MIDWEST WIRELINE

DUAL COMPENSATED POROSITY / MICRO 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
DIL/BHCS

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

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

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

Date	12/19/2021
Run Number	One
Type Log	CNL / CDL / ML
Depth Driller	4670
Depth Logger	4674
Bottom Logged Interval	4673
Top Logged Interval	00
Type Fluid In Hole	Chemical
Salinity, PPM CL	3700
Density	9.2
Level	Full
Max. Rec. Temp. F	123
Operating Rig Time	6 Hours
Equipment -- Location	P-108 HAYS
Recorded By	T. Martin
Witnessed By	Clayton Camozzi

Borehole Record

Run No.	Bit	From	To
One	12.25	00	239
Two	7.875	239	TD

Casing Record

Size	Wgt.	From	To
8.625	23	00	239

<<< 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

DETAIL SECTION

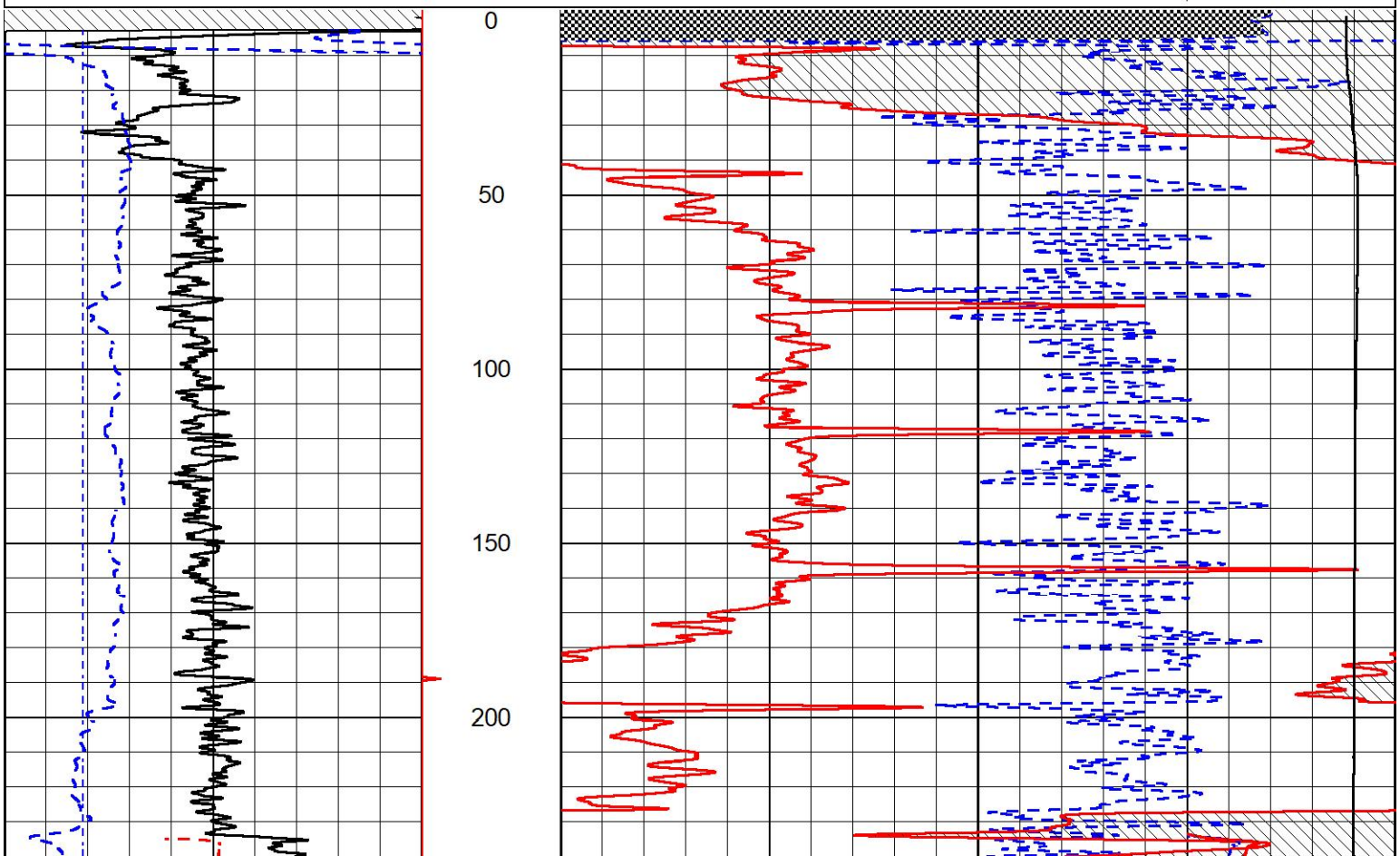
MAIN PASS

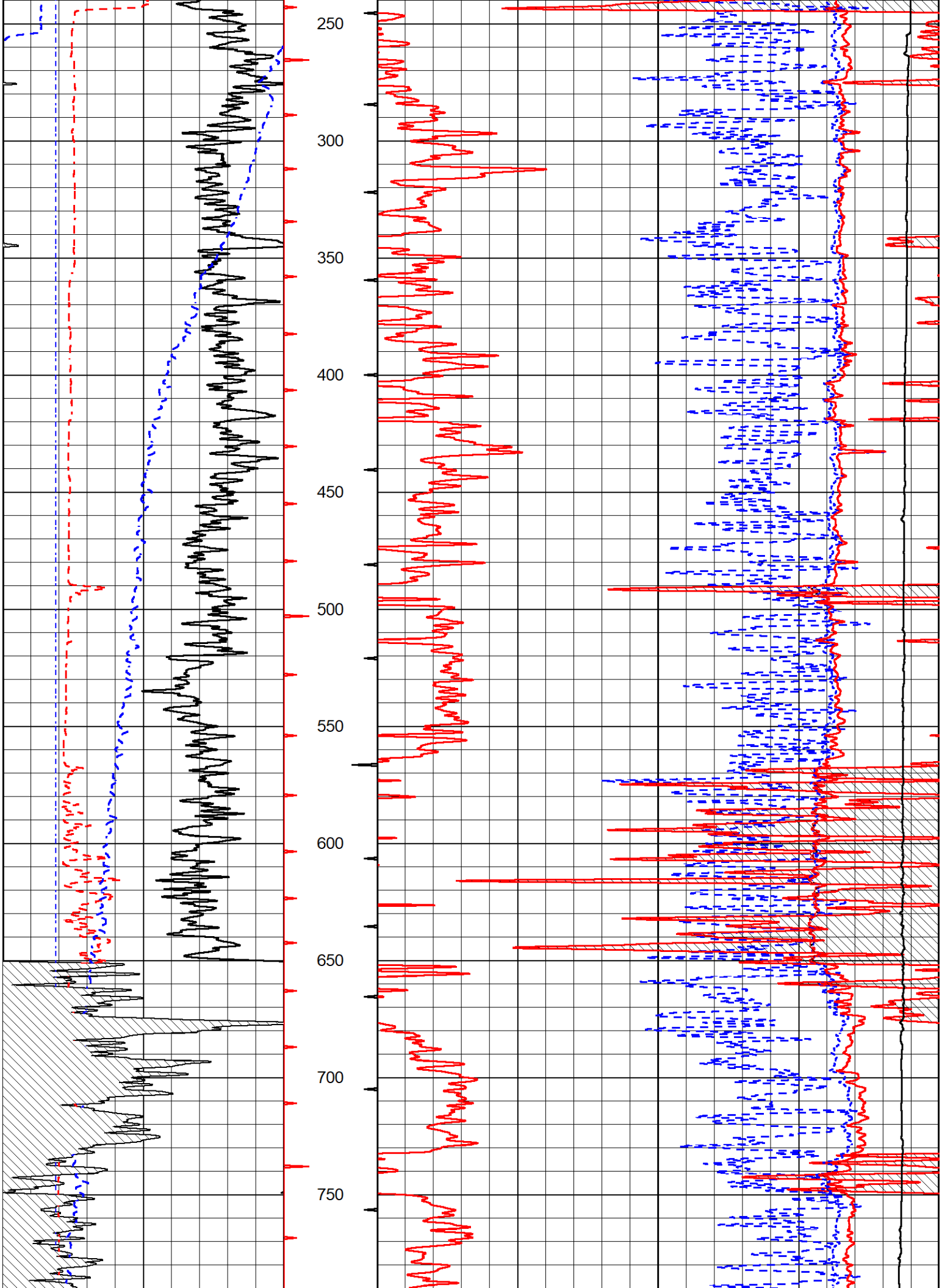
Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMI/pass3.1
Presentation Format	_CNDLS~3
Dataset Creation	Sun Dec 19 07:46:59 2021
Charted by	Depth in Feet scaled 1:600

0	Gammy Ray (GAPI)	150
6	MCAL (in)	16
-200	SP (mV)	0

30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

Micro Normal		
0	(Ohm-m)	20
Micro Inverse		
0	(Ohm-m)	20

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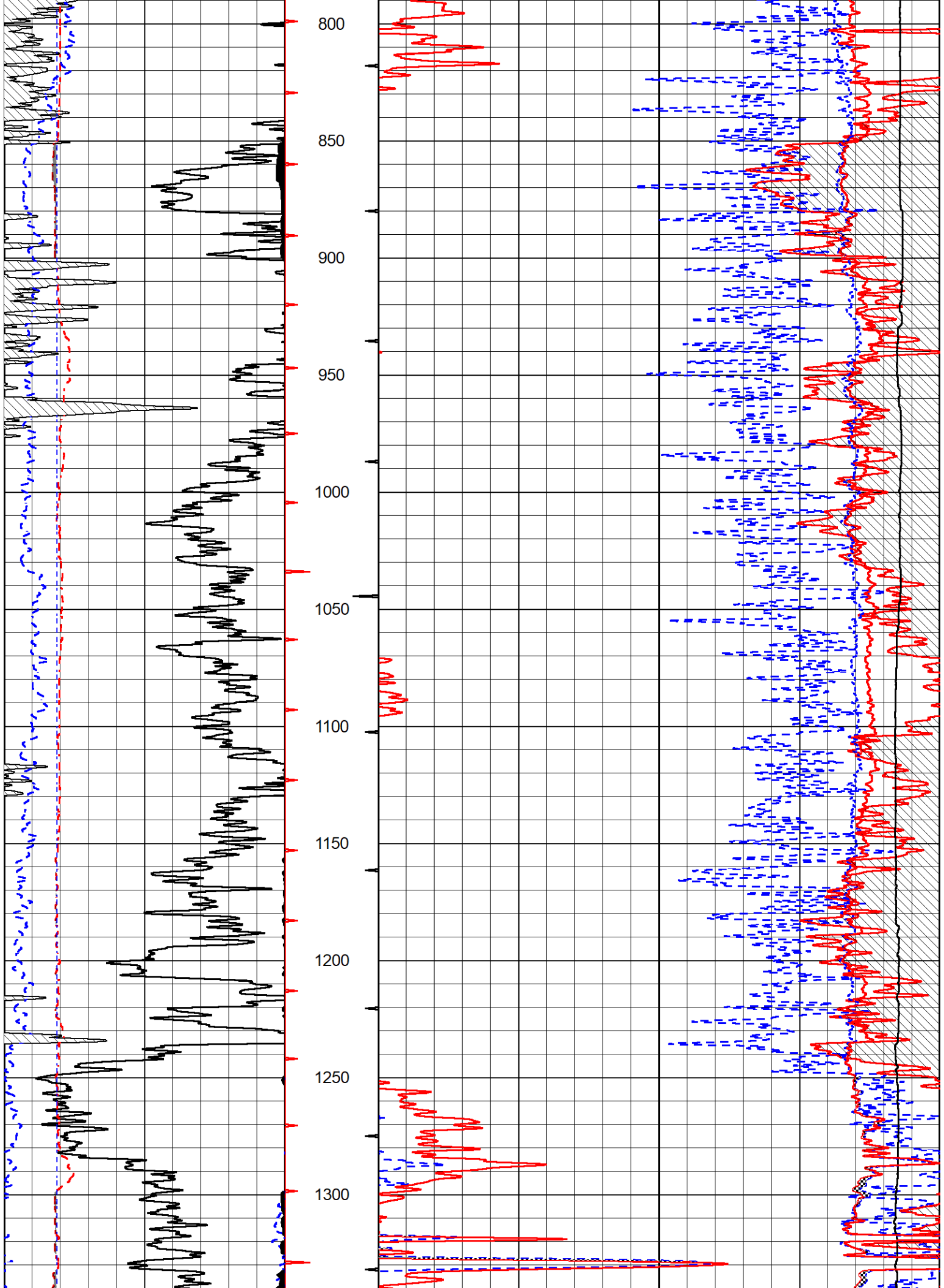
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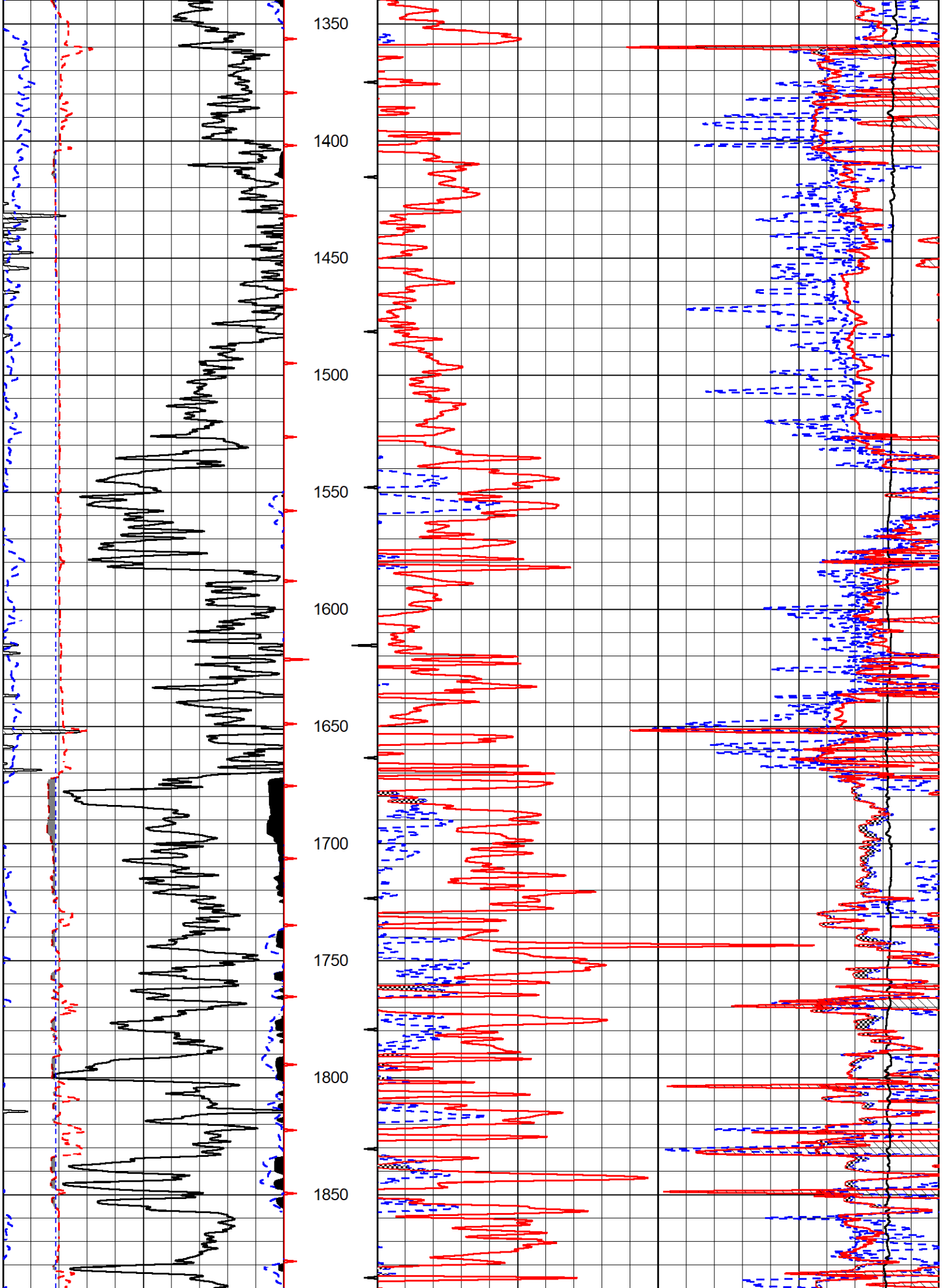
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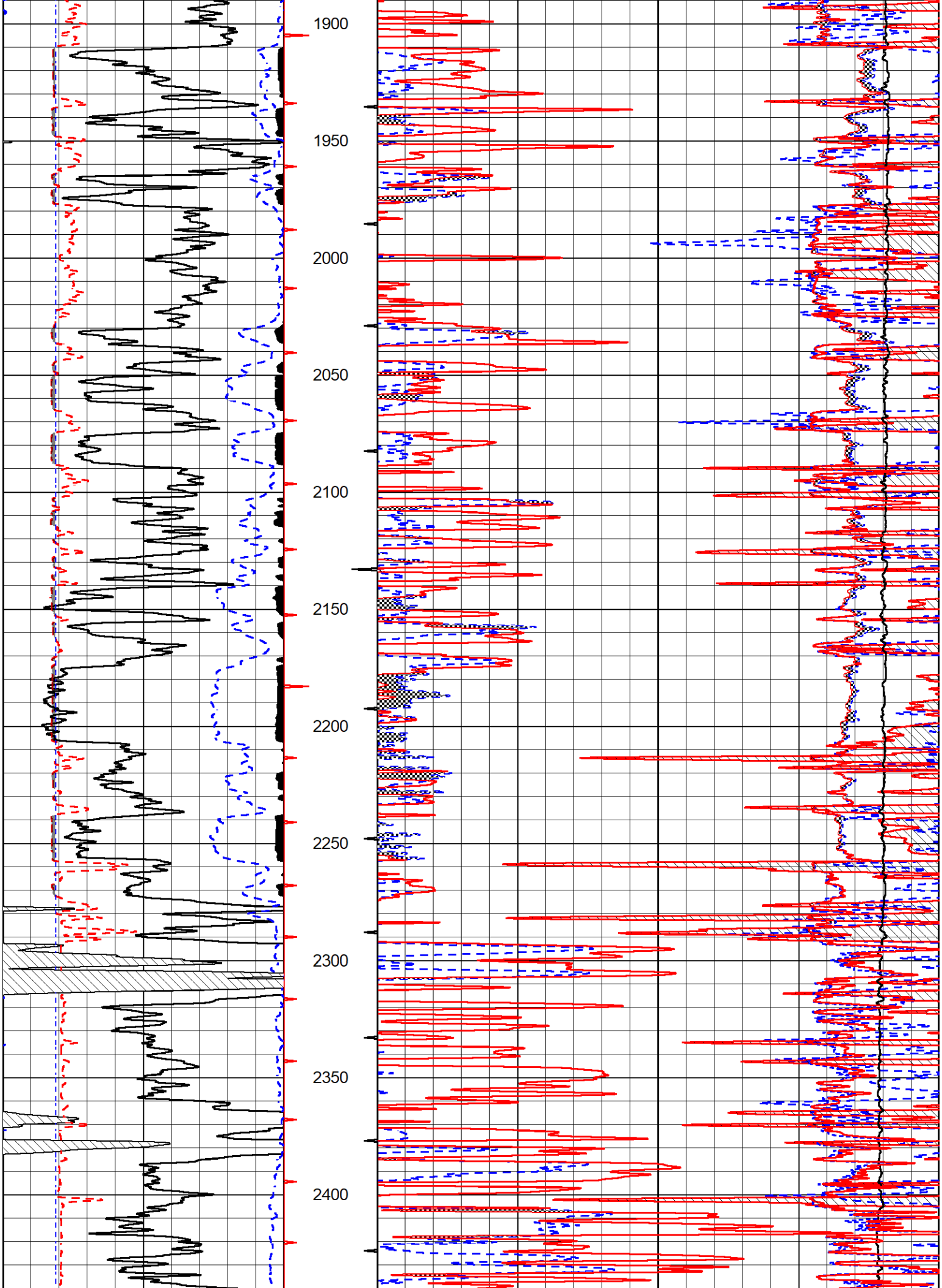
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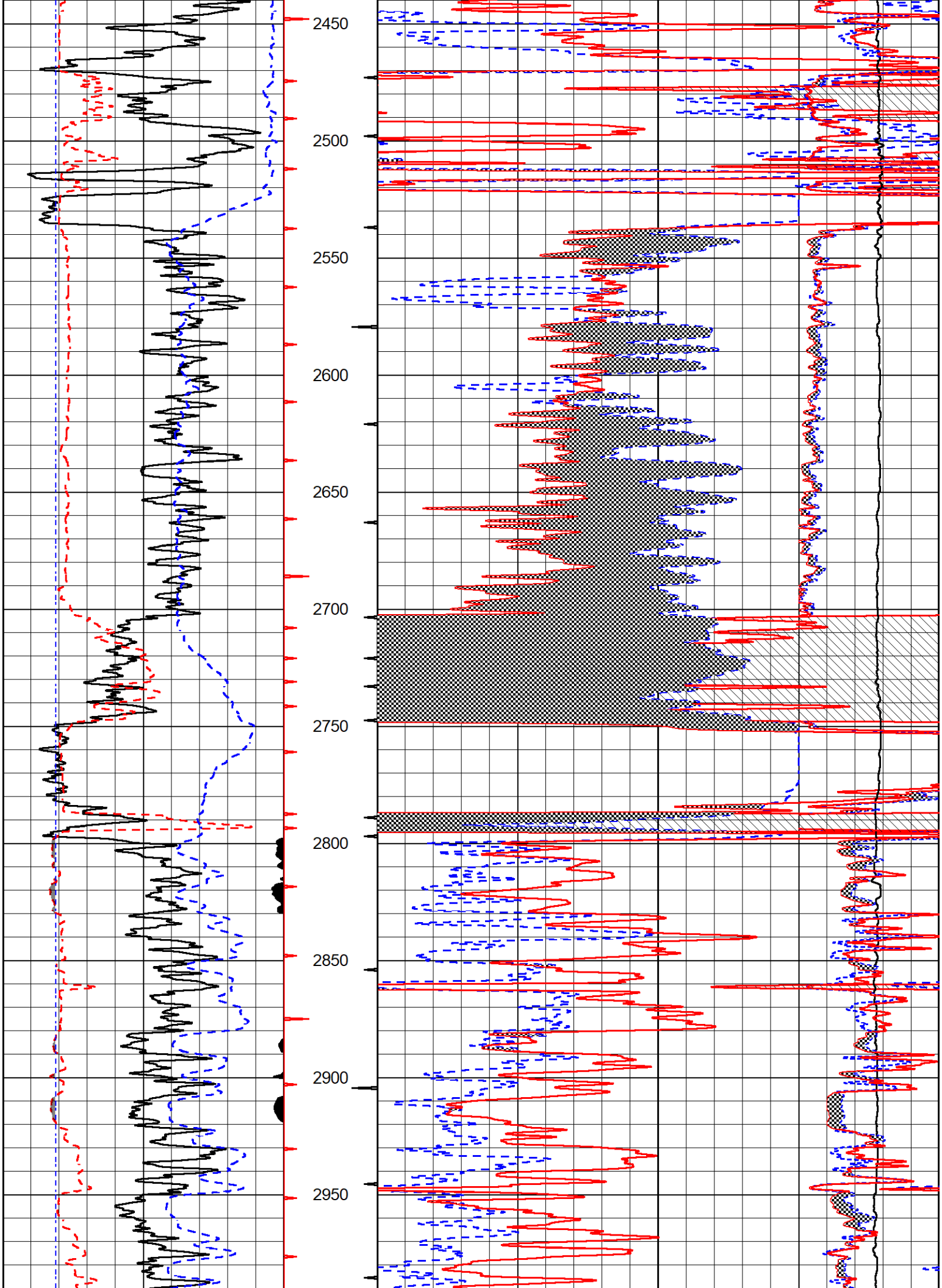
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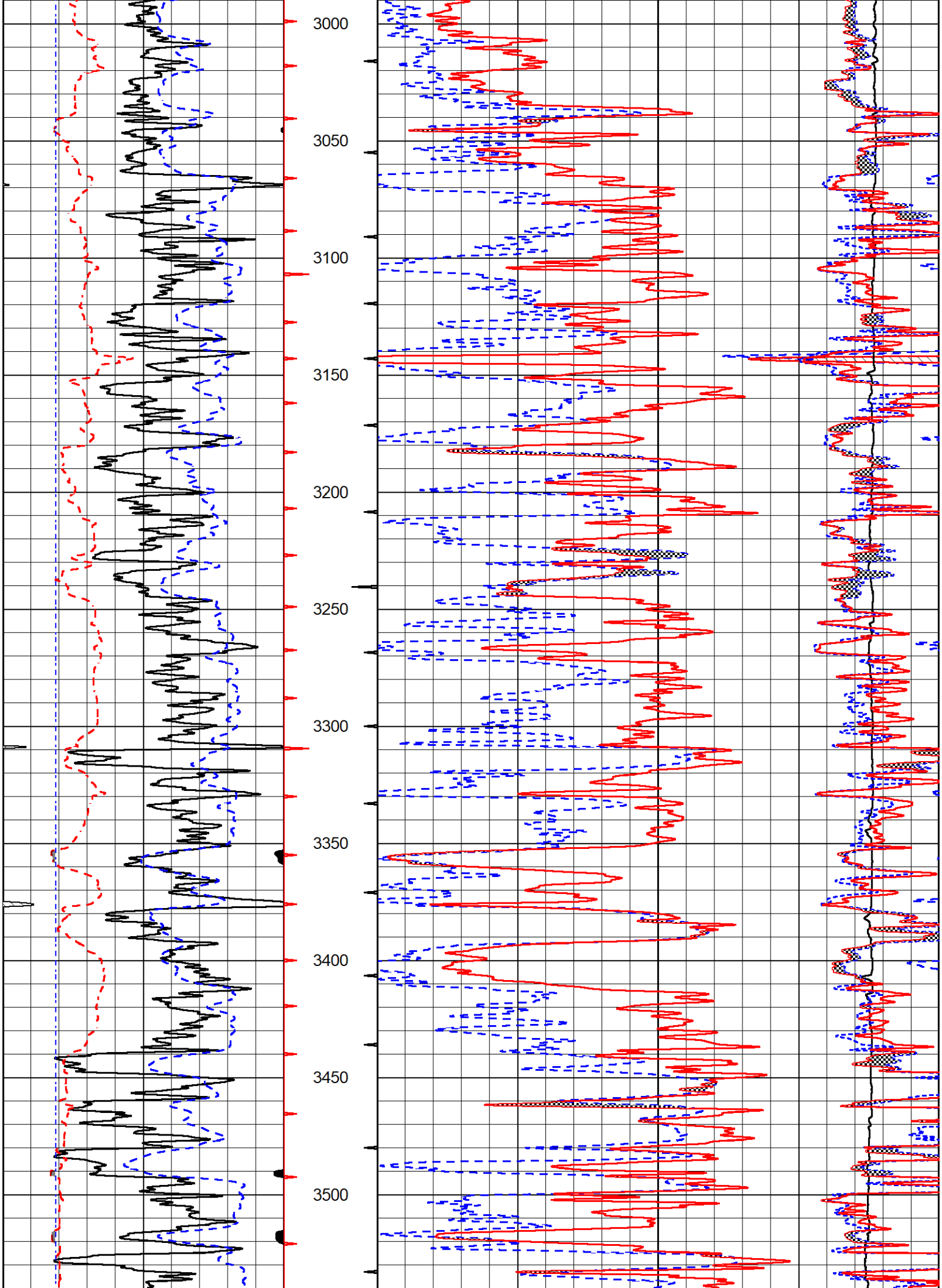
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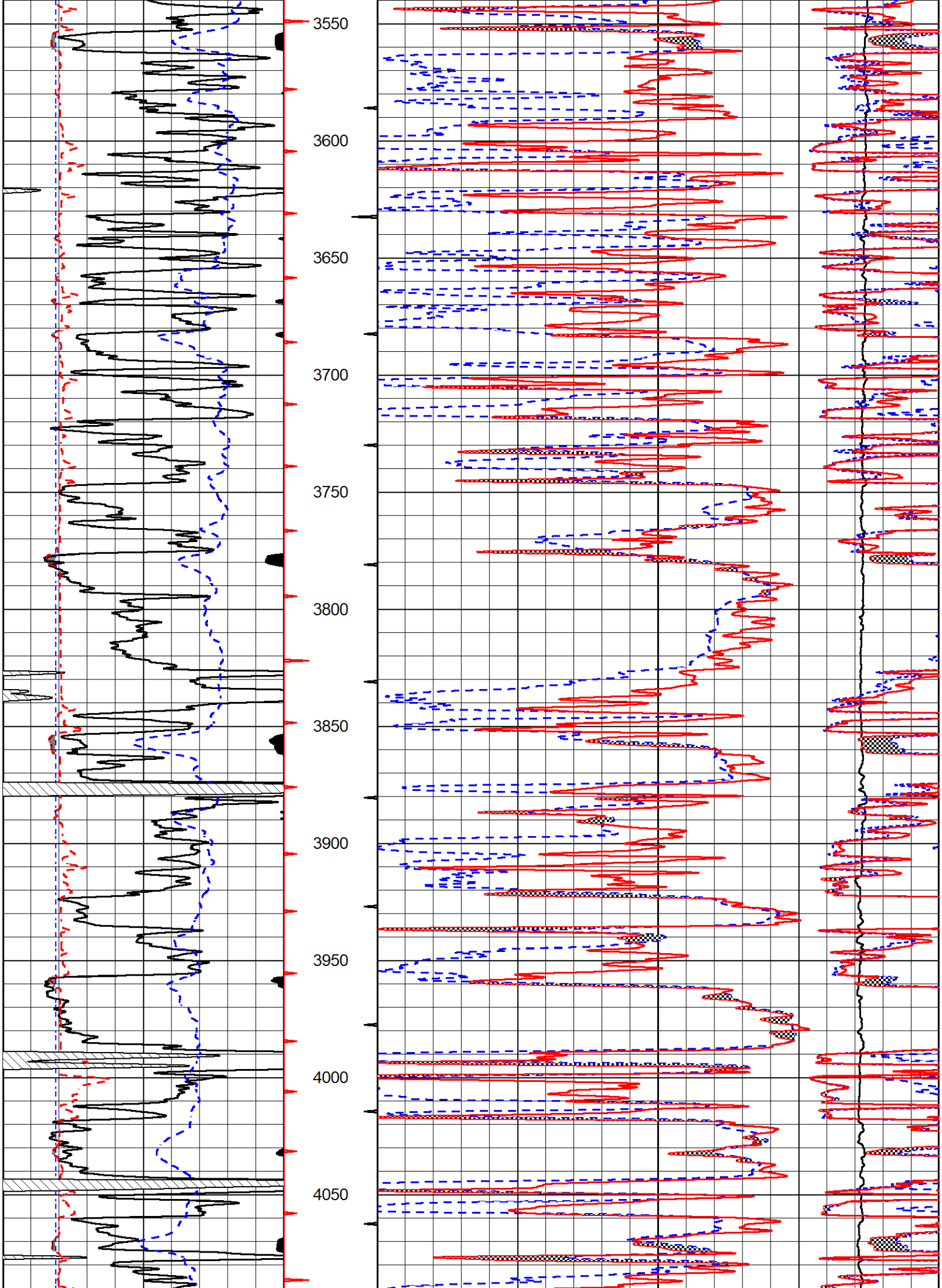
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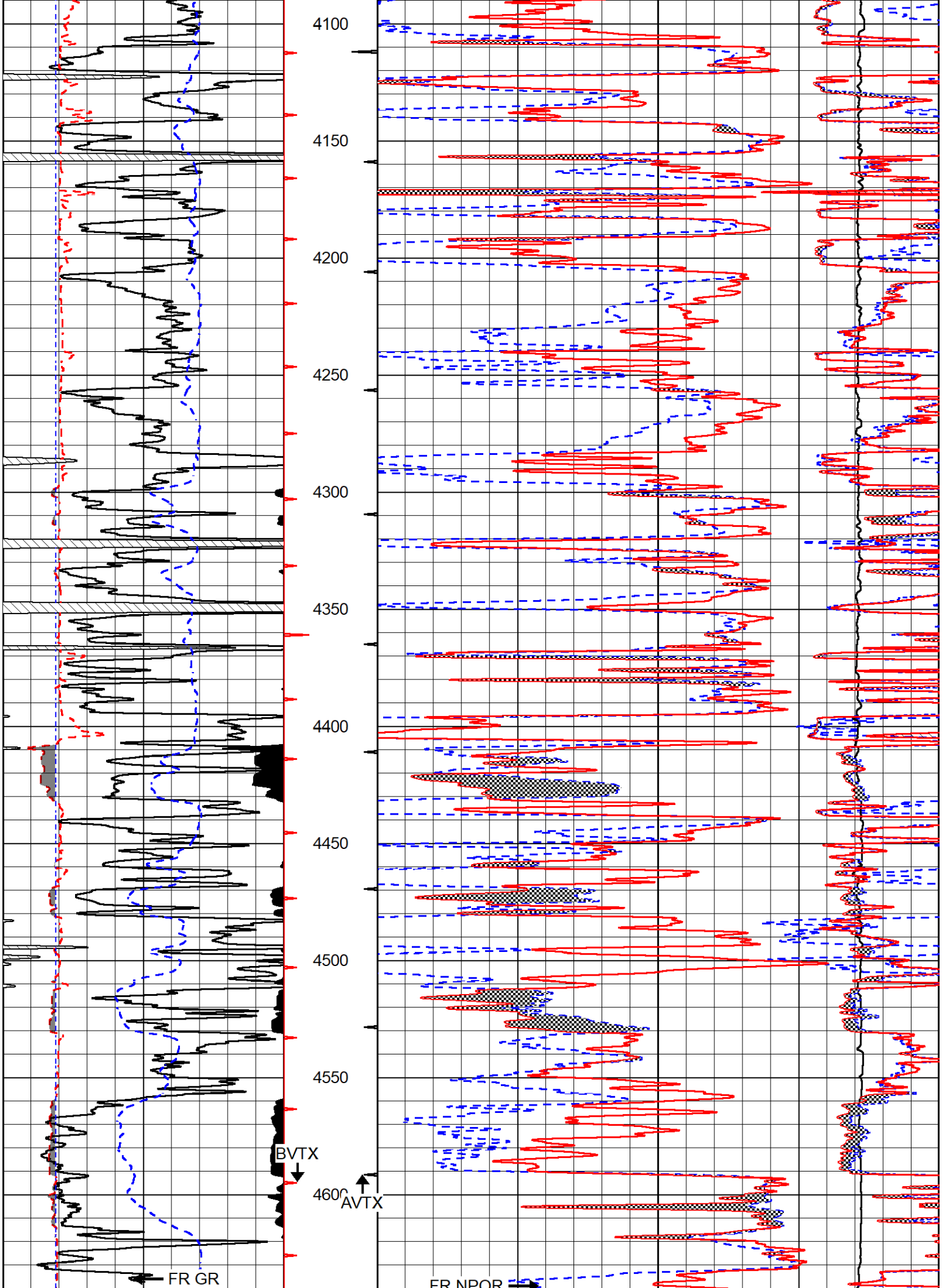
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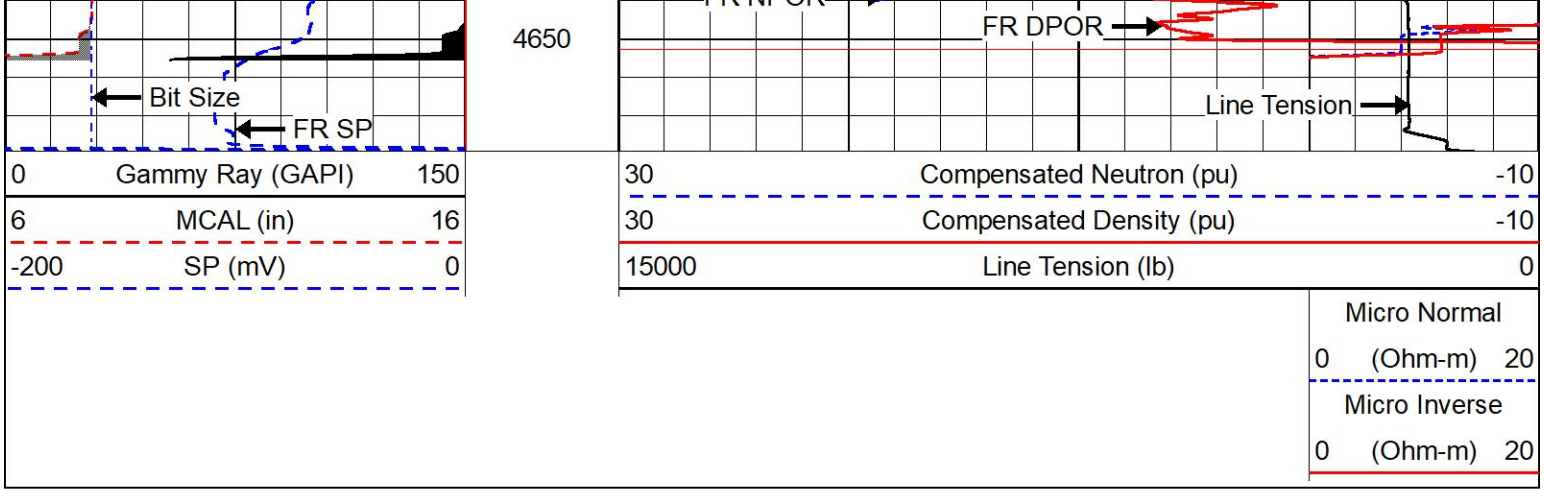

