

**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**COMPENSATED  
DENSITY / NEUTRON  
LOG**

Company RITCHIE EXPLORATION, INC.  
Well HELL CREEK 20D #1  
Field  
County SCOTT  
State KANSAS

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Location: API #: 15-171-20987  
1785' FSL & 1775' FEL  
SEC 20 TWP 16S RGE 31W  
Permanent Datum GROUND LEVEL Elevation 2933  
Log Measured From KELLY BUSHING 5' A.G.L.  
Drilling Measured From KELLY BUSHING  
Other Services  
DIL  
Elevation  
K.B. 2938  
D.F.  
G.L. 2933

Date	10-10-13
Run Number	ONE
Depth Driller	4735
Depth Logger	4736
Bottom Logged Interval	4712
Top Log Interval	3400
Casing Driller	211
Casing Logger	210
Bit Size	7.875
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4 / 54
pH / Fluid Loss	10.0 / 7.0
Source of Sample	FLOWLINE
Rim @ Meas. Temp	1.30 @ 81F
Rmf @ Meas. Temp	0.98 @ 81F
Rmc @ Meas. Temp	1.56 @ 81F
Source of Rmf / Rmc	MEASURED
Rim @ BHT	.860 @ 122F
Time Circulation Stopped	3 HOURS
Time Logger on Bottom	11:30 A.M.
Maximum Recorded Temperature	122F
Equipment Number	860
Location	HAYS, KS.
Recorded By	RUPP
Witnessed By	MACK ARMSTRONG

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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

NABORS COMPLETION & PRODUCTION SERVICES  
785-628-6395  
THANK YOU FOR YOUR BUSINESS  
DIRECTIONS: HEALY, 8W TO TAOS RD., 3 1/2N, W INTO.

