



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:

1:240

Measurd Depth

Company: Anadarko E&P Company LP
Well: Reynolds Cattle 28N-19HZ
Field: Wattenberg
Region: Continental US Country: United States

Status:

FINAL PRINT

Surface Location:

Latitude: 40° 13' 2.276" N
Longitude: 104° 57' 40.979" W

Other Services:

Directional
VSS

API Number:

05-123-39137-00

Section:

23

TWN: 3N

Range: 68W

Permanent Datum (P.D.):

Mean Sea Level

Elevation:

4947.00 ft.

Log Measured From:

Rig Floor

16.00 ft.

Above P.D.

Elevations:

N/A
KB: 4963.00 ft.
DF: 4947.00 ft.
GL:

Depth Reference:

Driller's Depth

GL:

Interval Logged

Dates

Magnetic Field Reference

Top:

6540ft.

Date From:

16/May/14

Dip Angle:

66.89 °

Azi Reference North:

True

Bottom:

14370.0 ft.

Date To:

22/May/14

Total

Mag to Reference

Field Strength:

52606.0 nT

North Correction:

8.67 °

Spud Date:

15/May/14

Field Strength:

52606.0 nT

North Correction:

8.67 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1354.0 ft.	9.625 in.	36.00 lb/ft	Surface	1344ft.
8.670 in.	1354.0 ft.	7620.0 ft.	7.000 in.	26.00 lb/ft	1344.0 ft.	7609.0 ft.
6.125 in.	7620.0 ft.	14435.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	14435.0 ft.	13.500 in.	1354.0 ft.	0.0 ° / 0.0 °	0.7 / 277.0 °
			8.750 in.	6266.0 ft.	0.7 ° / 277.0 °	82.5 ° / 89.9 °
			6.125 in.	8169.0 ft.	82.5 ° / 89.9 °	90.2 ° / 89.3 °
					/	/
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig: / Contractor:	Xtreme 20	/ Kerr-McGee oil & Gas Onshore LP
PATS	6.4.1.34	Job No:	6362765	
		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 (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	1	8.750	PDC	3.000	Steerable	6450.0	7558.0	1354.0	7619.0	156May/2014 00:20	18/May/2014 08:00	34.8
2	2	2	6.125	PDC	2.500	Steerable	7558.0	14370.0	7619.0	14435.0	19/May/2014 7:00	22/May/2014 14:43	63.9

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite

Adam Schlenz	14/May/14	21/May/14	David Campbell	21/May/14	24/May/14	Greg Dore	16/May/14	24/May/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 (mg/L)	K+ (%)
16/May/14	22:00	1	4950.0	Water Based	8.6	8	8.0	N/A	0/98	Active Mud Pit	800	N/A
17/May/14	22:00	1	7620.0	Water Based	10.2	13	9.5	N/A	2.5/87.3	Active Mud Pit	900	N/A
18/May/14	22:00	1	7620.0	Water Based	10.4	13	9.3	N/A	3/86.1	Active Mud Pit	900	N/A
19/May/14	6:00	2	8123.0	Water Based	10.0	13	9.7	N/A	3/87.7	Active Mud Pit	900	N/A
20/May/14	22:00	2	12994.0	Water Based	9.6	13	9.6	N/A	3.5/89	Active Mud Pit	1000	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	point
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	klbs

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12440860	Directional	63.31	6.750	3.250
1	SRIG	11602059	Gamma	60.27	6.750	3.250
2	DIR	10264844	Directional	67.51	4.750	2.688
2	SRIG	11801241	Gamma	64.13	4.750	2.688

Service and Tool Mnemonics

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

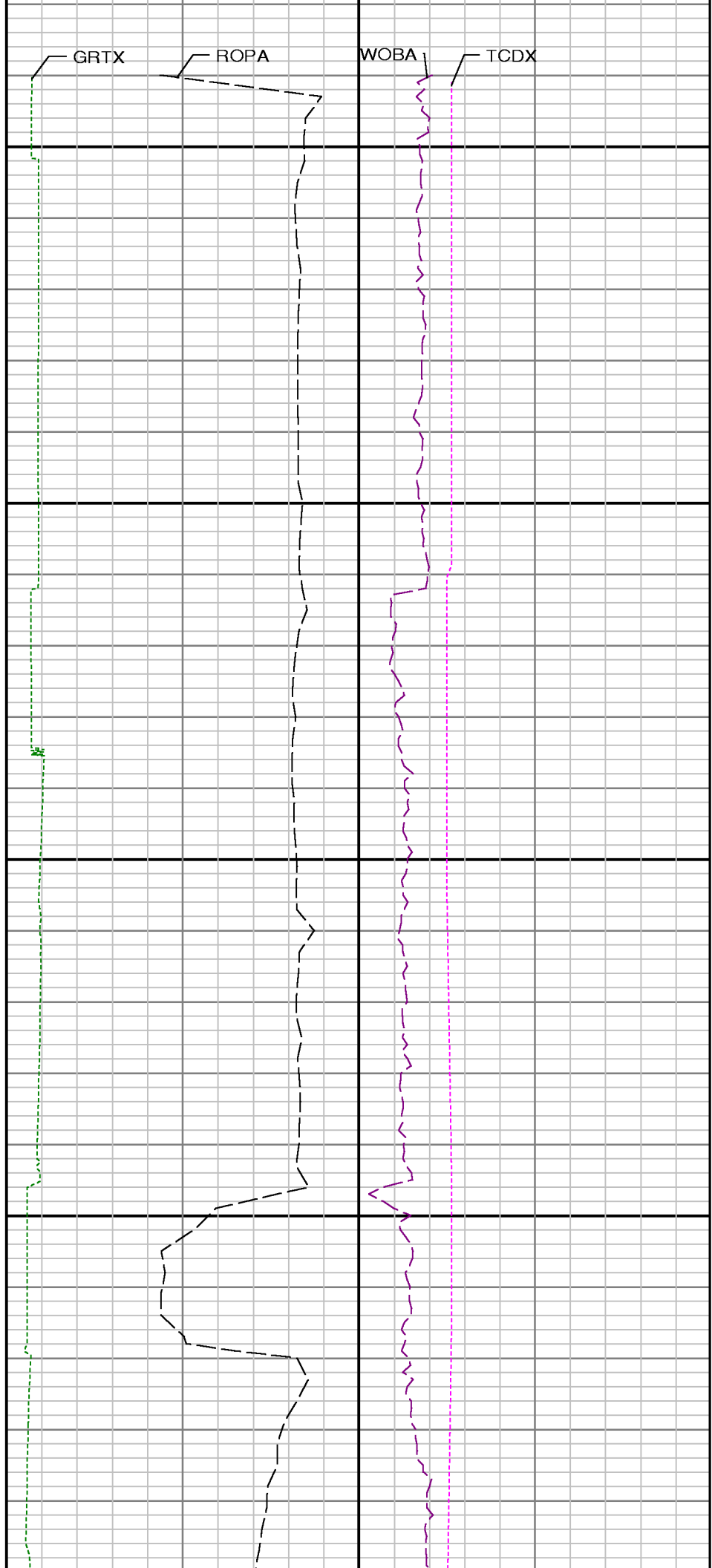
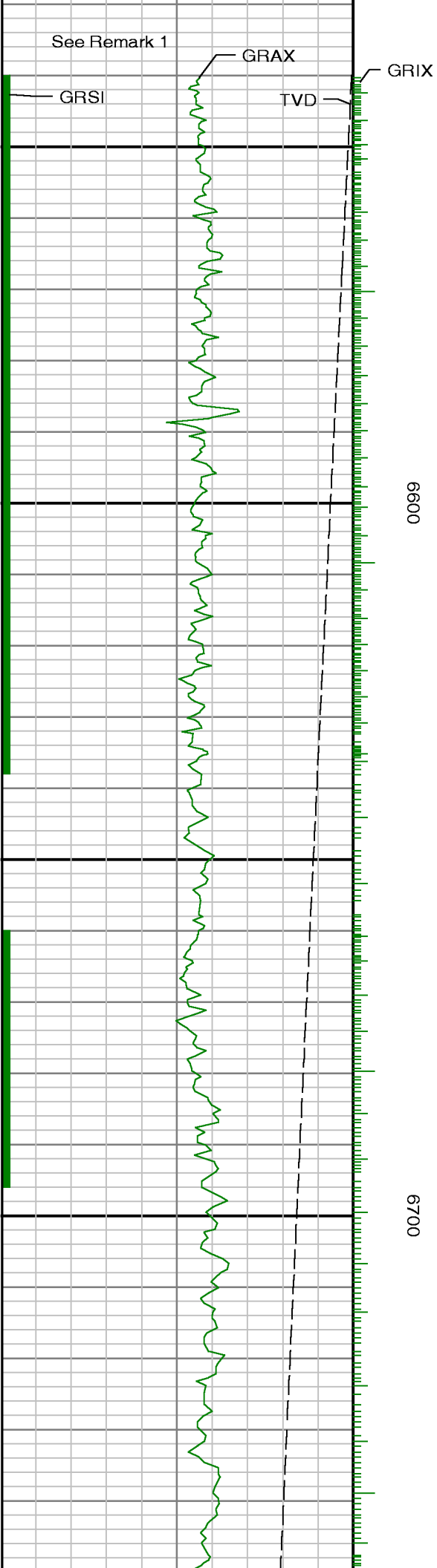
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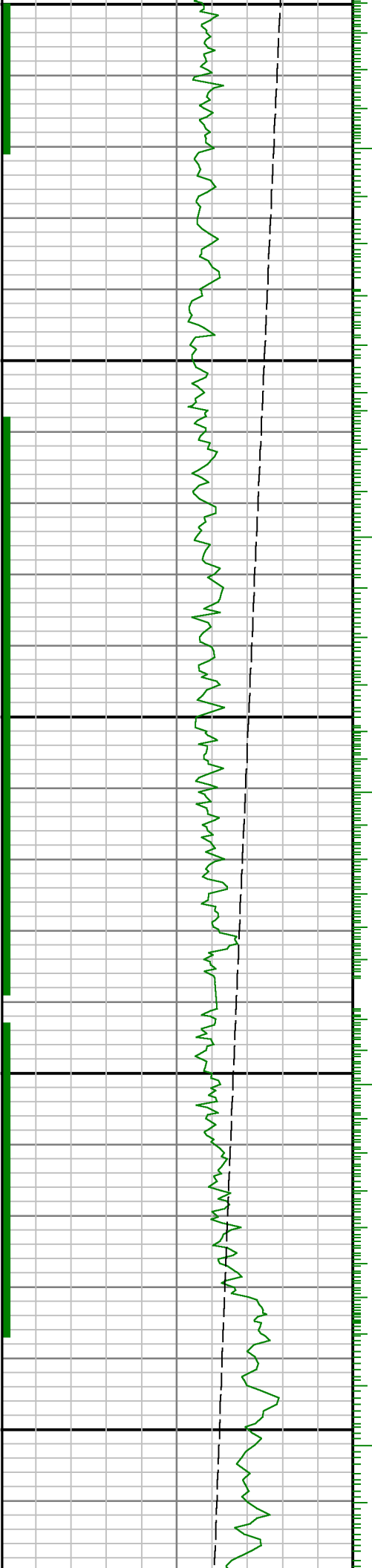
<p>1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.</p> <p>2.) The solid line on the left side of the gamma ray track indicates the interval over which data was collected while not rotating.</p>
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4.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7620 to 14435 feet MD (7165 to 7134 feet TVD).

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6540	8.750	1	Gamma ray logging operations began at 6540 feet MD (6504 feet TVD).
2	7620	8.750	1	The interval from 7558 to 7620 feet MD (7160 to 7165 feet TVD) was logged more than 10 hrs after being drilled due to a trip out of the hole for casing and cement operations.
3	14370	6.125	2	No sensor data logged from 14370 to 14435 feet MD (7134 feet TVD) due to sensor to bit offset at well TD.

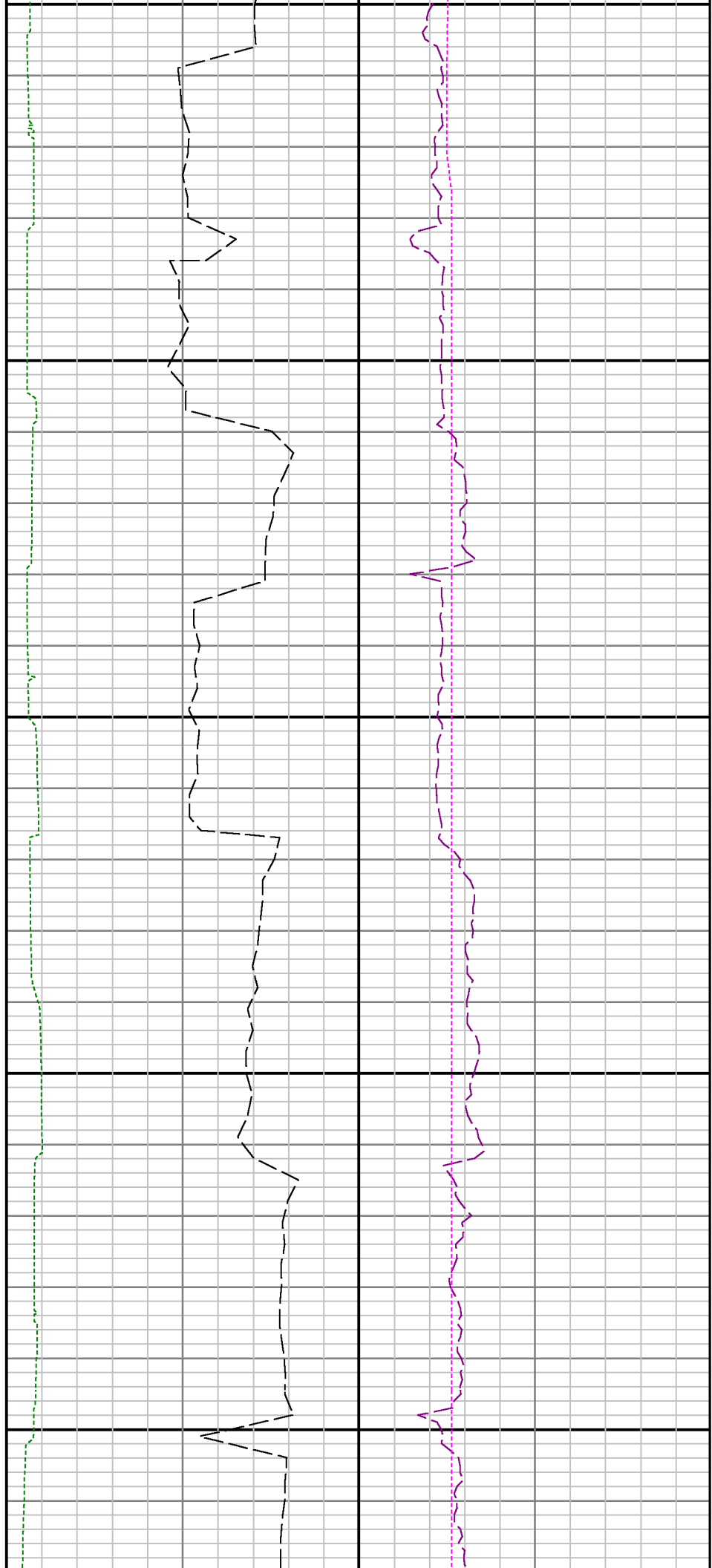
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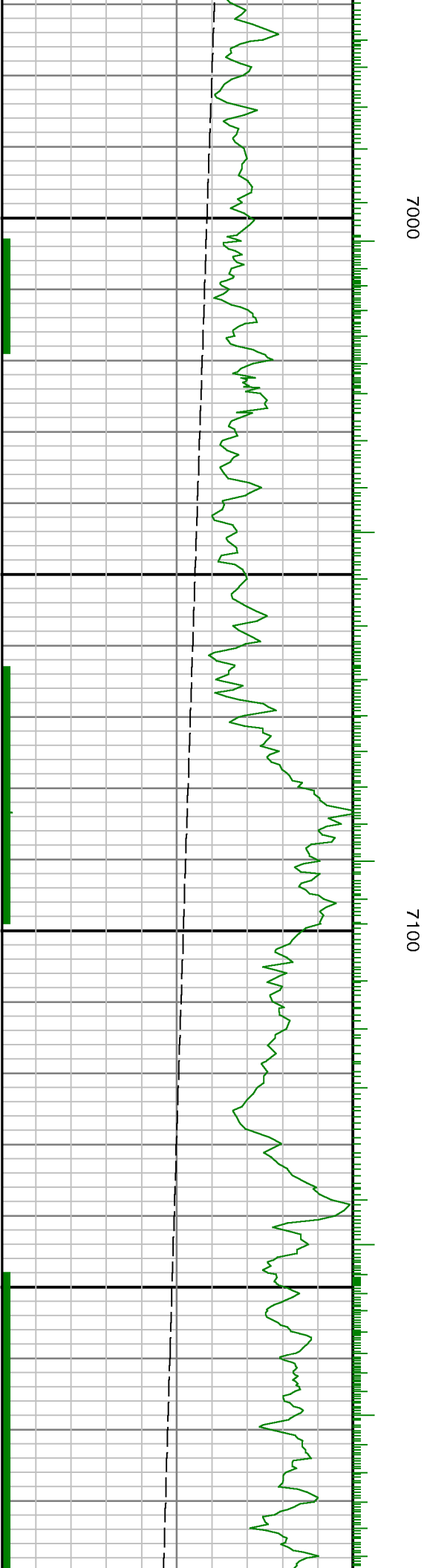
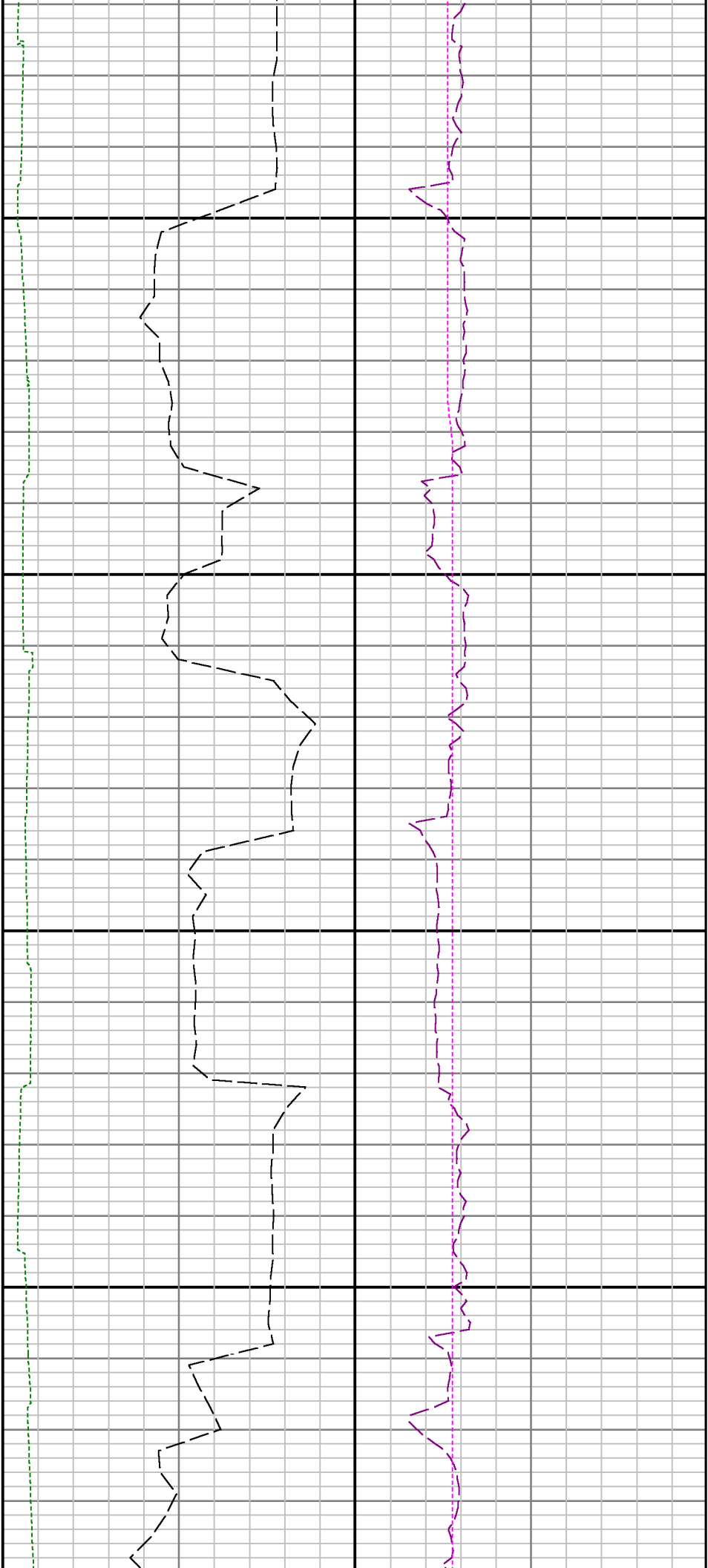


