SUPERIOR WELL SERVICES

SUPERIOR
Hays, Kansas

DUAL INDUCTION LOG

Company CH TODD, INC.
Well CHT HUME BROS #2-34
Field ARROYO
County STANTON State KANSAS

Location: API # : 15-187-21209-00-00

1980' FNL & 660' FWL

SEC 34 TWP 29S RGE 41W

Other Services
CDL/CNL

Elevation
K.B. 3406
D.F. 3404
G.L. 3395

Permanent Datum GROUND LEVEL Elevation 3395
Log Measured From KELLY BUSHING 11' A.G.L.
Drilling Measured From KELLY BUSHING

Company CH TODD, INC.
Well CHT HUME BROS #2-34
Field ARROYO
County STANTON
State KANSAS

Date	9/5/12		
Run Number	ONE		
Depth Driller	5507		
Depth Logger	5509		
Bottom Logged Interval	5507		
Top Log Interval	0		
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		
Rm @ Meas. Temp	1.7 @ 82F		
Rmf @ Meas. Temp	1.3 @ 82F		
Rmc @ Meas. Temp	2.04 @ 82F		
Source of Rmf / Rmc	MEASURED		
Rm @ 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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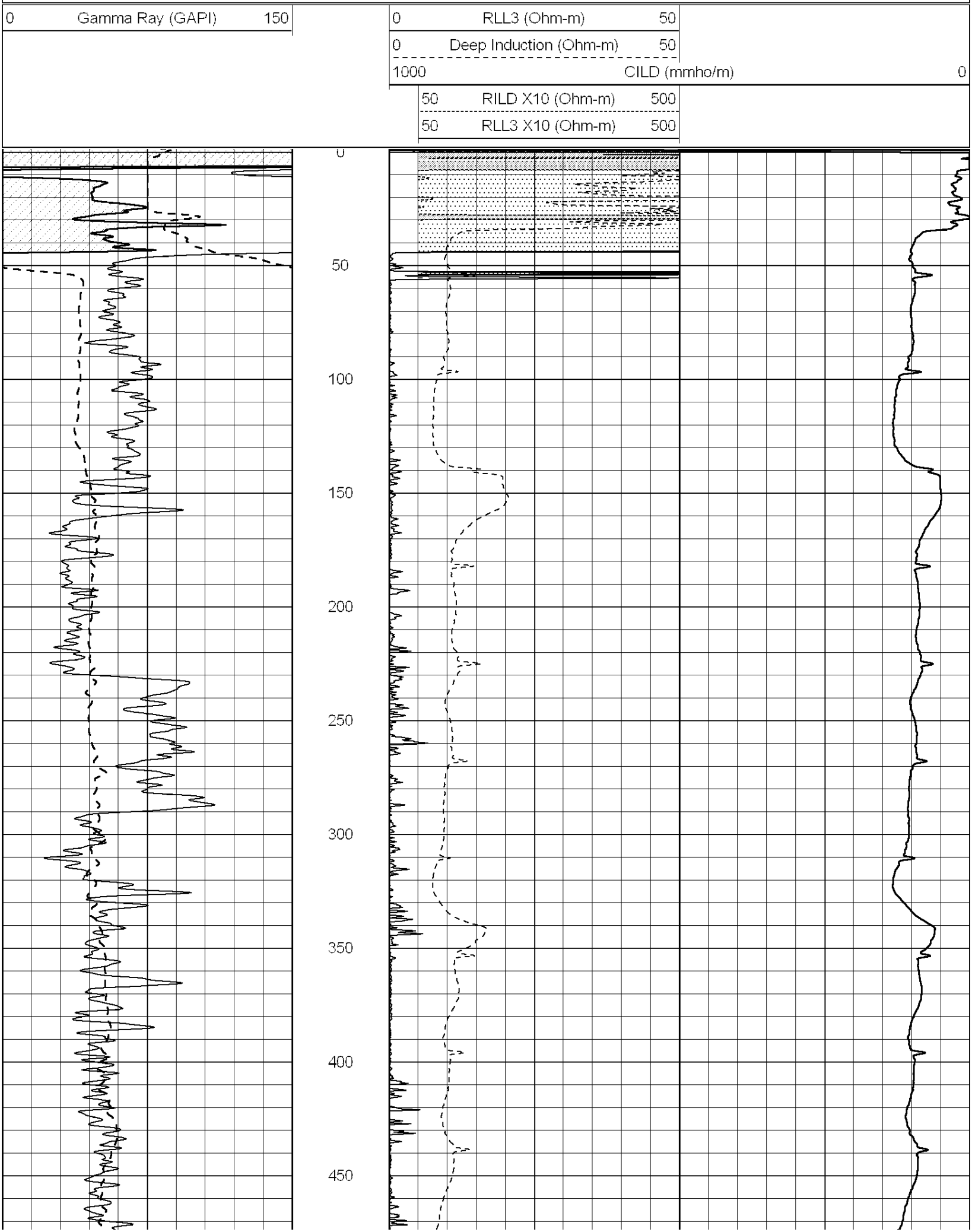
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

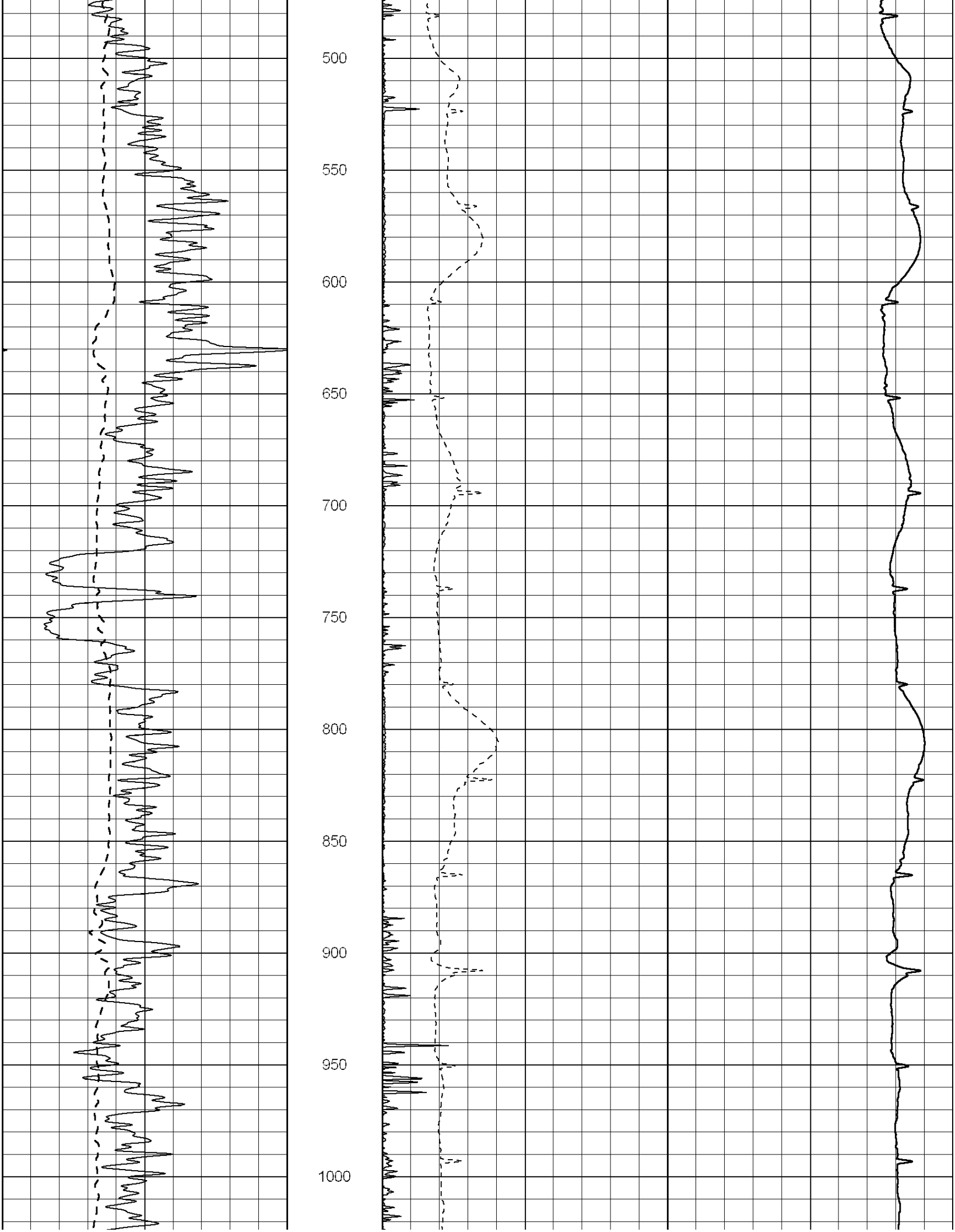
Comments

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

Database File: 009660.db
Dataset Pathname: pass3.4
Presentation Format: dil2
Dataset Creation: Wed Sep 05 06:04:13 2012 by Calc Open-Cased 090629

