



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY / NEUTRON
PE LOG**

Company		MULL DRILLING COMPANY, INC.	
Well	GERWECK #1-4		
Field	CHEYENNE WELLS		
County	CHEYENNE	State	COLORADO
Location:	APL # : 05-017-07772-00		Other Services DIL/MEL SONIC
Permanent Datum		GROUND LEVEL	Elevation 4261
Log Measured From		KELLY BUSHING 11' A.G.L.	
Drilling Measured From		KELLY BUSHING	Elevation K.B. 4272 D.F. 4270 G.L. 4261
Date	11/23/13		
Run Number	ONE		
Depth Driller	5500		
Depth Logger	5499		
Bottom Logged Interval	5475		
Top Log Interval	4000		
Casing Driller	8 5/8" @ 1733'		
Casing Logger	1728		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 1,100 PPM	
Density / Viscosity	9.2/64		
pH / Fluid Loss	9.07 / 2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.950 @ 55F		
Rmf @ Meas. Temp	.713 @ 55F		
Rmc @ Meas. Temp	1.14 @ 55F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.402 @ 130F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	3:45 A.M.		
Maximum Recorded Temperature	130F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	PHIL ASKEY		

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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
CHEYENNE WELLS, CO. 3N. ON HWY 385 TO "RD. U", 1/8 E., S. INTO

Database File:

011813pe.db

Dataset Pathname:

pass4.10

Presentation Format:

