



Gamma Ray

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Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ.
						Top	Bottom	From	To	Start Logging	End Logging	Hours
						(ft)	(ft)	(ft)	(ft)			
1	1	13.500	PDC	3.50	Steerable	0.00	0.00	97.00	1870.00	2017-07-16 17:49	2017-07-17 00:27	4.66
2	2	7.875	PDC	2.00	Steerable	6400.00	12389.00	1870.00	12434.00	2017-08-25 00:38	2017-08-26 22:03	37.98

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Jeffrey Roth	2017-08-24	2017-08-27	William Roth	2017-08-24	2017-08-27			

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2017-07-16 20:00	1	96.00	Fresh Water	9.4	3	8.8	0.0	N/A	Active Pit	1200	0.00
2017-08-24 20:00	2	1870.00	Diesel-Oil Based Mud	9.2	18	0	0.0	75.3/24.7	Active Pit	38000	0.00
2017-08-25 20:00	2	6850.00	Diesel-Oil Based Mud	9.0	19	0	0.0	74.3/25.7	Active Pit	40000	0.00
2017-08-26 20:00	2	11610.00	Diesel-Oil Based Mud	9.1	23	0	0.0	73/27	Active Pit	38000	0.00

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	Sensor Sub	ZAPS 230942	Directional (mag)	8.44	54.13	8.990	3.250
1	Sensor Sub	ZAPS 230942	VSS	8.44	54.13	8.990	3.250
1	Sensor Sub	ZAPS 230942	Pressure	31.05	76.74	8.990	3.250
2	NaviGamma	11823437	Gamma (single)	11.04	41.42	6.500	3.250
2	NaviGamma	ZDHP6058	Directional (mag)	14.46	44.84	6.500	3.250
2	NaviGamma	12392361	VSS	14.46	44.84	6.500	3.250

Mnemonic	Name	Description
GAM	APS	APS EM Module

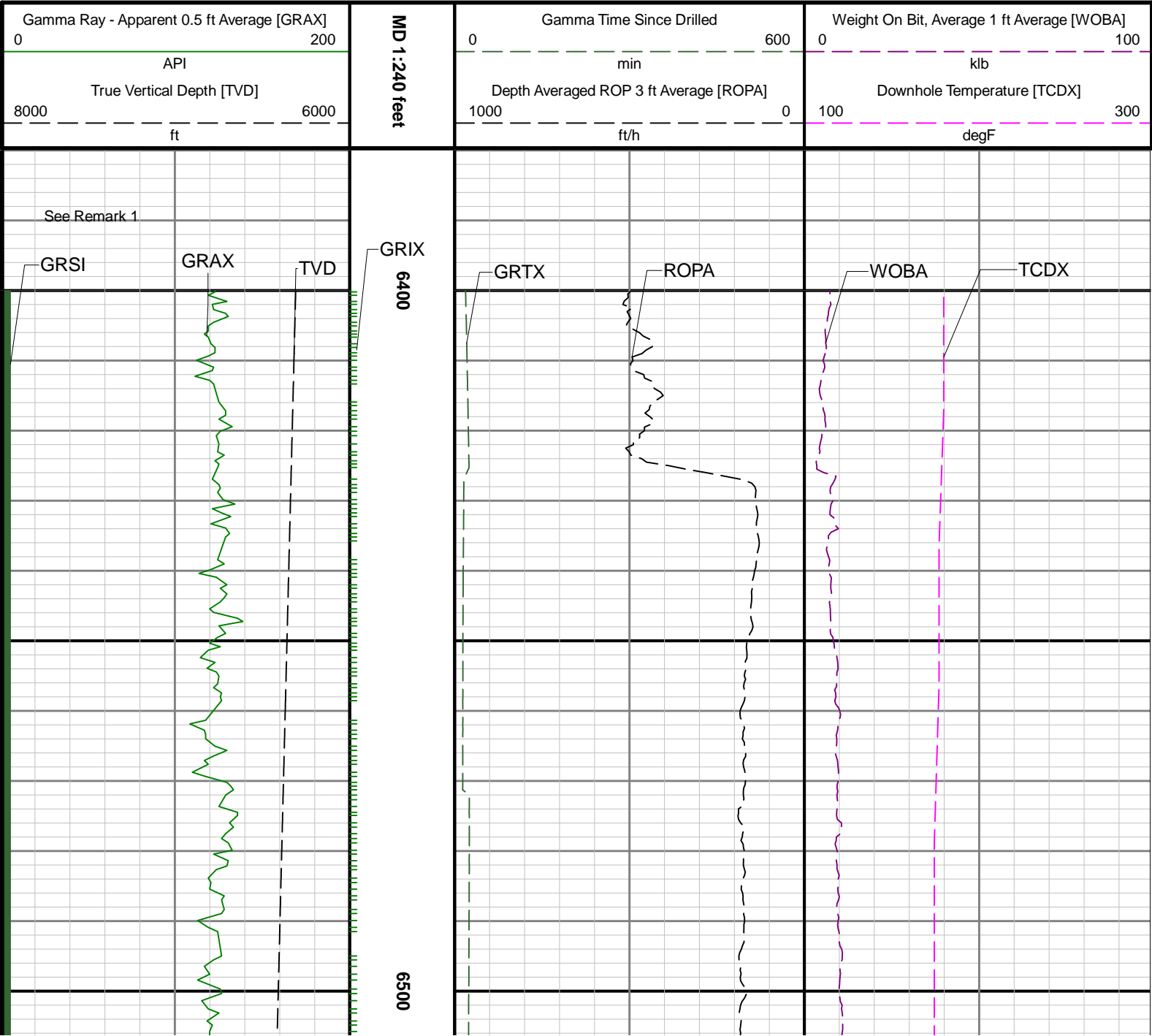
- 1 Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
- 2 A sliding indicator is shown to the left edge of track 1 as a heavy line. The indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.
- 3 Baker Hughes run 1 utilized 8 inch APS EM service (Directional-only) behind an 13.50 inch bit and steerable assembly from 17 to 1870 feet MD (17 to 1842 feet TVD). No logging data acquired during this run.
- 4 Baker Hughes run 2 utilized 6.50 inch NaviGamma services (Gamma Ray and Directional) behind a 7 7/8 inch bit and steerable assembly from 1870 to 12434 feet MD (1842 to 7129 feet TVD).
- 5 Numerous gaps are present throughout the log due to surveying while on bottom drilling ahead.
- 6 Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.

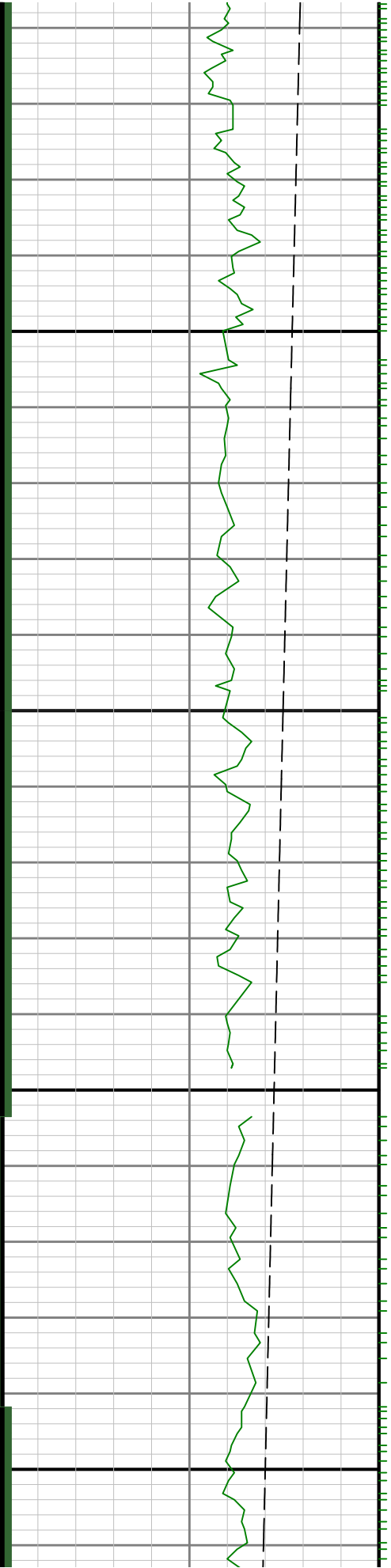
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	6390.00	7.875	2	Baker Hughes logging services began 6400 feet MD (6320 feet TVD) per customer request.
2	12430.00	7.875	2	The interval from 12389 to 12434 feet MD (7129 feet TVD) was not logged due to sensor to bit offset at the end of Run 2.

2	12430.00	7.073	2
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Curve Mnemonics

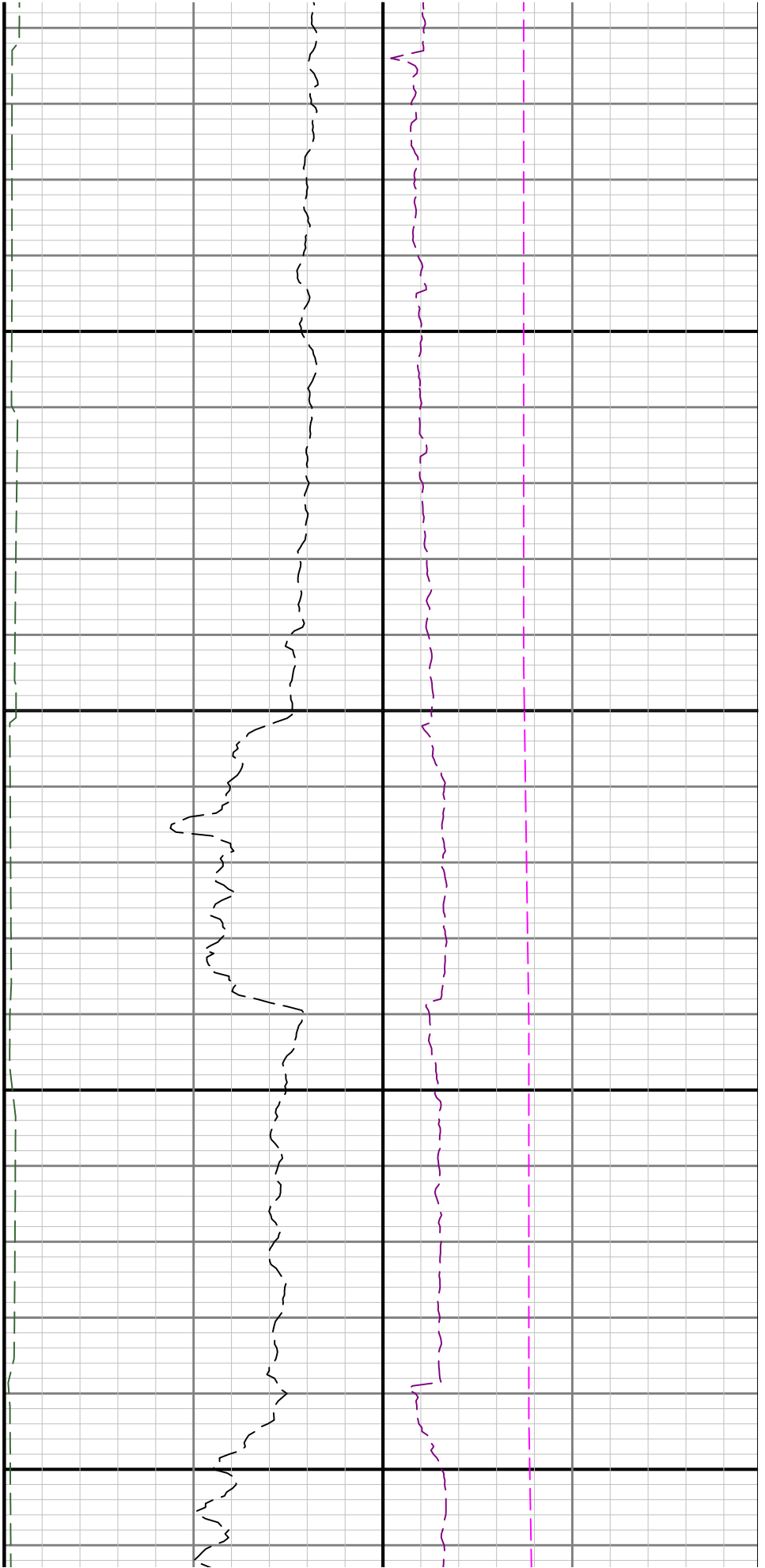
Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	OnTrak - Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	OnTrak - Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	OnTrak - Gamma Ray - Time Since Drilled - Real-Time	min
GRSI	Sliding Indicator Flag	unitless

