



Compensated Neutron Gamma Ray Casing Collar Log

Company Noble Energy Inc.		Company Noble Energy Inc.	
Well Roth A31-730		Well Roth A31-730	
Field Wattenberg		Field Wattenberg	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API # : 05-123-51331	
SEC 30 TWP 6N RGE 64W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation 4698'		Elevation	
K.B. 4728'		D.F. ---	
G.L. 4698'		RBL	
Date		19-NOV-2021	
Run Number		One	
Depth Driller		17204 FT	
Depth Logger		7380 FT	
Bottom Logged Interval		7361 FT	
Top Log Interval		Surface	
Open Hole Size		8.5"	
Type Fluid		Water	
Density / Viscosity		8.34 lb/gal	
Max. Recorded Temp.		241 °F	
Estimated Cement Top		See Log	
Time Well Ready		ROA	
Time Logger on Bottom		12:10	
Equipment Number		HD-0324	
Location		Plateville, CO	
Recorded By		C. Sinerros	
Witnessed By		A. Dockins	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		5 1/2	
Intermediate #2		17	
Liner		P110	
Wgt (lbs/ft)		Grade	
36		J 55	
Top		Bottom	
30 FT		1944.3 FT	
30 FT		17193 FT	

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Log ran as per customer request
Depth referenced to Casing Tally reported Marker Joint at 6210.7 FT to 6230.6 FT
Adjusted -22 FT to correlate with Marker Joint
Log ran with 2500 PSI Surface Induced Pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	3.60

TEMP	19.20		1.33	3.25	10.00
WVFS8	16.96		9.39	2.75	105.00
WVFS7	16.96				
WVFS6	16.96				
WVFS5	16.96				
WVFS4	16.96				
WVFS3	16.96				
WVFS2	16.96				
WVFS1	16.96				
WVFCAL	16.96				
WVF3FT	16.96				
WVF5FT	15.96				
CCL\$2	11.83				
CCL\$1	11.83				
GR	10.50		1.33	3.25	10.00
			4.80	2.75	55.00
CNLSC	4.53		5.03	2.75	60.00
CNSSC	4.12				
LOCTIM	0.00		2.88	2.75	20.00
UTCTIM	0.00				
Dataset: noble_roth a31-730_rbl_cnl_11-19-21.db: field/well/run1/main.1 Total length: 23.14 ft Total weight: 263.60 lb O.D.: 3.25 in					

Calibration Report

Database File noble_roth a31-730_rbl_cnl_11-19-21.db
 Dataset Pathname main.1

Compensated Neutron Calibration Report

Serial Number: FW1308-020_A1483
Tool Model: 2750 BL

CALIBRATION

Mon Oct 19 14:19:51 2020

Detector	Readings	Target	Normalization
Short Space	3241.60 cps	0.00 cps	1.0000
Long Space	452.04 cps	0.00 cps	1.0000
Ratio	Measured 7.1710	Reference 6.7797	
CNRAT Gain	0.9454		

Gamma Ray Calibration Report

Serial Number: FW1810-001
Tool Model: 2750 6PB
Performed: Mon Oct 19 14:19:51 2020

Calibrator Value:	637.0	GAPI
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Background Reading:	100.1	cps
Calibrator Reading:	1264.5	cps

Sensitivity: 0.5471 GAP/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1305-096
Tool Model: 2750 RBT

Calibration Casing Diameter:	5.500	in
Calibration Depth:	248.626	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.505	0.800	71.921	140.809	0.794
CAL	0.676	0.678				
5'	0.000	0.477	0.800	71.921	149.077	0.797
SUM						
S1	0.000	0.494	0.000	100.000	202.262	-0.007
S2	0.000	0.494	0.000	100.000	202.284	-0.007
S3	0.000	0.491	0.000	100.000	203.833	-0.009
S4	0.000	0.513	0.000	100.000	194.792	-0.011
S5	0.000	0.538	0.000	100.000	185.990	-0.009
S6	0.000	0.559	0.000	100.000	178.945	-0.008
S7	0.000	0.529	0.000	100.000	189.079	-0.008
S8	0.000	0.504	0.000	100.000	198.523	-0.002

Air Zero Calibration, performed Thu Nov 18 08:59:52 2021:

Raw (v)	Calibrated (v)	Results
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	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

Temperature Calibration Report

Serial Number: FW1305-096
 Tool Model: 2750 RBT
 Performed: Mon Oct 19 14:19:51 2020

	Reference	Reading
Low Reference:	100.00 degF	109.43 degF
High Reference:	350.00 degF	405.87 degF
Gain:	0.84	
Offset:	7.72	
Delta Spacing	1	

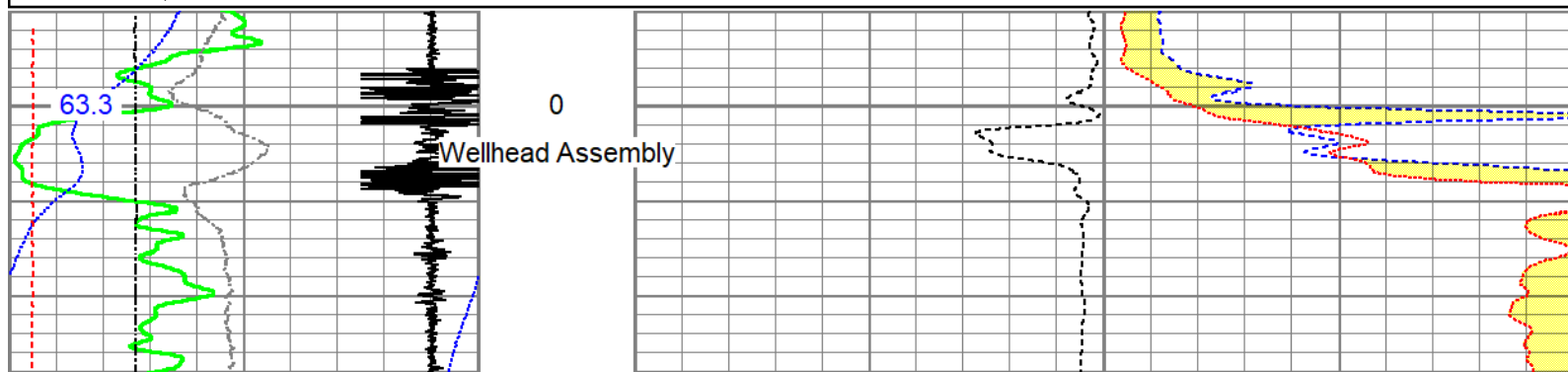


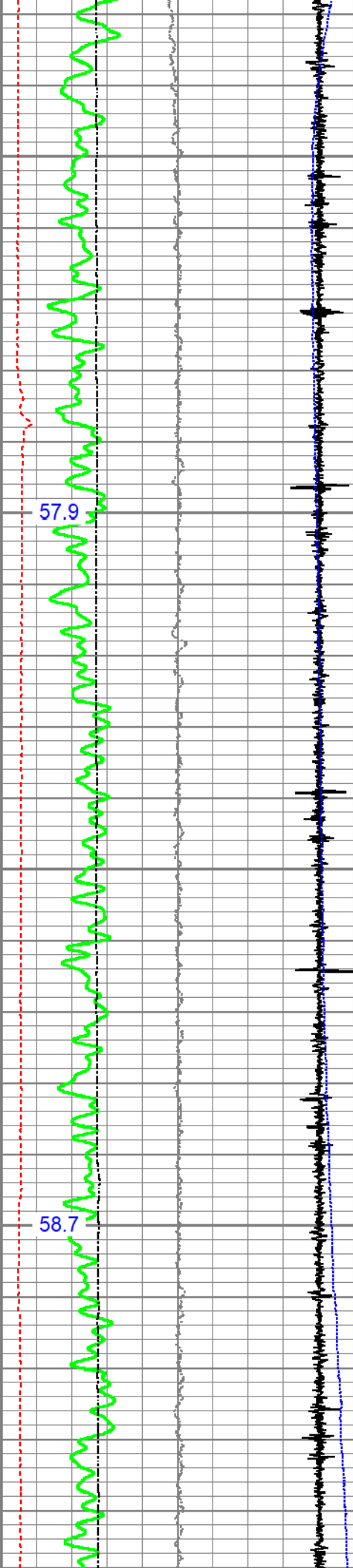
Main Pass

Recorded With 2500 Surface Induced Pressure

Database File: noble_roth a31-730_rbl_cnl_11-19-21.db
 Dataset Pathname: main.1
 Presentation Format: edge_cnl_prb
 Dataset Creation: Fri Nov 19 15:03:42 2021
 Charted by: Depth in Feet scaled 1:240

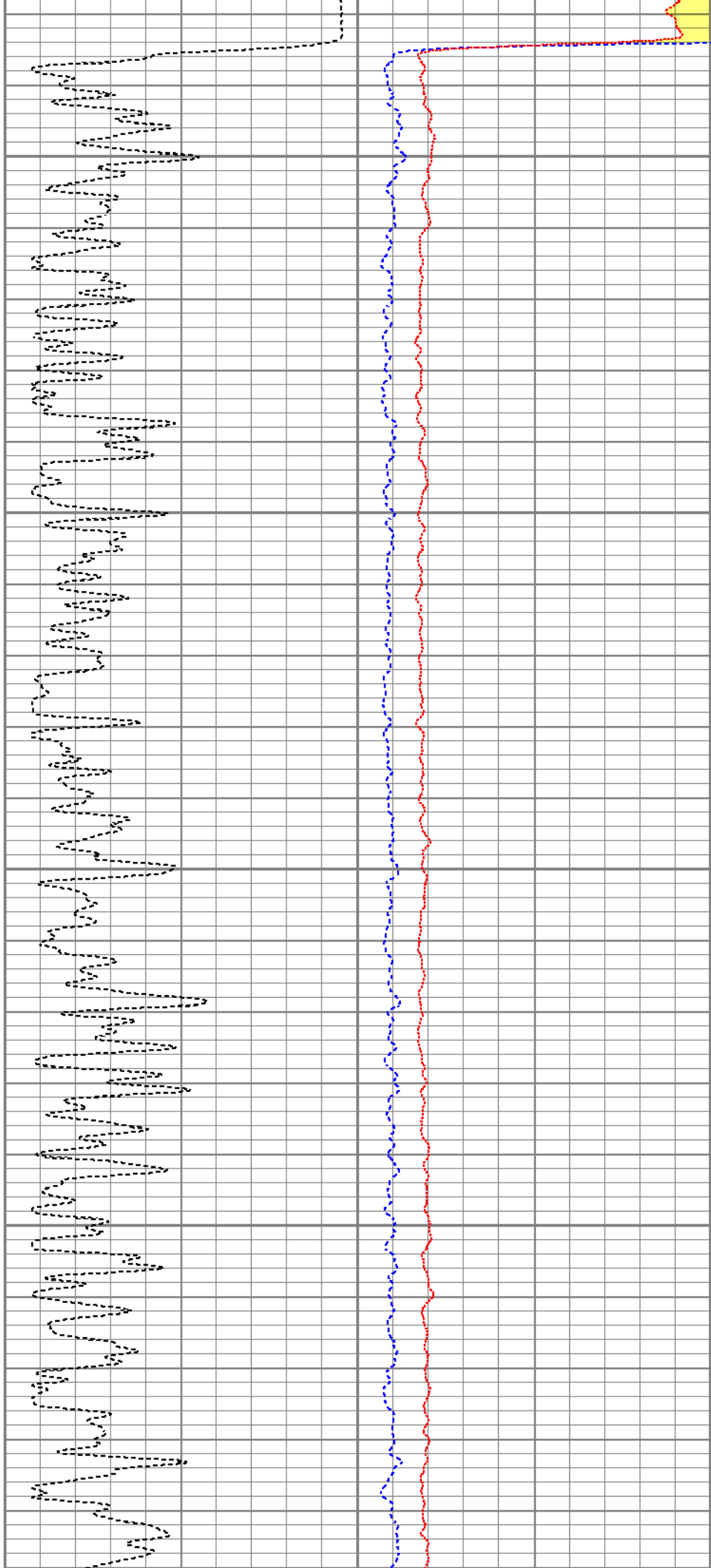
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
9	Casing Collar Locator	-1				0	Near Neutron (cps)	5000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						
Temperature (degF)								

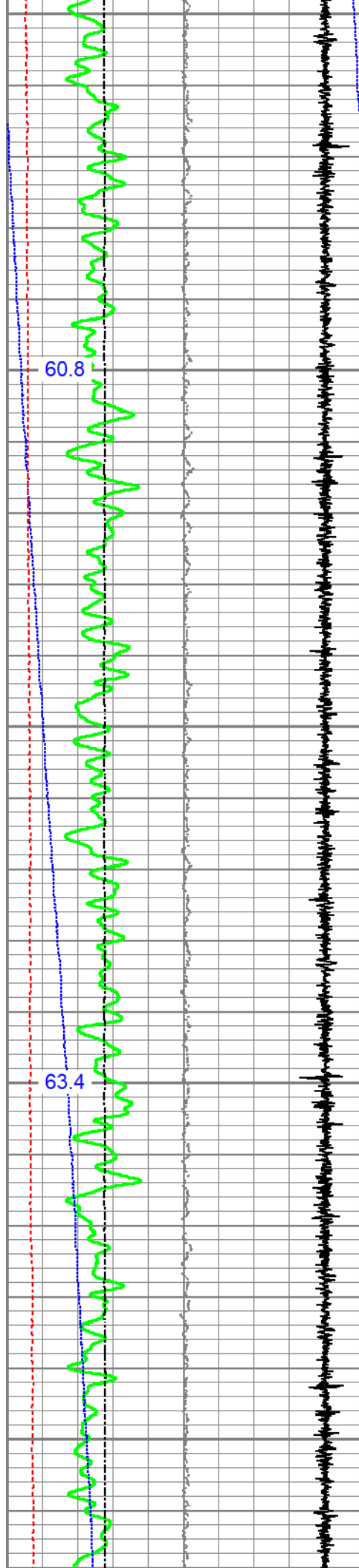




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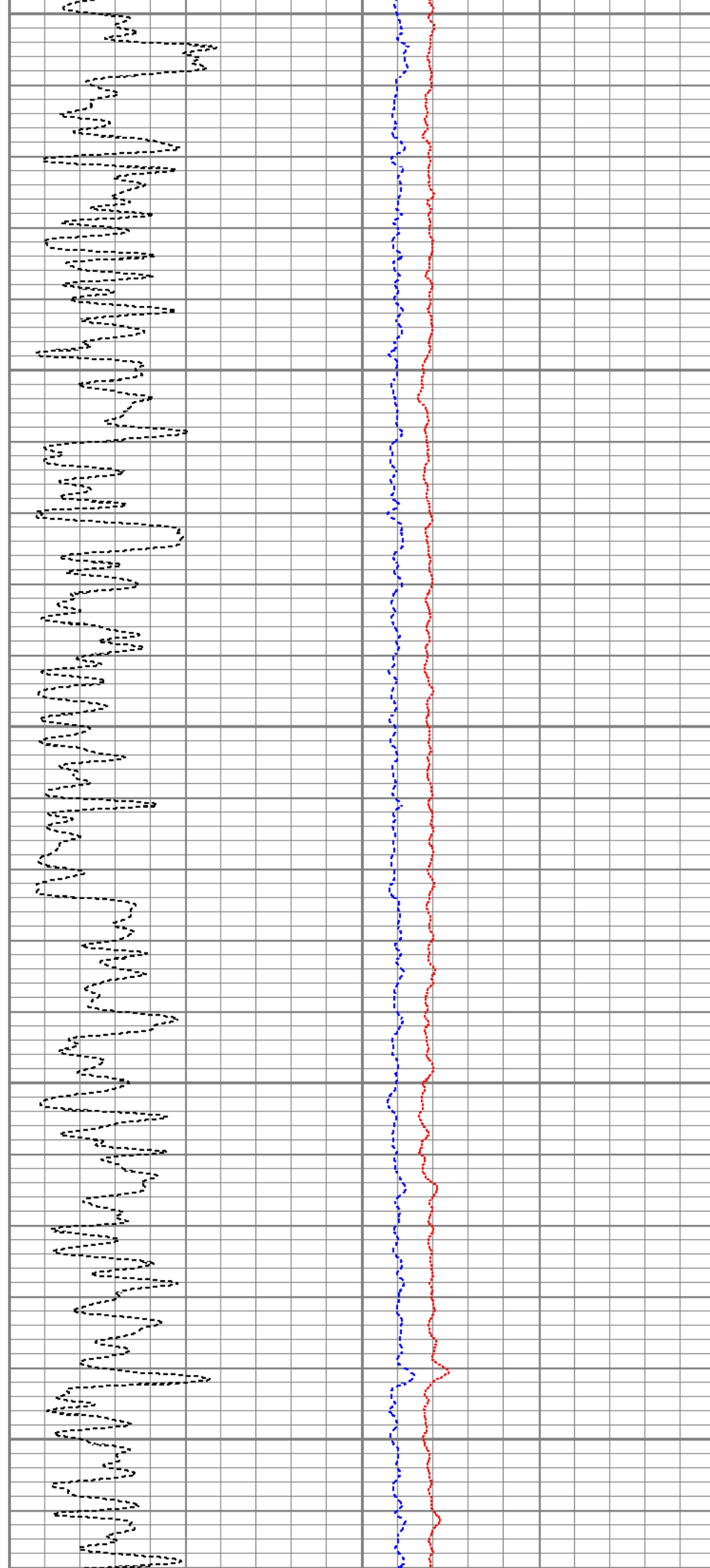
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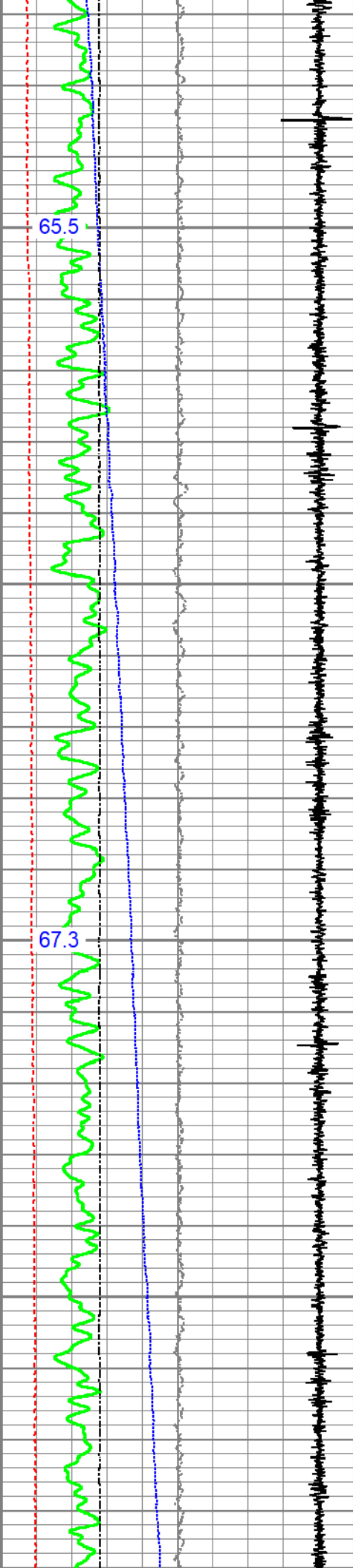




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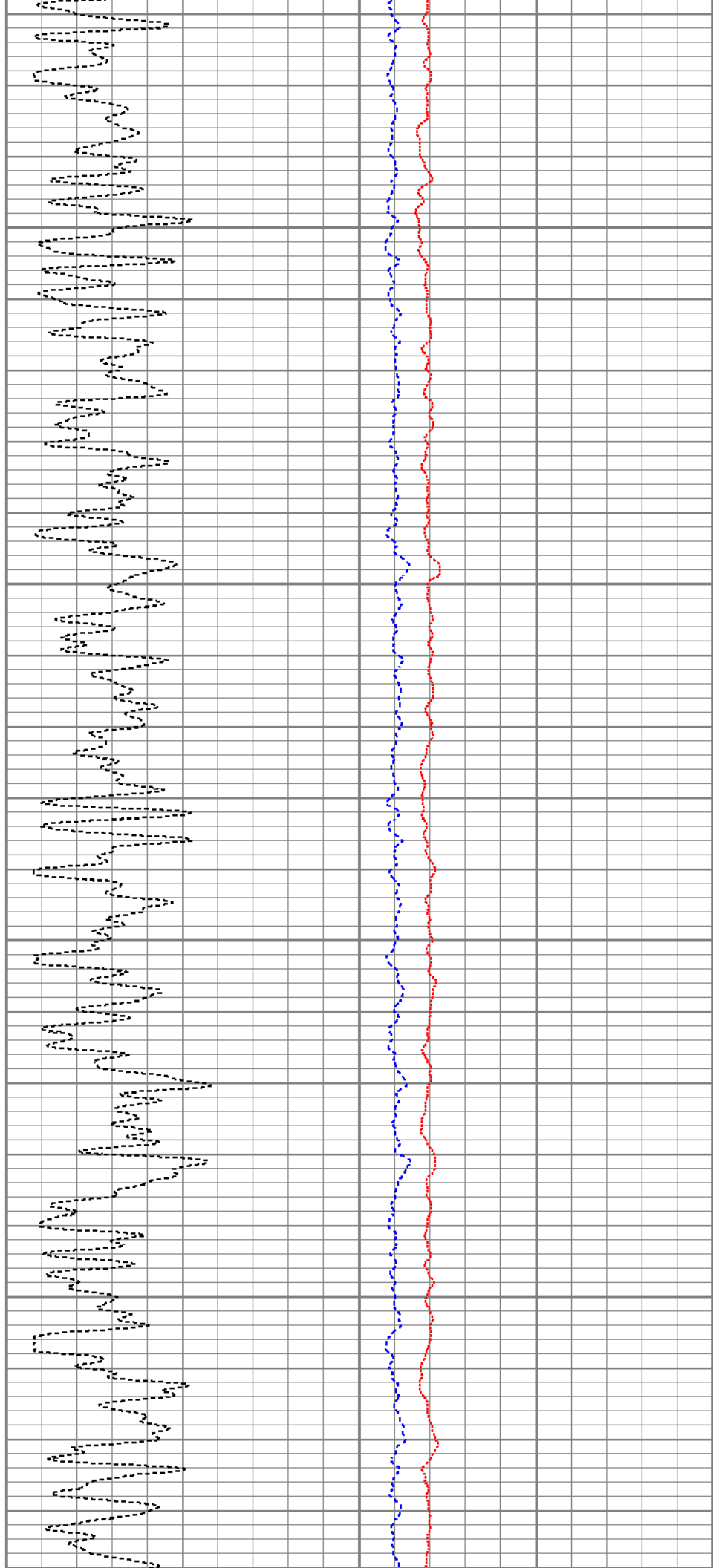
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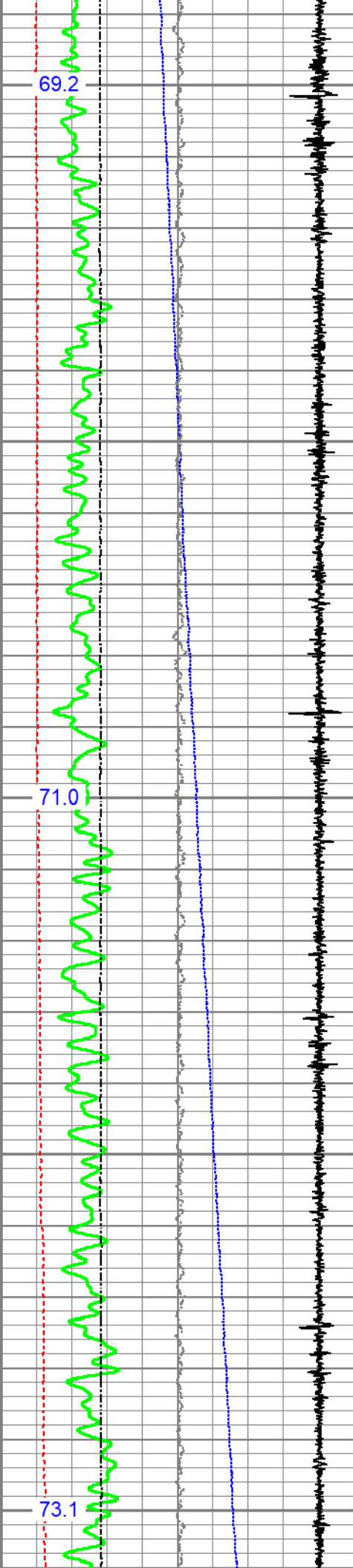




