



**SUPERIOR
Hays,
Kansas**

**COMPENSATED
DENSITY / NEUTRON
LOG**

Company	CH TODD, INC.	Location:	API # : 15-187-21209-00-00	Other Services
Well	CHT HUME BROS #2-34			
Field	ARROYO			
County	STANTON			
State	KANSAS			
		SEC 34 TWP 29S RGE 41W	DIL	
		Permanent Datum	GROUND LEVEL	Elevation
		Log Measured From	KELLY BUSHING 11' A.G.L.	K.B. 3406
		Drilling Measured From	KELLY BUSHING	D.F. 3404
				G.L. 3395
Date	9/5/12			
Run Number	ONE			
Depth Driller	5507			
Depth Logger	5509			
Bottom Logged Interval	5485			
Top Log Interval	3500			
Casing Driller	1722			
Casing Logger	1720			
Bit Size	7.875			
Type Fluid in Hole	CHEMICAL MUD			
Density / Viscosity	9.2 / 56	CHLORIDES 300 PPM		
pH / Fluid Loss	10.5 / 7.2			
Source of Sample	FLOWLINE			
Rim @ Meas. Temp	1.7 @ 82F			
Rmf @ Meas. Temp	1.3 @ 82F			
Rmc @ Meas. Temp	2.04 @ 82F			
Source of Rmf / Rmc	MEASURED			
Rim @ BHT	1.7 @ 130F			
Time Circulation Stopped	2 HOURS			
Time Logger on Bottom				
Maximum Recorded Temperature	130F			
Equipment Number	860			
Location	HAYS, KS.			
Recorded By	IAN MABB	JEFF GRONEWEG		
Witnessed By	TOM WILLIAMS			

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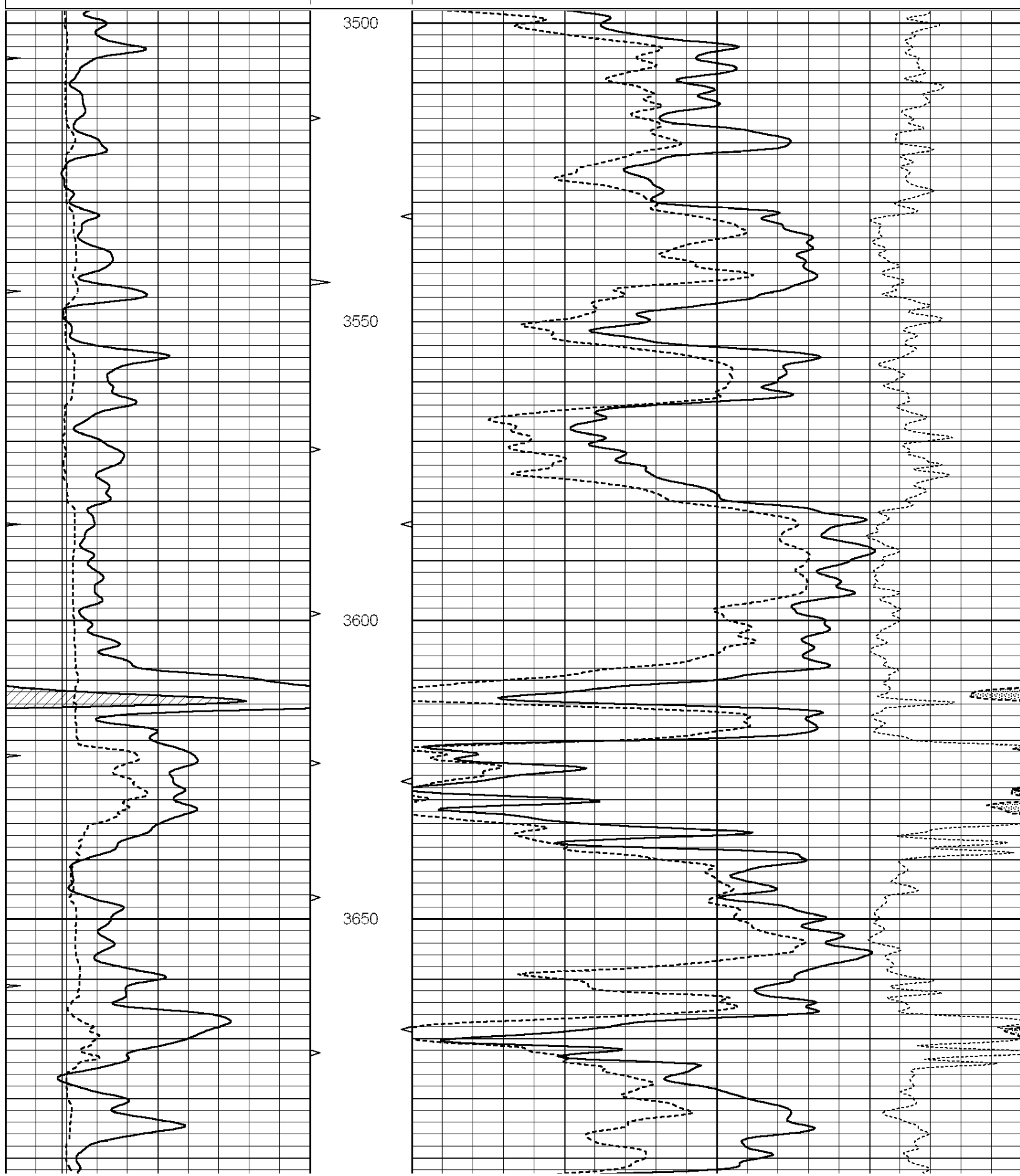
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

