



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Kerr-McGee Oil & Gas Onshore LP

1:240

Well: Sack 4N-30HZ

Measured Depth

Field: Weld County (Kerr-McGee)

Region: Continental US Country: United States

Status: Surface Location:

Field Print

Latitude: 40° 0' 9.382" N

API Number: 05123392430000

Longitude: 104° 56' 21.340" W

Other Services:

Directional VSS

Permanent Datum (P.D.): Mean Sea Level Elevation: 5090.00 ft.

Log Measured From: Rig Floor 26.00 ft. Above P.D.

Depth Reference: Driller's Depth

Elevations: N/A

KB: 5090.00 ft.

DF: 5064.00 ft.

GL: 5064.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 7000ft. Date From: 21/Oct/14 Dip Angle: 66.30° Azi Reference North: True

Bottom: 17064 ft. Date To: 30/Oct/15 Total Mag to Reference

Spud Date: 20/Oct/14 Field Strength: 52547.0 nT North Correction: 8.40°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1225 ft.	9.625 in.	36.00 lb/ft	Surface	1224 ft.
8.750 in.	1225 ft.	8058 ft.	7.000 in.	26.00 lb/ft	Surface	7962 ft.
6.125 in.	8058 ft.	17112 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based Mud	1225 ft.	8059 ft.	13.500 in.	1225 ft.	0.0° / 89.1°	0.4° / 280.0°
Synthetic Based Mud	8059 ft.	17113 ft.	8.750 in.	6883 ft.	0.4° / 280.0°	86.5° / 1.8°
			6.125 in.	9054 ft.	86.5° / 1.8°	91.3° / 358.3°
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig / Contractor:	Precision 595	/ Precision Drilling
PATS	6.4.1.34	Job No:	6728849	
		District / Unit:	RMD	/ D&E

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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	3.500	Steerable	7000	8014	1225	8058	21/Oct/2014	10:51	24/Oct/2014	15:40	40.7
2	2	2	6.125	PDC	3.500	Steerable	8014	17064	8058	17113	27/Oct/2014	03:12	30/Oct/2014	12:00	80.7

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
David Campbell	21 Oct 2014	28 Oct 2014	Kevin McGuire	21 Oct 2014	31 Oct 2014	Ely Danner	21 Oct 2014	25 Oct 2014
Jason Cross	21 Oct 2014	31 Oct 2014	Jason McMahon	21 Oct 2014	31 Oct 2014	Alexander Janorschke	23 Oct 2014	23 Oct 2014
Alexander Janorschke	25 Oct 2014	31 Oct 2014	Matthew Leopold	28 Oct 2014	31 Oct 2014			

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (f.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
22/Oct/2014 21:26	1	2272	Water Based Mud	8.4	N/A	9.5	169.0	0 / 100	Active Mud Pit	1800	0.0
23/Oct/2014 20:22	1	7000	Water Based Mud	9.9	11	9.7	0.0	0 / 92	Active Mud Pit	1800	0.0
24/Oct/2014 21:42	1	8058	Water Based Mud	10.2	13	9.6	0.0	4 / 86	Active Mud Pit	2000	0.0
25/Oct/2014 19:44	1	8058	Water Based Mud	10.2	13	9.5	0.0	4 / 86	Active Mud Pit	2000	0.0
26/Oct/2014 21:51	2	8058	Synthetic Based Mud	9.4	13	2.1	0.0	68/32	Active Mud Pit	64000	0.0
27/Oct/2014 23:03	2	9941	Synthetic Based Mud	9.5	18	2.5	78.0	66/34	Active Mud Pit	60000	0.0
28/Oct/2014 20:45	2	12528	Synthetic Based Mud	9.3	19	2.5	1.0	66/34	Active Mud Pit	56000	0.0
29/Oct/2014 23:24	2	14887	Synthetic Based Mud	9.5	14	1.9	18.0	66/34	Active Mud Pit	53000	0.0
30/Oct/2014 20:45	2	17112	Synthetic Based Mud	9.3	16	2.2	65.0	66/34	Active Mud Pit	56000	0.0

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRTX	Gamma Ray Time Since Drilled	Min.
GRIX	Gamma Ray Data Density	Unitless
GRSI	Gamma Ray Slide Indicator	Unitless
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.	K. lbs.

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12617345	Directional	46.80	6.750	3.000
1	SRIG	12722376	Gamma	43.43	6.750	3.000
2	DIR	13153780	Directional	52.18	4.750	2.250
2	SRIG	11703937	Gamma	48.80	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

Comments

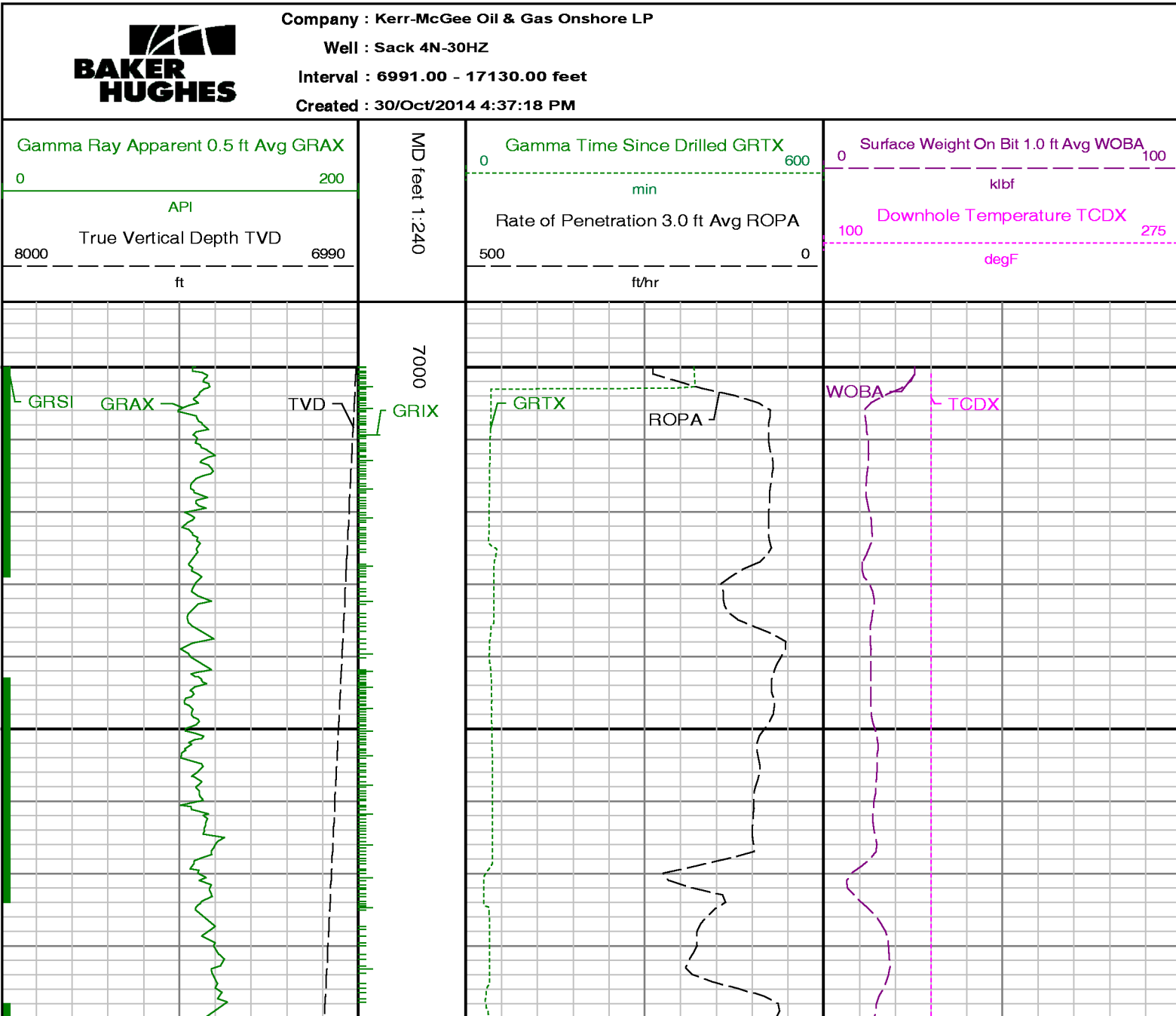
1.) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2.) Baker Hughes run 1 utilized a 6 3/4 inch NaviGamma (Directional and Gamma Ray) tool ran behind an 8 3/4 inch bit with a steerable assembly from 1225 to 8061 feet MD (1224 to 7609 feet TVD).

3.) Baker Hughes run 2 utilized a 4 3/4 inch NaviGamma (Directional and Gamma Ray) tool ran behind an 6.125 inch bit with a steerable assembly from 8061 to 17112 feet MD (7609 to 7636 feet TVD).

4.) A sliding indicator is shown on the left side of track 1 as a heavy line. The indicator has been shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.

Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	8017	8.750	1	The interval from 8014 to 8060 feet MD (7611 feet TVD) was logged up to 60 hours after being drilled due to trip out of hole to change BHA and perform casing operations.
2	17074	6.125	2	The interval from 17065 to 17112 feet MD (7636 TVD) has no GRAX, GRIX or GRTX due to the Gamma Ray sensor offset to bit.

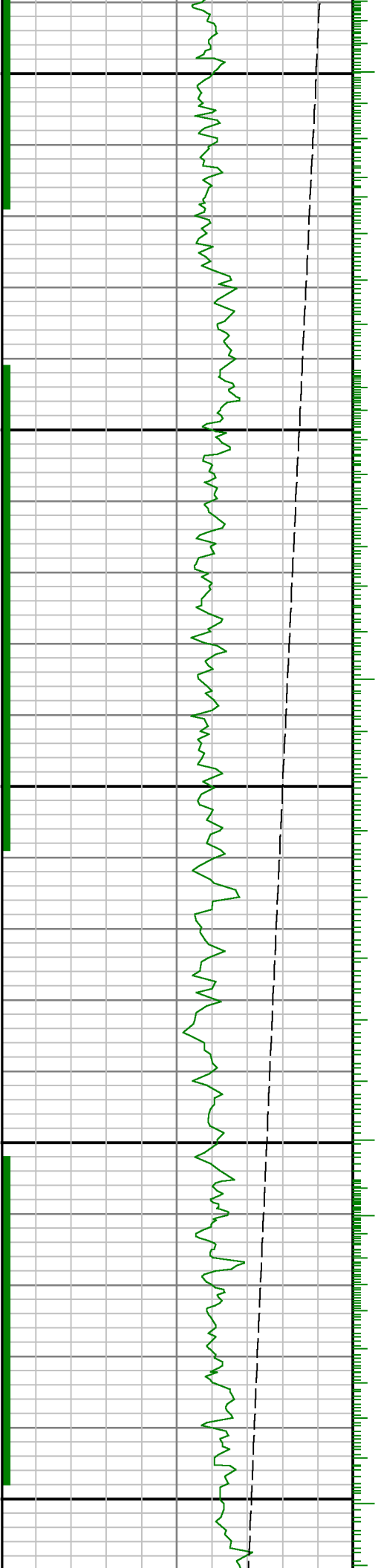




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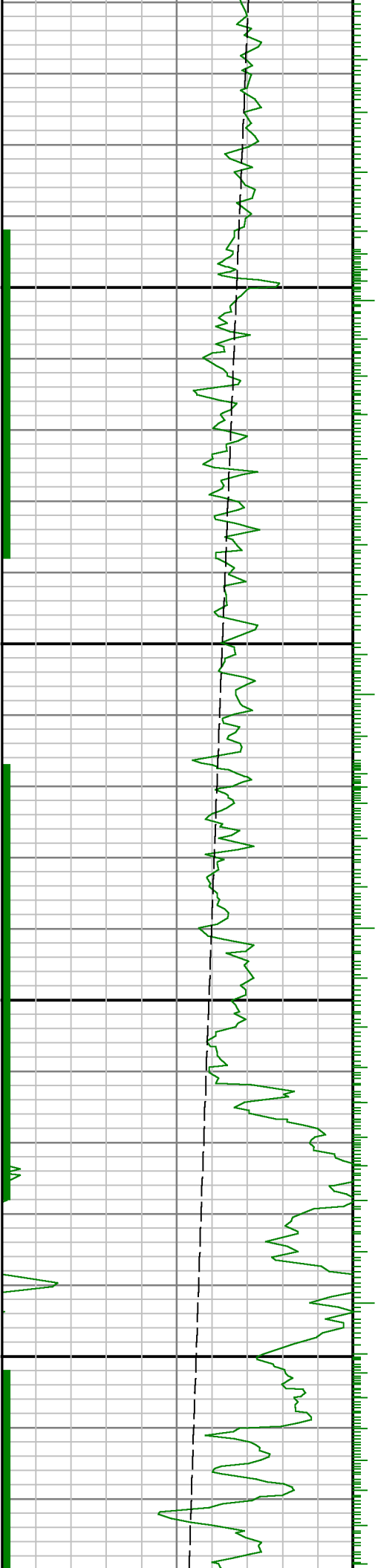
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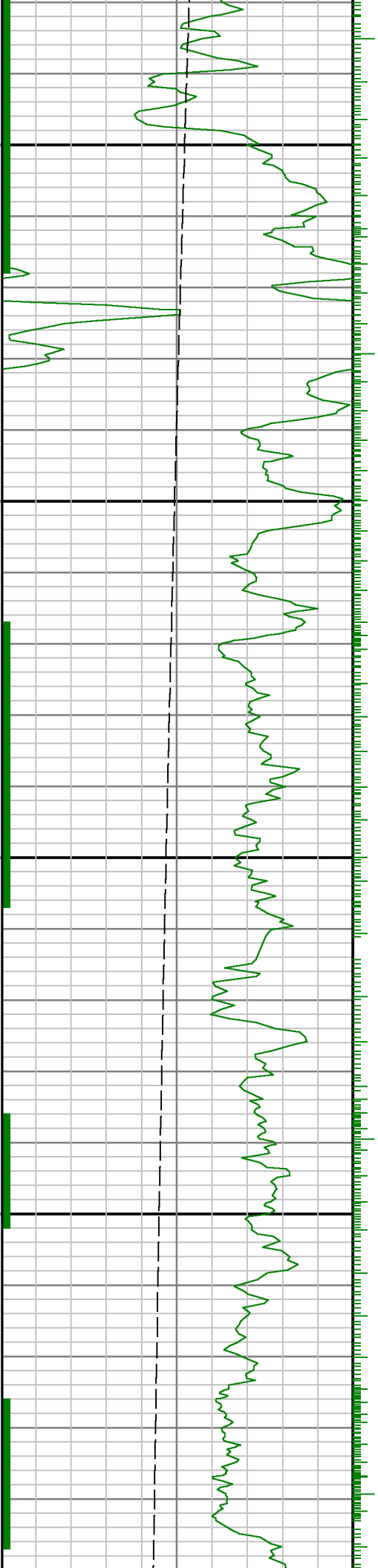
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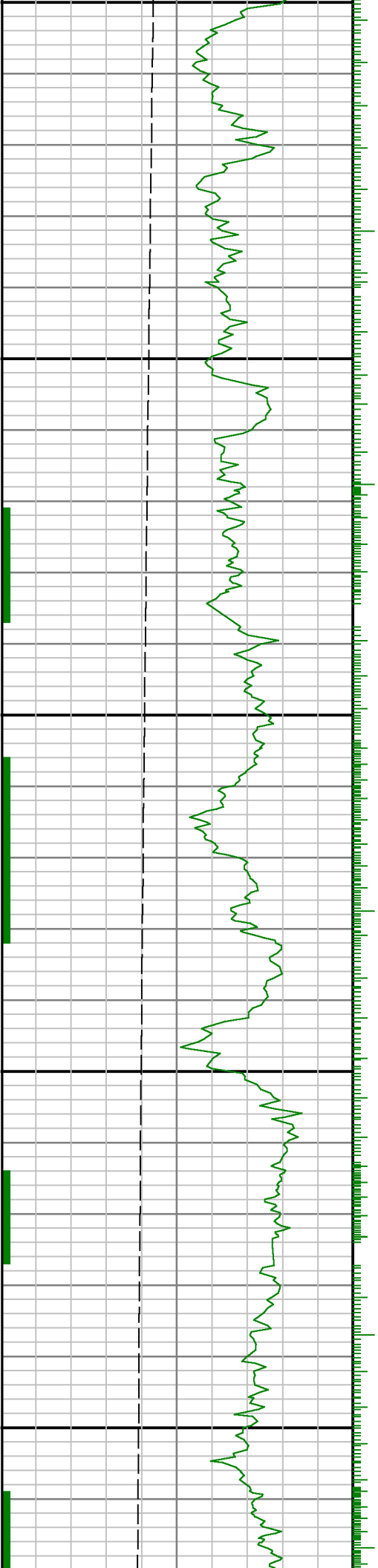
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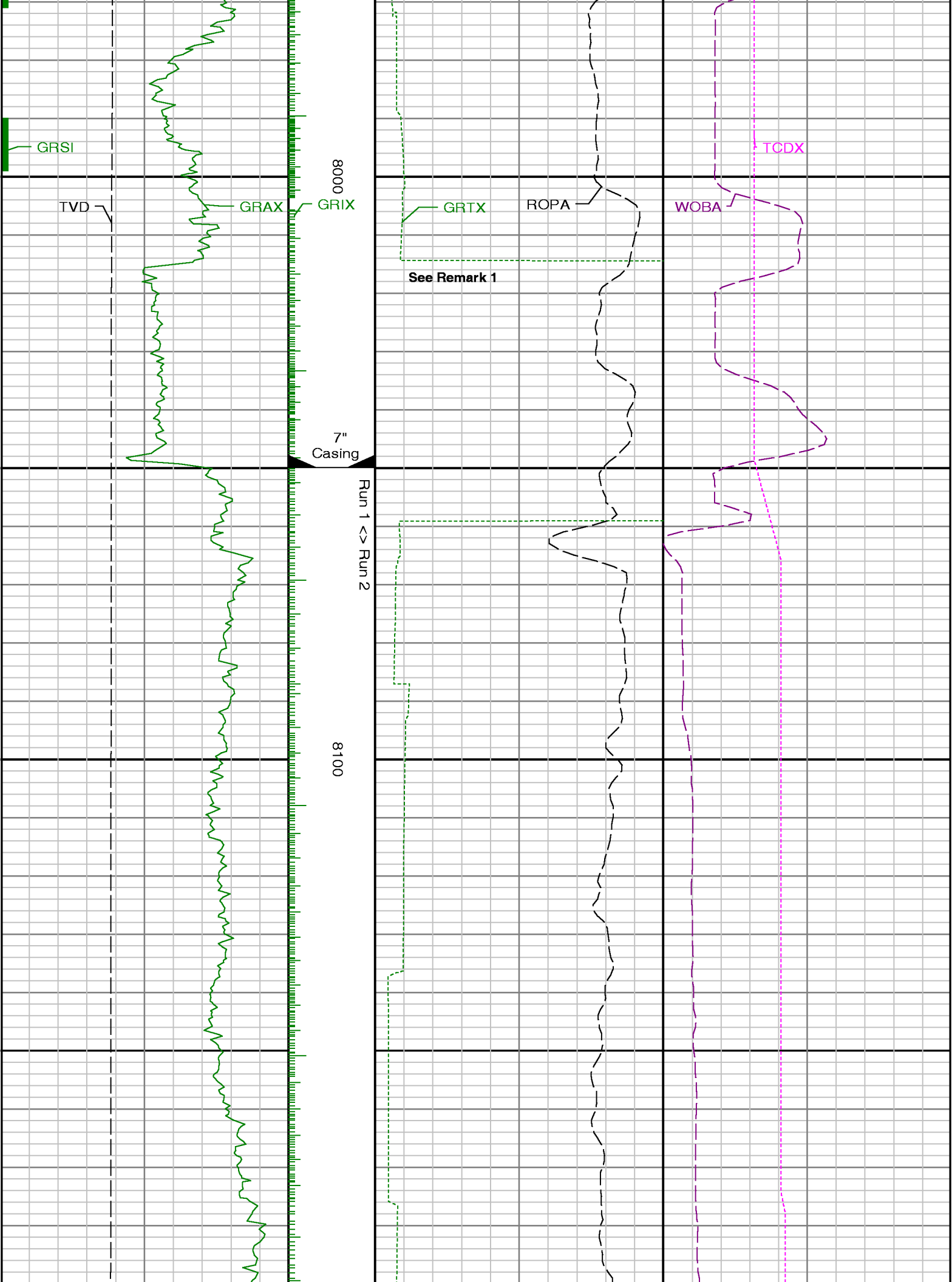