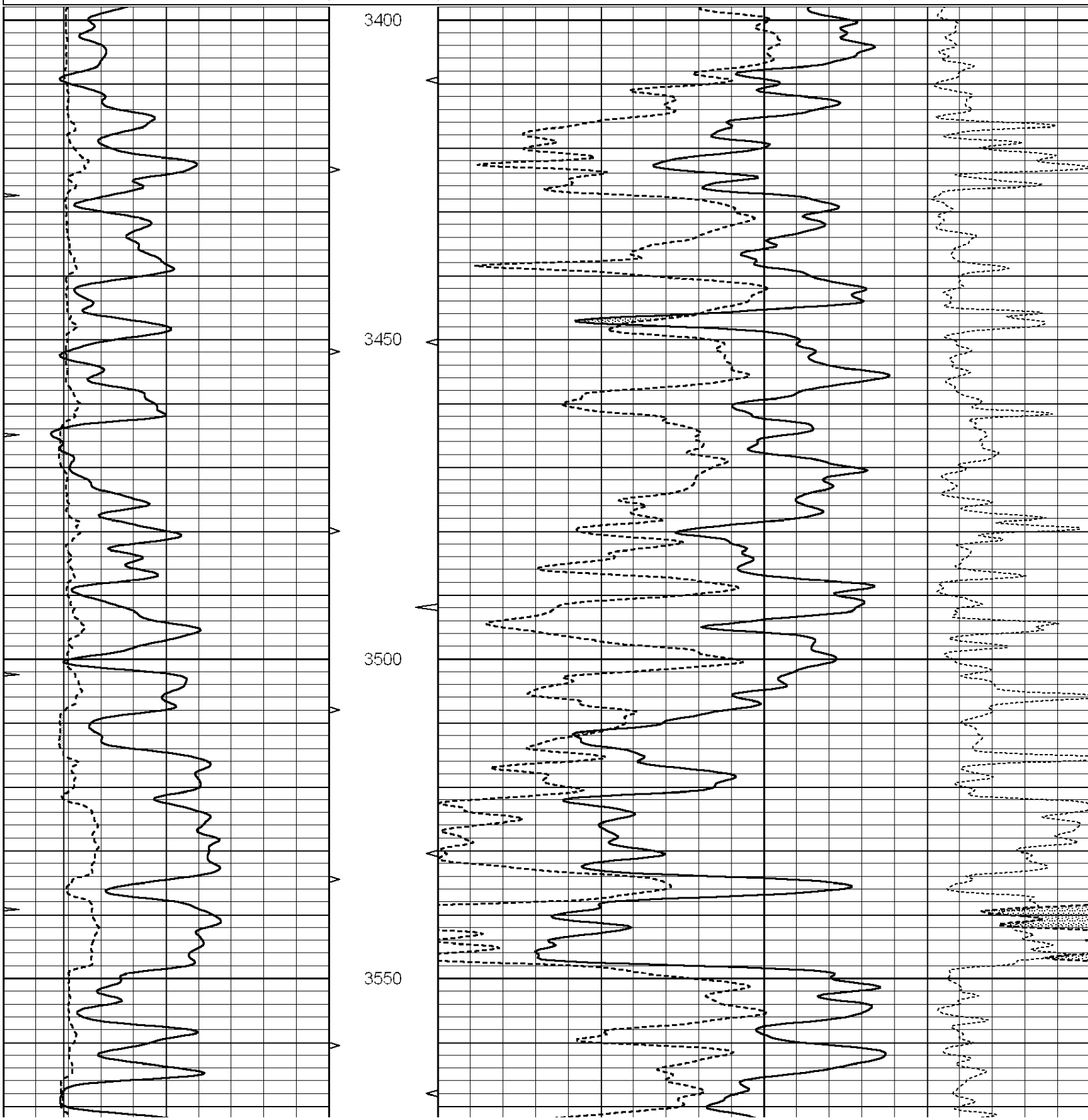


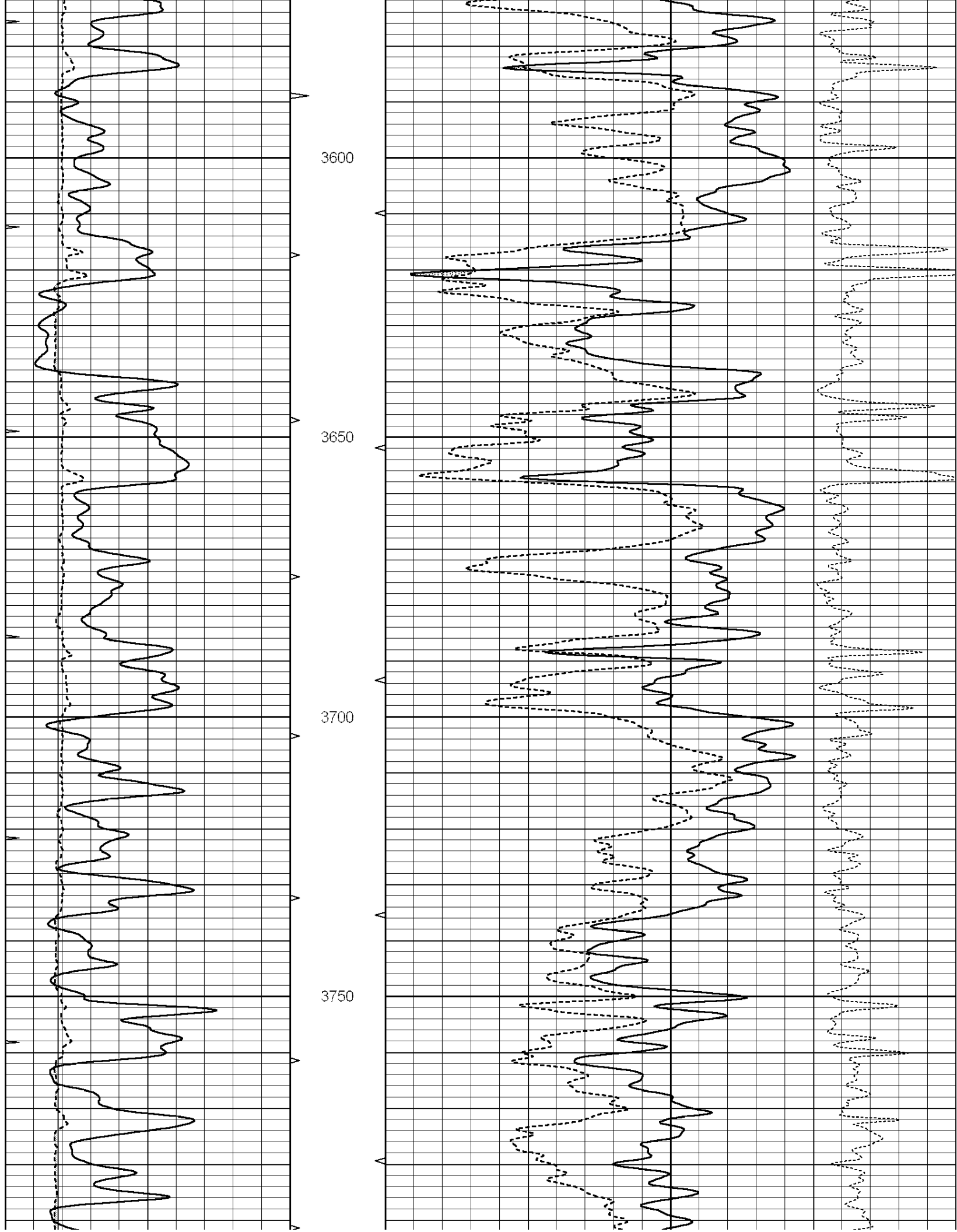
**COMPLETION  
& PRODUCTION**

