



DUAL INDUCTION LOG

Company MURFIN DRILLING CO., INC.
 Well BANISTER A #2-22
 Field WILDCAT
 County CHEYENNE
 State KANSAS

Company MURFIN DRILLING CO., INC.
 Well BANISTER A #2-22
 Field WILDCAT
 County CHEYENNE State KANSAS

Location: API #: 15-023-21483-00-00
 2310 FSL & 1320 FWL
 SEC 22 TWP 2S RGE 37W
 Permanent Datum GROUND LEVEL Elevation 3409'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 CNL/CDL
 MEL/SON
 Elevation
 K.B. 3414'
 D.F. N/A
 G.L. 3409'

Date	5/20/2018
Run Number	ONE
Depth Driller	4934'
Depth Logger	4934'
Bottom Logged Interval	4933'
Top Log Interval	0'
Casing Driller	8.625" @ 384'
Casing Logger	384'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	800
Density / Viscosity	9.2 57
pH / Fluid Loss	10.5 5.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.10 @ 57
Rmt @ Meas. Temp	0.83 @ 57
Rmc @ Meas. Temp	1.49 @ 57
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.49 @ 127
Operating Rig Time	5 HOURS
Max Rec. Temp. F	127
Equipment Number	108
Location	HAYS
Recorded By	IAN MABB
Witnessed By	SAMAN SHARIFAIE

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, 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.
 BIRD CITY, KS.
 4 MILES EAST TO RD 32,
 8 MILES NORTH, EAST INTO

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

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.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_banister_a_2_22.db
 Dataset field/well/stack/pass3.1/_vars_

Top - Bottom

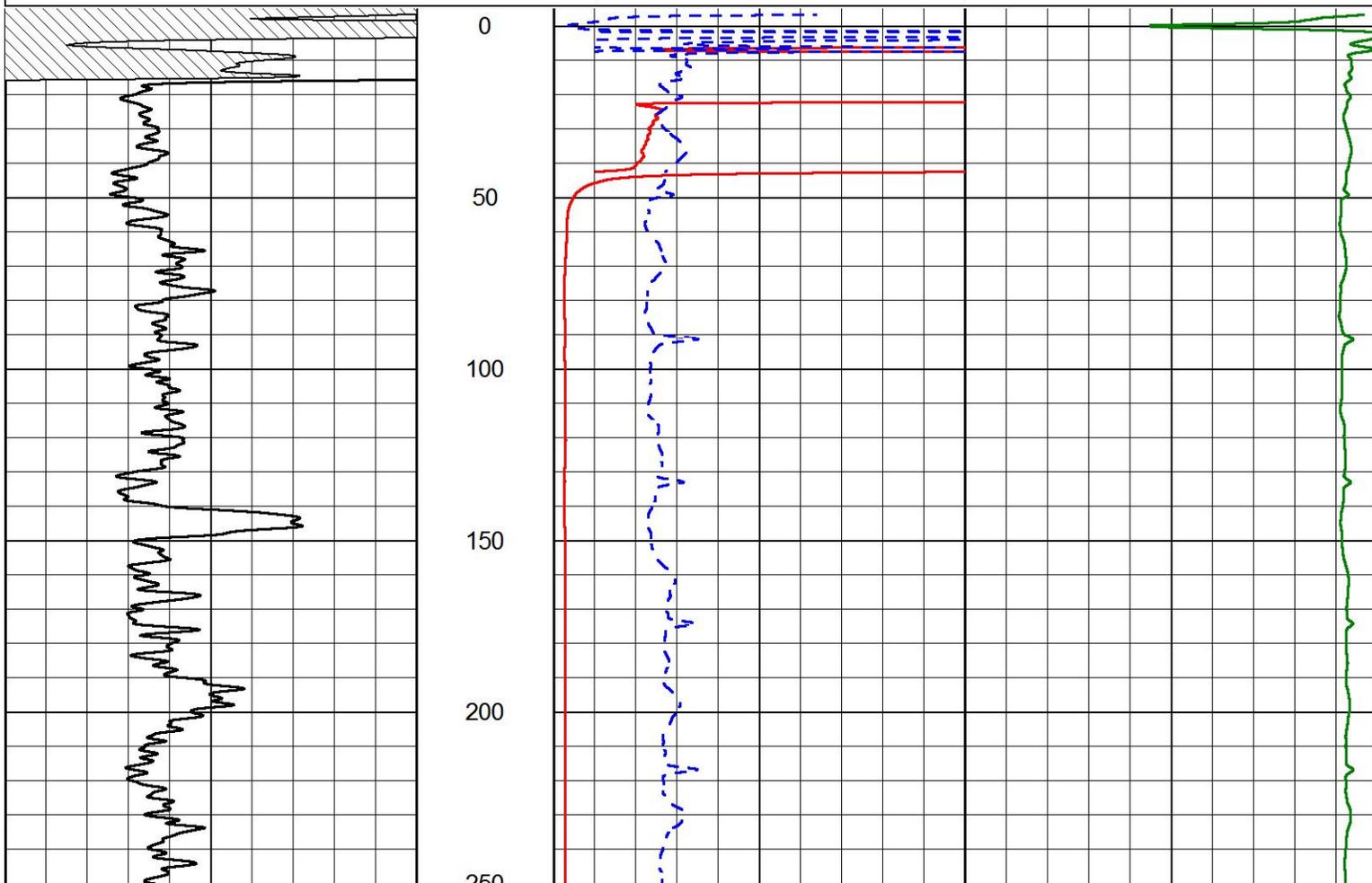
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1	7.875	127	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	9	-7	-415	60	Off	4934

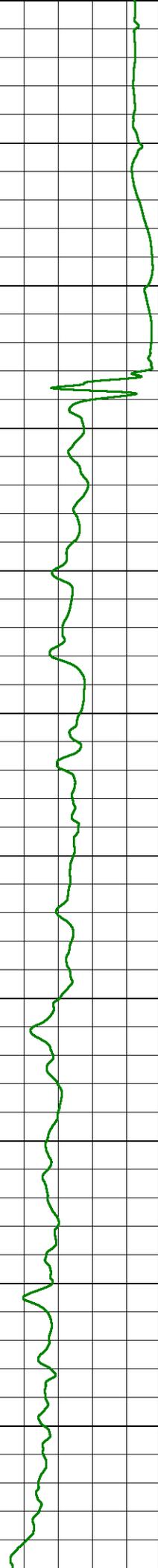
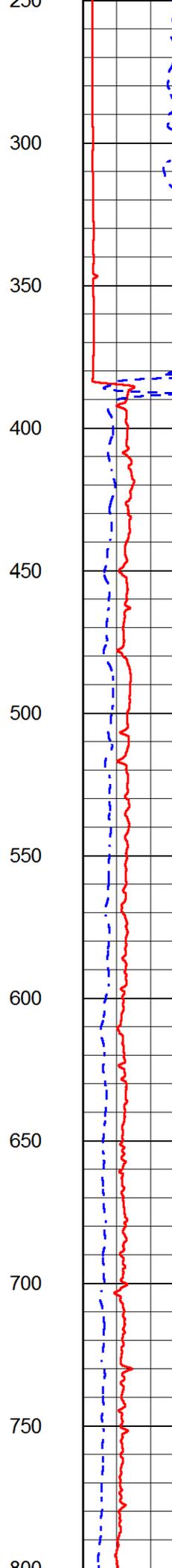
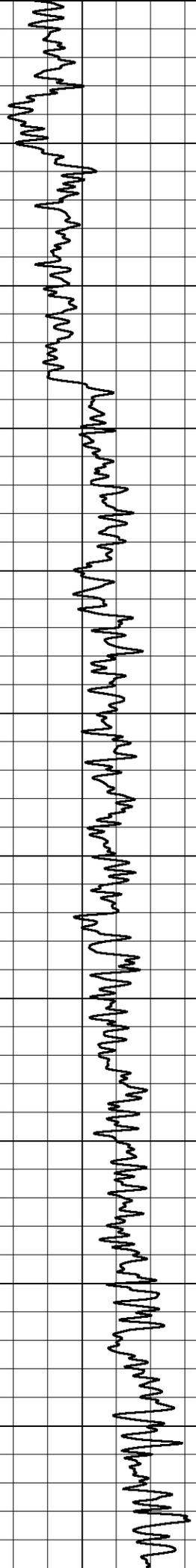


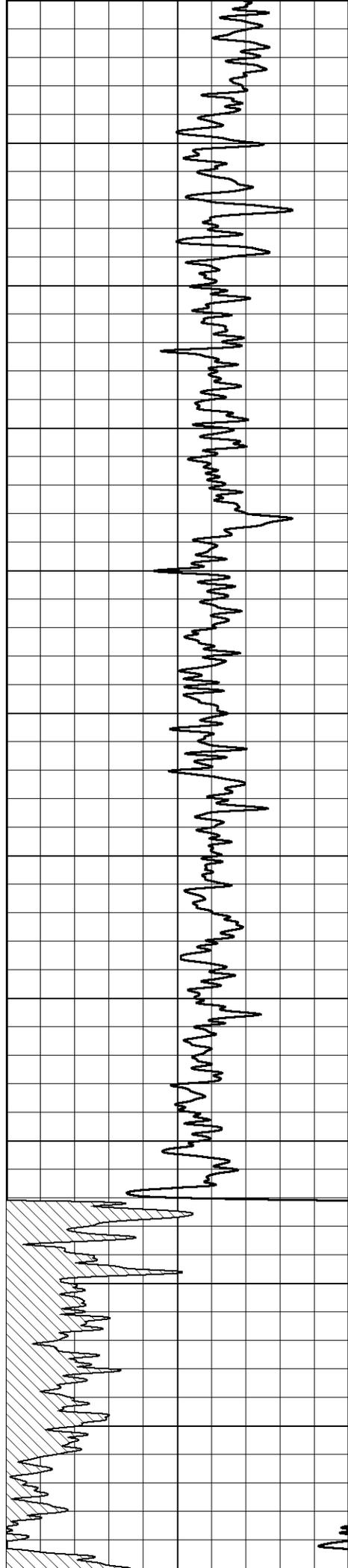
MAIN PASS

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 Presentation Format dil2in
 Dataset Creation Sun May 20 12:11:09 2018
 Charted by Depth in Feet scaled 1:600

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0	RLL3 (Ohm-m)	50	0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	500	50	DEEP RESISTIVITY	500
50	(Ohm-m)	500			

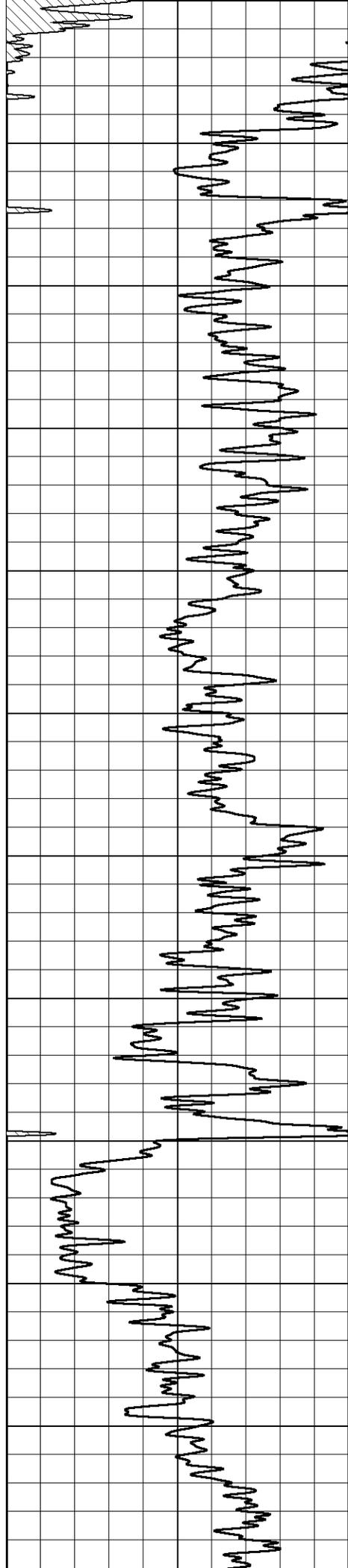




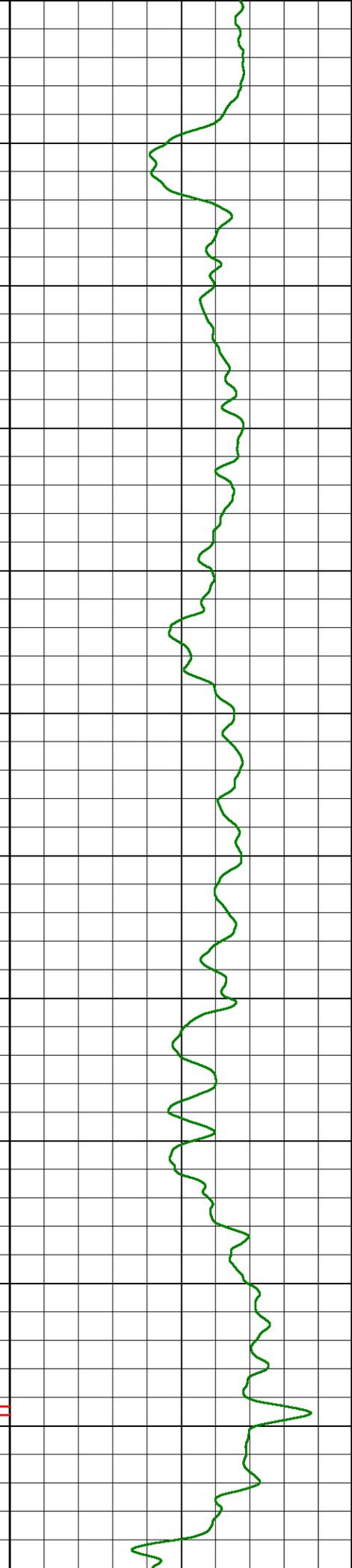
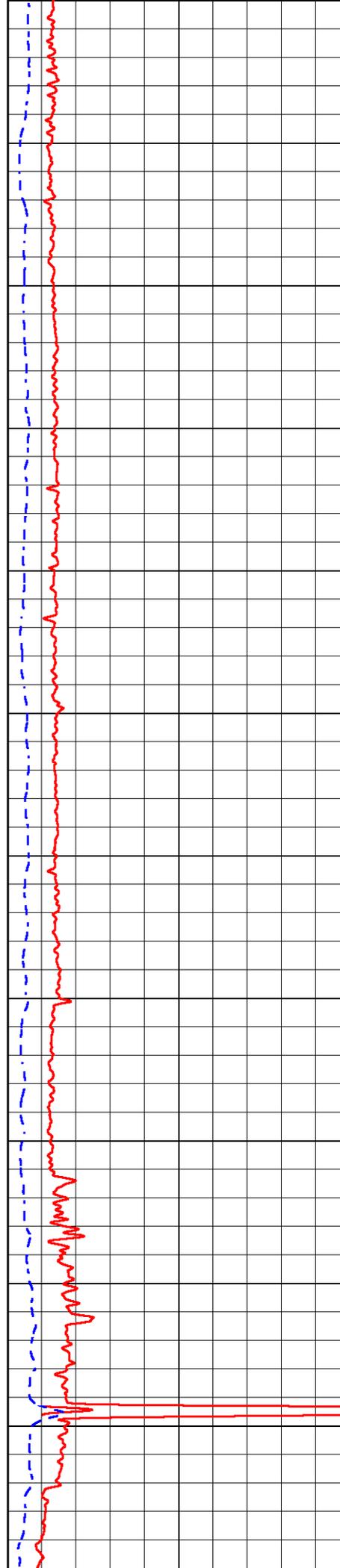


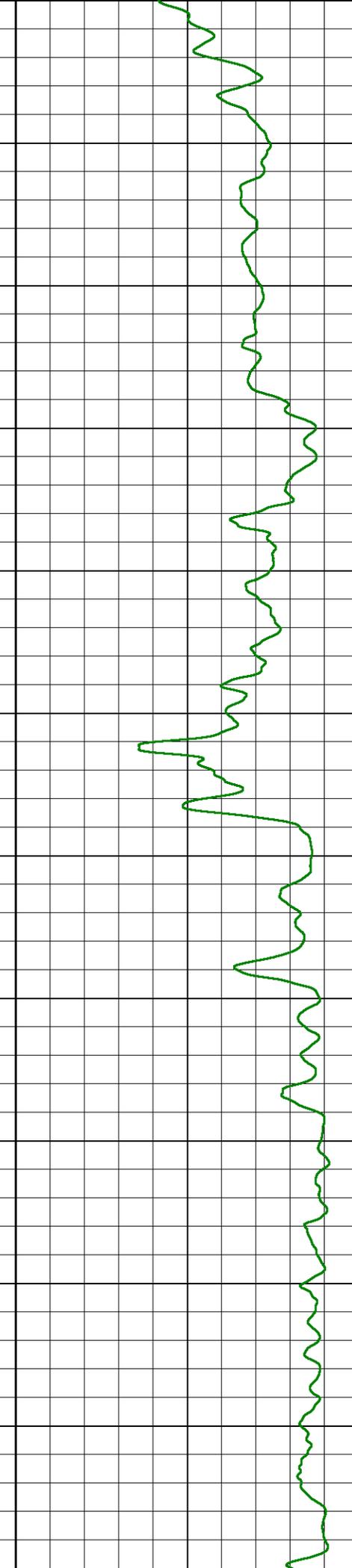
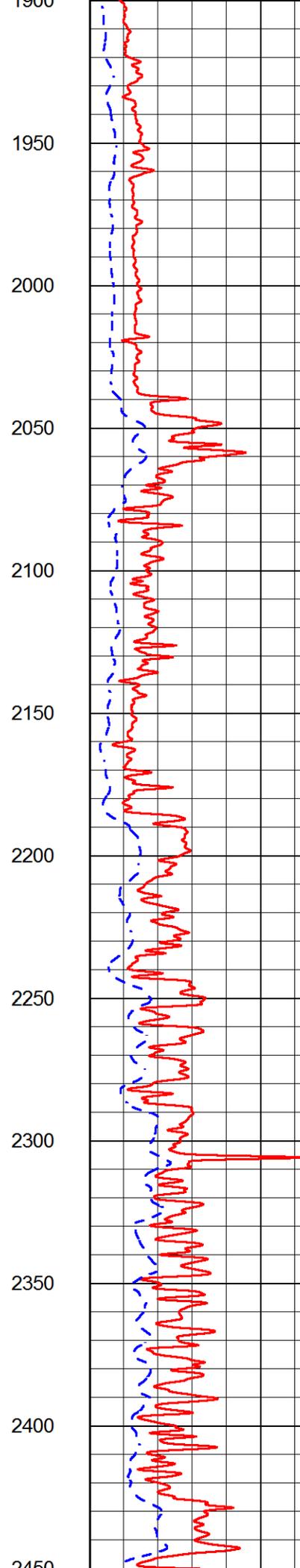
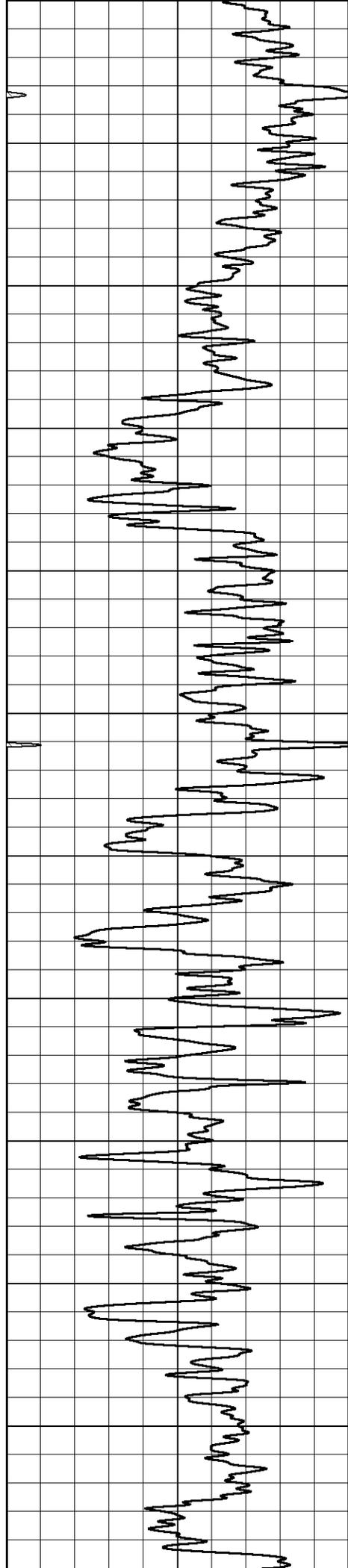
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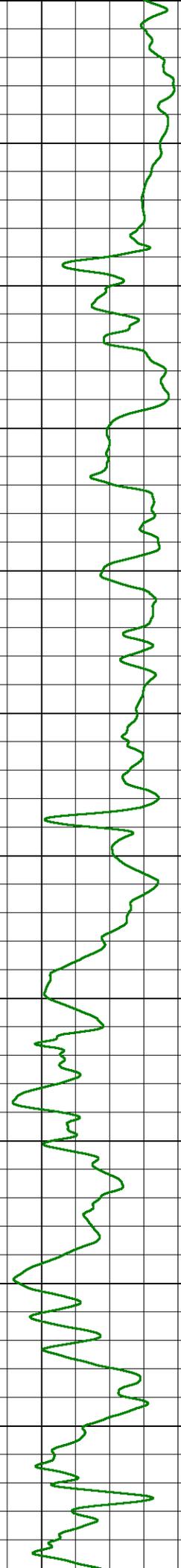
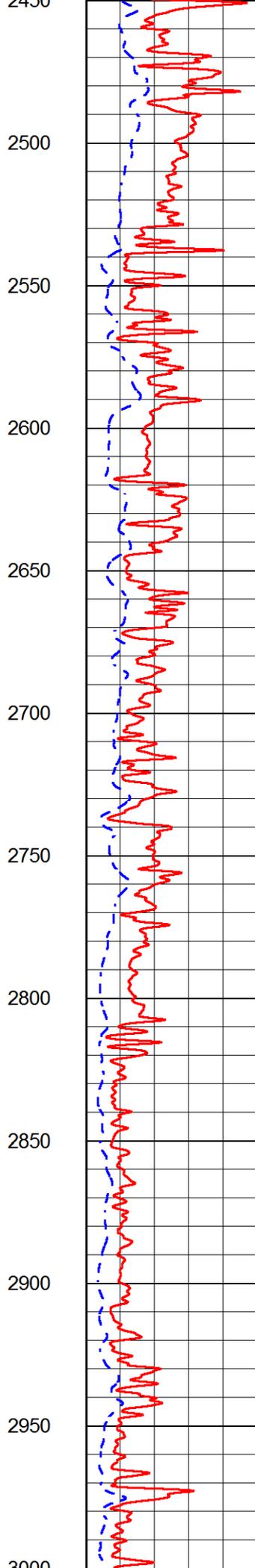
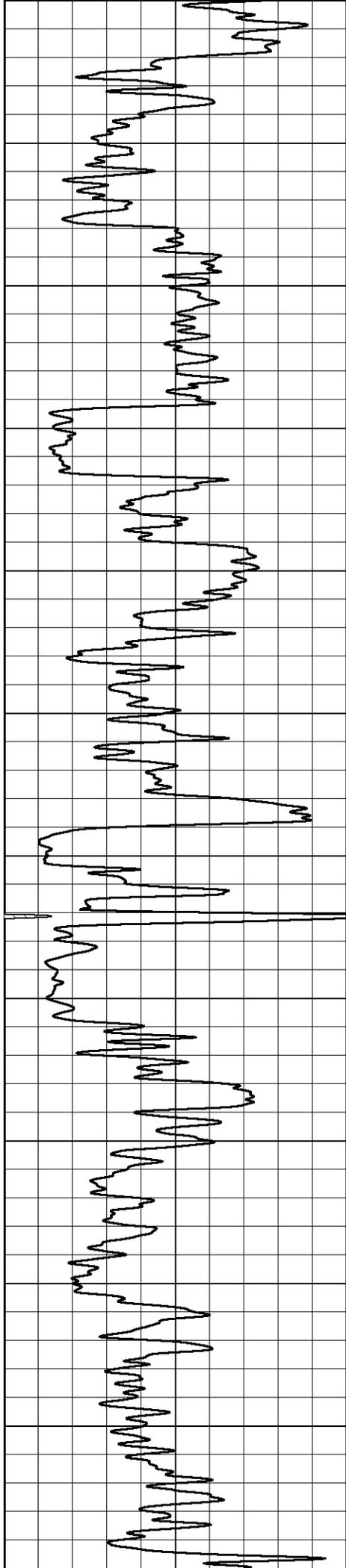