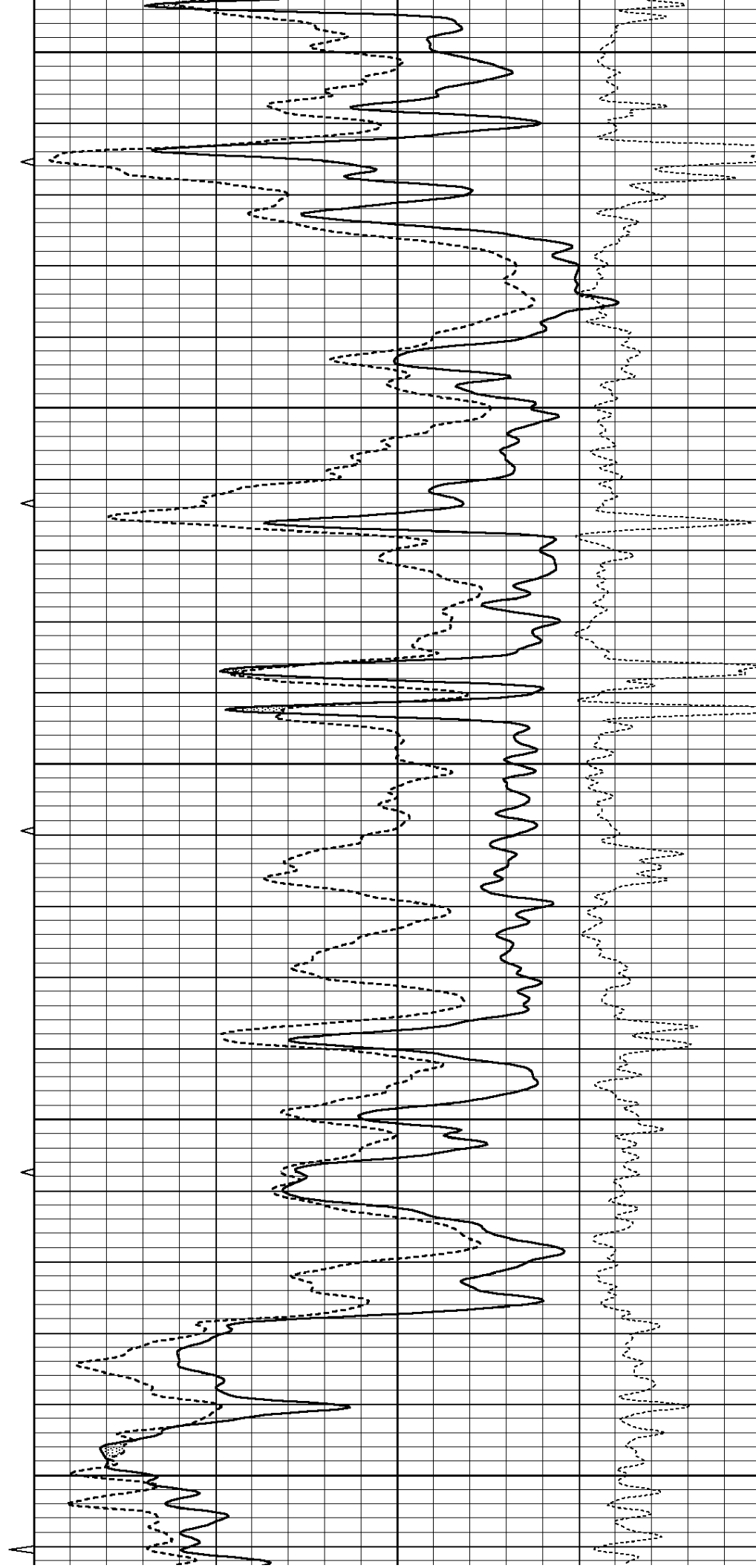
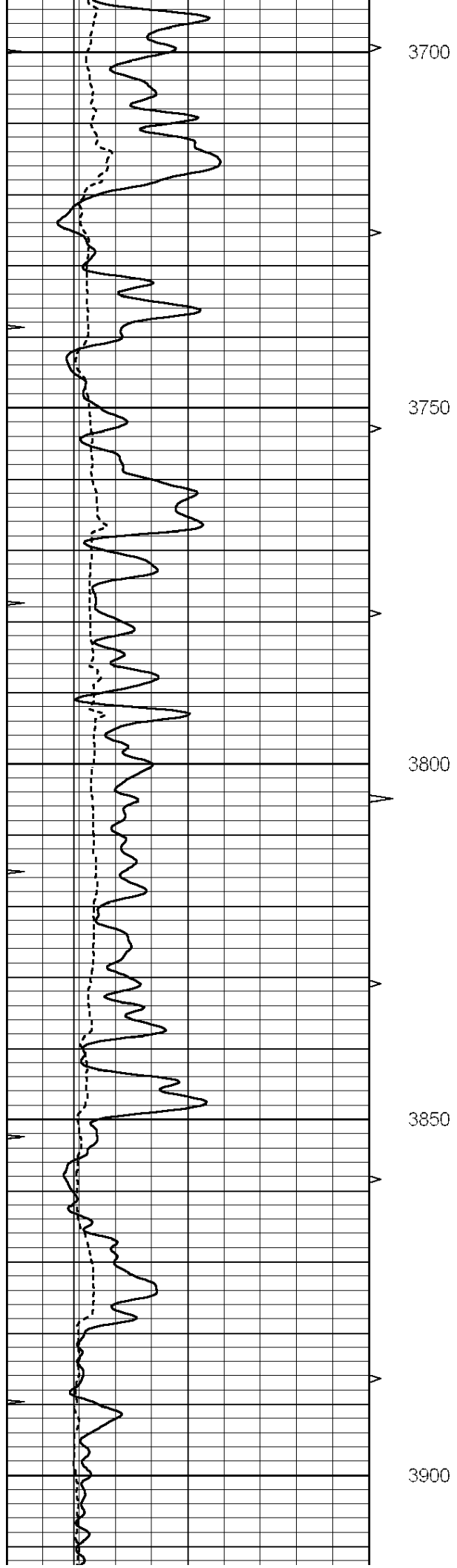
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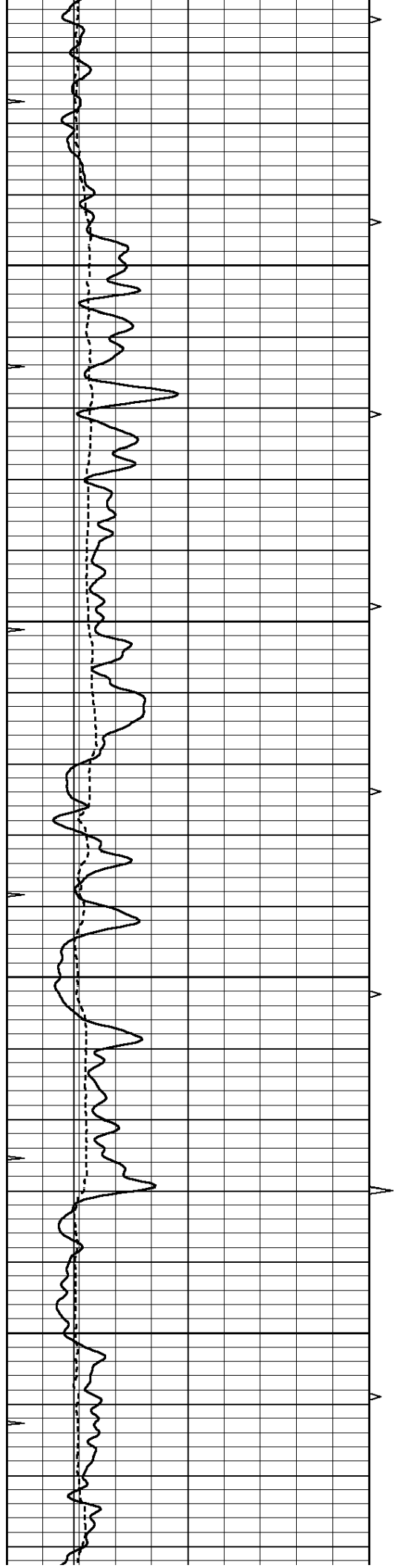
THANK YOU FOR USING SUPERIOR WELL SERVICES
785-628-6395