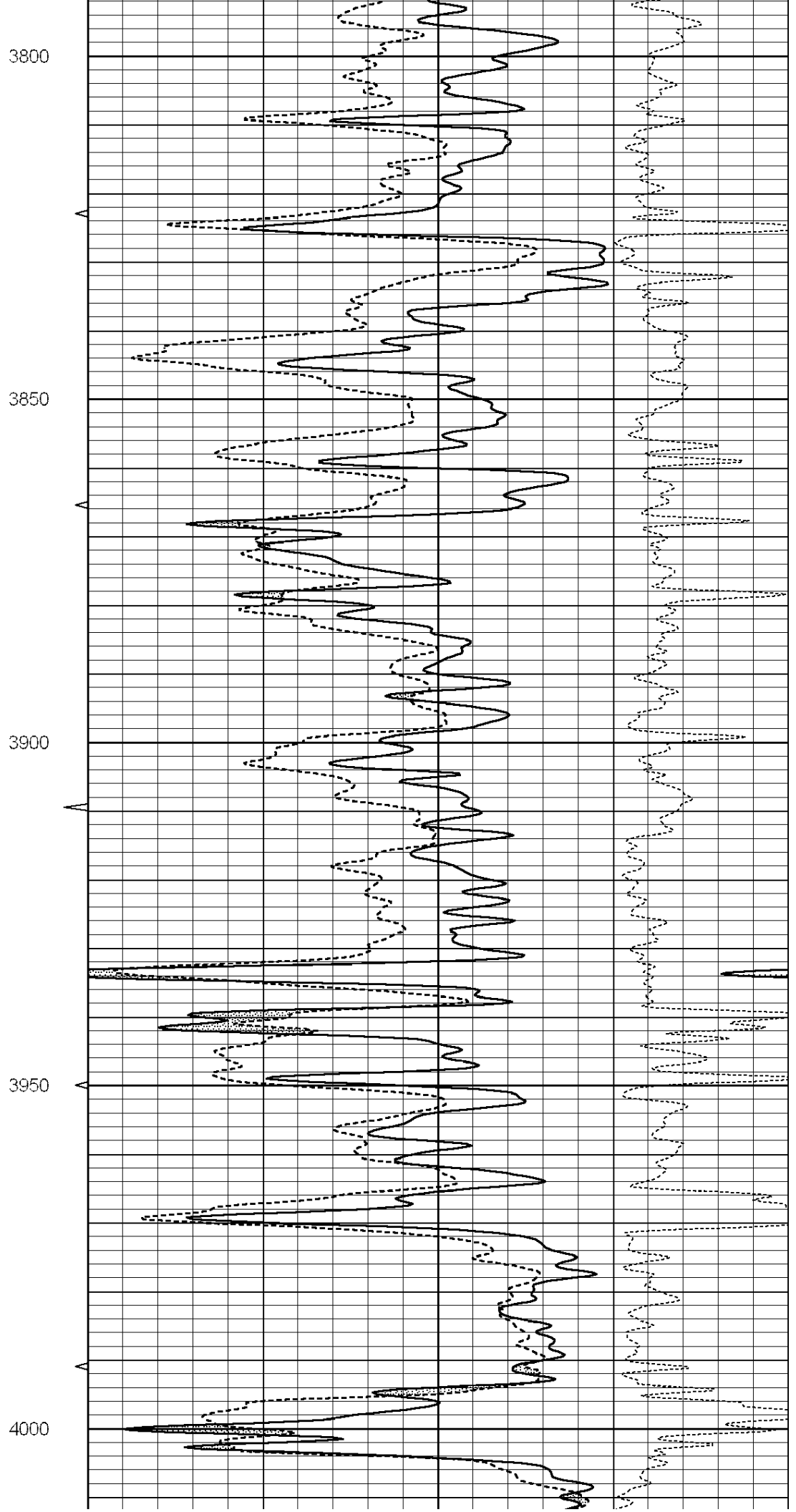
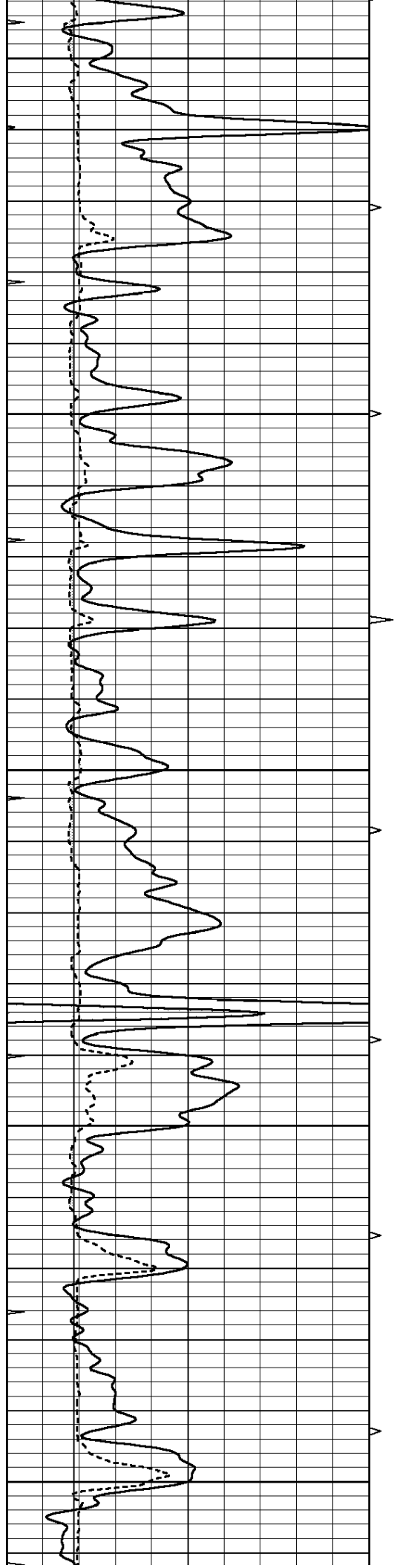
**MAIN SECTION**

