



MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Murfin Drilling Company, Inc.

Well Brubaker #1-12

Field

County Cheyenne State Kansas

Location: API #: 15-023-21589-00-00

SEC 12 TWP 4S RGE 39W

Permanent Datum Ground Level Elevation 3524

Log Measured From Kelly Bushing

Drilling Measured From Kelly Bushing

Other Services
CNL/CDL
MEL/BHCS
Elevation
K.B. 3529
D.F.
G.L. 3524

Date 1/17/2023

Run Number One

Depth Driller 5150

Depth Logger 5121

Bottom Logged Interval 5120

Top Log Interval 0

Casing Driller 8:625 @ 385

Casing Logger 380

Bit Size 7.875

Type Fluid in Hole Chemical

Salinity :ppm CL 800

Density / Viscosity 9.3 62

pH / Fluid Loss 11.0 6.4

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.80 @ 45

Rmt @ Meas. Temp 0.60 @ 45

Rmc @ Meas. Temp 1.08 @ 45

Source of Rmf/ Rmc CHARTS

Rm @ BHT 0.28 @ 128

Operating Rig Time 5 Hours

Max Rec. Temp. F 128

Equipment Number P-108

Location HAYS

Recorded By D. Schmidt

Witnessed By Rod Andersen

<<< 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,
Hwy 27 & Hwy 36, 4 East to Rd 23, 2 1/2 South,
West into

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

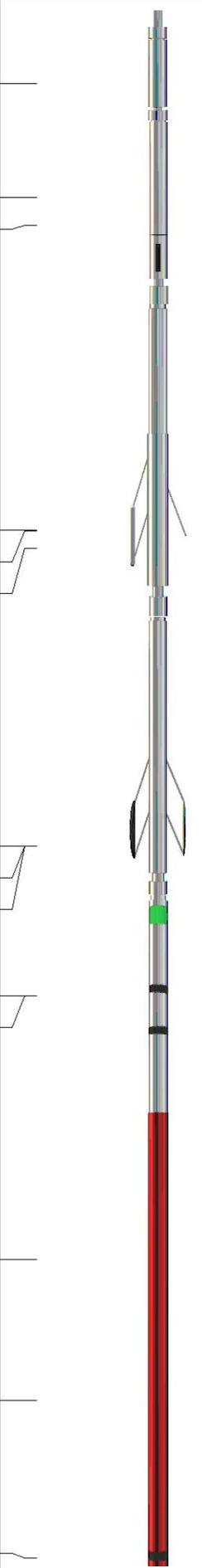
THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew

Engineer: D. Schmidt
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Rod Andersen
Secondary Witness:
Secondary Witness:
Secondary Witness:

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 CNSSC	37.23 36.48		CNT-M&W (210)	5.00	3.50	100.00
LSD DCAL SSD	28.18 28.17 27.68		CDL-M&W (303-03)	8.50	4.00	250.00
ML-PSI STKBL ML (402)			7.58	4.00	65.00	
MCAL MI MN	19.58 19.58 19.58					
RLL3F RLL3	15.50 15.50					
DIL-M&W (505 HT)			18.25	3.50	220.00	
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: murfin_brubaker 1-12.db: field/well/stkml/pass4.13
 Total length: 42.33 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_brubaker 1-12.db
 Dataset field/well/stkml/pass4.13/_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	No	0	0	428	30	Off	5121

Variable Description

A : Cement Factor (a)
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 FLUIDDEN : Fluid Density
 M : Cement Exp (m)
 MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select
 PERFS : Perforation Flag
 SNDERR : Deep Sonde Error Correction
 SNDERRM : Medium Sonde Error Correction
 SPSHIFT : S.P. Baseline Offset
 SRFTEMP : Surface Temperature
 SZCOR : CN Size Cor. ?
 TDEPTH : Total Depth

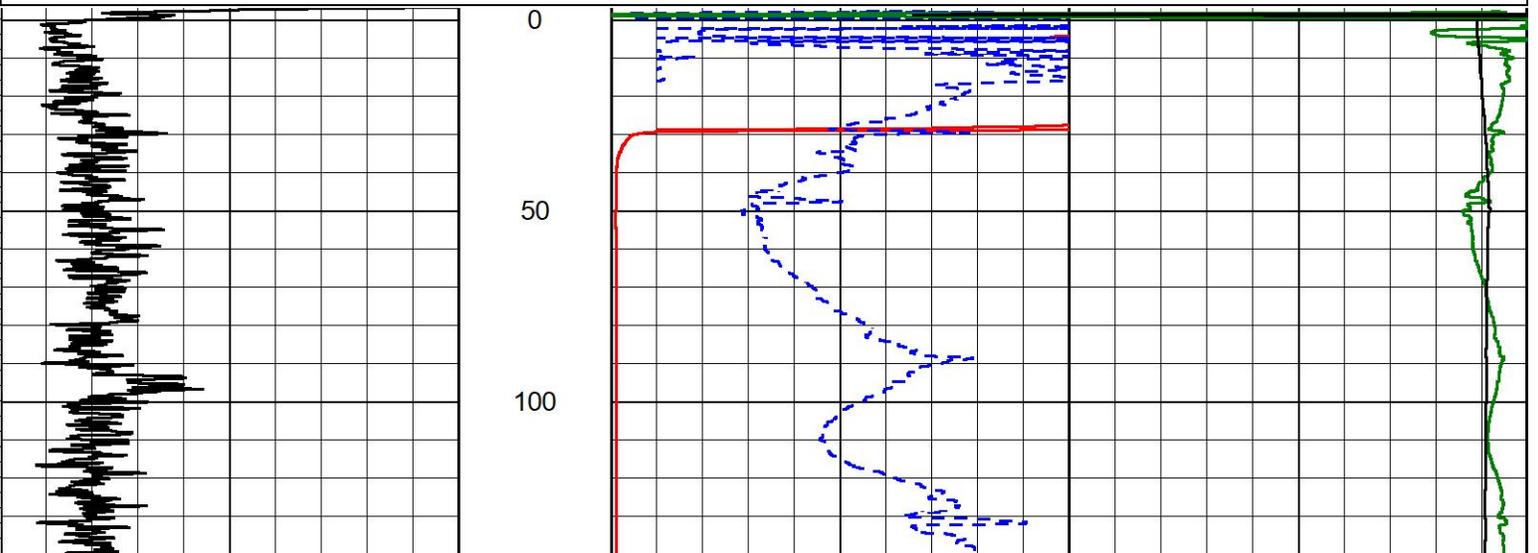


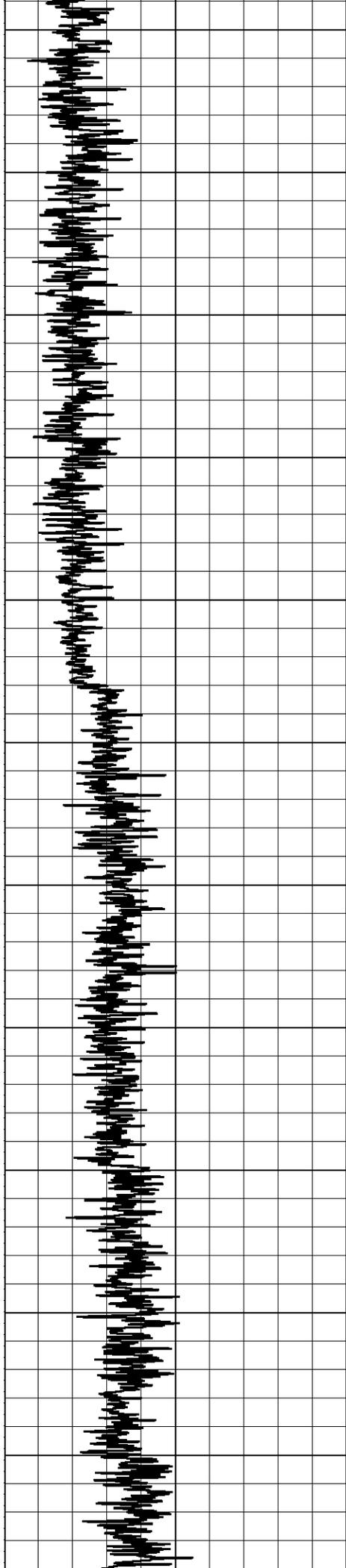
2" SCALE RESISTIVITY

MAIN PASS

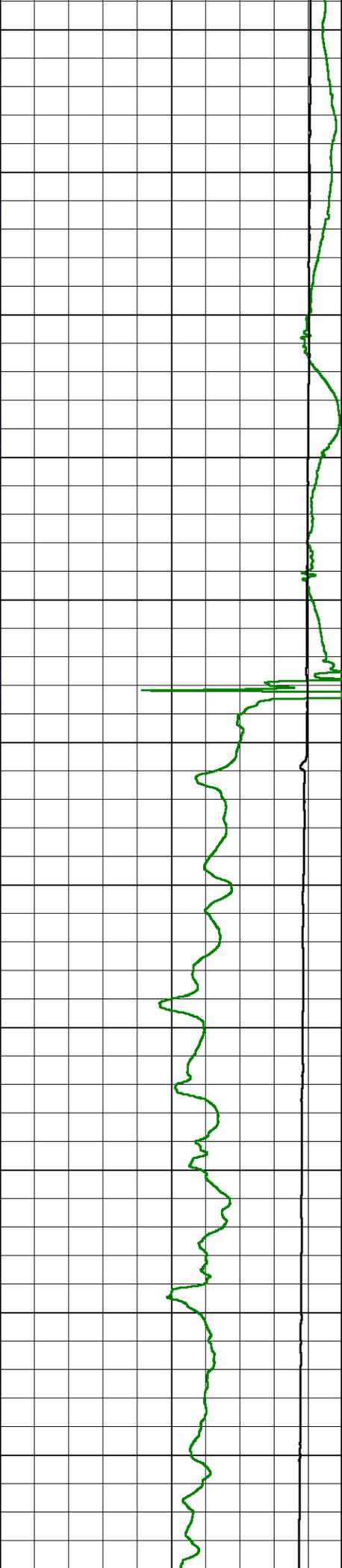
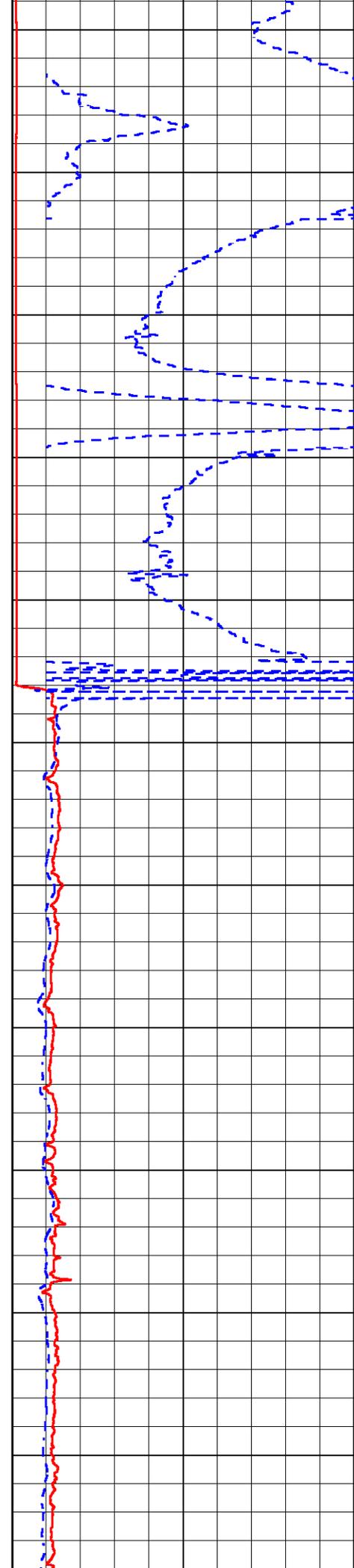
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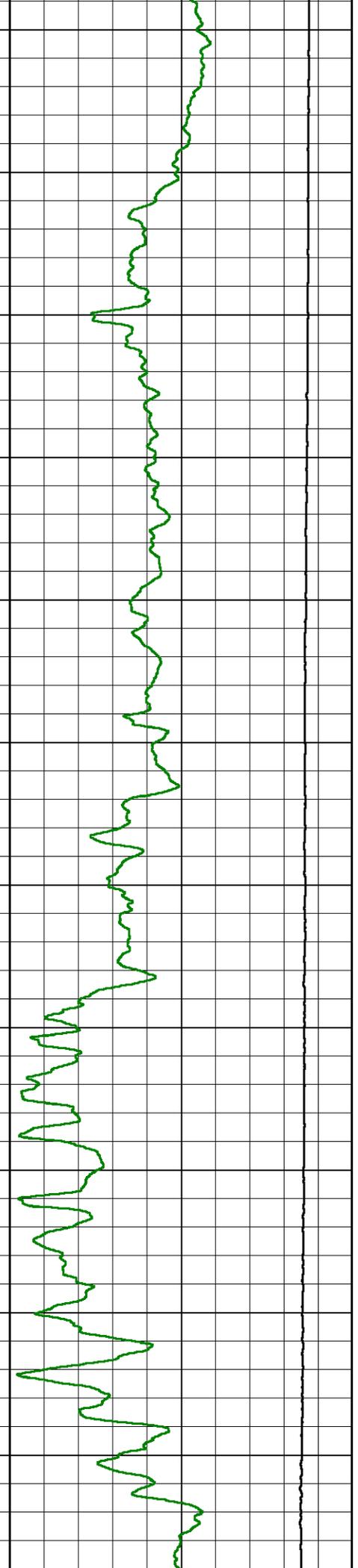
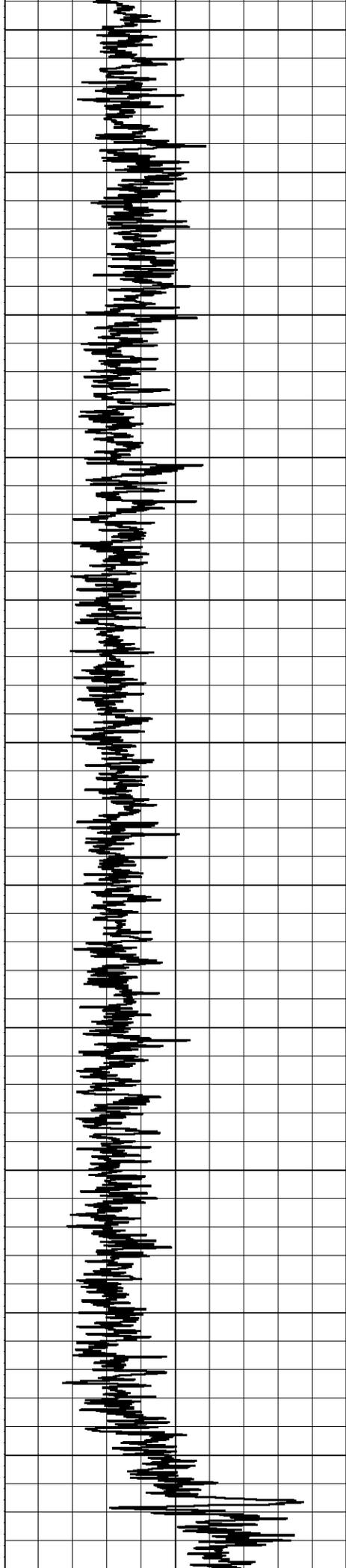
0	Gamma Ray (GAPI)	300	1000	Conductivity (mmho/m)	0
			15000	Line Tension (lb)	0
0	Shallow Resistivity (Ohm-m)	50			
0	Deep Resistivity (Ohm-m)	50			
	Shallow Resistivity				
50	(Ohm-m)	200			
50	Deep Resistivity (Ohm-m)	200			

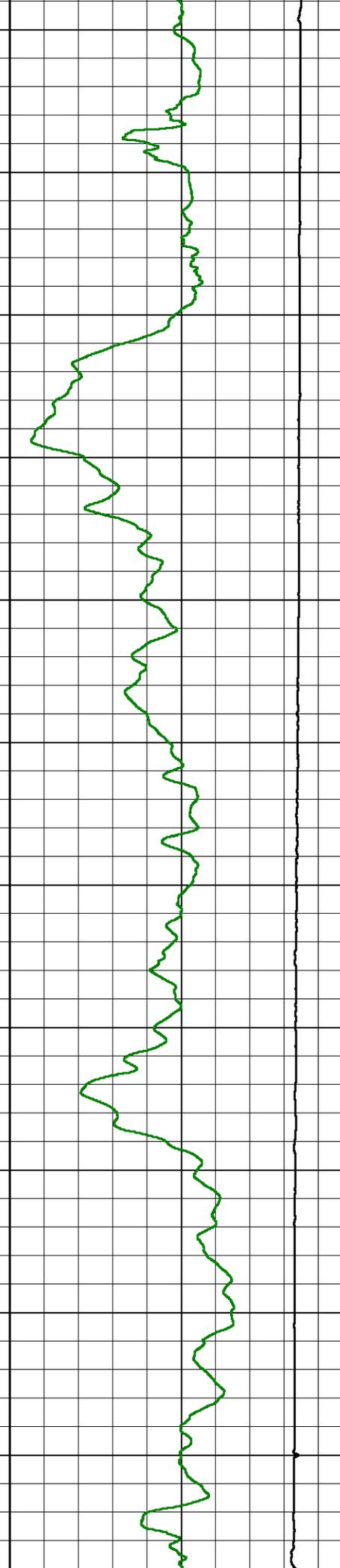
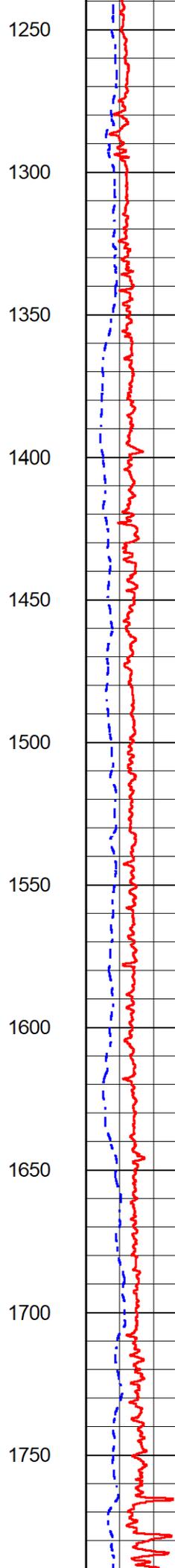
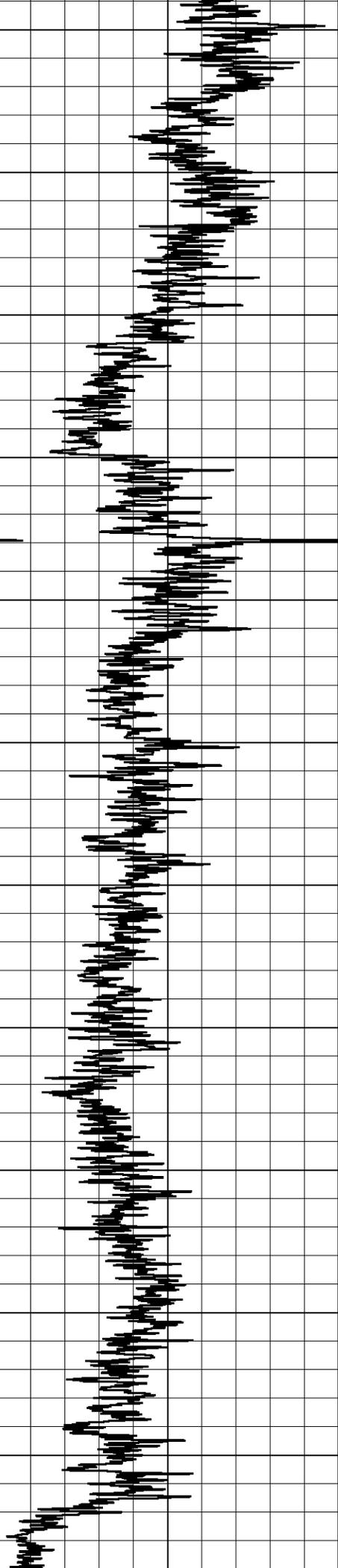


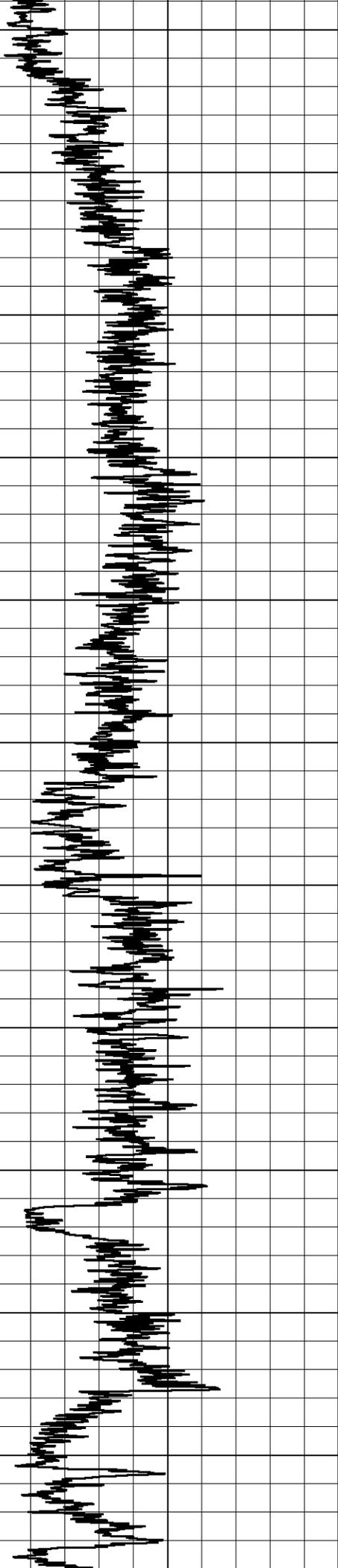


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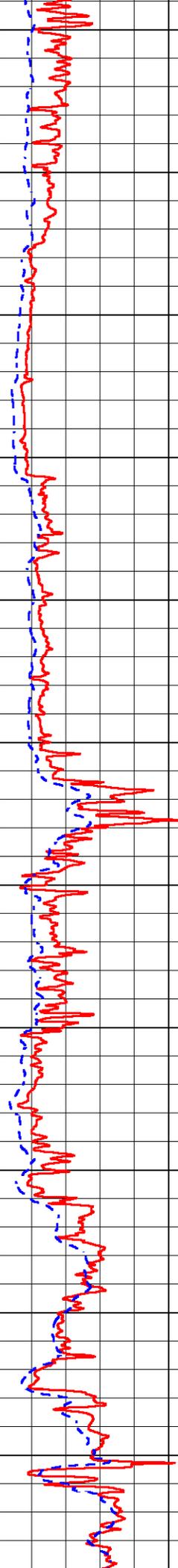


