DUAL INDUCTION LOG

Company BLACK STONE PETROLEUM, LLC
Well SWOB #2
Field OTIS-ALBERT
County RUSH
State KANSAS

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Well SWOB #2
Field OTIS-ALBERT
County RUSH State KANSAS

Location: API # : 15-165-22145-00-00
1095' FSL & 970' FWL
SEC 26 TWP 18S RGE 16W

Other Services
CDL/CNL
MEL/SONIC

Permanent Datum GROUND LEVEL Elevation 1974'
Log Measured From KELLY BUSHING 9' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 1983
D.F. 1981
G.L. 1974

Date	06/25/17			
Run Number	ONE			
Depth Driller	3674			
Depth Logger	3736			
Bottom Logged Interval	3734			
Top Log Interval	00			
Casing Driller	10 3/4" @ 1080			
Casing Logger	1080			
Bit Size	8 3/4"			
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 11000 PPM		
Density / Viscosity	8.6/48			
pH / Fluid Loss	11.4/8.4			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	.50@72			
Rmf @ Meas. Temp	.38@72			
Rmc @ Meas. Temp	.60@72			
Source of Rmf / Rmc	MEASURED			
Rm @ BHT	.32@112			
Time Circulation Stopped	2 HOURS			
Time Logger on Bottom	////			
Maximum Recorded Temperature	112F			
Equipment Number	4010			
Location	HAYS, KANSAS			
Recorded By	GUS PFANENSTIEL			
Witnessed By	CHRIS LEIKER			

<<< Fold Here >>>

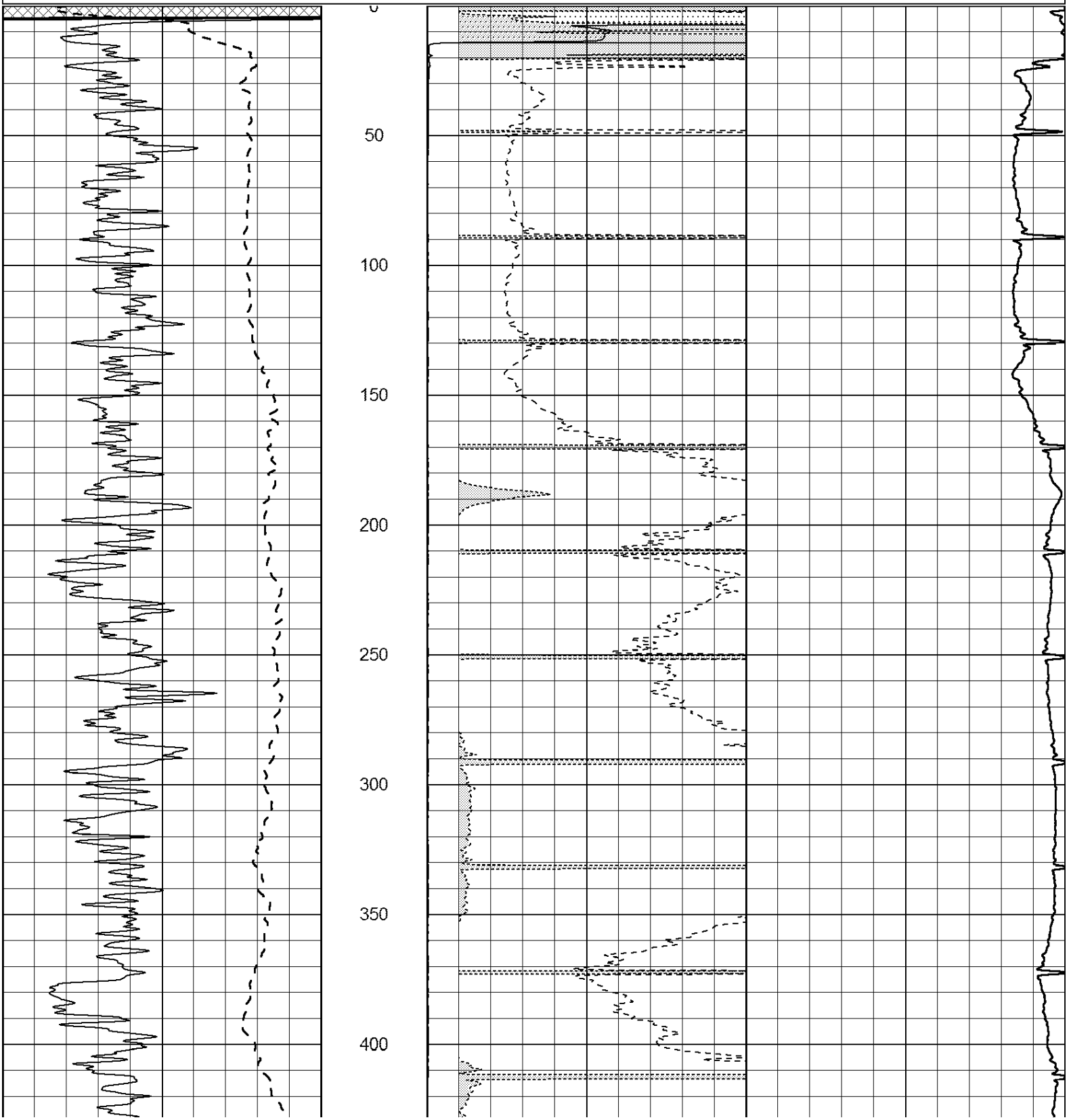
Comments

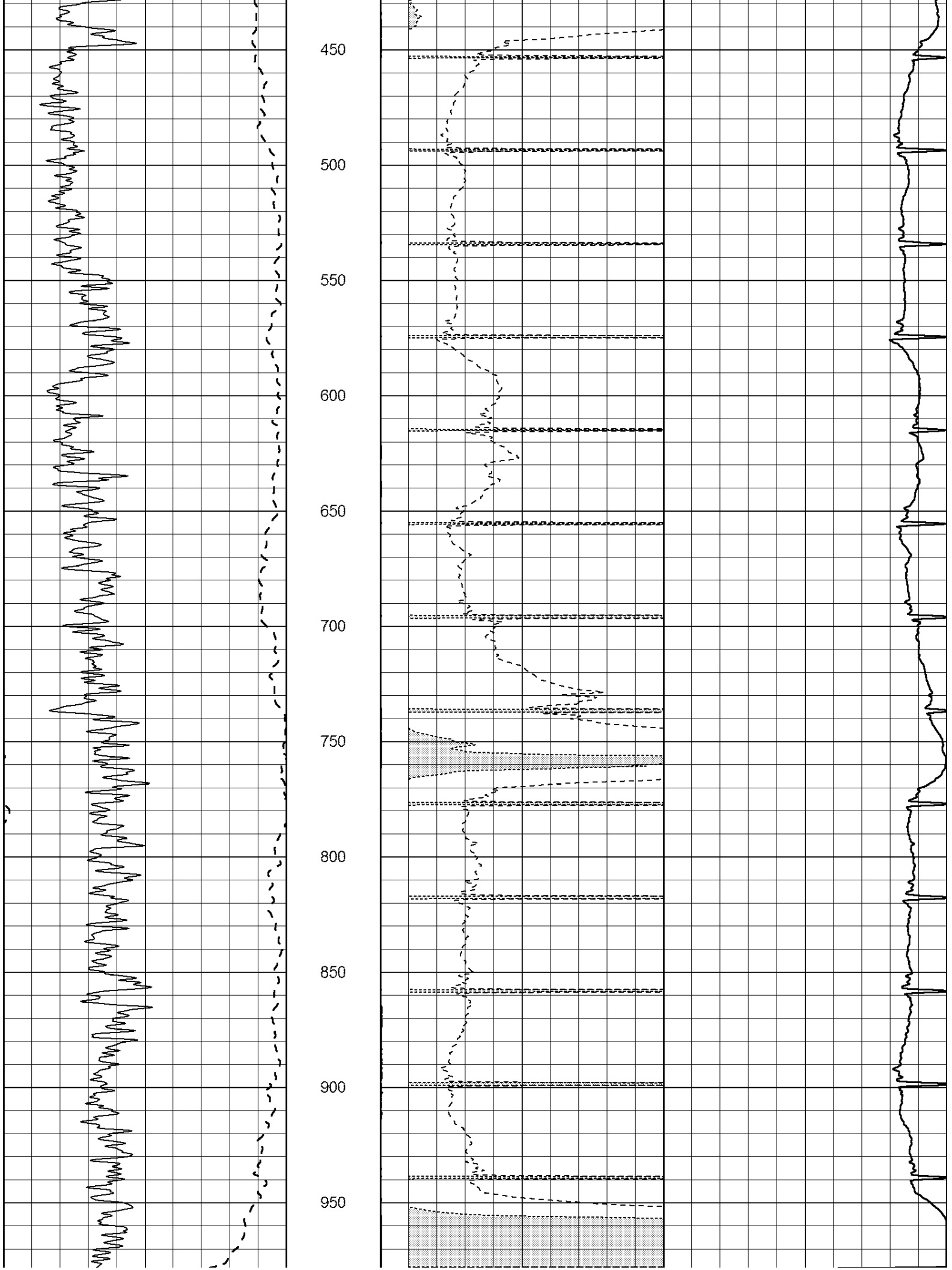
THANK YOU FOR USING ELI WIRELINE, HAYS, KS. (785) 628-6395

DIRECTIONS
96 HIGHWAY OUT OF RUSH CENTER EAST TO 380 RD.
SOUTH 3/4 MILE
EAST INTO.

