



Real Time Log

Natural Formation Evaluation
Gamma Ray

Scale: _____

1:240

Measured Depth

Company: Anadarko Petroleum Corporation

Well: Benson Farms 33N-23HZ

Field: Weld County(Kerr McGee)

County: Weld County State: United States

Status: _____ Surface Location: _____ Other Services: _____

Final Print

Latitude: 40° 12' 23.285" N

Longitude: 104° 57' 39.258" W

API Number: 05123393380000

SEC: 23 TWP: 3N RNG: 68W

Directional VSS

Permanent Datum (P.D.): Mean Sea Level Elevation: 4976.00 ft.

Log Measured From: Rig Floor 16.00 ft. Above P.D.

Depth Reference: Driller's Depth KB: _____ Elevations: N/A
DF: _____ 4992.00 ft.
GL: _____ 4976.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6600.0 ft. Date From: 01/Sep/14 Dip Angle: 66.87° Azi Reference North: True

Bottom: 12196.0 ft. Date To: 05/Sep/14 Total Mag to Reference

Spud Date: 31/Aug/14 Field Strength: 52577.2 nT North Correction: 8.65°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1237.0 ft.	7505.0 ft.	9.625 in.	N/A	Surface	1227.0 ft.
6.125 in.	7505.0 ft.	12253.0 ft.	7.000 in.	N/A	Surface	7495.0 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based Mud	Surface	7505.0 ft.	8.750 in.	6278.0 ft.	0.6° / 272.8°	84.7° / 273.0°
Oil Based Mud	7506.0 ft.	12253.0 ft.	6.125 in.	4748.0 ft.	84.7° / 273.0°	88.8° / 271.2°
					/	/
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig: Xtreme 23	/ Xtreme Drilling
PATS	6.4.1.34	Job No: 6510807	
		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 (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start		End		
1	1	1	8.750	PDC	6.000	Steerable	6600.0	7448.0	1237.0	7505.0	31/Aug/2014 15:29	02/Sep/2015 04:30		31.85	
2	2	2	6.125	PDC	6.000	Steerable	7448.0	12196.0	7505.0	12253.0	03/Sep/2014 15:15	05/Sep/2015 11:15		39.6	

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Troy Clay	31 Aug 14	06 Sep 14	Will Drake	31 Aug 14	06 Sep 14			
Sumanth Belawadi	31 Aug 14	06 Sep 14	Bob Bartlett	31 Aug 14	06 Sep 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+ (%)
01 Sept 2014	08:00	1	68330.0	Water Based Mud	9.6	37	9.0	6.2	1.0/91.0	Halliburton	1800	N/A
03 Sept 2014	8:00	2	7505.0	Polymer Mud	10.1	43	8.5	N/A	1/93.5	Halliburton	2200	N/A
04 Sept 2014	8:00	2	8101.0	Polymer Mud	9.2	45	9.6	N/A	2.0/92.0	Halliburton	1900	N/A
05 Sept 2014	8:00	2	10200.0	Polymer Mud	9.4	43	9.0	N/A	2.0/91.0	Halliburton	1900	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg	API
GRIX	Gamma Ray Data Density	points
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	12546334	Directional	58.84	6.750	3.250
1	SRIG	12822065	Gamma	55.46	6.750	3.250
2	DIR	10473320	Directional	60.45	4.750	2.750
2	SRIG	12373461	Gamma	57.03	4.750	2.750

Service and Tool Mnemonics

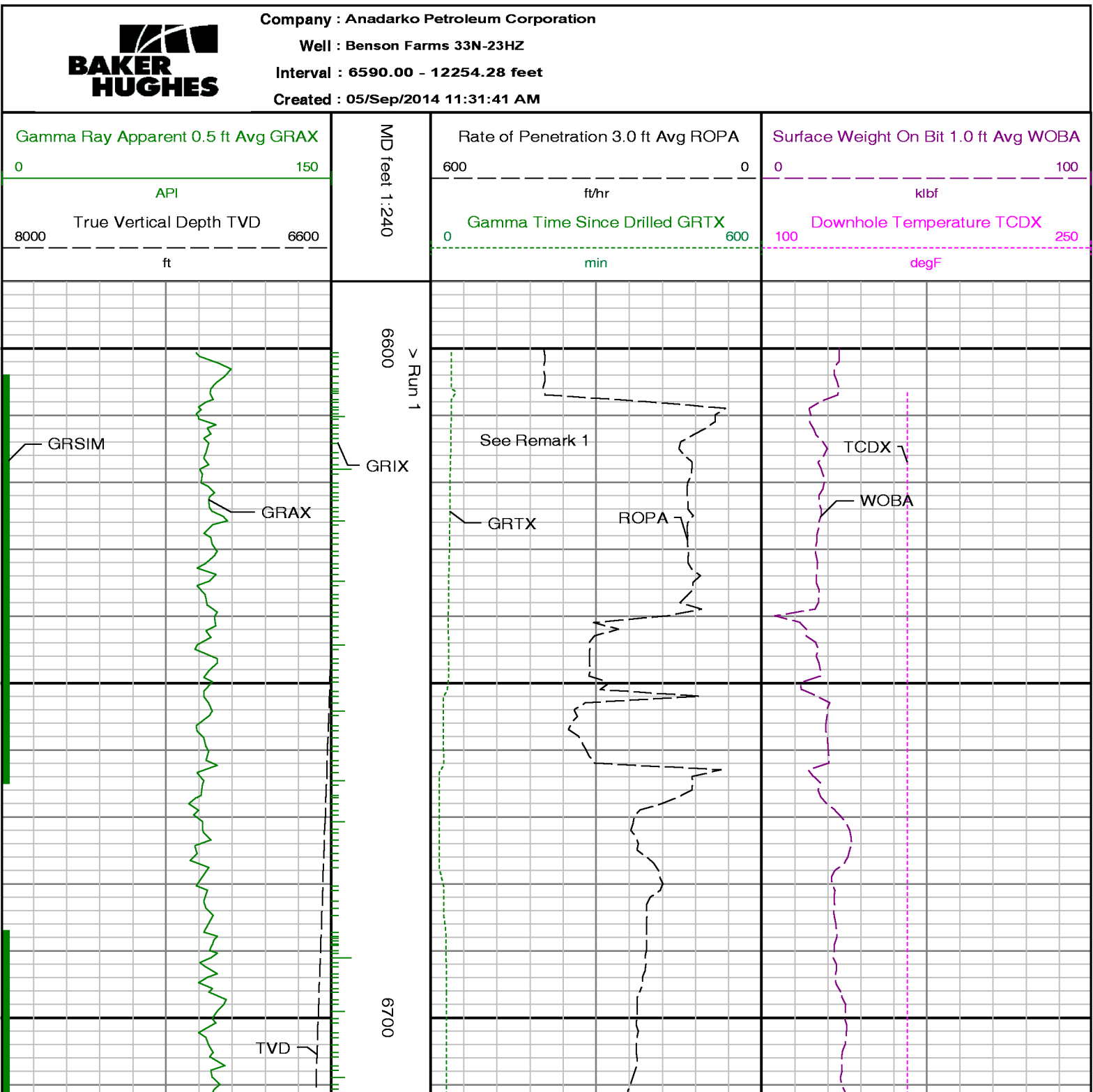
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

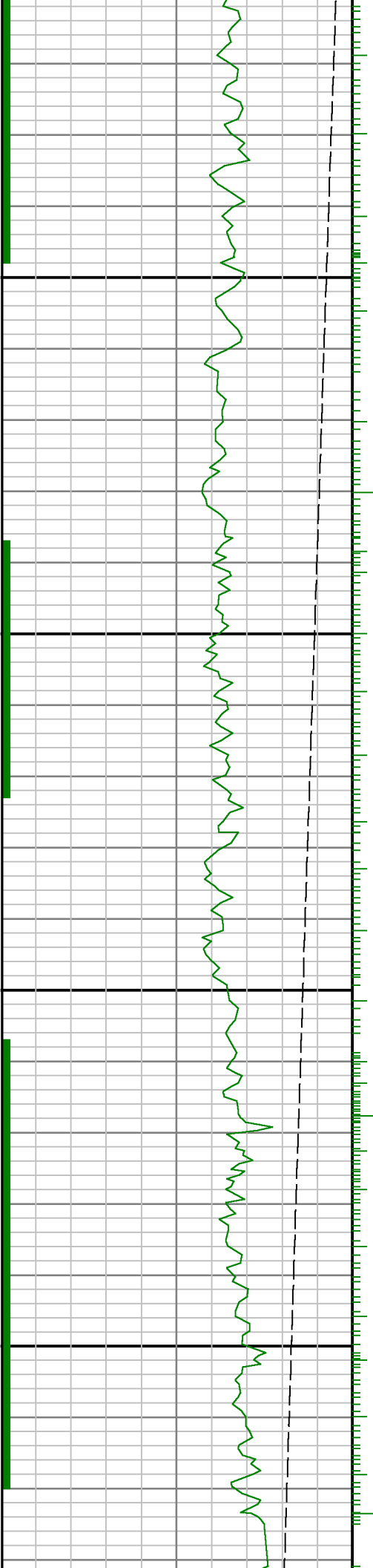
Comments

<p>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 and the unverified depths as supplied to Baker Hughes are being used to represent logging data.</p> <p>2.) Baker Hughes Run 1 utilized a 6 3/4 inch NaviGamma (Directional and Gamma Ray) tool behind an 8 3/4 inch bit and steerable assembly from 1237 to 7505 feet MD (1237 to 7149.47 feet TVD).</p> <p>3.) Baker Hughes Run 2 utilized a 4 3/4 inch NaviGamma (Directional and Gamma Ray) tool behind a 6 1/8 inch bit and steerable assembly from 7506 to 12253 feet MD (7149.47 to 7126 feet TVD).</p> <p>4.) A sliding indicator is shown on the left side of track 1 as a heavy line. This indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.</p>
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Remarks

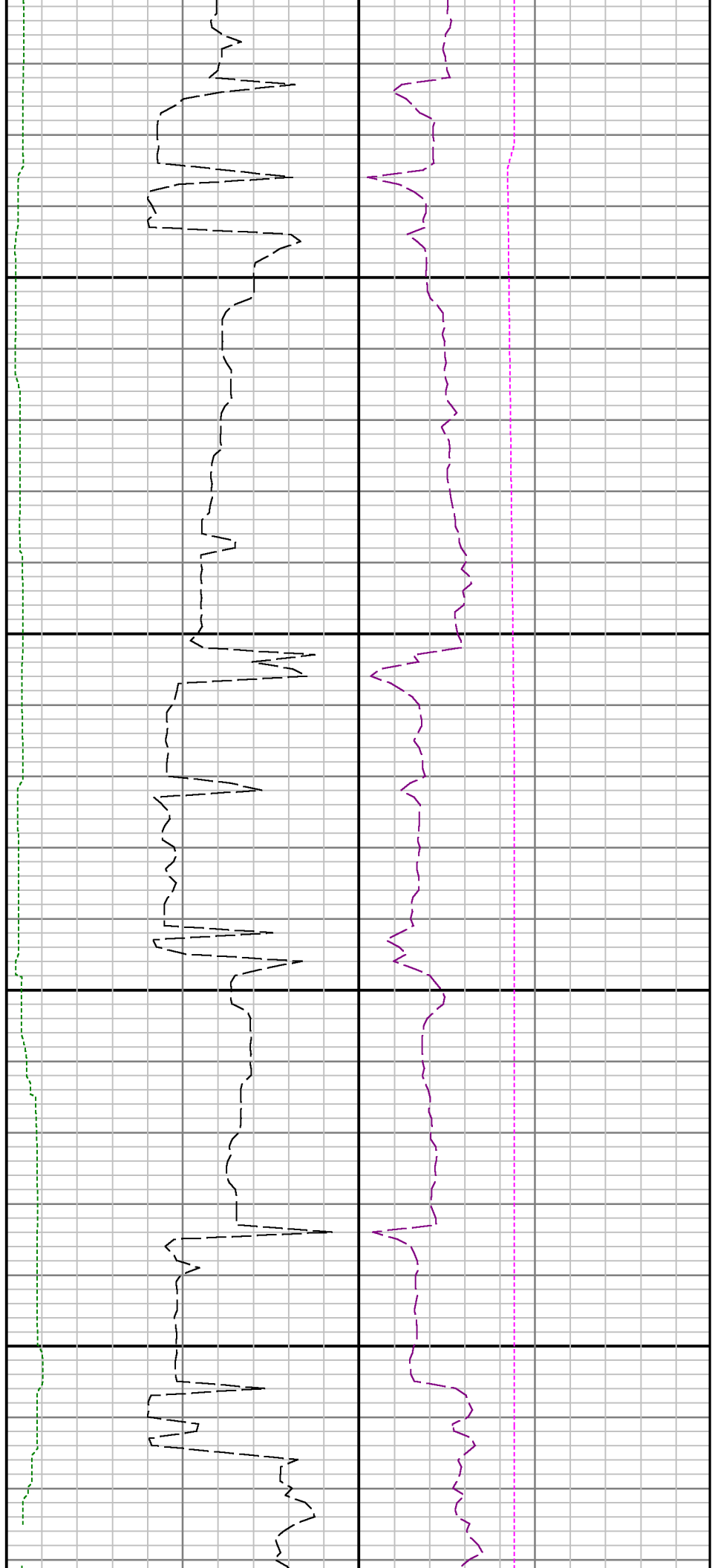
Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	6600	8.750	1	Logging services began at 6600. No logging data prior to 6600 feet MD.(6599) feet TVD as per client request.
2	7448	8.750	1	The interval from 7448 to 7505 feet MD(7148 to 7149 feet TVD) was logged up to 36 hours after being drilled due to casing operations
3	12196	6.125	2	The interval from 12196 to 12253 feet MD (7124 to 7126 feet TVD) was not logged due to gamma sensor offset to bit at TD

