



Gamma Ray

Scale:

Company: Anadarko

1:240 MD

Well: Azul 13-33HZ

Depth Reference:

Field: Weld

Driller's Depth

County: Weld

Country: United States

State: Colorado

Status:

Final Print

Surface Location:

Latitude:  
Longitude:

Directional

Other Services:

API No: 0512346108

Job ID: 9041368

SEC: 13

TWN: 1N

RGE: 66W

Permanent Datum (P.D.): Ground Level

Elevation:

Log Measured From: Rig Floor

Above P.D.

Elev. KB:

Elev. DF:

Elev. GL:

5050.00 ft

21.00 ft

5071.00 ft

5050.00 ft

N/A

Dates

Interval Logged

Magnetic Field Reference

Date From: 2018-04-15

Top: (ft)

1910.00

Azi Reference North:

True

Dip Angle: (deg)

66.34

Date To: 2018-04-18

Bottom: (ft)

13094.00

Total Magnetic Field Strength: (nT)

52375

Spud Date: 2018-04-15

Mag to Reference North Correction: (deg)

7.78 E

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

21.00

1910.00

9.625

36.00

21.00

1899.00

7.875

1910.00

13094.00

Mud Record

Deviation Record

Type

From (ft)

To (ft)

Hole Size (in)

Interval (ft)

Inc | Az (Start)

Inc | Az (End)

Oil Based Mud

1910.00

13094.00

7.875

11184.00

21.84 | 126.26

91.17 | 367.33

Acquisition System

Software Version

Other

Baker Hughes Cadence

RT4.1

Rig:

Precision 464

PlotStudio

4.1.7763.3

Contractor:

Precision Drilling

Unit: D&E

District: RMA

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Run No	Bit Run No.	Bit Size	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours
		(in)				Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	7.875	PDC	2.00	Steerable	1910.00	12729.00	1910.00	12771.00	2018-04-15 21:39	2018-04-18 01:19	45.53
2	2	7.875	PDC	2.00	Steerable	12729.00	12729.00	12771.00	13094.00	2018-04-18 18:27	2018-04-18 19:47	3.91

Crew

Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Alexis Bejarano		2018-04-15	2018-04-17	Mohammad Odetallah		2018-04-15	2018-04-19	Wayne Burge		2018-04-17	2018-04-19

Mud Properties Record

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2018-04-15 02:00	1	1910.00	Oil Based Mud	8.9	18	N/A	3.1	78/22	Active Pit	27211	0.00
2018-04-16 15:30	1	7418.00	Oil Based Mud	9.0	17	N/A	3.1	78/22	Active Pit	27992	0.00
2018-04-17 16:00	1	11286.00	Oil Based Mud	9.2	18	N/A	3.0	79/21	Active Pit	27992	0.00
2018-04-18 10:30	2	12771.00	Oil Based Mud	9.2	18	N/A	3.0	79/21	Active Pit	27211	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviGamma	11912310	Gamma (single)	11.52	42.03	6.500	3.250
1	NaviGamma	11912310	VSS	14.94	45.45	6.500	3.250
1	NaviGamma	11912310	Directional (mag)	14.94	45.45	6.500	3.250
2	NaviGamma	11912310	Gamma (single)	11.52	42.12	6.500	3.250
2	NaviGamma	11912310	VSS	14.94	45.54	6.500	3.250
2	NaviGamma	11912310	Directional (mag)	14.94	45.54	6.500	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	NaviGamma	Probe Based Gamma Module, NaviTrak Platform

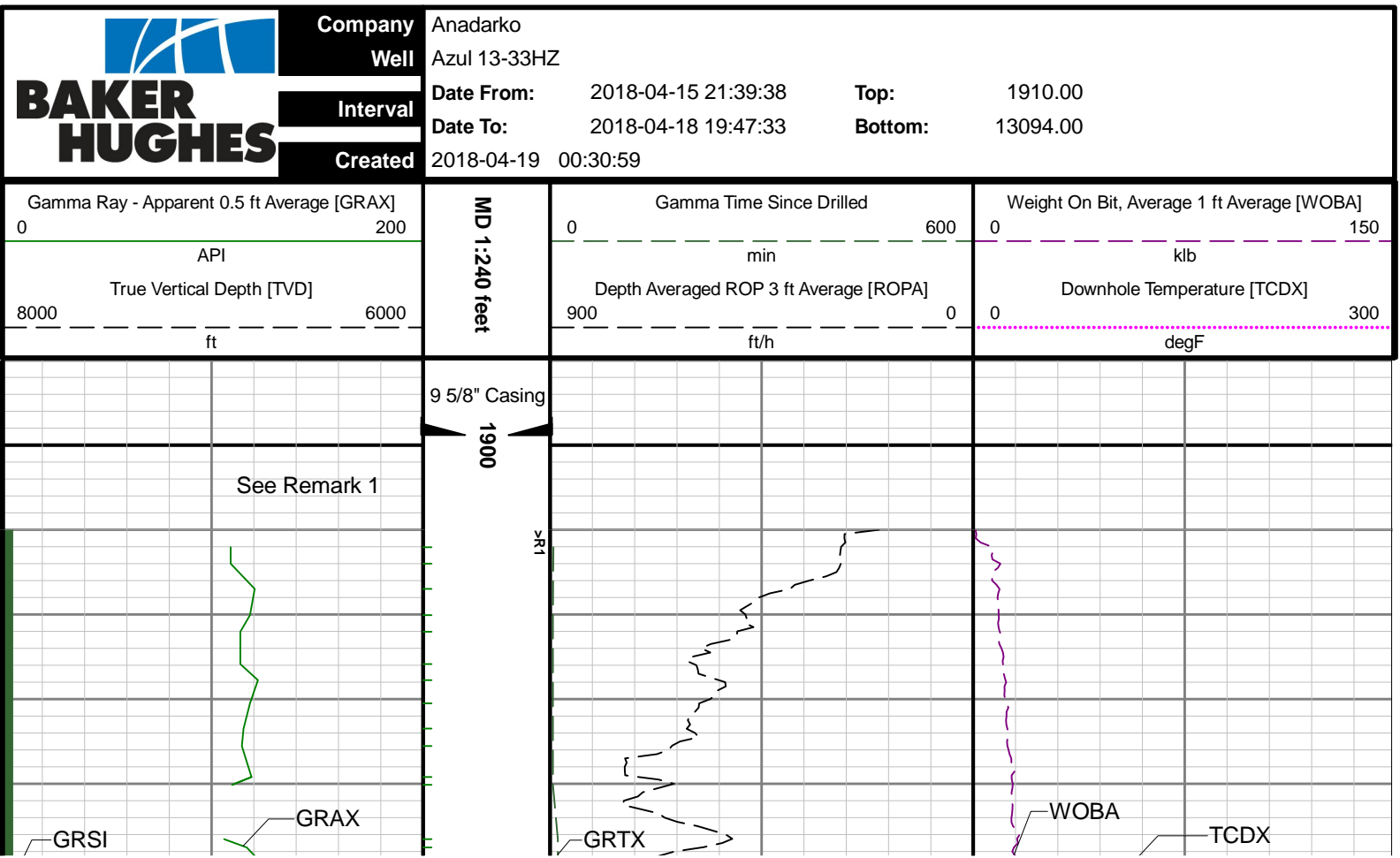
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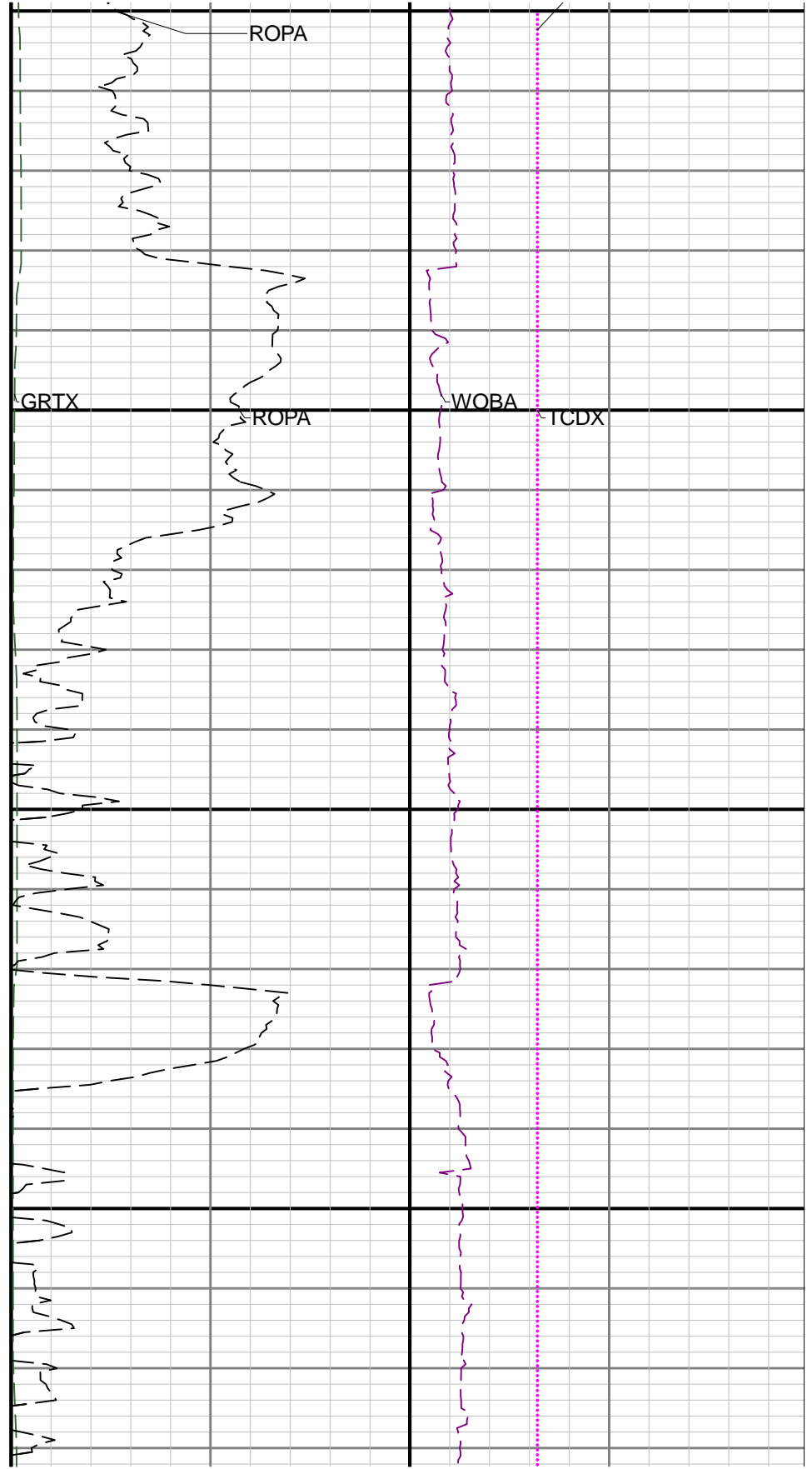
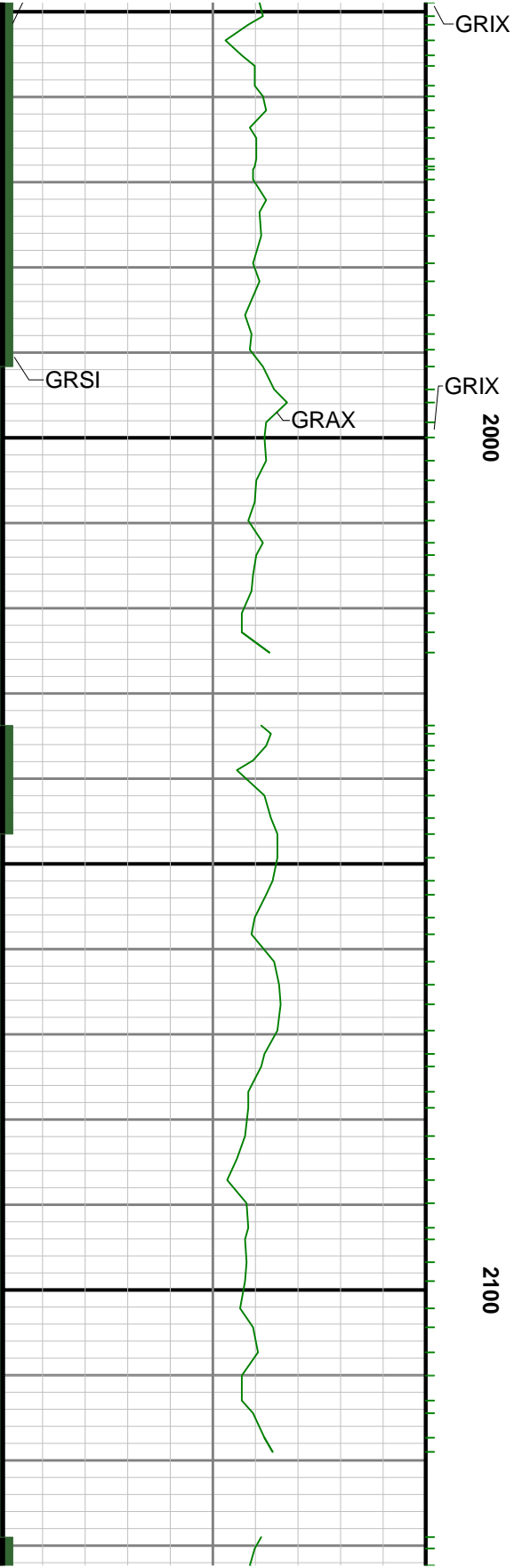
1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	A sliding indicator is shown to the left edge of track 1 as a heavy line. The indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.
3	Baker Hughes run 1 and run 2 utilized 6 1/2 inch NaviGamma services (Gamma Ray and Directional) behind a 7 7/8 inch bit and steerable assembly from 1910 to 13094 feet MD (1844 to 7436 feet TVD).
4	Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.
5	There are numerous gaps throughout the log due to surveying while on bottom drilling ahead.

Remarks				
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1910.00	7.875	1	Baker Hughes began logging at 1910 feet MD (1844 feet TVD) as requested by the client.
2	12730.00	7.875	2	The interval from 12729 to 13094 feet MD (7435 to 7480 feet TVD) was not logged due to tool failure.

Curve Mnemonics

Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	Gamma Ray - Time Since Drilled - Real-Time	min
GRSI	Sliding Indicator Flag	unitless

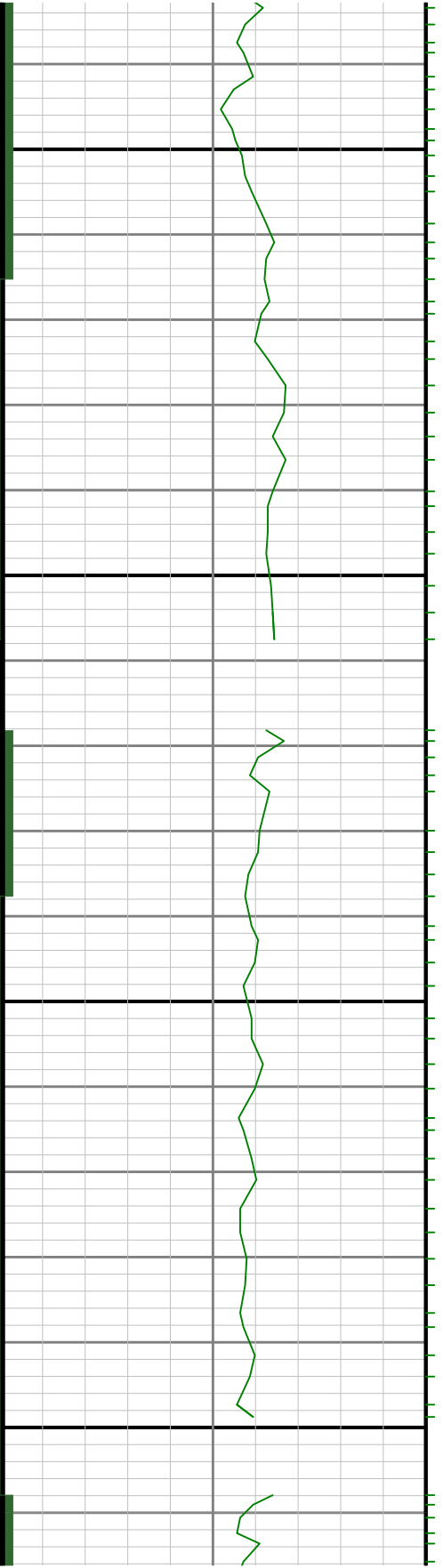


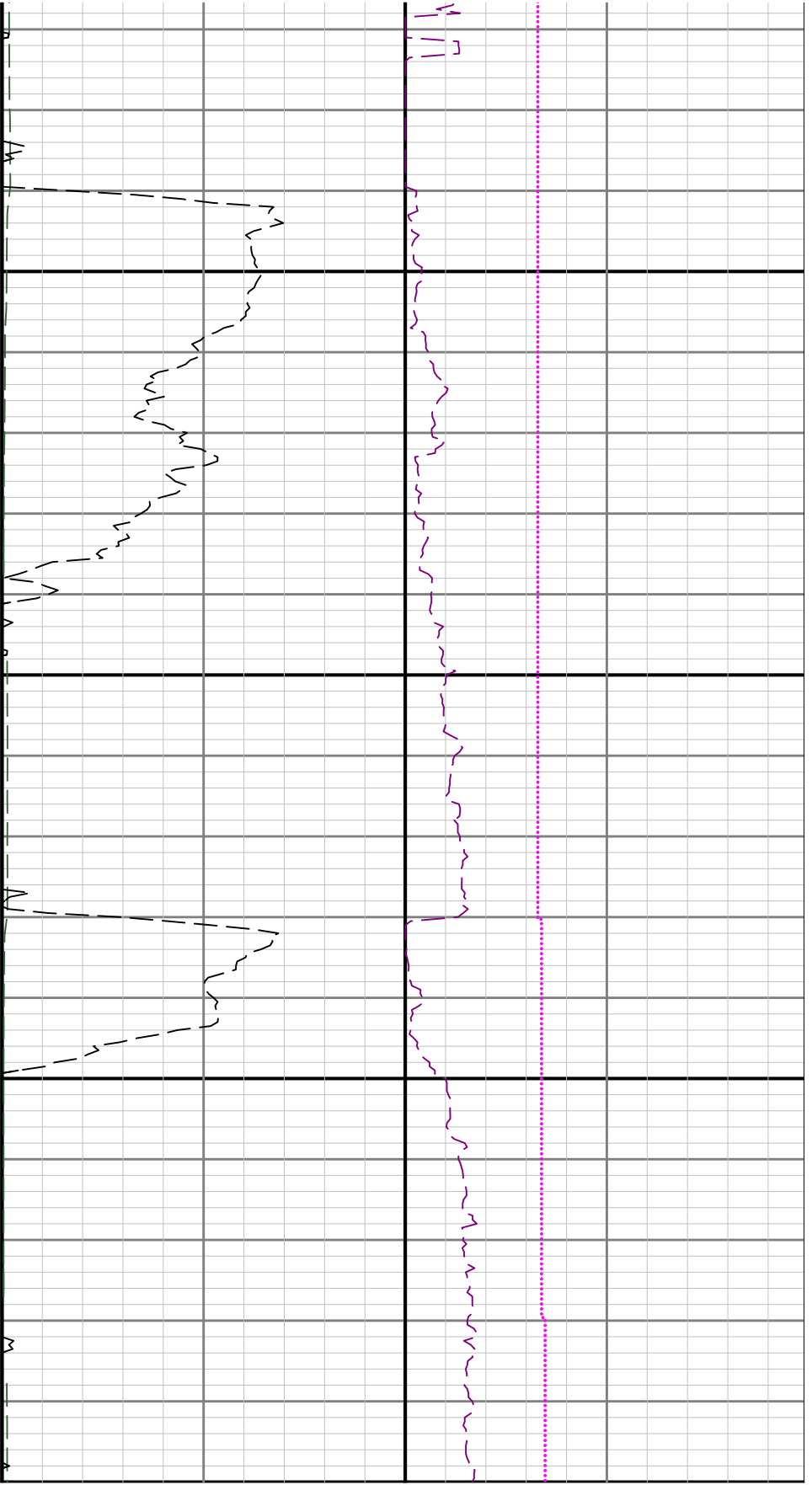




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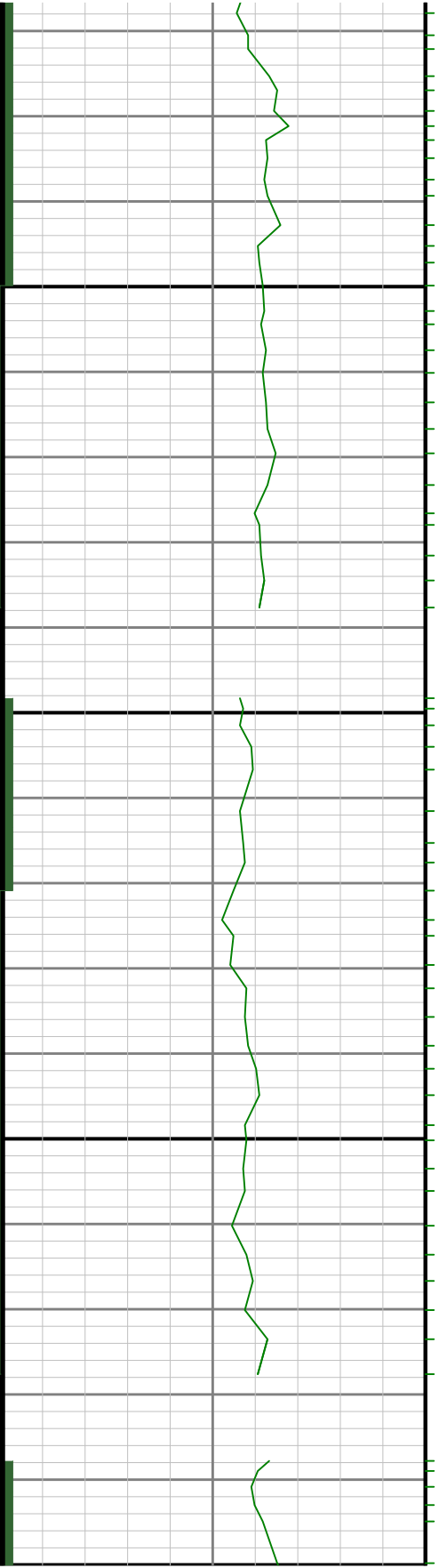
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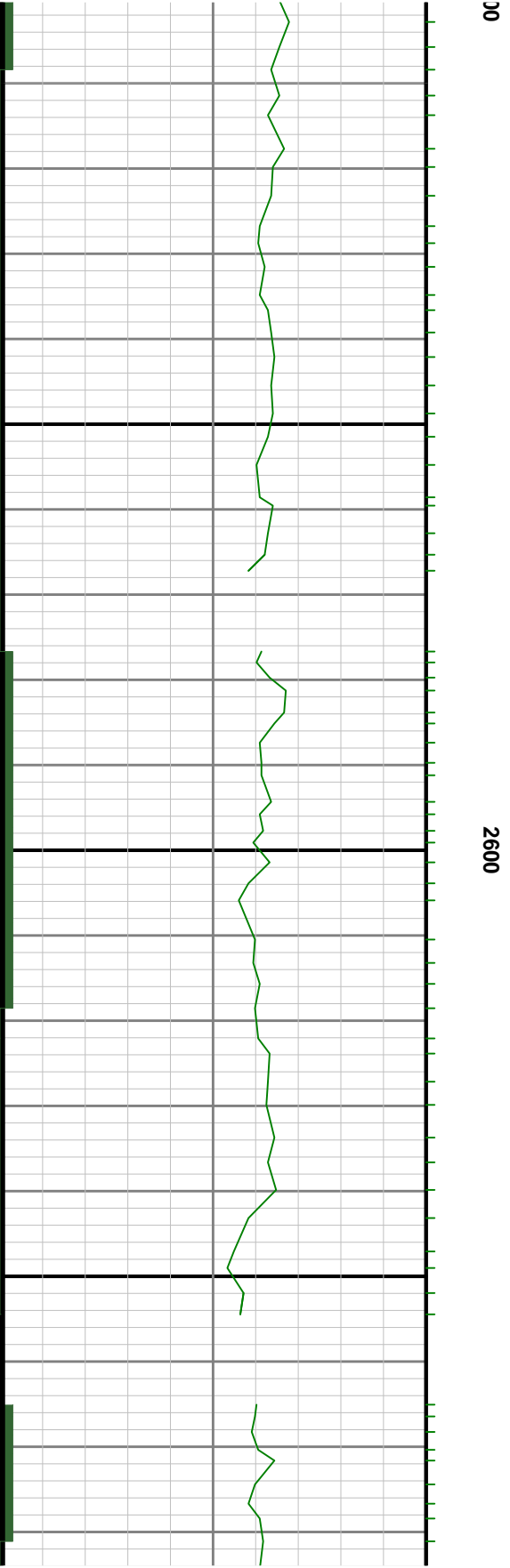
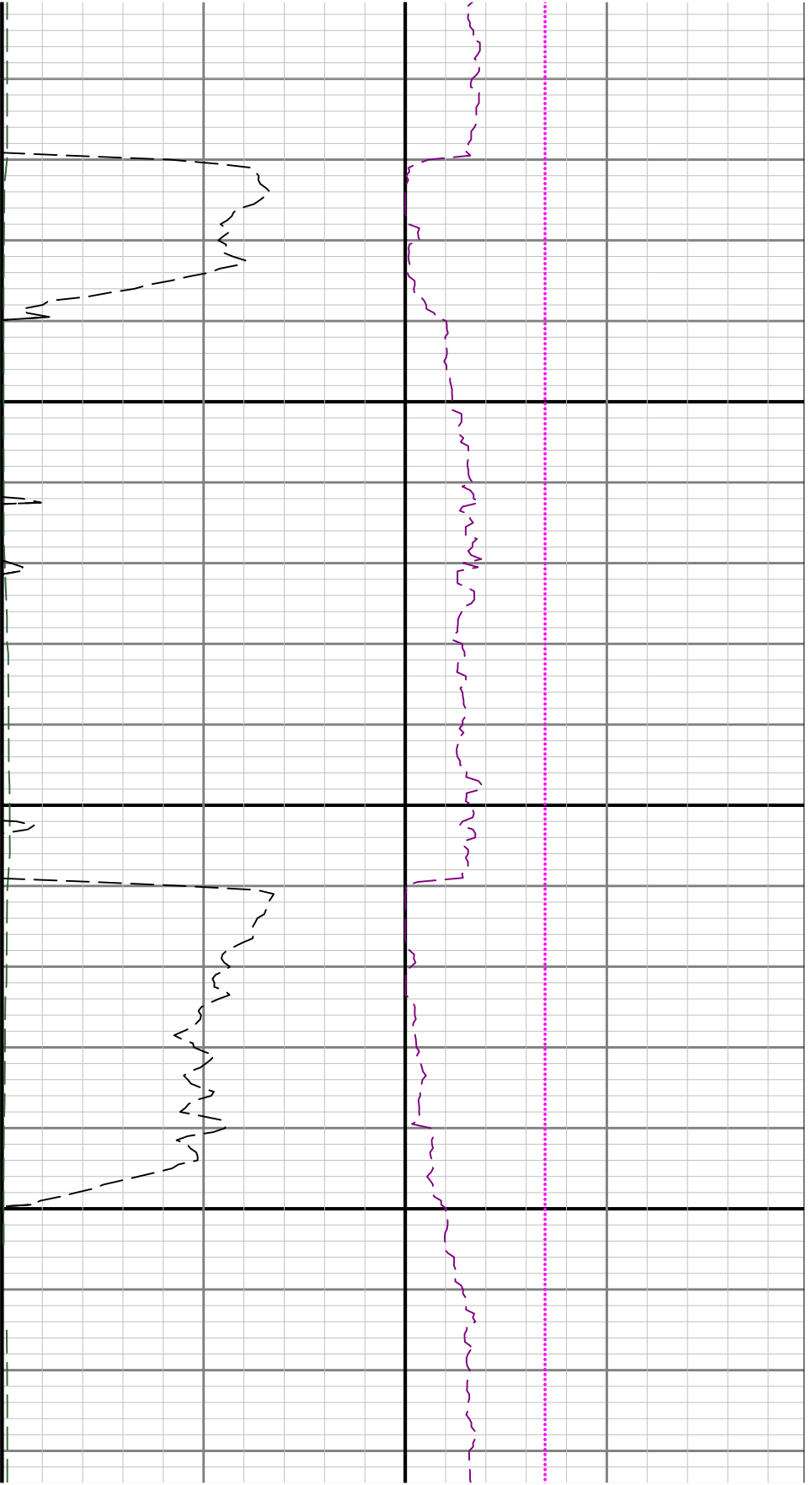


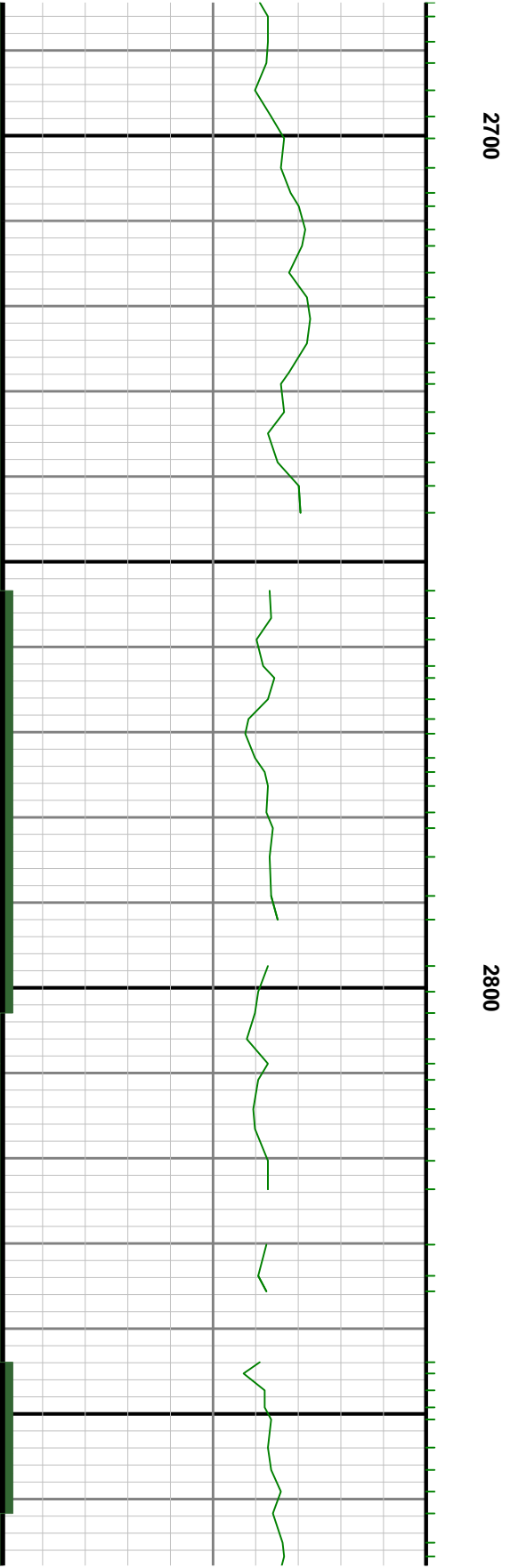
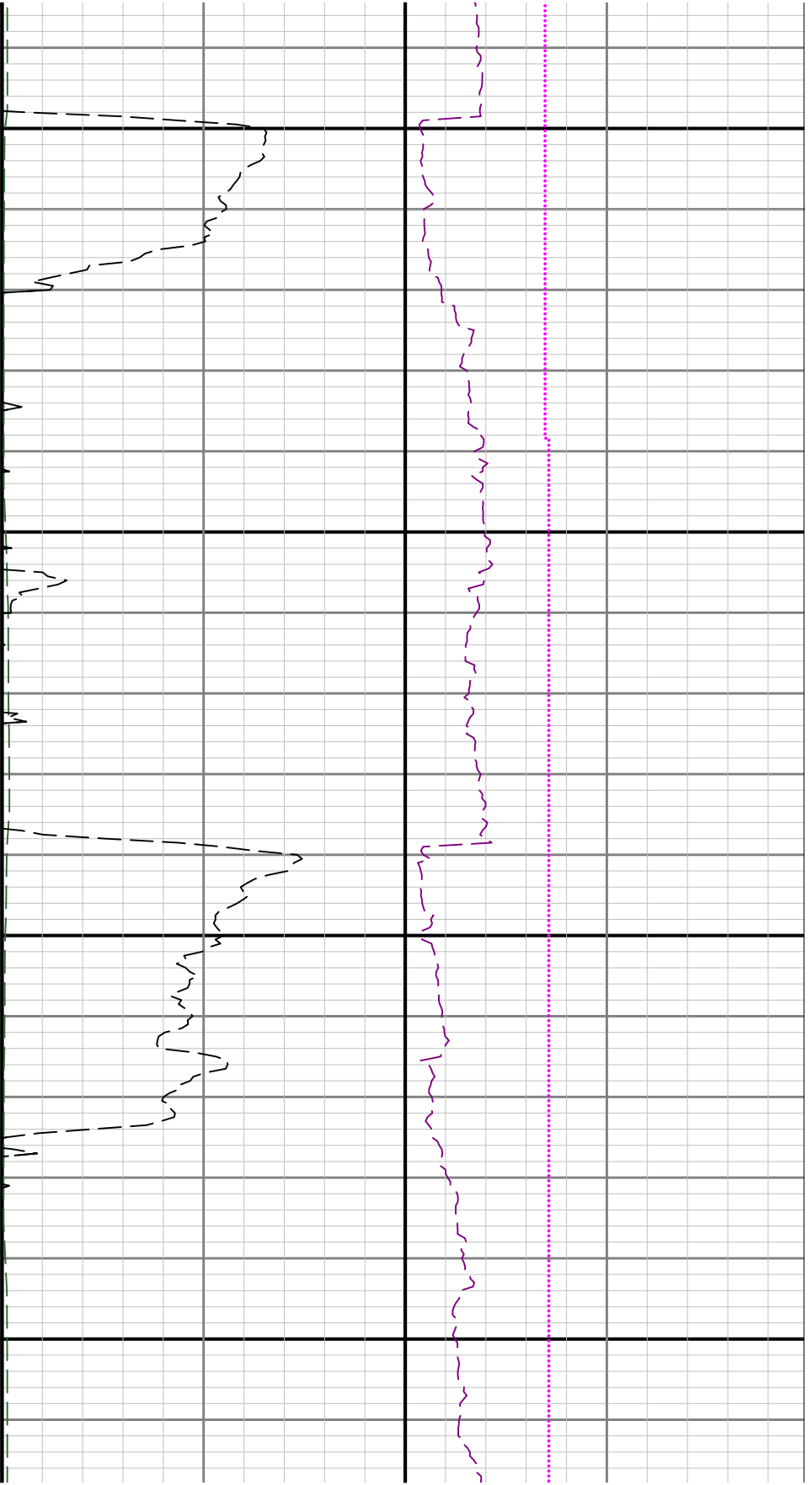


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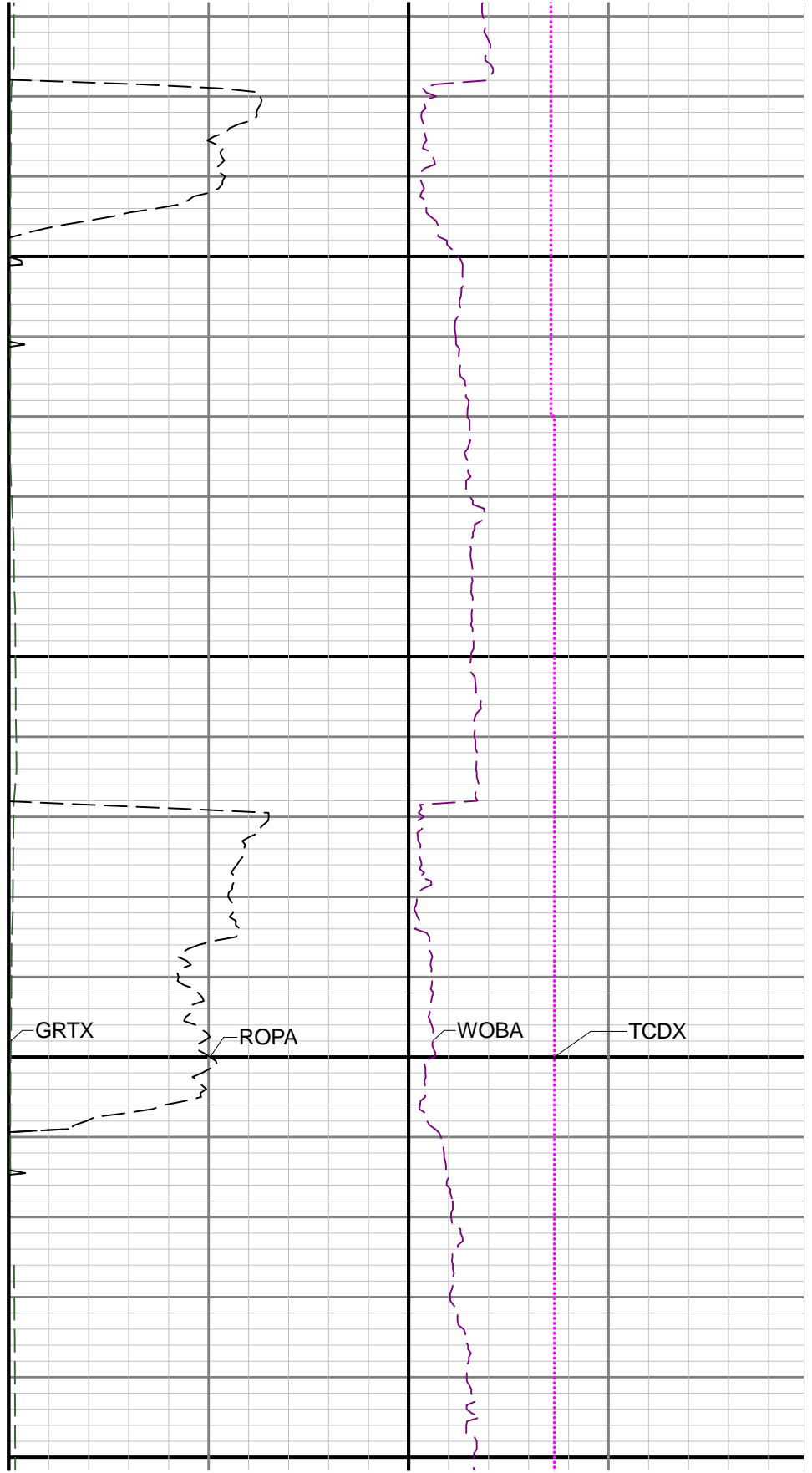
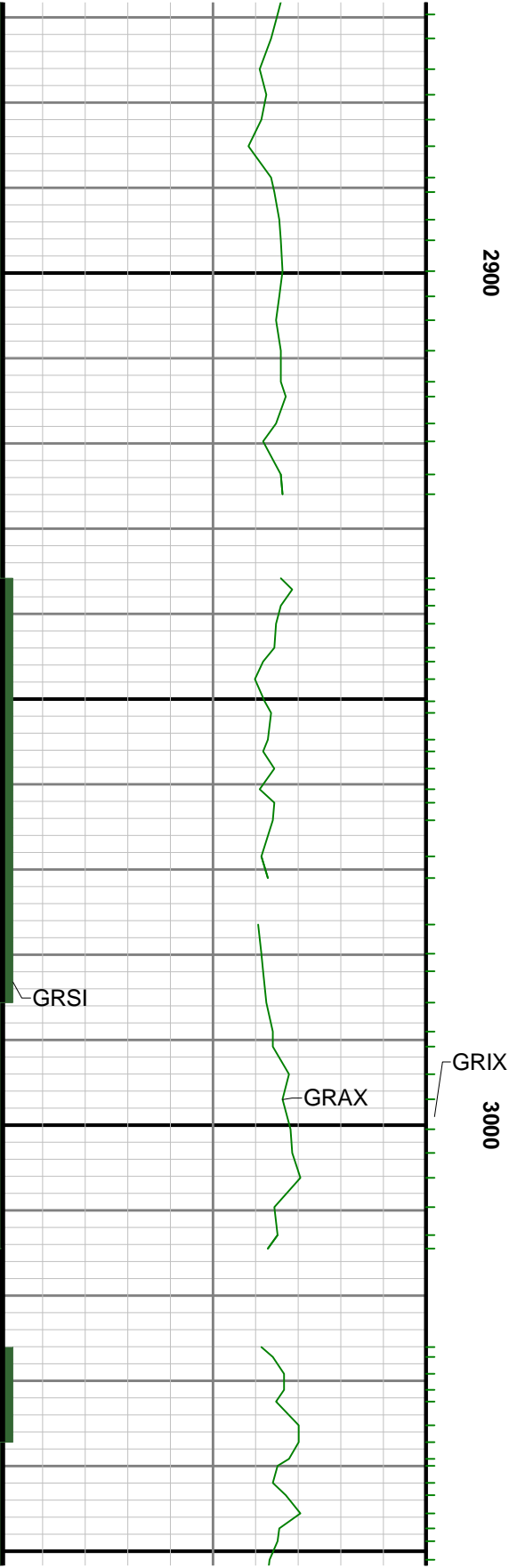
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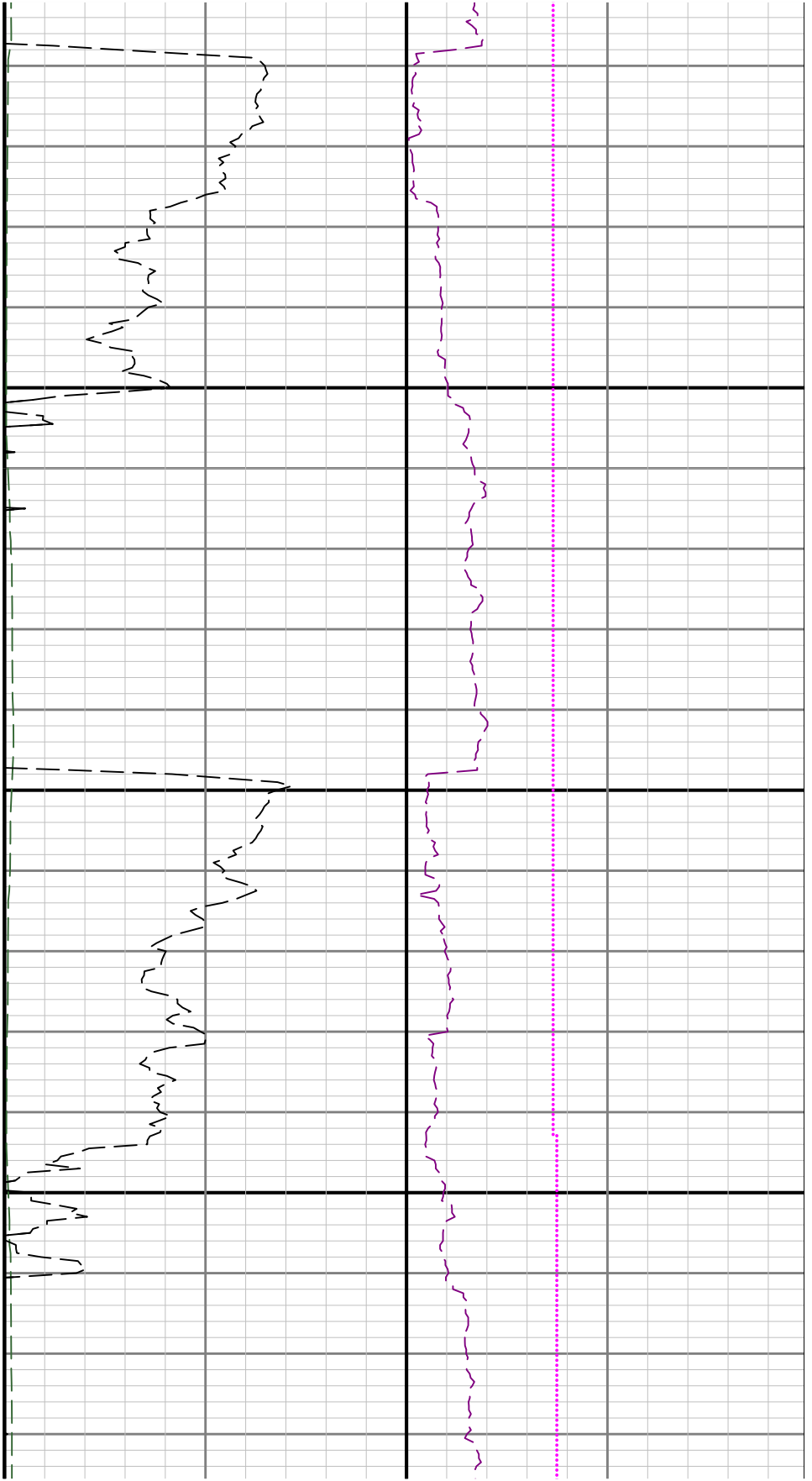