Charted by: Depth in Feet scaled 1:600

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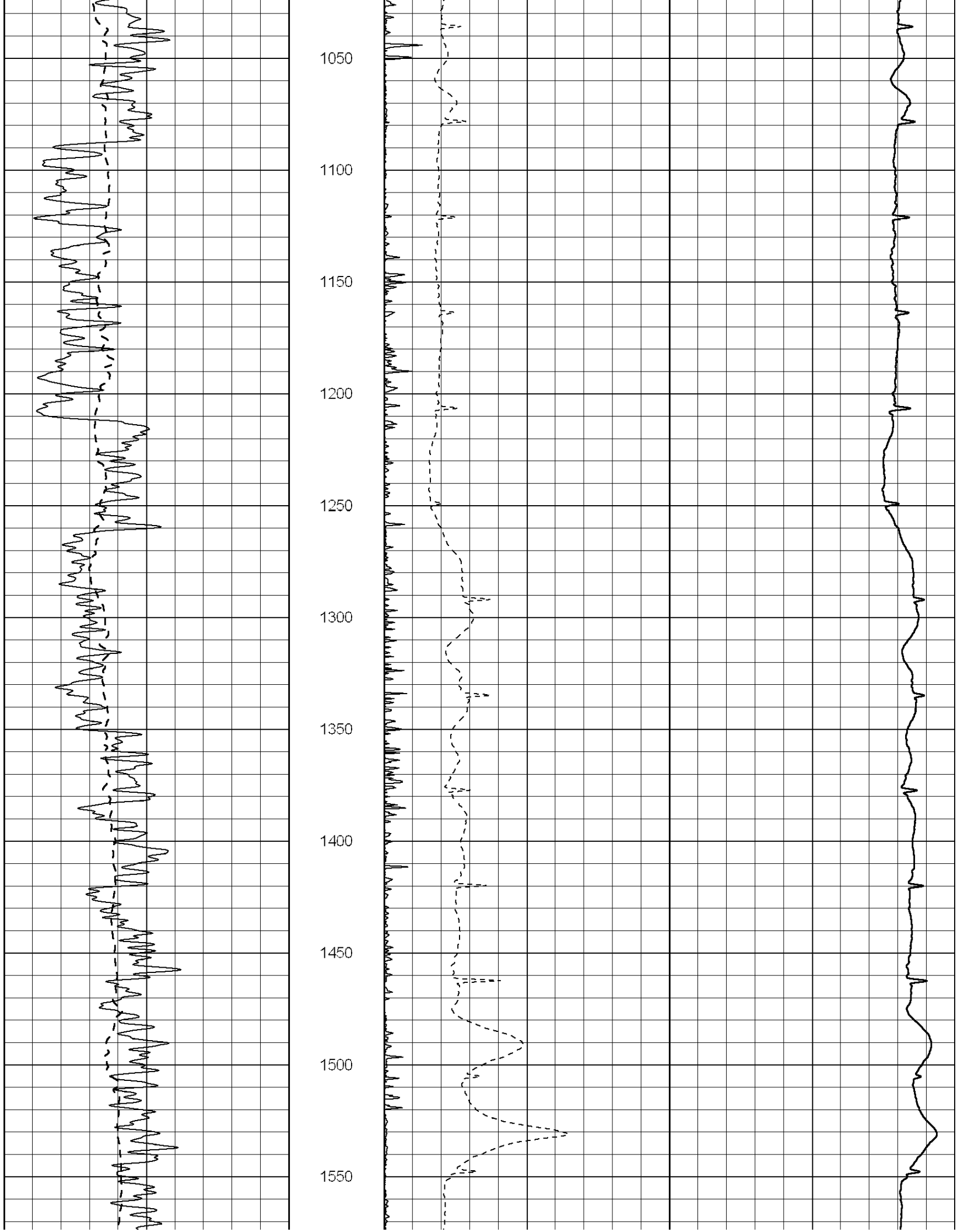
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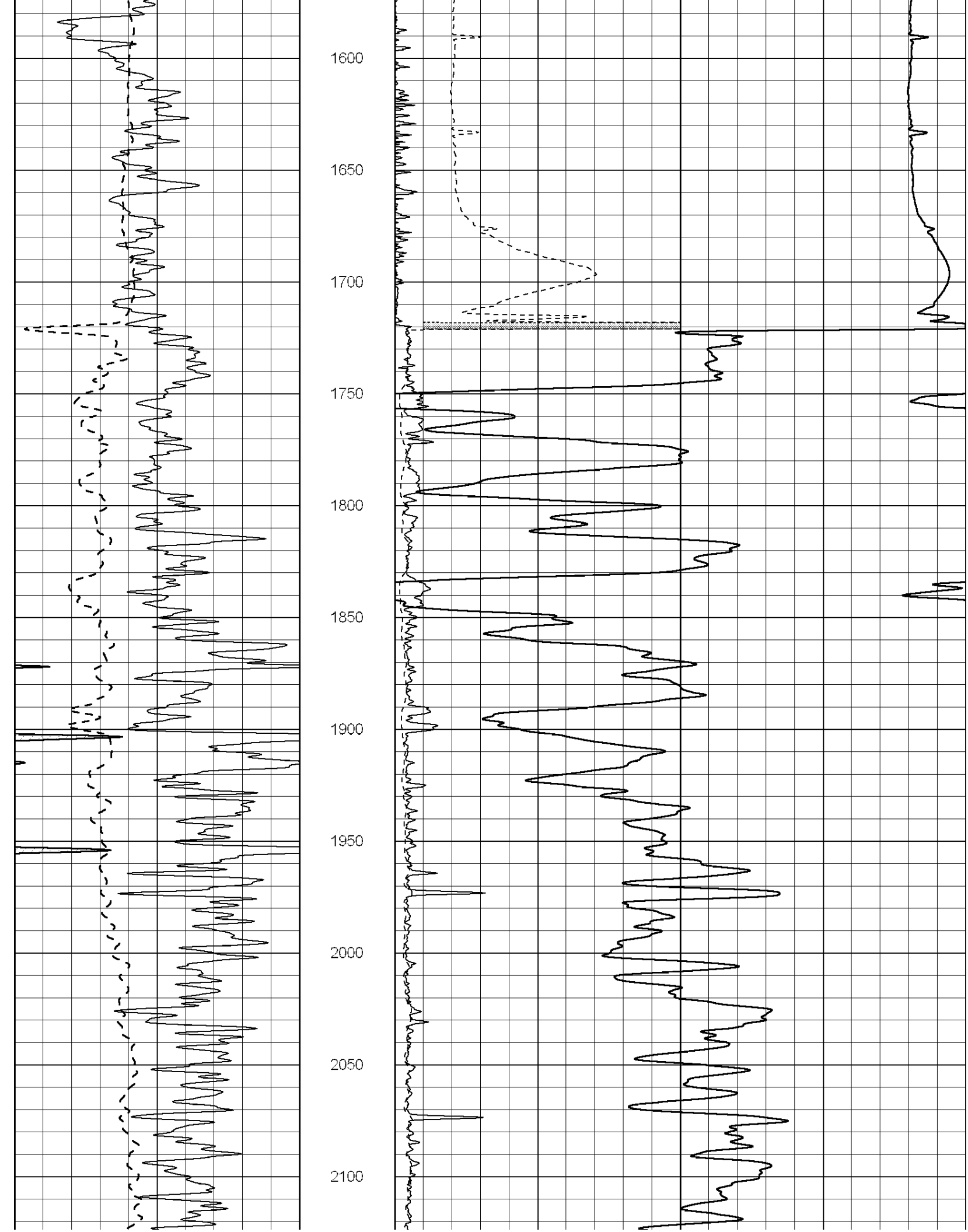
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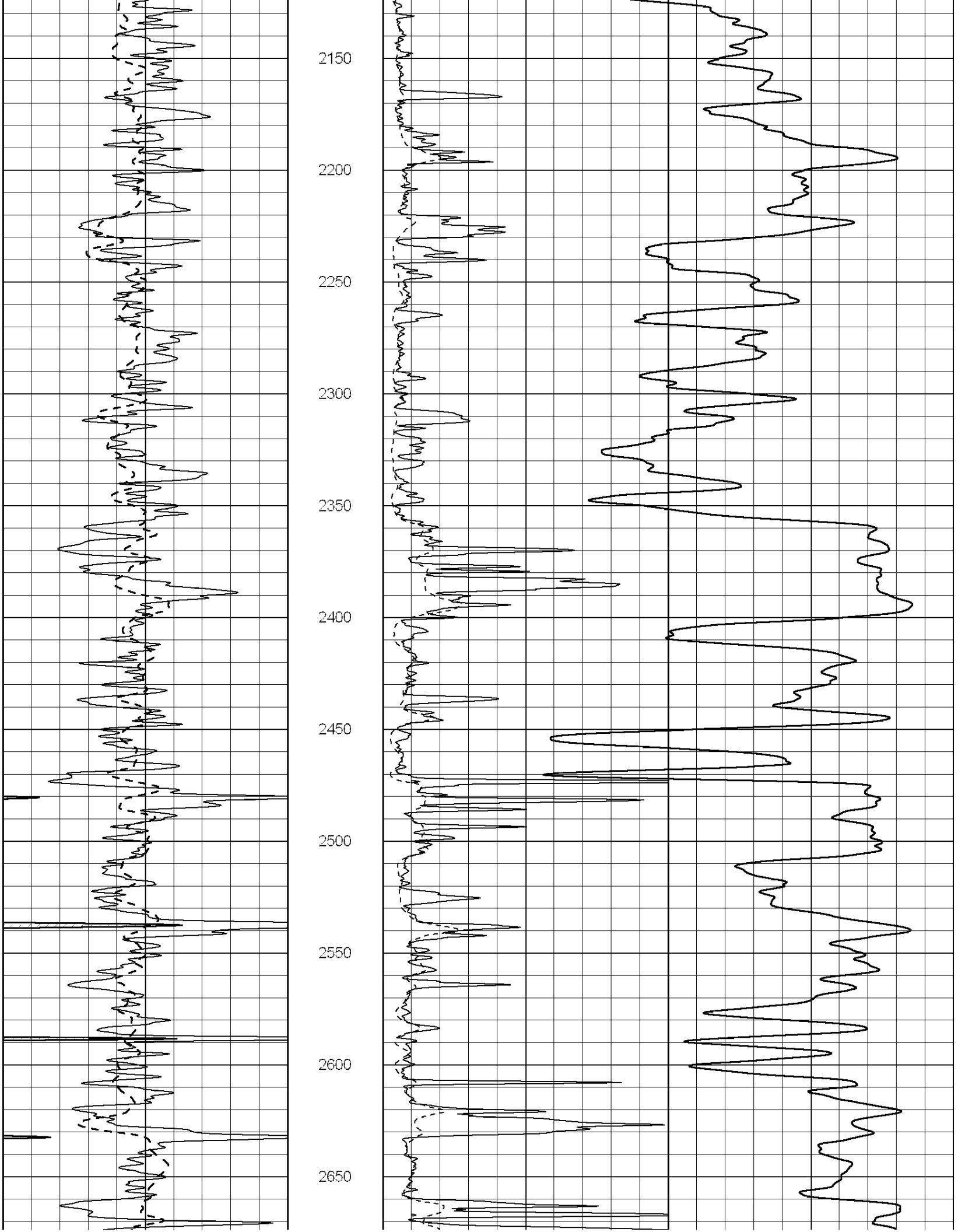