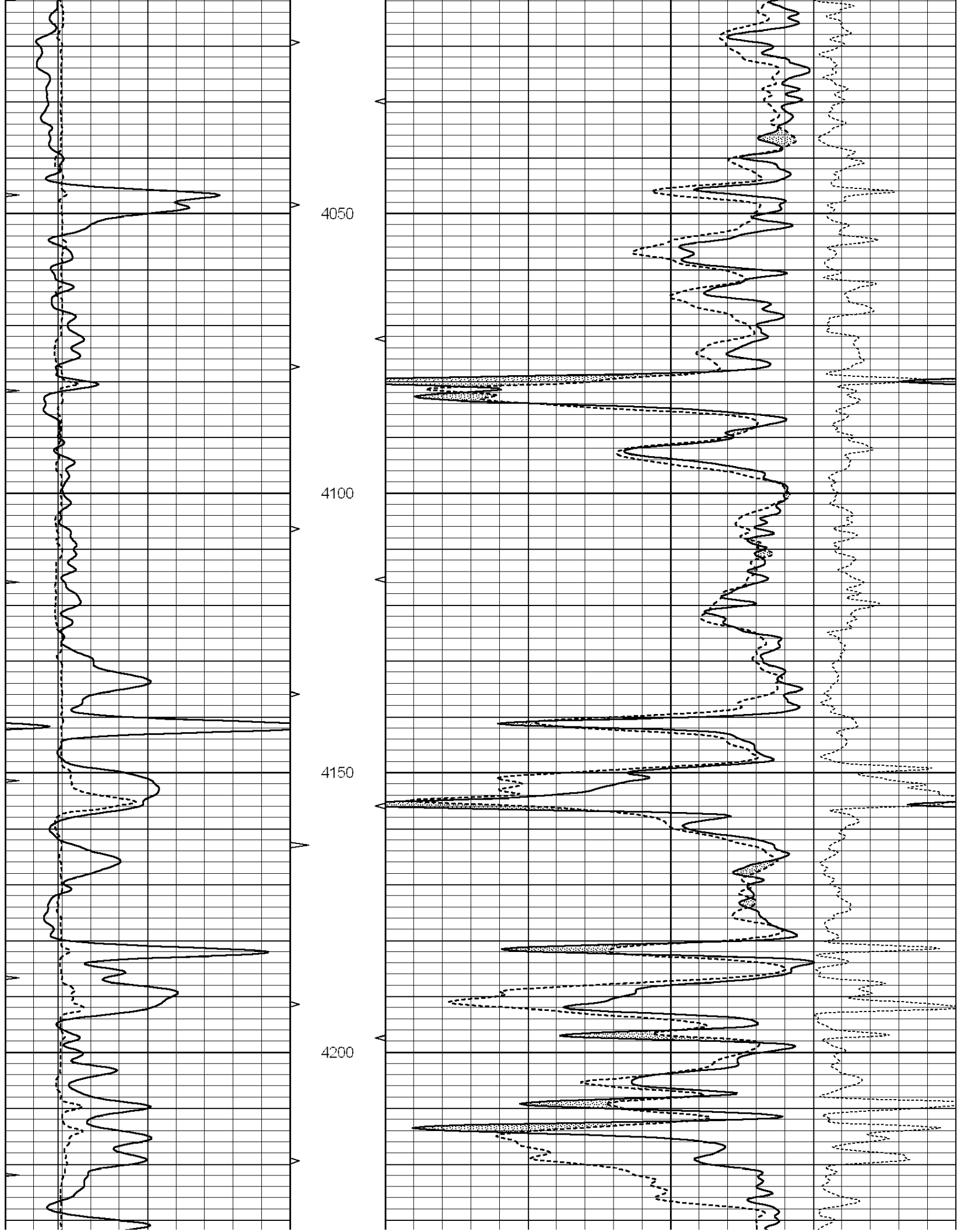
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 Dataset Creation: Thu Oct 10 13:38:52 2013  
 Charted by: Depth in Feet scaled 1:240

