



Real Time Log

Natural Formation Evaluation  
Gamma Ray

Scale: **Company: Anadarko**

**1:240**  
**Well: NRC 3N-4HZ**

**Measured Depth**  
**Field: WELD COUNTY (KERR MCGEE)**

**Region: Rocky Mountains State: Colorado**

Status: **Final Print** Surface Location: Latitude: 40° 3' 3.221" N Other Services:

API Number: 051233860800 Longitude: 104° 53' 53.257" W Directional  
SEC: 09 TWP: 1N RNG: 67W

Permanent Datum (P.D.): Ground Level Elevation: 5051.00 ft. Elevations: N/A

Log Measured From: Rig Floor 16.00 ft. Above P.D. KB: N/A  
Depth Reference: Driller's Depth GL: 5067.00 ft. 5051.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6876.0 ft. Date From: 18/Feb/14 Dip Angle: 66.57° Azi Reference North: True  
Bottom: 16951.0 ft. Date To: 25/Feb/14 Total Mag to Reference  
Spud Date: 17/Feb/14 Field Strength: 52859.0 nT North Correction: 8.54°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1086.0 ft.	7815.0 ft.	9.625 in.	36.00 lb/ft	Surface	1065.0 ft.
6.125 in.	7815.0 ft.	17000.0 ft.	7.000 in.	26.00 lb/ft	Surface	7790.0 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	7815.0 ft.	8.750 in.	85.0 ft.	0.4° / 157.3°	3.7° / 262.6°
LSND	7815.0 ft.	17000.0 ft.	8.750 in.	43.0 ft.	3.7° / 262.6°	84.3° / 367.5°
			6.125 in.	85.0 ft.	84.3° / 367.5°	92.3° / 363.3°
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig: Xtreme 24	/ Xtreme Coil Drilling
PATS	6.4.1.34	Job No: 6131692	/ D & E
		District / Unit: RMD	

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size  (in.)	Bit Type	Bit Gauge Length  (in.)	Assembly  Type	Logged Interval		Bit Depth Interval		Date / Time				Circ.  Time  (hrs.)
							Top	Bottom	From	To	Start		End		
							(ft.)	(ft.)	(ft.)	(ft.)					
1	1	1	8.750	PDC	2.000	Steerable	6876.0	7765.0	6926.0	7815.0	17/Feb/14	12:35	19/Feb/2014	03:00	25.1
2	2	2	6.125	PDC	6.000	Steerable	7766.0	16951.0	7815.0	17000.0	20/Feb/14	03:15	25/Feb/2014	09:00	118

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Osagie Otoikhine	19/Feb/14	26/Feb/14	Austin Small	16/Feb/14	26/Feb/14	Marcus Boucher	16/Feb/14	18/Feb/14

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
18/Feb/14 18:00	1	7720.0	Drill Water	9.1	8	8.8	N/A	0.0/94.0	Flowline	800	N/A
20/Feb/14 18:00	2	8150.0	LSND	9.8	17	9.3	N/A	2.0/88.0	Flowline	1400	N/A
21/Feb/14 18:00	2	10909.0	LSND	9.4	16	9.3	N/A	2.0/90.0	Active Pits	1500	N/A

### Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent 0.5 ft. Avg.	API
GRIX	Gamma Ray Density	Points
GRSI	Gamma Ray Slide Indicator	Unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	deg F
TVD	True Vertical Depth	ft
WOBA	Surface Weight on Bit 1.0 ft Avg.	klbf

### Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	13153787	Directional	53.61	6.750	2.850
1	SRIG	10098472	Gamma	50.19	6.750	3.302
2	DIR	12479858	Directional	52.60	4.750	2.750
2	SRIG	12595022	Gamma	49.22	4.750	2.250

### Service and Tool Mnemonics

Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

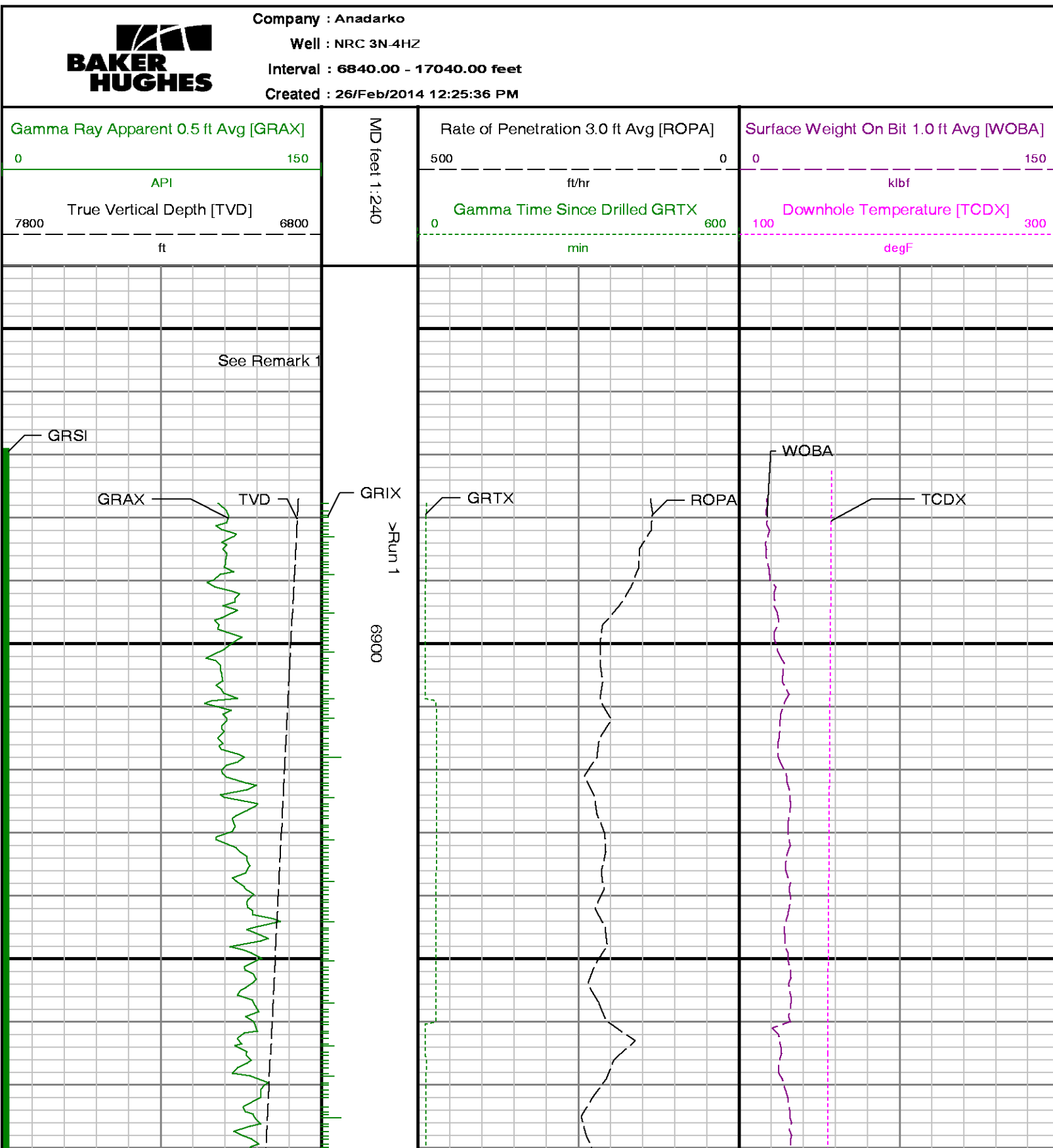
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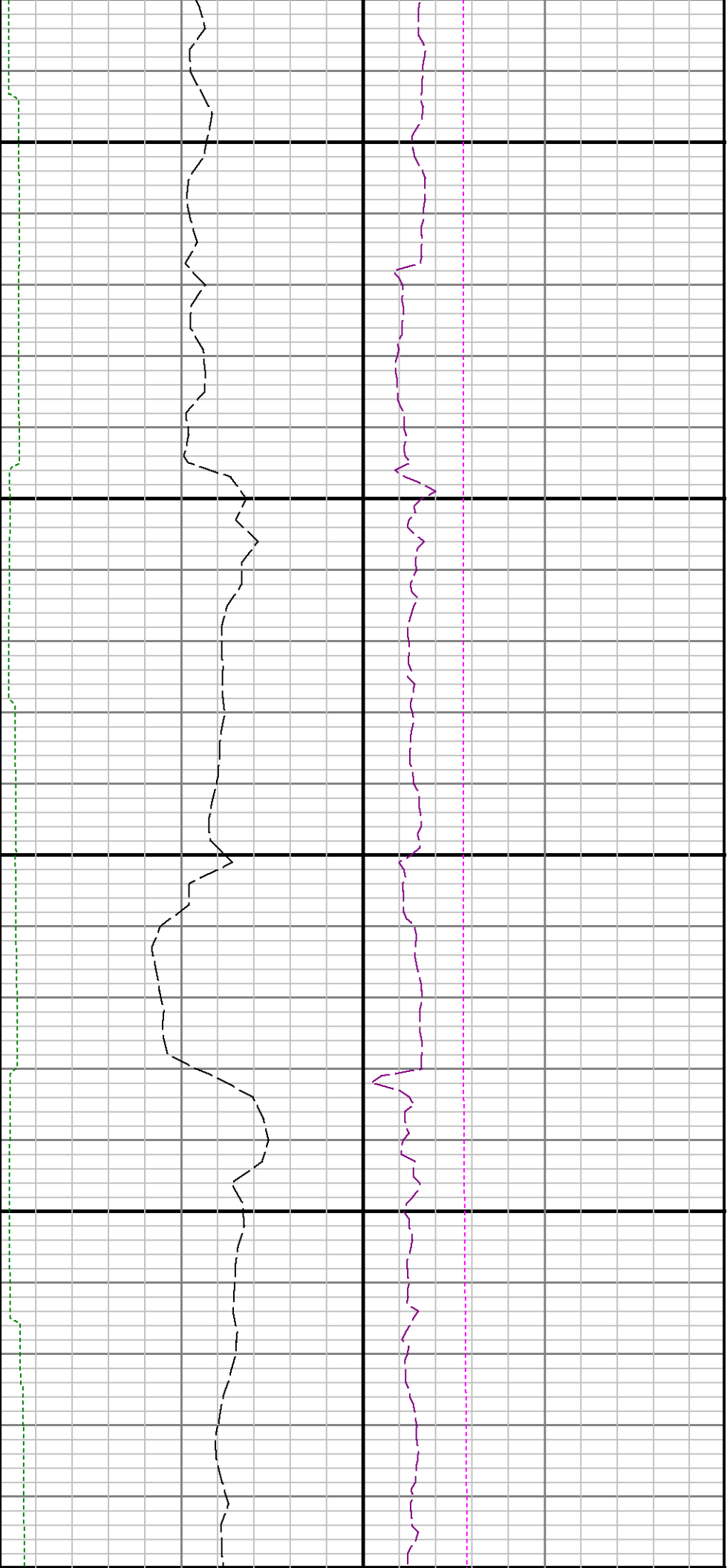
<p>1) Baker Hughes INTEQ run 1 utilized 6 1/2 inch NaviGamma(Gamma Ray and Directional) behind a 8 3/4 inch bit and steerable assembly from 6926 feet to 7815 feet MD (6920 feet to 7478 feet TVD).</p> <p>2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviGamma(Gamma Ray and Directional) behind a 6 1/8 inch bit and steerable assembly from 7815 feet to 17000 feet MD (7478 feet to 7458 feet TVD).</p> <p>3) 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 sensor offset to correspond with gamma data acquired while sliding.</p>
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### Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	6855	8.750	1	The interval from surface to 6873 feet MD (6868 feet TVD) was not logged since logging services began at kick off point

1	6840	8.750	1	the interval from surface to 6873 feet MD (6800 feet TVD) was not logged since logging services began at kick on point.
2	7773	8.750	2	Interval from 7763 feet to 7858 feet MD (7474 feet to 7479 feet TVD) was logged more than 42 hours after drilling due to tripping for casing and cementing operations and picking up lateral BHA.
3	16973	6.125	2	Interval from 16951 feet to 17000 feet MD (7460 feet to 7458 feet TVD) was not logged due to gamma ray sensor offset at well TD.

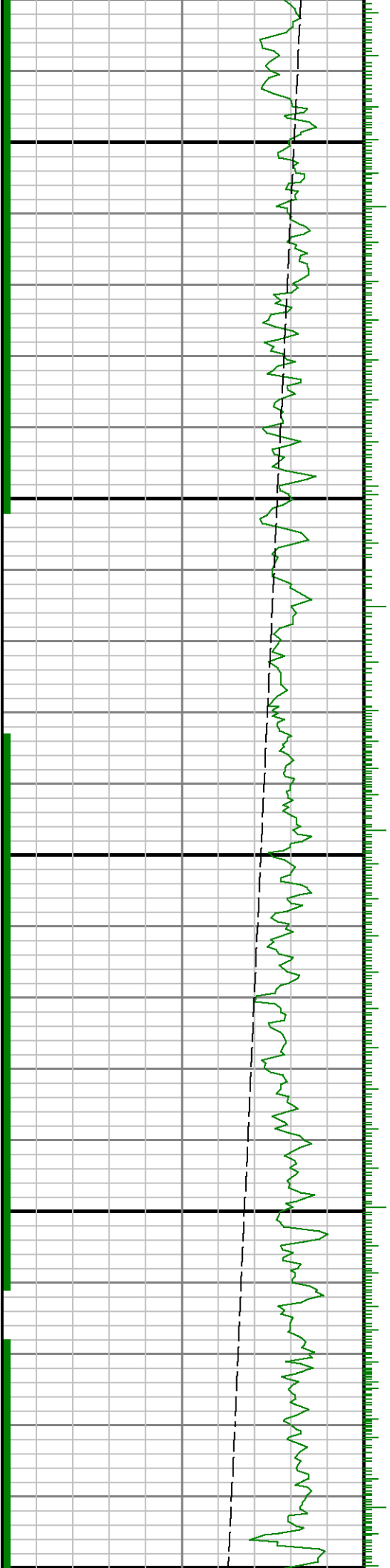




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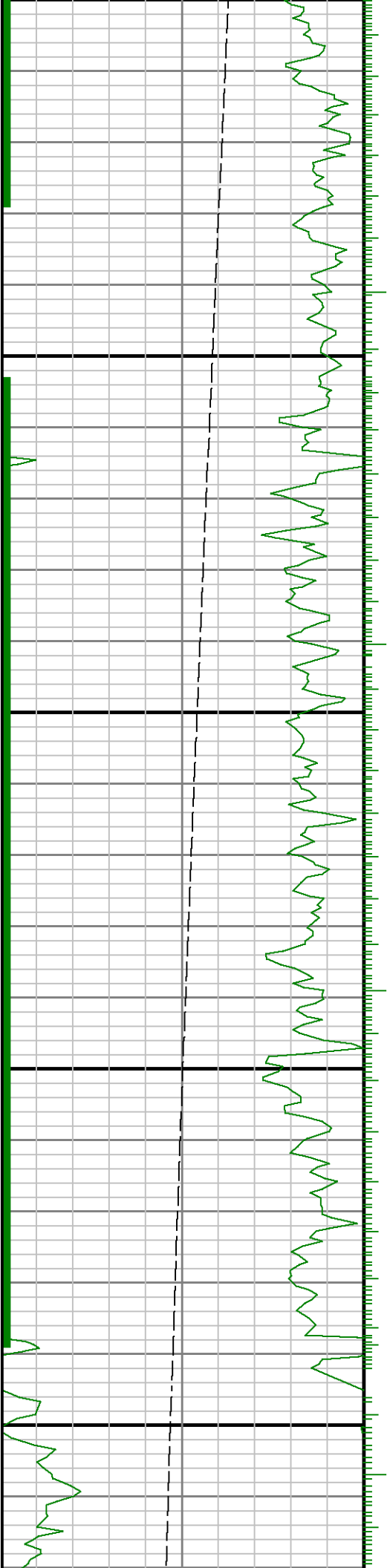


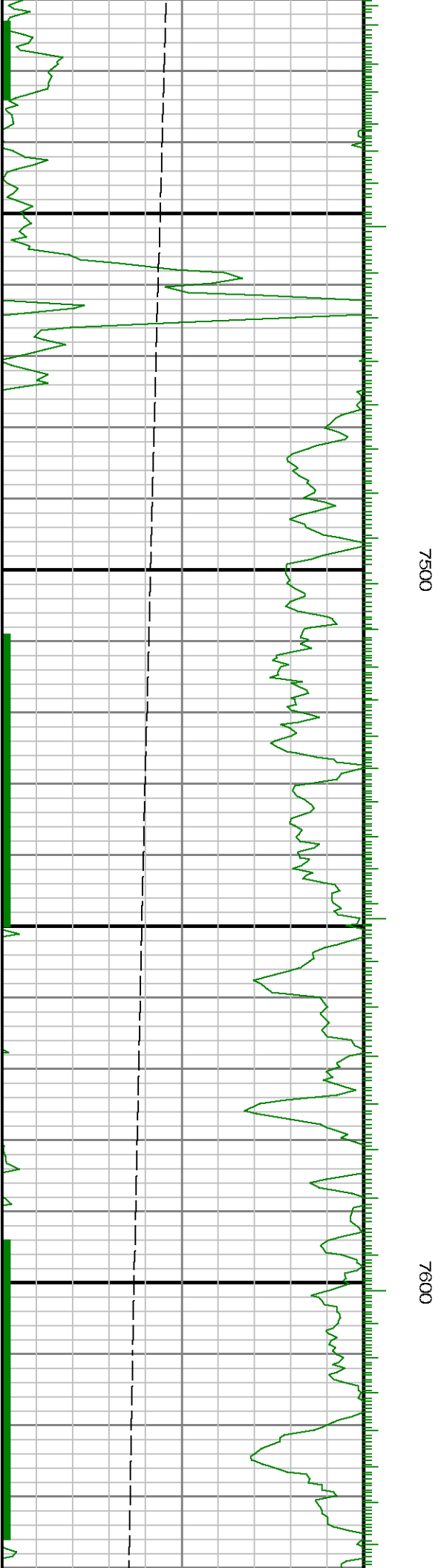
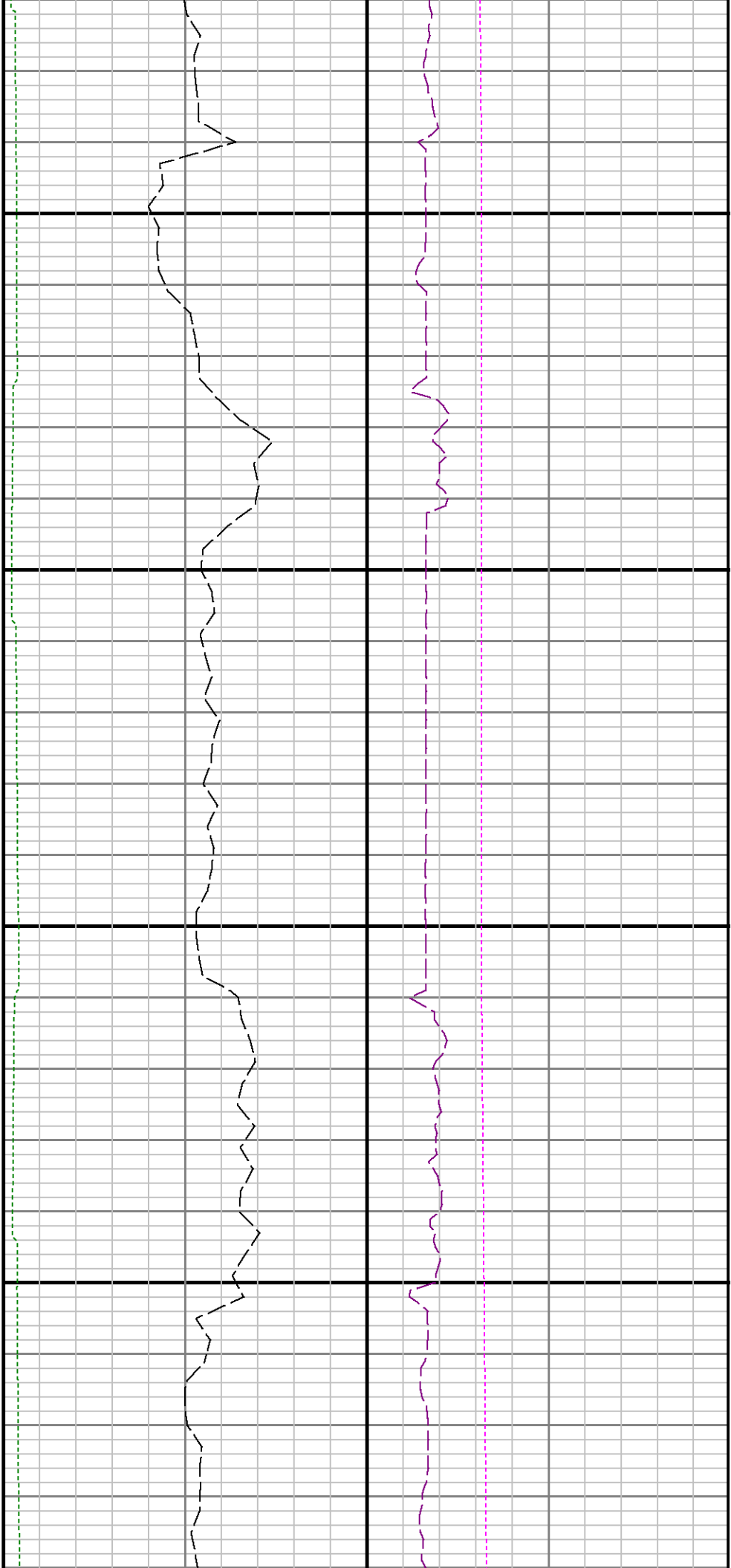