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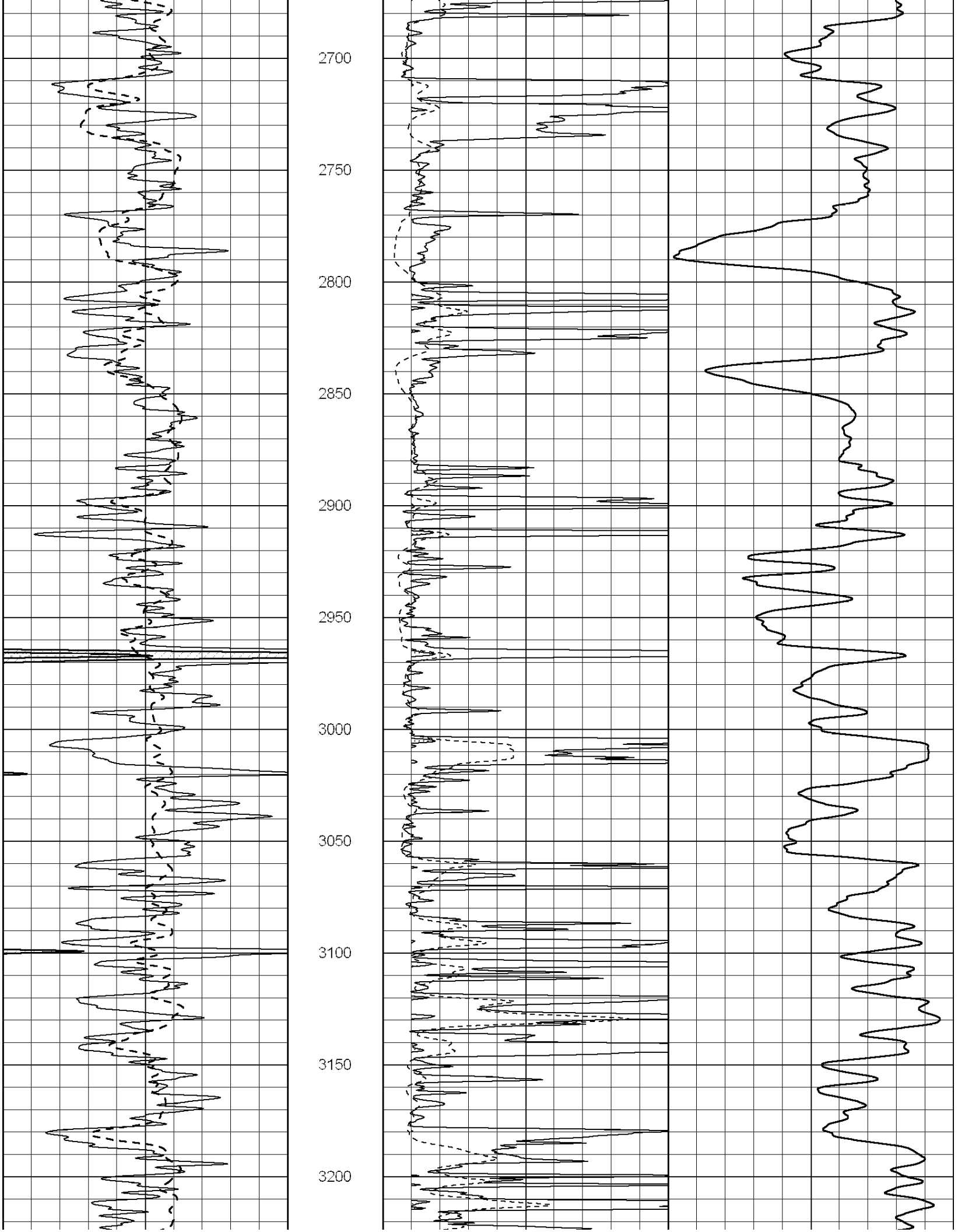
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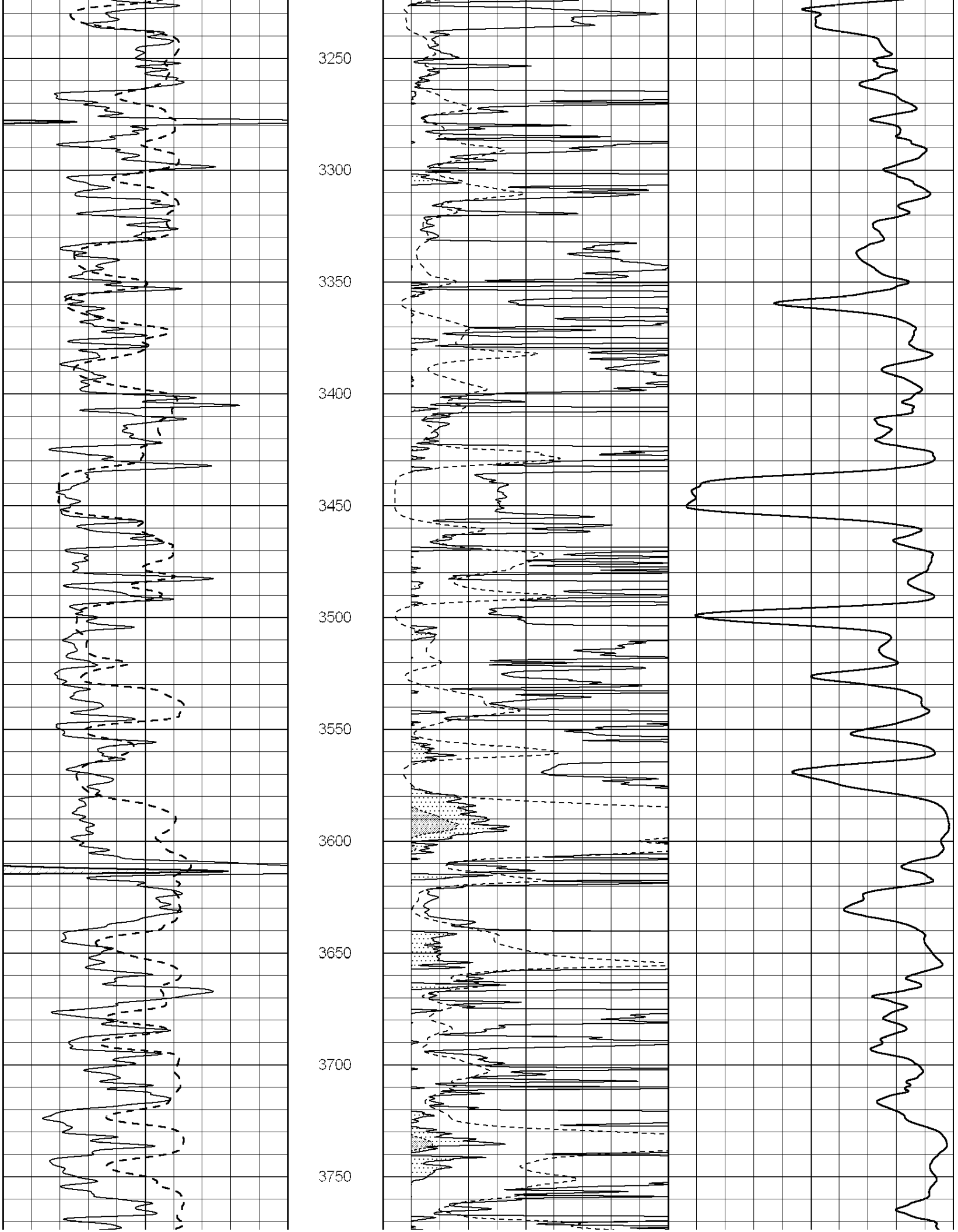
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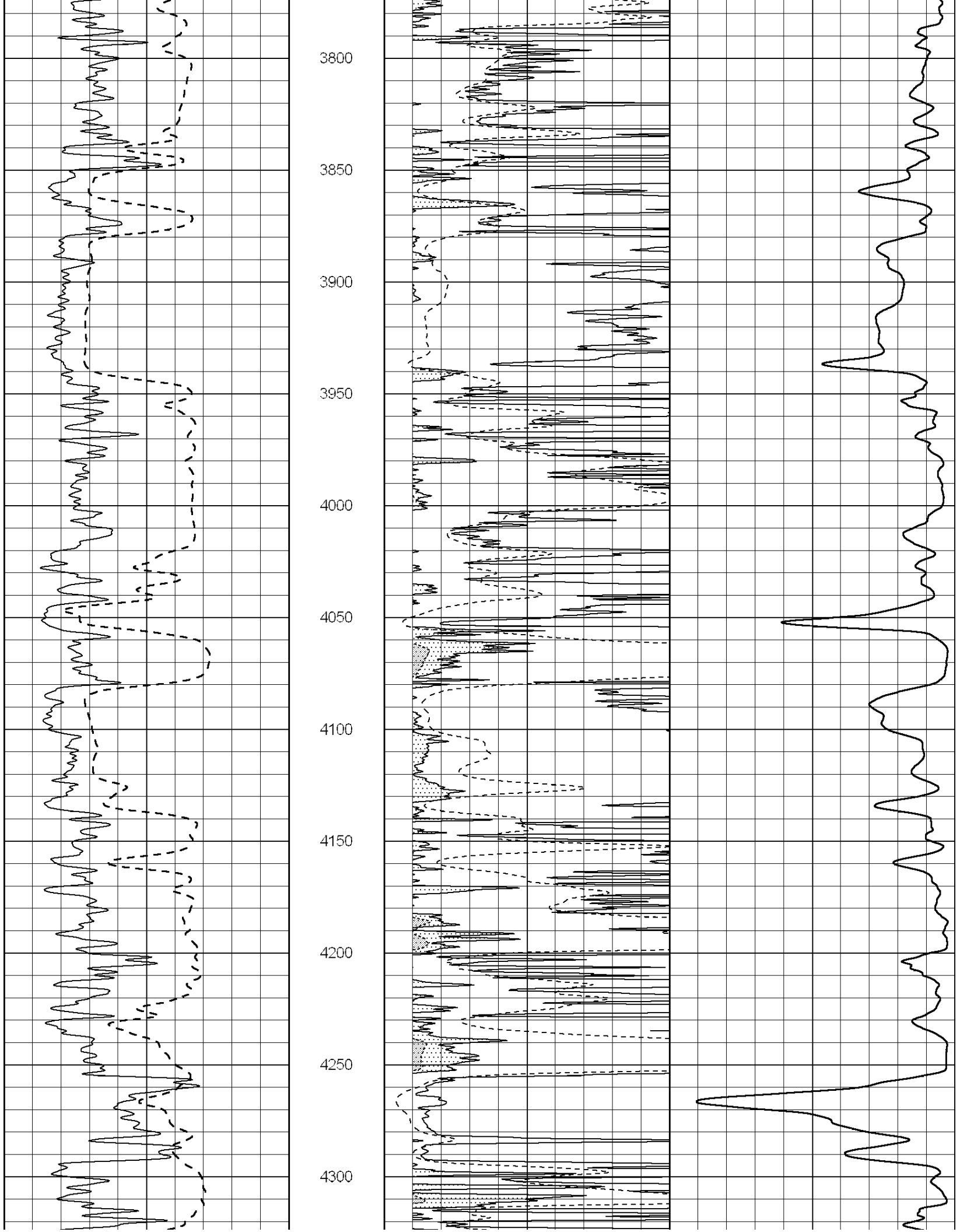