ldt_neu

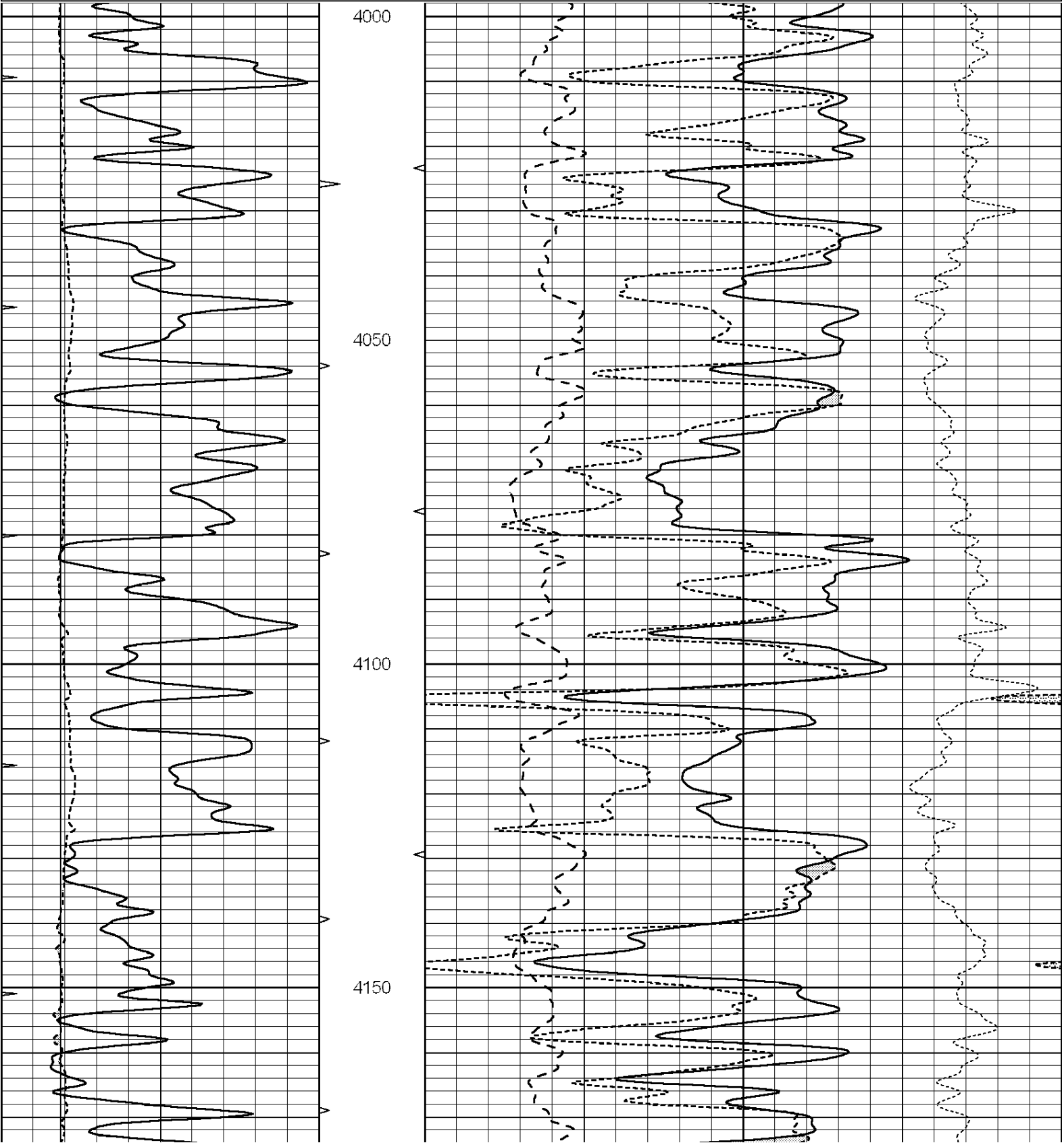
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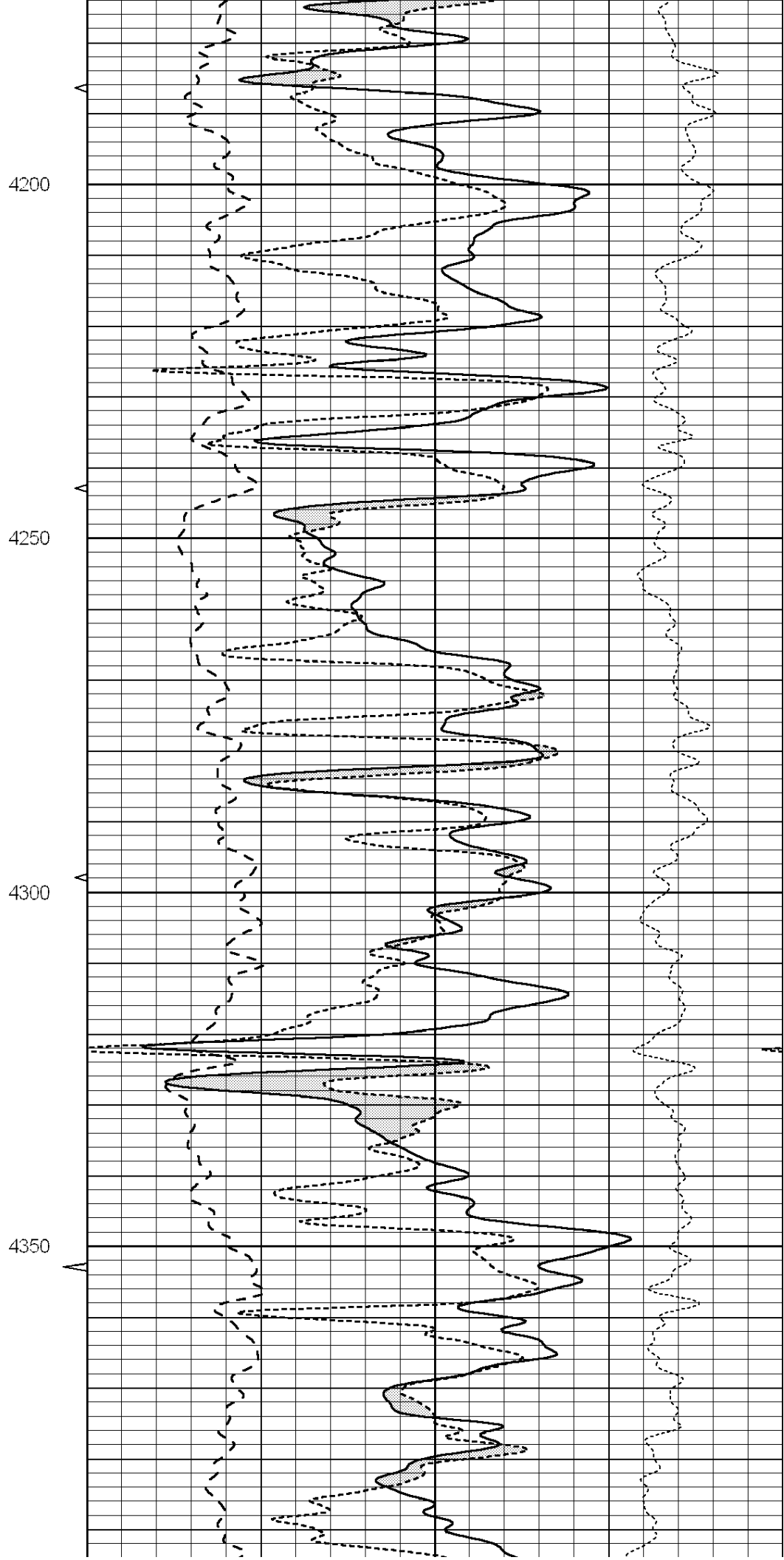
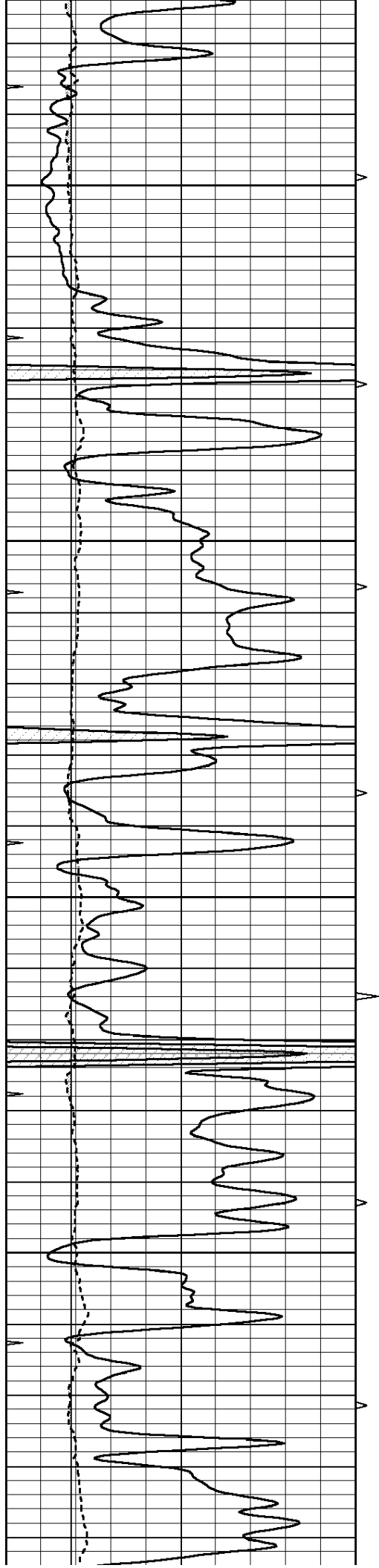
Sat Nov 23 08:00:18 2013