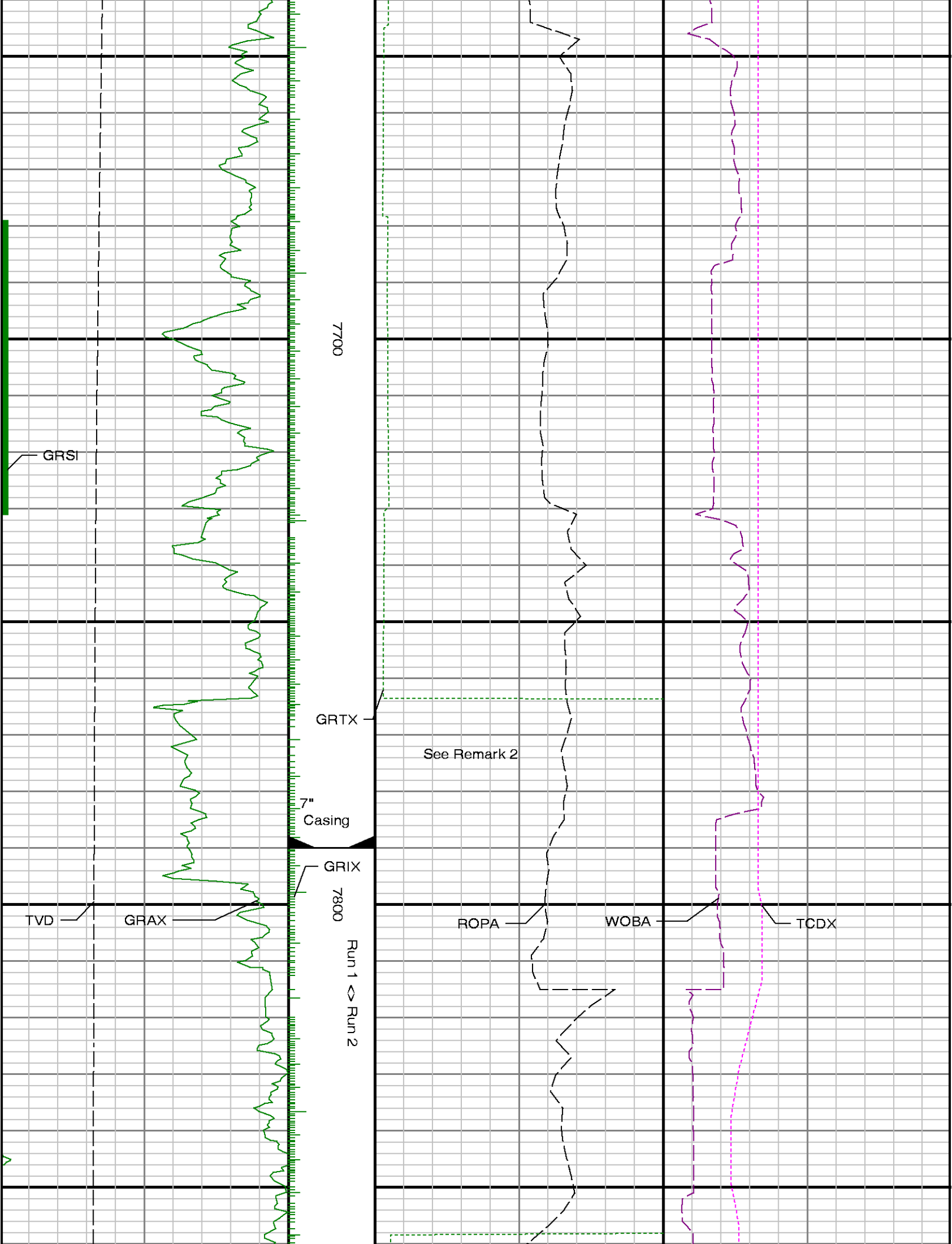
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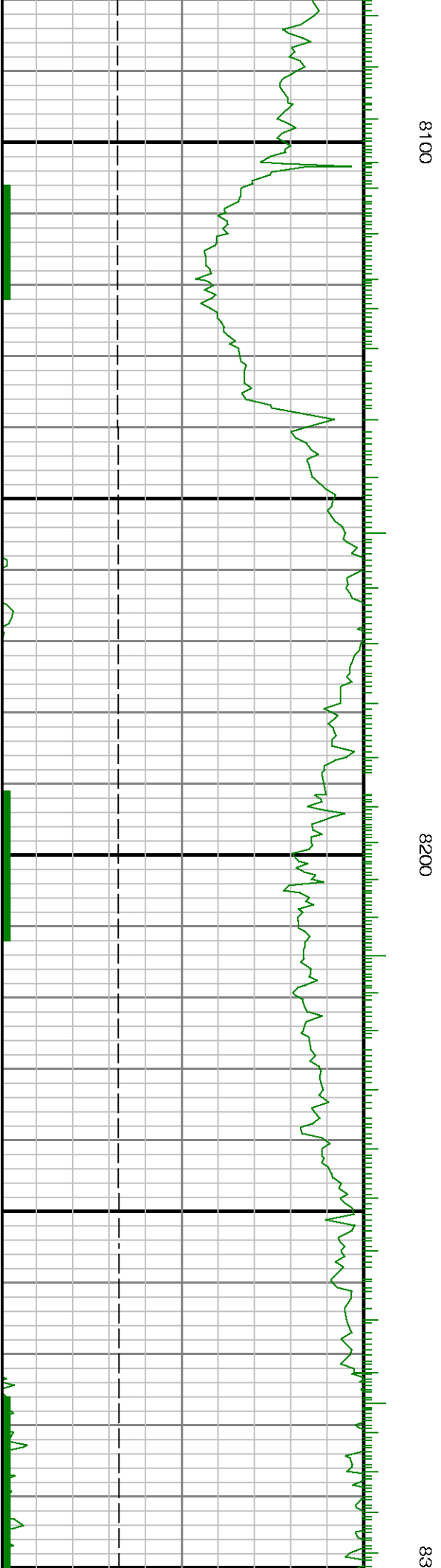










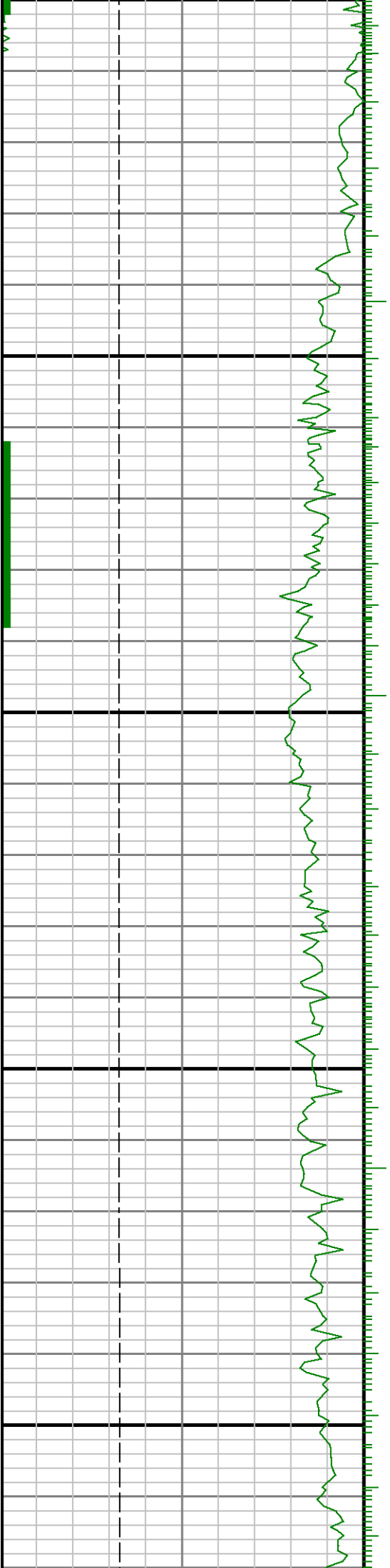


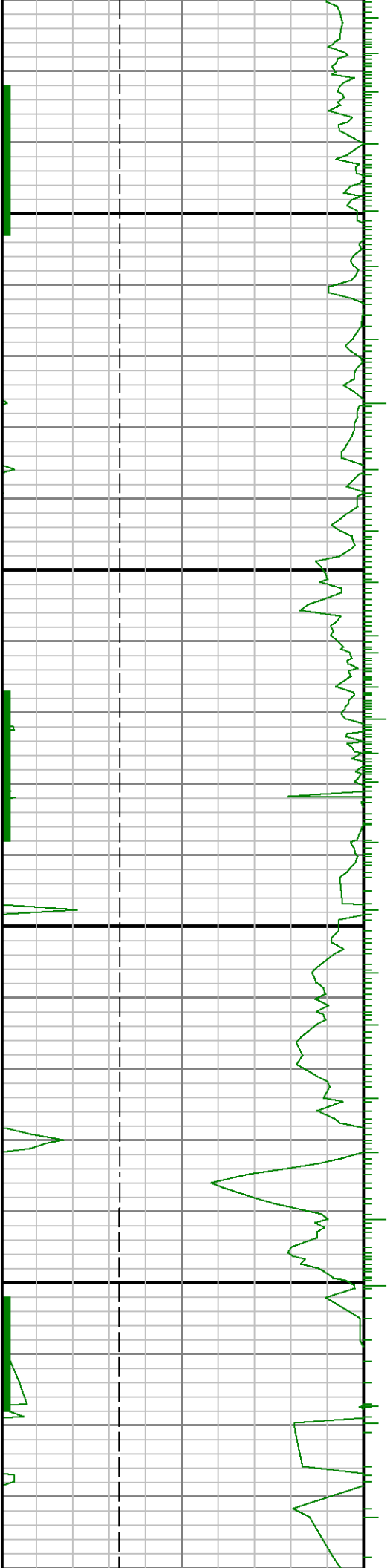


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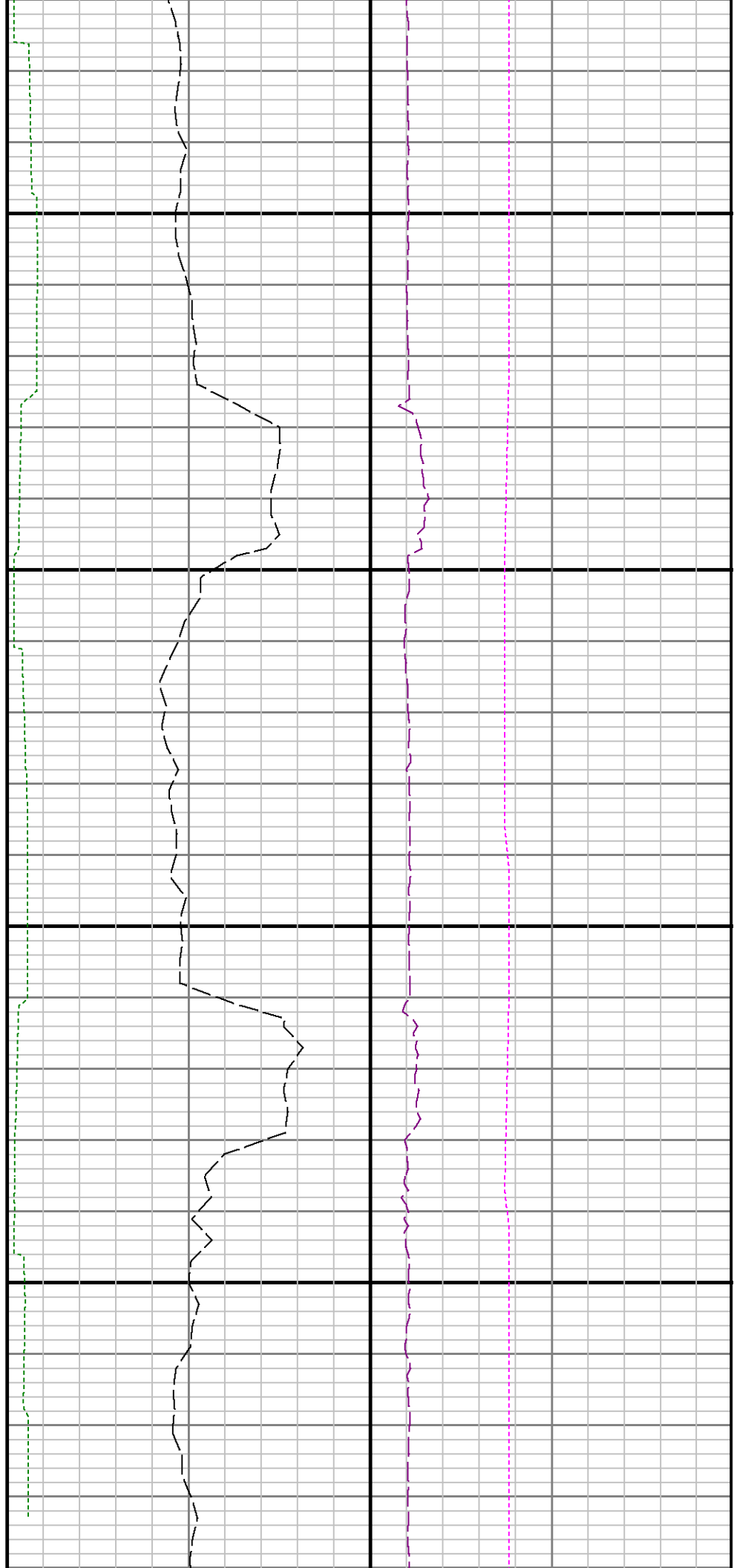
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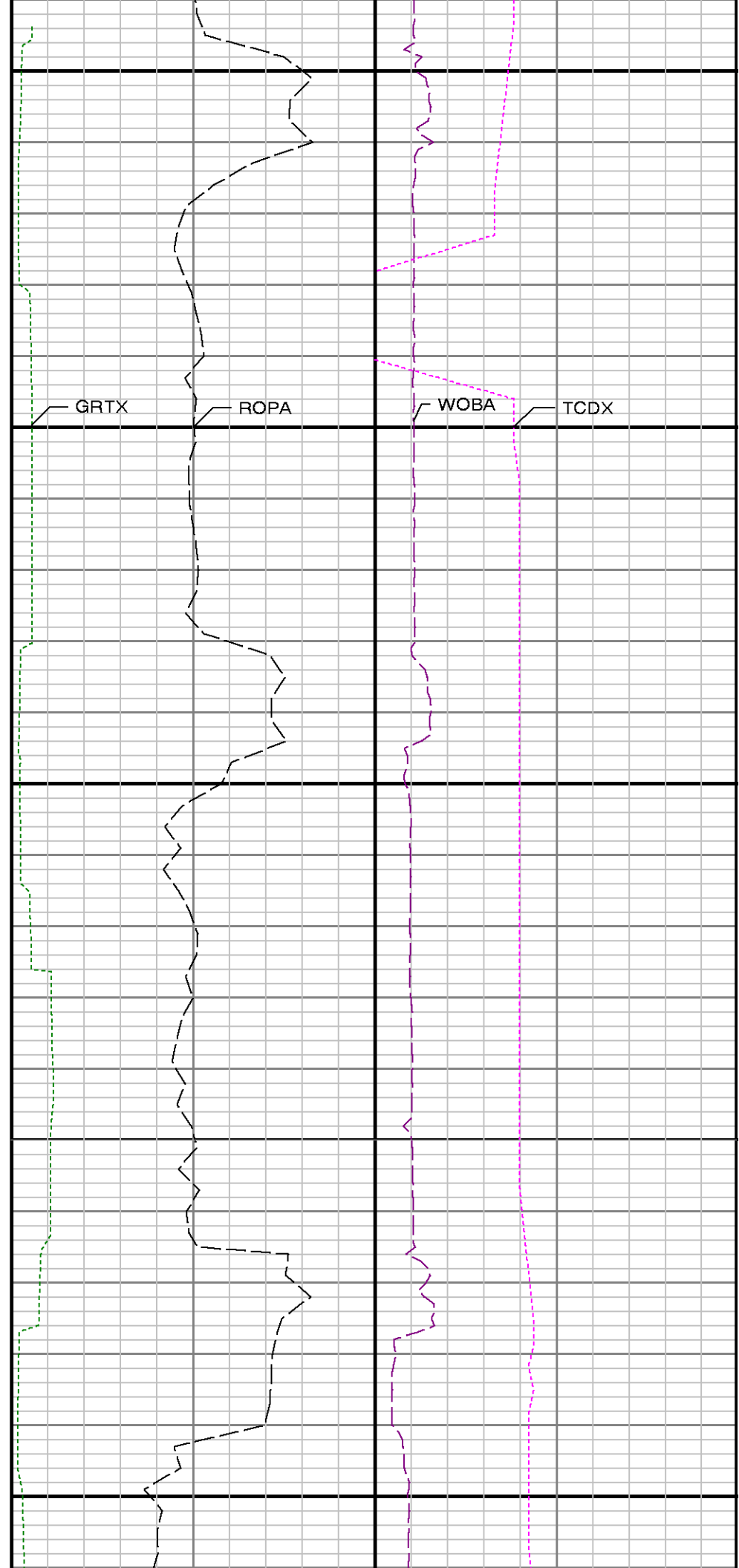
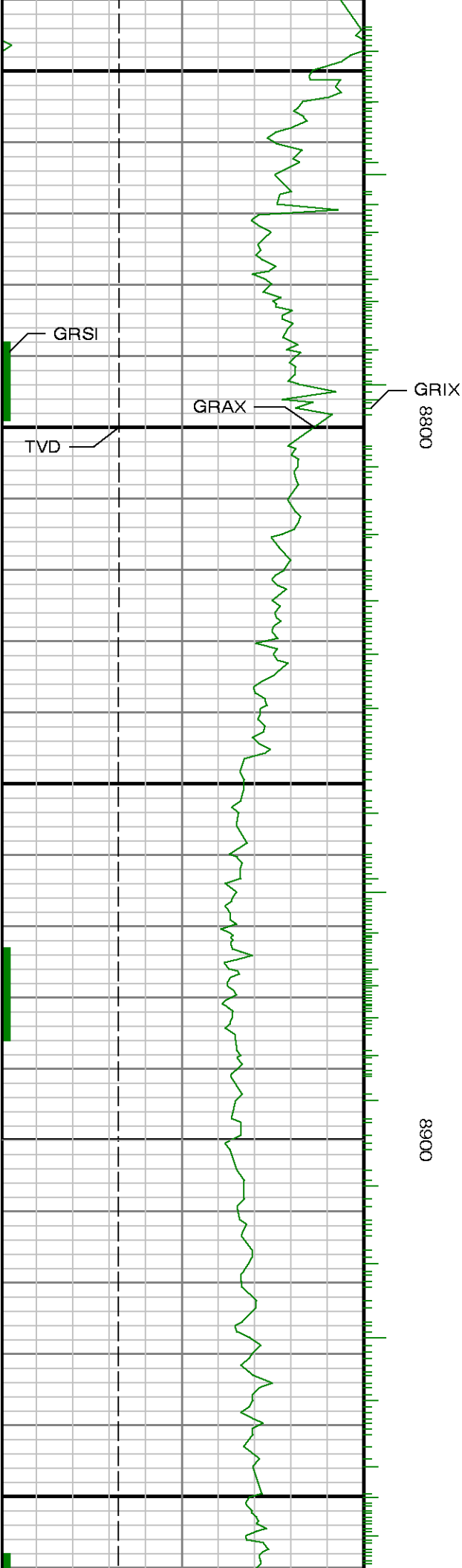


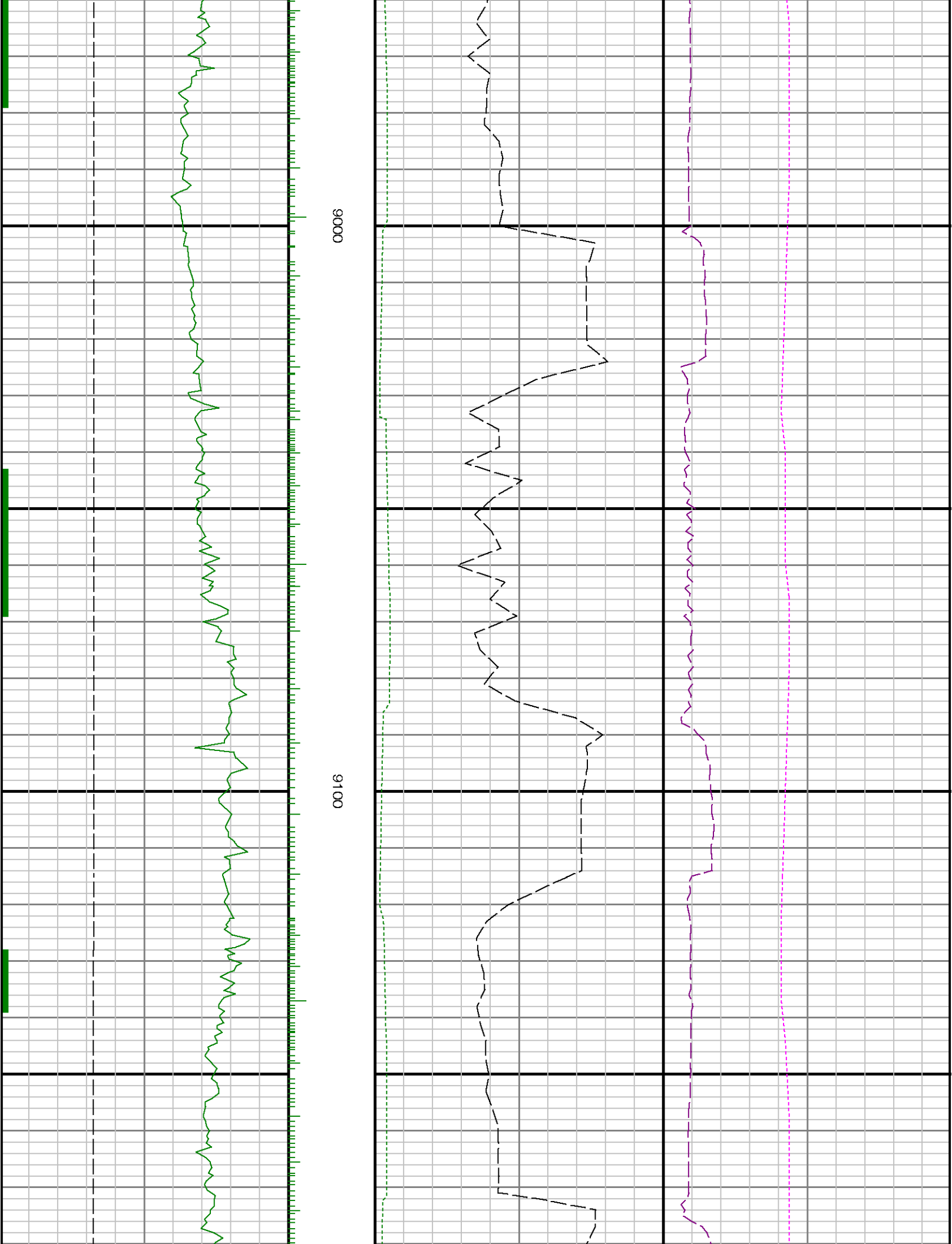


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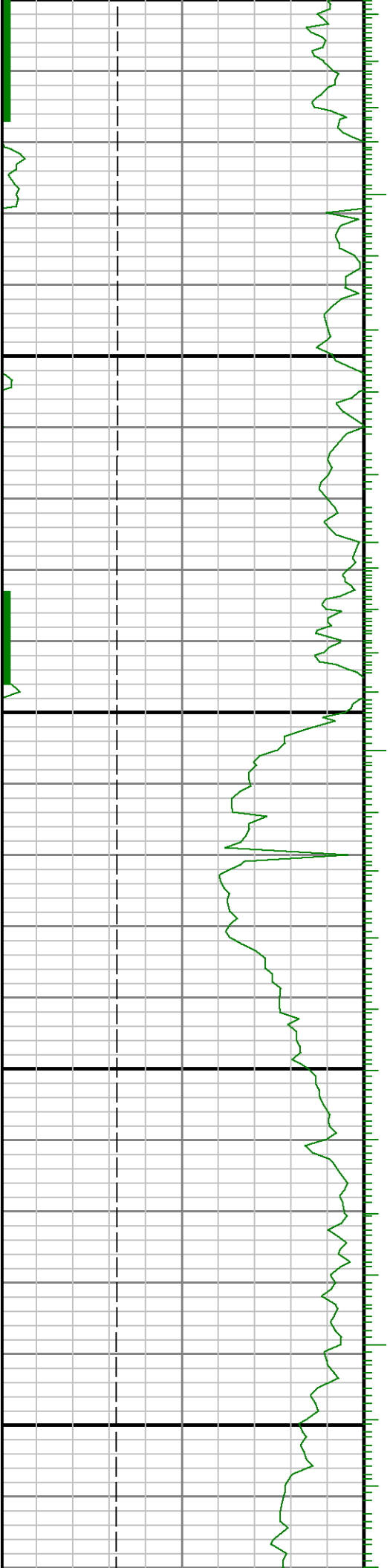




