MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Murfin Drilling Company, Inc.
Well Helene #1-10
Field Unnamed
County Cheyenne State Kansas
Location: API # : 15-023-21548-00-00
500' FNL & 660' FEL
SEC 10 TWP 3S RGE 39W

Other Services: CNL/CDL, MEL/BHCS

Elevation: K.B. 3404', D.F. N/A, G.L. 3399'

Permanent Datum: Ground Level — Elevation 3399'
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Date	3/26/2021		
Run Number	One		
Depth Driller	5200'		
Depth Logger	5196'		
Bottom Logged Interval	5195'		
Top Log Interval	00		
Casing Driller	8.625" @ 305'		
Casing Logger	302'		
Bit Size	7.875"		
Type Fluid in Hole	Chemical		
Salinity,ppm CL	600		
Density / Viscosity	9.2 / 53		
pH / Fluid Loss	11.5 / 6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.2 @ 64		
Rmf @ Meas. Temp	.90 @ 64		
Rmc @ Meas. Temp	1.62 @ 64		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	.60 @ 128		
Operating Rig Time	6 Hours		
Max Rec. Temp. F	128 Deg/F		
Equipment Number	P-108		
Location	HAYS		
Recorded By	J. Henrickson		
Witnessed By	Saman Sharifaie		

<<< 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.

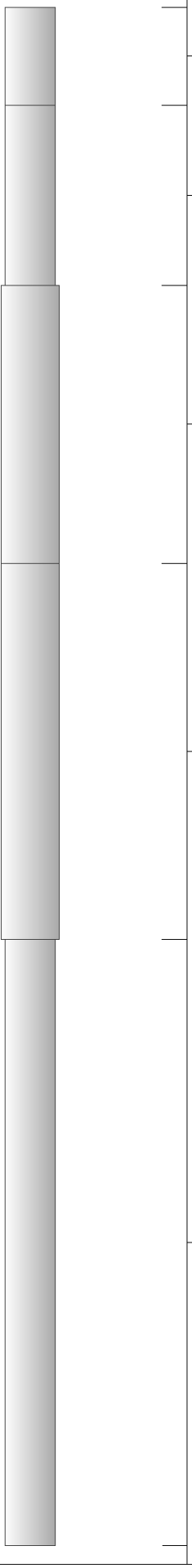
Wheeler Kansas, 3 North, 2 East, South Into

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: J. Henrickson	Primary Witness: Saman Sharifaie
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (89-M&W)	3.00	3.50	50.00
GR	44.50					
CNLSC	41.40		CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	40.65					
			CDL-M&W (915-956)	8.50	4.00	250.00
LSD	32.35					
DCAL	32.33					
SSD	31.85					
			ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
MCAL	20.87					
MI	20.87					
MN	20.87					
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_helena_1_10.db: field/well/stackml/pass4.1
Total length: 47.00 ft
Total weight: 835.00 lb
O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_helena_1_10.db
Dataset field/well/stackml/pass4.1/_vars_

Top - Bottom

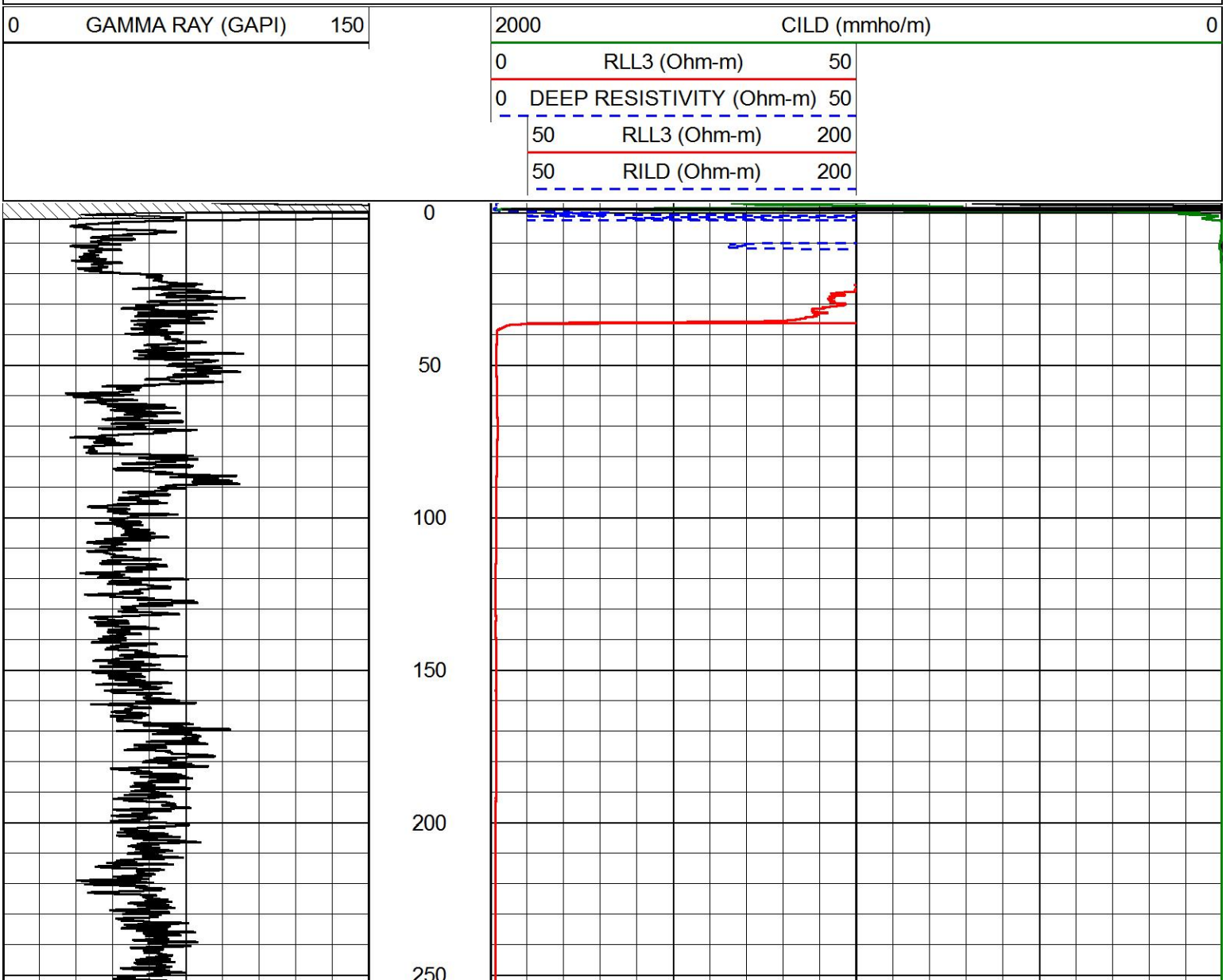
A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	128	5.5	0	1	2	2.71
NPORSEL	**PERFS**	**SNDERR mmho/m**	**SNDERRM mmho/m**	**SPSHIFT mV**	**SRFTEMP degF**	**SZCOR**	**TDEPTH ft**
Limestone	0	10	0	610	64	Off	5196

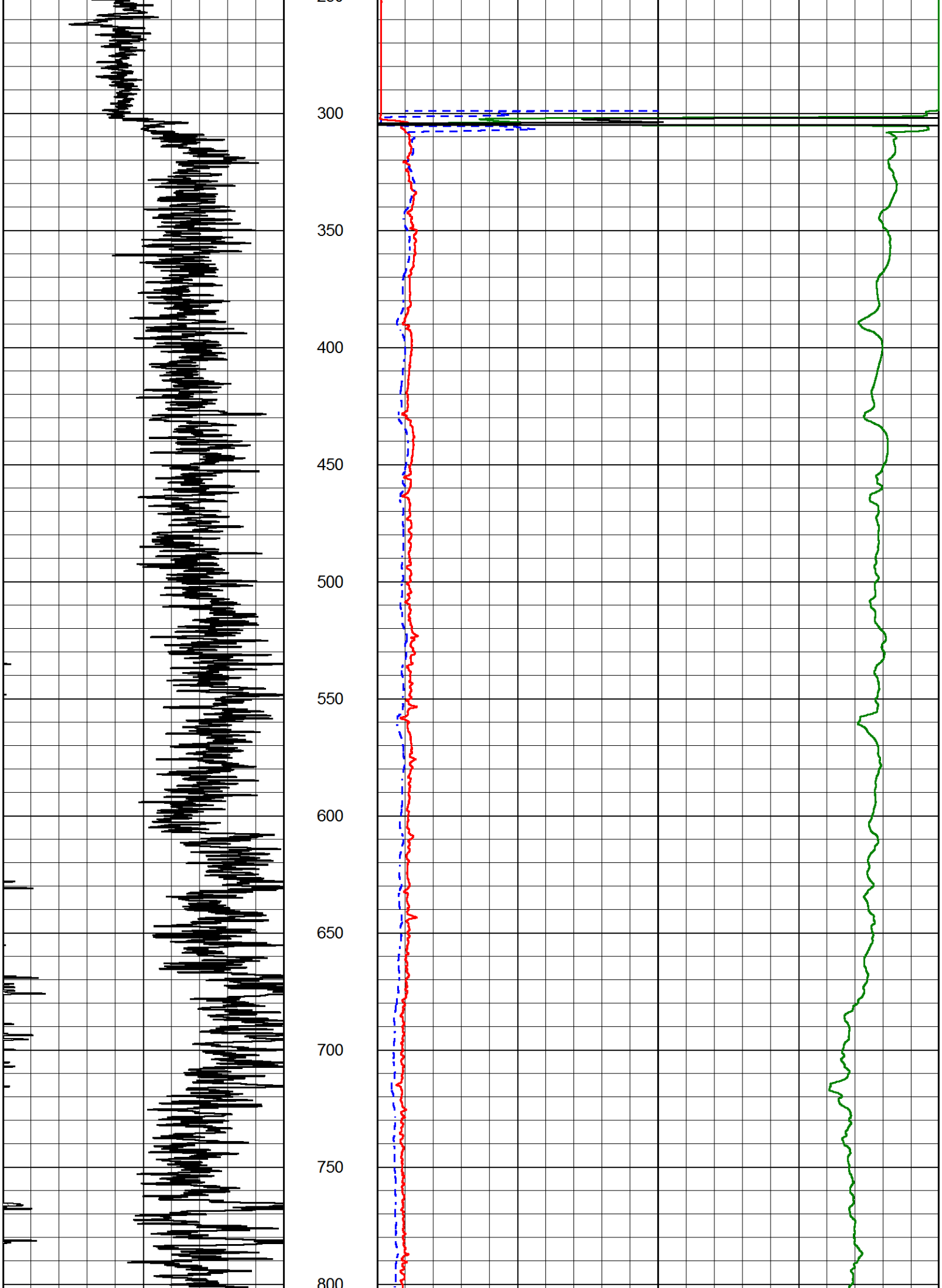
MIDWEST WIRELINE

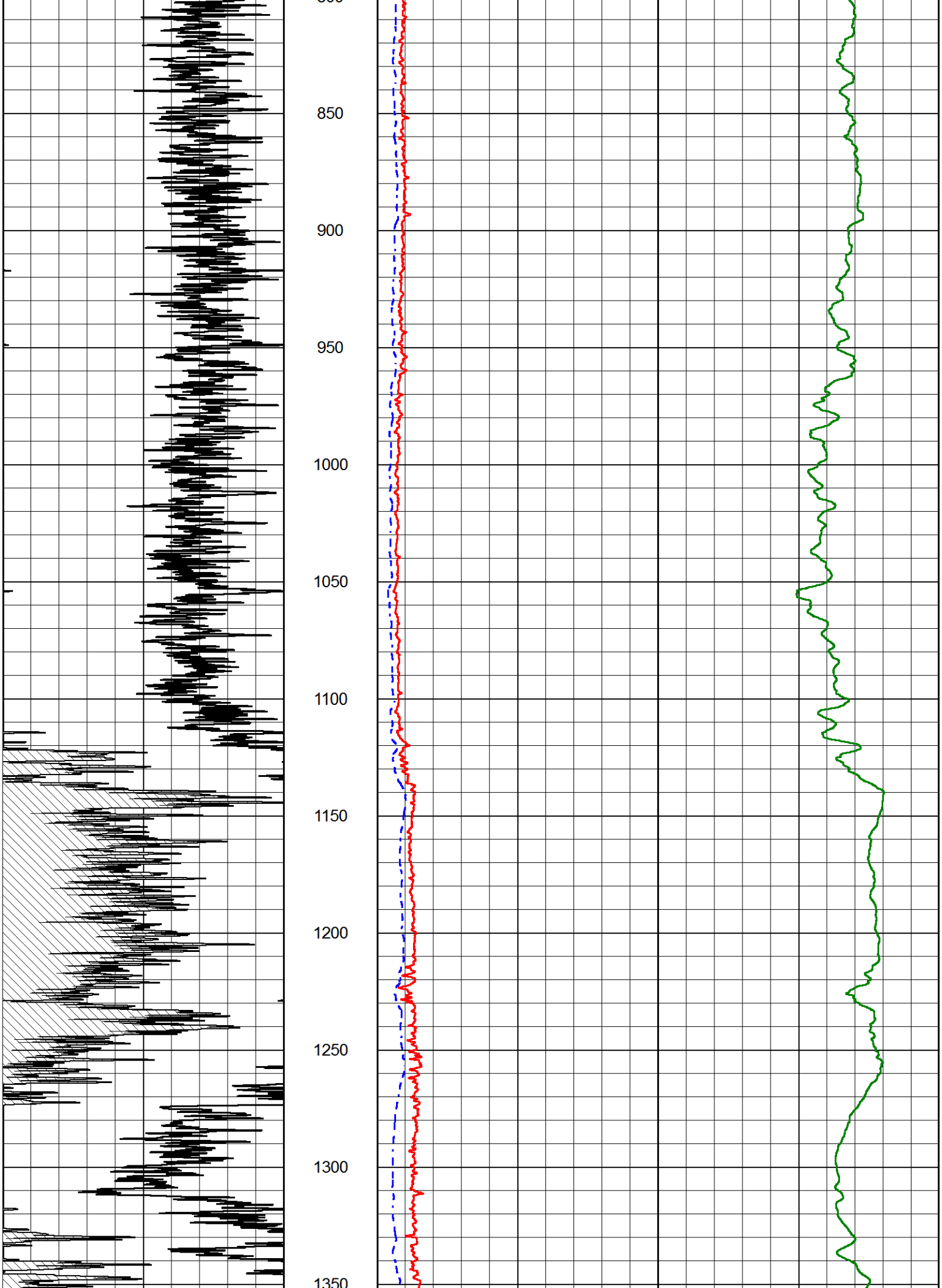
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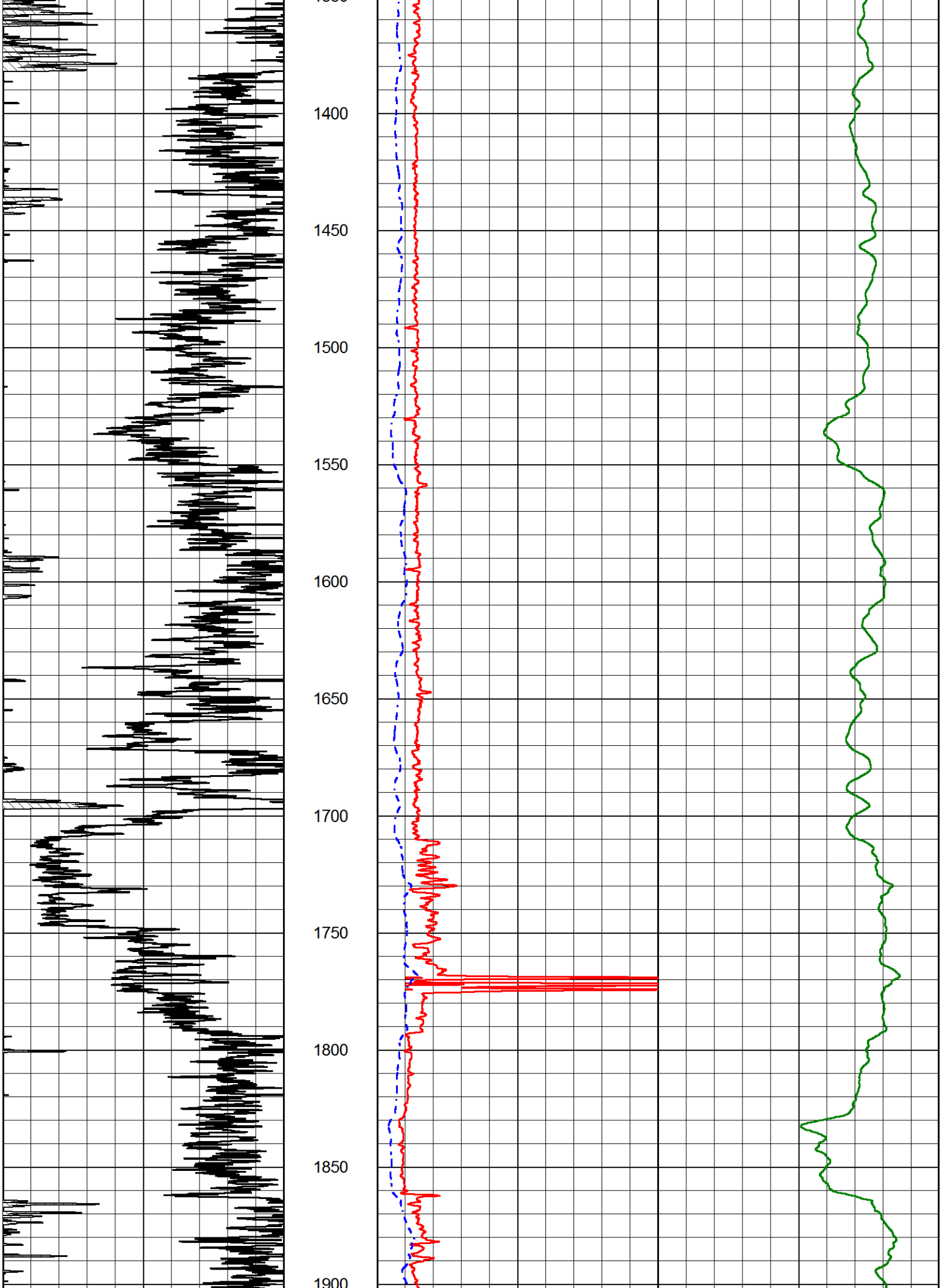
MAIN PASS

