PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company MURFIN DRILLING CO., INC.
Well C & C UNIT #1-30
Field WILDCAT
County CHEYENNE State KANSAS
Location: API #: 15-023-21529-00-00
1320' FNL & 2815' FEL
SEC 30 TWP 2S RGE 37W

Other Services: CNL/CDL MEL/BHCS

Elevation: K.B. 3326' D.F. N/A G.L. 3321'

Permanent Datum: GROUND LEVEL Elevation 3321'
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

Date	2/11/2020		
Run Number	ONE		
Depth Driller	5100'		
Depth Logger	5100'		
Bottom Logged Interval	5099'		
Top Log Interval	0'		
Casing Driller	8.625" @ 306'		
Casing Logger	304'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity,ppm CL	800		
Density / Viscosity	9.2 / 62		
pH / Fluid Loss	11.5 / 6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 60		
Rmf @ Meas. Temp	0.60 @ 60		
Rmc @ Meas. Temp	1.08 @ 60		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.41 @ 118		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	118		
Equipment Number	P-24		
Location	HAYS		
Recorded By	IAN MABB		
Witnessed By	SAMAN SHARIFAIE		

<<< Fold Here >>>

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

BIRD CITY, KS.
NORTH 7 MILES TO U RD, EAST 1 1/2 MILES,
SOUTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: SAMAN SHARIFAIE
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_c&c_unit_1_30.db
Dataset field/well/stackmel/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	118	5.5	0	1	2	2.71

NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	3	6	554	0	Off	5100

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (233-M&W)	3.00	3.50	50.00
GR	40.58					
CNLSC	37.48		CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73					
			CDL-M&W (817-947)	8.50	4.00	250.00
LSD	28.43					
DCAL	28.42					
SSD	27.93					
			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
MCAL	19.83					
MI	19.83					
MN	19.83					
RLL3F	15.80					
RLL3	15.80					
			DIL-PSI HIGH TEMP (952-828)	18.50	3.50	220.00
CILD	8.00					

CILM	4.70	
SP	0.20	

Dataset: murfin_c&c_unit_1_30.db: field/well/stackmel/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

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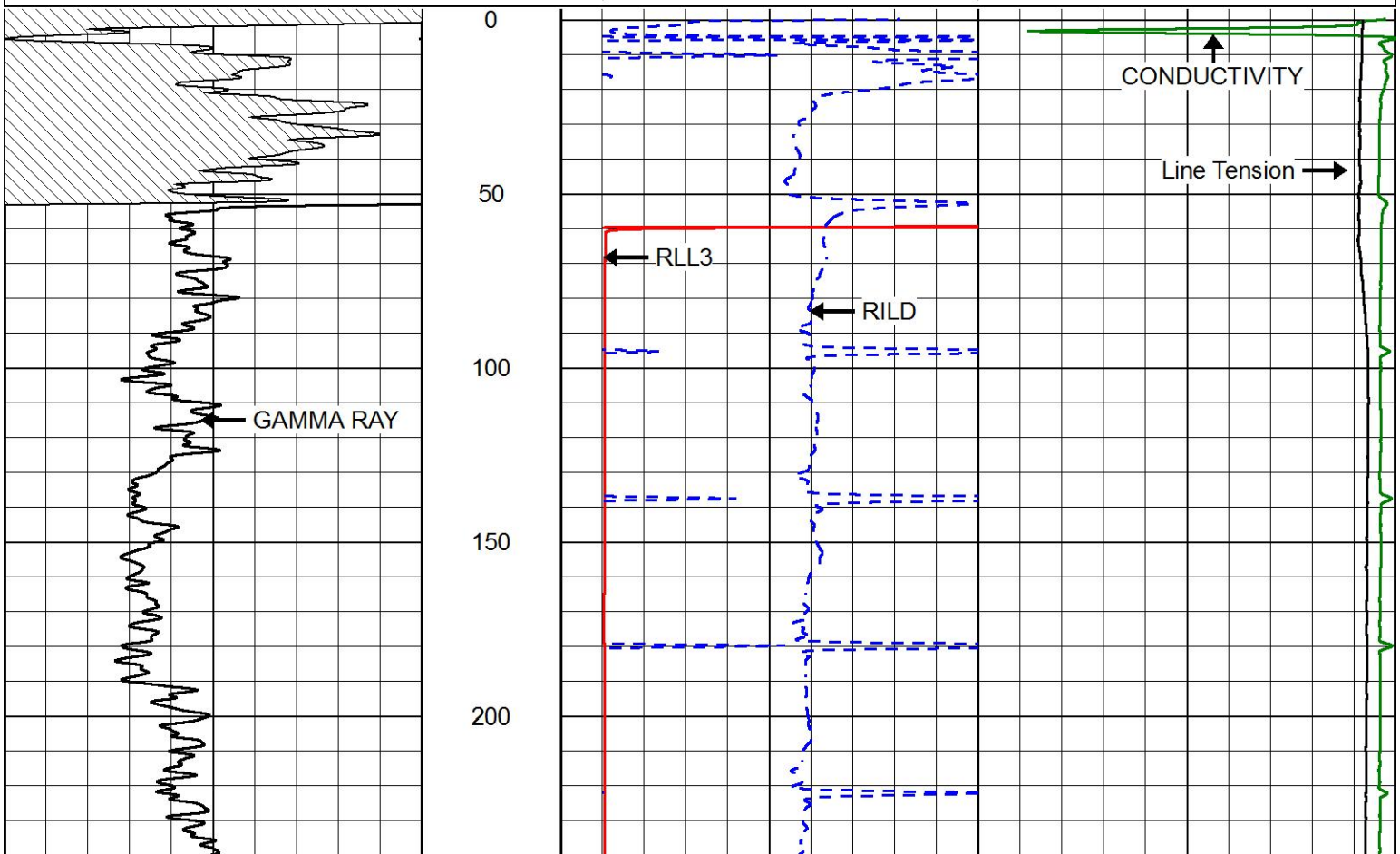
Pioneer Energy Services

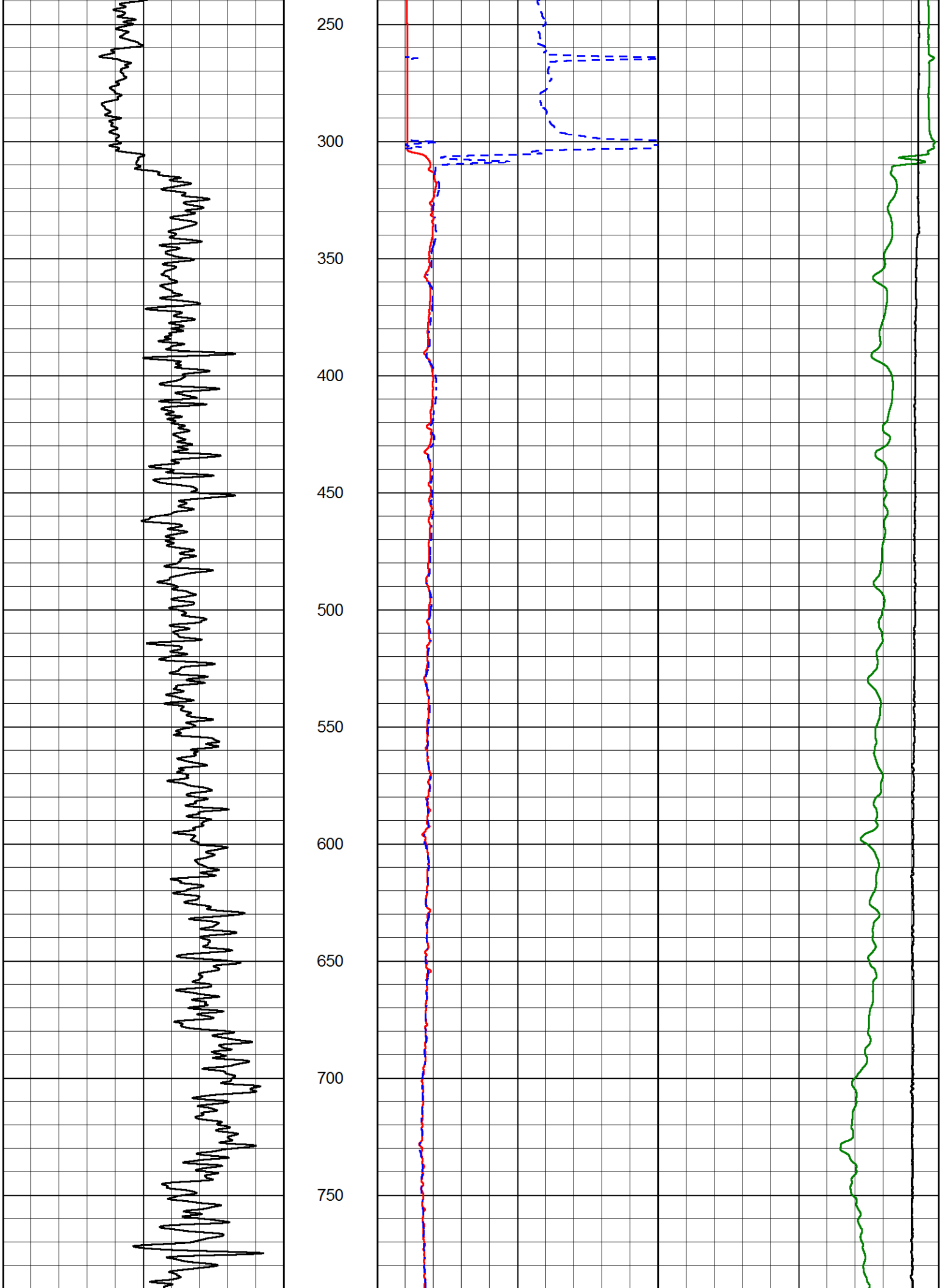
MAIN PASS

Database File	murfin_c&c_unit_1_30.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	_dil2in
Dataset Creation	Sat Feb 01 08:33:13 2020
Charted by	Depth in Feet scaled 1:600

GAMMA RAY
0 (GAPI) 150

2000 CONDUCTIVITY (mmho/m) 0
15000 Line Tension (lb) 0
0 RLL3 (Ohm-m) 50
50 RLL3 (Ohm-m) 200
0 RILD (Ohm-m) 50
50 Deep Resistivity (Ohm-m) 200

