



MIDWEST WIRELINE

DUAL INDUCTION LOG

Company: Murfin Drilling Company, Inc.
 Well: Hester #4-7
 Field: Sarah Ann
 County: Cheyenne
 State: Kansas

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 Well: Hester #4-7
 Field: Sarah Ann
 County: Cheyenne
 State: Kansas

Location: API #: 15-023-21629-00-00
 900 FNL & 450 FWL
 SEC 7 TWP 1S RGE 39W
 Permanent Datum: Ground Level Elevation 3407
 Log Measured From: Kelly Bushing
 Drilling Measured From: Kelly Bushing
 Other Services: CNL/CDL MEL/BHCS
 Elevation: K.B. 3412 D.F. G.L. 3407

Date	8/26/2023
Run Number	One
Depth Driller	5175
Depth Logger	5175
Bottom Logged Interval	5174
Top Log Interval	0
Casing Driller	8:25 @ 302
Casing Logger	301
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	1200
Density / Viscosity	9.3 64
pH / Fluid Loss	11.0 6.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.65 @ 80
Rmt @ Meas. Temp	0.49 @ 80
Rmc @ Meas. Temp	0.88 @ 80
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.41 @ 128
Operating Rig Time	5 Hours
Max Rec. Temp. F	128
Equipment Number	P-108
Location	HAYS
Recorded By	D. Schmidt
Witnessed By	Robert Hendrix

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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.

Benkelman,
 West on Hwy 34 to Rd 326A,
 about 2 1/2 South to location

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: D. Schmidt	Operator:	Primary Witness: Robert Hendrix	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Core	Offset (ft)	Depth	Description	Length (ft)	O.D. (in)	Weight (lb)
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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.23		GR-M&W (105)	3.00	3.50	50.00
CNLSC CNSSC	37.13 36.38		CNT-M&W (210)	5.00	3.50	100.00
			MWLith-STEP LITHO Short (701-01)	8.40	5.00	250.00
LCAL	28.21					
LLW8N	28.21					
LLW7N	28.21					
LLW6N	28.21					
LLW5N	28.21					
LLW4N	28.21					
LLW3N	28.21					
LLW2N	28.21					
LLW1N	28.21					
LSLOCK	27.96					
LLLOCK	27.96					
PELTMPR	27.96					
LSHVNG	27.96					
LLHVNG	27.96					
LSW8N	27.71					
LSW7N	27.71					
LSW6N	27.71					
LSW5N	27.71					
LSW4N	27.71					
LSW3N	27.71					
LSW2N	27.71					
LSW1N	27.71					
MCAL	19.58					
MI	19.58					
MN	19.58					
RLL3F	15.50					
RLL3	15.50					
CILD	8.33					
CILM	4.50					
SP	0.20					
			DIL-M&W (505 HT)	18.25	3.50	220.00

Dataset: murfin_hester 4-7.db: field/well/stkml/pass3.5
 Total length: 42.23 ft
 Total weight: 685.00 lb
 O.D.: 5.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_hester 4-7.db
 Dataset field/well/stkml/pass3.5/_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	-11	1.35	640	70	Off	5176

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

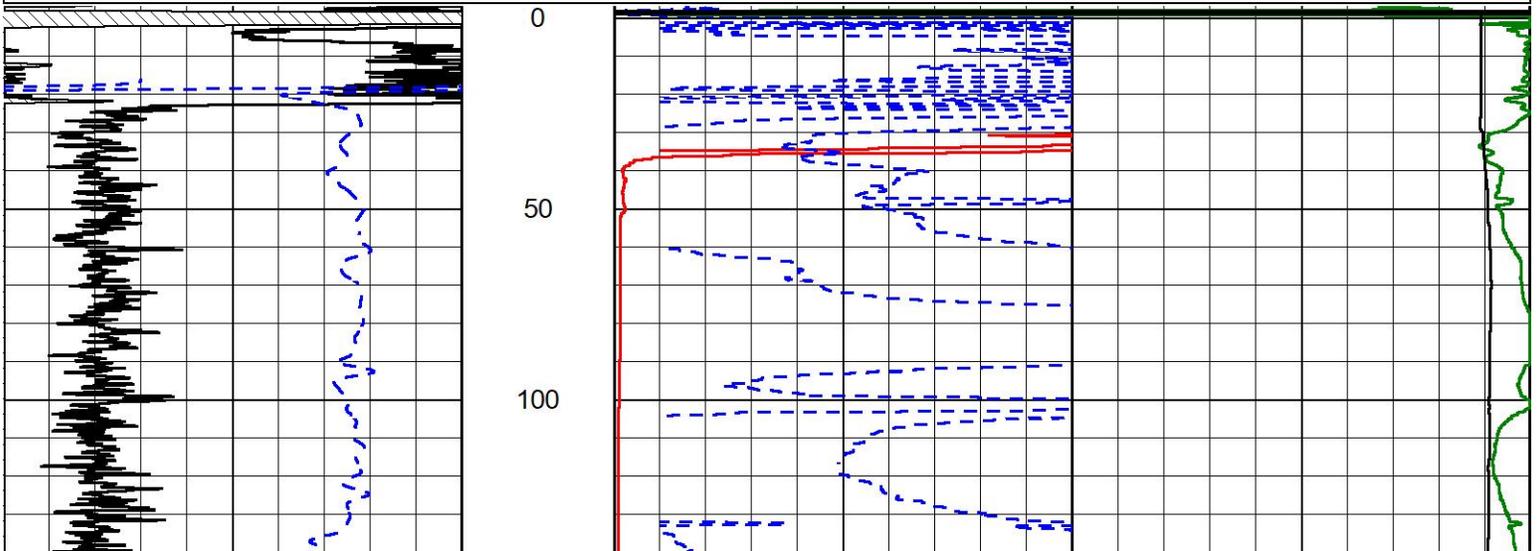


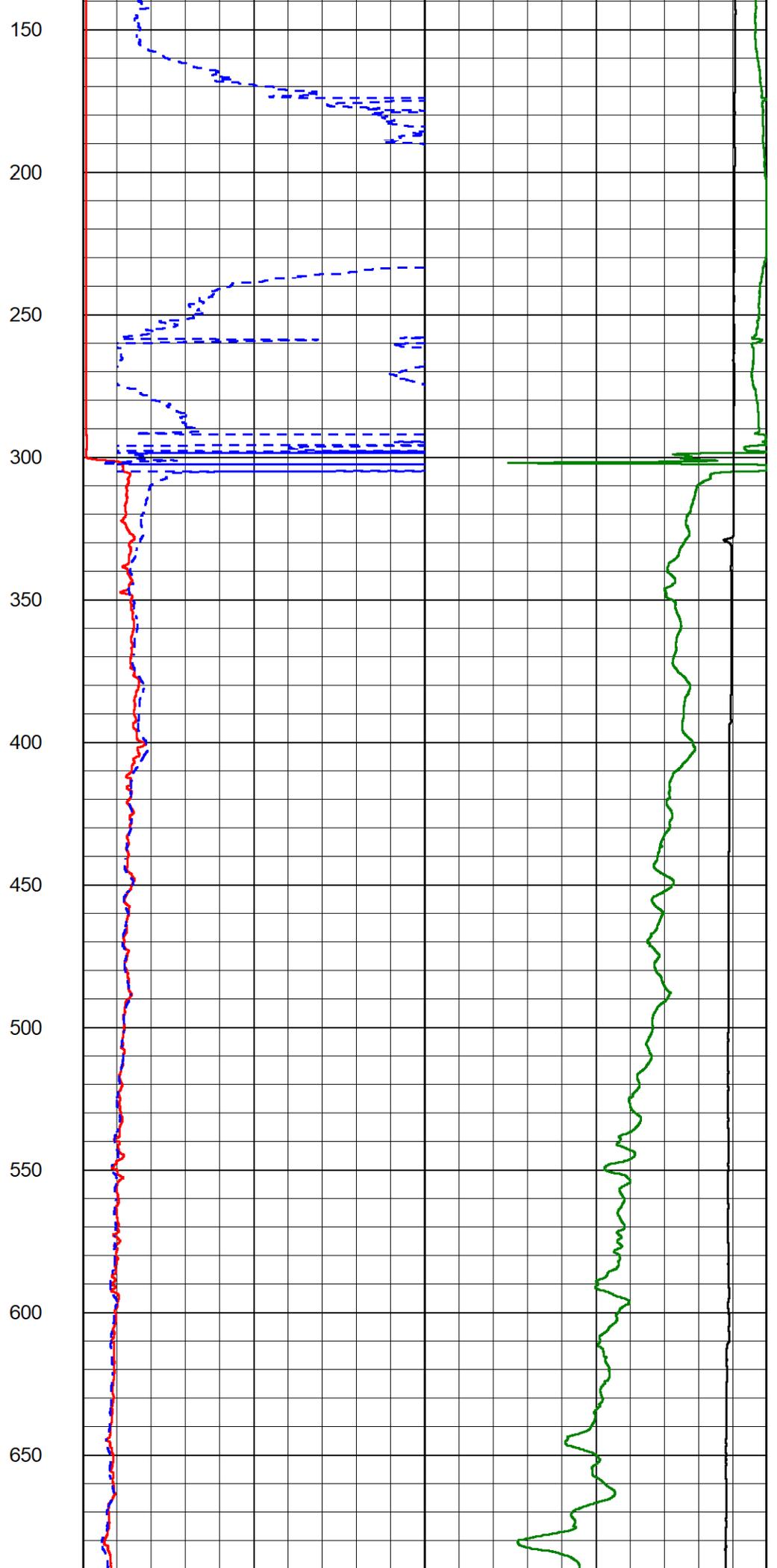
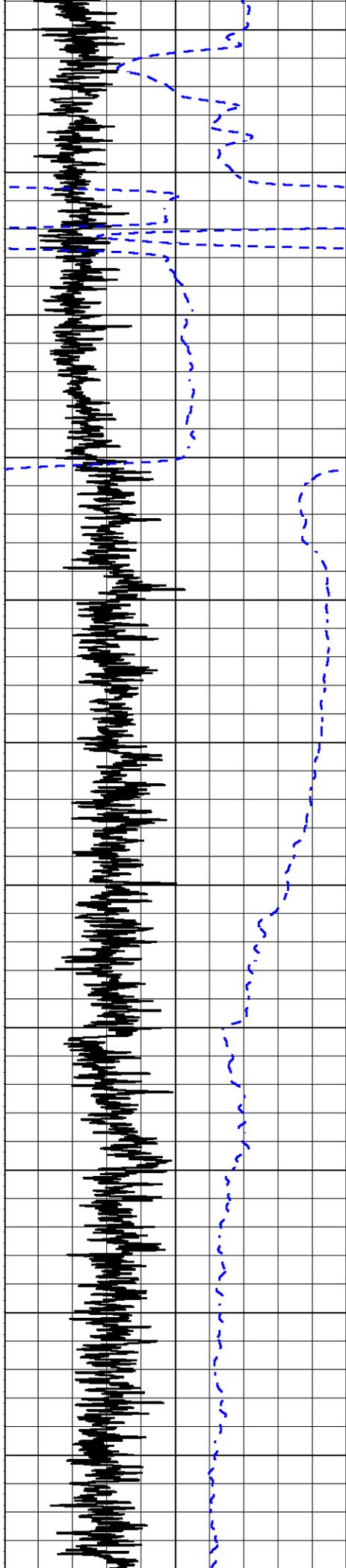
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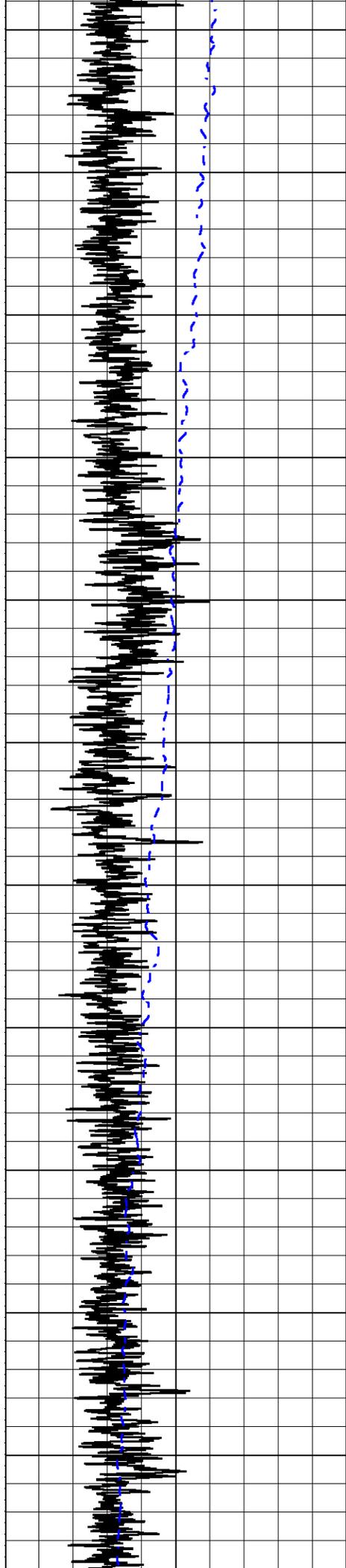
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 Presentation Format _dil2in
 Dataset Creation Sat Aug 26 03:41:04 2023
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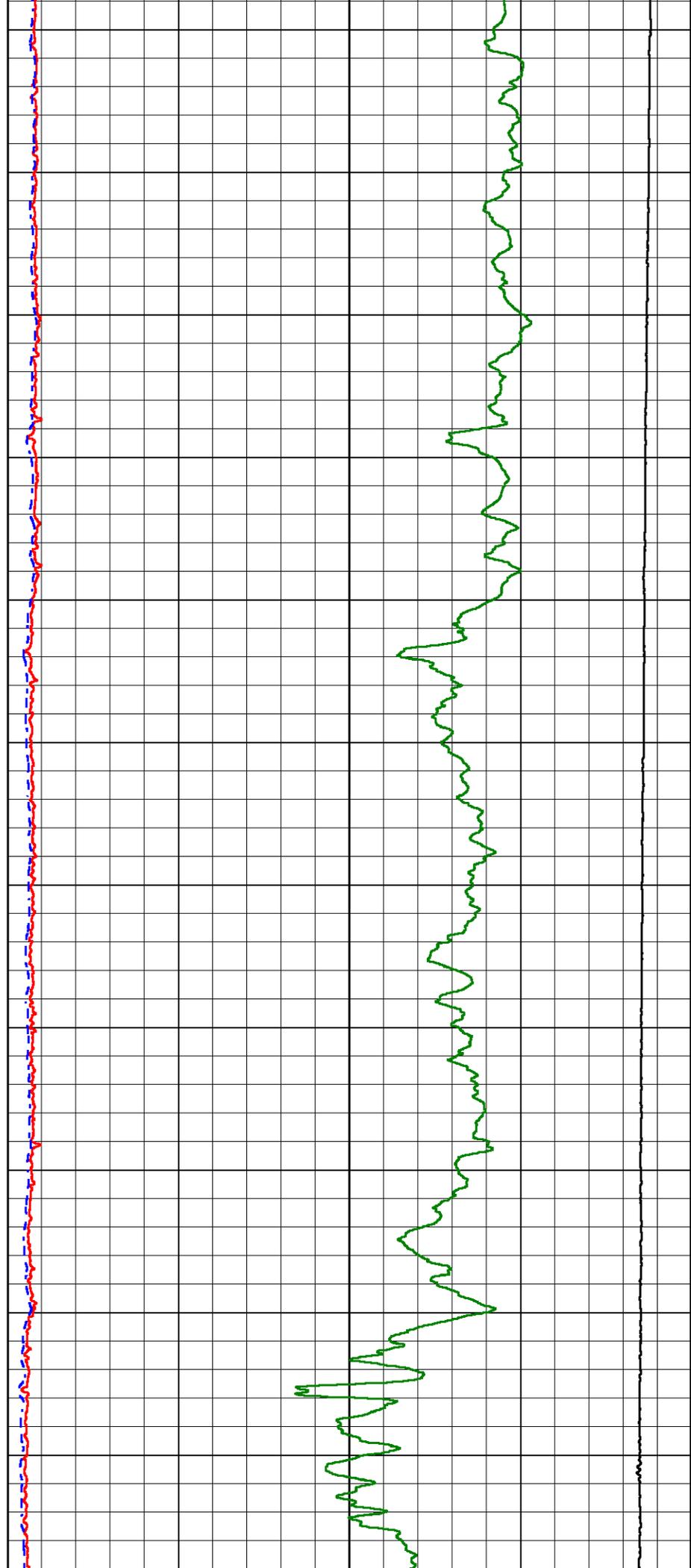
0	Gamma Ray (GAPI)	300	1000	Conductivity (mmho/m)	0
-200	SP (mV)	0	15000	Line Tension (lb)	0
		0		Shallow Resistivity (Ohm-m)	50
		0		Deep Resistivity (Ohm-m)	50
		Shallow Resistivity			
		50	(Ohm-m)	200	
		50	Deep Resistivity (Ohm-m)	200	

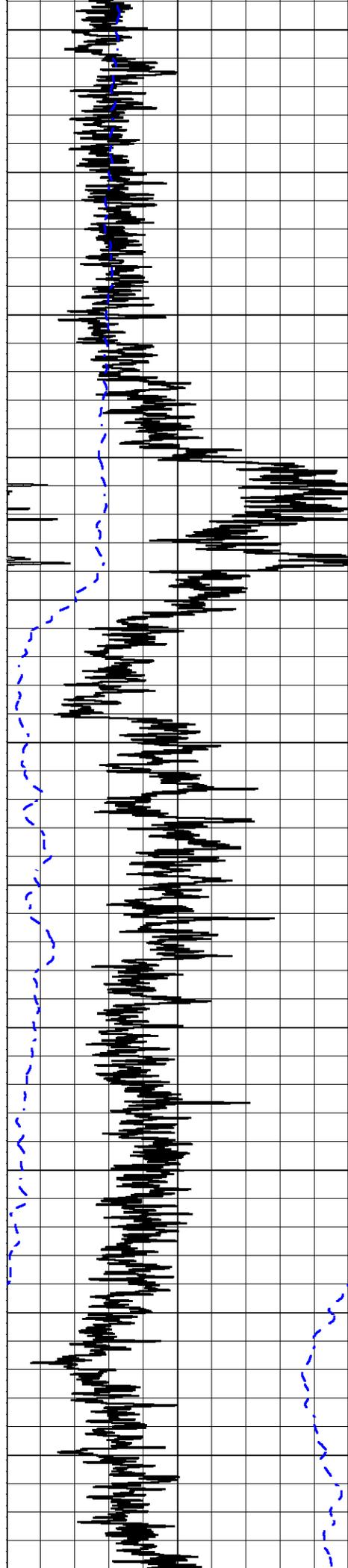




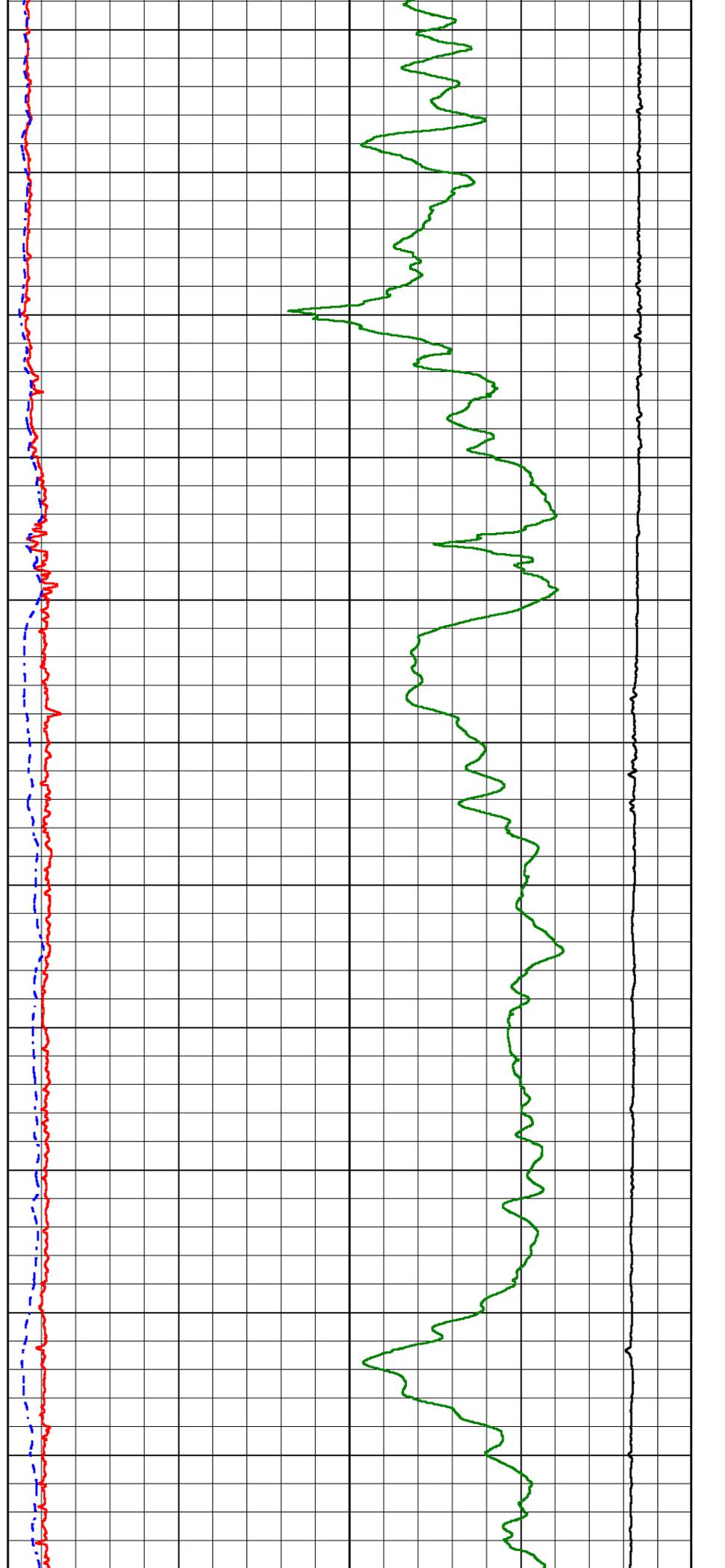


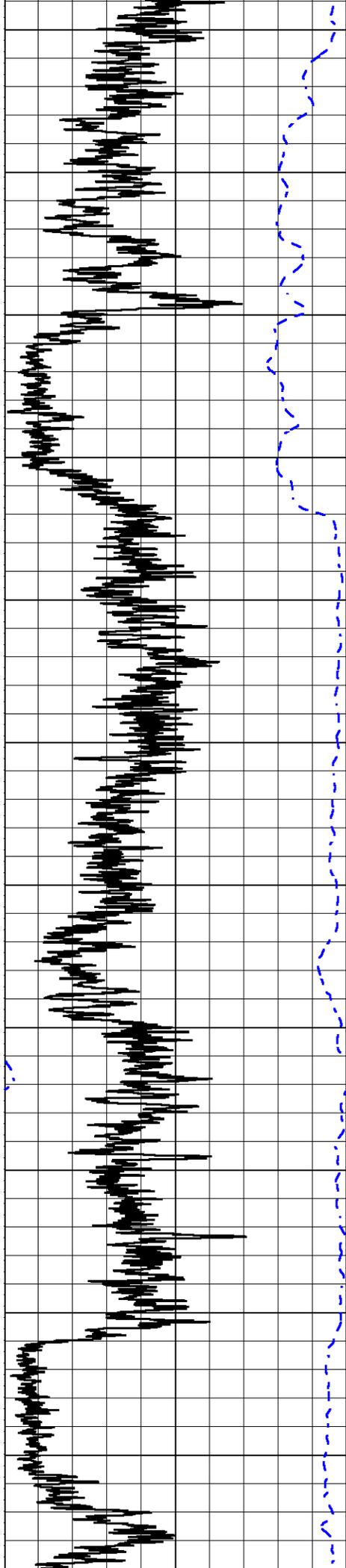
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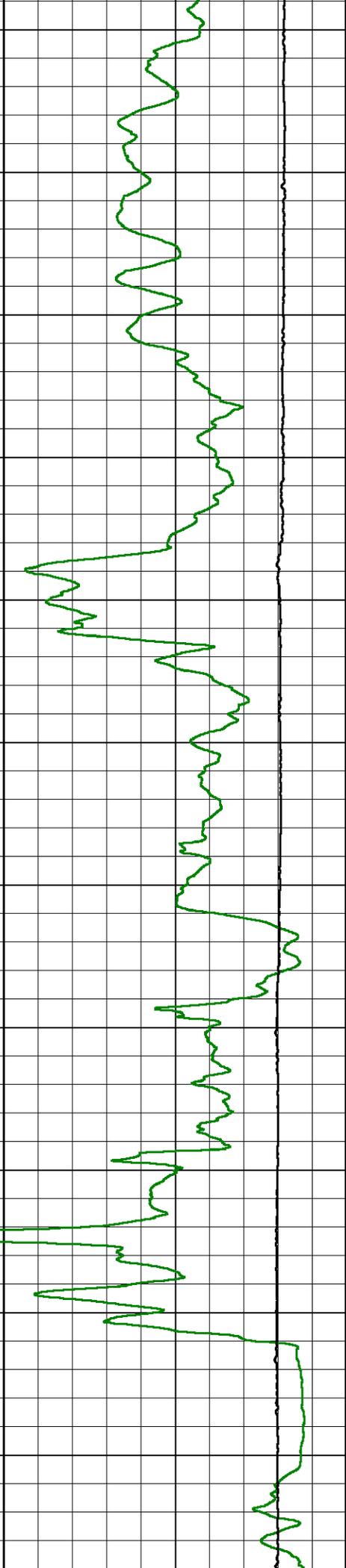
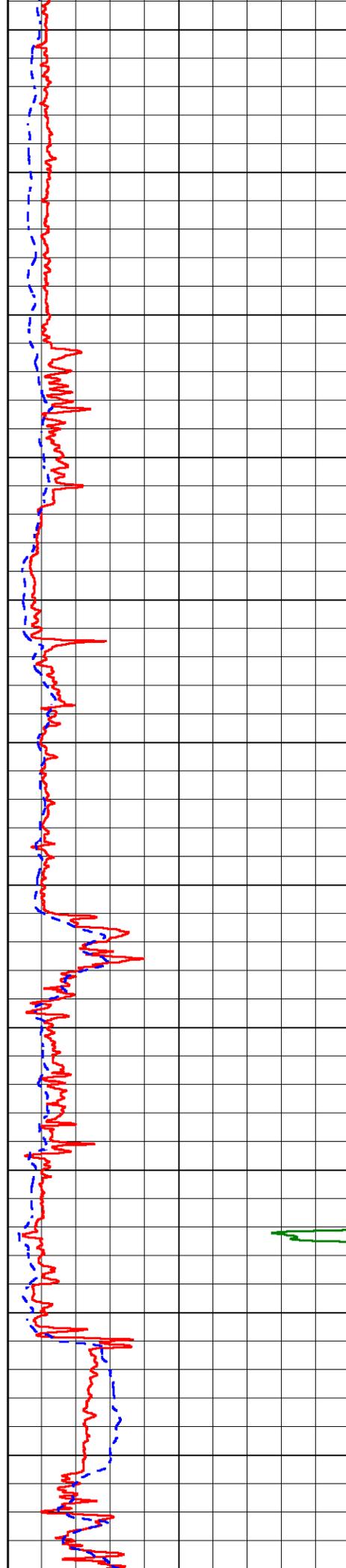