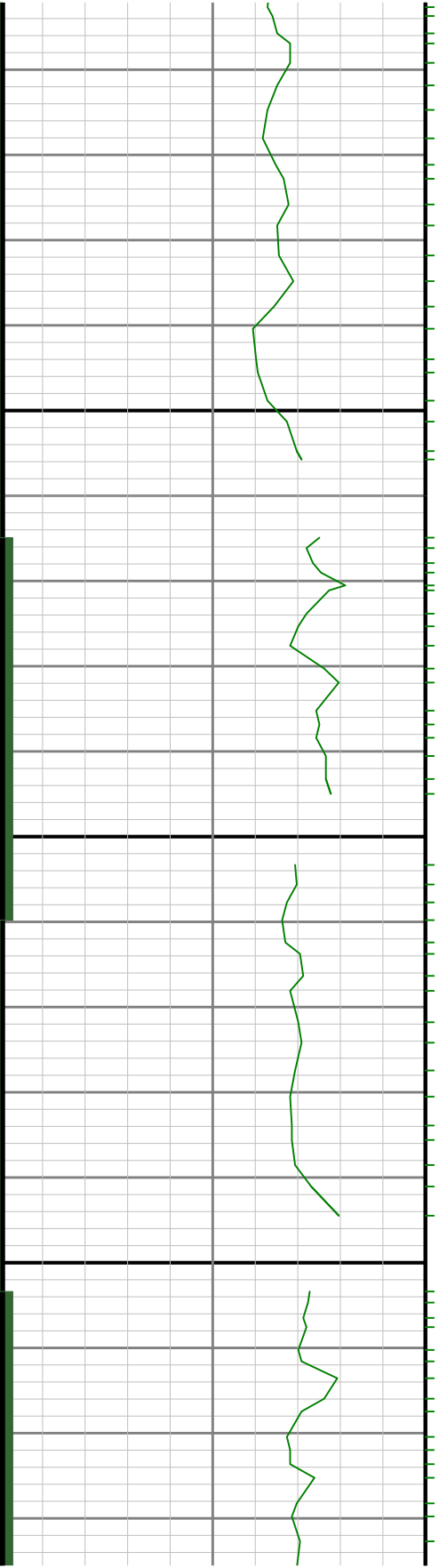


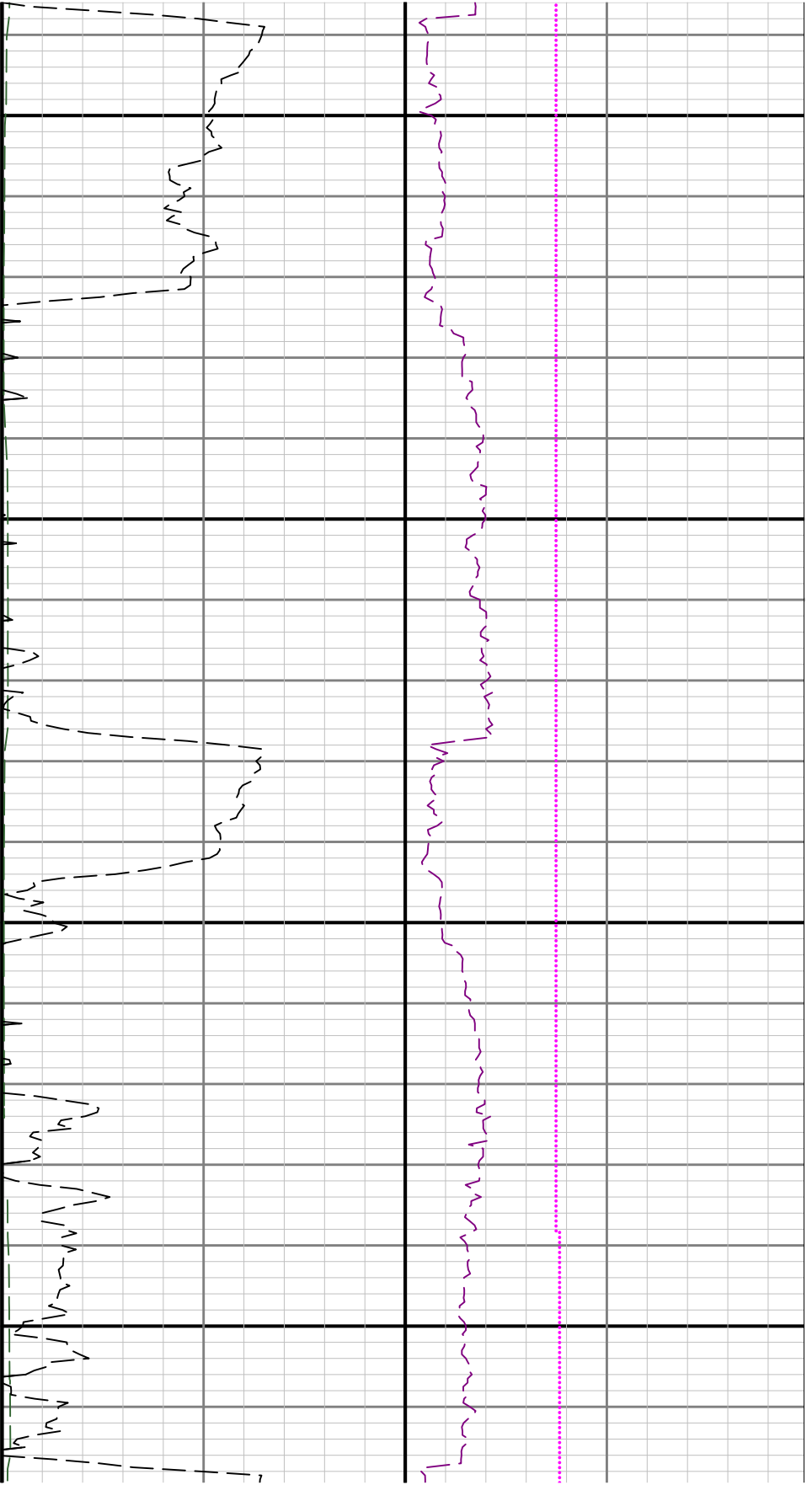




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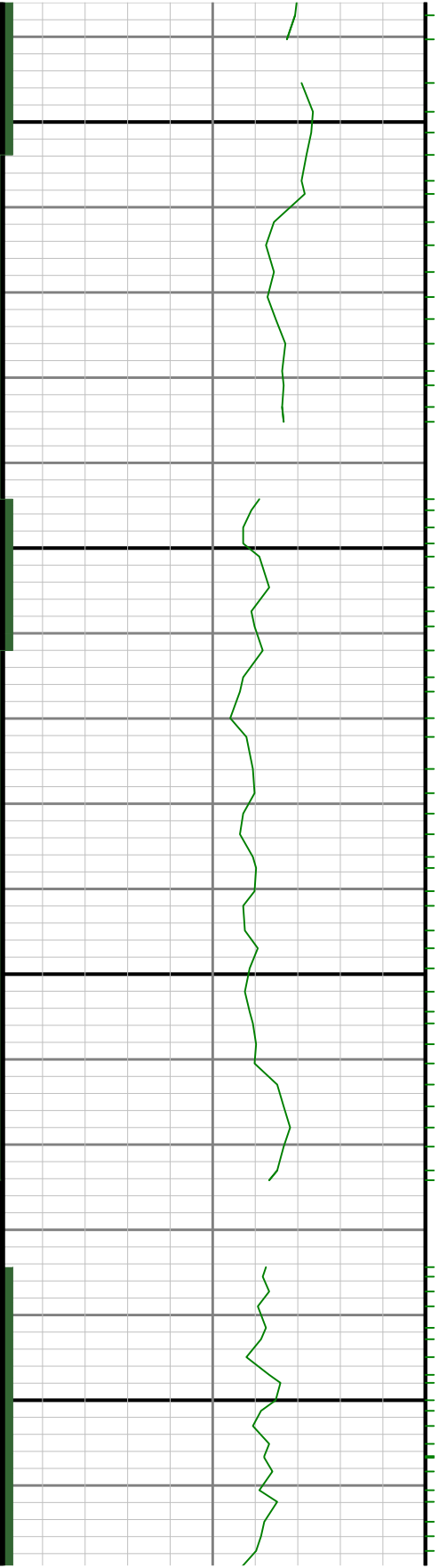
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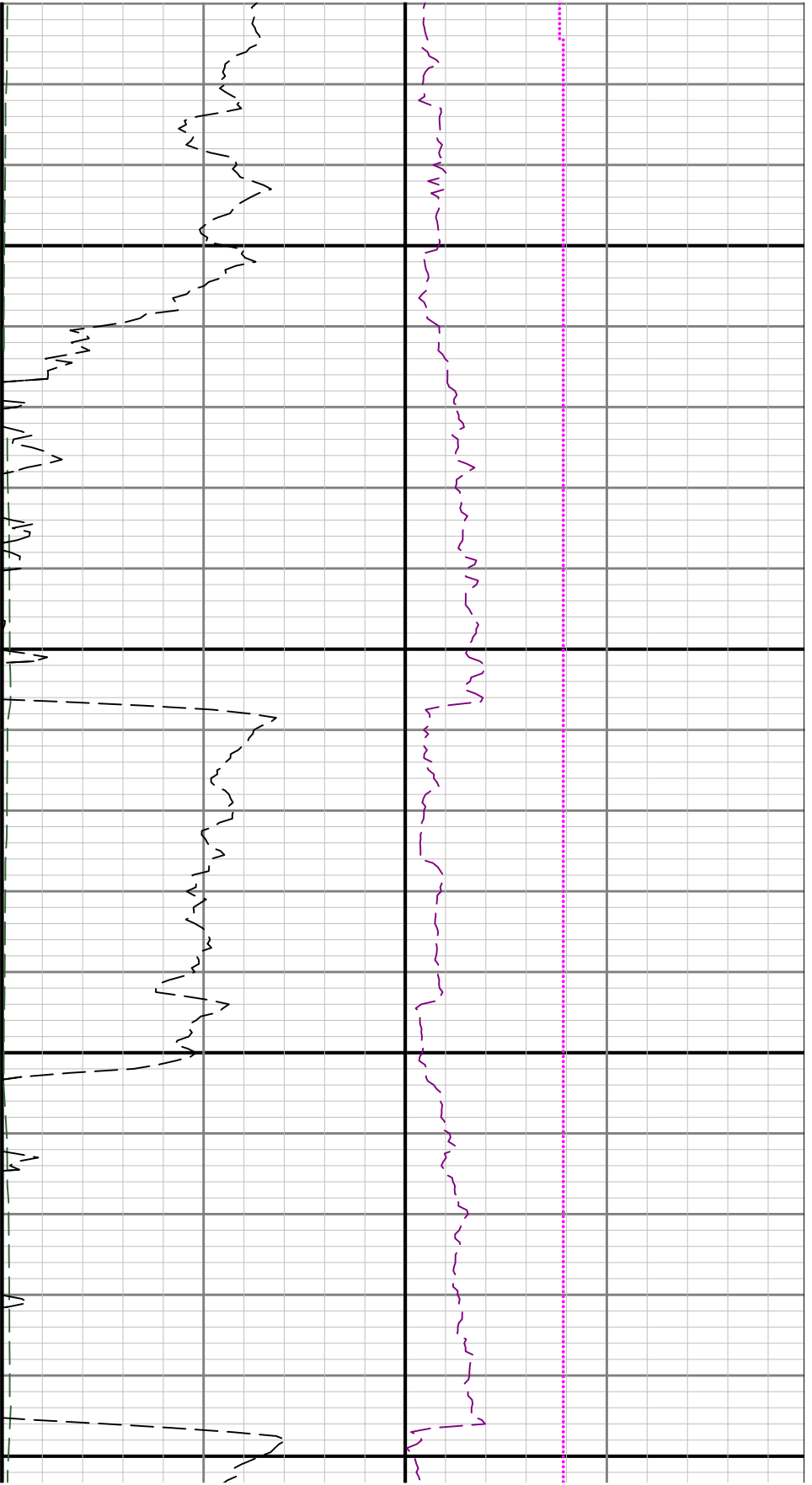




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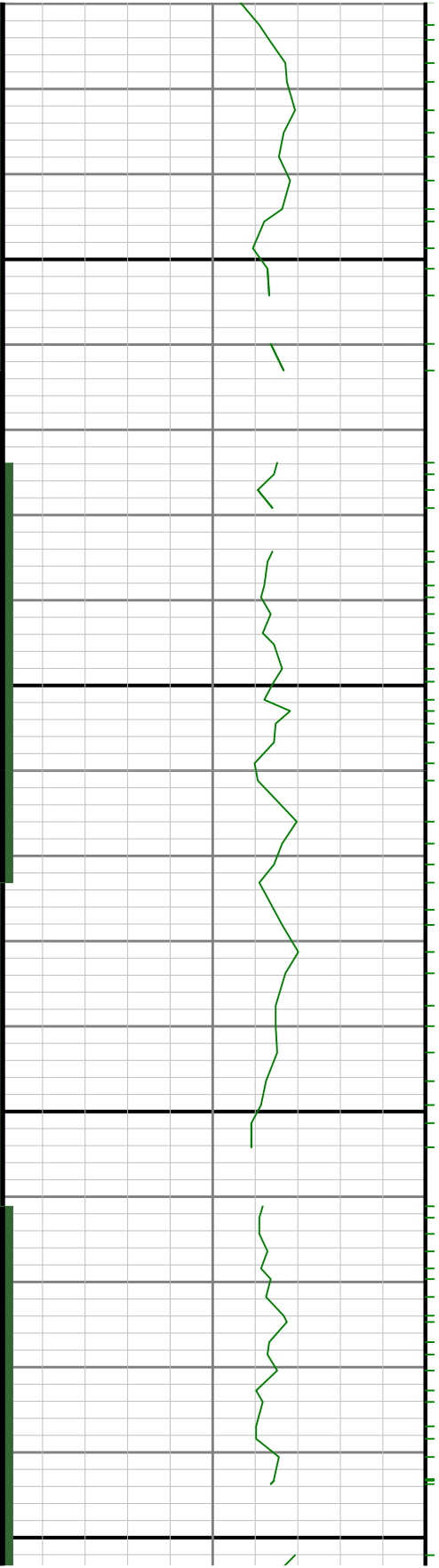
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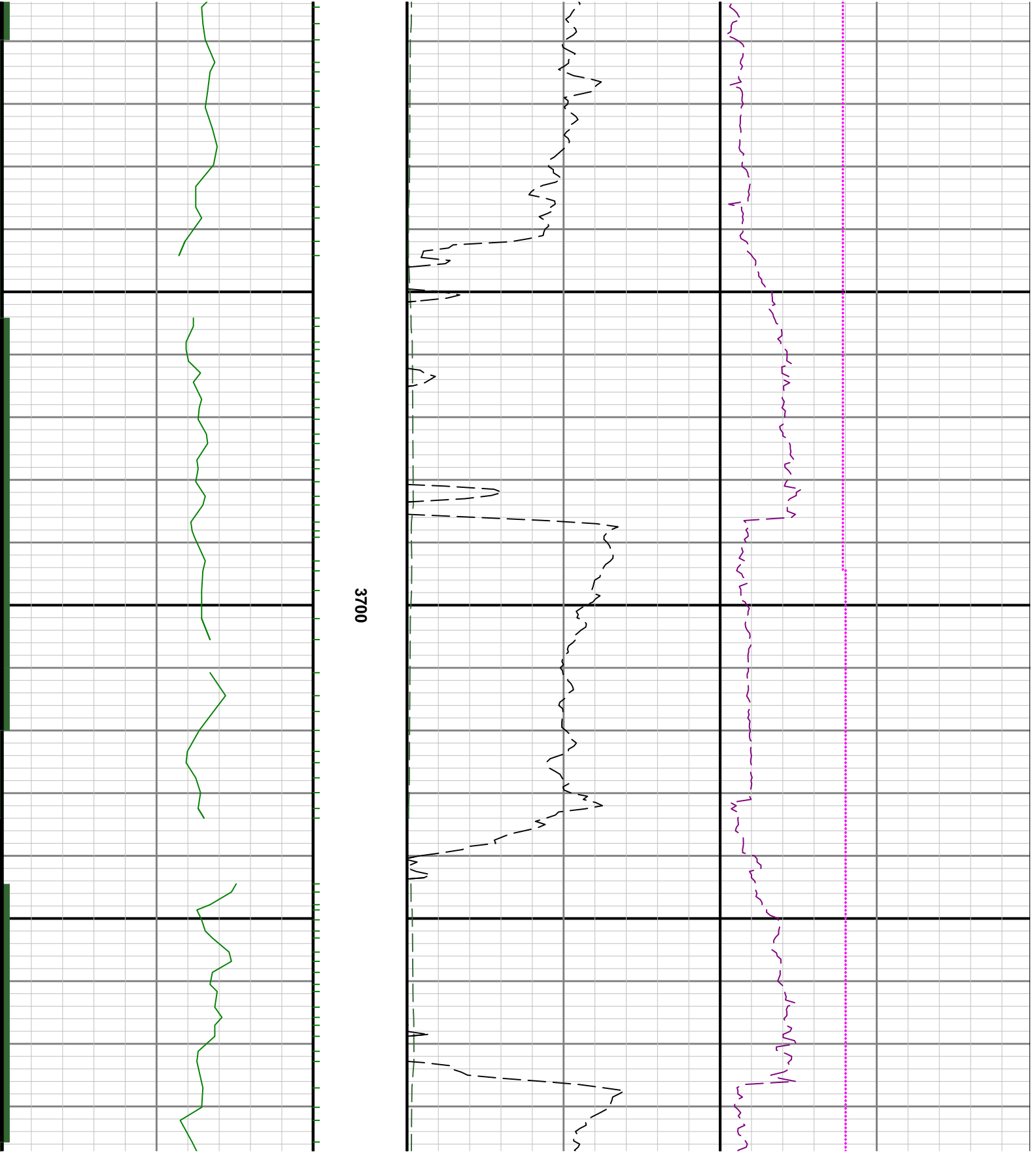


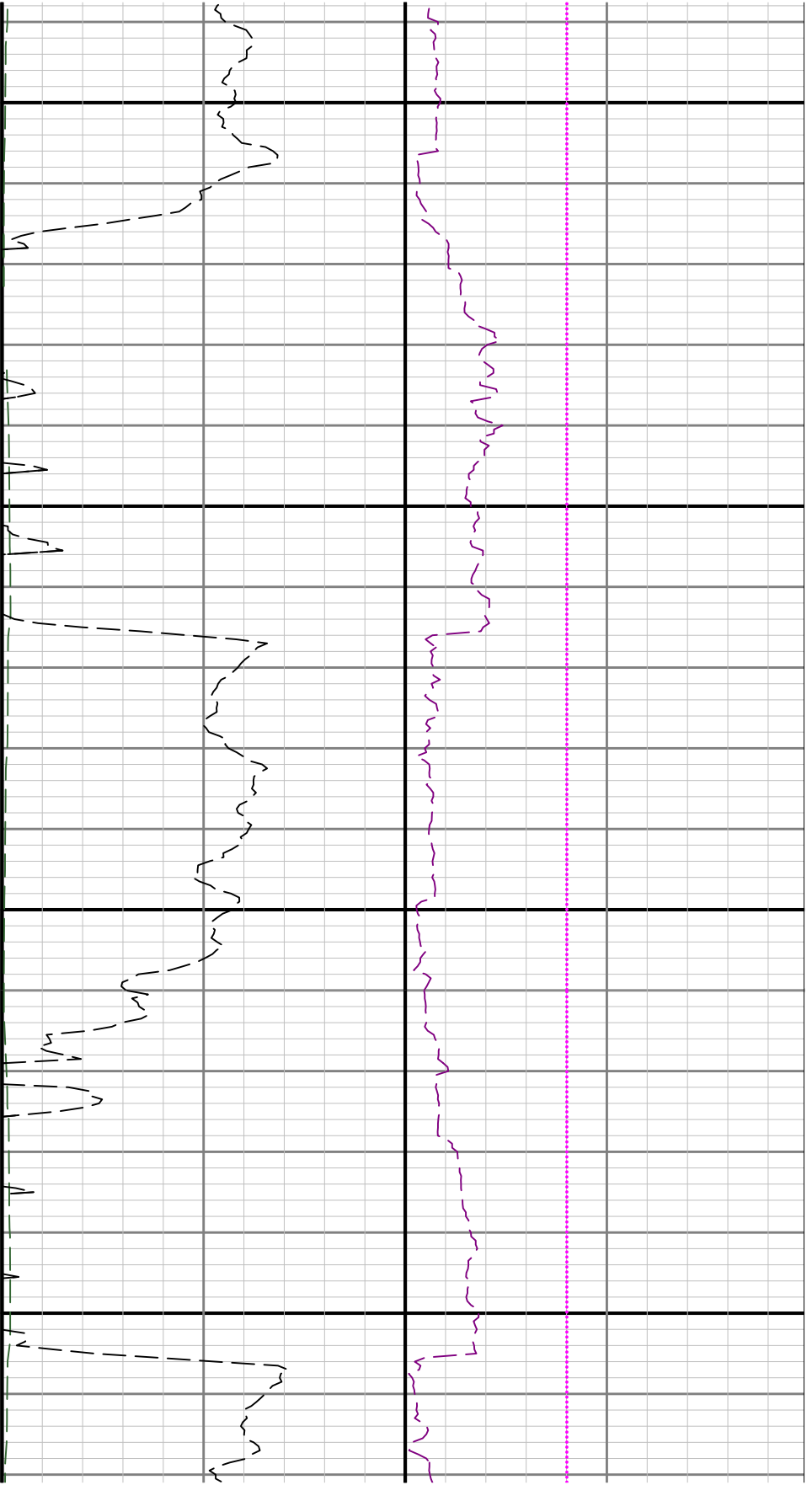


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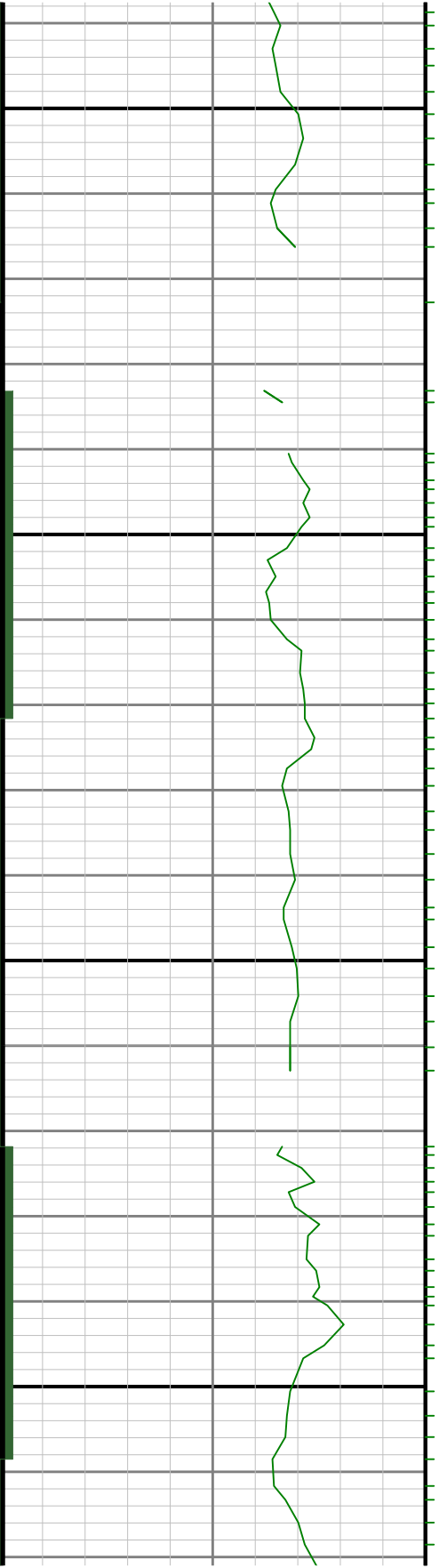


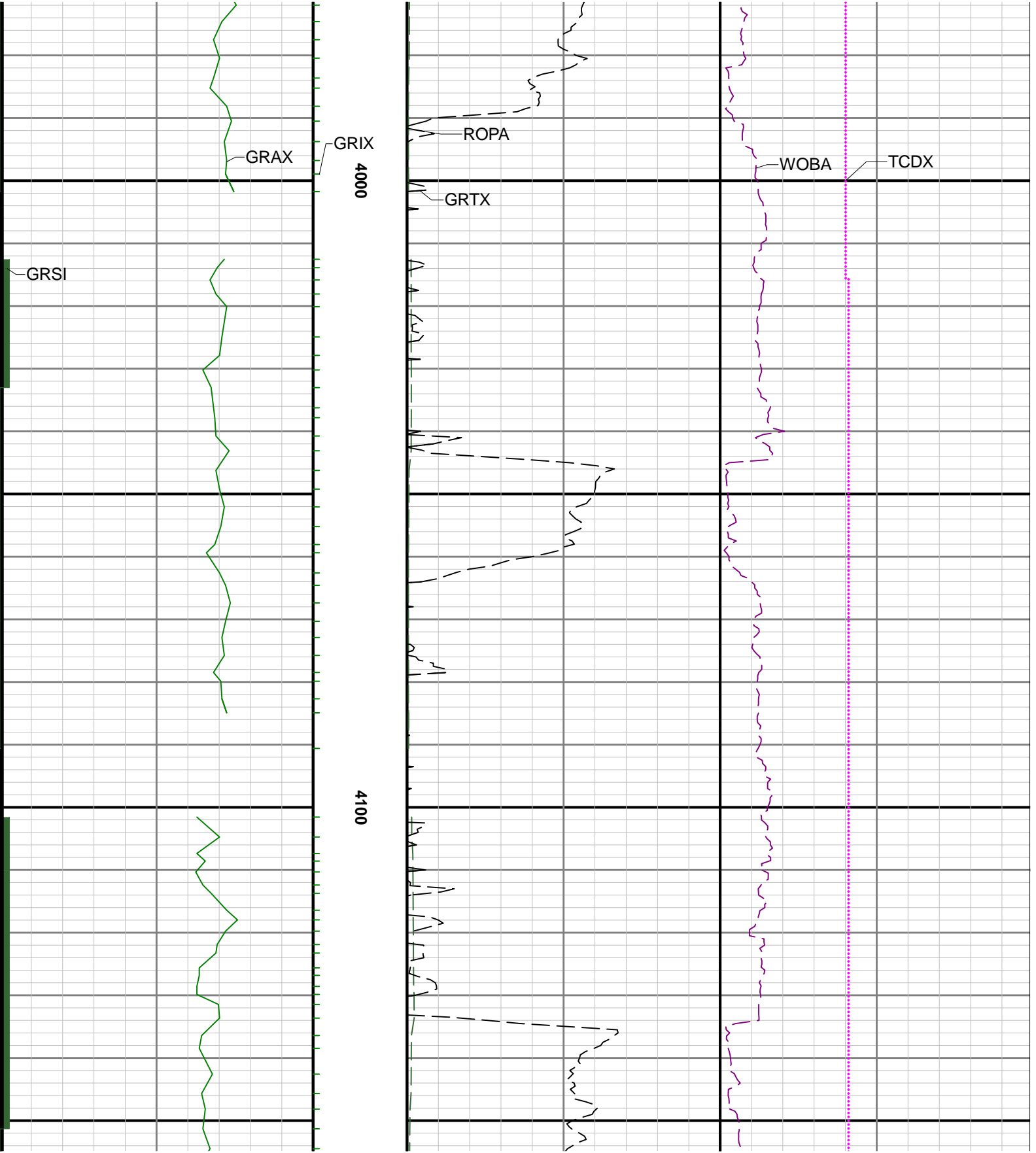


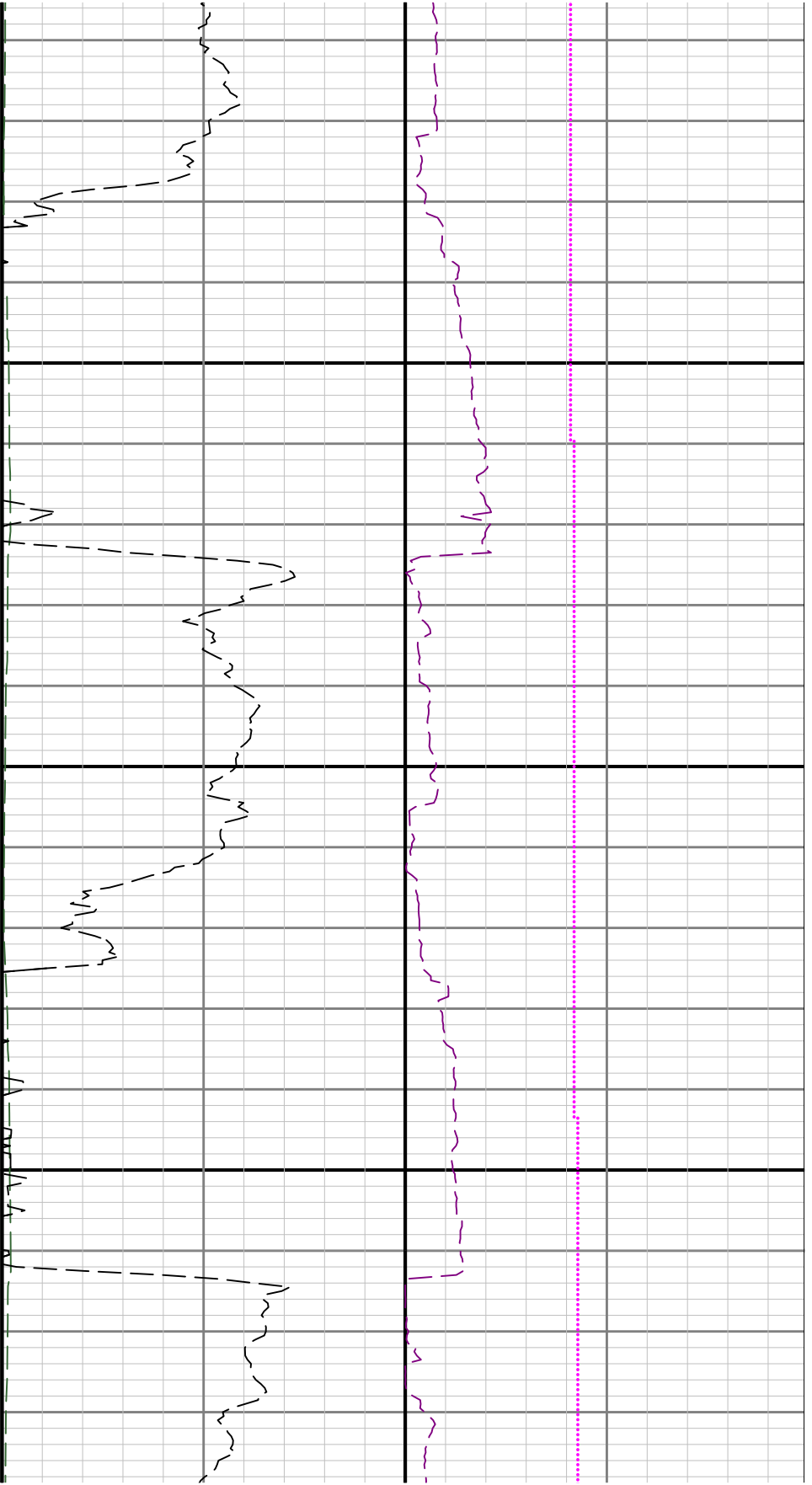


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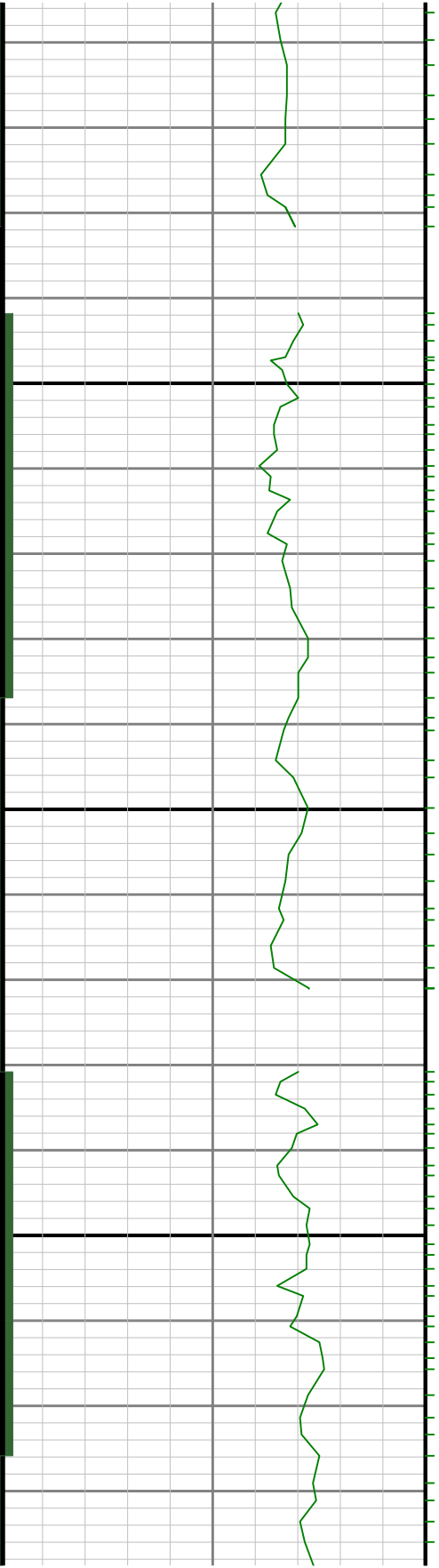




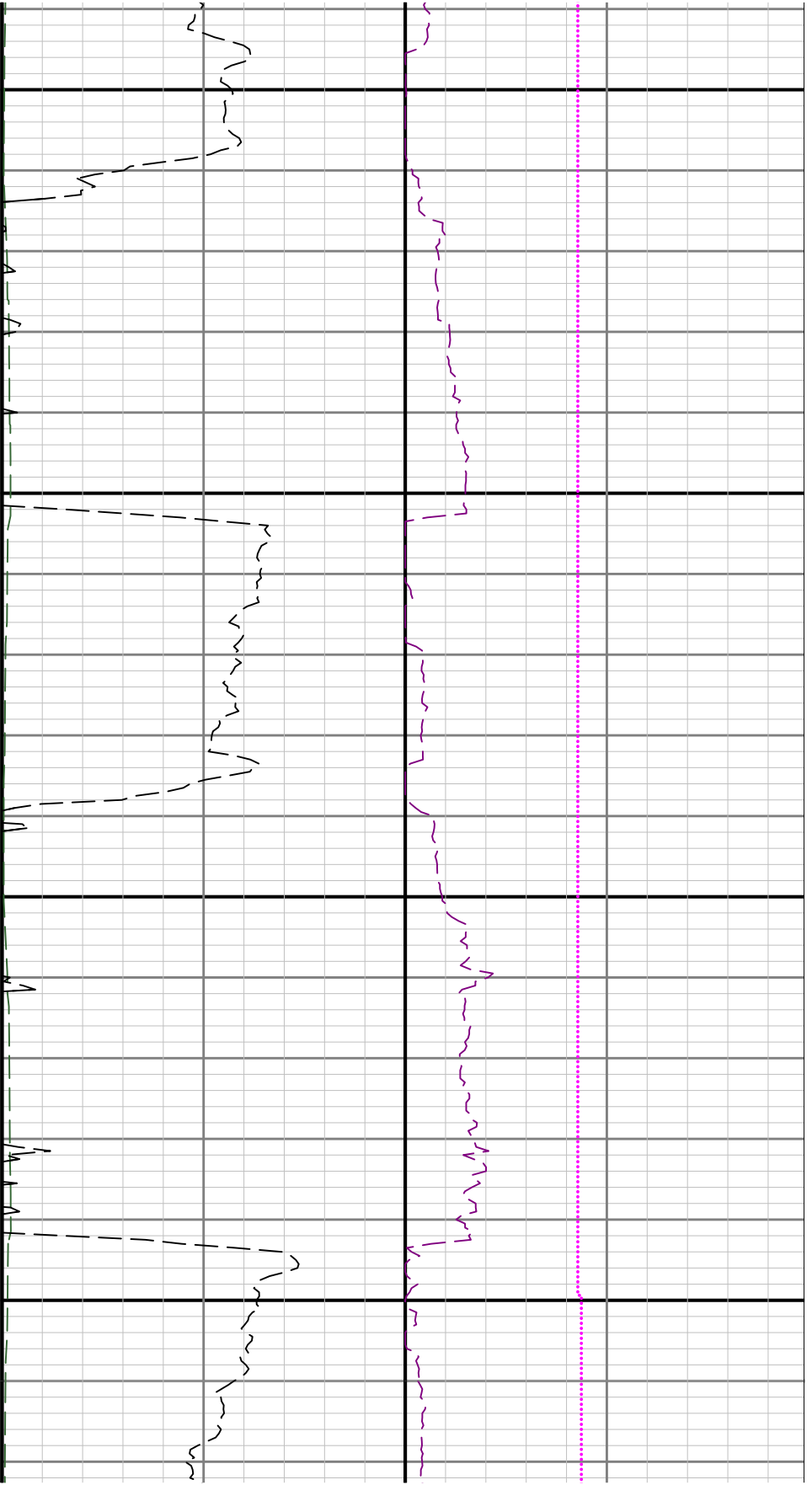


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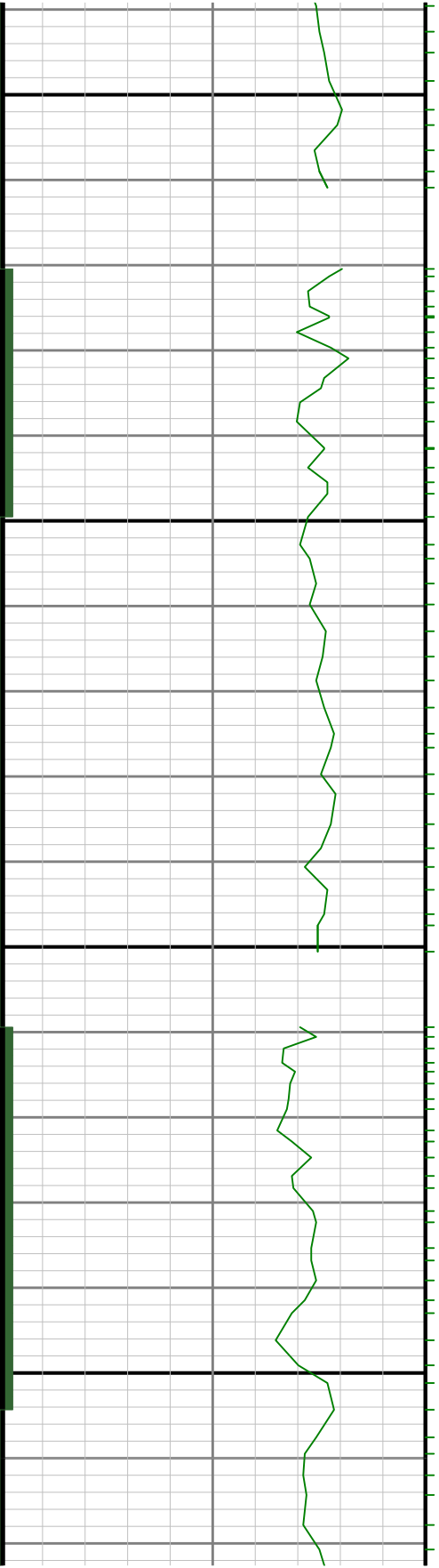


