



**SUPERIOR**  
Hays,  
Kansas

**COMPENSATED  
DENSITY / NEUTRON  
PE LOG**

Company: CORAL COAST PETROLEUM, L.C.  
Well: HARDEN #1  
Field: MORRISON NORTHEAST  
County: CLARK  
State: KANSAS

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Location: API #: 15-025-21545-0000  
1720' FSL & 2290' FEL  
SEC 16 TWP 32S RGE 21W  
Permanent Datum: GROUND LEVEL Elevation: 2111  
Log Measured From: KELLY BUSHING 10' A.G.L.  
Drilling Measured From: KELLY BUSHING  
Other Services: DIL/MEL SONIC  
Elevation: K.B. 2121 D.F. 2119 G.L. 2111

Date	9/19/12
Run Number	ONE
Depth Driller	6690
Depth Logger	6688
Bottom Logged Interval	6664
Top Log Interval	4200
Casing Driller	8 5/8" @ 636'
Casing Logger	638
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.065
pH / Fluid Loss	11.0/8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.440 @ 88F
Rmt @ Meas. Temp	.330 @ 88F
Rmc @ Meas. Temp	.528 @ 88F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.277 @ 140F
Time Circulation Stopped	3.5 HOURS
Time Logger on Bottom	7.45 P.M.
Maximum Recorded Temperature	140F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	KEITH REAVIS

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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 SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
PROTECTION, KS. 6W. ON HWY 160 TO "RD. 30", 4N. TO CATTLE GUARD, 1W. IN PASTURE TO  
SECOND CATTLE GUARD, FOLLOW TRAIL I MORE MILE W. & N.