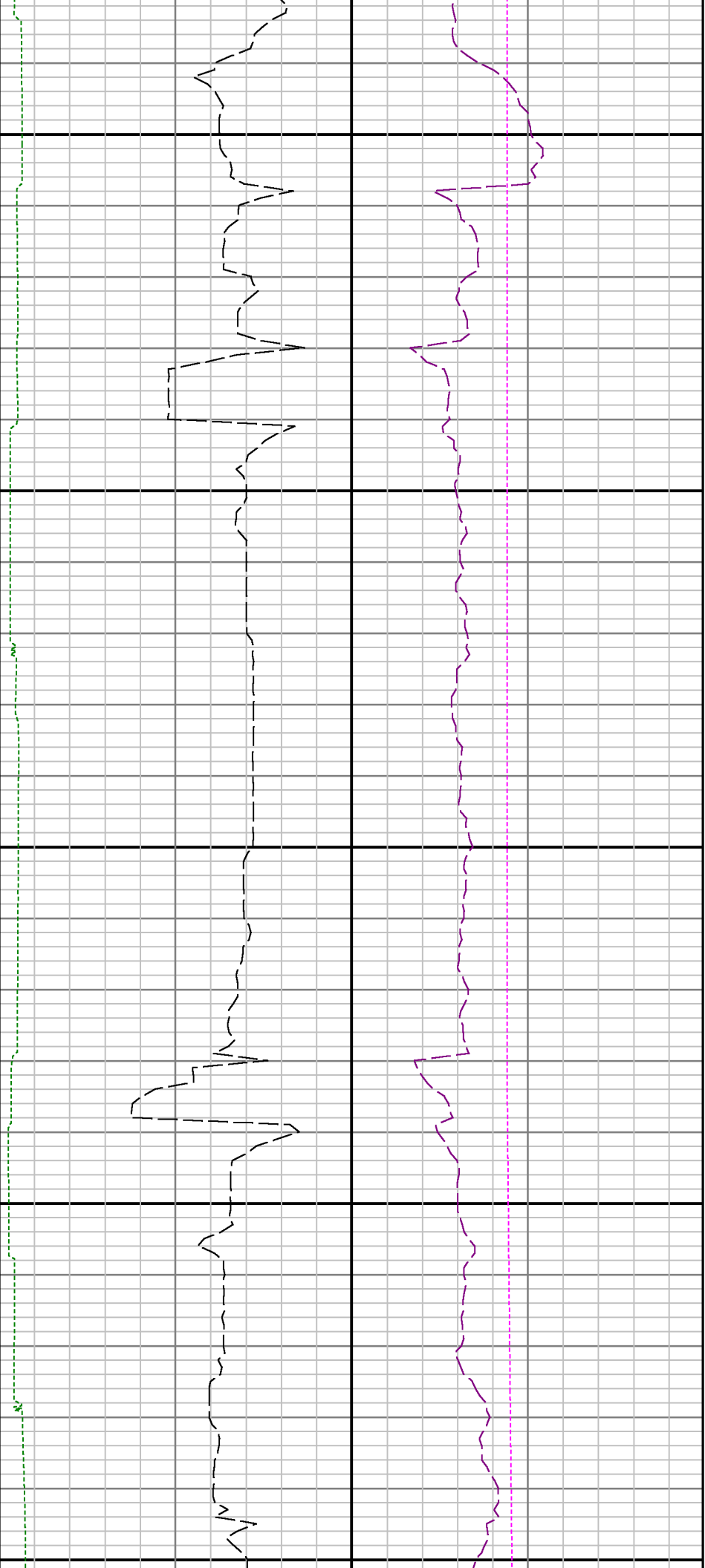




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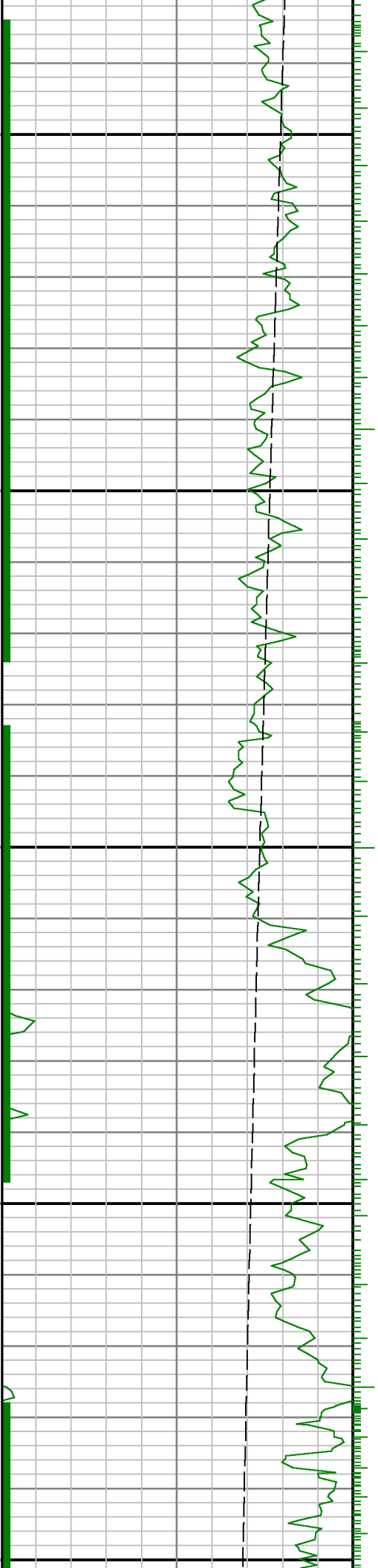
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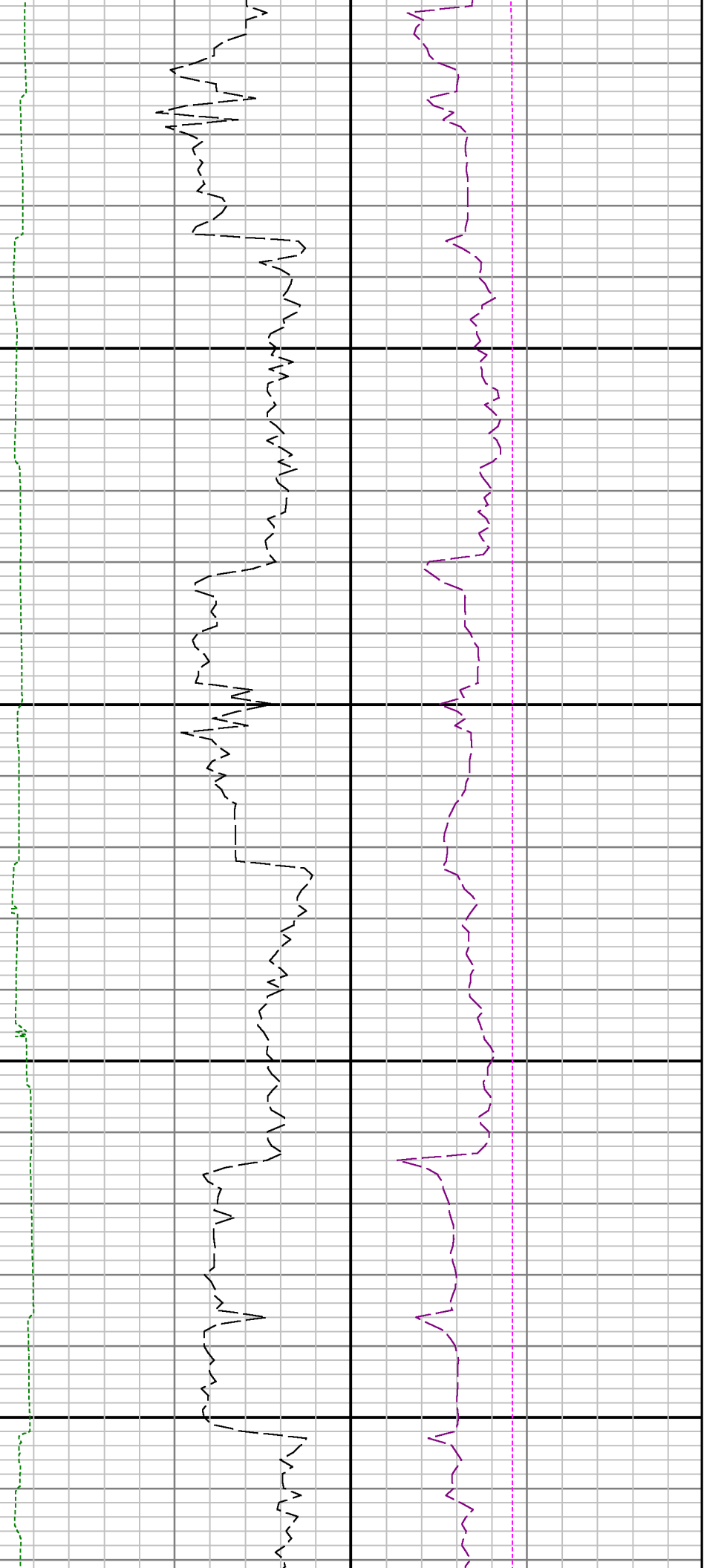




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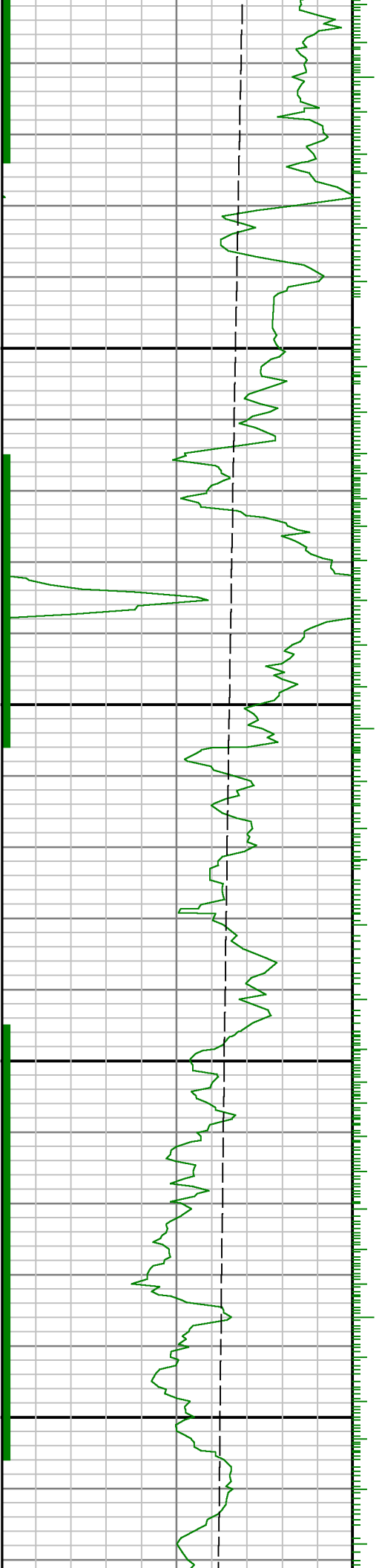
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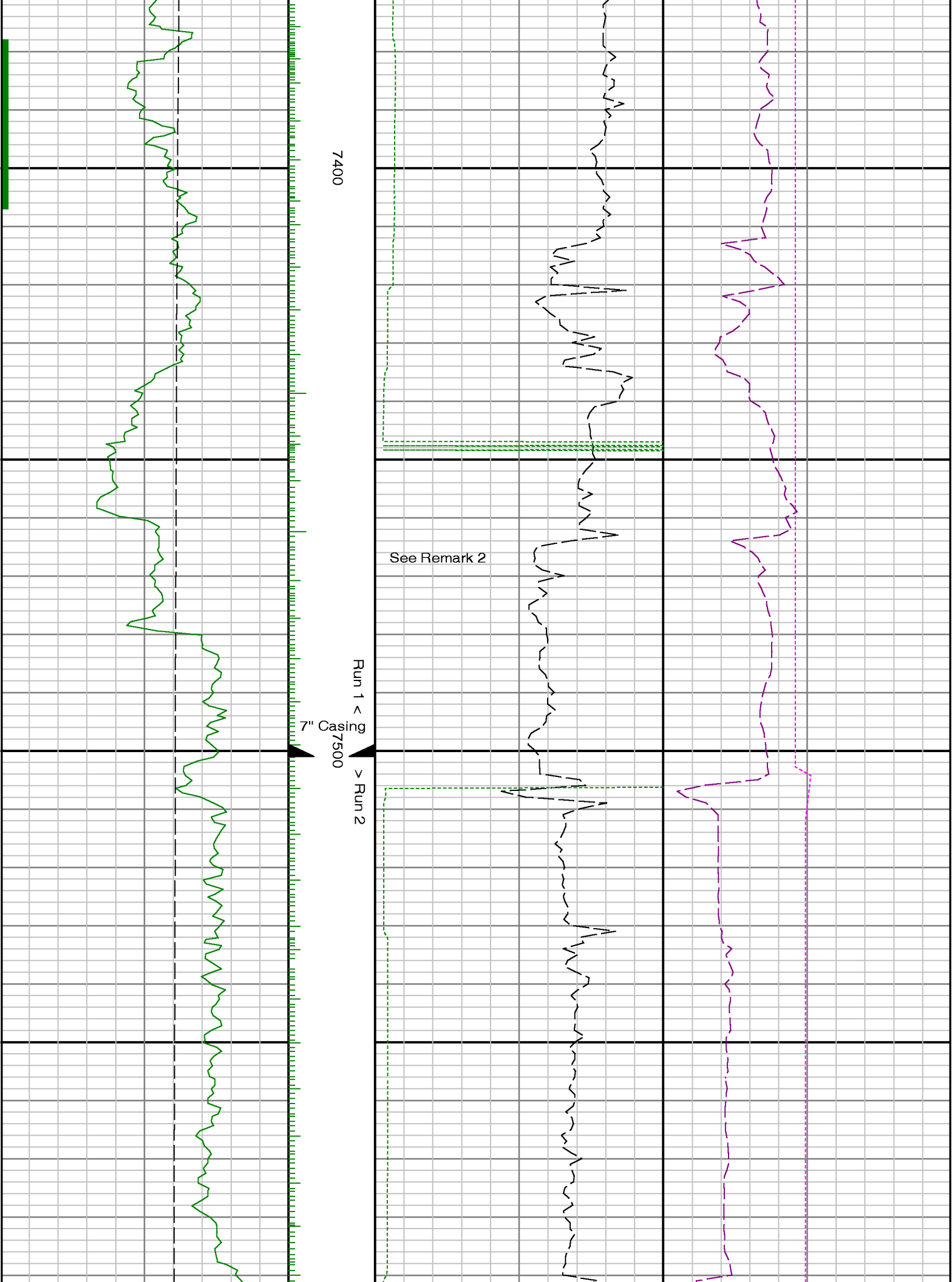