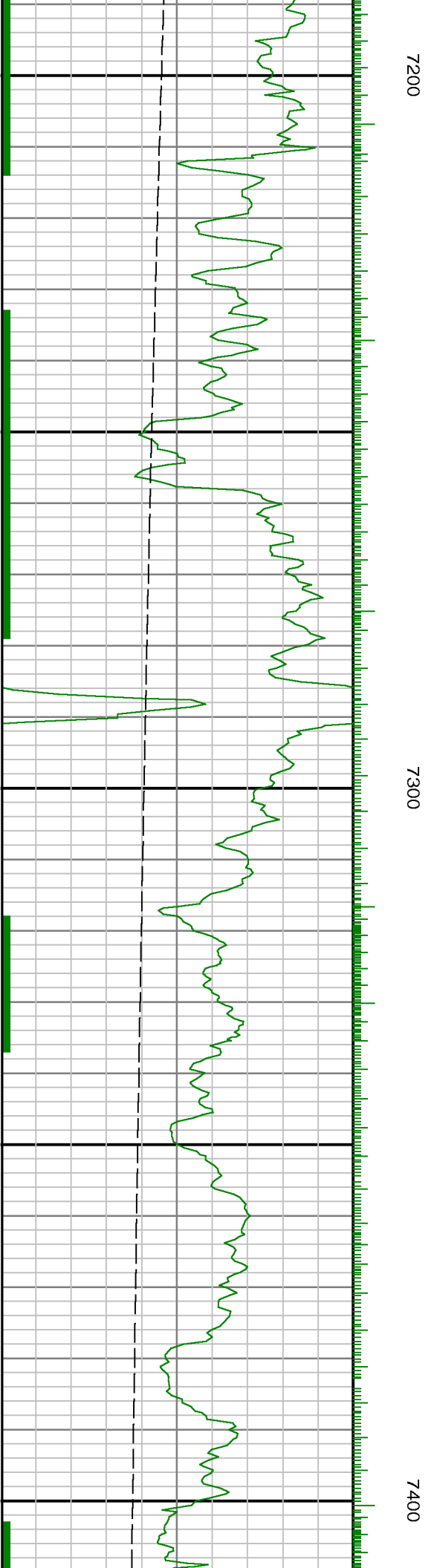
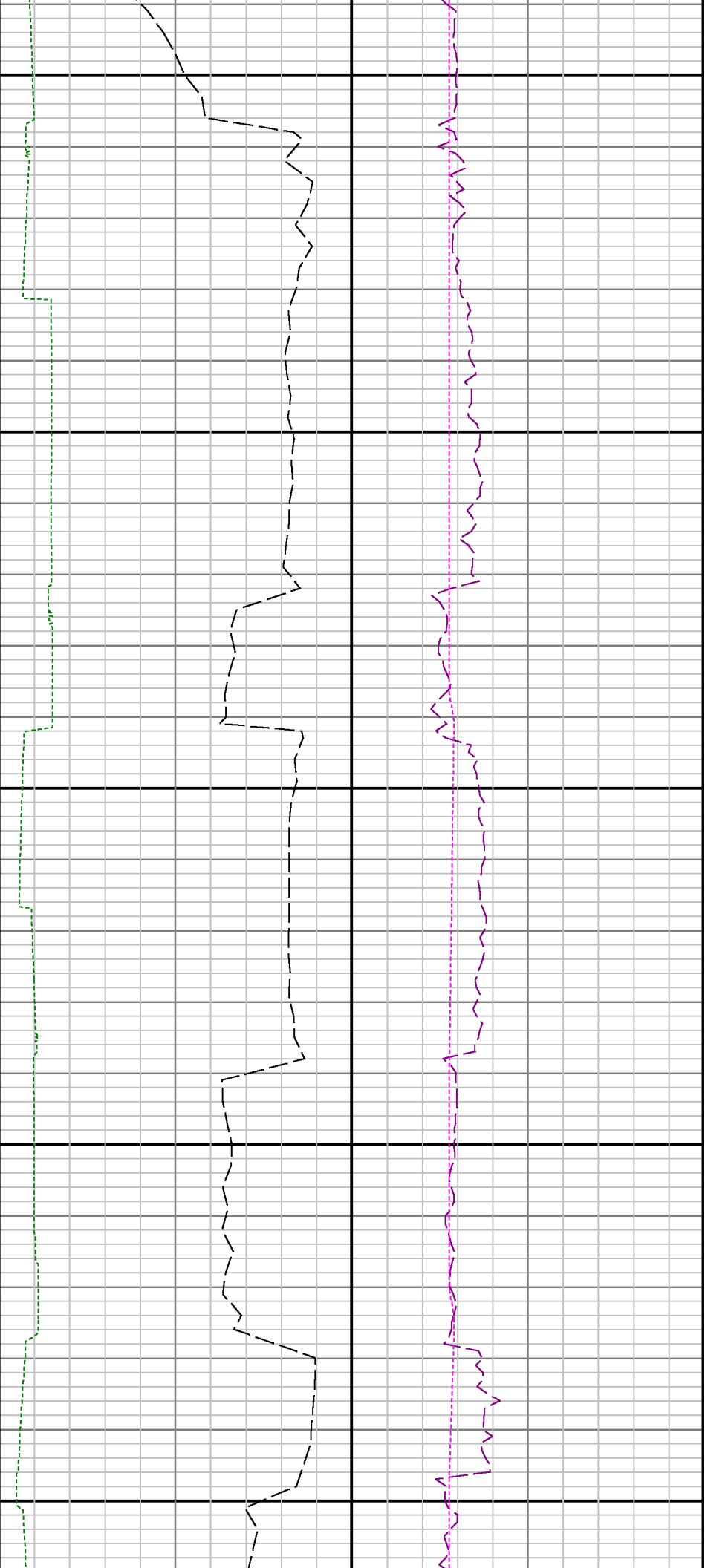


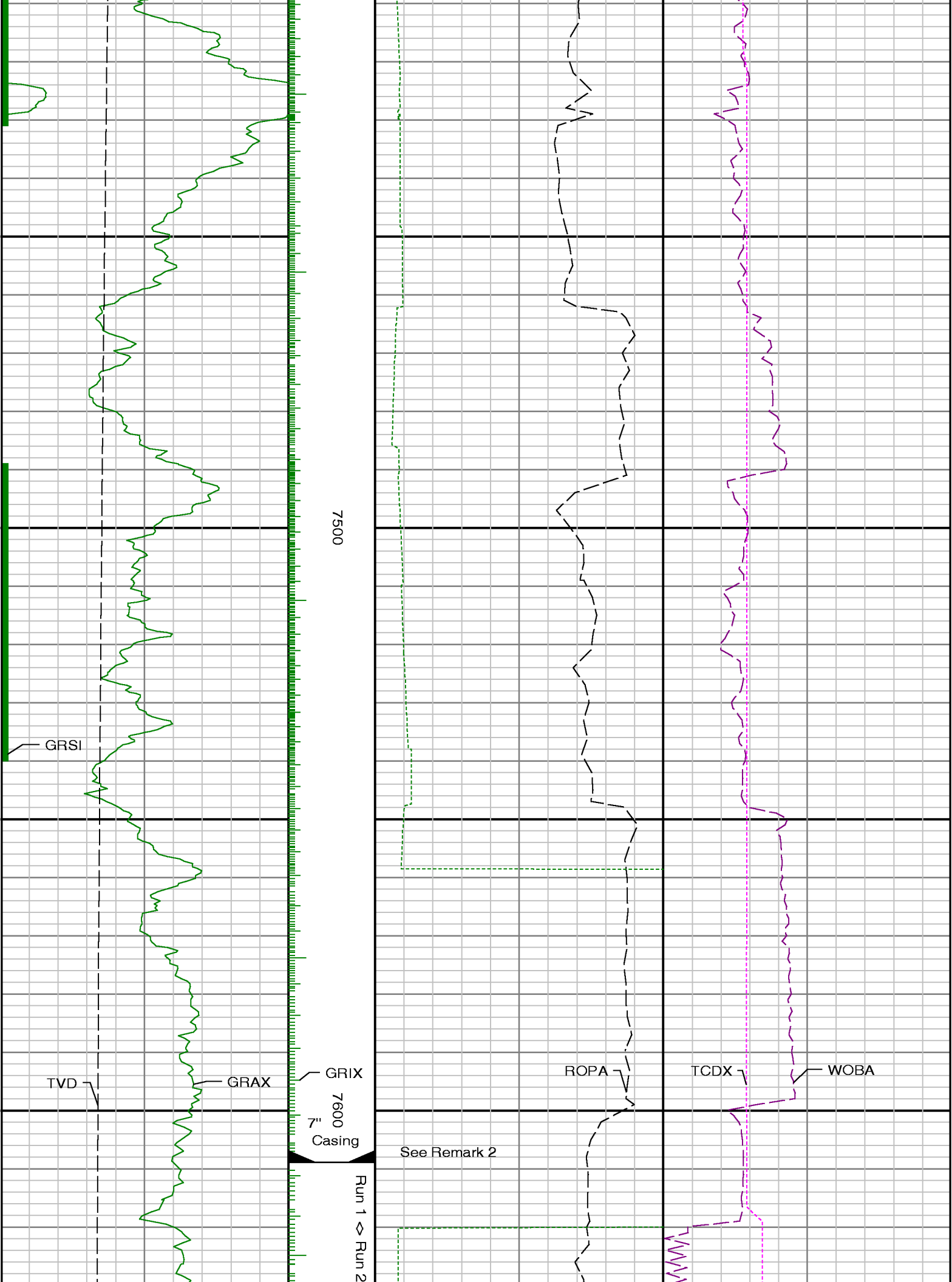
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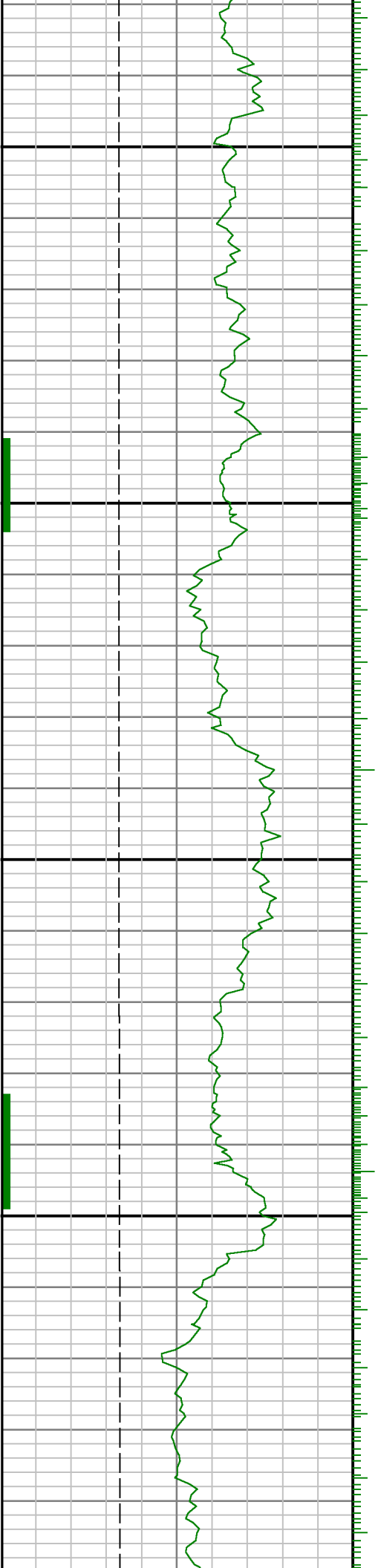