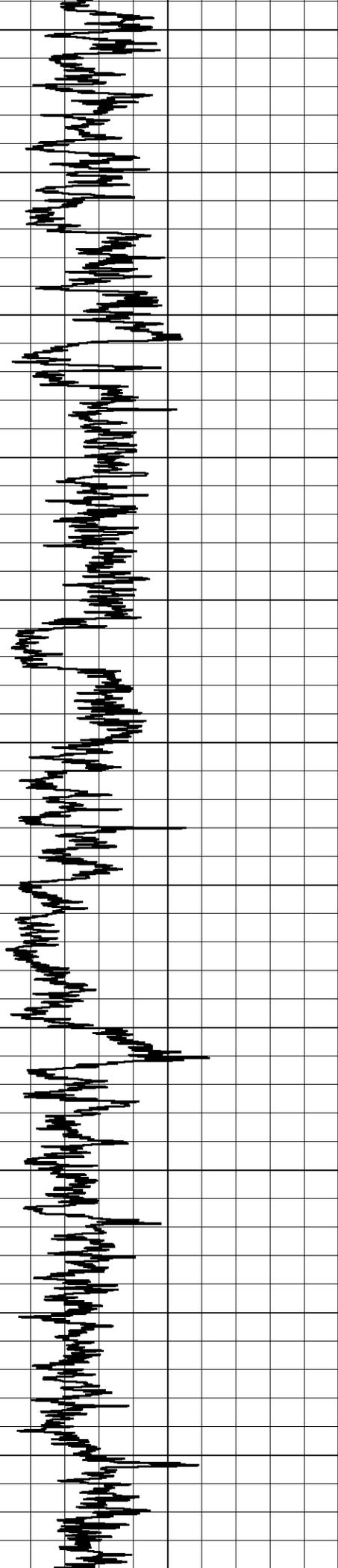




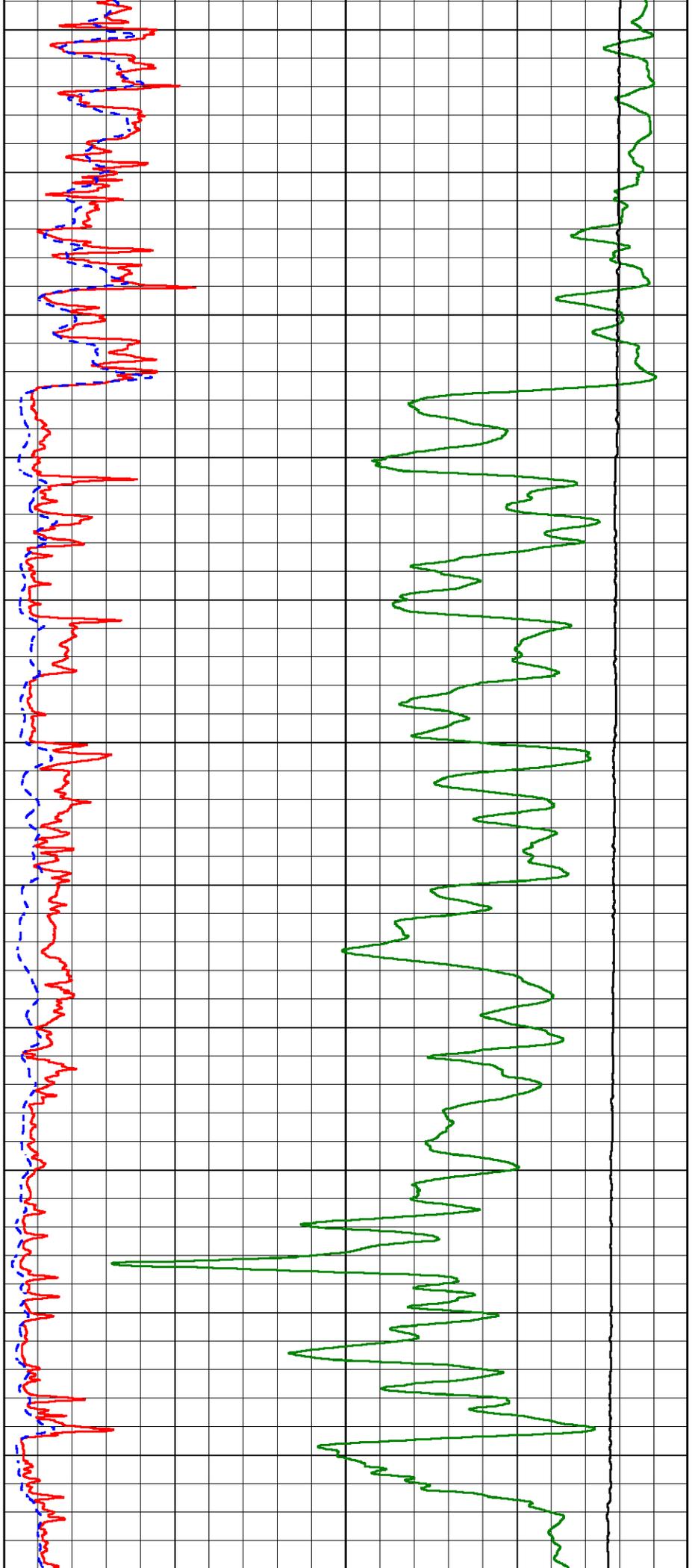


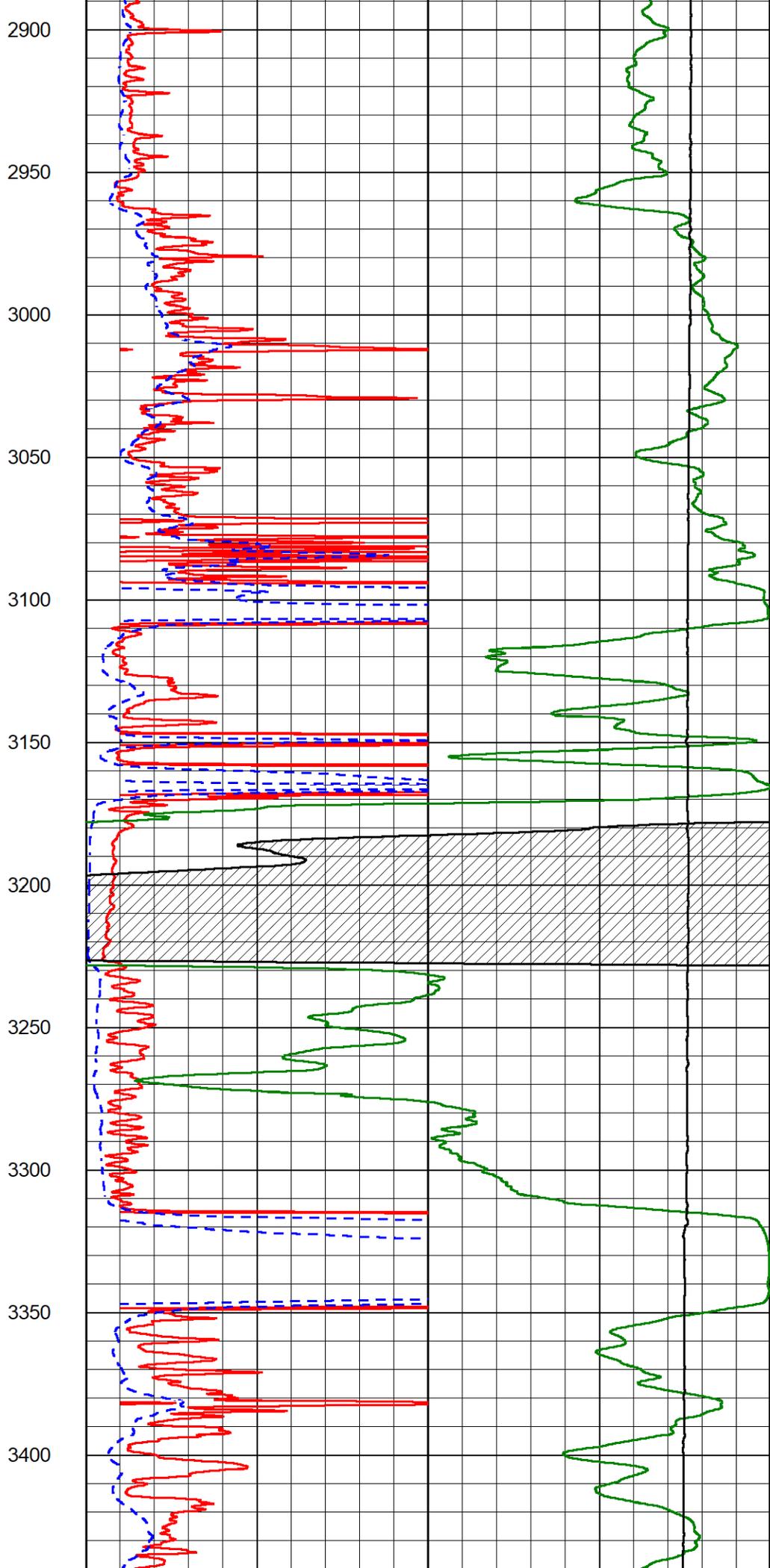
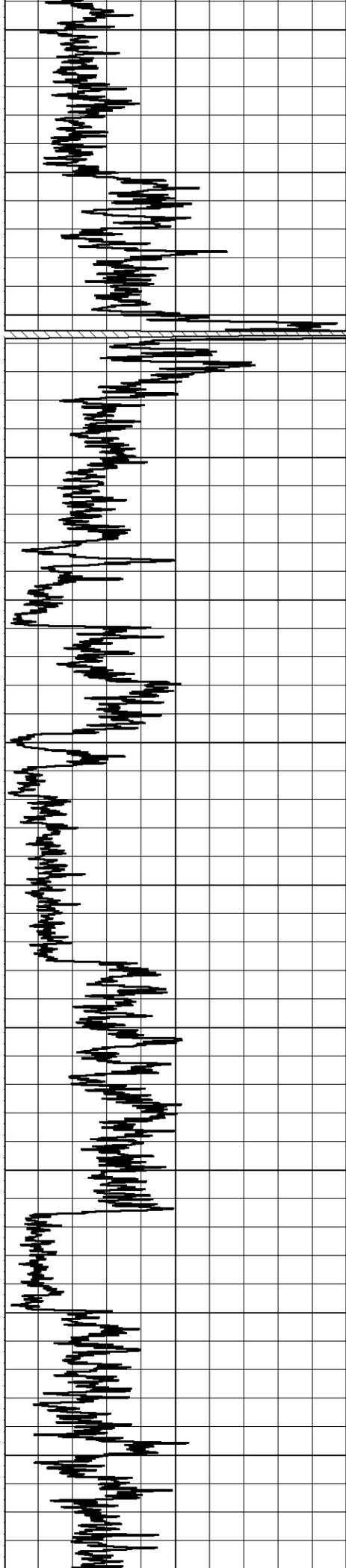
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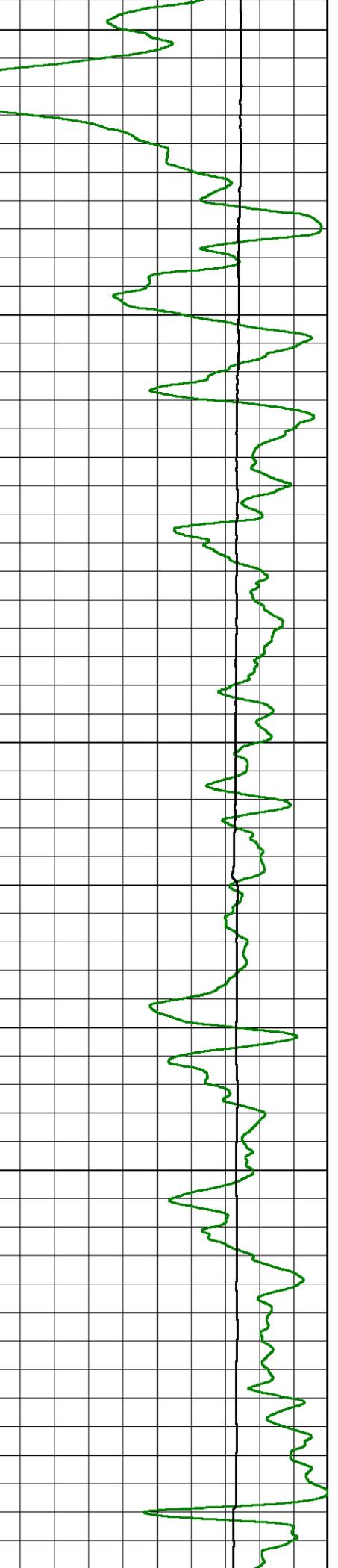
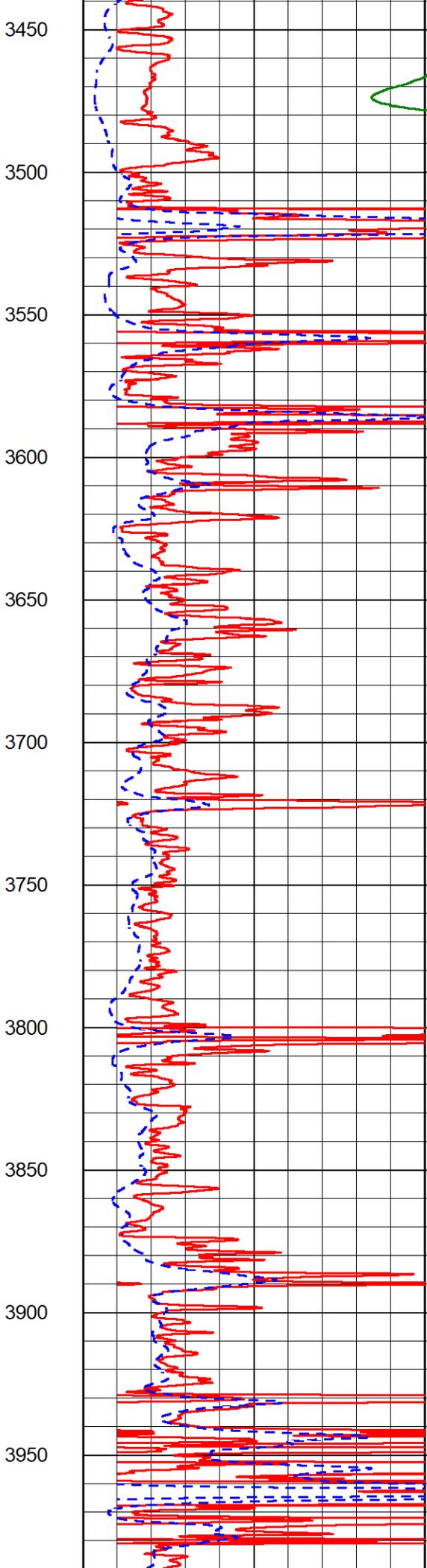
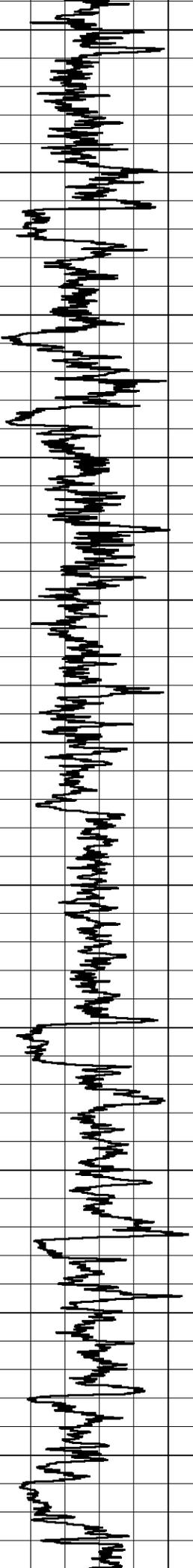


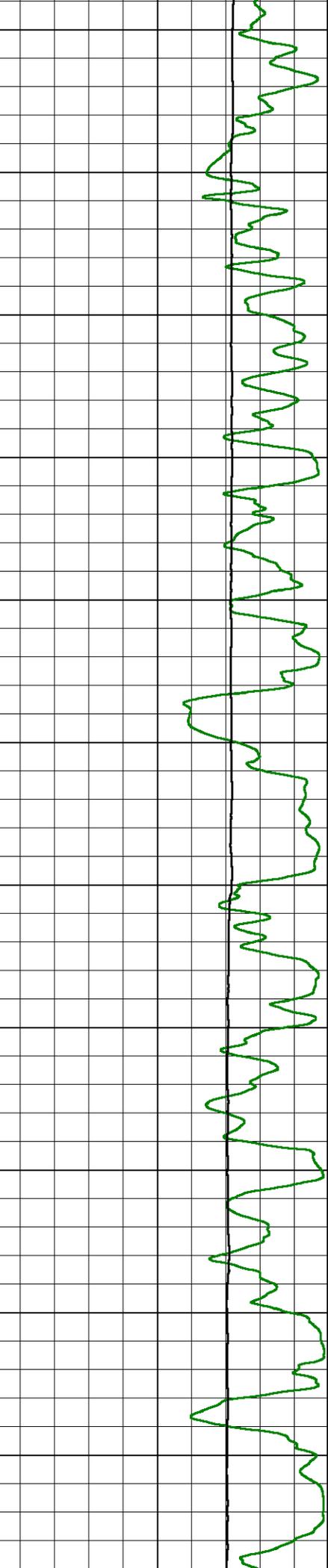
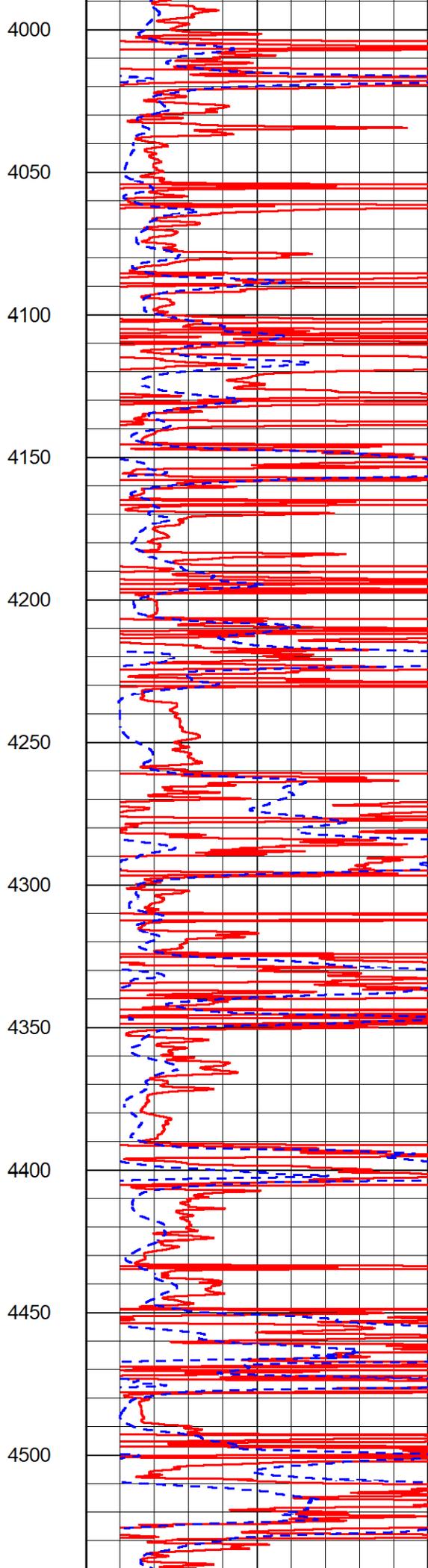
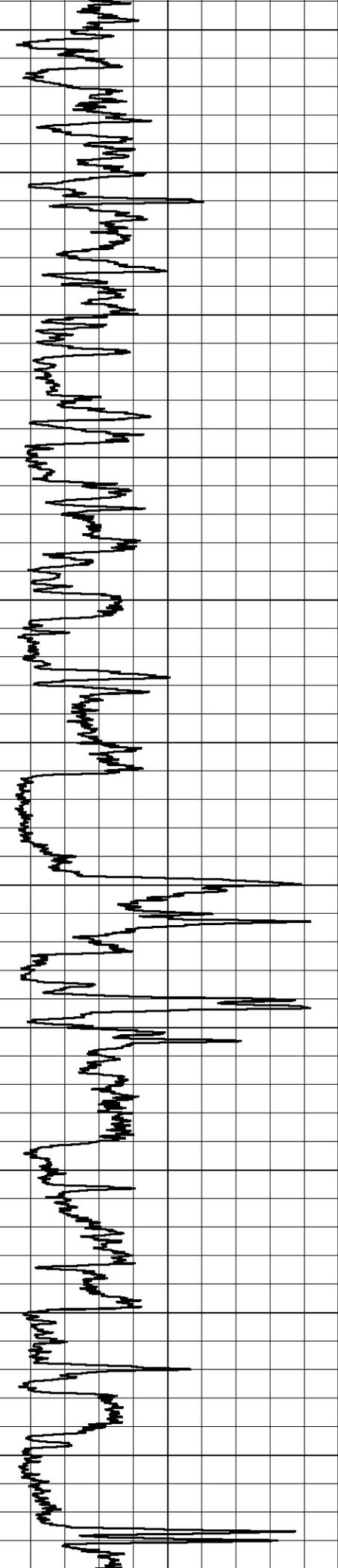