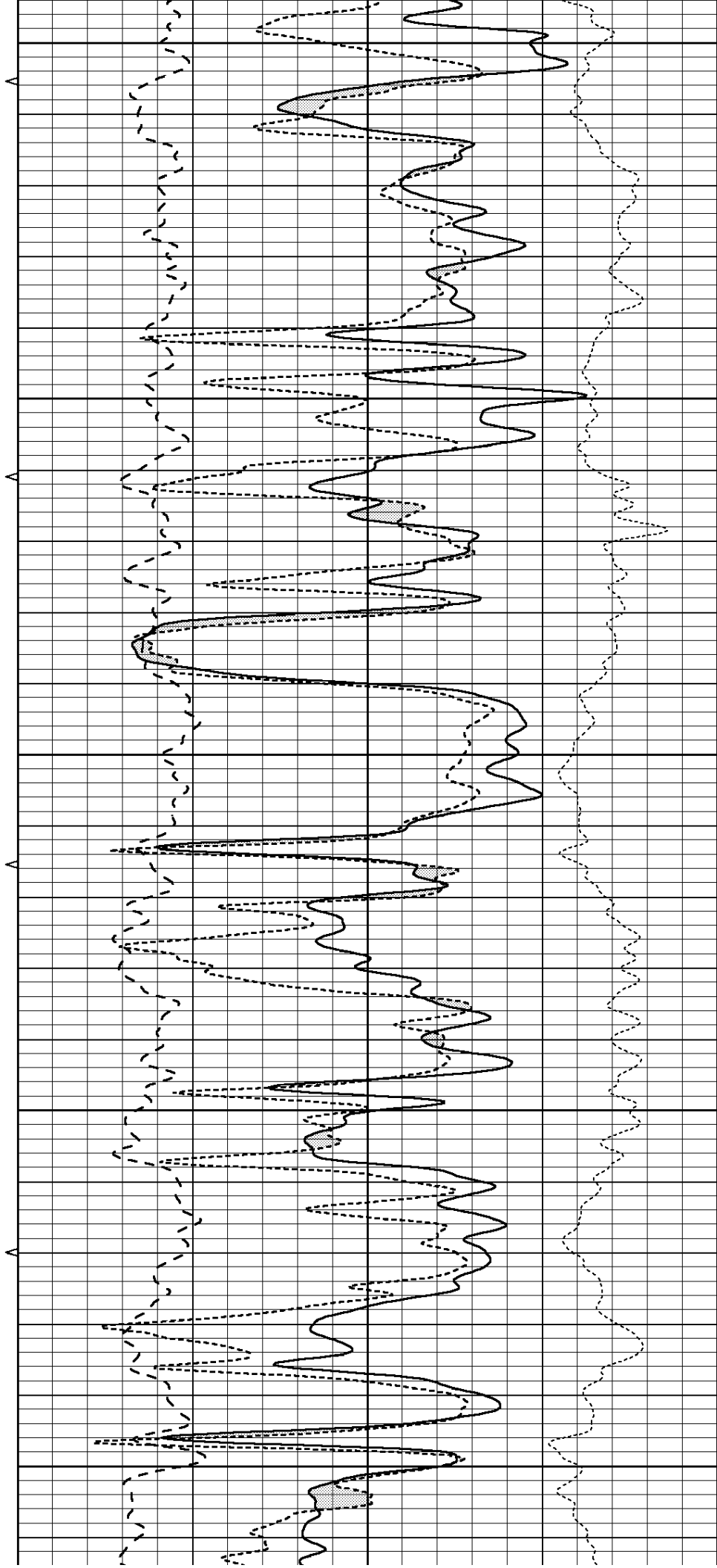
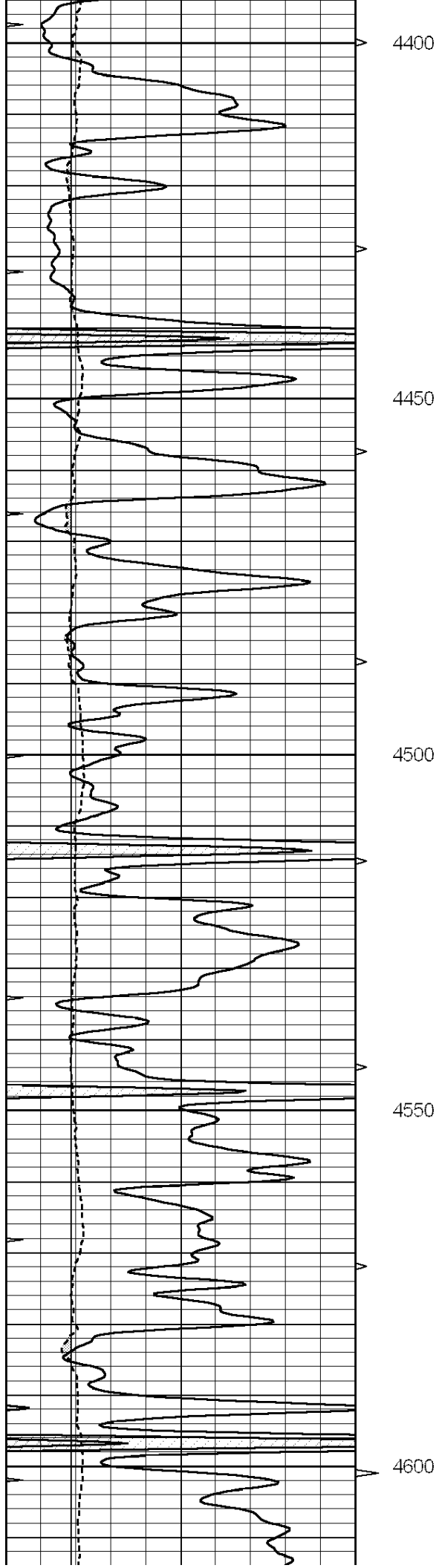
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