JOHNSON CITY, KS. 6 MILES SOUTH ON HWY 27, 2 MILES WEST ON RD 18, 1/4 MILE SOUTH ON RD N,
EAST INTO

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			





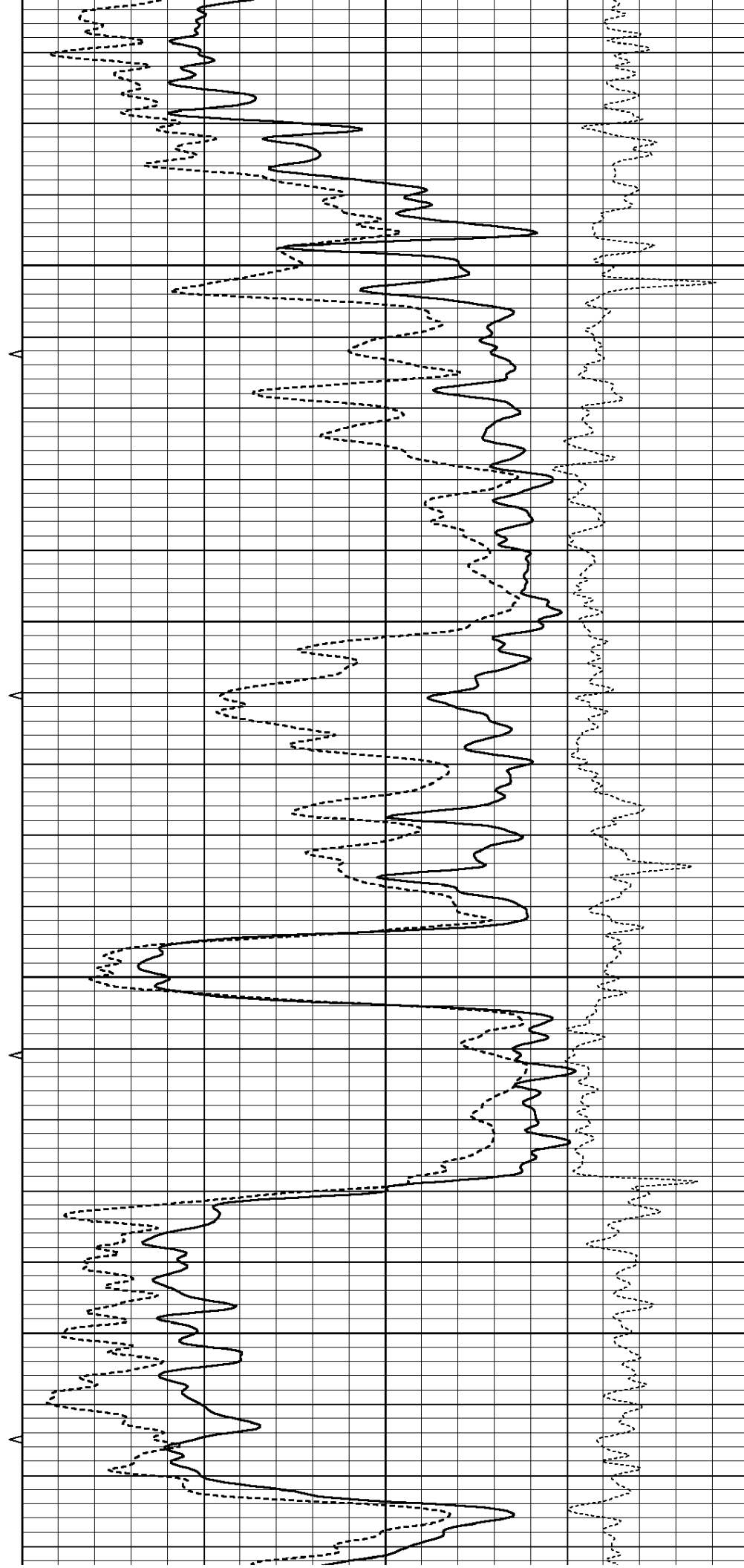


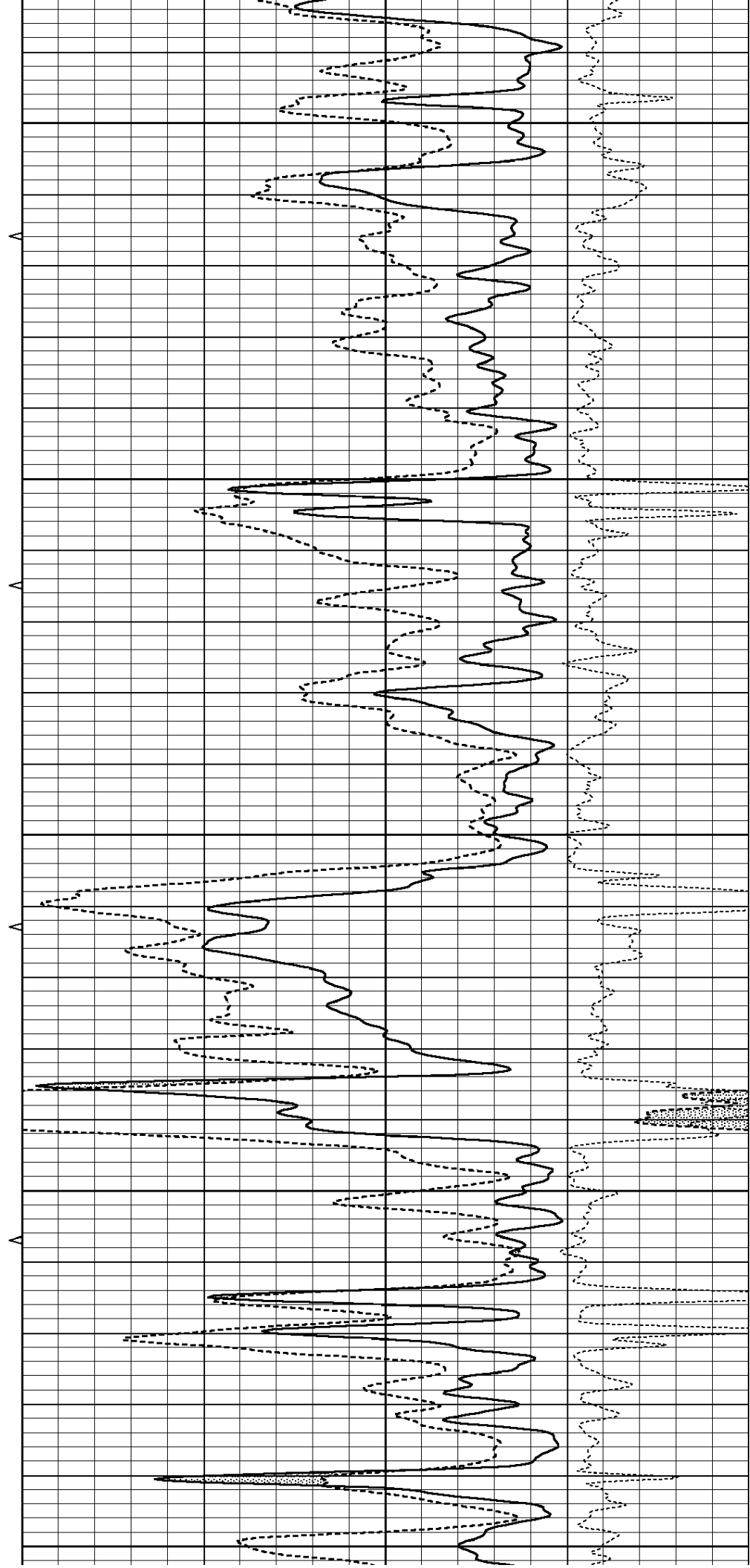