MAIN PASS

Database File: 1473ddn.db
Dataset Pathname: pass3.1
Presentation Format: _dil2
Dataset Creation: Sun Jun 25 11:28:16 2017 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:600

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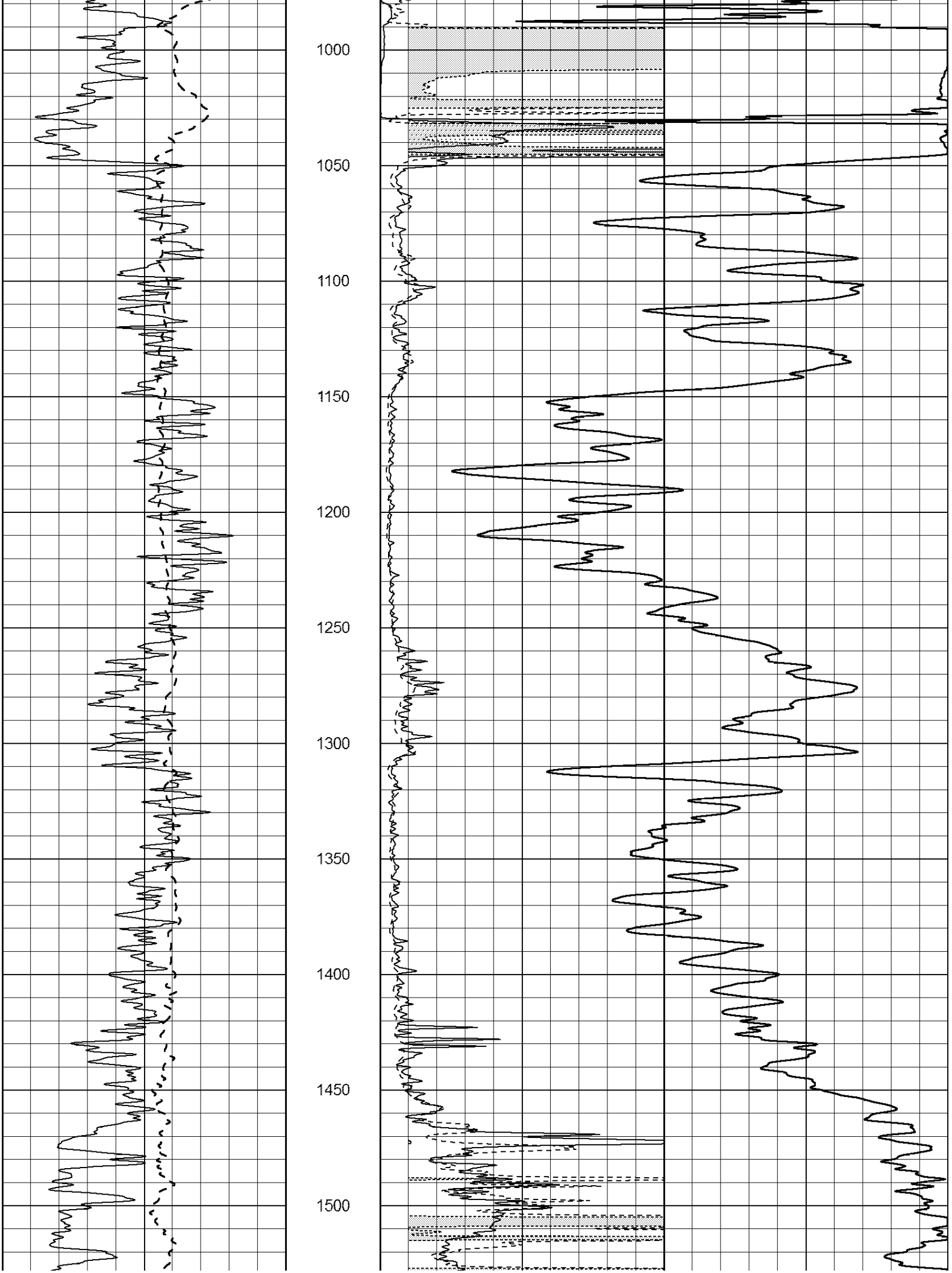
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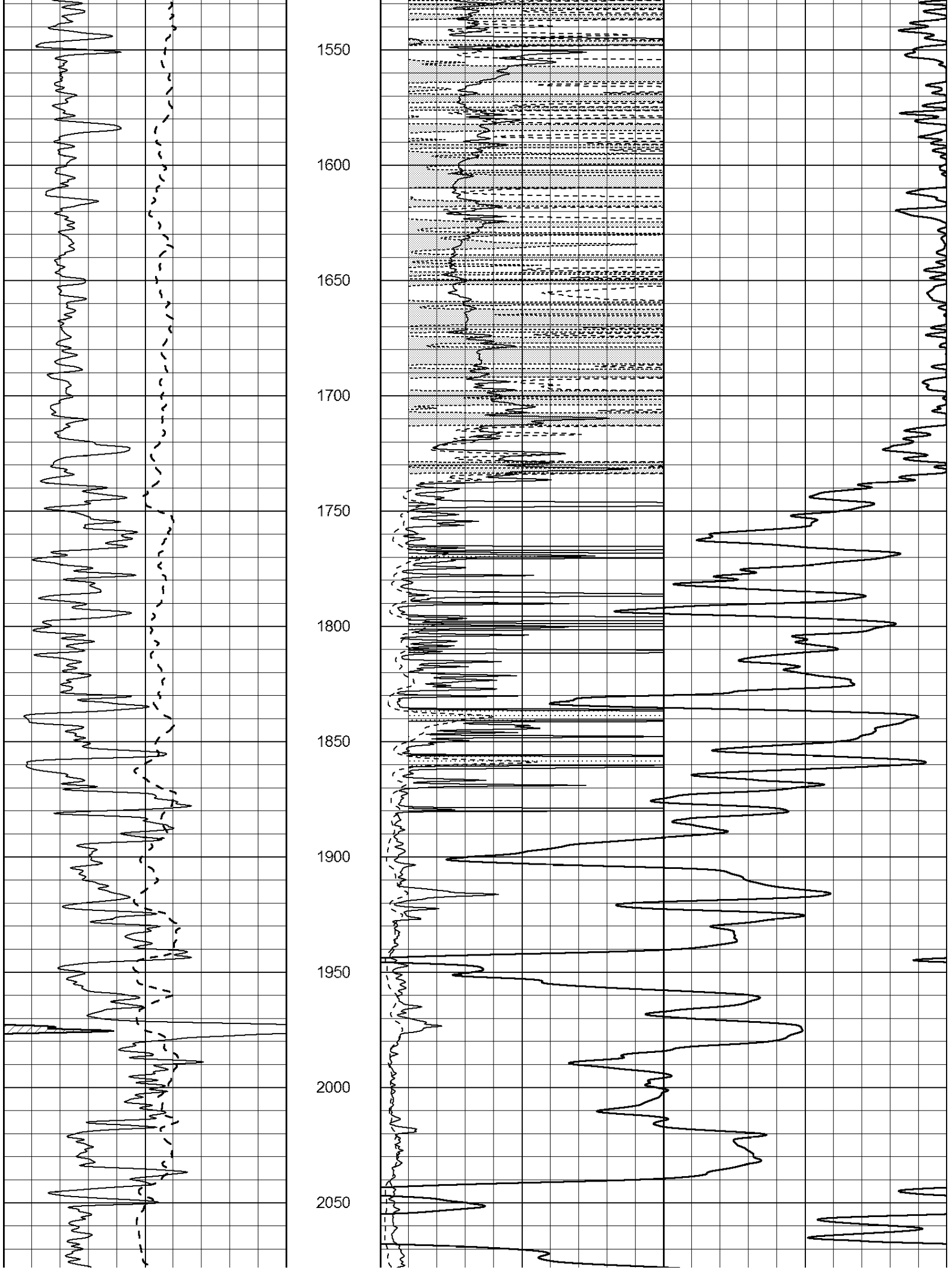