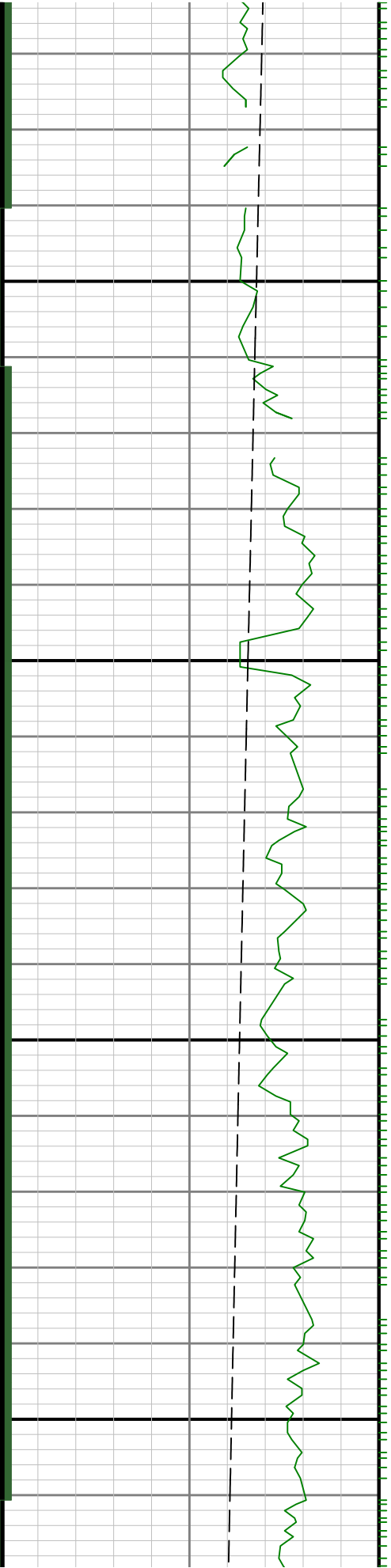




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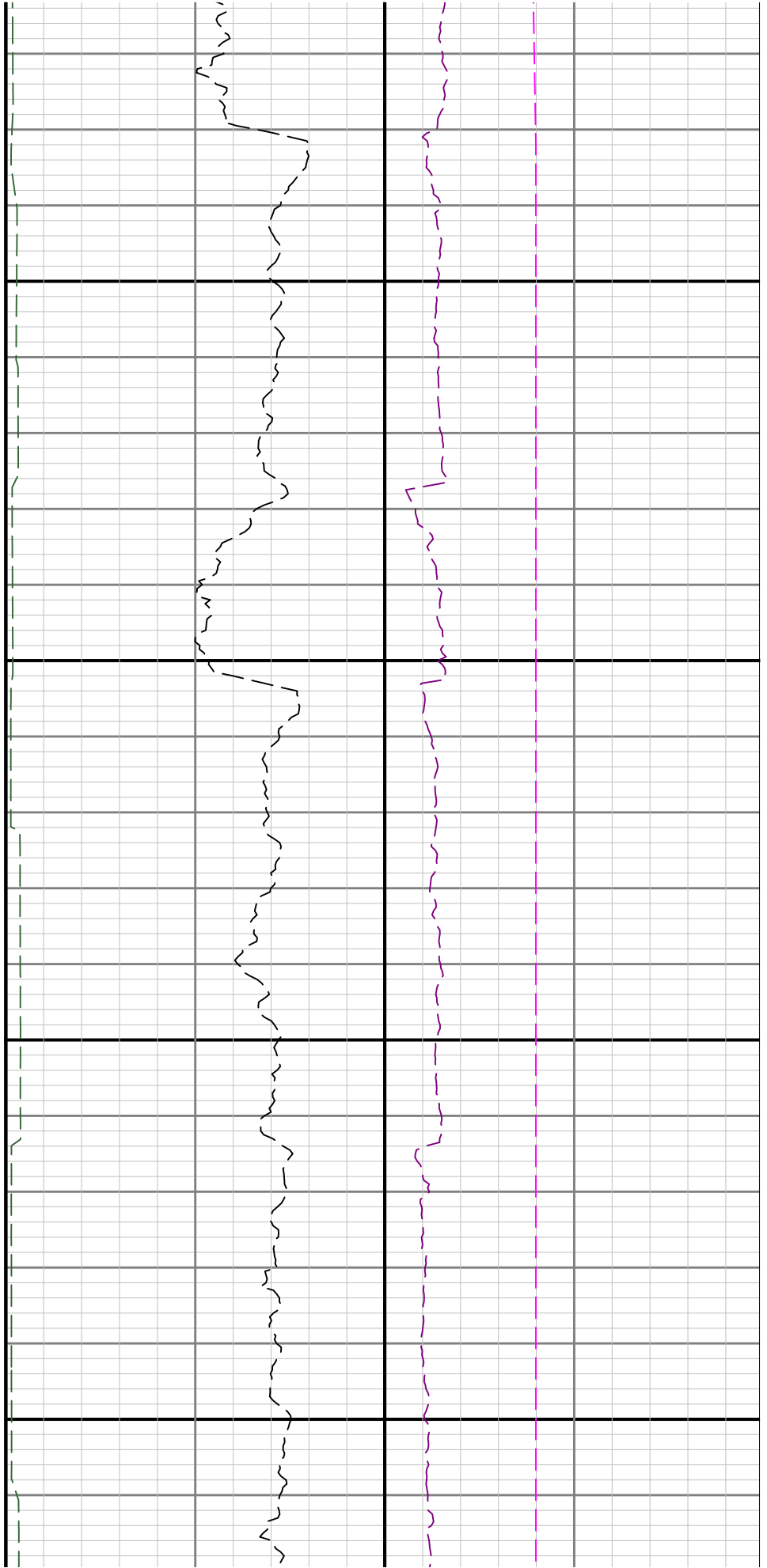
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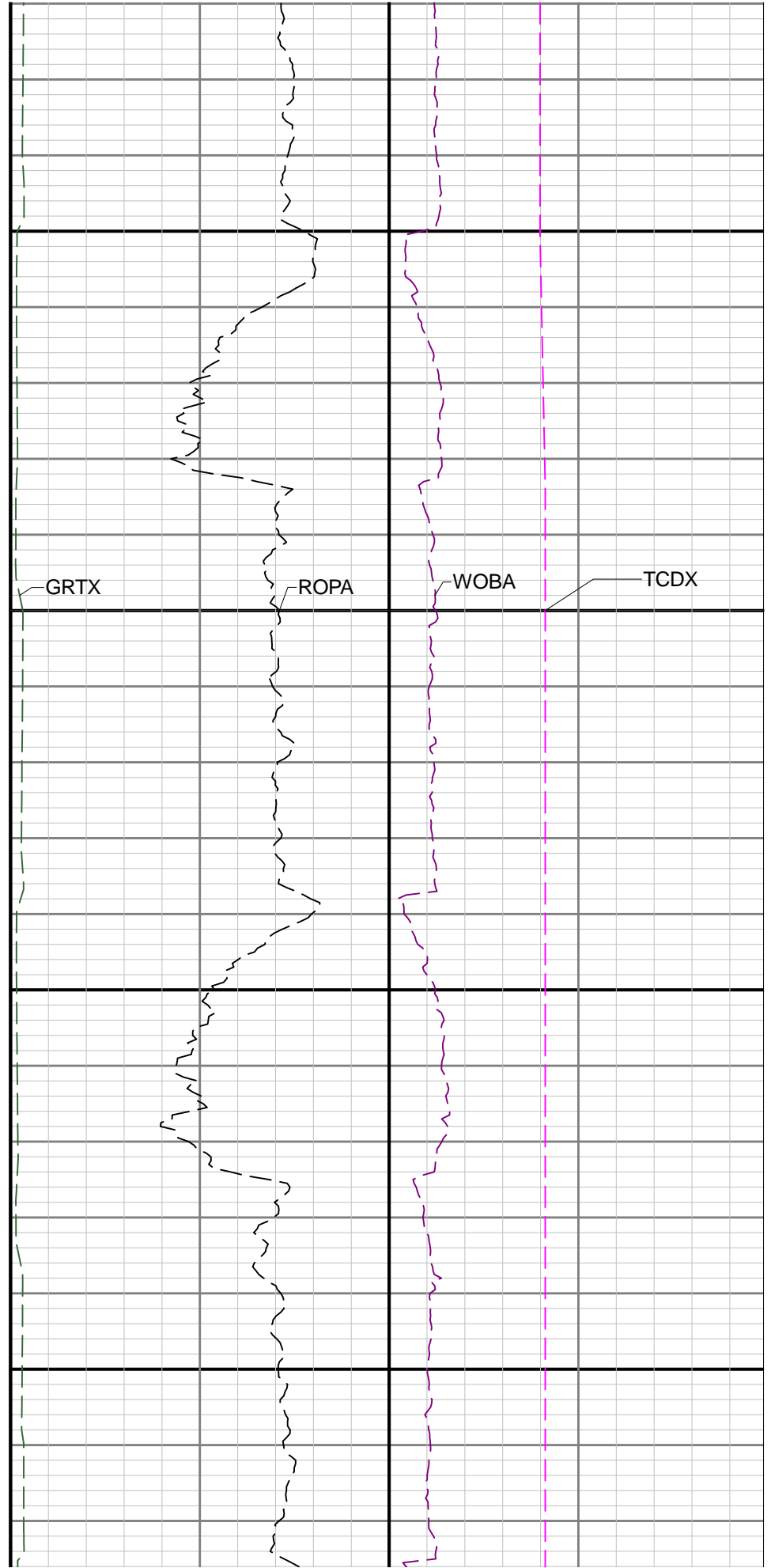
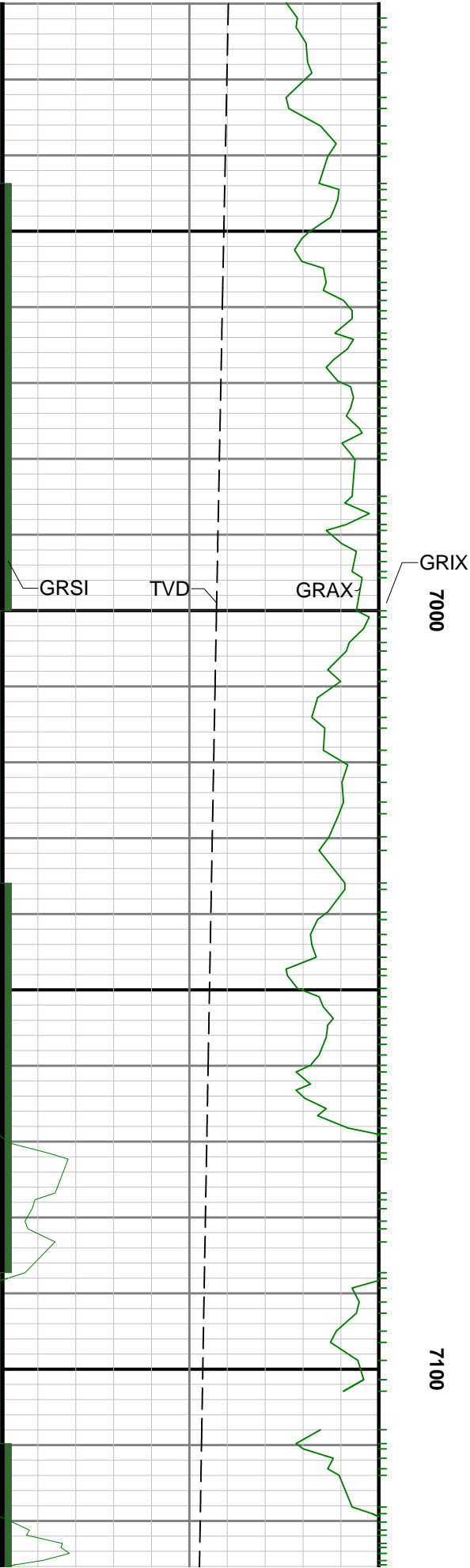