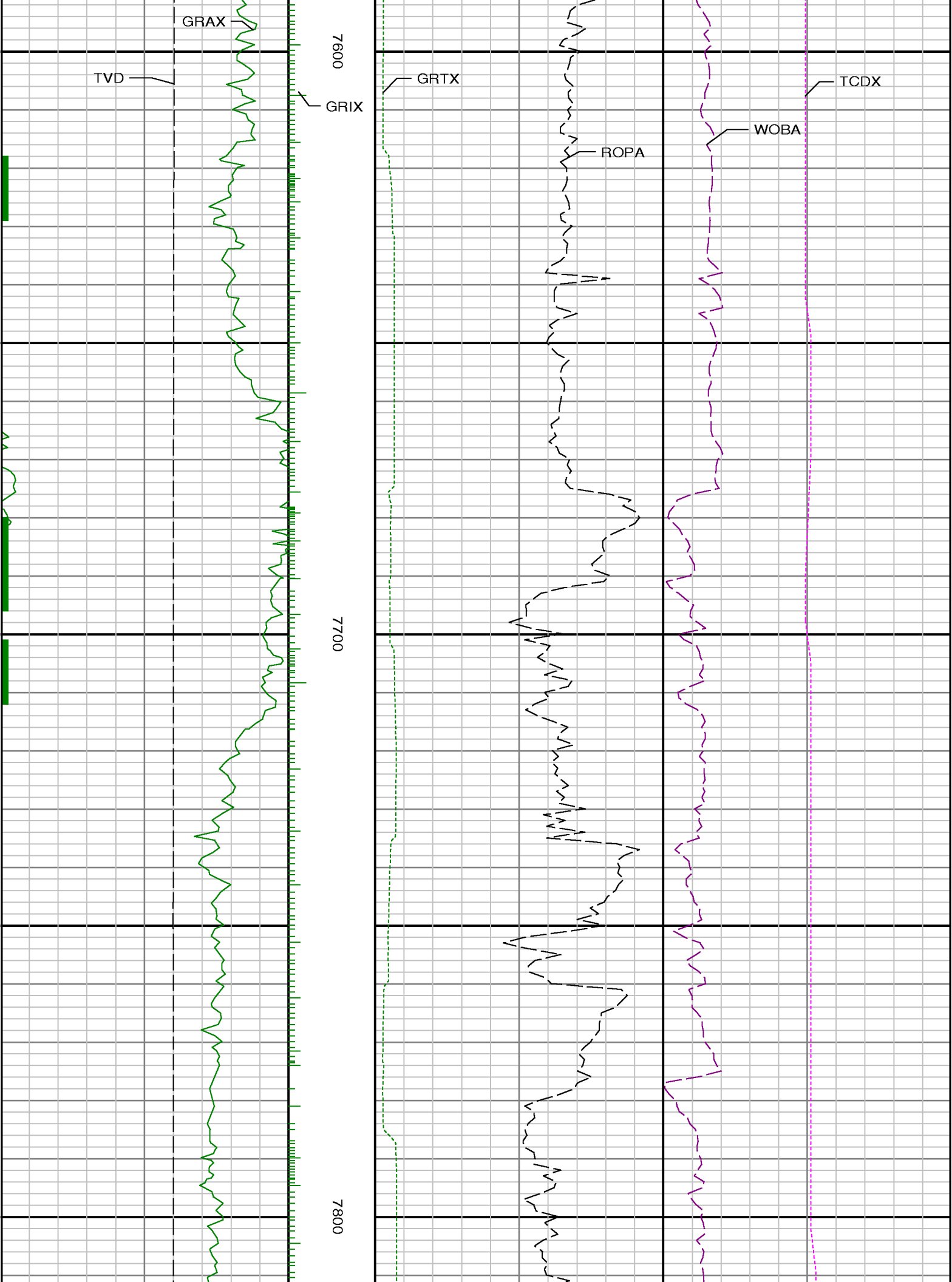


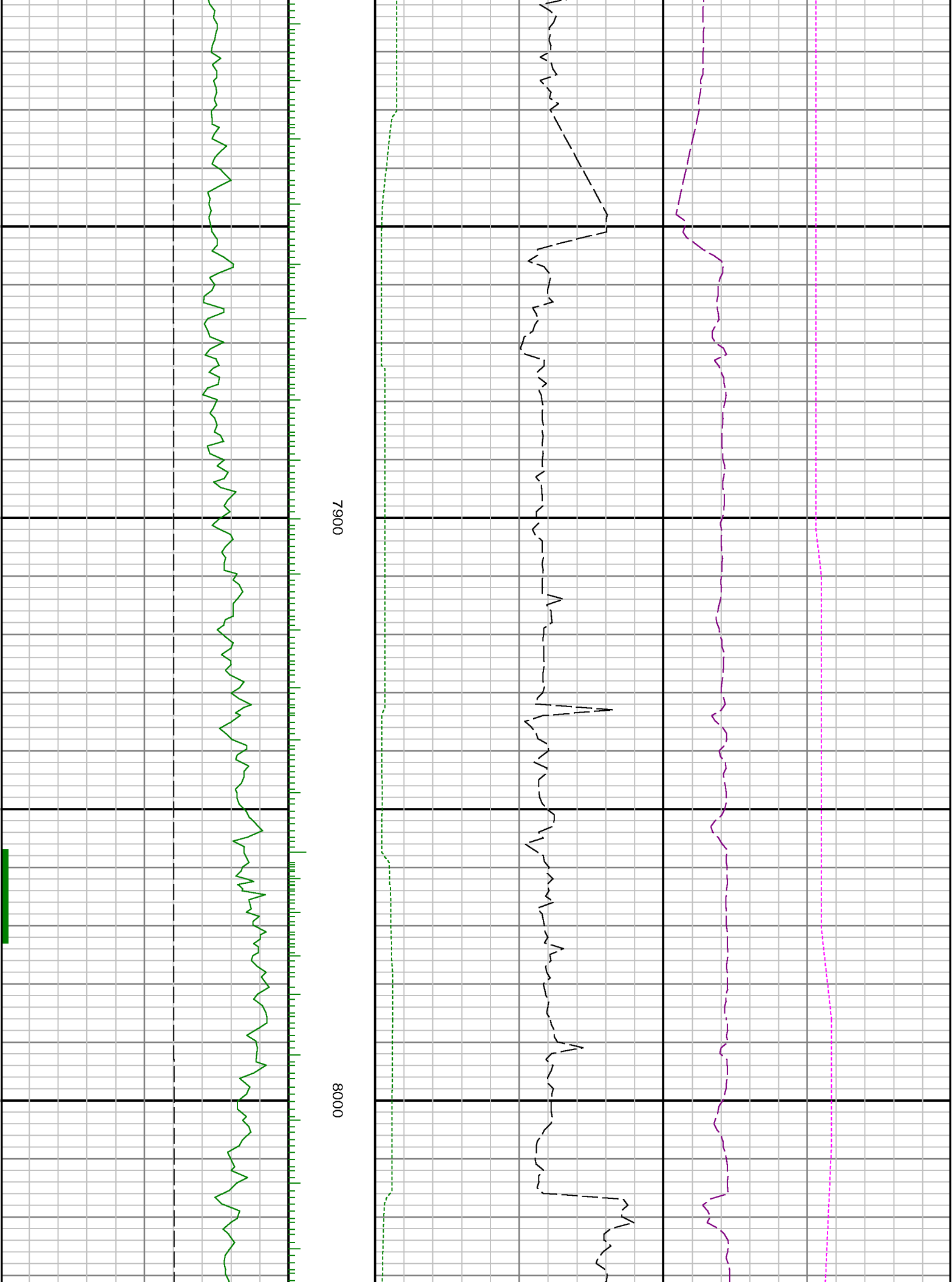
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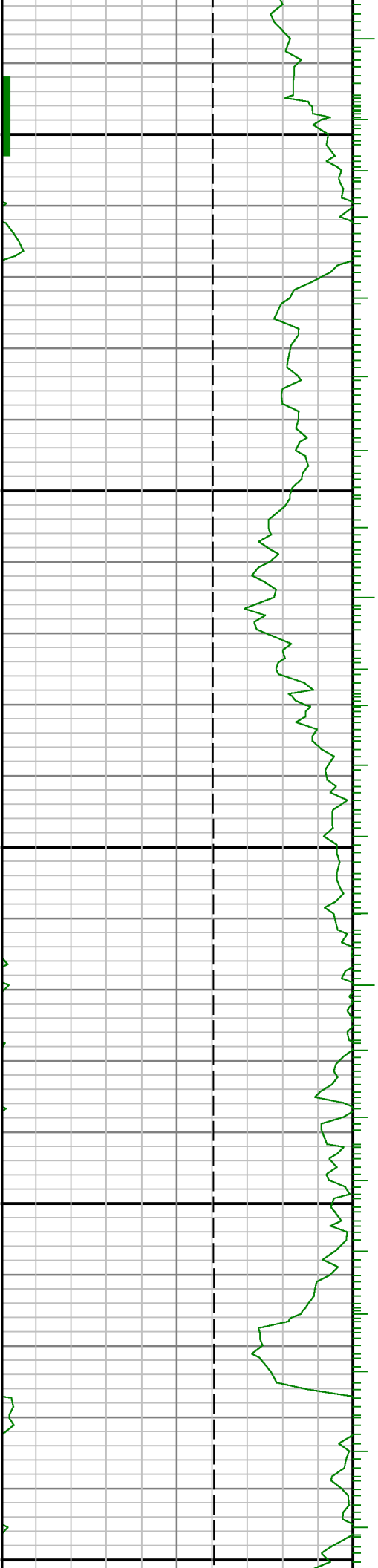


