



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY/NEUTRON
PE LOG**

Company		CHIEFTAIN OIL COMPANY, INC.	
Well		MOLZ #20	
Field		STRANATHAN	
County		BARBER	
State		KANSAS	
Location:		API # : 15-007-24042-0000 565' FNL & 440' FEL NW - NE - NE - NE	
Permanent Datum Log Measured From Drilling Measured From		SEC 11 TWP 35S RGE 12W GROUND LEVEL KELLY BUSHING 13' A.G.L. KELLY BUSHING	
		Other Services DIL/MEL Elevation K.B. 1406 D.F. 1404 G.L. 1393	
Date	9/16/13		
Run Number	ONE		
Depth Driller	5587		
Depth Logger	5586		
Bottom Logged Interval	5562		
Top Log Interval	3700		
Casing Driller	13 3/8" @ 308'		
Casing Logger	306'		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 3800 PPM	
Density / Viscosity	9.3 / 68		
pH / Fluid Loss	10.0 / 7.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.65 @ 93F		
Rmt @ Meas. Temp	0.49 @ 93F		
Rmc @ Meas. Temp	0.78 @ 93F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	0.47 @ 130F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	130F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEWEG		
Witnessed By	ARDEN RATZLAFF		

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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.

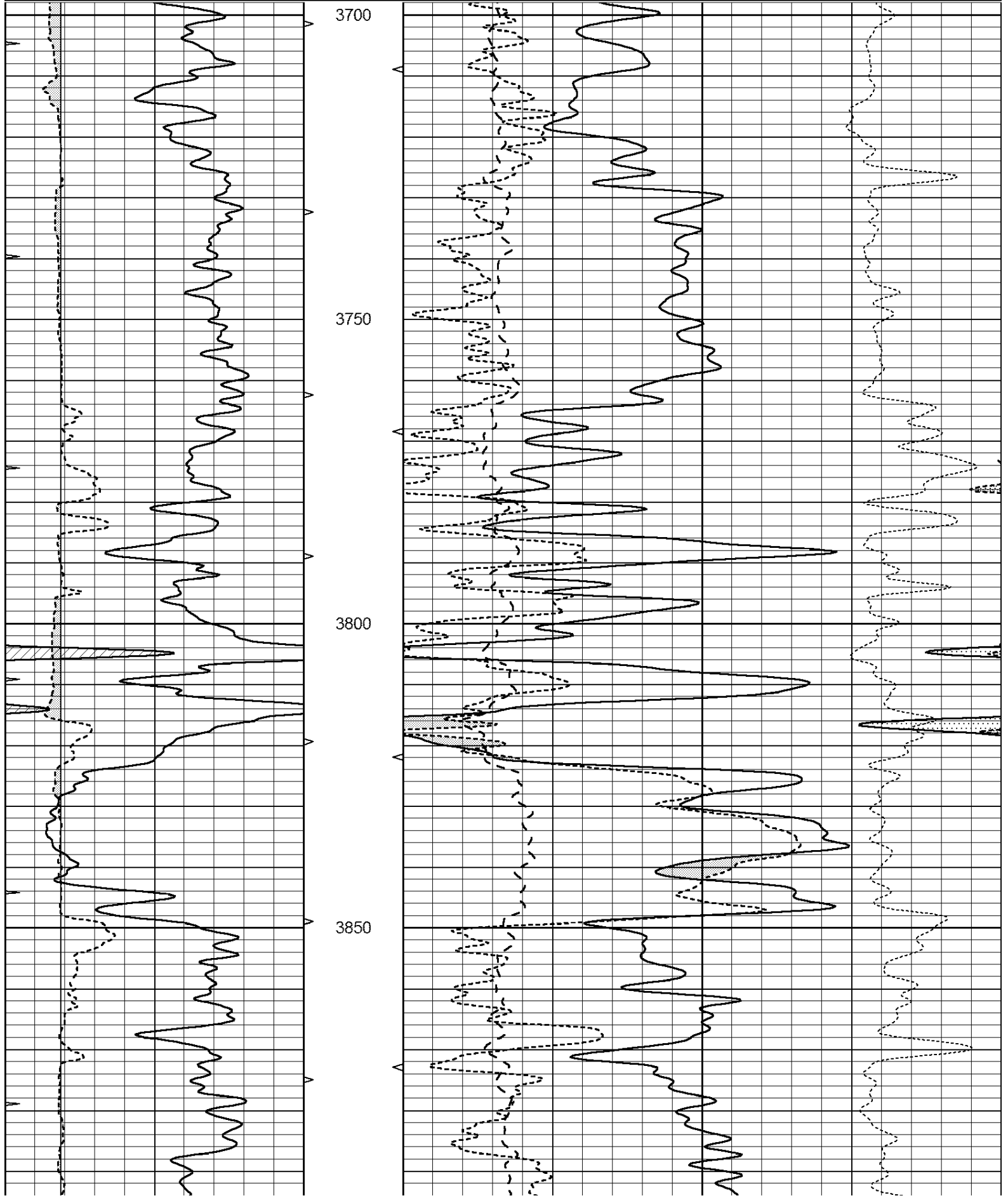
Comments

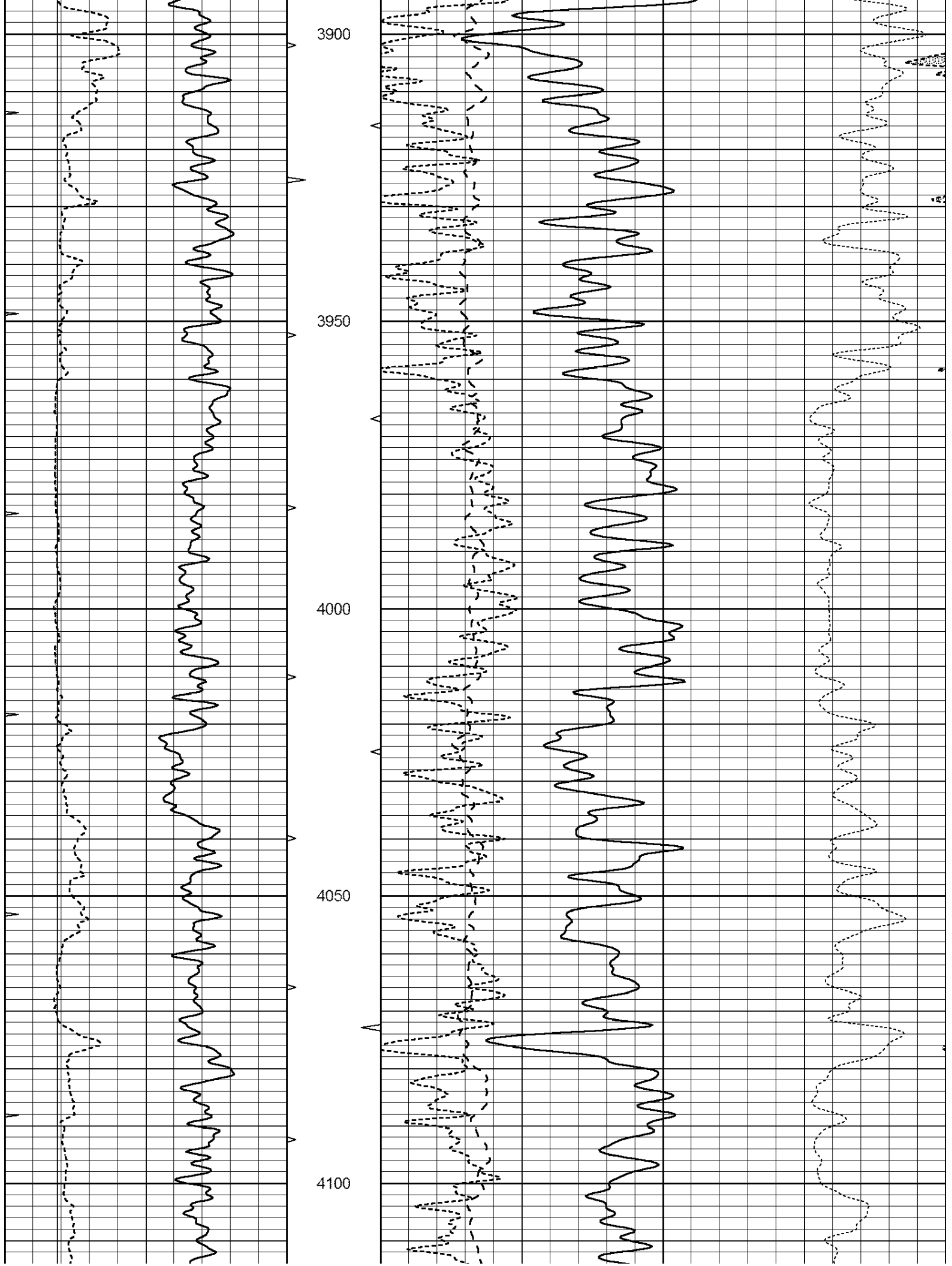
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
 DIRECTIONS:
 HARDTNER, KS - 3 1/2 MILES EAST TO CLAIRMONT RD - 1/2 MILE NORTH
 WEST INTO

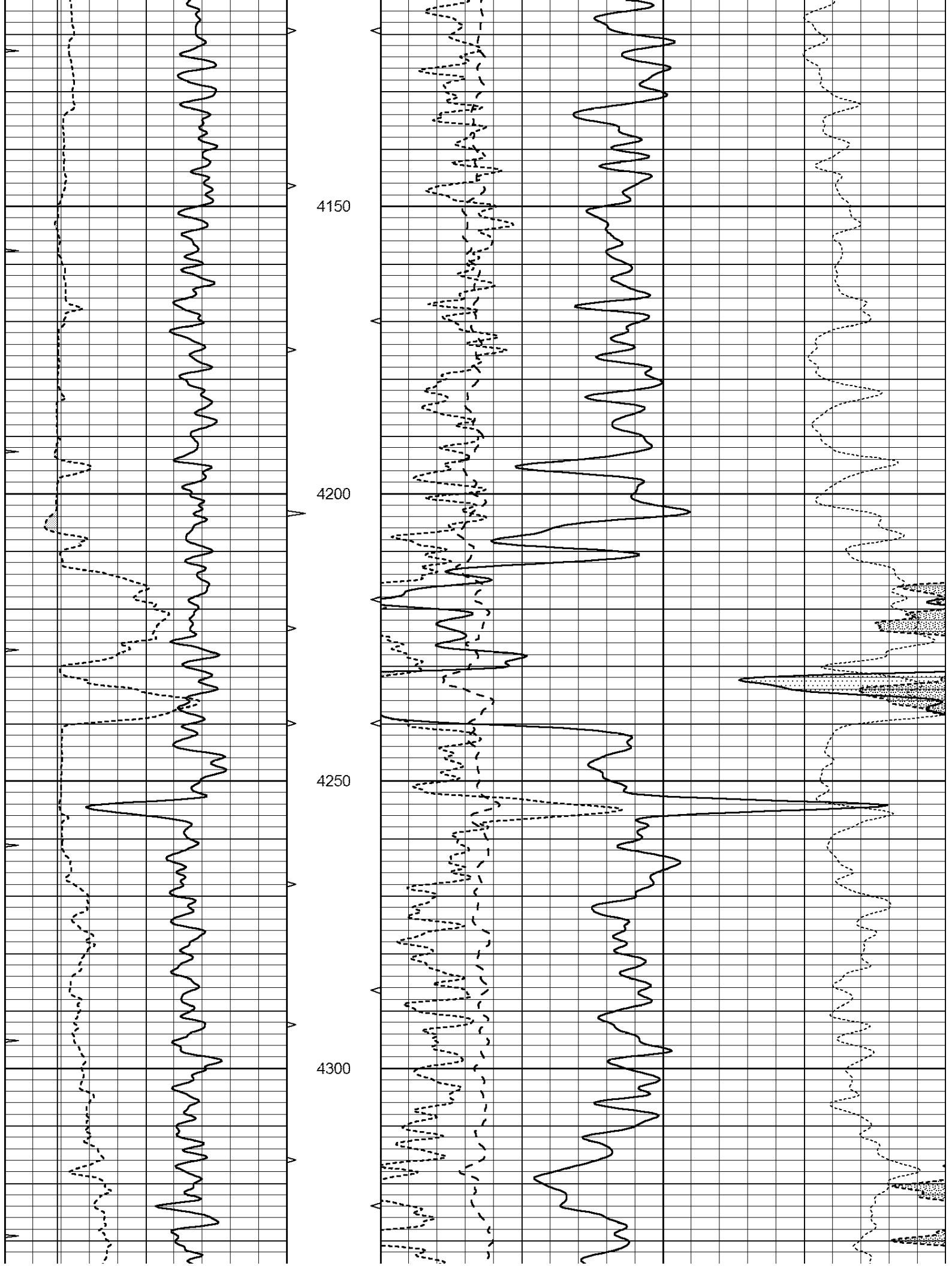
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 Dataset Pathname: pass3.2
 Presentation Format: _ldt_neu
 Dataset Creation: Mon Sep 16 23:58:07 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

