MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Black Oak Exploration LLC
Well Threlkel Et Al #1-23
Field Wildcat
County Rawlins State Kansas

Location: API # : 15-153-21275-00-00
NE NE NE SE
2485 FSL & 200 FEL
SEC 23 TWP 3S RGE 35W

Other Services
CNL/CDL
MEL/BHCS

Permanent Datum Ground Level Elevation 2996
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Elevation
K.B. 3002
D.F.
G.L. 2996

Date	12/19/2021		
Run Number	One		
Depth Driller	4670		
Depth Logger	4674		
Bottom Logged Interval	4673		
Top Log Interval	00		
Casing Driller	8.625 @ 239		
Casing Logger	234		
Bit Size	7.875		
Type Fluid in Hole	Chemical		
Salinity,ppm CL	3700		
Density / Viscosity	9.2 62		
pH / Fluid Loss	10.5 7.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.9 @ 64		
Rmf @ Meas. Temp	0.68 @ 64		
Rmc @ Meas. Temp	1.22 @ 64		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.47 @ 123		
Operating Rig Time	6 Hours		
Max Rec. Temp. F	123		
Equipment Number	P-108		
Location	HAYS		
Recorded By	T. Martin		
Witnessed By	Clayton Camozzi		

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

Atwood, KS, W to Rd 12,
1/2 S, W into

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew	This Log Record Was Witnessed By
Engineer: T. Martin	Primary Witness: Clayton Camozzi
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\black oak_threlkel et al #1-23.db
Dataset field/well/StkMI/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	5.5	0	1	2	2.71
NPORSEL	**PERFS**	**SNDERR mmho/m**	**SNDERRM mmho/m**	**SPSHIFT mV**	**SRFTEMP degF**	**SZCOR**	**TDEPTH ft**
Limestone	0	0	0	1090	50	Off	4674

MIDWEST WIRELINE

2" SCALE RESISTIVITY

MAIN PASS

Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMI/pass3.2
Presentation Format	_dil2in
Dataset Creation	Sun Dec 19 07:46:43 2021
Charted by	Depth in Feet scaled 1:600