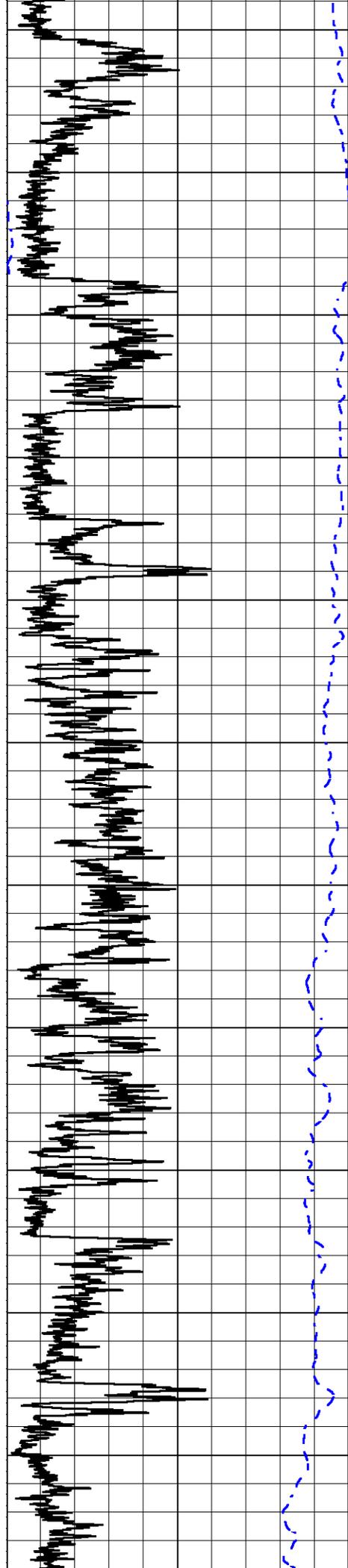
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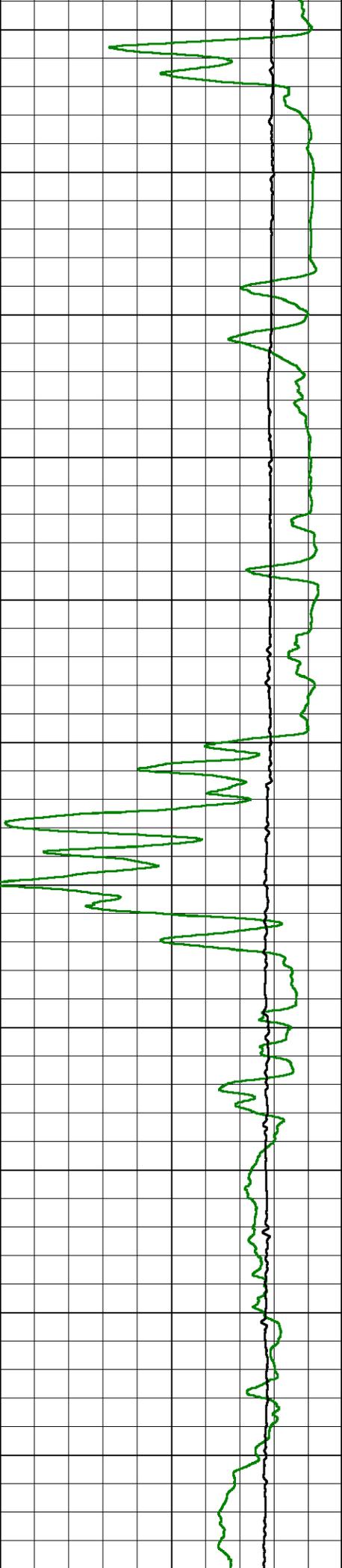
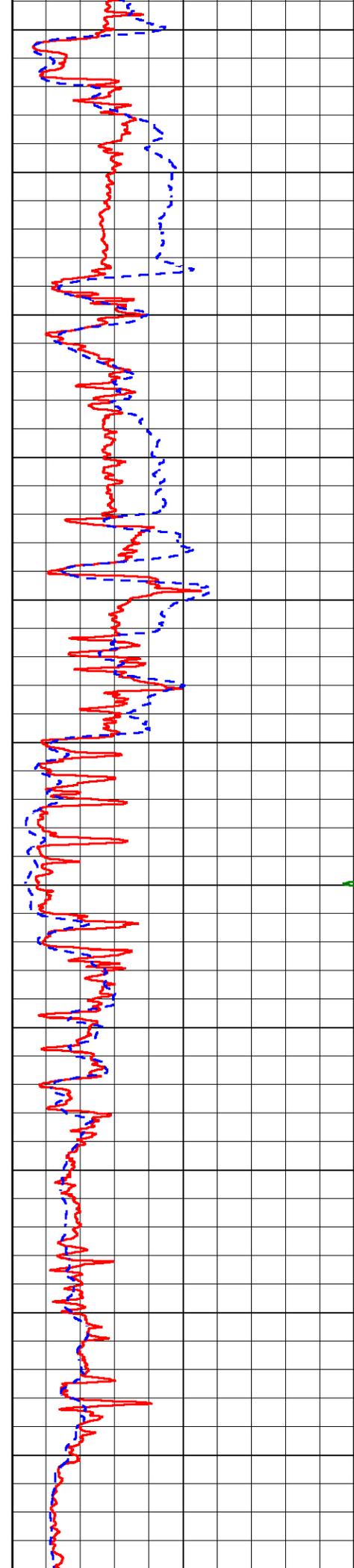


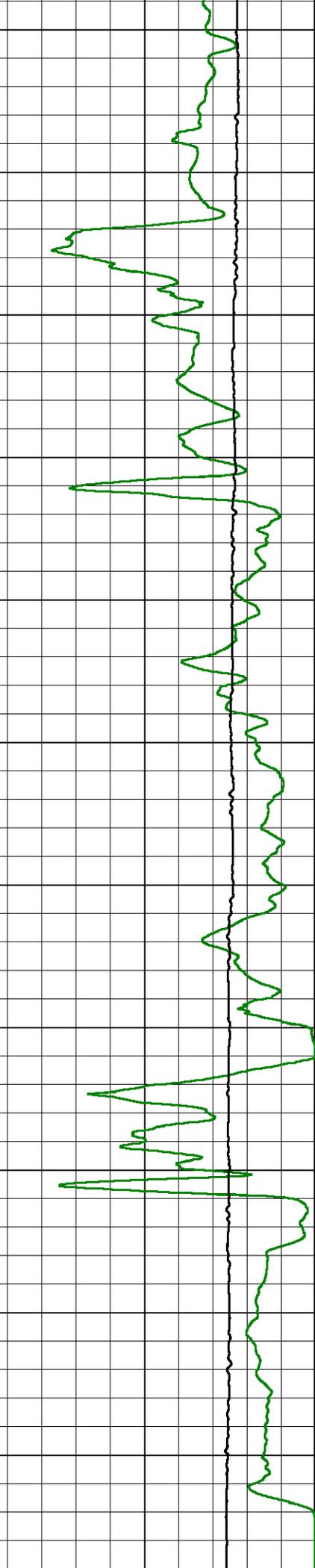
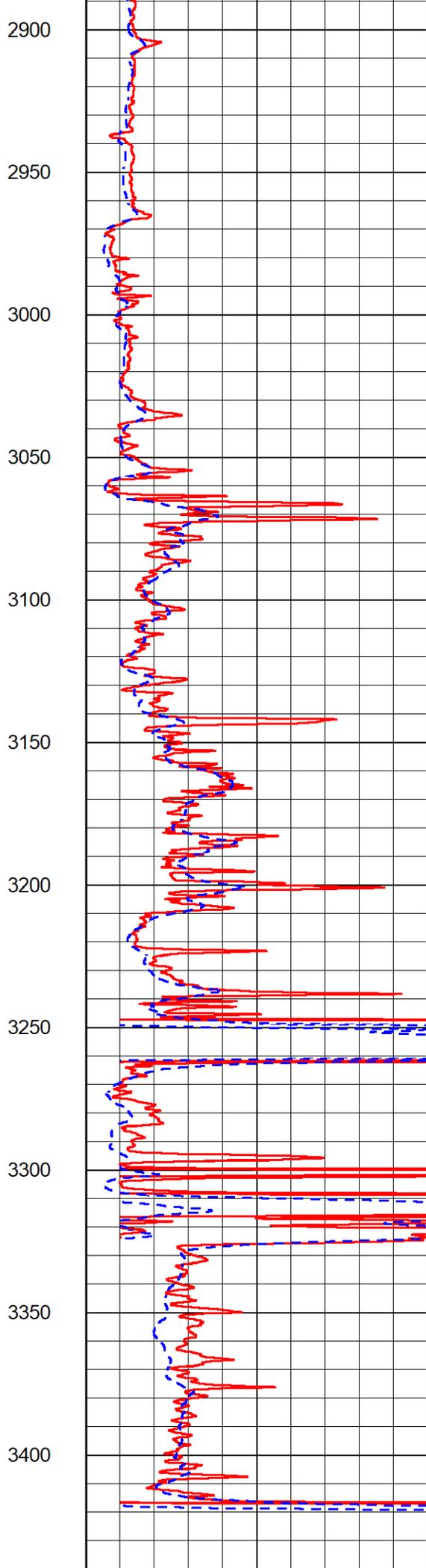
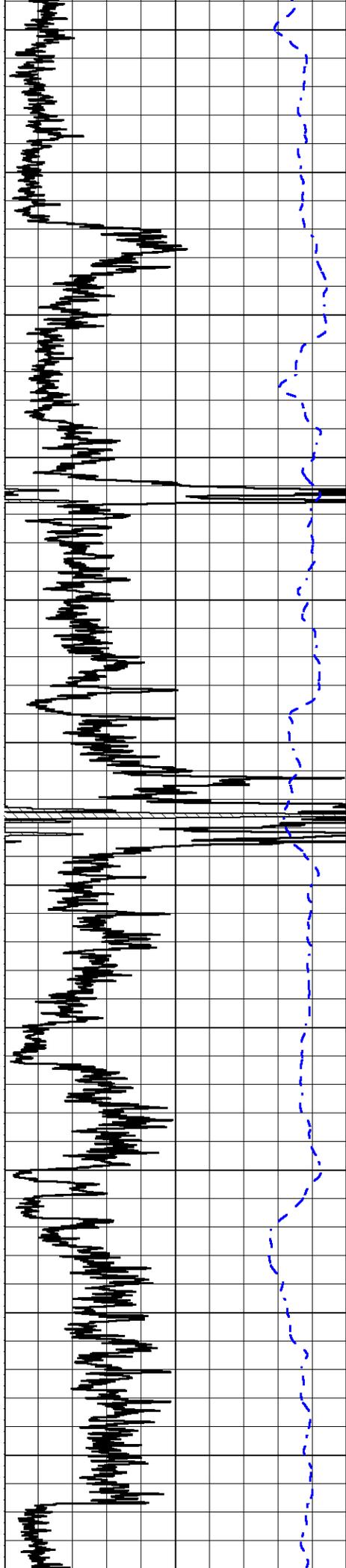
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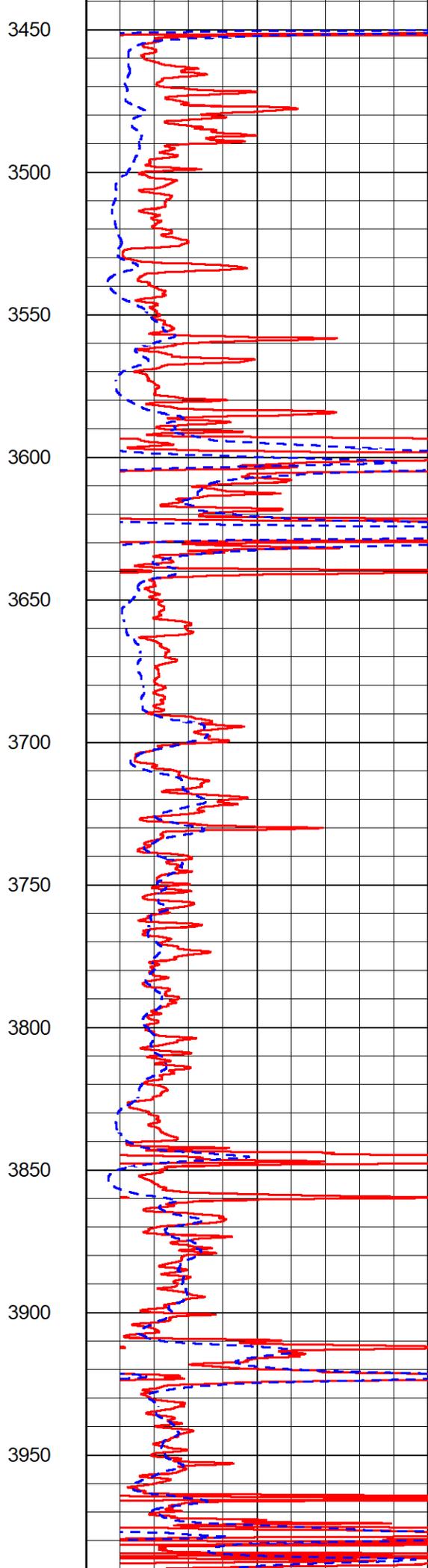
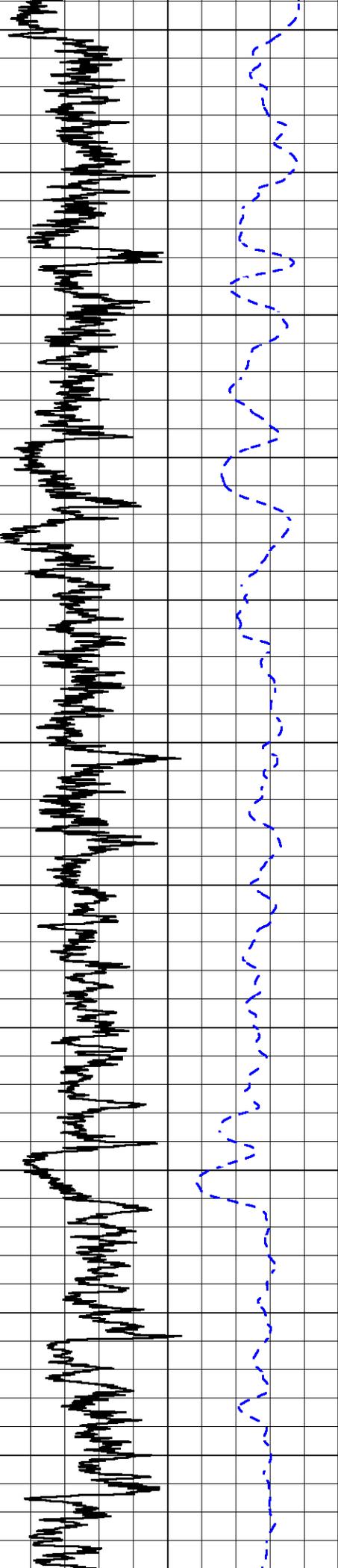


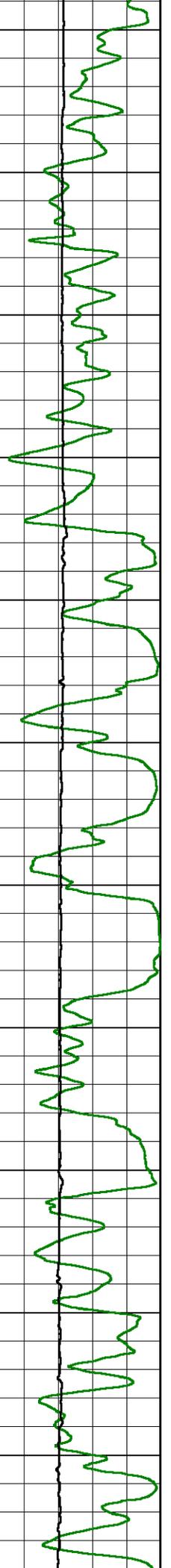
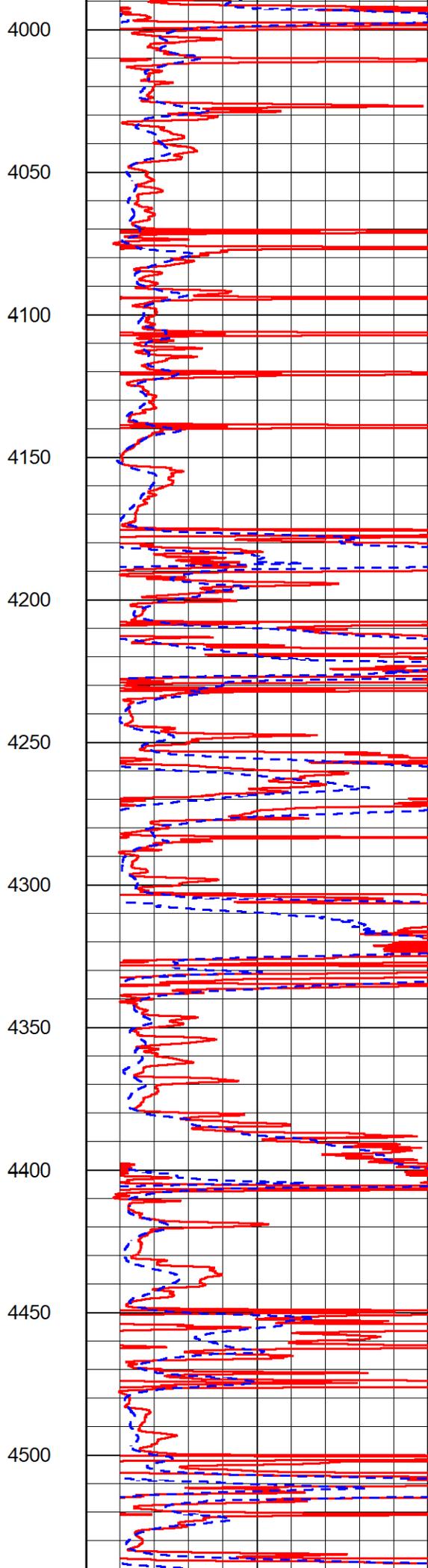
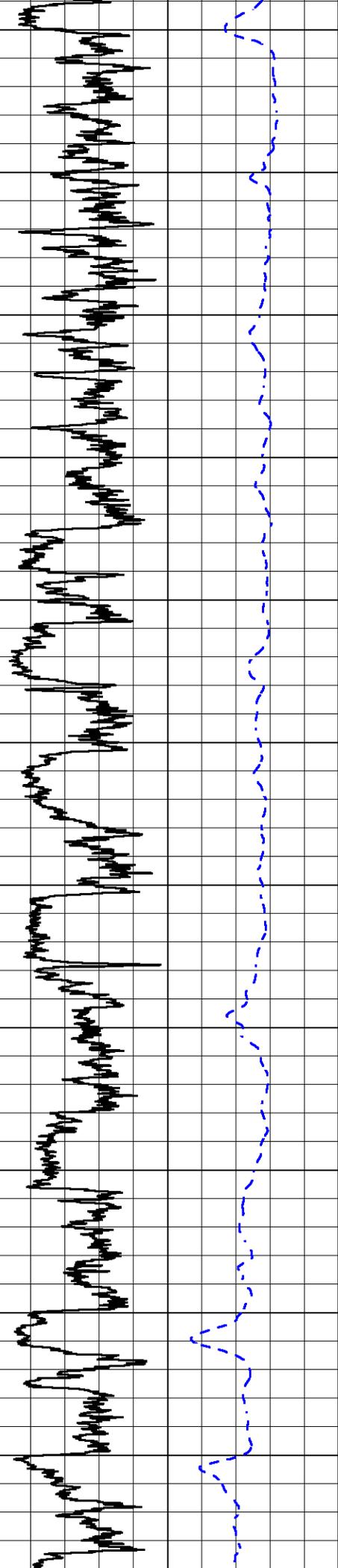