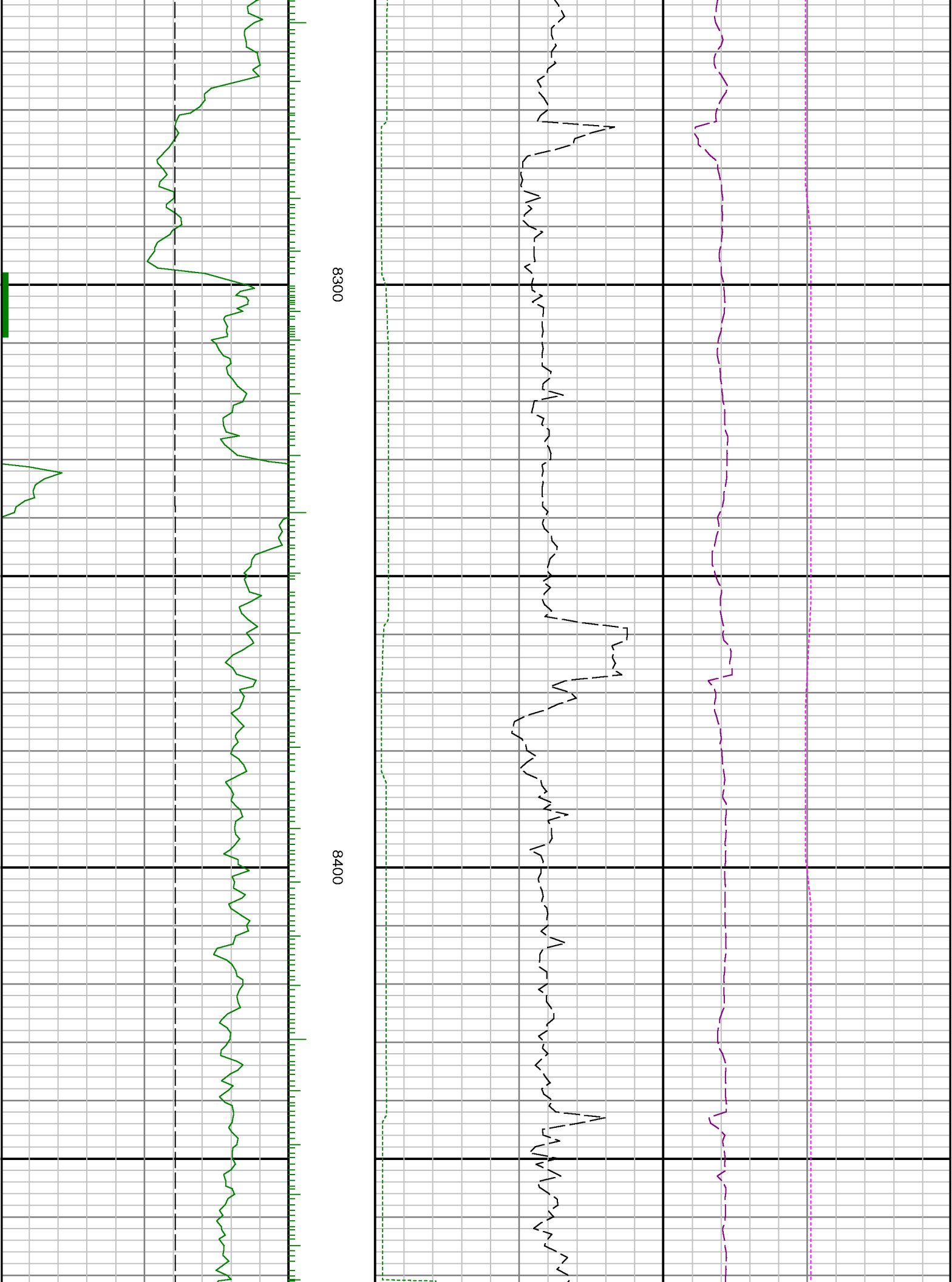


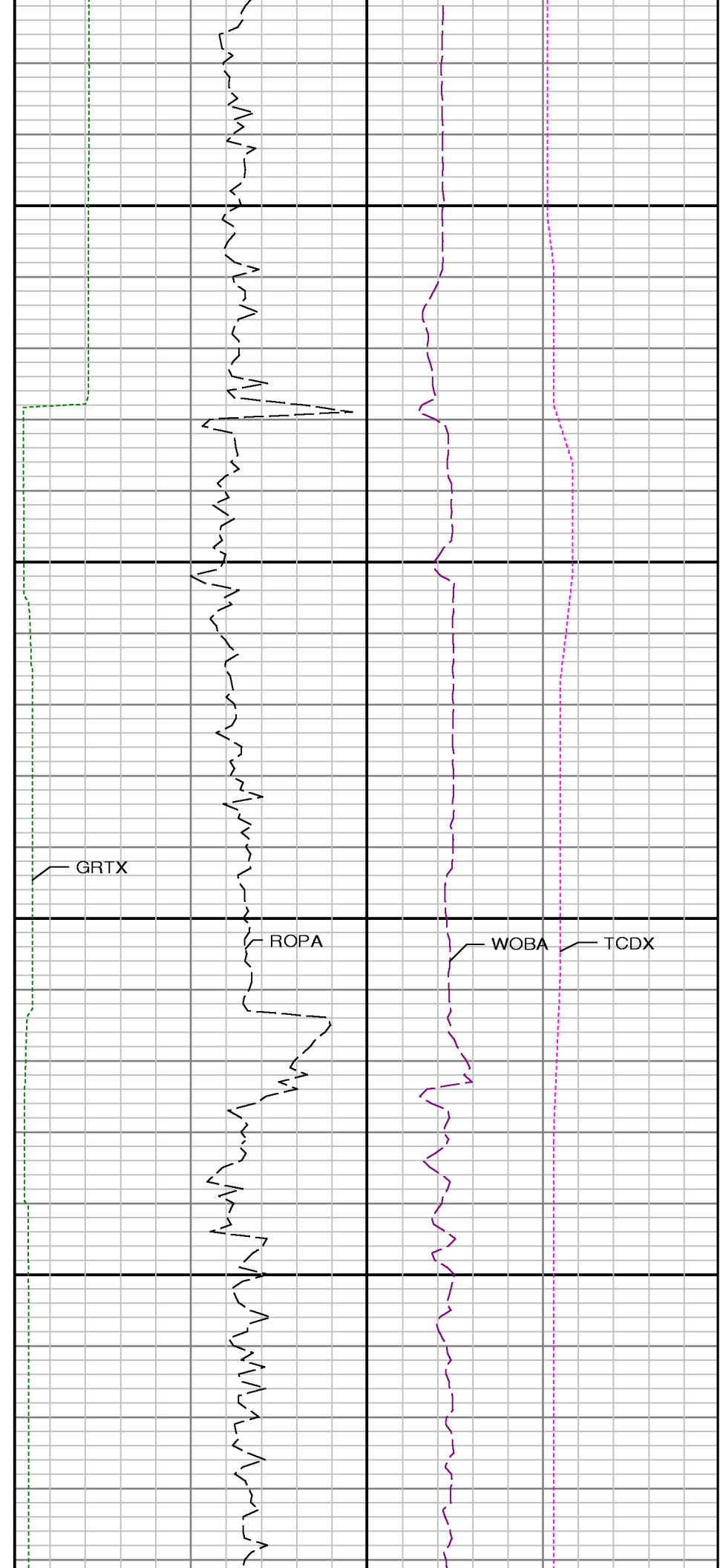
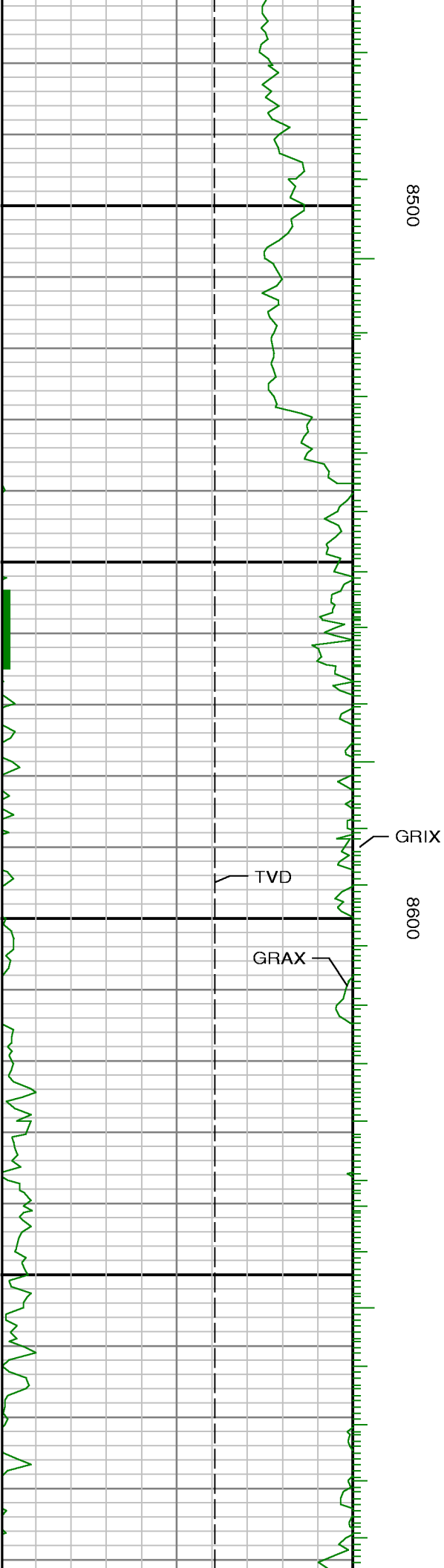


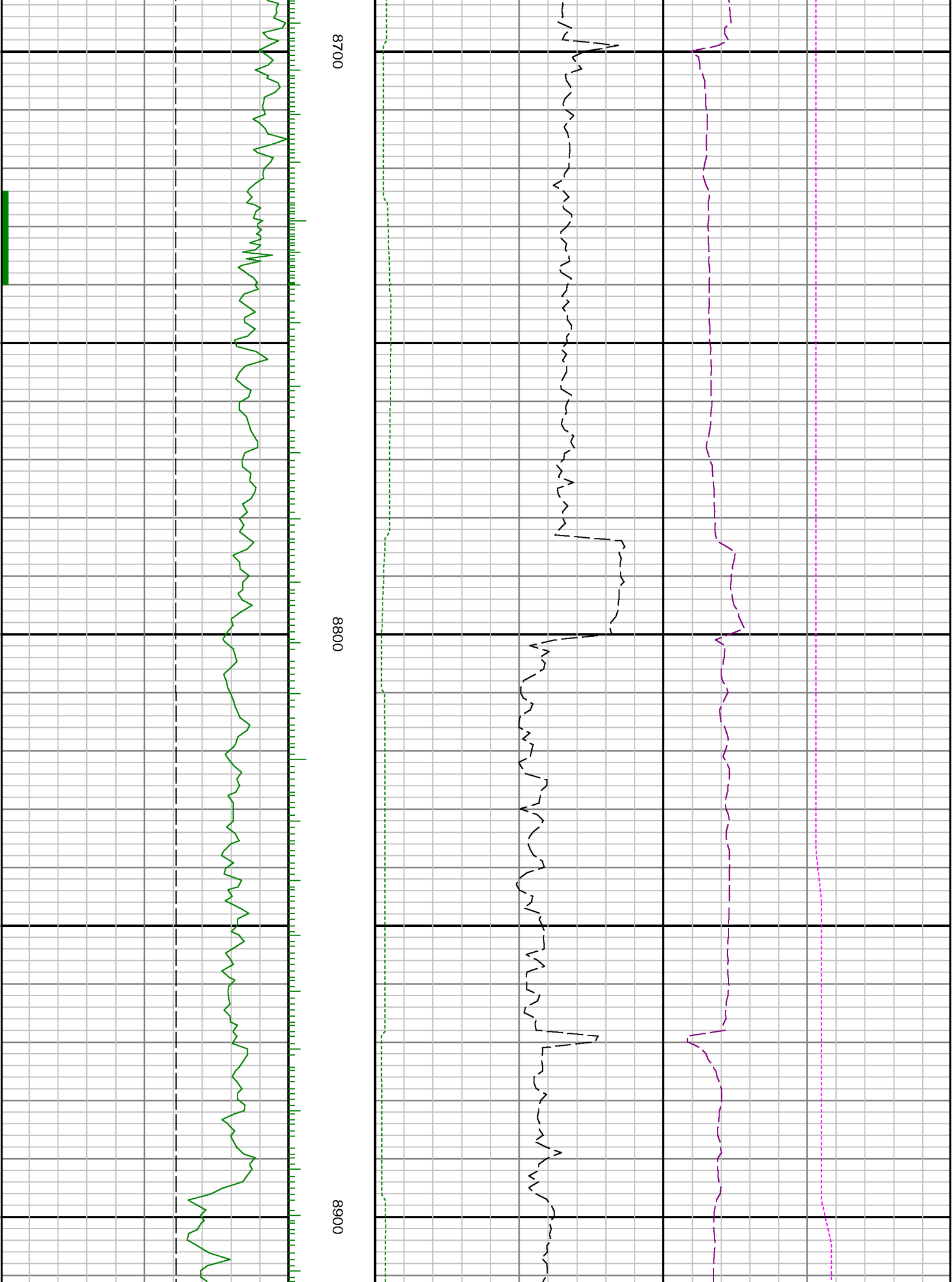
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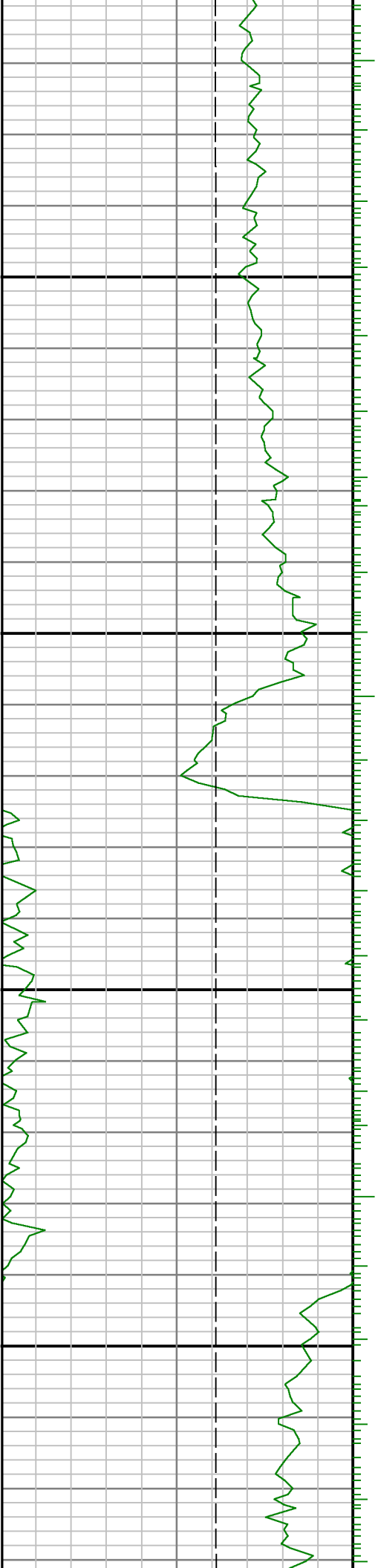