0 Gamma Ray (GAPI) 150

1000 Conductivity (mmho/m) 0

15000 Line Tension (lb) 0

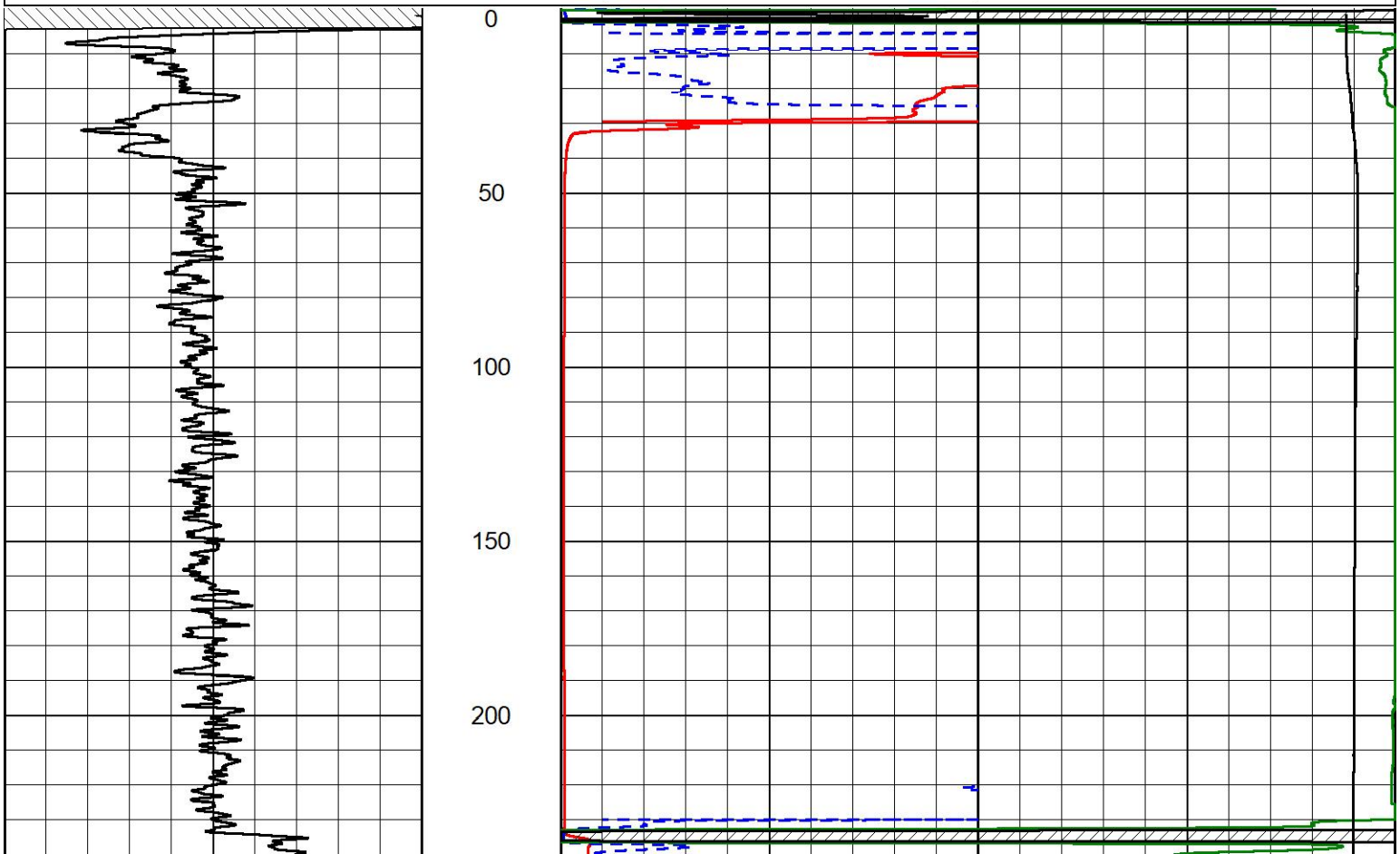
0 Shallow Resisitivity (Ohm-m) 50

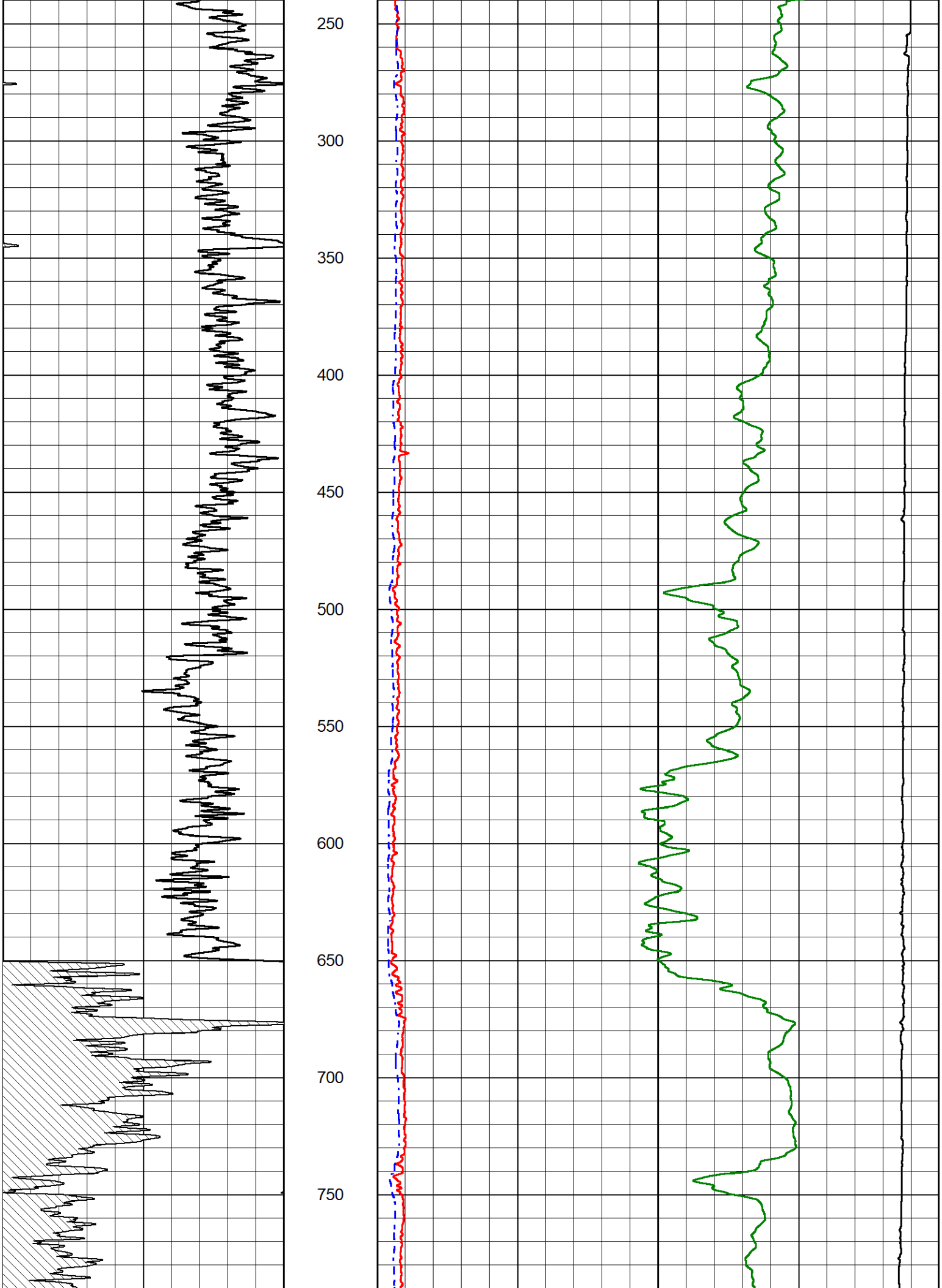
0 Deep Resistivity (Ohm-m) 50

Shallow Resistivity

50 (Ohm-m) 200

50 Deep Resistivity (Ohm-m) 200

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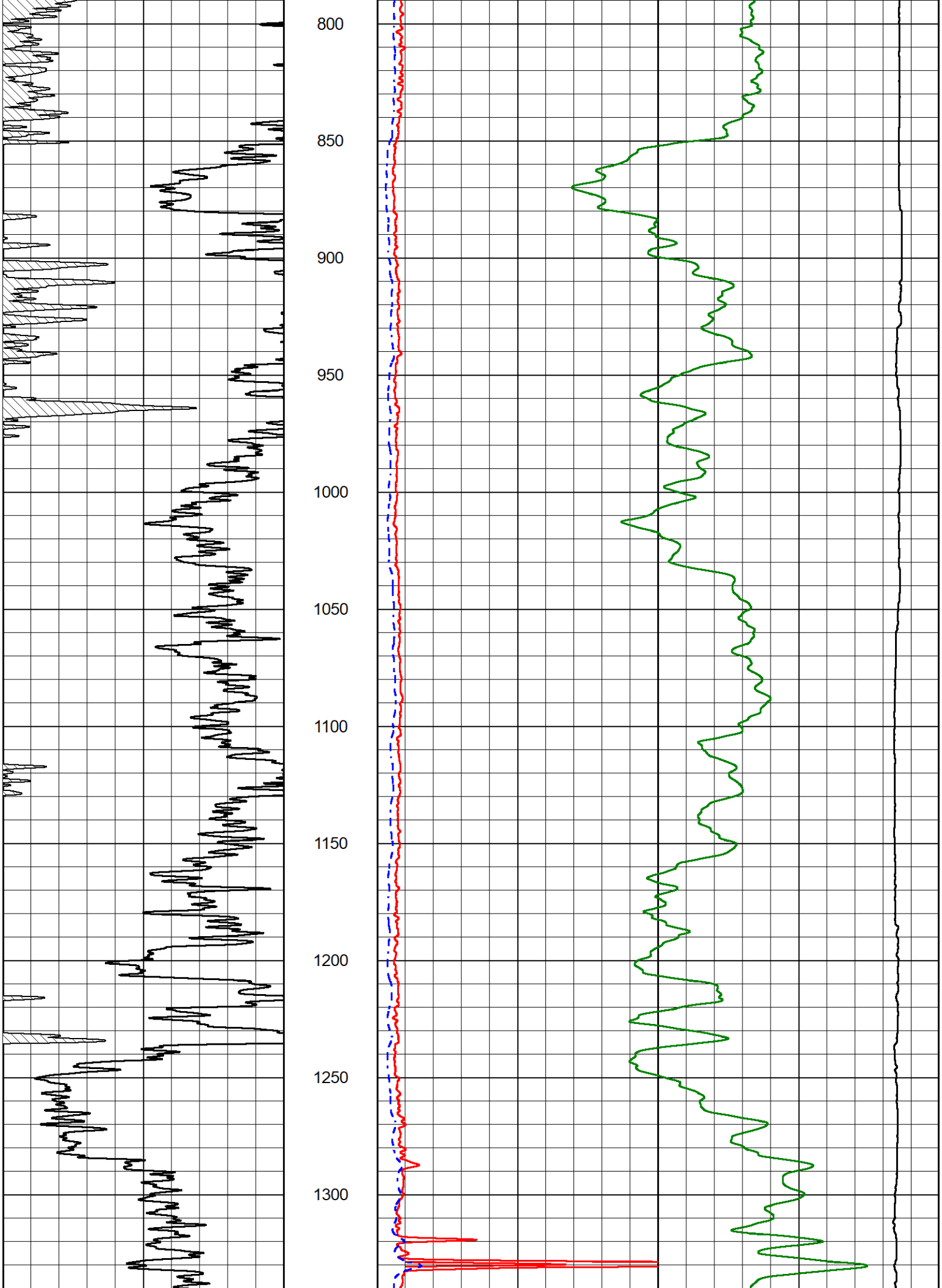
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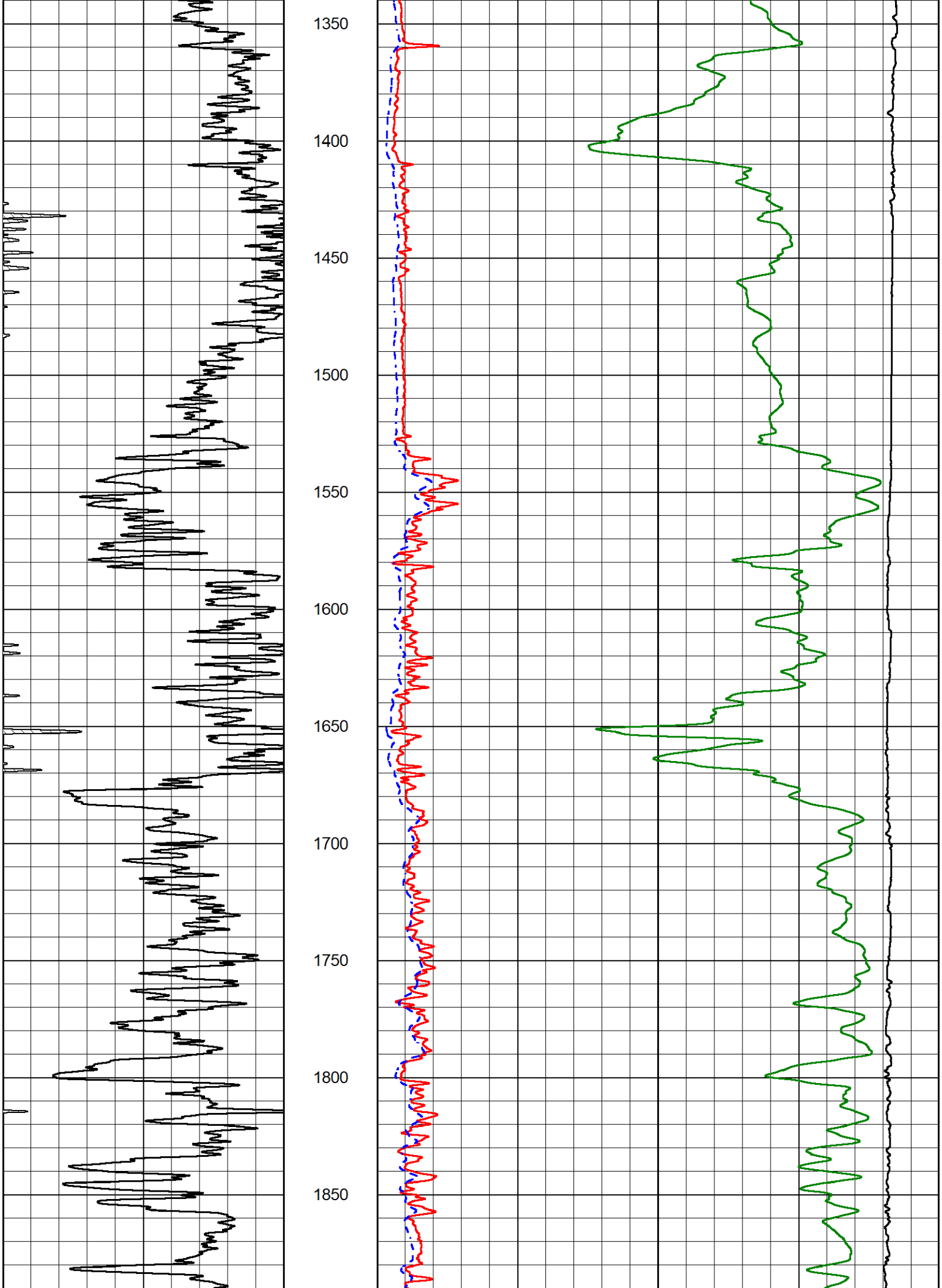
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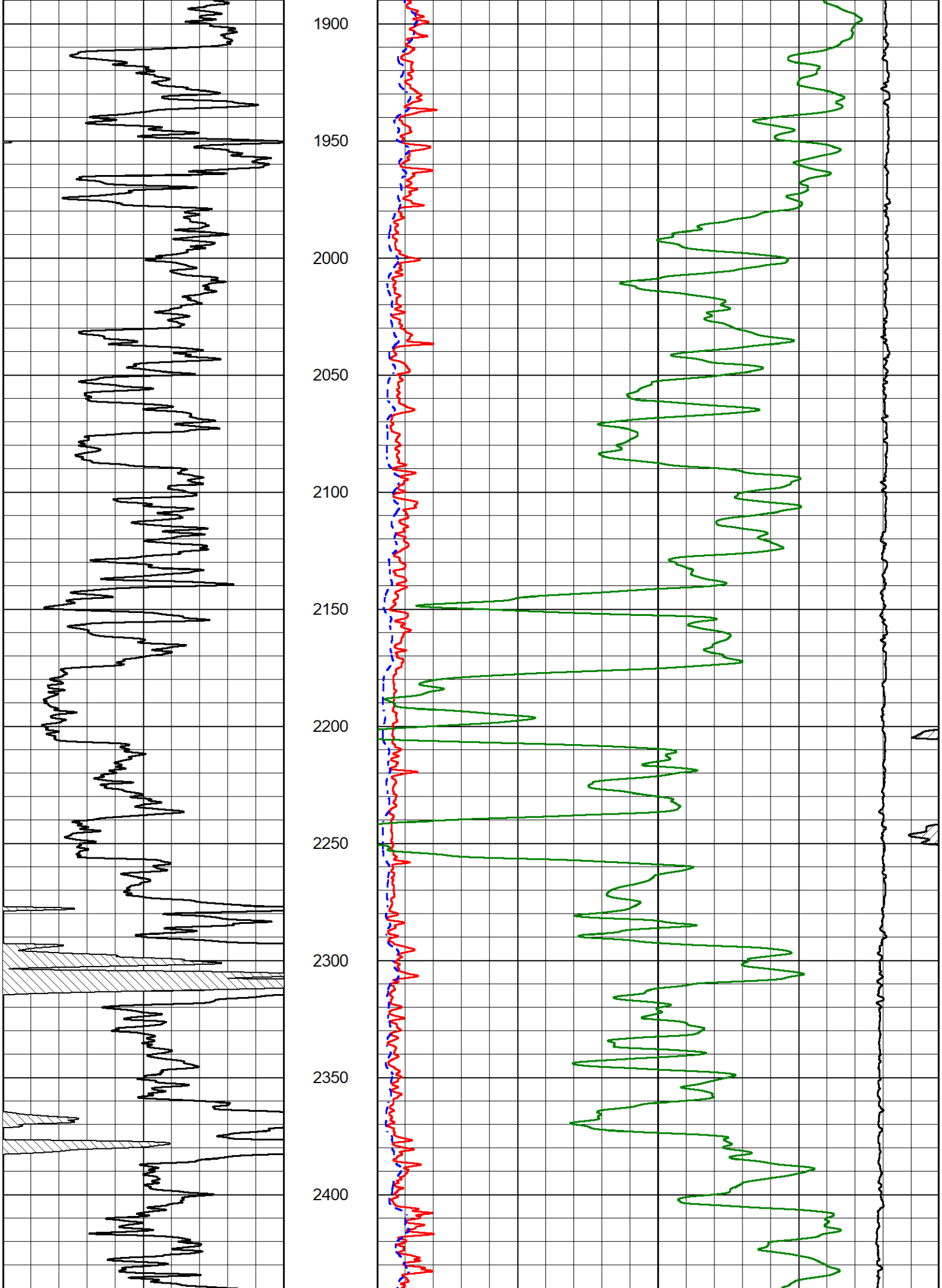
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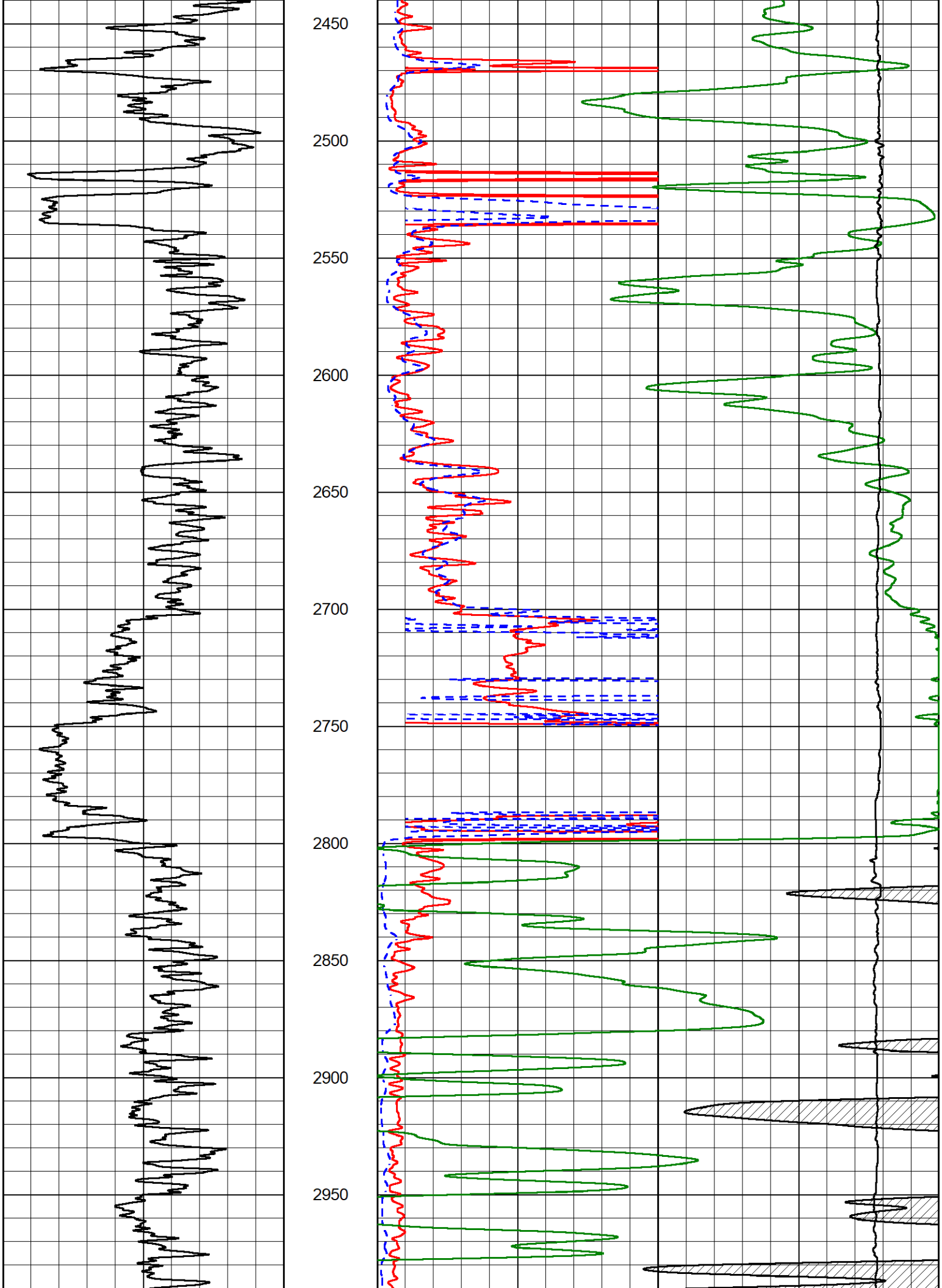