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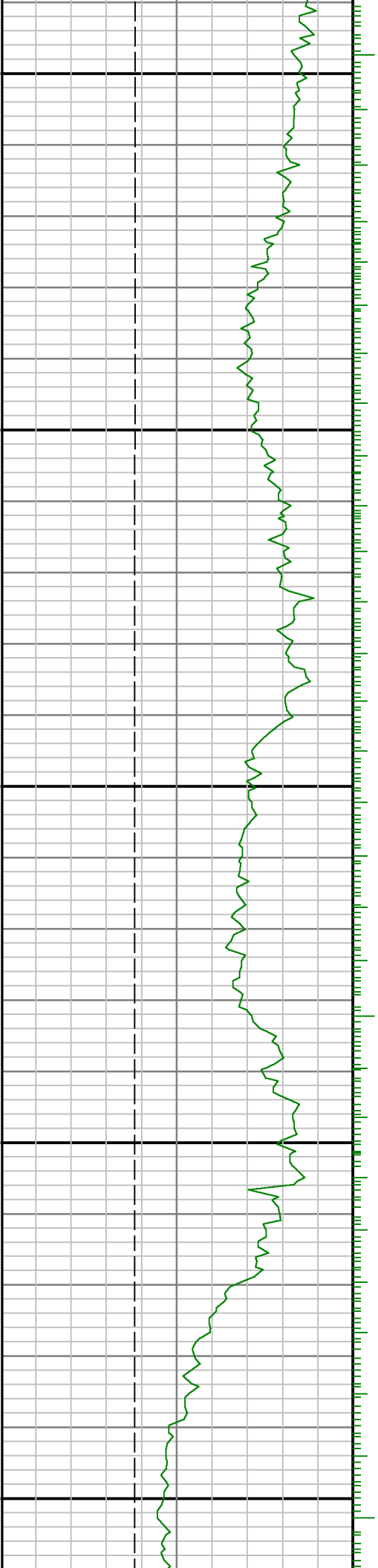


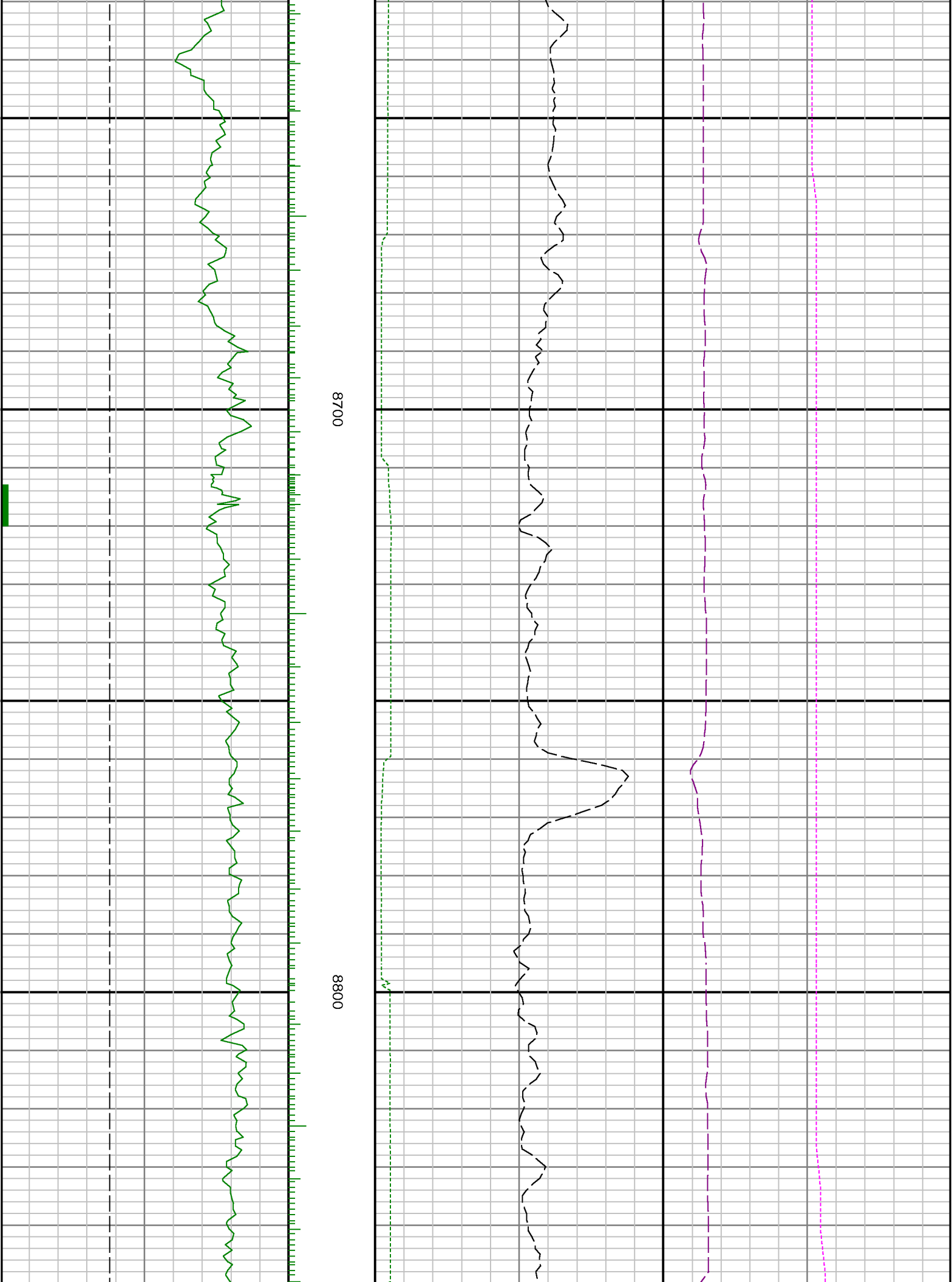


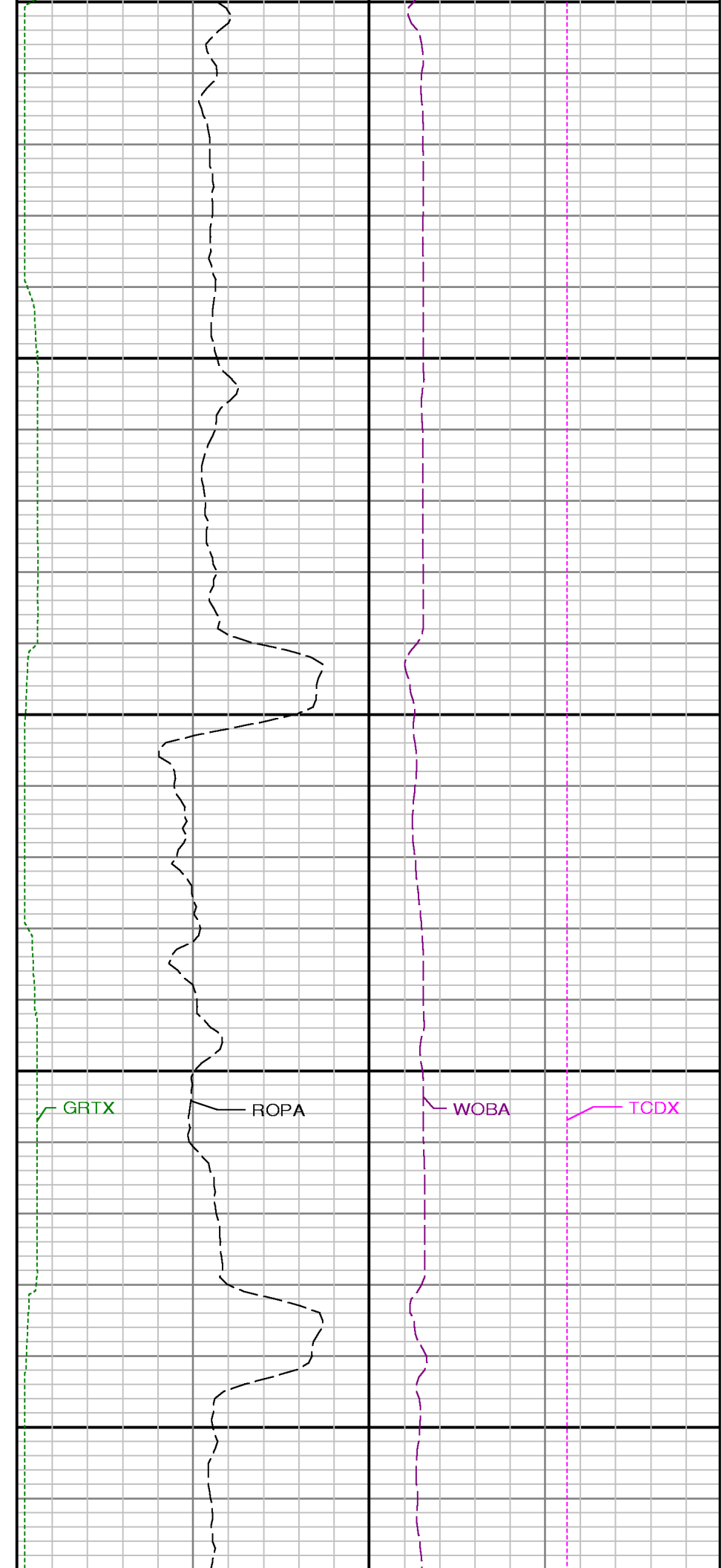
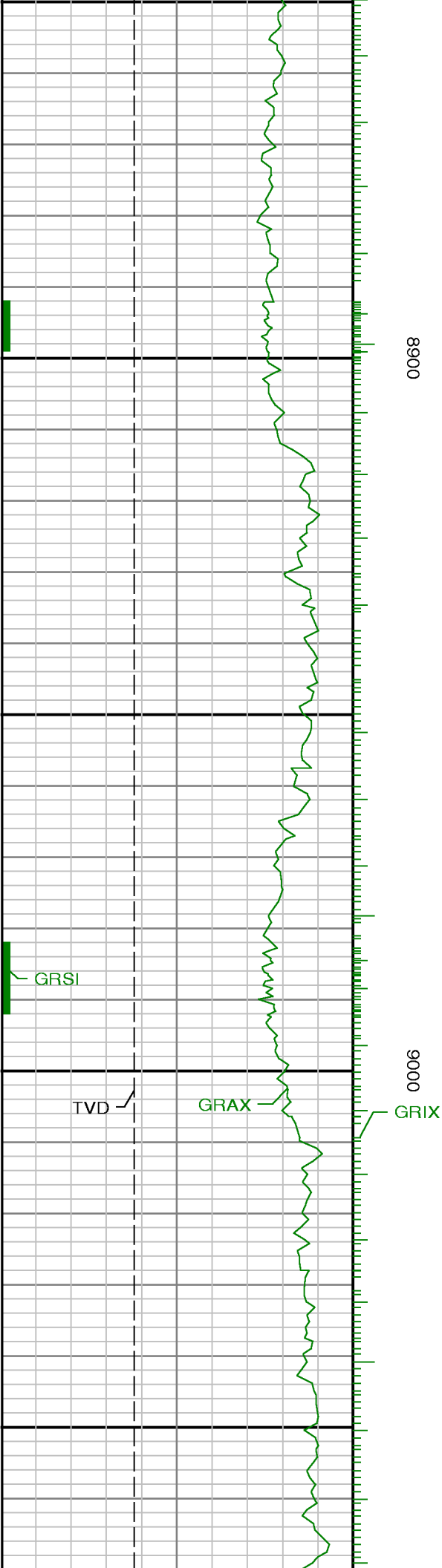
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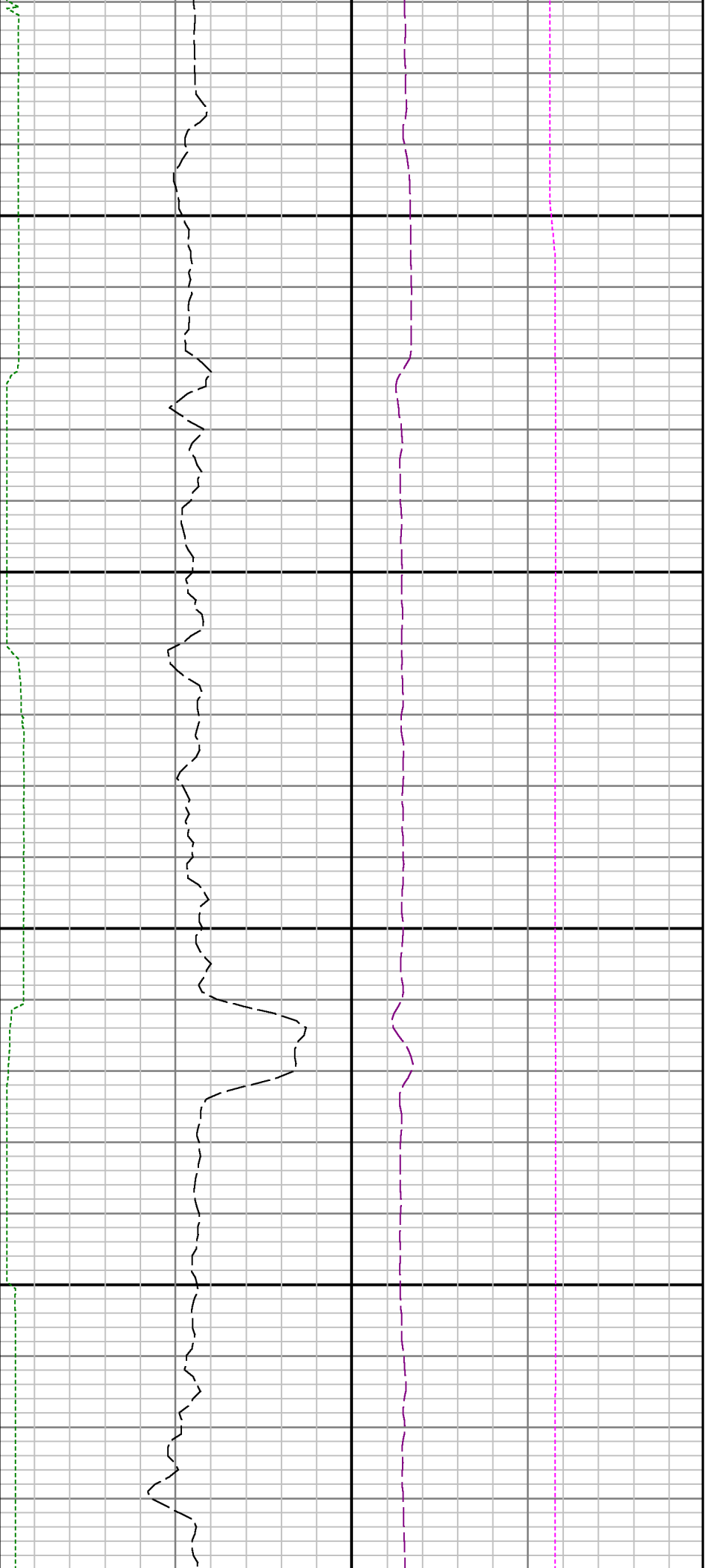
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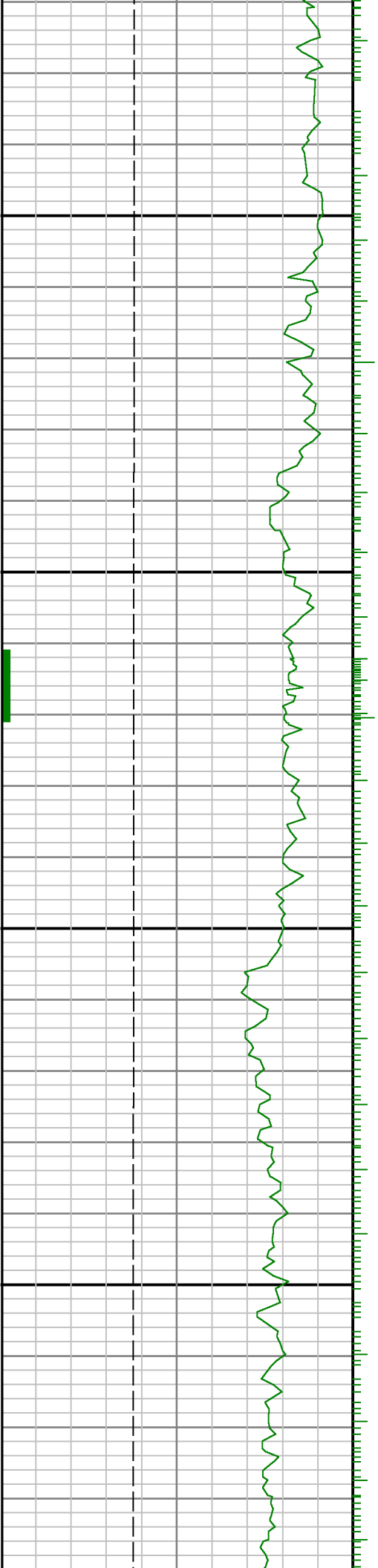






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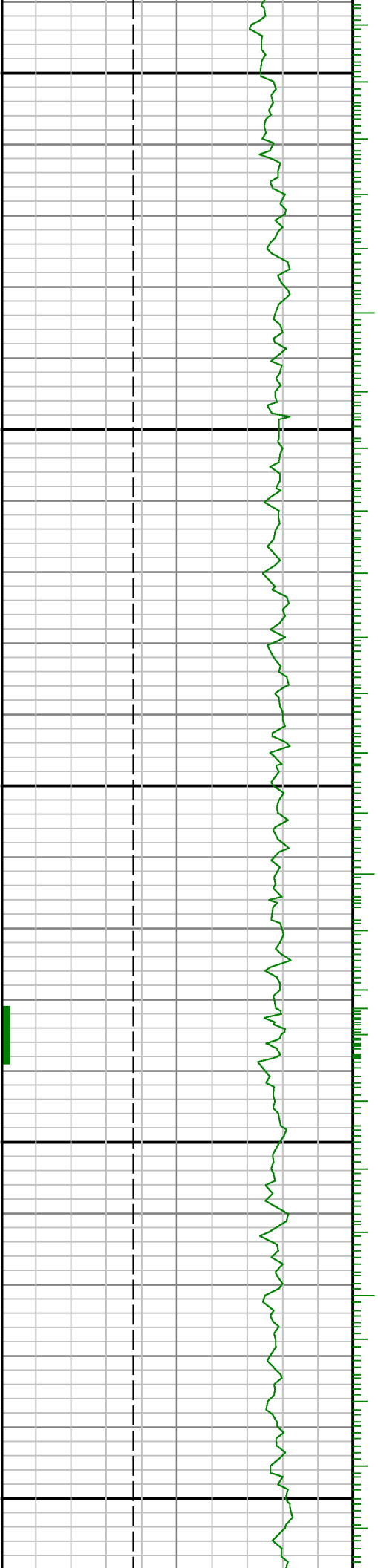