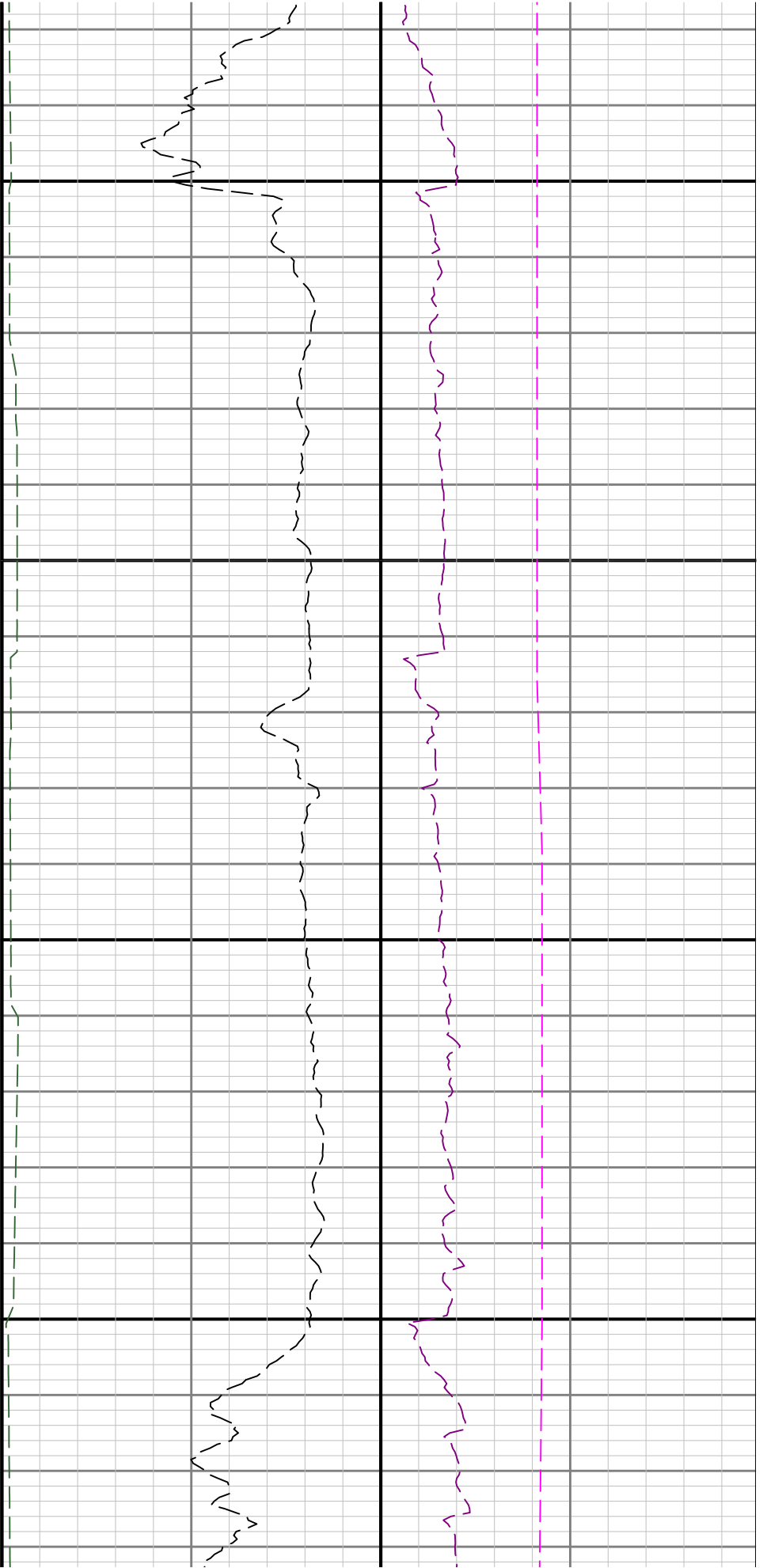


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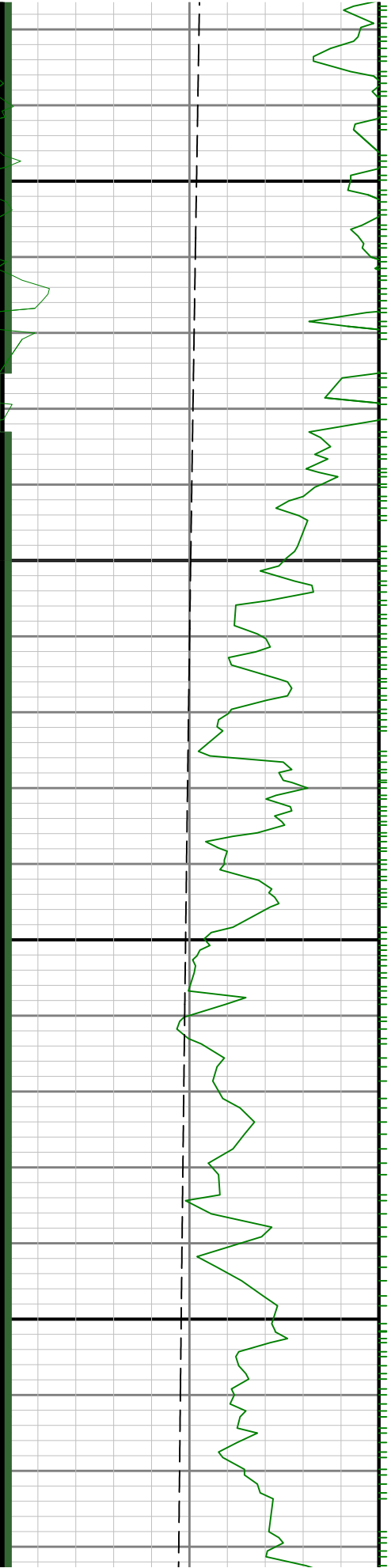