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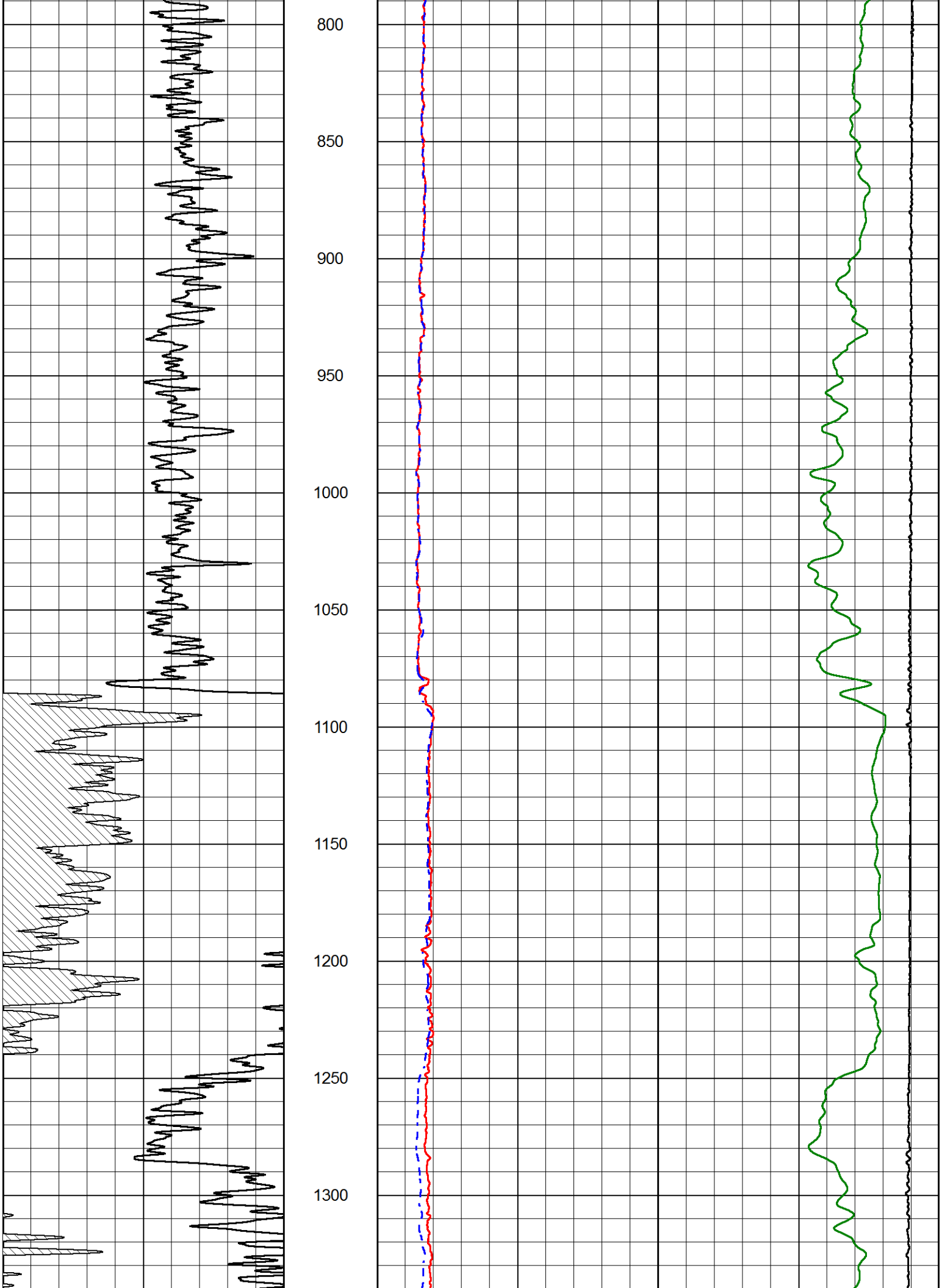
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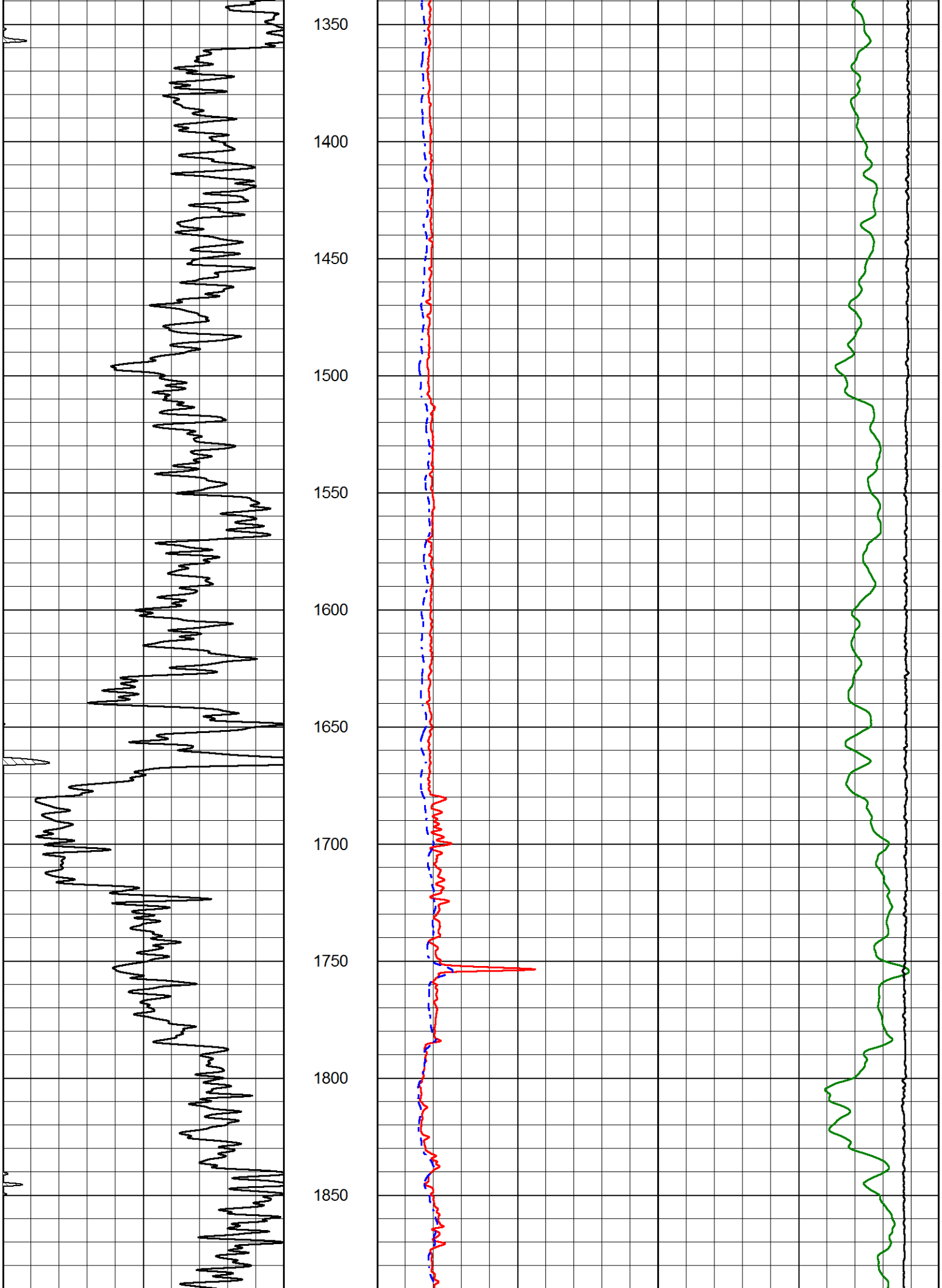
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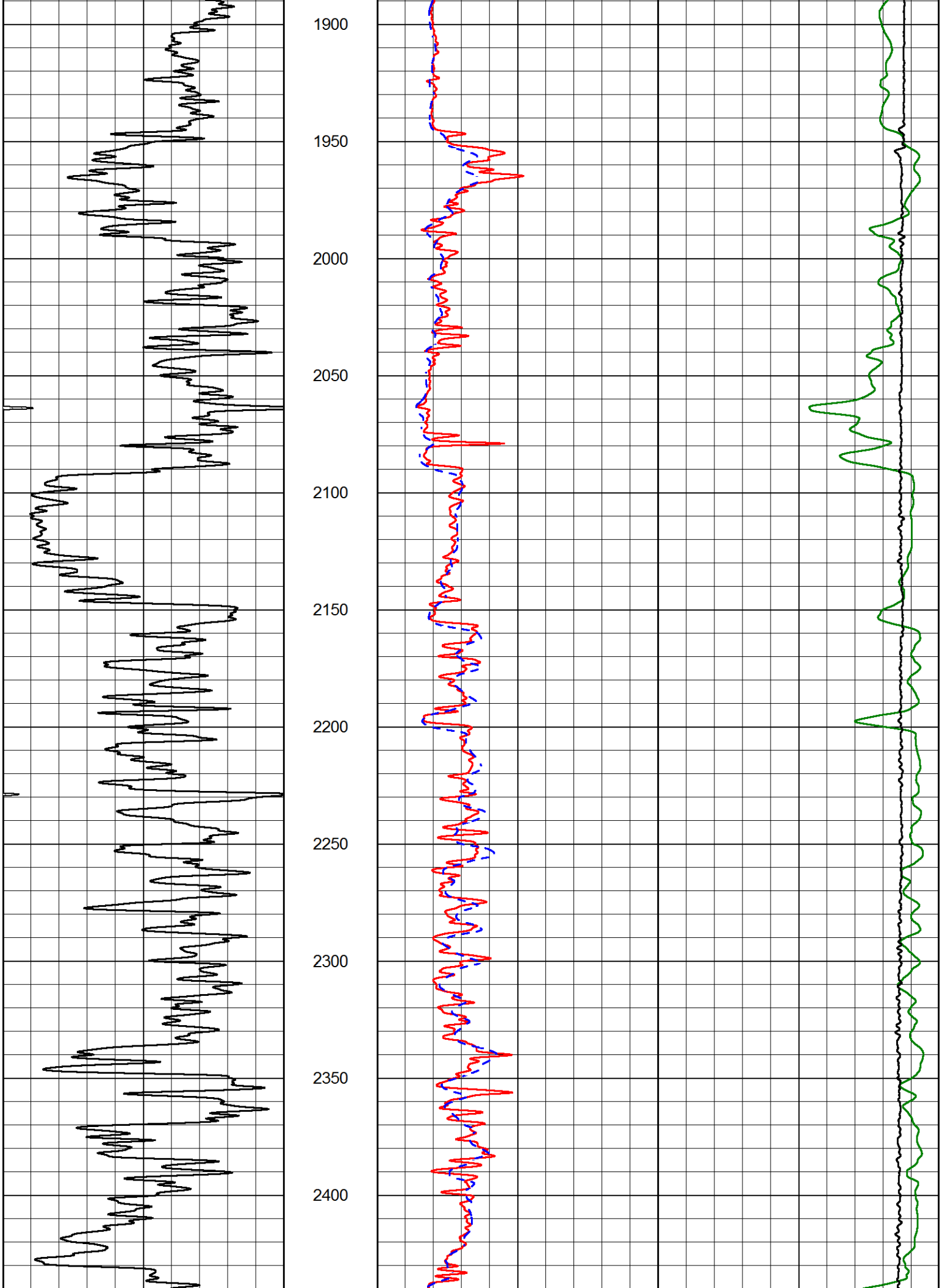
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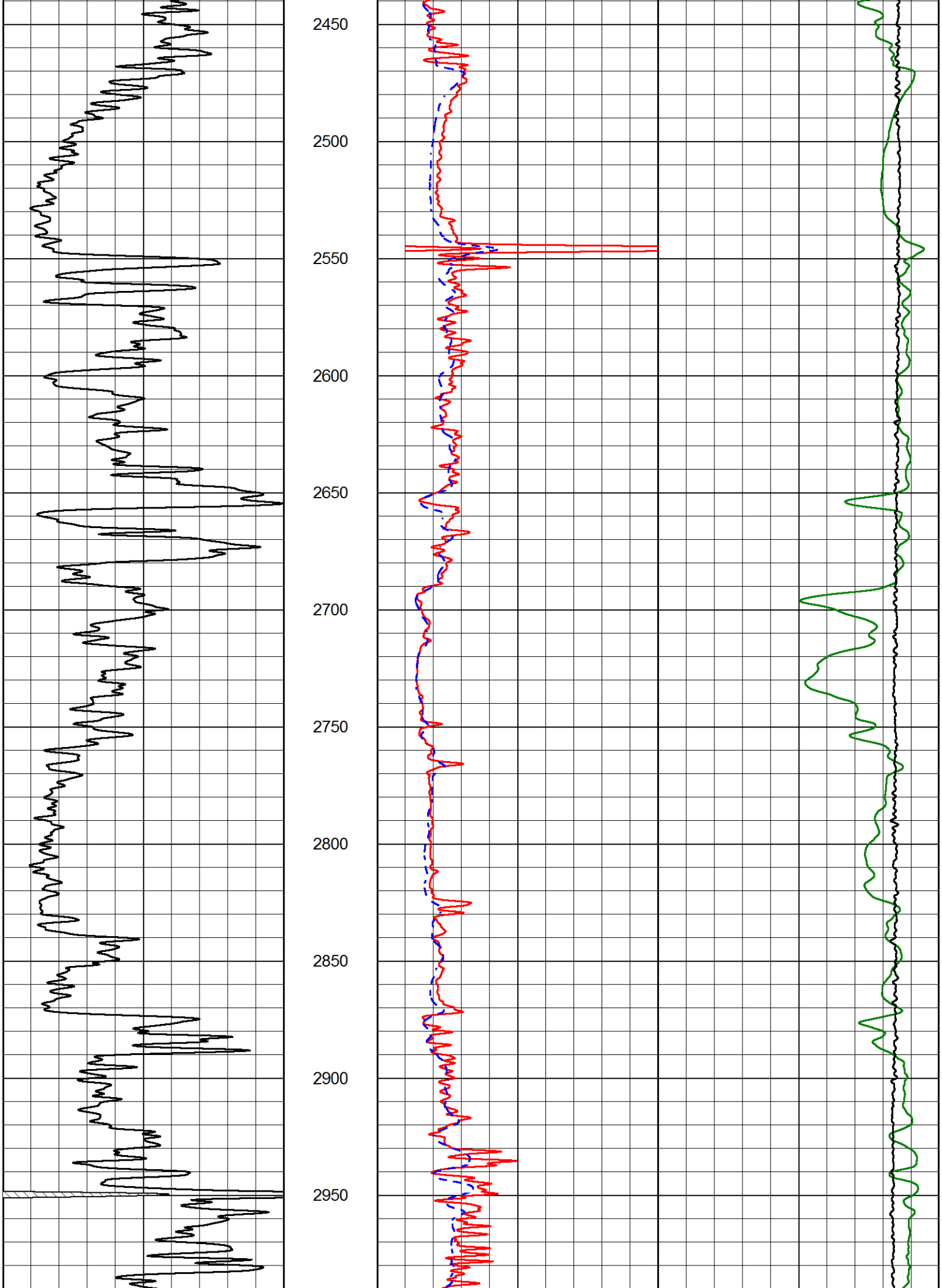
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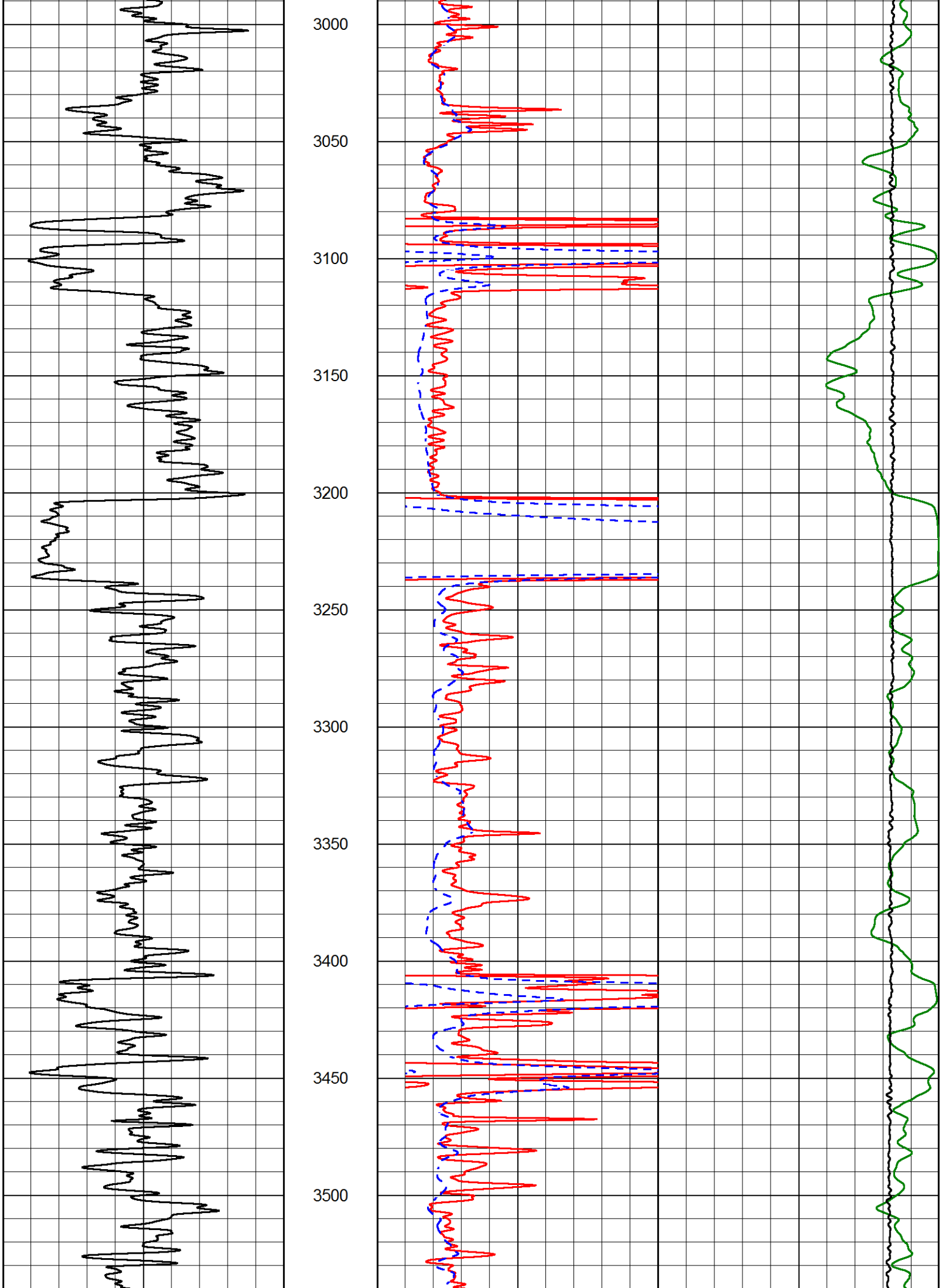
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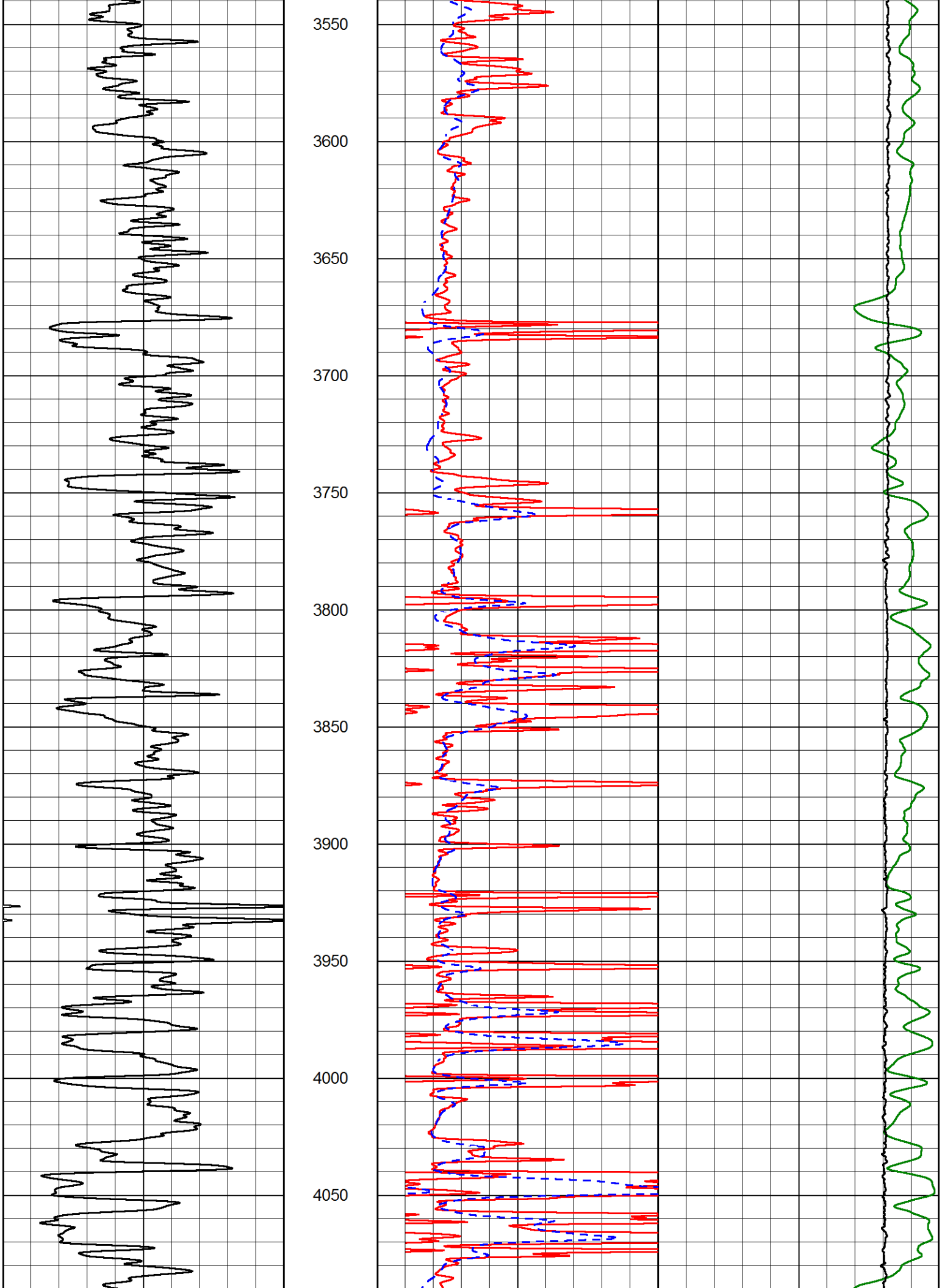
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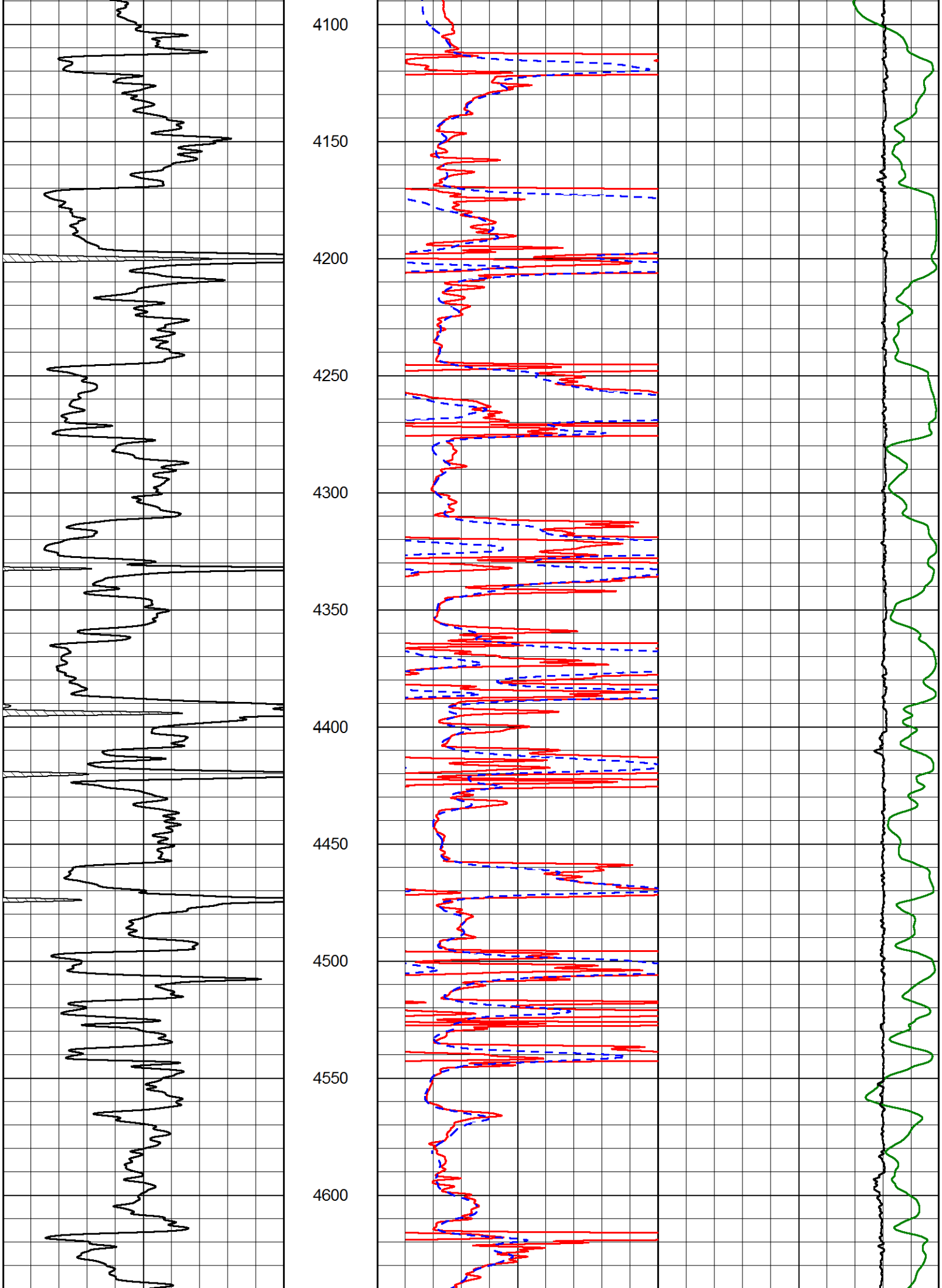
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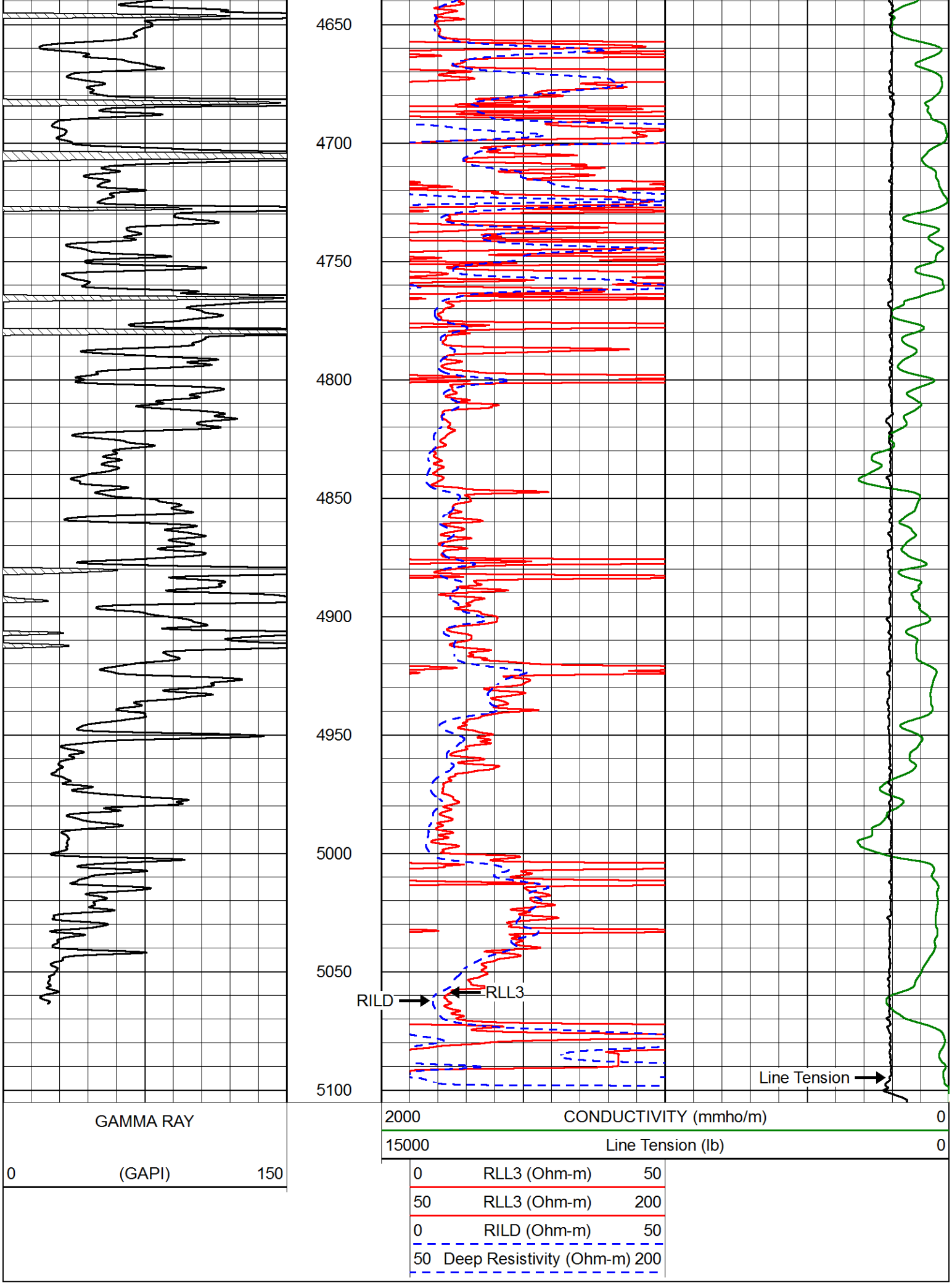
4650
4700
4750
4800
4850
4900
4950
5000
5050
5100
RILD
RLL3
Line Tension
GAMMA RAY
0
(GAPI)
150
2000
CONDUCTIVITY (mmho/m)
0
15000
Line Tension (lb)
0
0
RLL3 (Ohm-m)
50
50
RLL3 (Ohm-m)
200
0
RILD (Ohm-m)
50
50
Deep Resistivity (Ohm-m)
200