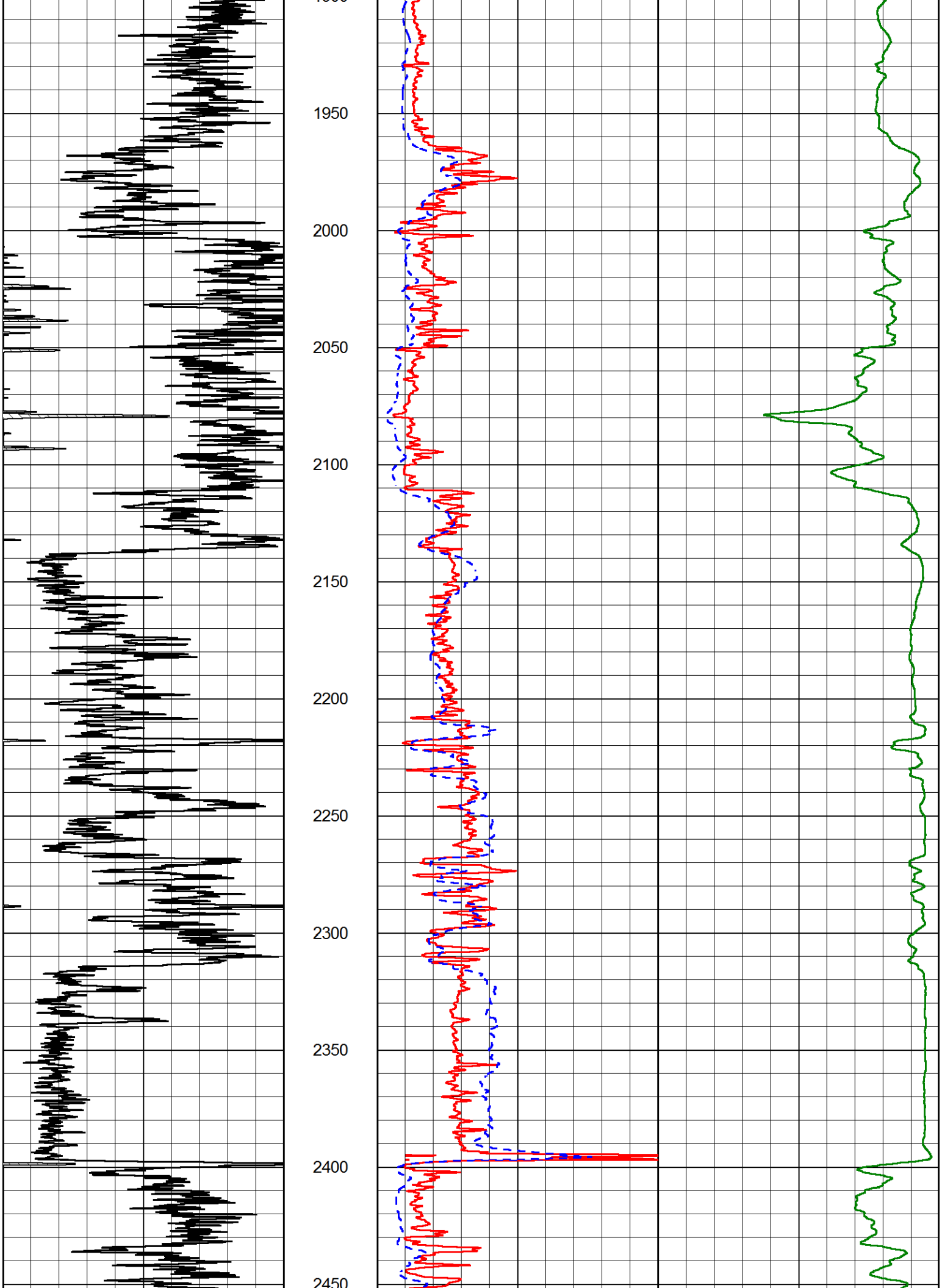
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Presentation Format	dil2in
Dataset Creation	Fri Mar 26 21:02:21 2021
Charted by	Depth in Feet scaled 1:600

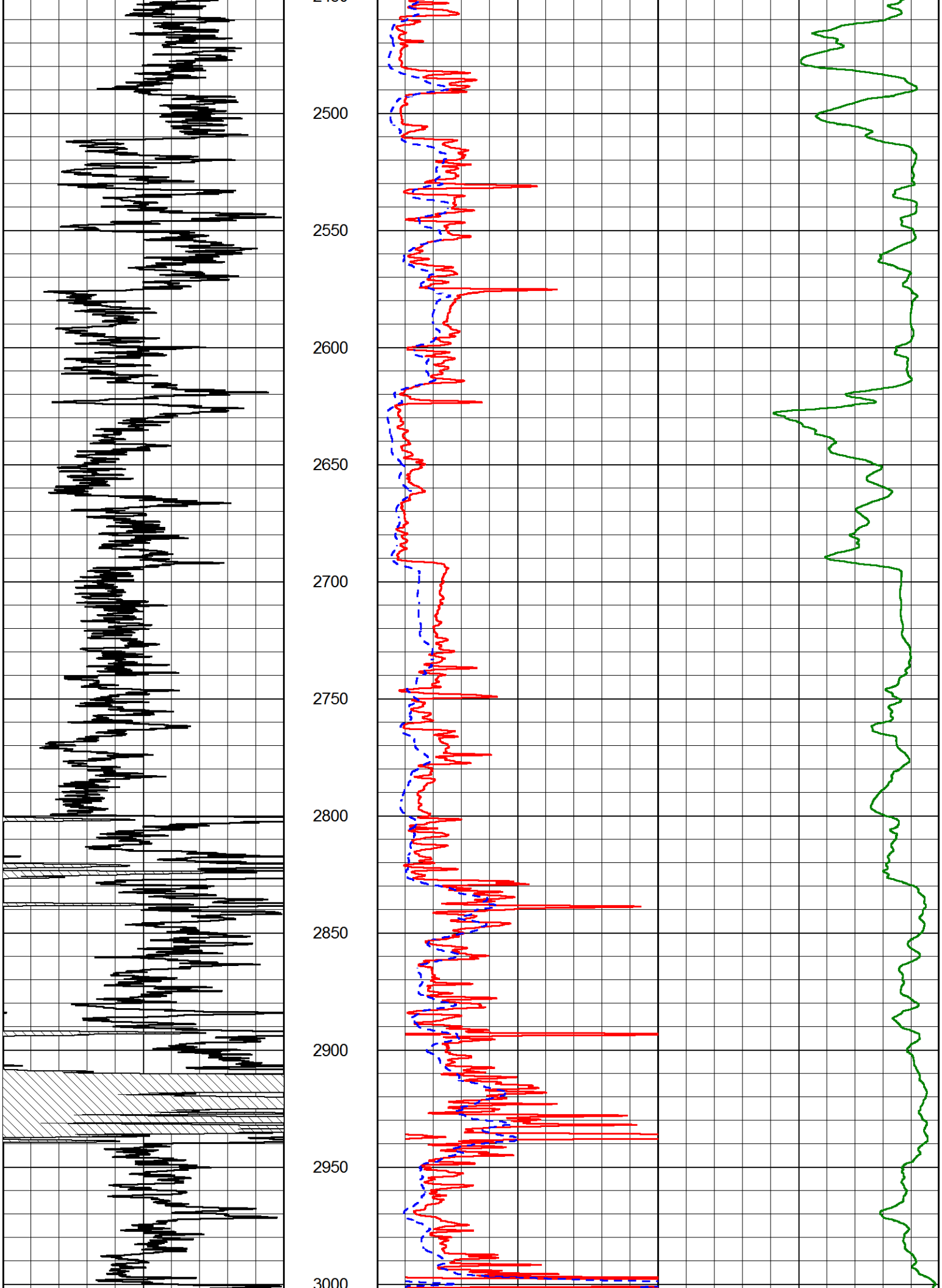


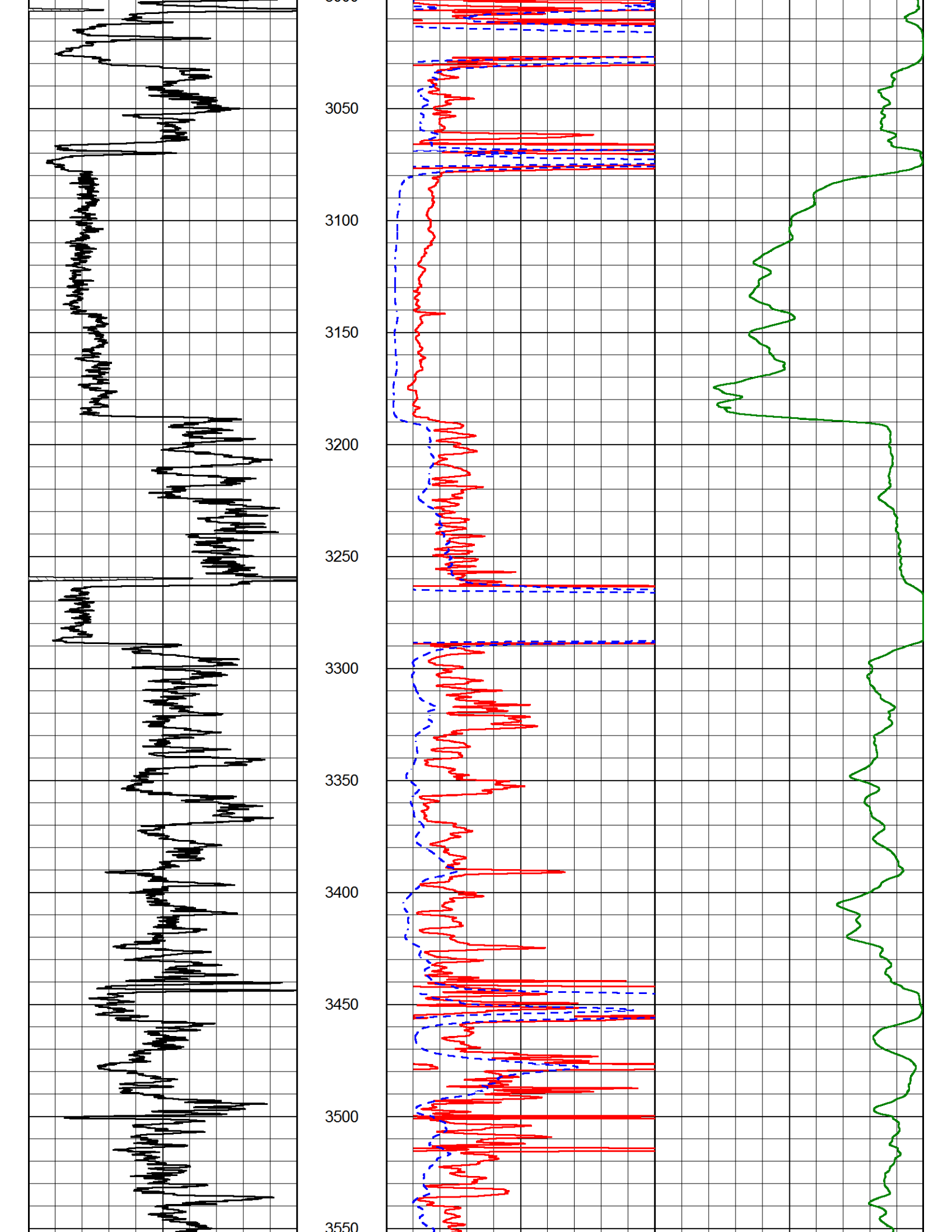

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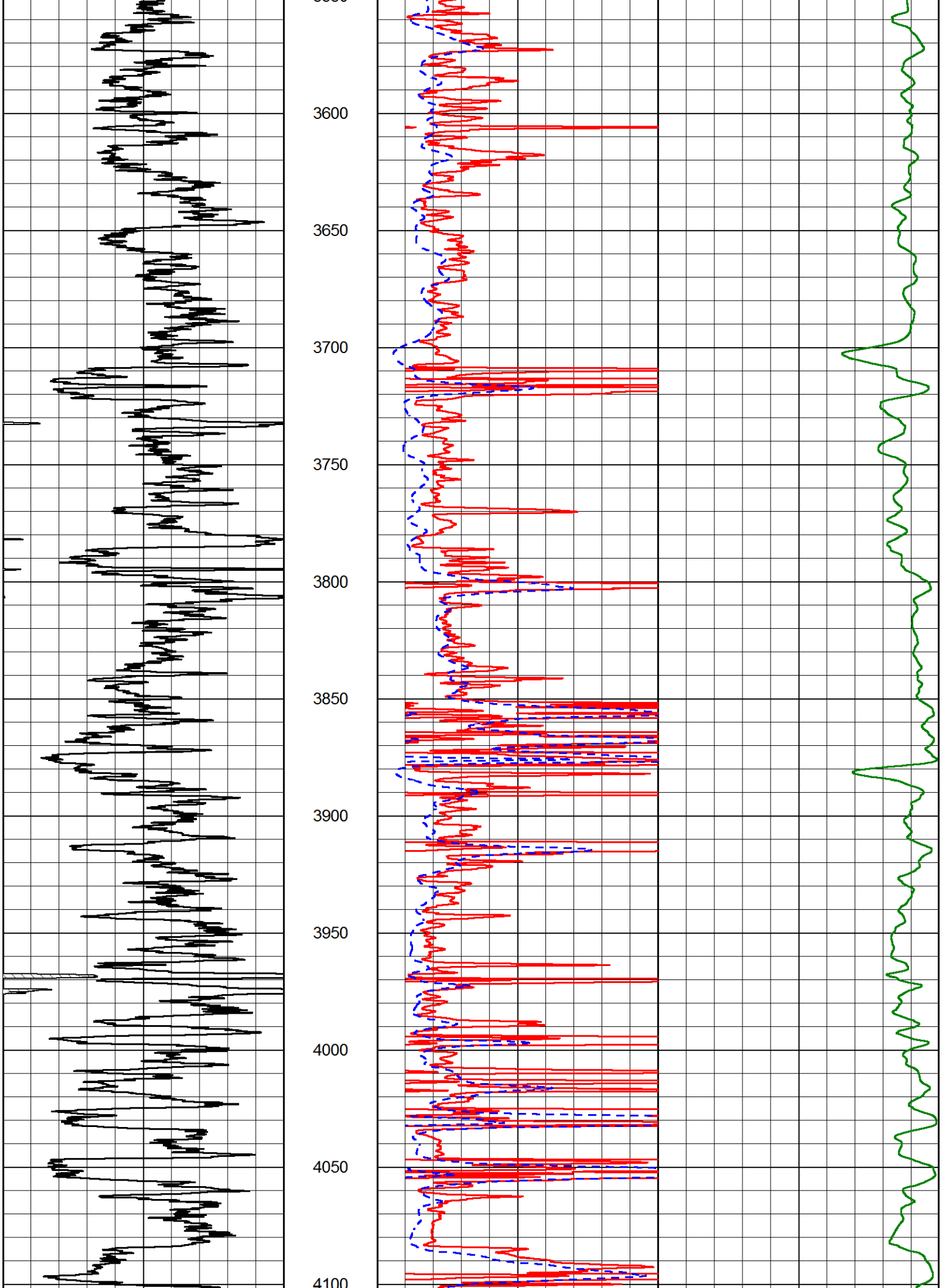

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1350

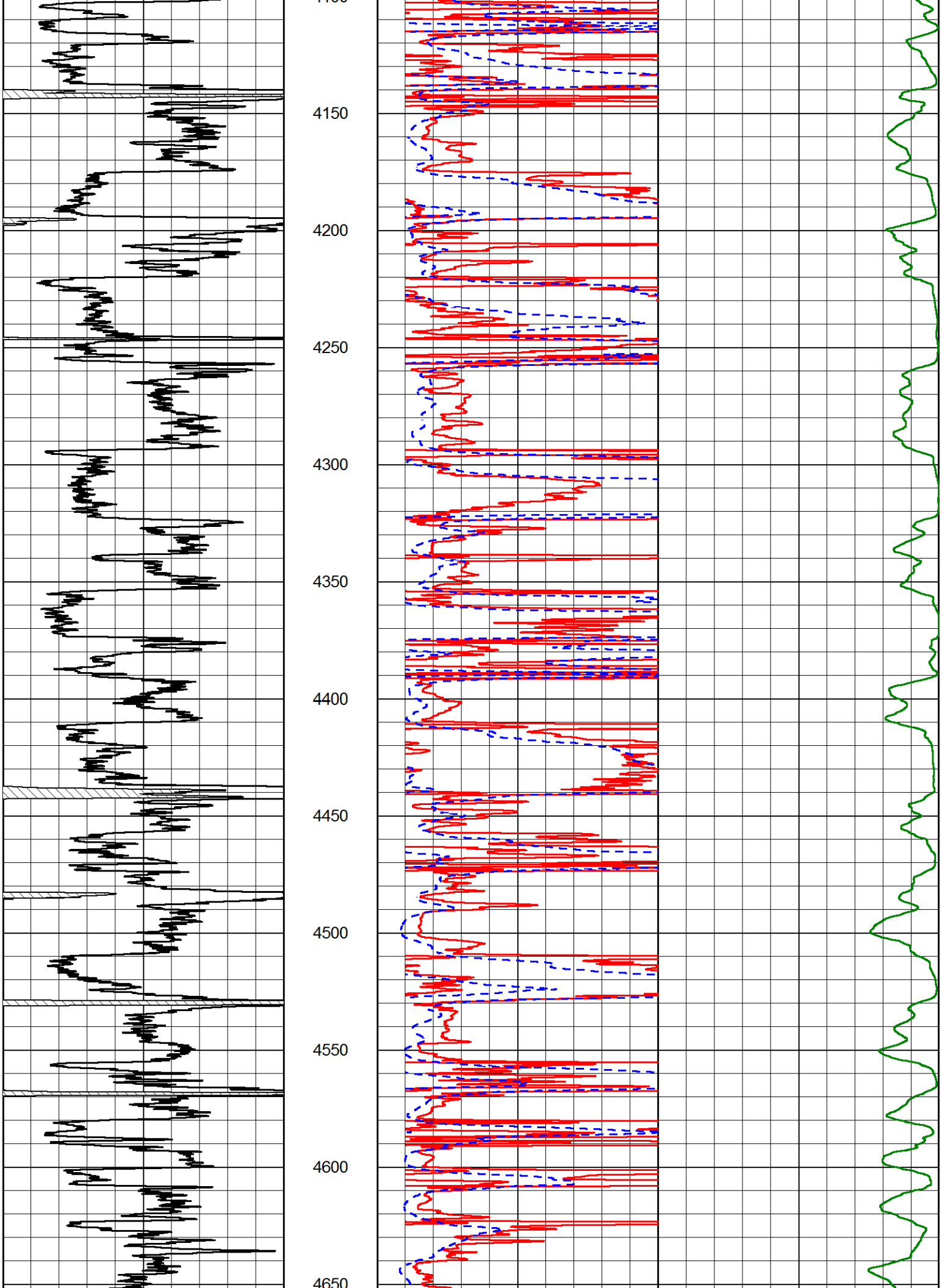

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1450
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1550
1600
1650
1700
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1800
1850
1900