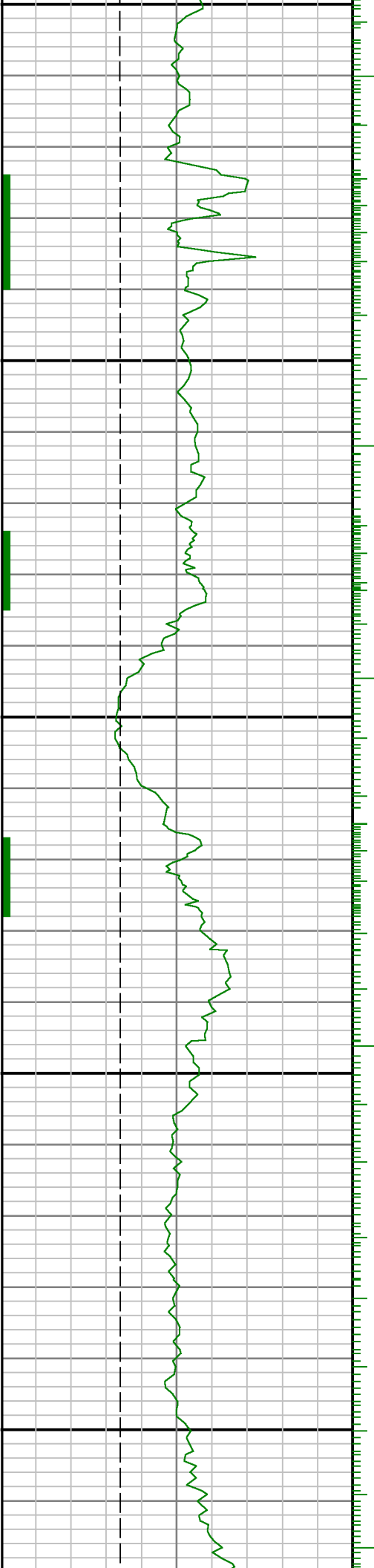




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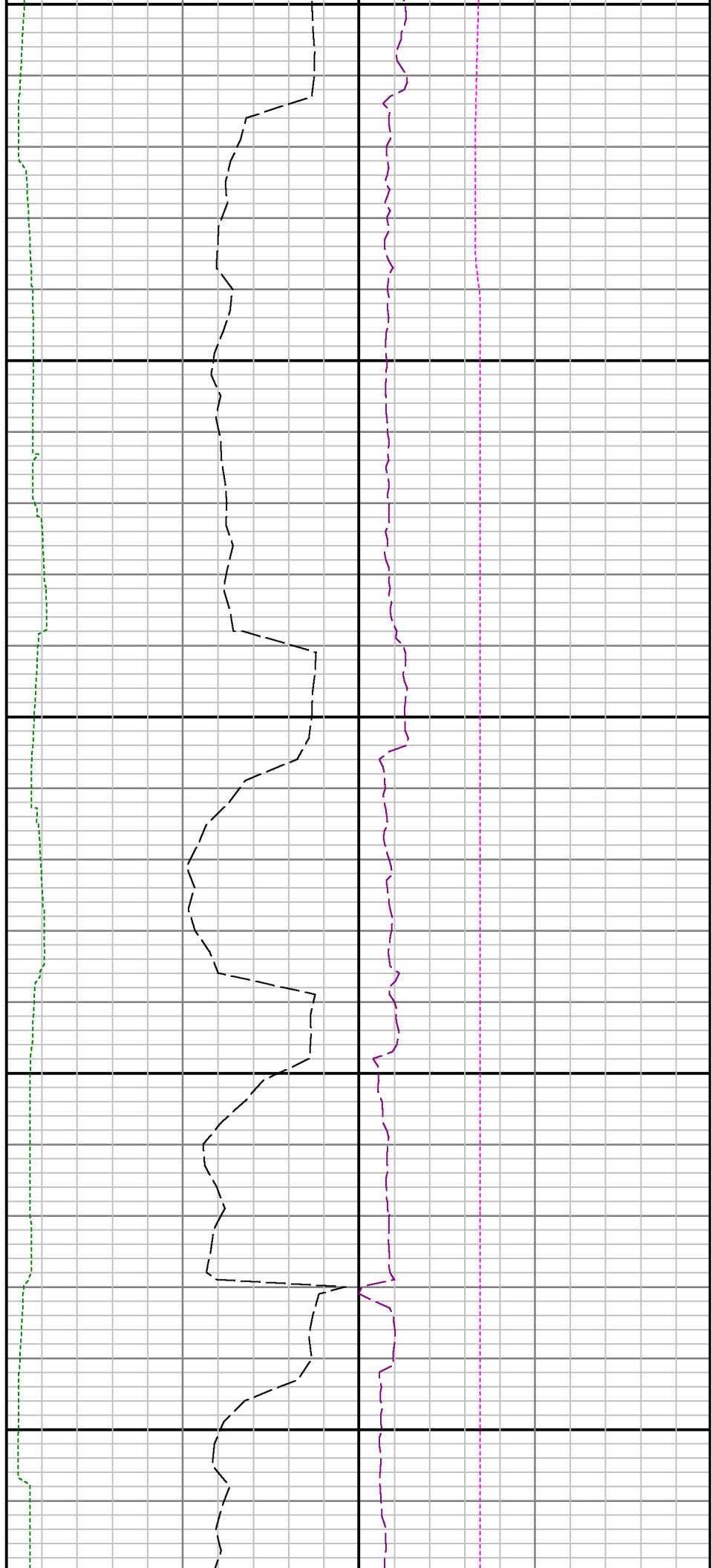
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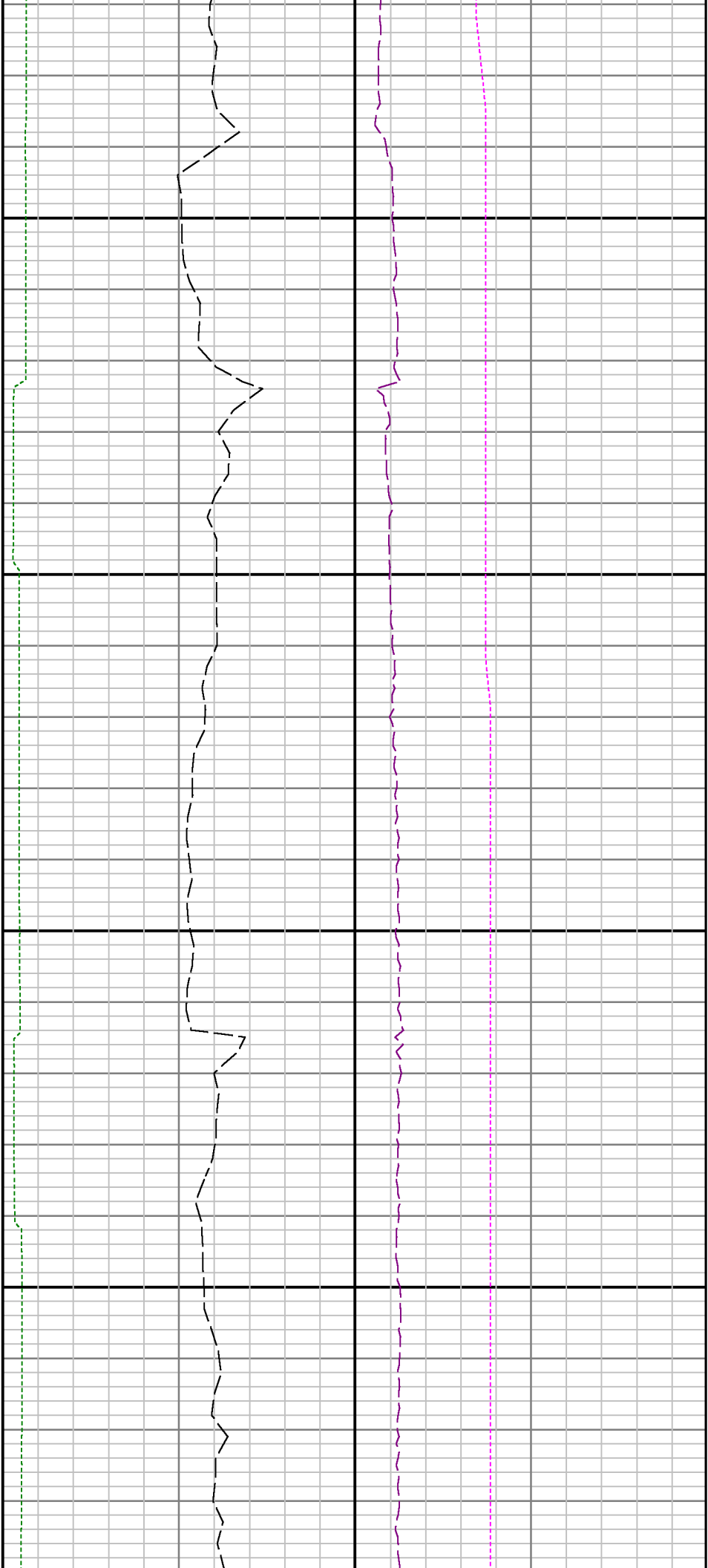




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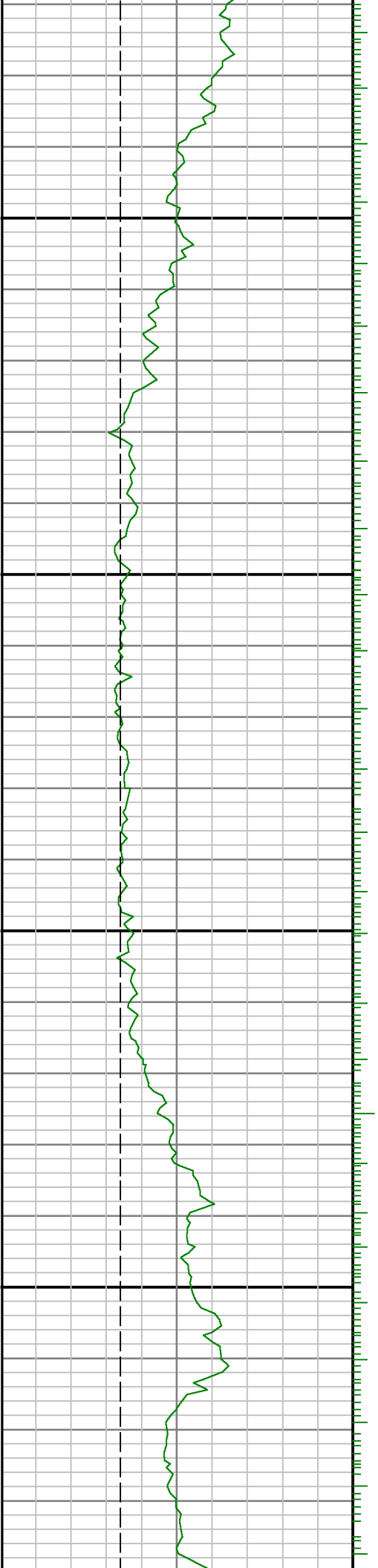
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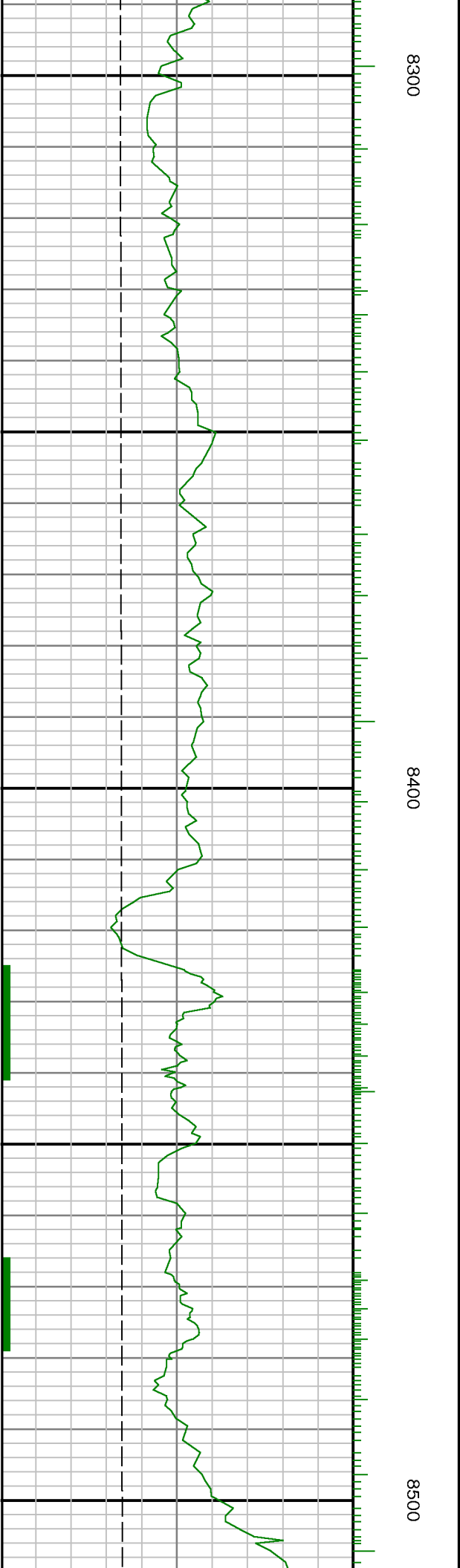


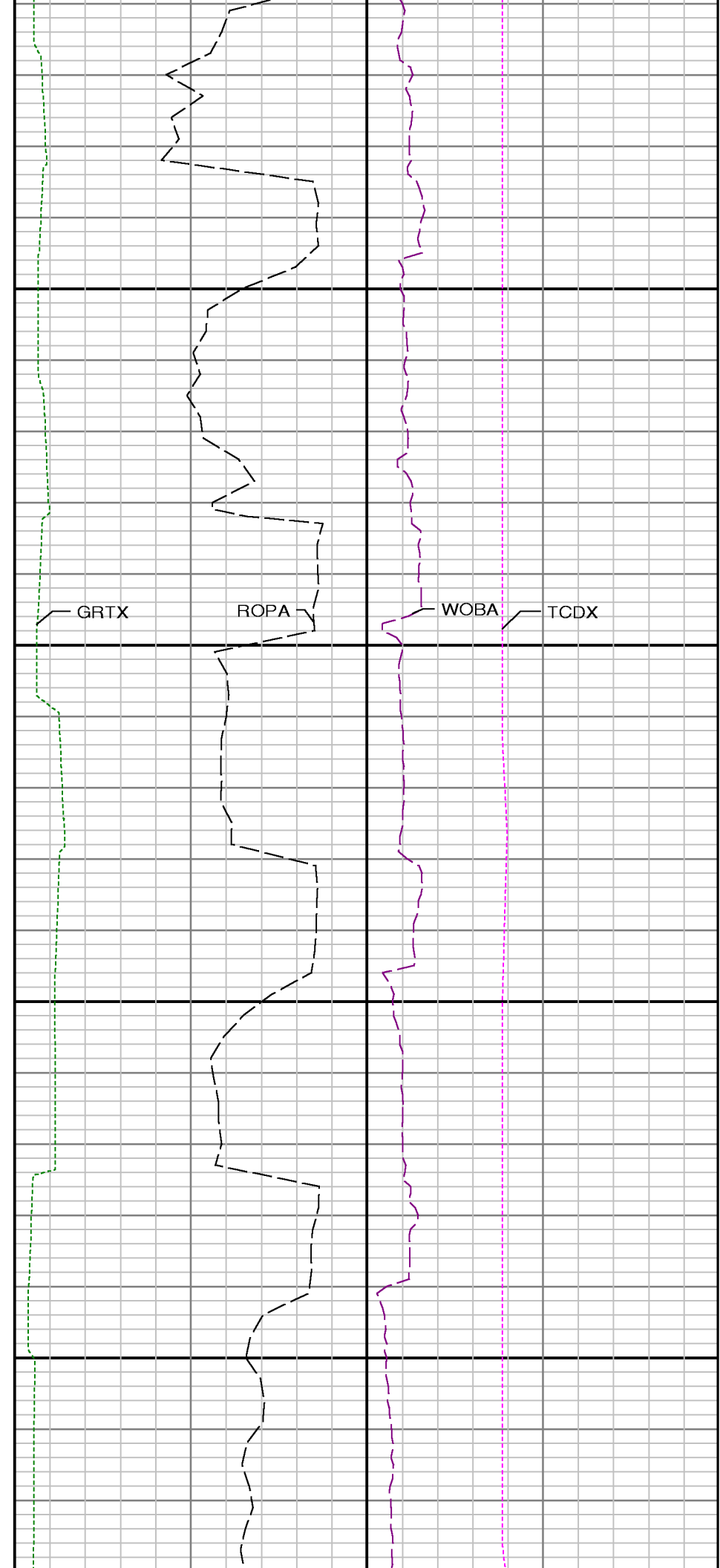
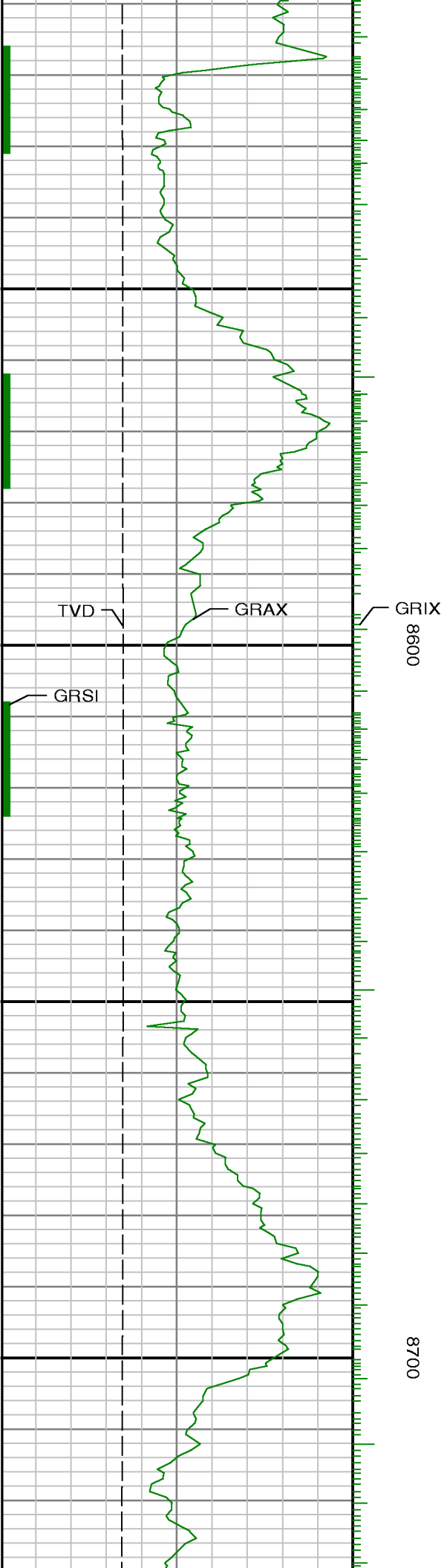


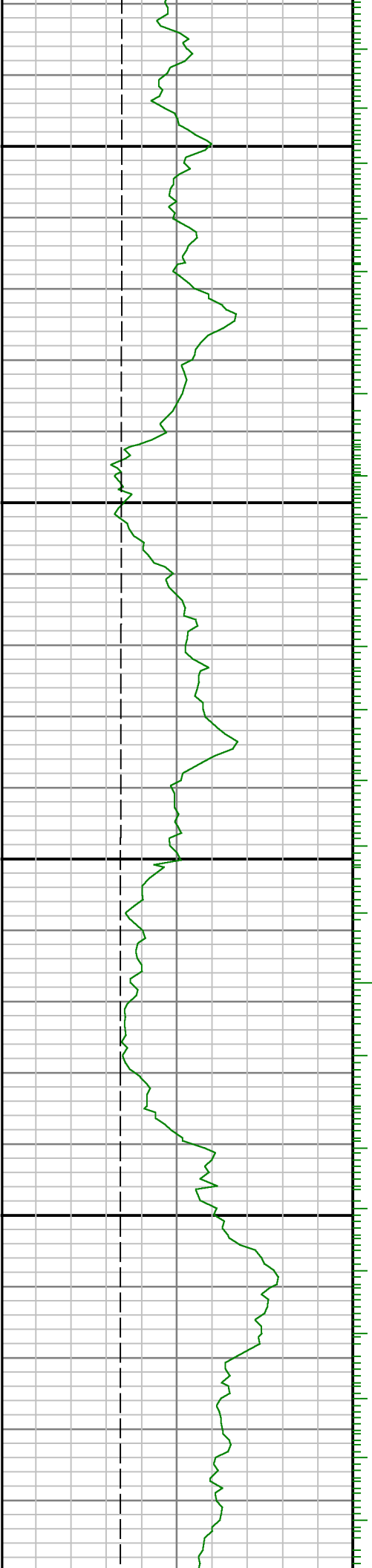
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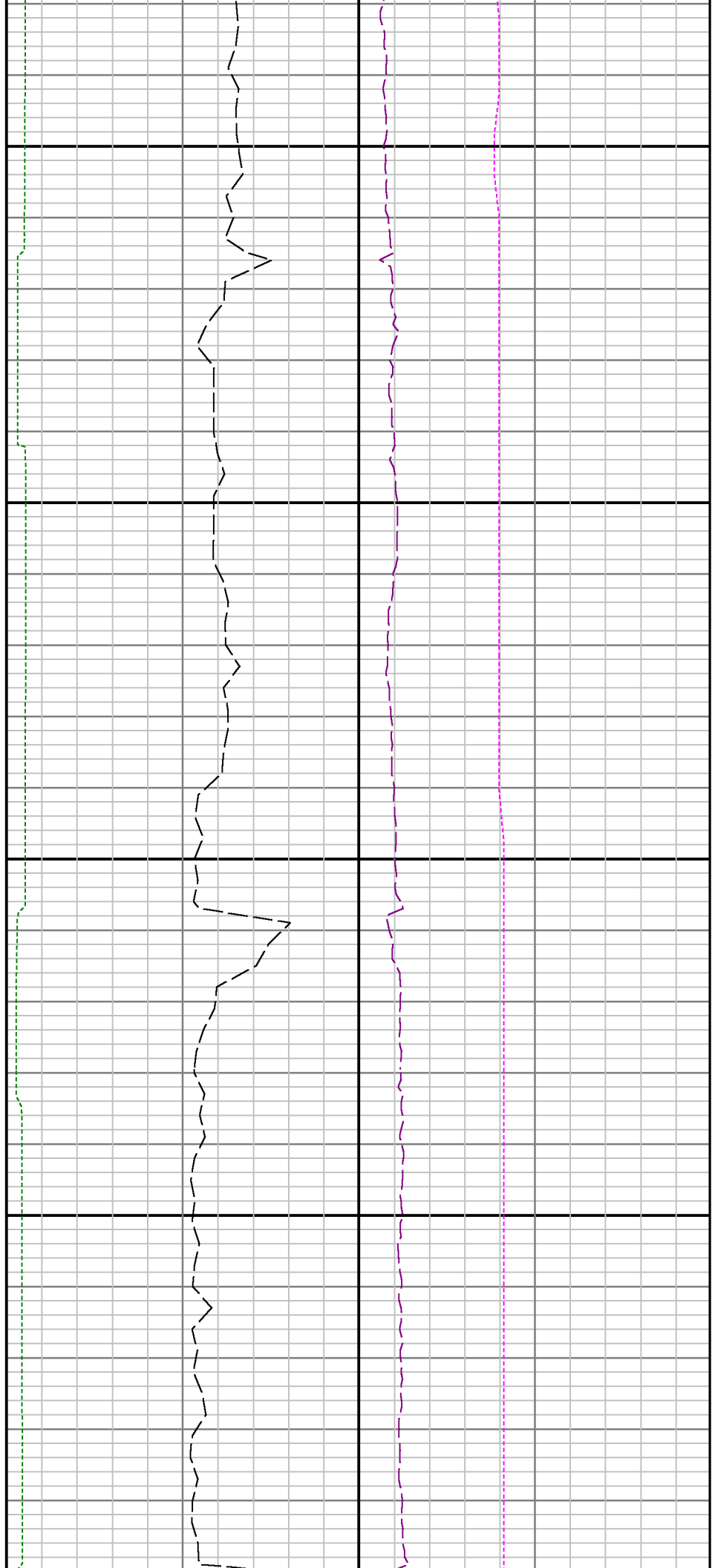