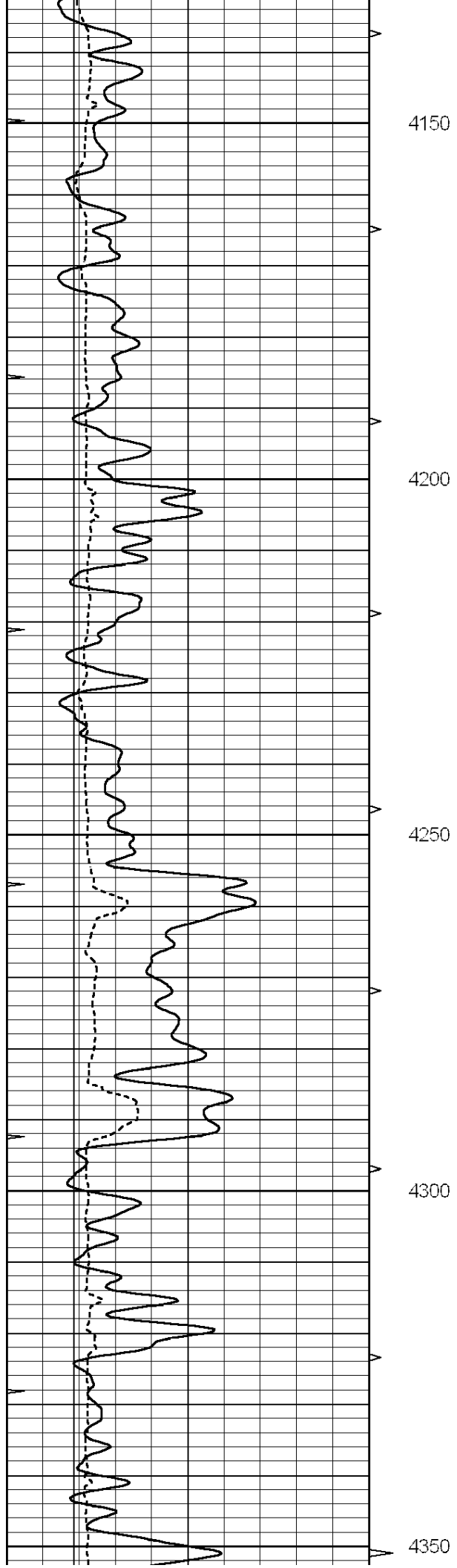
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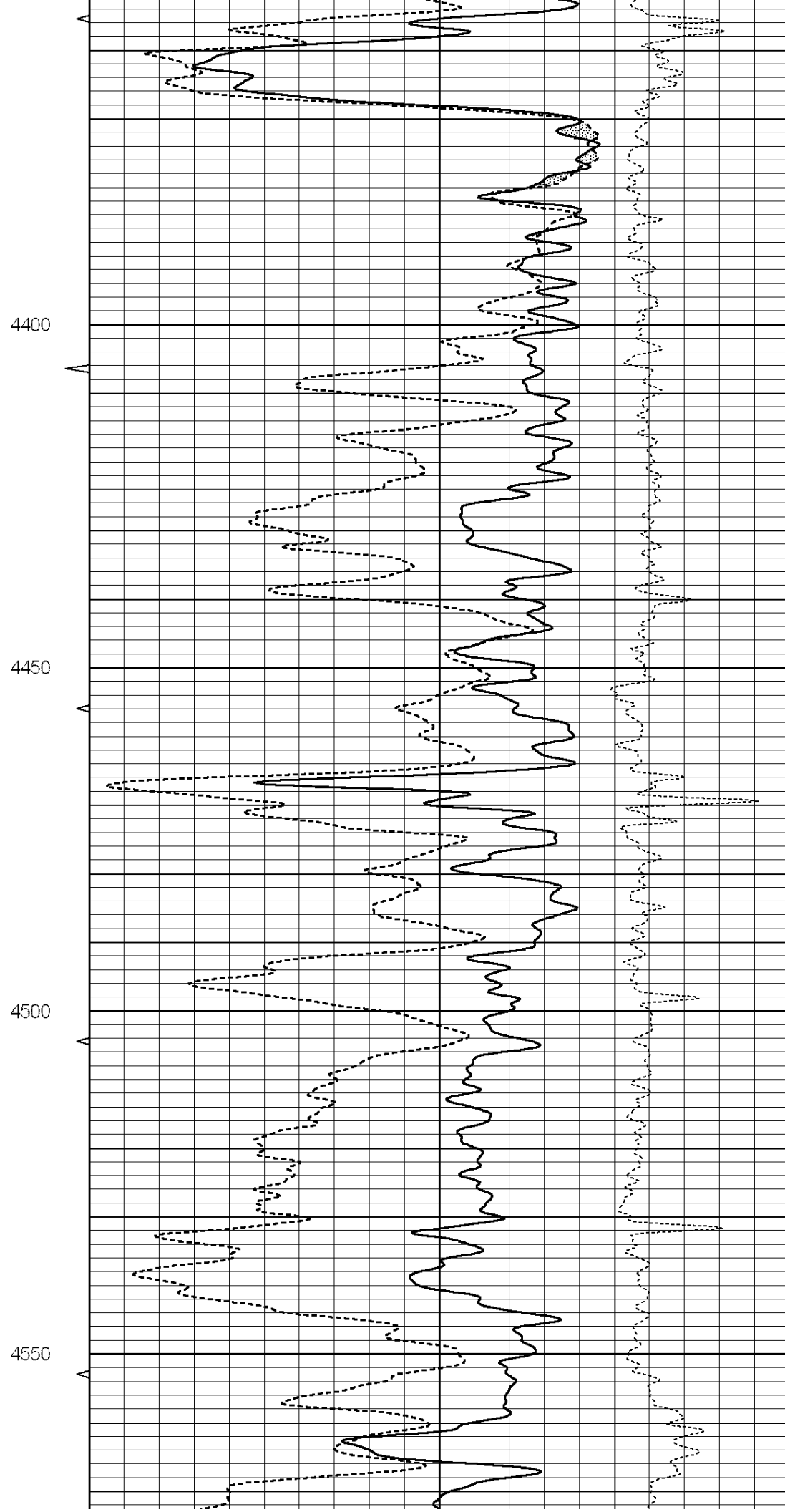
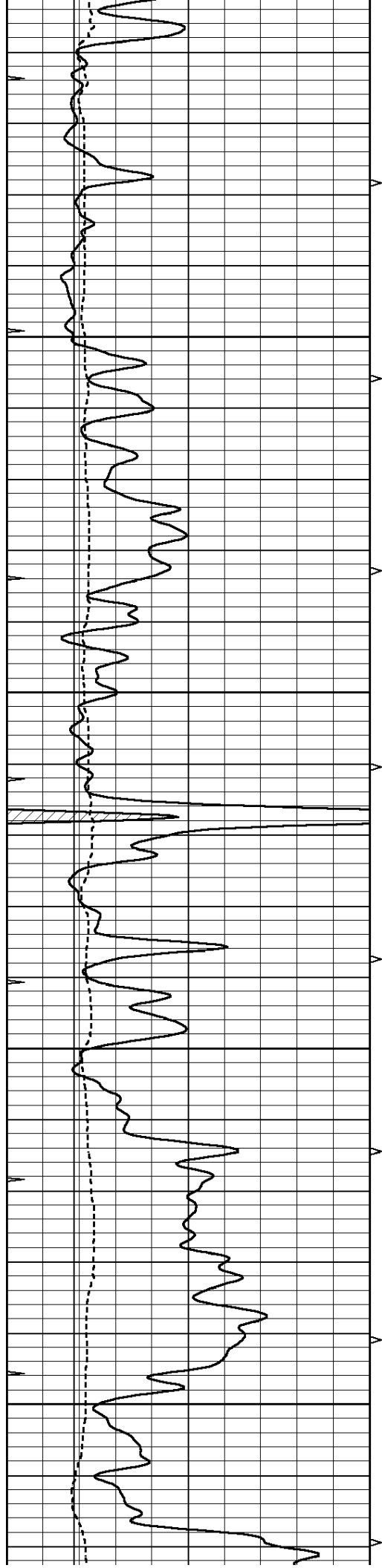
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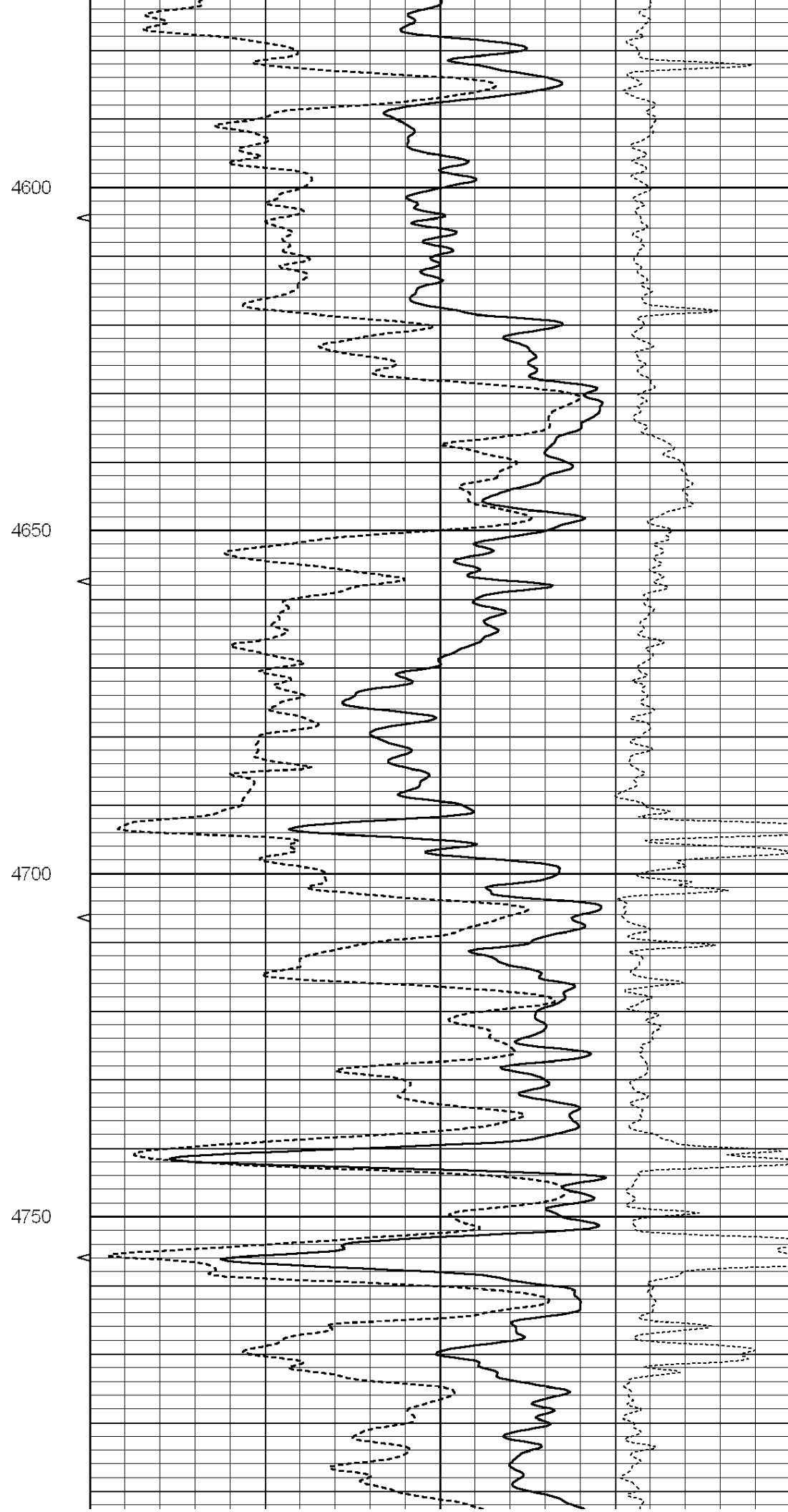