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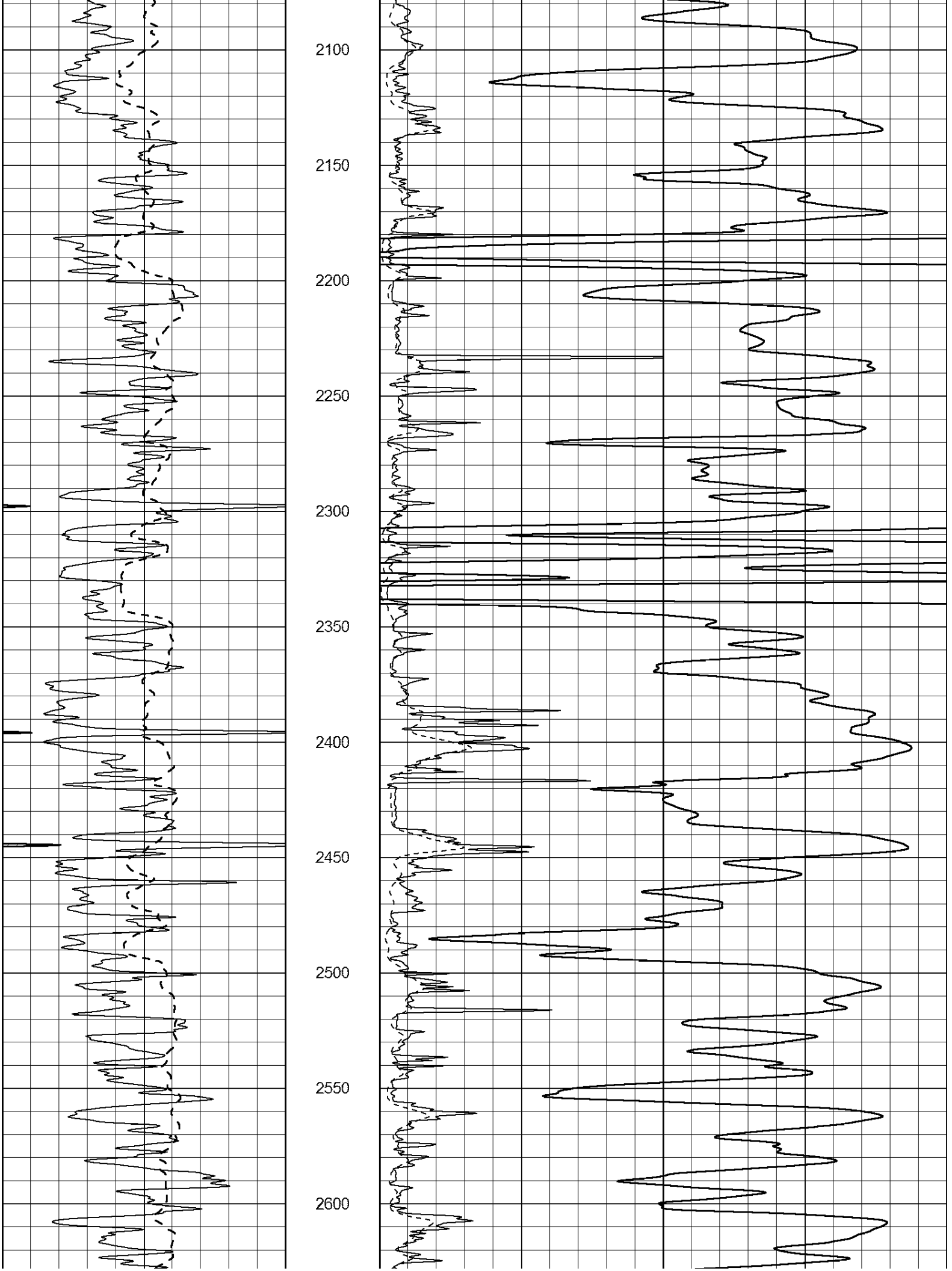
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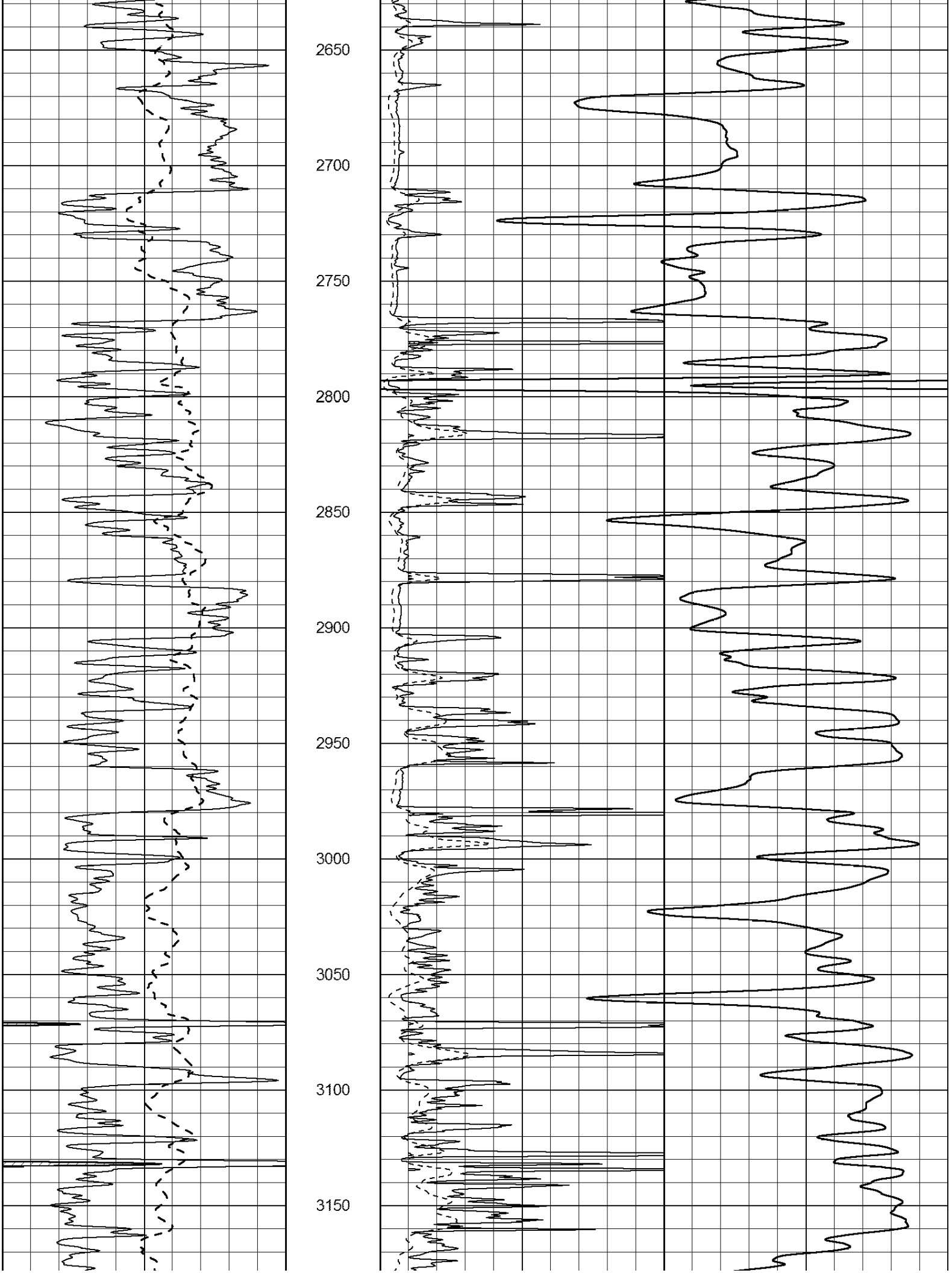
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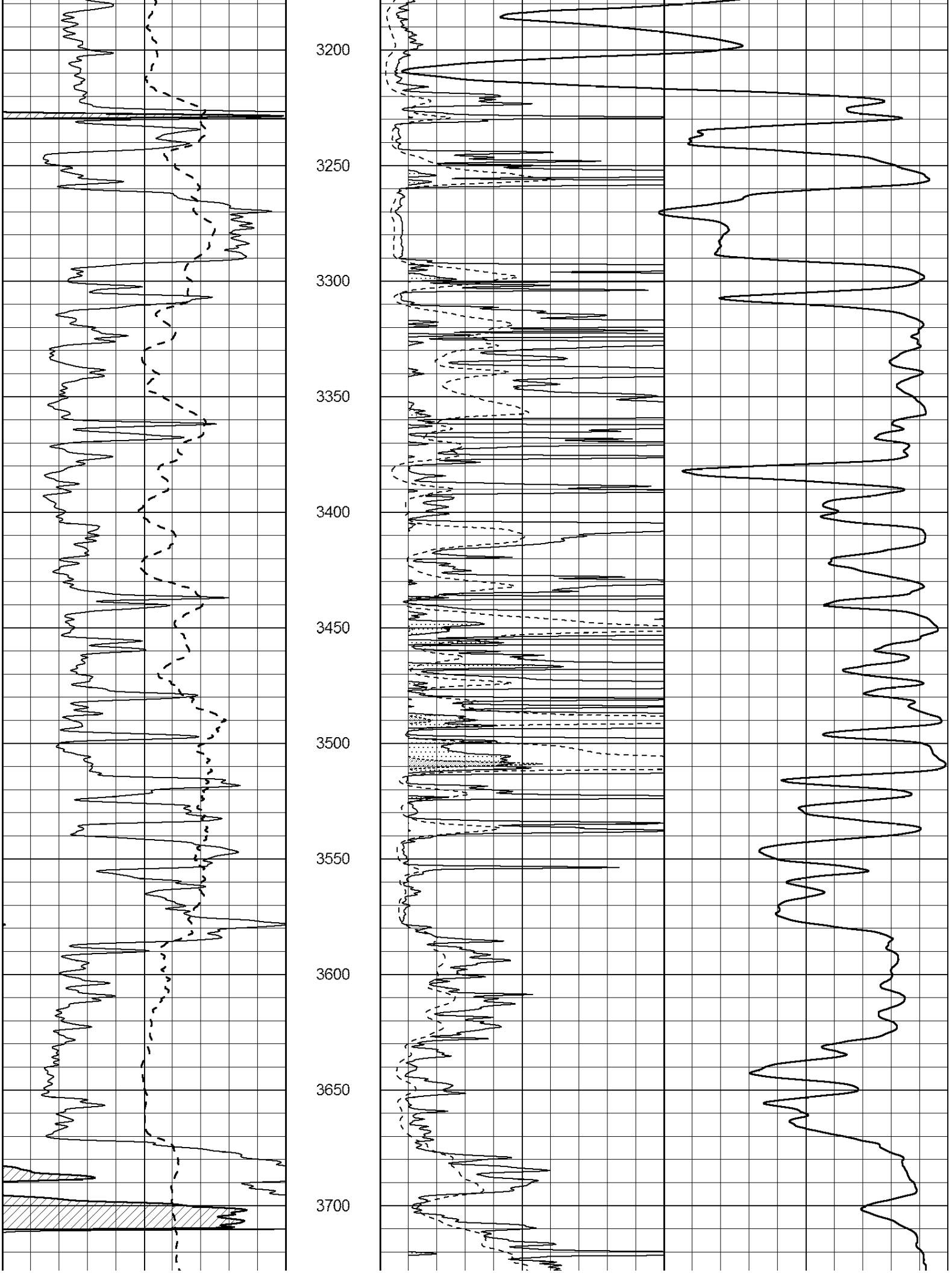
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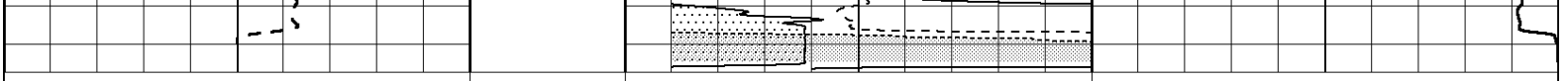