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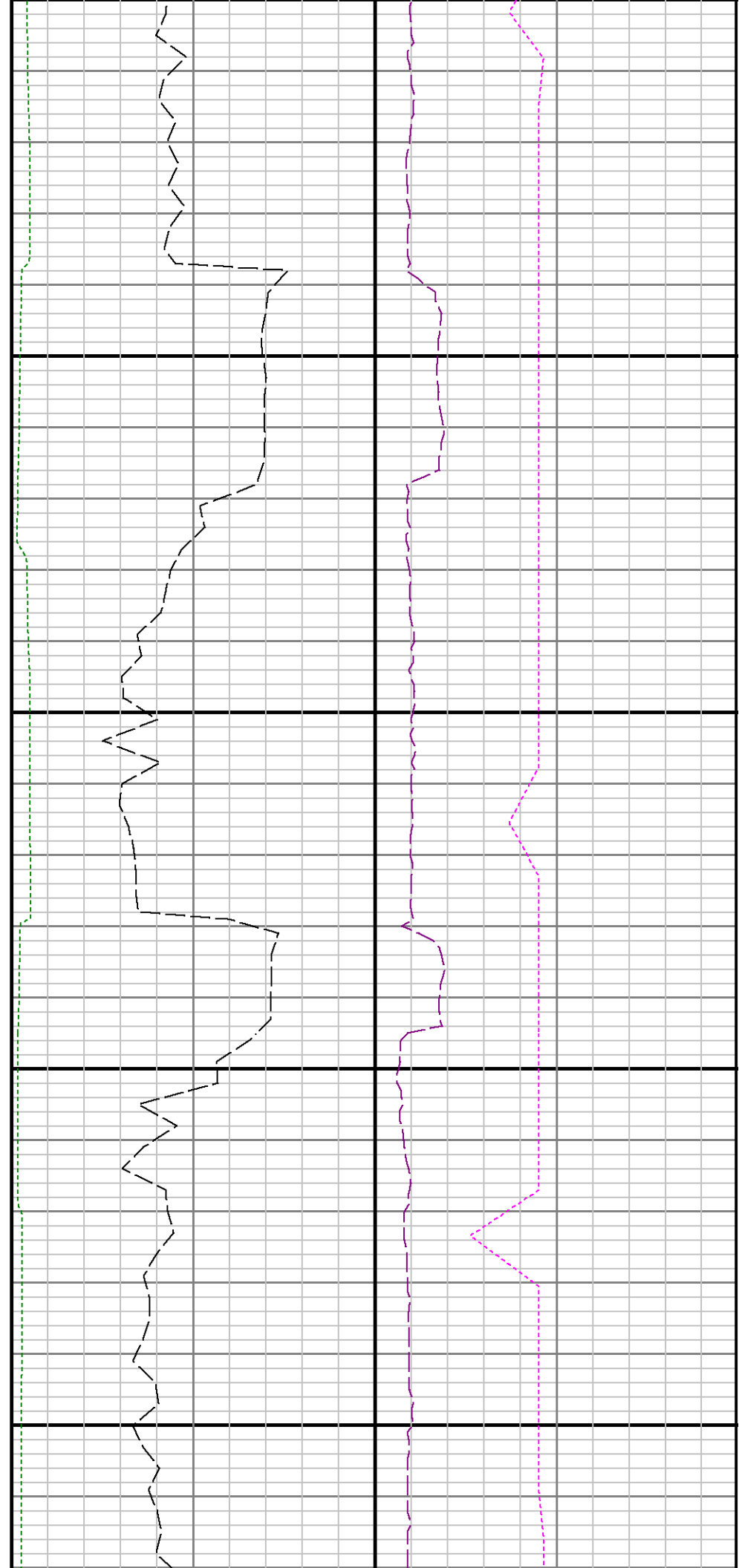
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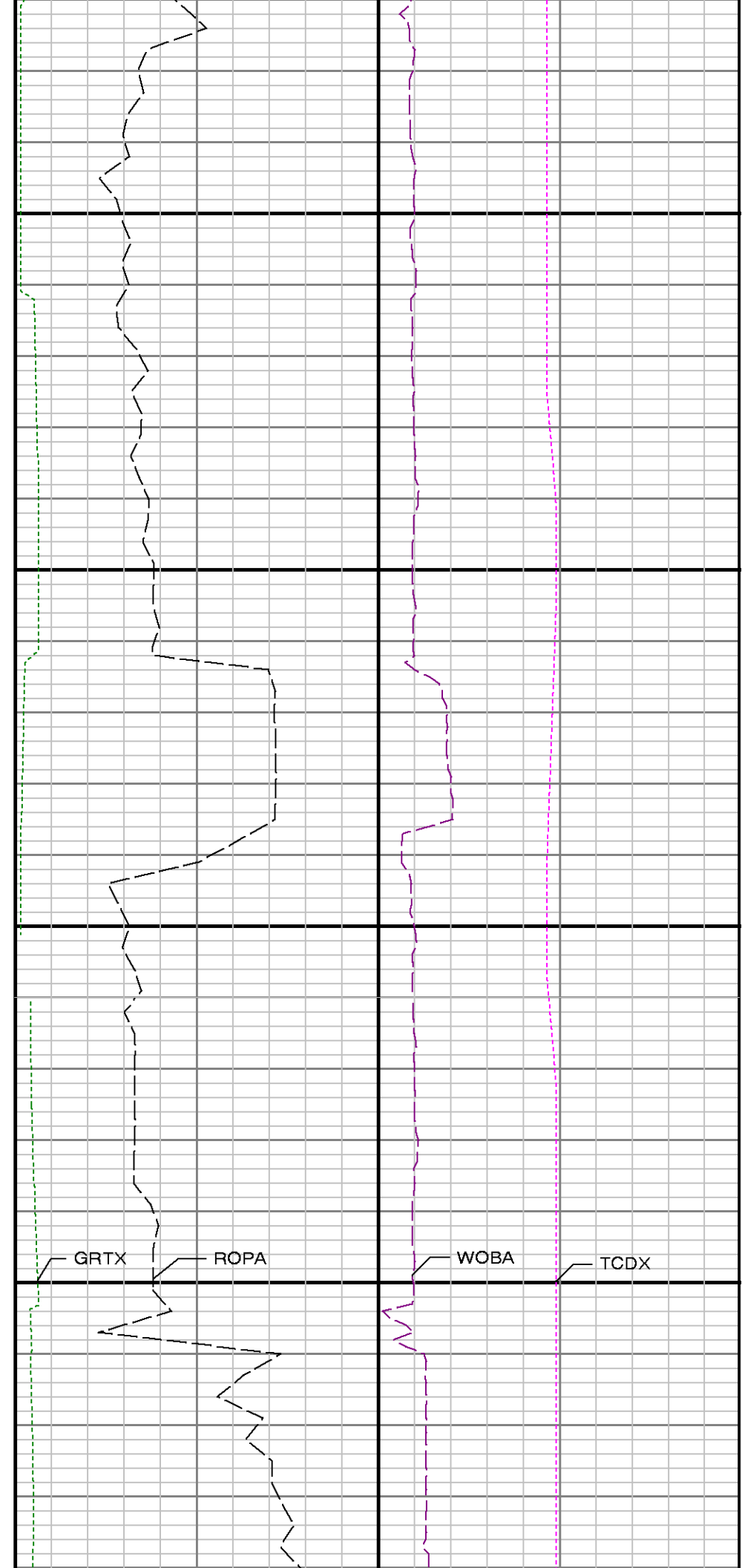
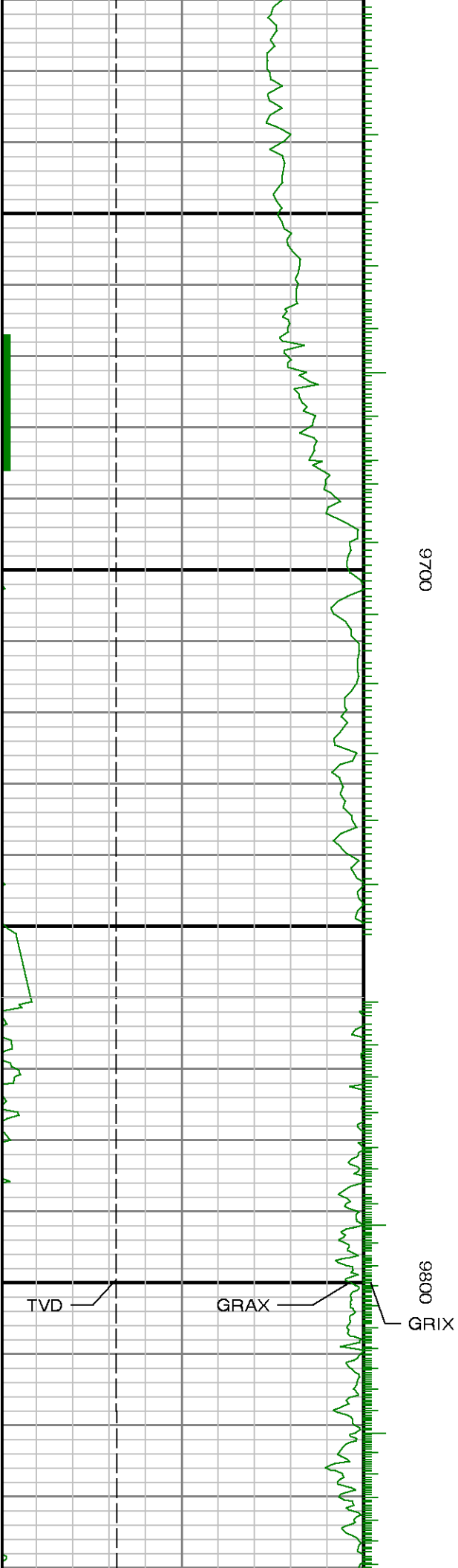


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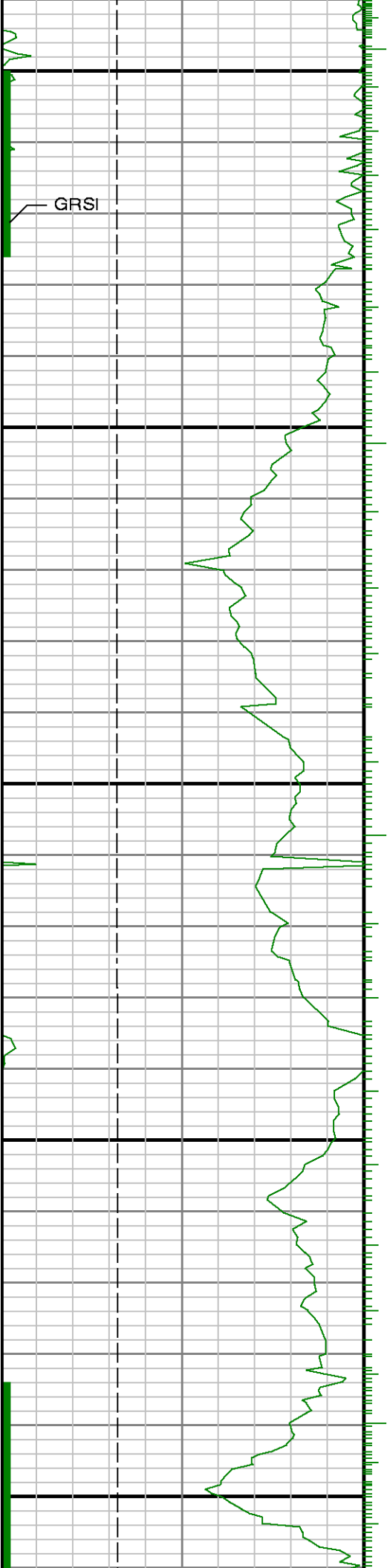
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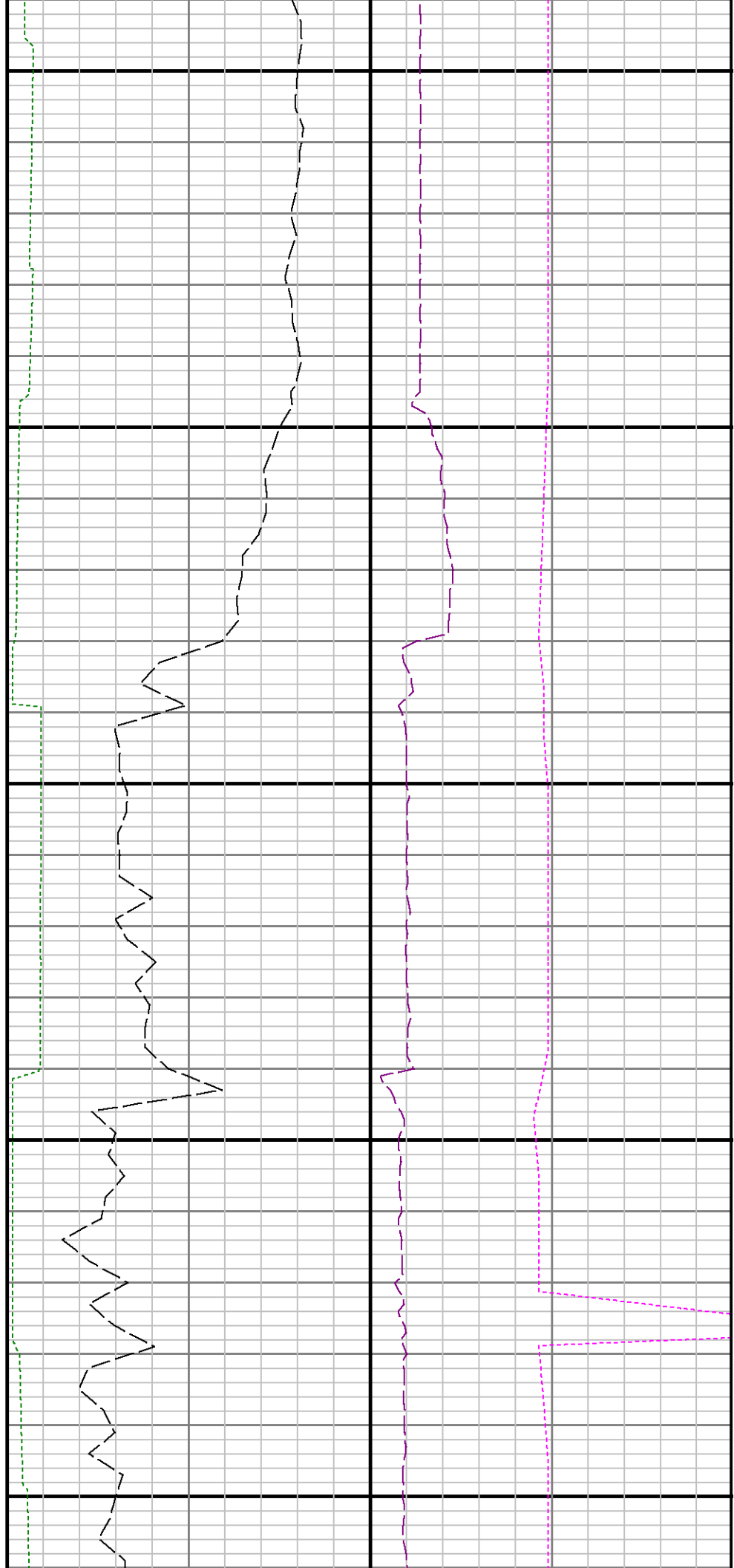


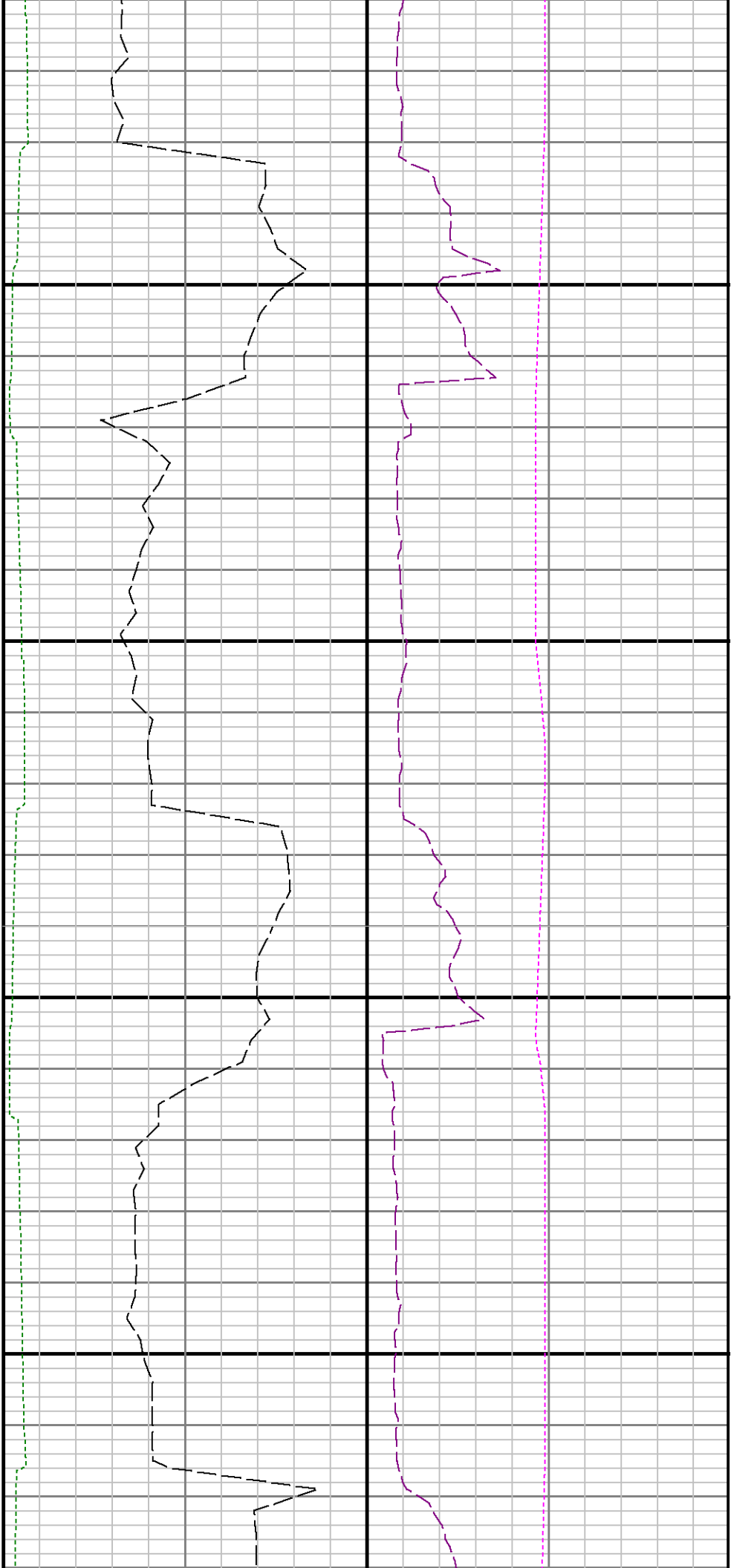




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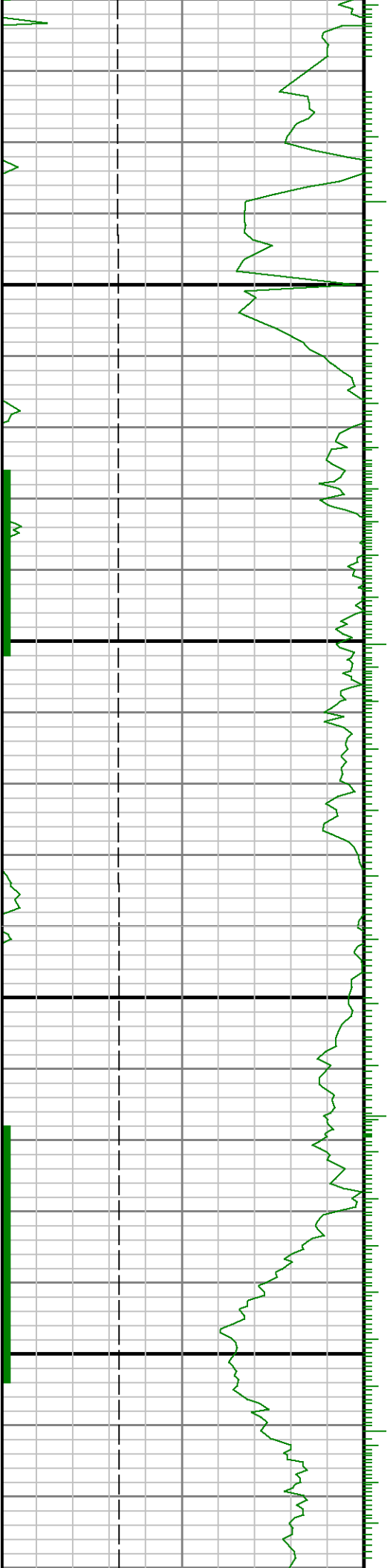
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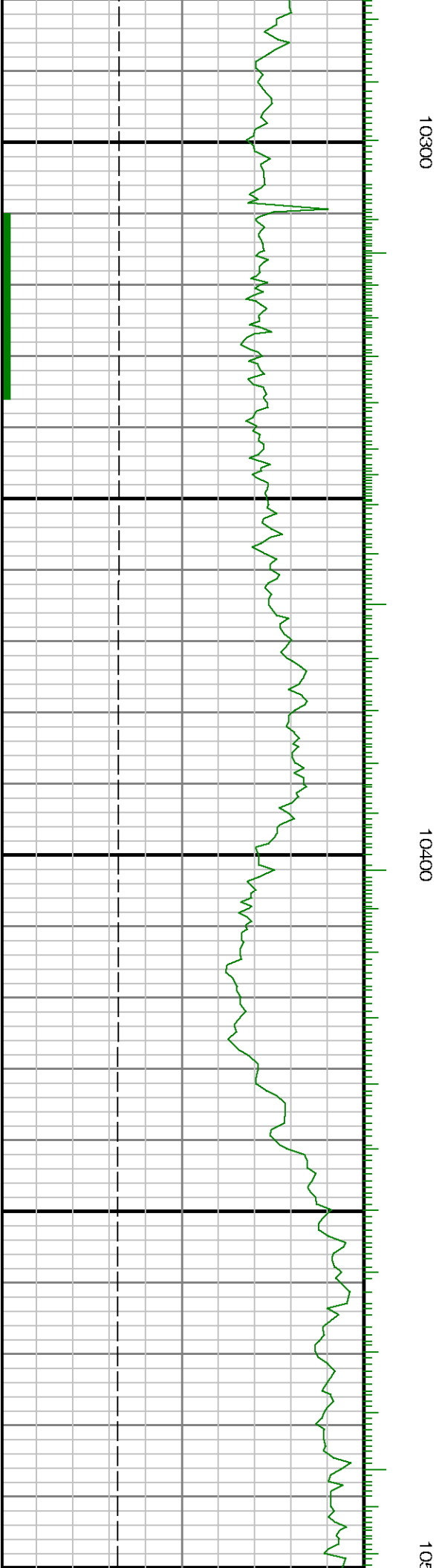
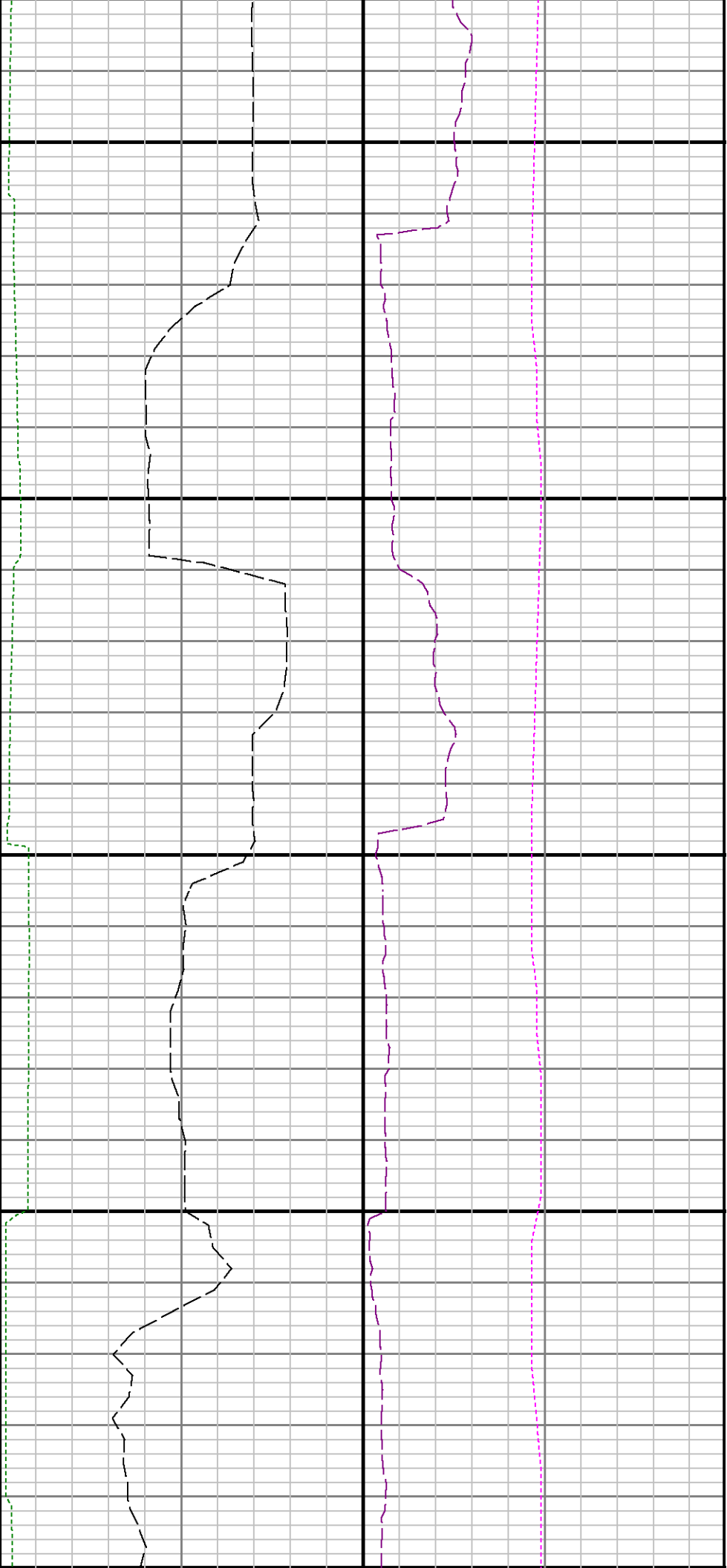