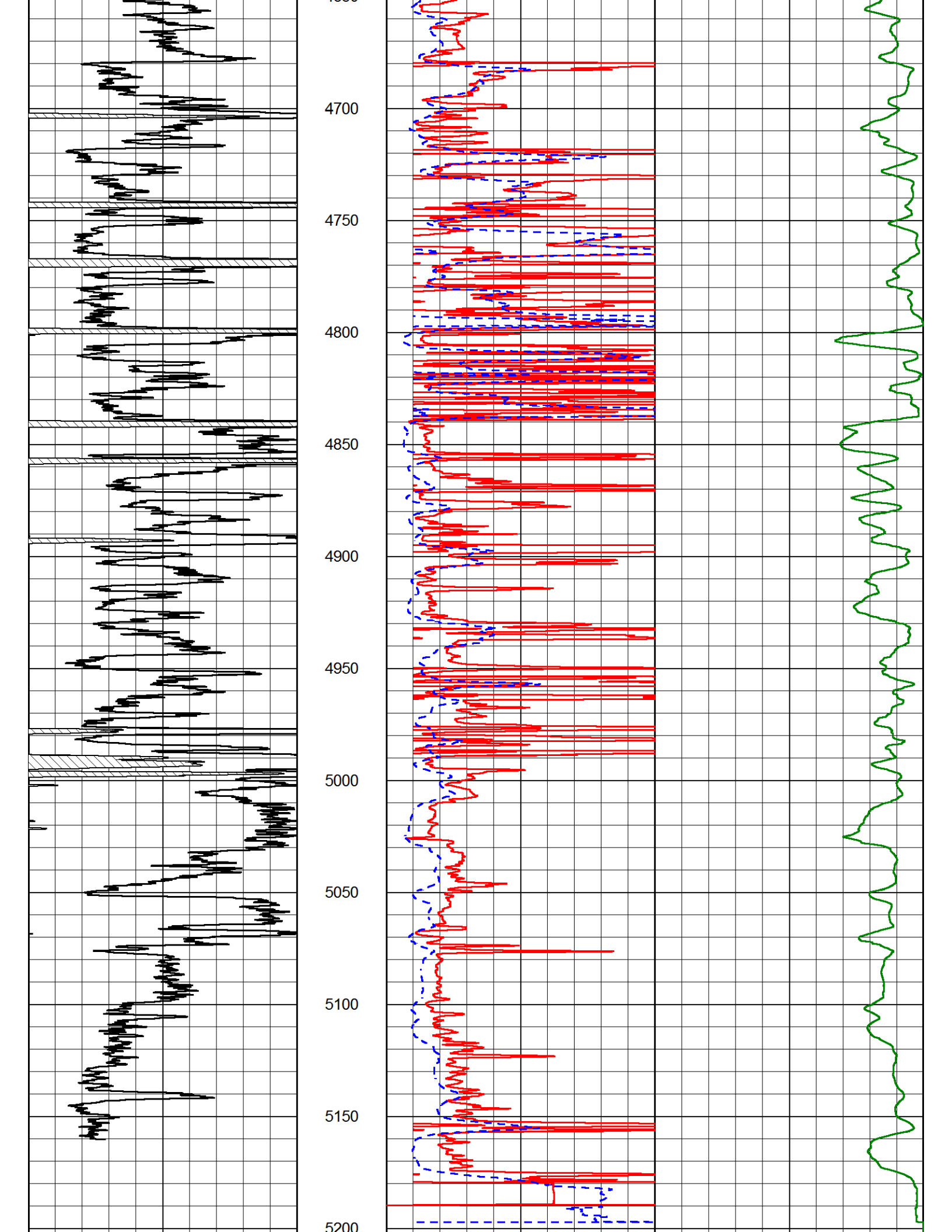

1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450


2500
2550
2600
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2700
2750
2800
2850
2900
2950
3000


3050
3100
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3250
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4050
4100


4150
4200
4250
4300
4350
4400
4450
4500
4550
4600
4650


4700
4750
4800
4850
4900
4950
5000
5050
5100
5150
5200

0	GAMMA RAY (GAPI)	150

2000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	200
50	RILD (Ohm-m)	200

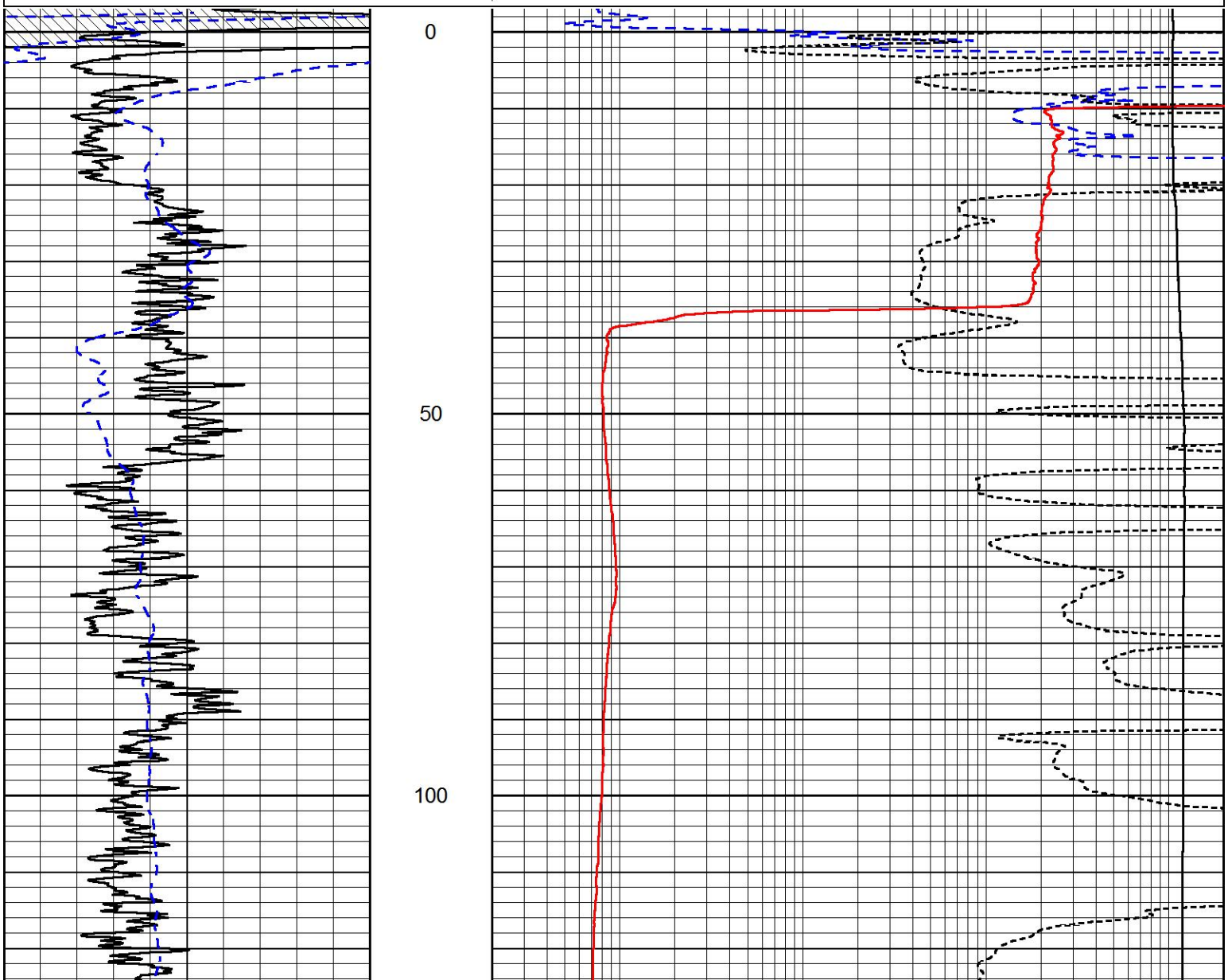
MIDWEST WIRELINE

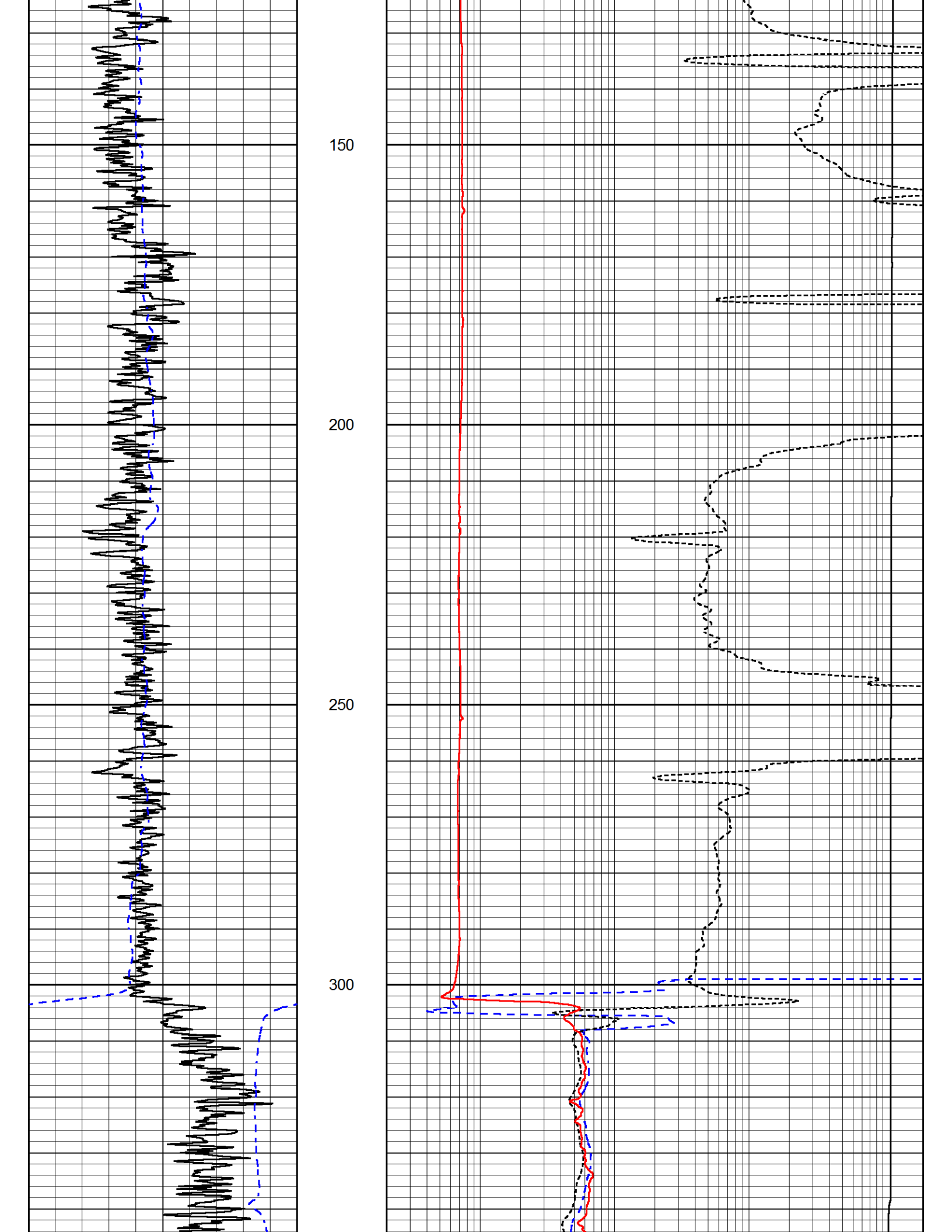
MAIN PASS

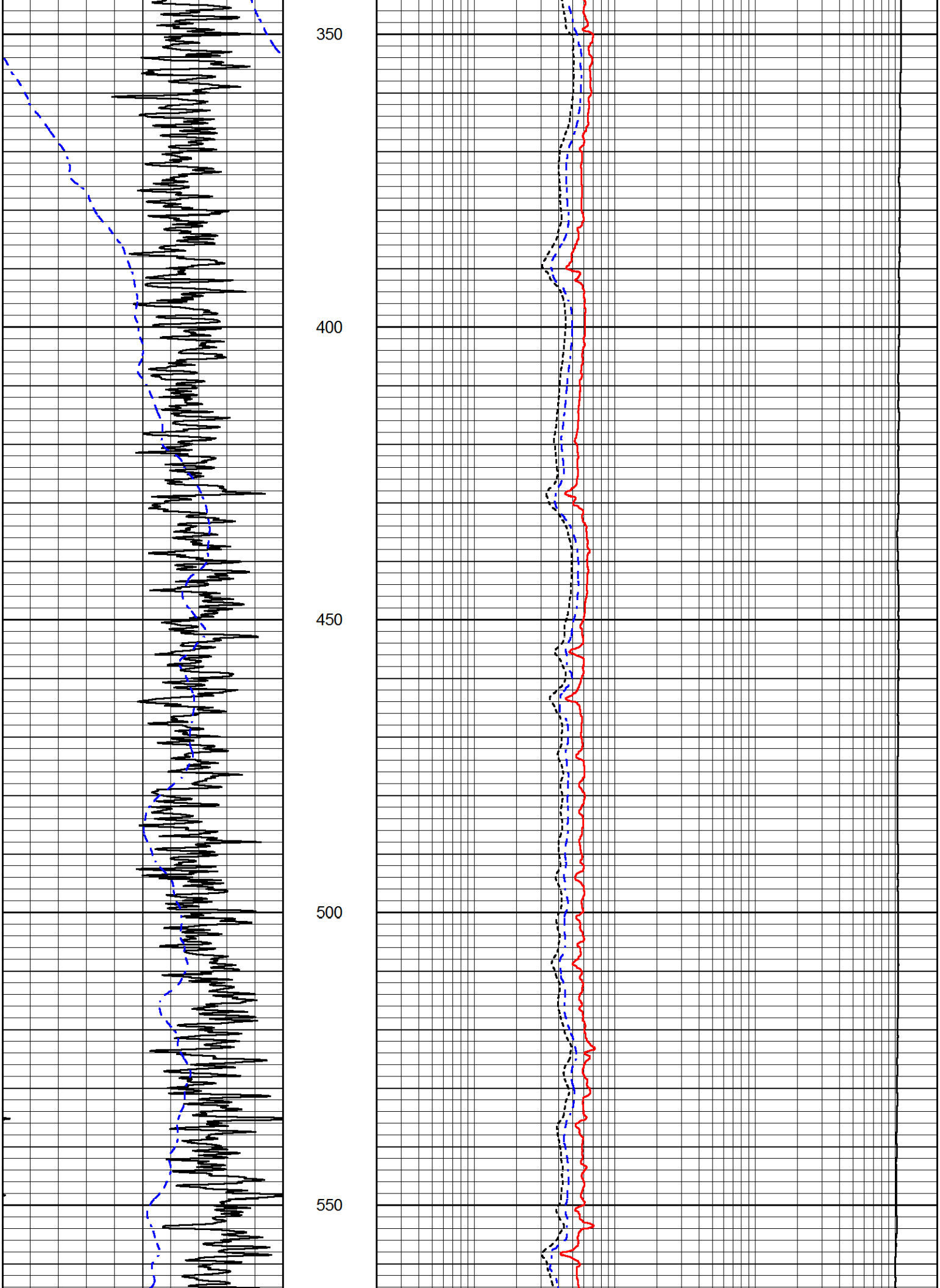
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Charted by	Depth in Feet scaled 1:240

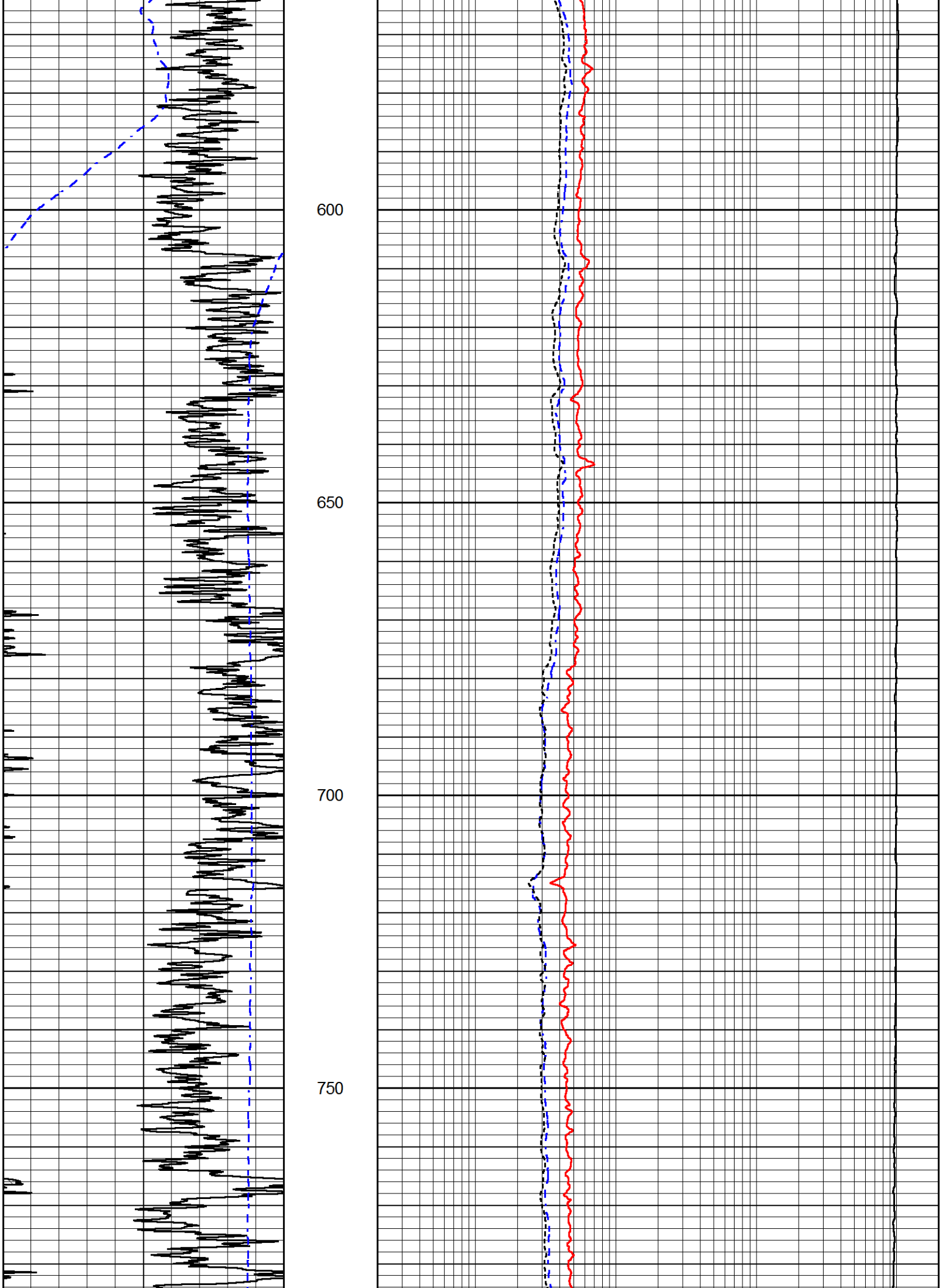
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