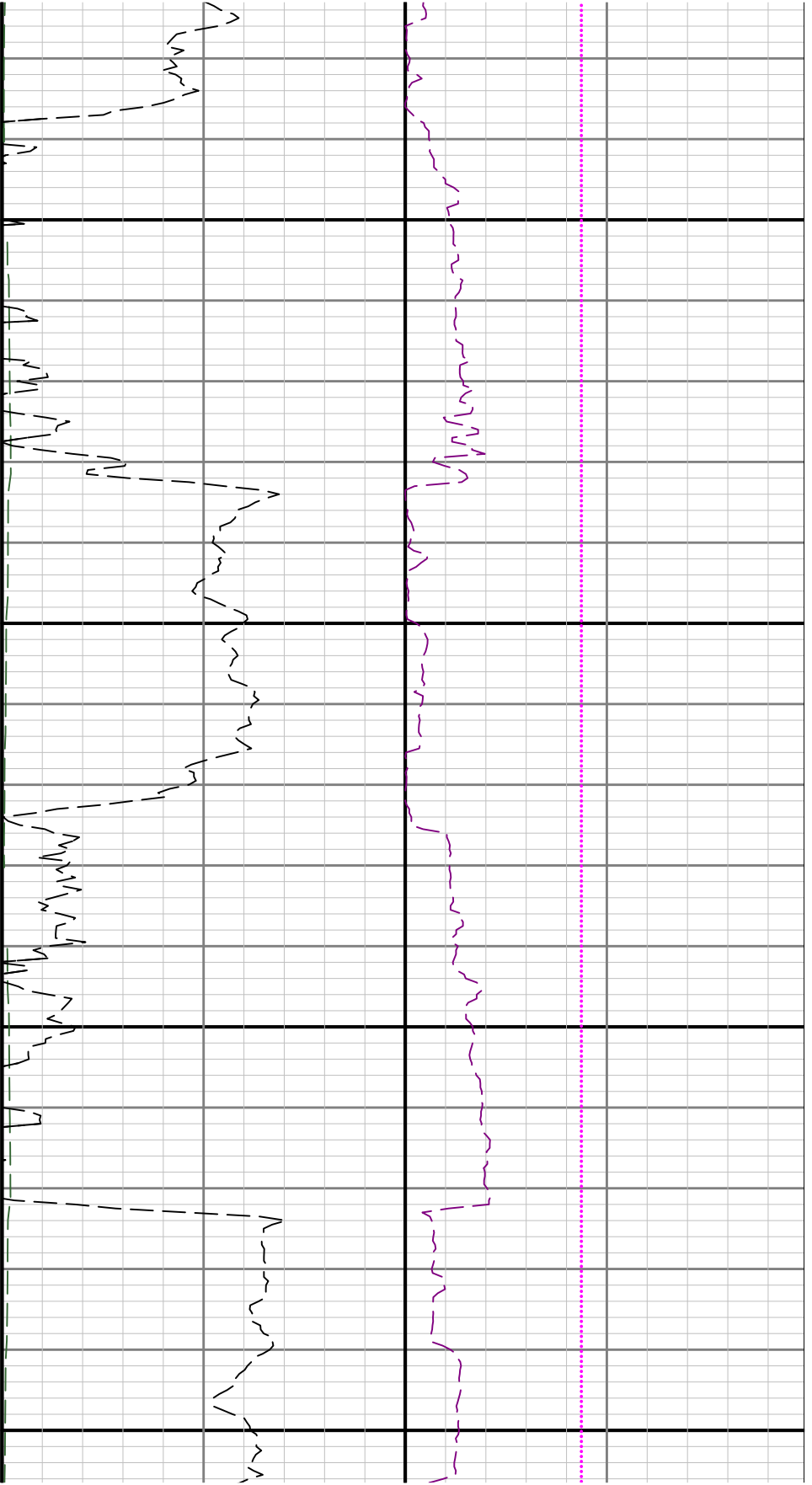




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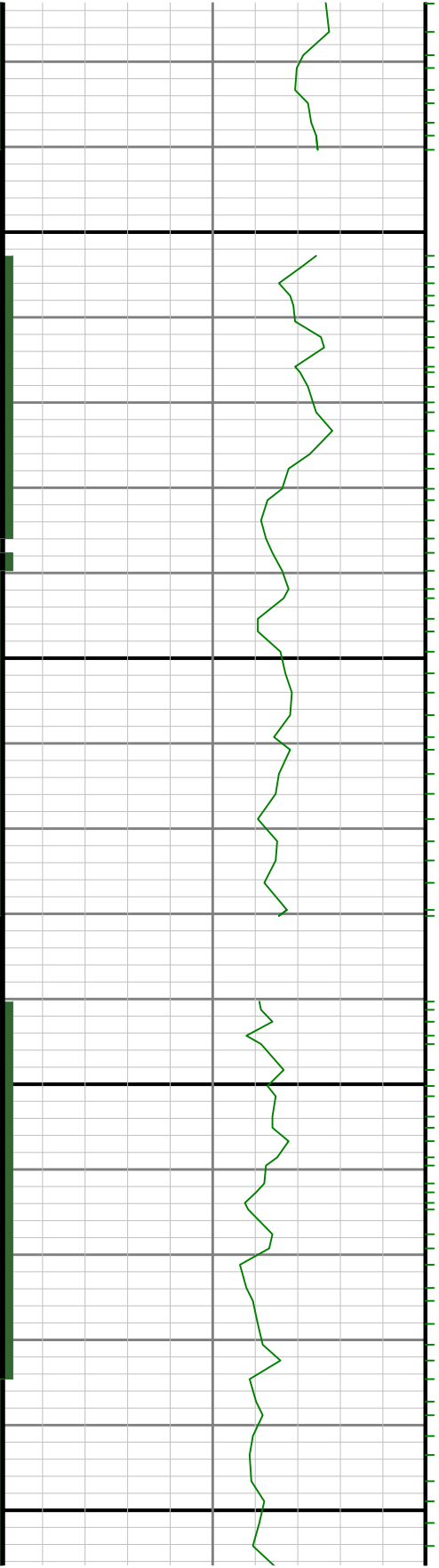
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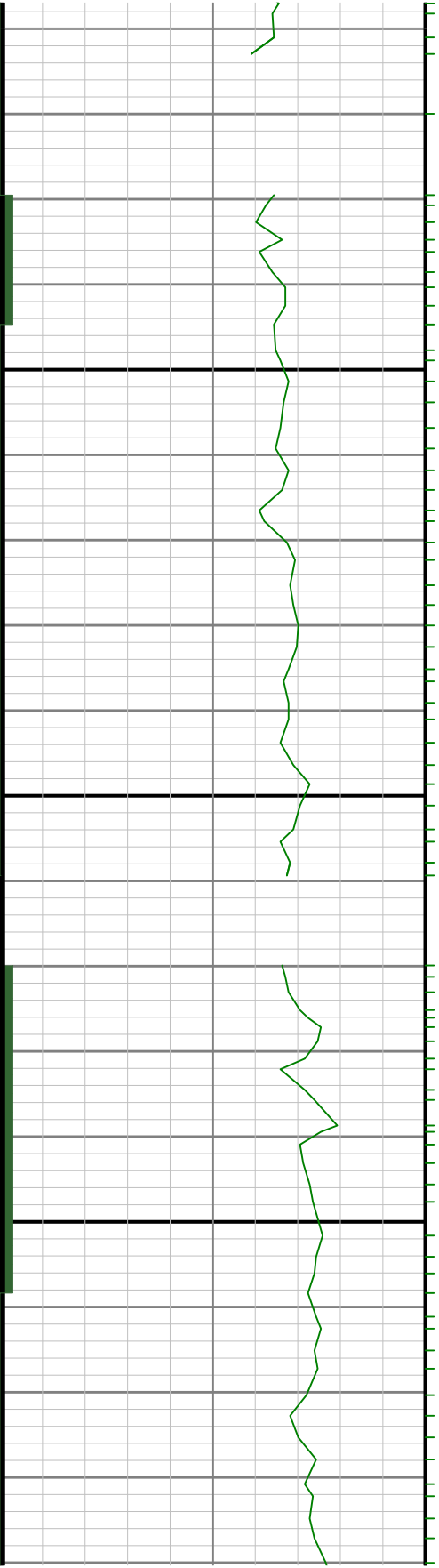
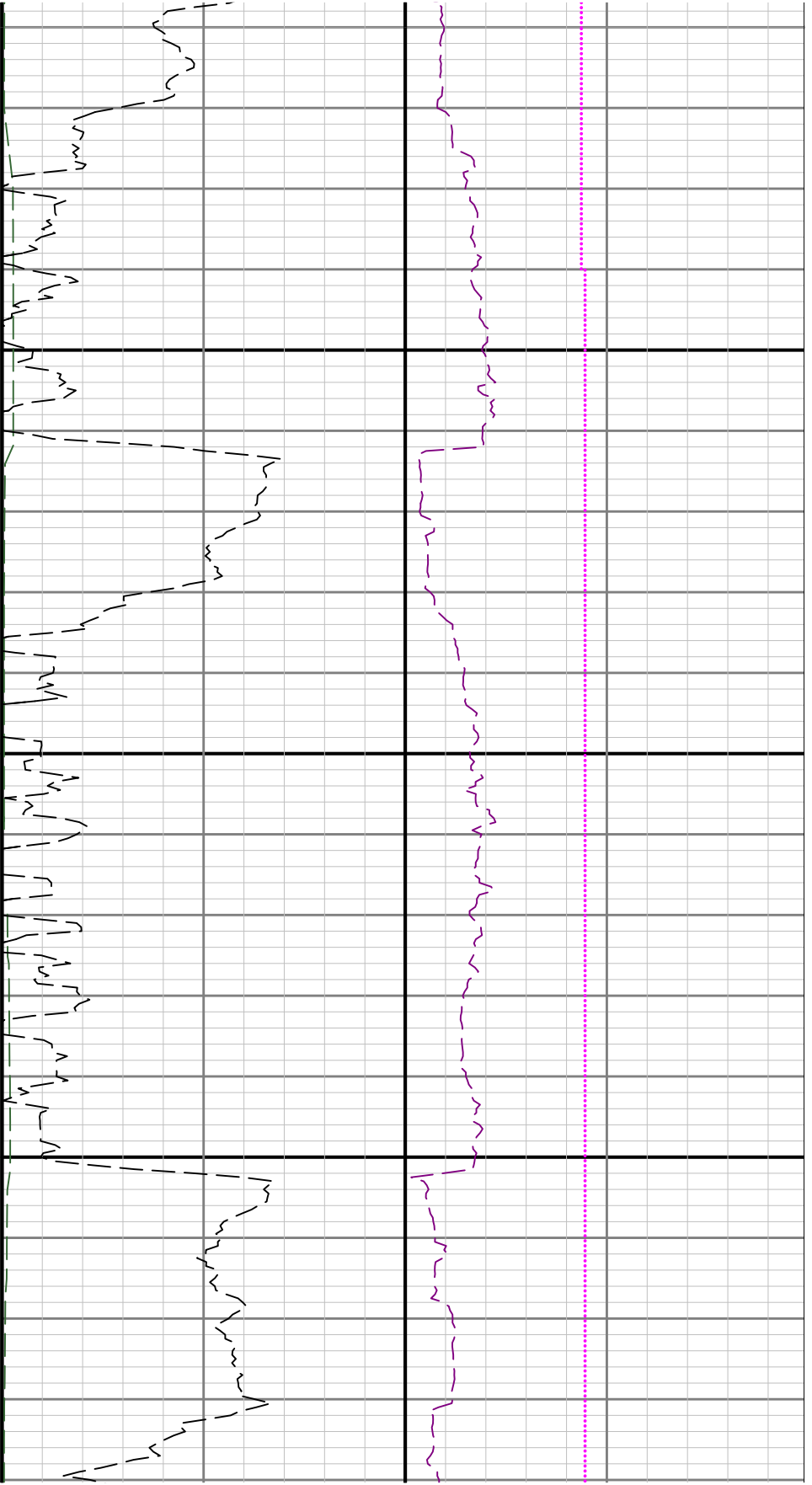


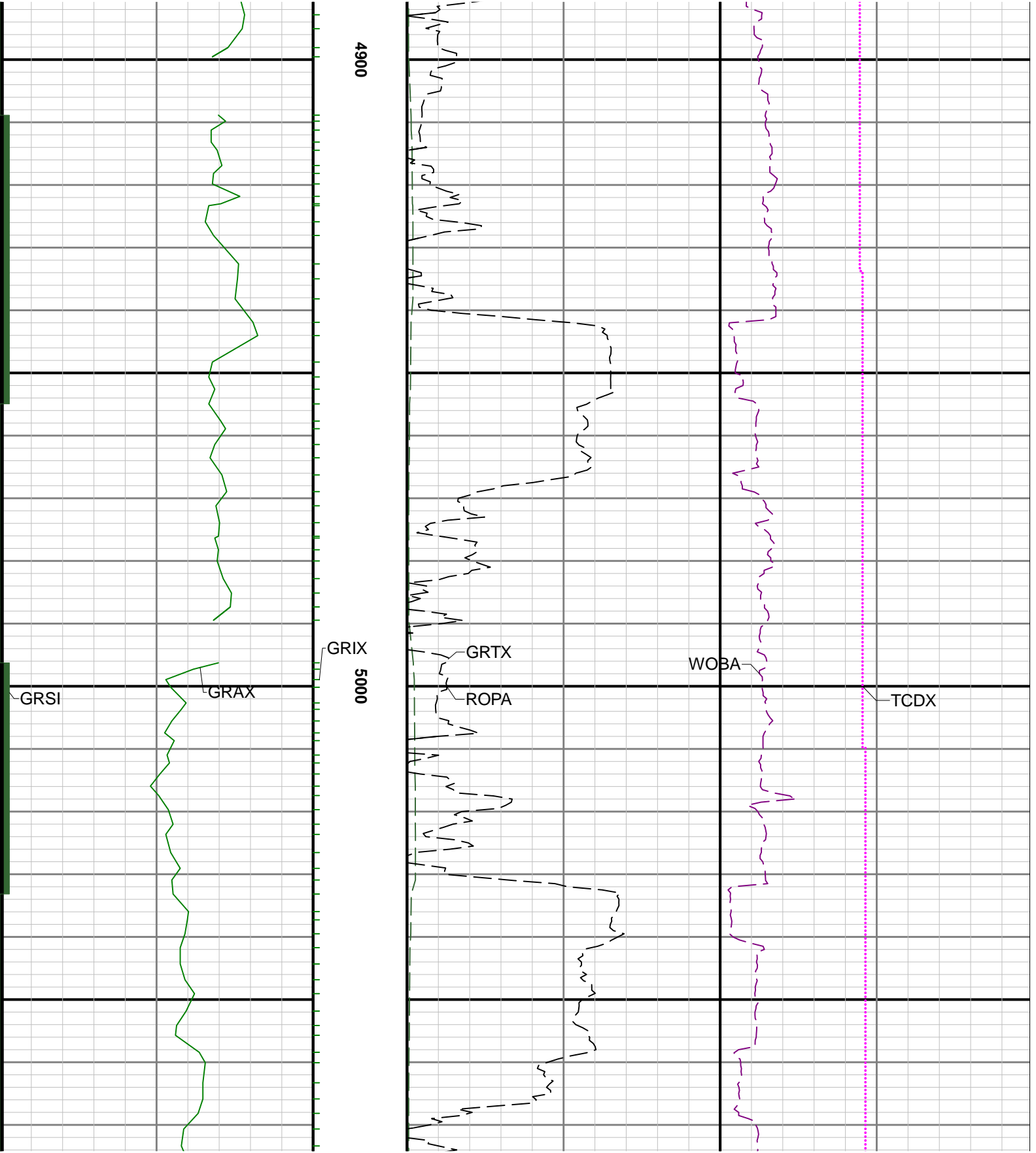


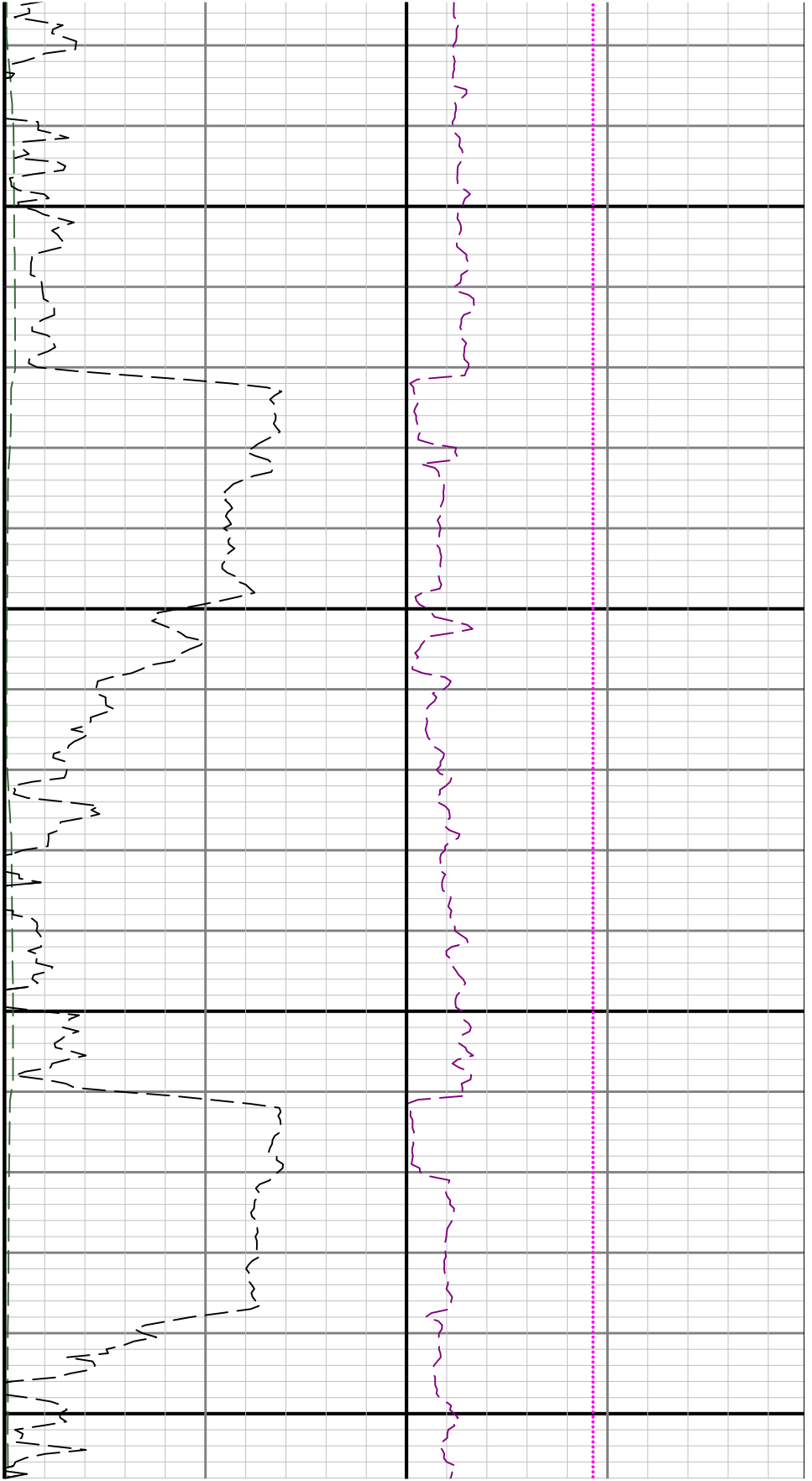
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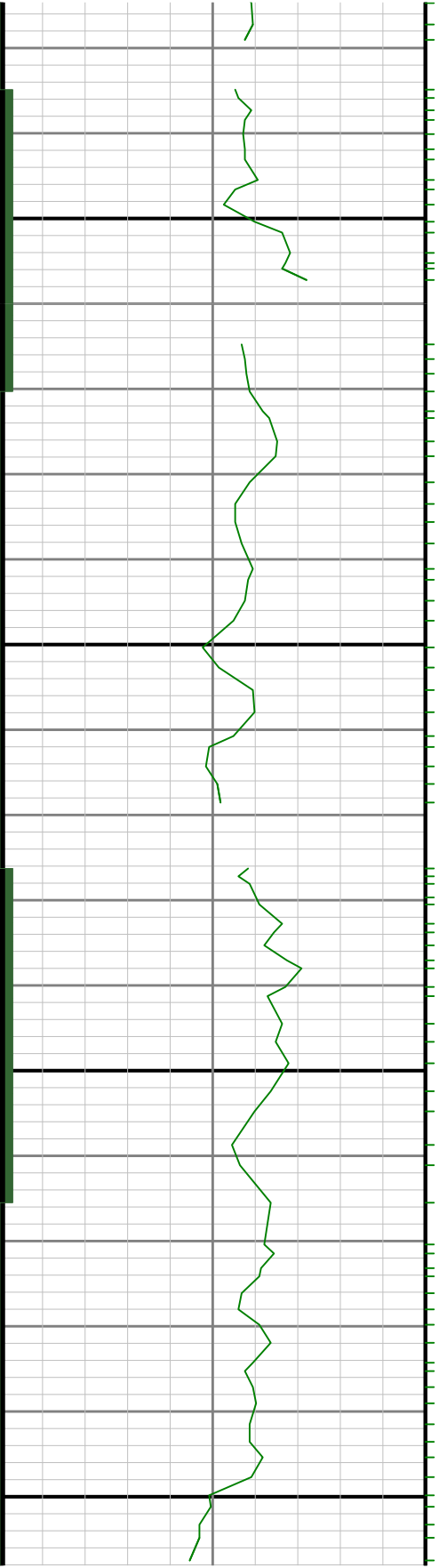


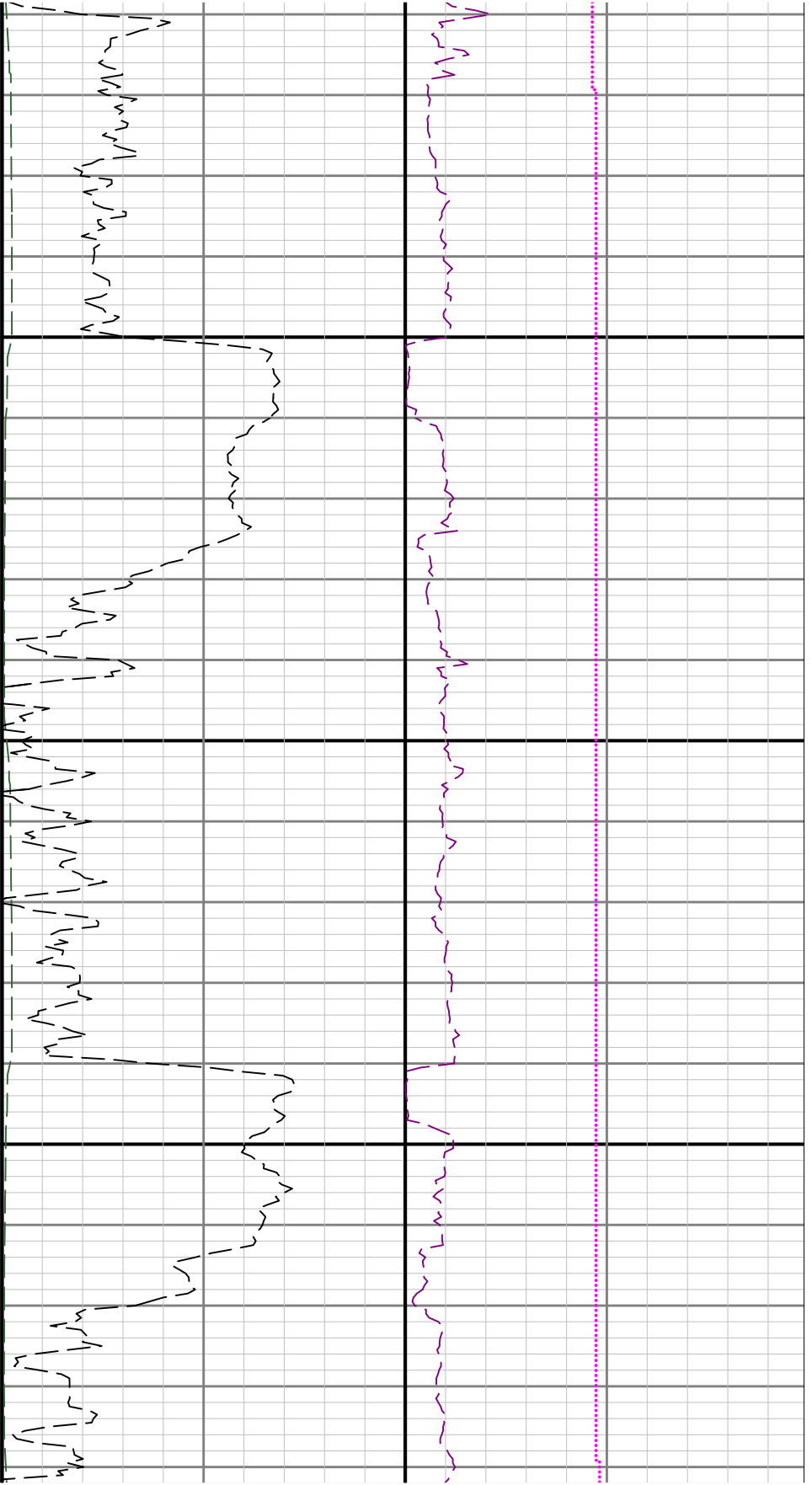




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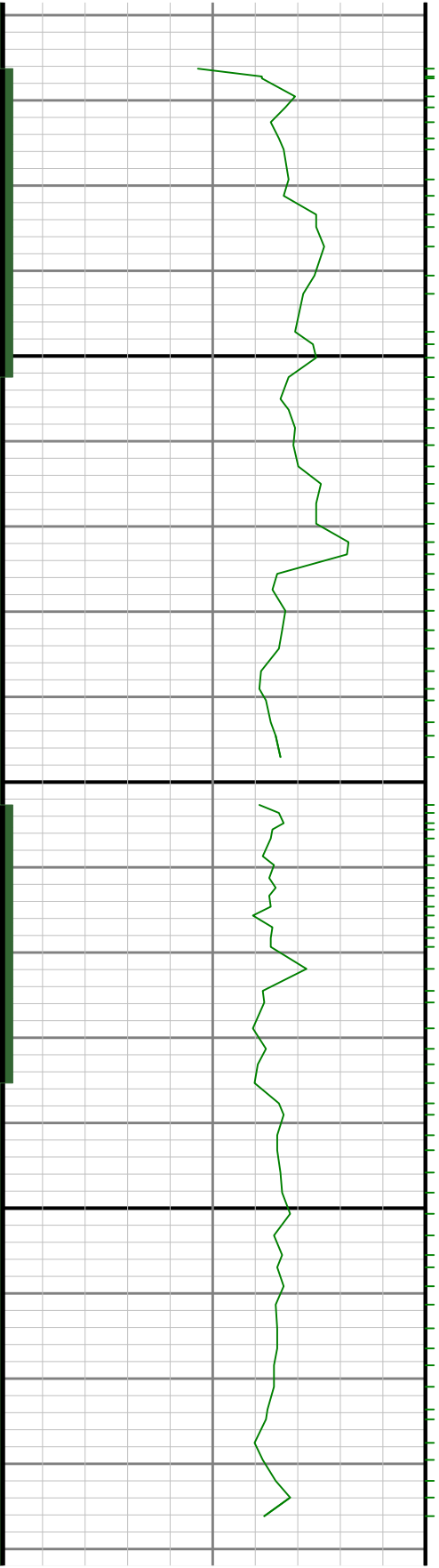
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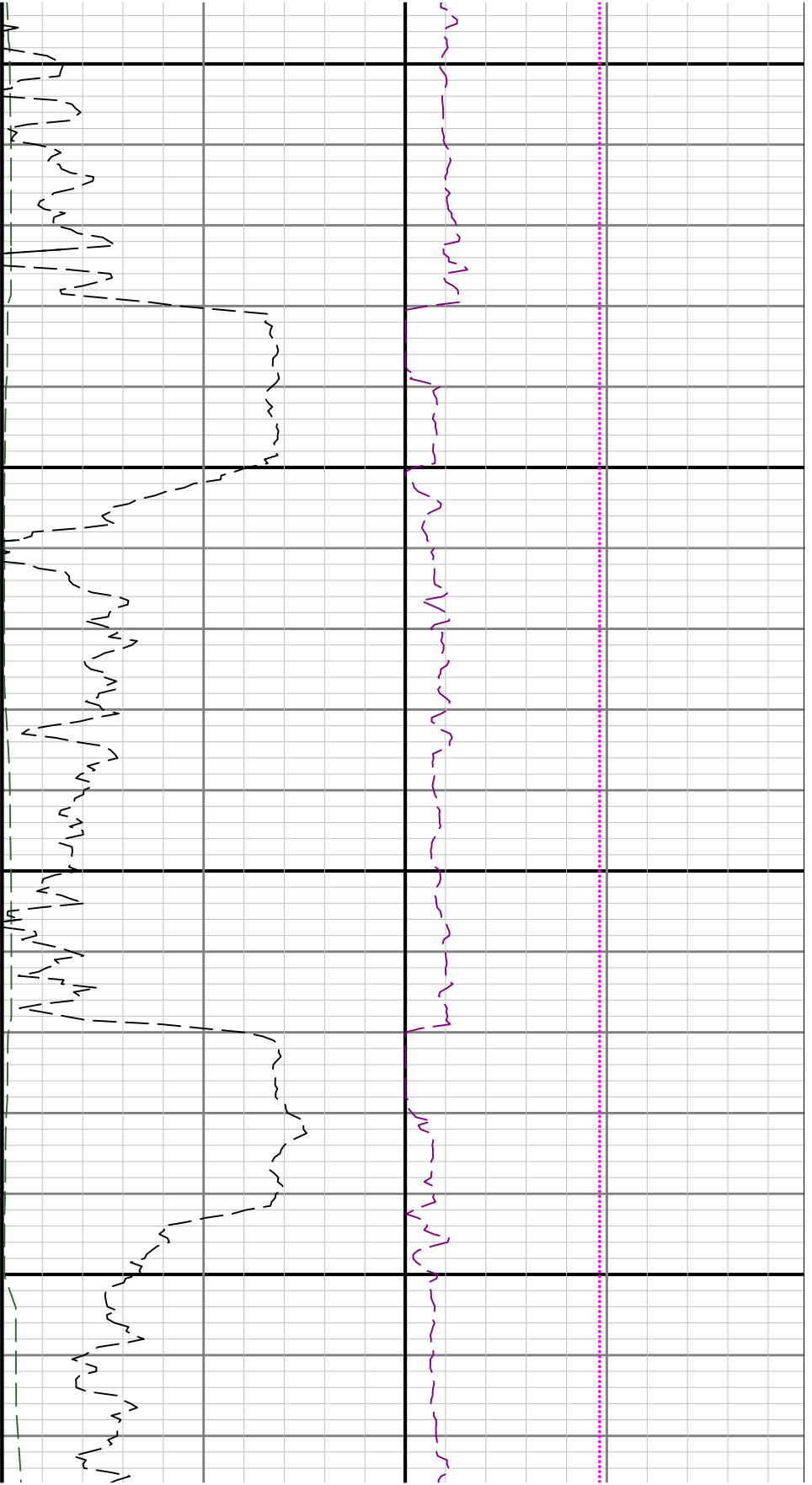




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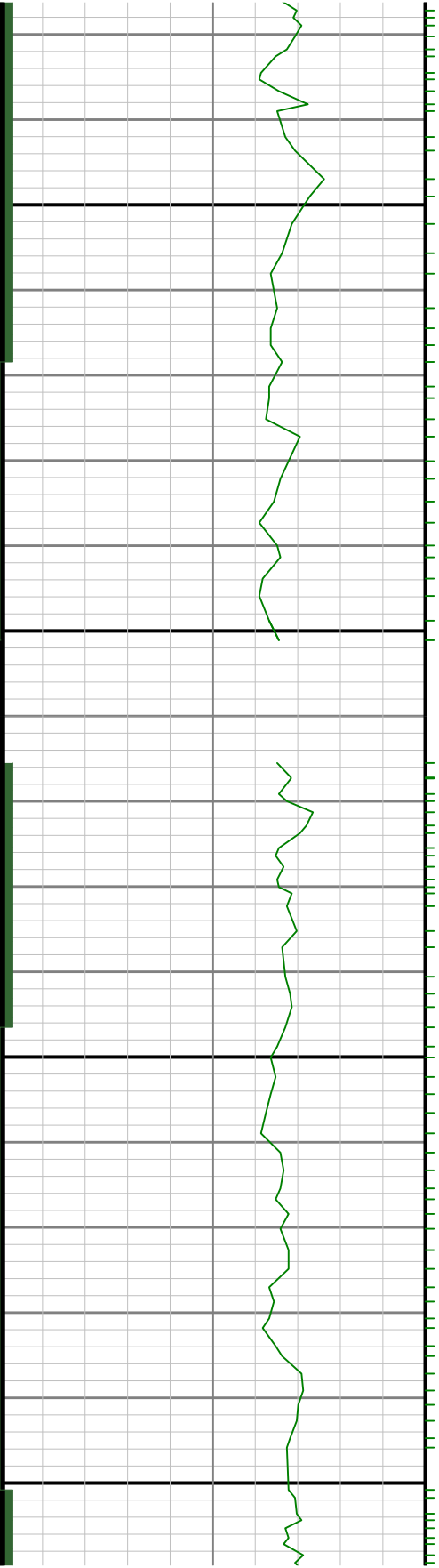
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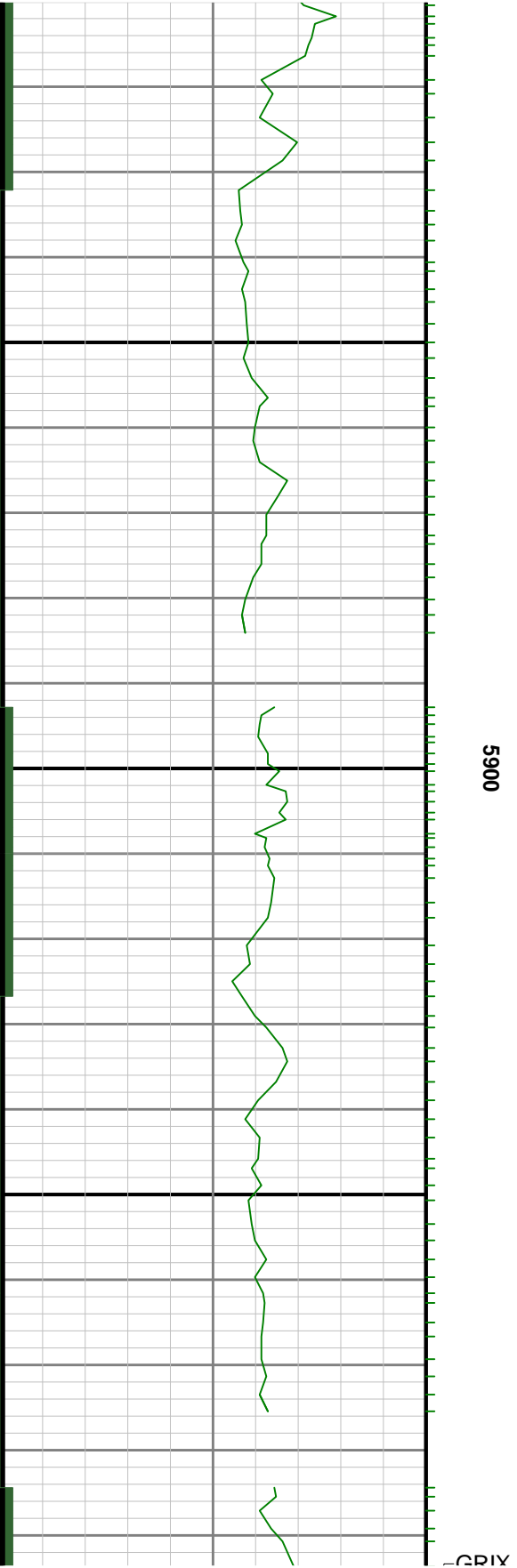
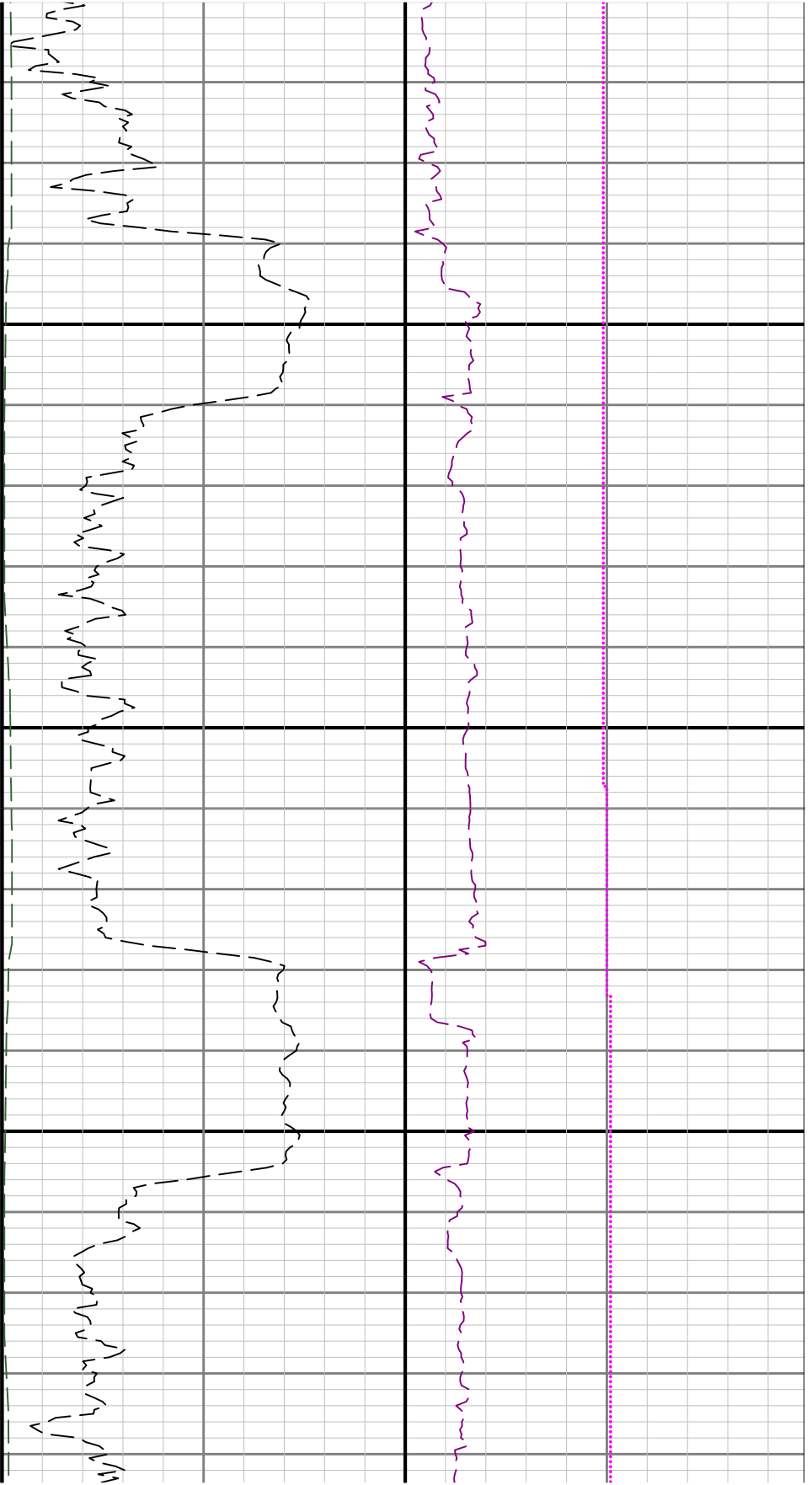


