



SUPERIOR
Hays,
Kansas

COMPENSATED
DENSITY / NEUTRON
LOG

Company CORTEZ HEARTLAND, LLC.
Well SNODGRASS #1-30
Field WILDCAT
County PAWNEE
State KANSAS

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Well SNODGRASS #1-30
Field WILDCAT
County PAWNEE State KANSAS

Location: API # : 15-145-21592-0000

660' FSL & 660' FWL

Other Services
DIL/MEL

SEC 12 TWP 21S RGE 20W

Permanent Datum GROUND LEVEL Elevation 2116
Log Measured From KELLY BUSHING 13' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2129
D.F. 2127
G.L. 2116

Date	9/27/09		
Run Number	ONE		
Depth Driller	4364		
Depth Logger	4367		
Bottom Logged Interval	4343		
Top Log Interval	2150		
Casing Driller	8 5/8"@408'		
Casing Logger	407		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 15,800PPM	
Density / Viscosity	9.6/45		
pH / Fluid Loss	7.0/10.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.300@85F		
Rmf @ Meas. Temp	.225@85F		
Rmc @ Meas. Temp	.360@85F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.214@119F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	9:45 P.M.		
Maximum Recorded Temperature	119F		
Equipment Number	0836		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	JAMES ROE	ROD ANDERSEN	

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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
RUSH CENTER, KS. S. ON HWY 183 TO CURVE "RD. T", 9 W. TO RD. 320., 1 1/2 S., E. INTO