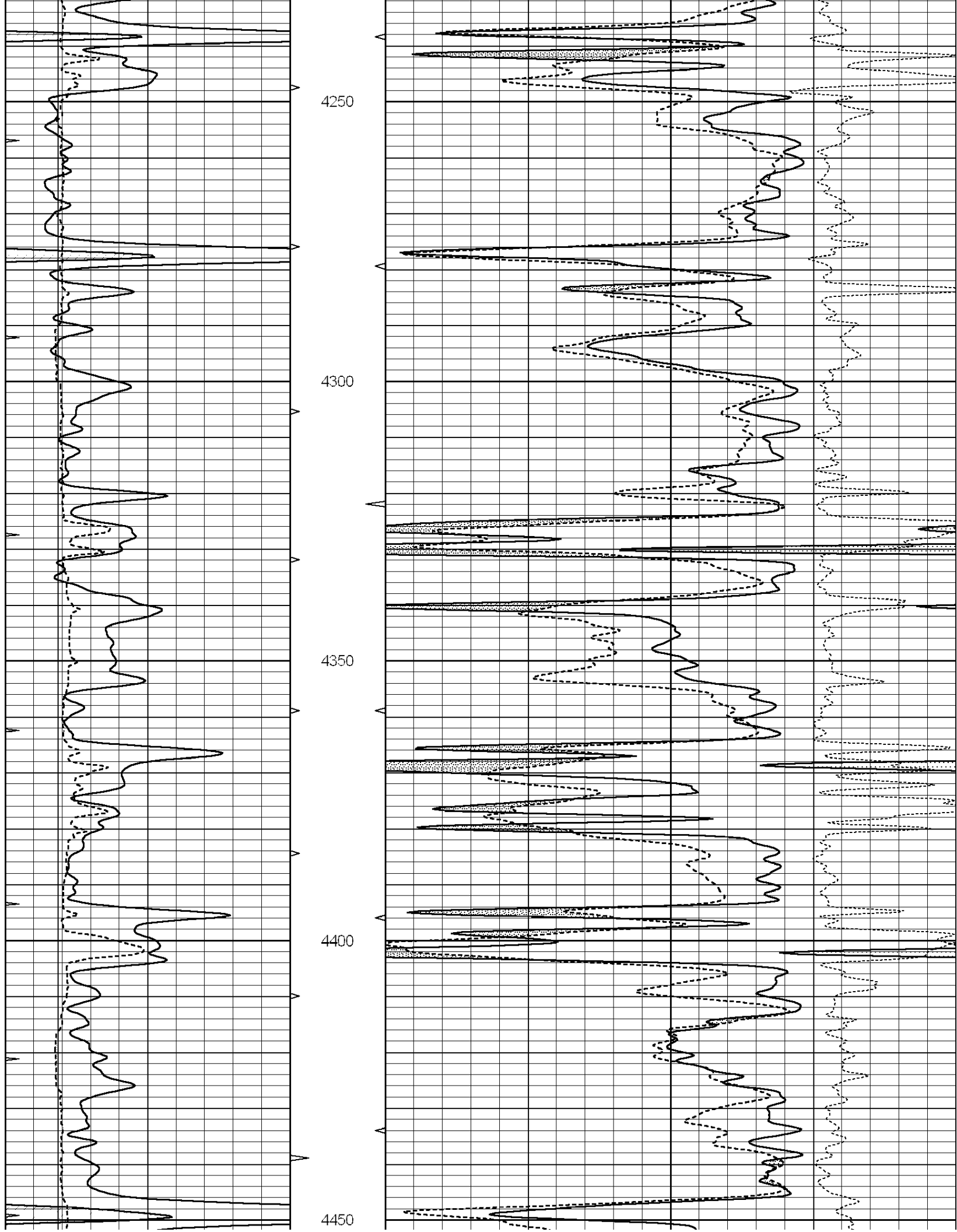
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		