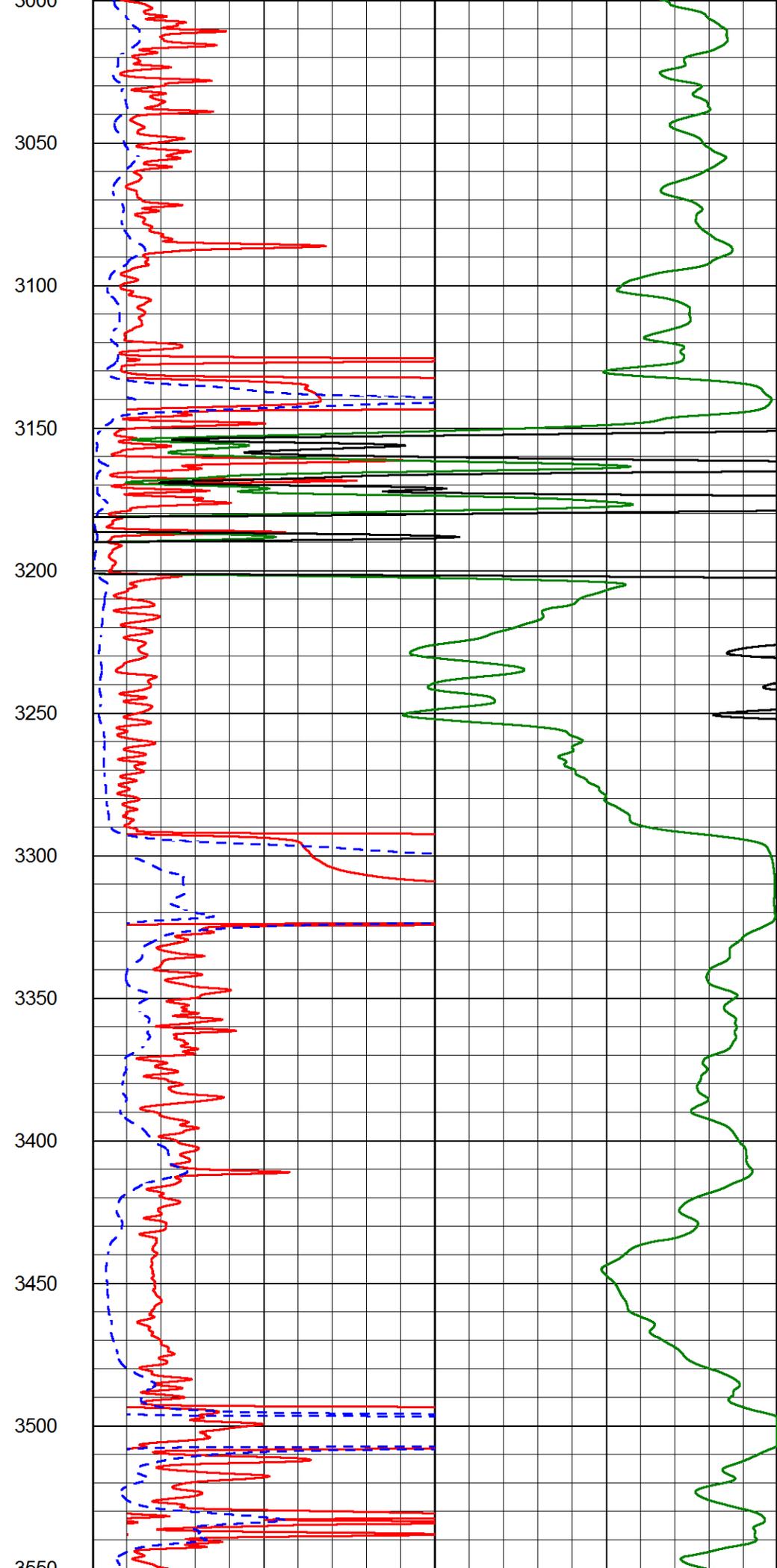
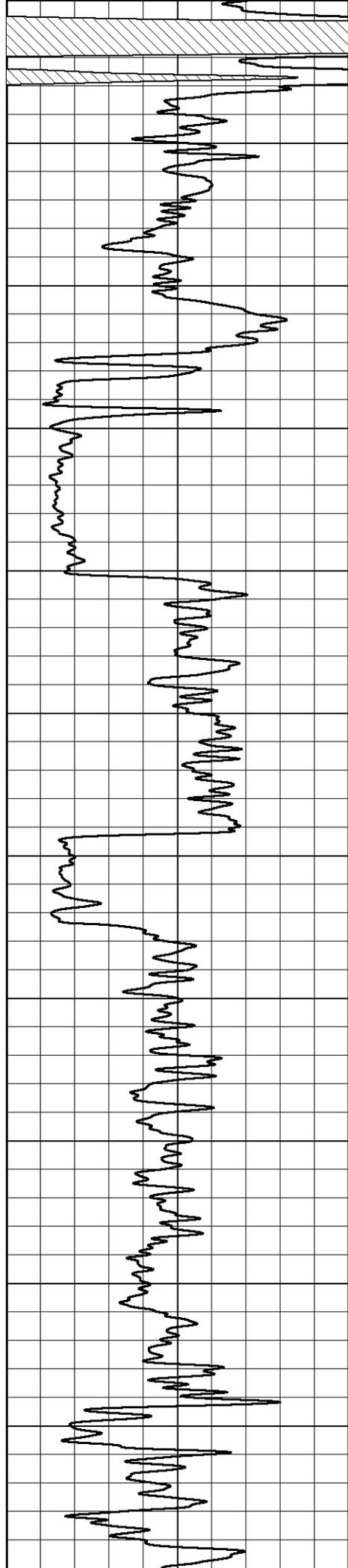


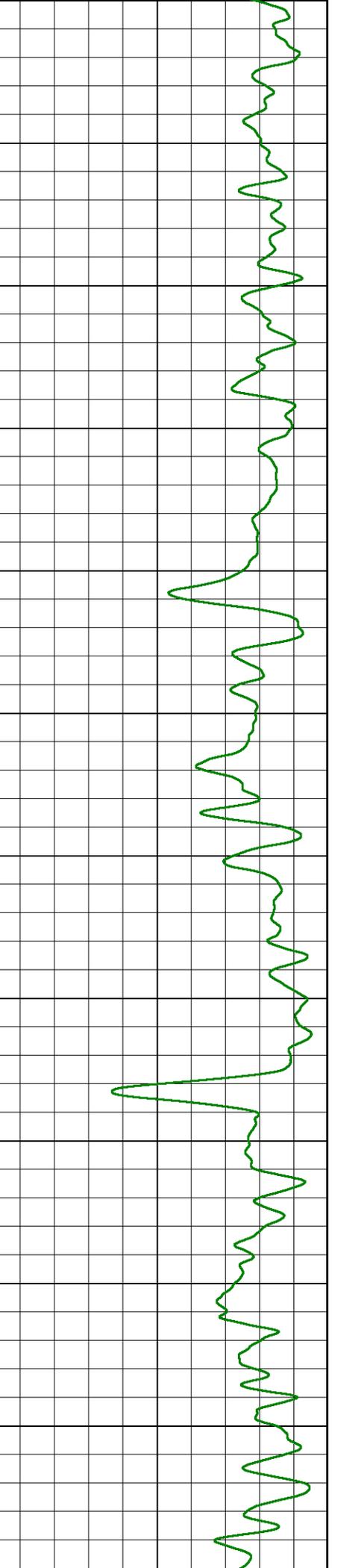
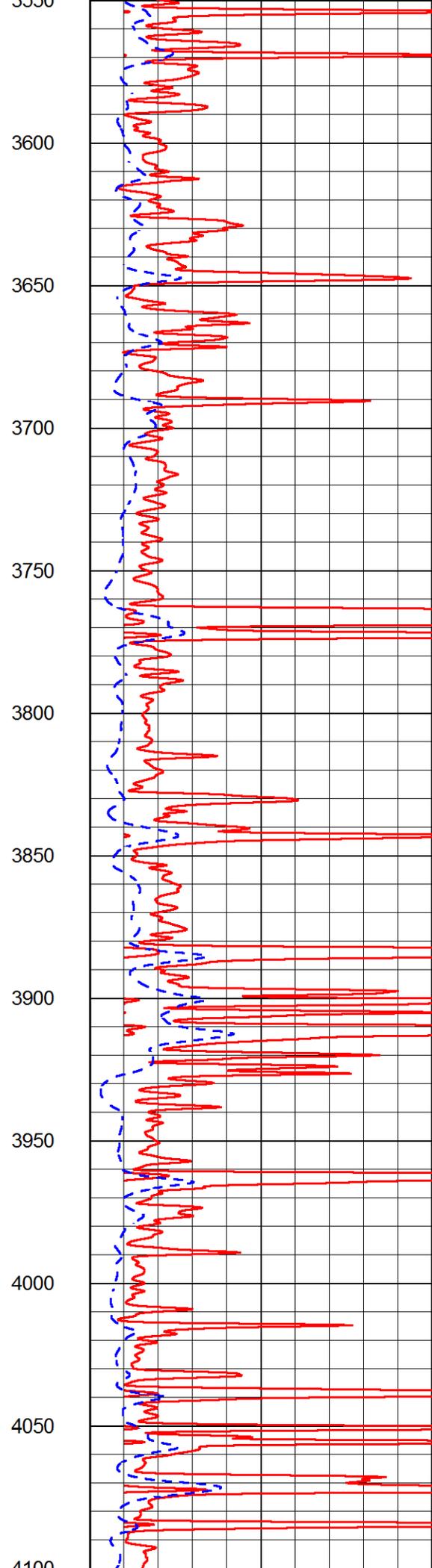
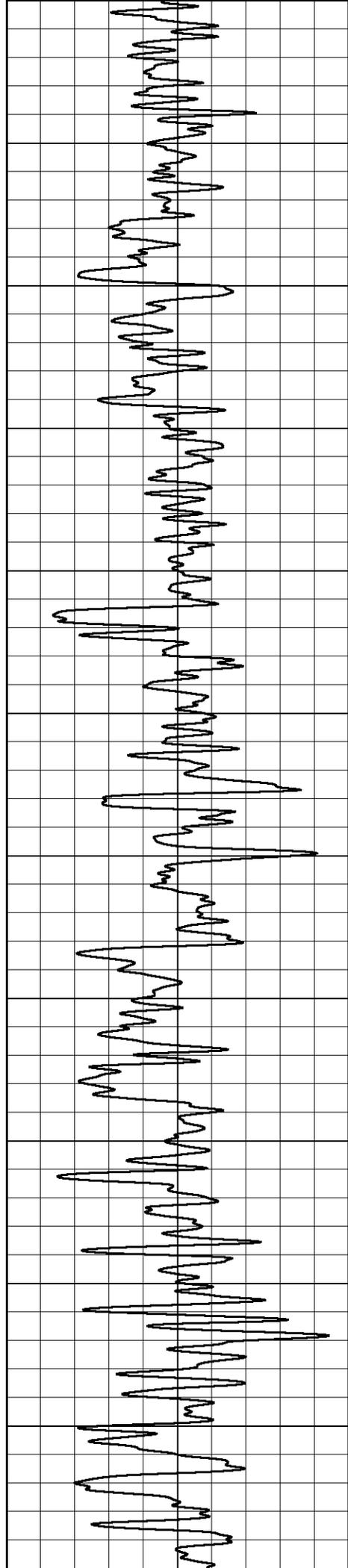
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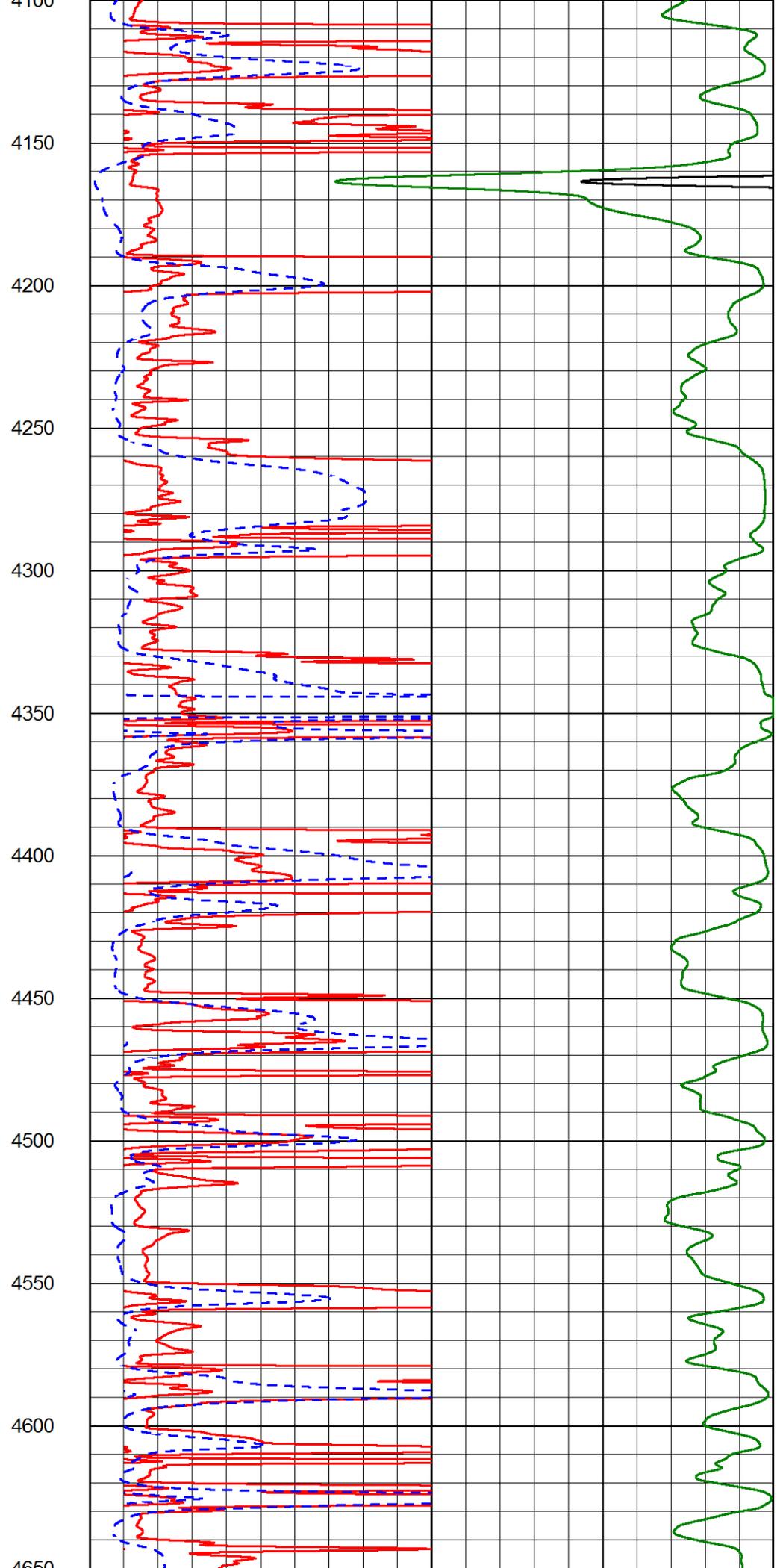
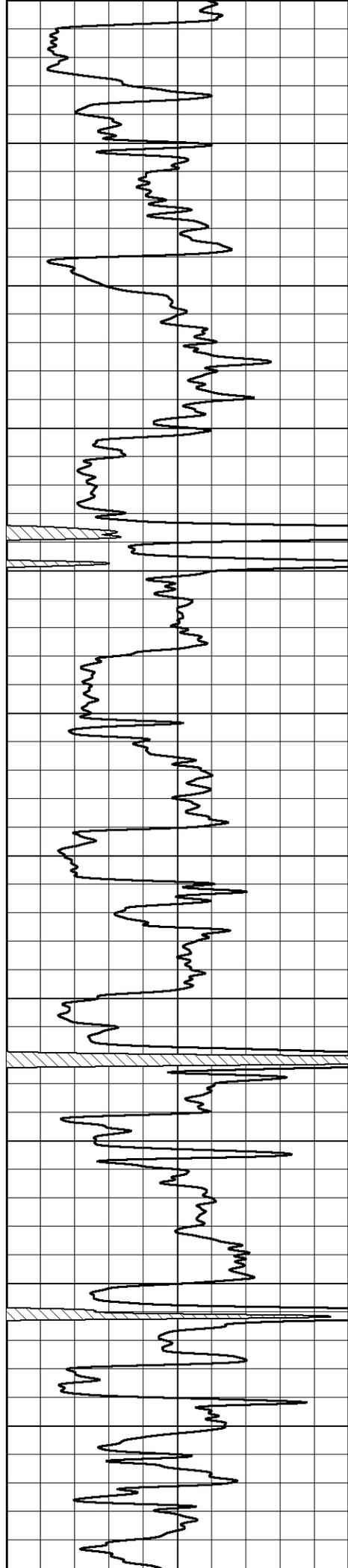