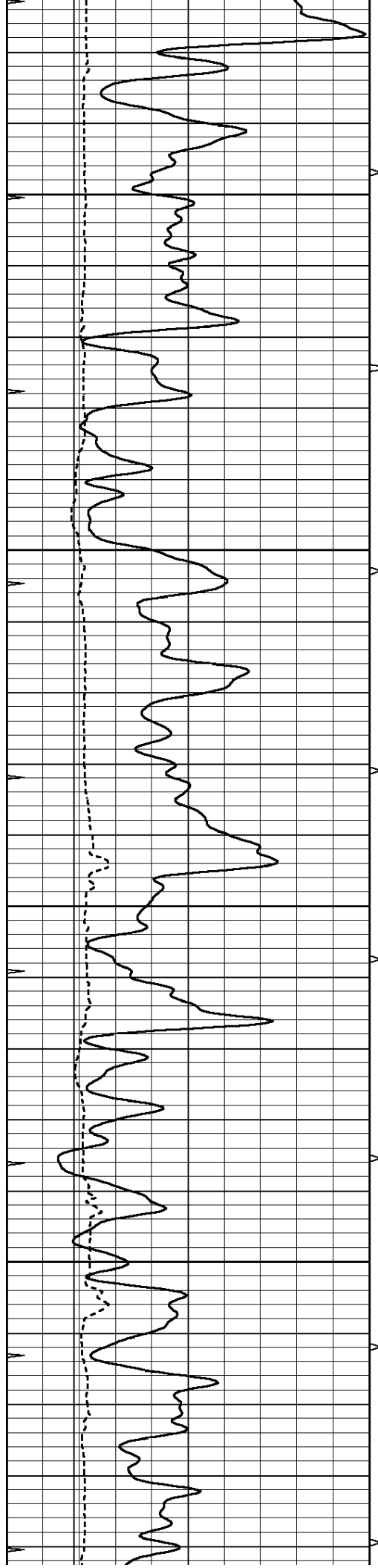
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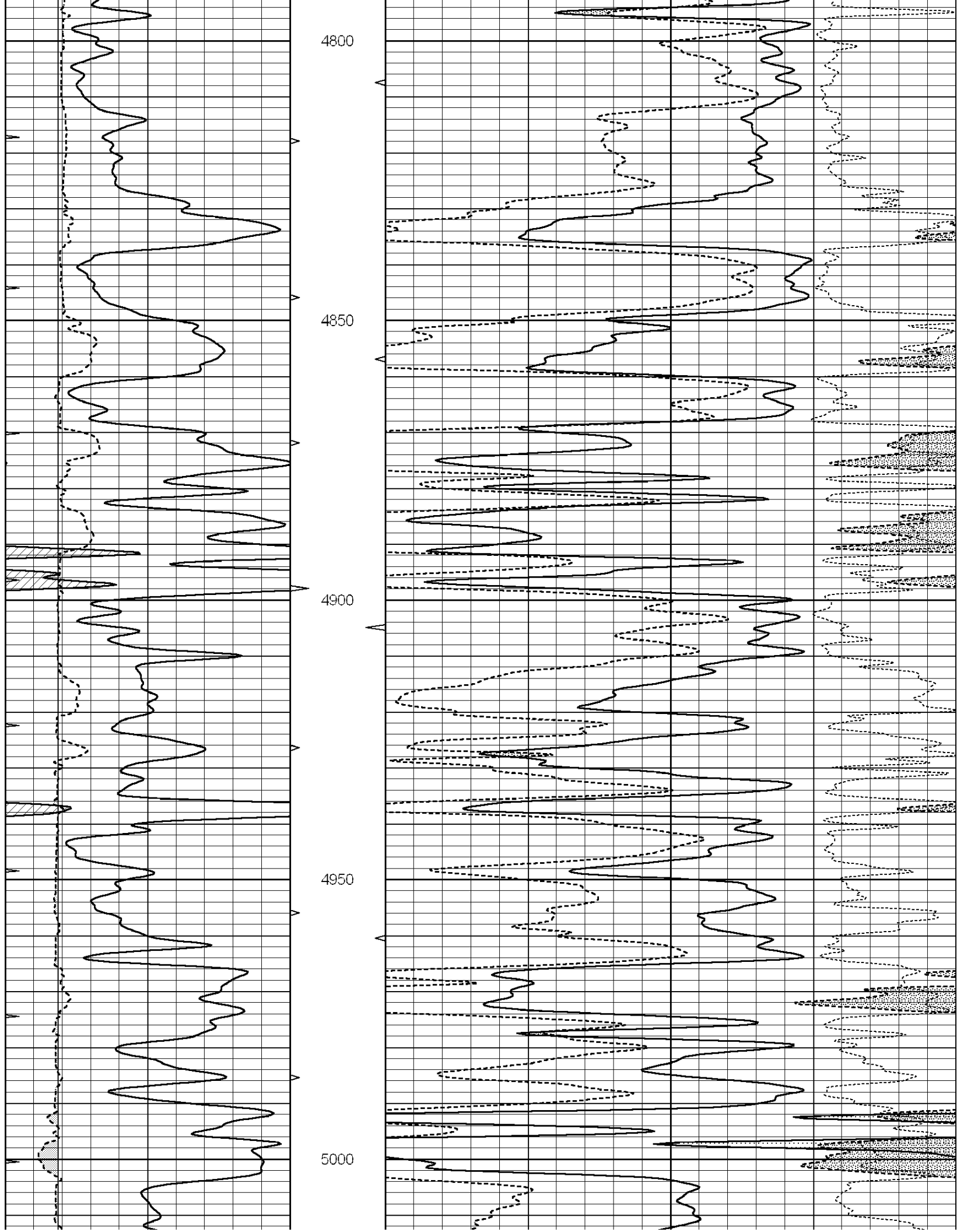
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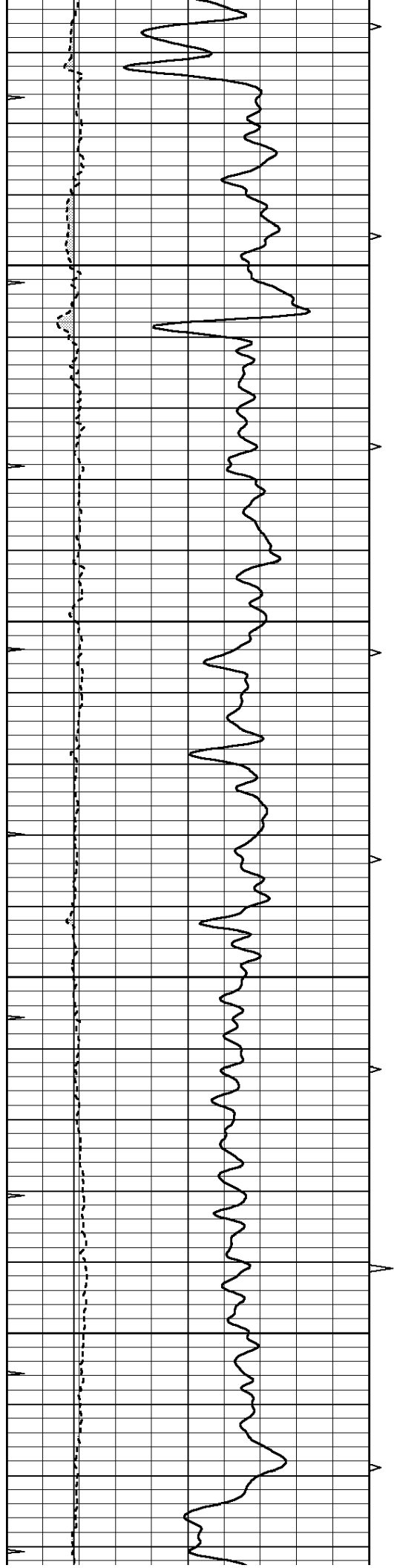










