



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:

Company: Anadarko

Well: Cream 15N-B28HZ

Field: Weld County (Kerr McGee)

Region: Continental US State: Colorado

1:240

MEASURED DEPTH

Status: Surface Location: Latitude: 40° 12' 9.101" N Longitude: 104° 39' 51.833" W

Final Print

API Number: 051234096500

Section: 28 TWN: 3S Range: 65W

Permanent Datum (P.D.): Mean Sea Level Elevation: 4844.00 ft.

Log Measured From: Rig Floor 20.00 ft. Above P.D.

Depth Reference: Driller's Depth

Other Services: Elevations: N/A
KB: 4844.00 ft.
DF: 4824.00 ft.
GL:

Interval Logged Dates Magnetic Field Reference

Top: 6400.0 ft. Date From: 23/May/15 Dip Angle: 66.88° Azi Reference North: True

Bottom: 12676.0 ft. Date To: 27/May/15 Total Mag to Reference

Spud Date: 22/May/15 Field Strength: 52520.0 nT North Correction: 8.46°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1238.0 ft.	7563.0 ft.	9.600 in.	36.00 lb/ft	Surface	1226.0 ft.
6.125 in.	7563.0 ft.	12676.0 ft.	7.000 in.	26.00 lb/ft	Surface	7553.0 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	12676.0 ft.	8.750 in.	7563.0 ft.	13.1° / 337.9°	84.5° / 178.7°
			6.125 in.	12676.0 ft.	90.1° / 179.7°	89.6° / 178.8°
					/	/
					/	/
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					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig / Contractor: Precision 462	/ Precision Drilling
PAIS	6.4.1.34	Job No: 7224181	/ 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 (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start		End		
1	1	1	8.750	PDC	3.500	Mud Motor	6400.0	7523.0	1237.0	7566.0	23/May/15 12:19	24/May/15 00:51	27/May/15 01:24	29.7	
2	2	2	6.125	PDC	4.500	Mud Motor	7524.0	12630.0	7566.0	12676.0	25/May/15 18:21	27/May/15 01:24			

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Andrew King	22/May/15	27/May/15	Nick Gerard	22/May/15	27/May/15	Mike Gurnsey	22/May/15	27/May/15
Bill Herbers	22/May/15	27/May/15						

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (lb/gal)	Viscosity (s/qt)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (mg/L)	K+ (%)
23/May/15	18:00	1	6999.0	Poly-Plus	10.0	65	9.5	4.8	2/90	Suction	600	N/A
26/May/15	06:00	2	9620.0	Poly-Plus	9.7	54	9.5	4.8	2/90	Suction	400	N/A
26/May/15	18:00	2	11436.0	Poly-Plus	9.8	49	9.5	4.6	3/90	Suction	400	N/A

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	points
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.	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	12456787	Directional	45.78	6.910	3.250
1	SRIG	12622668	Gamma	42.41	6.910	3.250
2	DIR	11866045	Directional	50.00	4.750	2.688
2	SRIG	12131406	Gamma	46.58	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

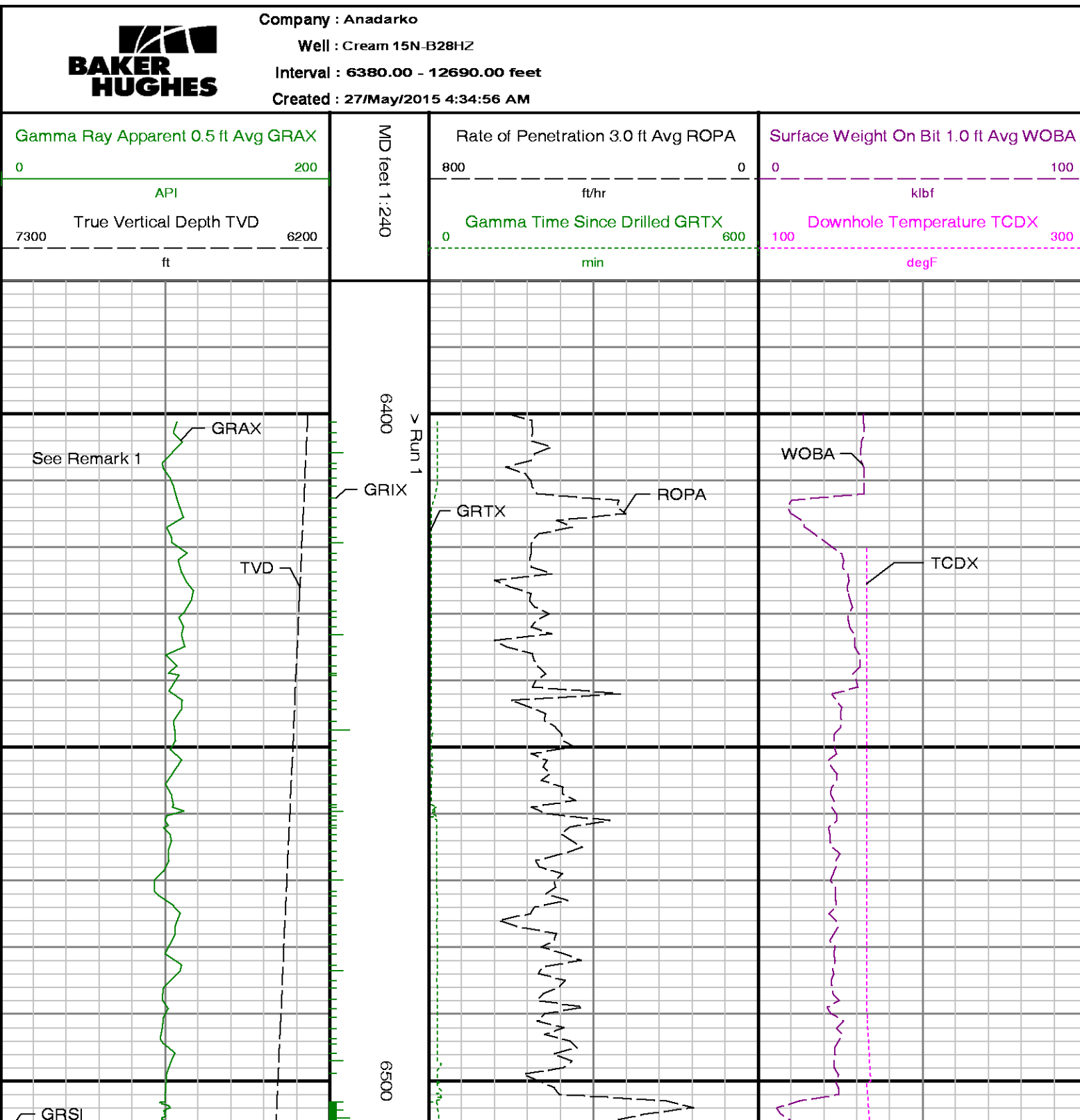
Comments

1.) Baker Hughes Run 1 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1238 to 7563 feet MD (1229 to 7044 feet TVD).
2.) Baker Hughes Run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind a 6 1/8 inch bit and steerable assembly from 7563 to 12676 feet MD (7044 to 7023 feet TVD).
3.) 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 logging engineers, depth calibrations and measurements could not be independently verified.
4.) A sliding indicator is shown on the left edge 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.

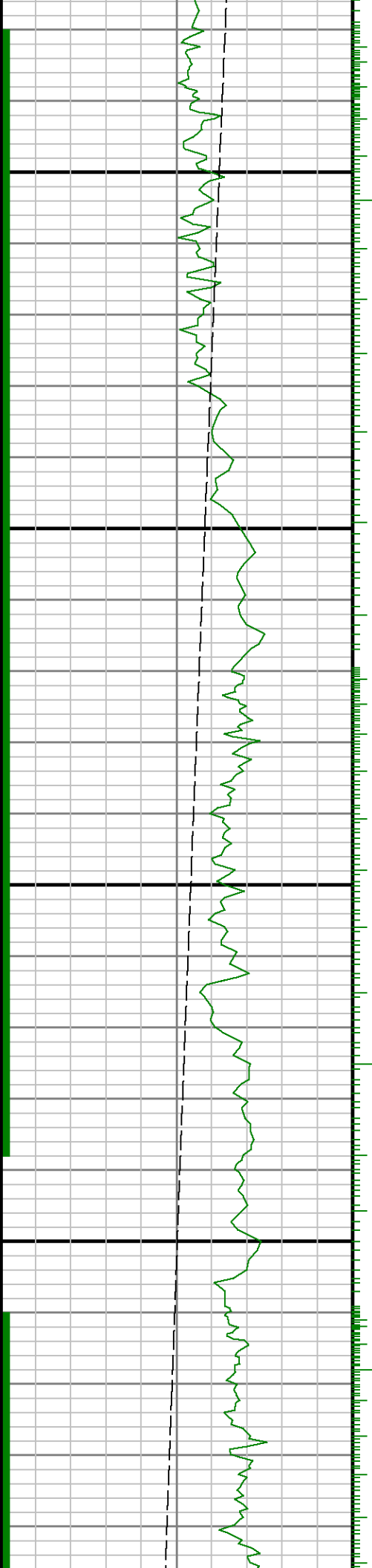
Remarks

Number	Measured	Hole	LWD	Remark
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	Depth (ft.)	Section (in.)	Run No.	
1	6410	8.750	1	Began logging Gamma above Build Section at 6400 feet MD (6273 feet TVD)
2	7540	8.750	1	The interval from 7523 to 7566 feet MD (7041 to 7044 feet TVD) was logged up to 42 hours after being drilled due to casing operations.
3	12650	6.125	2	The interval from 12630 to 12676 feet MD (7022 to 7023 feet TVD) has no logging data due to sensor to bit offset.

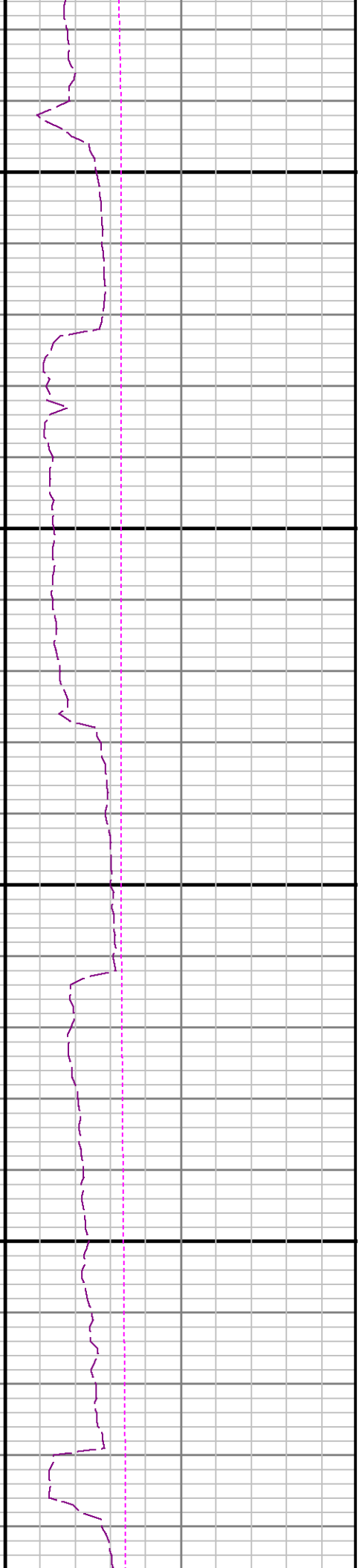
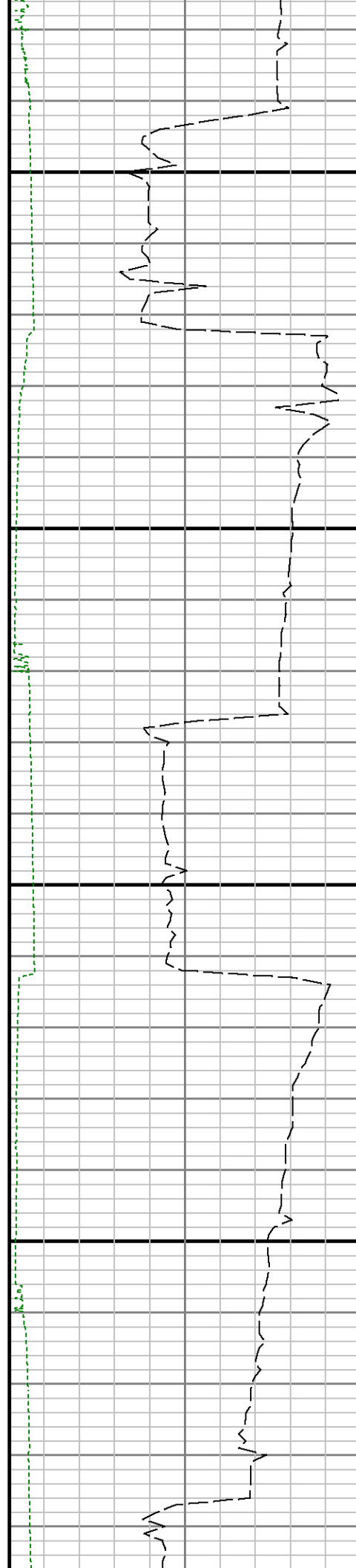