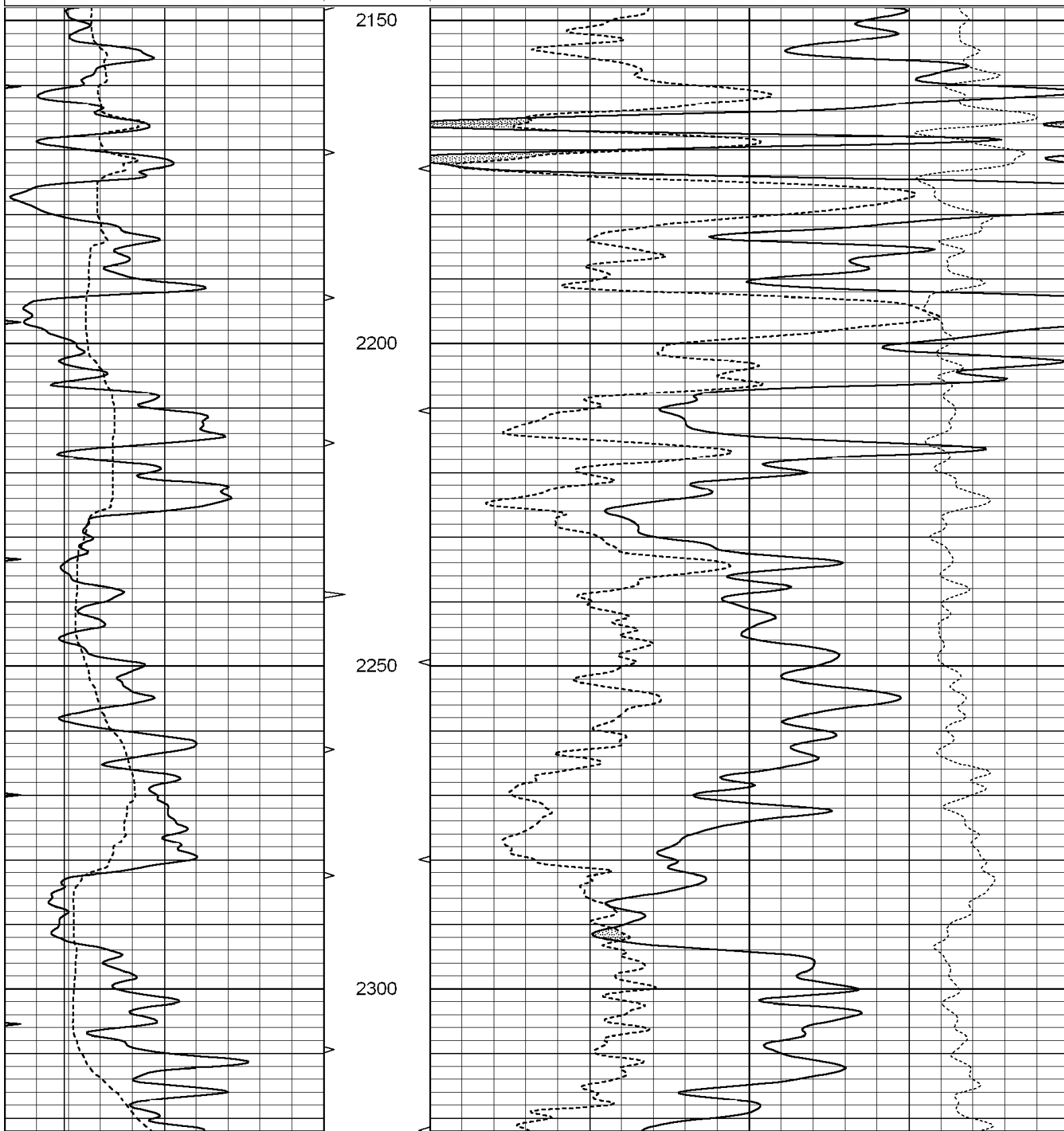


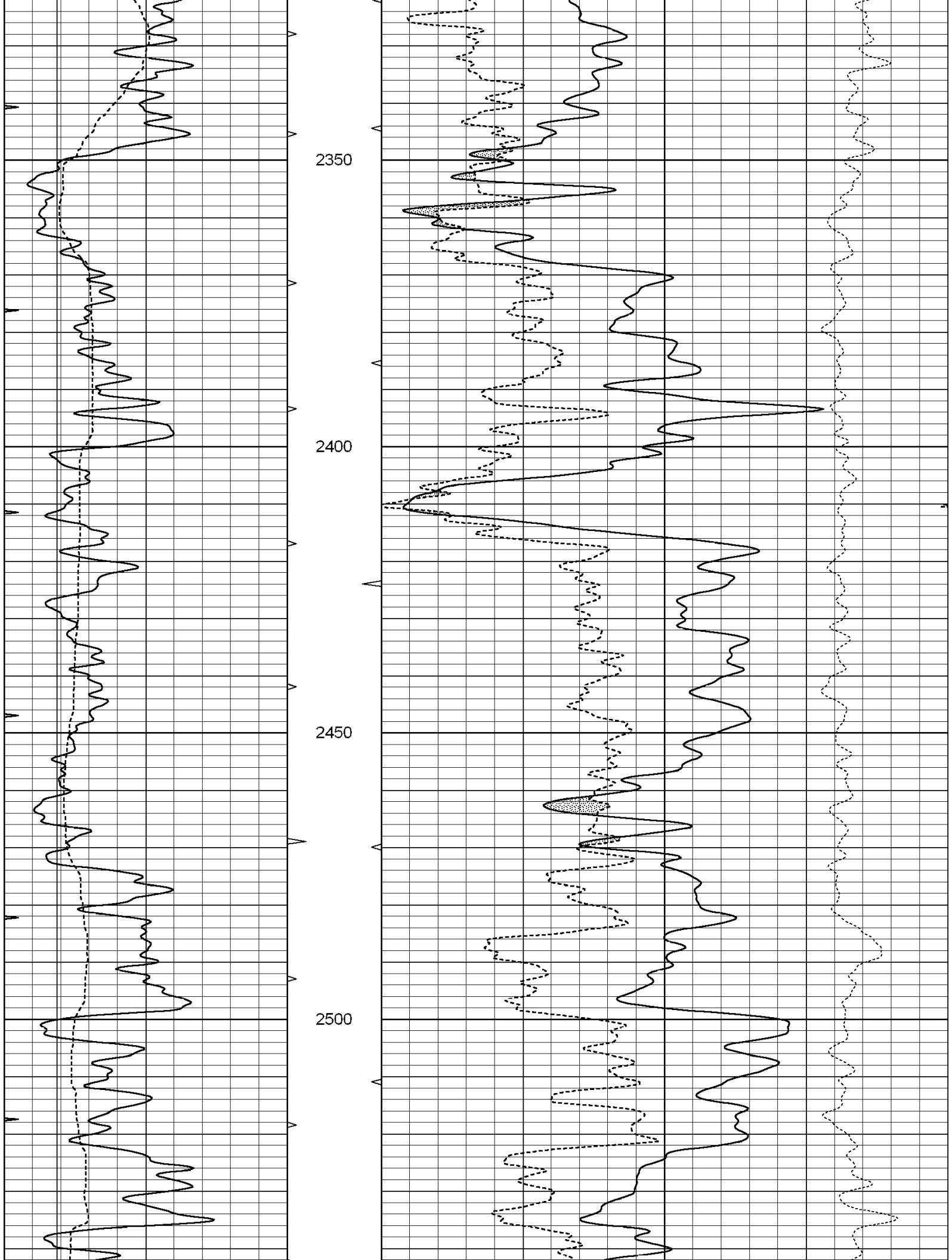
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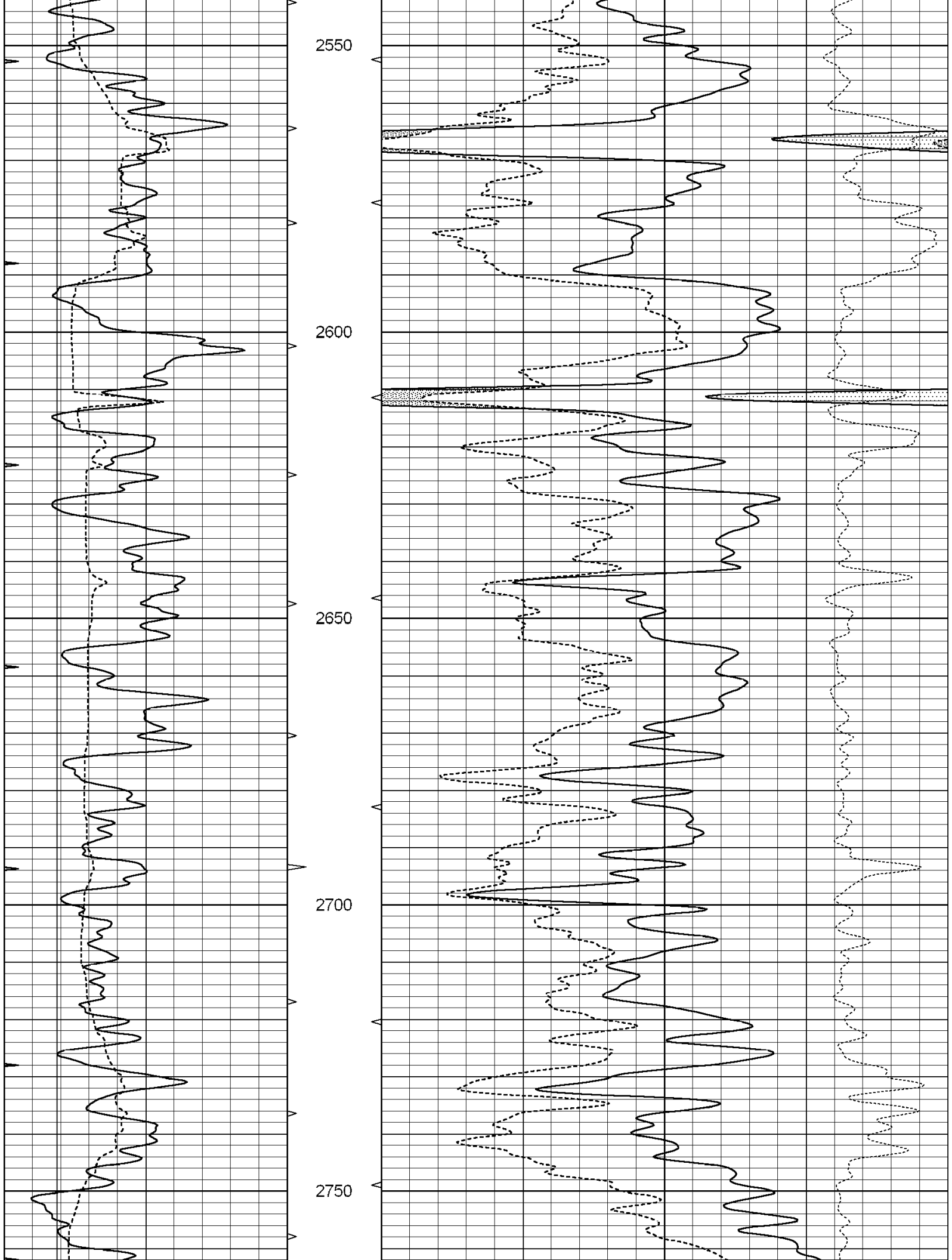
MAIN SECTION