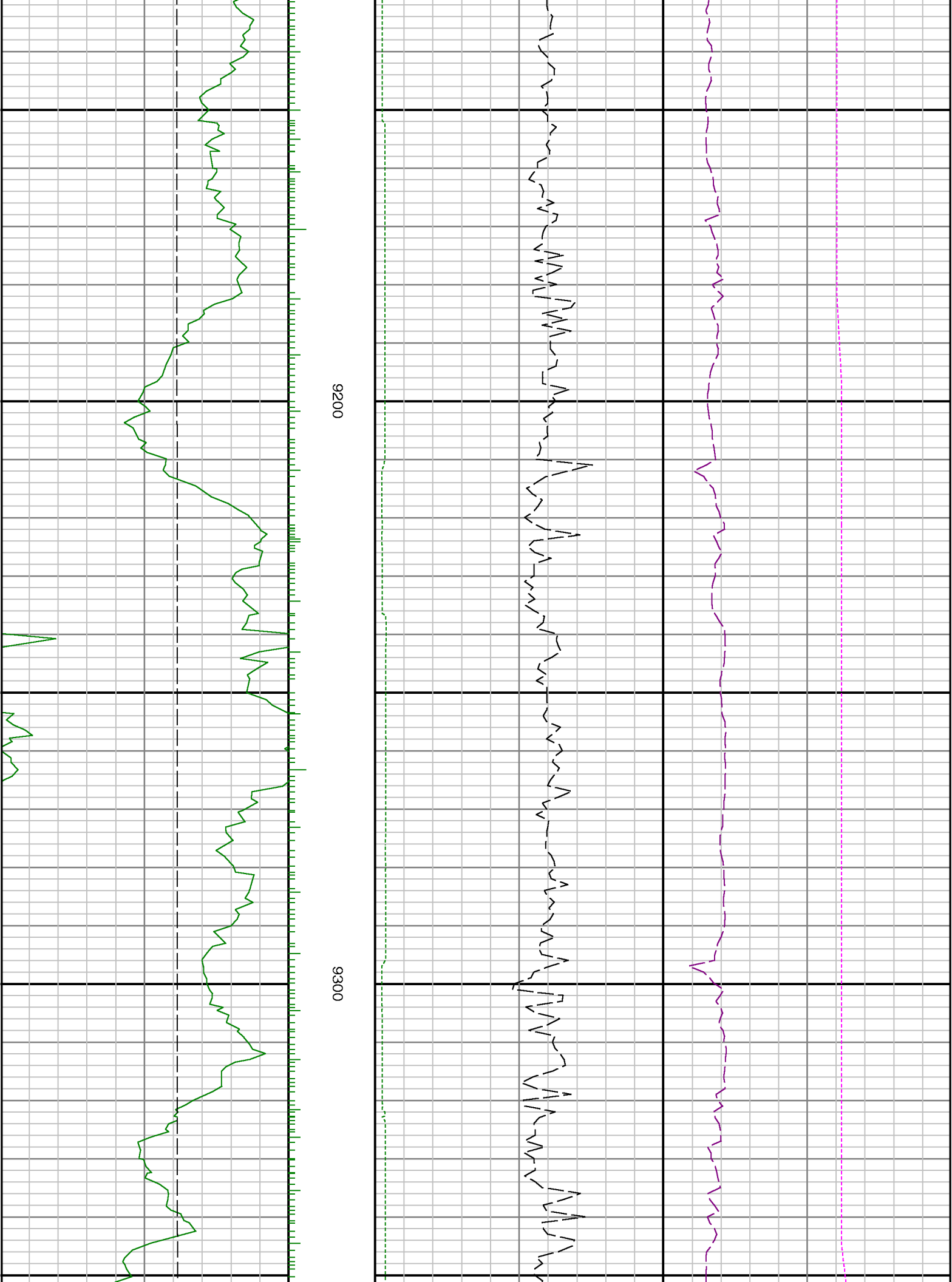


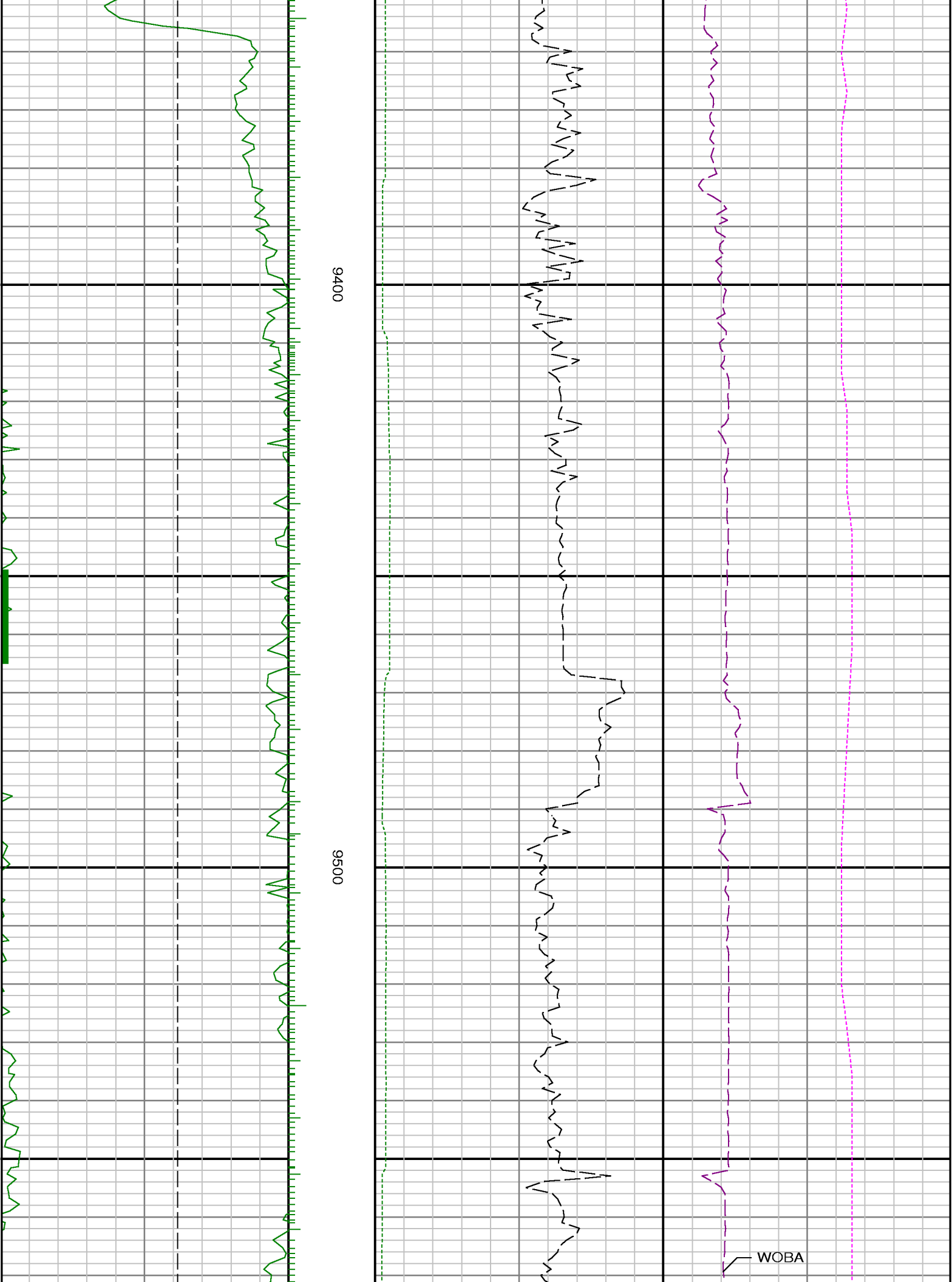


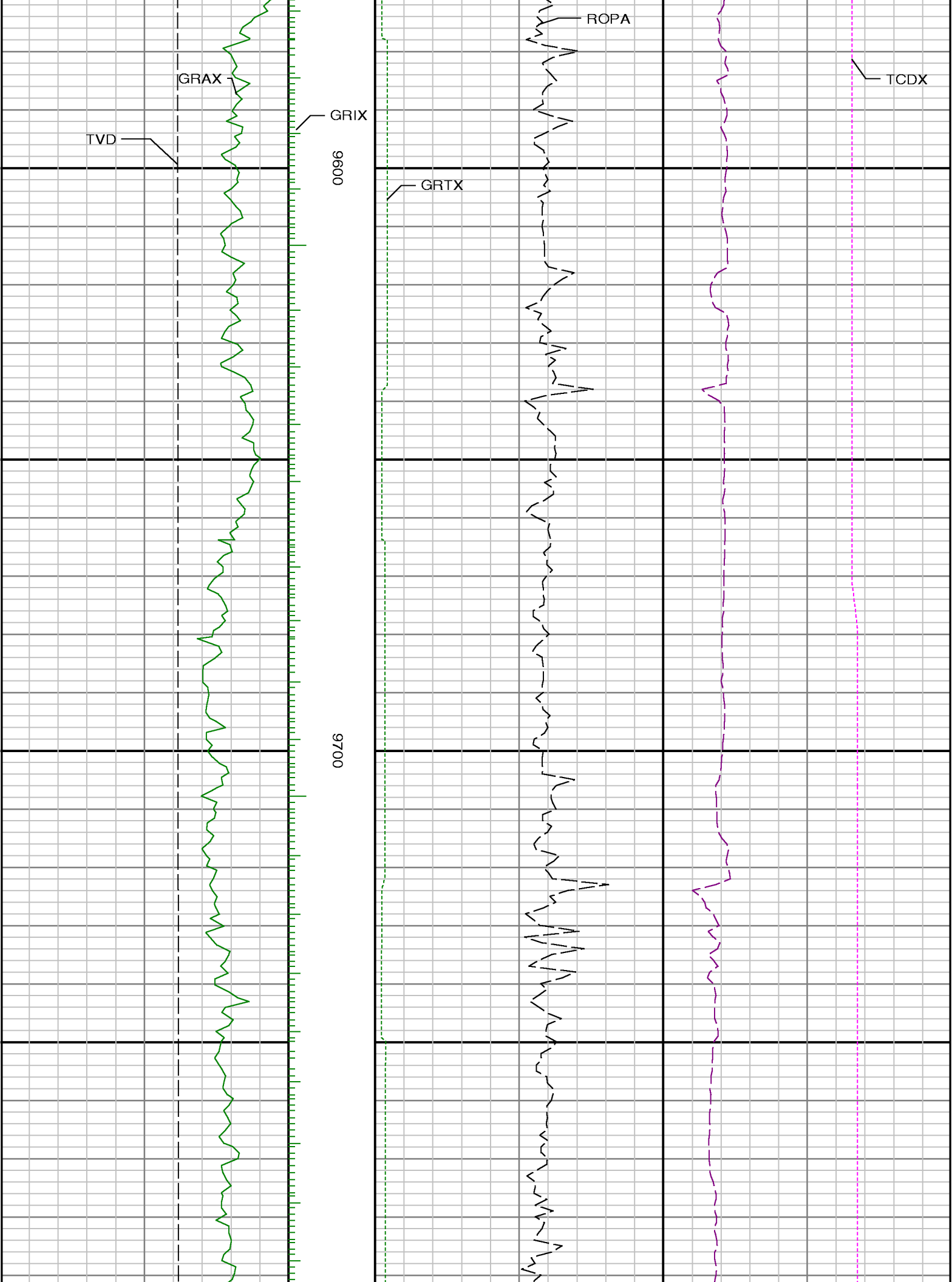
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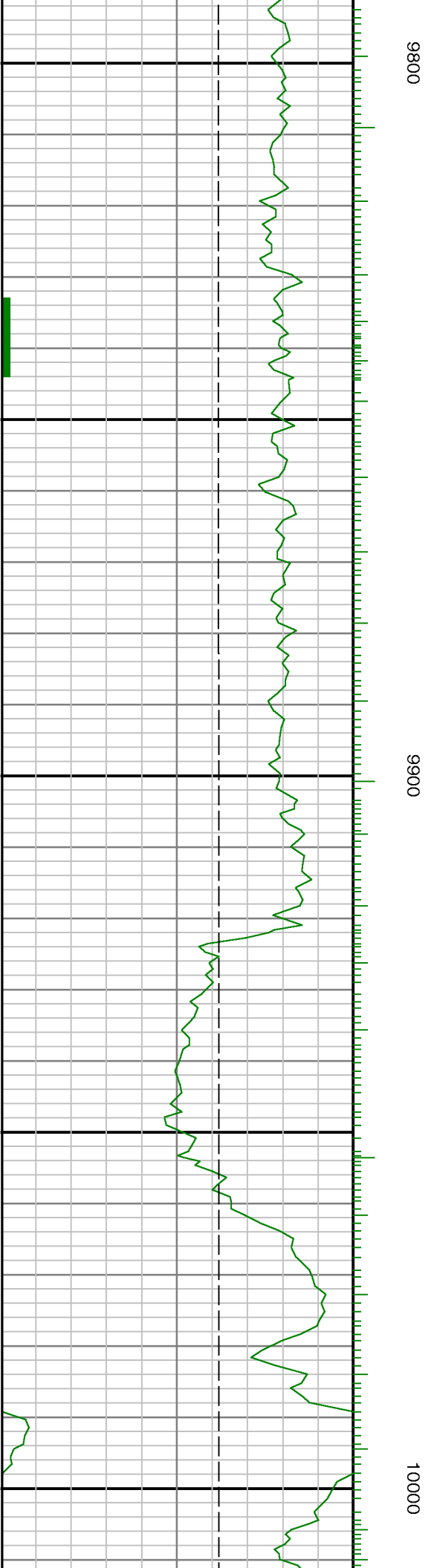
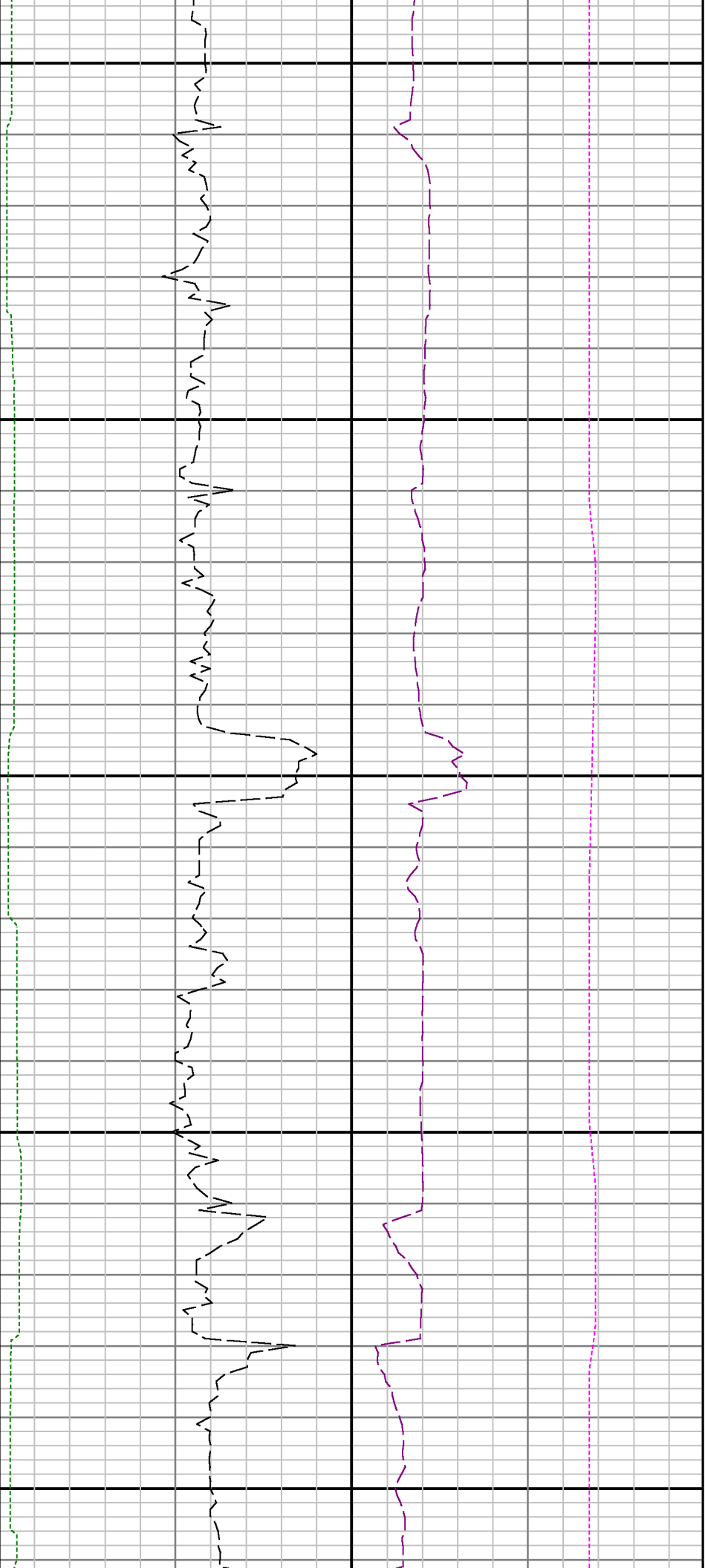
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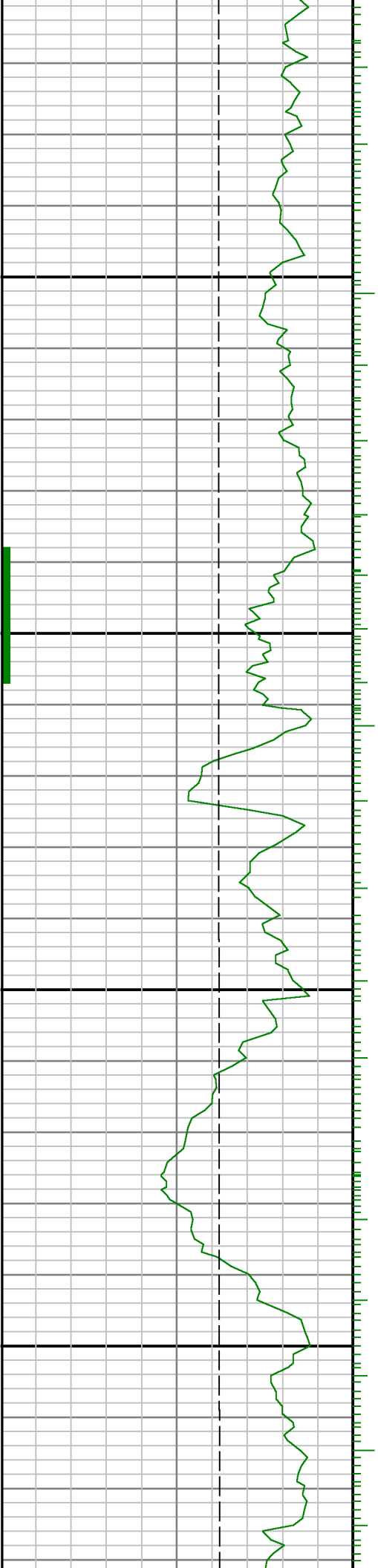