DETAIL SECTION

MAIN PASS

MIDWEST WIRELINE

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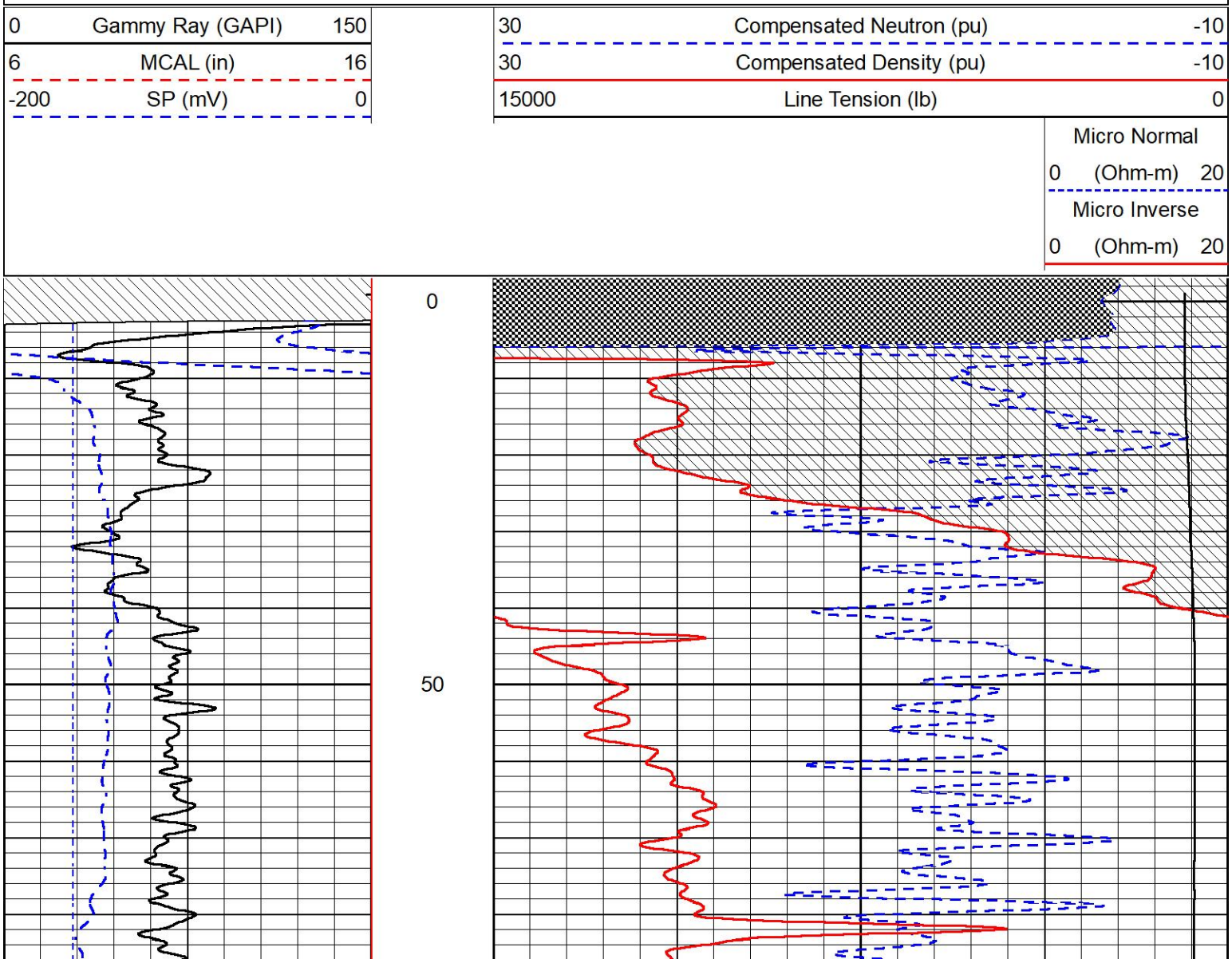
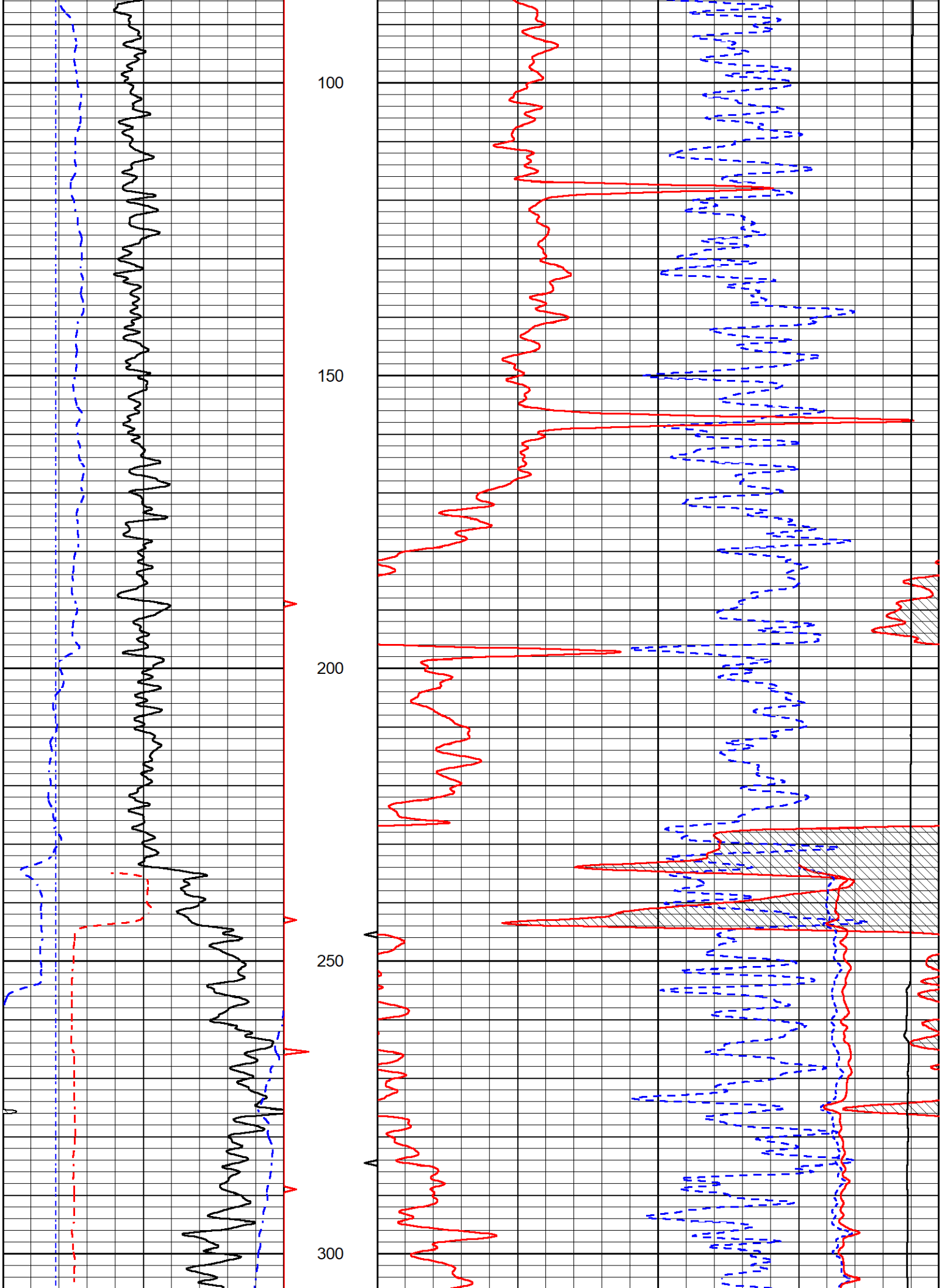
Presentation Format	_CNDLS~3
Dataset Creation	Sun Dec 19 07:46:59 2021
Charted by	Depth in Feet scaled 1:240