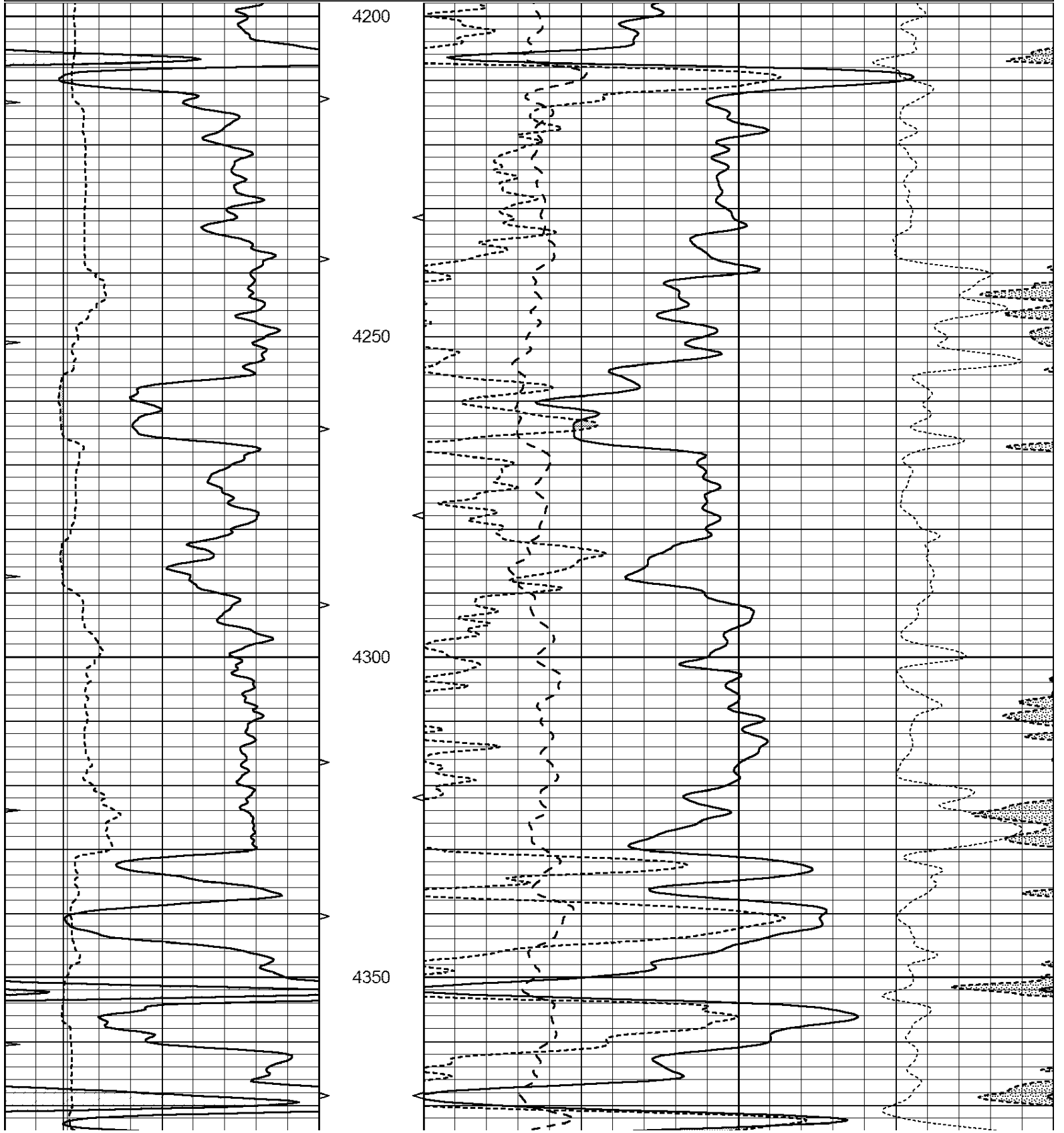


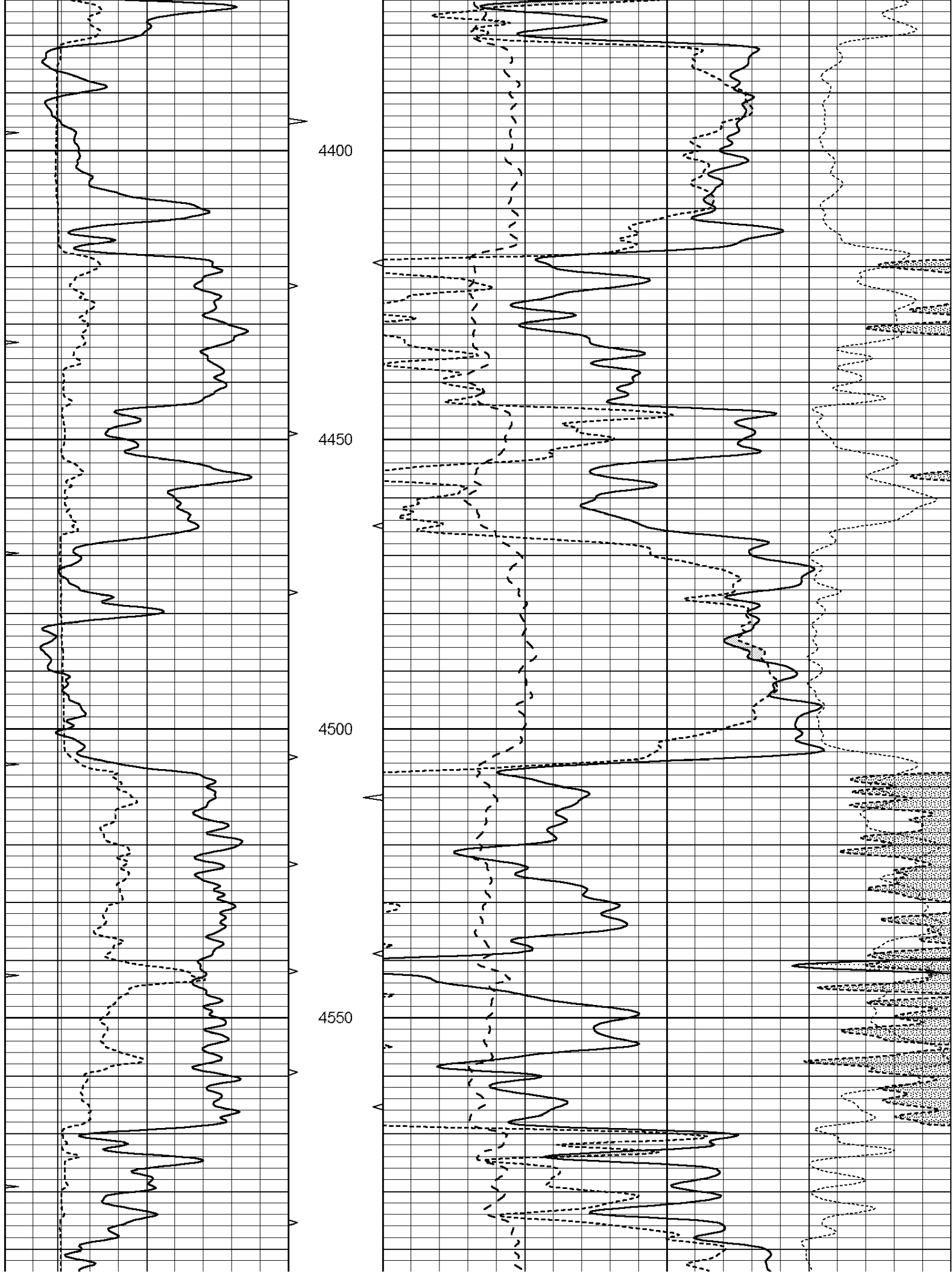