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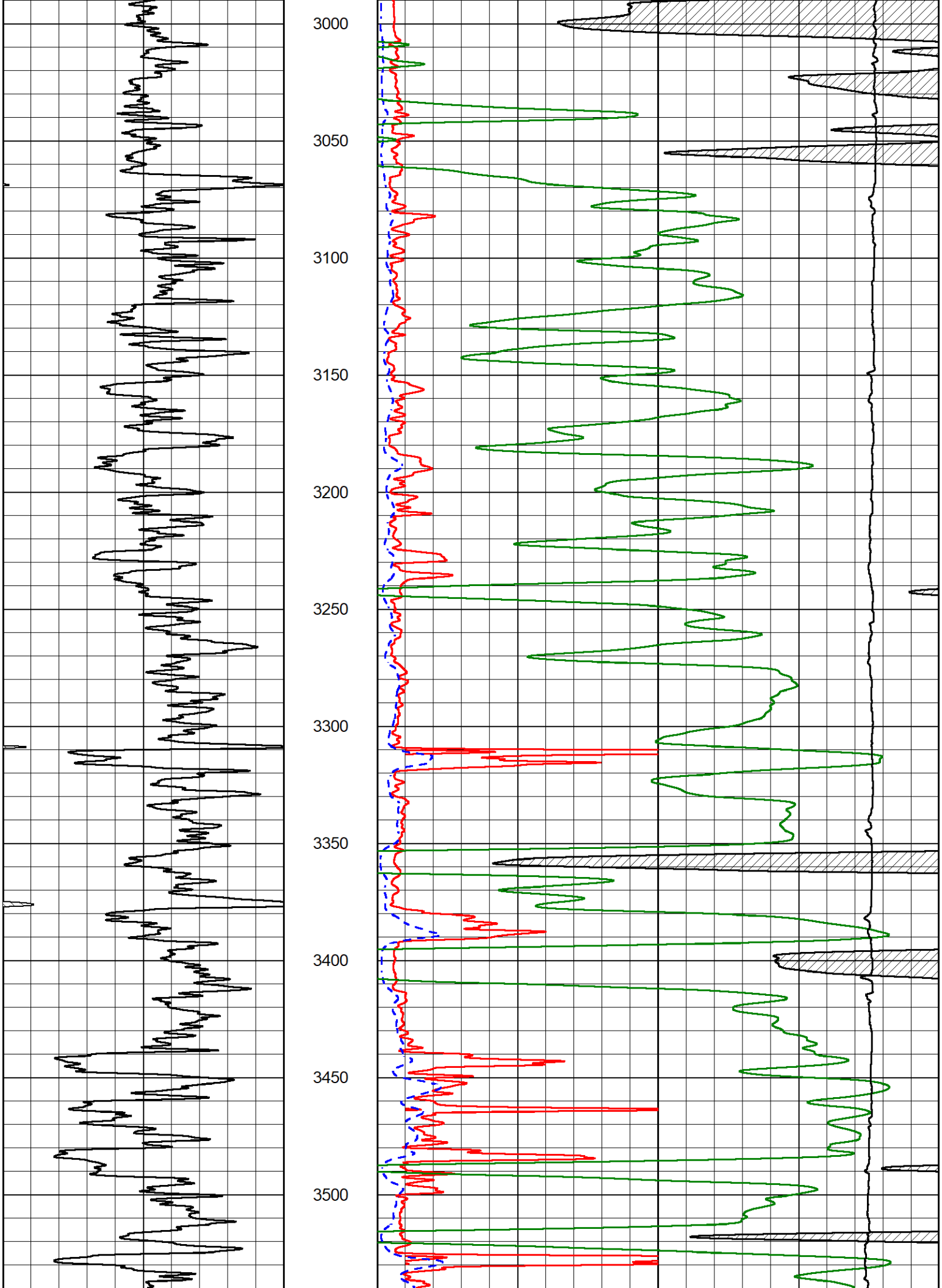
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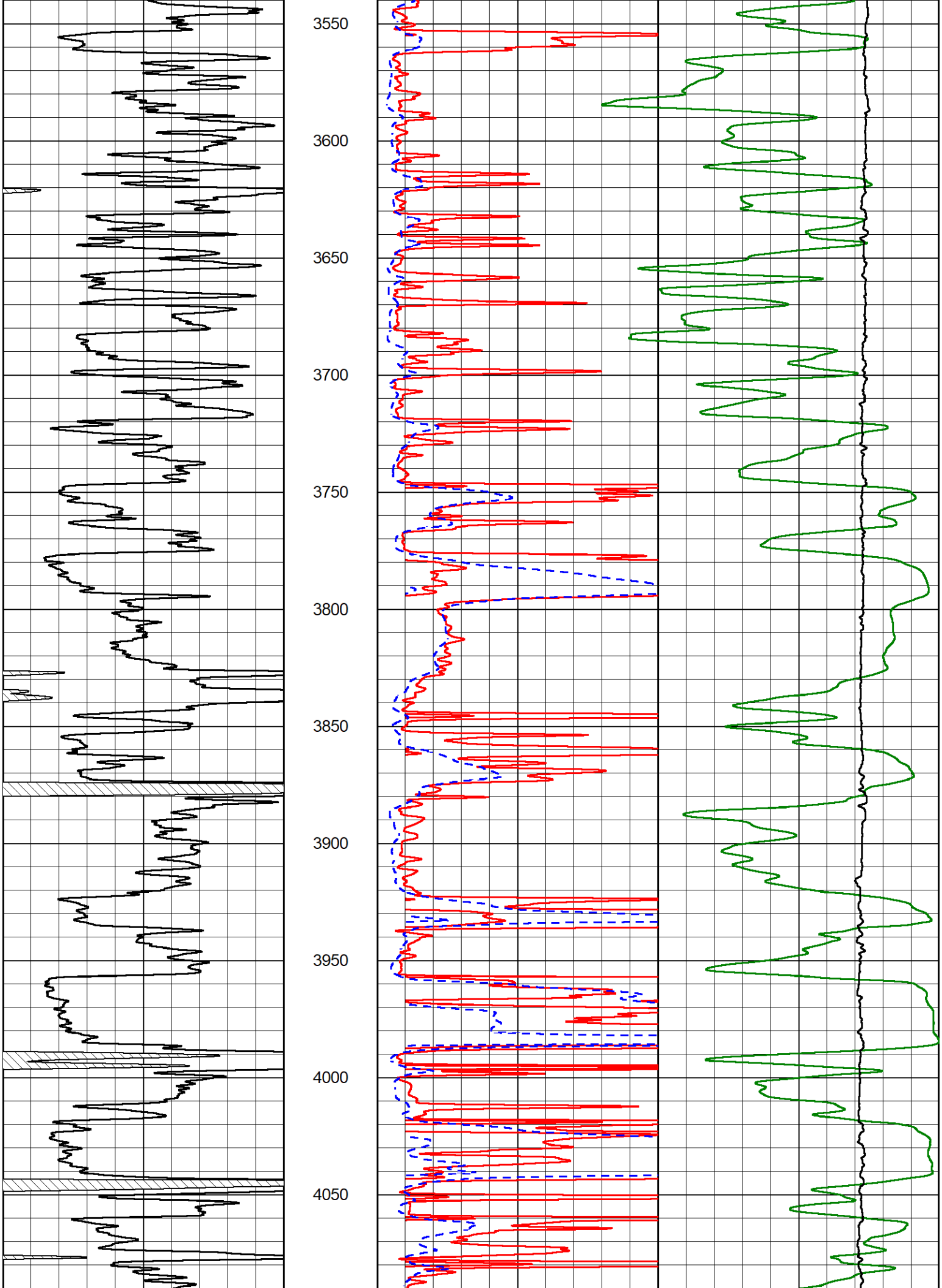
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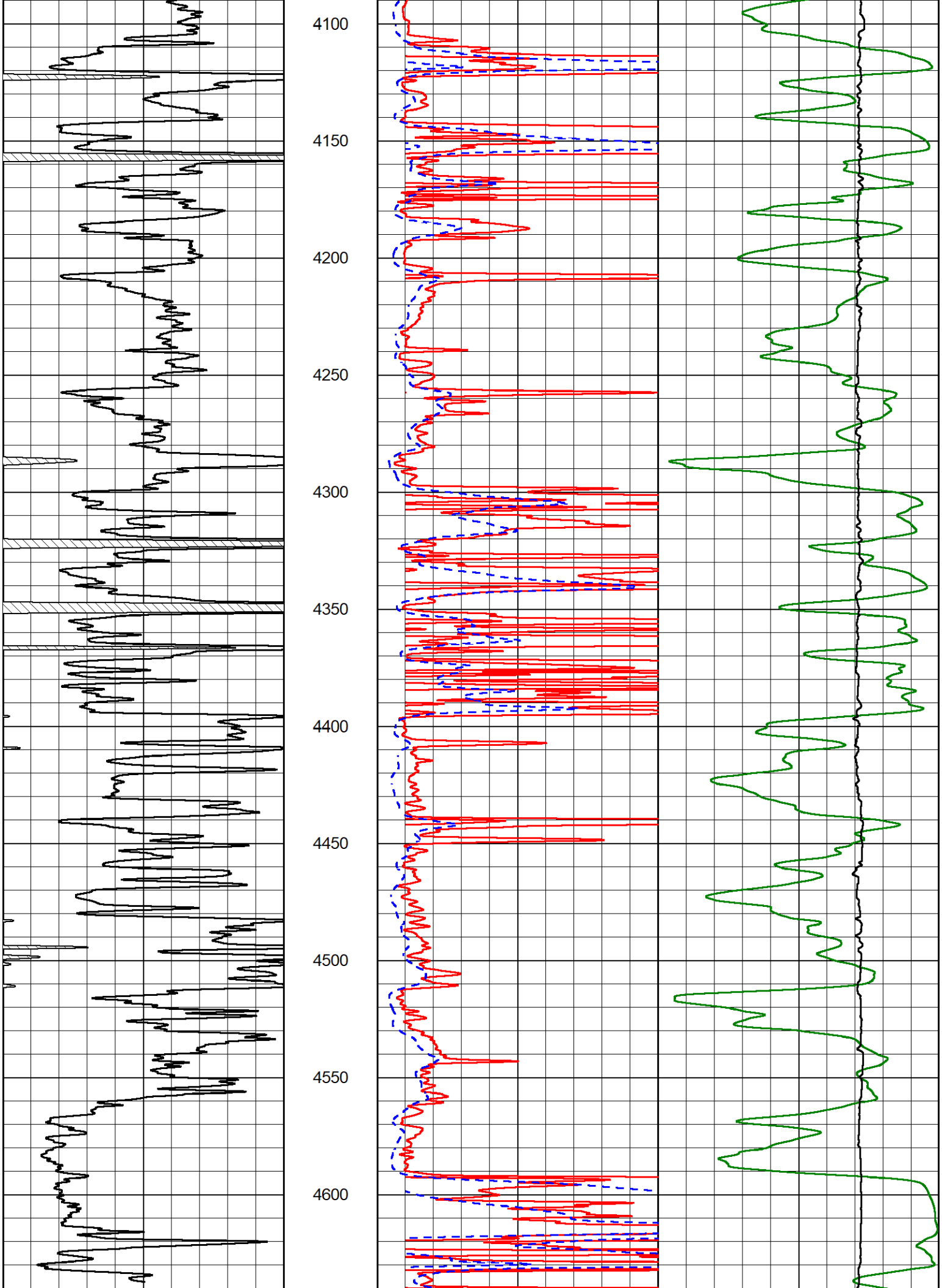
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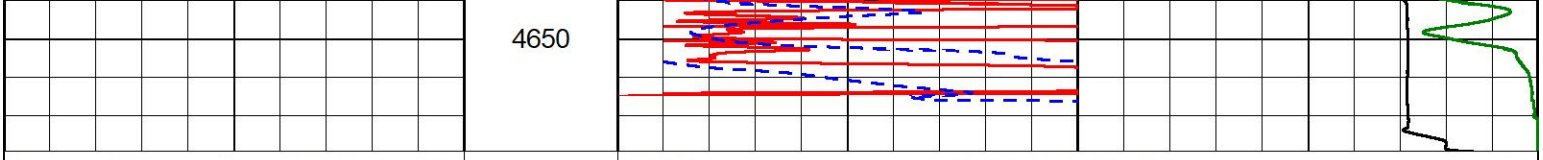

MIDWEST WIRELINE

DETAIL SECTION

MAIN PASS

Database File	black oak_threlkel et al #1-23.db
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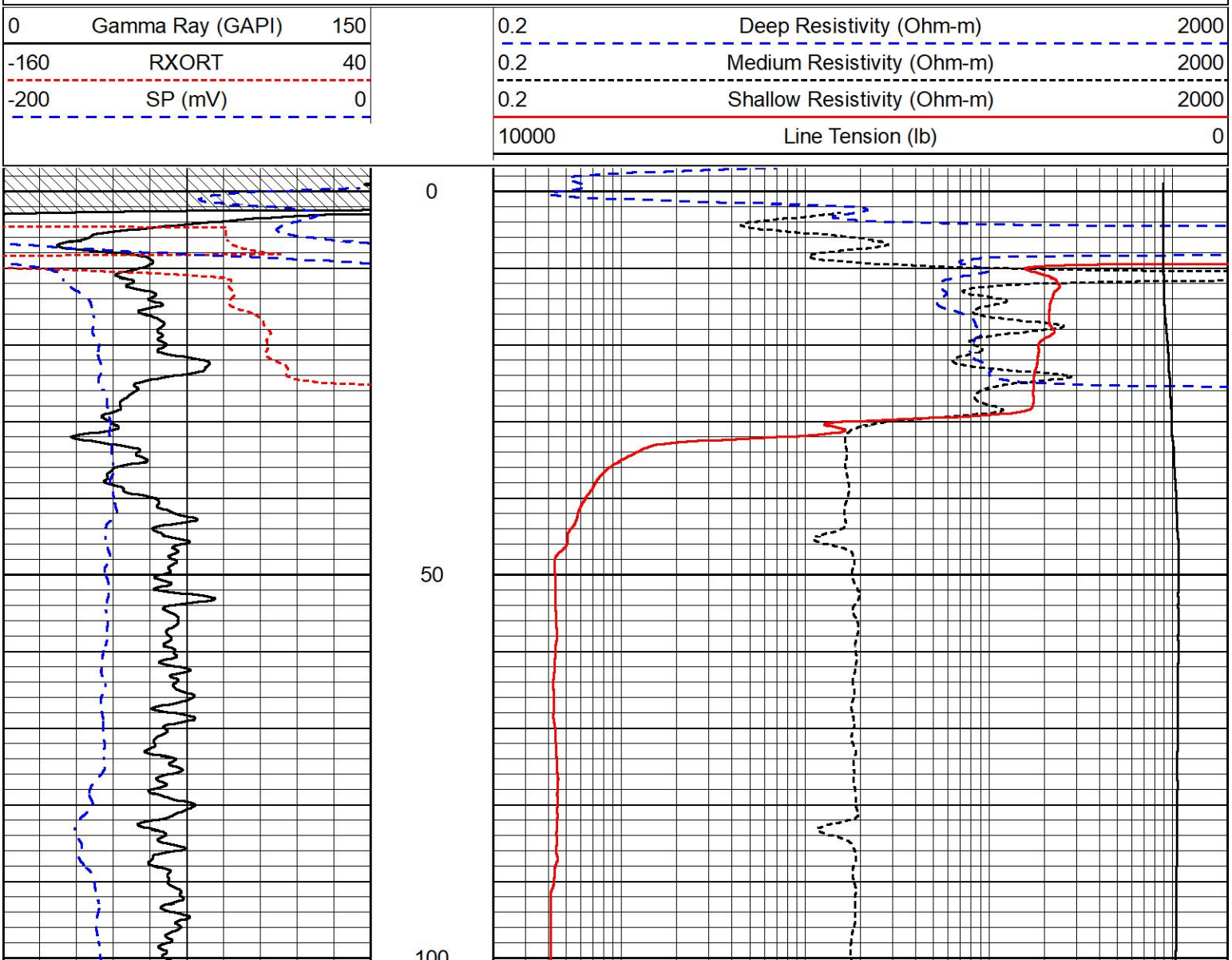
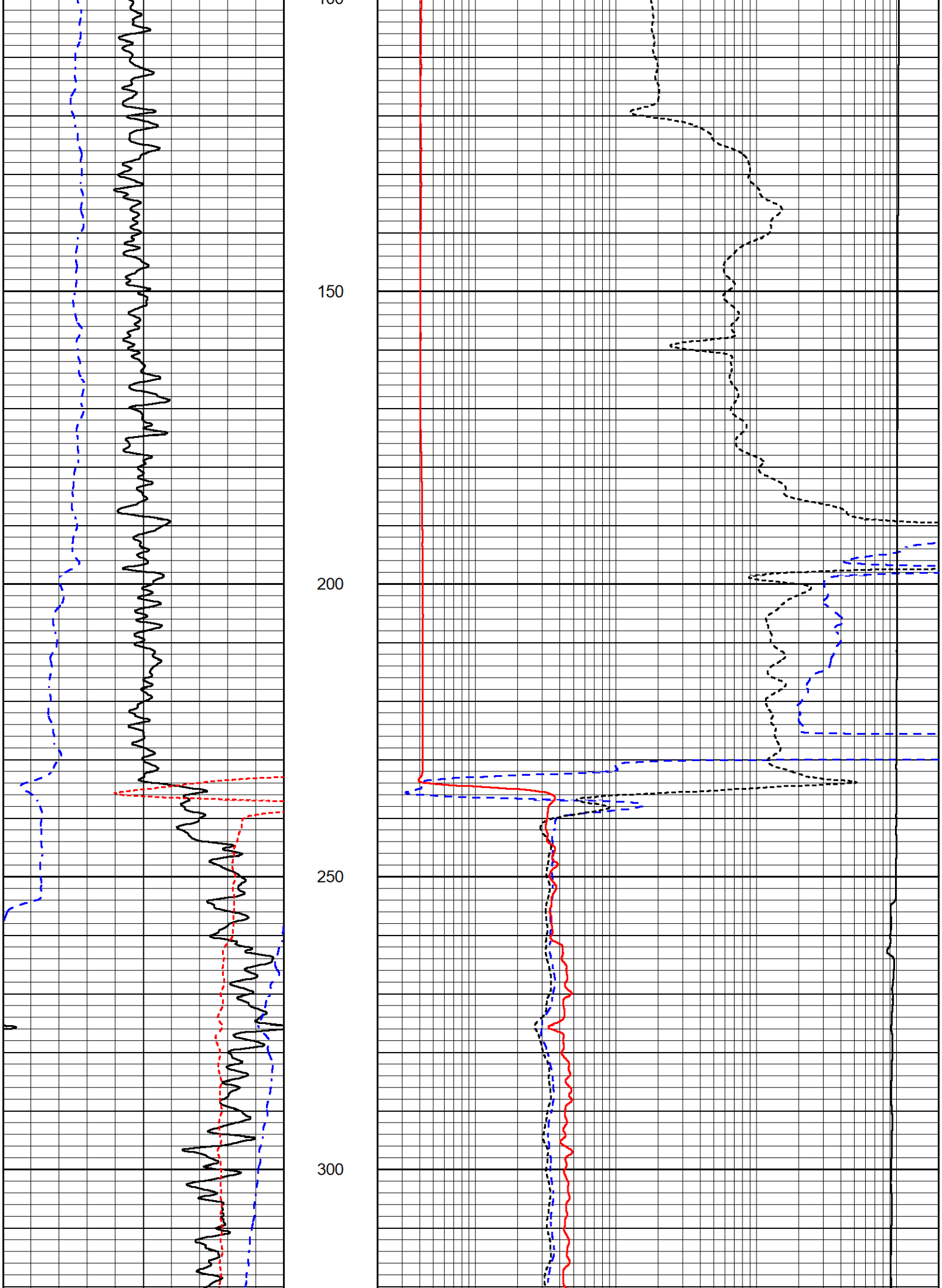
Charted by	Depth in Feet scaled 1:240