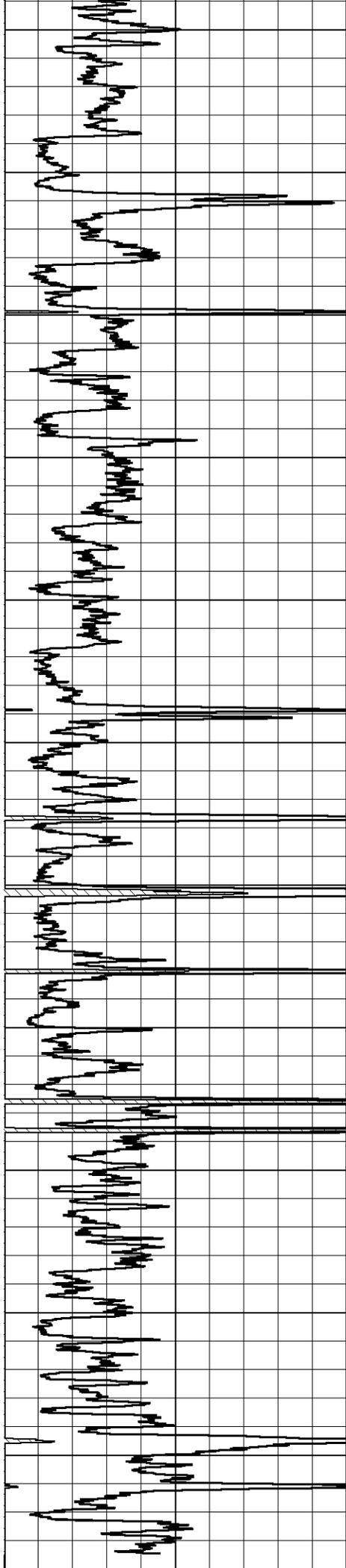
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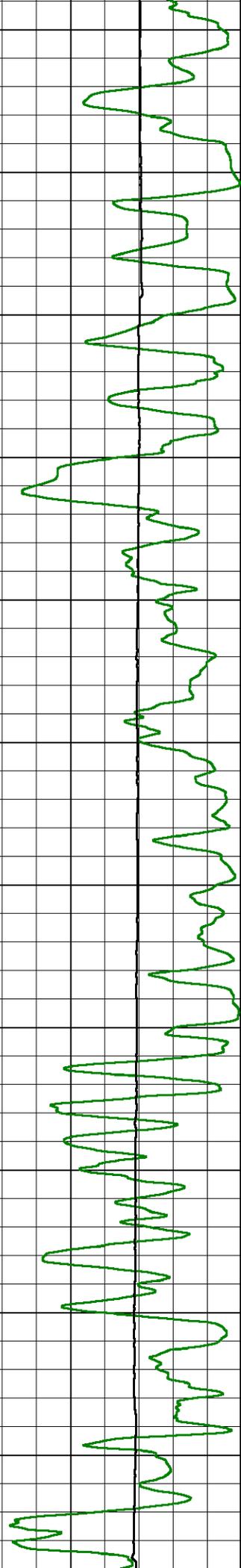
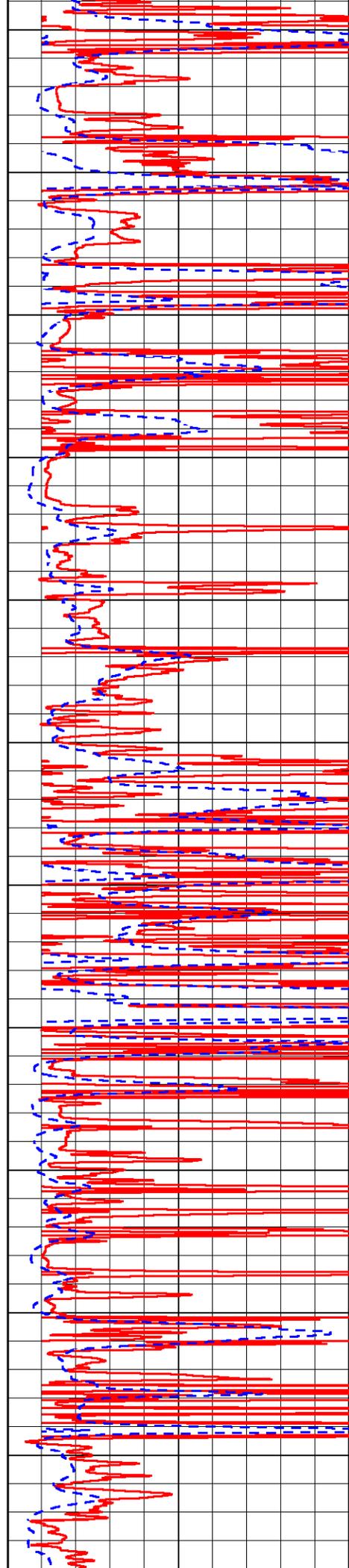
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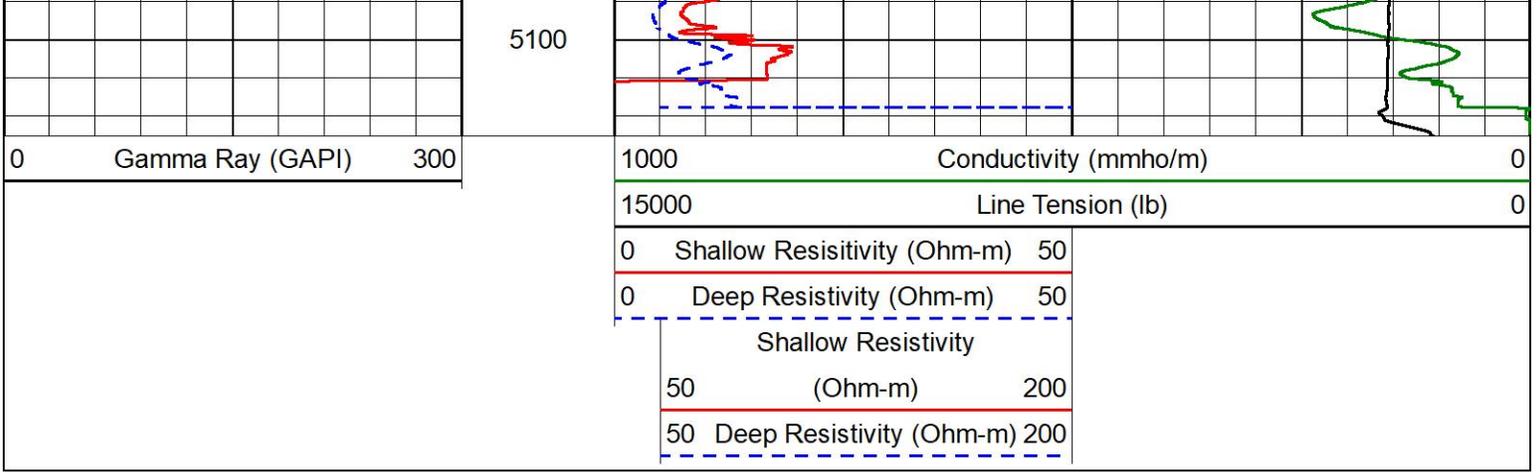
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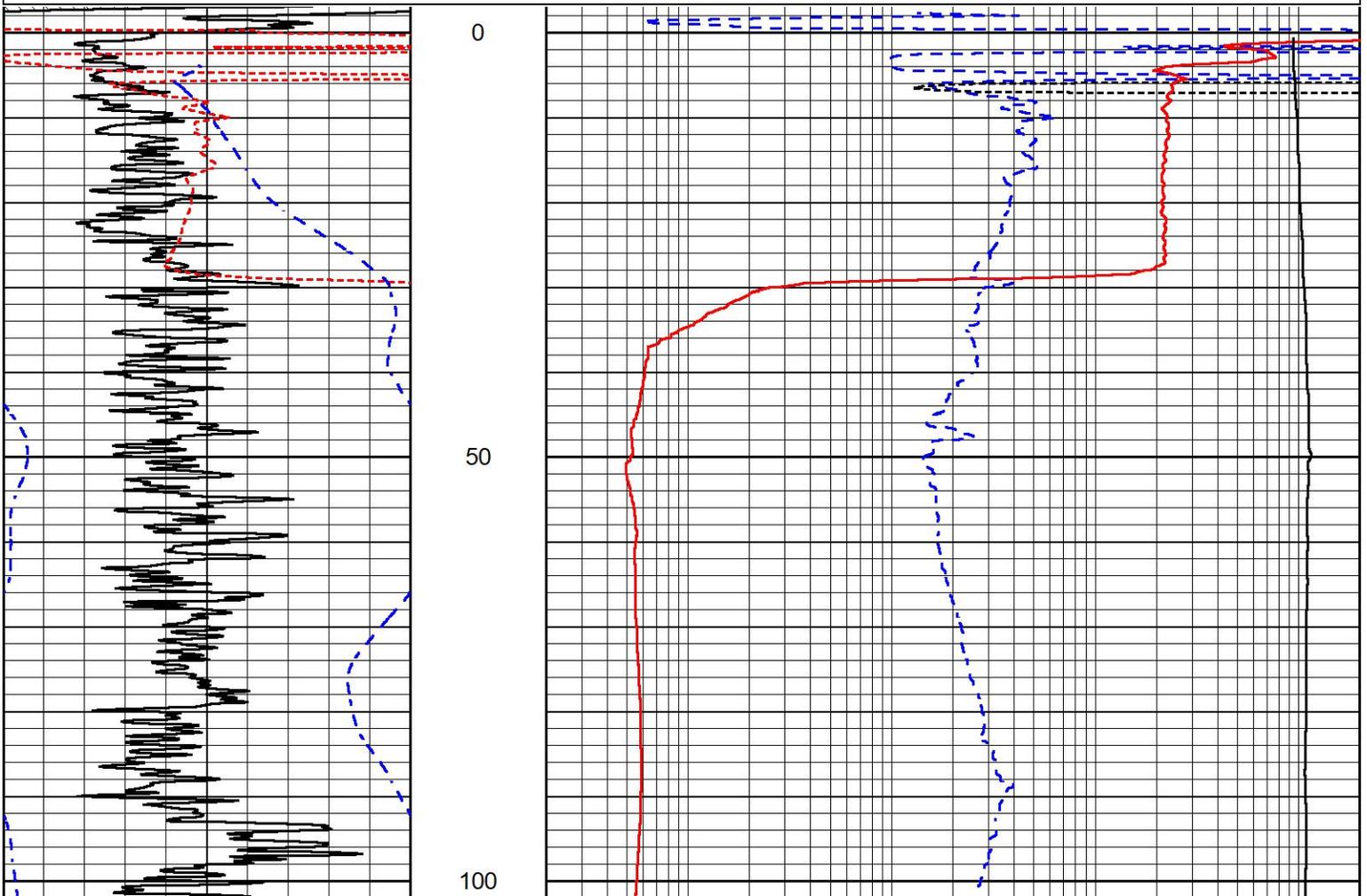
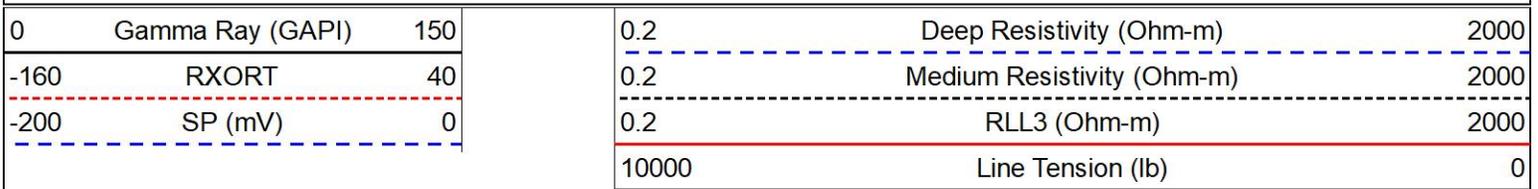


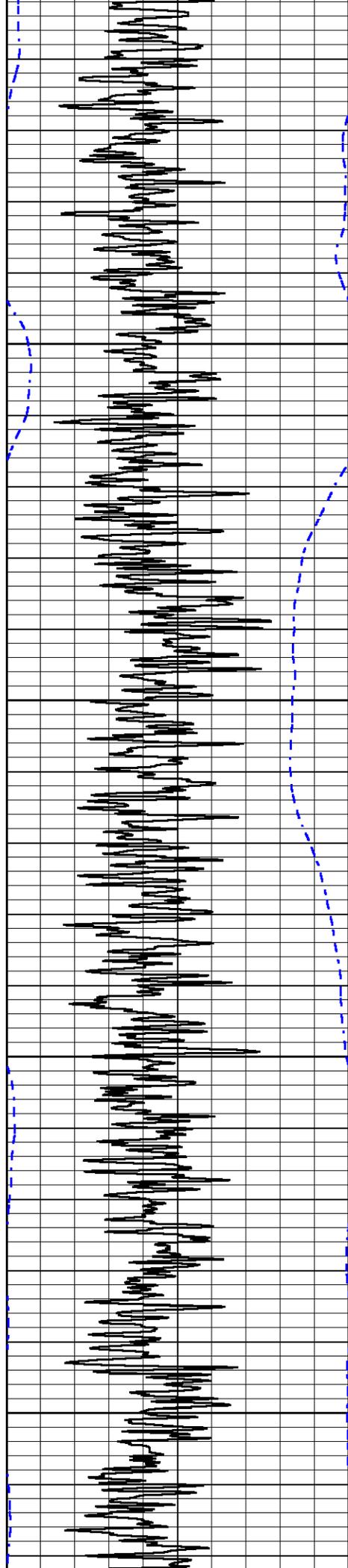


DETAIL SECTION

MAIN PASS

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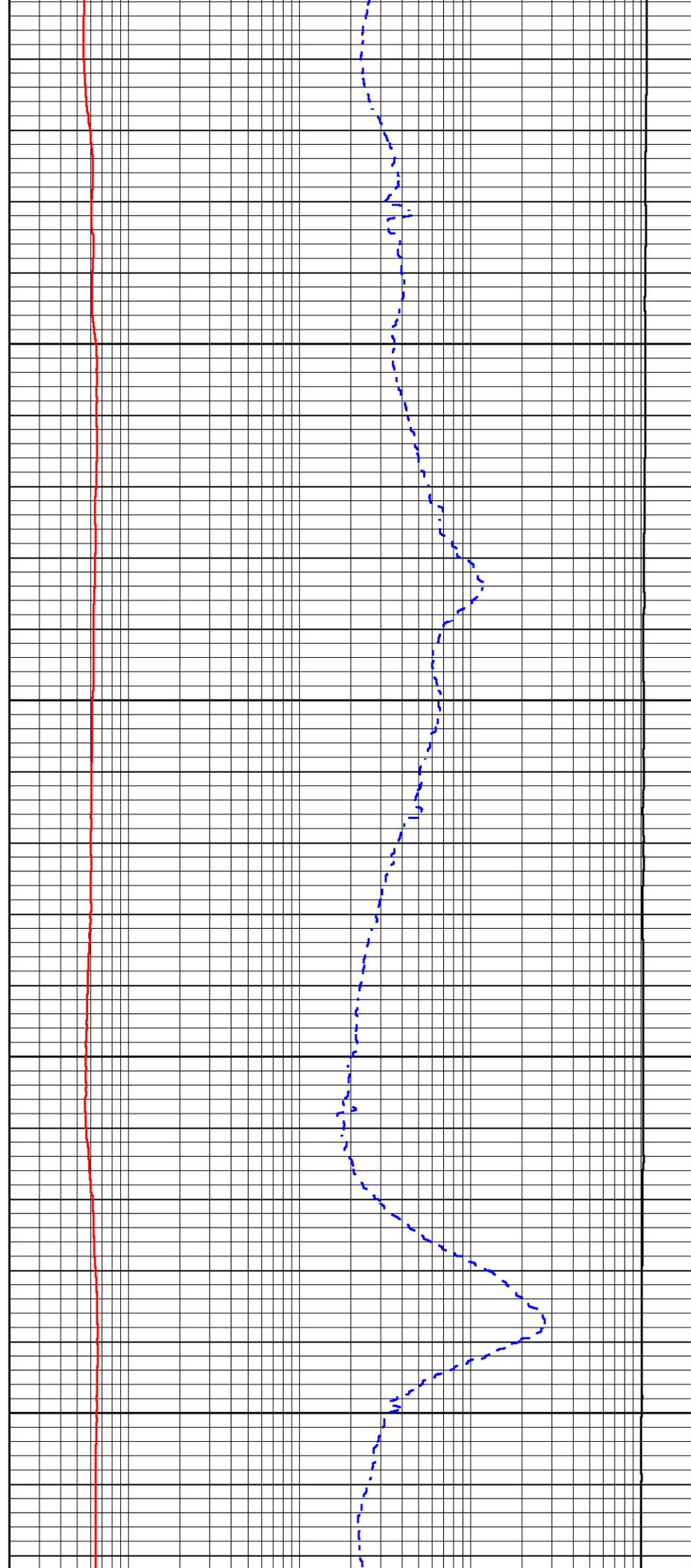


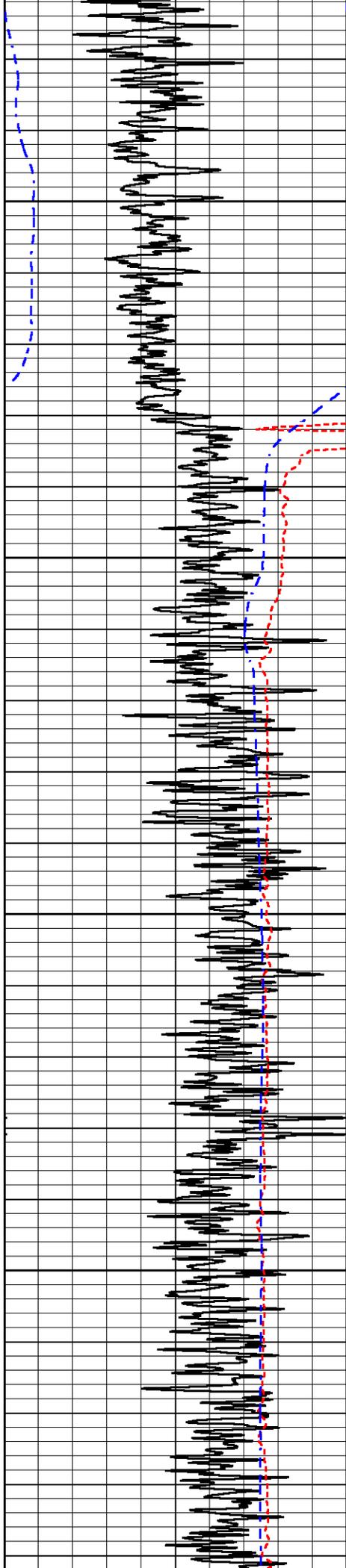
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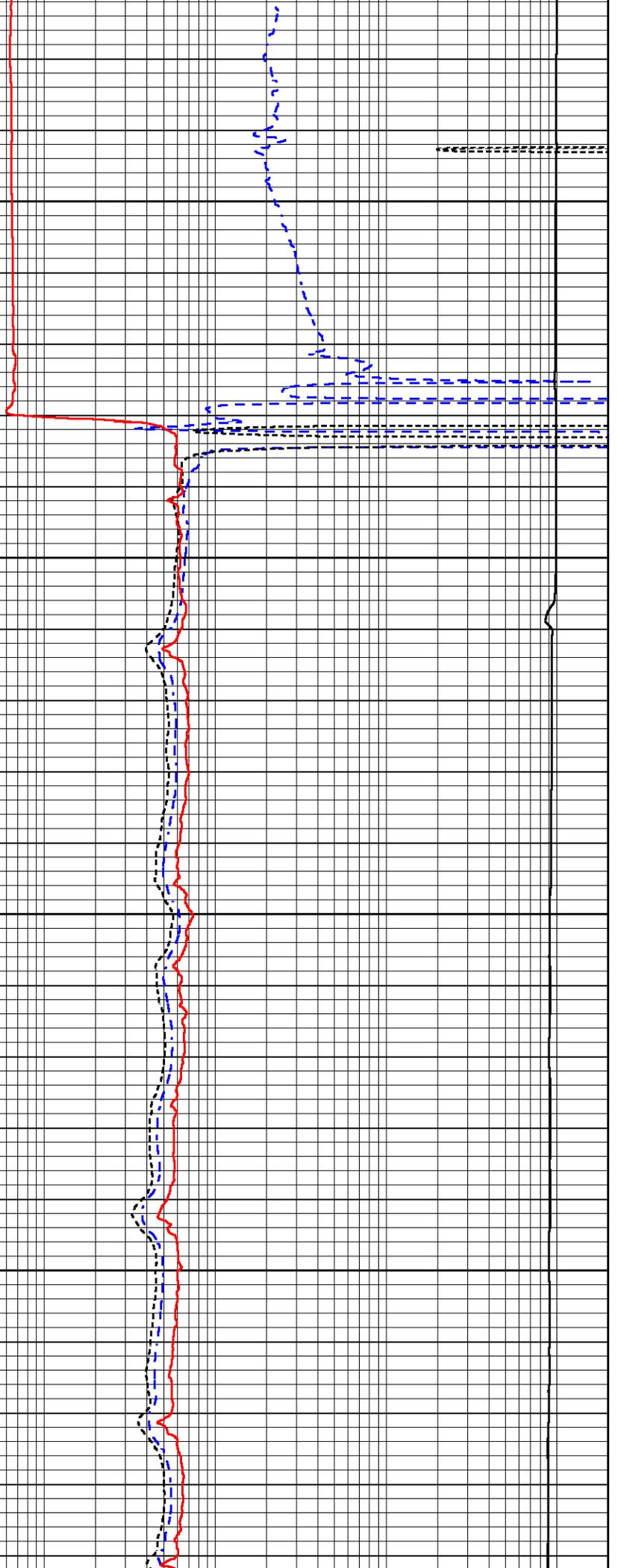


