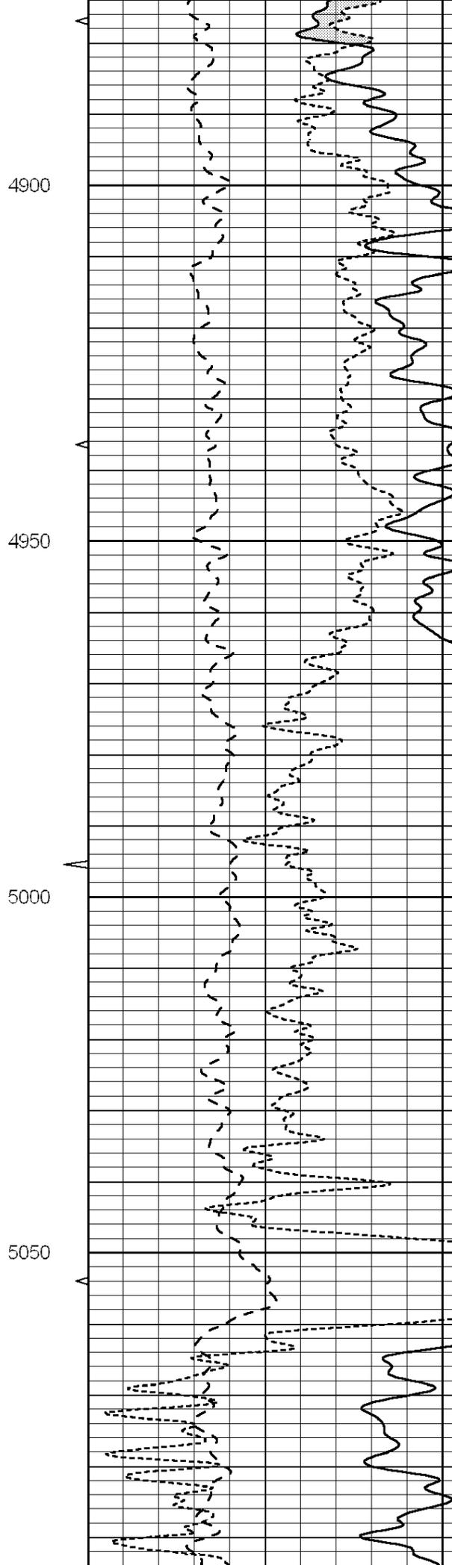
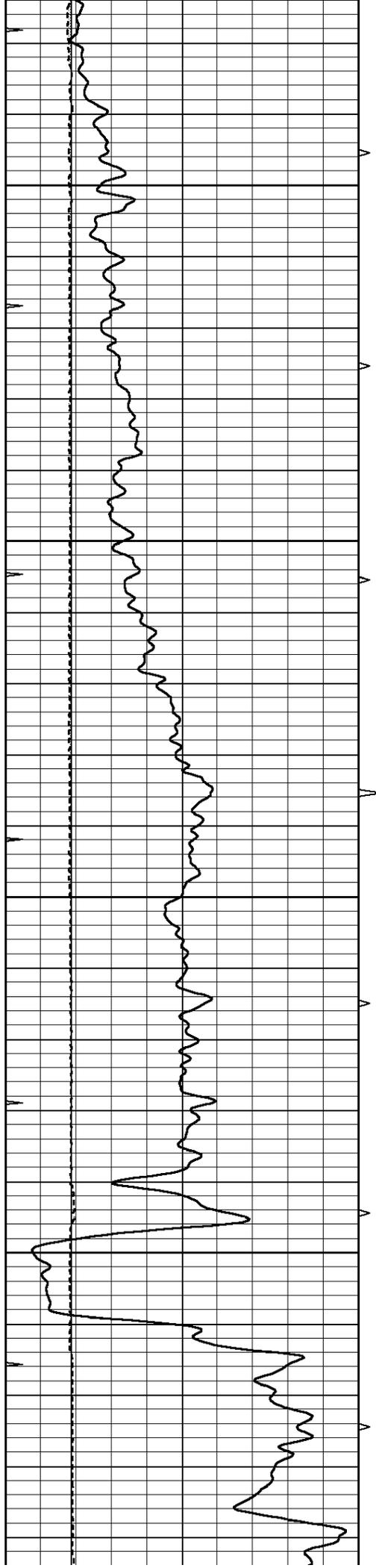