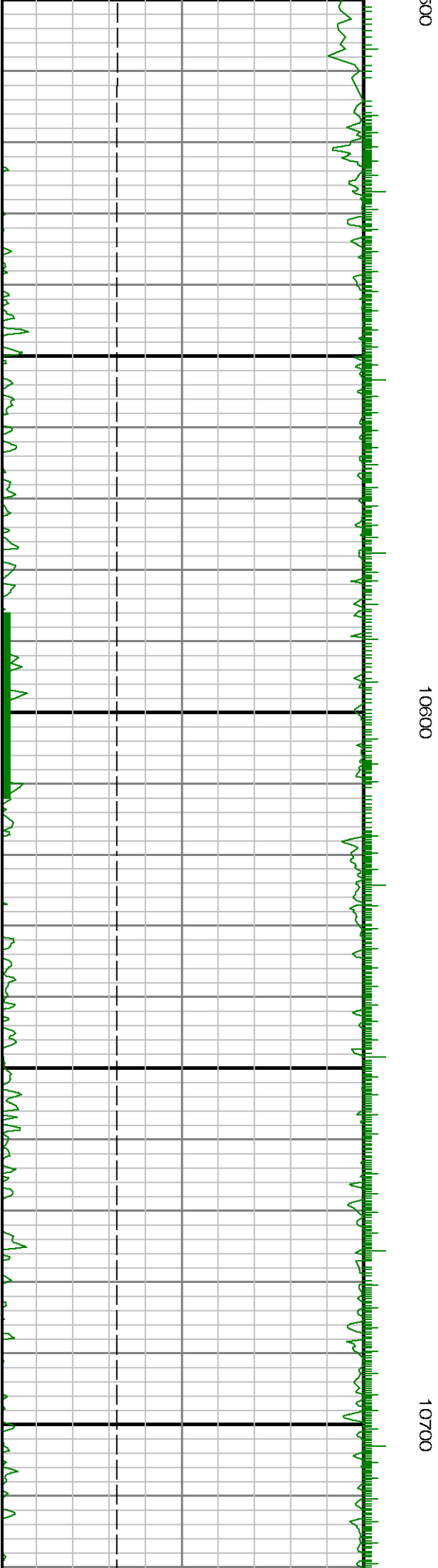
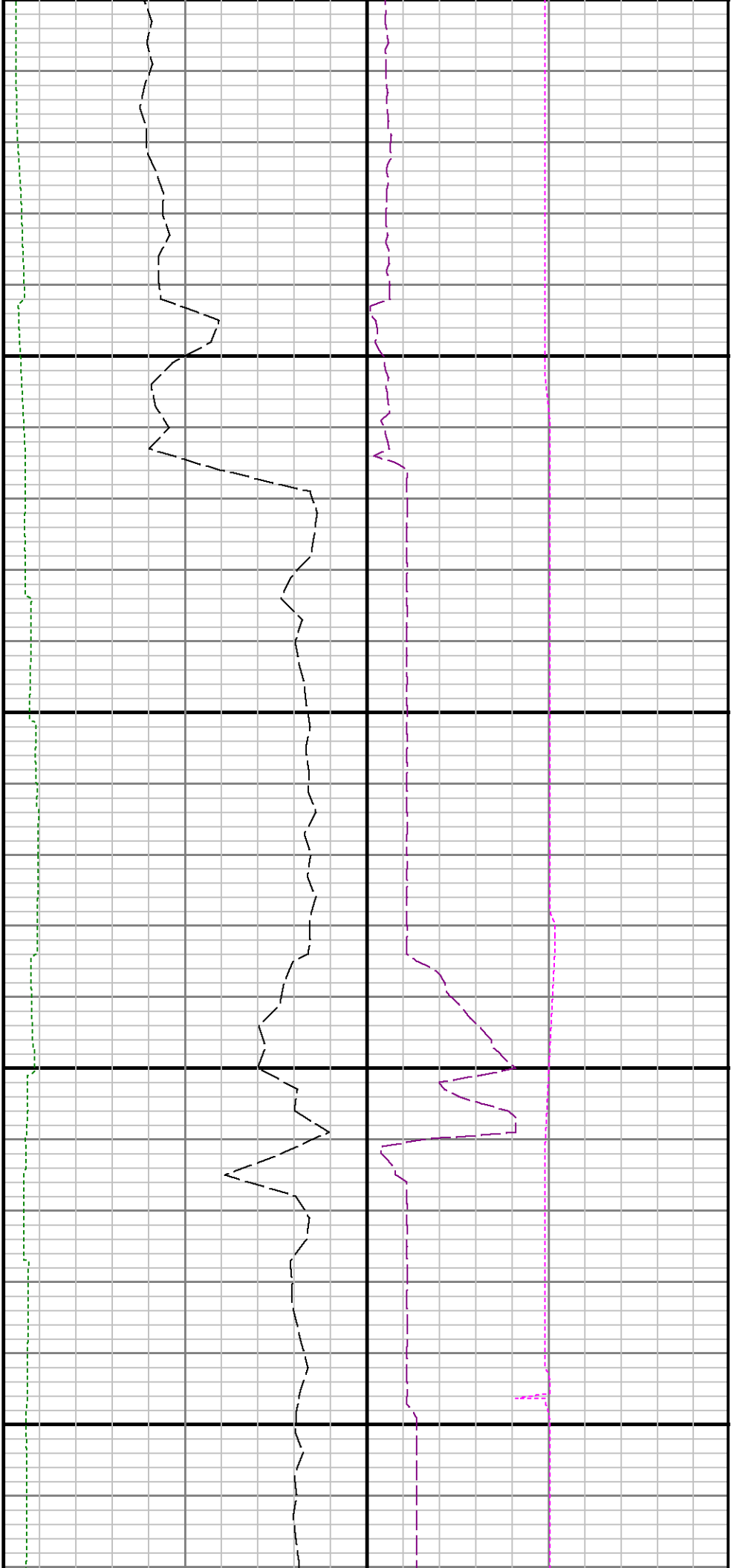


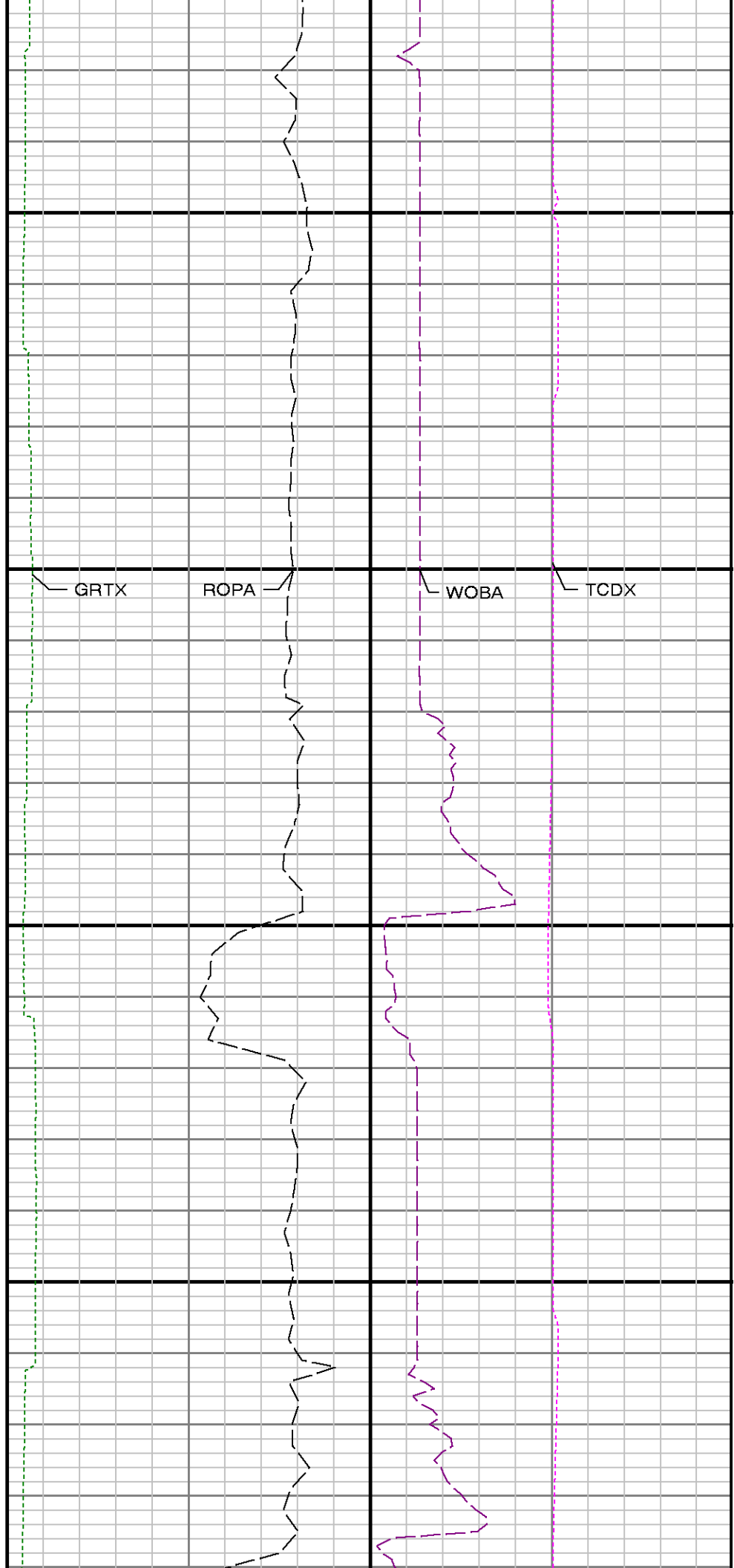
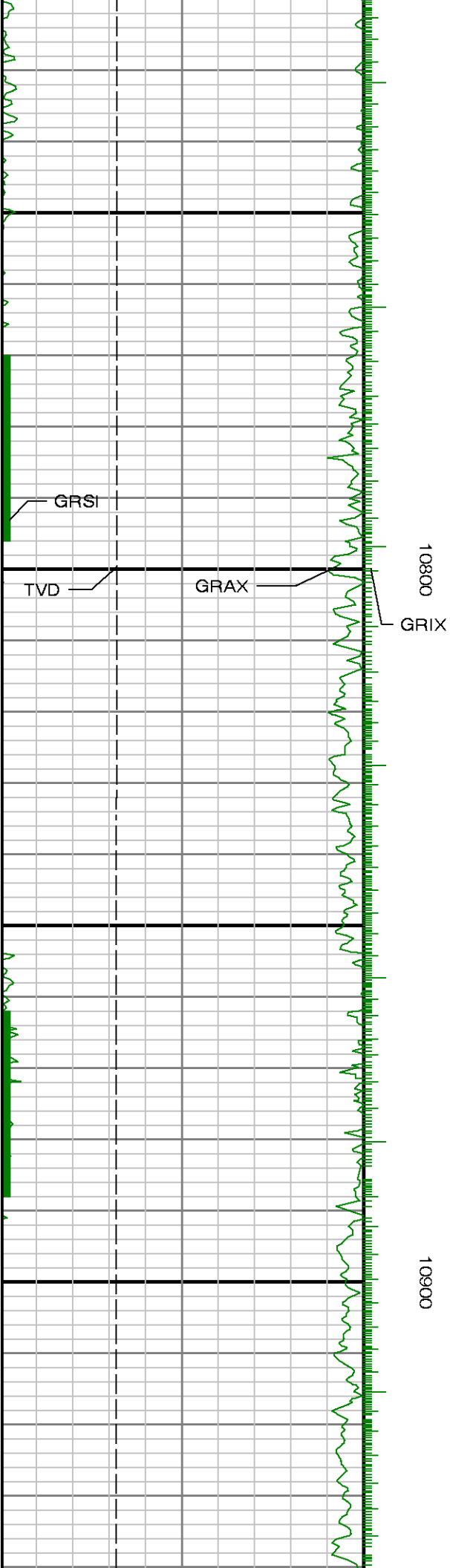
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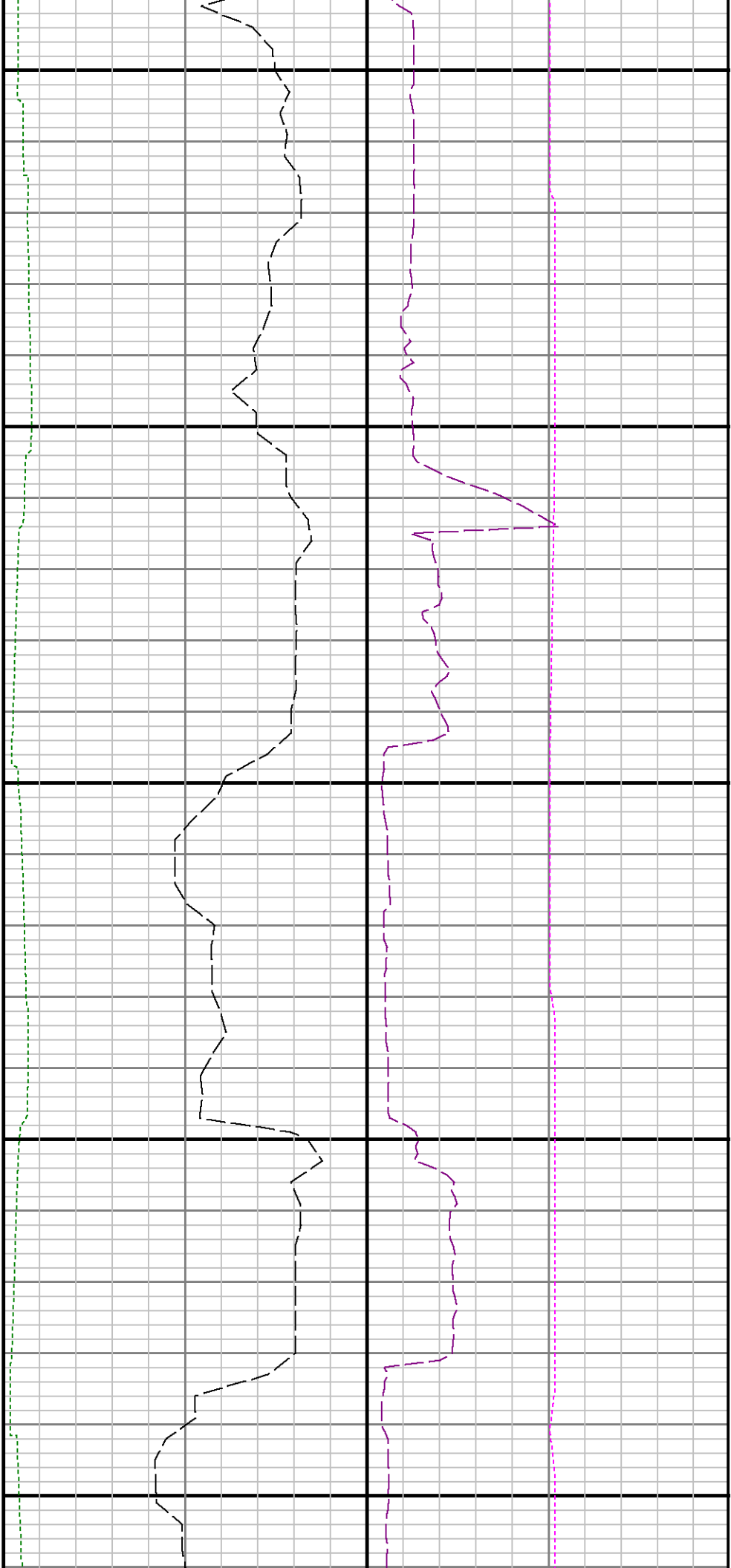
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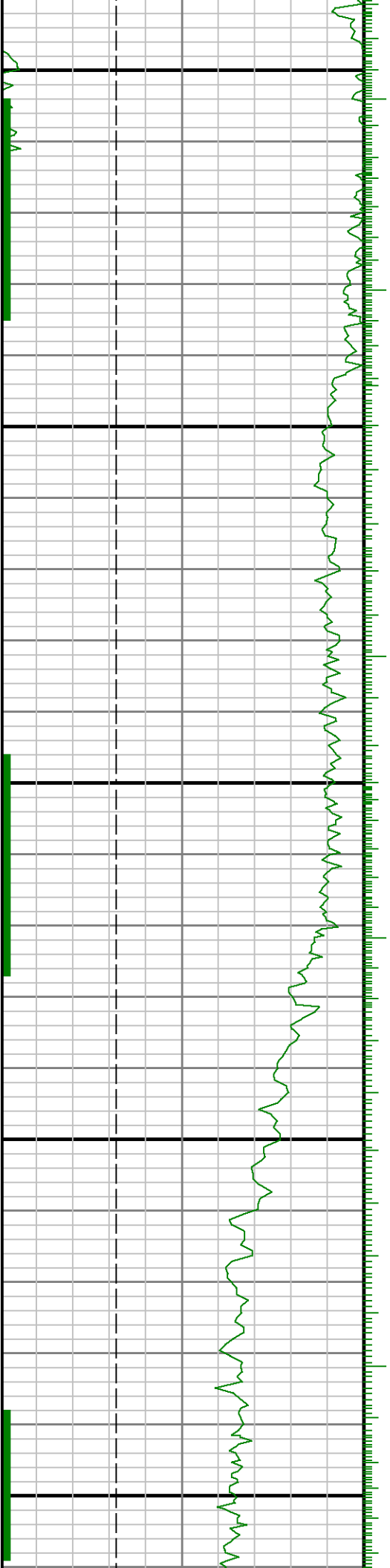






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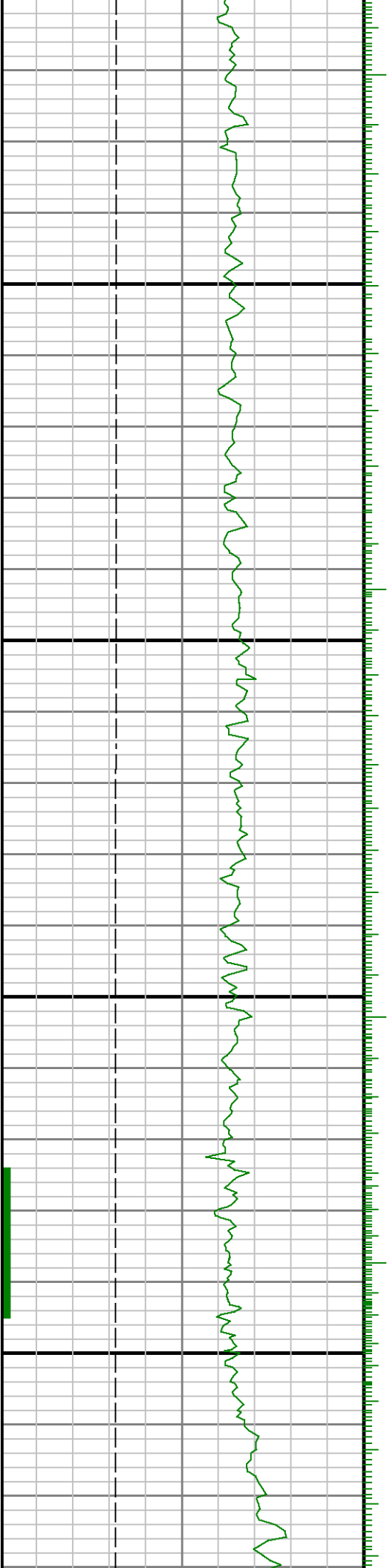
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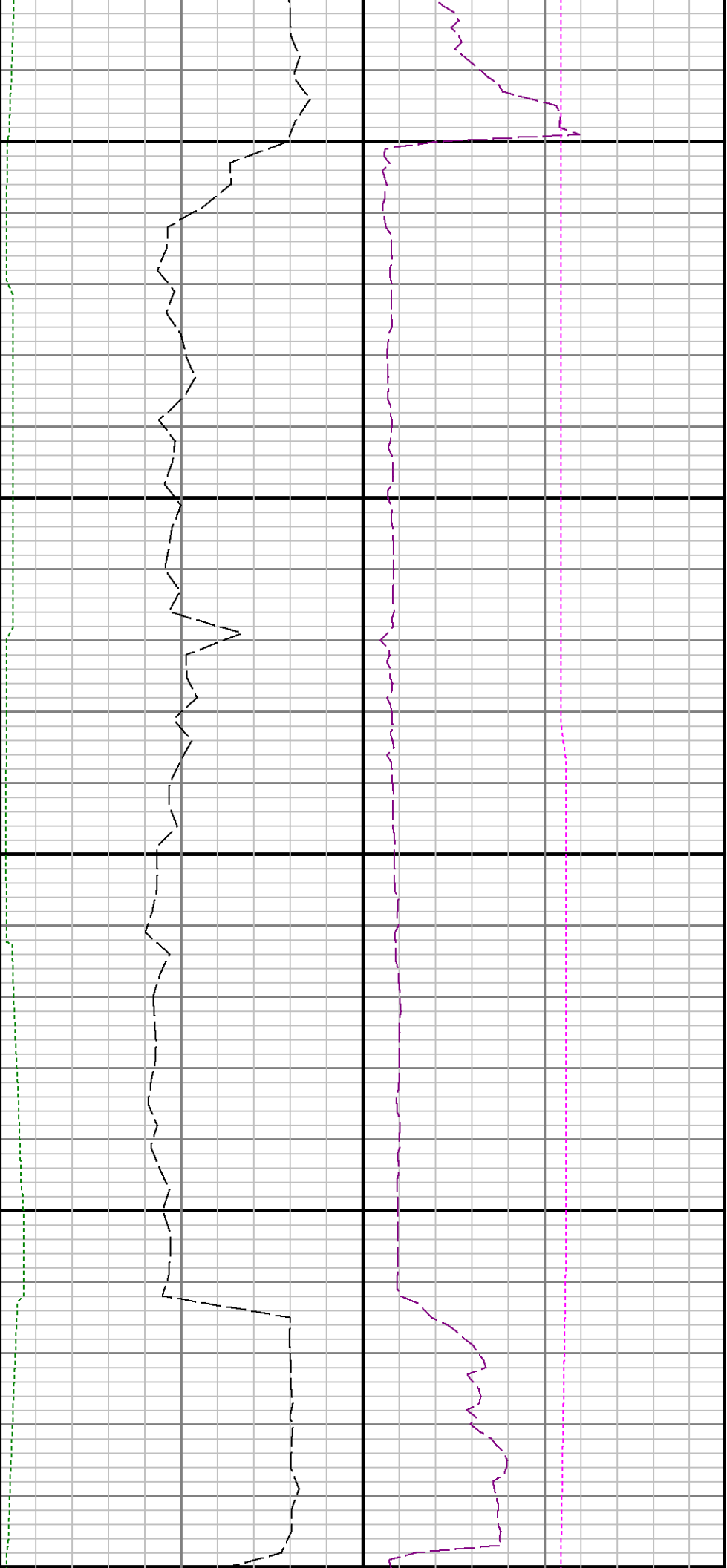