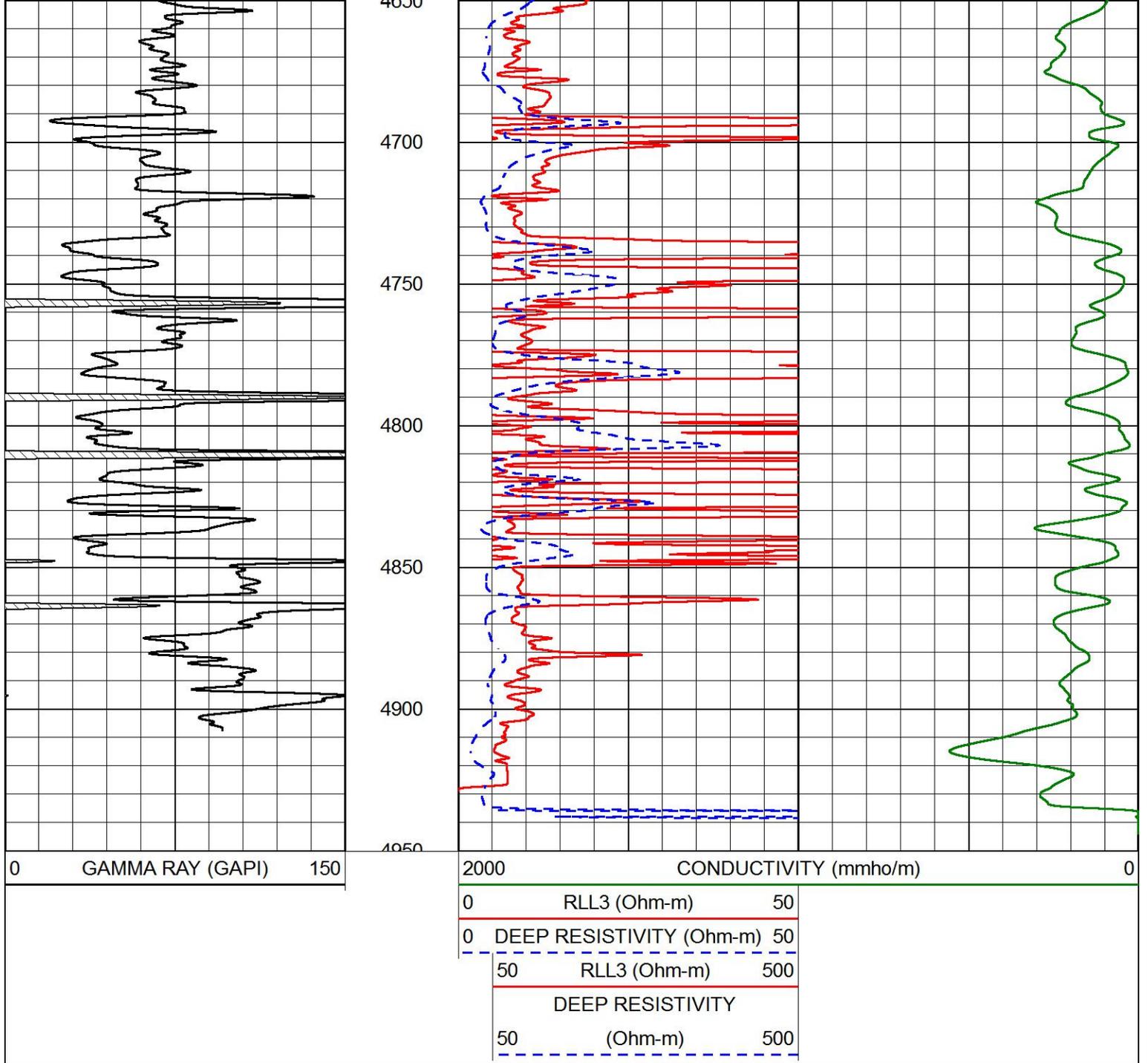








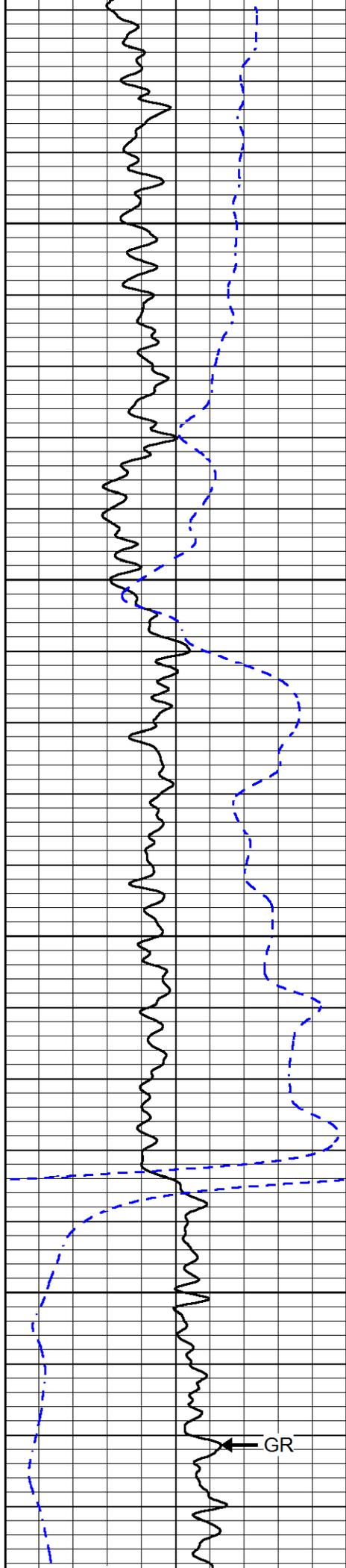




MAIN PASS

Database File murfin_banister_a_2_22.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Sun May 20 12:11:09 2018
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0



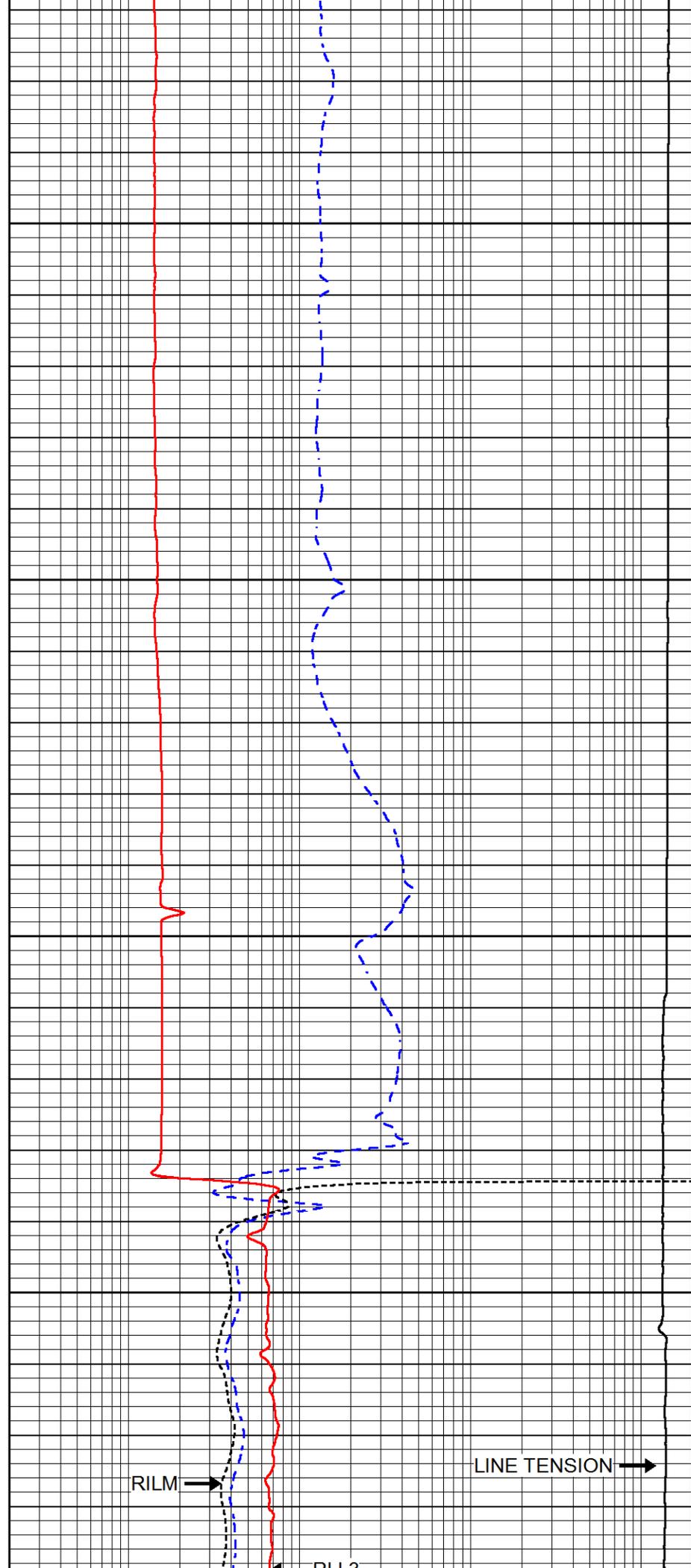
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350

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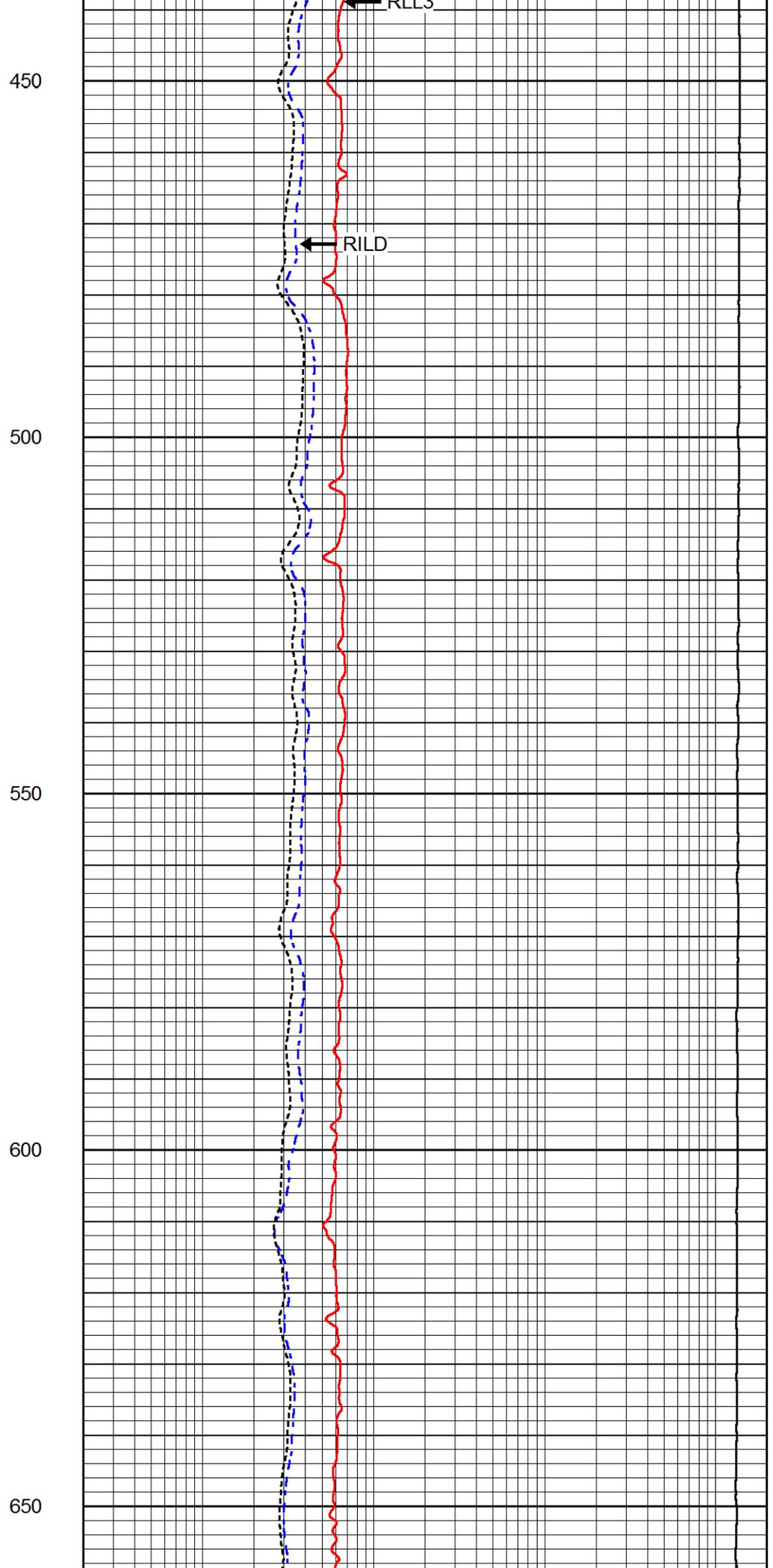
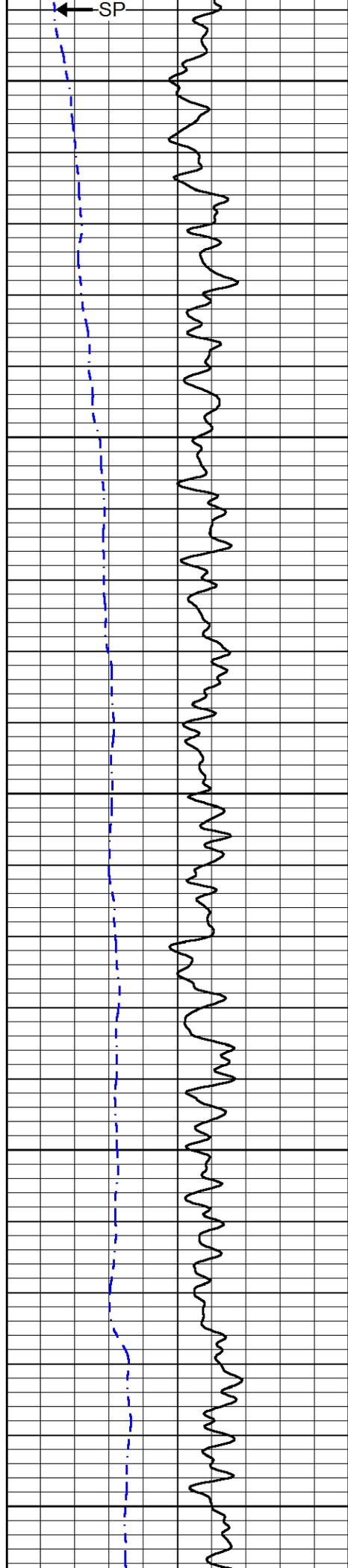
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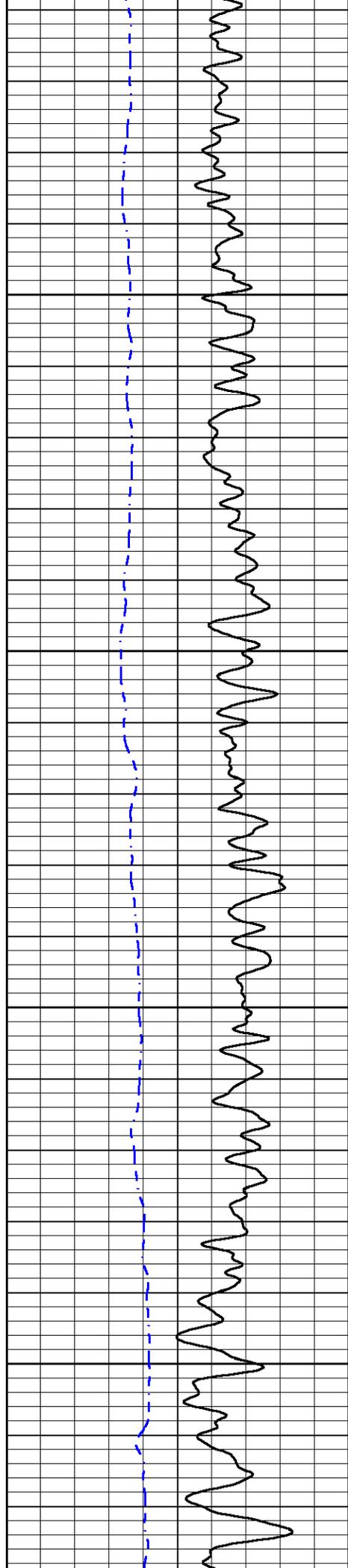


RILM

LINE TENSION

PL12



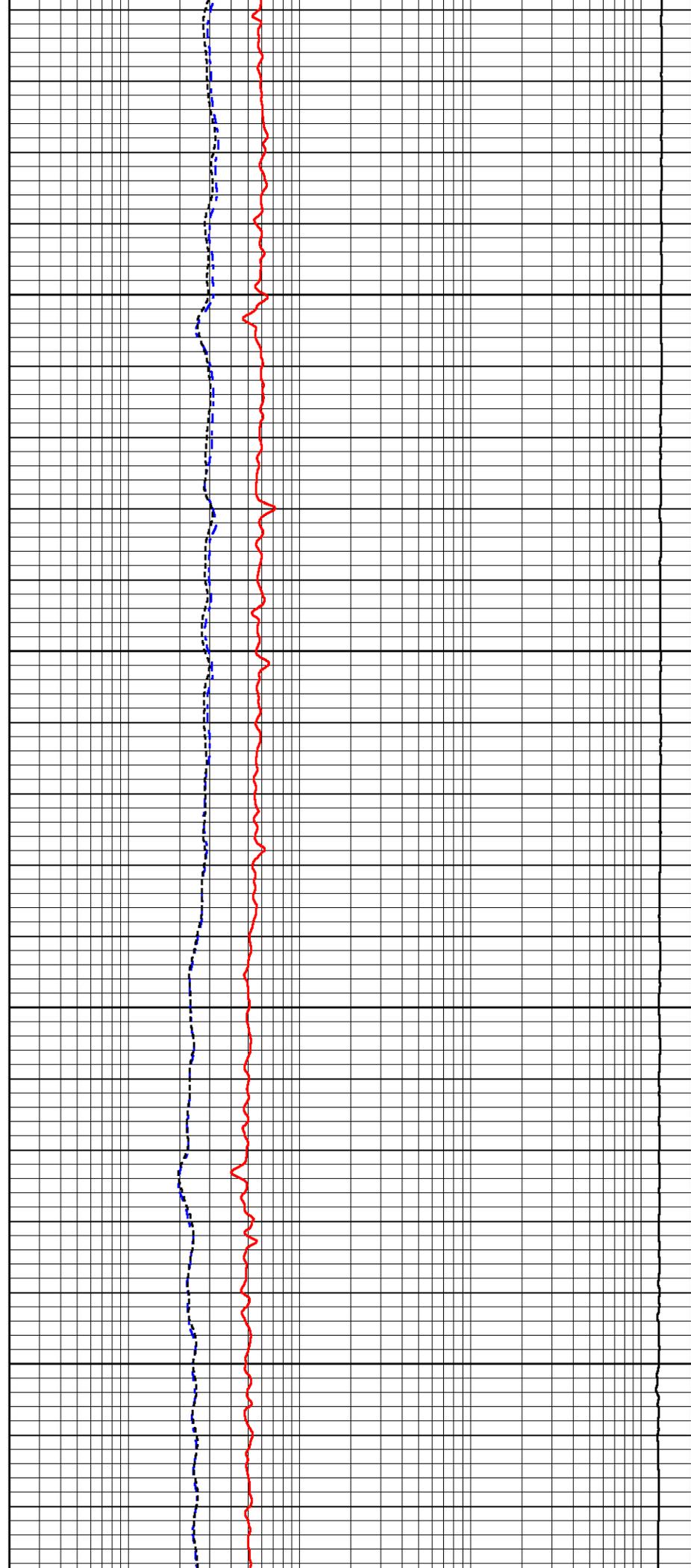


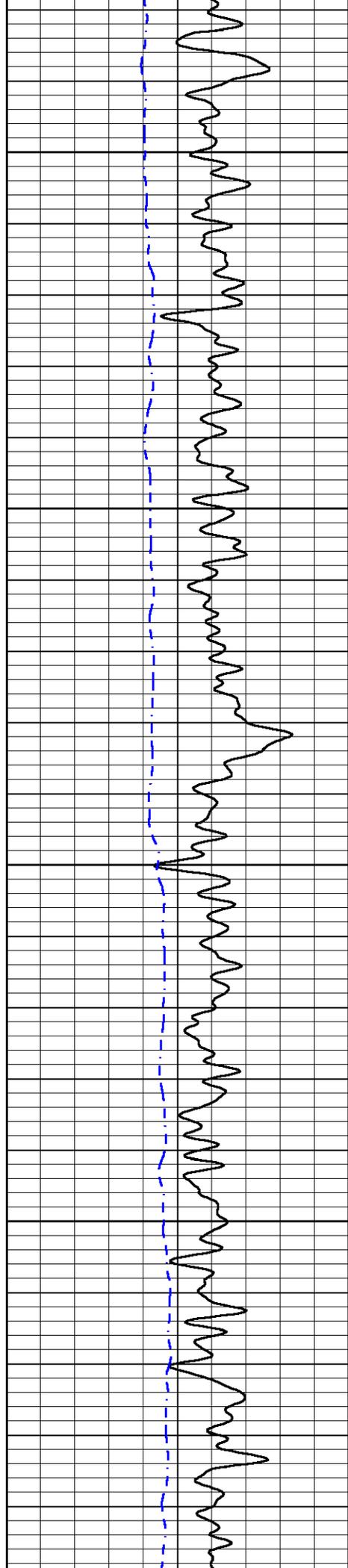
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750