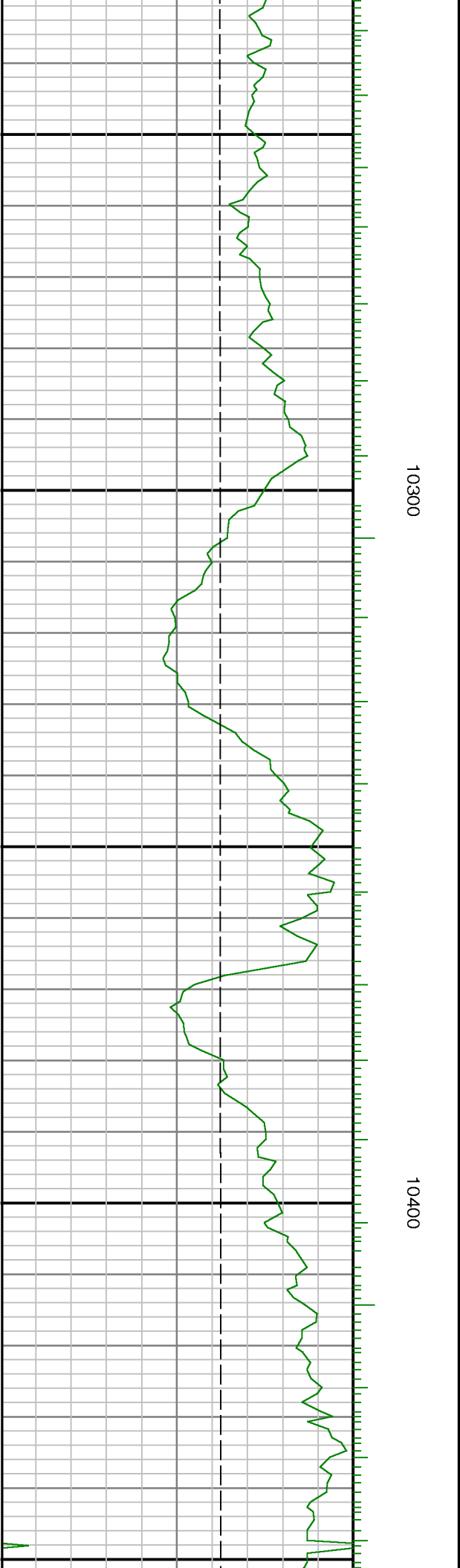
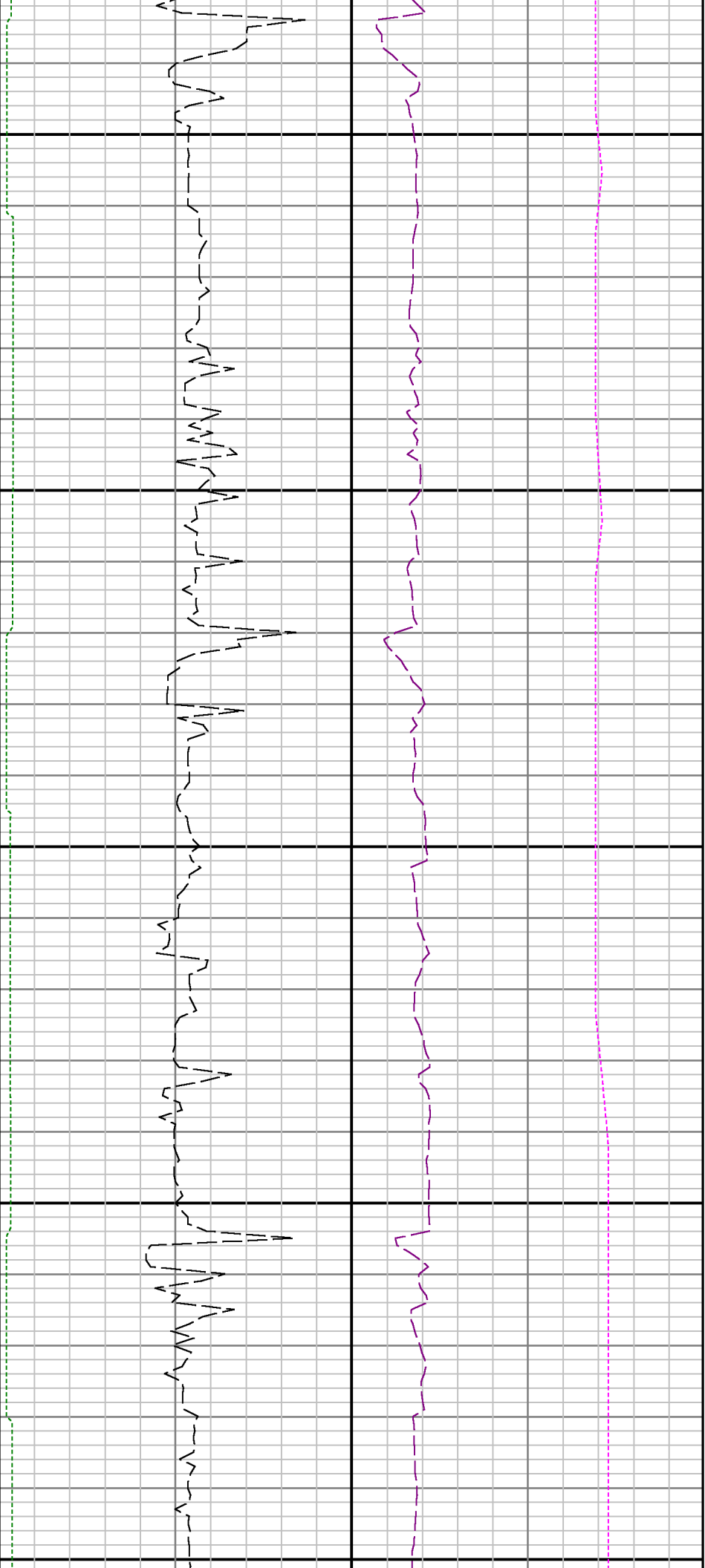