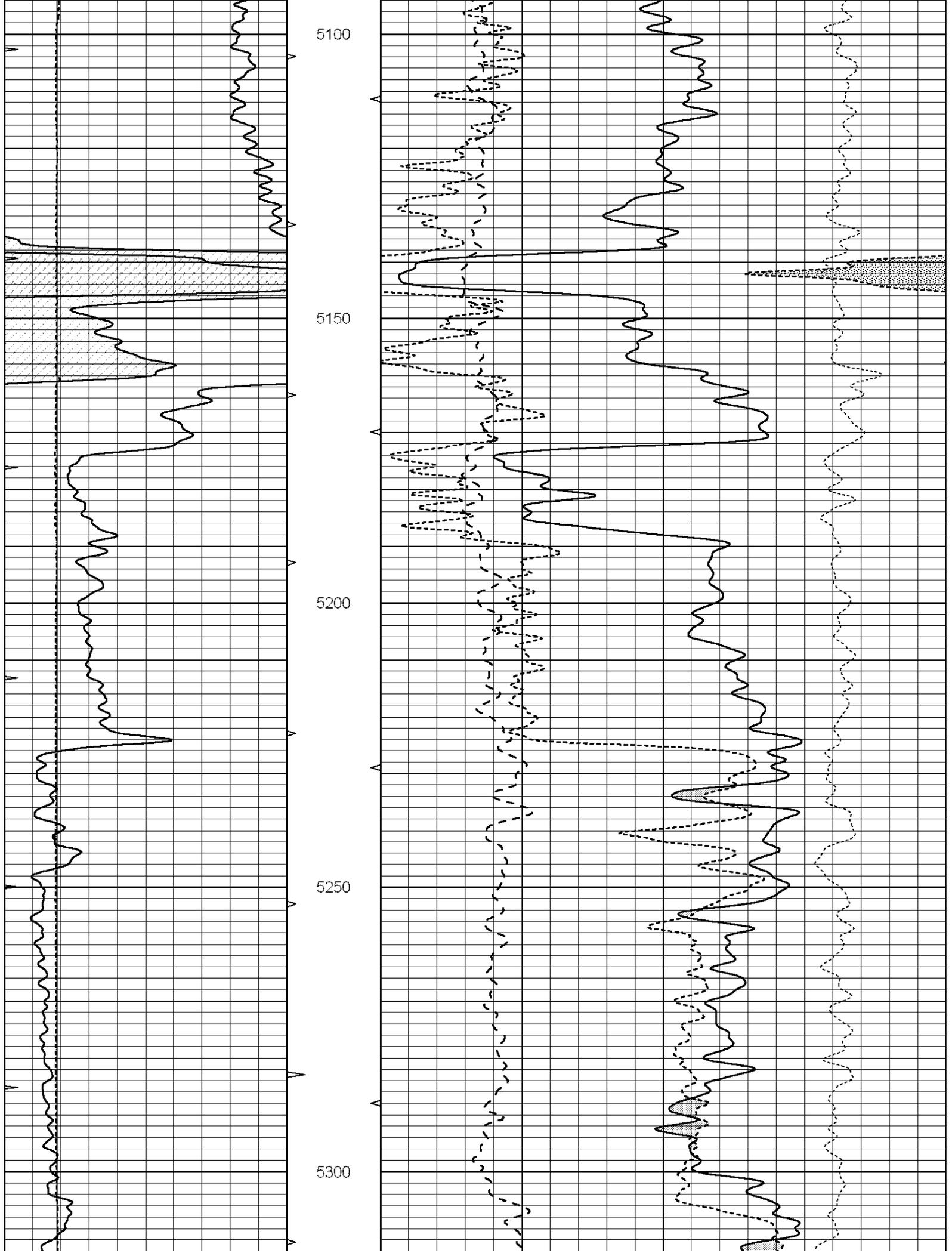


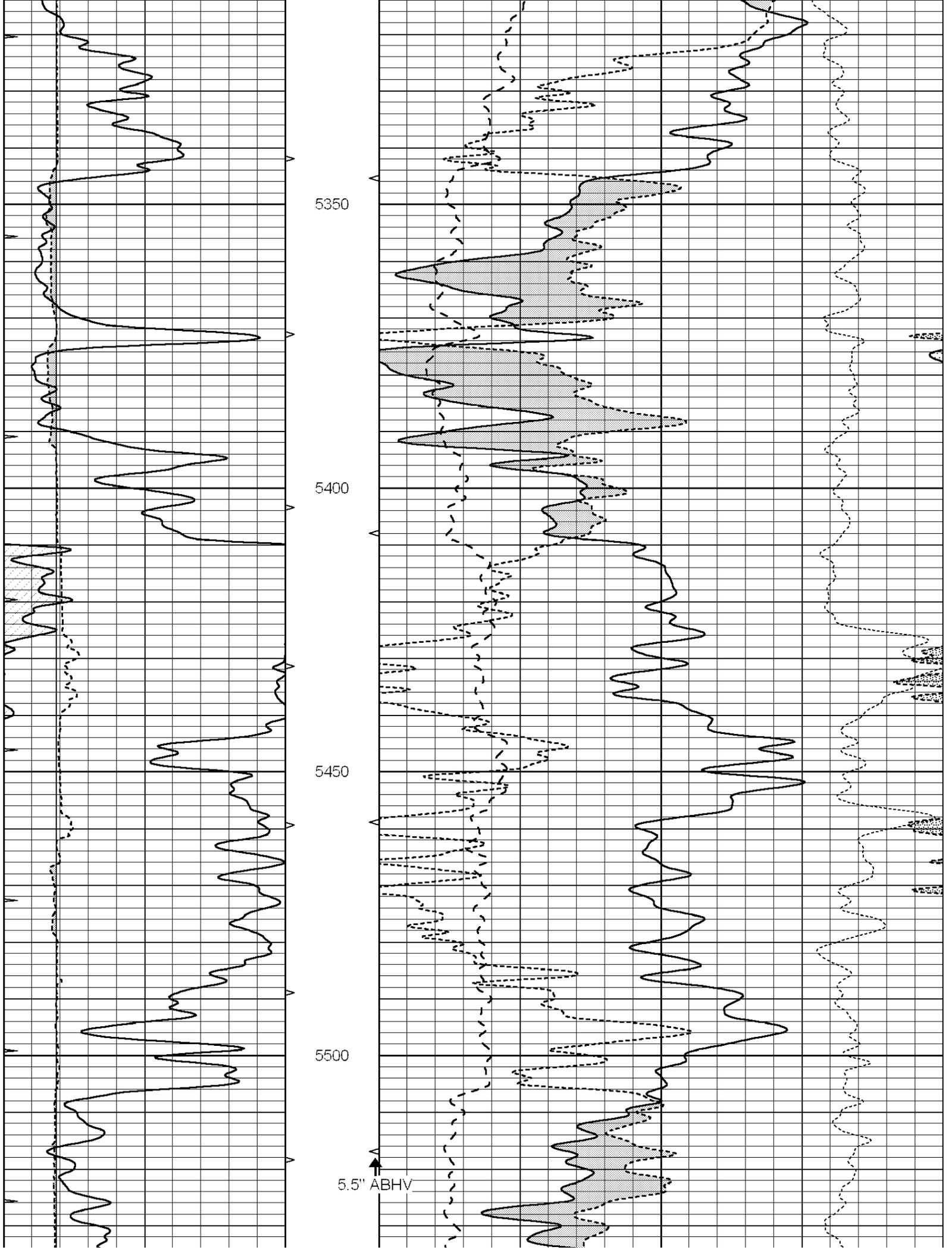


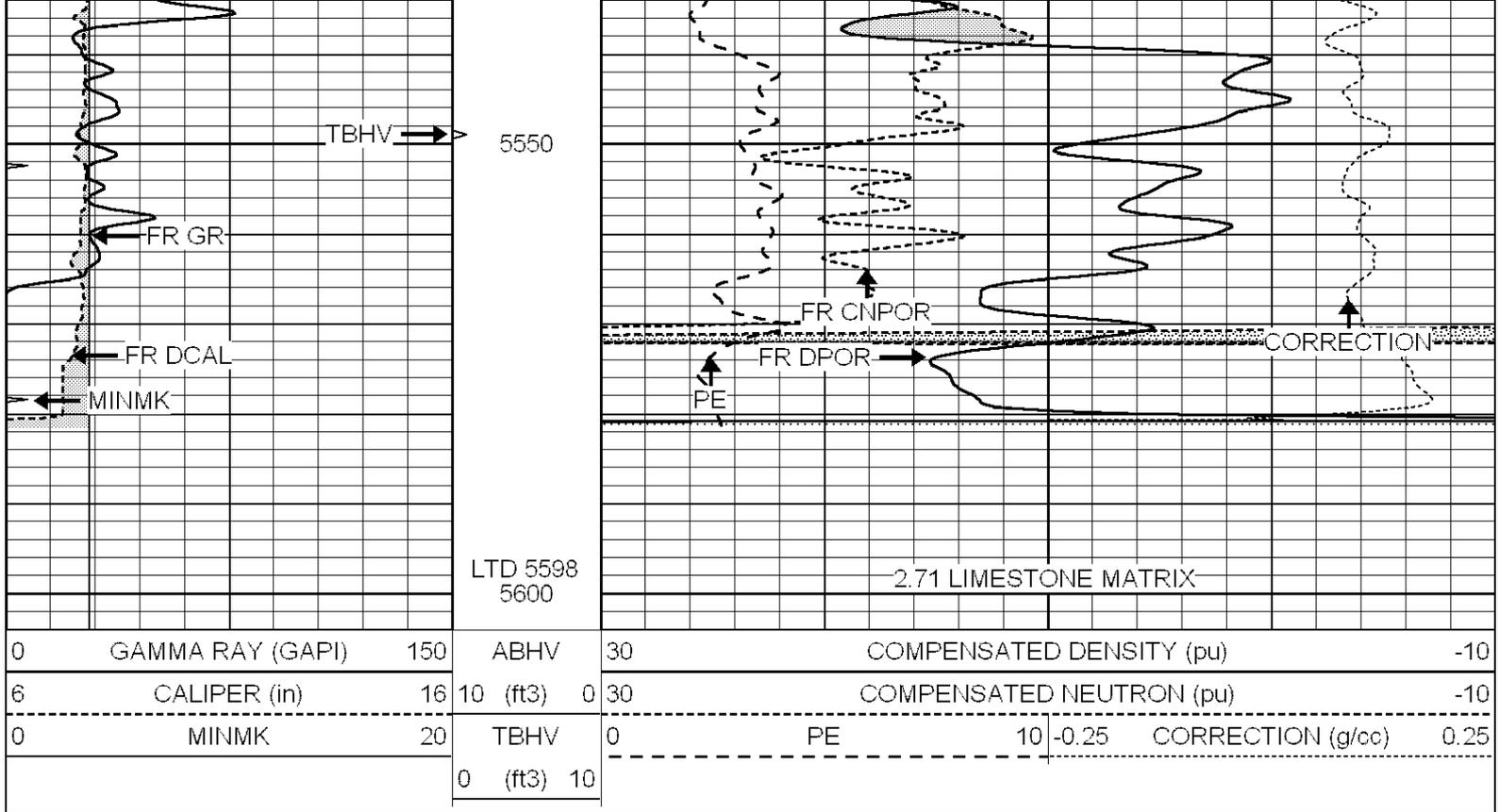








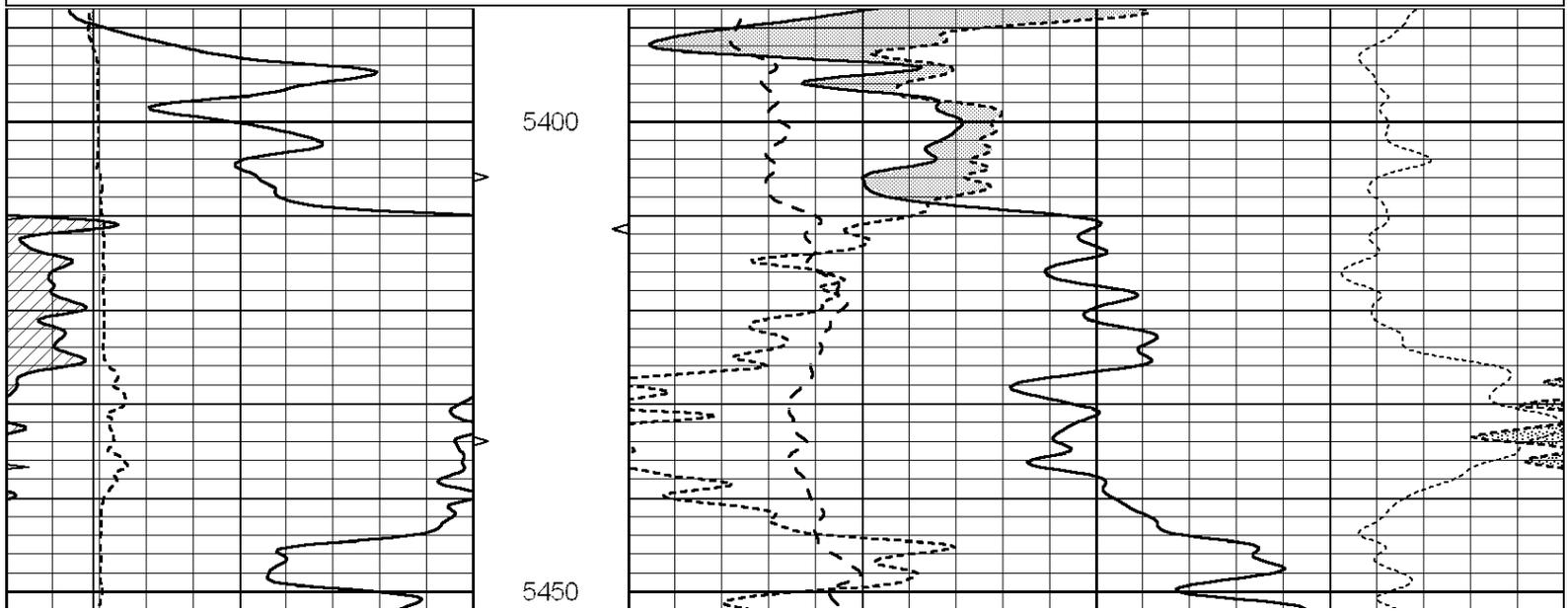


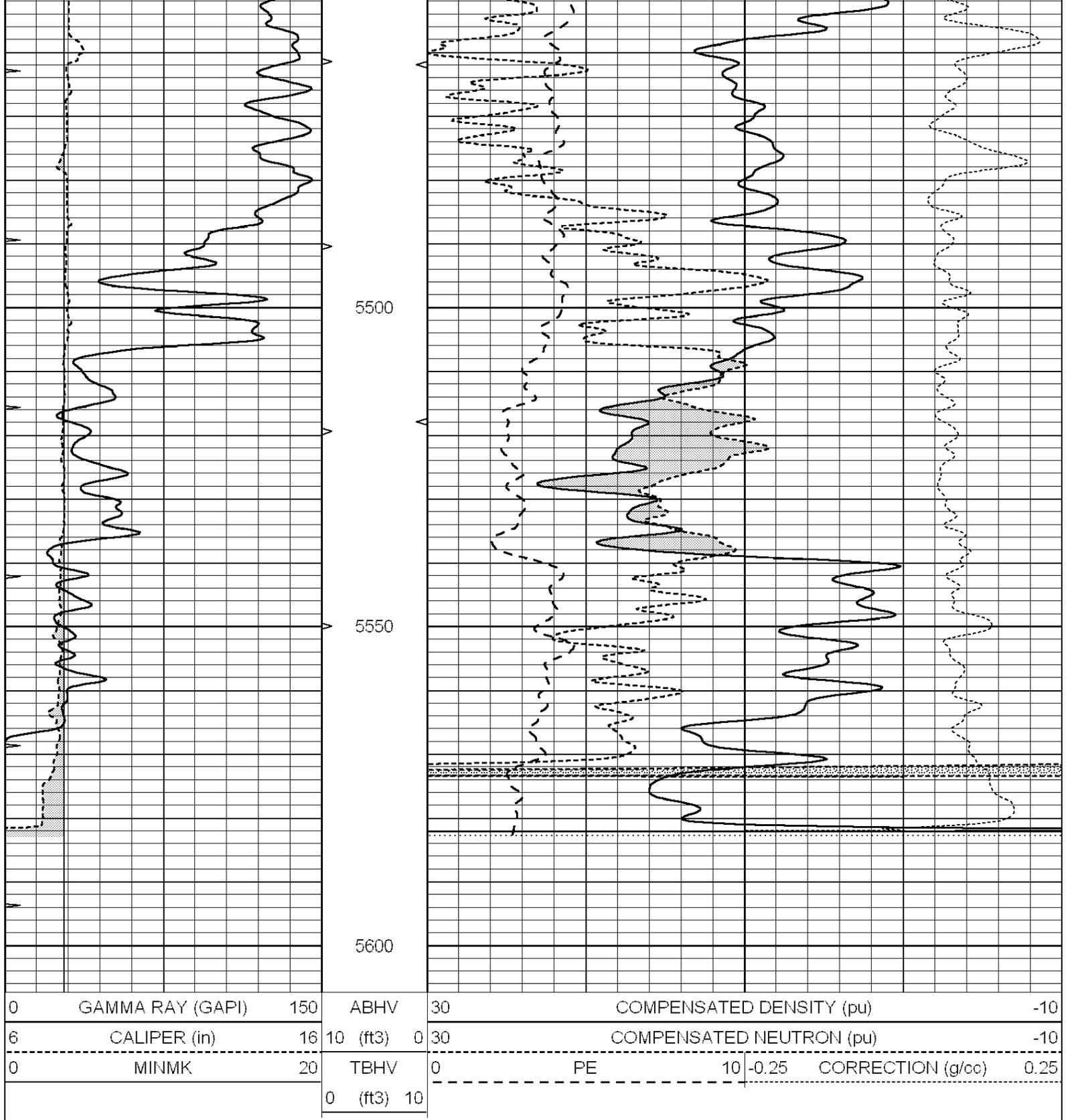


# REPEAT SECTION

Database File: 2662pe.db  
 Dataset Pathname: pass2.6  
 Presentation Format: ldt\_neu  