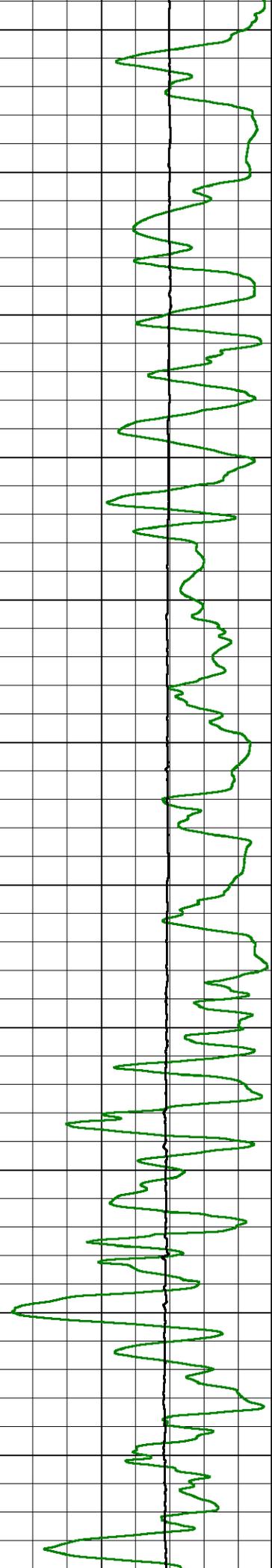
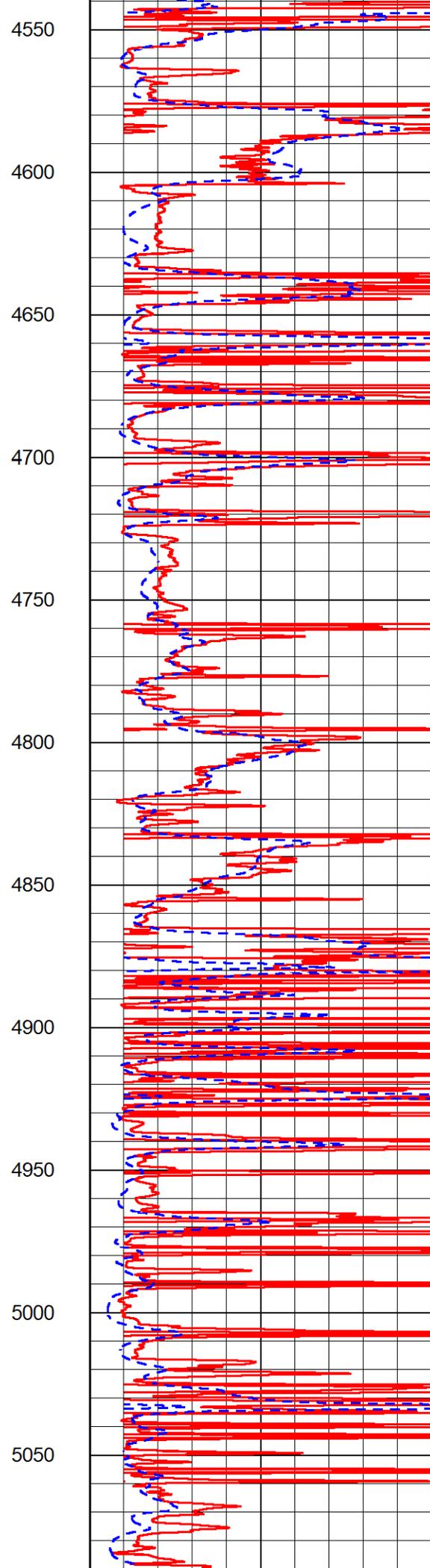
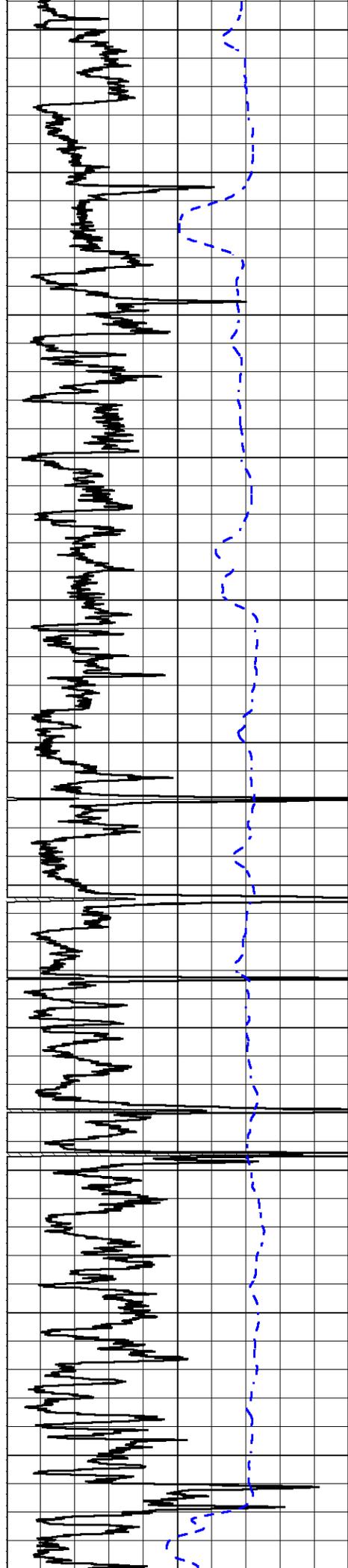
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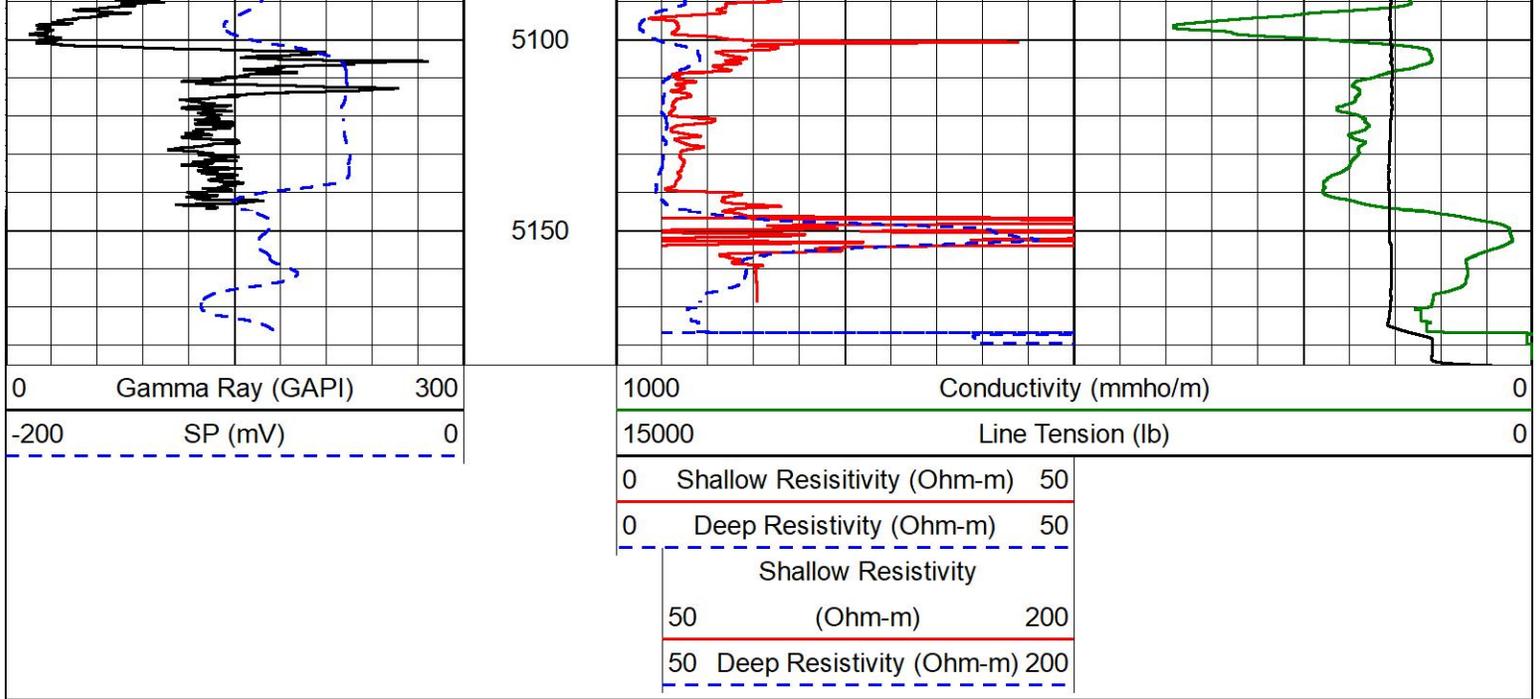










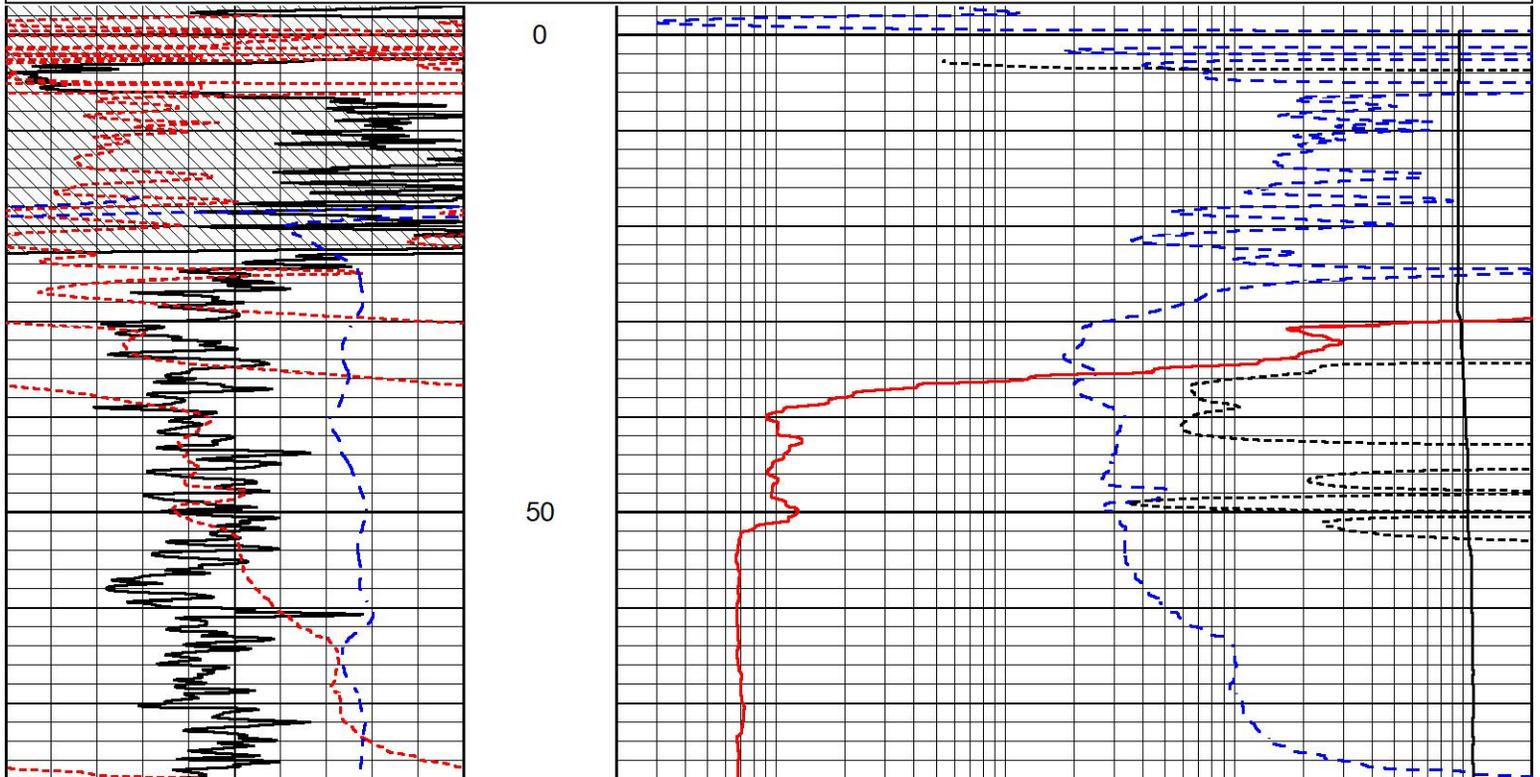


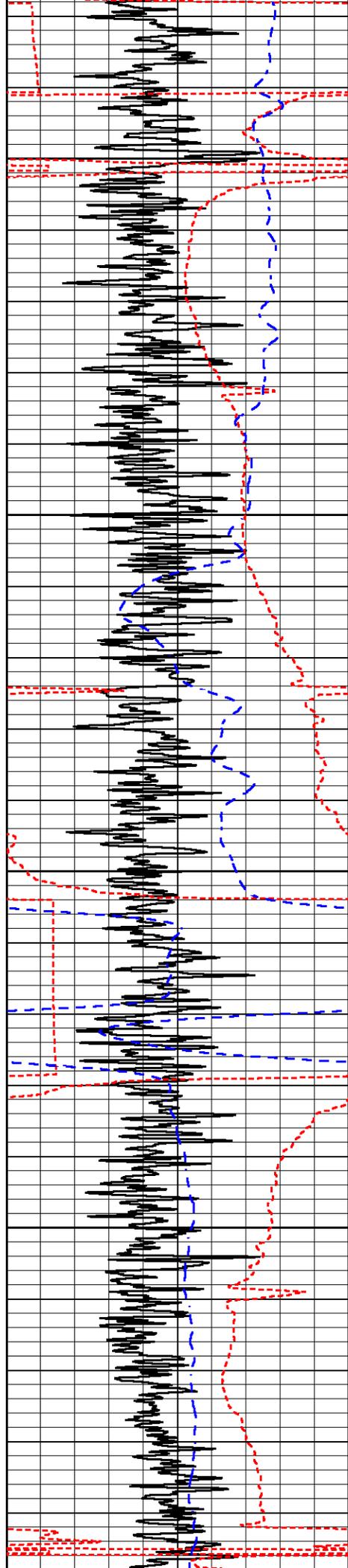
MIDWEST WIRELINE

DETAIL SECTION

MAIN PASS

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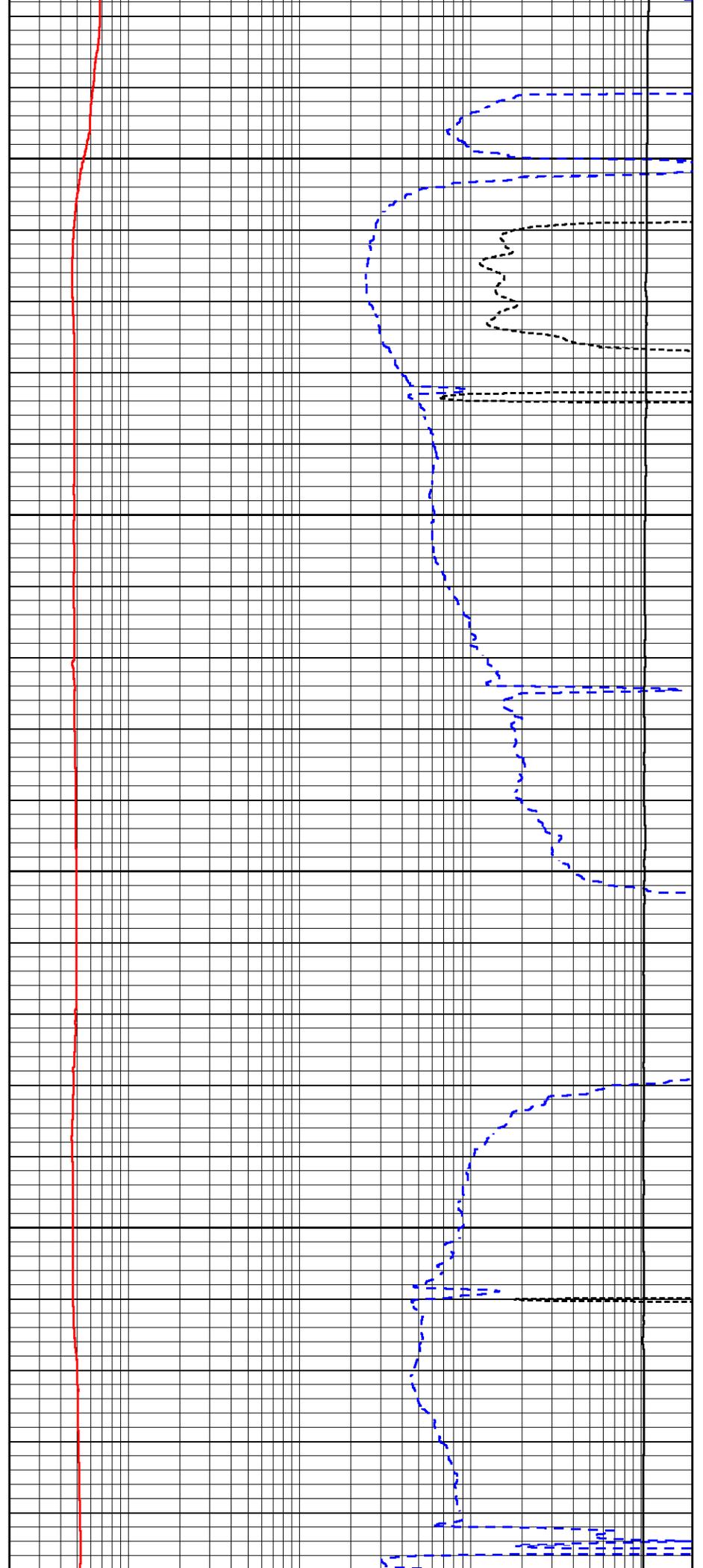


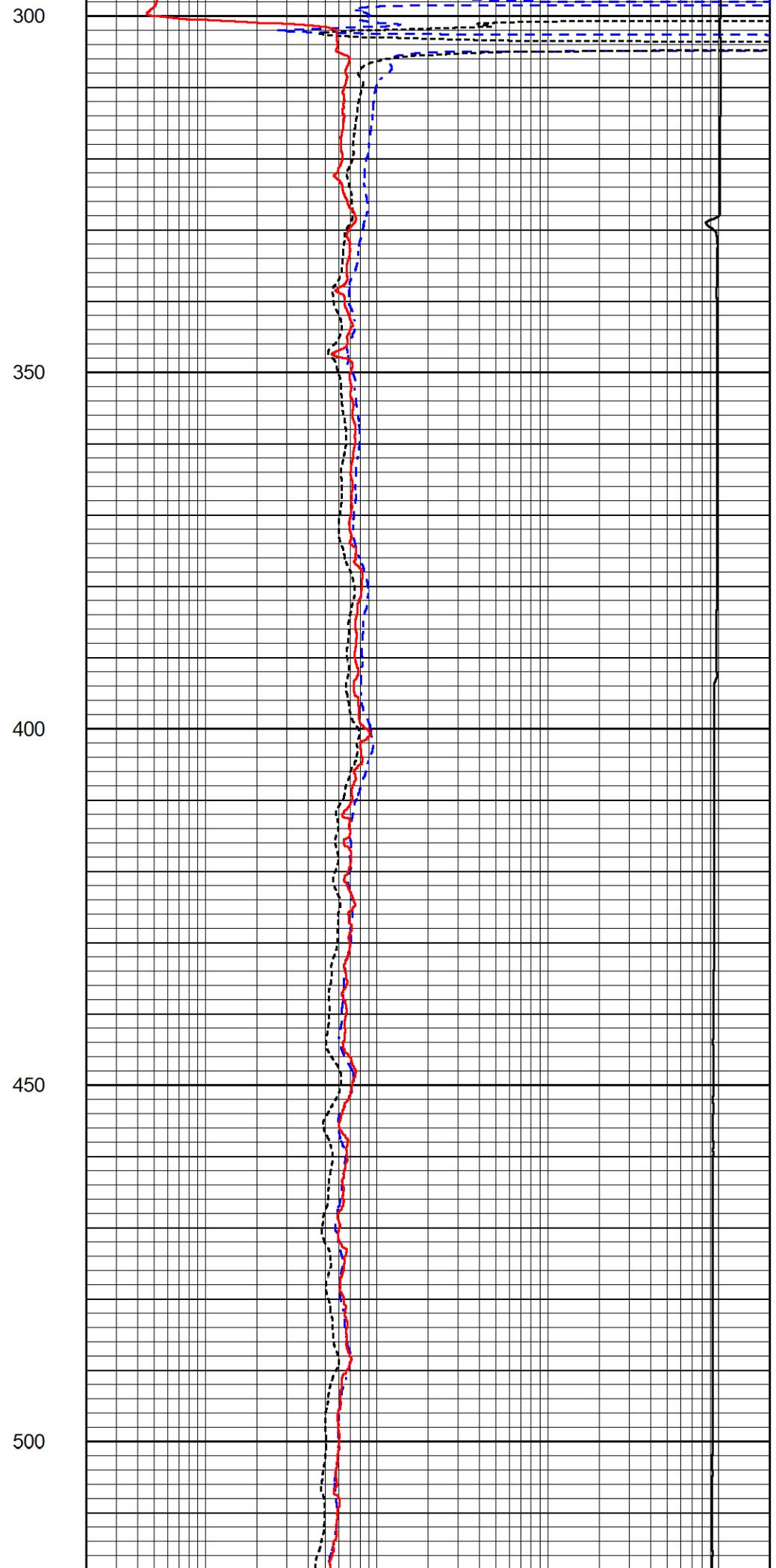
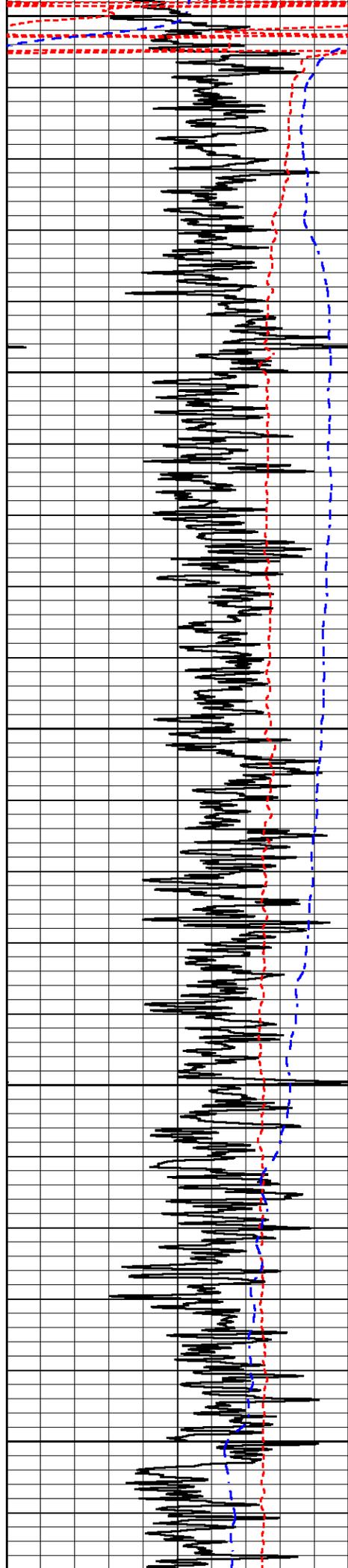
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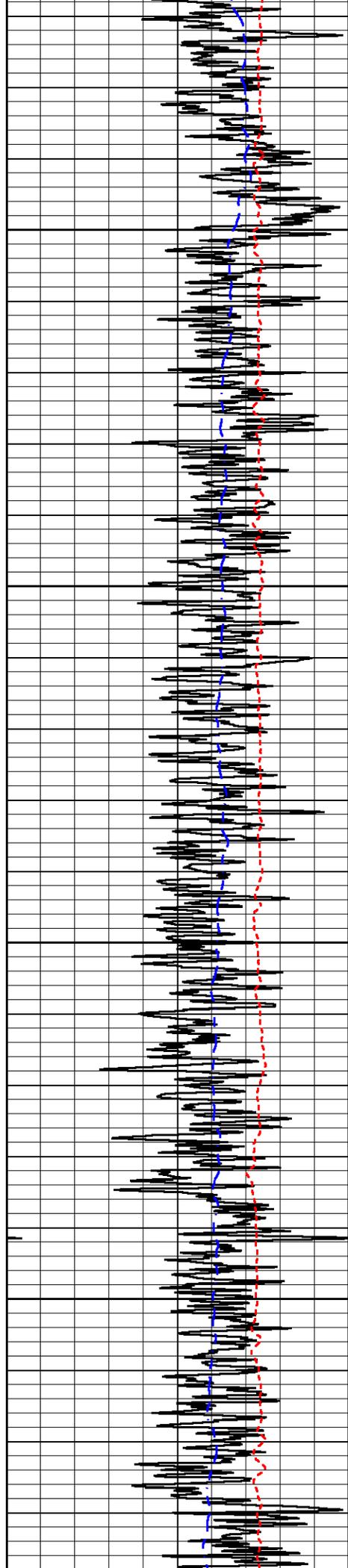
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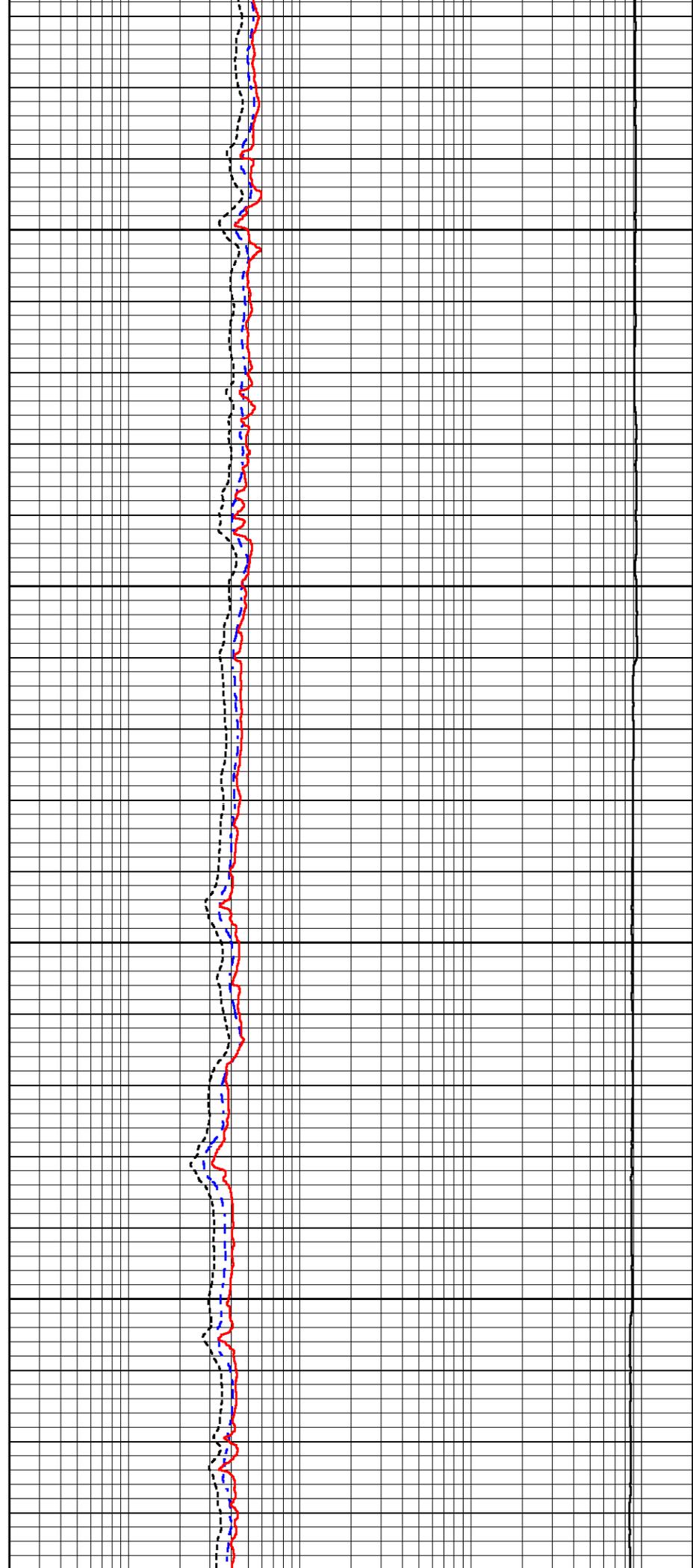