500

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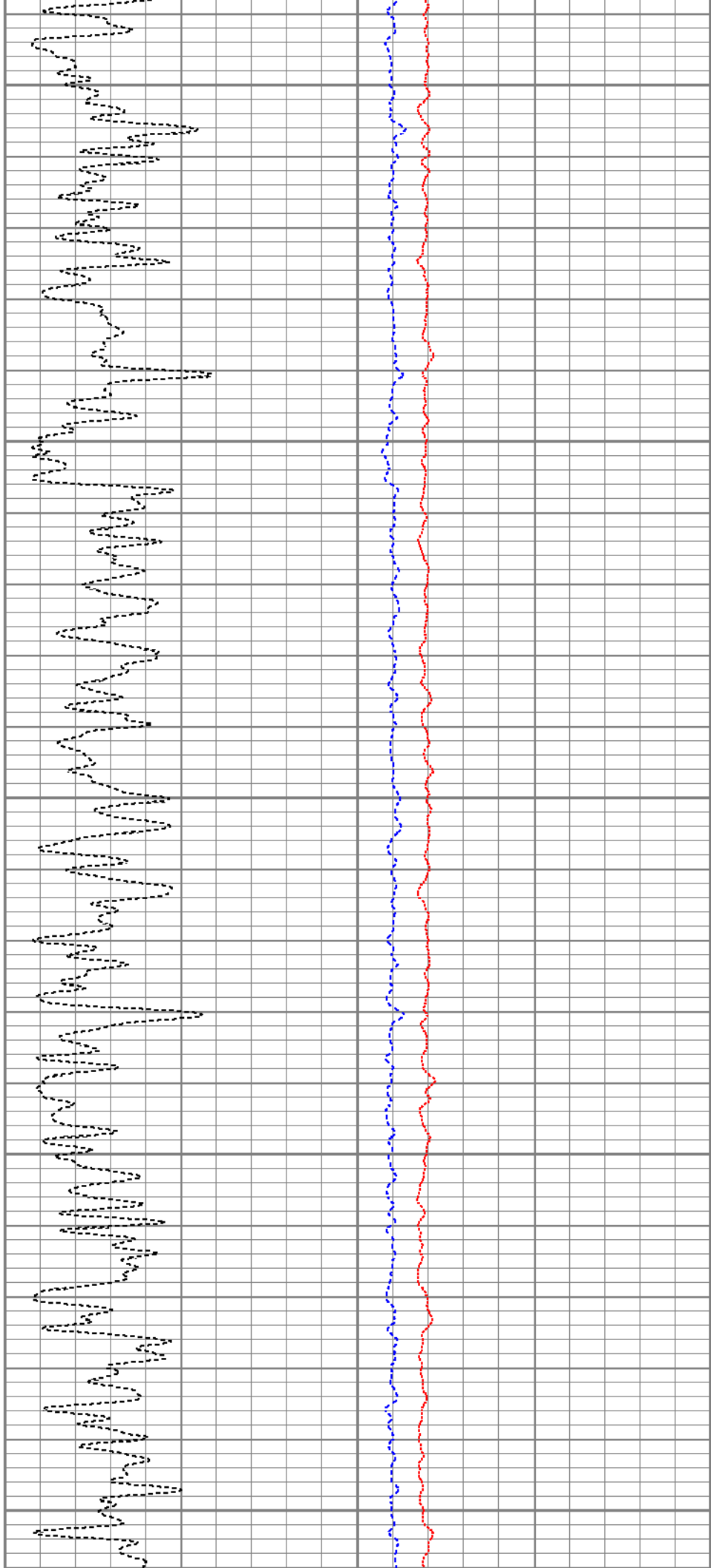


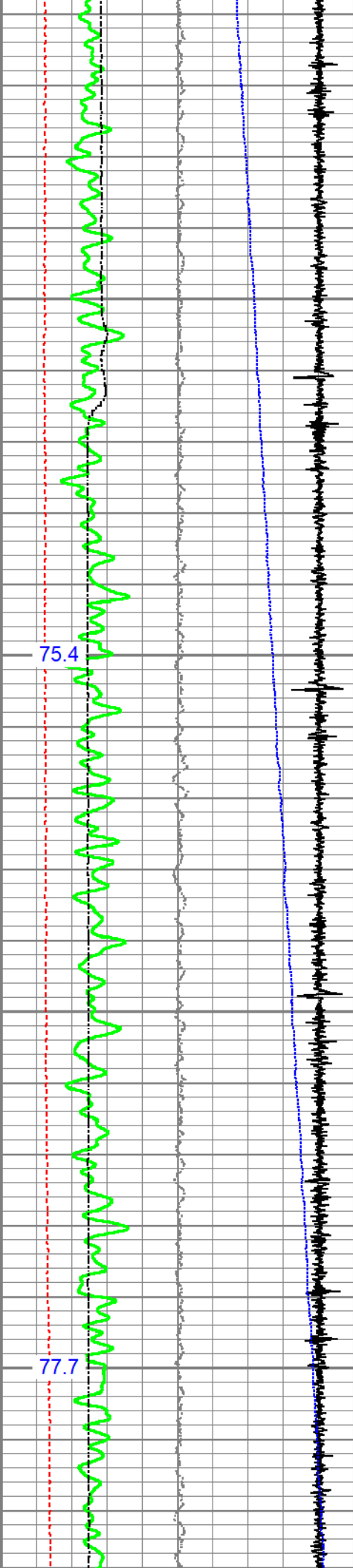


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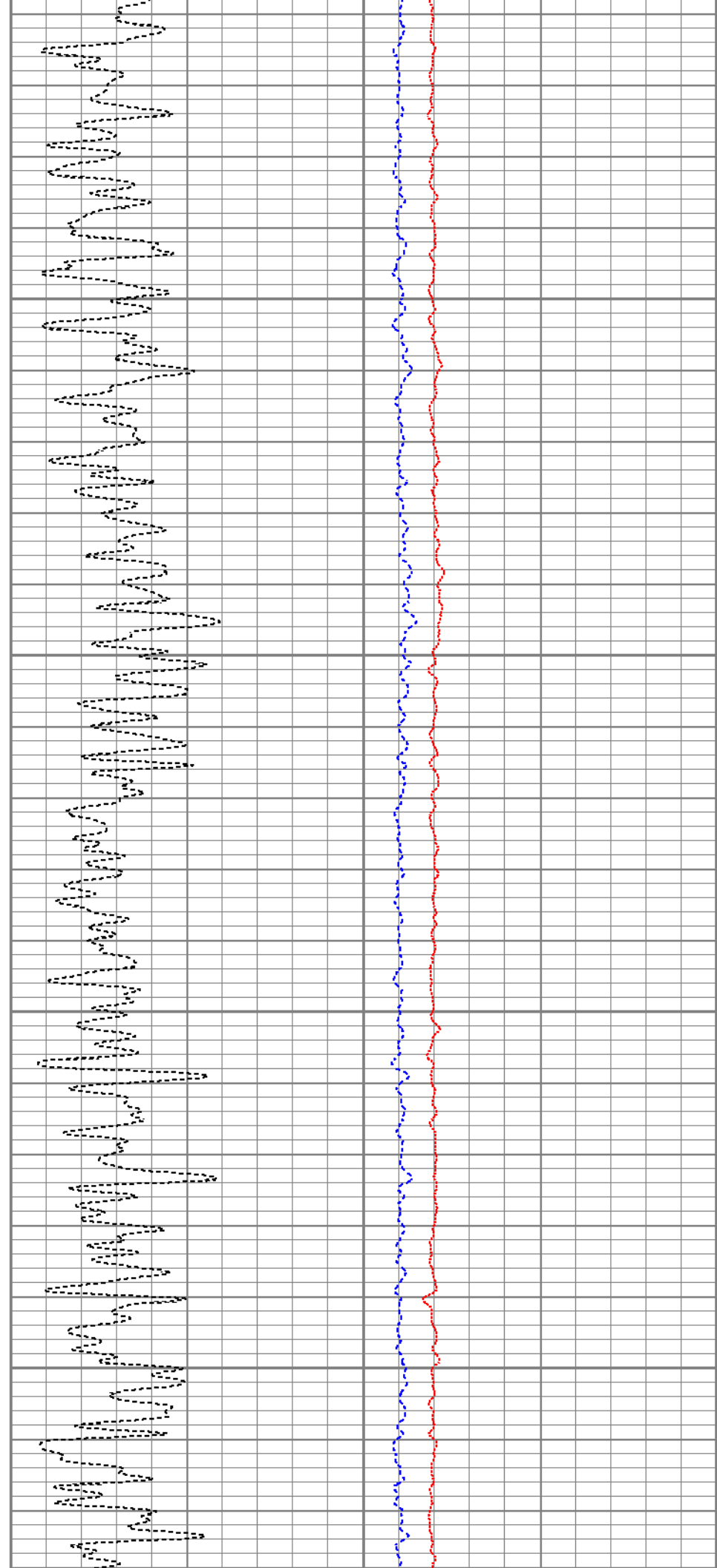
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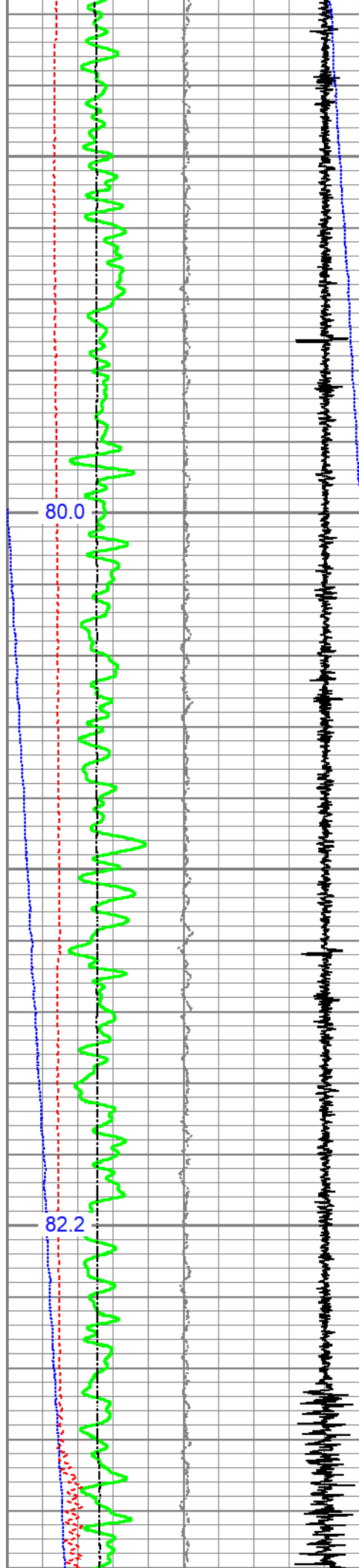




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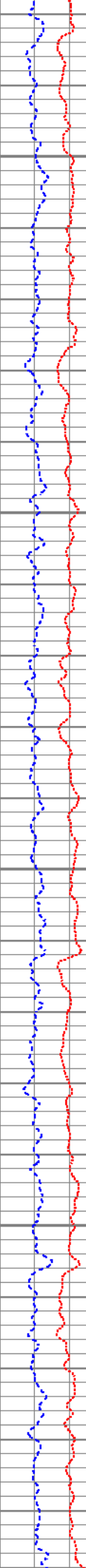
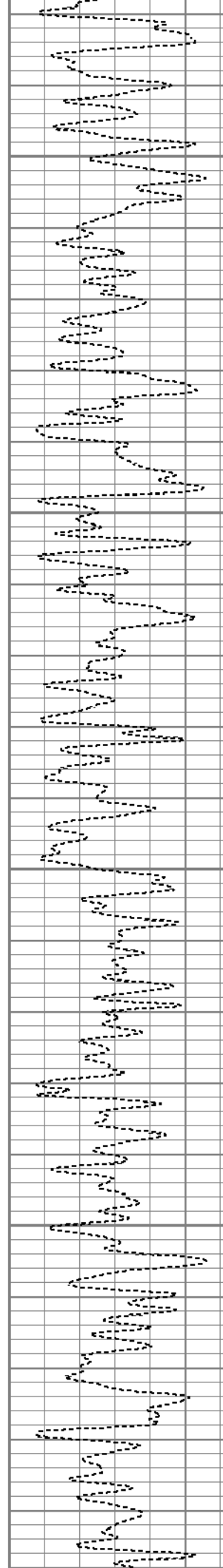
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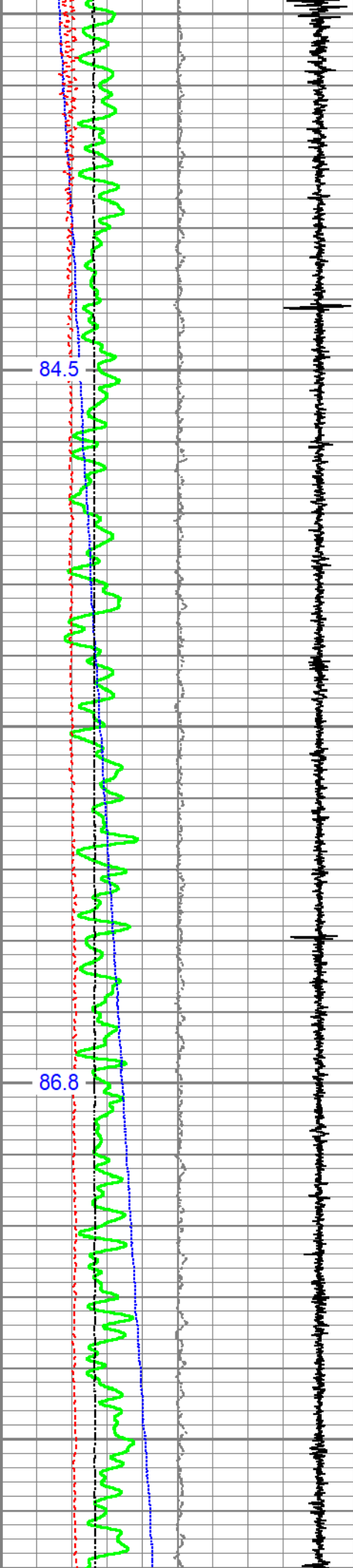




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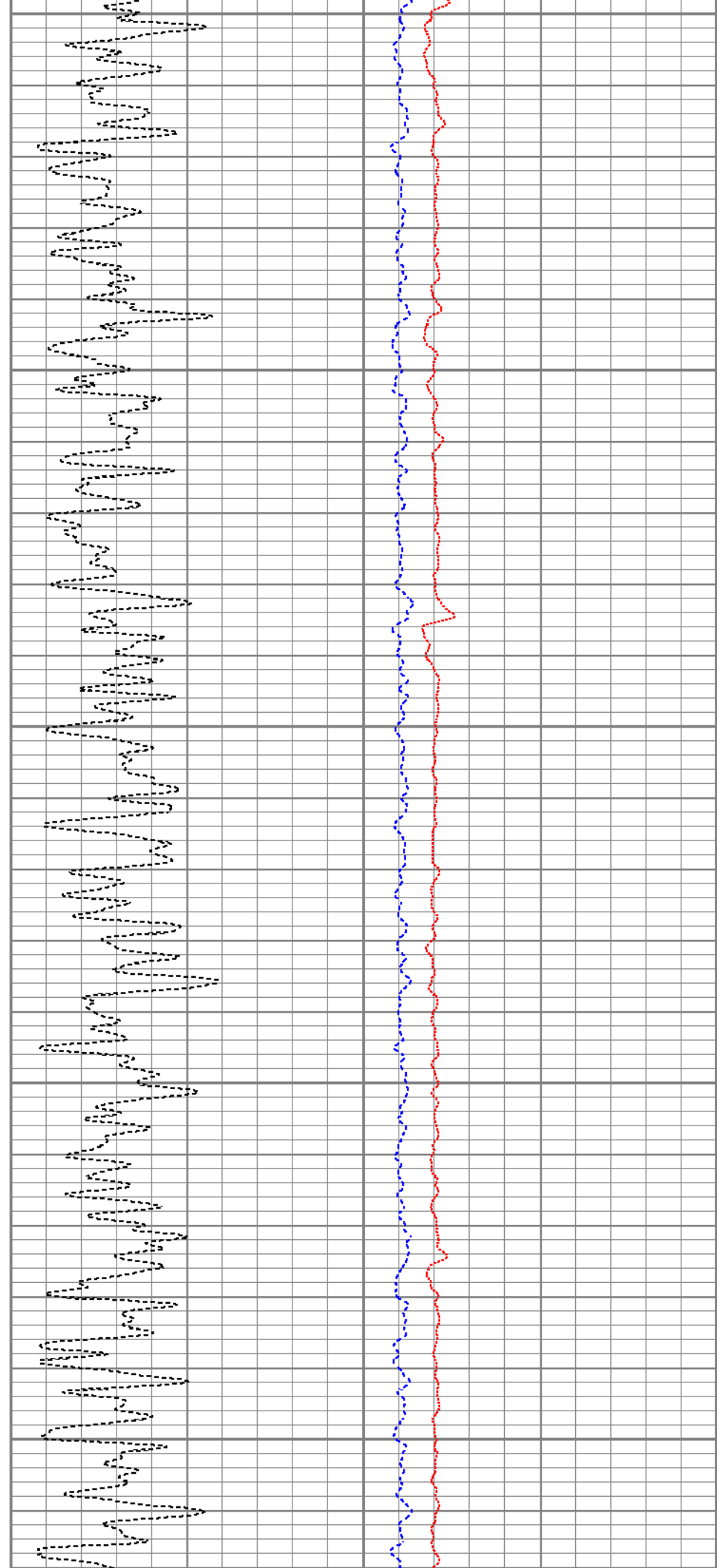
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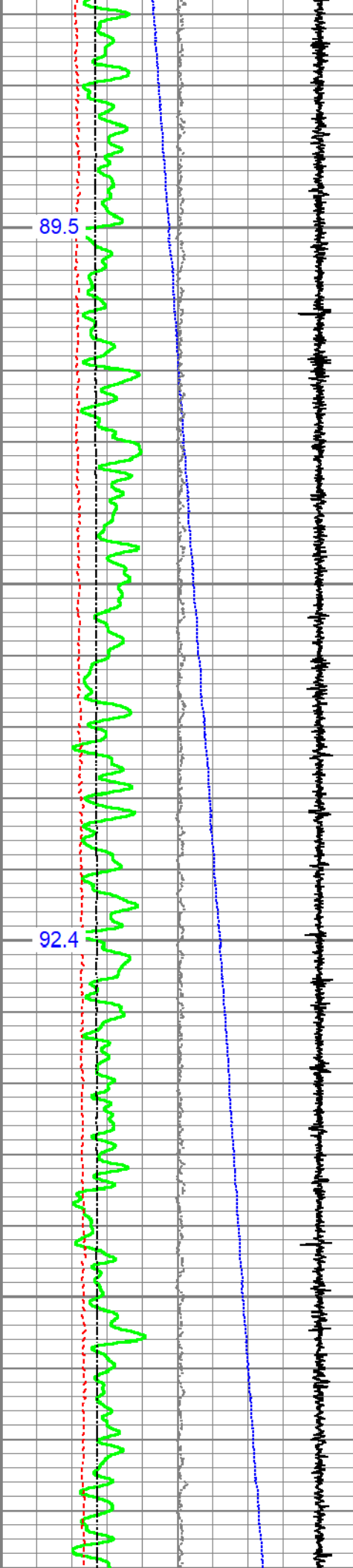