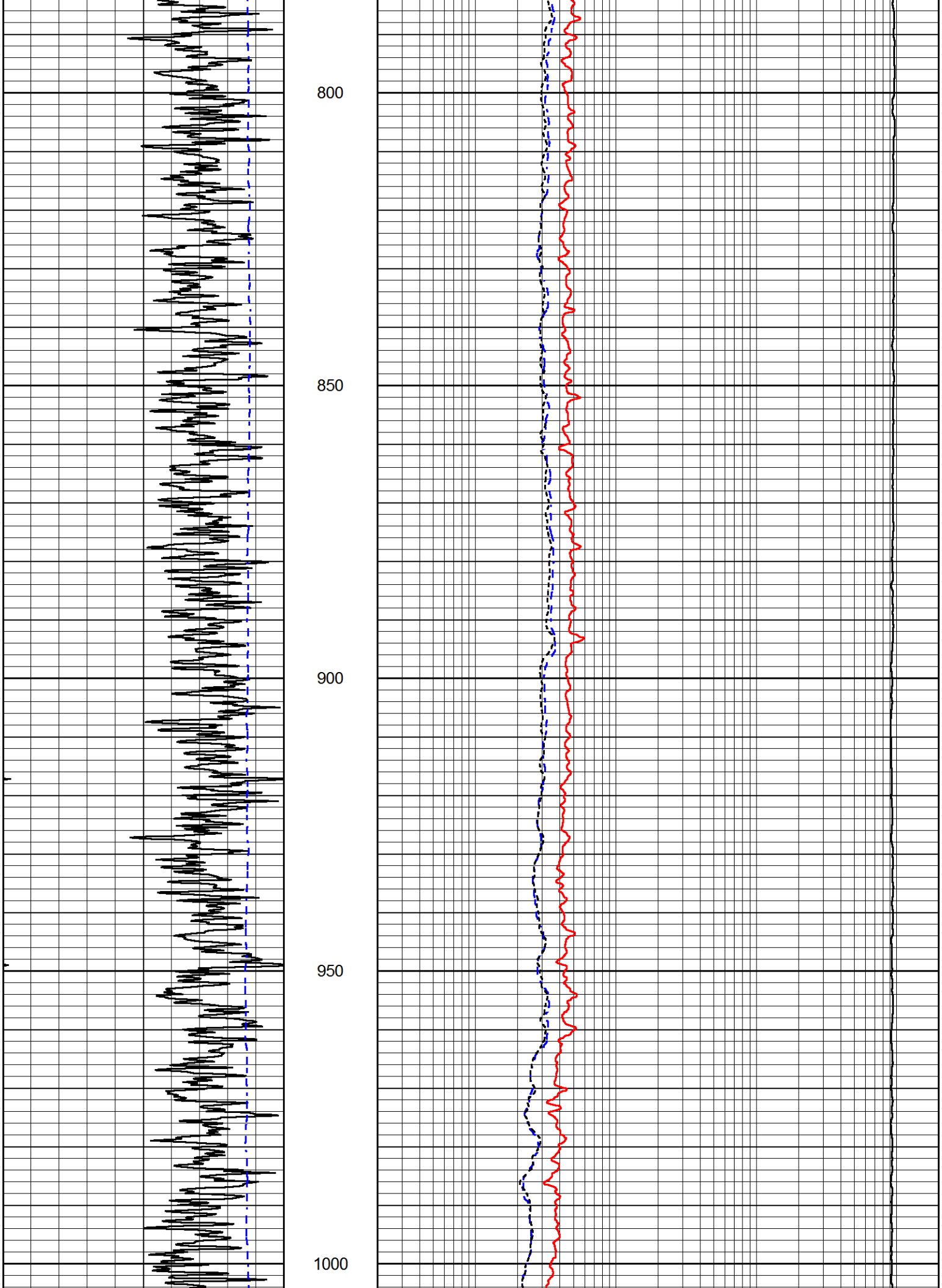
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

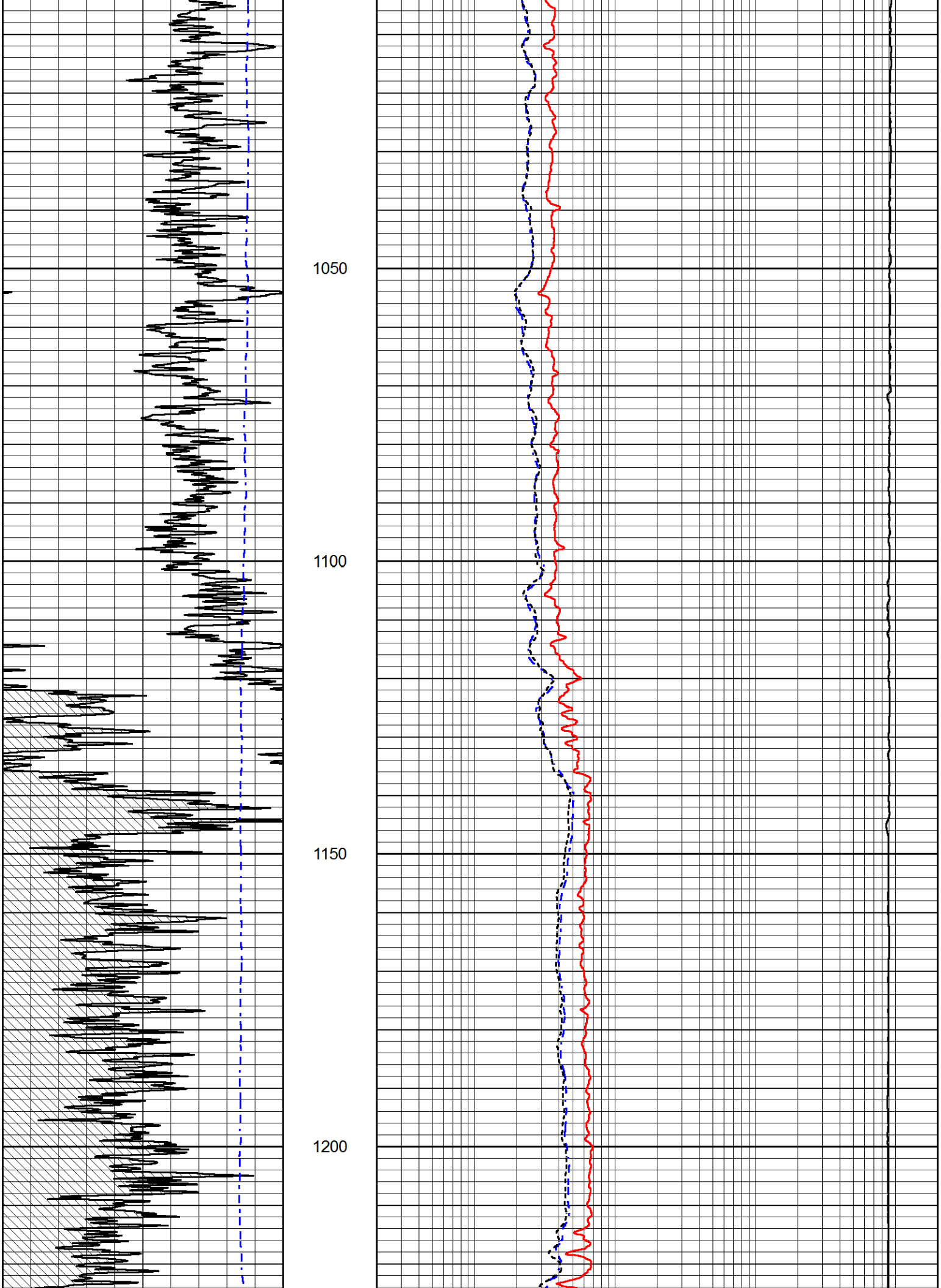


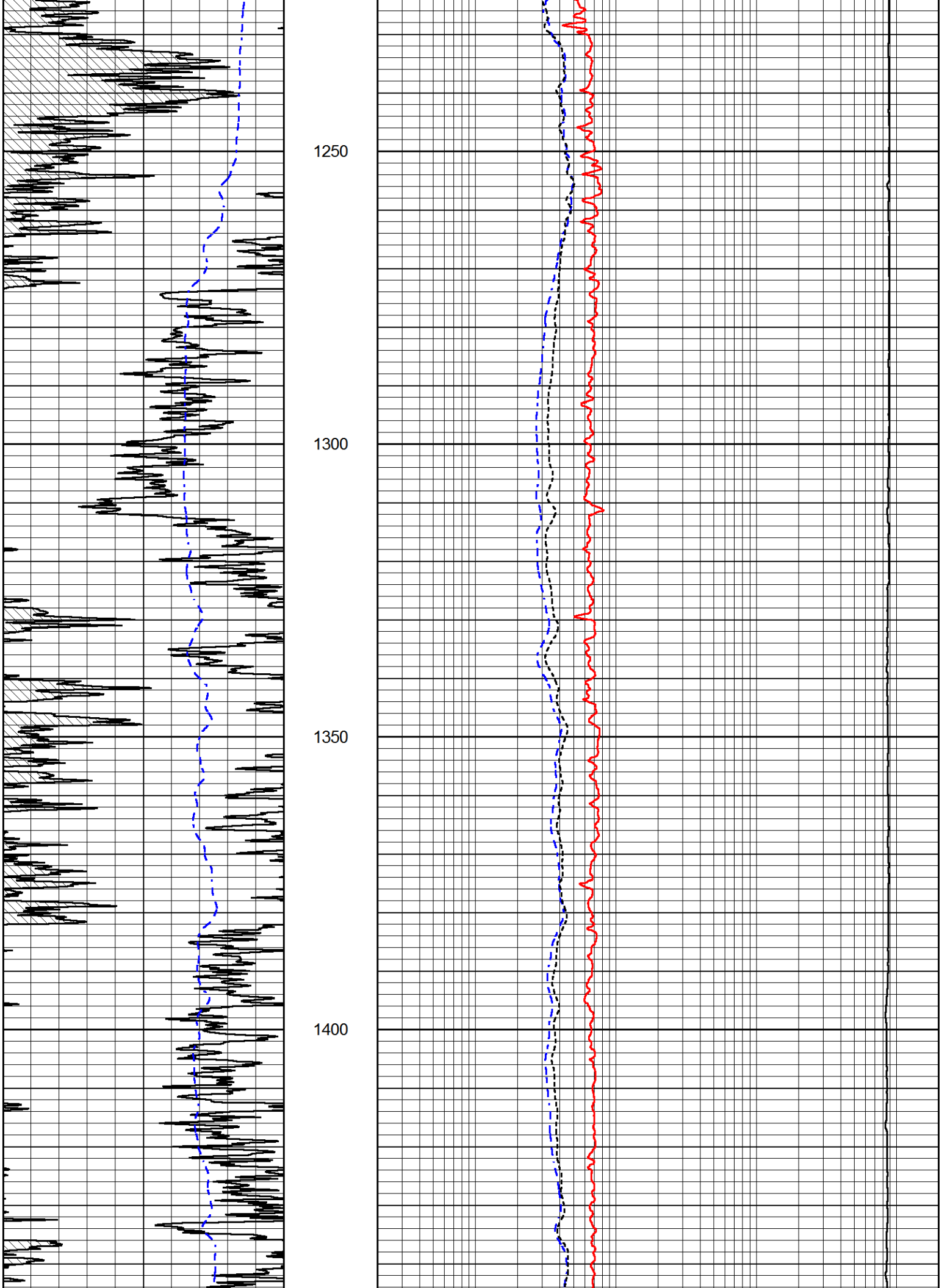

150
200
250
300

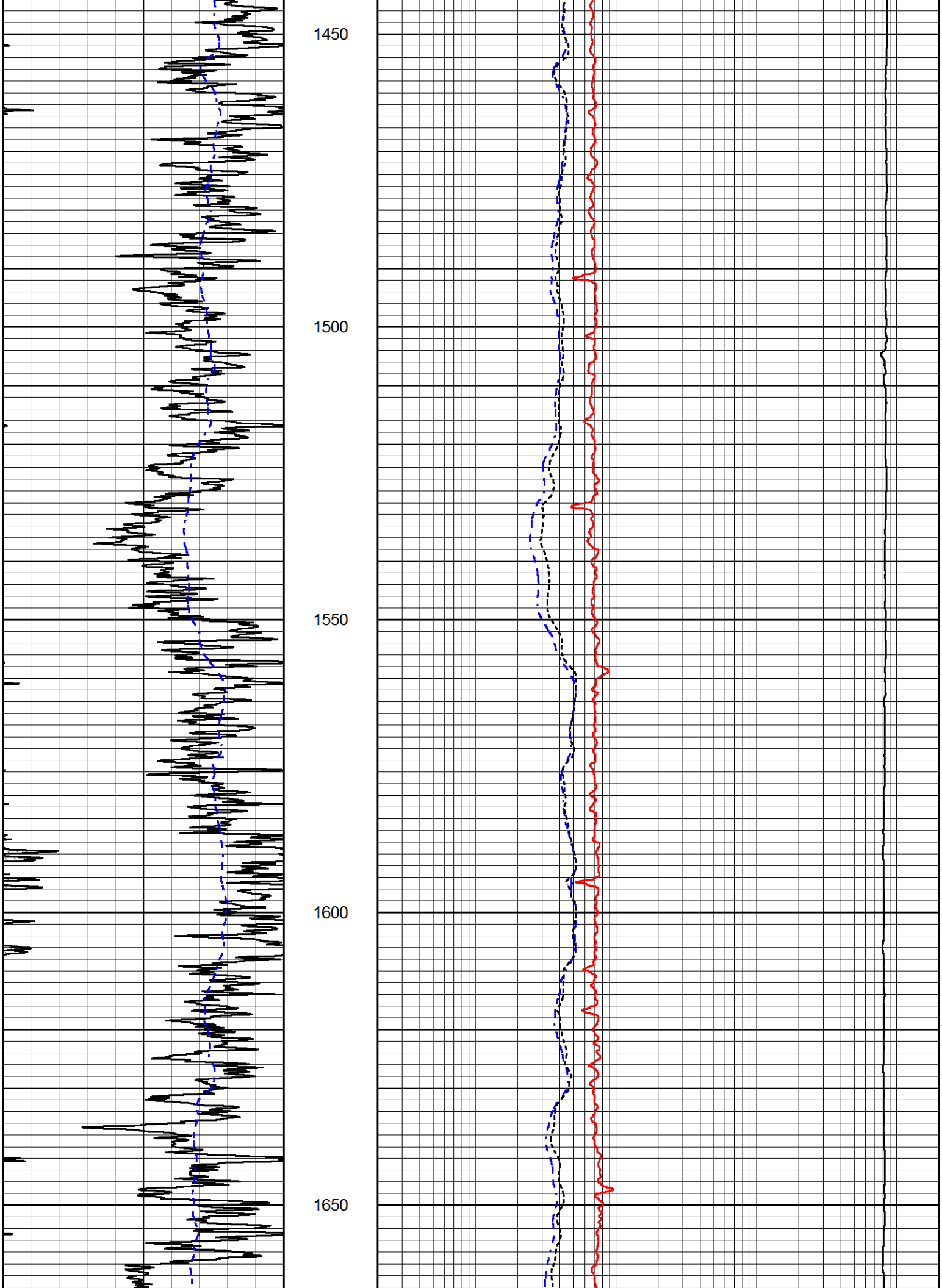

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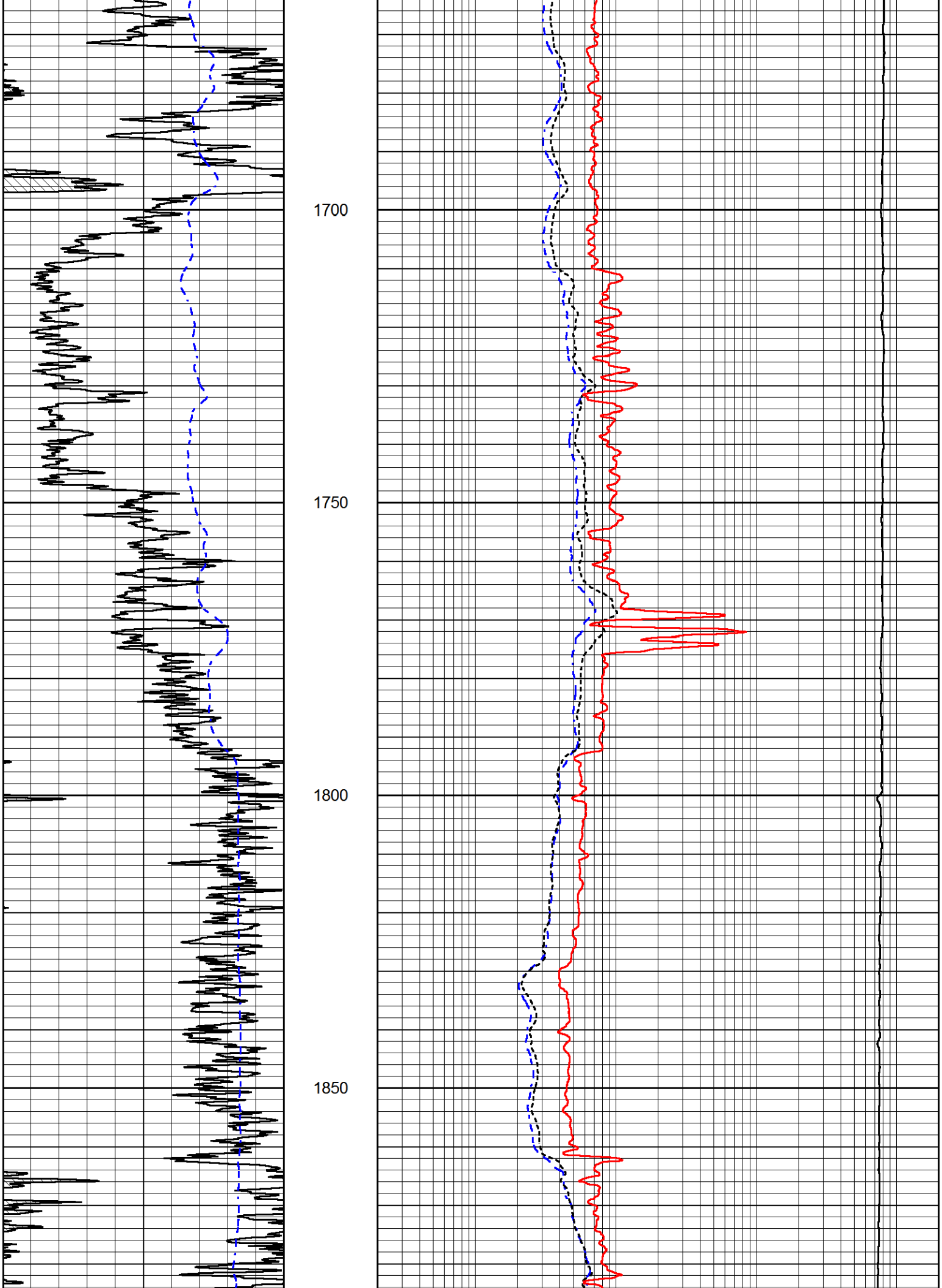