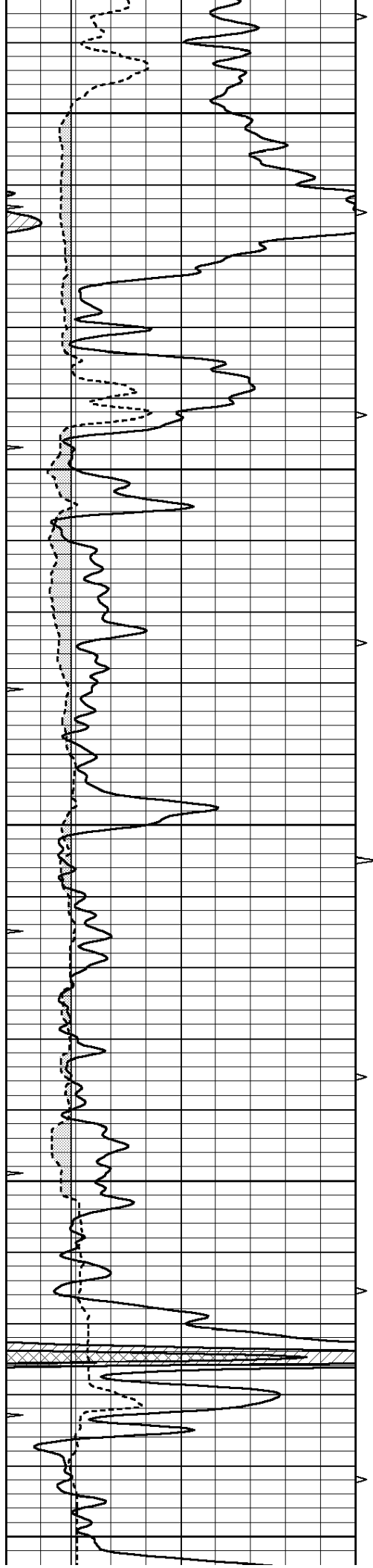
Charted by:		Depth in Feet scaled 1:2.10							
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)		-10		
6	CALIPER (in)	16	10 (ft3)	0	30	COMPENSATED NEUTRON (pu)		-10	