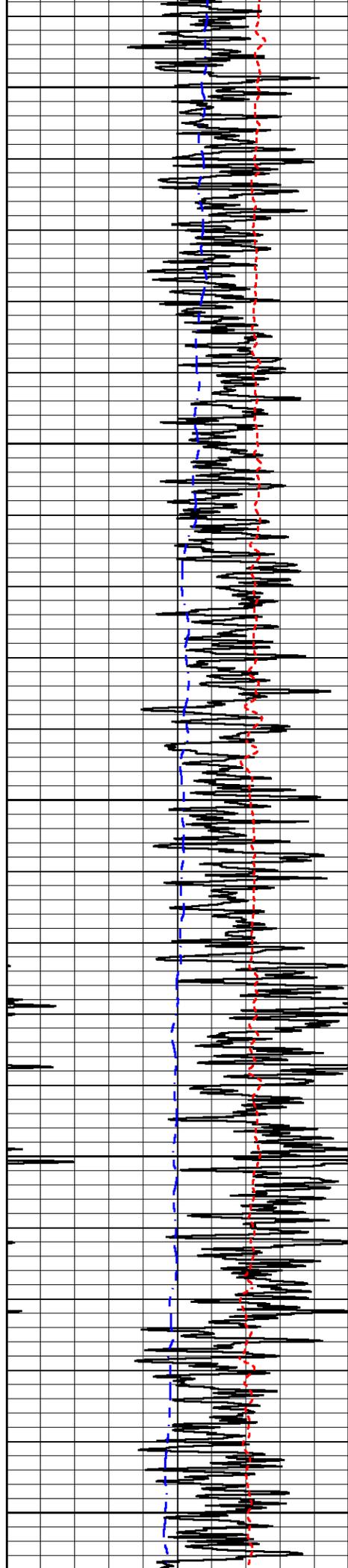
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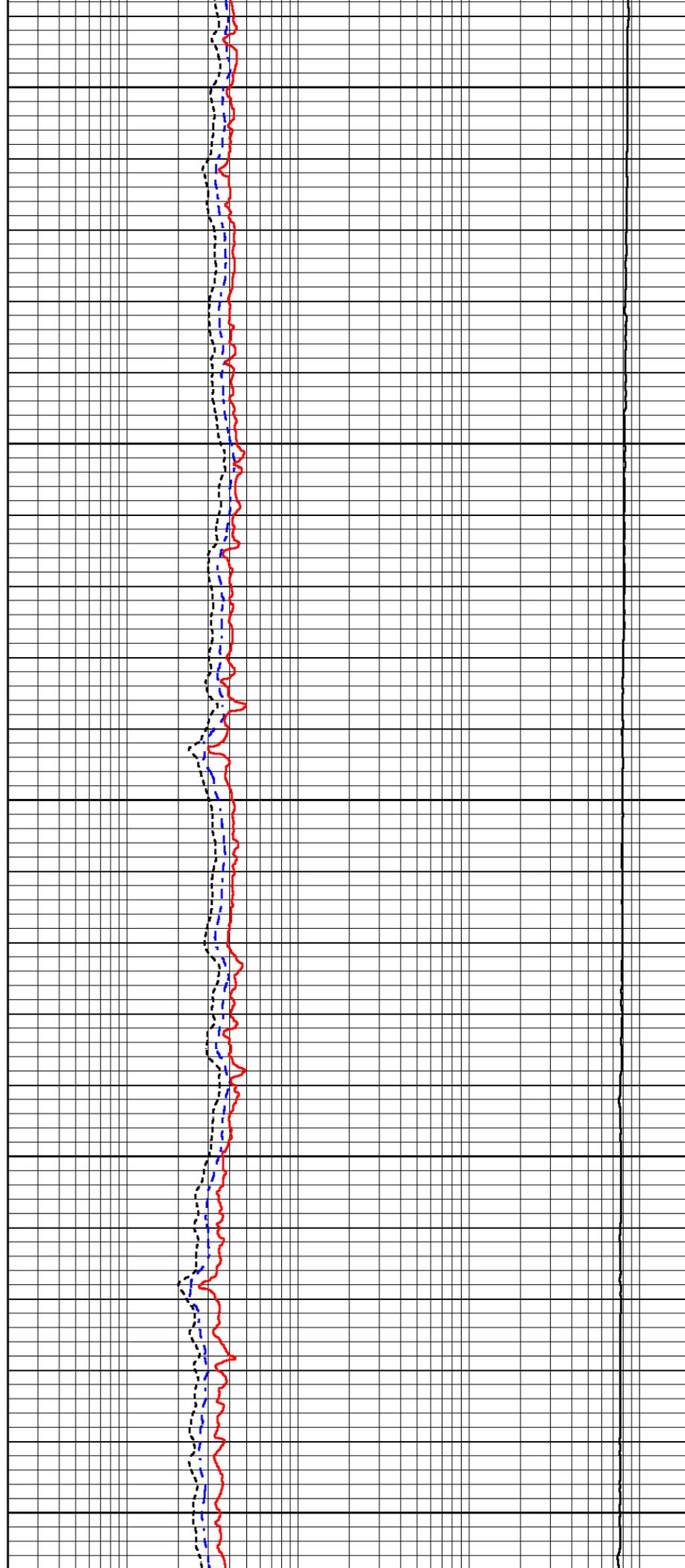
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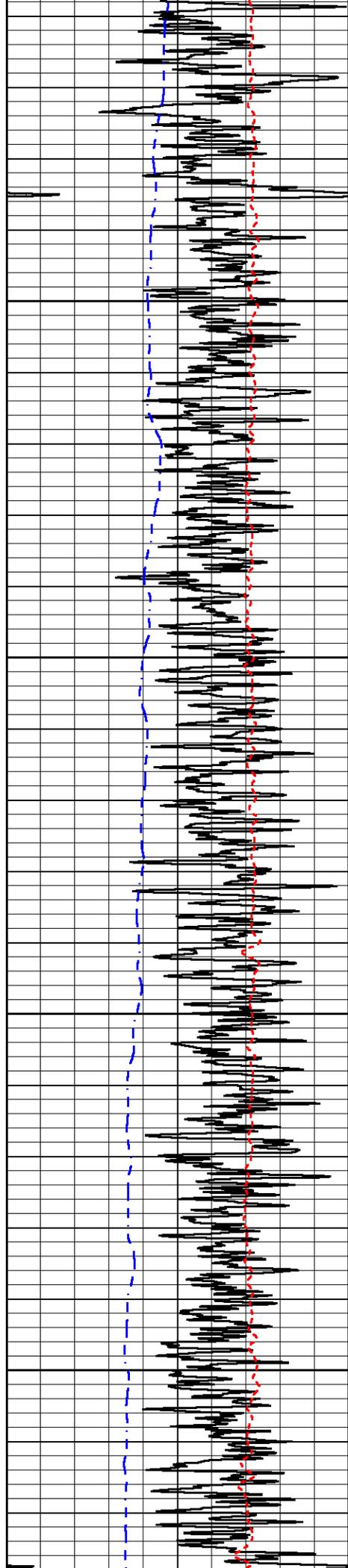
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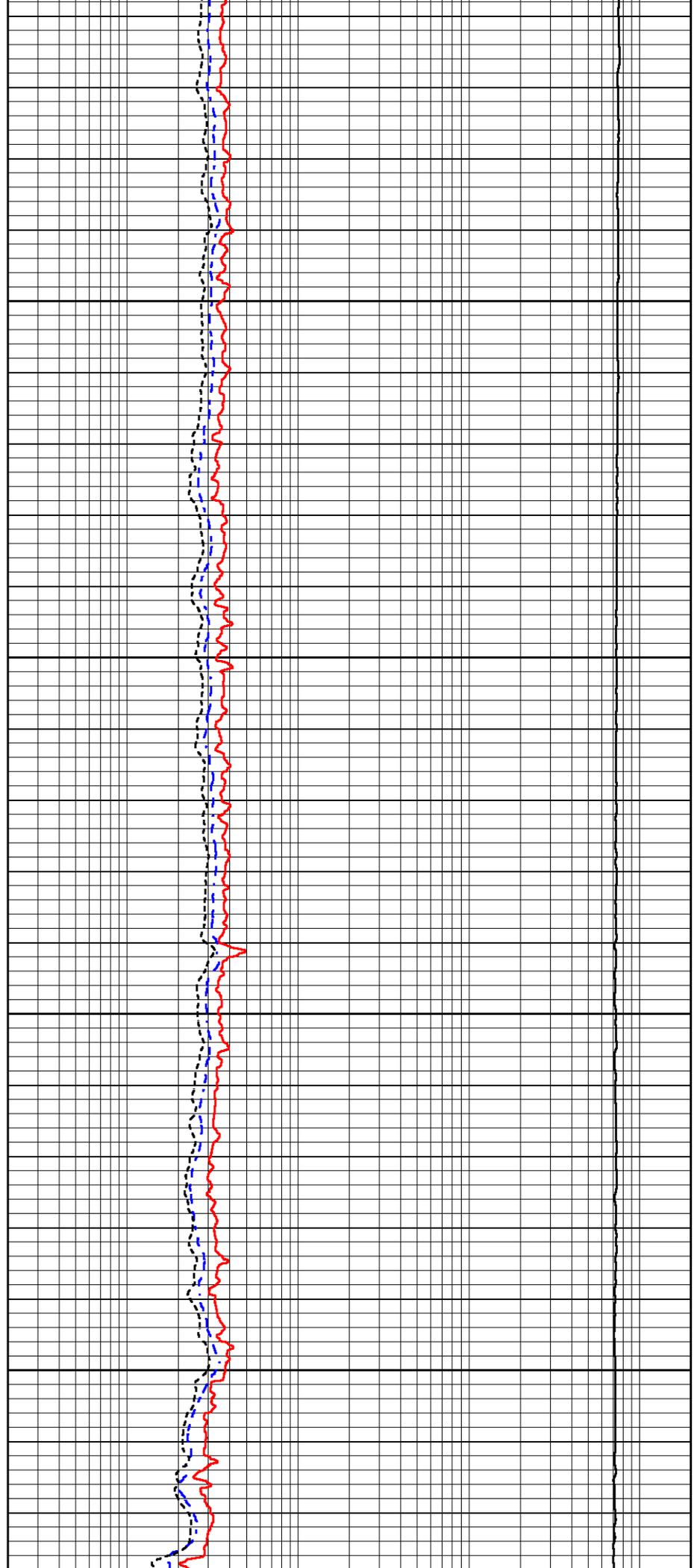


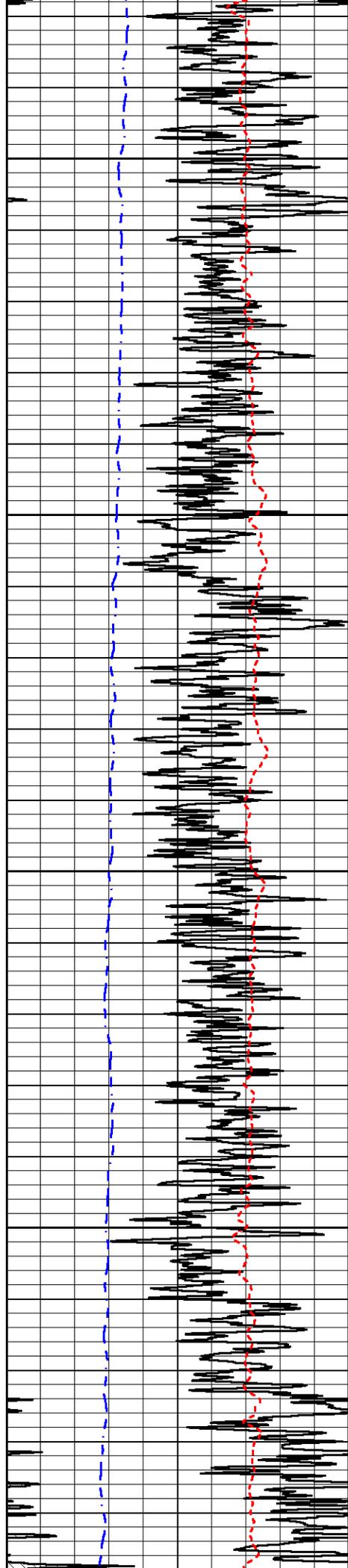
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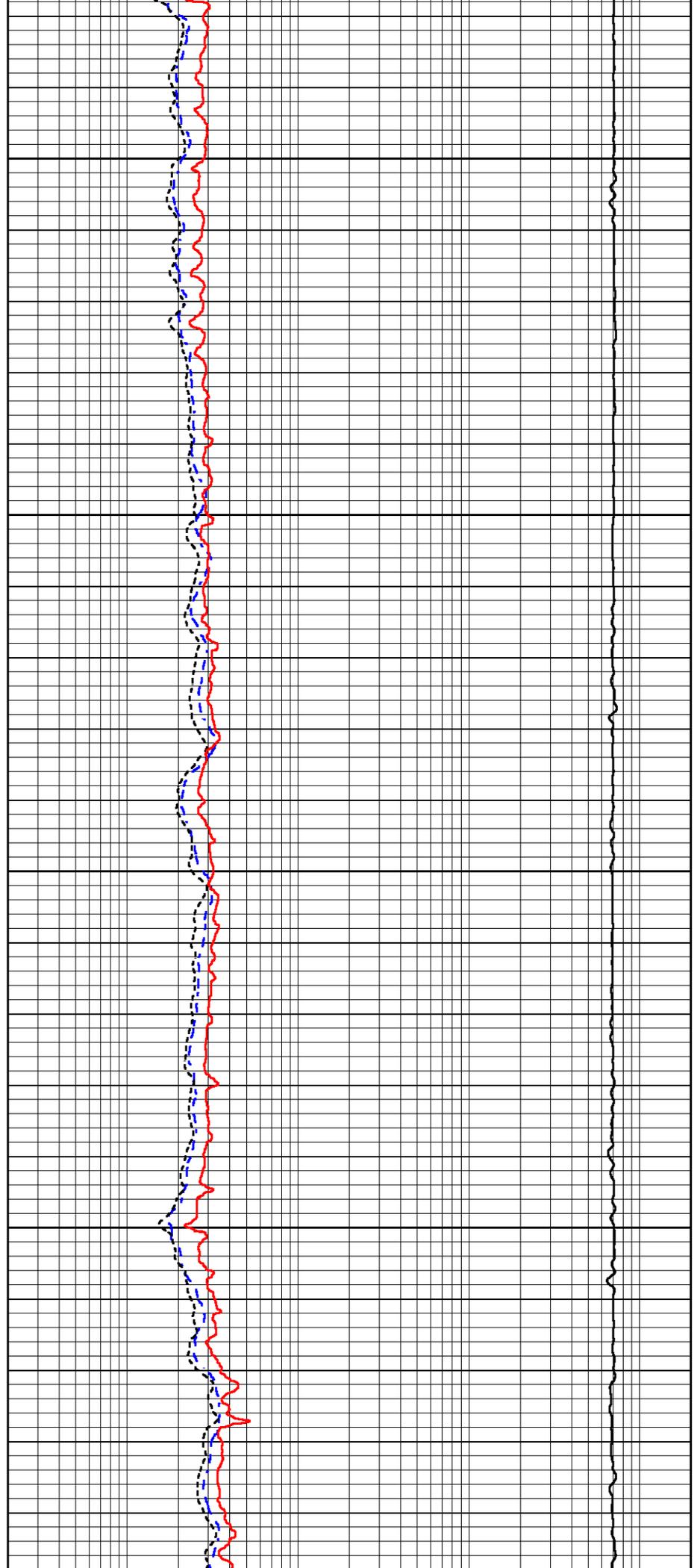


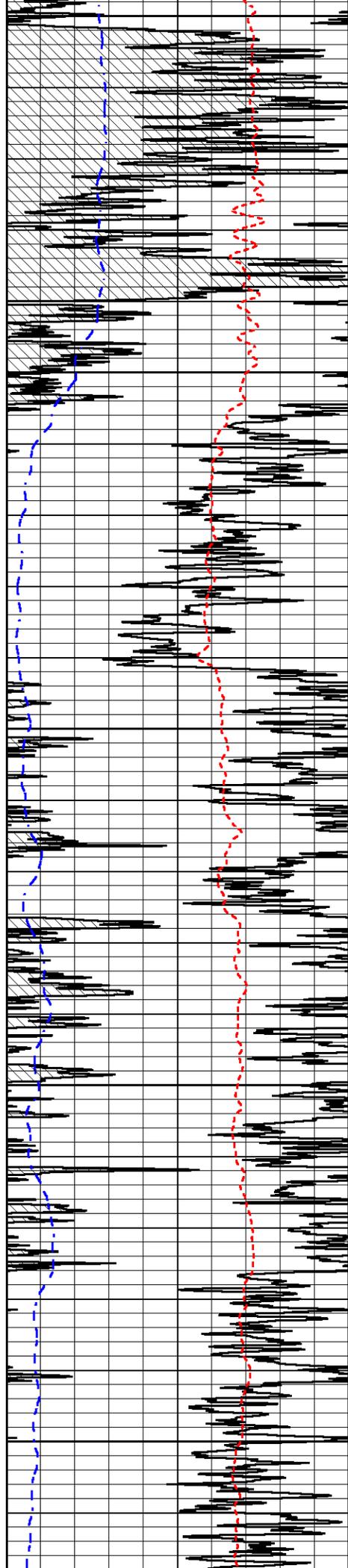
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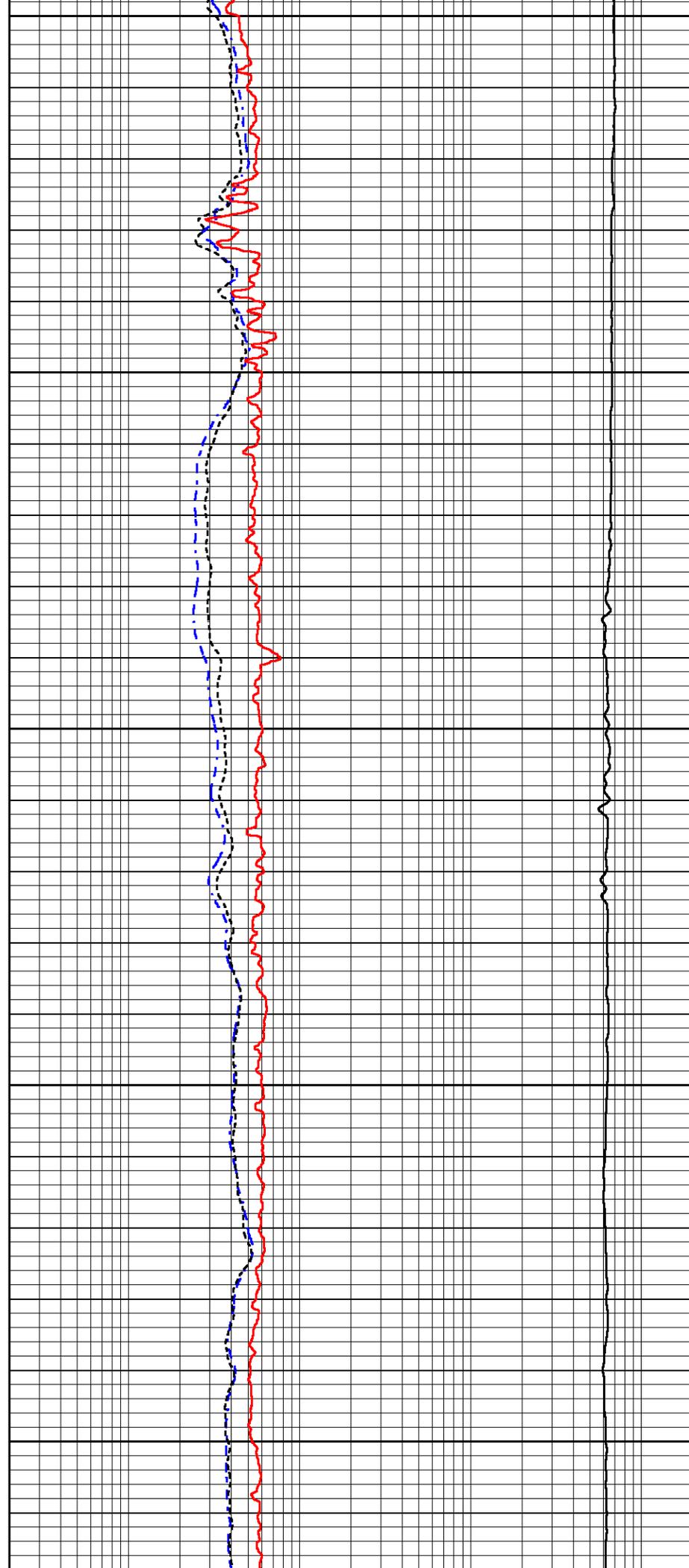
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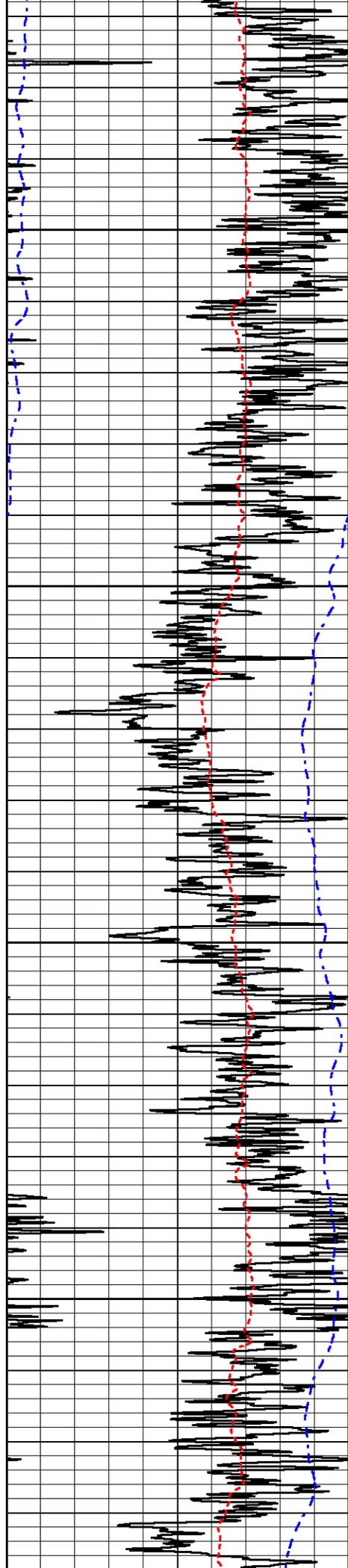
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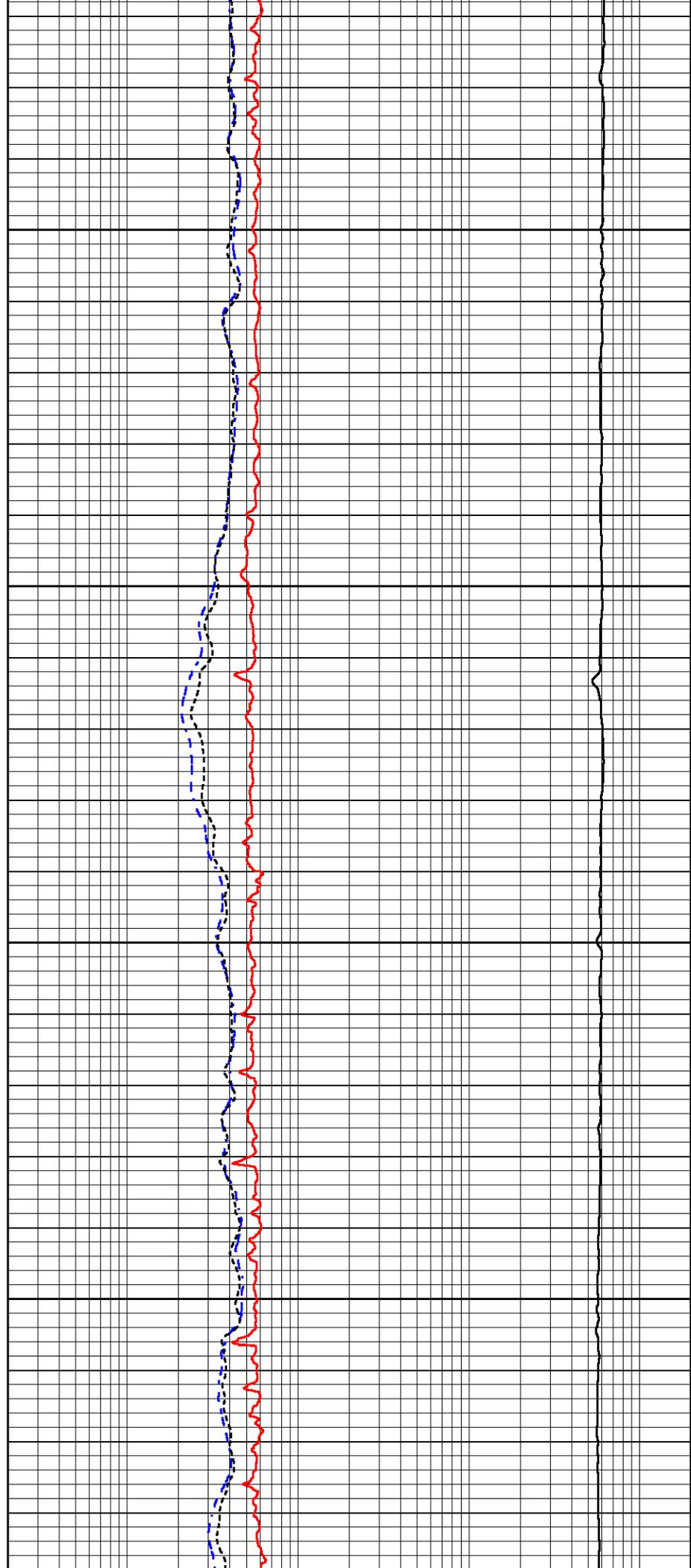