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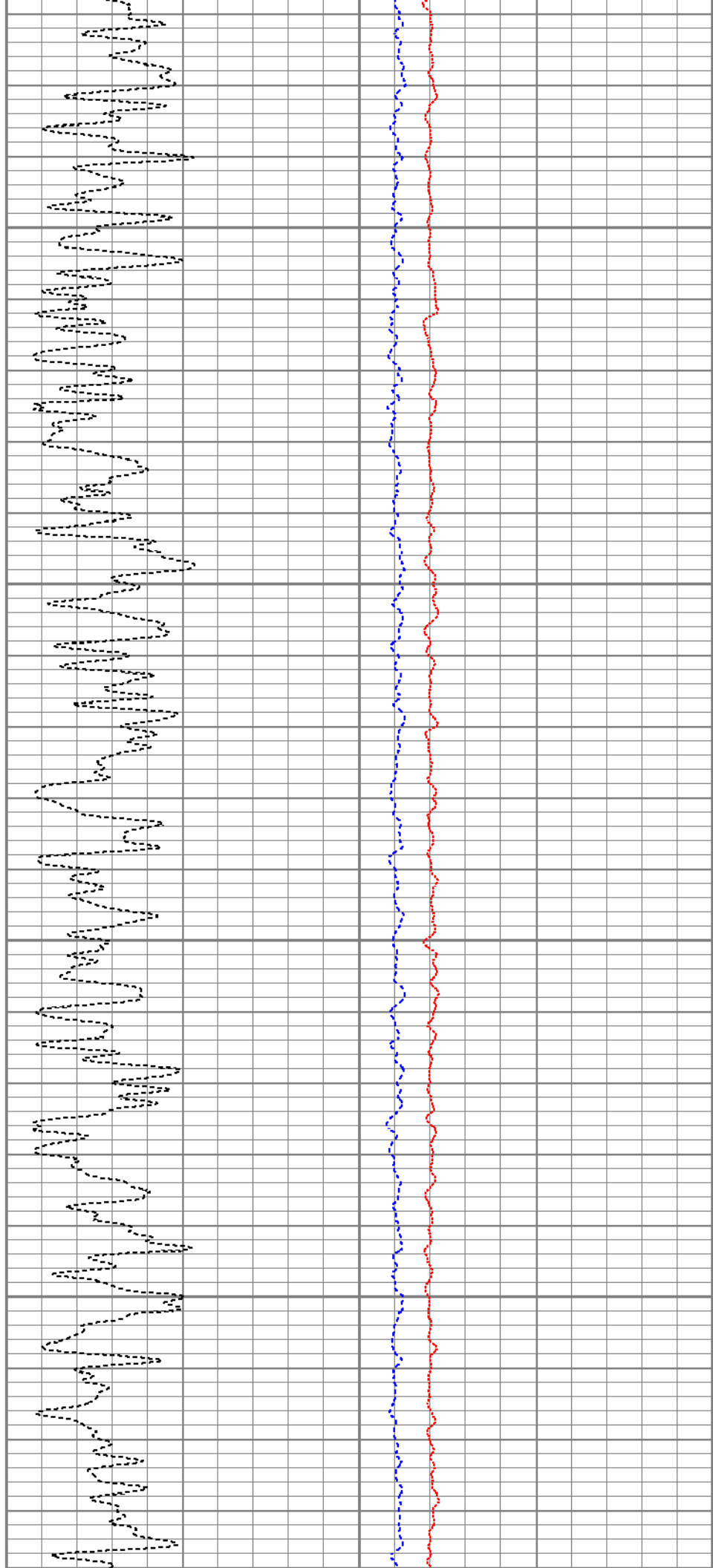
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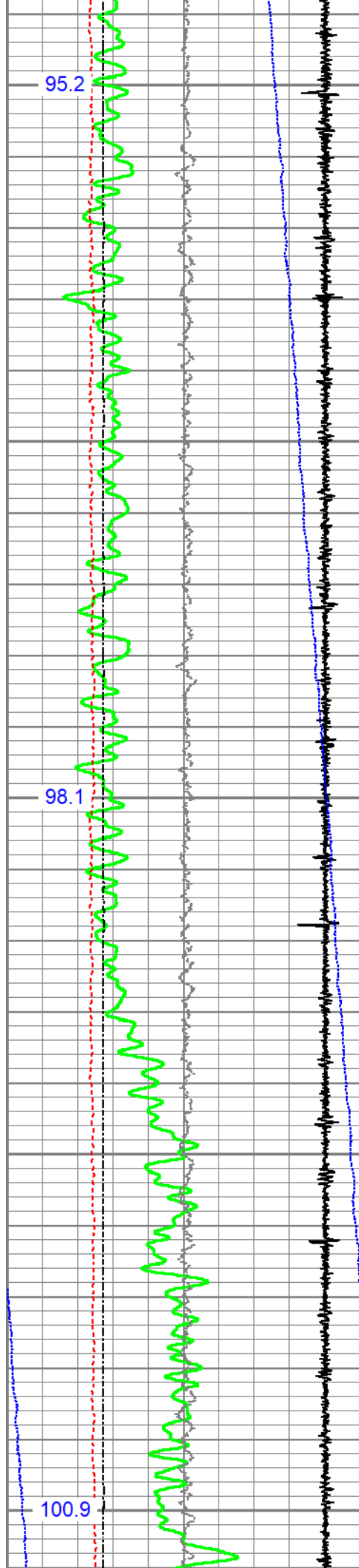




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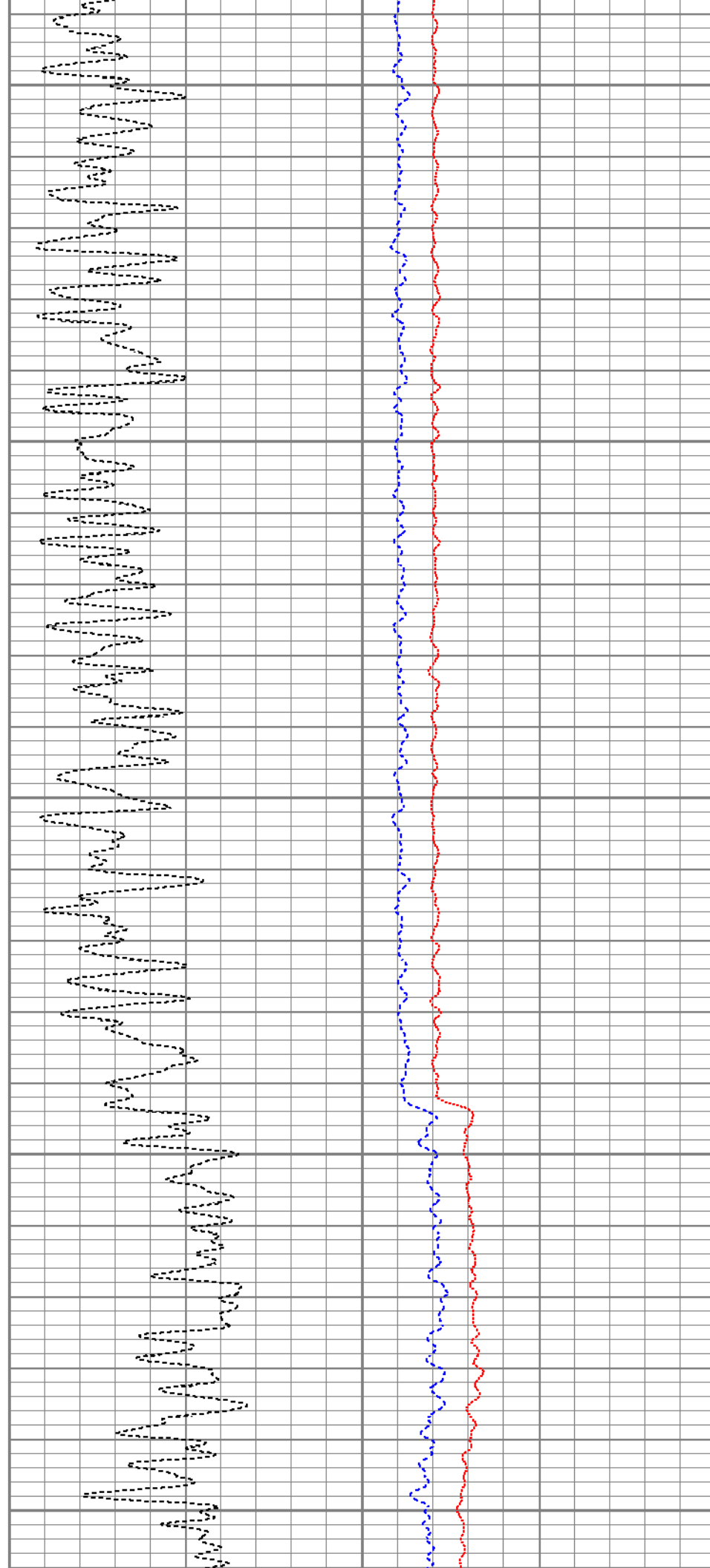


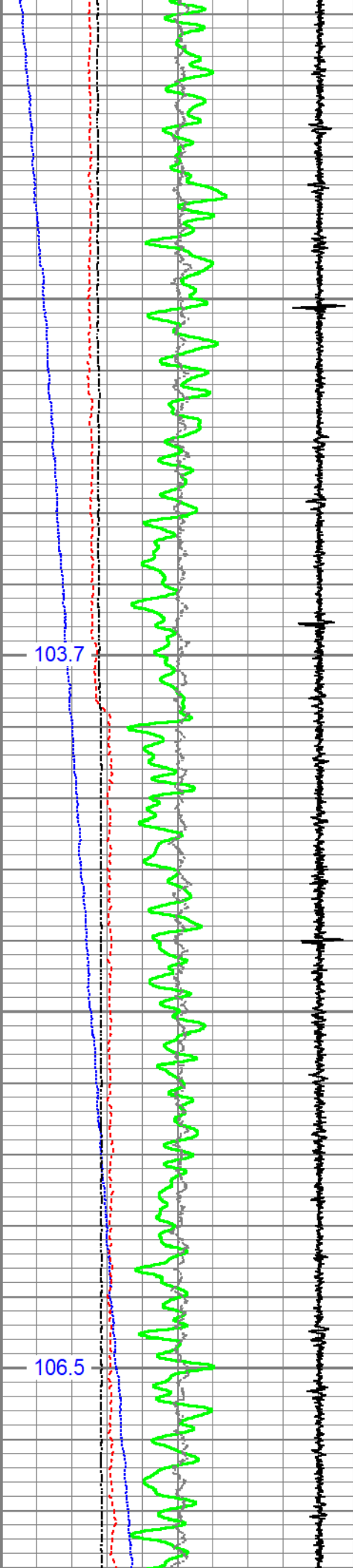


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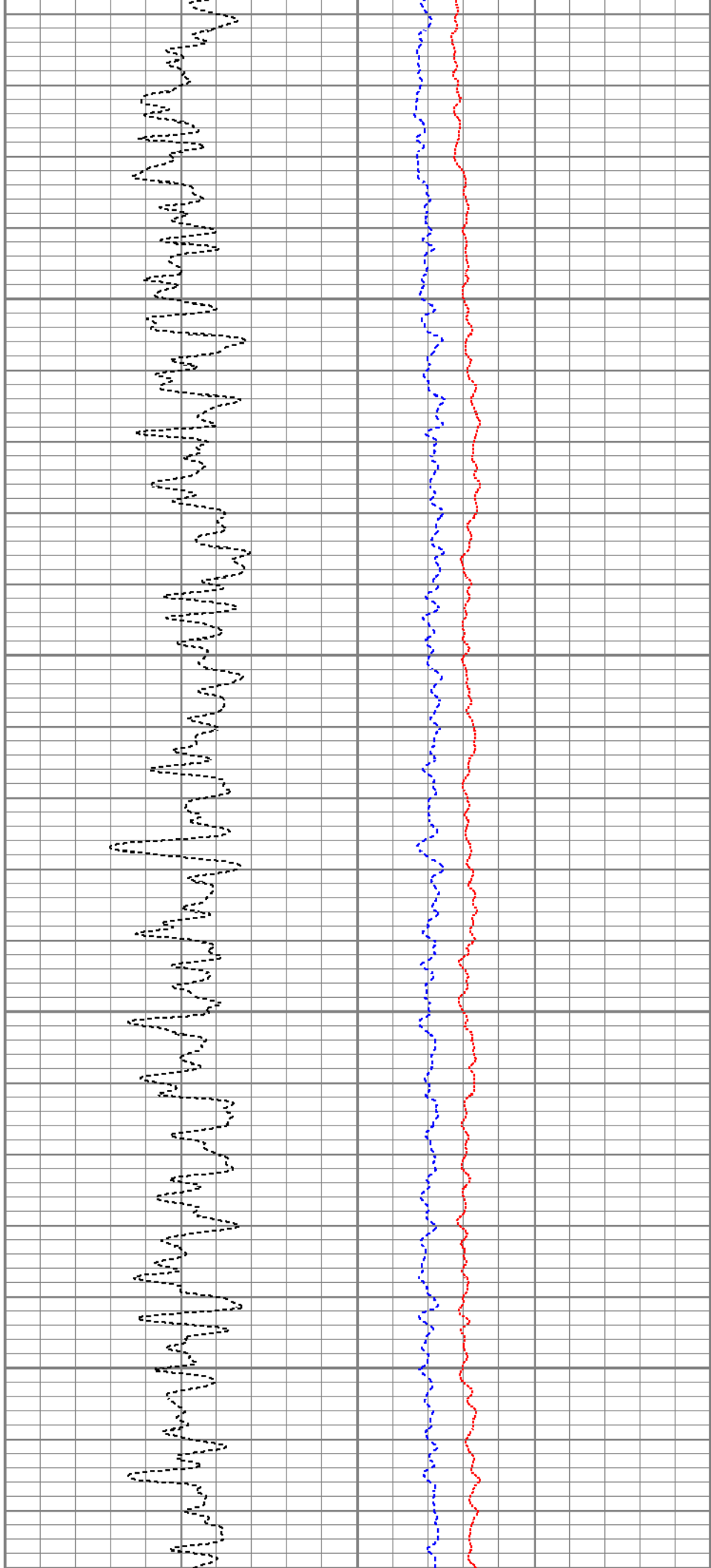
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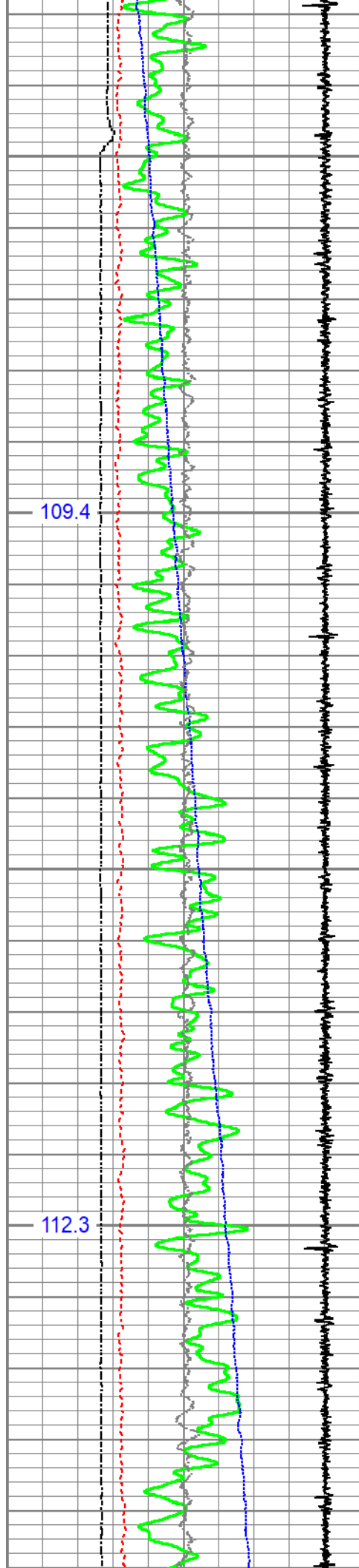




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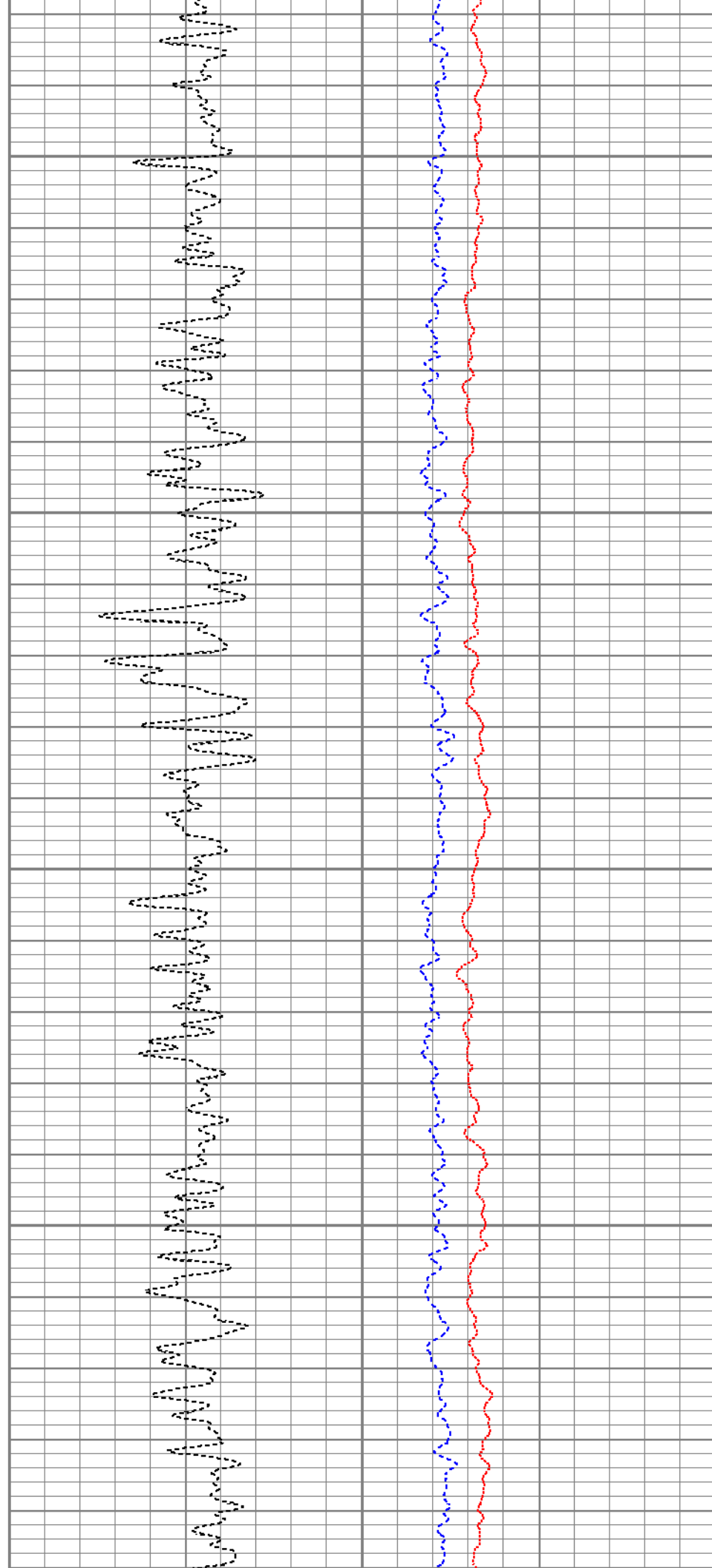
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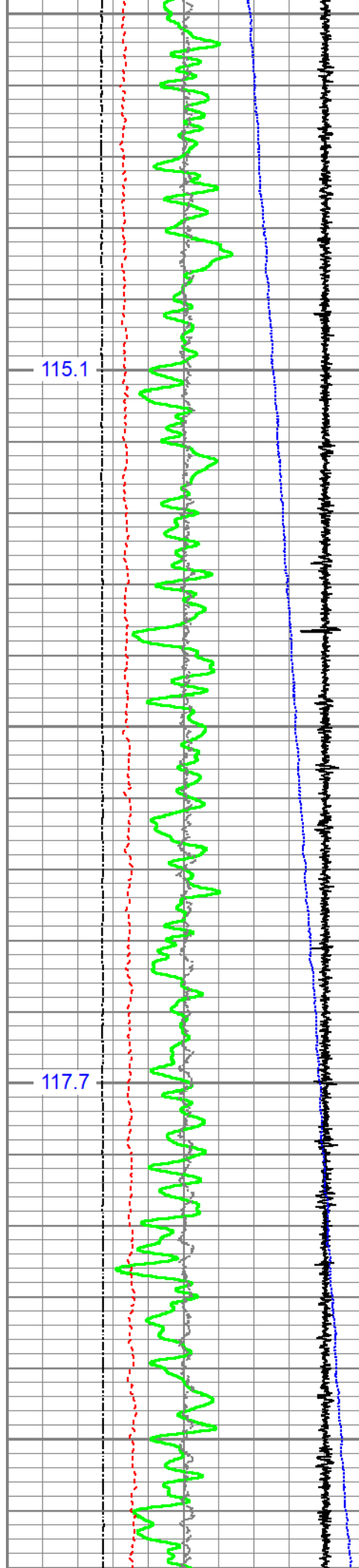




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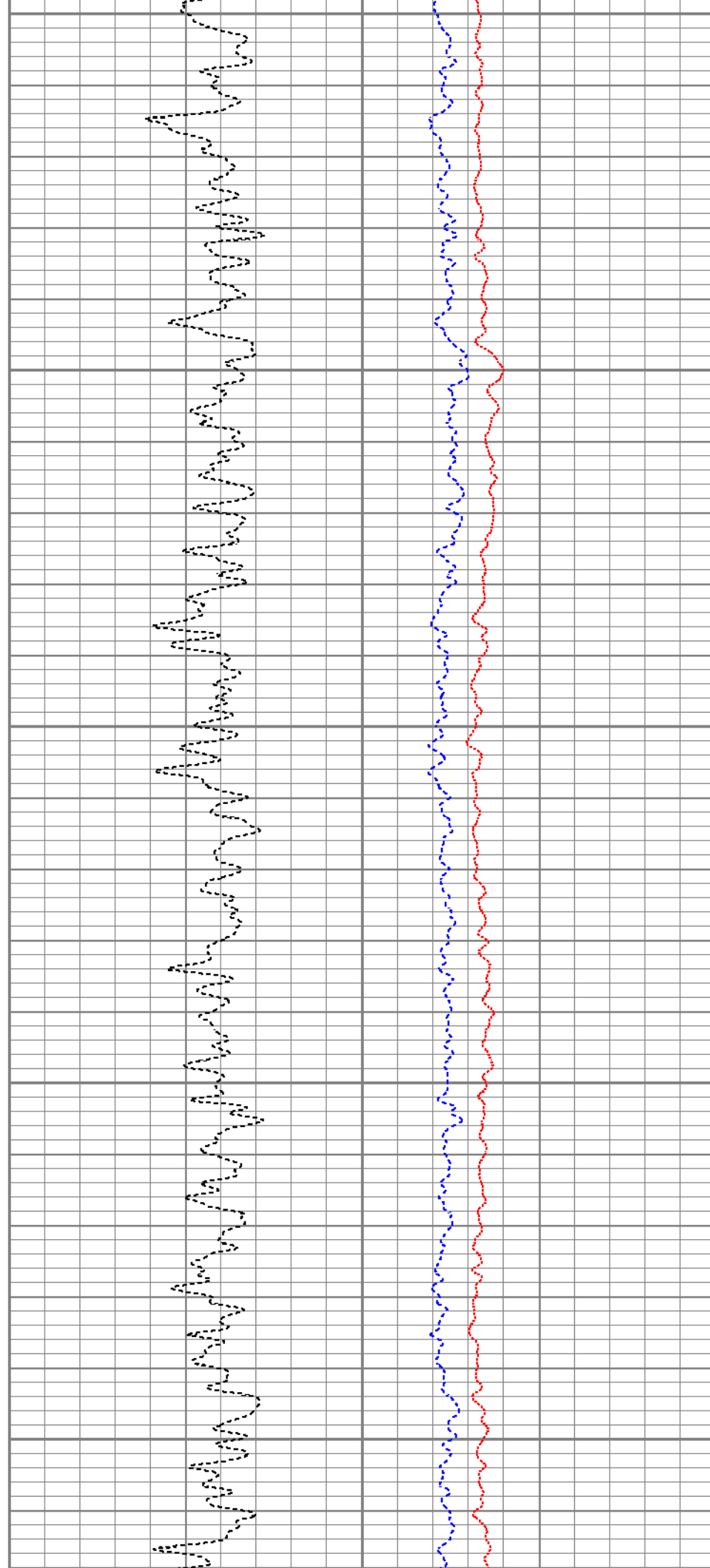
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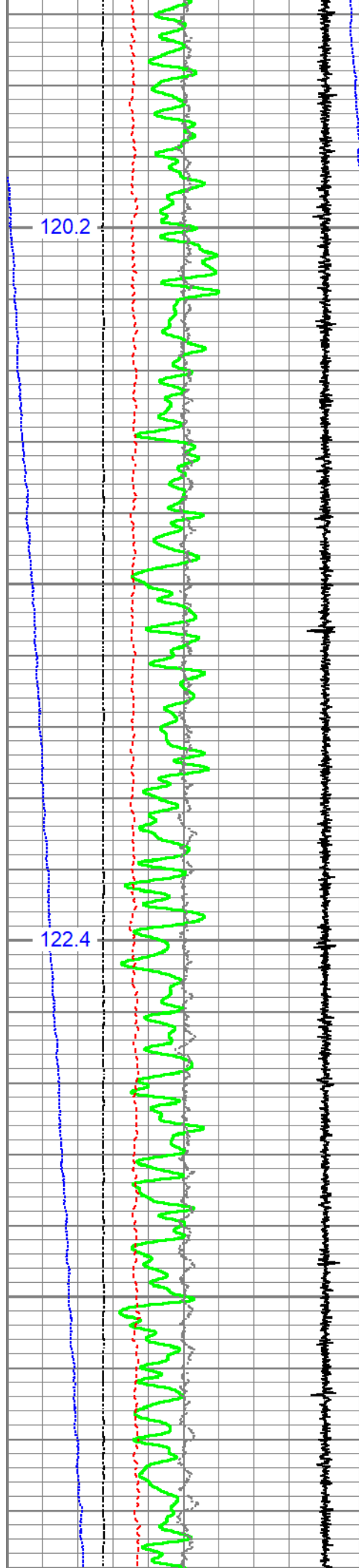