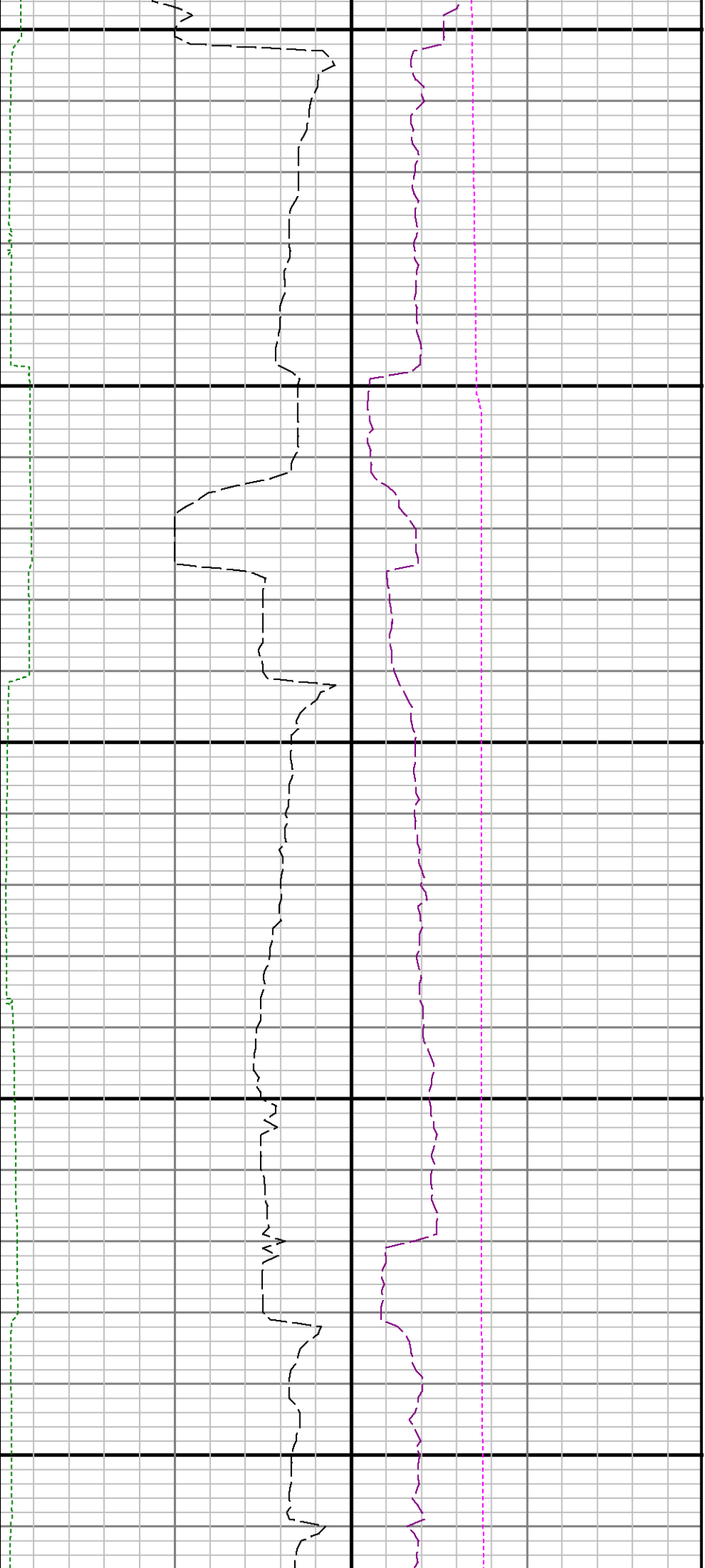




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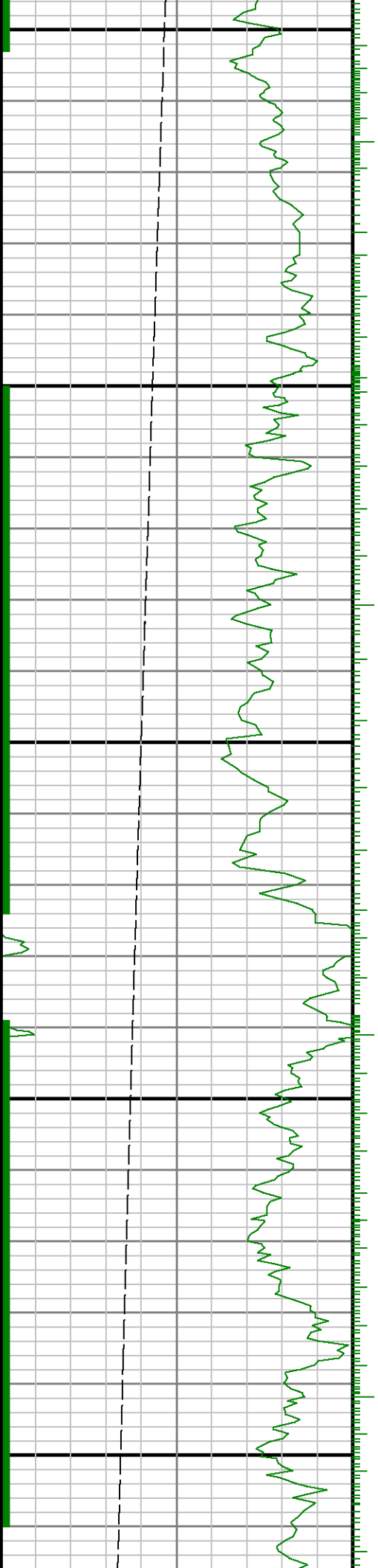
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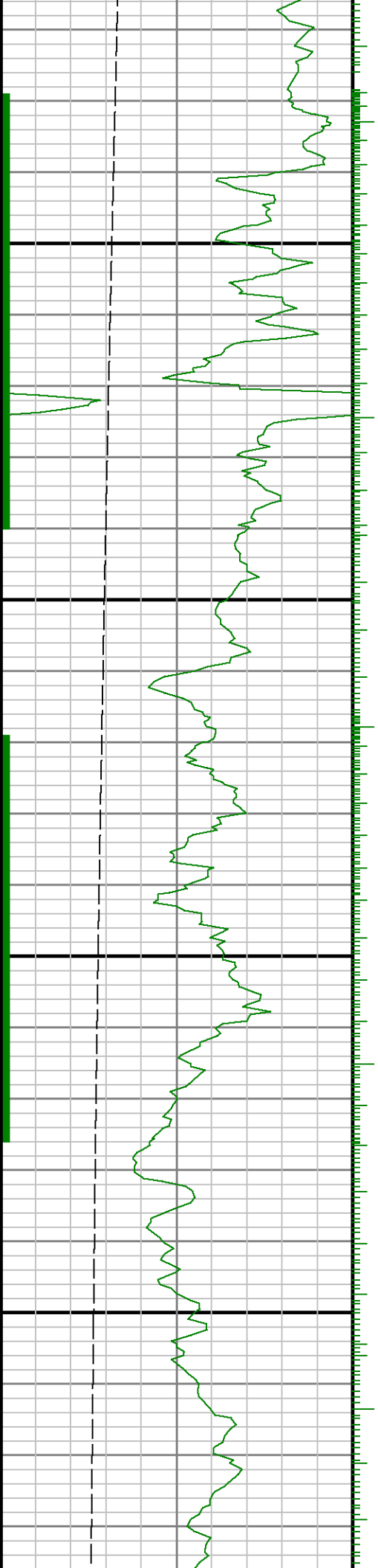
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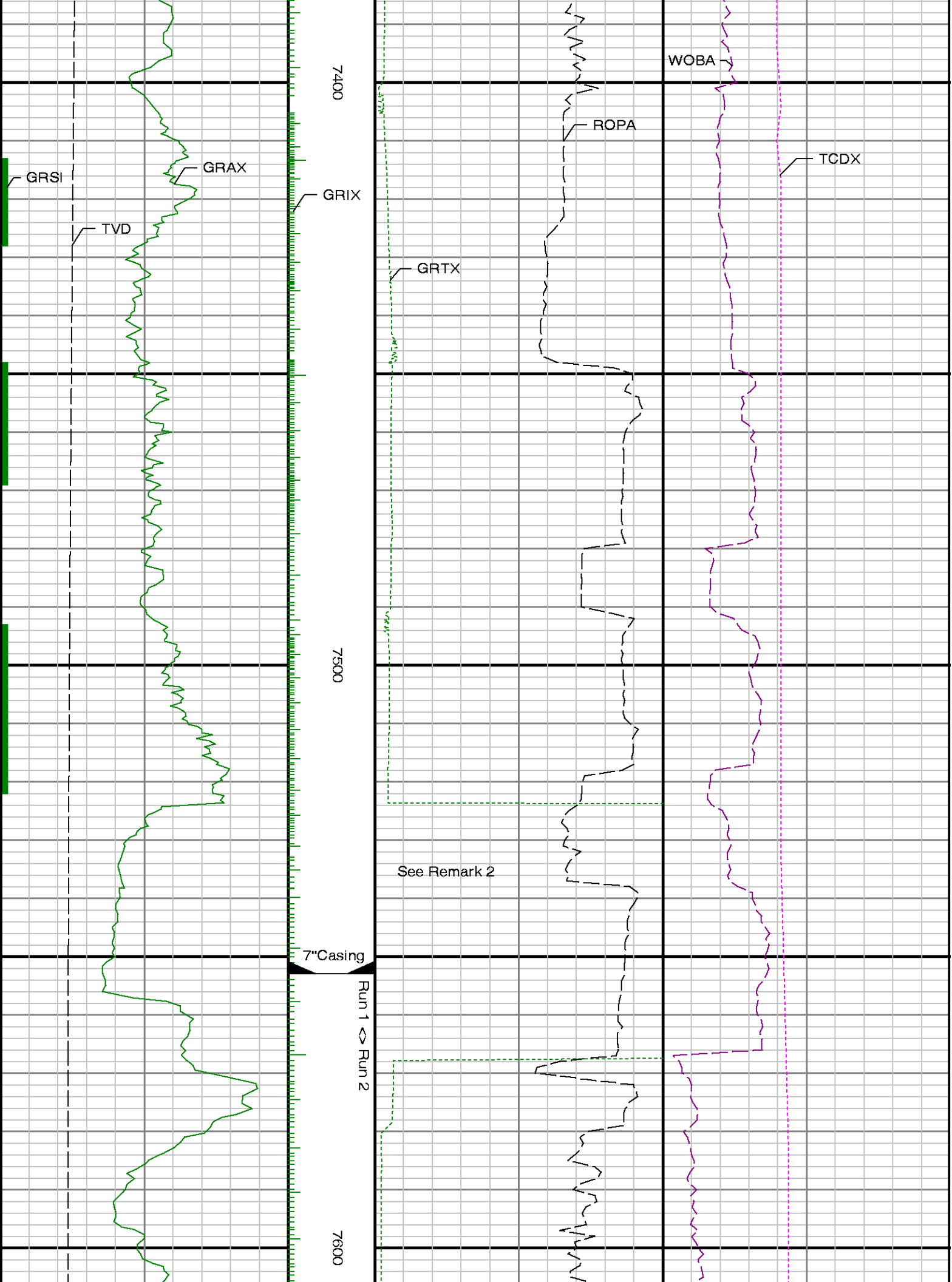


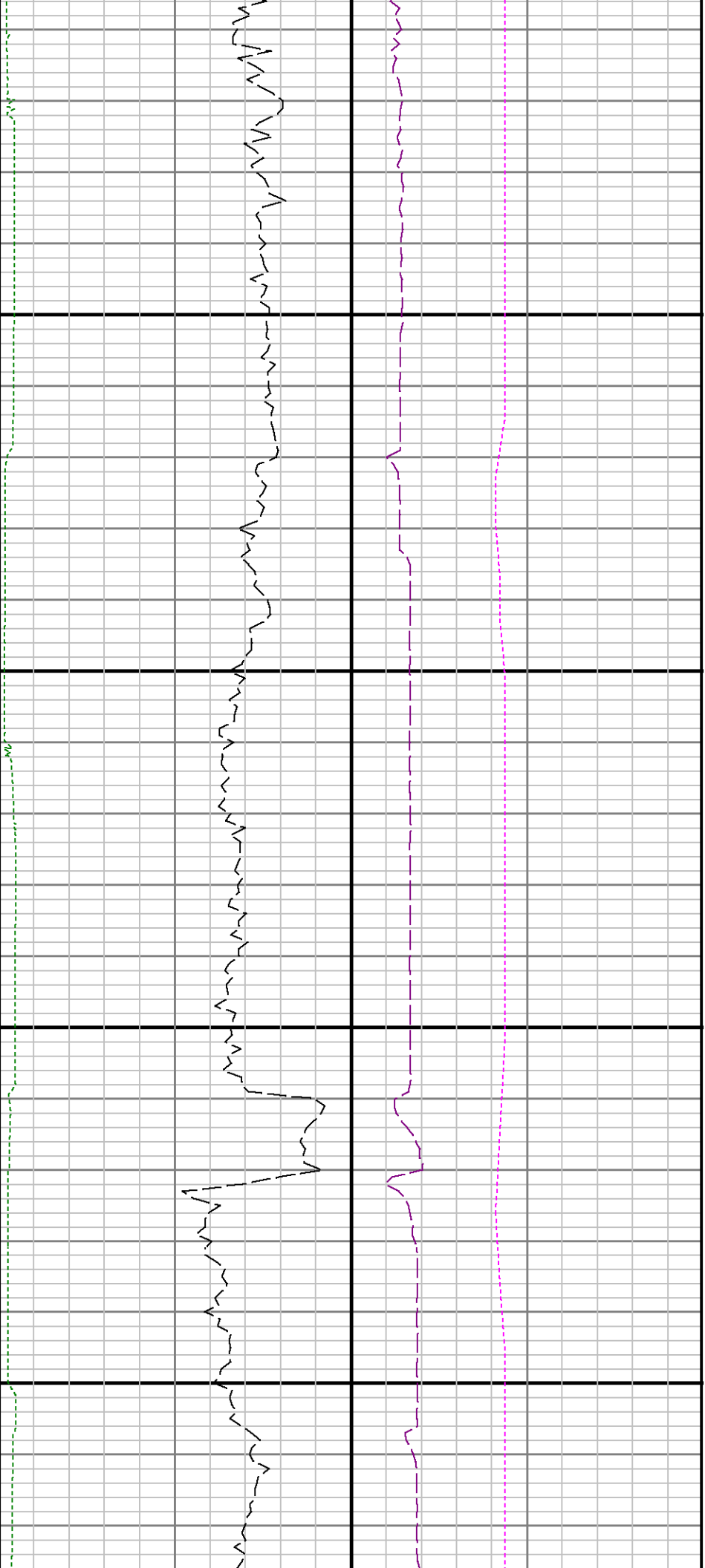


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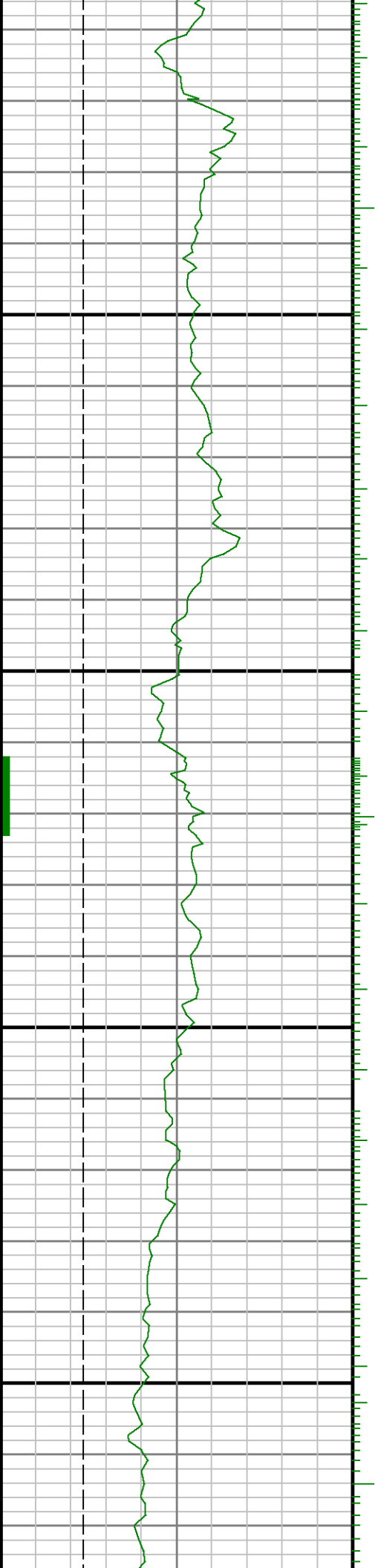