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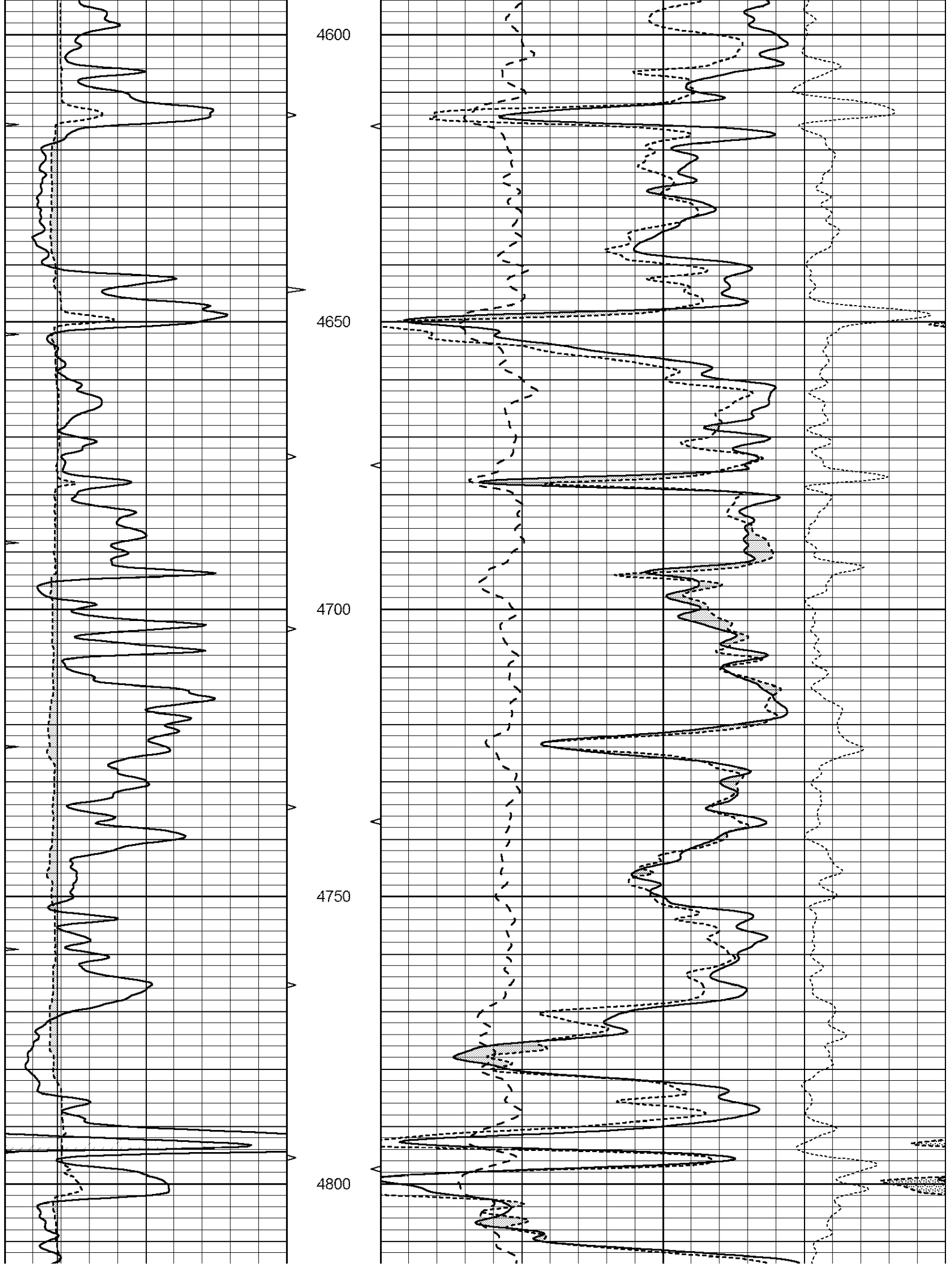
**MAIN SECTION**