 Dataset Creation: Mon Jul 16 06:42:06 2018  
 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: 1598ddn.db  
 Dataset Pathname: pass4  
 Dataset Creation: Wed Aug 30 02:13:00 2017 by Log SOC 120430

### Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Wed Aug 30 00:06:33 2017
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008

Surface Calibration								
Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-44.000
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: 002      Model: PRB

Master Calibration				Performed Mon Aug 21 11:27:42 2017			
	Background	Magnesium		Aluminum	Sandstone		
Window 1	837.1	10632.5		2945.1	12110.1		cps
Window 2	772.0	9117.4		2570.1	10197.3		cps
Window 3	631.7	4669.0		1481.9	5042.9		cps
Window 4	187.0	187.5		185.9	189.9		cps
Long Space	0.0	8345.4		1798.1	9425.3		cps
Short Space	1.1	1927.9		1285.9	2050.2		cps
Rho		1.7100		2.5960	1.3800		g/cc
Pe		0.0000		2.5700	1.5500		
Rib Angle	: 45.2	Rib Slope	: 1.008	Density/Spine Ratio			: 0.558
Spine Angle	: 75.2	Spine Slope	: 3.790	Spine Intercept			: -19.6

Before Survey Verification				Performed Wed Dec 31 18:00:00 1969			
	Background	Magnesium		Aluminum	Sandstone		
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		

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: 070558  
 Tool Model: OPEN\_GR  
 Performed: Wed May 31 00:09:32 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.2800 GAPI/cps