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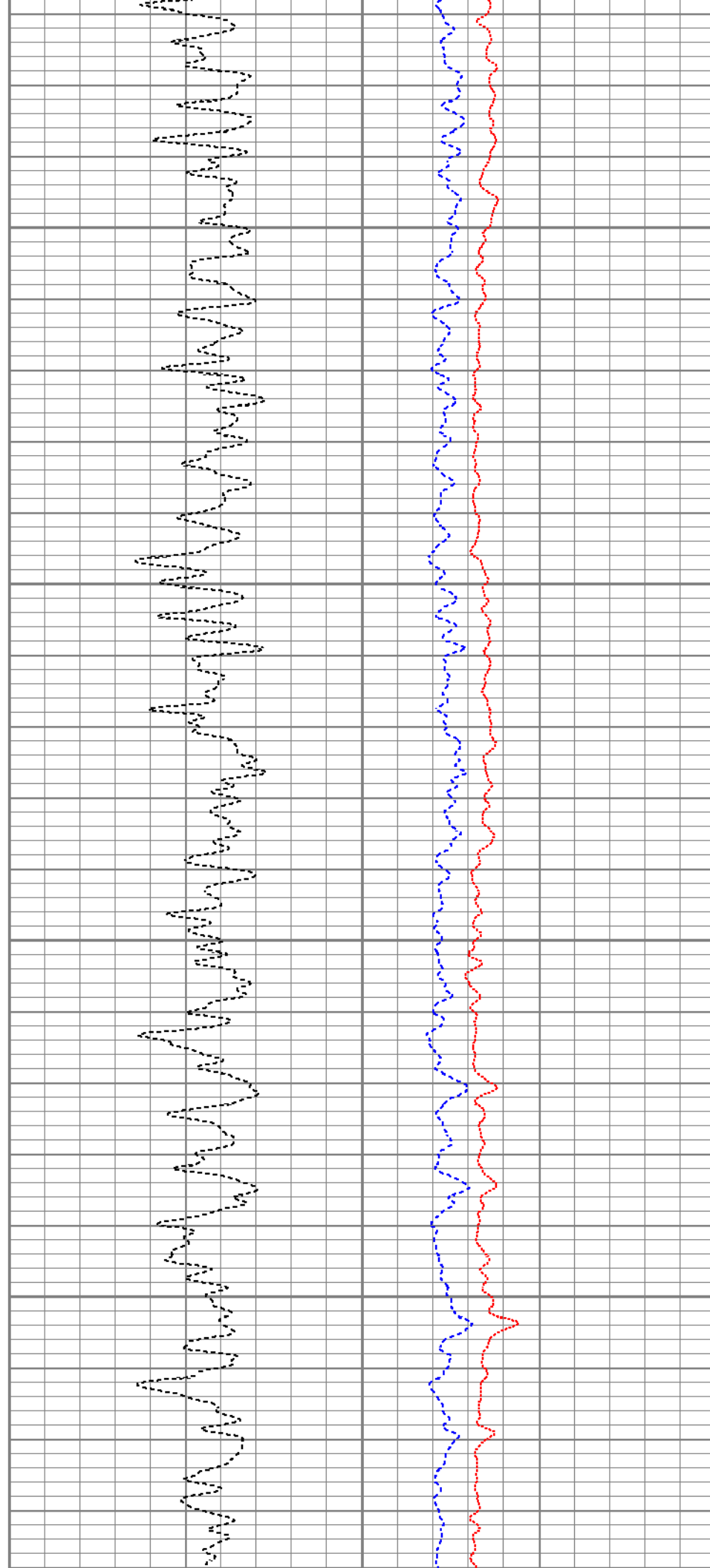
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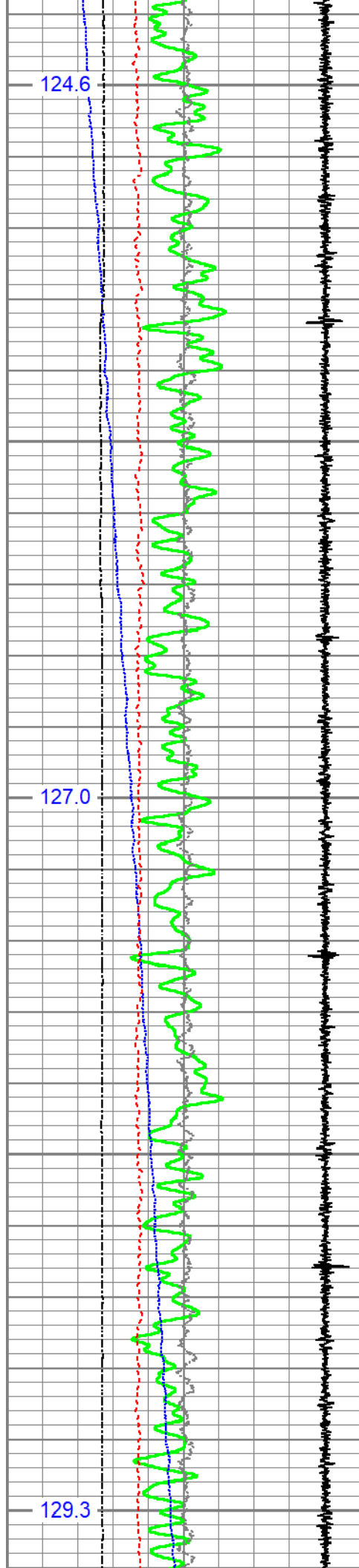




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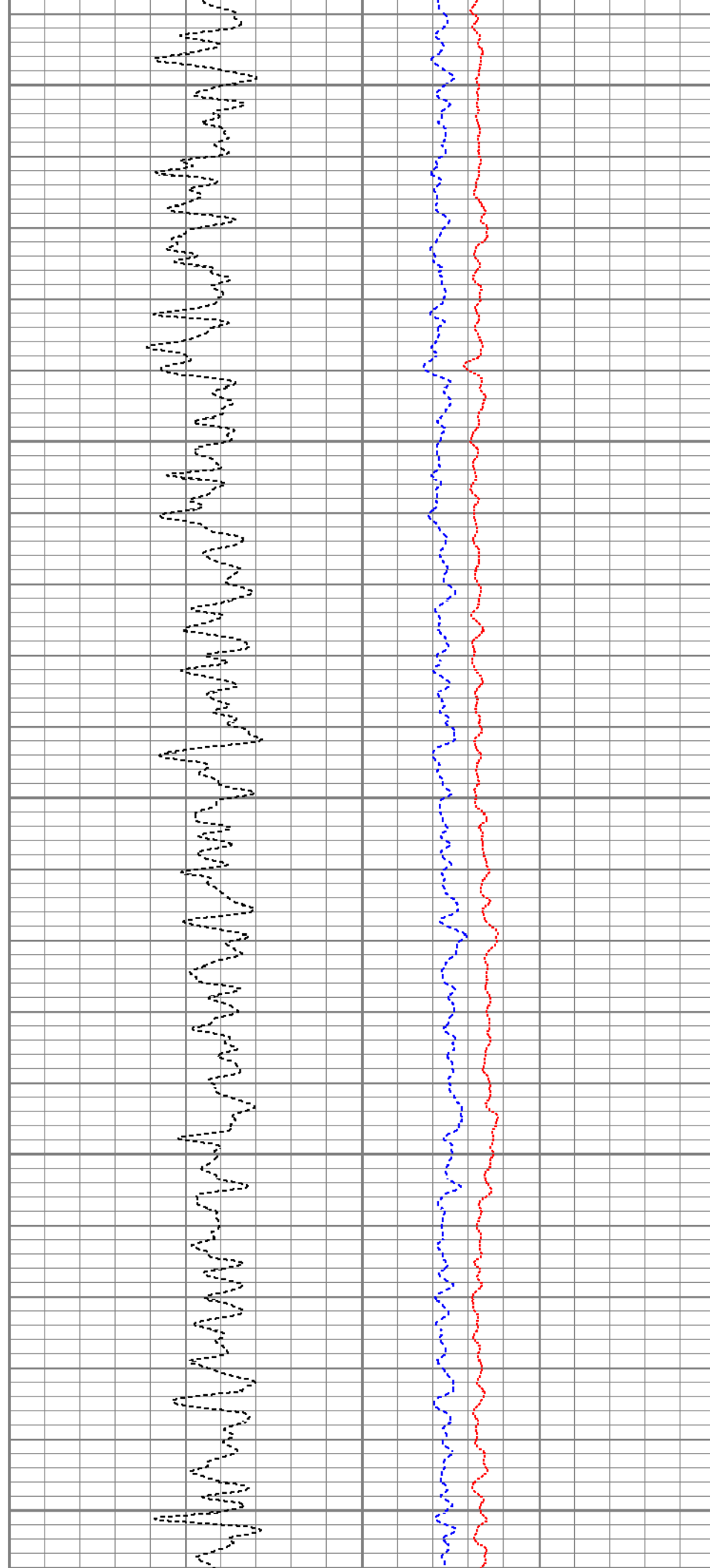


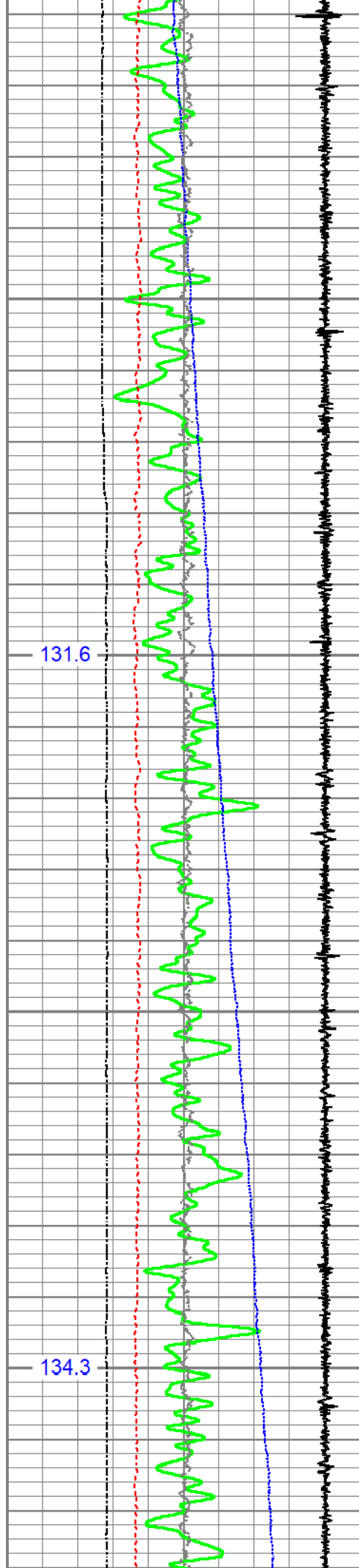


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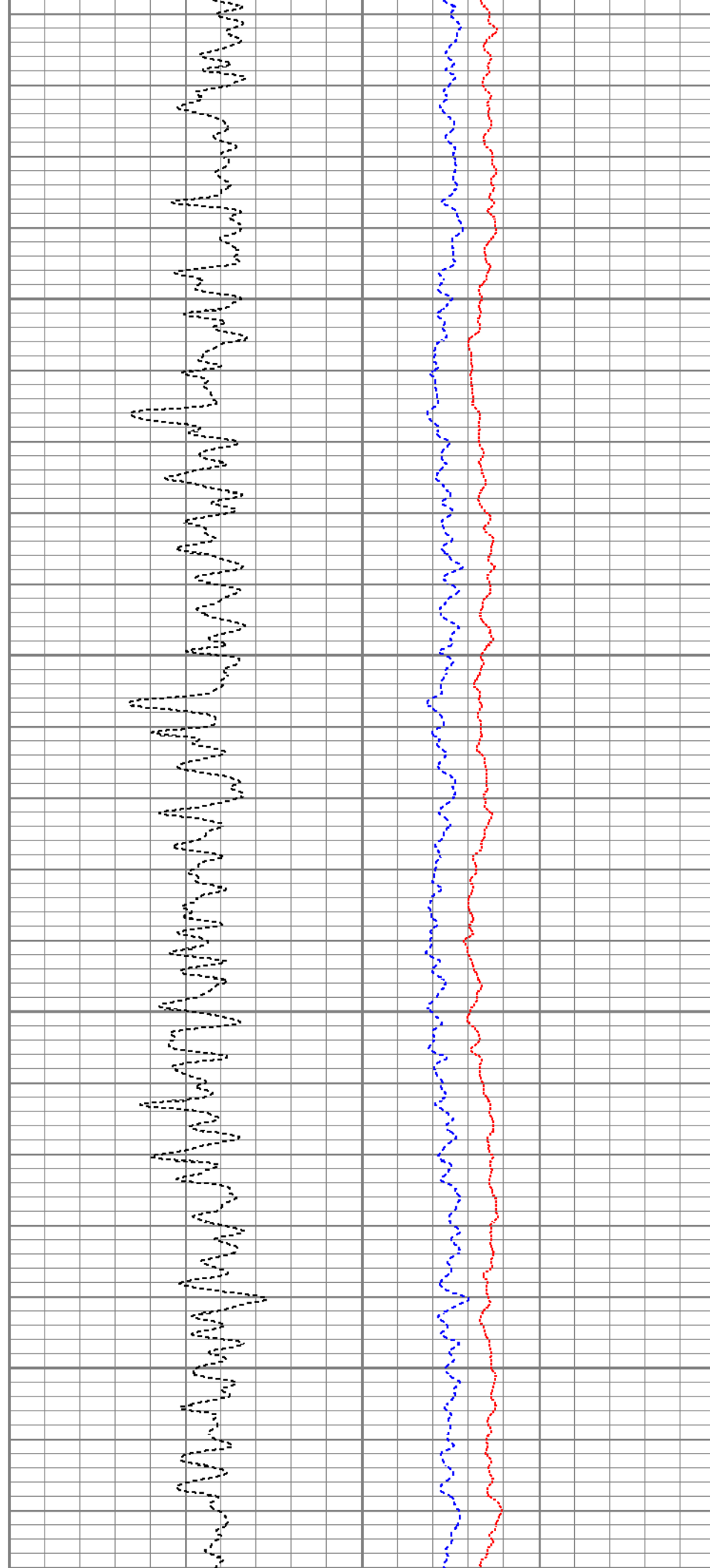
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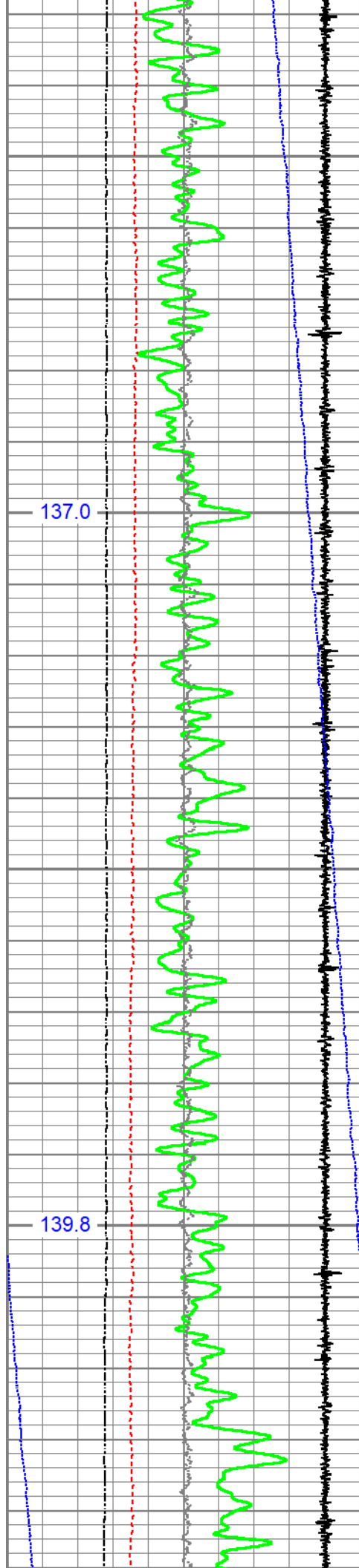




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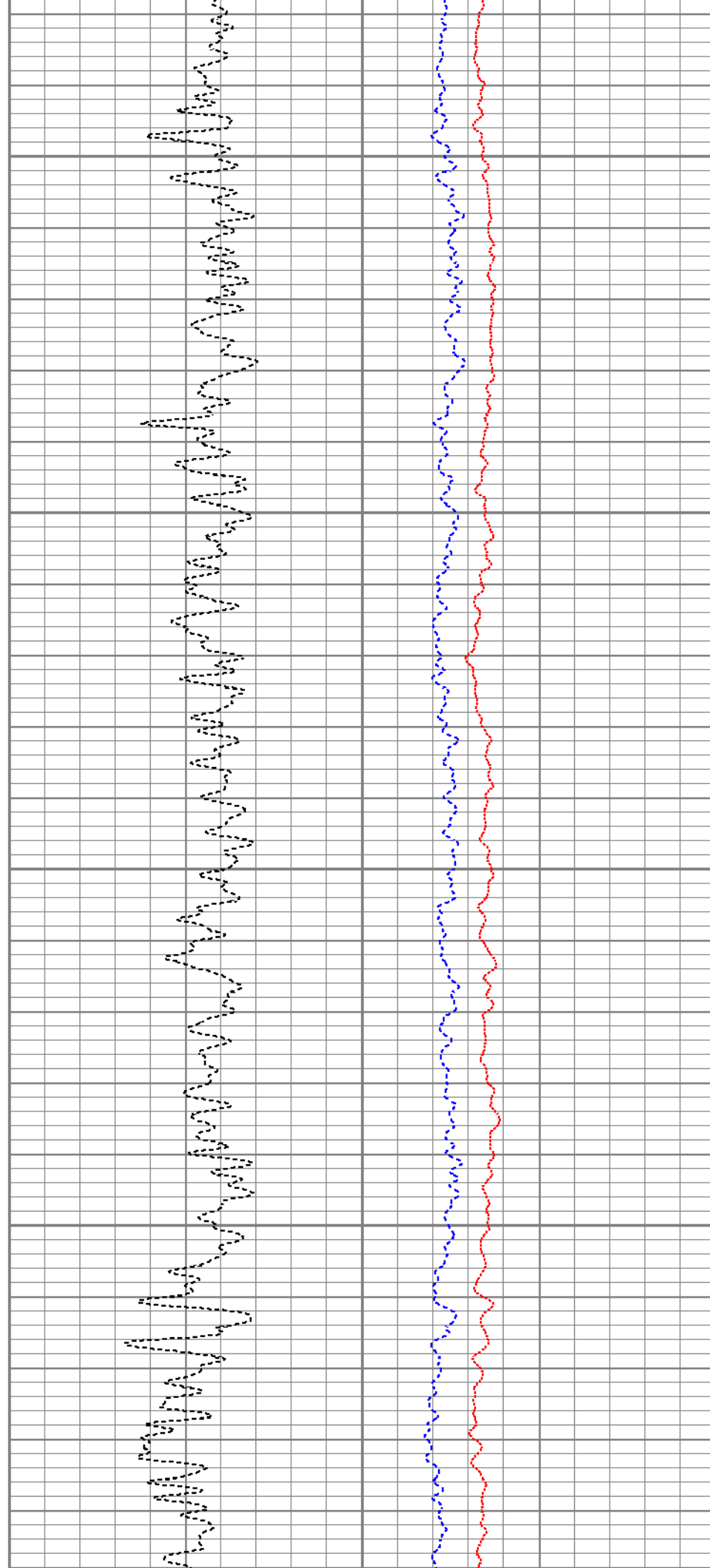
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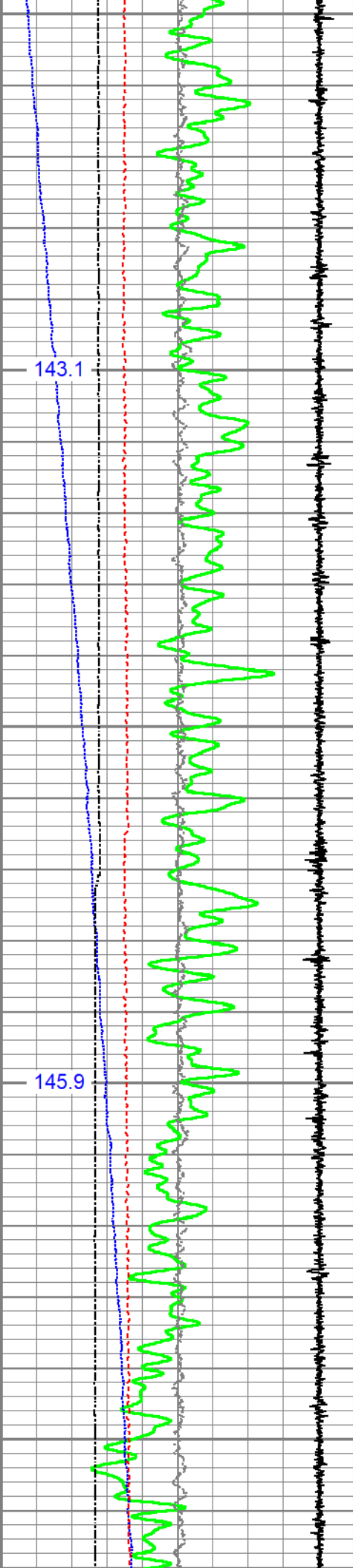