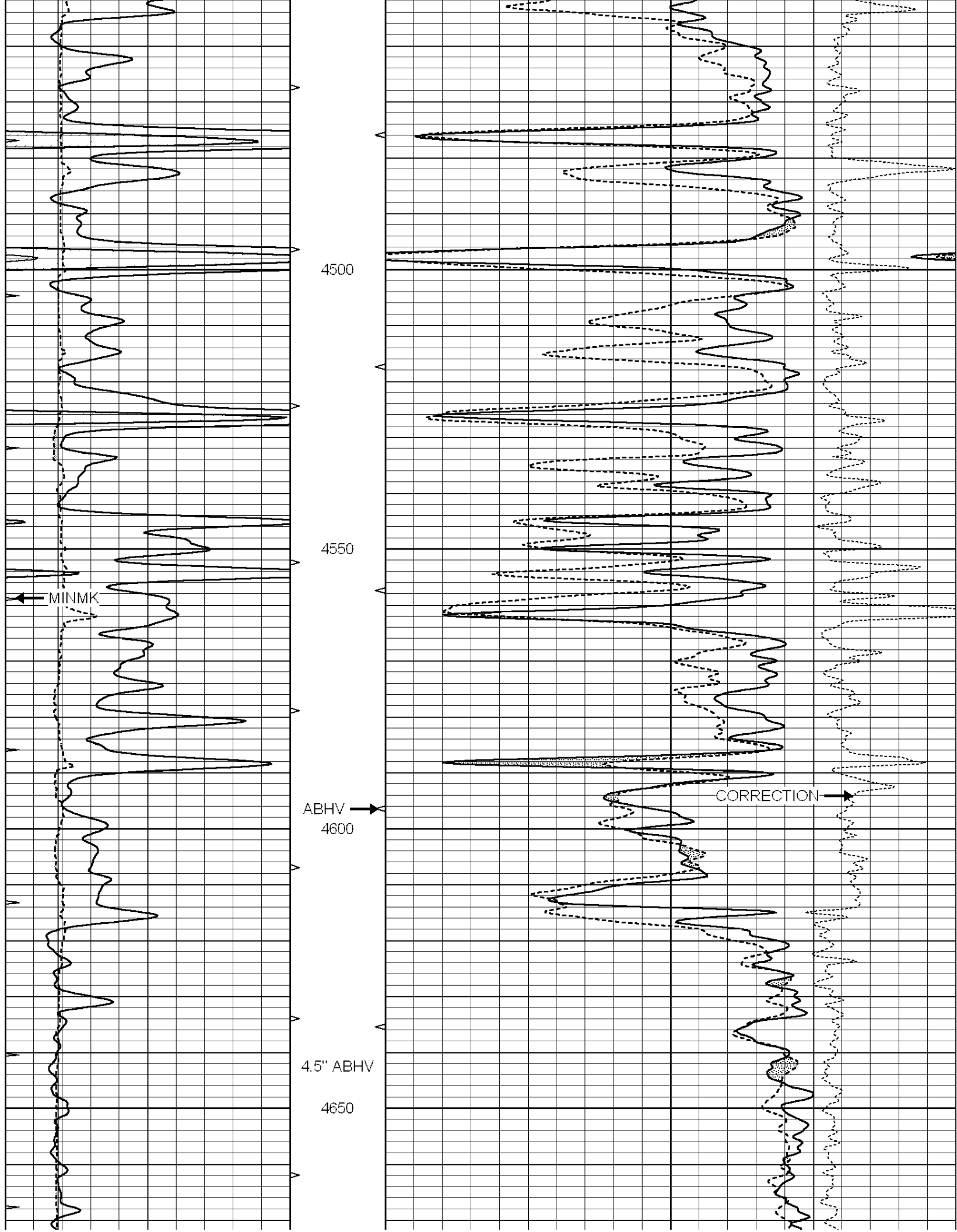


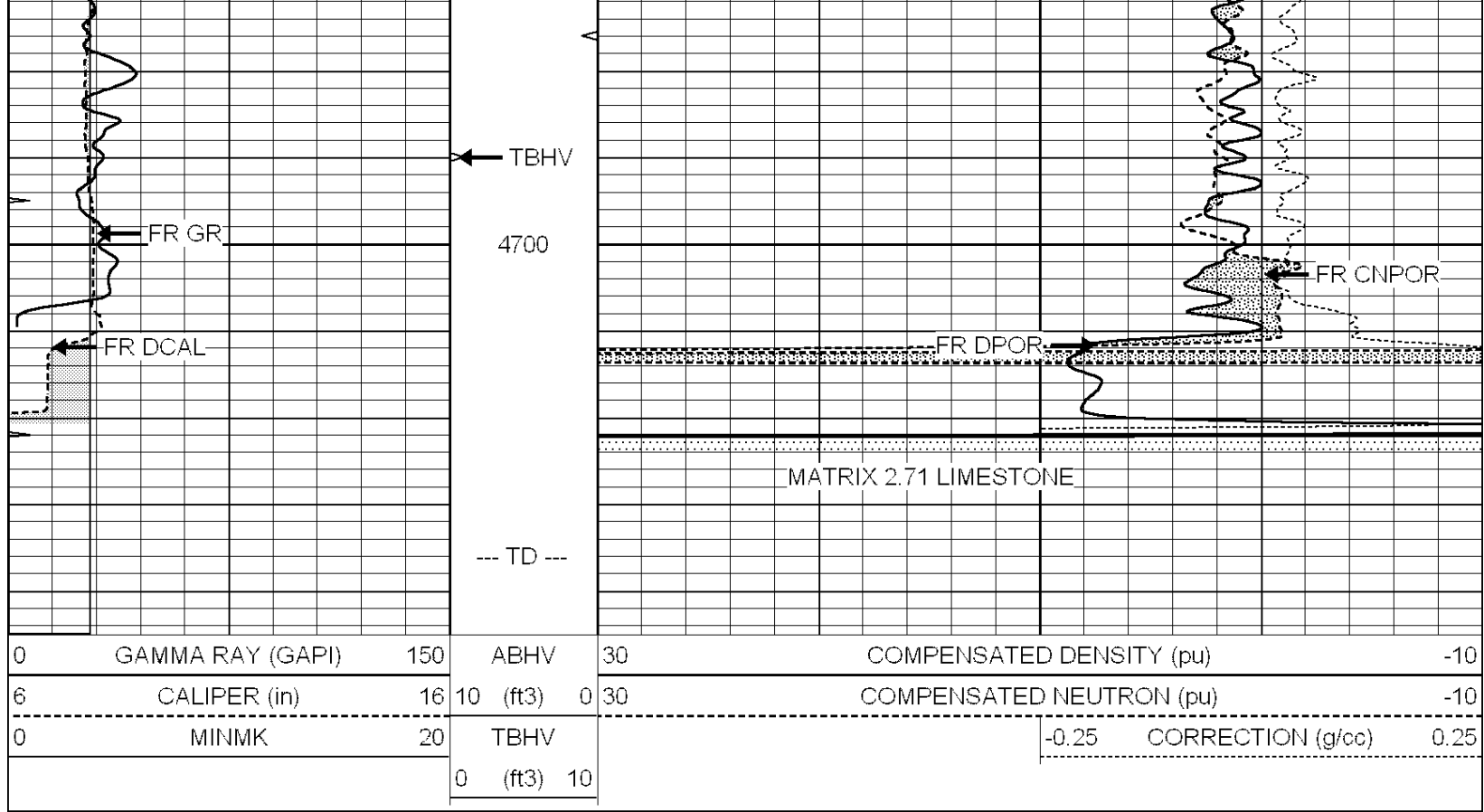








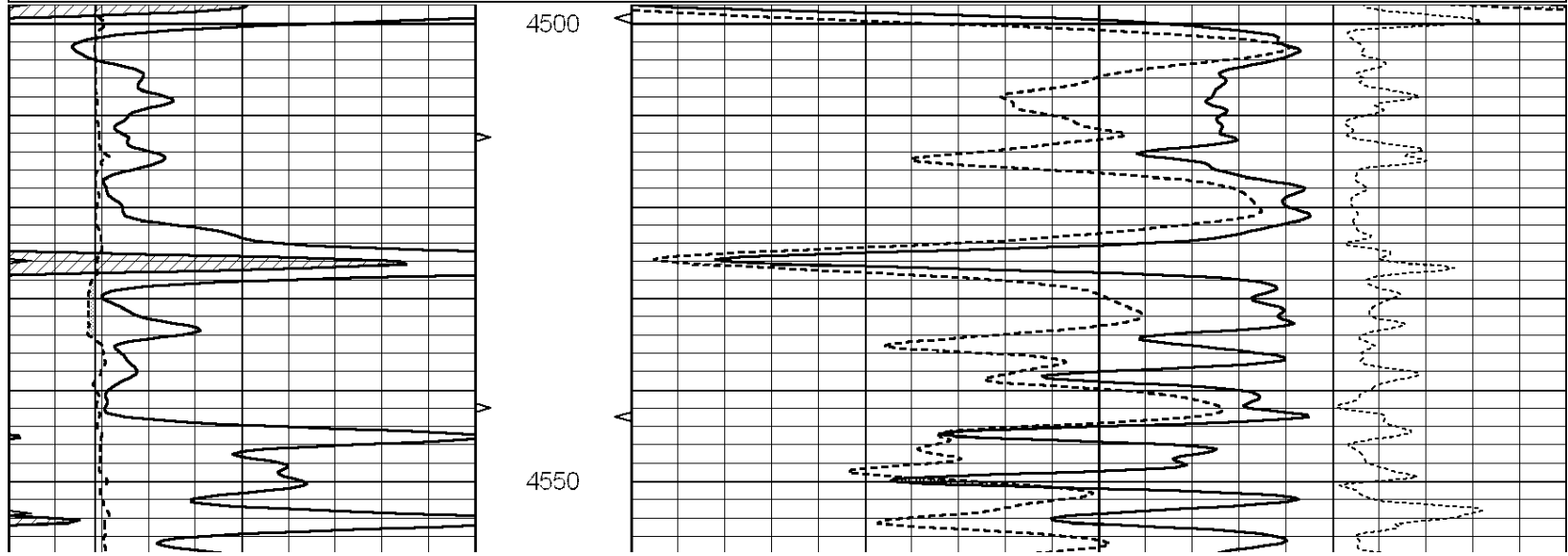


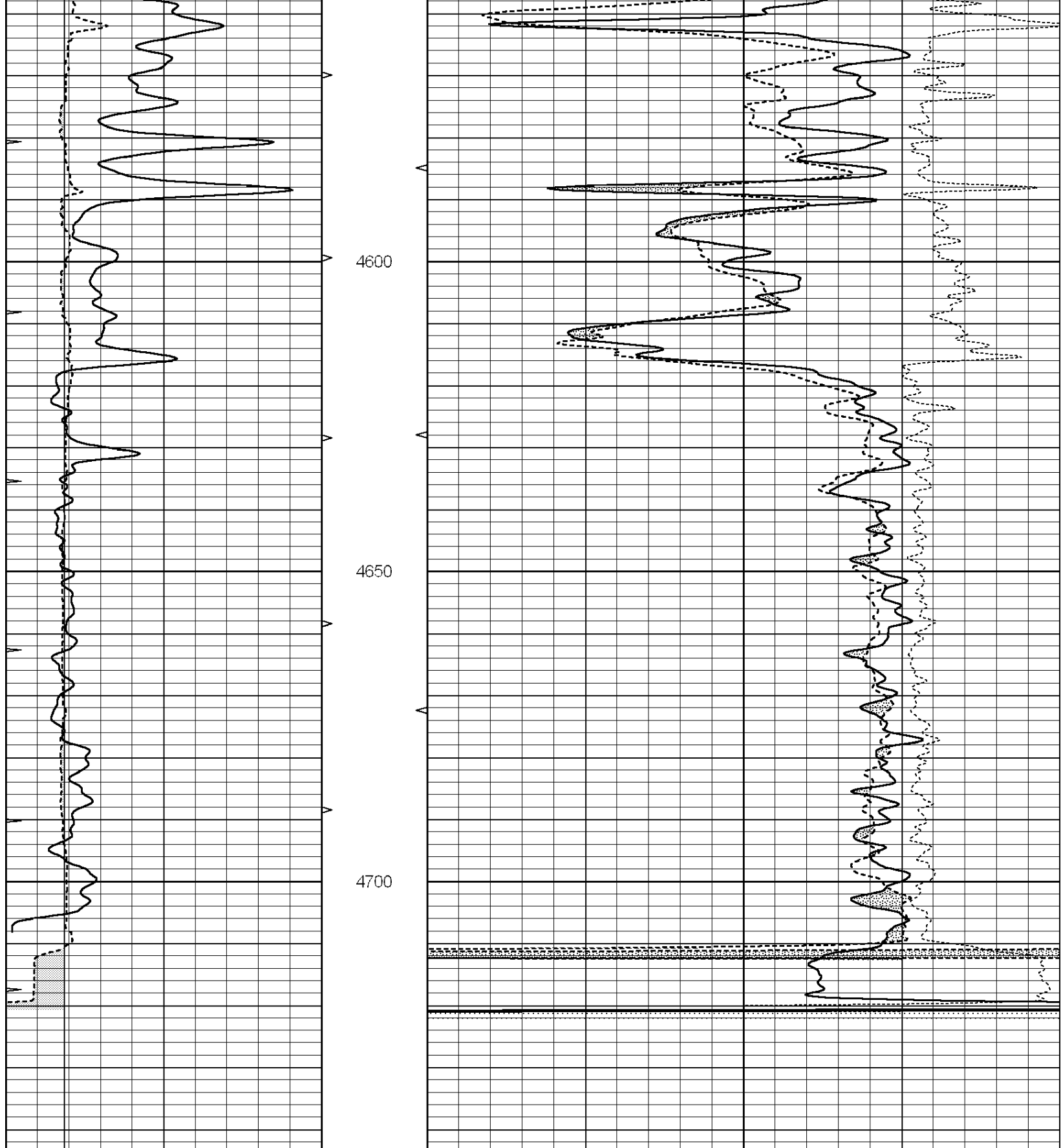


# REPEAT SECTION

Database File: 010214ddn.db  
 Dataset Pathname: pass2.1A  
 Presentation Format: \_den\_neu  
 Dataset Creation: Thu Oct 10 12:10:44 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		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		





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

### Dual Induction Calibration Report

Serial-Model: DIL3-GEAR  
 Performed: Thu Oct 10 12:05:57 2013

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	480.000	4.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	550.000	2.500
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

### Compensated Density Calibration Report

Serial-Model: GEAR1-GEARHART  
 Source / Verifier: 147 / 147  
 Master Calibration Performed: Thu Oct 10 12:15:56 2013

#### Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1205.77	610.74	cps
Aluminum	2.580	g/cc	271.21	419.72	cps
Spine Angle = 75.89			Density/Spine Ratio = 0.566		
	Size		Reading		
Small Ring	8.20	in	4.83	V	
Large Ring	14.00	in	7.01	V	

### Compensated Neutron Calibration Report

Serial Number: NEU\_4I  
 Tool Model: G

#### CALIBRATION

Detector	Readings		Target		Normalization
Short Space	1.00	cps	1.00	cps	1.0000
Long Space	1.00	cps	1.00	cps	1.0000

### Gamma Ray Calibration Report

Serial Number: GR5  
 Tool Model: OPEN  
 Performed: Thu Oct 10 11:53:52 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 1.0000 GAPI/cps