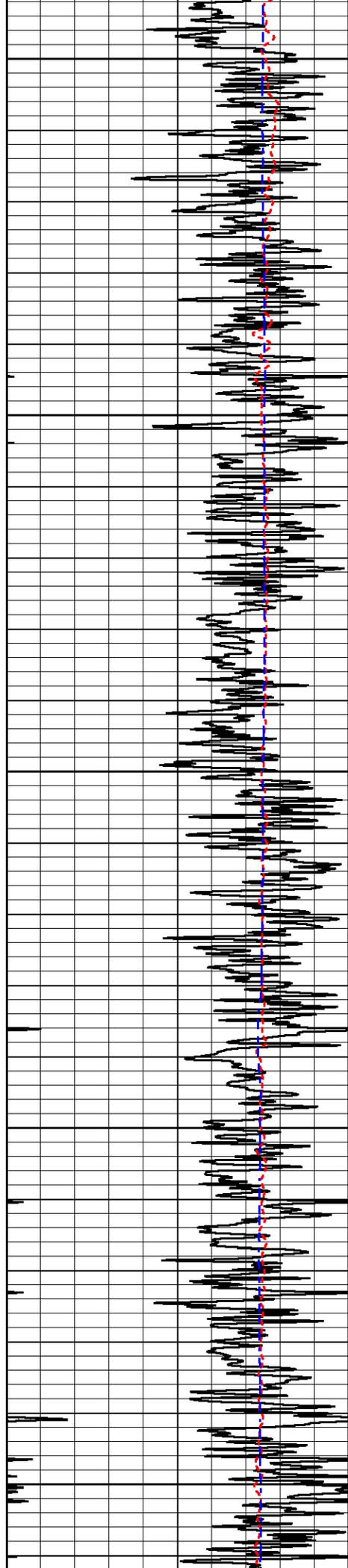
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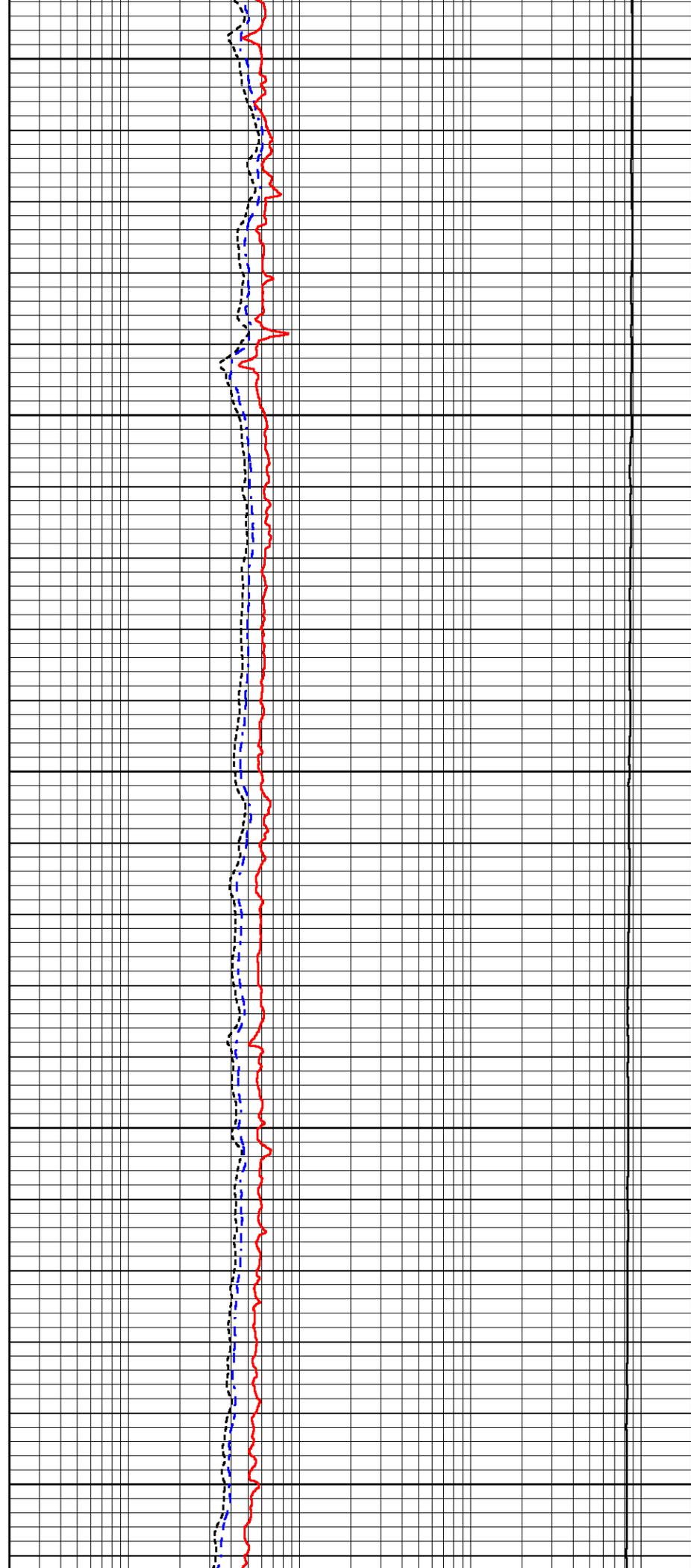
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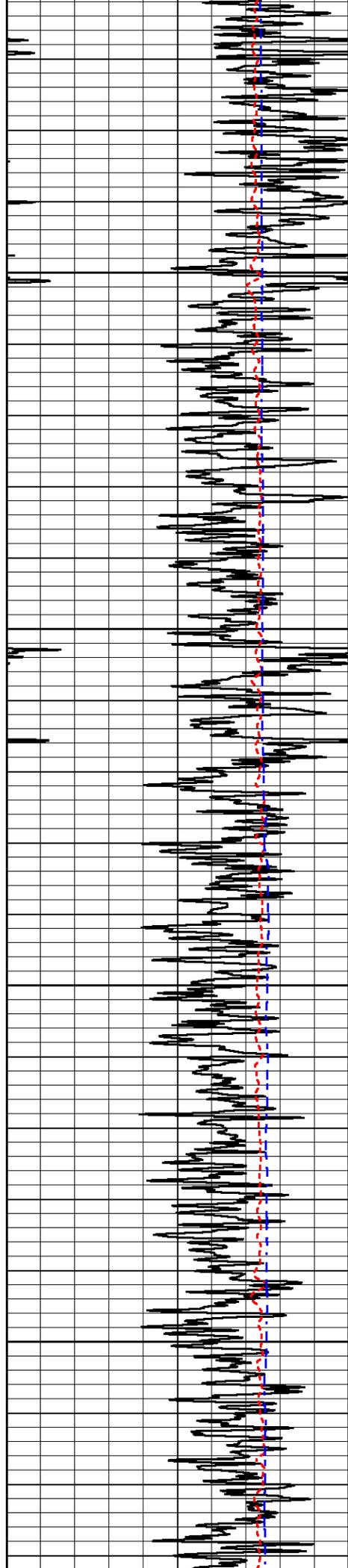
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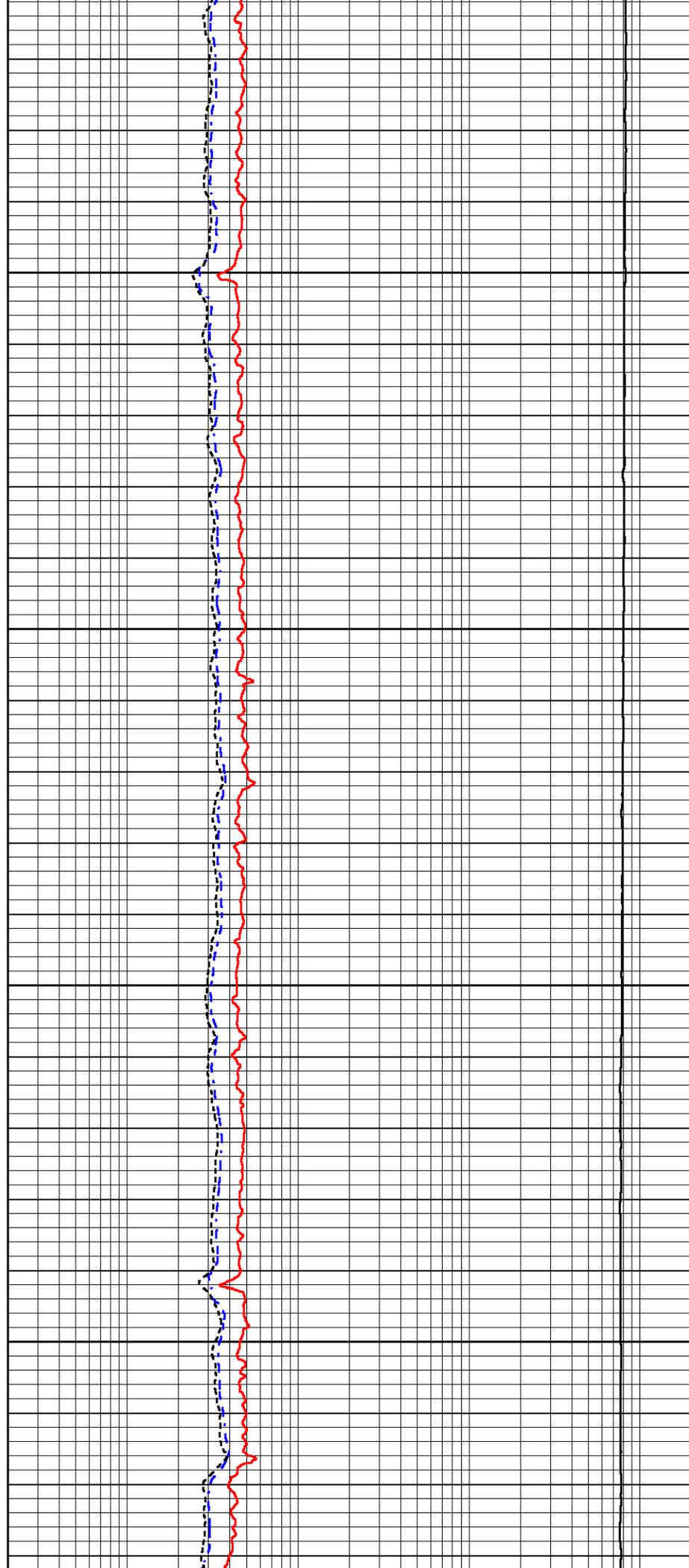


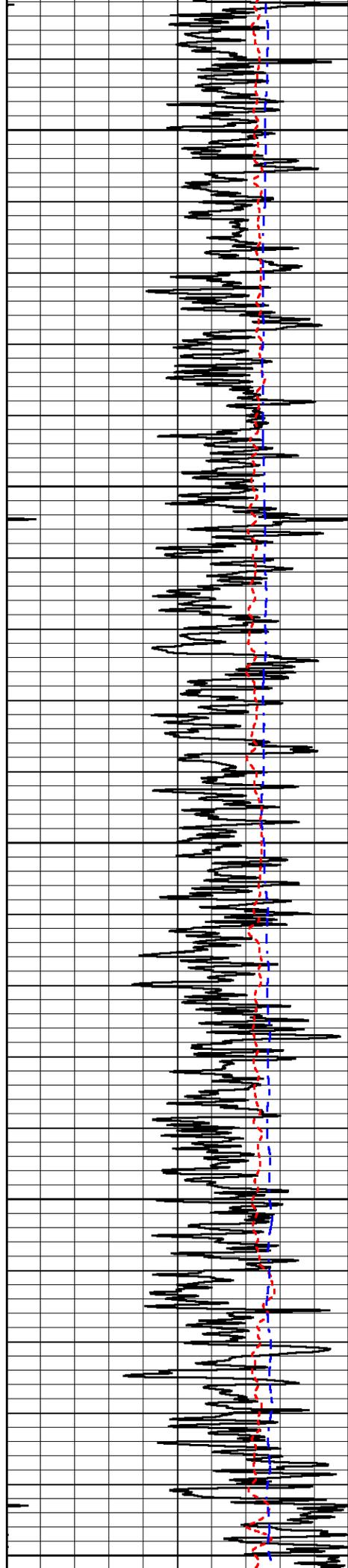
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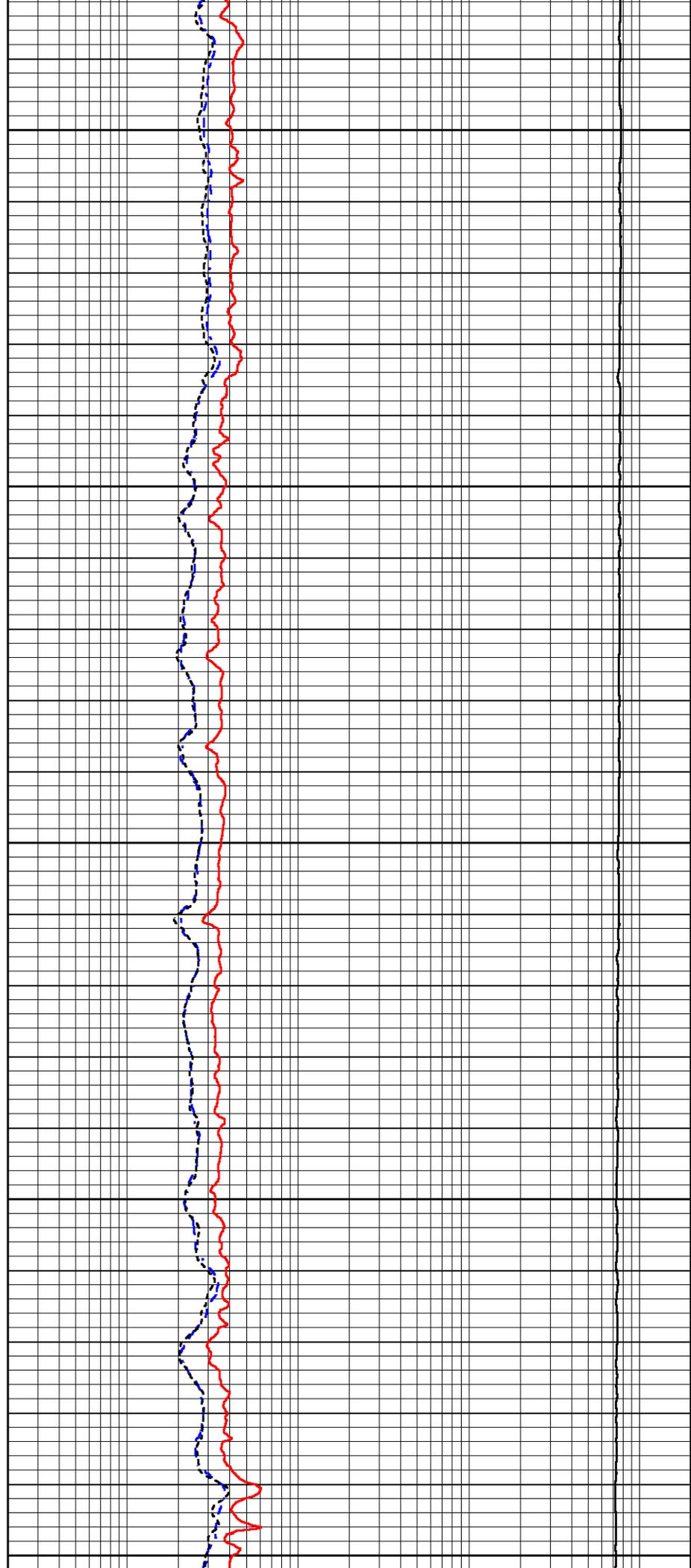
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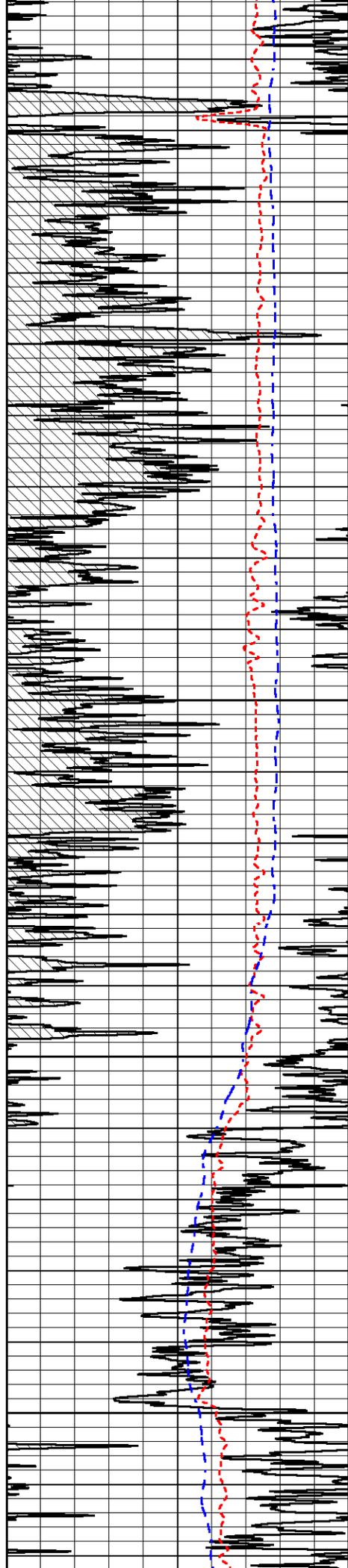
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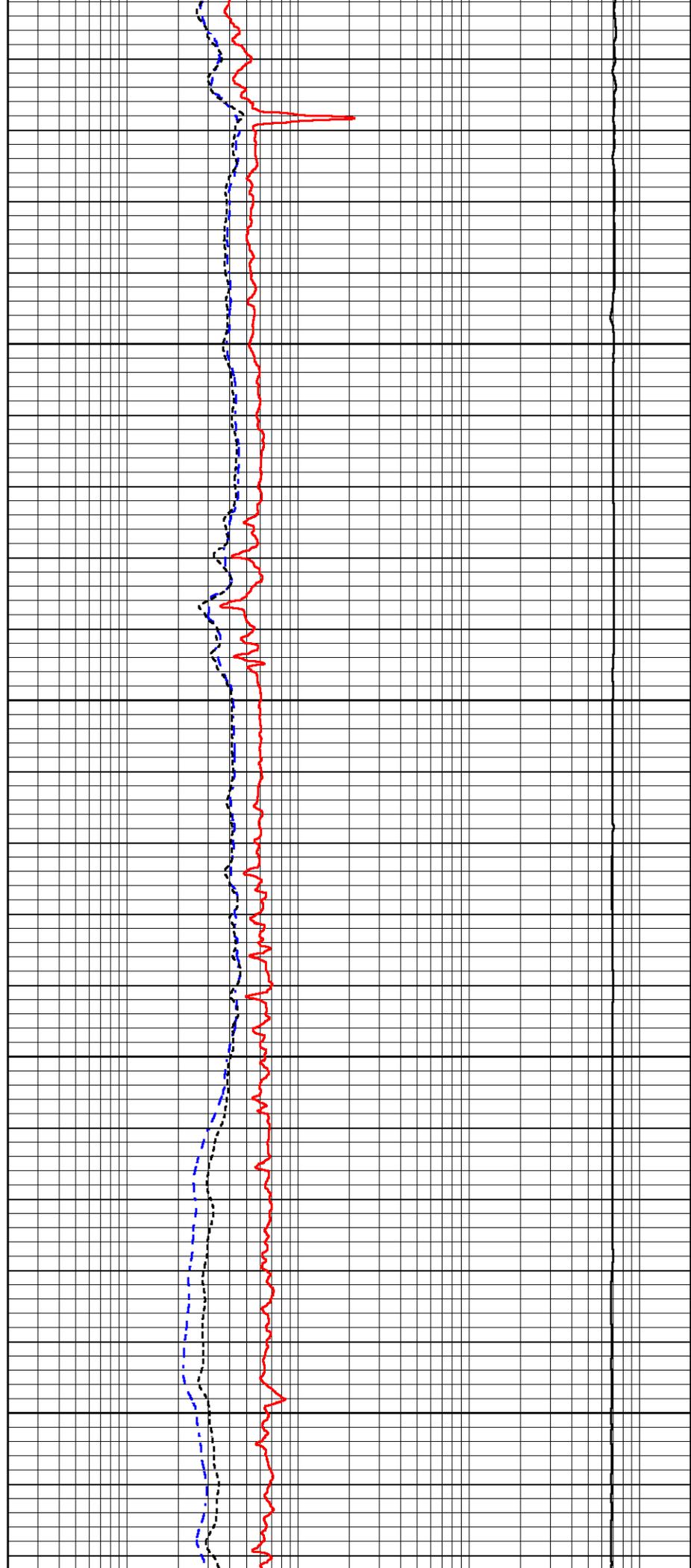


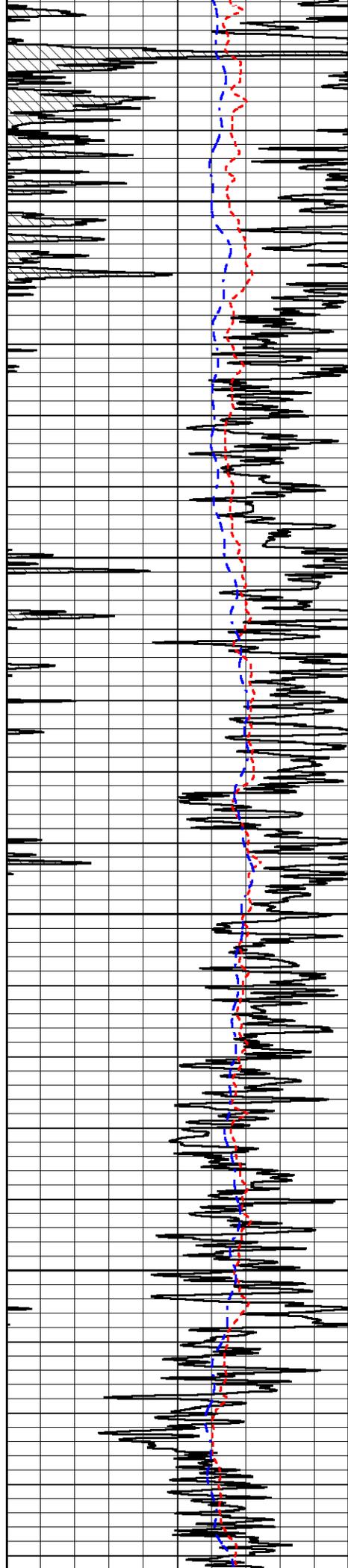
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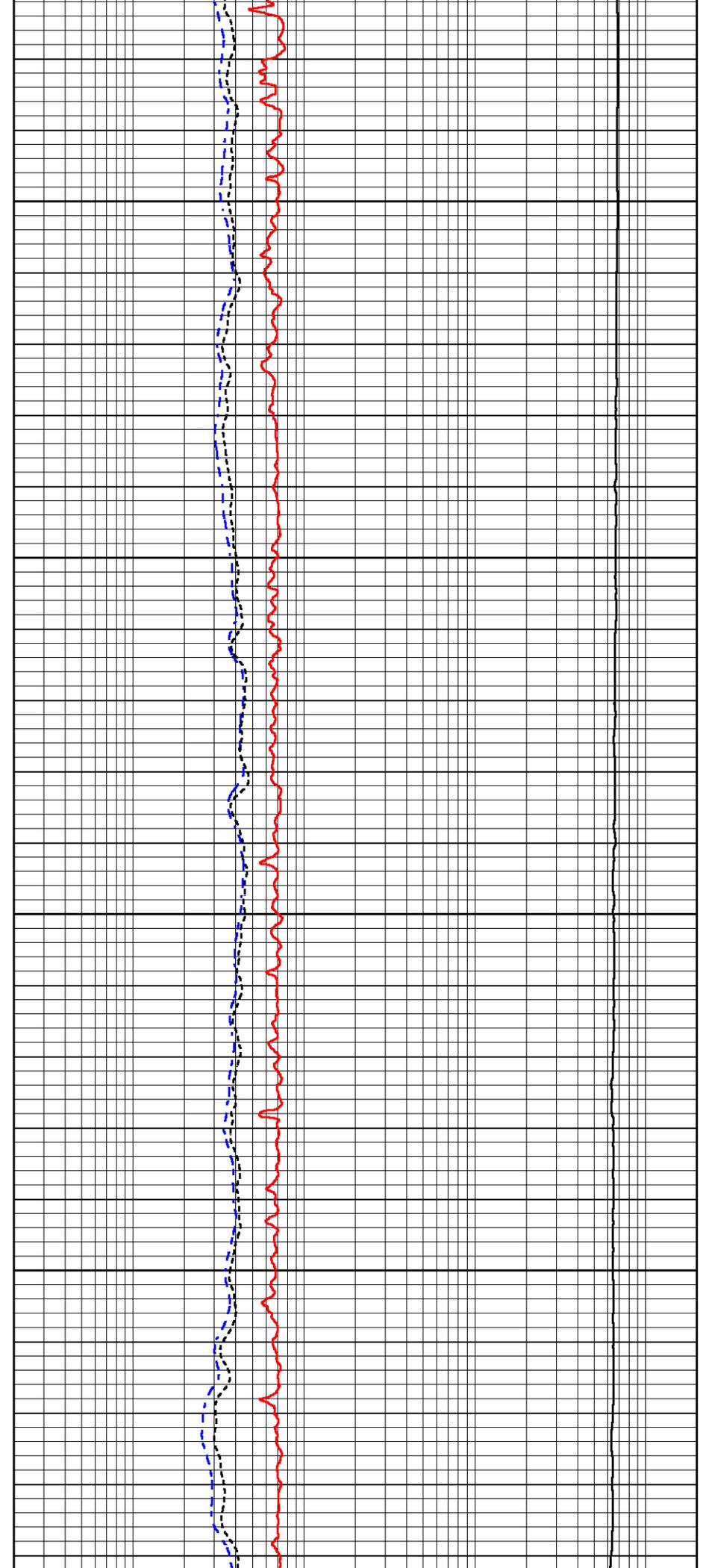