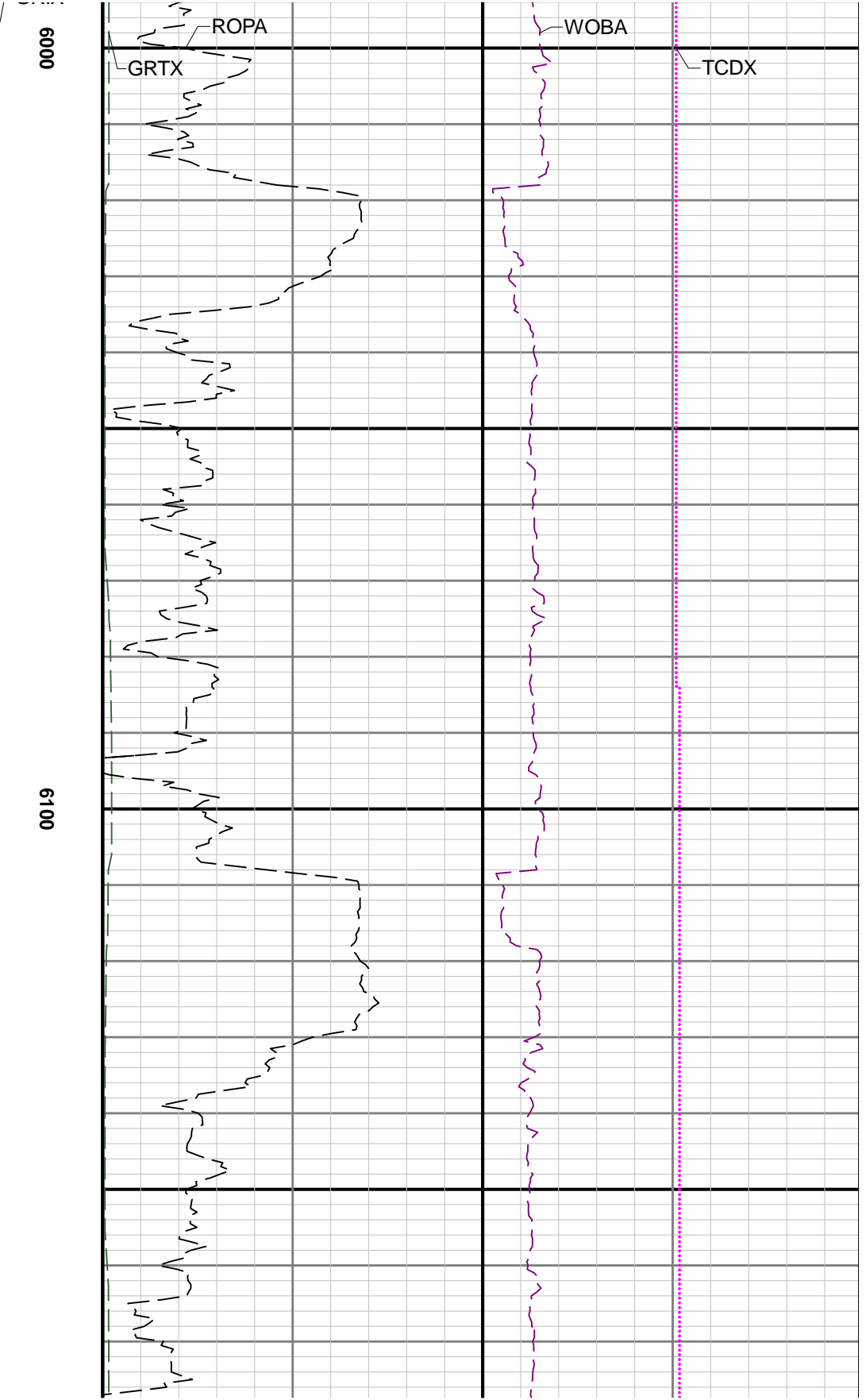
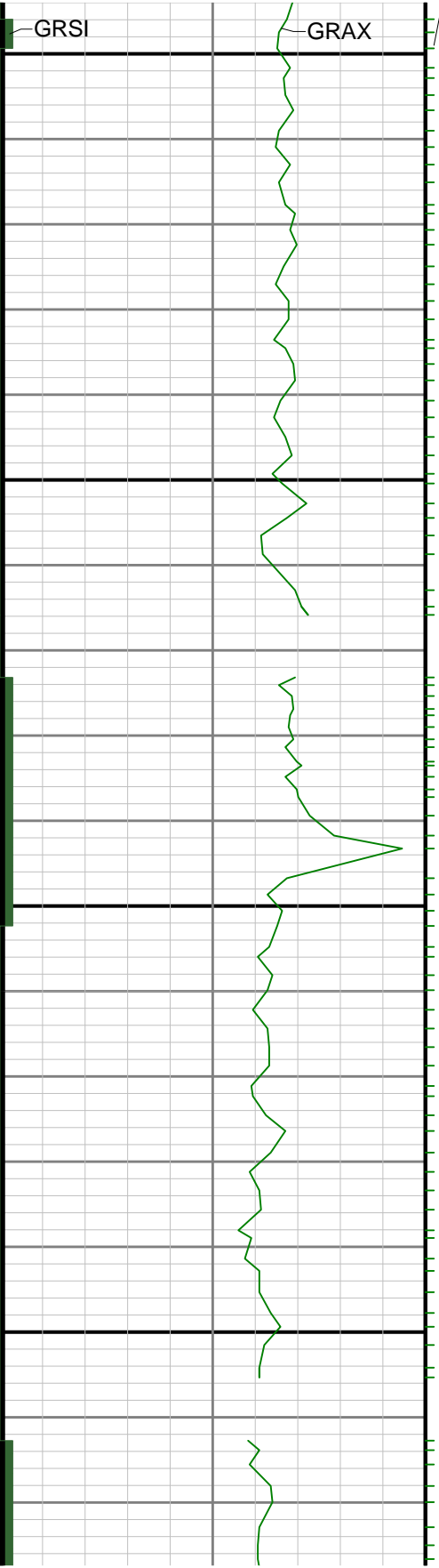
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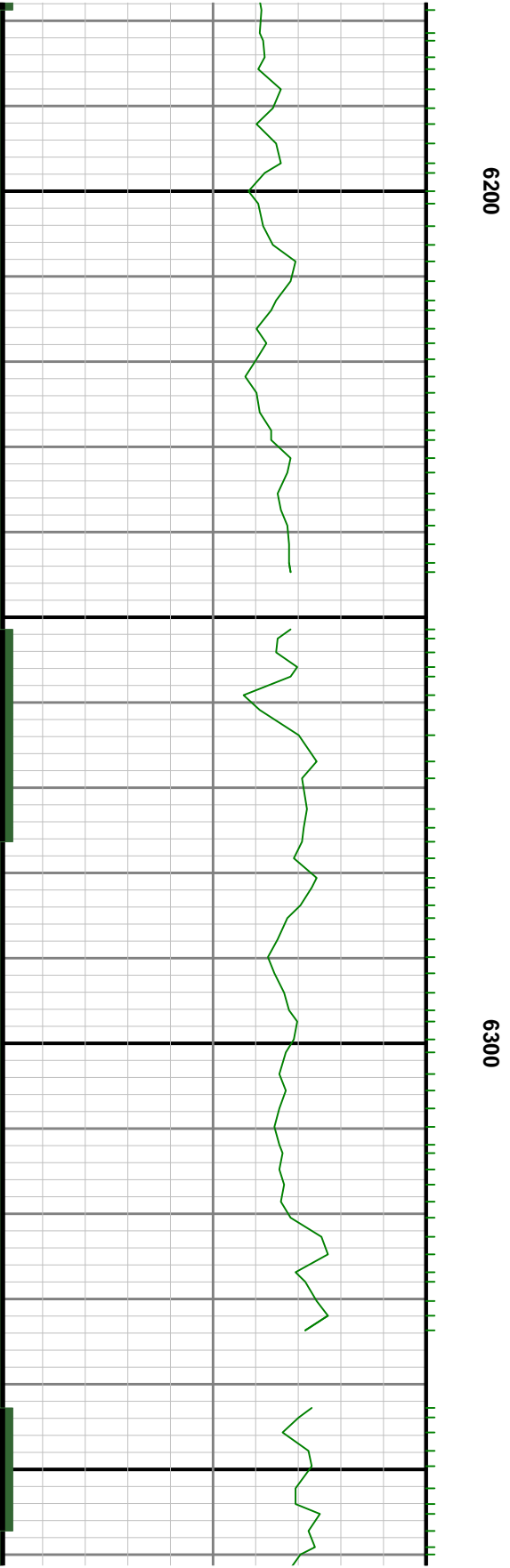
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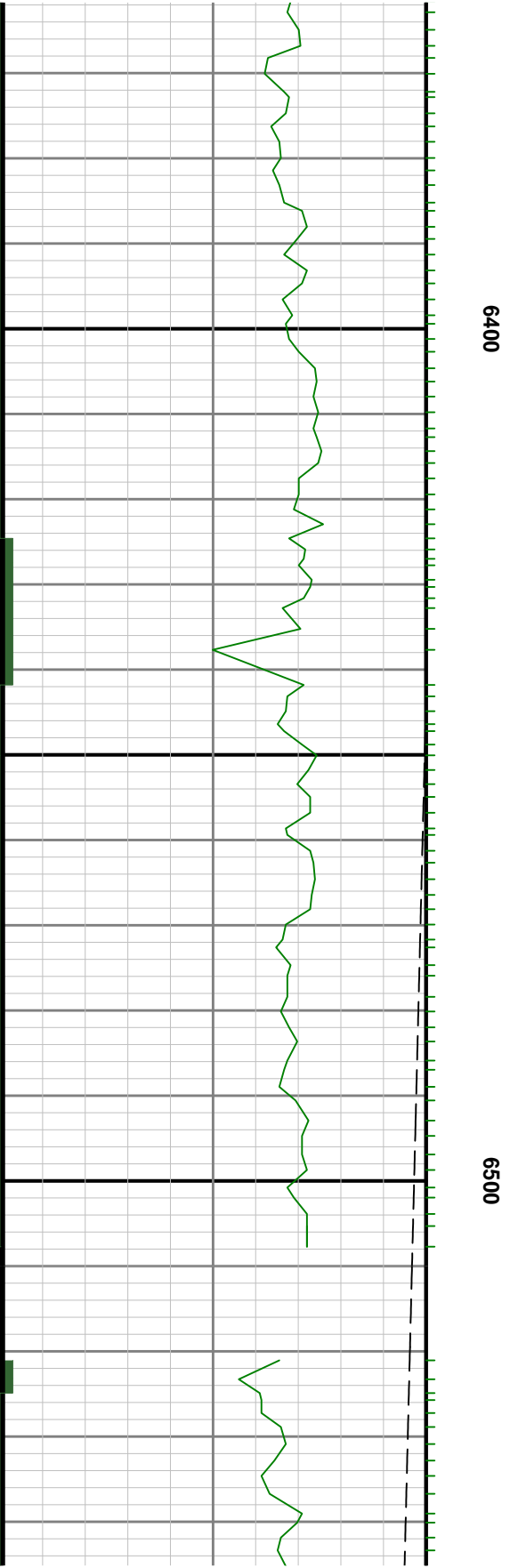
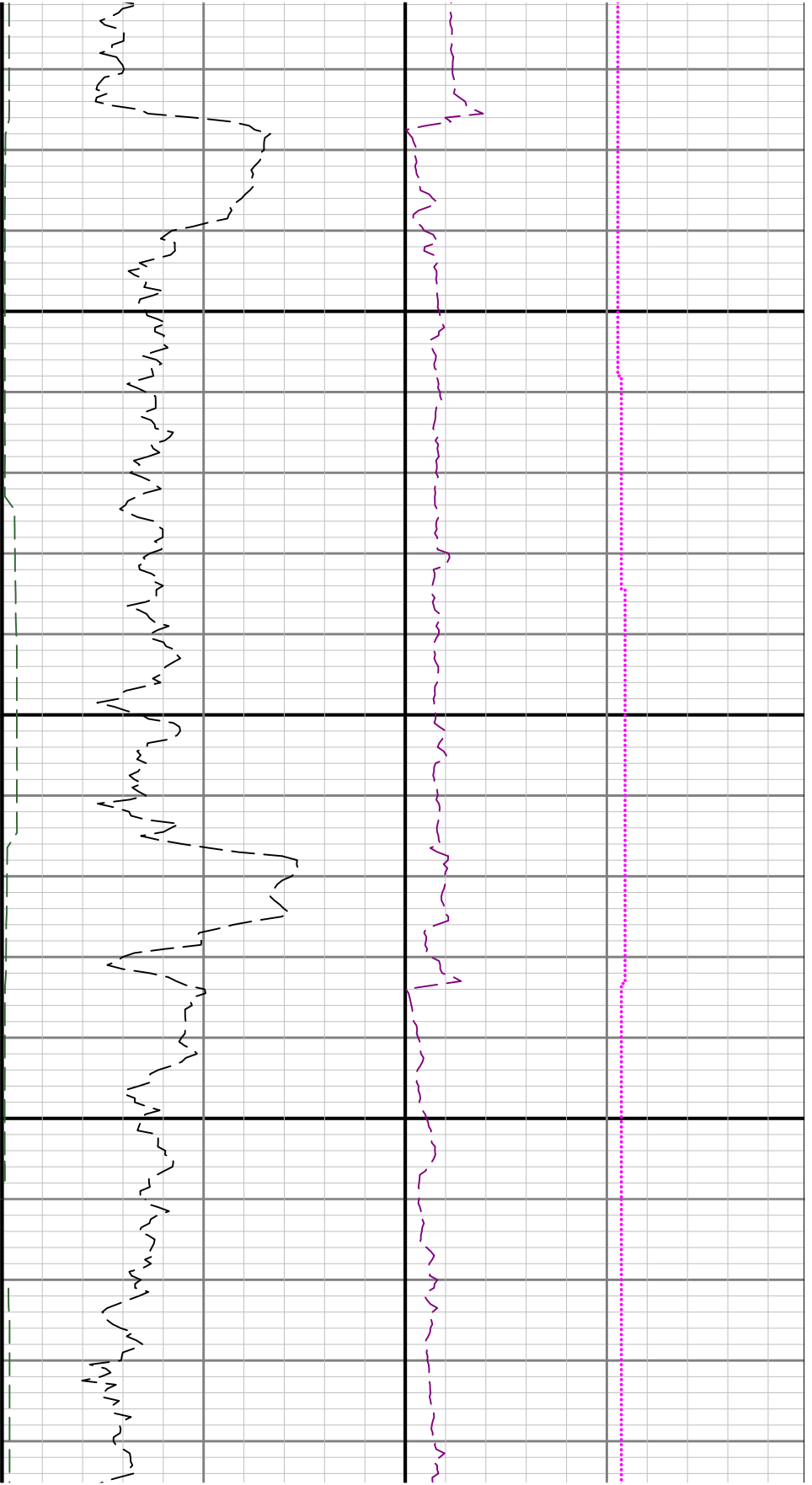


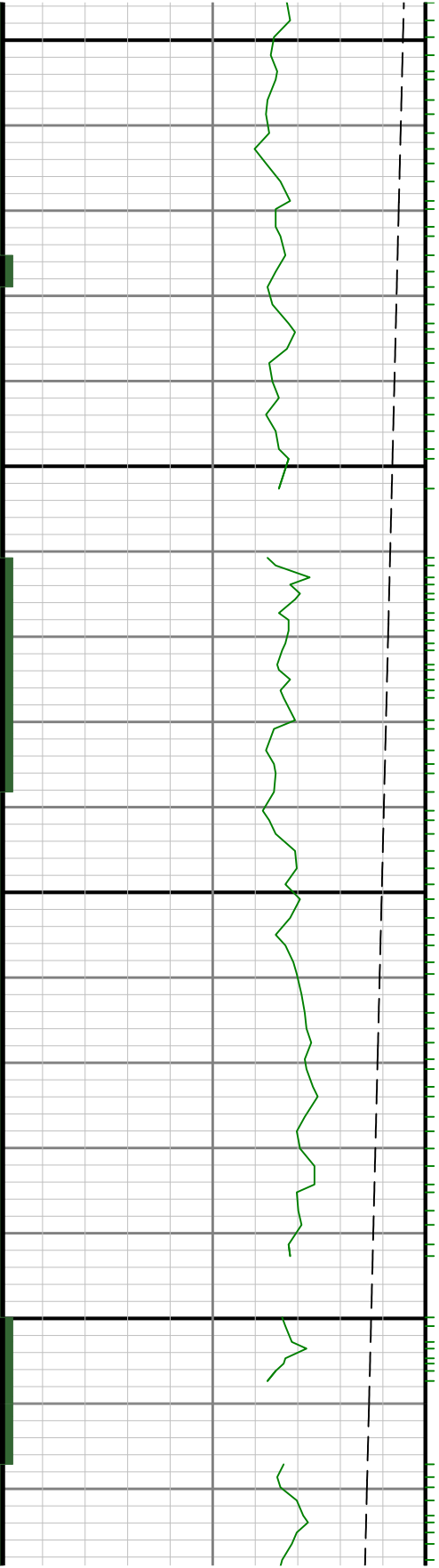






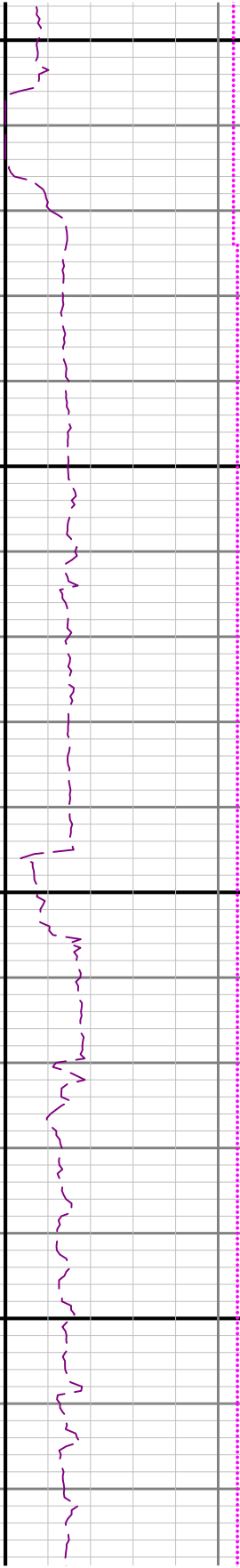
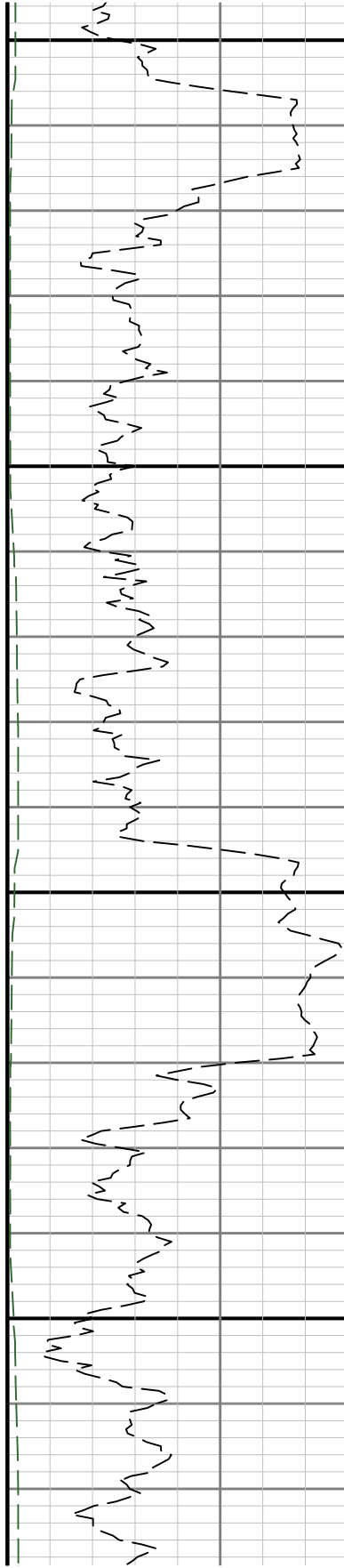


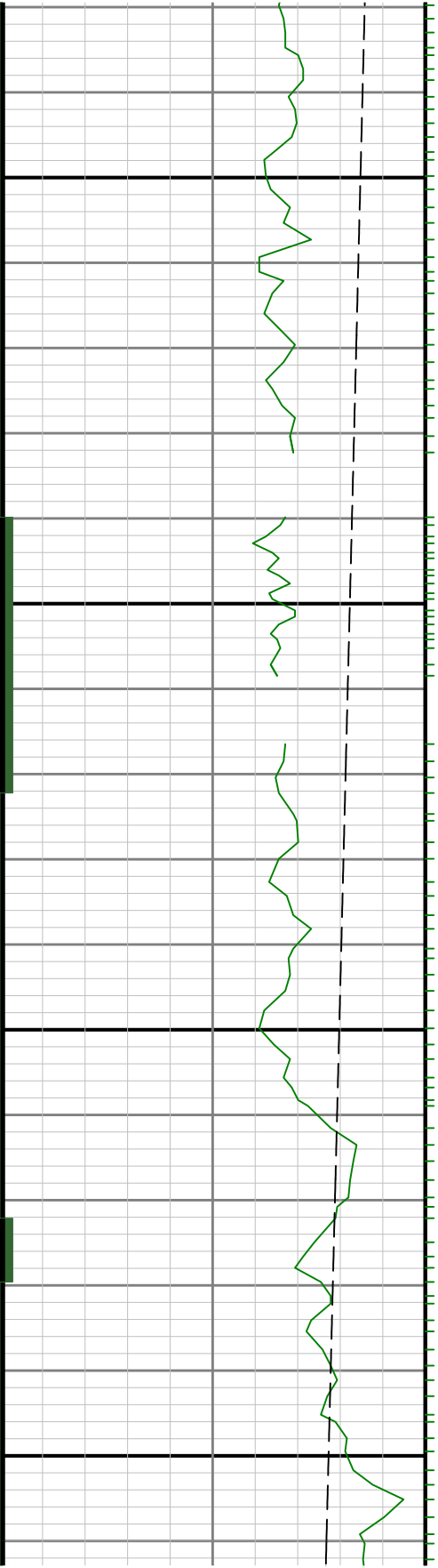




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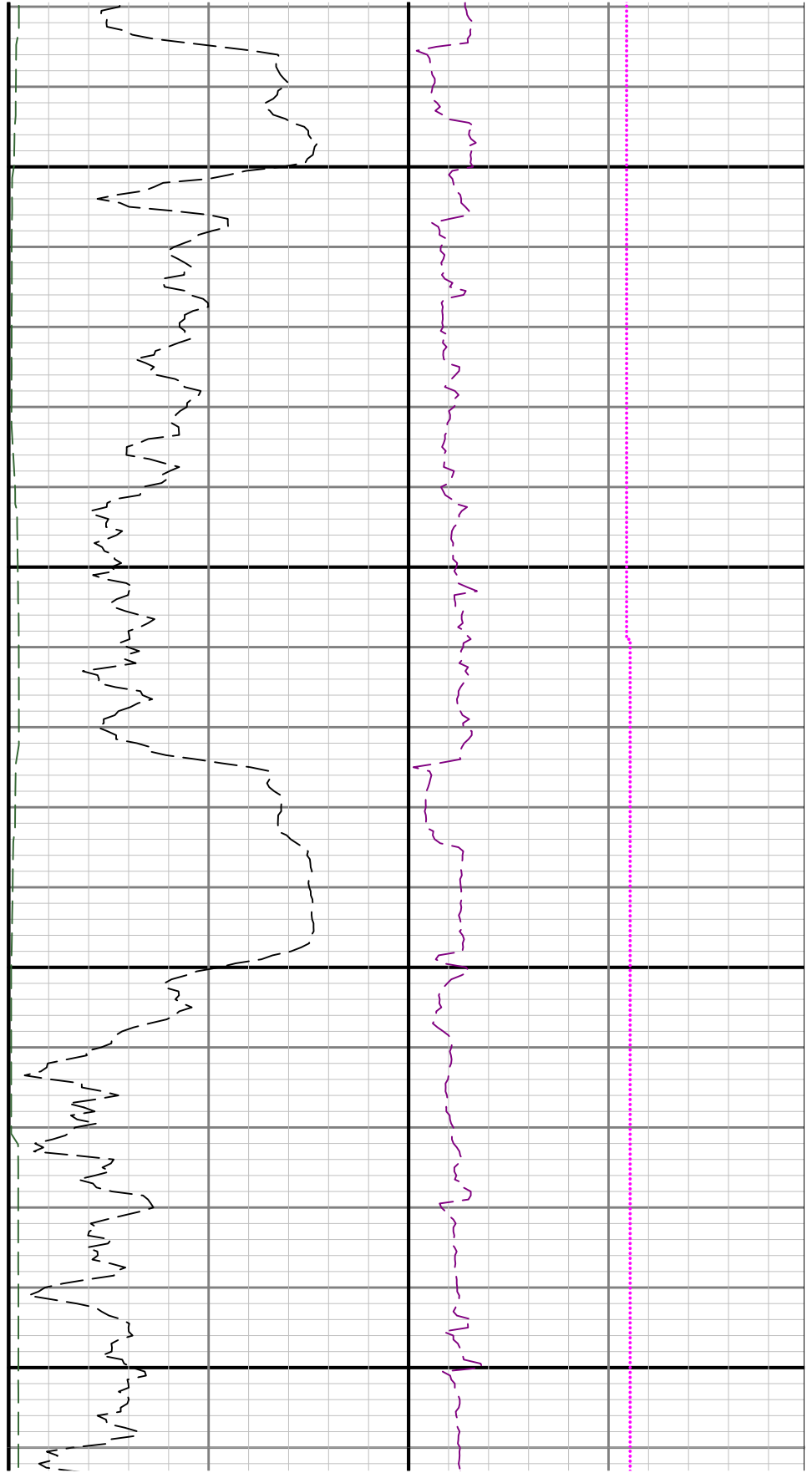
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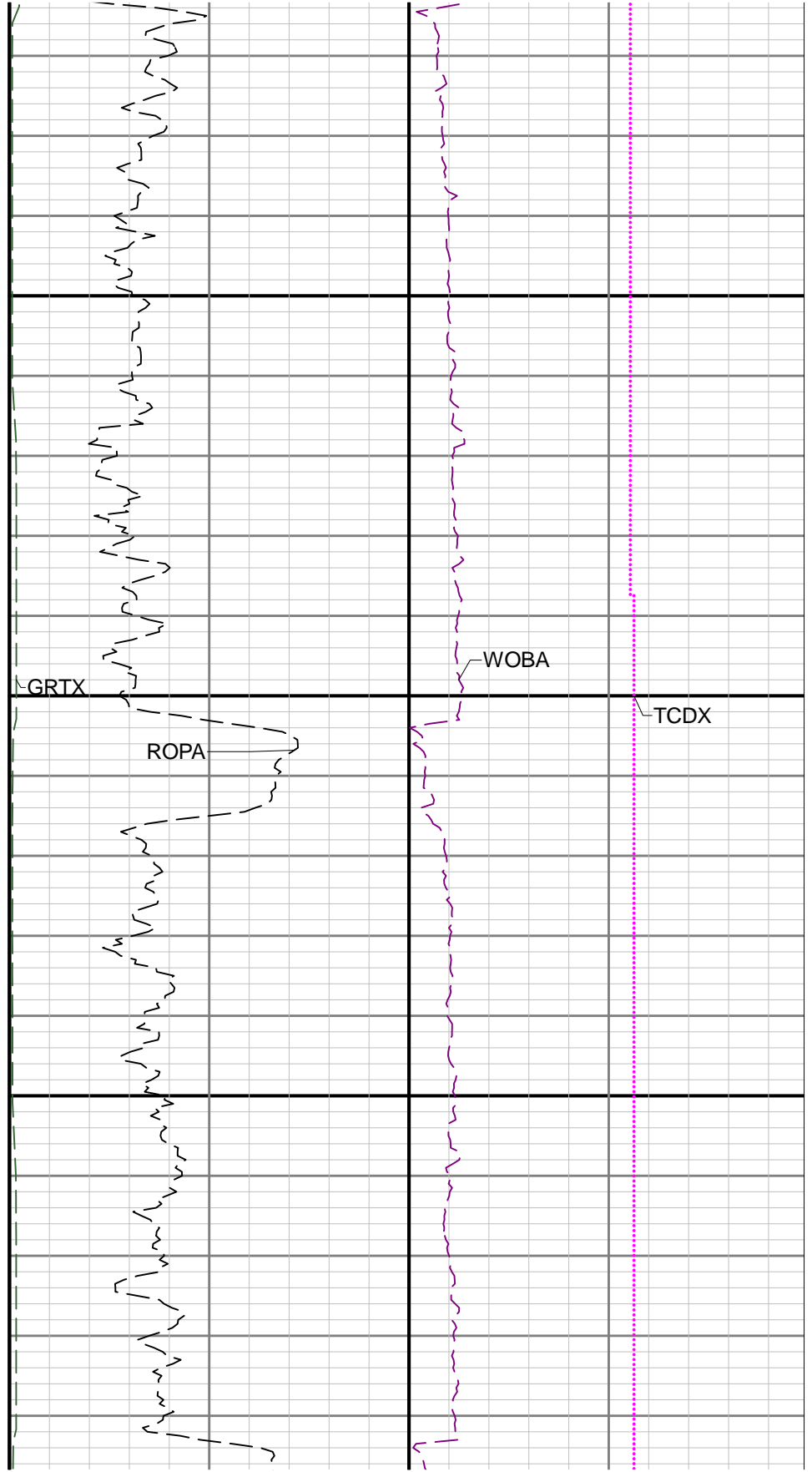
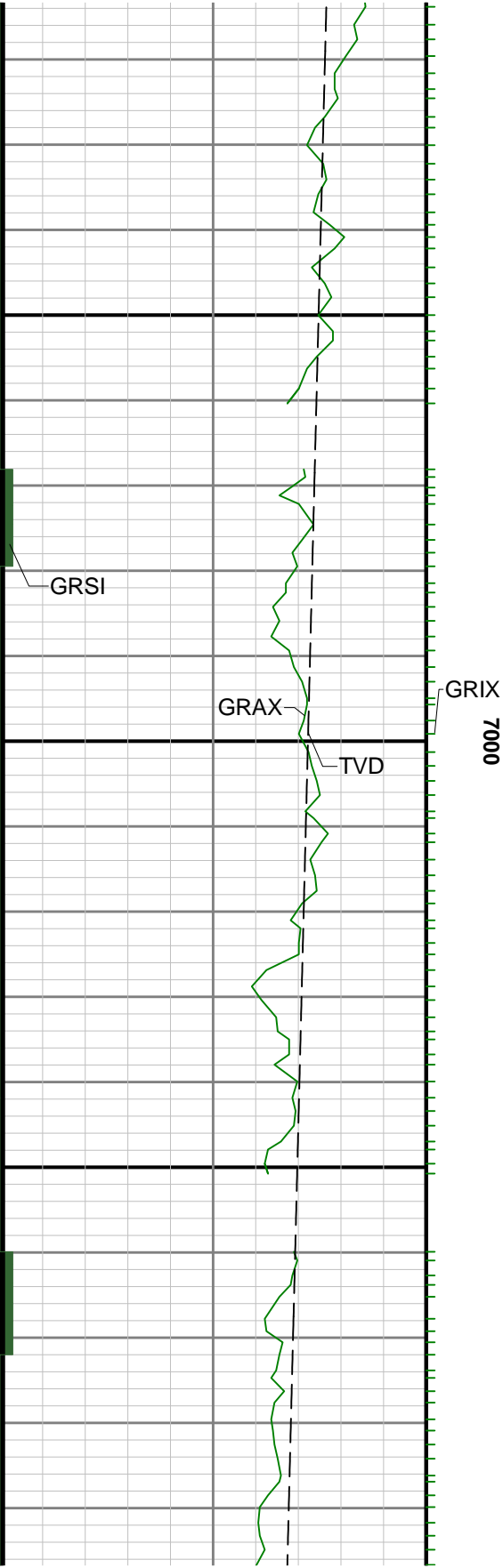


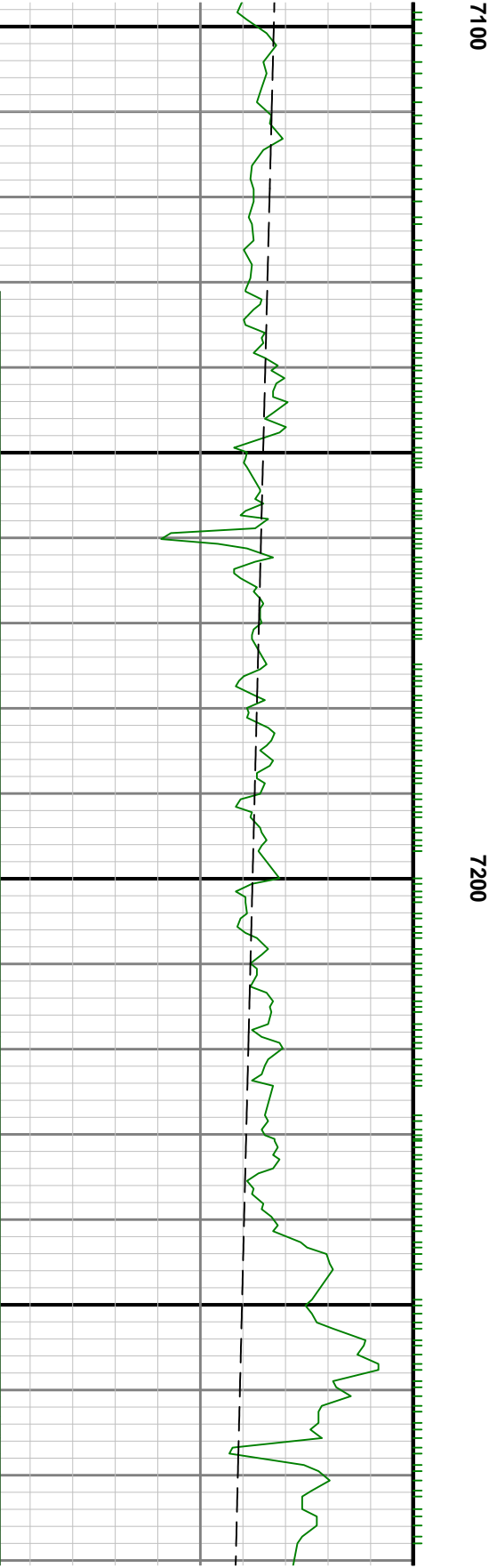
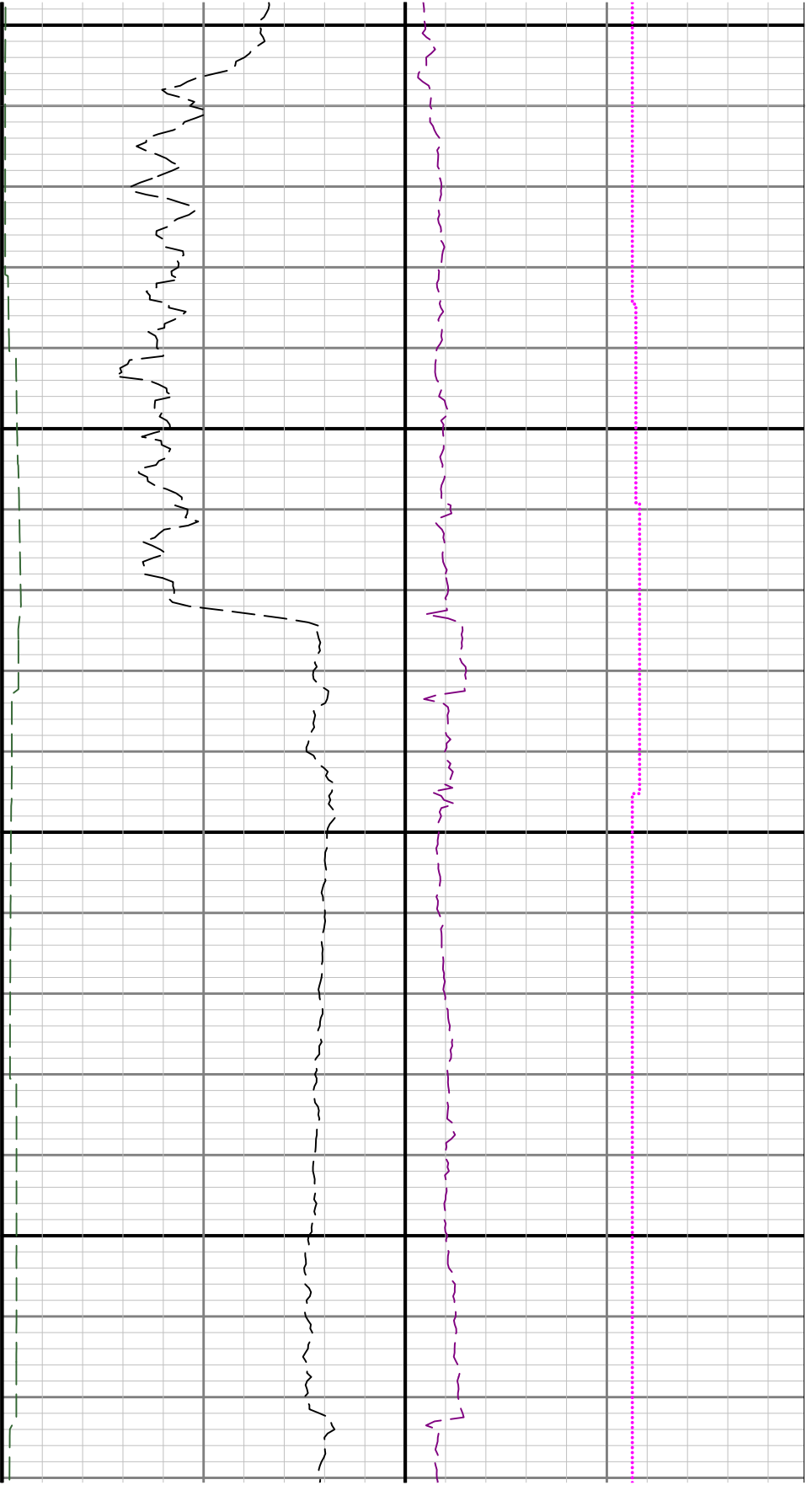