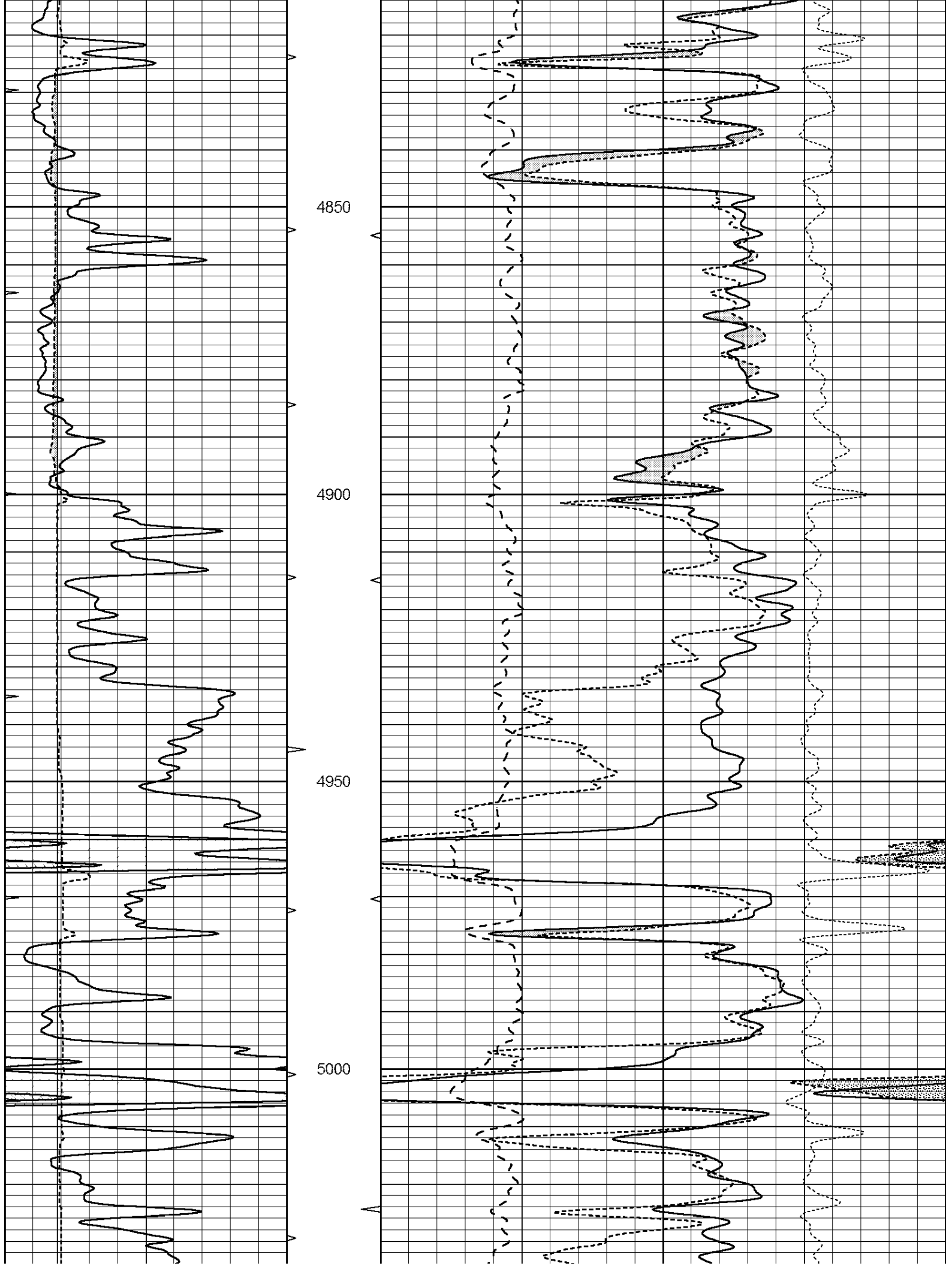
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 Dataset Pathname: pass3.8  
 Presentation Format: ldt\_neu  
 Dataset Creation: Wed Sep 19 21:55:00 2012 by Calc Open-Cased 110302  
 Charted by: Depth in Feet scaled 1:240

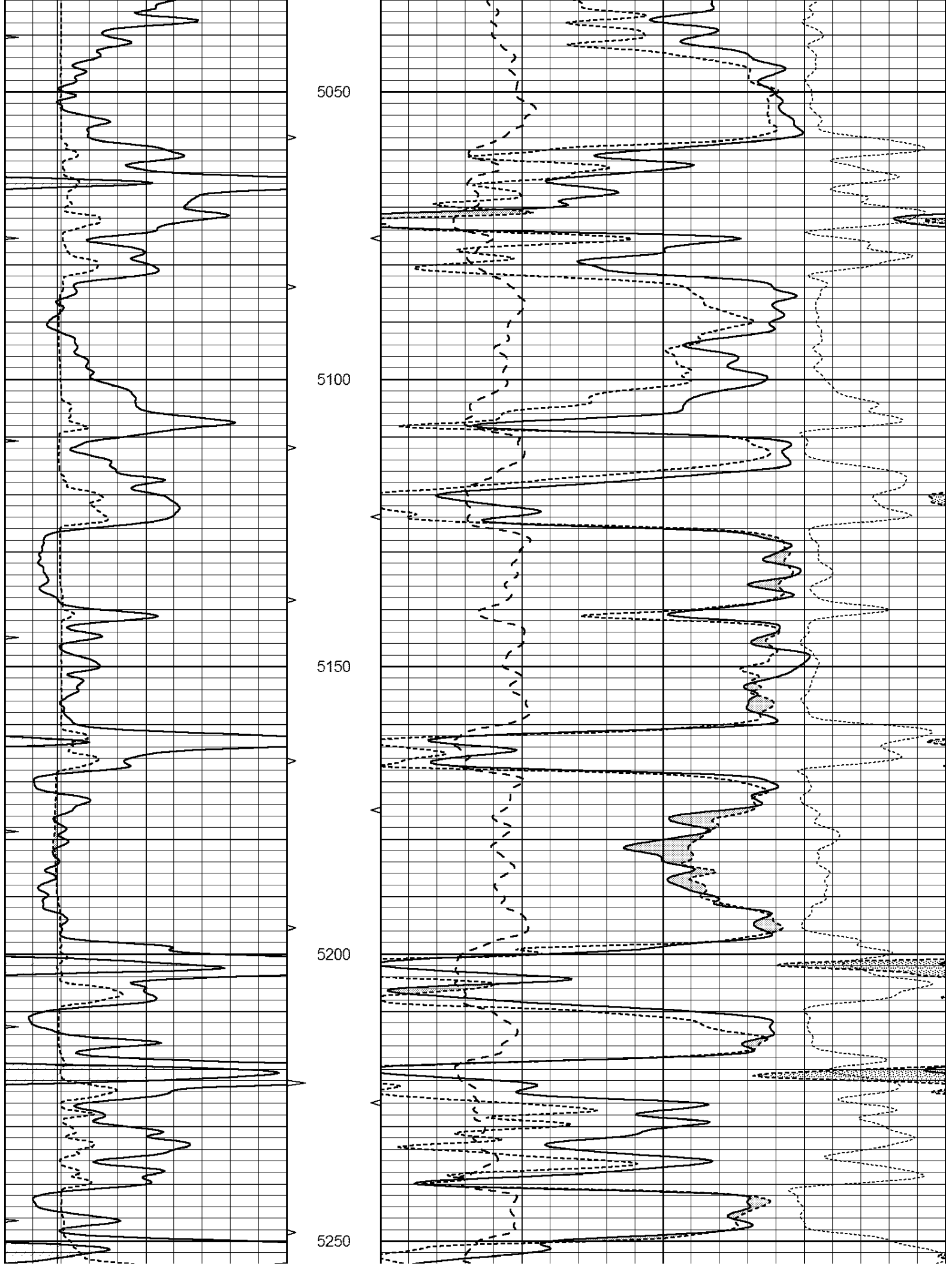
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10			
6	CALIPER (in)	16	10 (ft3)	0	30	COMPENSATED NEUTRON (pu)	-10		
0	MINMK	20	TBHV	0	PE	10	-0.25	CORRECTION (g/cc)	0.25
			0 (ft3)	10					