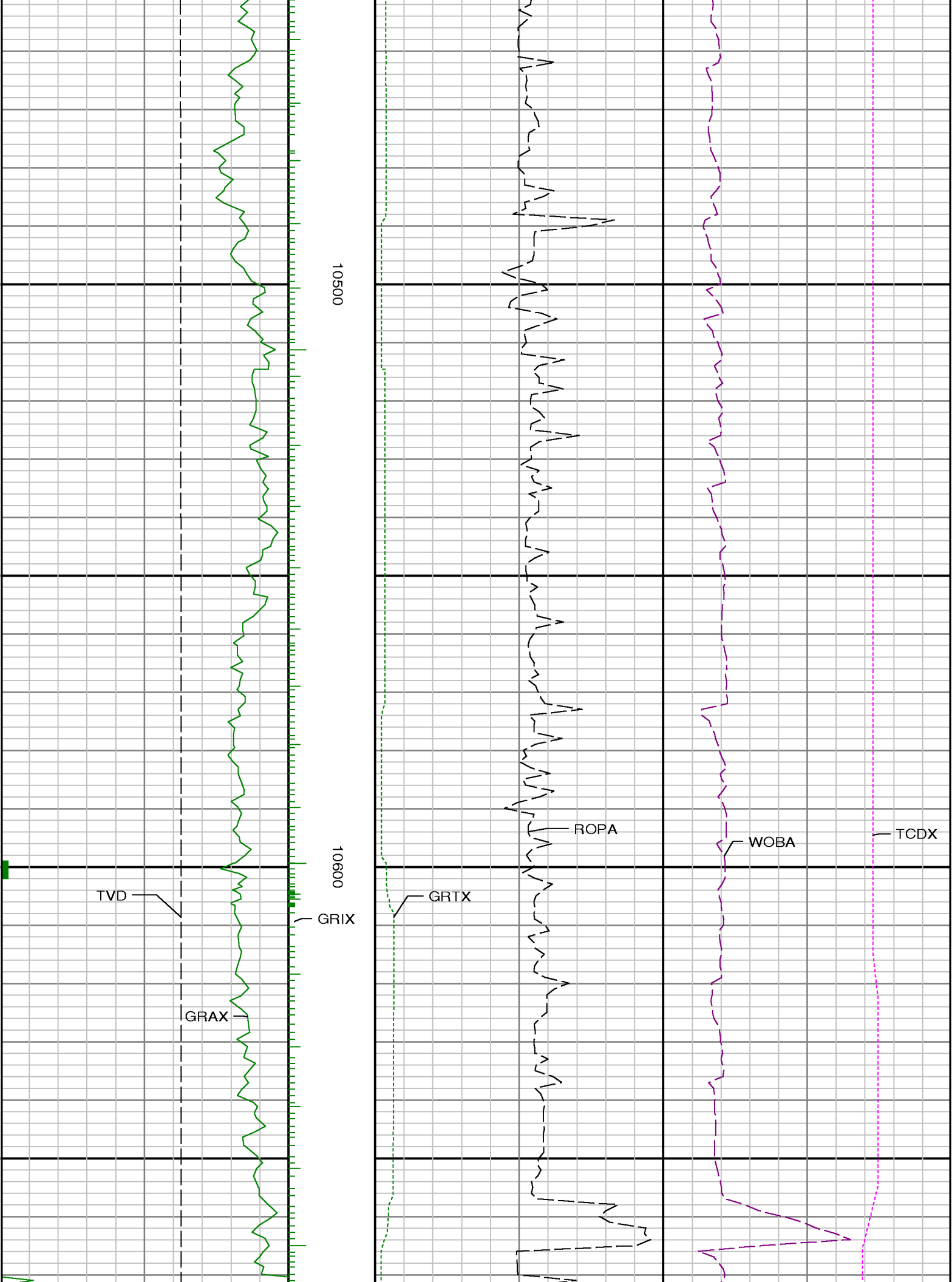


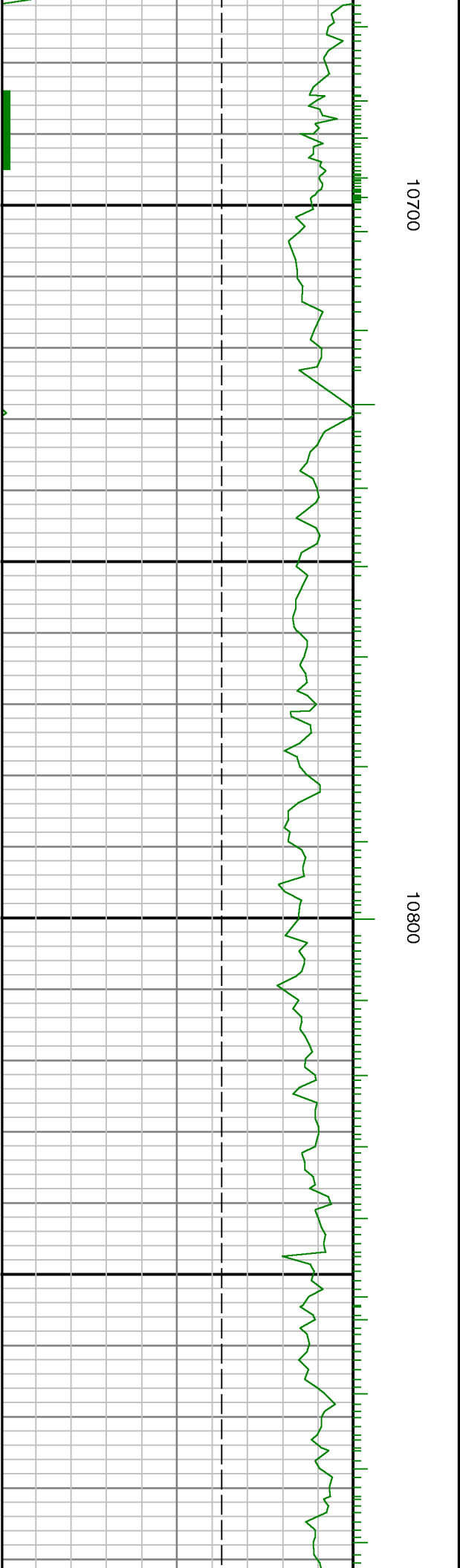
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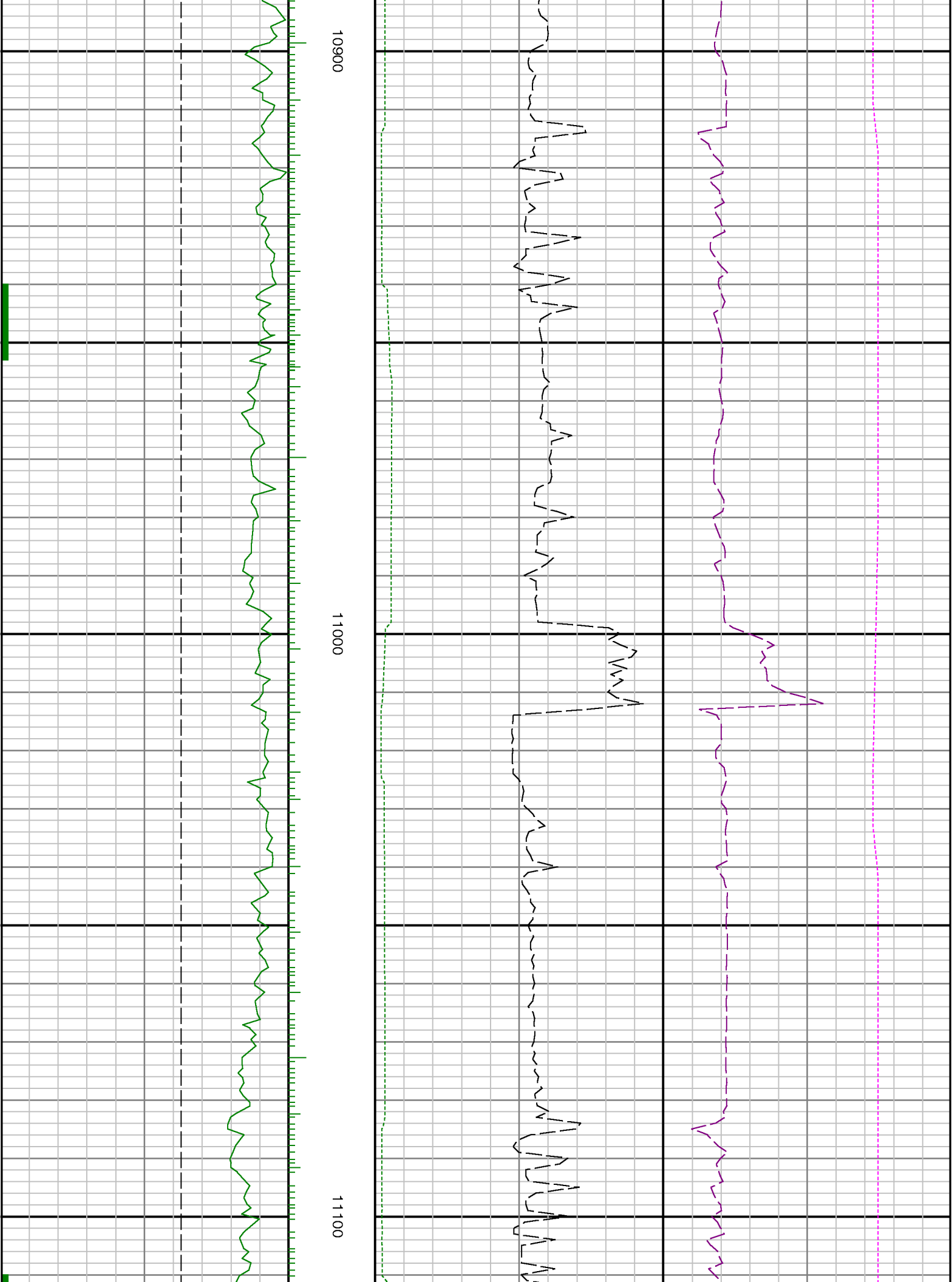
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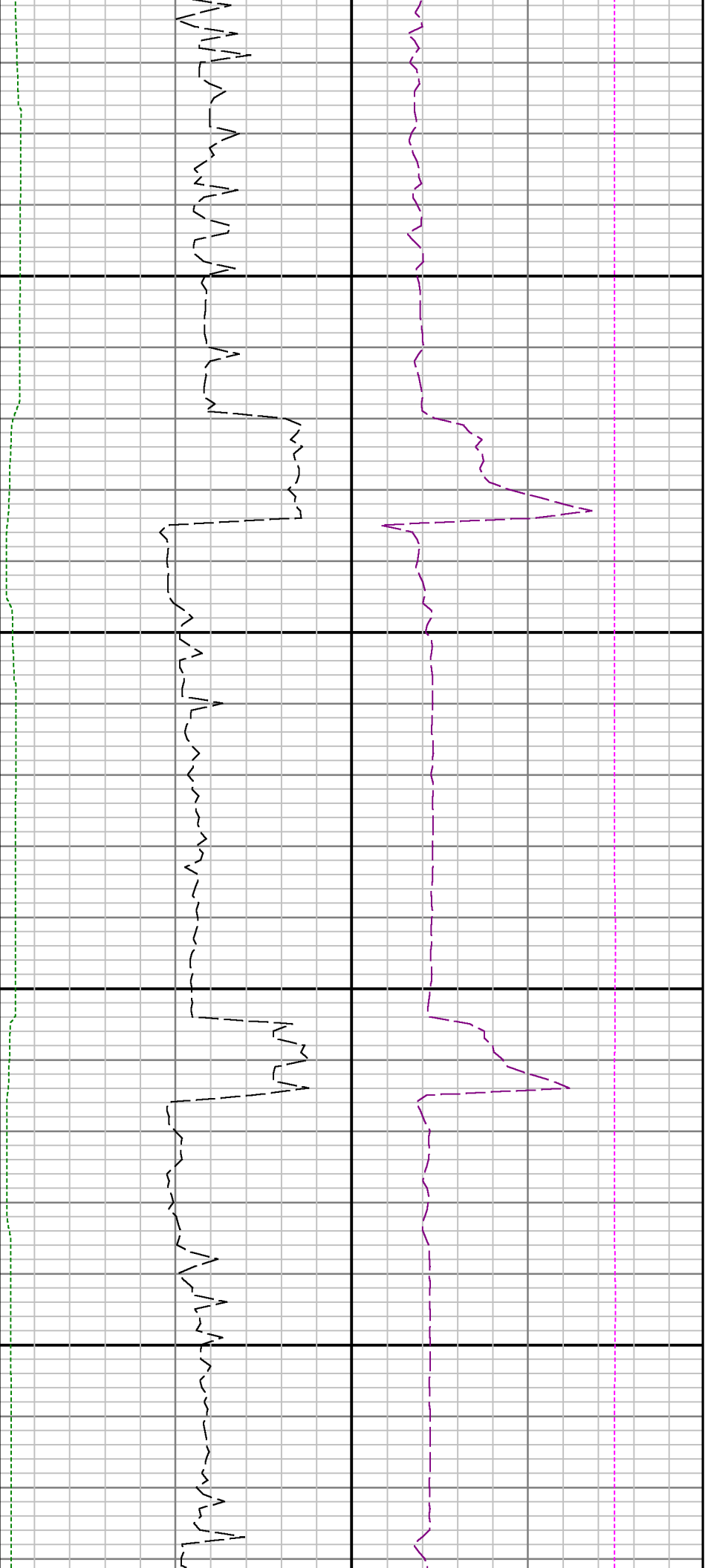