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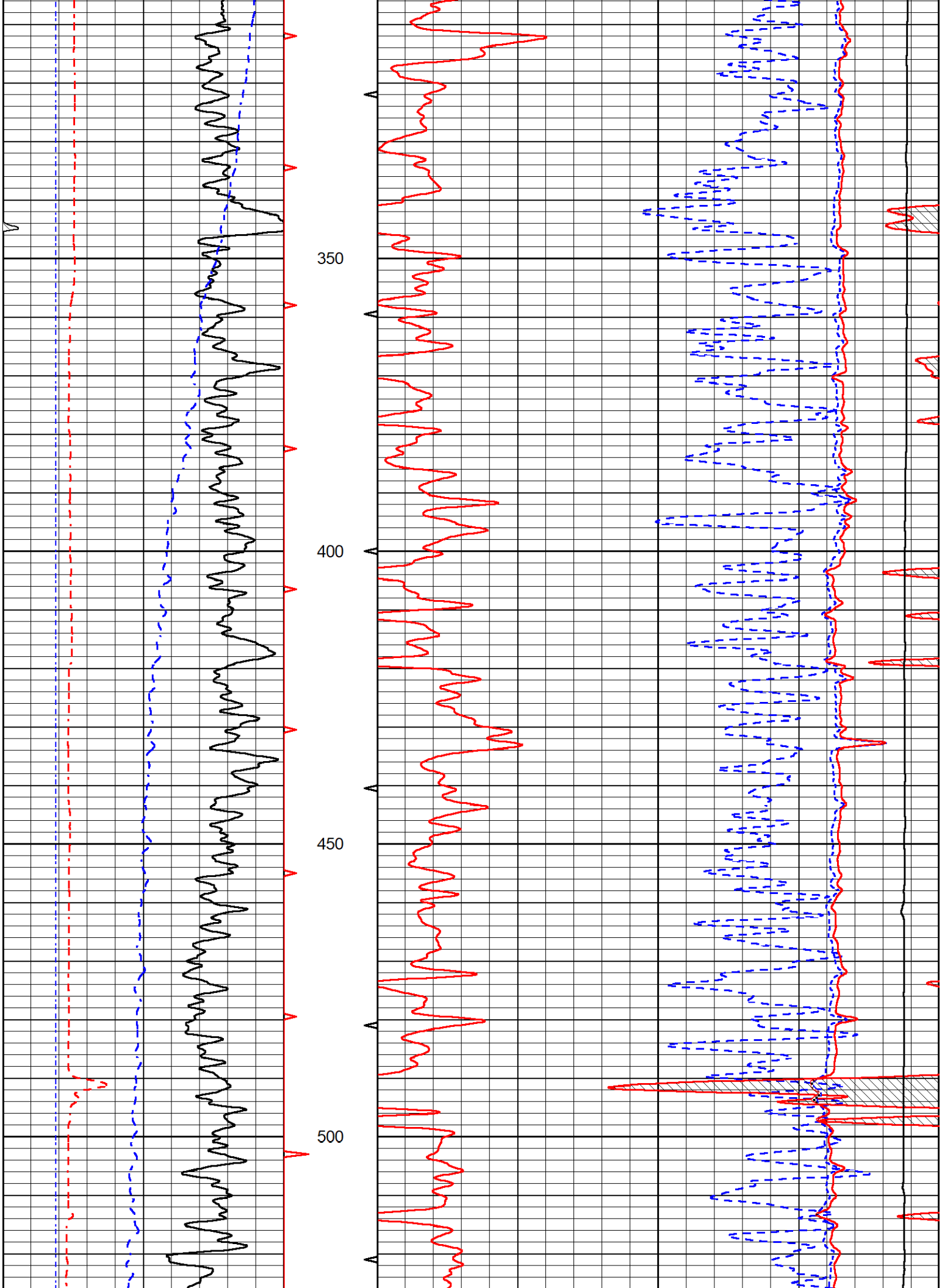
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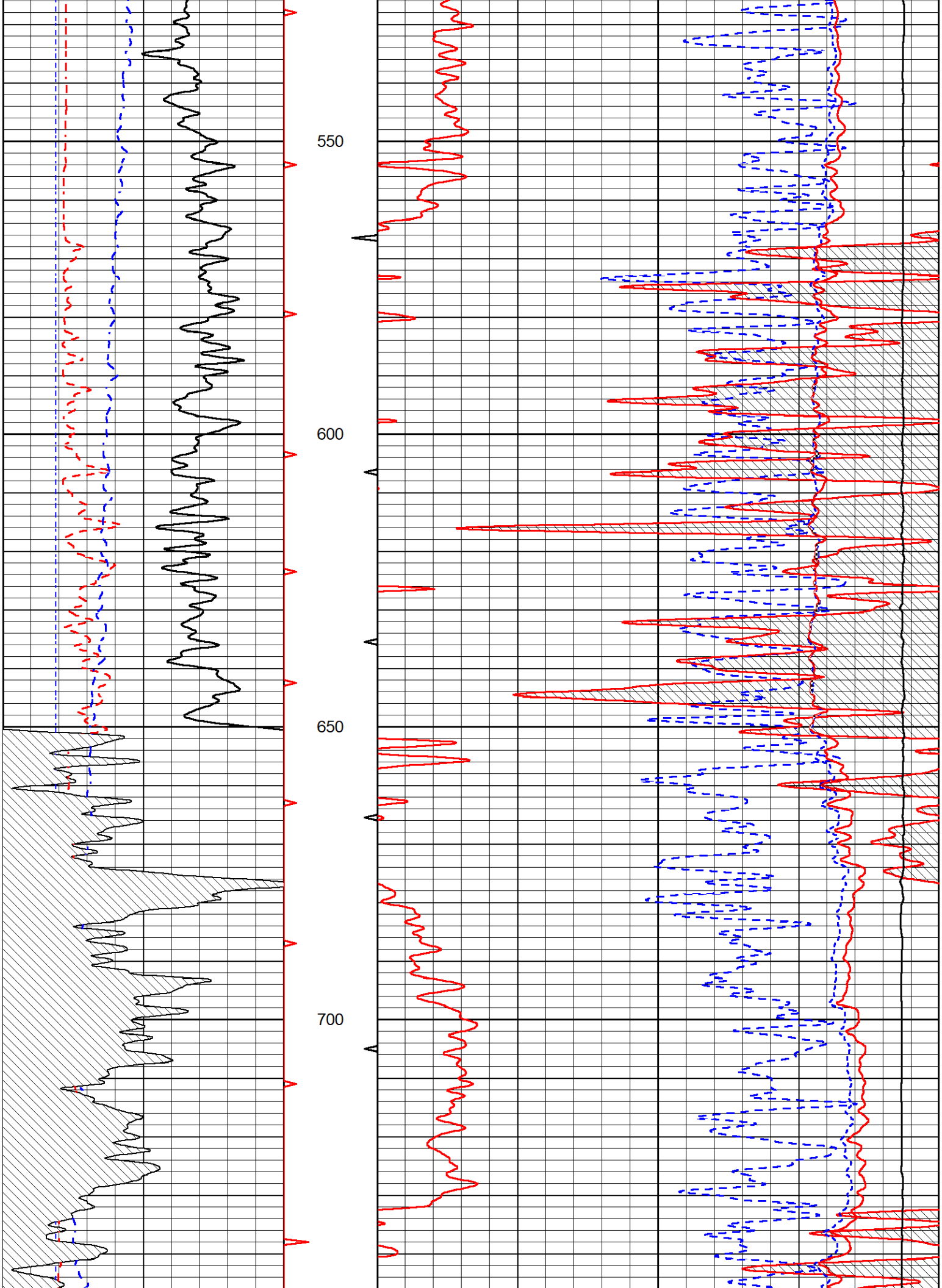
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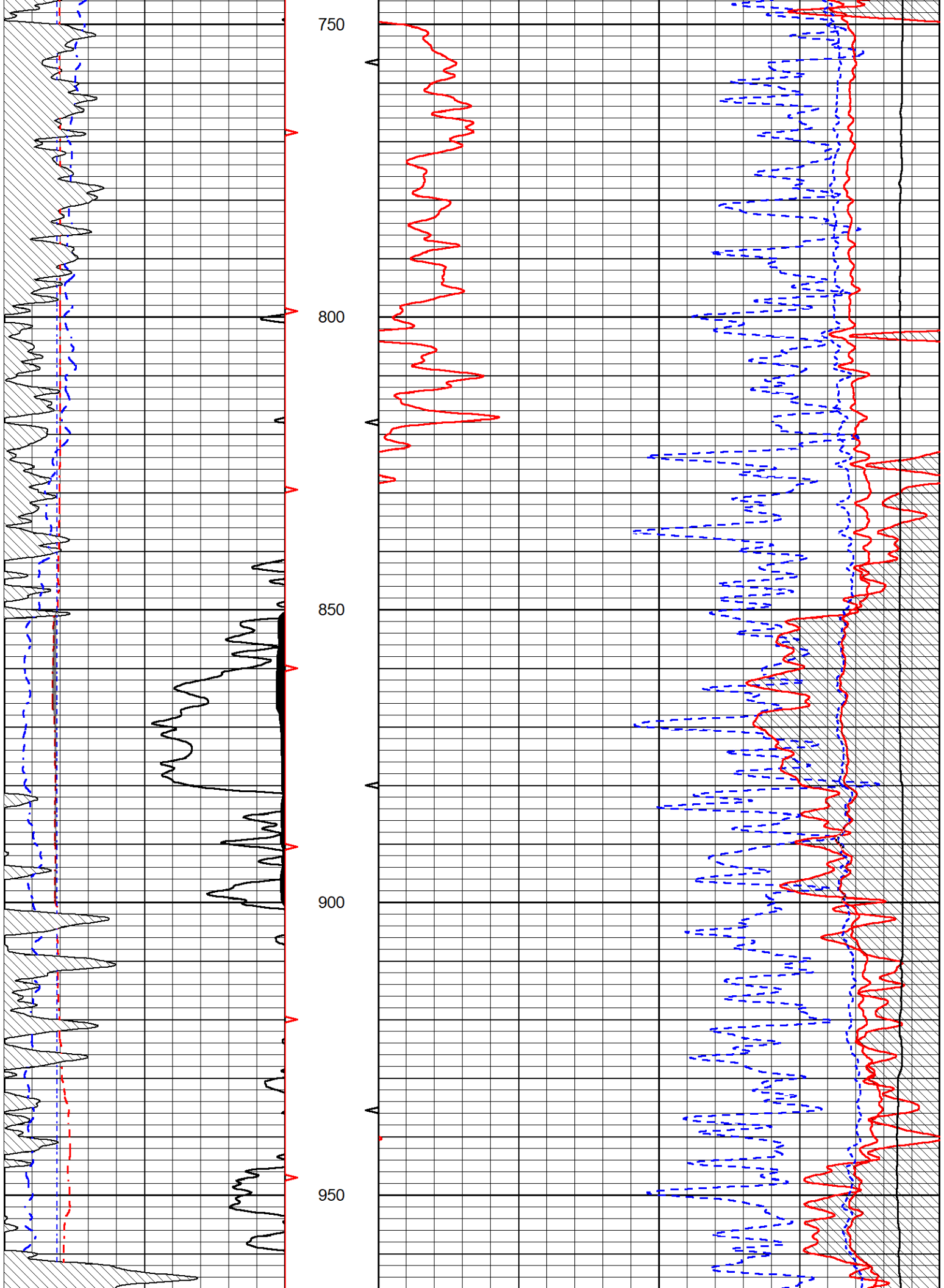
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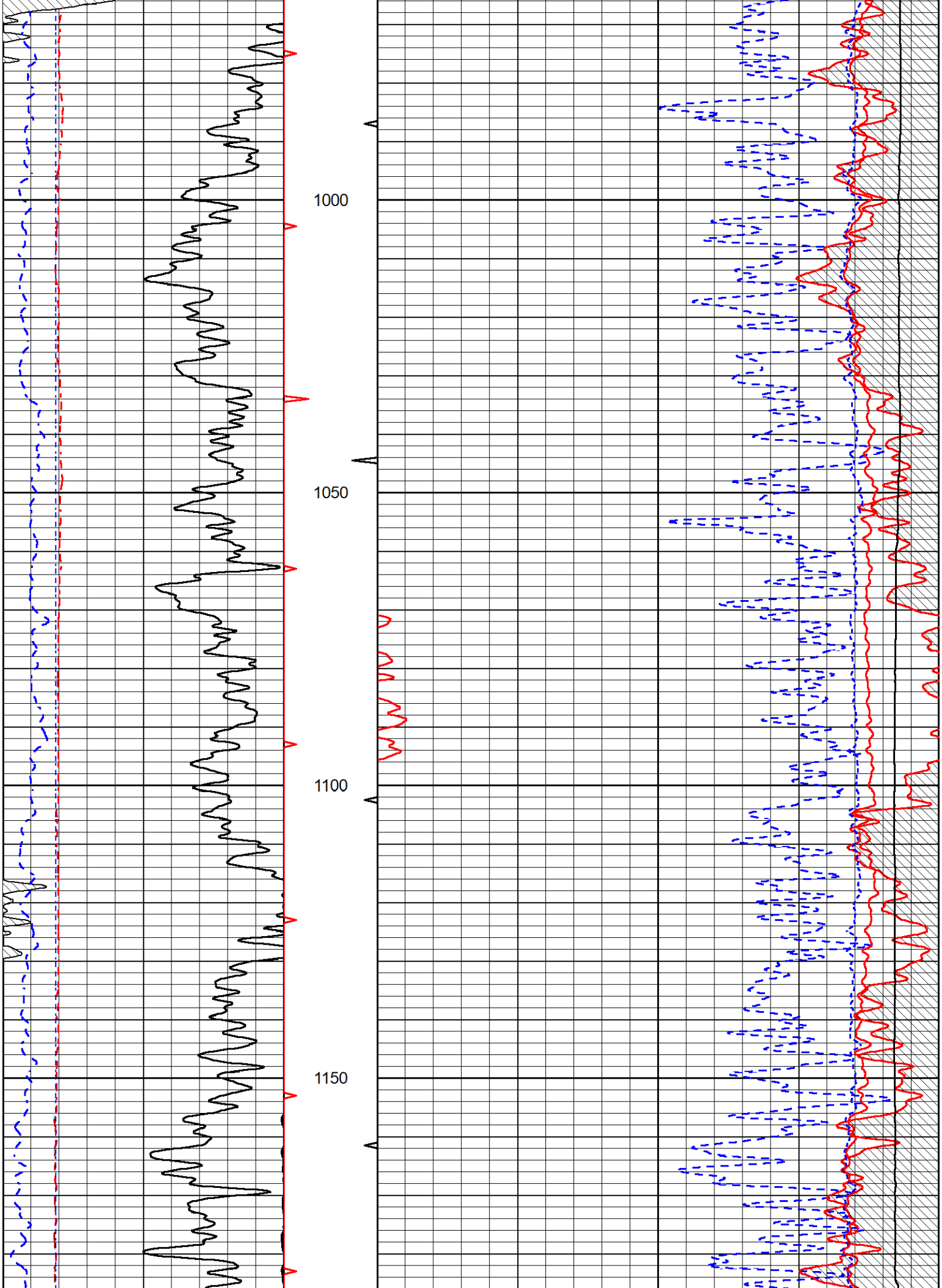
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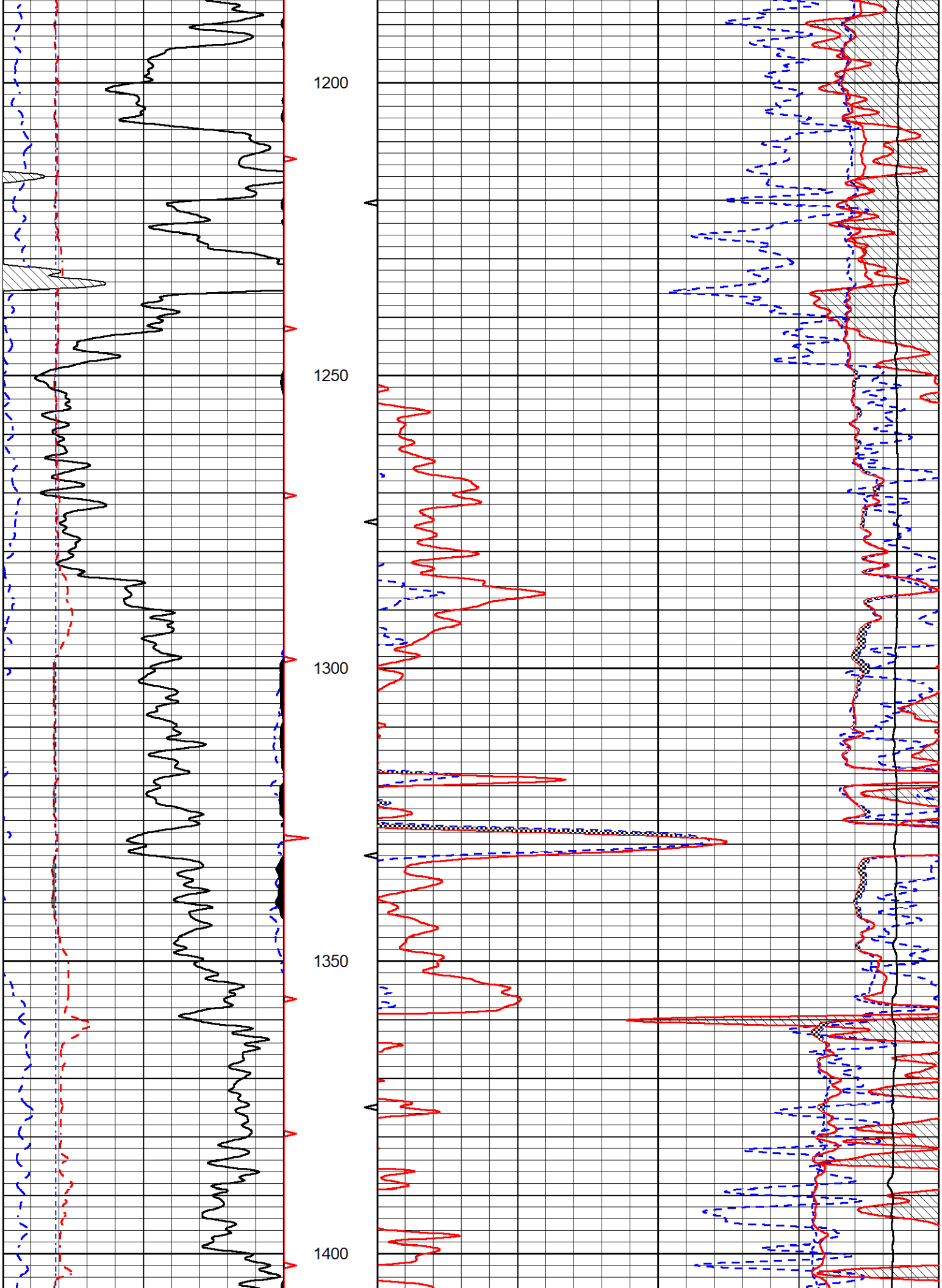
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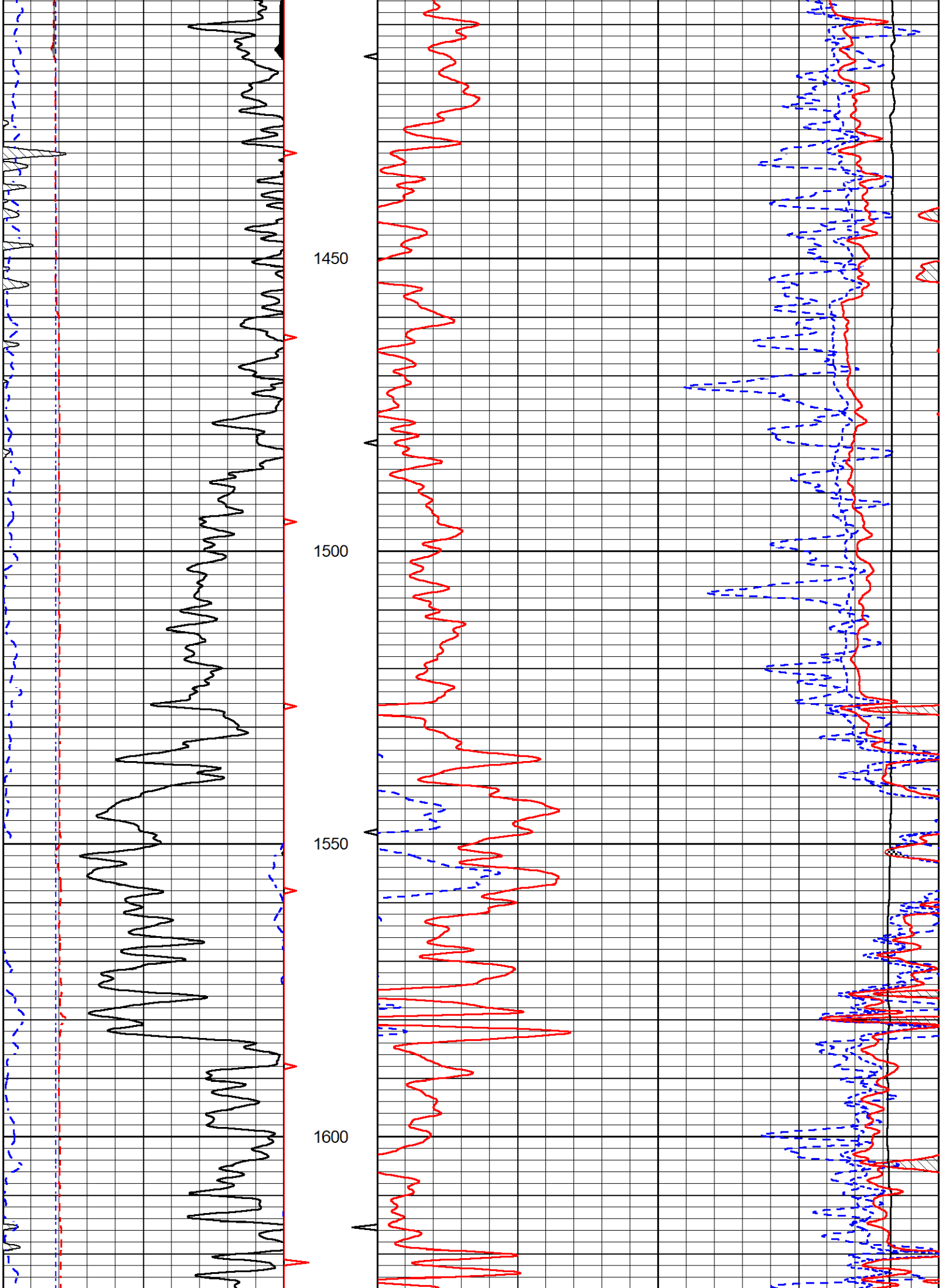
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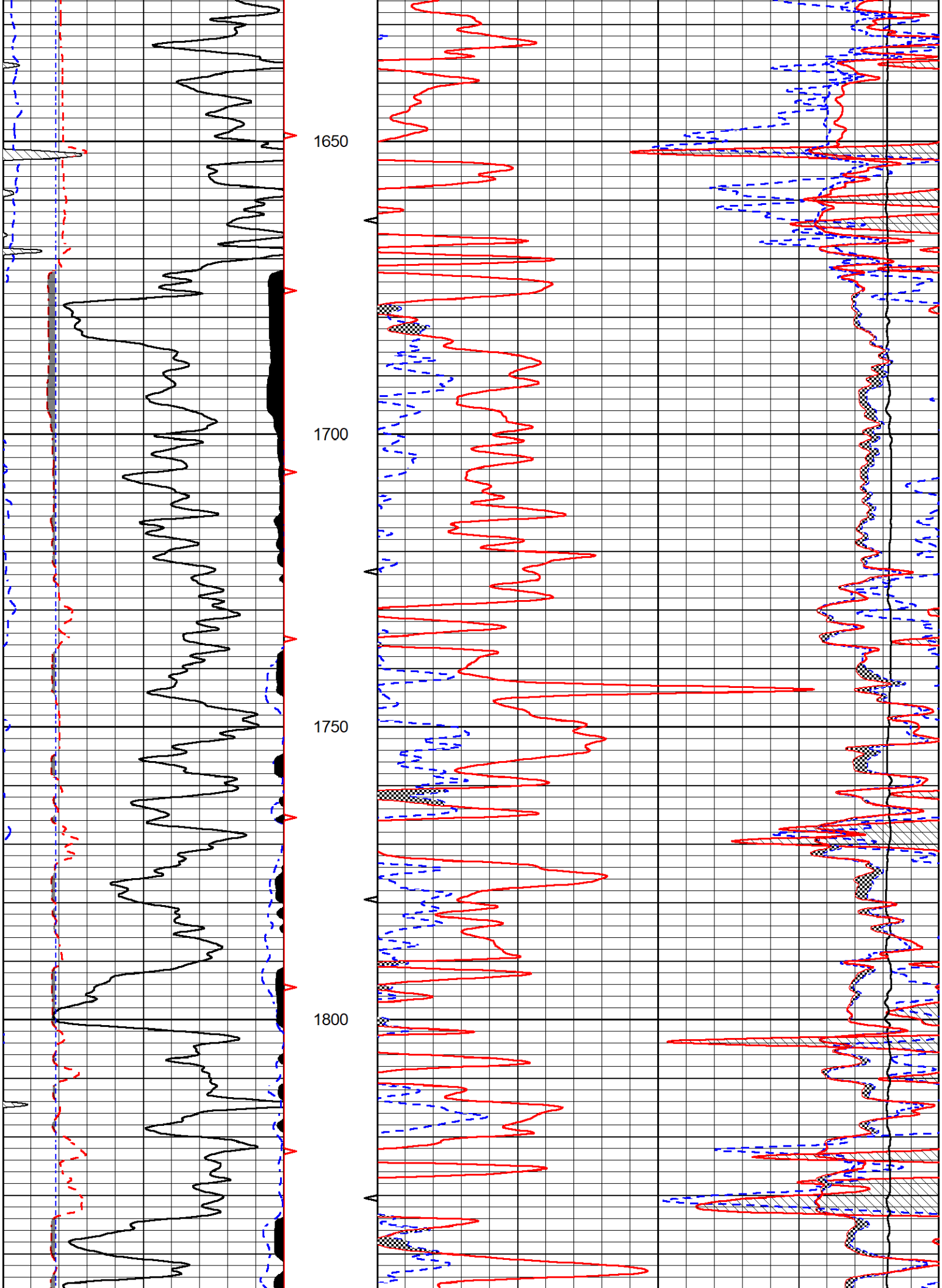
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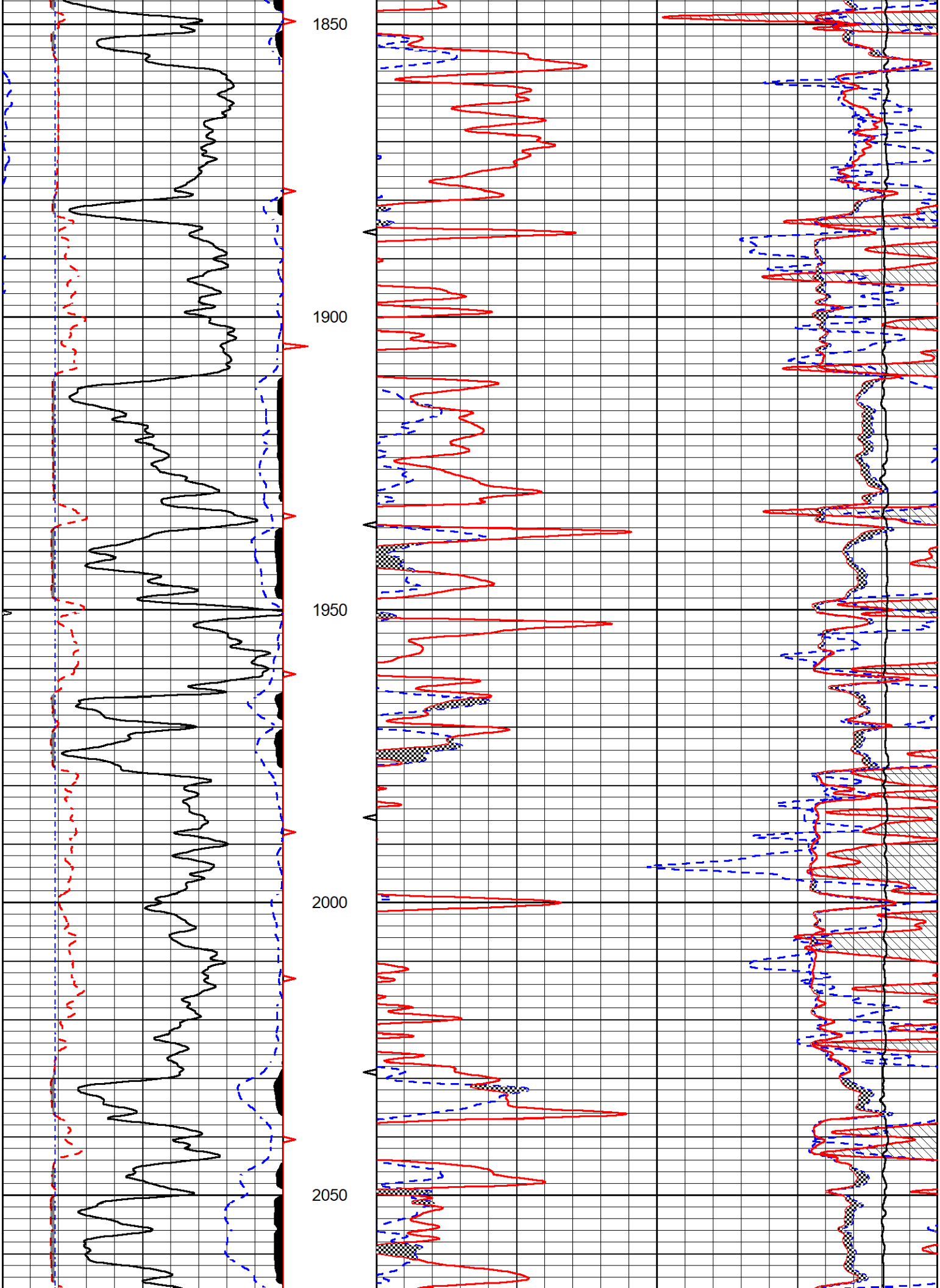
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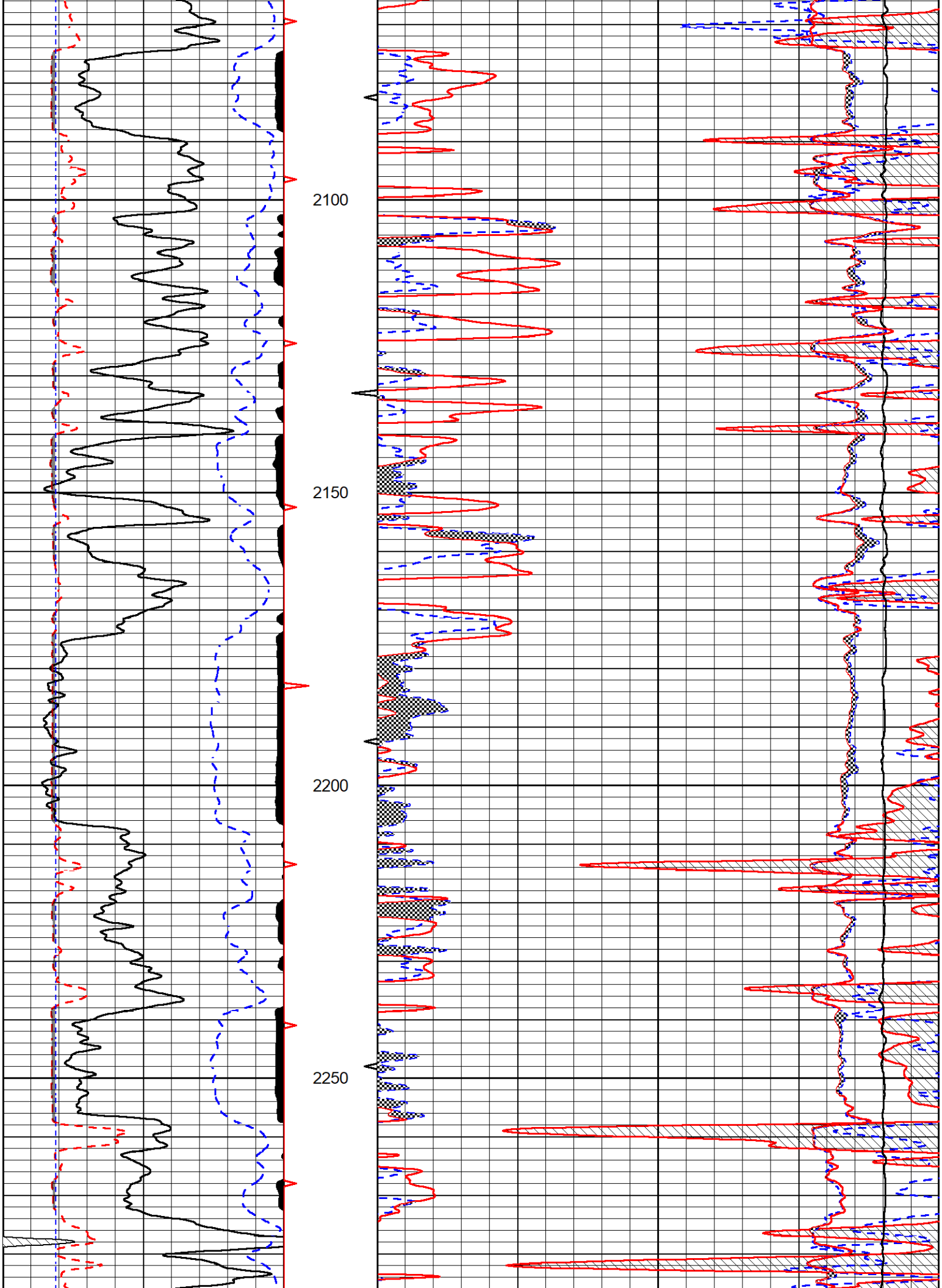
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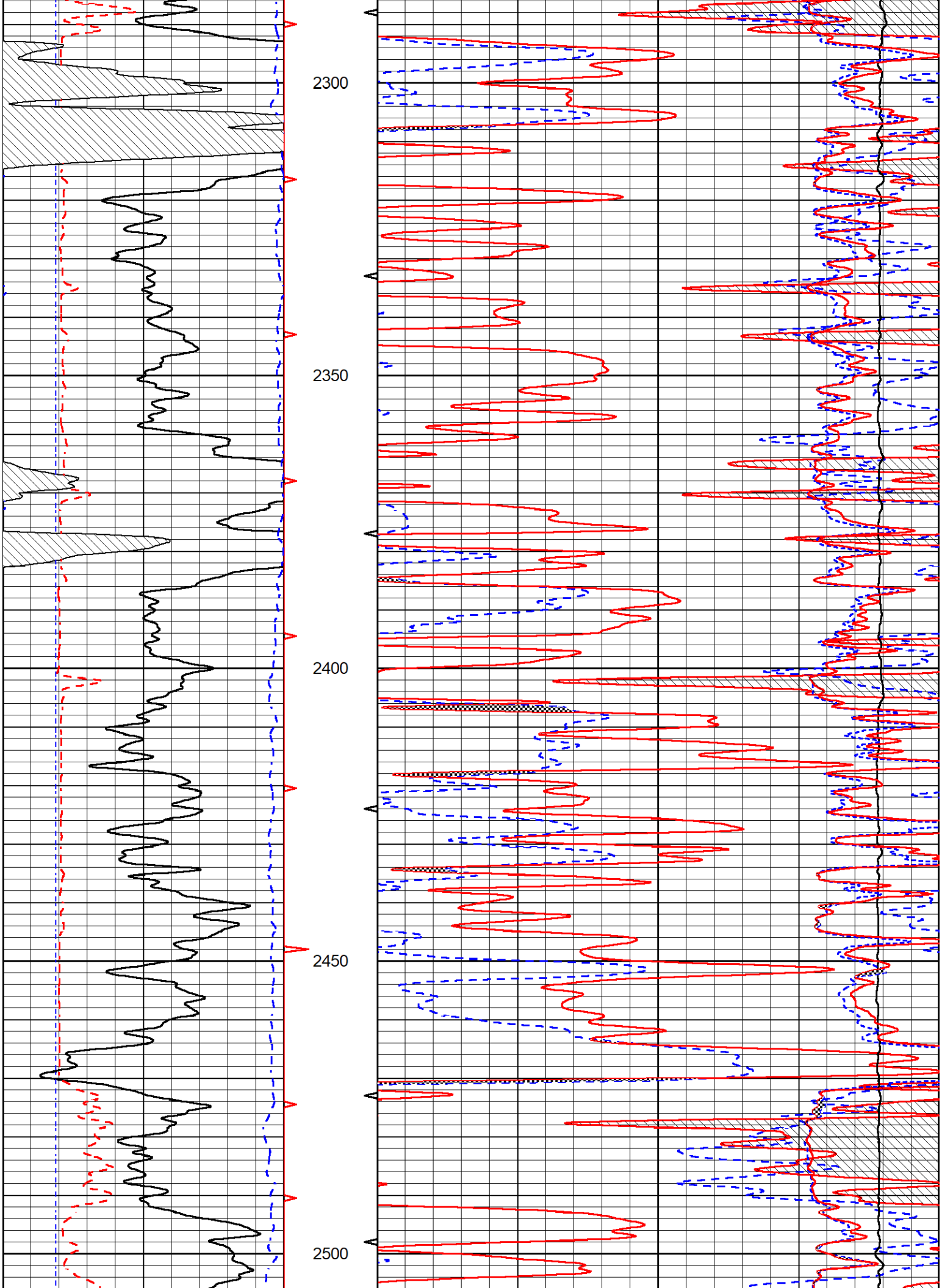
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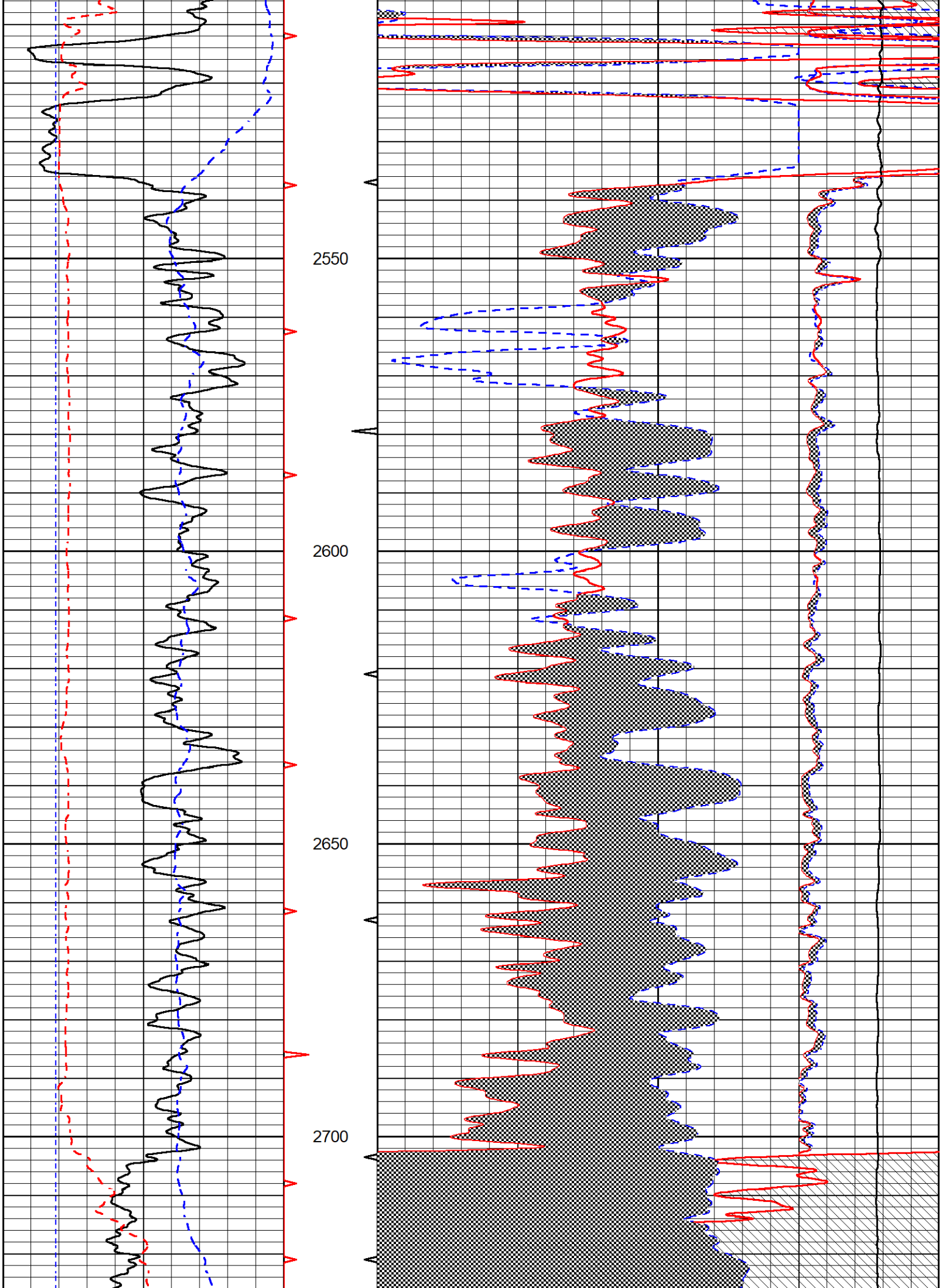
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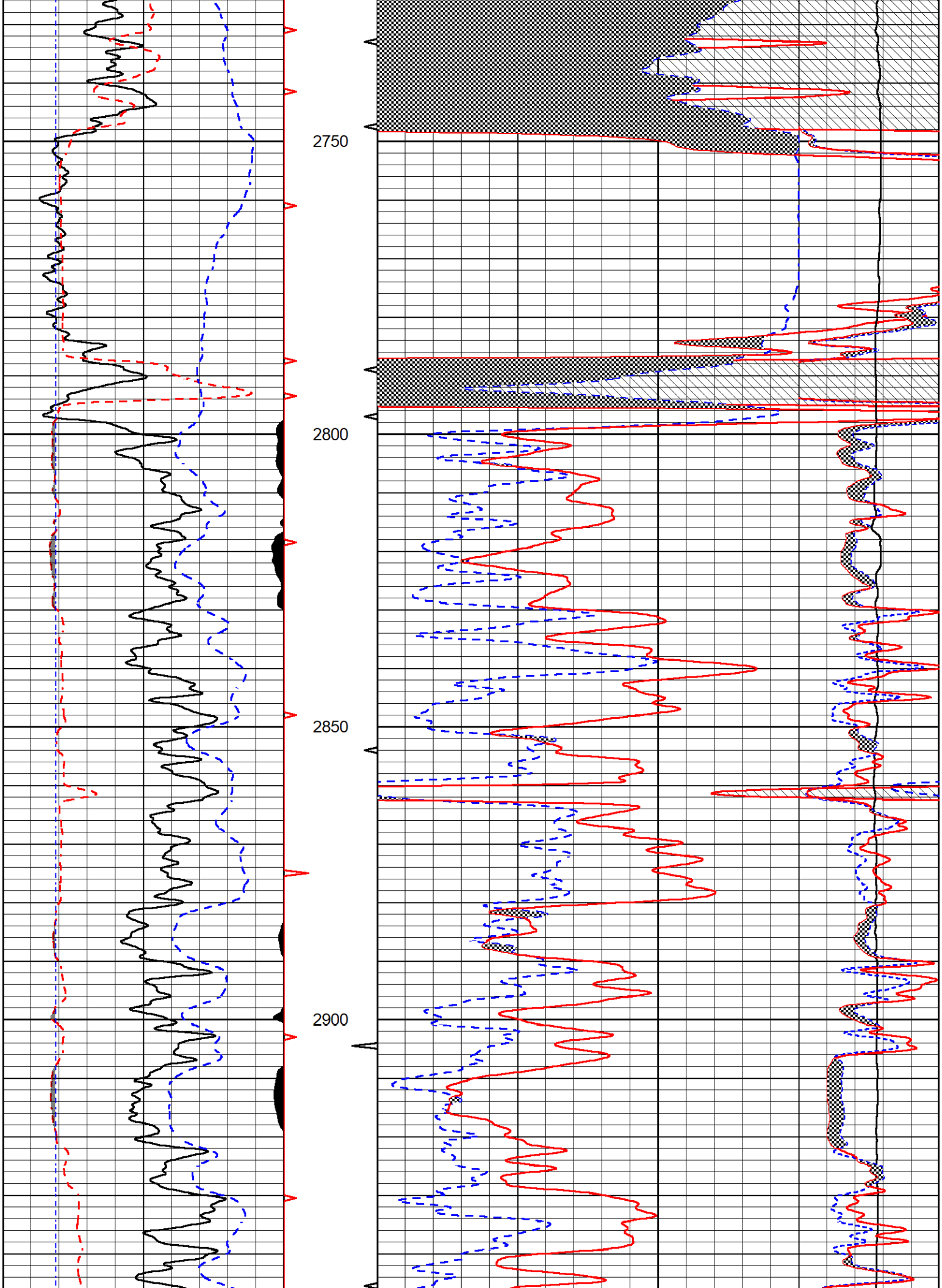
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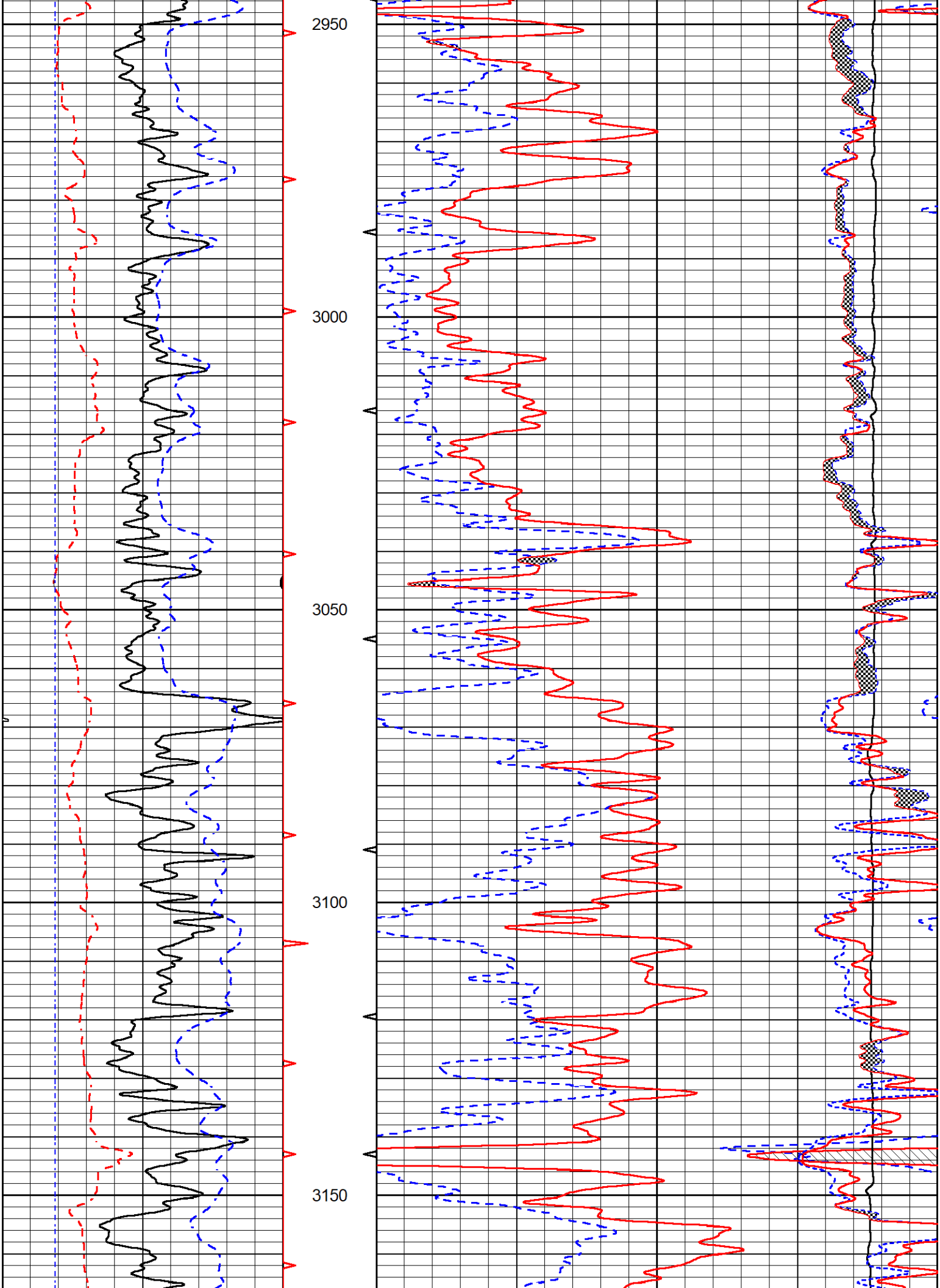
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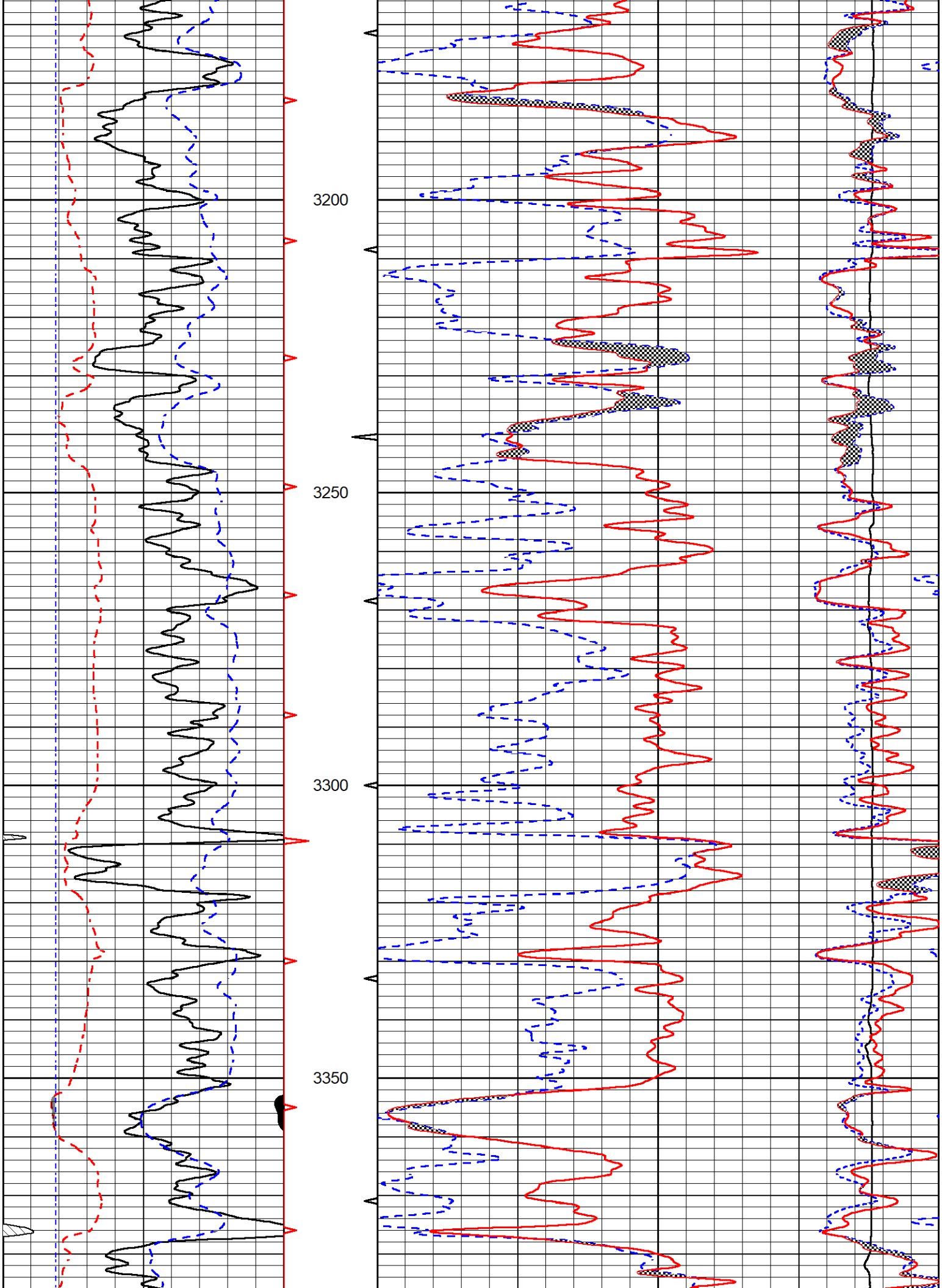
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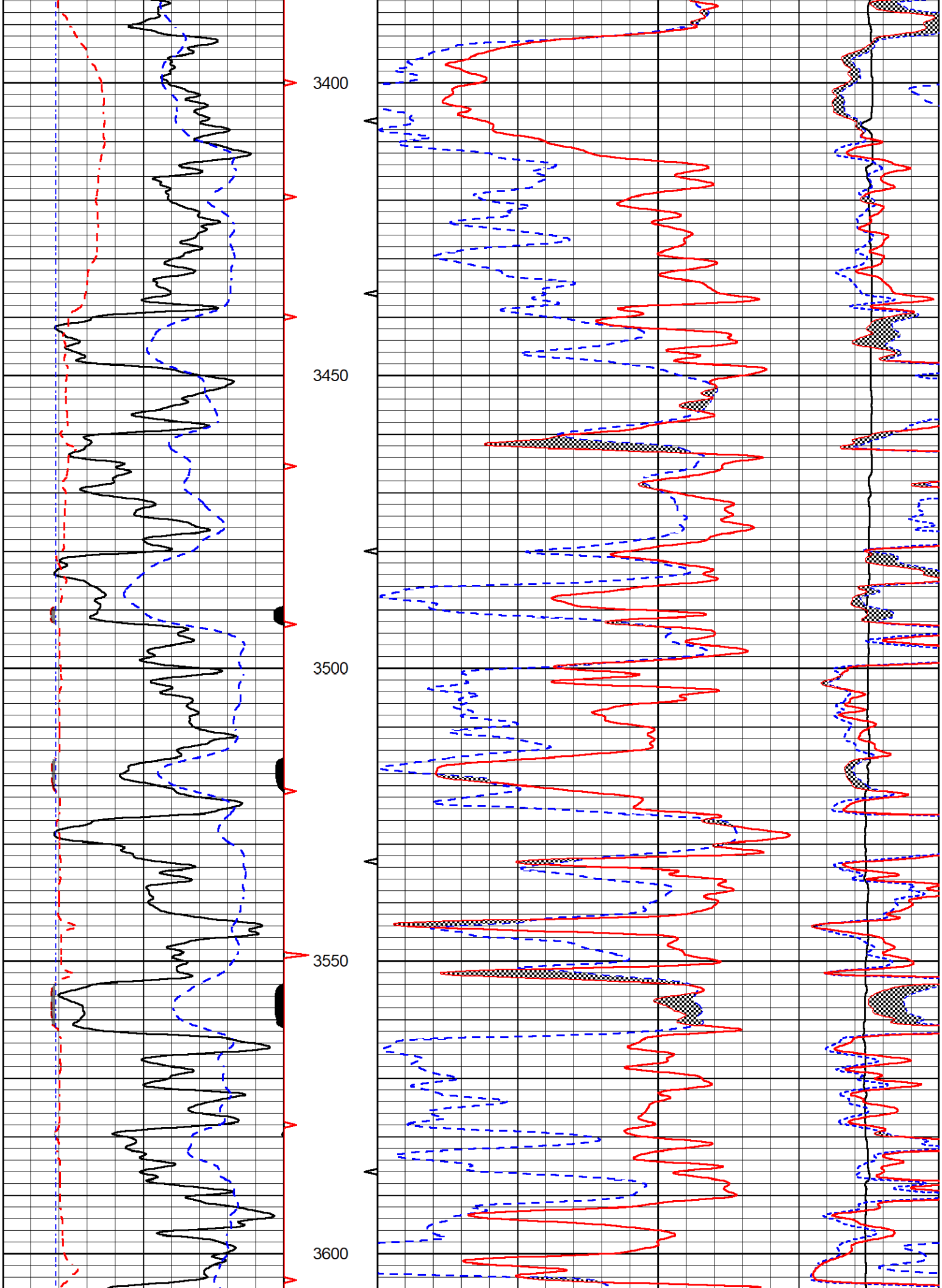
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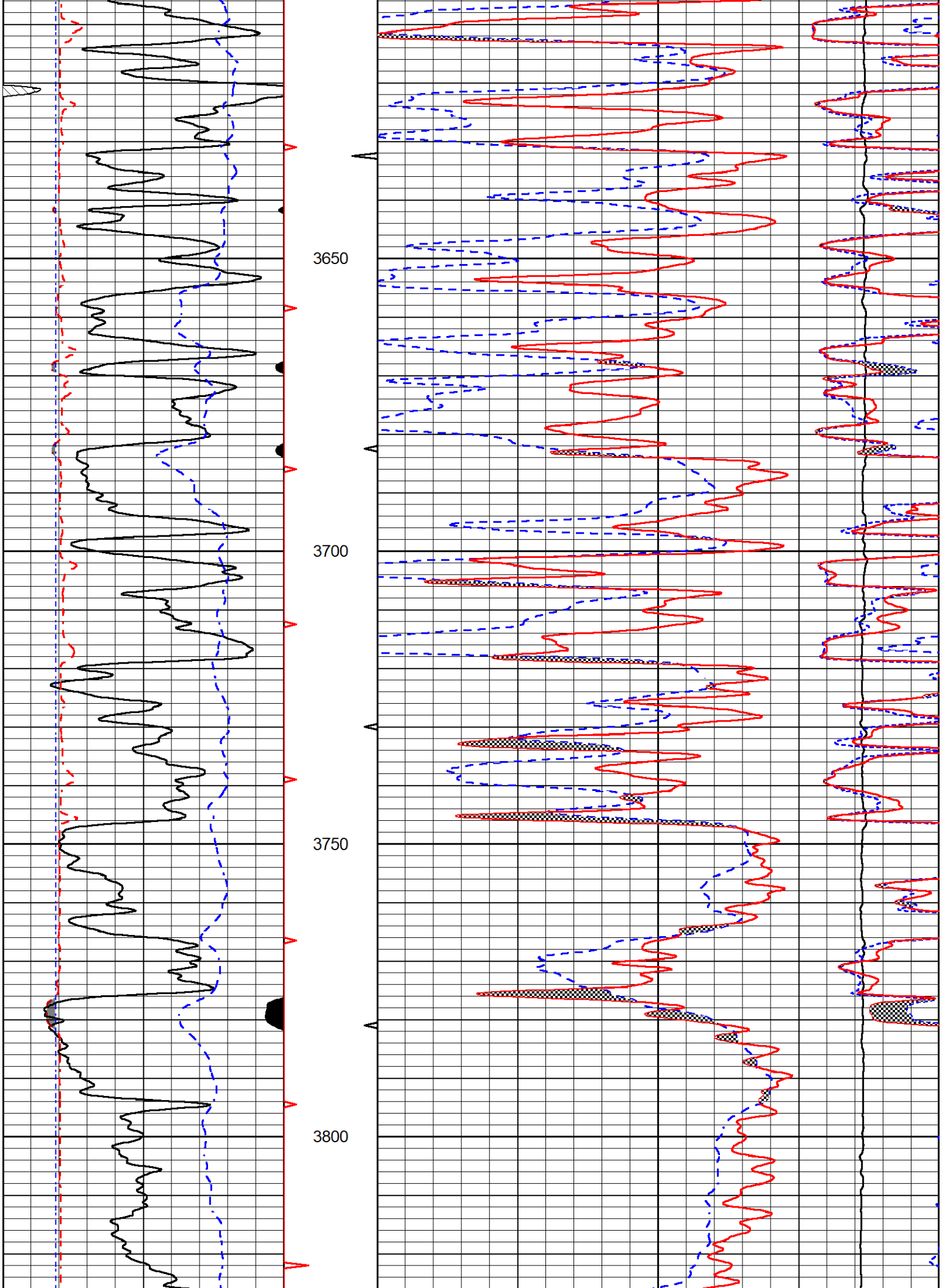
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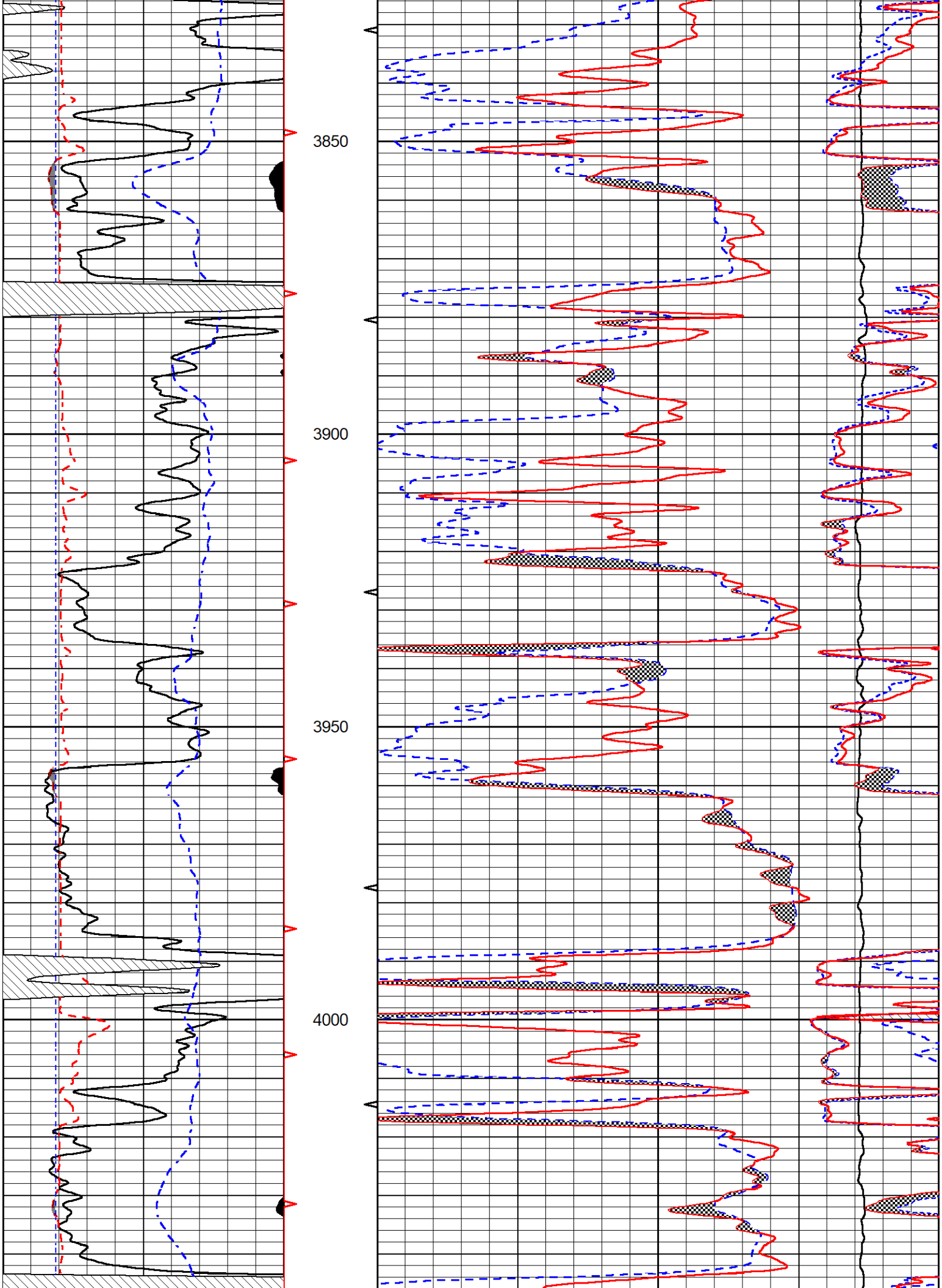
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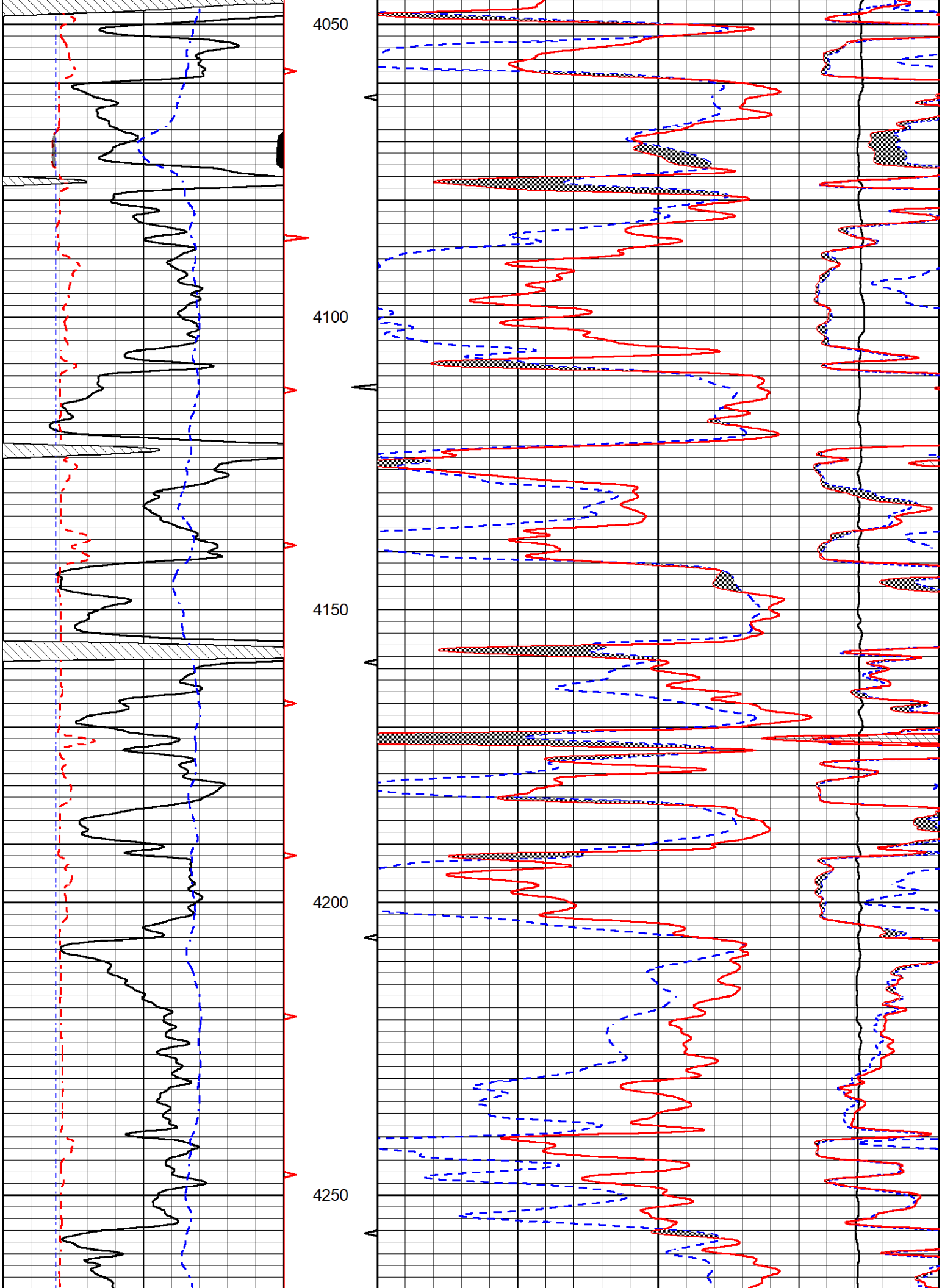
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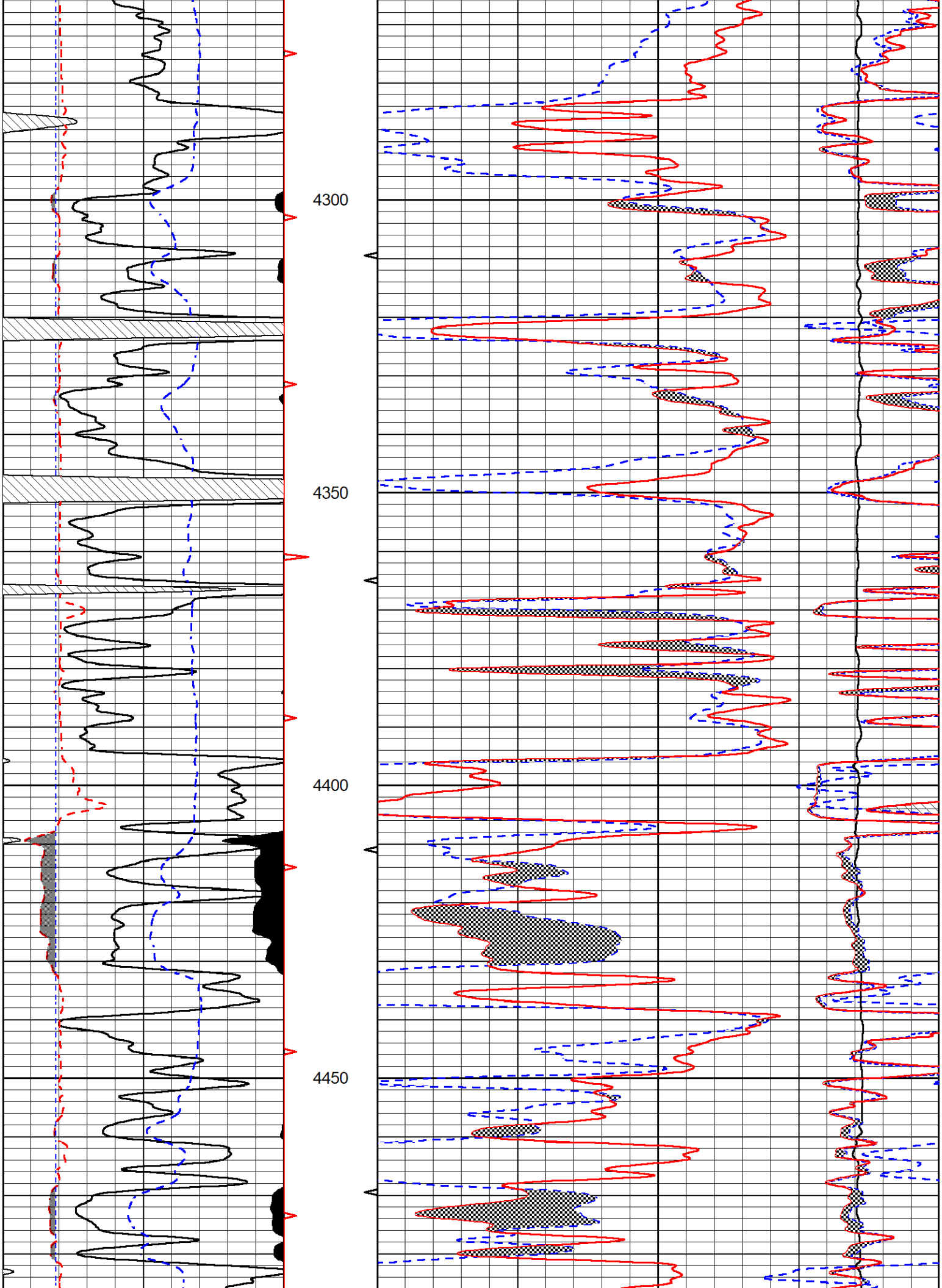
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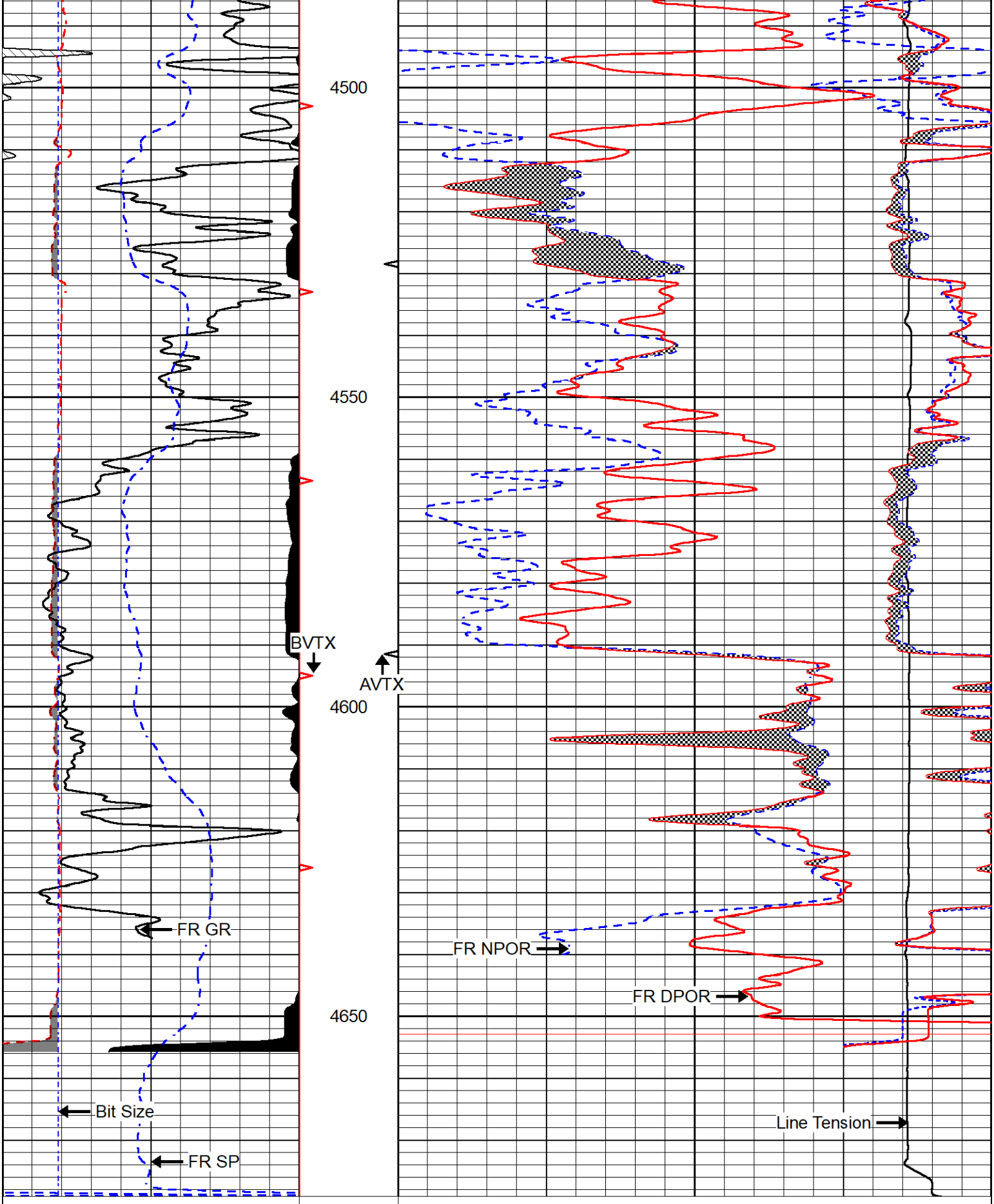