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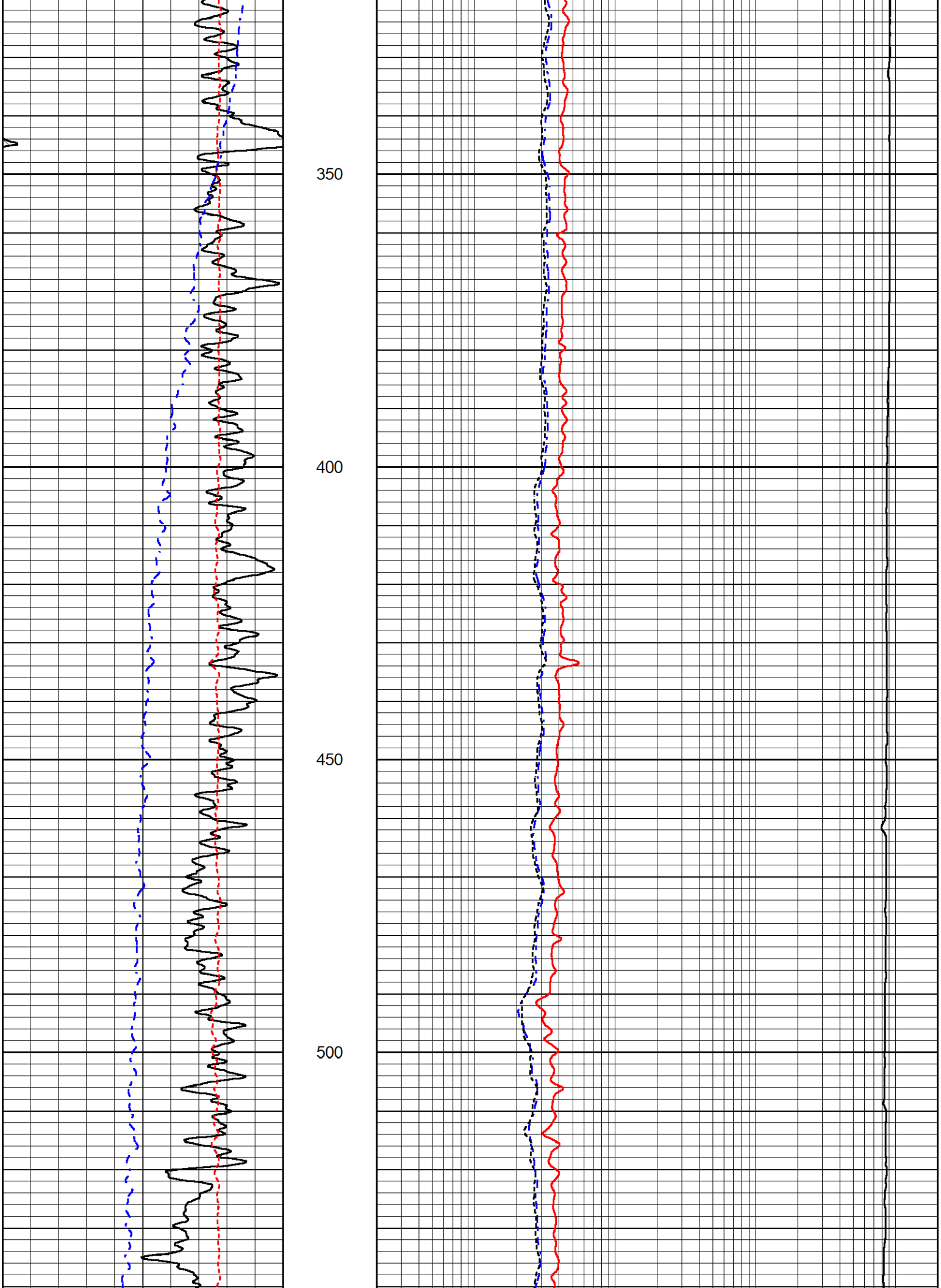
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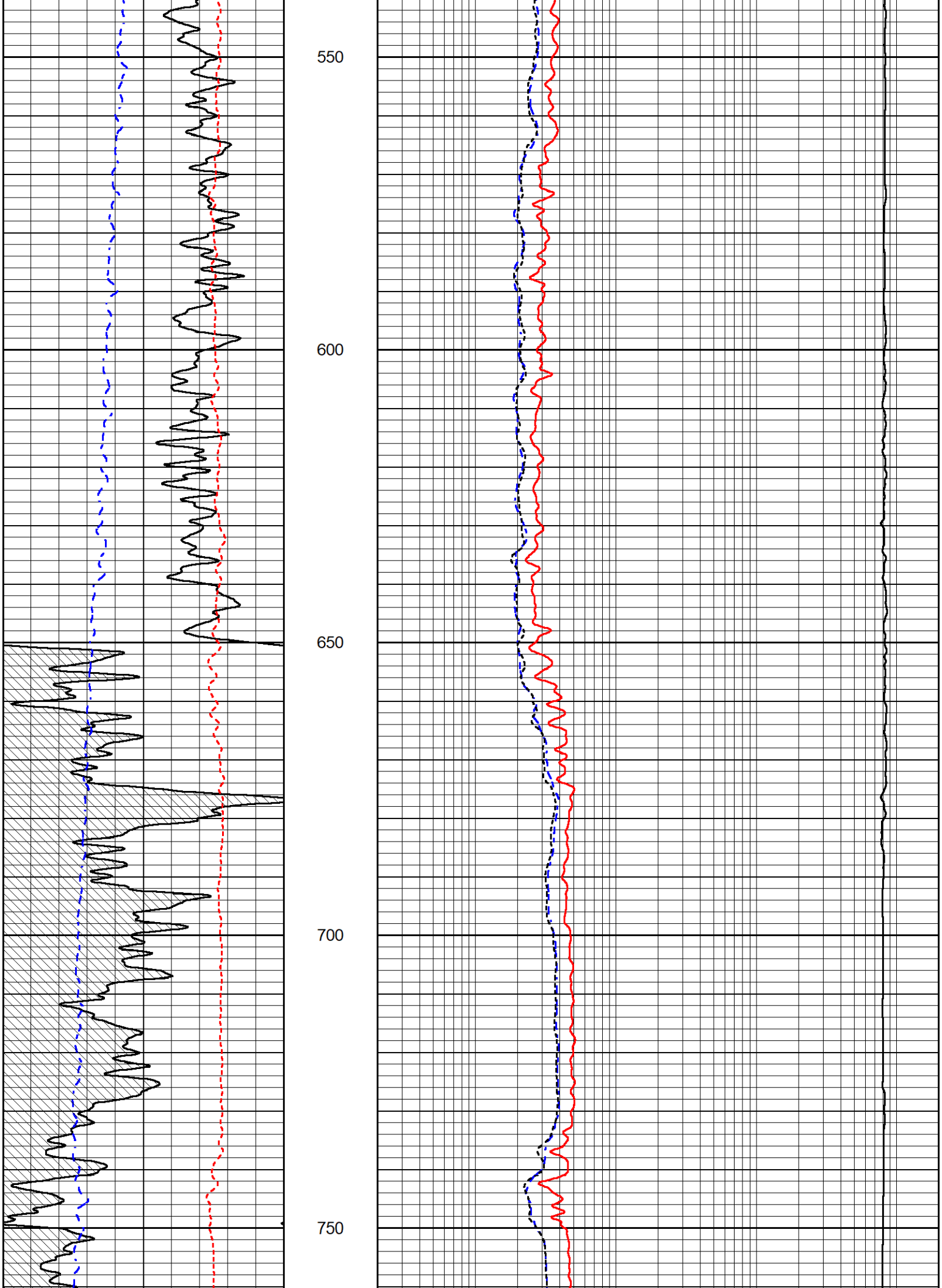
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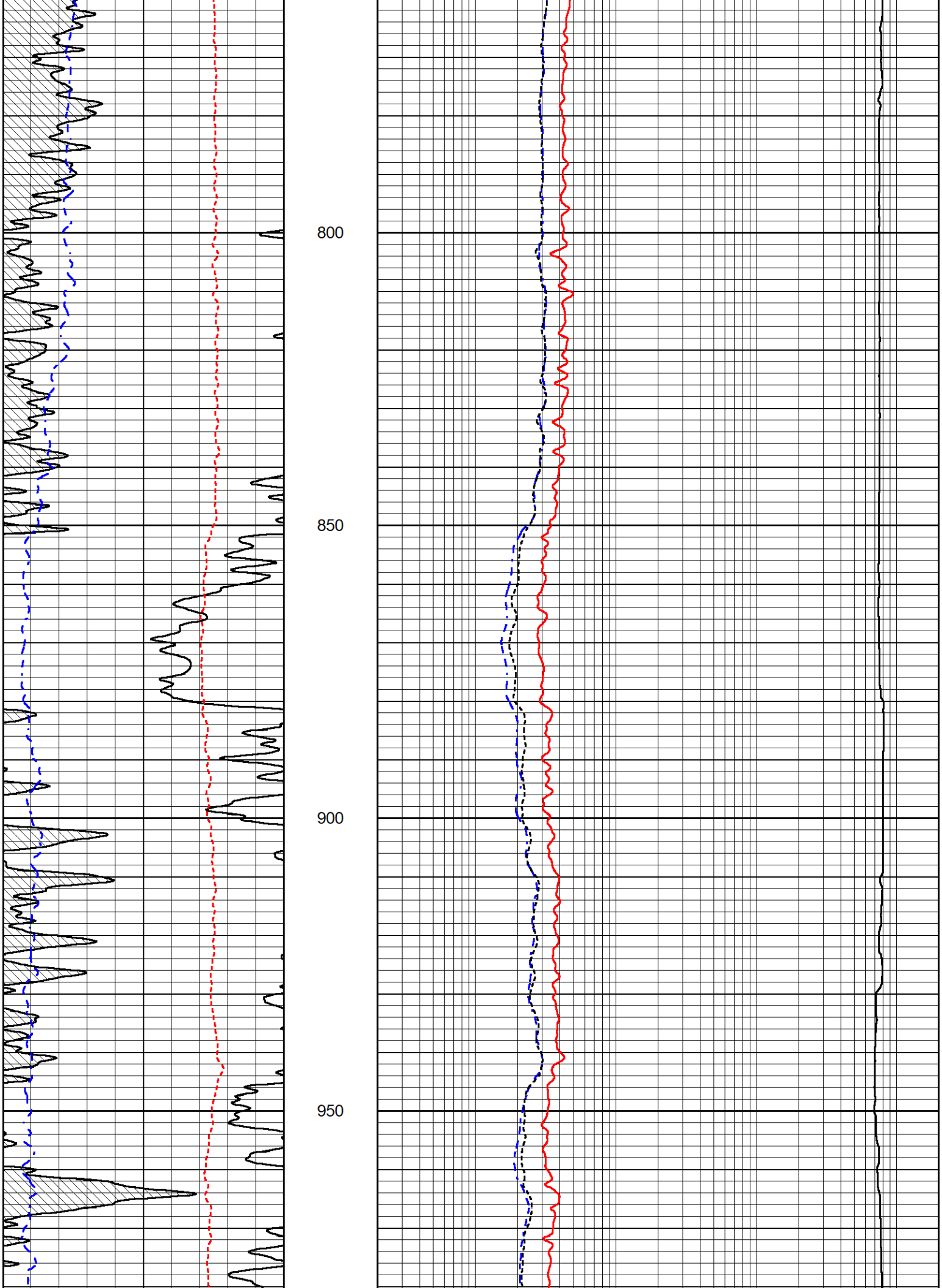
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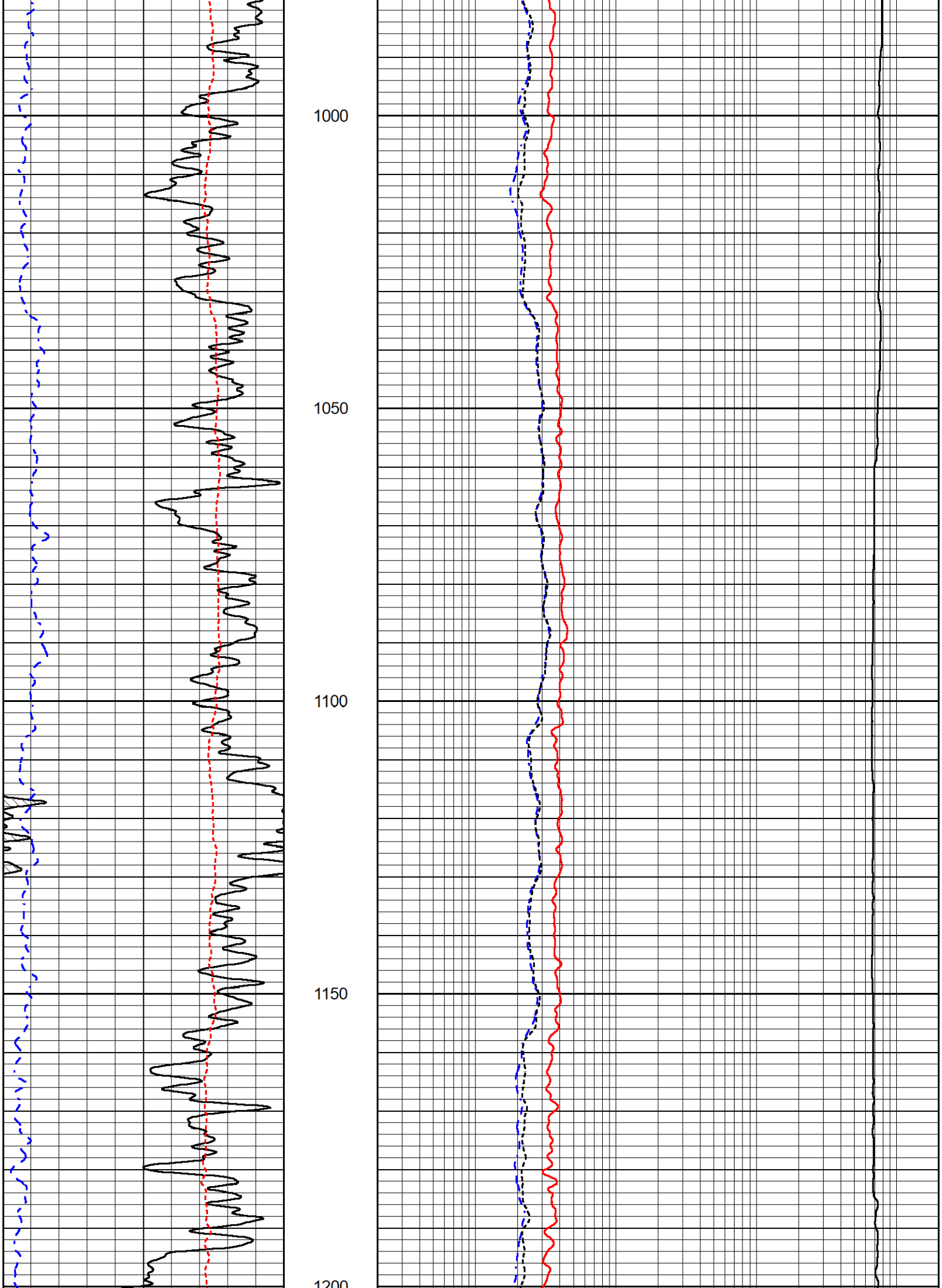
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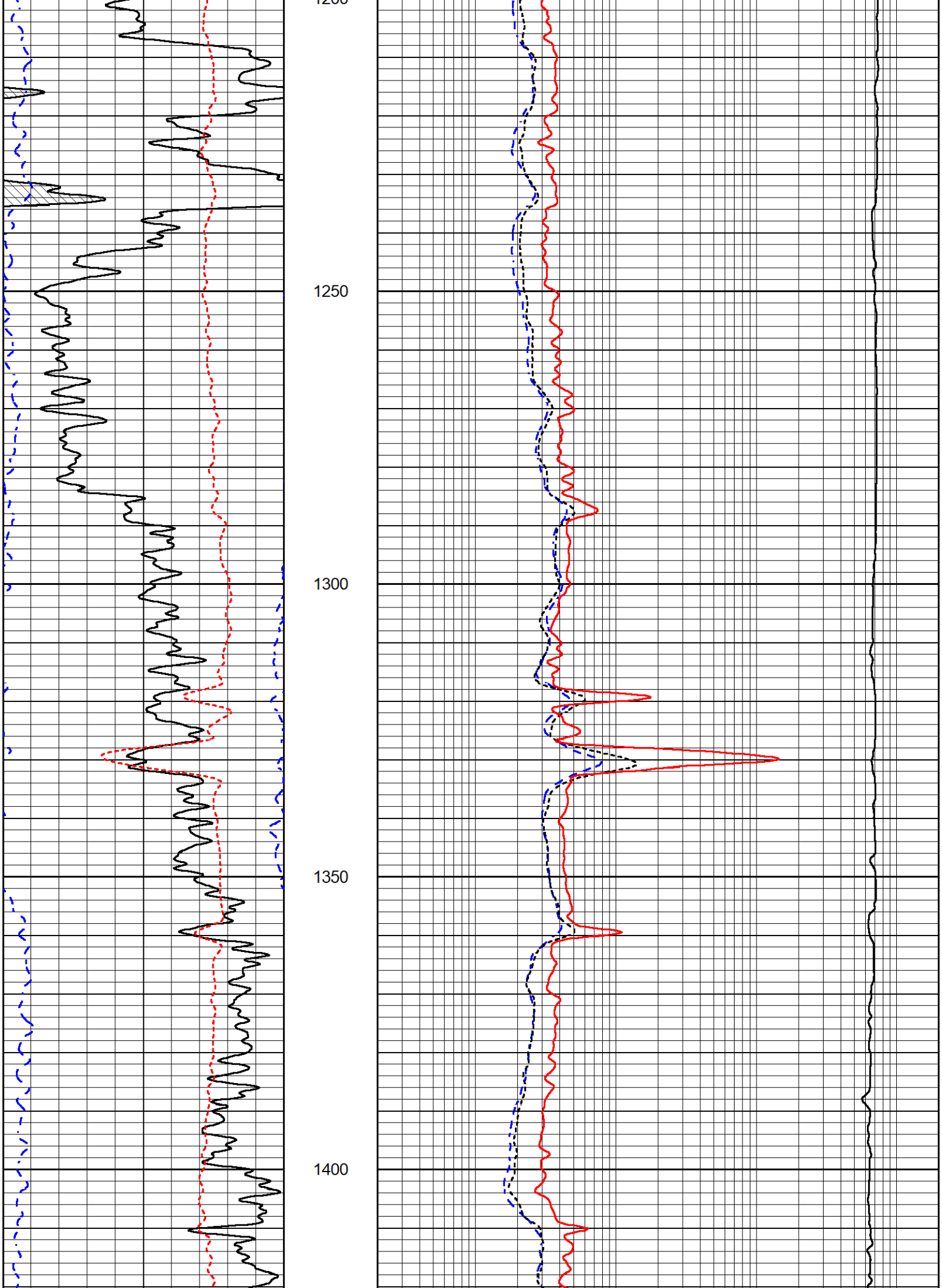
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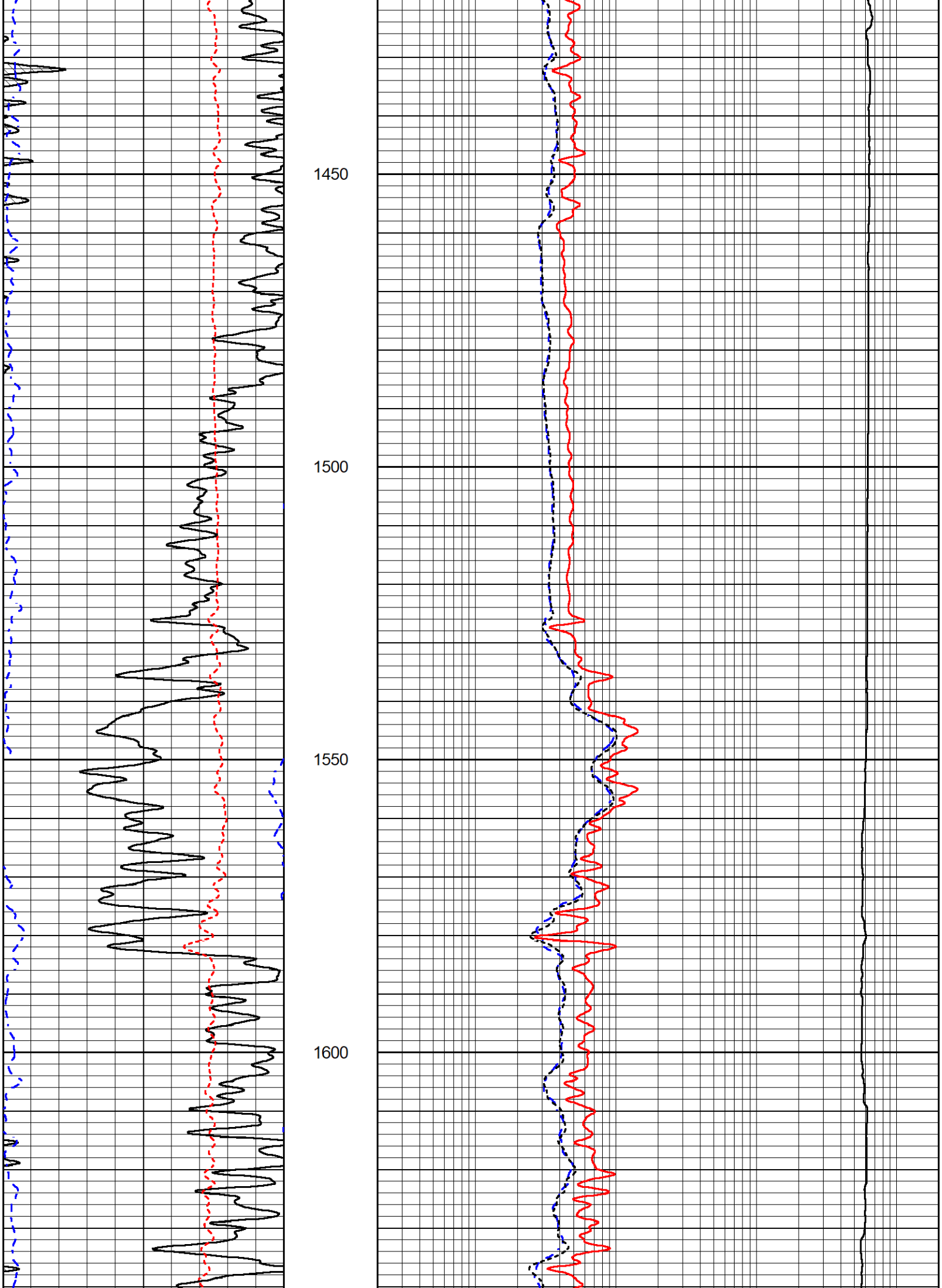
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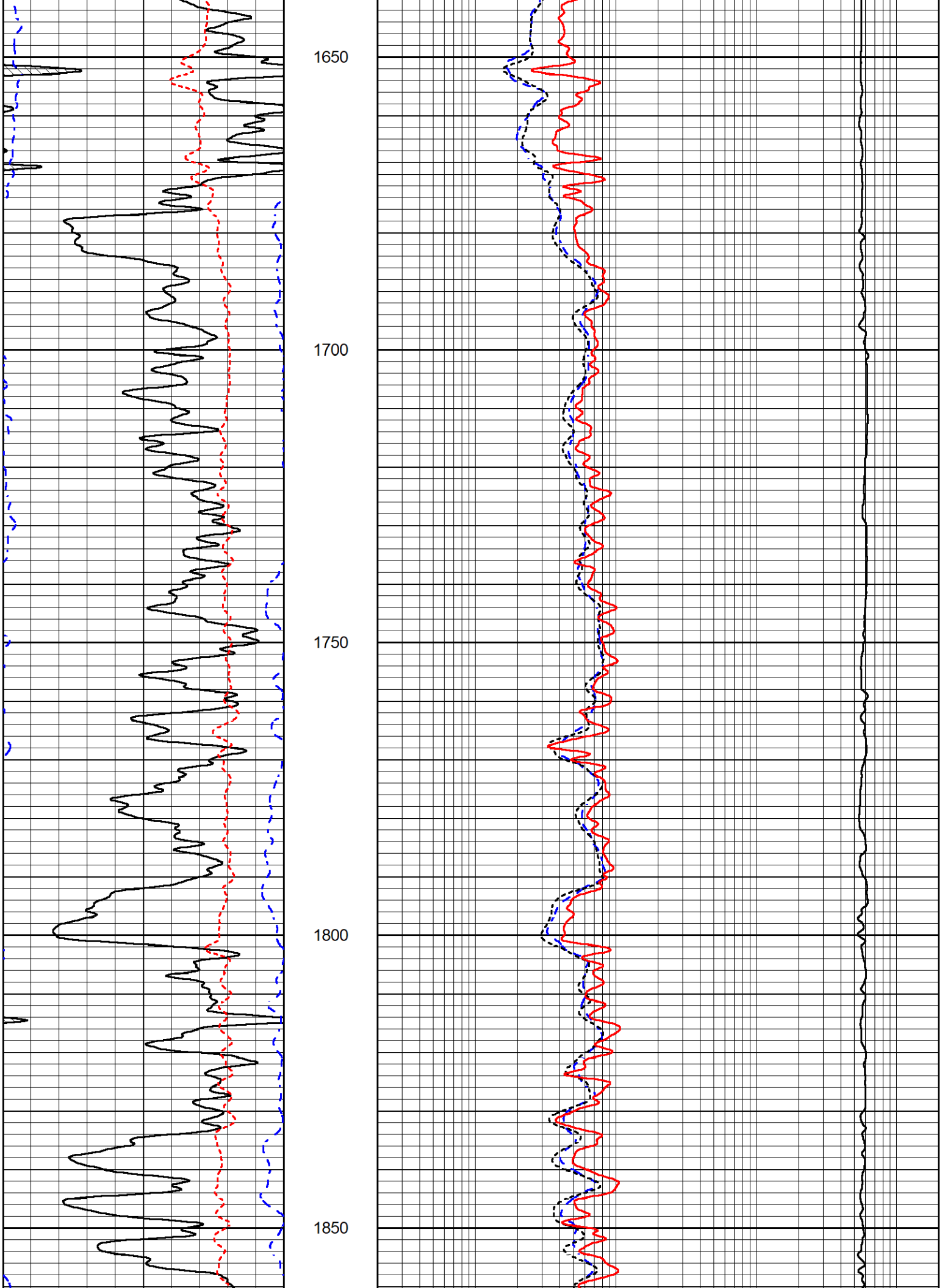