0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

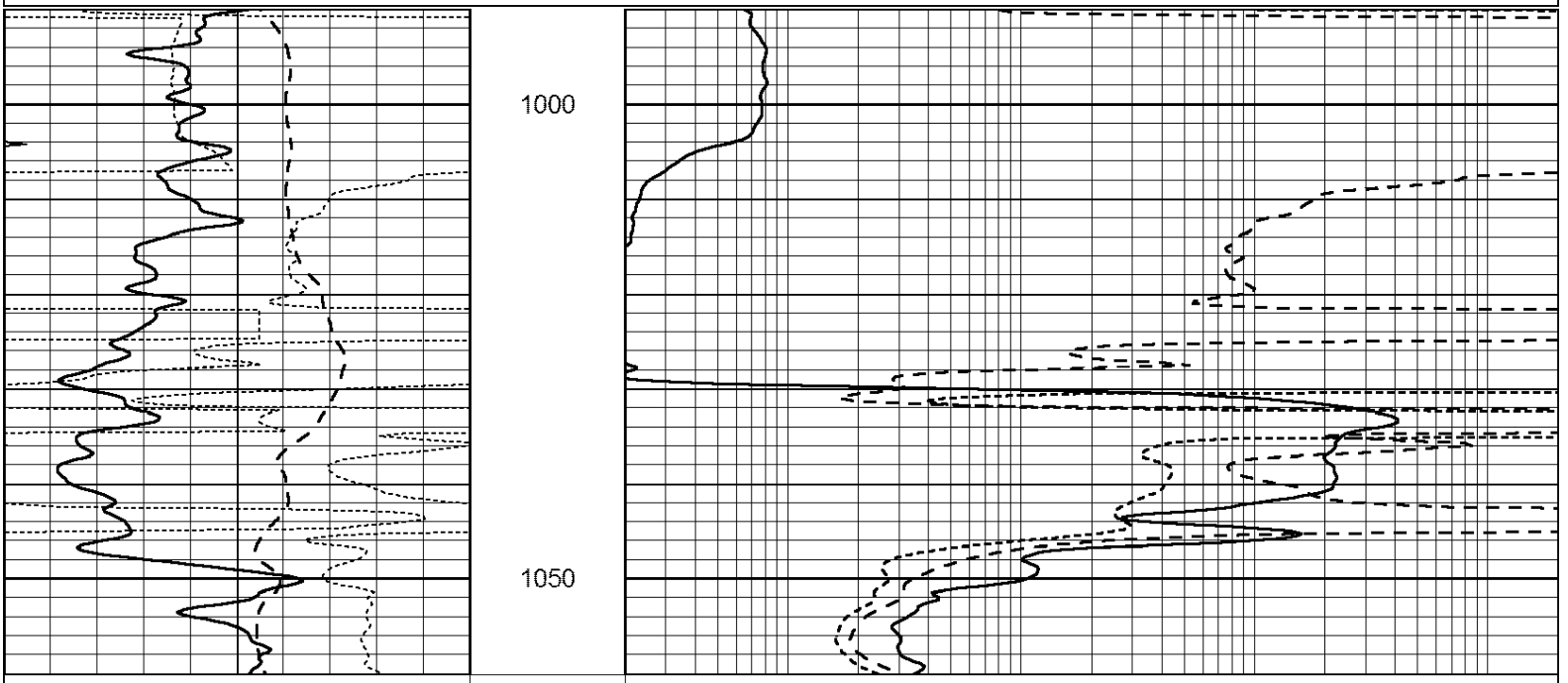
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

MAIN PASS

Database File: 1473ddn.db
Dataset Pathname: pass3.1
Presentation Format: _dil
Dataset Creation: Sun Jun 25 11:28:16 2017 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



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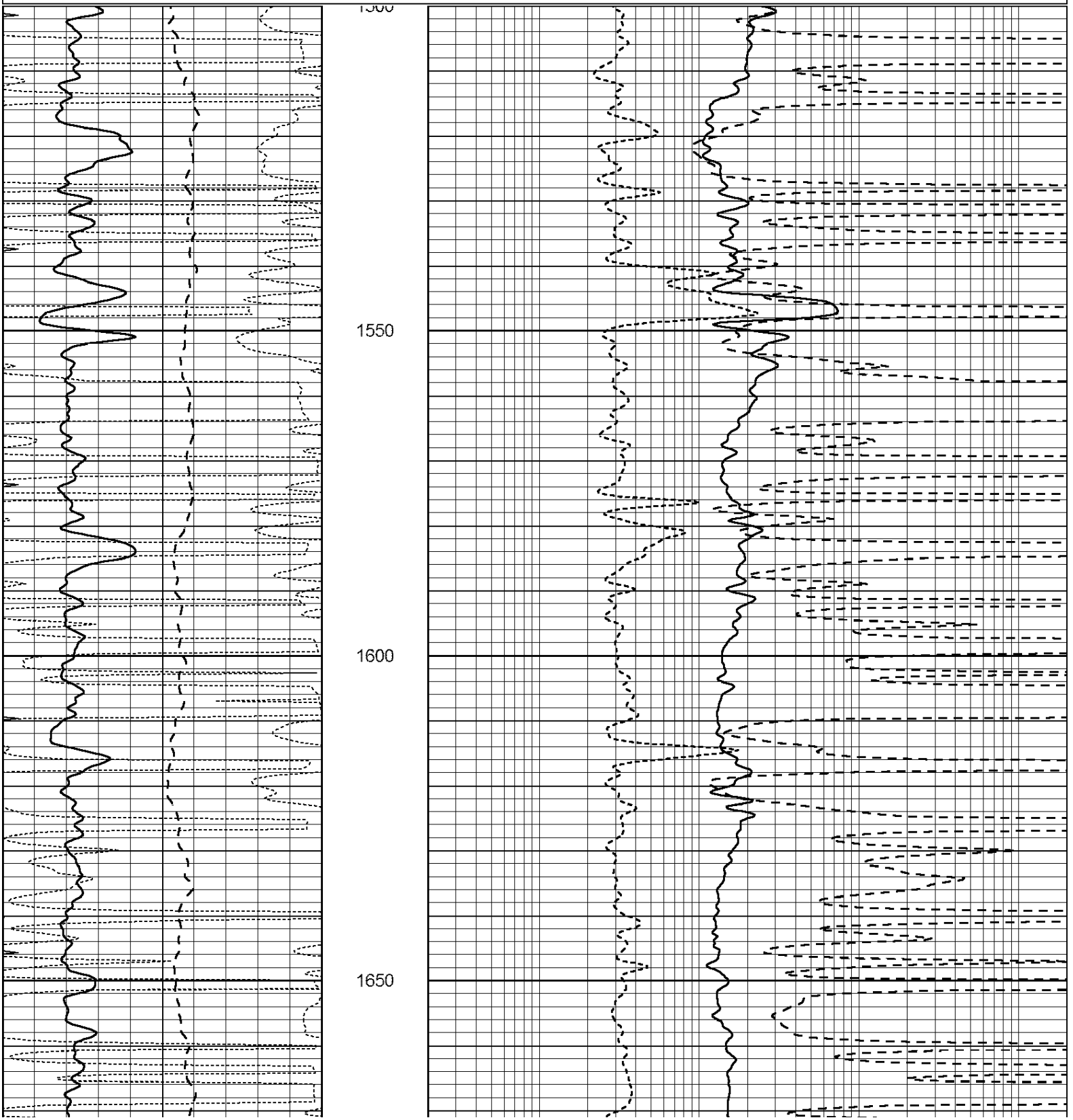