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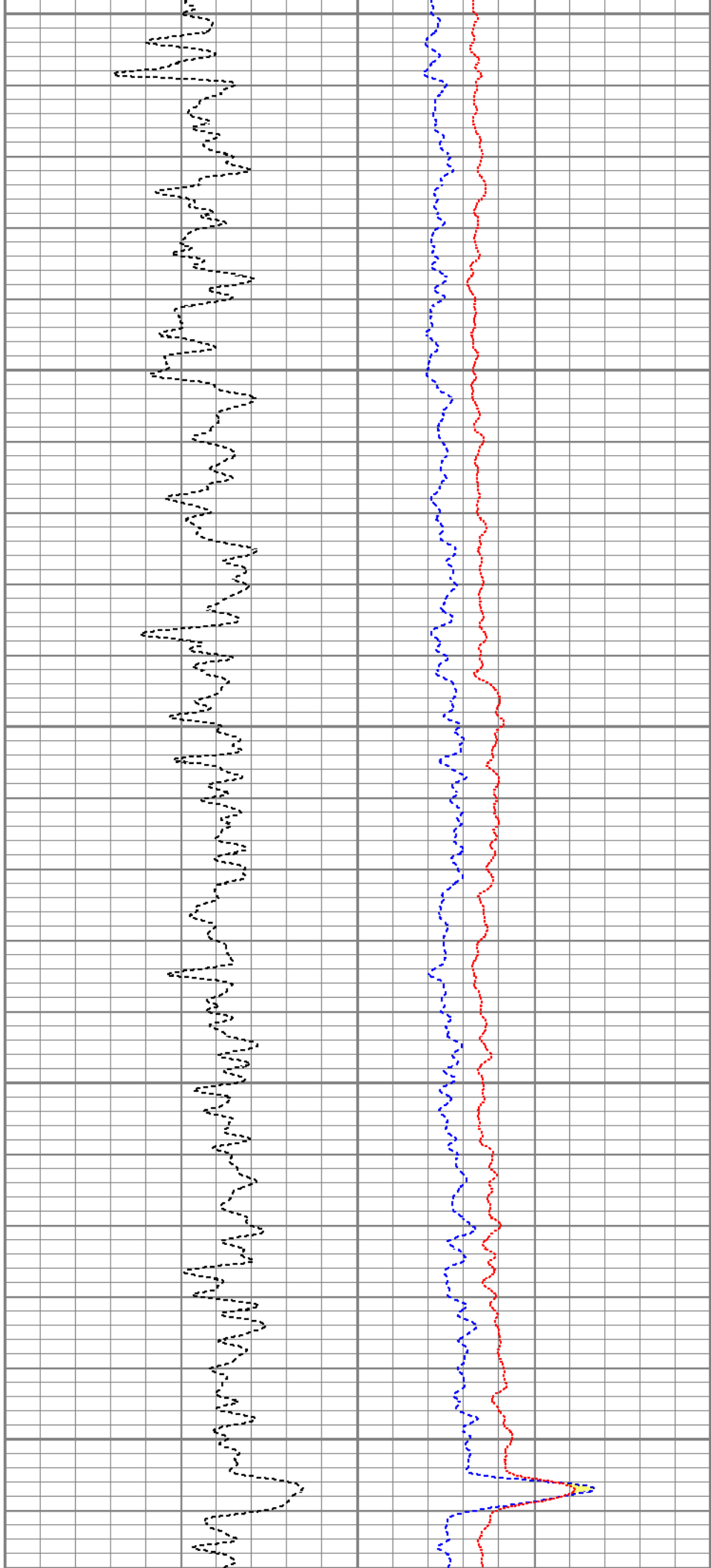
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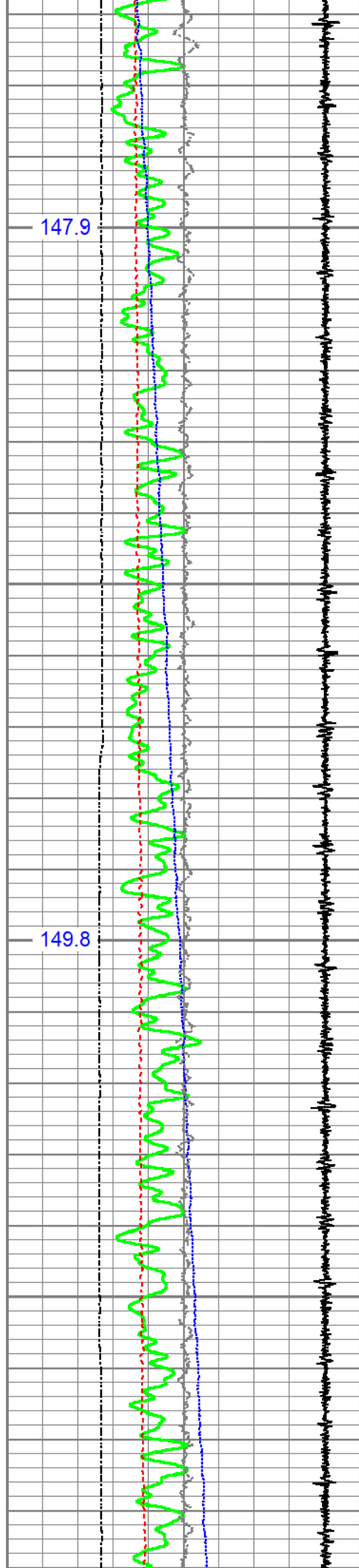




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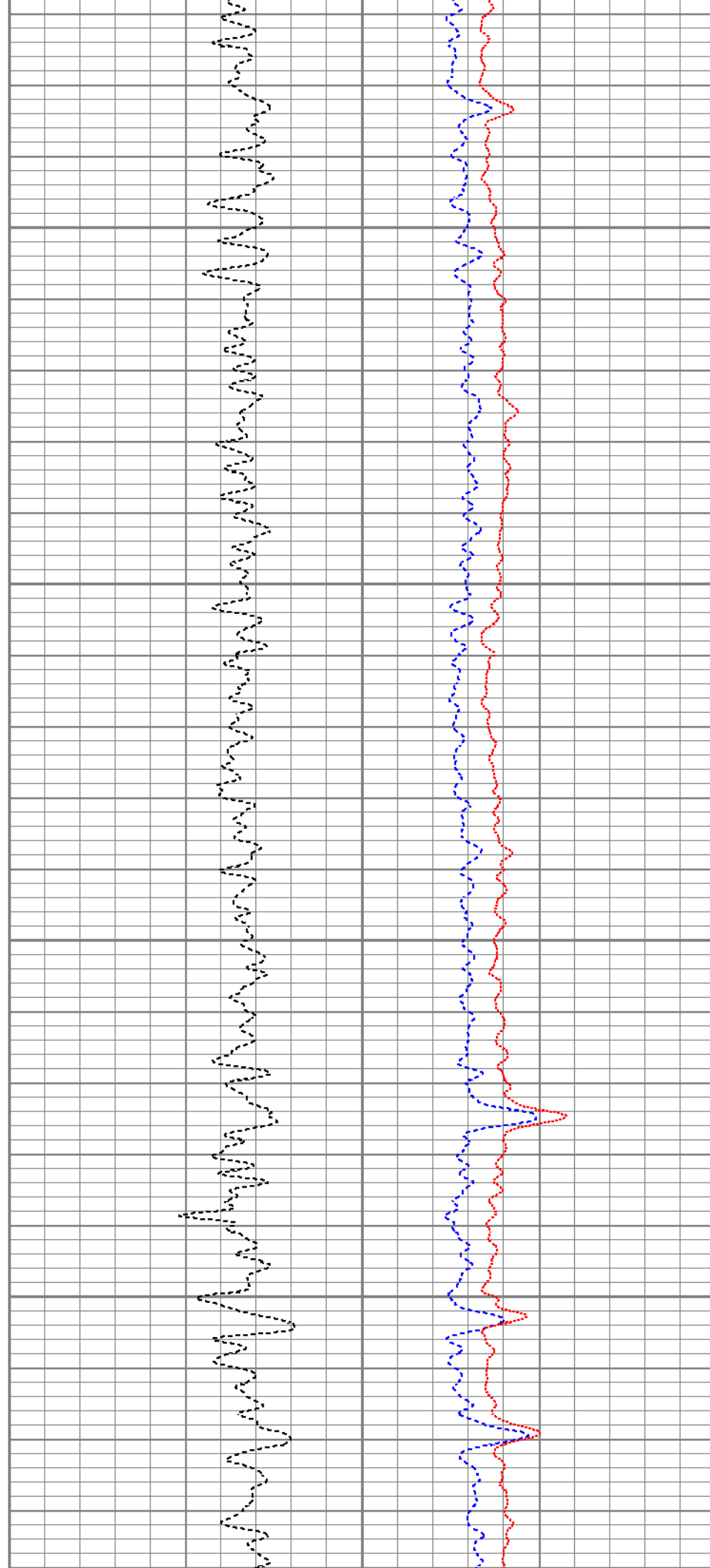
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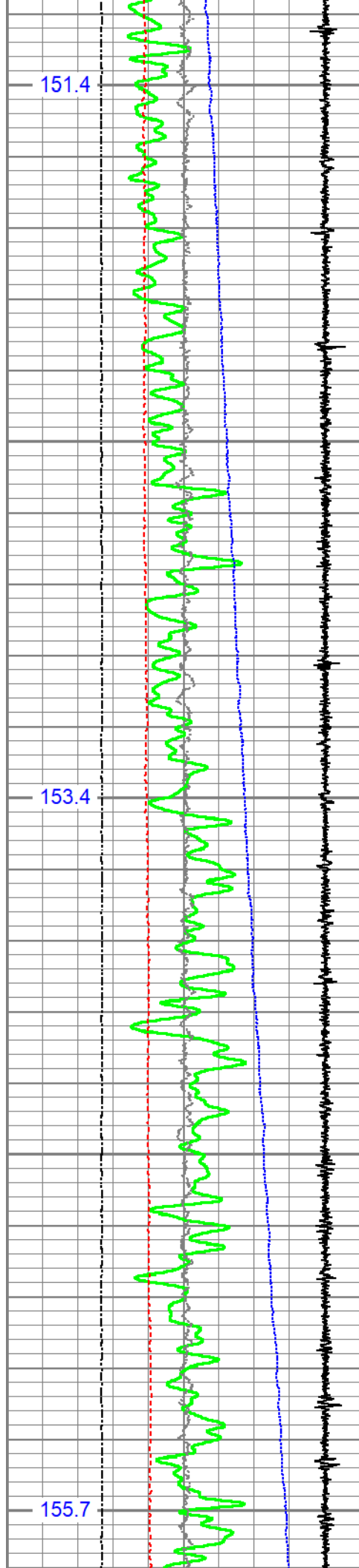




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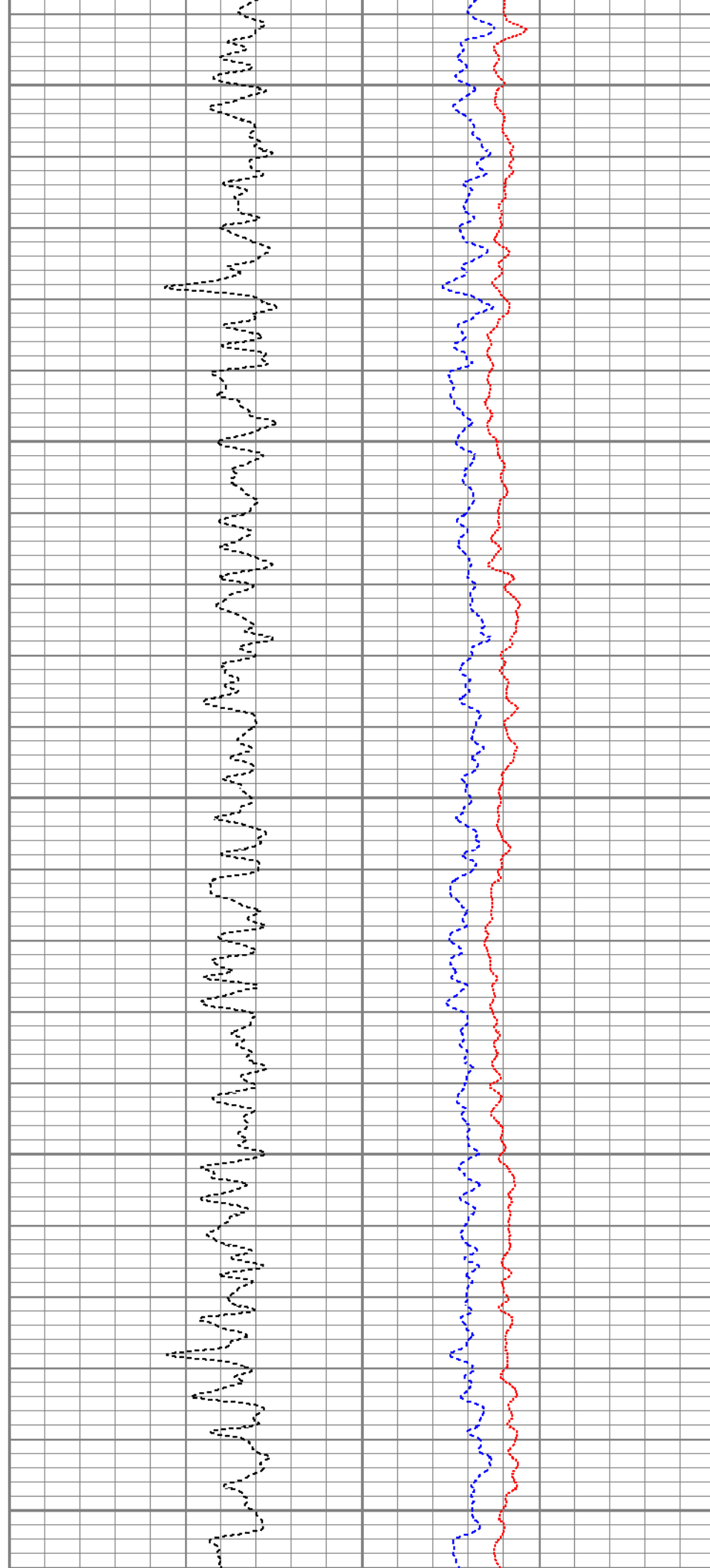


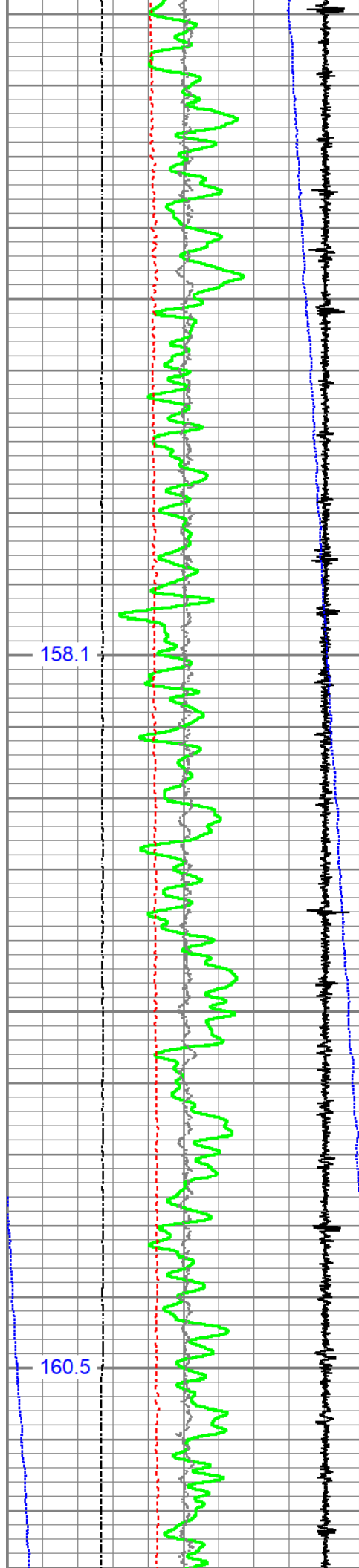


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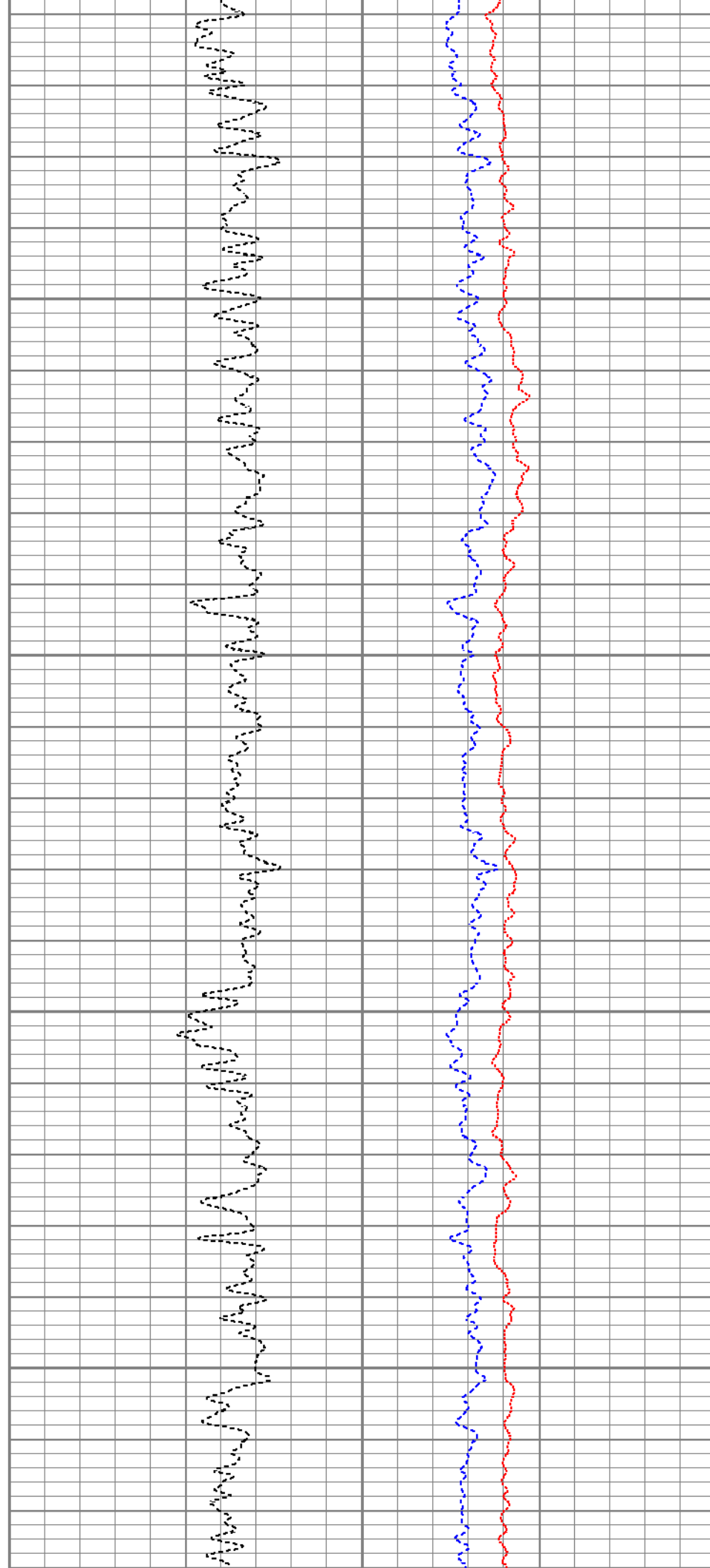
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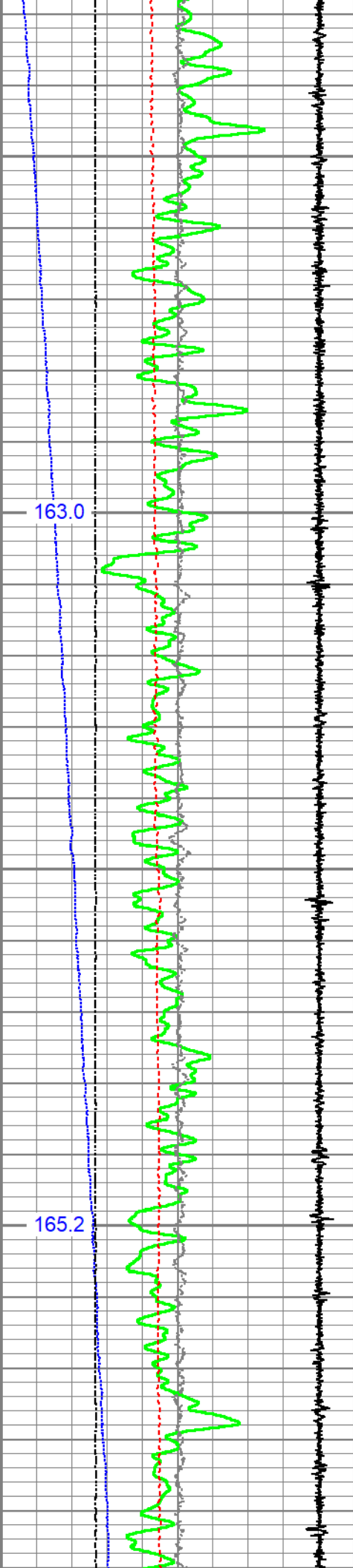




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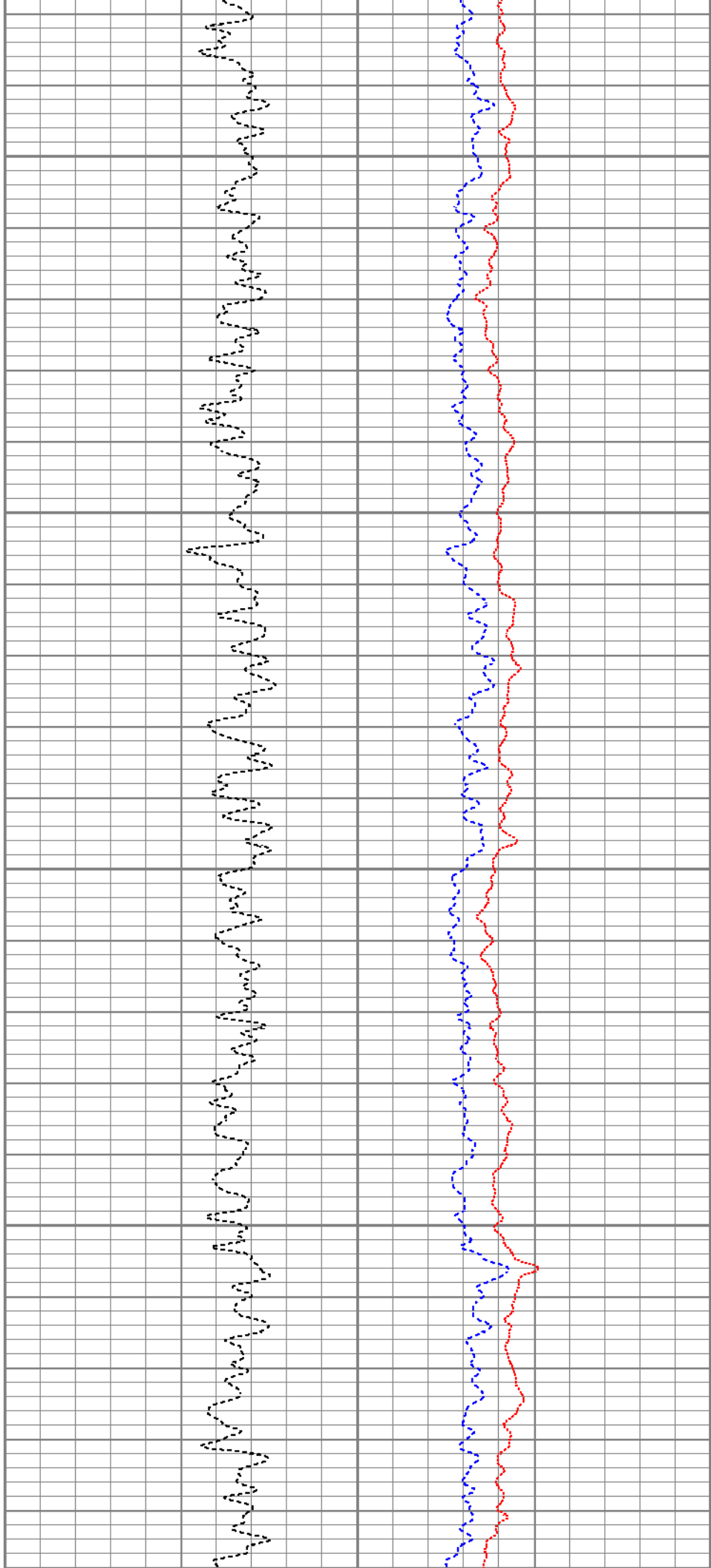
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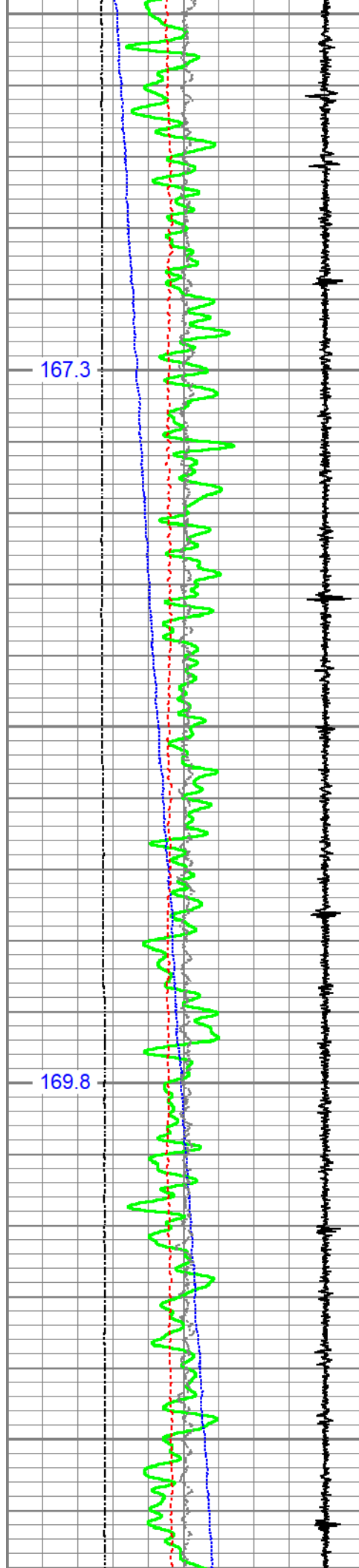