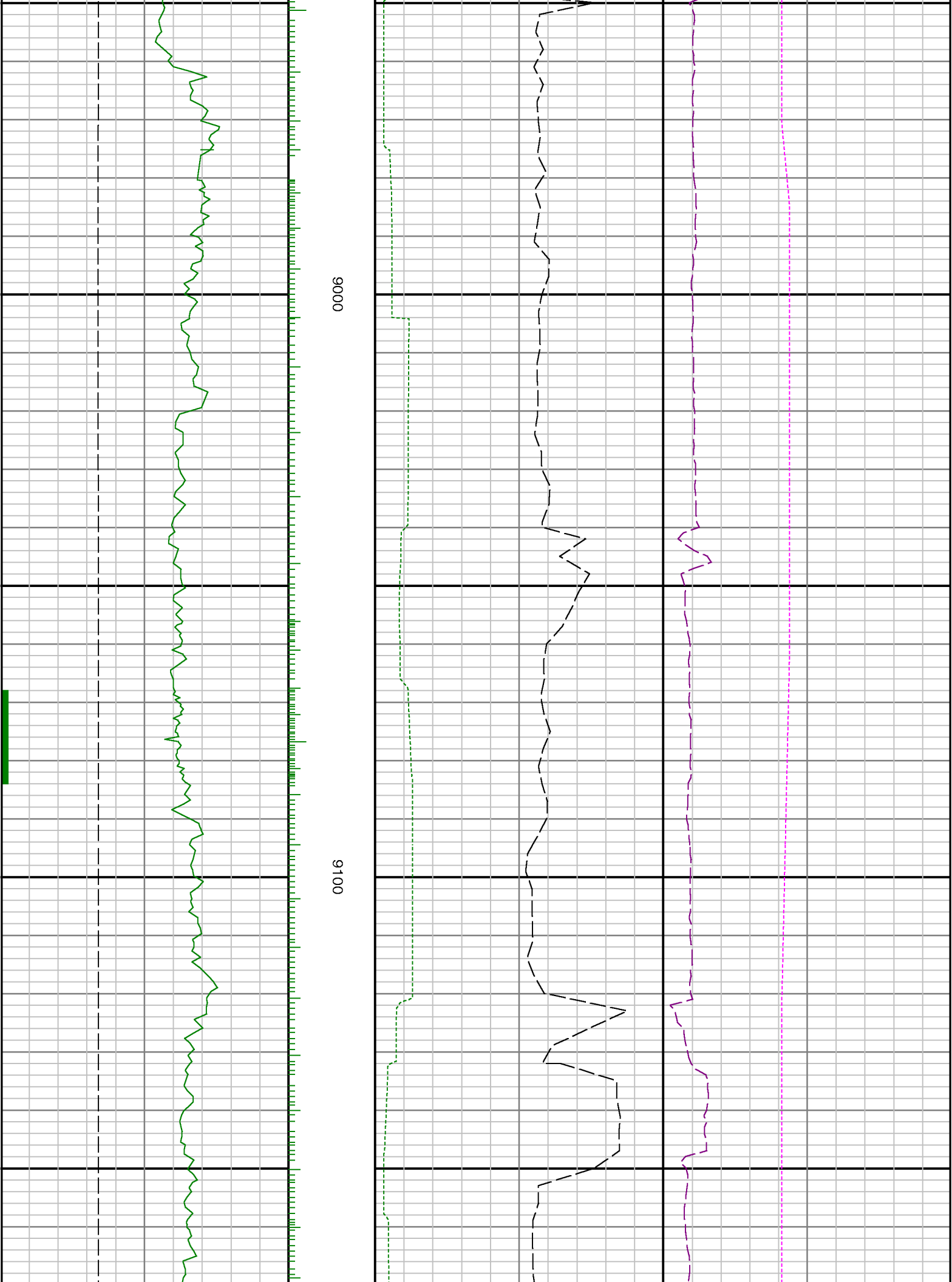




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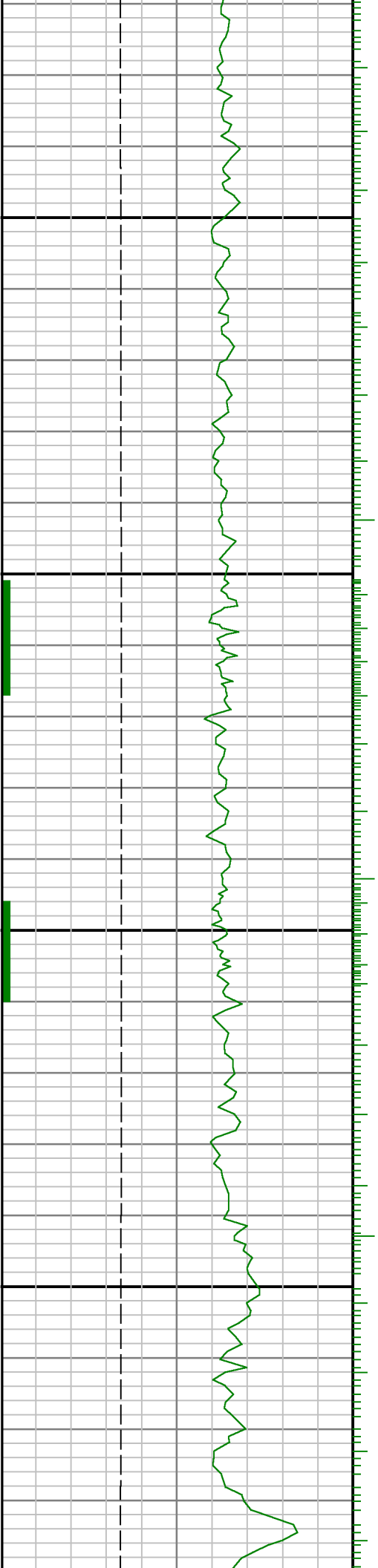