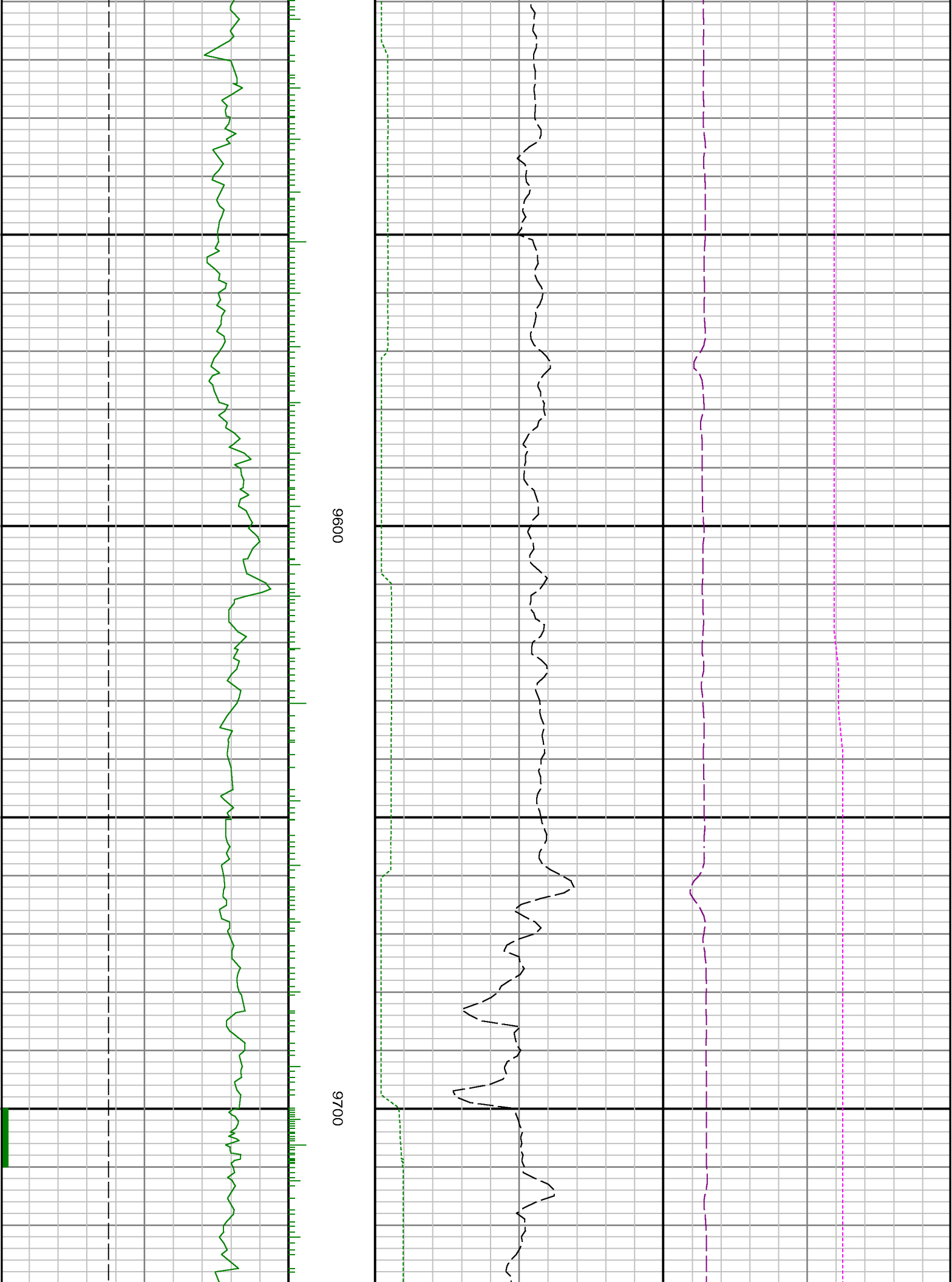


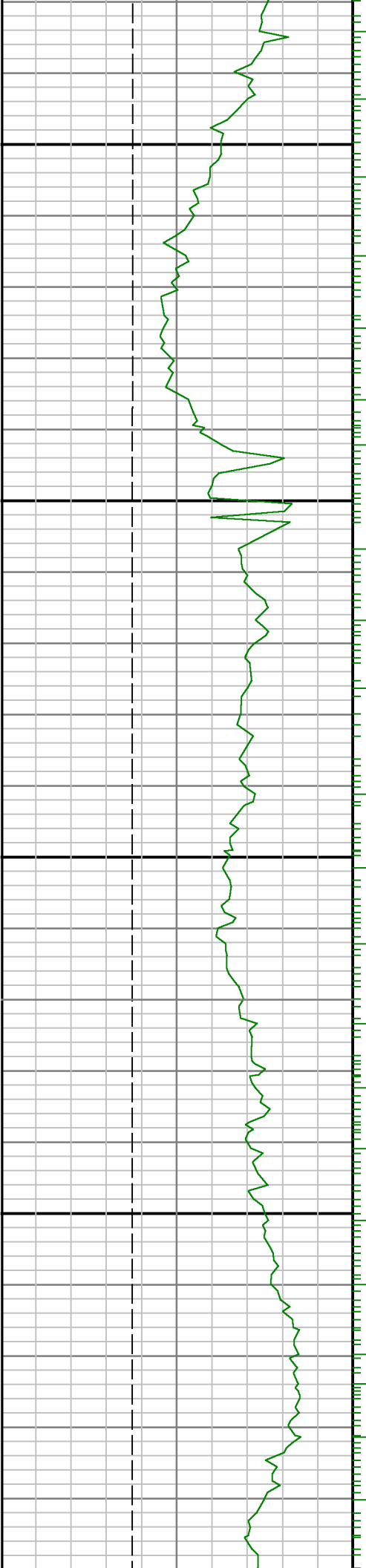
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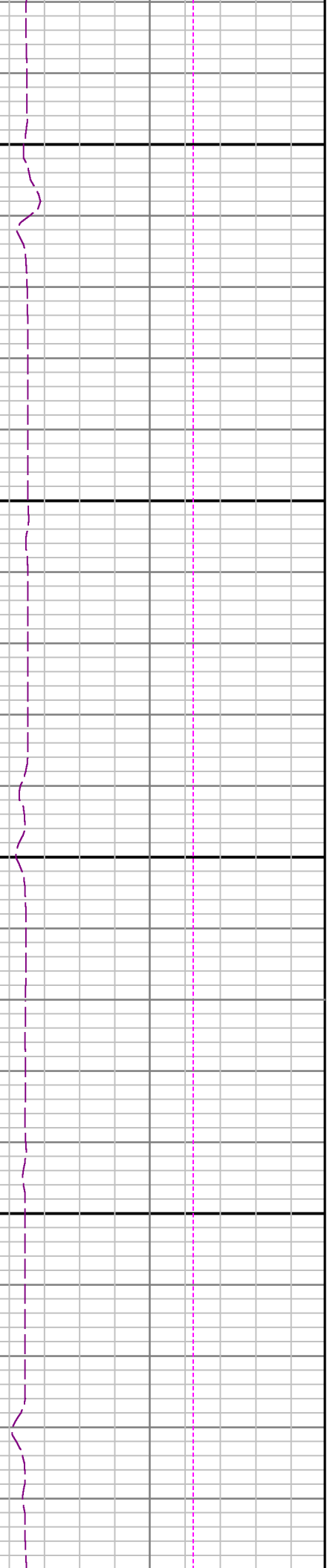
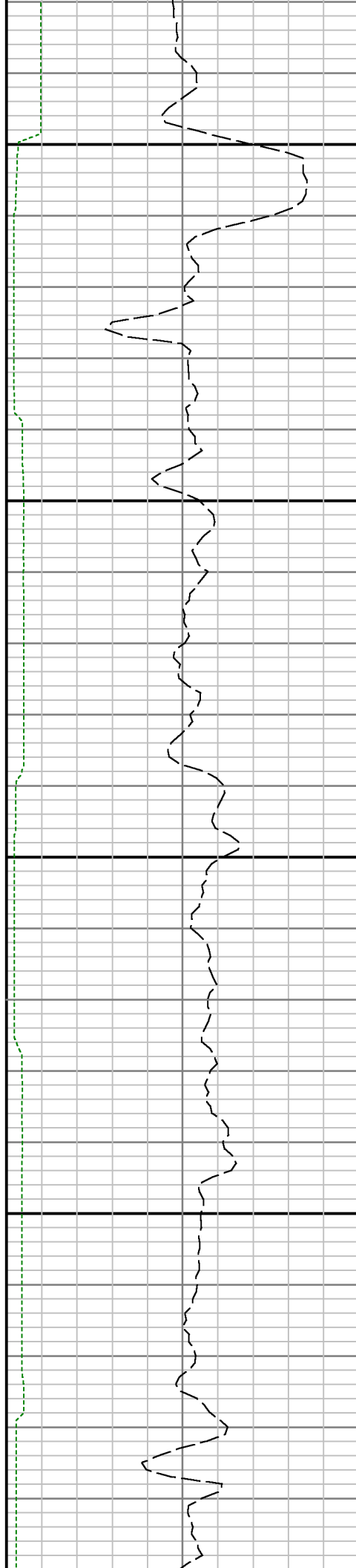


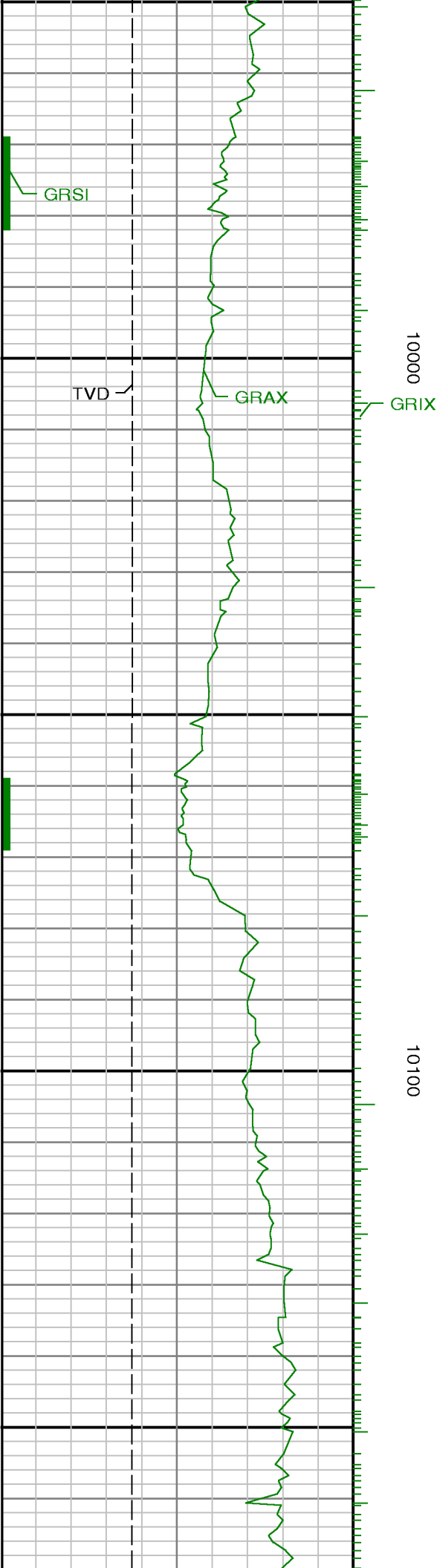


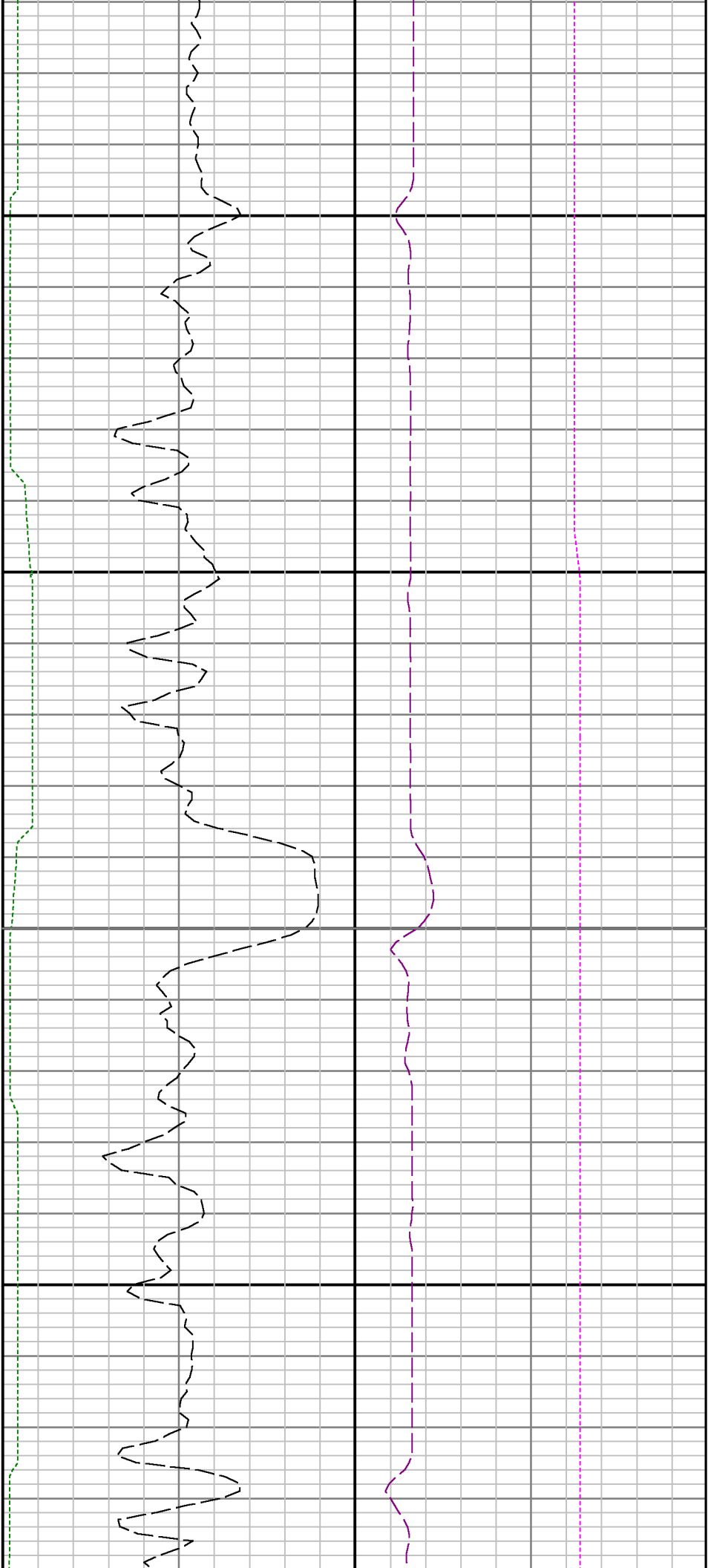


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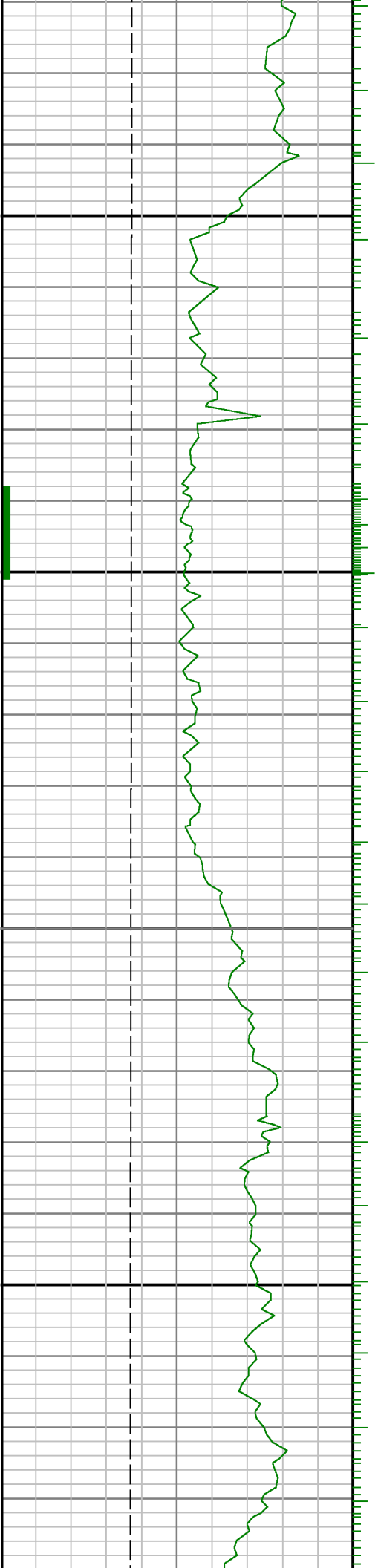


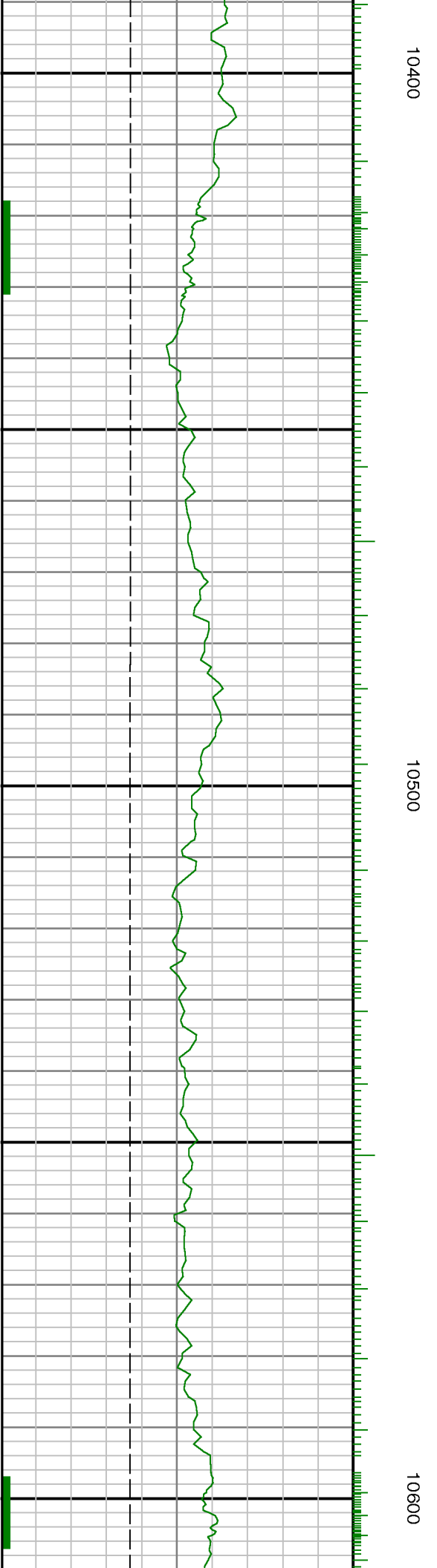
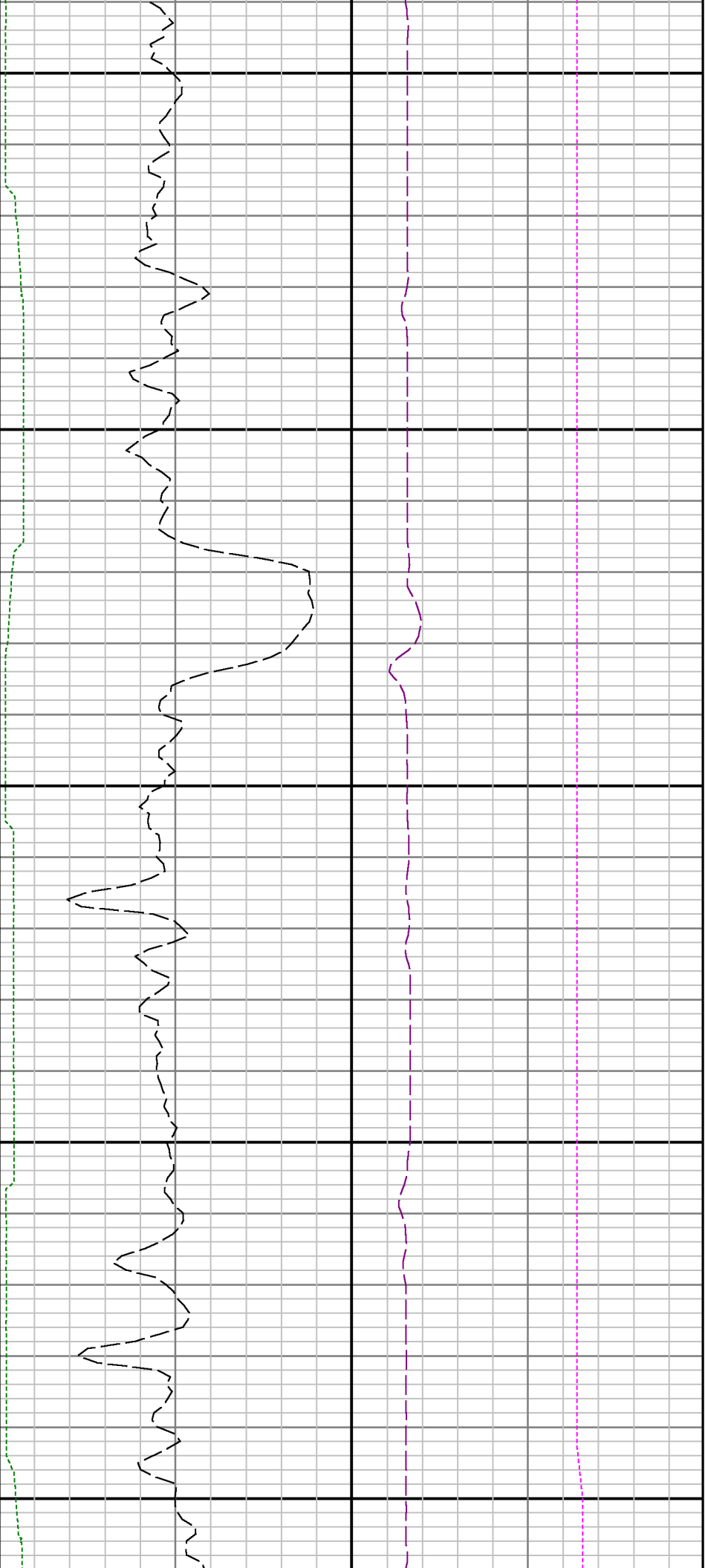