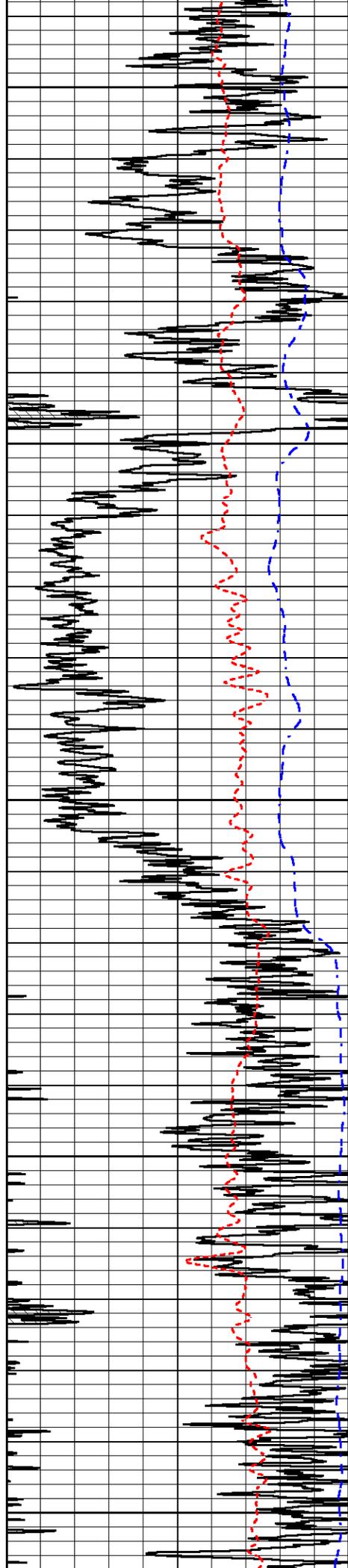
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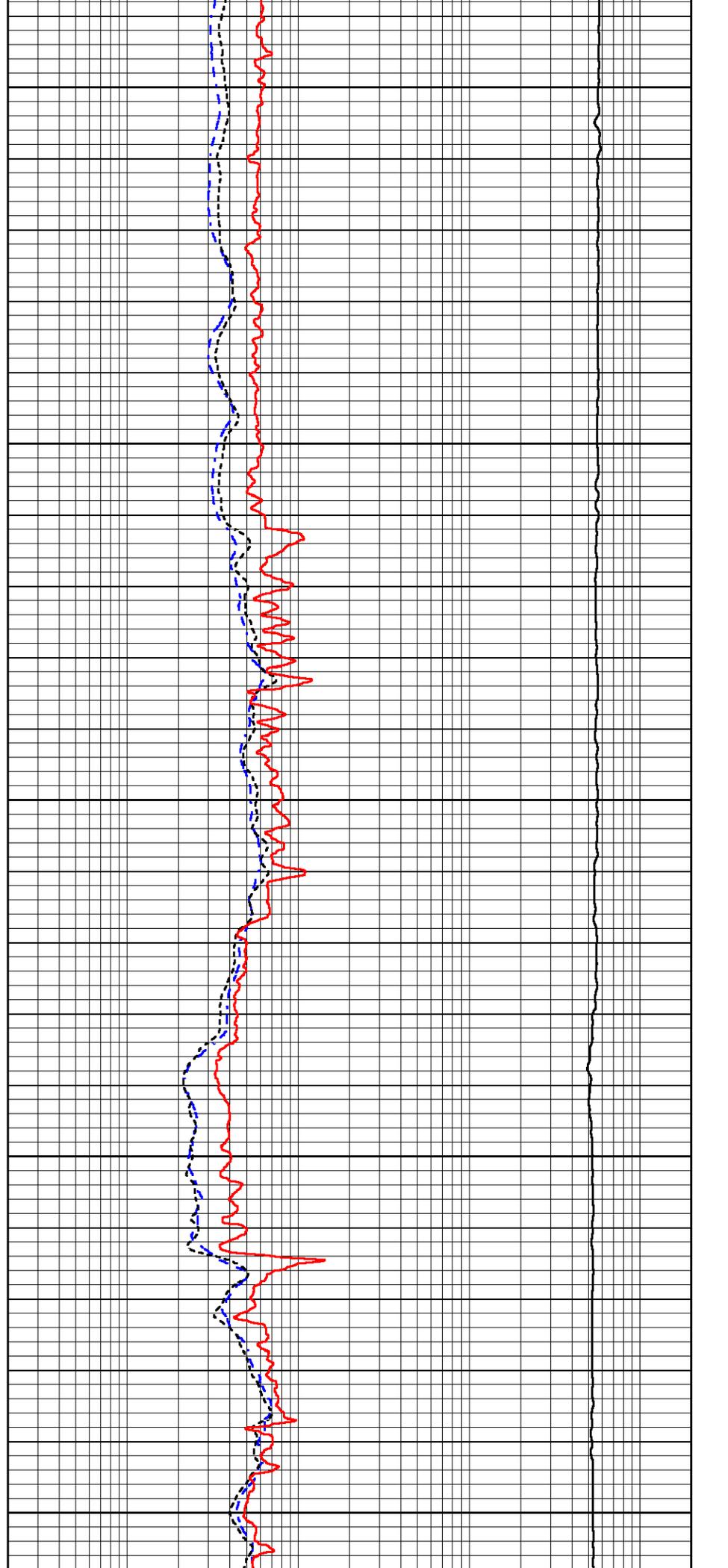
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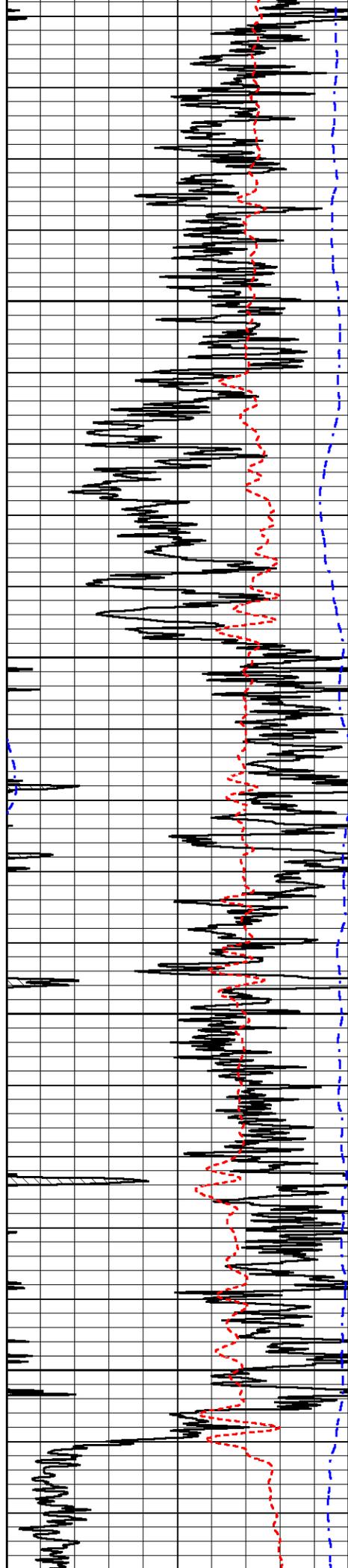
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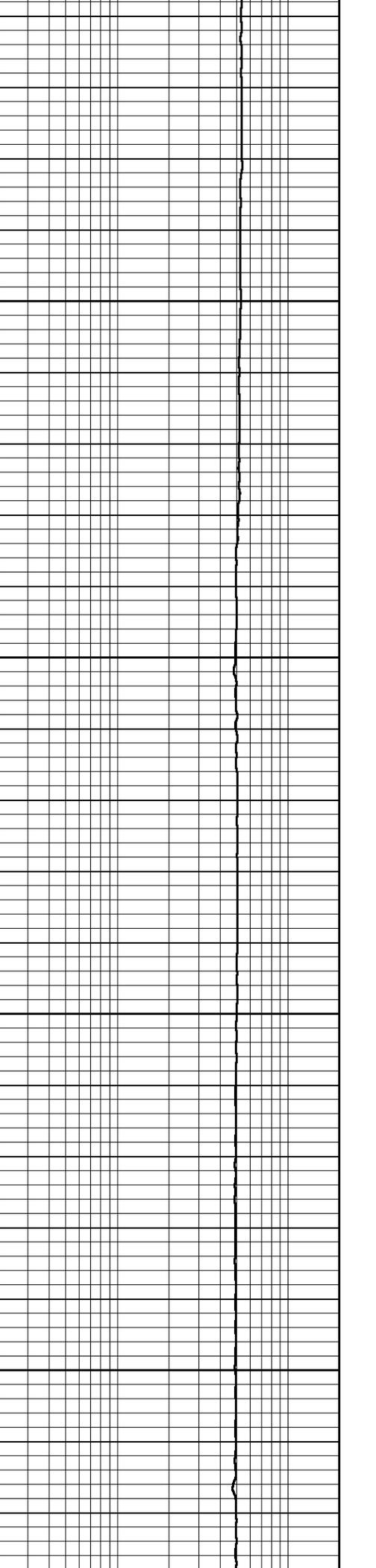
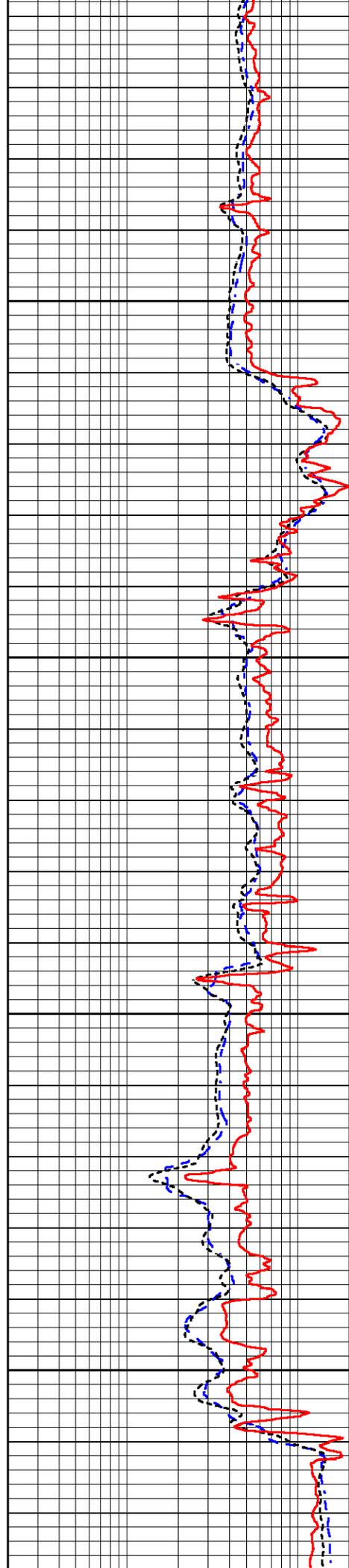


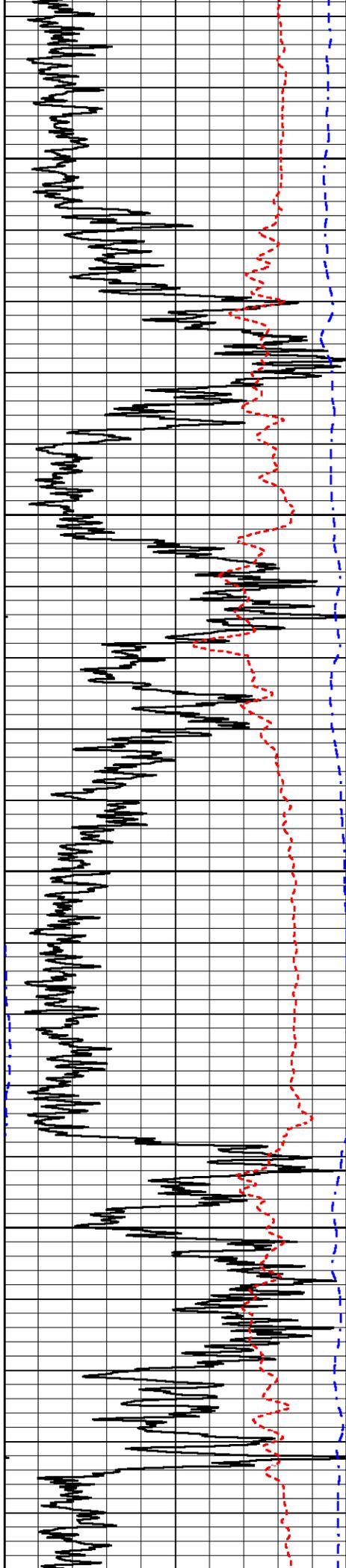
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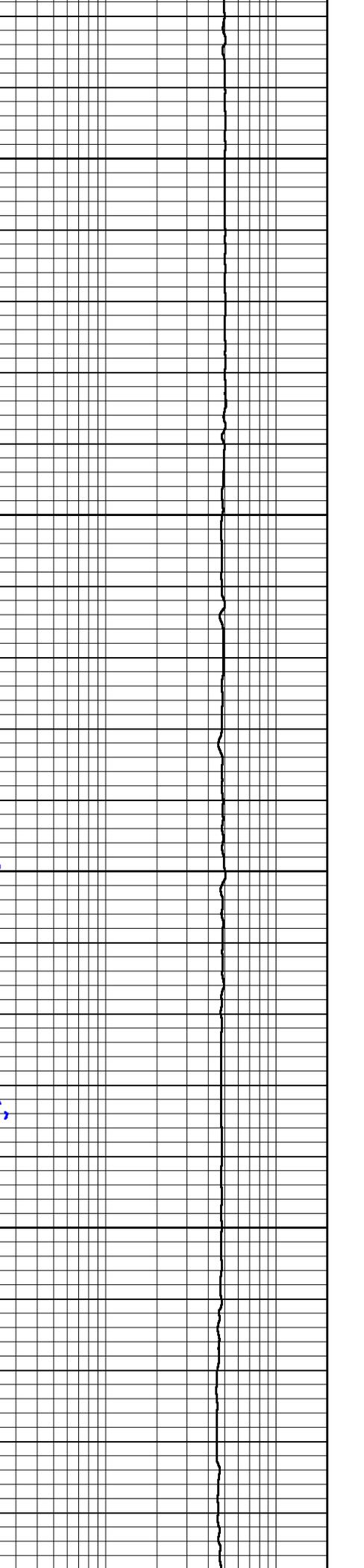
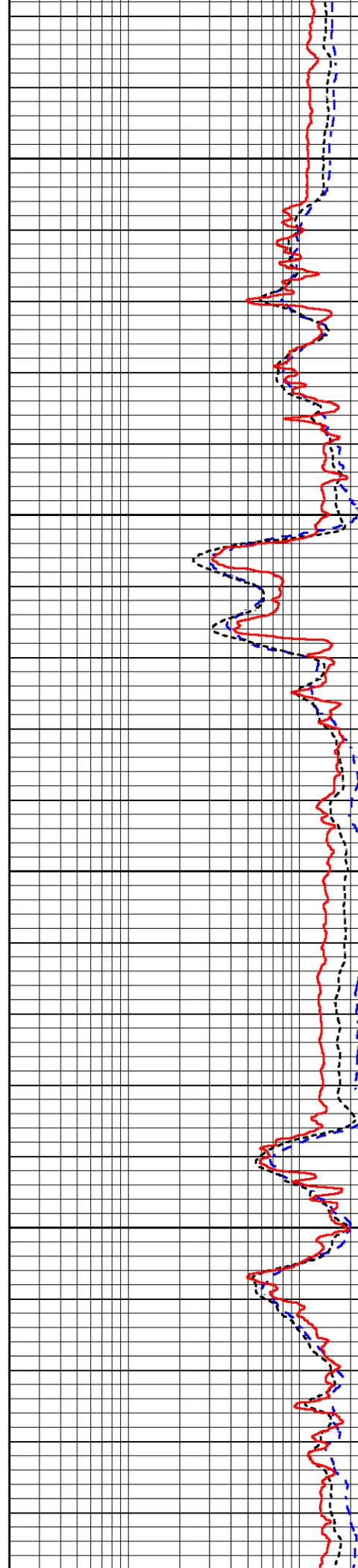