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6	MCAL (in)	16
-200	SP (mV)	0
30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

Micro Normal		
0	(Ohm-m)	20
Micro Inverse		

Micro Inverse
0 (Ohm-m) 20

MIDWEST WIRELINE

5" SCALE BULK DENSITY

MAIN PASS

Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMl/pass3.3
Presentation Format	_cdl
Dataset Creation	Sun Dec 19 07:46:22 2021
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

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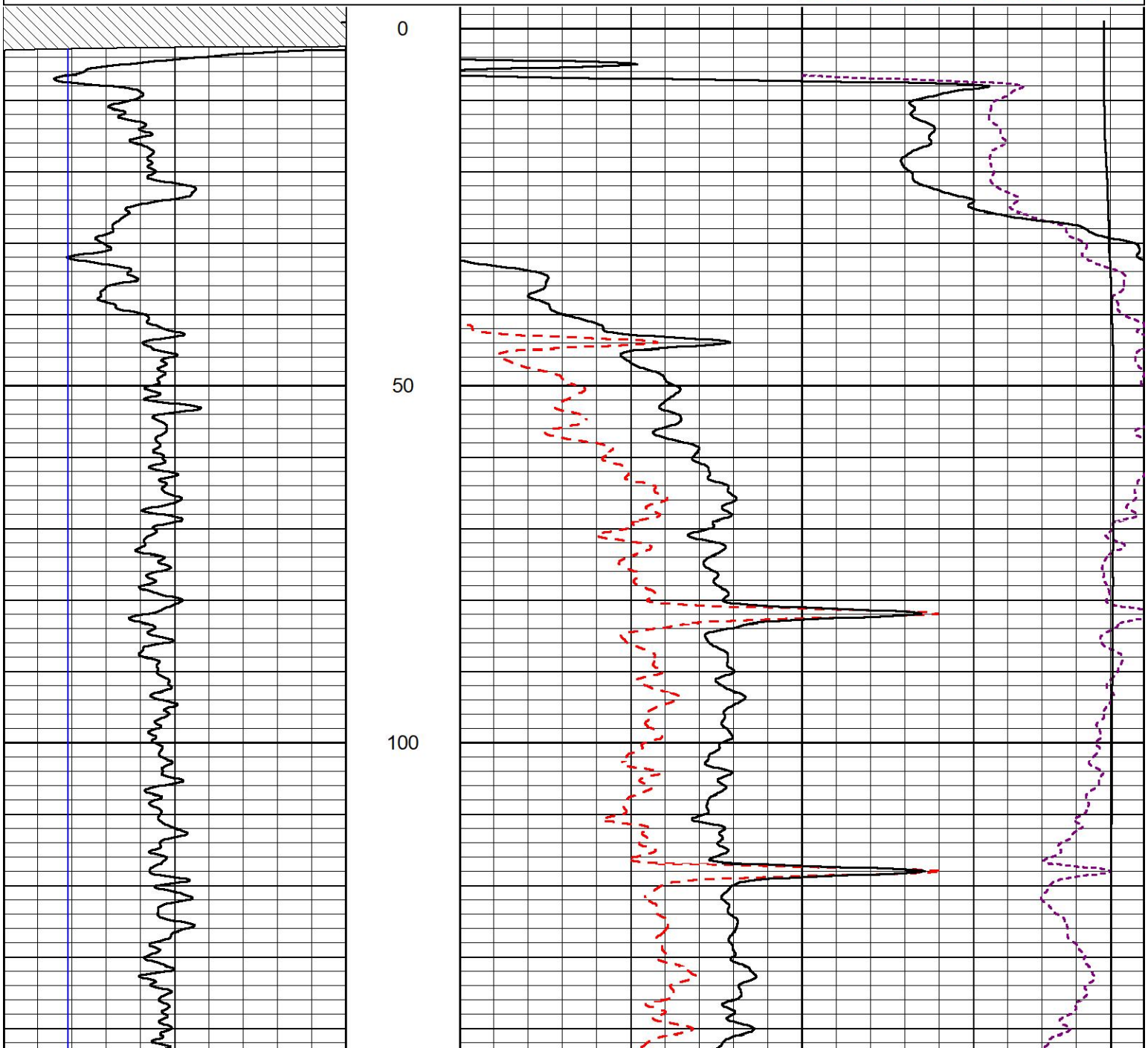