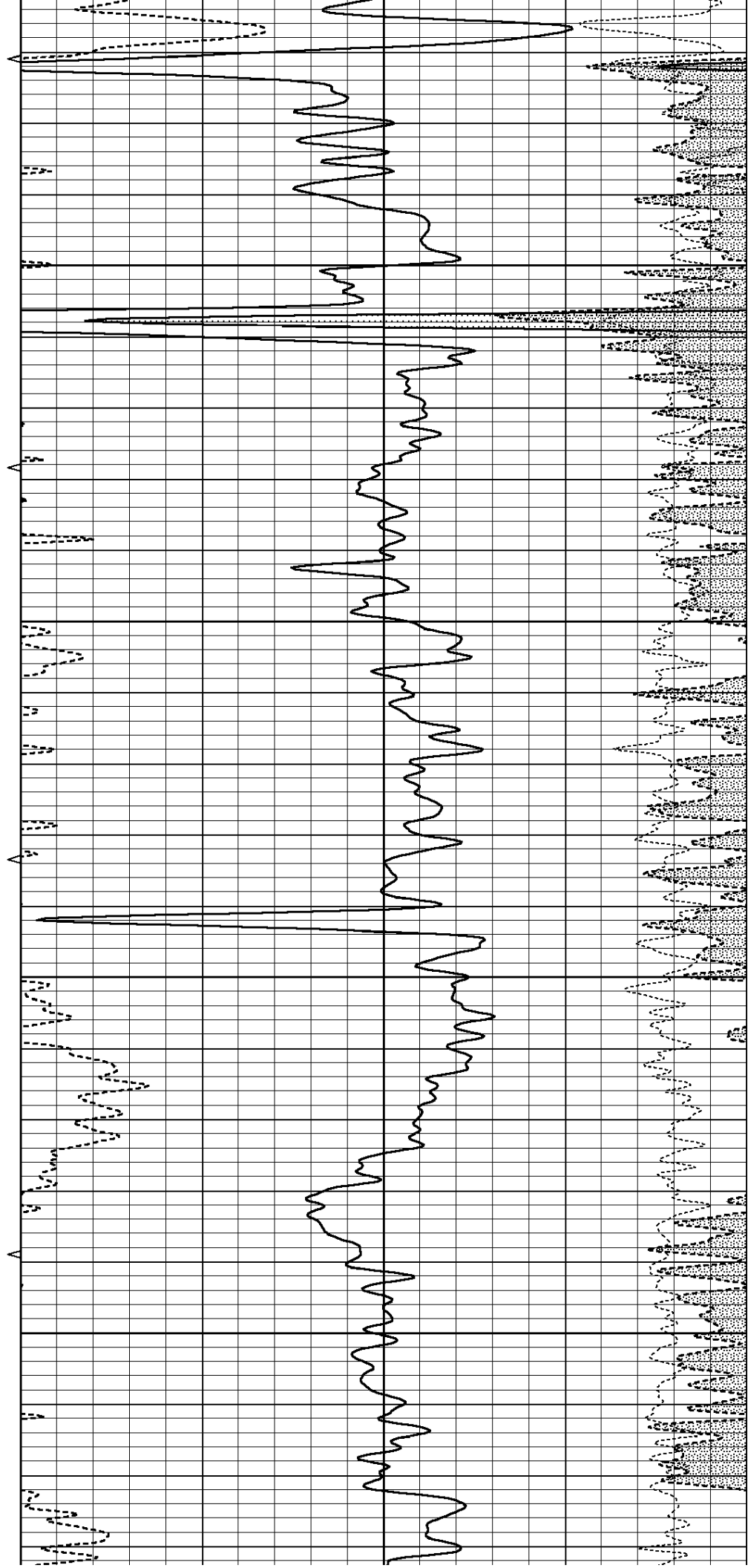


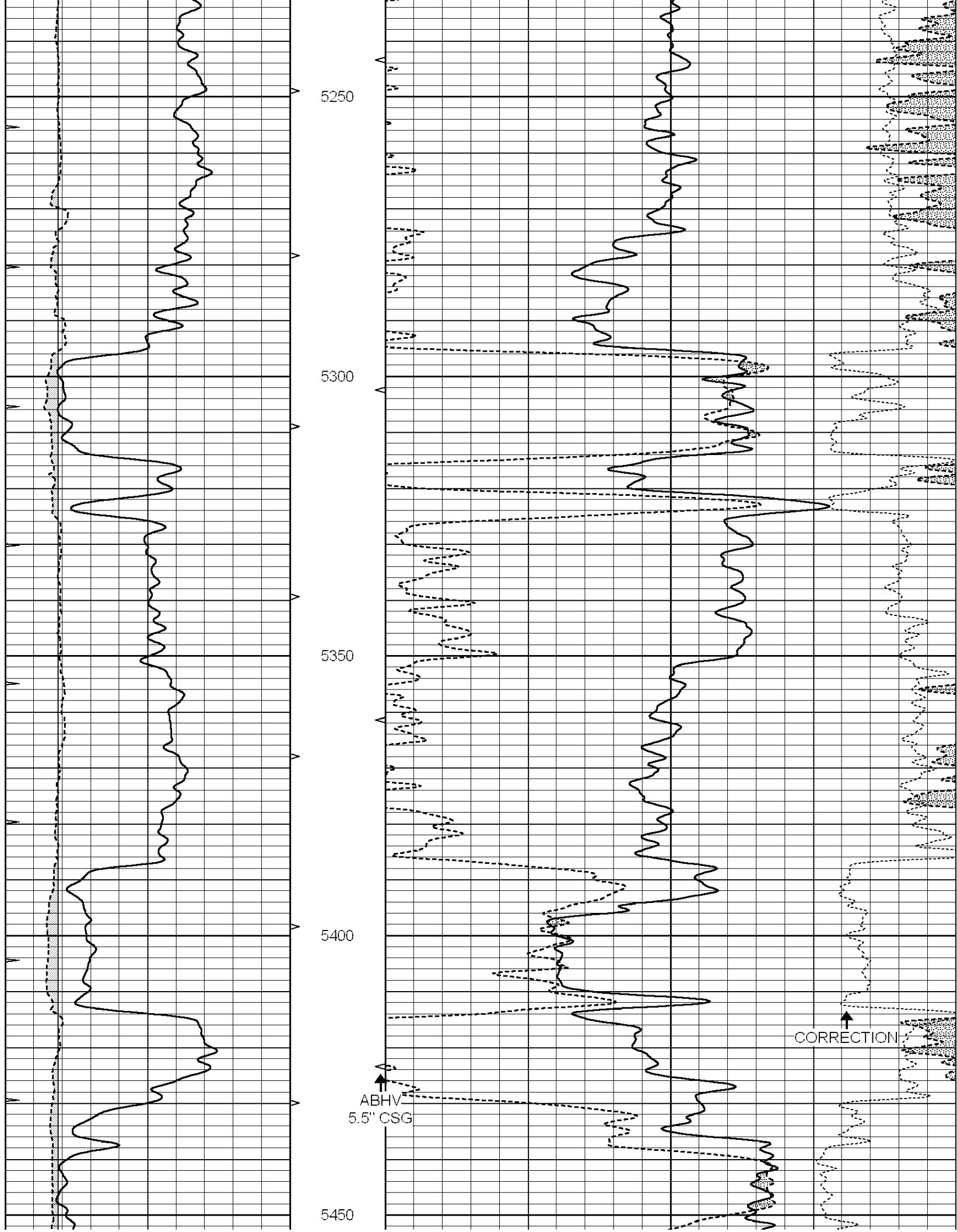
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