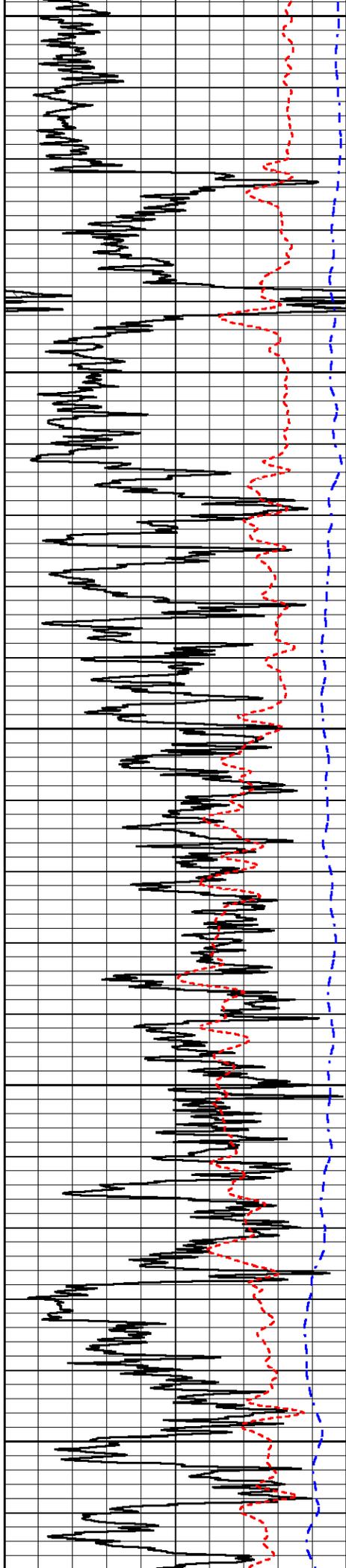
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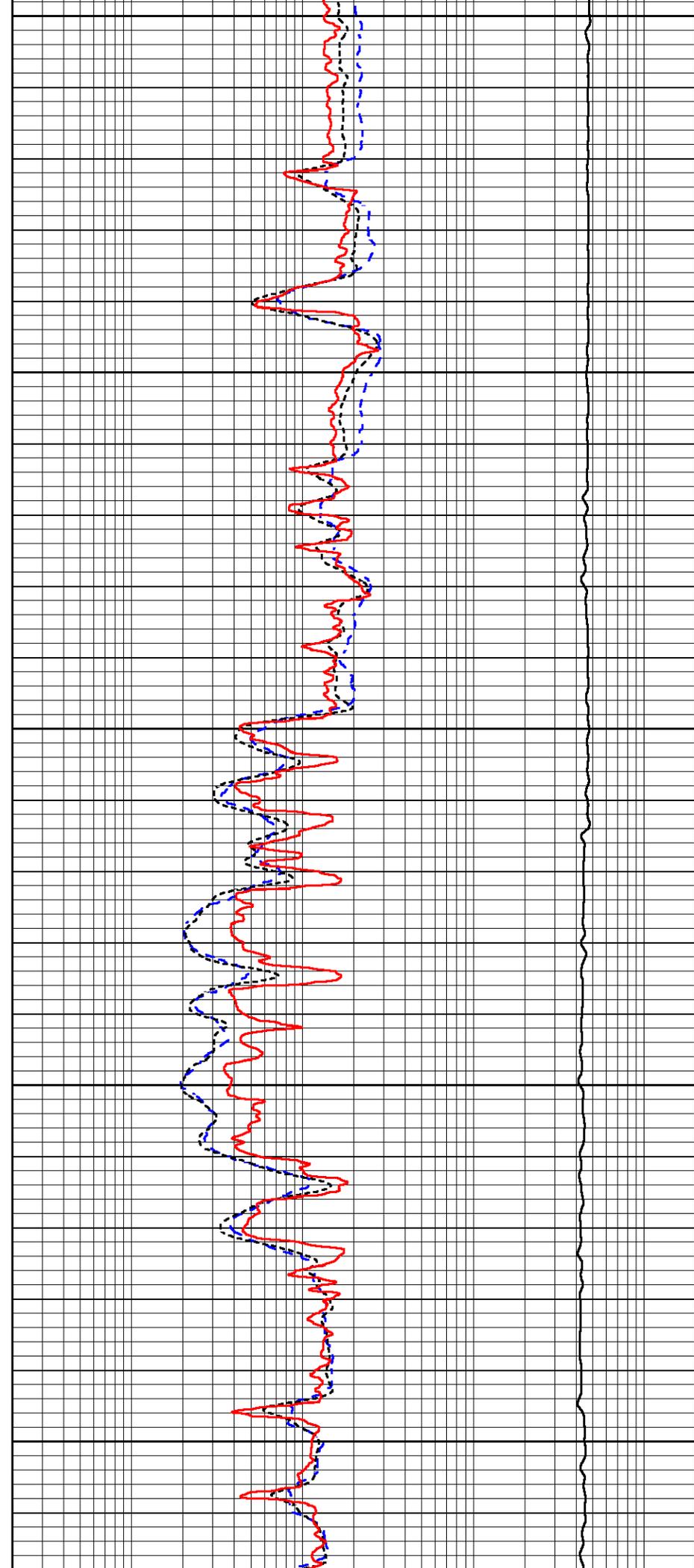
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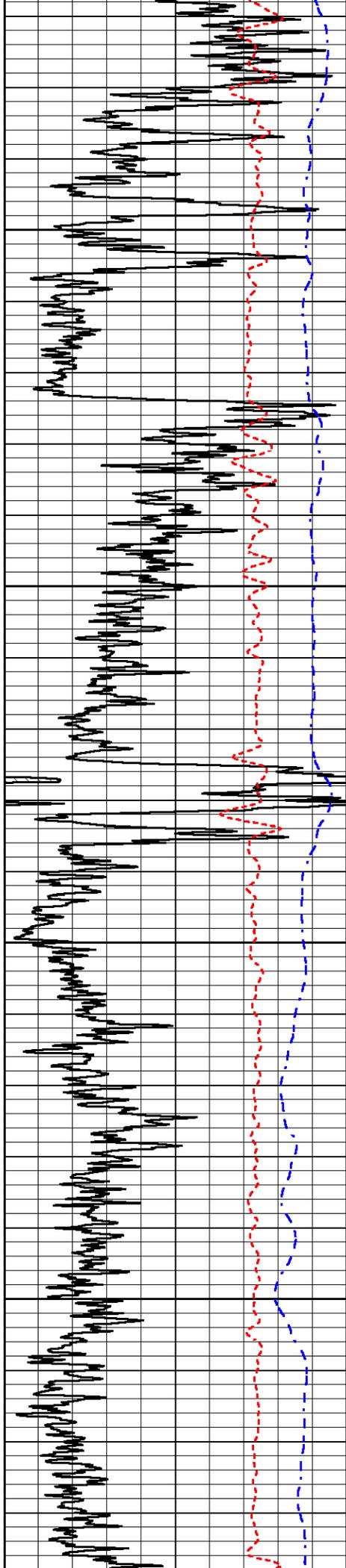
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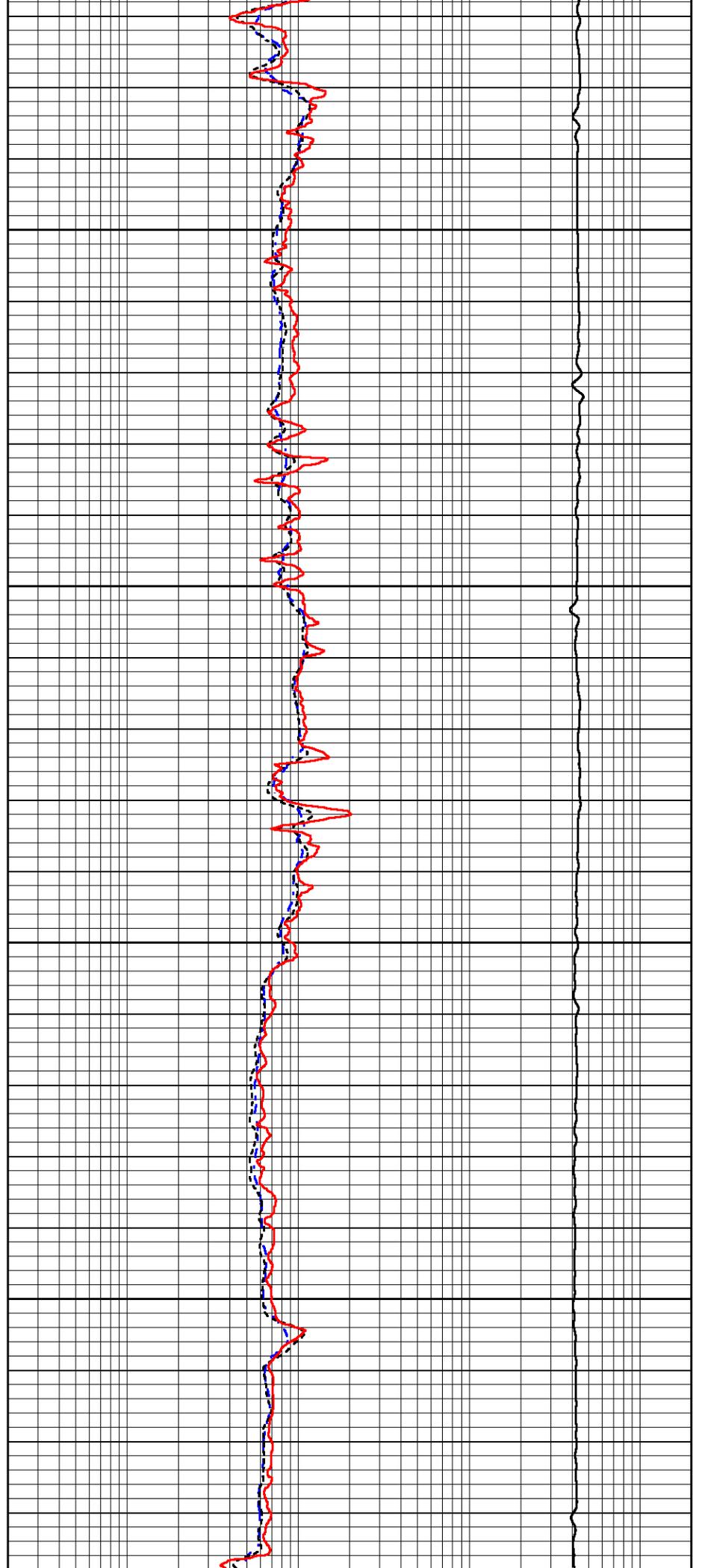


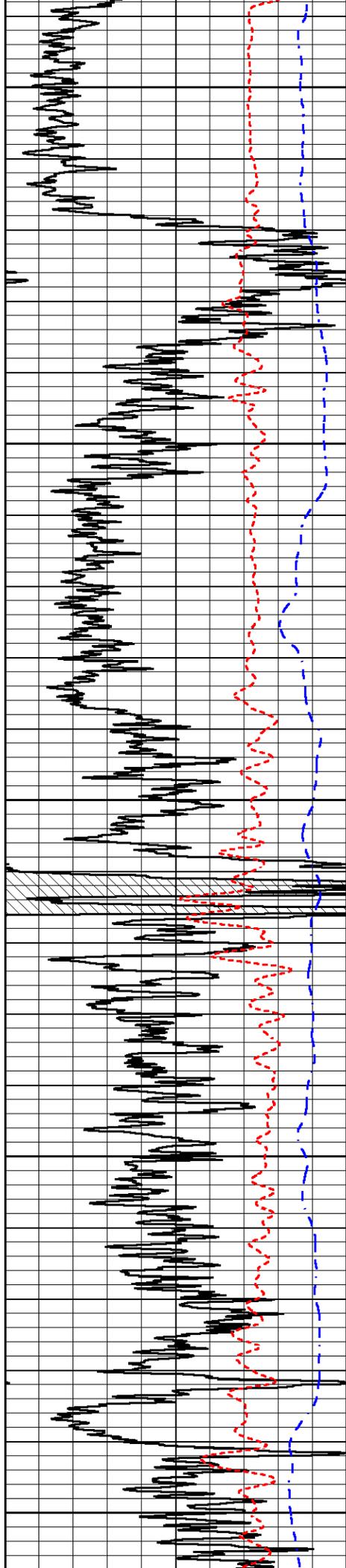
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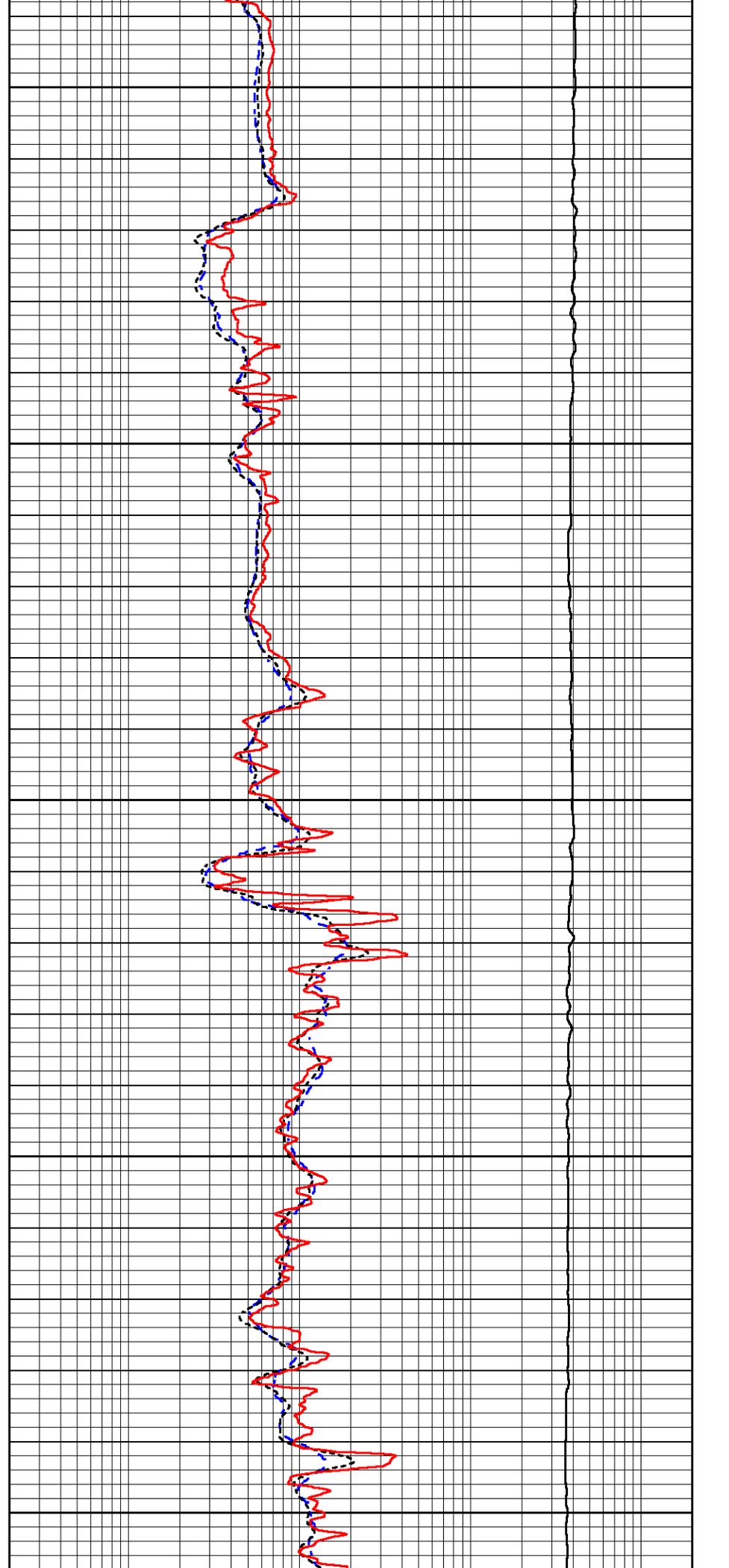
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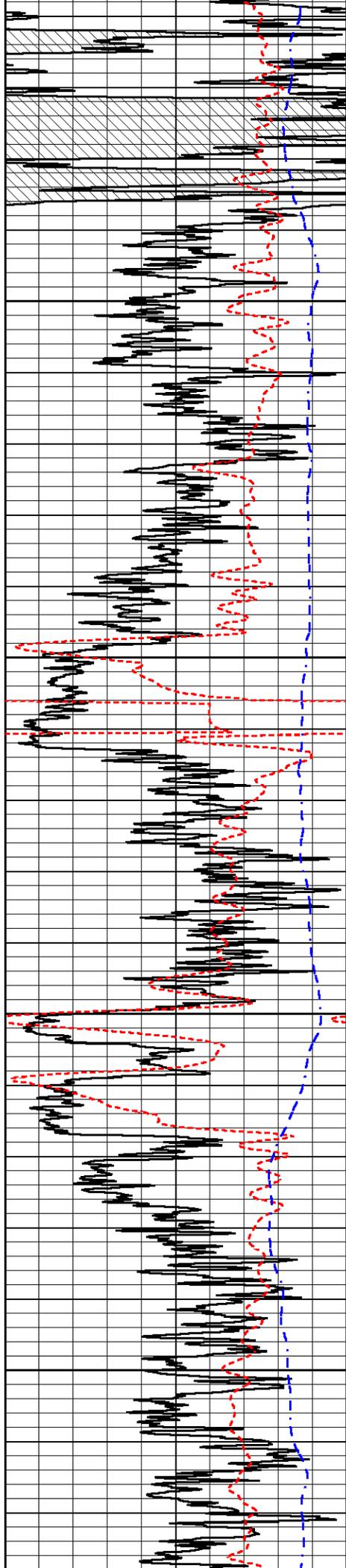
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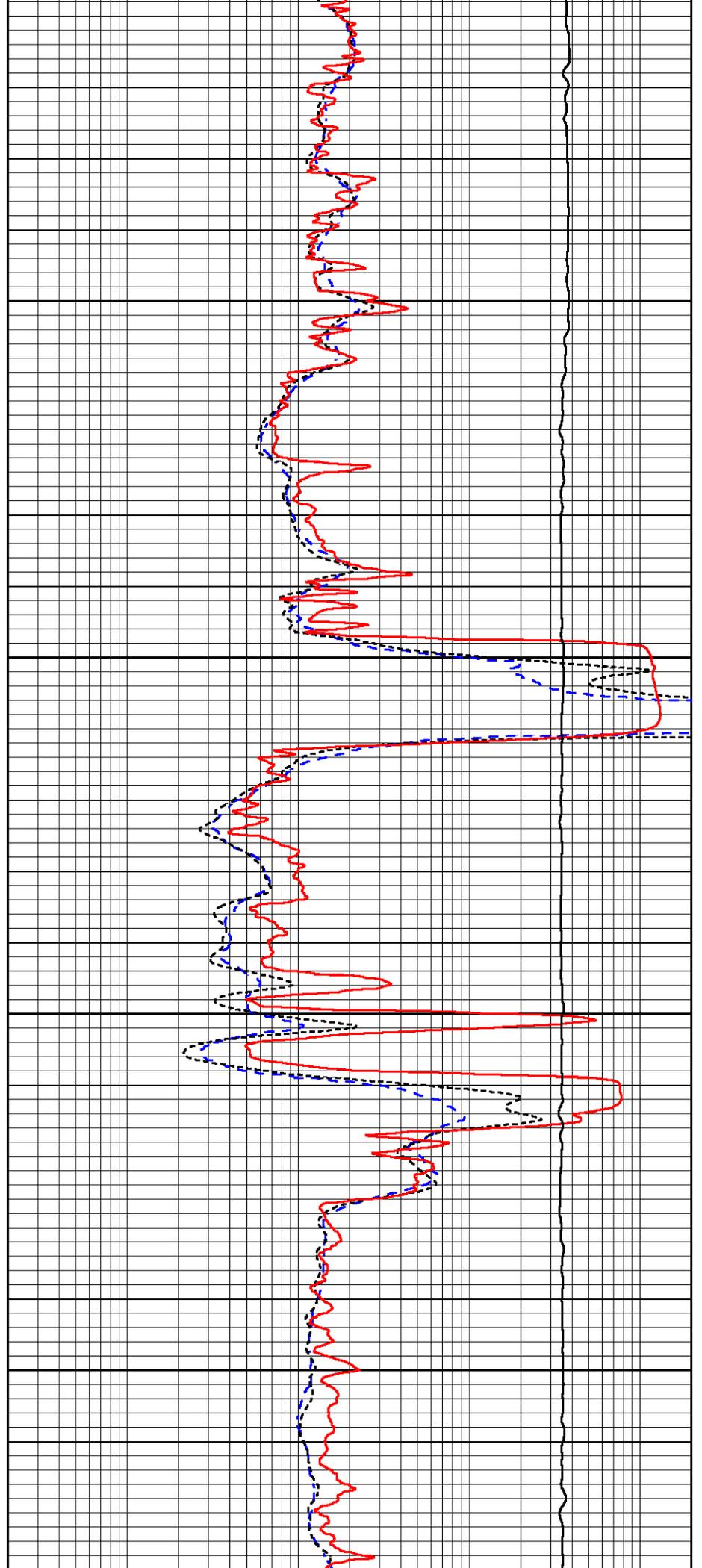


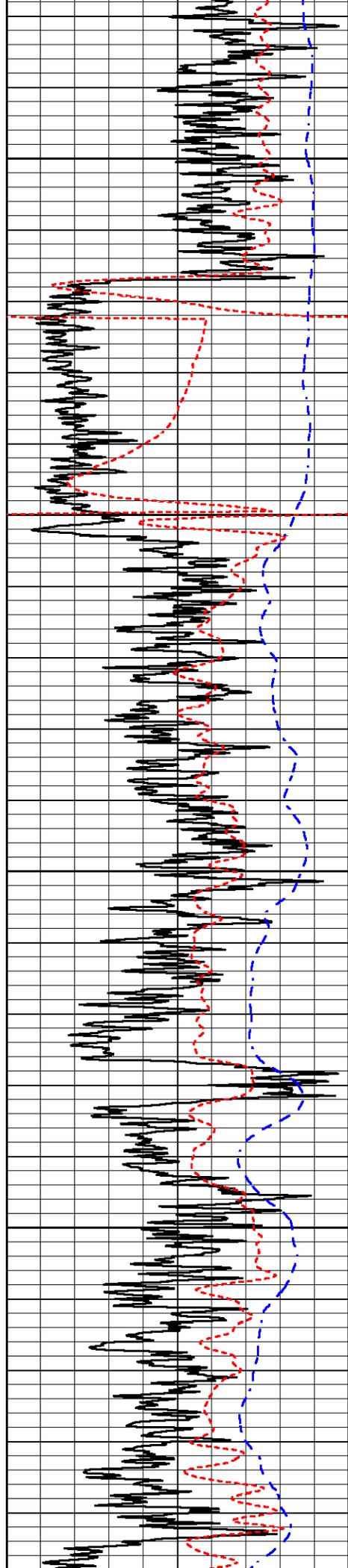
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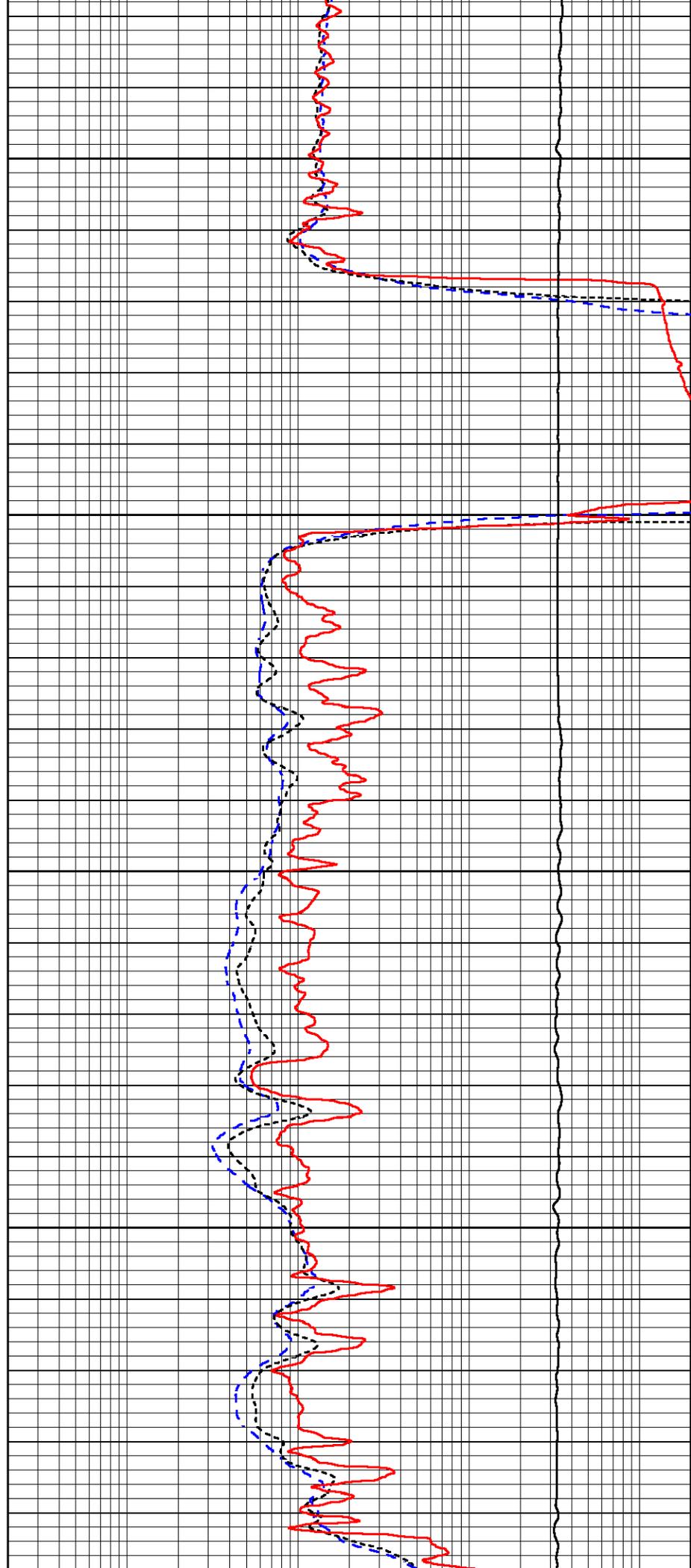