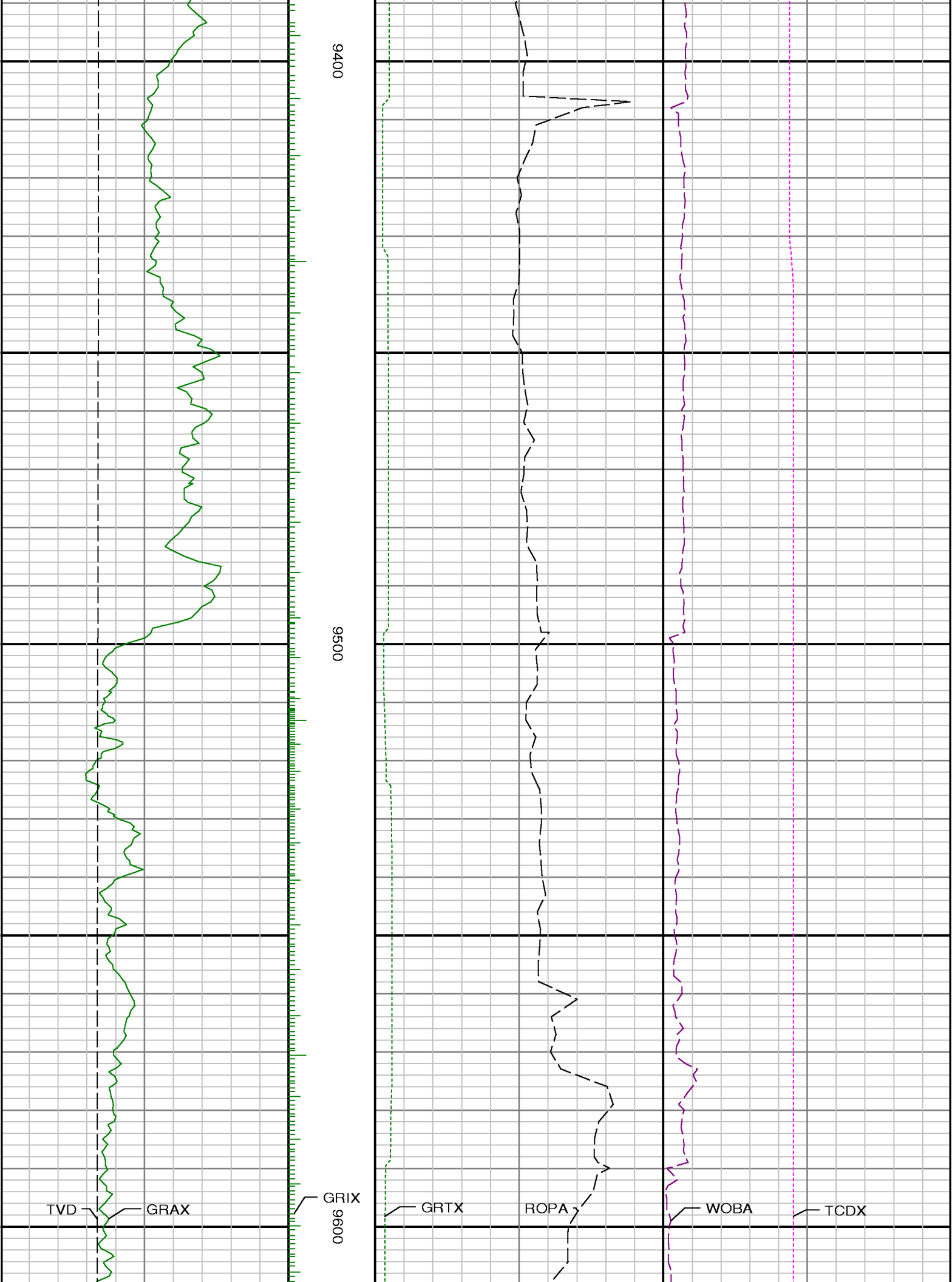


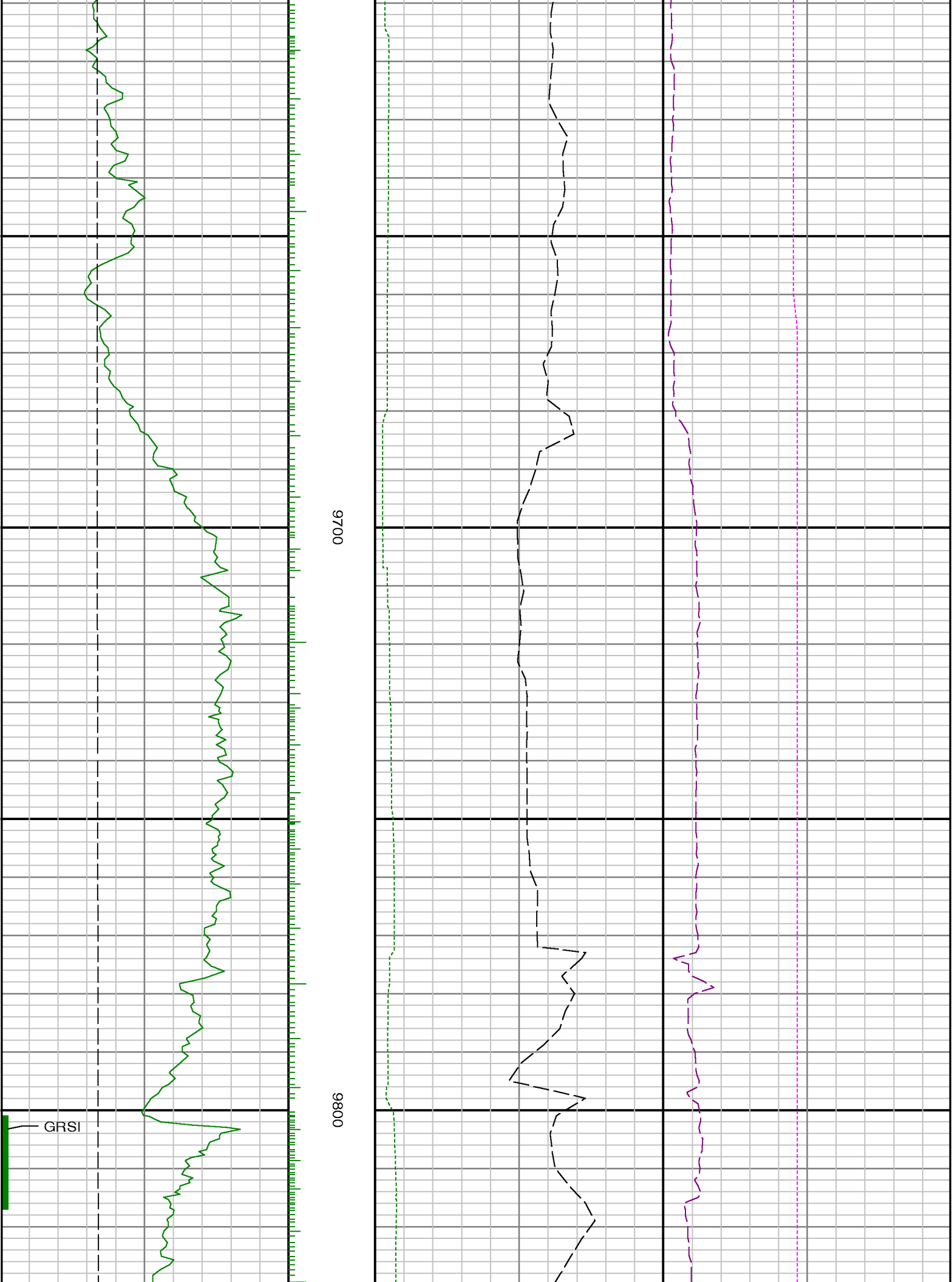


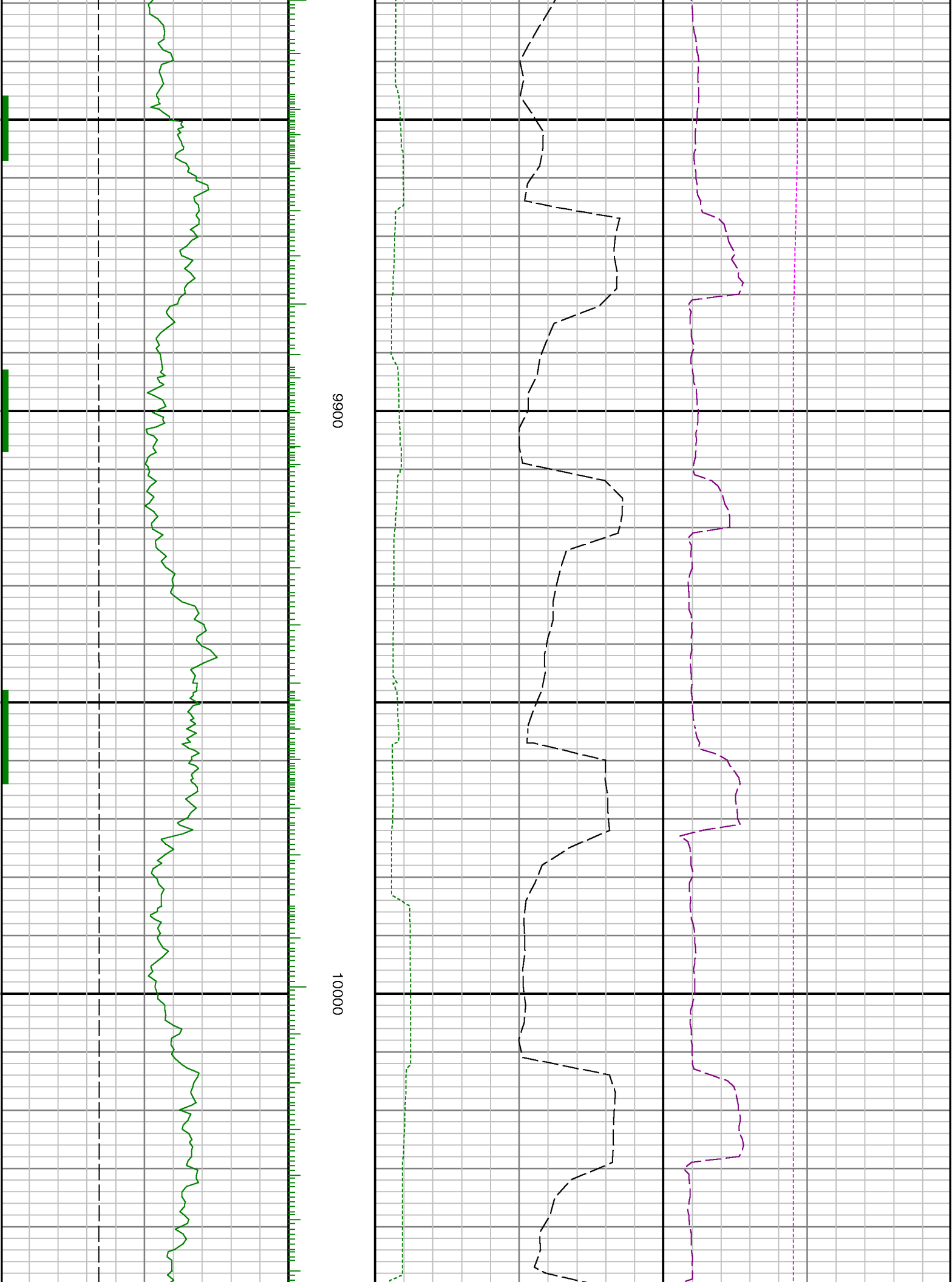
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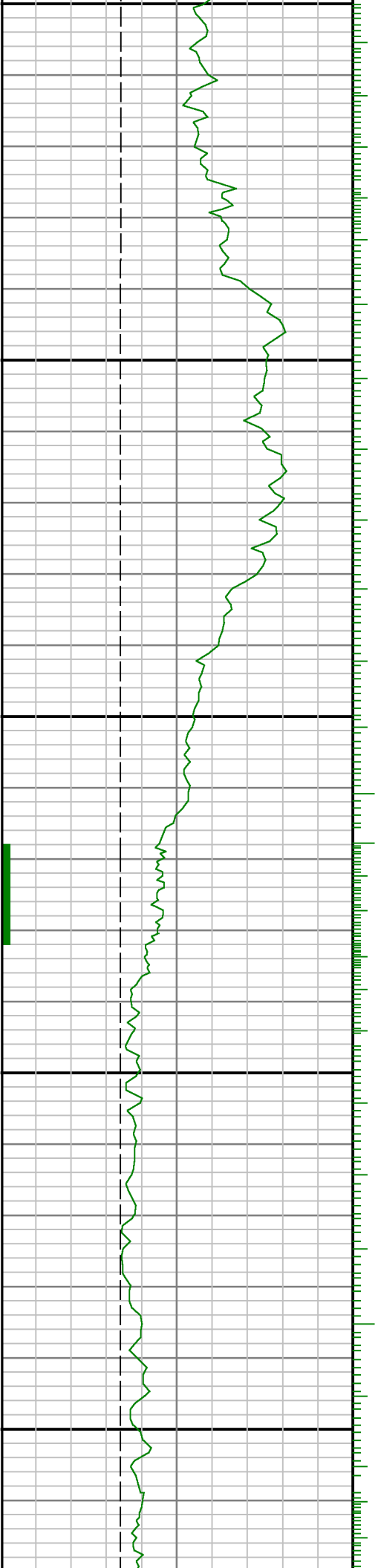


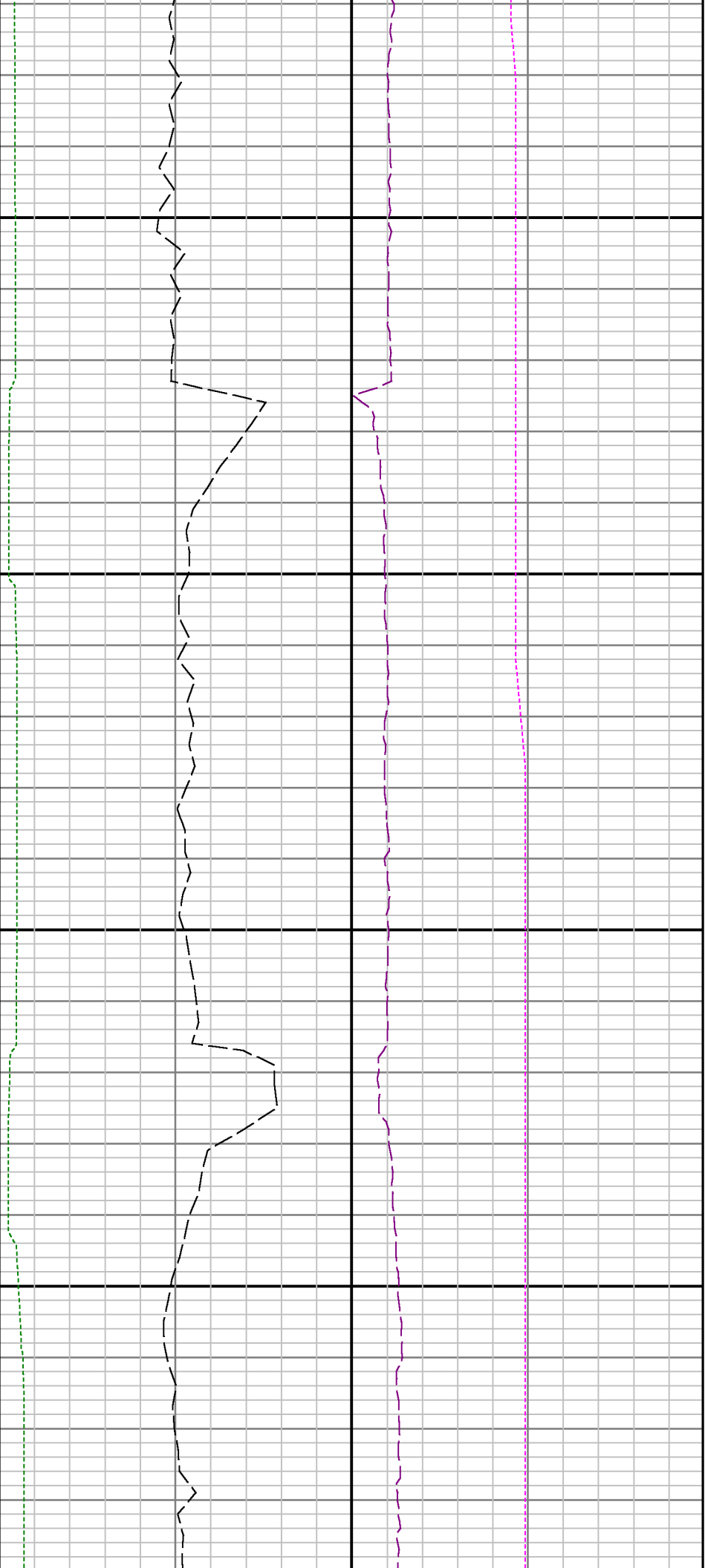




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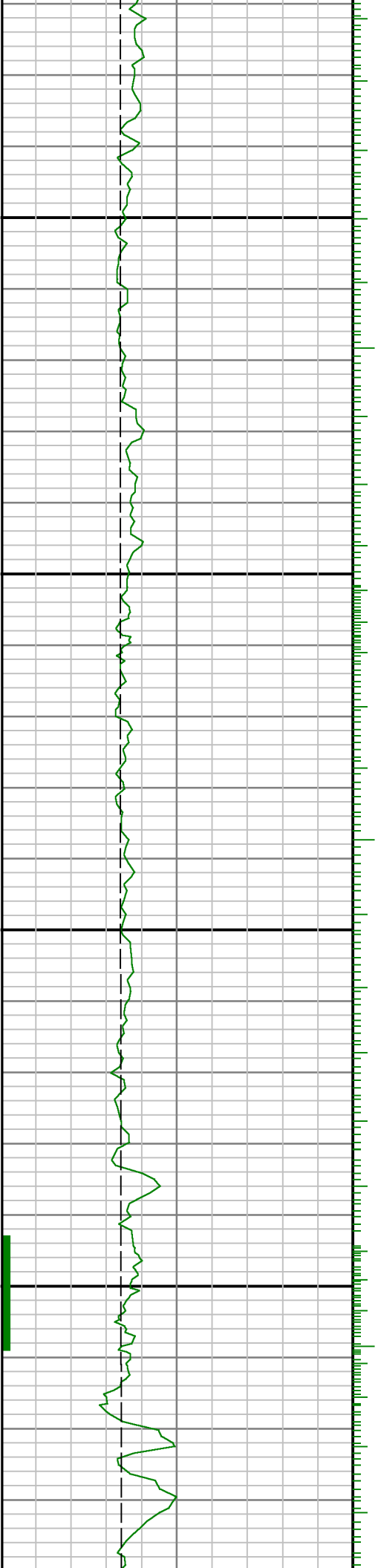
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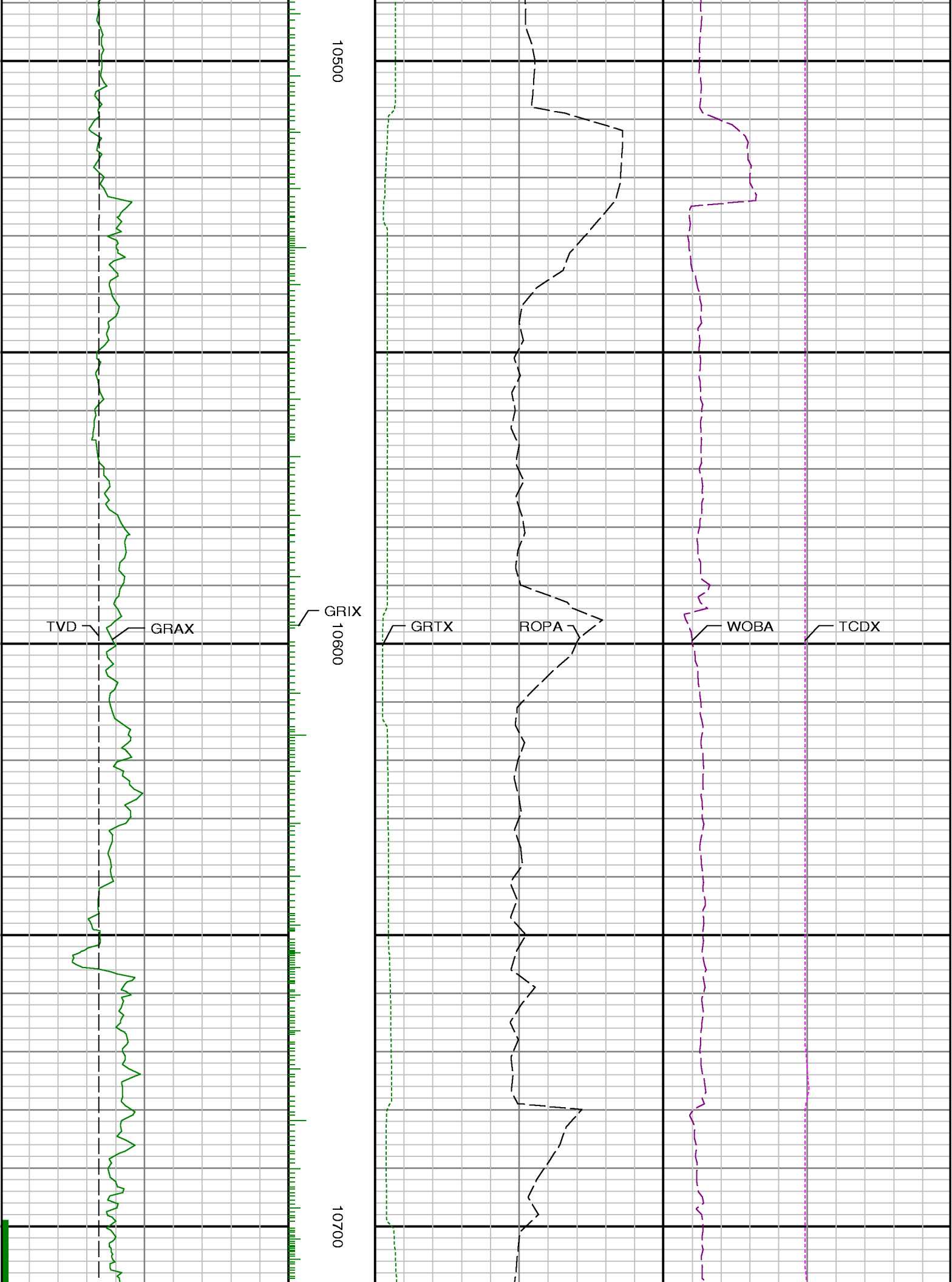