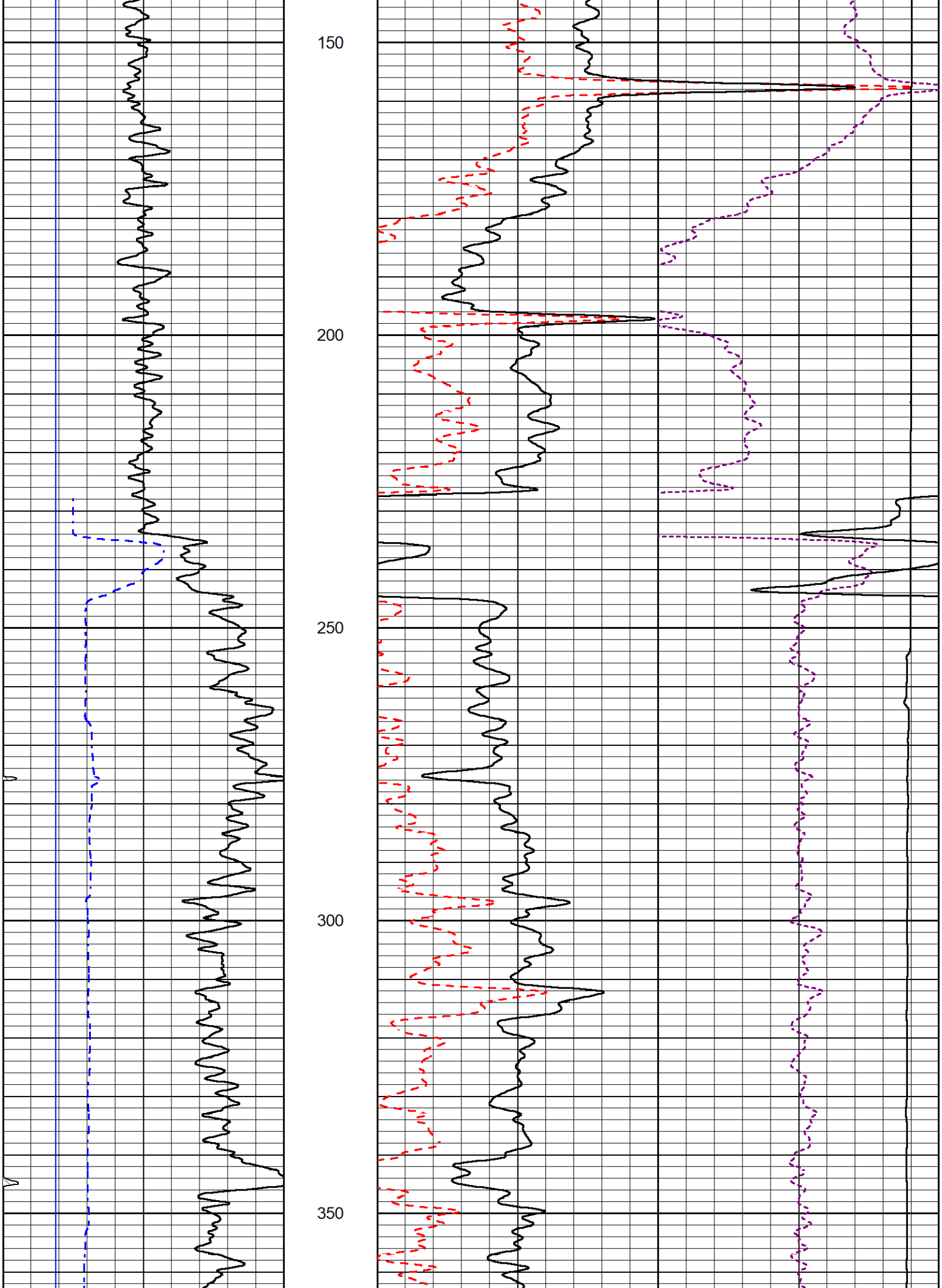
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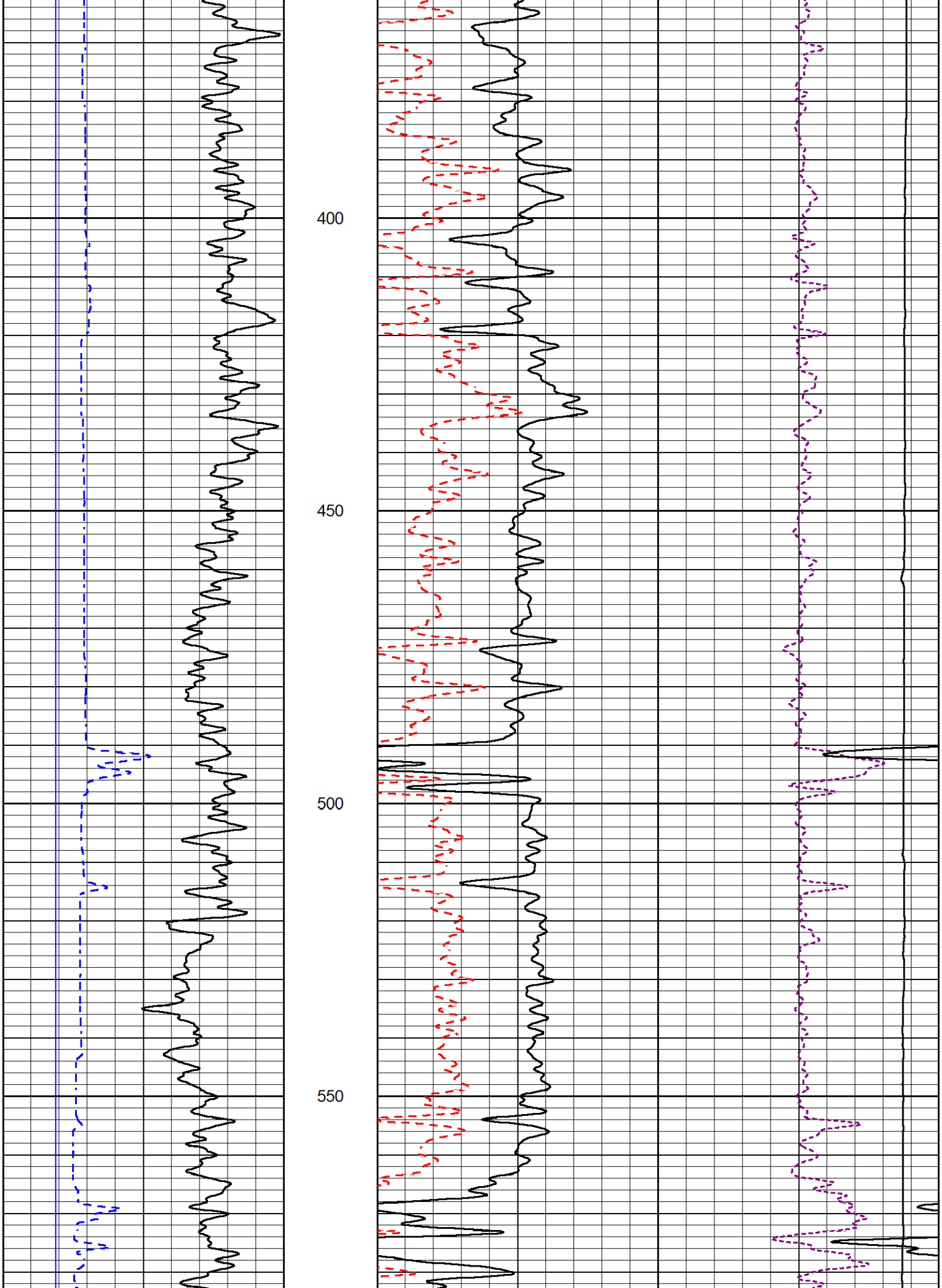
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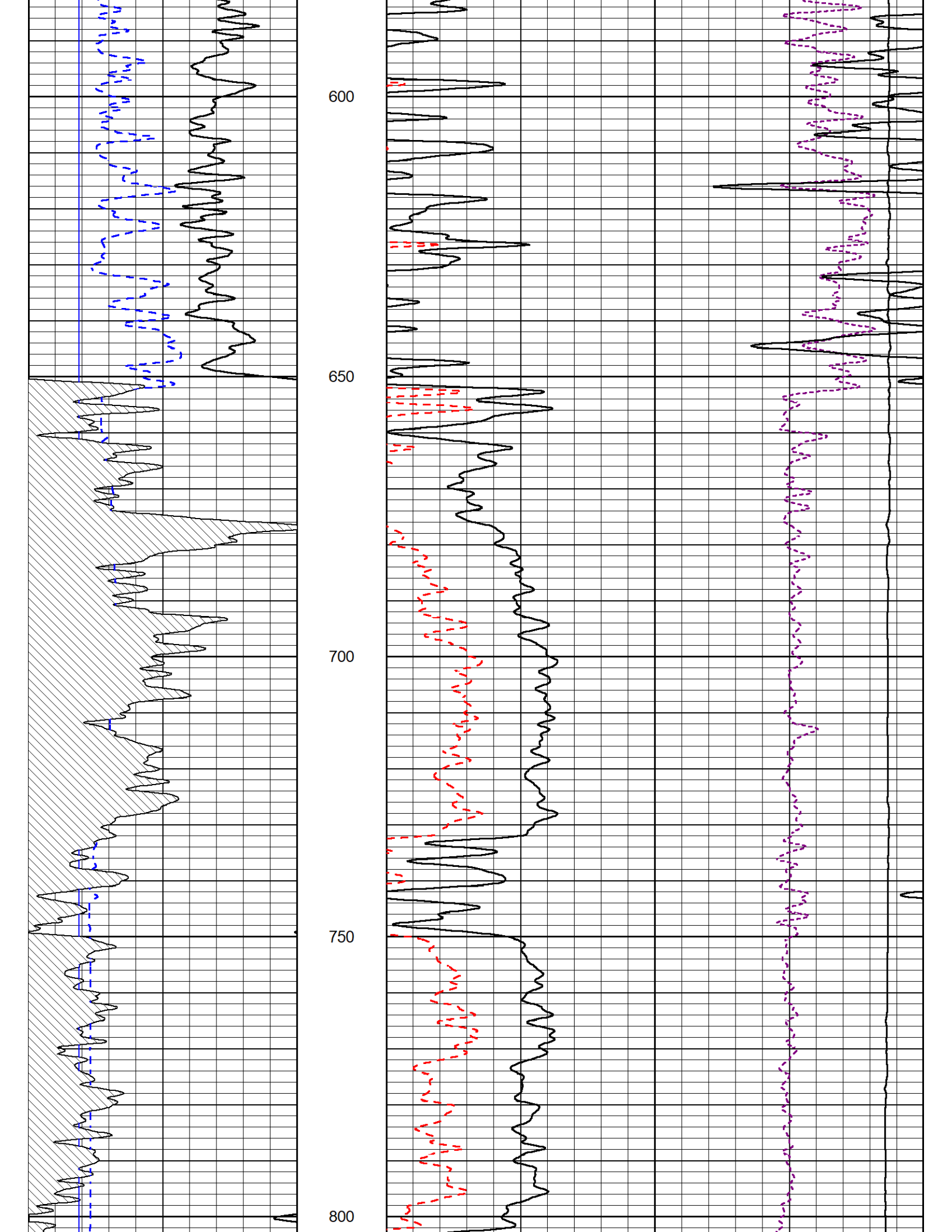
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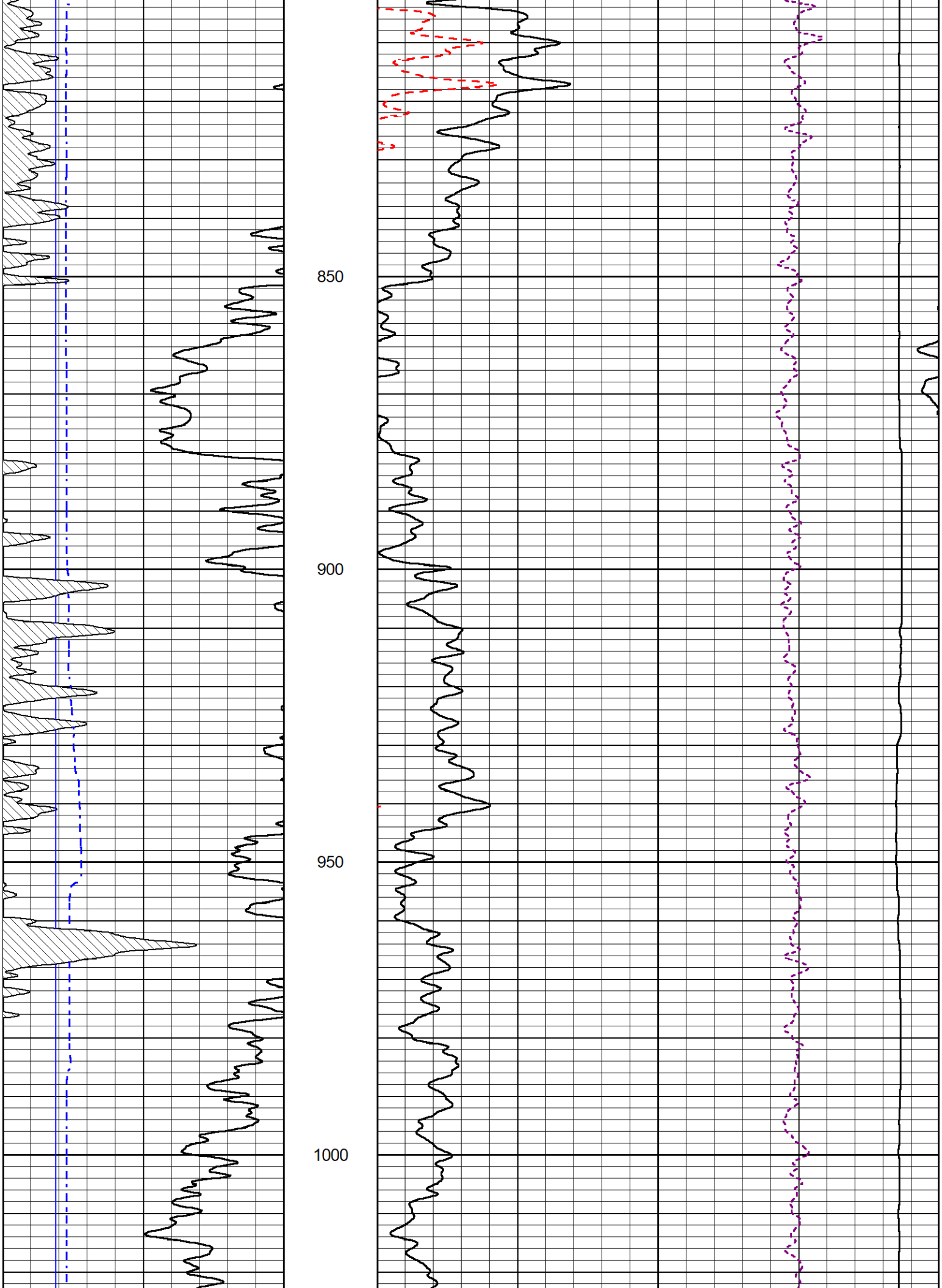
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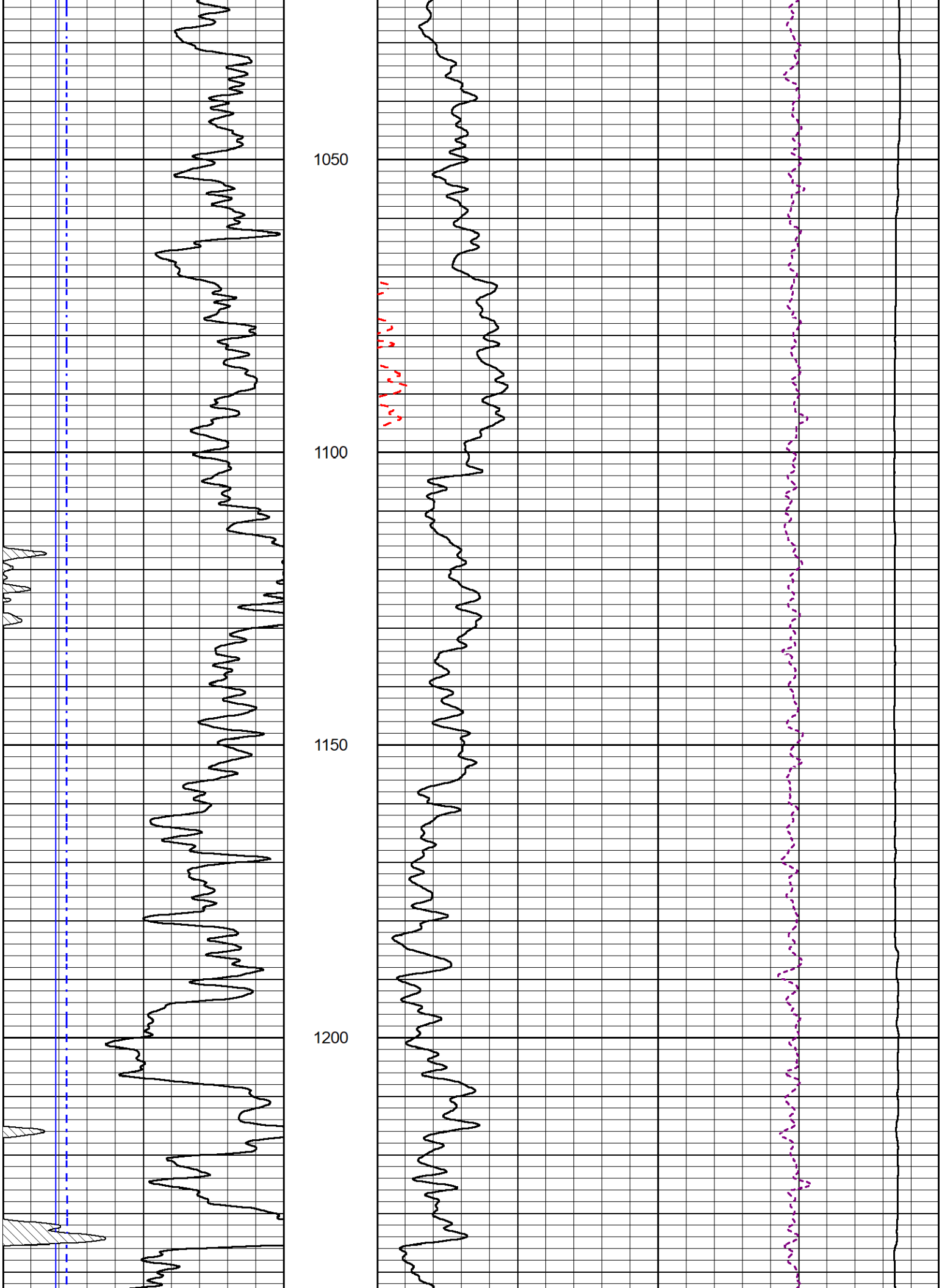
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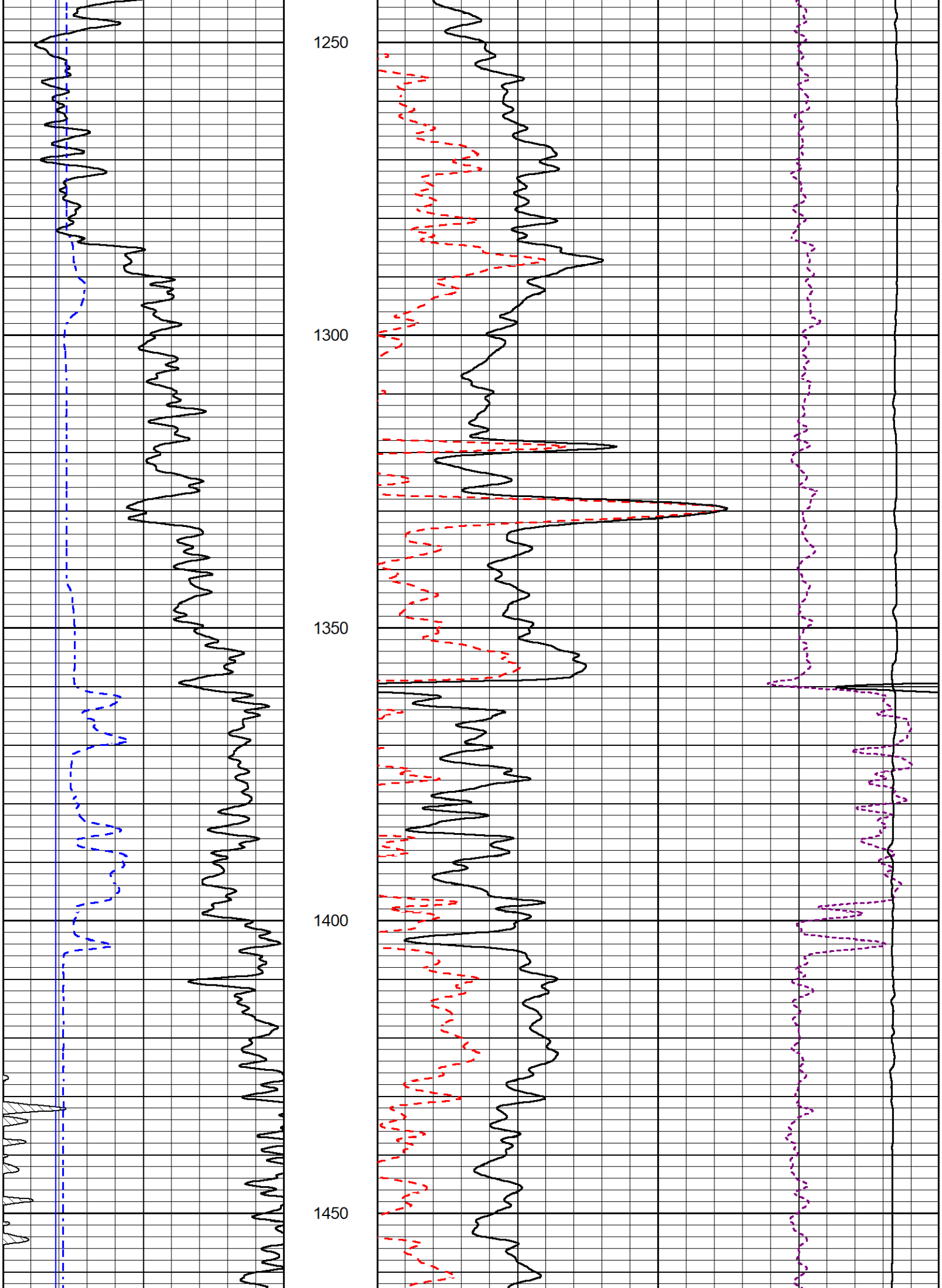
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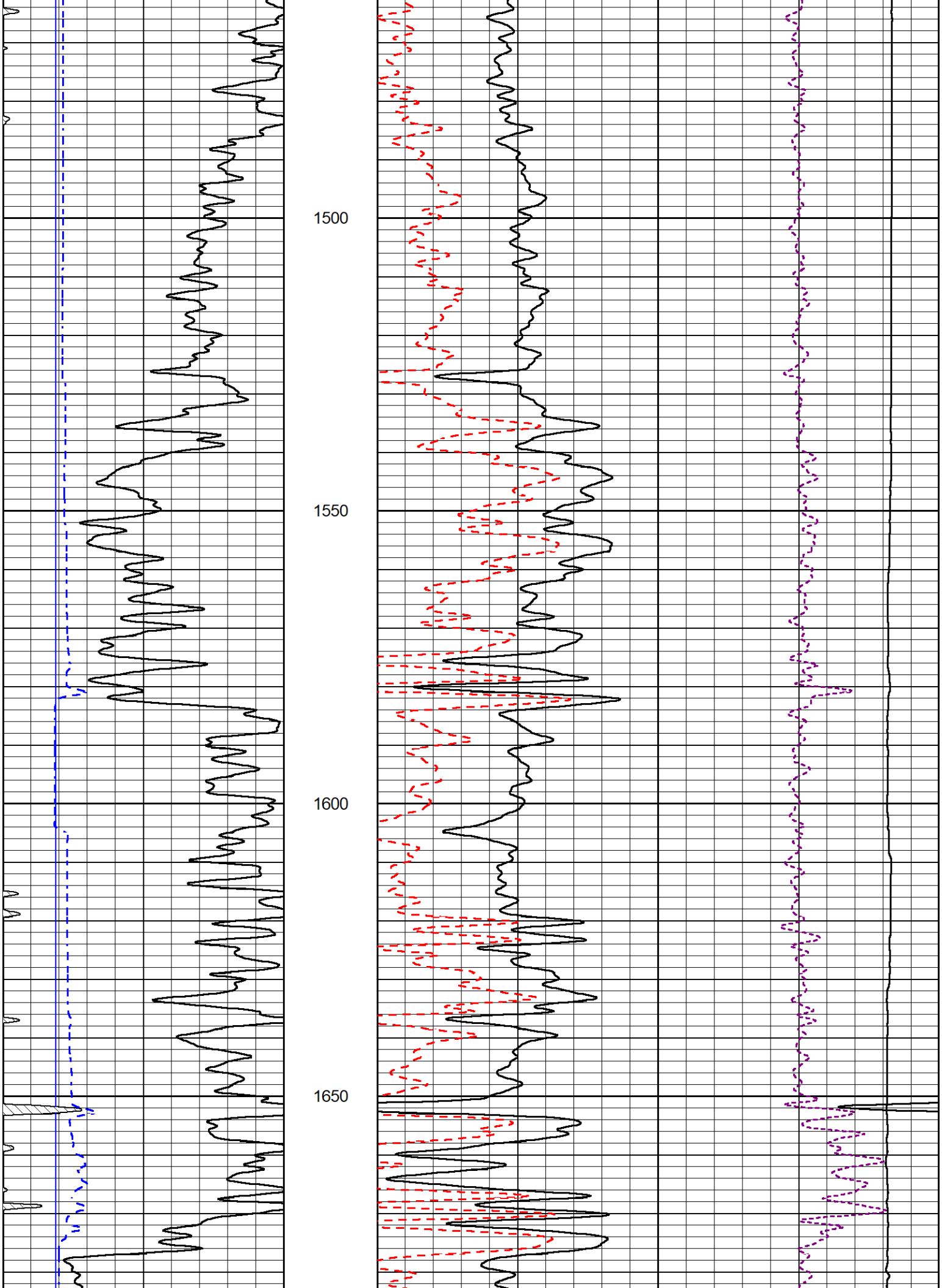
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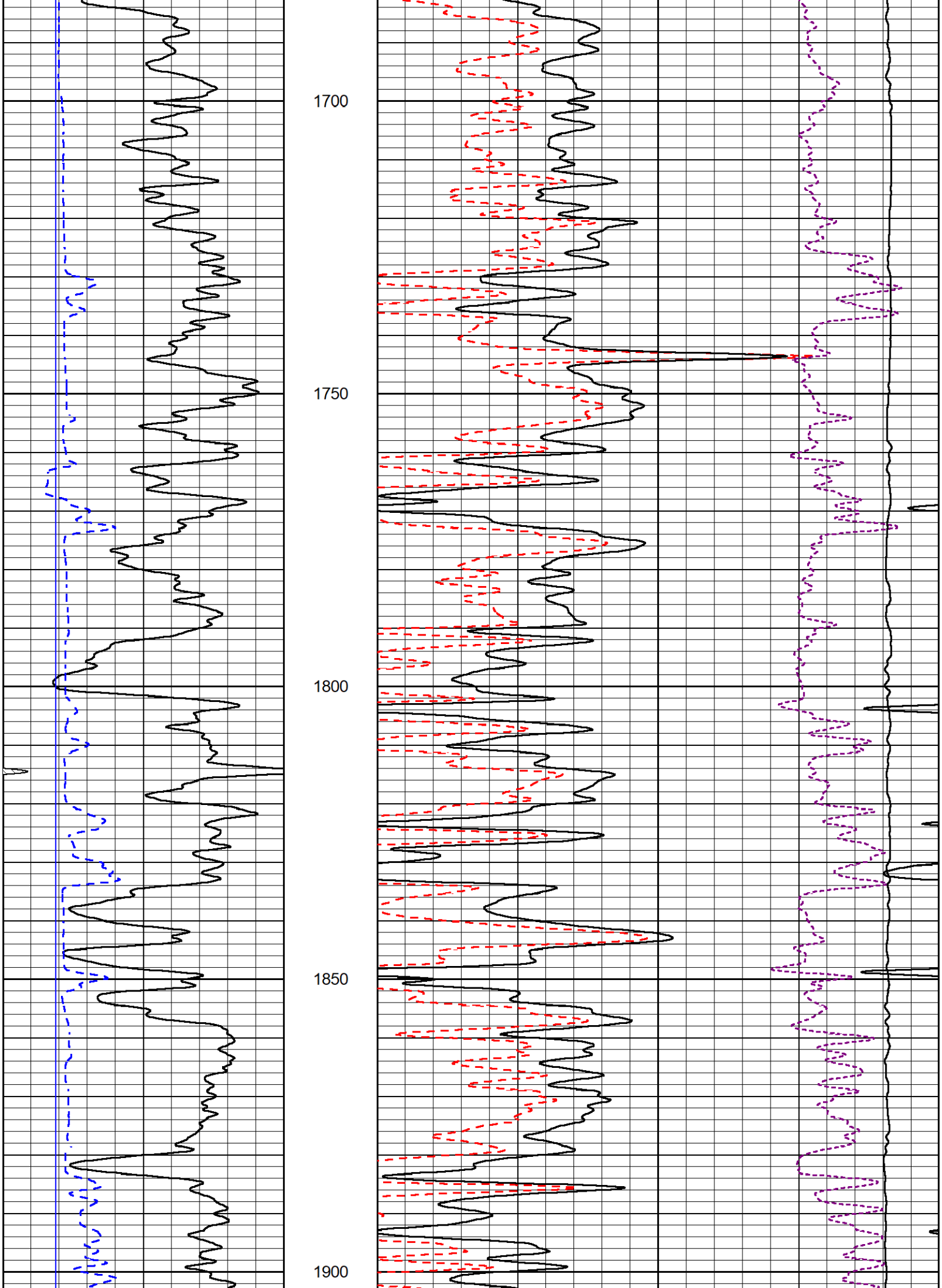
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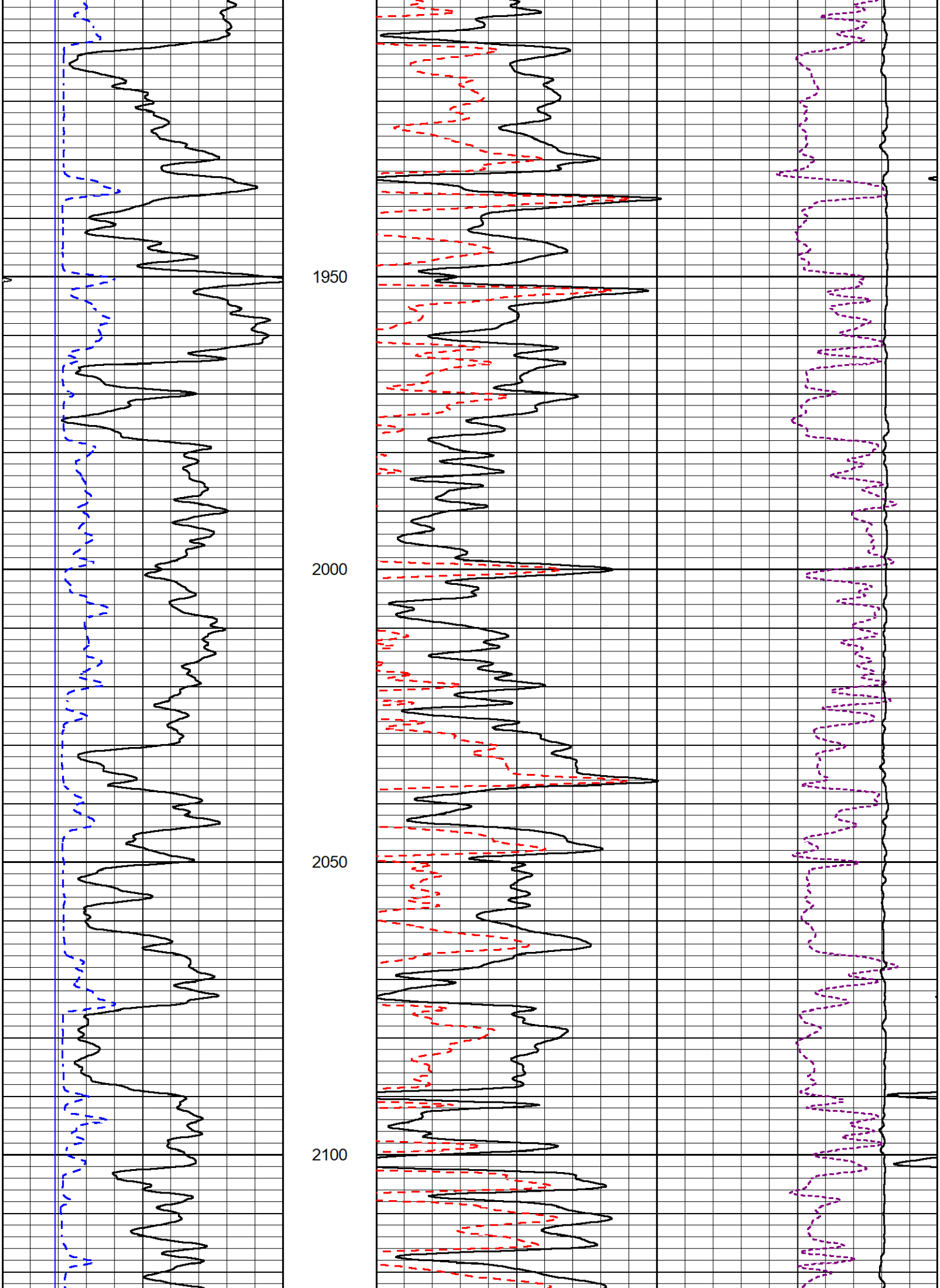
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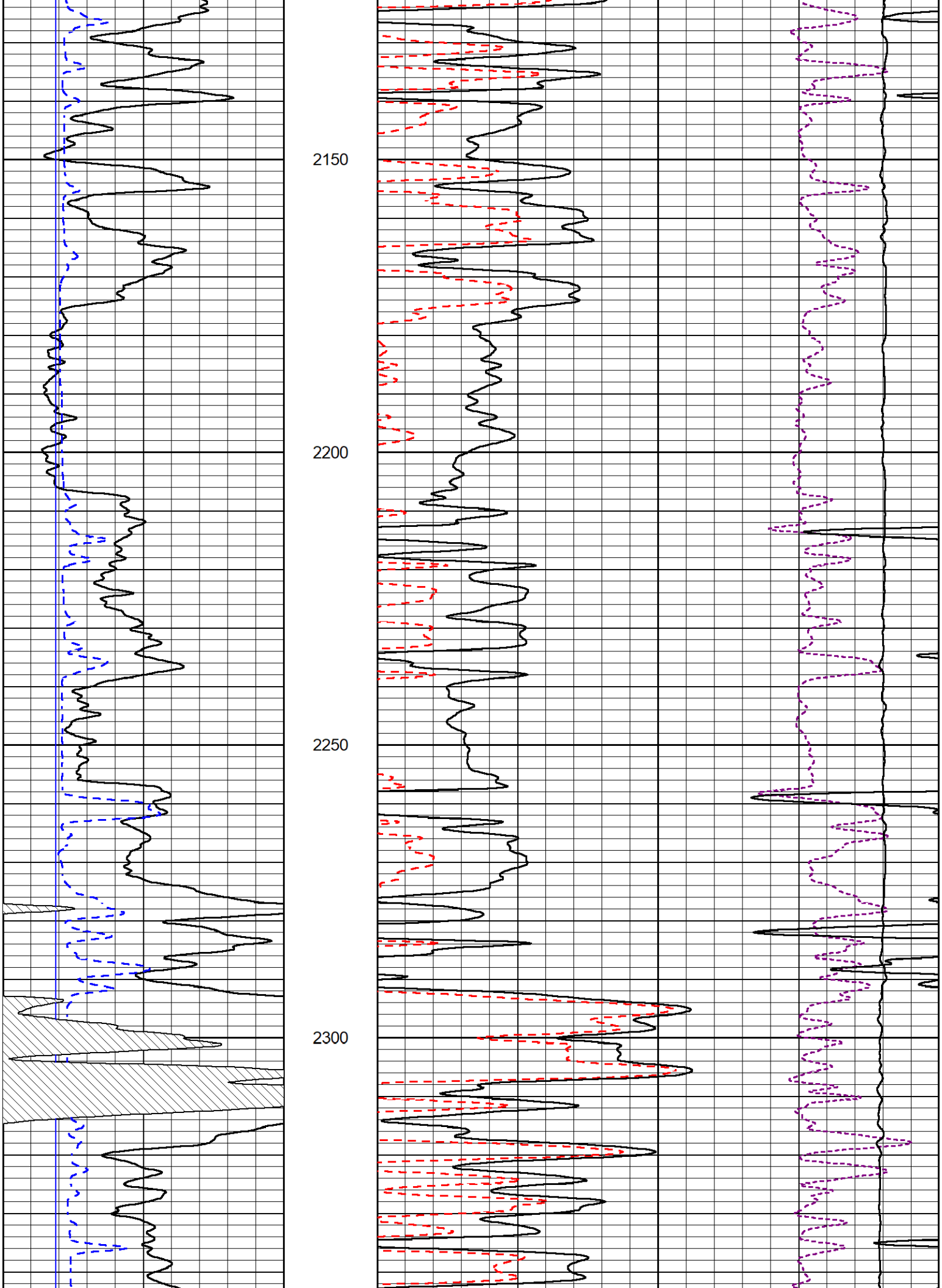