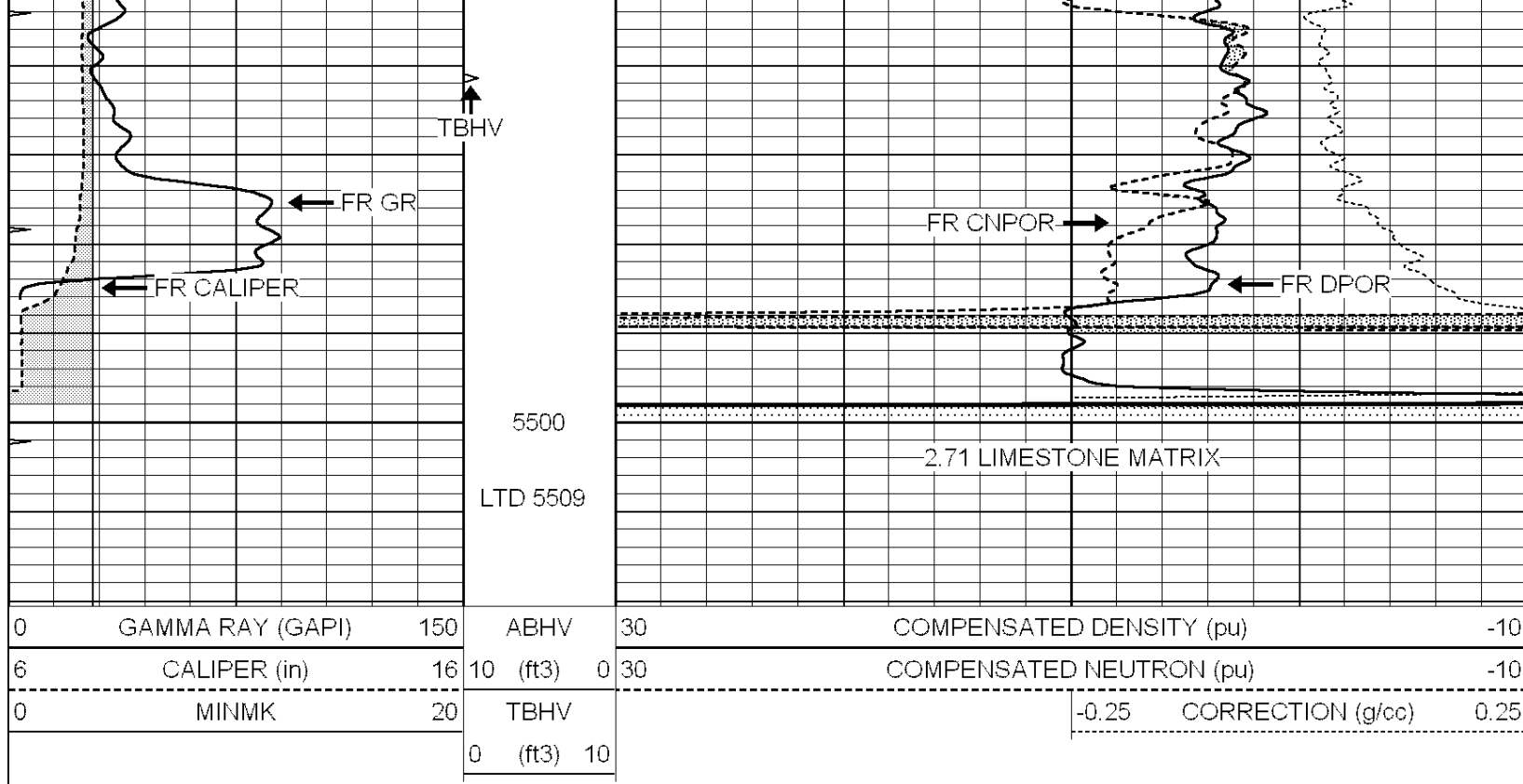
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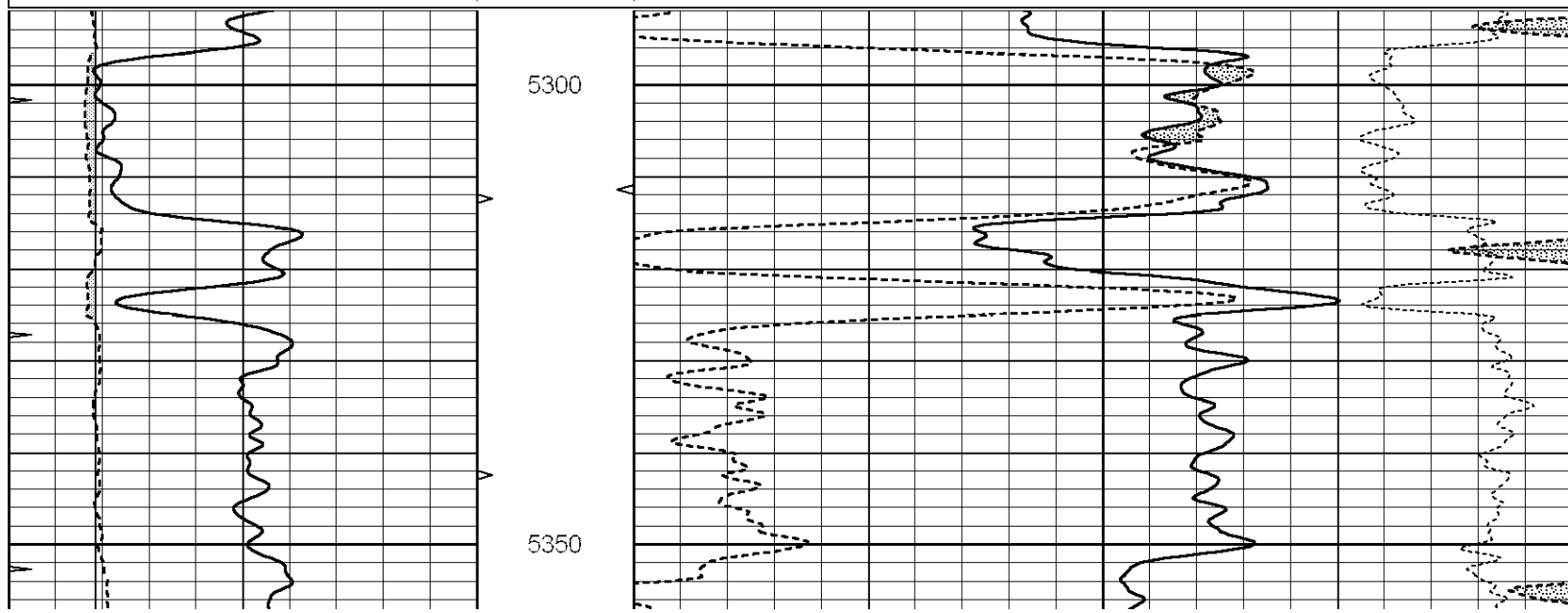