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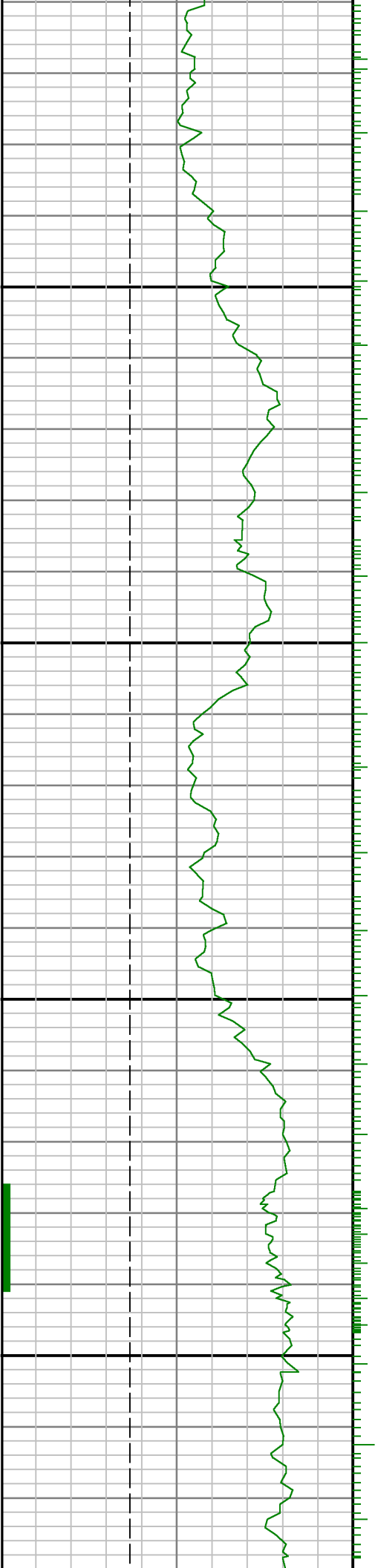


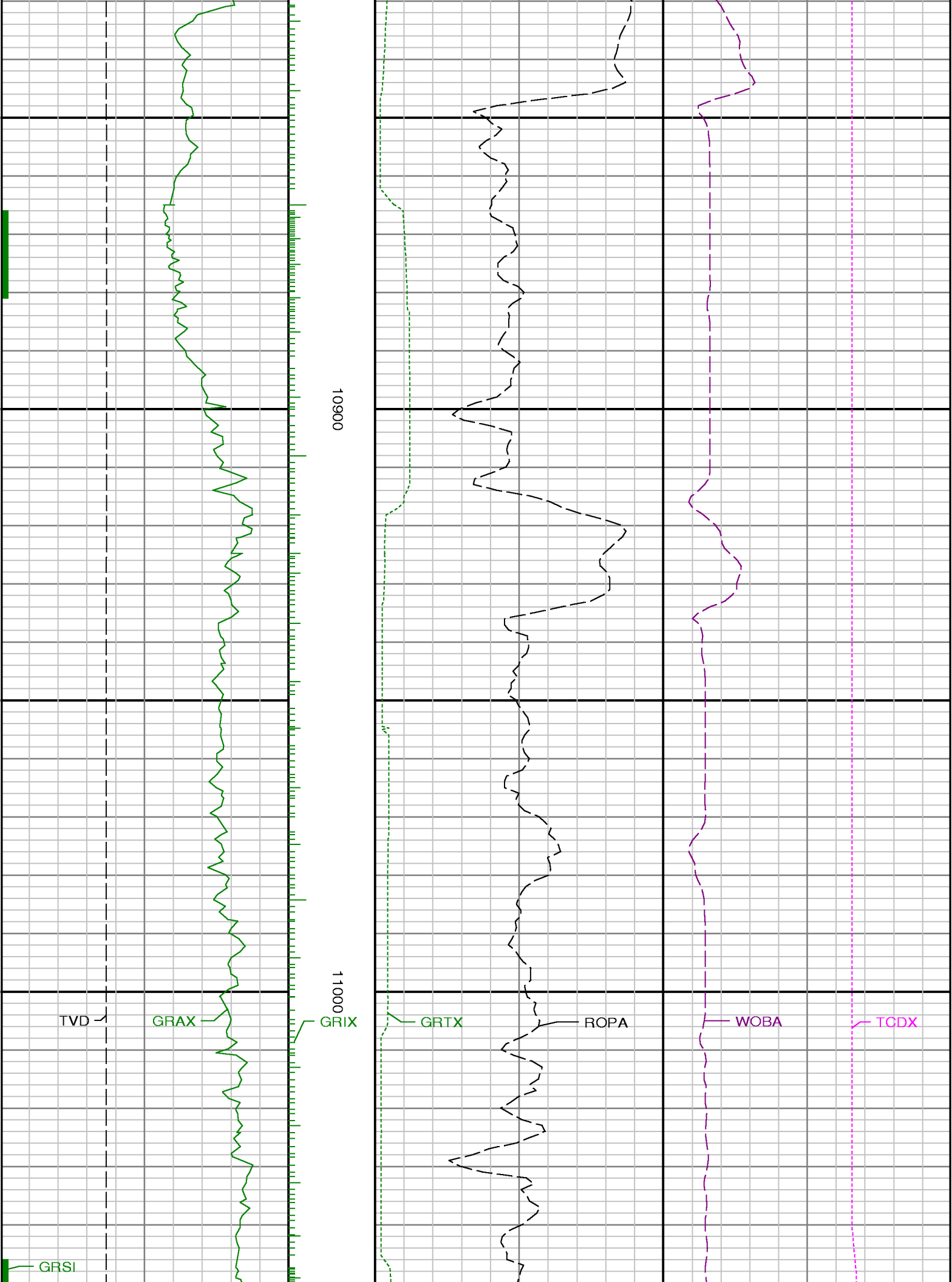


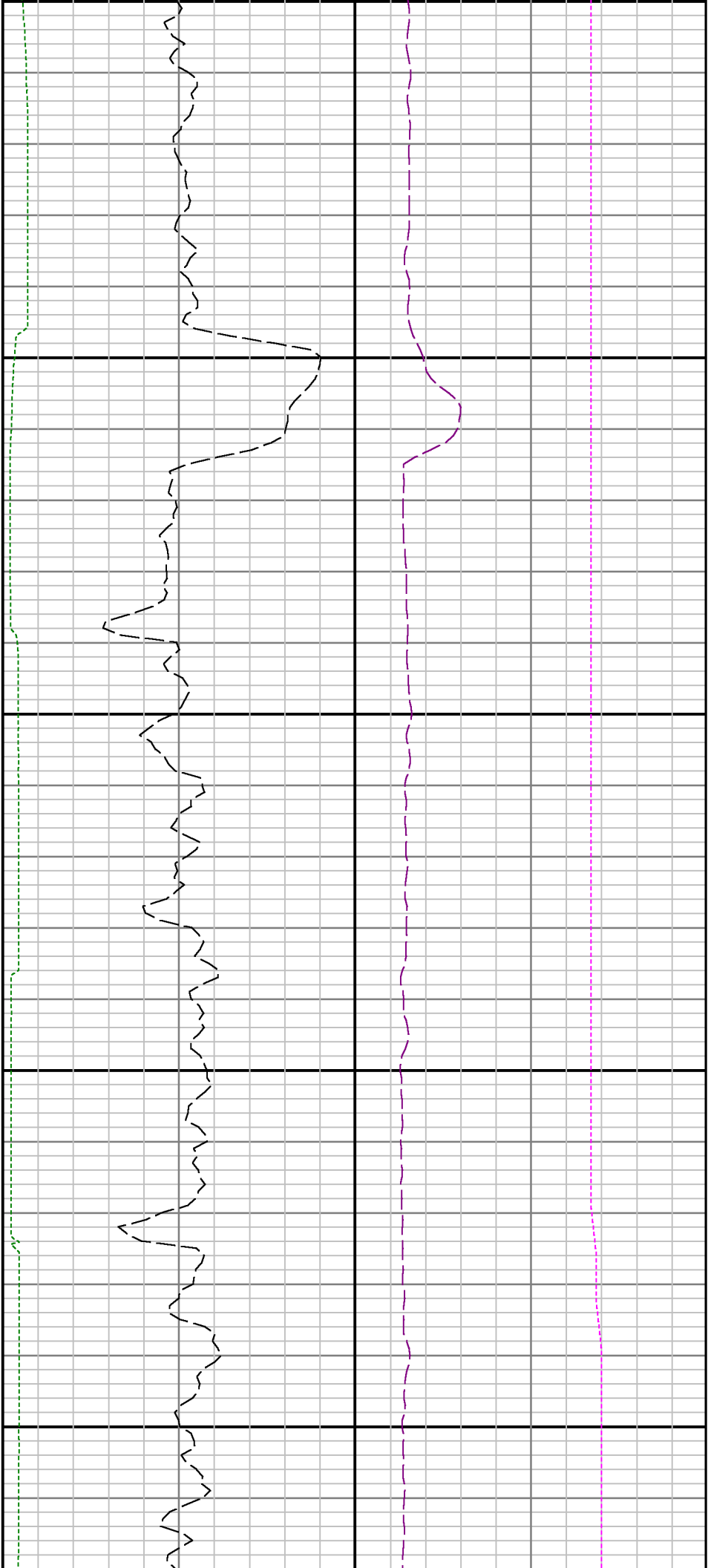


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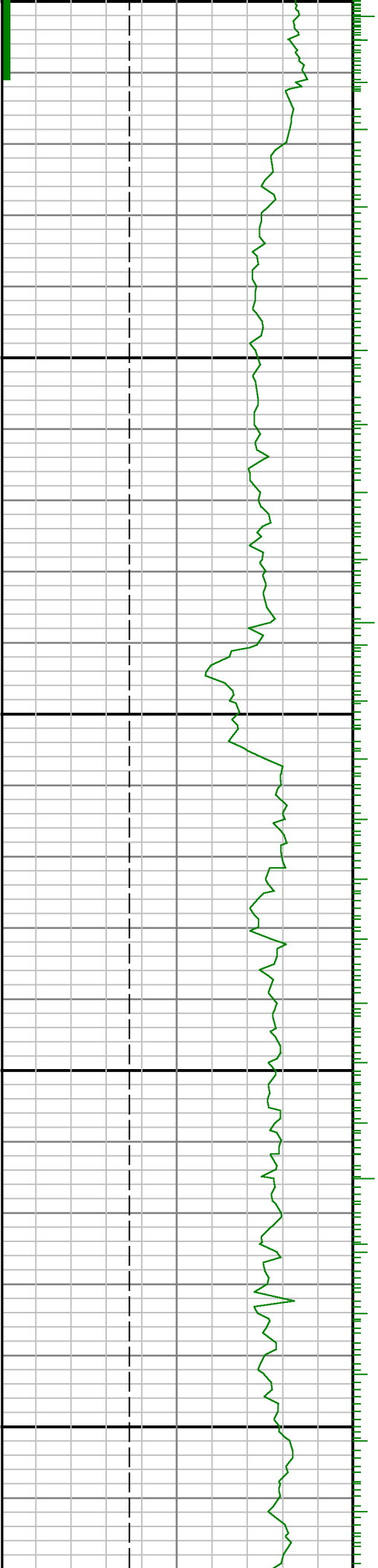


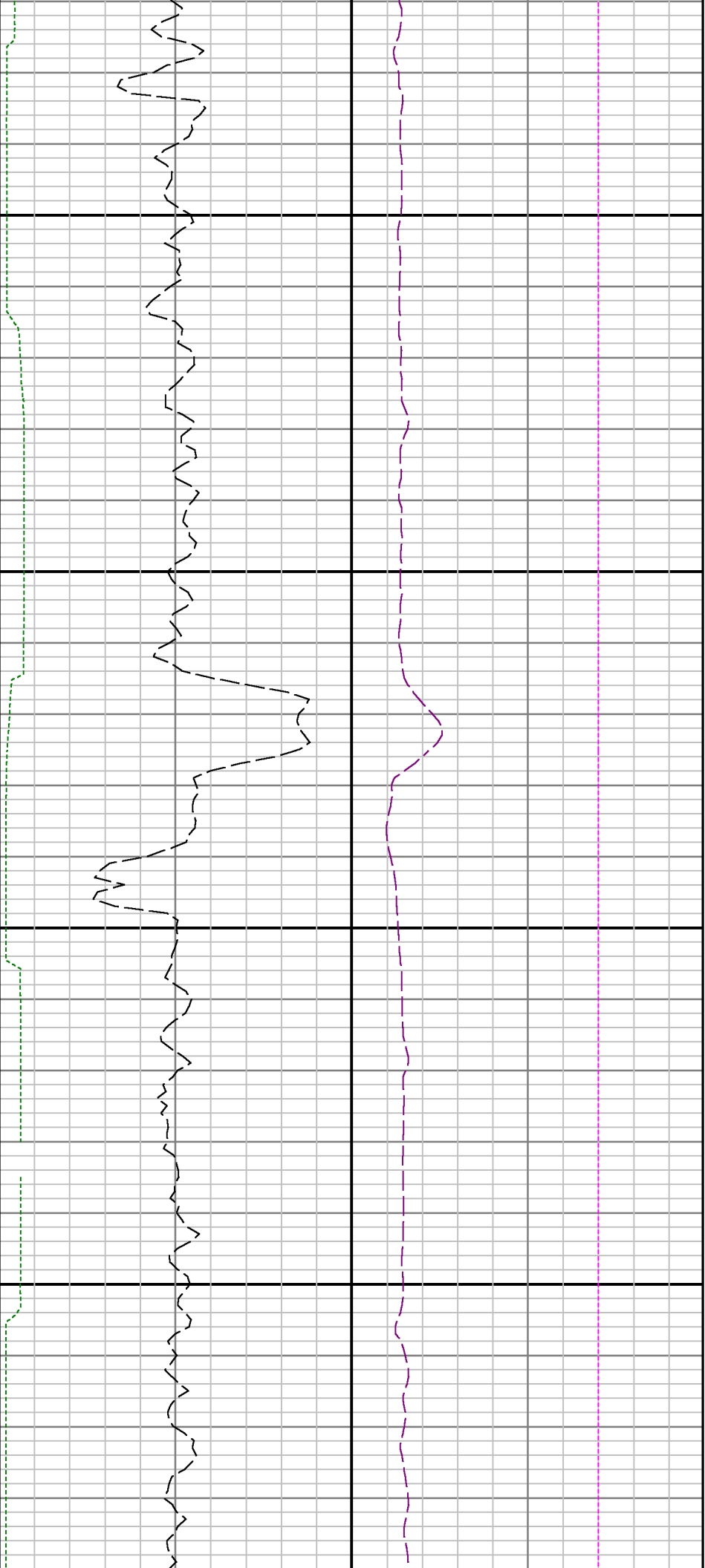




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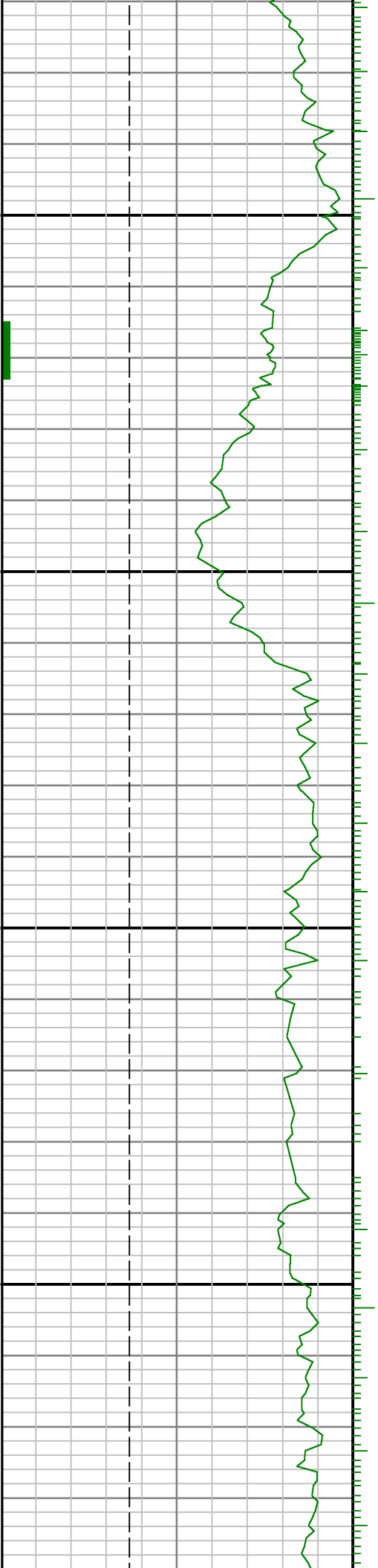
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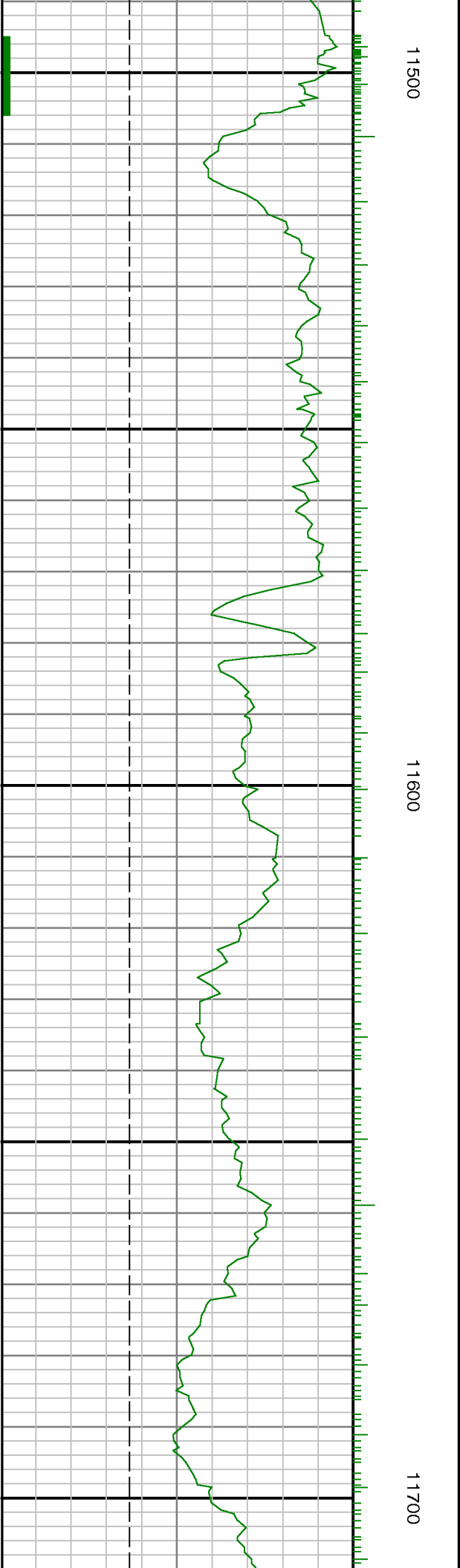
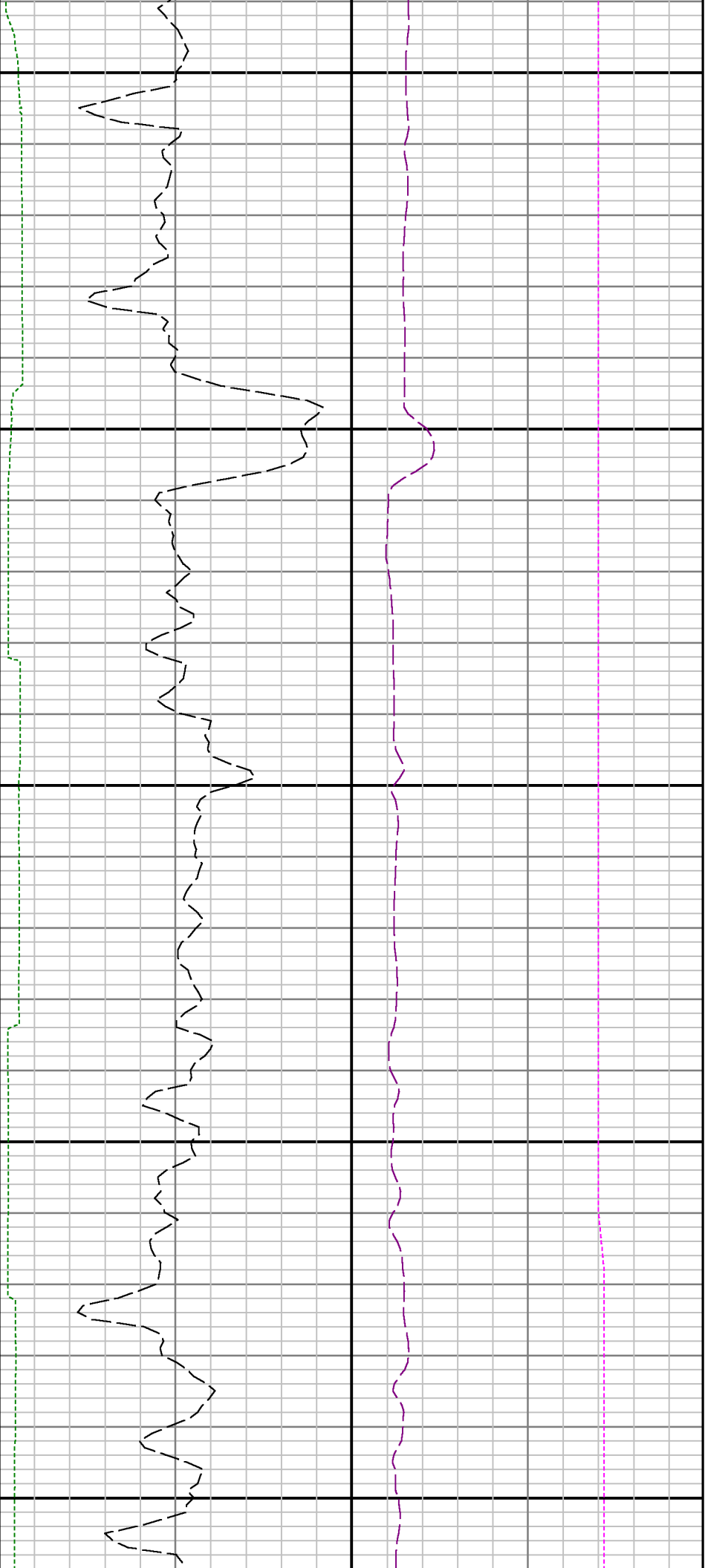