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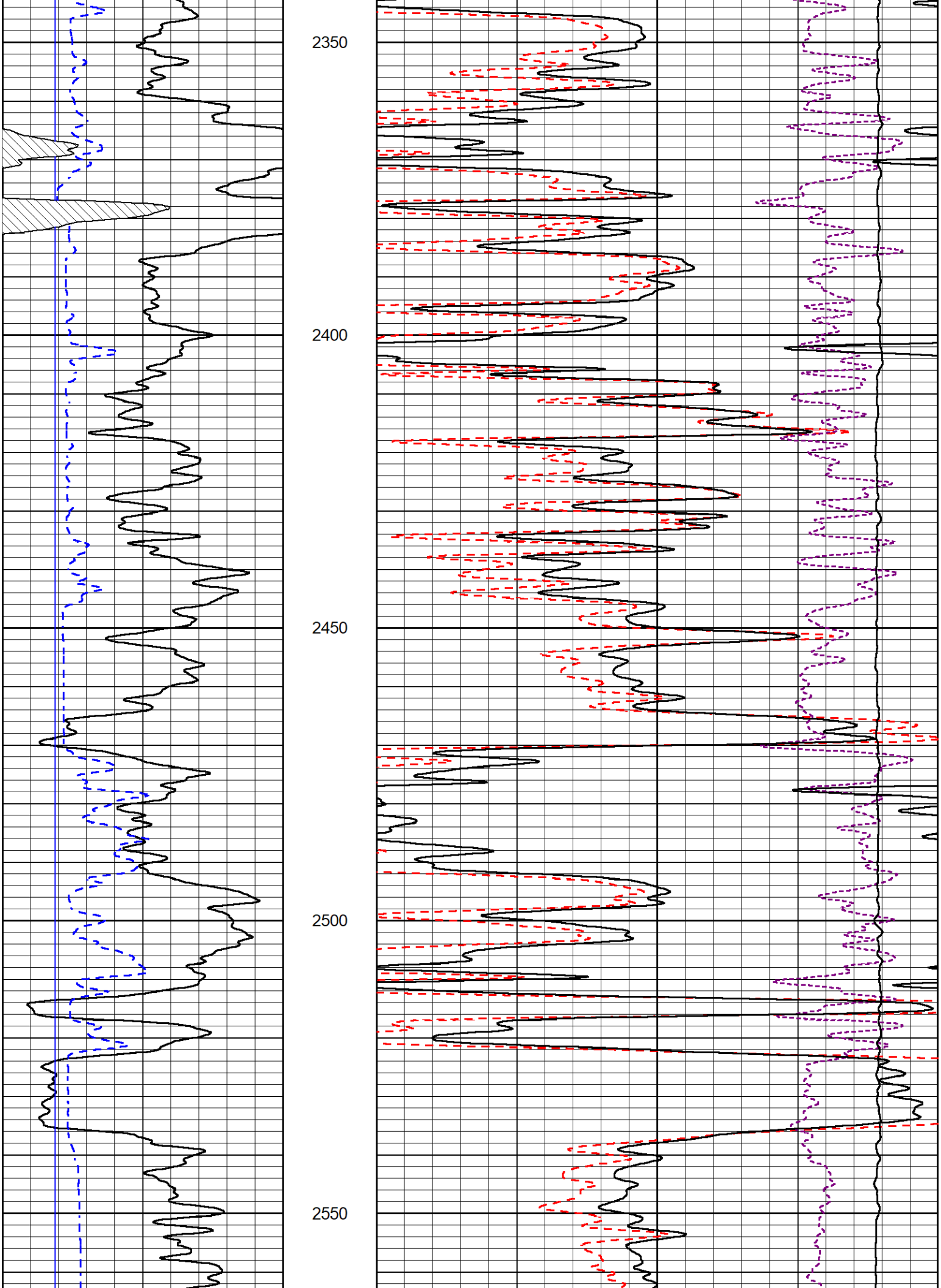
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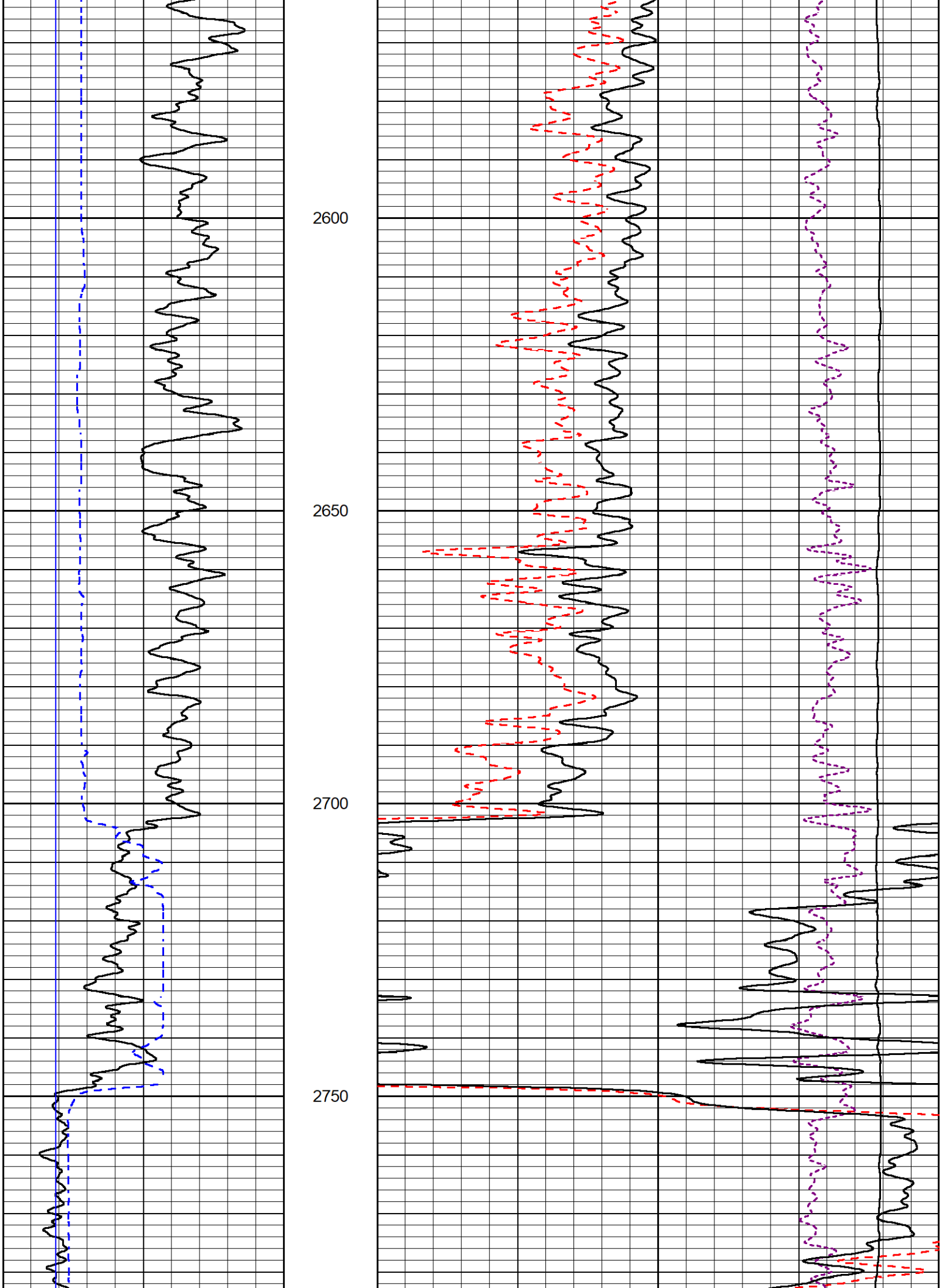
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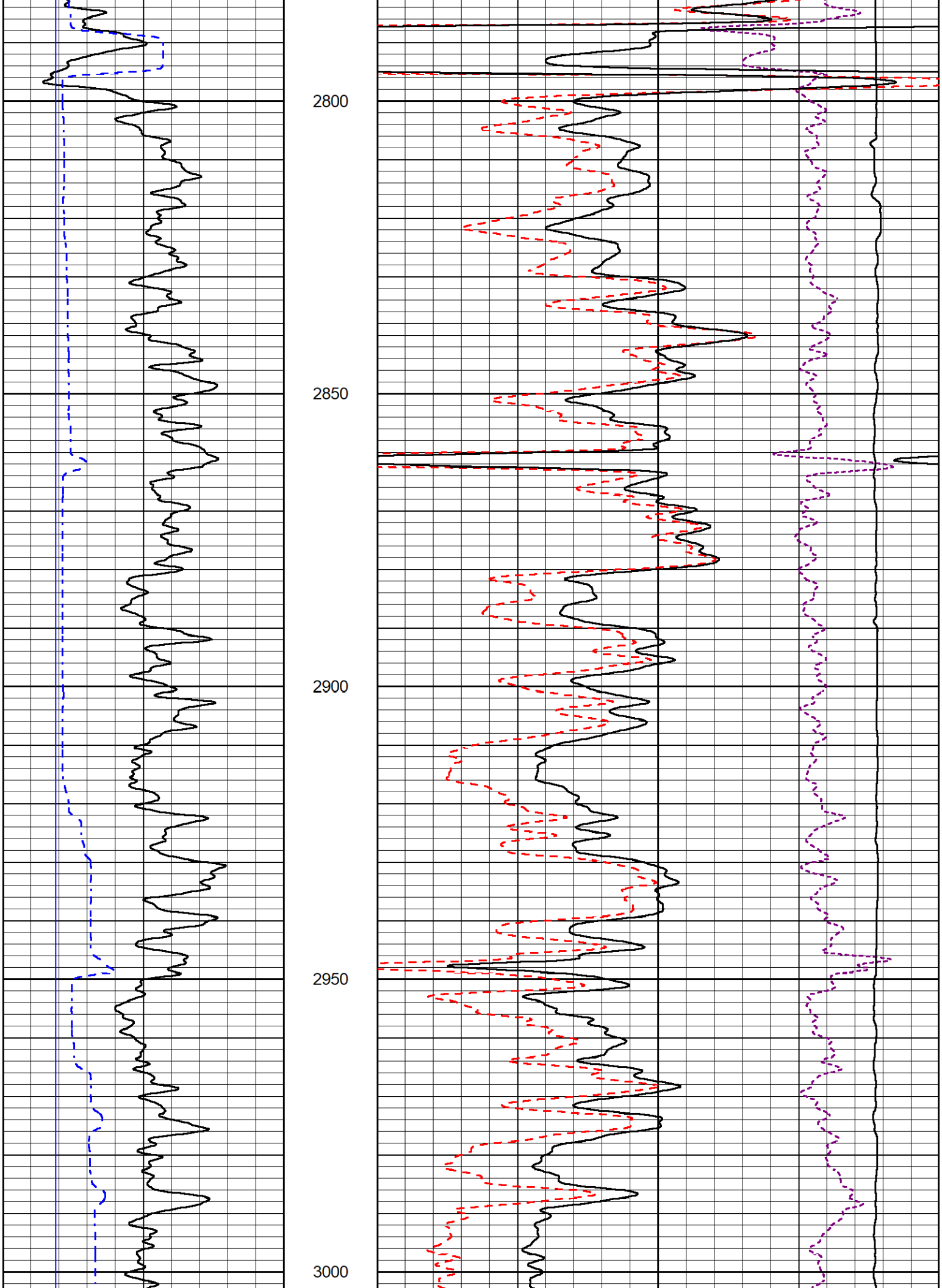
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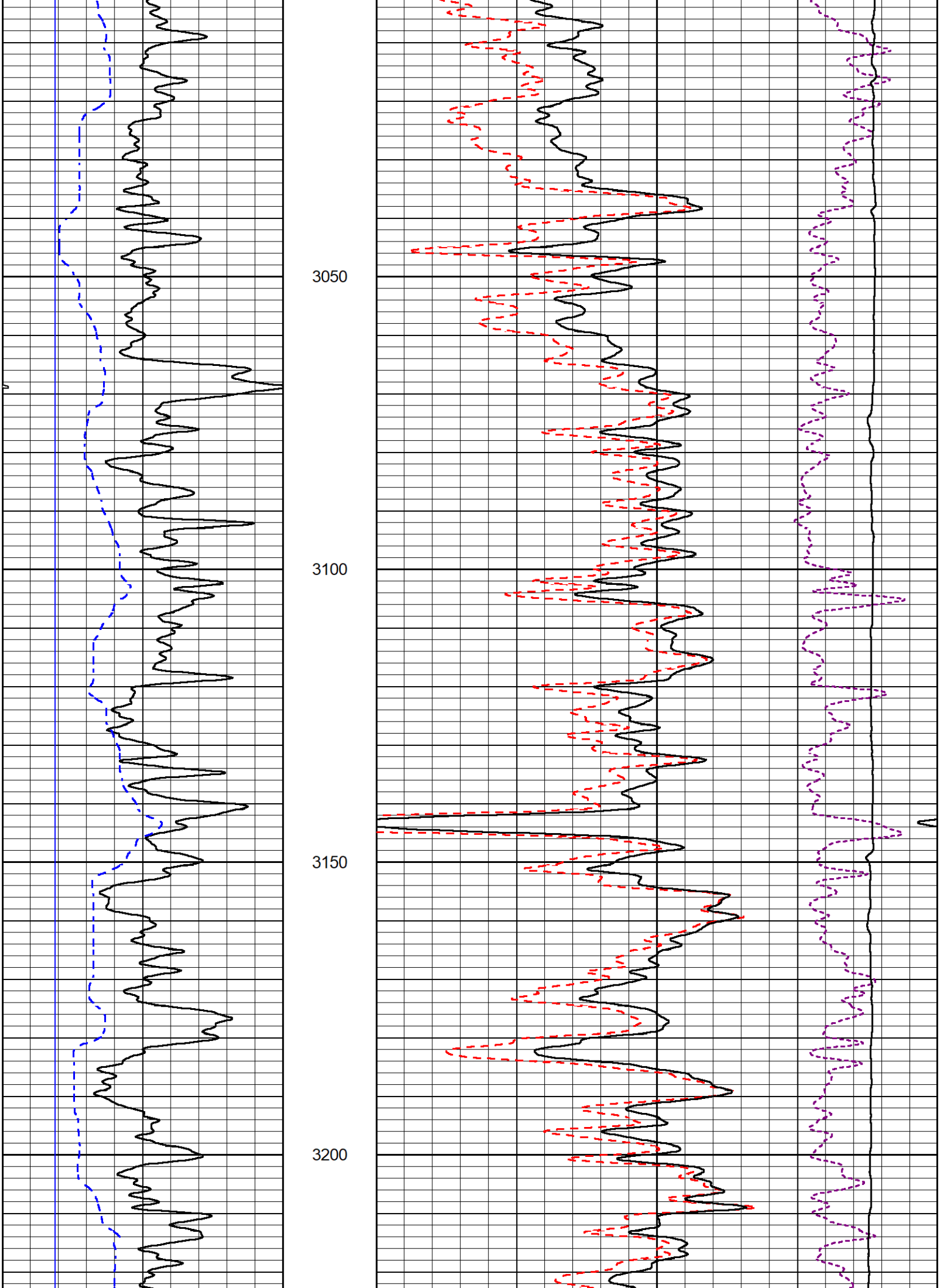
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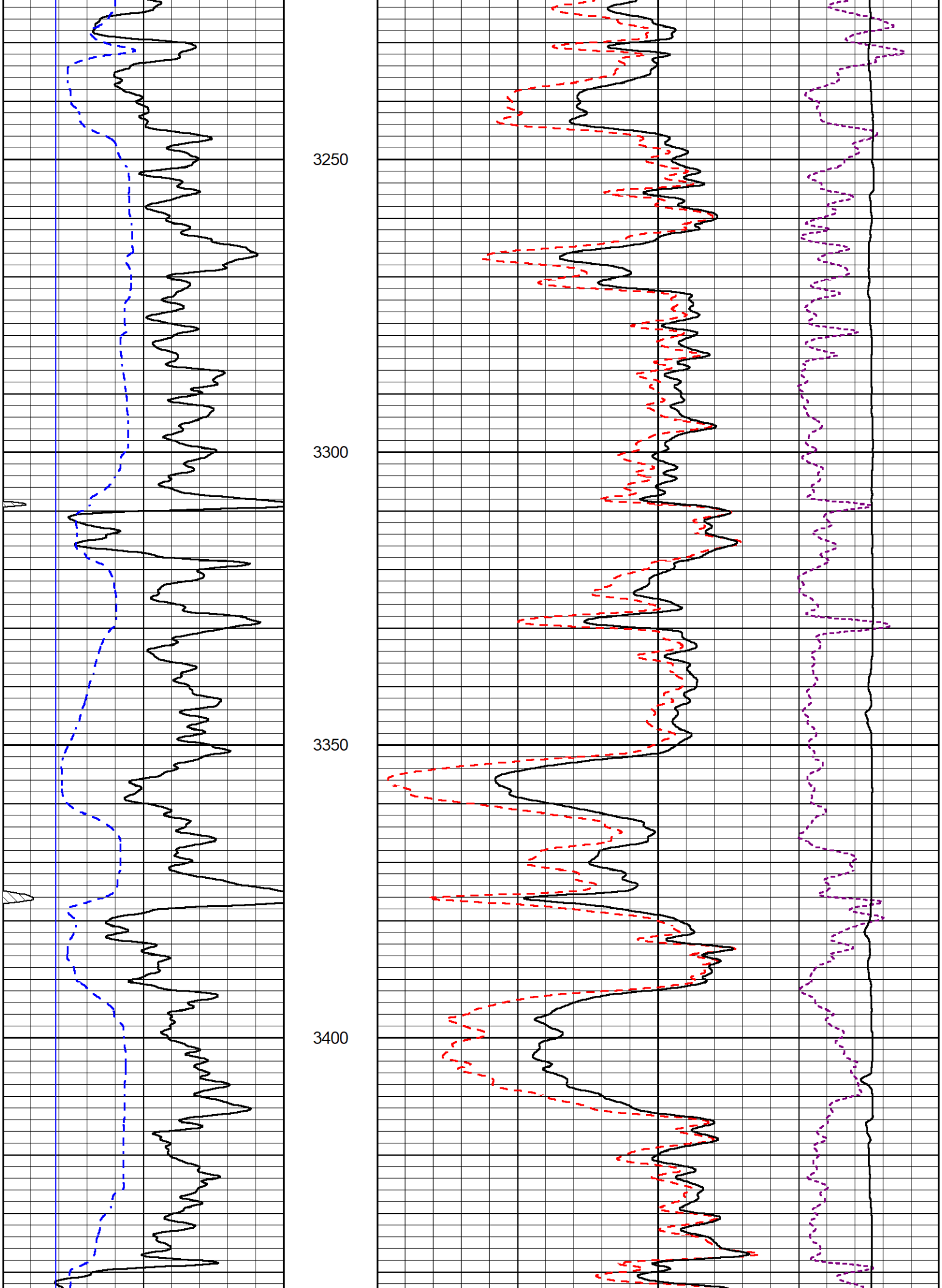
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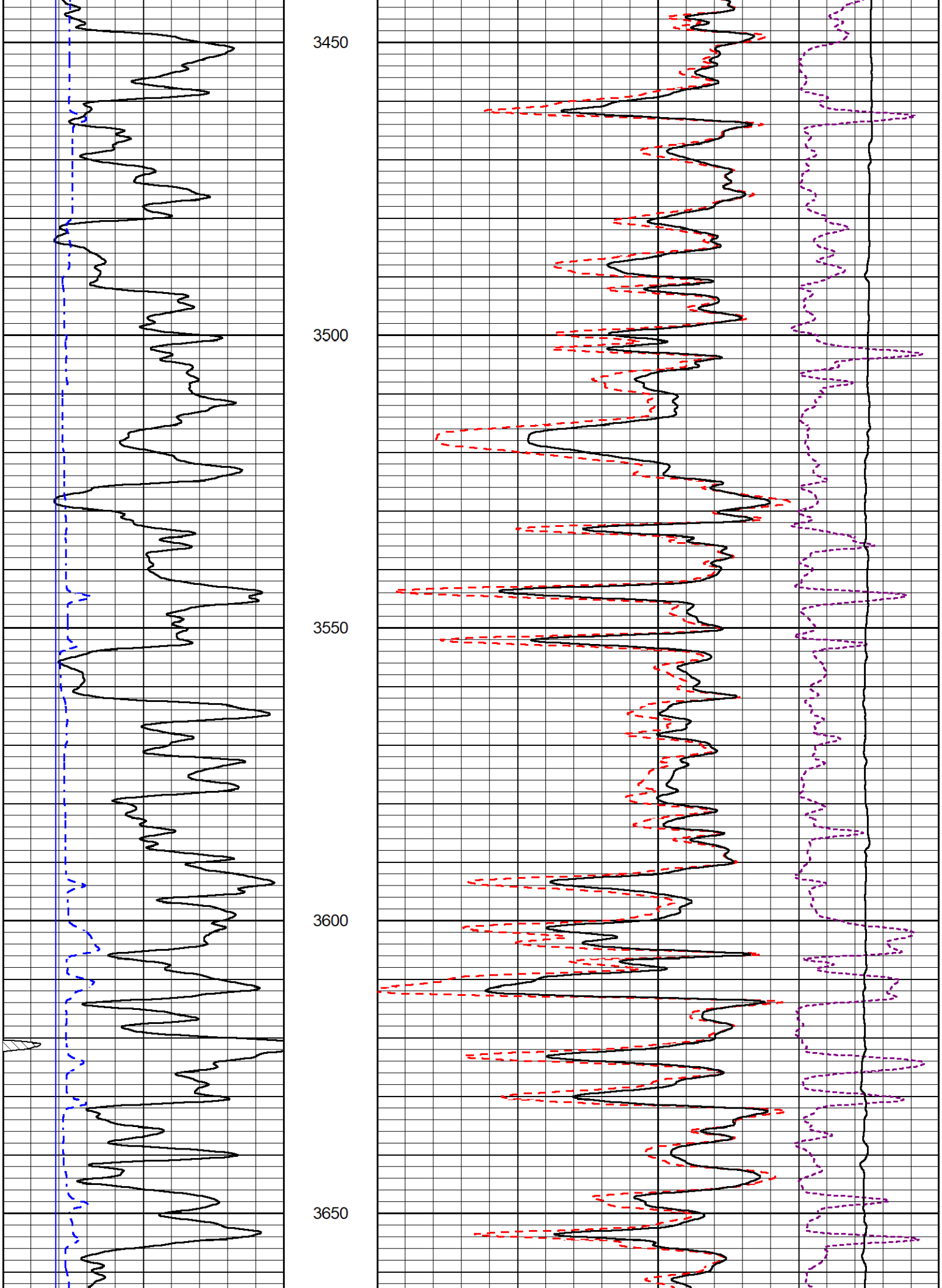
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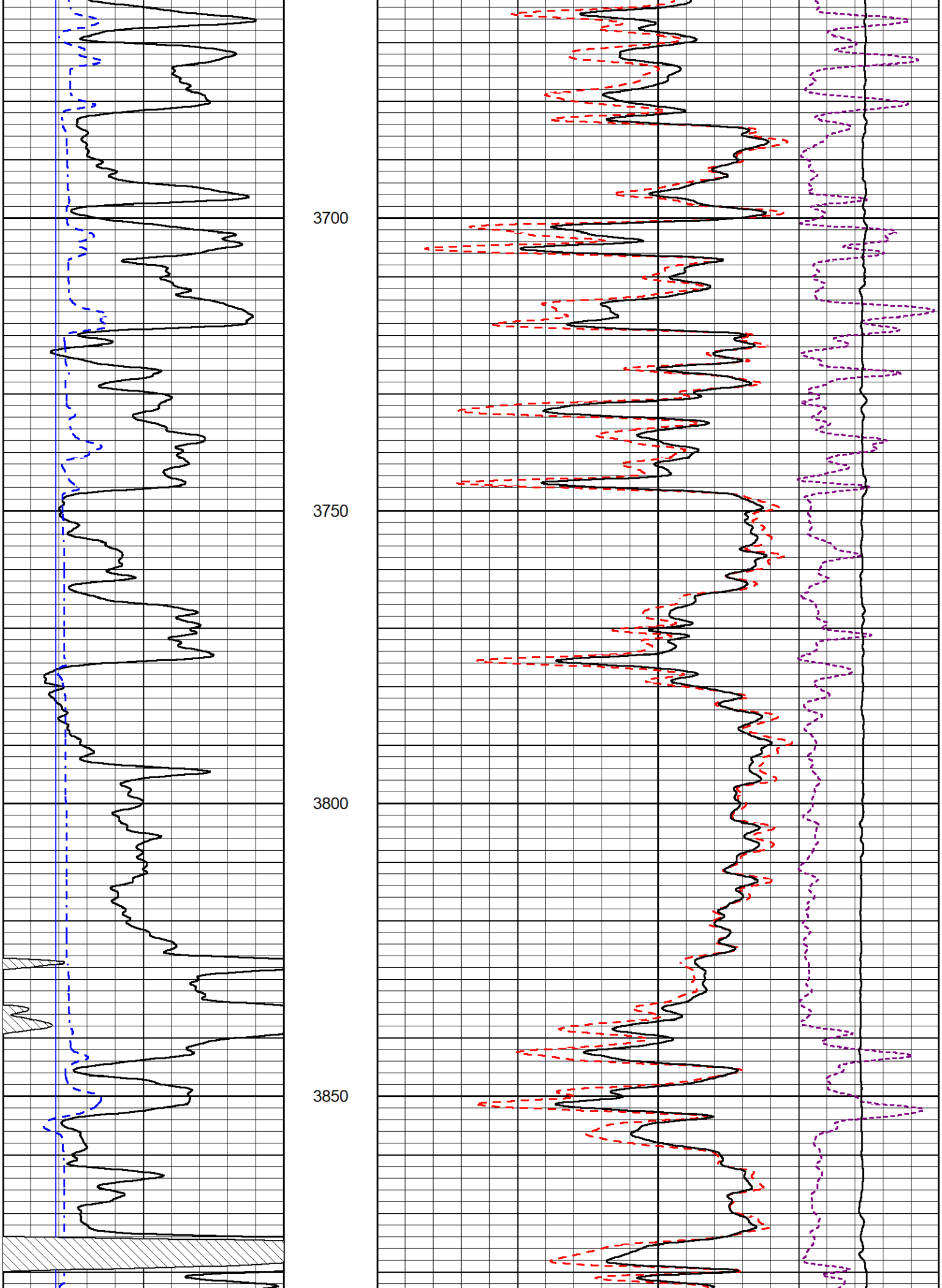
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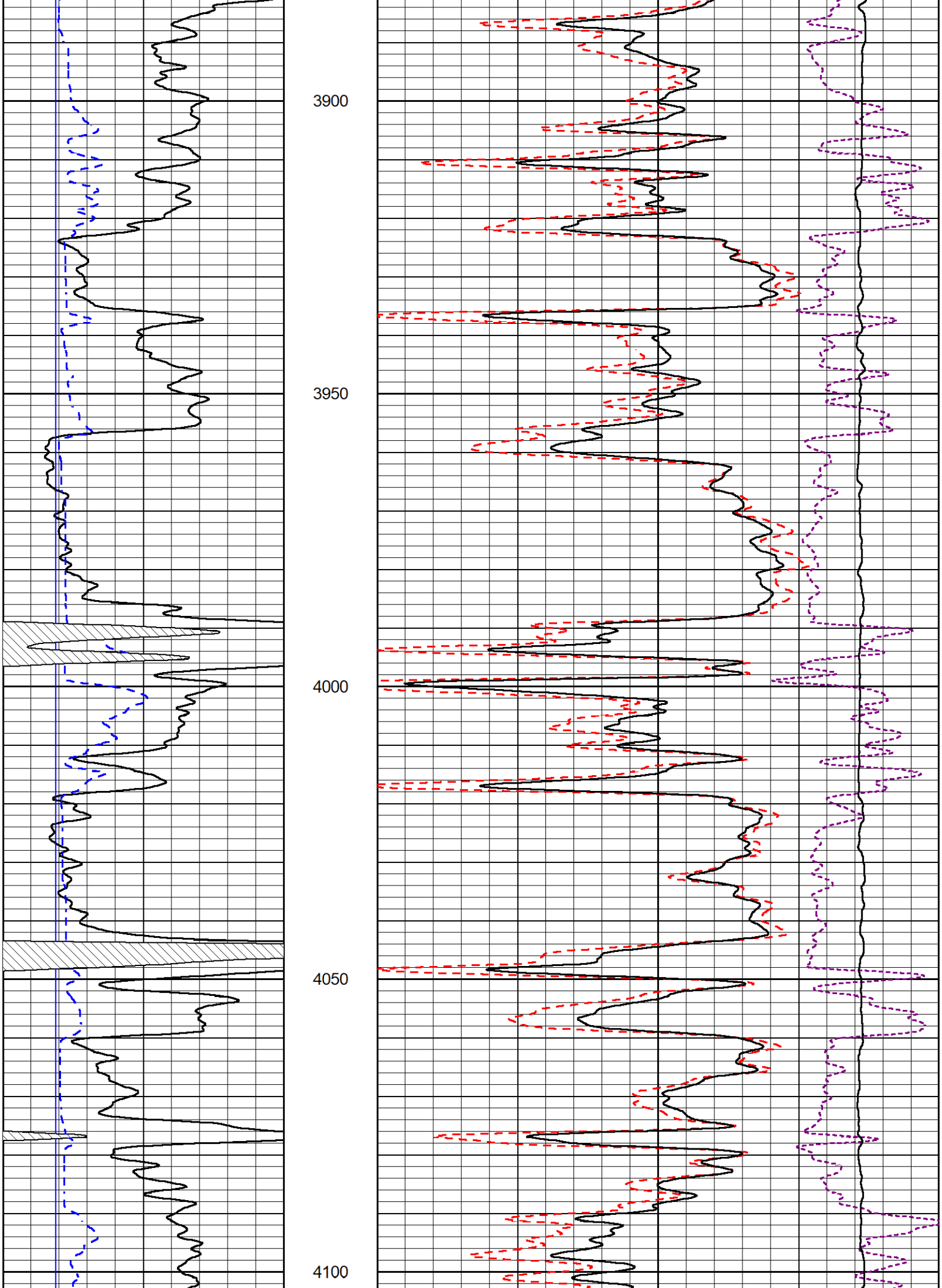
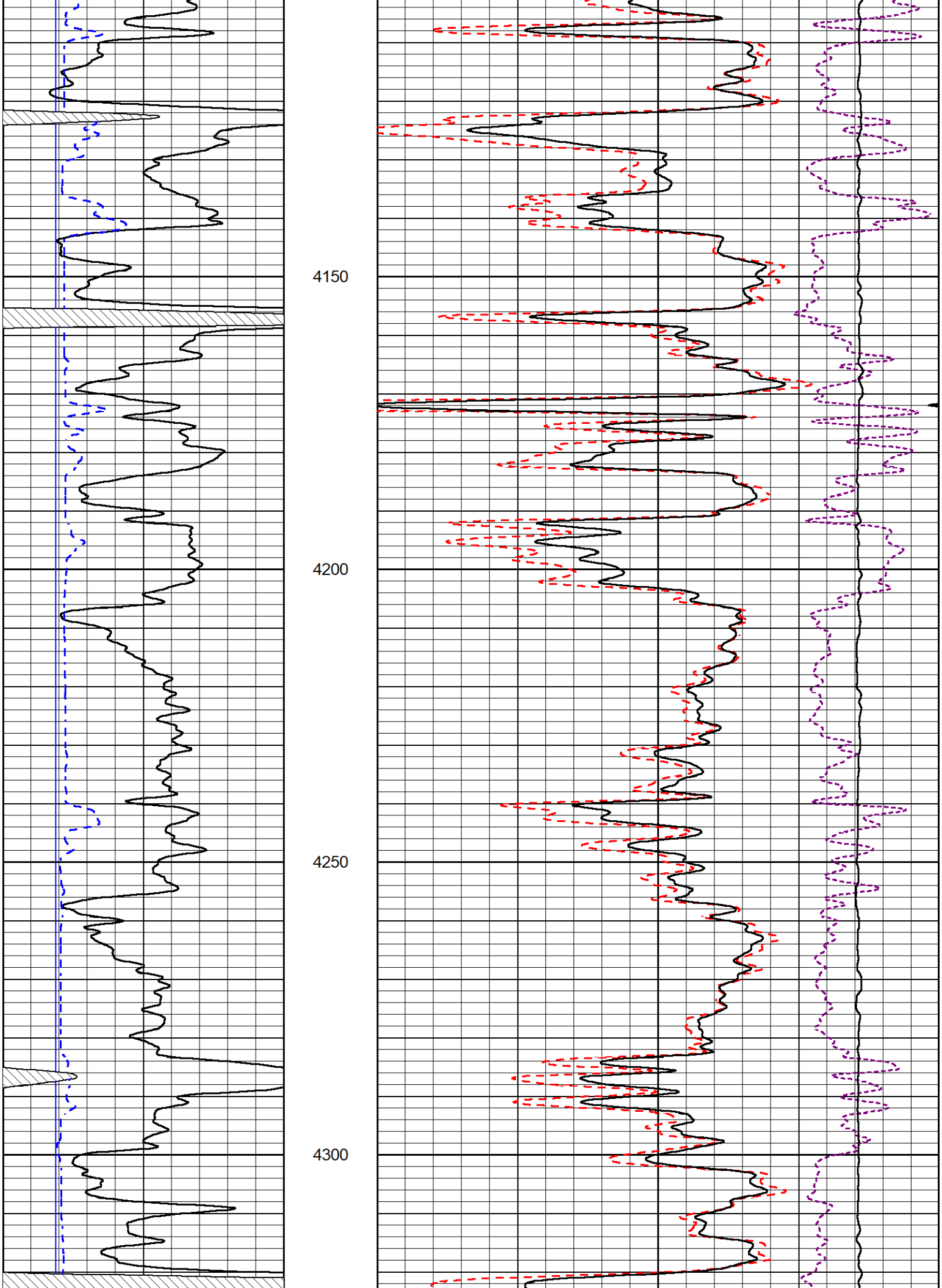
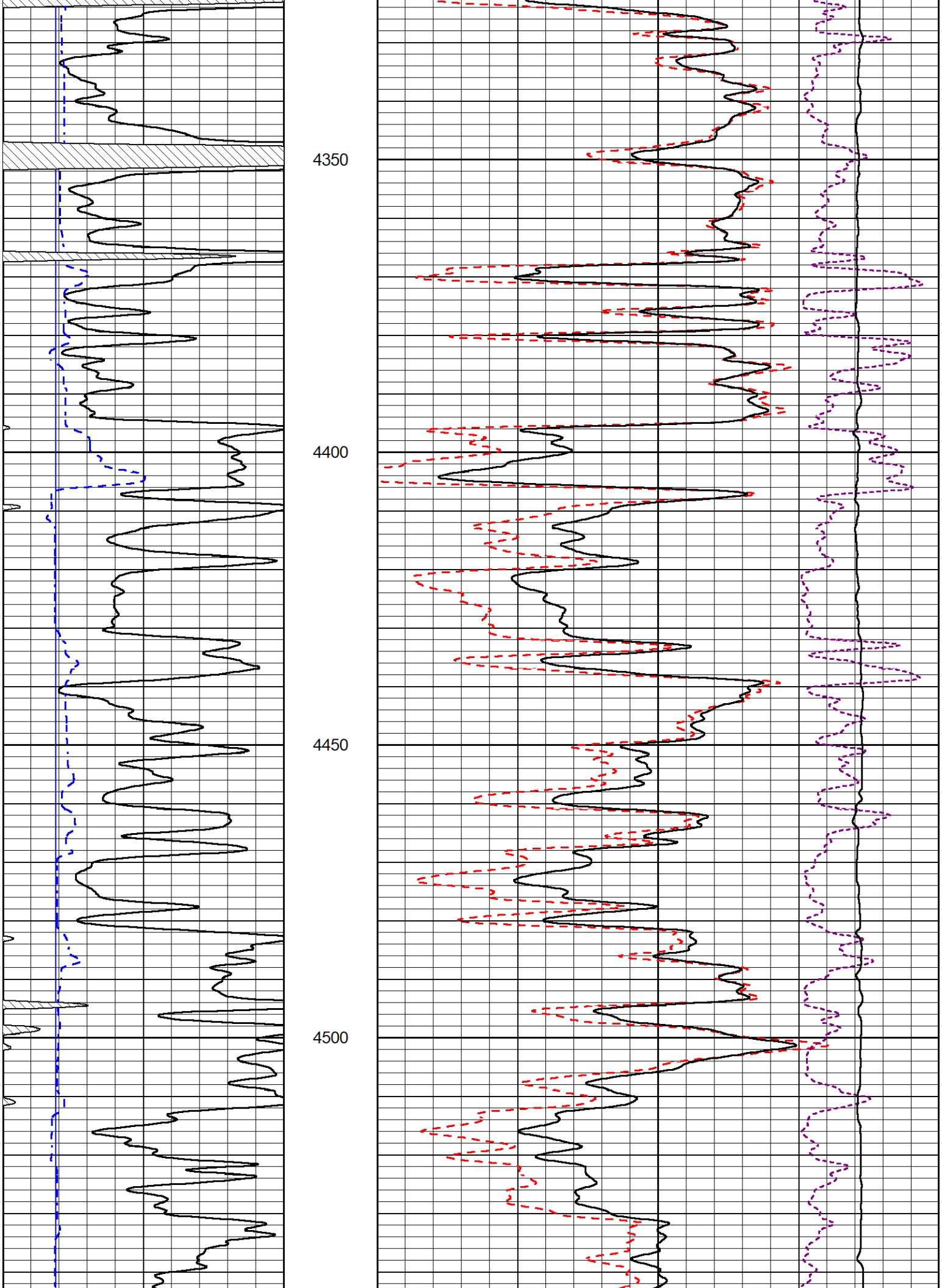
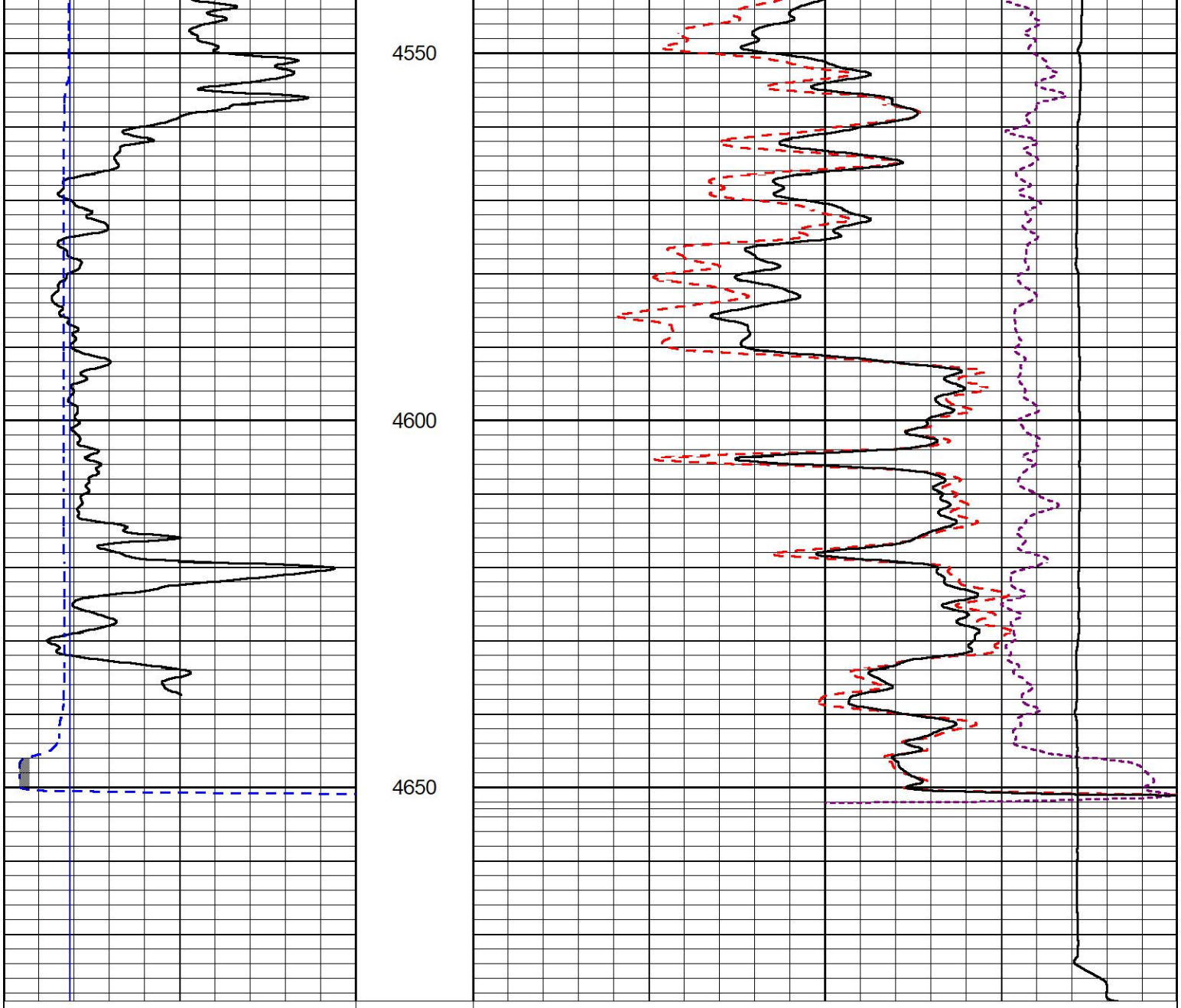