800

850



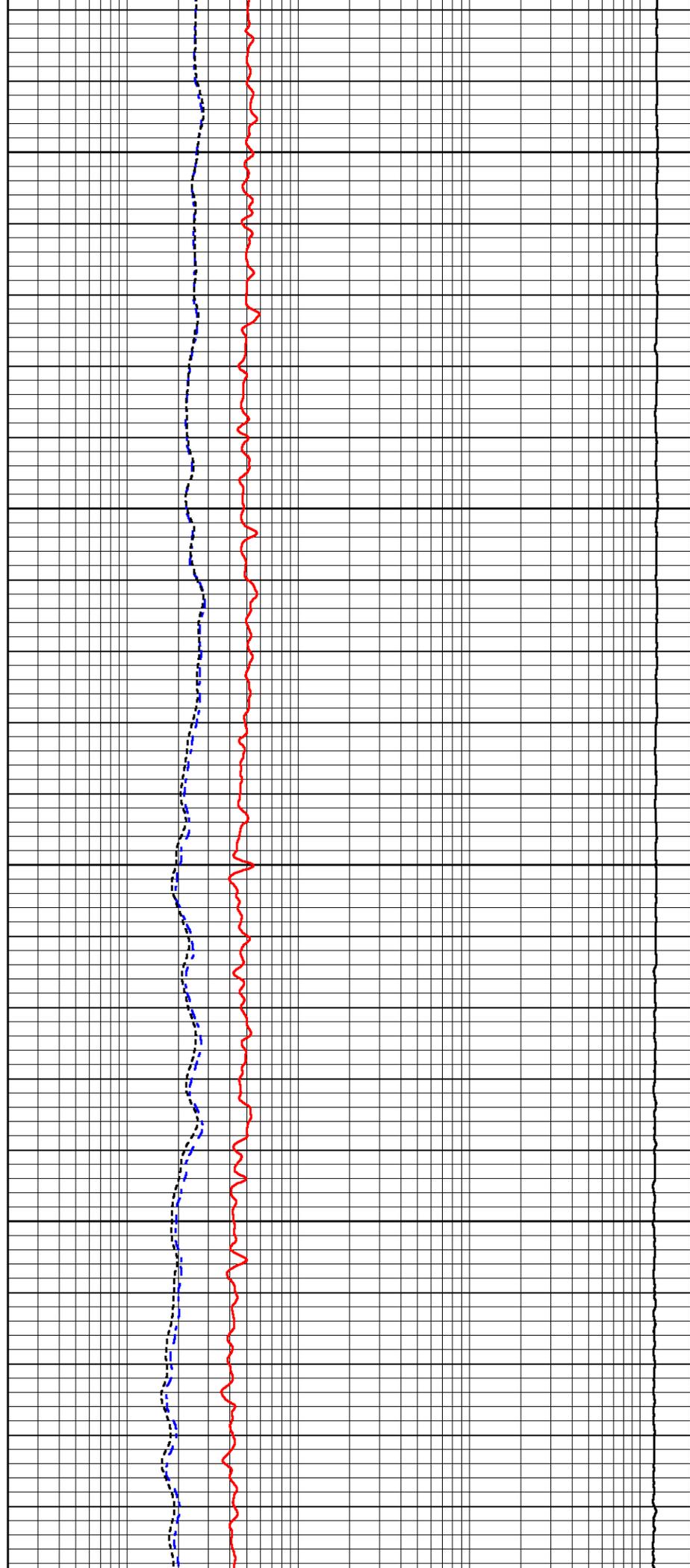


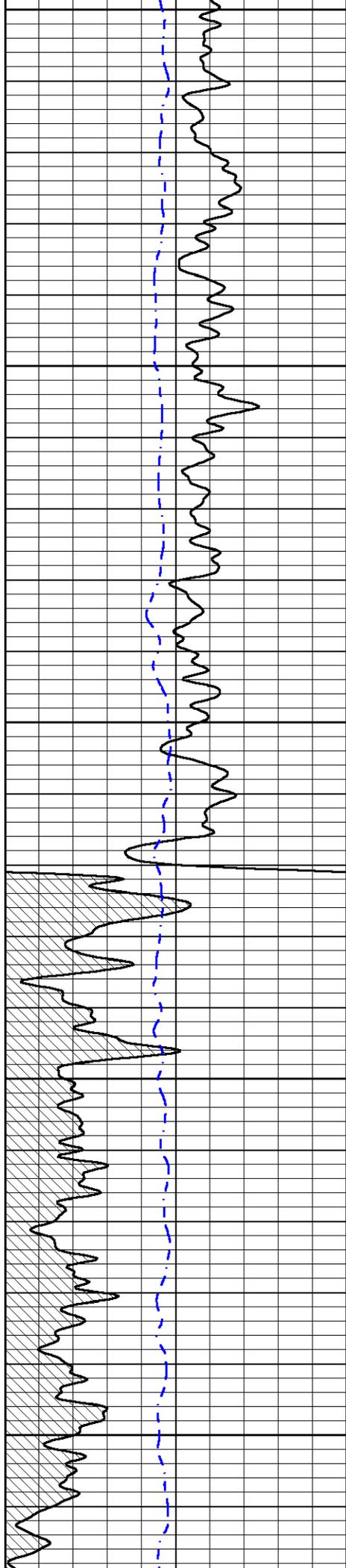
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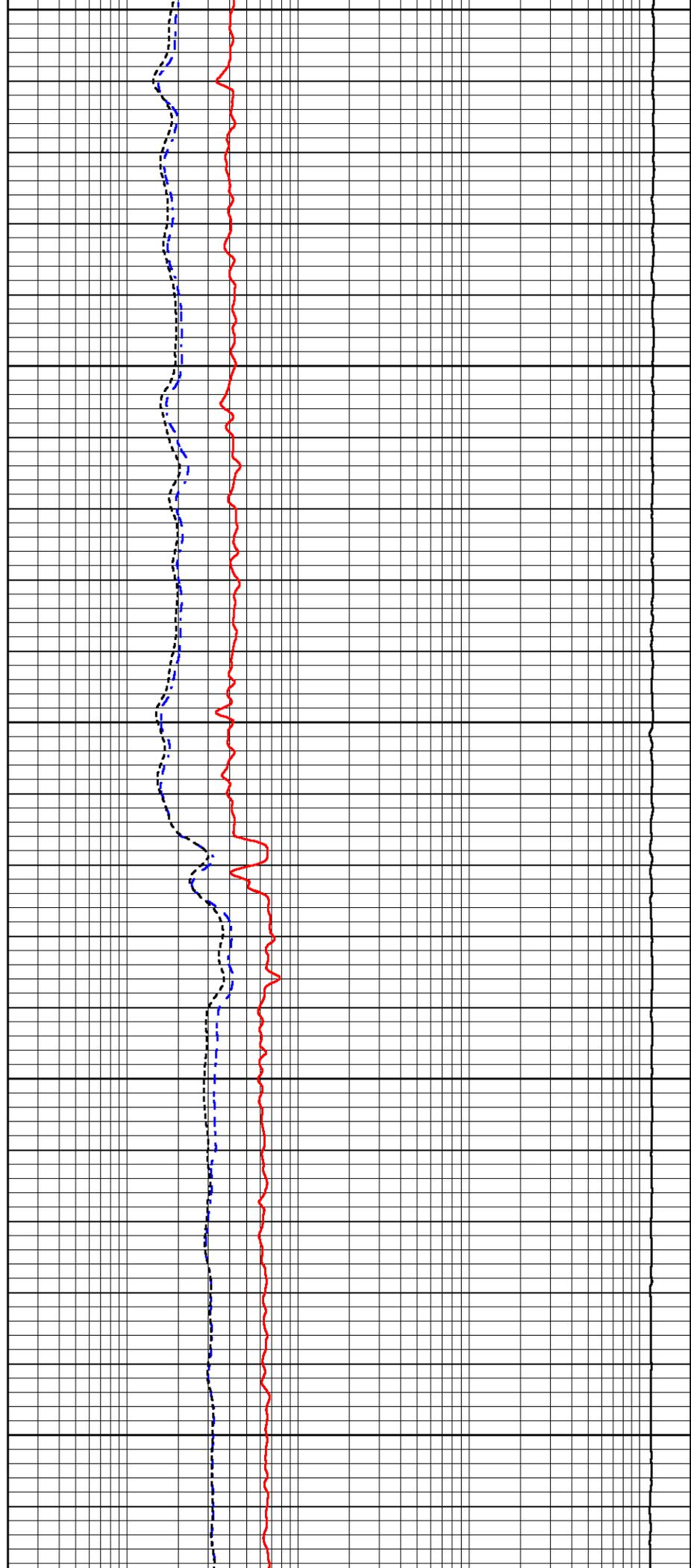
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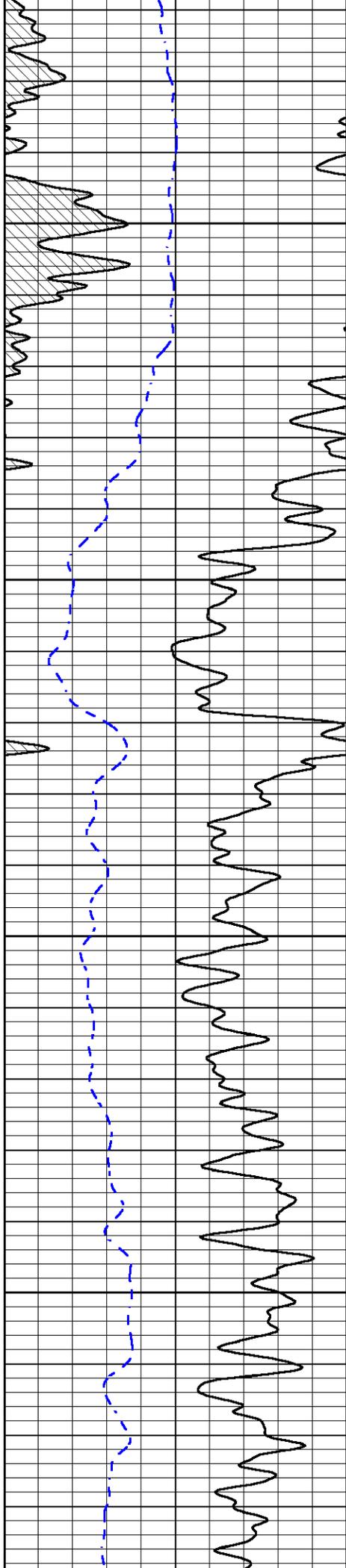
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1250
1300



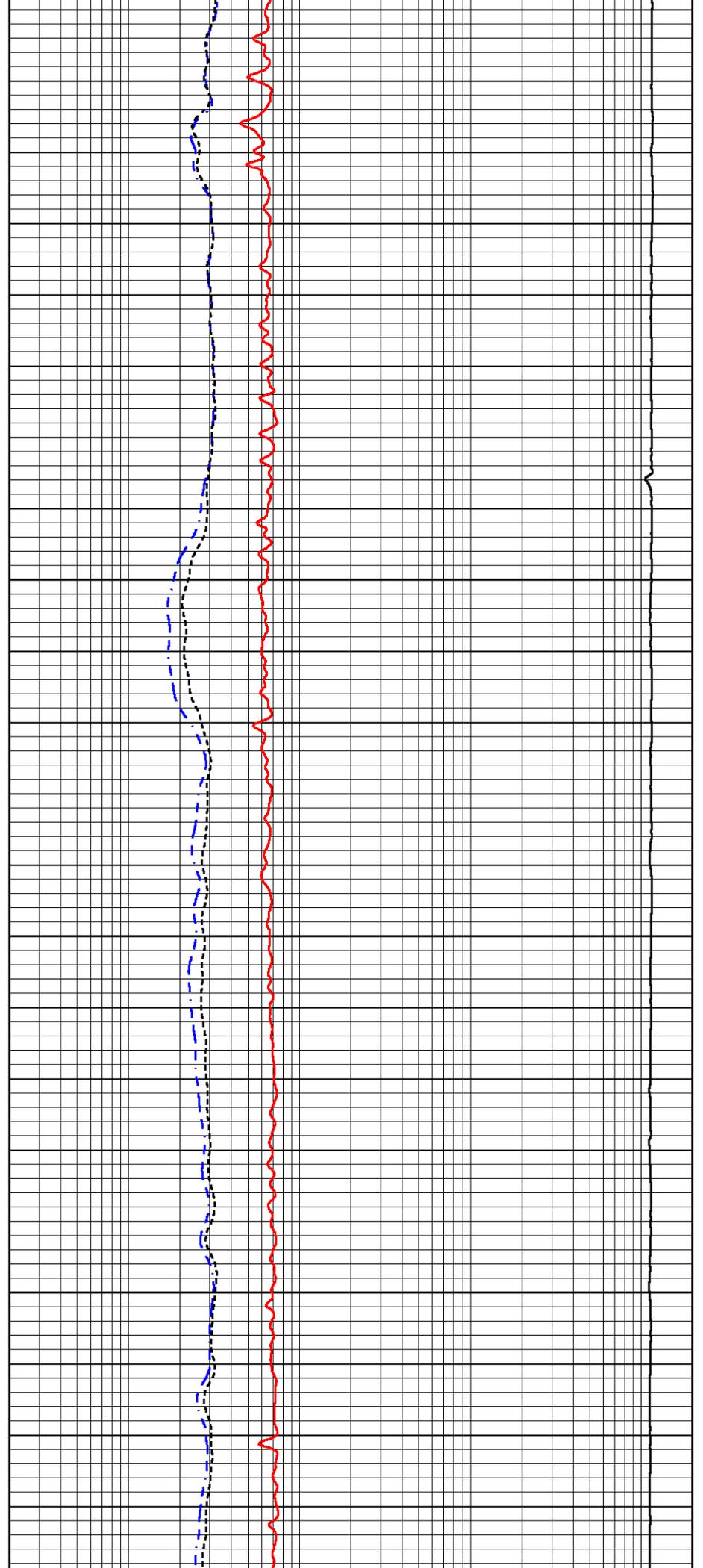


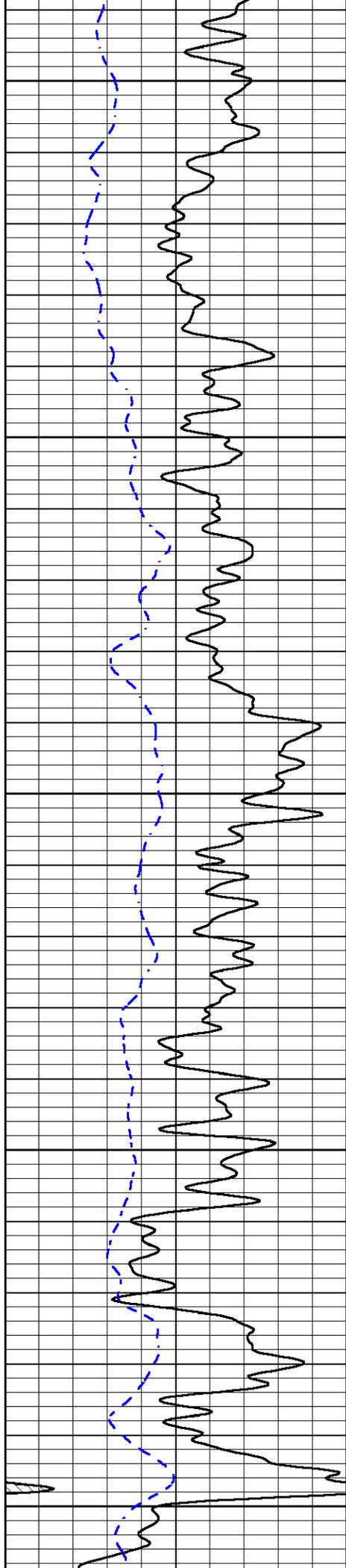
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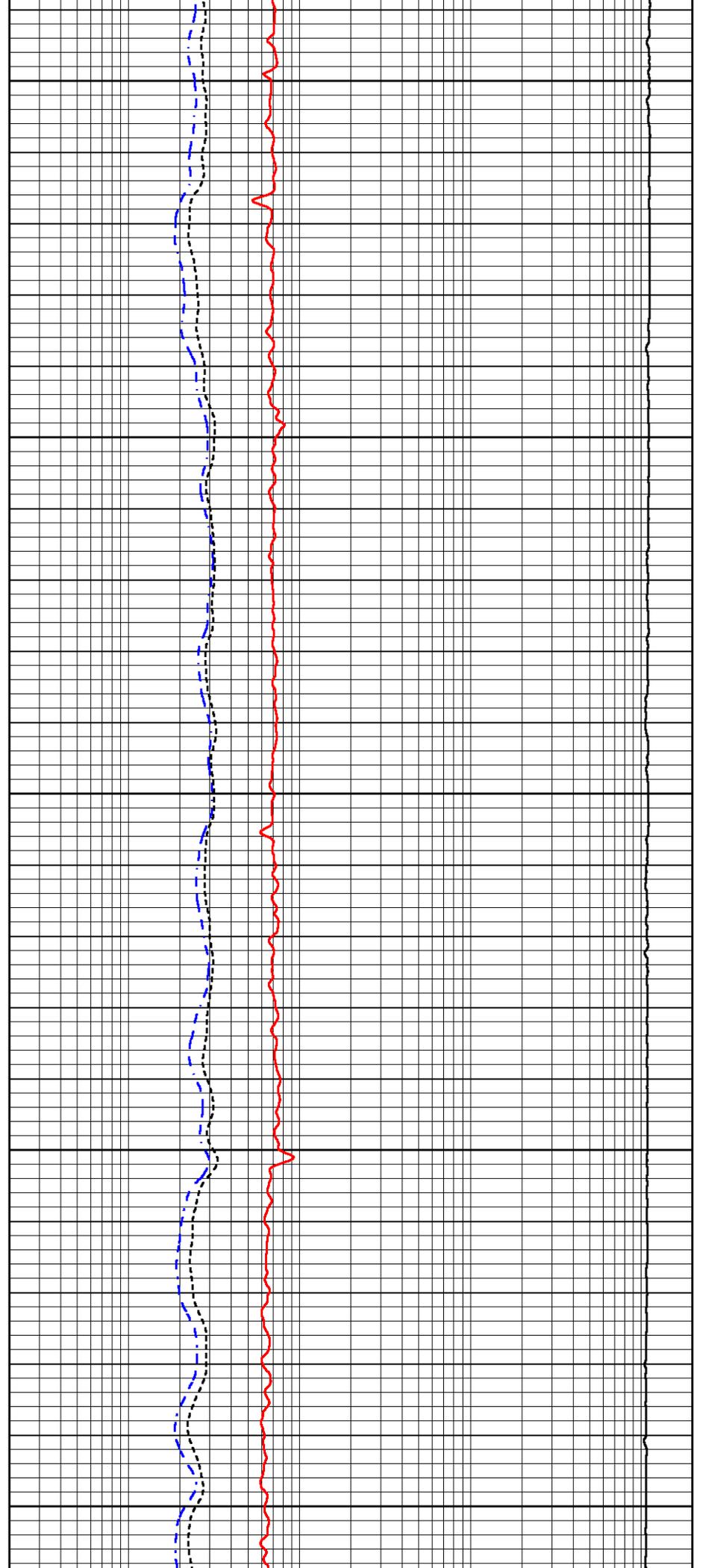
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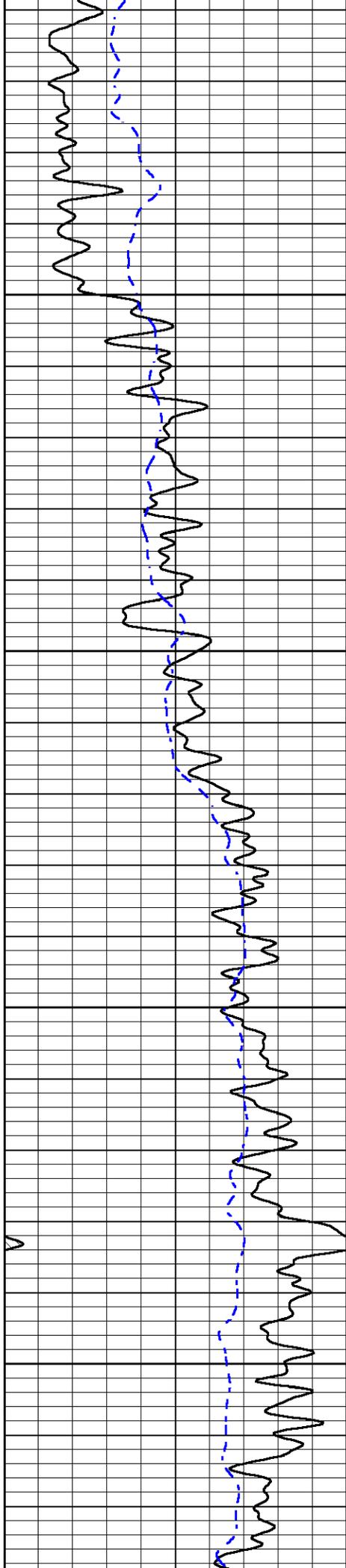
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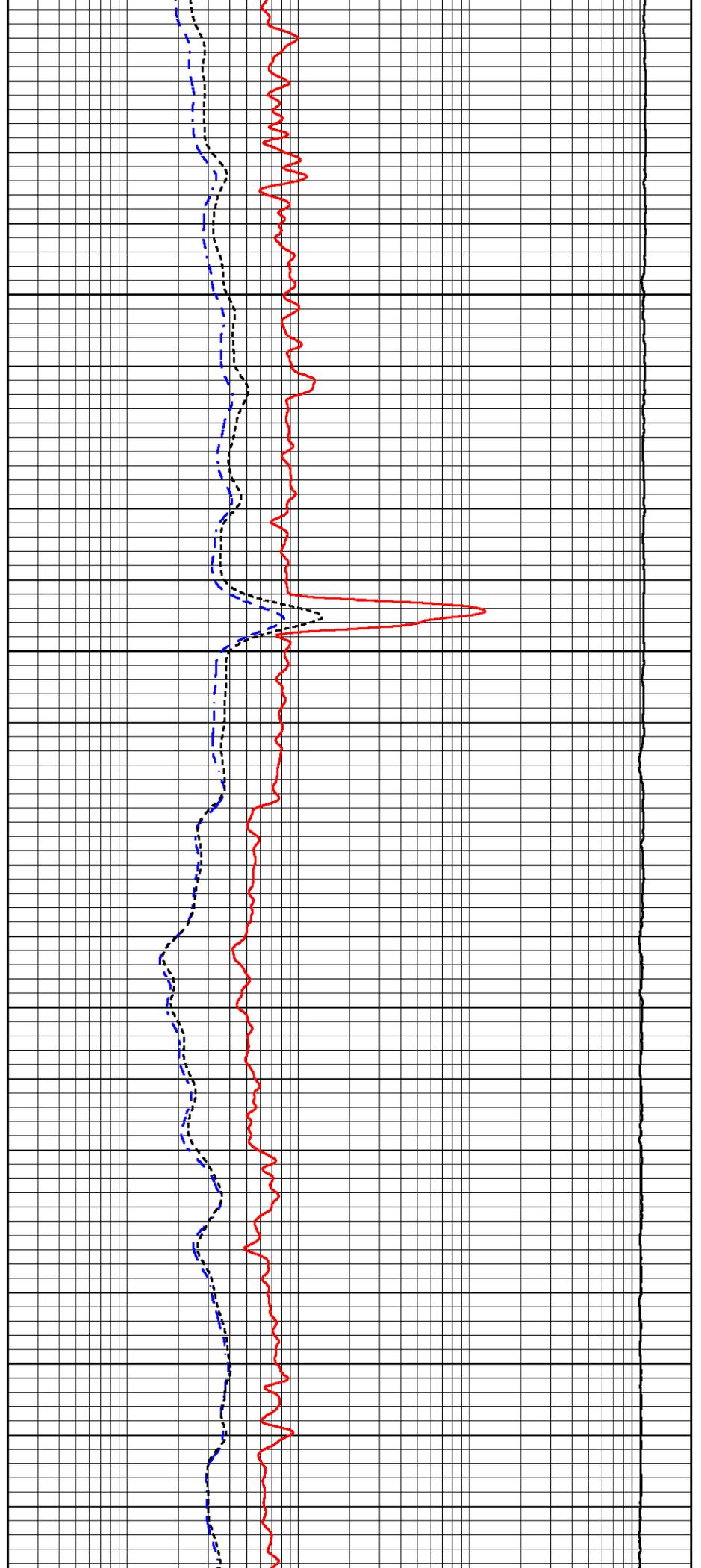