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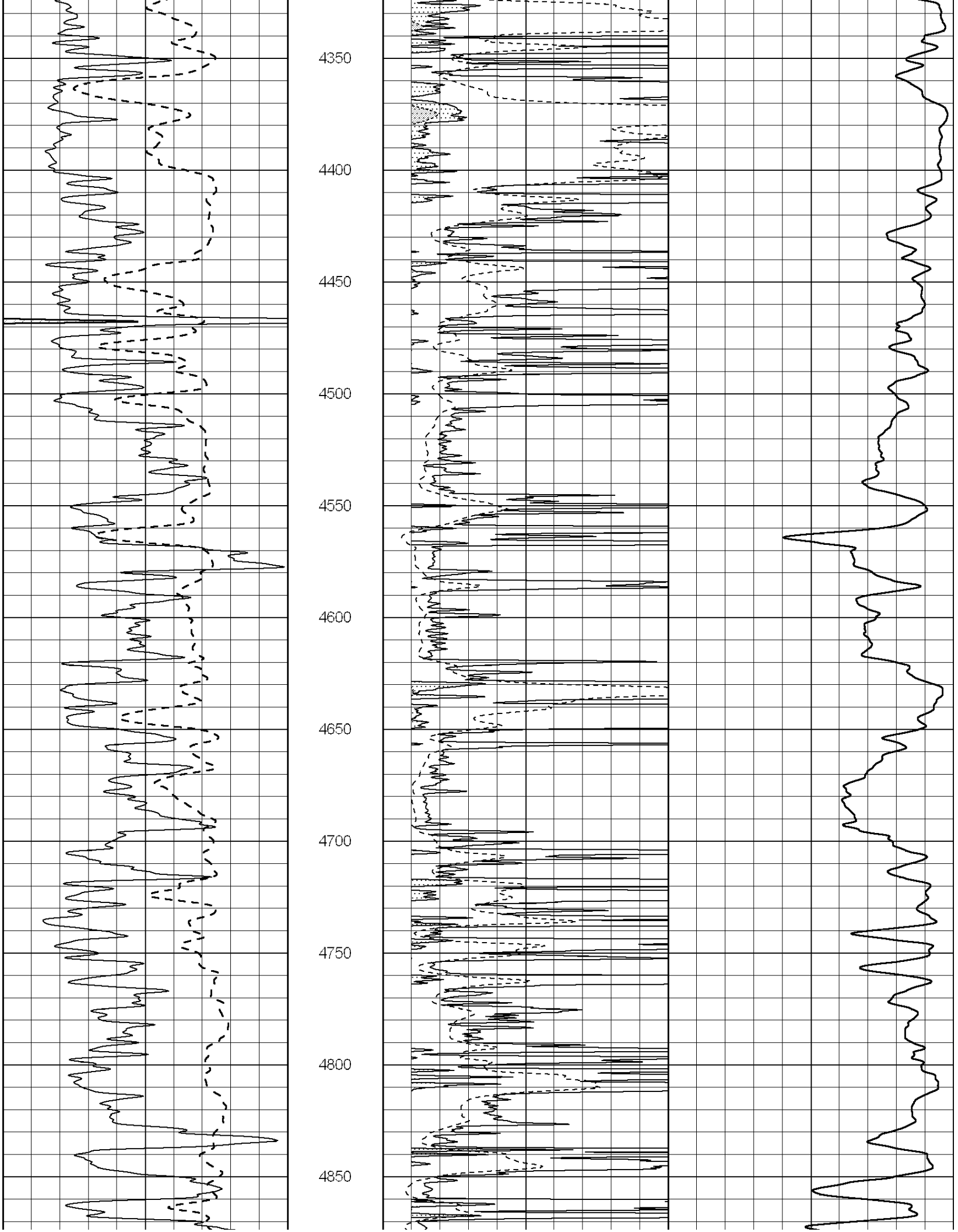
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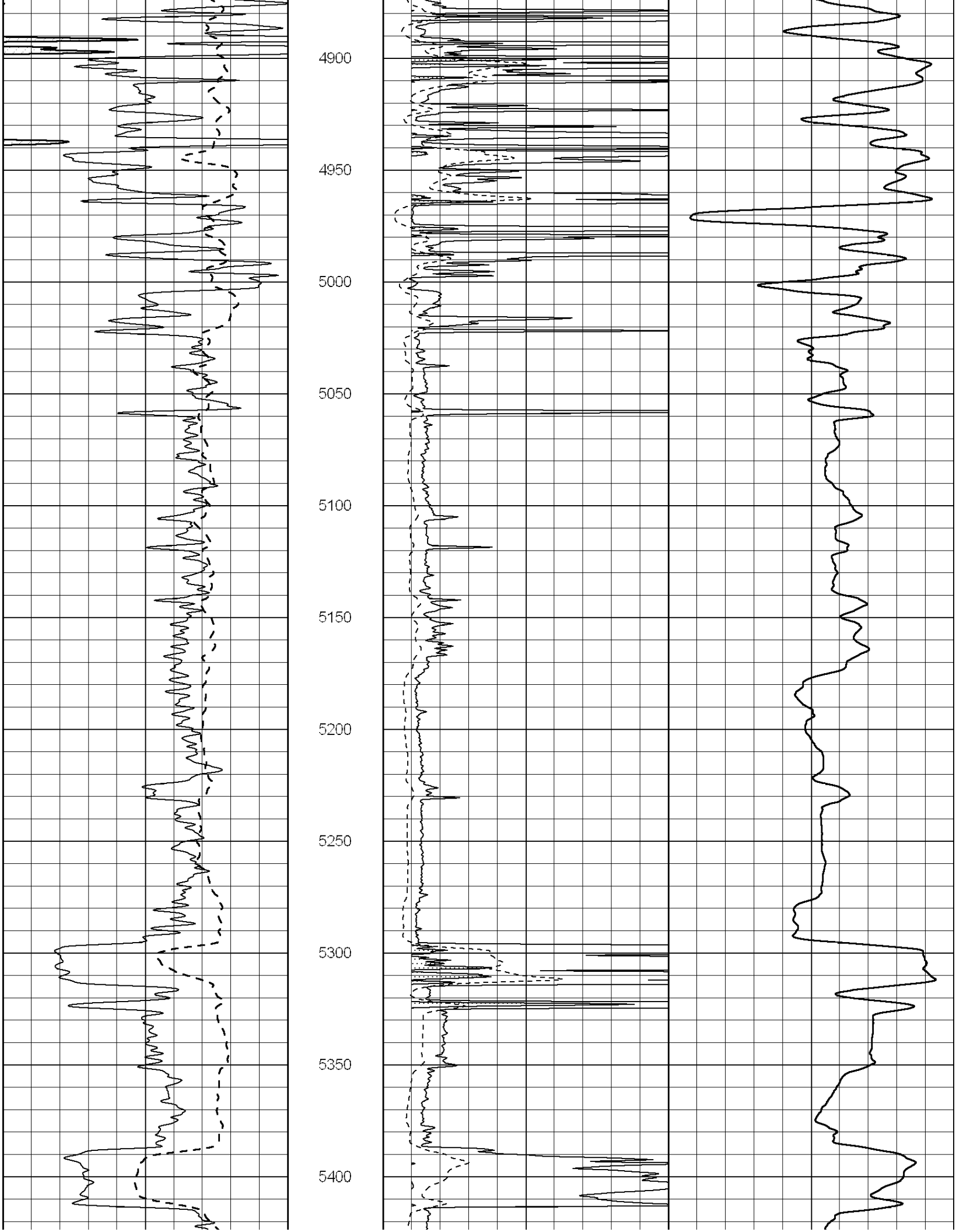
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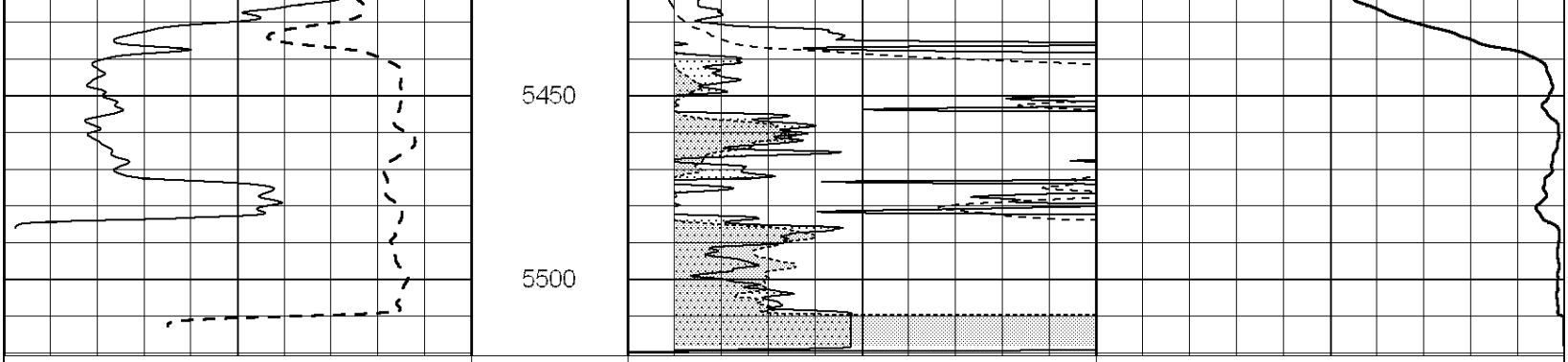
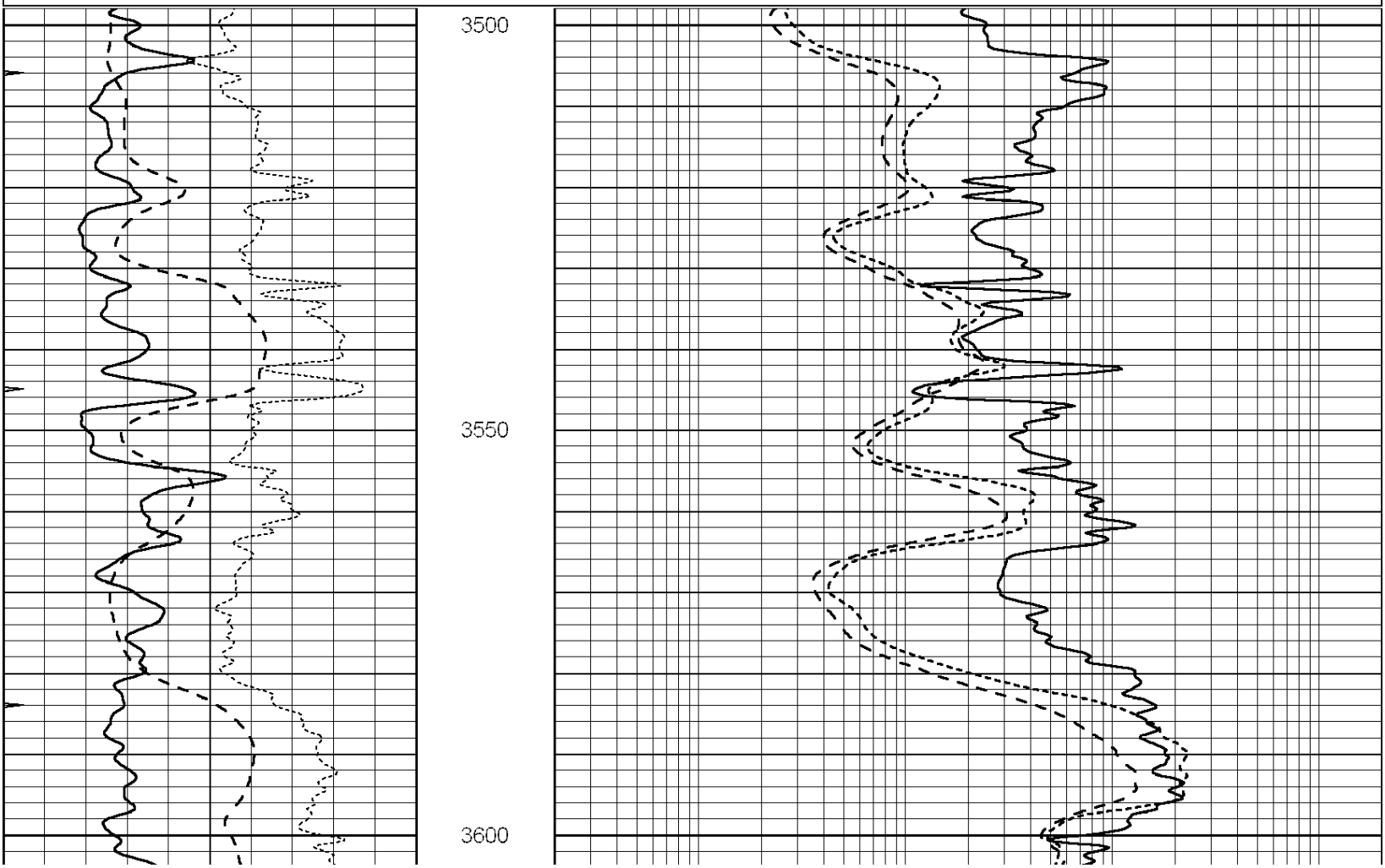
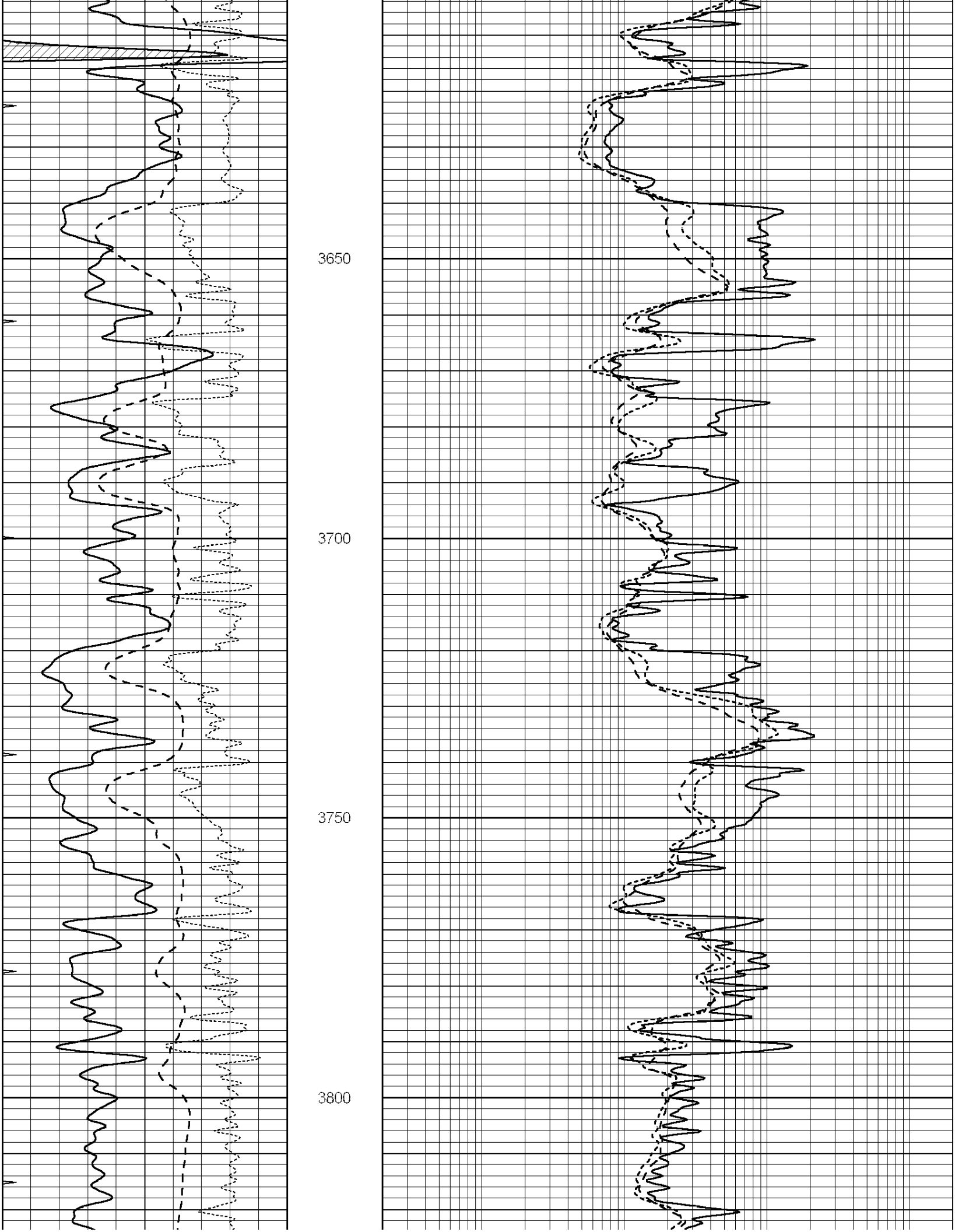