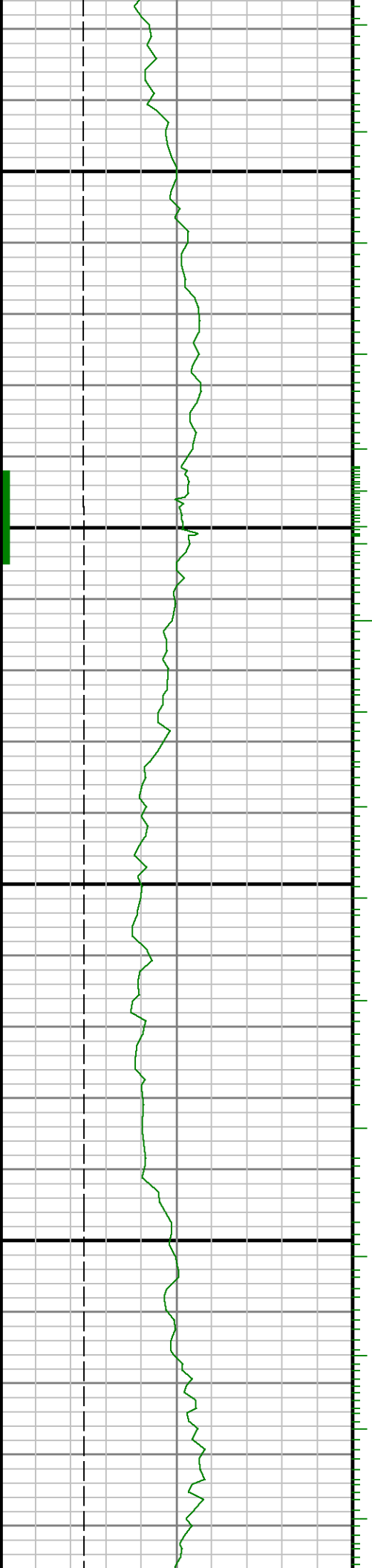




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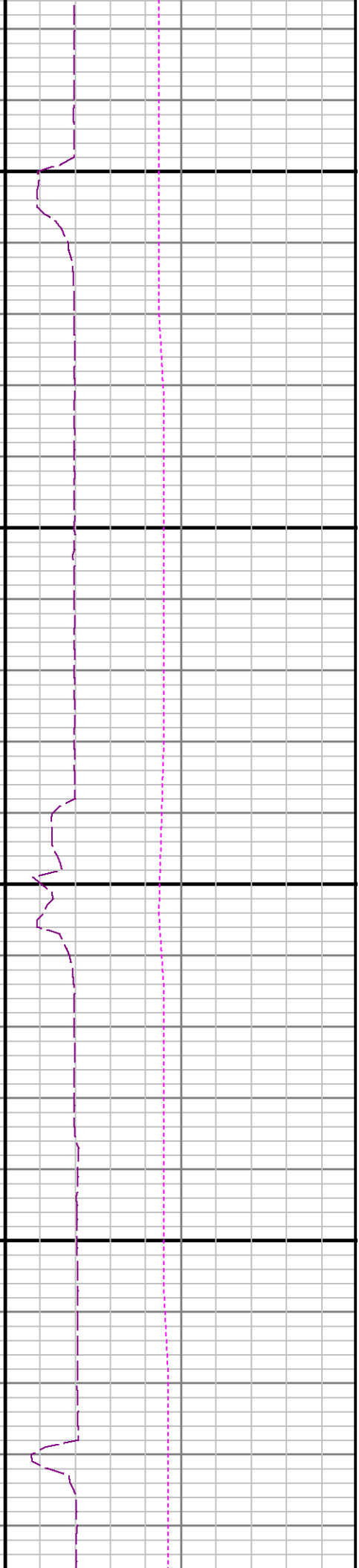
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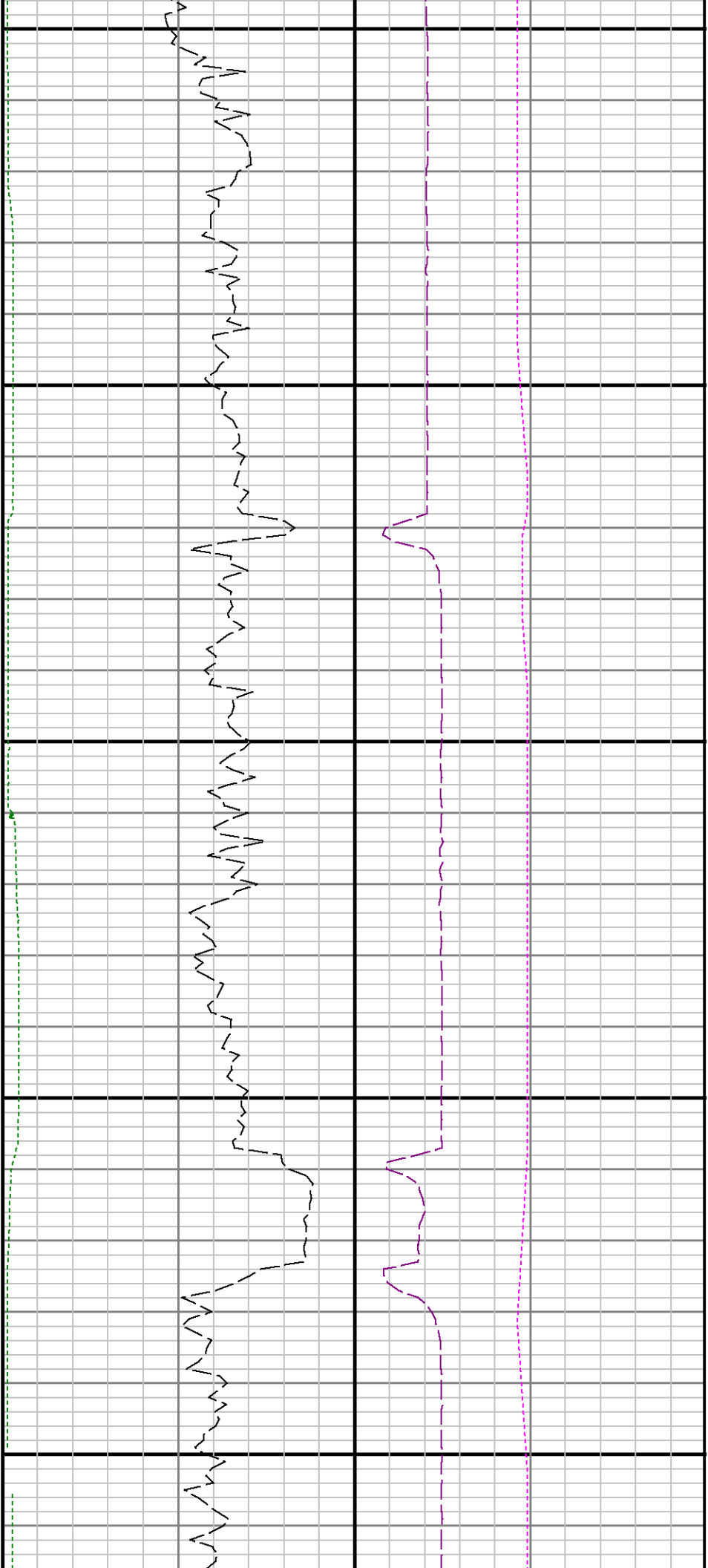




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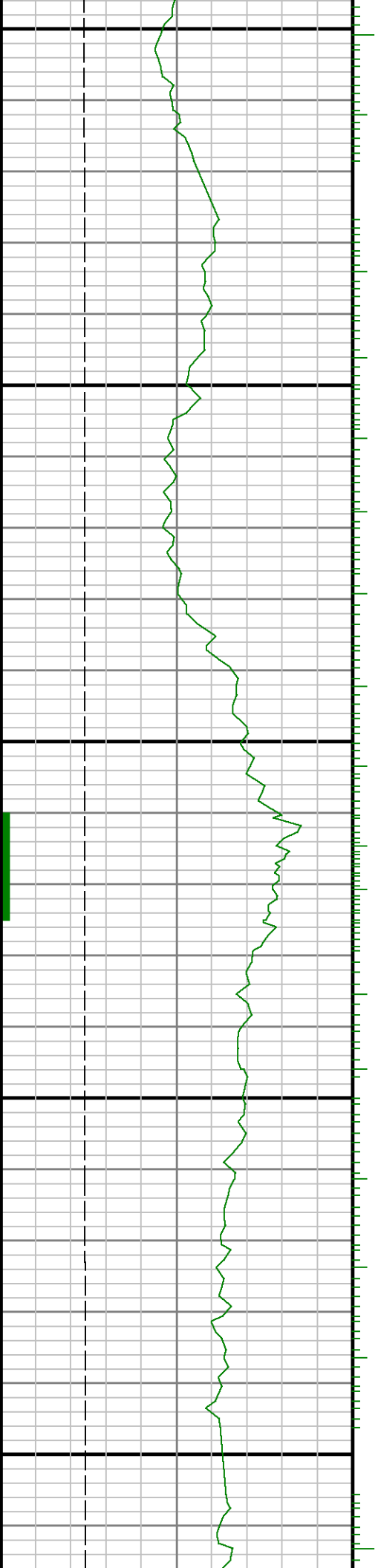
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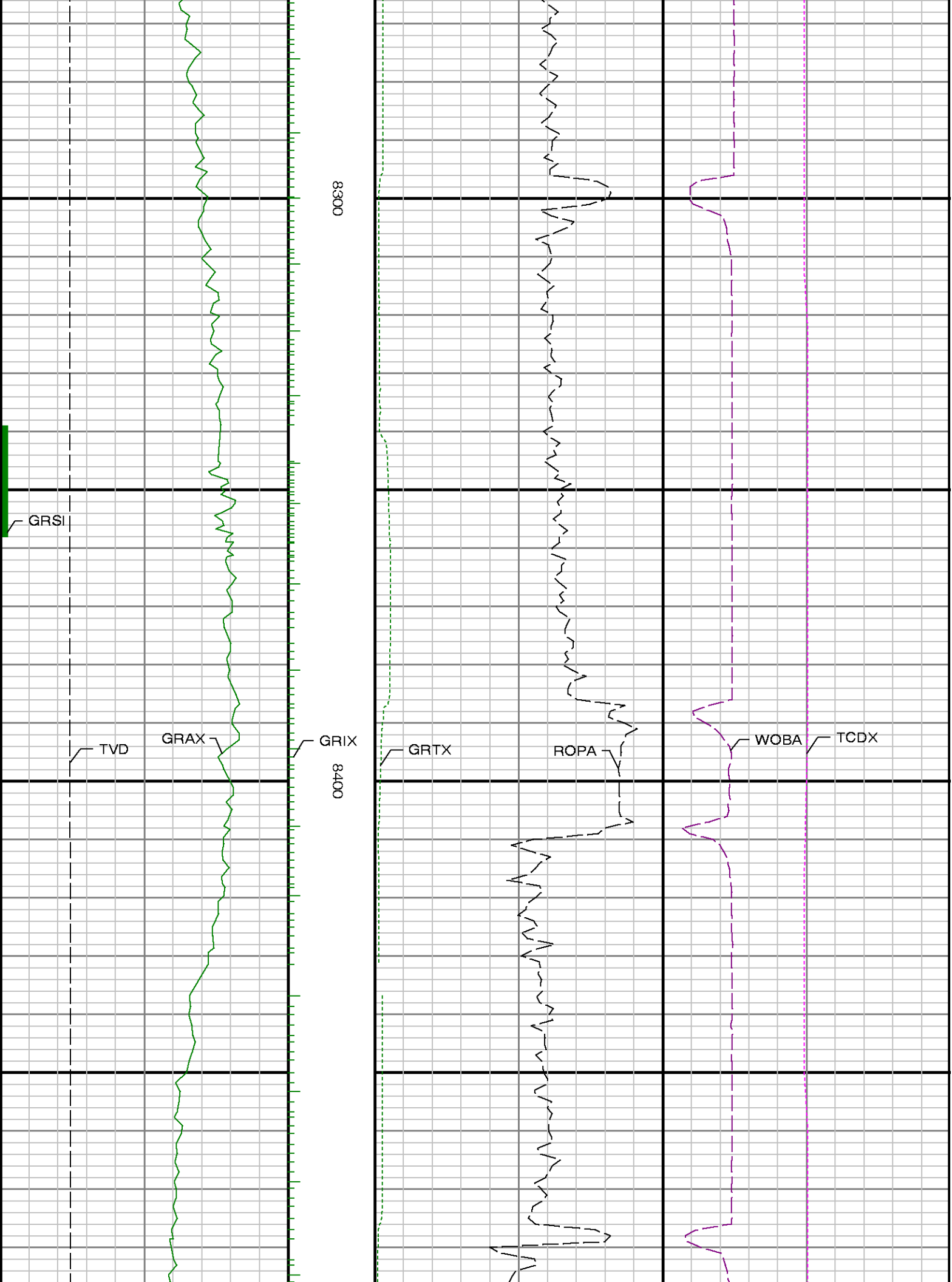