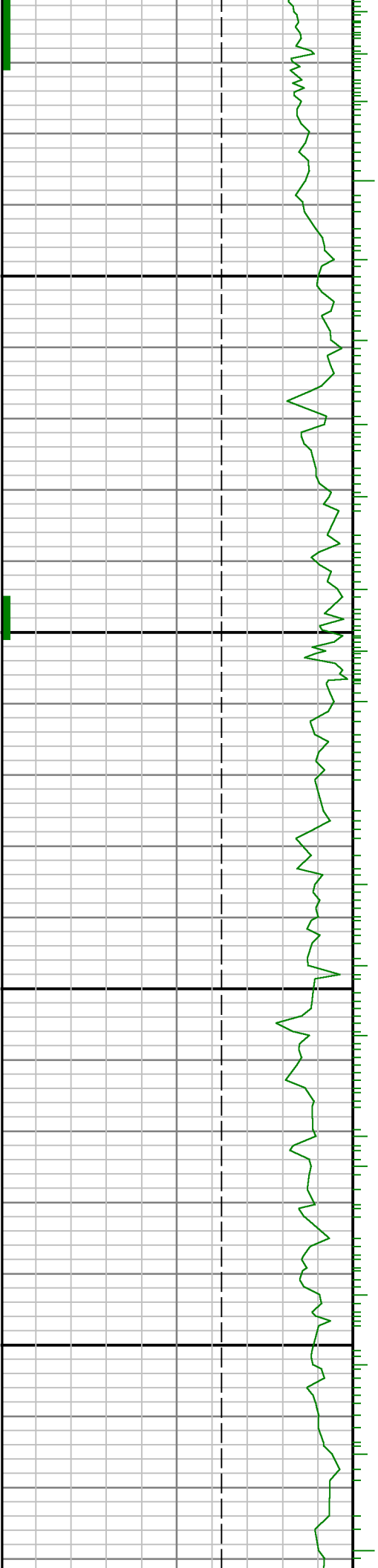


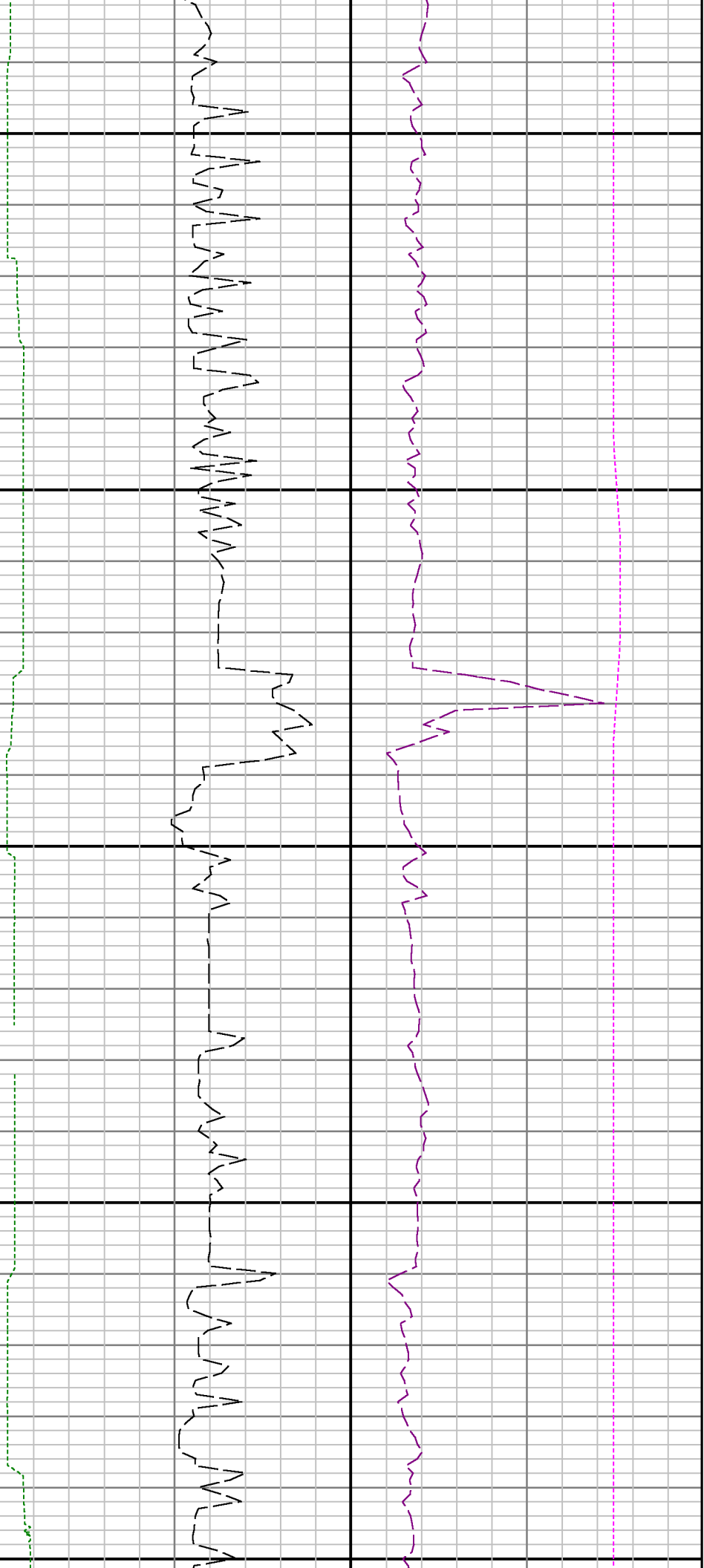




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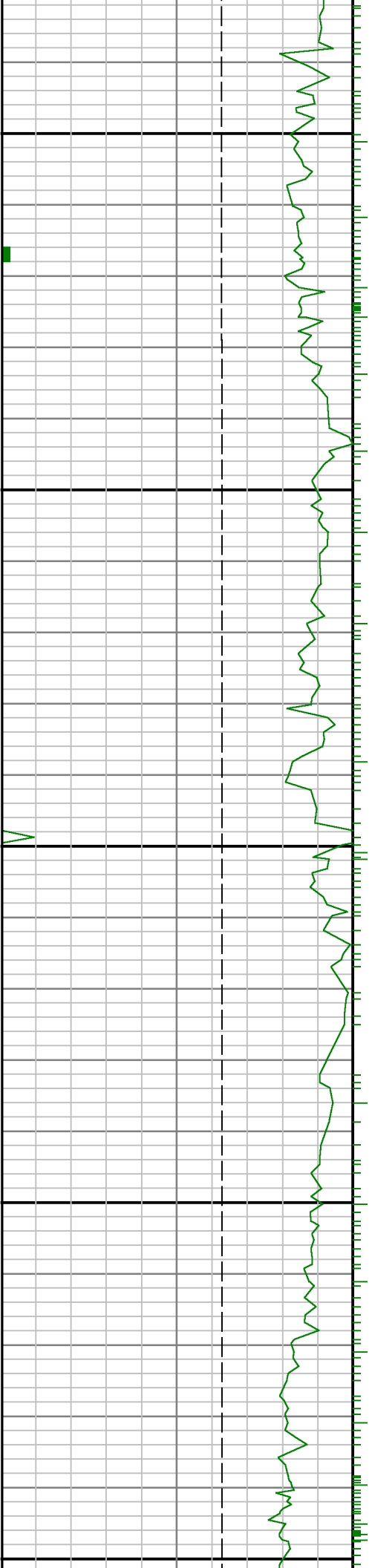
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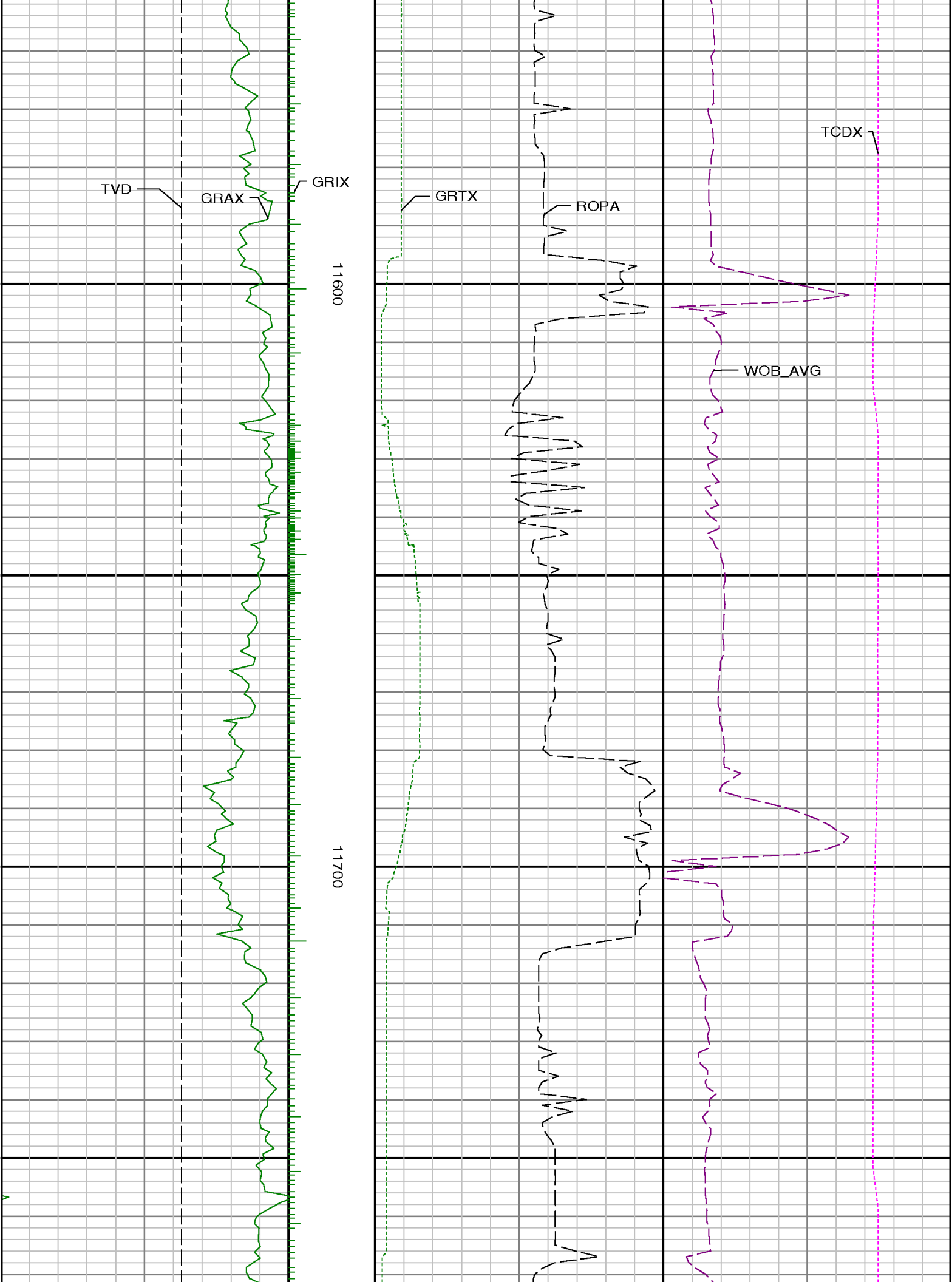


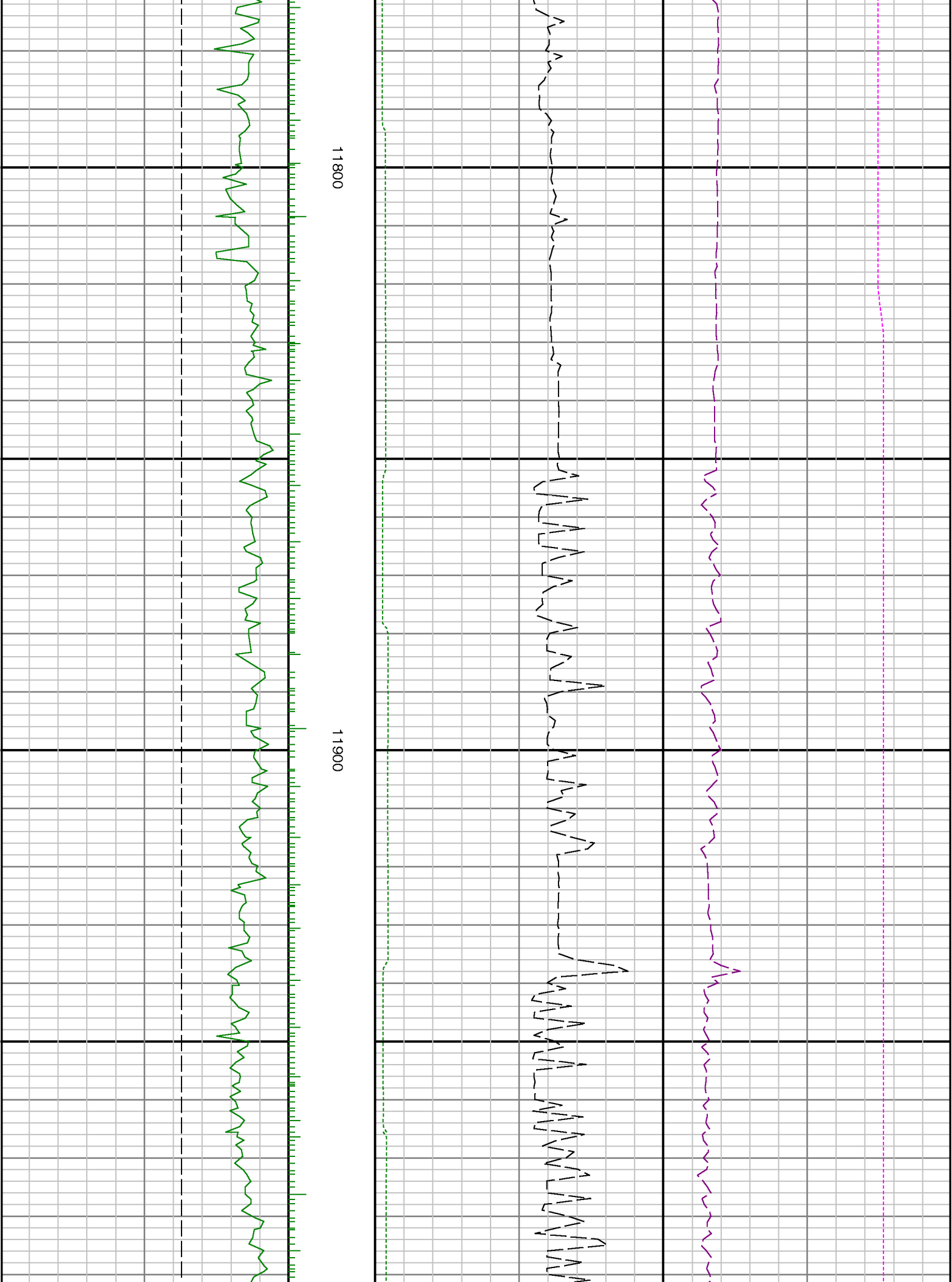


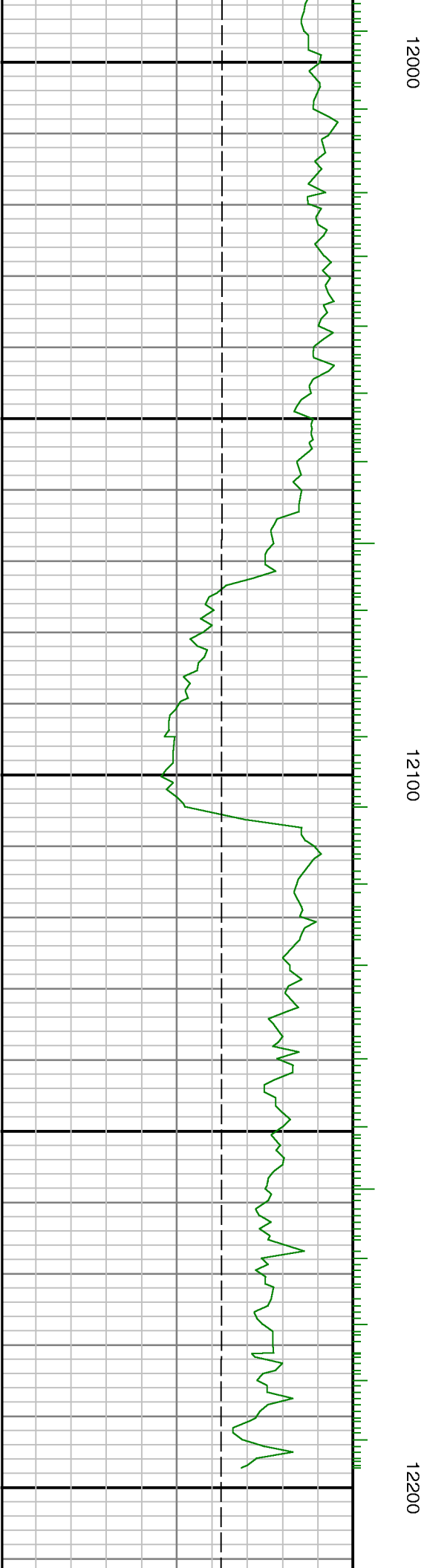
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11500









<p>Gamma Ray Apparent 0.5 ft Avg GRAX</p> <p>0 150</p> <p>API</p> <p>True Vertical Depth TVD</p> <p>8000 6600</p> <p>ft</p>	<p>MD feet 1:240</p>	<p>Rate of Penetration 3.0 ft Avg ROPA</p> <p>600 0</p> <p>ft/hr</p> <p>Gamma Time Since Drilled GRTX</p> <p>0 600</p> <p>min</p> <p>Surface Weight On Bit 1.0 ft Avg WOBA</p> <p>0 100</p> <p>kbf</p> <p>Downhole Temperature TCDX</p> <p>100 250</p> <p>degF</p>