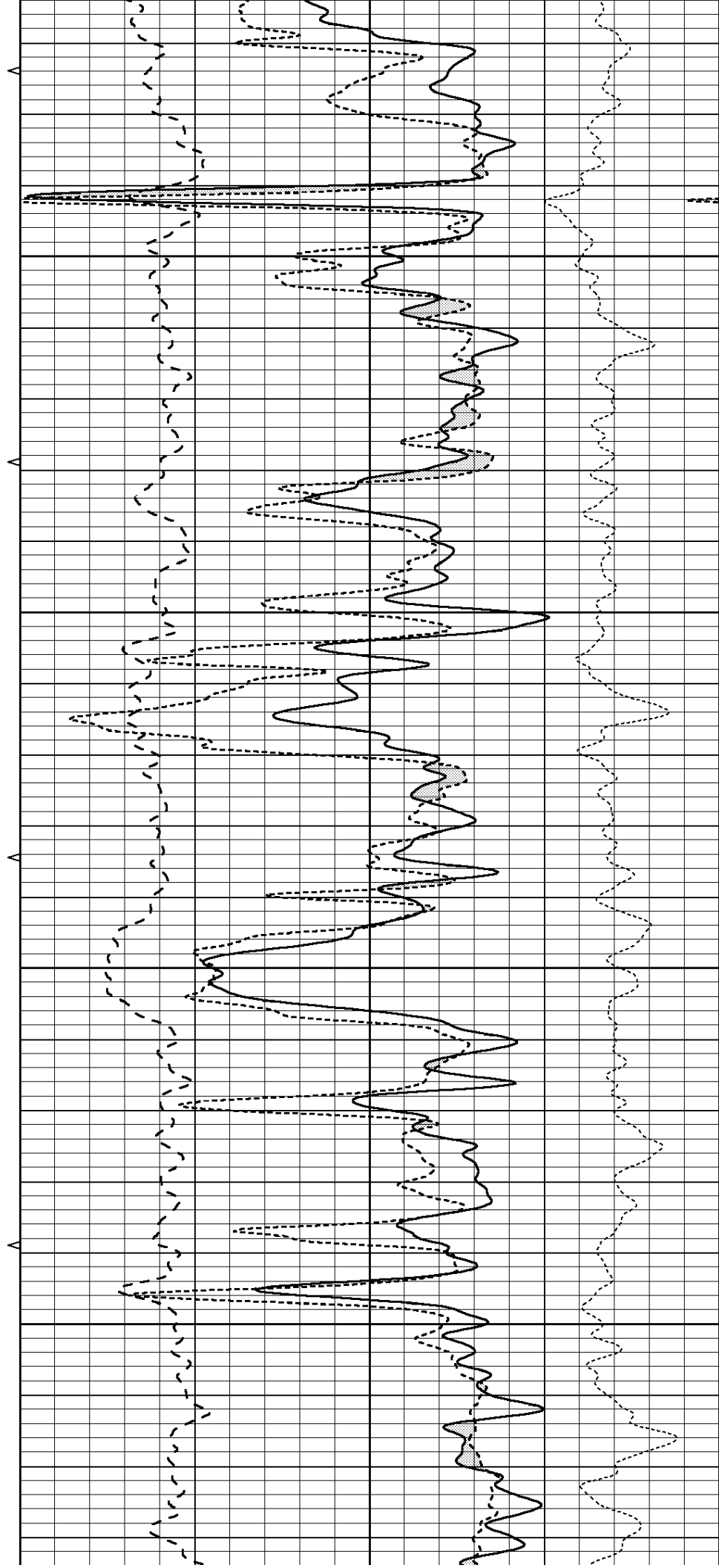
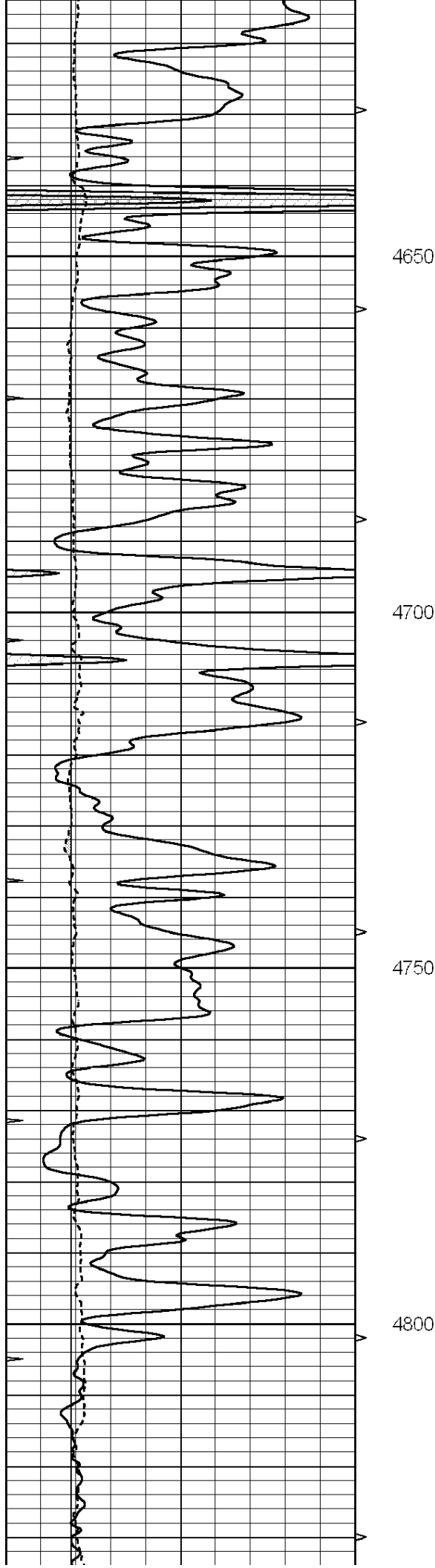
Depth in Feet scaled 1:240