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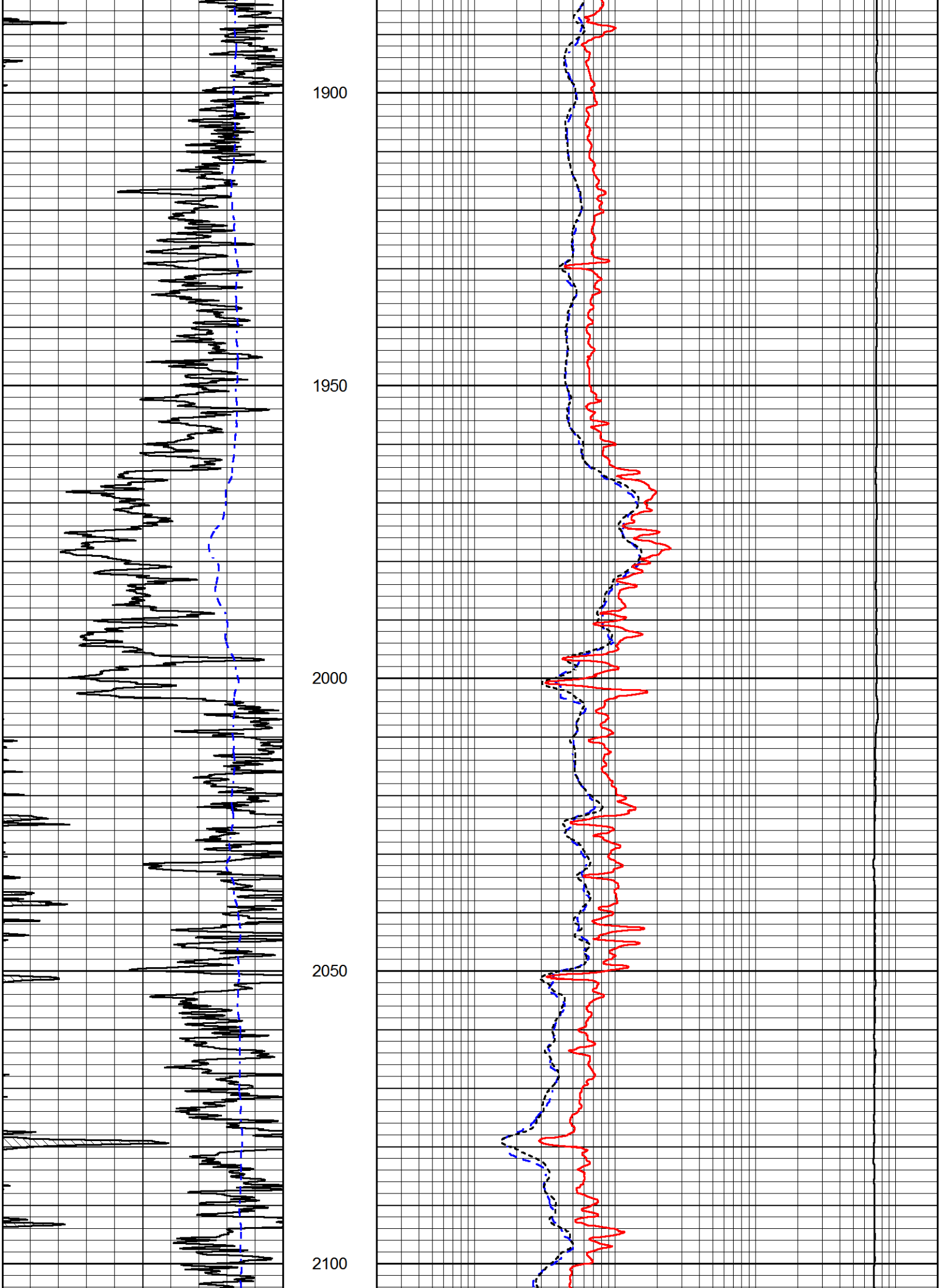

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950
1000

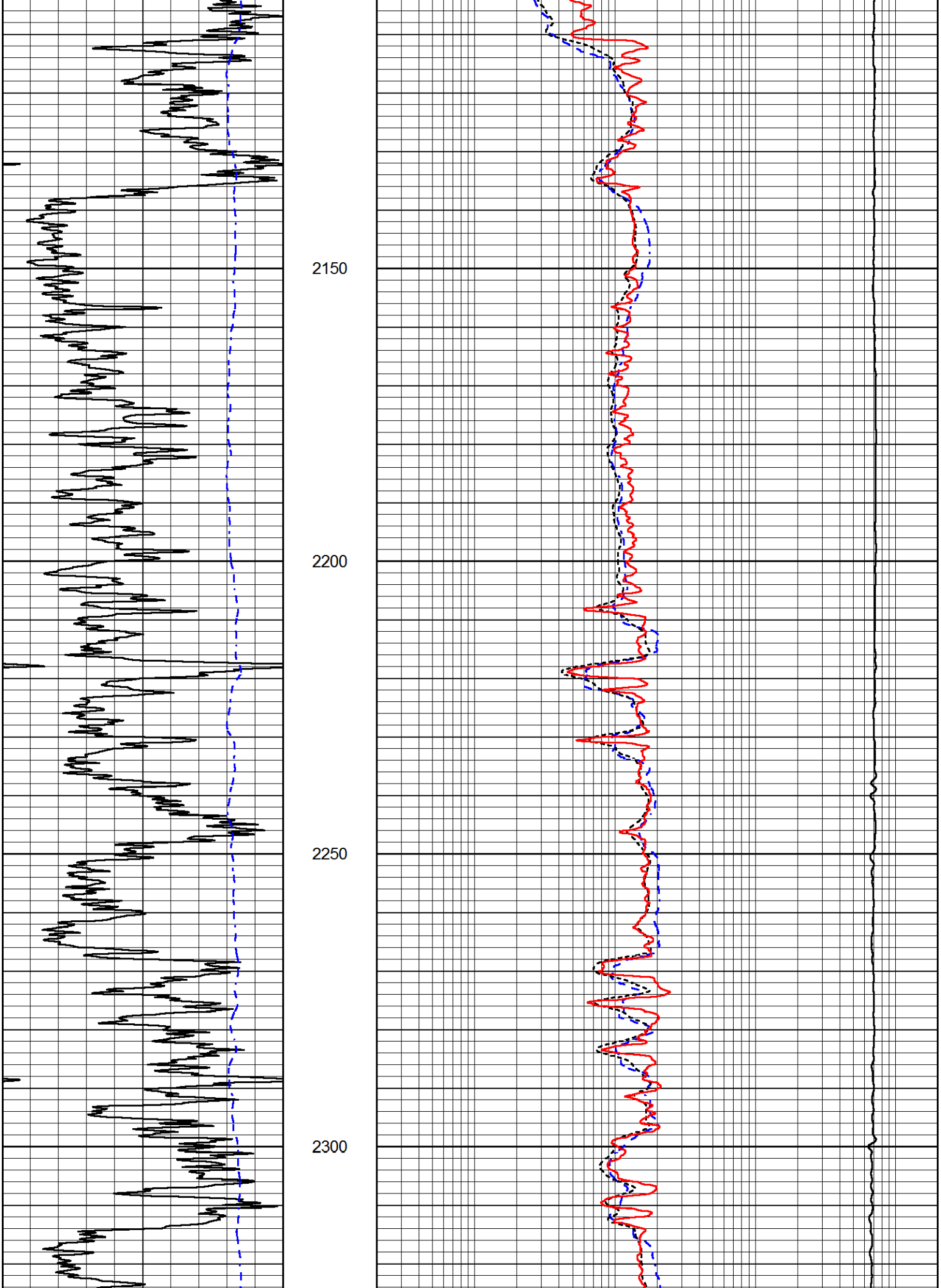

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1100
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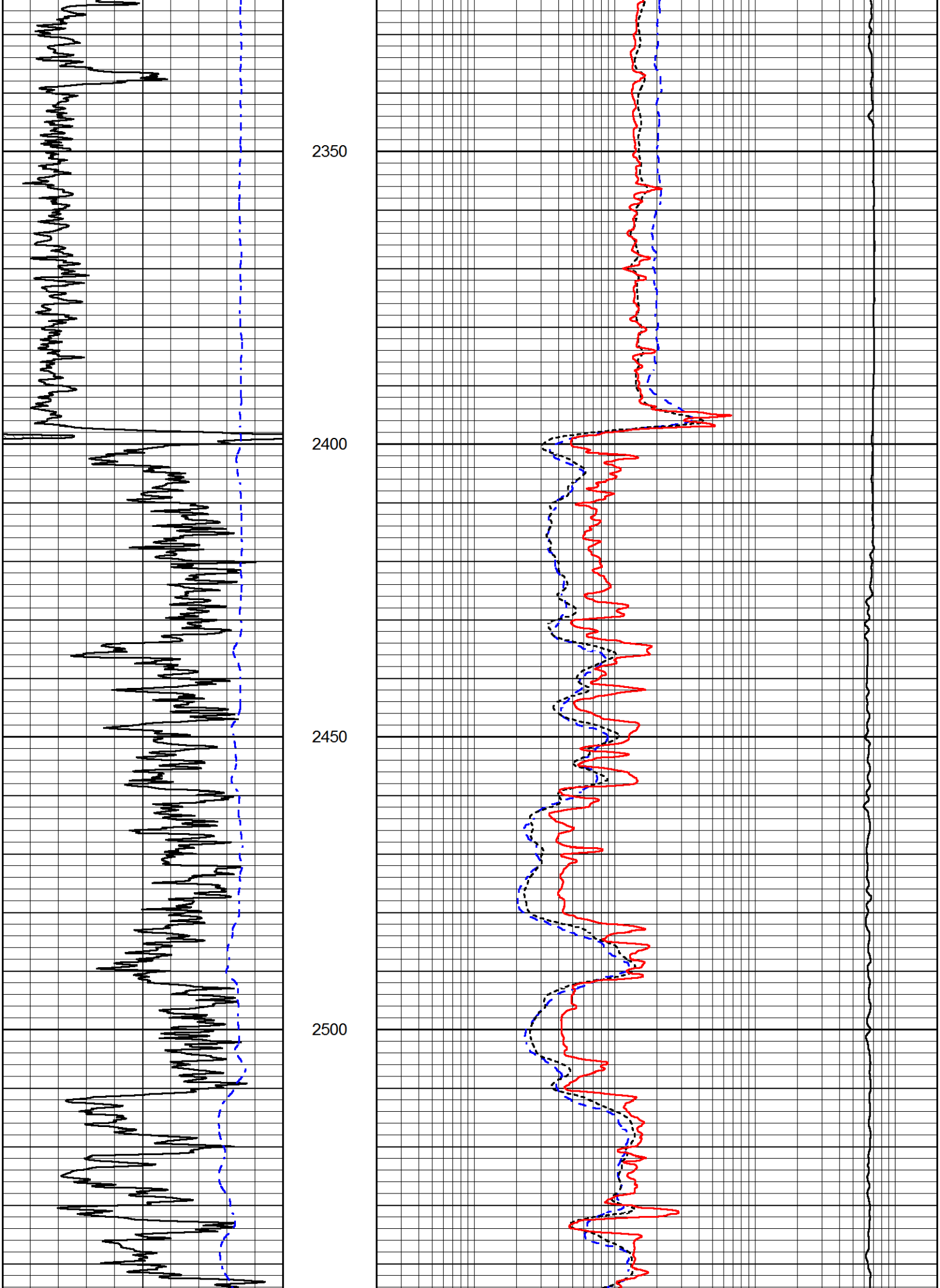

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1400

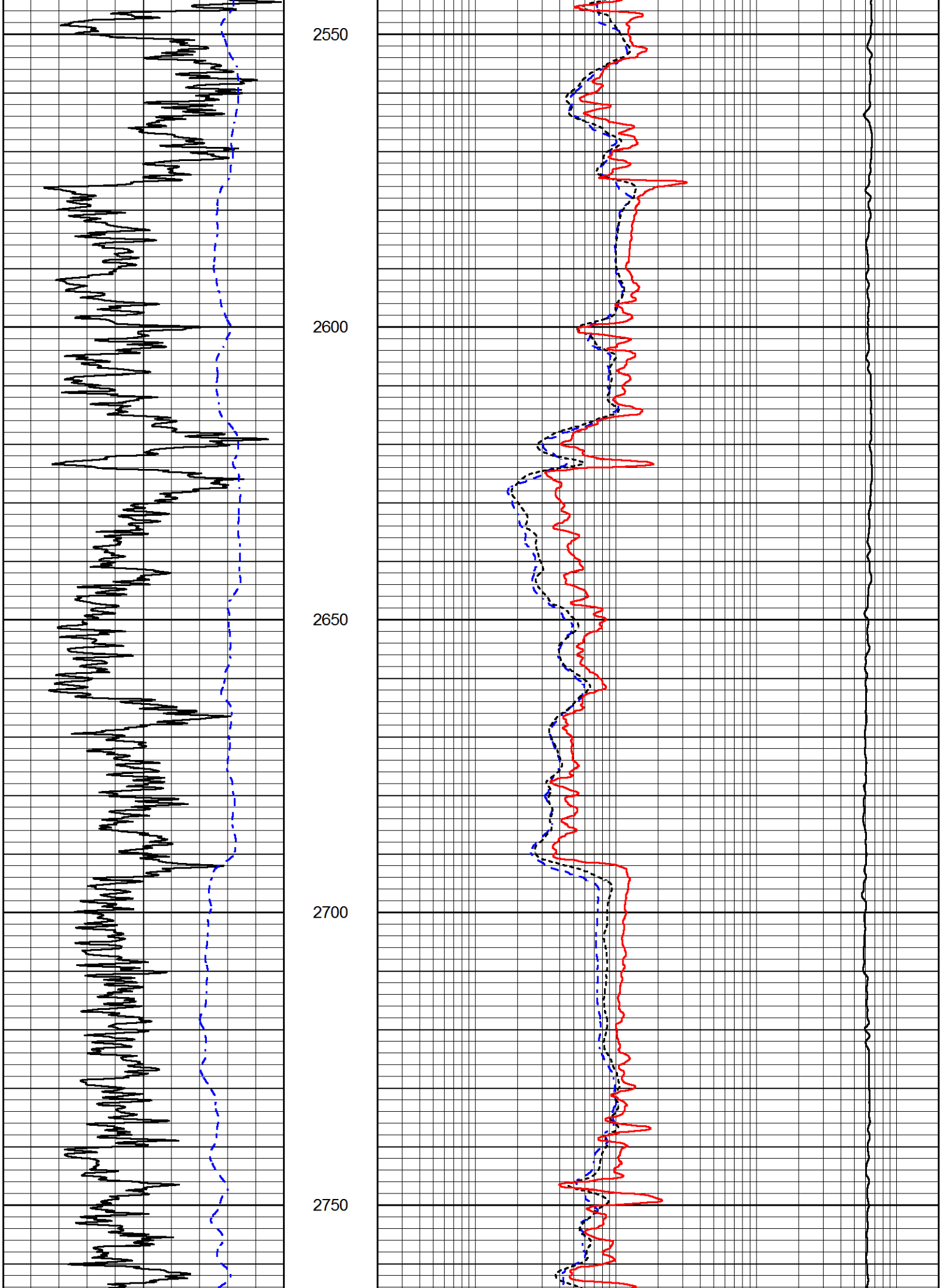

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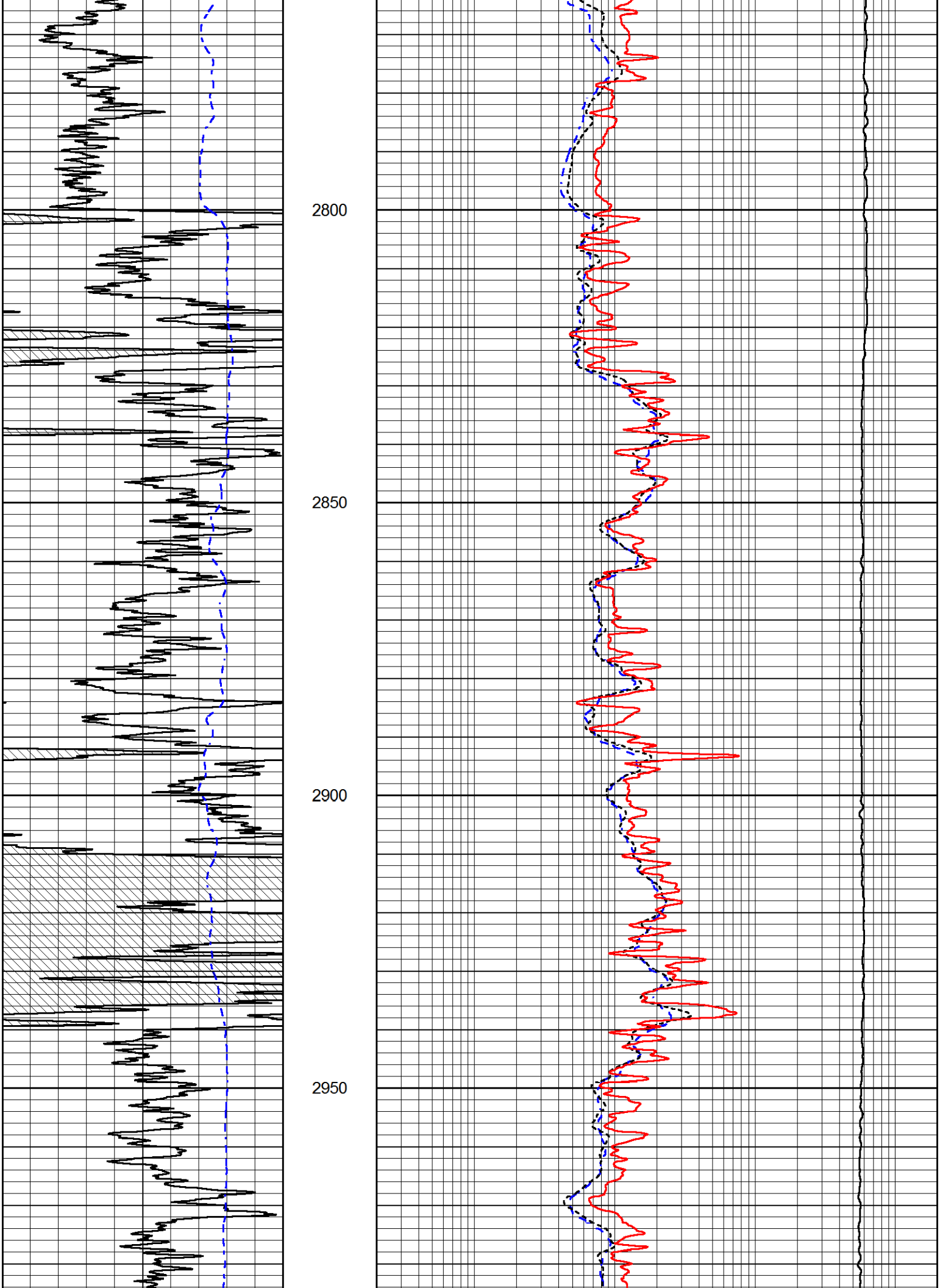