0	MINMK	20	TBHV	0	PE	10	-0.25	CORRECTION (g/cc)	0.25









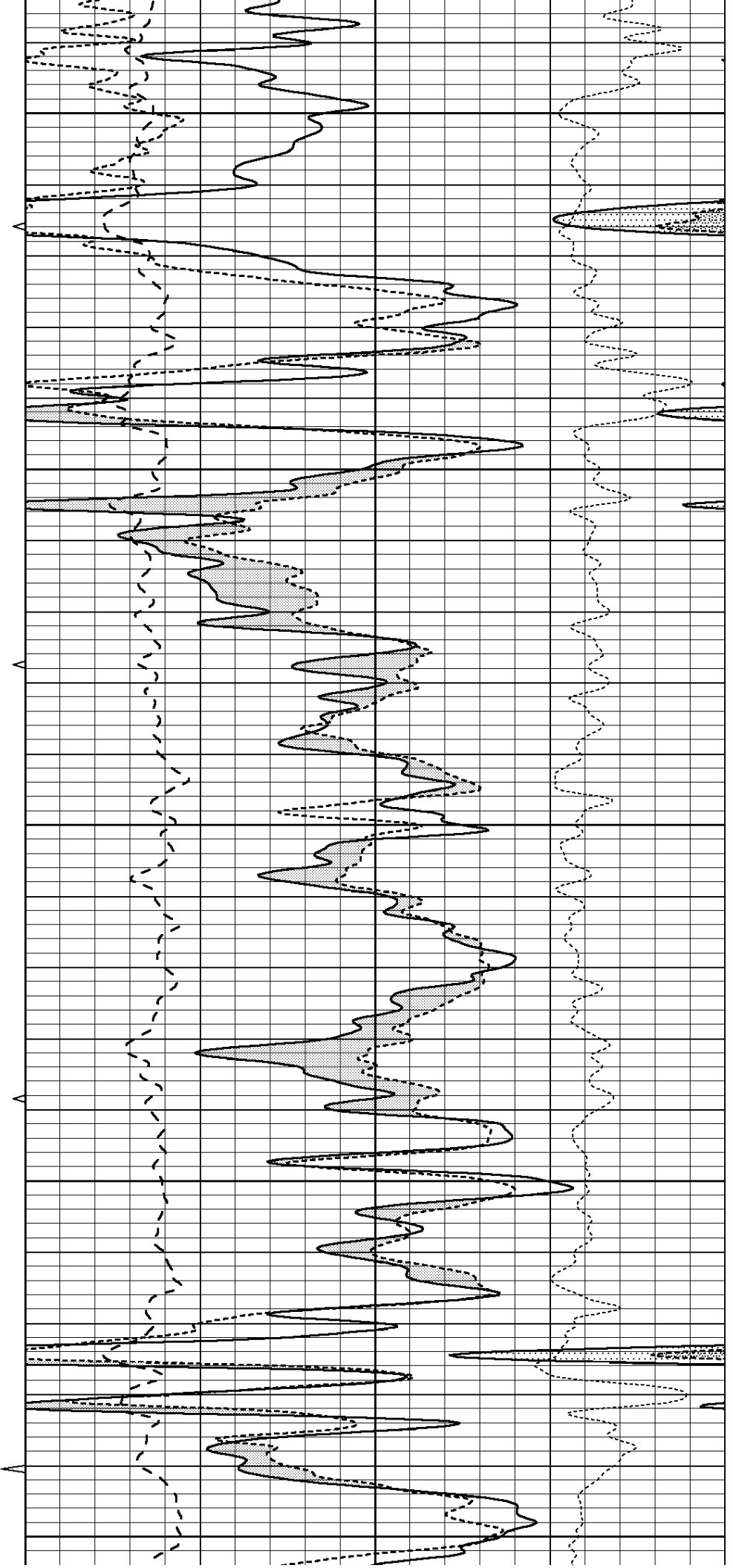
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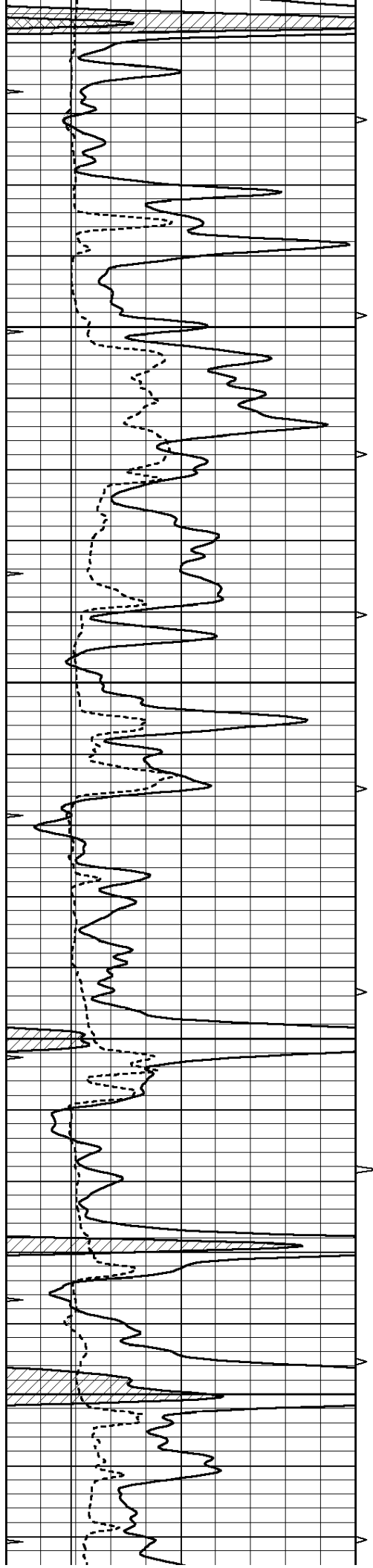
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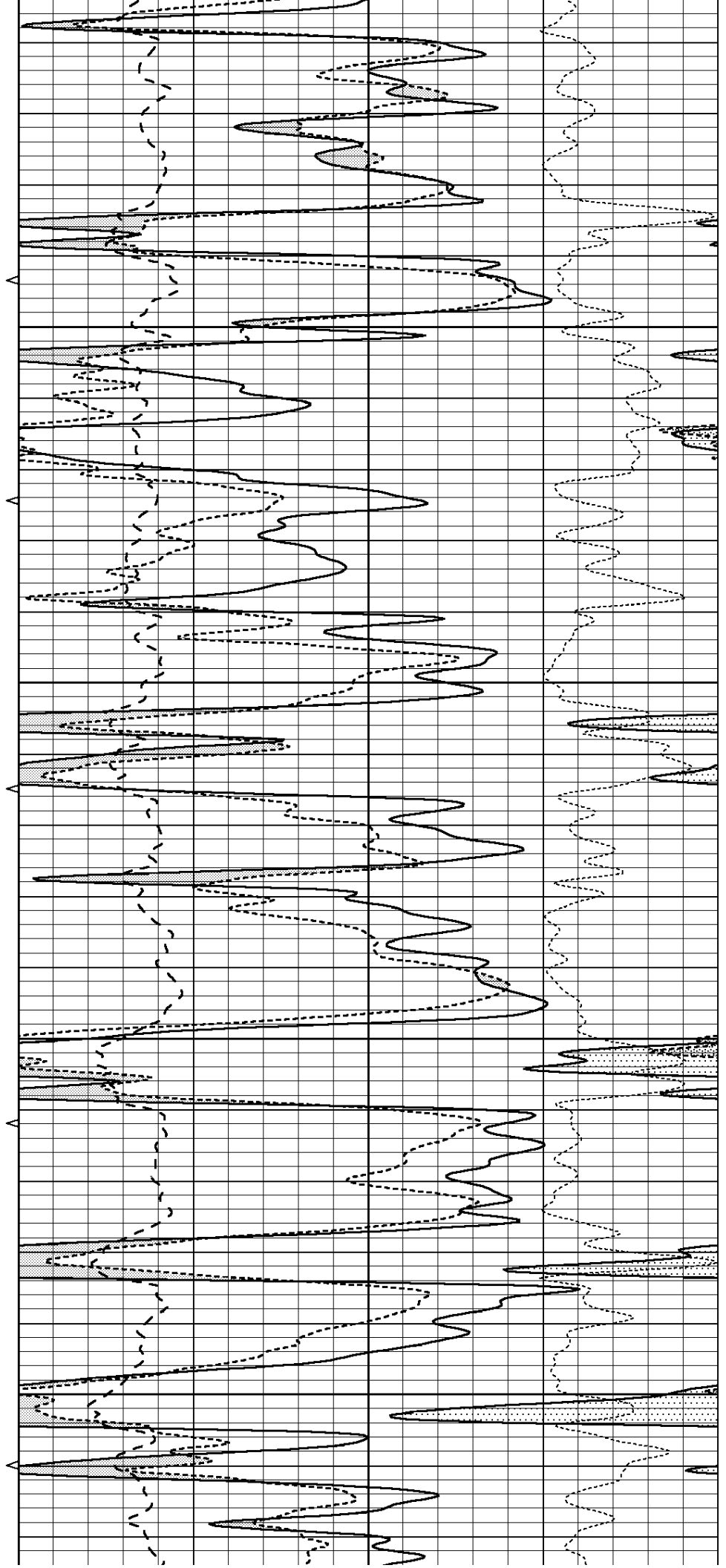