Database File: 009660.db
Dataset Pathname: pass3.4
Presentation Format: dil
Dataset Creation: Wed Sep 05 06:04:13 2012 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 150
-100 SP (mV) 100
-250 RxoRt 50
0 MINMK 20

0.2 RLL3 (Ohm-m) 2000
0.2 DEEP INDUCTION (Ohm-m) 2000
0.2 MEDIUM INDUCTION (Ohm-m) 2000

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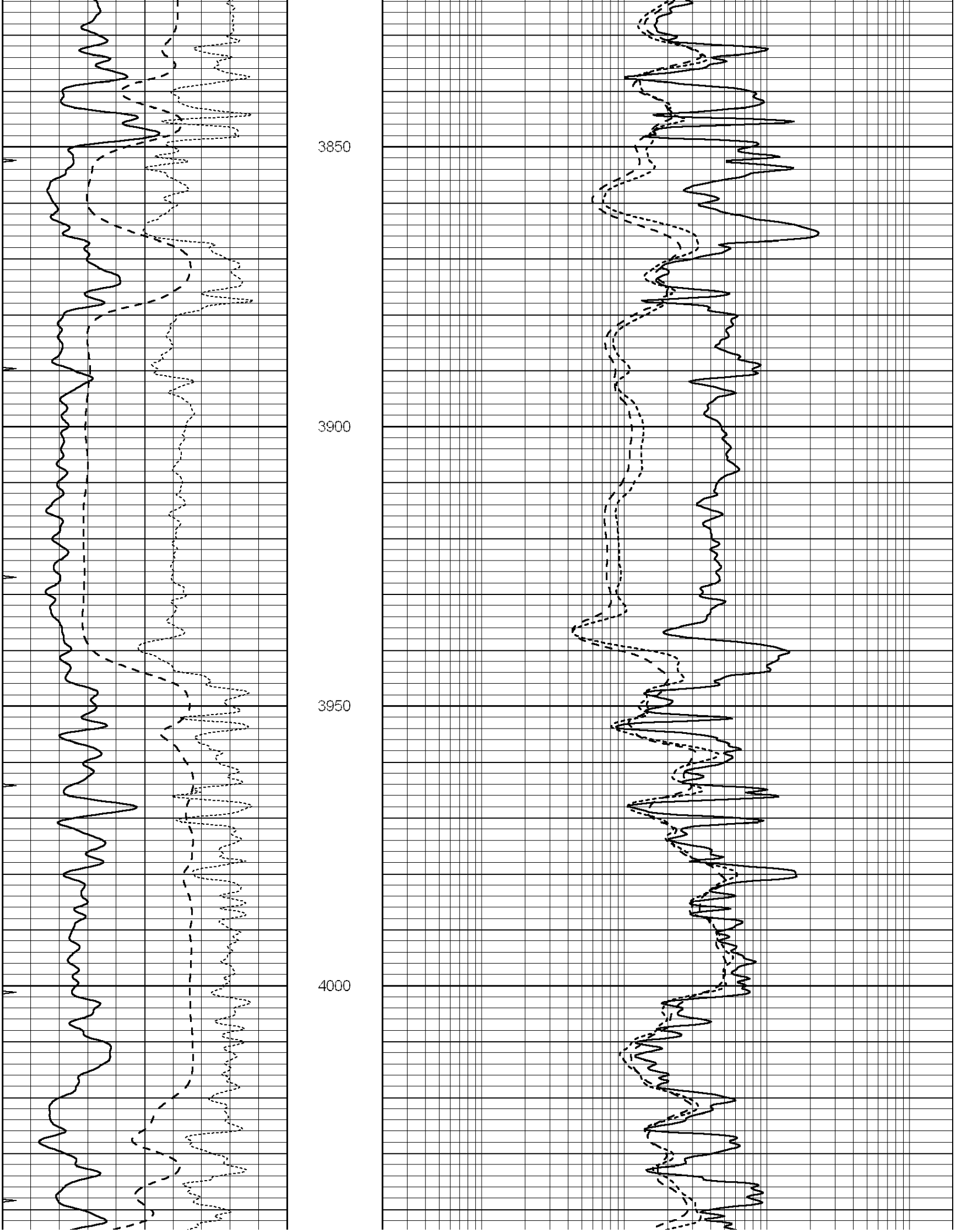
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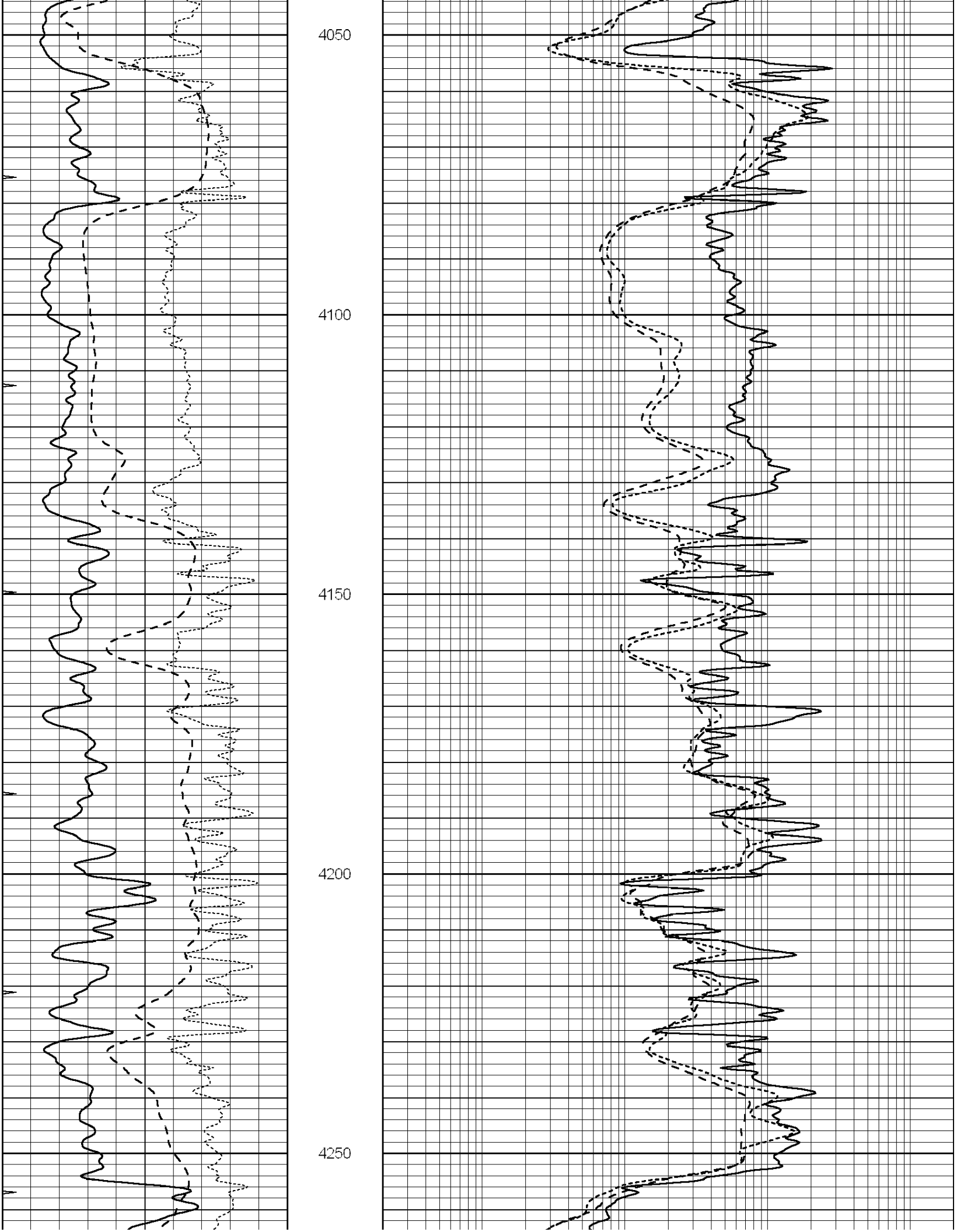
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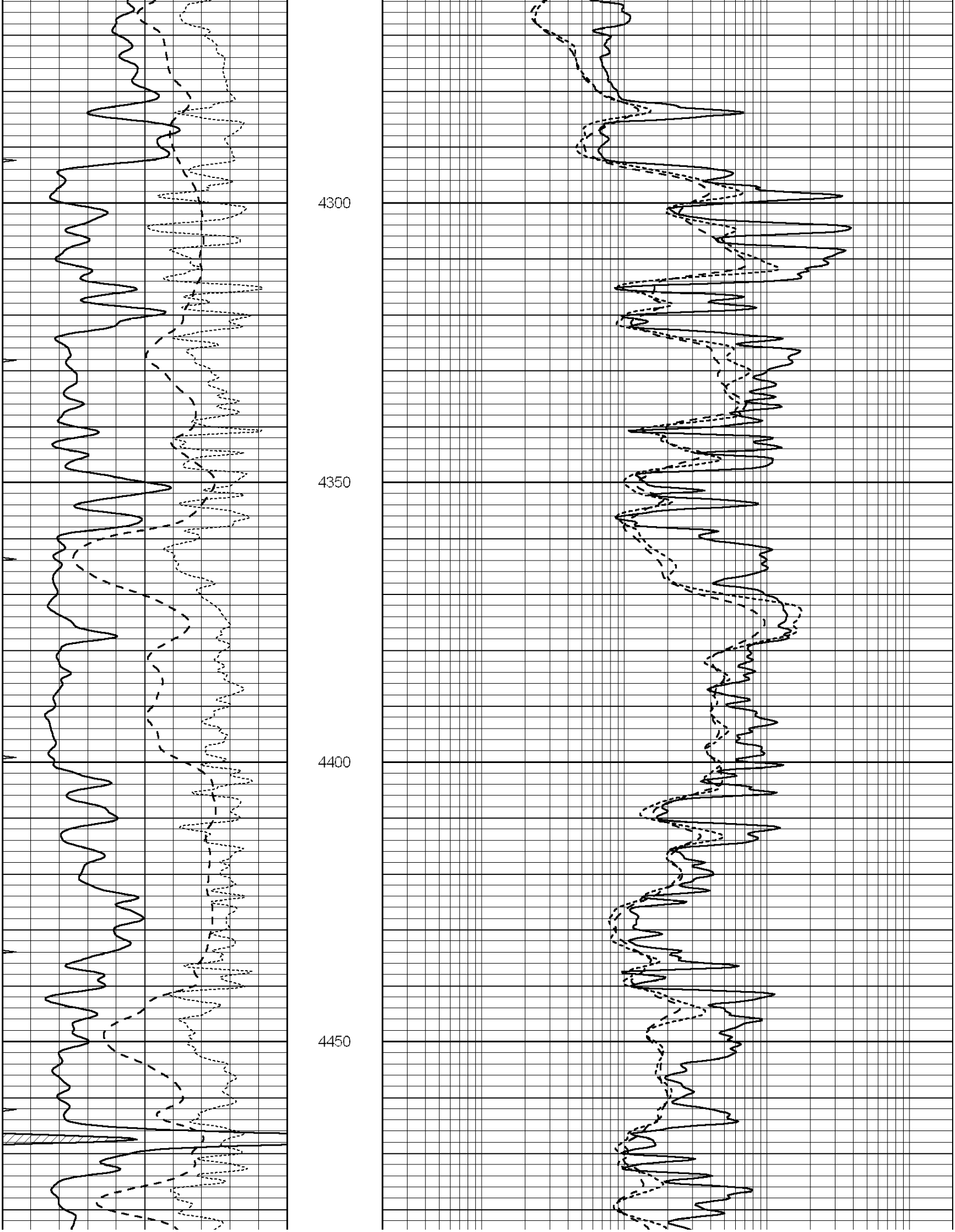
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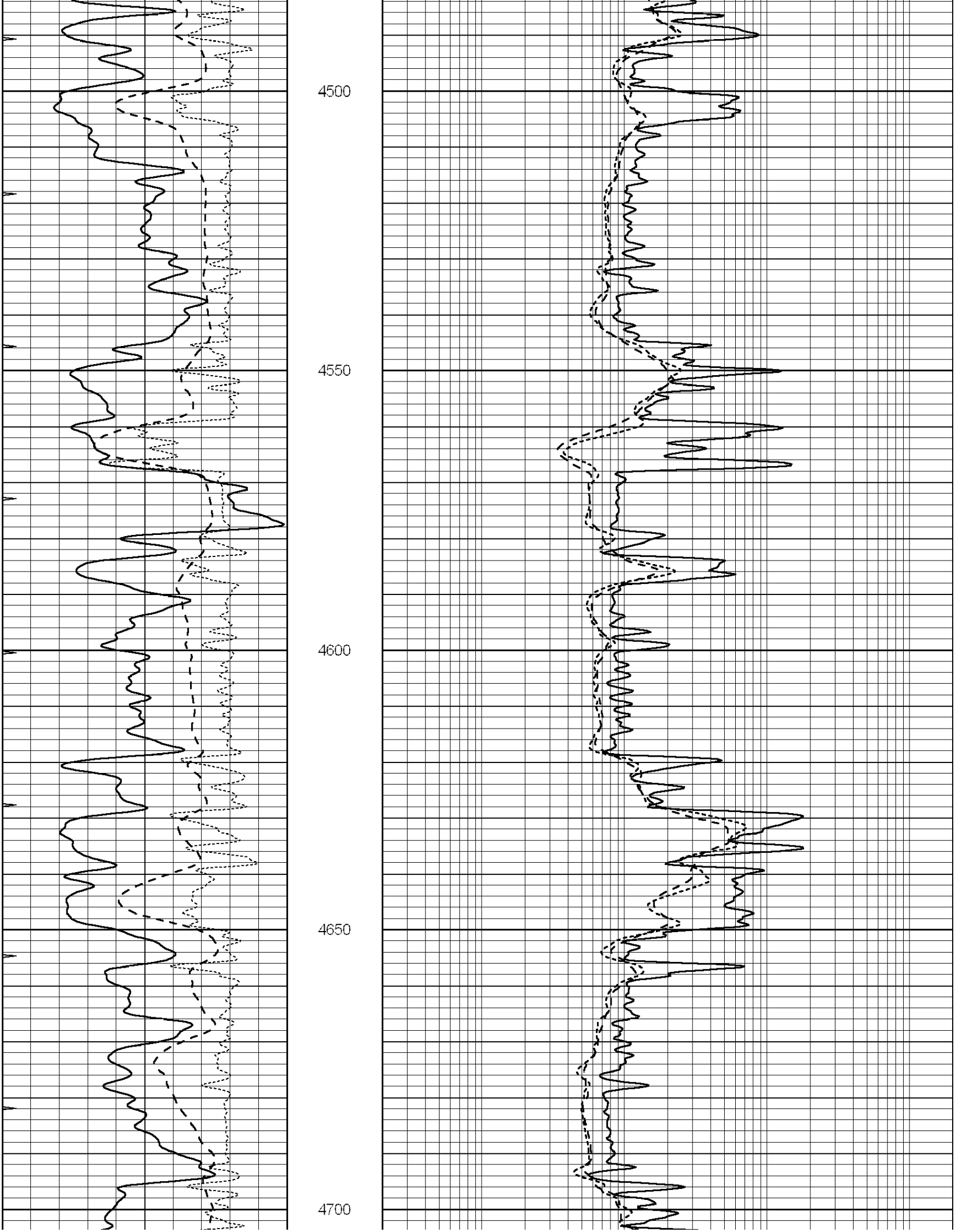