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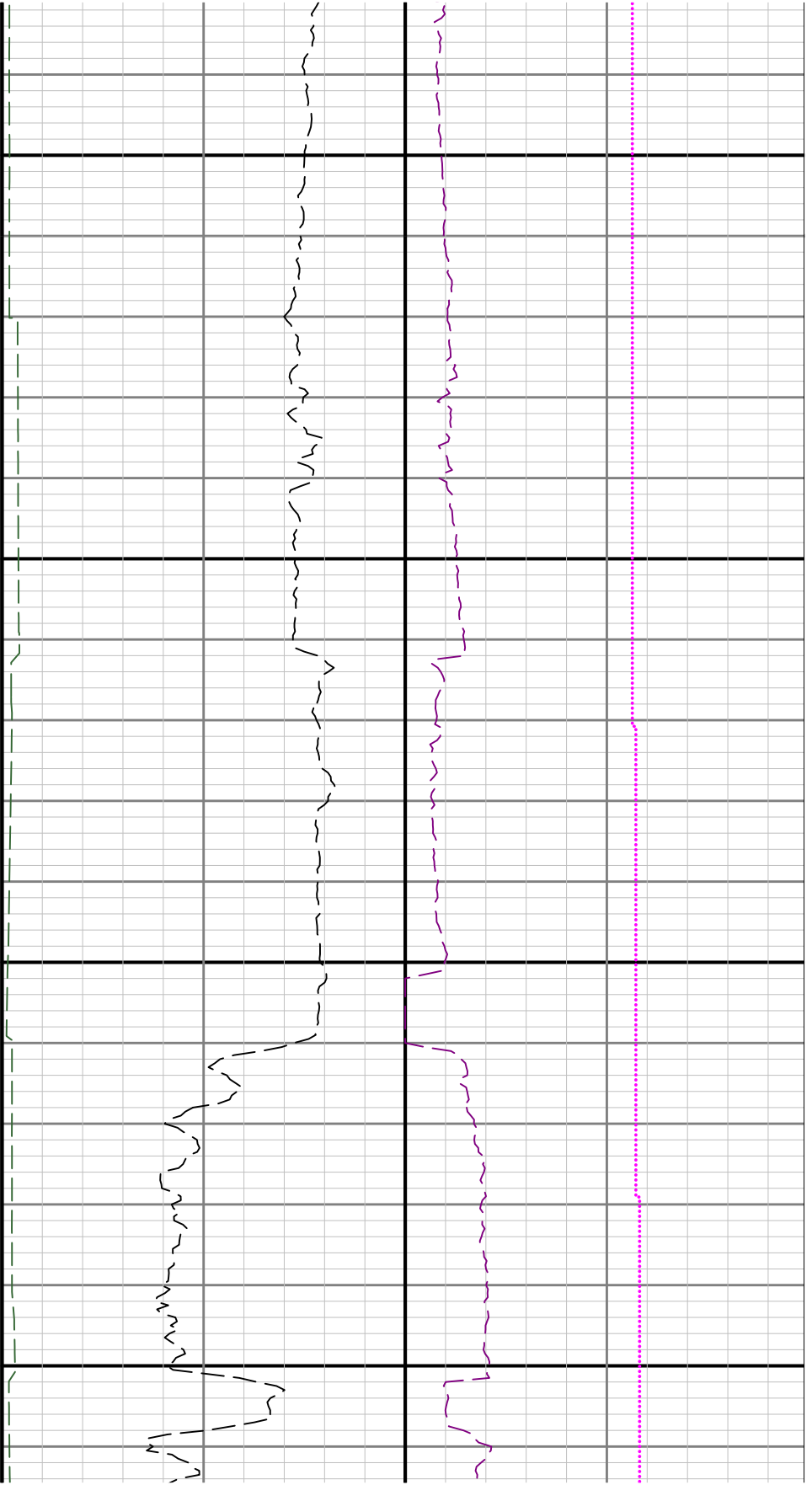
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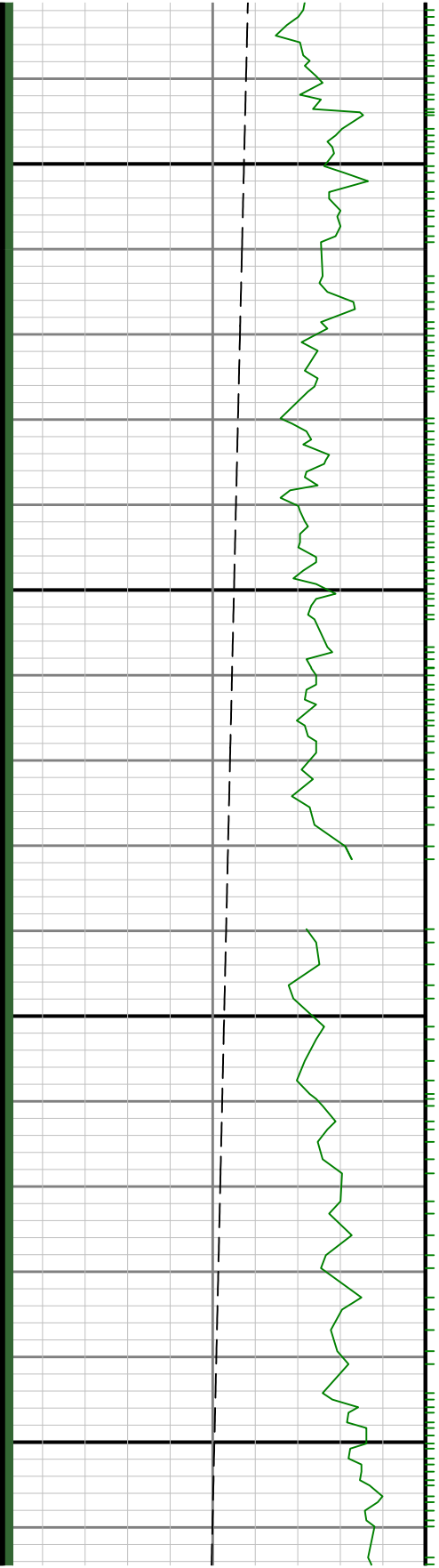


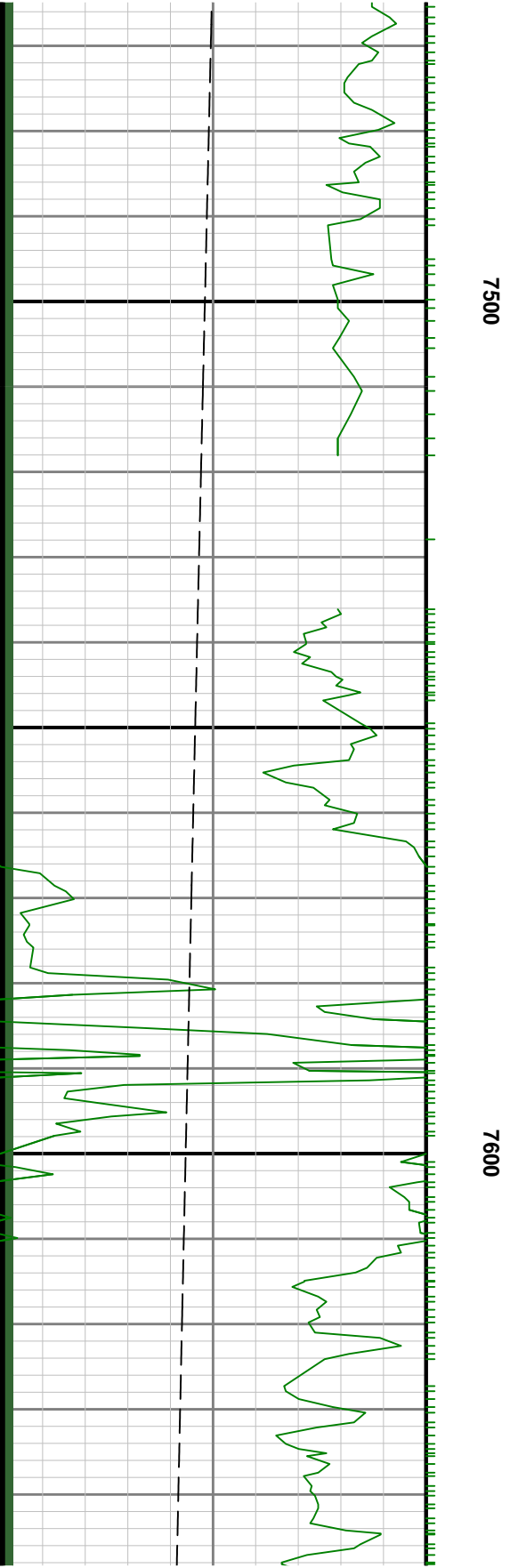
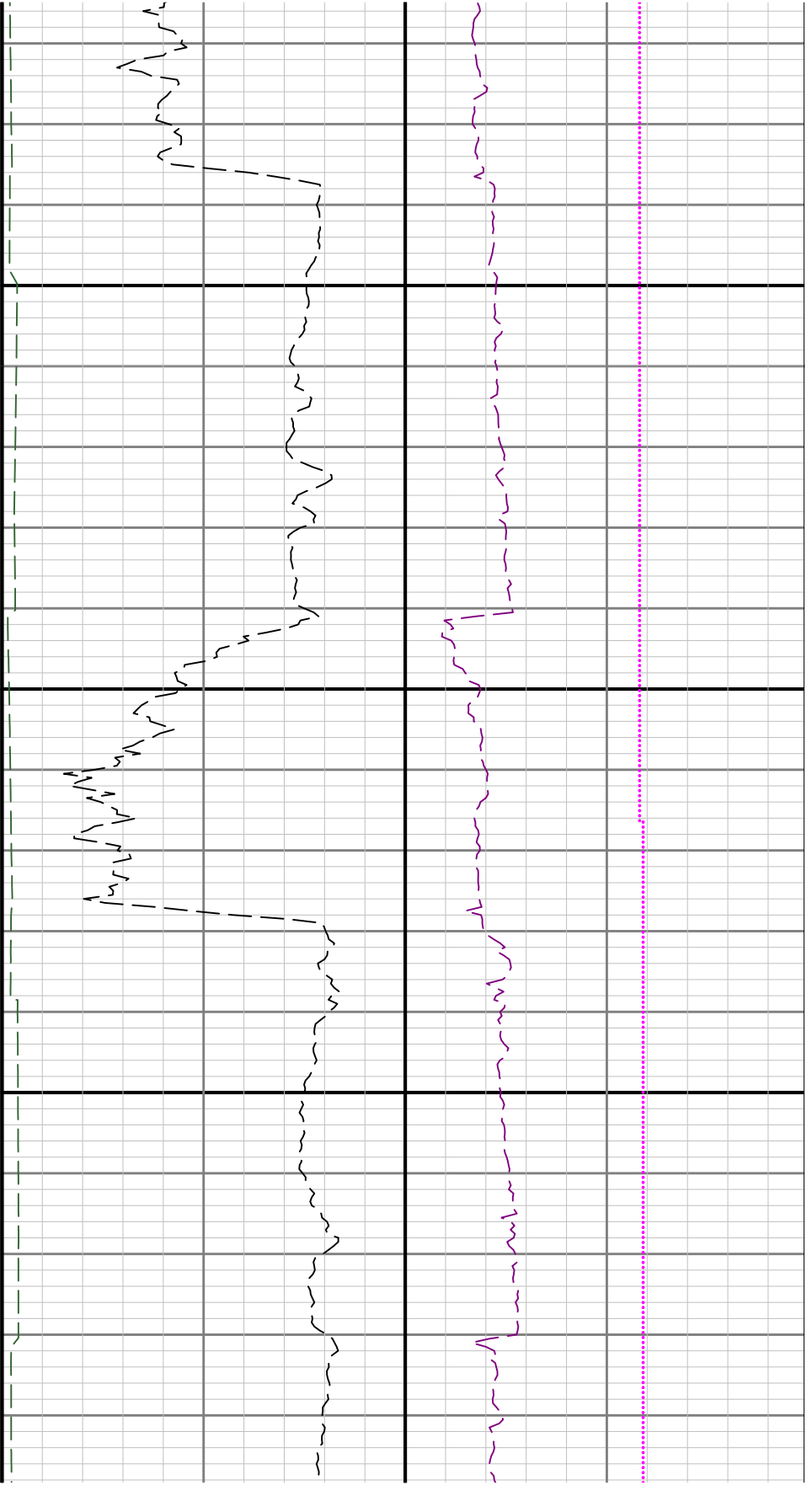


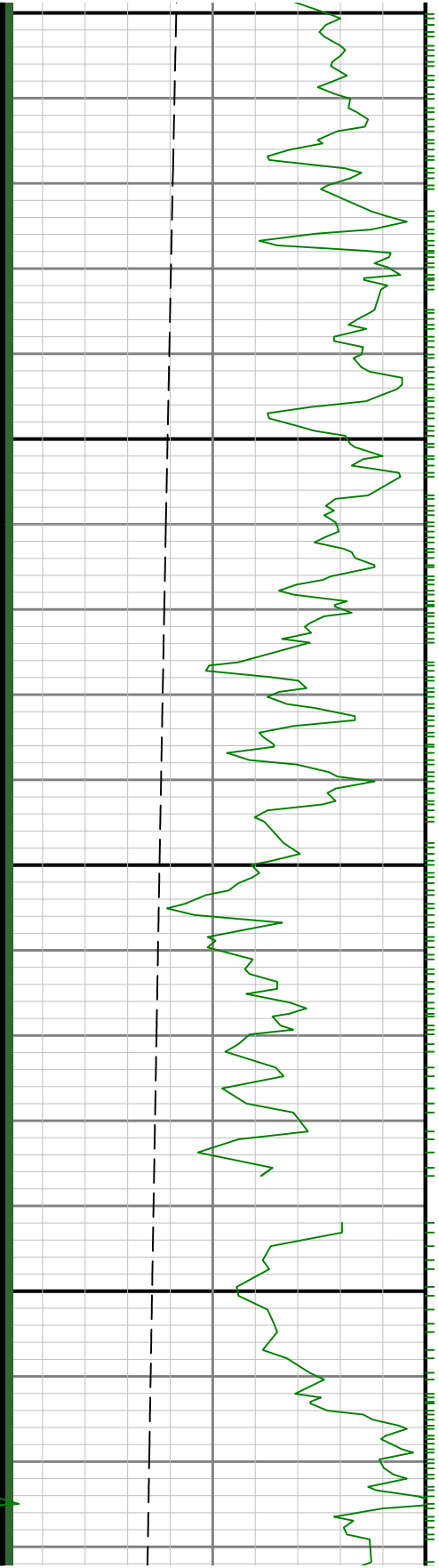


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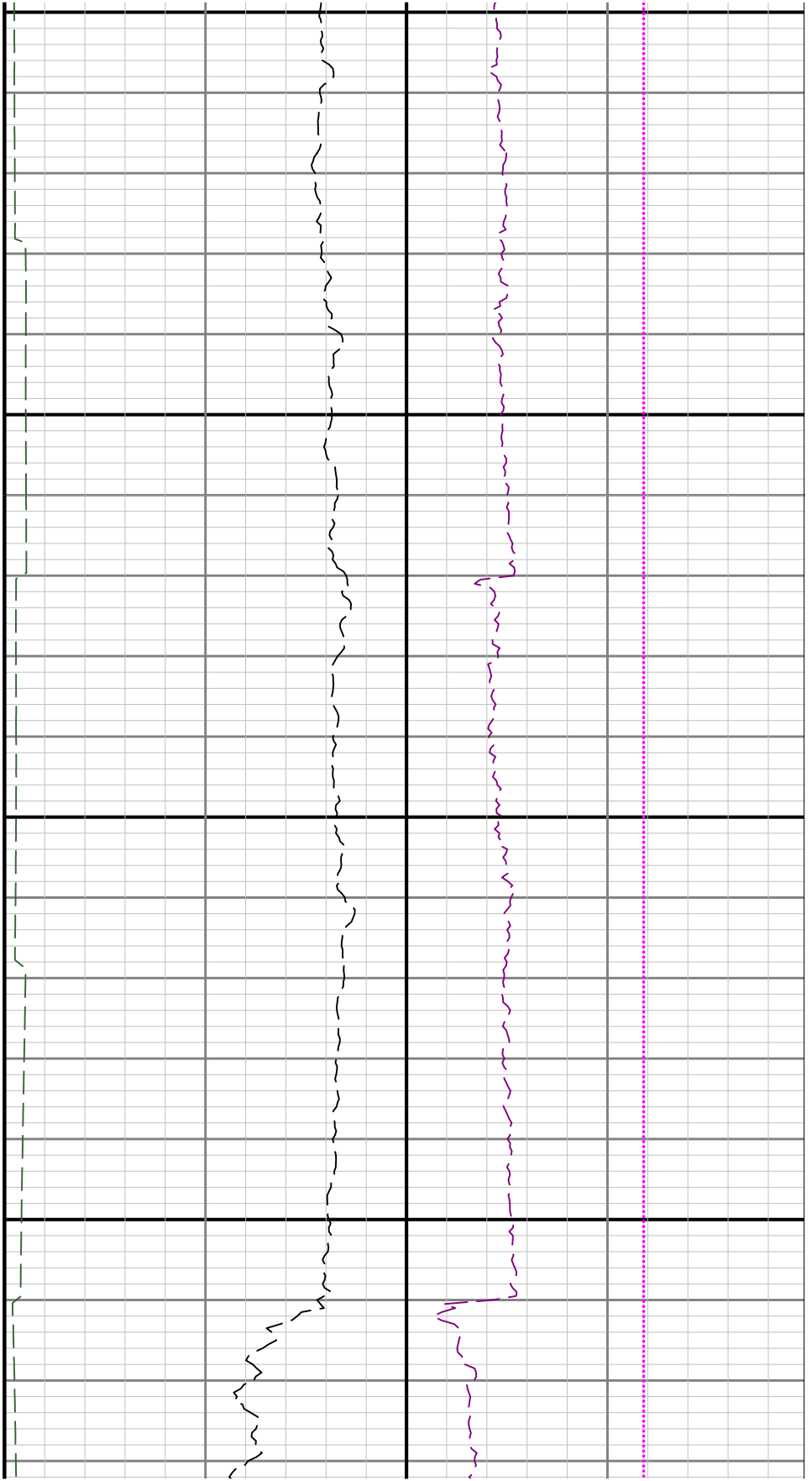


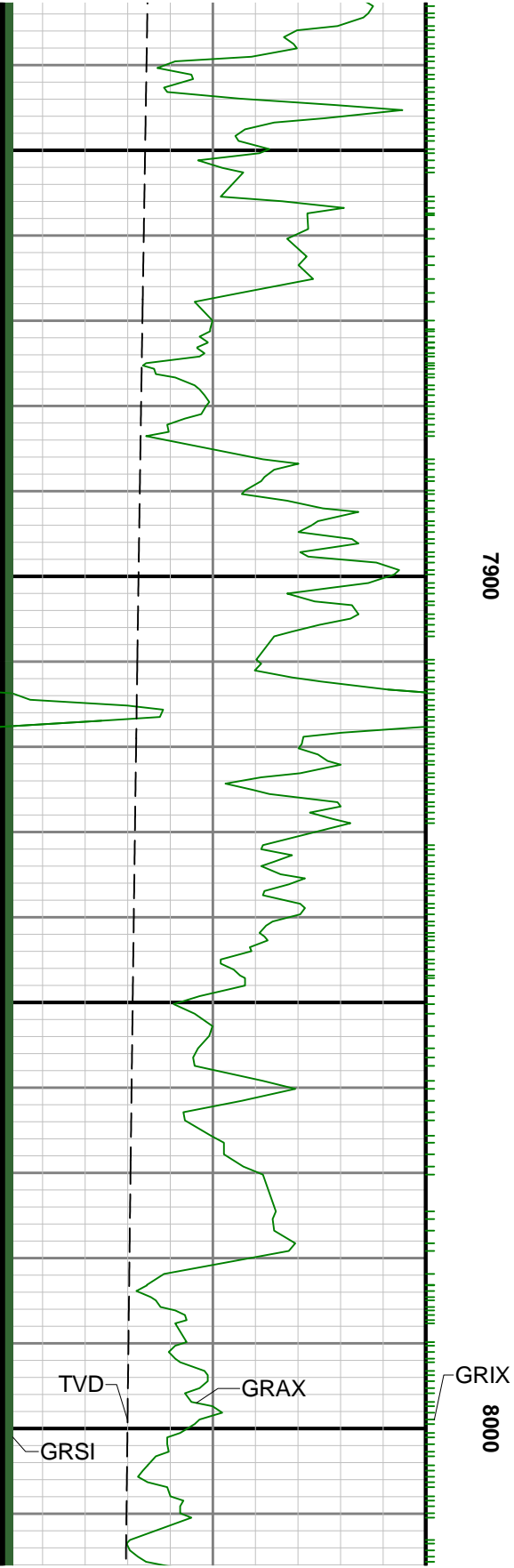


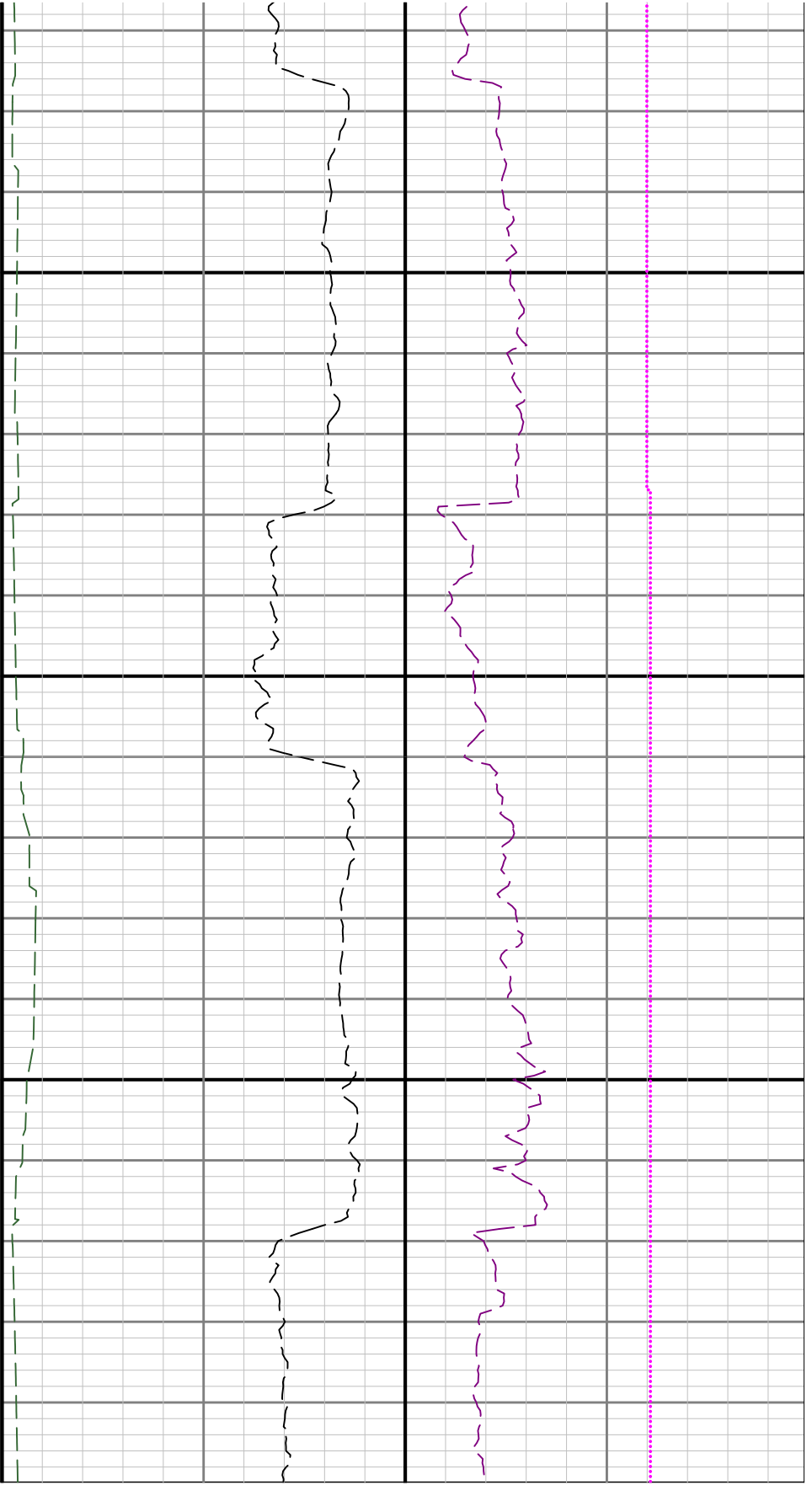


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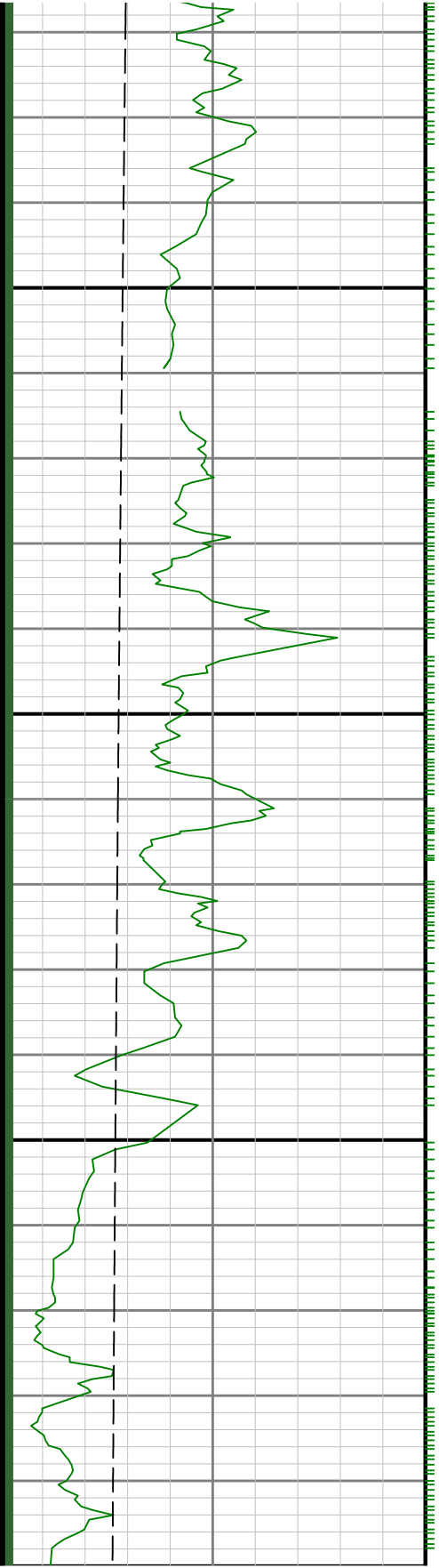


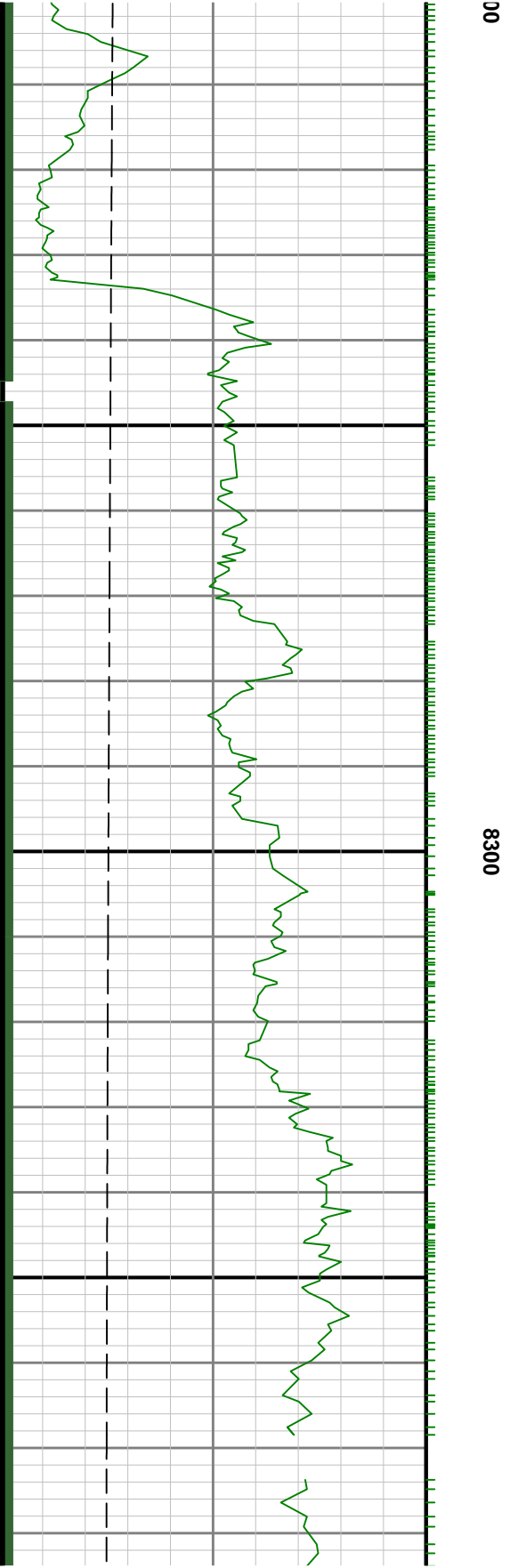
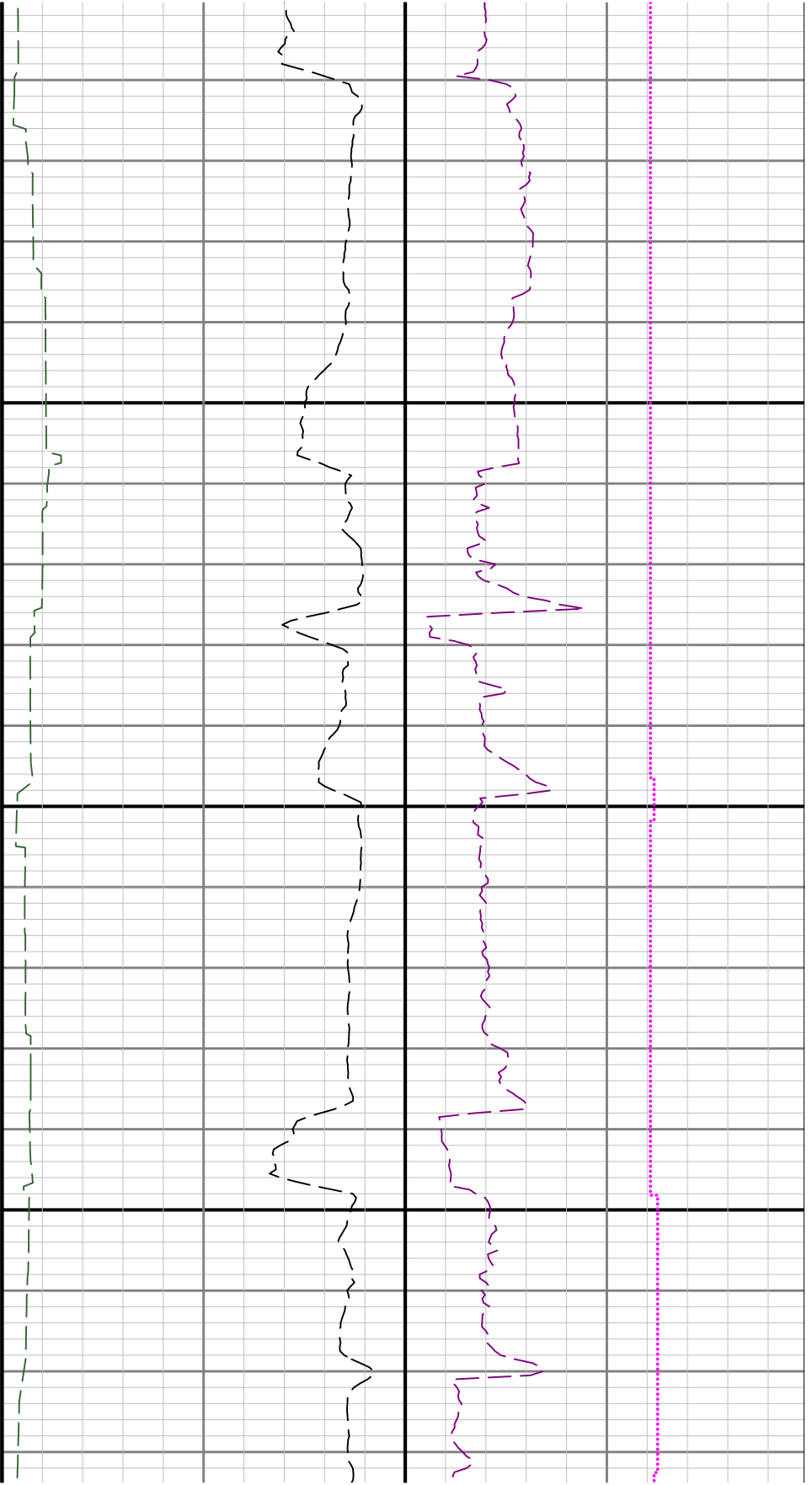


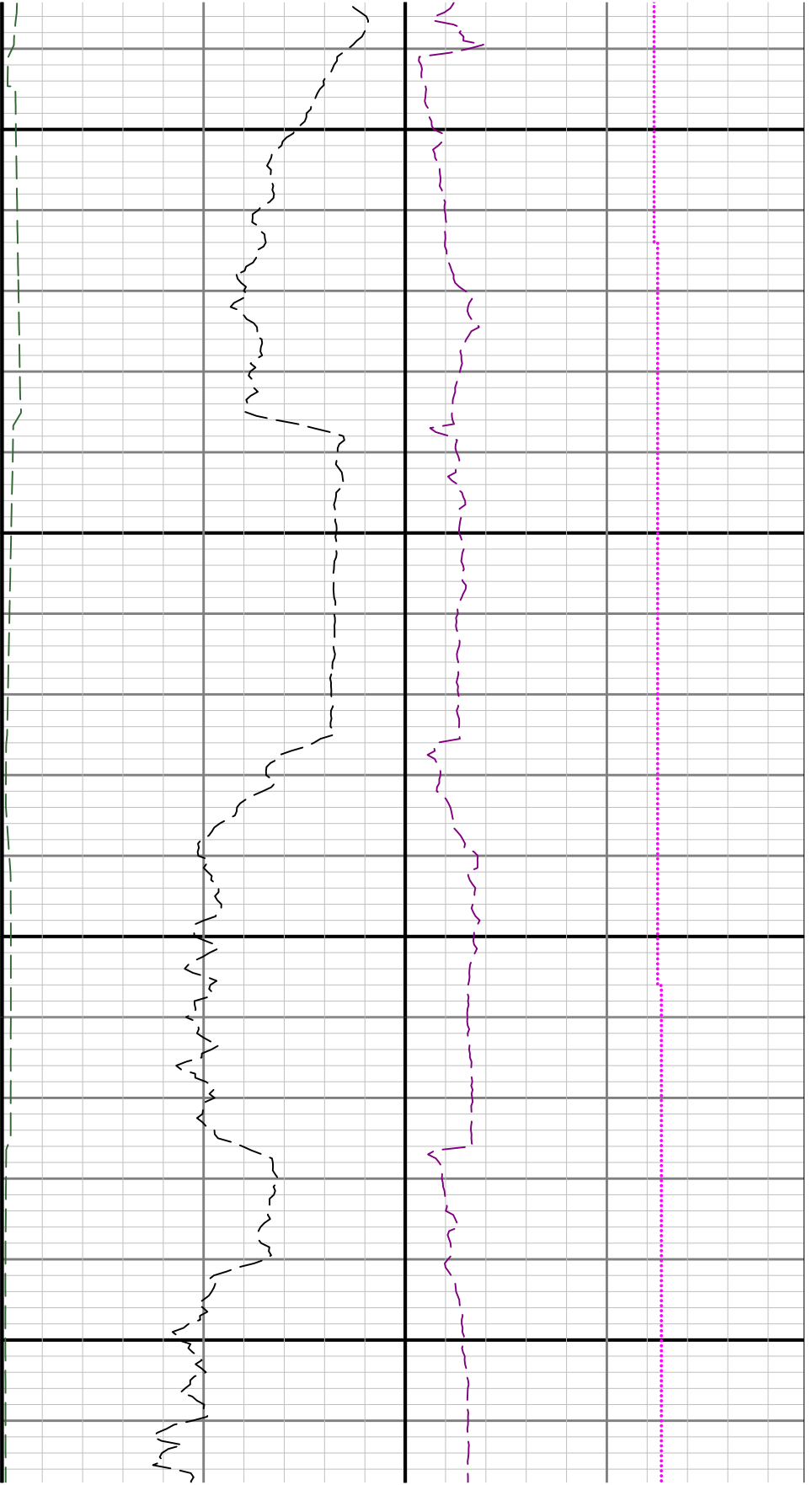


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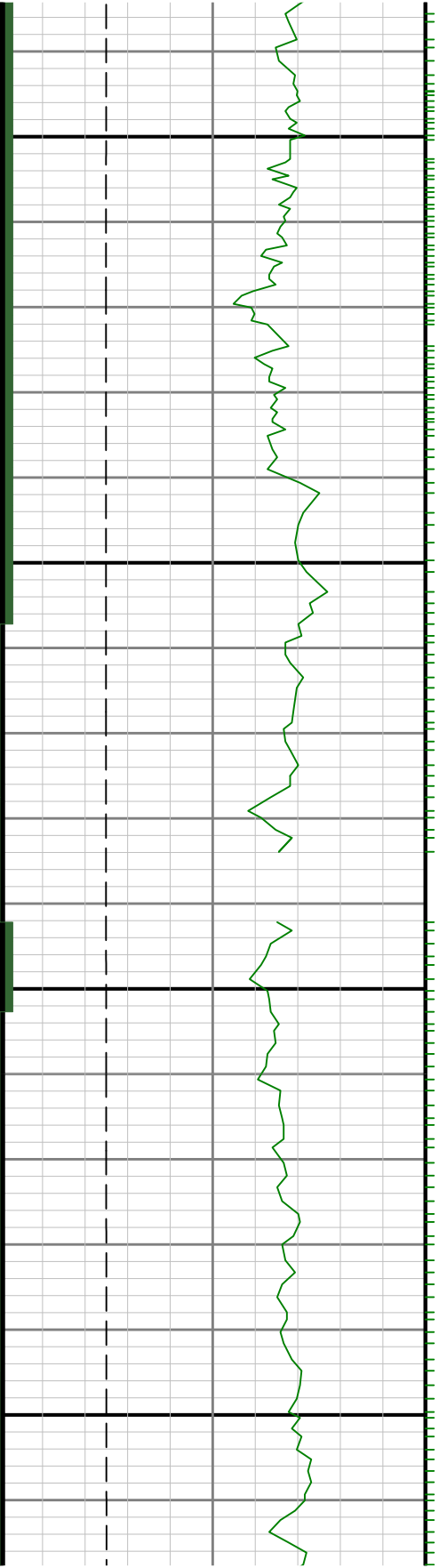


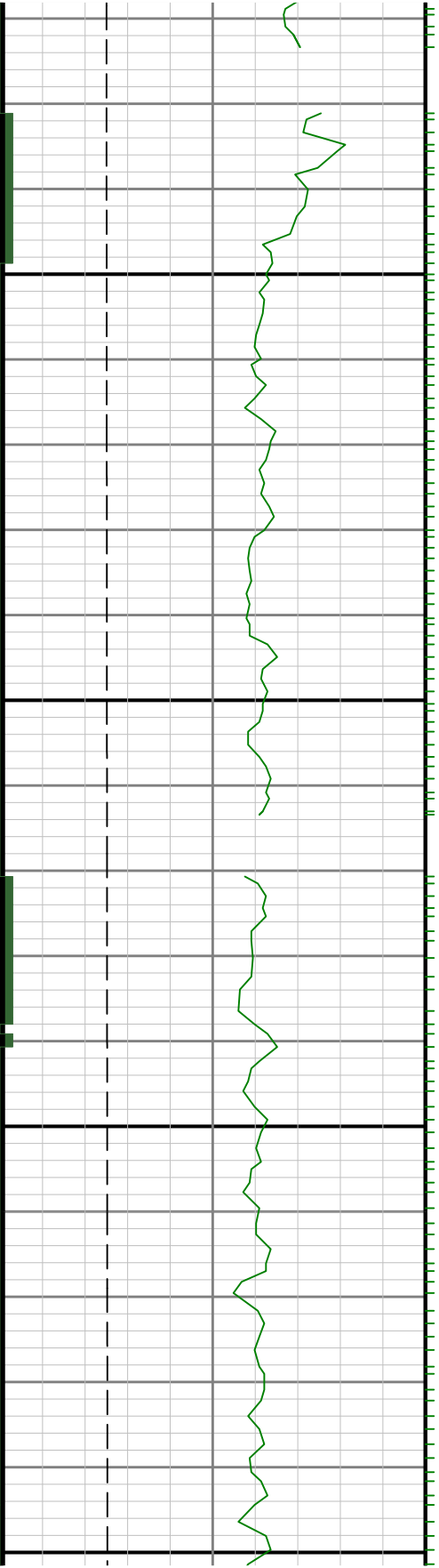




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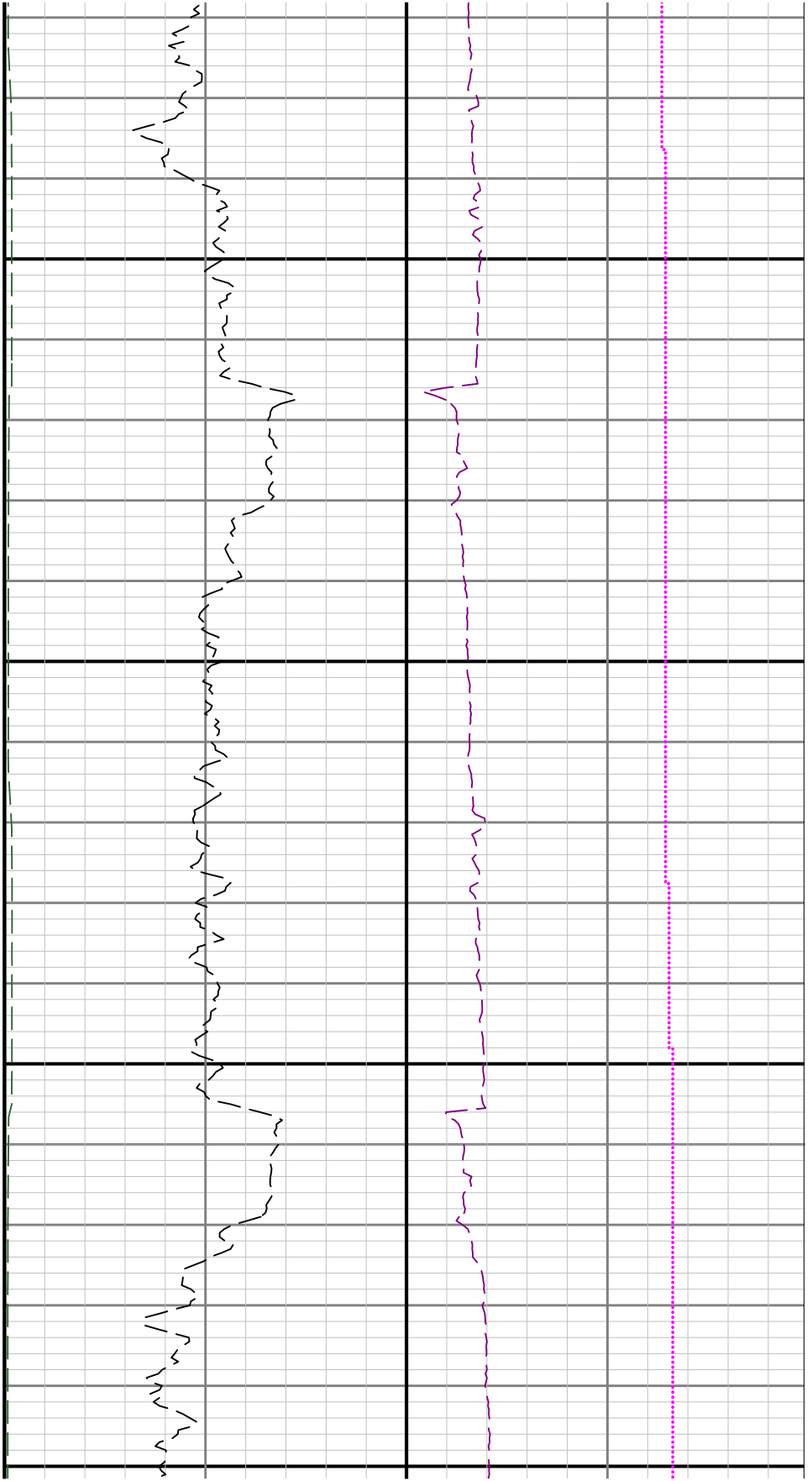
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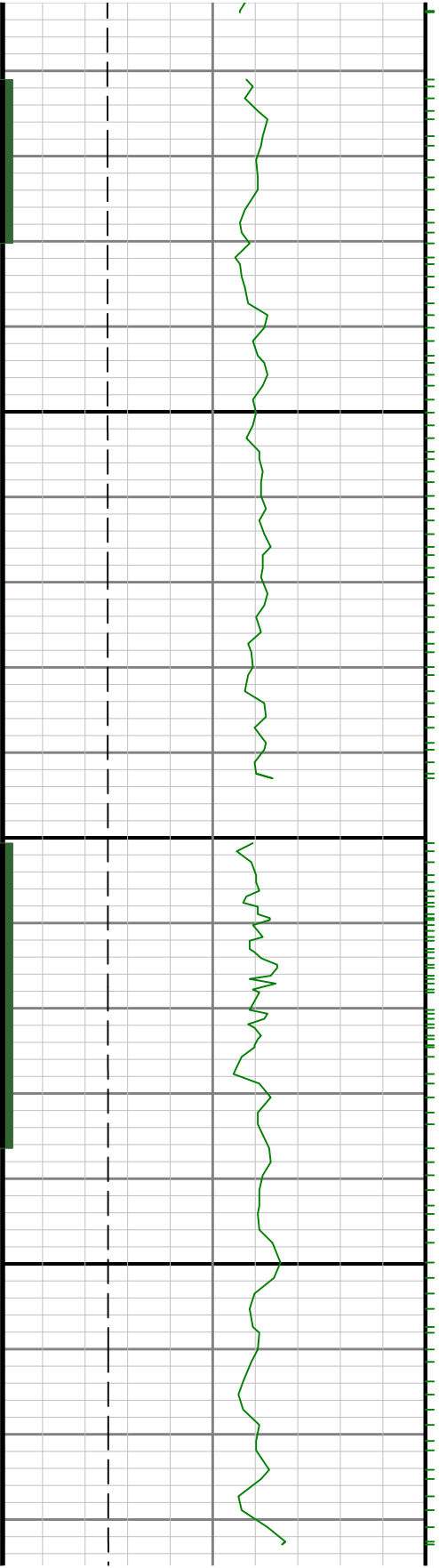


