



**DUAL INDUCTION  
COMPENSATED DENSITY  
COMPENSATED NEUTRON  
GAMMA RAY X-Y CALIPER**

Pioneer Energy Services

Company NGL Water Solutions  
Well NGL C-9  
Field Wildcat  
County Weld State Colorado

Location: API #: 05 123 40194

SWNW

SEC 10 TWP 10N RGE 61W

Permanent Datum GL Elevation 5058

Log Measured From KB  
Drilling Measured From KB  
Elevation  
K.B. 5073  
D.F. 5072  
G.L. 5058

Date October 03, 2014

Run Number	1
Depth Driller	8521
Depth Logger	8485
Bottom Logged Interval	8485
Top Log Interval	Casing
Casing Driller	880
Casing Logger	880
Bit Size	8.75
Type Fluid in Hole	Mud
Density / Viscosity	9.4/47
pH / Fluid Loss	7.8
Source of Sample	Flowline
Rm @ Meas. Temp	2.3 @ 77
Rmf @ Meas. Temp	1.73 @ 77
Rmc @ Meas. Temp	2.88 @ 77
Source of Rmf / Rmc	Calc/Calc
Rm @ BHT	.89 @ 197
Time Circulation Stopped	17:00
Time Logger on Bottom	23:30
Maximum Recorded Temperature	197 F
Equipment Number	36
Location	Ft. Morgan, CO
Recorded By	Tracy Crane
Witnessed By	Erasmio Parras

<<< Fold Here >>>

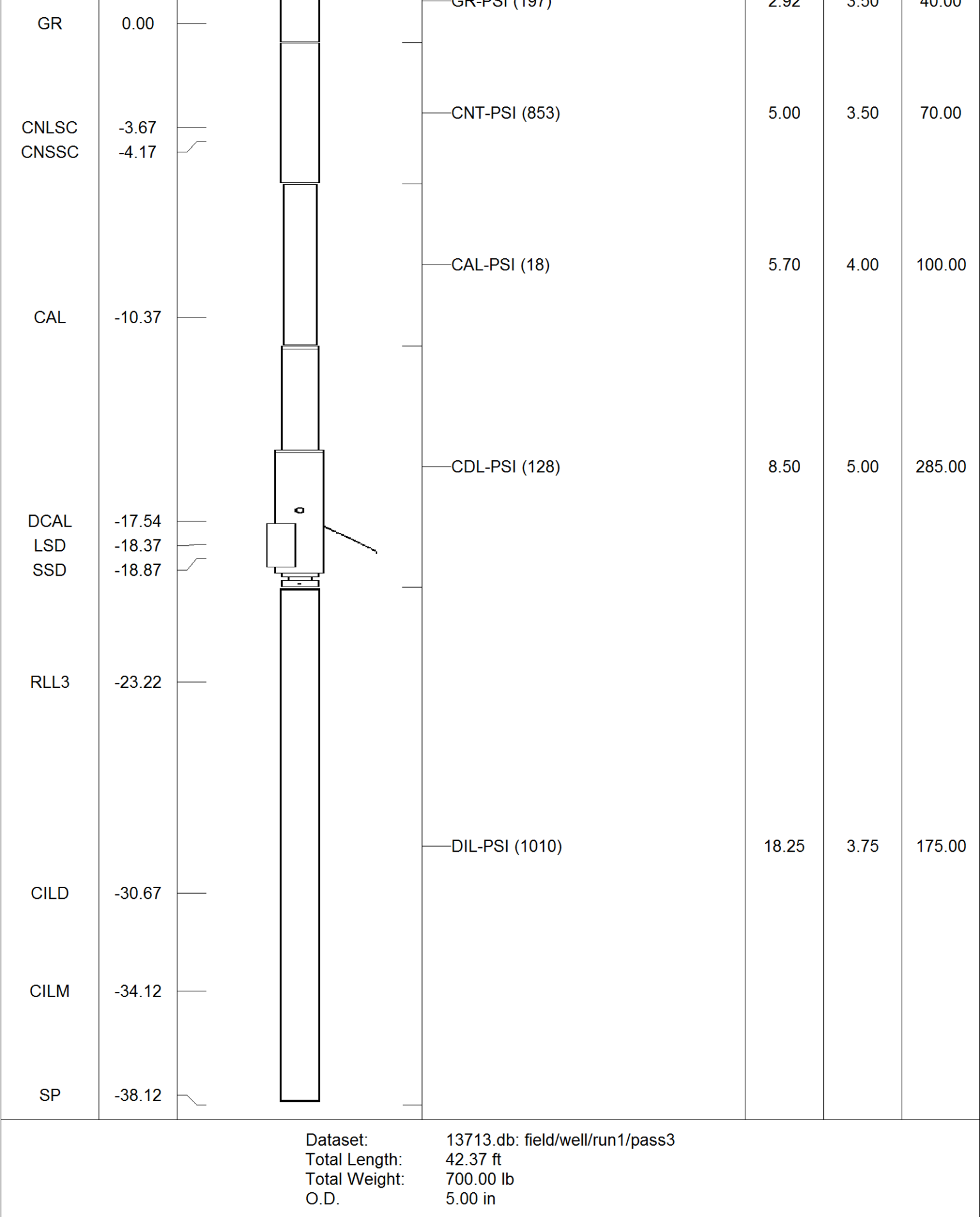
All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

Thank you for using Pioneer Energy Services.

SO# 2-0136713

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			CHD (~0)	2.00	3.50	30.00
			CB DSL (107)	2.03	3.50	40.00

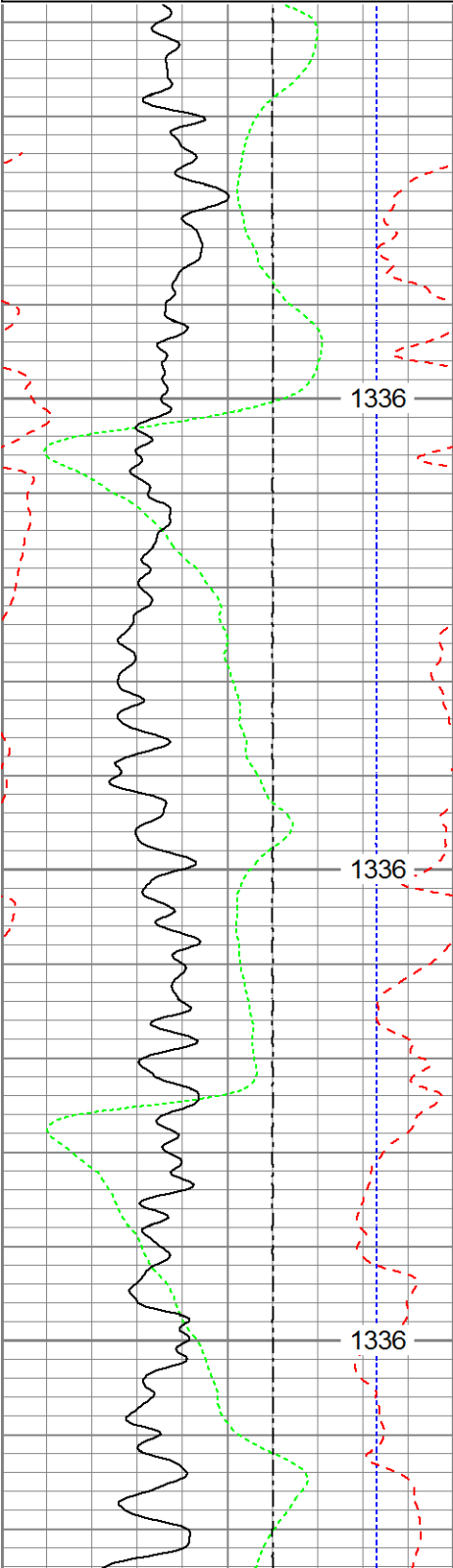


# Main Pass

Database File: 13713.db  
Dataset Pathname: pass3  
Presentation Format: SPLIT3~1  
Dataset Creation: Sat Oct 04 02:51:57 2014 by Log Open-Cased 110302  
Charted by: Depth in Feet scaled 1:240

-0.5	Corr (g/cc)	0.5
6	Caliper (in)	16
0	Gamma Ray (GAPI)	200
6	2-ARM Caliper (in)	16
0	SP (mV)	200
ABHV (ft3)		

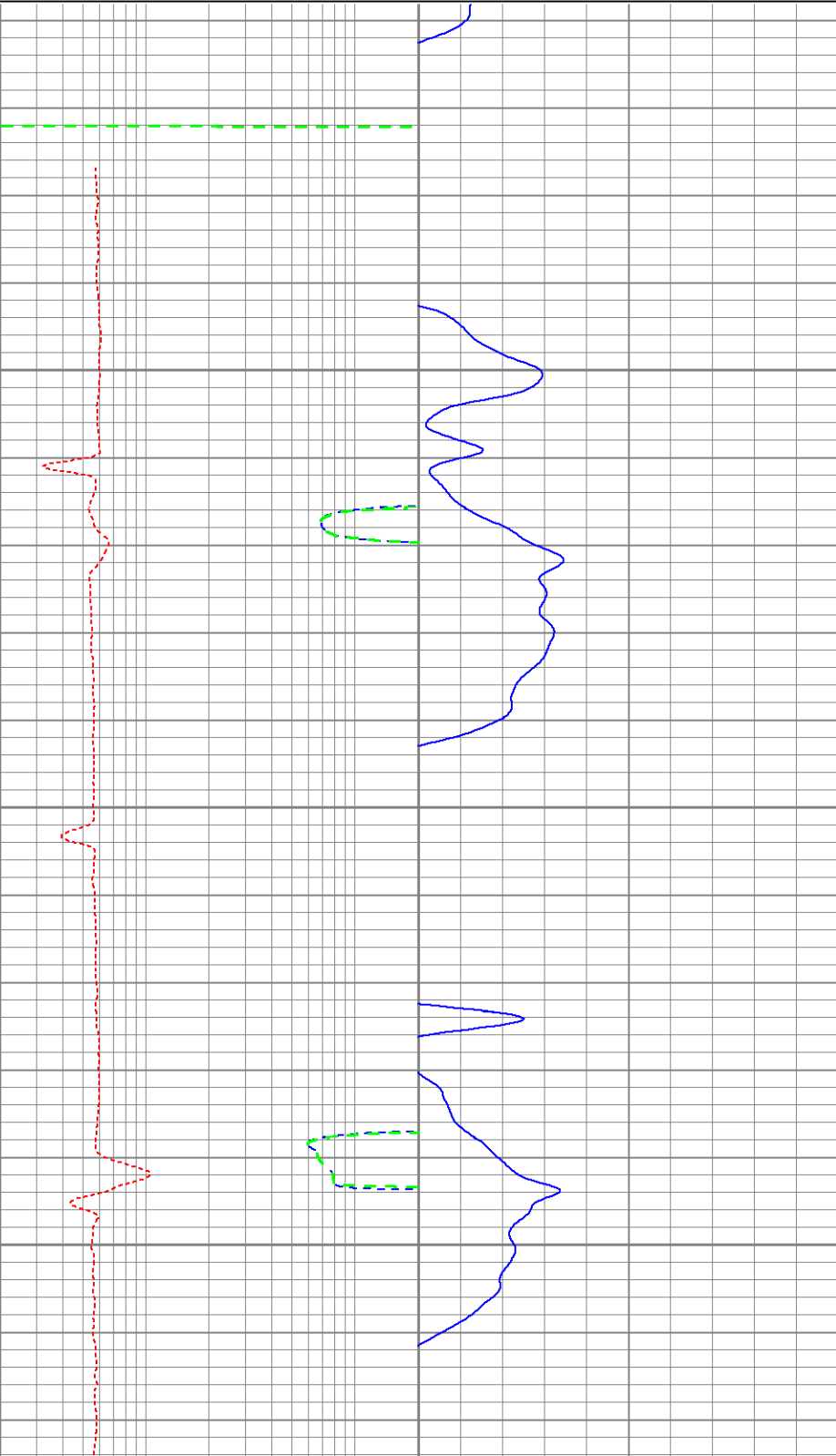
2	Deep Resistivity (Ohm-m)	200	30	Density Porosity (pu)	-10
2	Medium Resistivity (Ohm-m)	200	30	CN Porosity (pu)	-10
2	Shallow Resistivity (Ohm-m)	200			
2	RT (Ohm-m)	200			

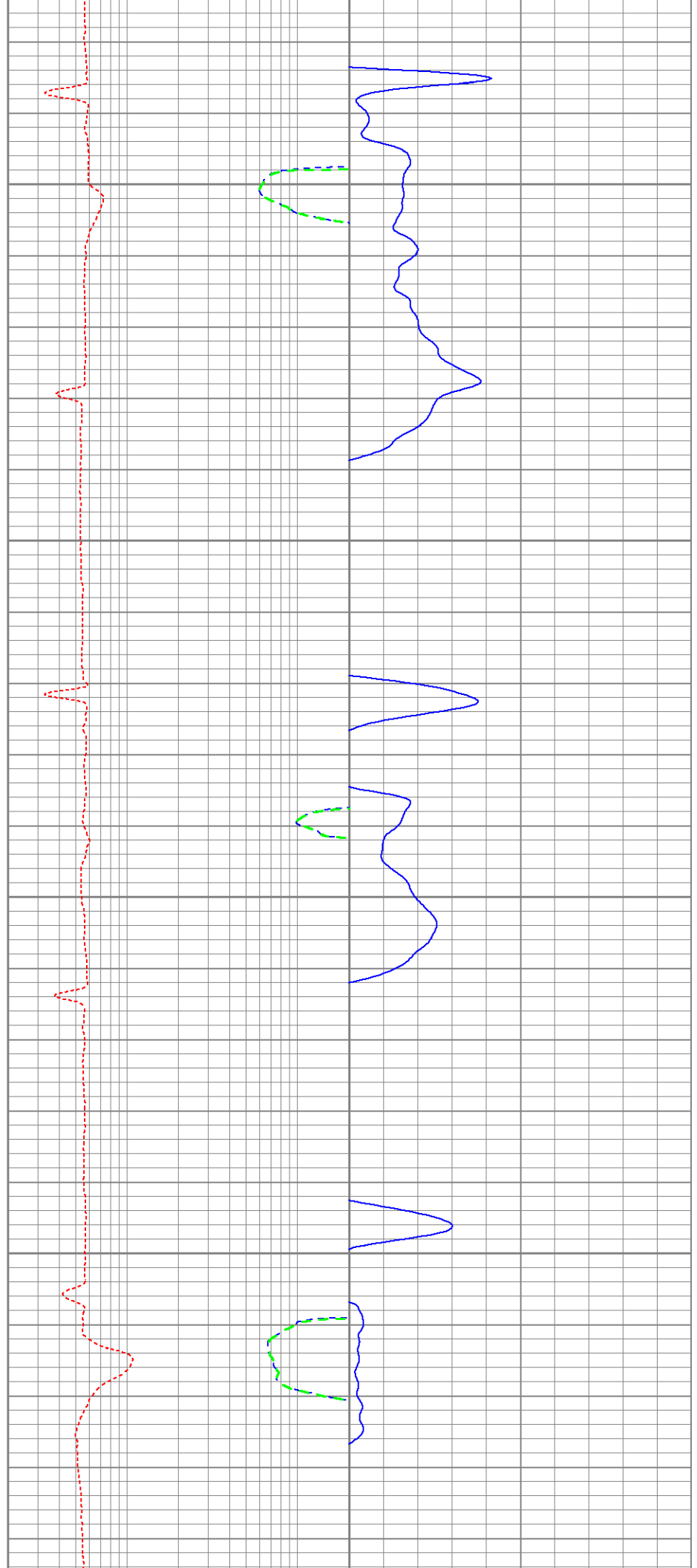
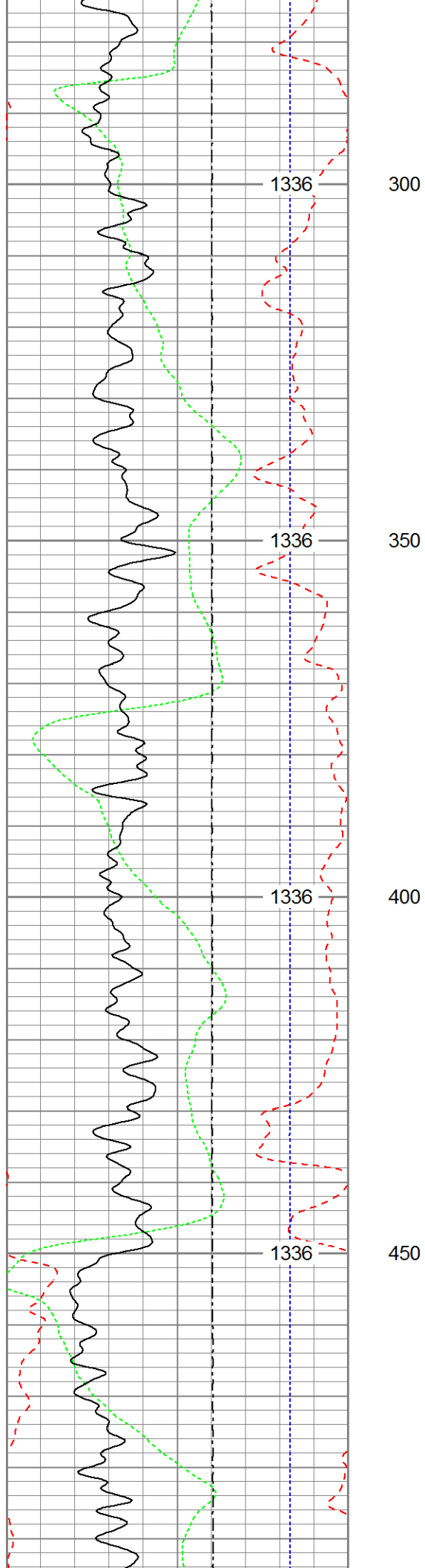


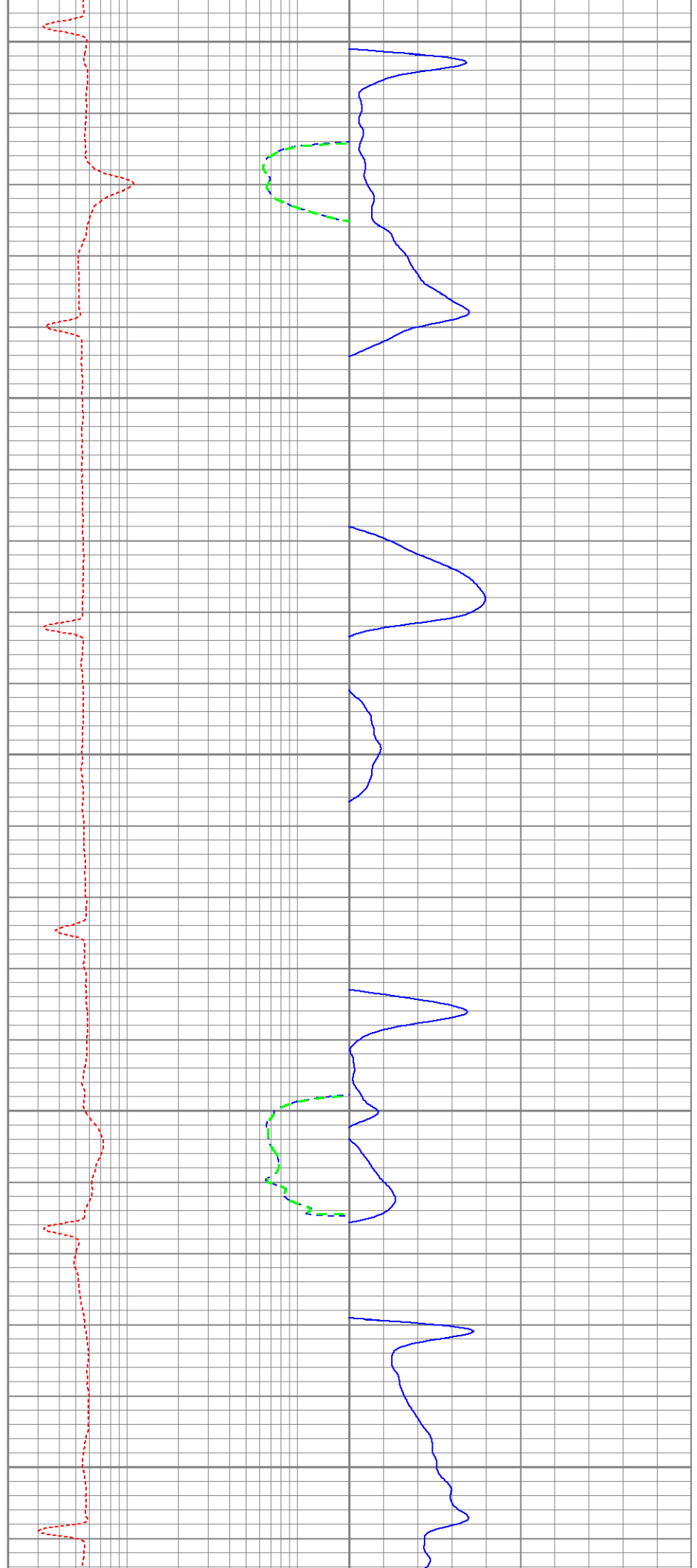
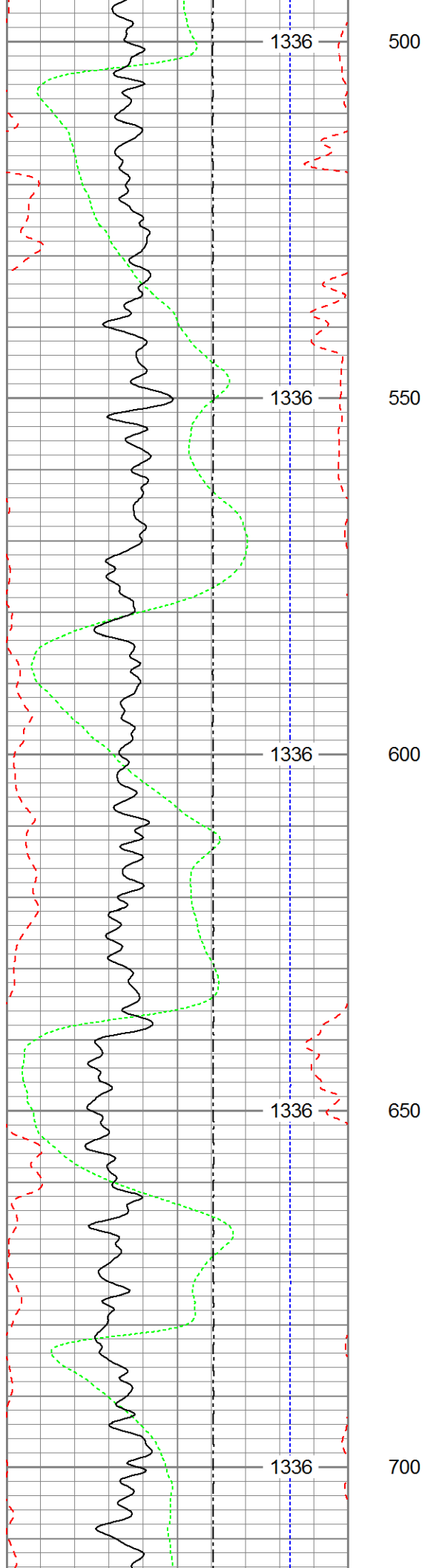
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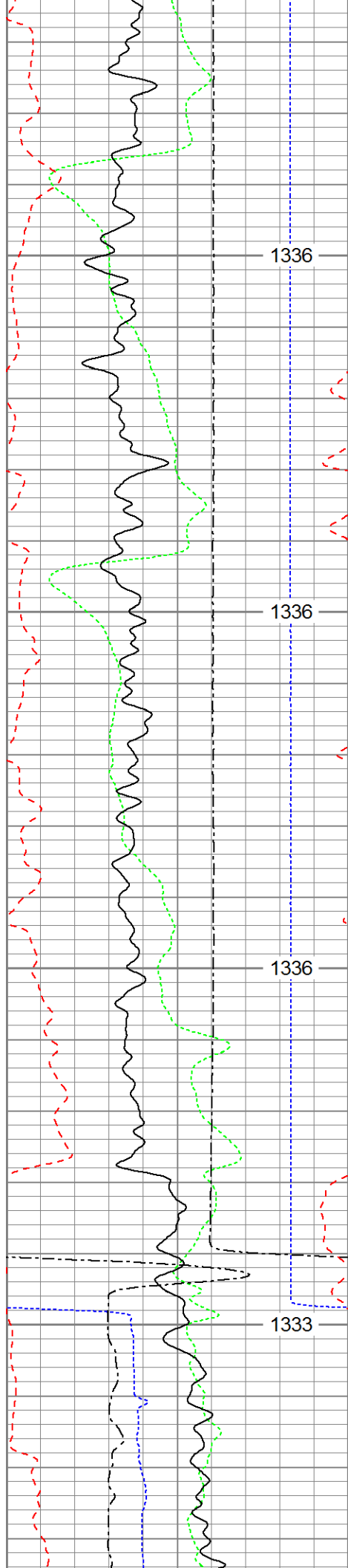
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250