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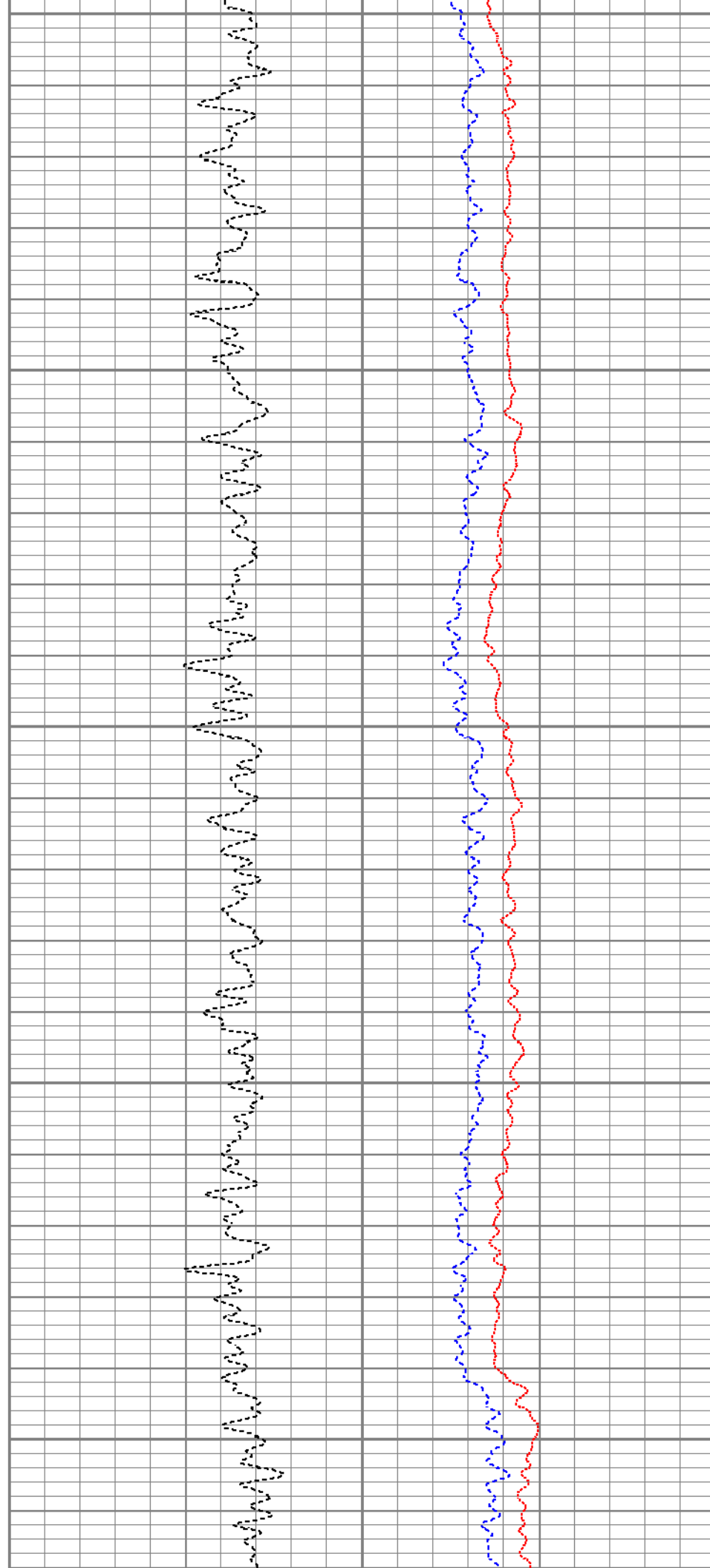
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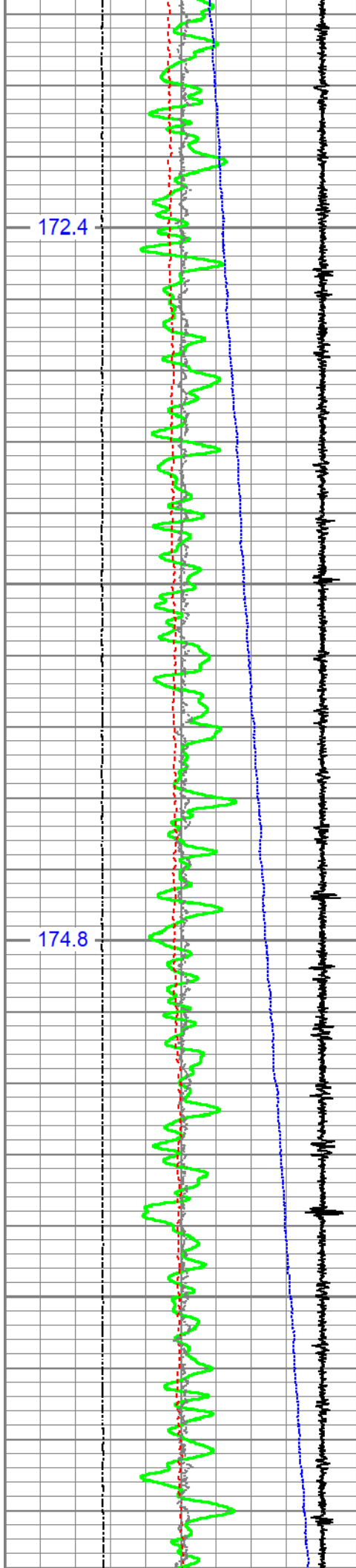




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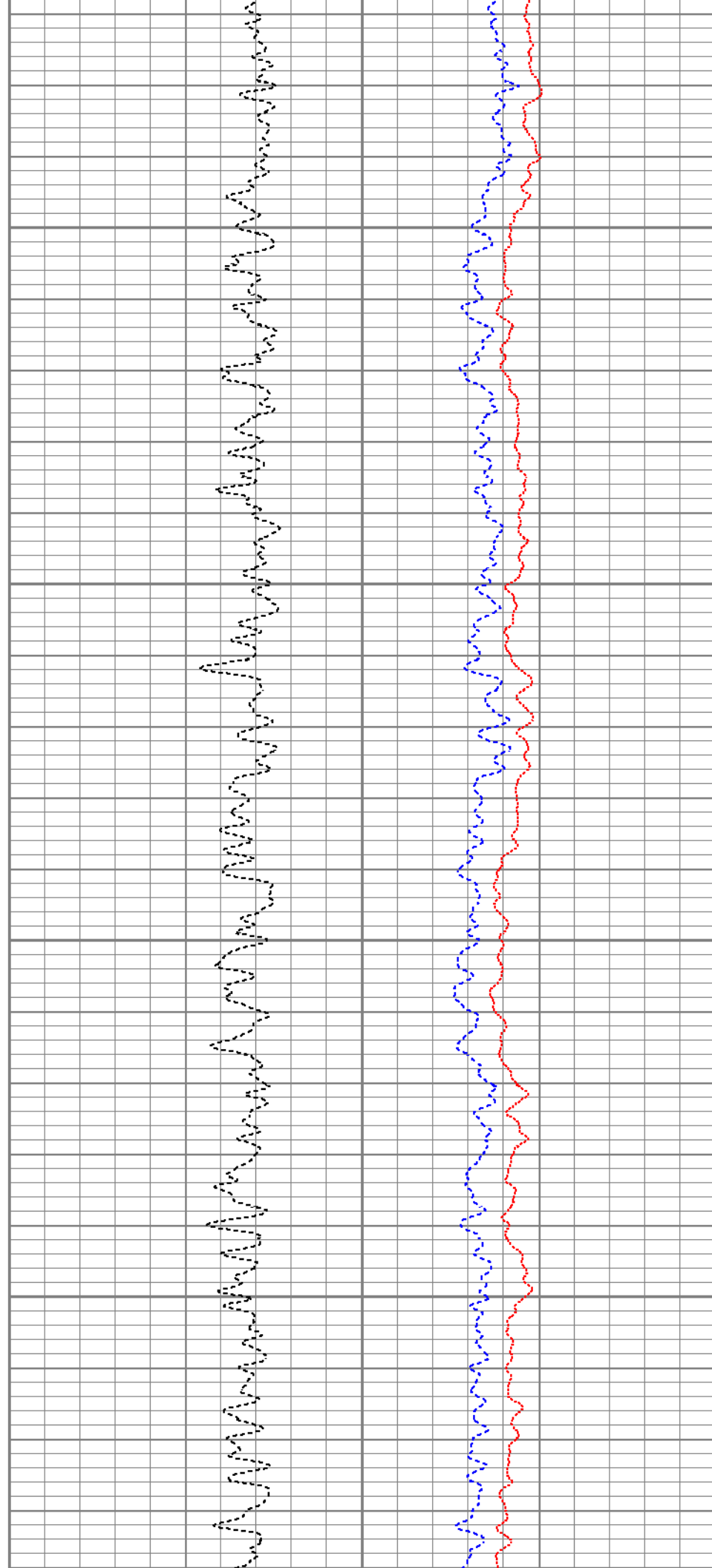
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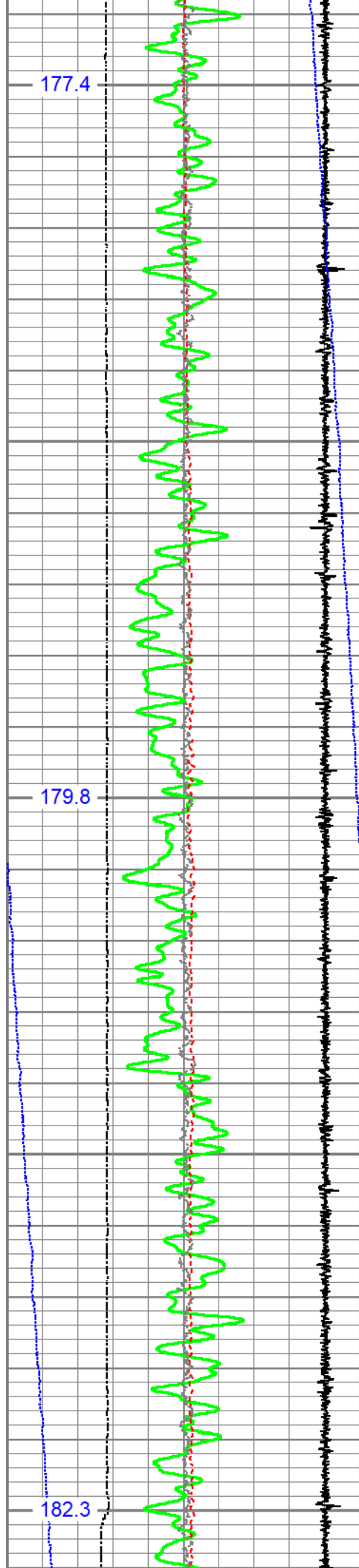




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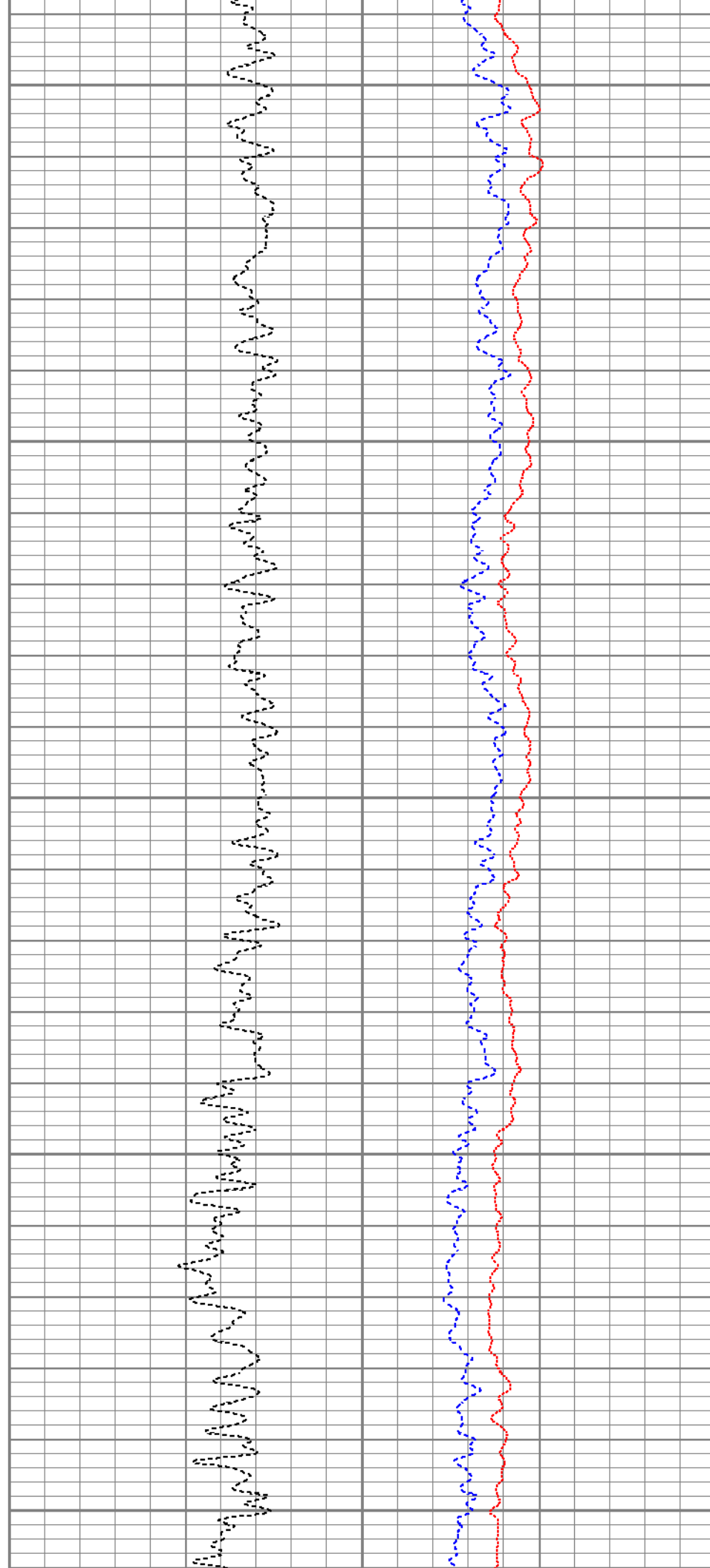


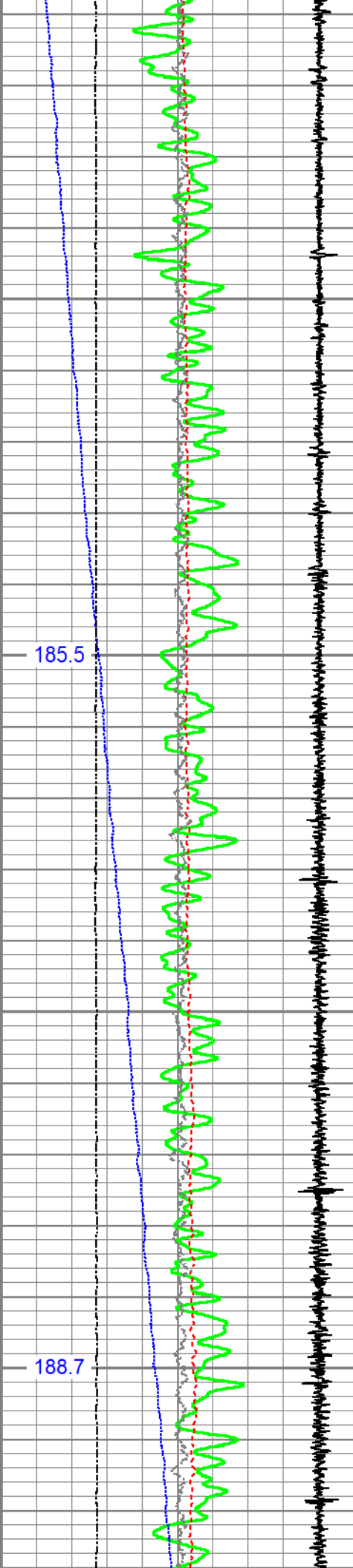


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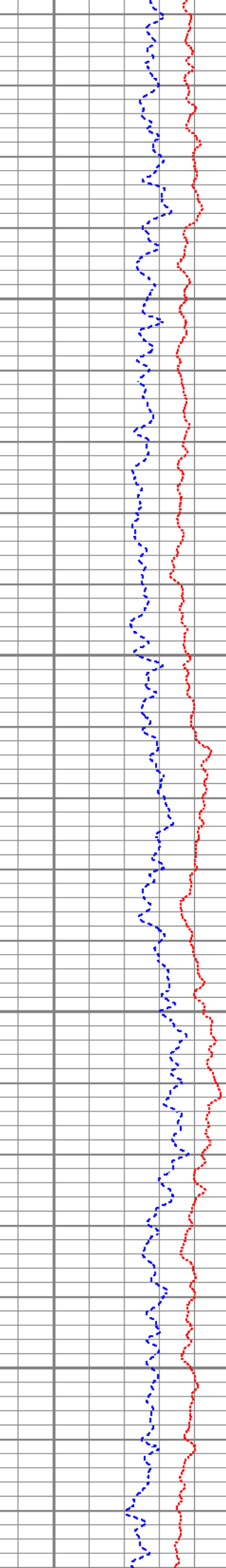
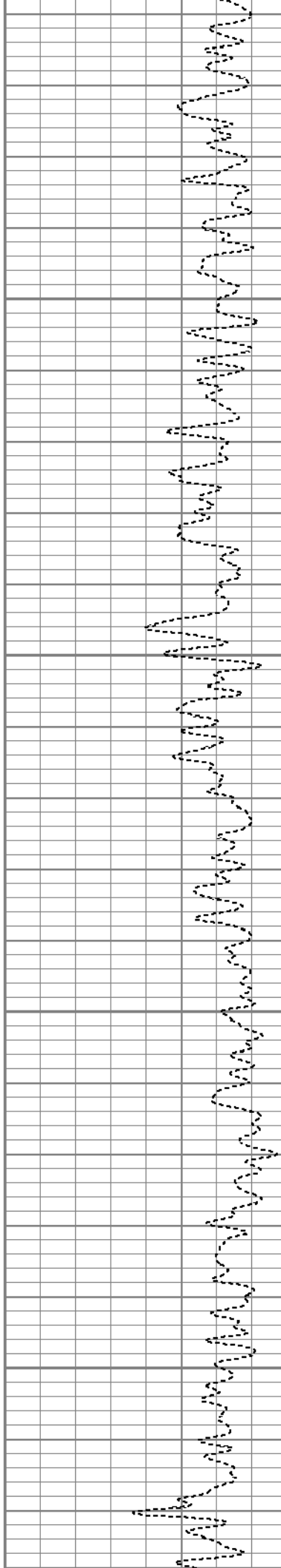
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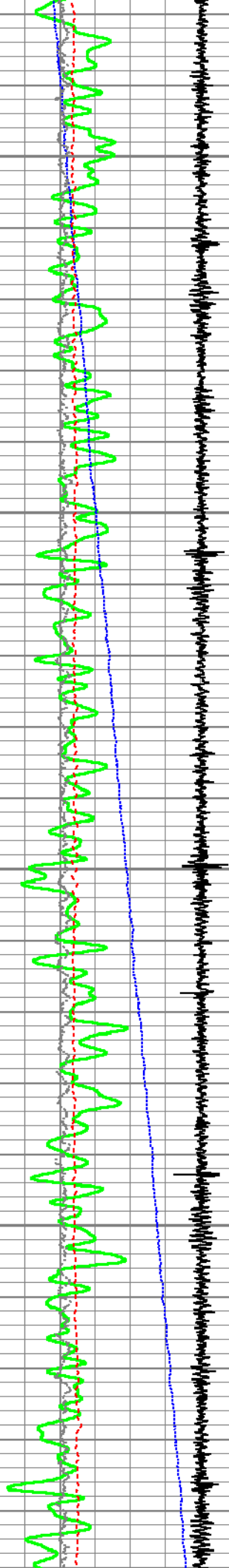




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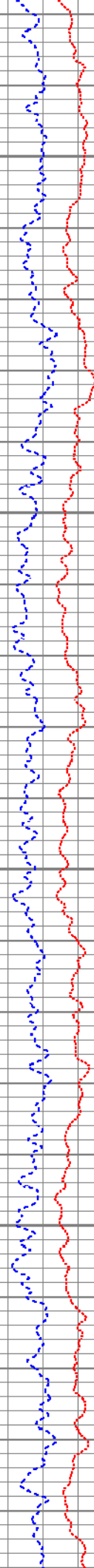
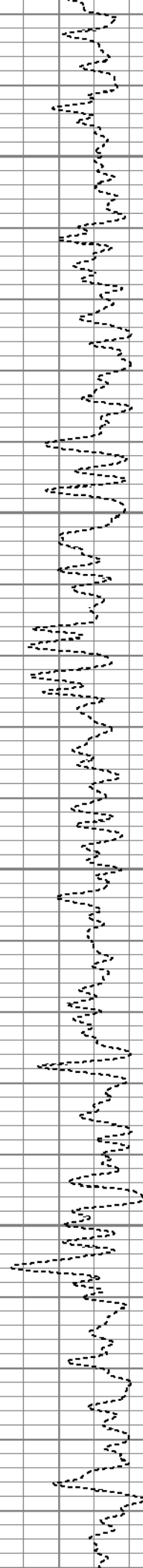