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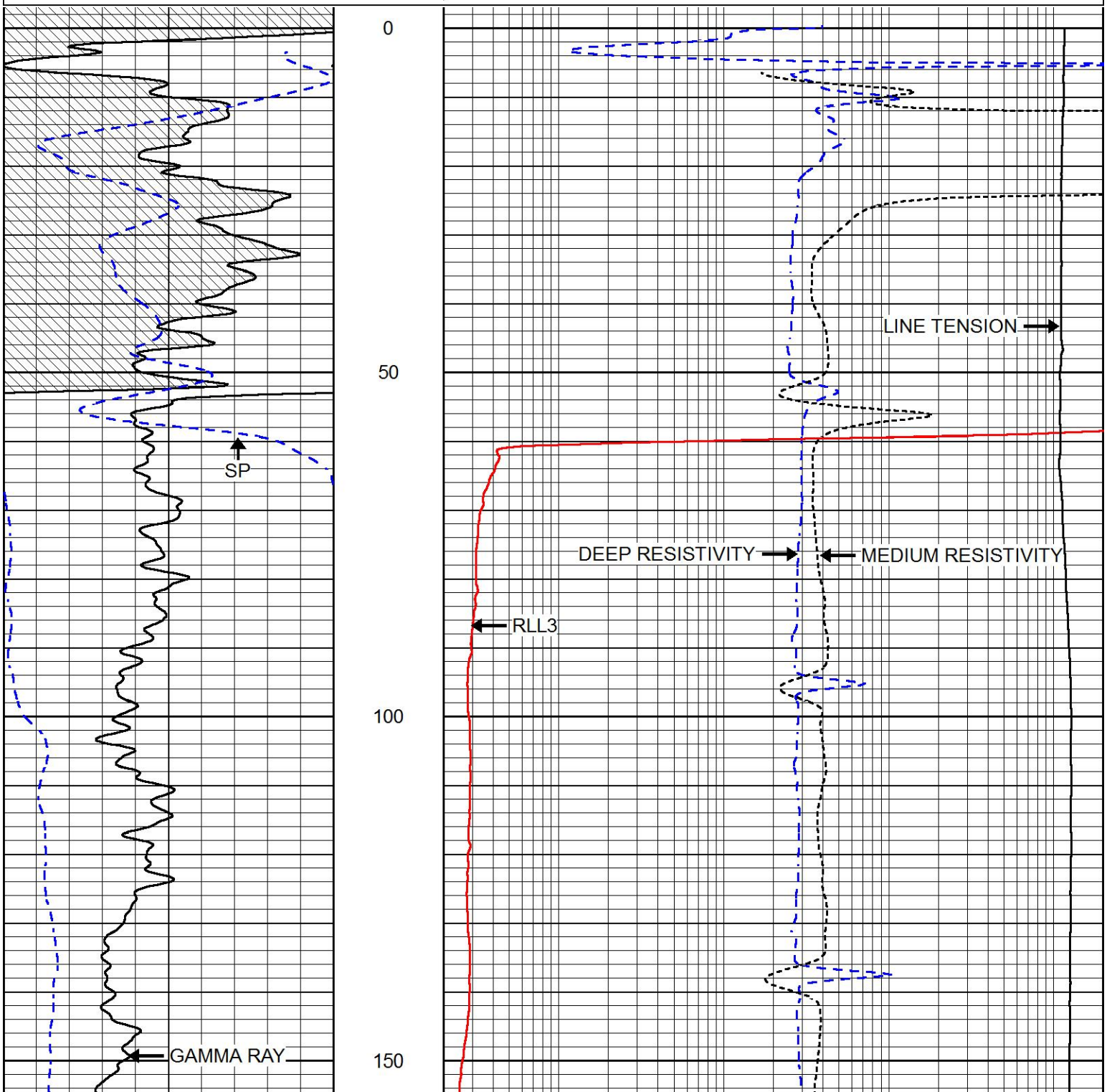
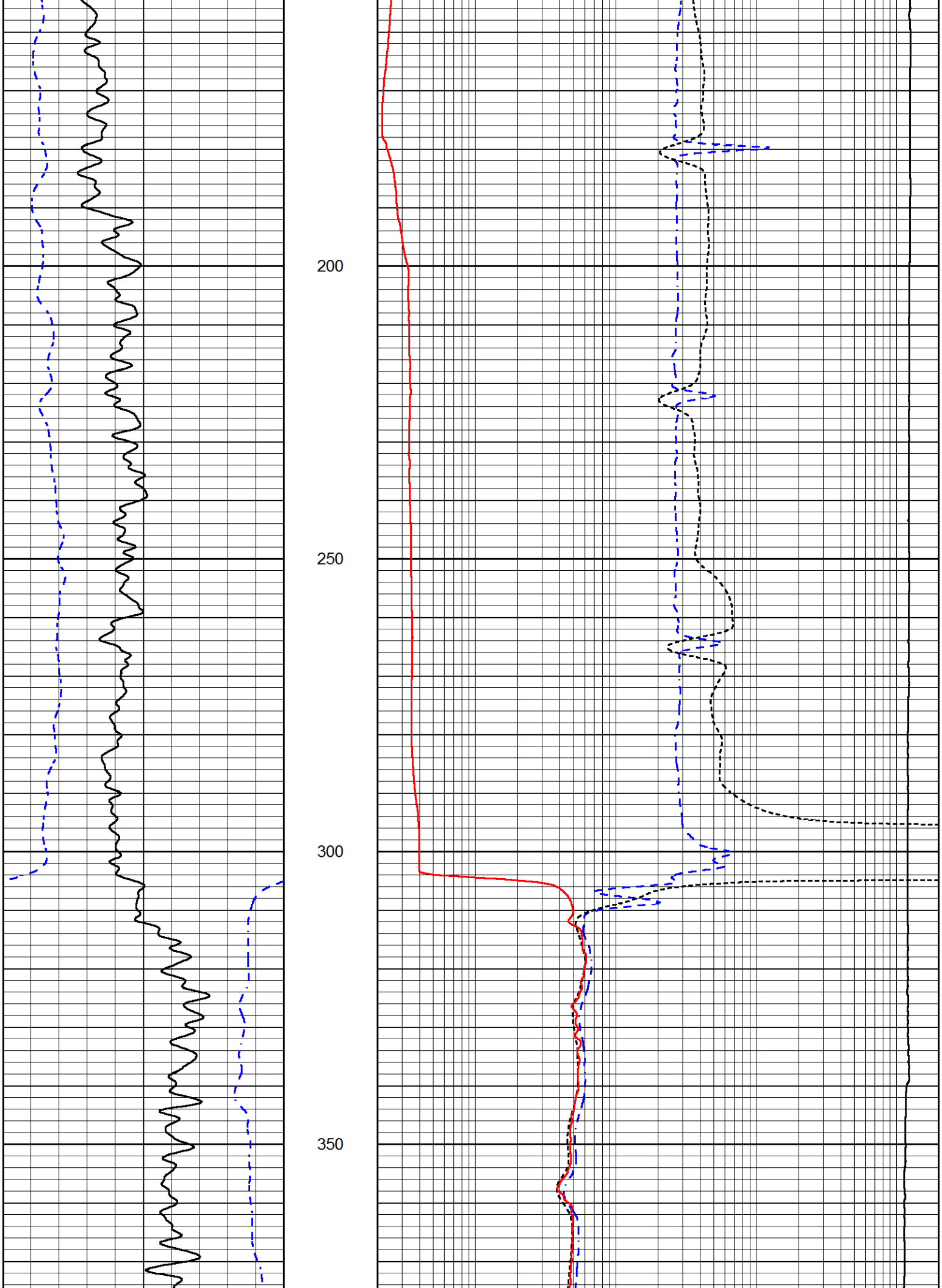
MAIN PASS

Database File	murfin_c&c_unit_1_30.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	_dil
Dataset Creation	Sat Feb 01 08:33:13 2020
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0