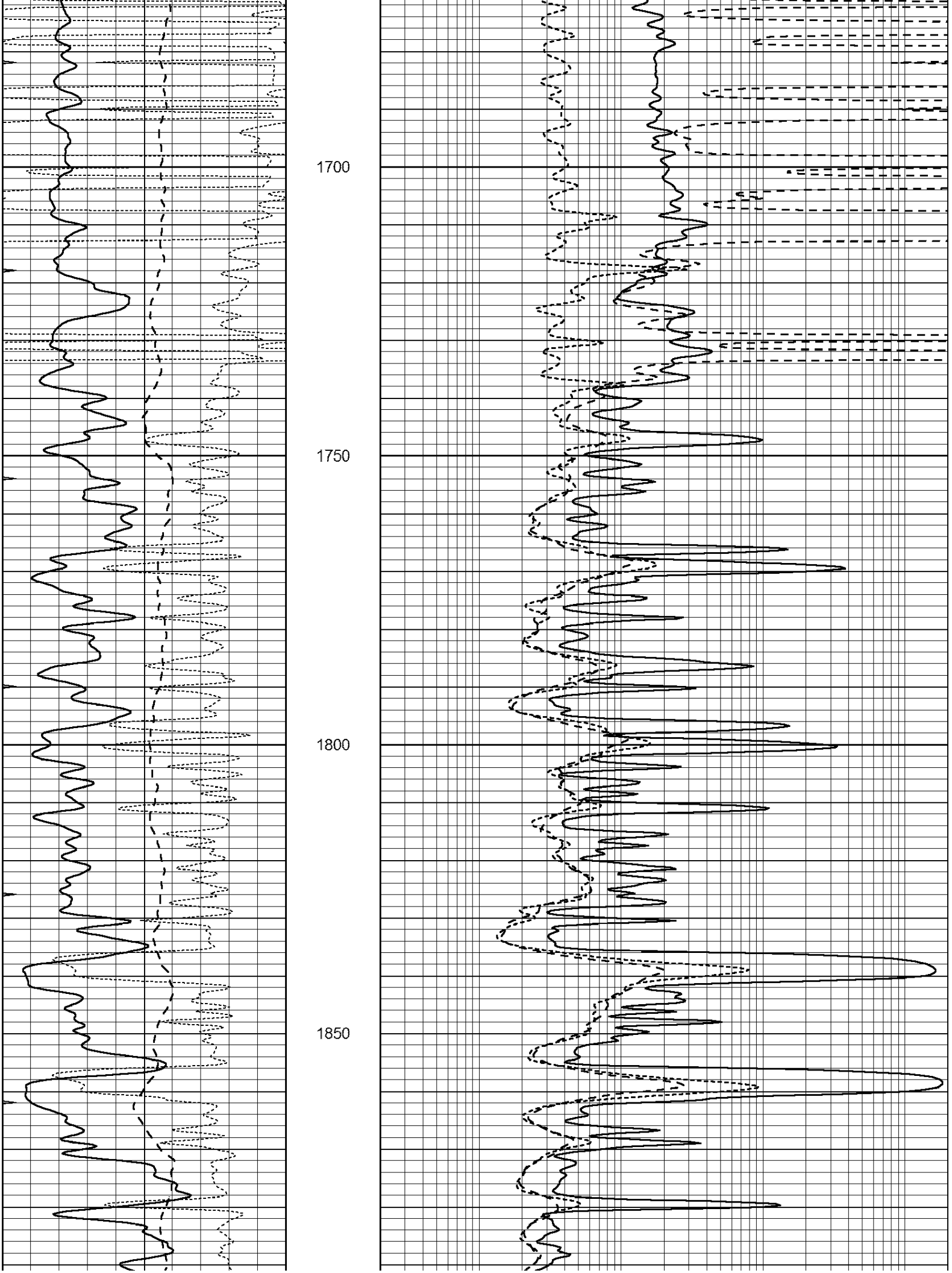
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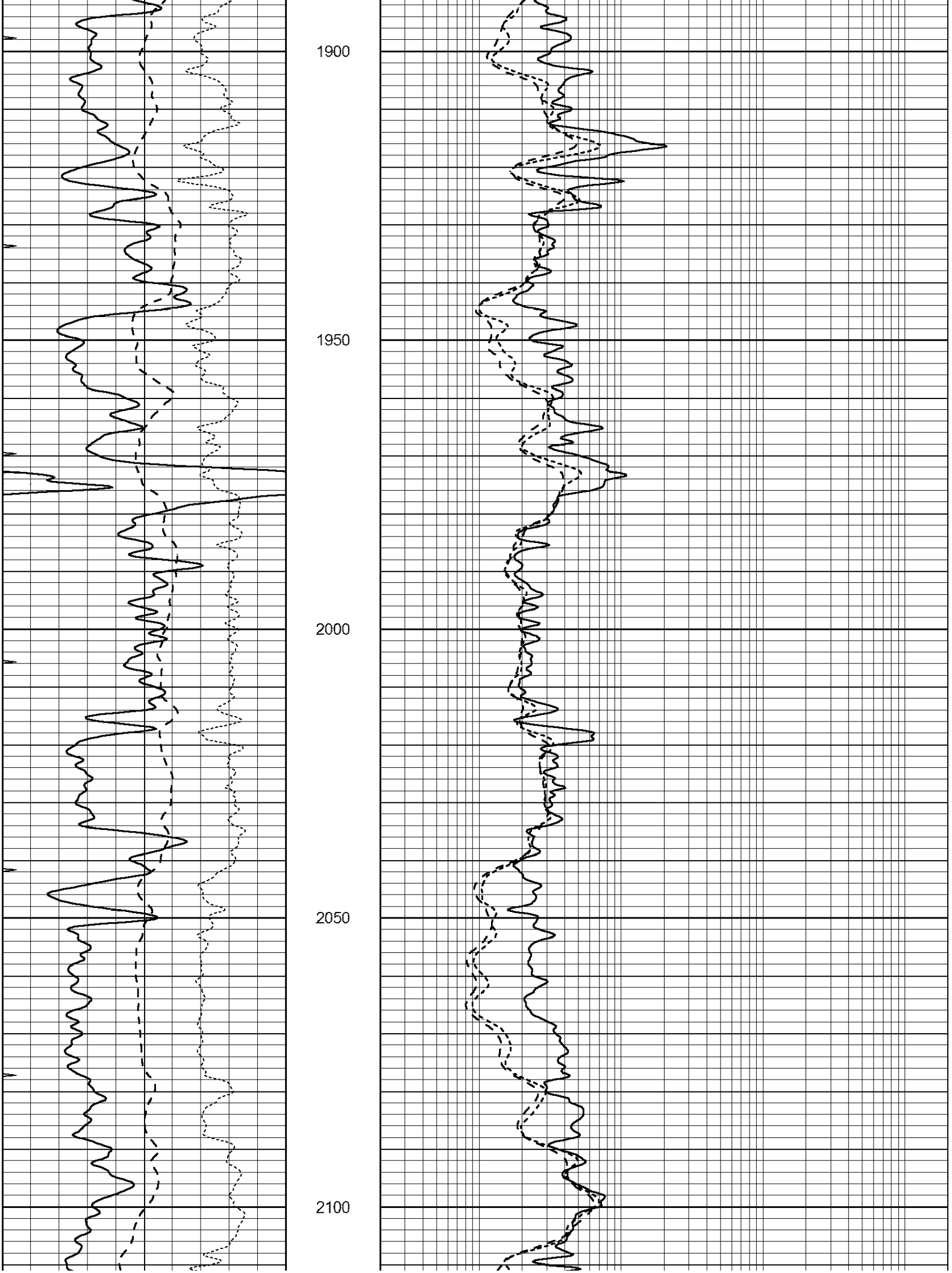
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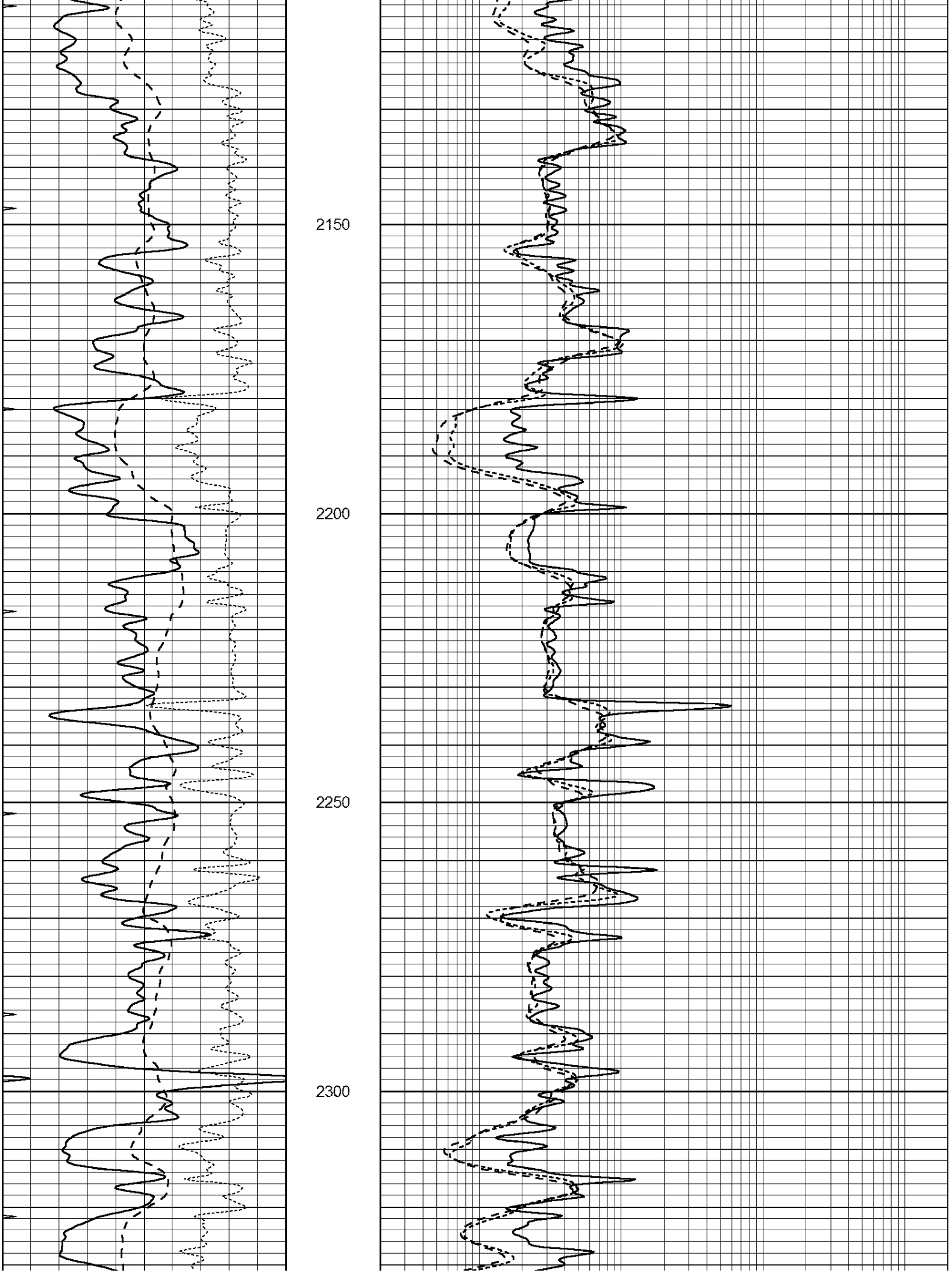
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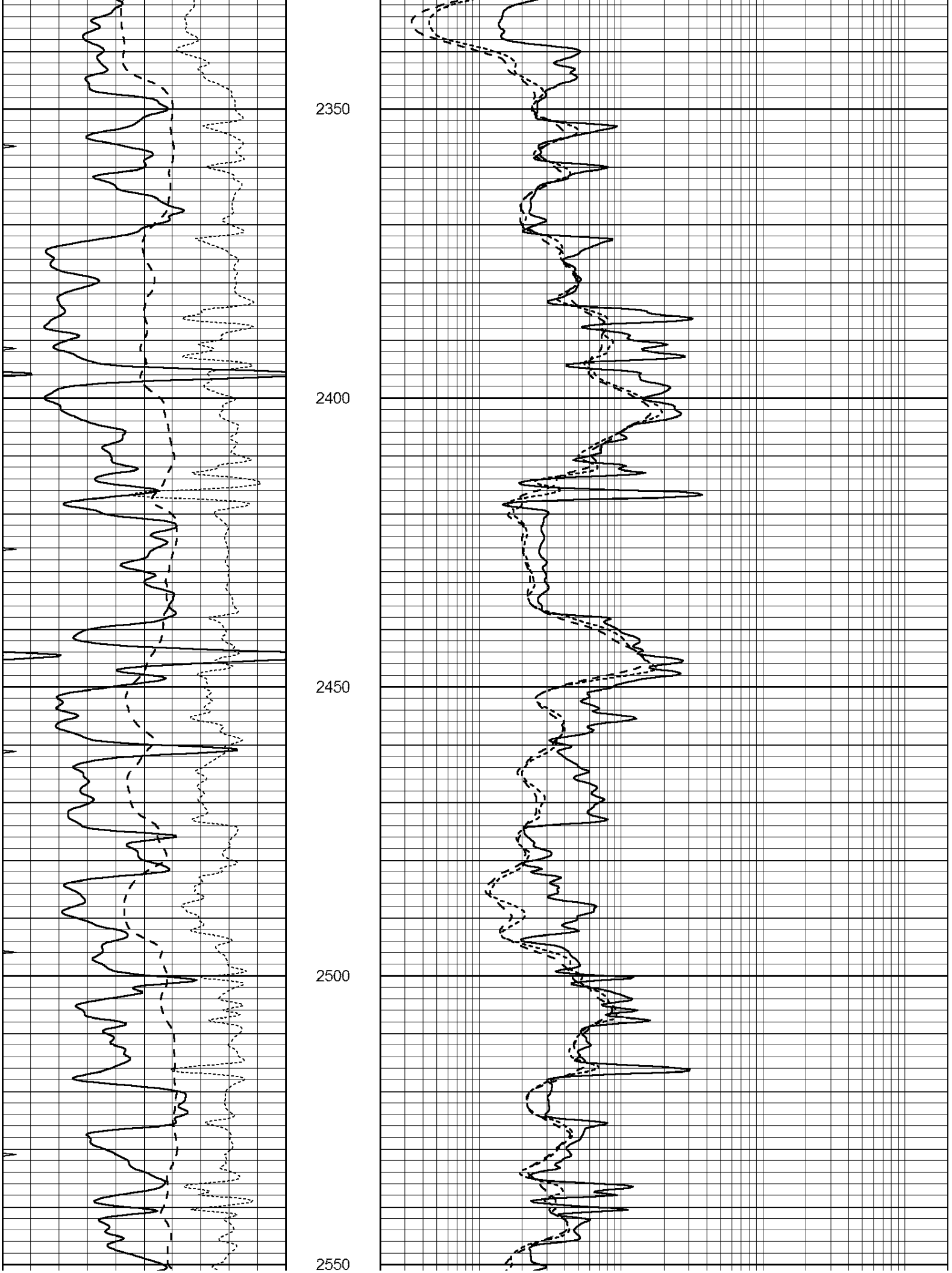