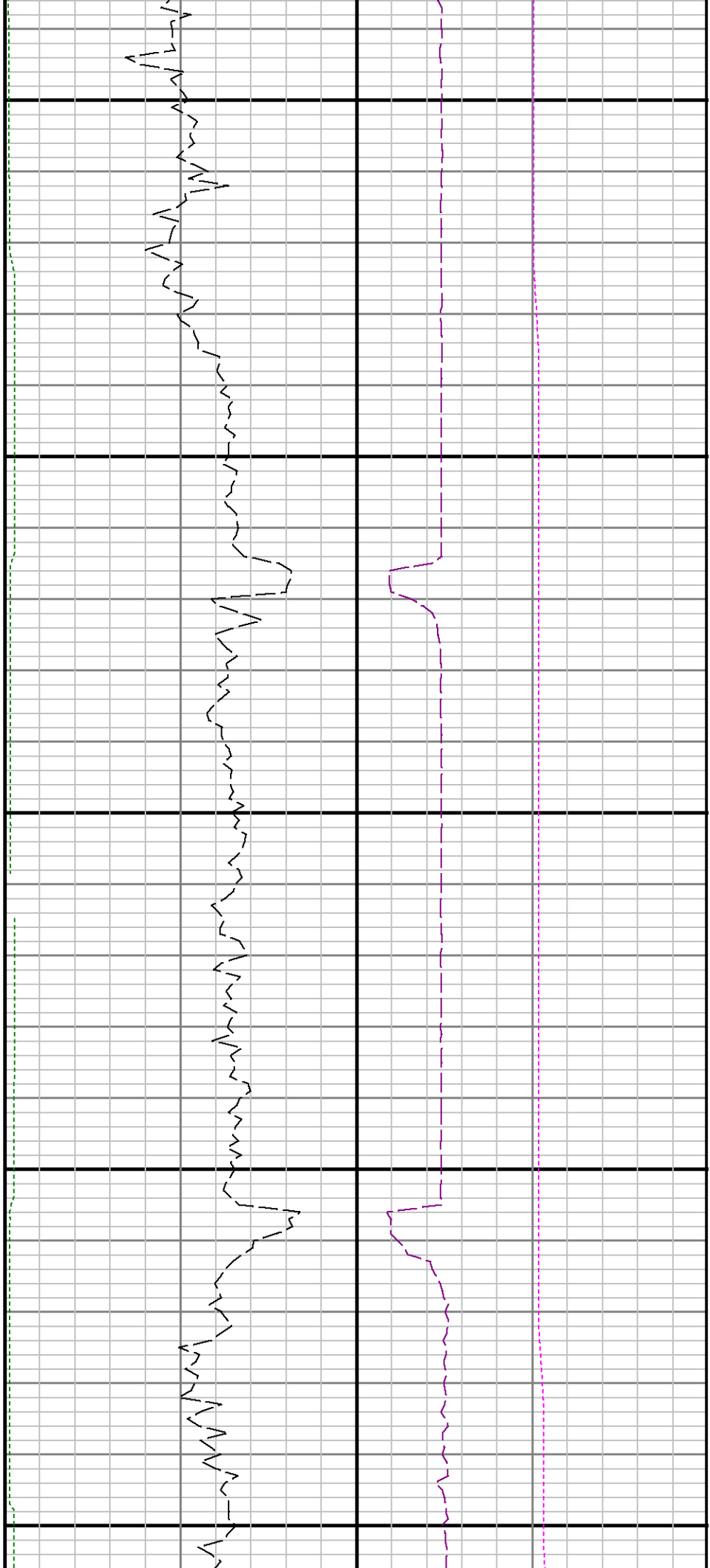


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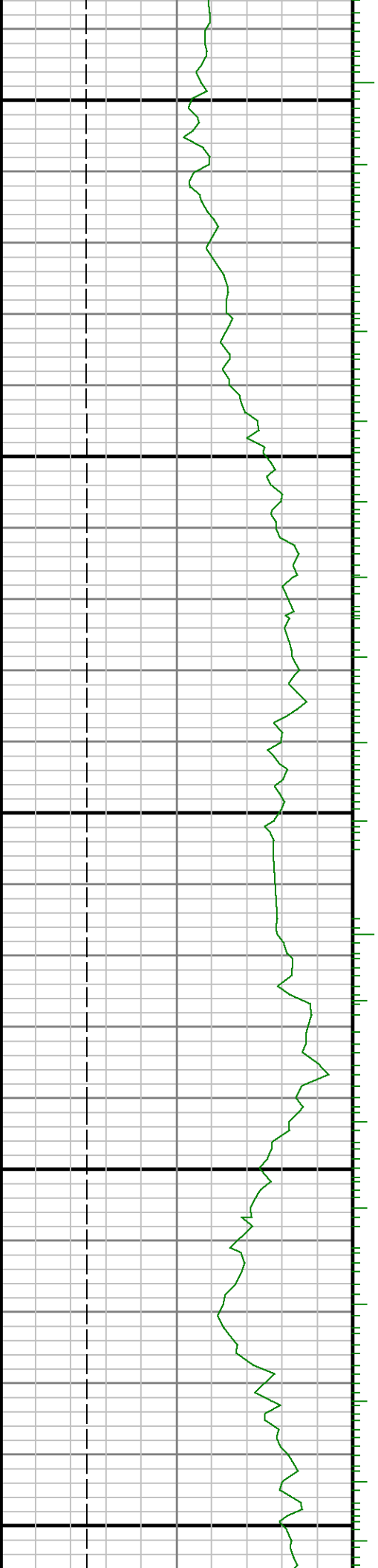


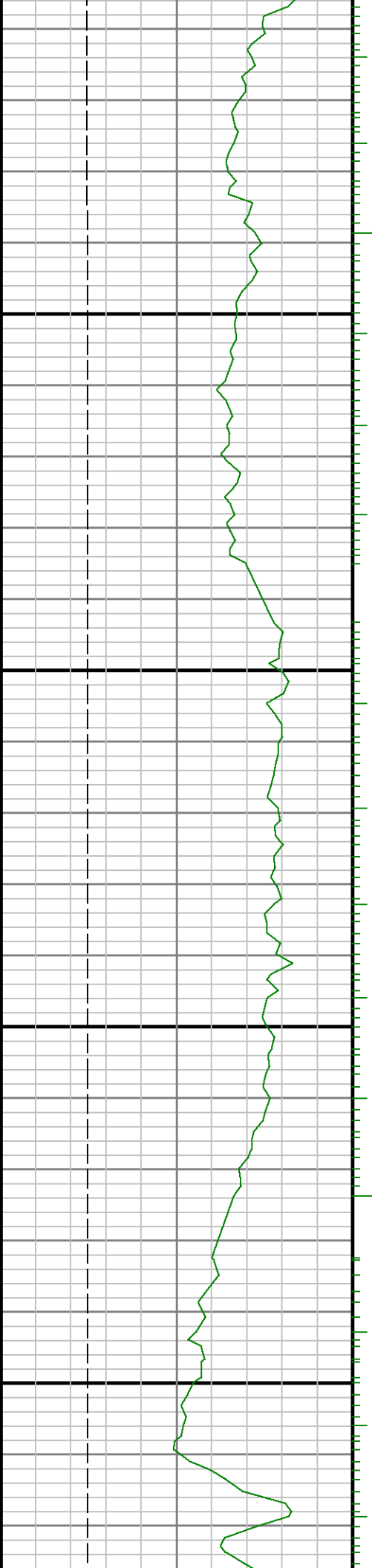


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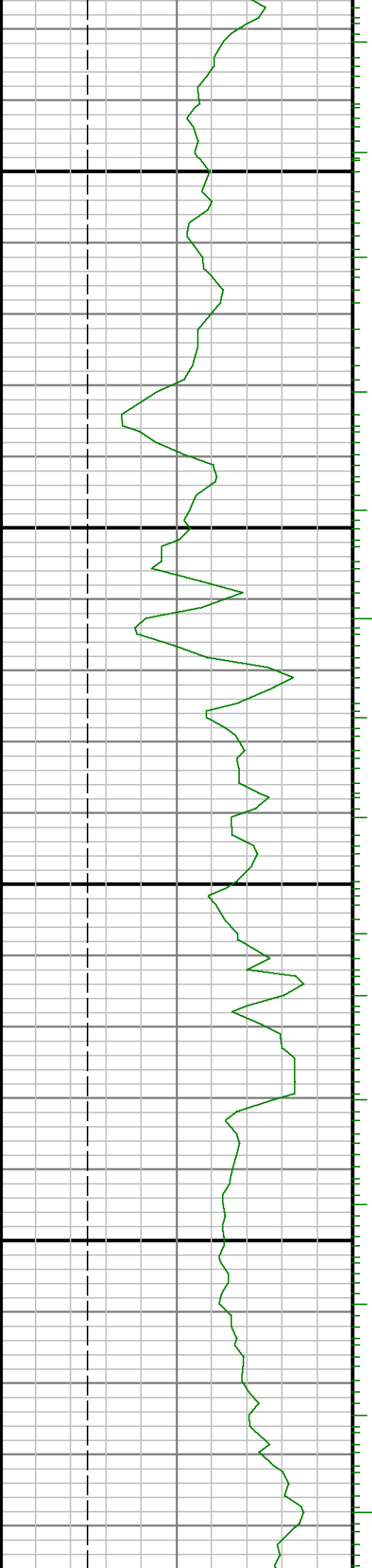




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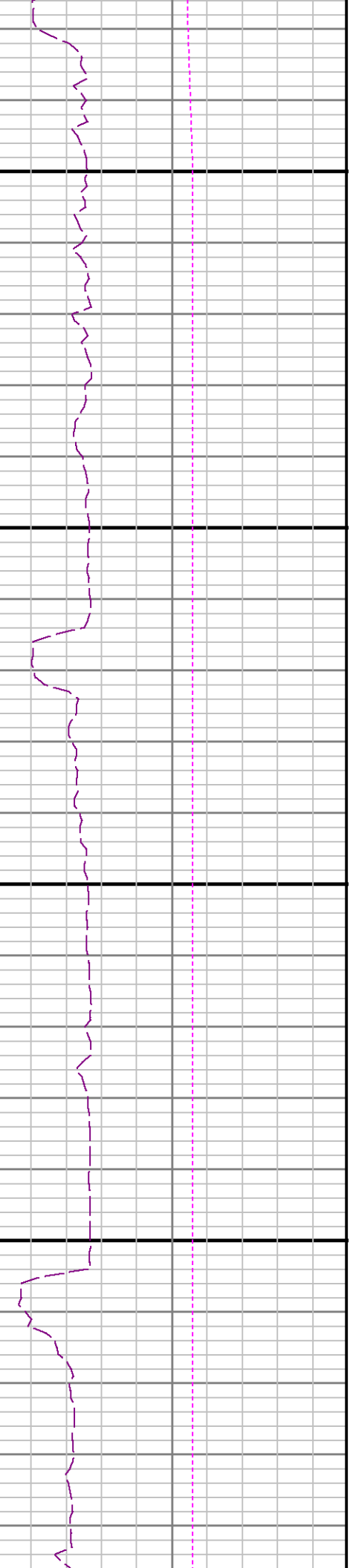
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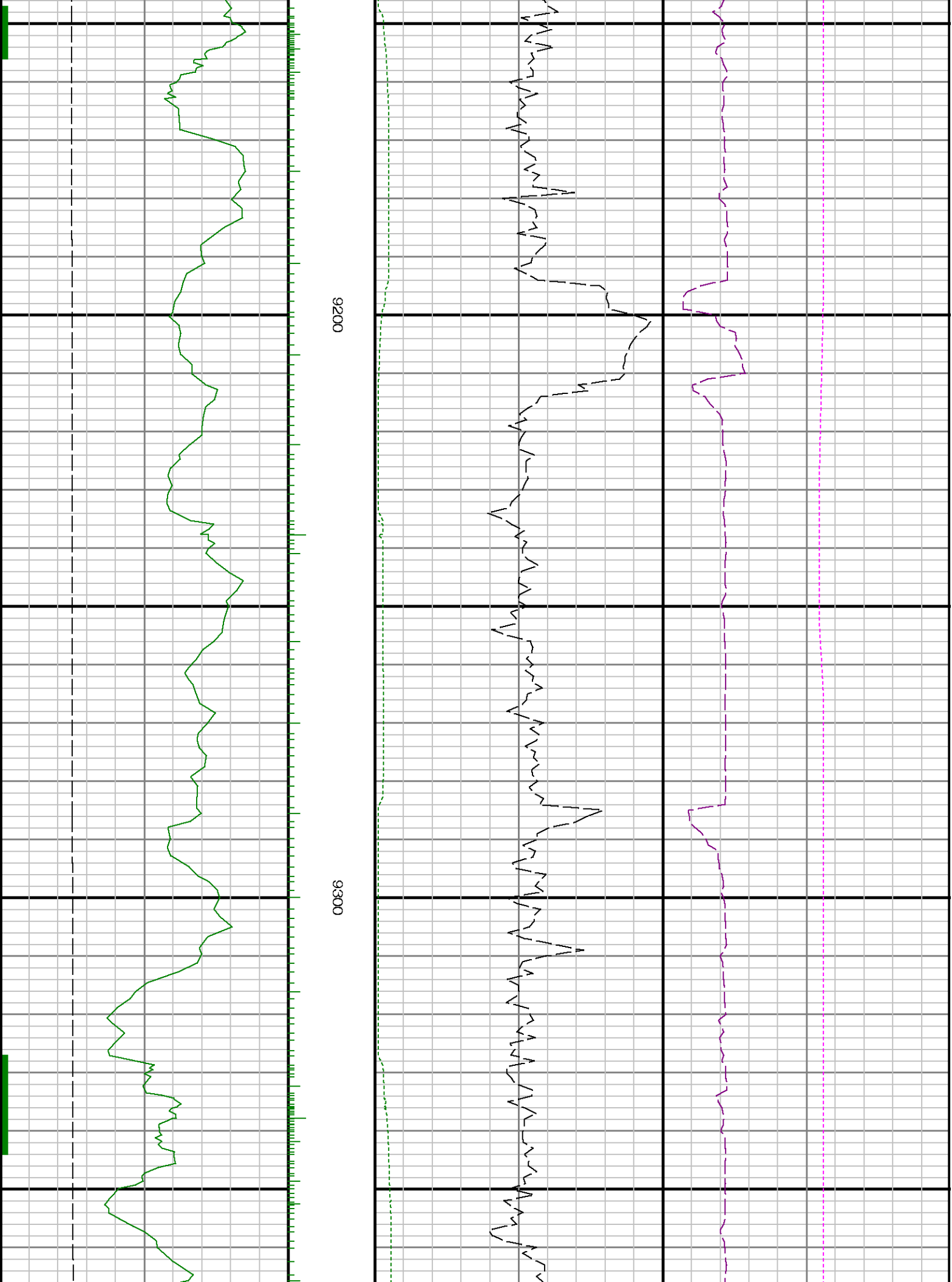