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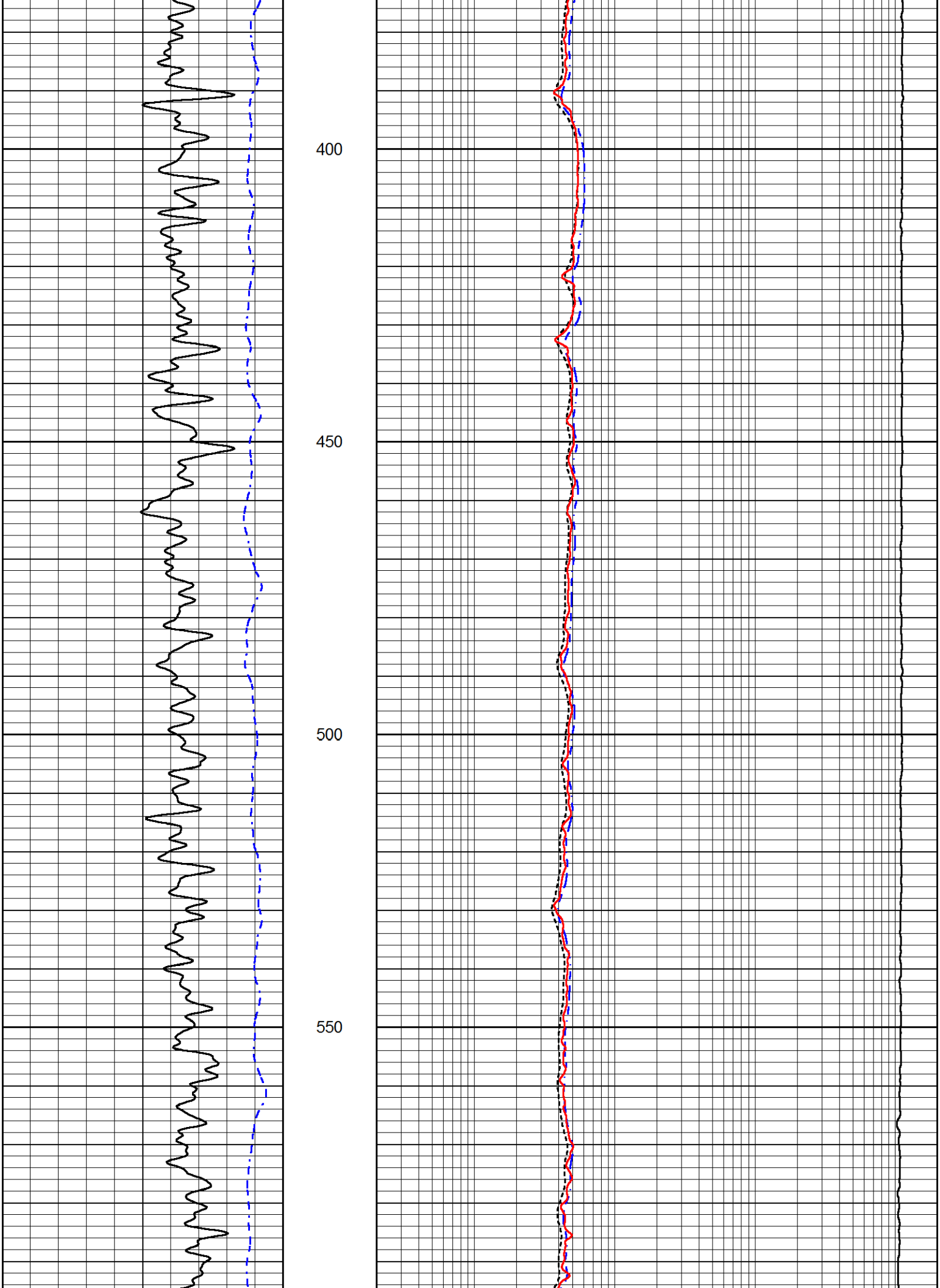
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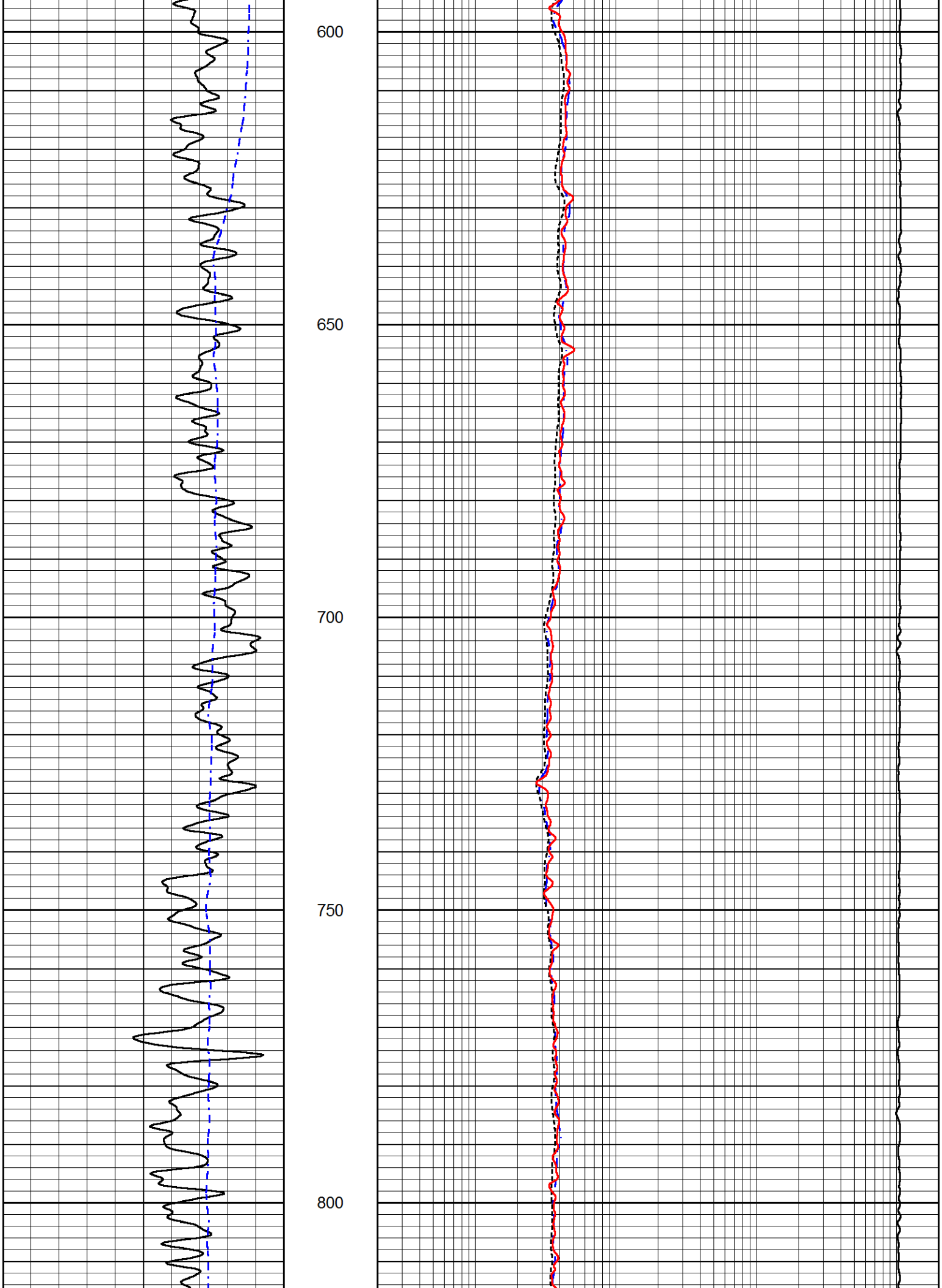
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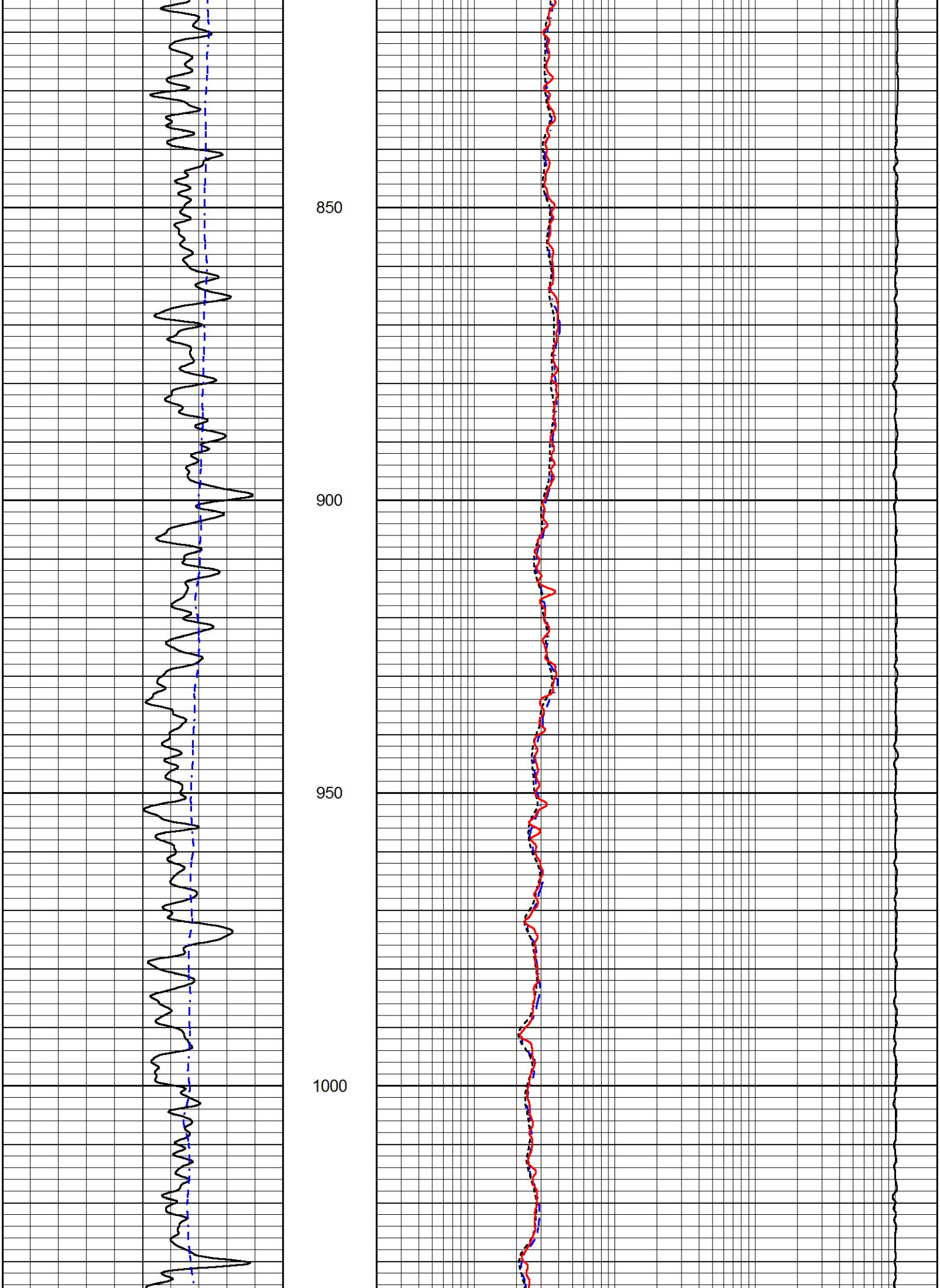
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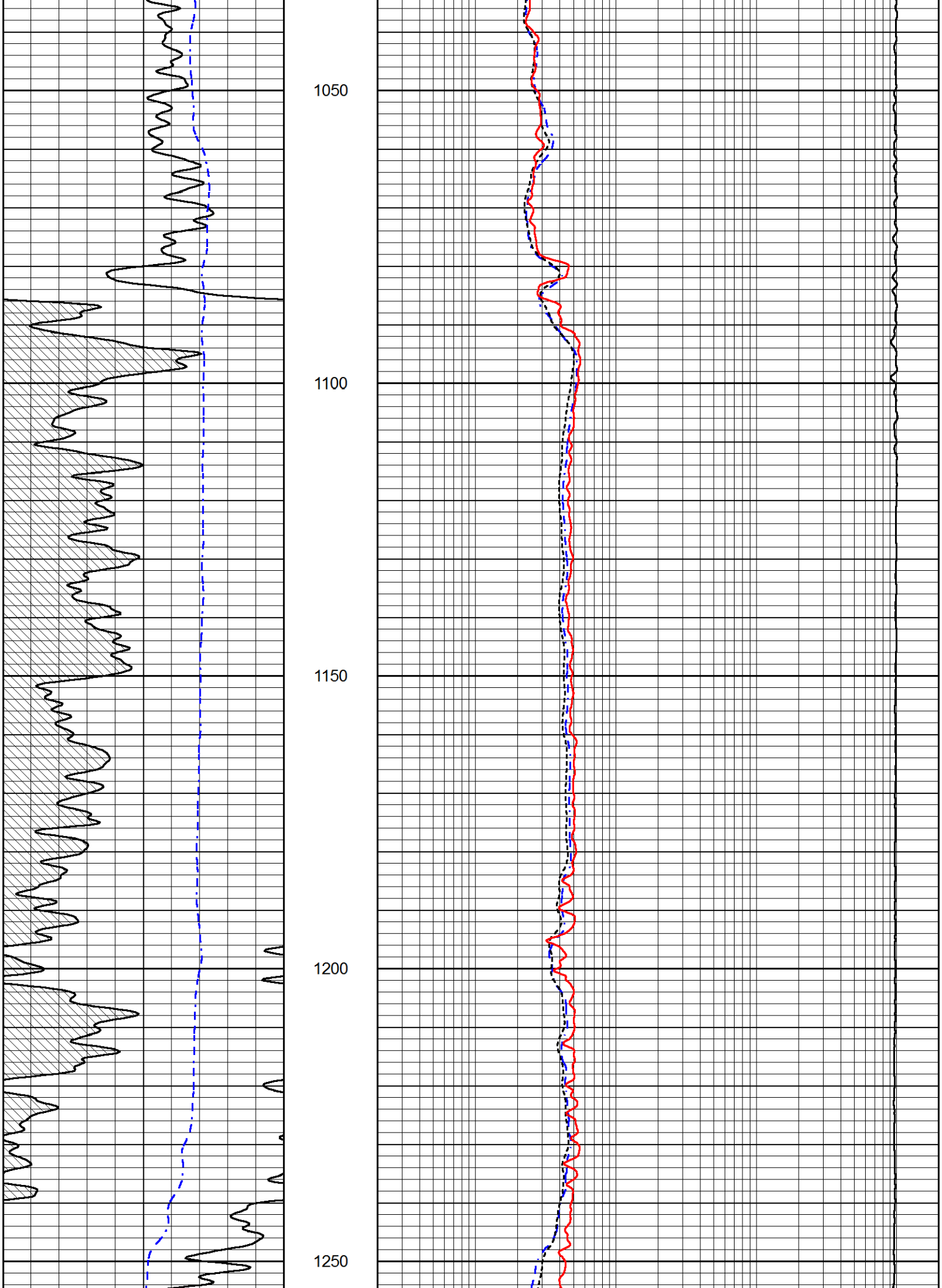
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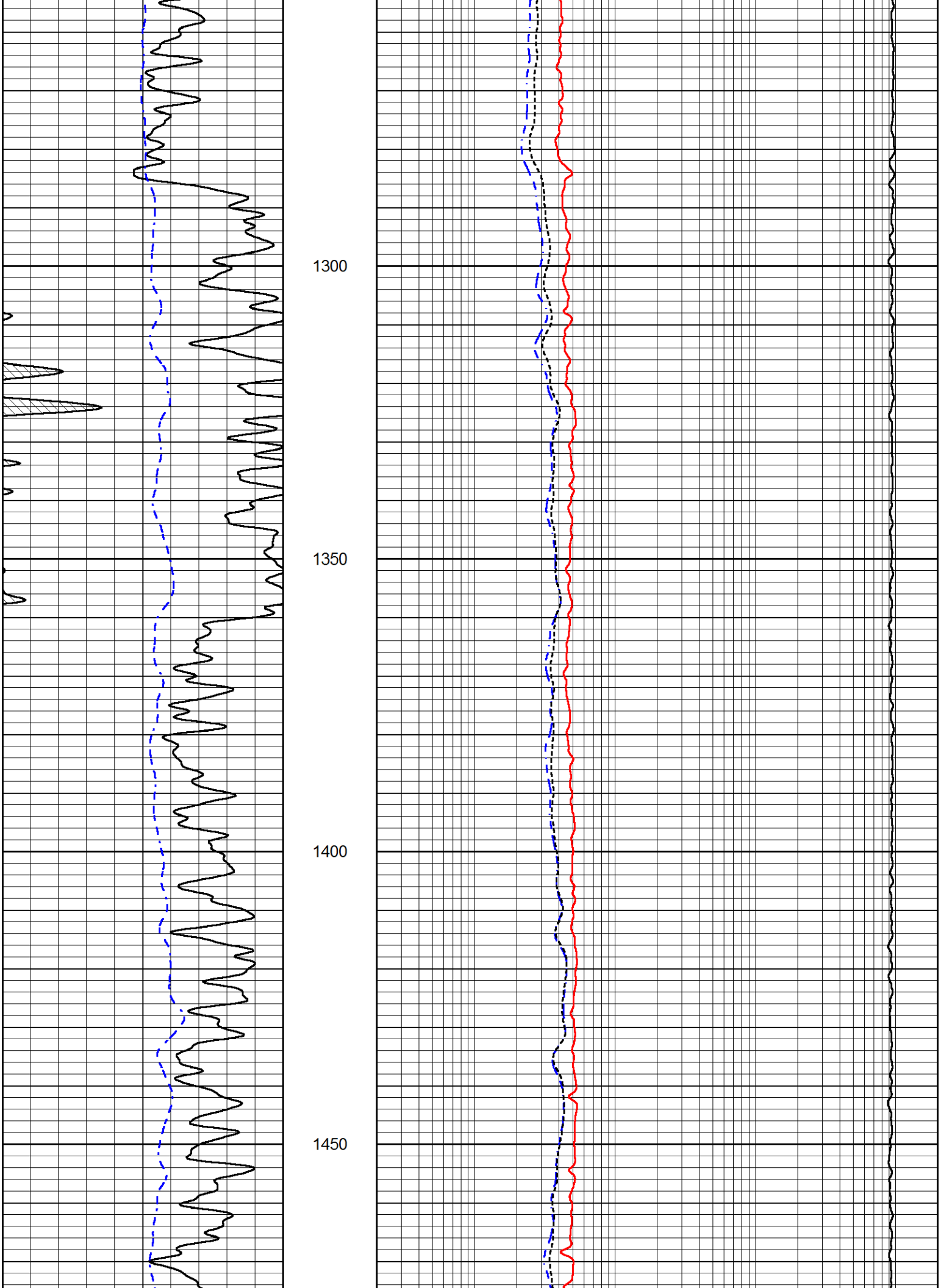
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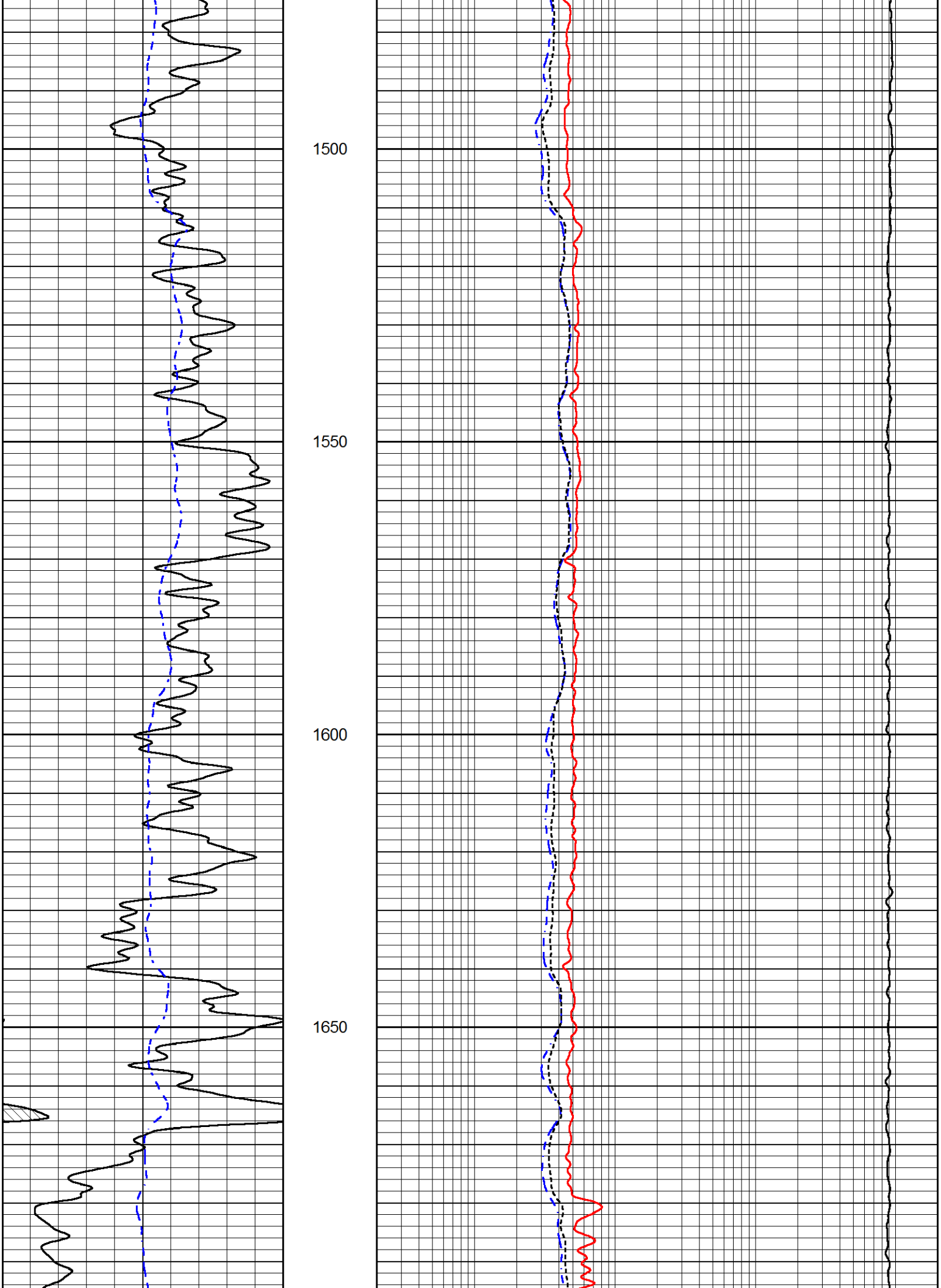