1336

750

1336

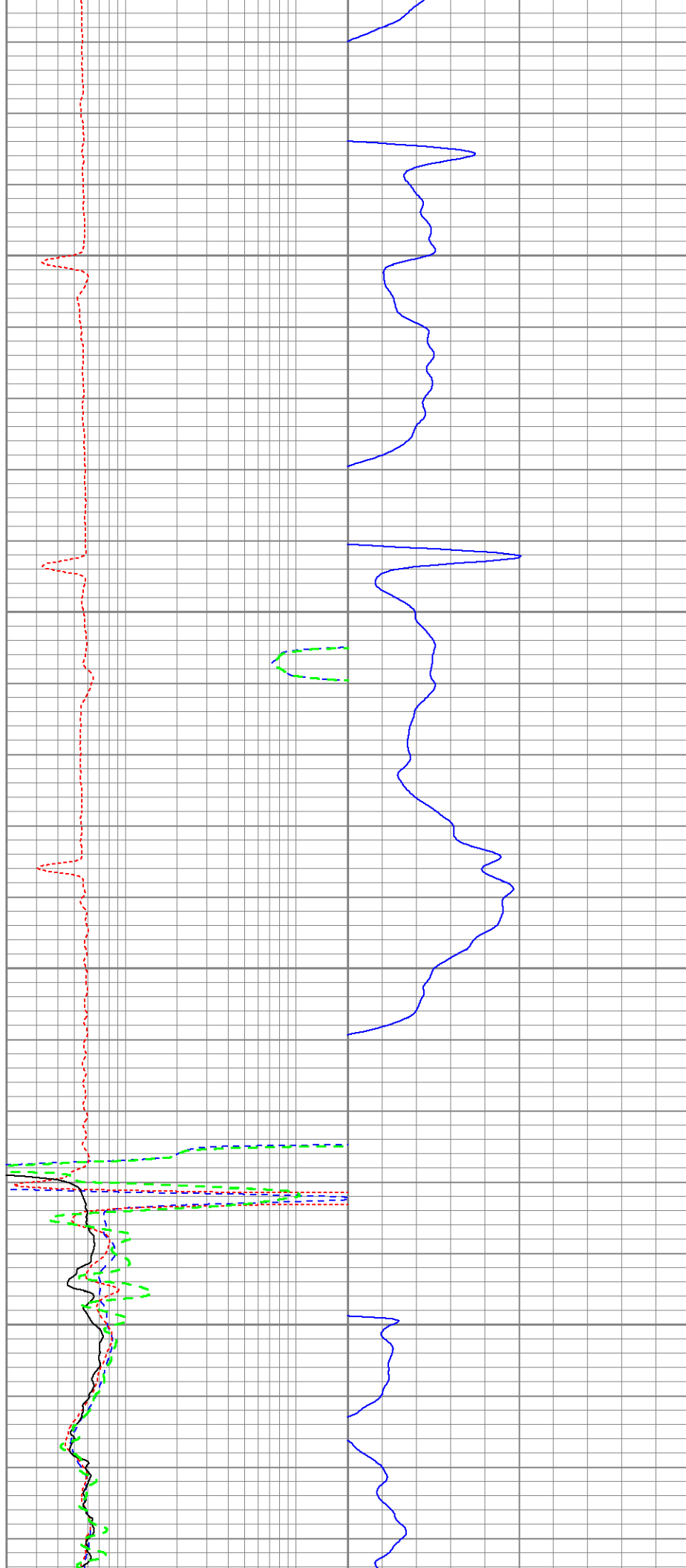
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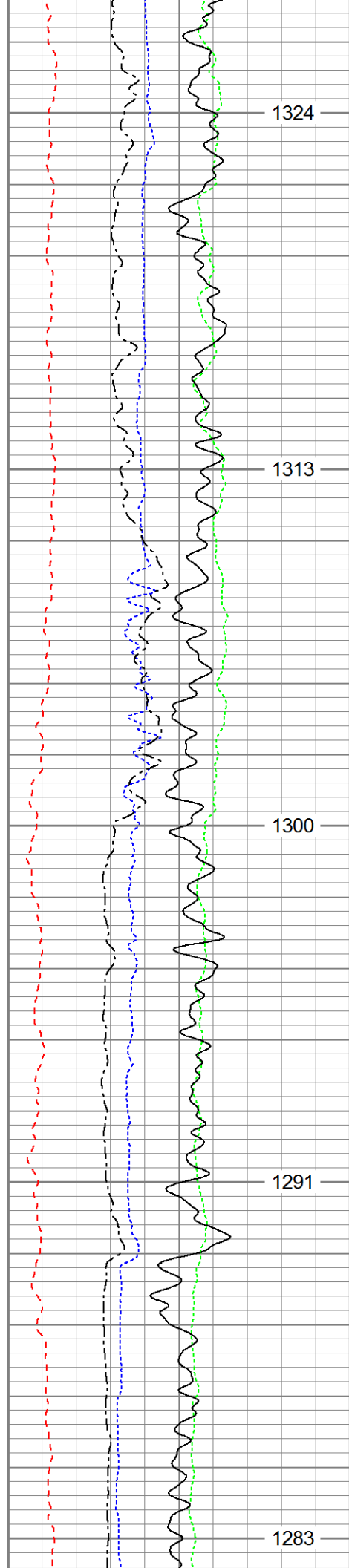
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1333

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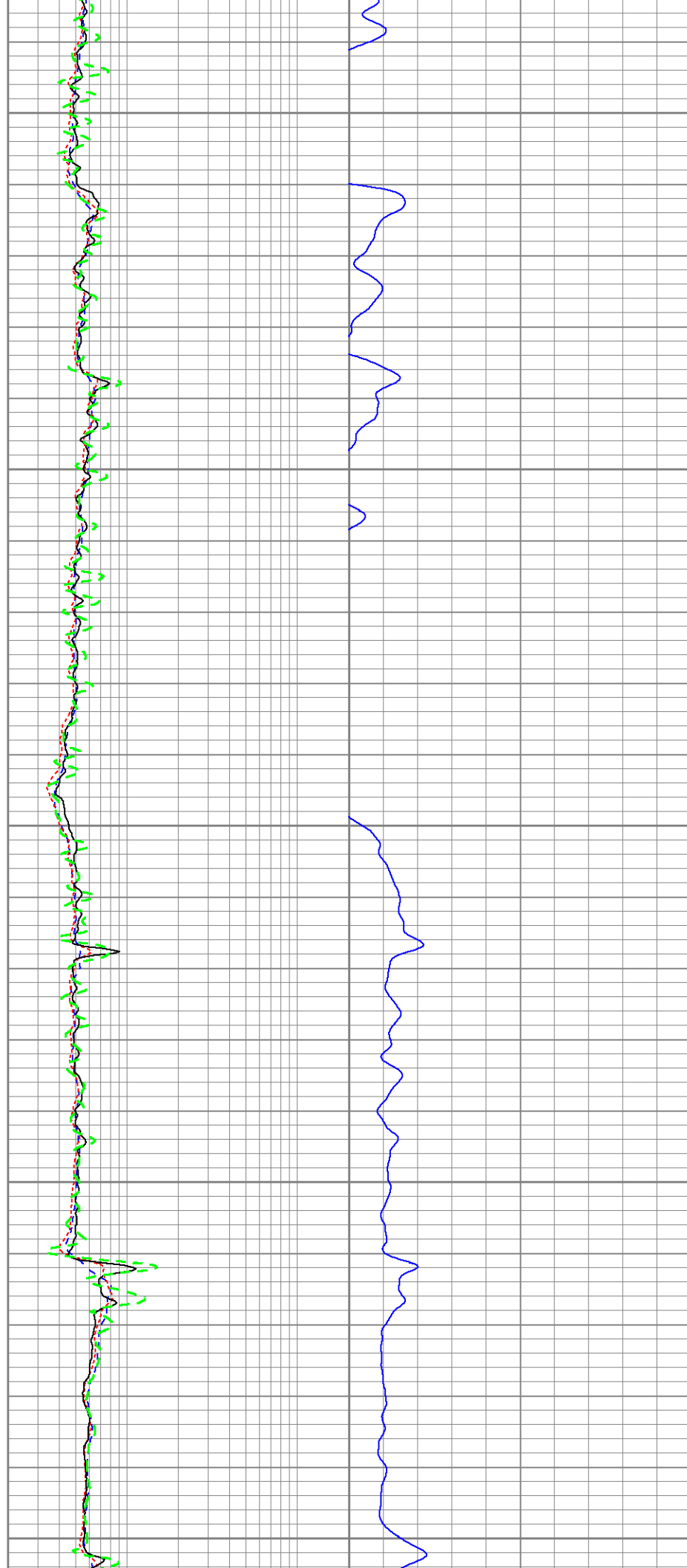
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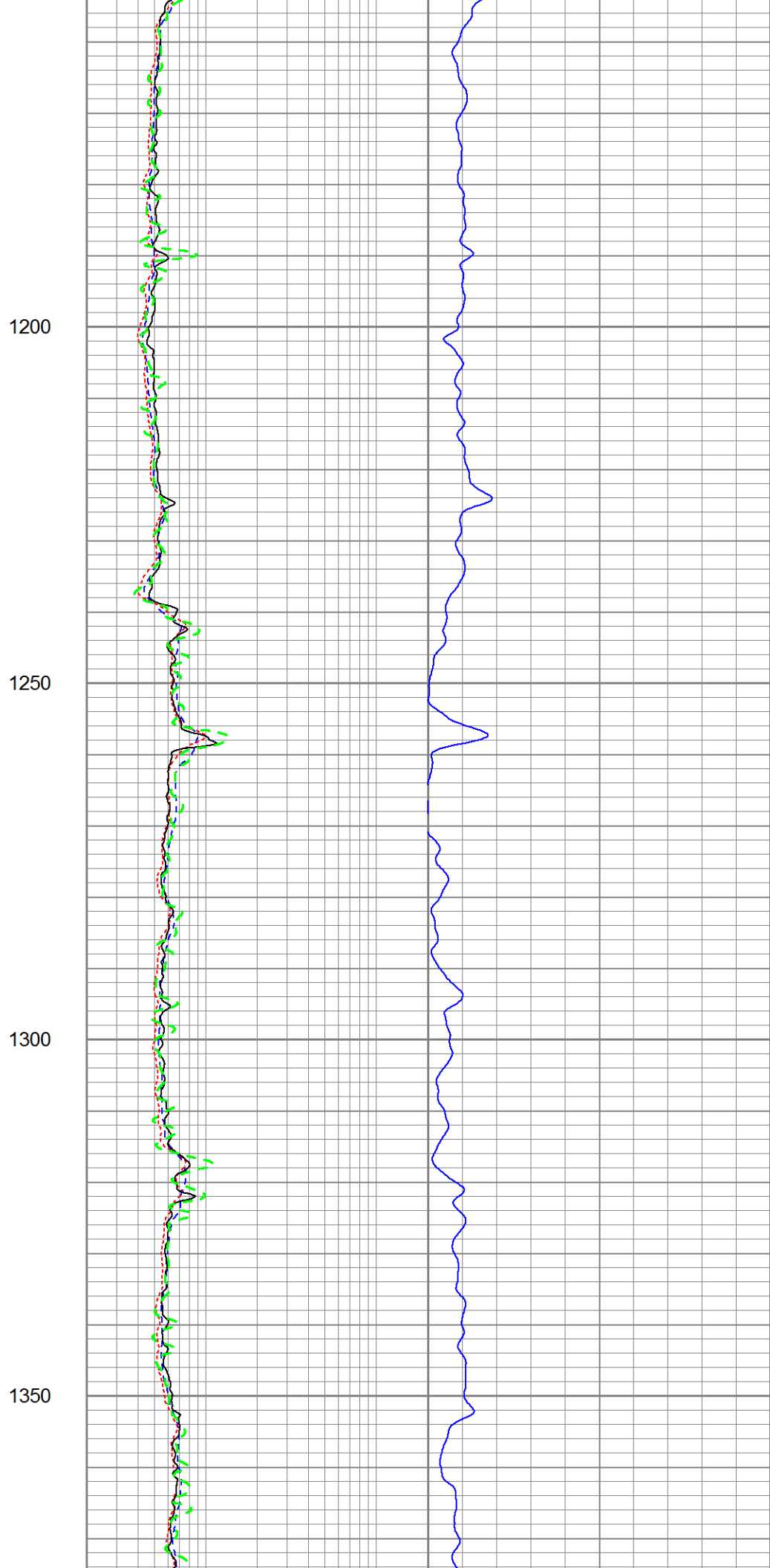
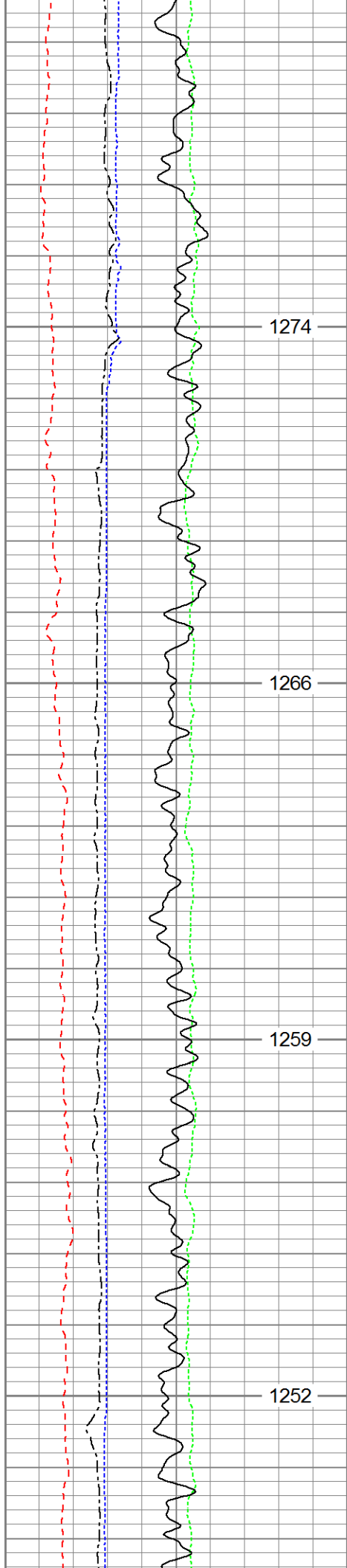
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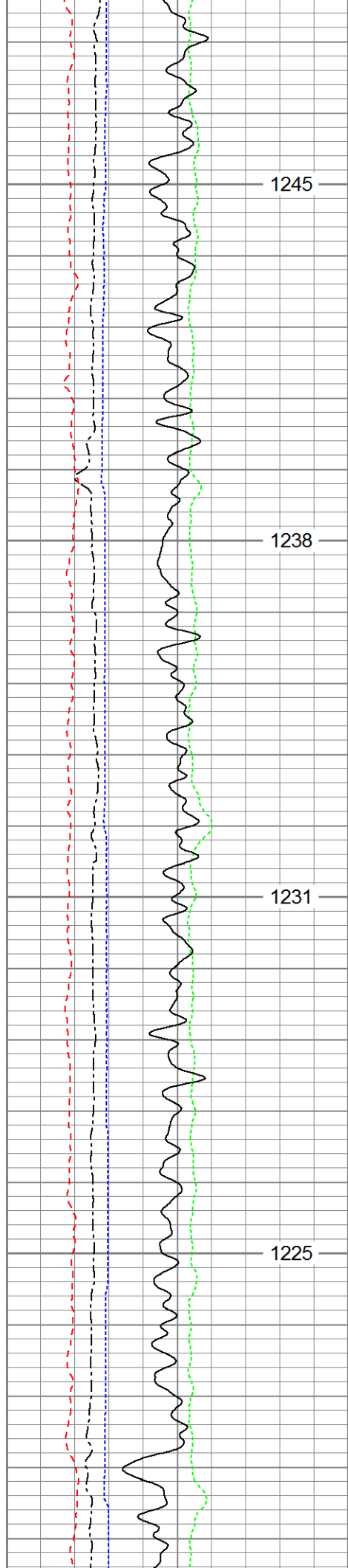
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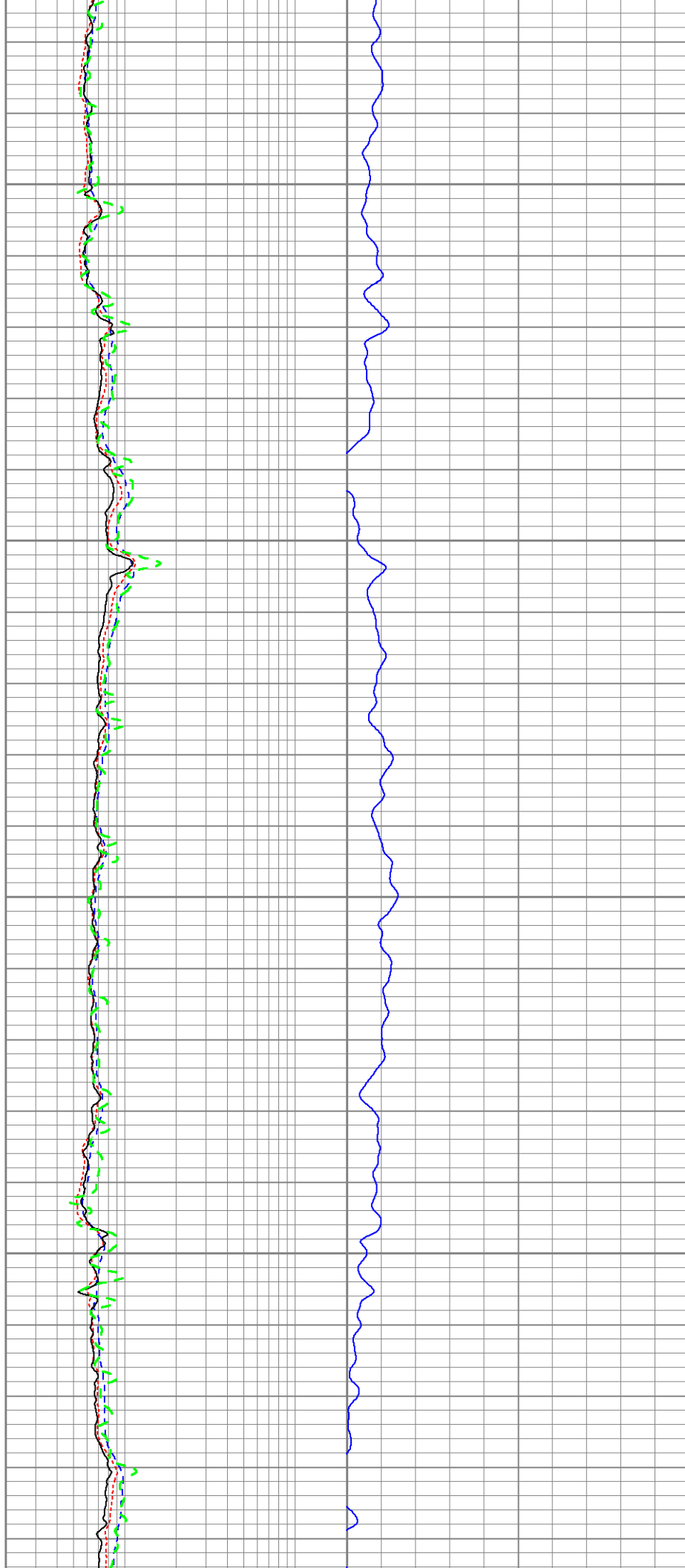


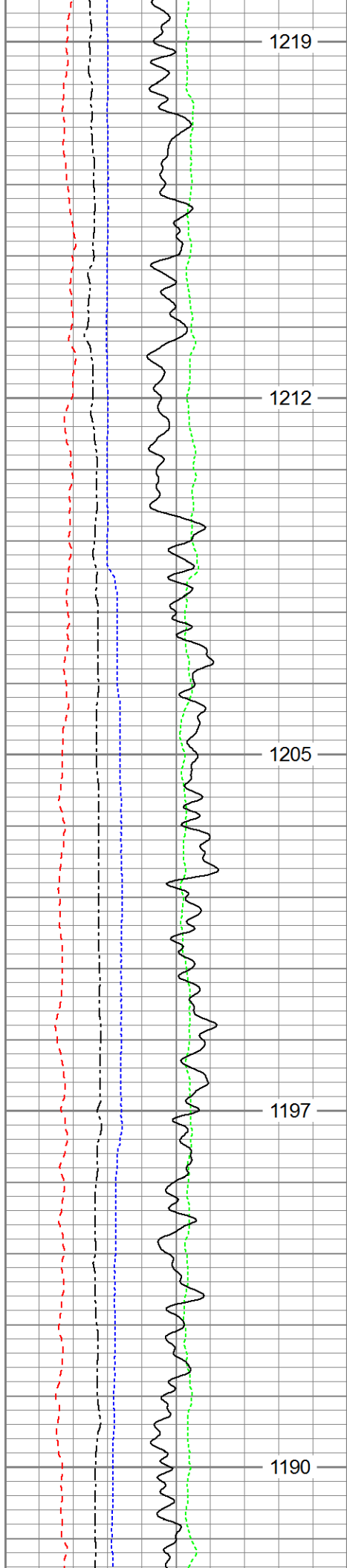
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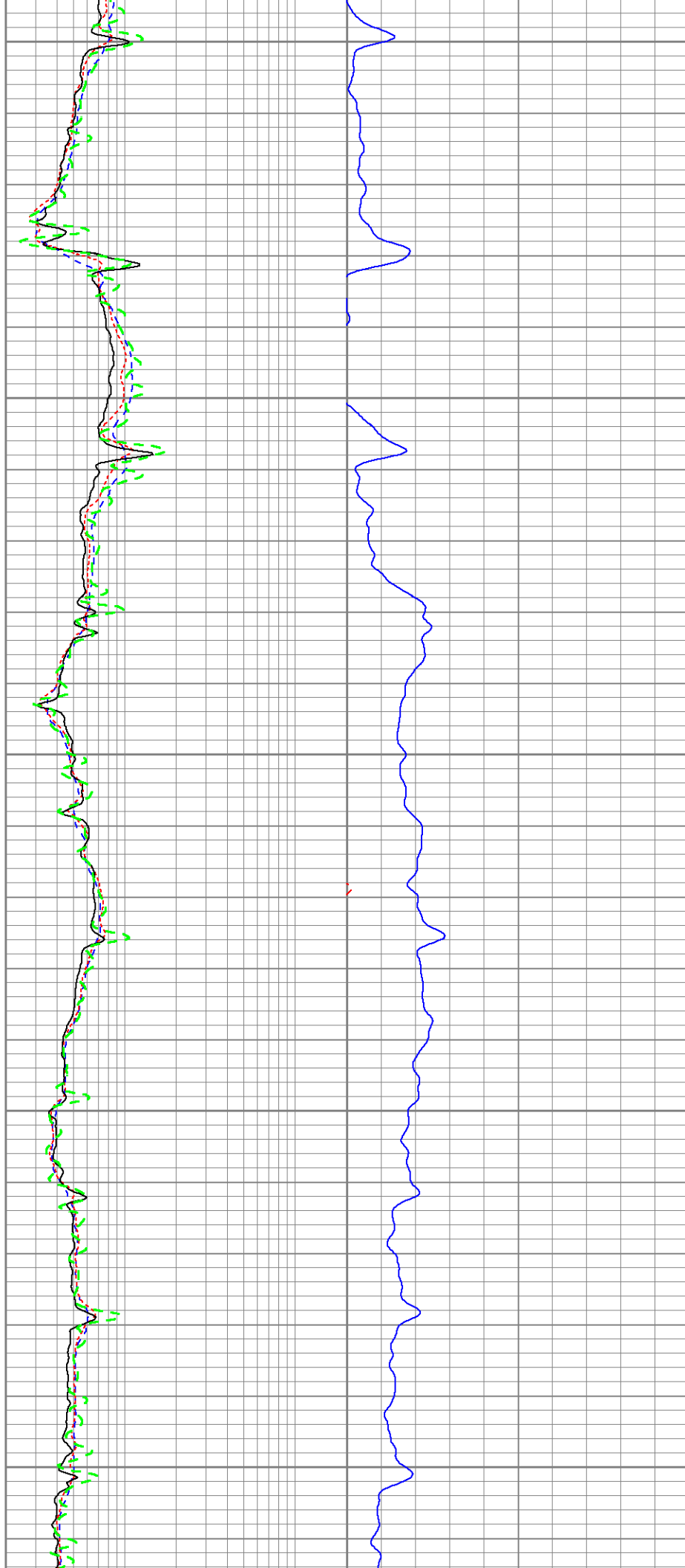
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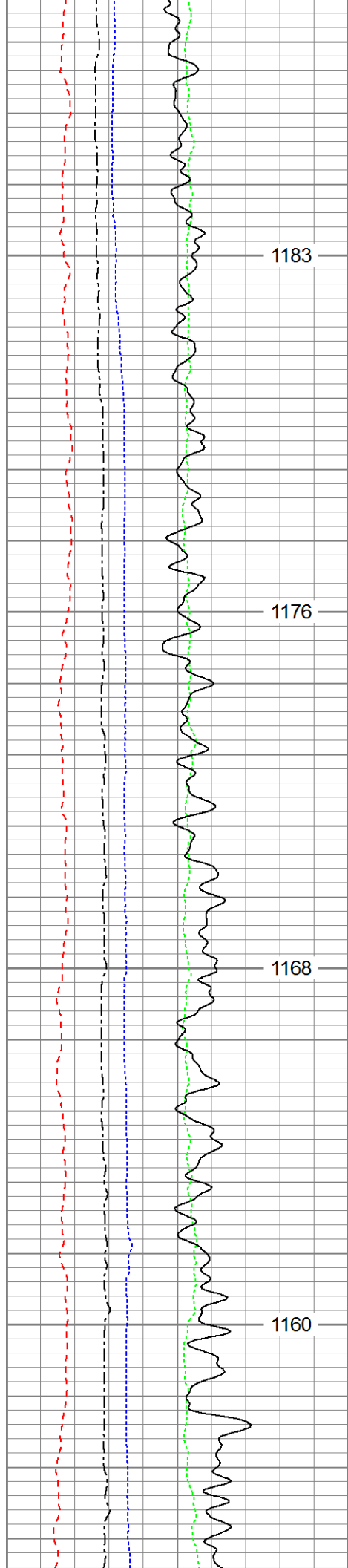
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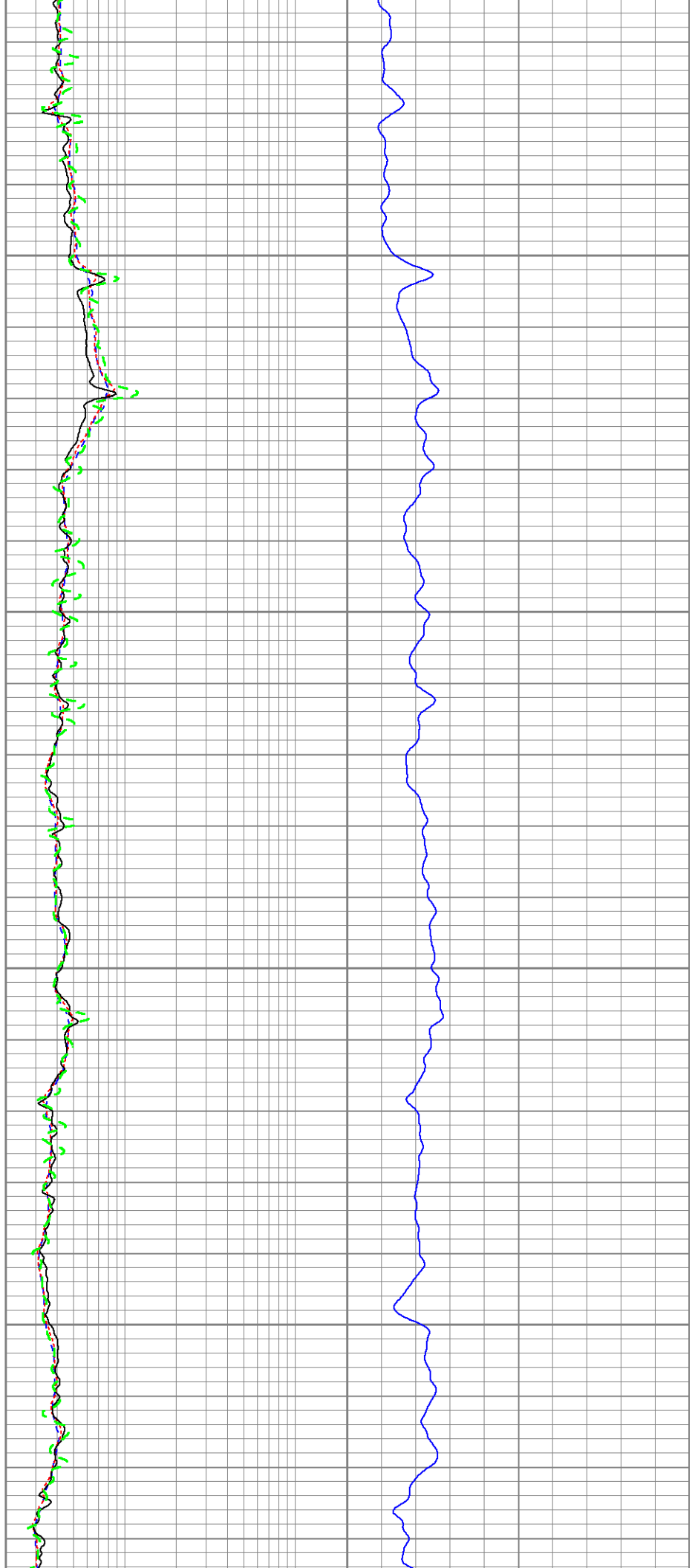