3900
3950
4000
4050
4100


4150
4200
4250
4300


4350
4400
4450
4500



MIDWEST WIRELINE

REPEAT SECTION

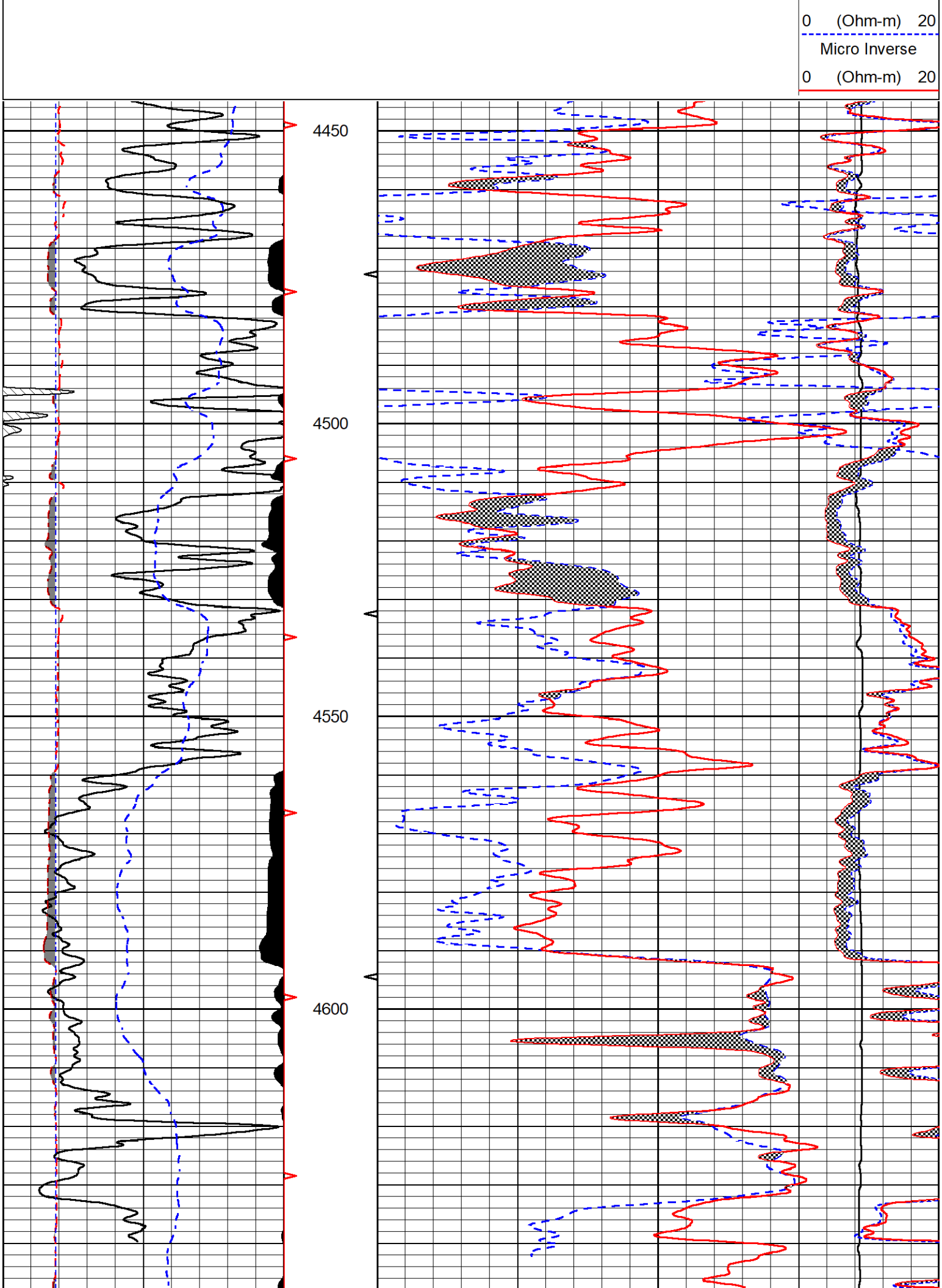
REPEAT PASS

Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMl/pass2.11
Presentation Format	_CNDLS~3
Dataset Creation	Sun Dec 19 06:40:36 2021
Charted by	Depth in Feet scaled 1:240

0	Gammy Ray (GAPI)	150
6	MCAL (in)	16
-200	SP (mV)	0

30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

Micro Normal


0 (Ohm-m) 20
Micro Inverse
0 (Ohm-m) 20
4450
4500
4550
4600



0	Gammy Ray (GAPI)	150
6	MCAL (in)	16
-200	SP (mV)	0

30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

	Micro Normal	
0	(Ohm-m)	20
	Micro Inverse	
0	(Ohm-m)	20

MIDWEST WIRELINE

High Resolution

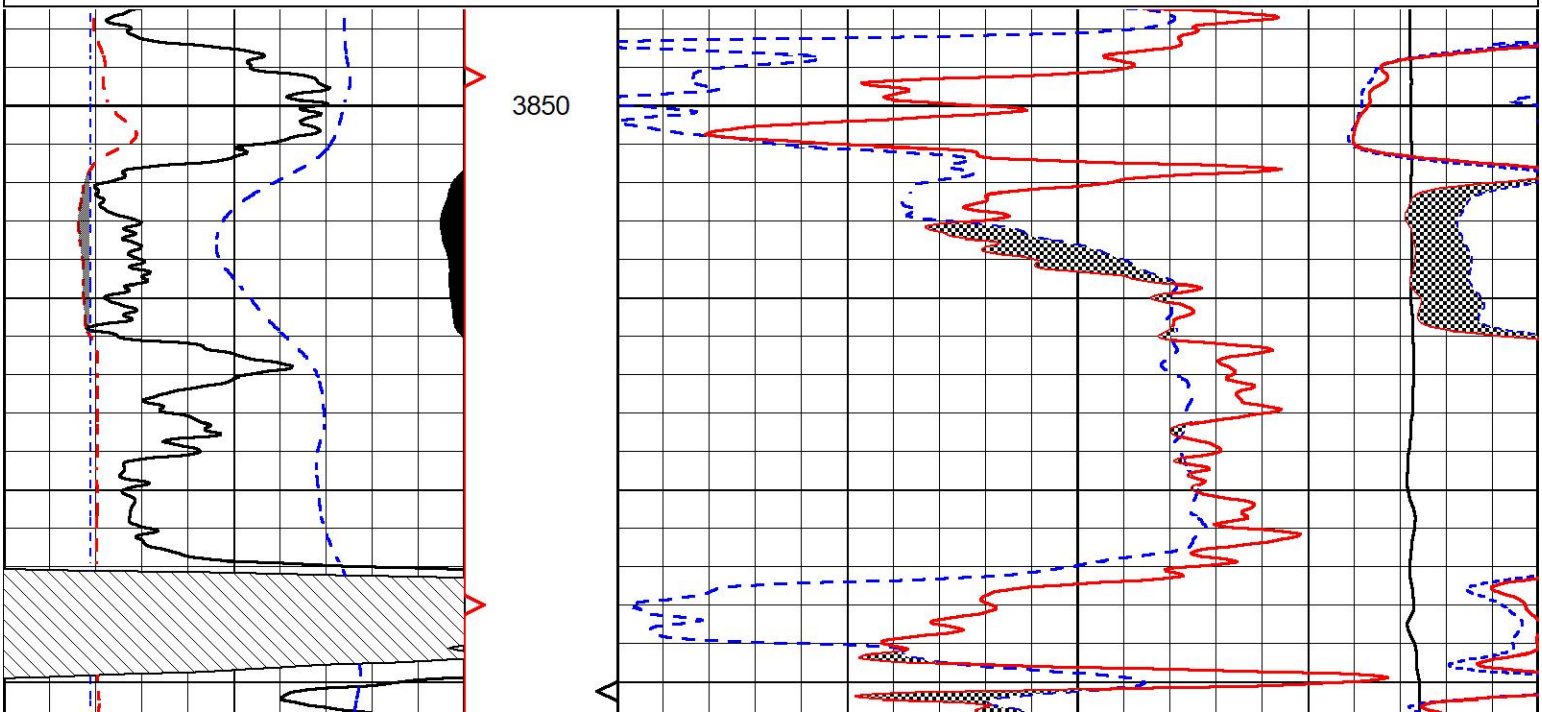
MAIN PASS

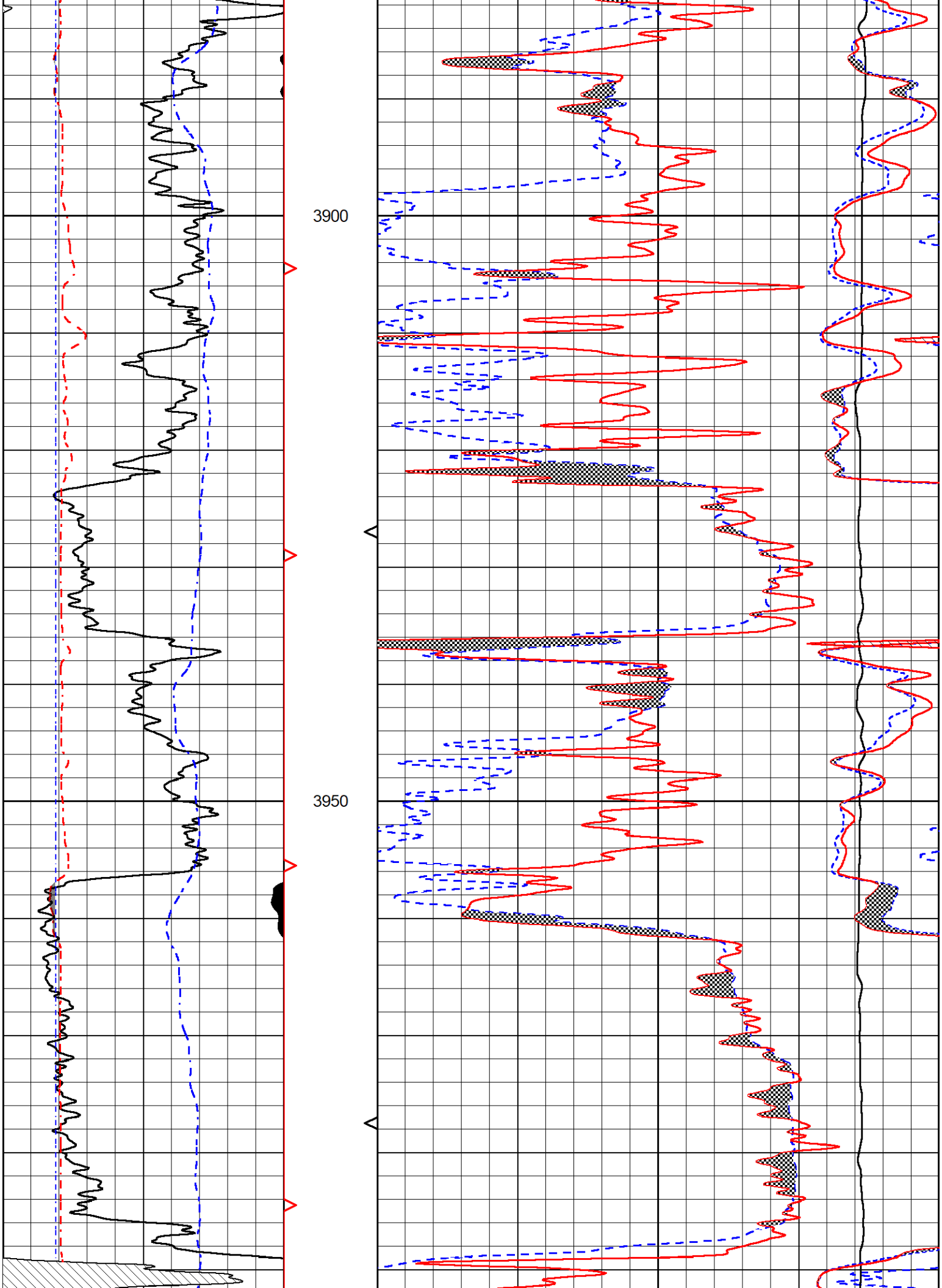
Database File	black oak_threlkel et al #1-23.db
Dataset Pathname	StkMI/pass4.1
Presentation Format	_CNDLS~3
Dataset Creation	Sun Dec 19 06:45:05 2021
Charted by	Depth in Feet scaled 1:120