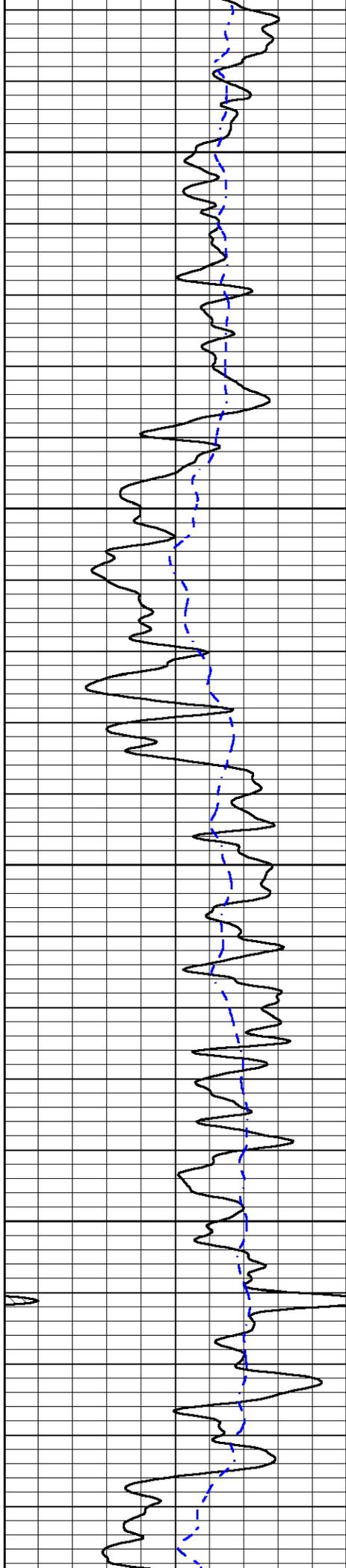
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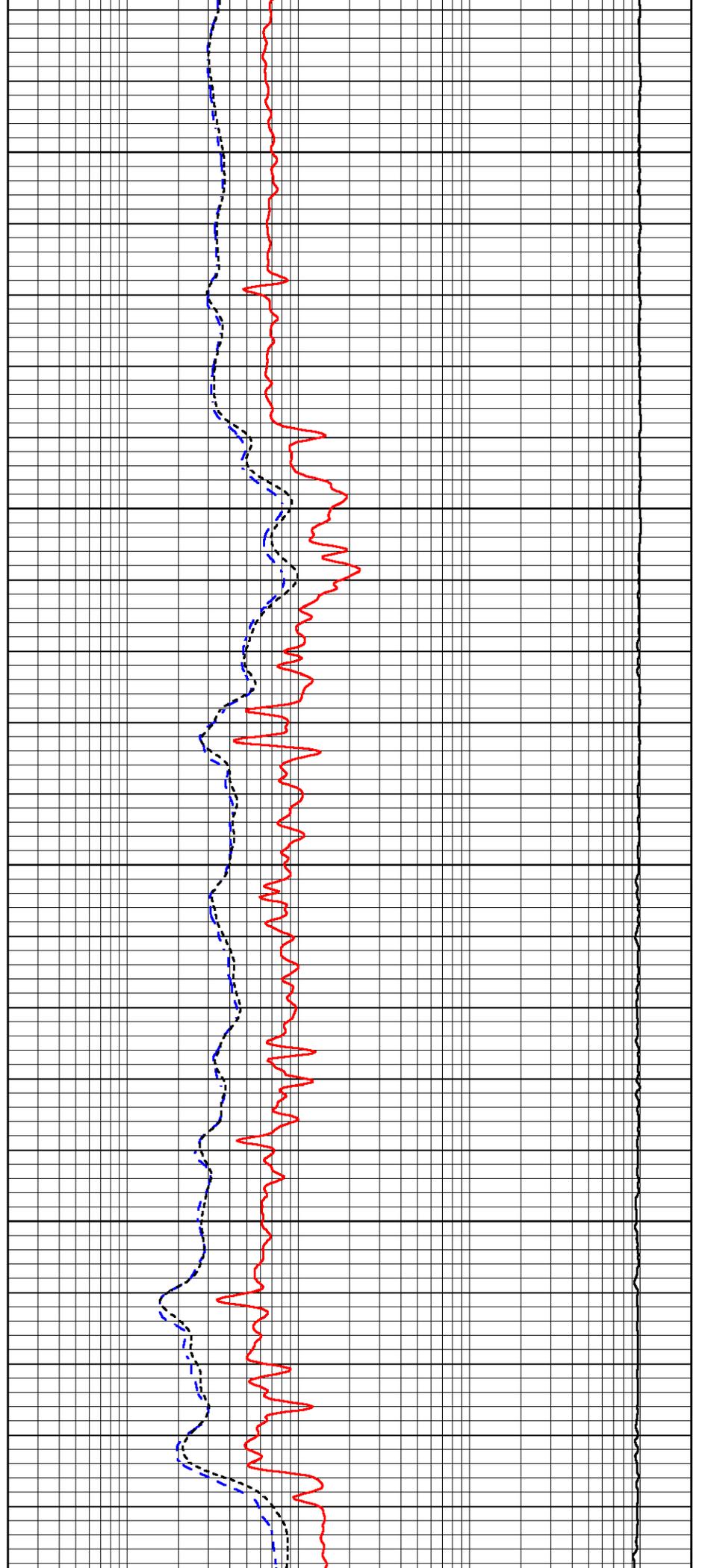


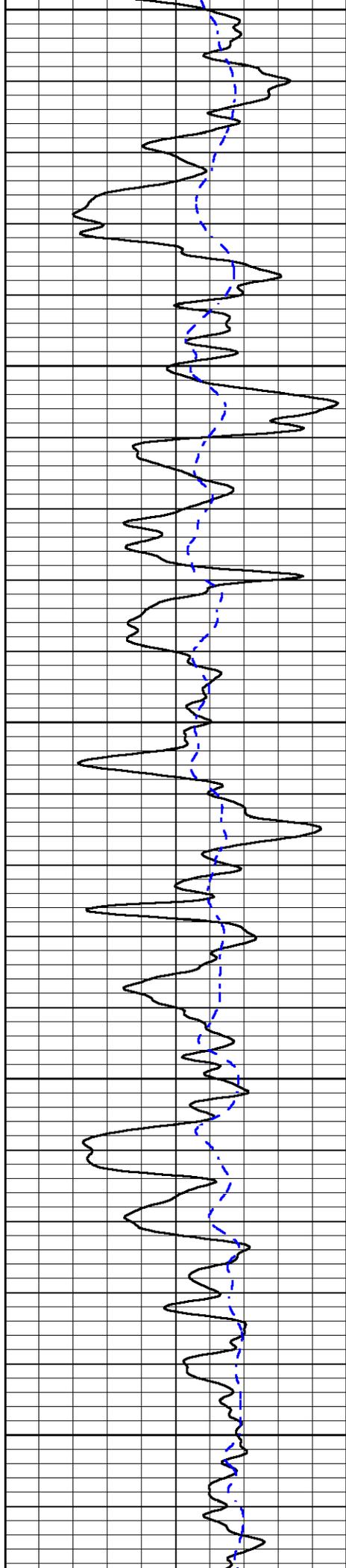
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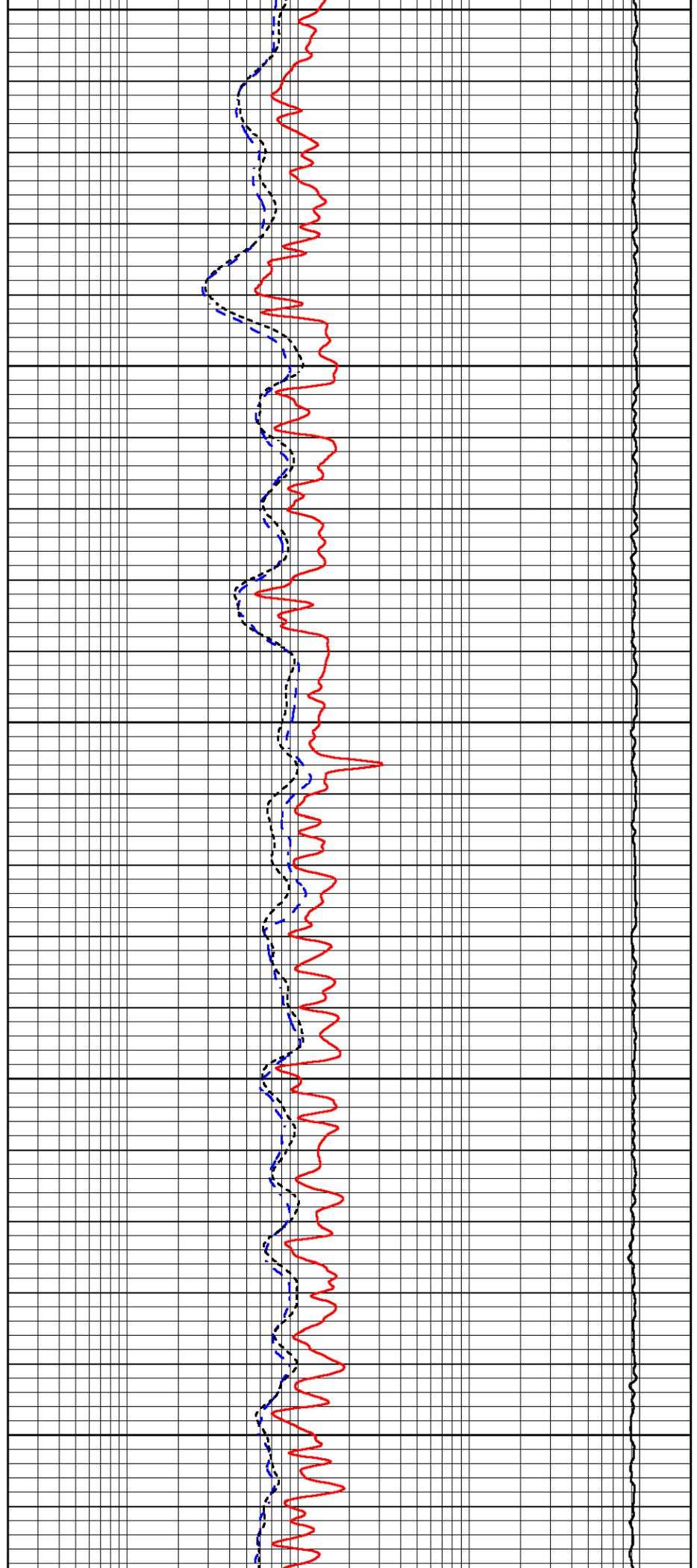
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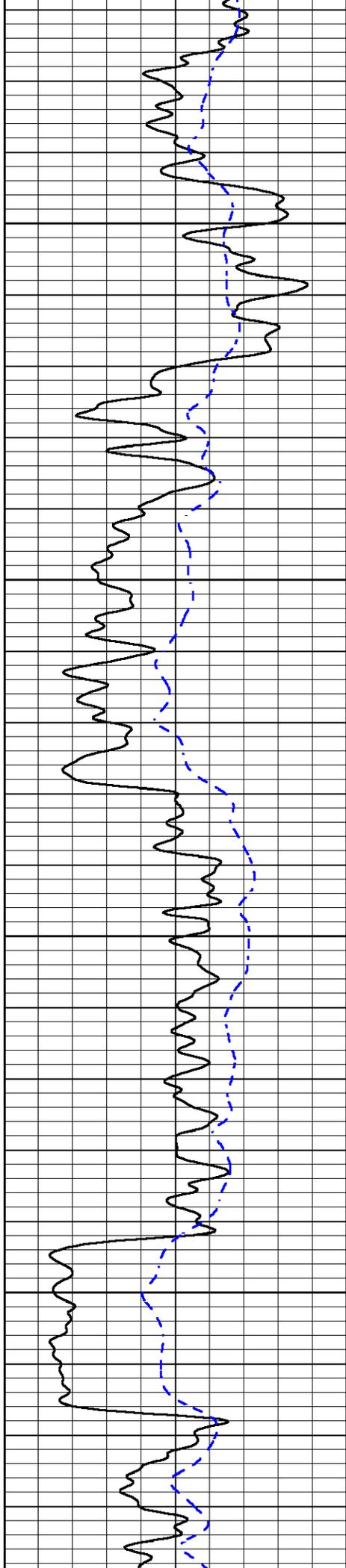
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2400