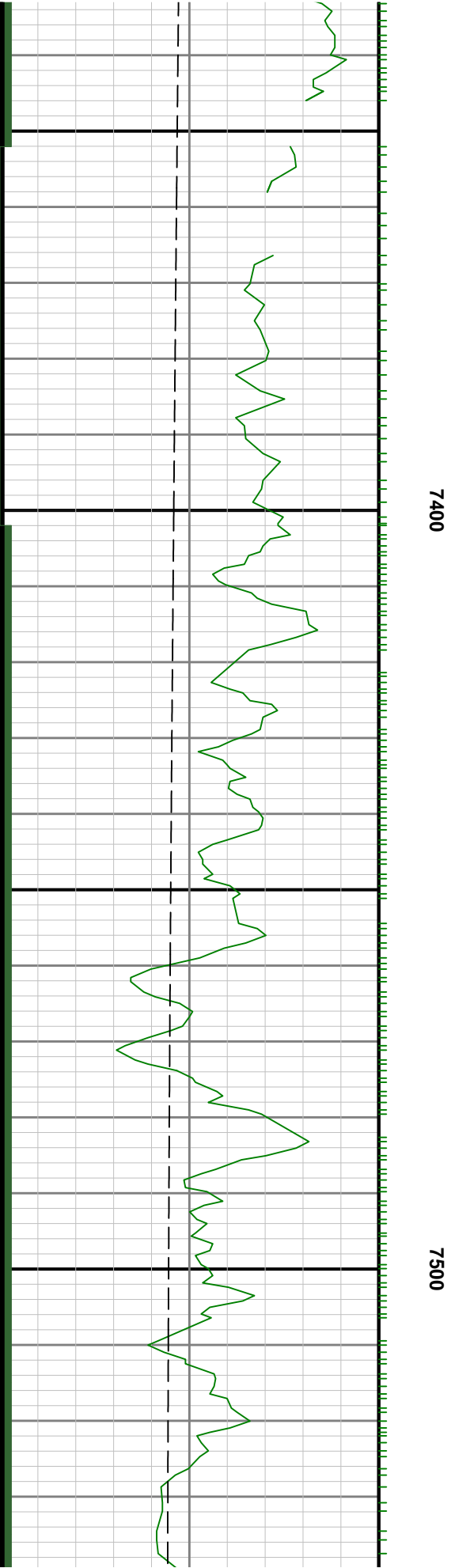
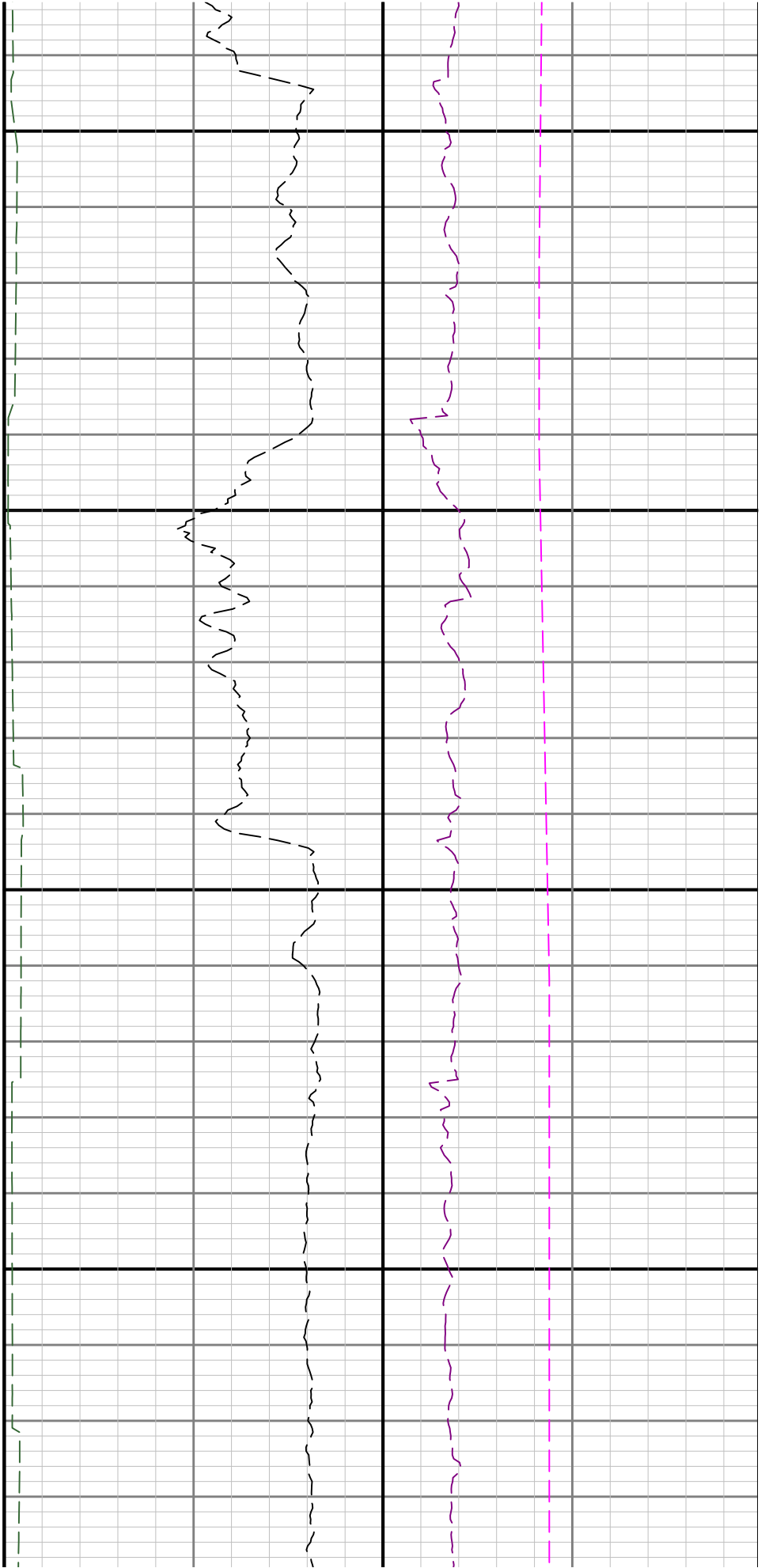


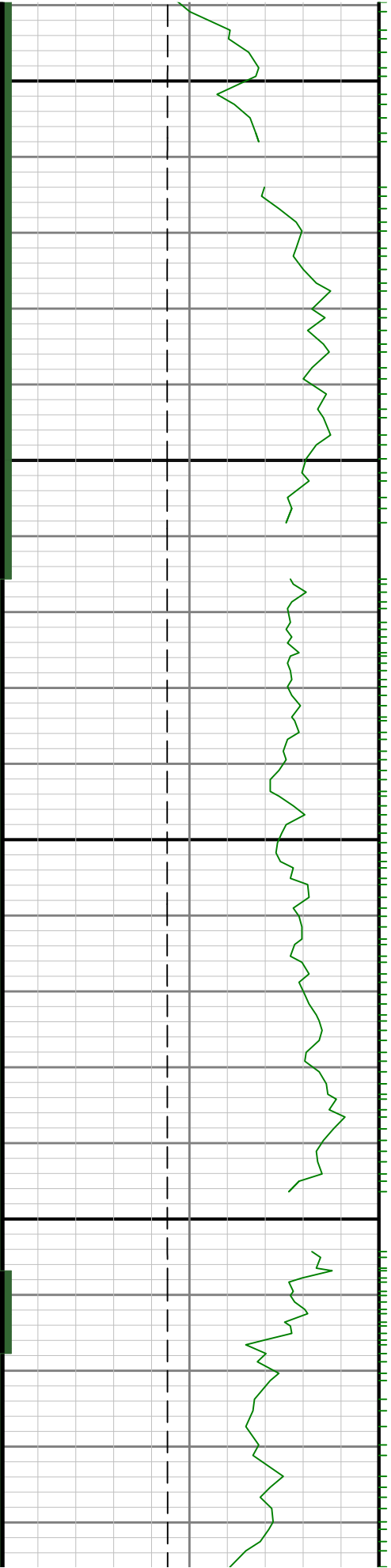


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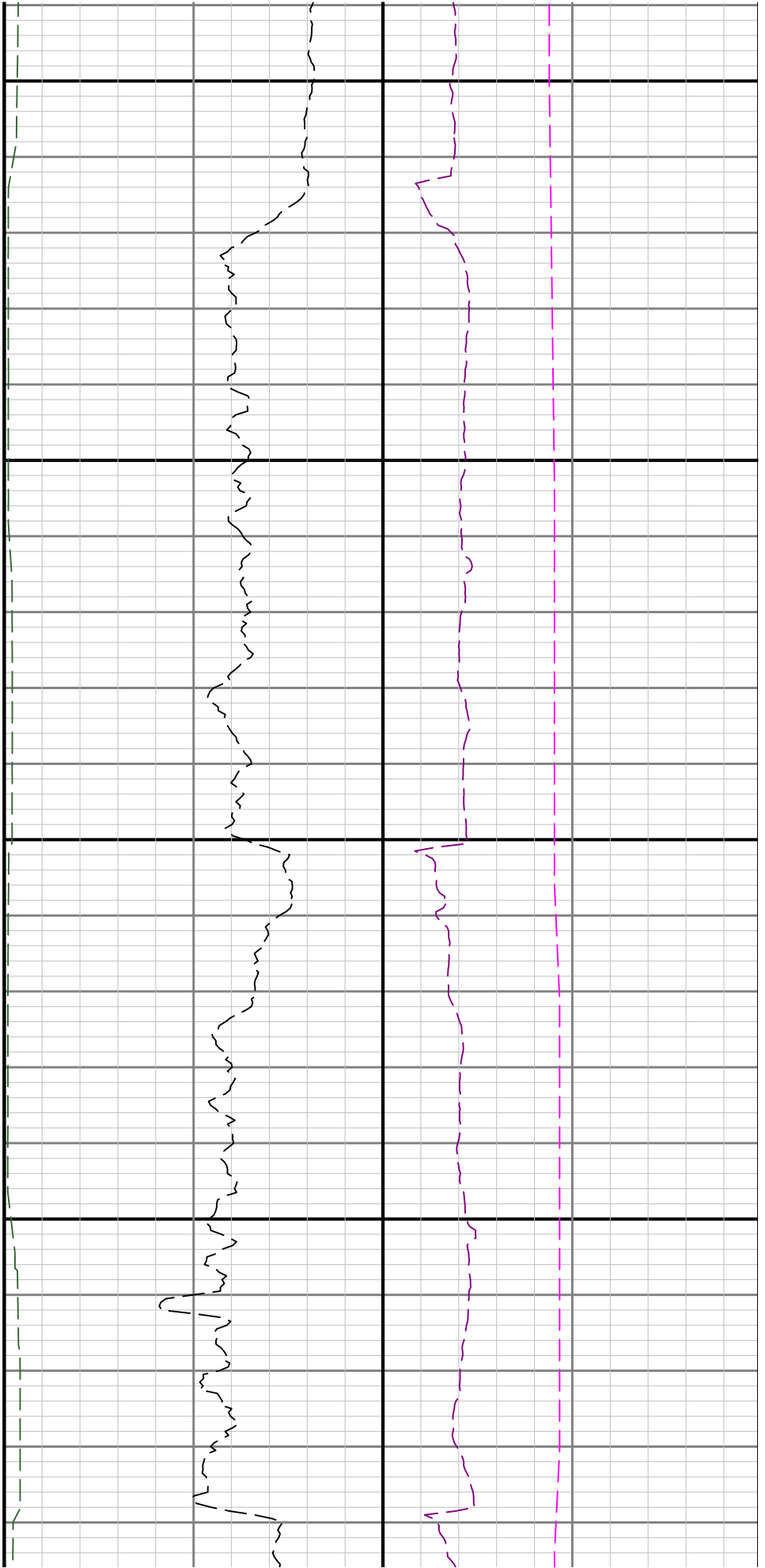