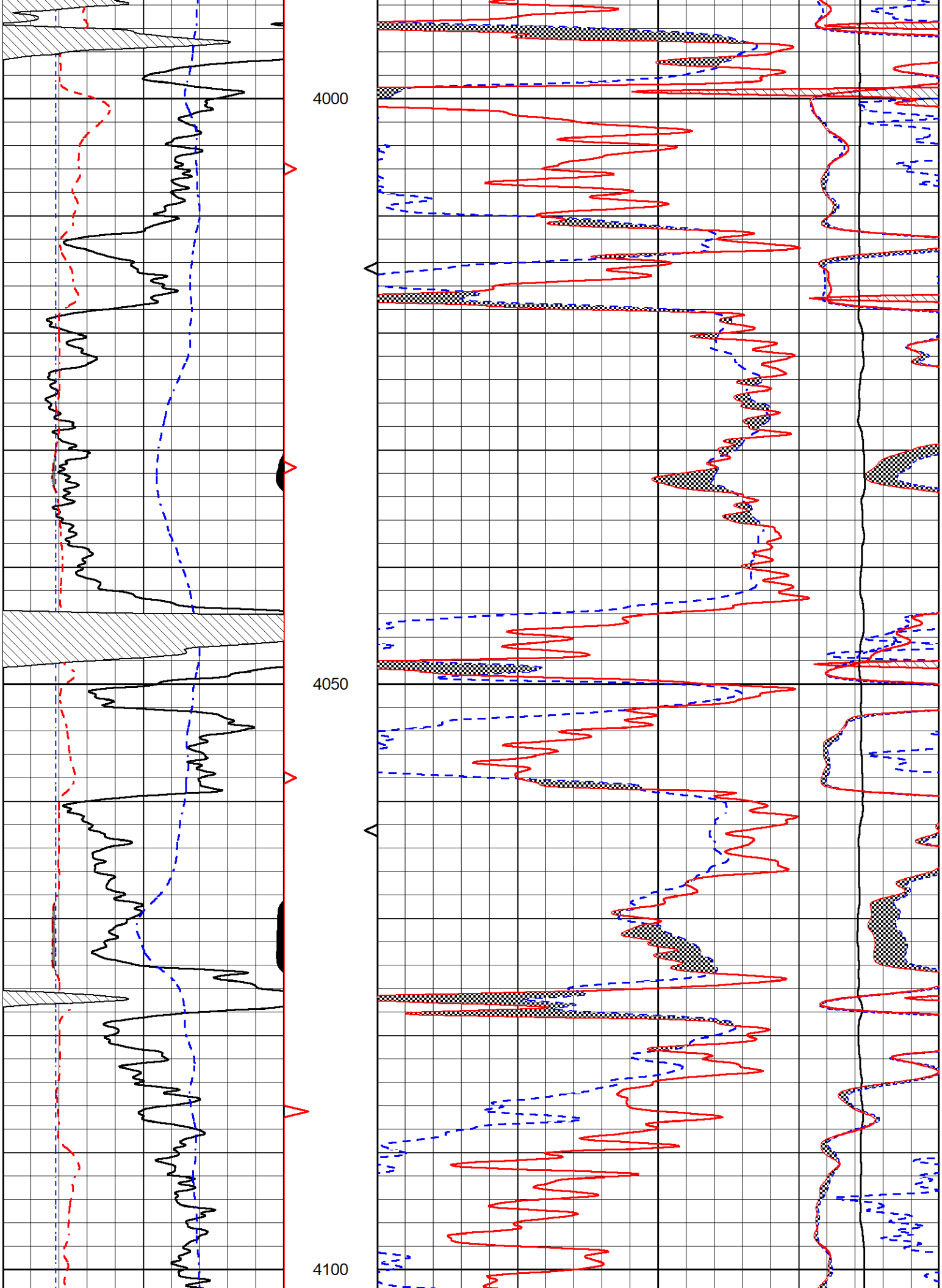
0	Gammy Ray (GAPI)	150
6	MCAL (in)	16
-200	SP (mV)	0

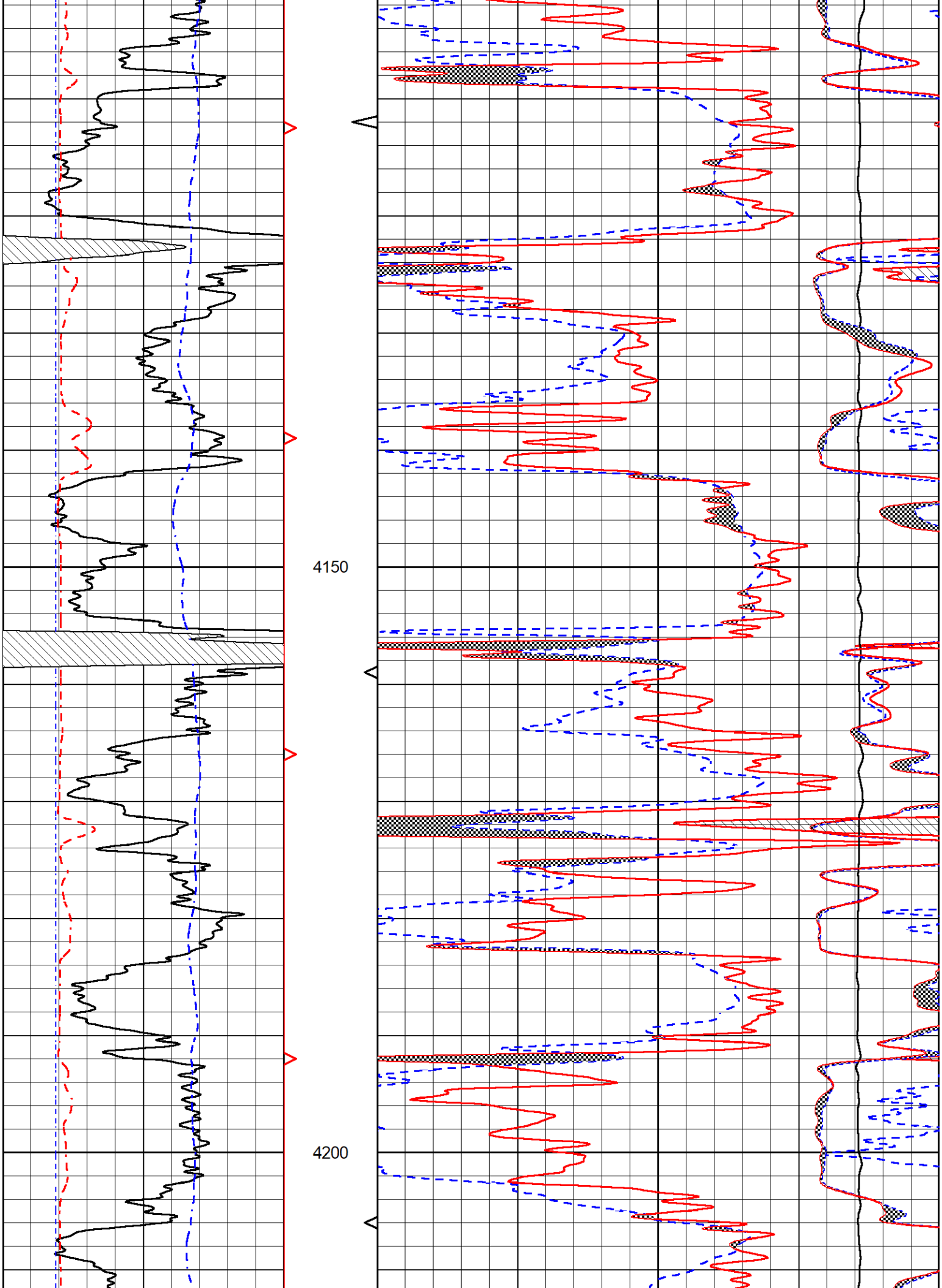
30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

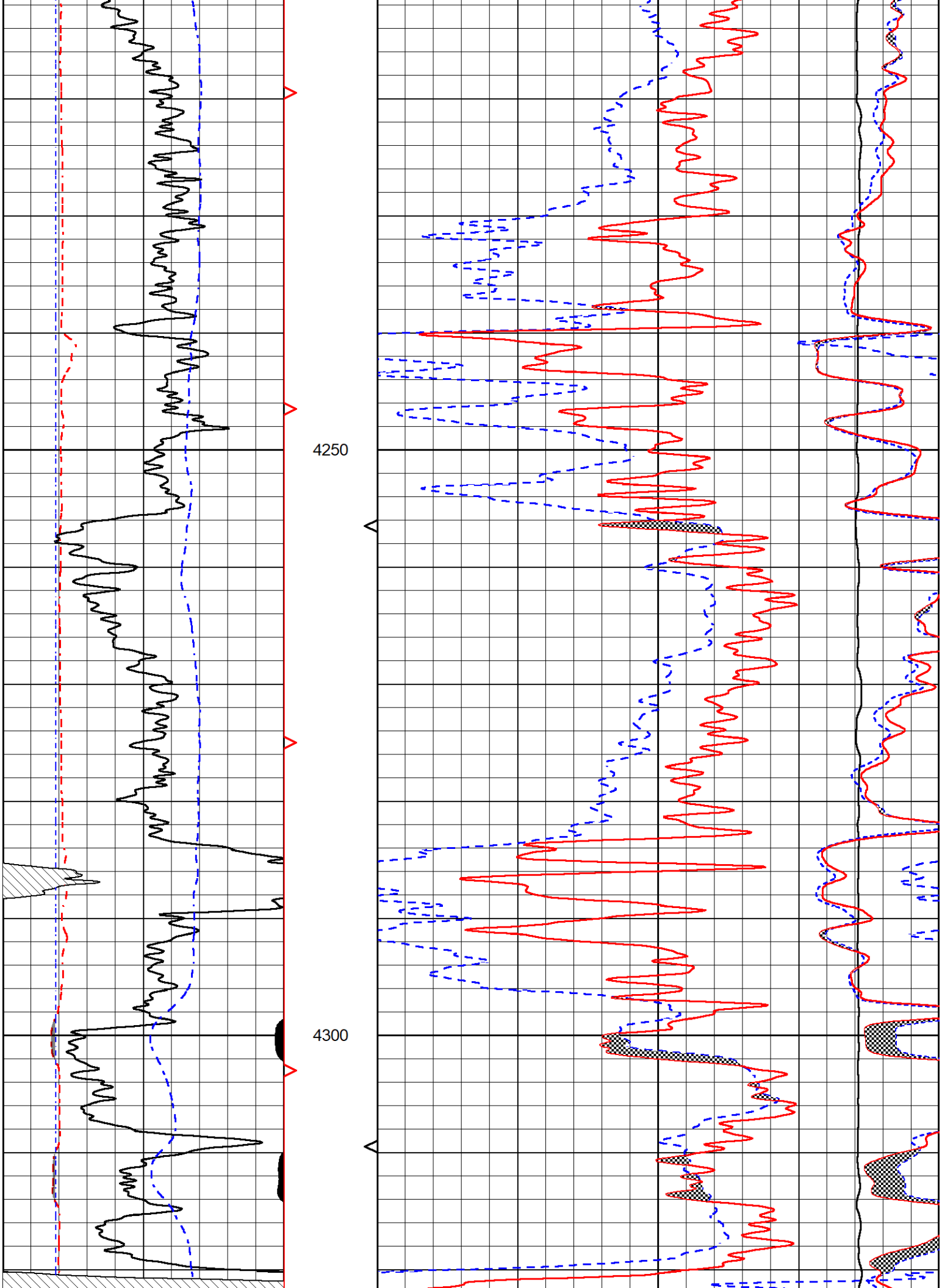
	Micro Normal	
0	(Ohm-m)	20
	Micro Inverse	
0	(Ohm-m)	20

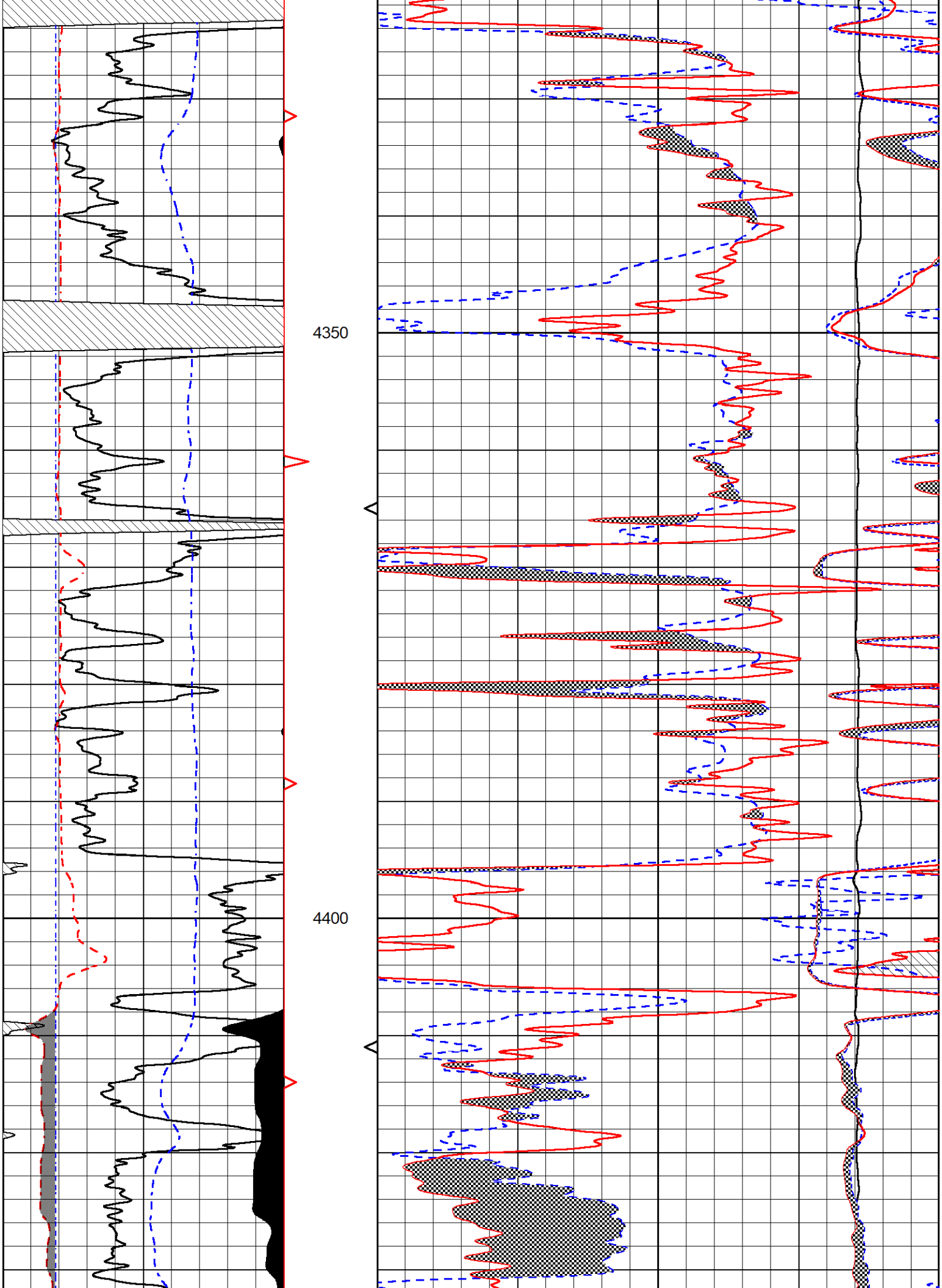



3900
3950


4000
4050
4100


4150
4200


4250
4300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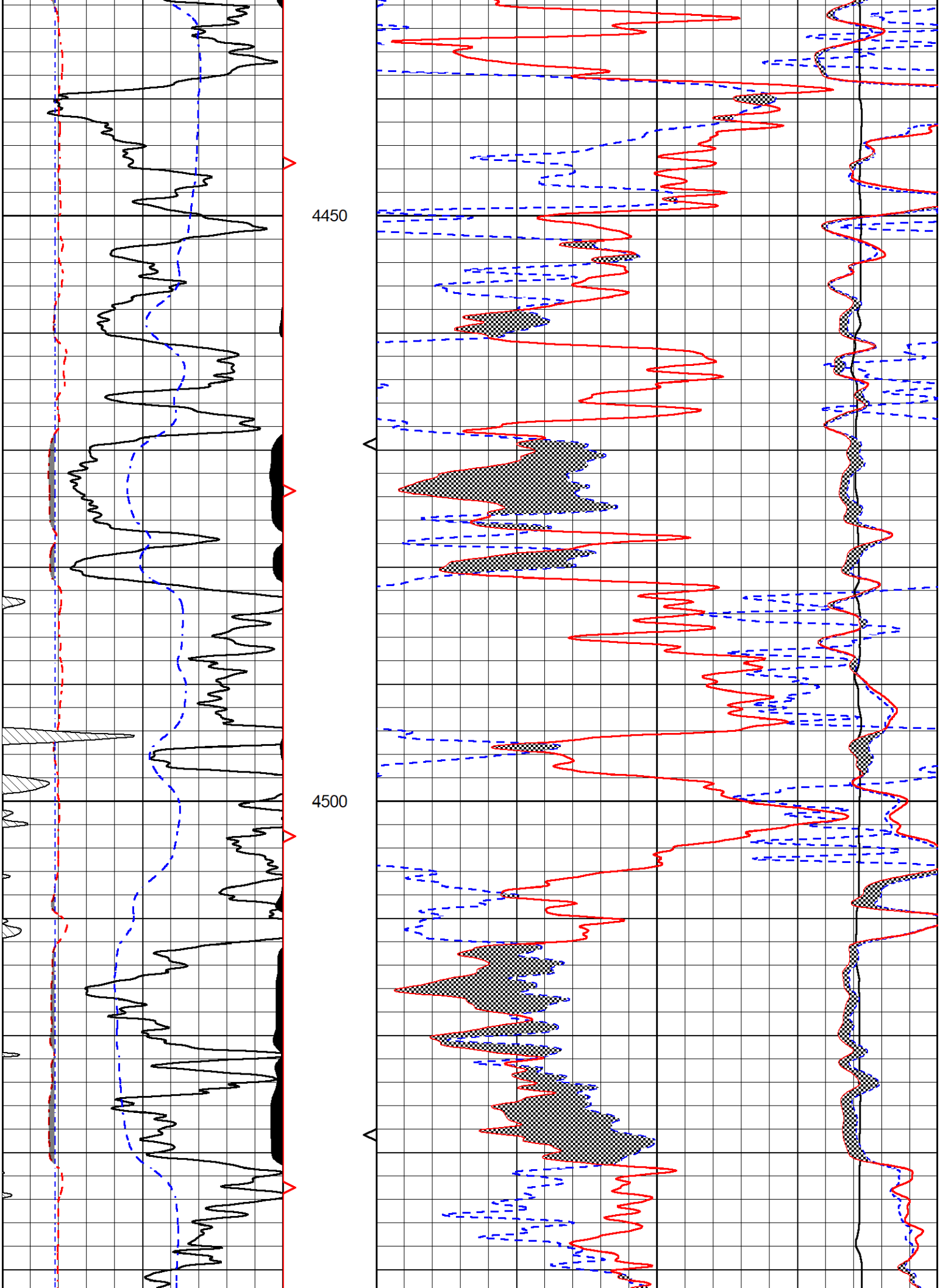
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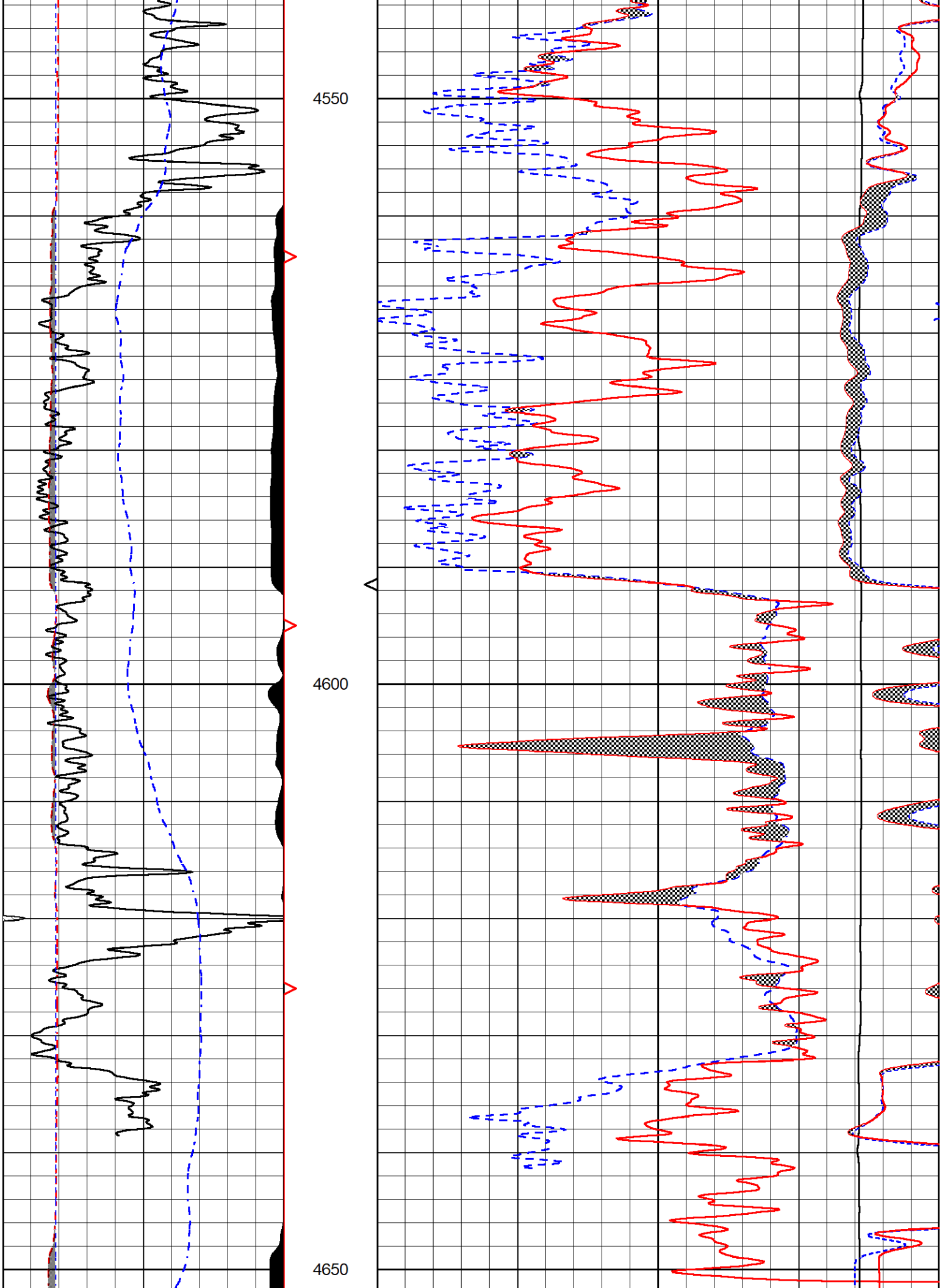
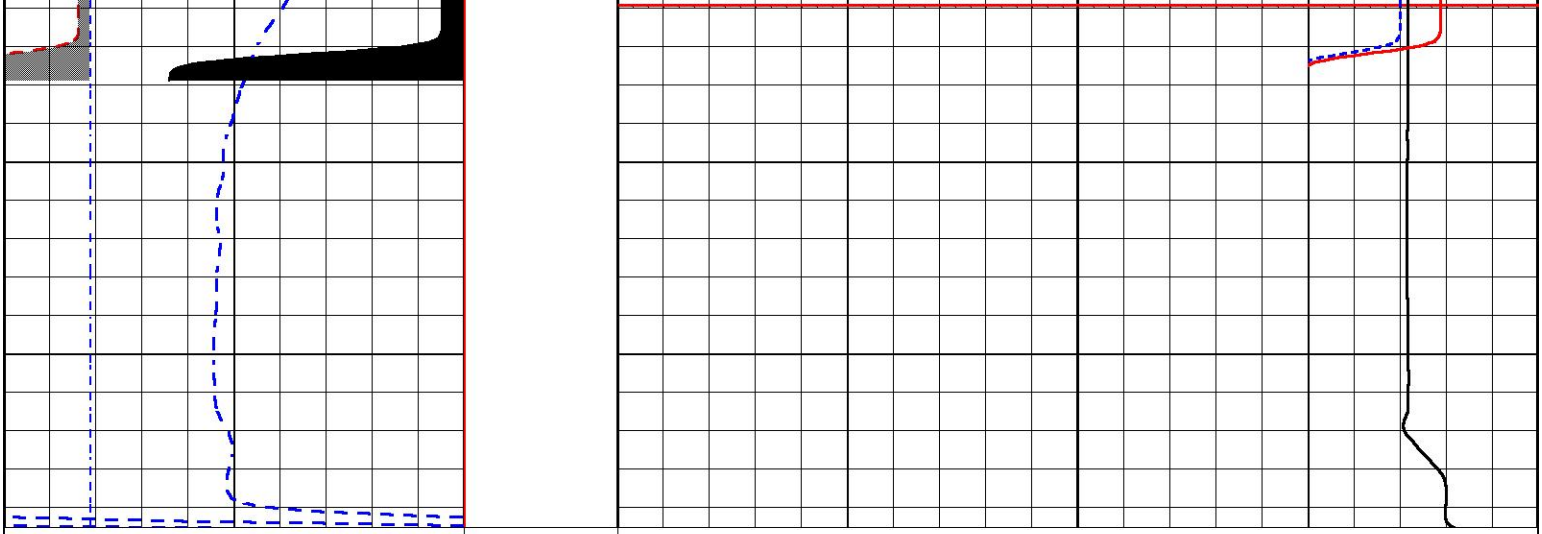

4550
4600
4650

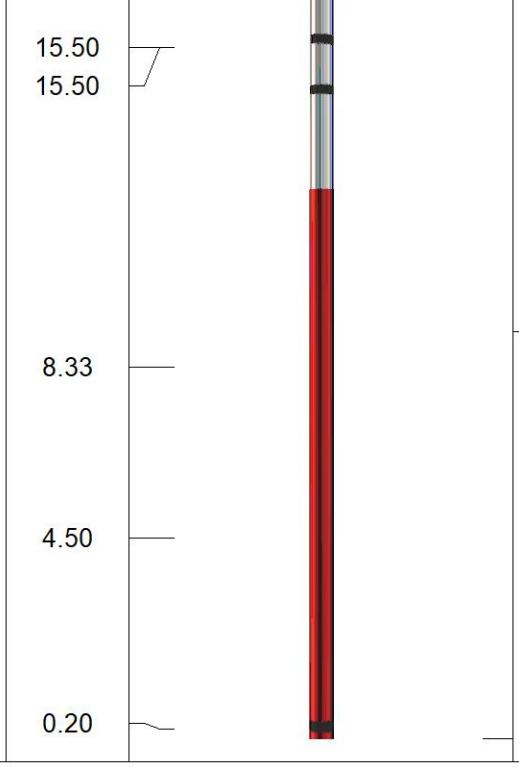


0	Gammy Ray (GAPI)	150
6	MCAL (in)	16
-200	SP (mV)	0

30	Compensated Neutron (pu)	-10
30	Compensated Density (pu)	-10
15000	Line Tension (lb)	0

Micro Normal		
0	(Ohm-m)	20
Micro Inverse		
0	(Ohm-m)	20

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
GR	40.33		GR-M&W (103)	3.00	3.50	50.00
CNLSC	37.23		CNT-M&W (210)	5.00	3.50	100.00
CNSSC	36.48					
			CDL-M&W (303-03)	8.50	4.00	250.00
LSD	28.18					
DCAL	28.17					
SSD	27.68					
			ML-PSI STKBL ML (402)	7.58	4.00	65.00
MCAL	19.58					
MI	19.58					
MN	19.58					



RLL3F	15.50			
RLL3	15.50			
		DIL-M&W (504 HT)	18.25	3.50	220.00
CILD	8.33			
CILM	4.50			
SP	0.20			

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/pass3.14
Dataset Creation	Sun Dec 19 07:05:53 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 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