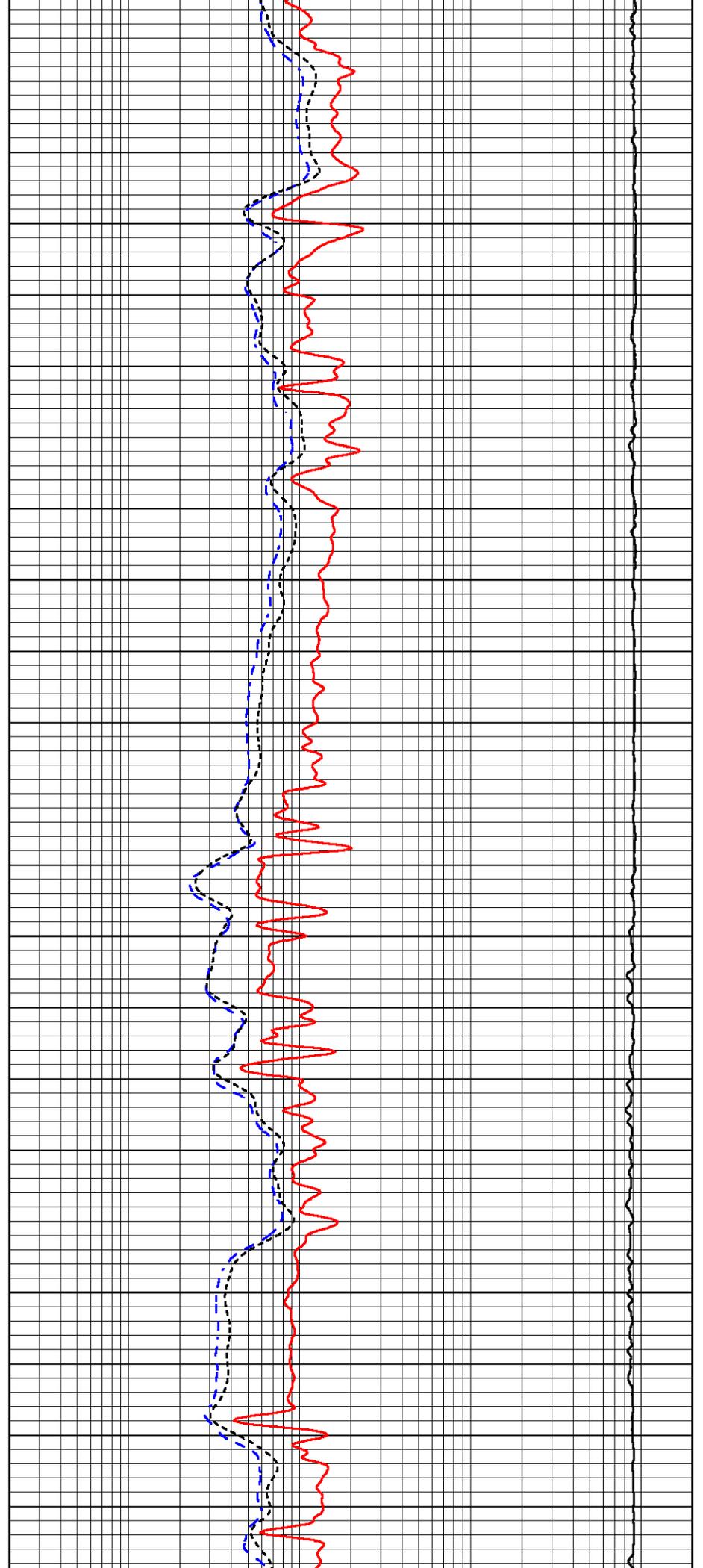


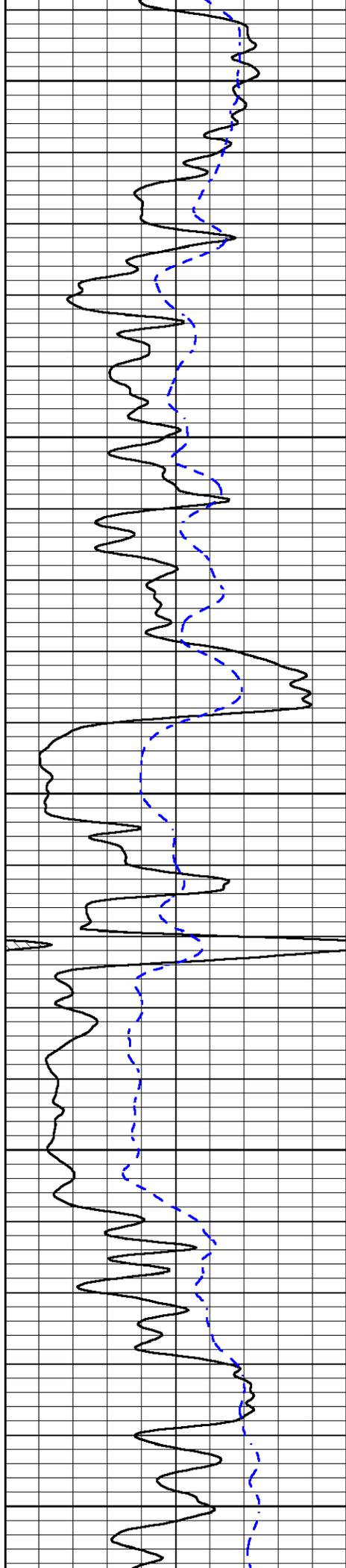
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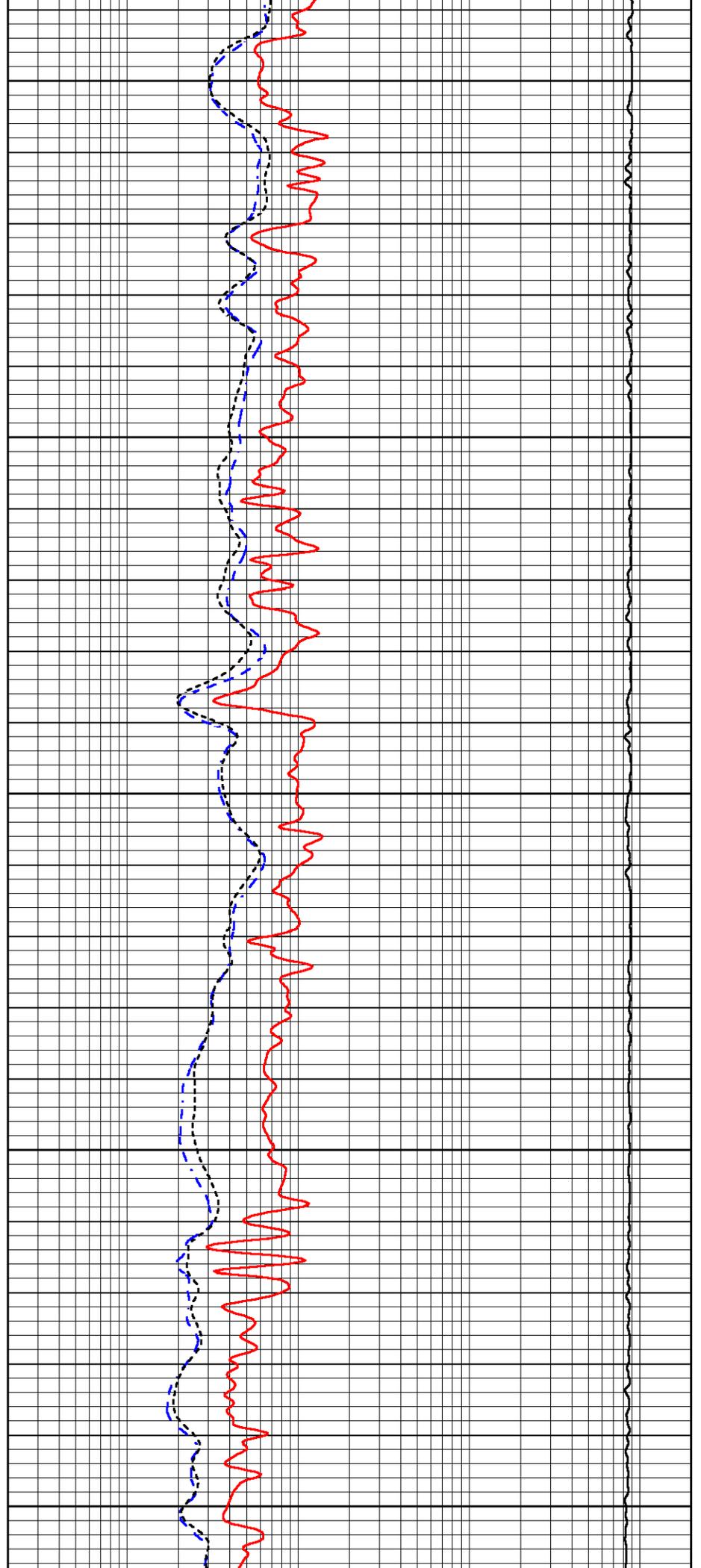
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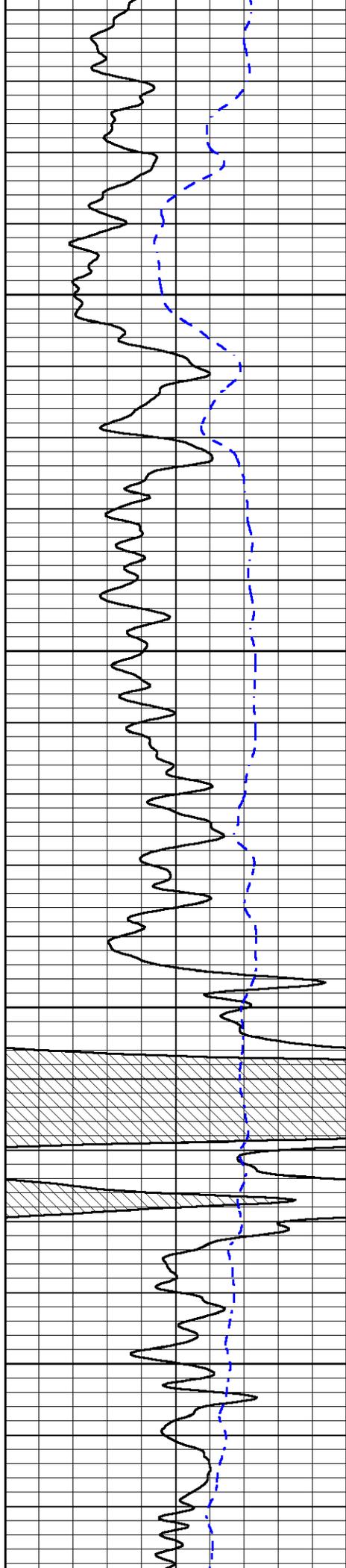
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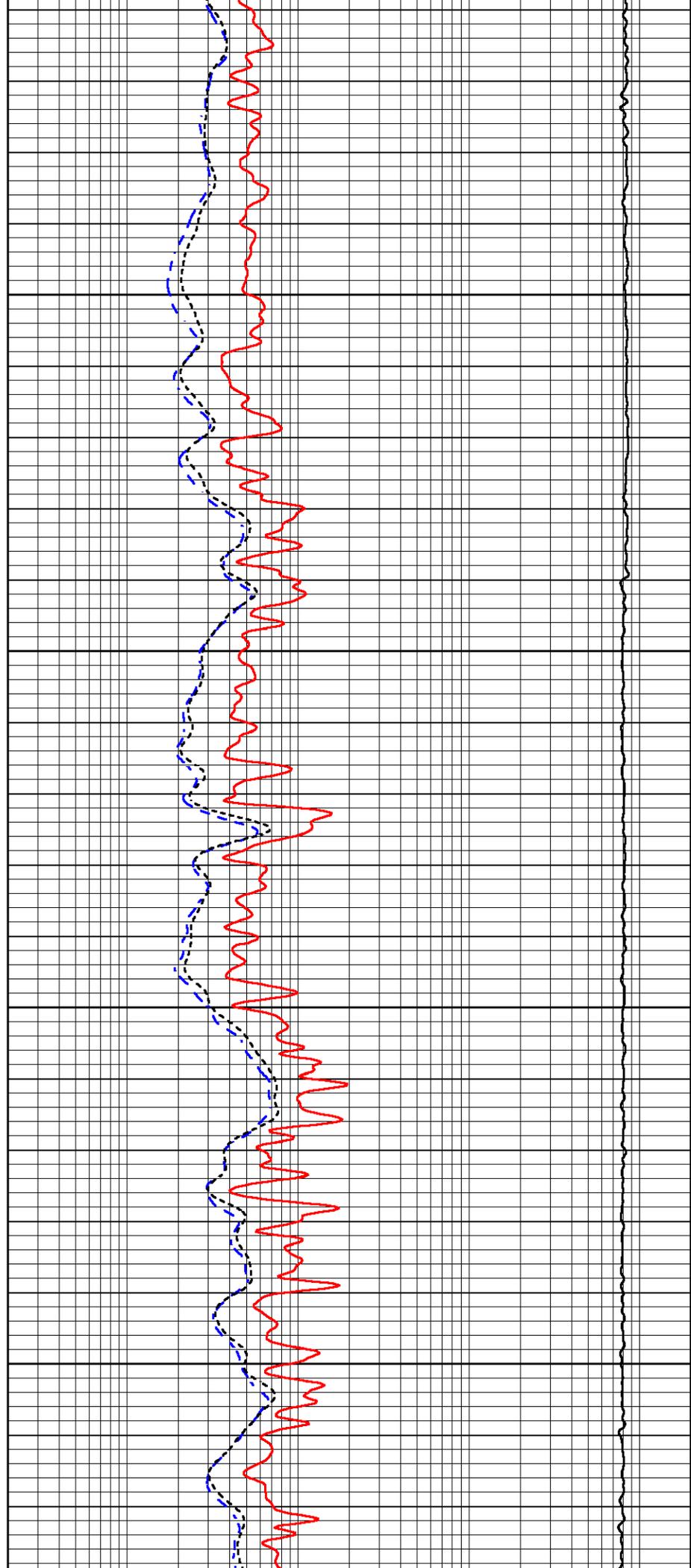


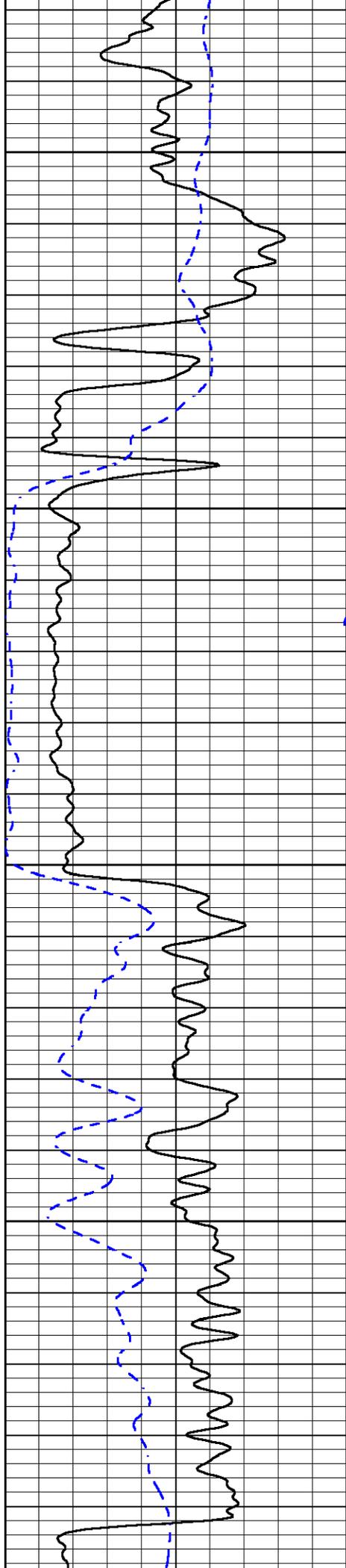
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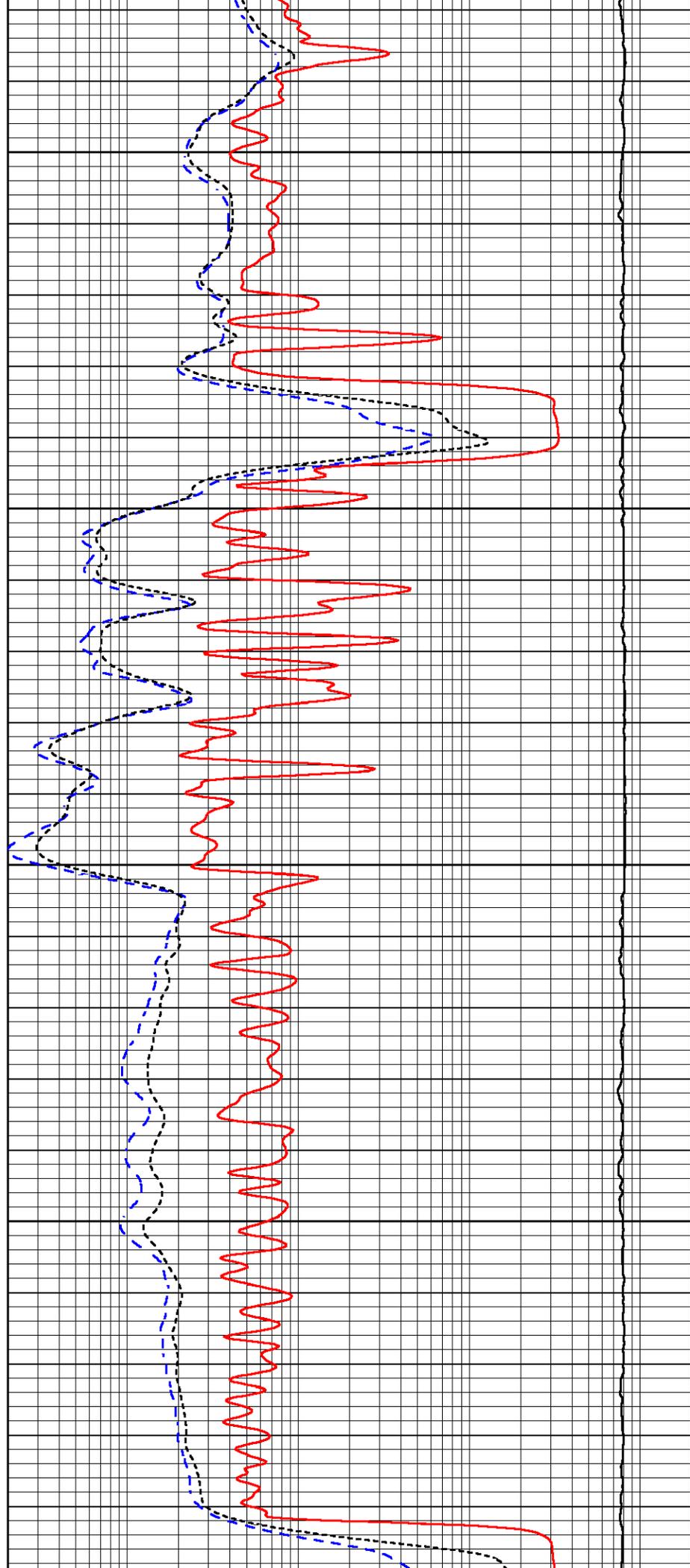


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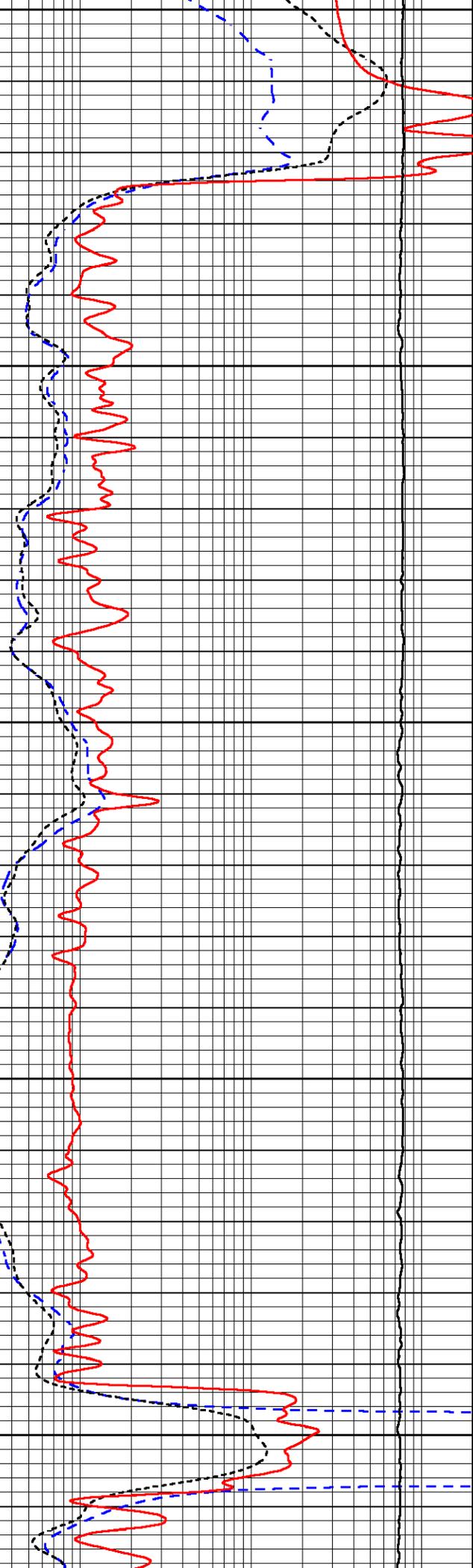
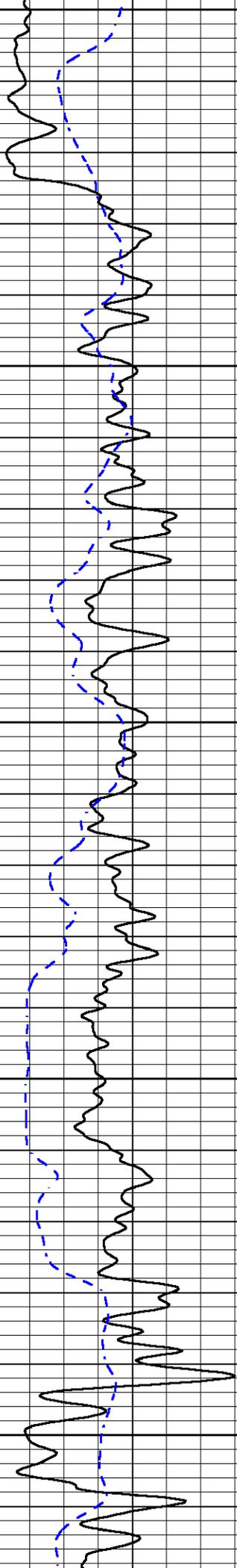
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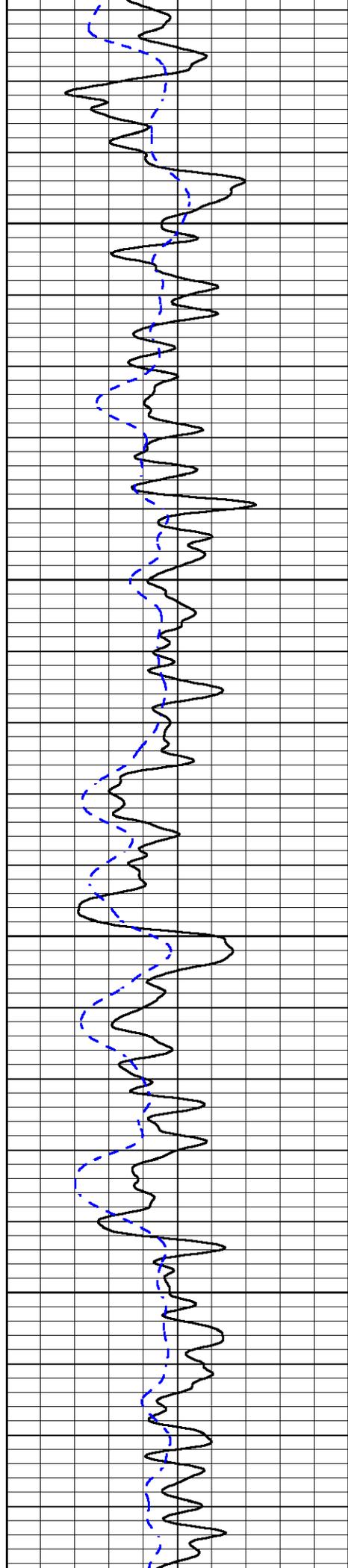
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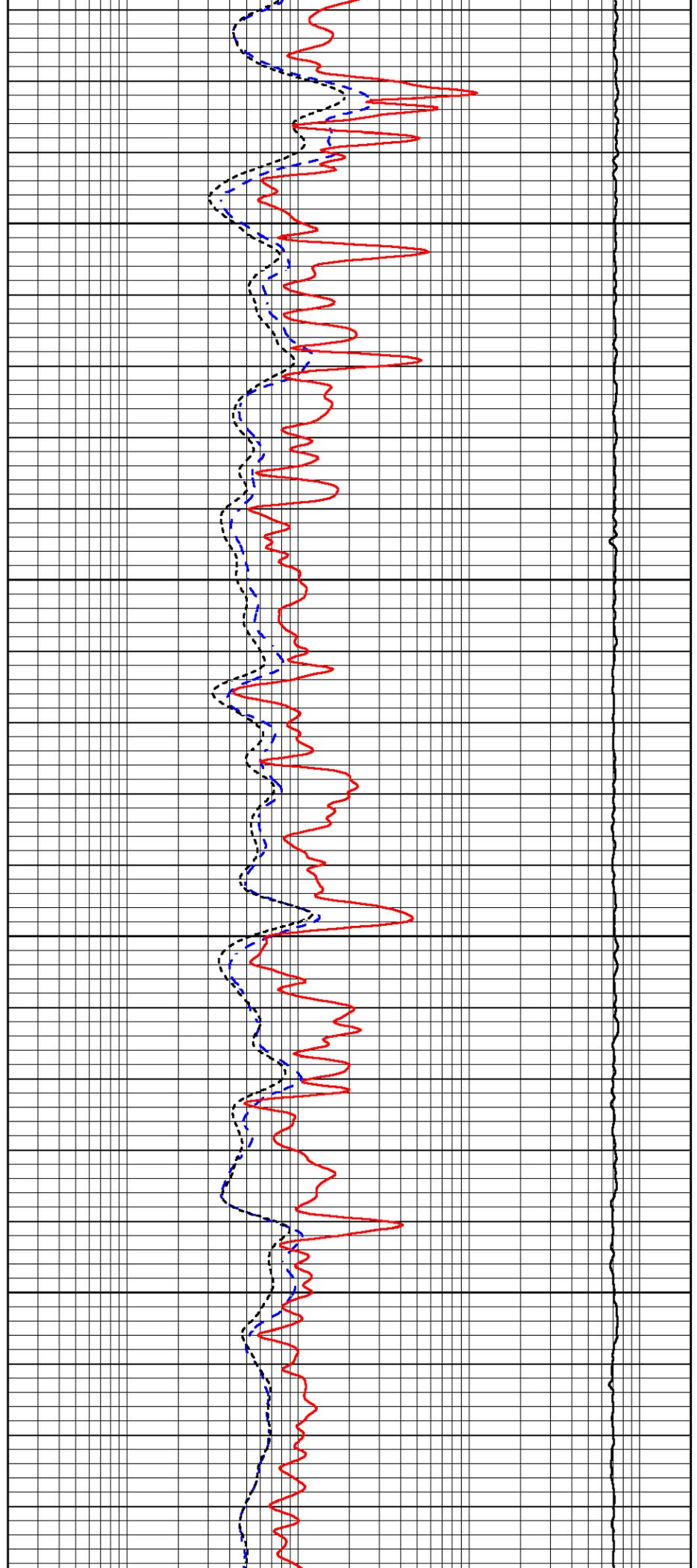