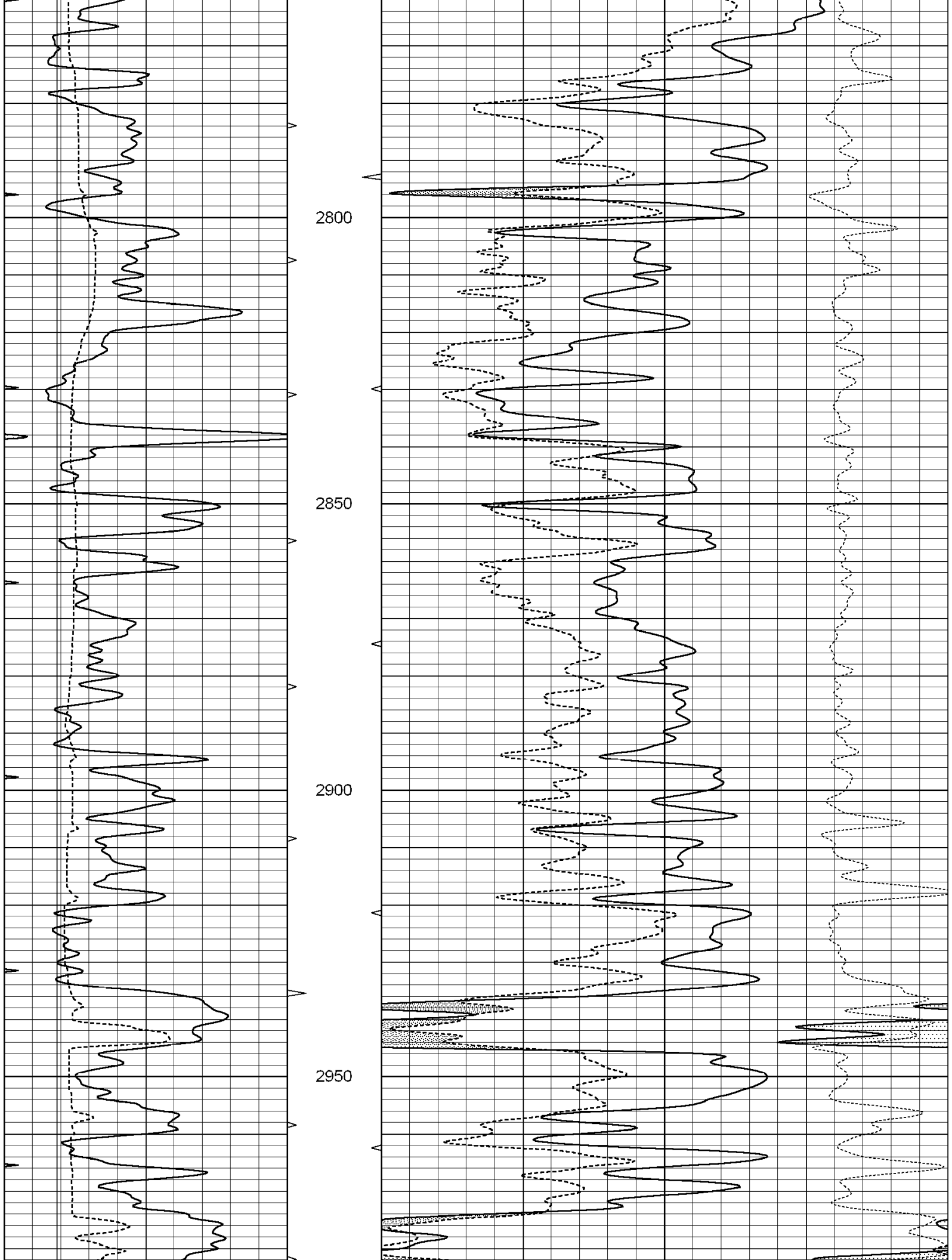
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Dataset Pathname: pass3.3
Presentation Format: den_neu
Dataset Creation: Sun Sep 27 23:27:29 2009
Charted by: Depth in Feet scaled 1:240

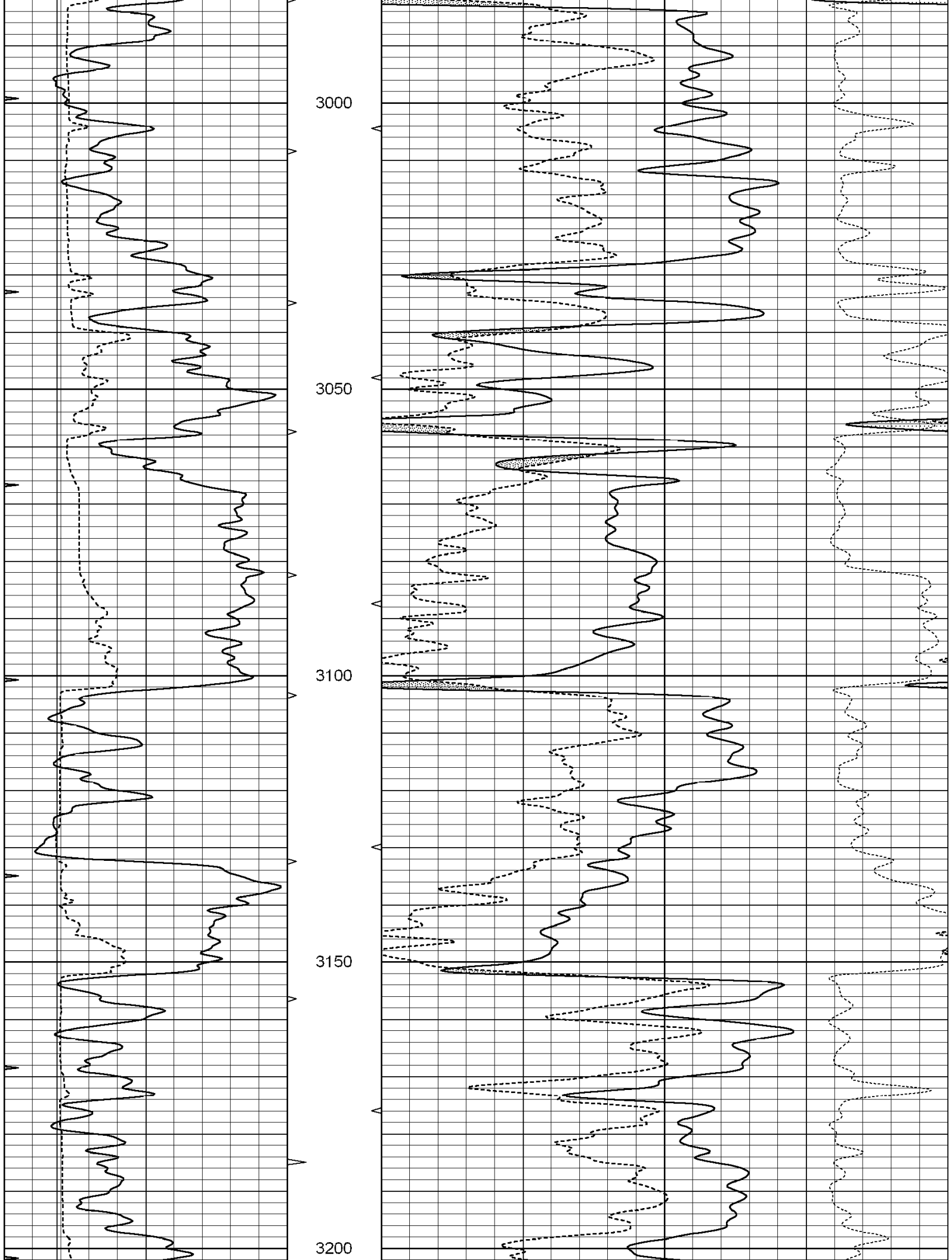
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3) 10			