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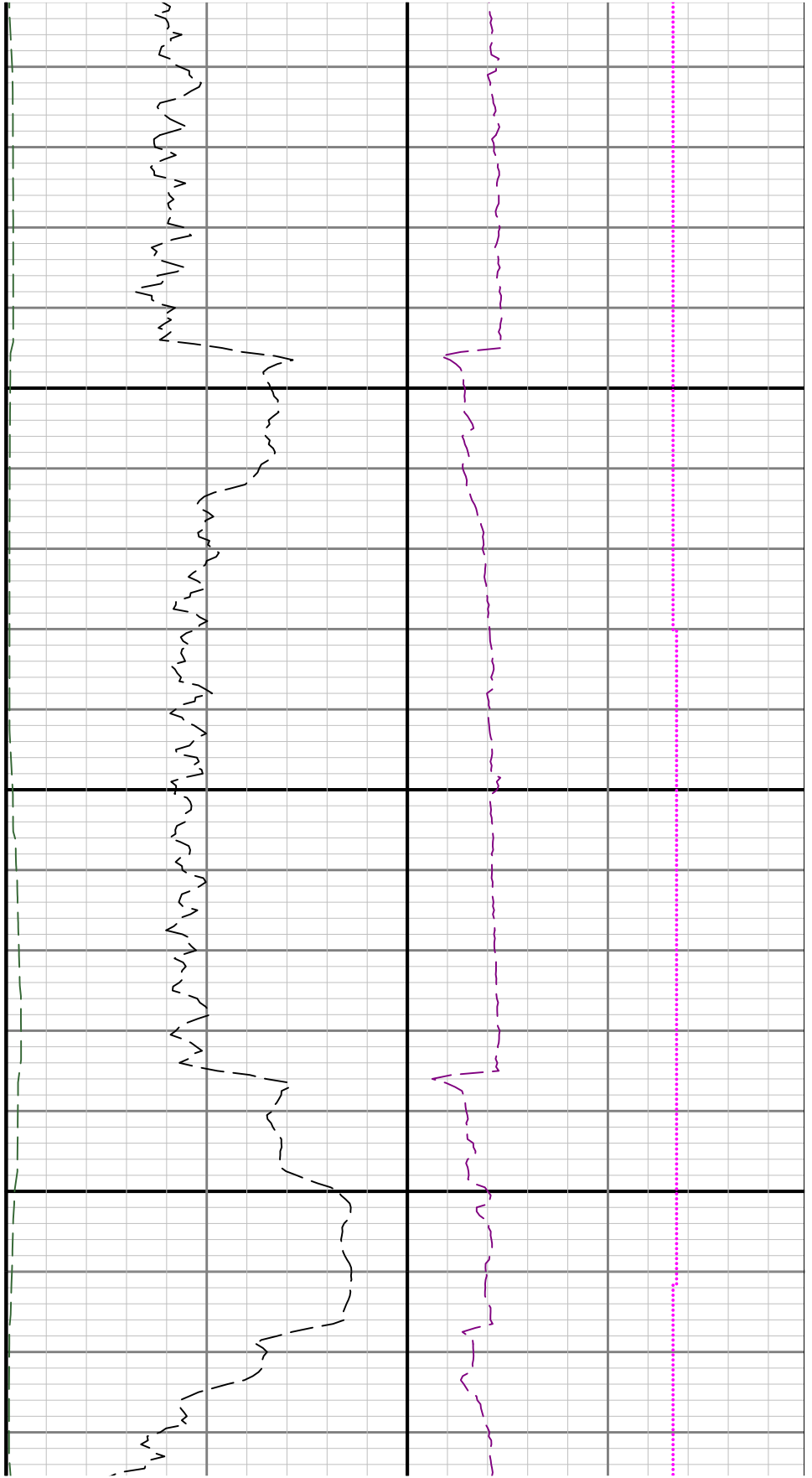


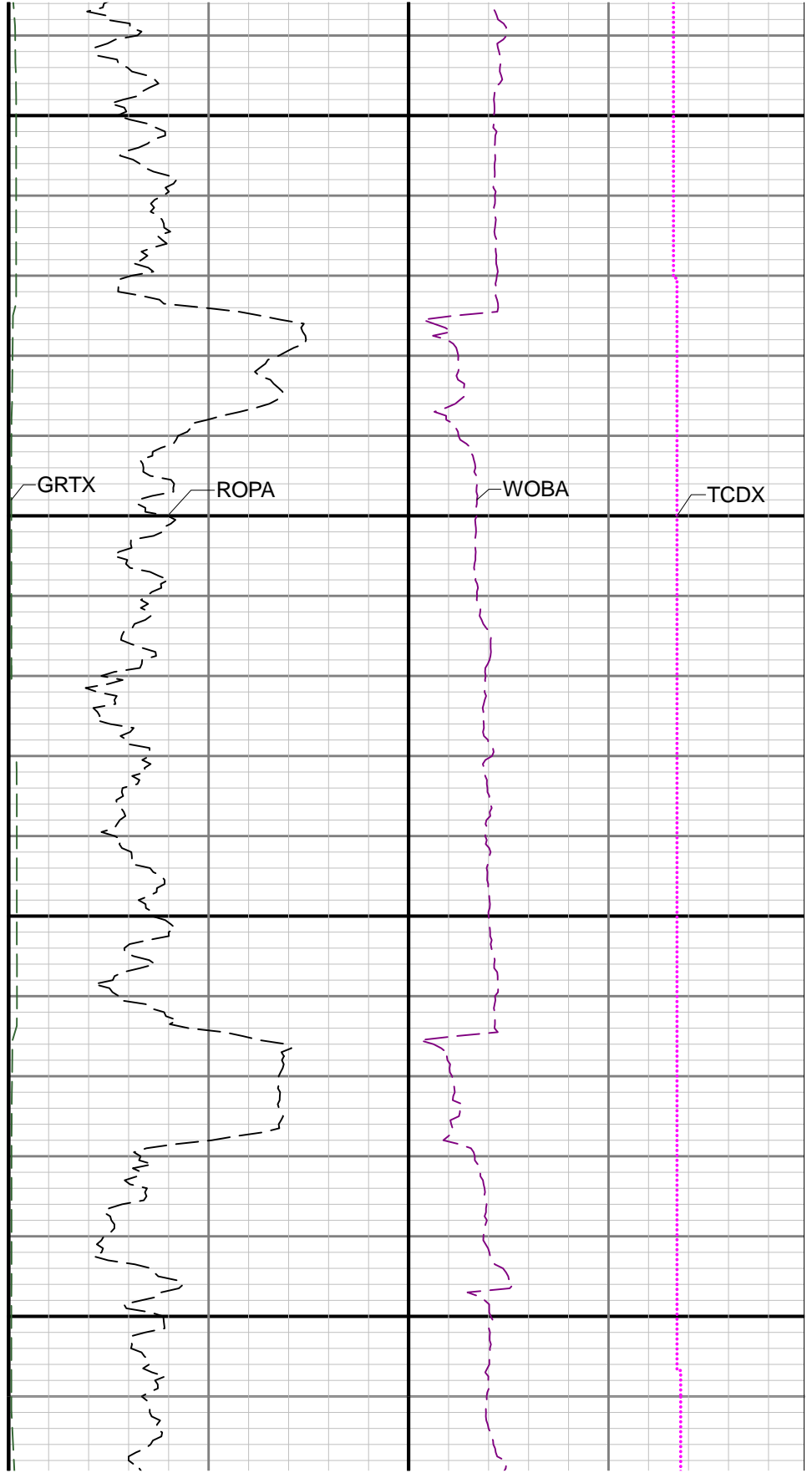
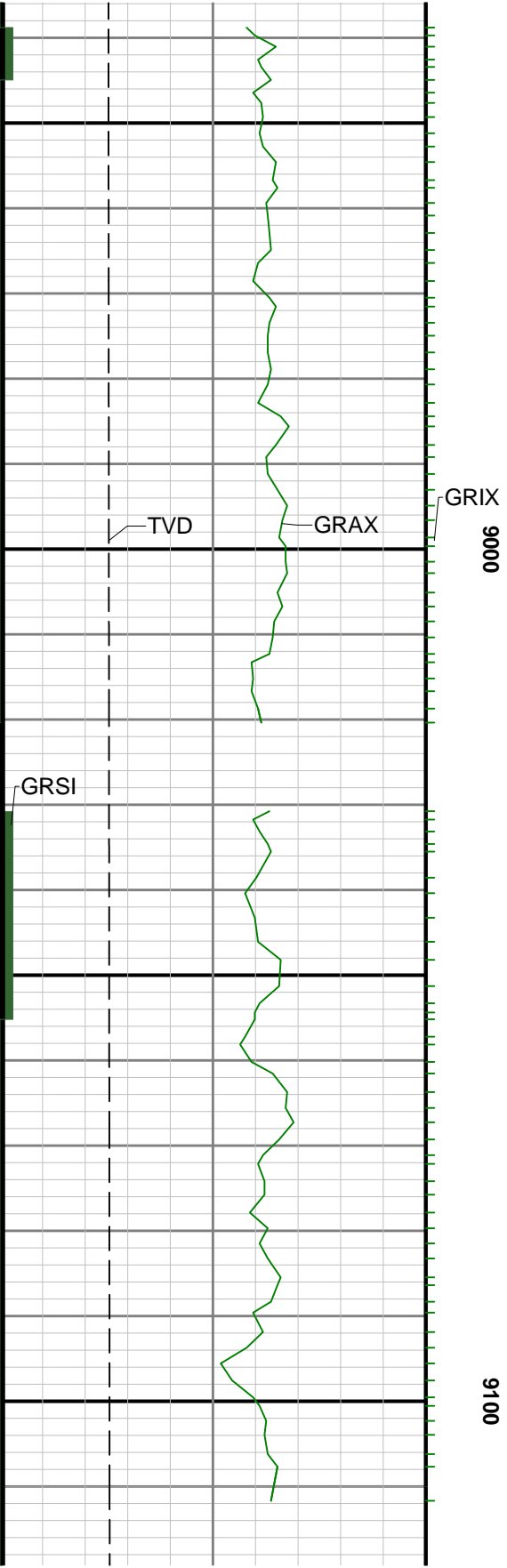


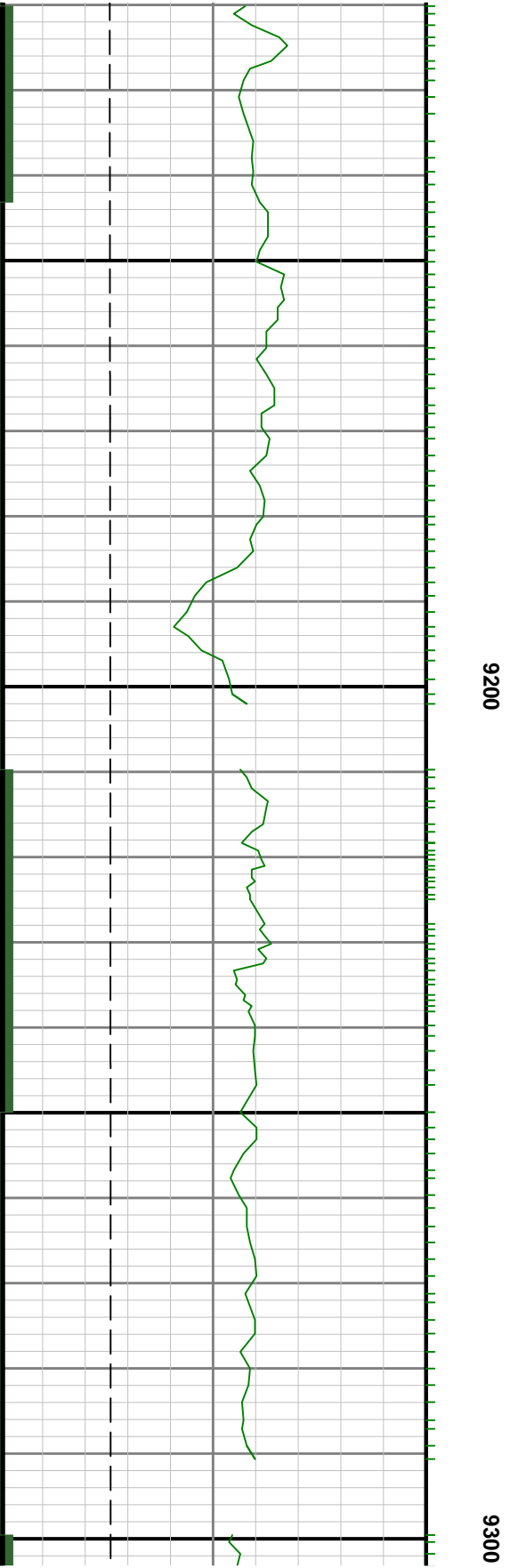
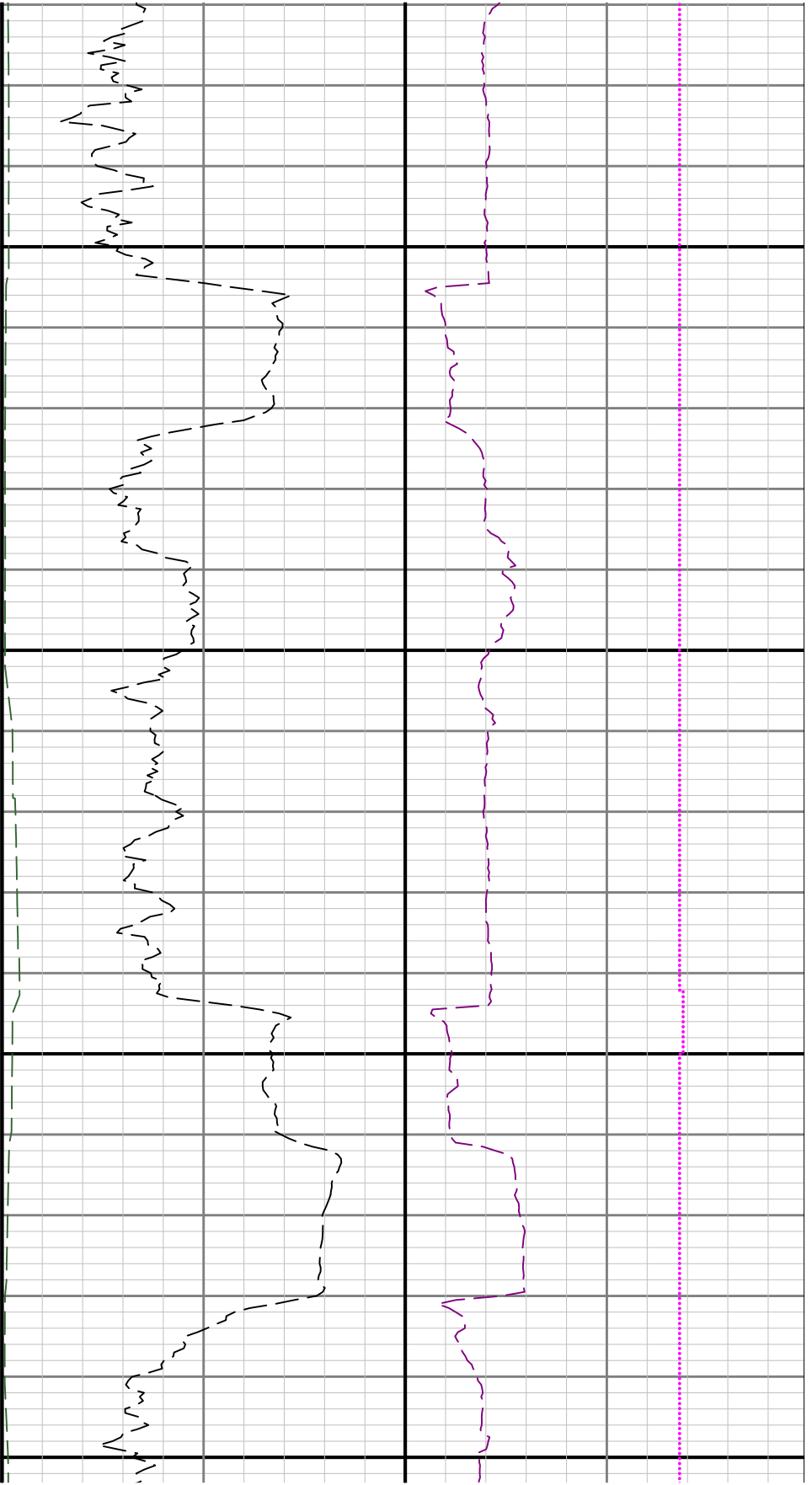


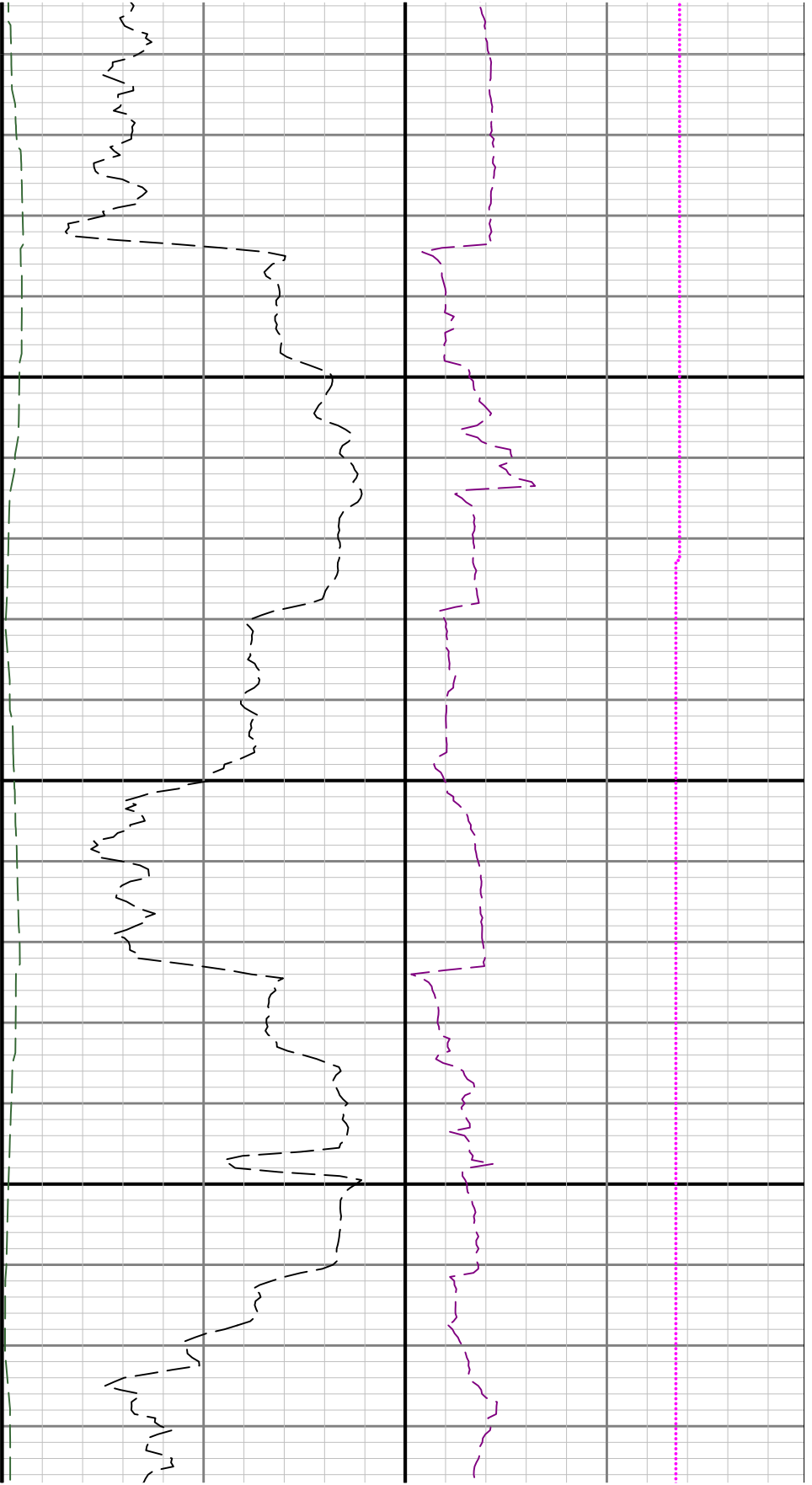
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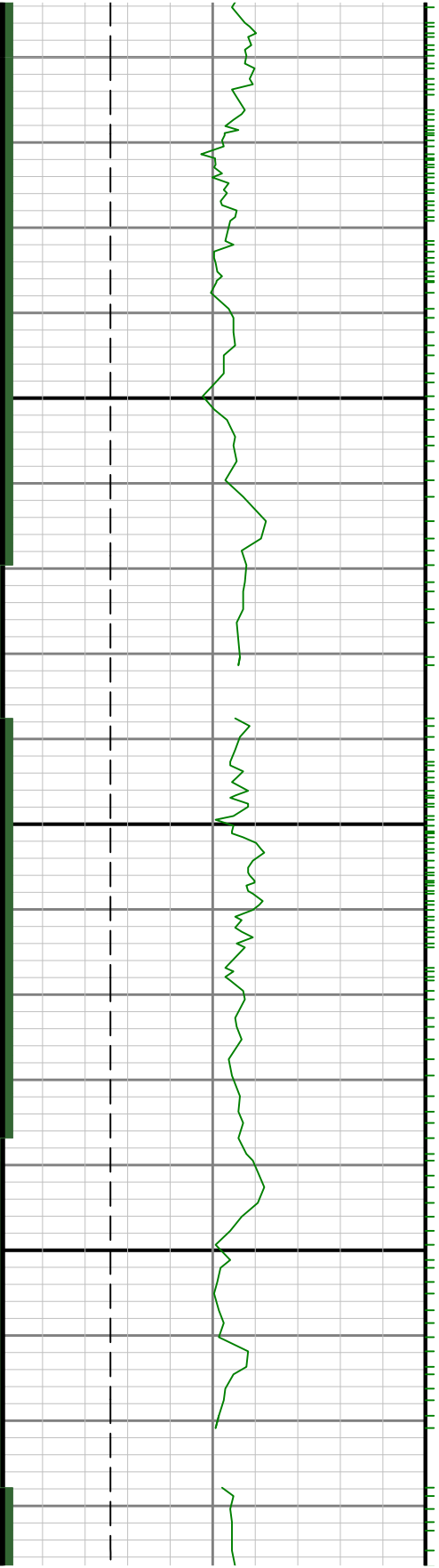


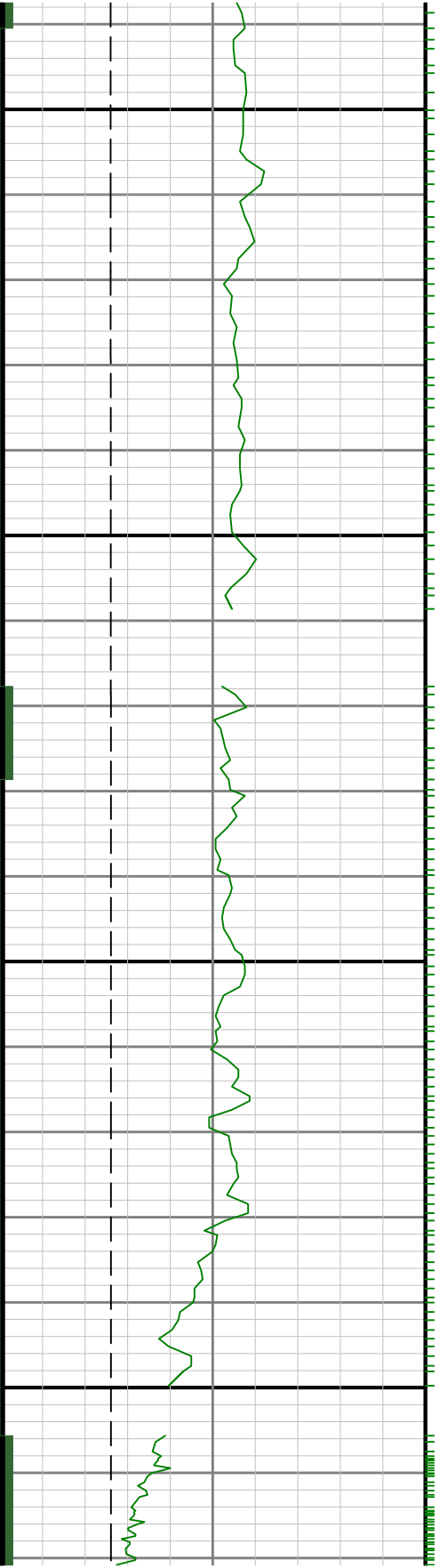






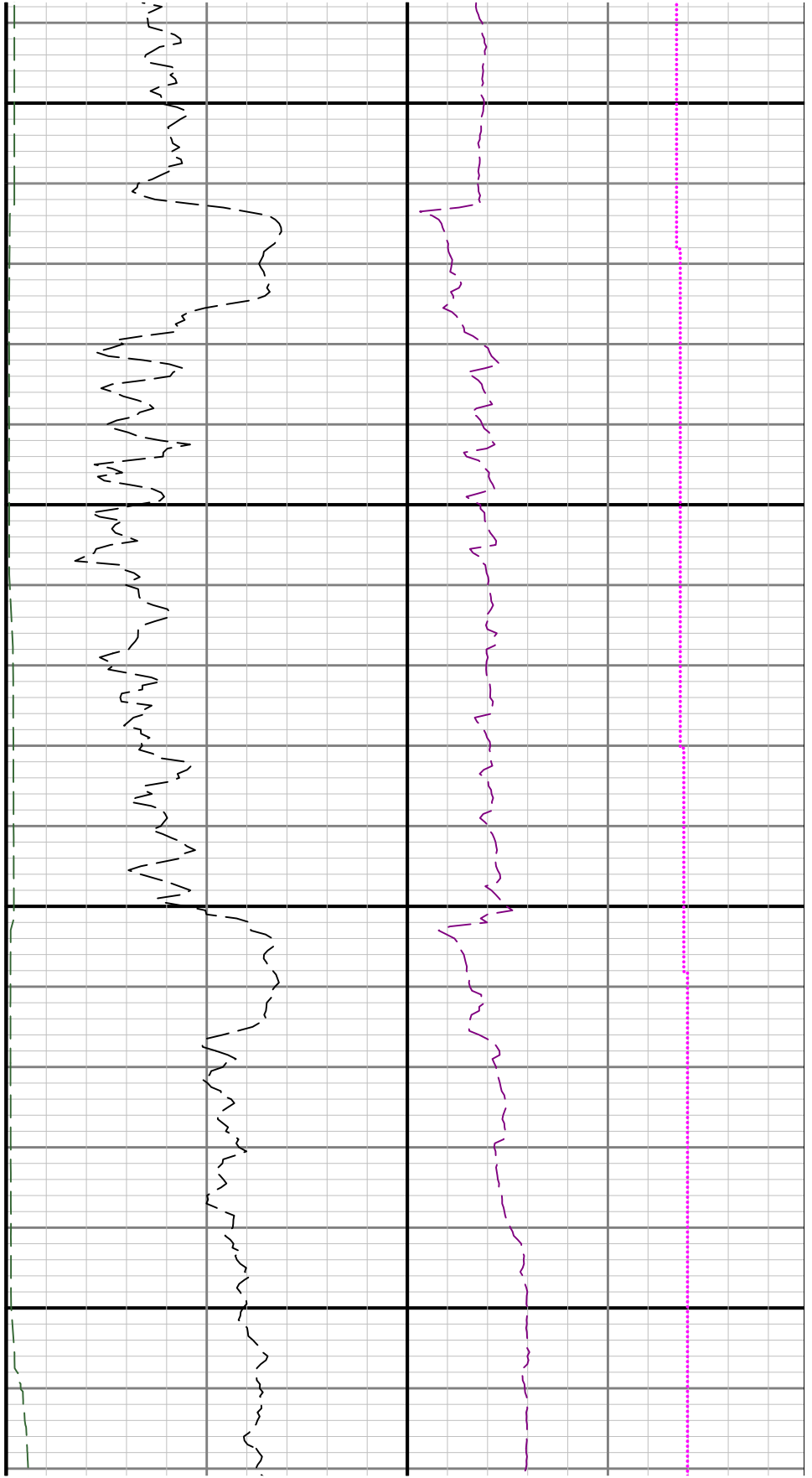
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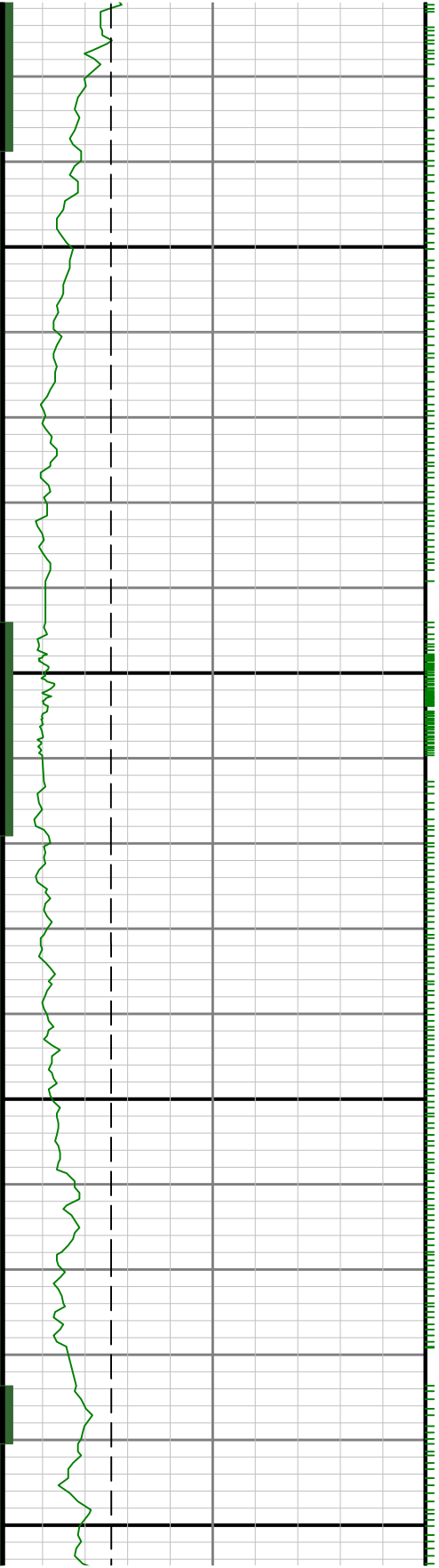




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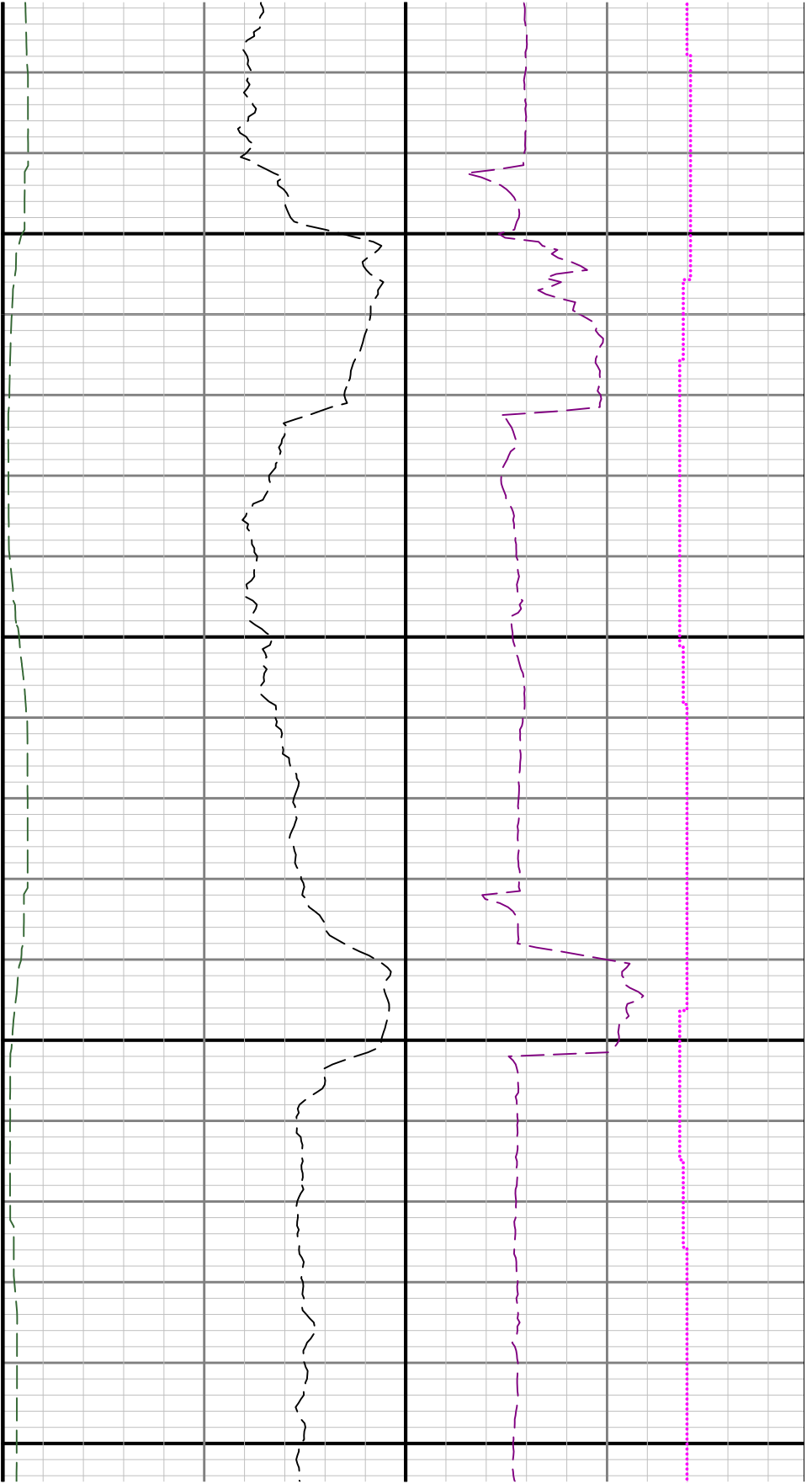
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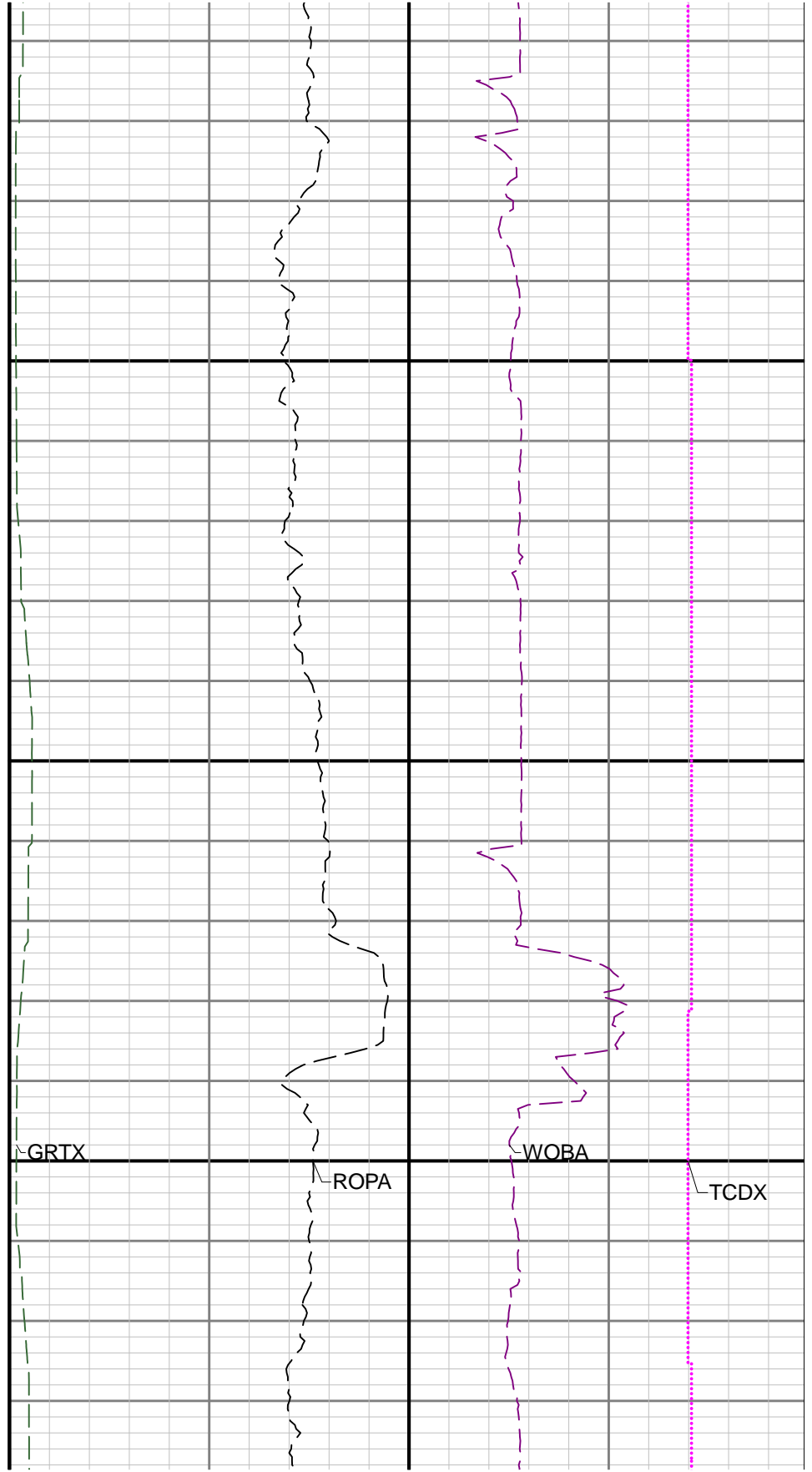
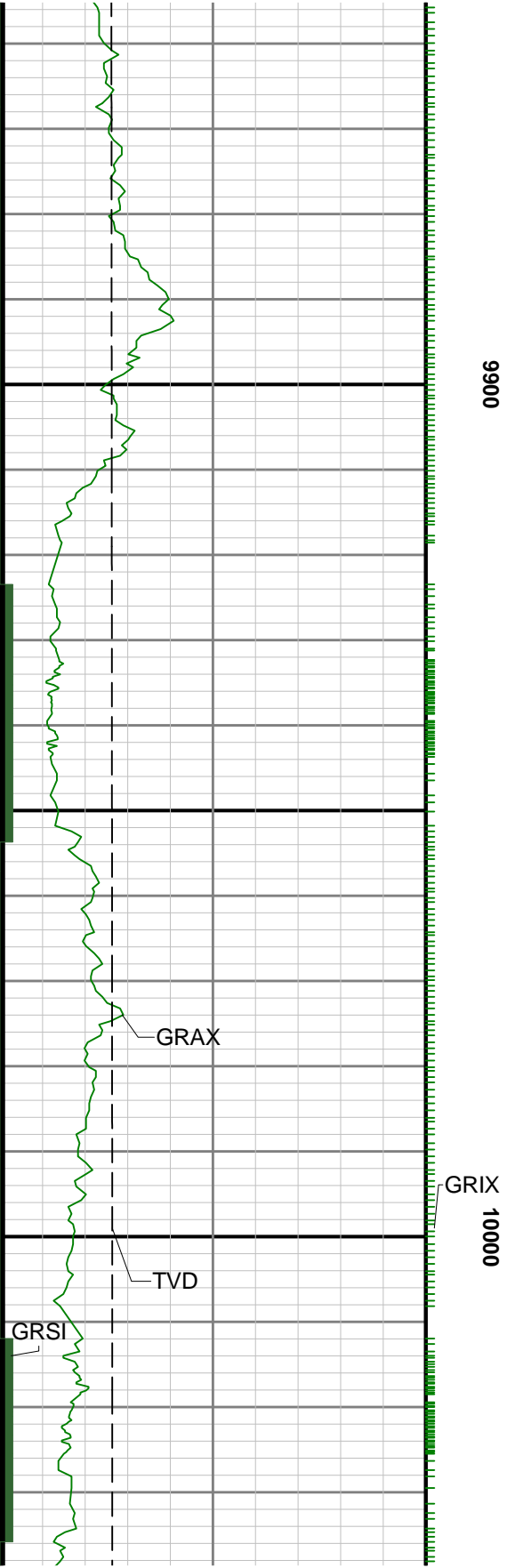