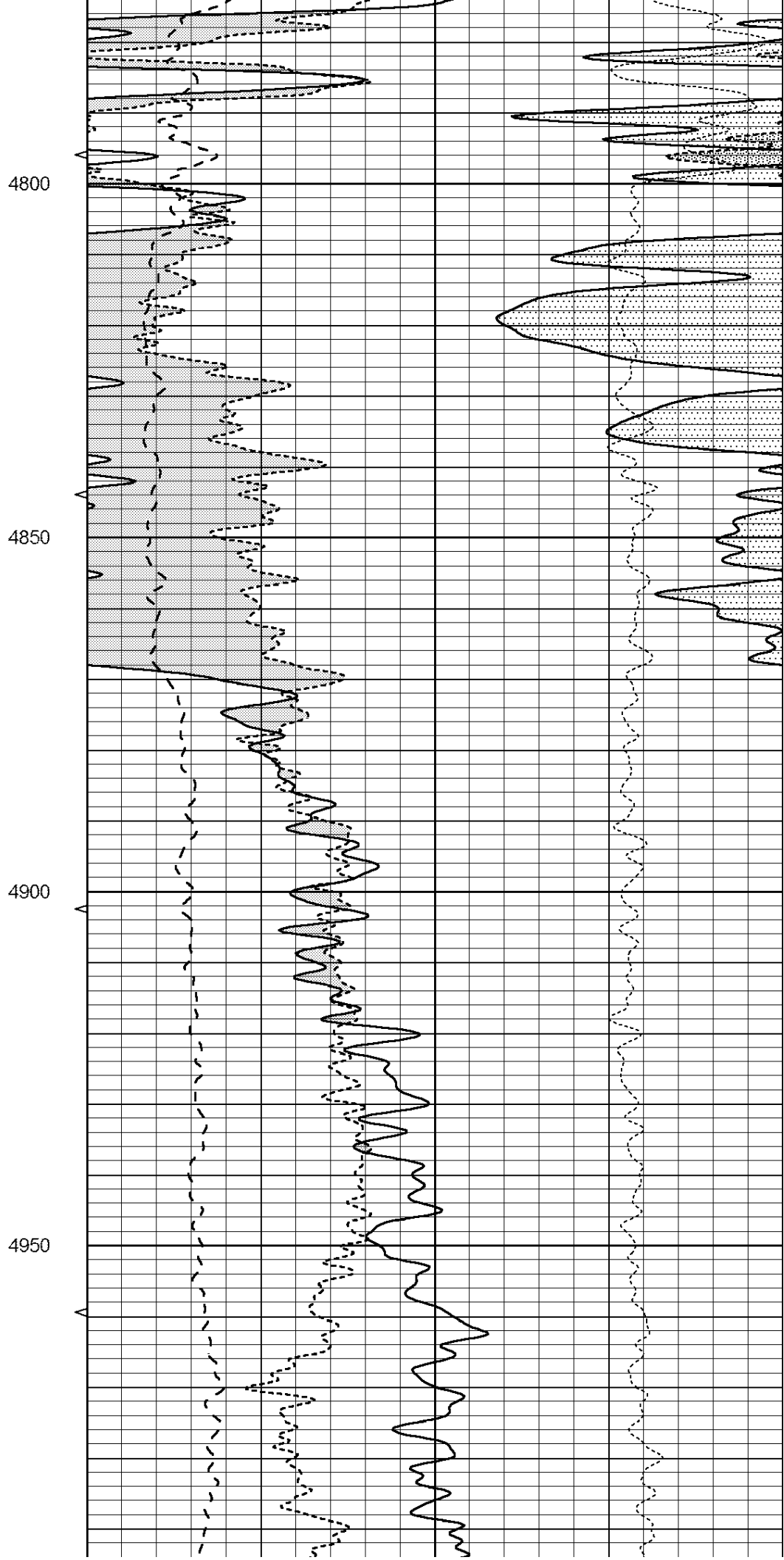
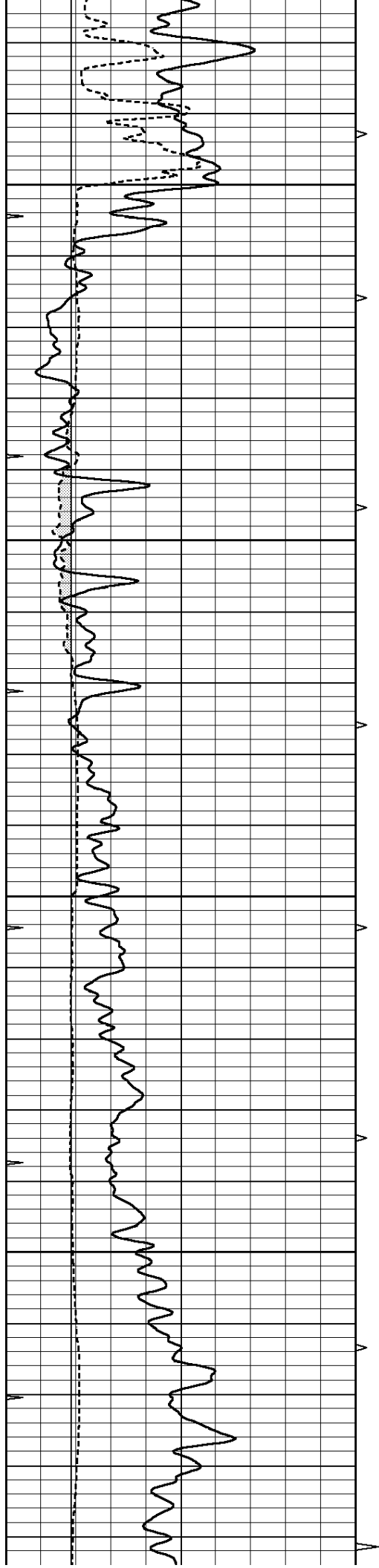
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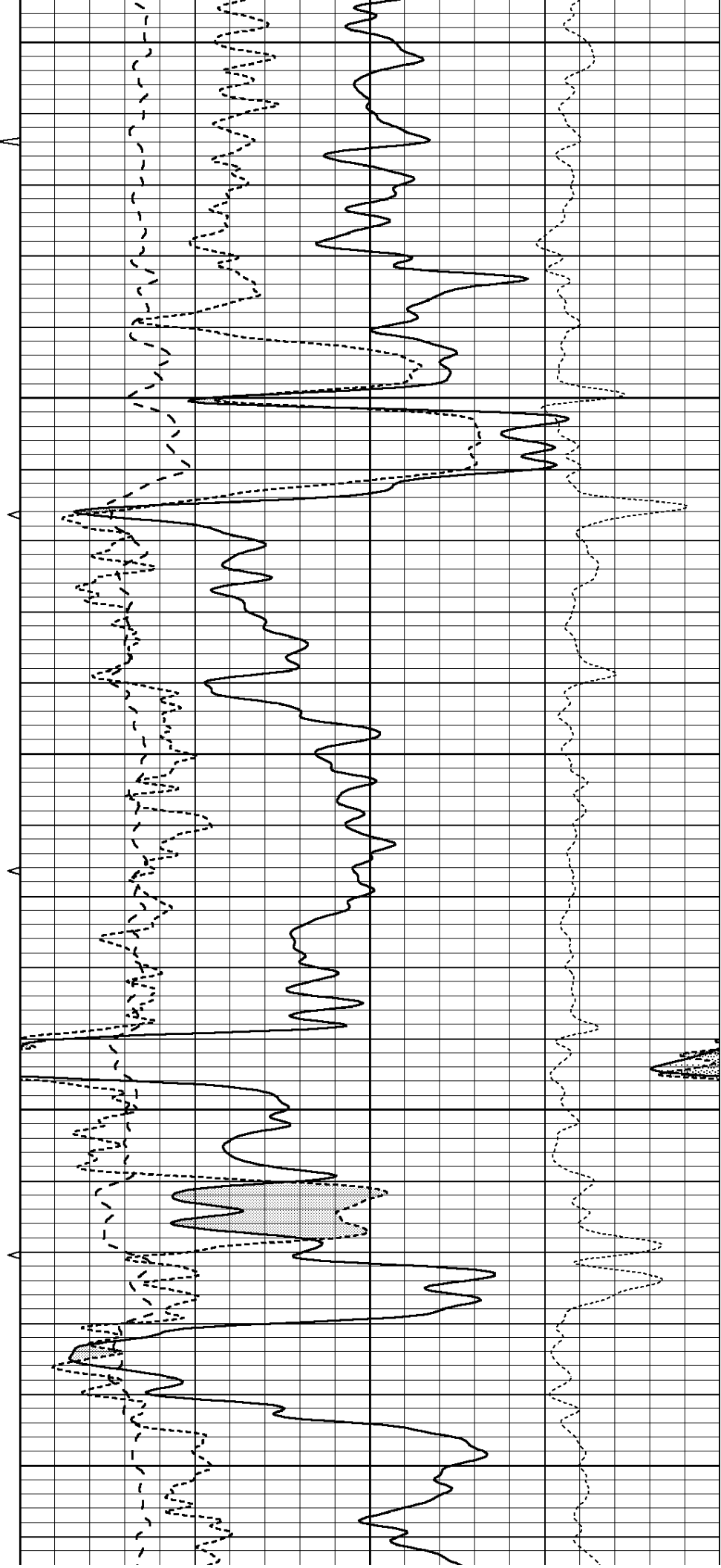