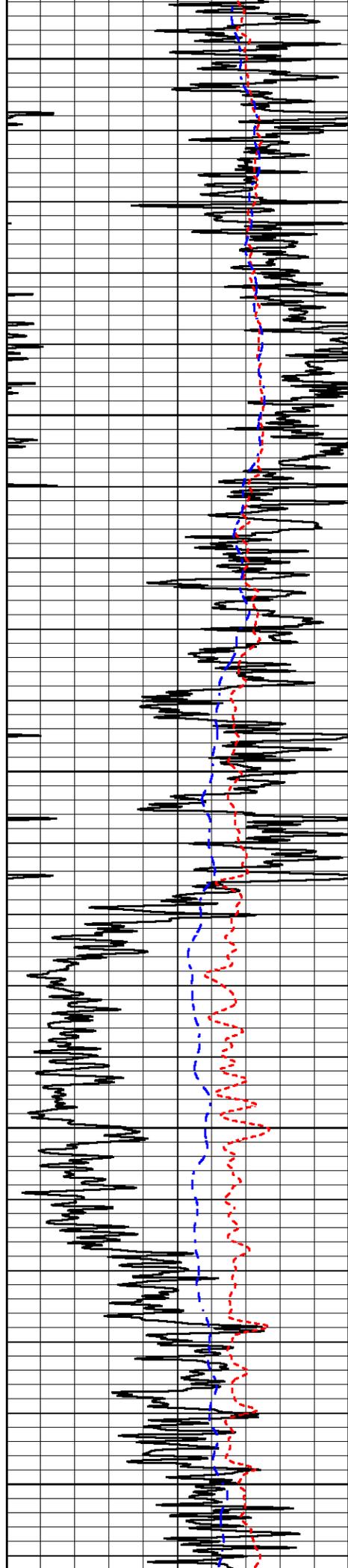
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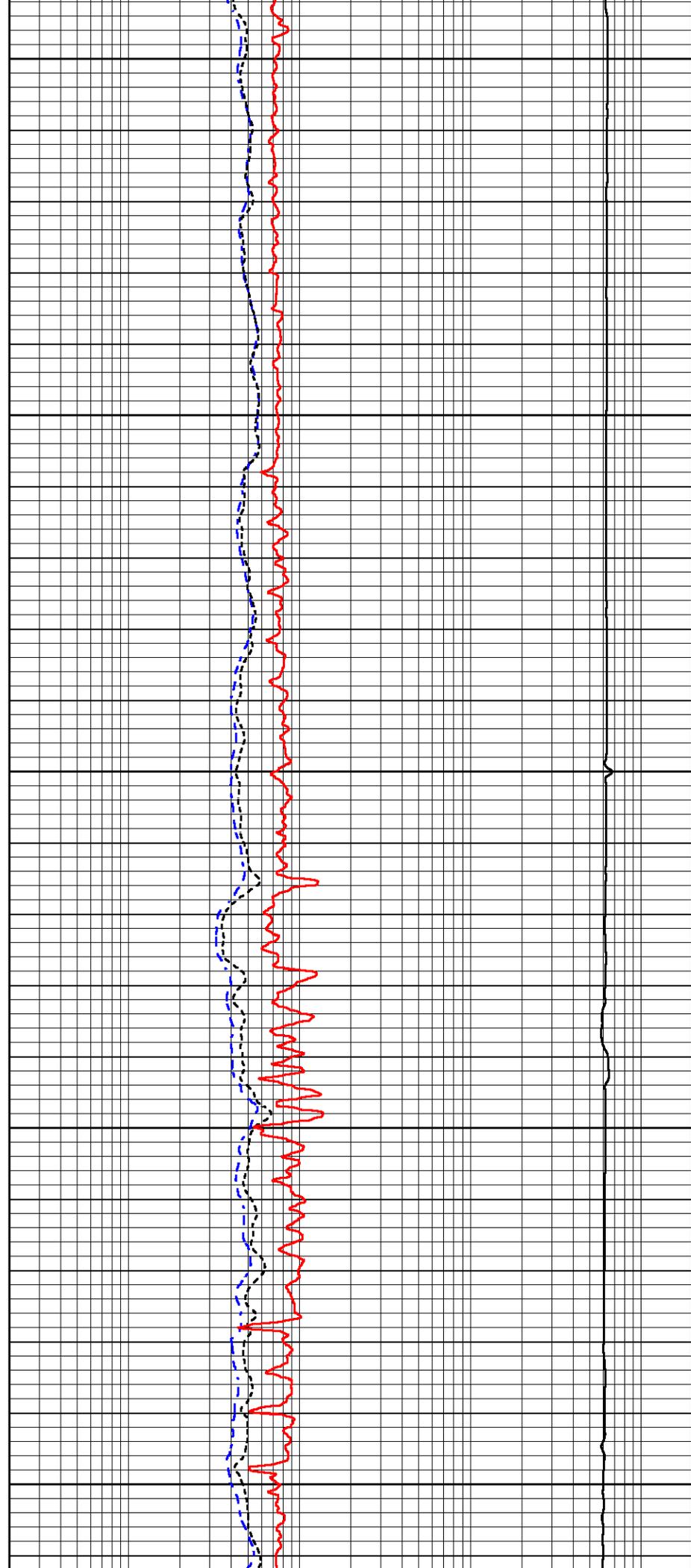
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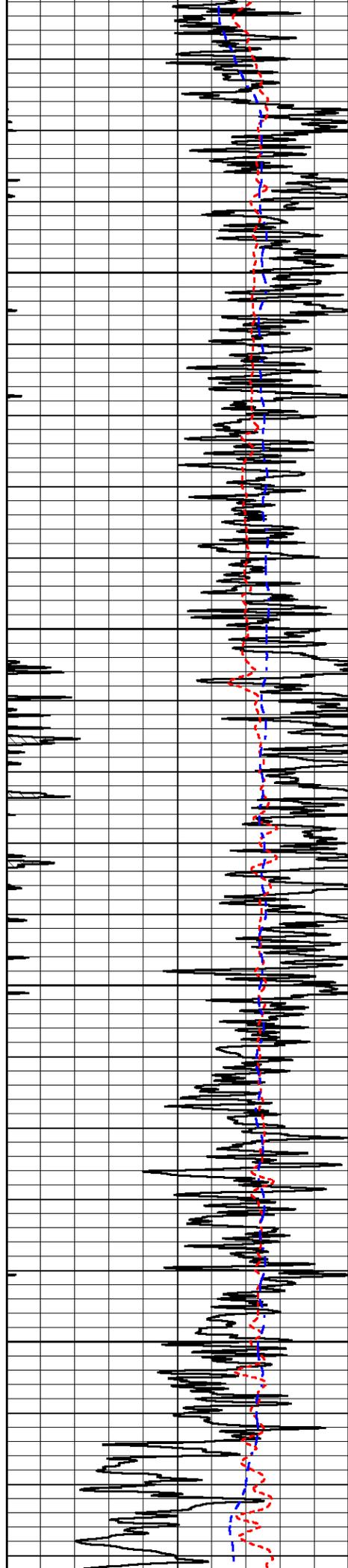
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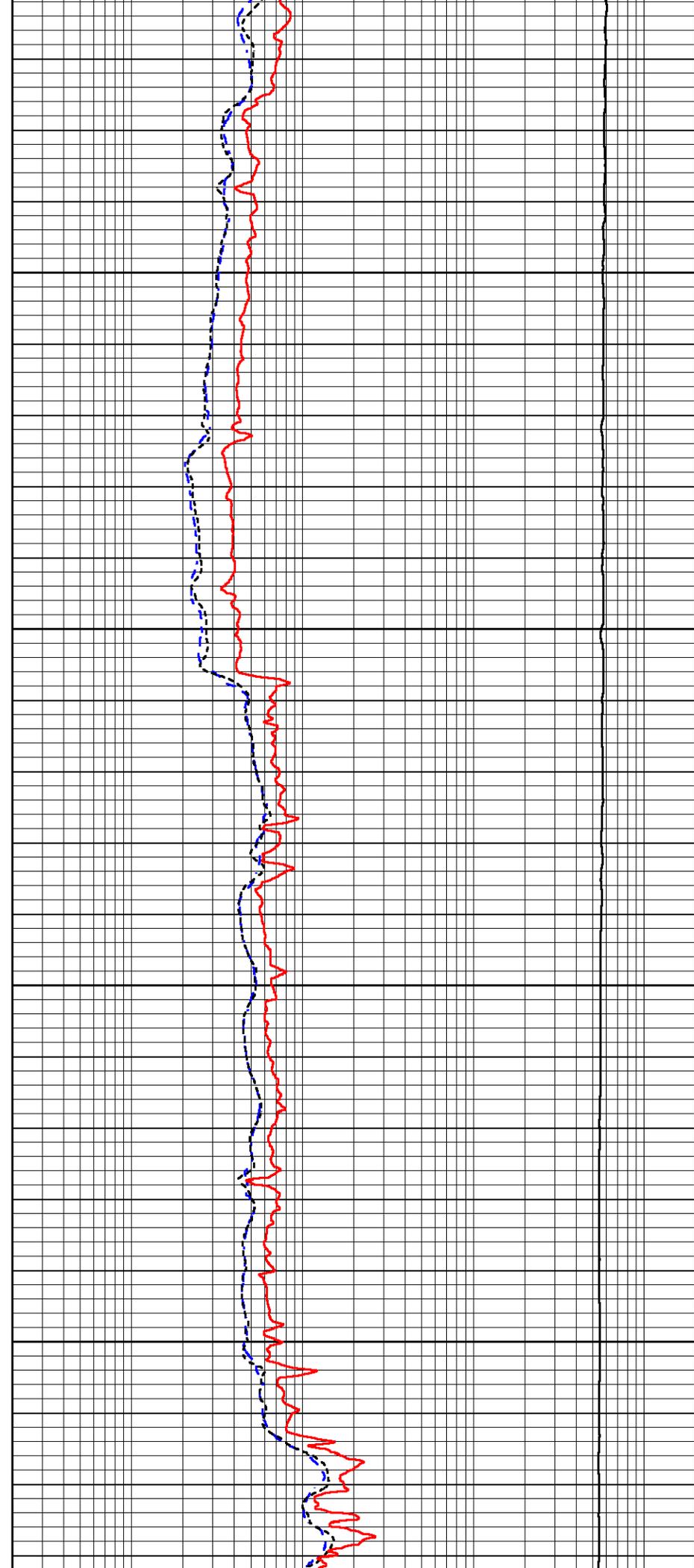


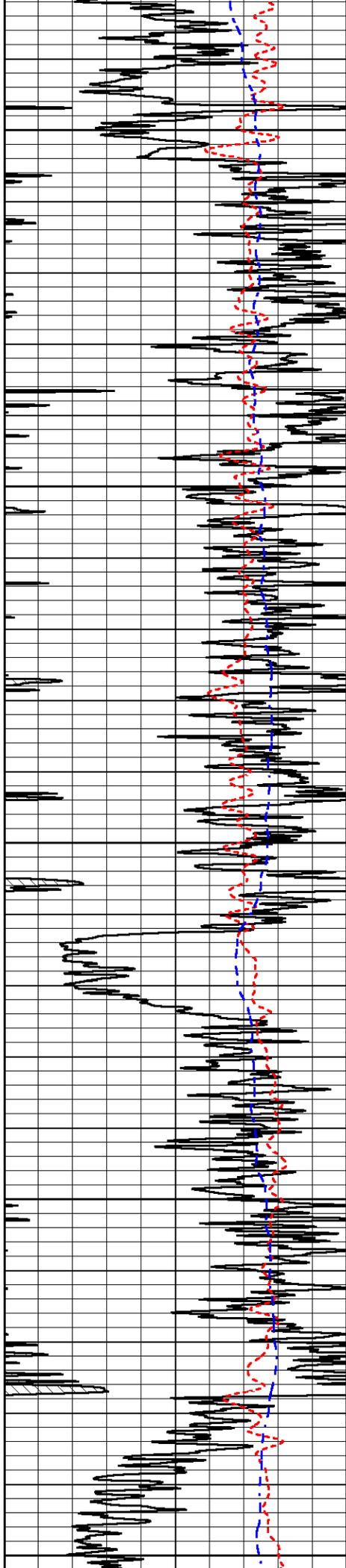
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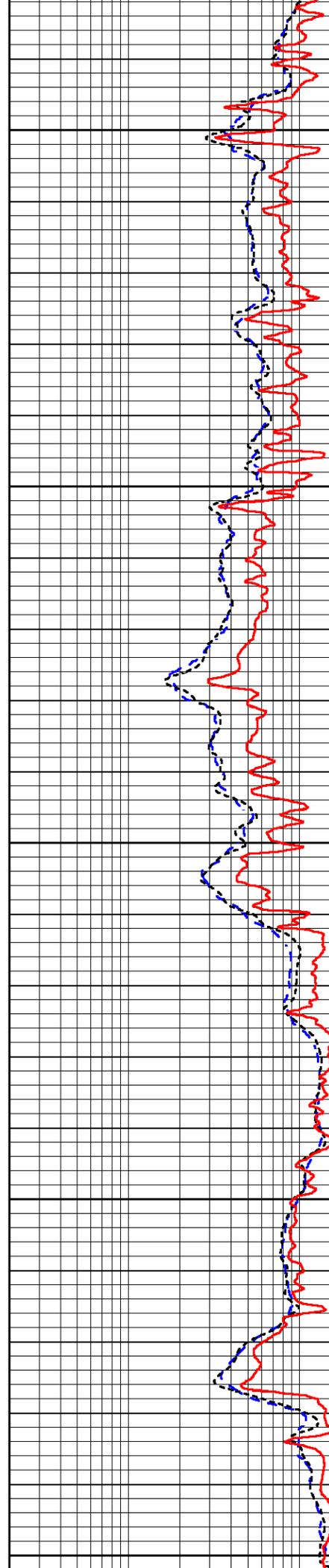
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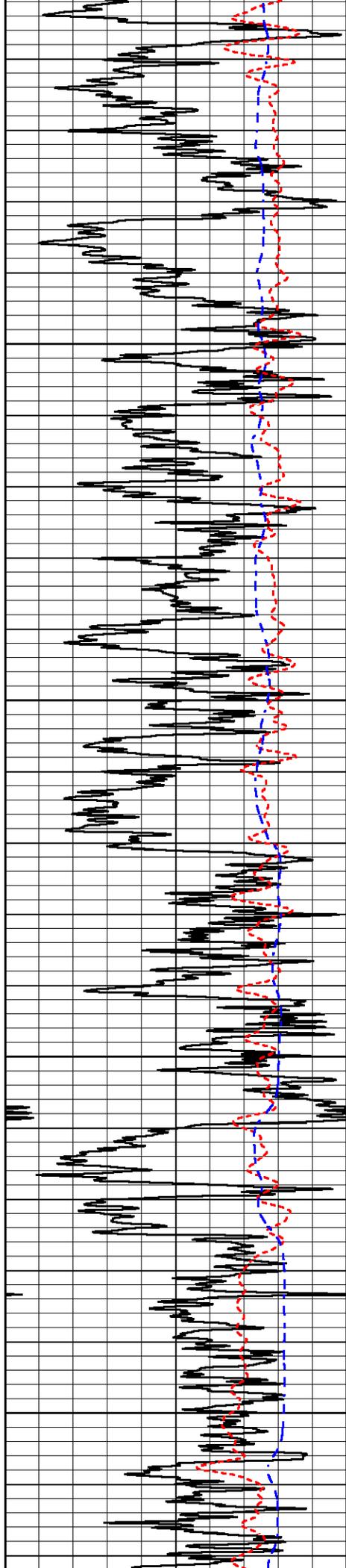
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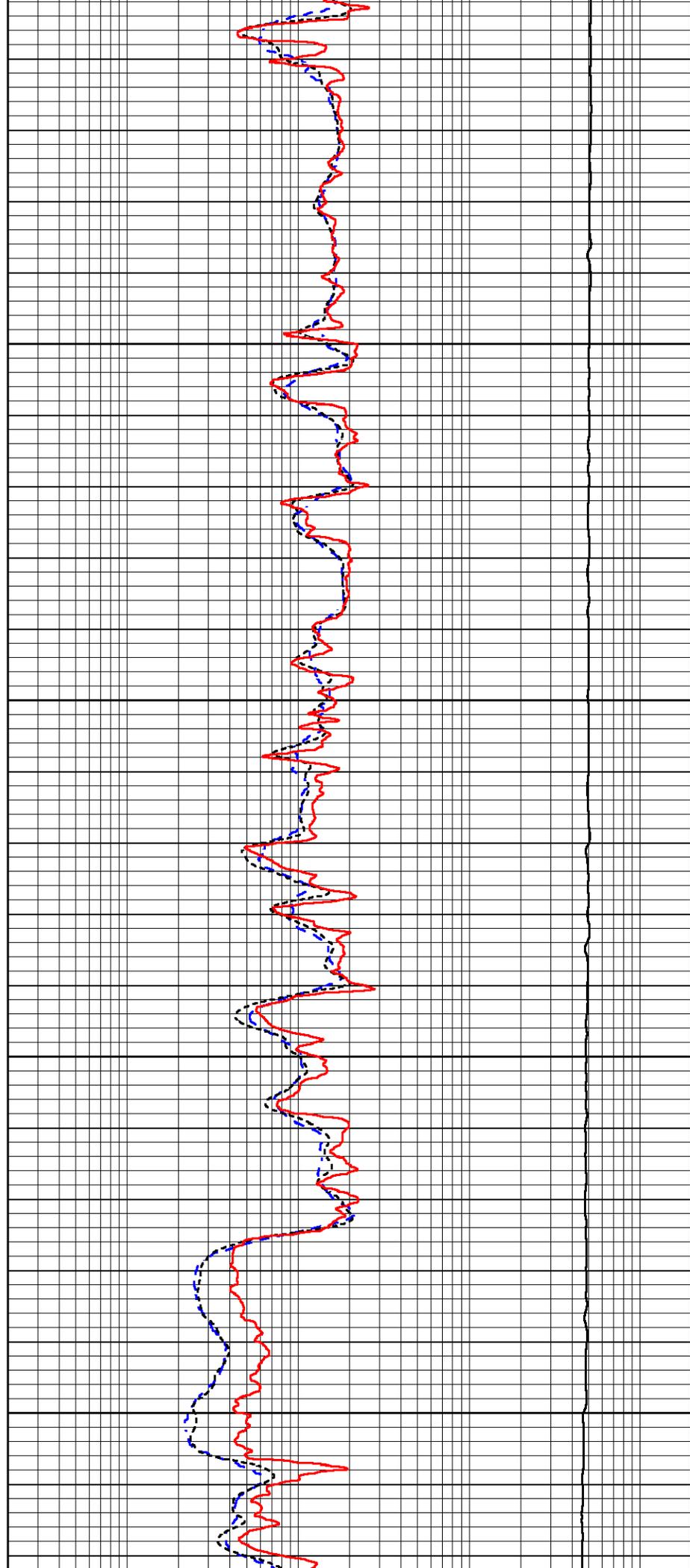


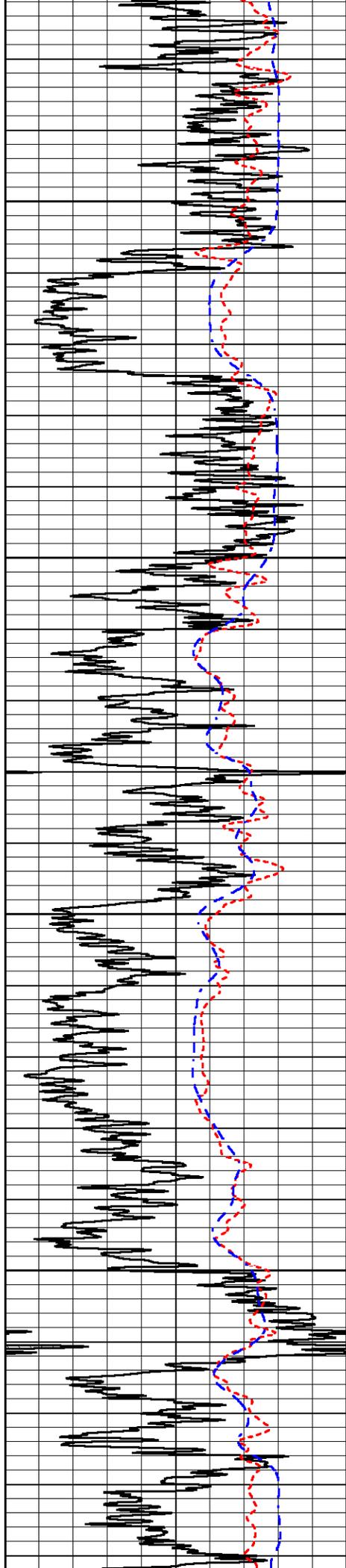
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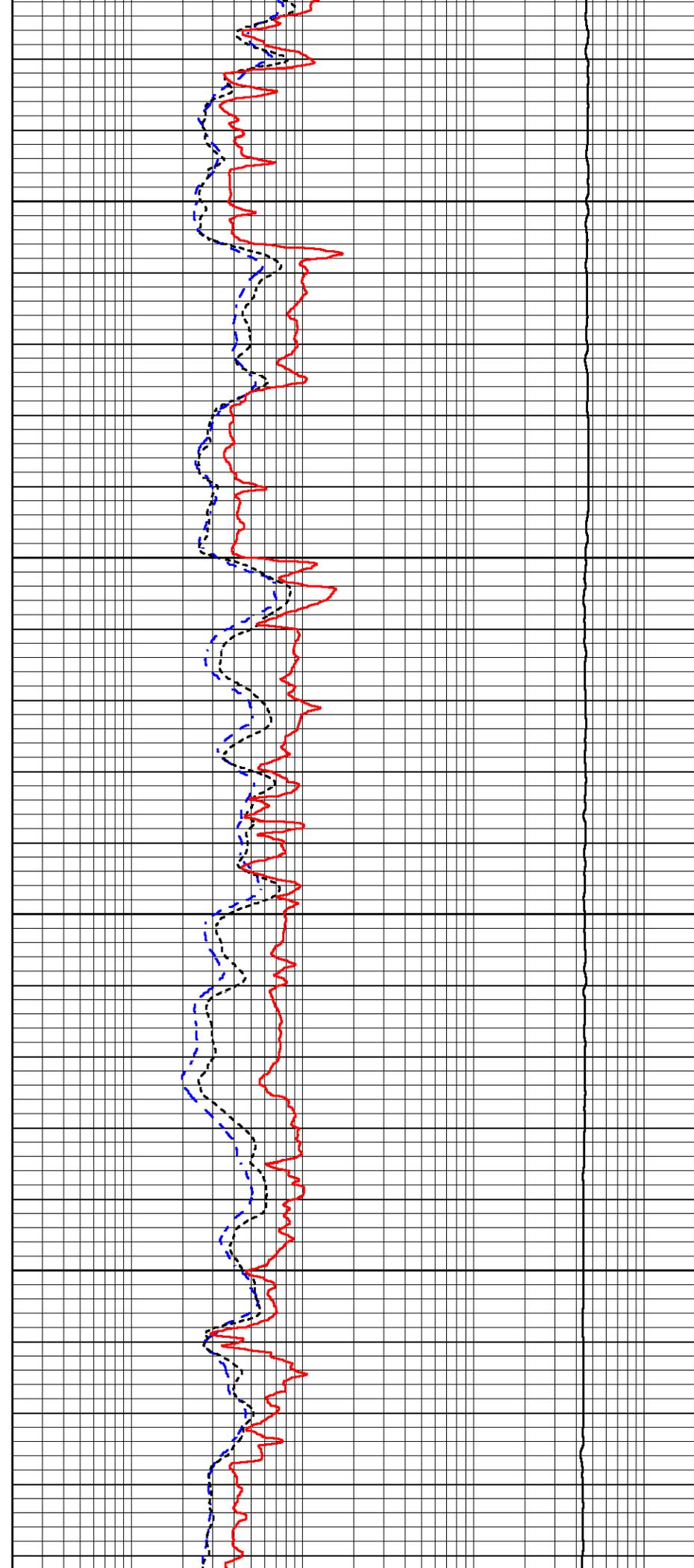