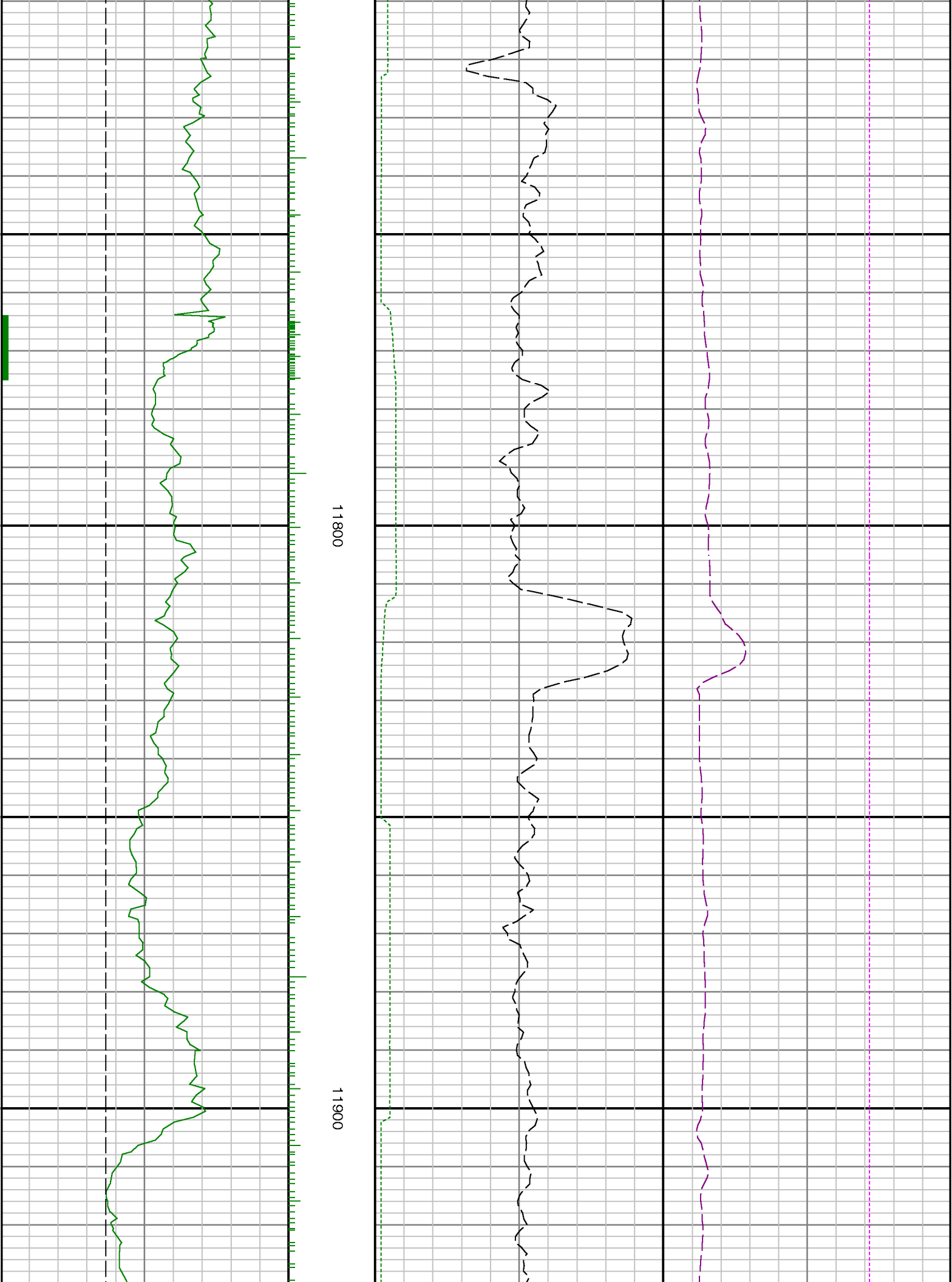


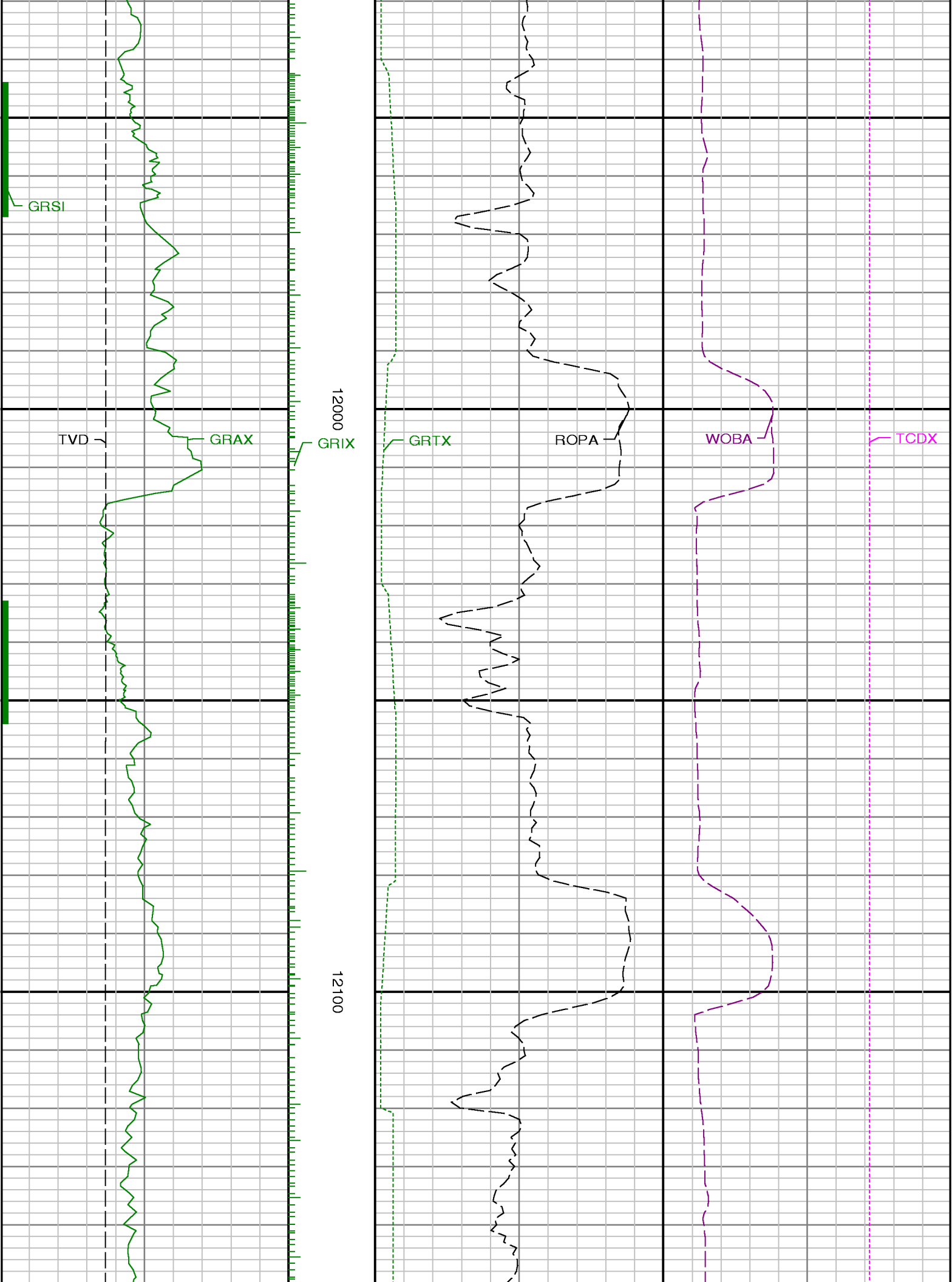
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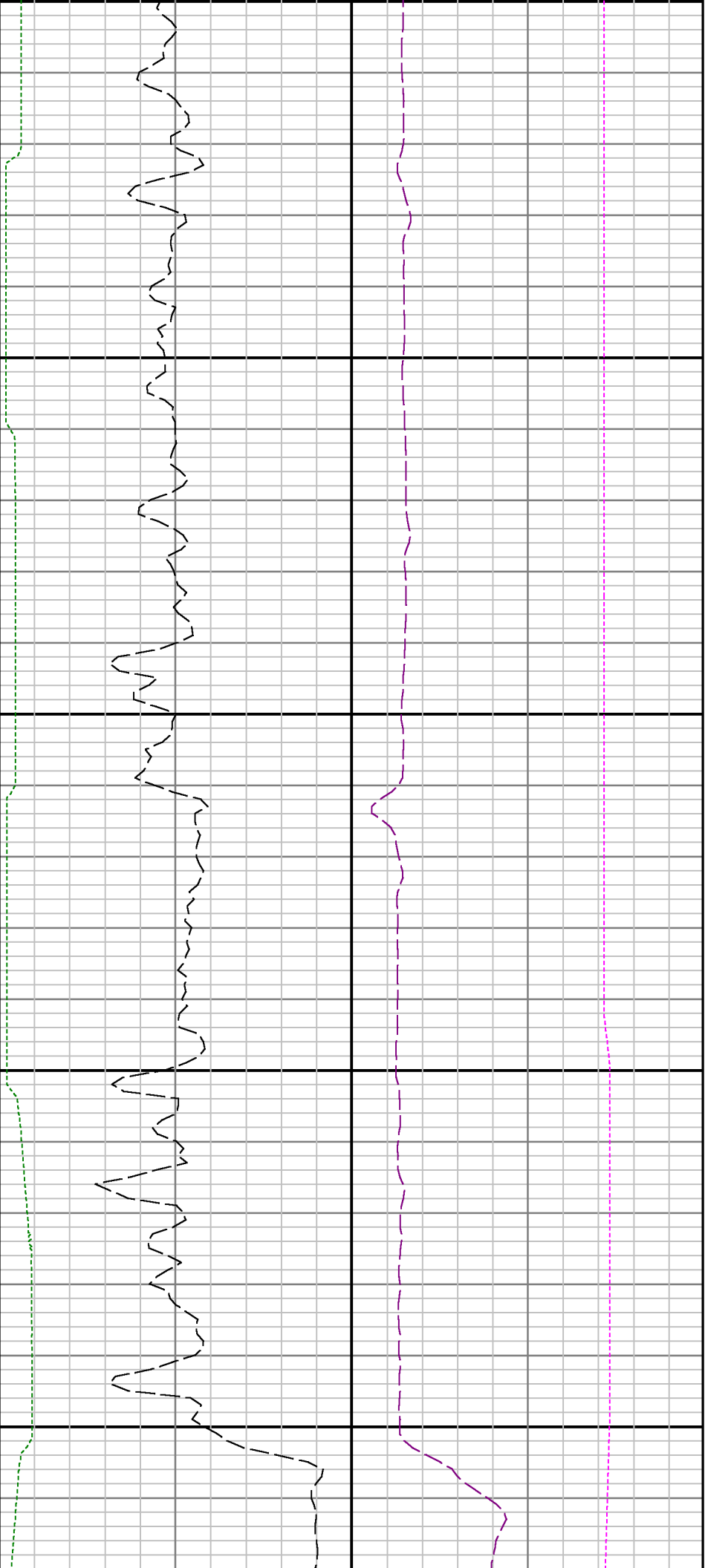
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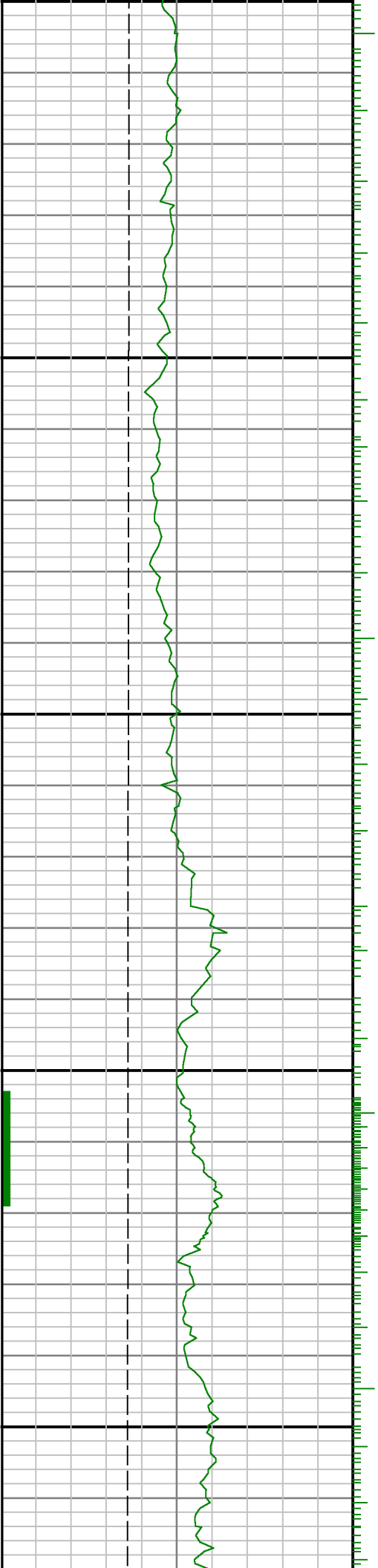


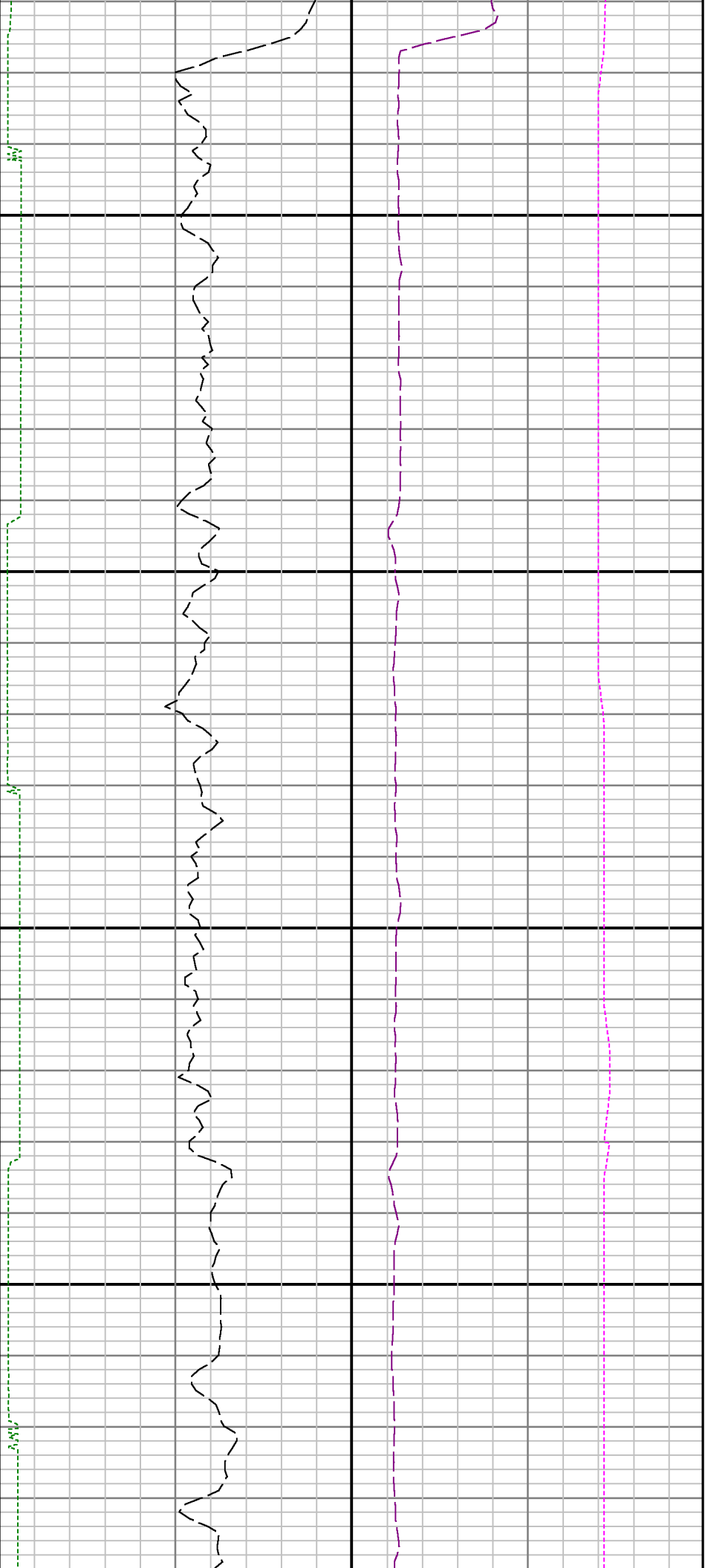




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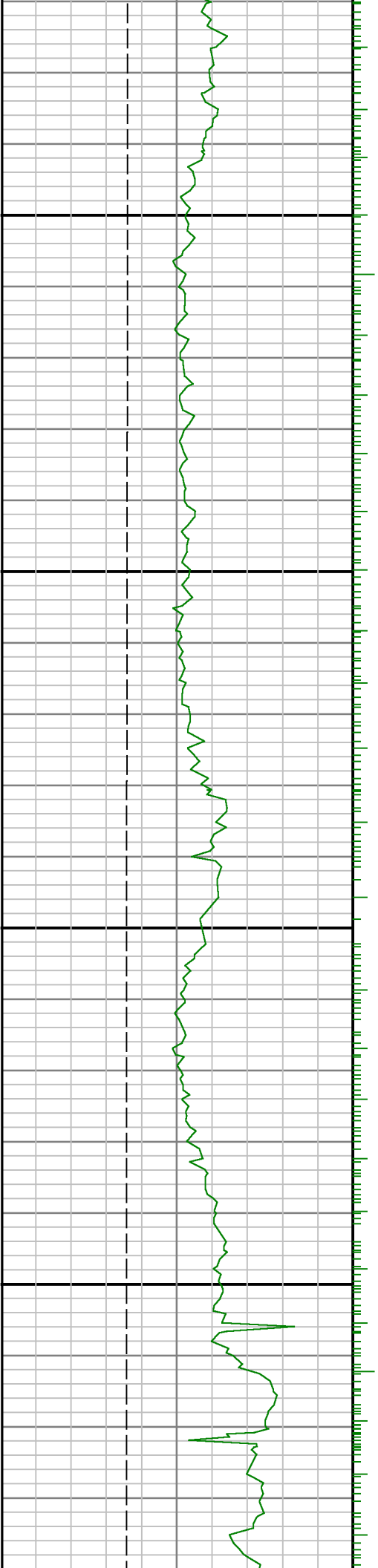
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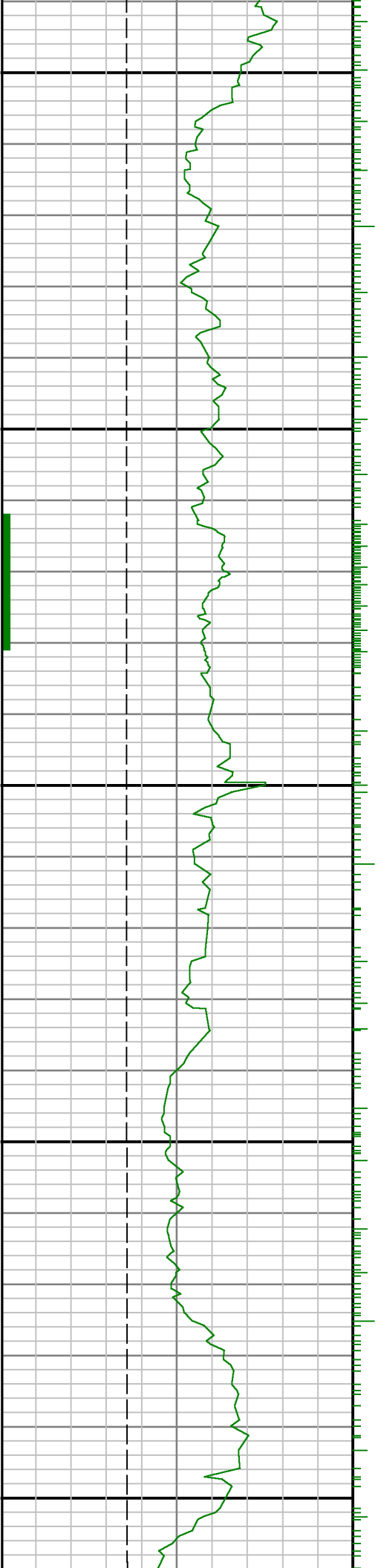