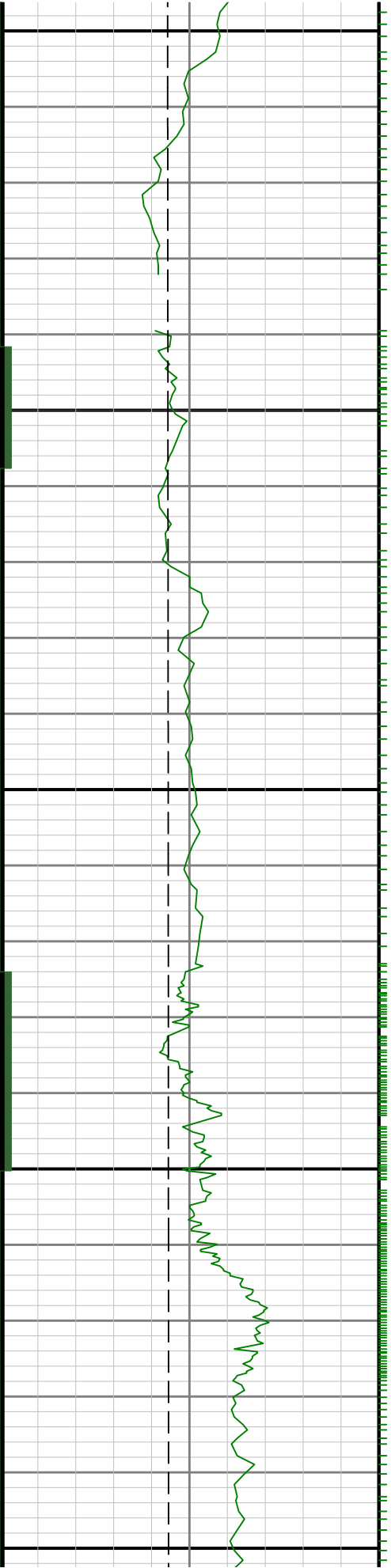




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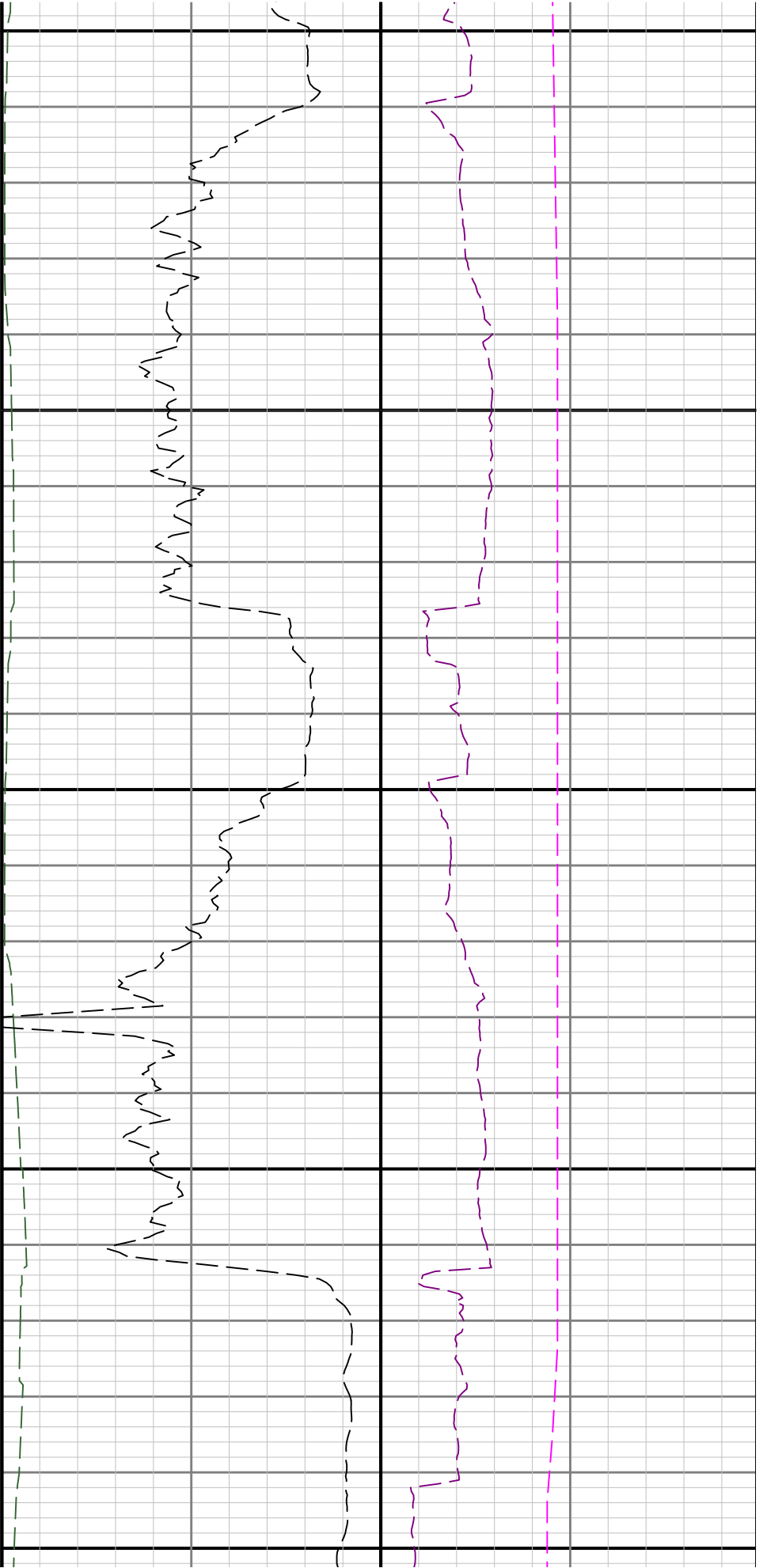
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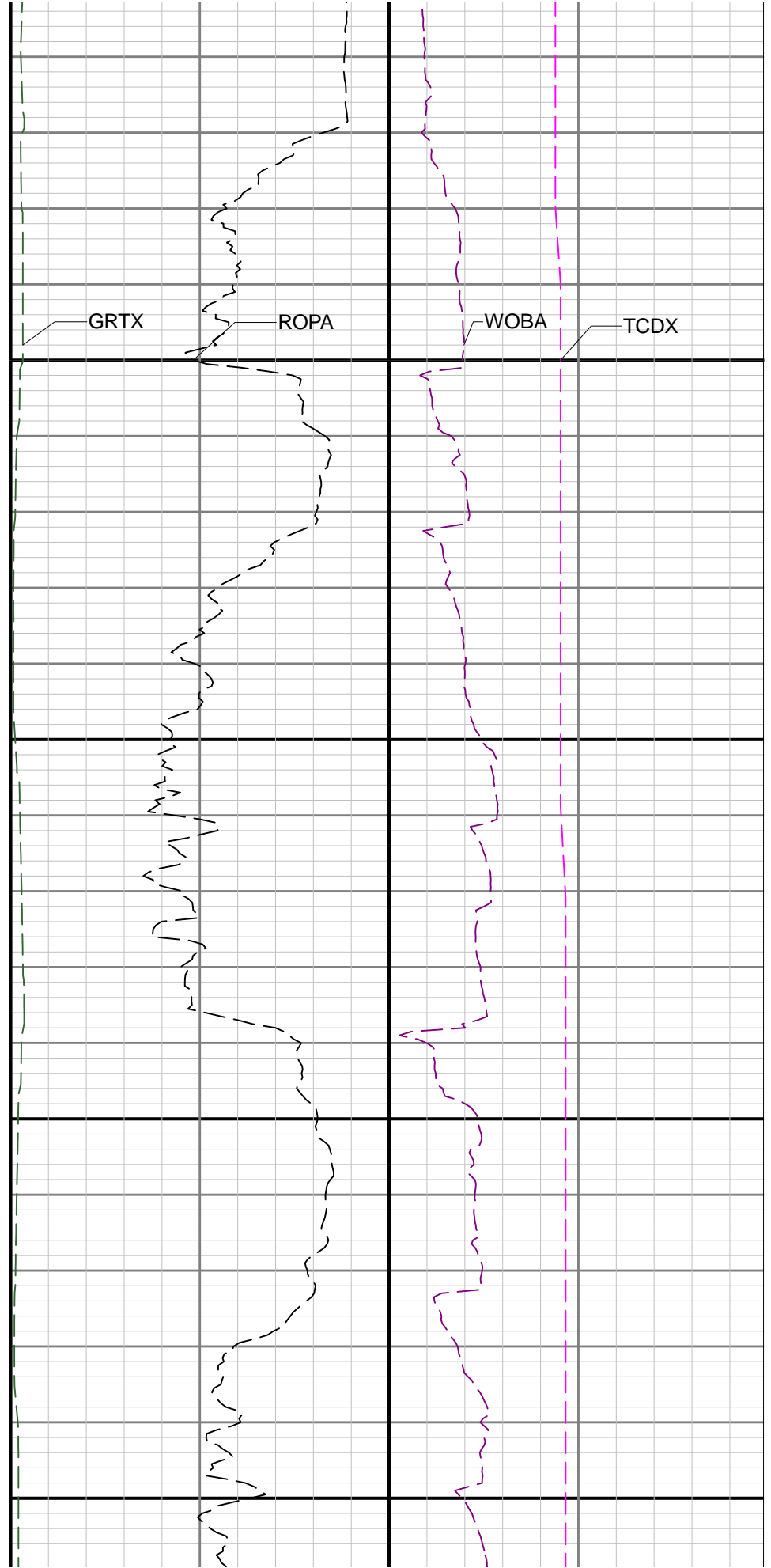
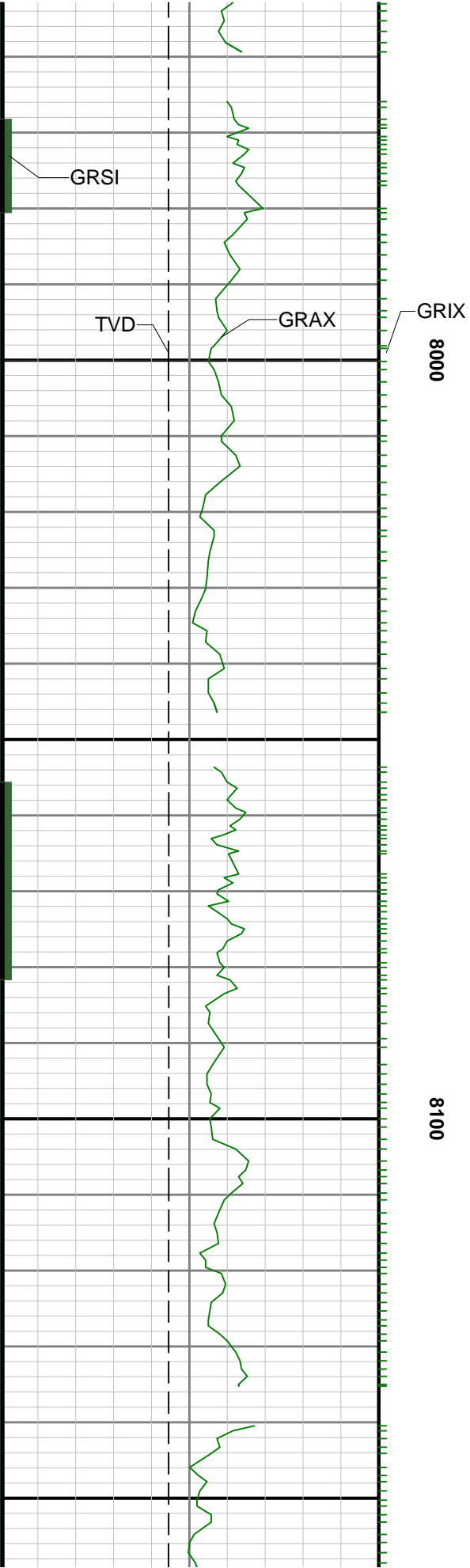