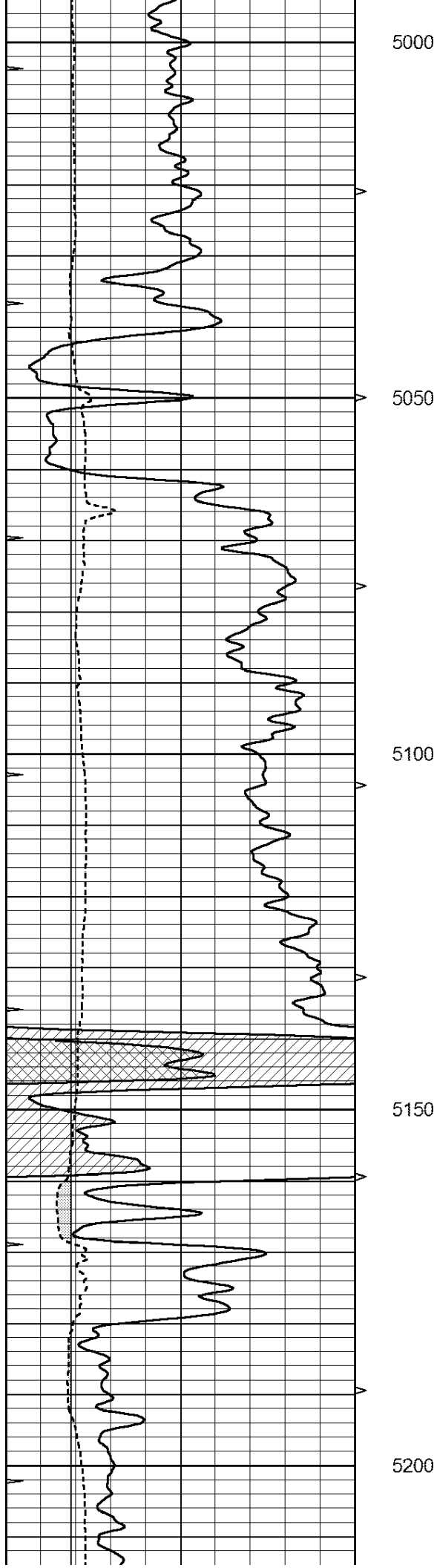
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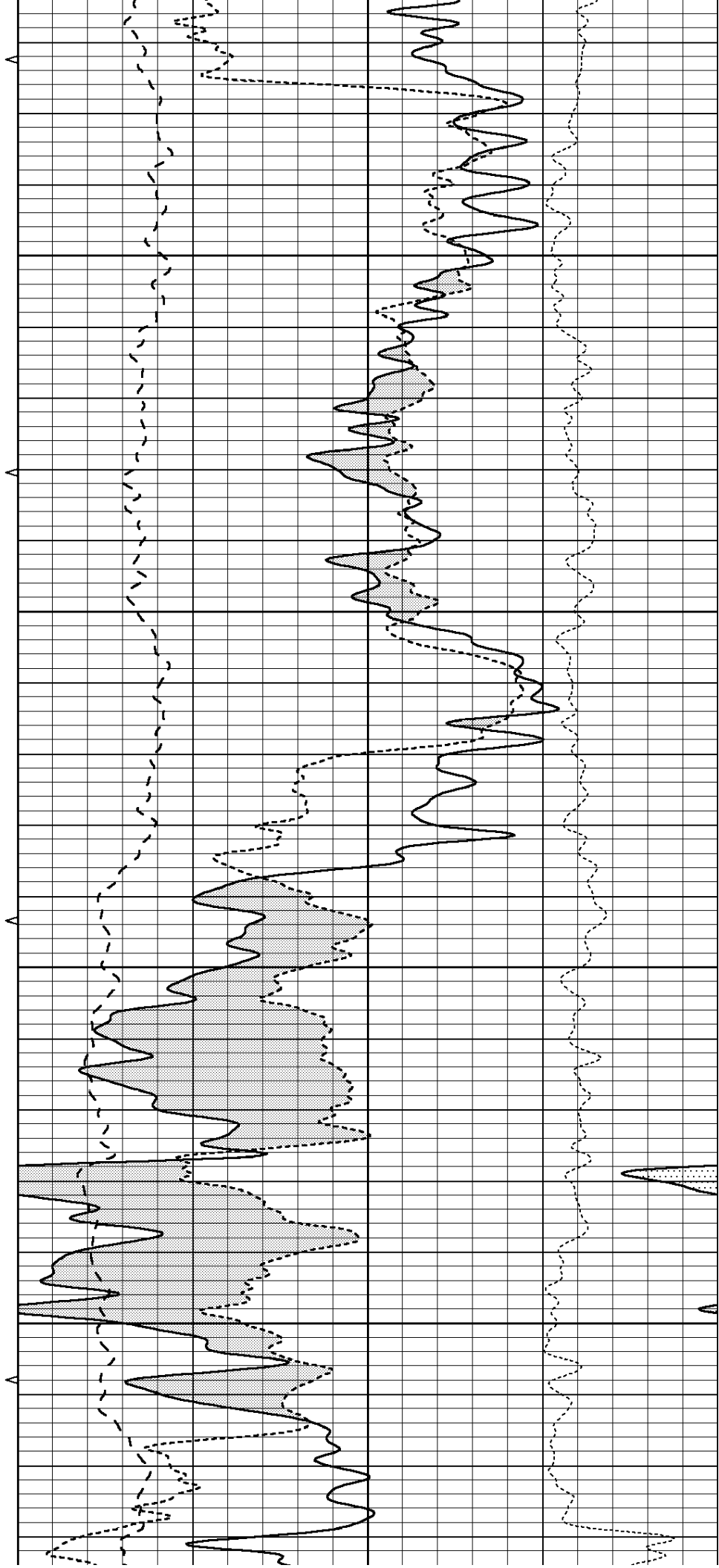
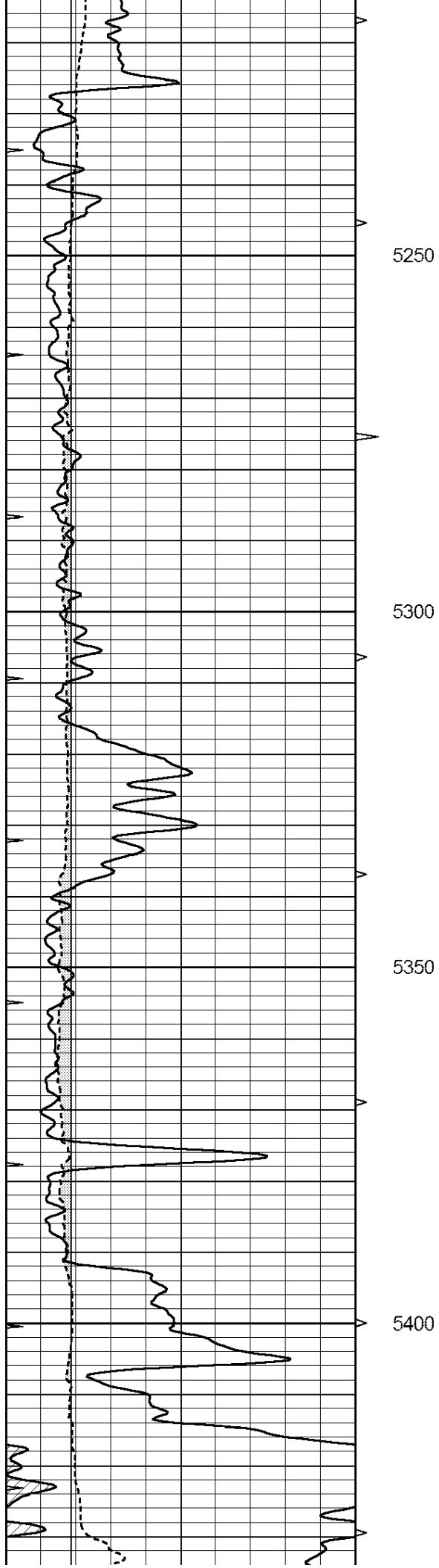