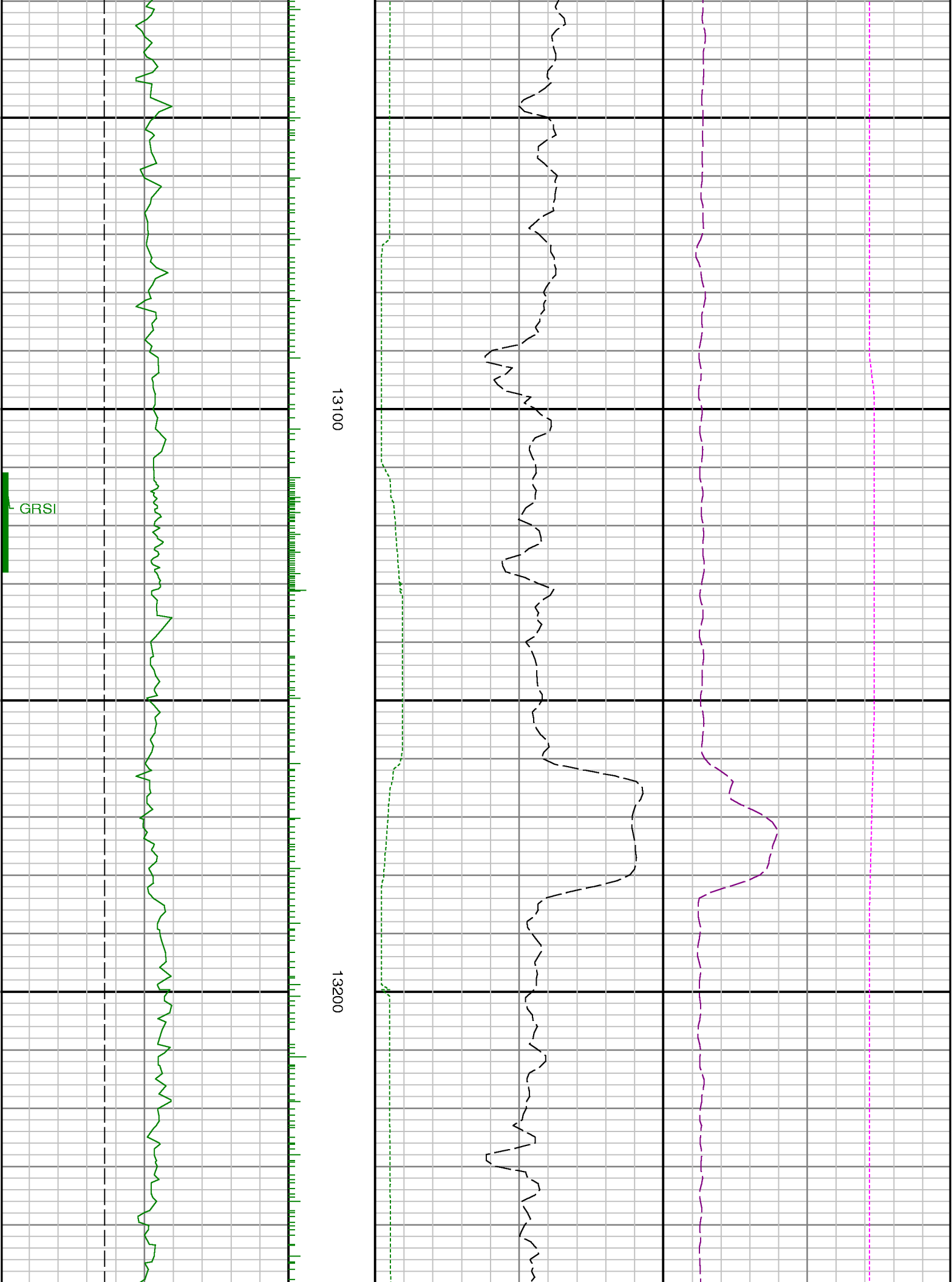
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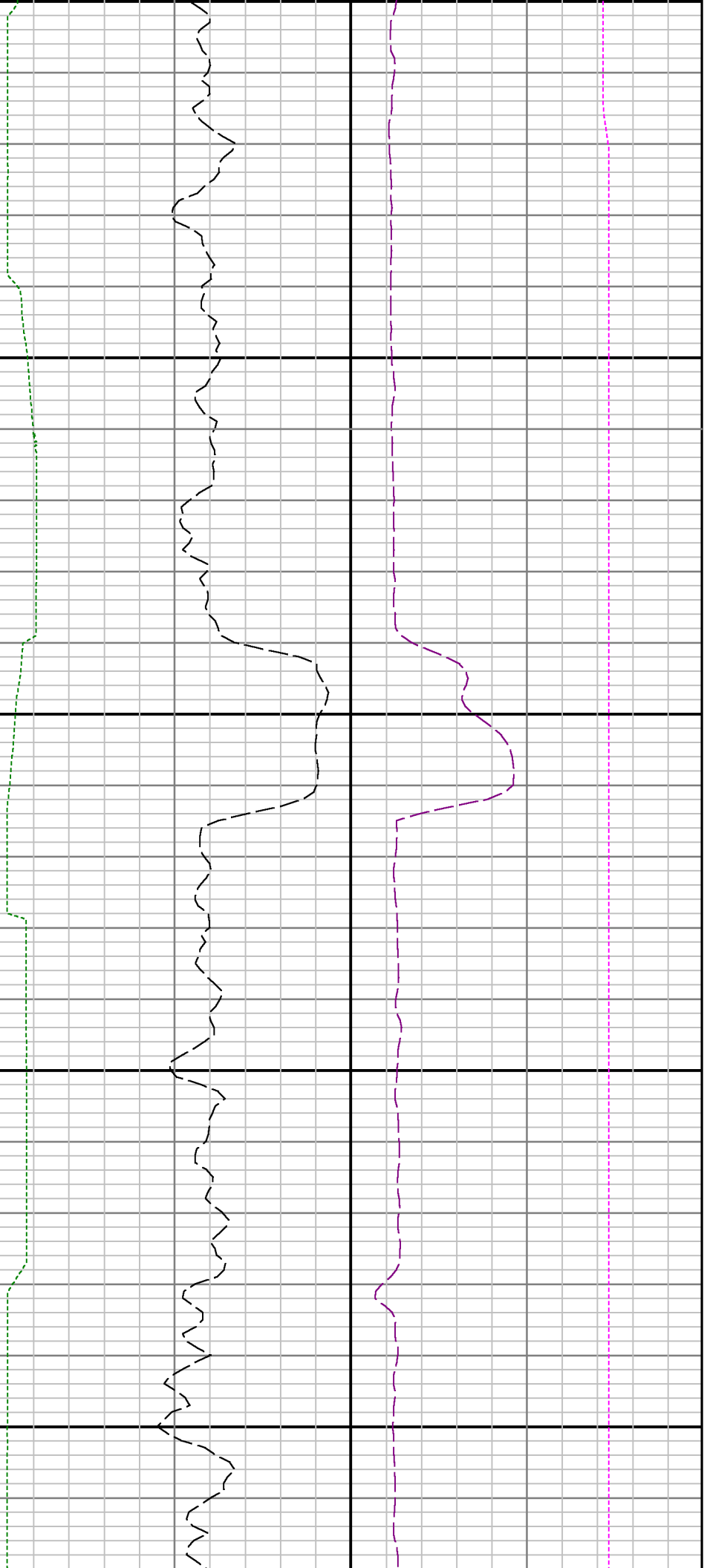
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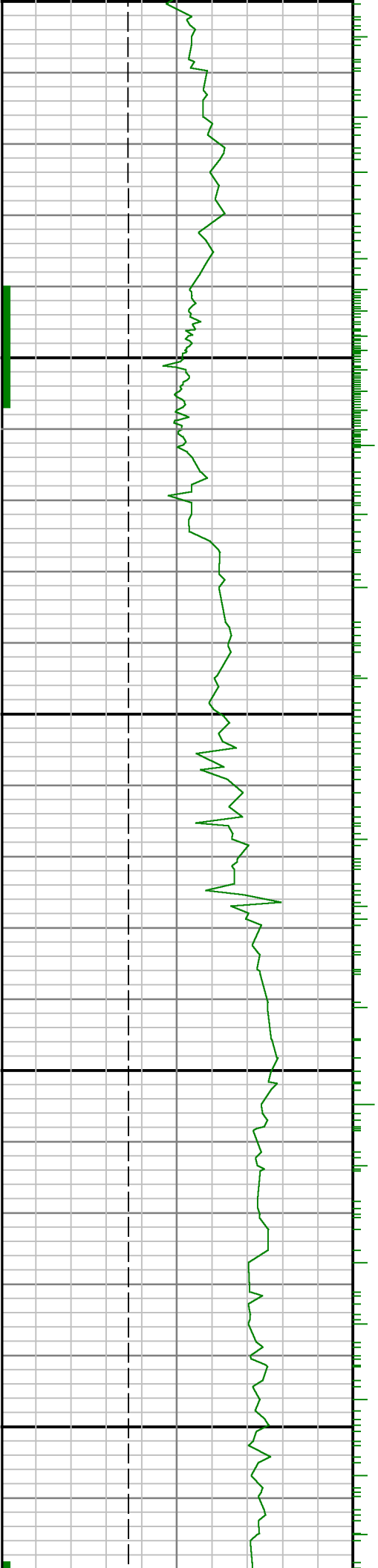






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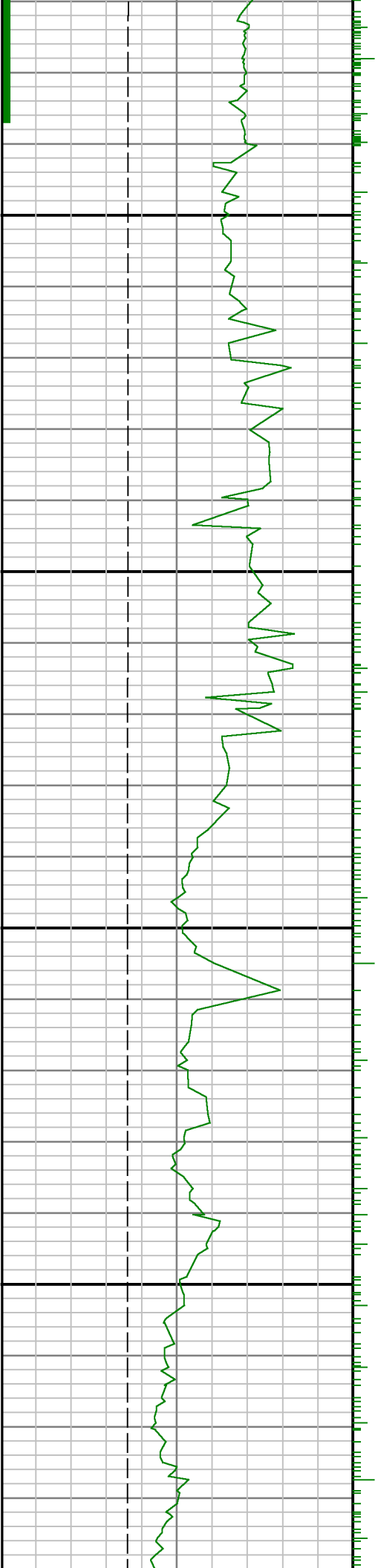
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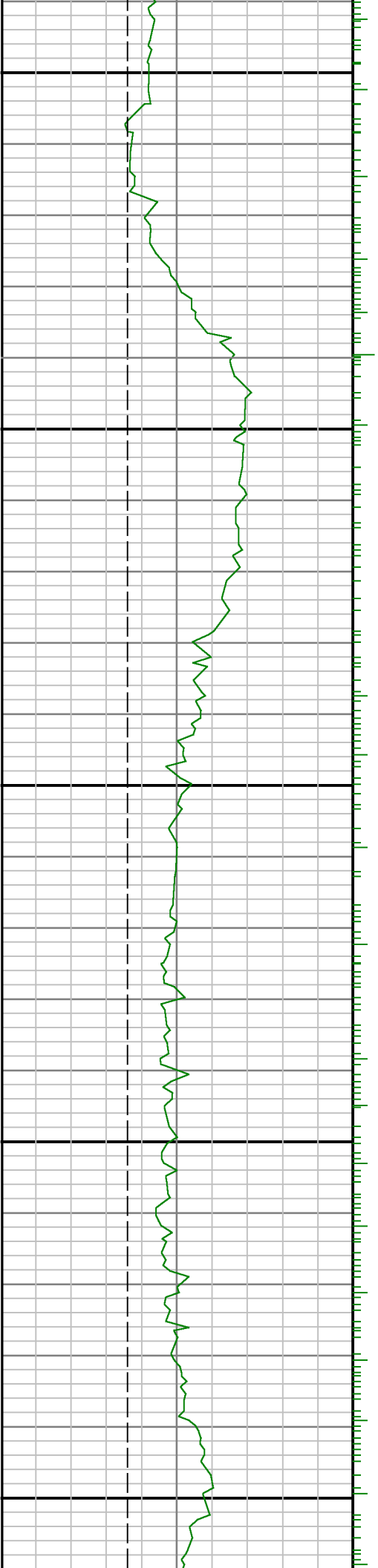


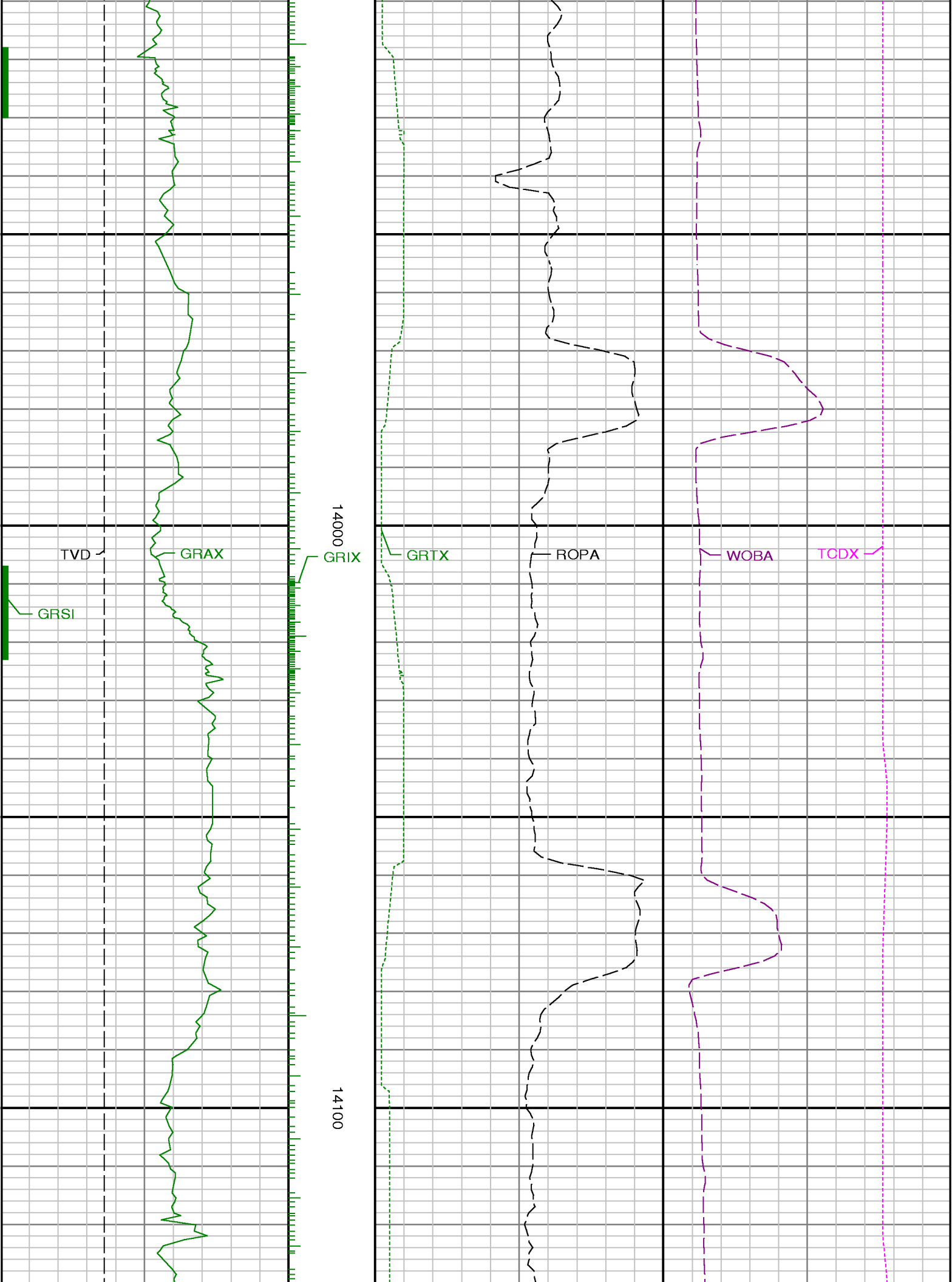


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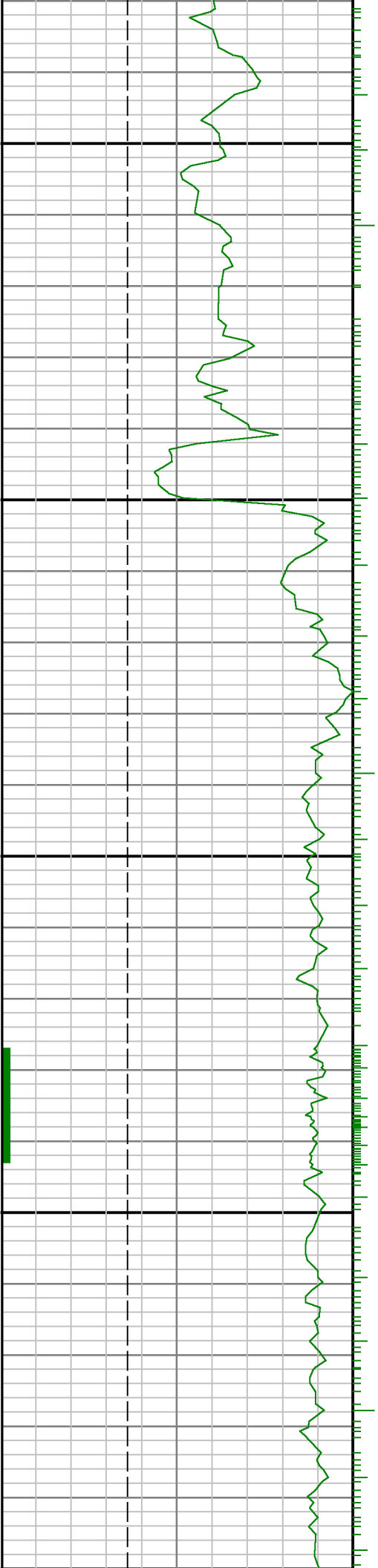