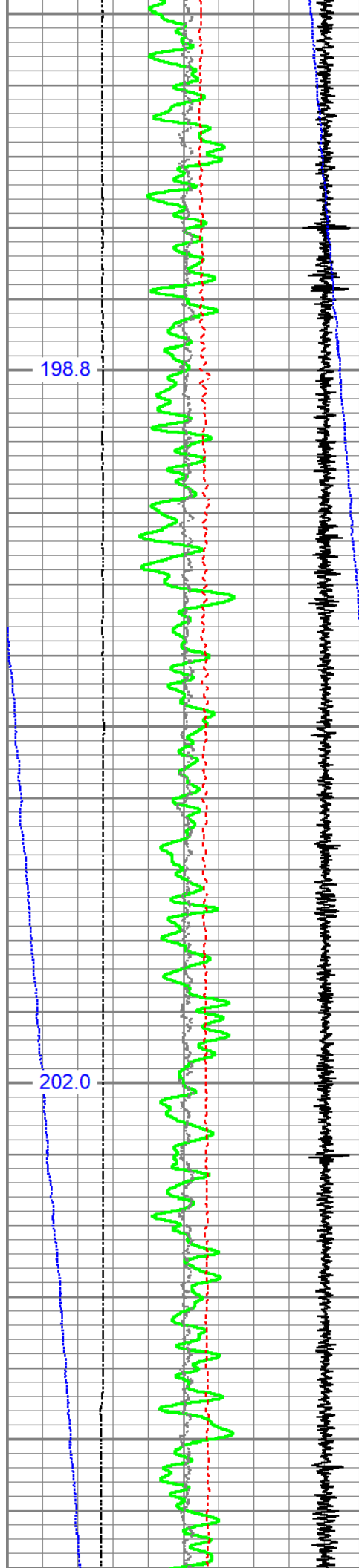
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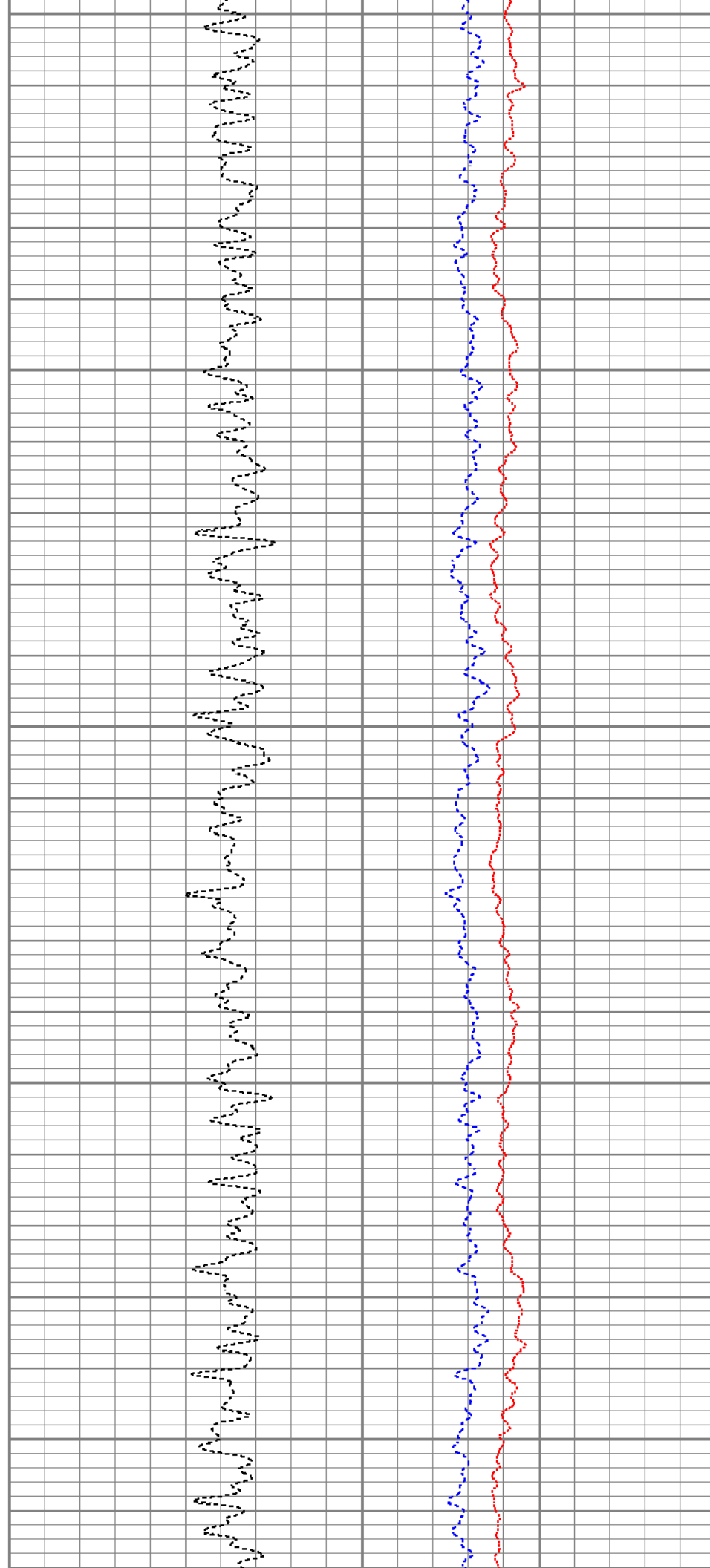
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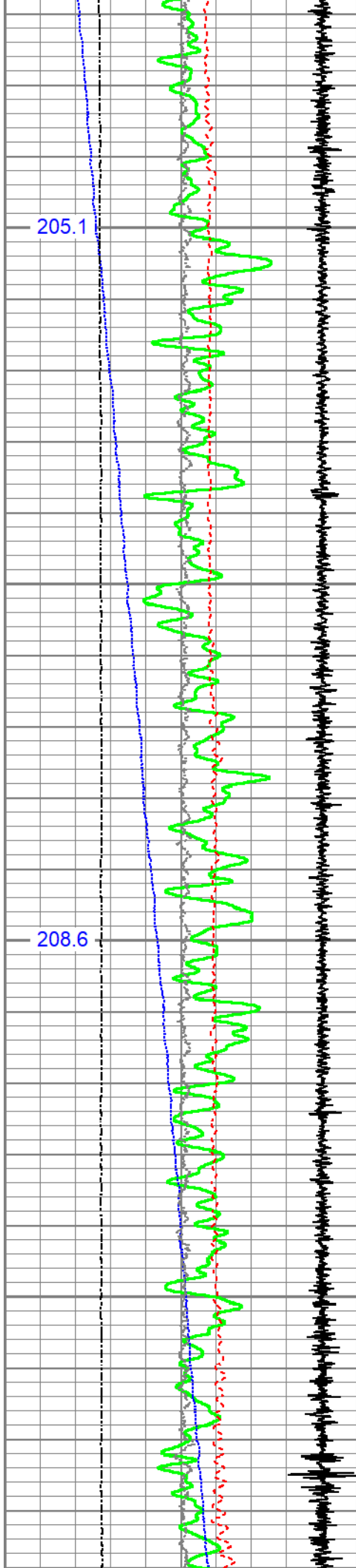




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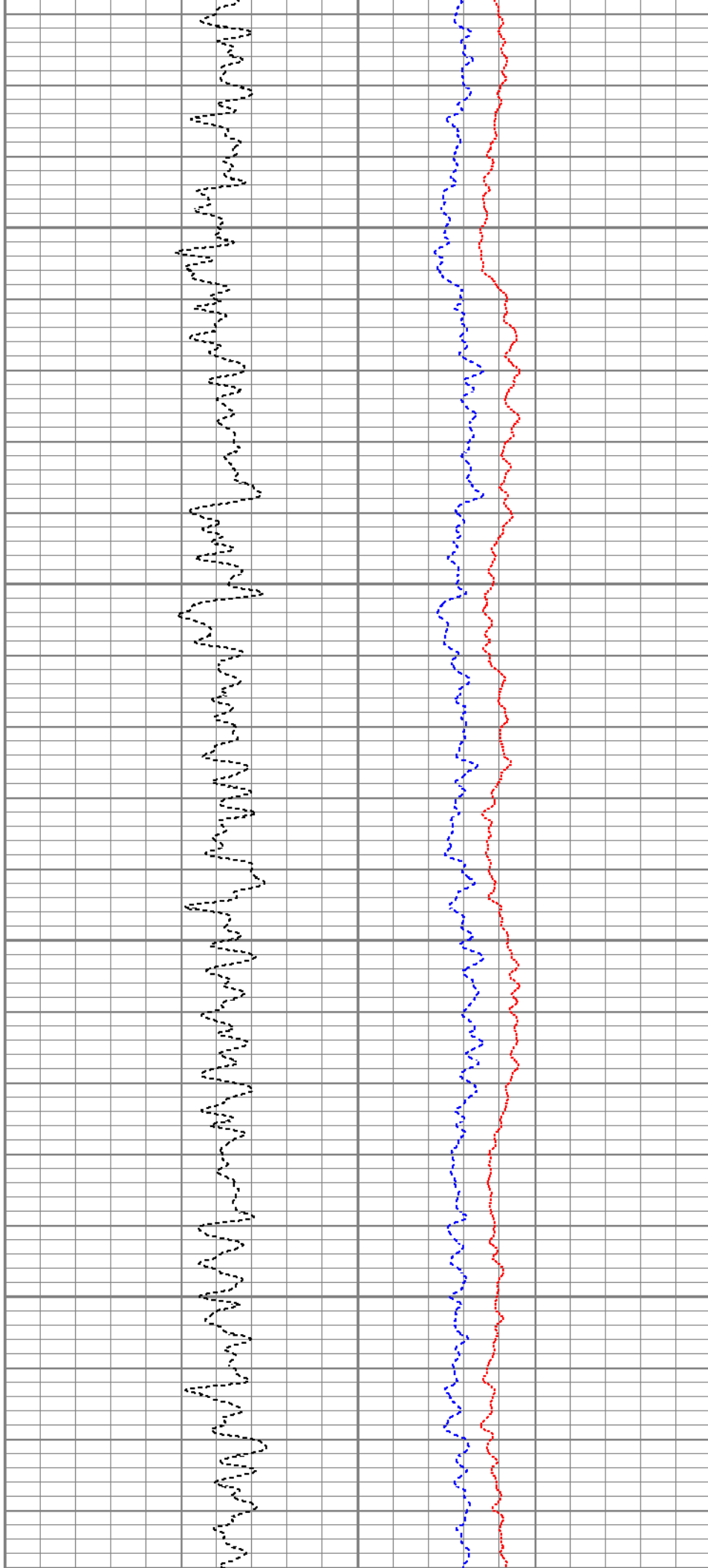
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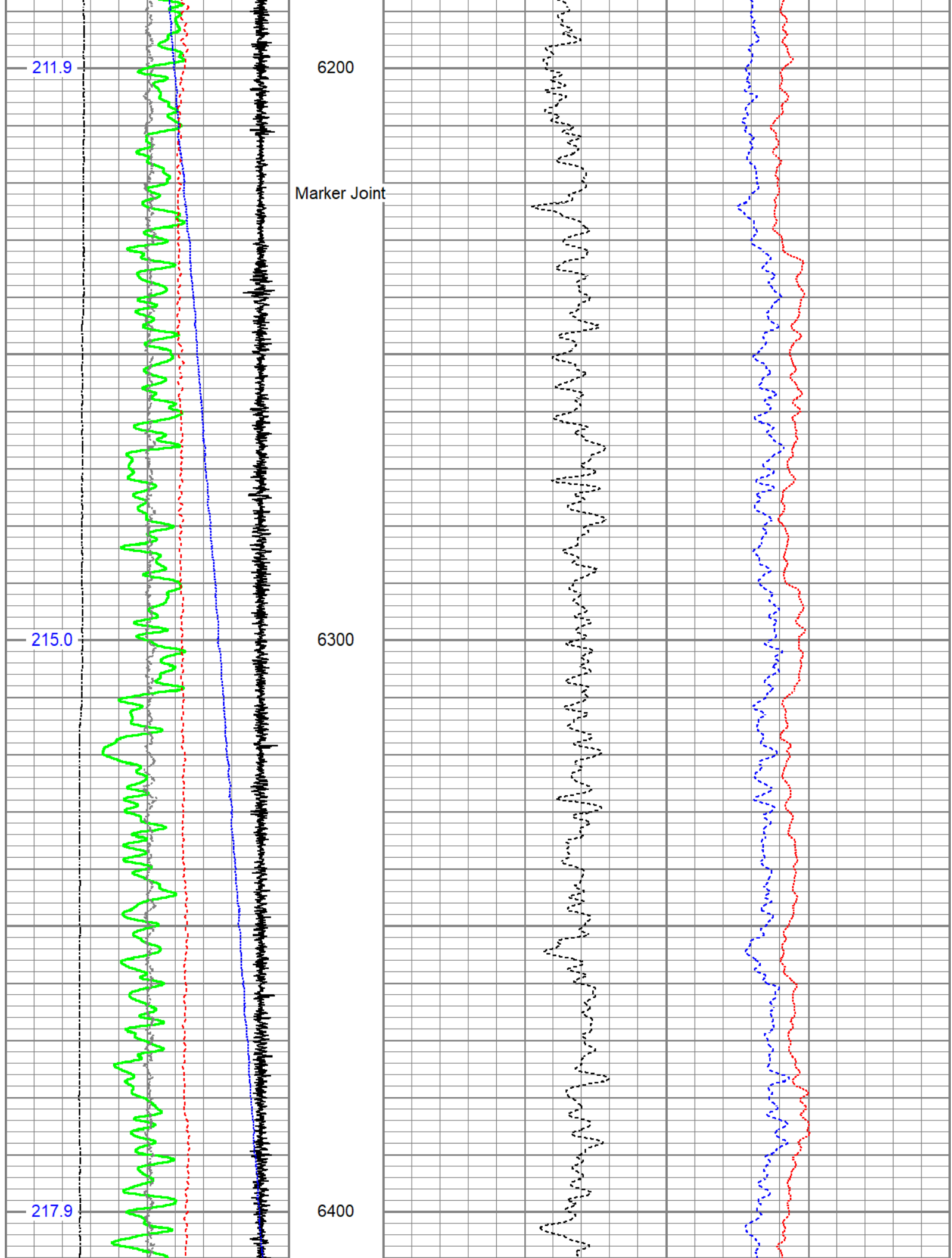


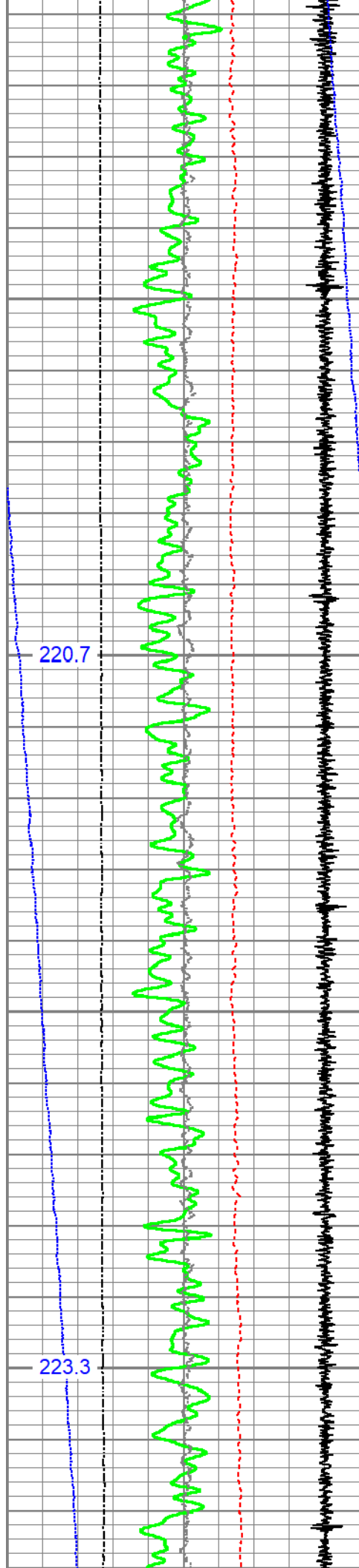


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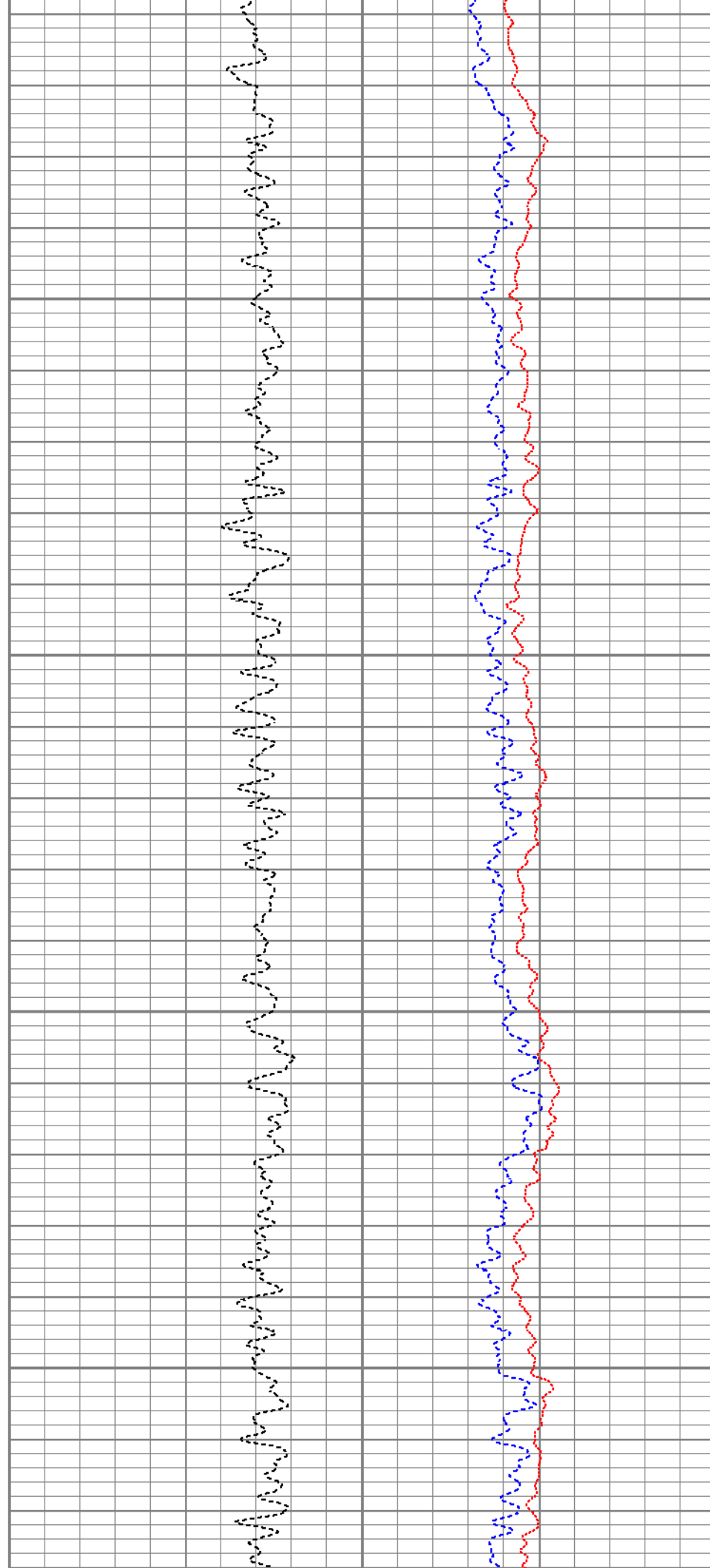