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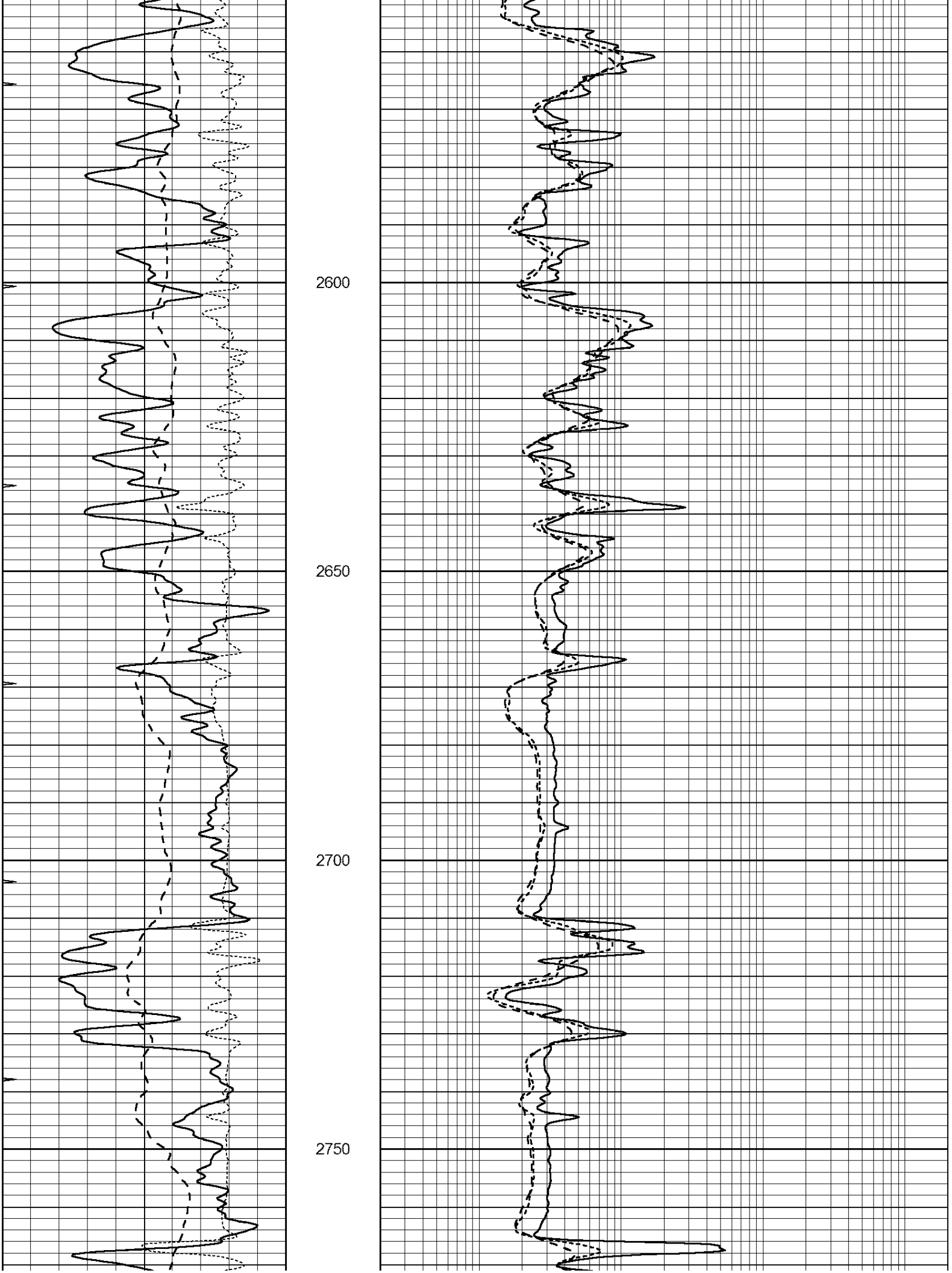
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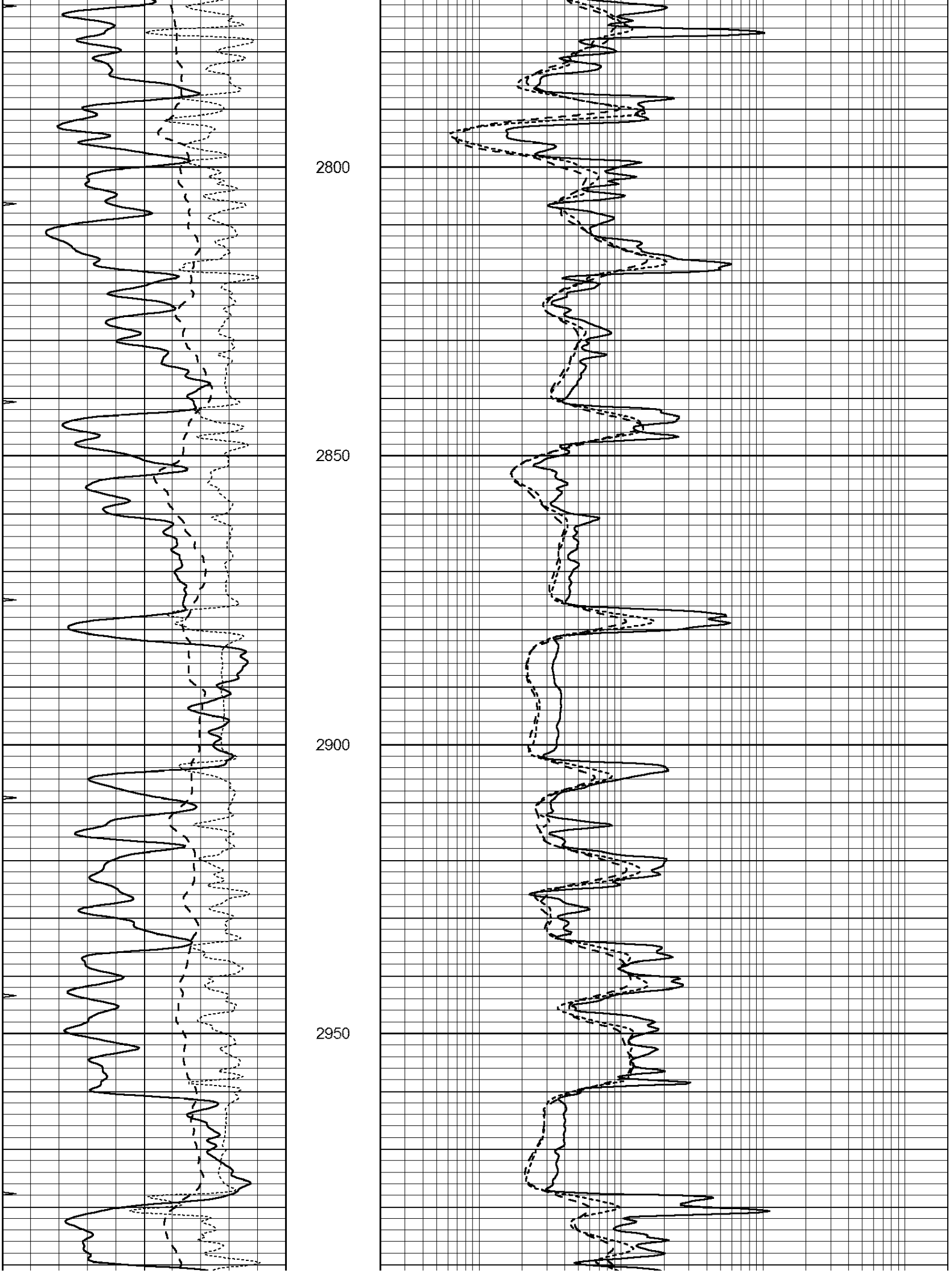
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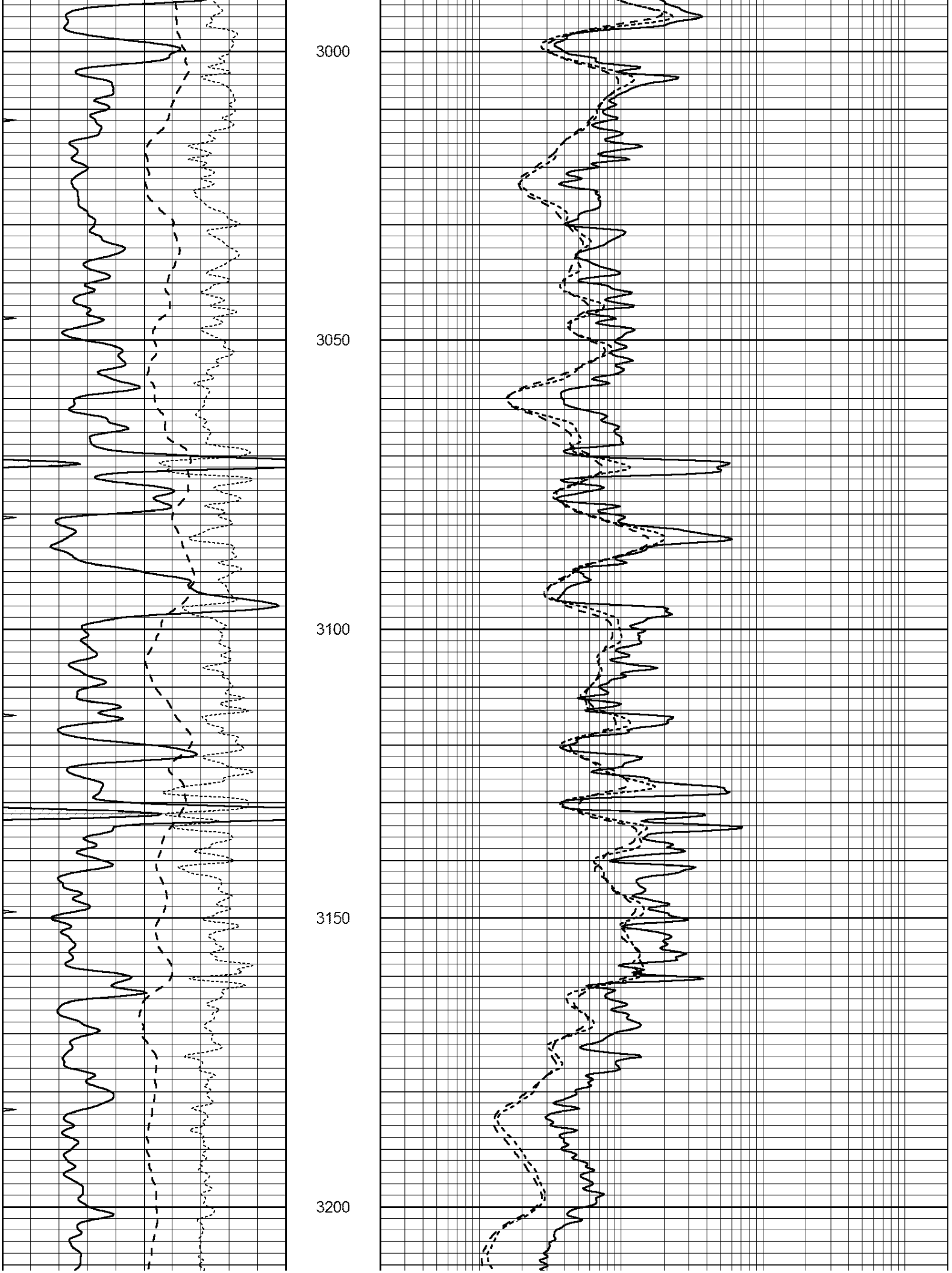