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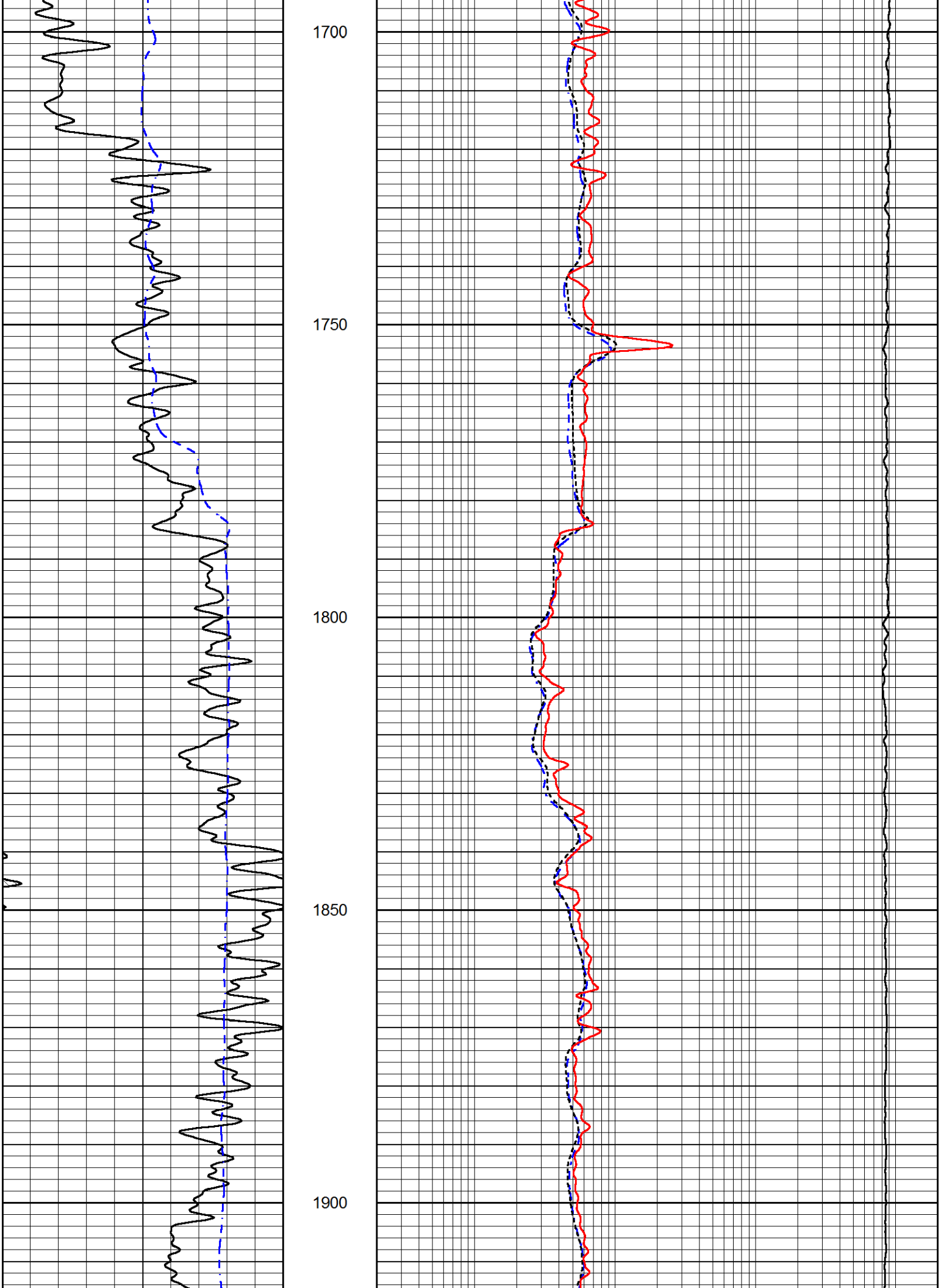
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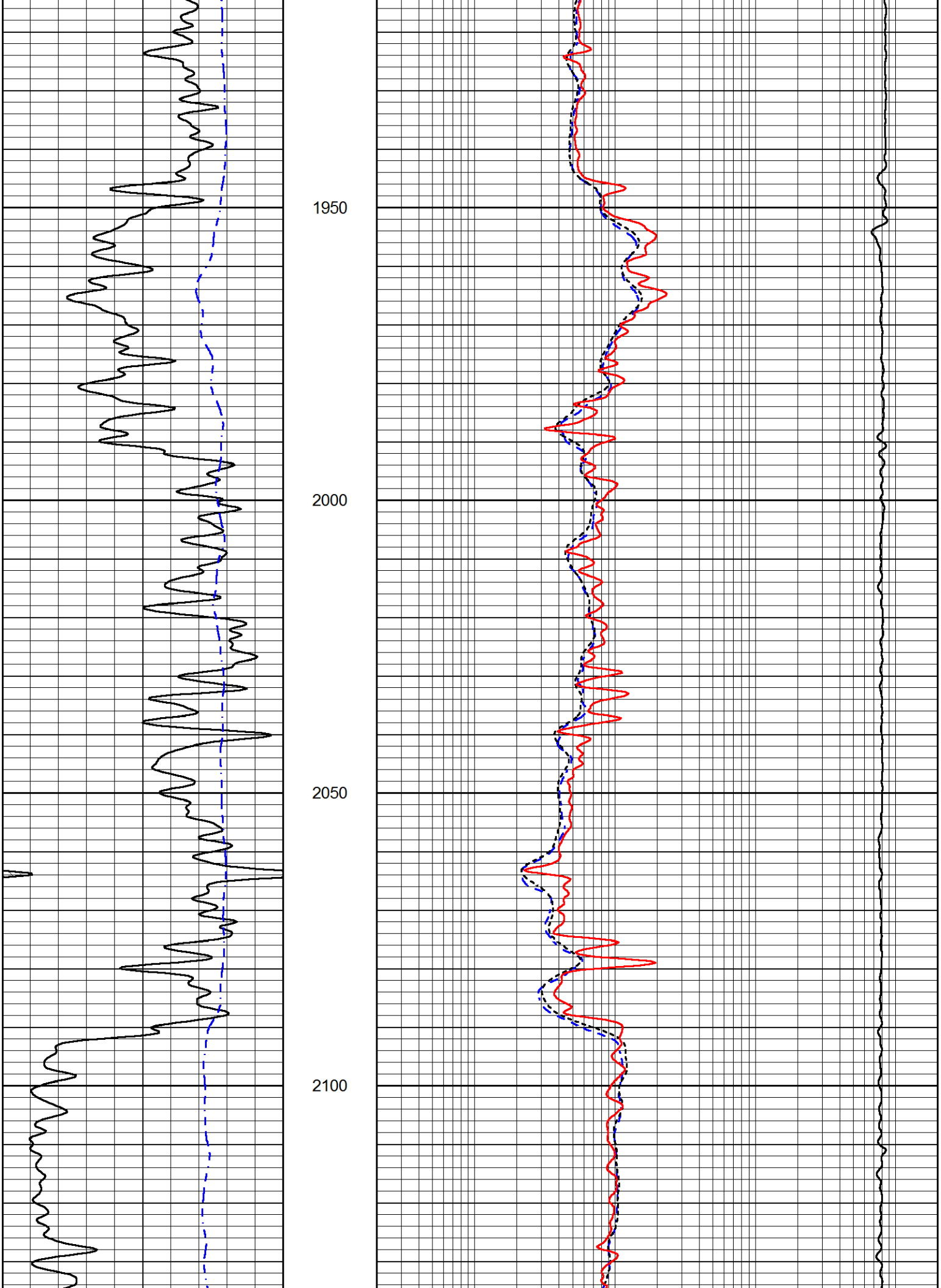
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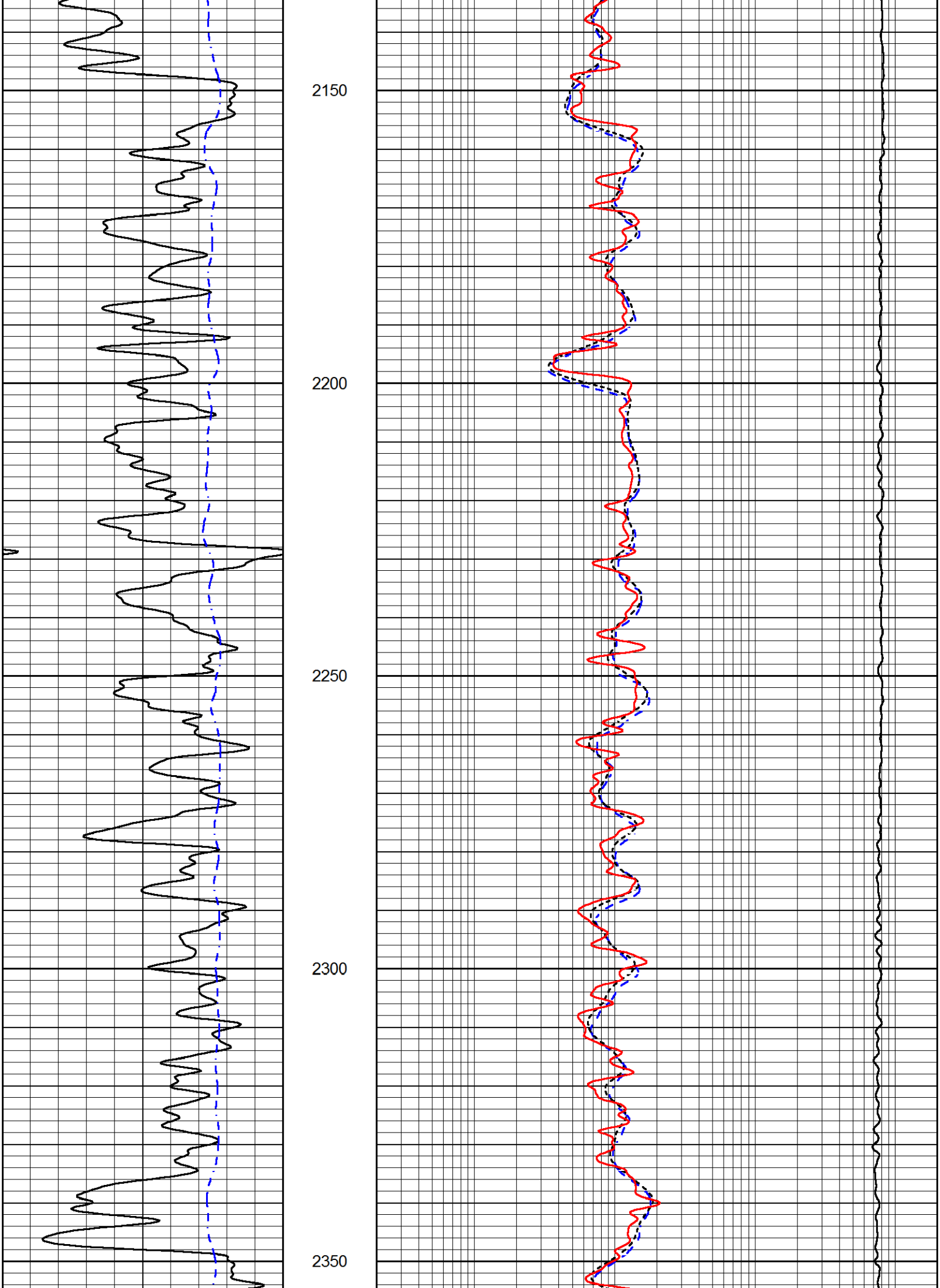
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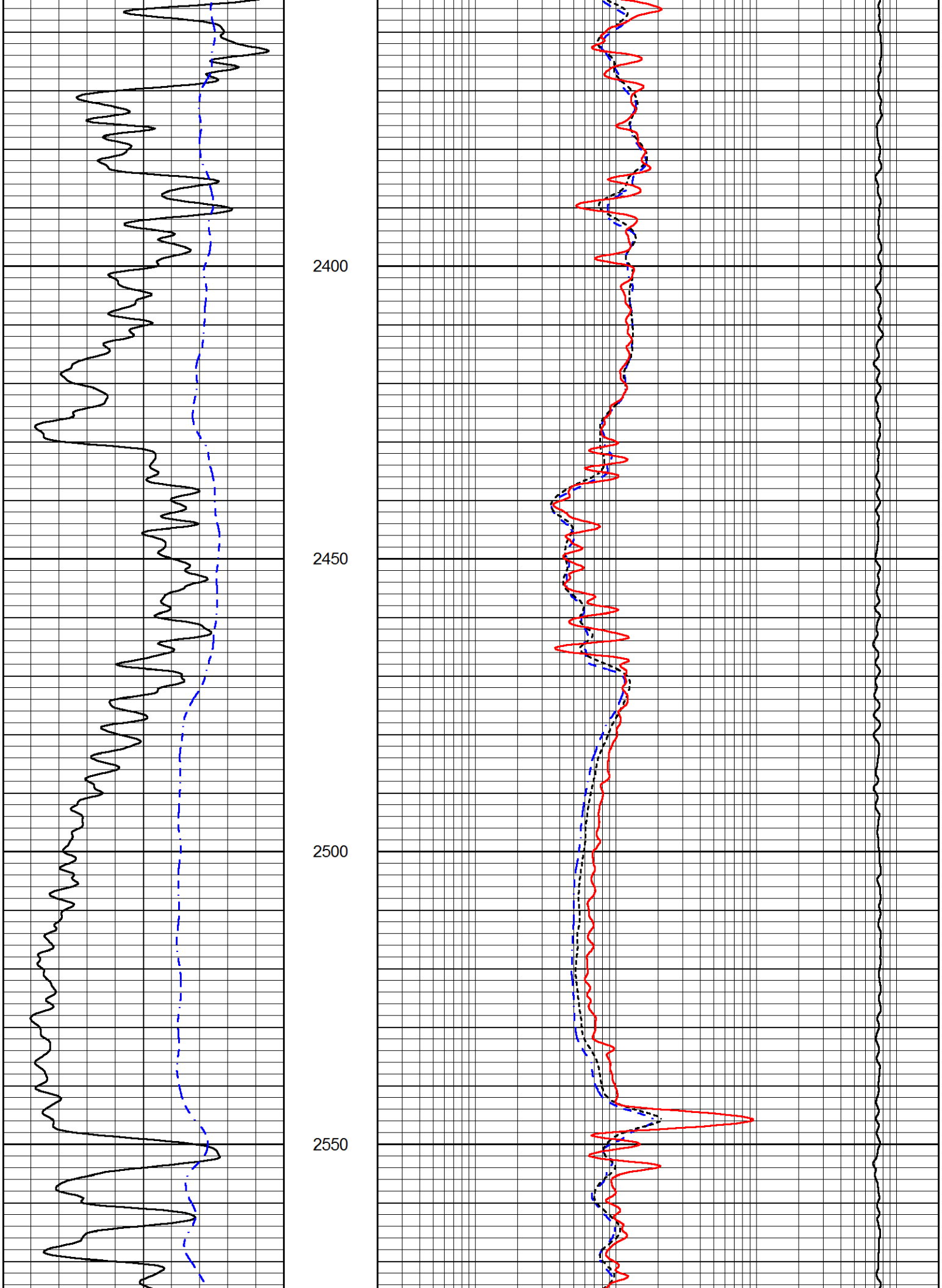
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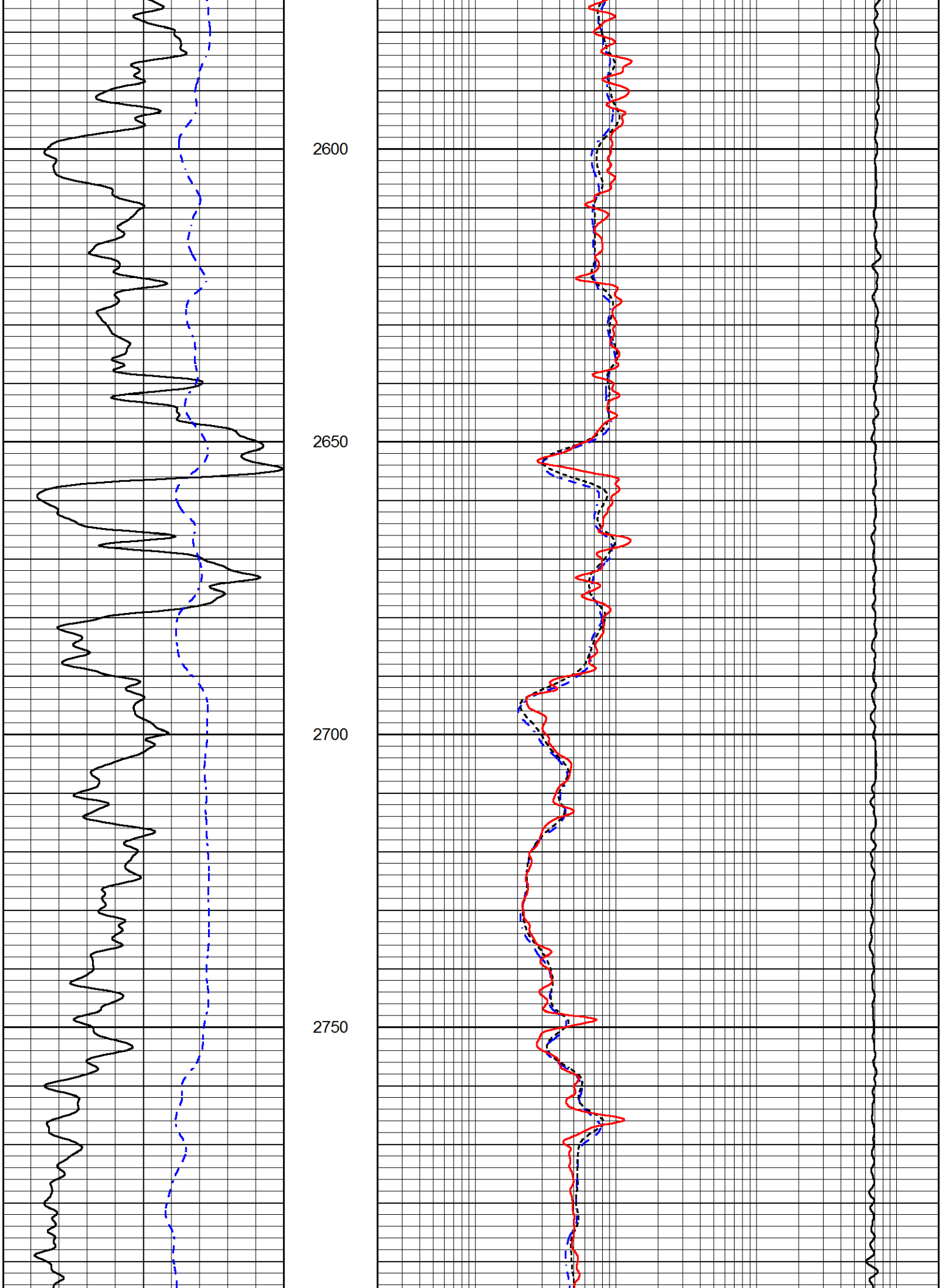