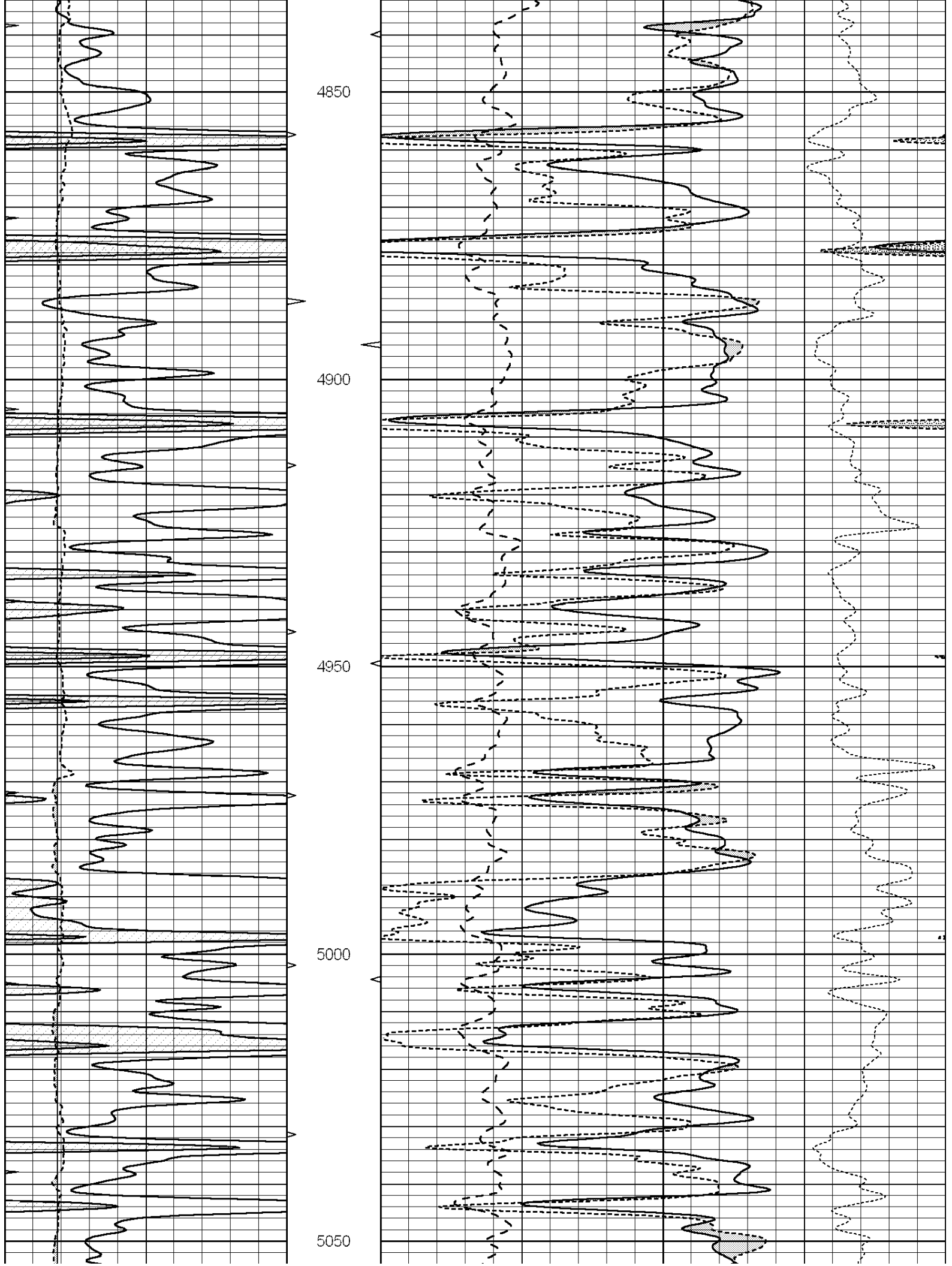
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)				-10	
6	CALIPER (in)	16	10 (ft3)	0	30	COMPENSATED NEUTRON (pu)				-10
0	MINMK	20	TBHV	0	PE	10	-0.25	CORRECTION (g/cc)	0.25	
			0 (ft3)	10						