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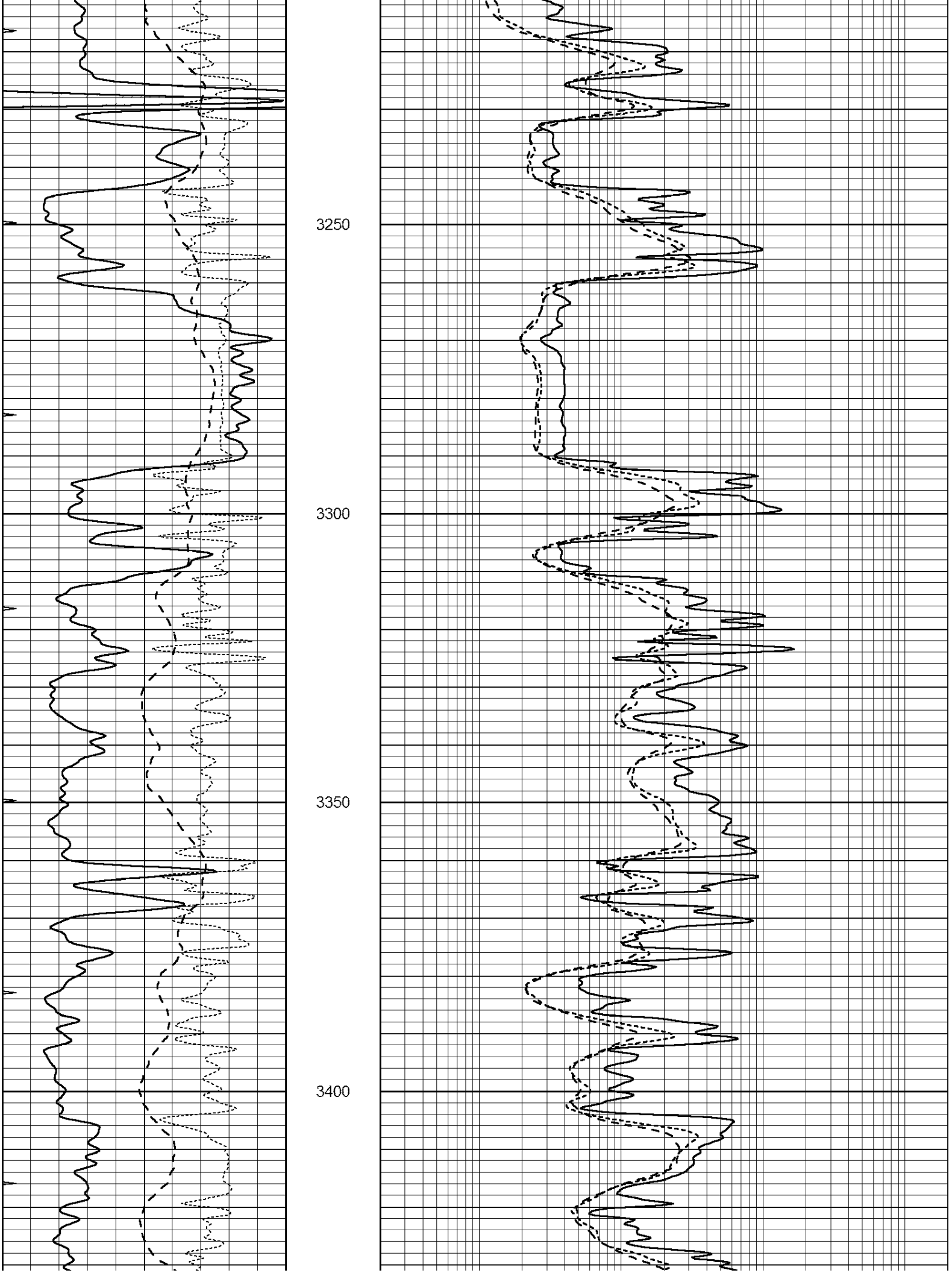
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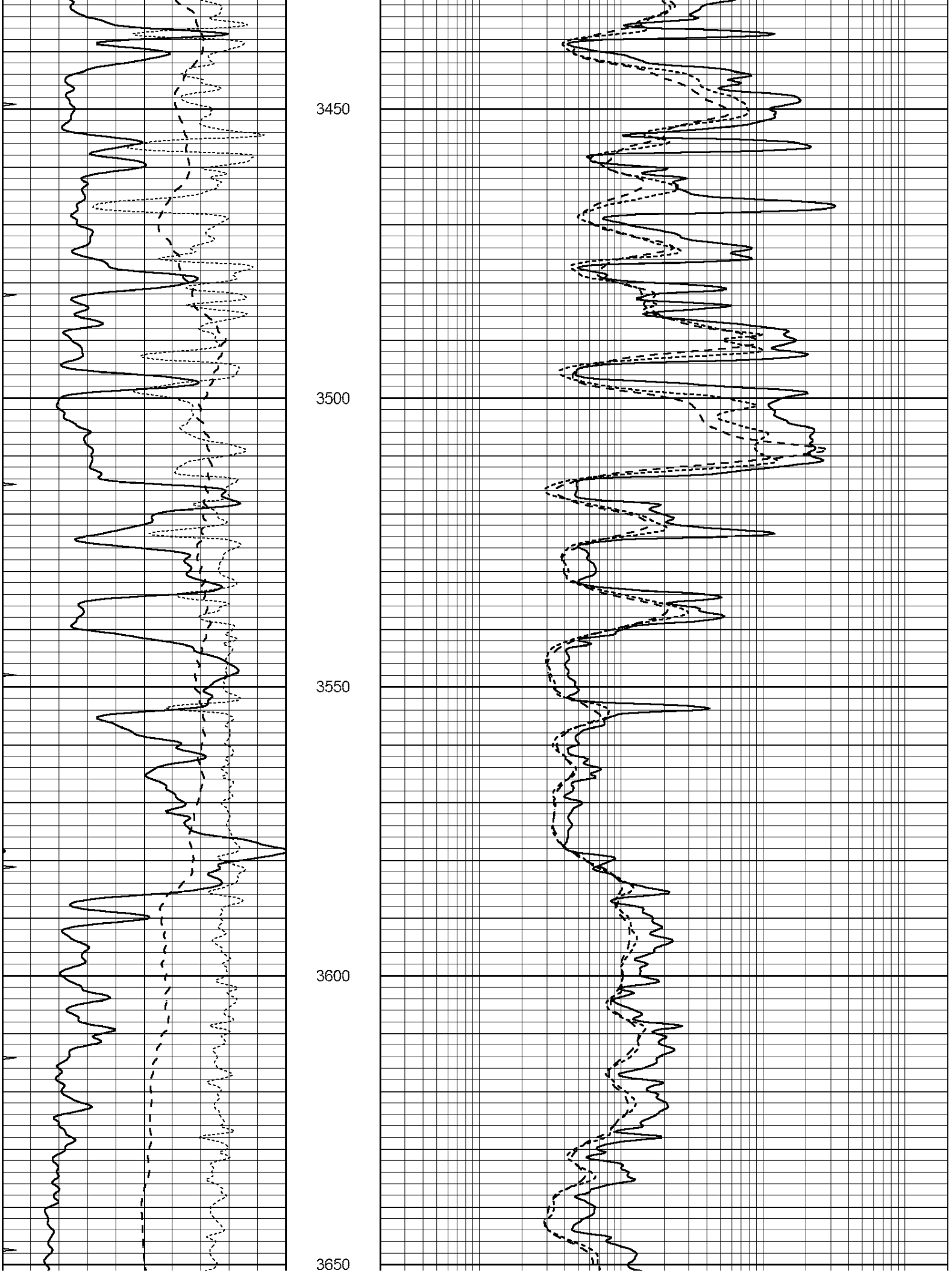
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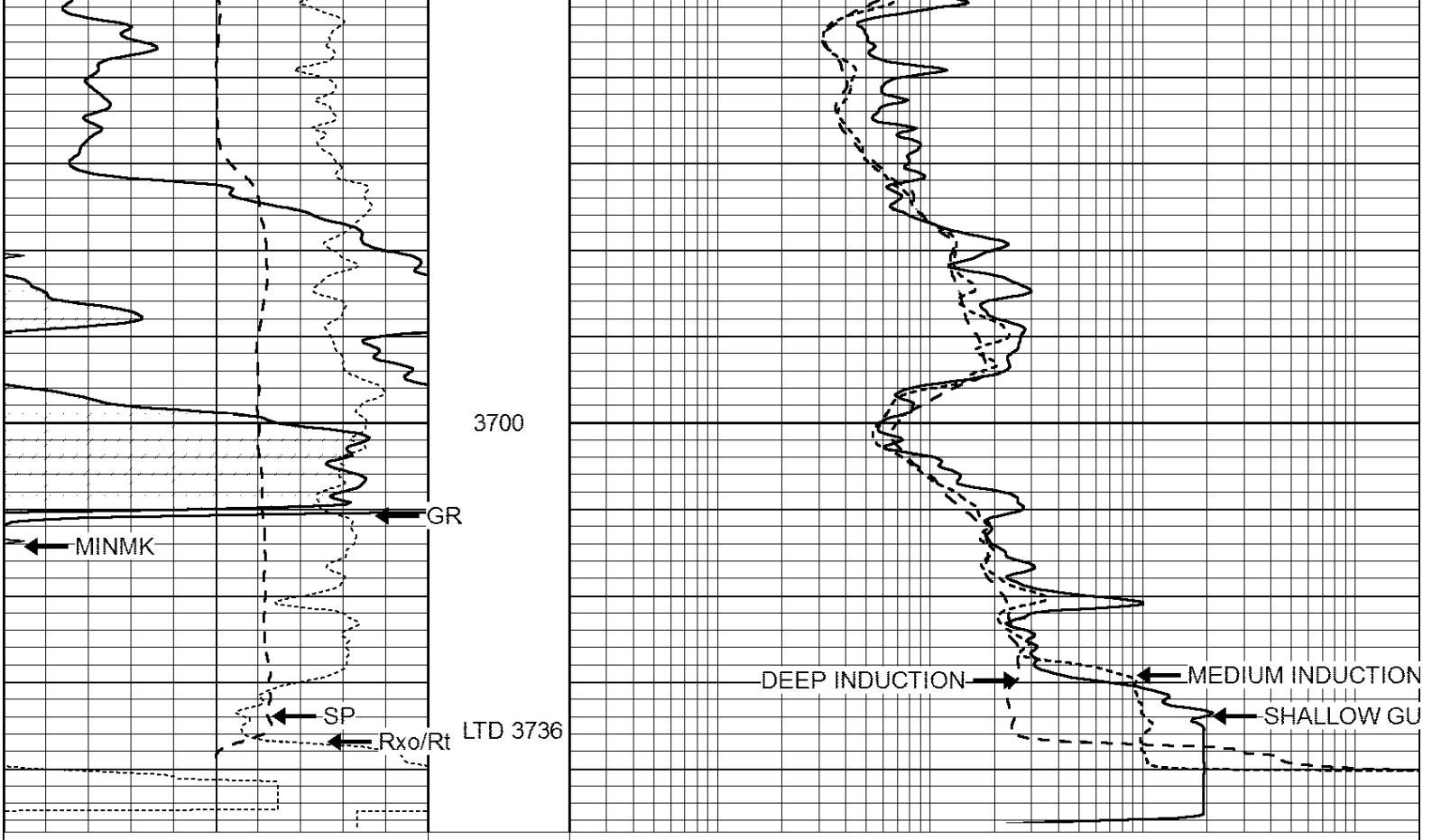