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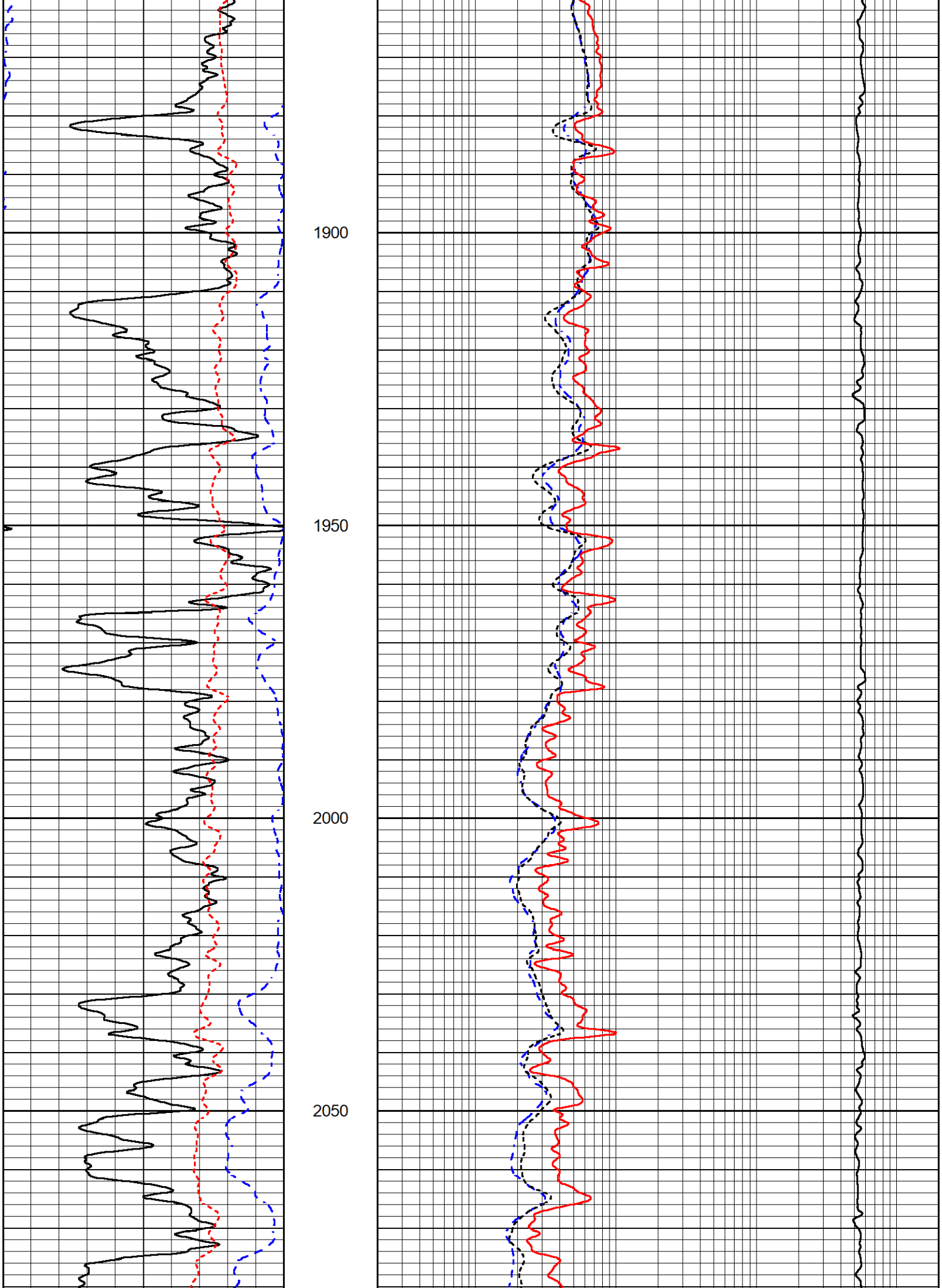
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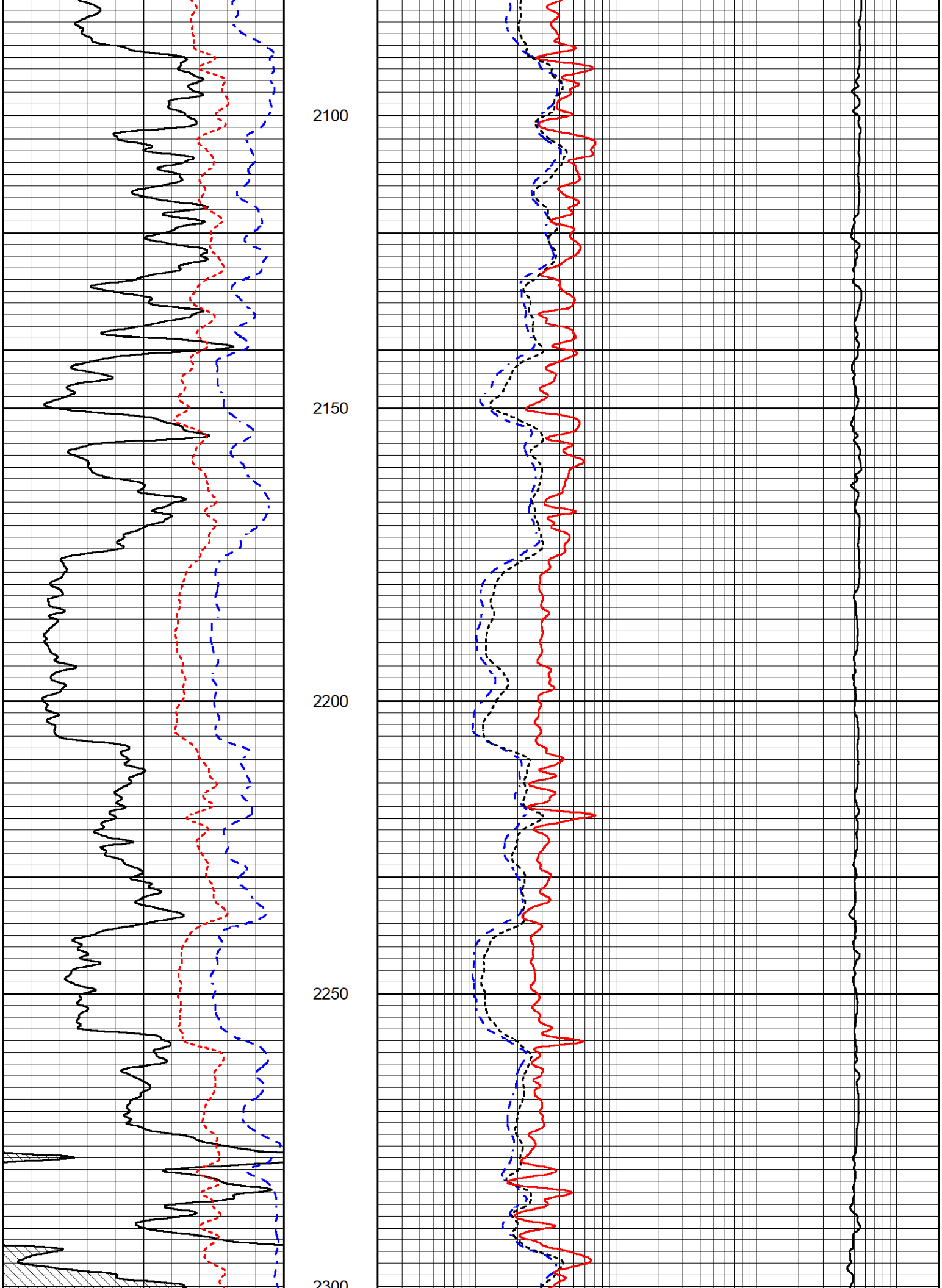
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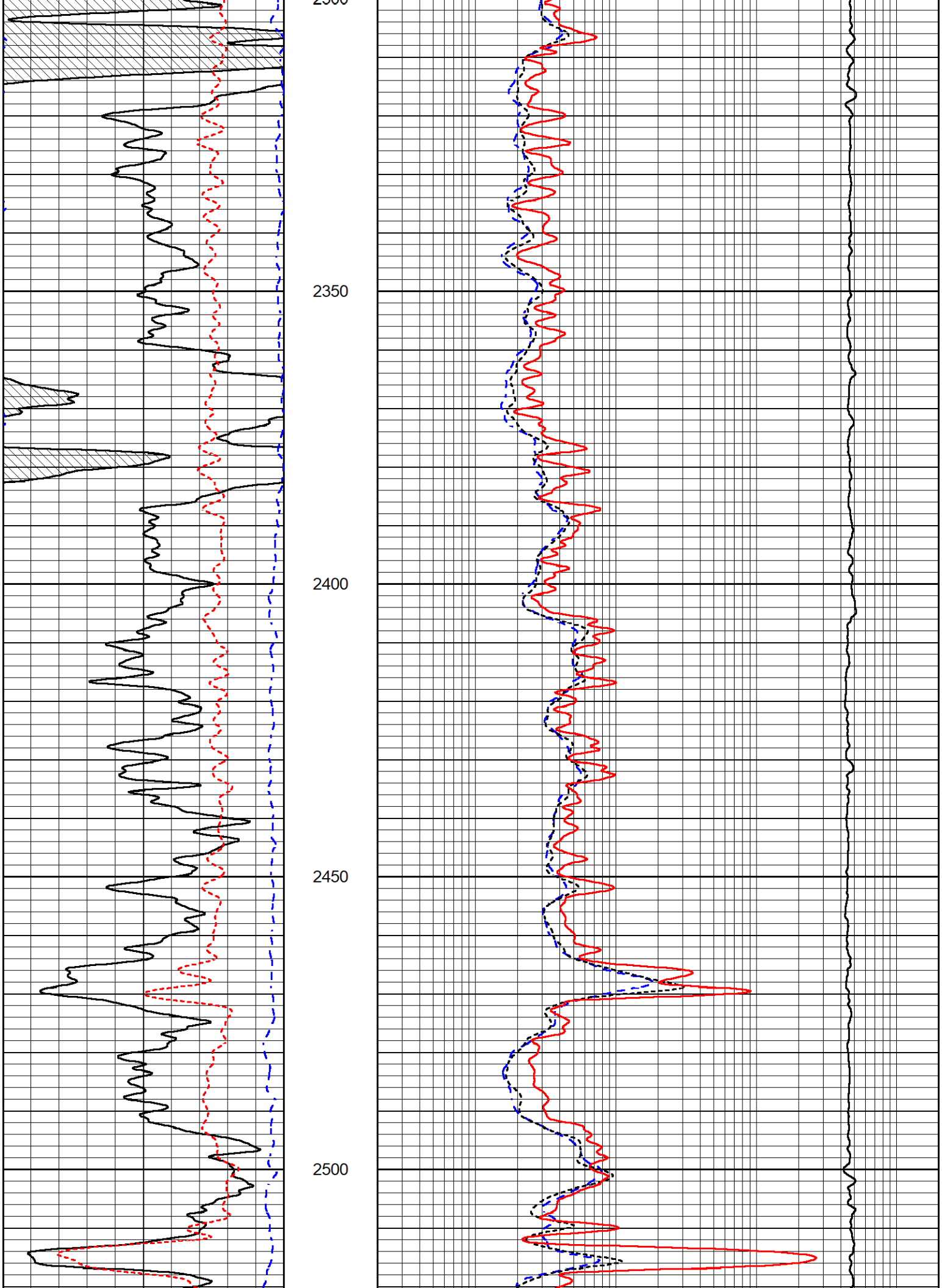
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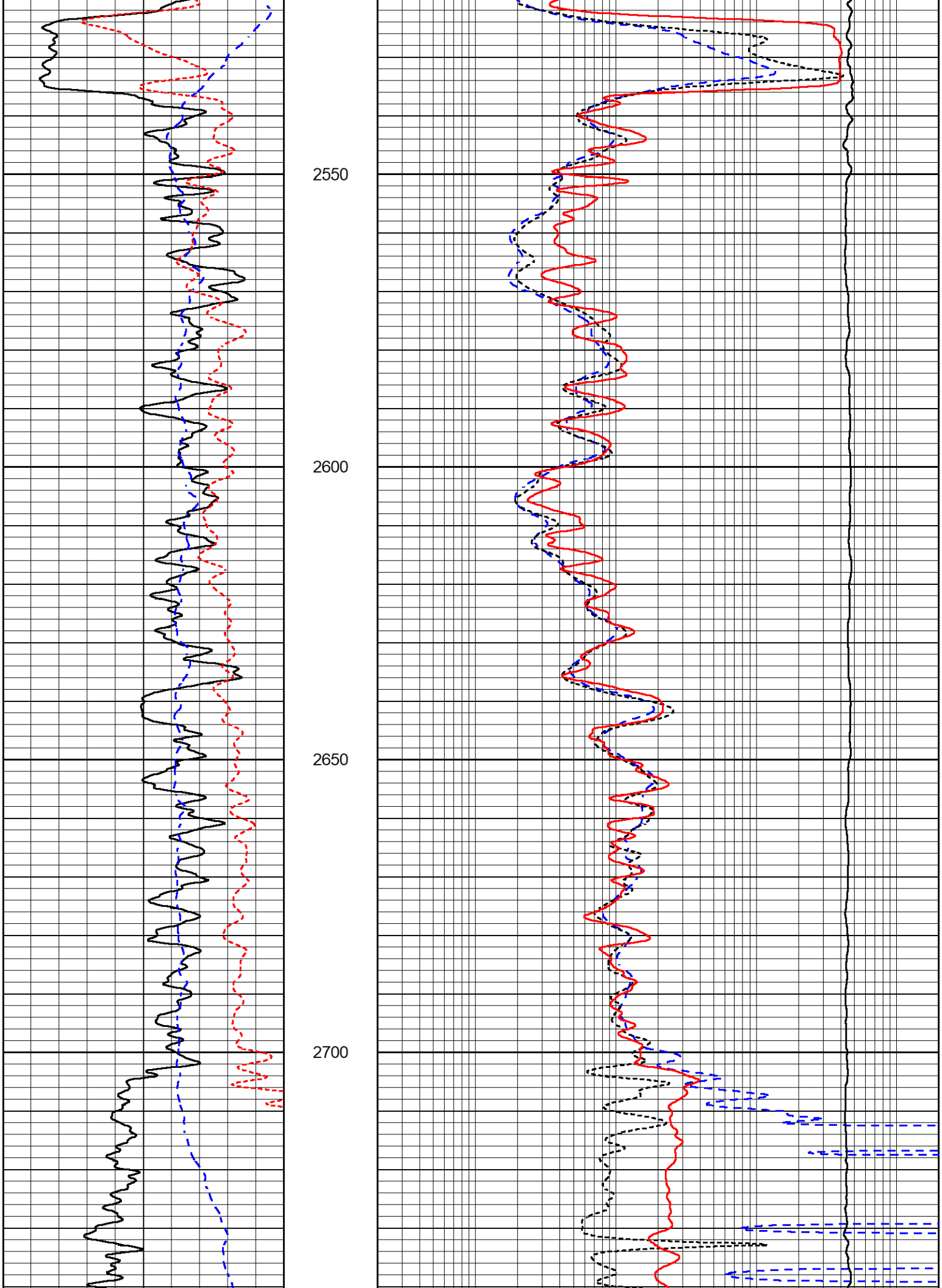
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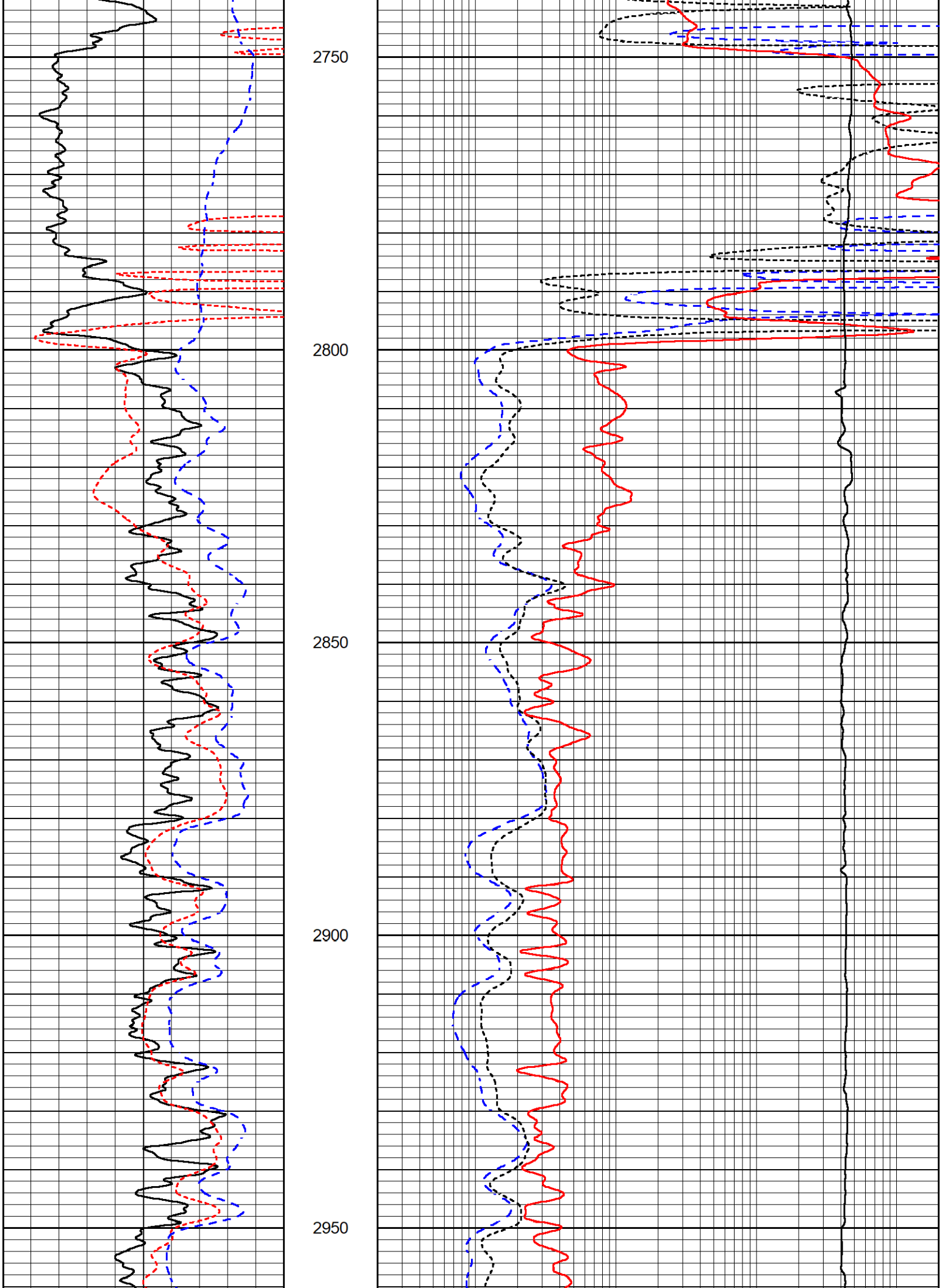
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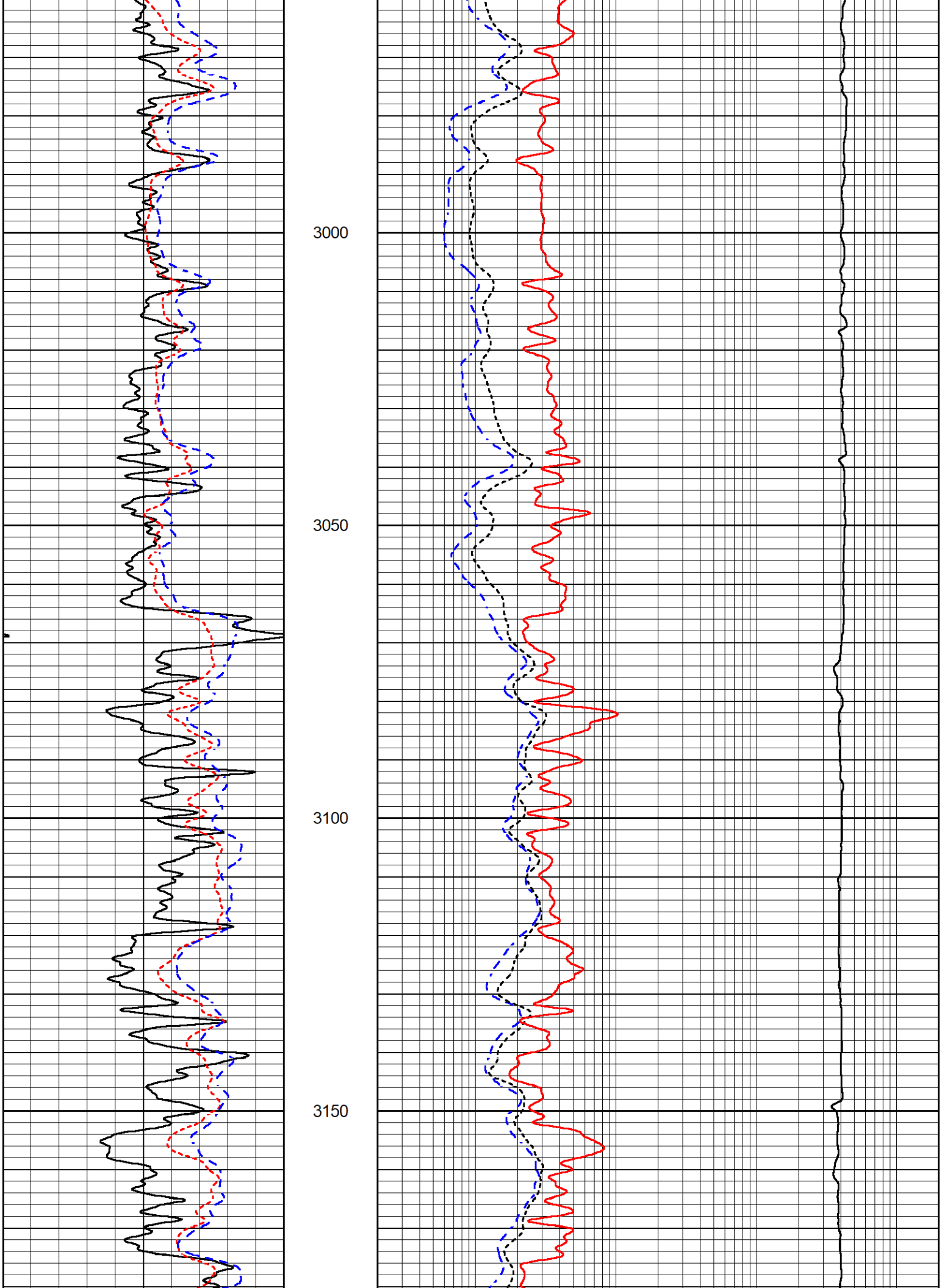