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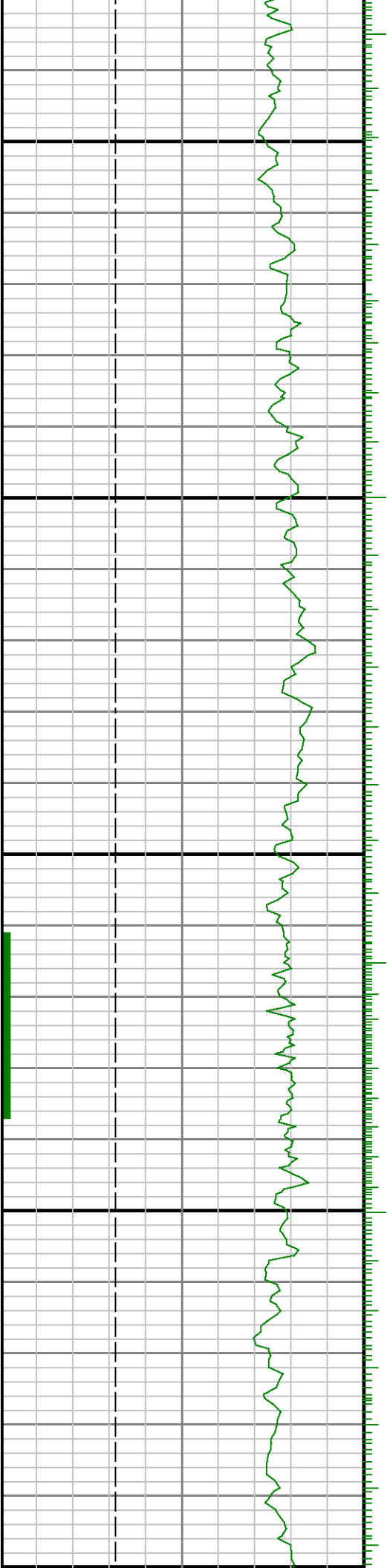




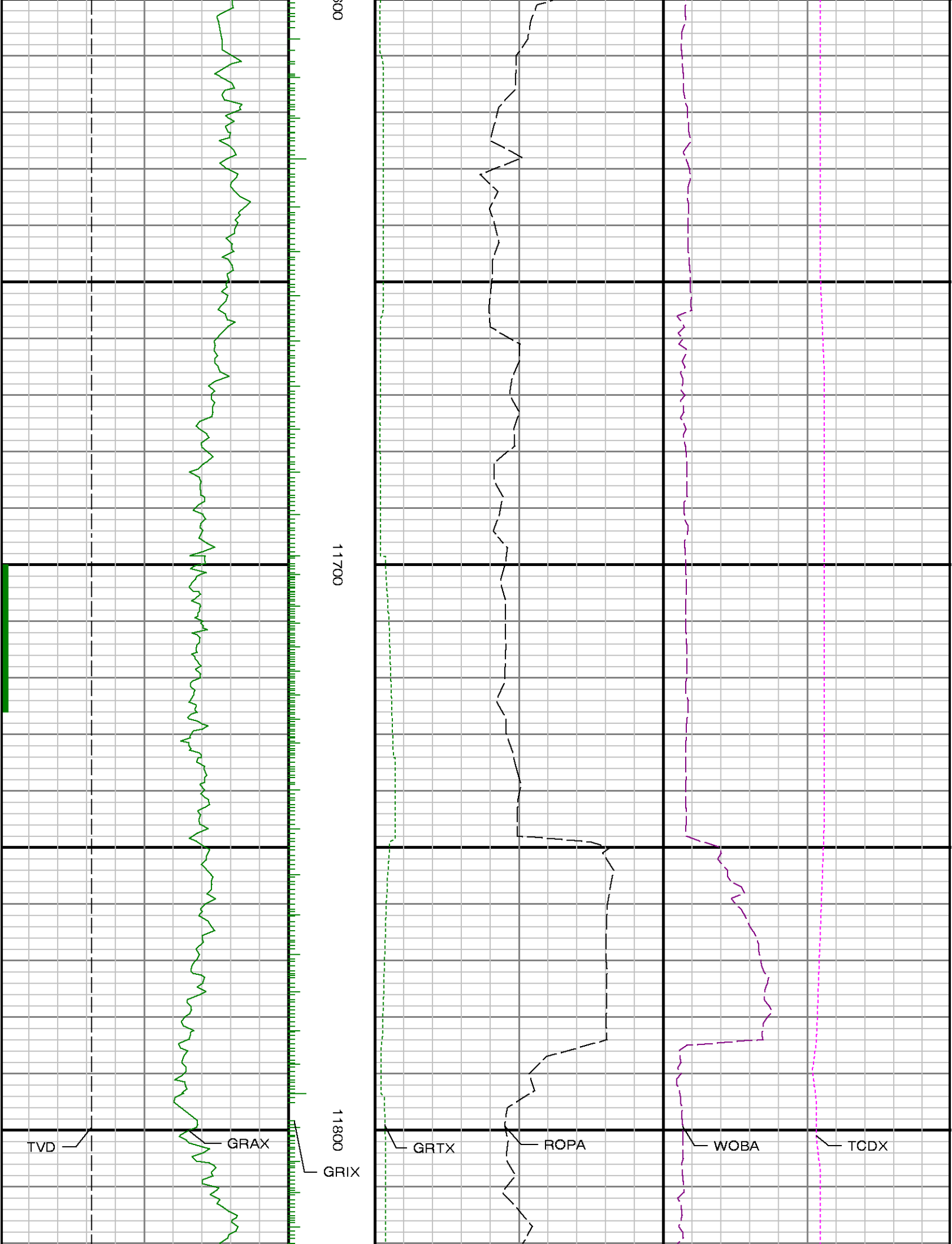
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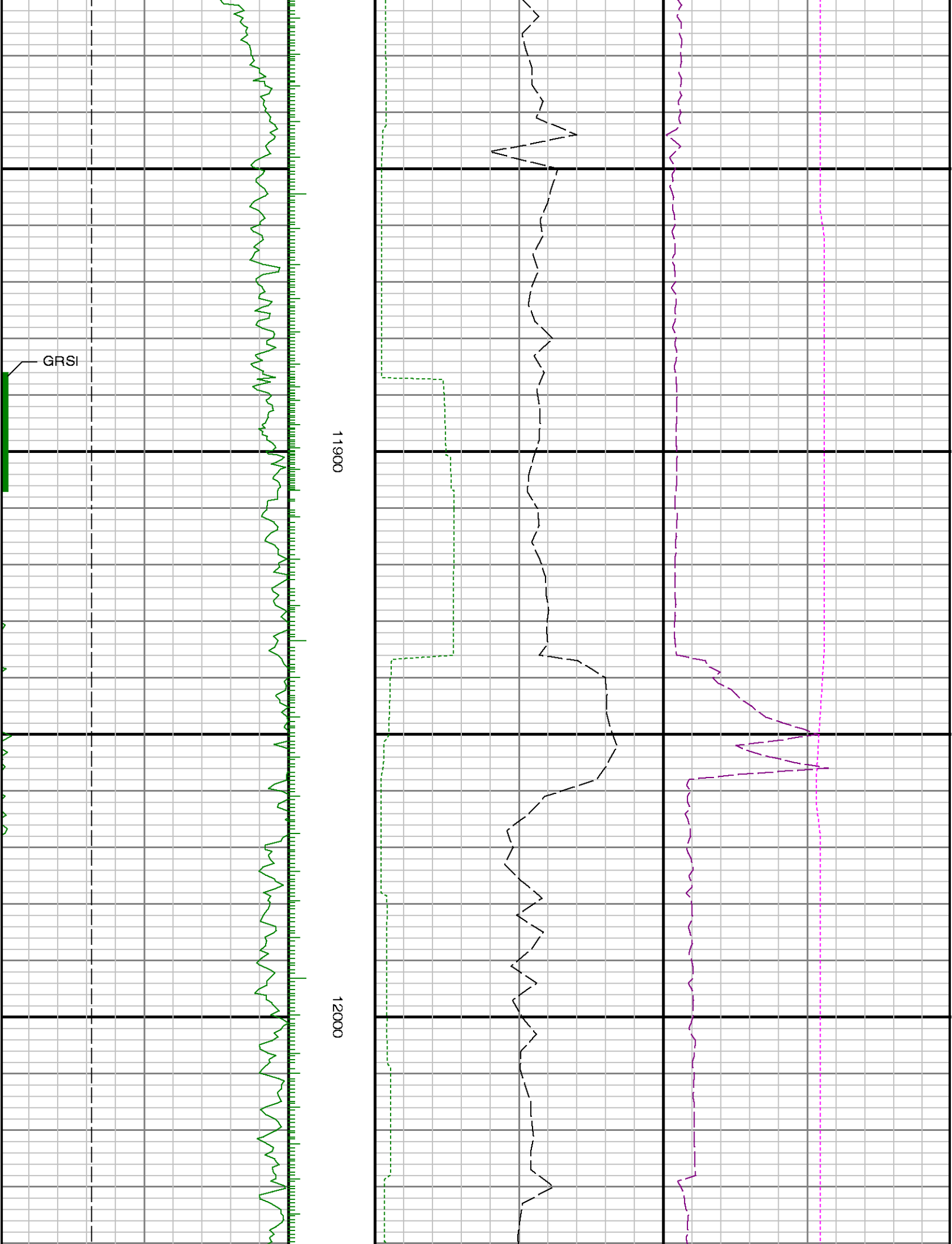
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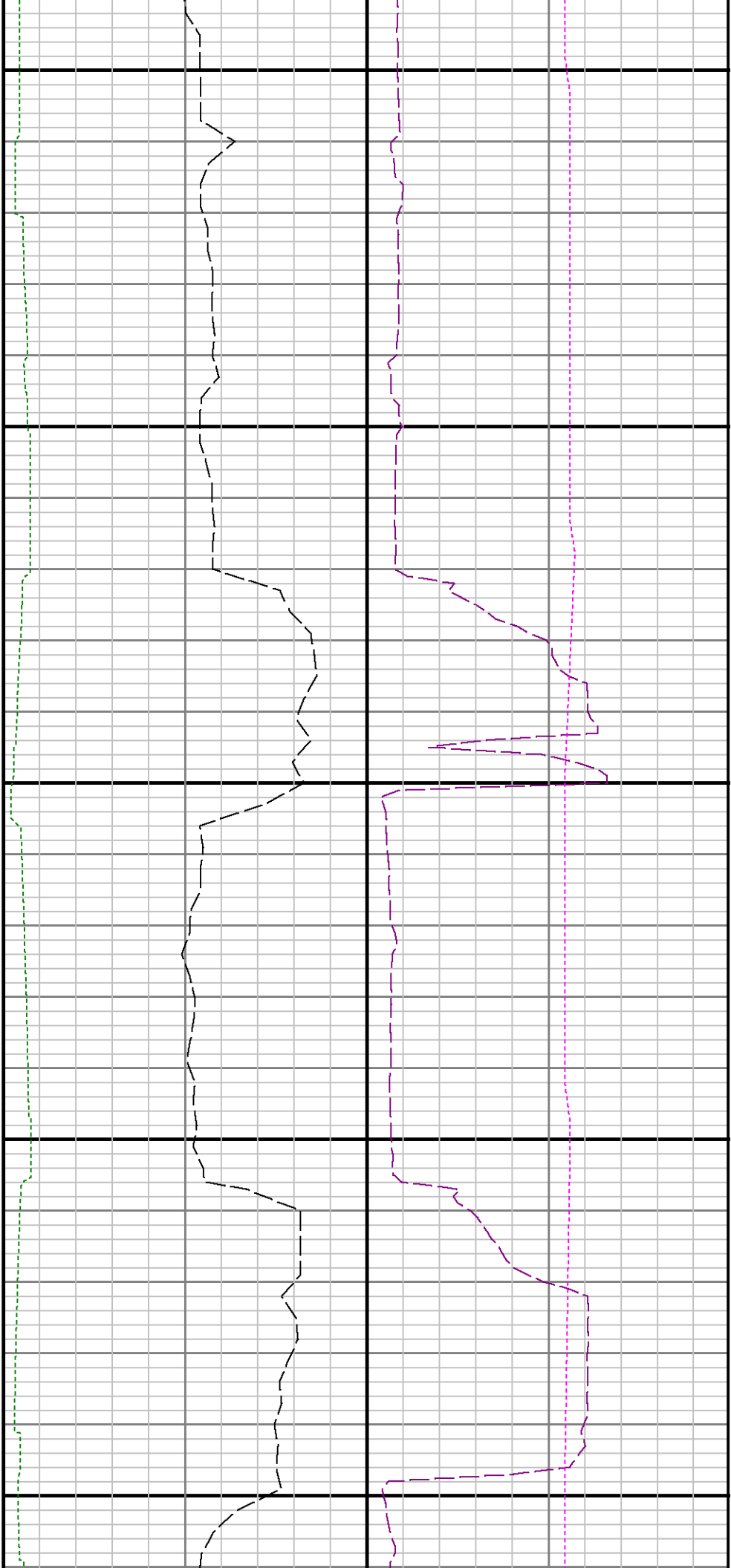
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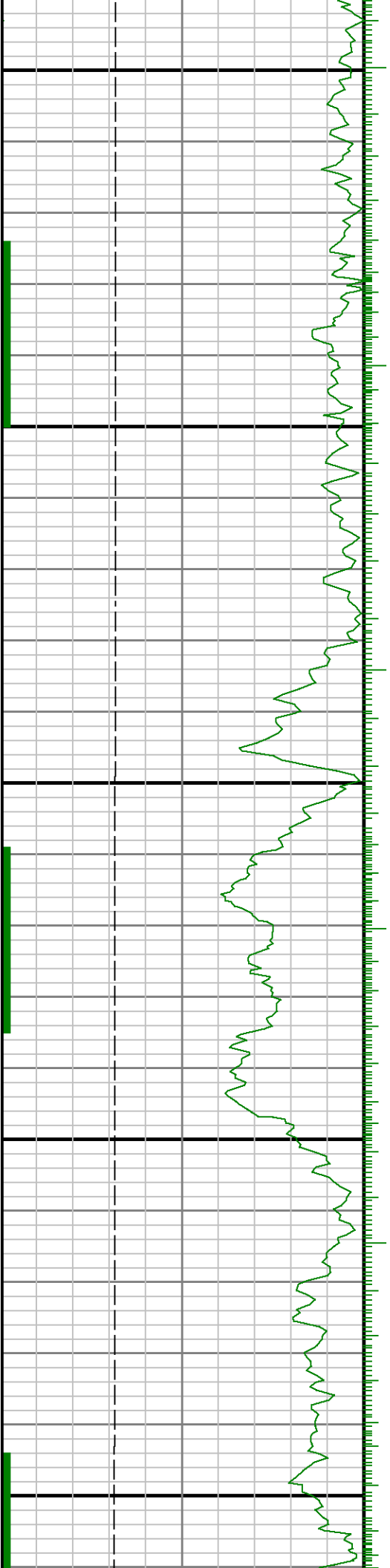






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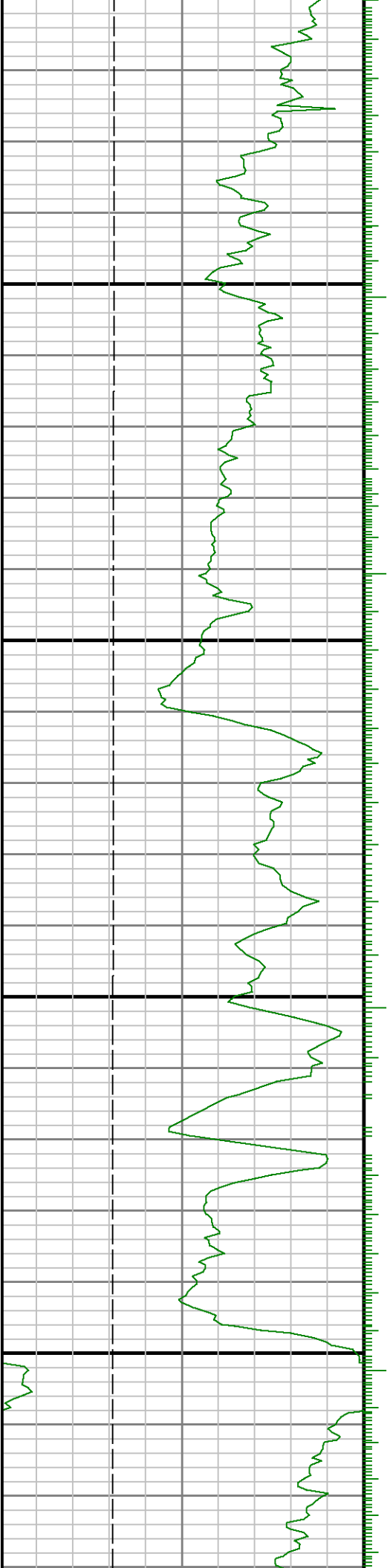
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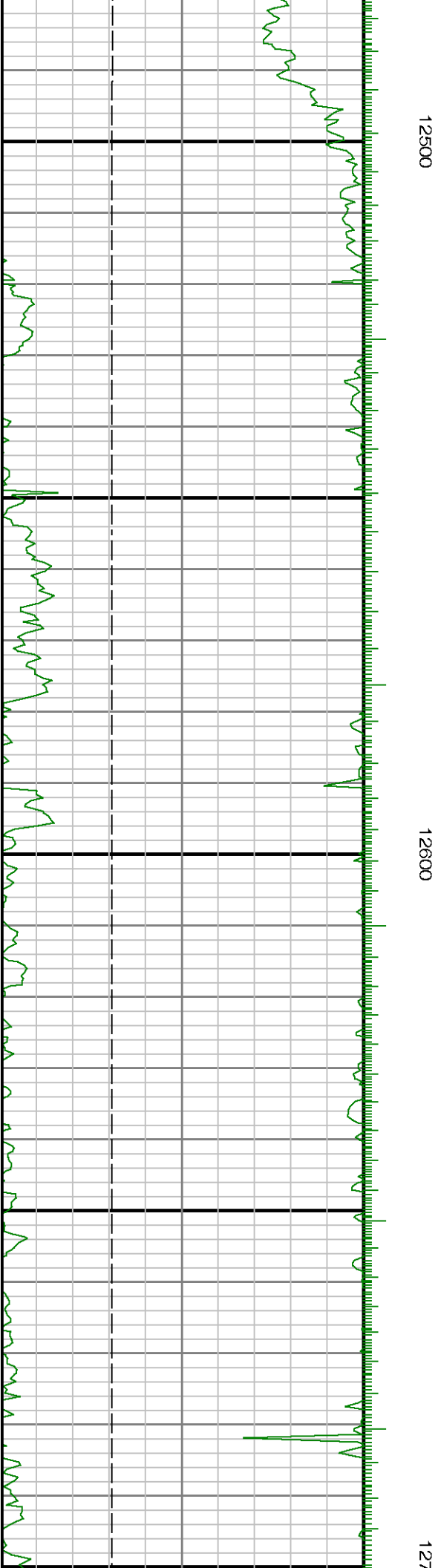
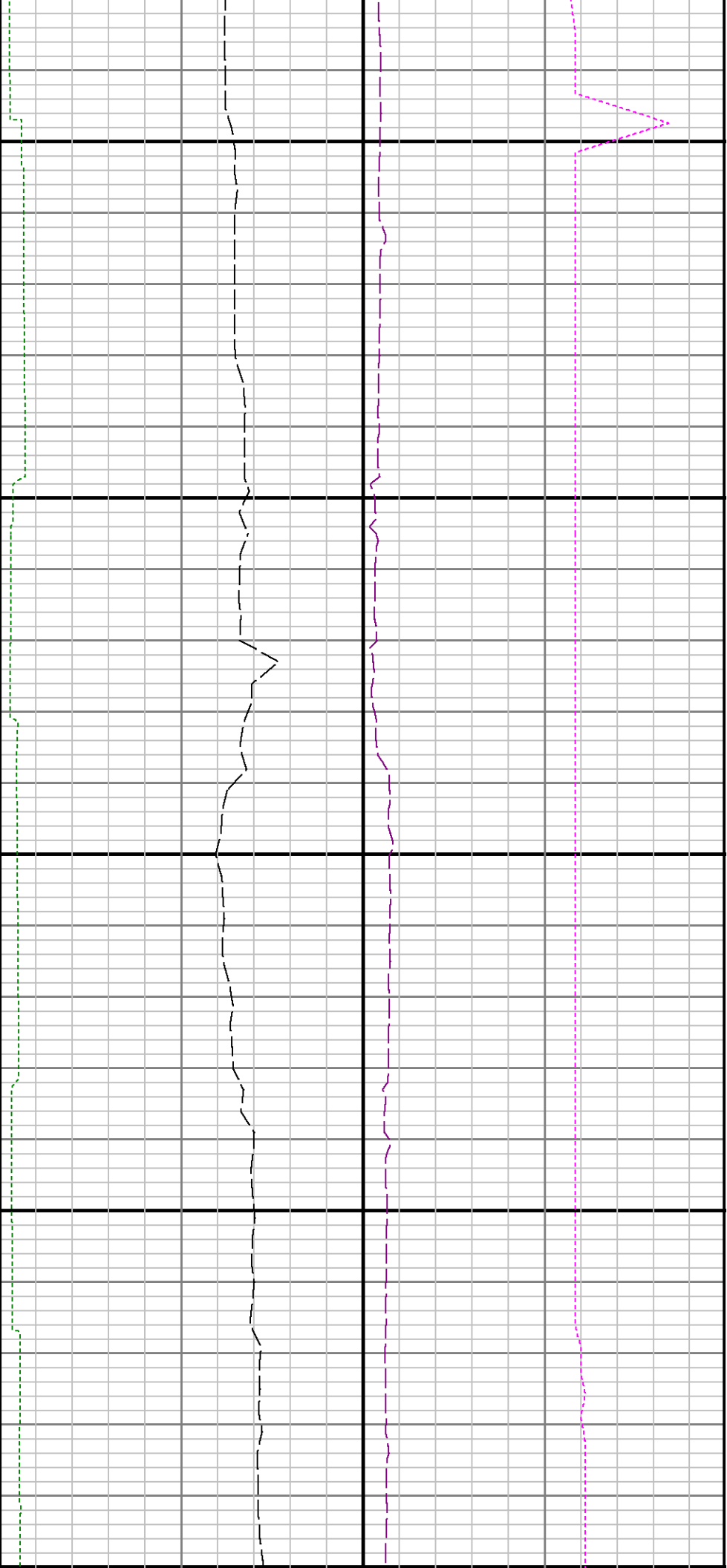