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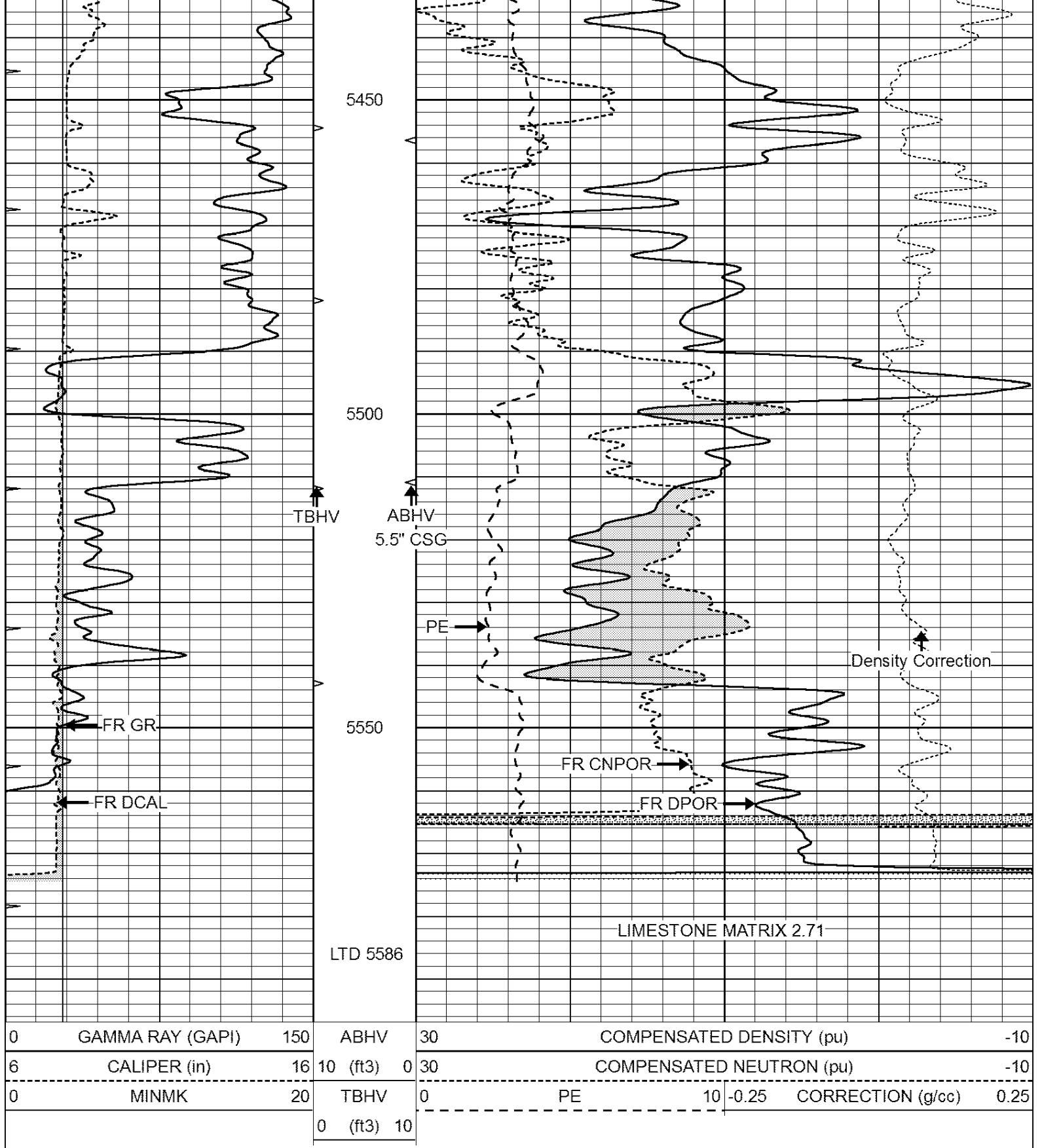
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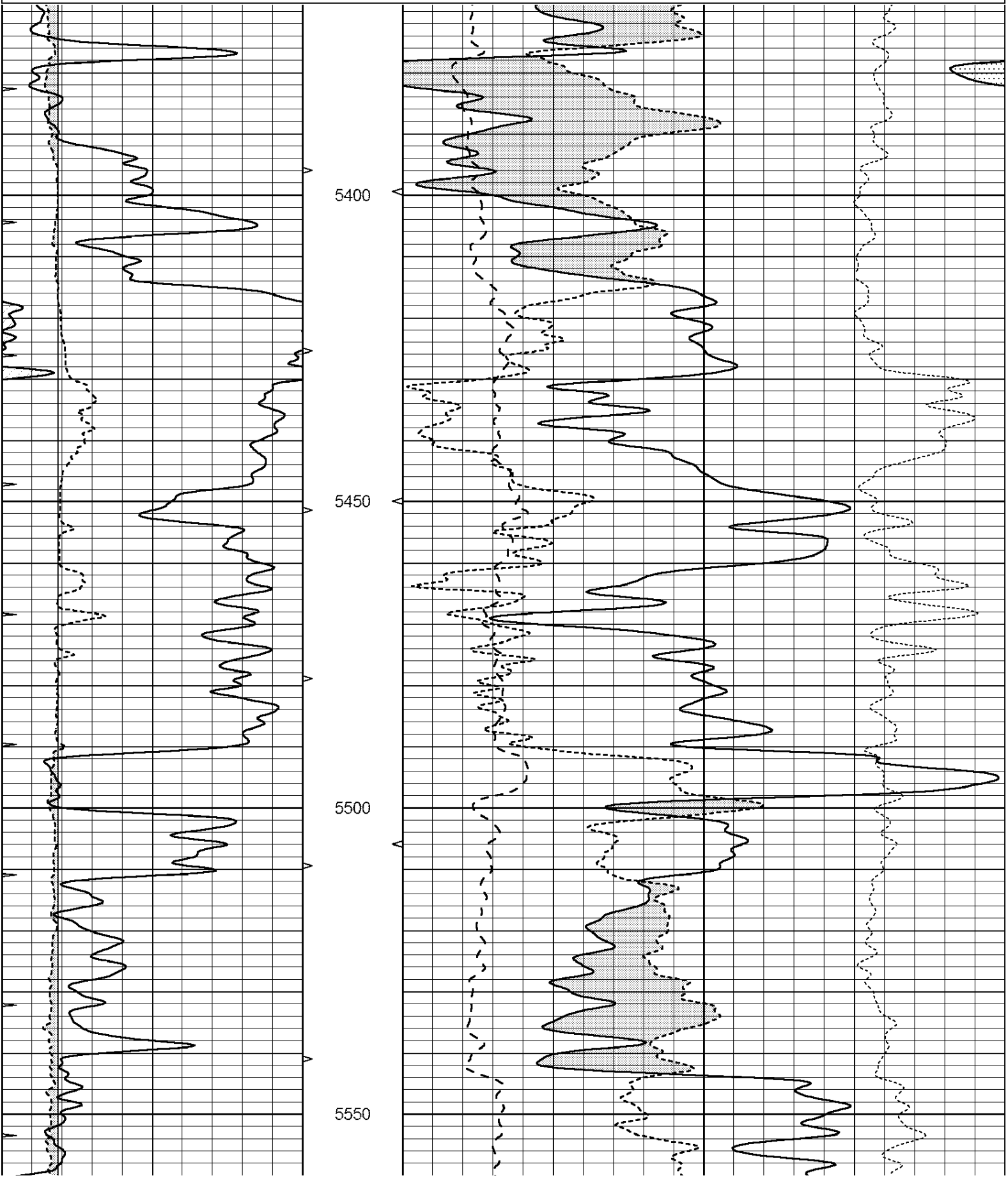