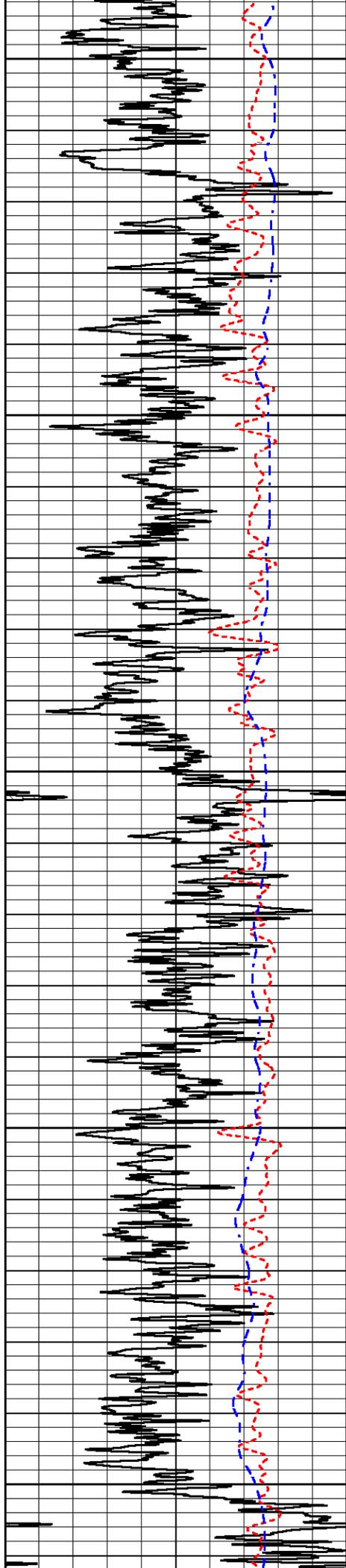
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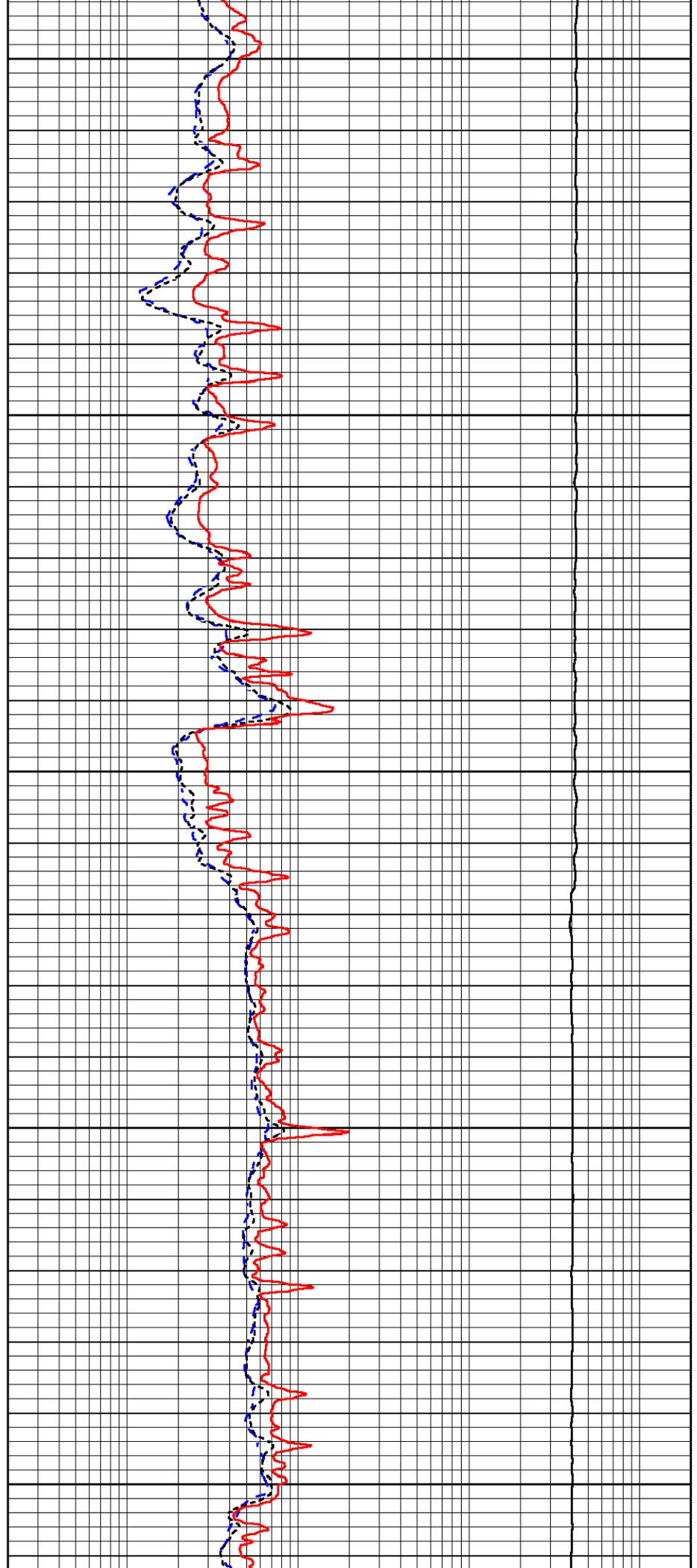
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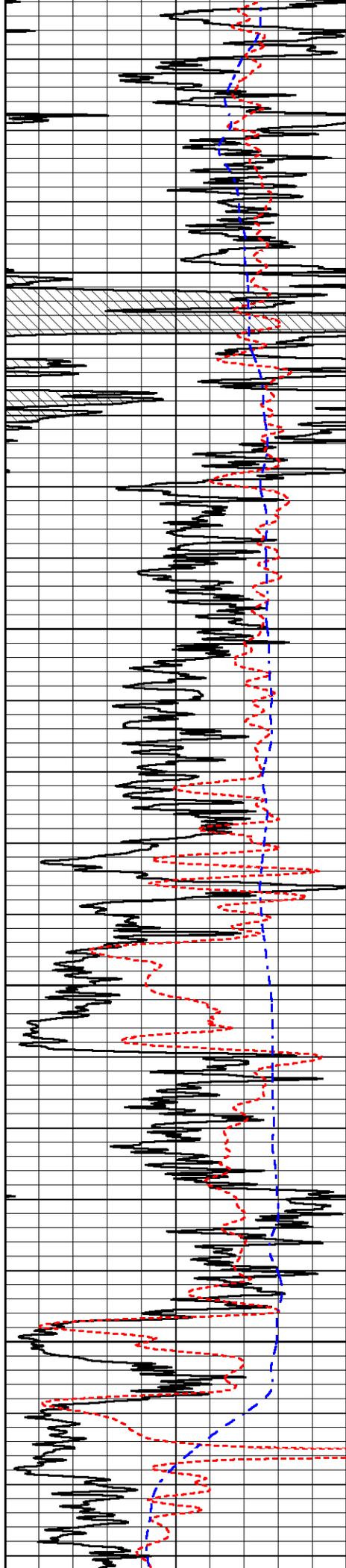
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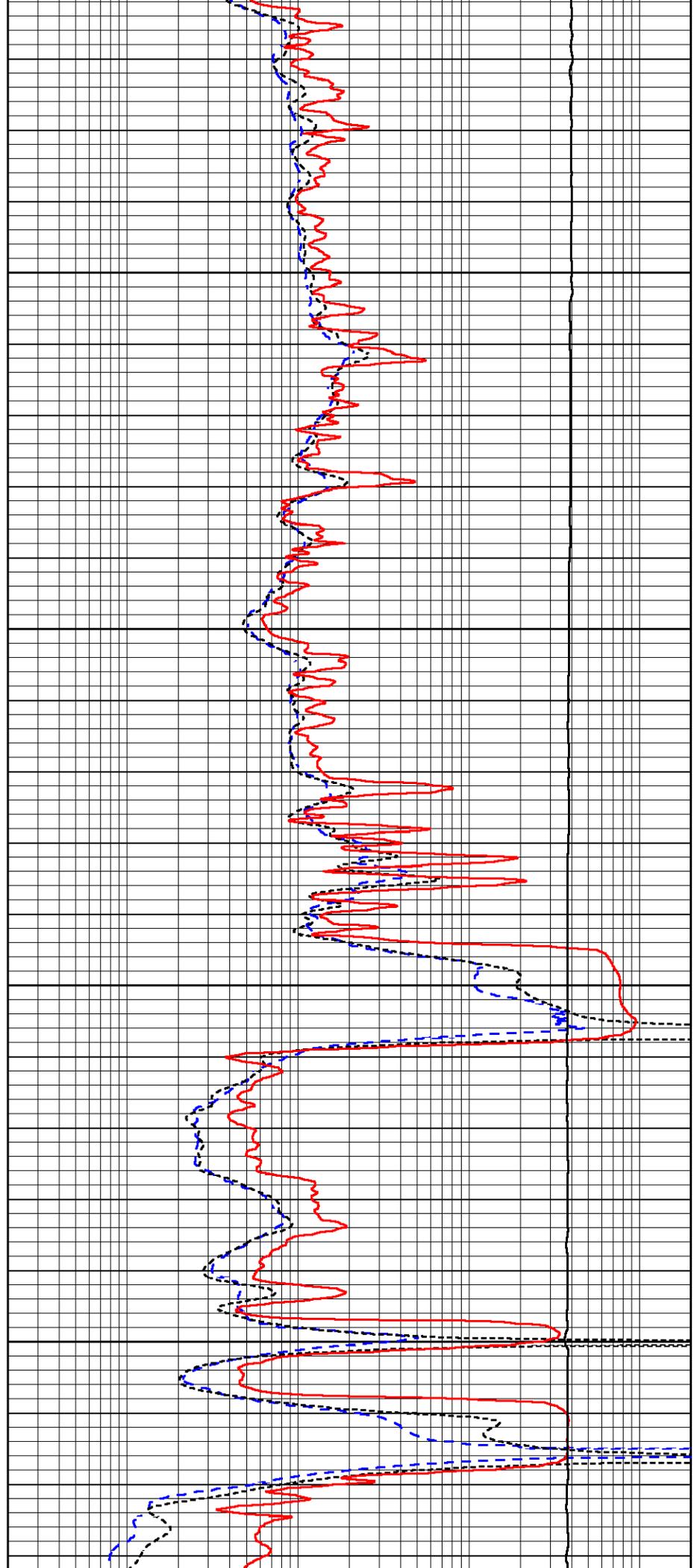


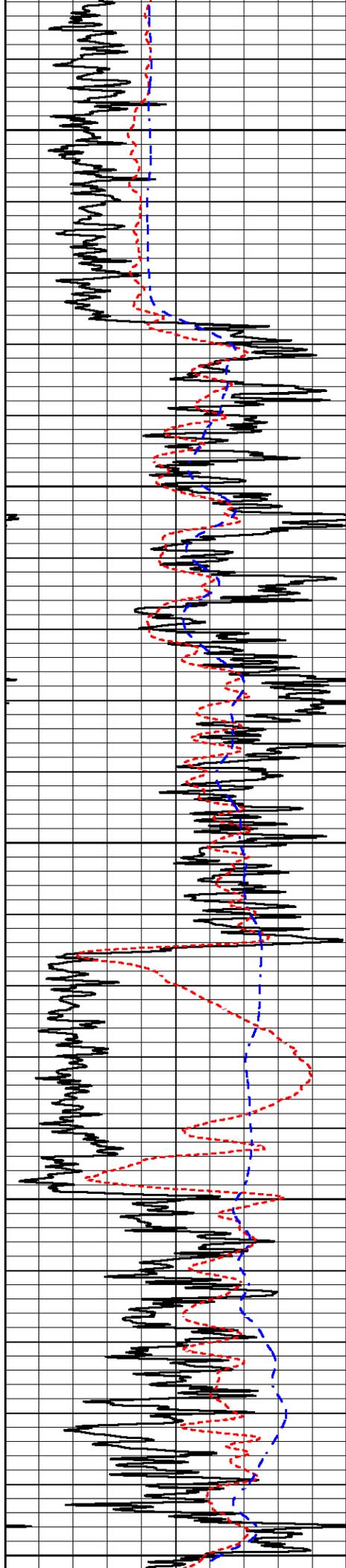
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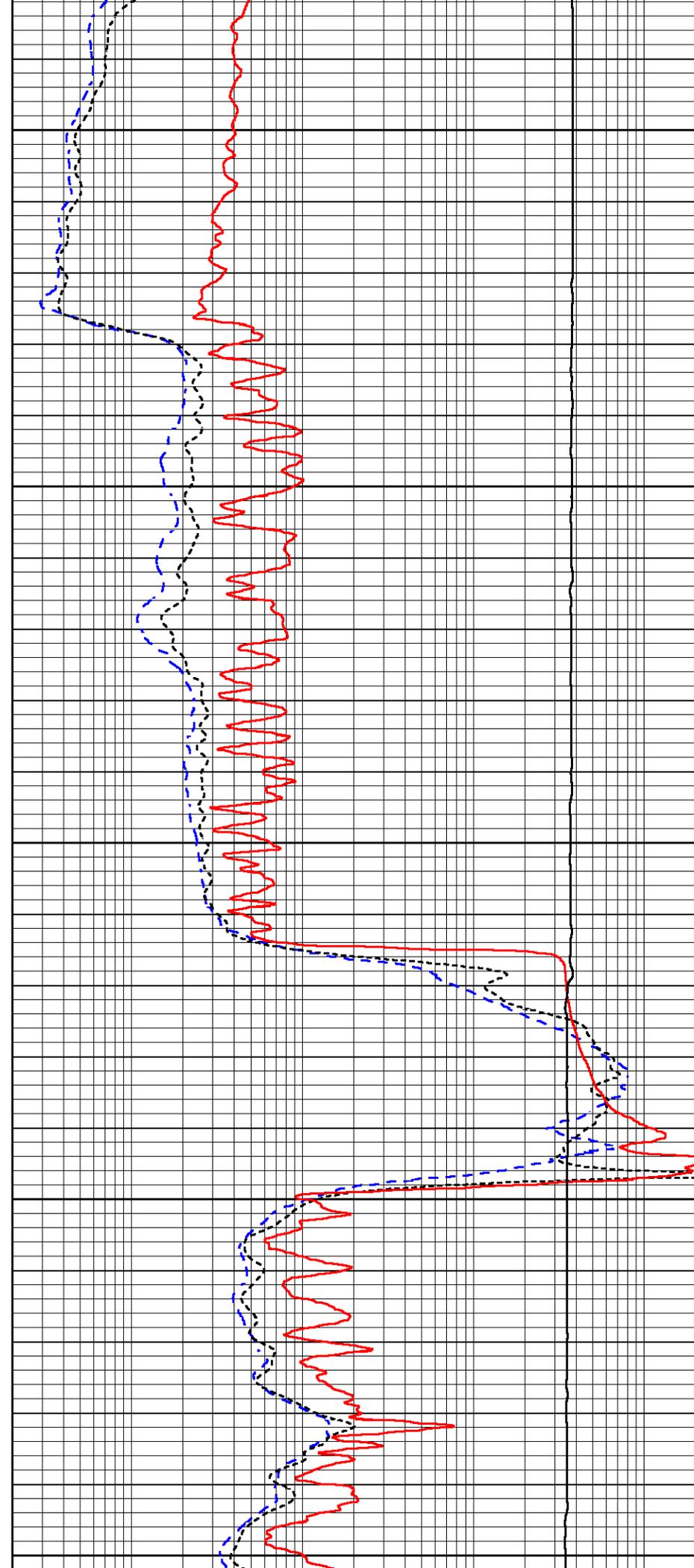
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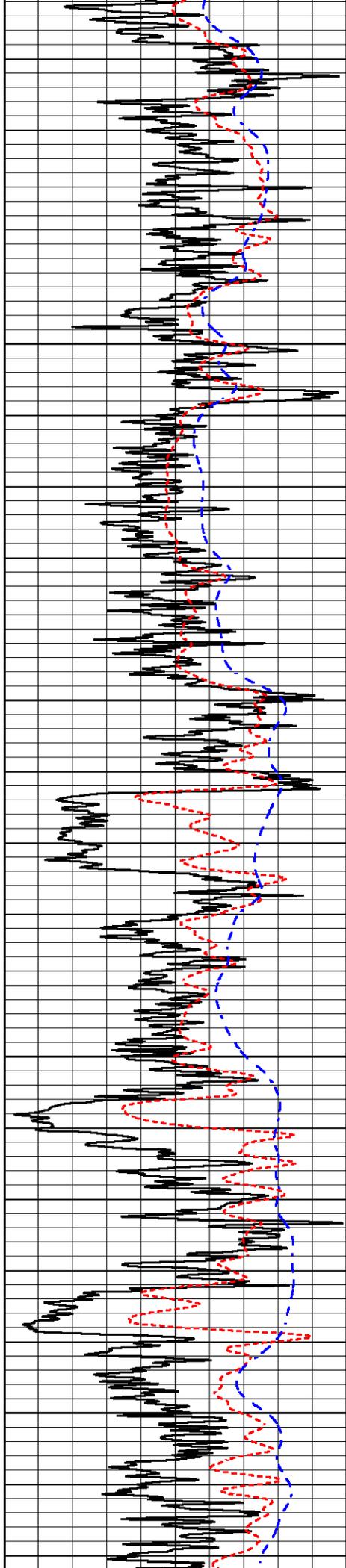
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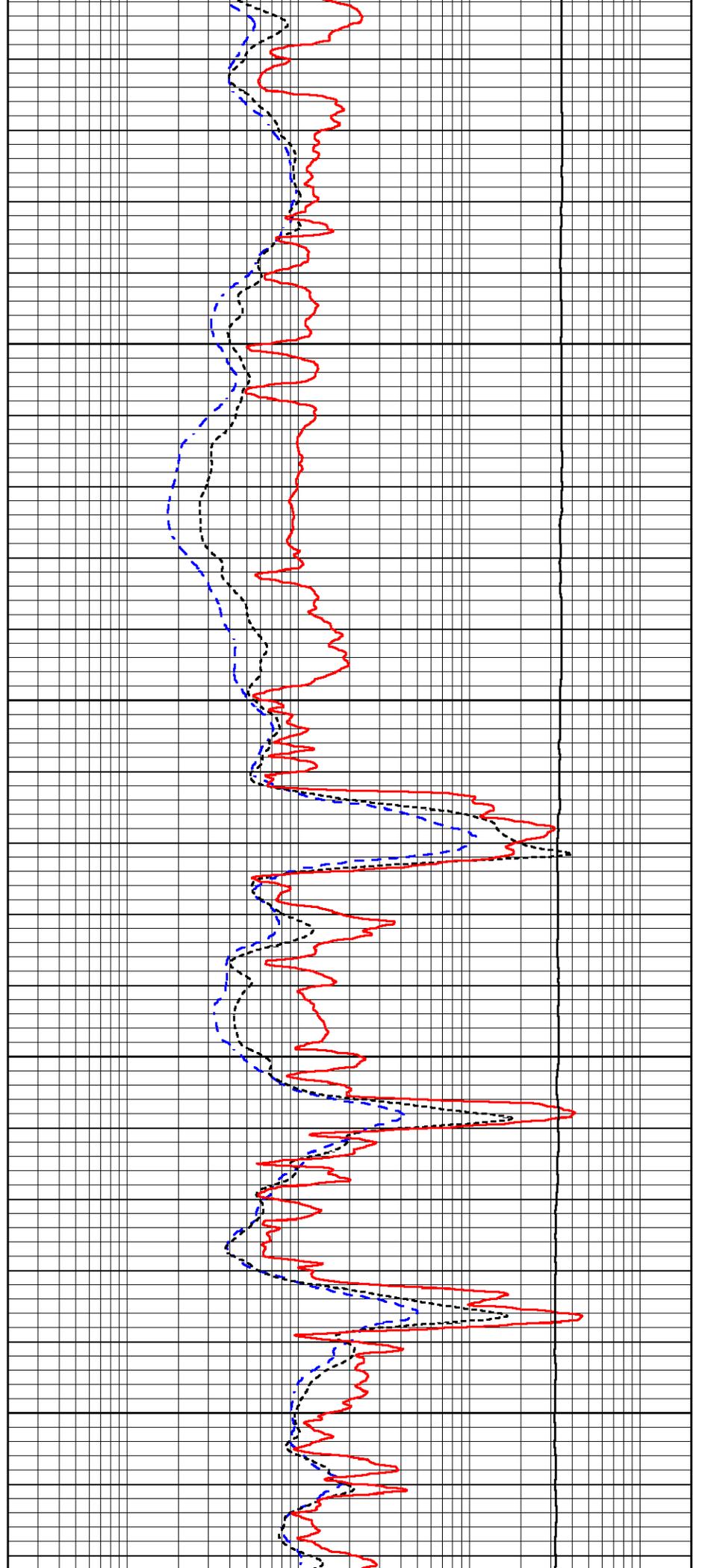


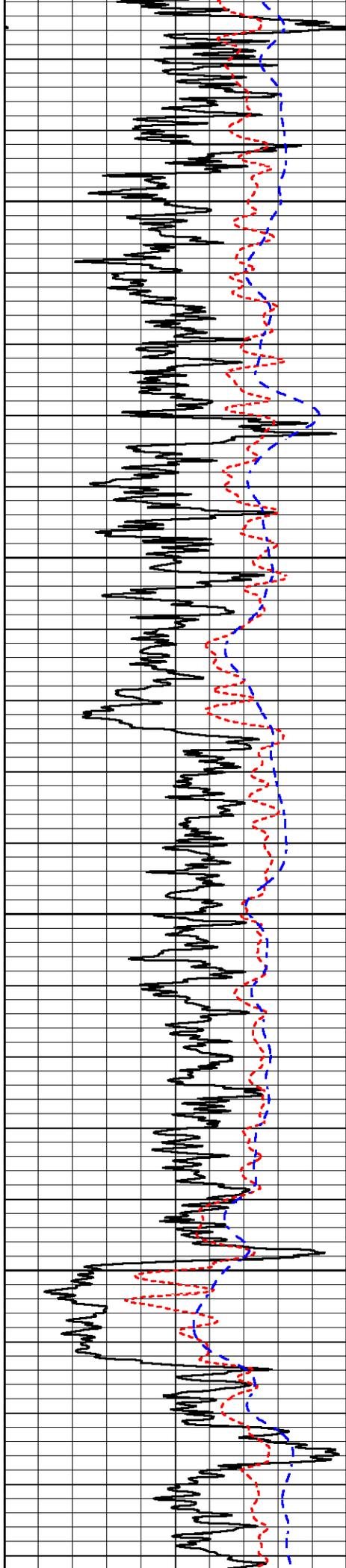
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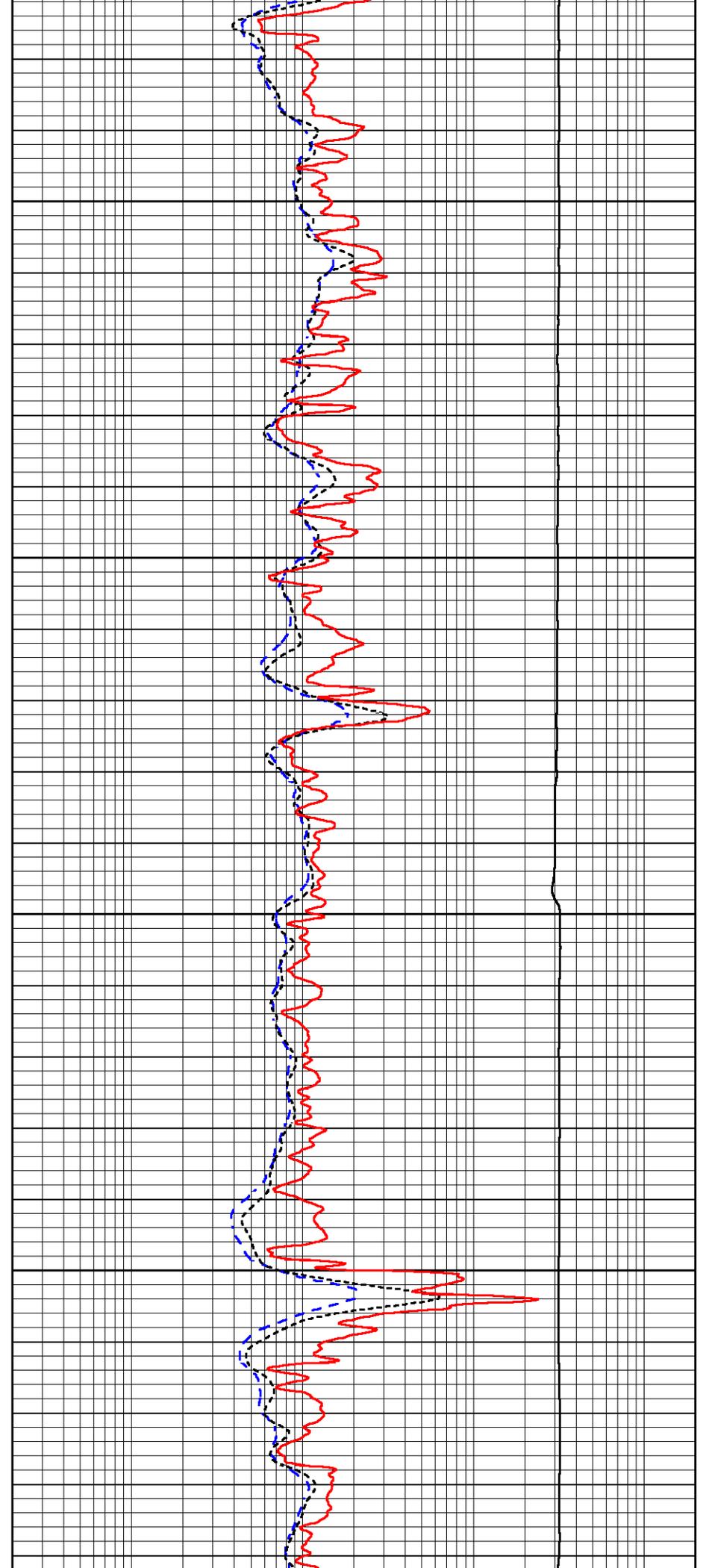