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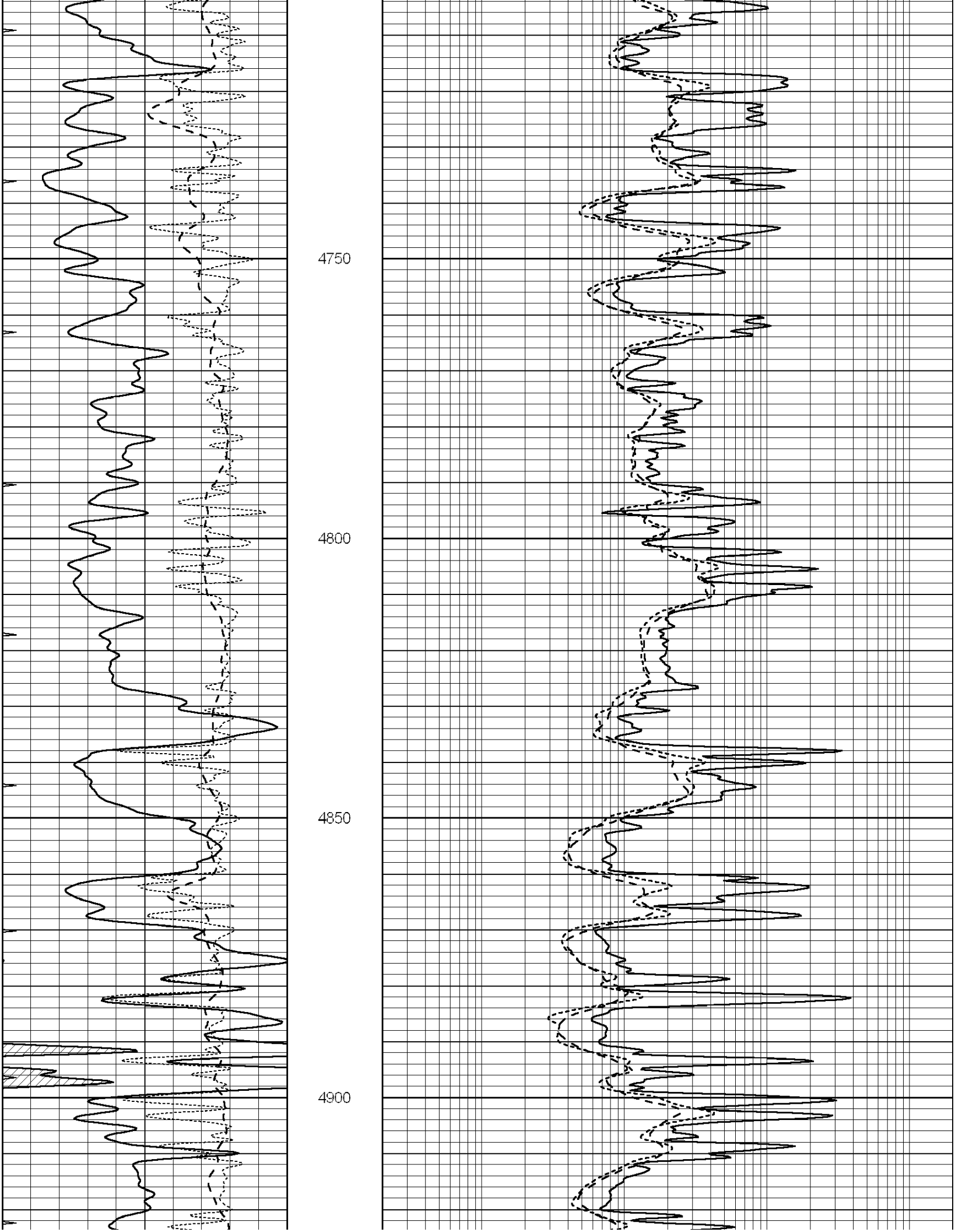
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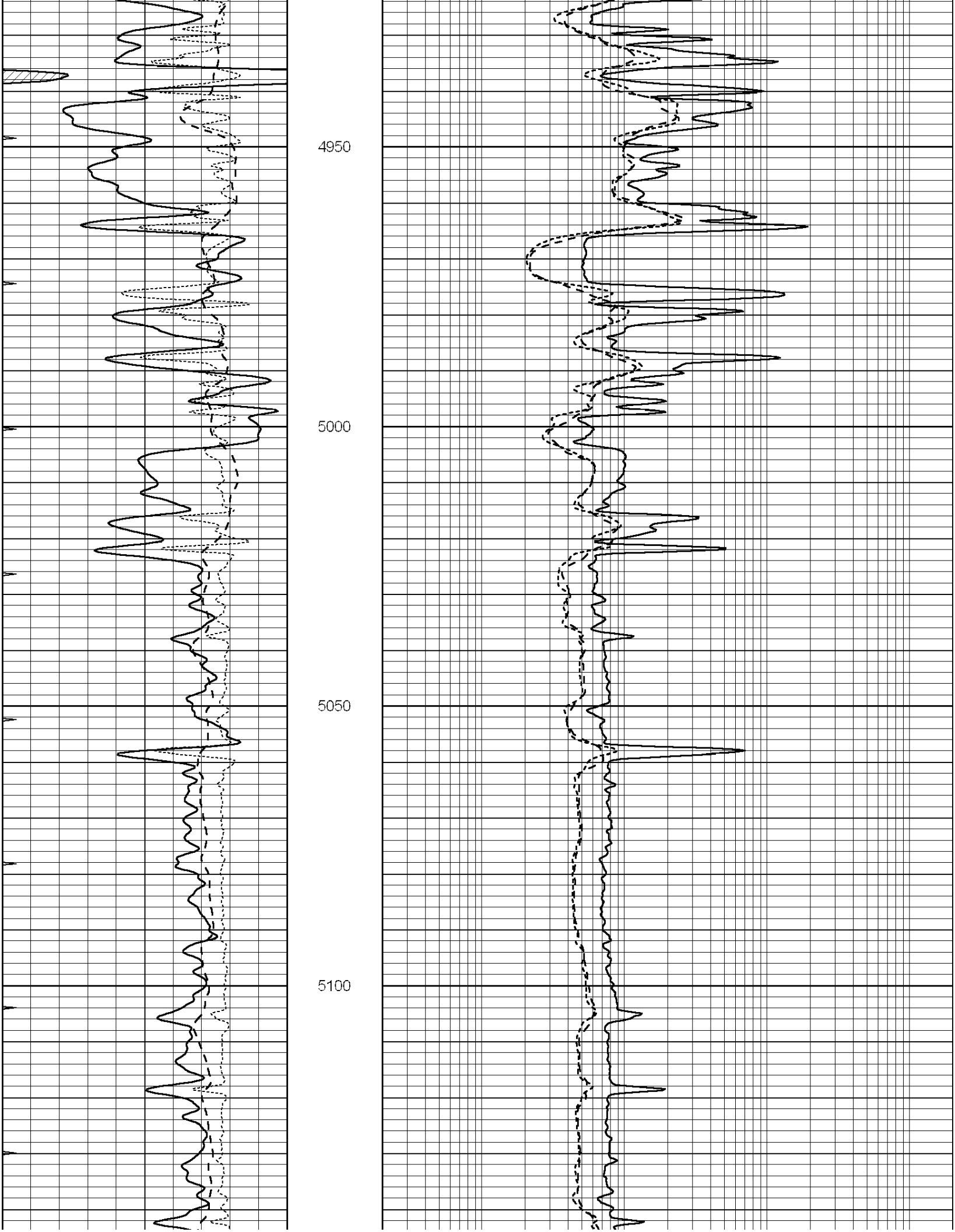
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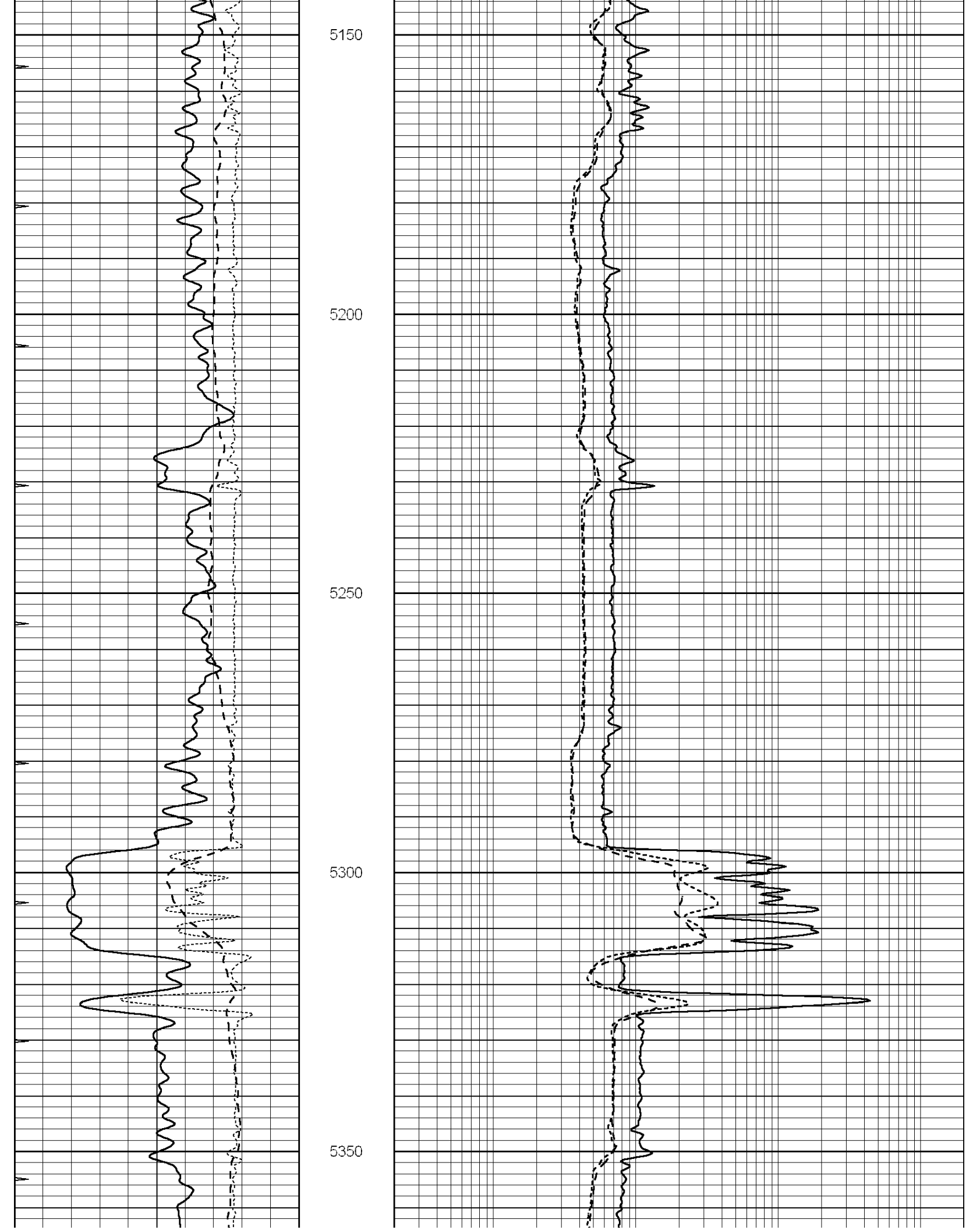
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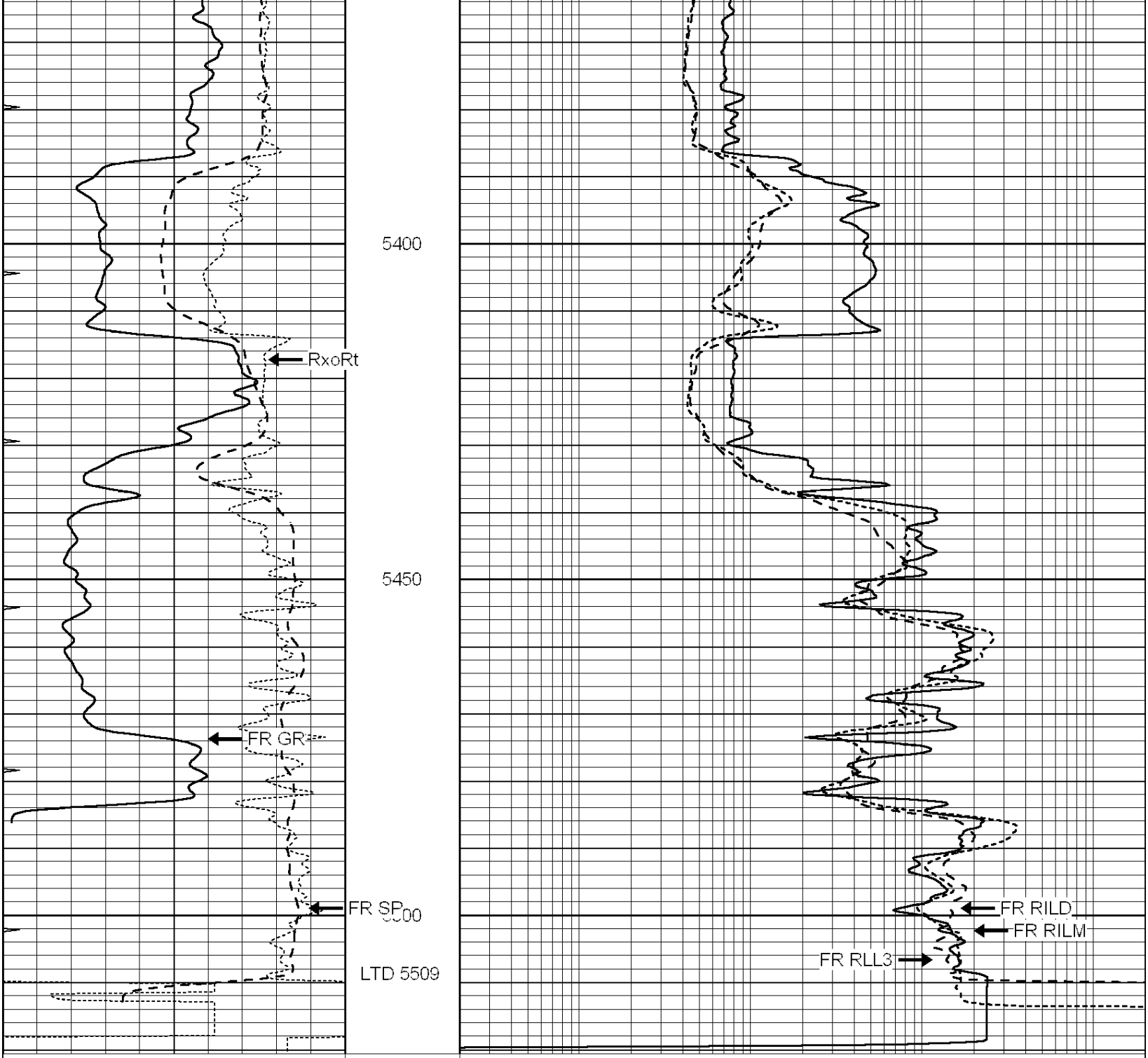