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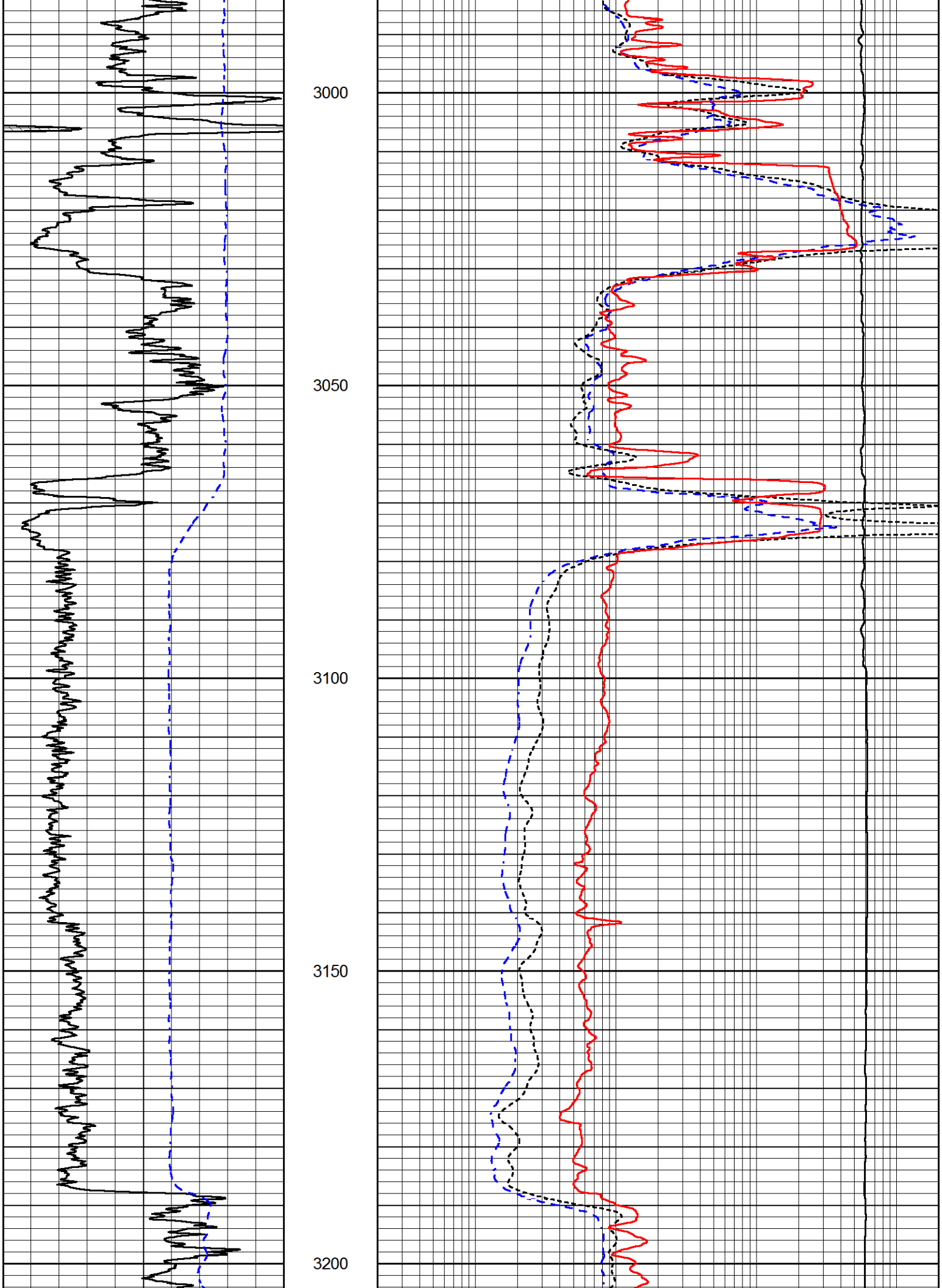

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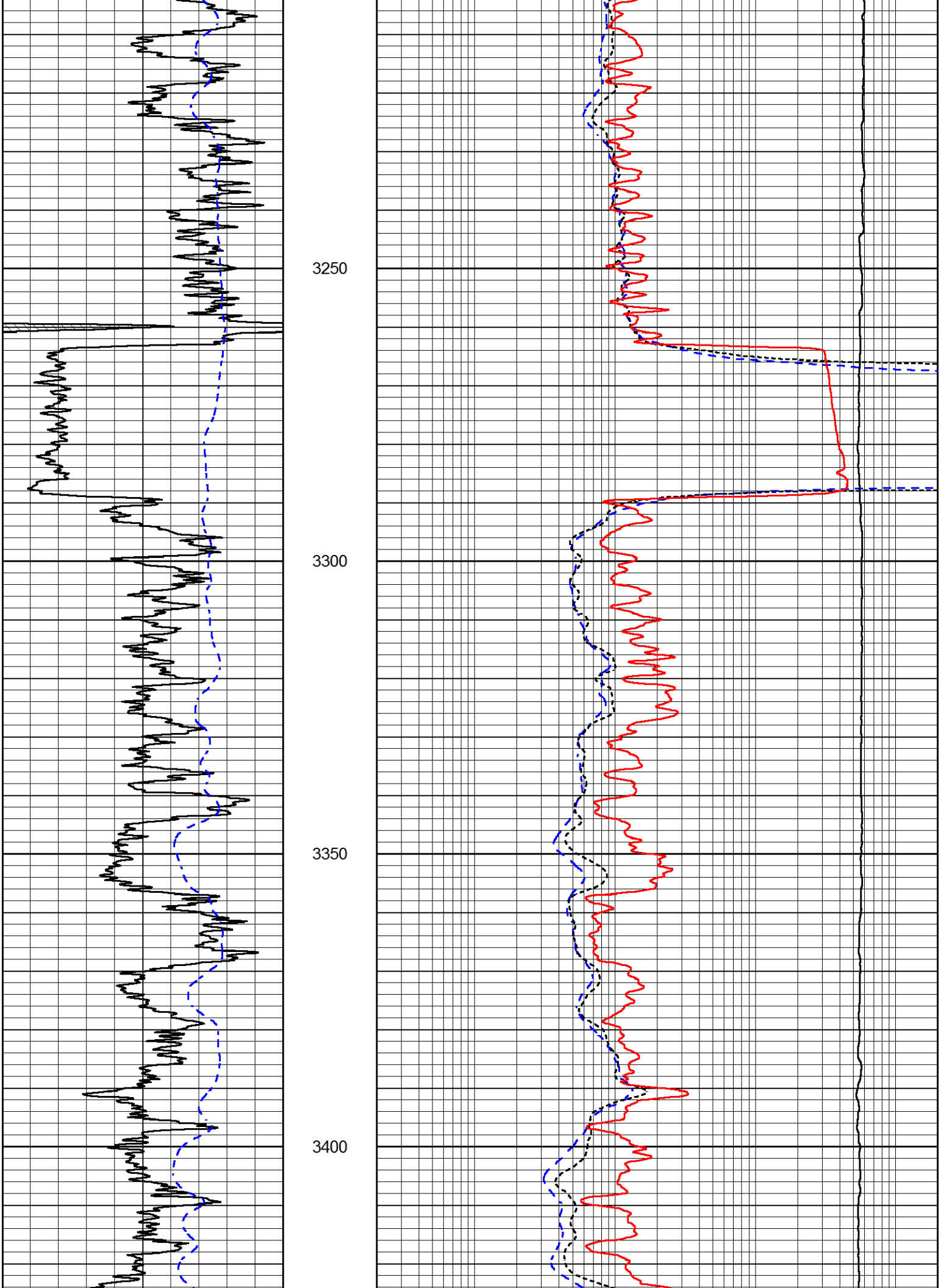

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2300

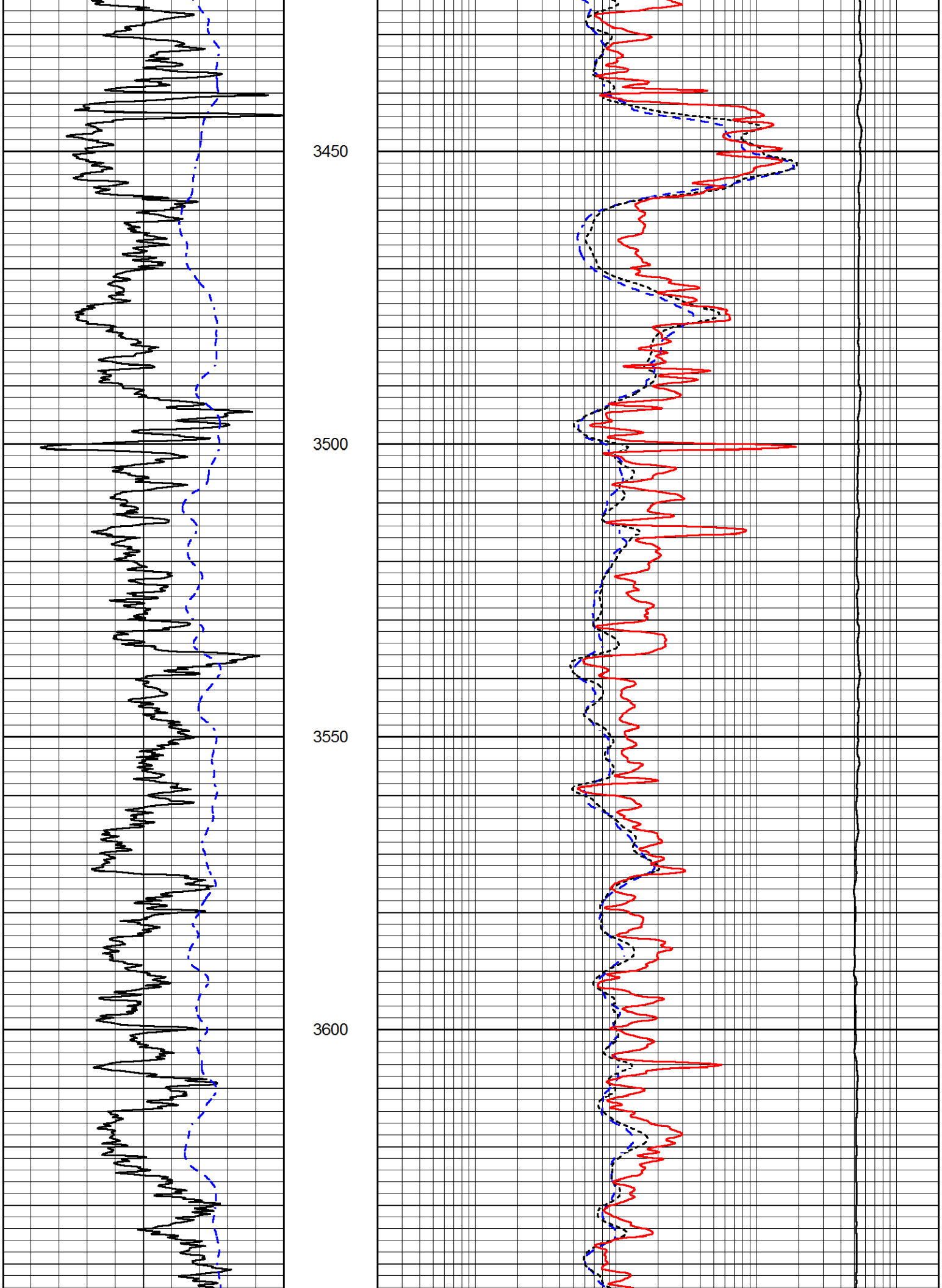

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2450
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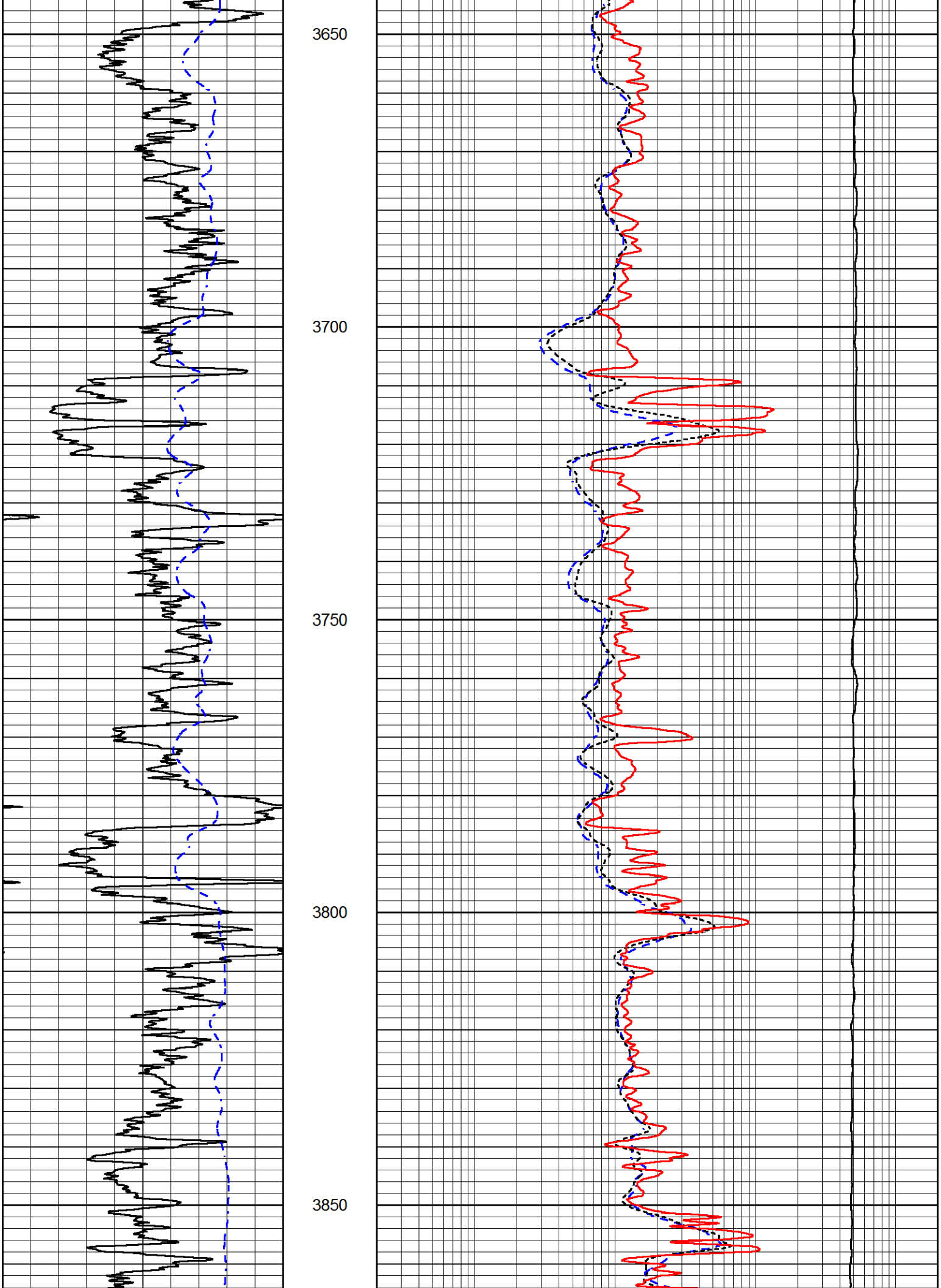