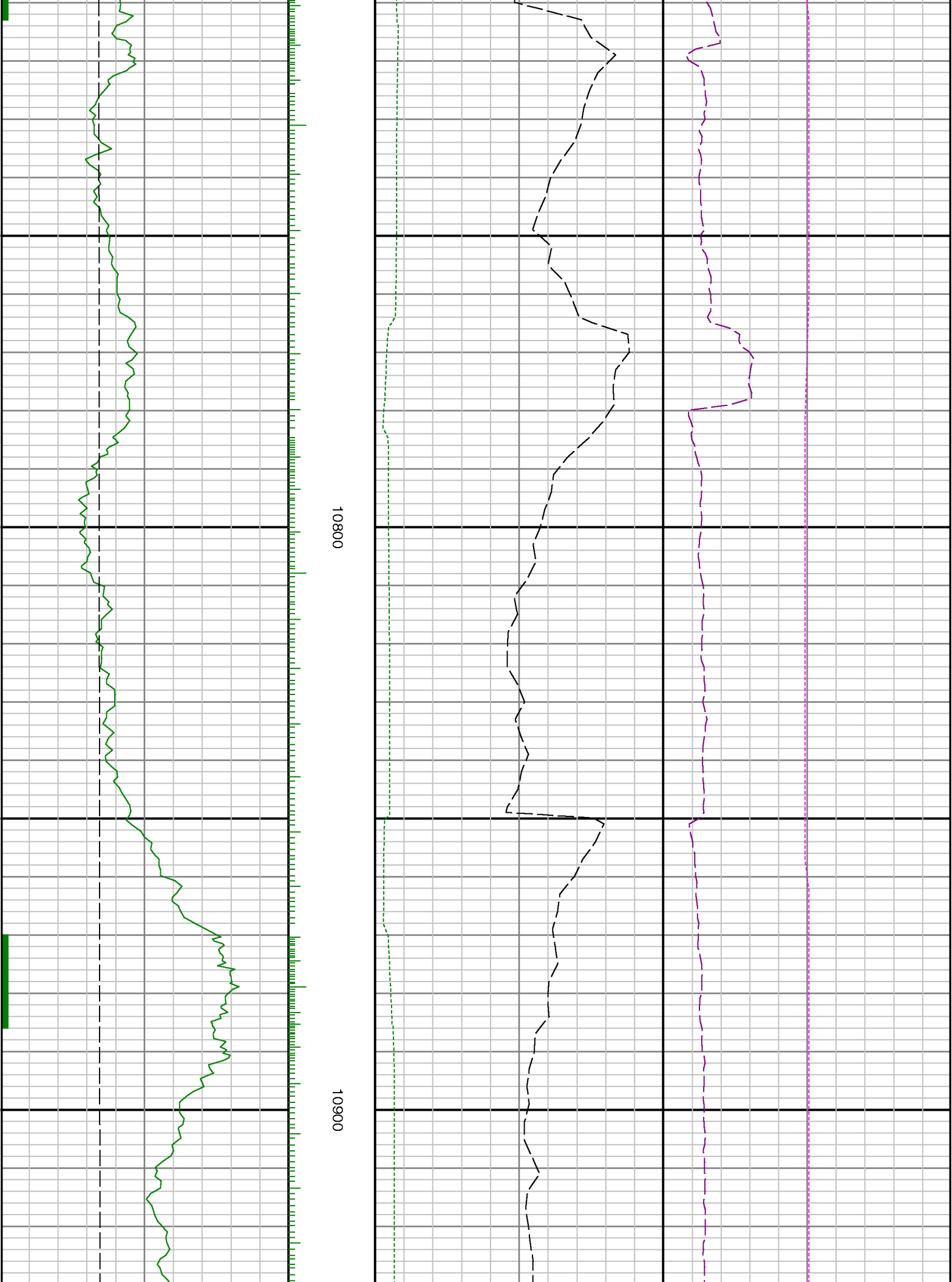


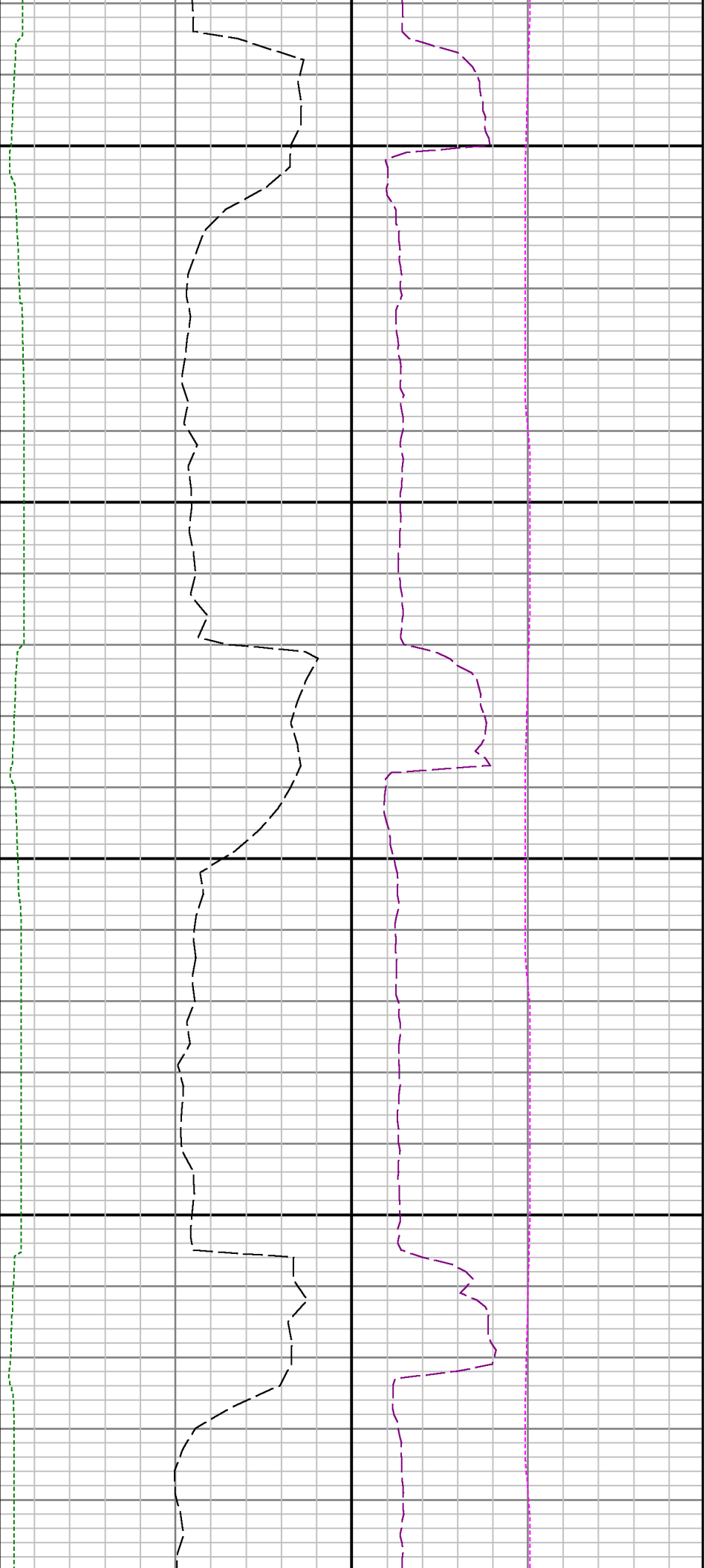
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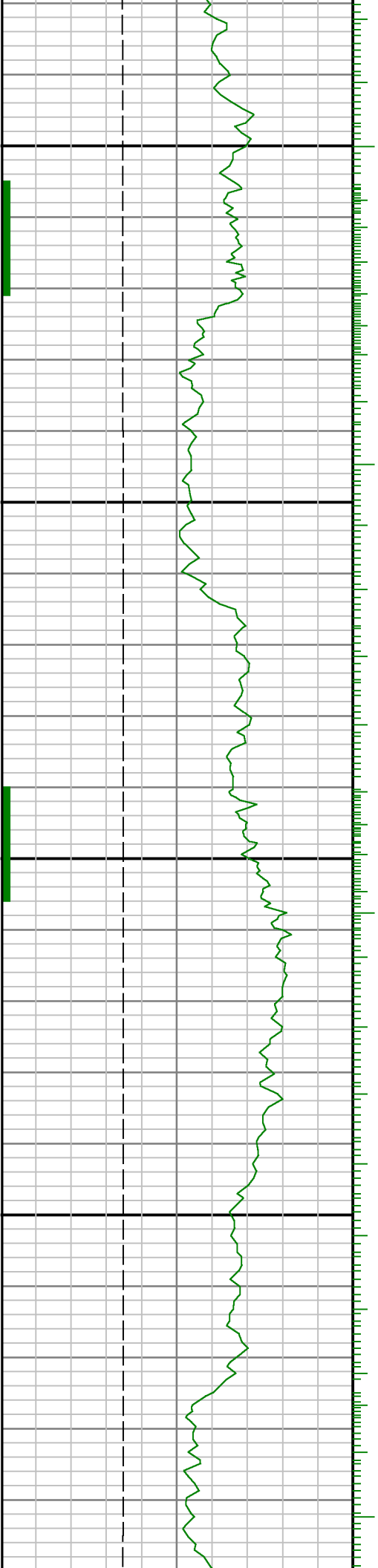






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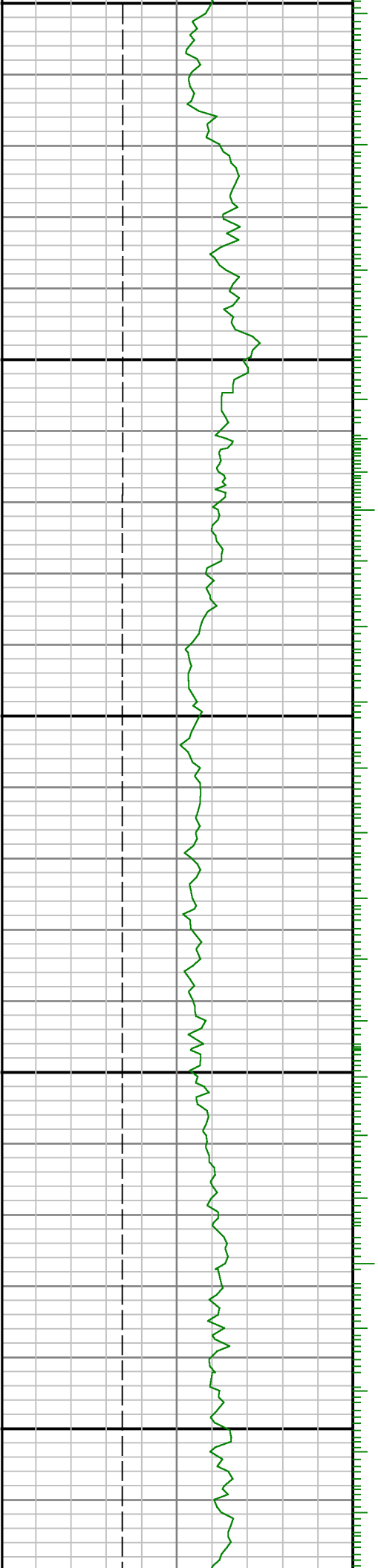
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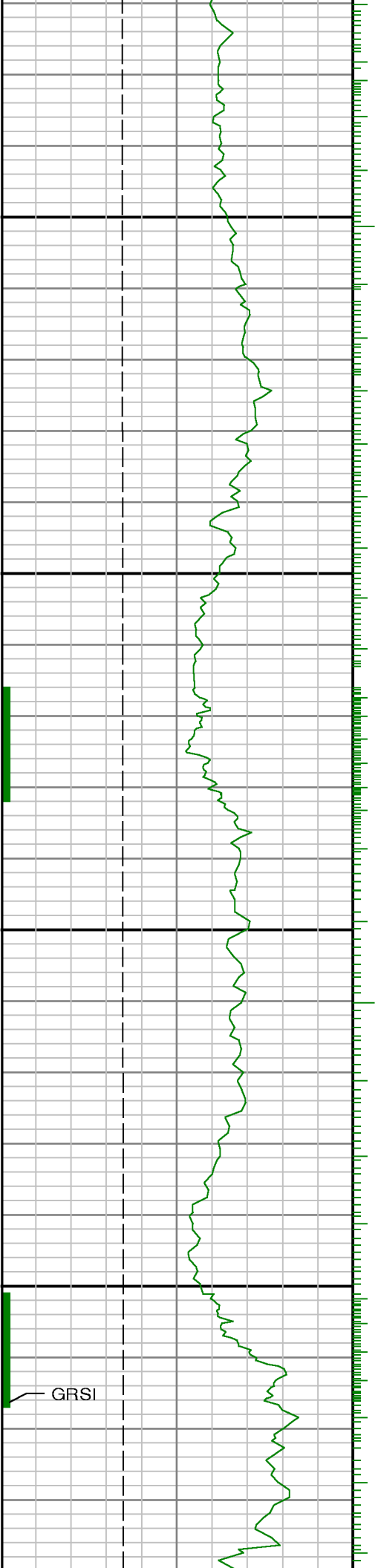
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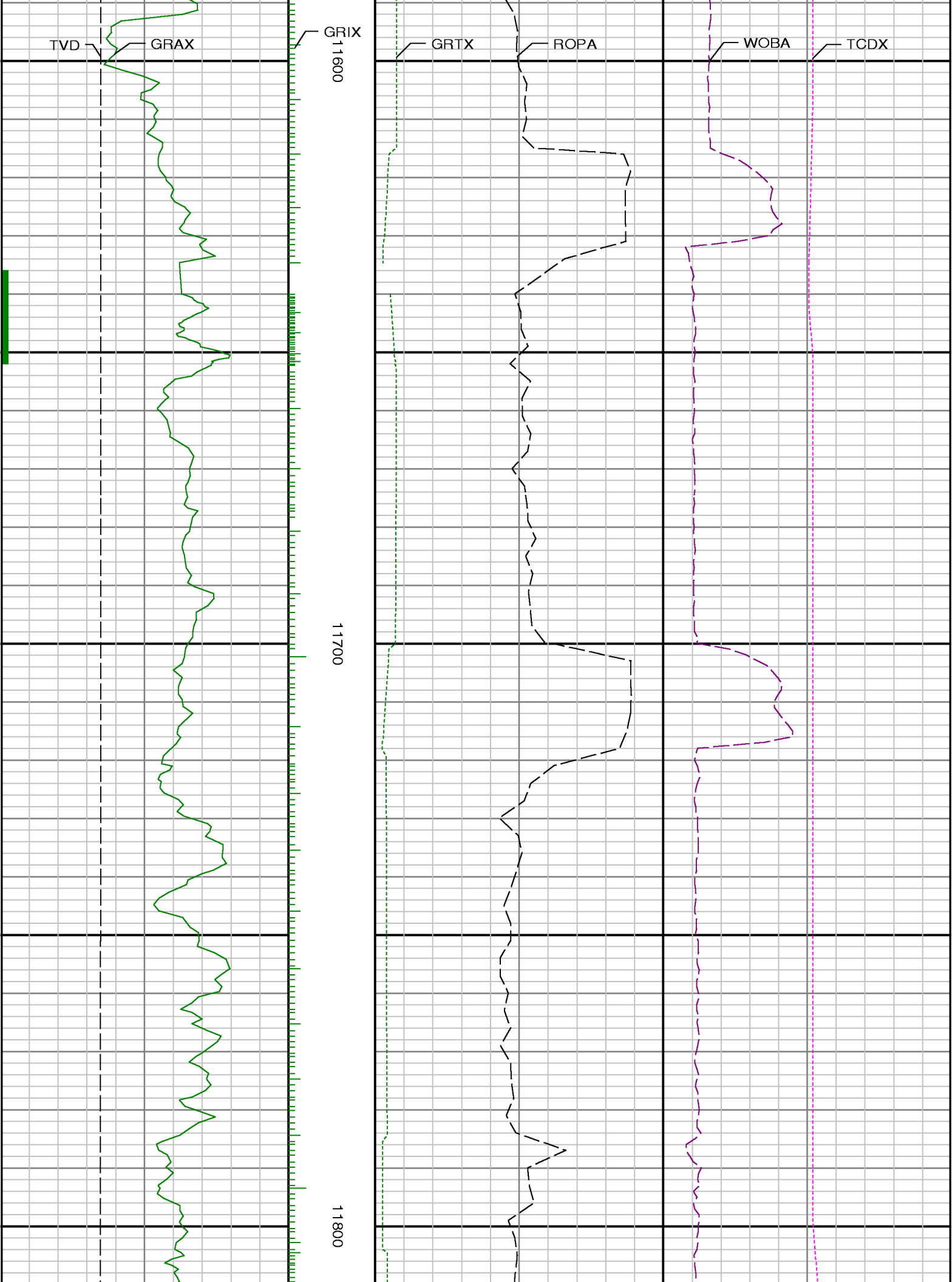


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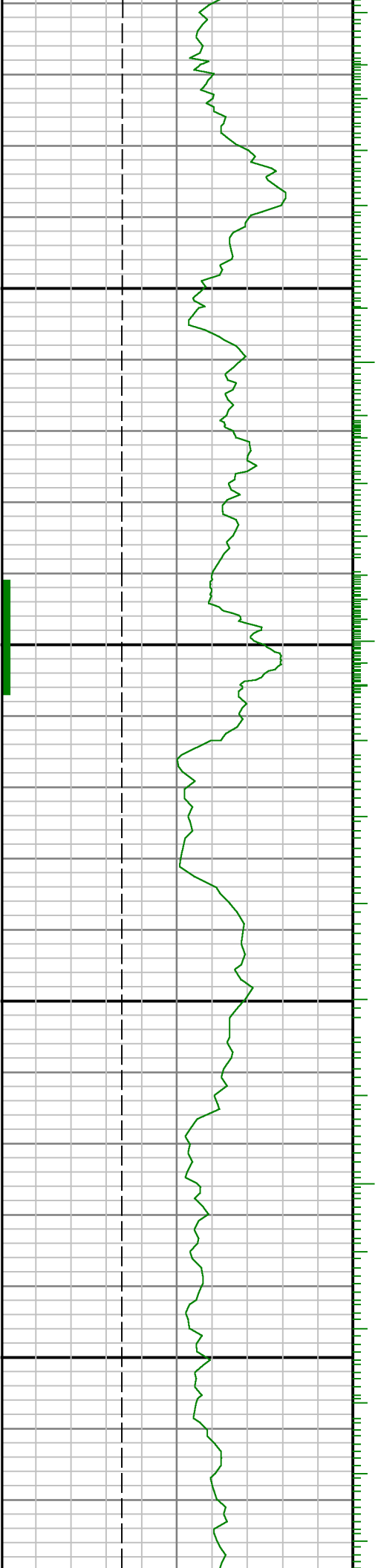
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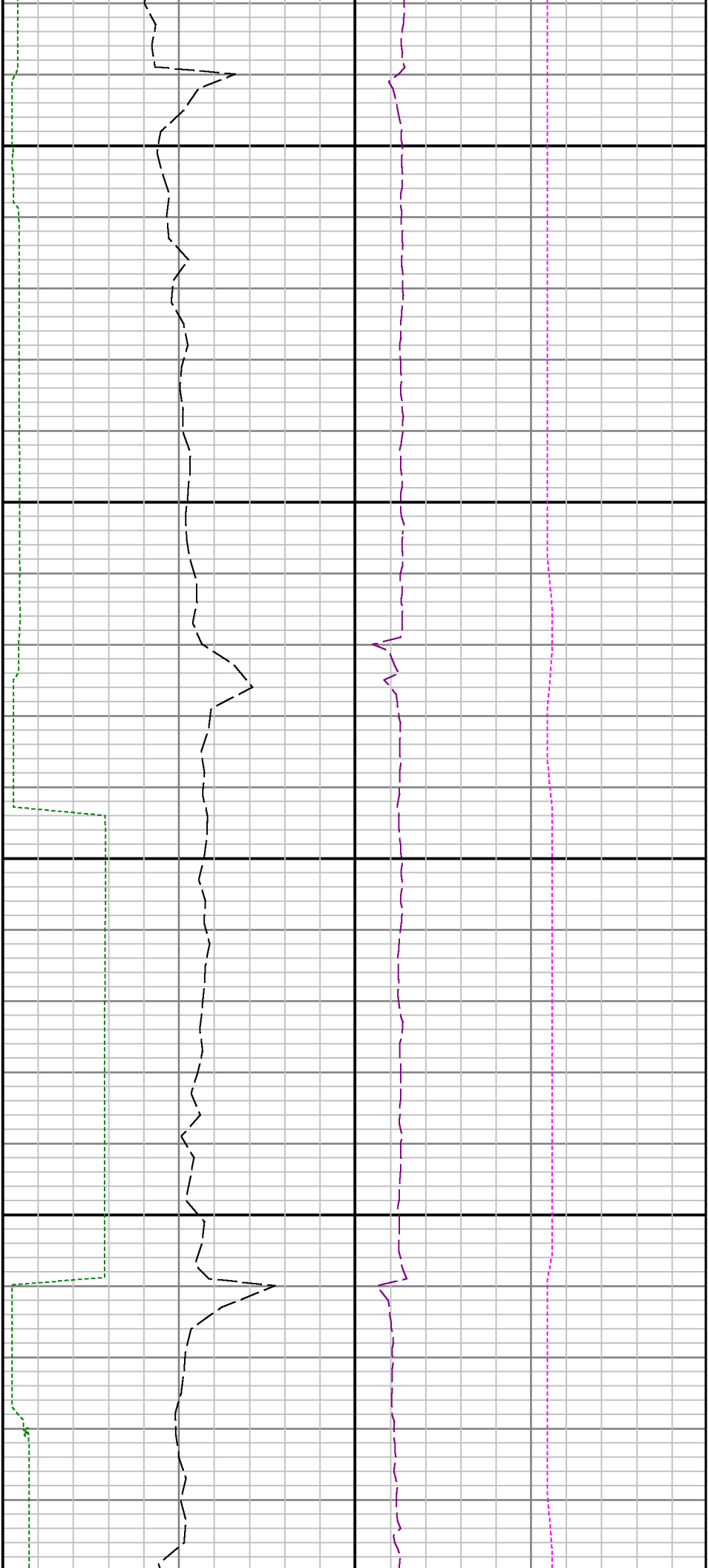