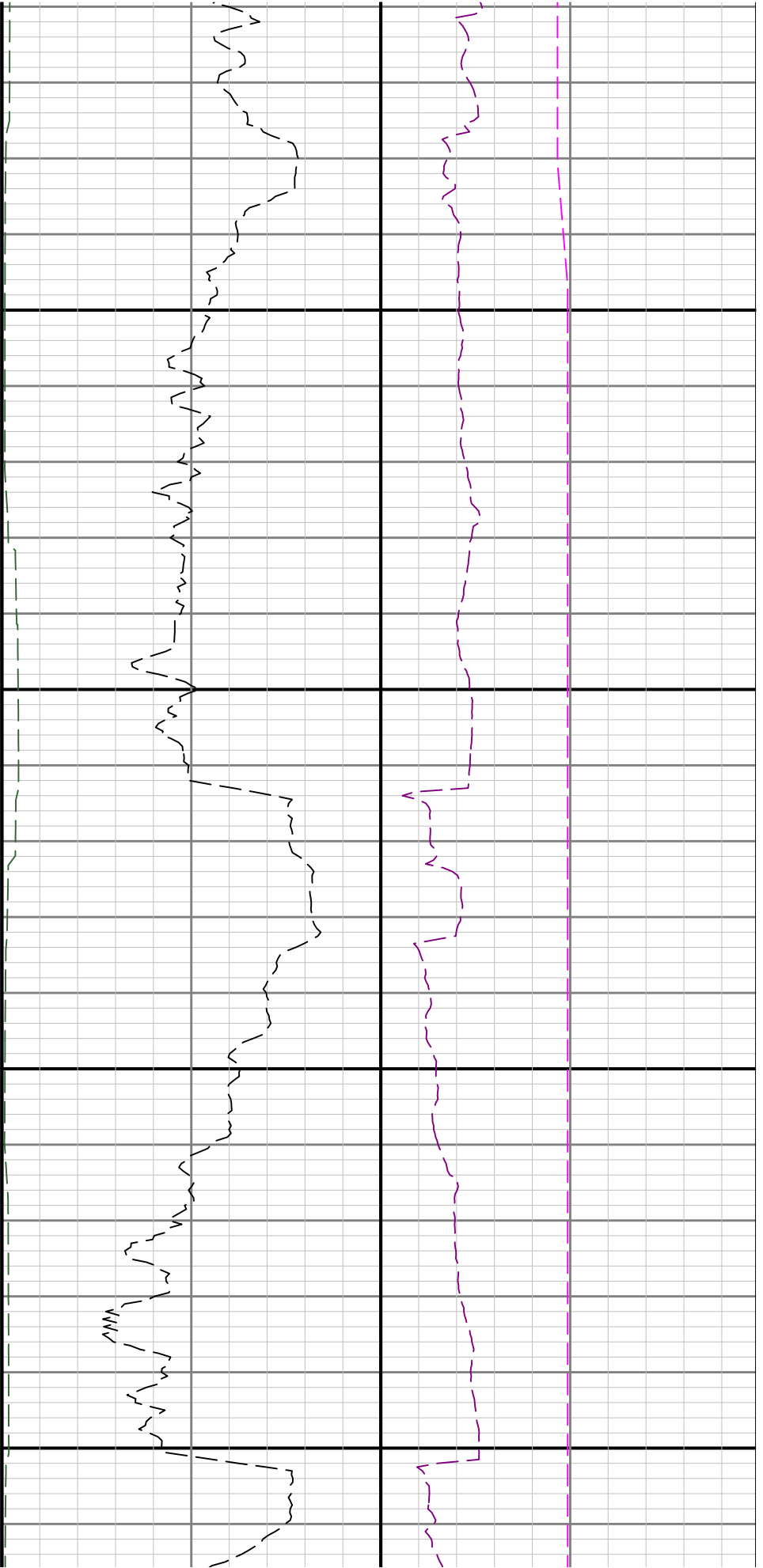


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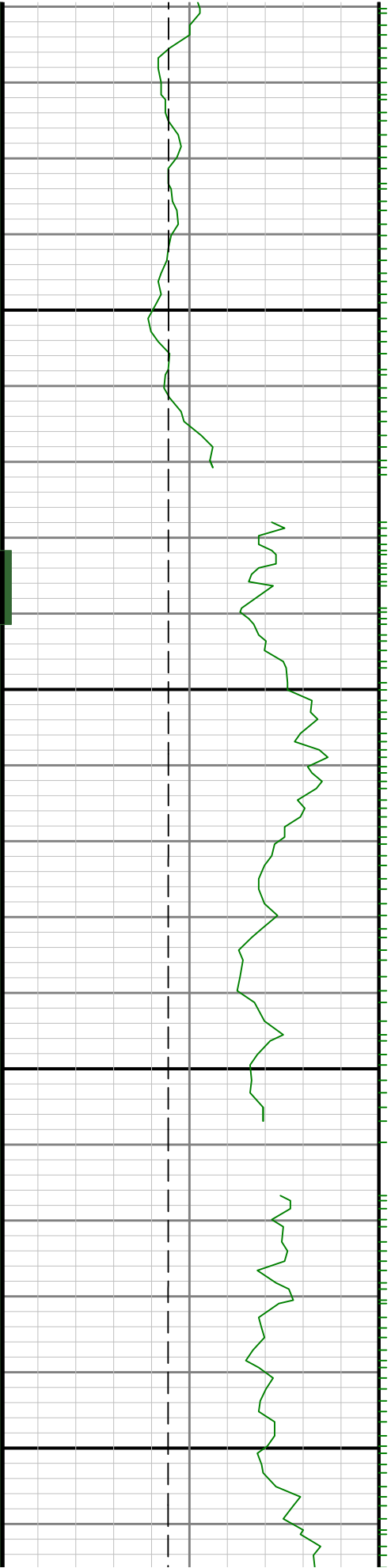