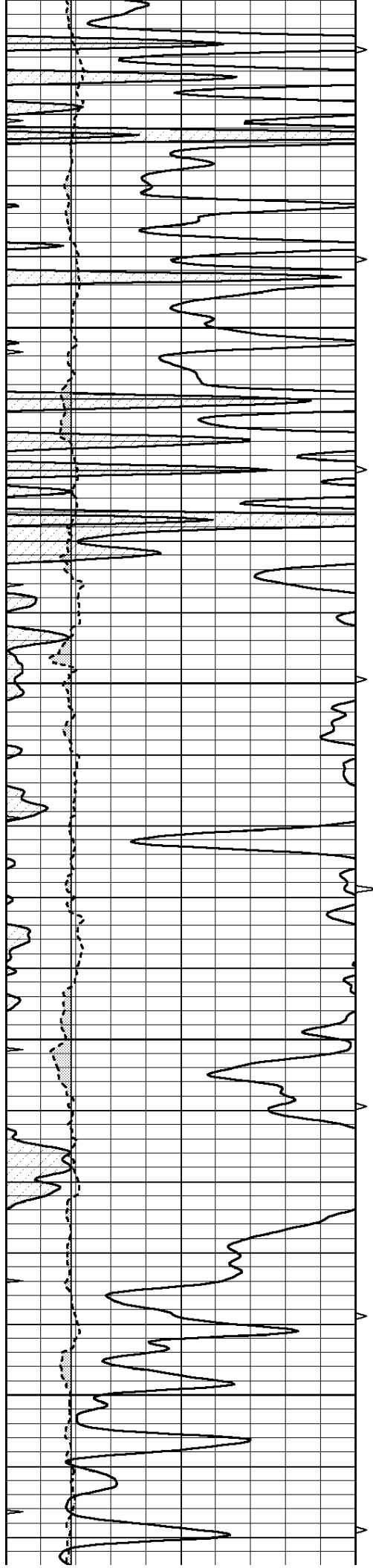










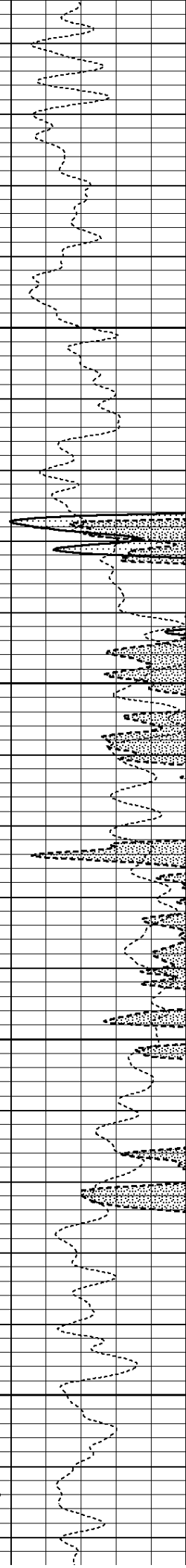
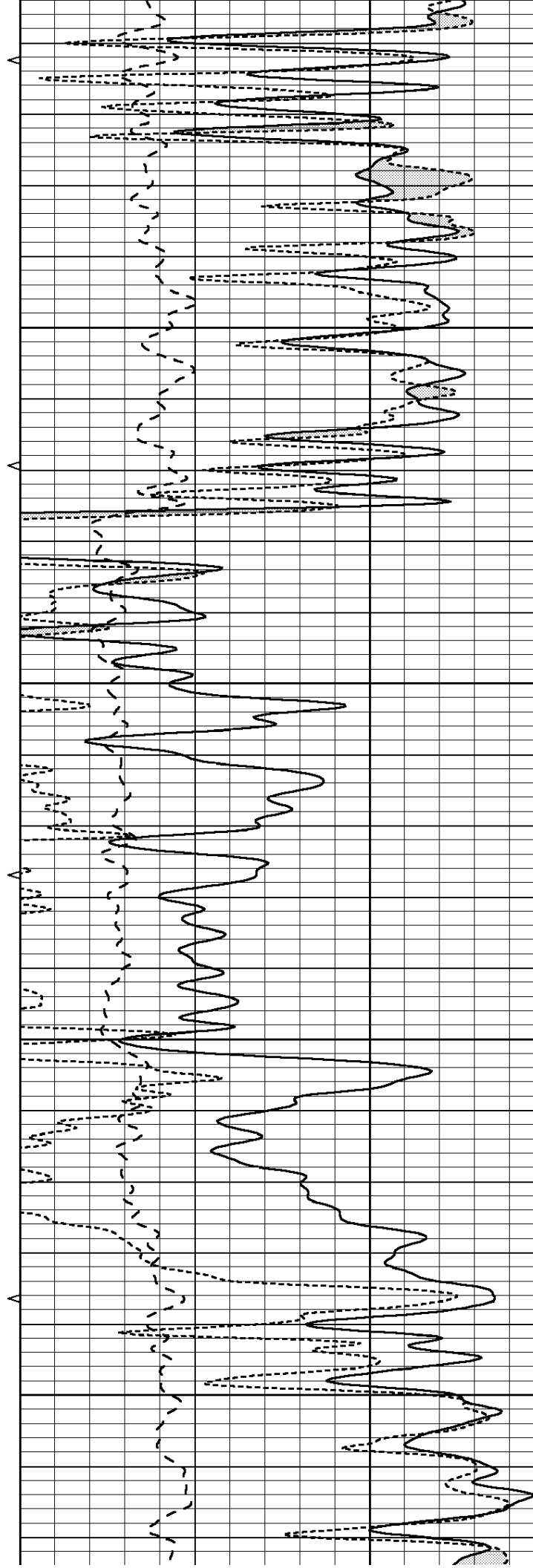