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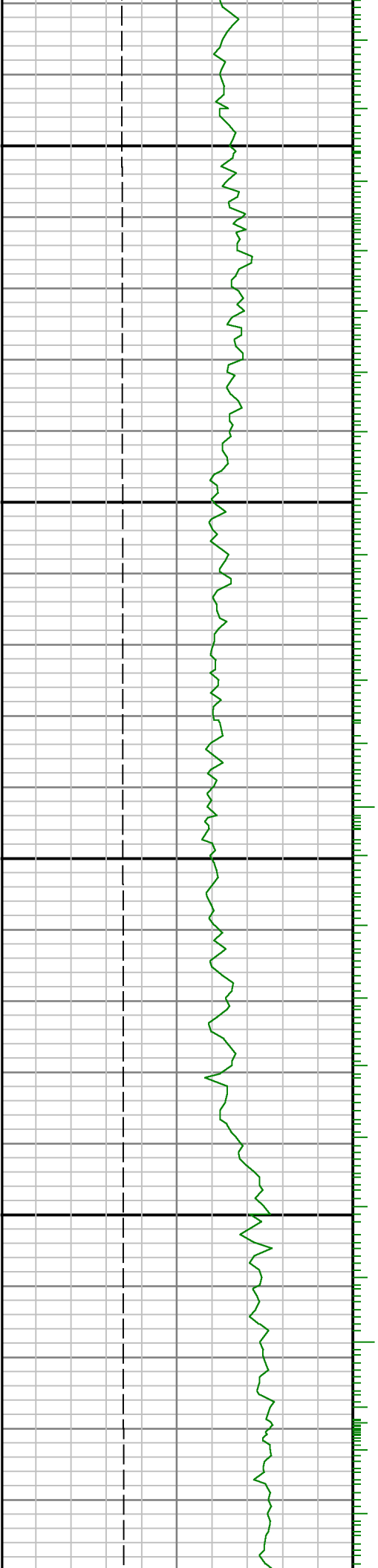
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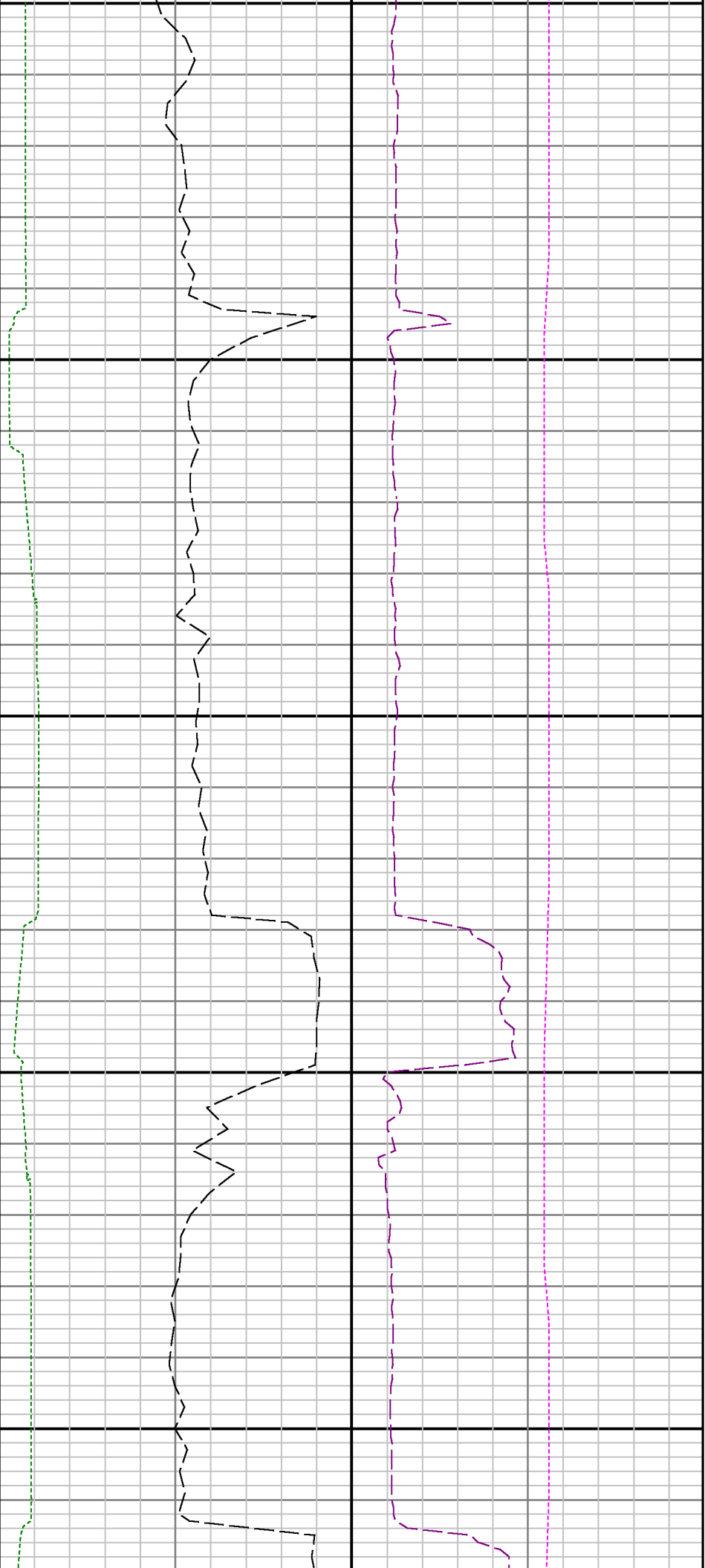




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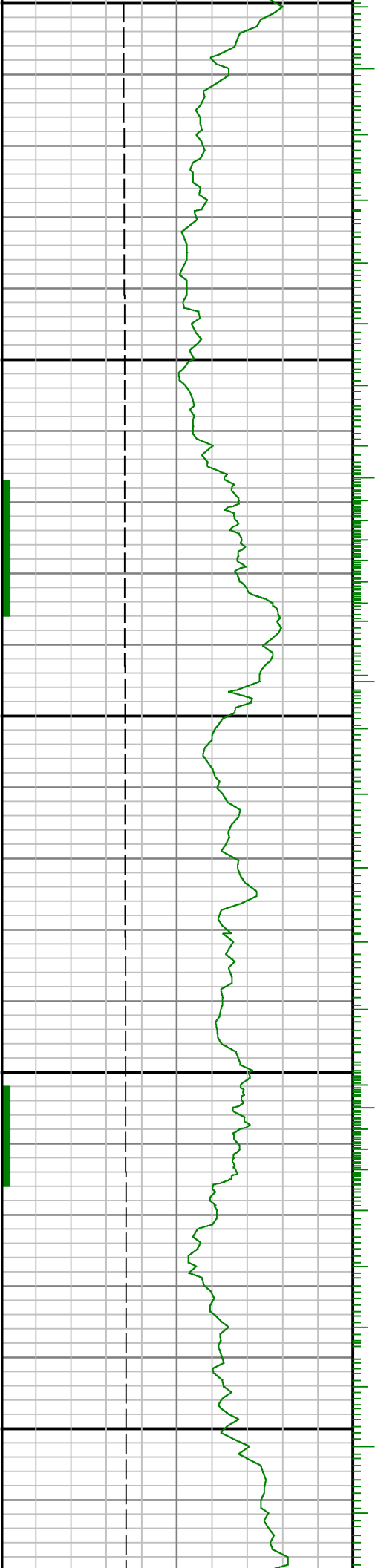
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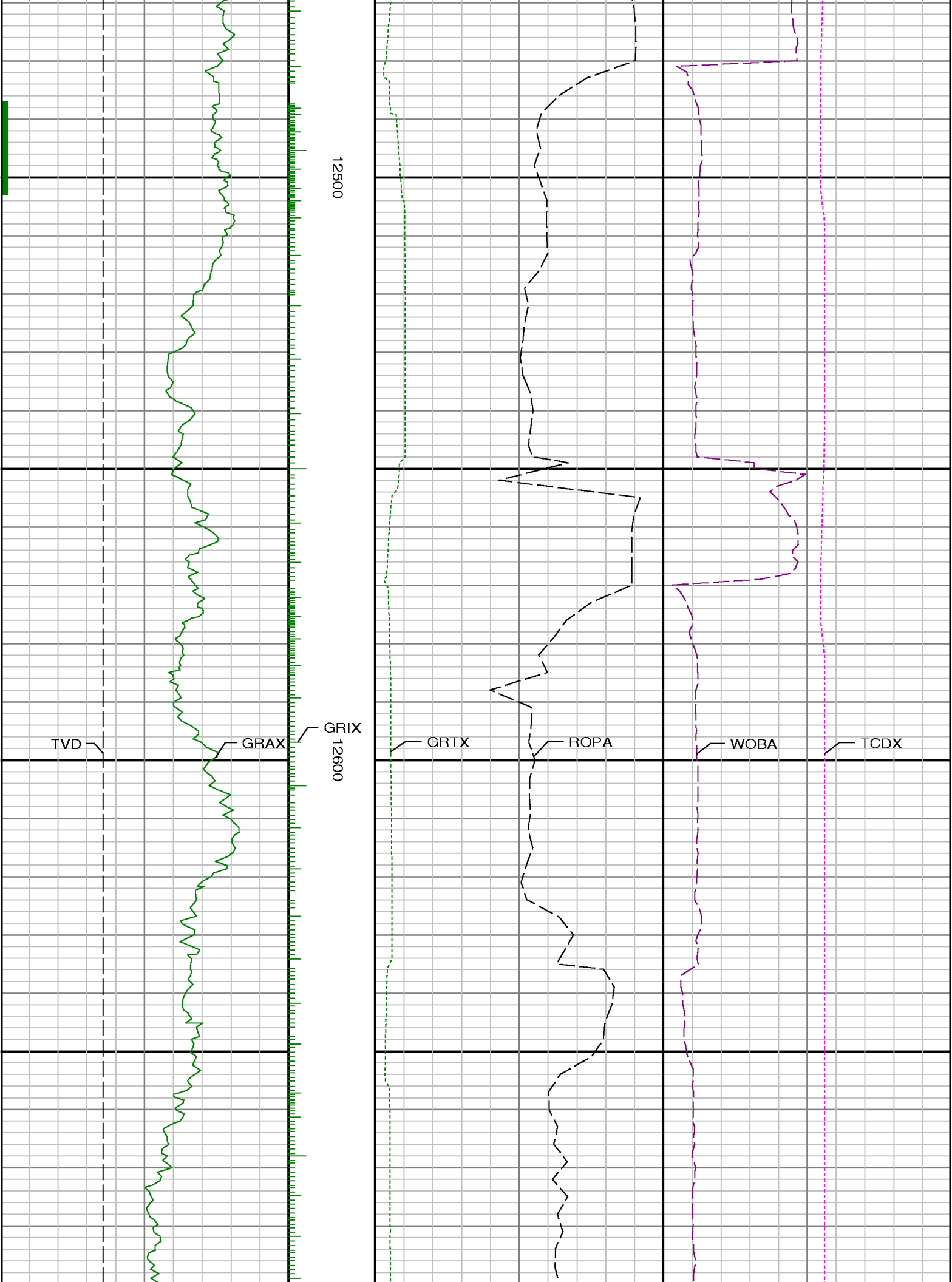


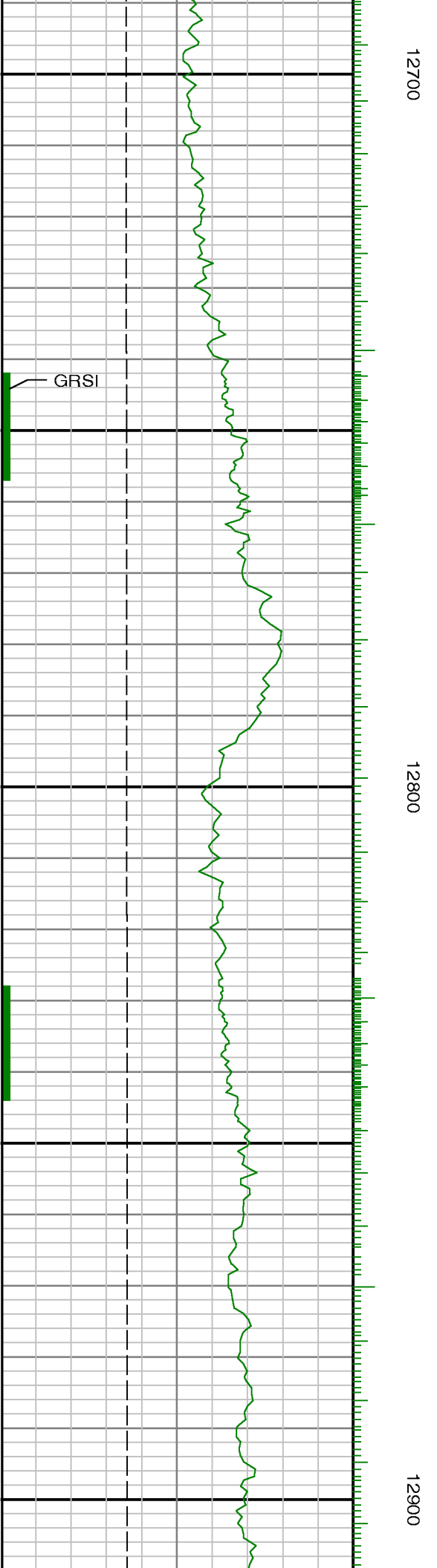


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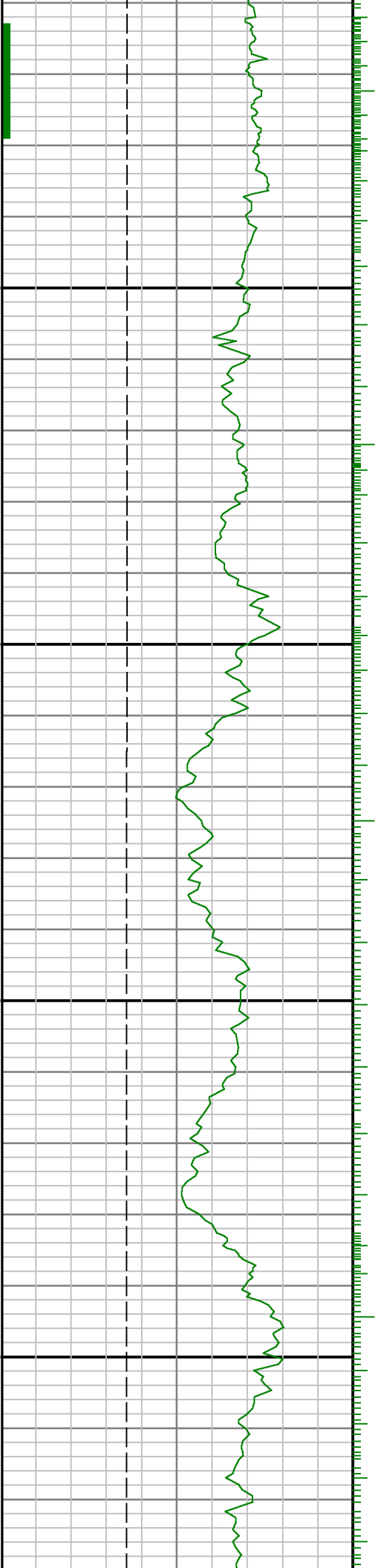