0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV	0	PE	10 -0.25 CORRECTION (g/cc) 0.25
			0 (ft3) 10			



Litho Density Calibration Report
 Serial: 003 Model: PRB

Master Calibration		Performed Thu Jul 26 15:13:22 2007			
	Background	Magnesium	Aluminum	Sandstone	
Window 1	2128.0	9601.6	3737.0	10737.0	cps
Window 2	1913.5	7519.1	3114.0	8210.1	cps
Window 3	1668.2	5026.8	2370.0	5373.3	cps
Window 4	492.7	497.5	492.3	491.1	cps
Long Space	0.0	5605.6	1200.5	6296.6	cps
Short Space	2.2	2279.3	1489.7	2489.1	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.6	Rib Slope	: 0.985	Density/Spine Ratio	: 0.550
Spine Angle	: 74.6	Spine Slope	: 3.623	Spine Intercept	: -19.4

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	

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Compensated Neutron Calibration Report					
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Serial Number:		6I			
Tool Model:		G			

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

PRE-SURVEY VERIFICATION					
	Detector	Readings		Measured	Target
1)	Short Space	cps			
	Long Space	cps		pu	pu
2)	Short Space	cps			
	Long Space	cps		pu	

3)	Short Space Long Space	cps cps	pu	
POST-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	pu
3)	Short Space Long Space	cps cps	pu	pu
Gamma Ray Calibration Report				
	Serial Number:	#8		
	Tool Model:	OPEN		
	Performed:	Tue Jun 18 19:34:11 2013		
	Calibrator Value:	150.0	GAPI	
	Background Reading:	0.0	cps	
	Calibrator Reading:	175.0	cps	
	Sensitivity:	0.8371	GAPI/cps	