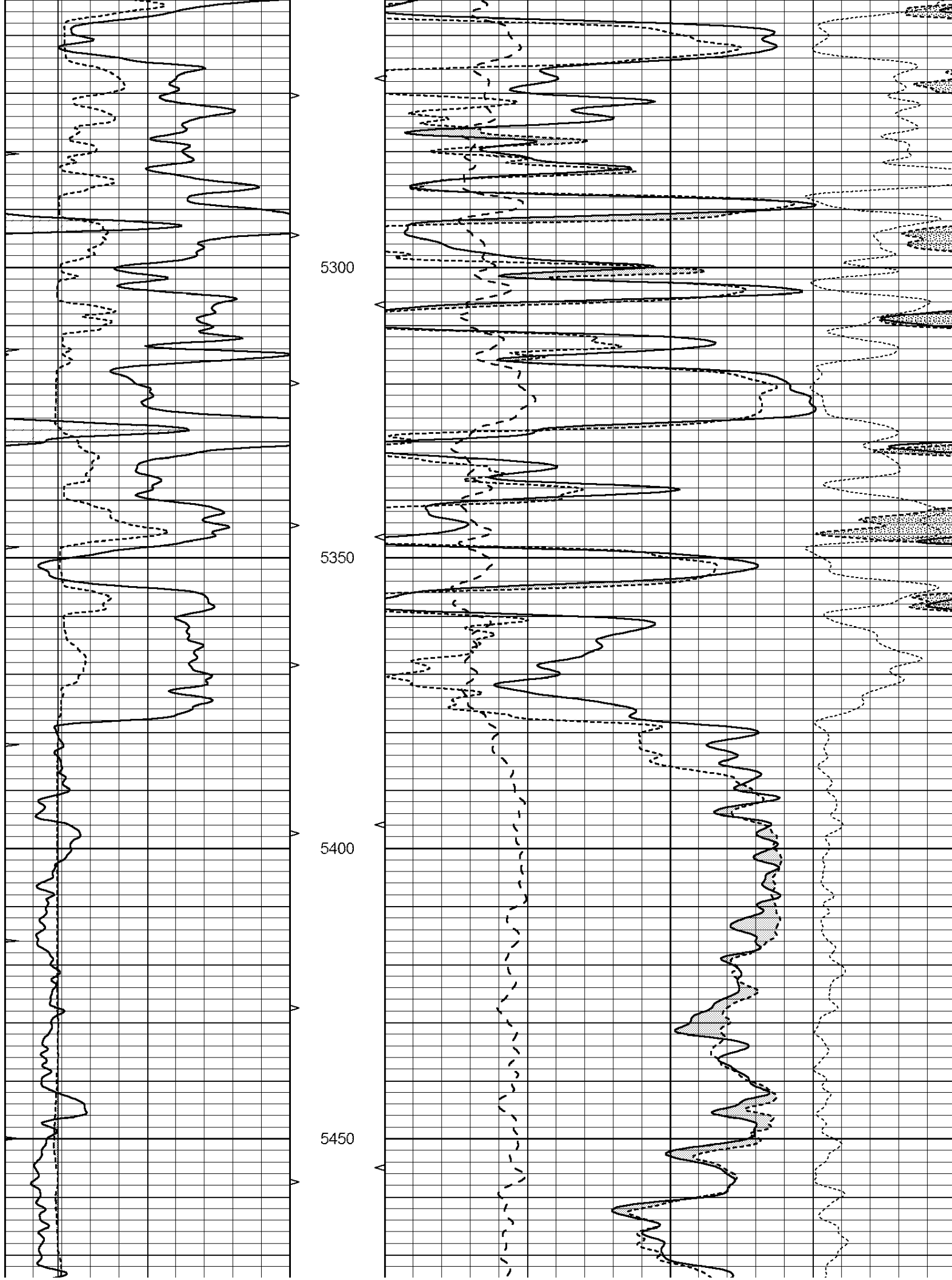


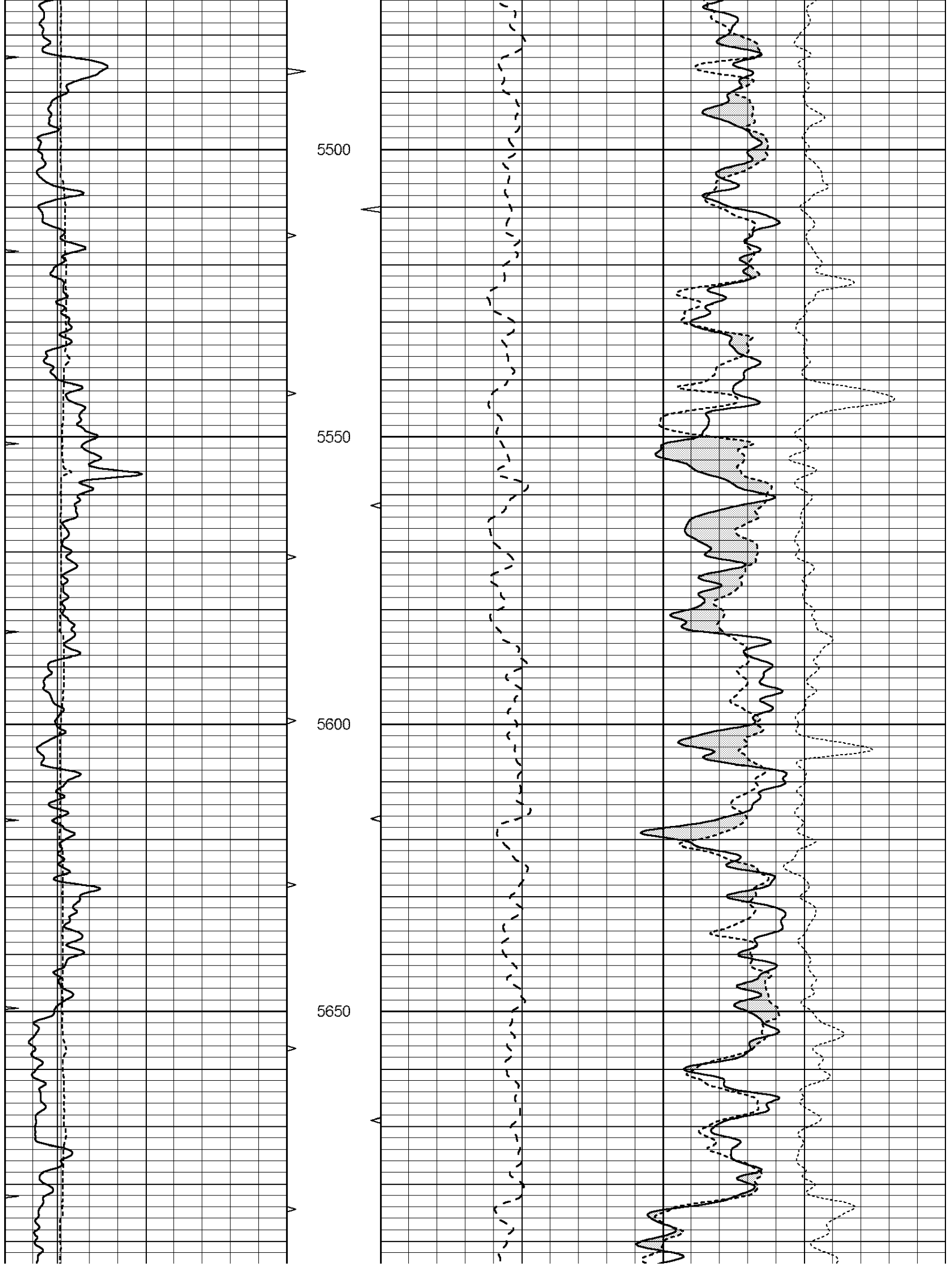