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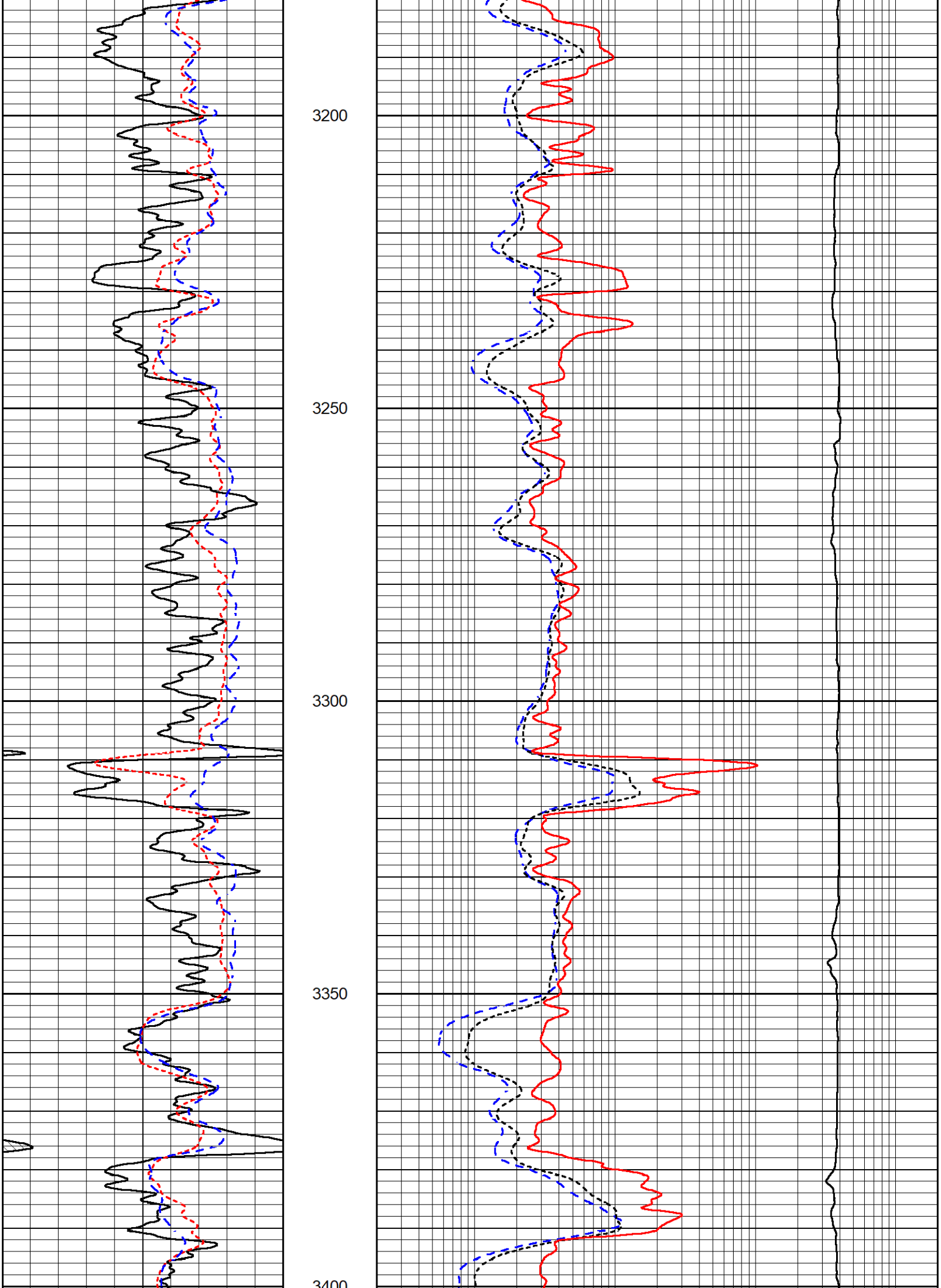
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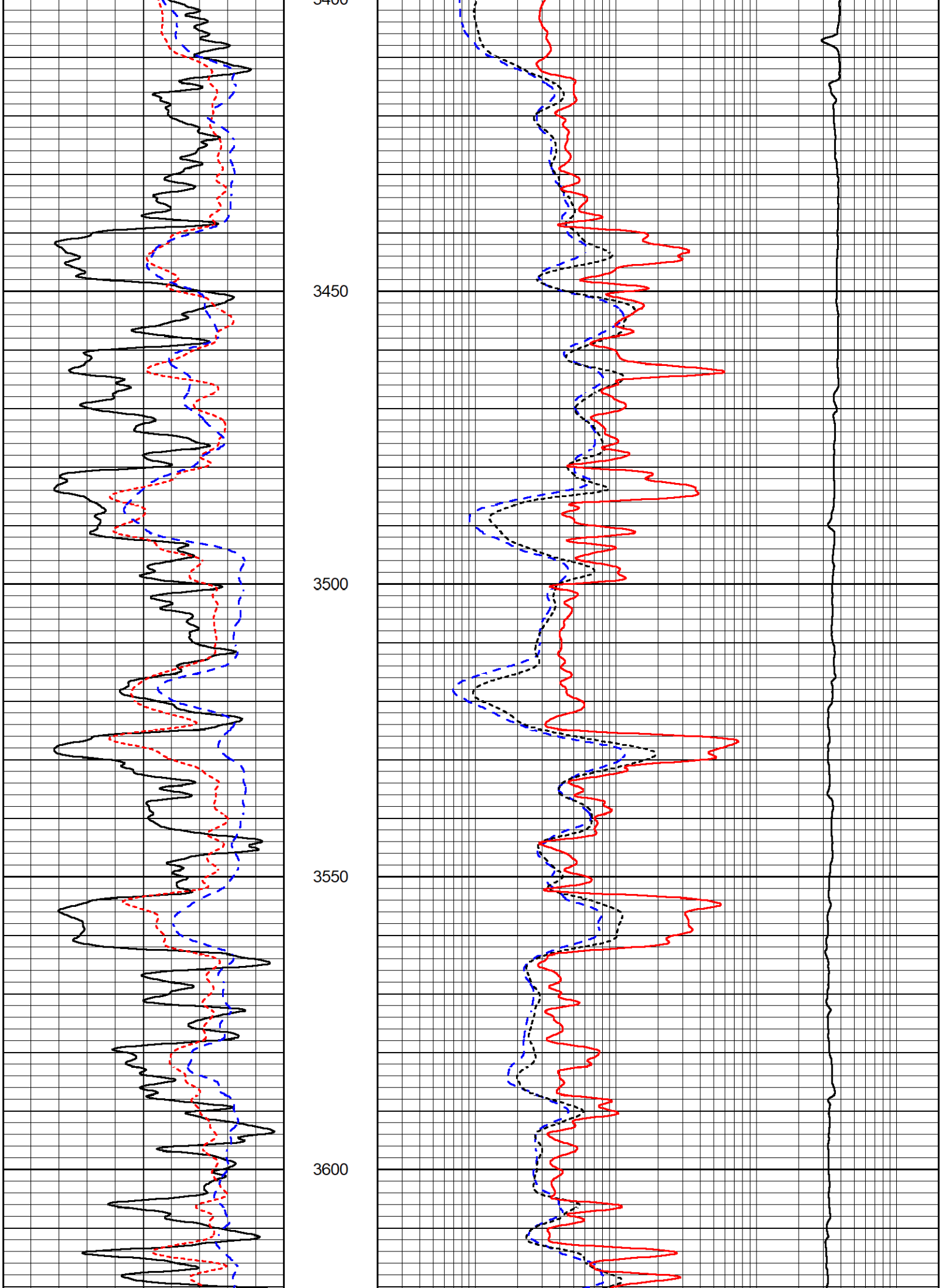
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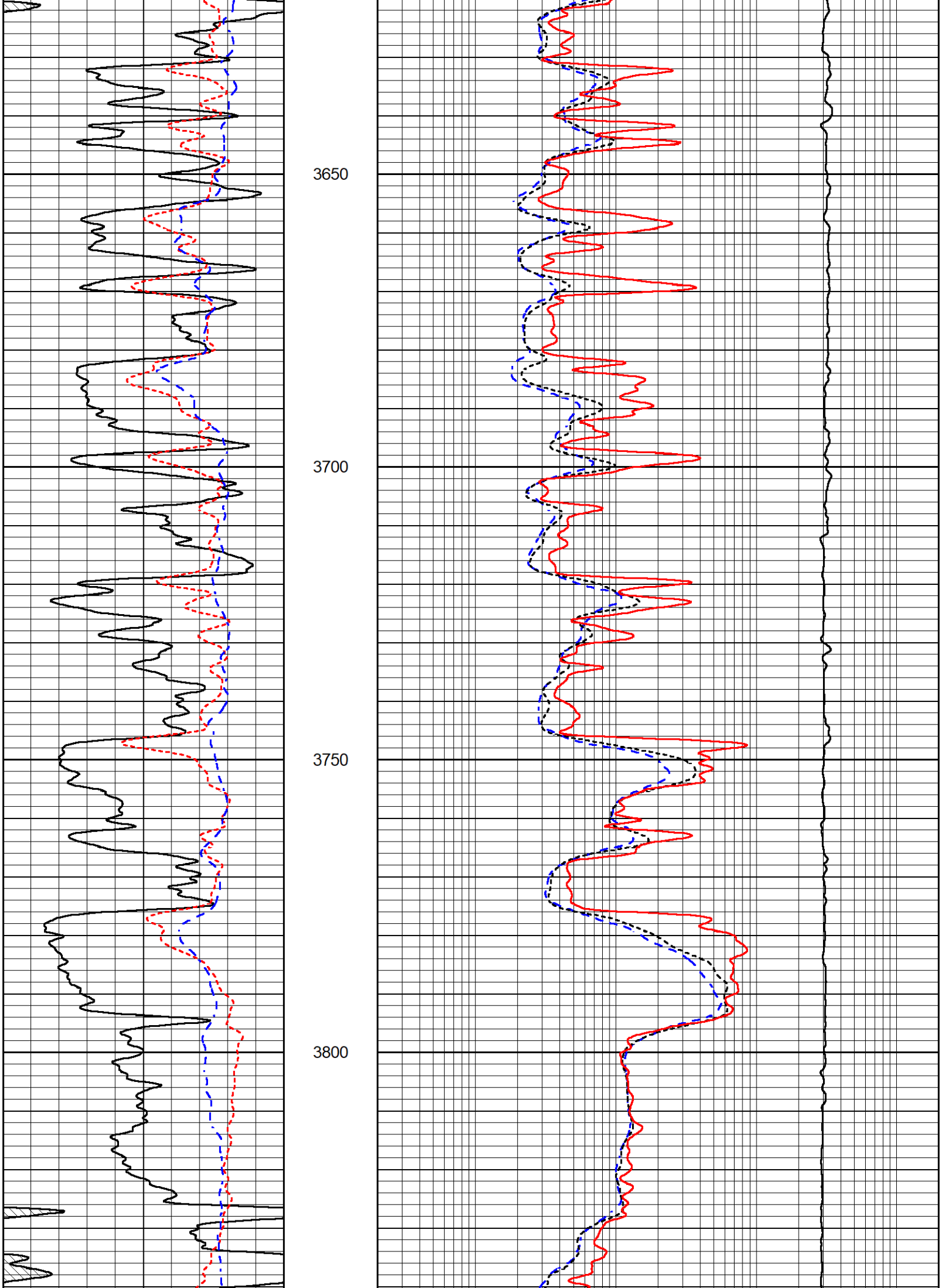
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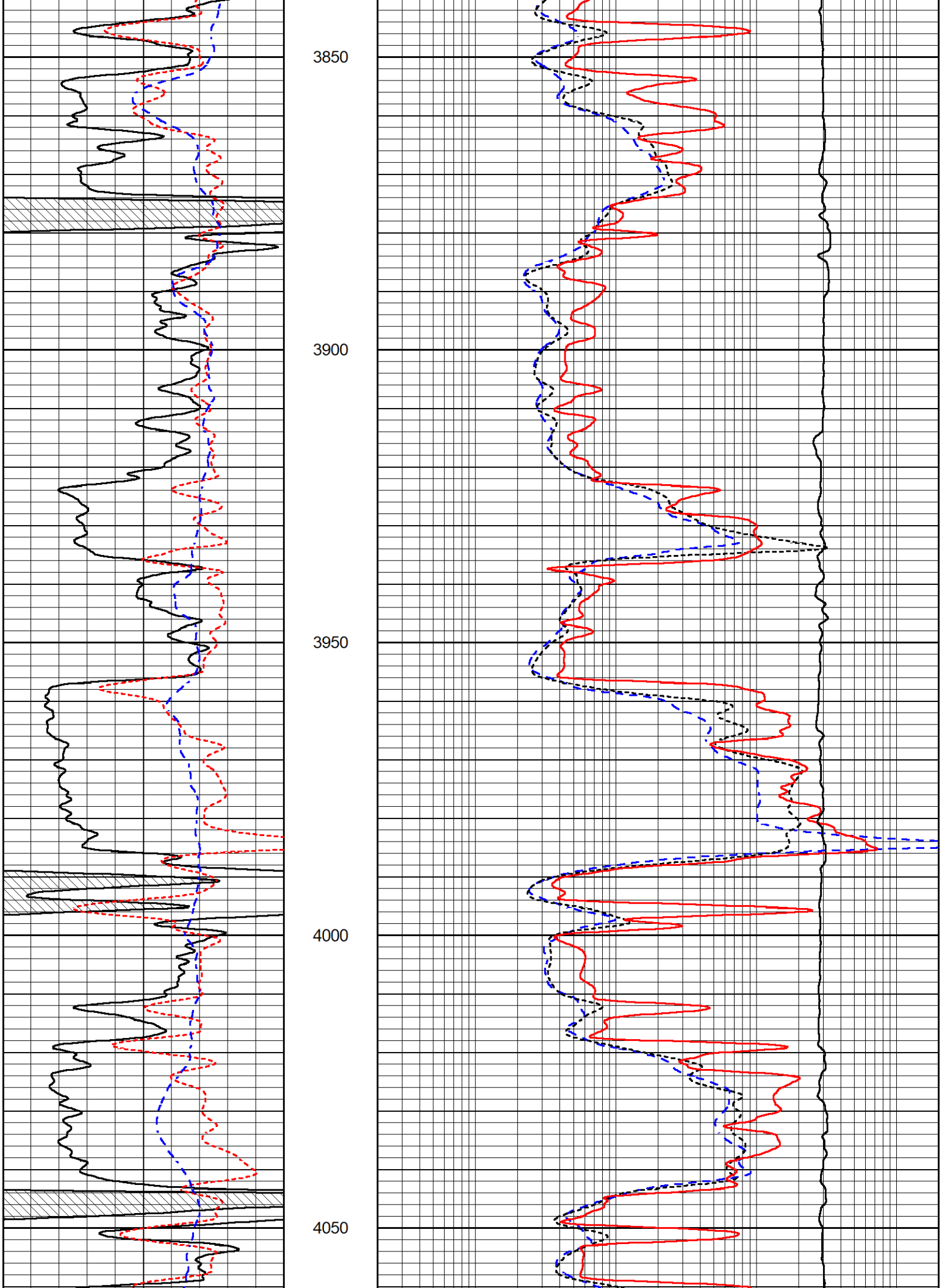
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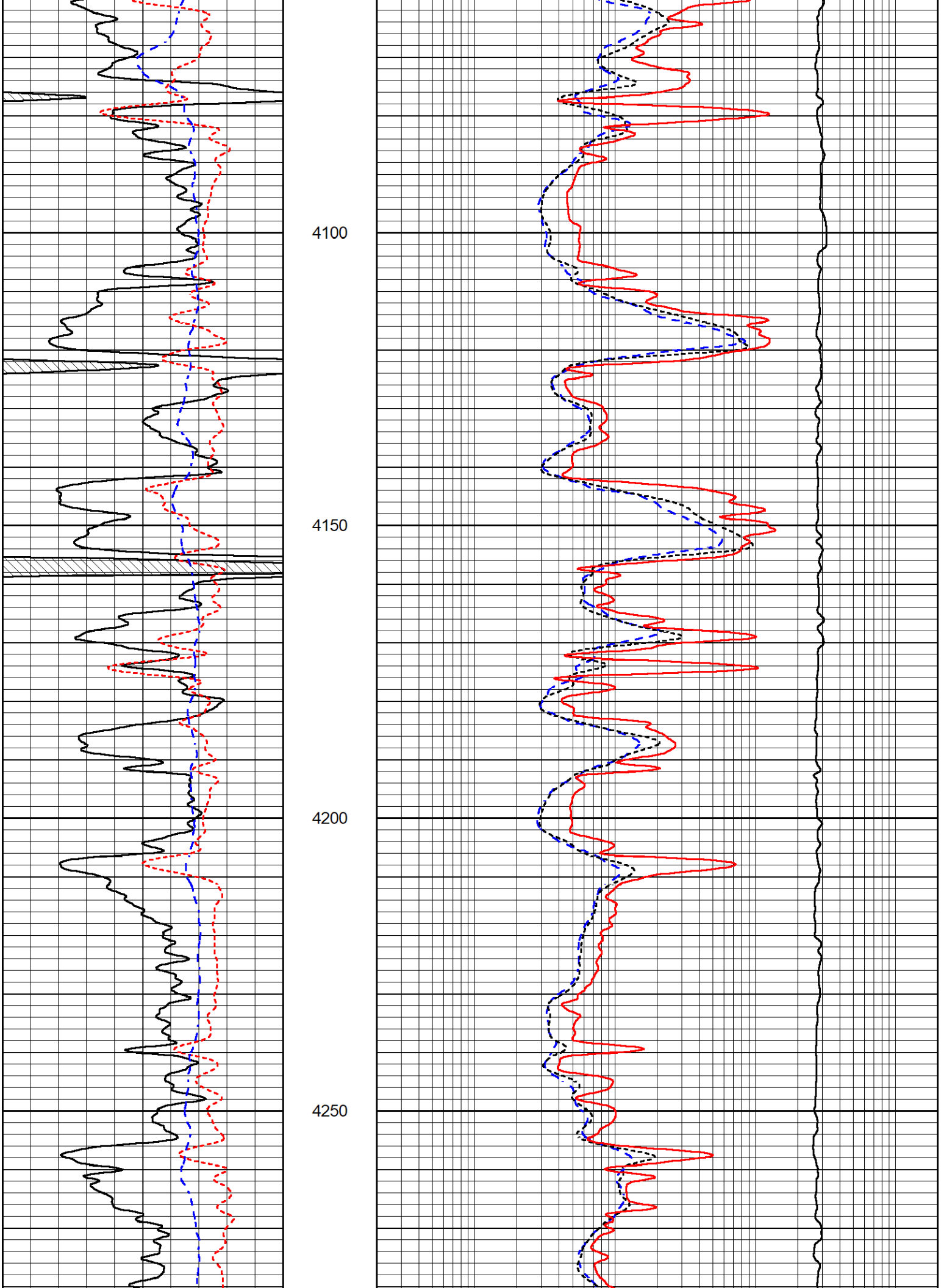
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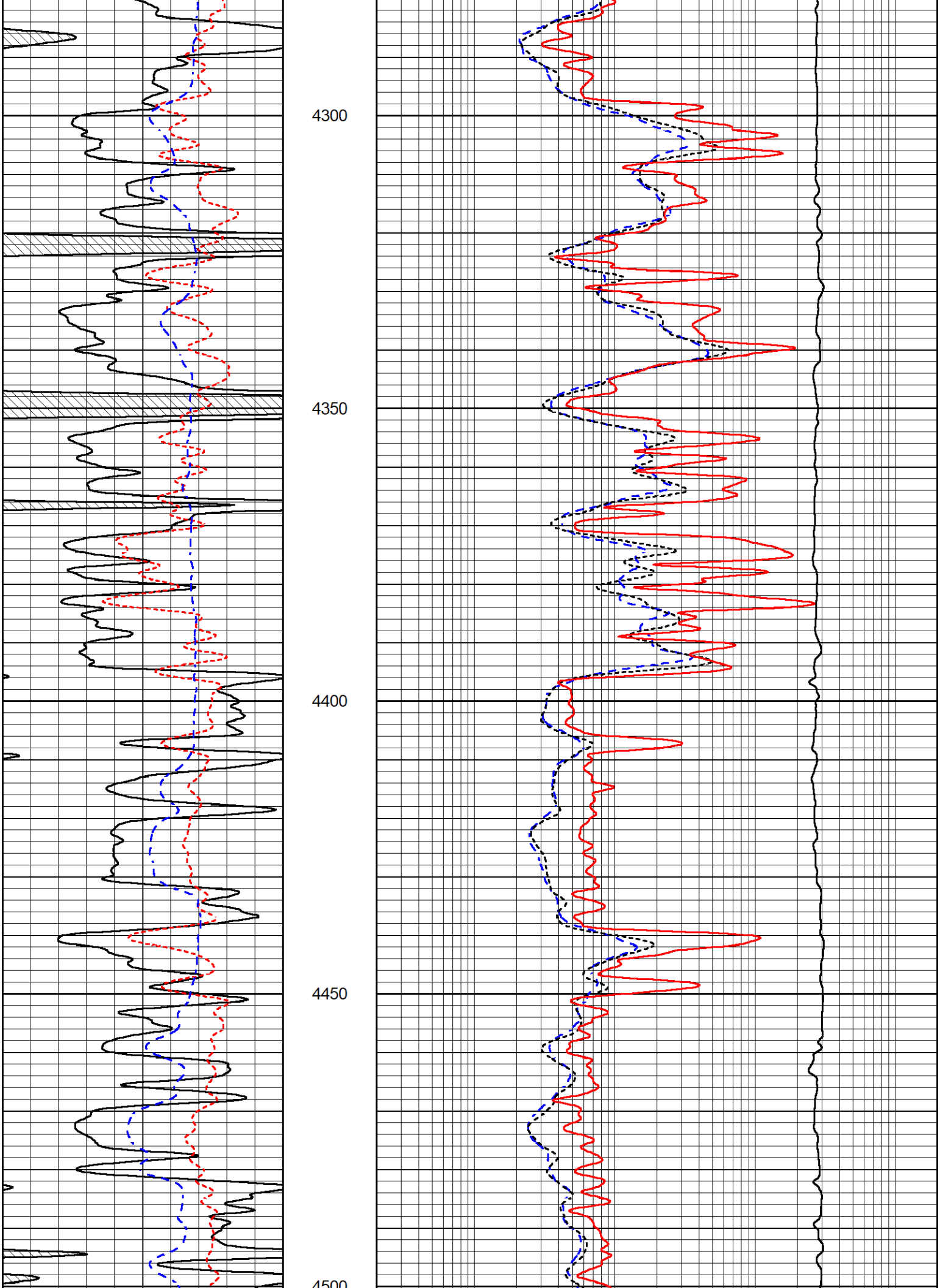
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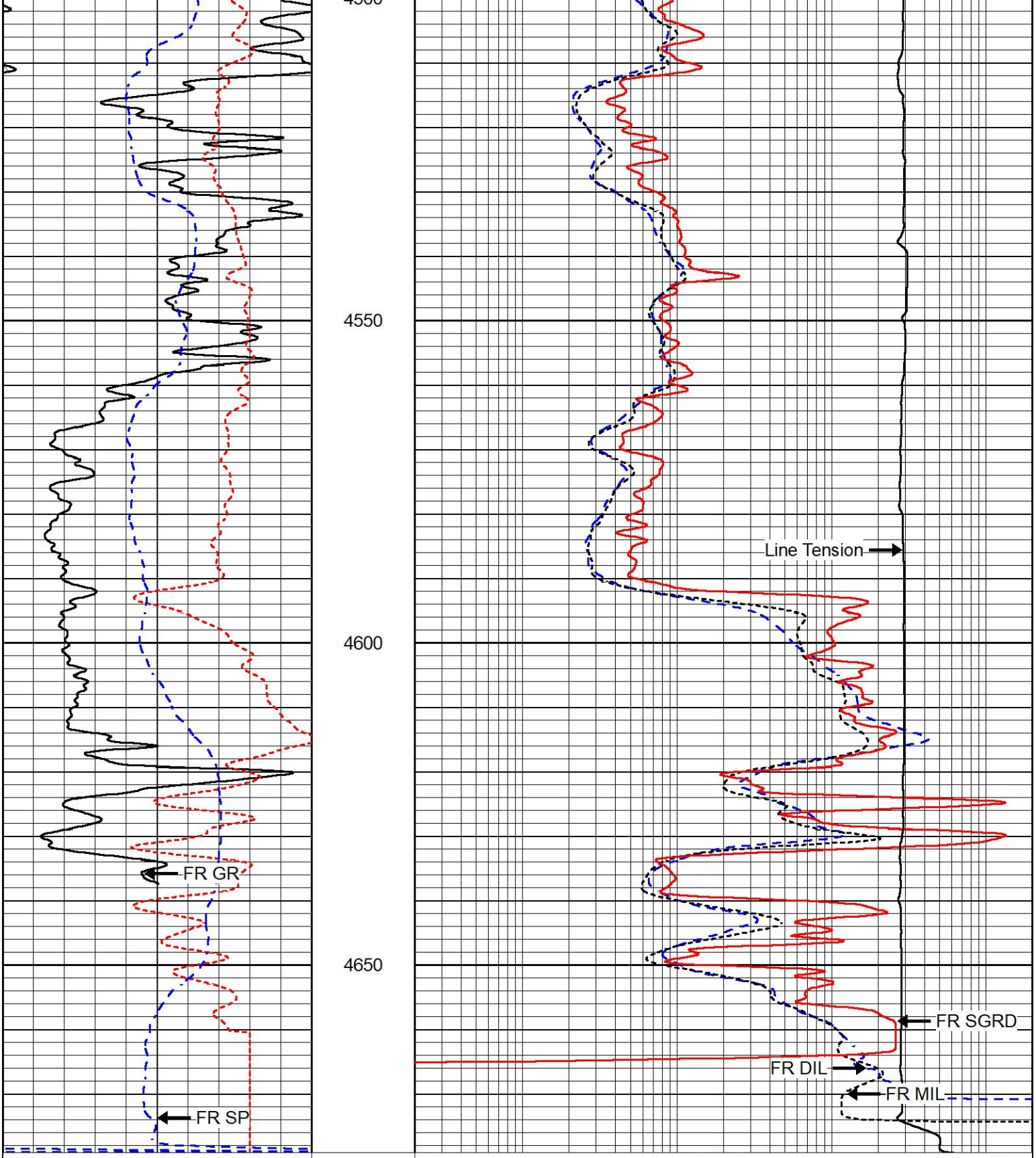