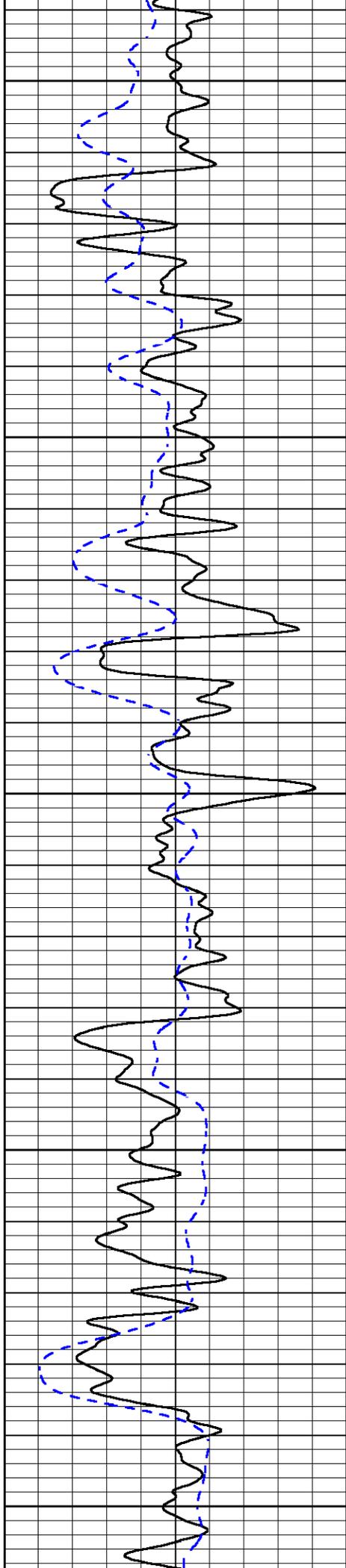
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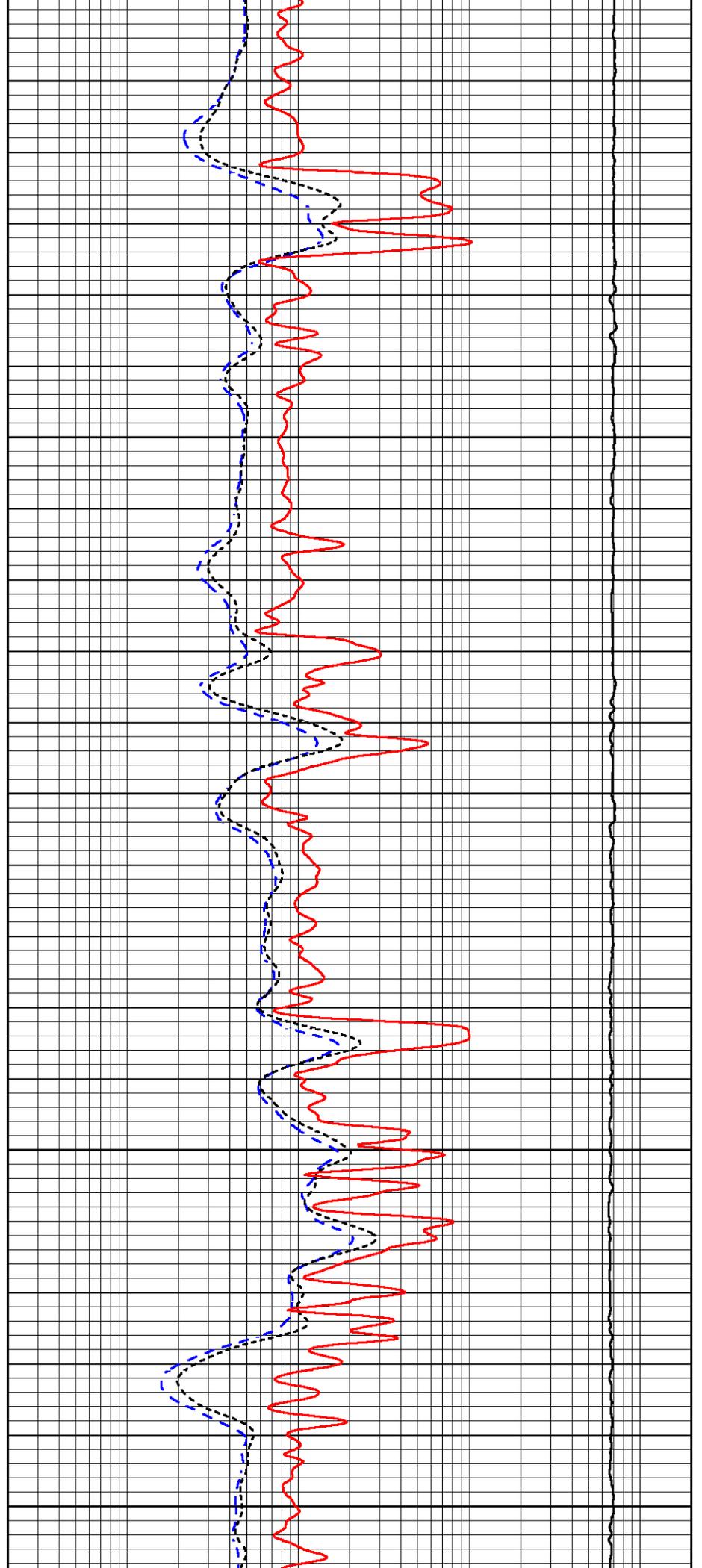
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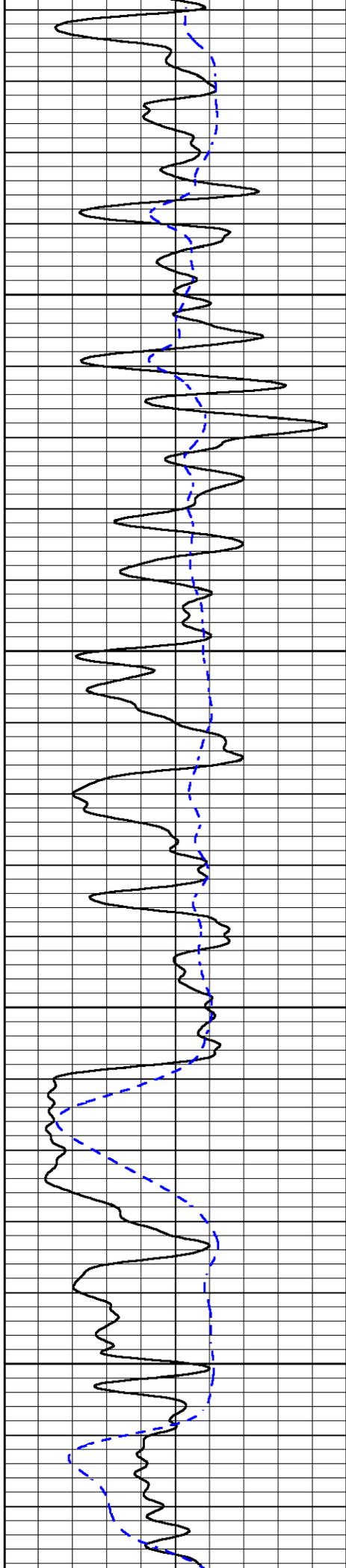
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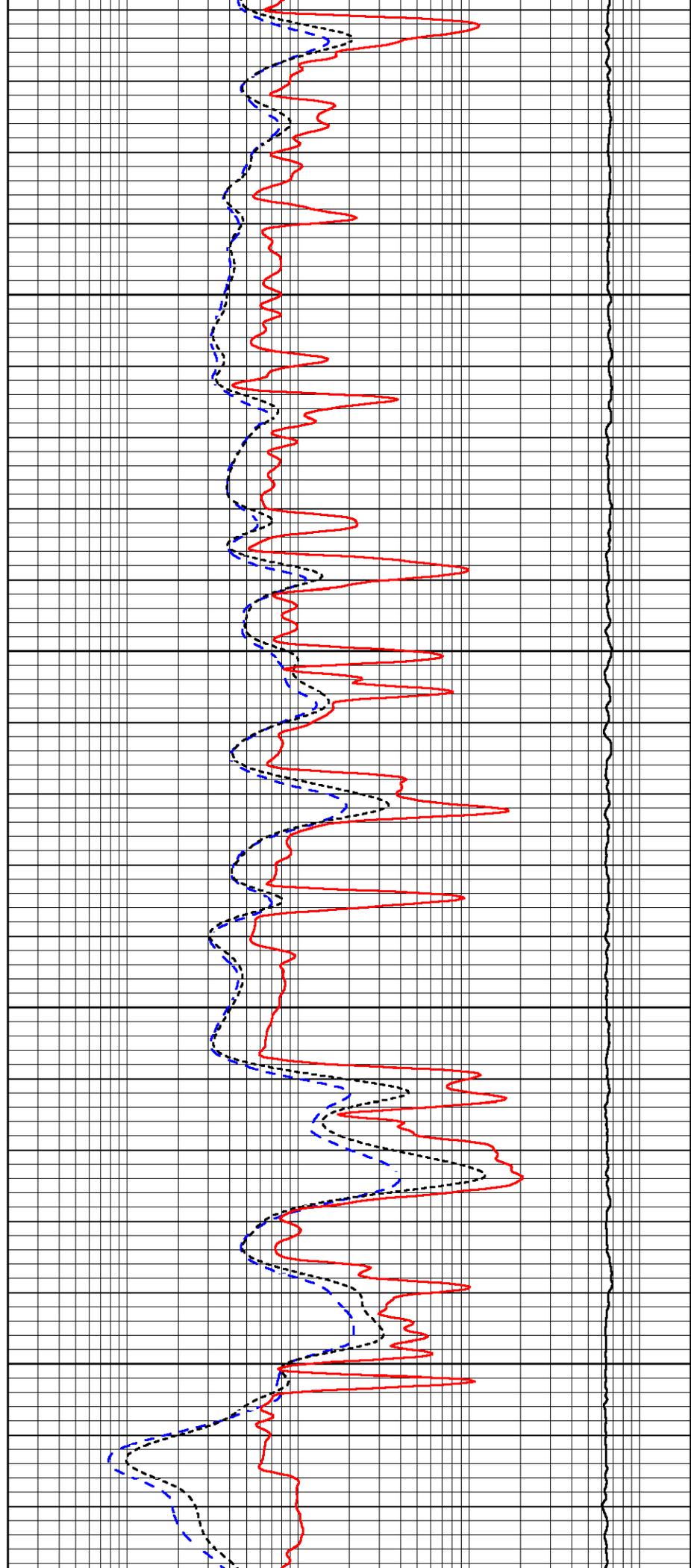


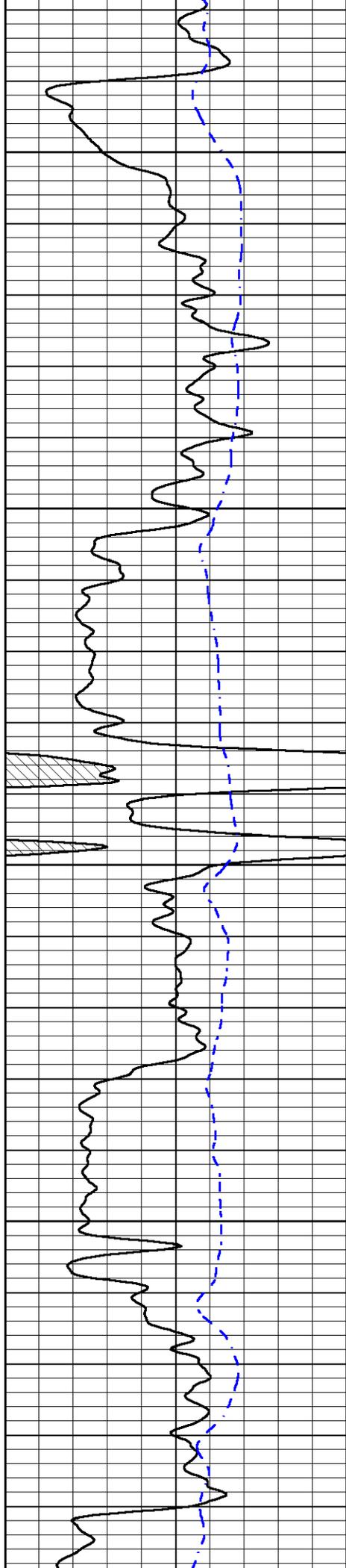
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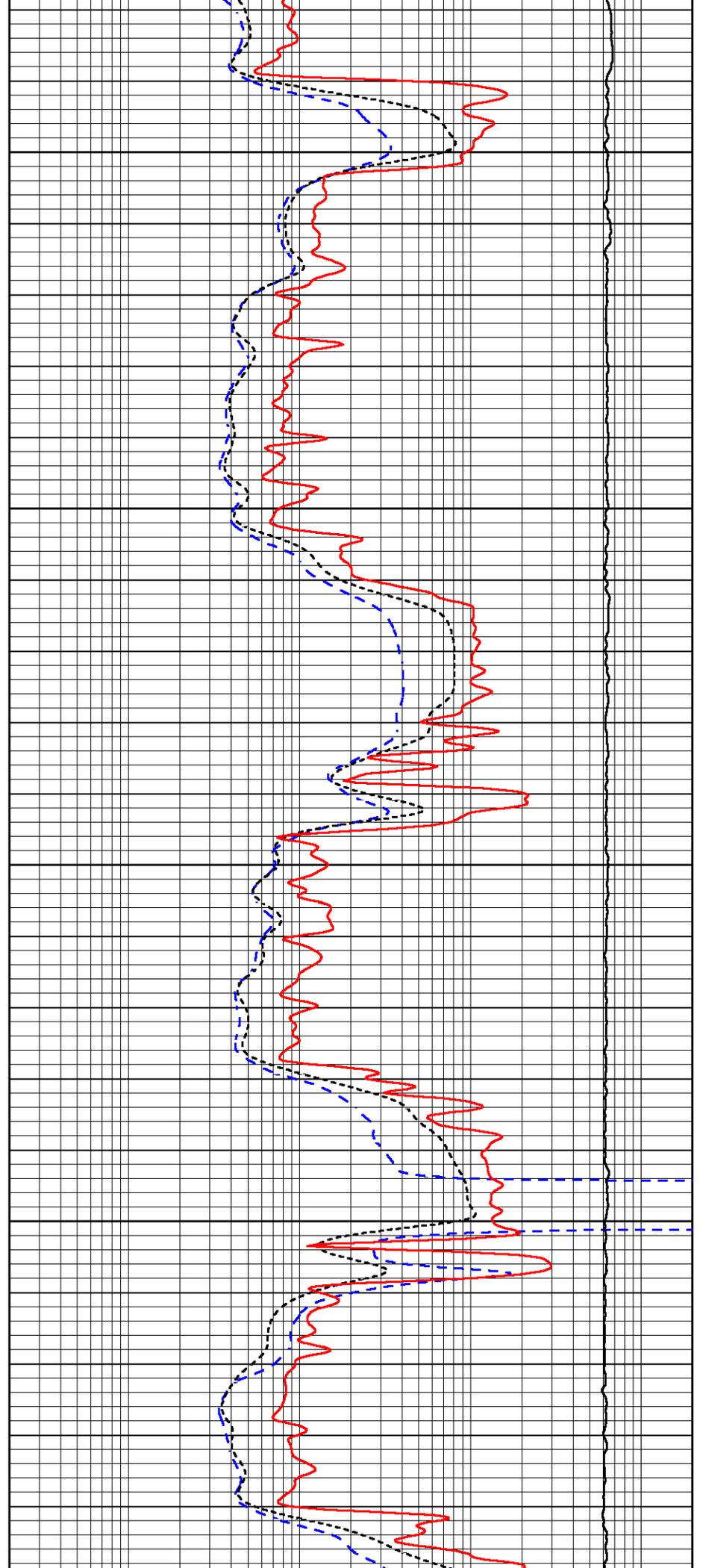