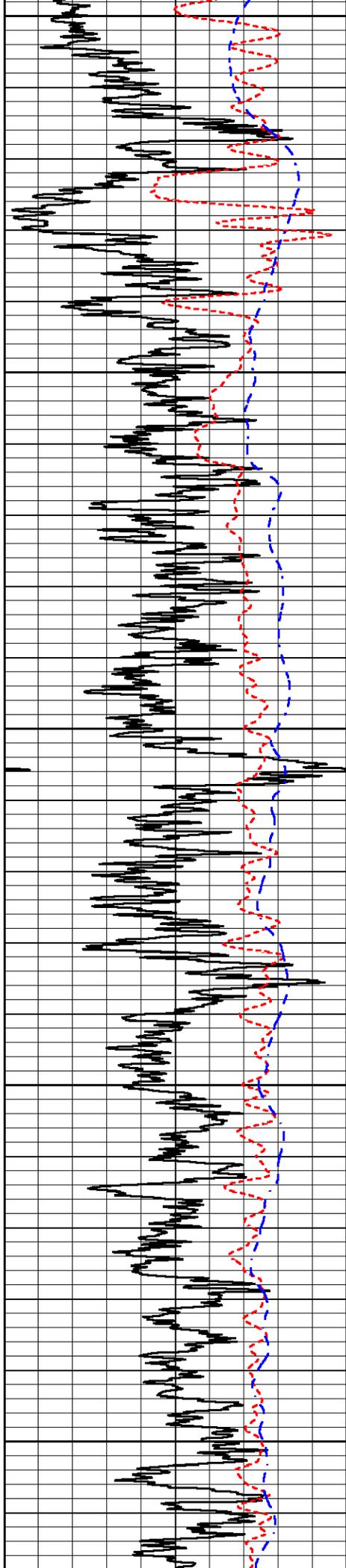
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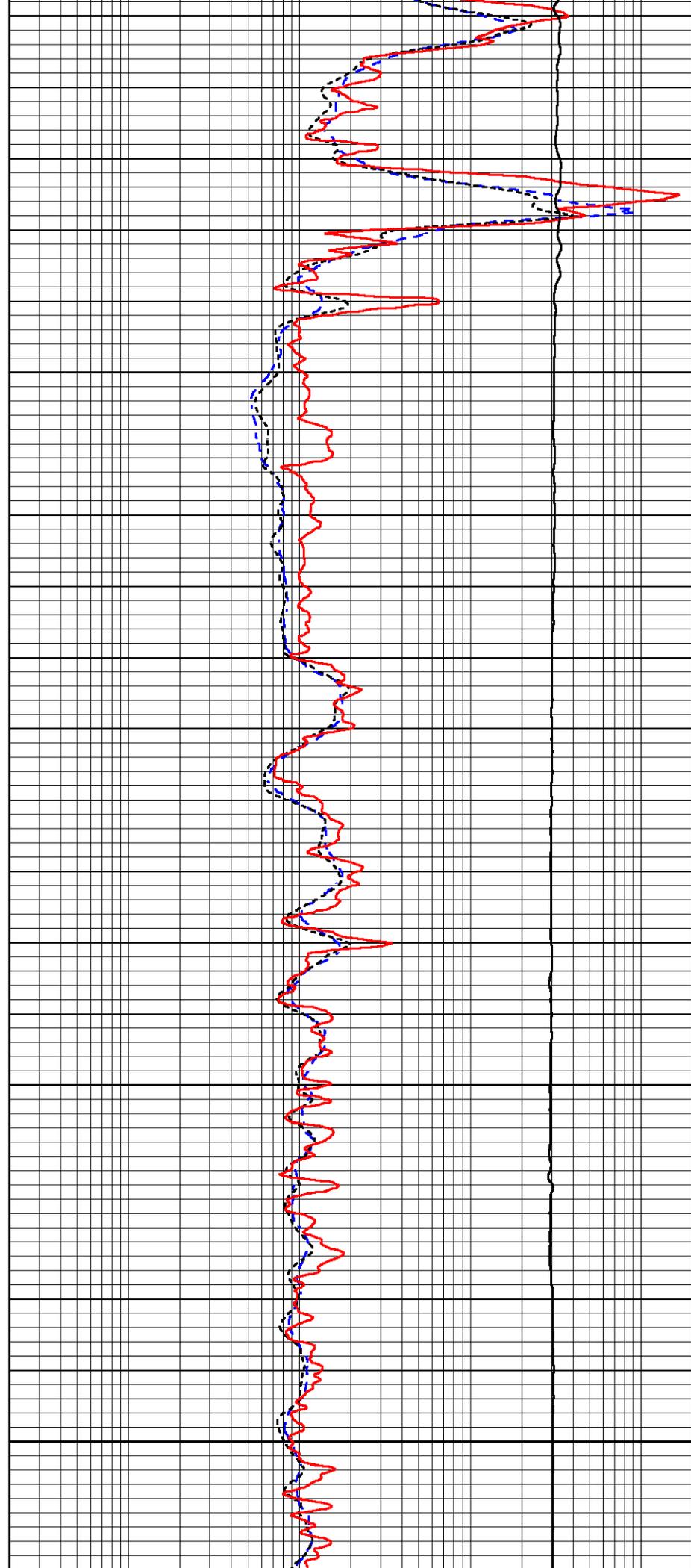
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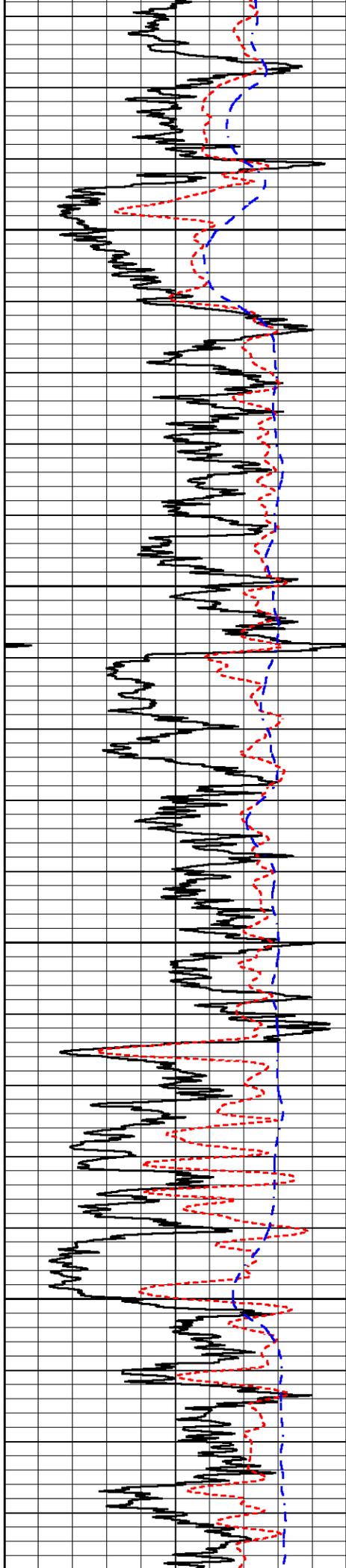
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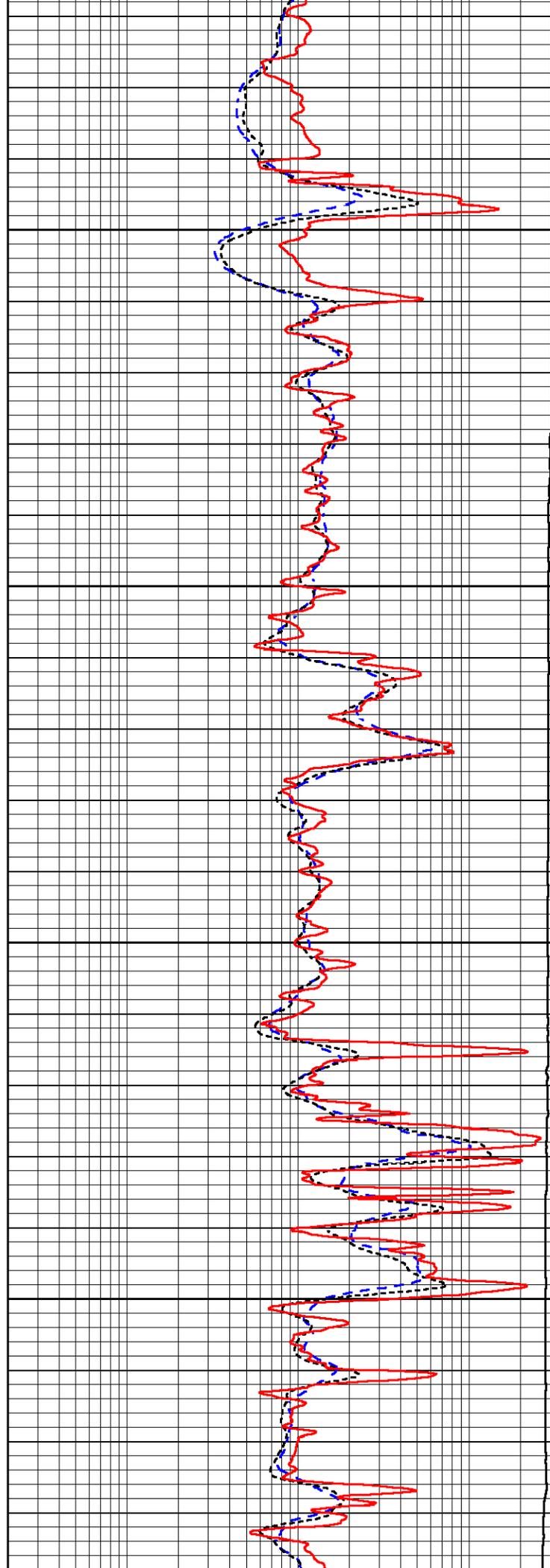


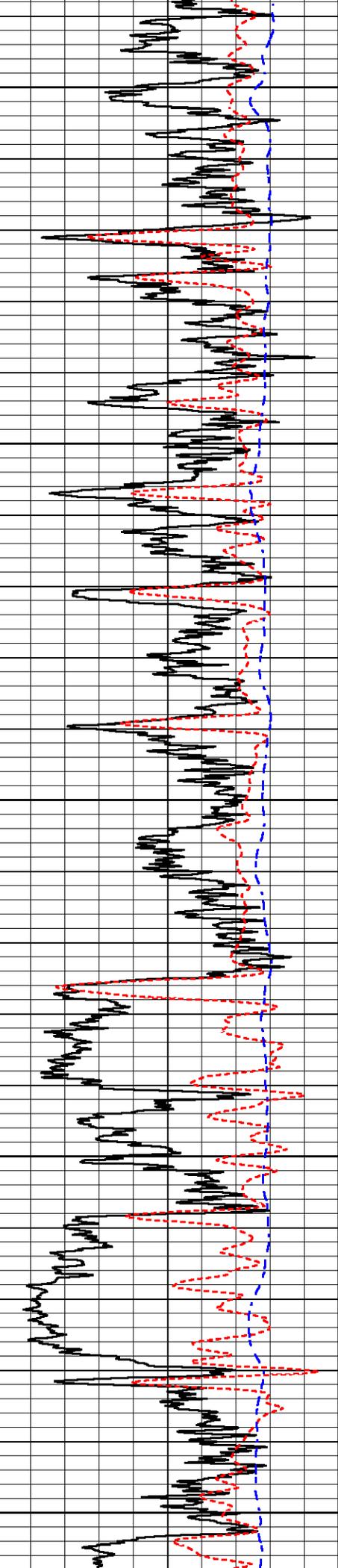
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3900

3950

4000





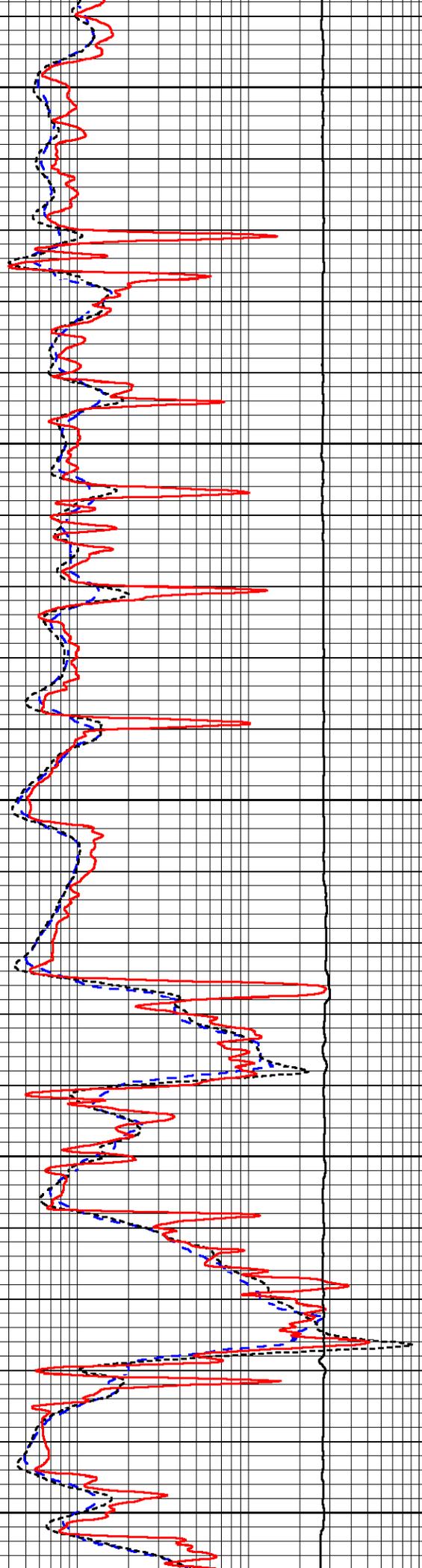
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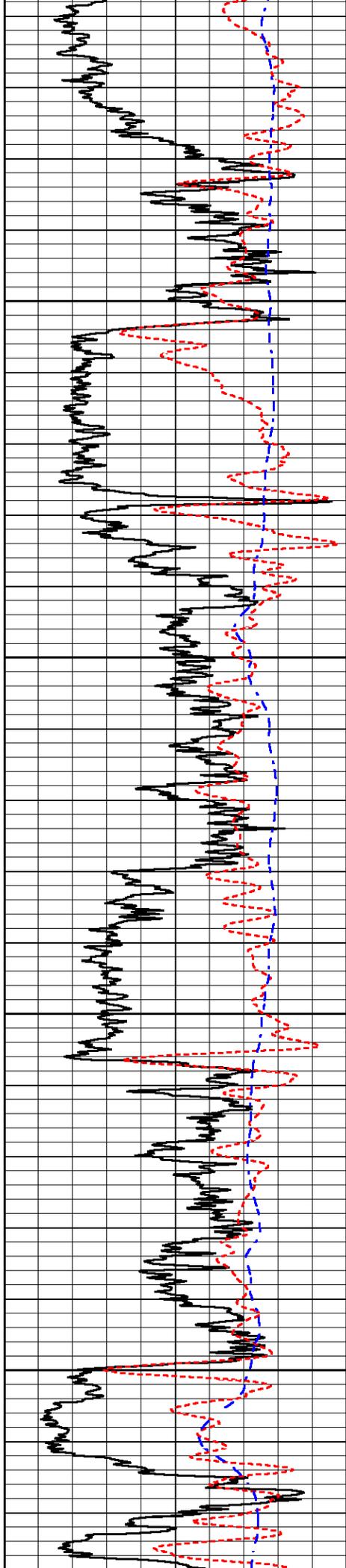
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4150

4200

4250



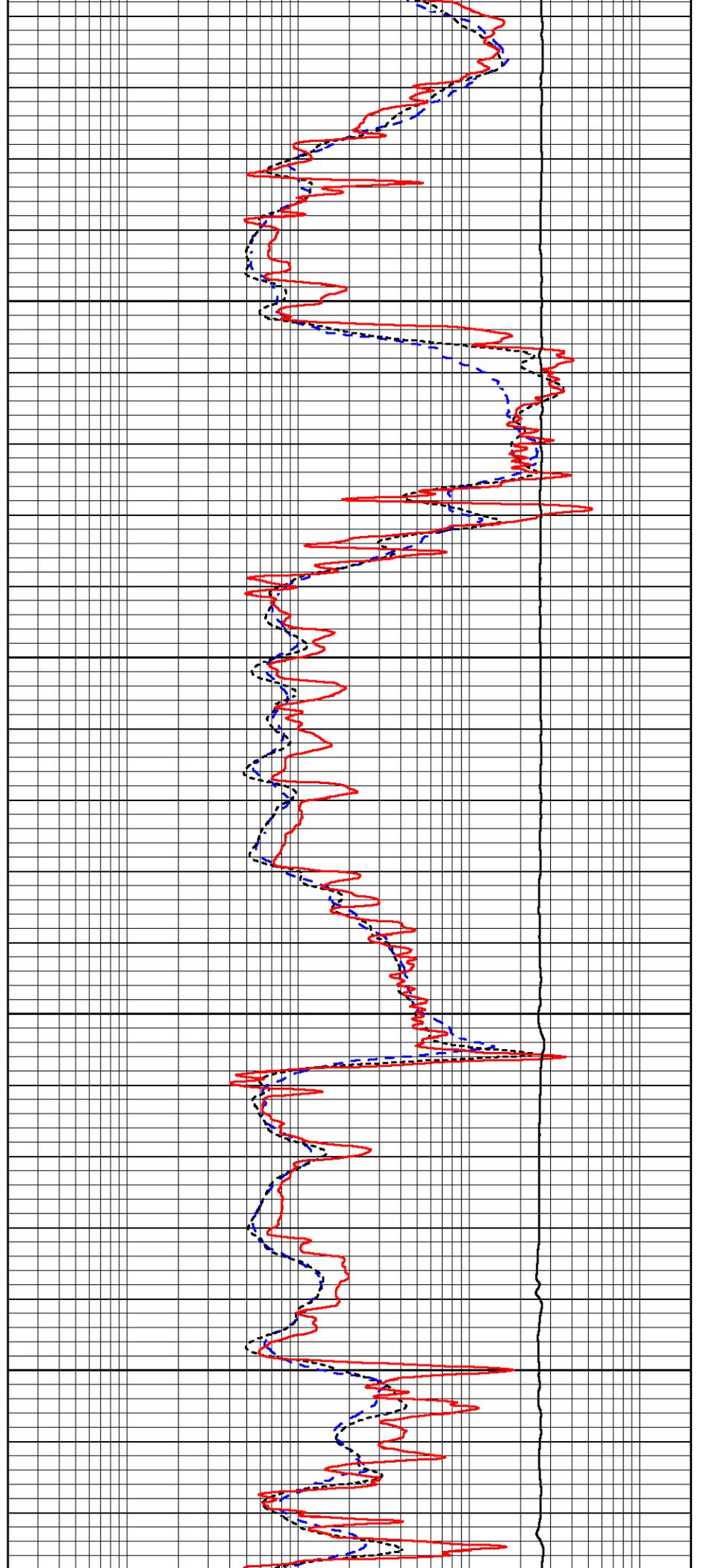


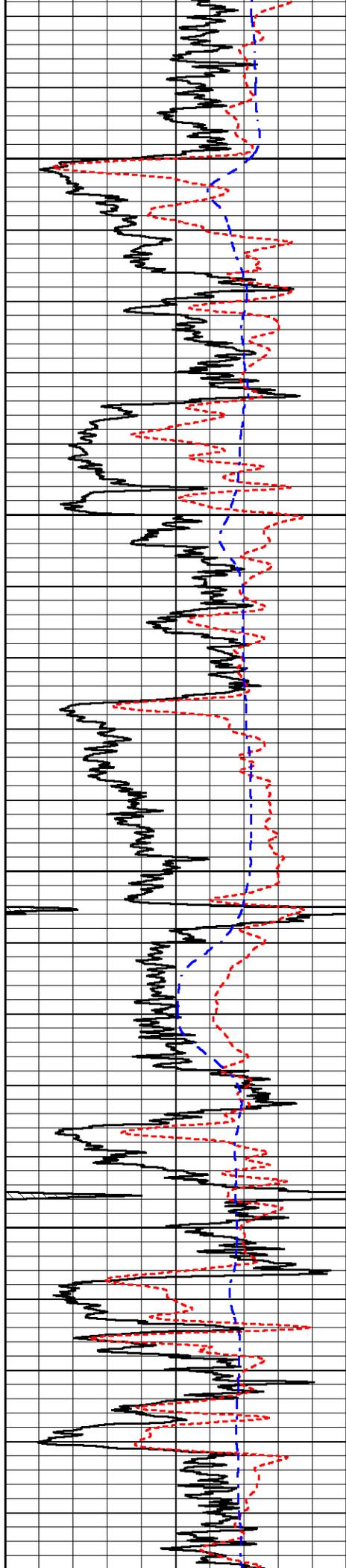
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4350

4400

4450



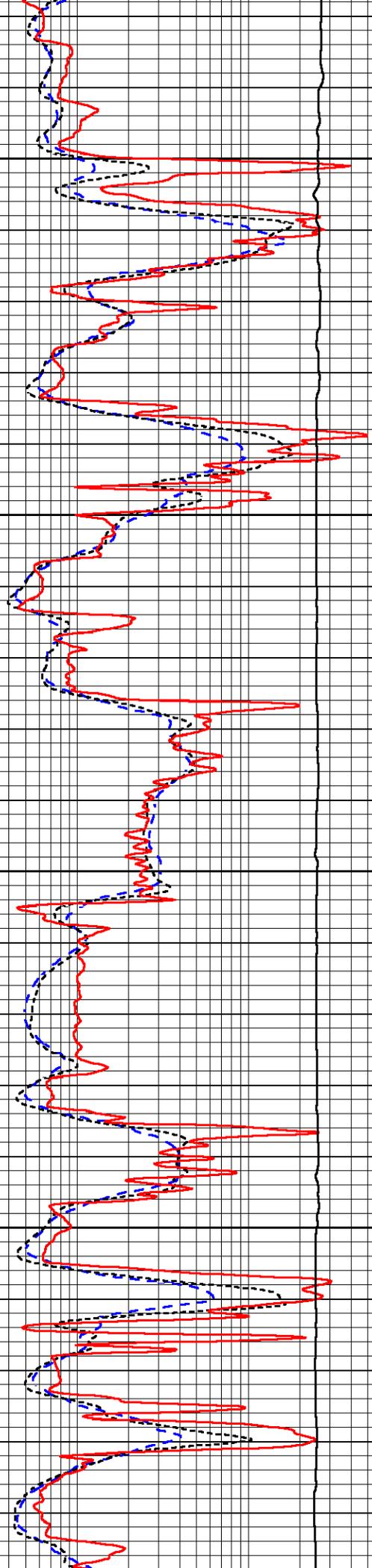


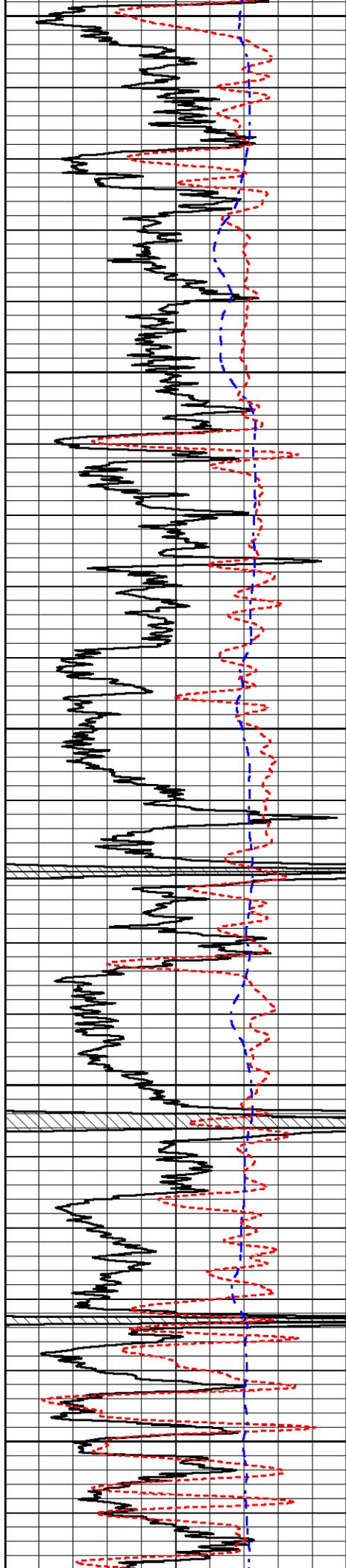
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4550