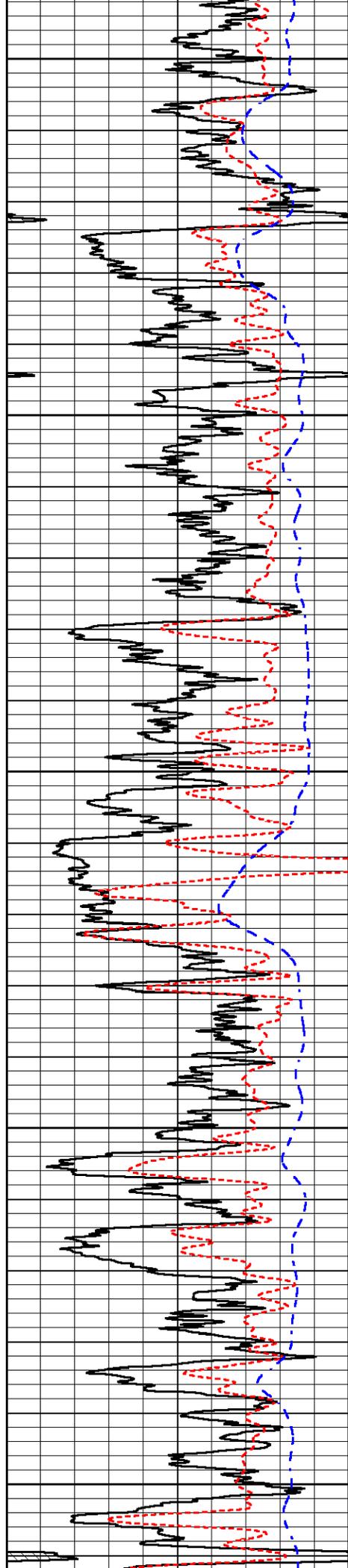
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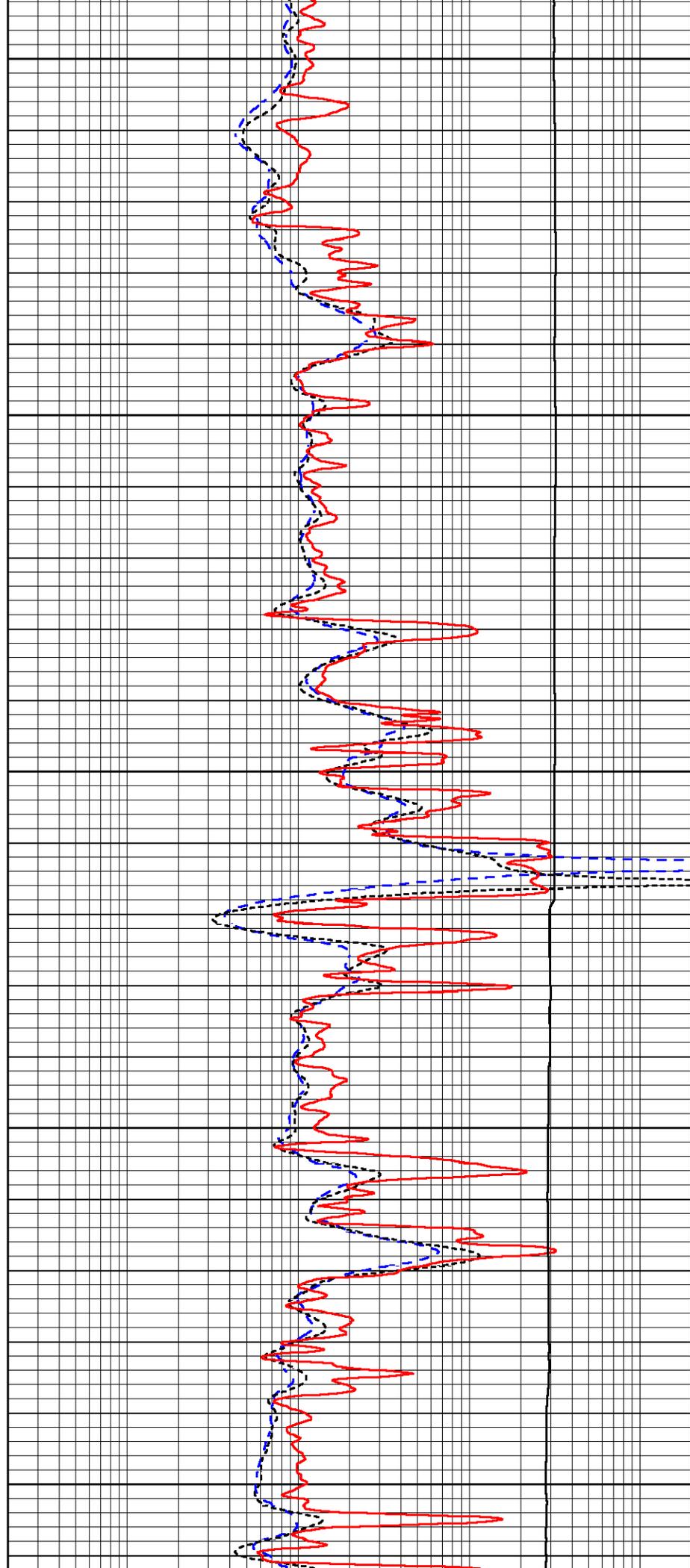
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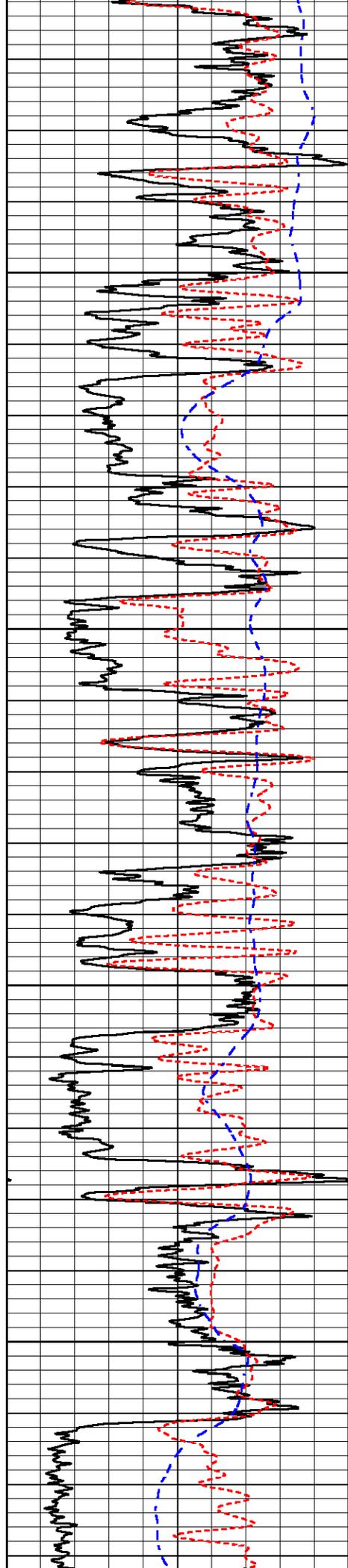
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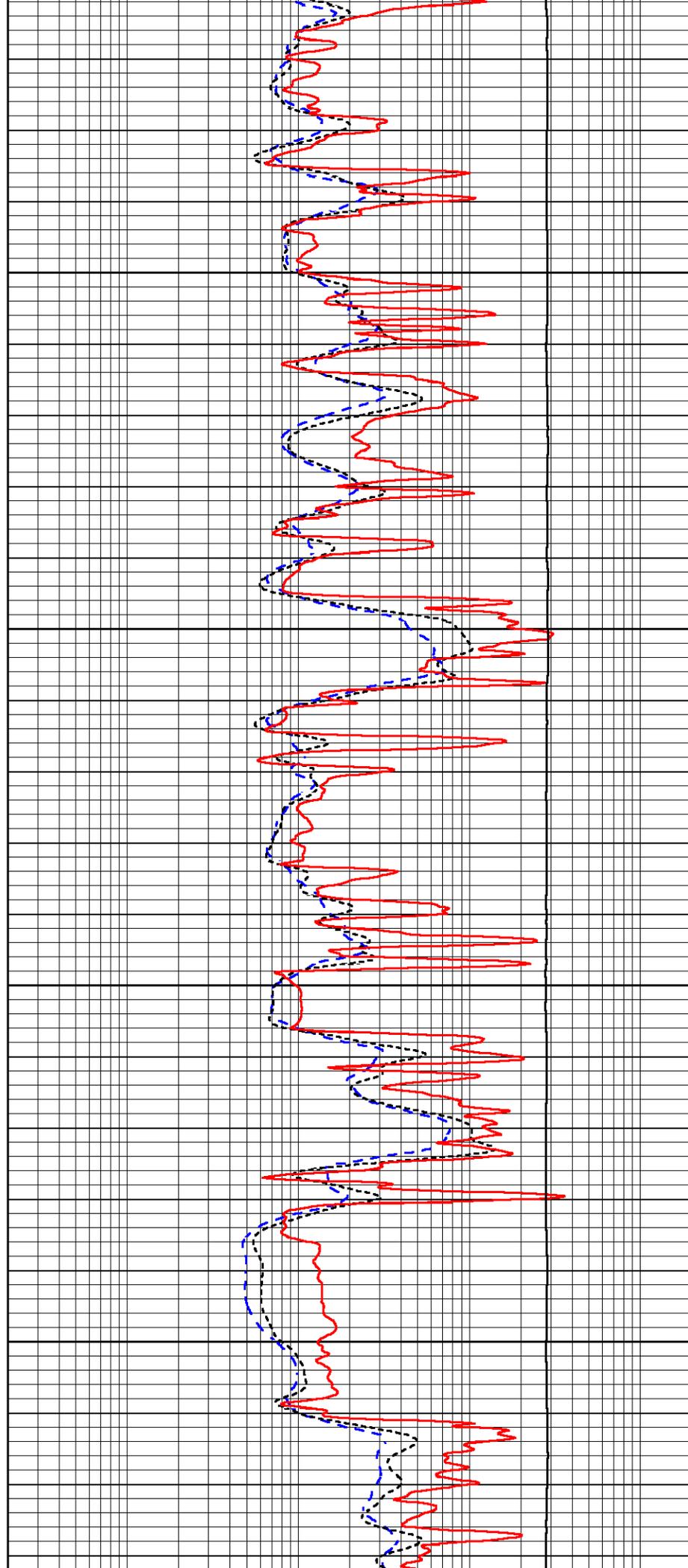


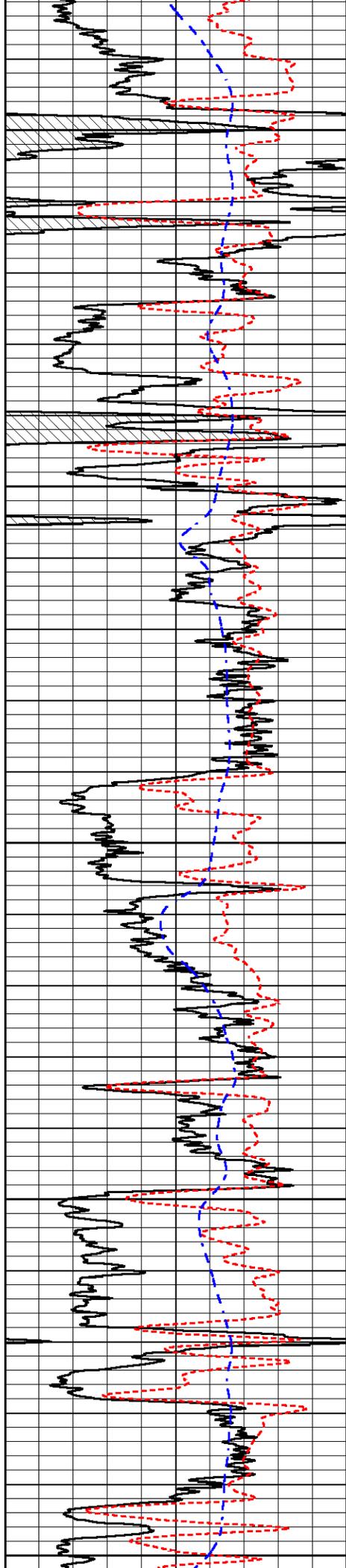
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4250





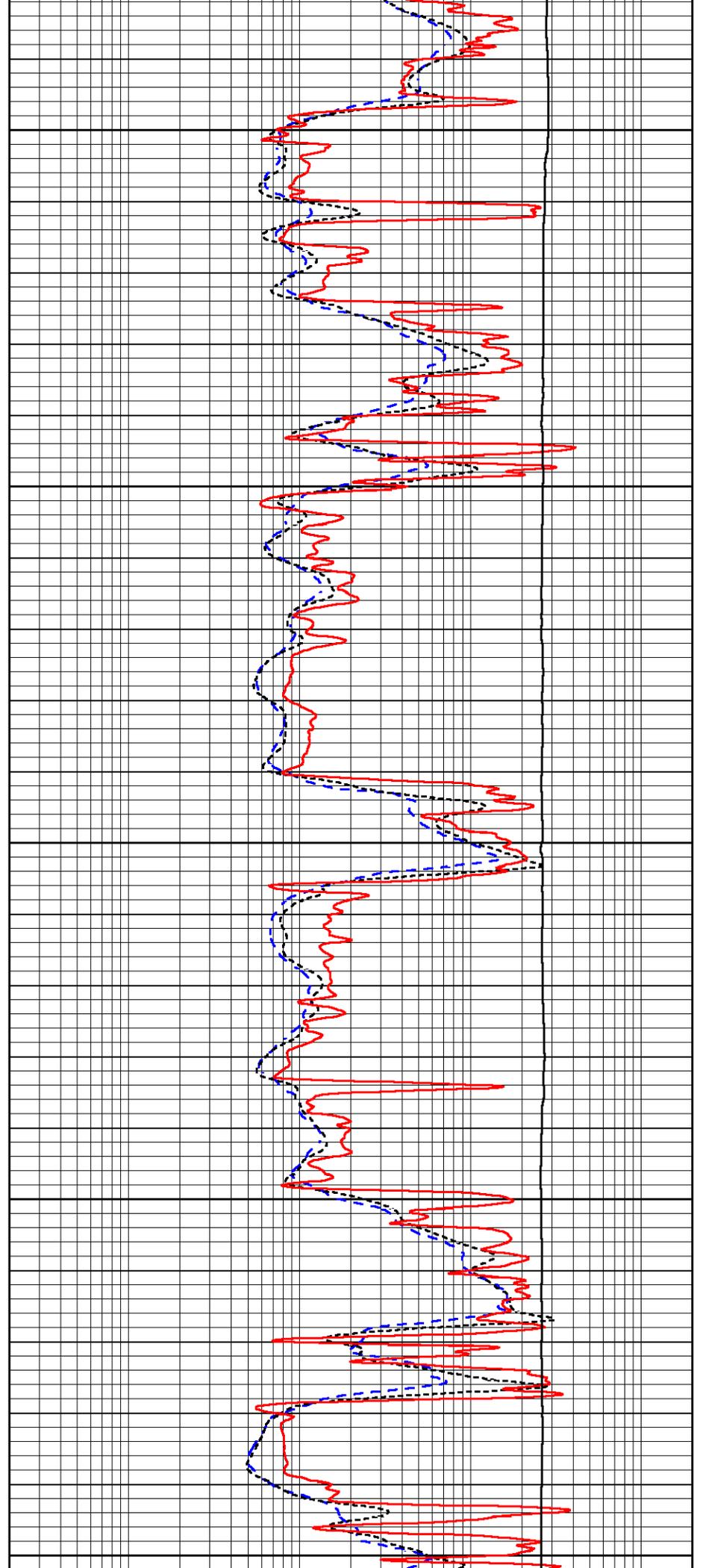
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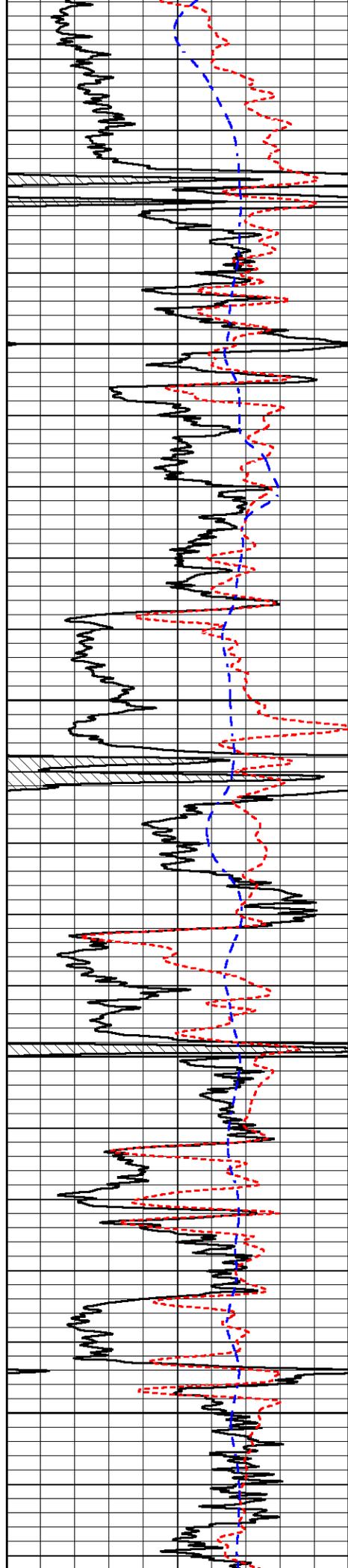
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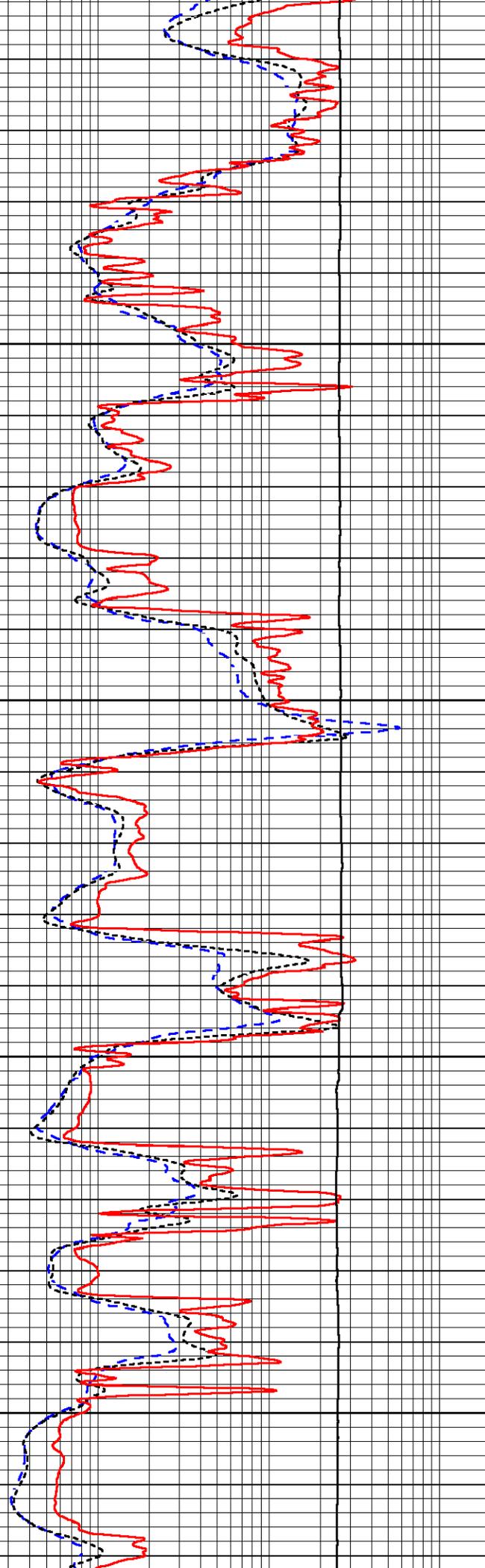