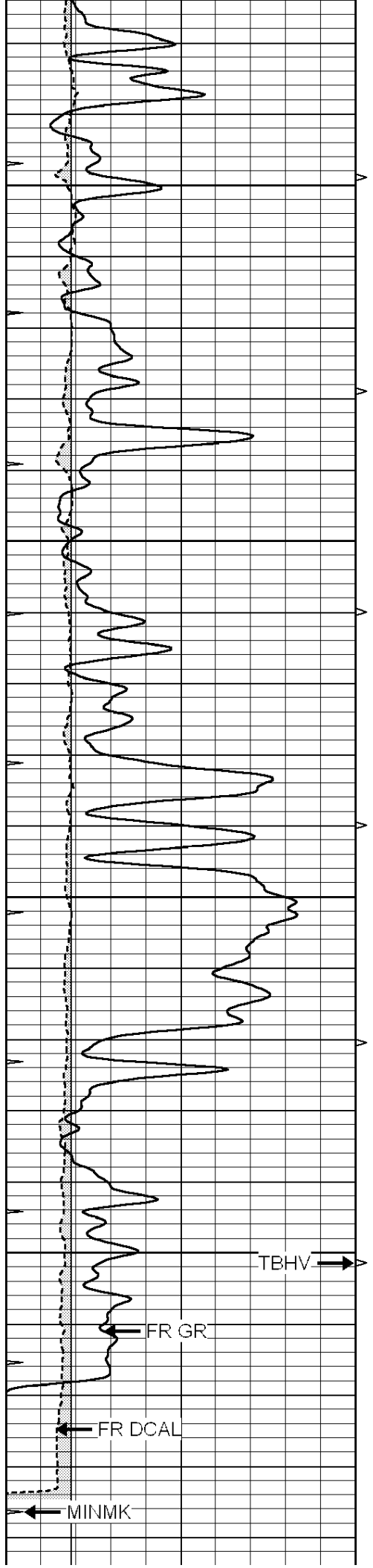
5100

5150

5200

5250





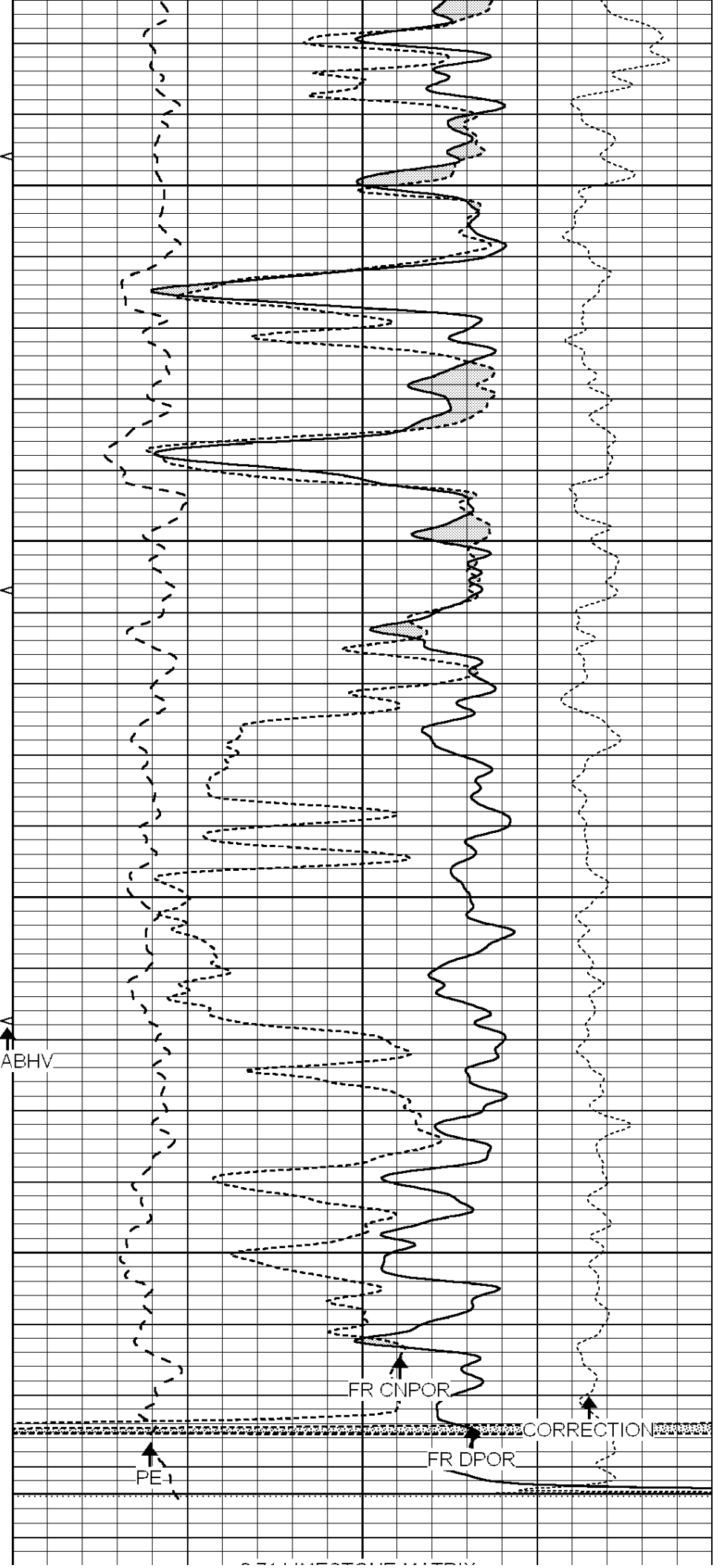
5300

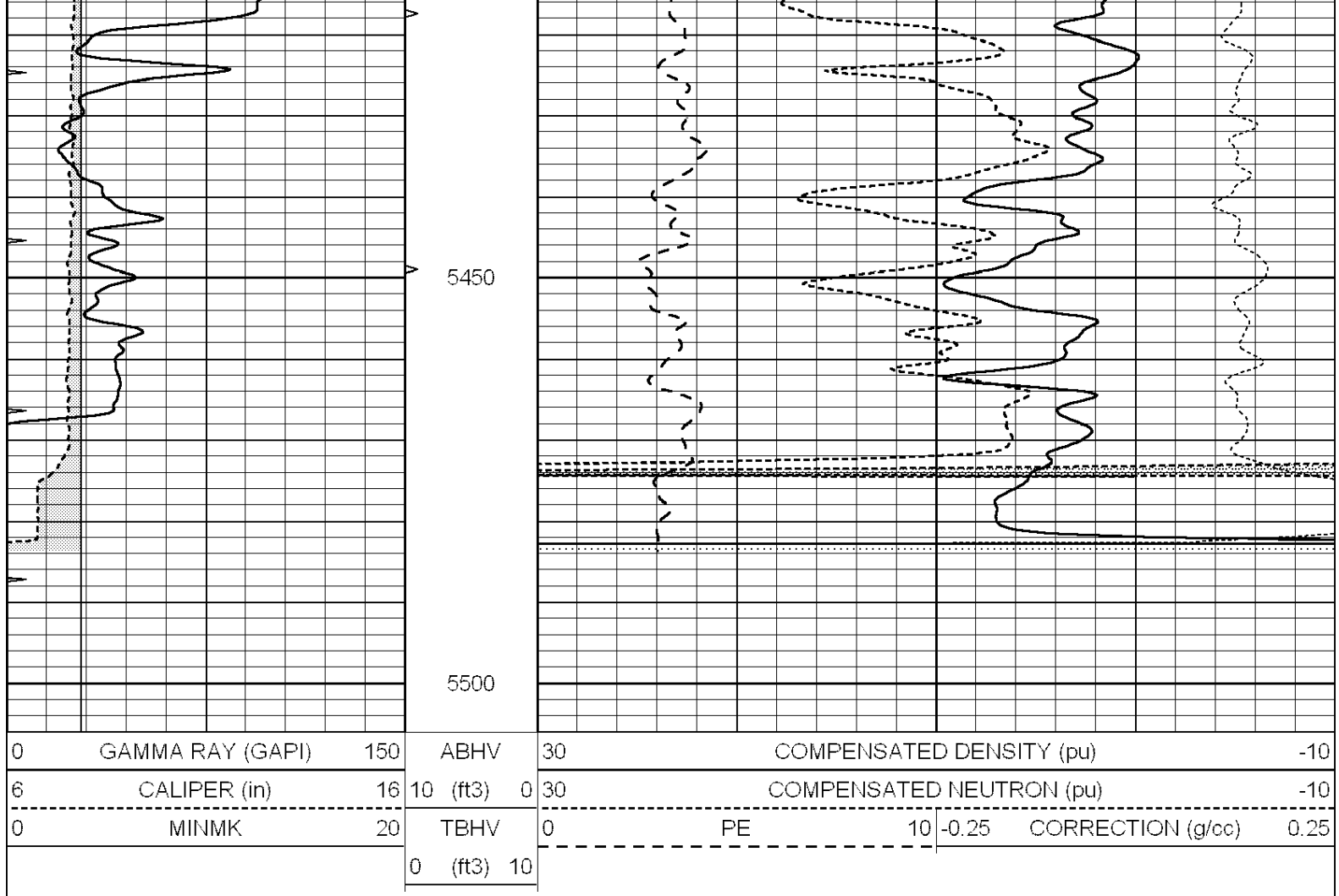
5350

5400

5.5" ABHV

5450





Calibration Report								
Database File:	011813pe.db							
Dataset Pathname:	pass4.10							
Dataset Creation:	Sat Nov 23 08:00:18 2013							
Dual Induction Calibration Report								
Serial-Model:			PROBE9-DILG					
Surface Cal Performed:			Tue Nov 19 06:44:33 2013					
Downhole Cal Performed:			Mon Jul 28 12:02:56 2008					
After Survey Verification Performed:			Mon Jul 28 12:02:56 2008					
Surface Calibration								
		Readings		References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	650.000	-10.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-12.000
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
U.S.								

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: 004N			Model: PRB					

Master Calibration					Performed Mon Jun 03 09:36:56 2013			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1417.6	10391.4	3464.6	11537.5				cps
Window 2	1295.0	8959.7	3050.1	9816.4				cps
Window 3	1105.1	5464.2	2051.0	5838.8				cps
Window 4	315.0	317.7	312.9	319.8				cps
Long Space	0.0	7664.6	1755.0	8521.3				cps
Short Space	1.8	1582.4	1040.8	1699.4				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 44.1	Rib Slope	: 0.970	Density/Spine Ratio			: 0.574	
Spine Angle	: 74.1	Spine Slope	: 3.519	Spine Intercept			: -17.0	

Before Survey Verification					Performed Wed Dec 31 18:00:00 1969			
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				

After Survey Verification					Performed Wed Dec 31 18:00:00 1969			
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								
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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:	Sun Nov 03 21:08:13 2013		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	