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

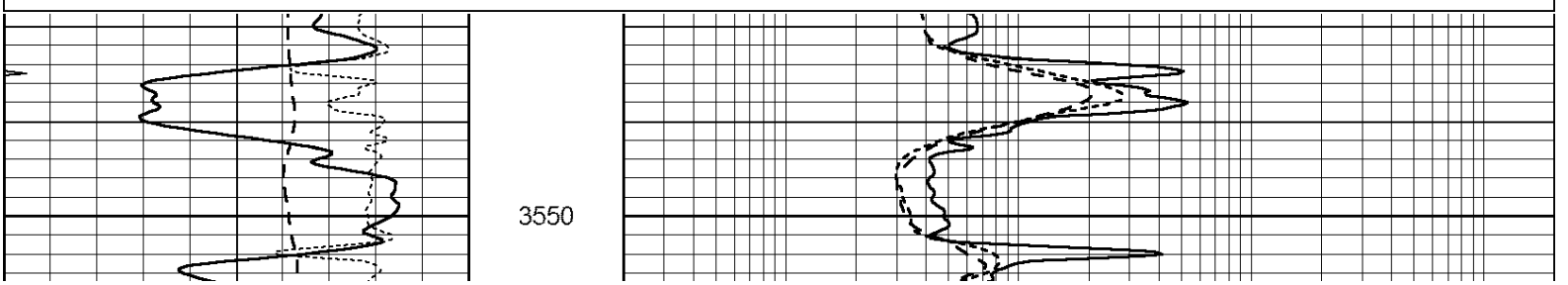
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

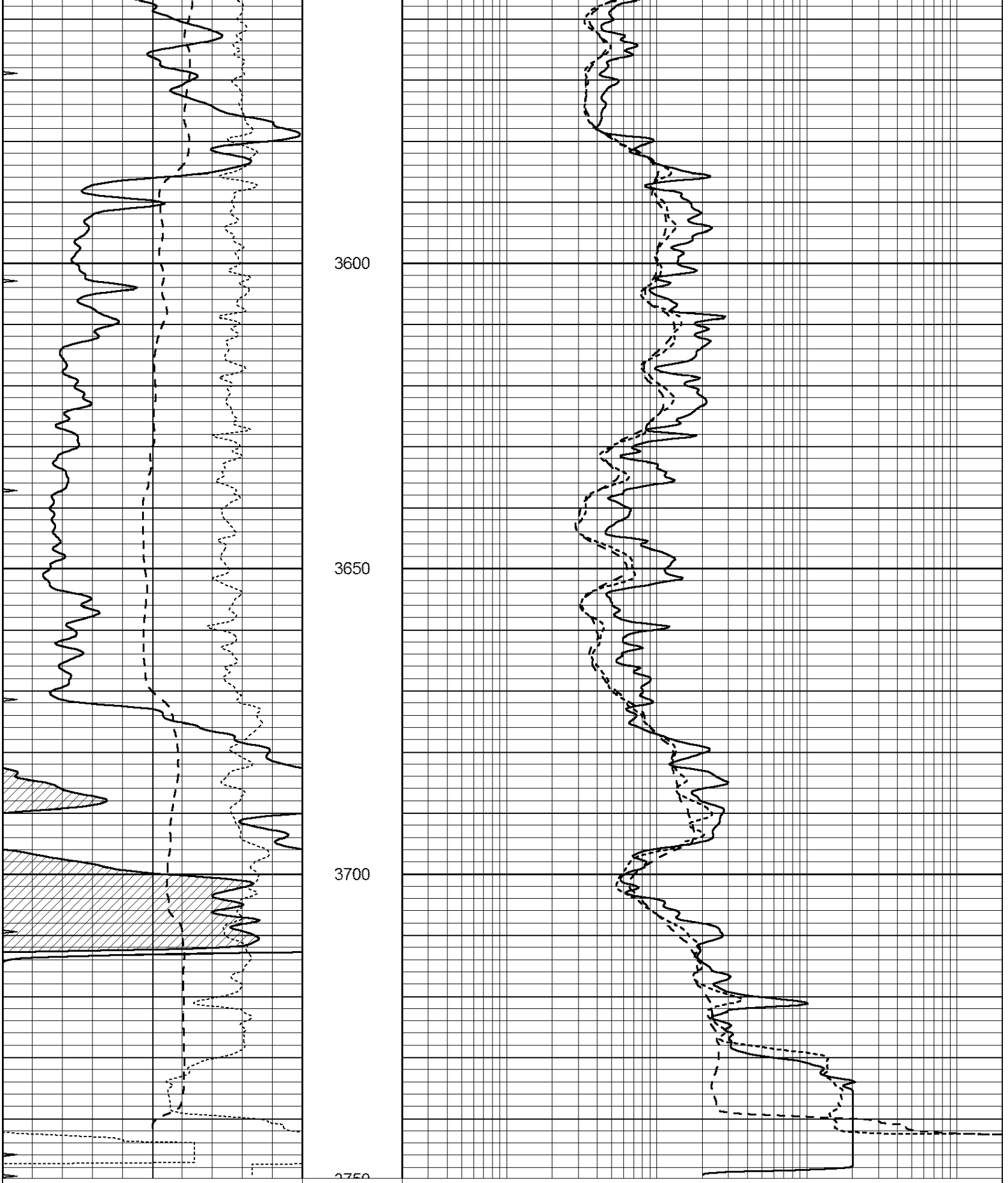
REPEAT SECTION

Database File: 1473ddn.db
Dataset Pathname: pass2.1
Presentation Format: _dil
Dataset Creation: Sun Jun 25 11:43:56 2017 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (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	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 1473ddn.db
Dataset Pathname: pass2.1
Dataset Creation: Sun Jun 25 11:43:56 2017 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:	PROBE8-DILG
Surface Cal Performed:	Tue Mar 21 18:55:38 2017
Downhole Cal Performed:	Tue Mar 21 18:55:43 2017
After Survey Verification Performed:	Tue Mar 21 18:55:45 2017

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	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		

Compensated Density Calibration Report

Serial-Model:	GEAR5-GEARHART
Source / Verifier:	/
Master Calibration Performed:	Tue Mar 21 18:56:14 2017
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	798.83	490.02	cps
Aluminum	2.570	g/cc	178.16	329.19	cps

Spine Angle = 75.15

Density/Spine Ratio = 0.554

	Size		Reading	
Small Ring	7.15	in	1.47	V
Large Ring	14.00	in	3.01	V

Before Survey Verification

Target		Measured	
	g/cc		g/cc
	g/cc		g/cc
	g/cc		g/cc

After Survey Verification

Target		Measured	
	g/cc		g/cc
	g/cc		g/cc
	g/cc		g/cc

Compensated Neutron Calibration Report

Serial Number: 6I
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

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		cps				
	Long Space		cps		pu		

POST-SURVEY VERIFICATION

	Detector	Readings		Measured		Target	
1)	Short Space		cps				
	Long Space		cps		pu		pu
2)	Short Space		cps				
	Long Space		cps		pu		pu
3)	Short Space		cps				
	Long Space		cps		pu		pu

Gamma Ray Calibration Report

Serial Number: GR6
Tool Model: OPEN
Performed: Tue Mar 21 18:56:51 2017

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 276.0 cps

Sensitivity: 0.5500 GAPI/cps