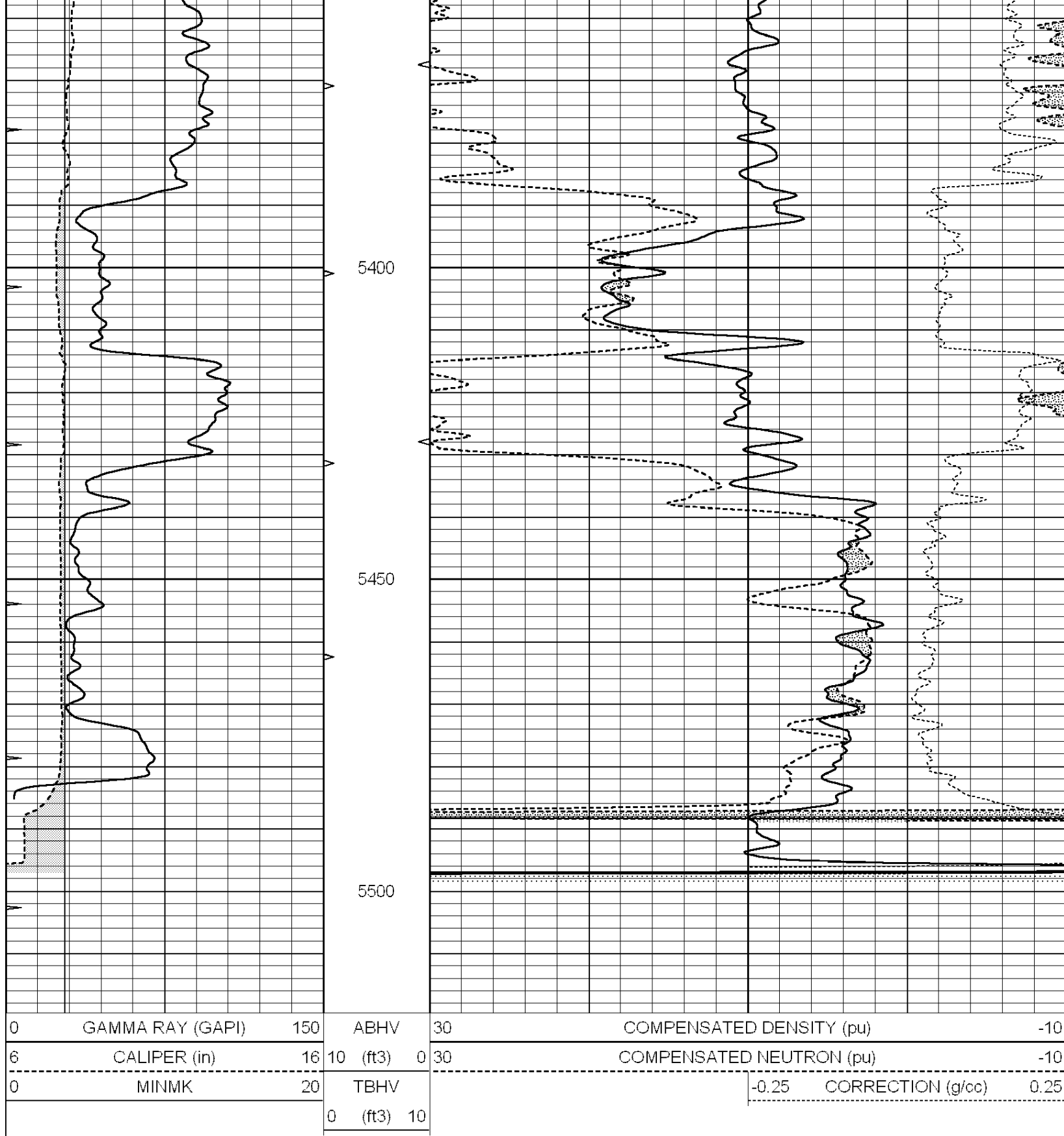
SUPERIOR
Hays,
Kansas

REPEAT SECTION

Database File: 009660.db
 Dataset Pathname: pass2.2
 Presentation Format: den_neu
 Dataset Creation: Wed Sep 05 04:53:35 2012 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			





Calibration Report

Database File: 009660.db
Dataset Pathname: pass3.3
Dataset Creation: Wed Sep 05 05:15:04 2012 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: DIL5-GEAR
Performed: Wed Aug 29 20:23:16 2012

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.004	0.654	V	0.000	400.000	mmho/m	490.000	-15.000
Medium	-0.005	0.737	V	0.000	462.500	mmho/m	530.000	-10.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.006	0.655	V	0.000	400.000	mmho/m	615.668	-3.483
Medium	0.010	0.747	V	0.000	462.500	mmho/m	627.607	-6.064

Compensated Density Calibration Report

Serial-Model: GEAR2-GEARHART
 Source / Verifier: 147 / 147
 Master Calibration Performed: Wed Aug 29 19:55:57 2012

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1451.87	701.81	cps
Aluminum	2.590	g/cc	324.88	493.46	cps
Spine Angle = 76.76			Density/Spine Ratio = 0.572		
	Size		Reading		
Small Ring	8.00	in	5.48	V	
Large Ring	14.00	in	7.58	V	

Compensated Neutron Calibration Report

Serial Number: NUE_2I
 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: Wed Aug 08 15:07:38 2012
 Calibrator Value: 1.0 GAPI
 Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps
 Sensitivity: 0.7500 GAPI/cps