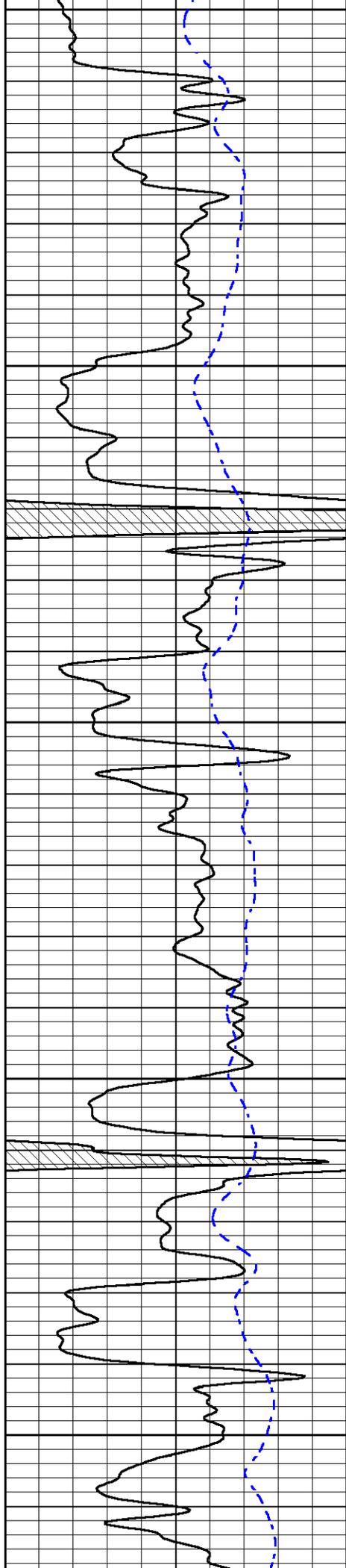
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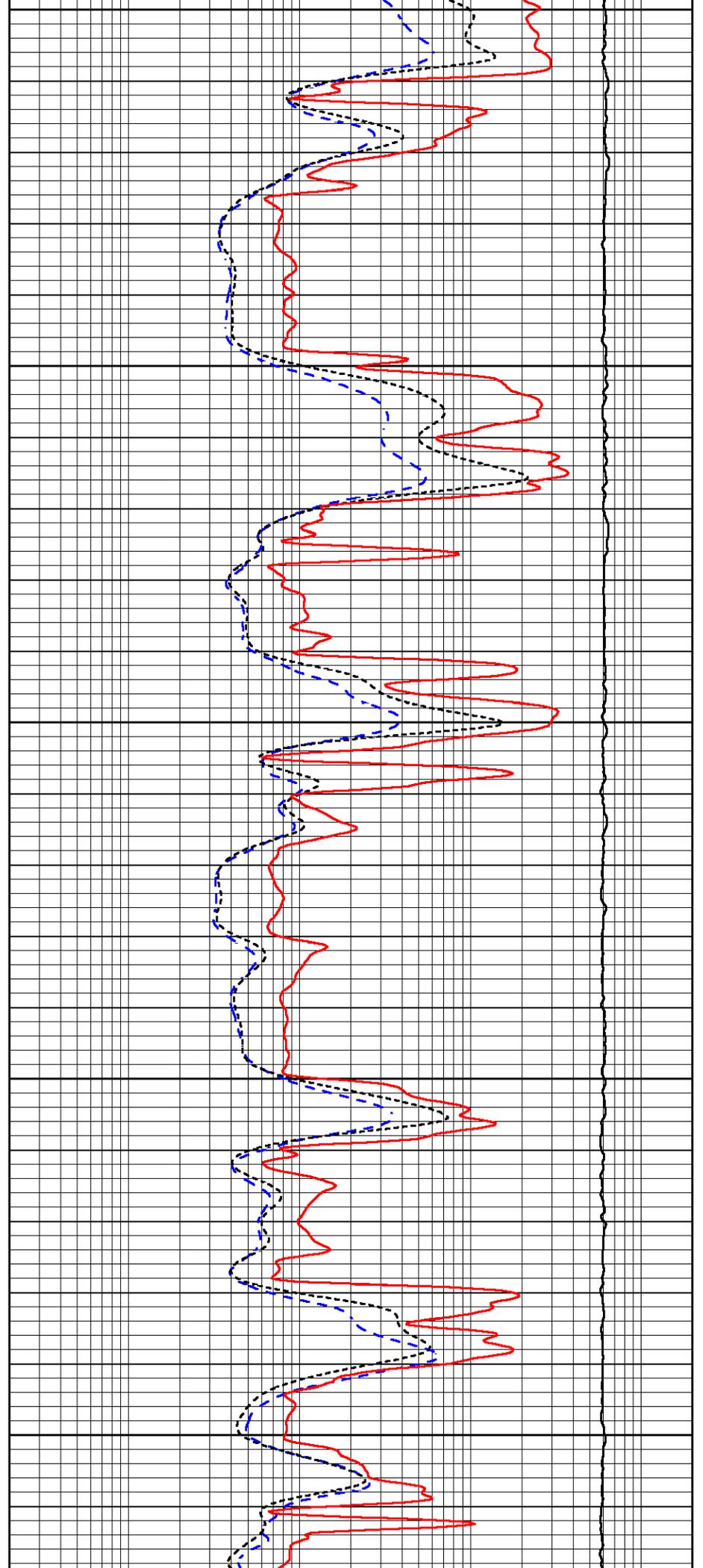
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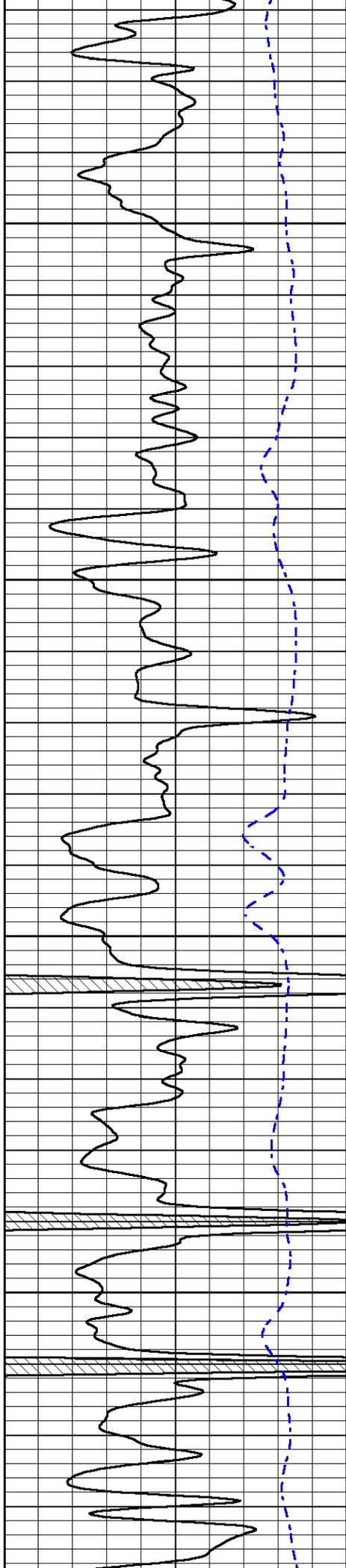
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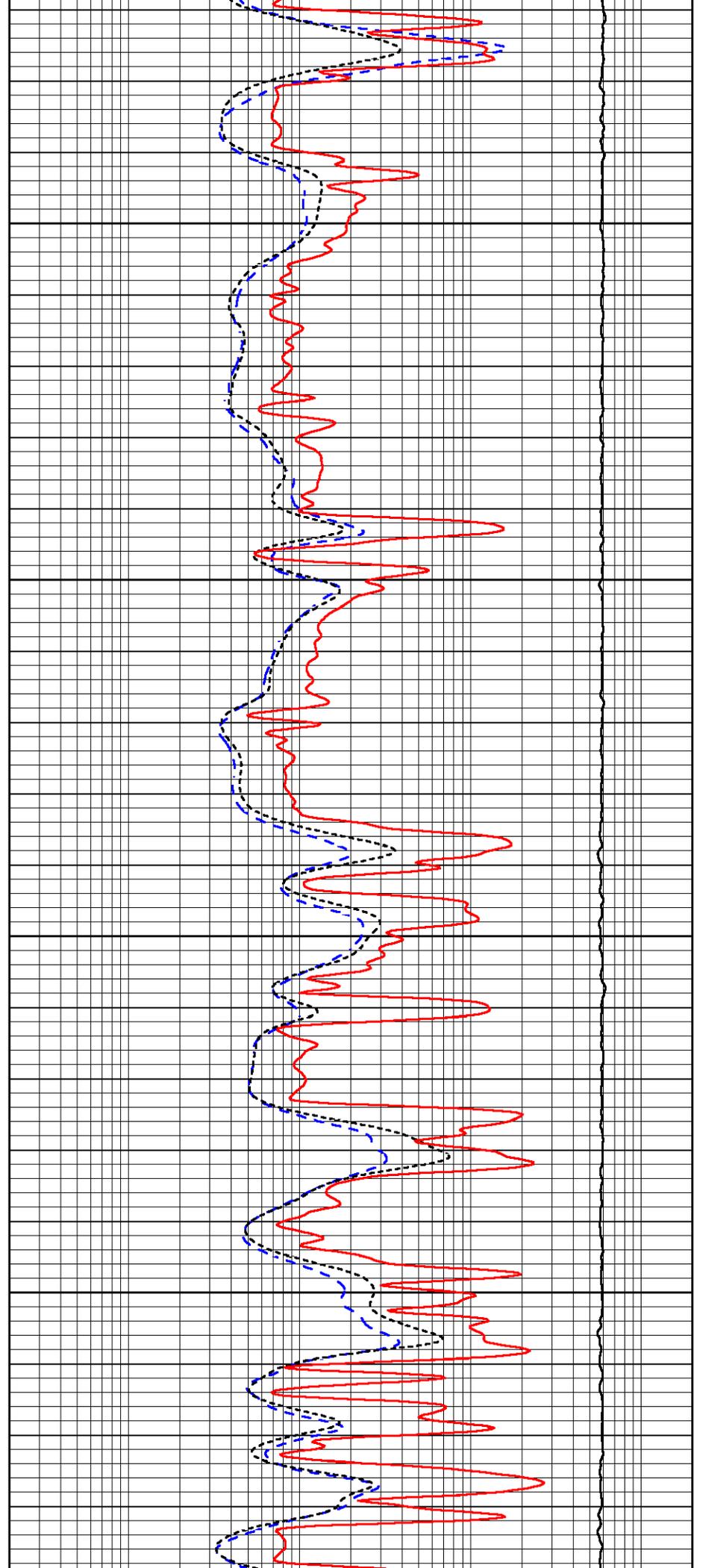


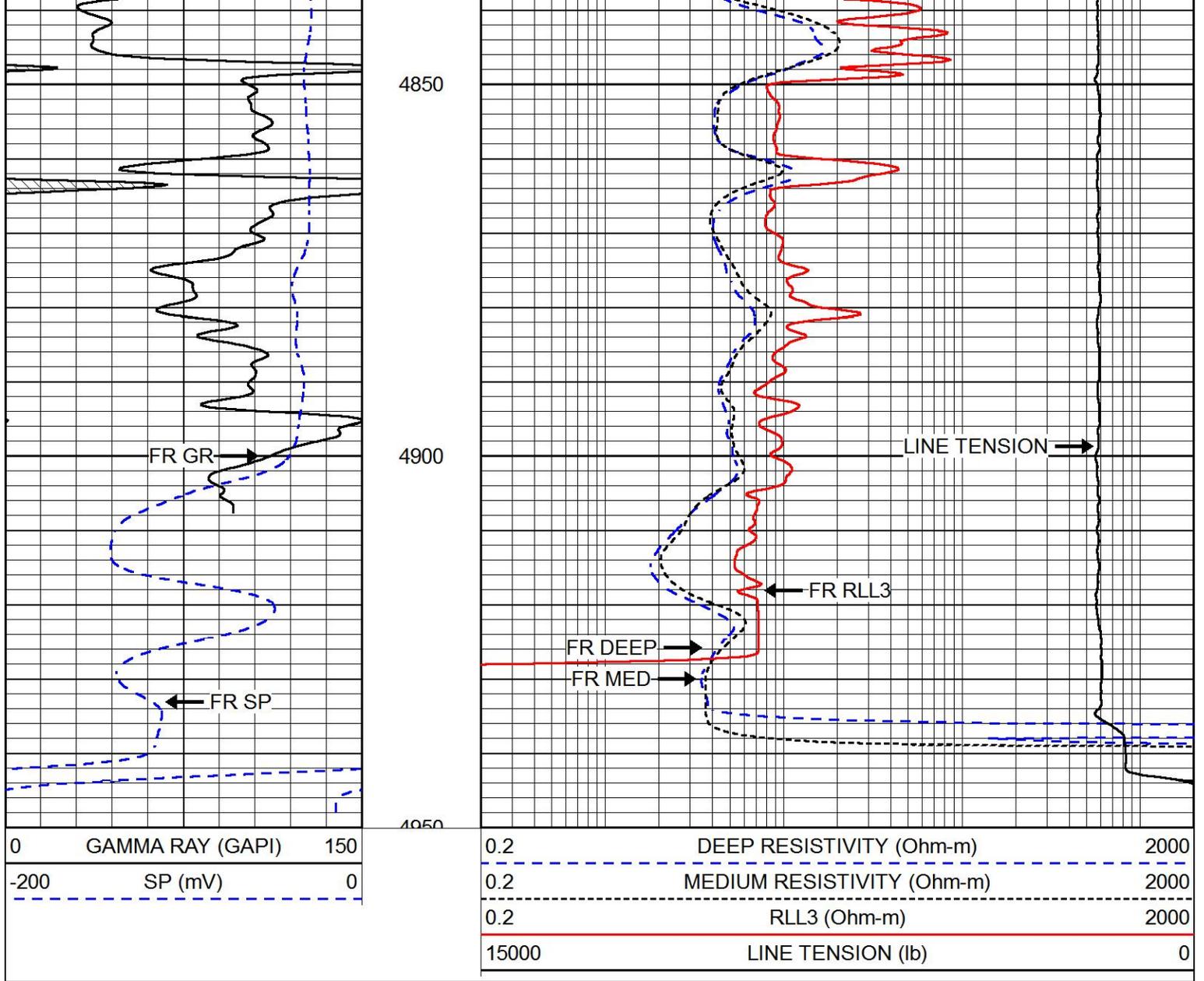
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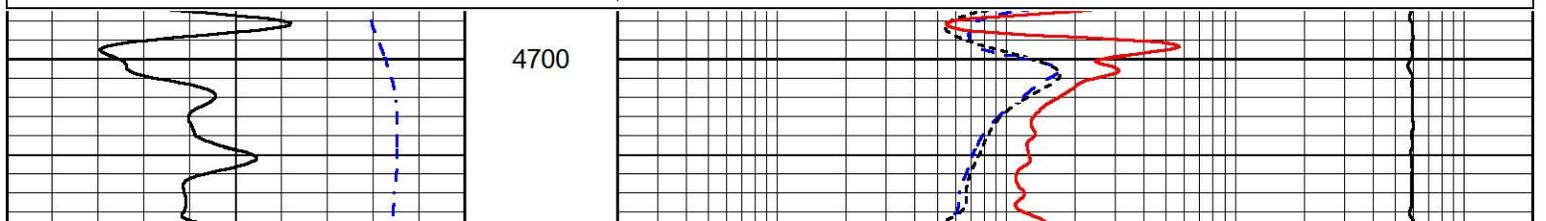
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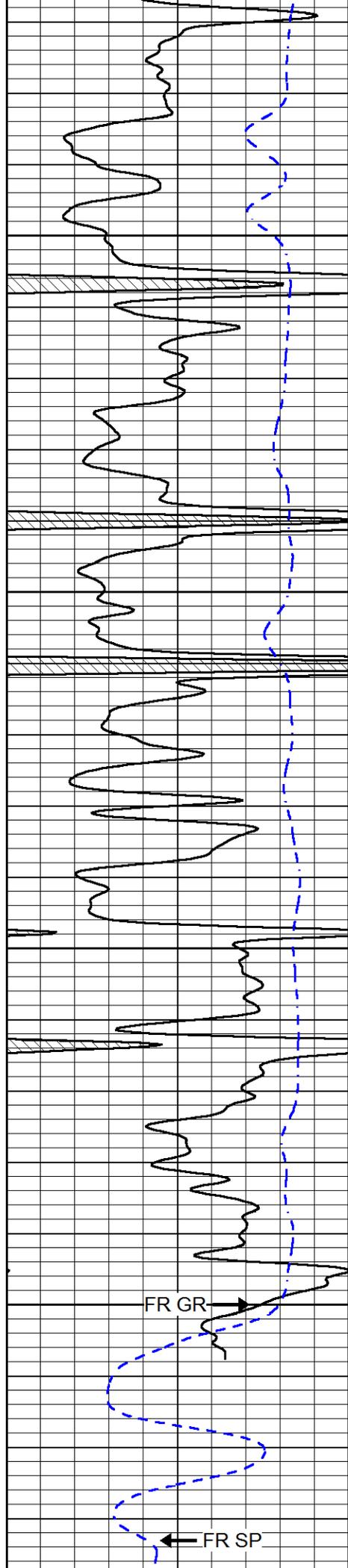




REPEAT SECTION

Database File murfin_banister_a_2_22.db
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 Presentation Format dil
 Dataset Creation Sun May 20 12:29:55 2018
 Charted by Depth in Feet scaled 1:240





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4800

4850

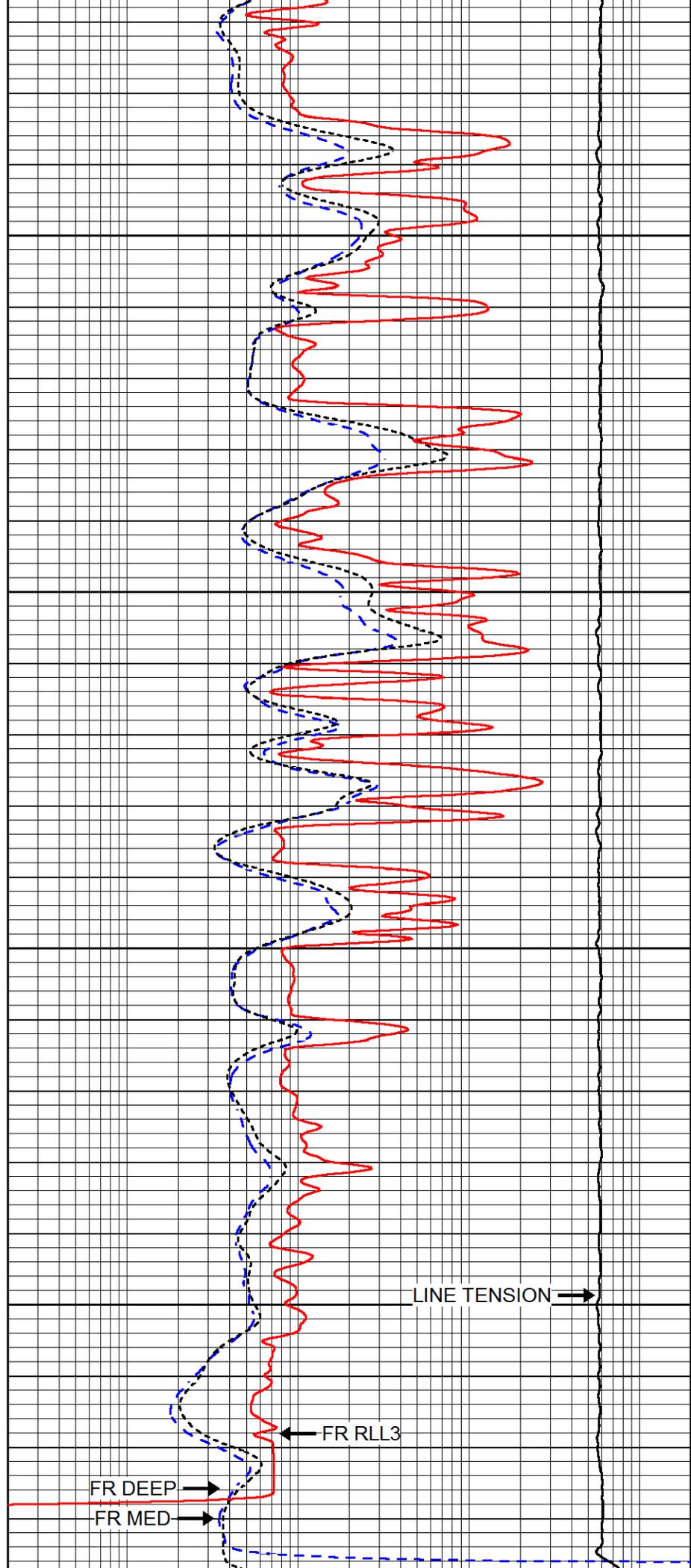
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FR GR →

← FR SP

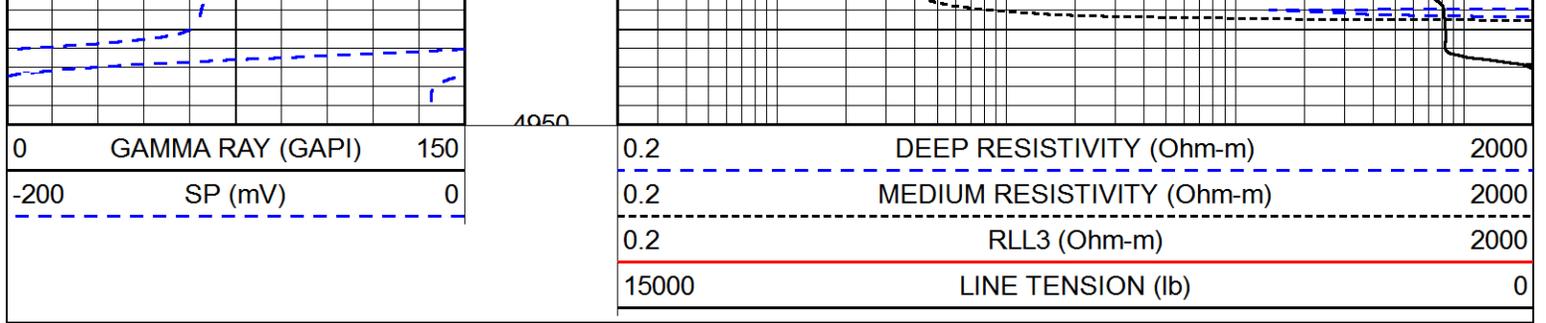
FR DEEP →

FR MED →



LINE TENSION →

← FR RLL3



Calibration Report

Database File murfin_banister_a_2_22.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Sun May 20 12:11:09 2018

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Tue Apr 11 17:07:38 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report

Serial-Model: 128-4110-M&W
 Source / Verifier: /
 Master Calibration Performed: Thu Mar 02 17:30:49 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.750	g/cc	4555.61	2204.19	cps
Aluminum	2.650	g/cc	856.69	1405.61	cps
Spine Angle = 74.93			Density/Spine Ratio = 0.520		
	Size		Reading		
Small Ring	4.00	in	1.15		
Large Ring	14.00	in	1.04		

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: Tue Apr 11 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



PIONEER

Pioneer Energy Services

Company MURFIN DRILLING CO., INC.

Well BANISTER A #2-22

Field WILDCAT

County CHEYENNE

State KANSAS