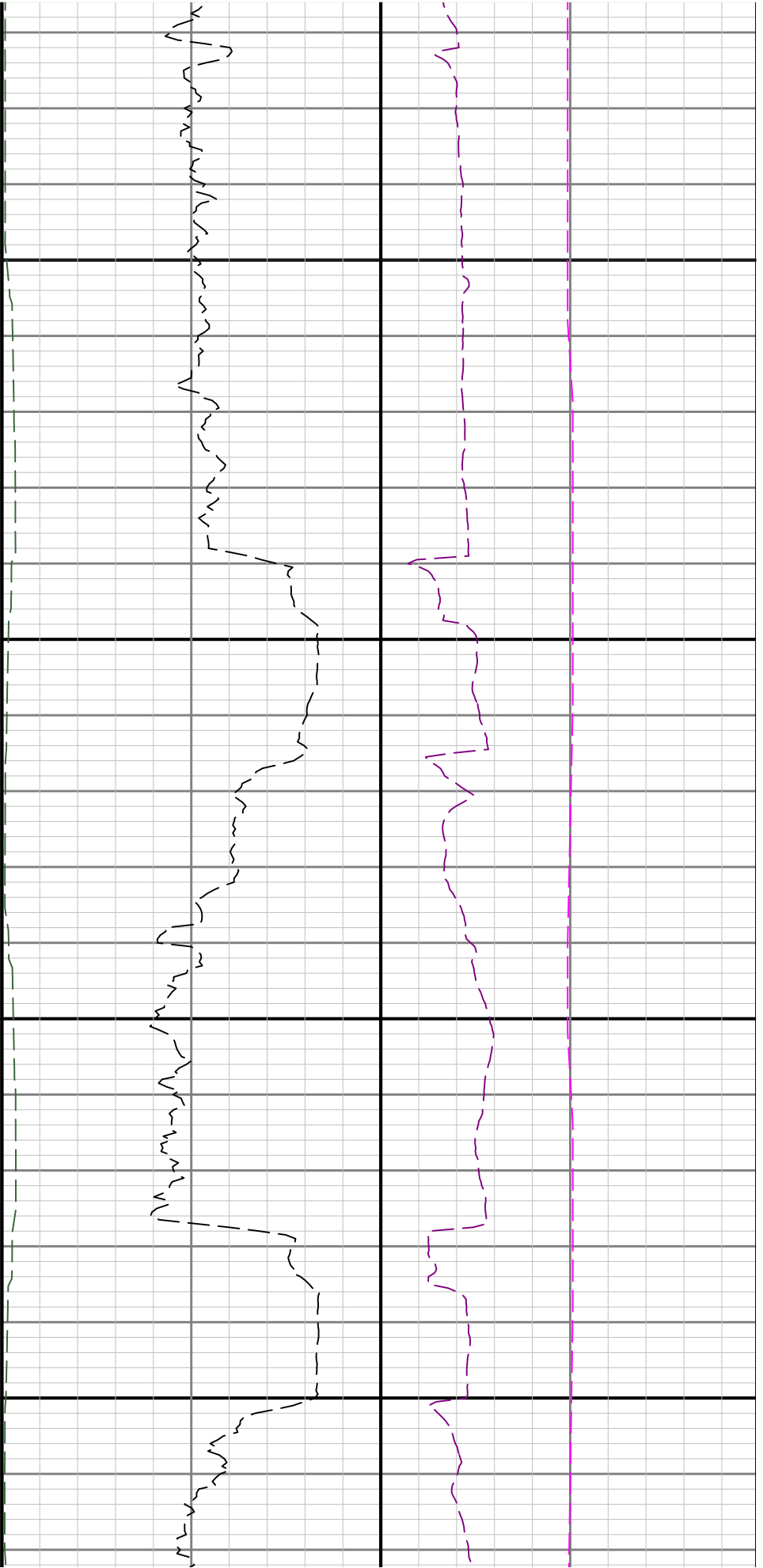




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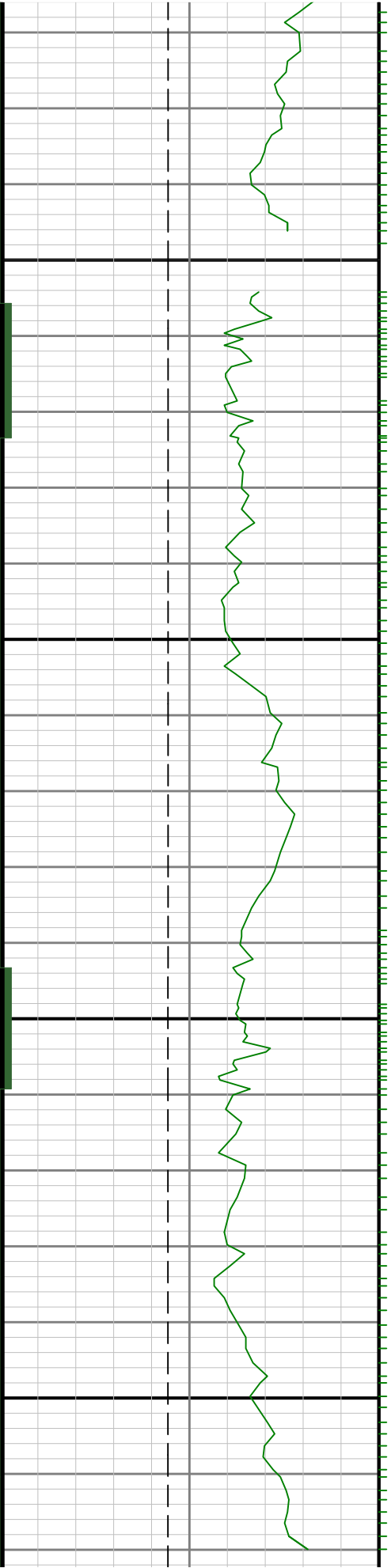
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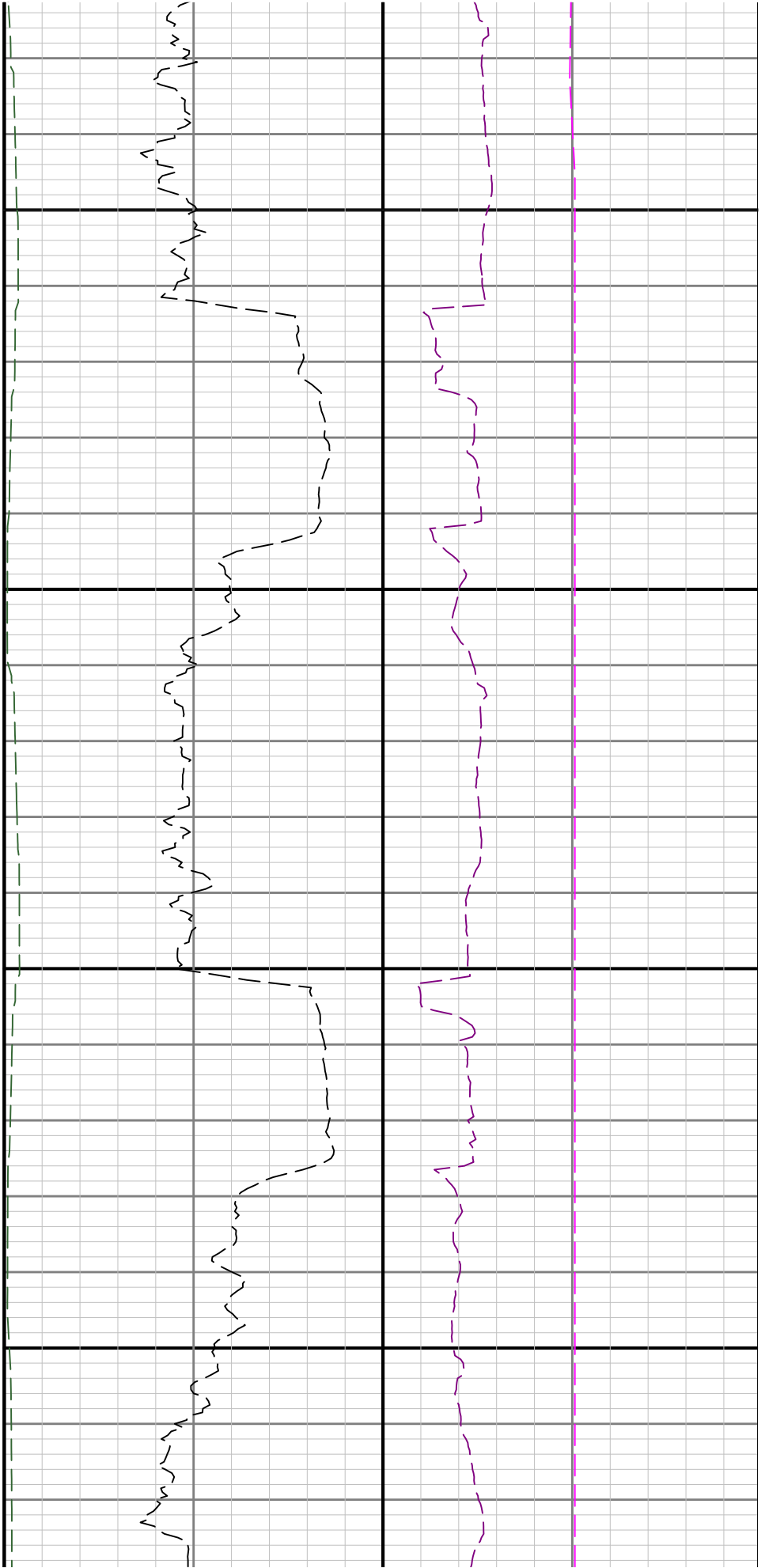
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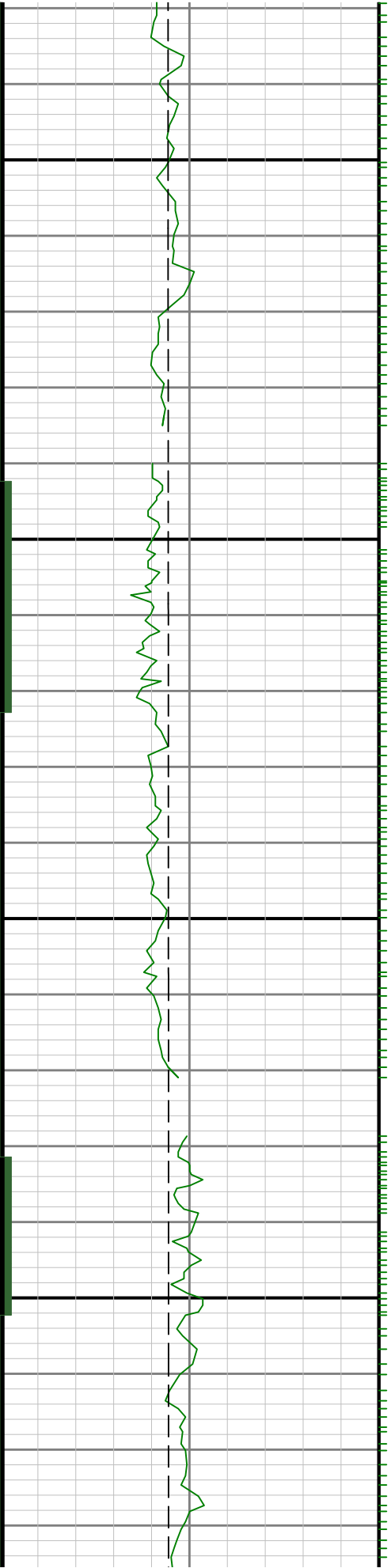




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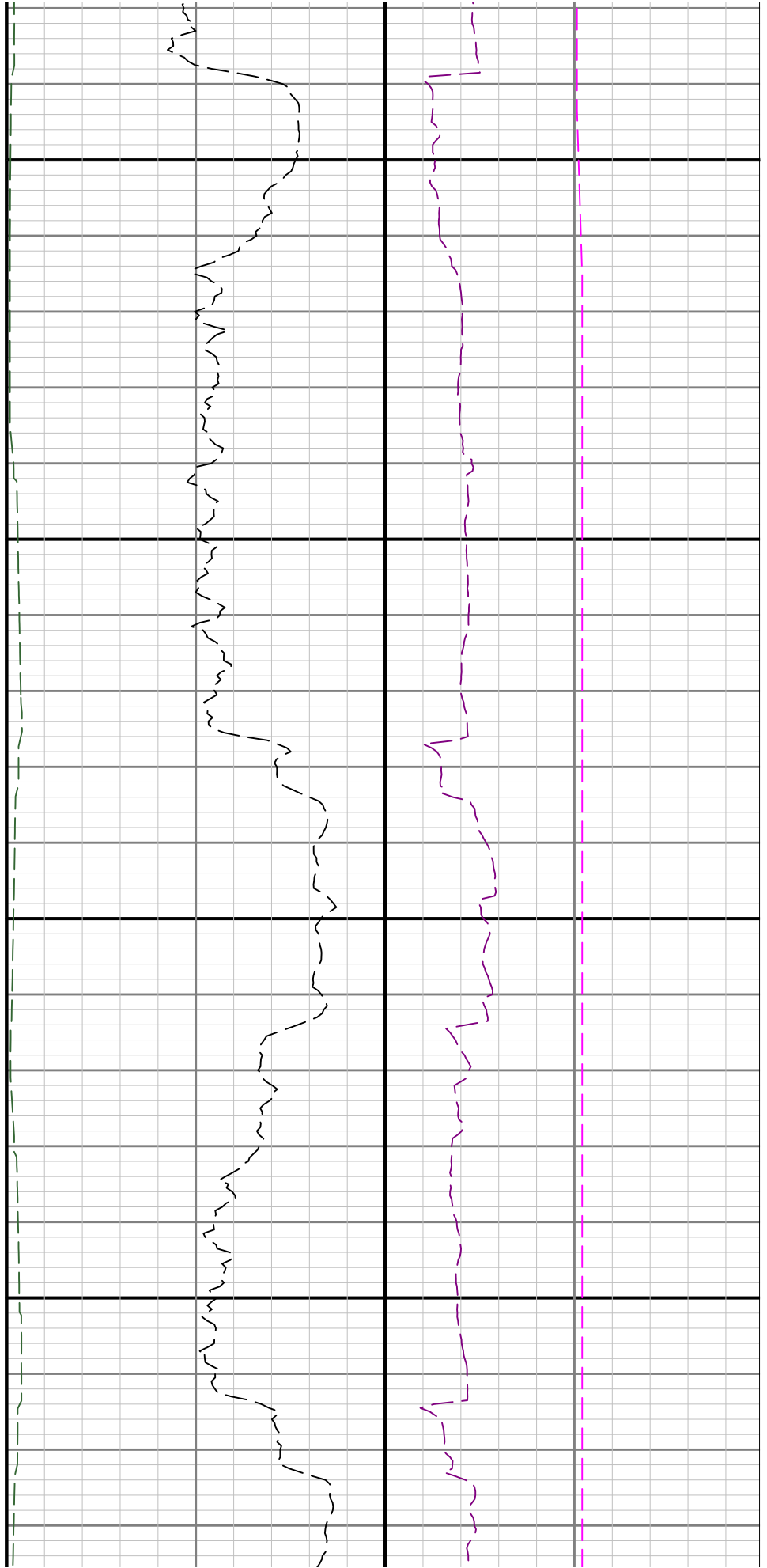
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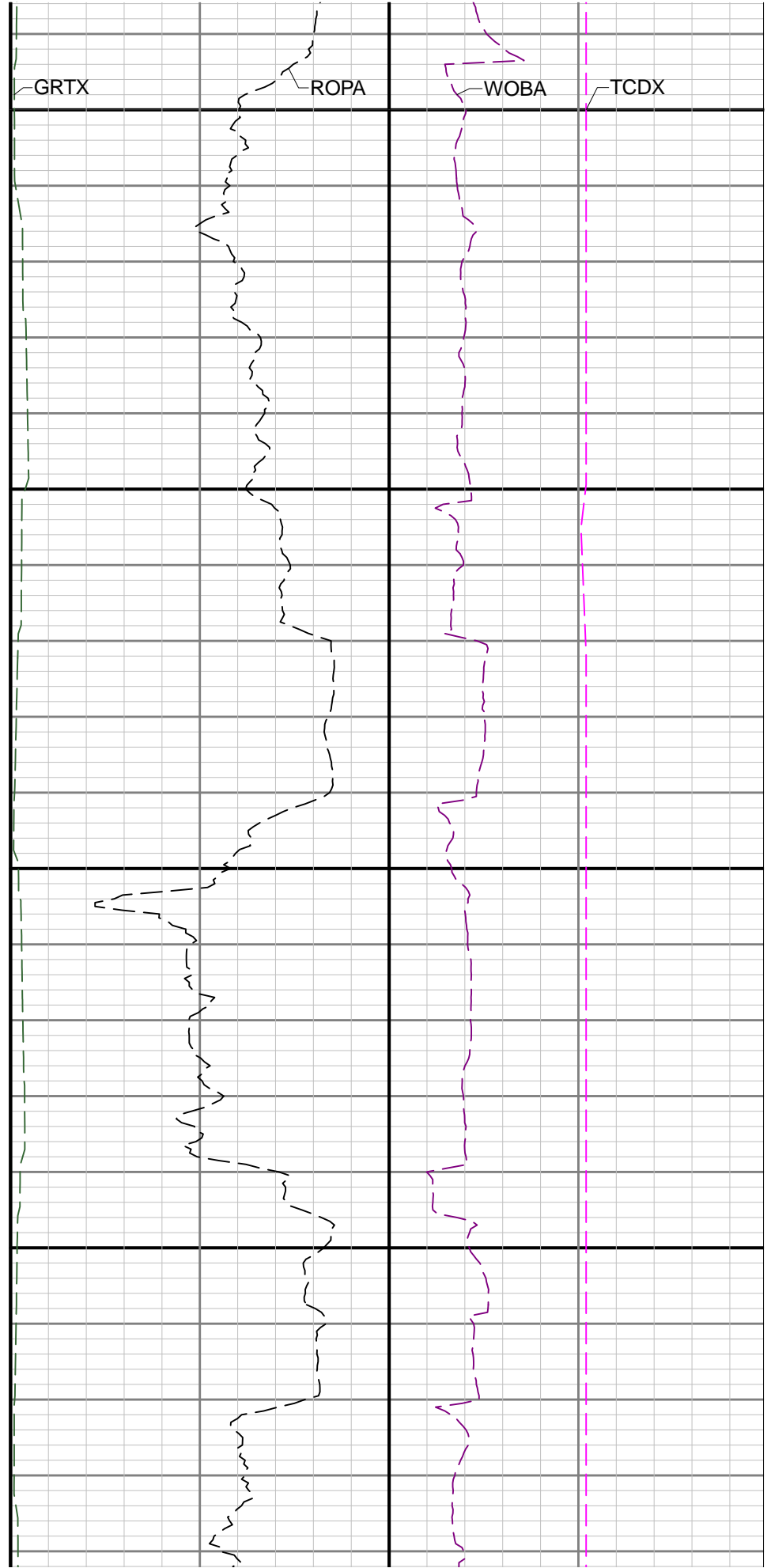
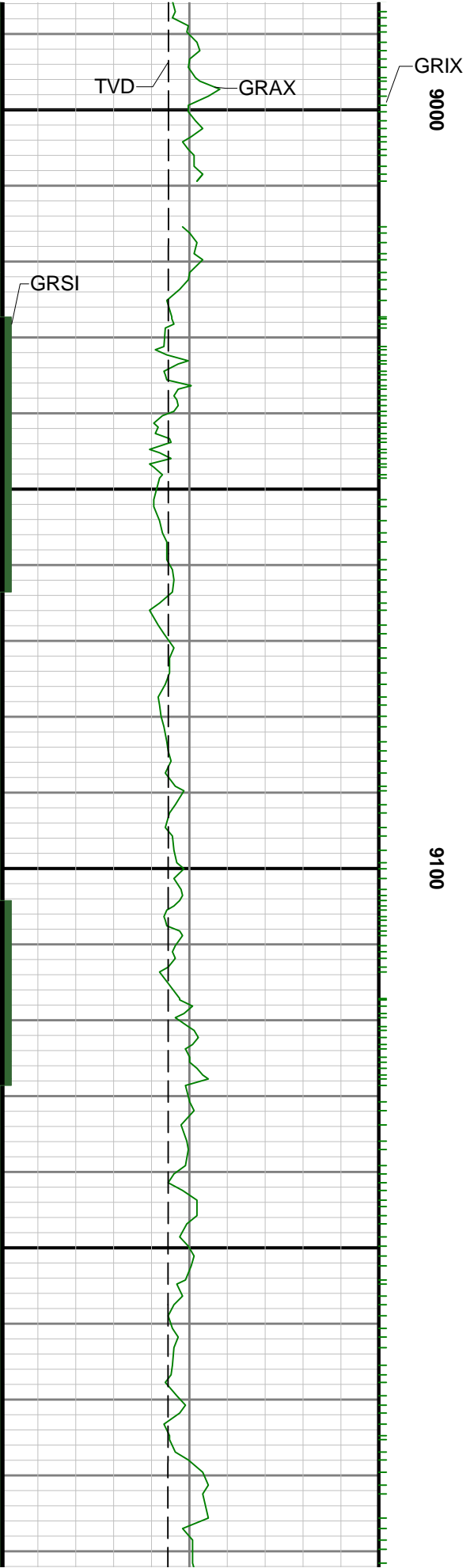