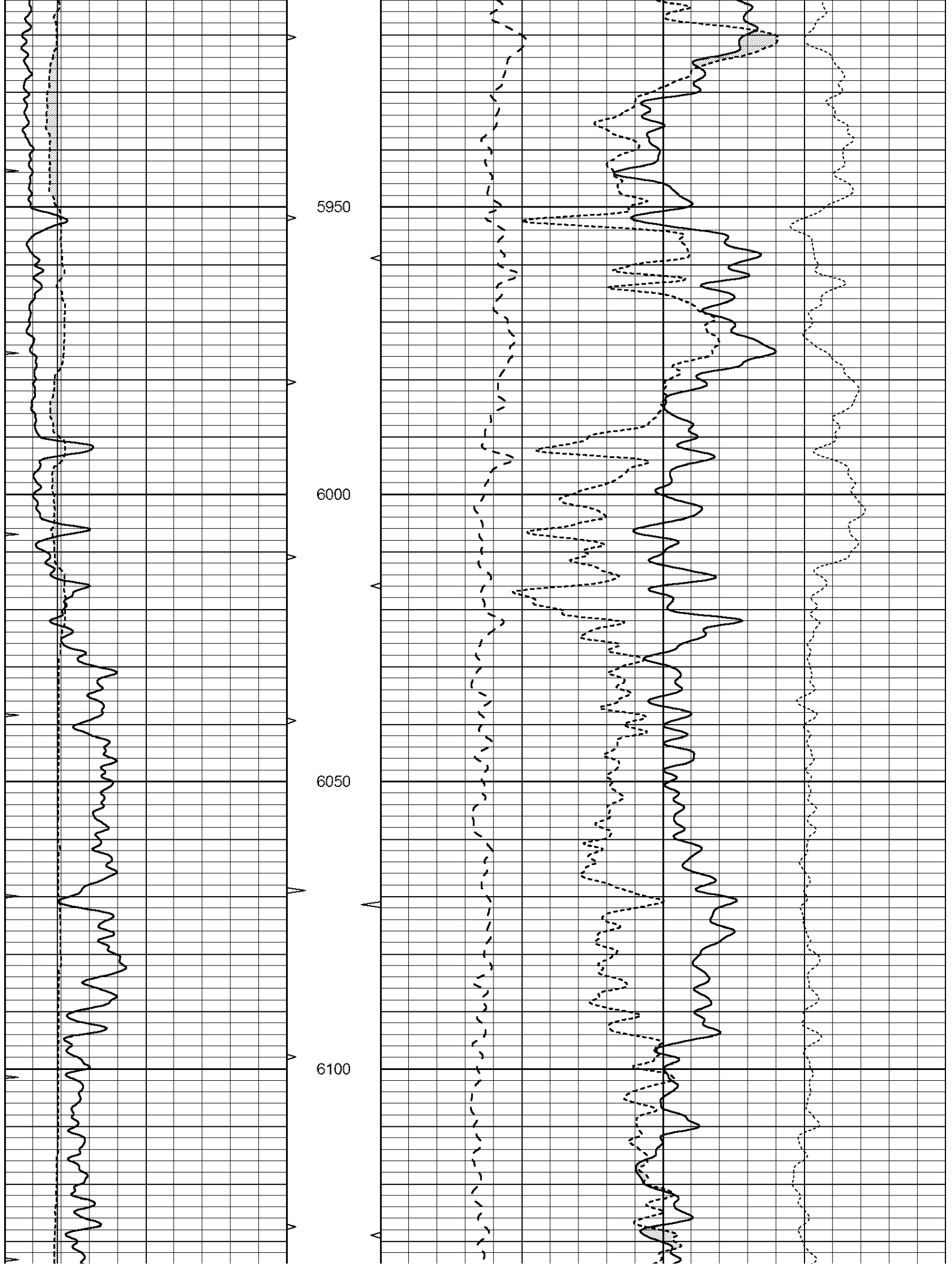


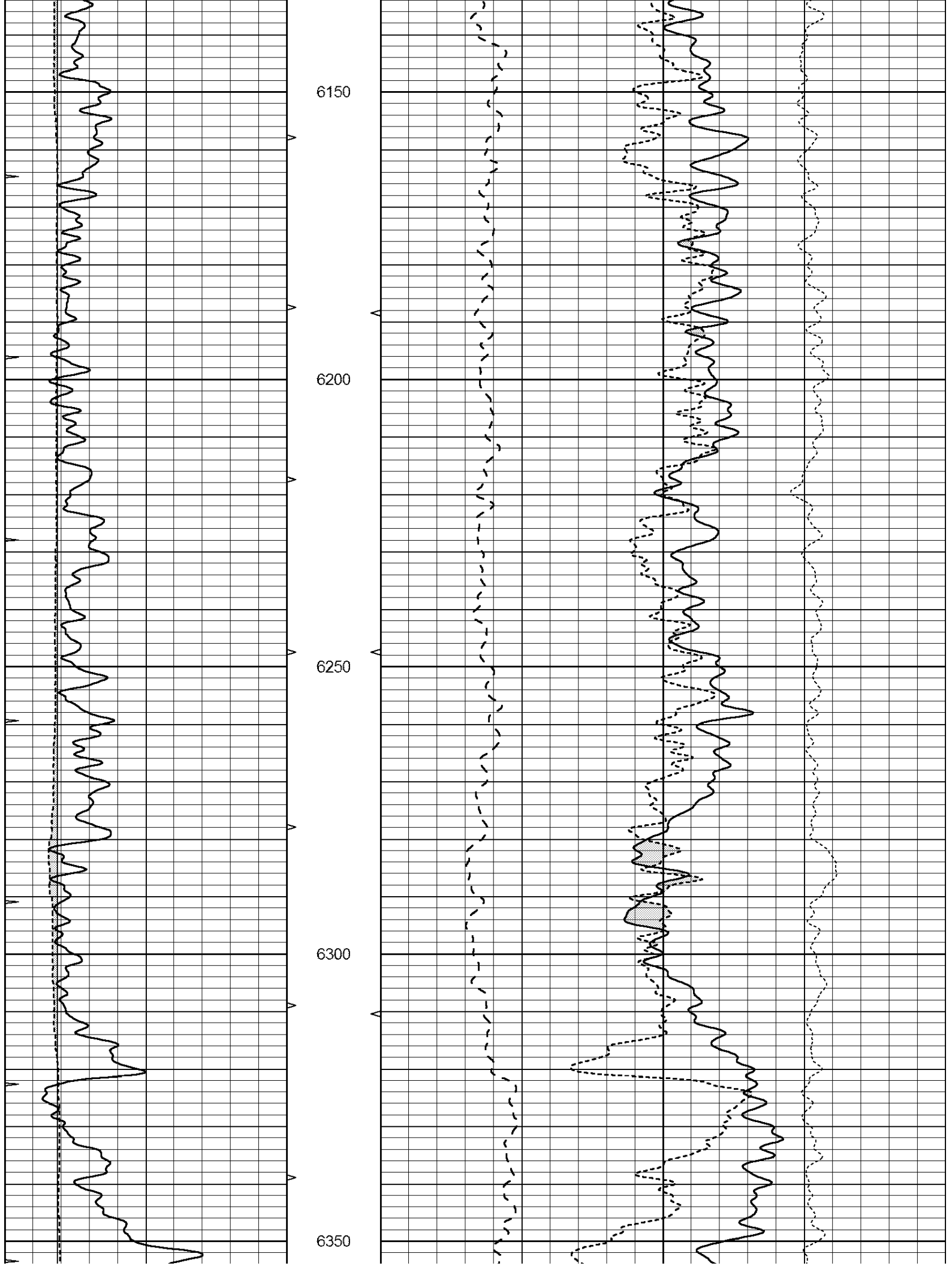