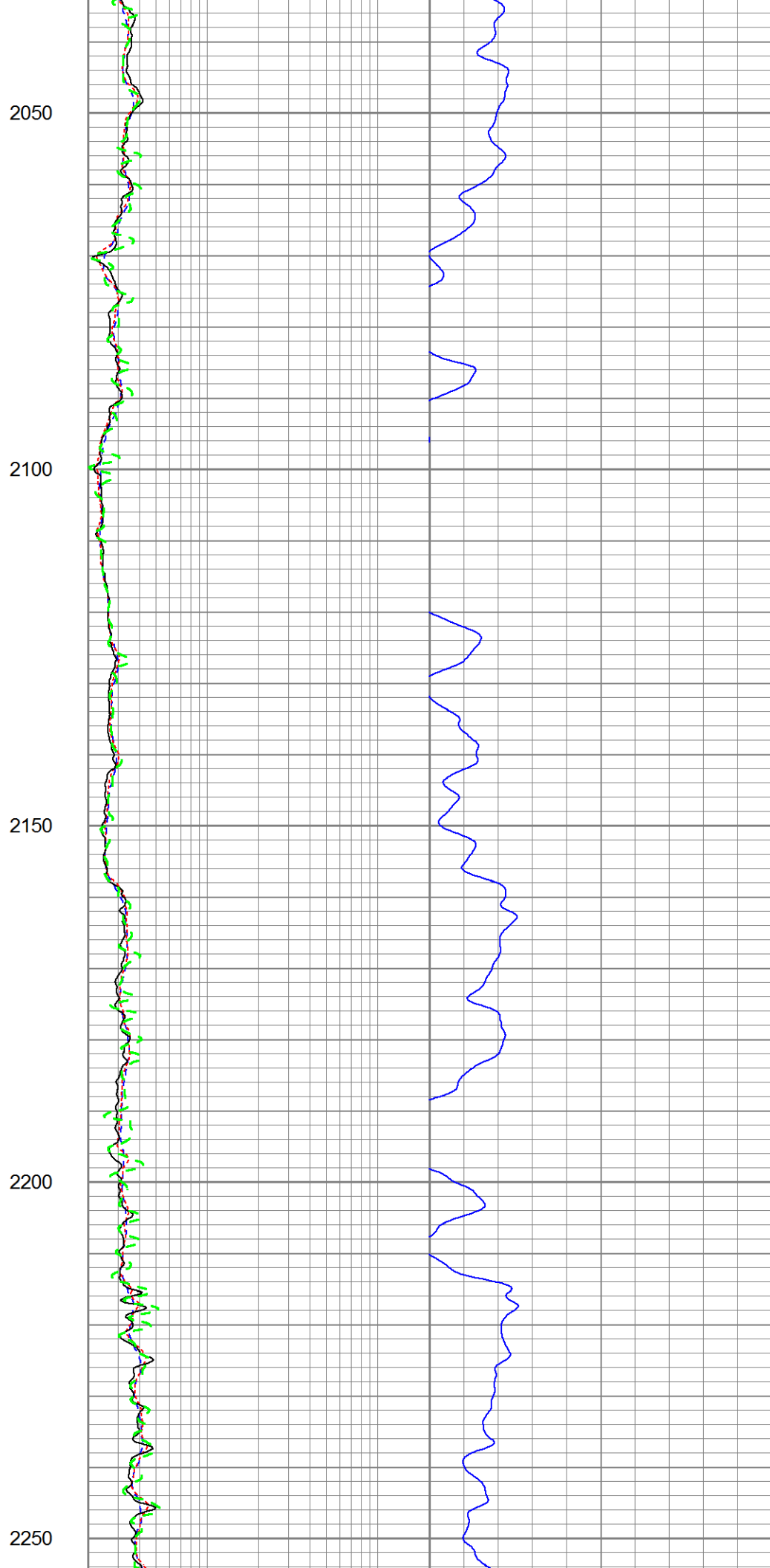
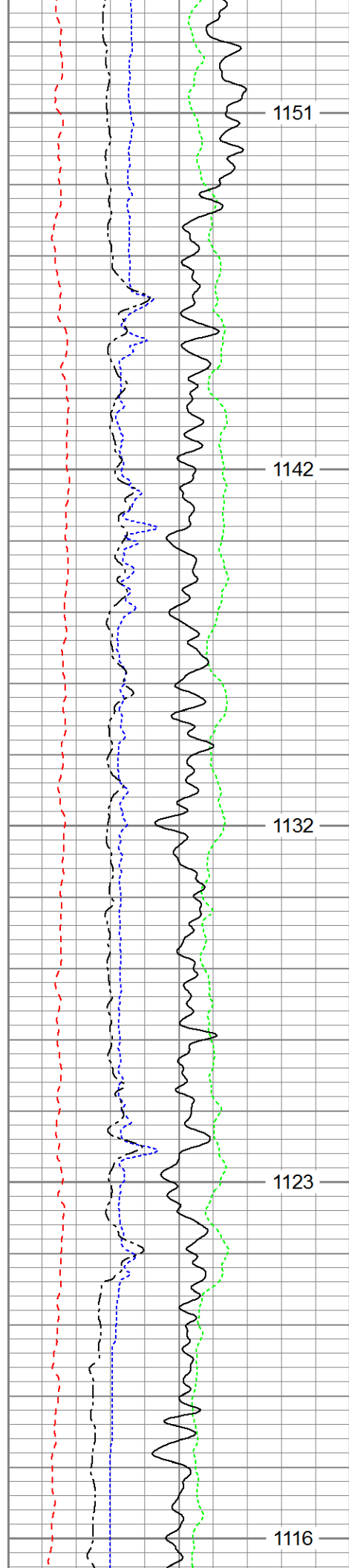
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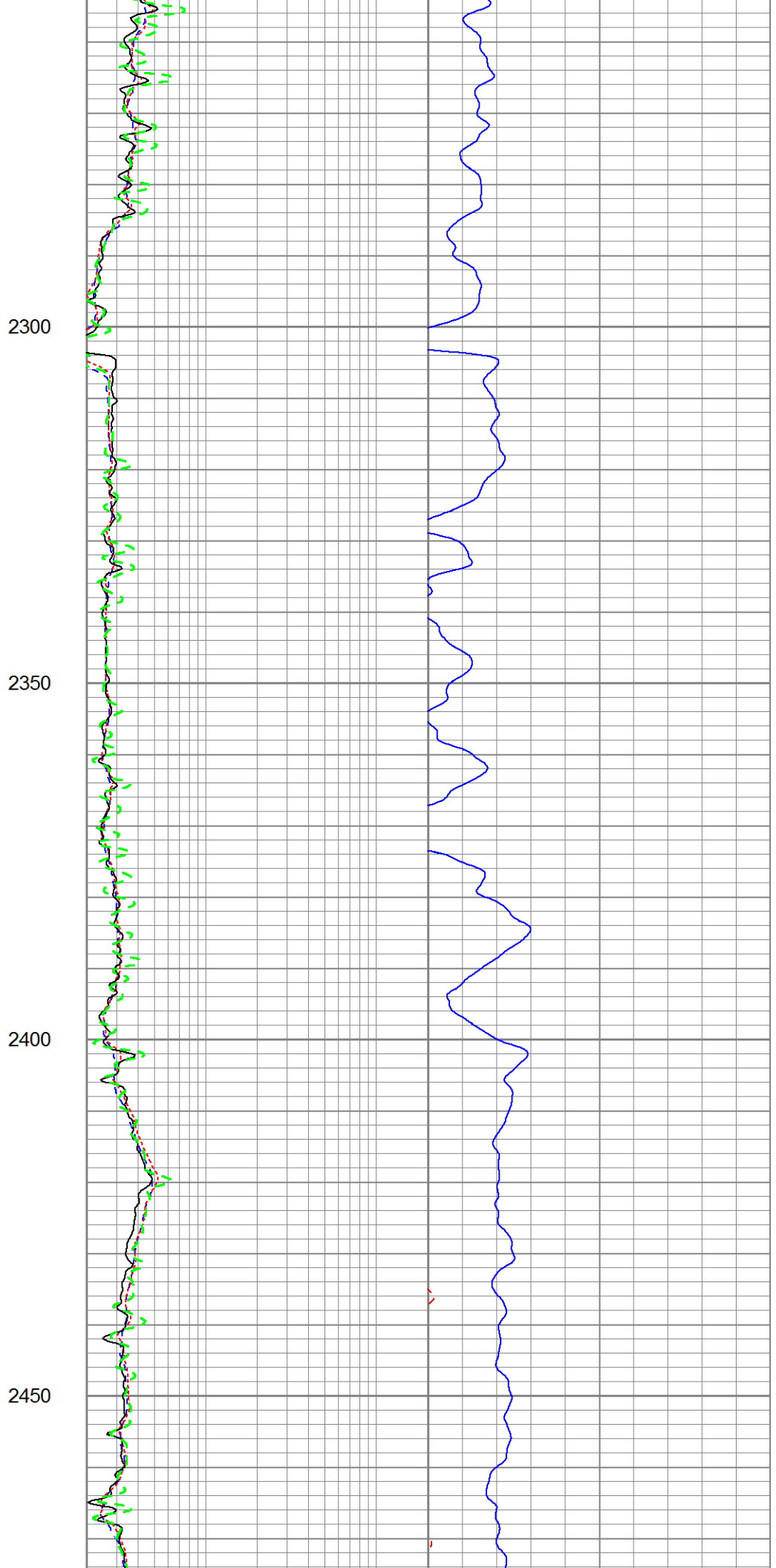
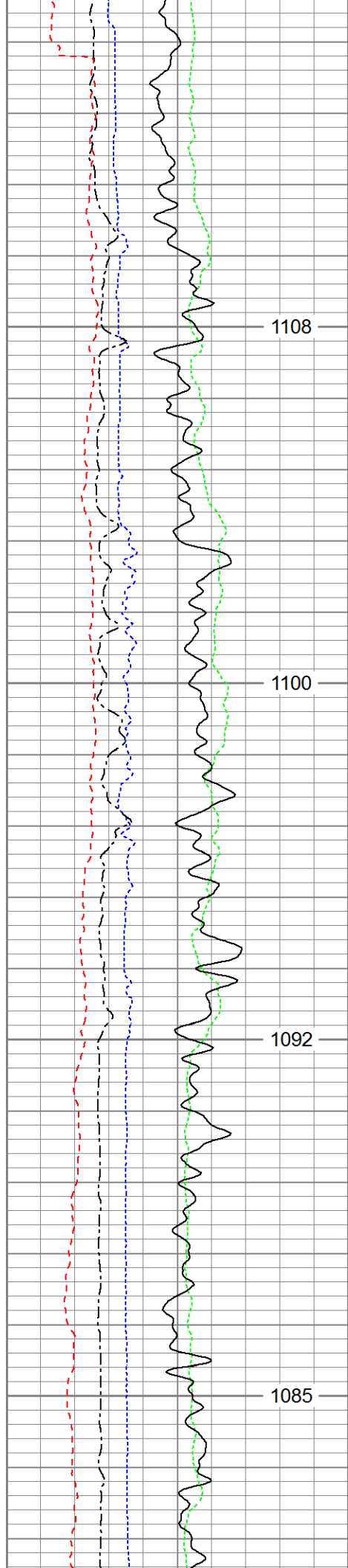
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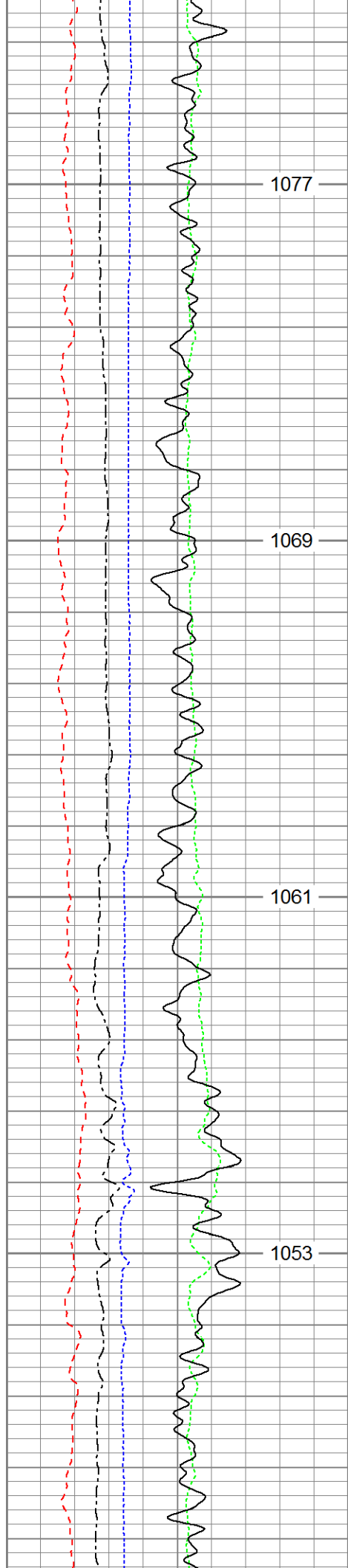
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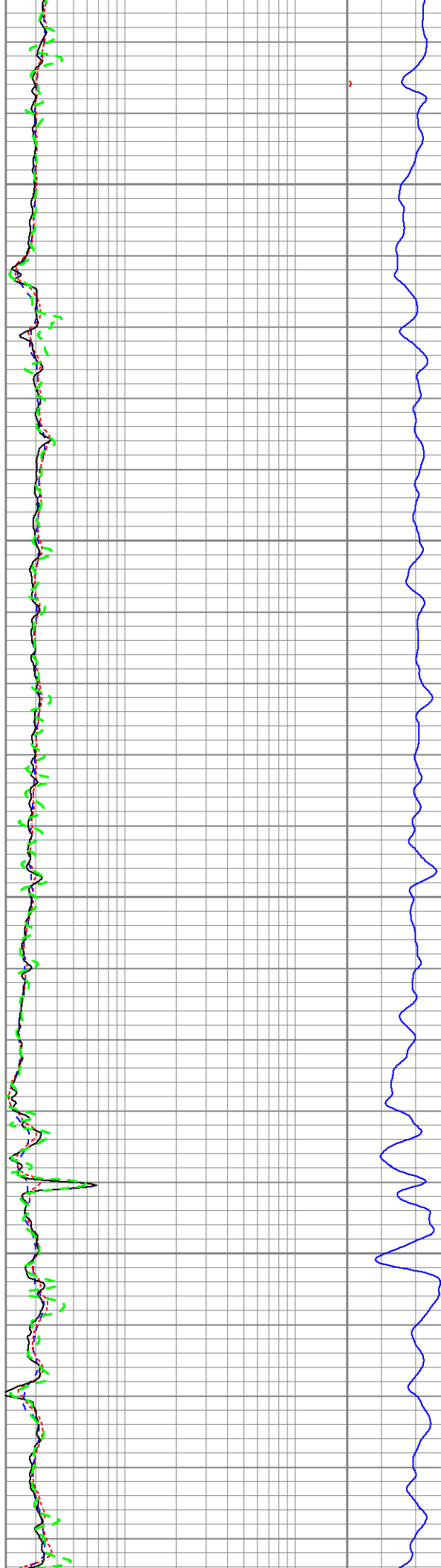


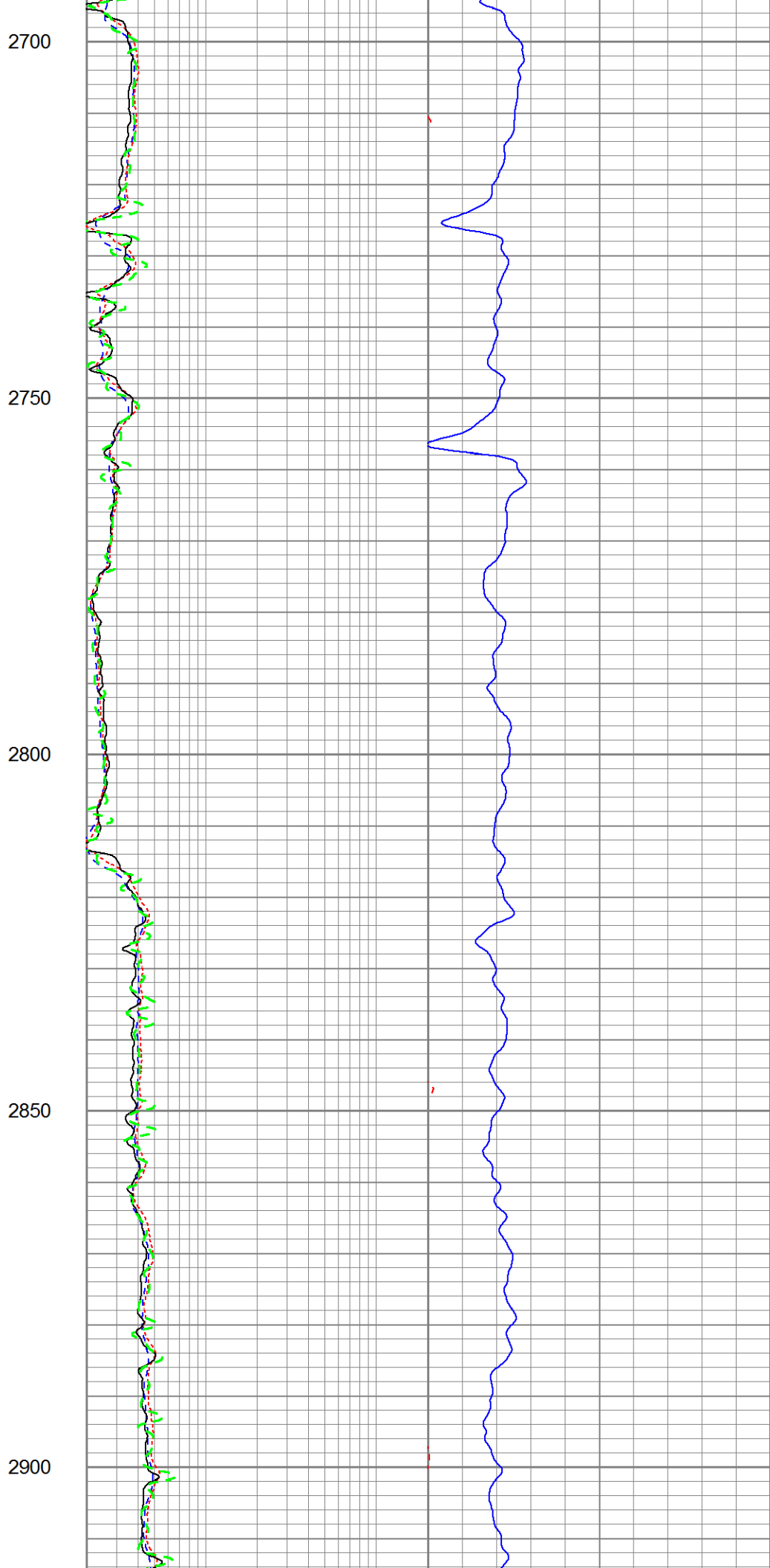
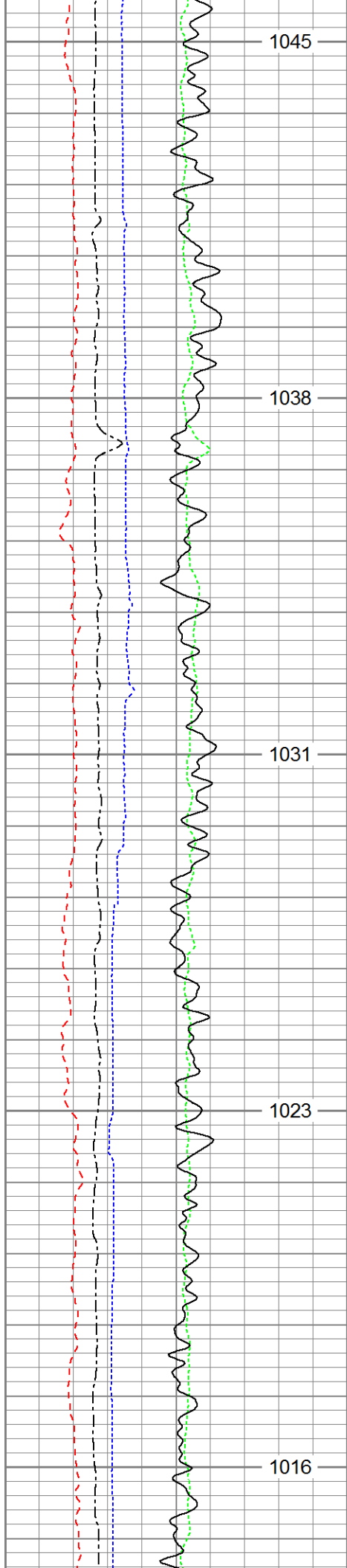
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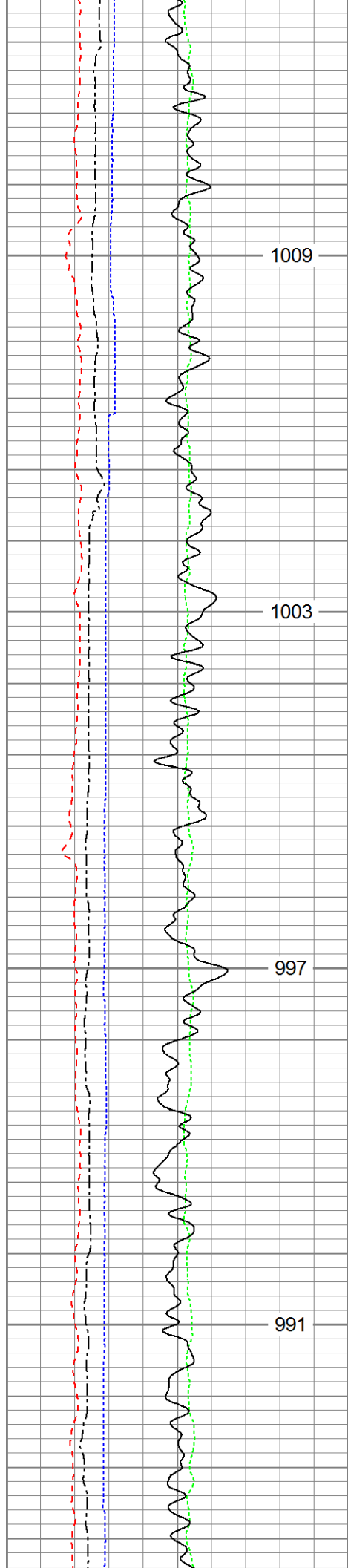
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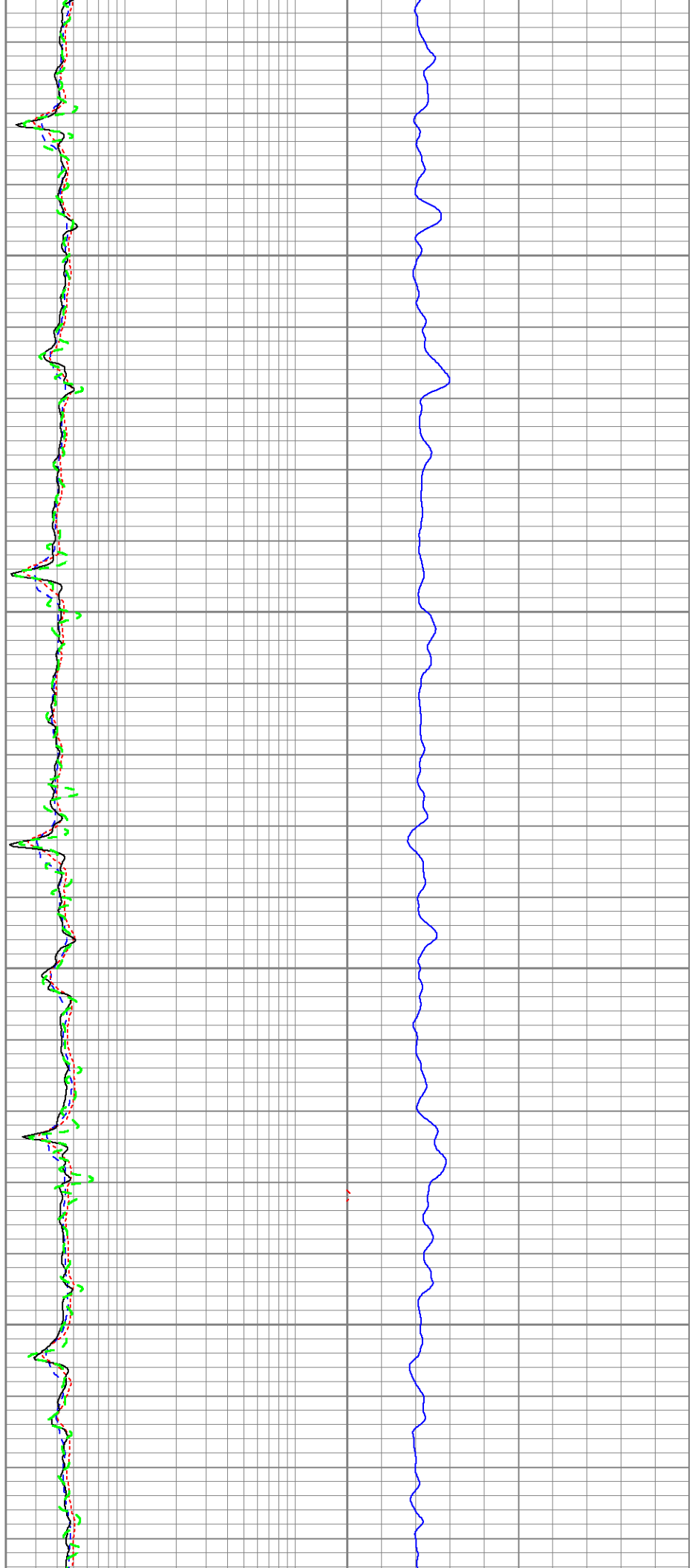


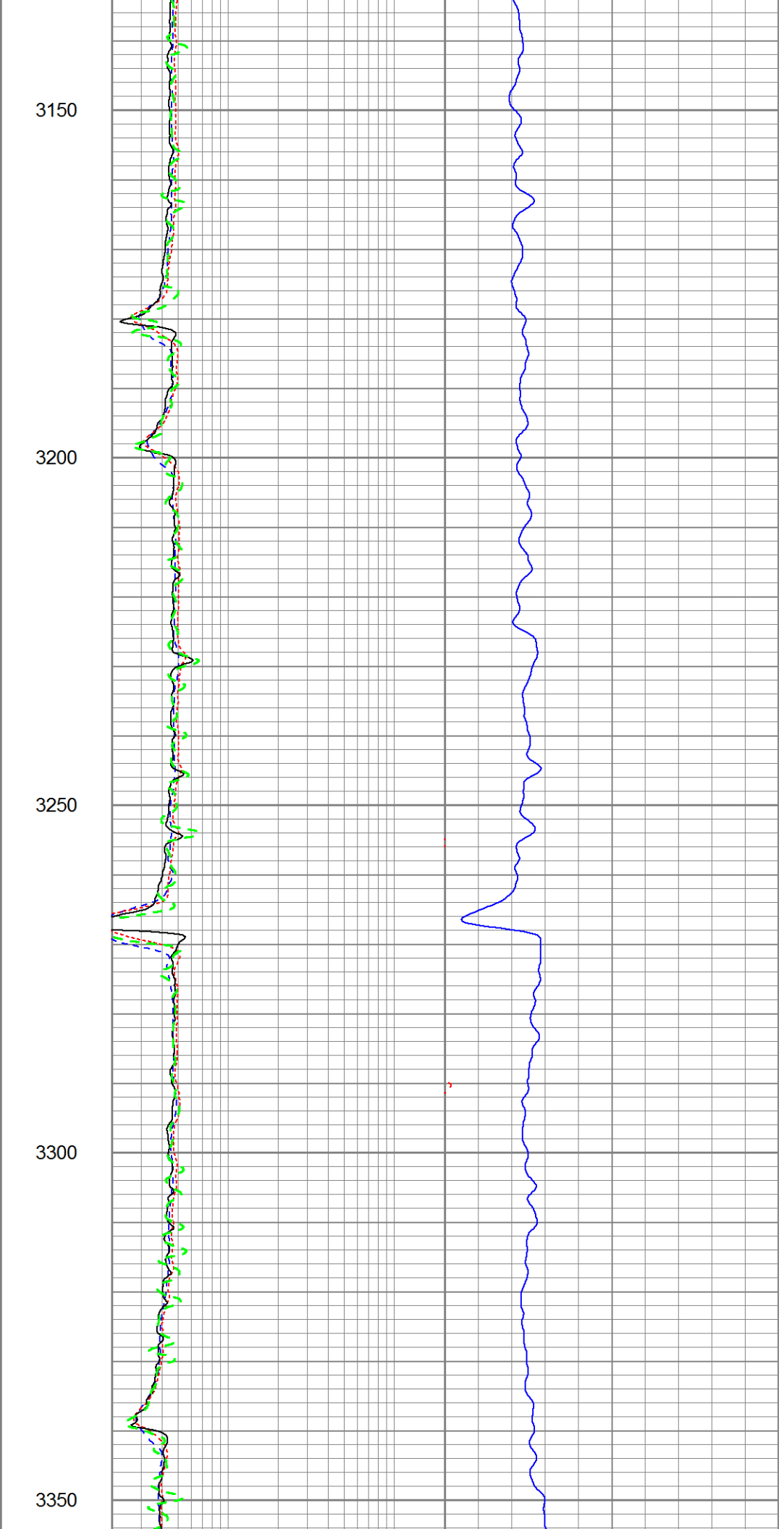
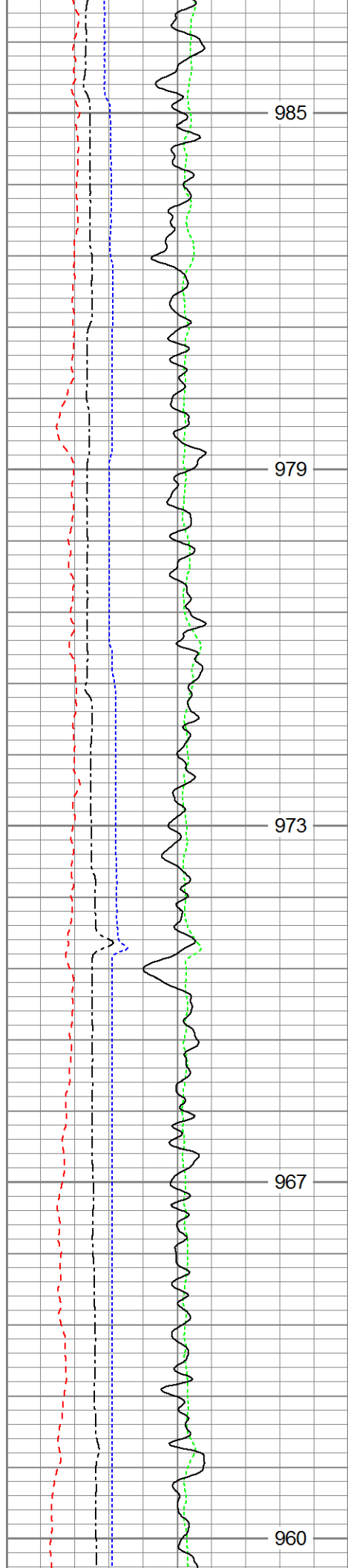
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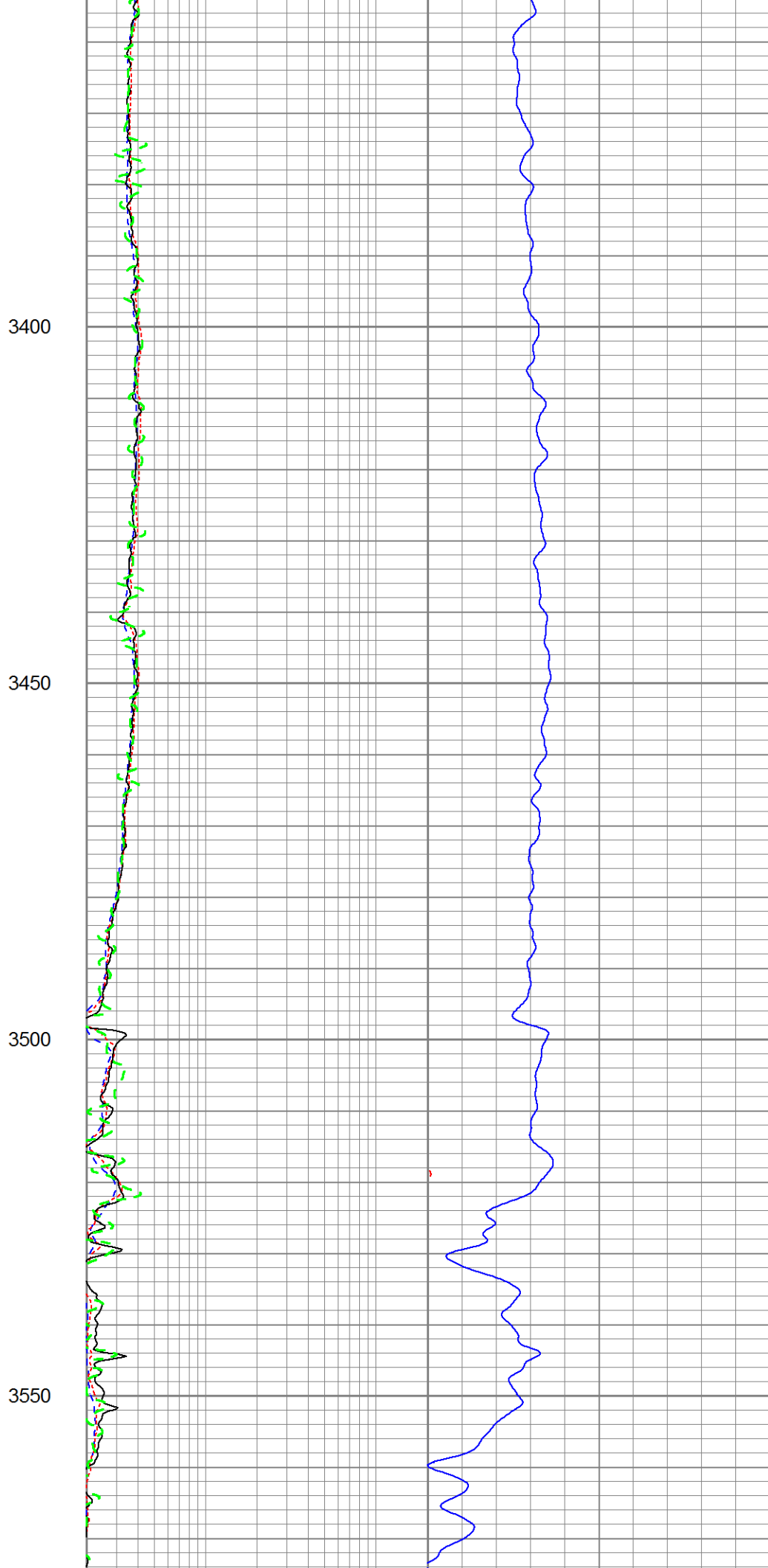
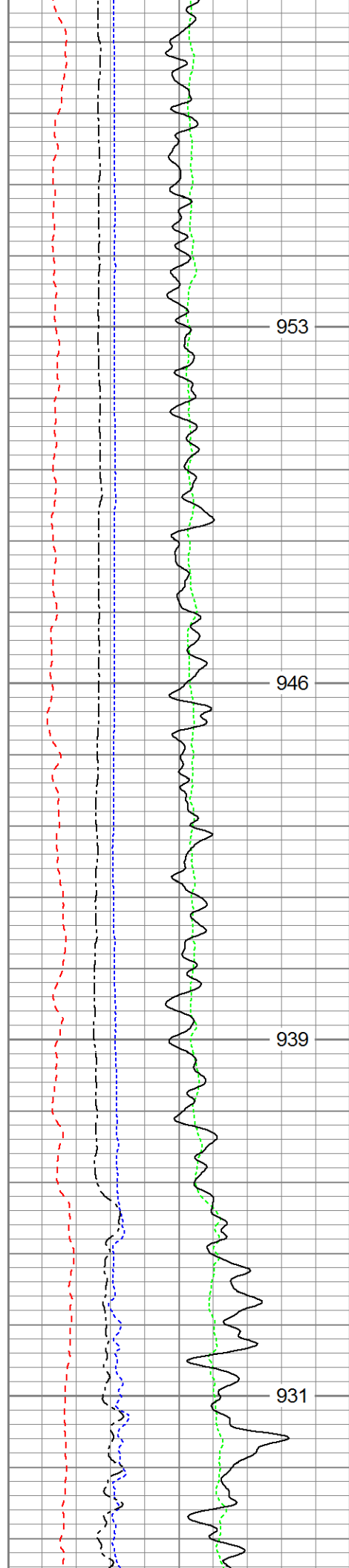
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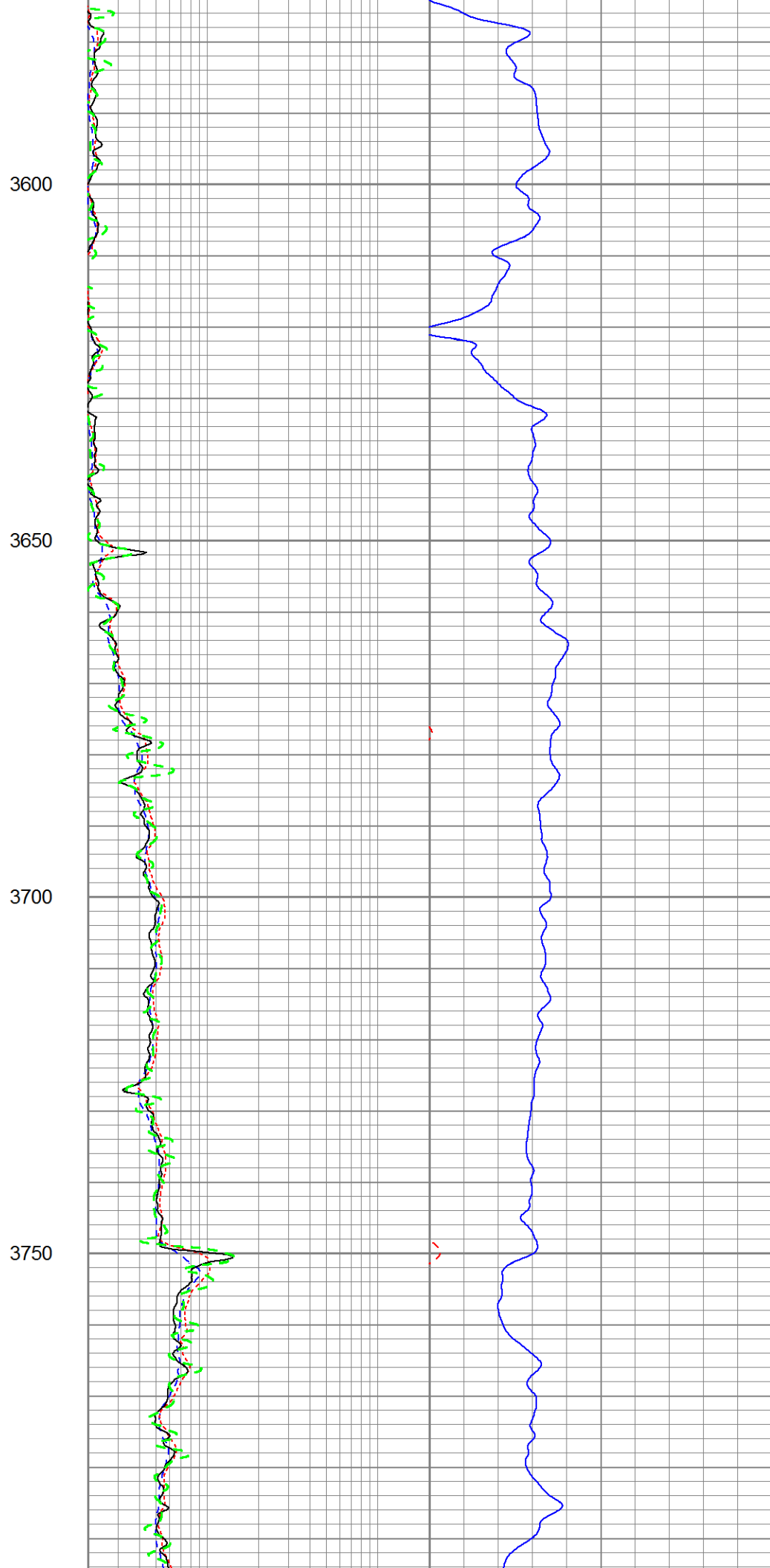
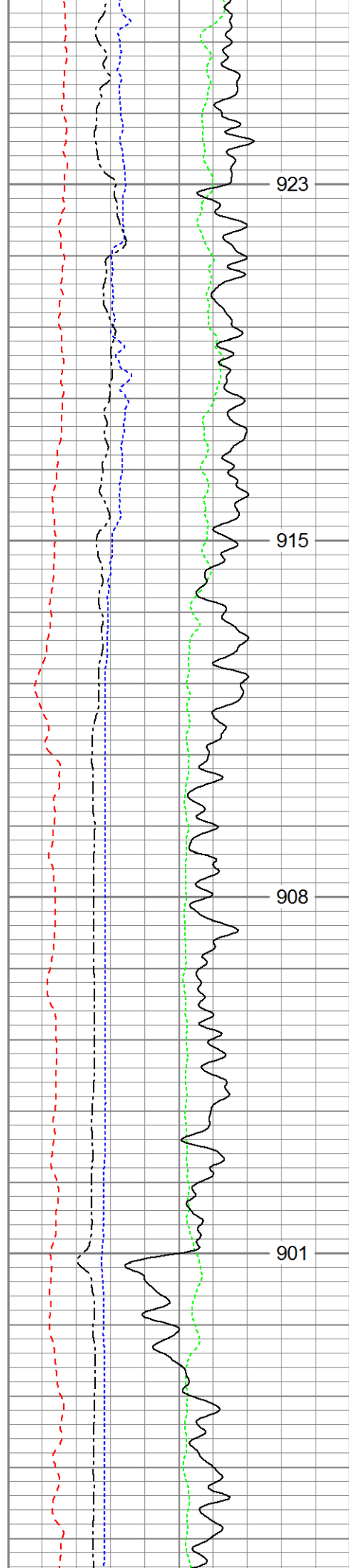
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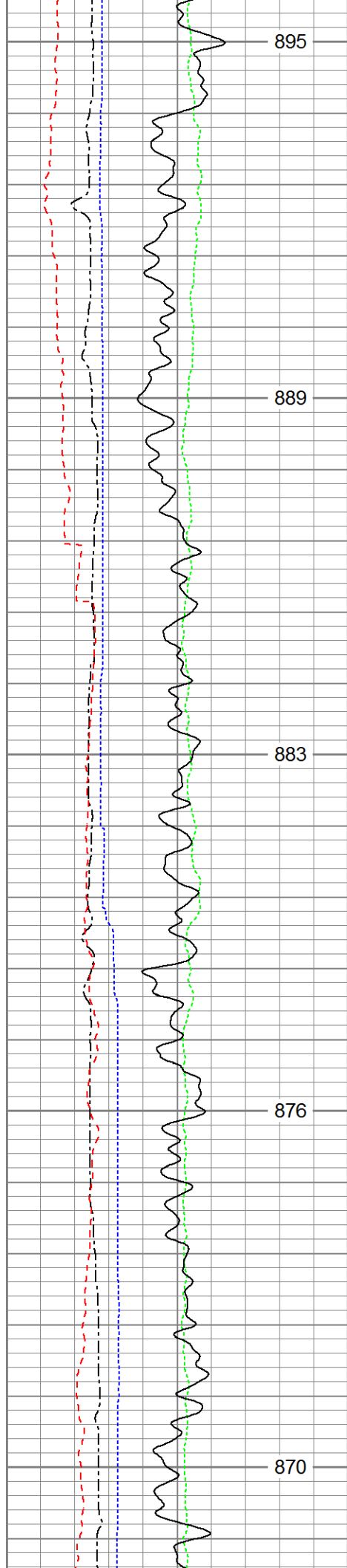
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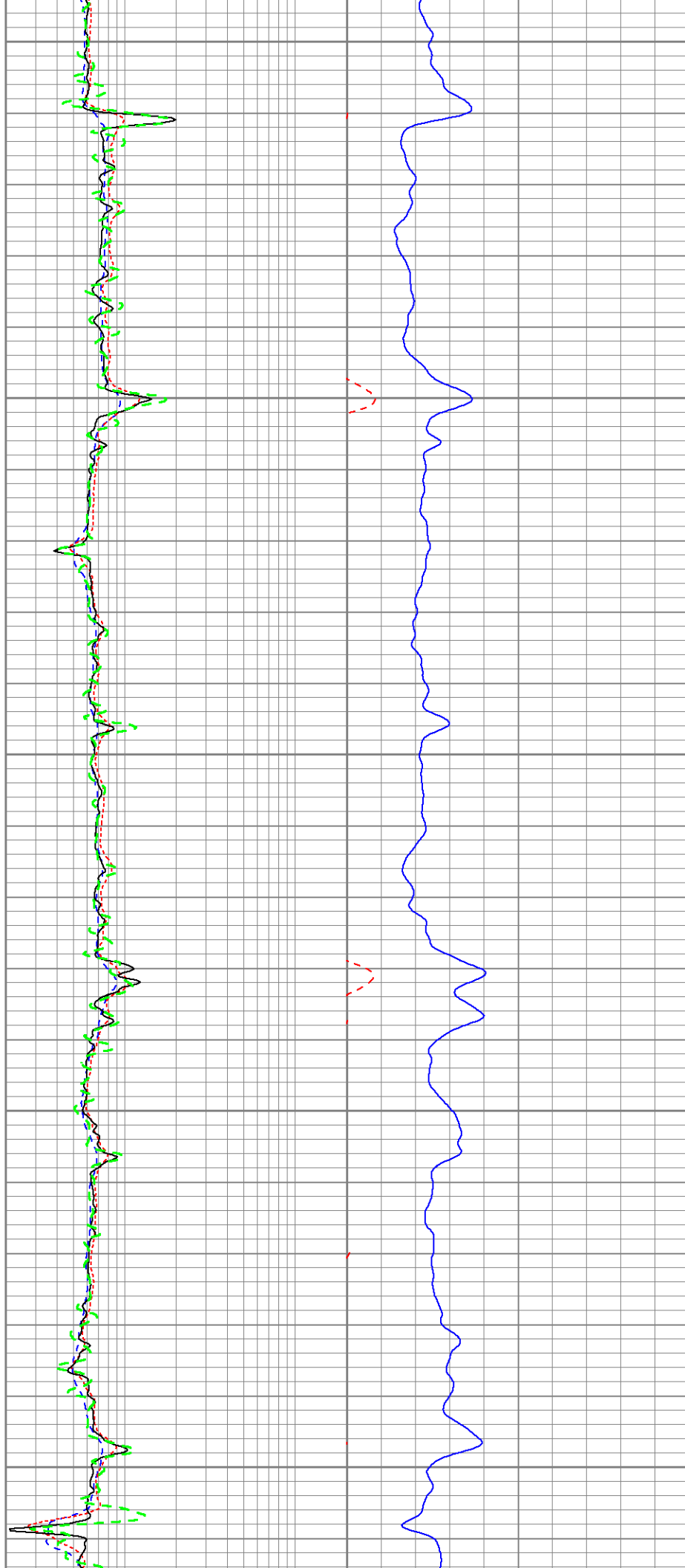
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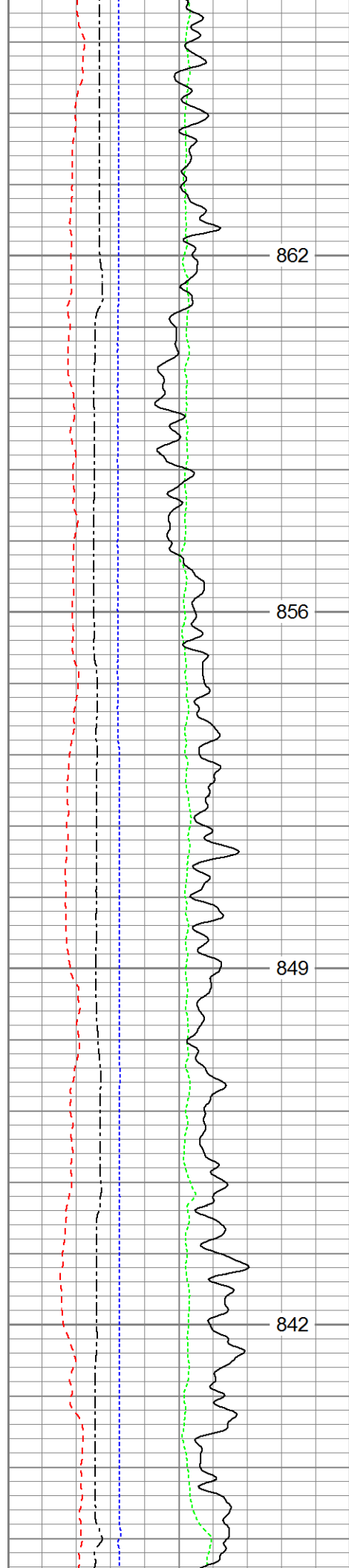
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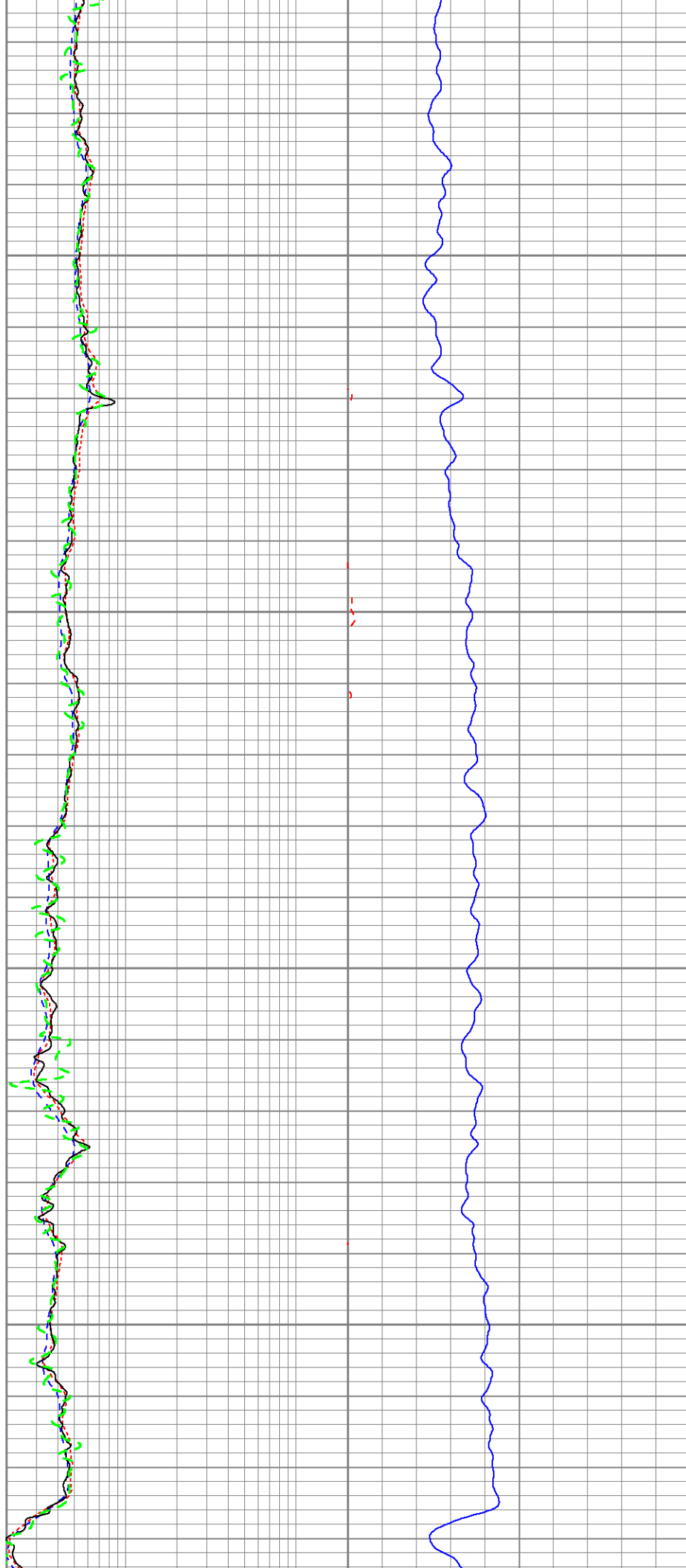


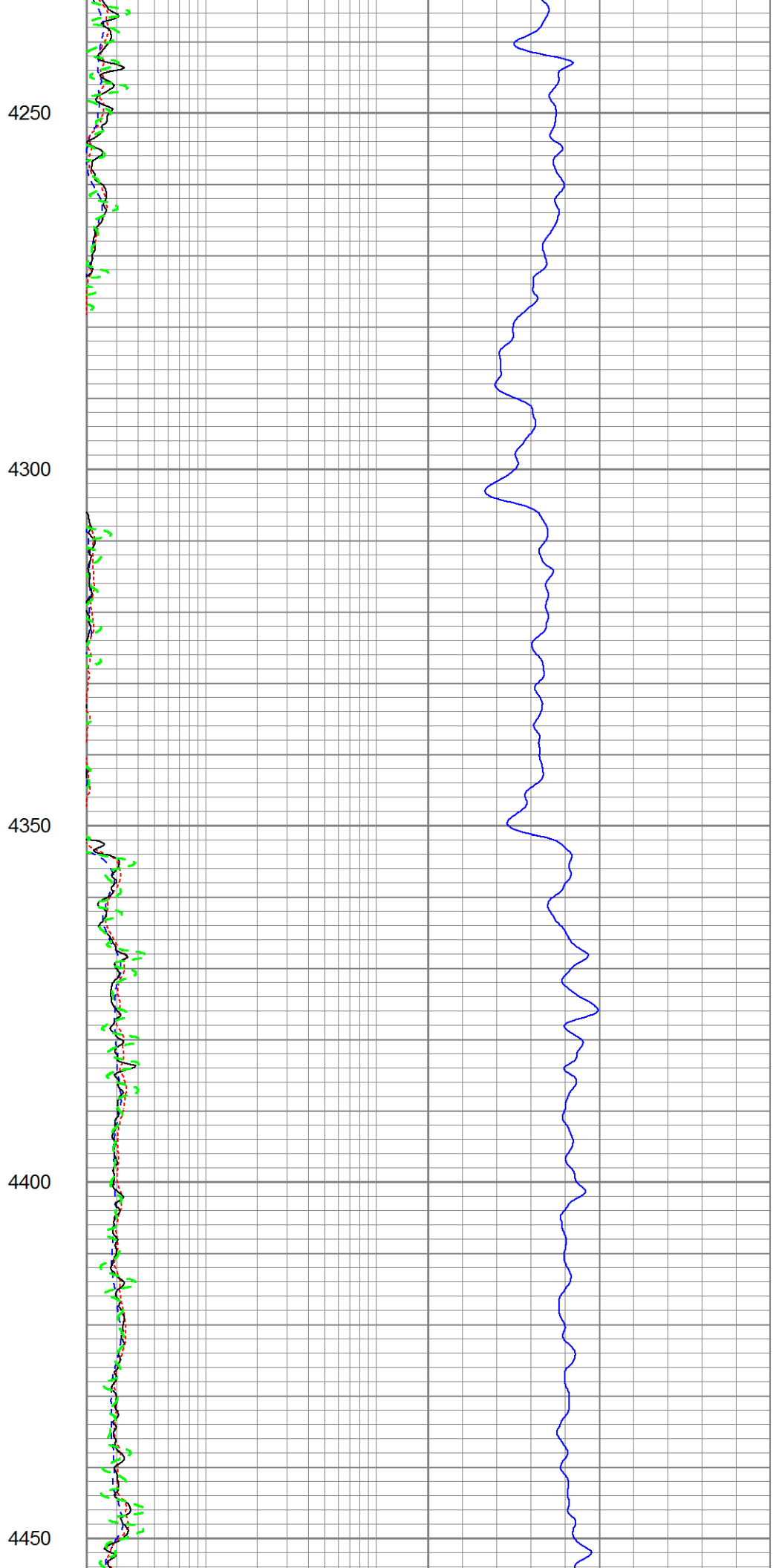
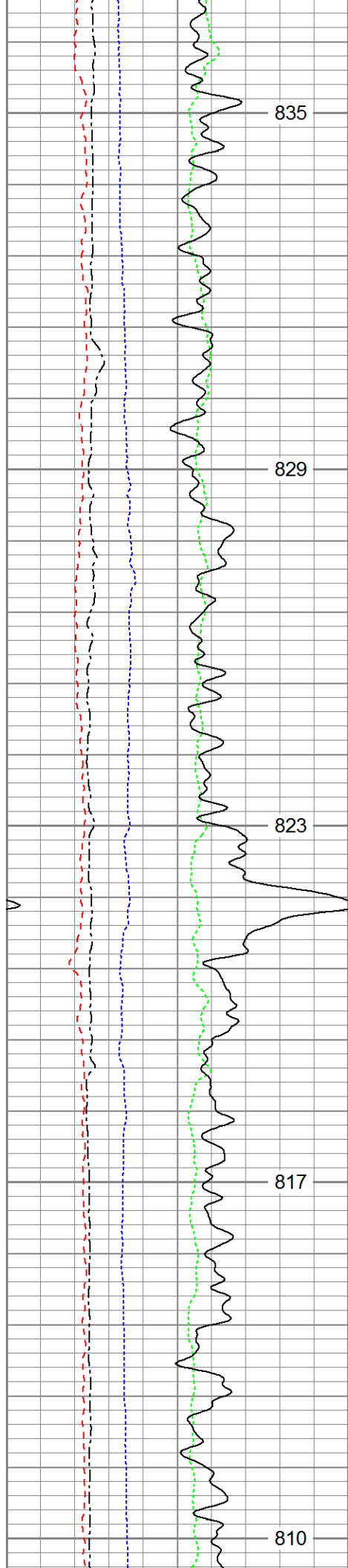
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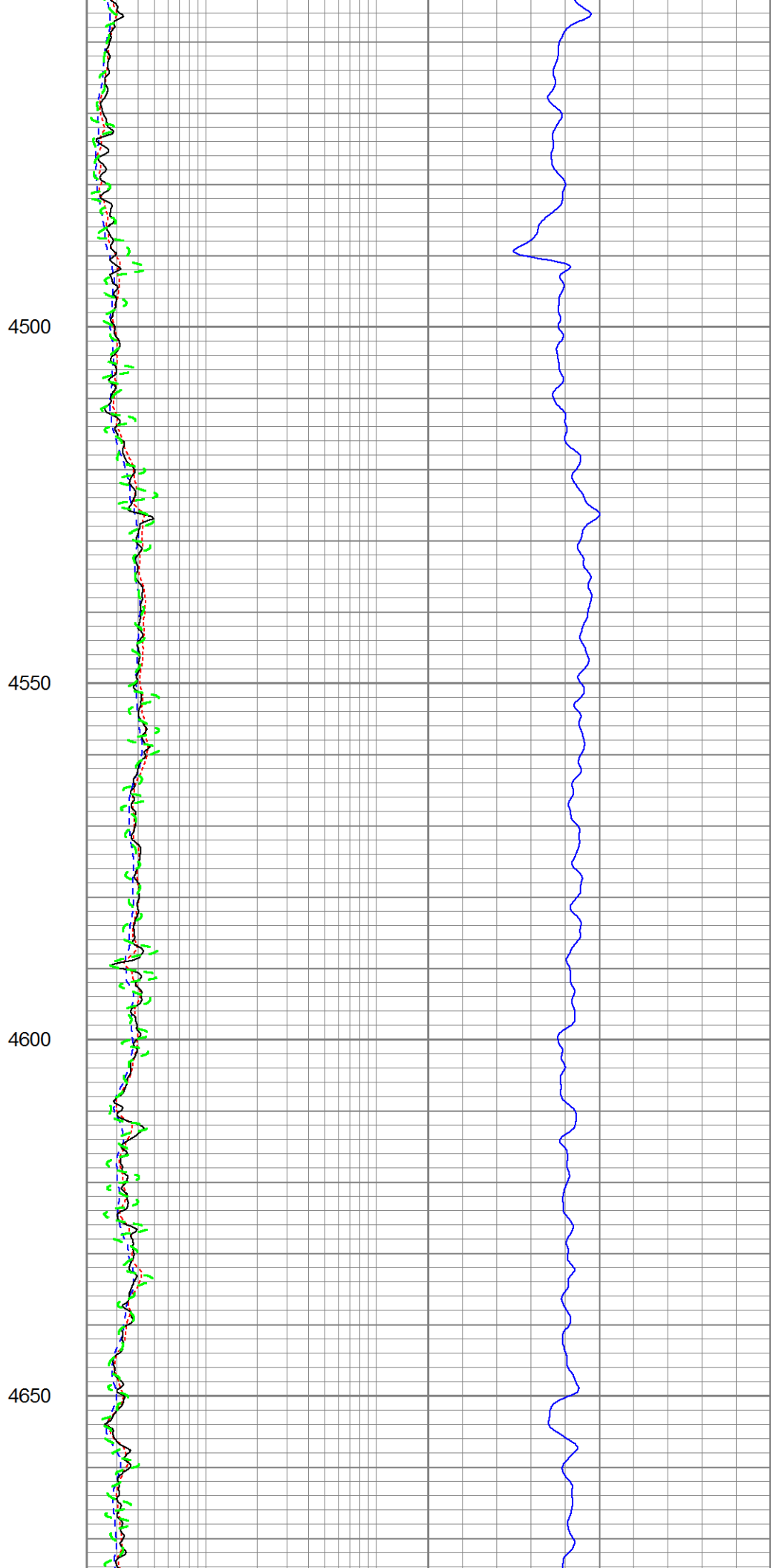
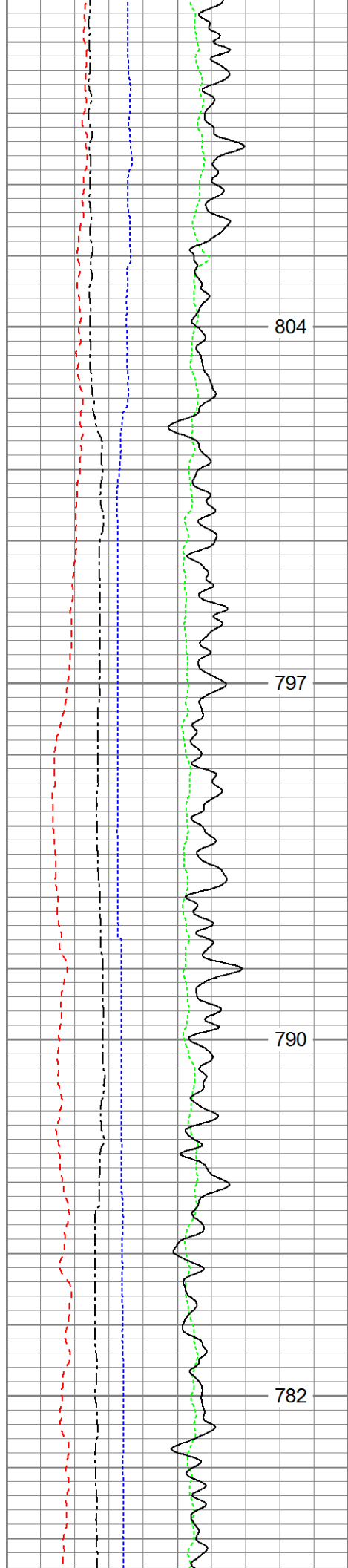
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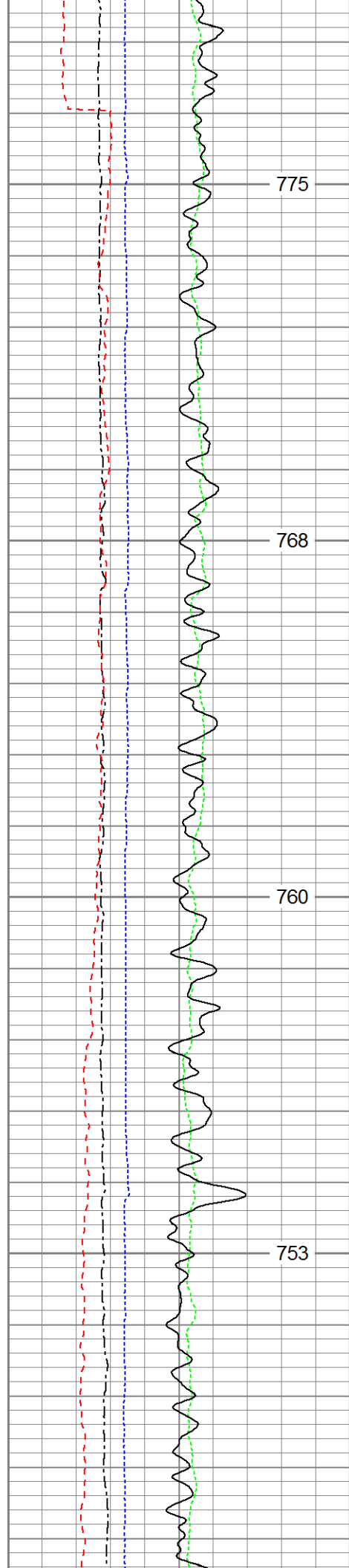
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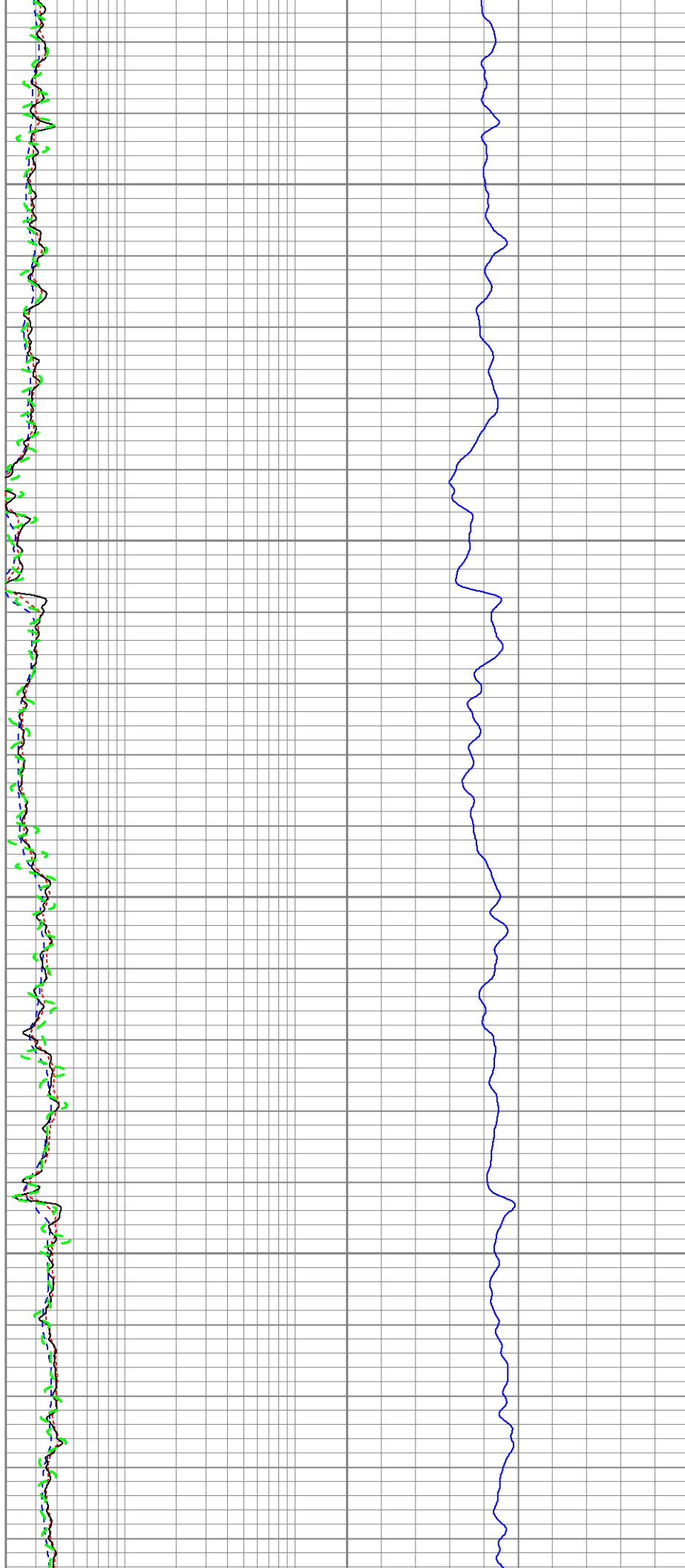


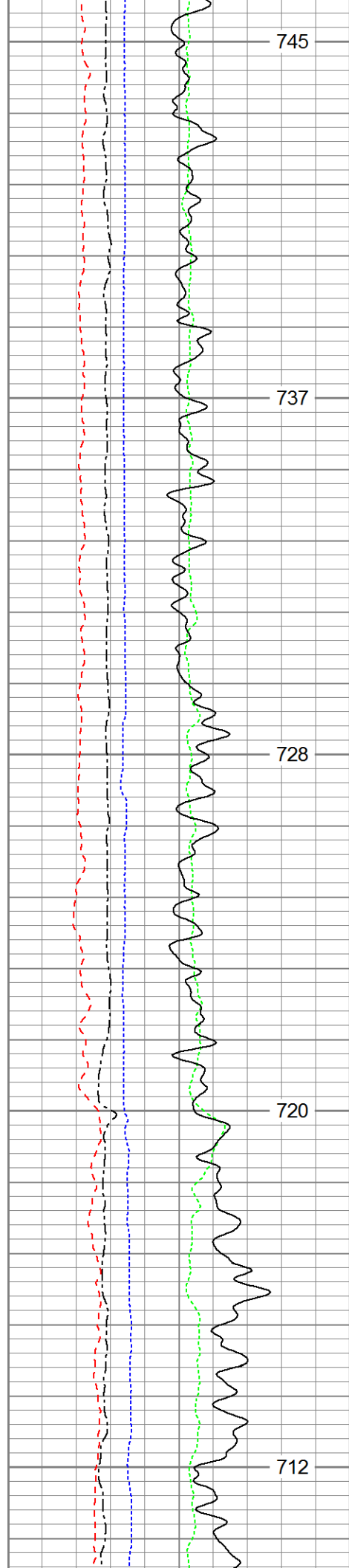
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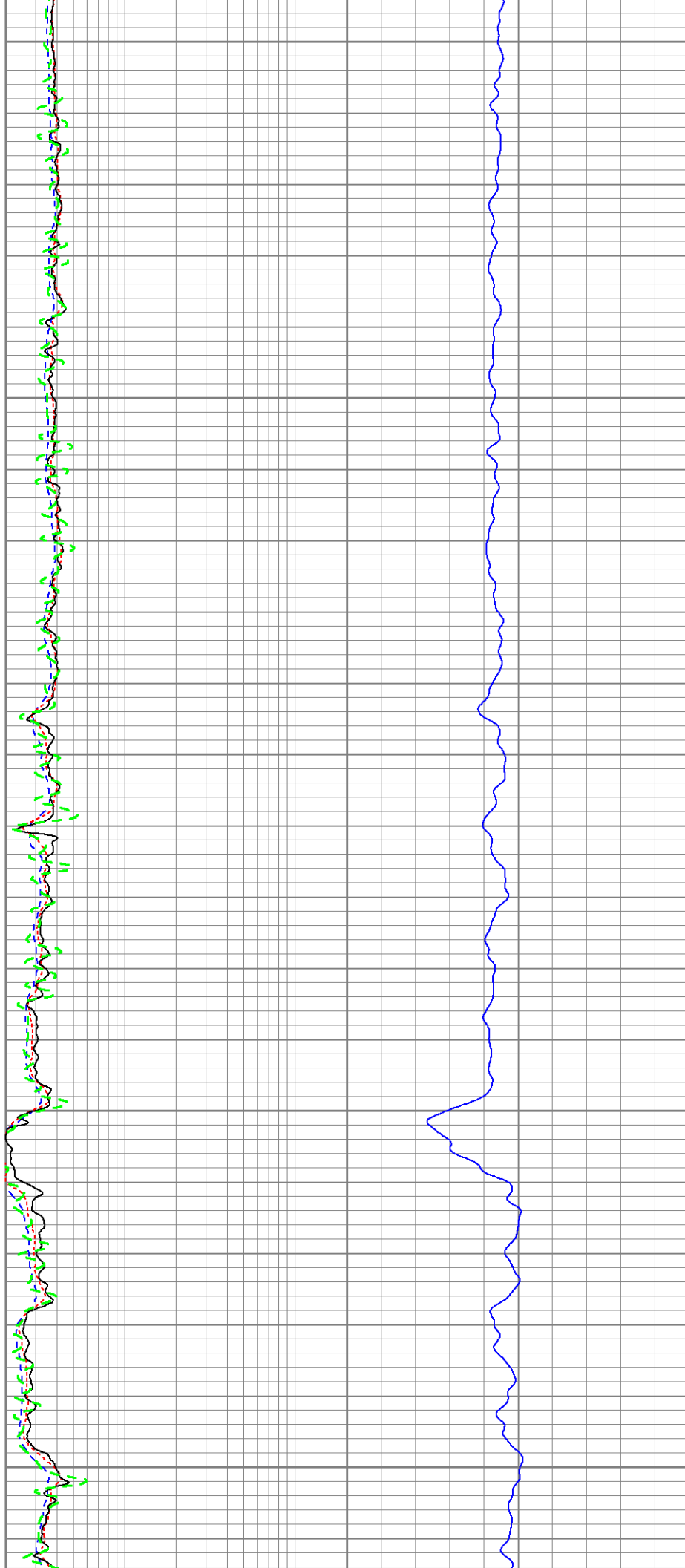
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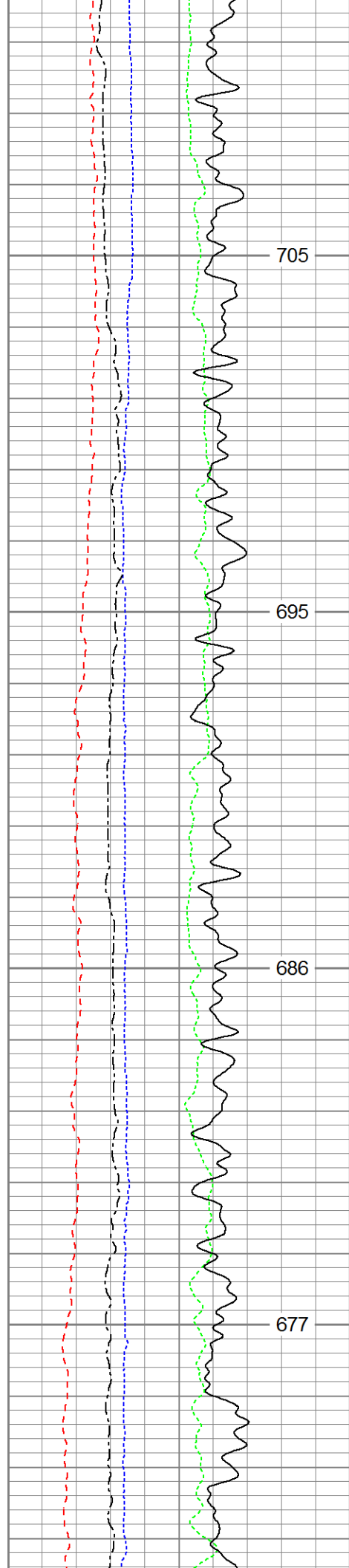
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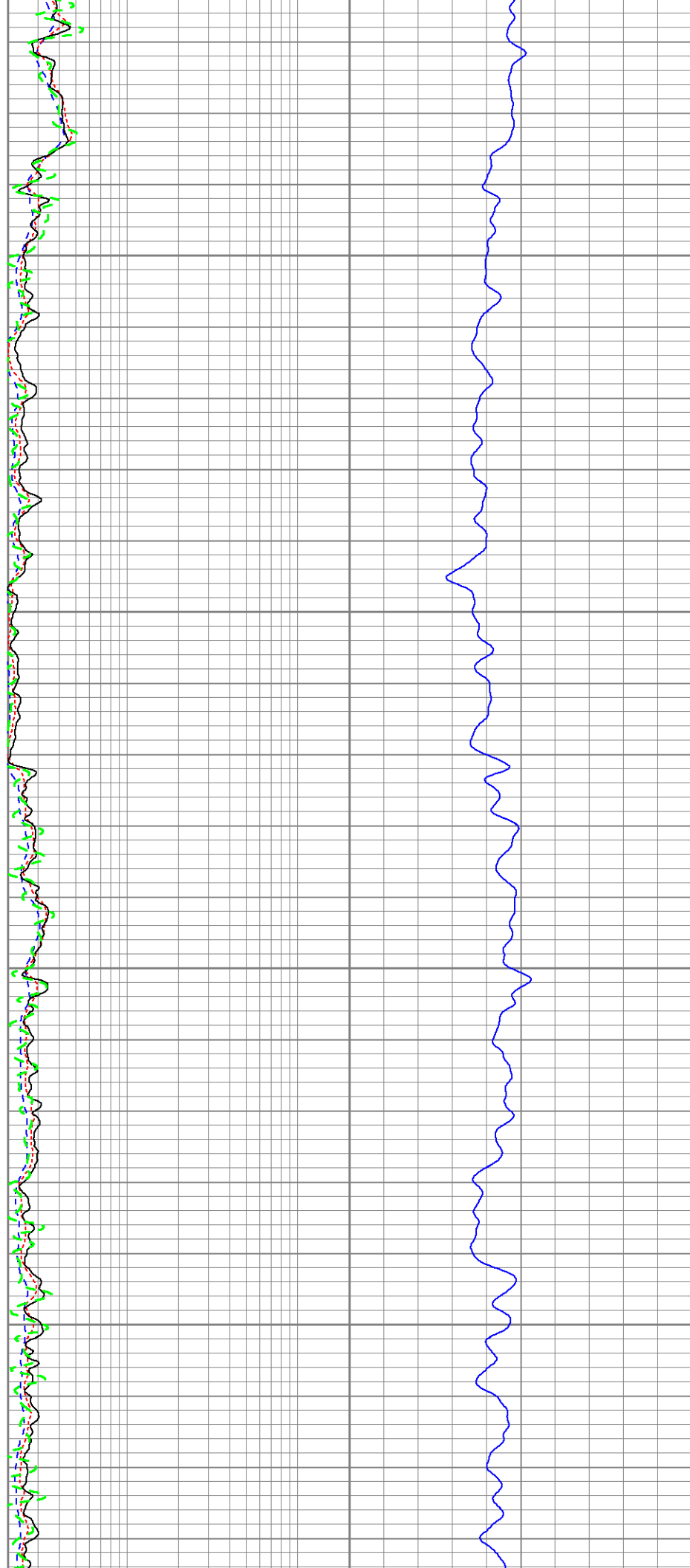


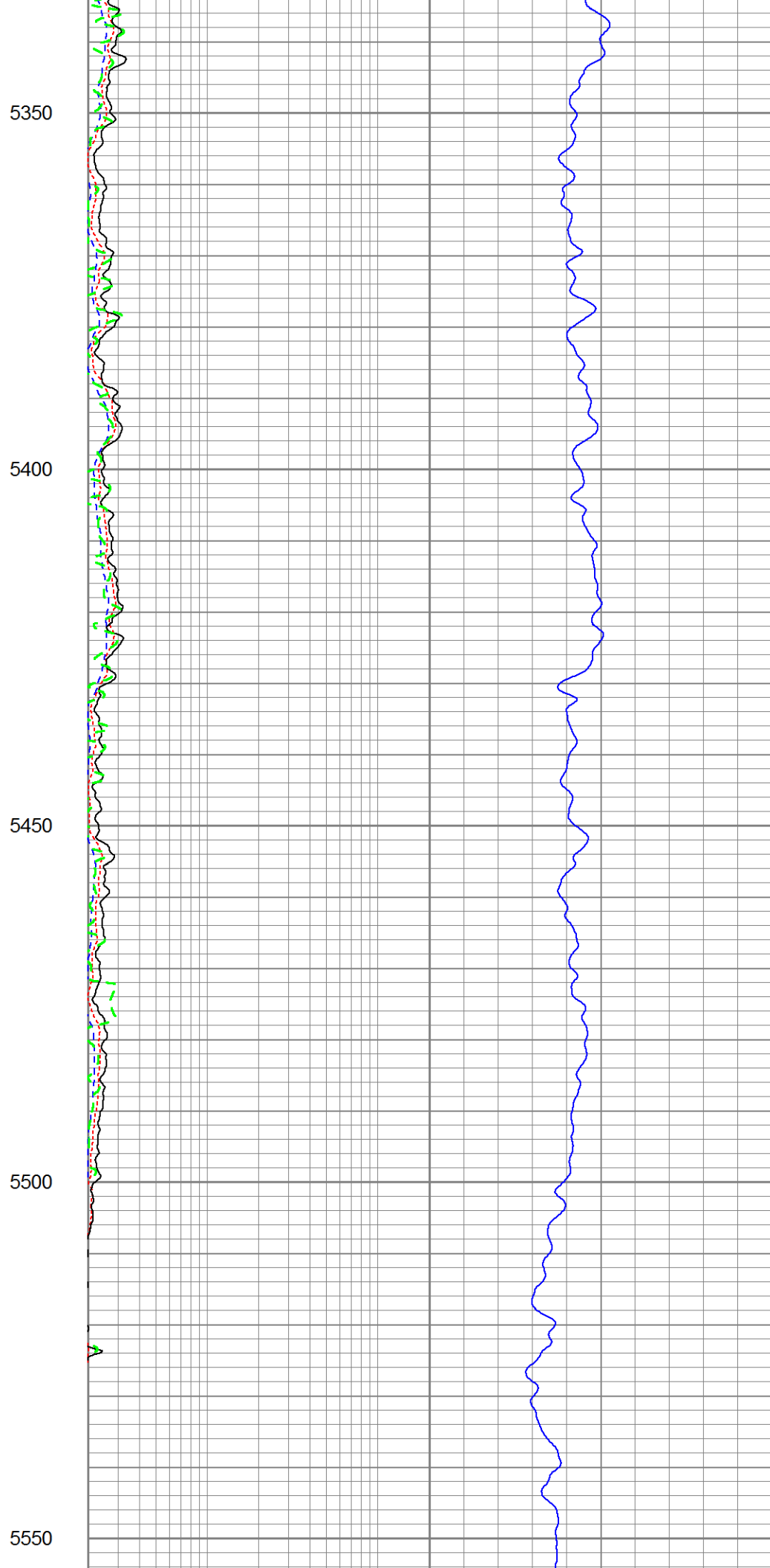
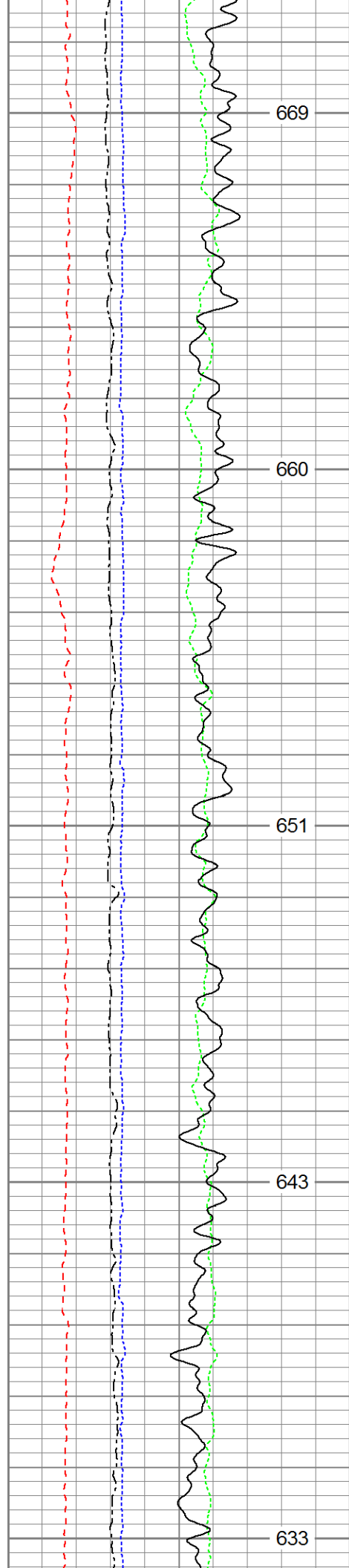
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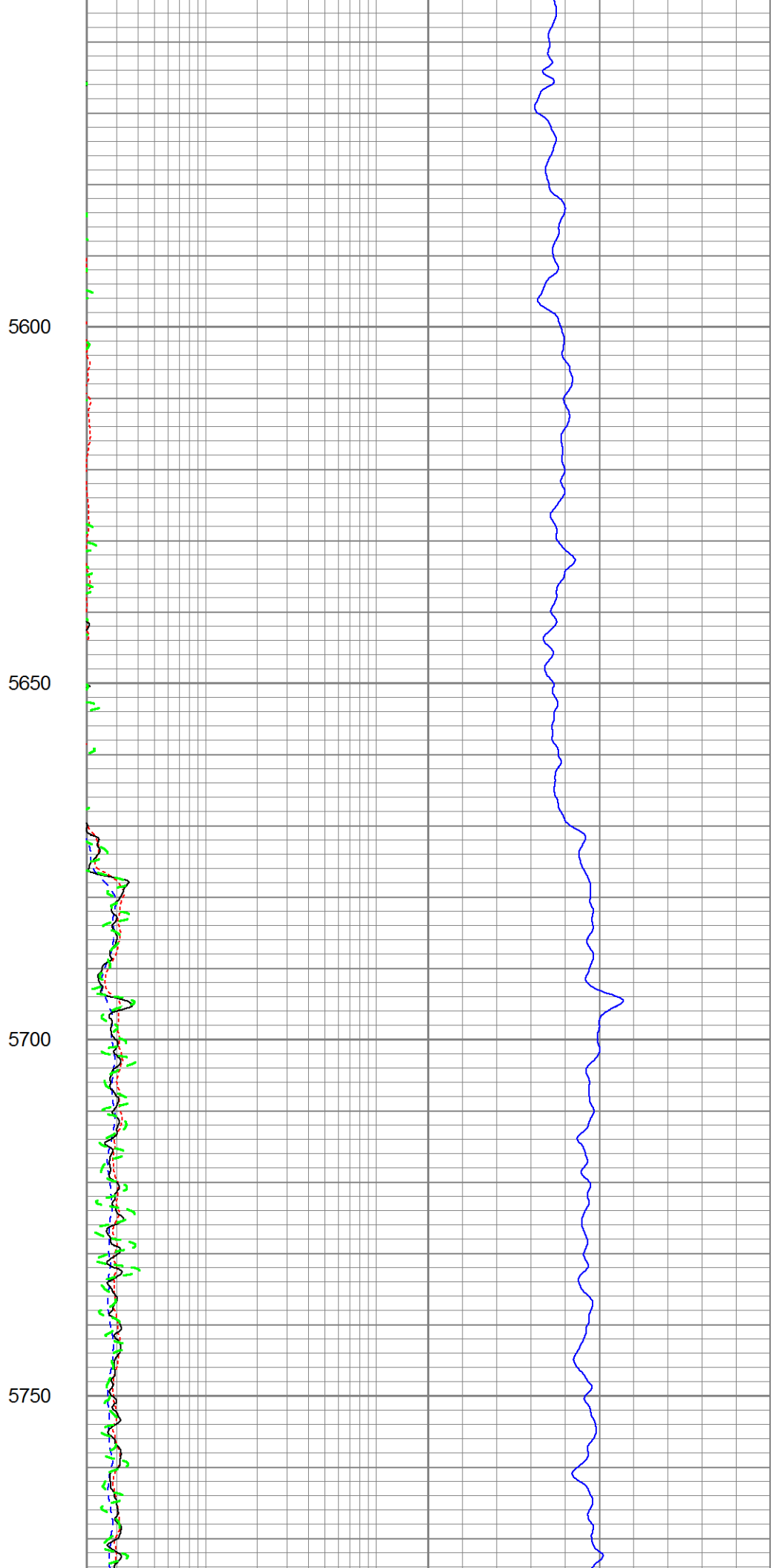
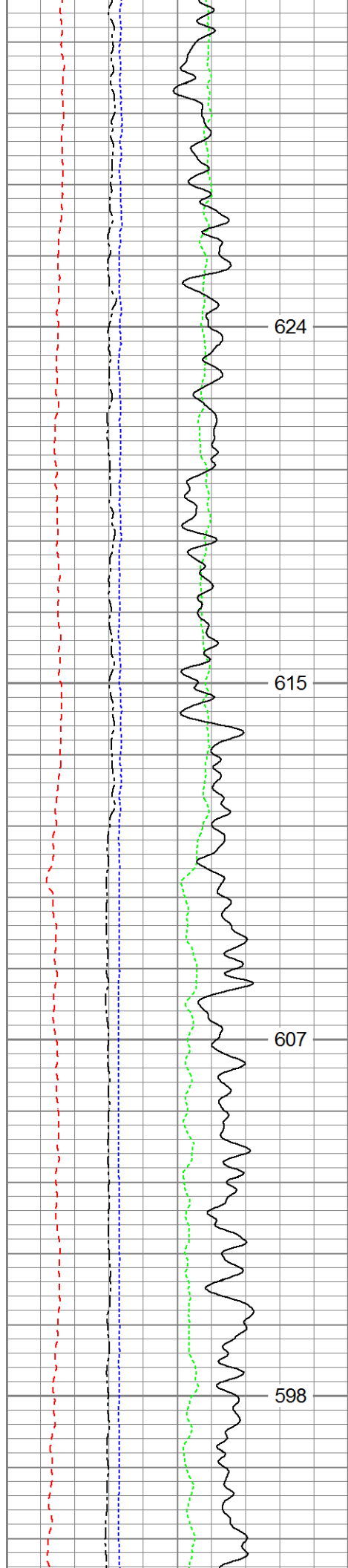
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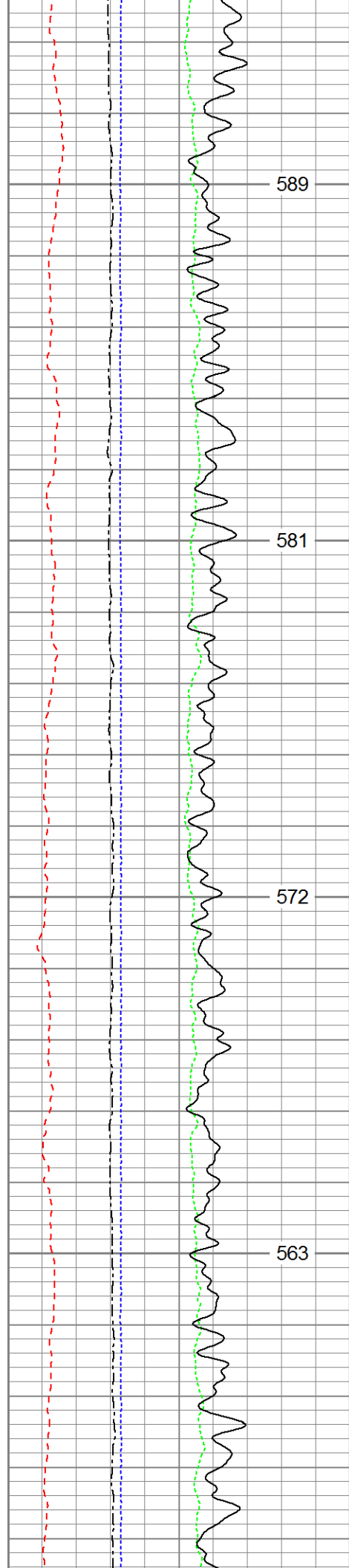
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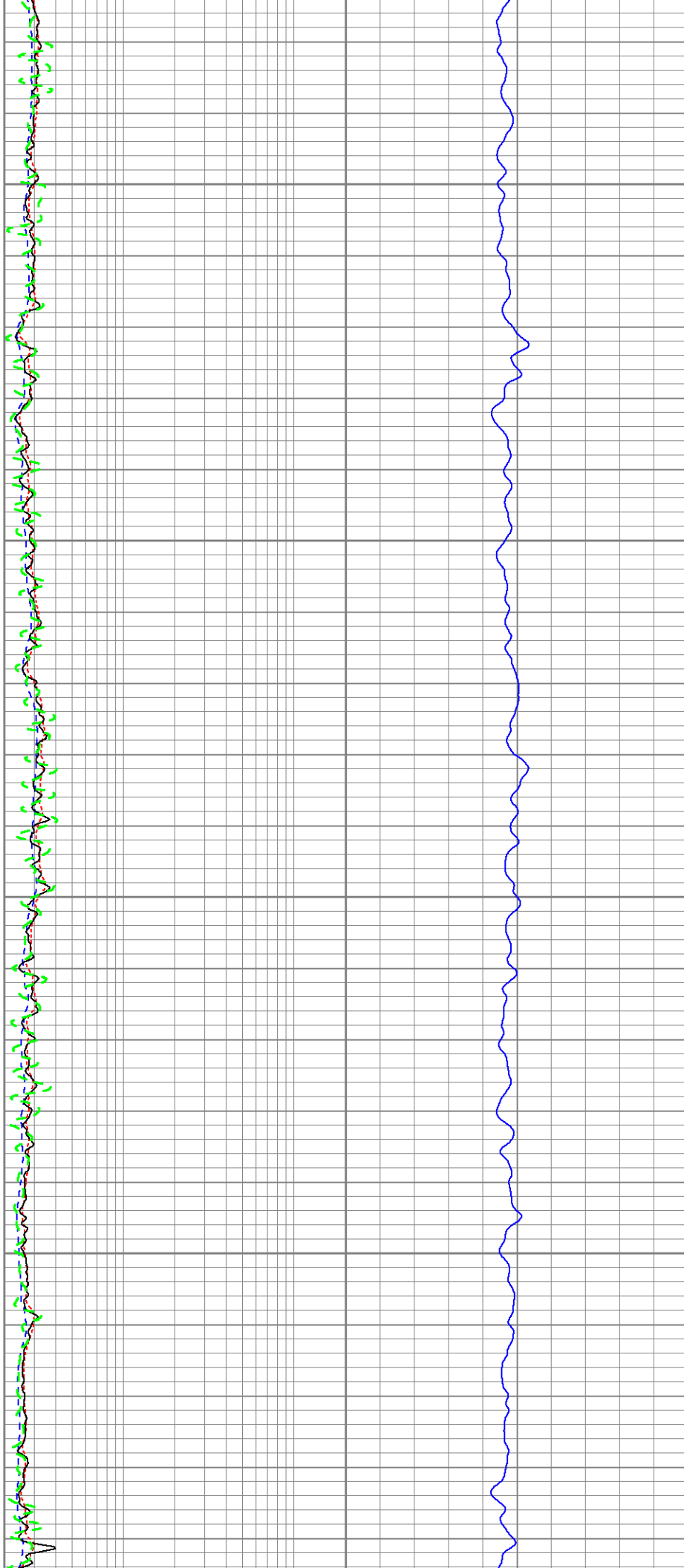


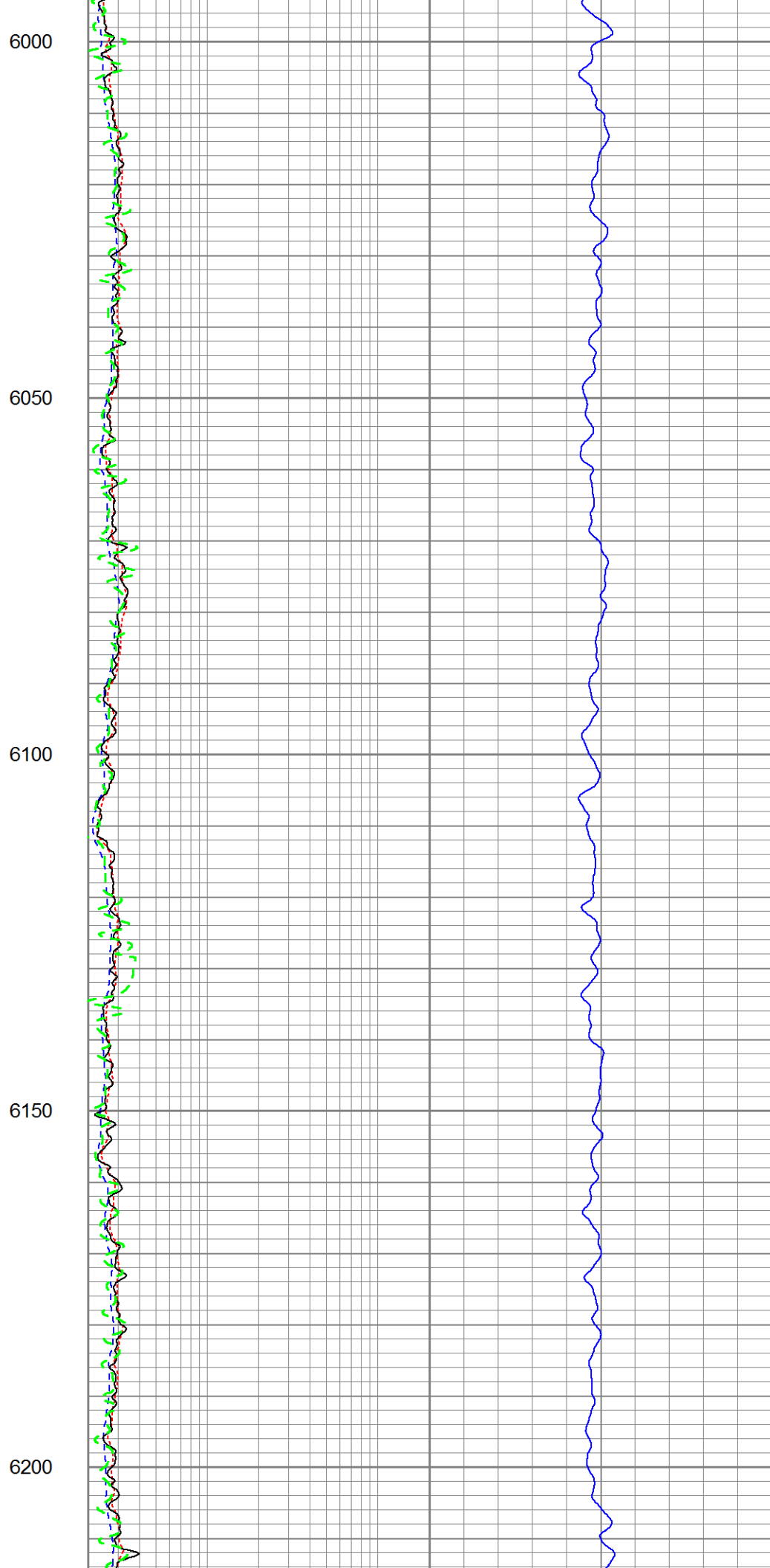
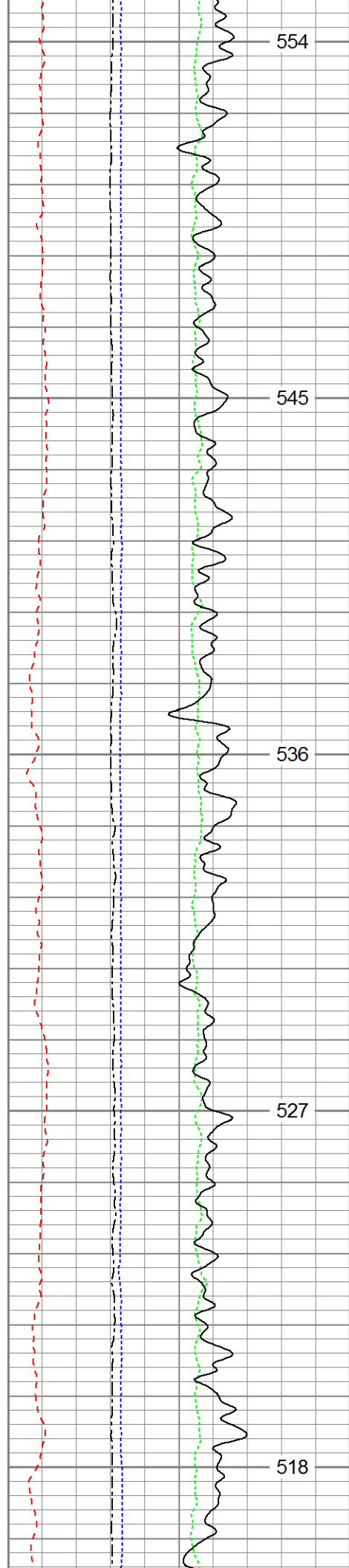
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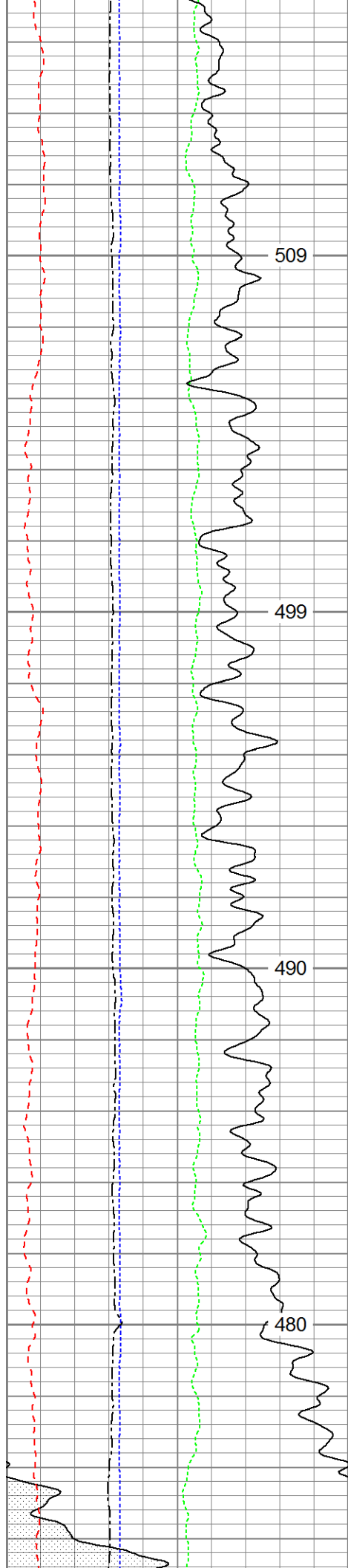
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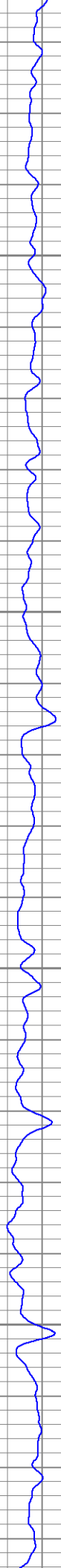
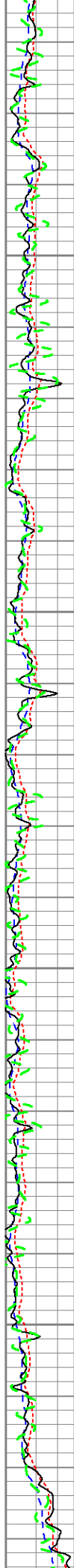


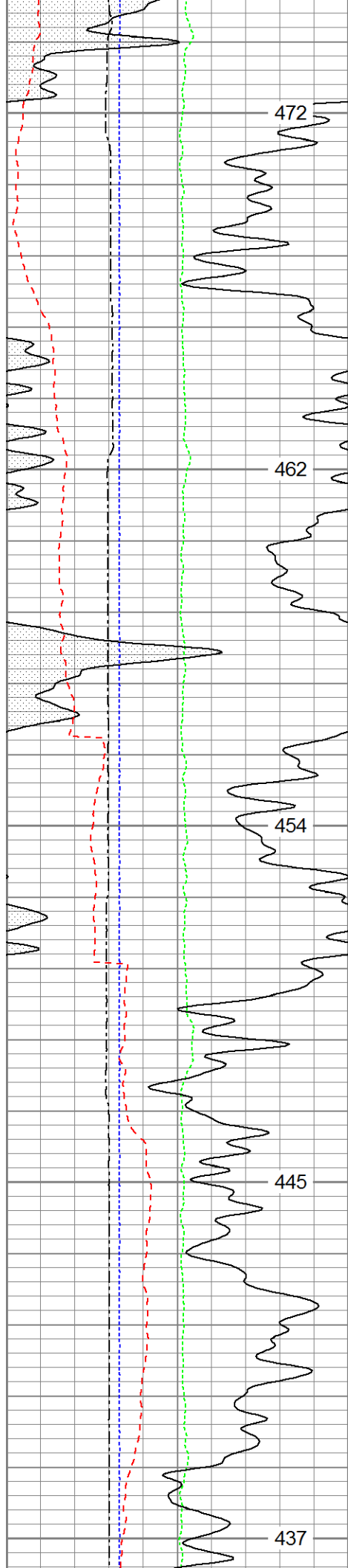
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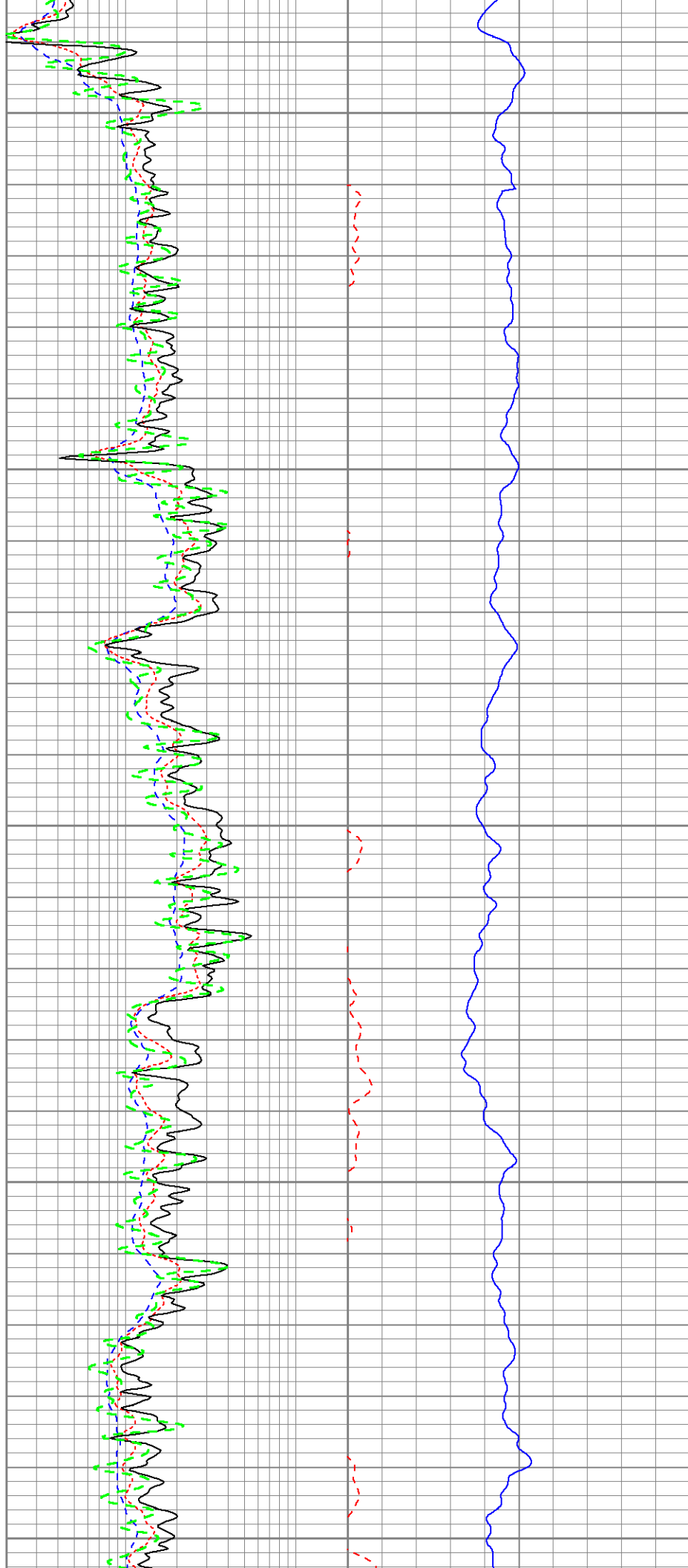
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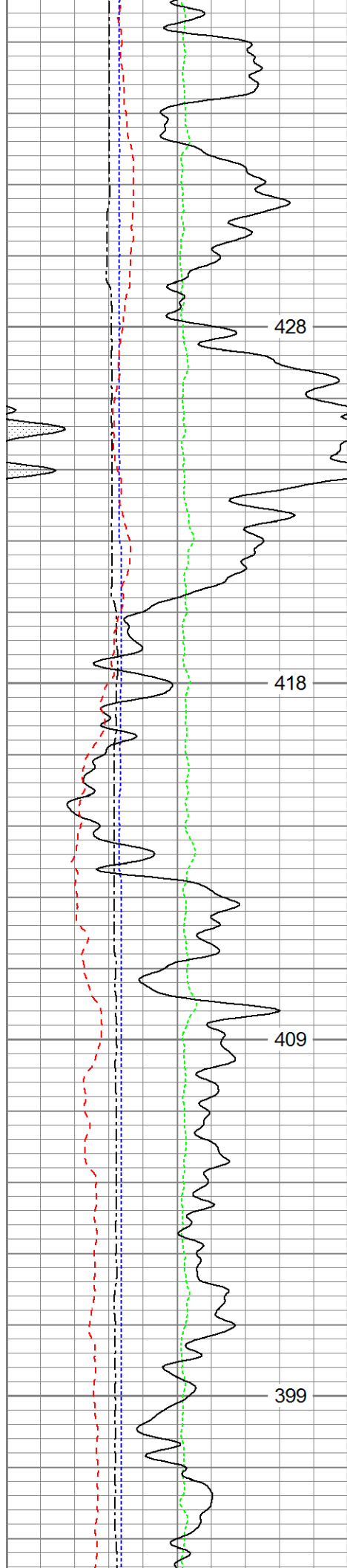
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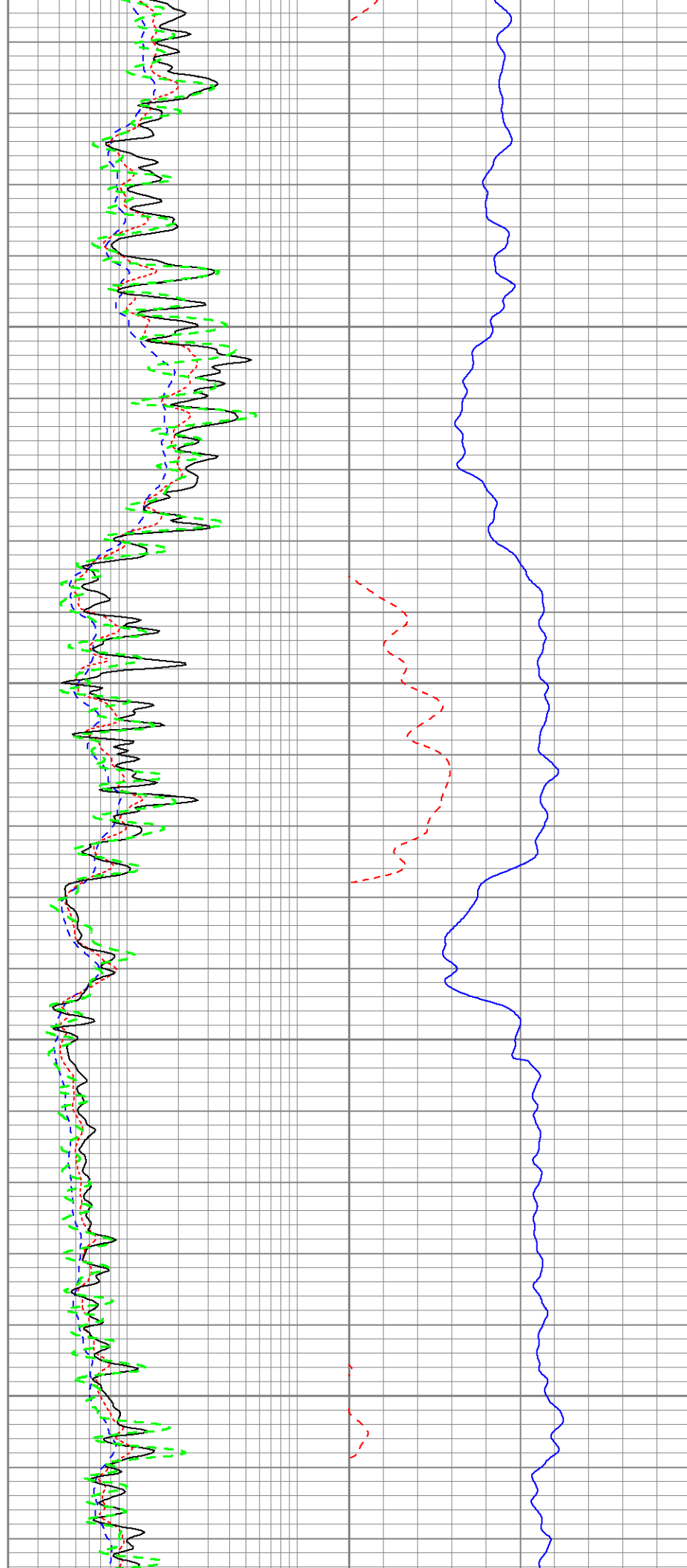


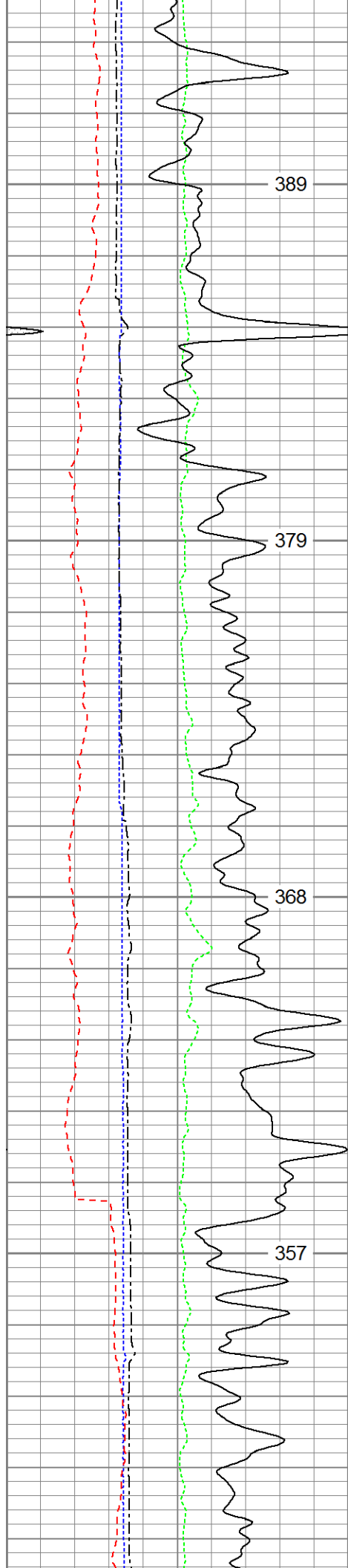
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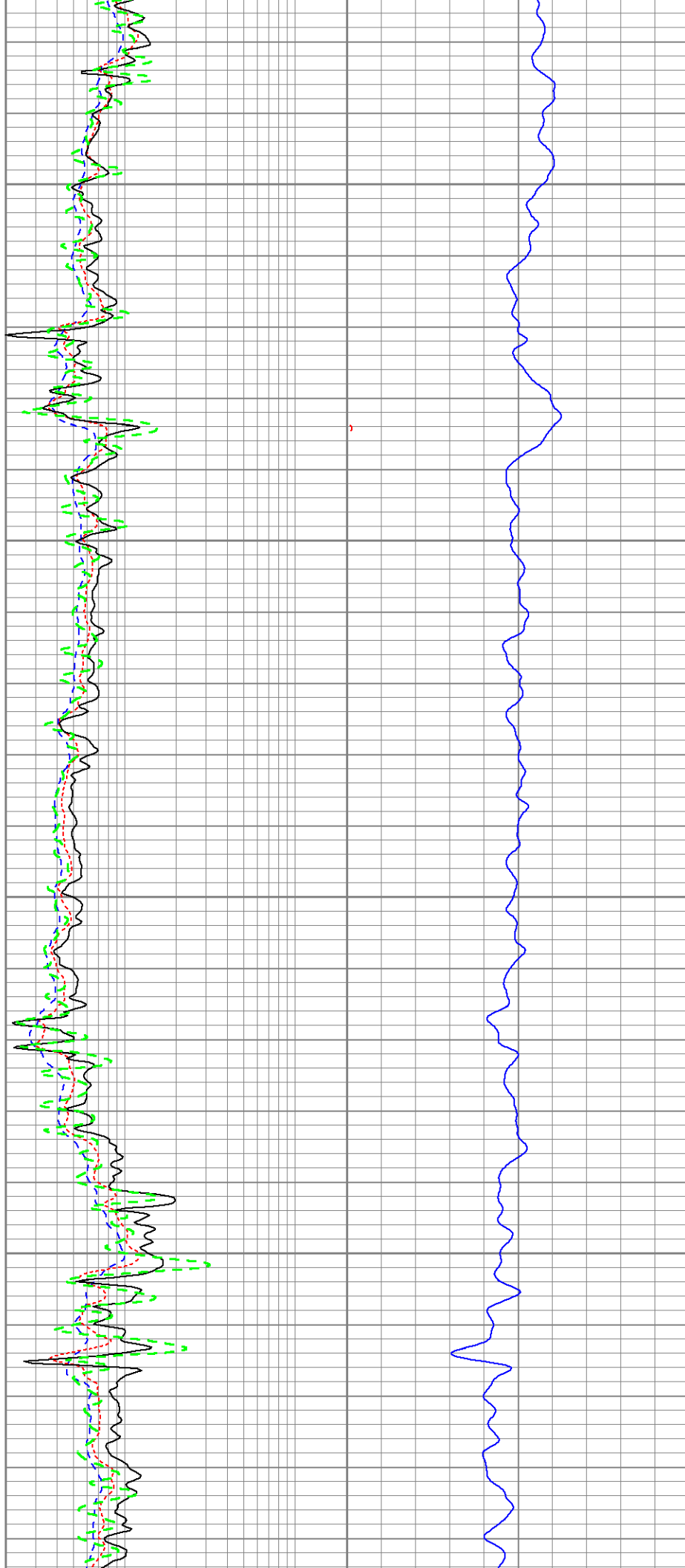


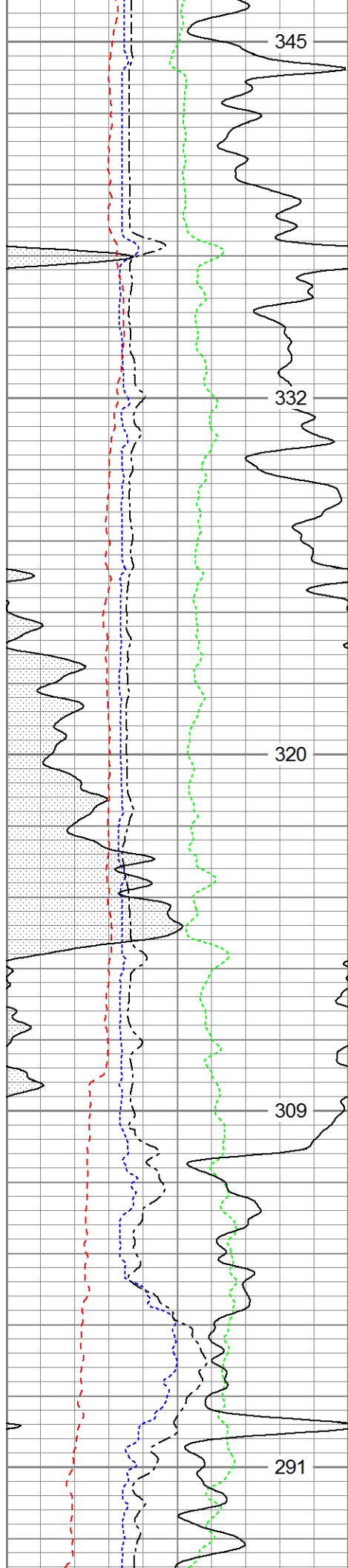
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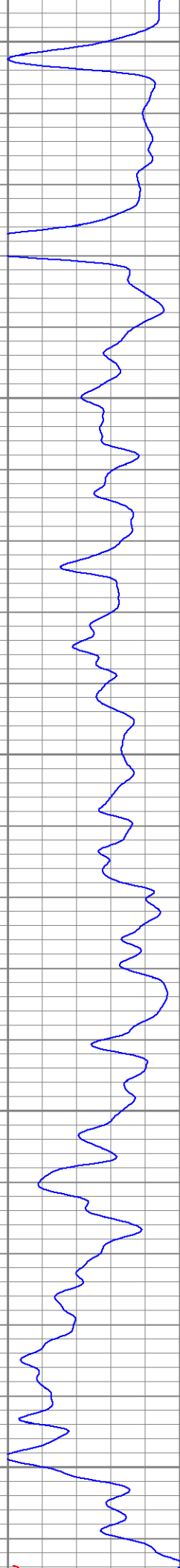
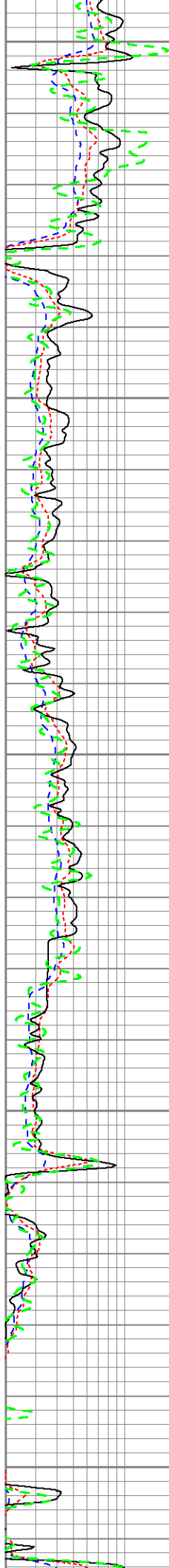
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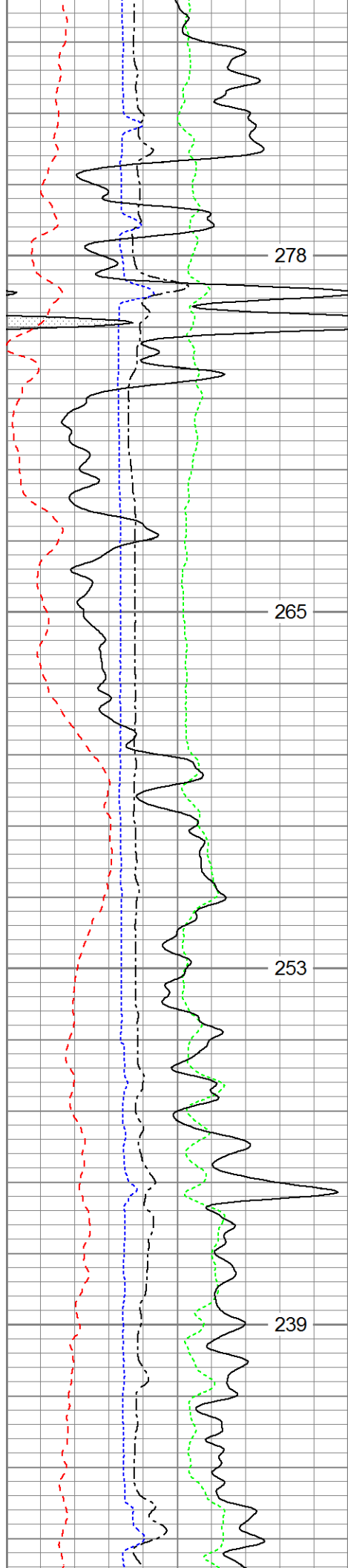
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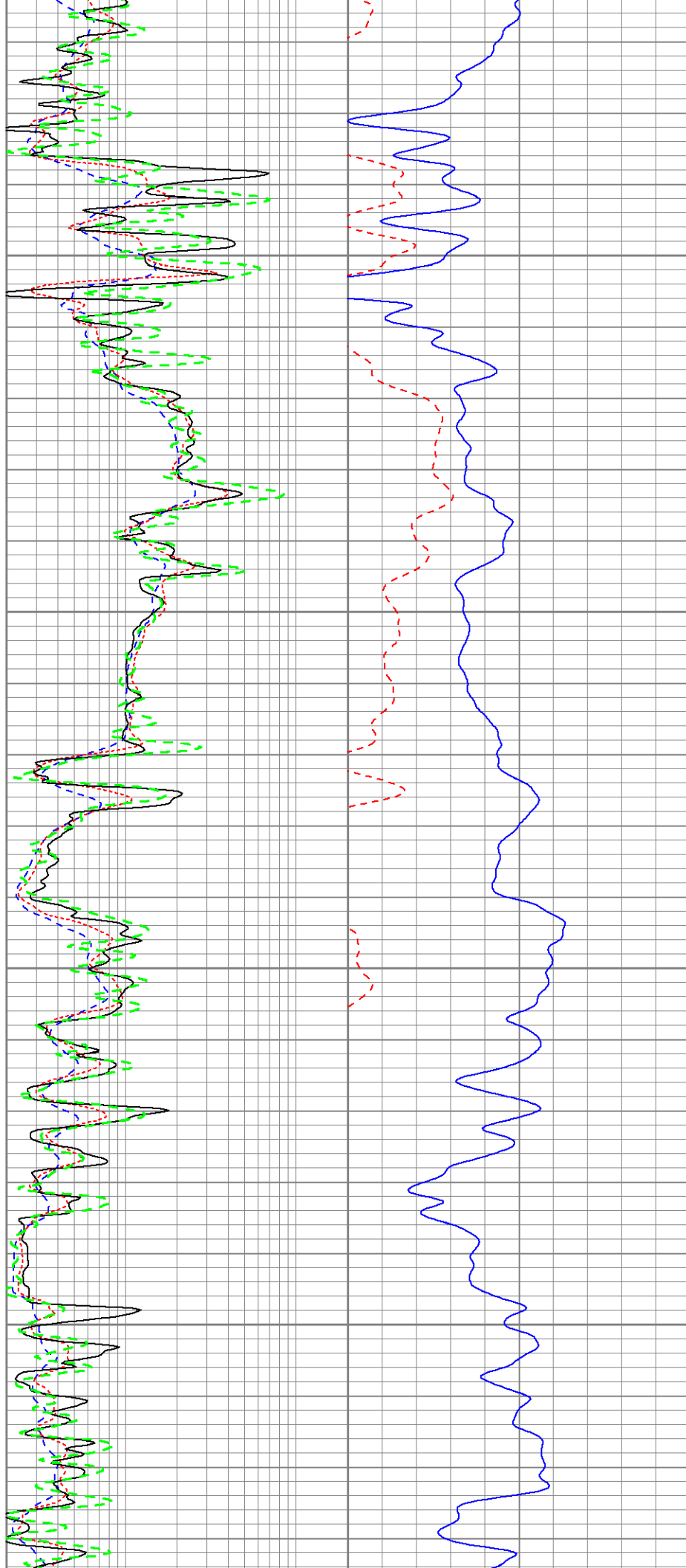


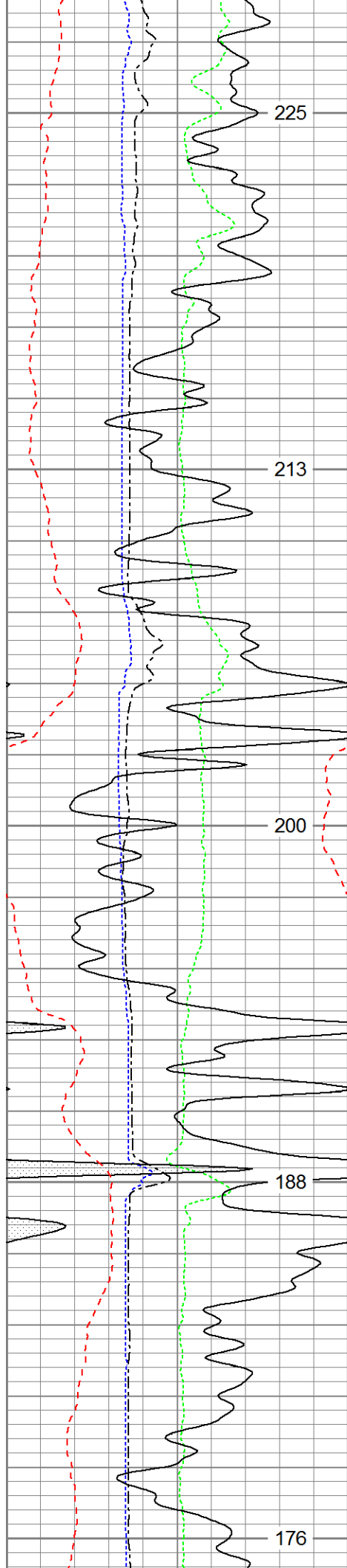
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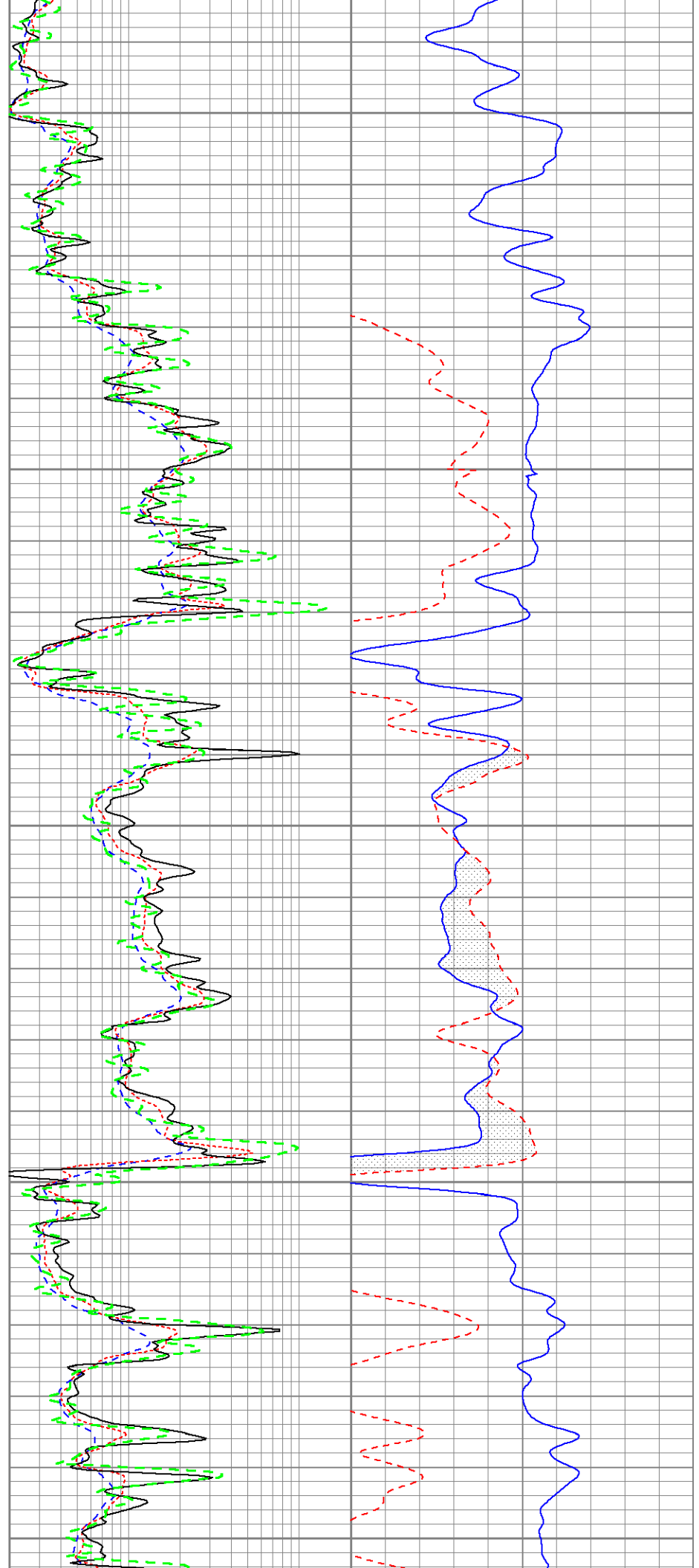
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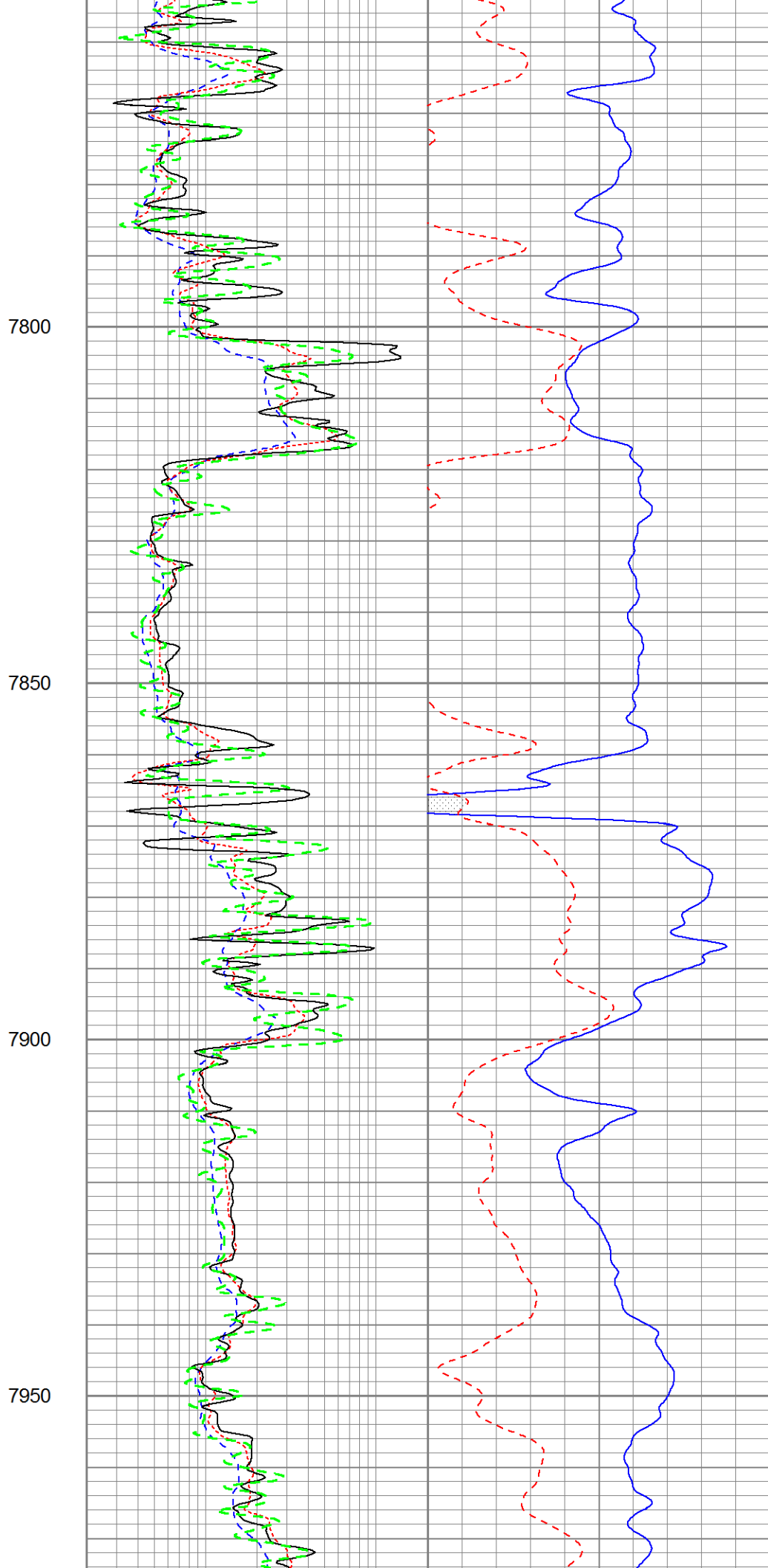
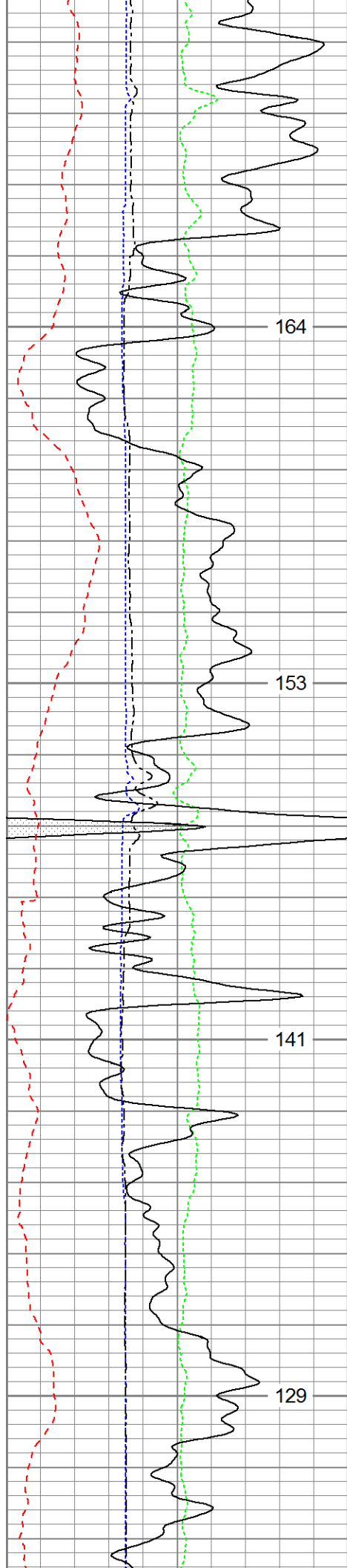
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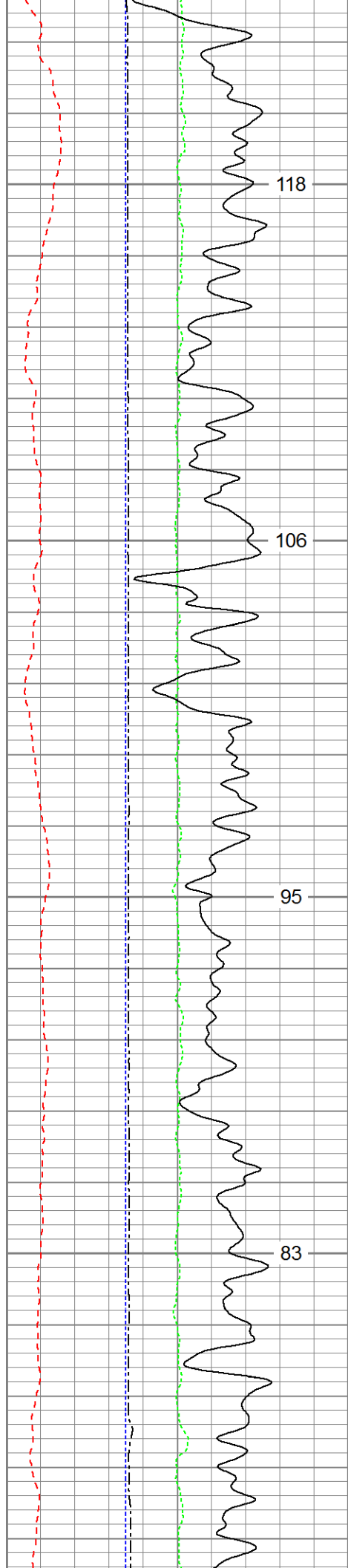
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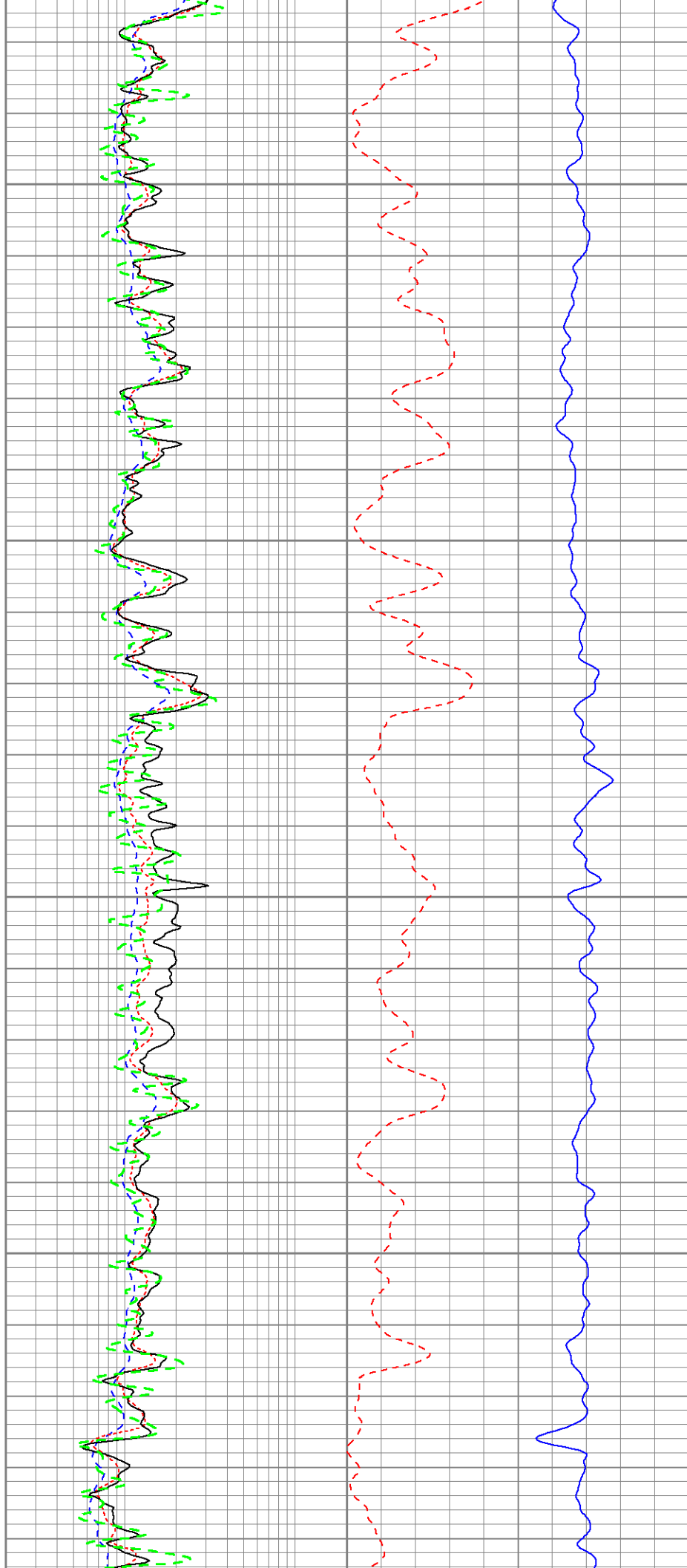
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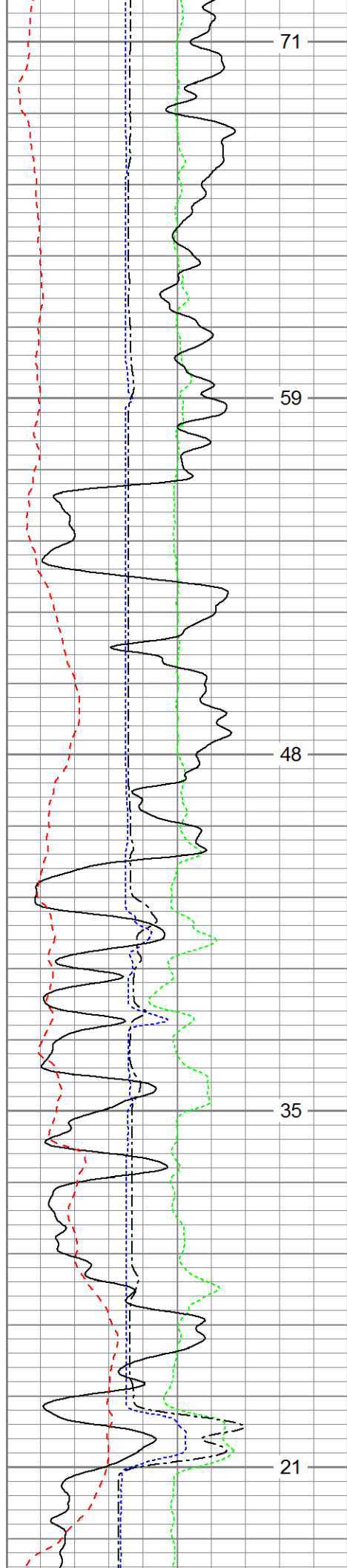
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83





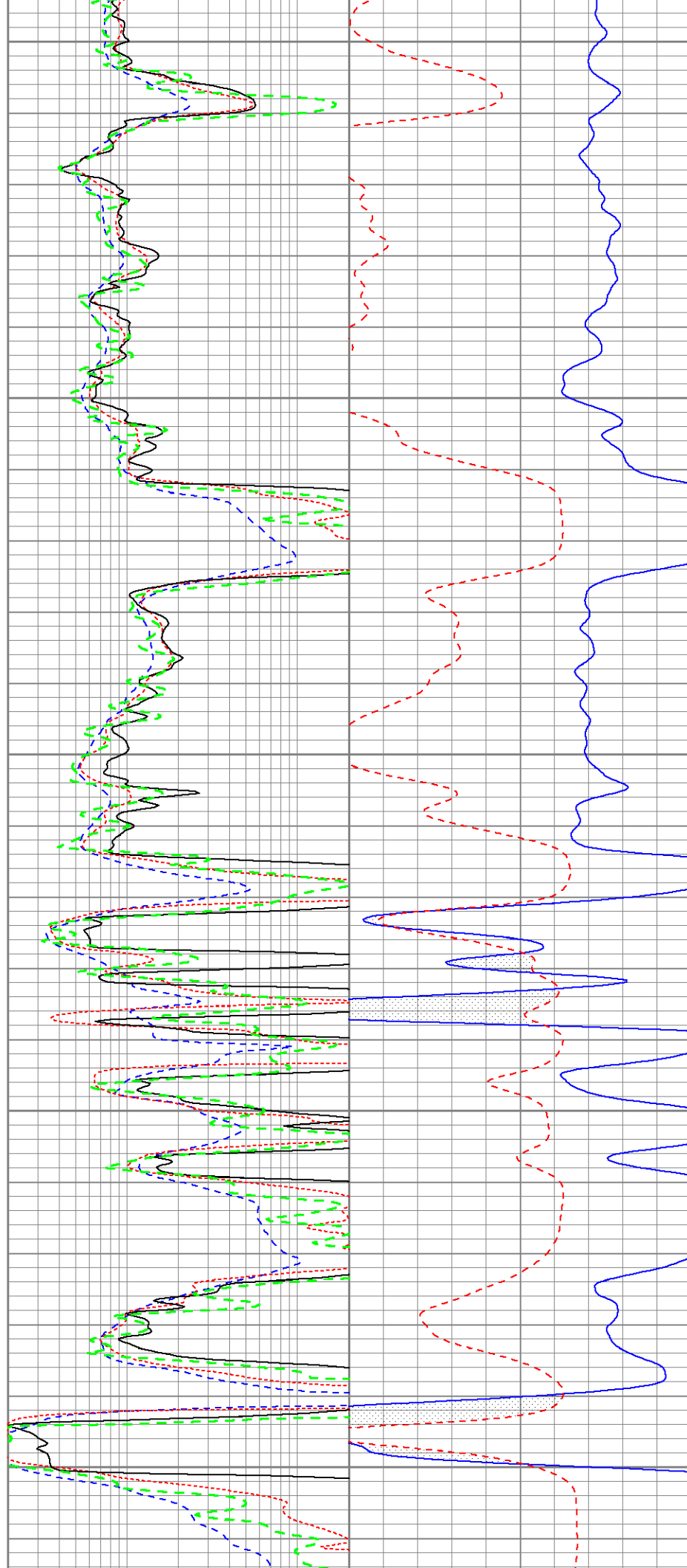
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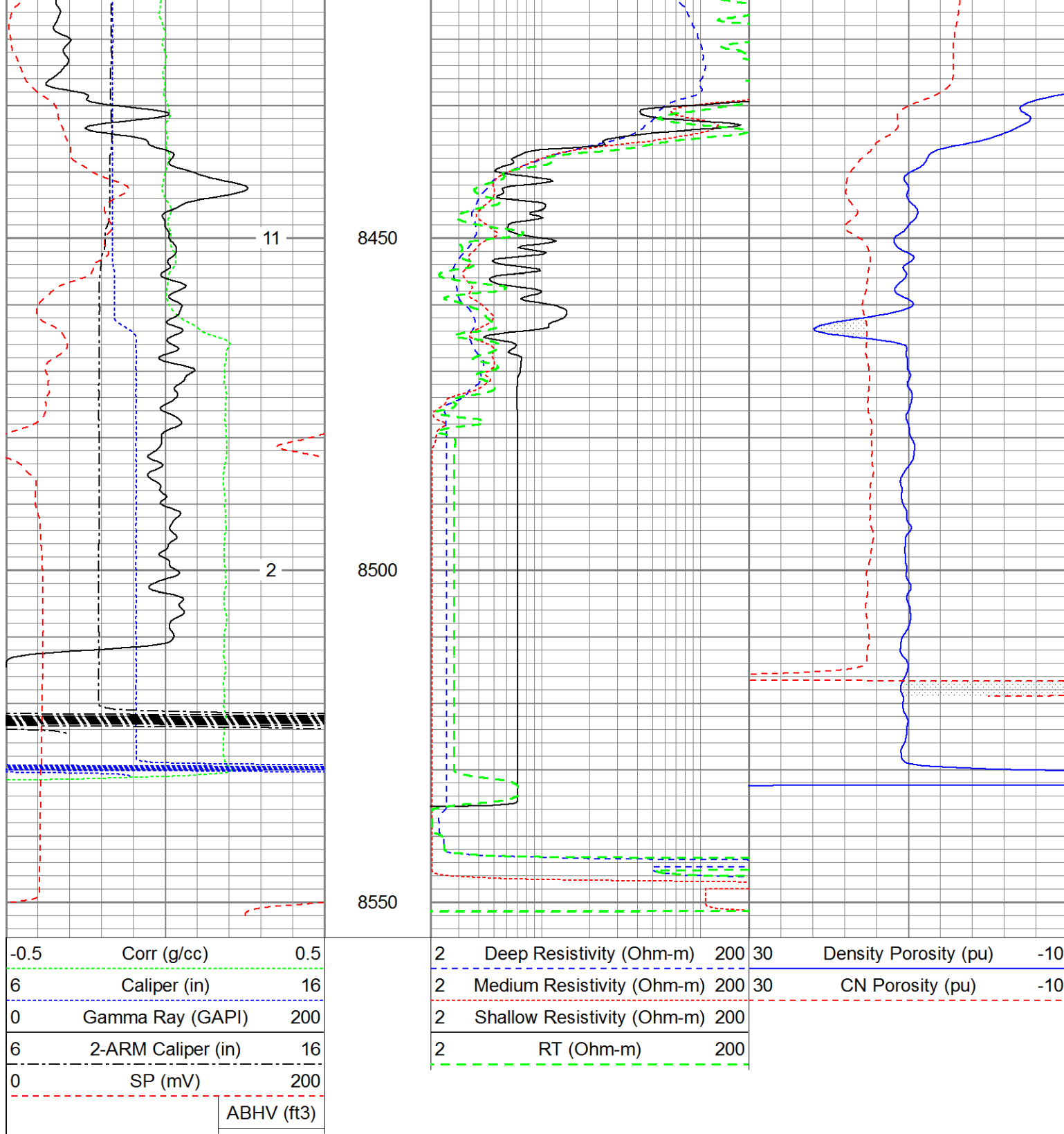
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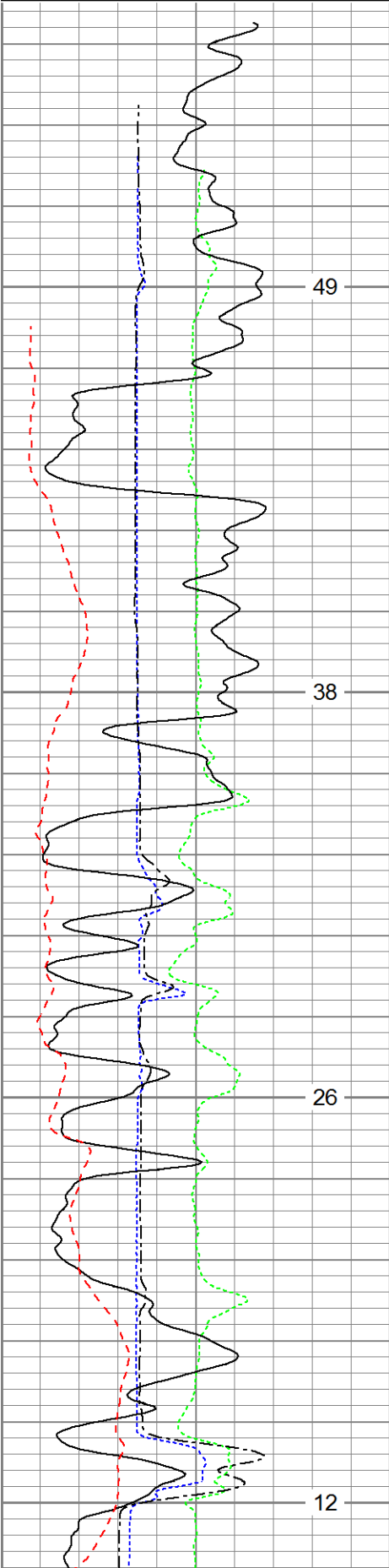
# Repeat Section

Database File: 13713.db  
 Dataset Pathname: pass2.1  
 Presentation Format: split30tc  
 Dataset Creation: Sat Oct 04 02:43:54 2014 by Calc Open-Cased 110302  
 Charted by: Depth in Feet scaled 1:240



6	Caliper (in)	16
0	Gamma Ray (GAPI)	200
6	2-ARM Caliper (in)	16
0	SP (mV)	200
		ABHV (ft3)

2	Medium Resistivity (Ohm-m)	200	30	CN Porosity (pu)	0
2	Shallow Resistivity (Ohm-m)	200			

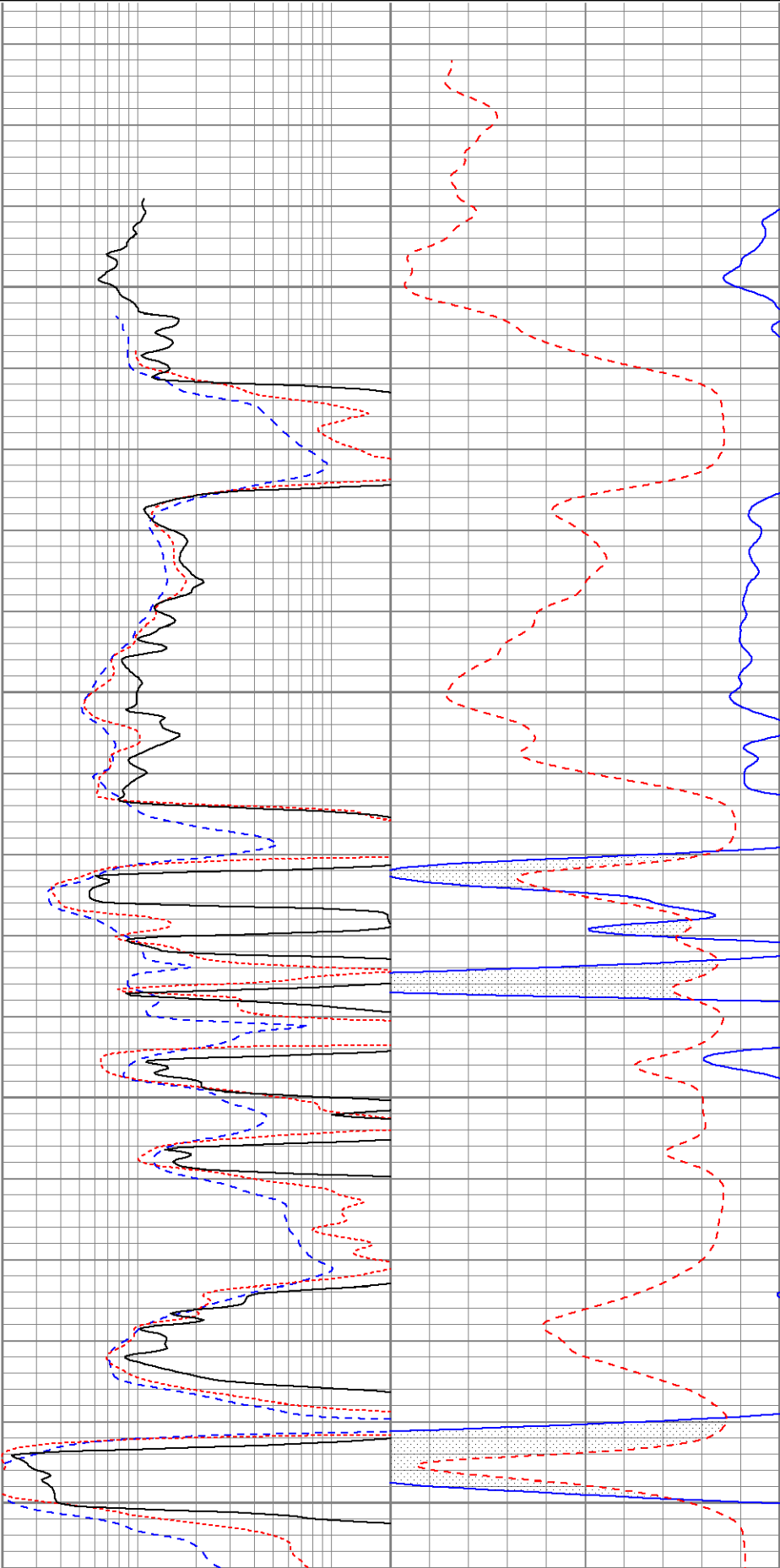


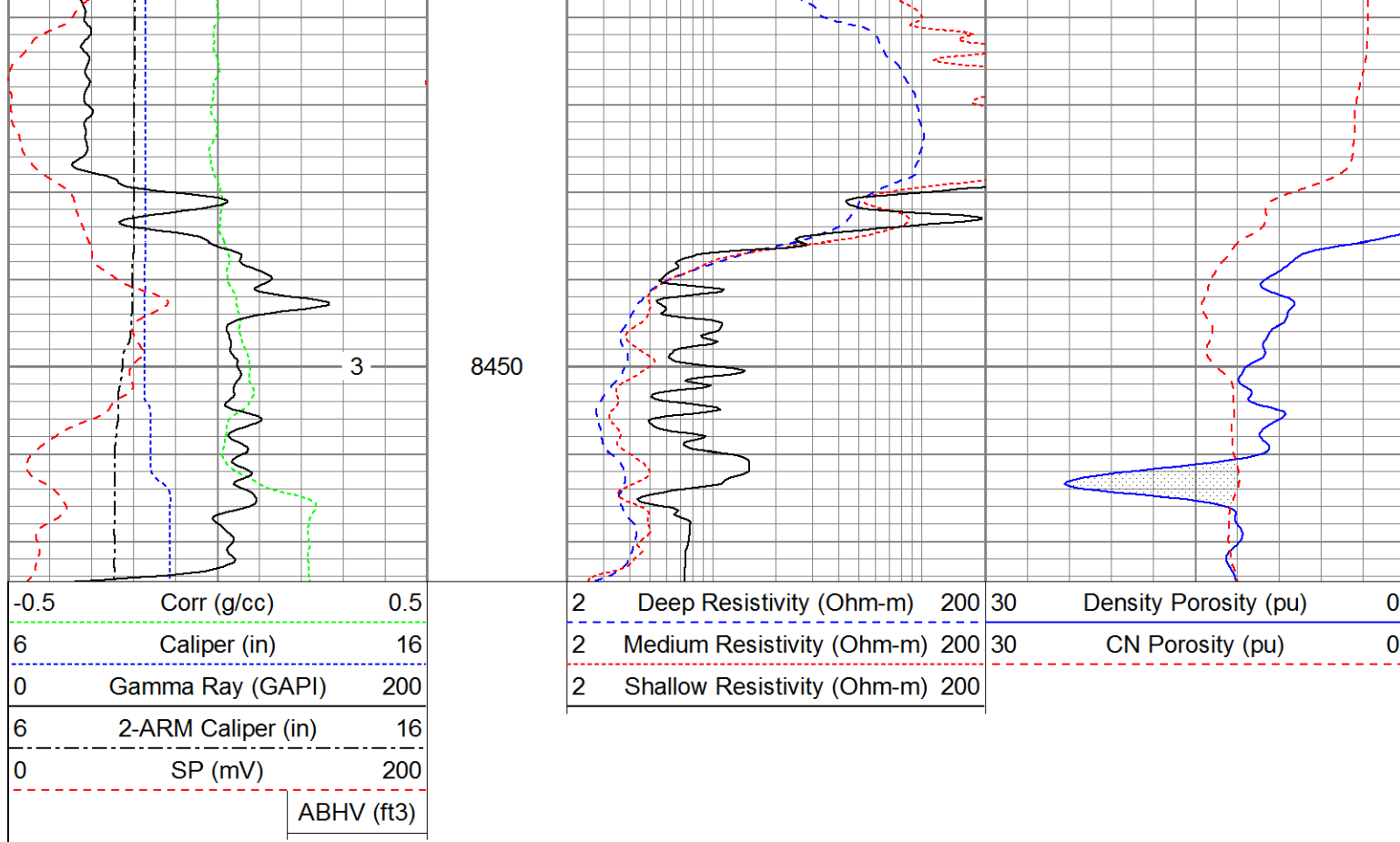
8250

8300

8350

8400





Calibration Report	
Database File:	13713.db
Dataset Pathname:	pass3
Dataset Creation:	Sat Oct 04 02:51:57 2014 by Log Open-Cased 110302

Dual Induction Calibration Report	
Serial-Model:	1010-PSI
Surface Cal Performed:	

Readings		References		Results	
Loop:	Air	Loop	Air	Loop	m b
Deep	0.000	1.000	0.000	1.000	mmho/m 0.550 -33.000
Medium	0.000	1.000	0.000	1.000	mmho/m 0.460 -22.000

Compensated Density Calibration Report	
Serial-Model:	128-PSI
Master Calibration Performed:	Sat May 24 17:51:40 2014

Master Calibration					
Density		Far Detector		Near Detector	
Magnesium	1.750 g/cc	5900.80	3069.93	cps	
Aluminum	2.690 g/cc	1074.43	1919.88	cps	
Size		Reading			
Small Ring	in				
Medium Ring	in				
Large Ring	in				

## Compensated Neutron Calibration Report

Serial Number: 853  
Tool Model: PSI

## CALIBRATION

Detector	Readings	Target	Normalization
Short Space	1.00 cps	1.00 cps	1.9000
Long Space	1.00 cps	1.00 cps	1.9200

## Gamma Ray Calibration Report

Serial Number: 197  
Tool Model: PSI  
Performed: Tue Oct 18 17:42:20 2011

Calibrator Value: 275.0 GAPI

Background Reading: 32.0 cps  
Calibrator Reading: 340.0 cps

Sensitivity: 0.6000 GAPI/cps

## Log Variables

Database: C:\Warrior\Data\13713.db  
Dataset: field/well/run1/pass3

## Top - 6460.00 ft

SZCOR On	NPORSEL Sandstone	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.68	SPSHIFT mV 0	SNDERRM mmho/m 0	SNDERR mmho/m 0	CASEOD in 7
PERFS 0	TDEPTH ft 0	BOTTEMP degF 197	BOREID in 8.75				

## 6460.00 ft - 6802.00 ft

SZCOR On	<b>NPORSEL</b> <b>Limestone</b>	FLUIDDEN g/cc 1	<b>MATRXDEN</b> <b>g/cc</b> <b>2.71</b>	SPSHIFT mV 0	SNDERRM mmho/m 0	SNDERR mmho/m 0	CASEOD in 7
PERFS 0	TDEPTH ft 0	BOTTEMP degF 197	BOREID in 8.75				

## 6802.00 ft - 7600.00 ft

SZCOR On	<b>NPORSEL</b> <b>Sandstone</b>	FLUIDDEN g/cc 1	<b>MATRXDEN</b> <b>g/cc</b> <b>2.68</b>	SPSHIFT mV 0	SNDERRM mmho/m 0	SNDERR mmho/m 0	CASEOD in 7
PERFS 0	TDEPTH ft 0	BOTTEMP degF 197	BOREID in 8.75				

## 7600.00 ft - 7700.00 ft

SZCOR On	NPORSEL Limestone	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 0	SNDERRM mmho/m 0	SNDERR mmho/m 0	CASEOD in 7
PERFS 0	TDEPTH ft 0	BOTTEMP degF 197	BOREID in 8.75				

7700.00 ft - Bottom

SZCOR On	NPORSEL Sandstone	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.68	SPSHIFT mV 0	SNDERRM mmho/m 0	SNDERR mmho/m 0	CASEOD in 7
PERFS 0	TDEPTH ft 0	BOTTEMP degF 197	BOREID in 8.75				