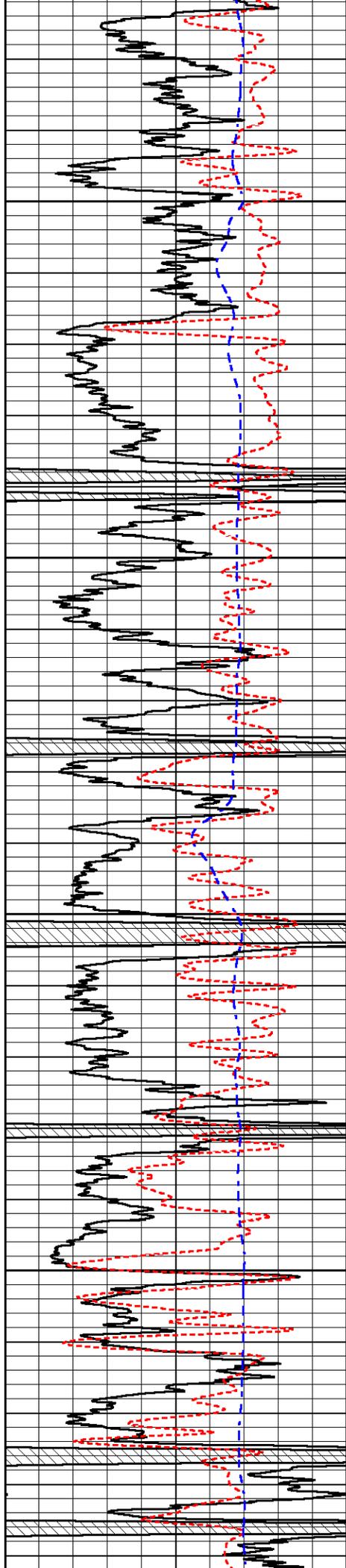
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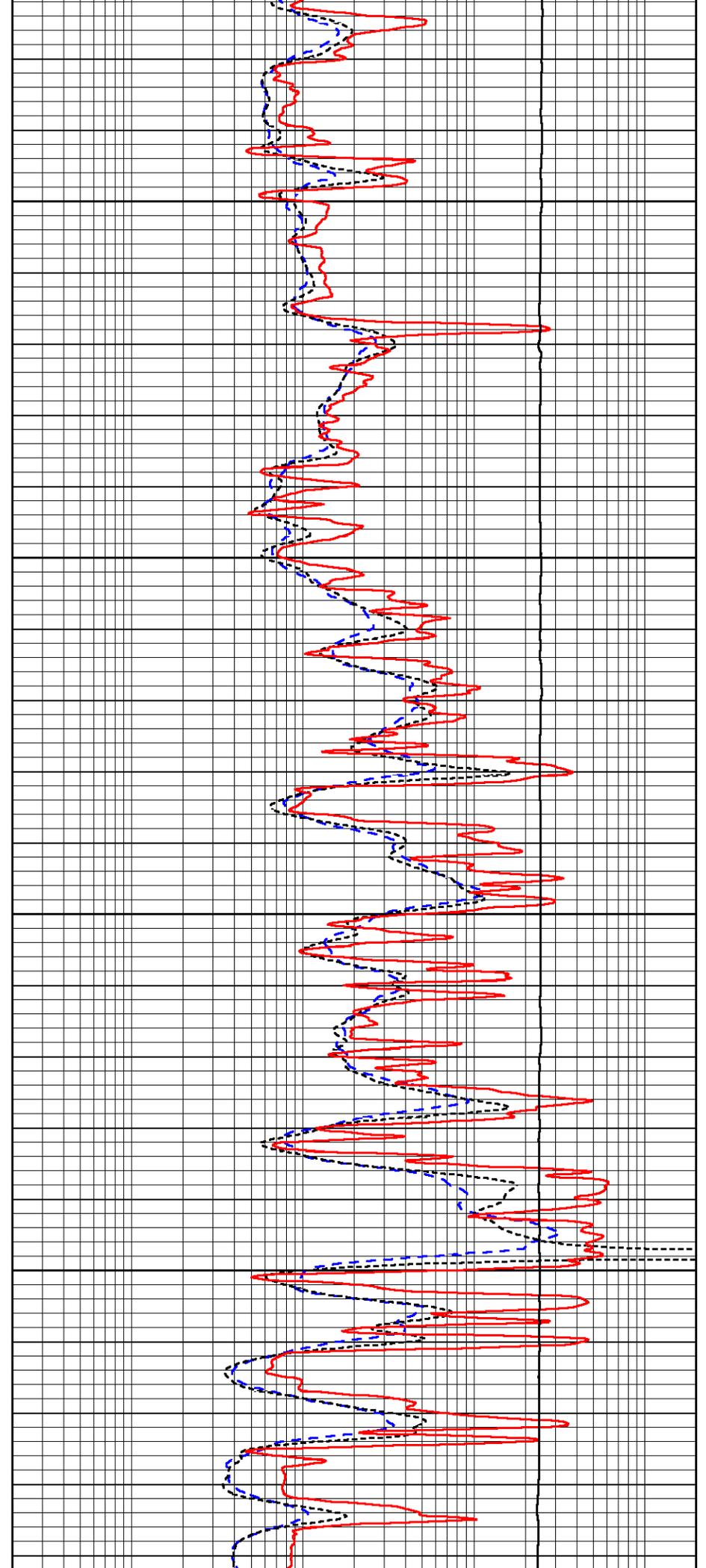


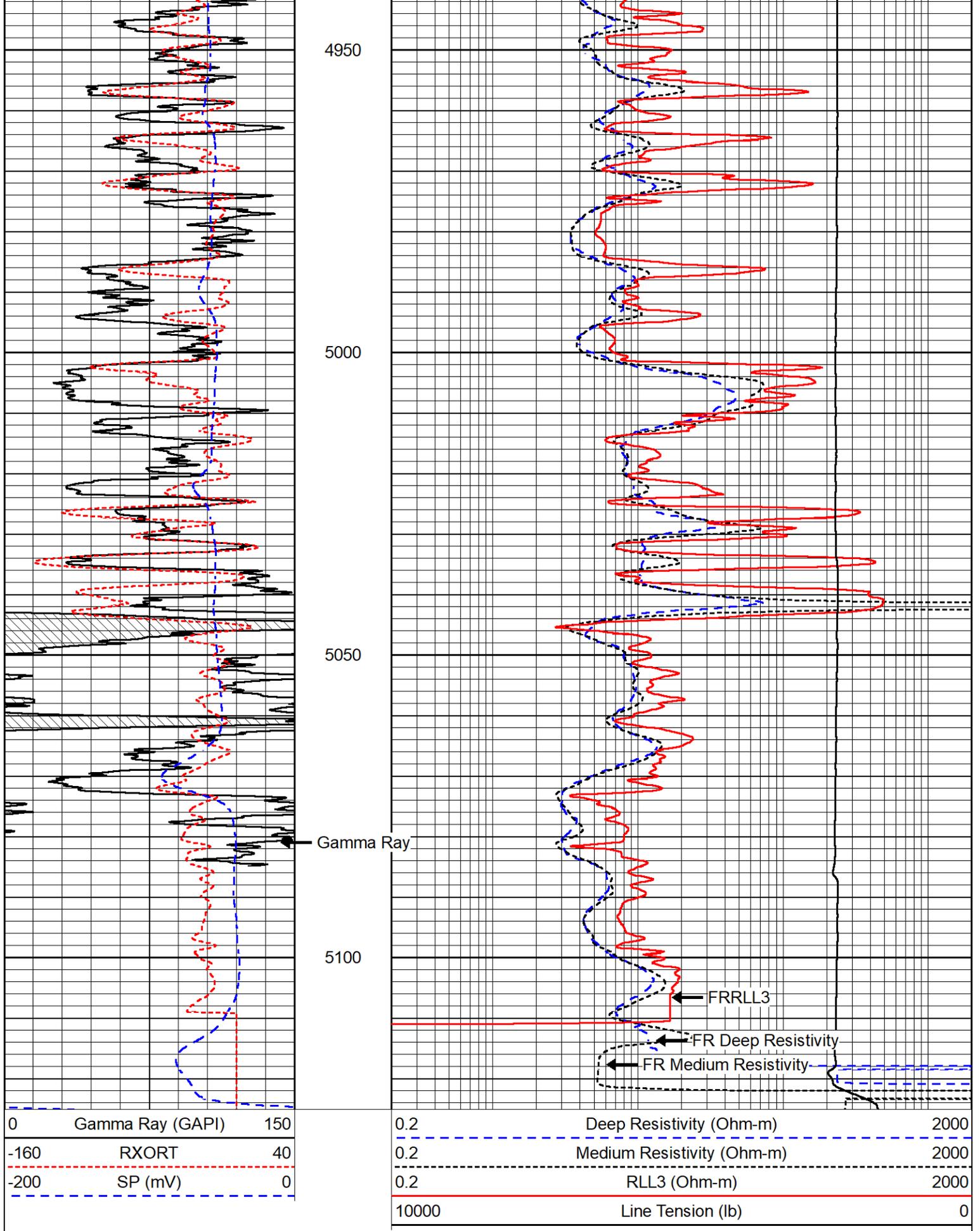
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4800

4850

4900





REPEAT SECTION



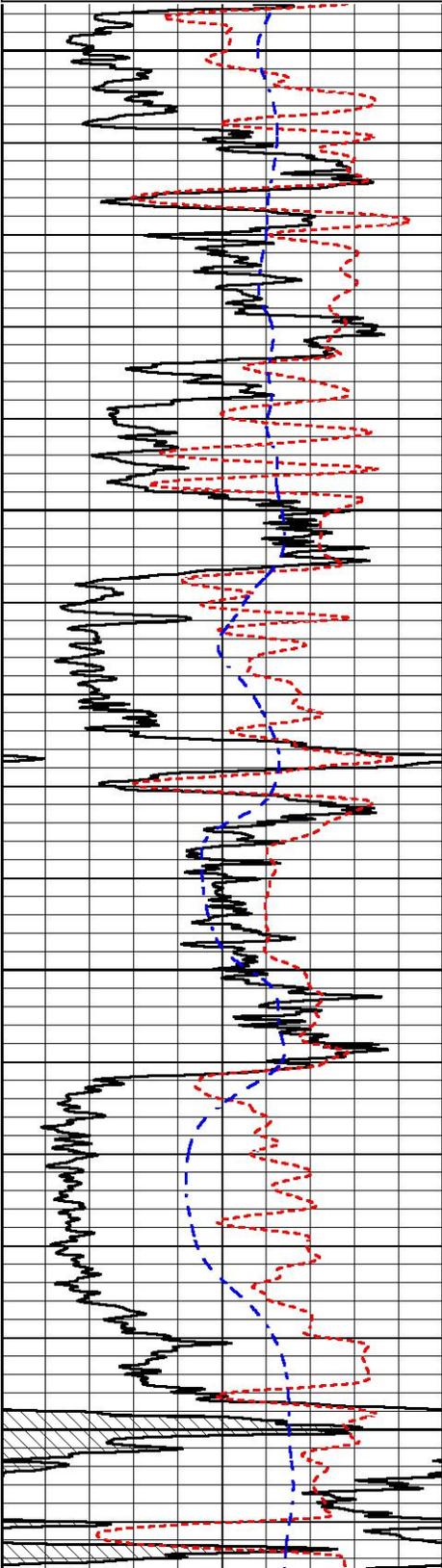


REPEAT PASS

Database File murfin_brubaker 1-12.db
 Dataset Pathname stkml/pass2.1
 Presentation Format _dil
 Dataset Creation Tue Jan 17 15:05:19 2023
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-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

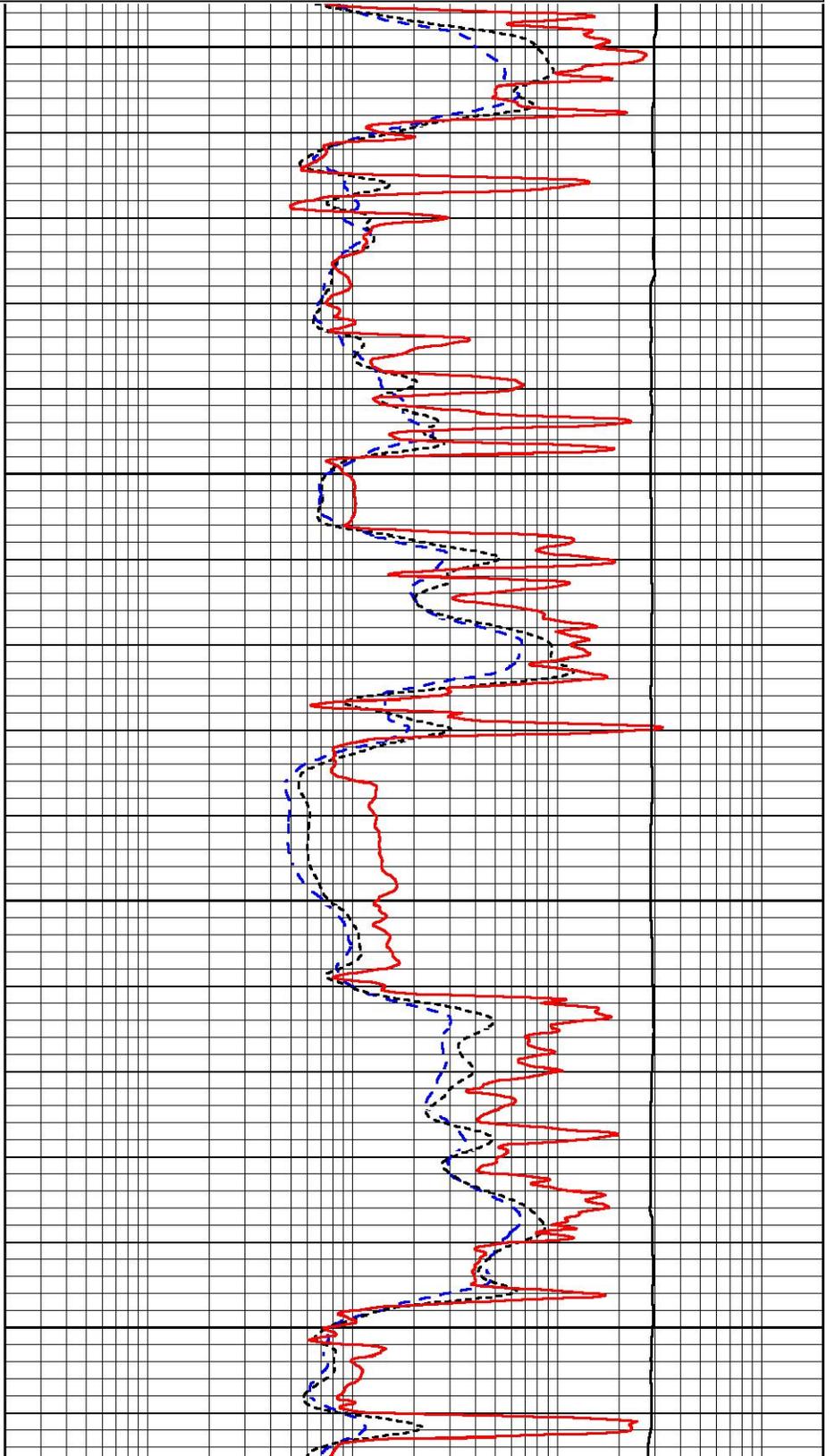


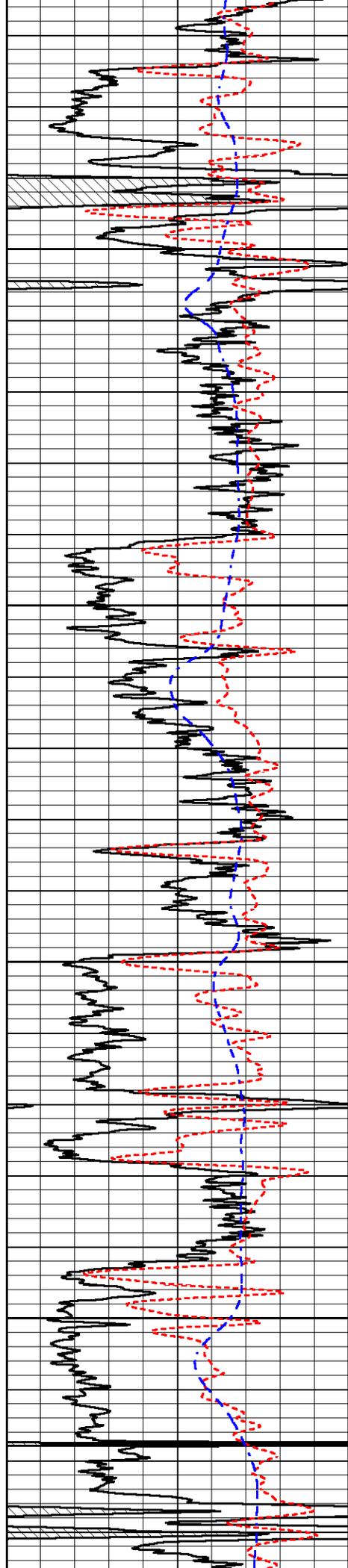
4150

4200

4250

4300



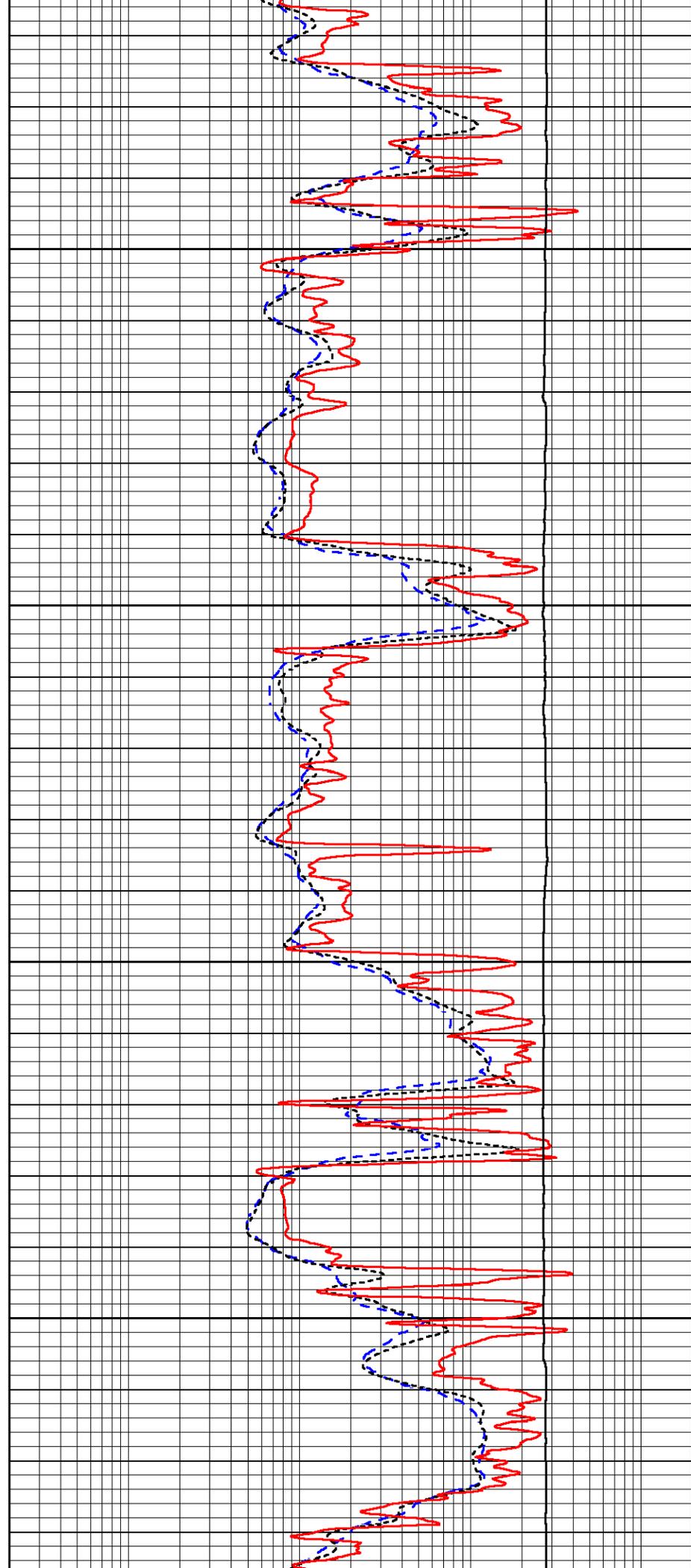


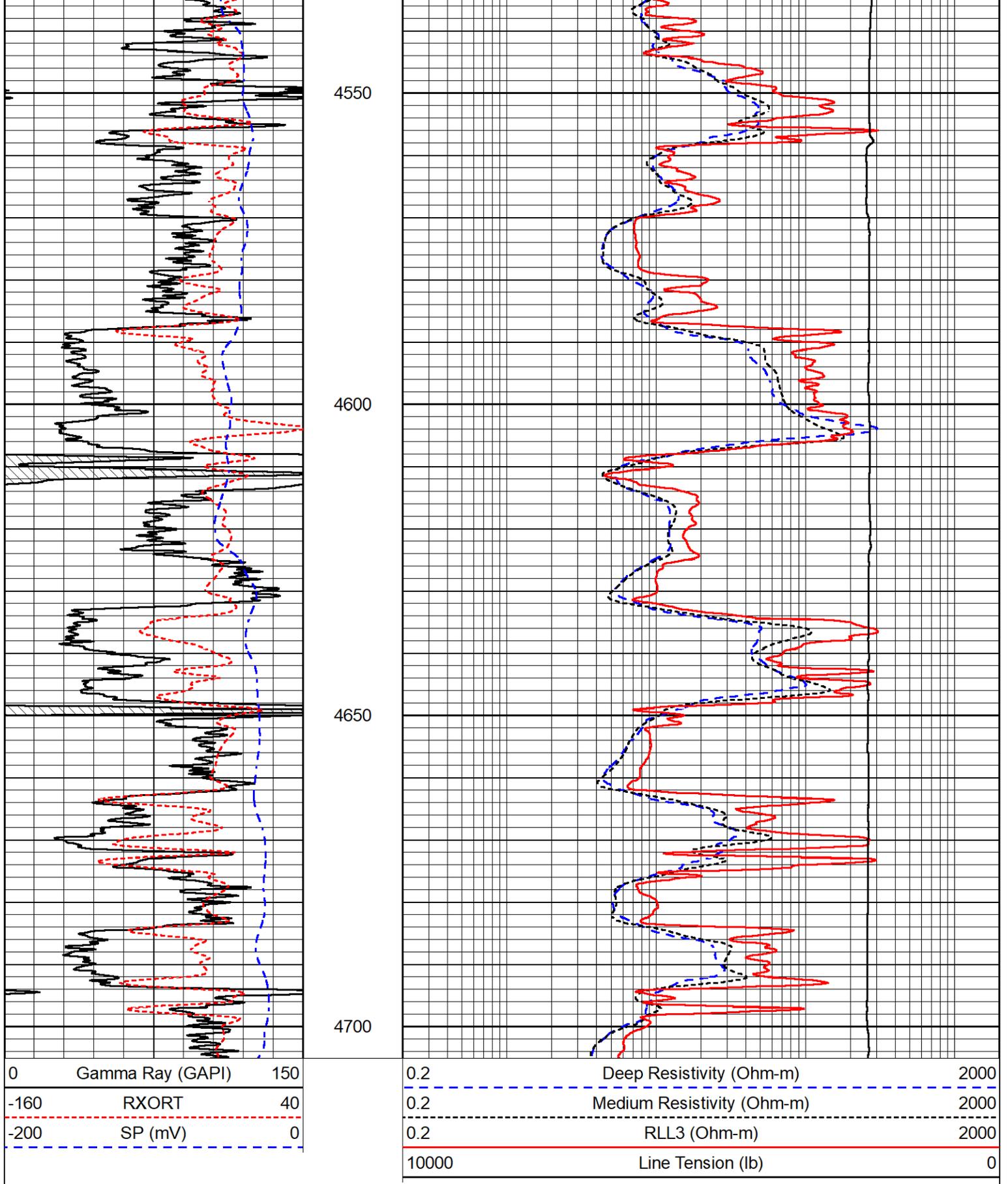
4350

4400

4450

4500





Calibration Report

Database File murfin_brubaker 1-12.db
 Dataset Pathname stkml/pass4.13
 Dataset Creation Tue Jan 17 15:18:49 2023

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	167.000	835.000	0.000	255.800	mmho/m	0.480	-59.000
Medium	1348.000	1348.000	0.000	255.800	mmho/m	0.390	-56.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Tue Jan 3 20:52:47 2023

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	18000.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	19000.0000	-0.5000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.5200

Compensated Density Calibration Report

Serial-Model: 303-03-M&W
 Source #: 21170B
 Master Calibration Performed: Mon Jan 2 03:21:14 2023

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3841.78	5151.73	cps
Aluminum	2.640	g/cc	700.98	3068.49	cps
Spine Angle = 73.06			Density/Spine Ratio = 0.498		
	Size		Reading		
Small Ring	4.00	in	1.17		
Large Ring	14.00	in	1.04		

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



Company	Murfin Drilling Company, Inc.
Well	Brubaker #1-12
Field	
County	Cheyenne
State	Kansas