REPEAT SECTION

REPEAT PASS

MIDWEST WIRELINE

REPEAT PASS

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Dataset Pathname	StkMl/pass2.11
Presentation Format	_dil
Dataset Creation	Sun Dec 19 06:40:36 2021
Charted by	Depth in Feet scaled 1:240

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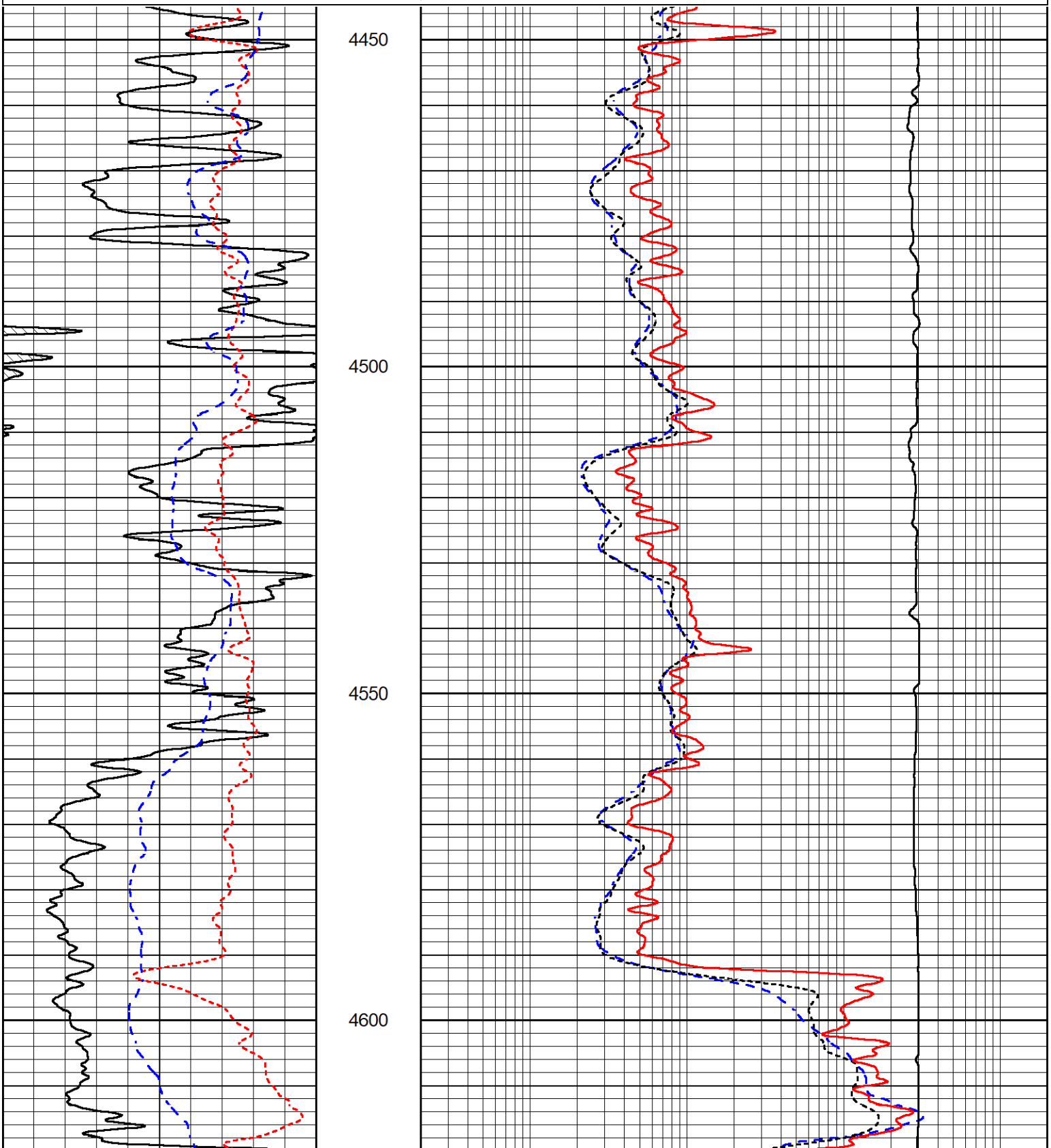
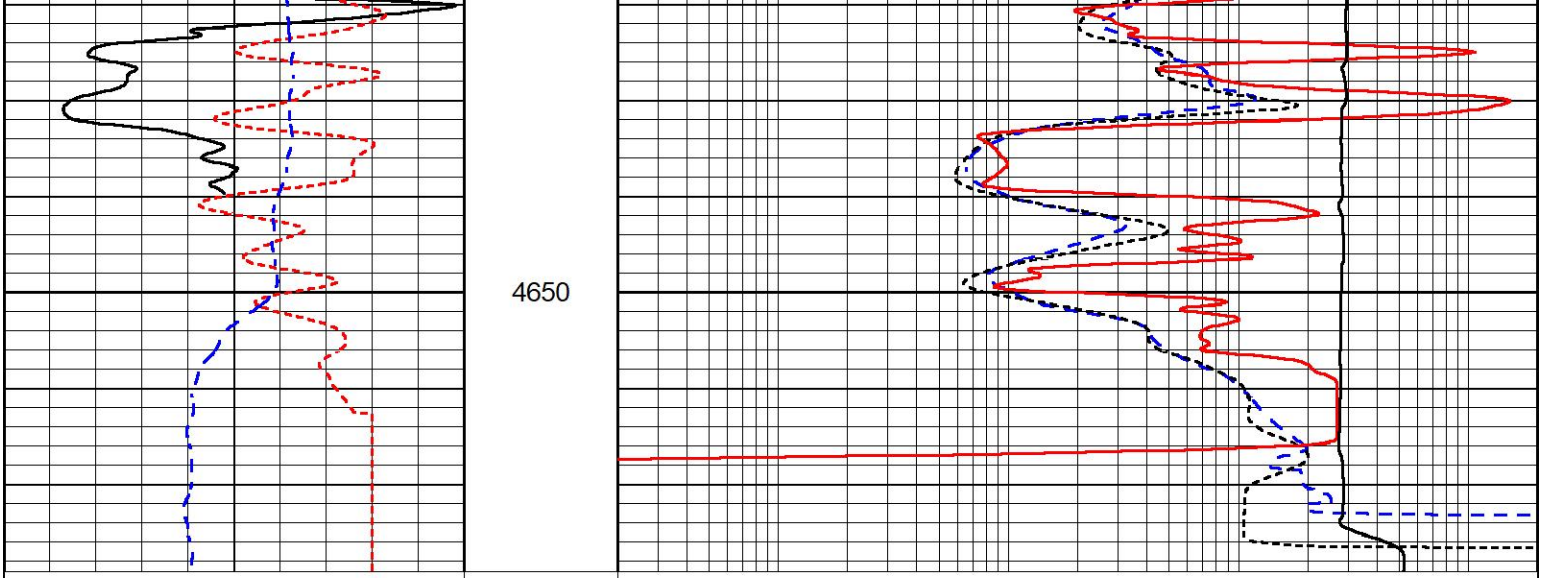
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0





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-160	RXORT	40
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0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

MIDWEST WIRELINE

High Resolution

MAIN PASS

Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMl/pass4.1
Presentation Format	_dil
Dataset Creation	Sun Dec 19 06:45:05 2021
Charted by	Depth in Feet scaled 1:120

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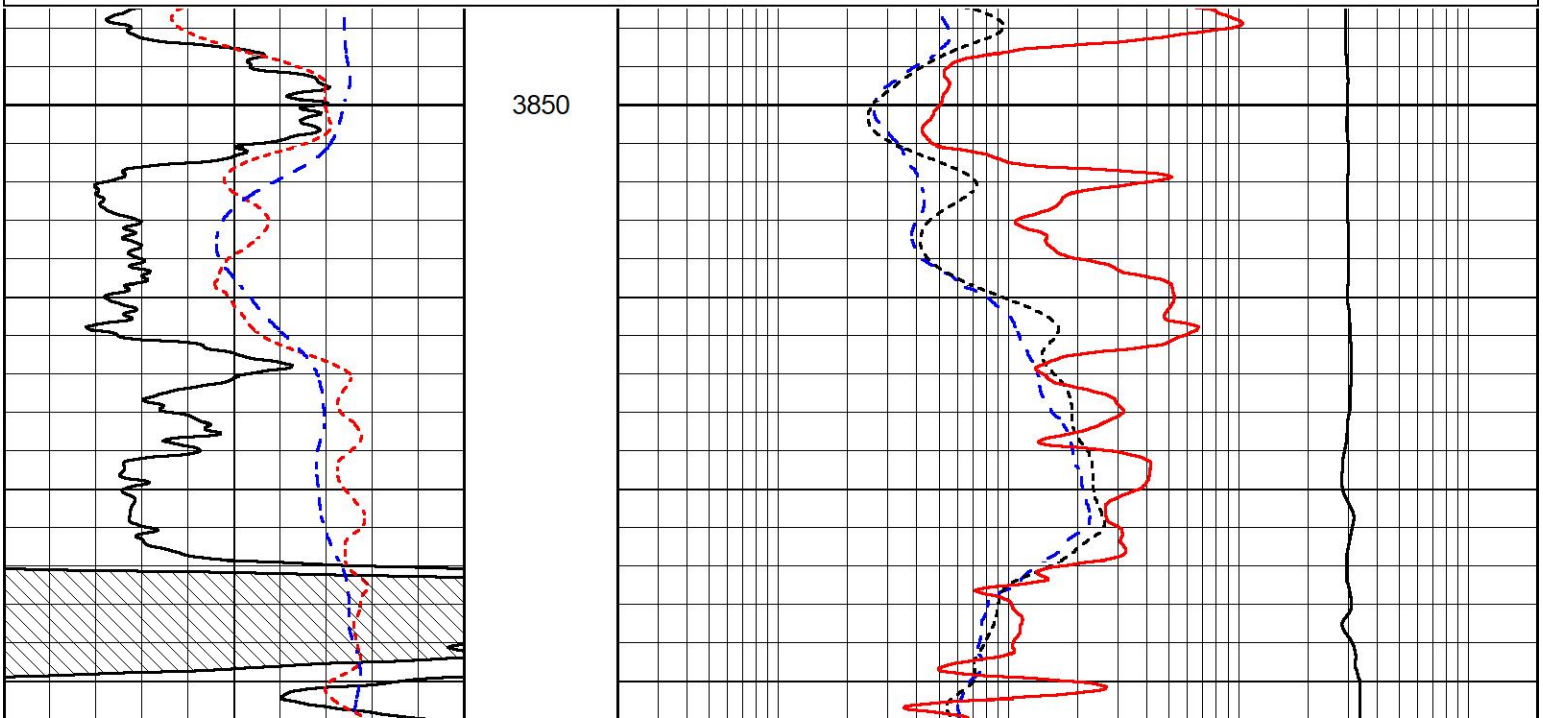
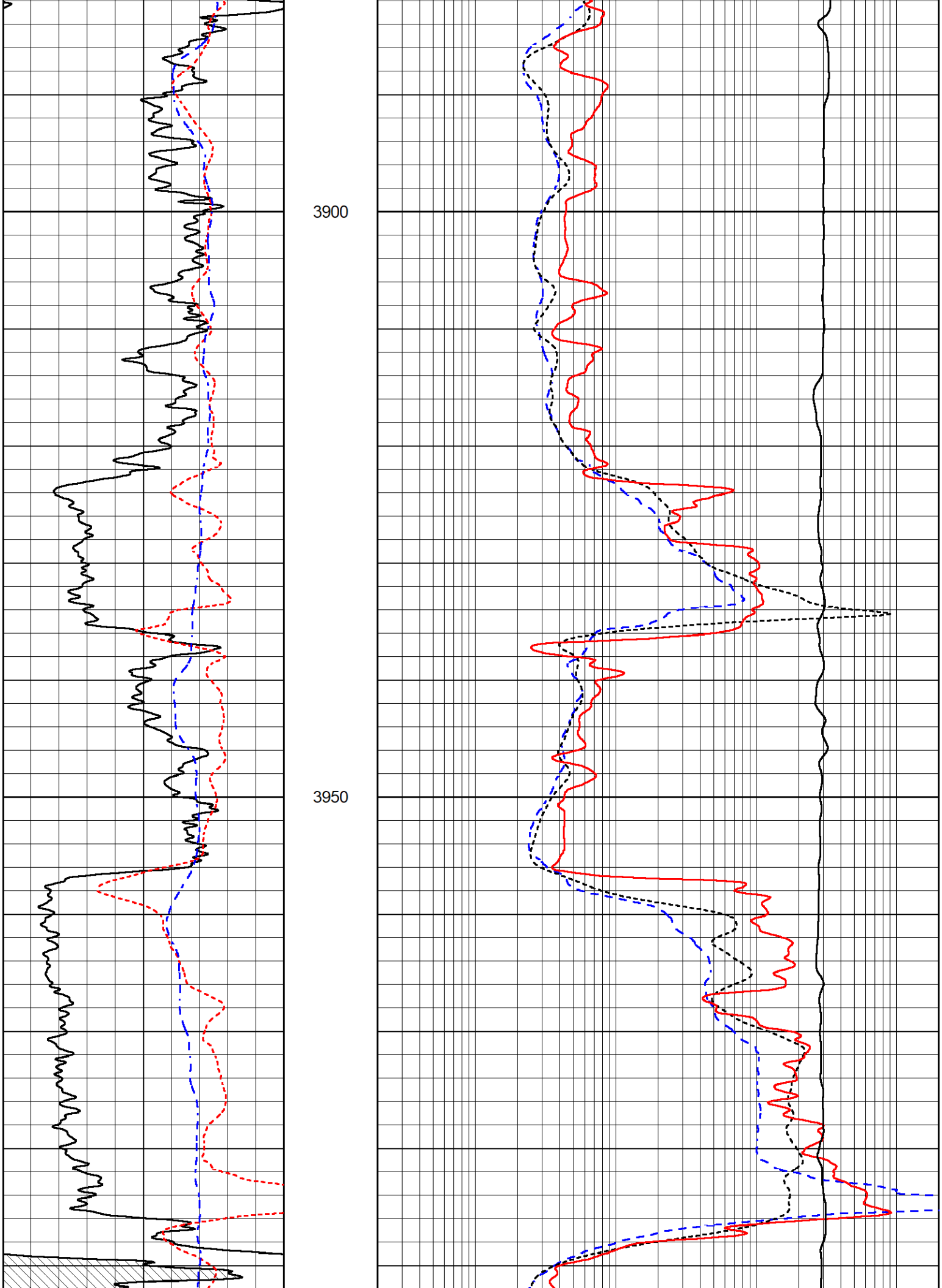
10000	Line Tension (lb)	0