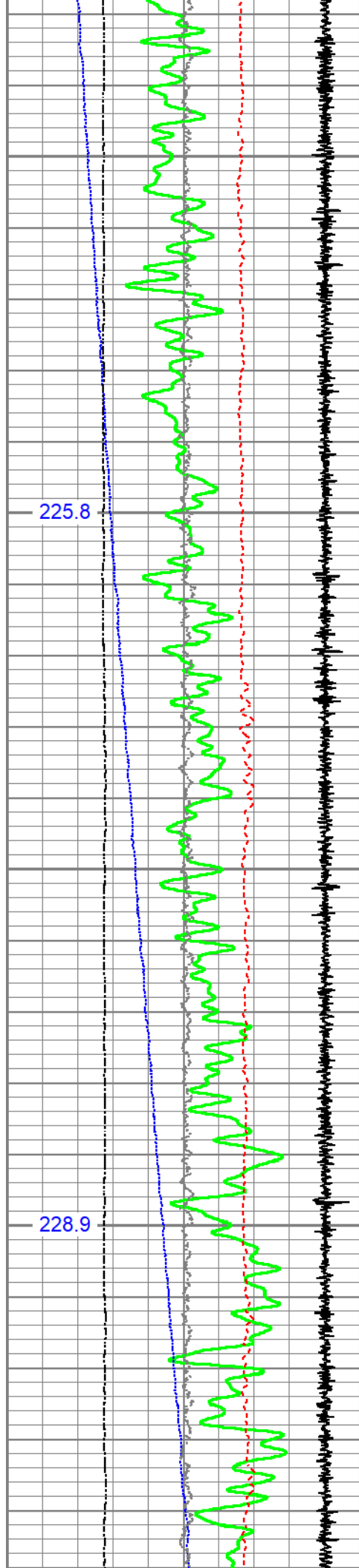




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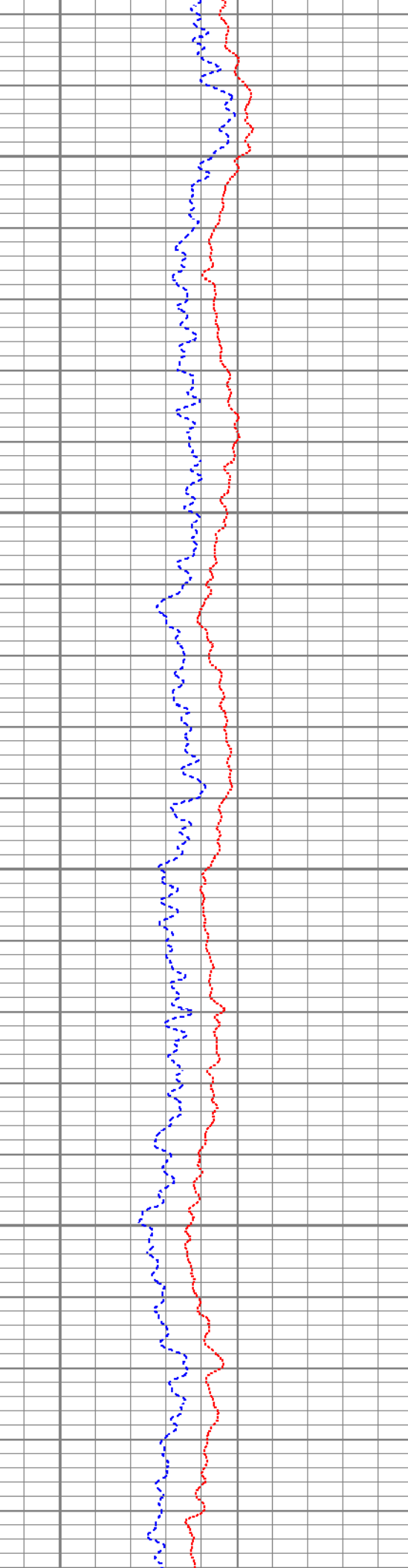
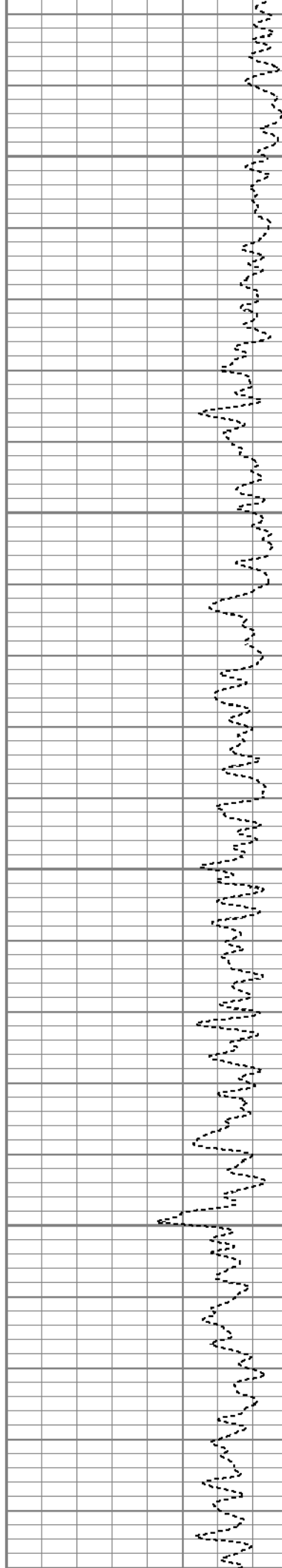
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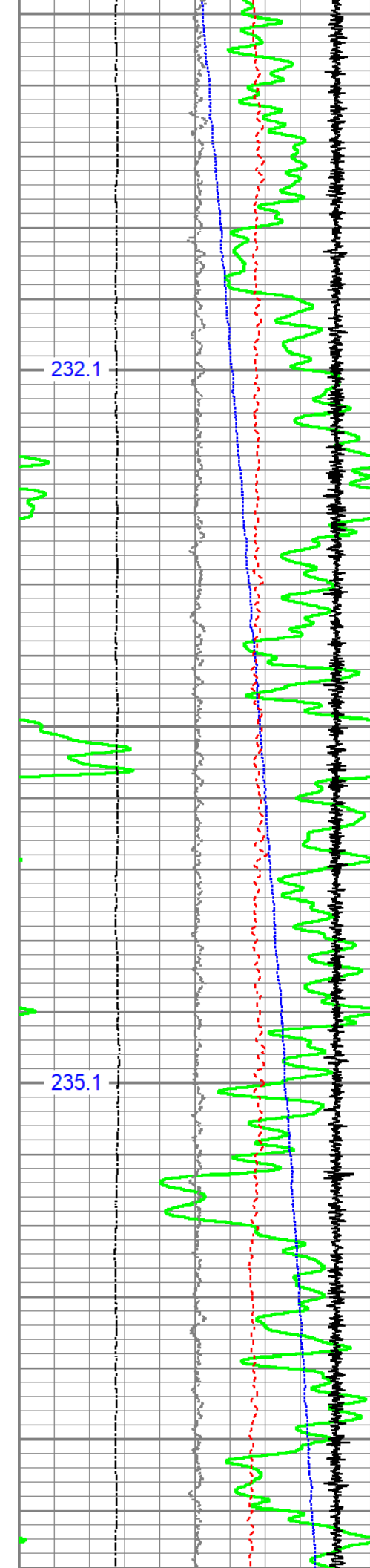




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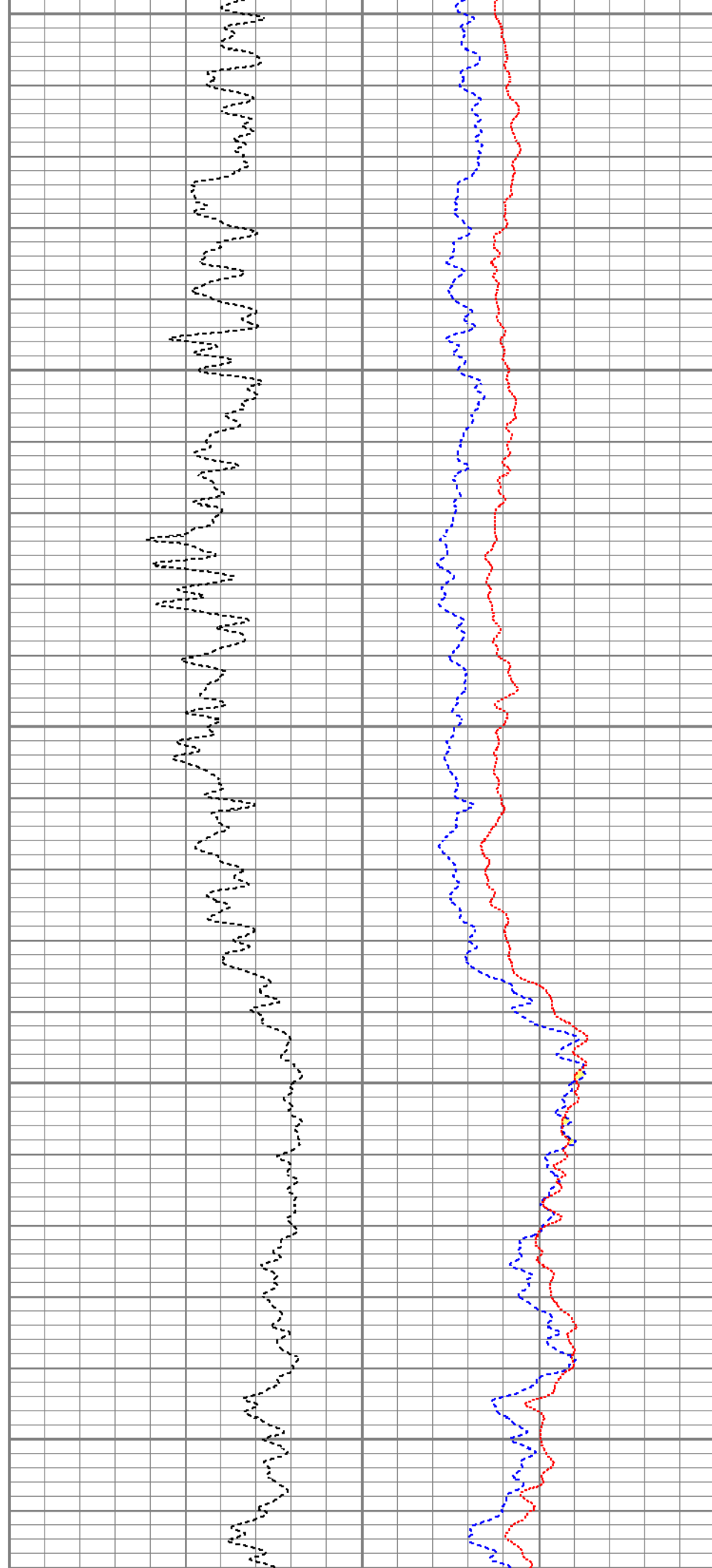
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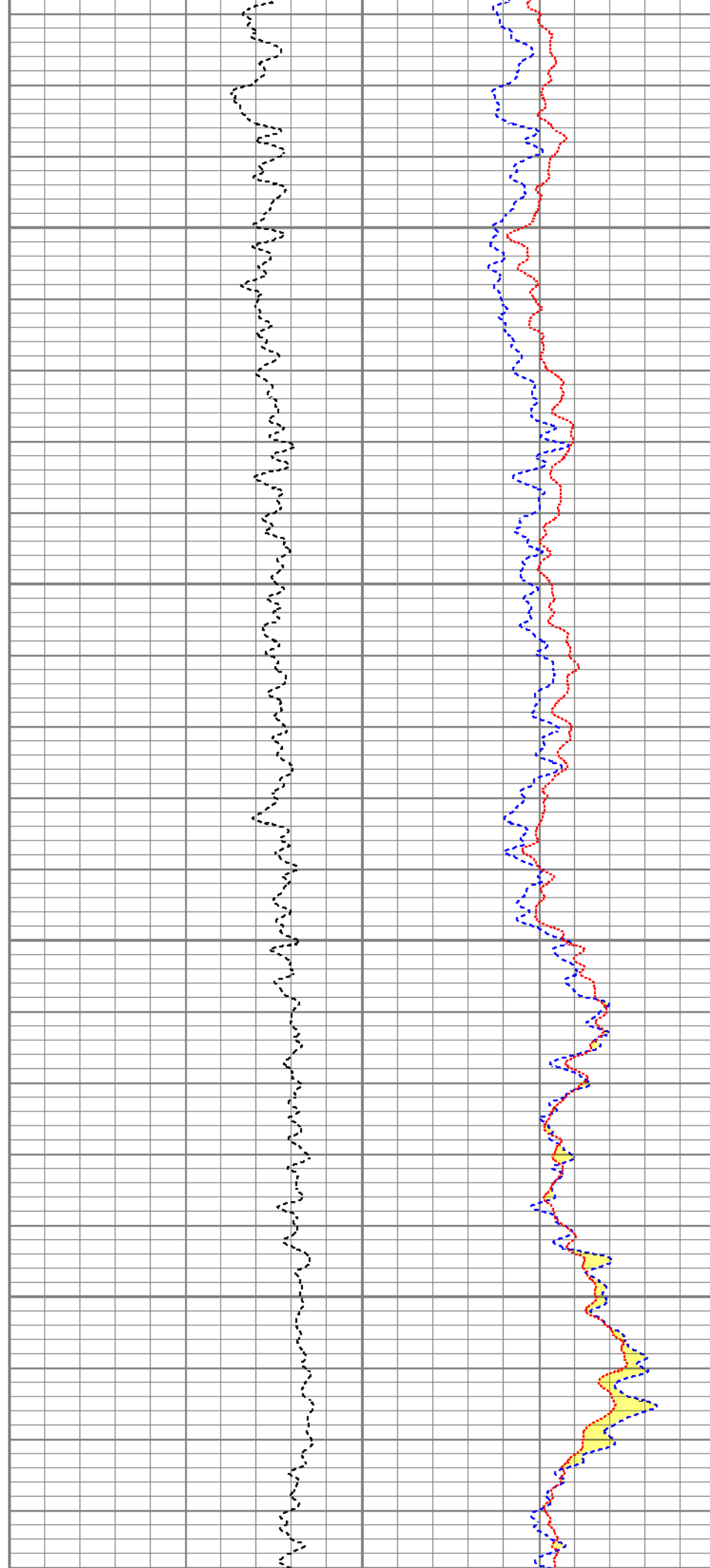
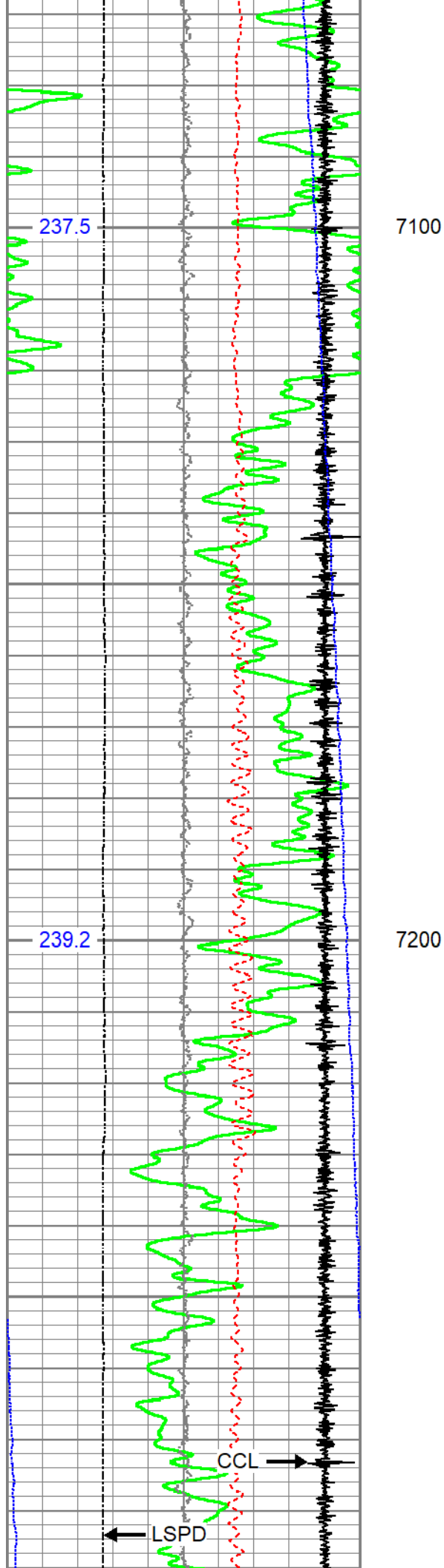


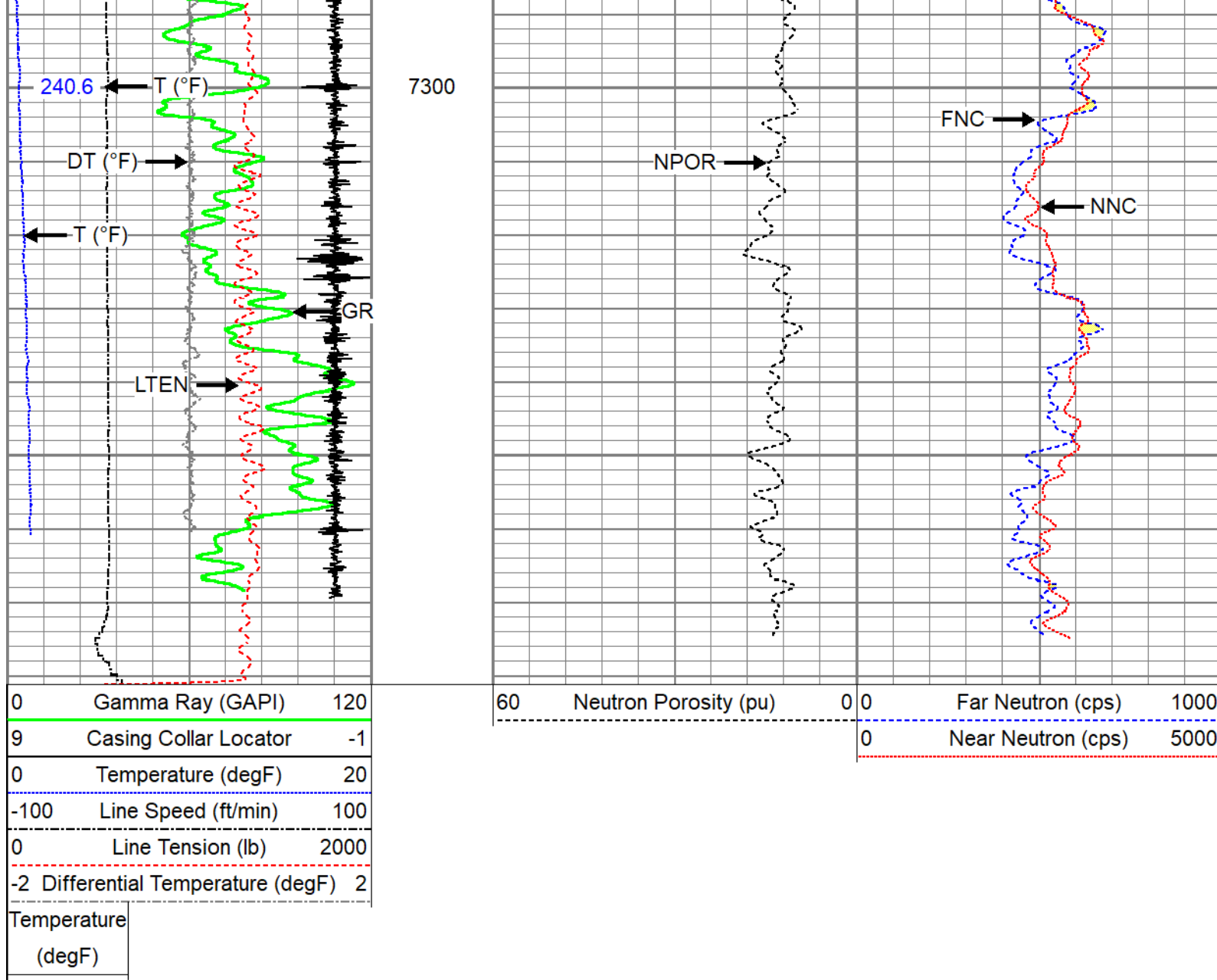


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7000



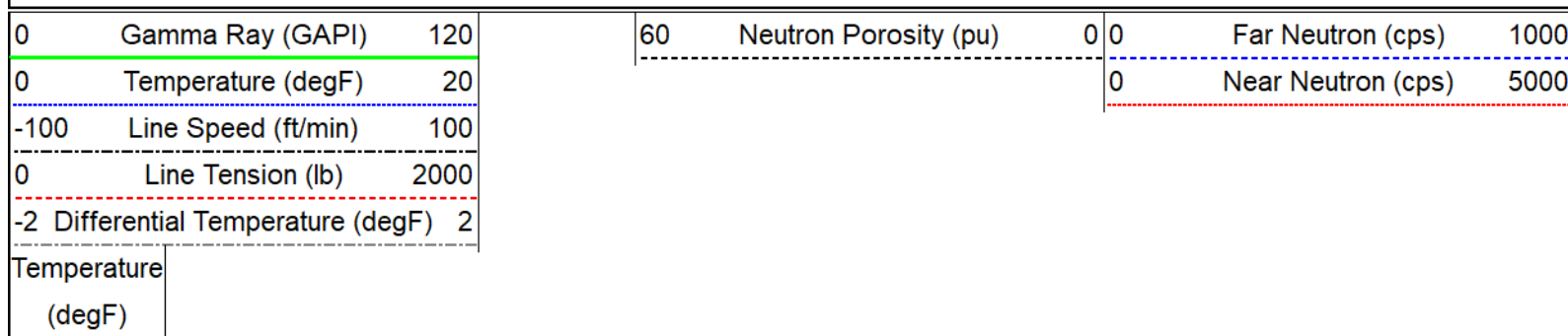


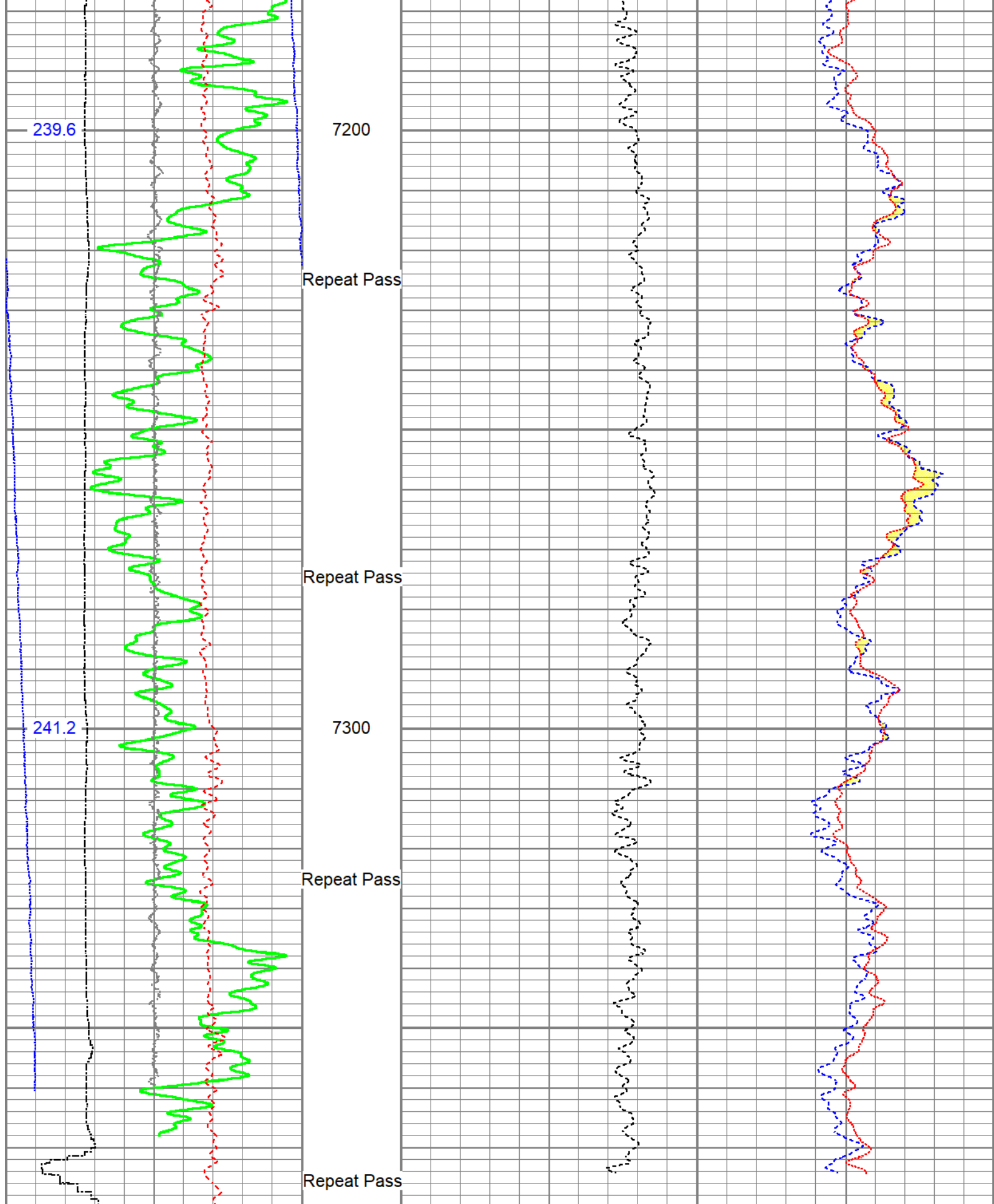


Repeat Pass

Recorded With 2500 PSI Surface Induced Pressure


Database File noble_roth a31-730_rbl_cnl_11-19-21.db
 Dataset Pathname repeat
 Presentation Format edge_cnl_prb
 Dataset Creation Fri Nov 19 12:14:52 2021
 Charted by Depth in Feet scaled 1:240





0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0 0	Far Neutron (cps)	1000
0	Temperature (degF)	20				Near Neutron (cps)	5000
-100	Line Speed (ft/min)	100					
0	Line Tension (lb)	2000					

Line Tension (lb)	2000
-2 Differential Temperature (degF)	2
Temperature (degF)	

	<table><tr><td>Company</td><td>Noble Energy Inc.</td></tr><tr><td>Well</td><td>Roth A31-730</td></tr><tr><td>Field</td><td>Wattenberg</td></tr><tr><td>County</td><td>Weld</td></tr><tr><td>State</td><td>Colorado</td></tr></table>	Company	Noble Energy Inc.	Well	Roth A31-730	Field	Wattenberg	County	Weld	State	Colorado
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