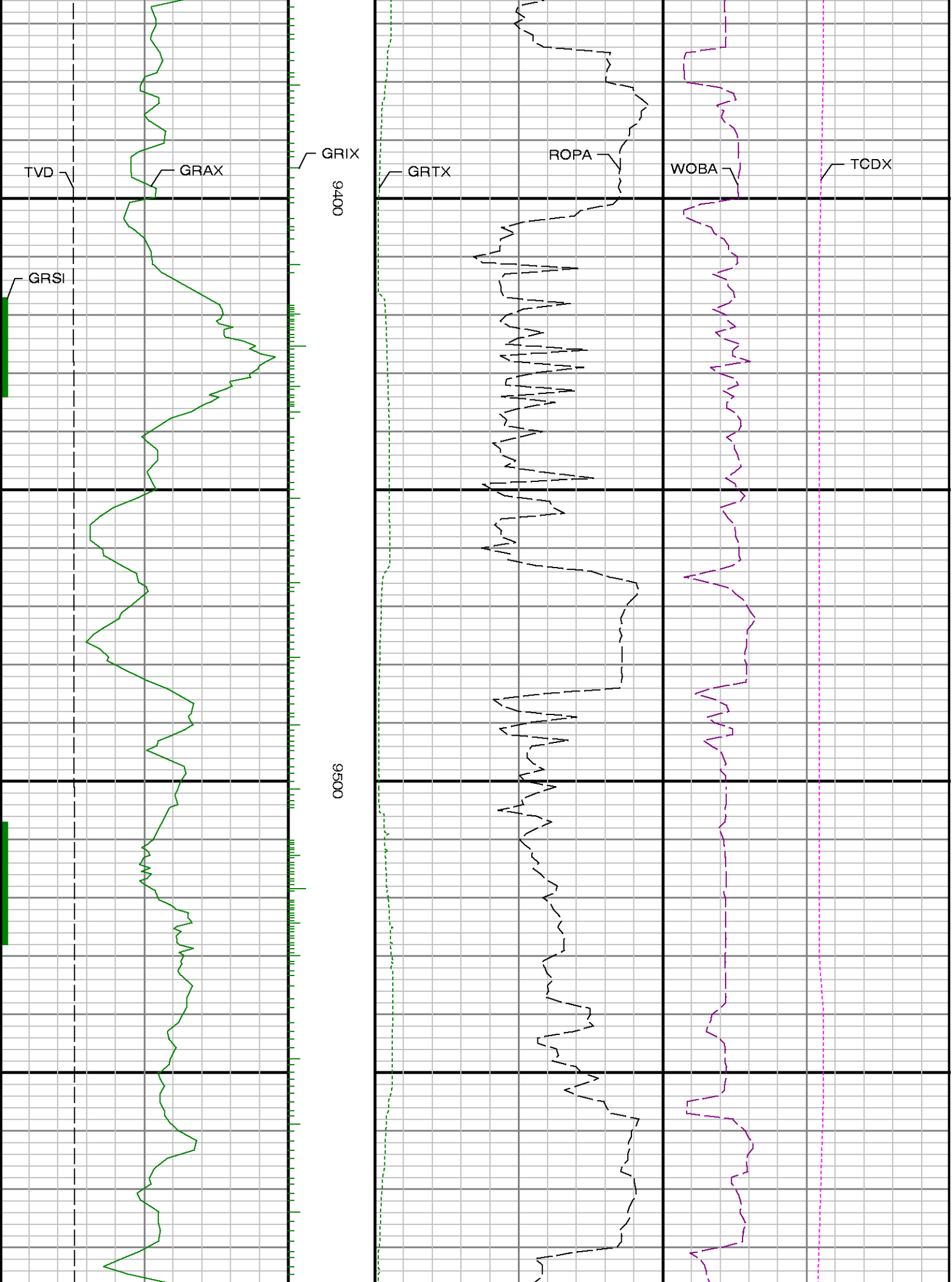


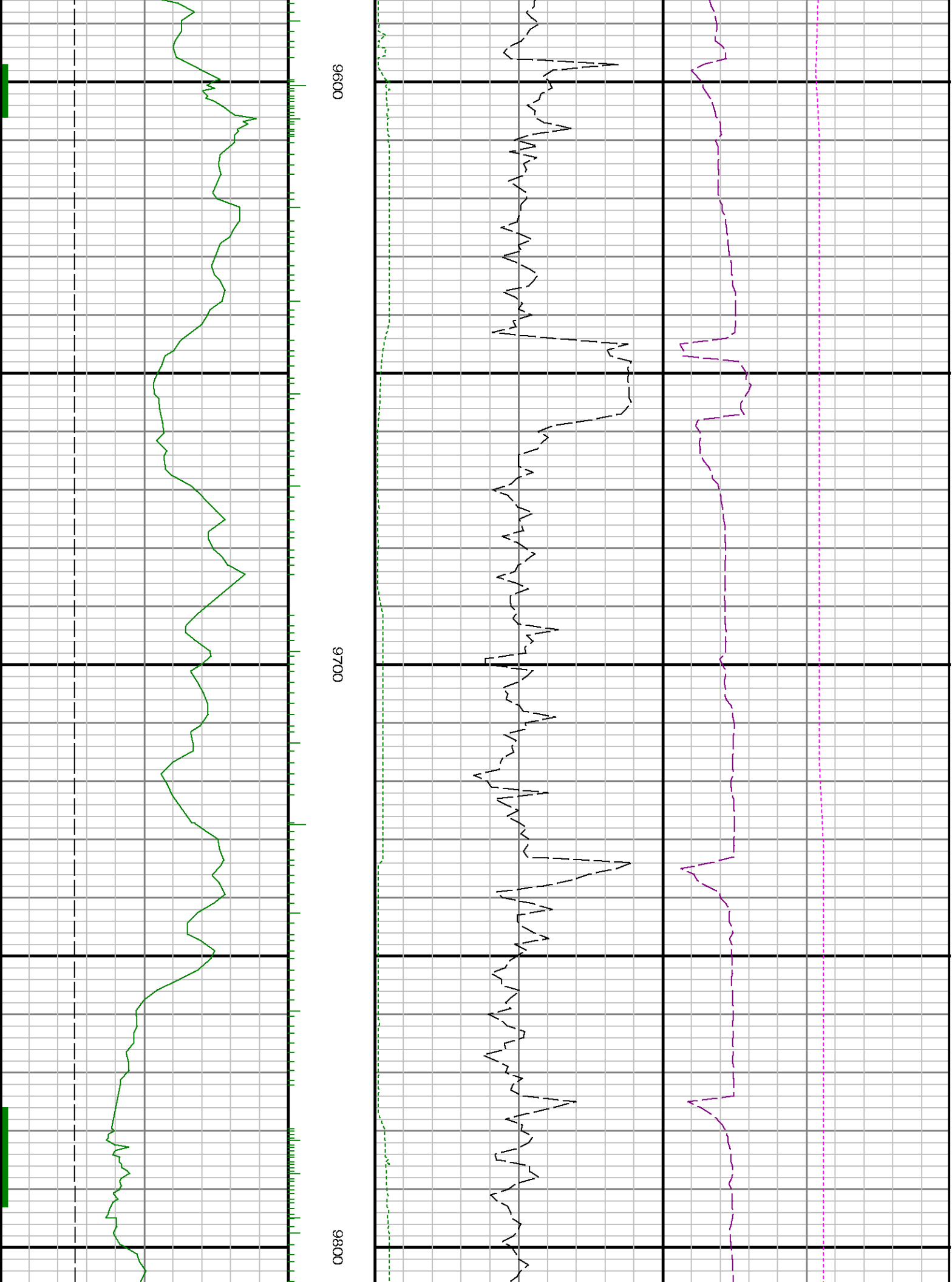
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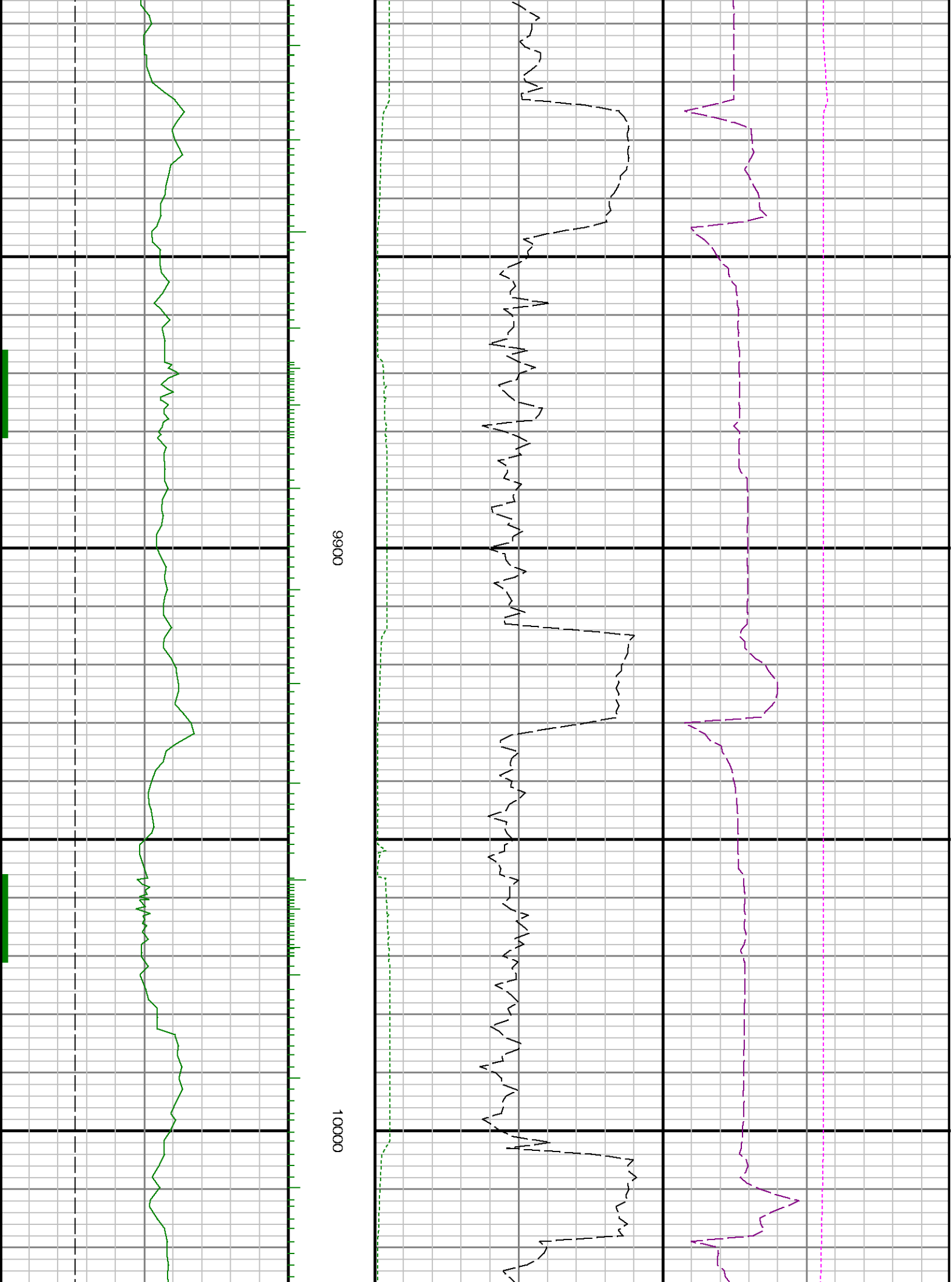
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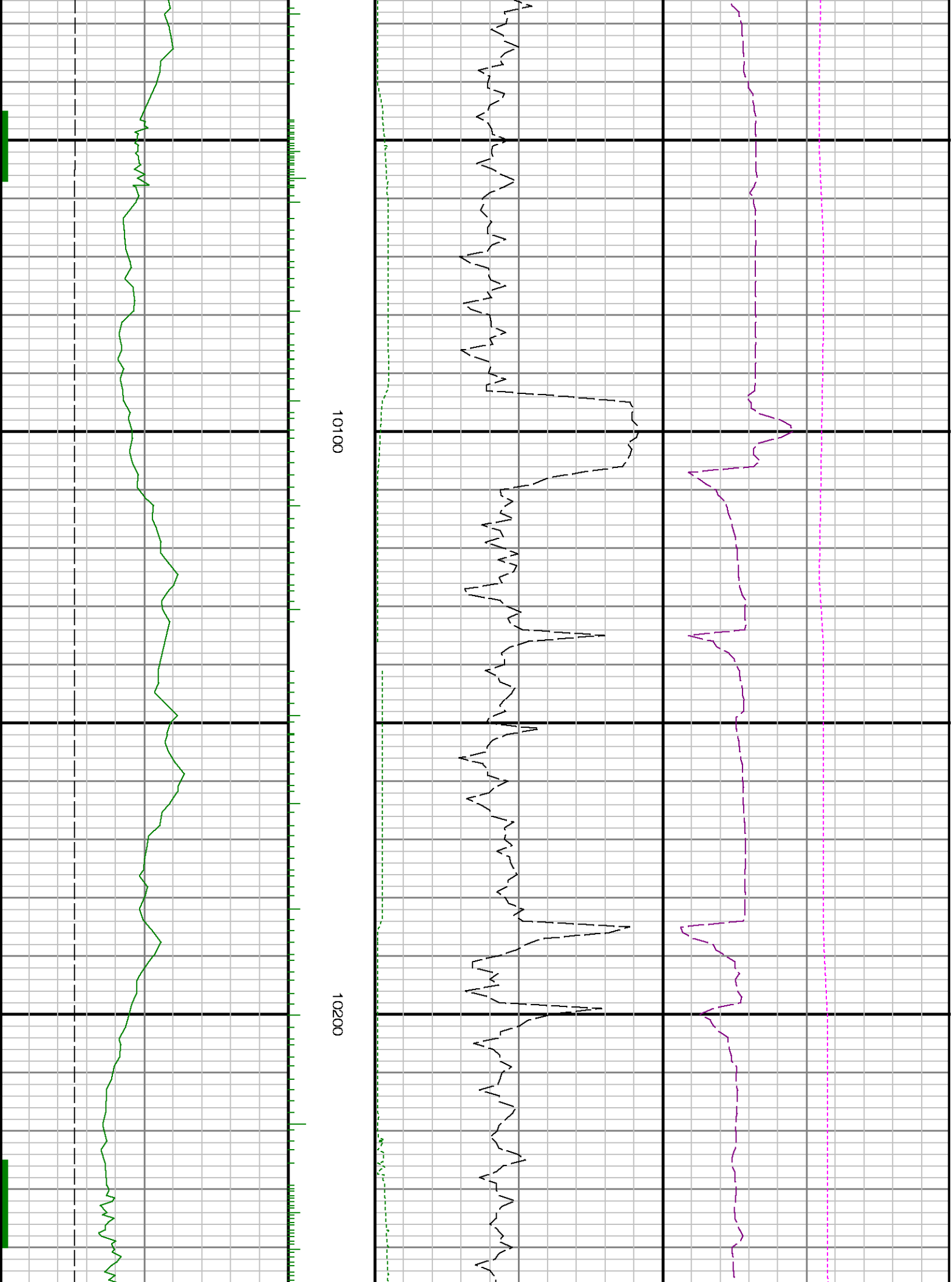