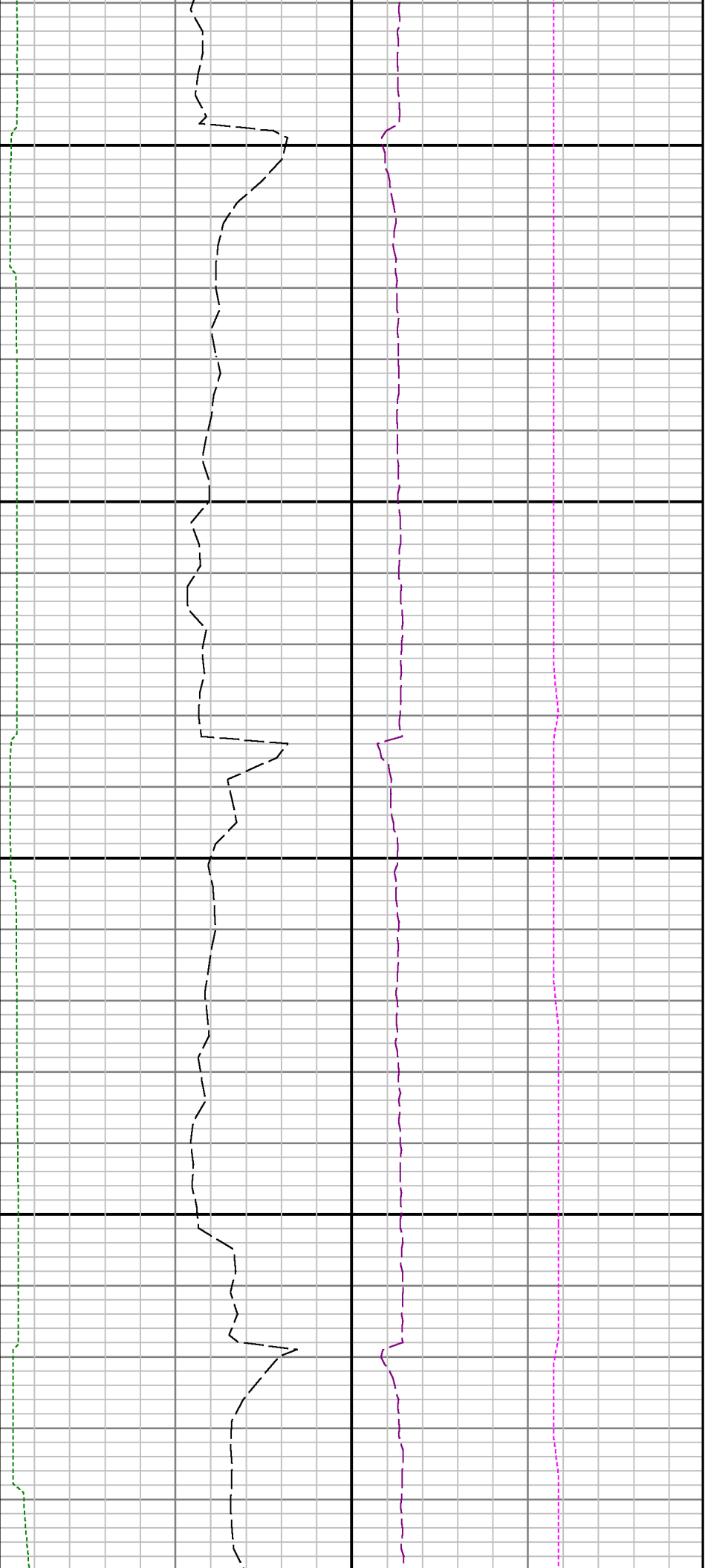




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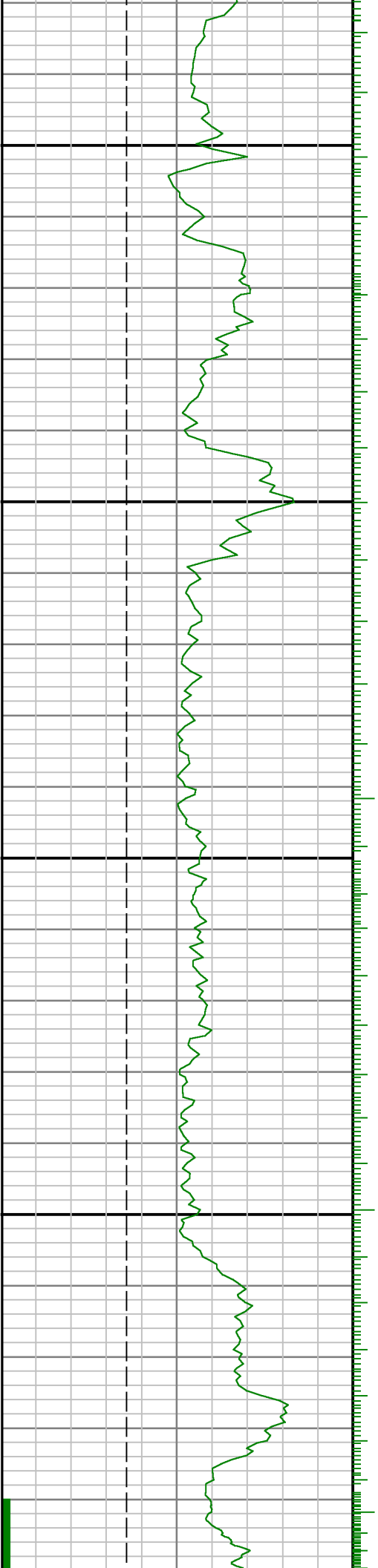
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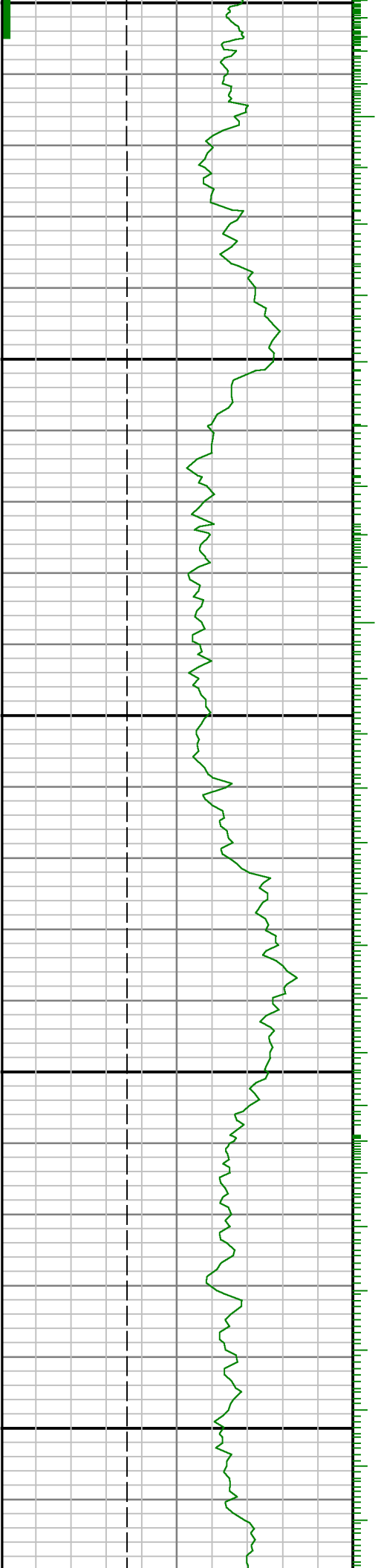
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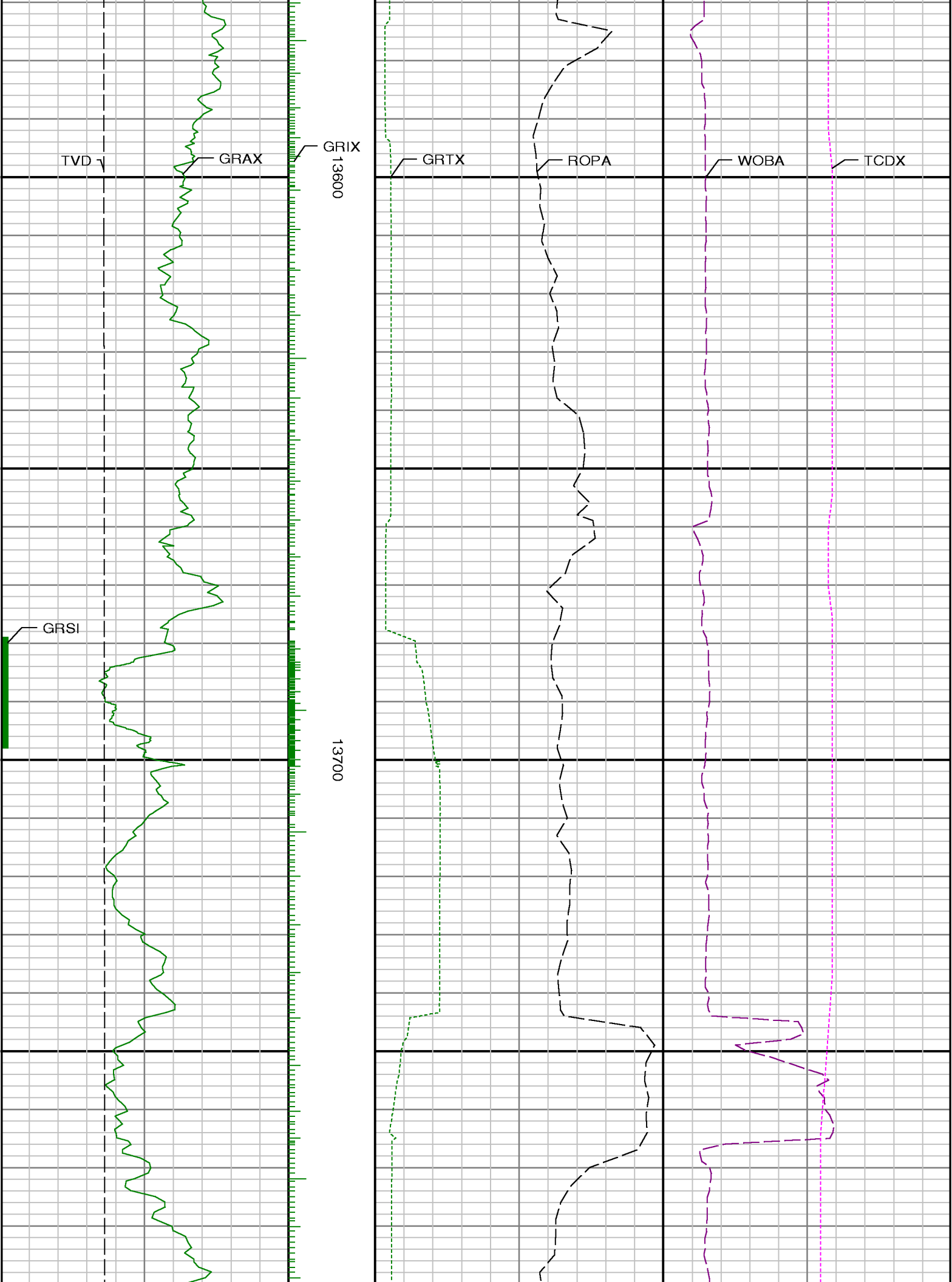


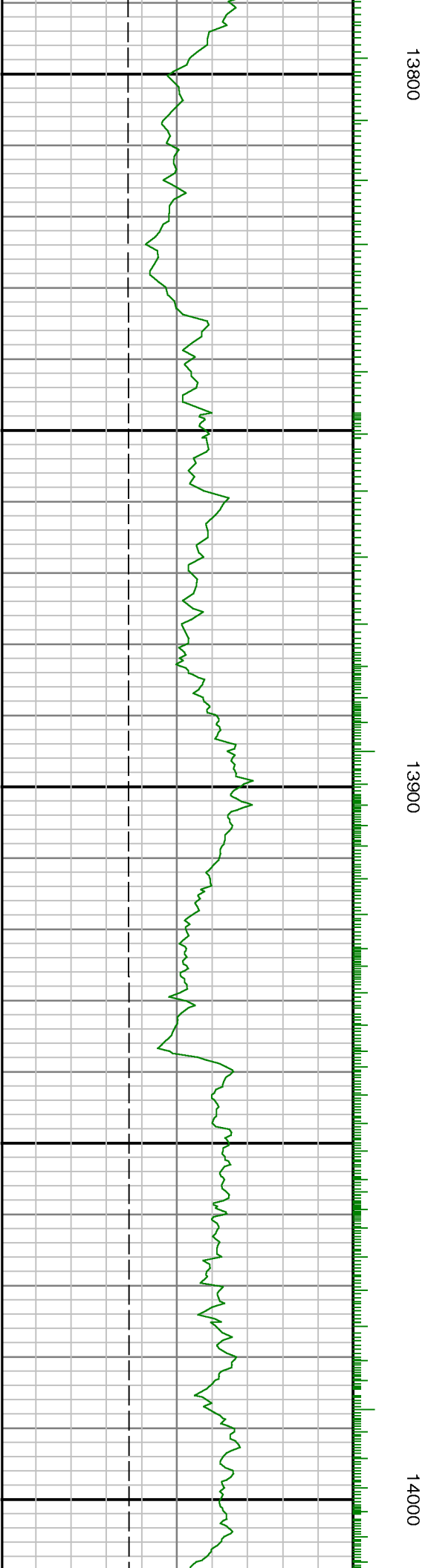
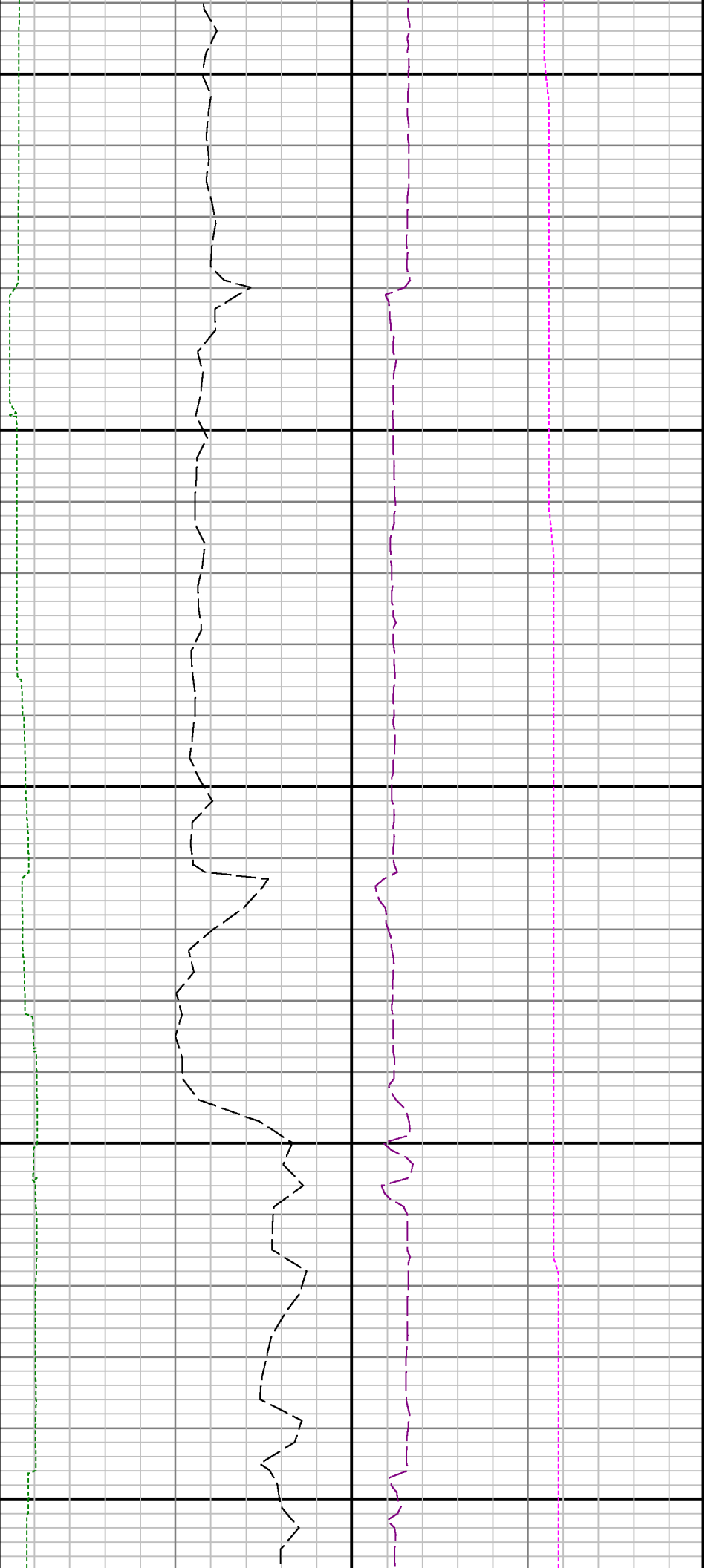


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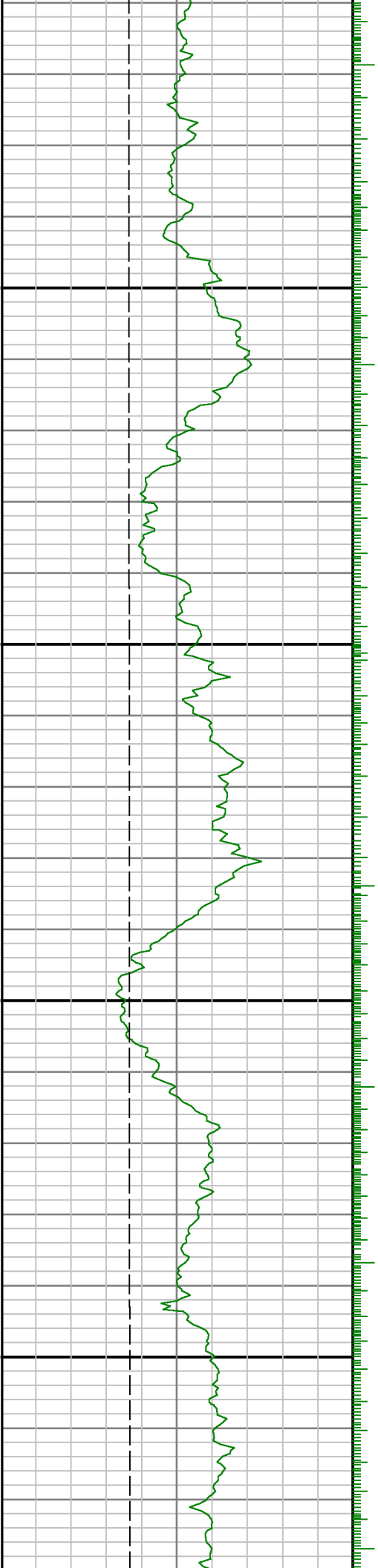


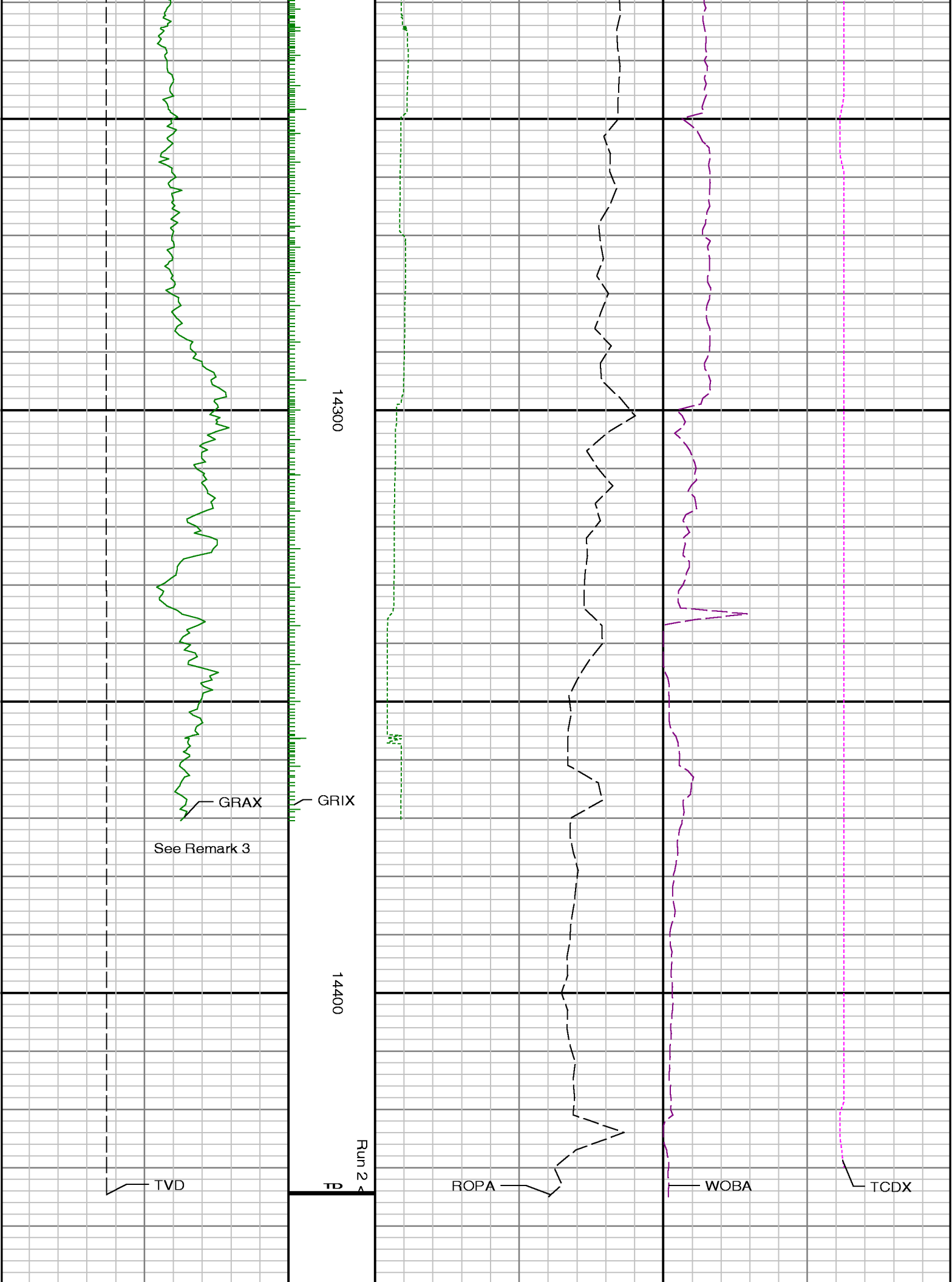




14100

14200





<div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0200</div> <div>API</div> <div>True Vertical Depth TVD</div> <div>75006500</div> <div>ft</div>	MD feet 1:240	<div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>5000</div> <div>ft/hr</div> <div>Gamma Time Since Drilled GRTX</div> <div>0600</div> <div>min</div>	<div>Surface Weight On Bit 1.0 ft Avg WOBA</div> <div>0100</div> <div>klbf</div> <div>Downhole Temperature TCDX</div> <div>100300</div> <div>degF</div>
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