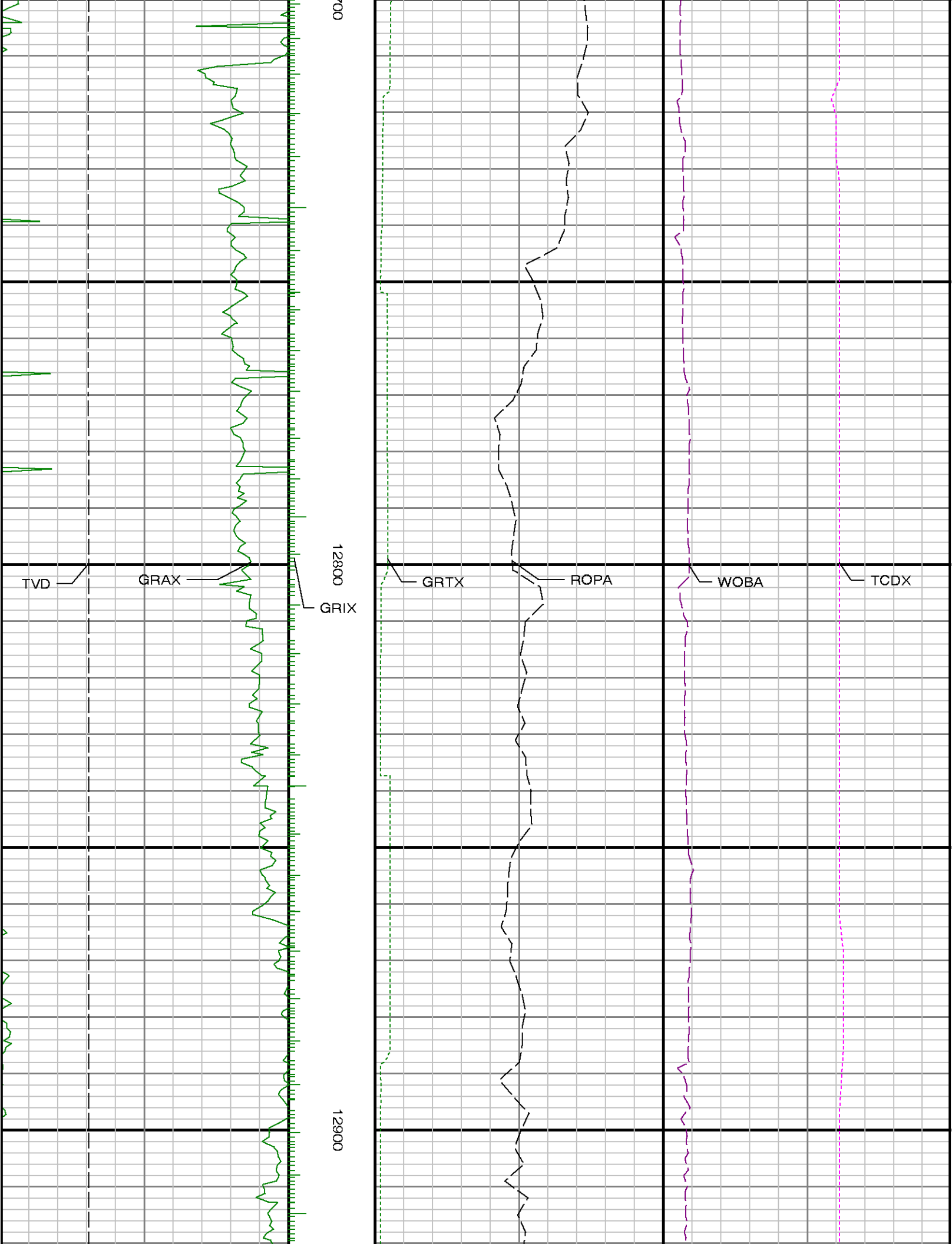


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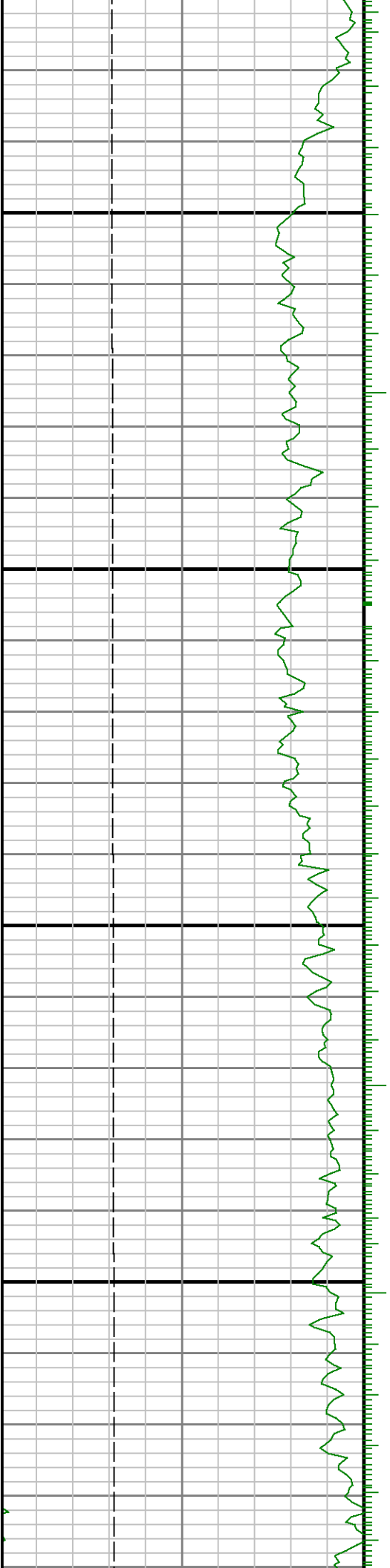


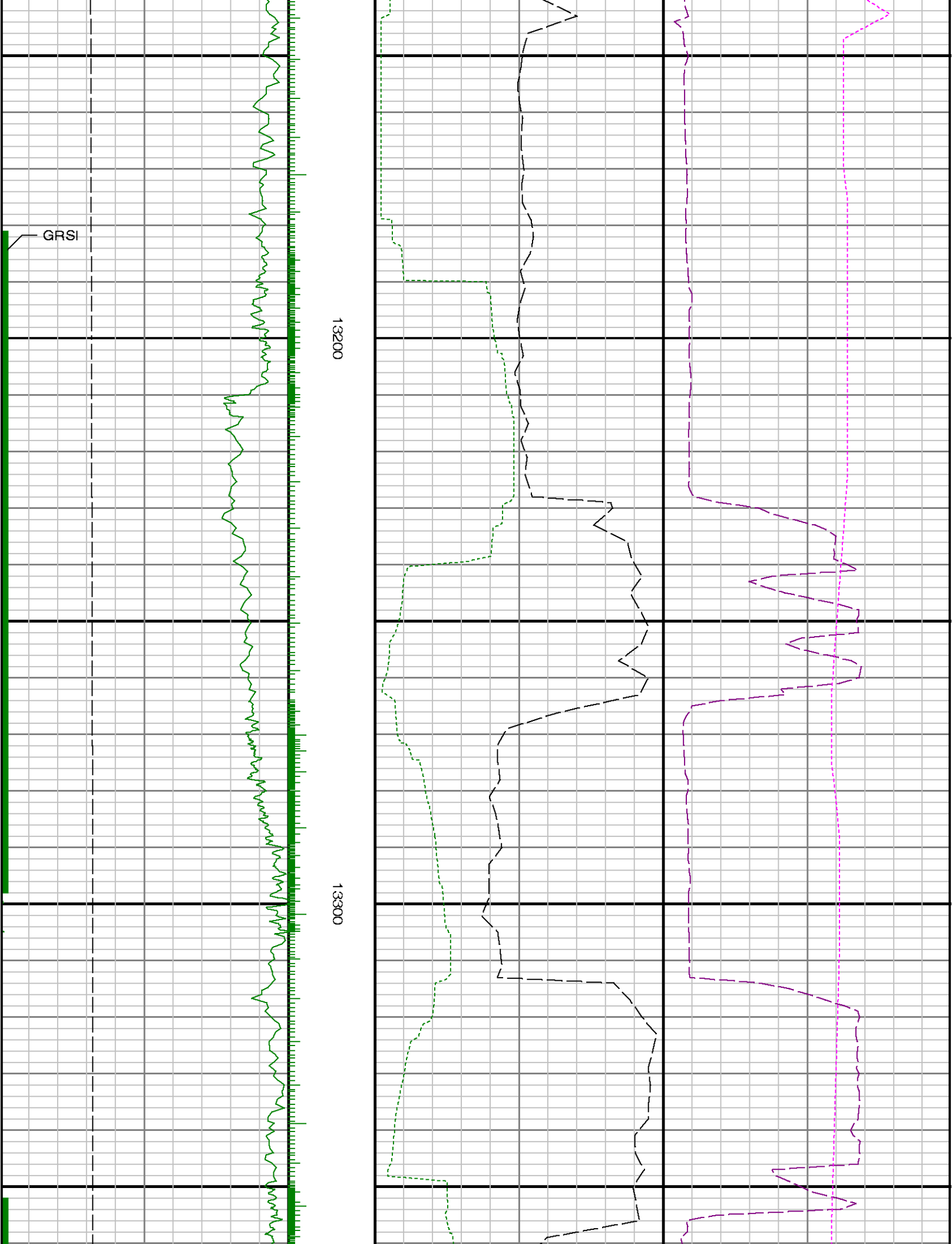




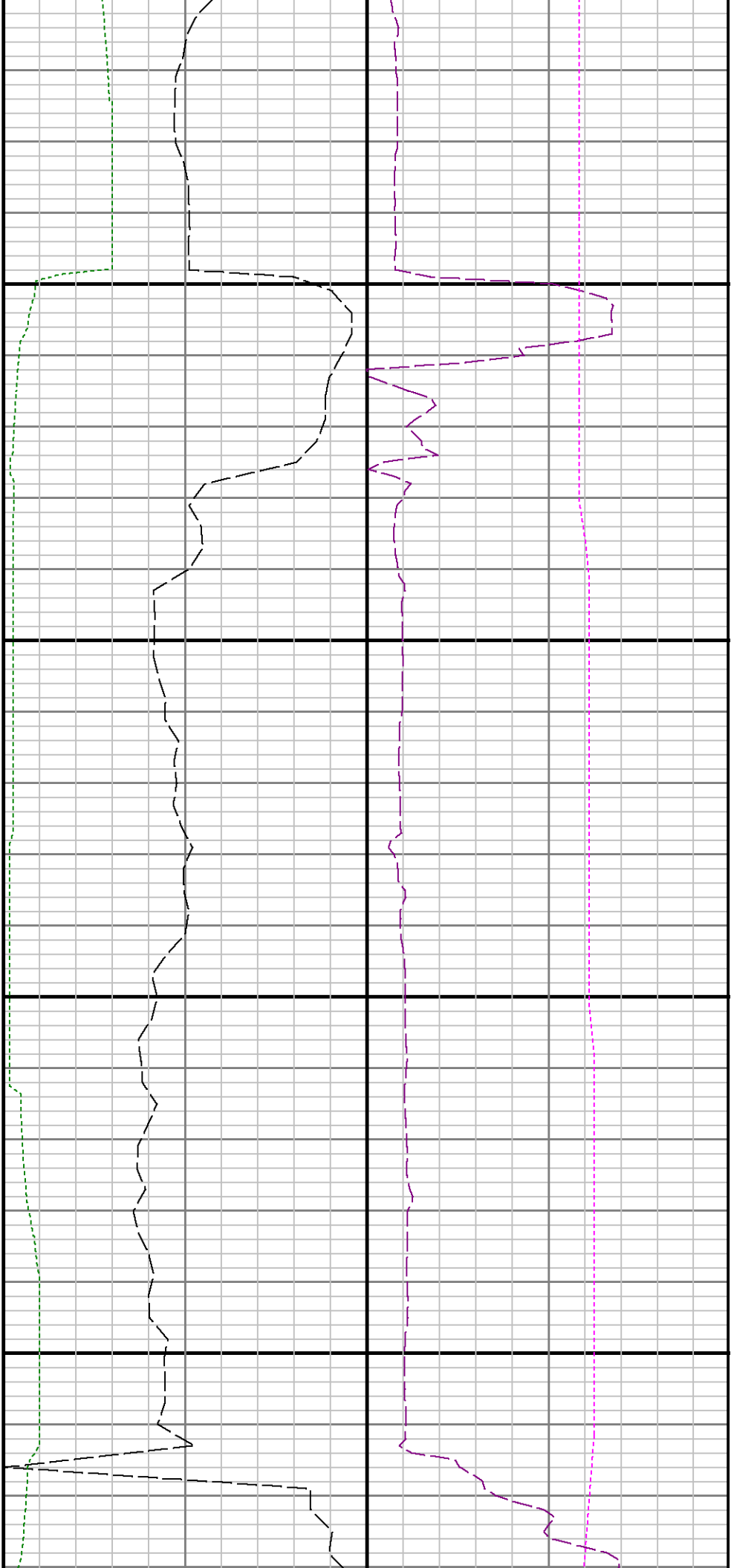
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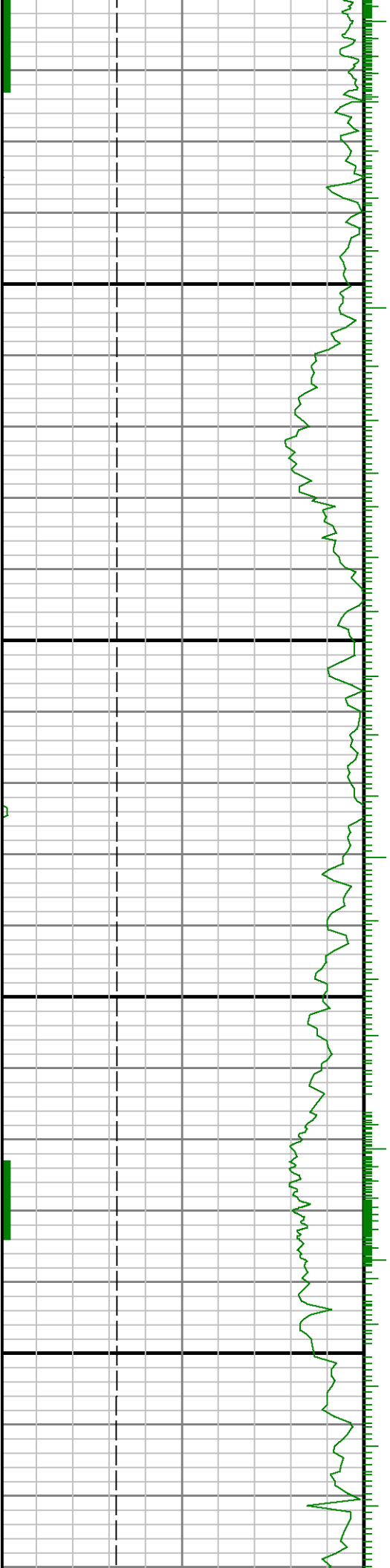


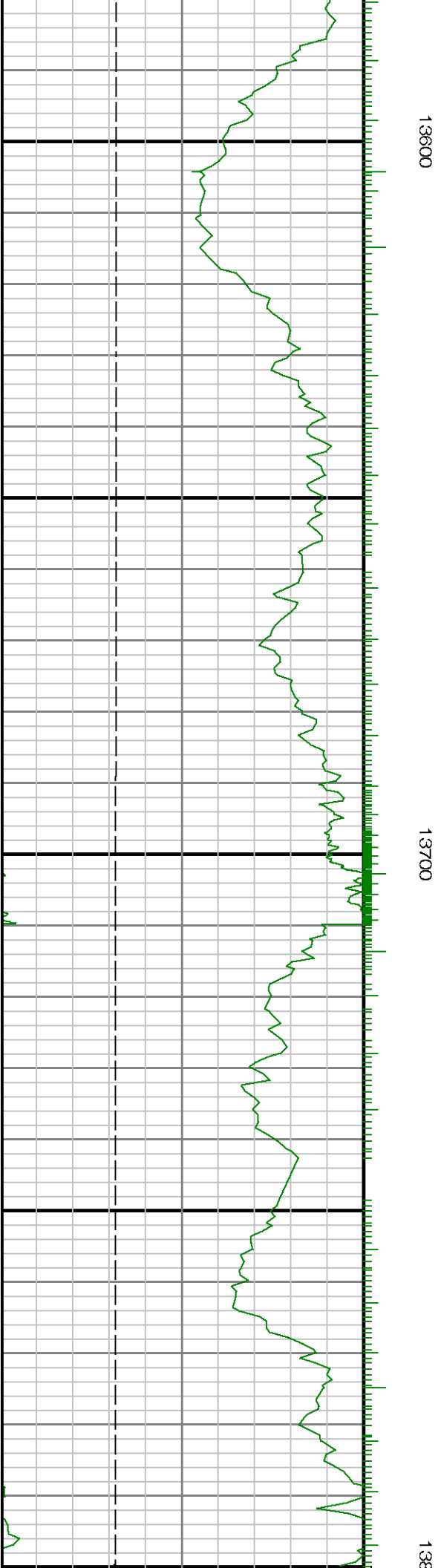
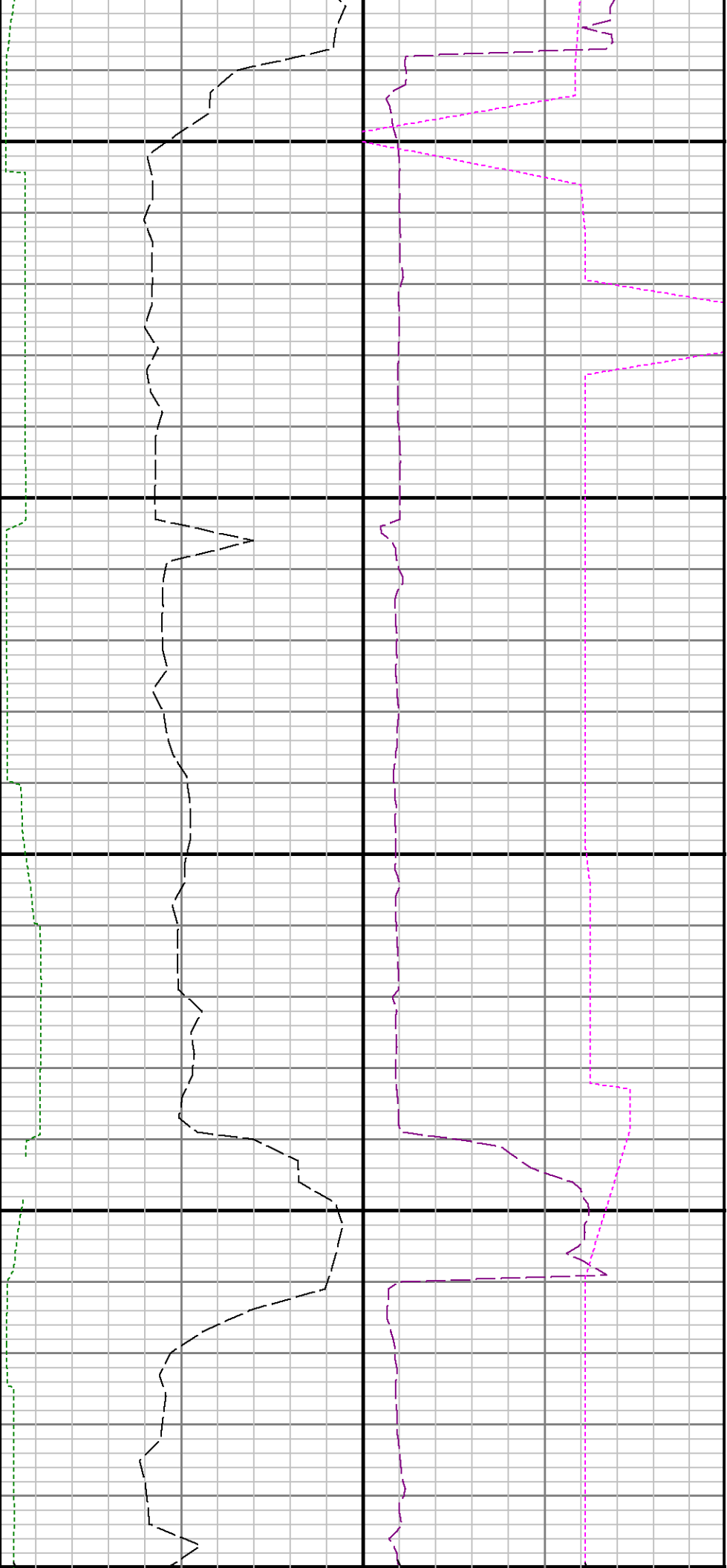


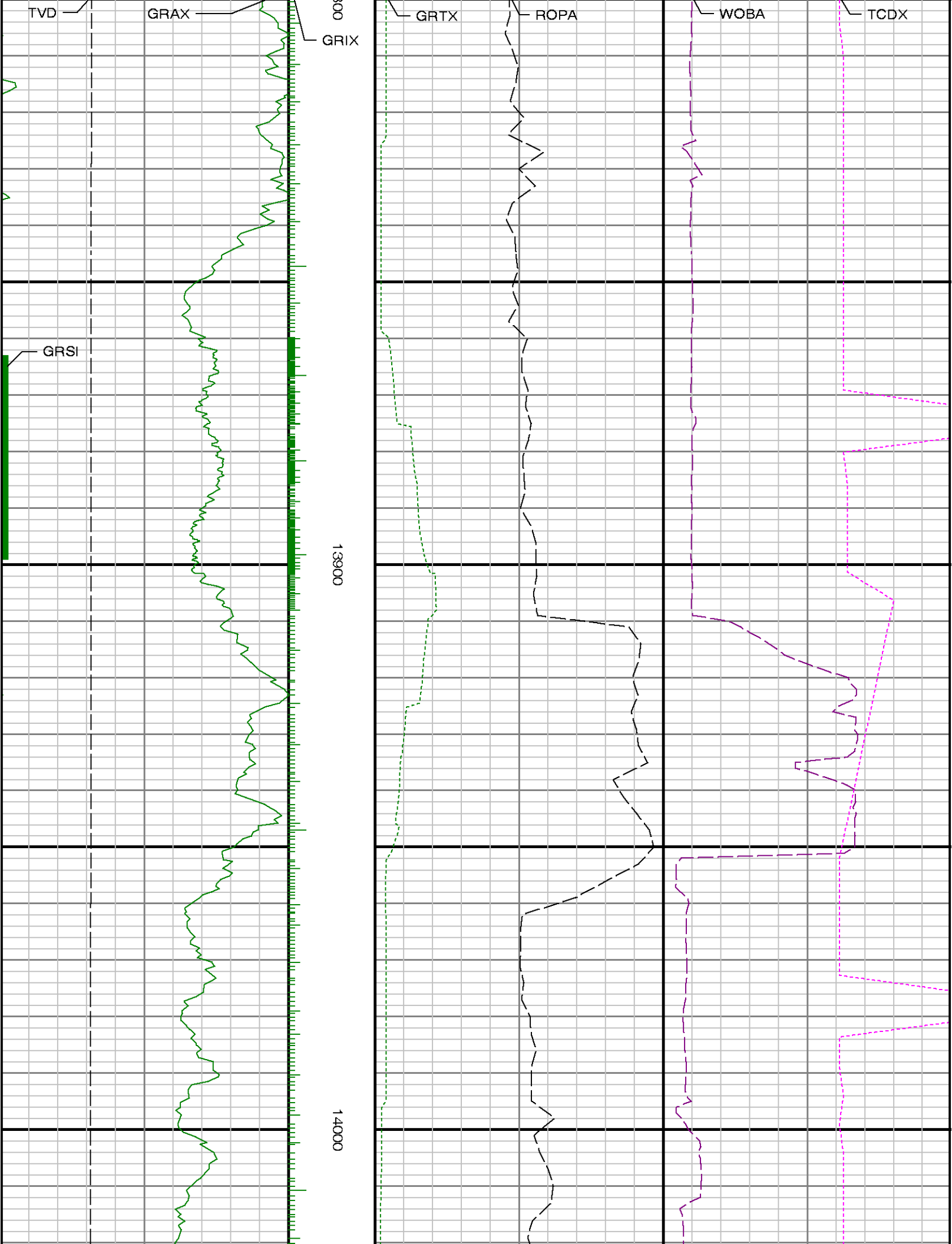


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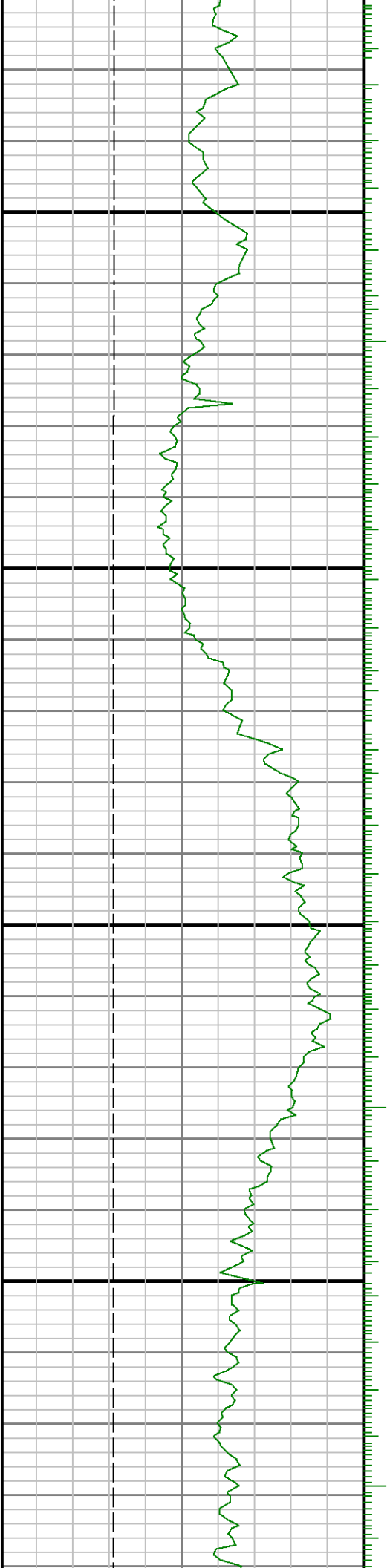