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

SUPERIOR WELL SERVICES

SUPERIOR
Hays,
Kansas

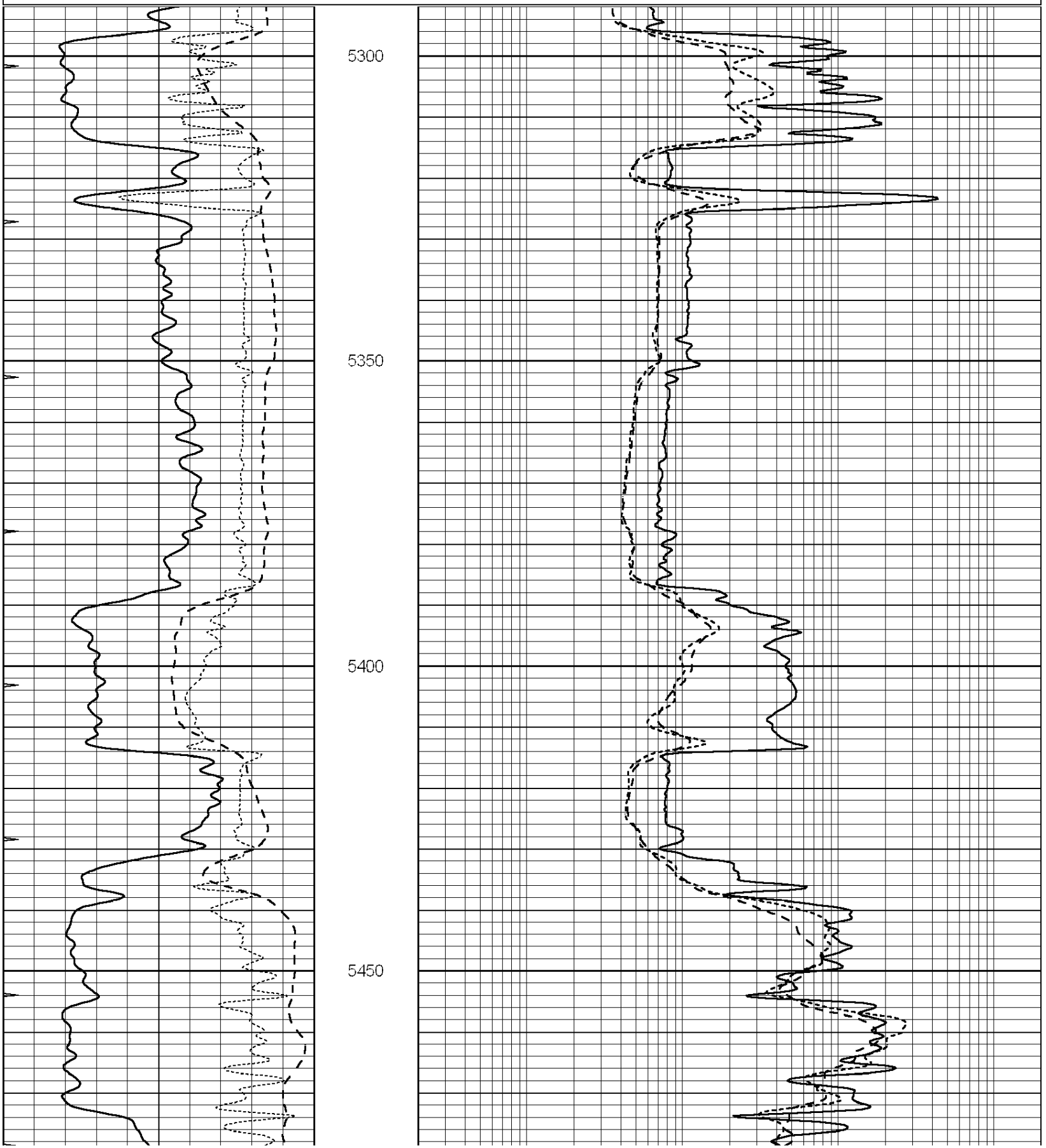
REPEAT SECTION

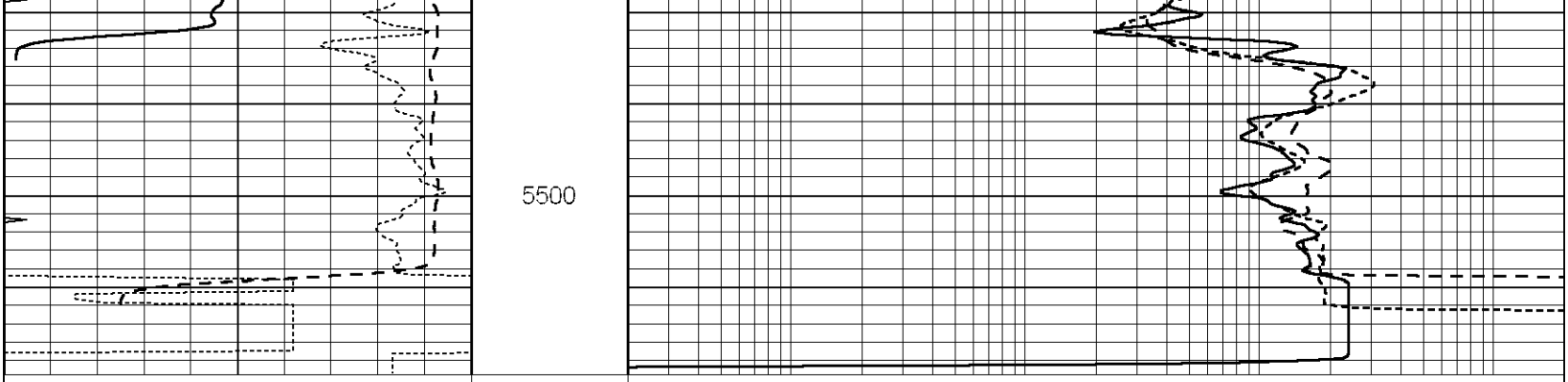
Database File: 009660.db
Dataset Pathname: pass2.2
Presentation Format: dil

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
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000





0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	RxoRt	50
0	MINMK	20

0.2	RLL3 (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 009660.db
Dataset Pathname: pass3.4
Dataset Creation: Wed Sep 05 06:04:13 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