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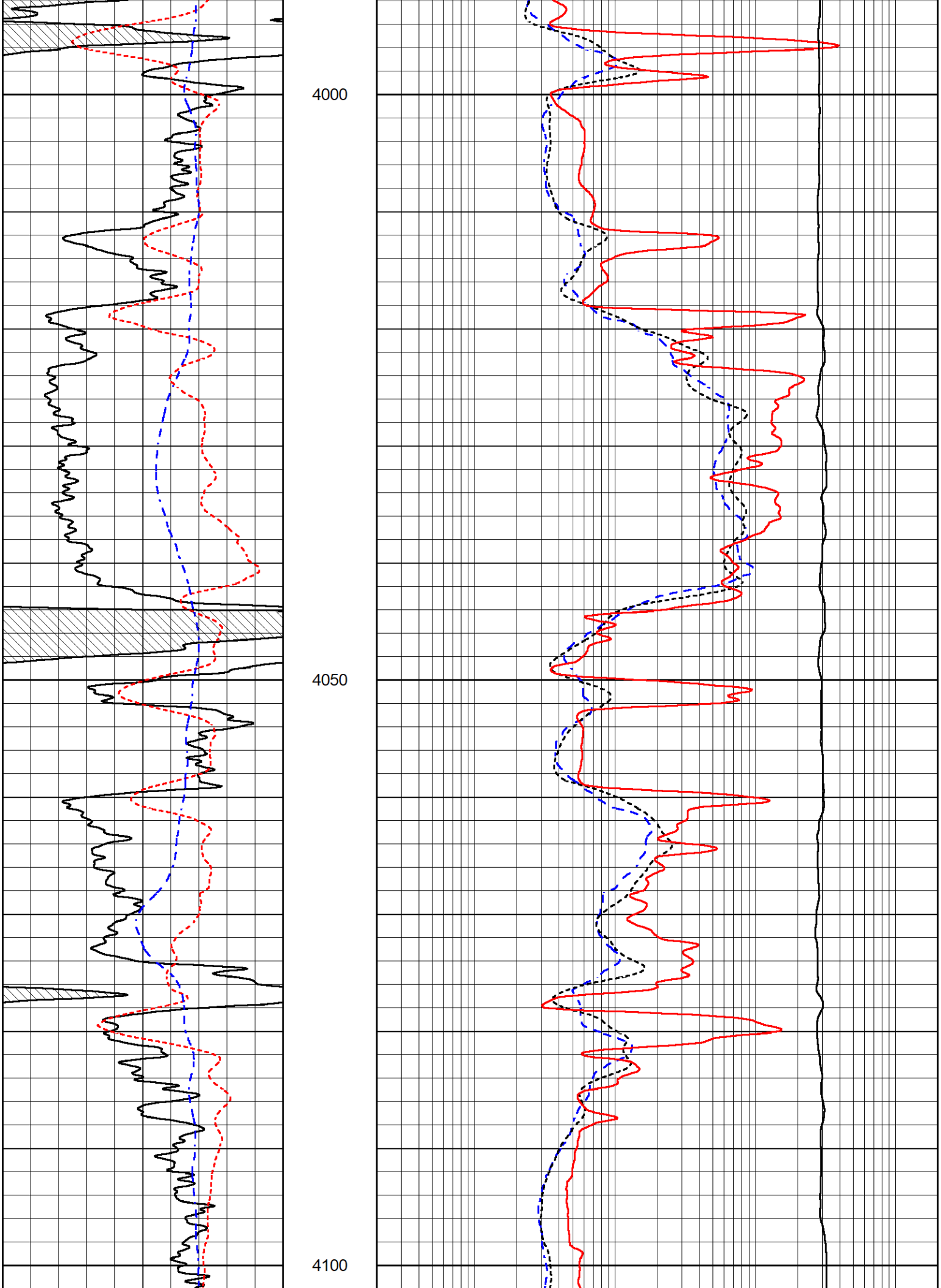
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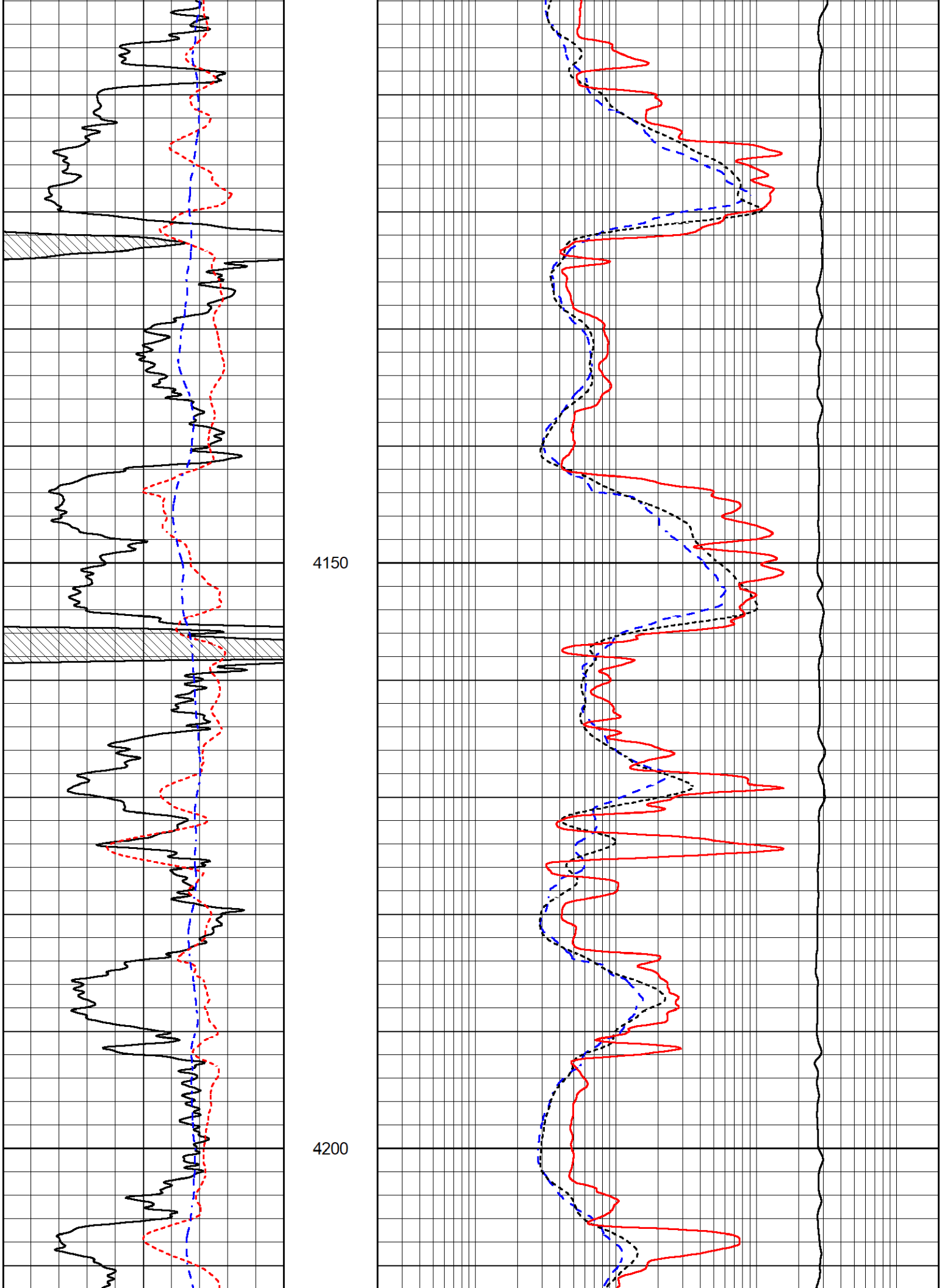
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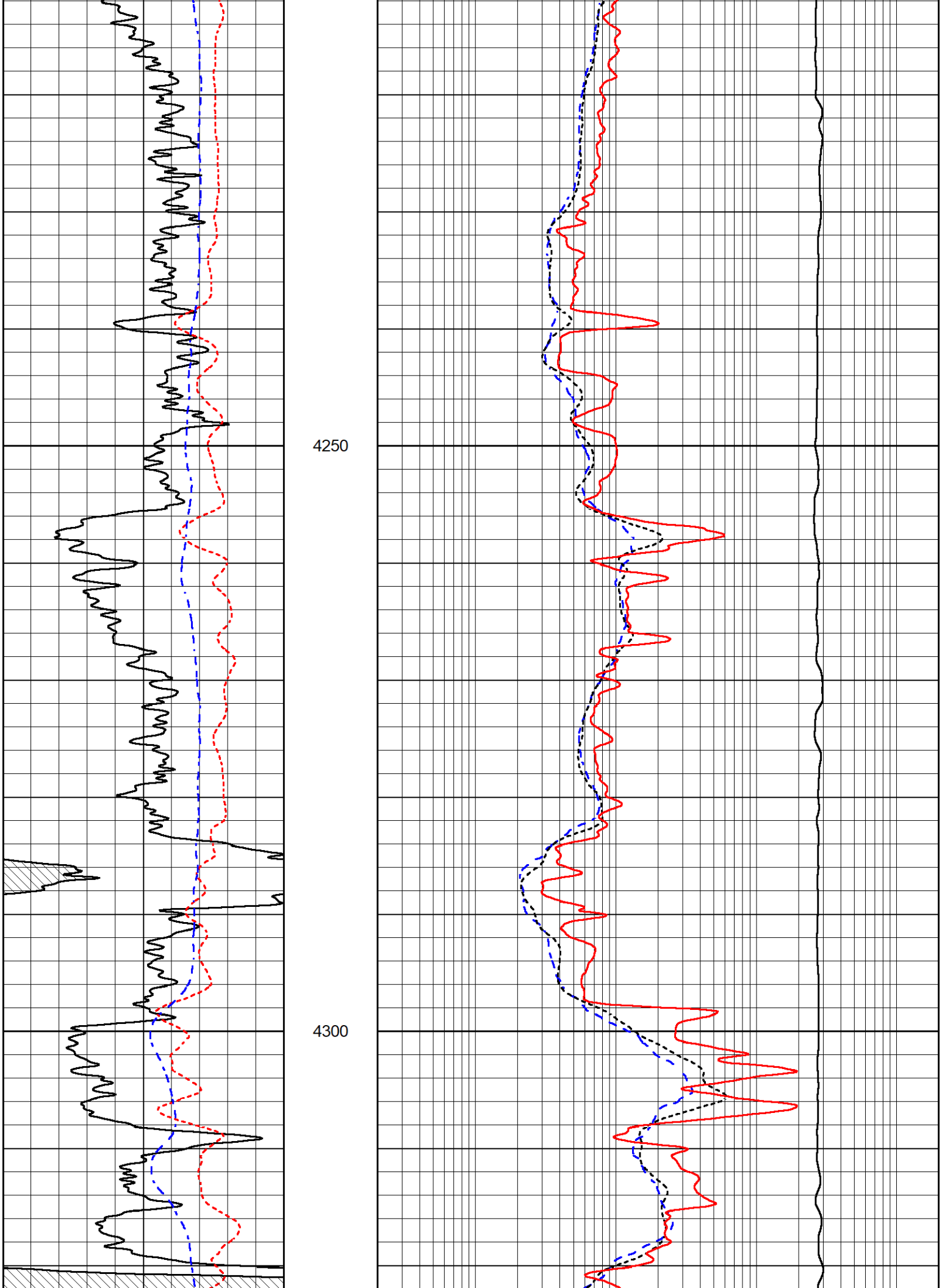
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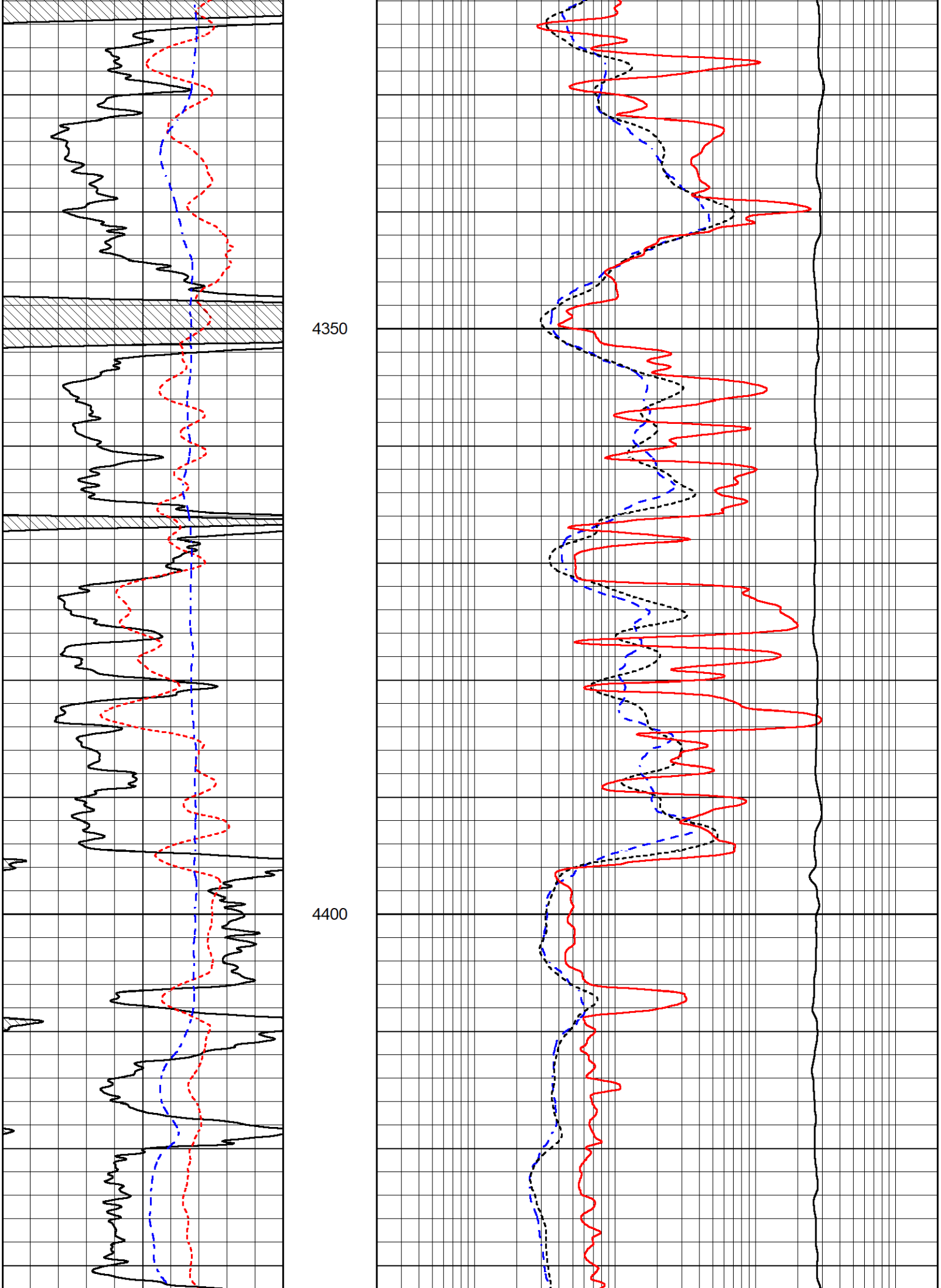
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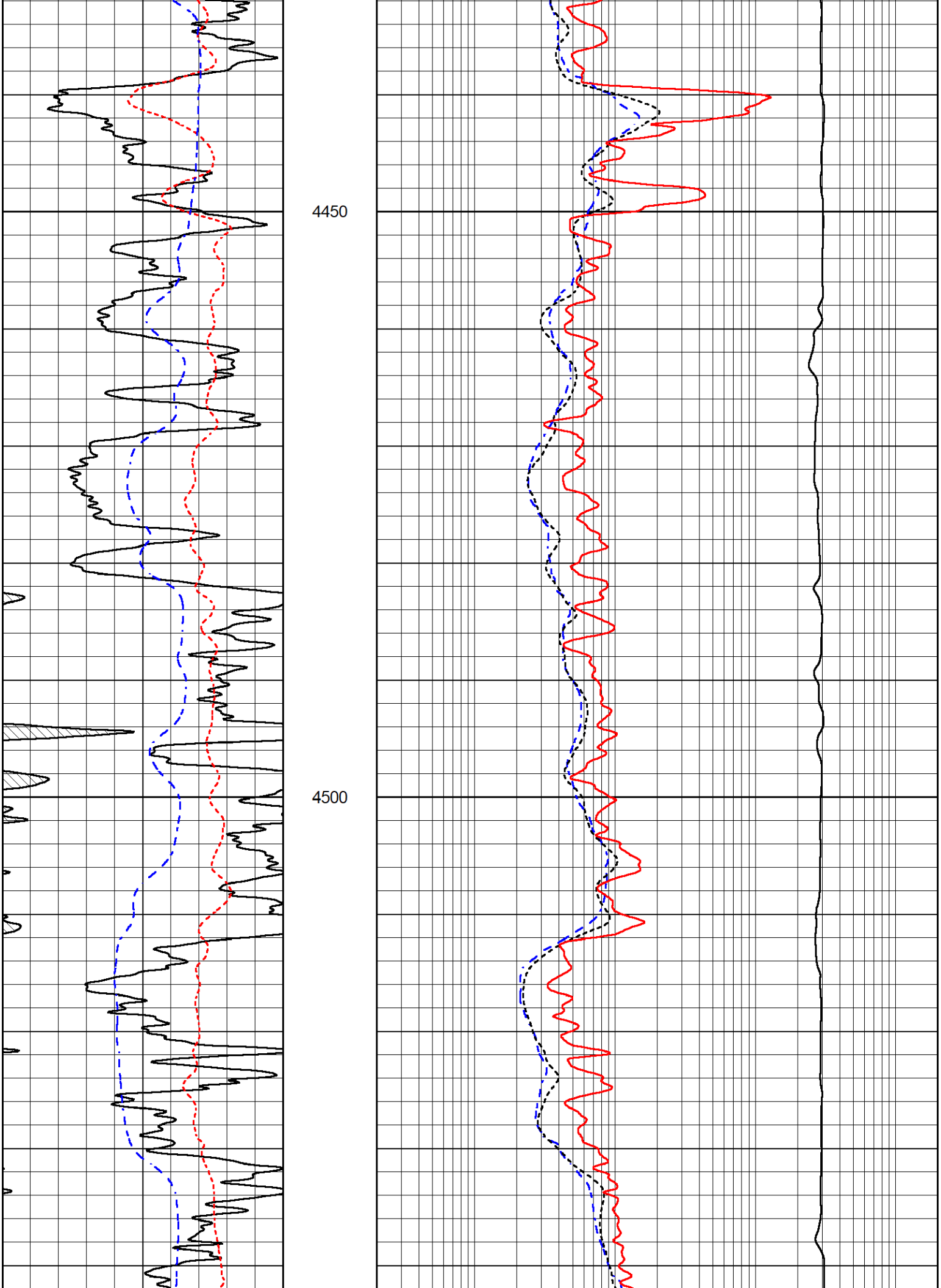
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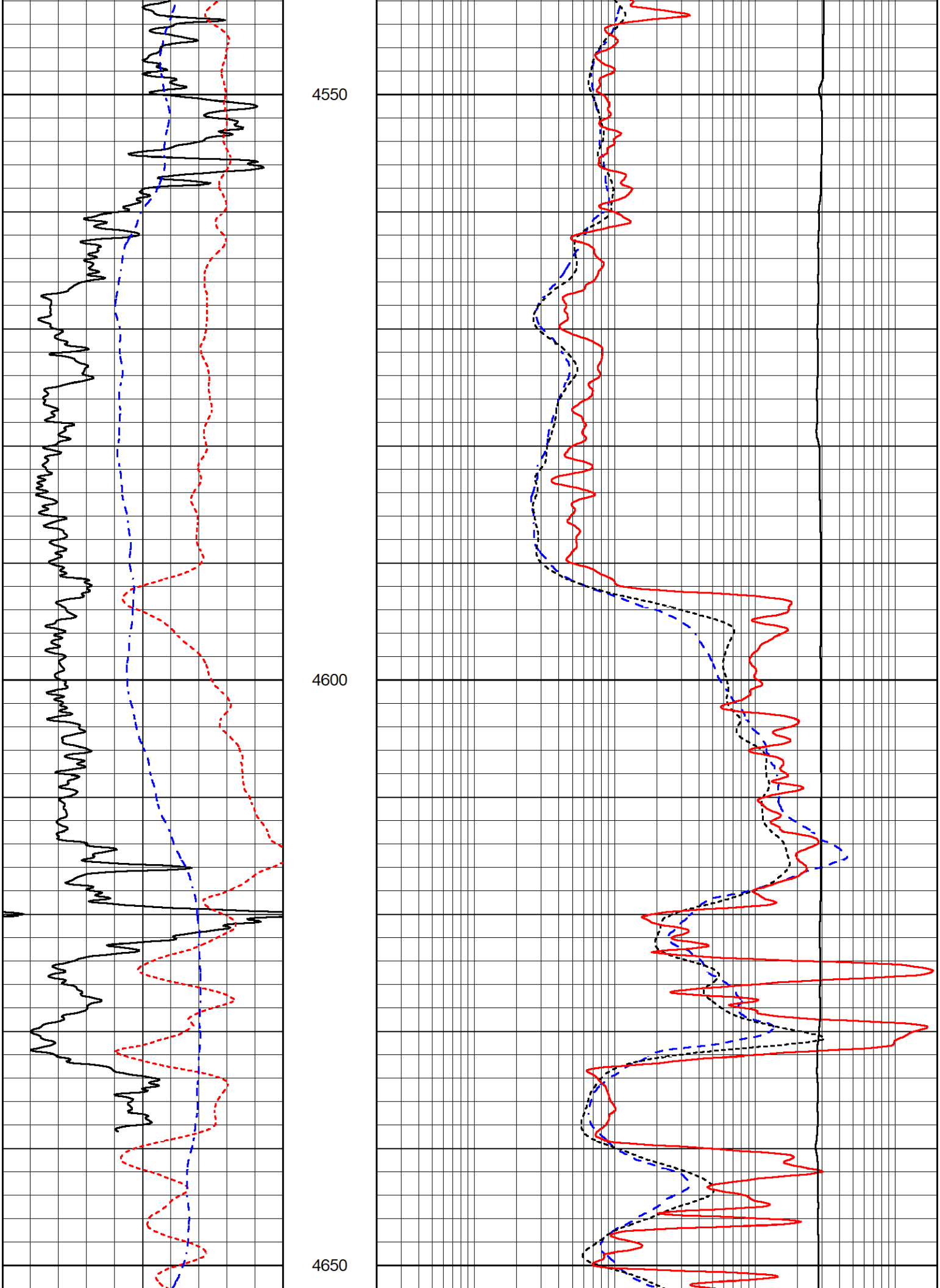
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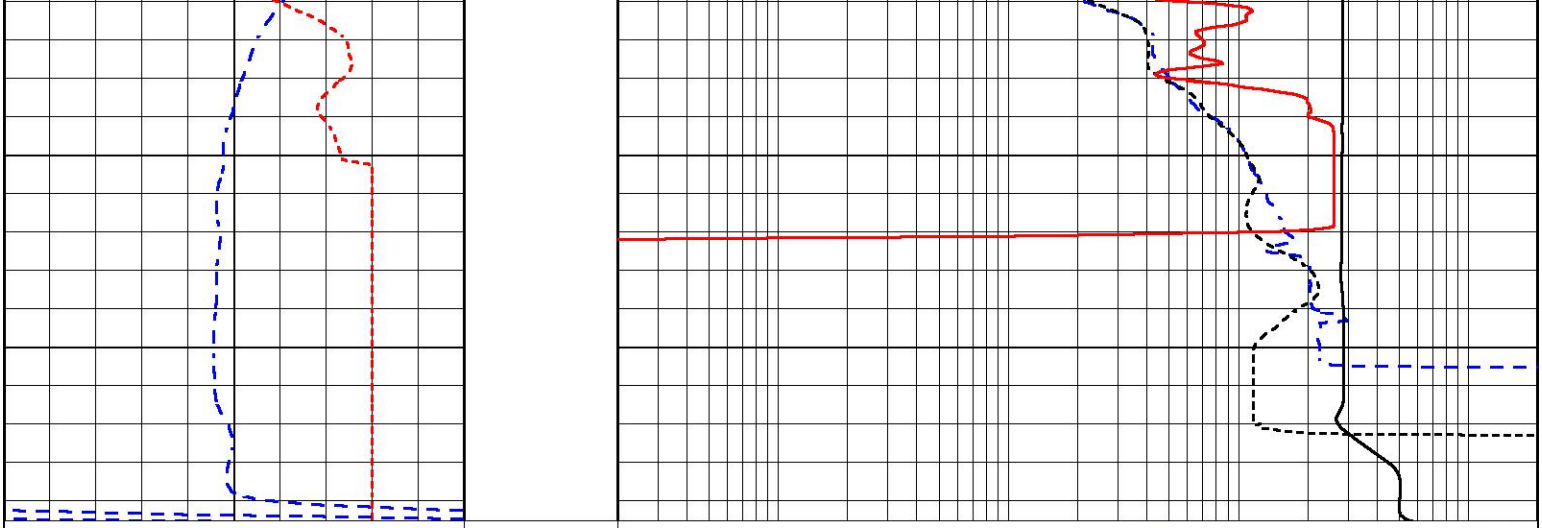

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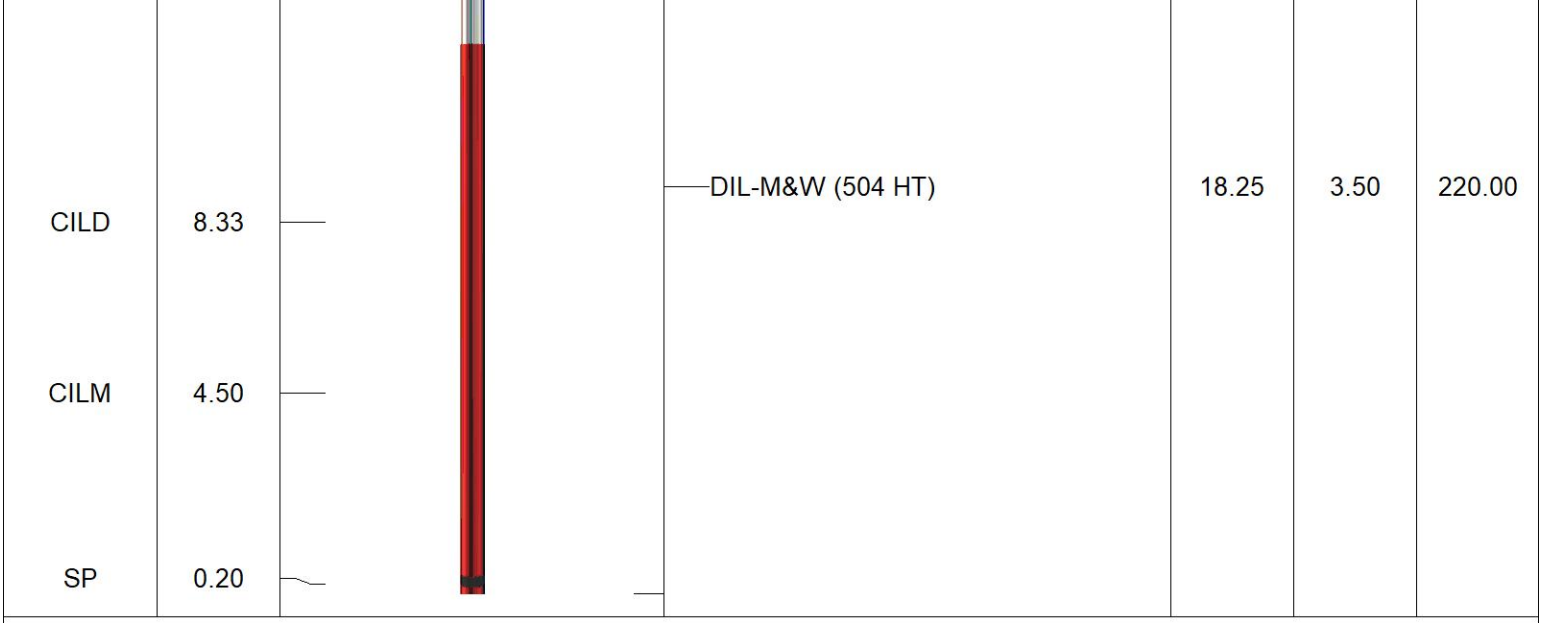
CNSSC	36.48					
LSD	28.18		CDL-M&W (303-03)	8.50	4.00	250.00
DCAL	28.17					
SSD	27.68					
MCAL	19.58		ML-PSI STKBL ML (402)	7.58	4.00	65.00
MI	19.58					
MN	19.58					
RLL3F	15.50					
RLL3	15.50					



Dataset:	black oak_threlkel et al #1-23.db: field/well/StkMl/pass3.1
Total length:	42.33 ft
Total weight:	685.00 lb
O.D.:	4.00 in

Calibration Report

Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMl/pass3.1
Dataset Creation	Sun Dec 19 07:46:59 2021

Dual Induction Calibration Report

Serial-Model:	504 HT-M&W
Surface Cal Performed:	Thu Dec 16 22:32:49 2021

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		m	b
Deep	178.615	710.235	0.000	255.800	mmho/m	0.650	-18.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.450	-45.500

Microlog Calibration Report

Serial-Model:	402-PSI STKBL ML
Performed:	Thu Dec 16 22:29:48 2021

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	50000.0000	1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	20000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1520	-134.8000

Compensated Density Calibration Report

Serial-Model:	303-03-M&W
Source #:	21170B
Master Calibration Performed:	Thu Dec 16 23:28:34 2021

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3841.78	5151.73	cps
Aluminum	2.680	g/cc	700.98	3068.49	cps

Spine Angle = 73.06 Density/Spine Ratio = 0.520

	Size		Reading
Small Ring	4.00	in	1.17
Large Ring	14.00	in	1.05

Compensated Neutron Calibration Report

Serial-Model:	210-M&W
Source #:	N-1238
Master Calibration Performed:	Fri Dec 3 09:16:24 2021

Master Calibration

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:	103	
Tool Model:	M&W	
Performed:	Fri Dec 3 12:13:24 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	28.0	cps
Calibrator Reading:	986.0	cps
Sensitivity:	0.5700	GAPI/cps

MIDWEST WIRELINE

Company	Black Oak Exploration LLC
Well	Threlkel Et Al #1-23
Field	Wildcat
County	Rawlins
State	Kansas