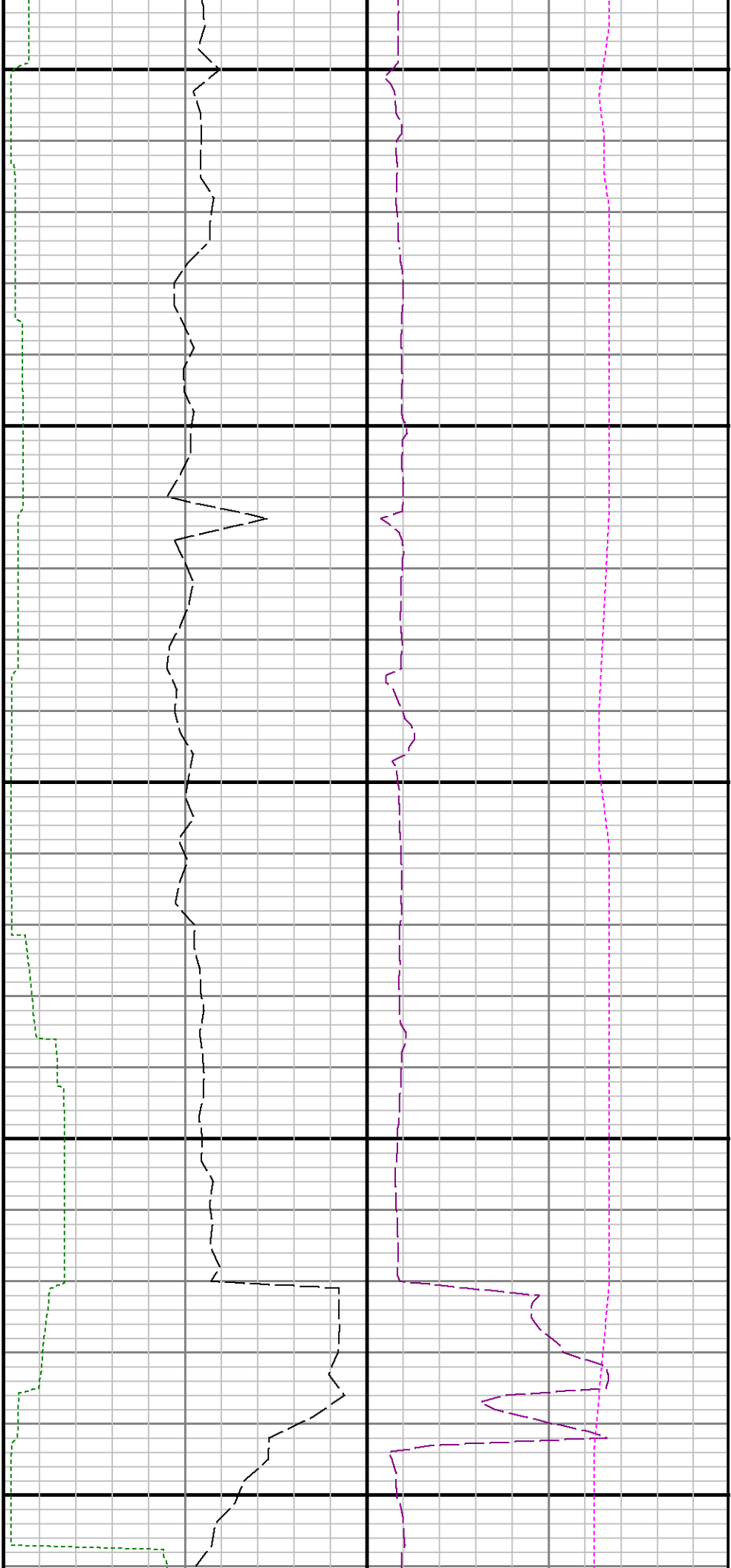




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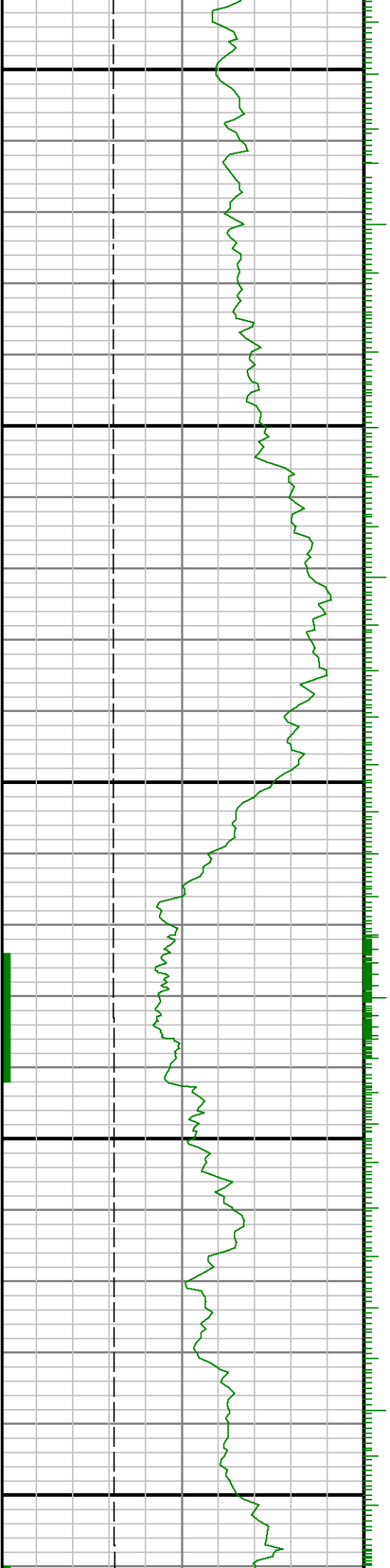
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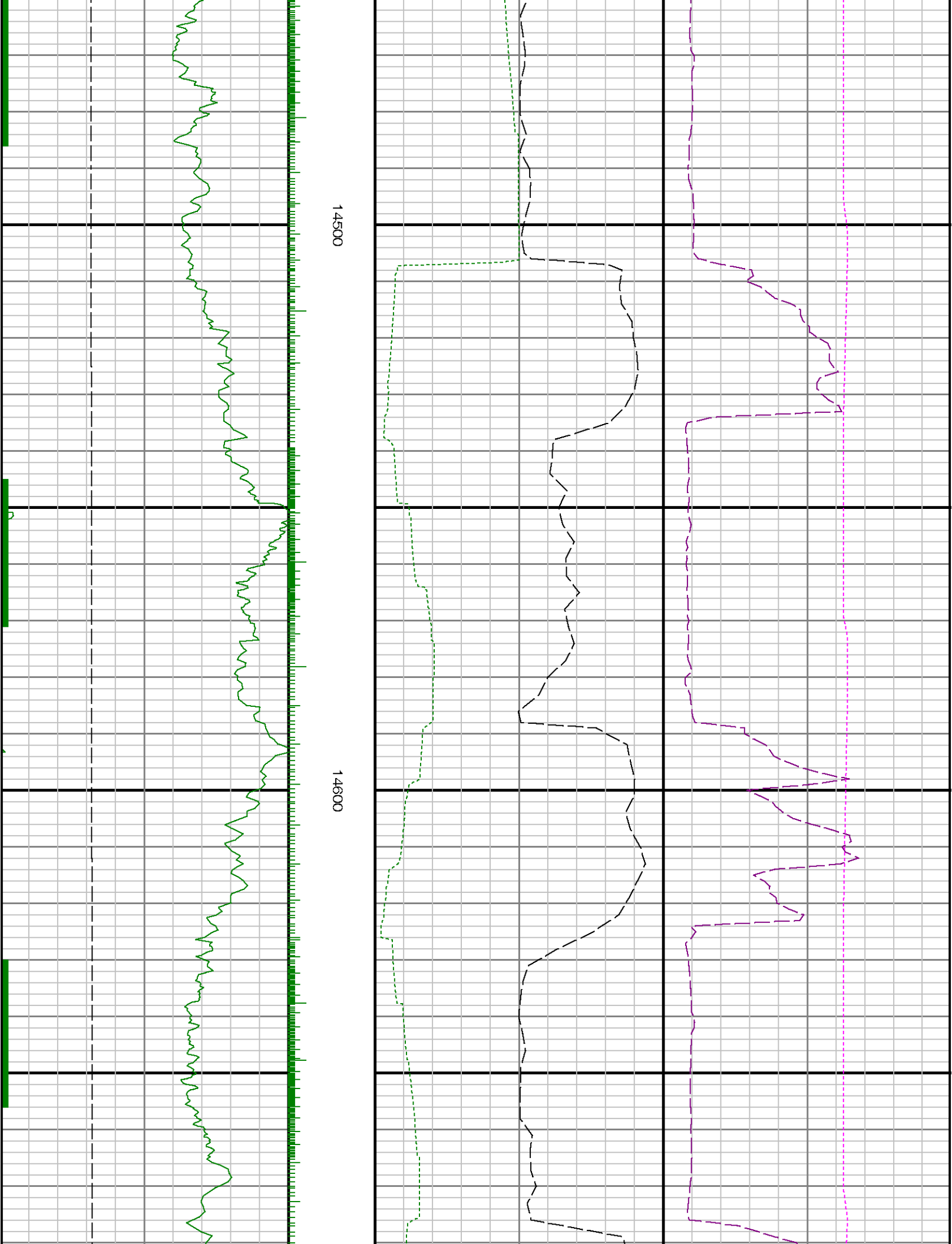


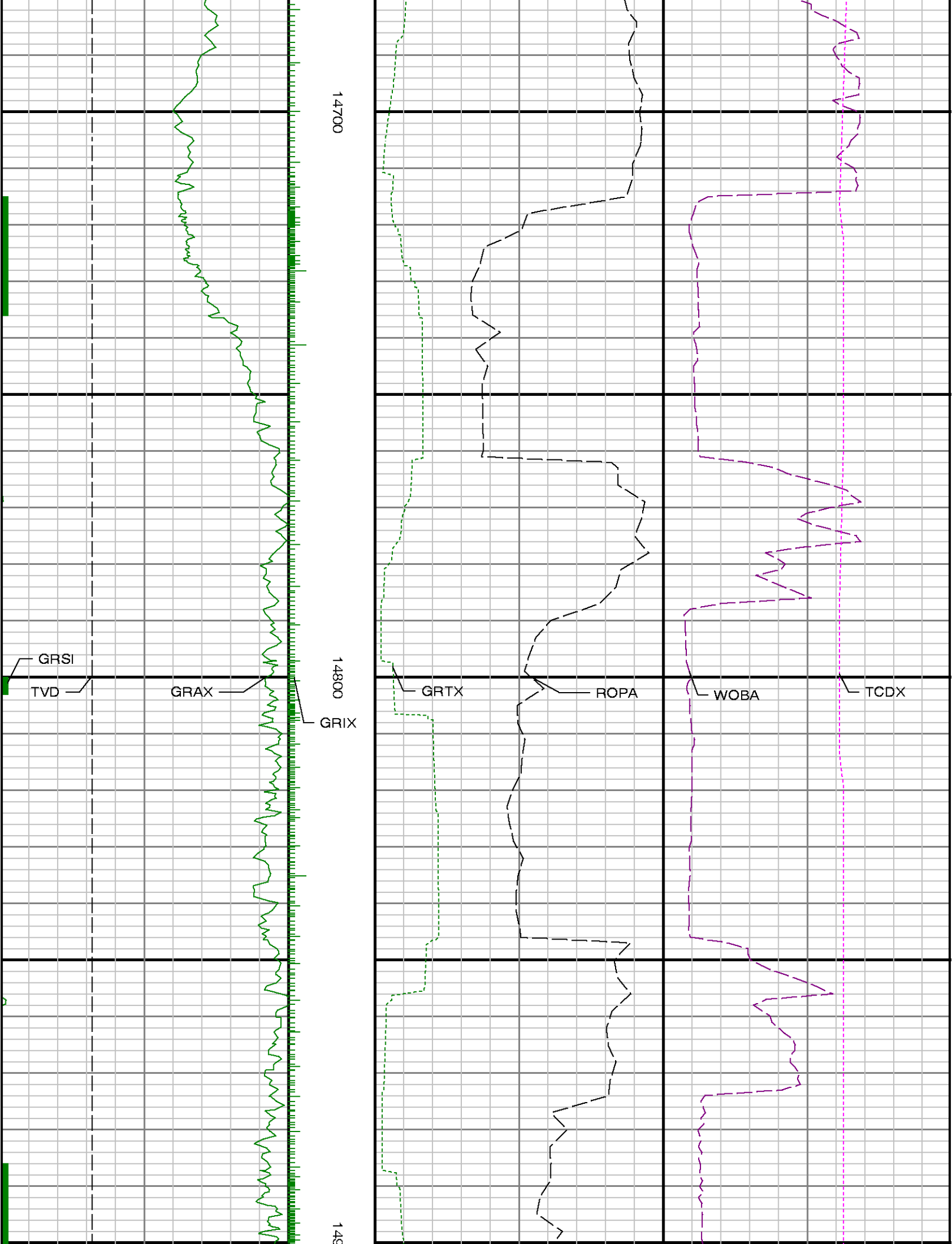


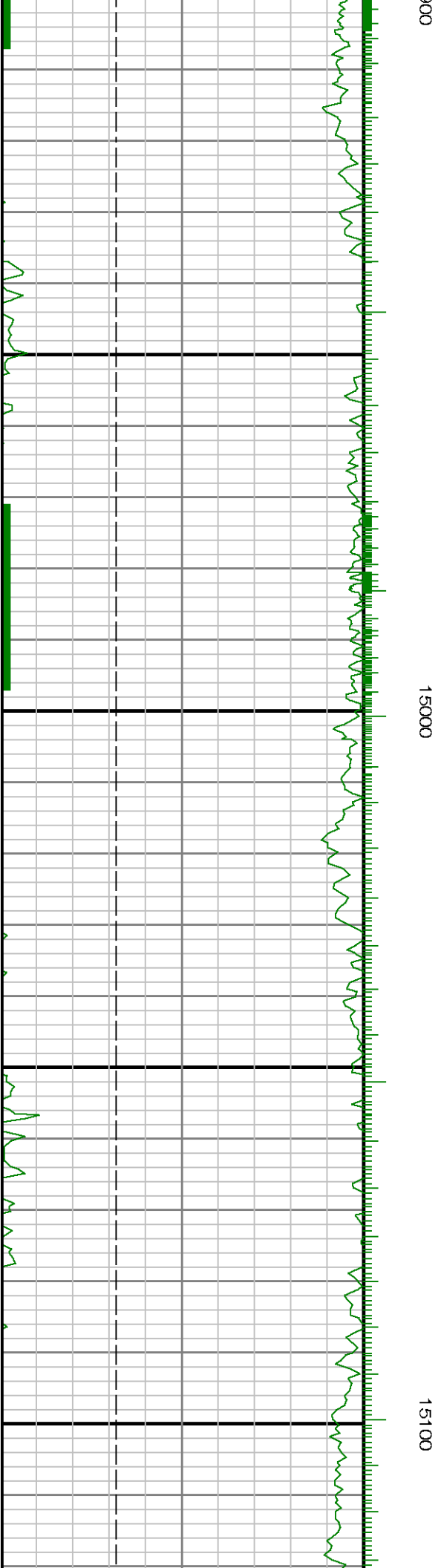
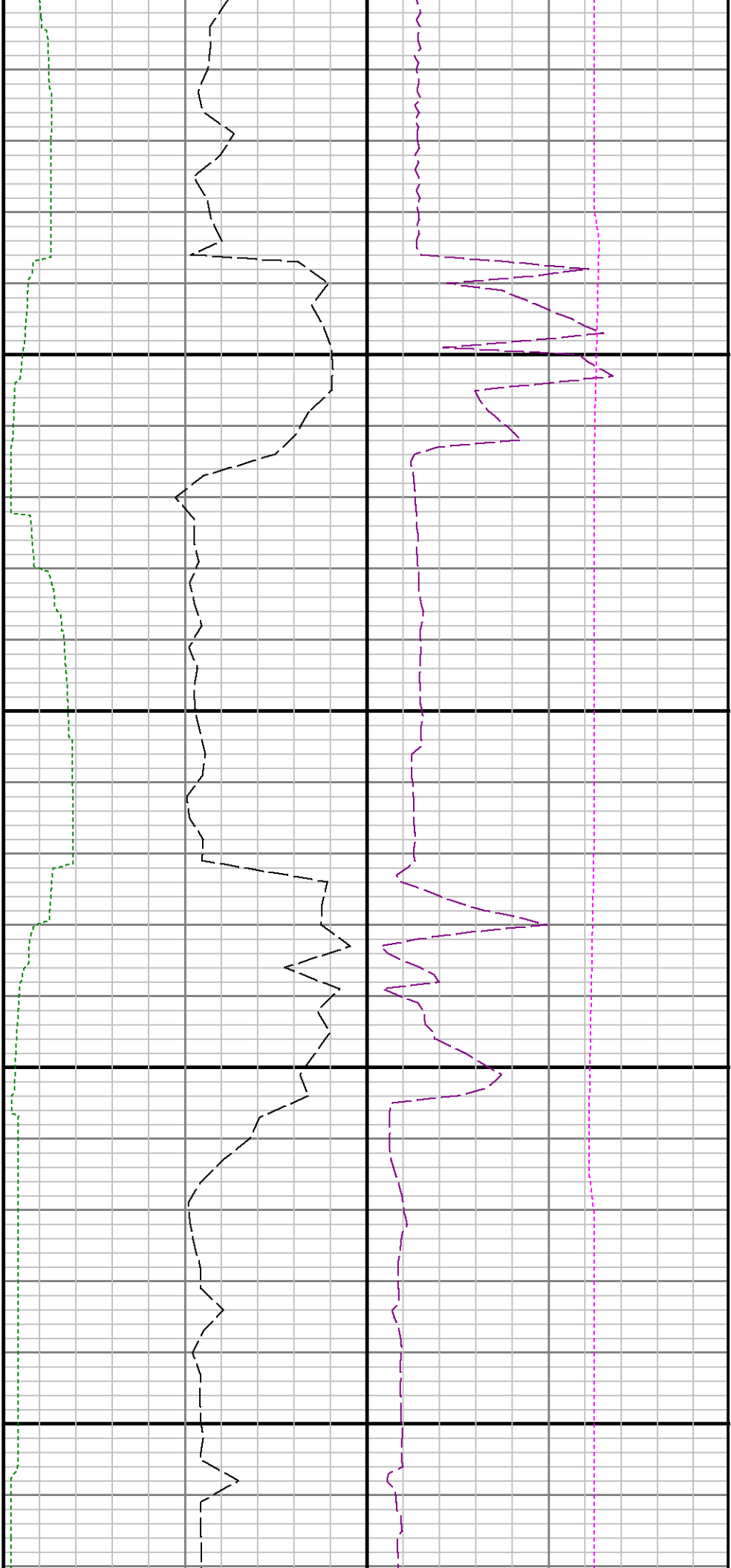
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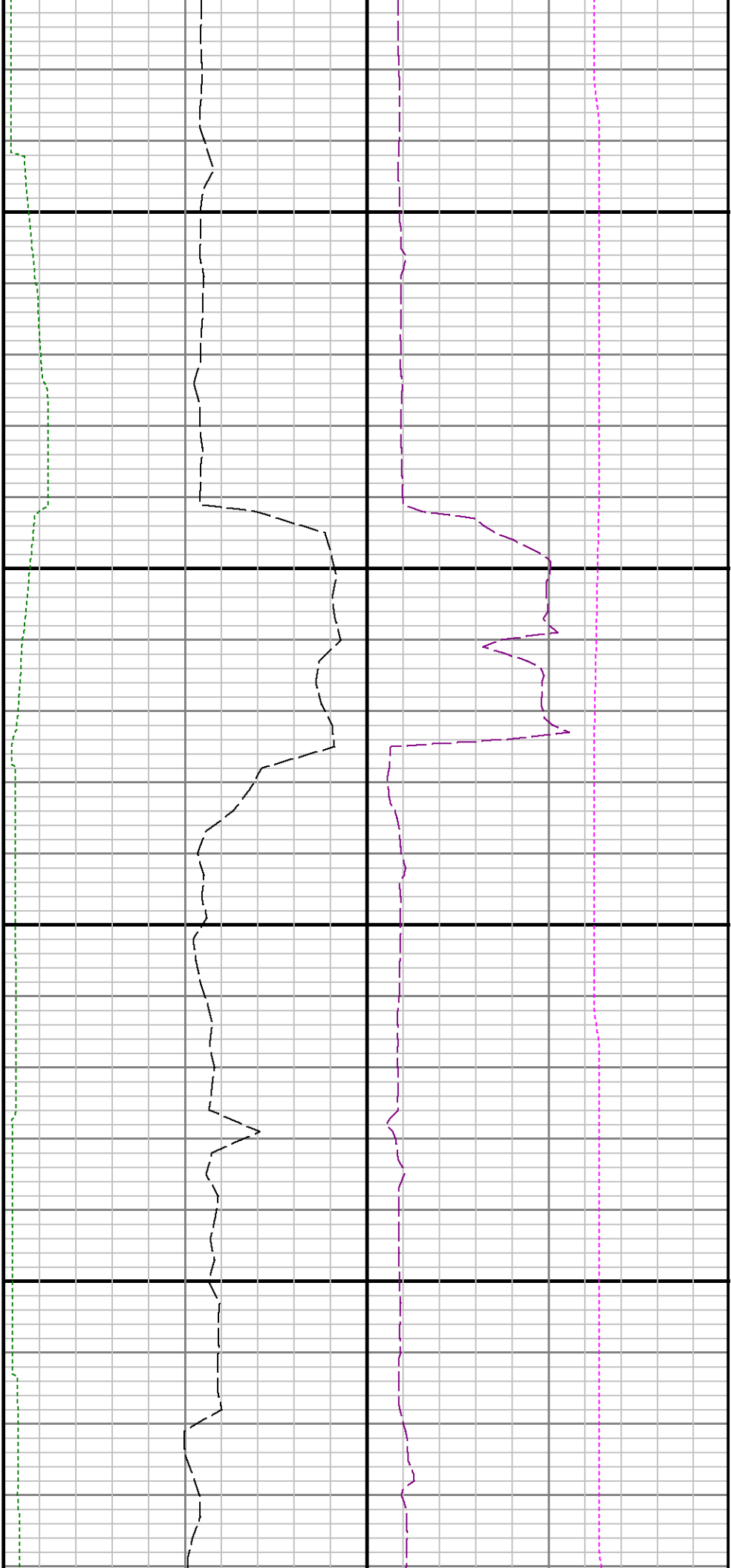