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2700
2750

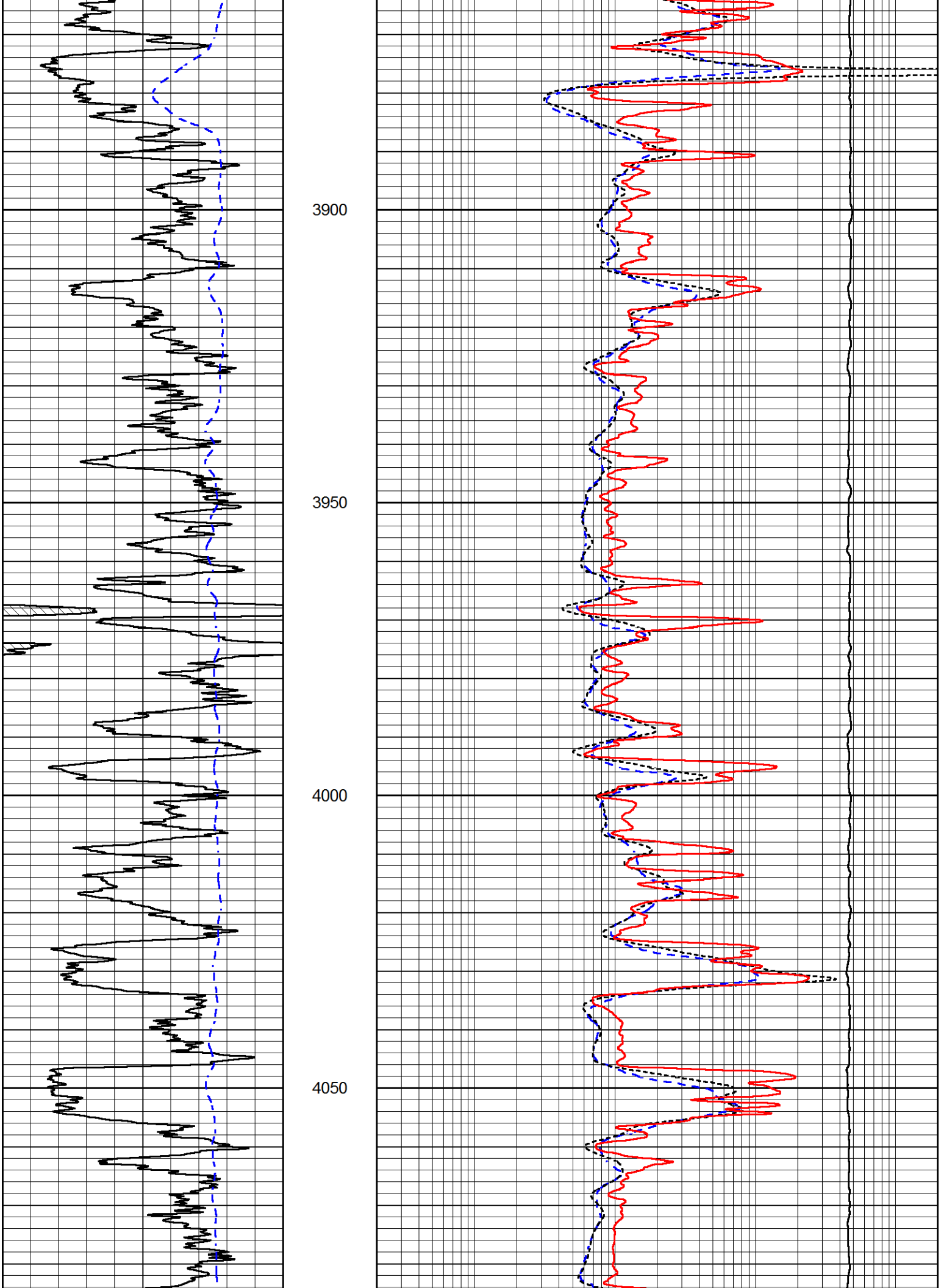

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2900
2950

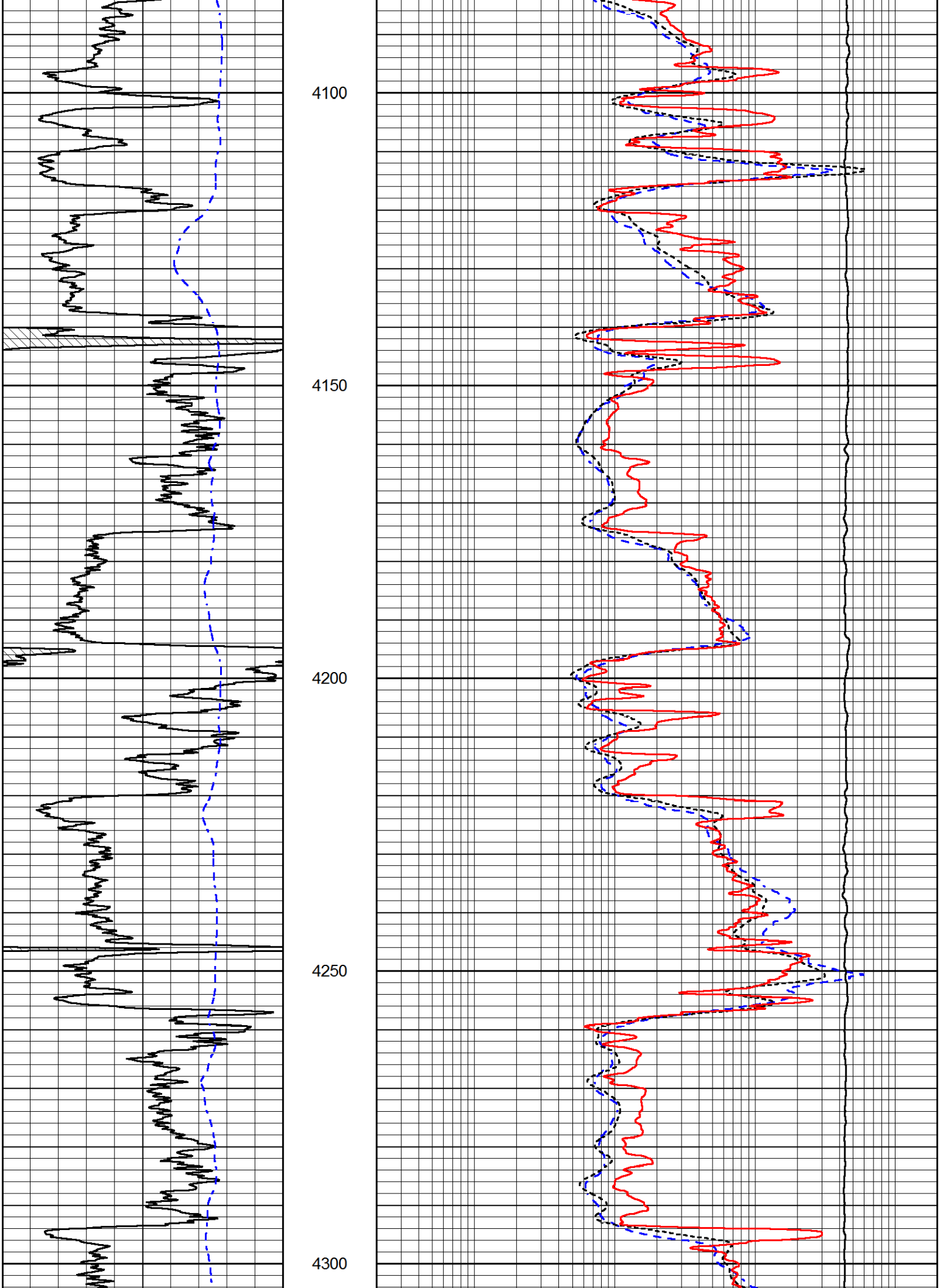

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3100
3150
3200

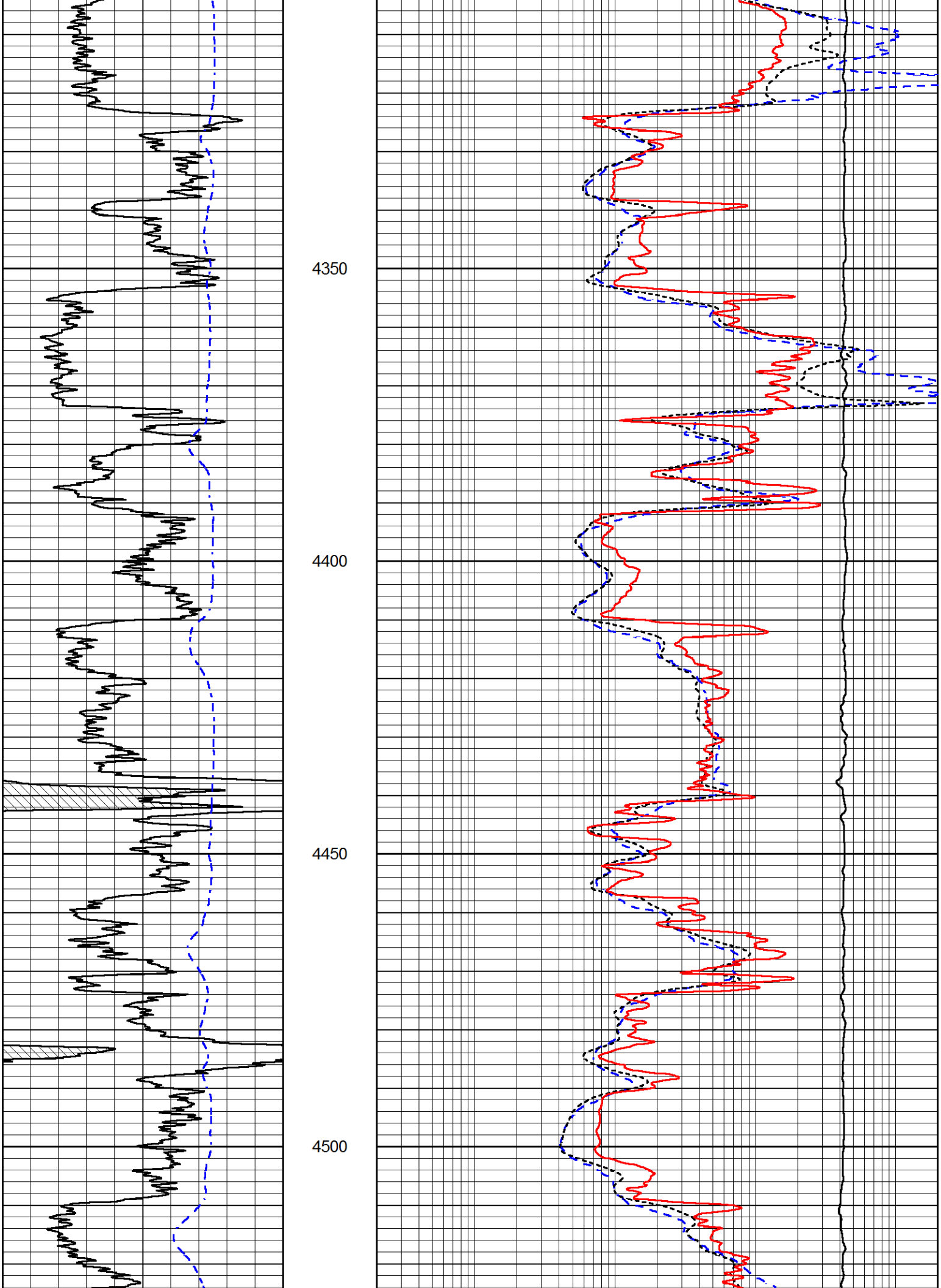

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3350
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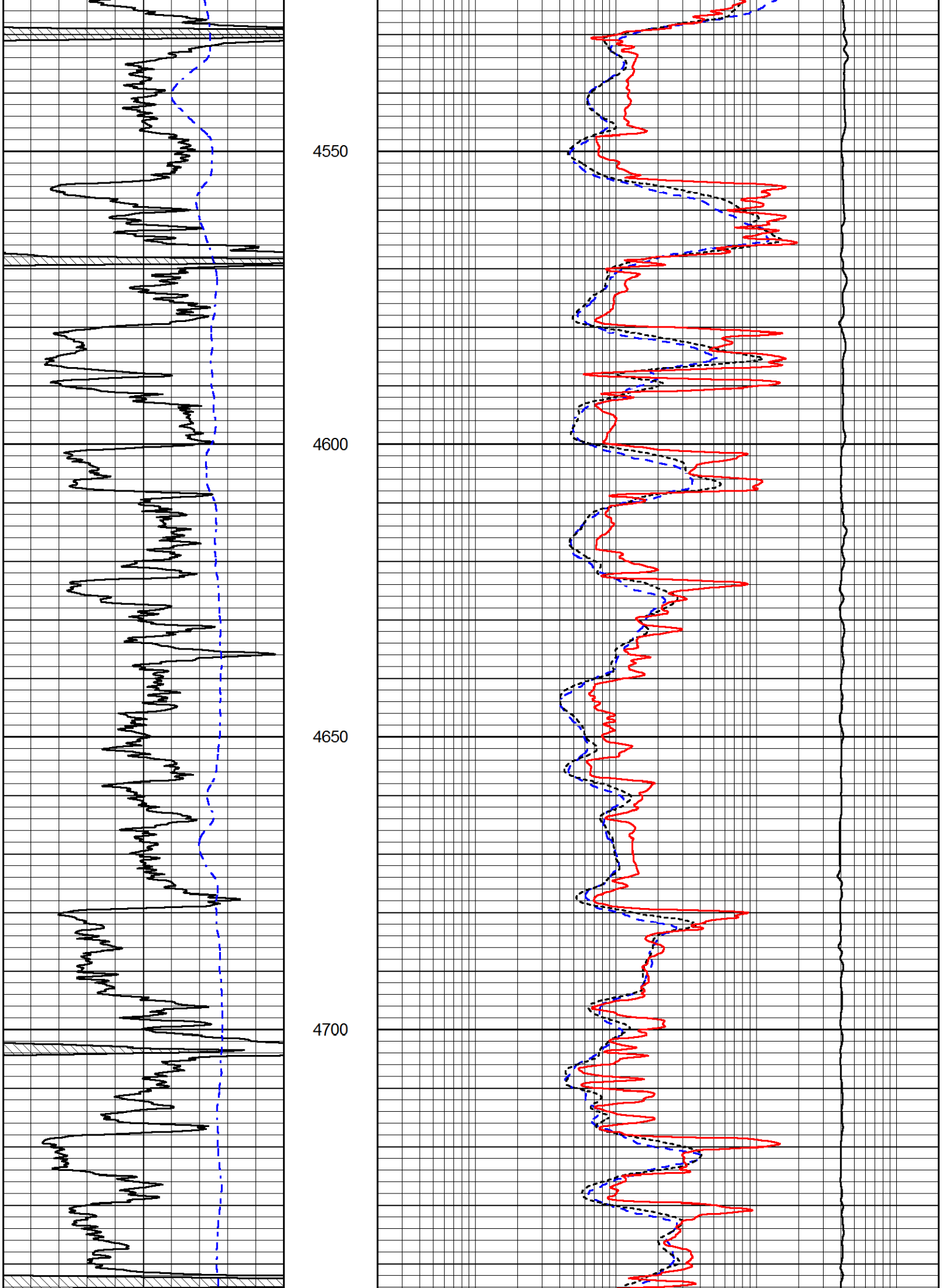

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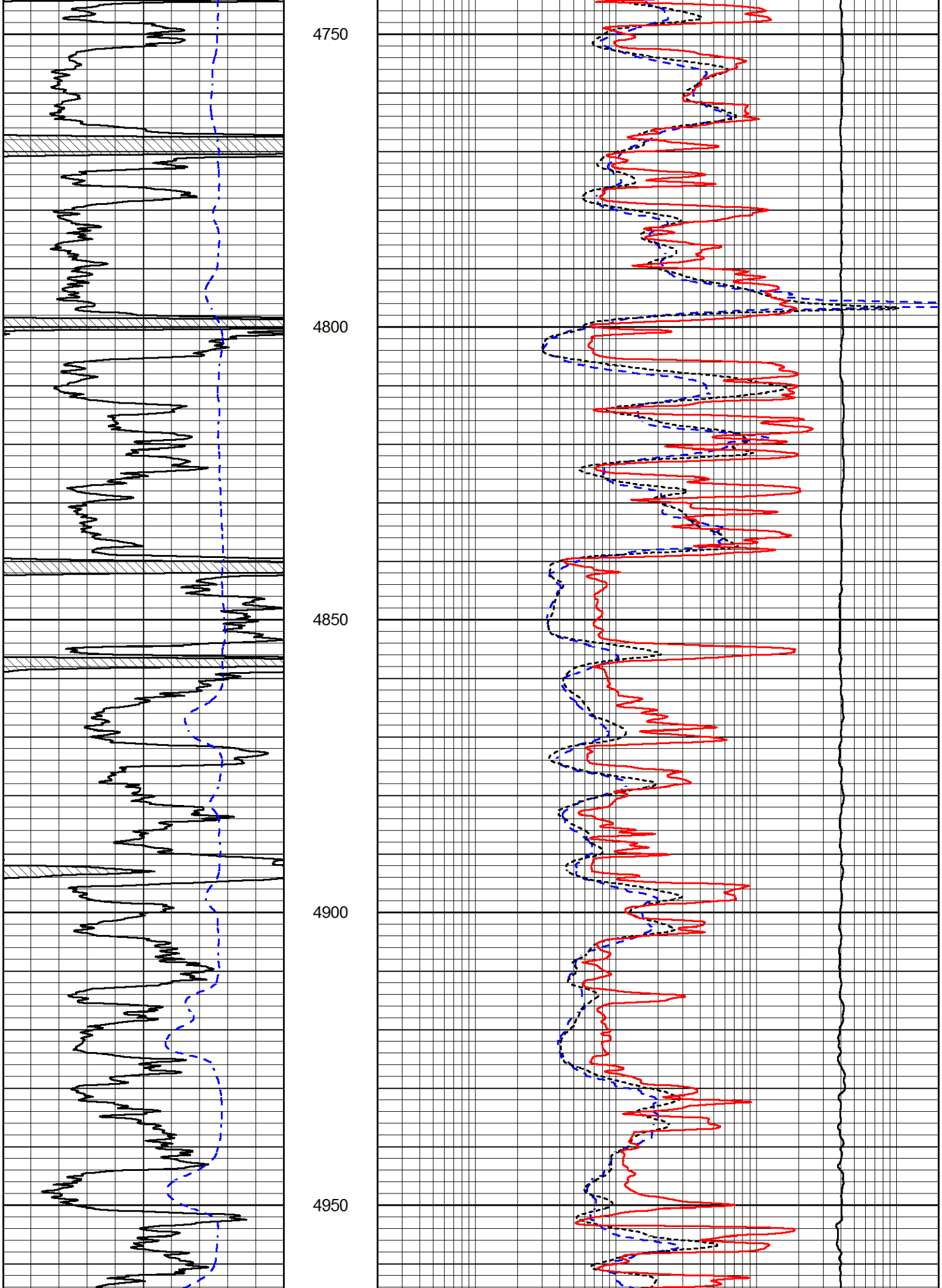