4600

4650





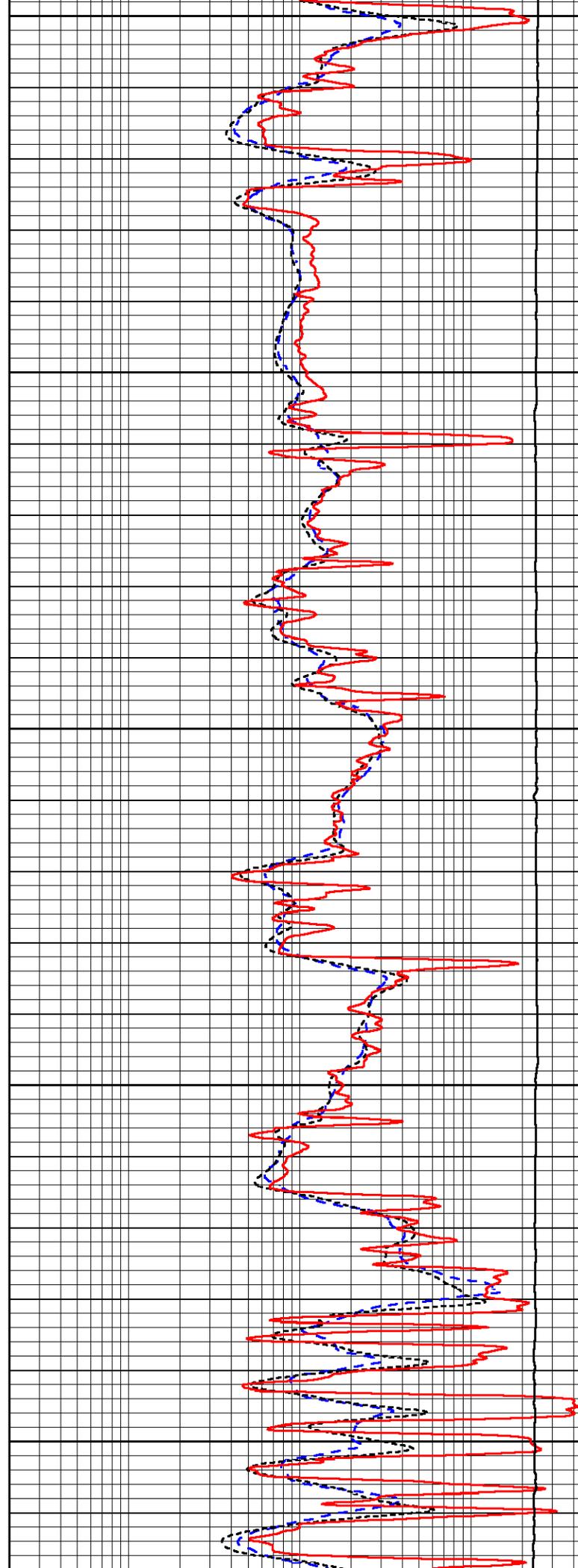
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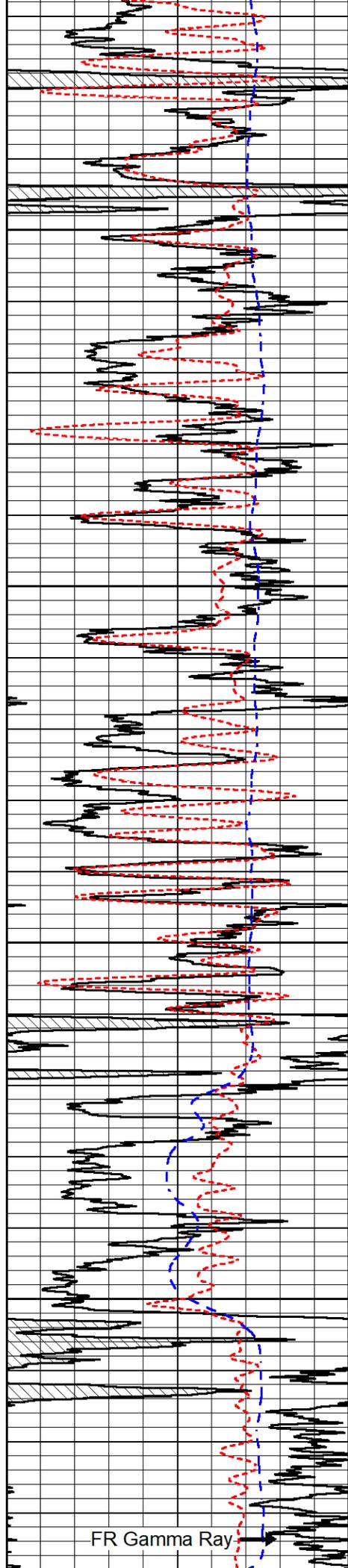
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4800

4850

4900





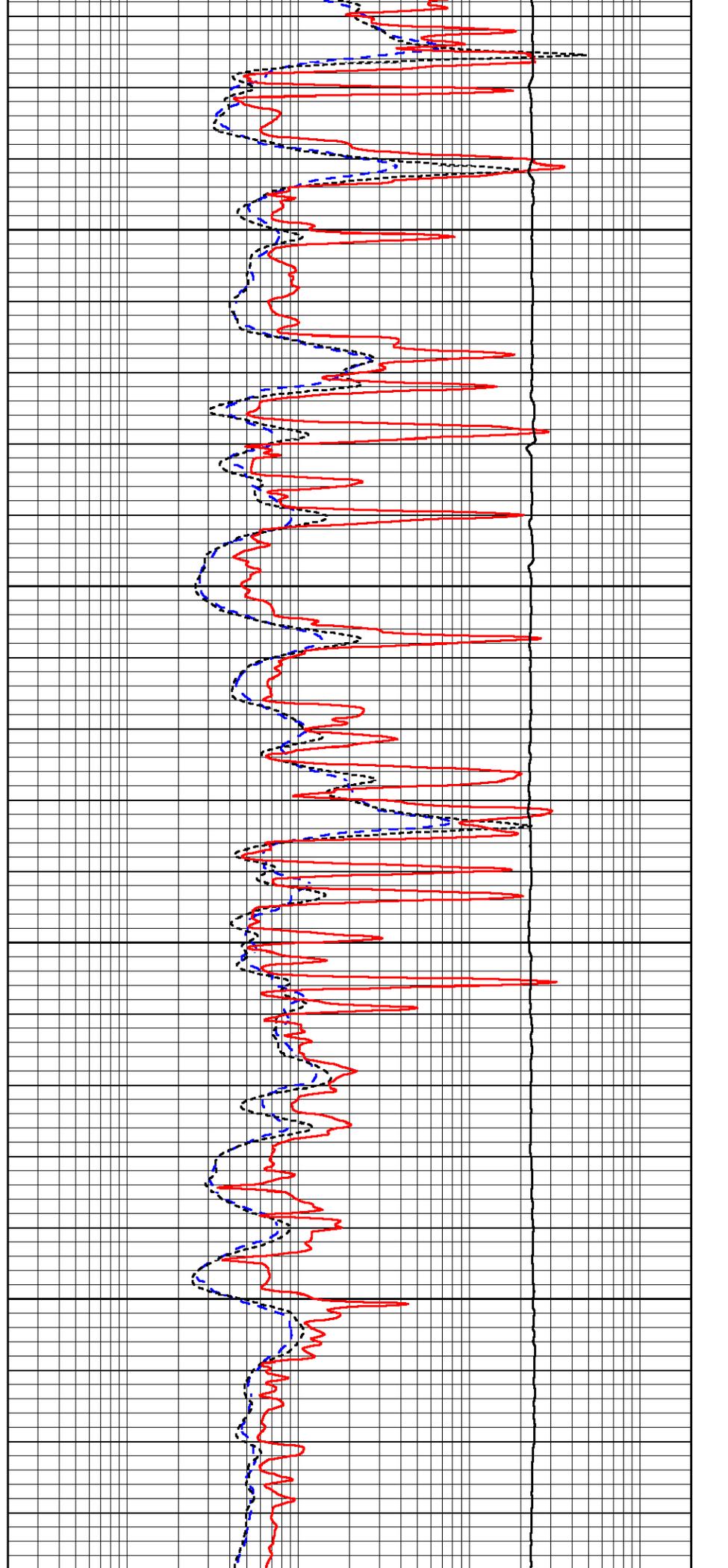
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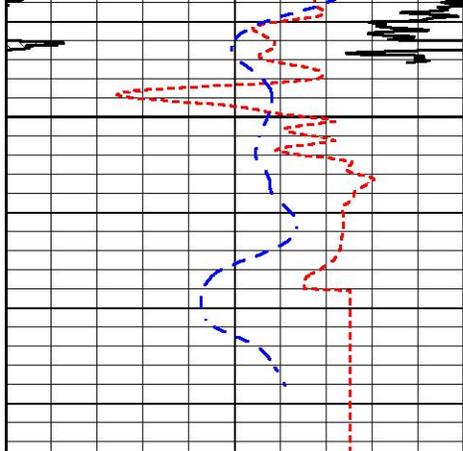
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5050

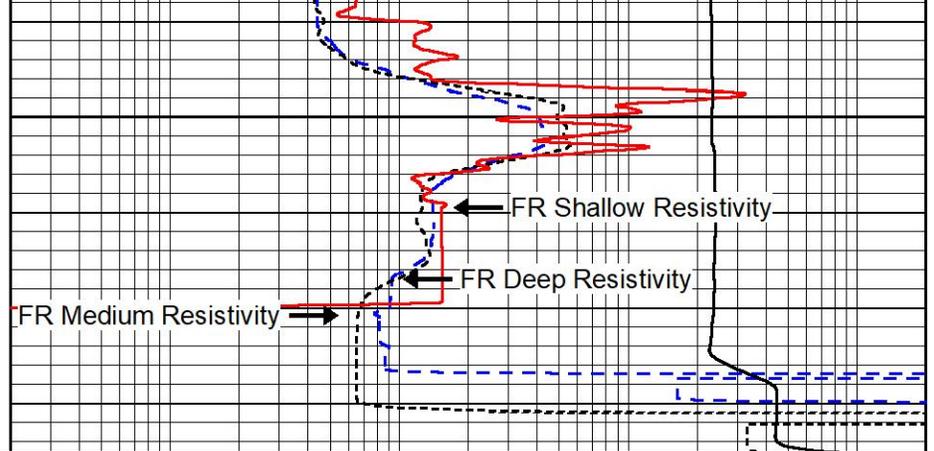
5100

FR Gamma Ray





5150



0	Gamma Ray (GAPI)	150
50	RXORT	250
-200	SP (mV)	0

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



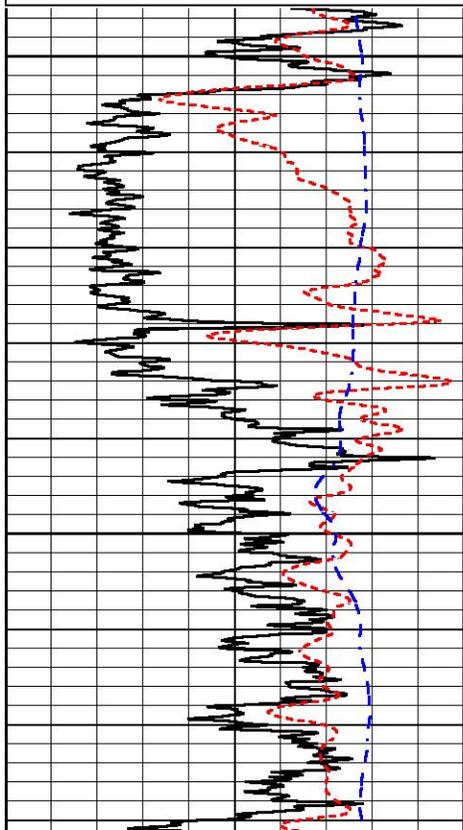
REPEAT SECTION

REPEAT PASS

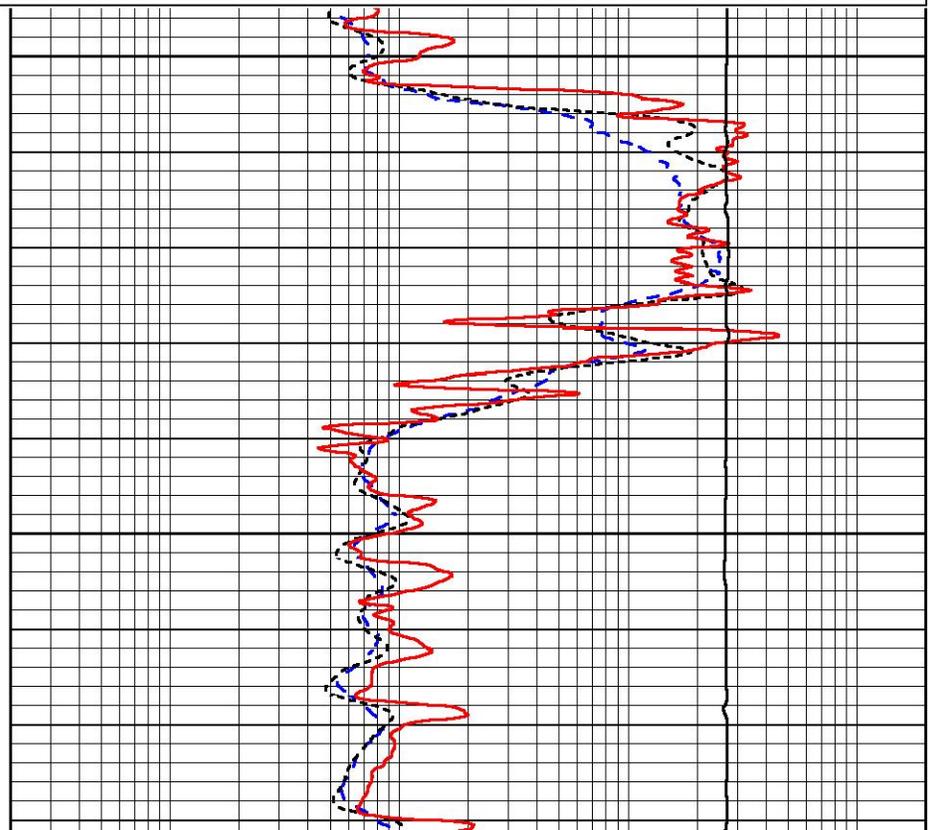
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 Dataset Pathname stkml/pass2.1
 Presentation Format _dil
 Dataset Creation Sat Aug 26 02:55:29 2023
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
50	RXORT	250
-200	SP (mV)	0

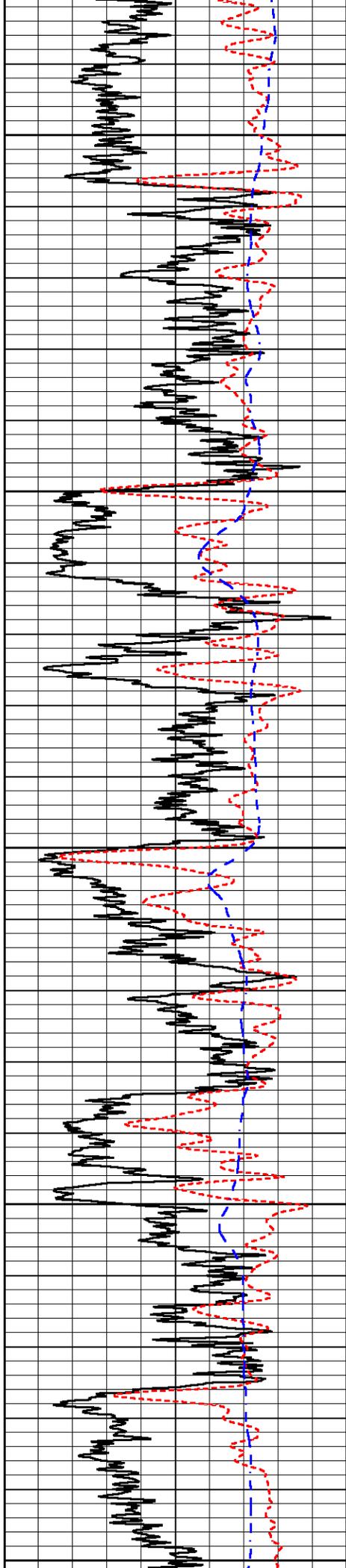
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0



4300



4350



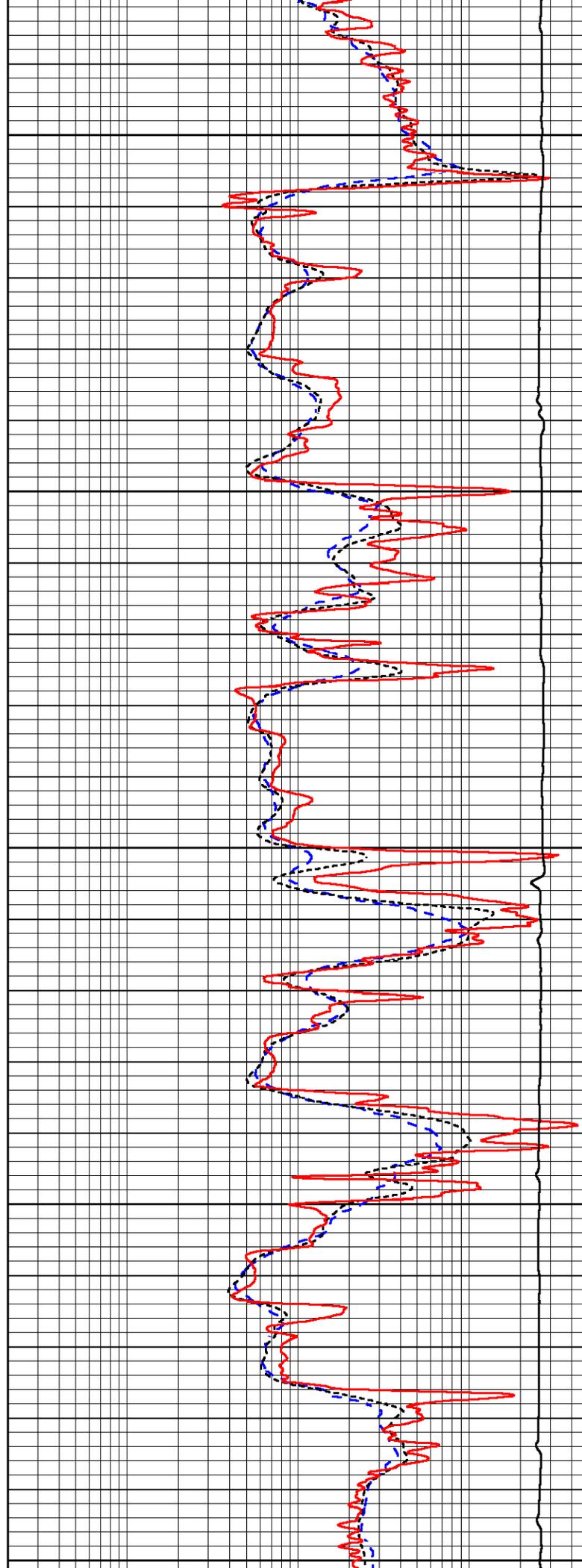
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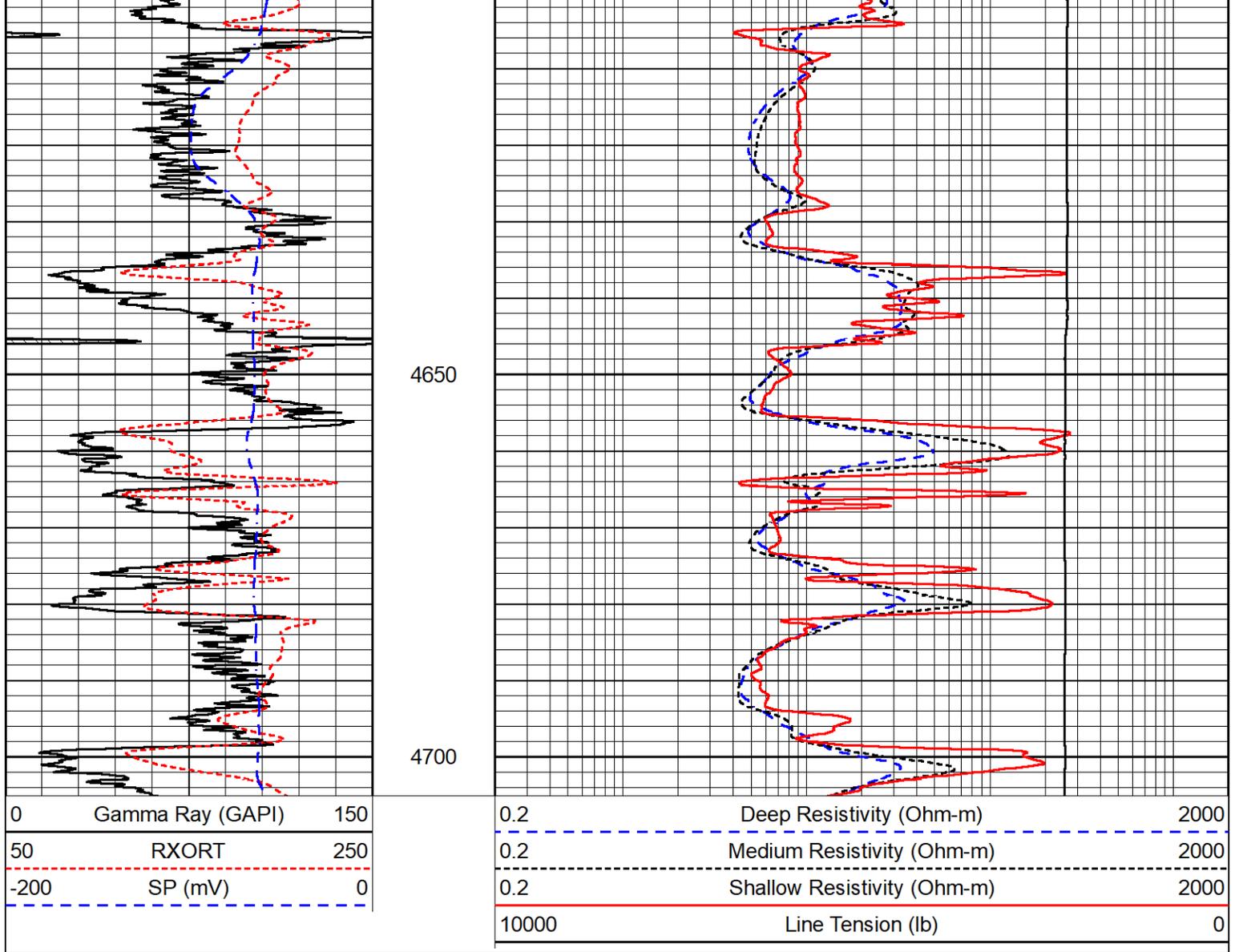
4450

4500

4550

4600





Calibration Report

Database File murfin_hester 4-7.db
 Dataset Pathname stkml/pass3.5
 Dataset Creation Sat Aug 26 03:05:15 2023

Dual Induction Calibration Report

Serial-Model: 505 HT-M&W
 Surface Cal Performed: Fri Aug 11 21:22:17 2023

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop	mmho/m	m	b
Deep	167.000	835.000	0.000	255.800	mmho/m	0.480	-42.000
Medium	1348.000	1348.000	0.000	255.800	mmho/m	0.410	-40.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Thu Aug 24 12:21:45 2023

Readings		References		Results	
Zero	Cal	Zero	Cal	m	b

Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	30500.0000	-0.7000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	27000.0000	-0.1000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.4000

LITHODENSITY Calibration Report

Serial Number: 701-01
Tool Model: STEP LITHO Short
Performed: Wed Aug 16 15:02:56 2023

Source:

	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
Background:									
SS:	52	53	205	255	24	69	44	1	cps
LS:	81	85	334	425	46	135	88	2	cps
Aluminum:									
SS:	774	936	2171	1967	43	73	44	2	cps
LS:	847	1595	3011	1457	56	137	87	5	cps
Magnesium:									
SS:	1271	1508	3520	2831	46	71	45	3	cps
LS:	3600	6590	11760	4608	88	128	83	13	cps
Aluminum+Iron:									
SS:	492	651	1805	1706	40	72	44	2	cps
LS:	499	1107	2530	1299	53	134	86	4	cps

	Density Actual	Calibrated	PE Actual	Calibrated Quality
Background:				
SS:				0.222
LS:				0.212
Aluminum:				
SS:	2.6000	2.6000	g/cc	0.248
LS:	2.6000	2.6000	g/cc	0.220
Magnesium:				
SS:	1.6800	1.6800	g/cc	2.5700 2.5700 0.222
LS:	1.6800	1.6800	g/cc	2.5700 2.5700 0.213
Aluminum+Iron:				
SS:				6.1800 0.239
LS:				6.1800 0.214

Caliper:	Reference:	Reading:
Small Ring:	6.0 in	100.0
Large Ring:	16.0 in	400.0
Gain:	18.000	
Offset:	0.185	

Compensated Neutron Calibration Report

Serial Number: 210
Tool Model: M&W

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: 105
Tool Model: M&W

Performed:	Fri Dec 3 15:10:46 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	24.0	cps
Calibrator Reading:	637.0	cps
Sensitivity:	0.5500	GAPI/cps



Company	Murfin Drilling Company, Inc.
Well	Hester #4-7
Field	Sarah Ann
County	Cheyenne
State	Kansas