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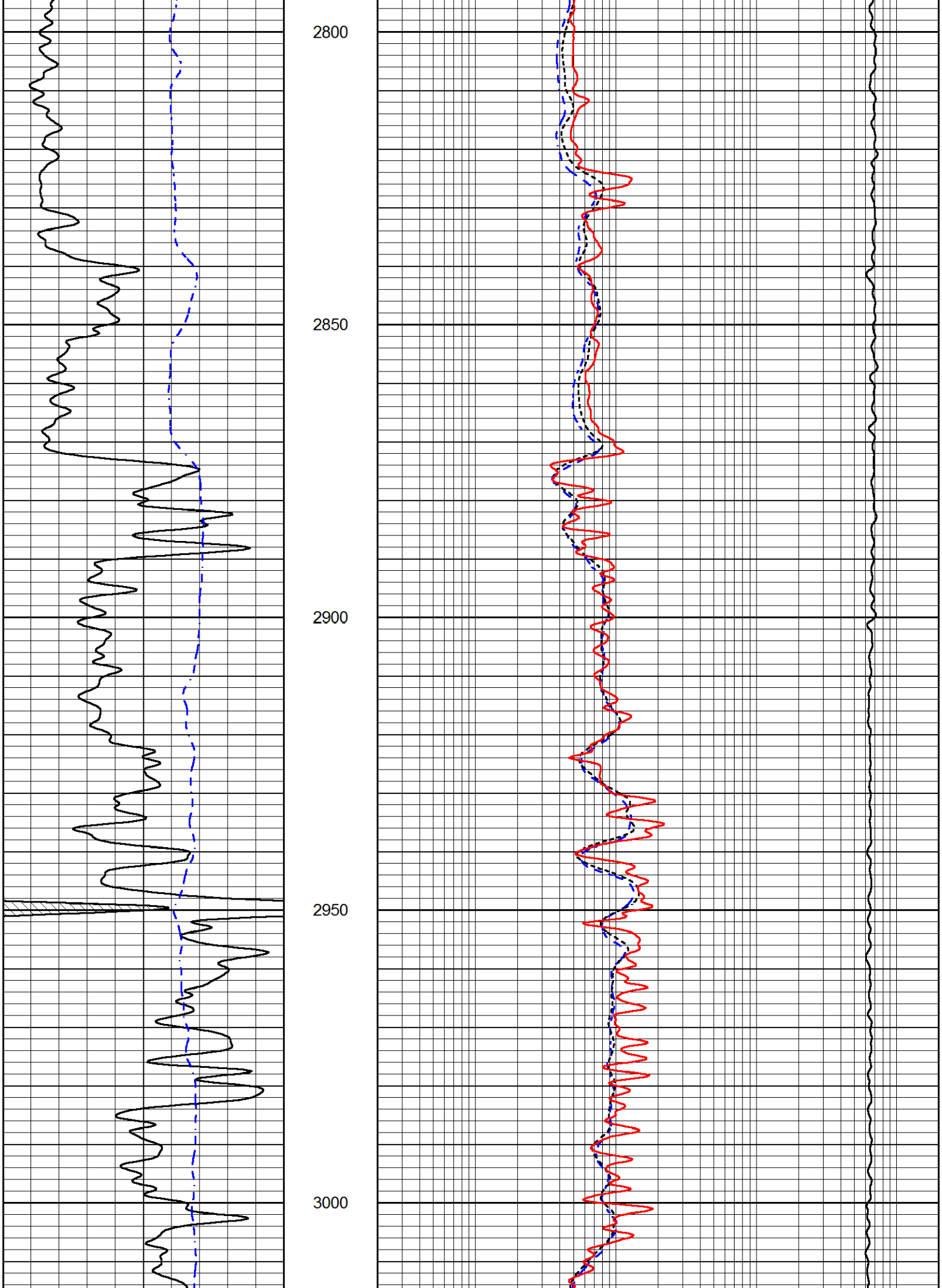
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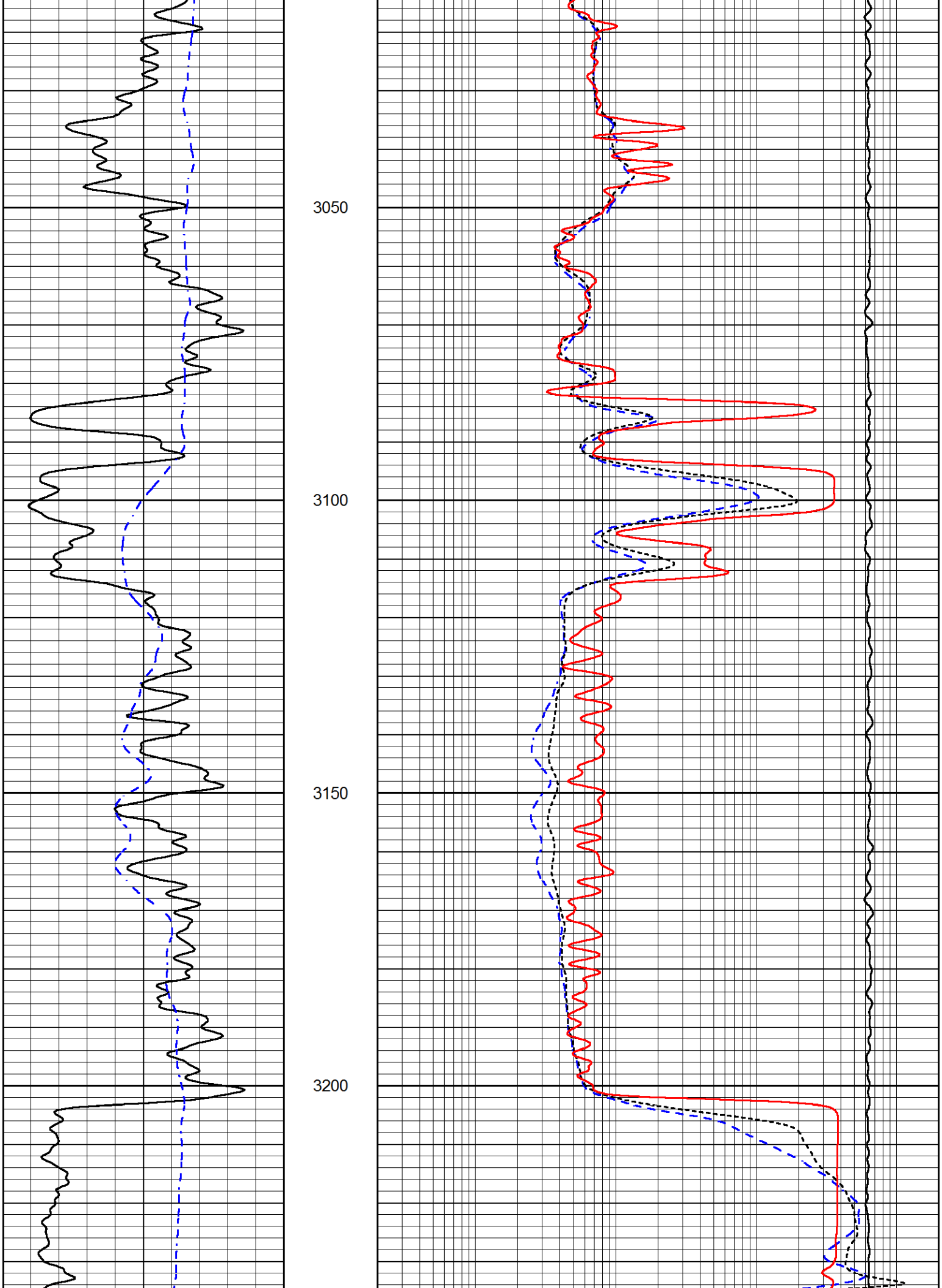
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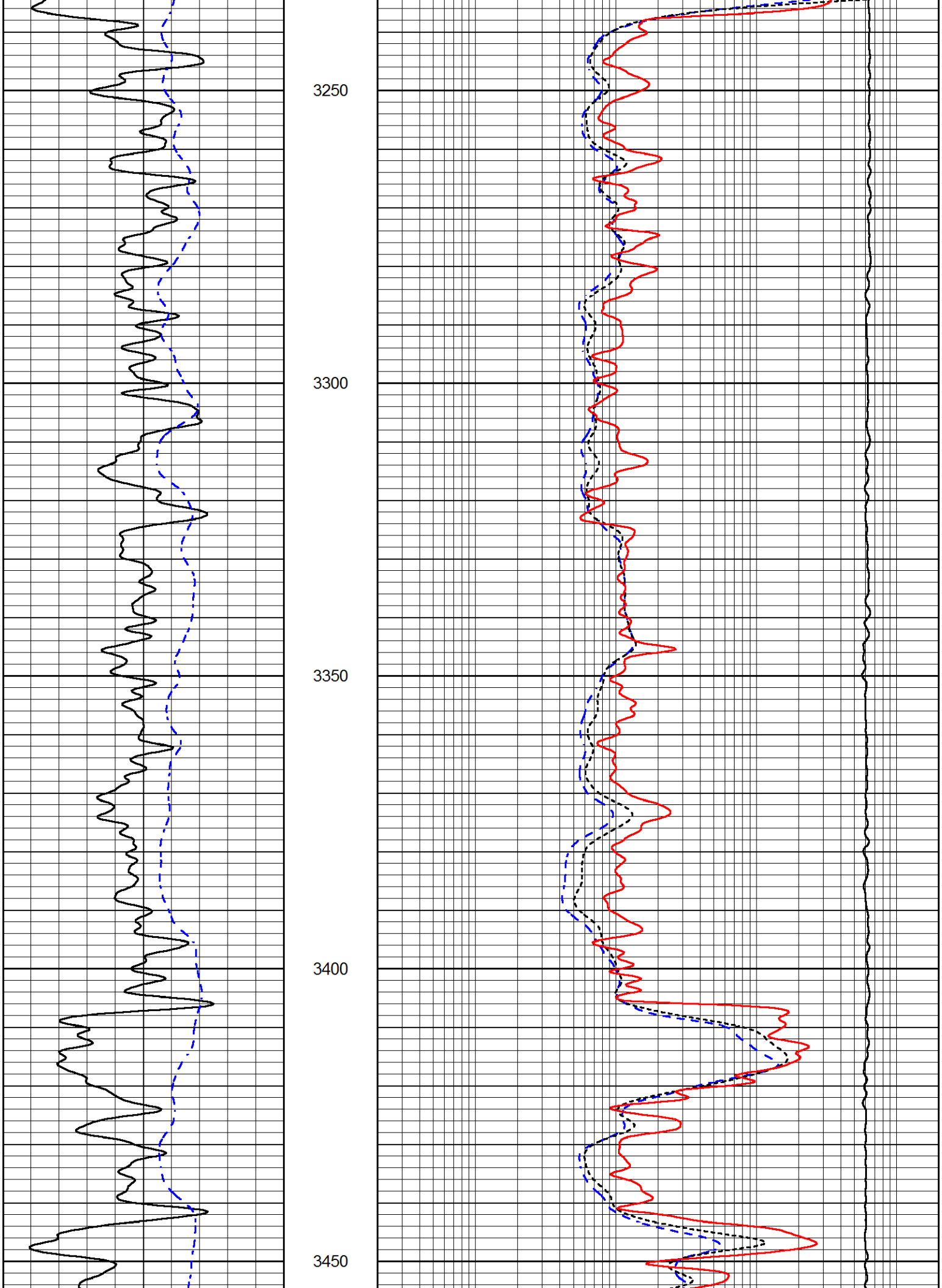
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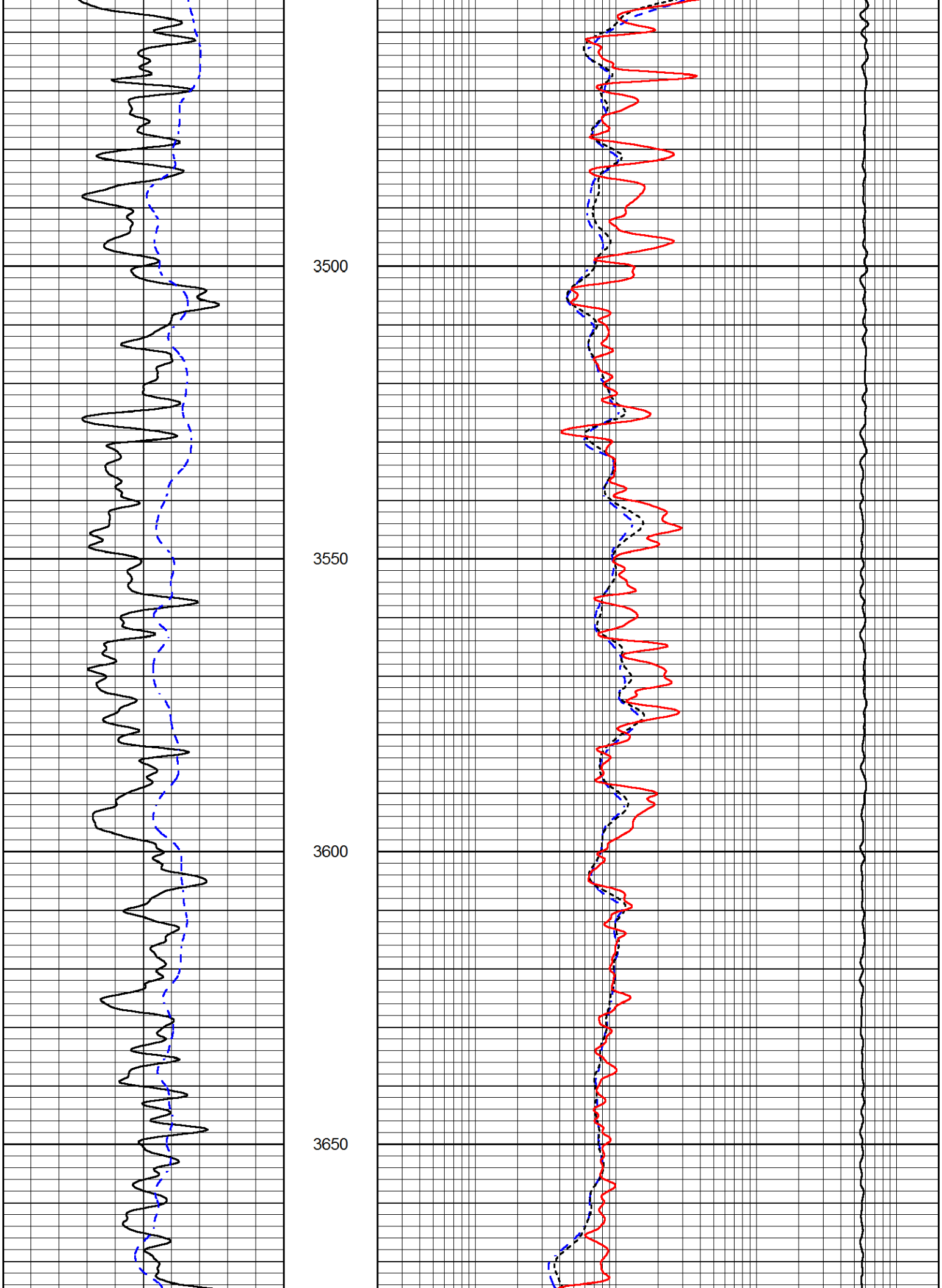
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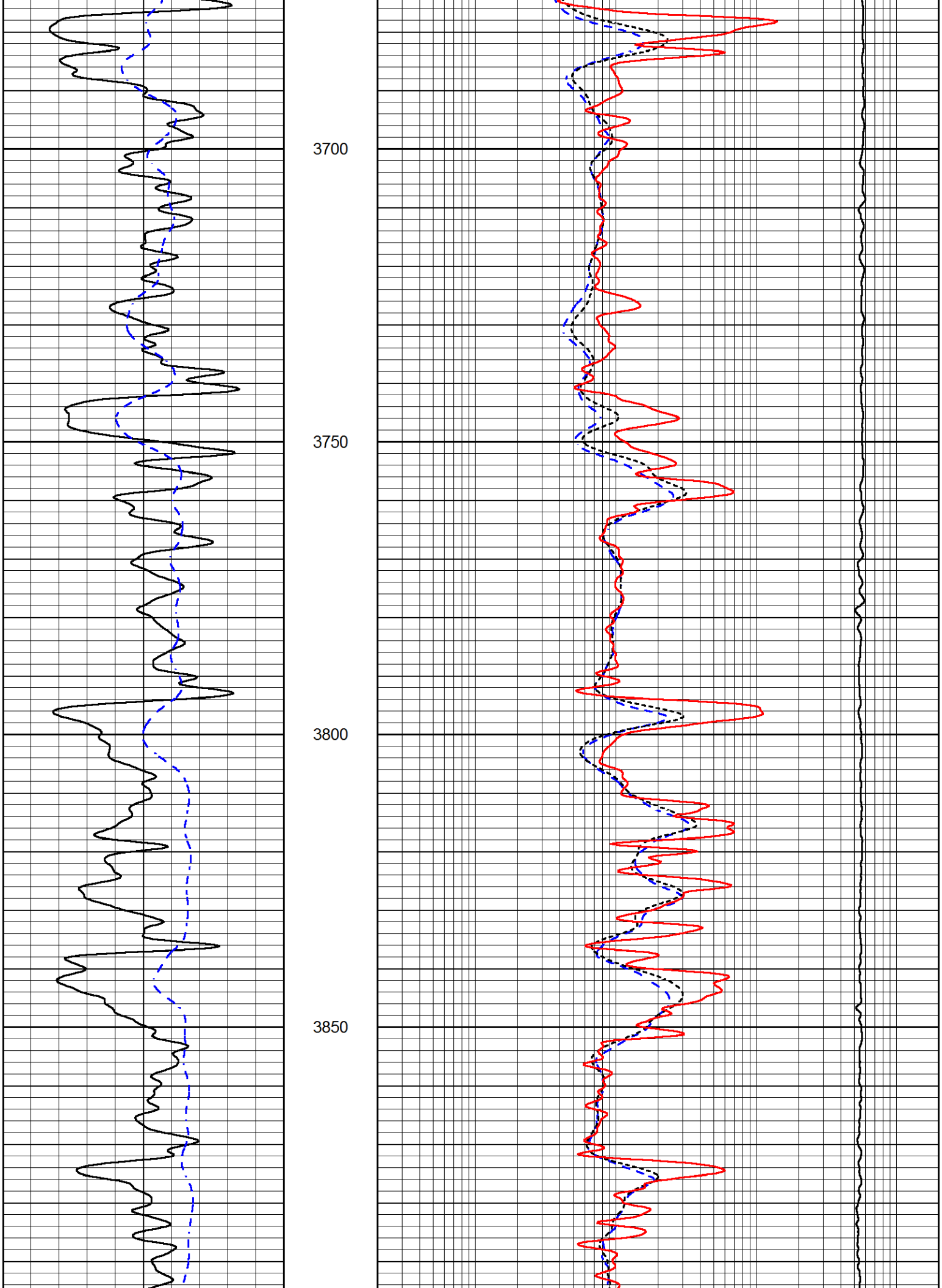
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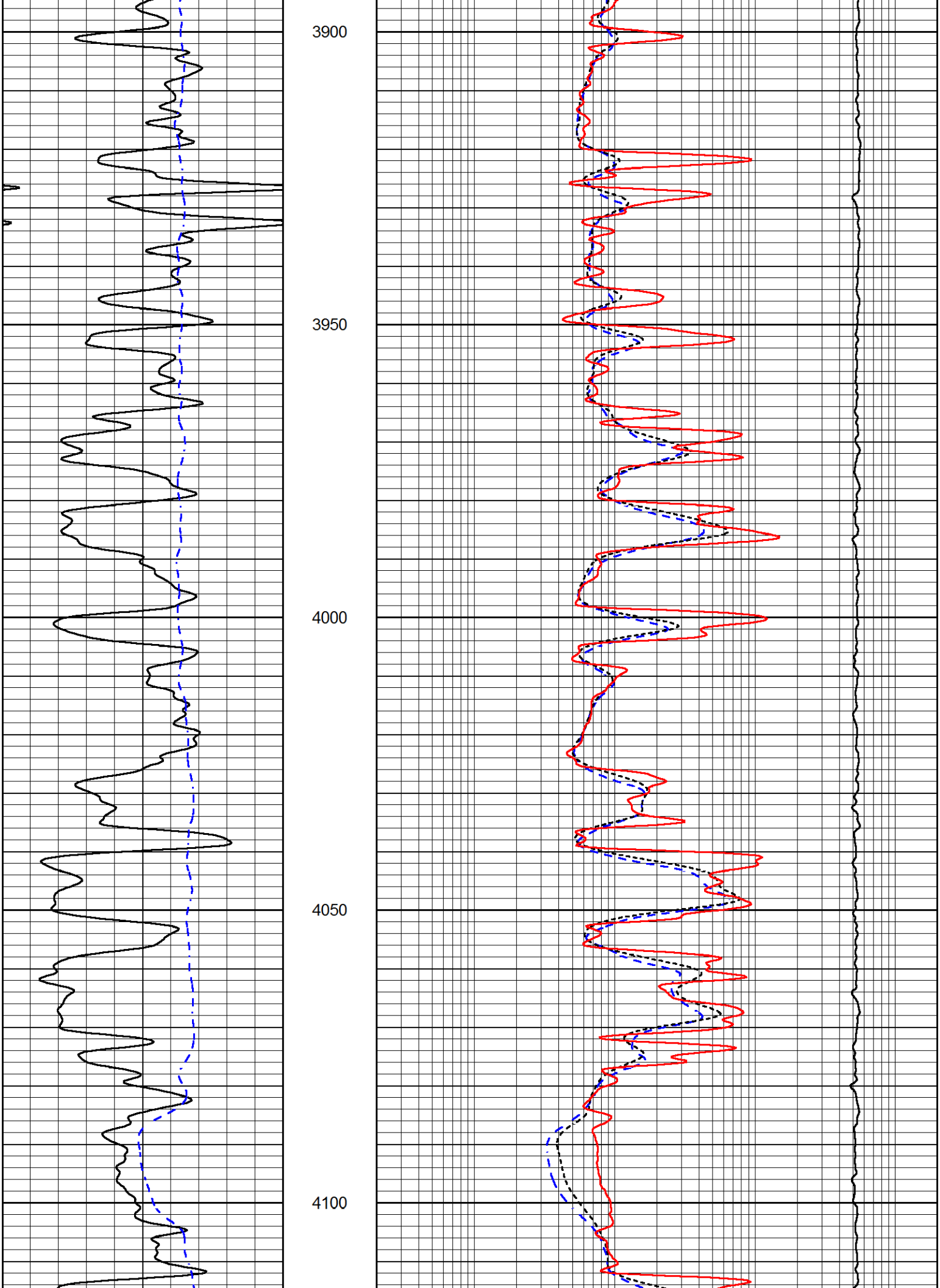