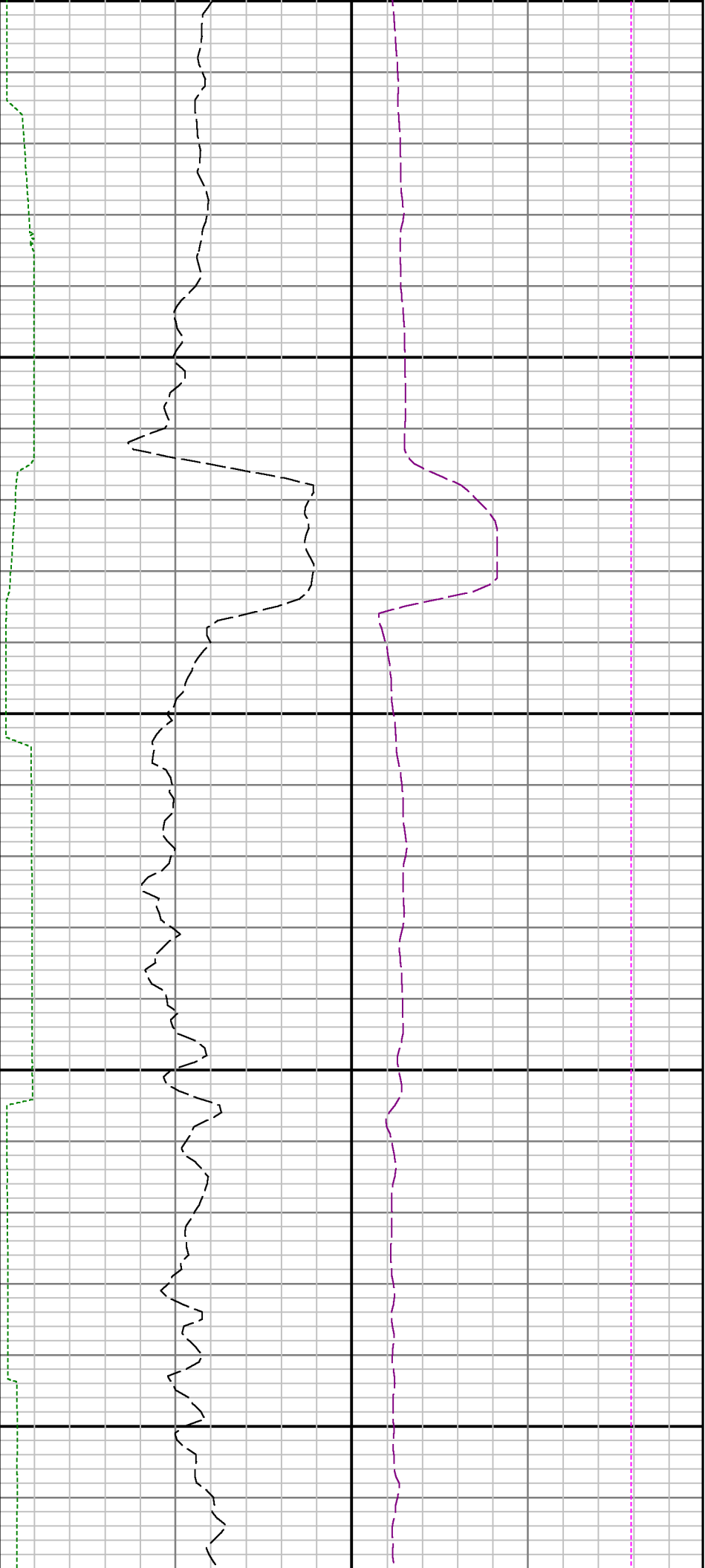




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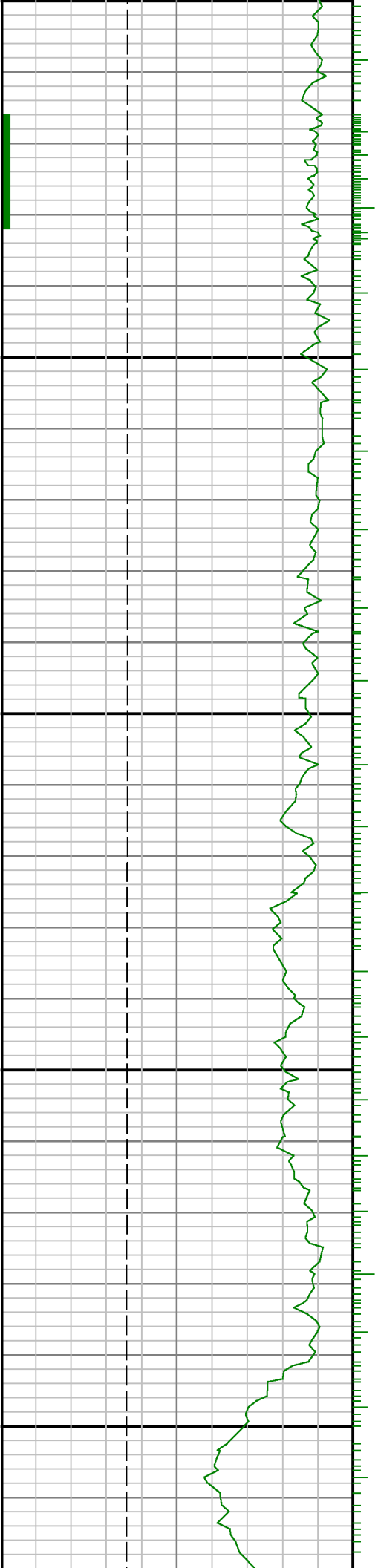
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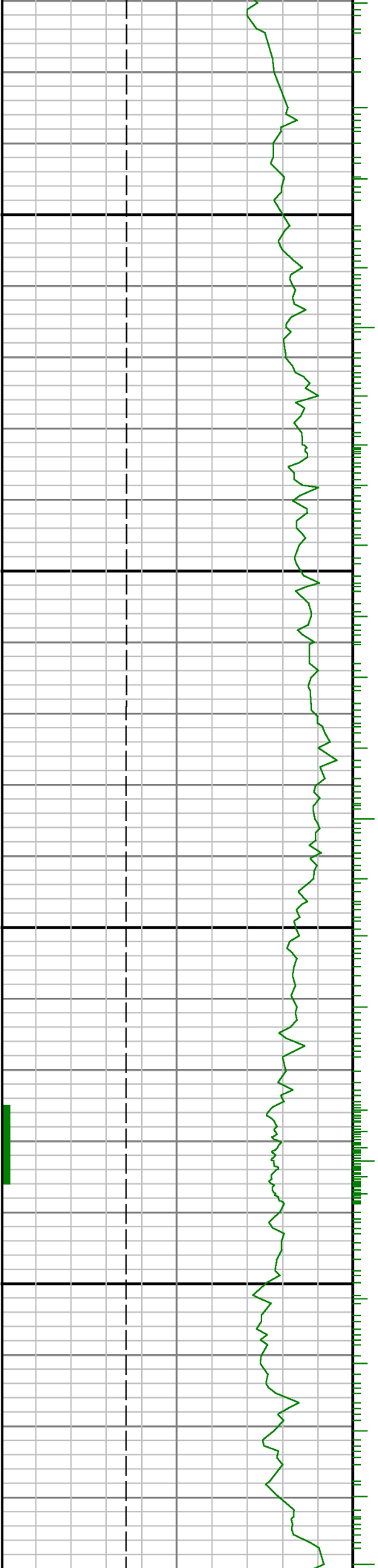
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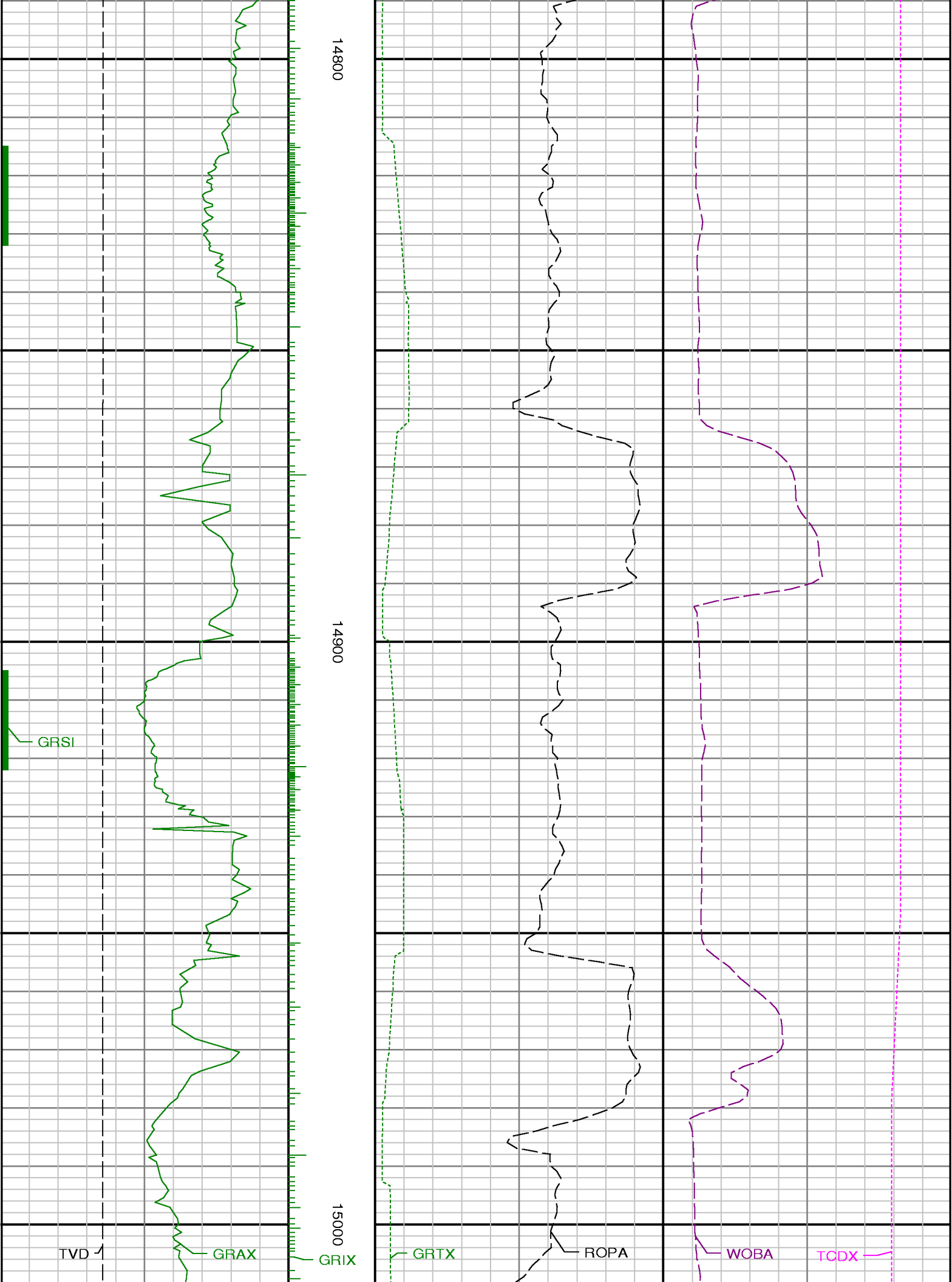




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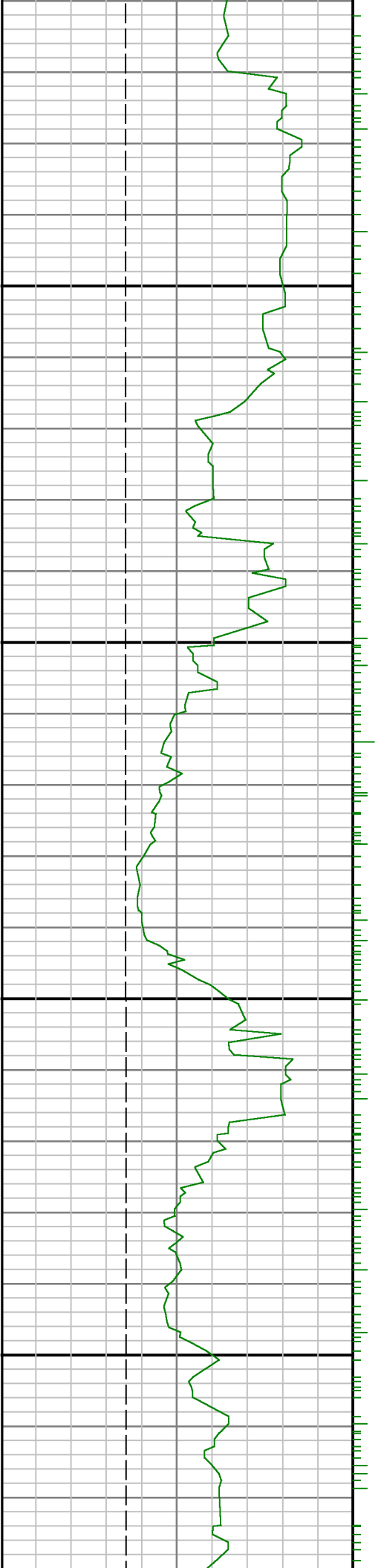






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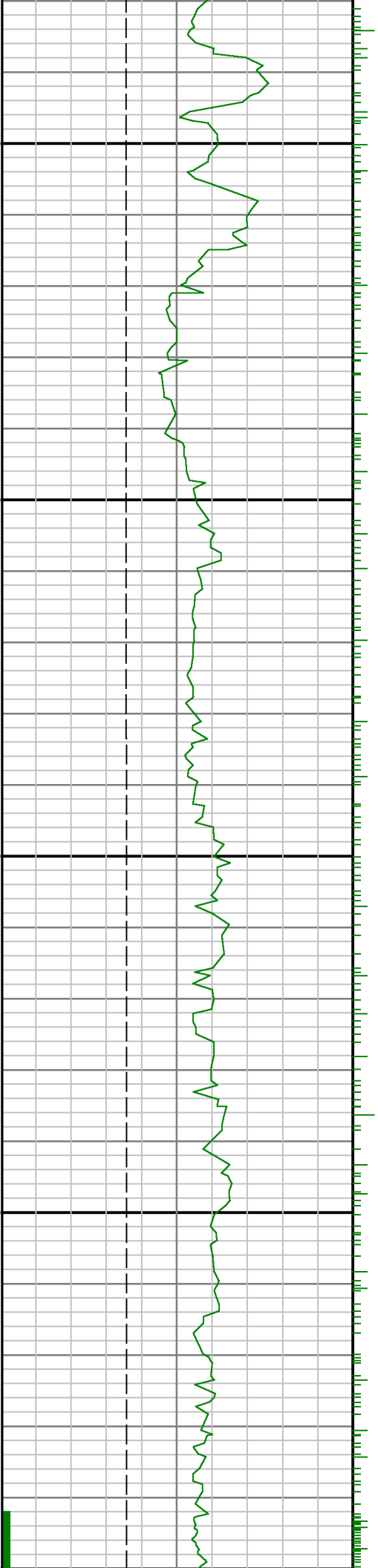
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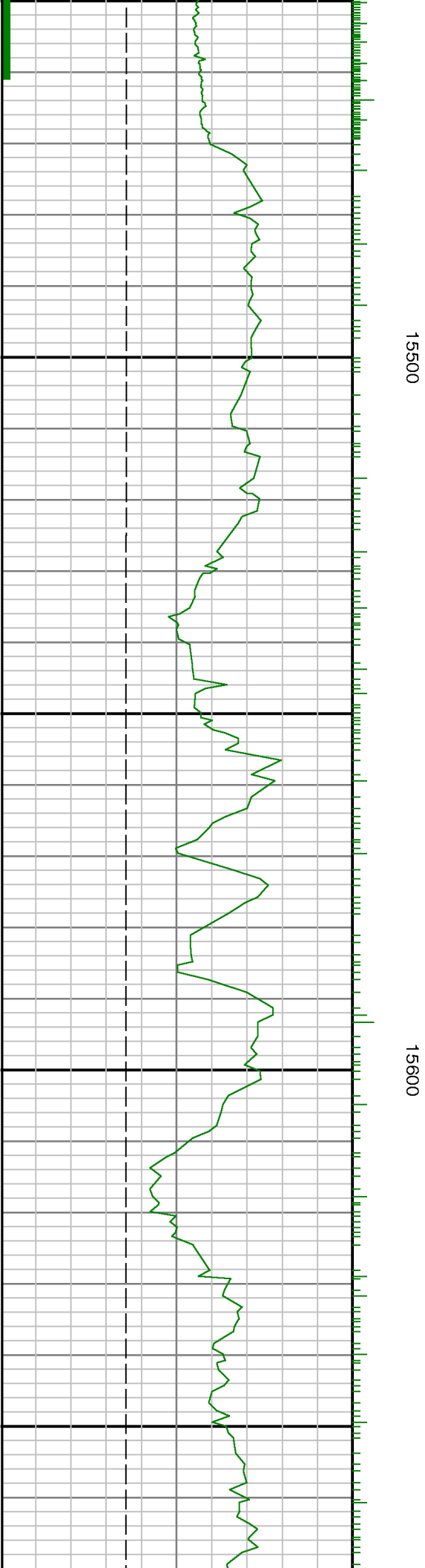
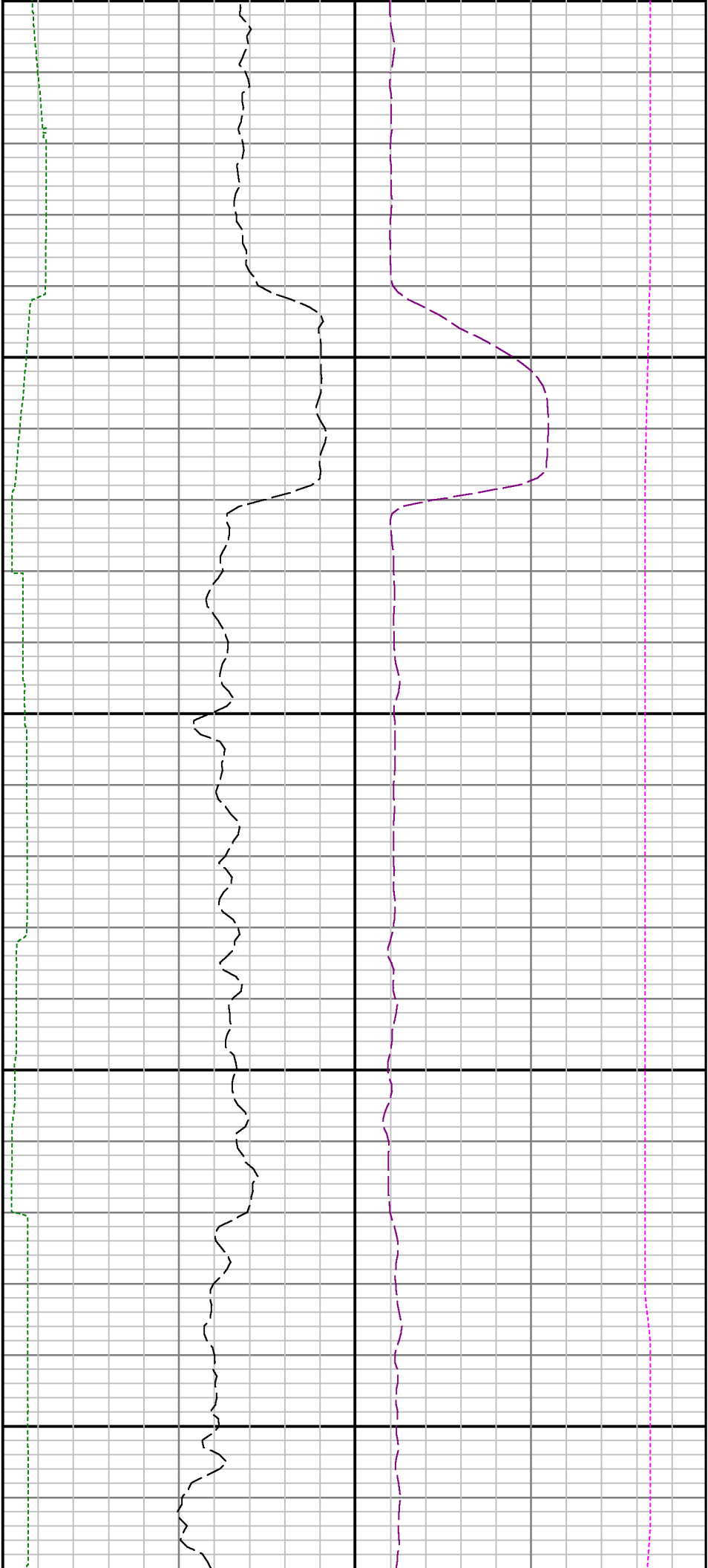