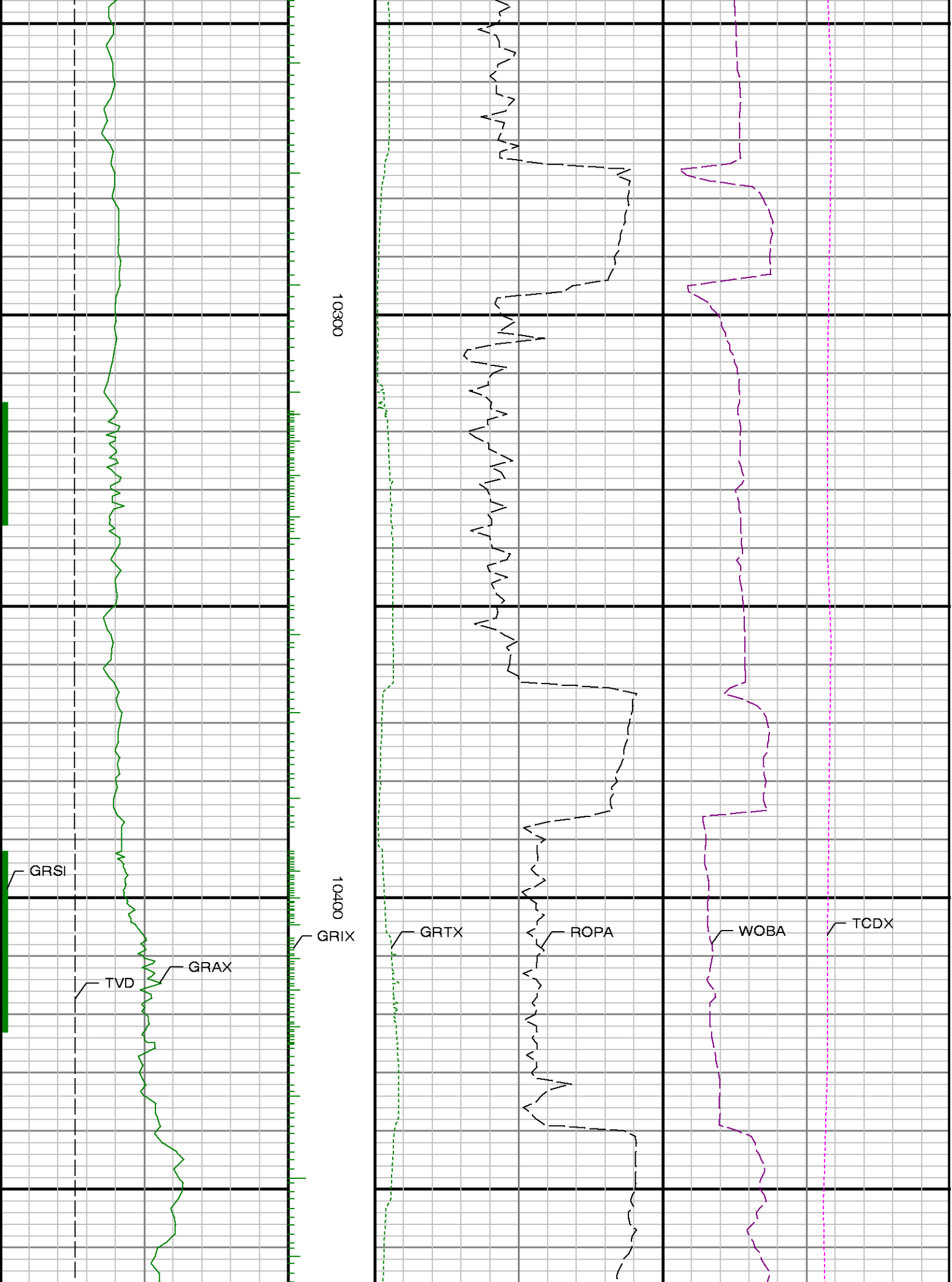


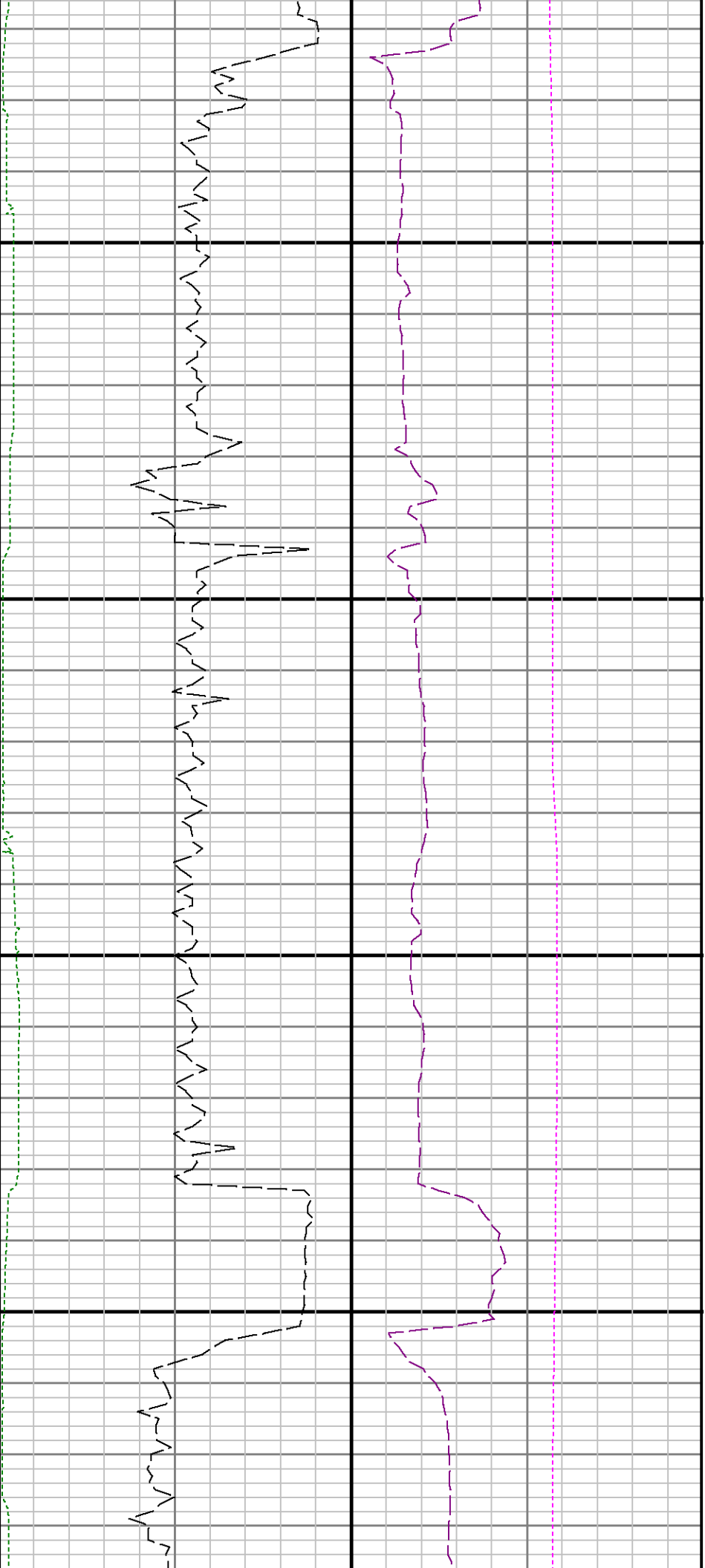






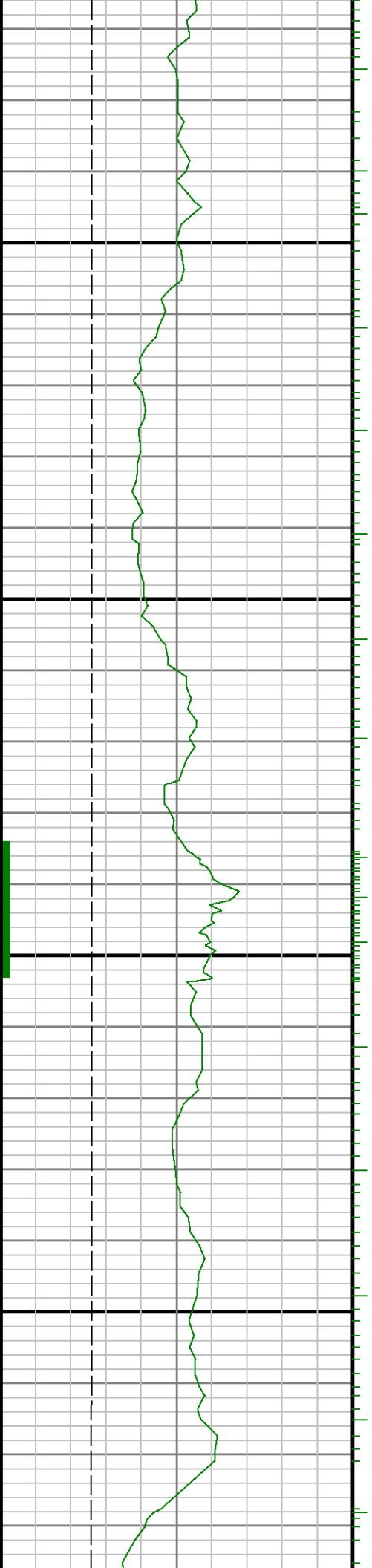


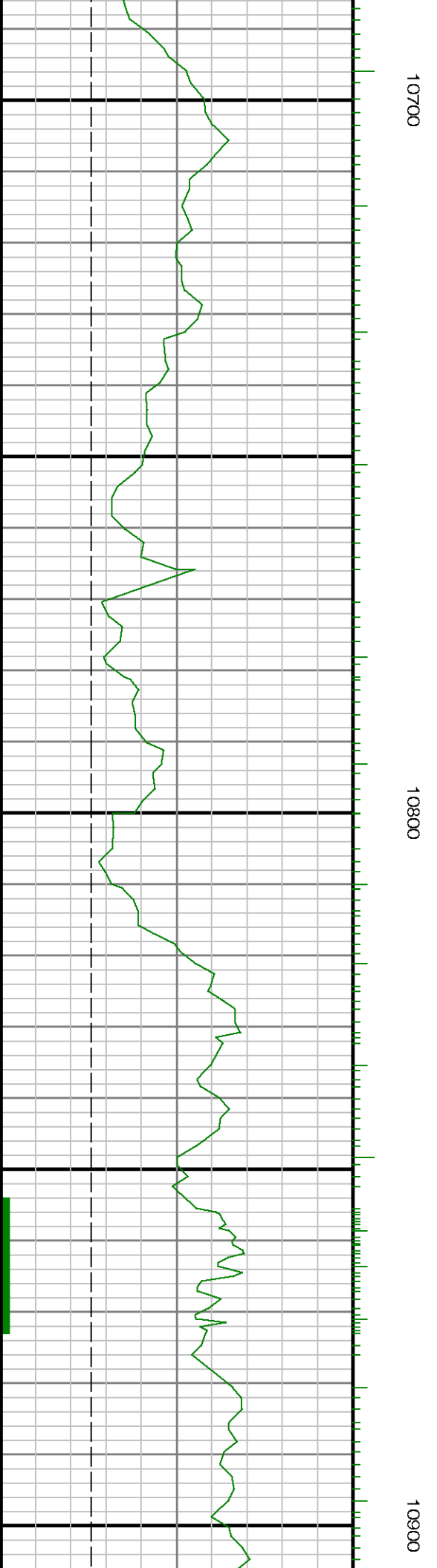
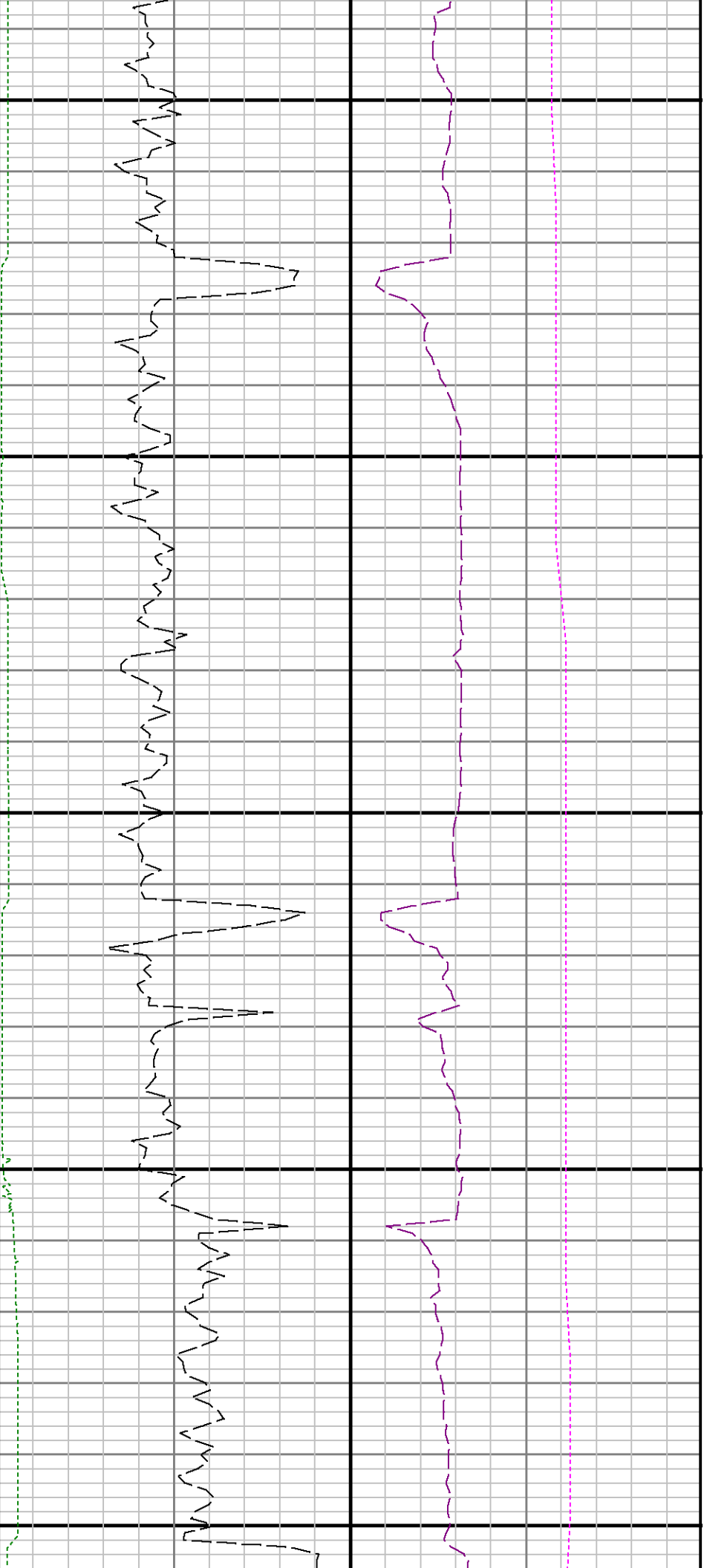




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10600