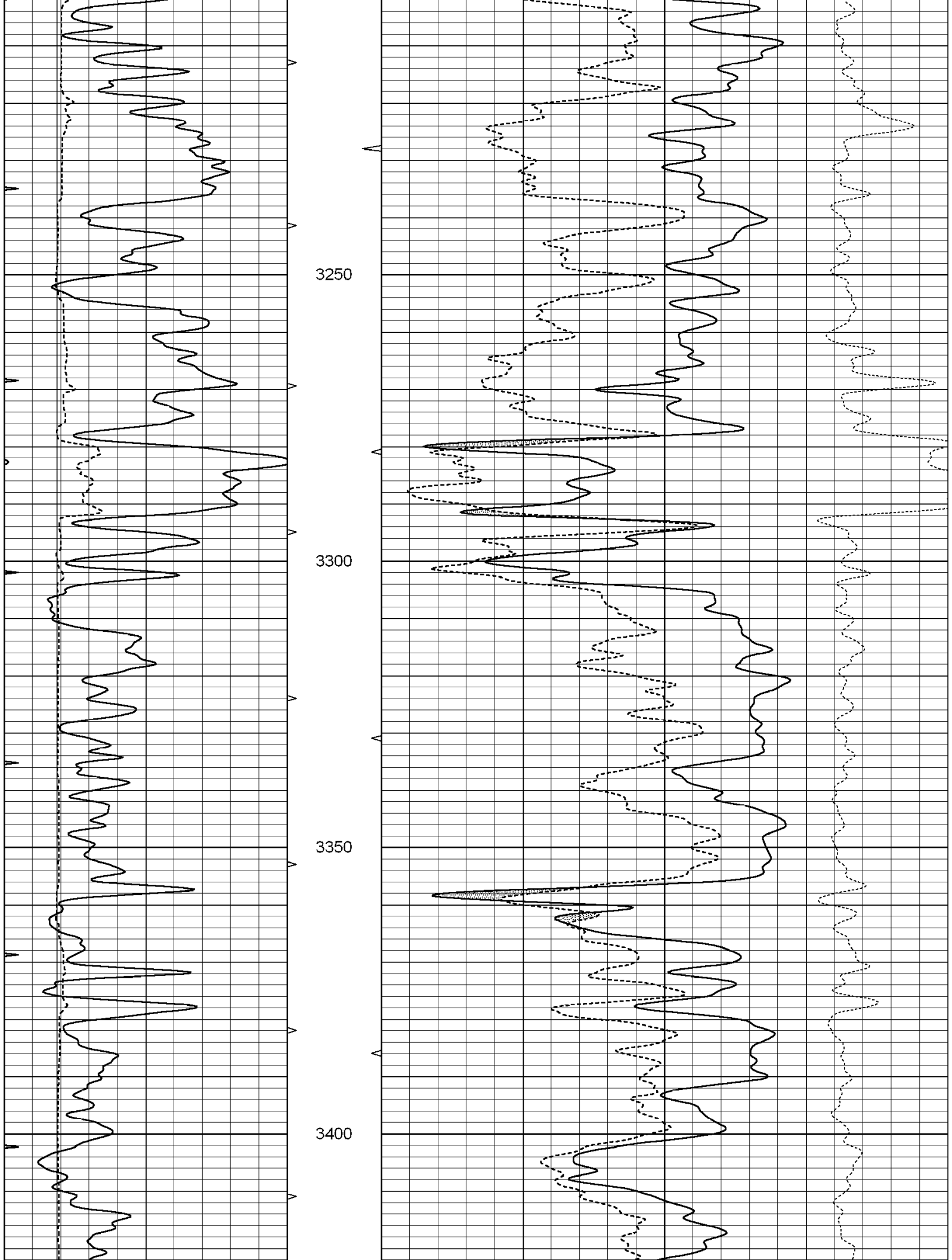


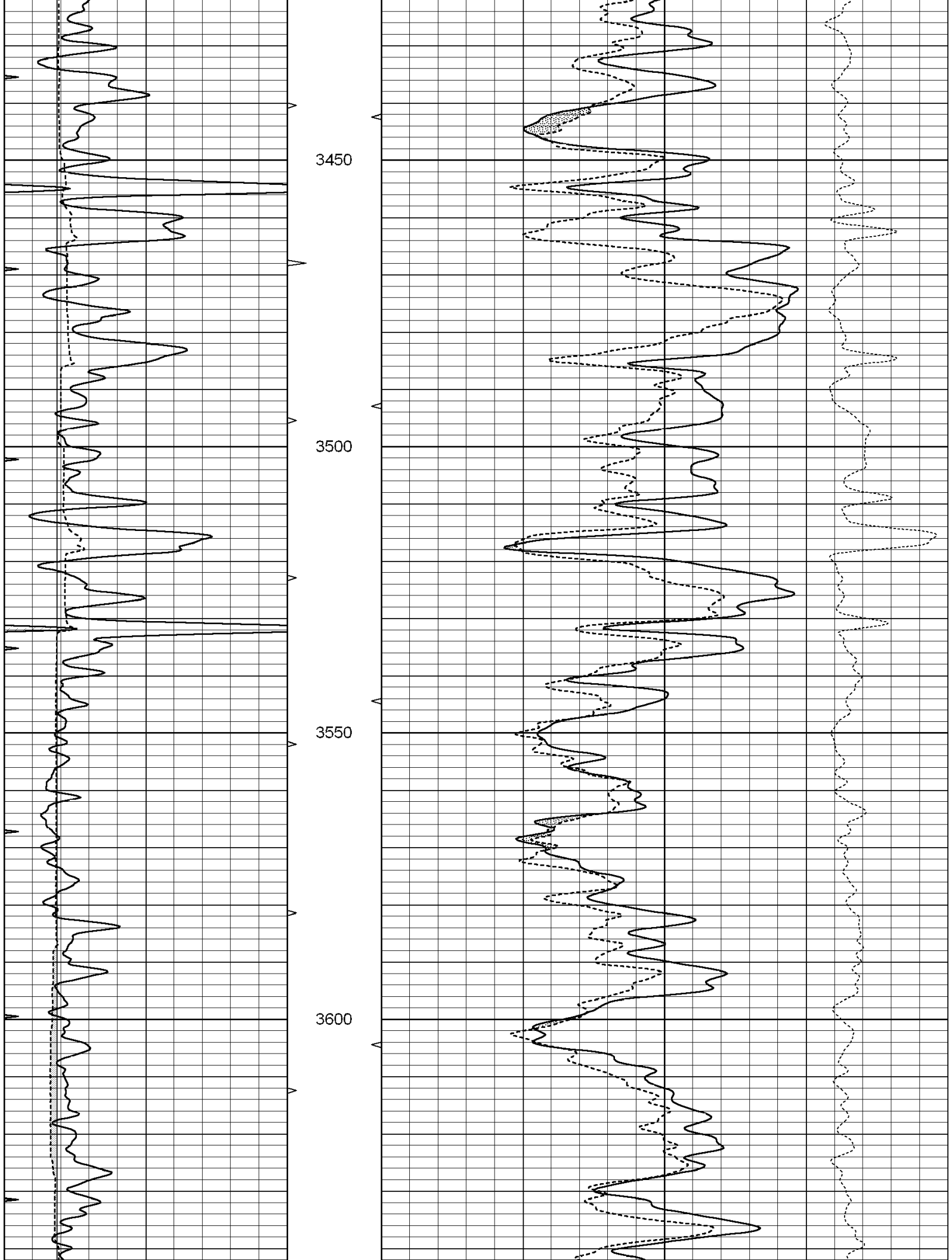


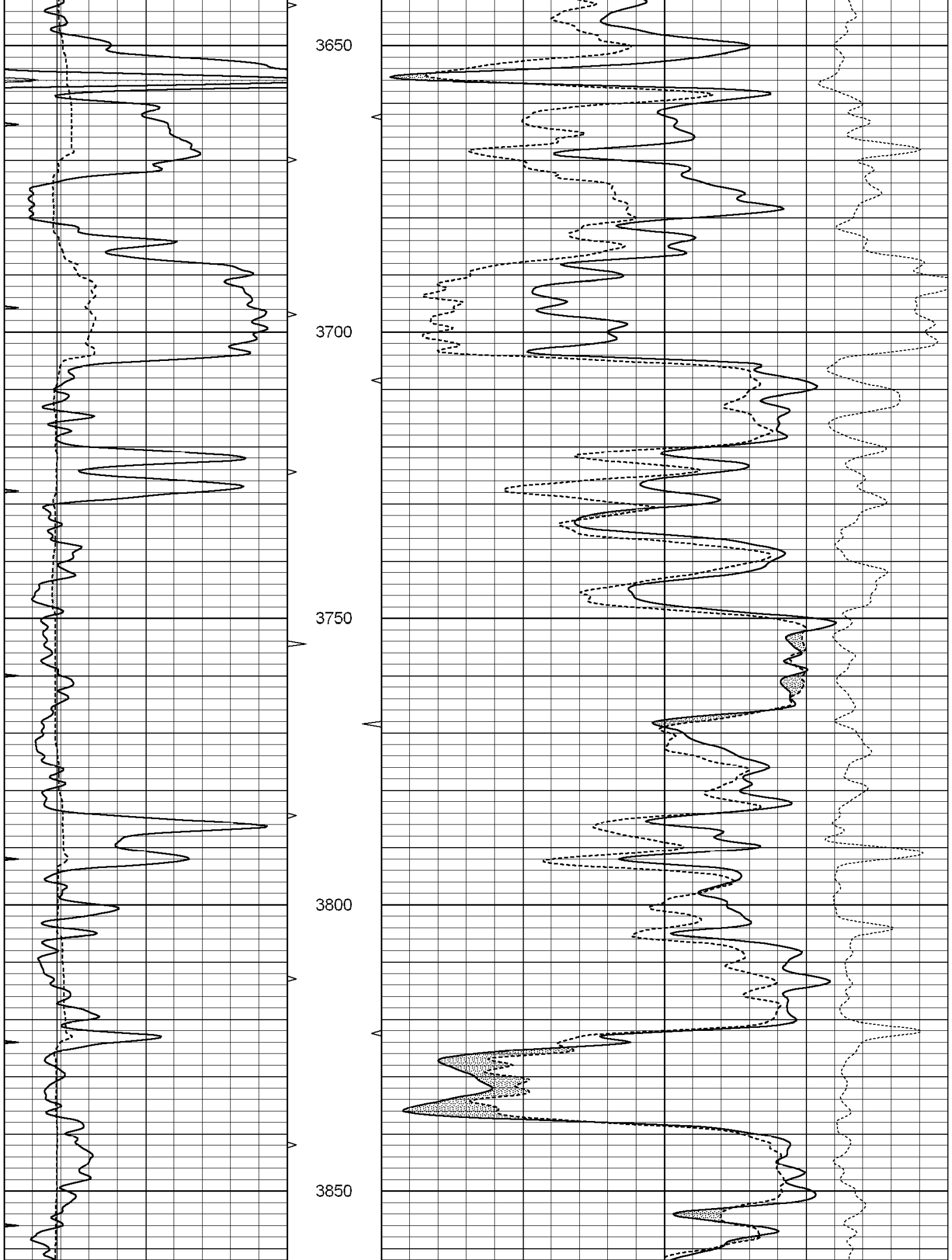


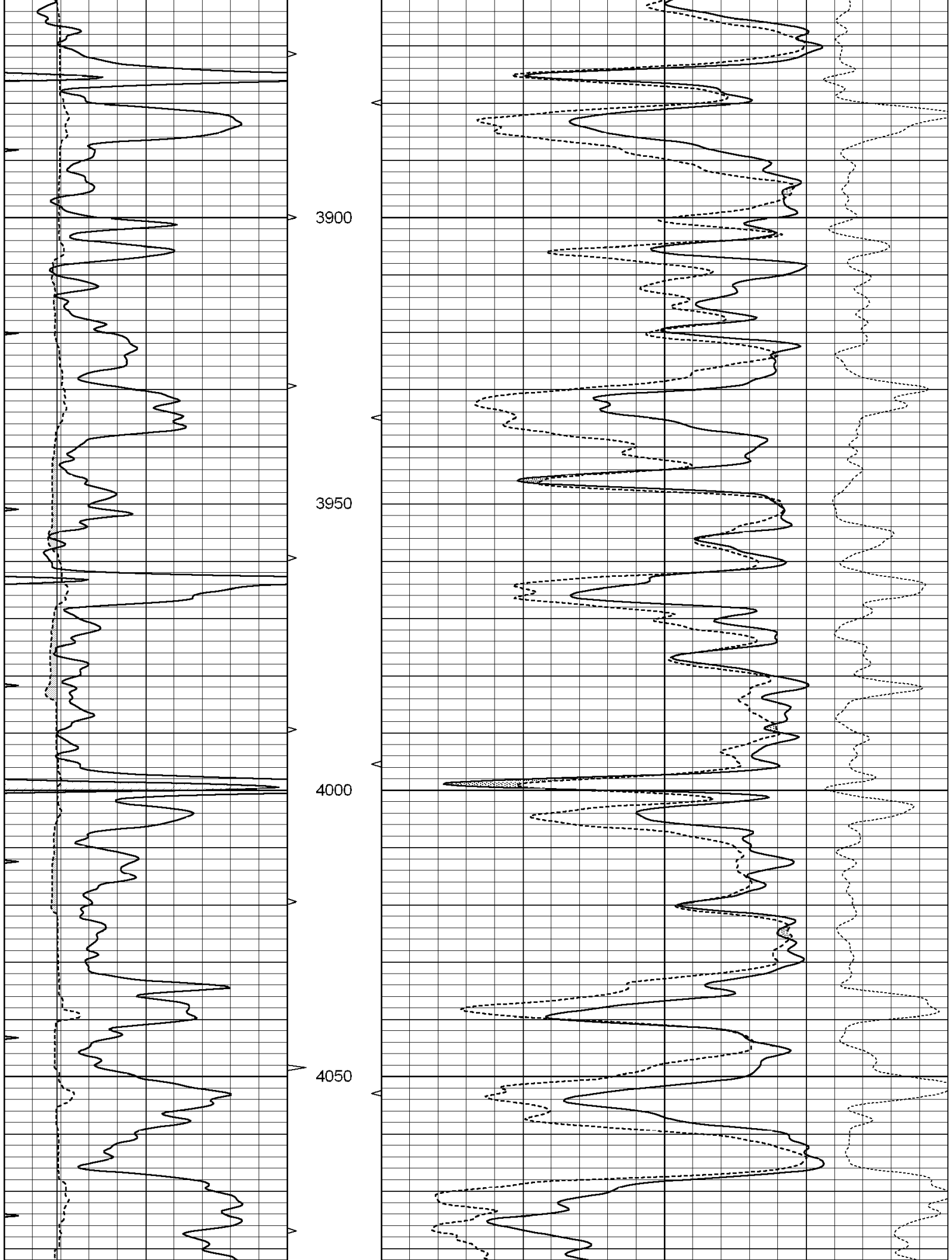


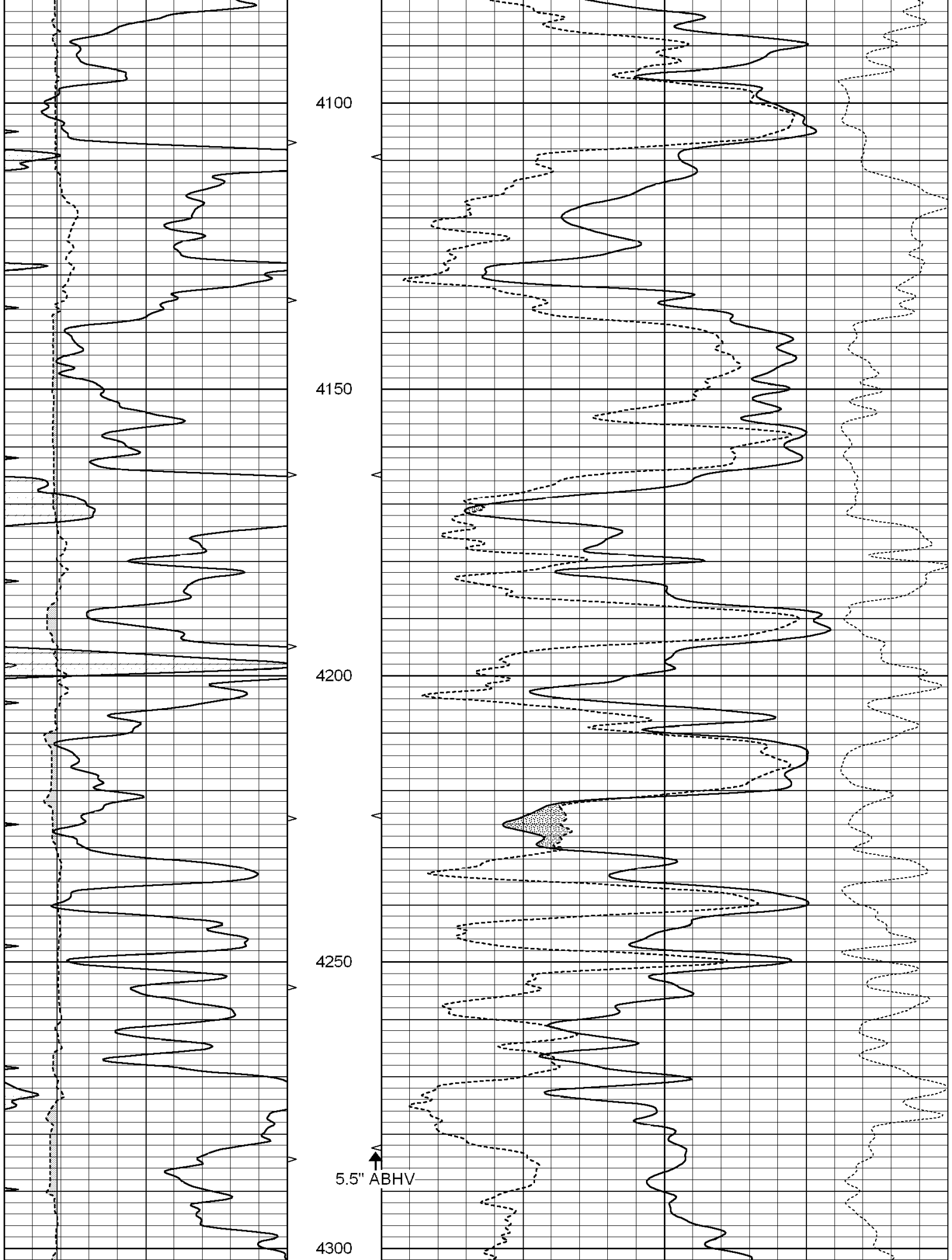


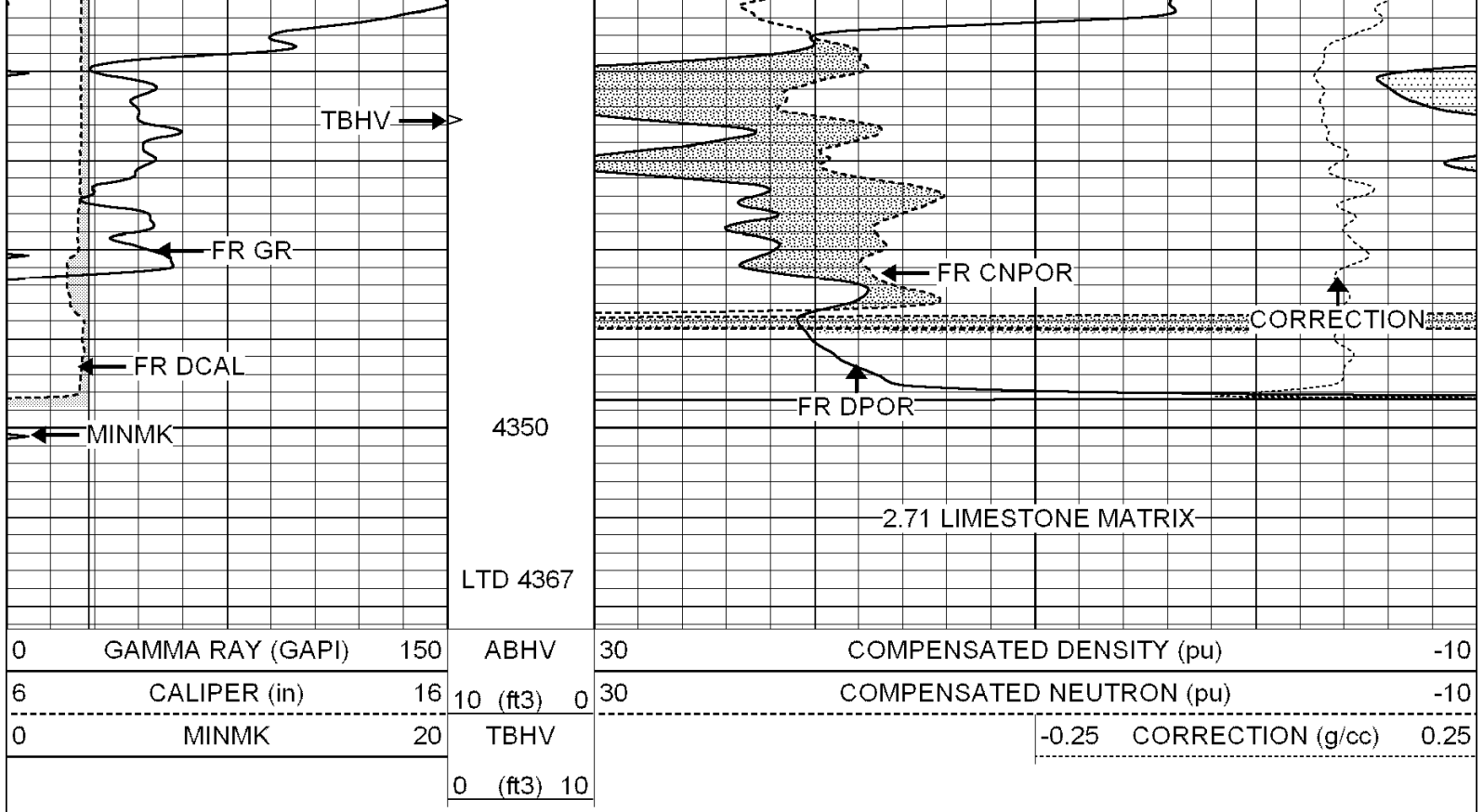










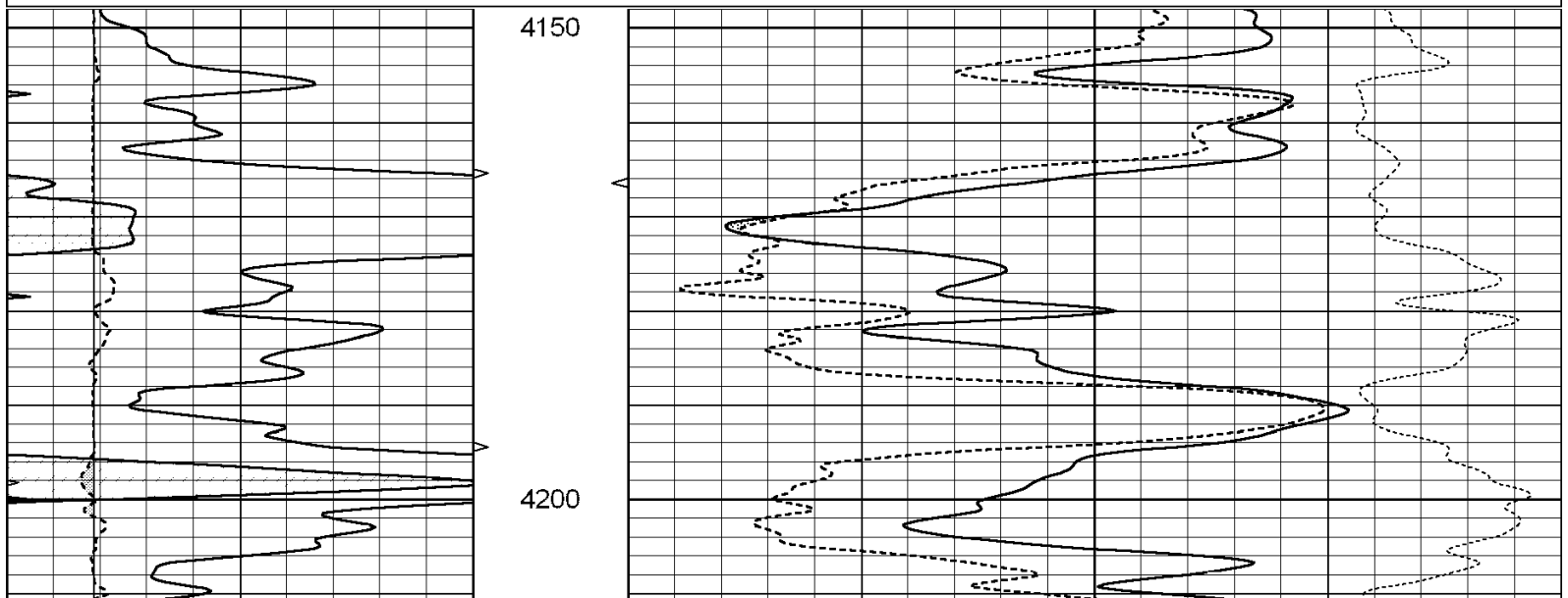


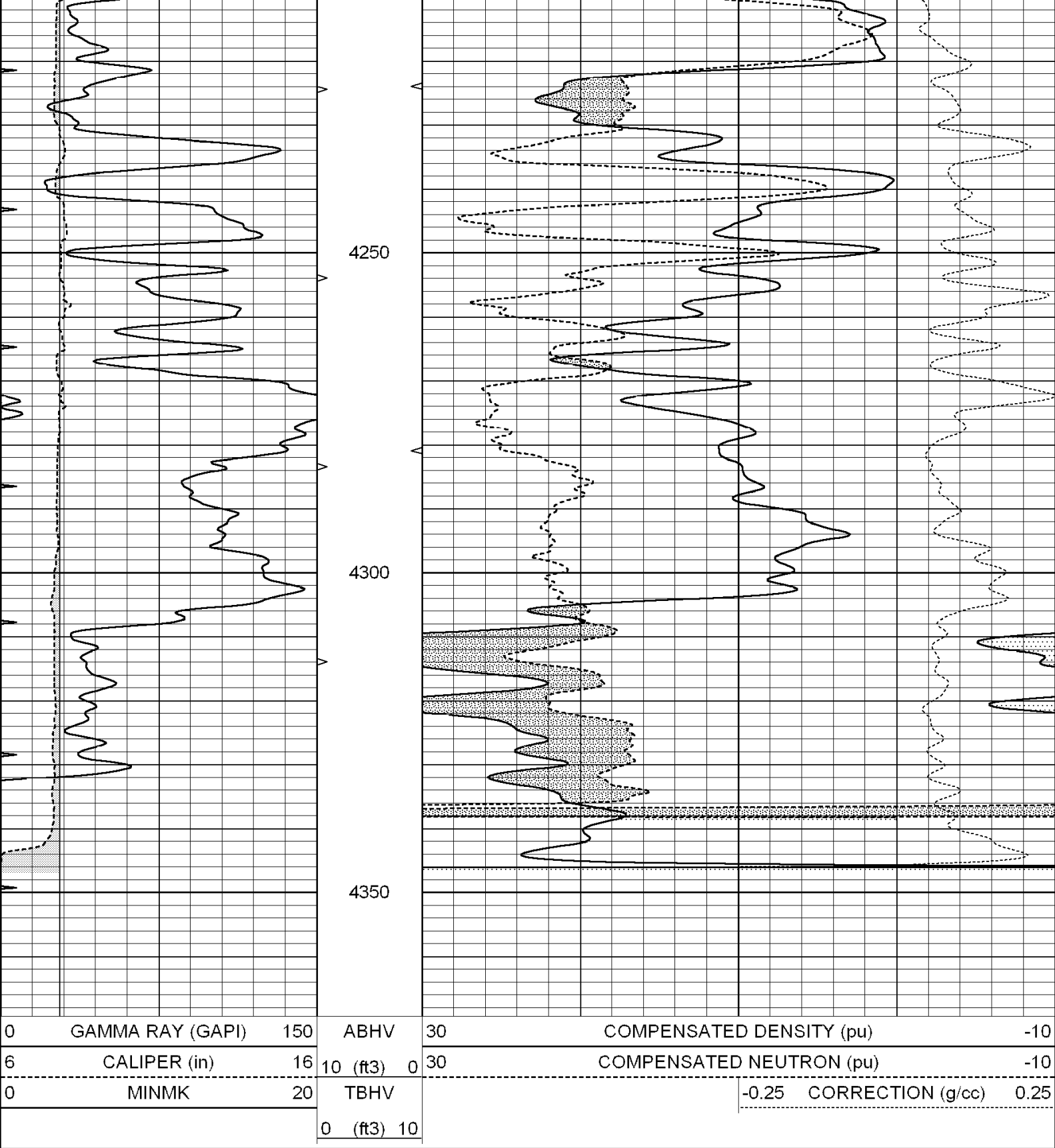