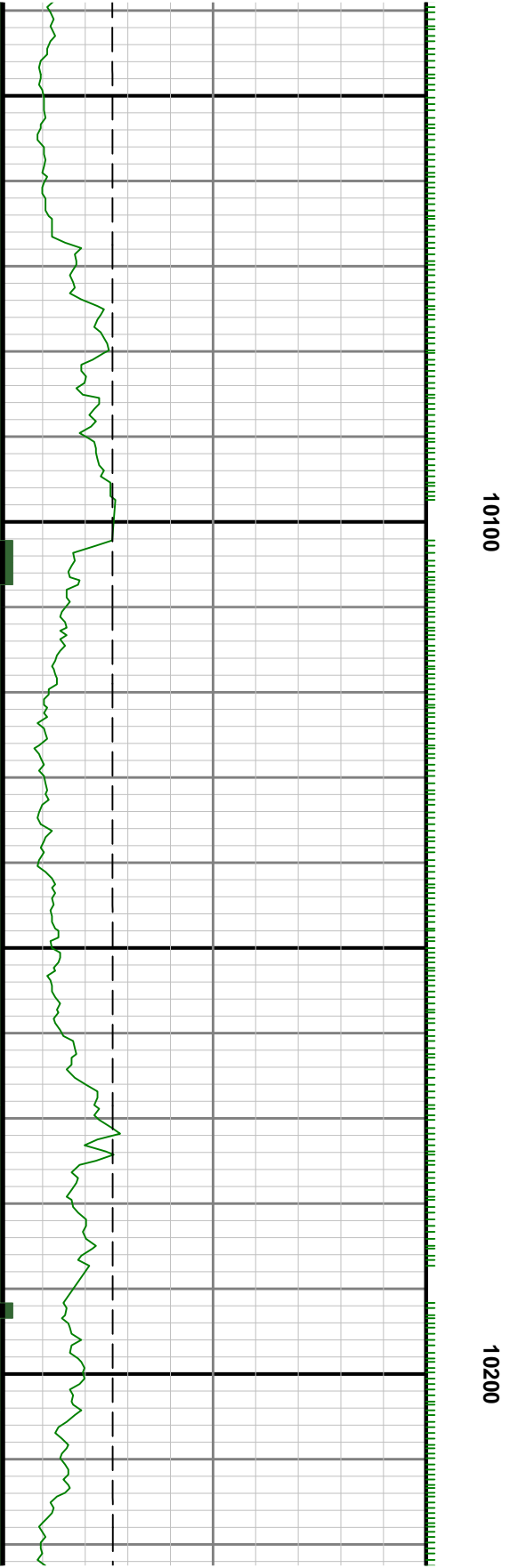
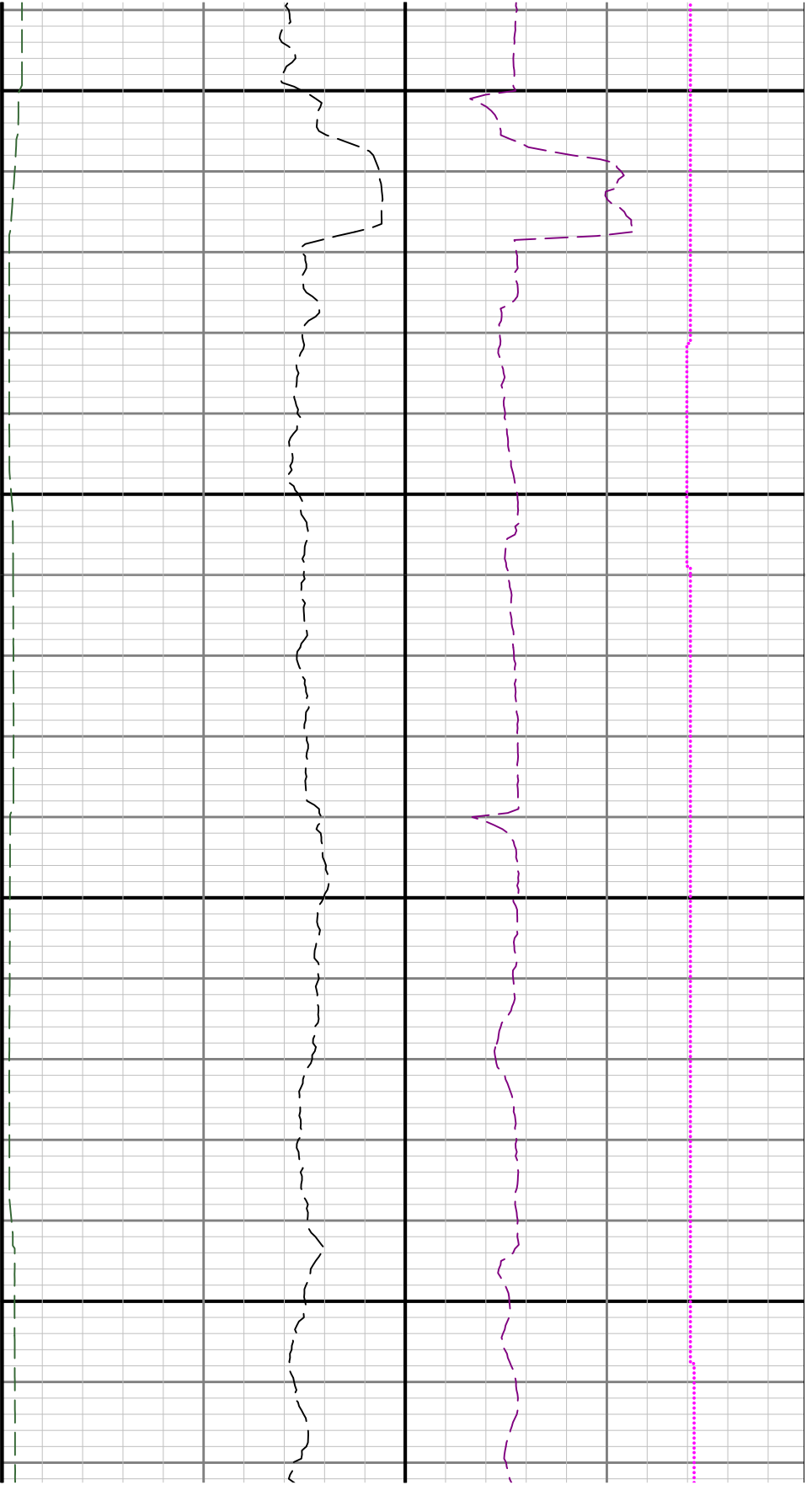


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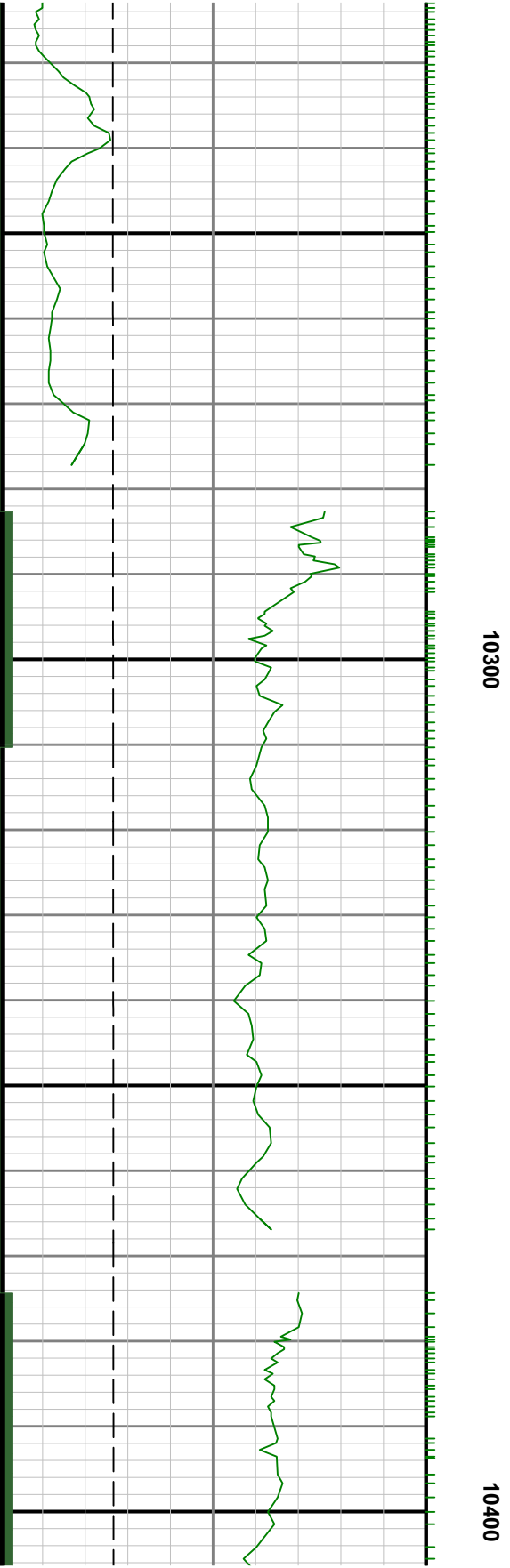
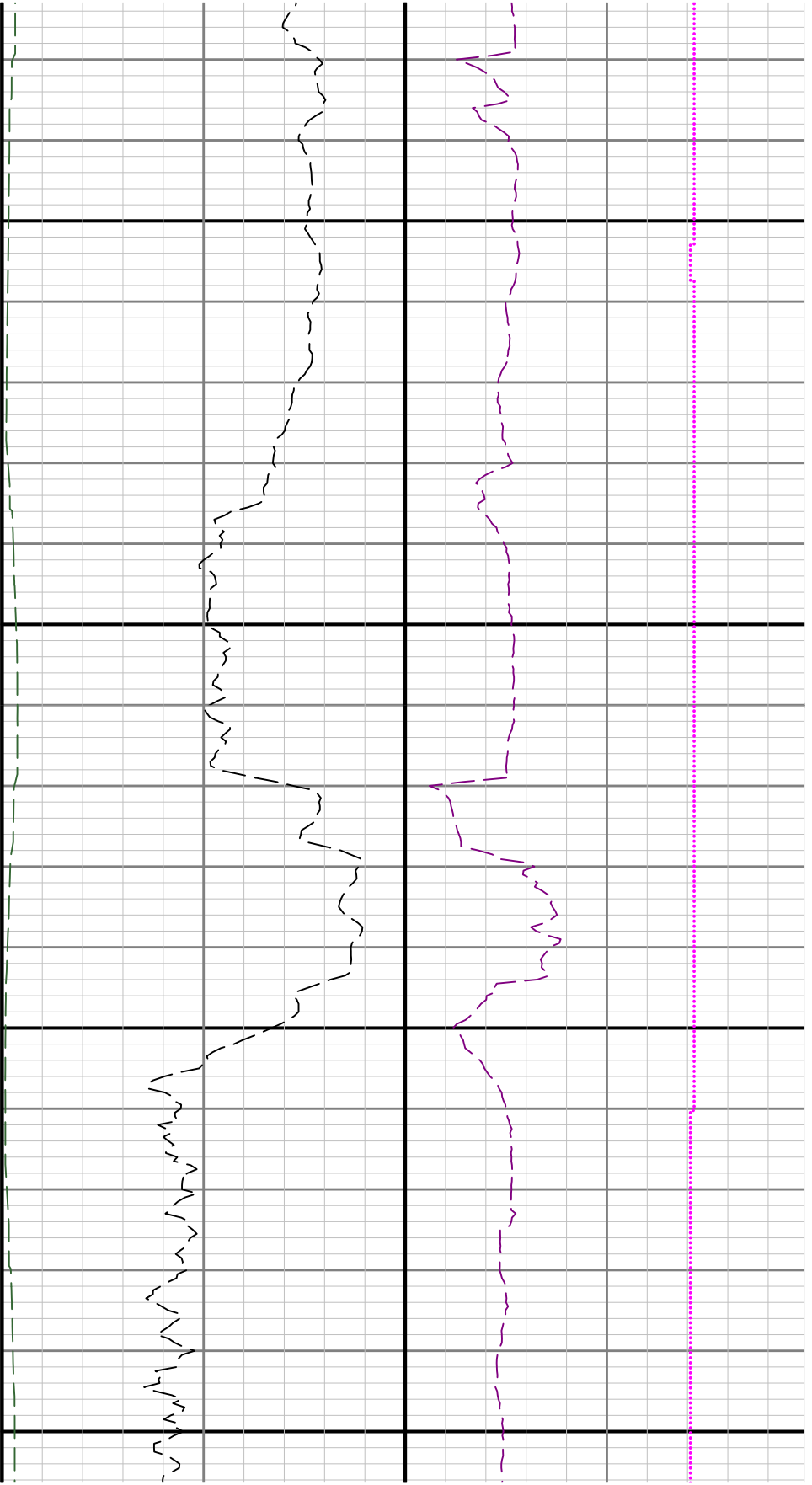
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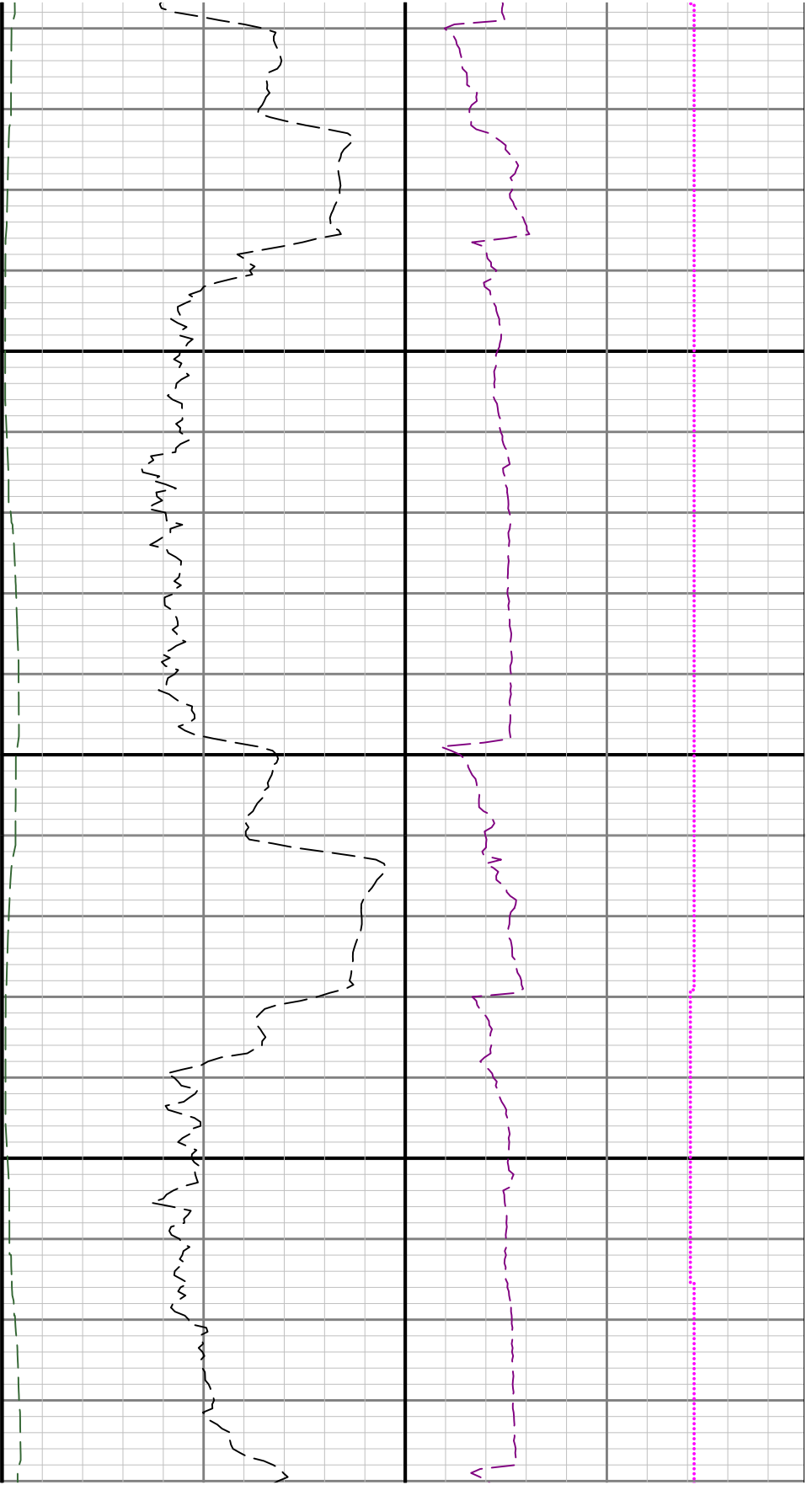




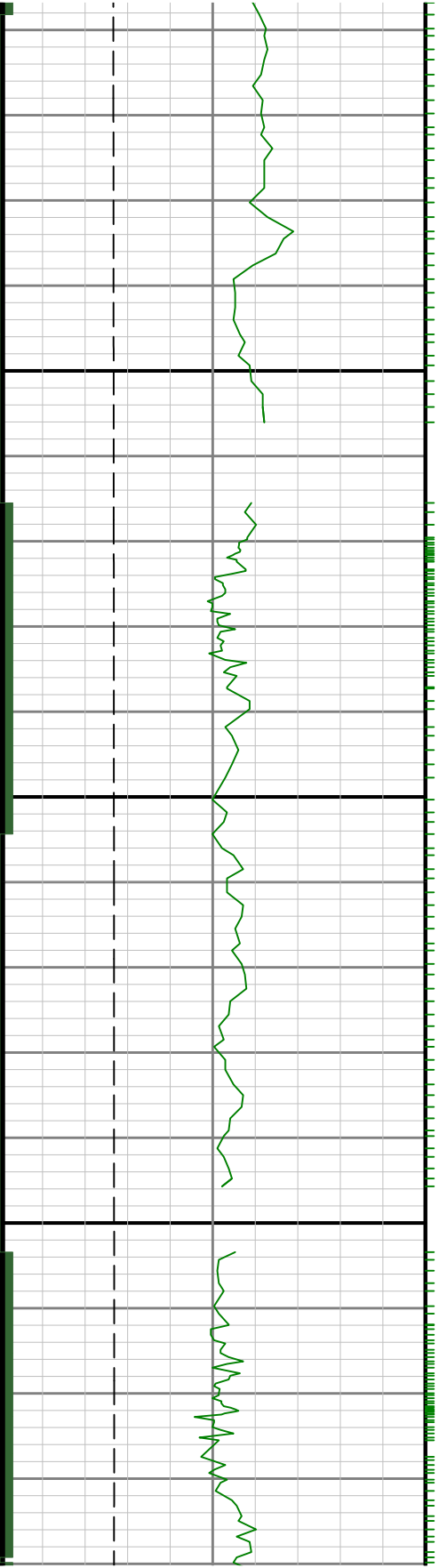


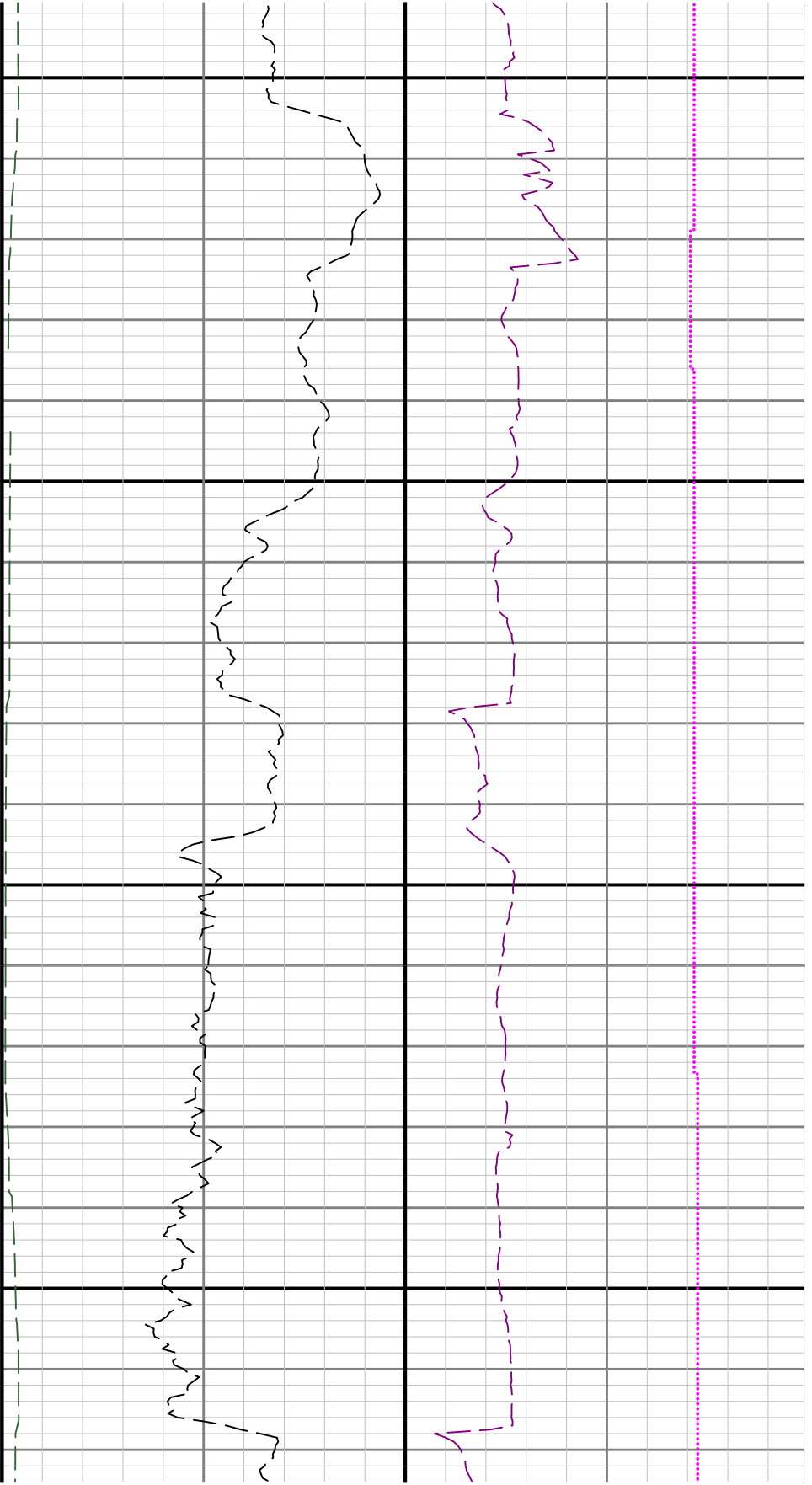






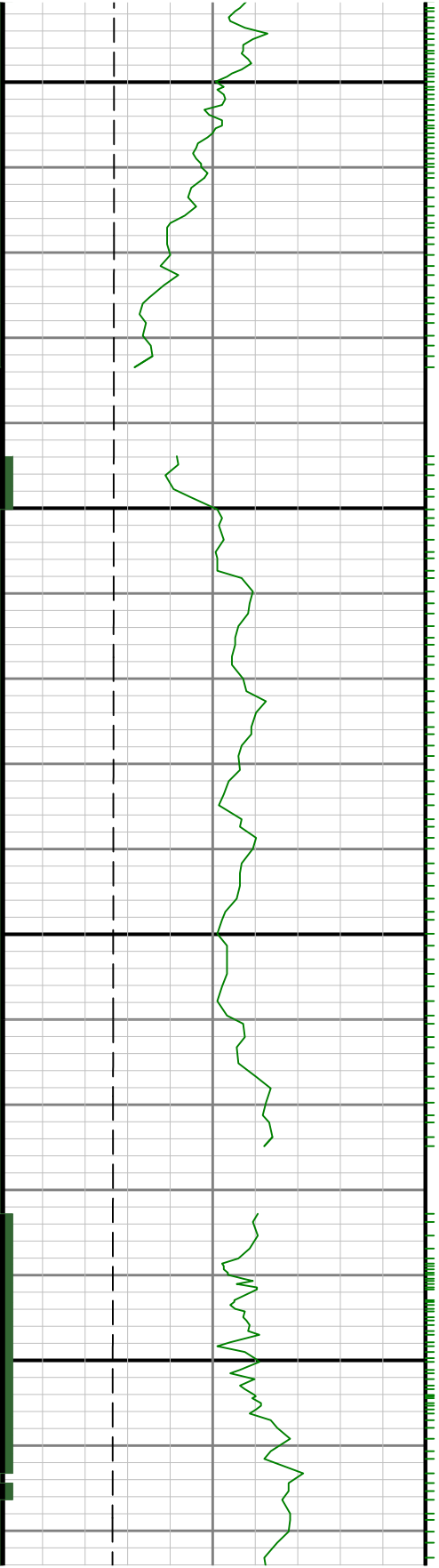
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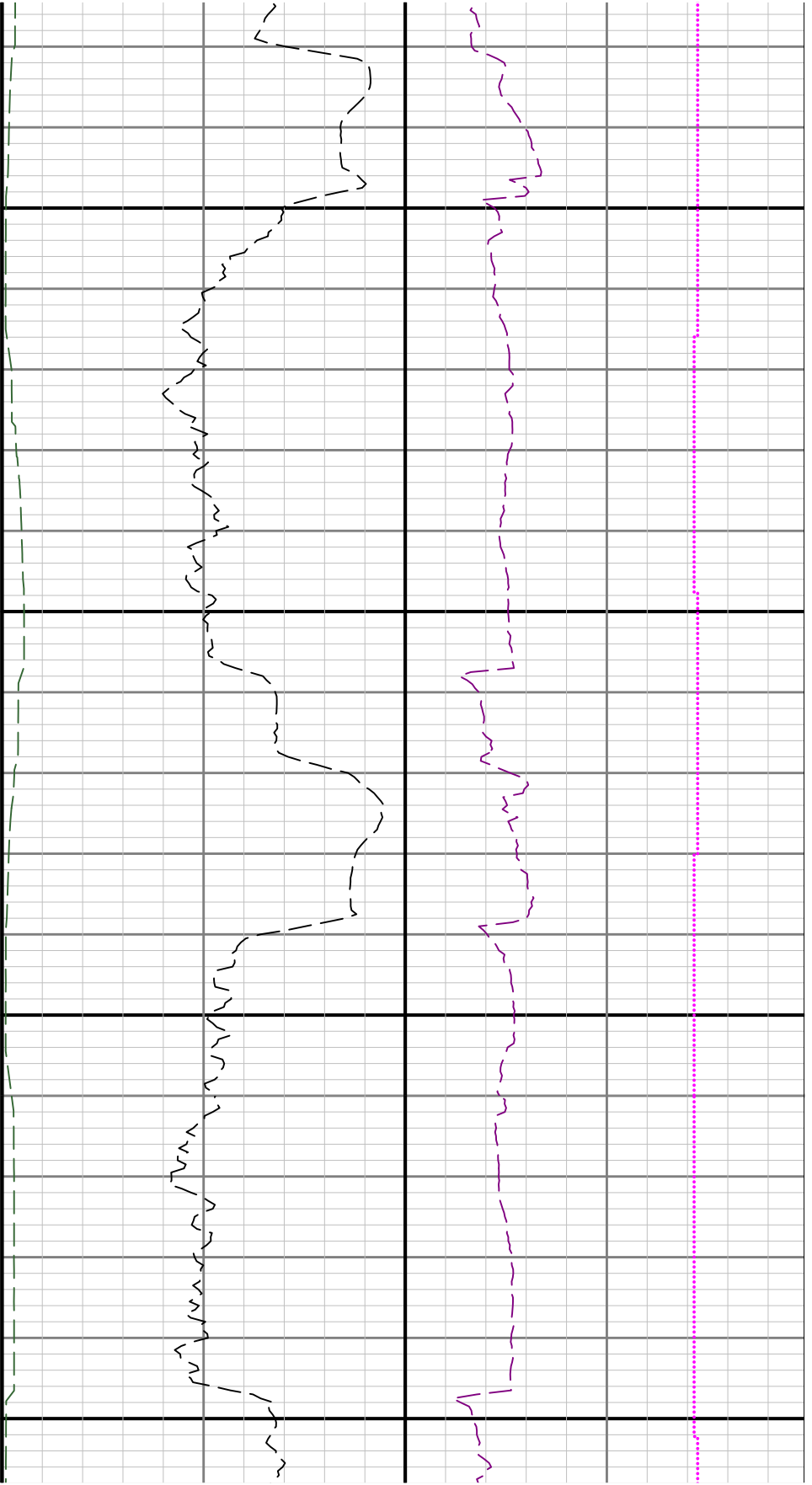




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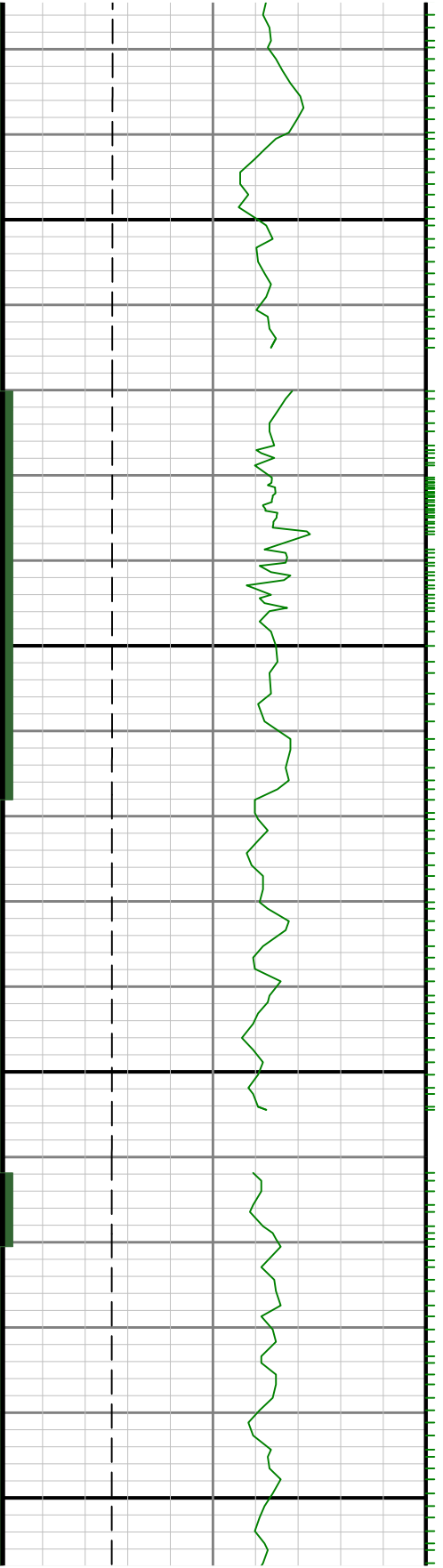
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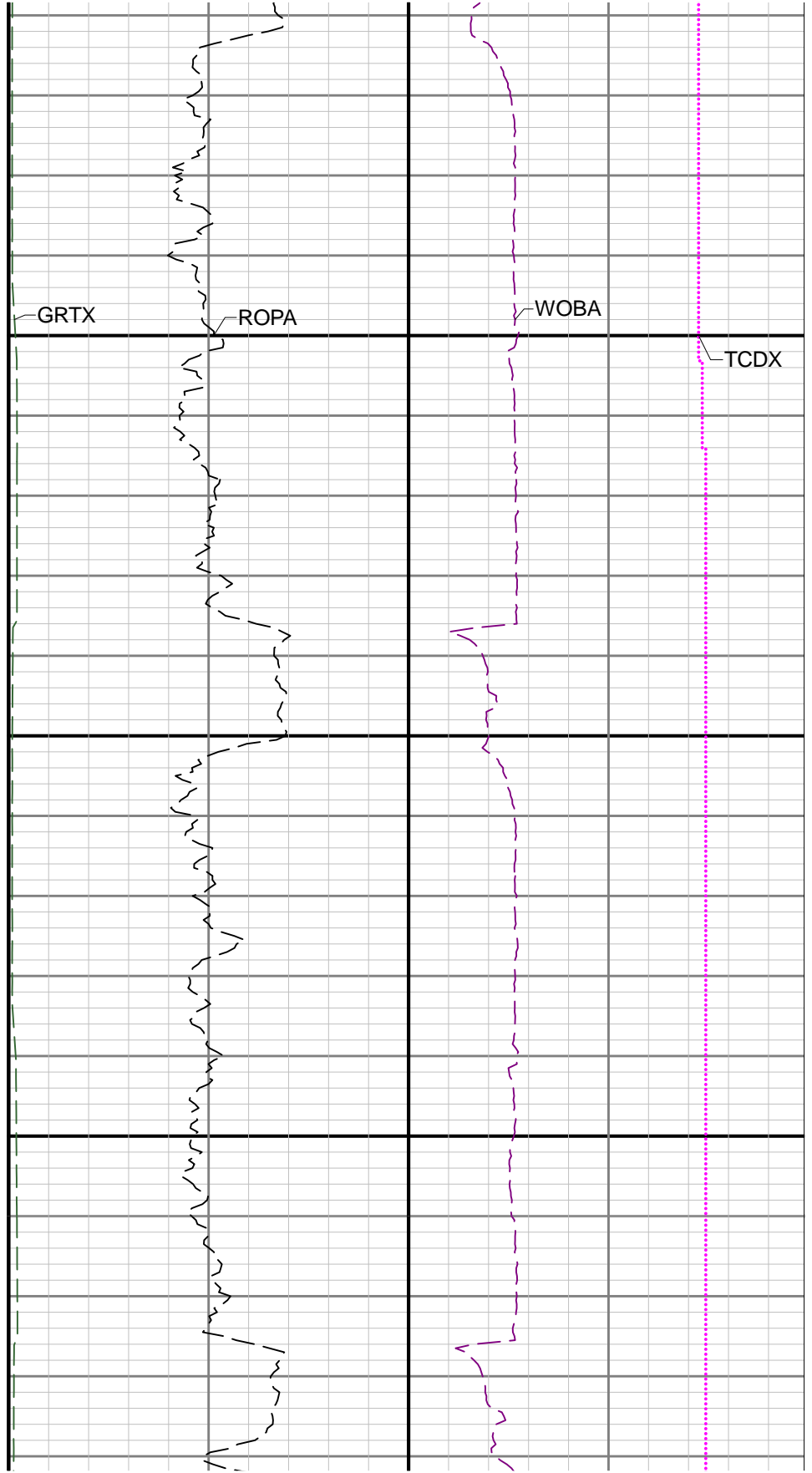
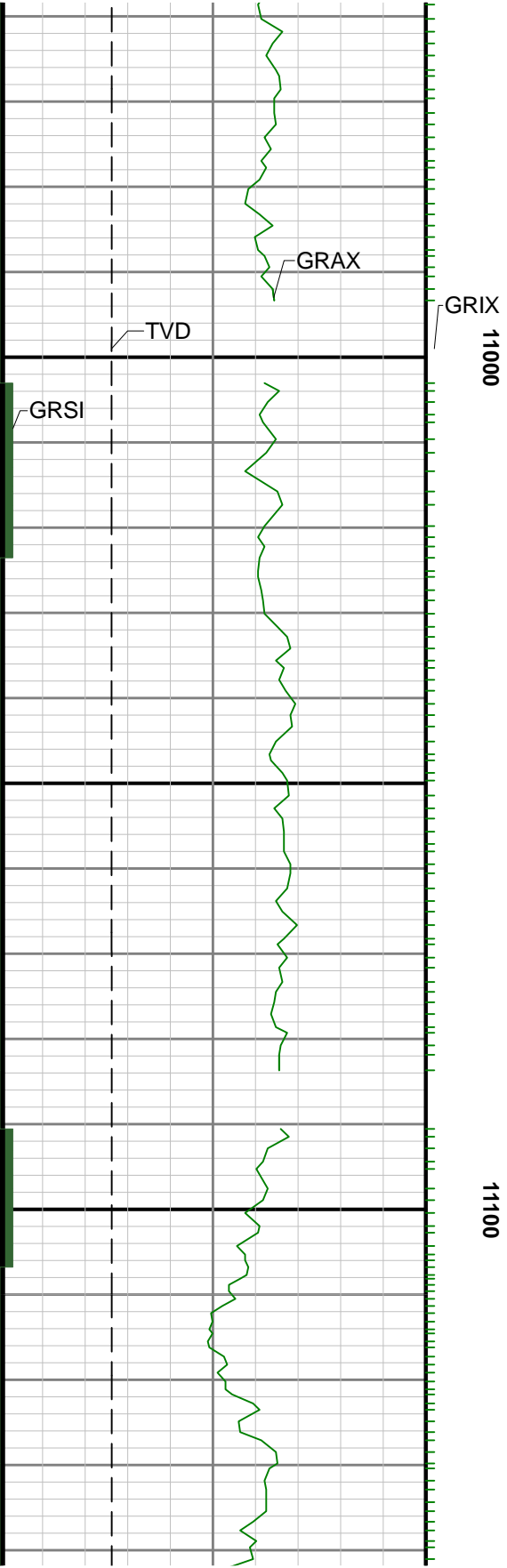