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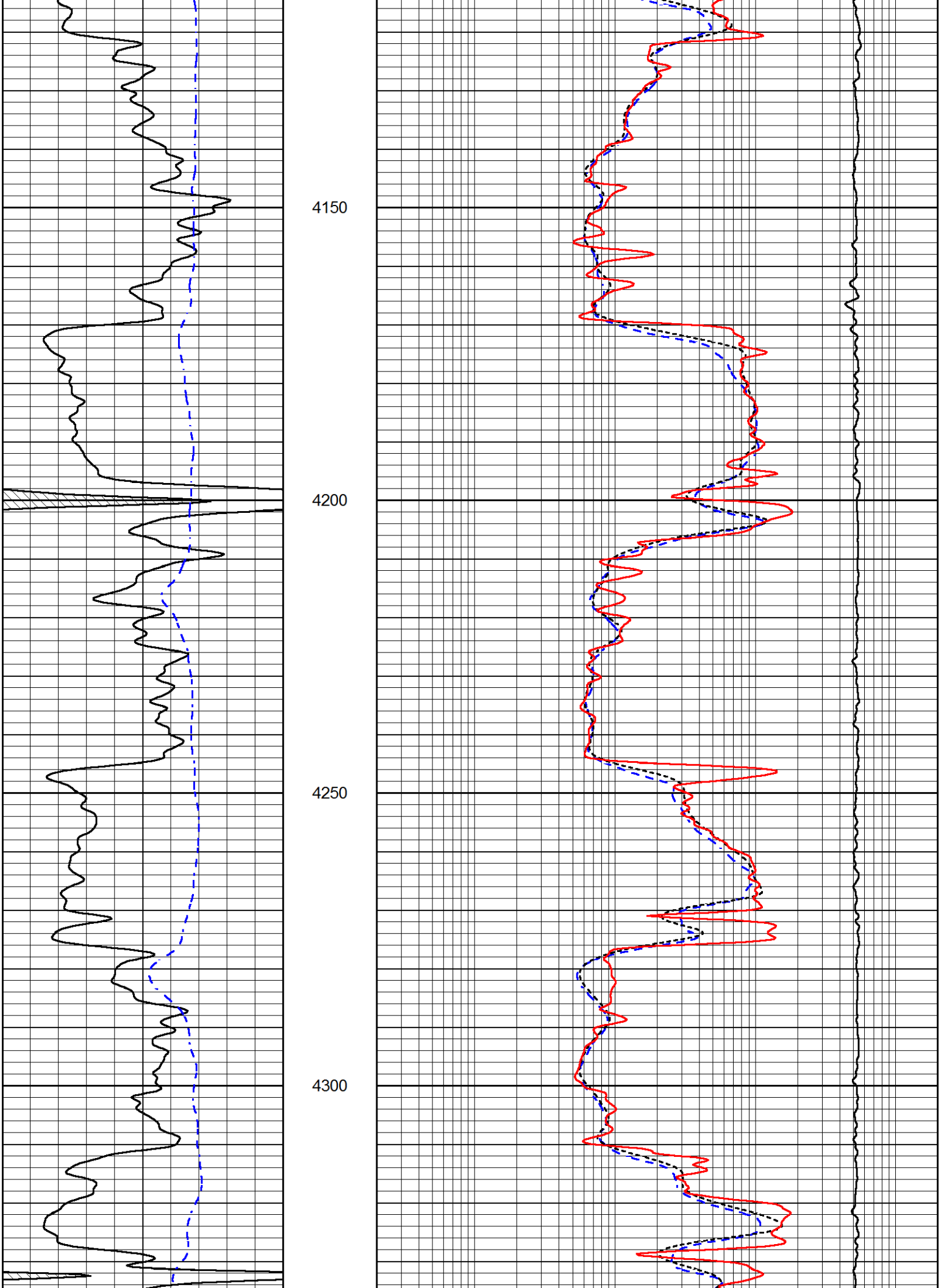
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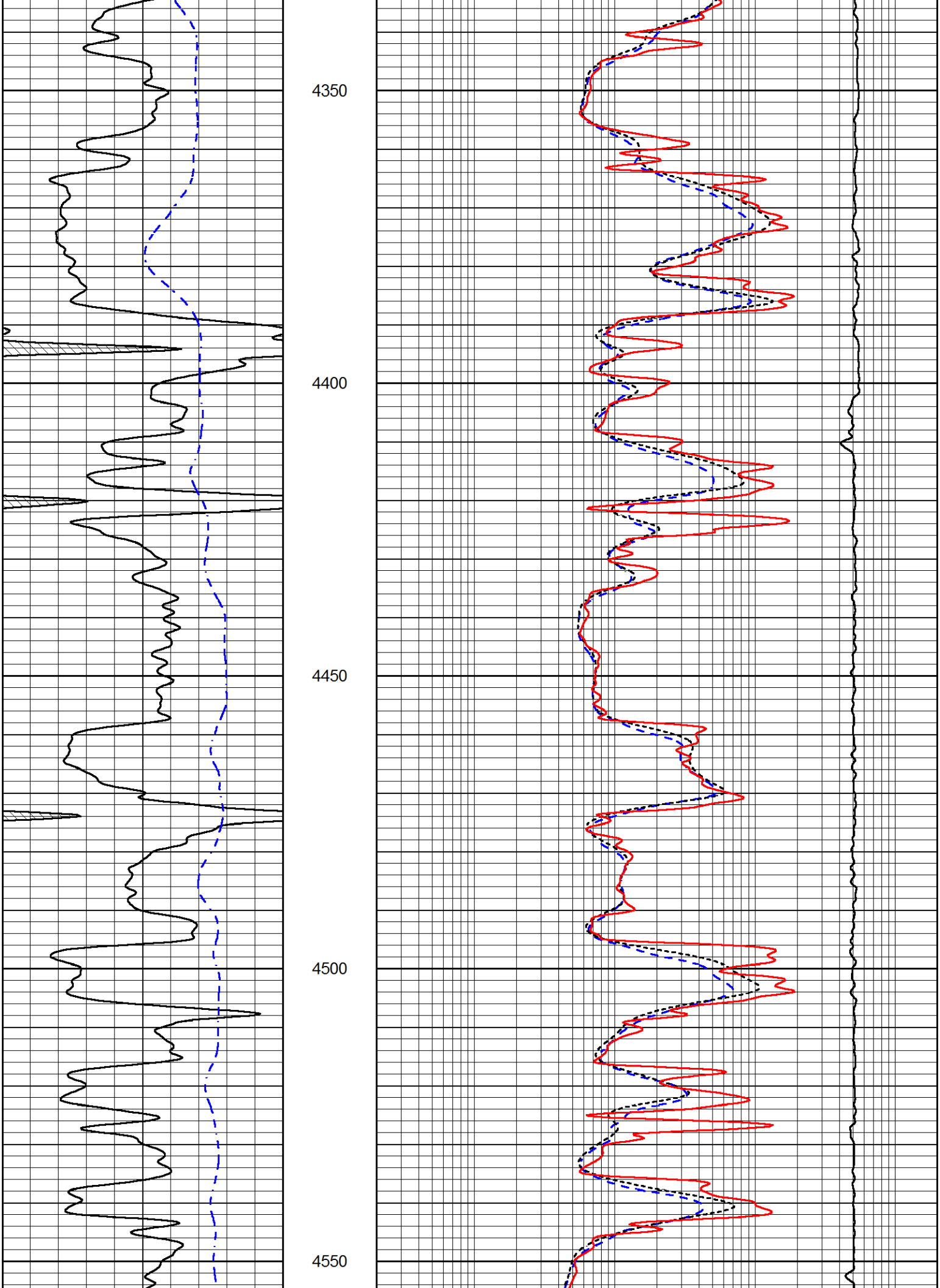
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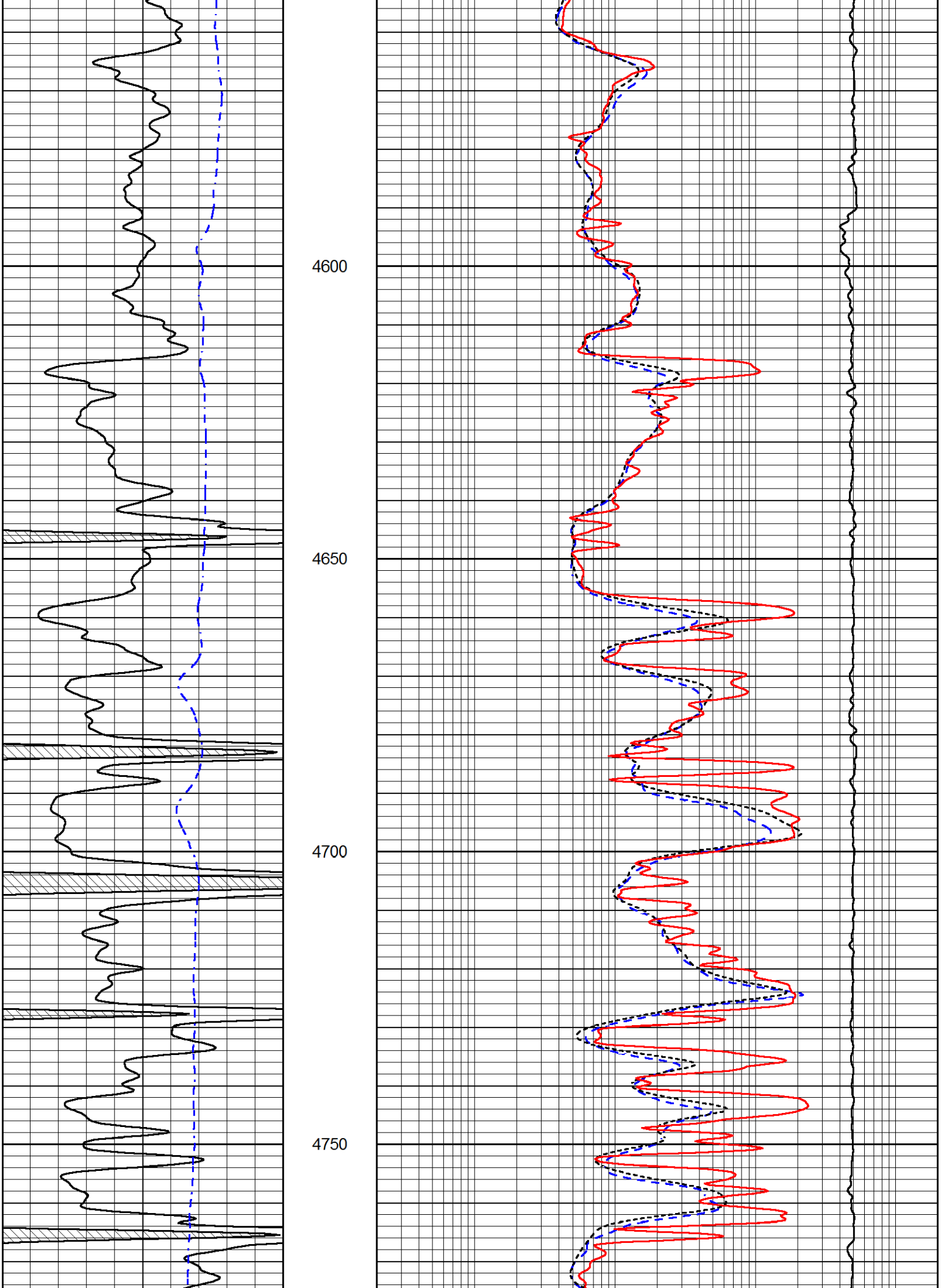
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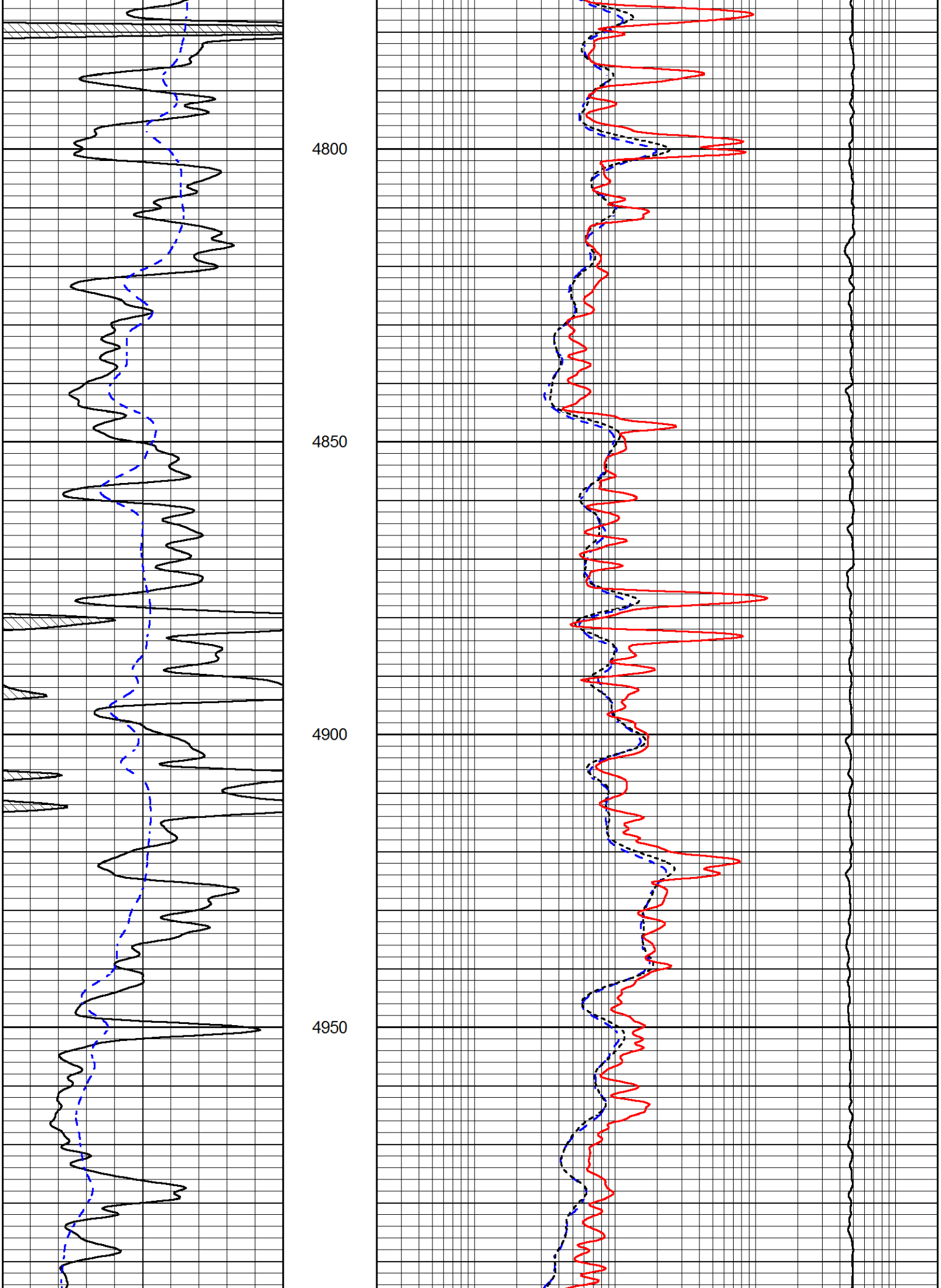
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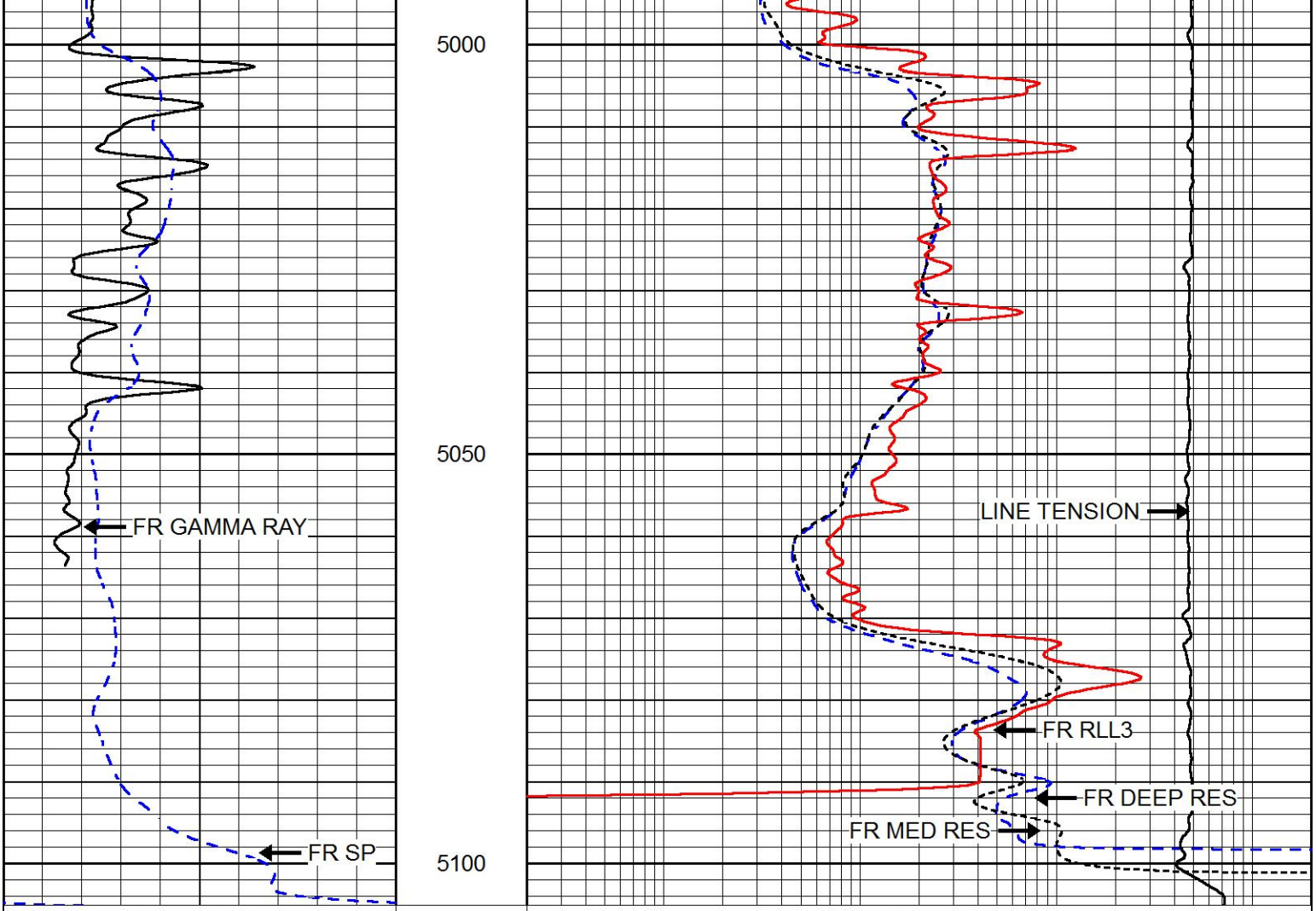
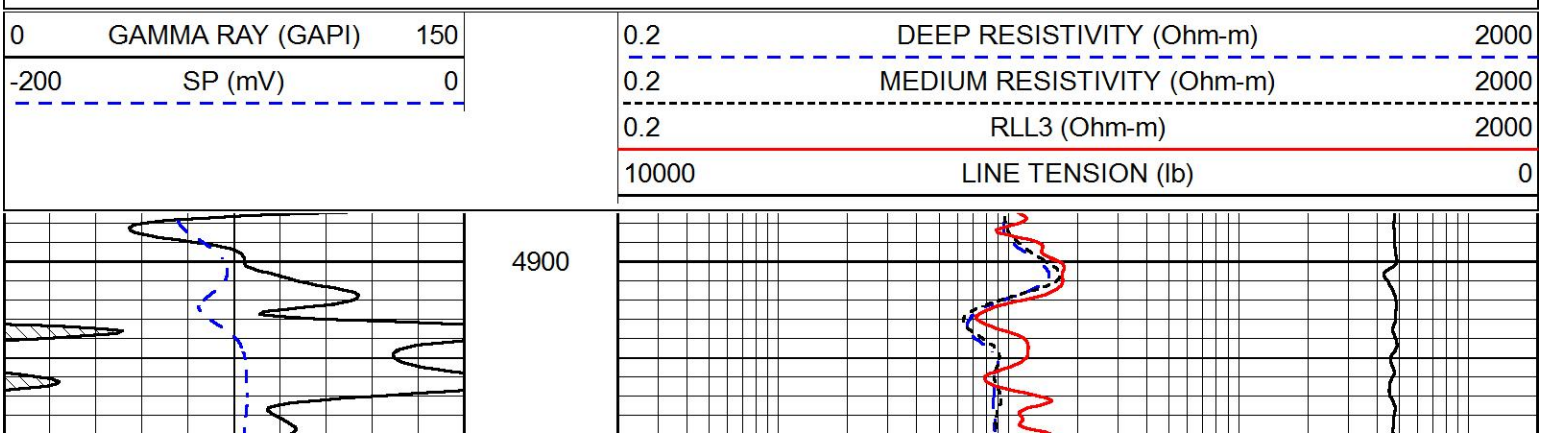
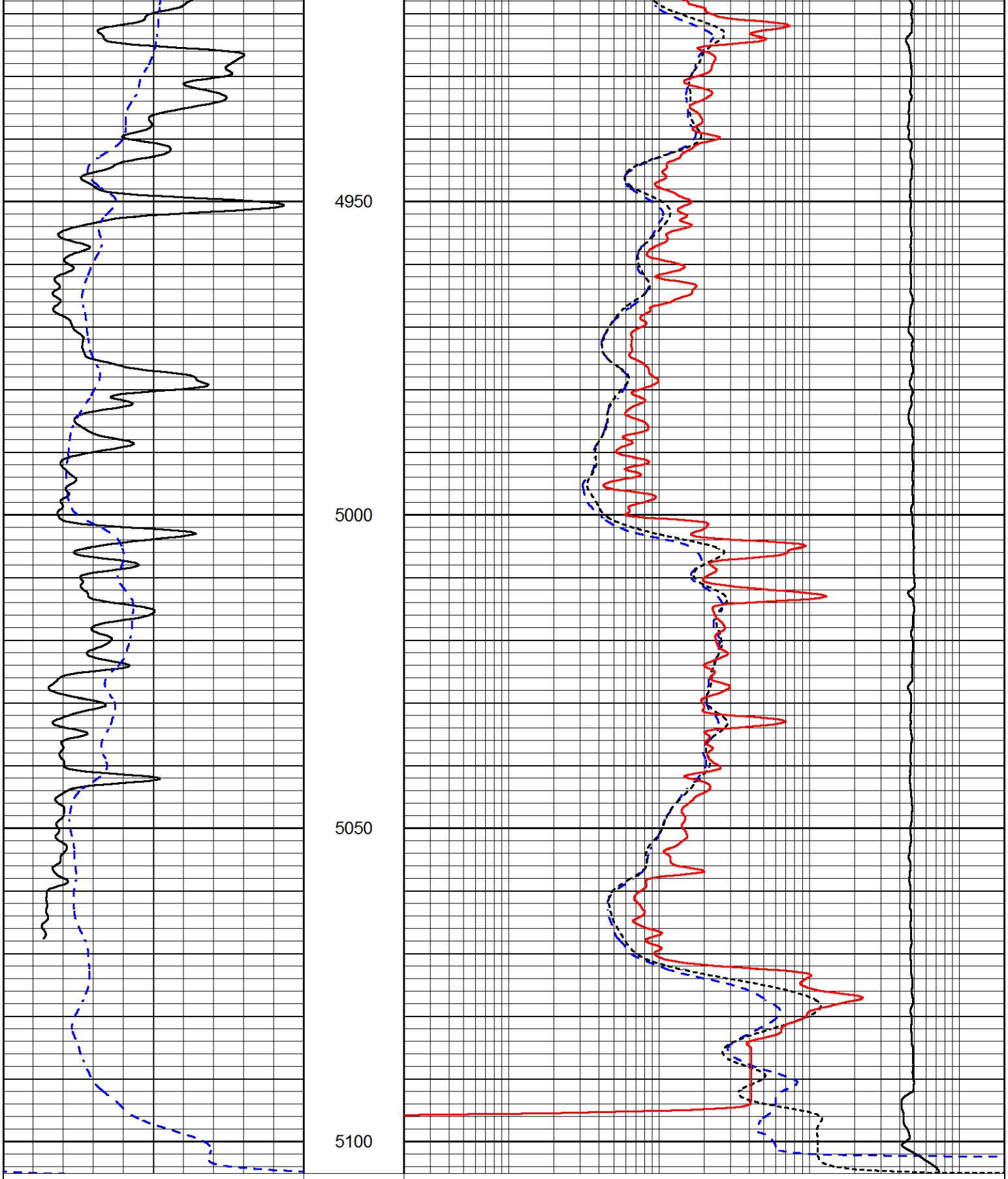