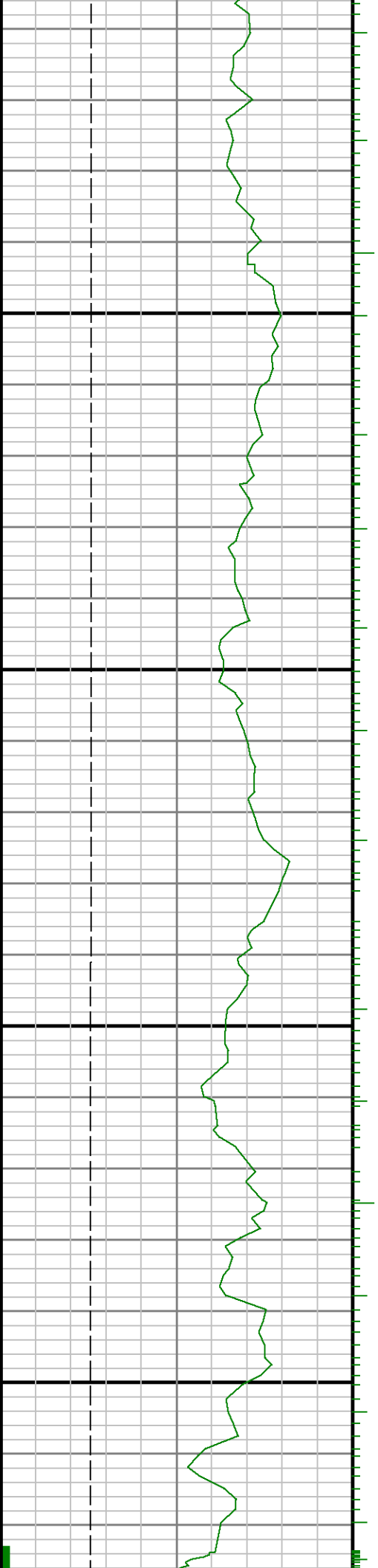






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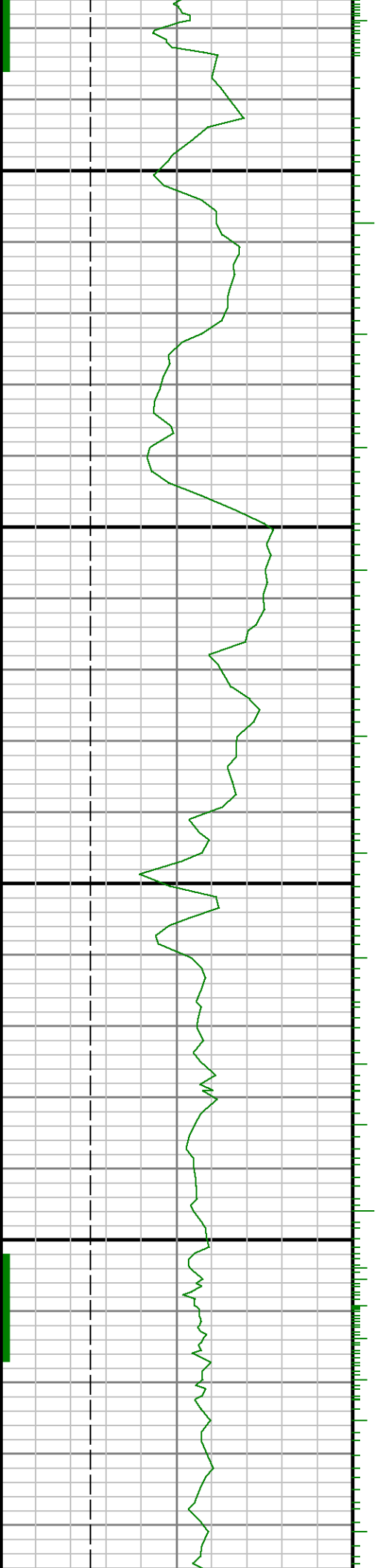
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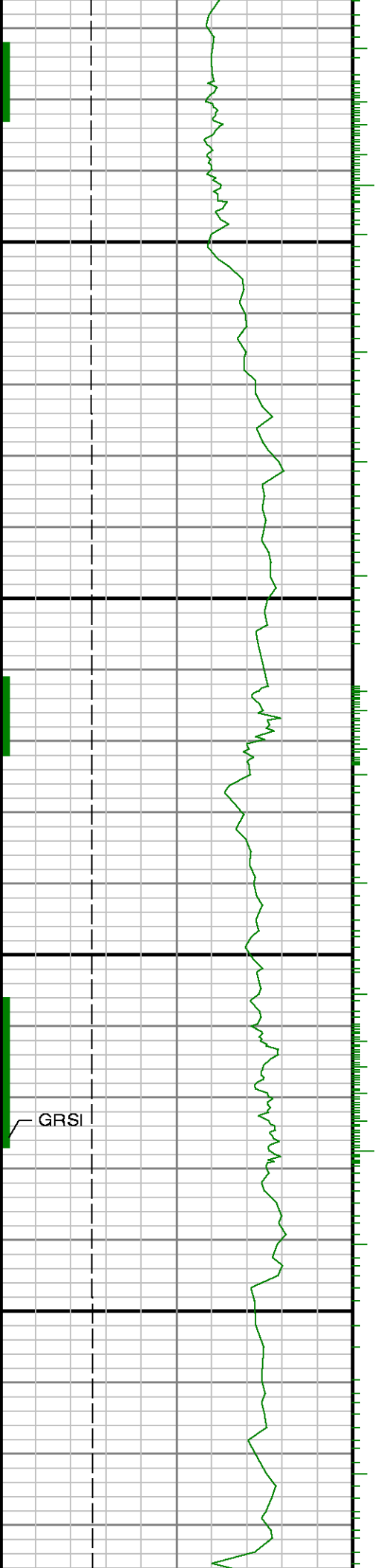