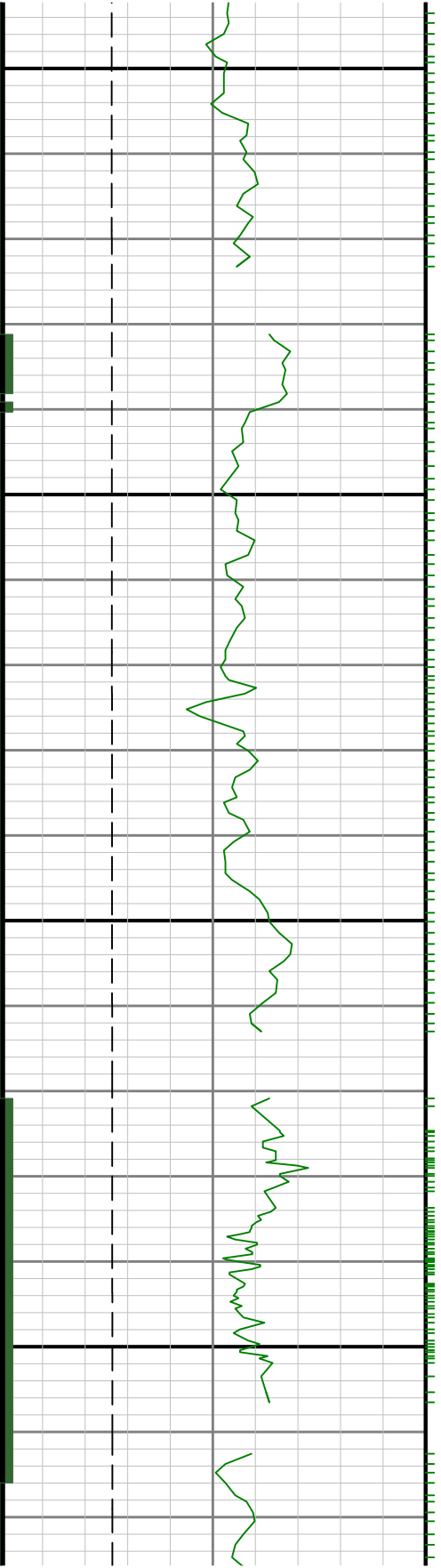
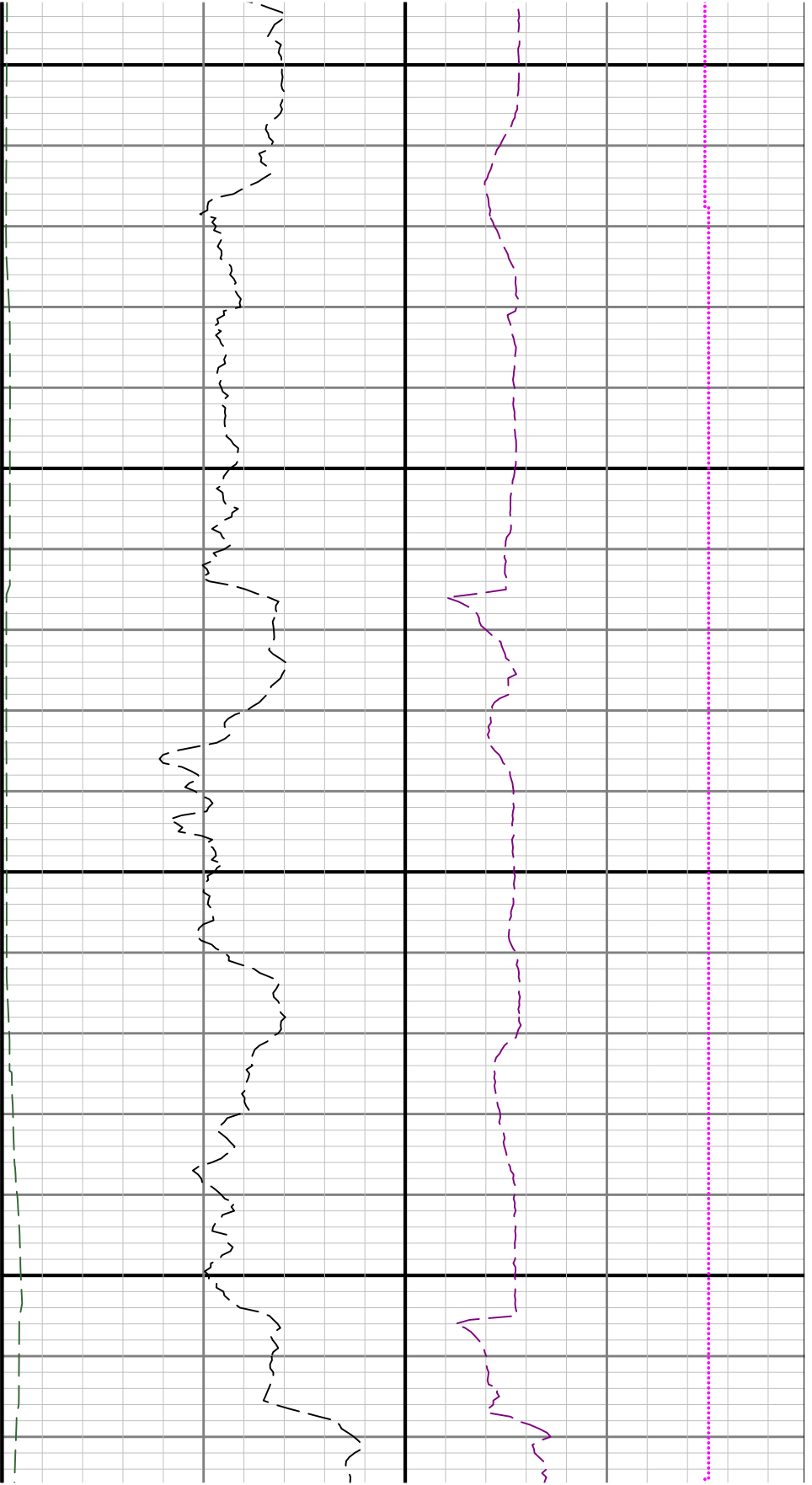


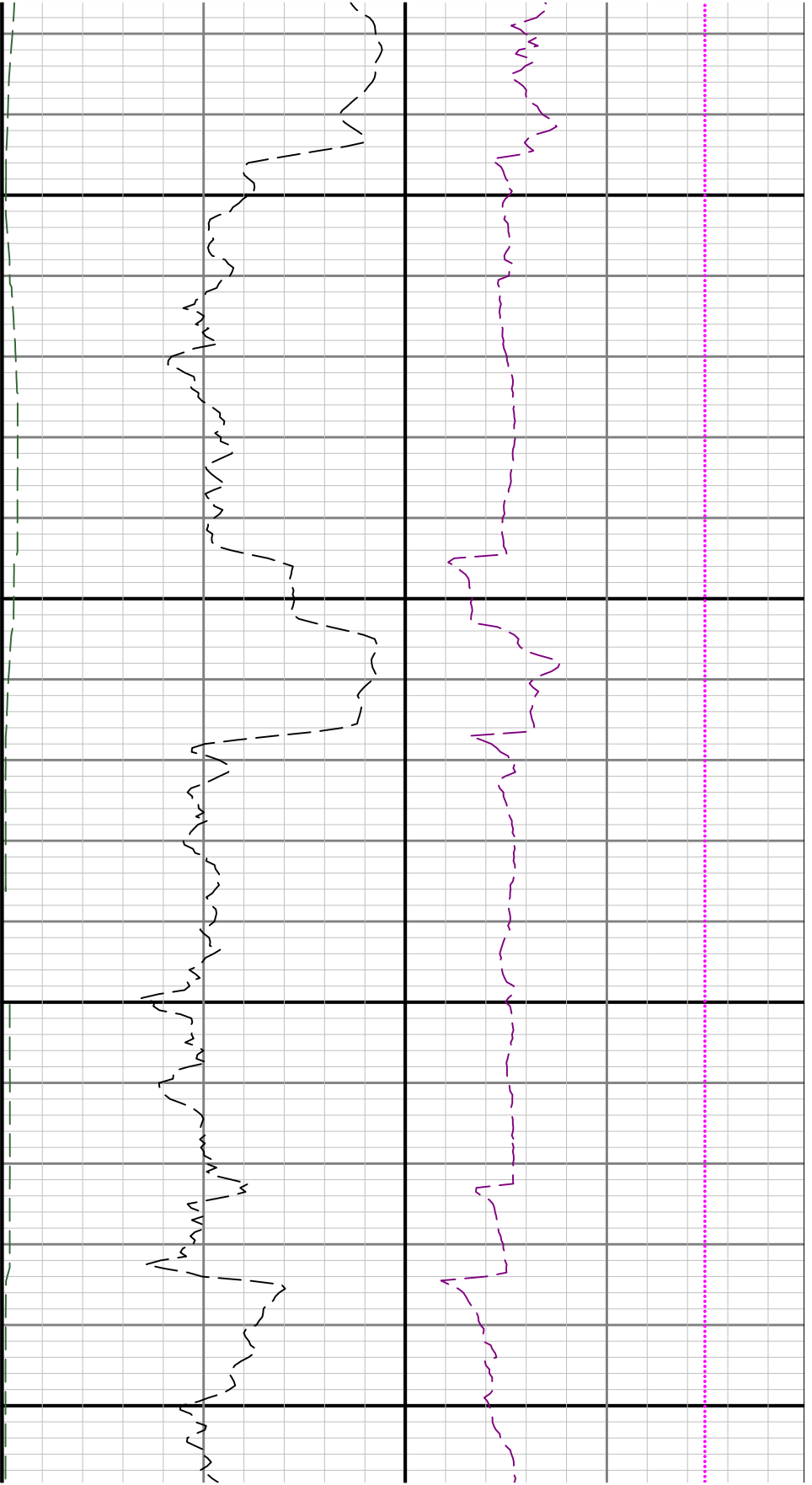
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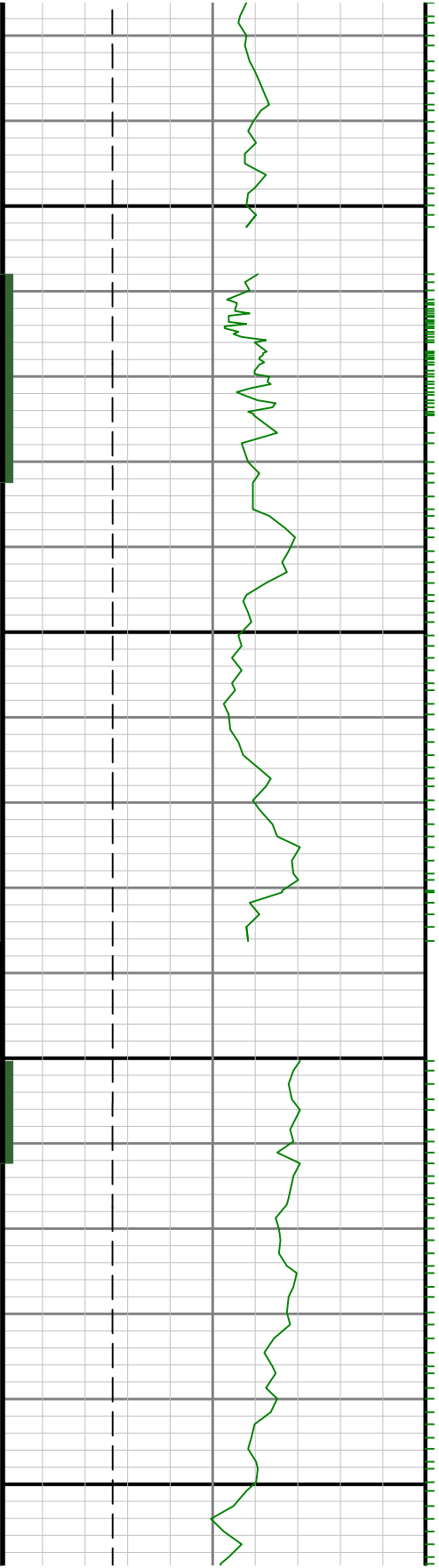


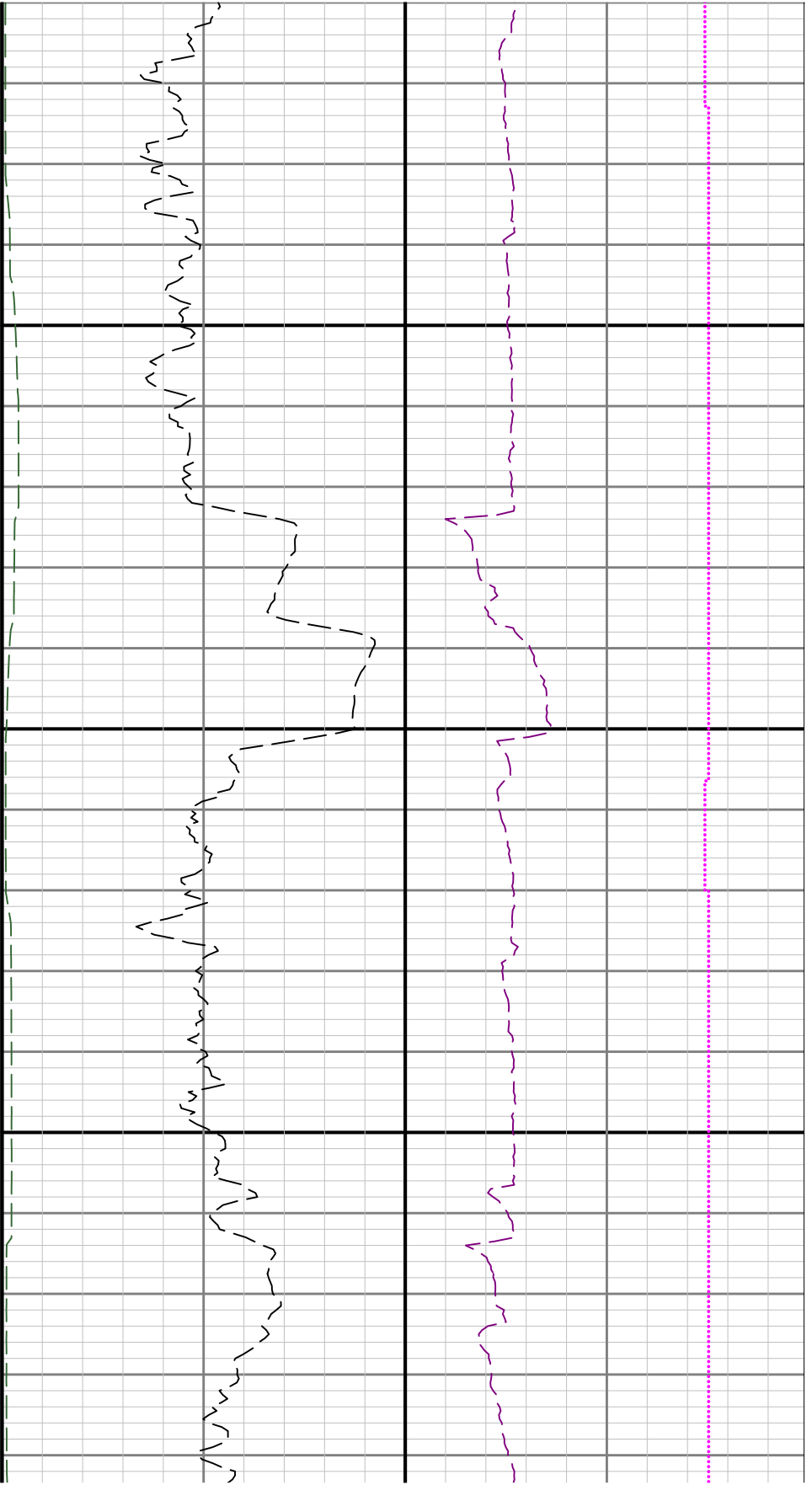




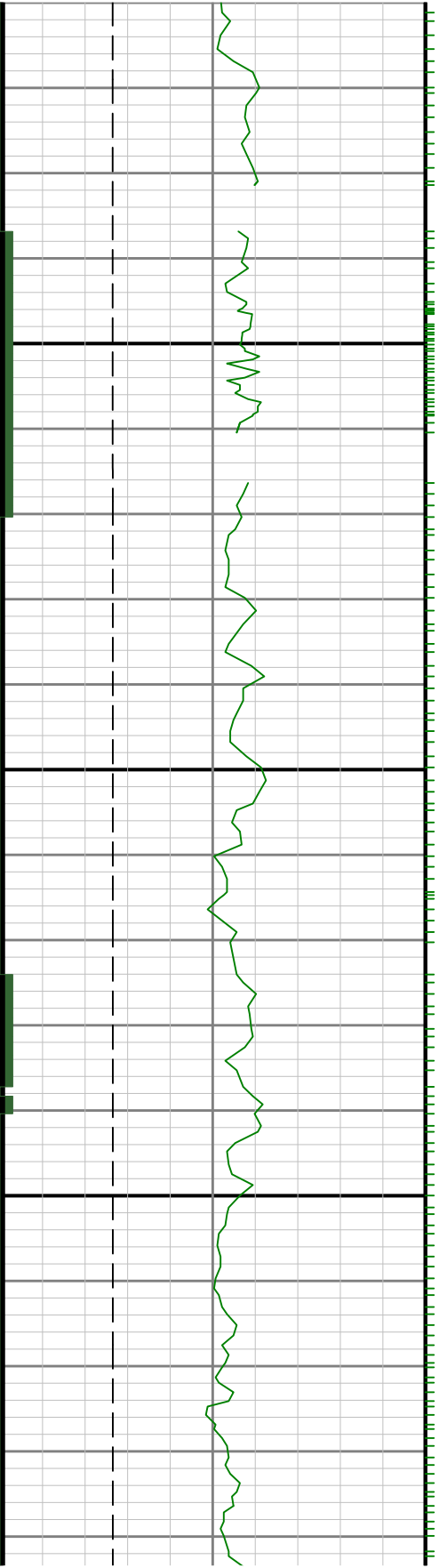
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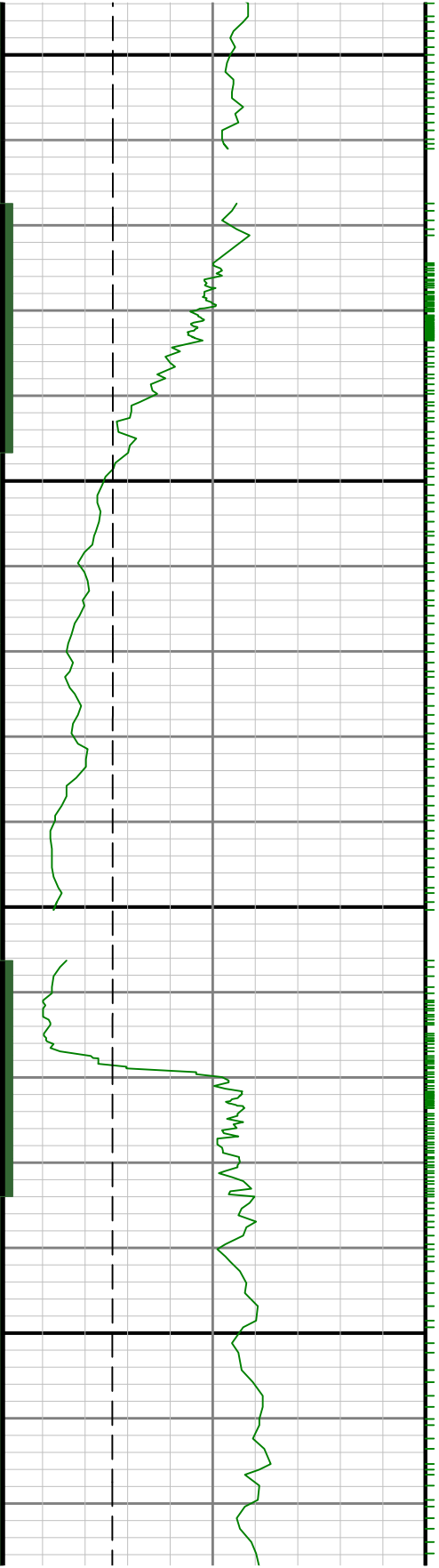


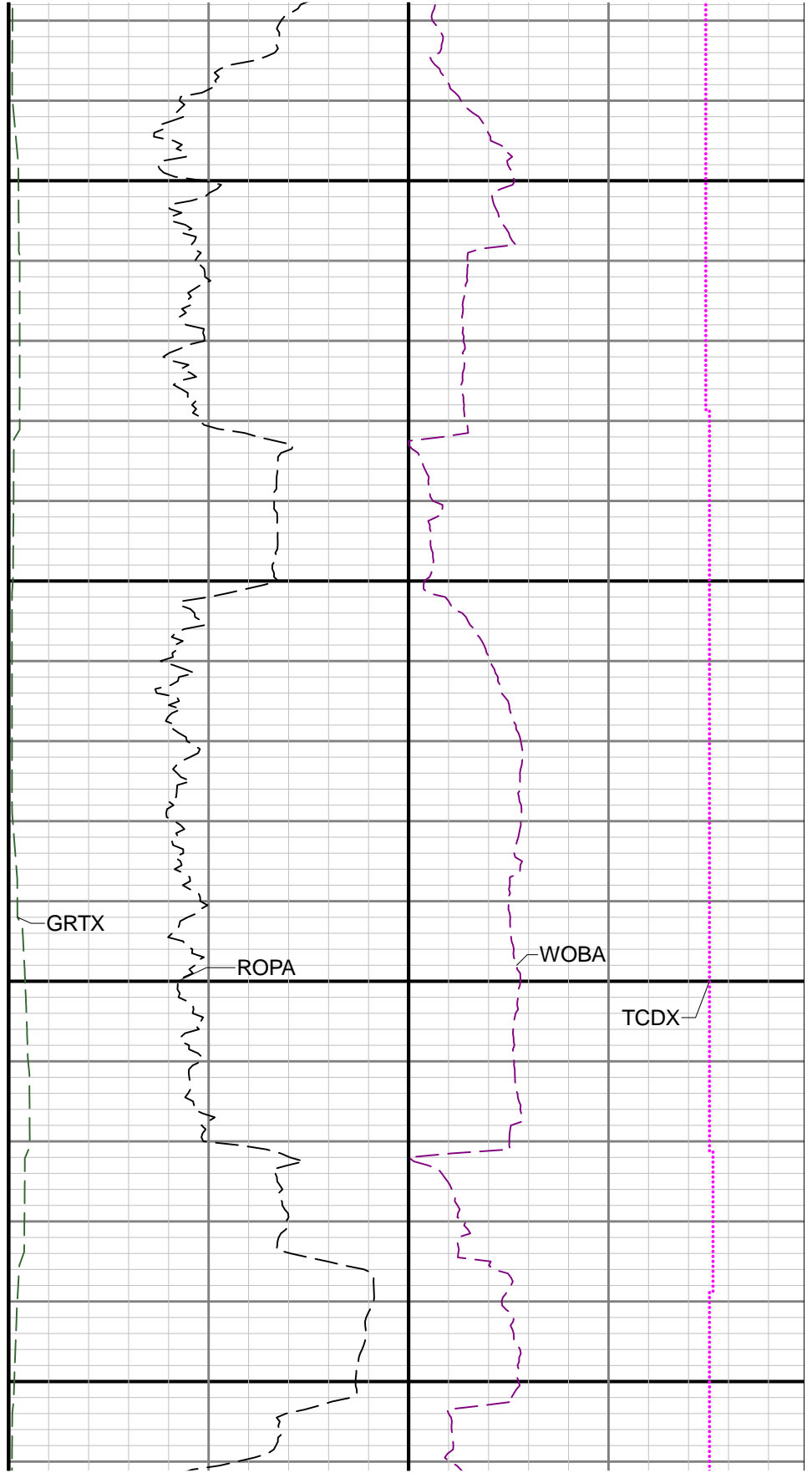
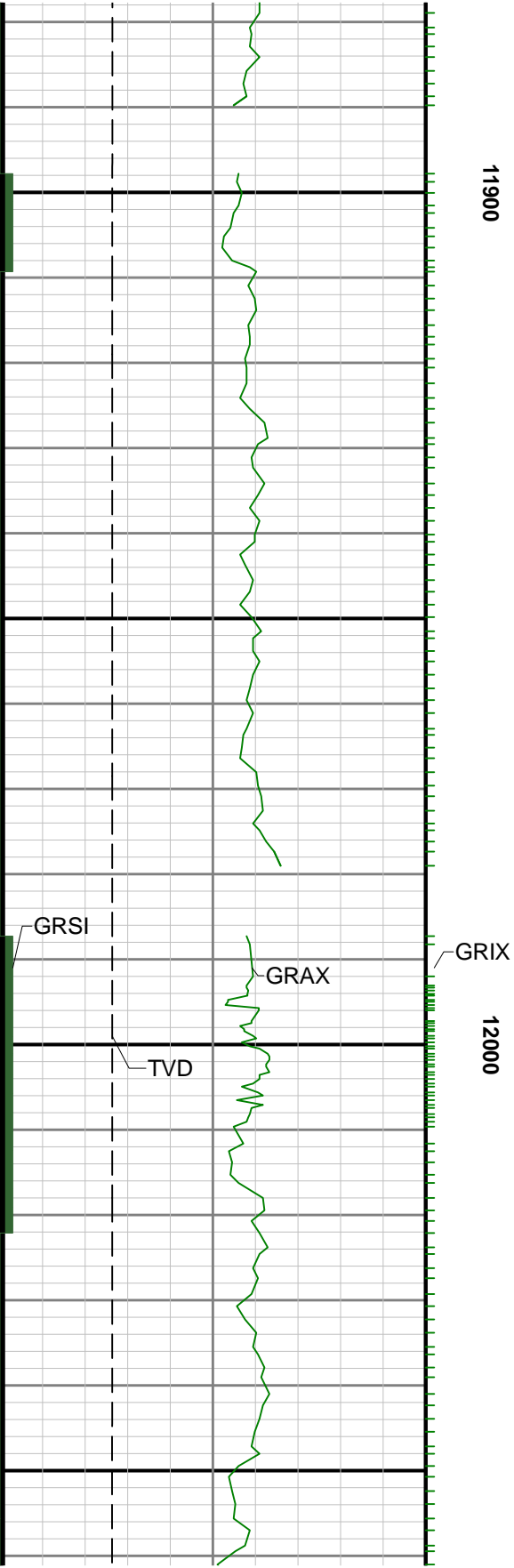


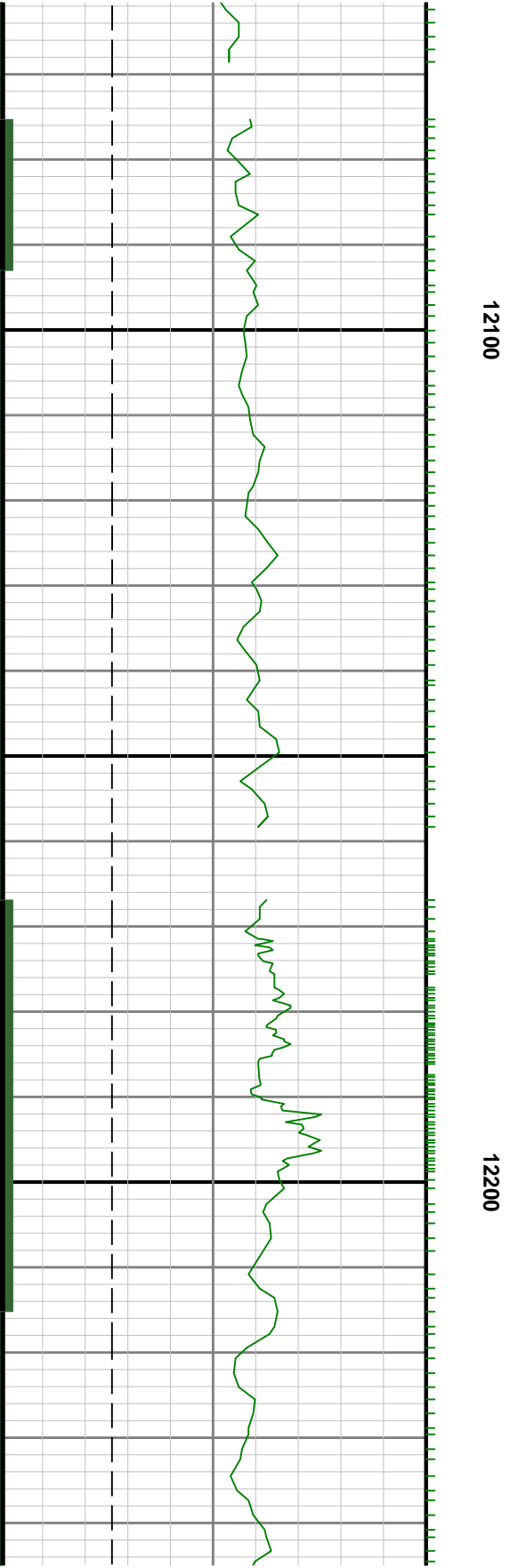
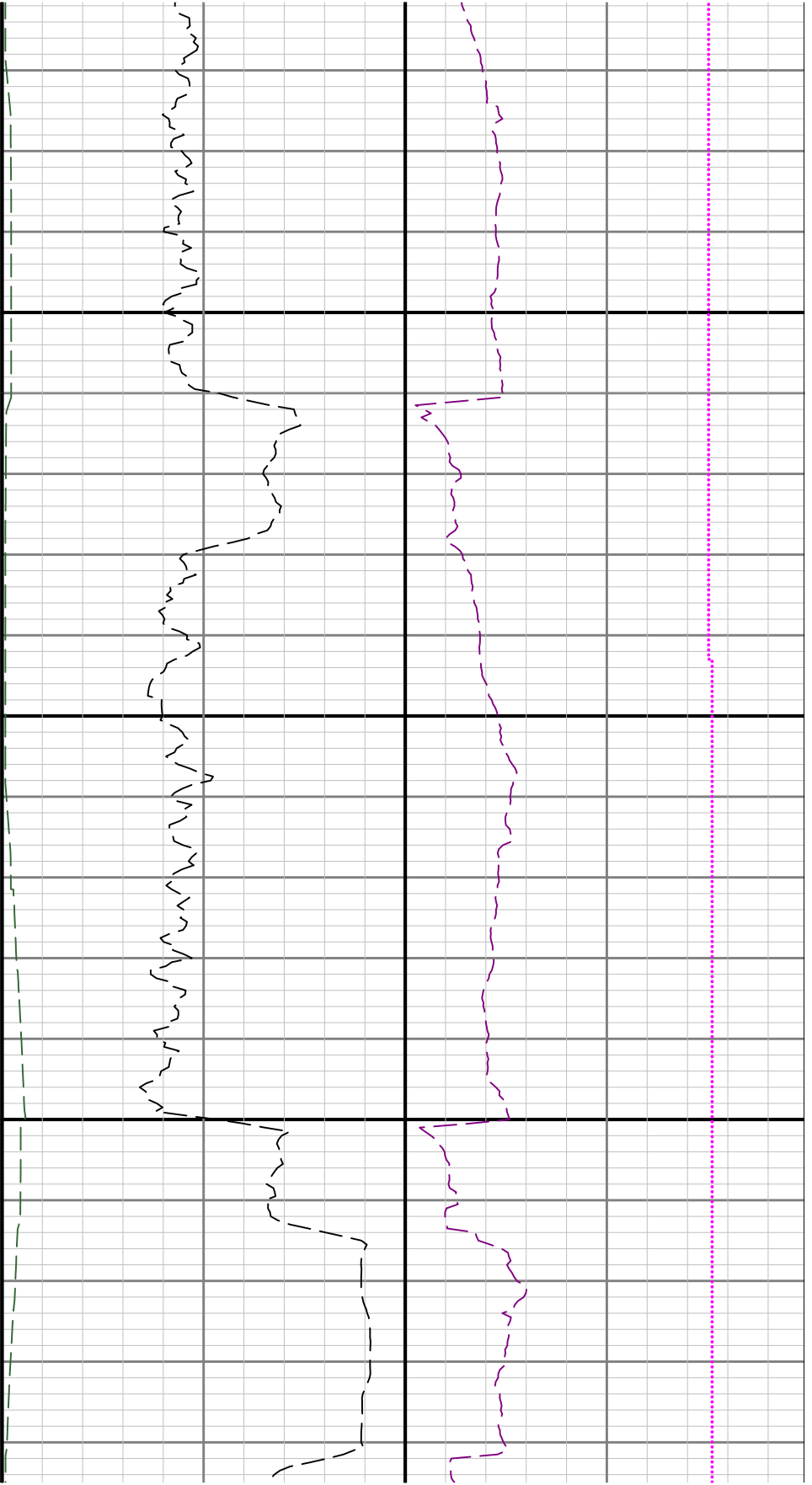


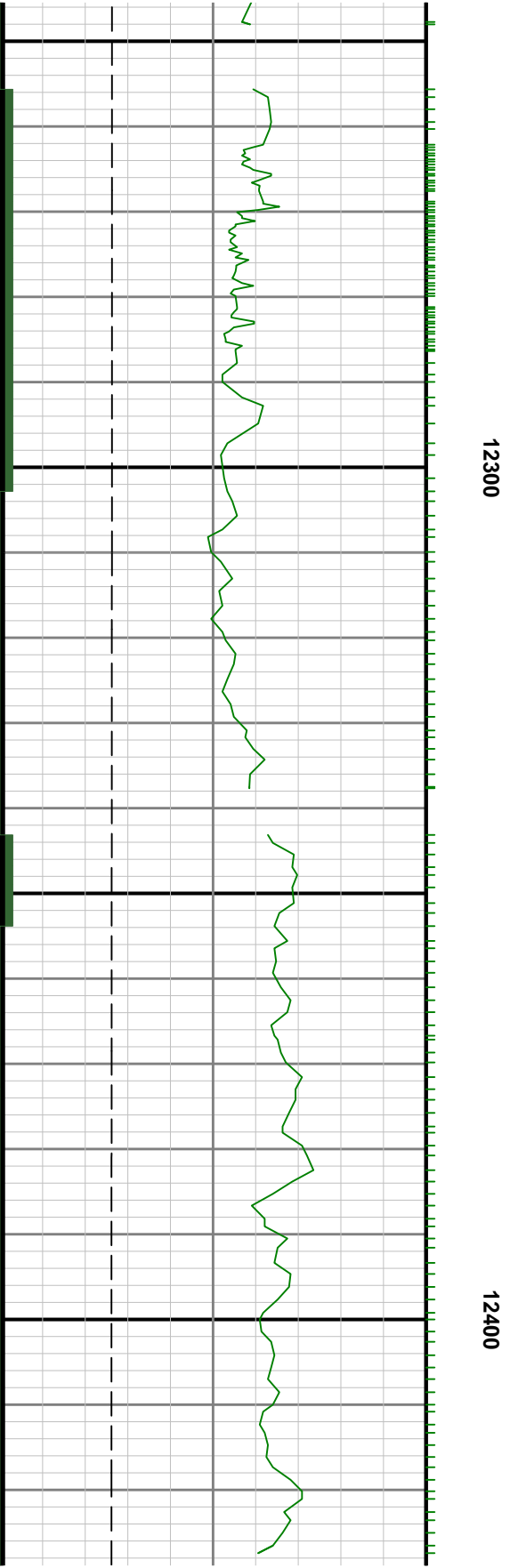
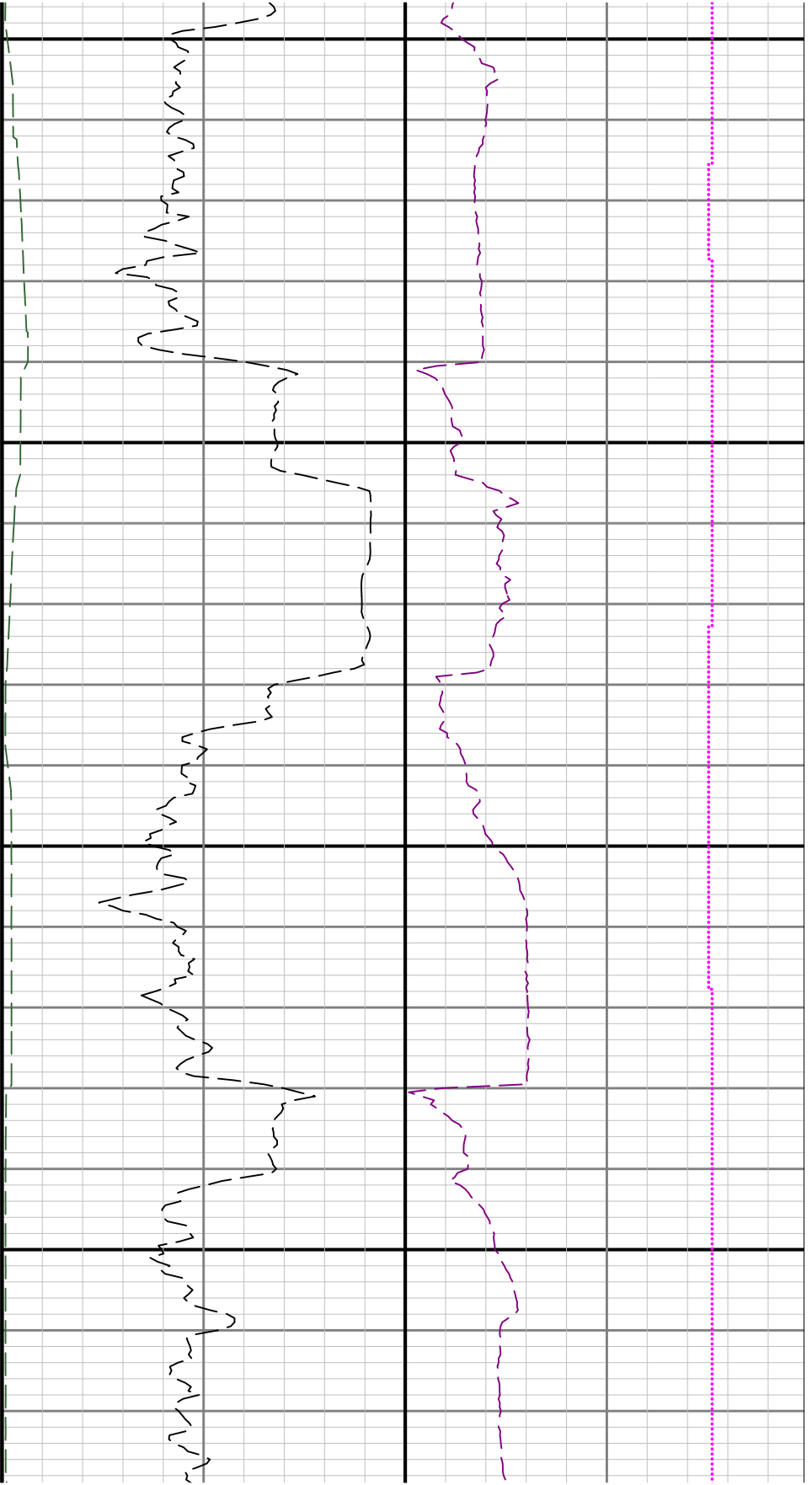
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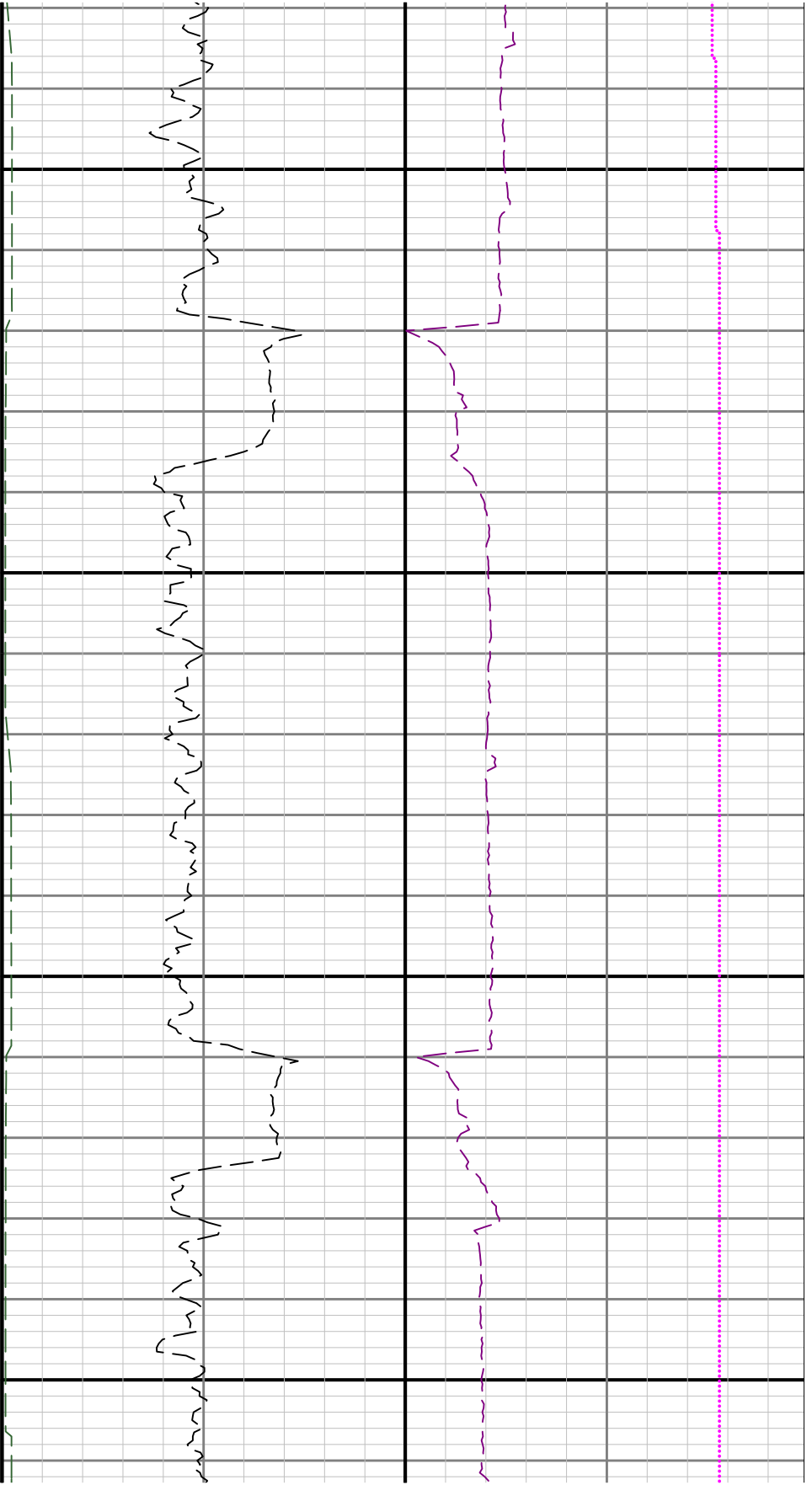
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12500

12600