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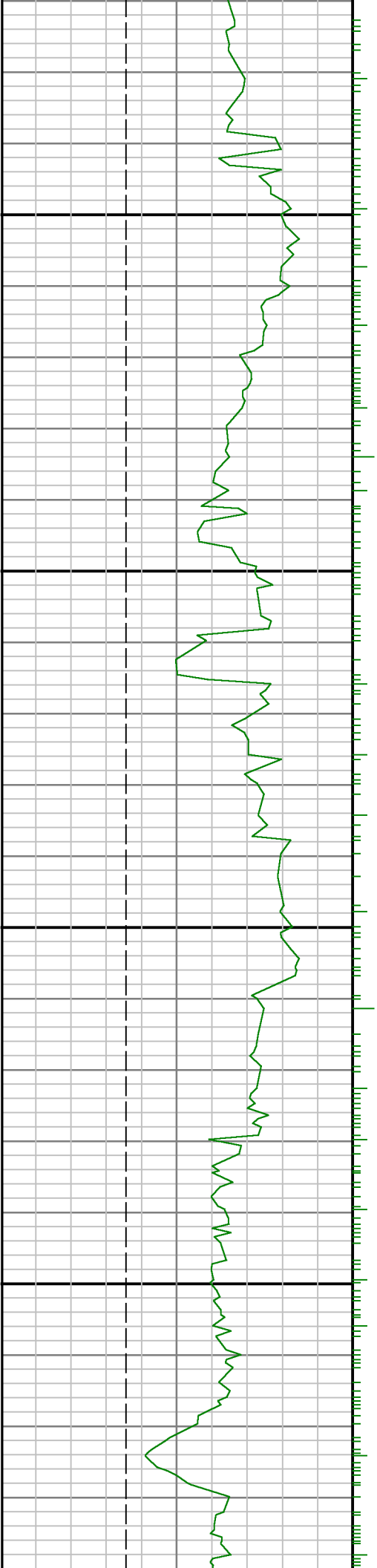


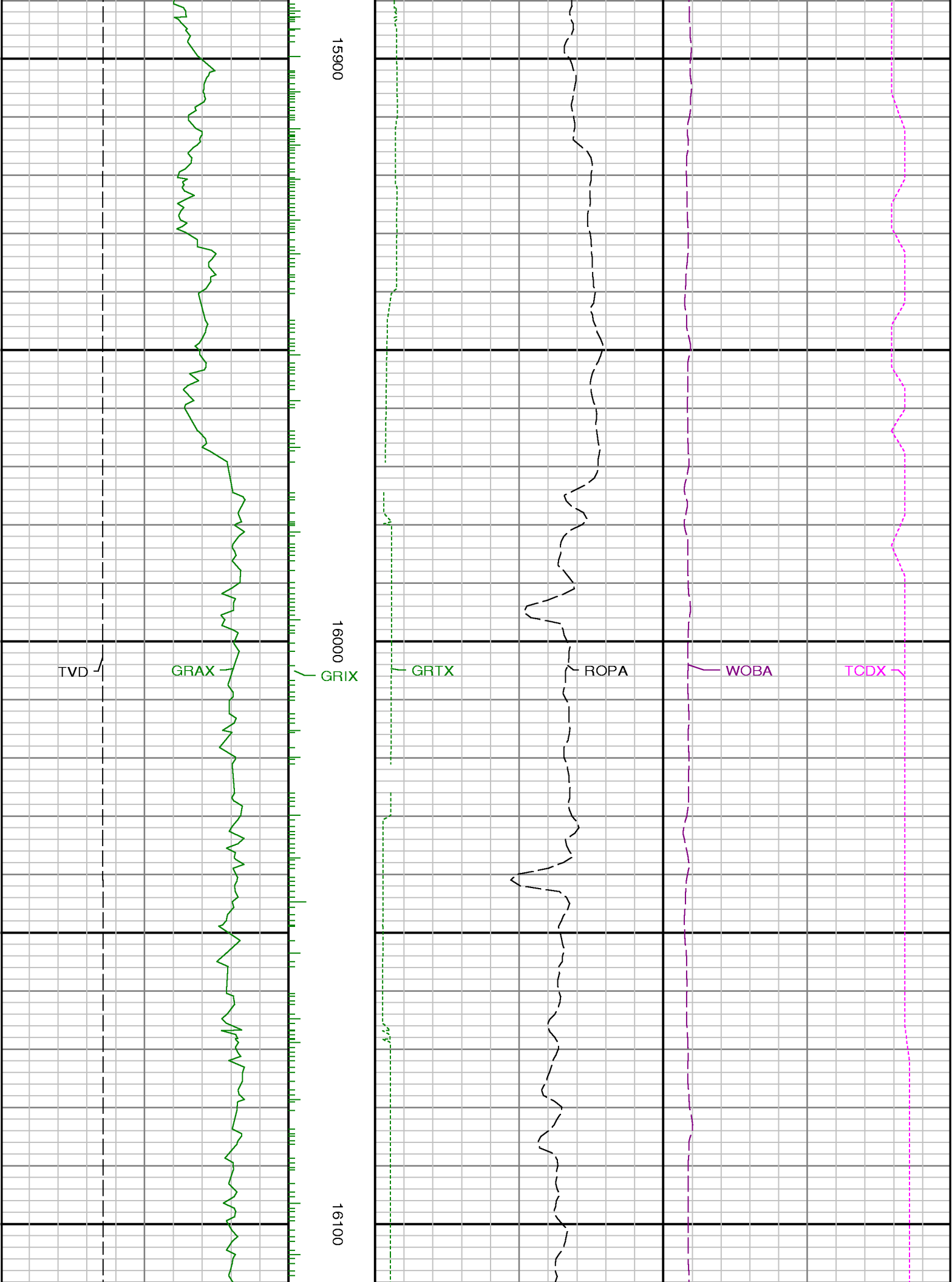


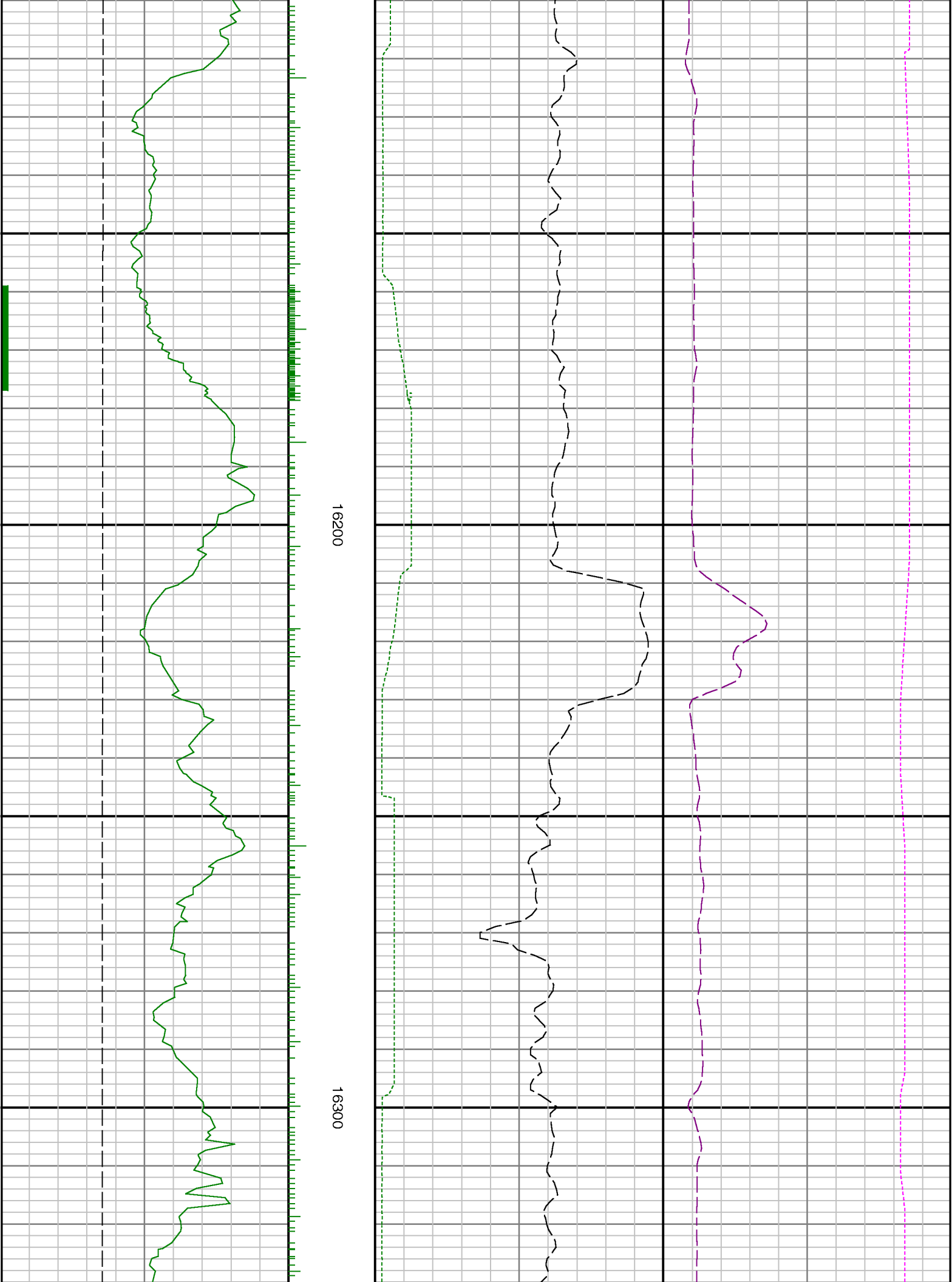


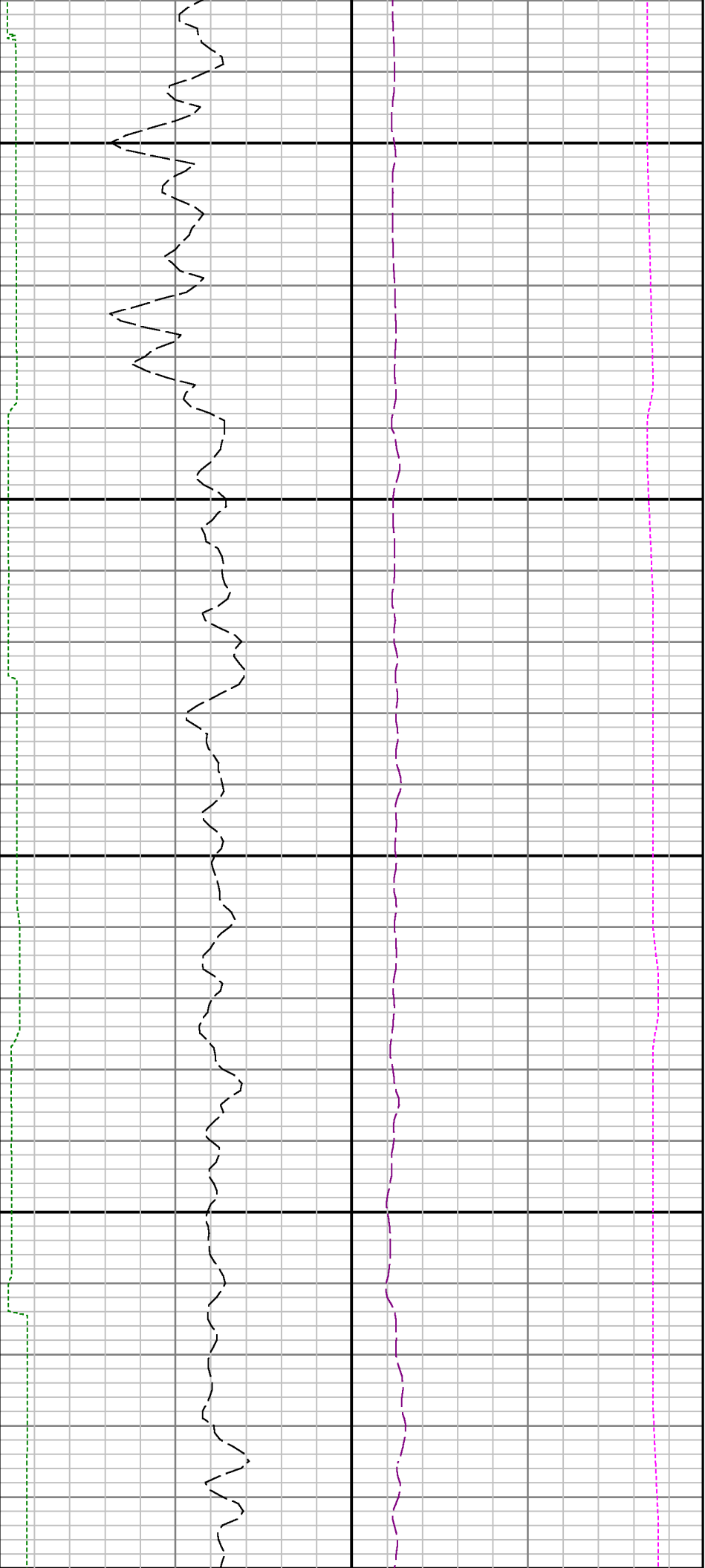
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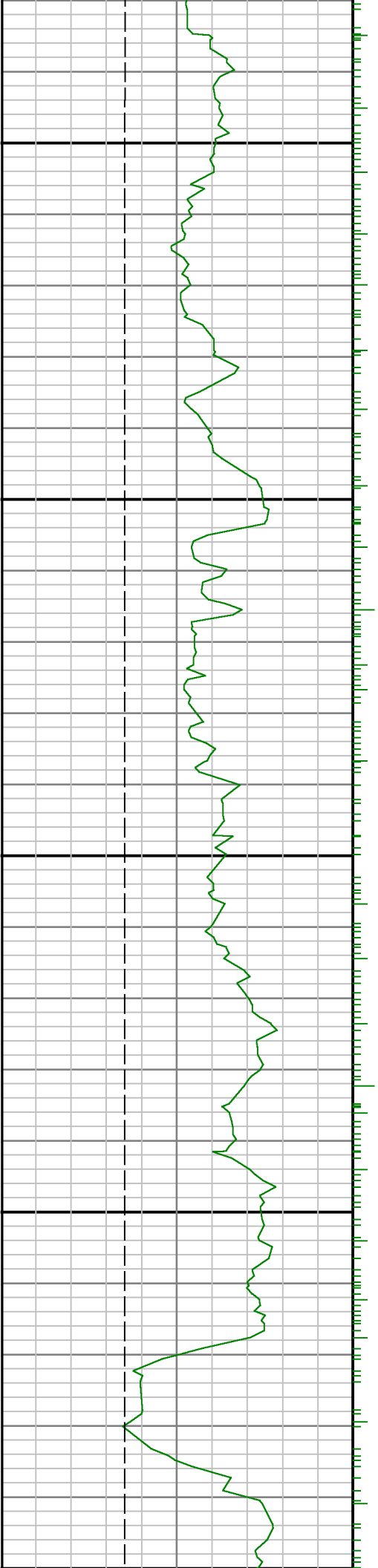


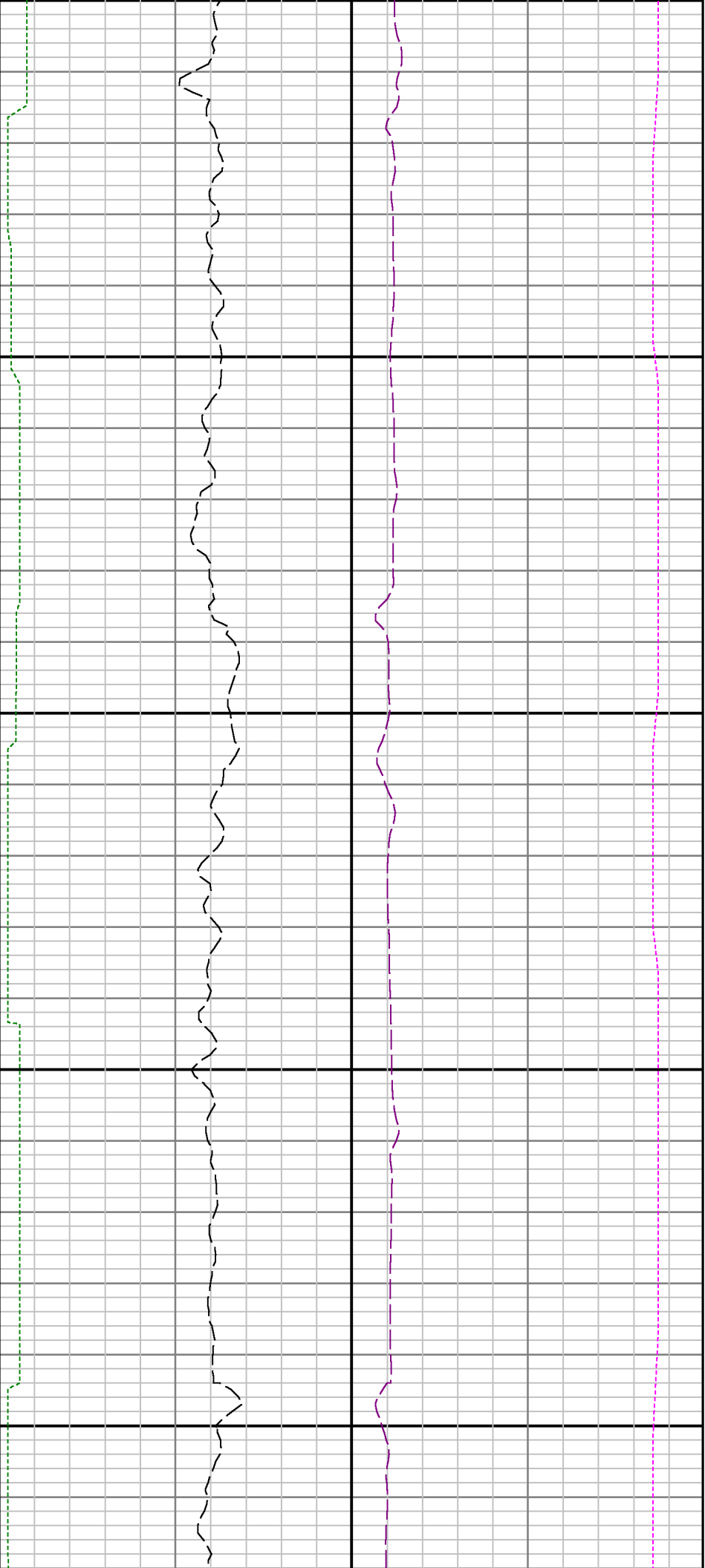




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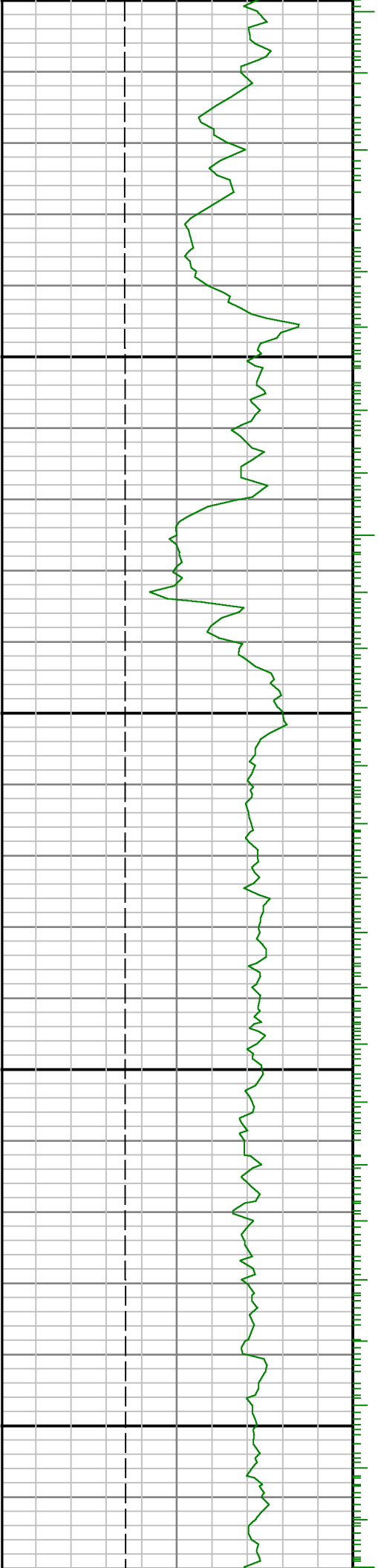
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