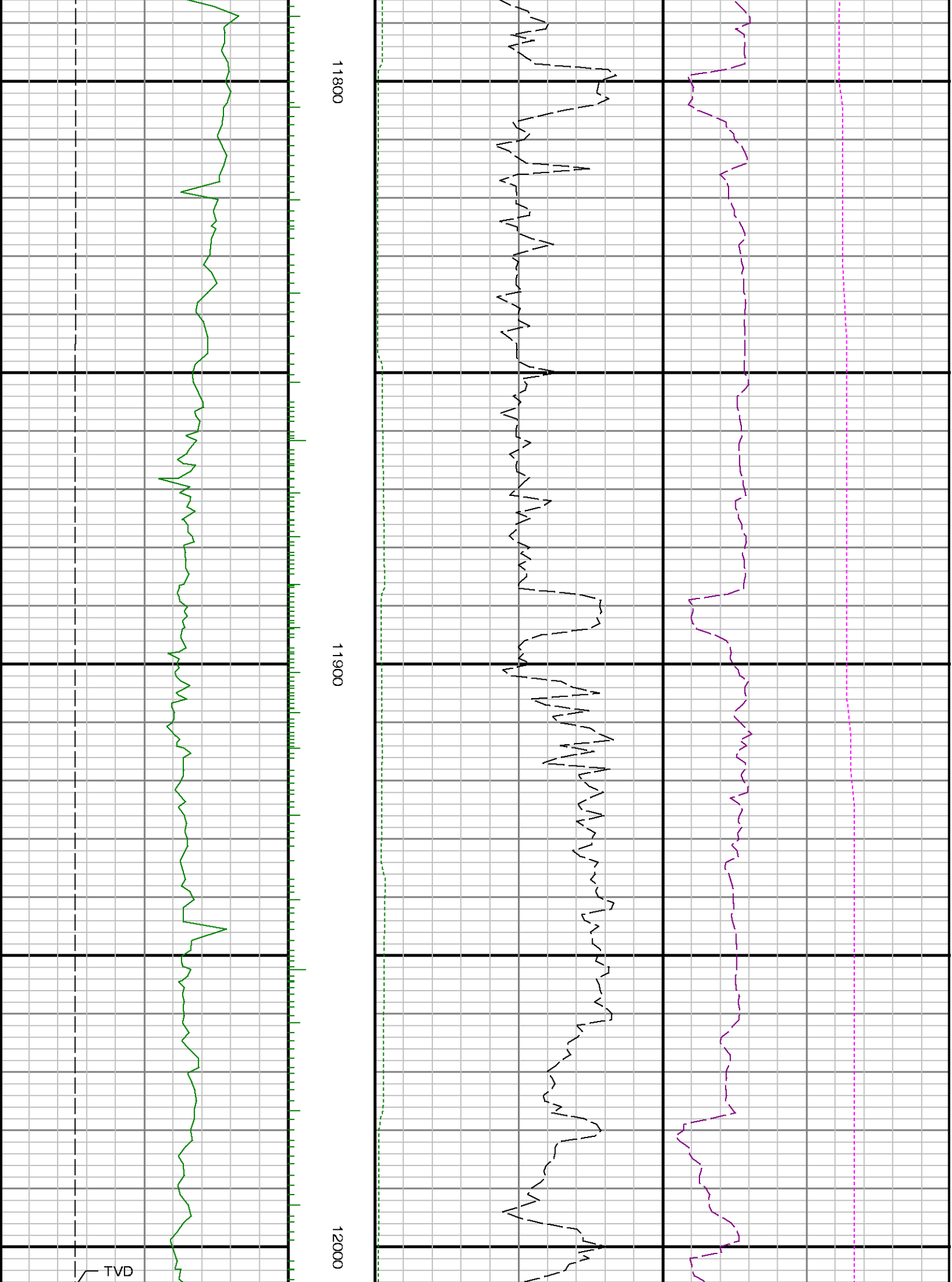


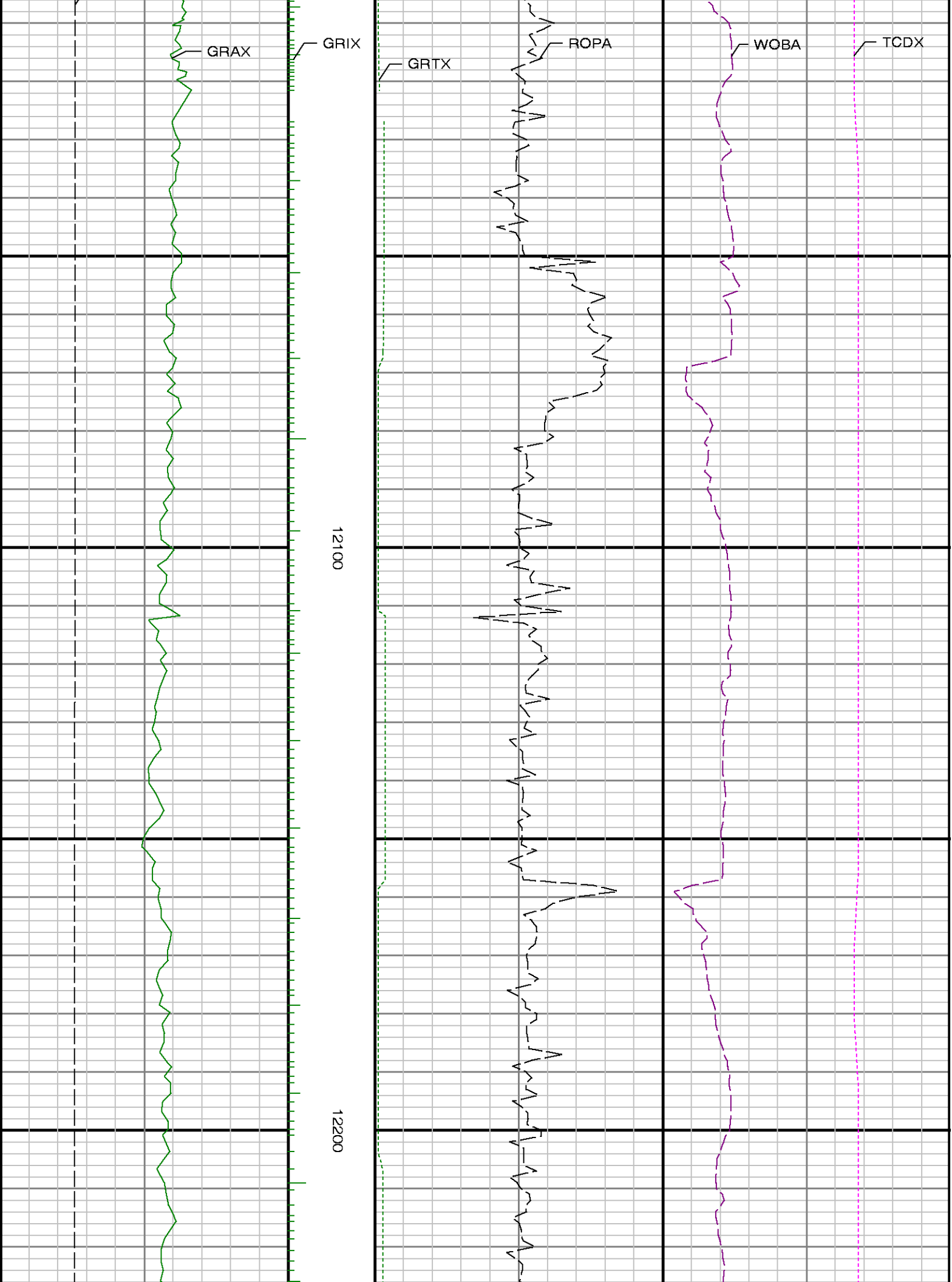
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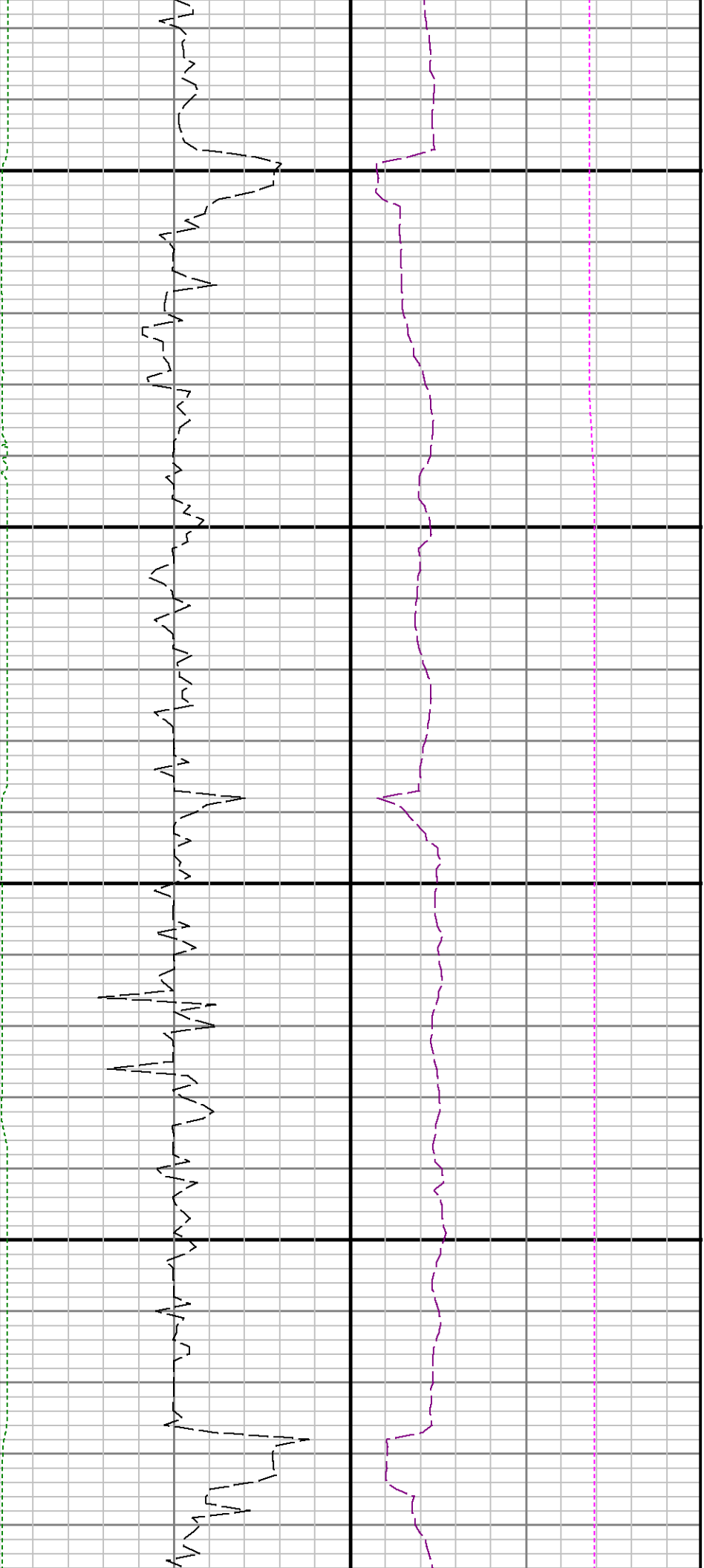
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GRSI

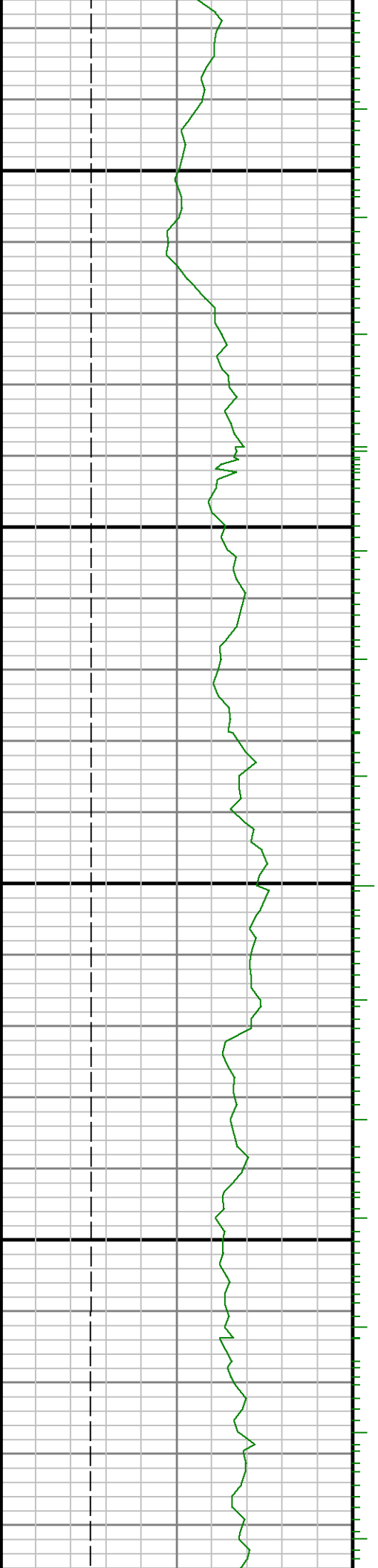


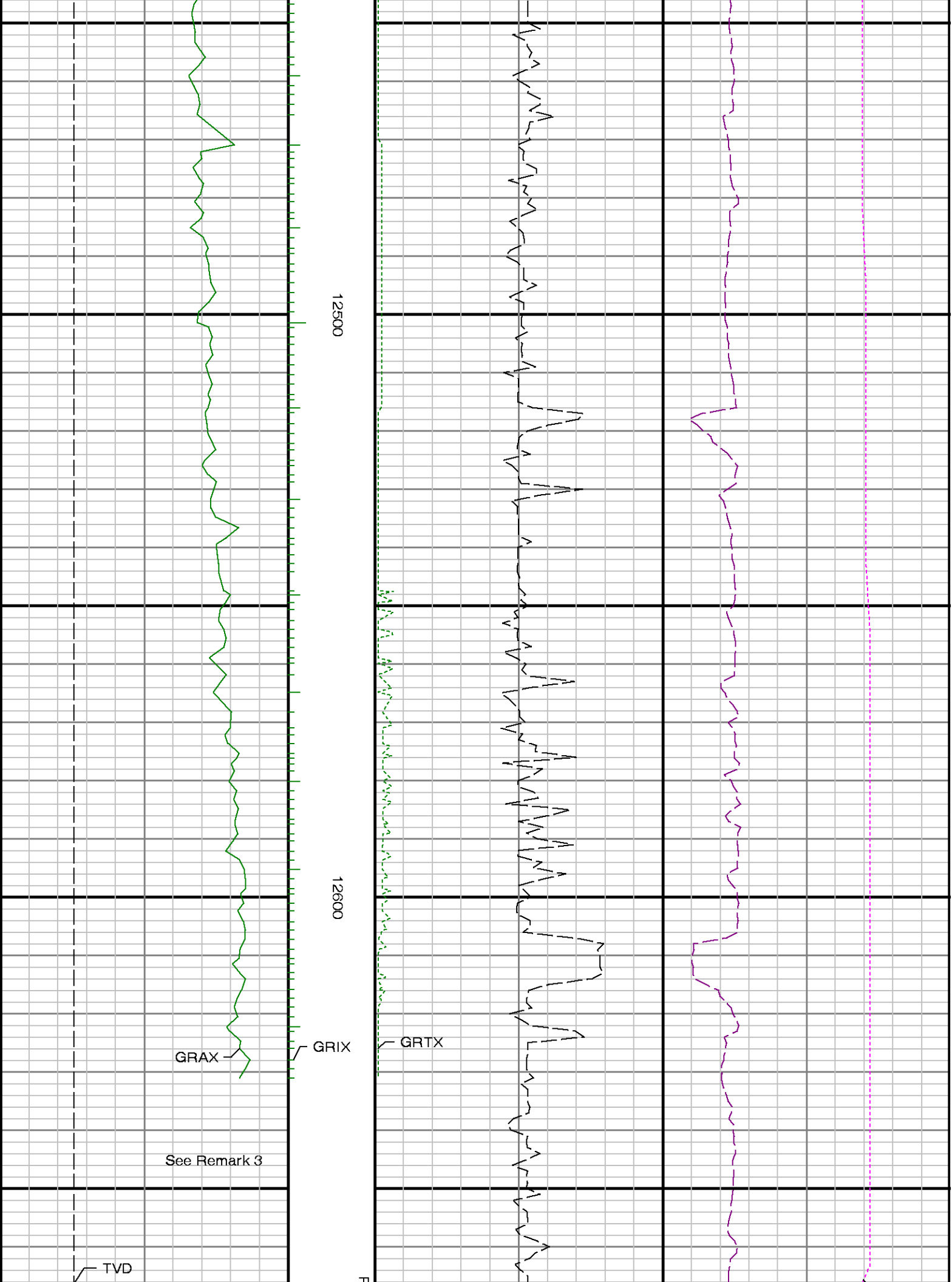




12300

12400





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Gamma Ray Apparent 0.5 ft Avg GRAX			MD feet 1:240	Rate of Penetration 3.0 ft Avg ROPA		Surface Weight On Bit 1.0 ft Avg WOBA		
<div><div>0</div><div>200</div><div>API</div><div>True Vertical Depth TVD</div><div>7300</div><div>6200</div><div>ft</div></div>		<div><div>800</div><div>0</div><div>ft/hr</div><div>Gamma Time Since Drilled GRTX</div><div>0</div><div>600</div><div>min</div></div>		<div><div>0</div><div>100</div><div>klbf</div><div>Downhole Temperature TCDX</div><div>100</div><div>300</div><div>degF</div></div>				