PIONEER
Pioneer Energy Services

REPEAT SECTION

Database File	murfin_c&c_unit_1_30.db
Dataset Pathname	stackmel/pass2.1
Presentation Format	_dil
Dataset Creation	Sat Feb 01 07:54:08 2020
Charted by	Depth in Feet scaled 1:240





Calibration Report

Database File murfin_c&c_unit_1_30.db

Database File mdmh_c&c_unit_1_30.db
Dataset Pathname stackmel/pass3.1
Dataset Creation Sat Feb 01 07:47:26 2020

Dual Induction Calibration Report

Serial-Model: 952-828-PSI HIGH TEMP
Calibration Performed: Wed Oct 09 13:38:53 2019

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.400	-27.500
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.275	-27.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
Performed: Sat Feb 01 06:29:21 2020

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	18000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	20000.0000	-0.6000
Caliper	1.0000	1.0827	5.0000	16.5000	in	139.1950	-135.6000

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Tue Sep 24 21:18:50 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.680	g/cc	1141.85	3762.09	cps

Spine Angle = 74.89 Density/Spine Ratio = 0.532

	Size		Reading
Small Ring	4.50	in	1.02
Large Ring	15.00	in	1.33

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: WED FEB 13 10:30:30 2019

Detector	Readings		Target		Normalization
Short Space	6240.00	cps	1000.00	cps	1.6025
Long Space	460.00	cps	1000.00	cps	1.9500

Gamma Ray Calibration Report

Serial Number:	233-M&W	
Tool Model:	M&W	
Calibration Performed:	Fri Feb 07 01:42:40 2014	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps

PIONEER
Pioneer Energy Services

Company	MURFIN DRILLING CO., INC.
Well	C & C UNIT #1-30
Field	WILDCAT
County	CHEYENNE
State	KANSAS