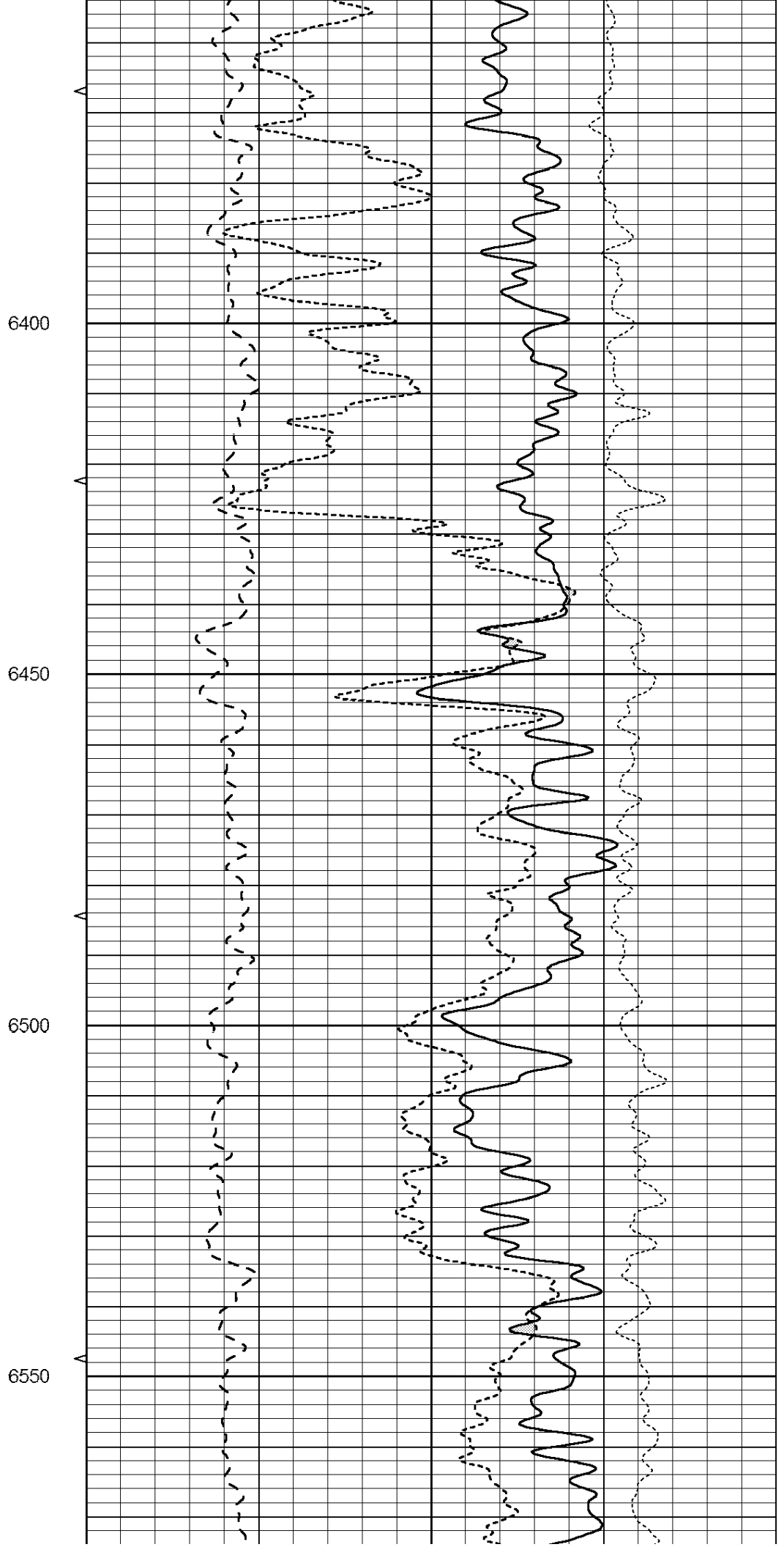
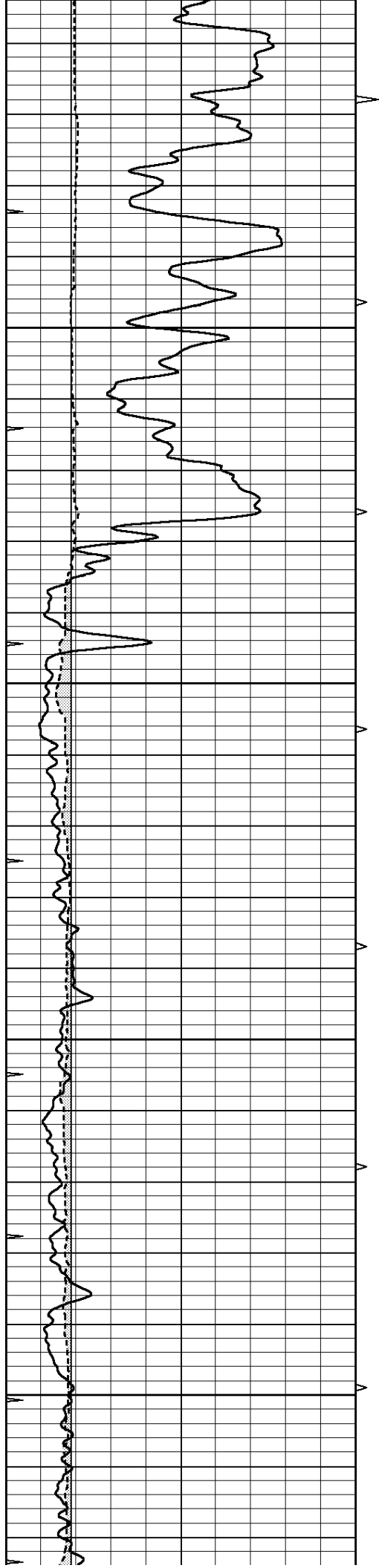