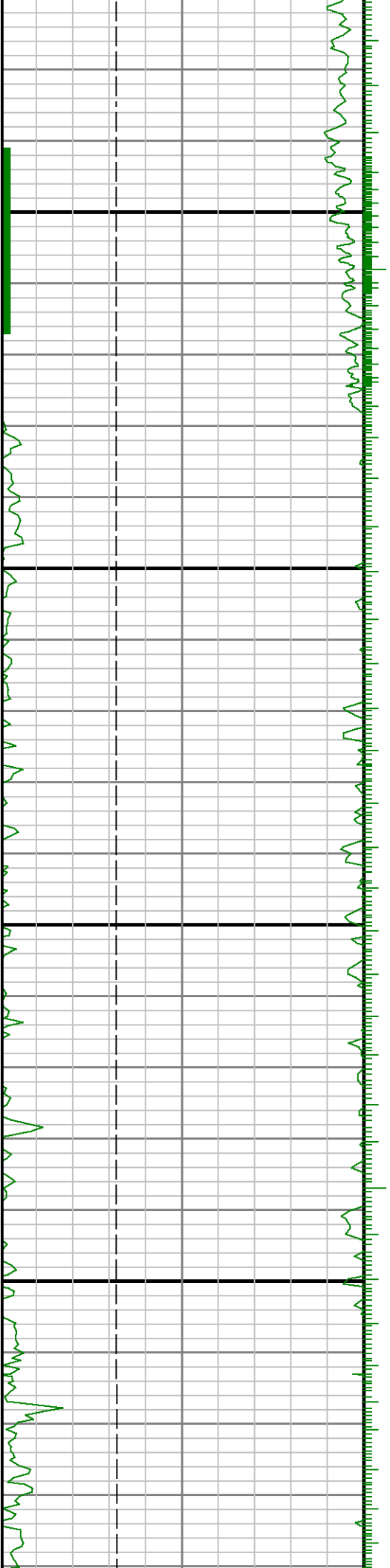


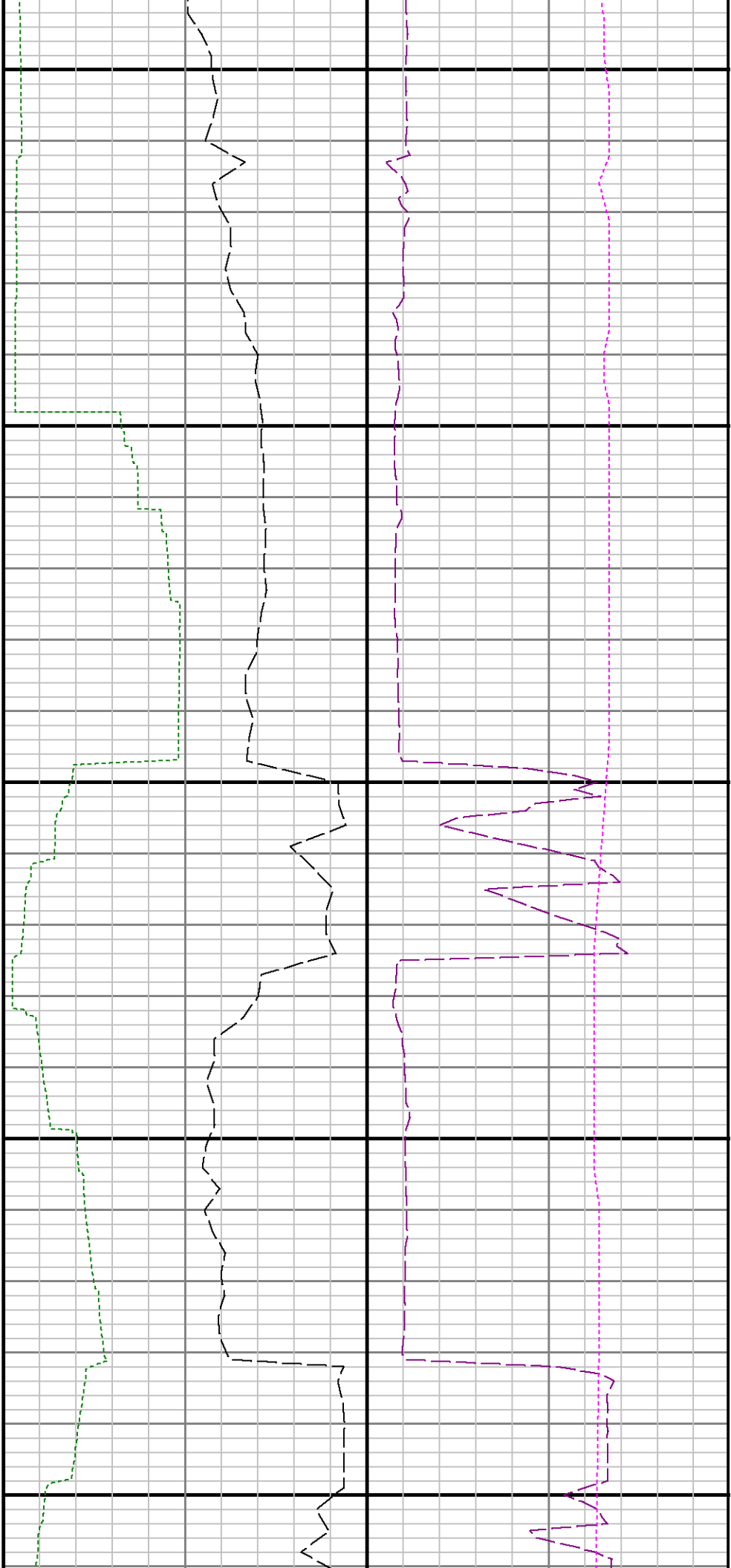




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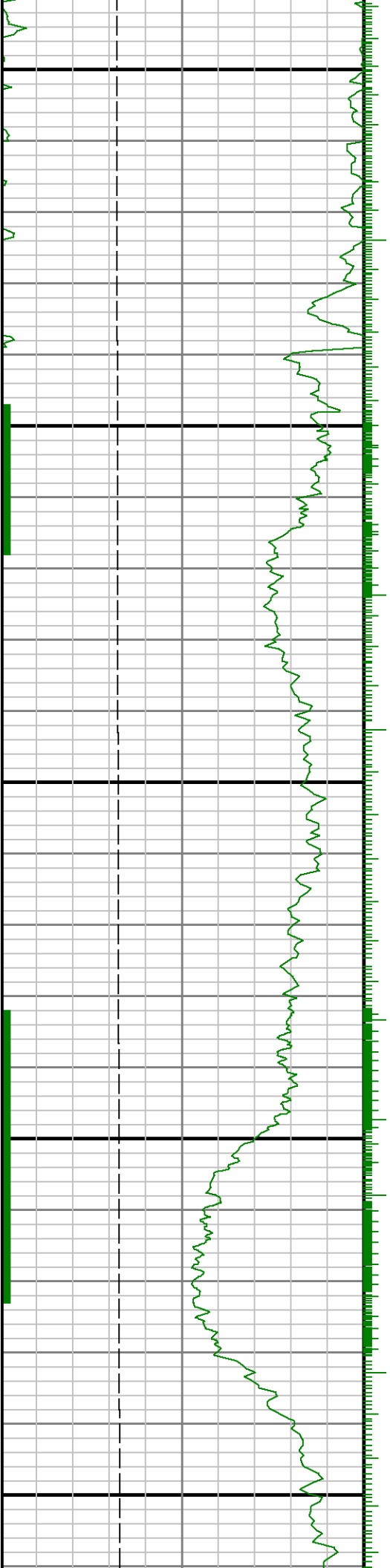
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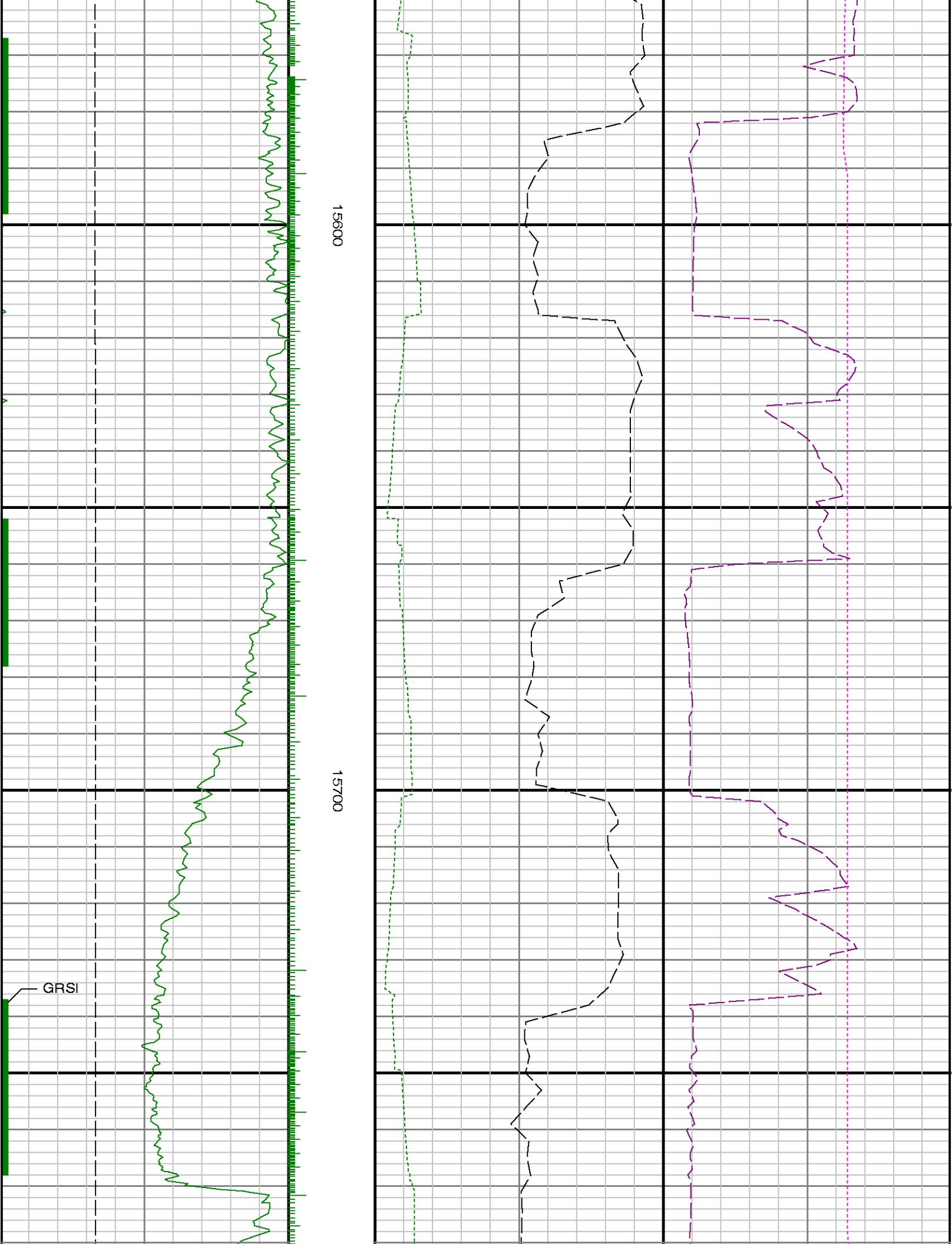


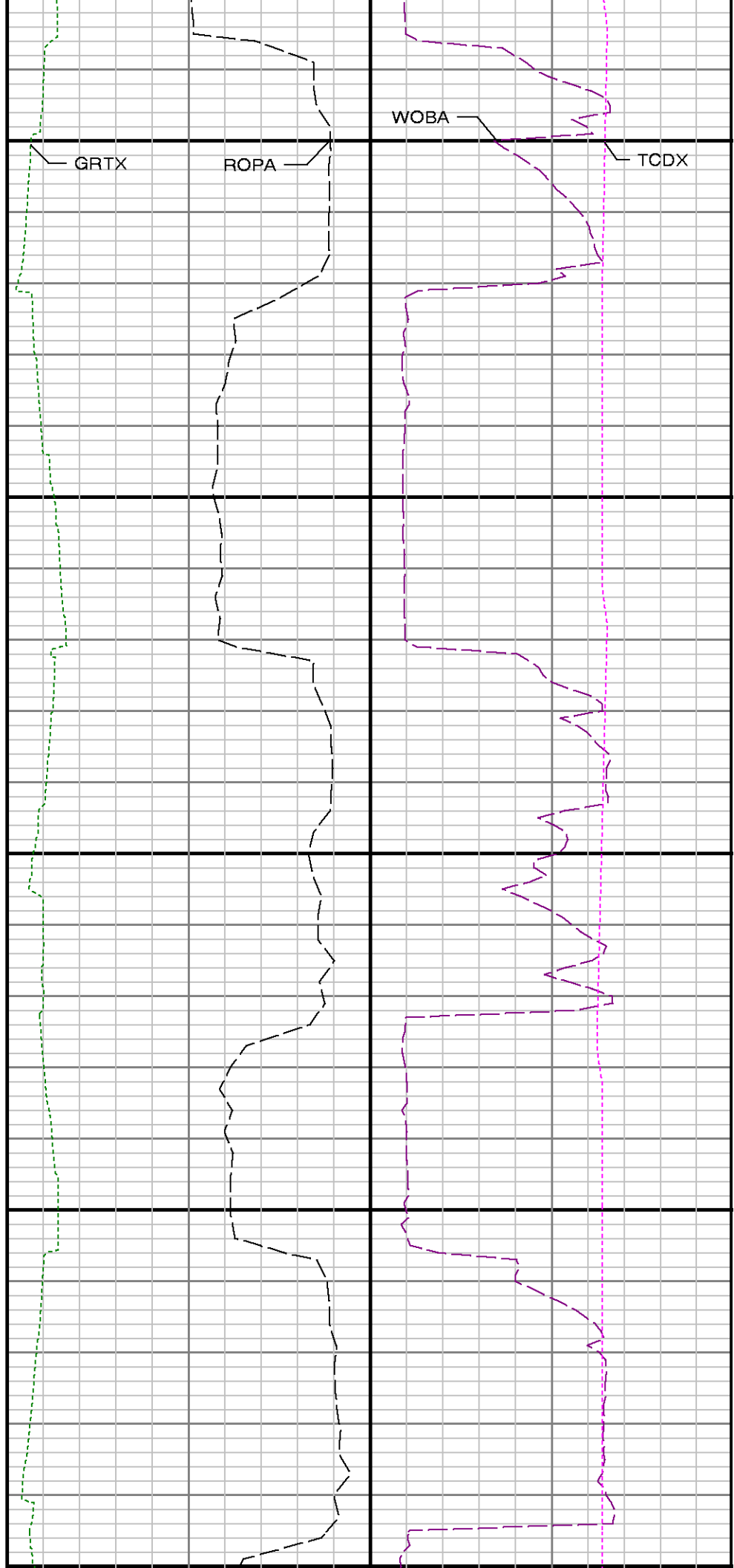
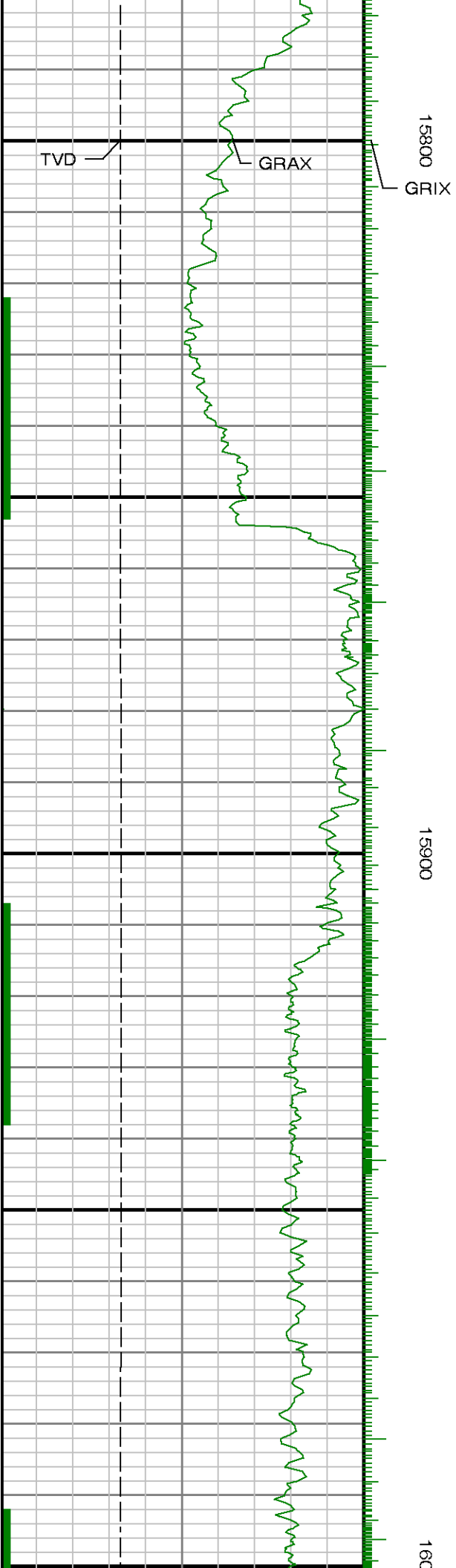


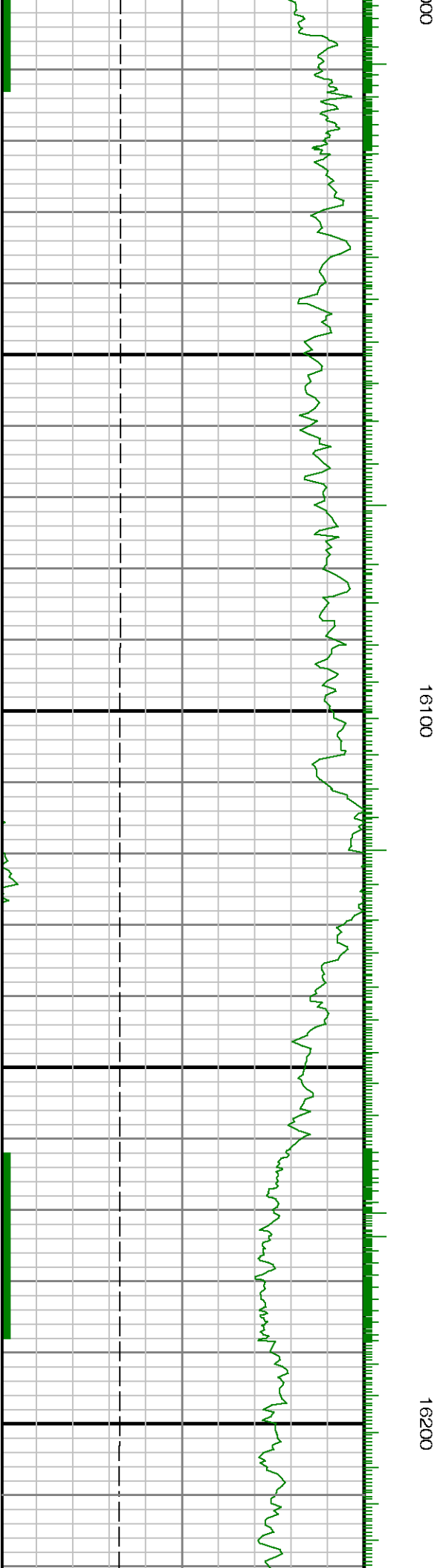
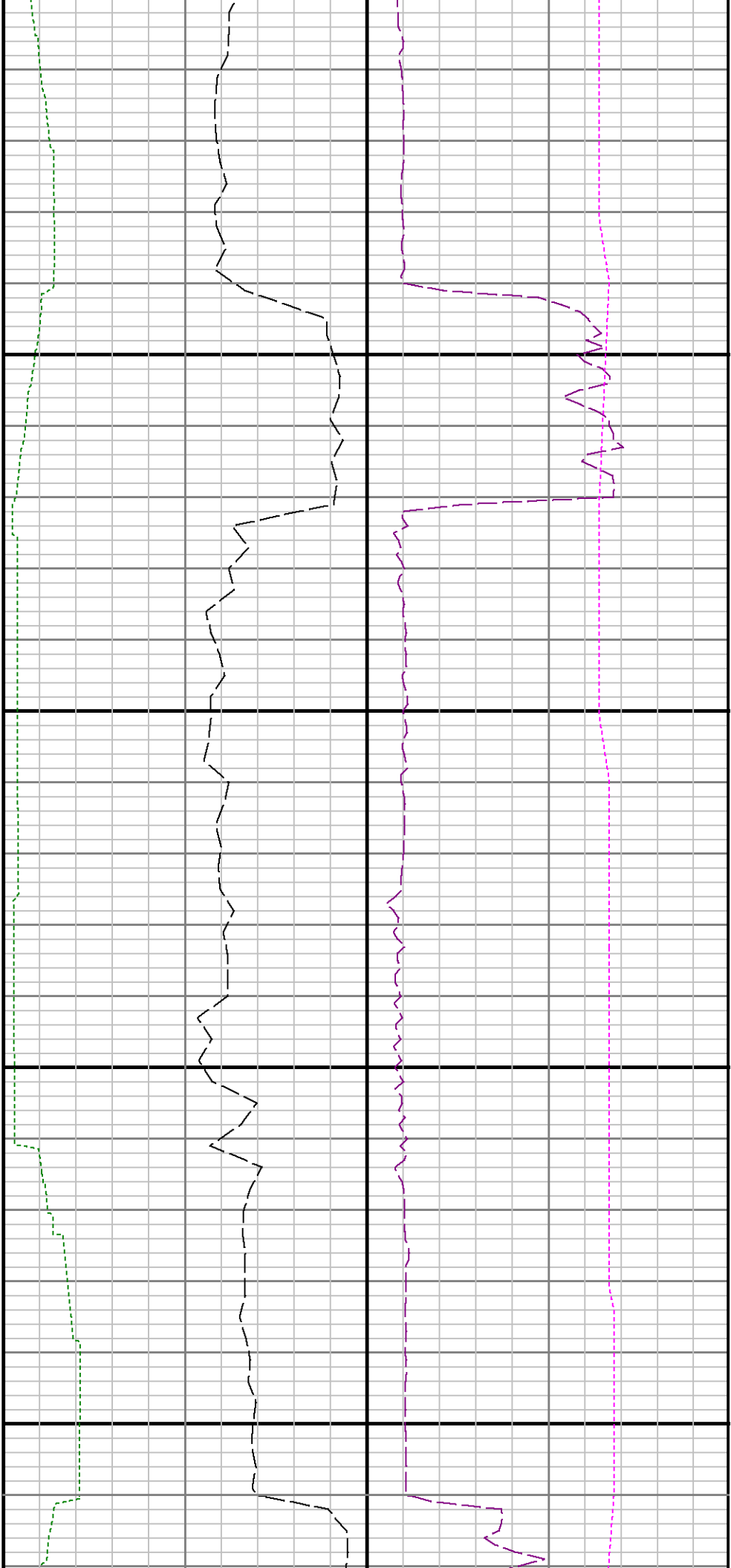
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