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3850

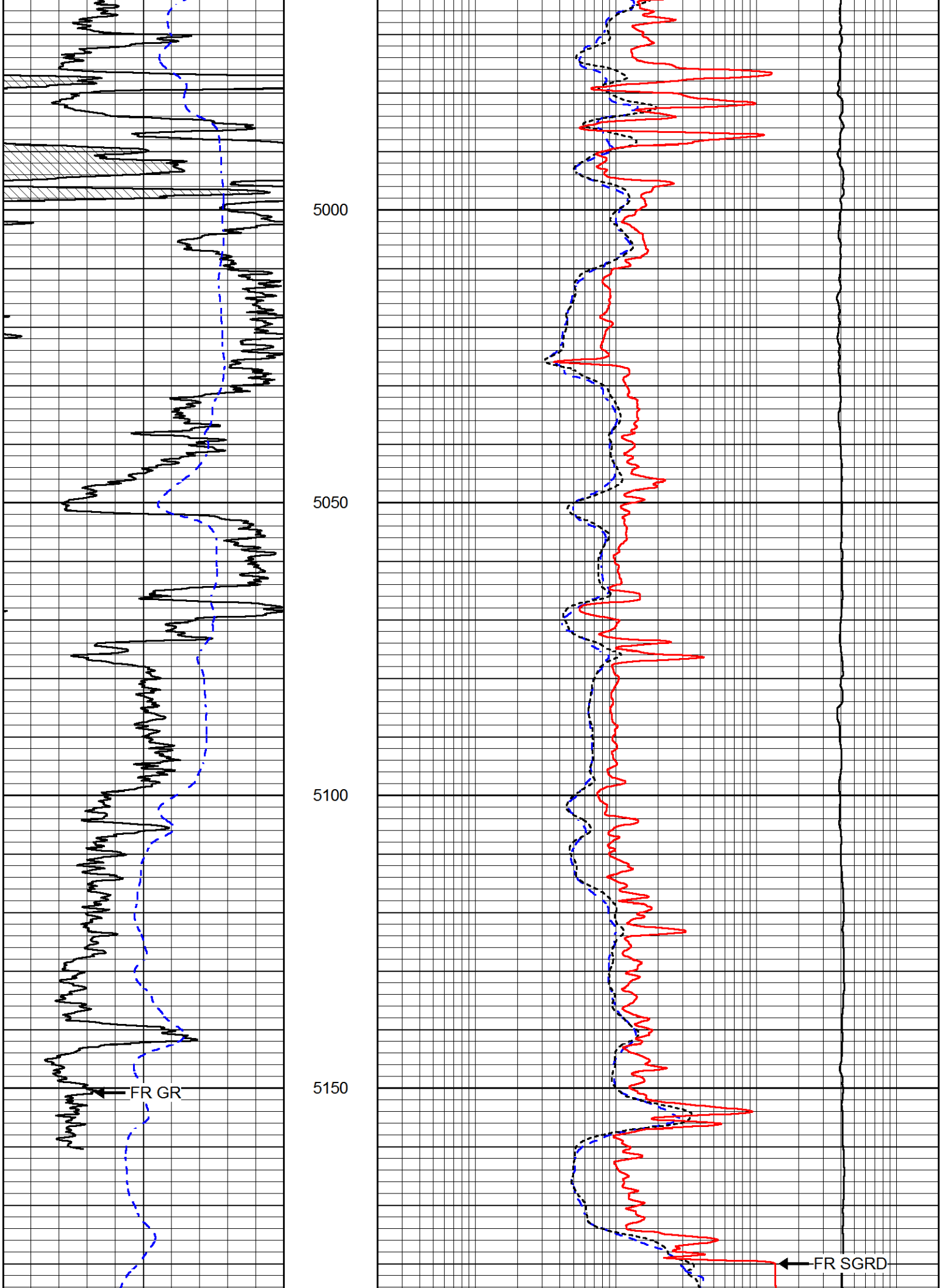

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3950
4000
4050

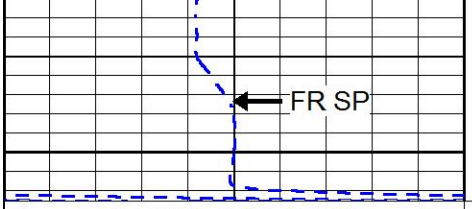

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4200
4250
4300


4350
4400
4450
4500

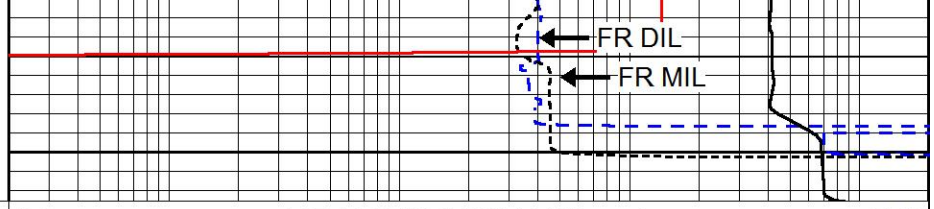

4550
4600
4650
4700


4750
4800
4850
4900
4950


5000
5050
5100
5150
FR GR
FR SGRD



5200



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
15000	LINE TENSION (lb)	0

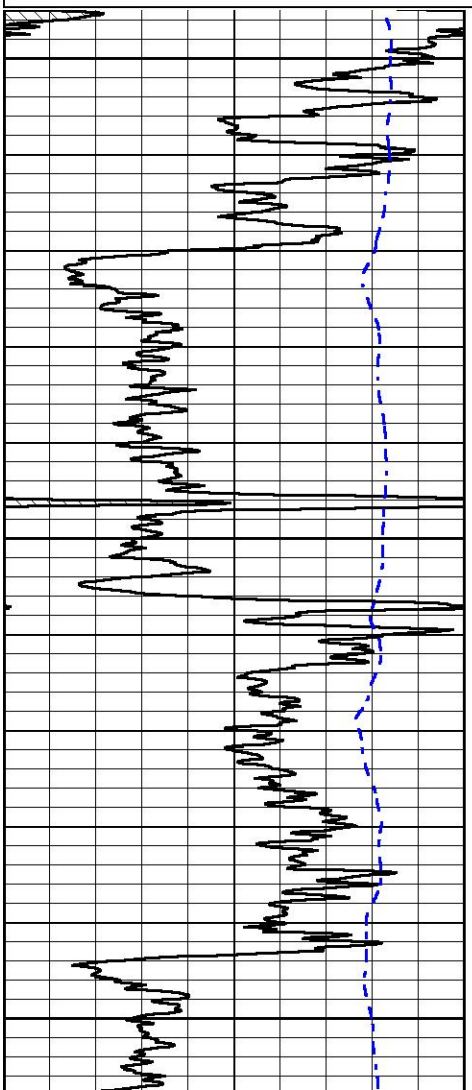
MIDWEST WIRELINE

Repeat Section

Database File	murfin_helena_1_10.db
Dataset Pathname	stackml/pass3.1
Presentation Format	dil
Dataset Creation	Fri Mar 26 19:20:09 2021
Charted by	Depth in Feet scaled 1:240

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-200	SP (mV)	0

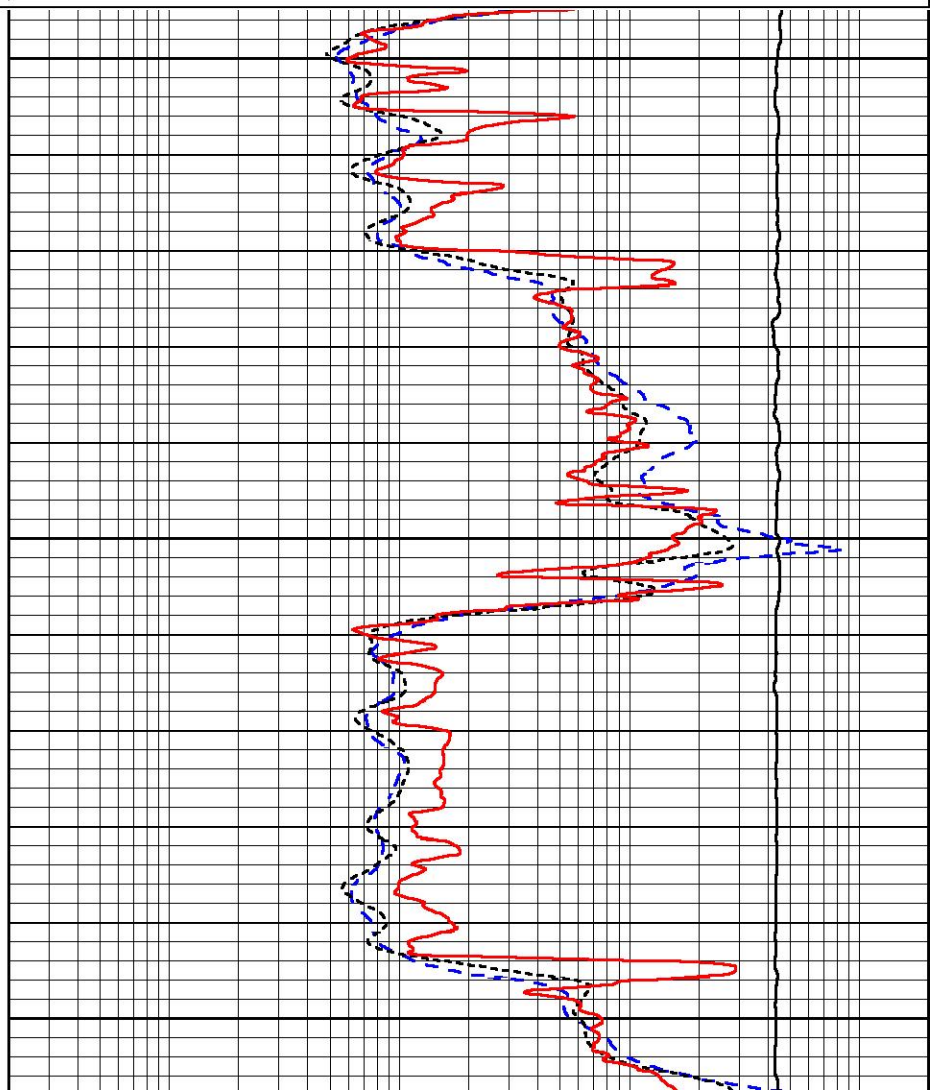
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

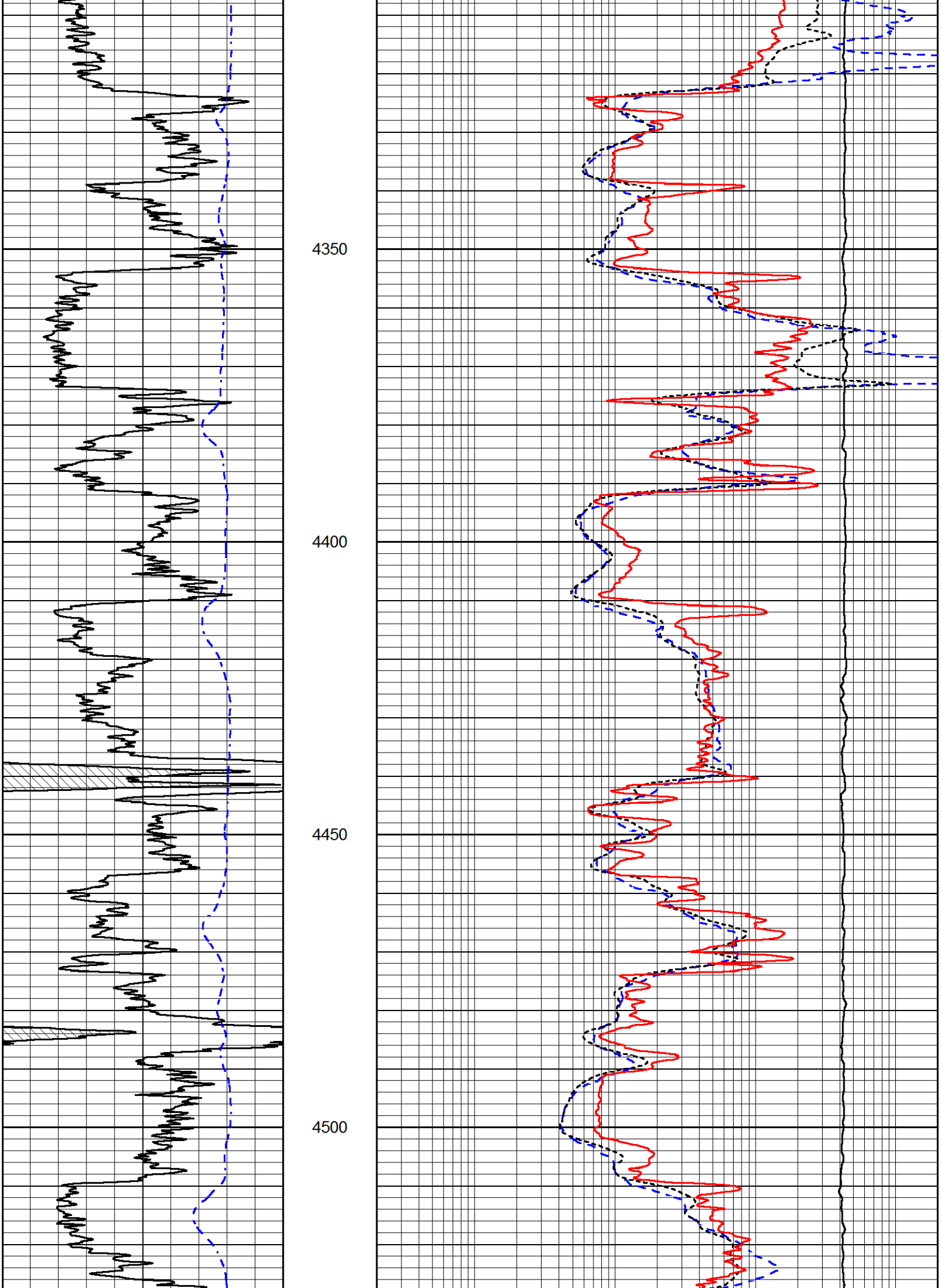


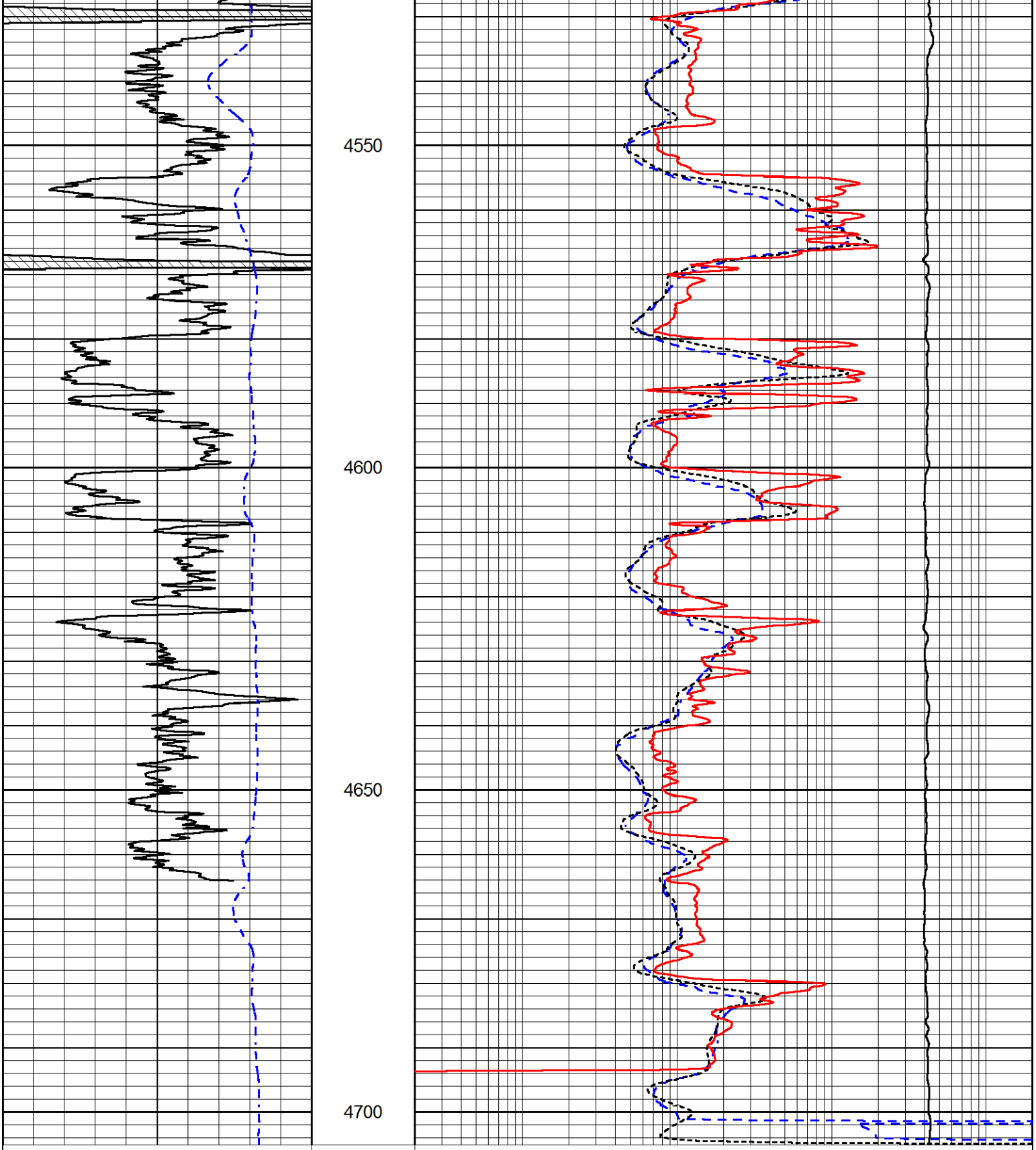
4200

4250

4300




4350
4400
4450
4500



Calibration Report

Database File	murfin_helena_1_10.db
Dataset Pathname	stackml/pass4.1
Dataset Creation	Fri Mar 26 21:00:01 2021

Dual Induction Calibration Report

Serial-Model: 952-828-PSI HIGH TEMP
Calibration Performed: Fri Mar 26 18:10:57 2021

Loop:	Readings Air	Readings Loop	References Air	References Loop		Results Gain	Results Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.500	-32.000
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.335	-36.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
Performed: Fri Mar 26 17:51:08 2021

	Readings Zero	Readings Cal	References Zero	References Cal		Results m	Results b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	55000.0000	0.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	48000.0000	0.0000
Caliper	1.3802	1.0814	6.0000	22.0000	in	-53.5473	79.9032

Compensated Density Calibration Report

Serial-Model: 915-956-M&W
Source / Verifier: /
Master Calibration Performed: Fri Mar 26 17:51:14 2021

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3668.53	4669.61	cps
Aluminum	2.675	g/cc	710.88	3056.05	cps

Spine Angle = 75.51

Density/Spine Ratio = 0.543

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

Compensated Neutron Calibration Report

Serial Number: tk10-MW
Tool Model: M&W
Calibration Performed: Wed Nov 16 11:21:36 2016

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: 89-M&W
Tool Model: M&W
Calibration Performed: Fri Mar 26 17:51:23 2021

Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps