


LWD MEMORY LOG											
<div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div></div></div>				Gamma Ray							
Scale:		Company: Noble Energy									
1:240 MD		Well: Dorothy State LG16-748									
Depth Reference:		Field: Wattenberg									
Driller's Depth		County: Weld Country: United States									
State:		State: Colorado									
Status:		Surface Location:				Other Services:					
Final Print		Latitude: 040° 41' 06.216" N Longitude: 103° 58' 38.532" W				Directional					
API No: 05-123-47705-0000		SEC: 4 TWN: 8N RGE: 59W				Elev. KB: N/A Elev. DF: 4876.00 ft Elev. GL: 4846.00 ft					
Job ID: 109418441		Permanent Datum (P.D.): Mean Sea Level				Elevation: Above P.D. 4876.00 ft					
Log Measured From: Rig Floor											
Interval Drilled											
Dates		Interval Drilled				Magnetic Field Reference					
Date From: 2018-12-09		Top: (ft) 1955.00		Azi Reference North: Grid		Dip Angle: (deg) 66.99					
Date To: 2018-12-12		Bottom: (ft) 16939.36		Total Magnetic Field Strength: (nT)		52339					
Spud Date: 2018-12-07				Mag to Reference North Correction: (deg)		6.91					
Borehole Record											
Casing Record											
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)		From (ft) To (ft)	
13.500		30.00		1955.00		9.625		36.00		30.00 1945.00	
8.500		1950.00		16940.00							
Mud Record											
Deviation Record											
Type		From (ft)		To (ft)		Hole Size (in)		Interval (ft)		Inc   Az (Start) Inc   Az (End)	
Oil Based Mud		1955.00		16939.36		8.500		14984.36		0.90   121.04 14.48   279.38	

1	ATC_MWD	12141354	Directional (mag)	12.27	22.52	7.000	3.250
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Service and Tool Mnemonics

Mnemonic	Name	Description
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments

- 1
- Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
- 2
- Baker Hughes LWD Run 1 utilized 6 ¾ inch NaviGamma service (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1955 to 16940 feet MD (1955 to 6xxx feet TVD).
- 3
- The Gamma Ray Apparent (GRAM) data is presented 0 to 300 API, per the customer's request.

Remarks


Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	16926.00	8.500	1	The interval from 16926 to 16940 feet MD (6019 feet TVD) was not logged due to sensor to bit offset at well TD.

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	Gamma Ray - Time Since Drilled - Memory	min
TCDM	Directional Real-Time Survey Temperature	degF

BAKER HUGHES

a GE company



Company

Well

Interval

Created

Noble Energy

Dorothy State LG16-748

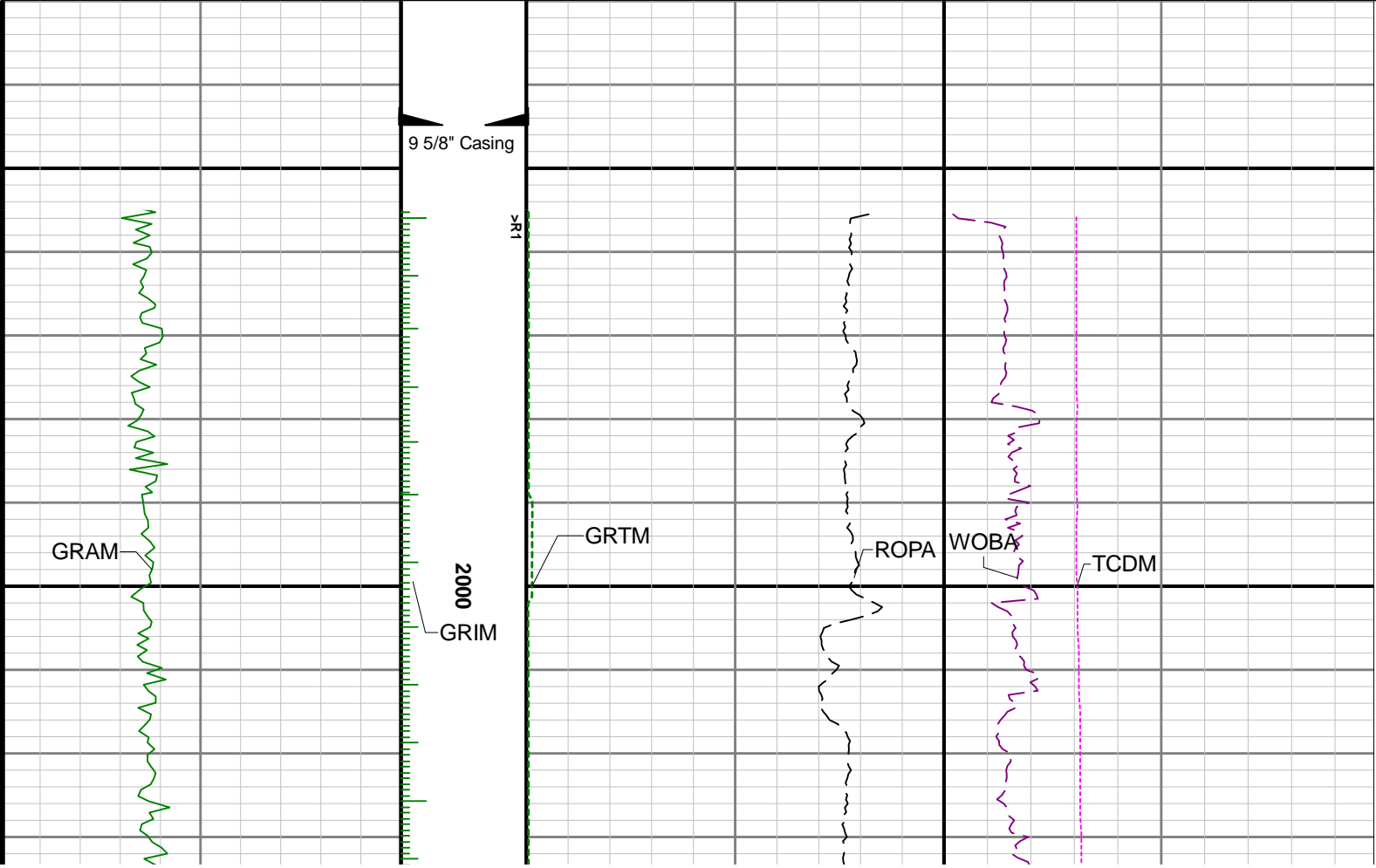
Date From: 2018-12-09 01:01  
Date To: 2018-12-12 07:59

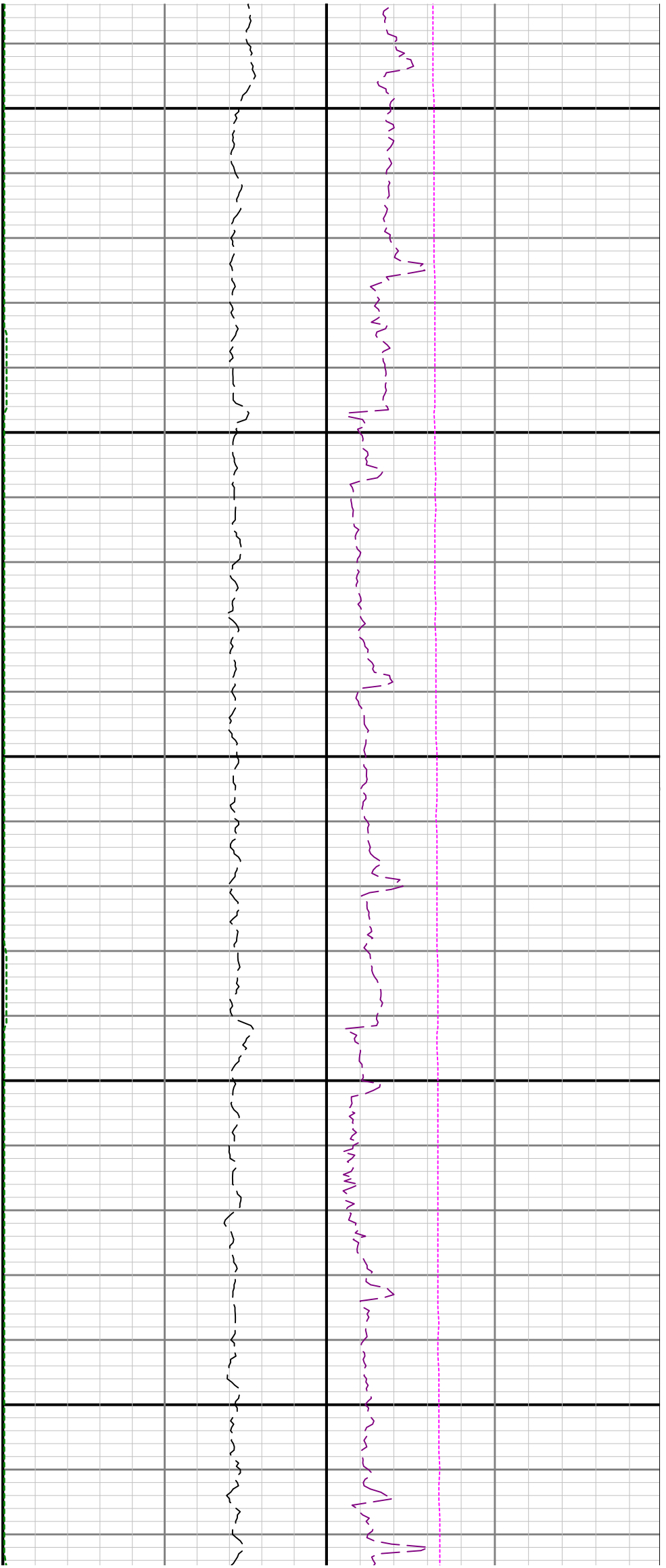
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Top: 1955.00 ft

Bottom: 16939.36 ft

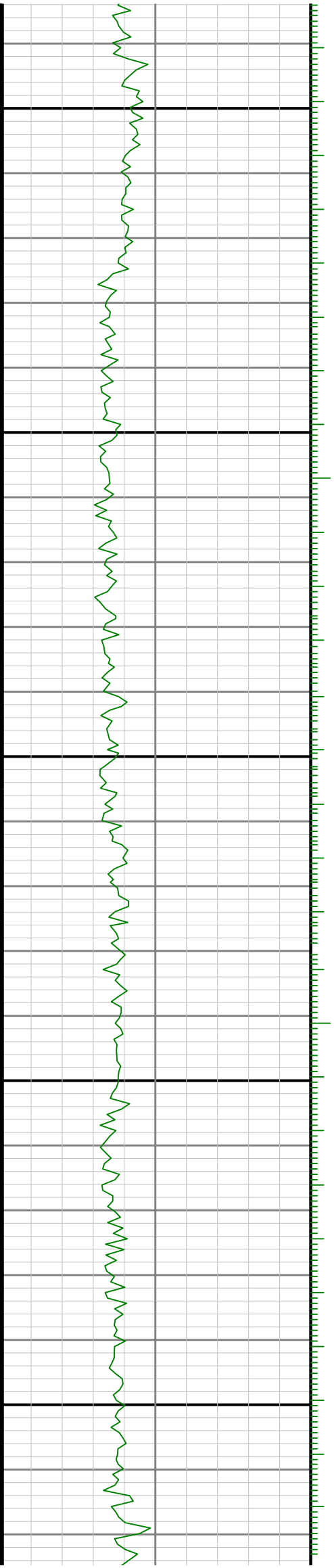
Gamma Ray - Apparent 0.5 ft Average GRAM 0 300 API	MD 1:240 feet	Depth Averaged ROP 3 ft Average ROPA 1000 0 ft/h	Weight On Bit, Average 1 ft Average WOBA 0 50 klb
True Vertical Depth TVD 7500 6500 ft		Gamma Time Since Drilled GRTM 0 600 min	Downhole Temperature TCDM 0 300 degF

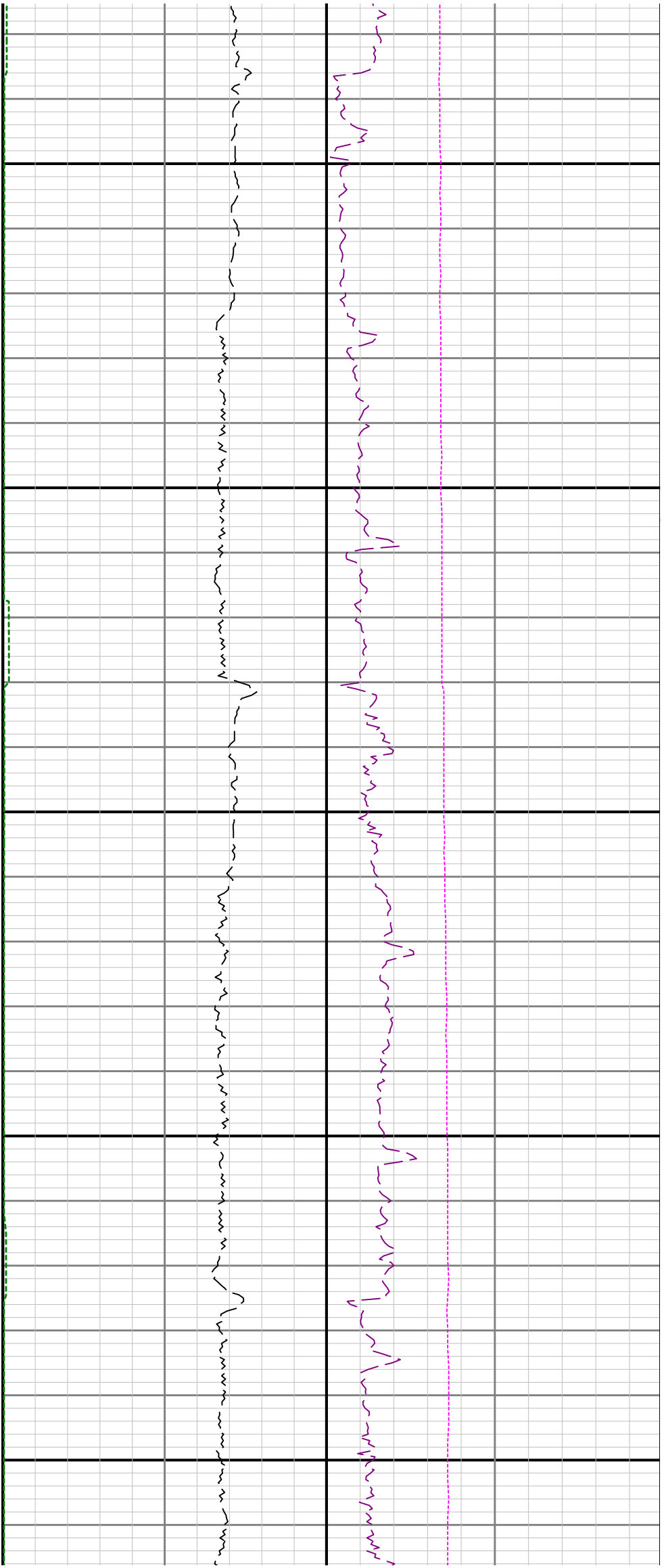




2100

2200

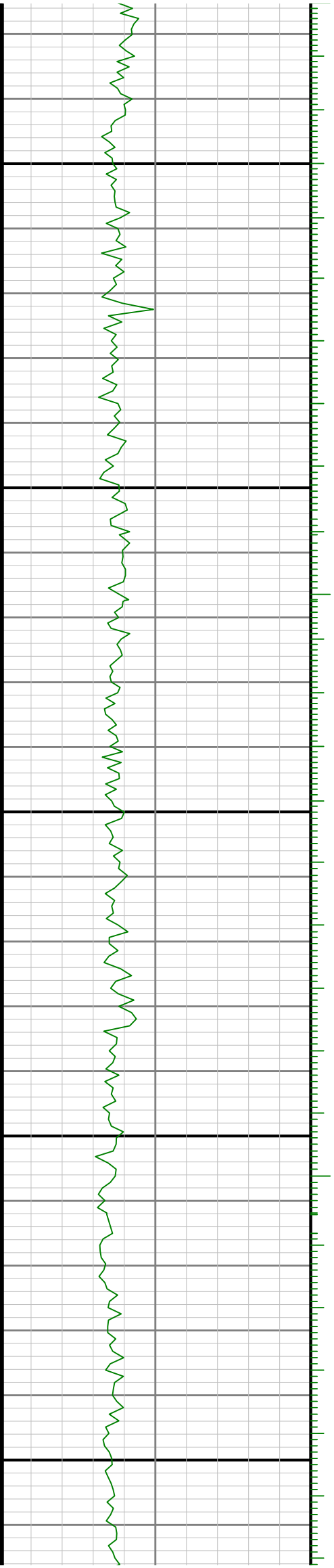


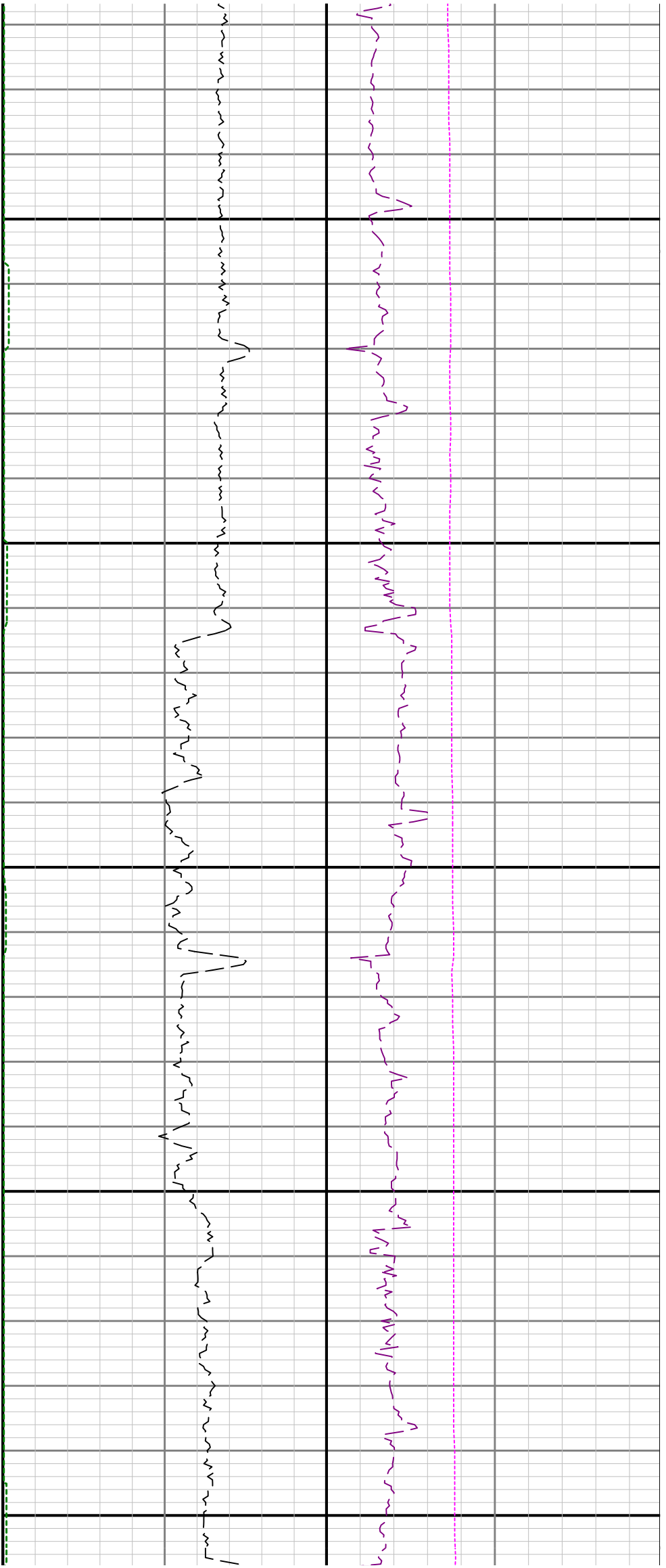


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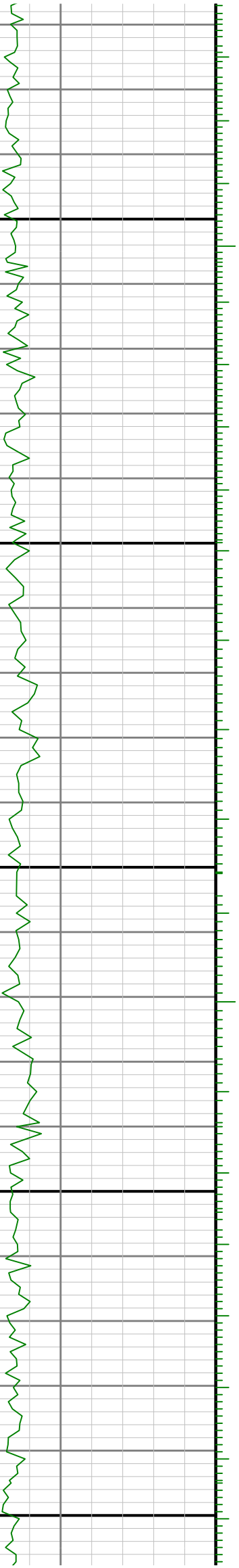
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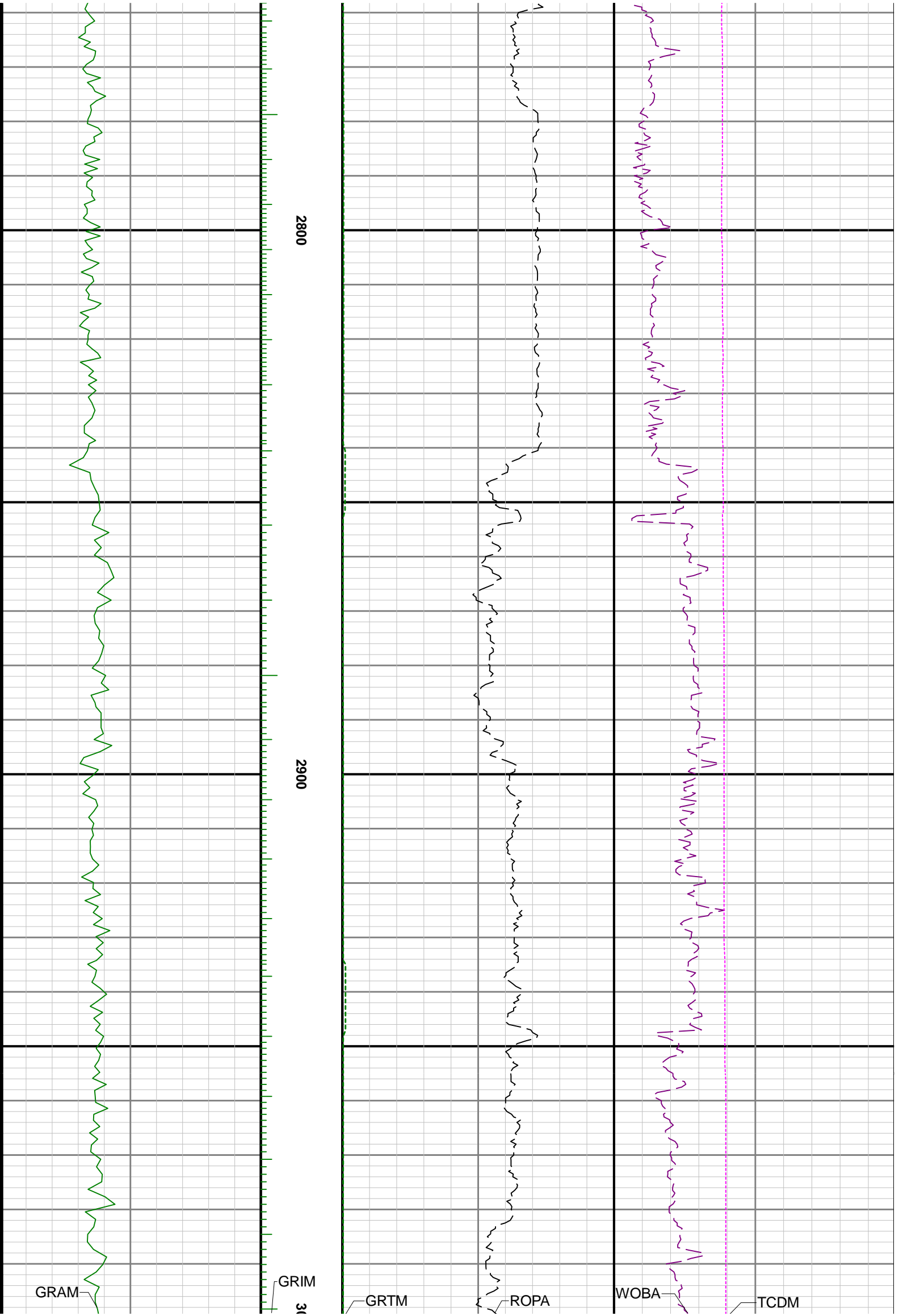


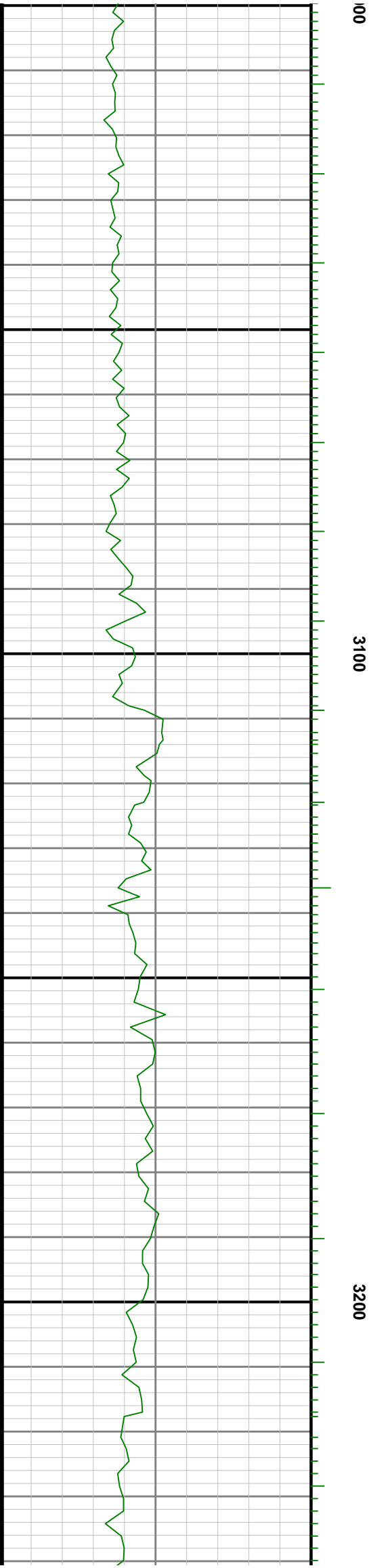
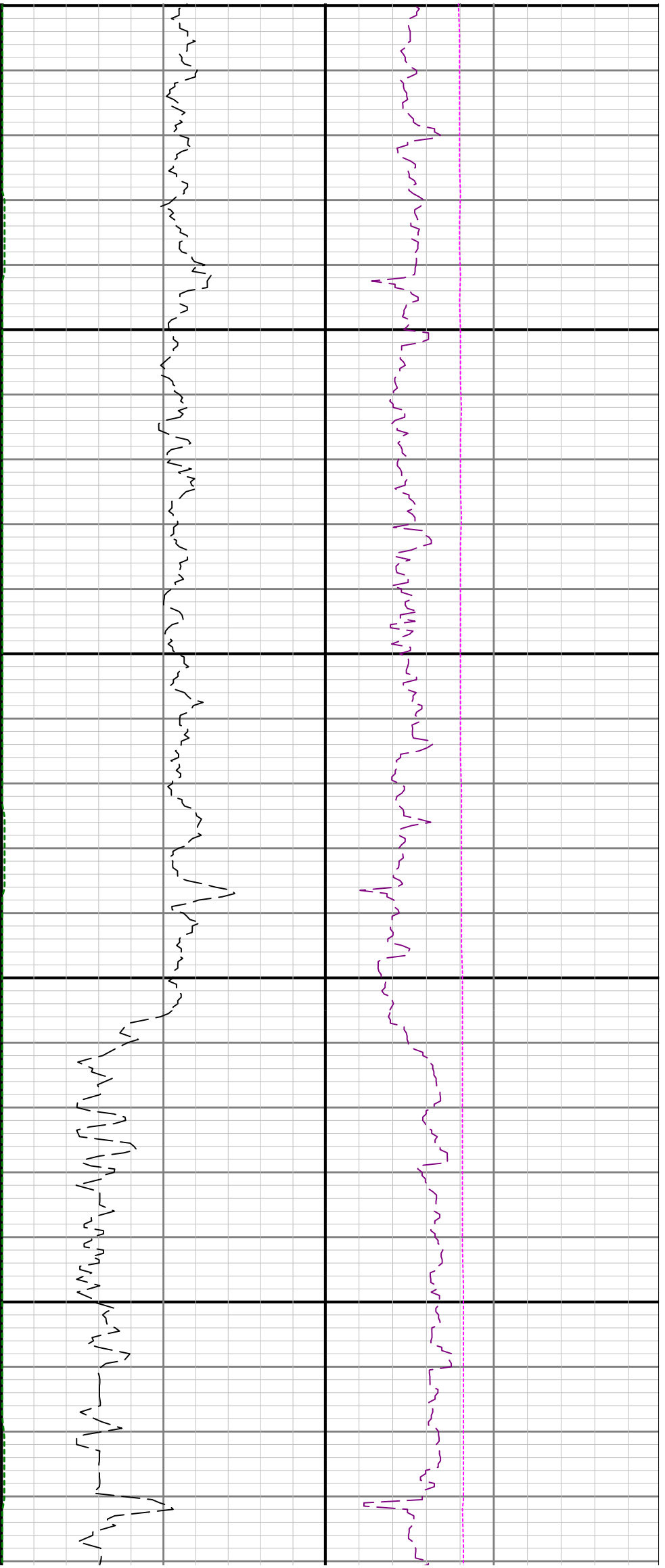


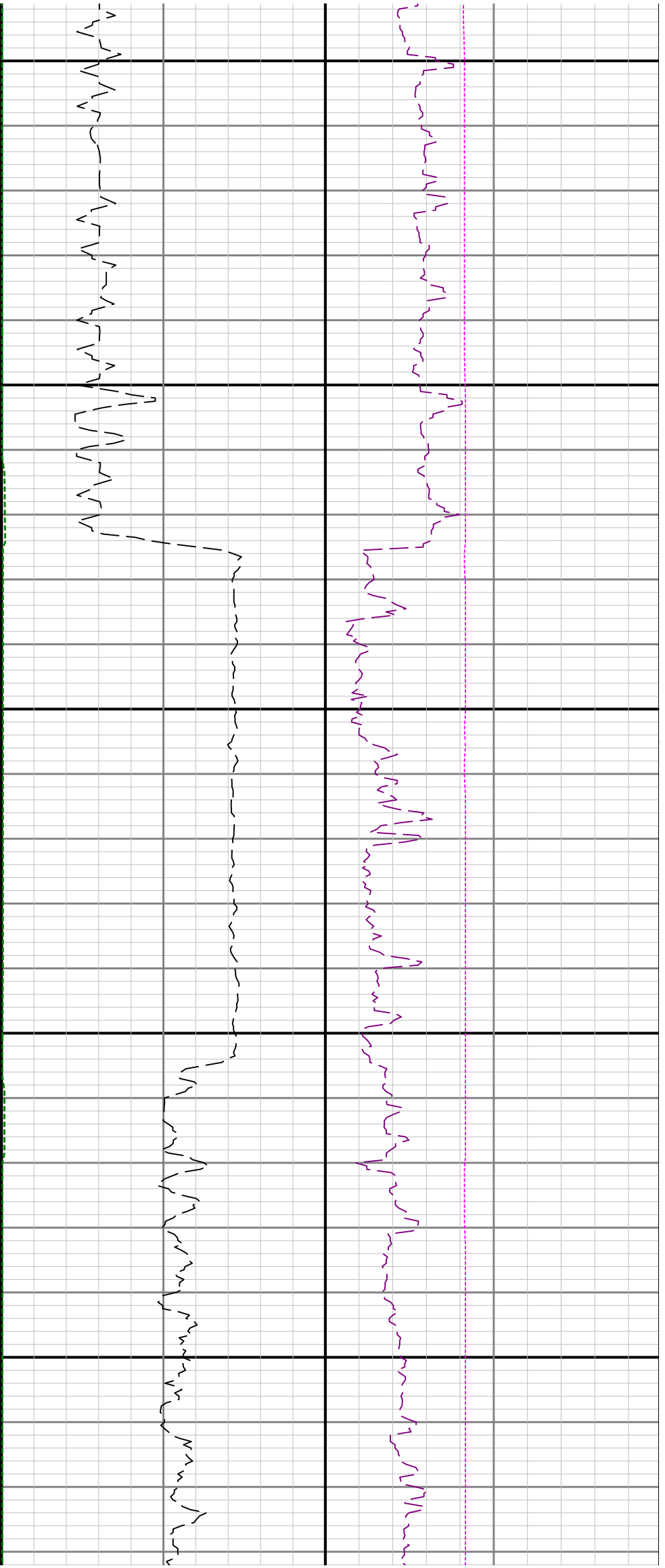
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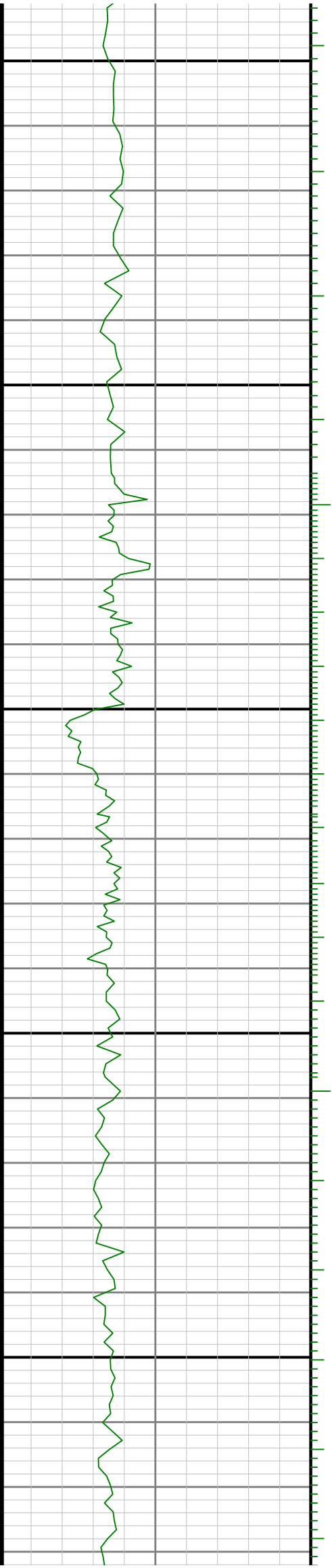


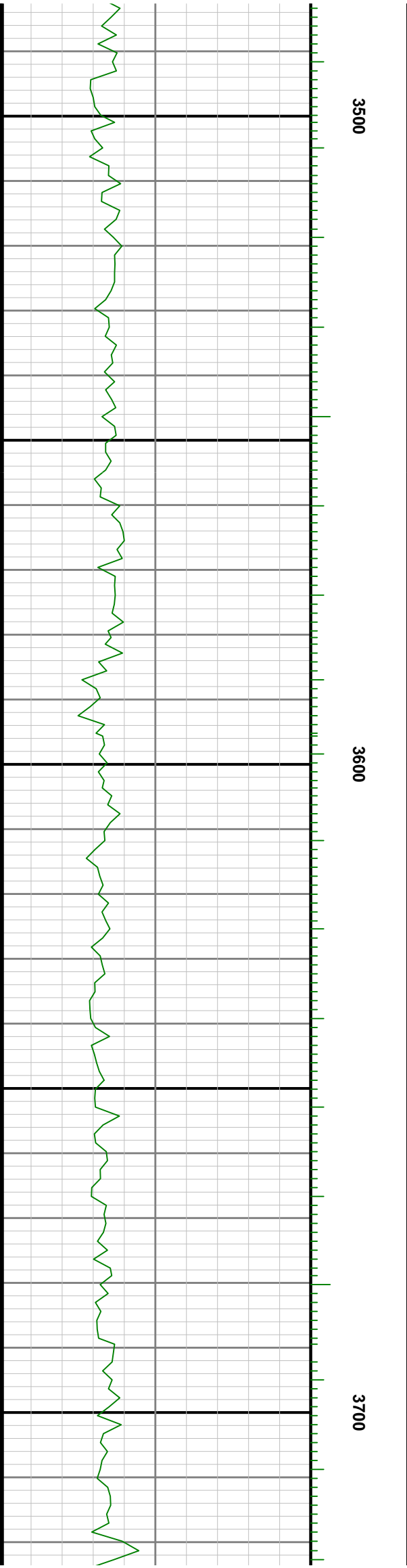
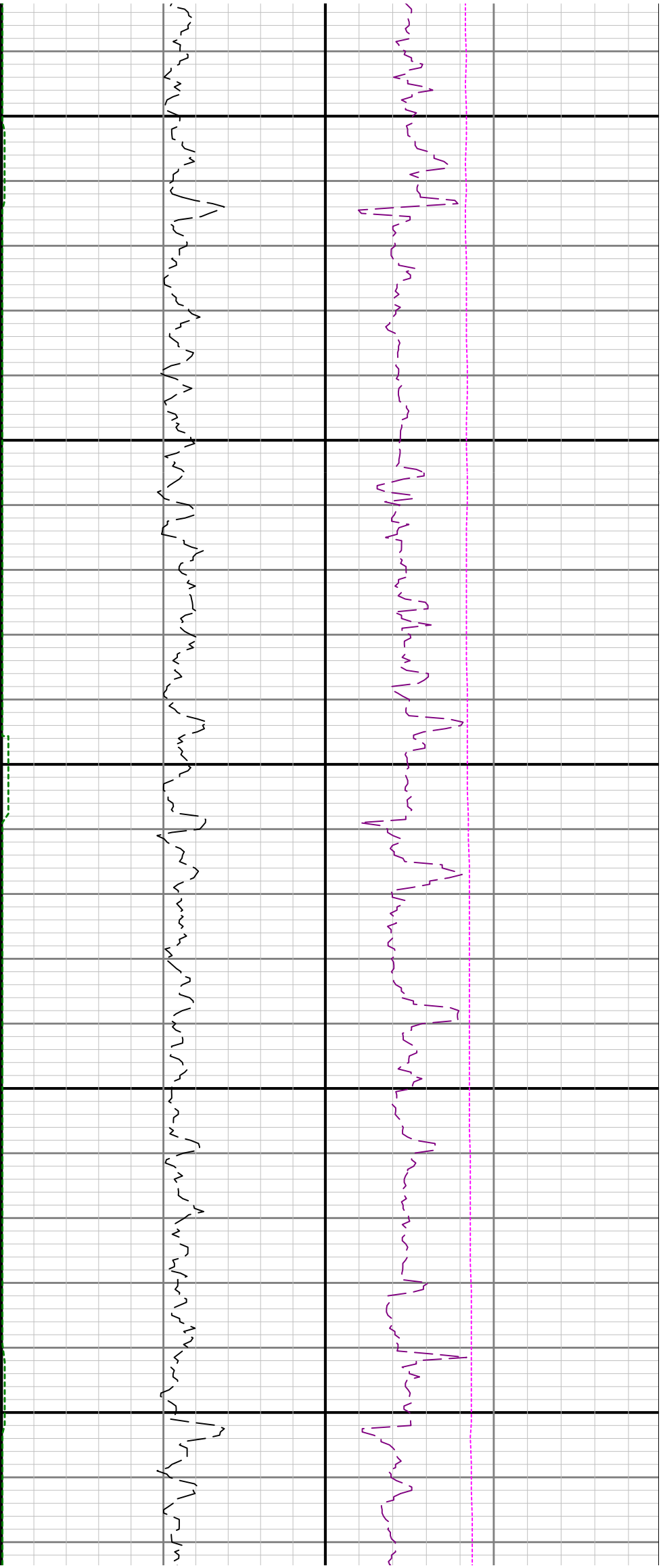


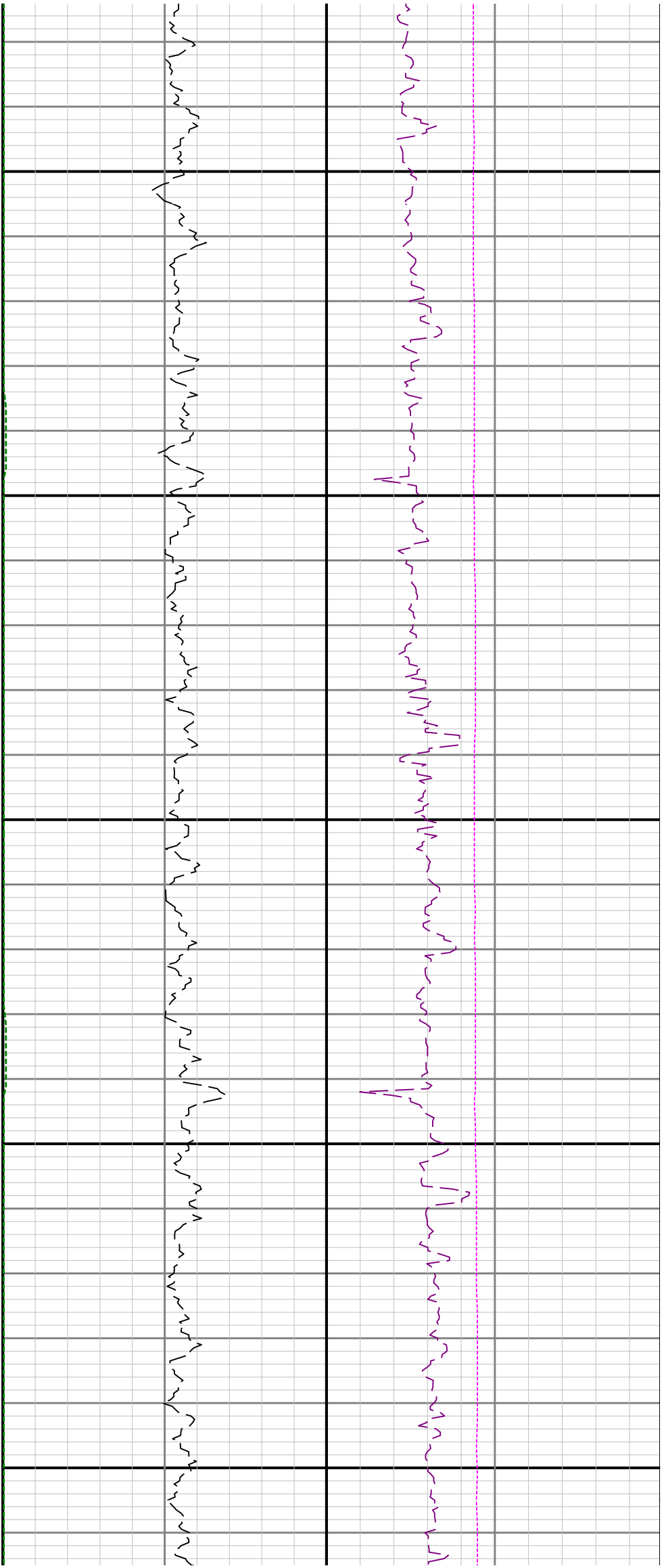


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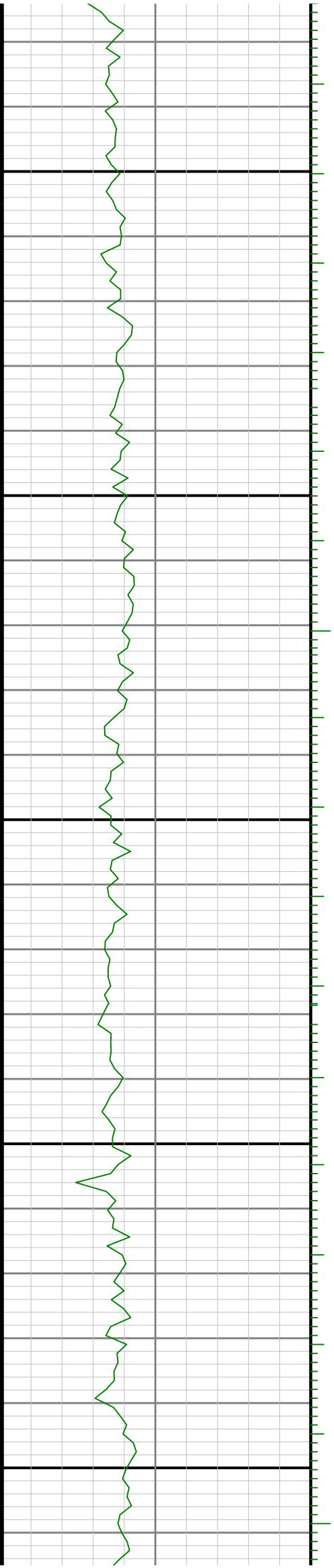


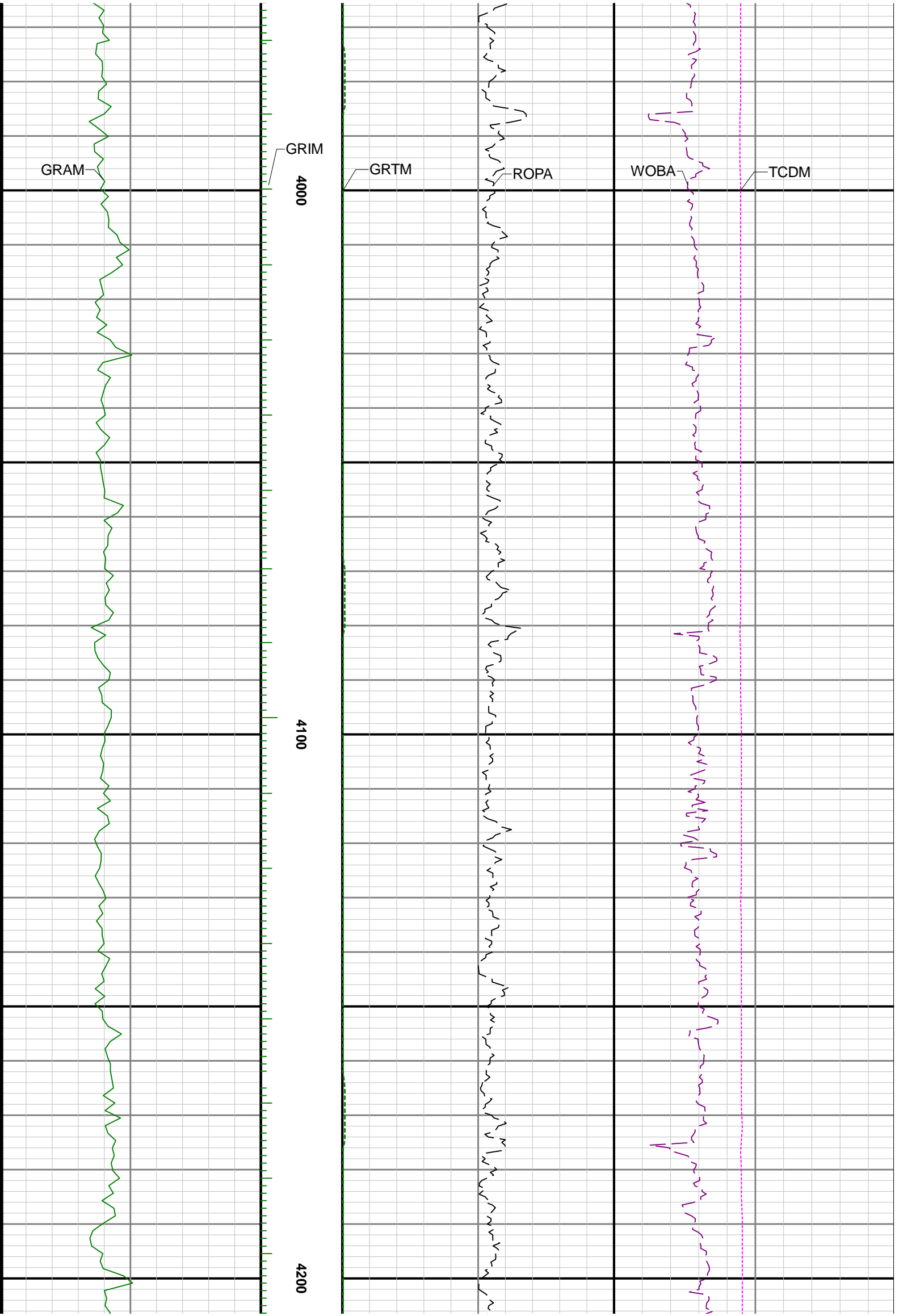


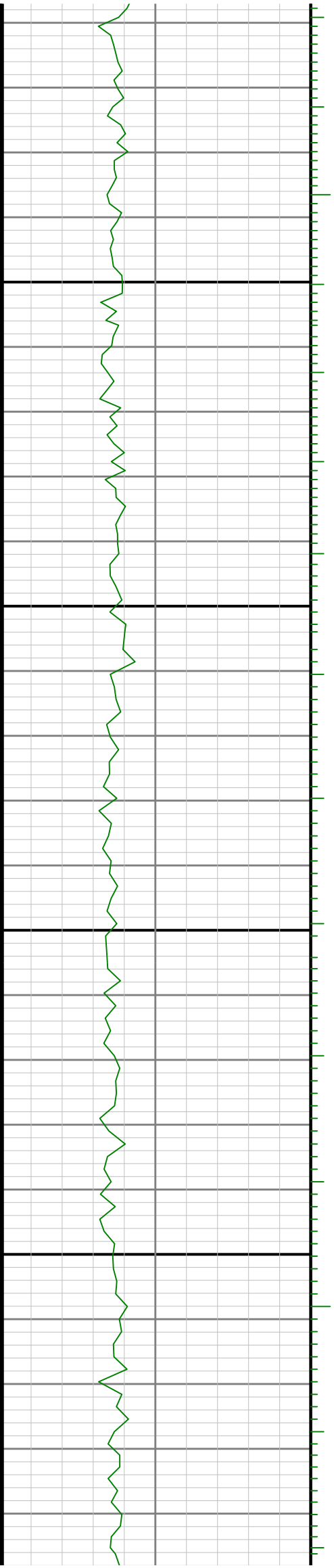
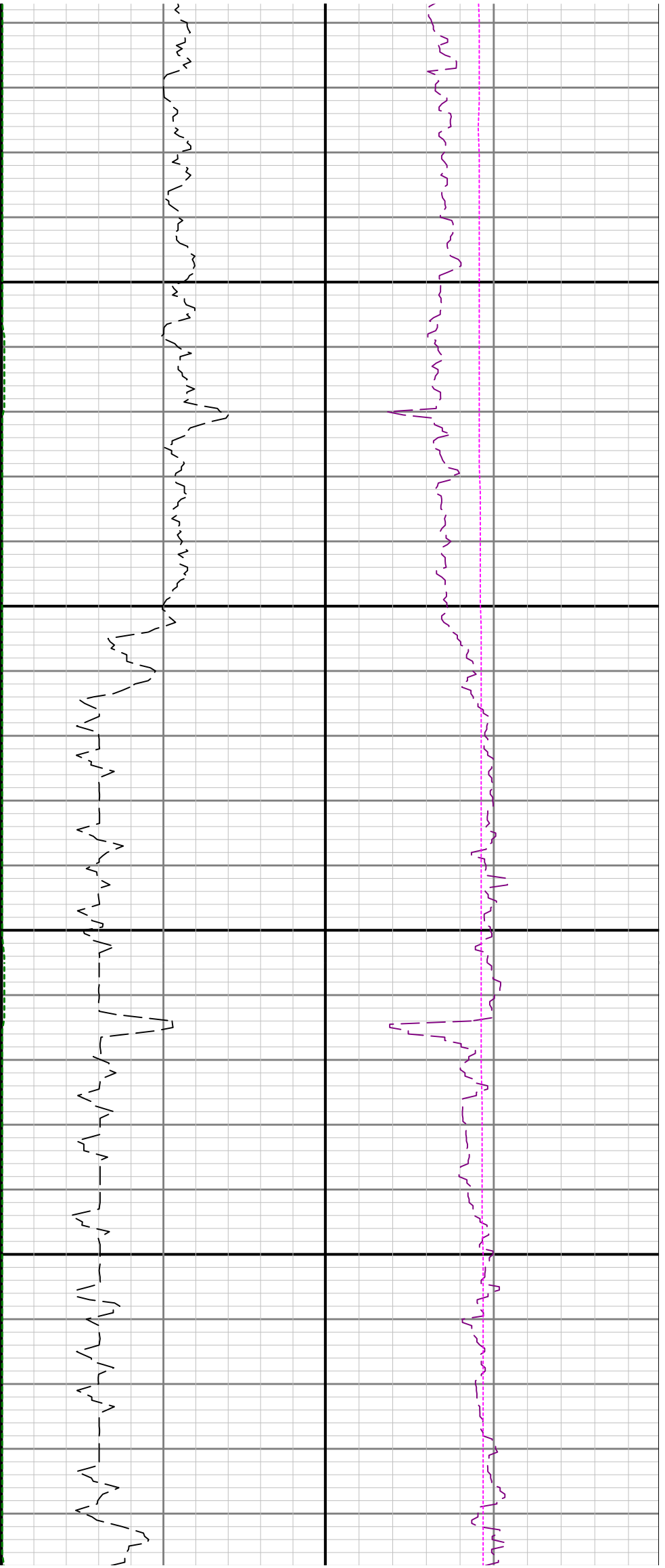


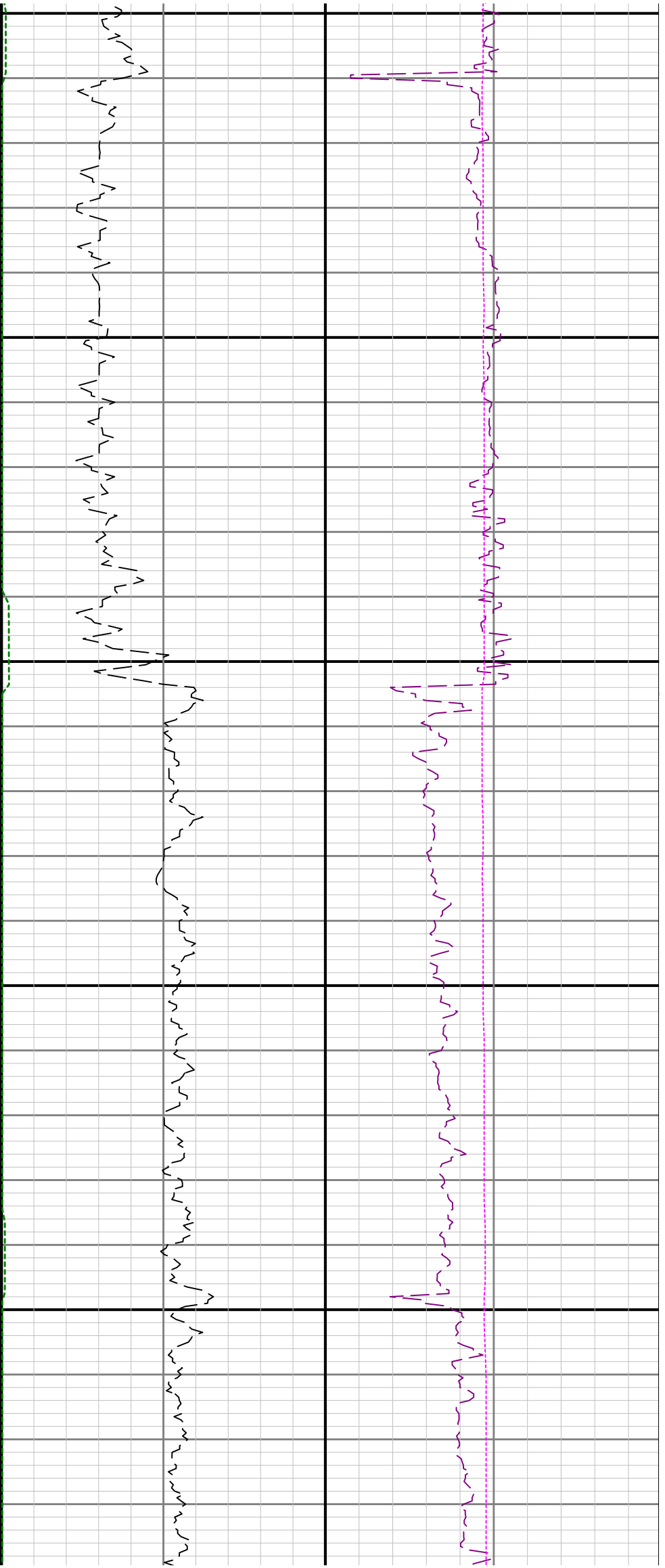
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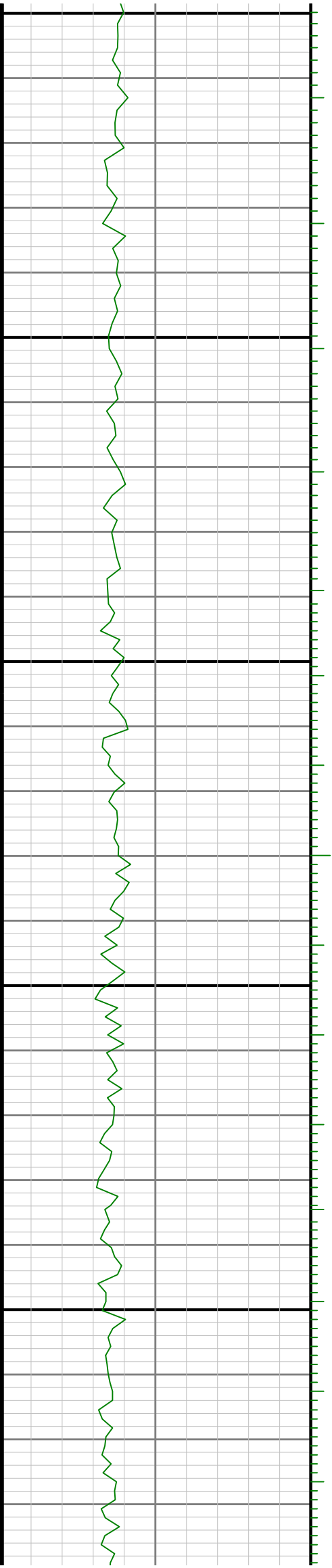


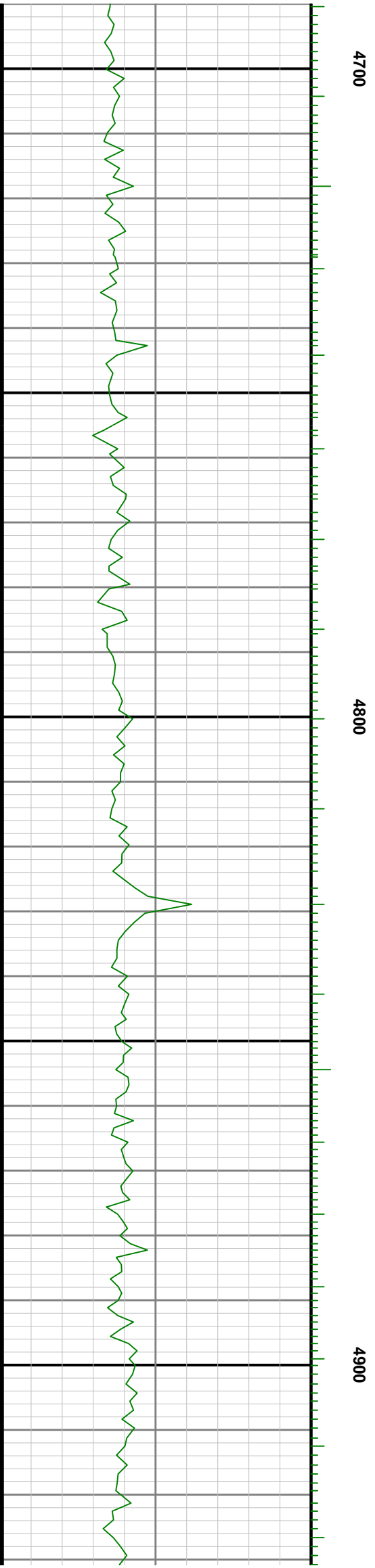
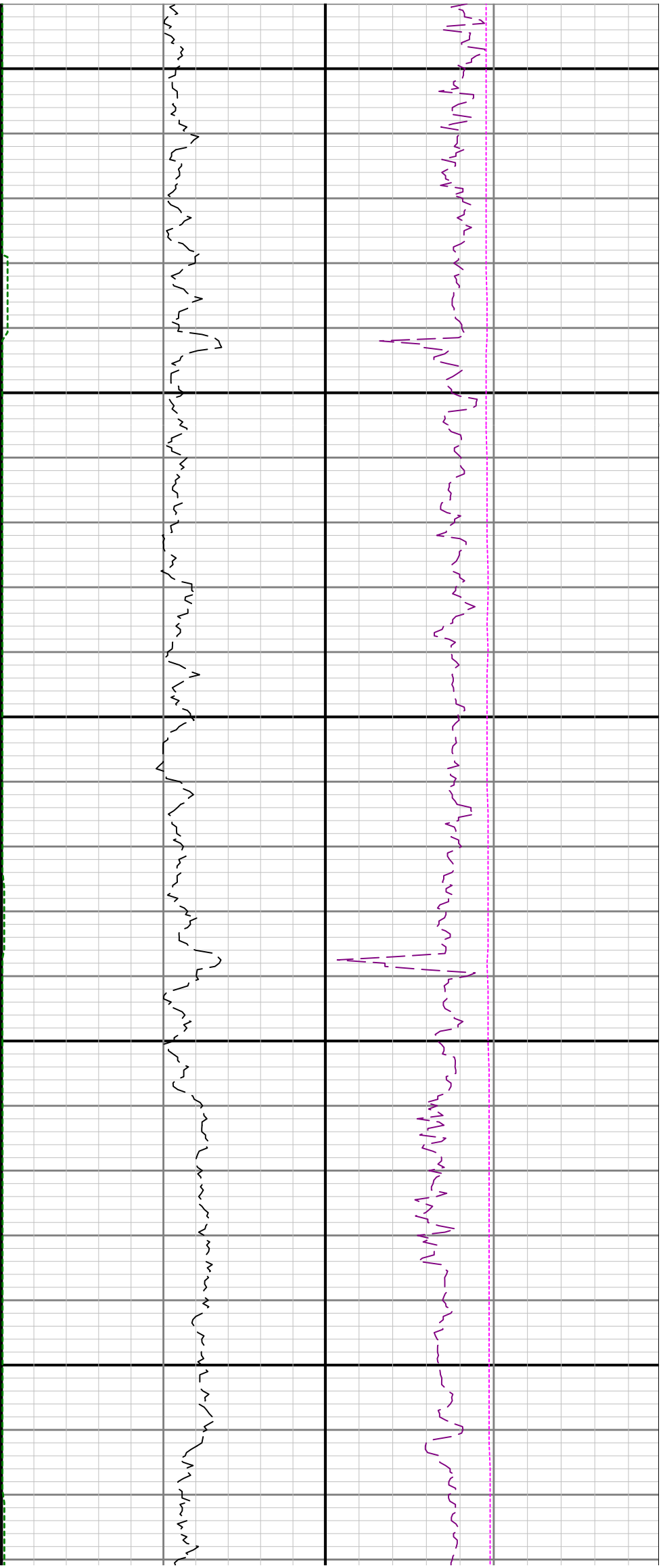


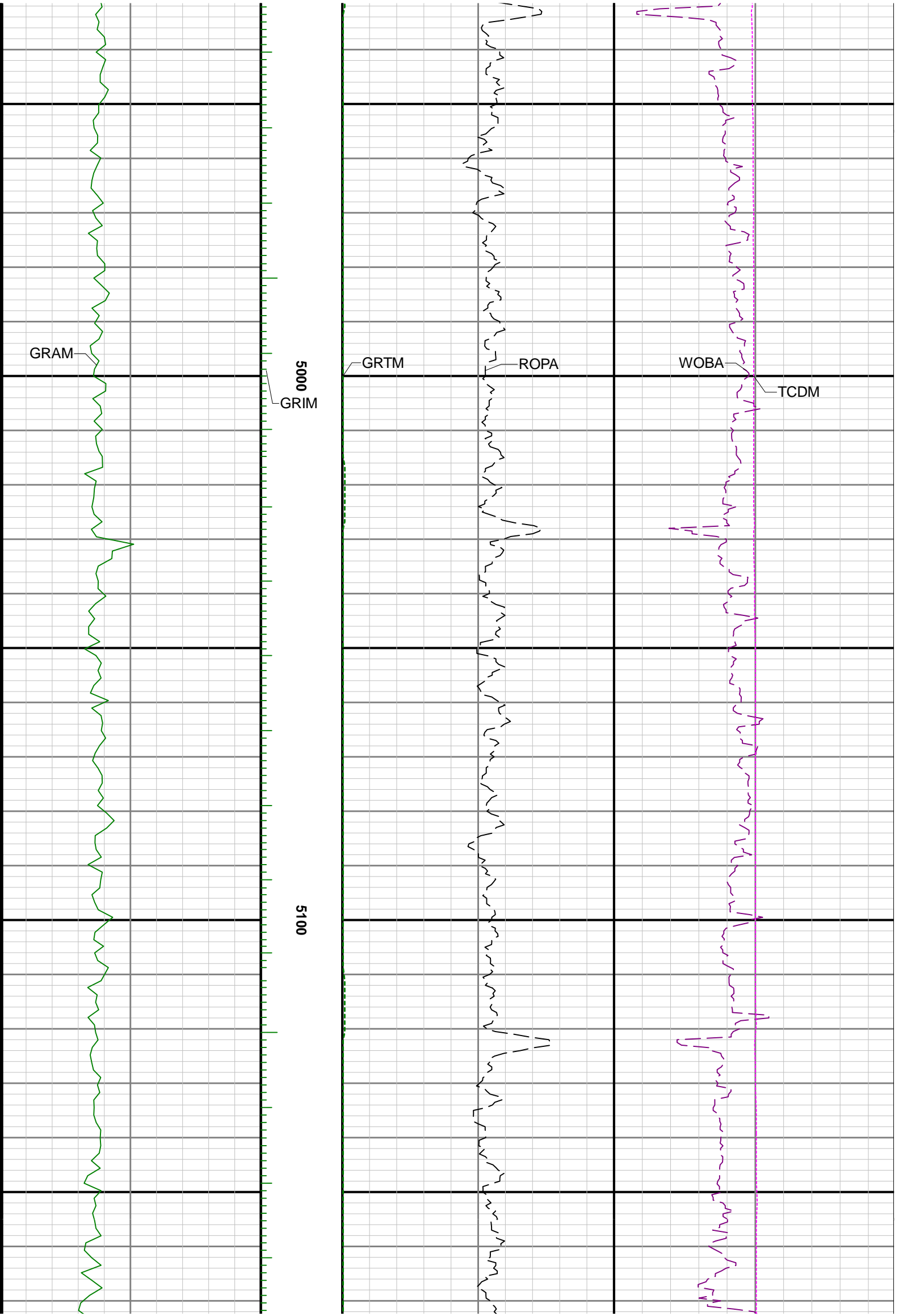


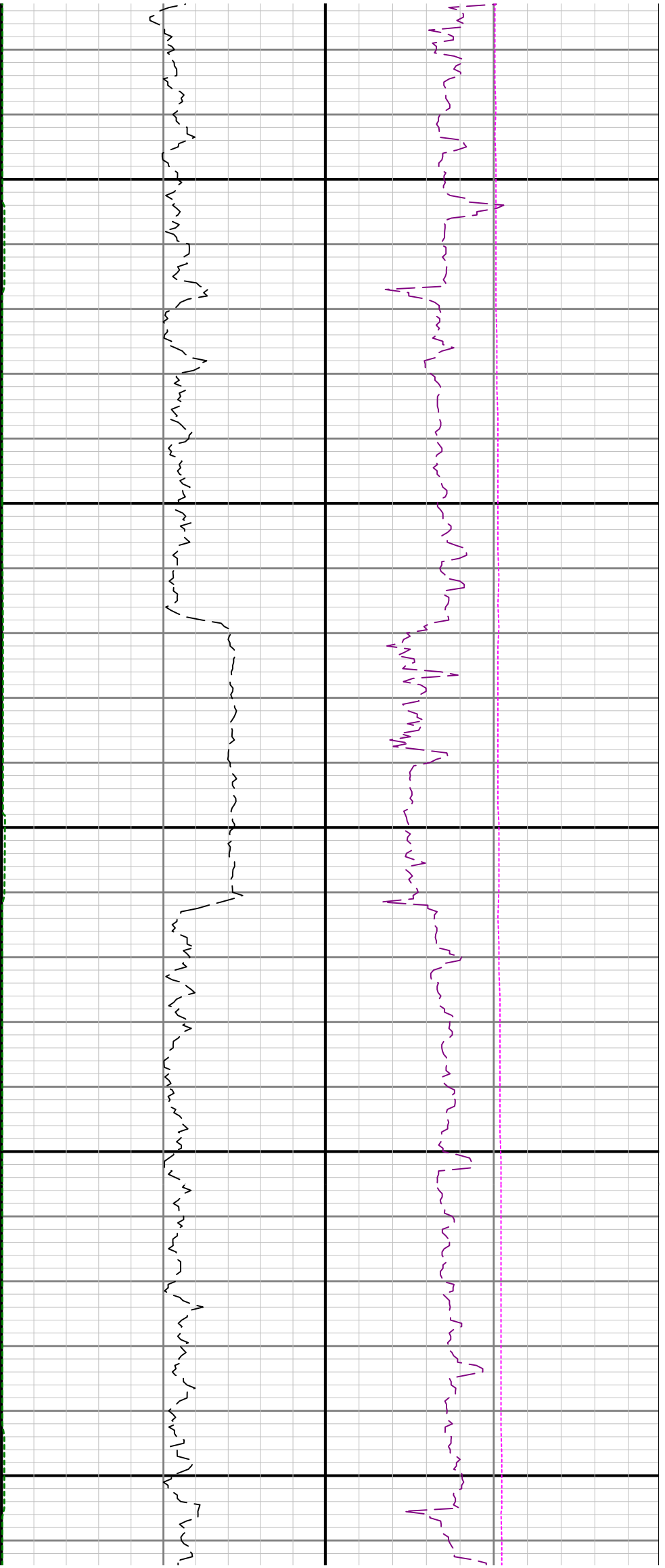
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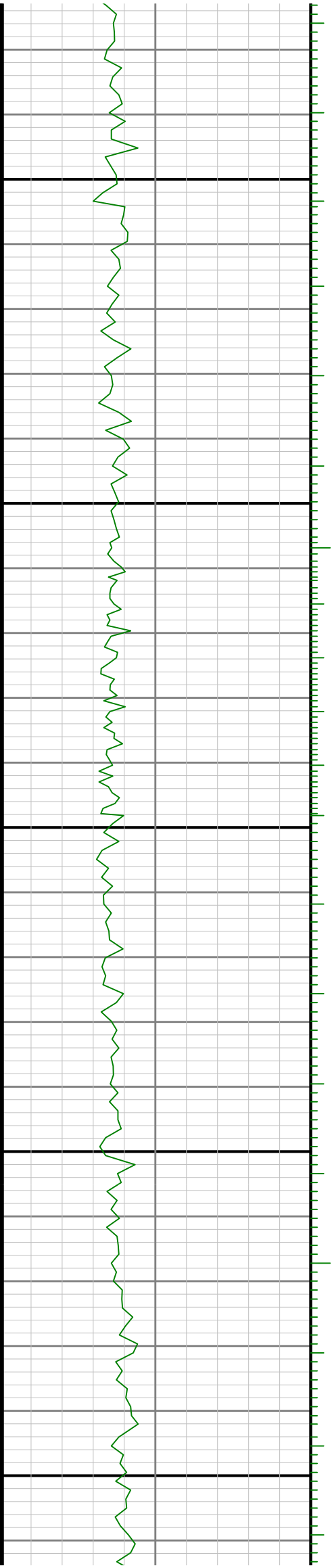


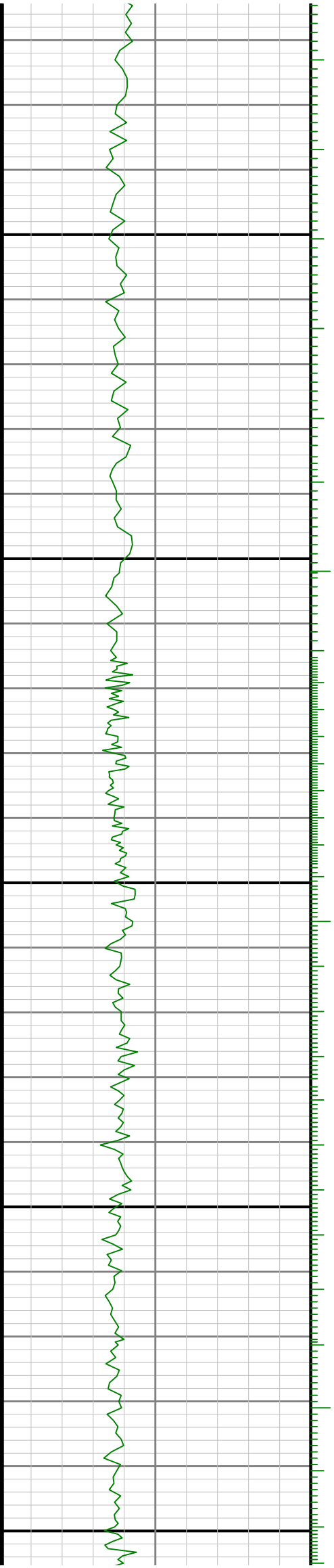


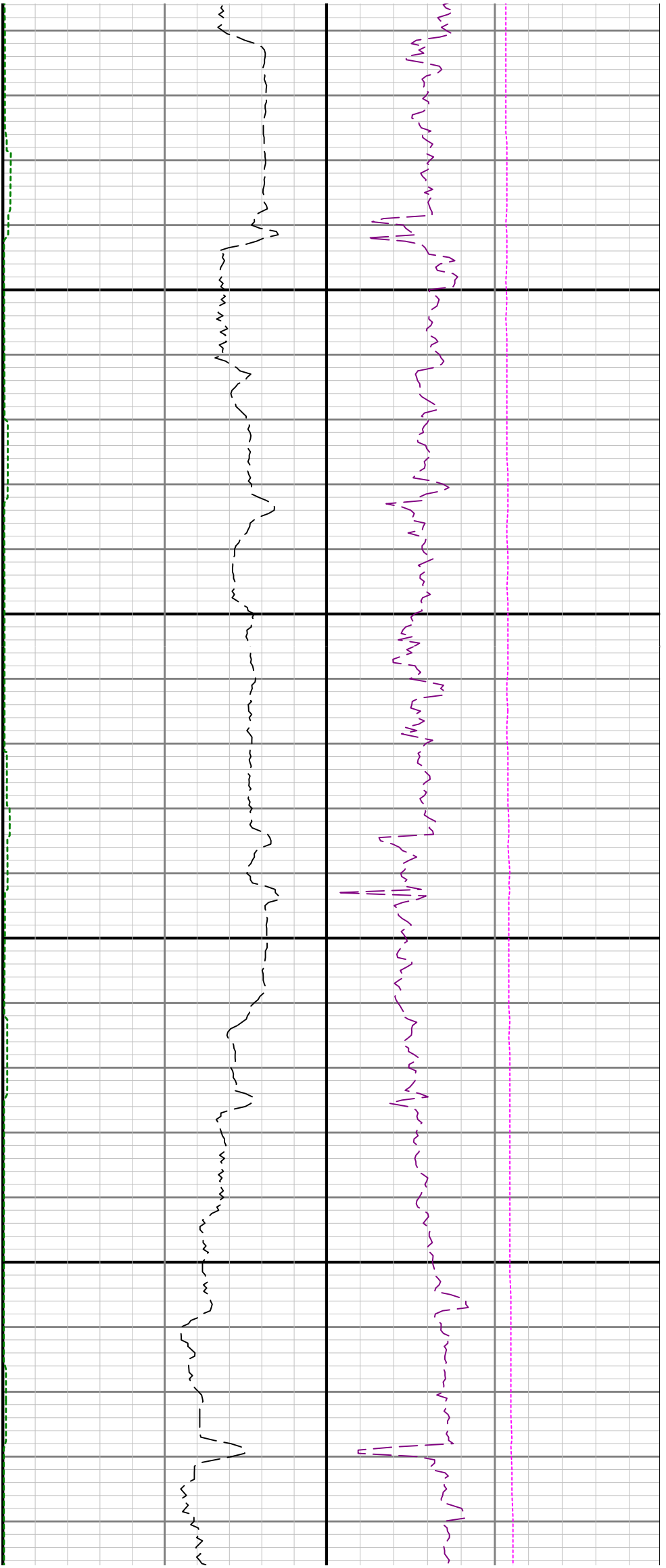
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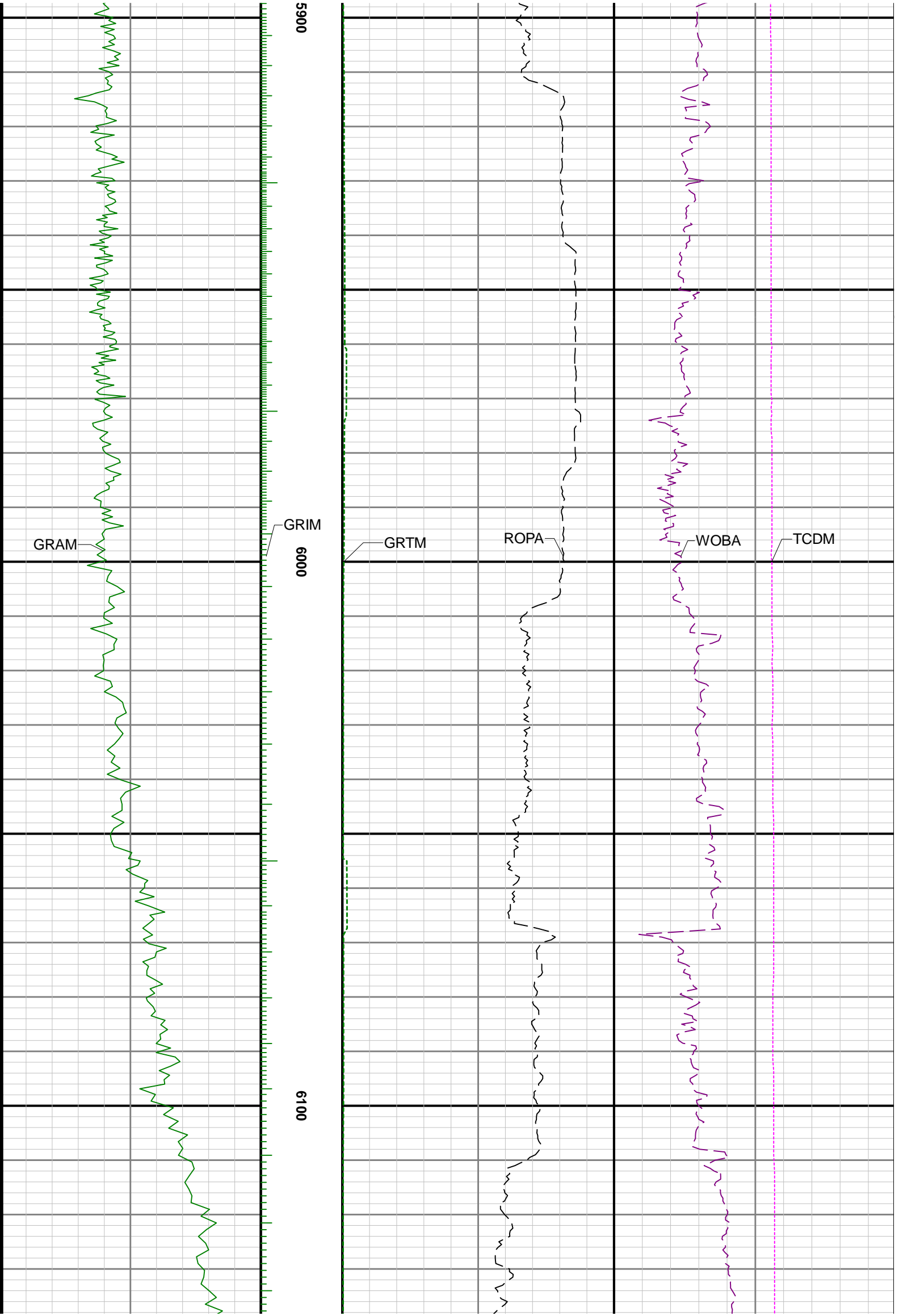


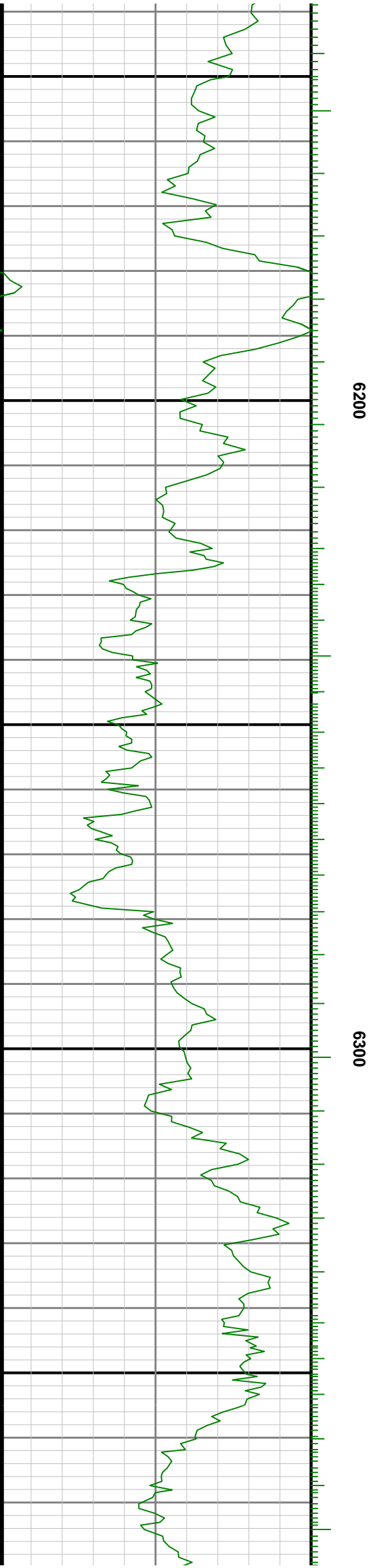
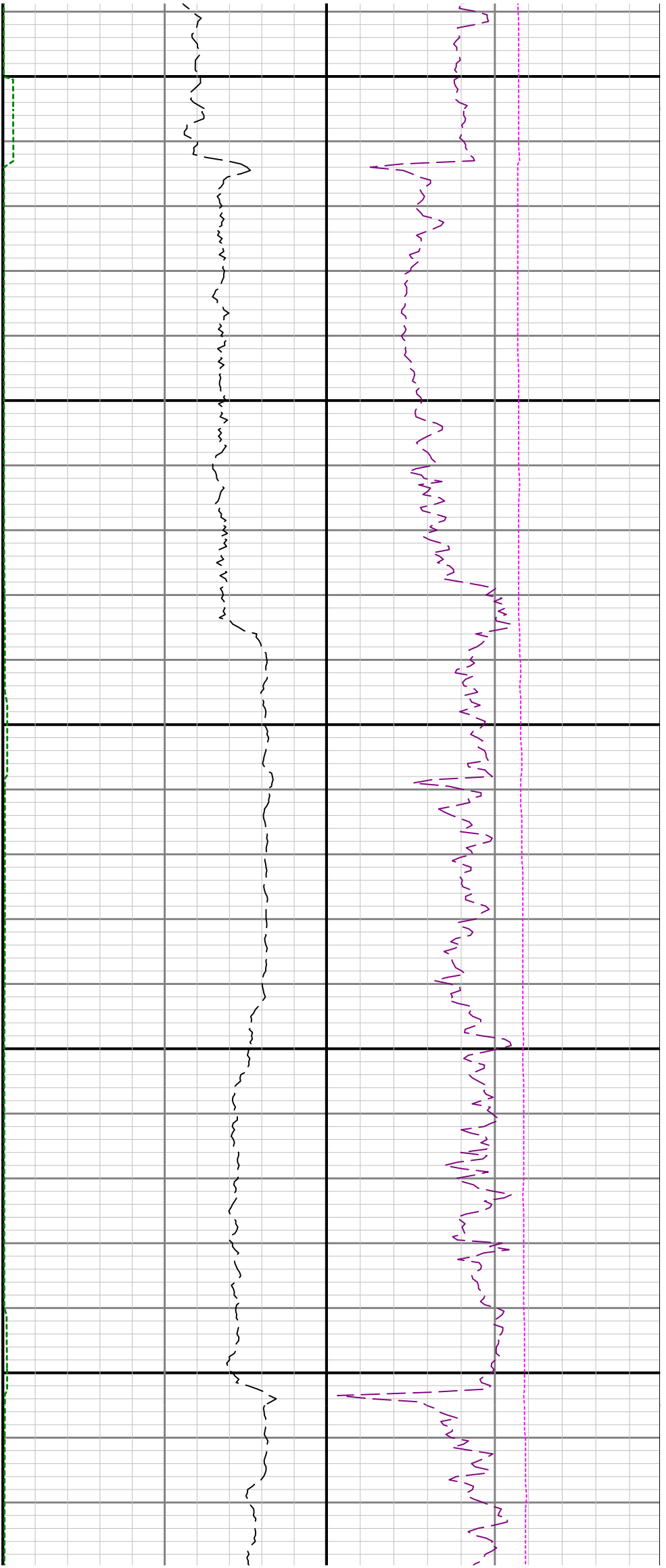


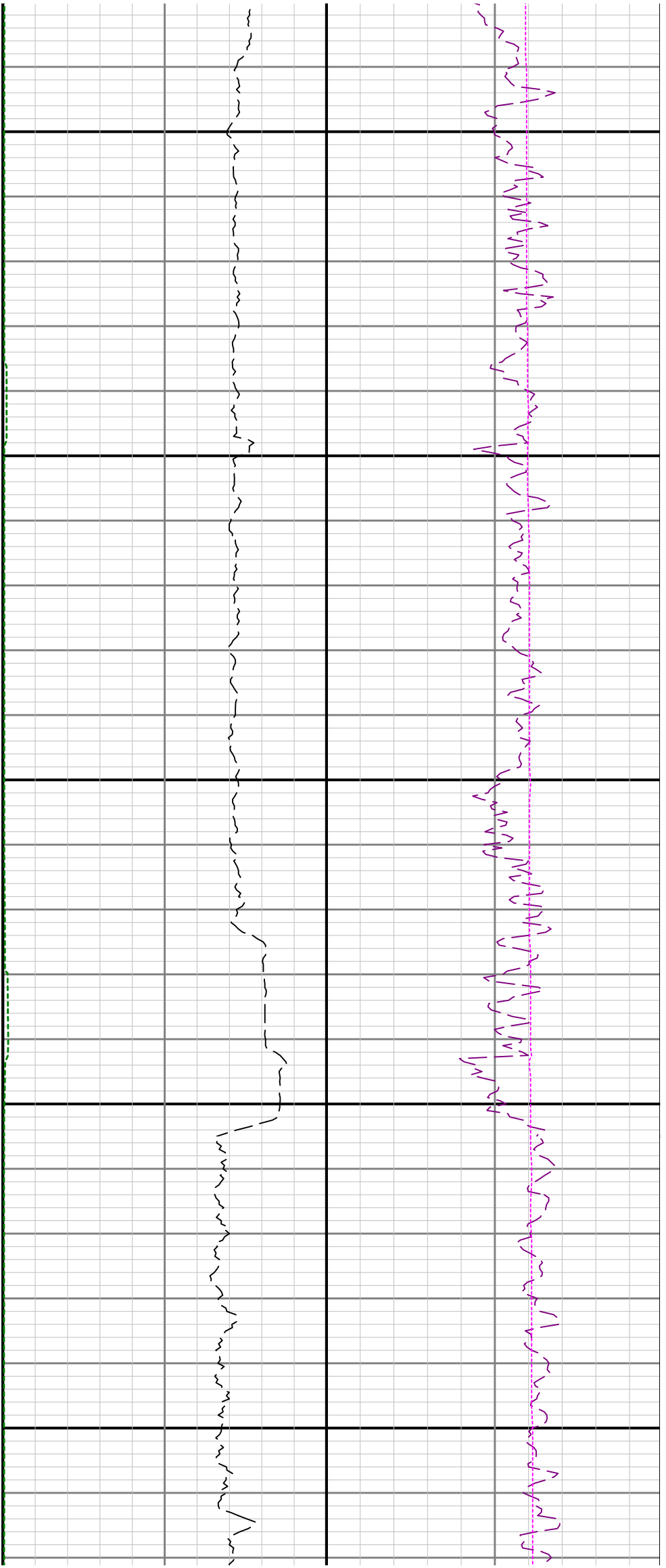


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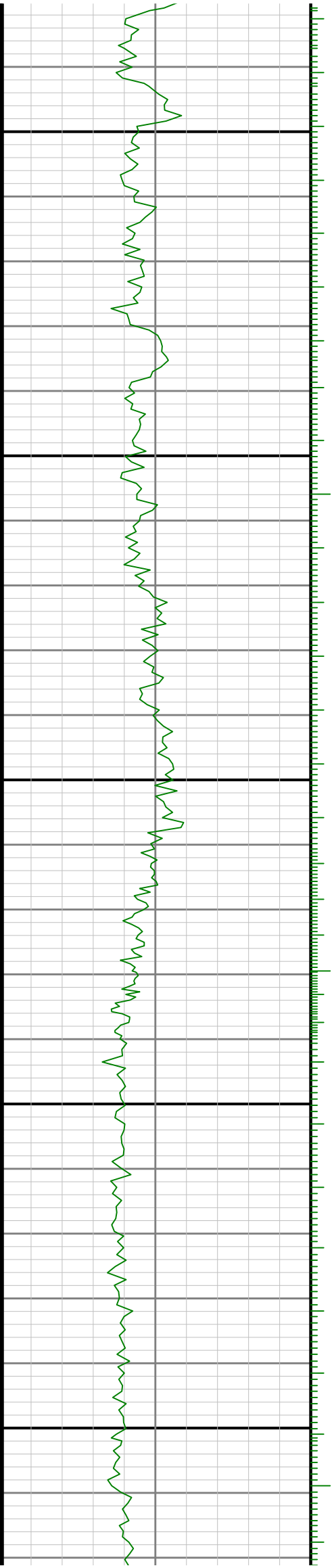


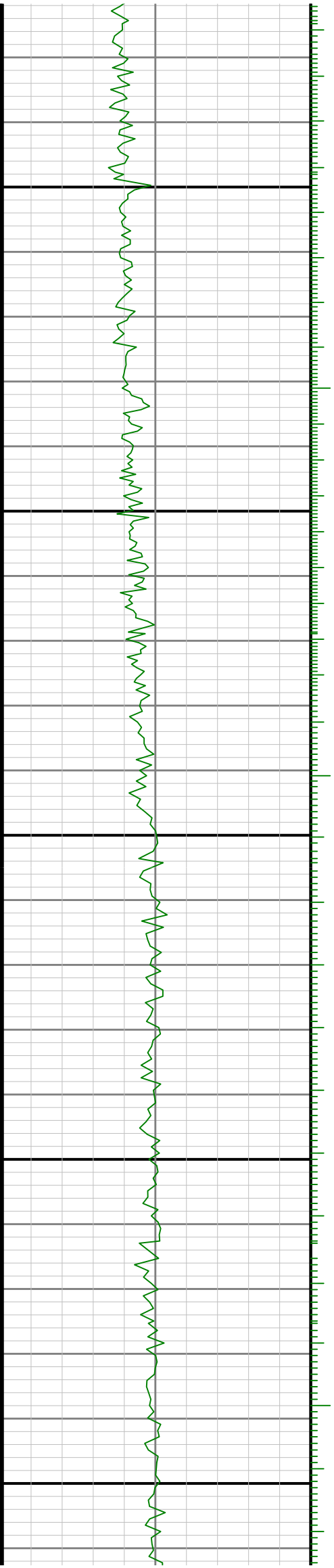


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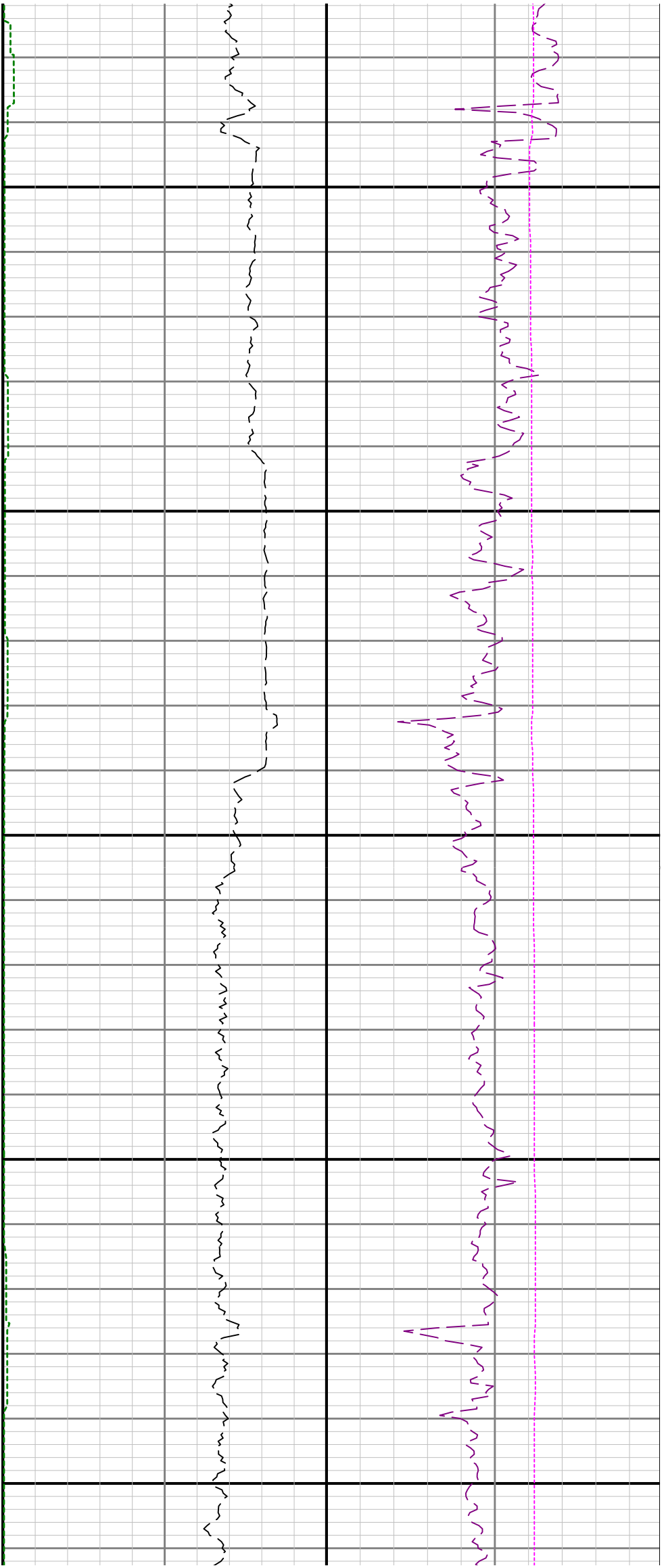
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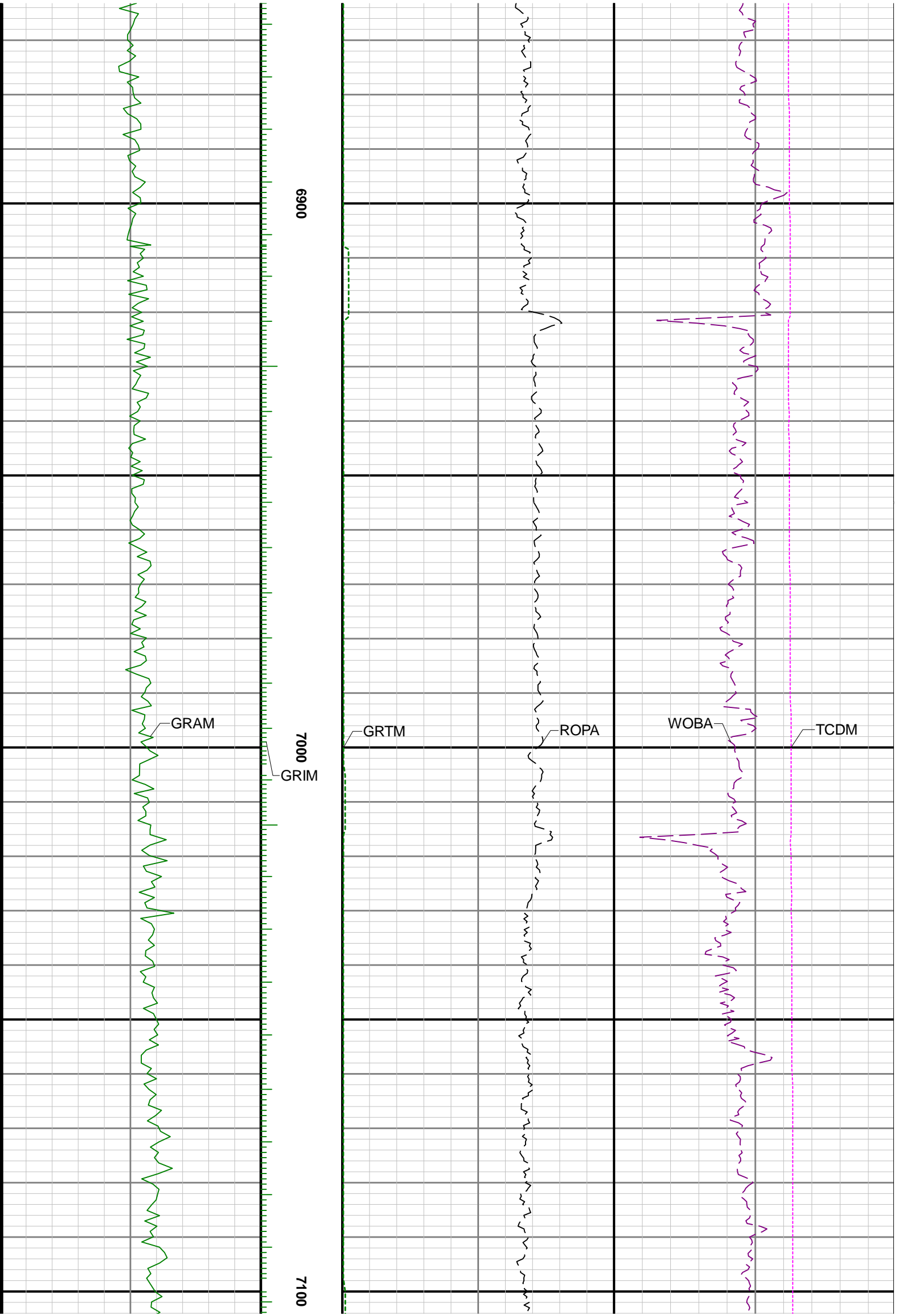


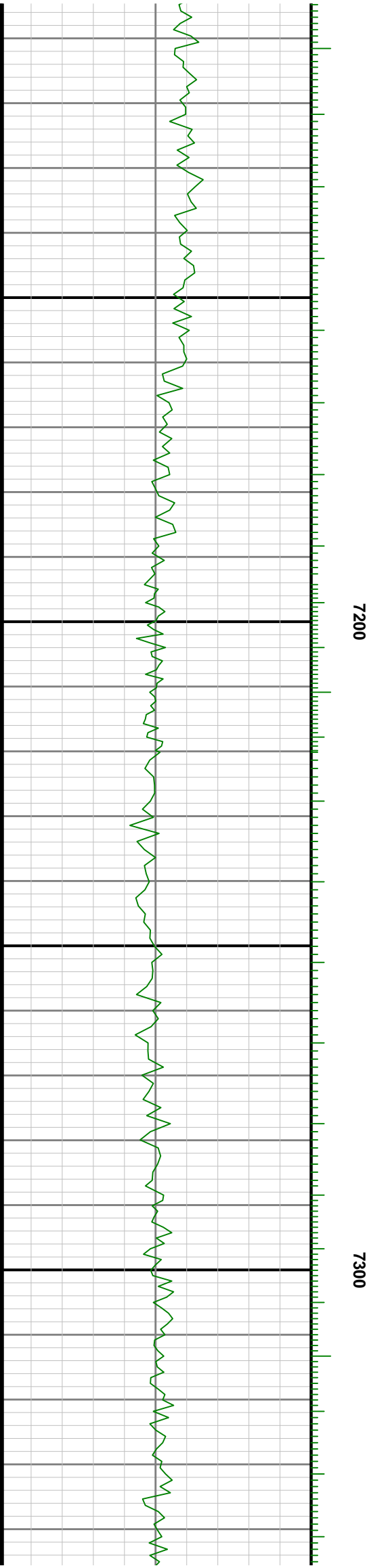
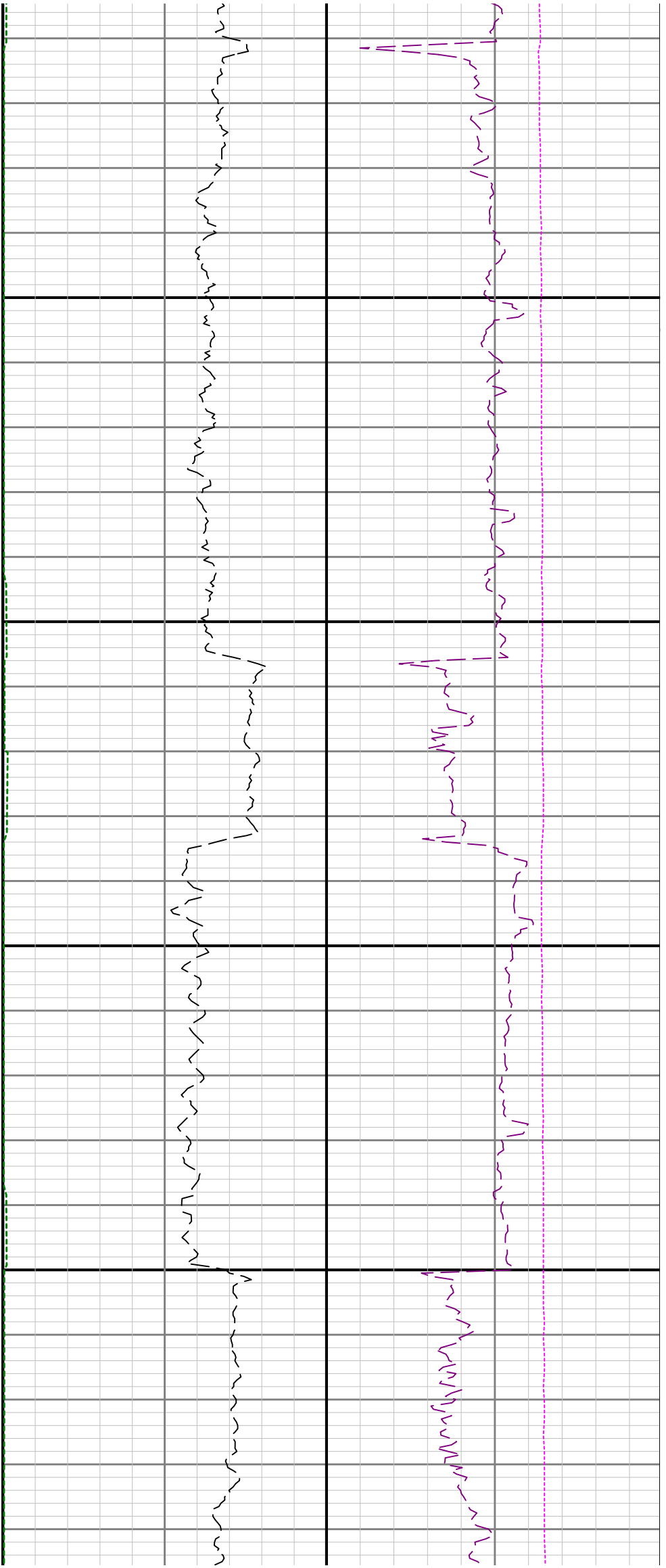


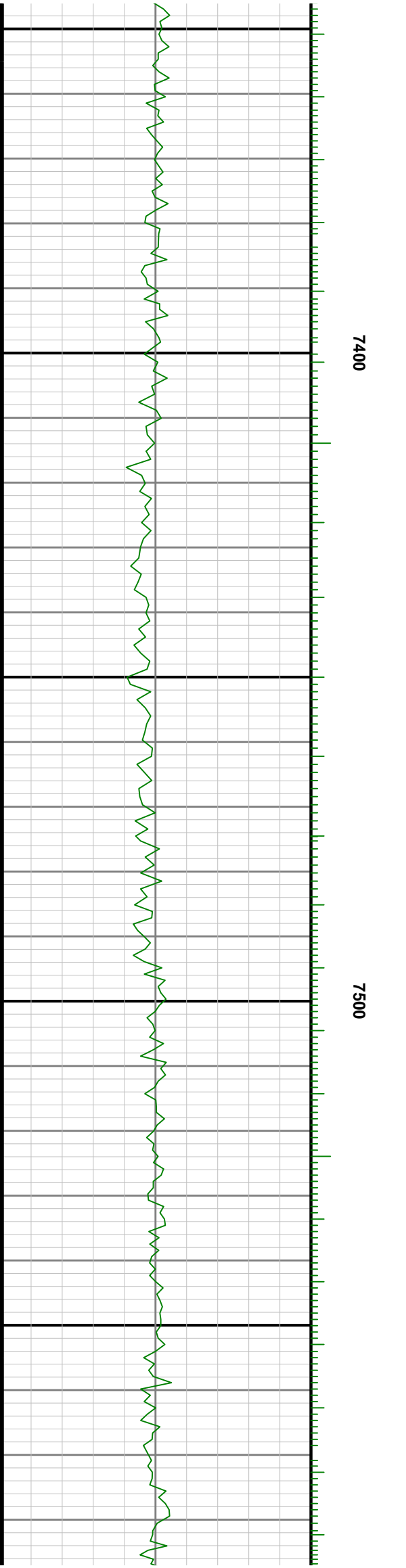
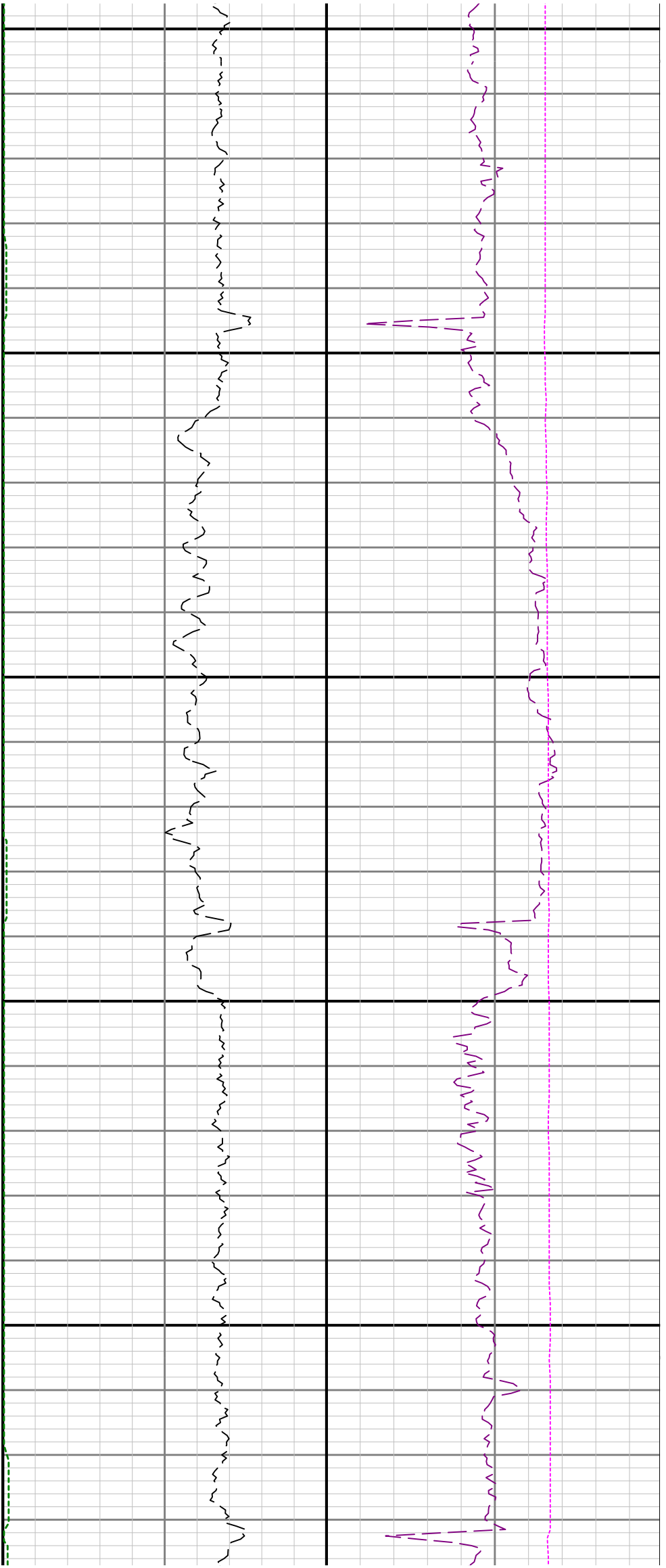
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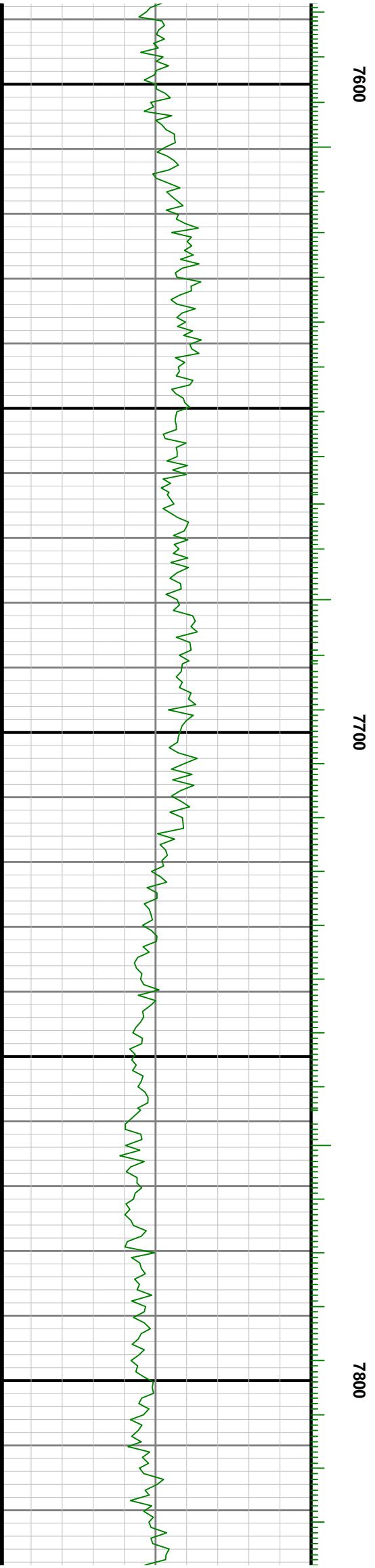
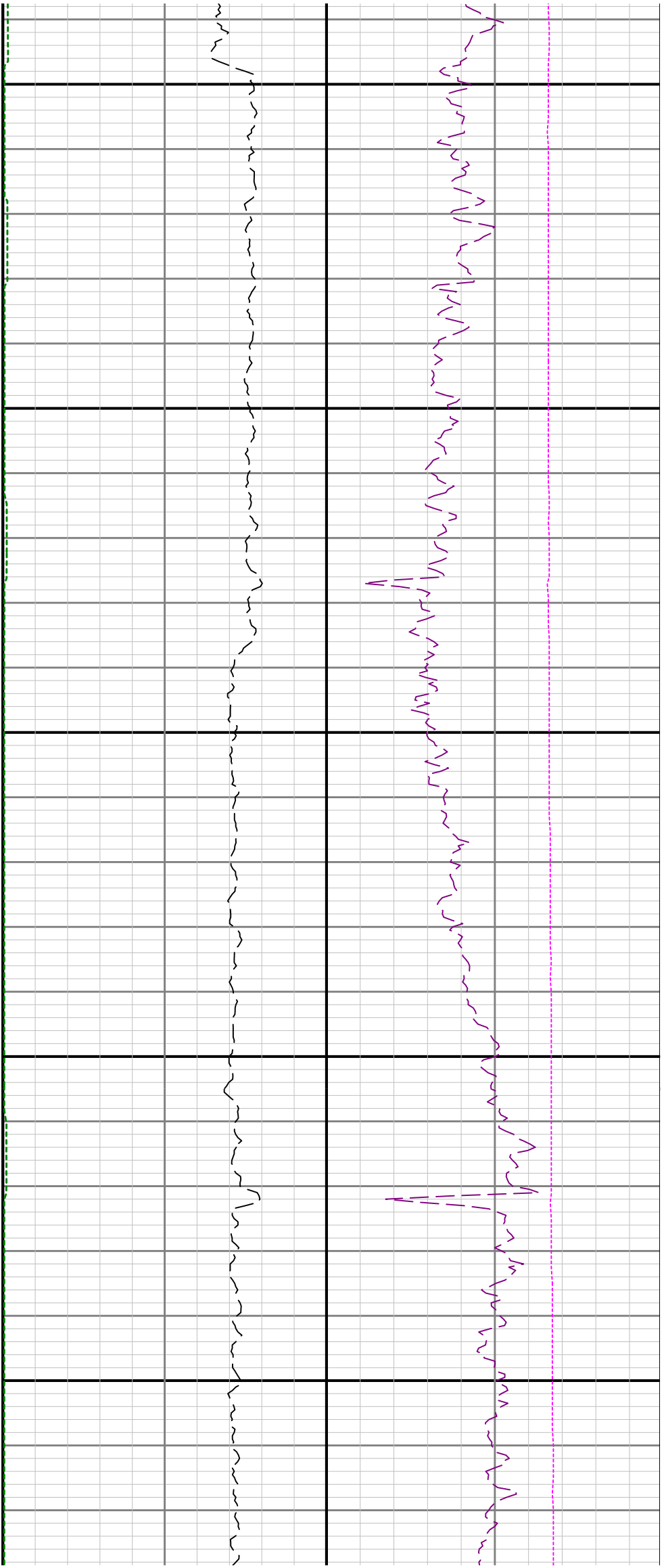
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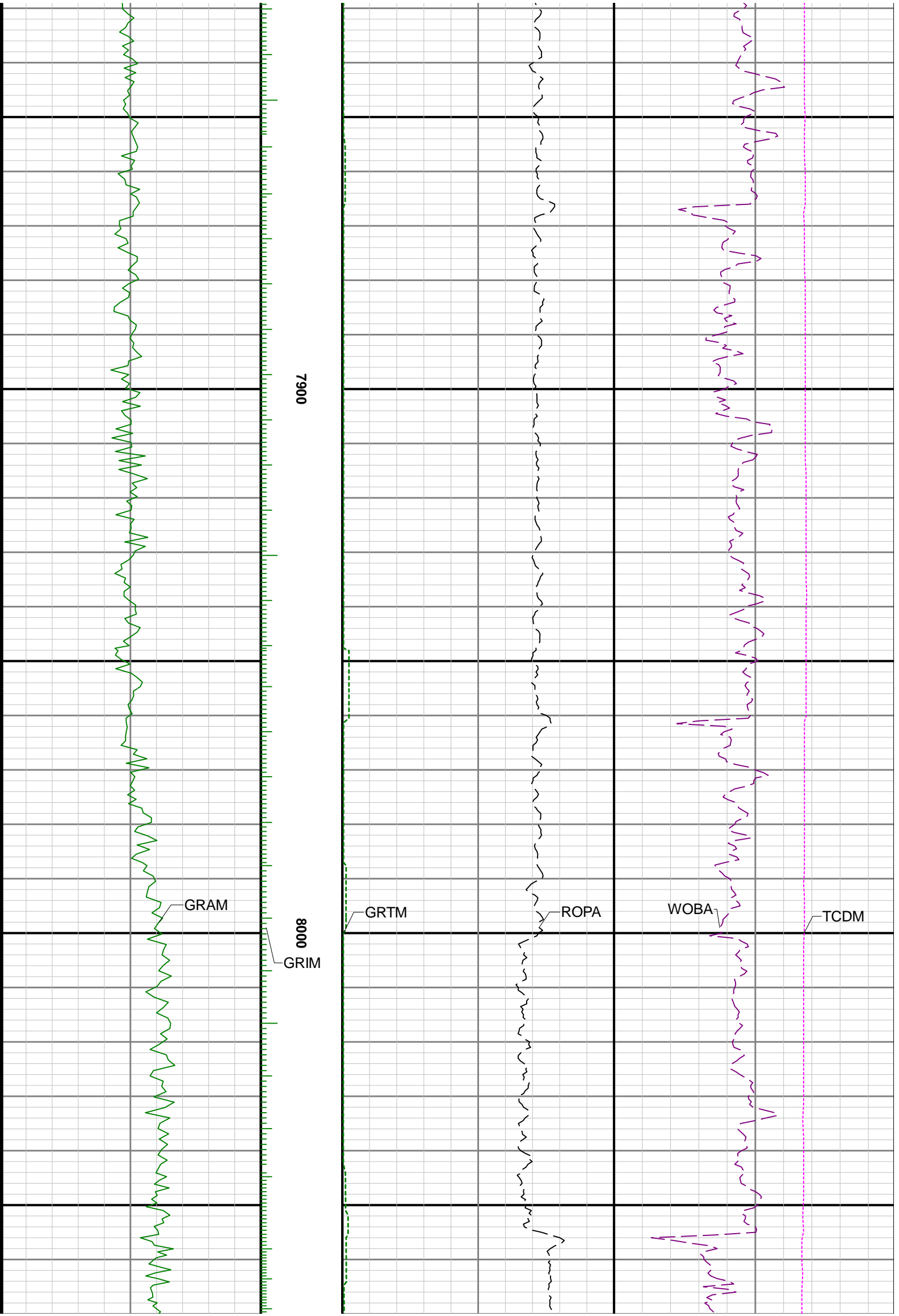


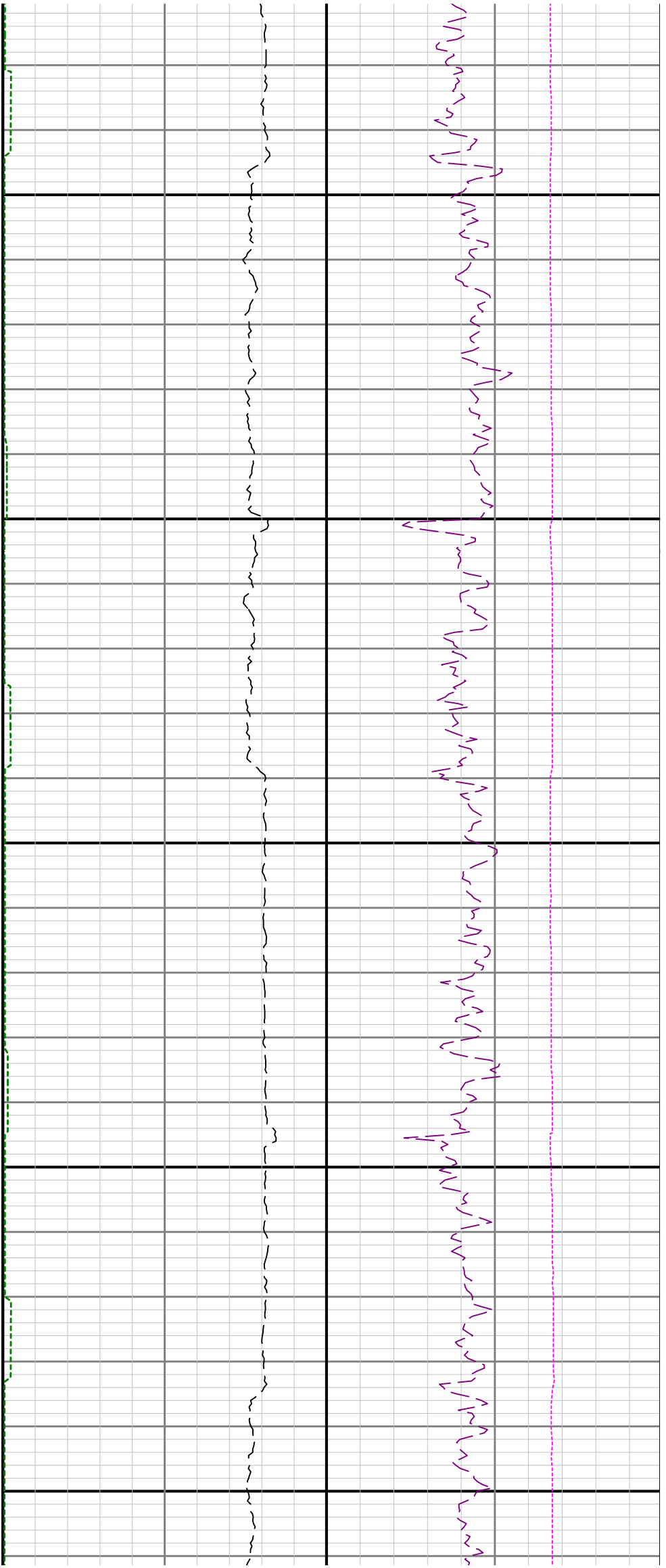








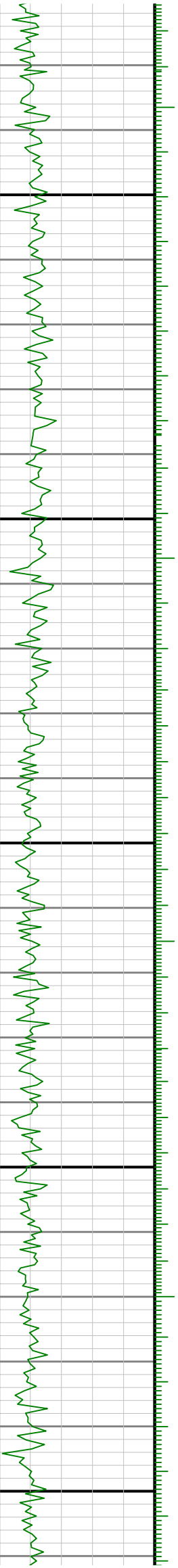


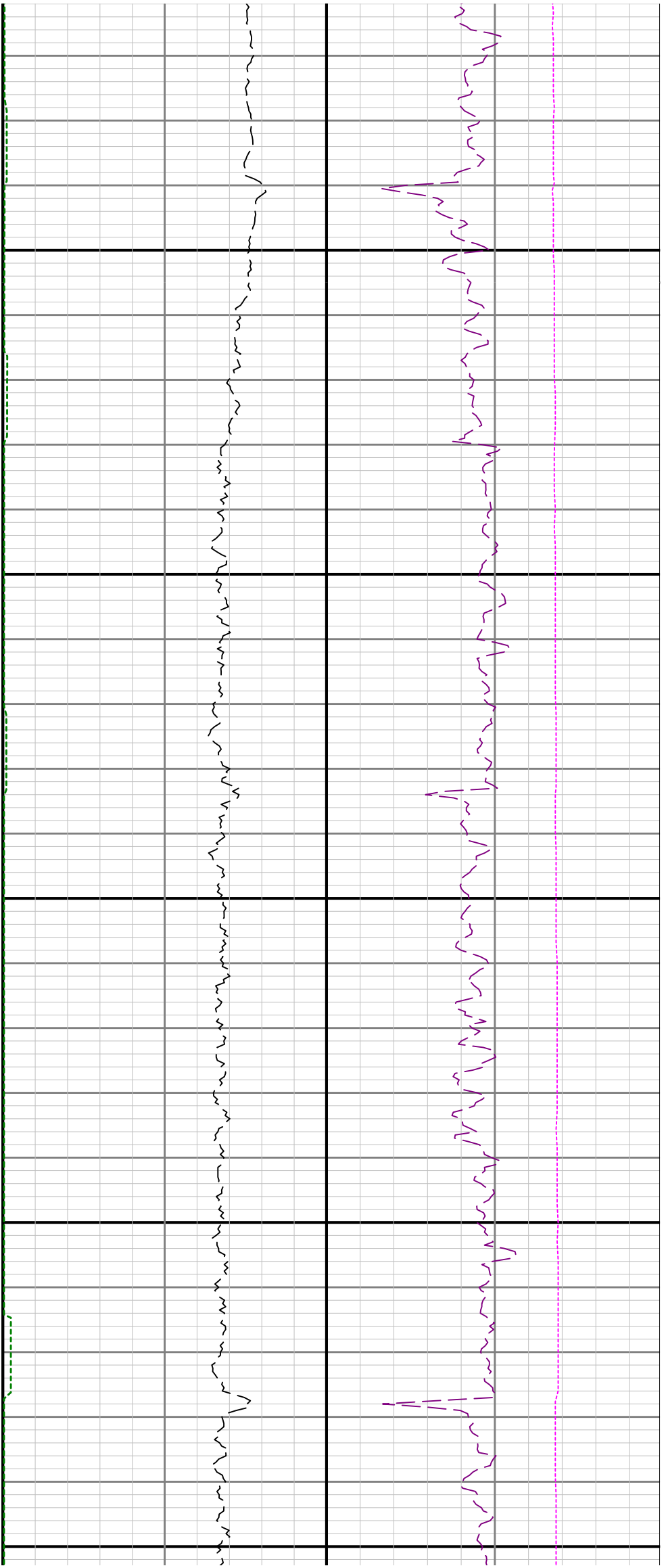


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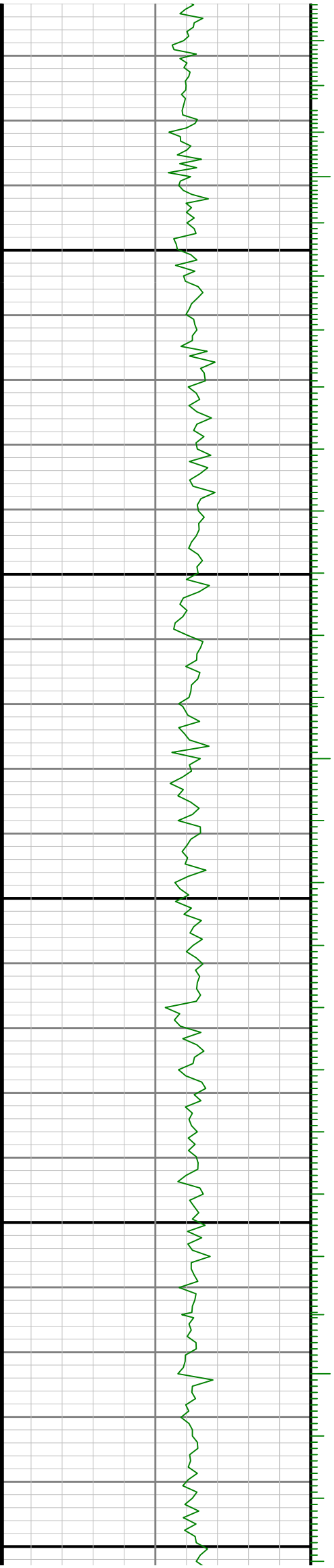
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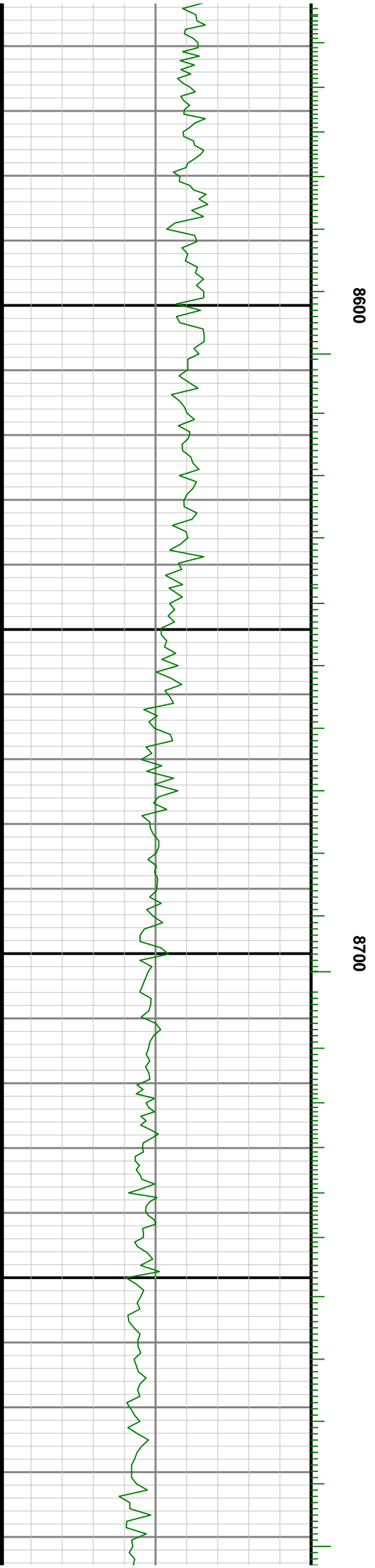


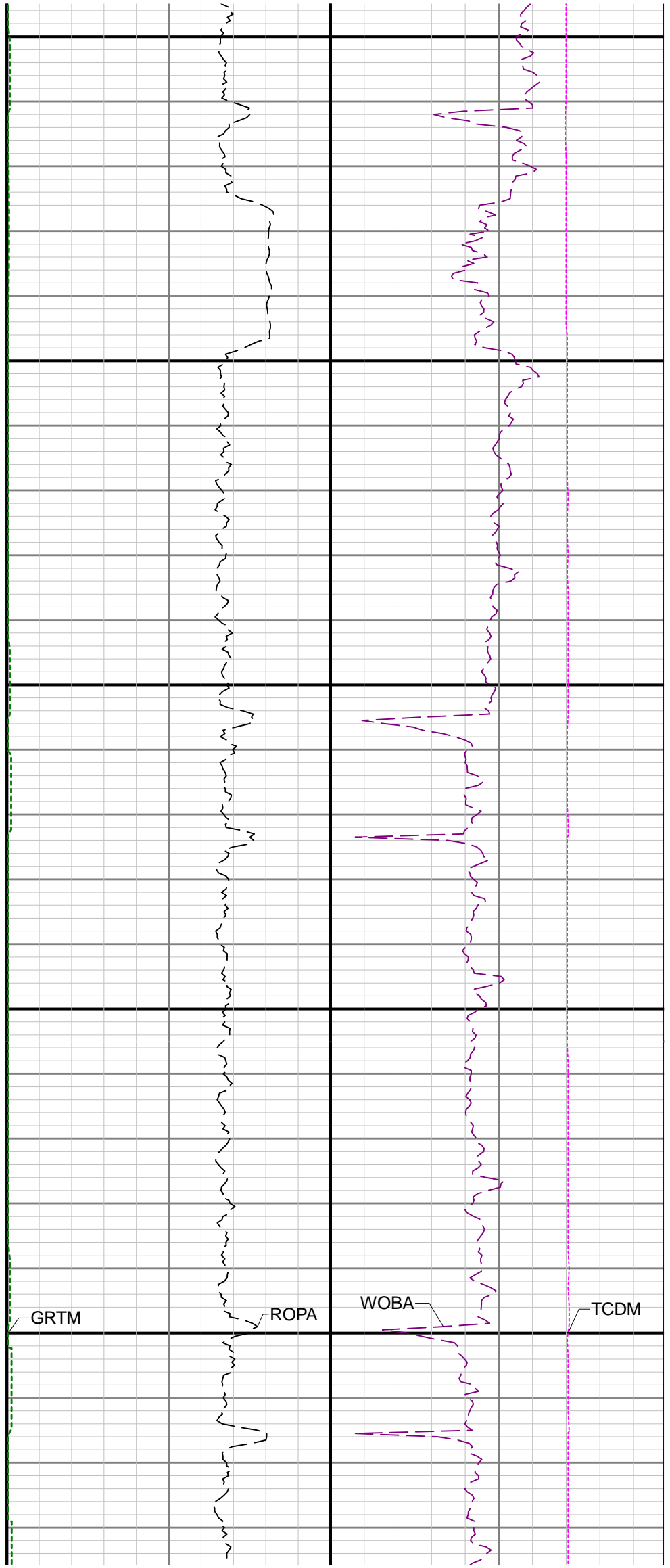
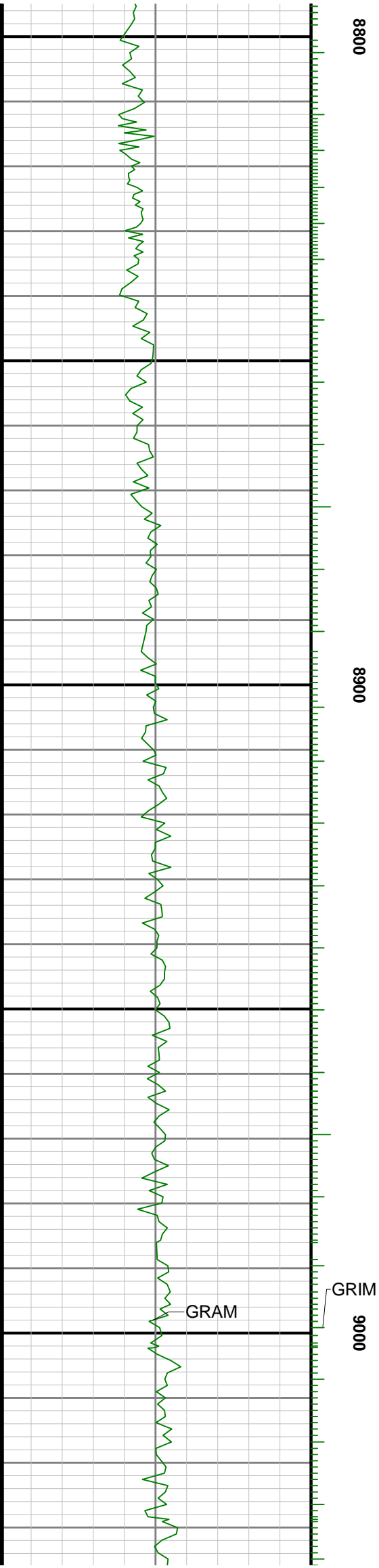


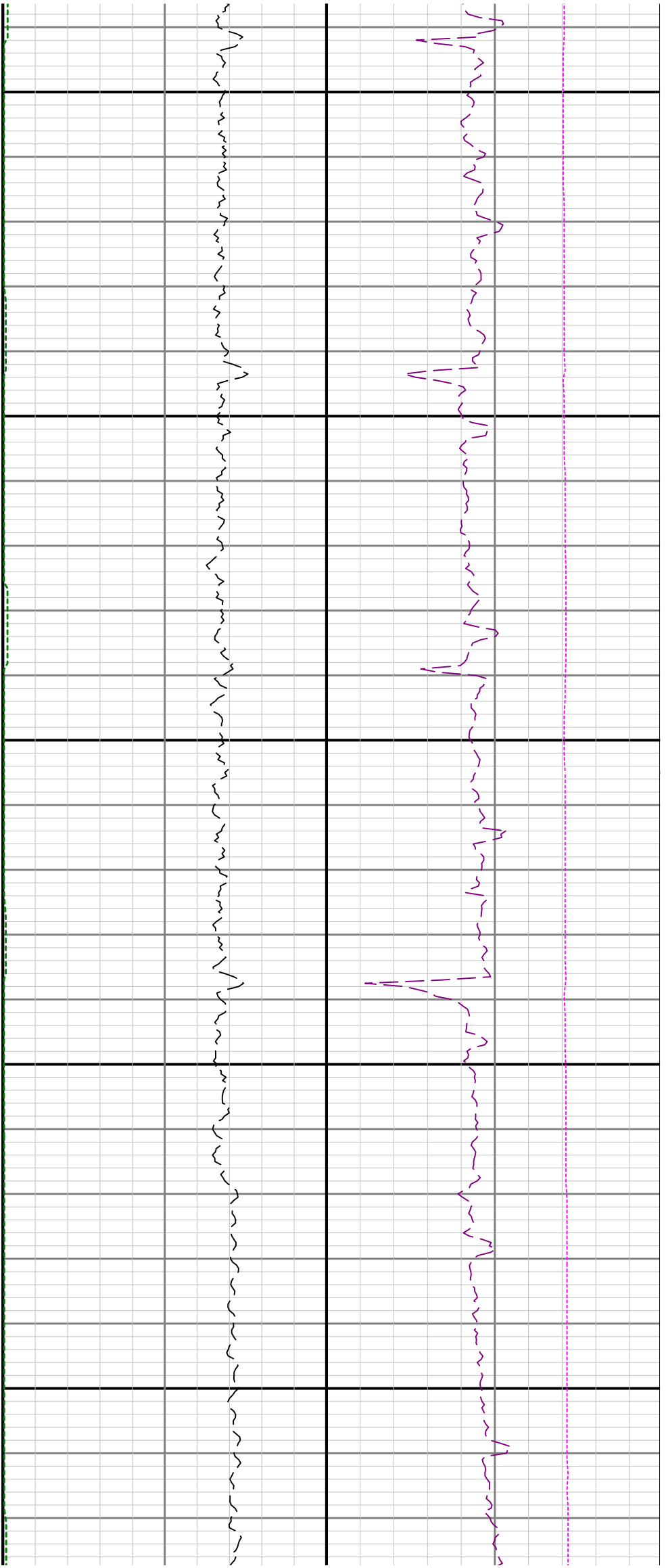
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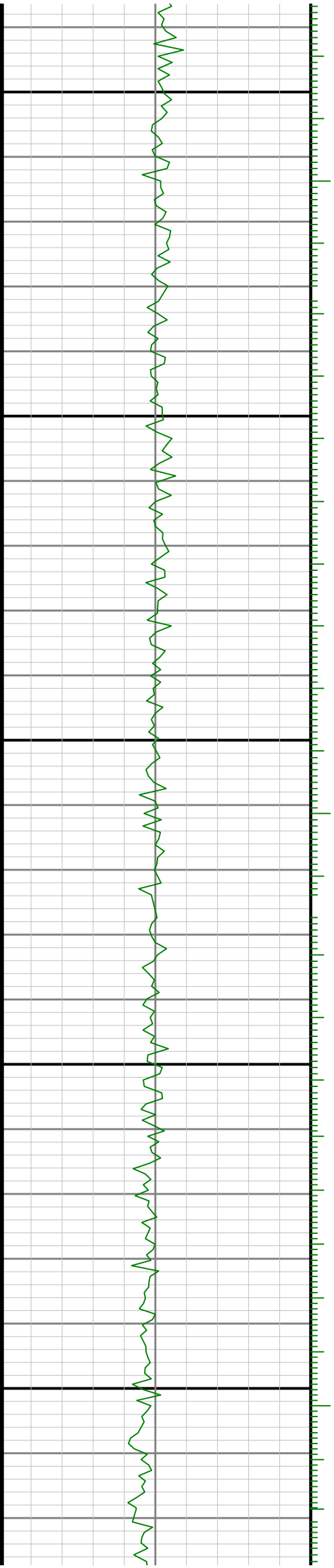


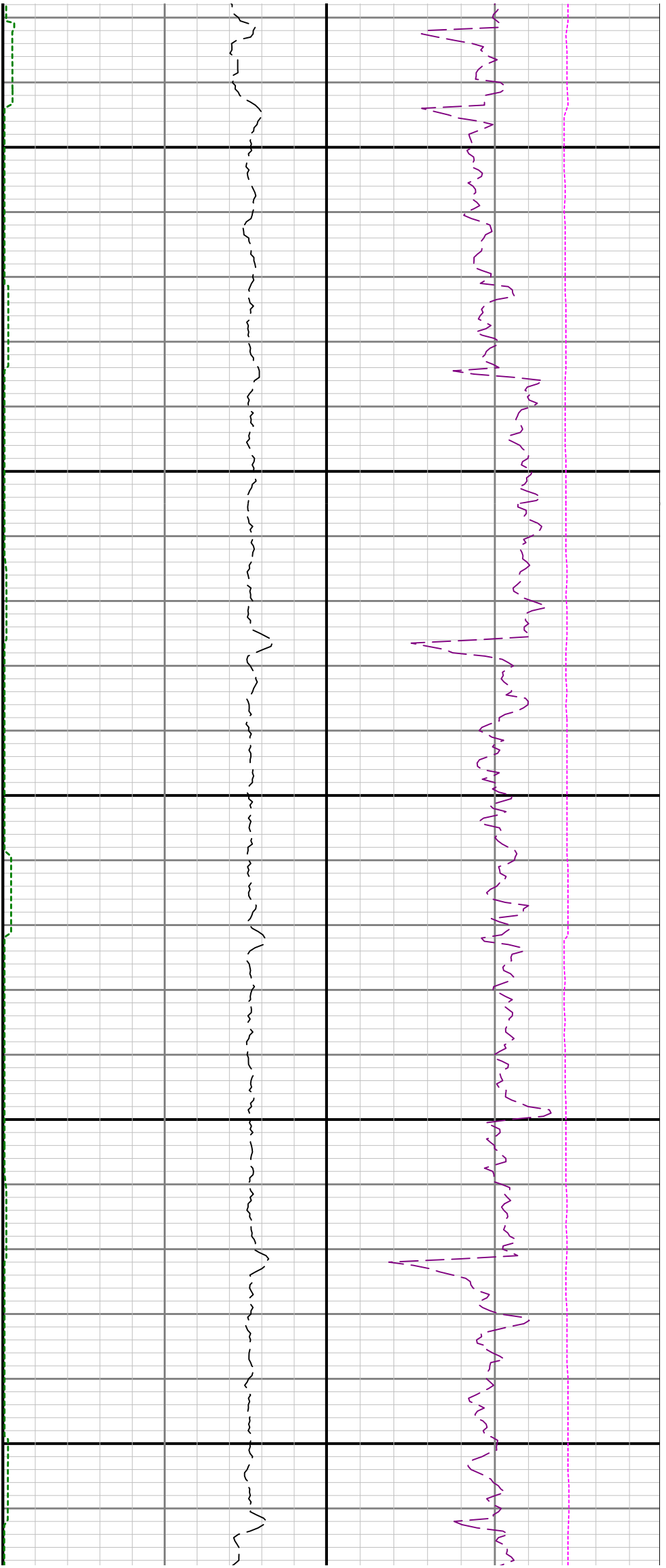




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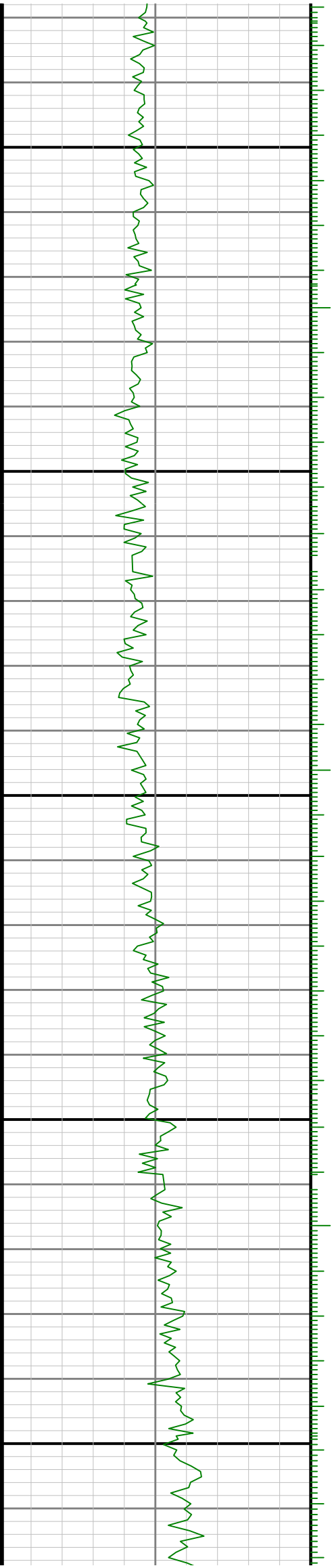


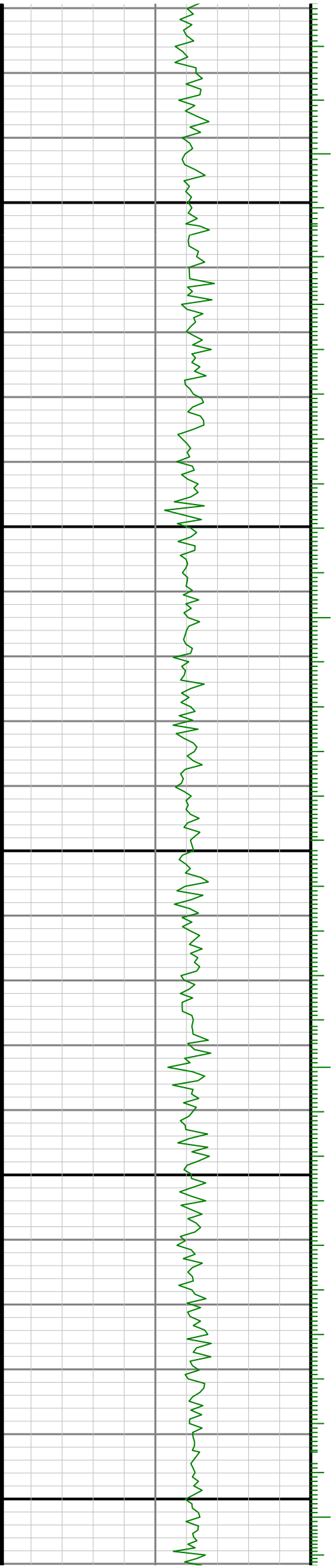


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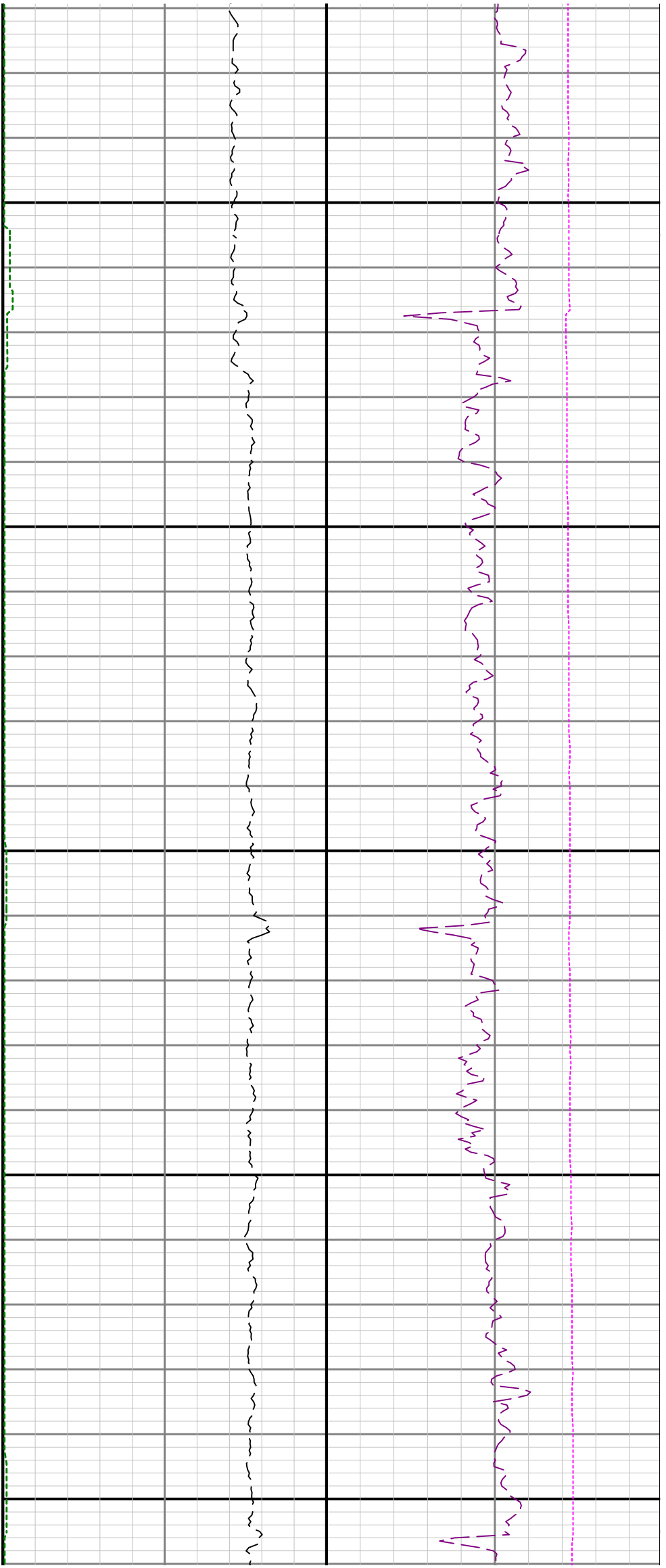
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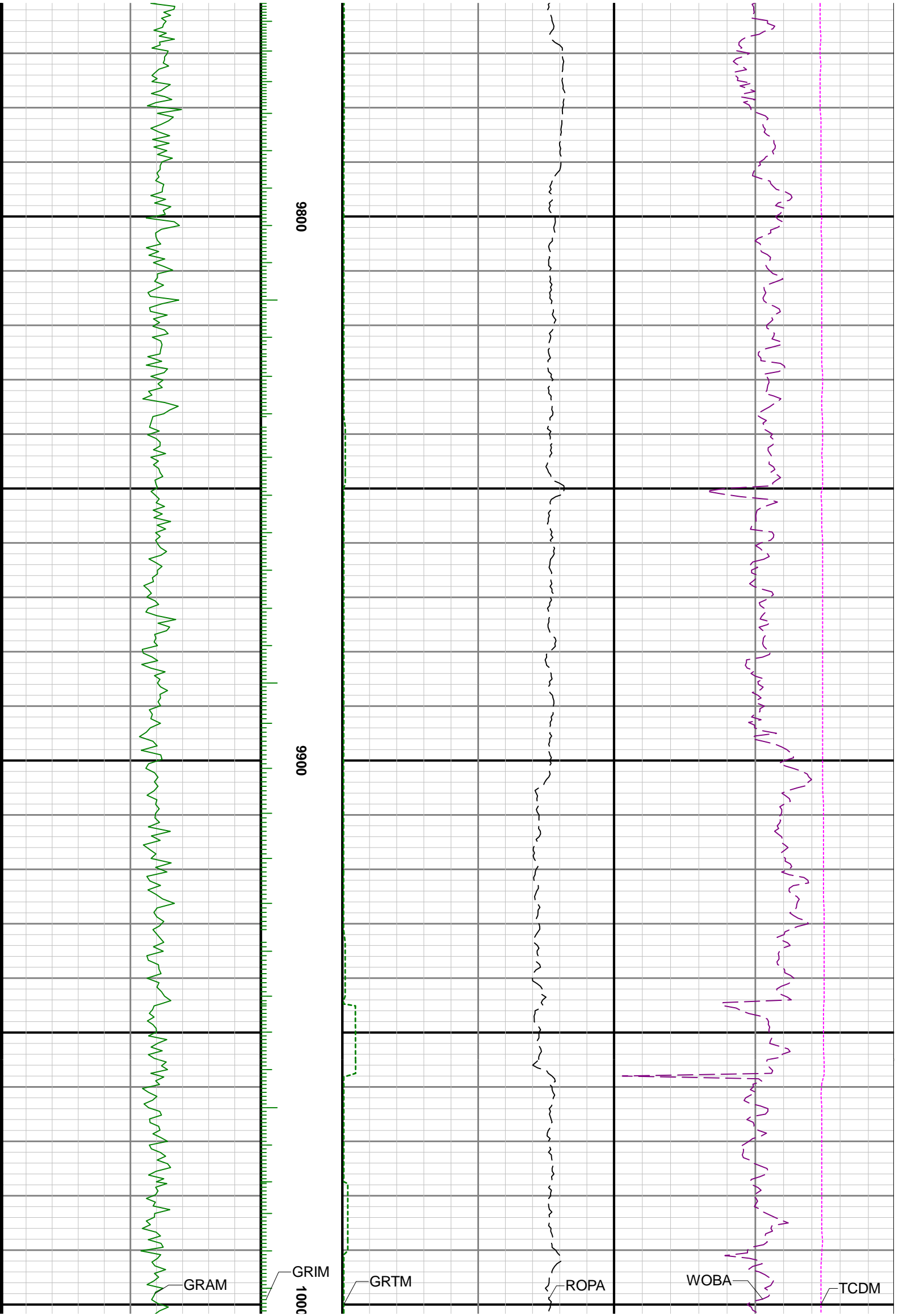


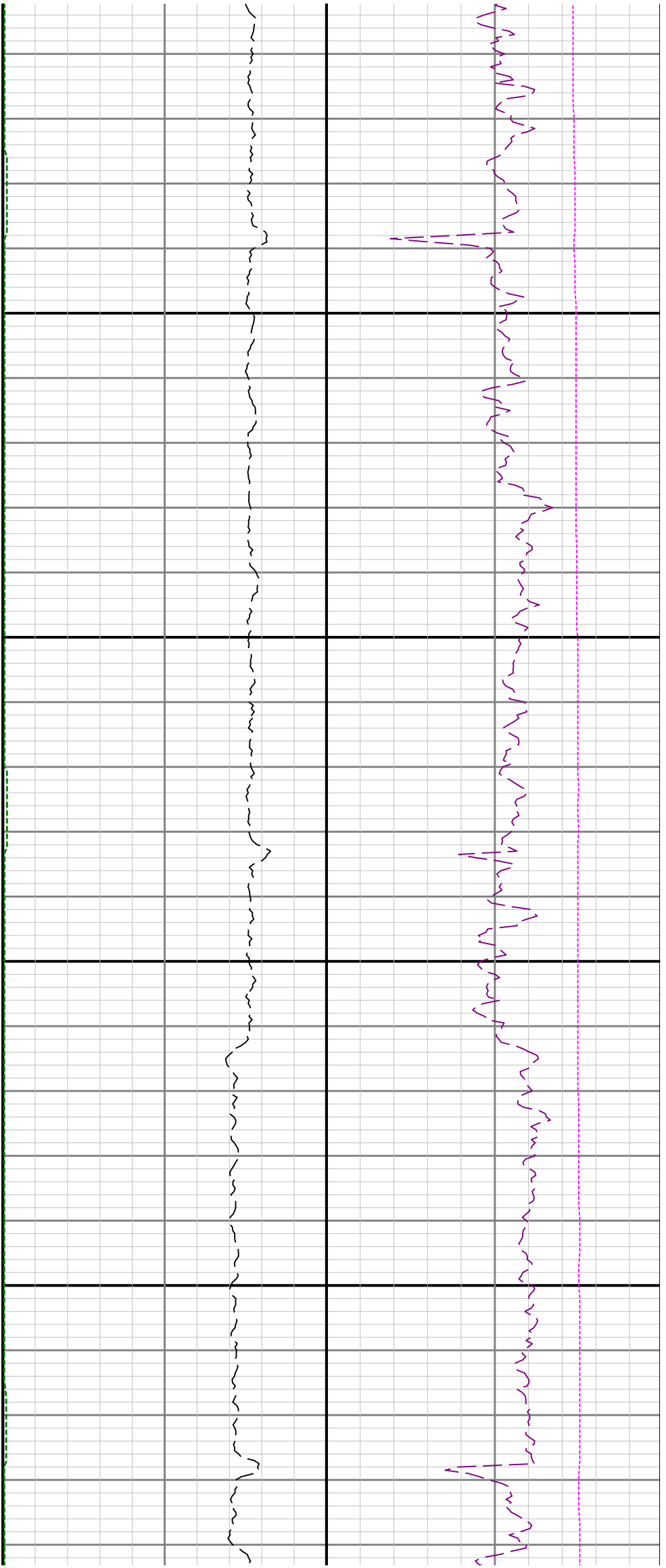


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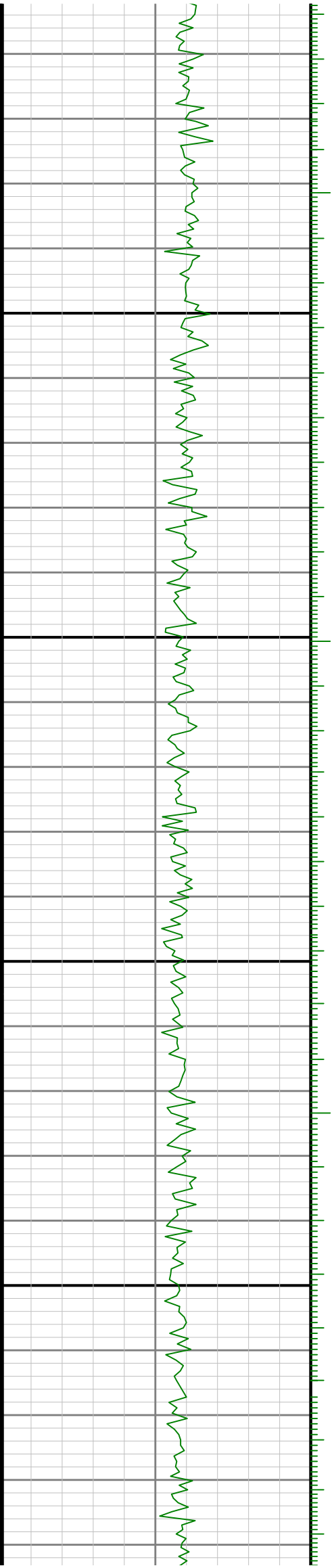
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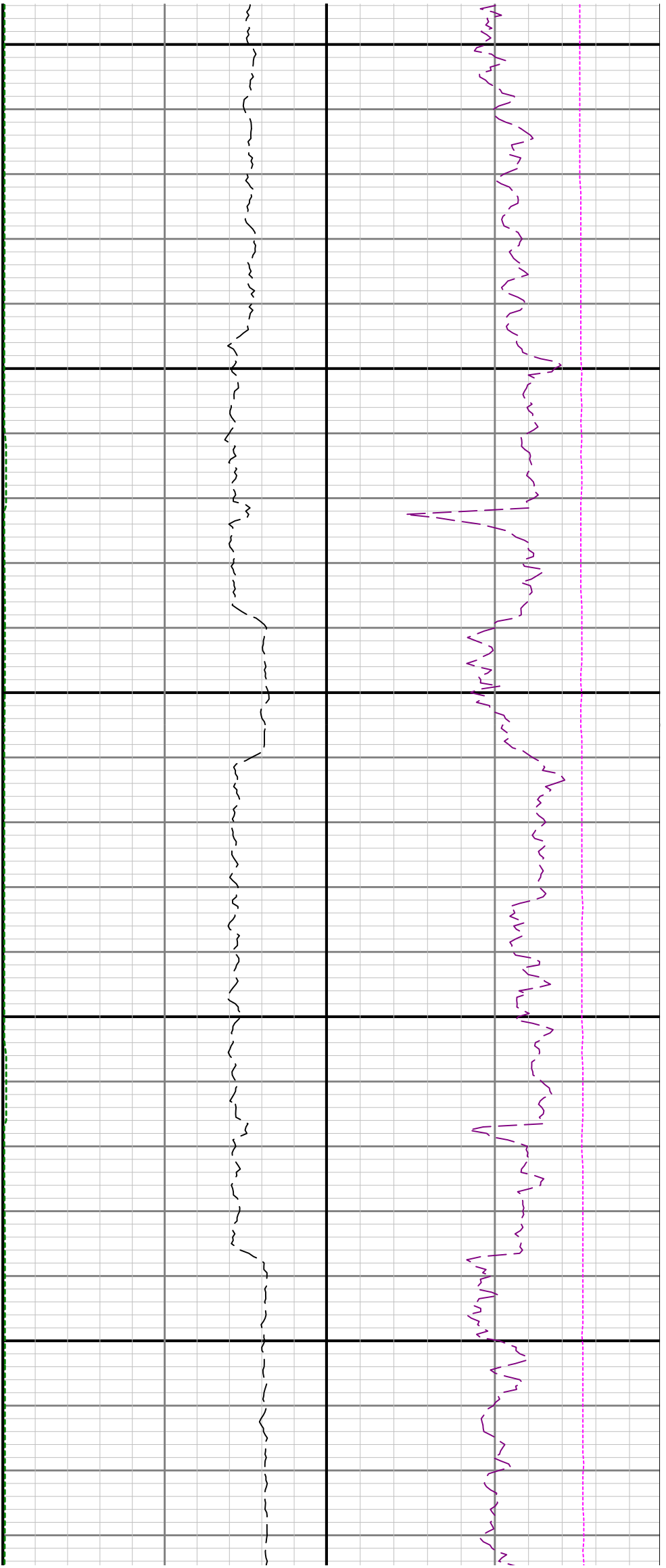






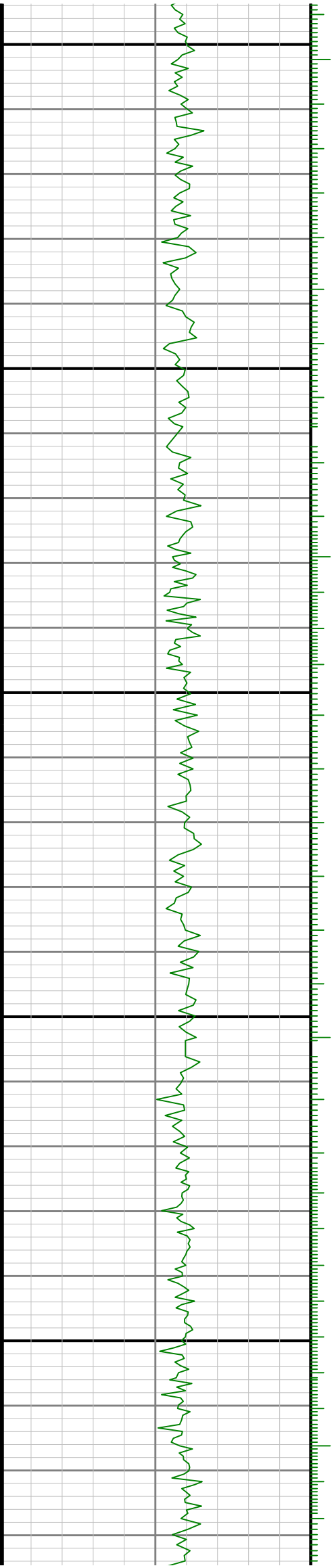
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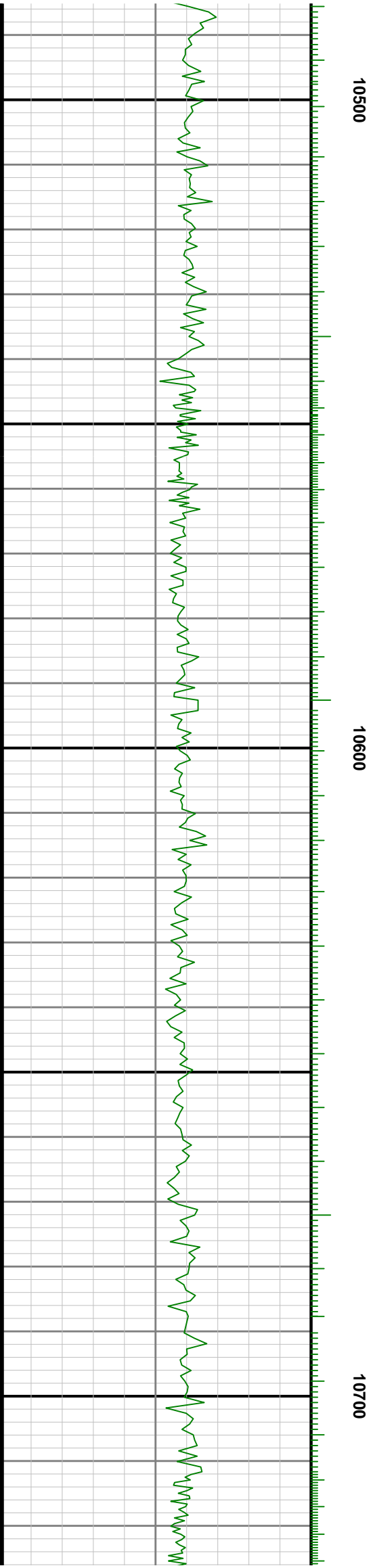
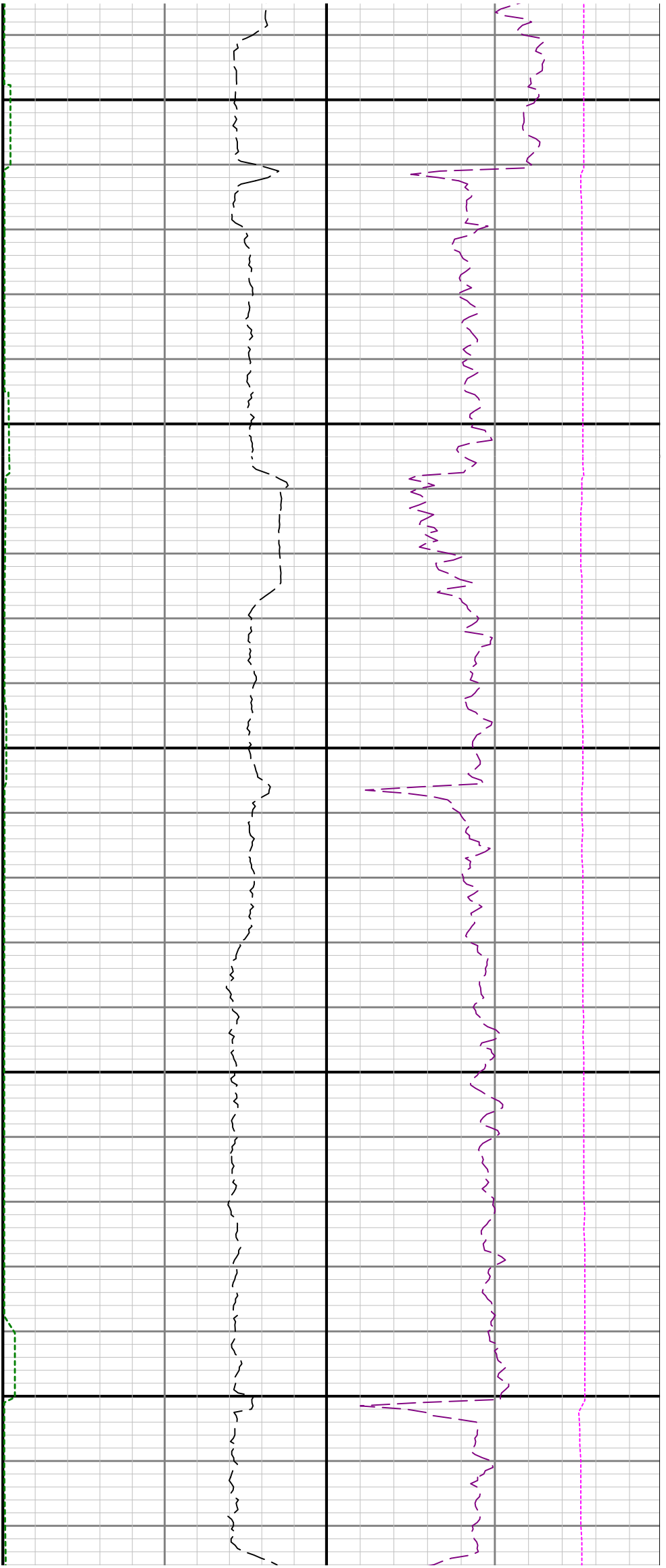


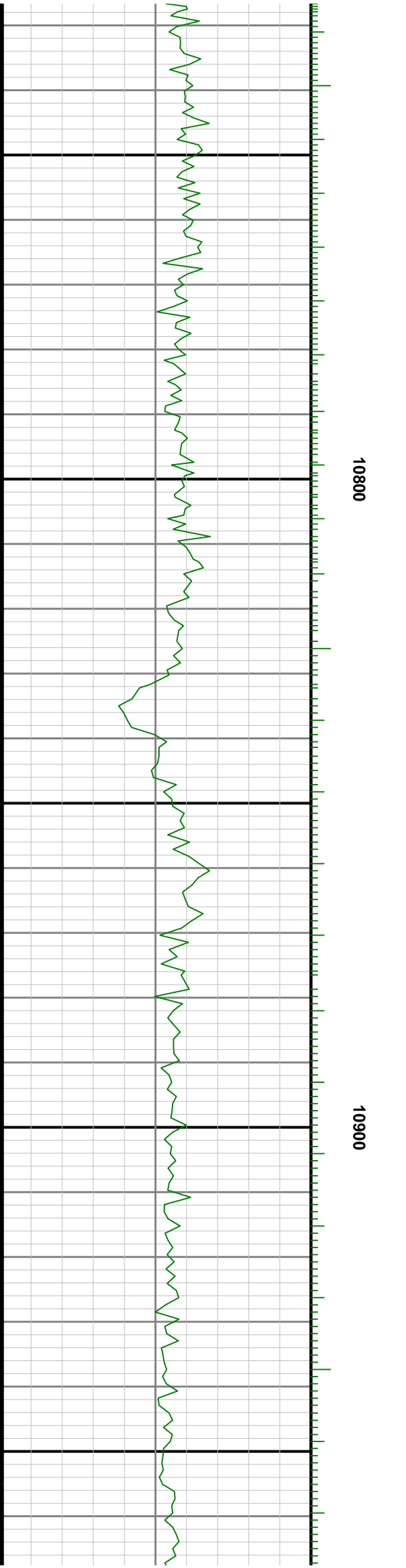
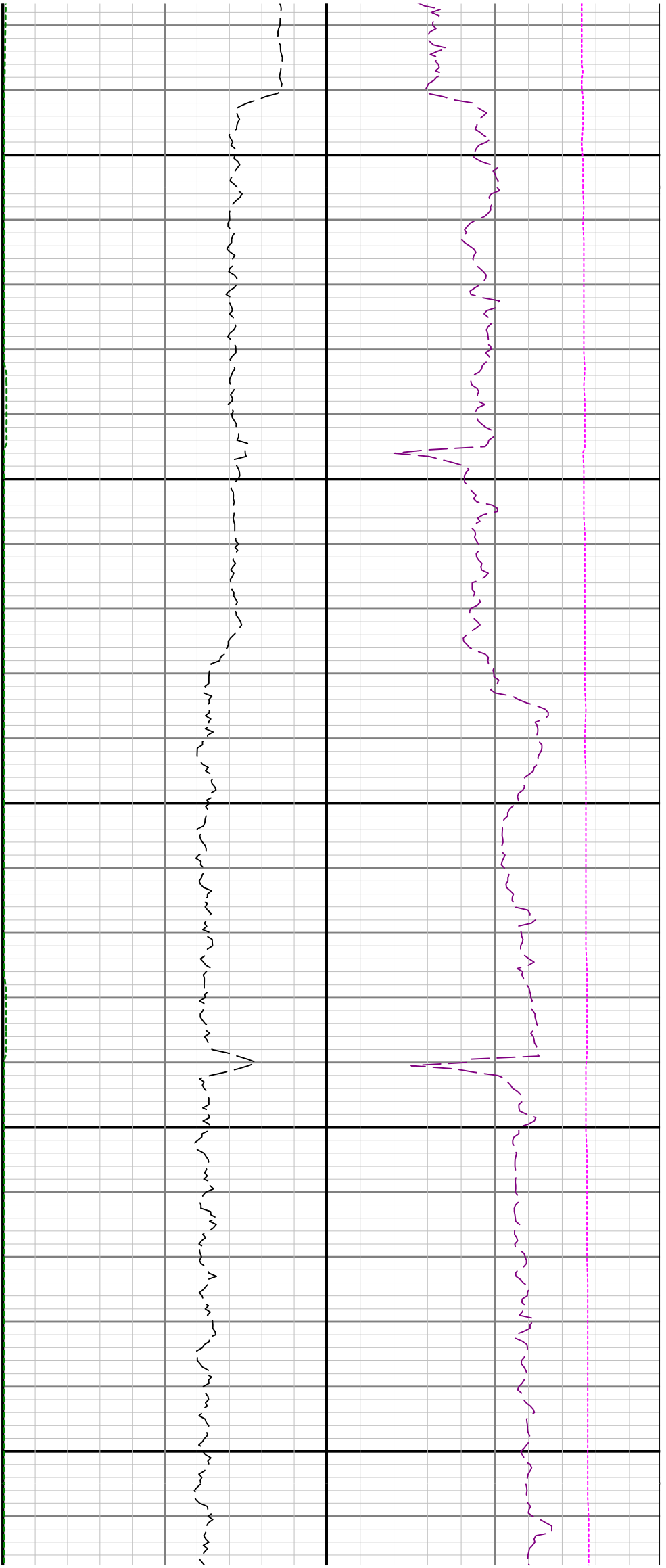


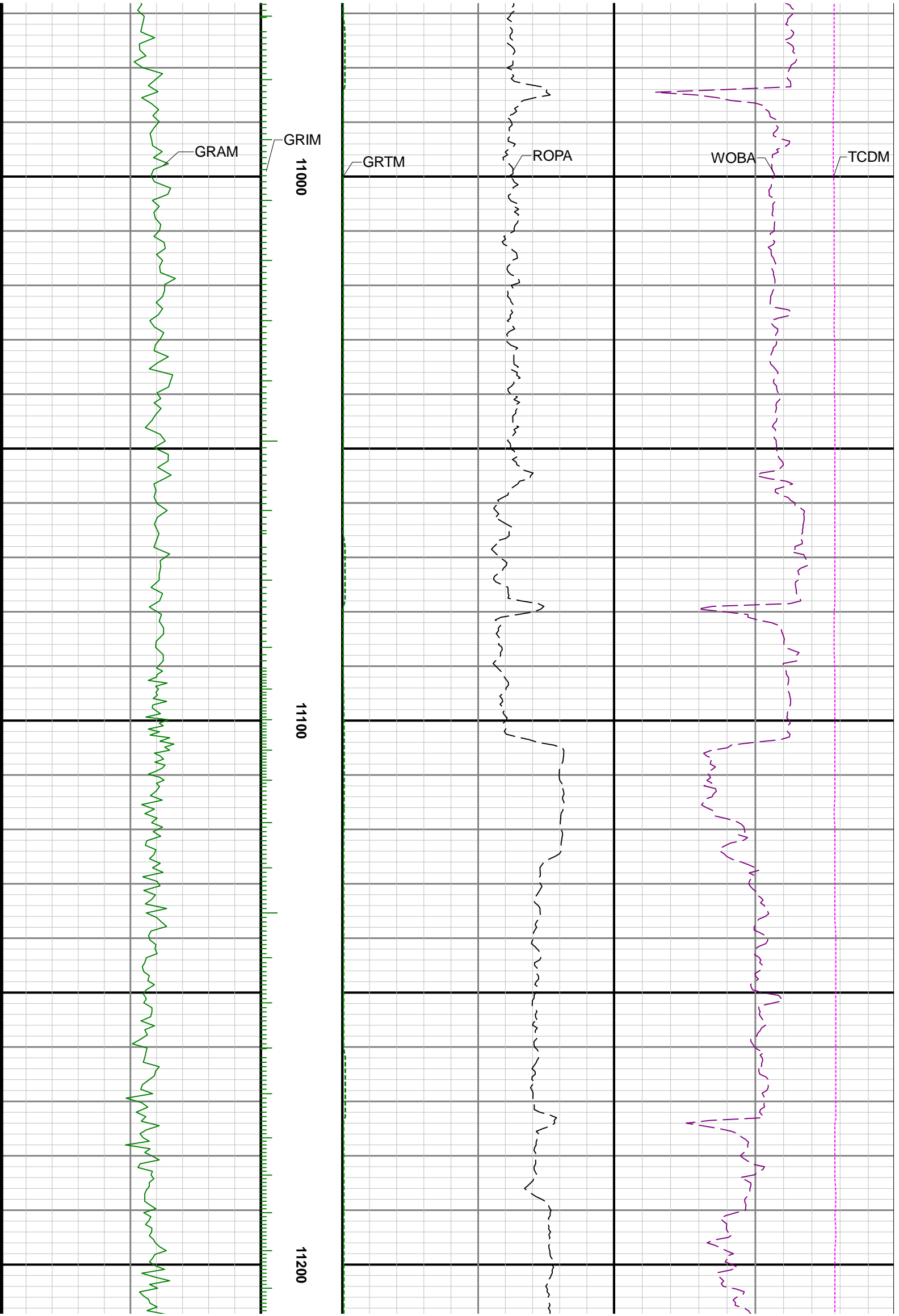
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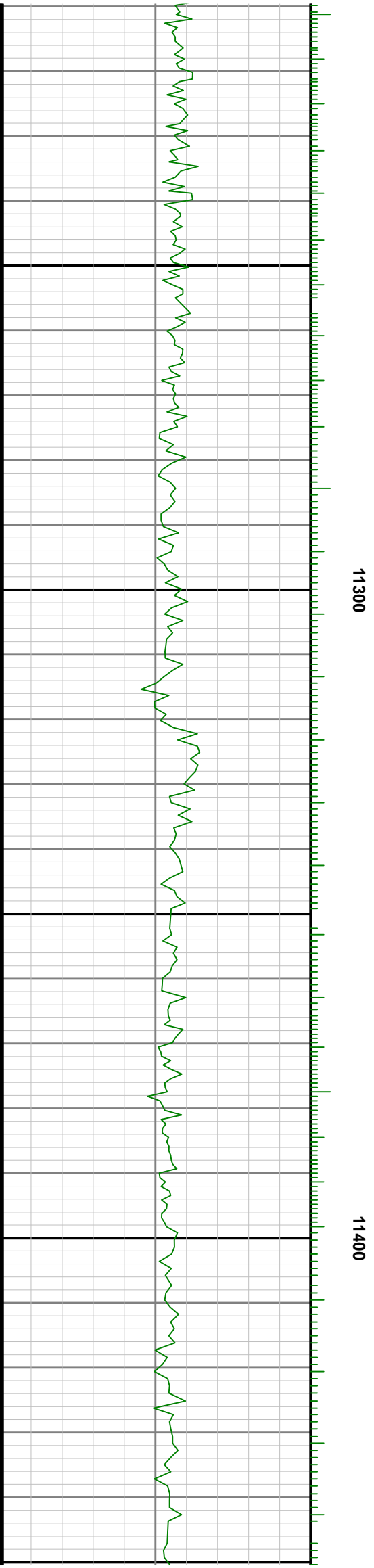
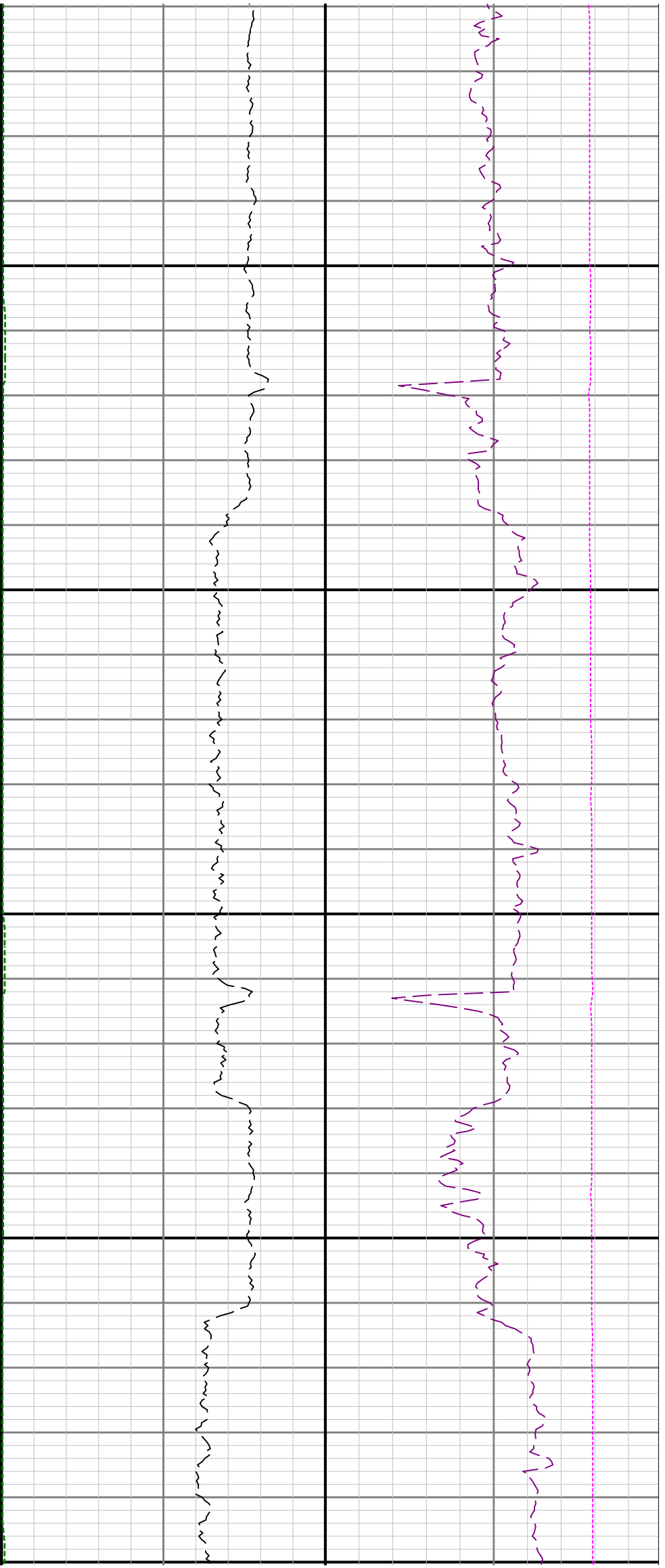
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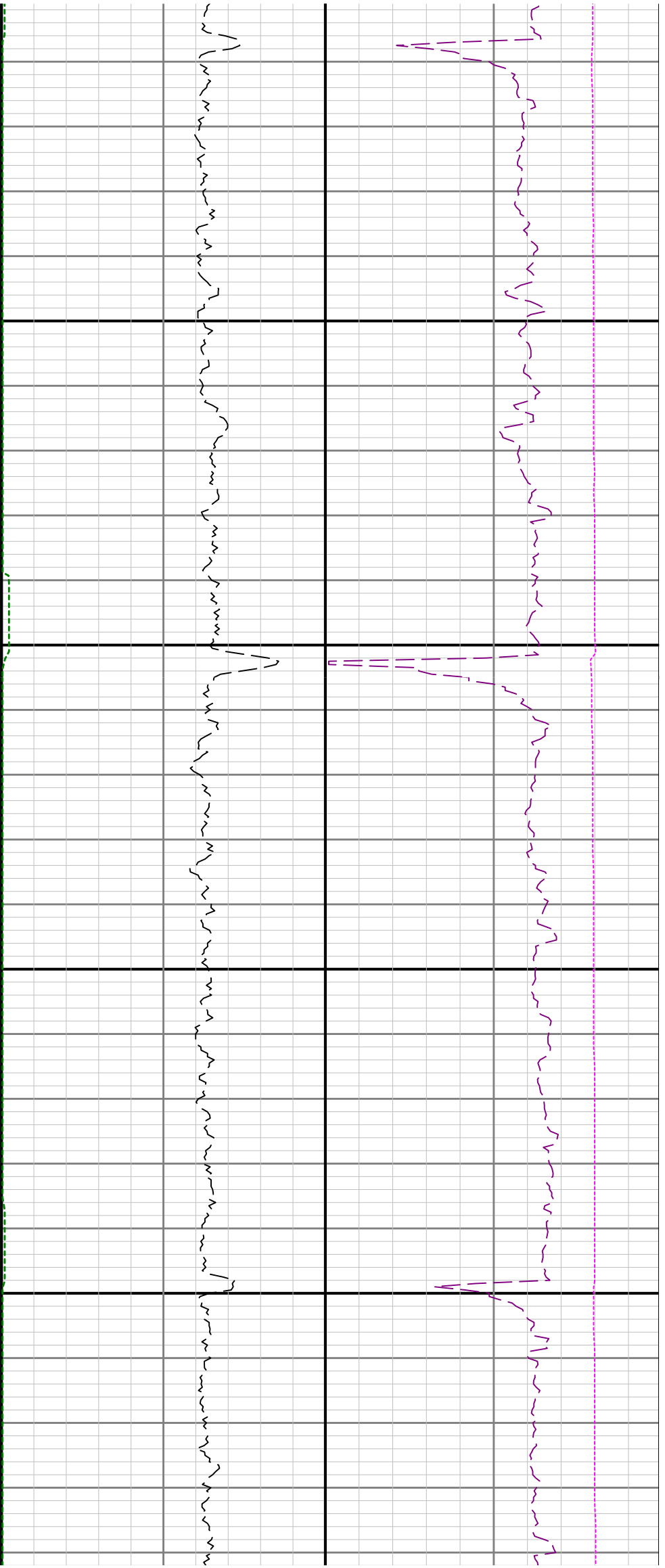






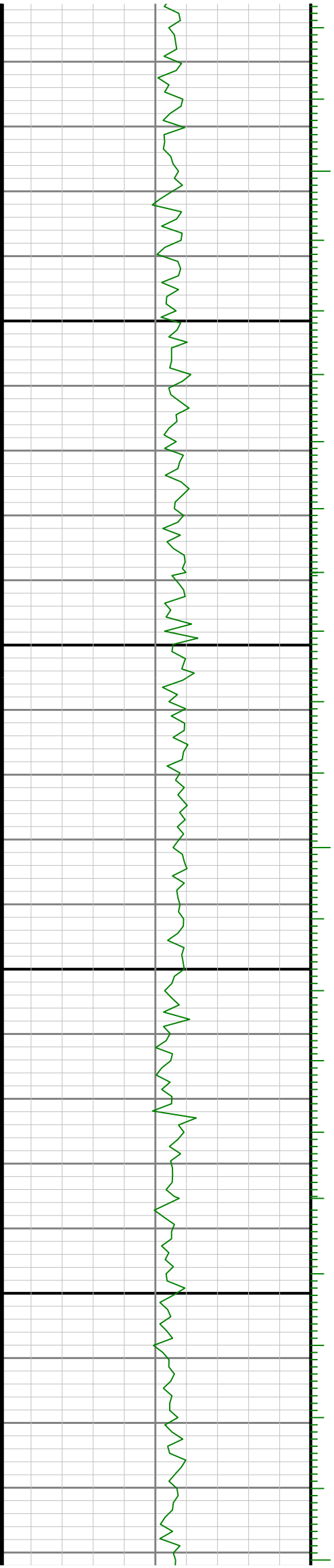


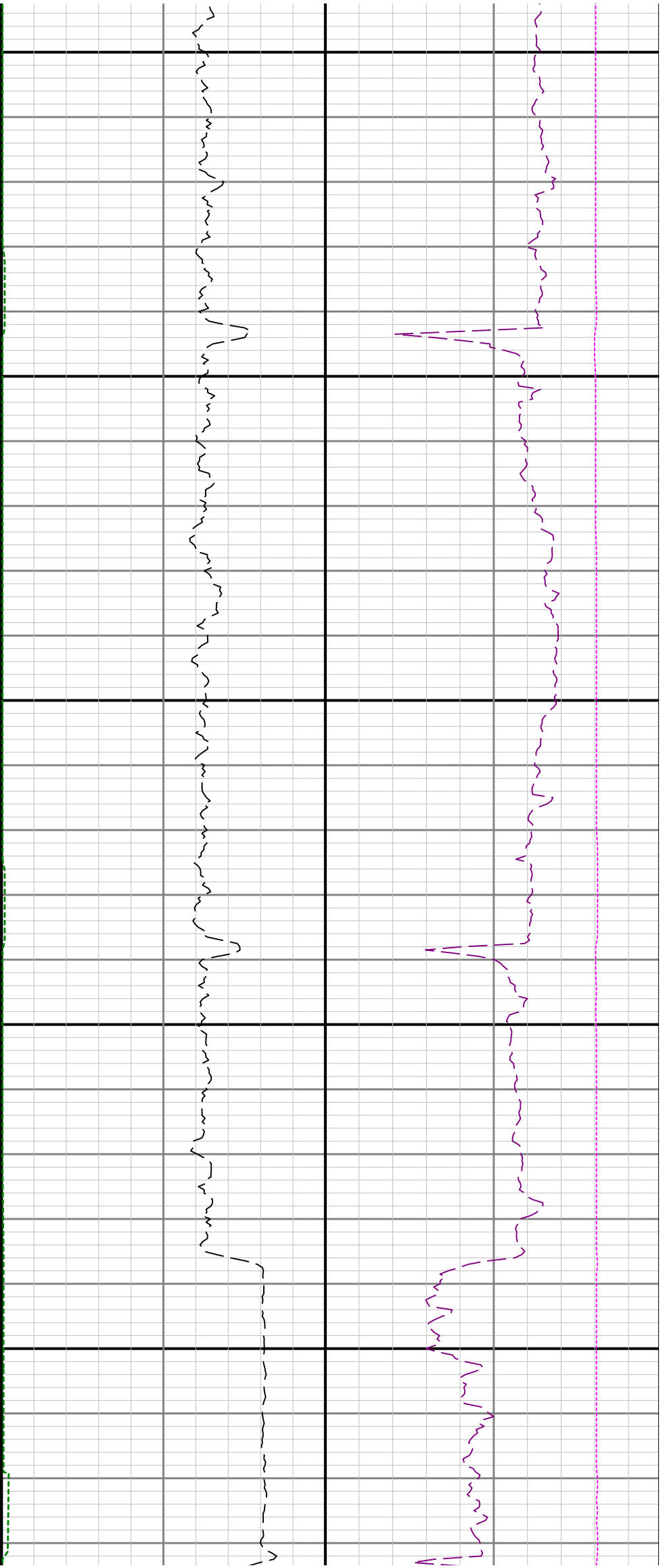




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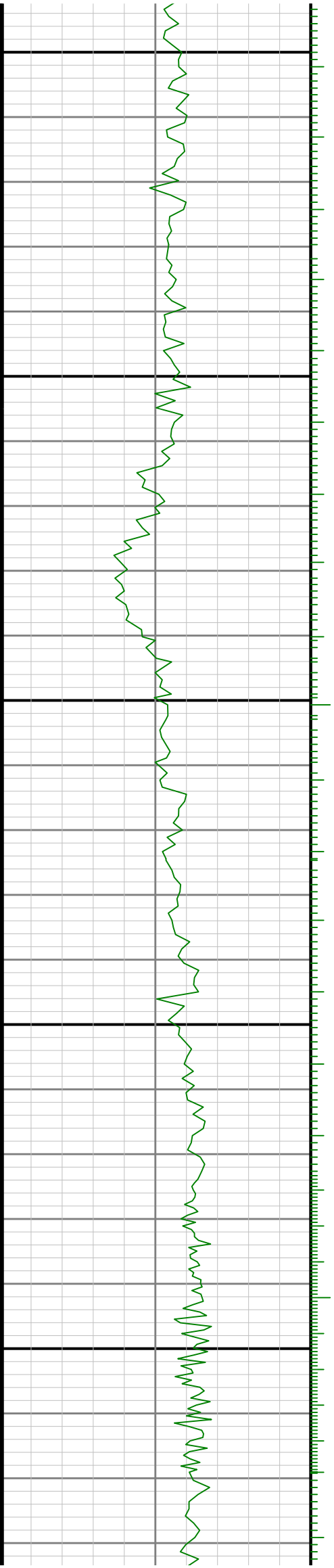


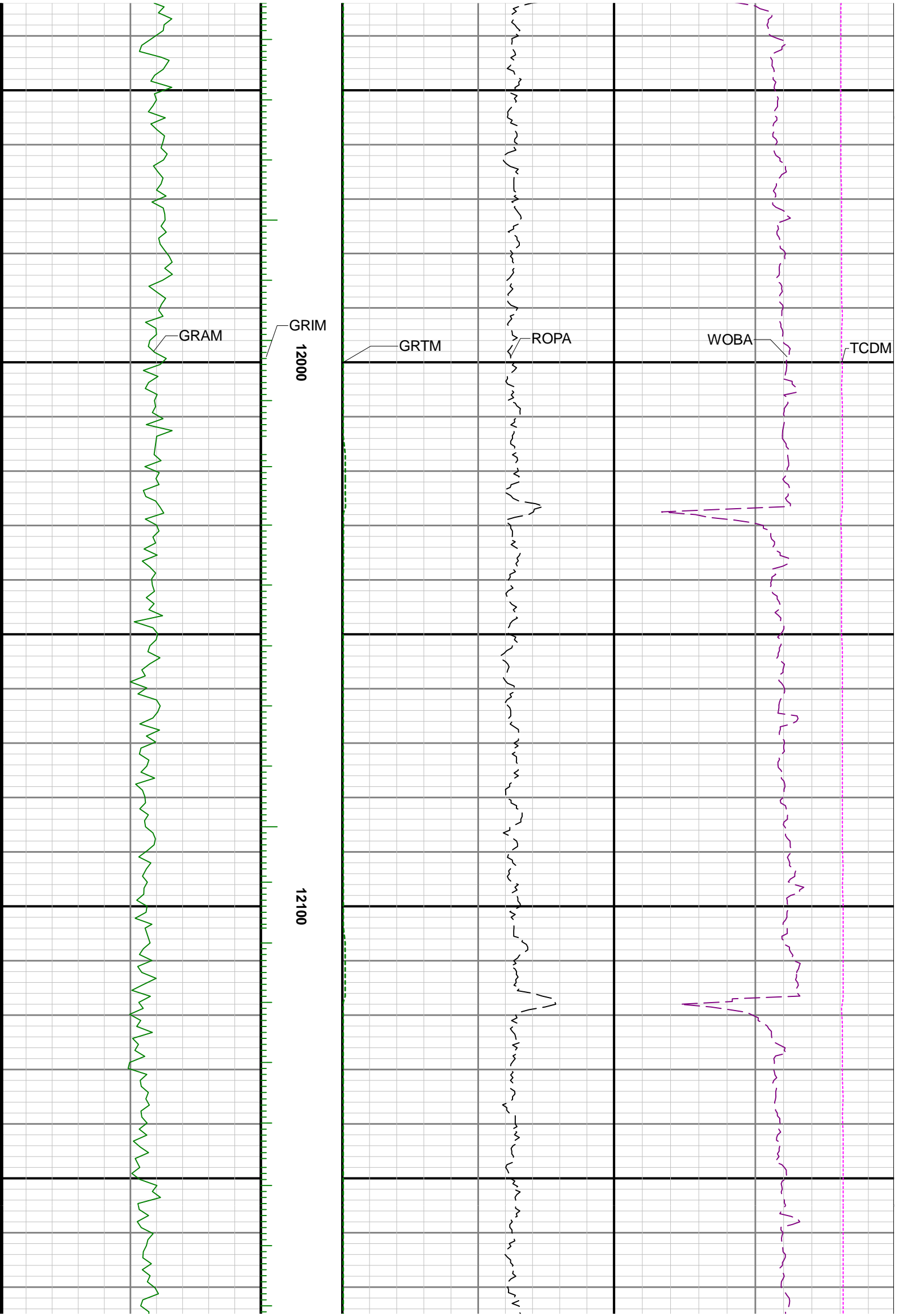


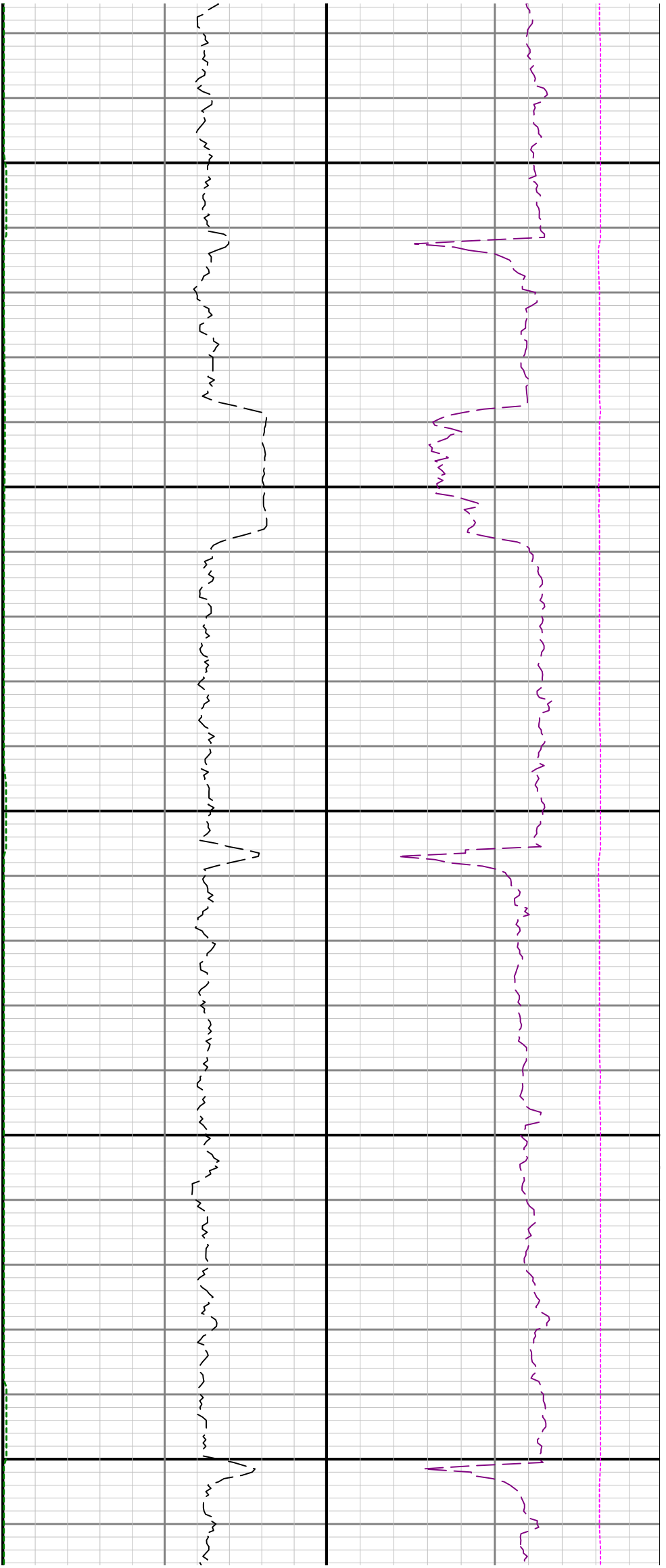
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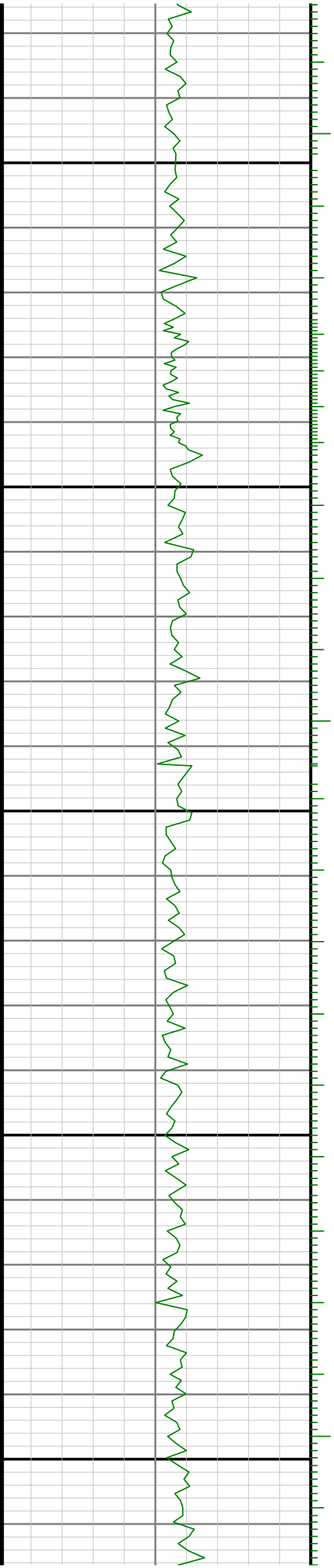


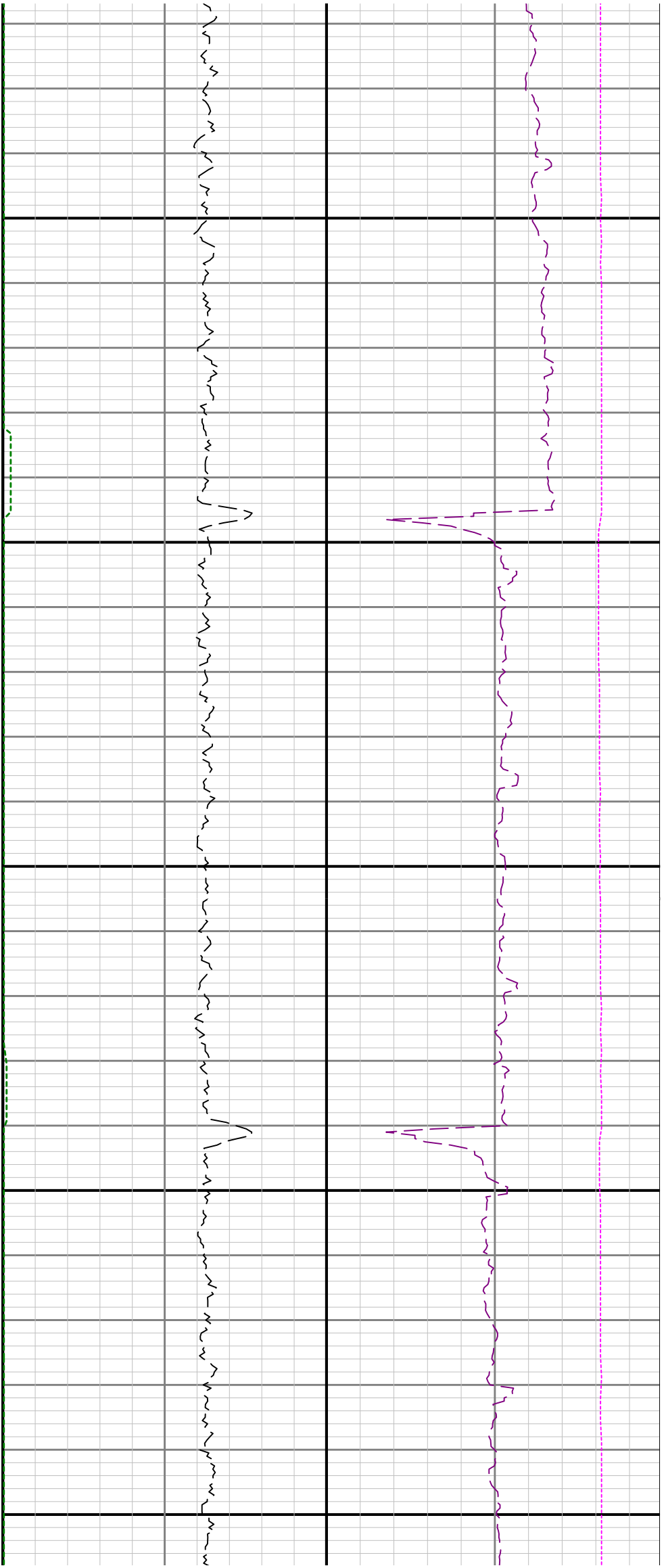


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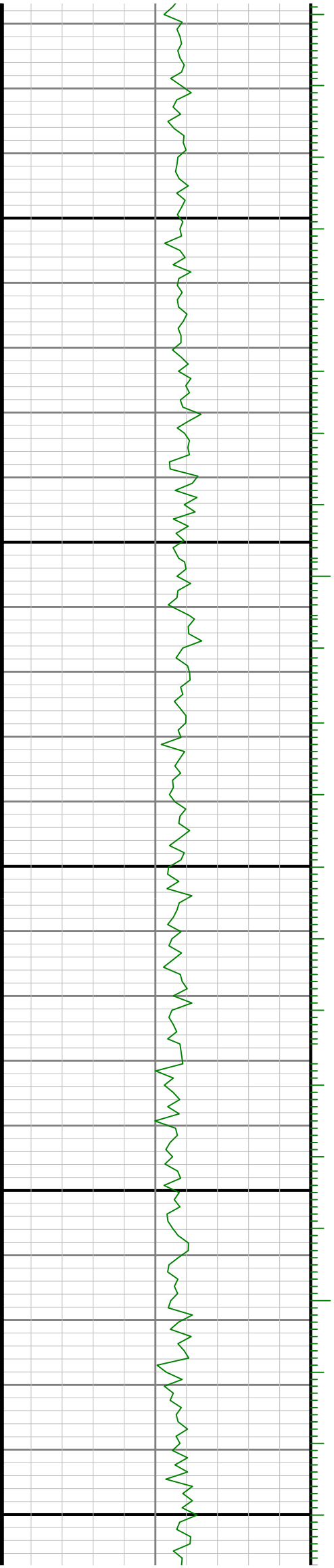
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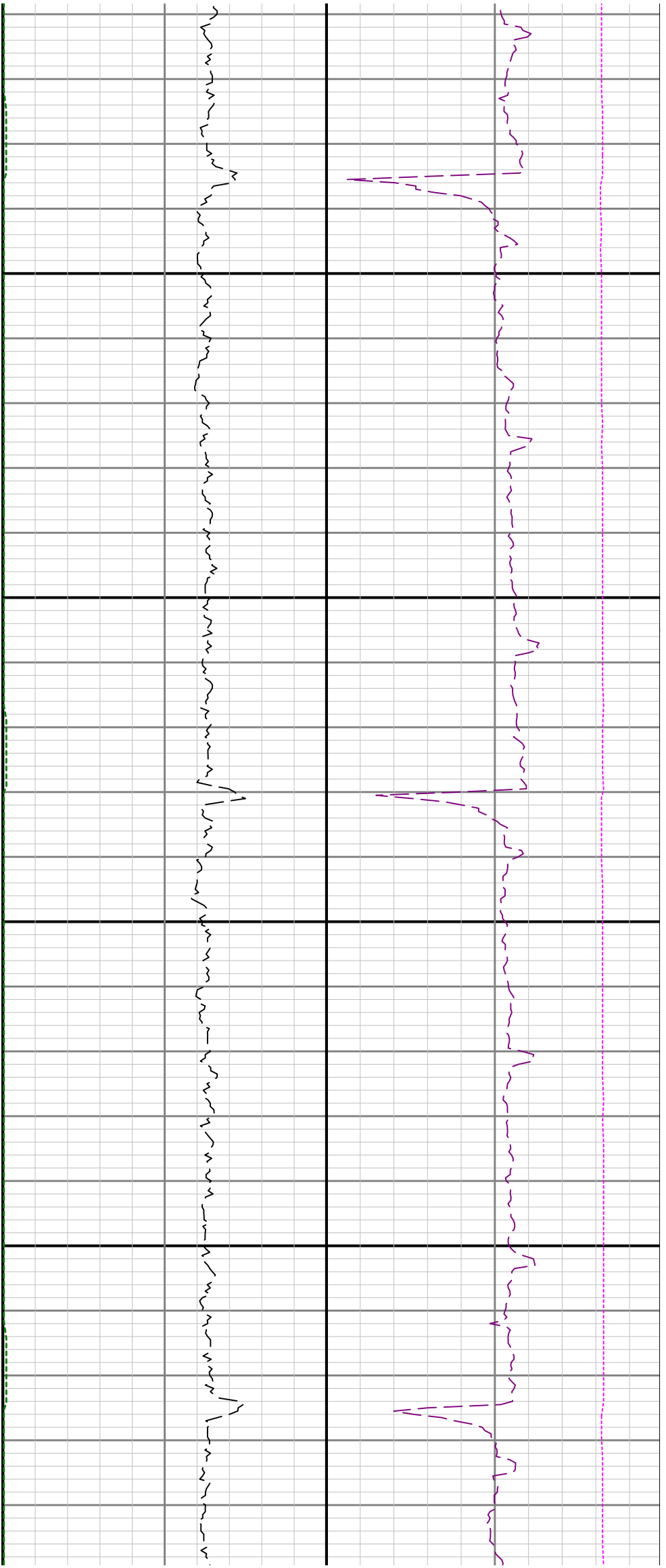




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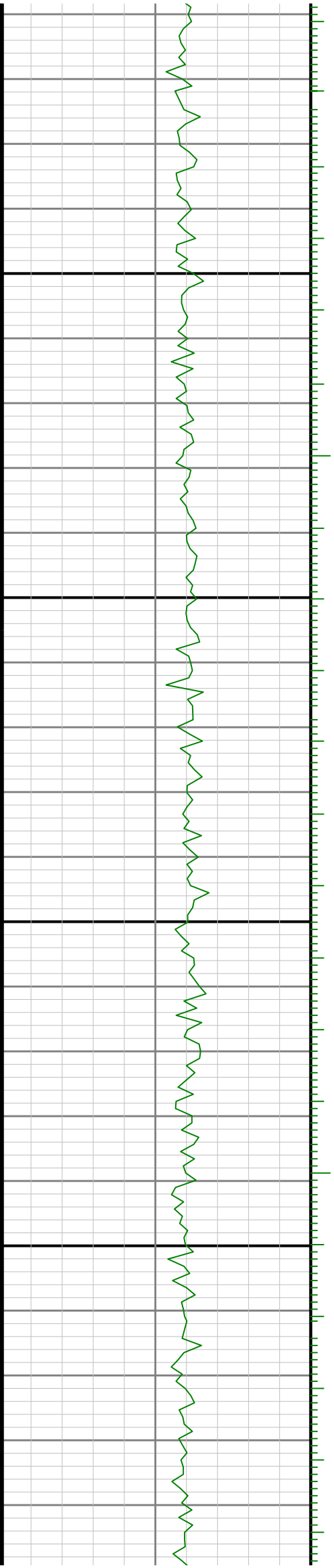


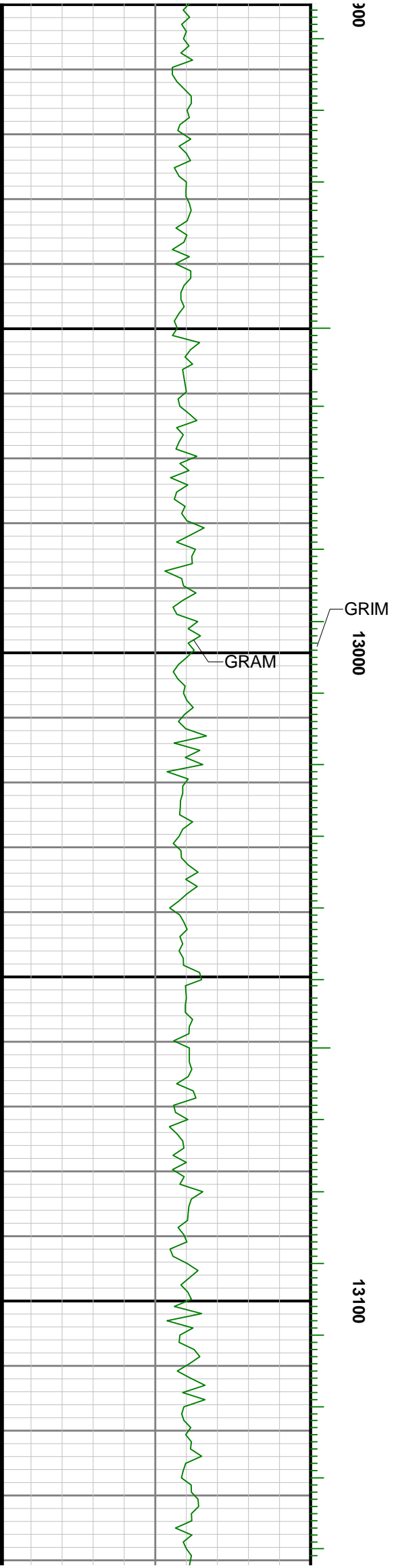
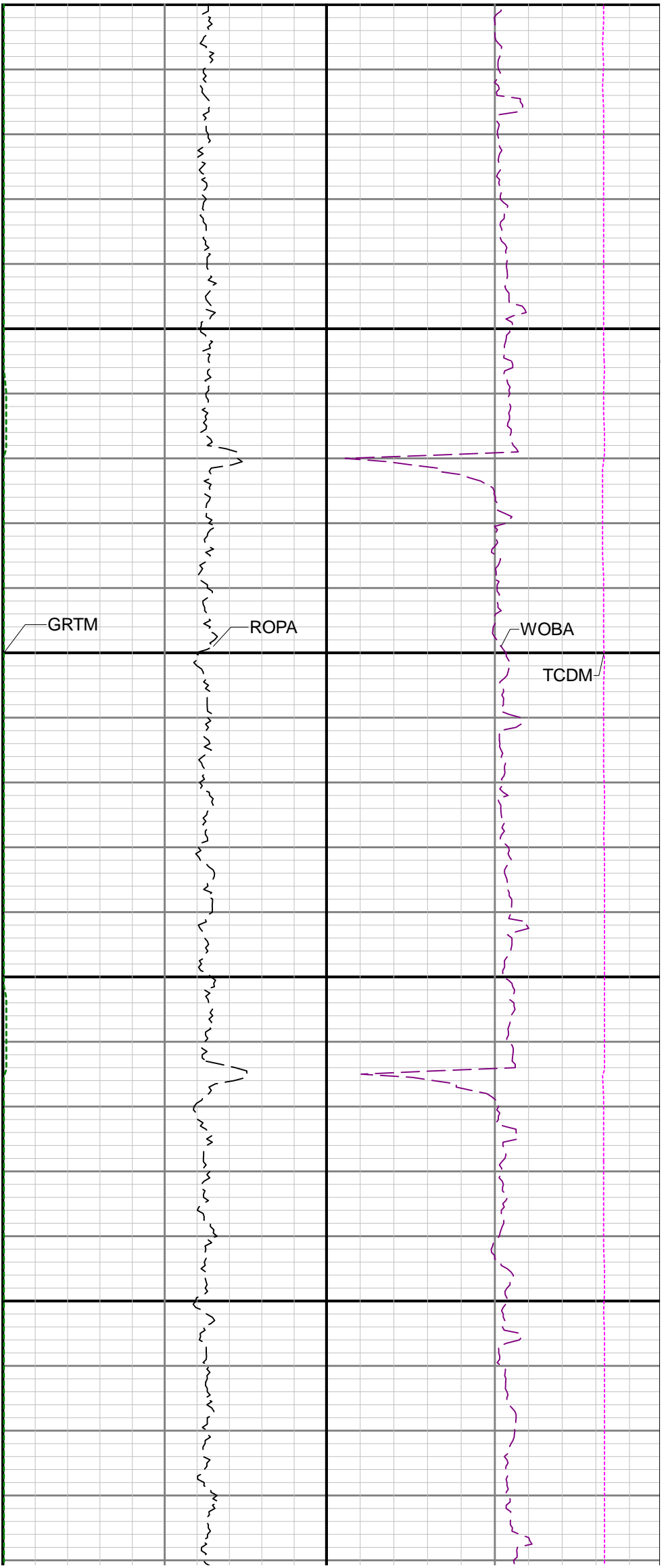


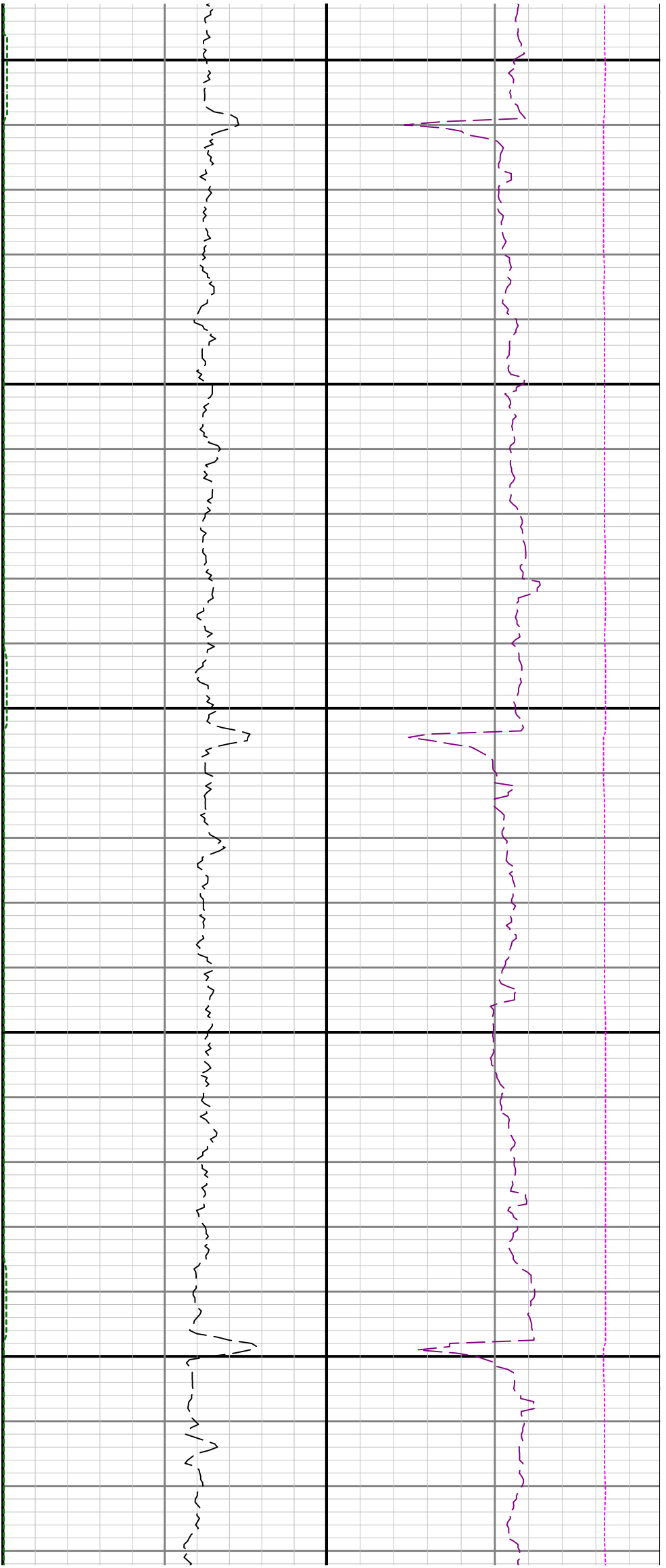
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12800

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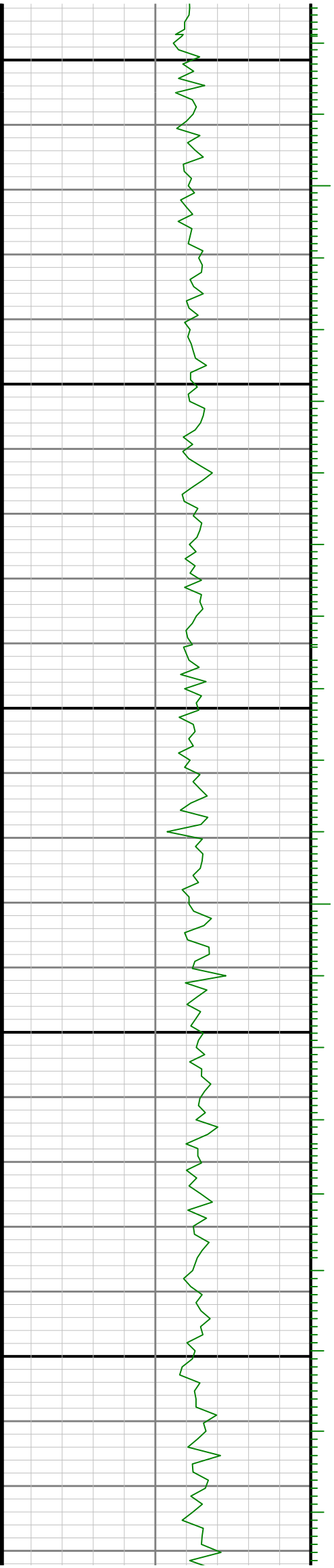


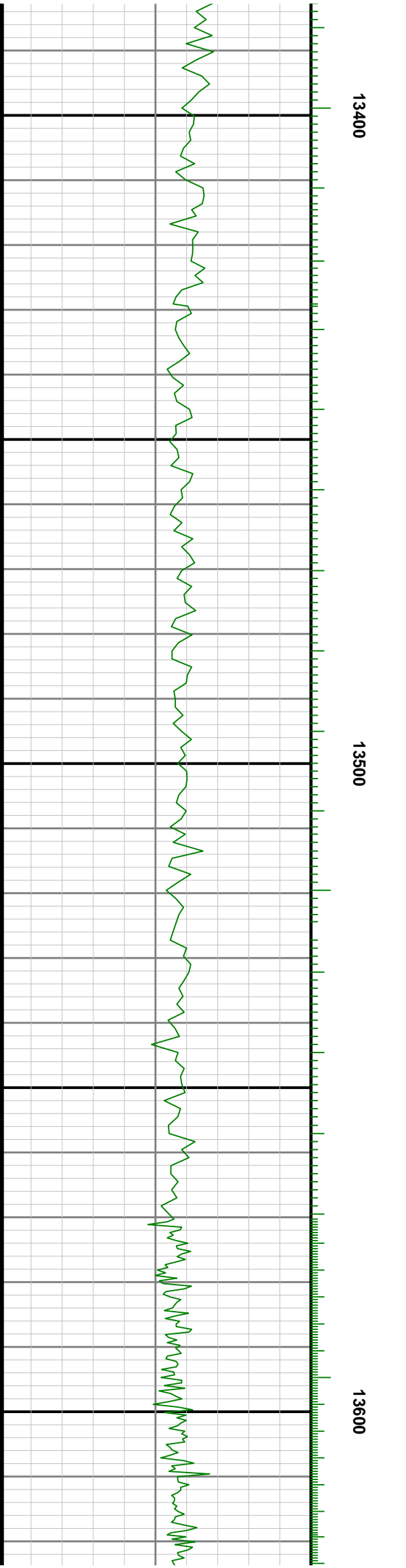
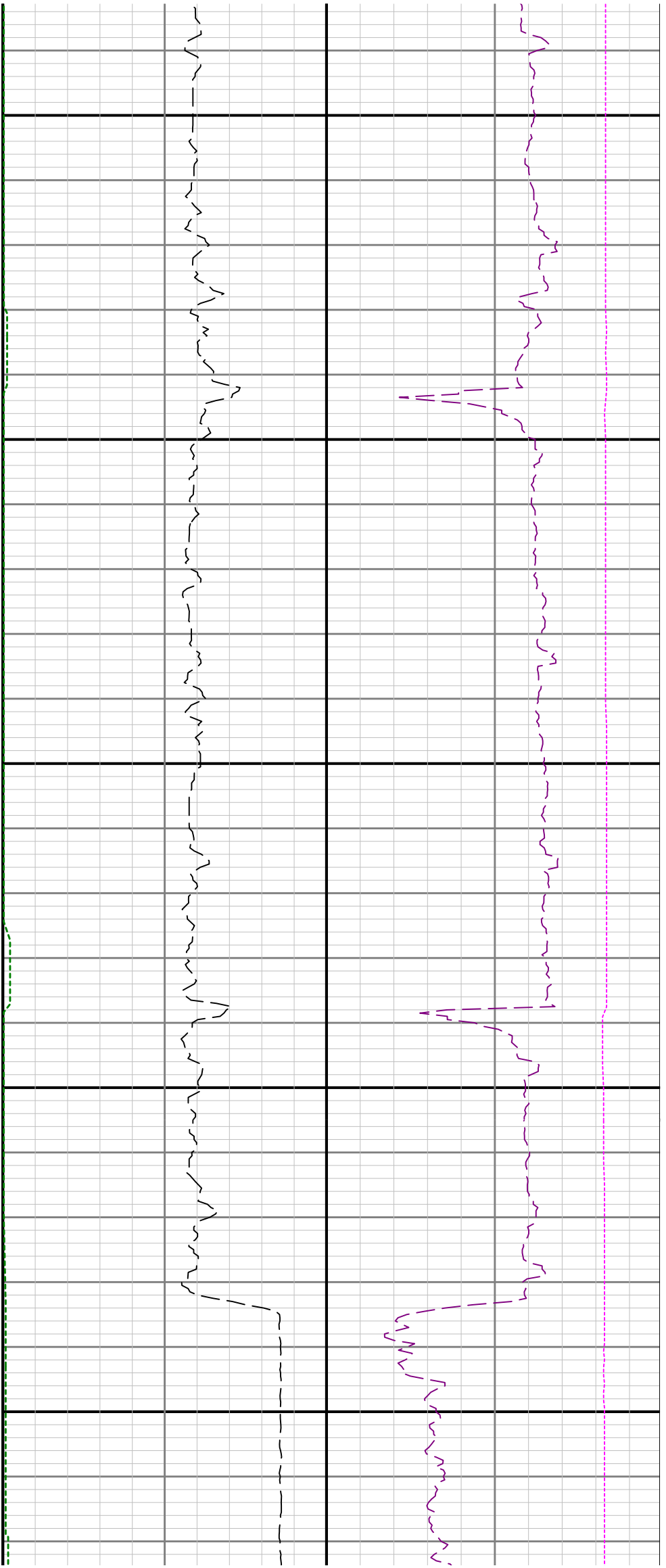


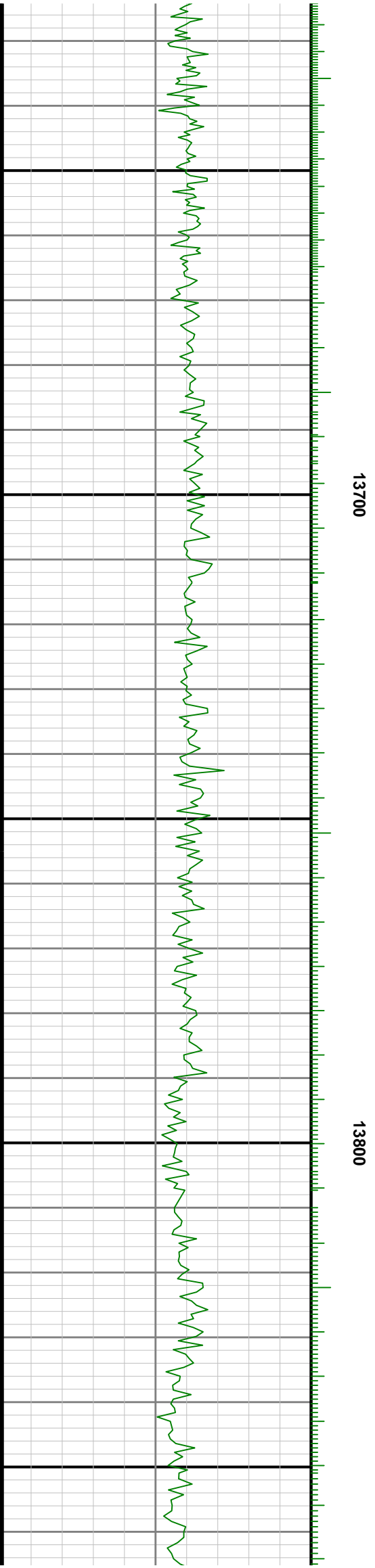
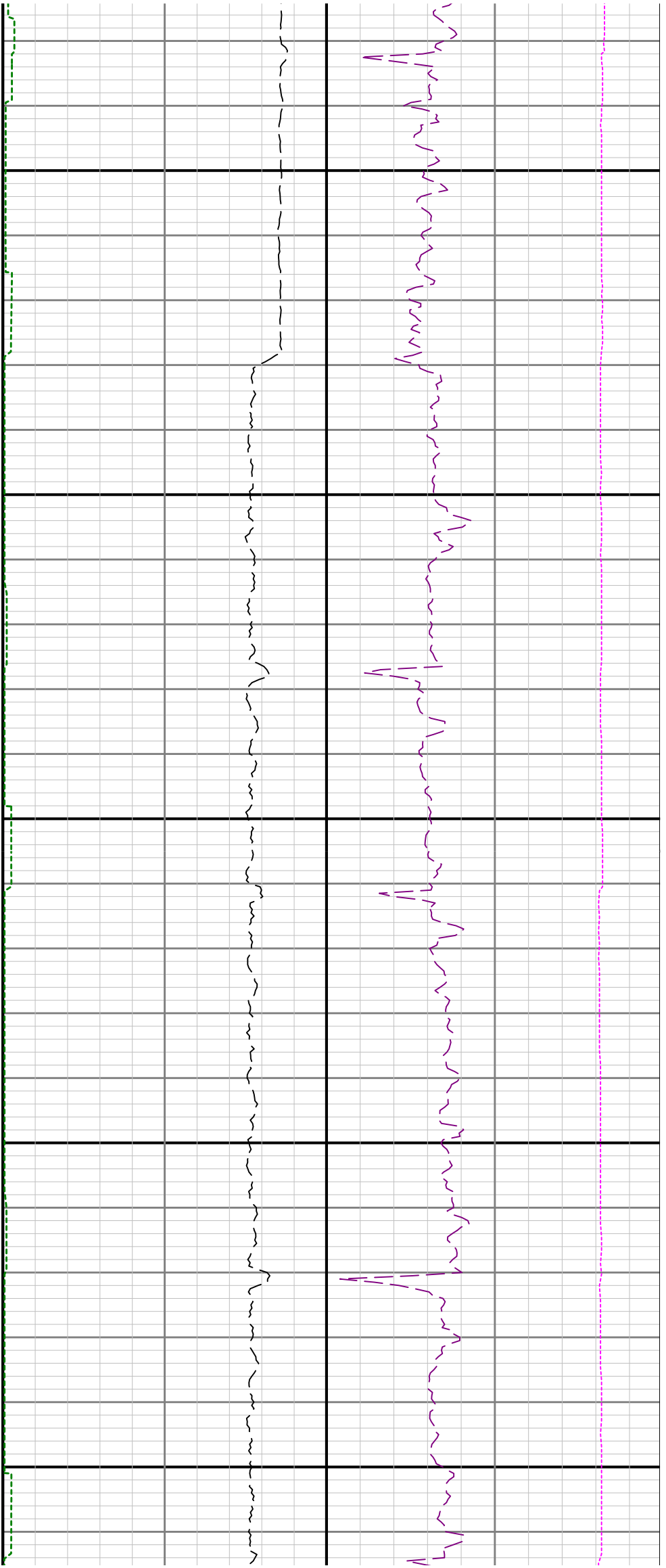


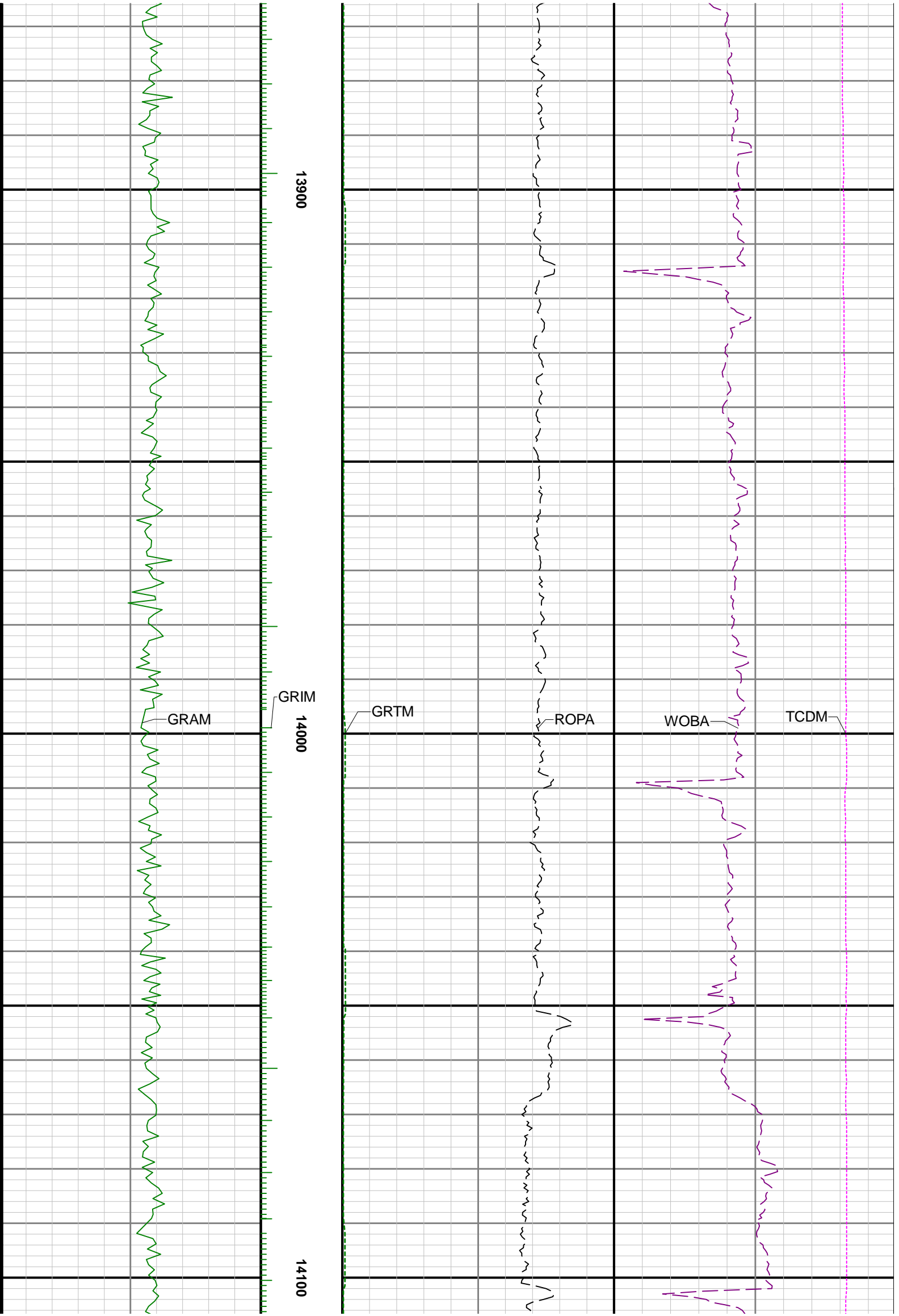
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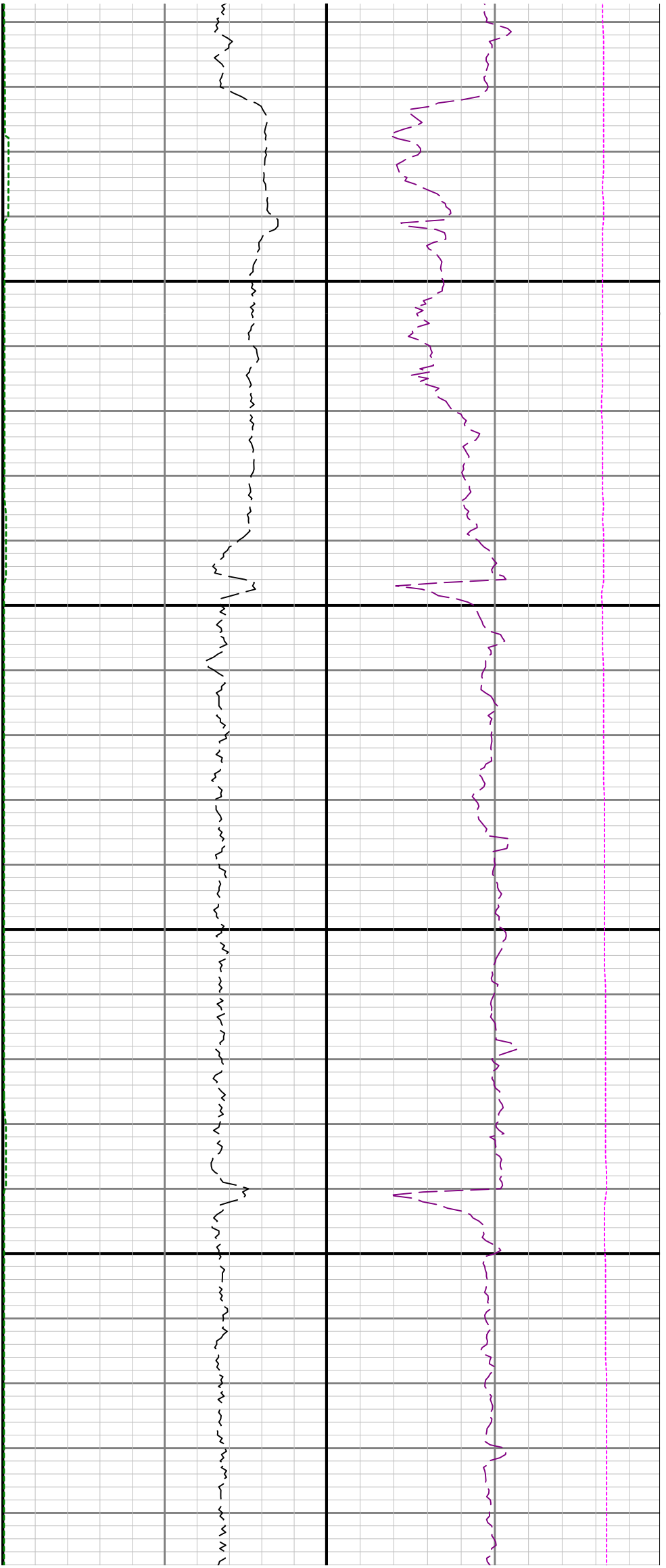
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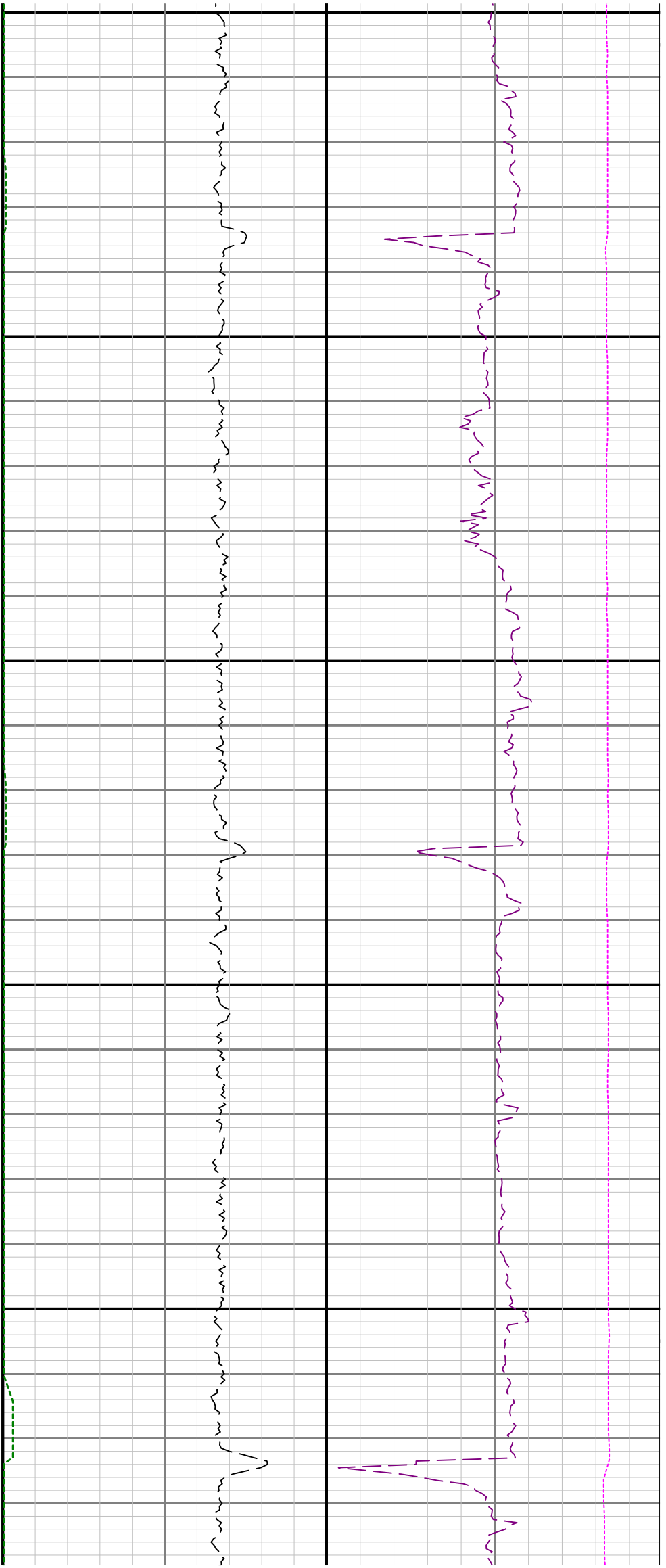






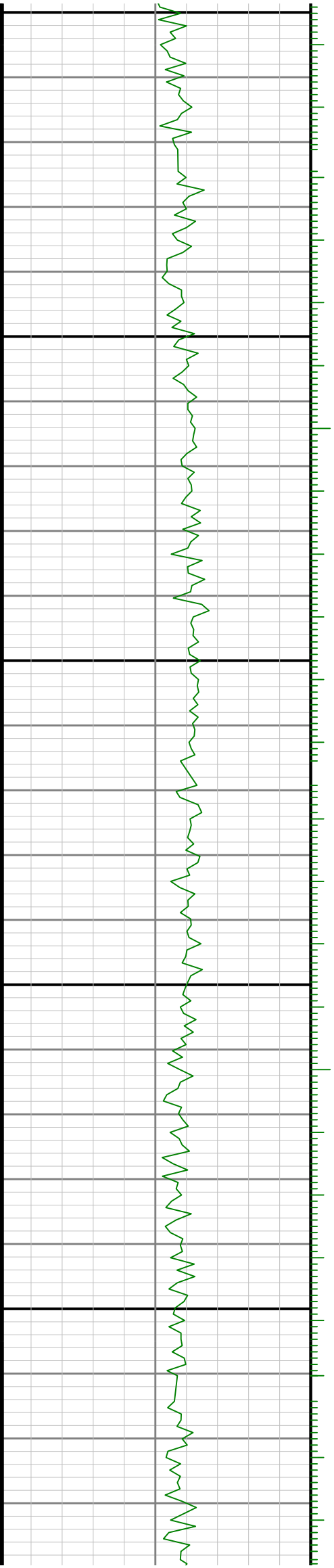


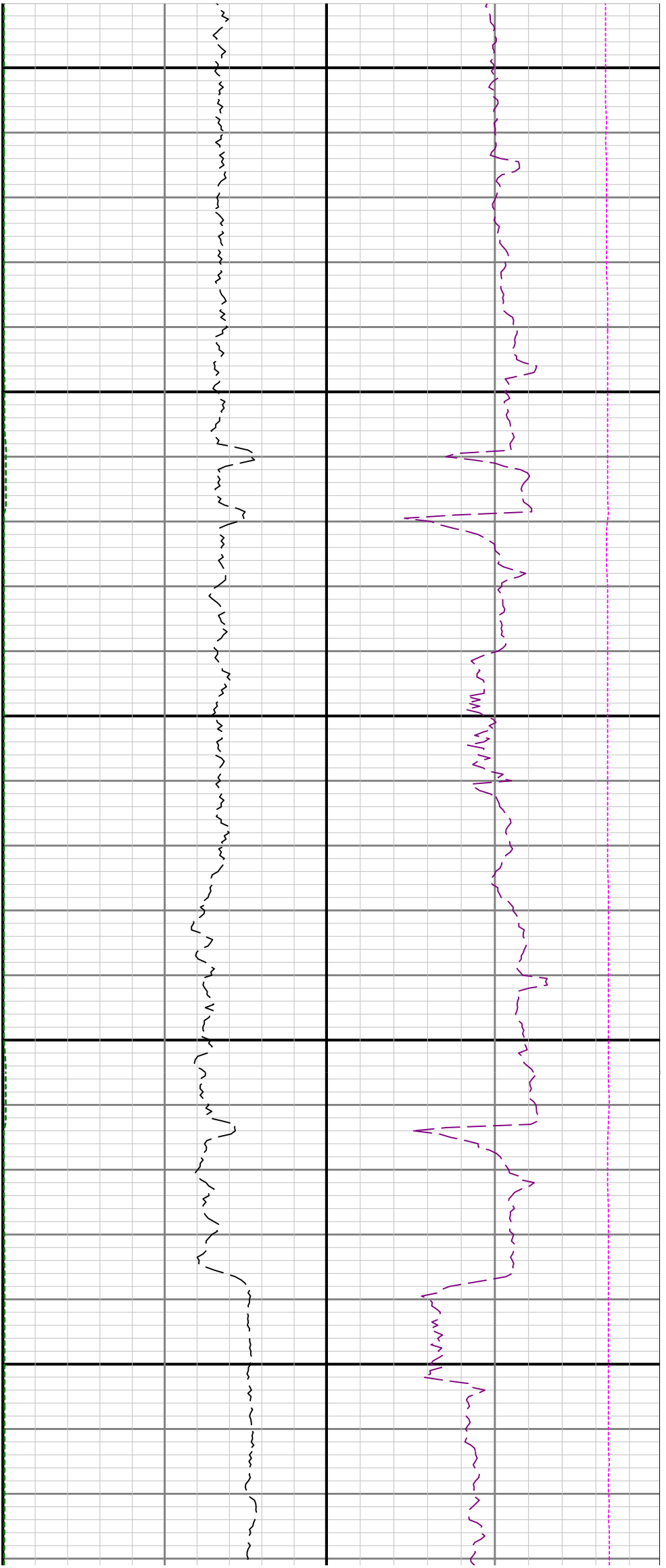




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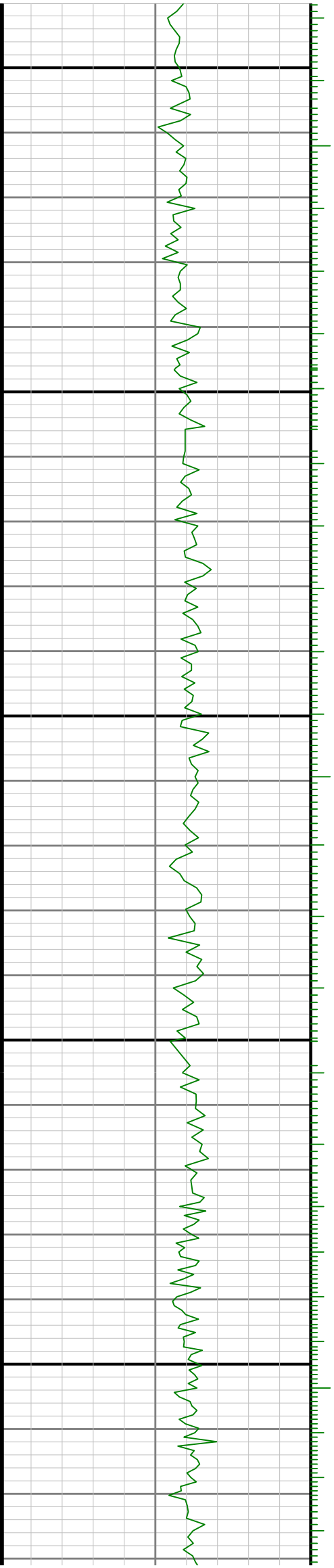


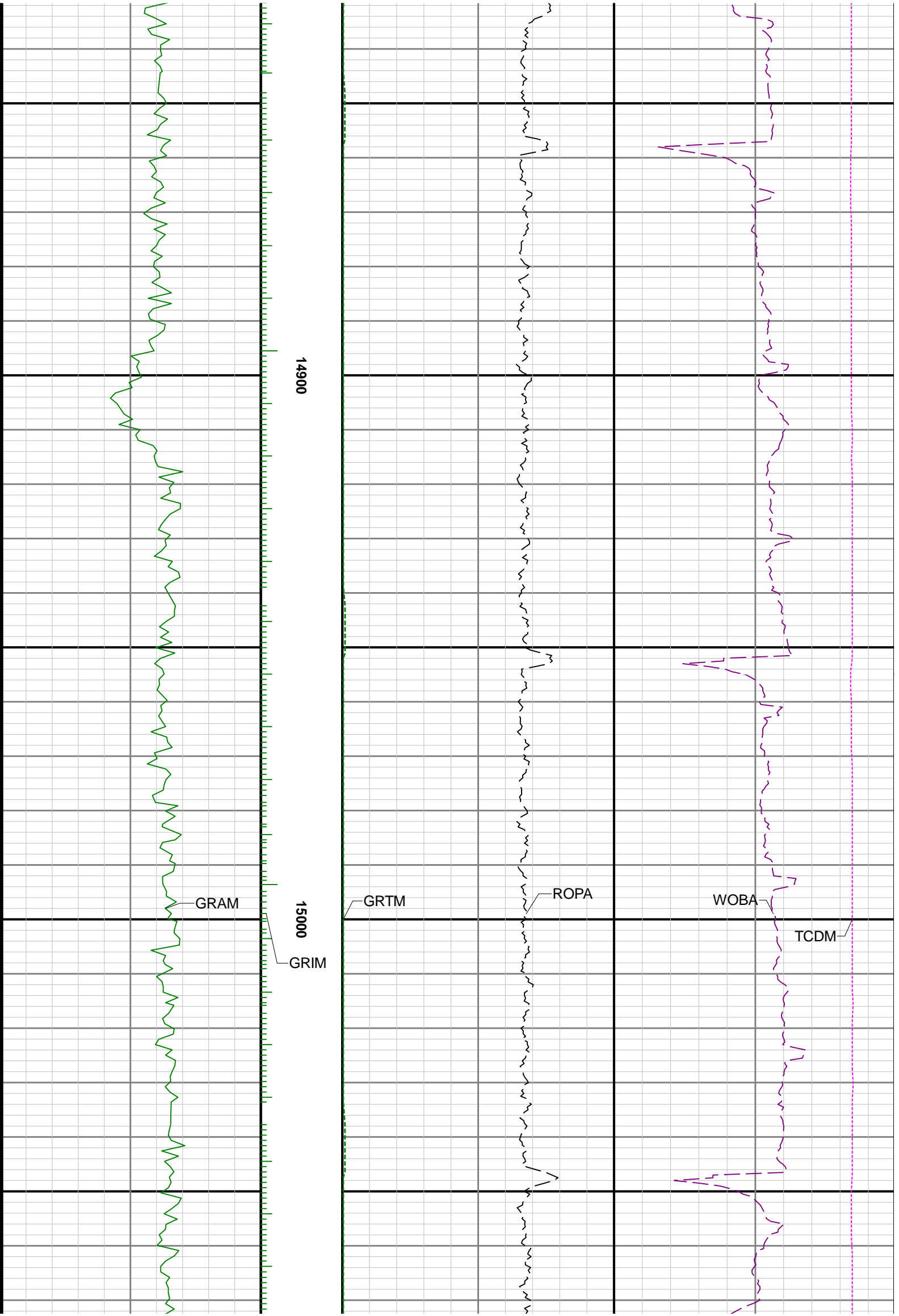


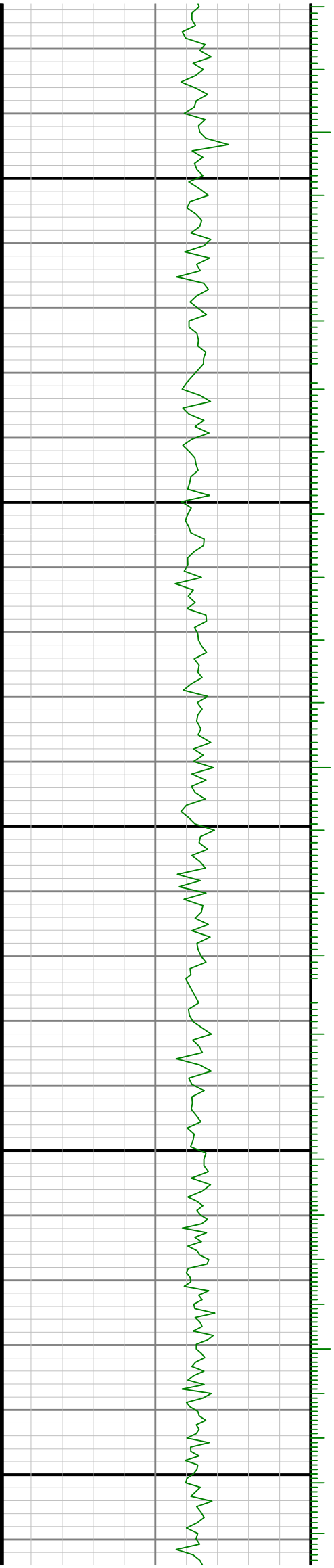
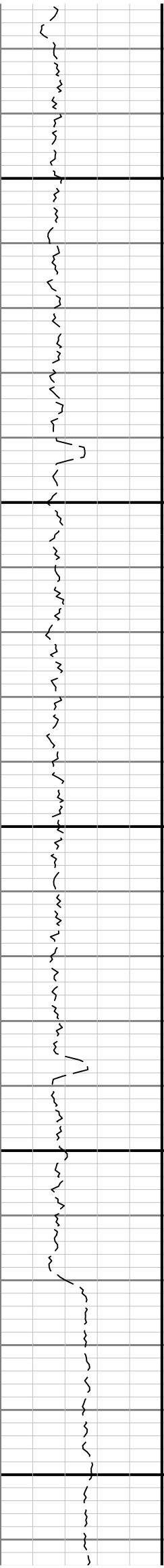
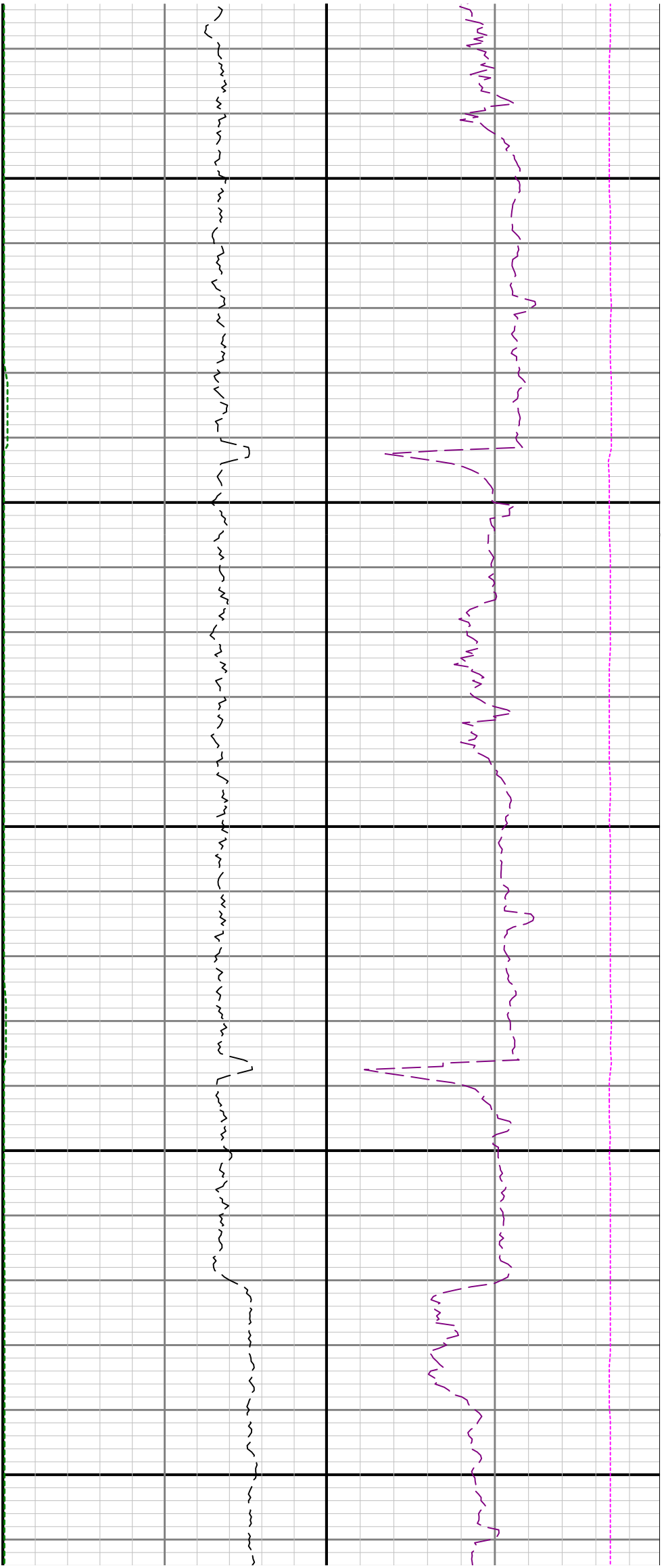
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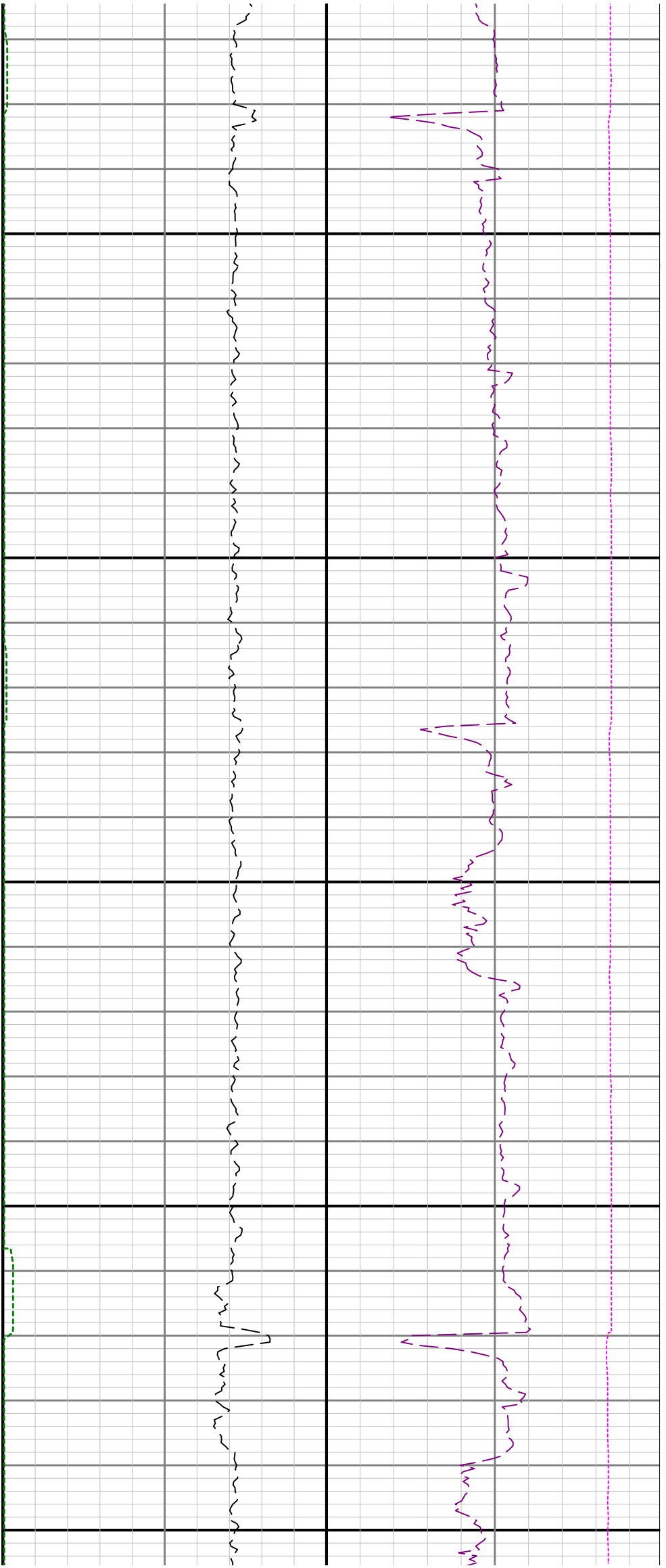
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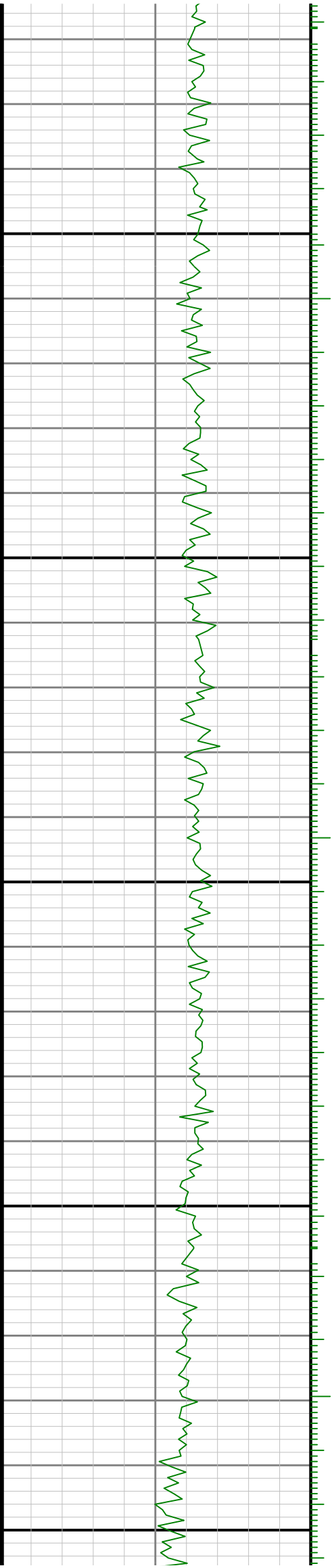


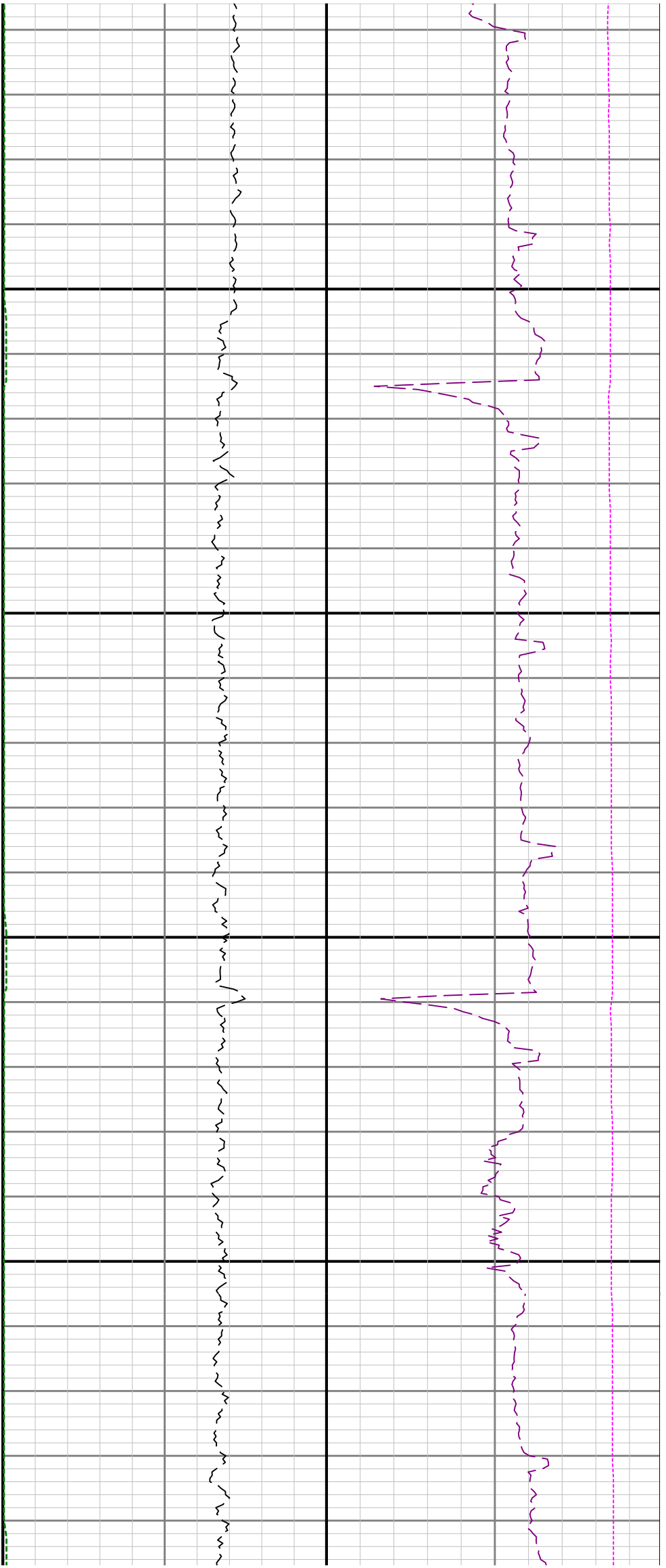




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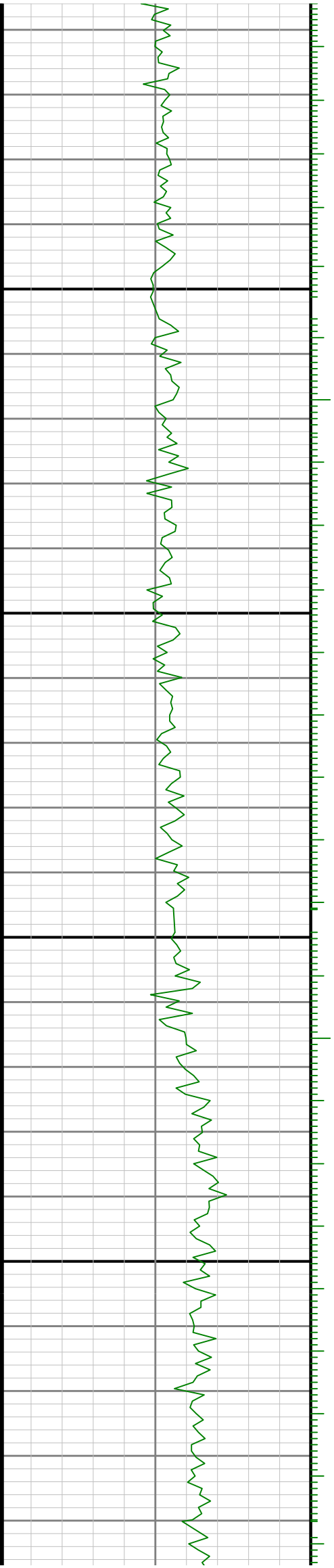
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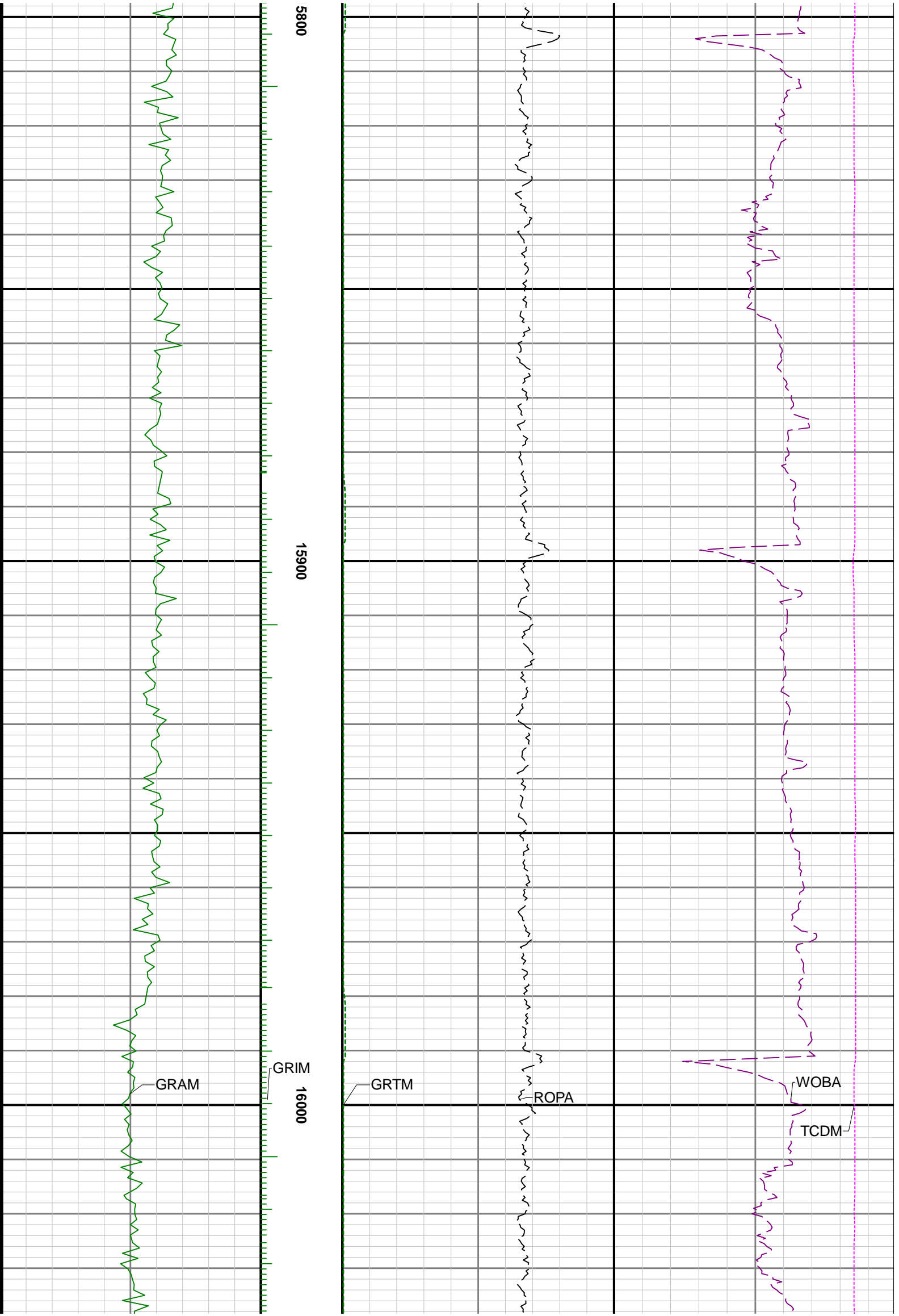


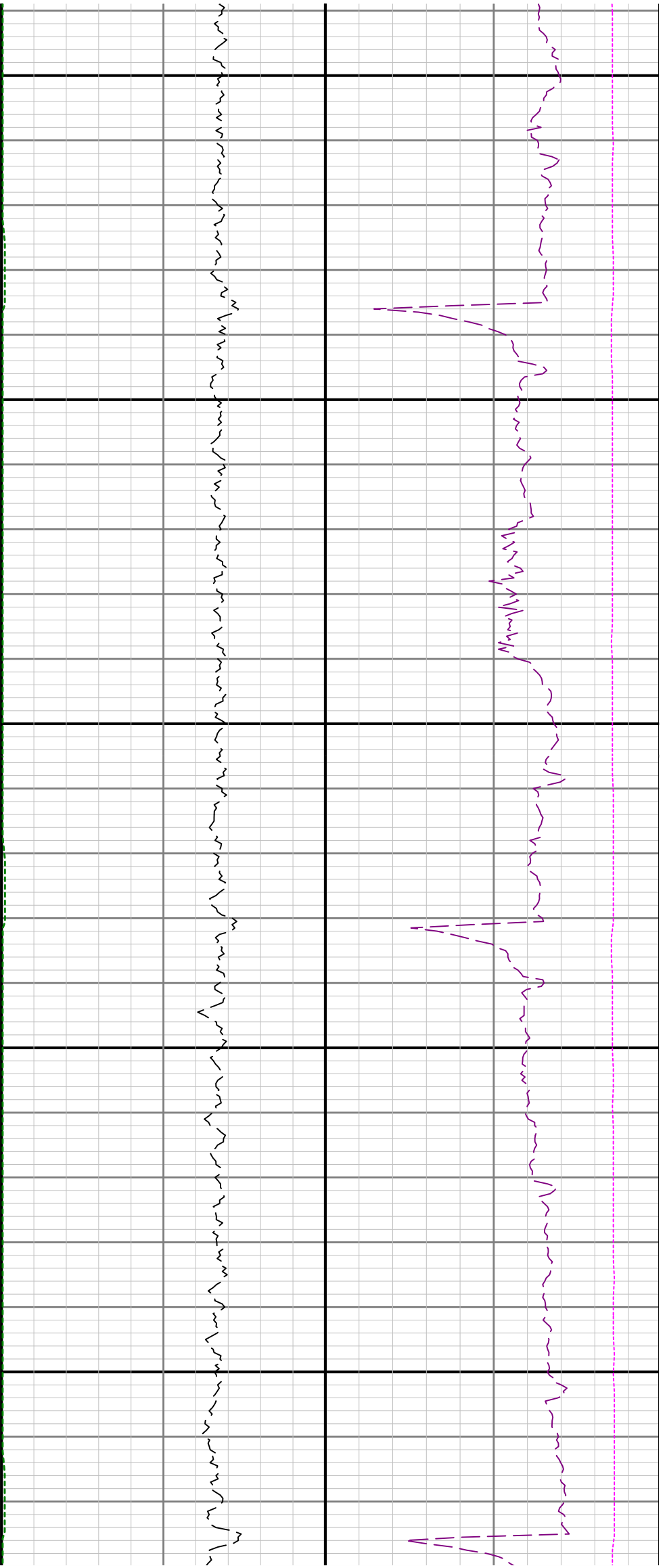


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15700







16100

16200