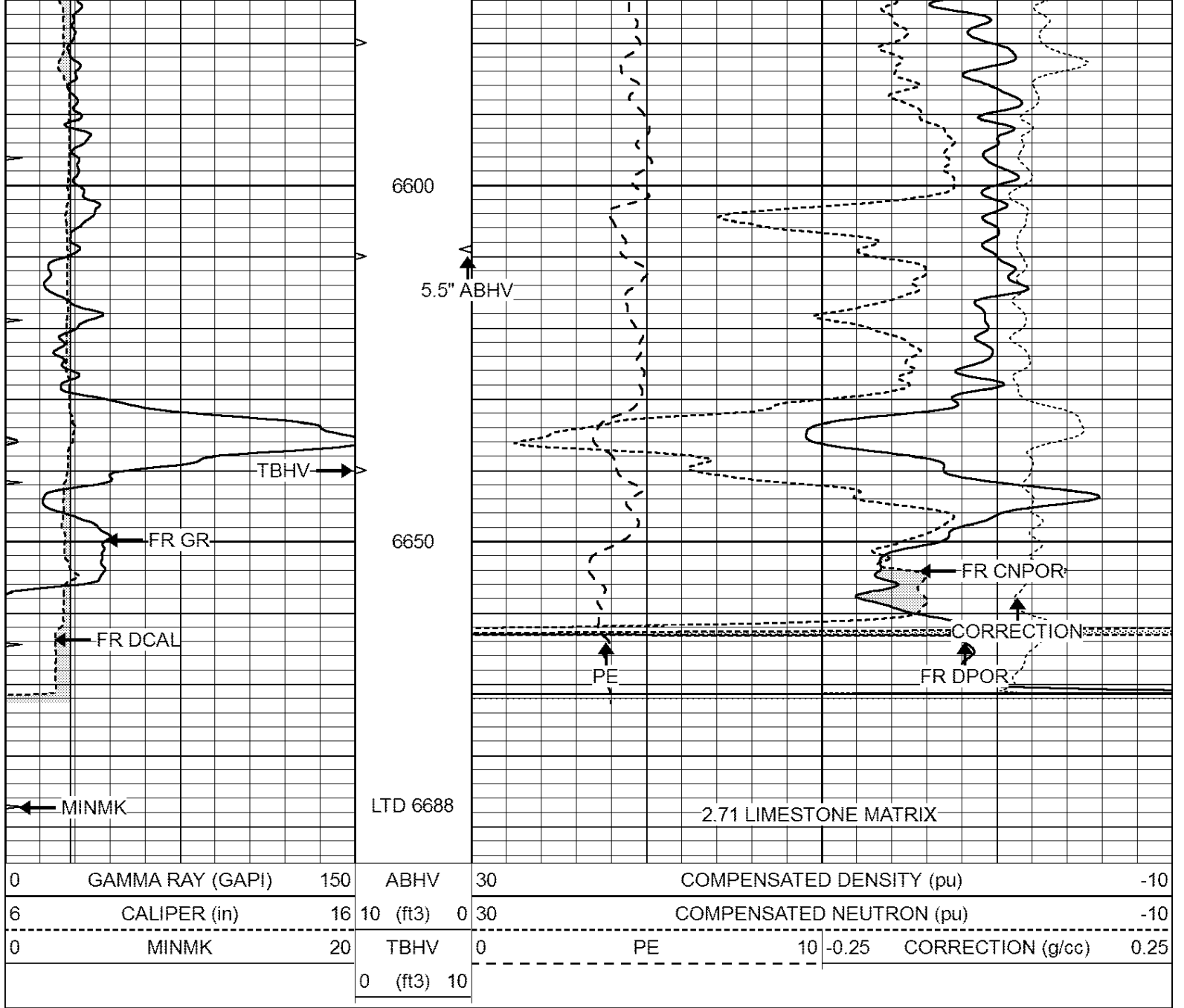










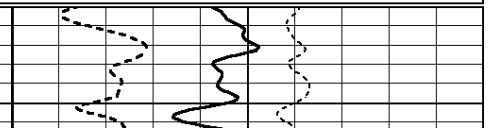
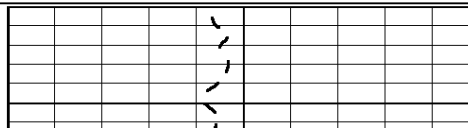
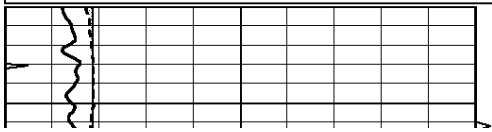


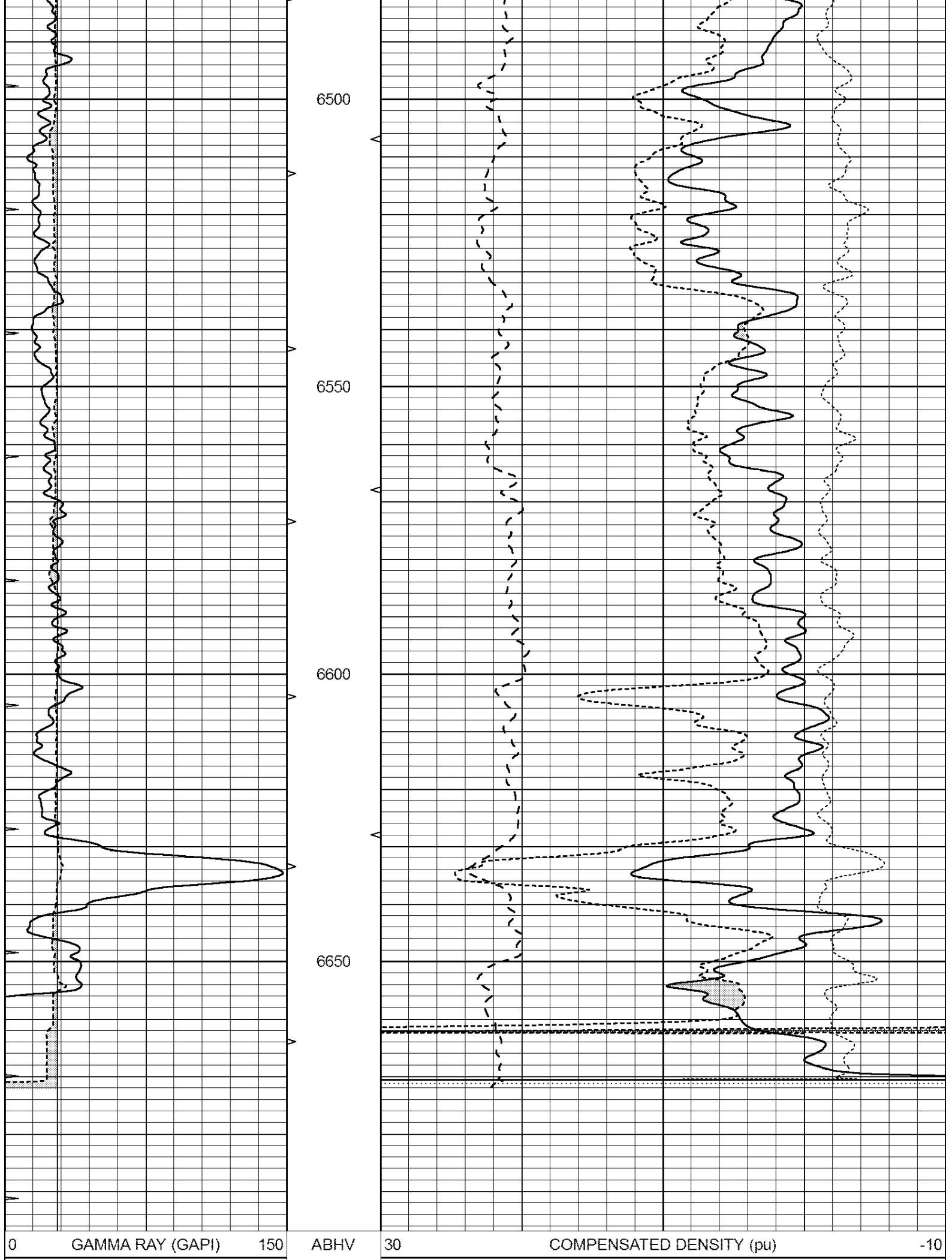
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# REPEAT SECTION

Database File: 409678pe.db  
 Dataset Pathname: pass2.6  
 Presentation Format: ldt\_neu  
 Dataset Creation: Wed Sep 19 21:06:14 2012  
 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					





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: 409678pe.db  
 Dataset Pathname: pass3.8  
 Dataset Creation: Wed Sep 19 21:55:00 2012 by Calc Open-Cased 110302

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR  
 Performed: Wed Sep 19 21:03:09 2012

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	16.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	0.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	622.059	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	631.393	-4.555

Litho Density Calibration Report  
 Serial: 003N Model: PRB  
 Performed Tue Sep 08 14:14:44 2009

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	2042.6	12312.8	4225.8	13758.4	cps
Window 2	1855.8	10134.7	3624.2	11113.1	cps
Window 3	1639.4	6760.2	2716.3	7260.3	cps
Window 4	466.4	469.2	466.1	476.5	cps
Long Space	0.0	8278.9	1768.4	9257.4	cps
Short Space	2.2	2377.3	1544.1	2574.2	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	: 0.549
Spine Angle	: 74.4	Spine Slope	: 3.577	Spine Intercept	: -18.8

Caliper

	Readings	Reference	
Low Ref	3.4	7.8	
High Ref	5.0	15.0	
	Gain: 4.6		Offset: -7.6

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:	Wed Sep 19 15:58:00 2012	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	GAPI/cps