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REPEAT SECTION

Database File: 004351ddn.db
 Dataset Pathname: pass2.7
 Presentation Format: den_neu
 Dataset Creation: Sun Sep 27 23:28:26 2009 by Calc Open-Cased 060407
 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			-0.25	CORRECTION (g/cc)	0.25	
			0 (ft3)	10					





Calibration Report

Database File: 004351ddn.db
Dataset Pathname: pass3.3
Dataset Creation: Sun Sep 27 23:27:29 2009

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
Performed: Sun Sep 27 21:08:42 2009

Readings

References

Results

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho-m	640.000	-2.000
Medium	0.013	0.740	V	0.000	462.500	mmho-m	675.000	-11.000
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								
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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		
Low Ref	Readings 1.8	Reference 6.9
High Ref	4.2	14.0
	Gain: 3.0	Offset: 1.5

Compensated Neutron Calibration Report
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Serial Number:	NEU_3I
Tool Model:	G

CALIBRATION							
Detector		Readings		Target		Normalization	
Short Space		997.00	cps	1000.00	cps	1.0000	
Long Space		986.00	cps	1000.00	cps	1.0000	

Gamma Ray Calibration Report

Serial Number:	GR3	
Tool Model:	OPEN	
Performed:	Sun Sep 27 22:04:20 2009	
Calibrator Value:	200.0	GAPI
Background Reading:	3.0	cps
Calibrator Reading:	186.0	cps
Sensitivity:	0.5500	GAPI/cps