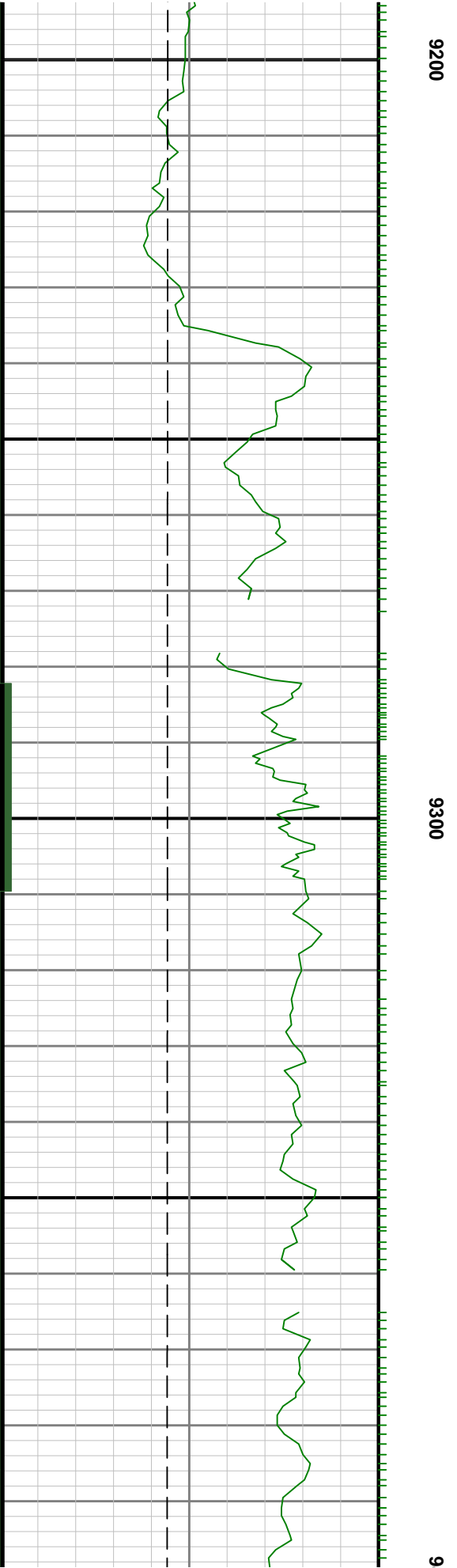
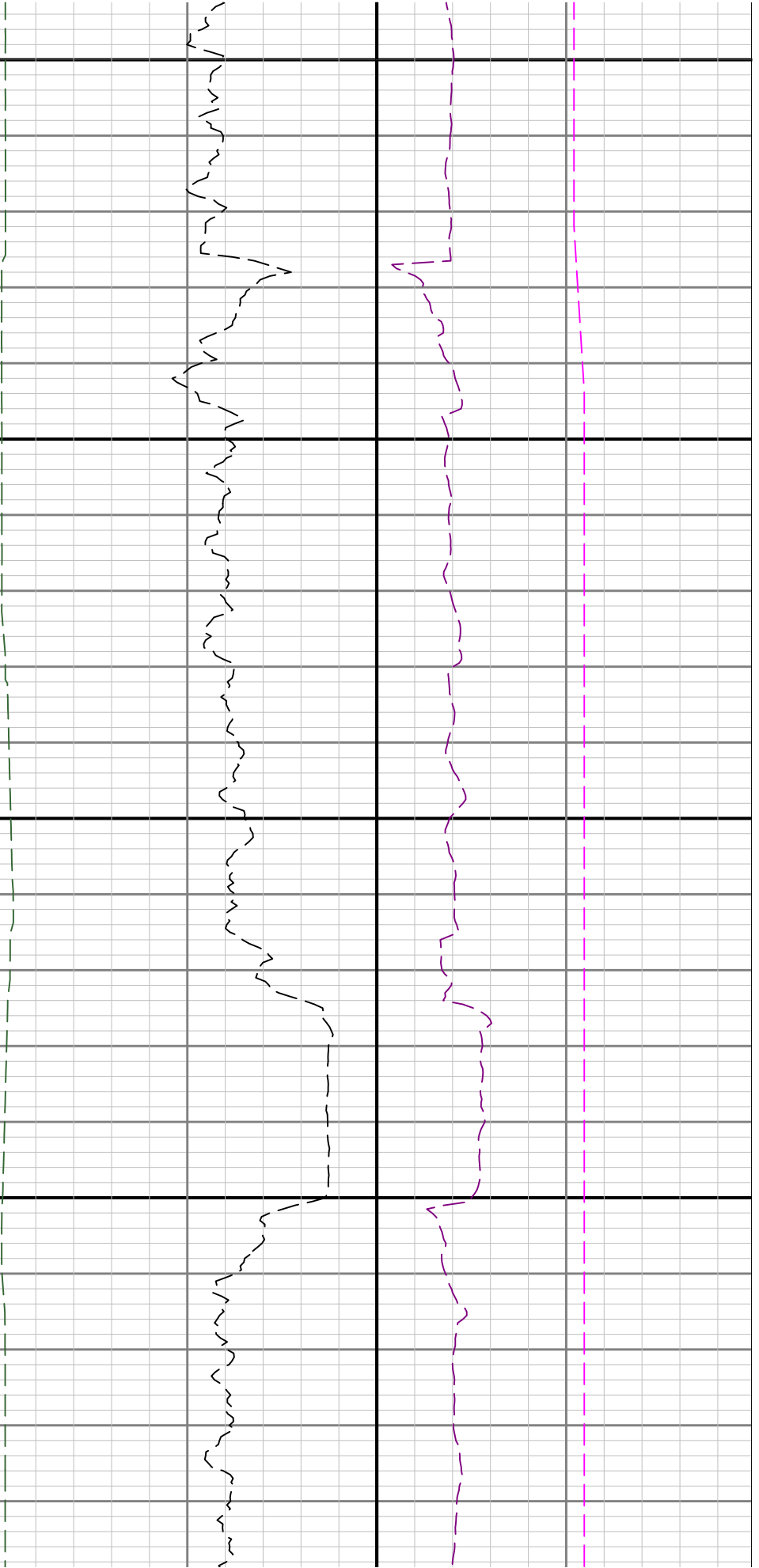


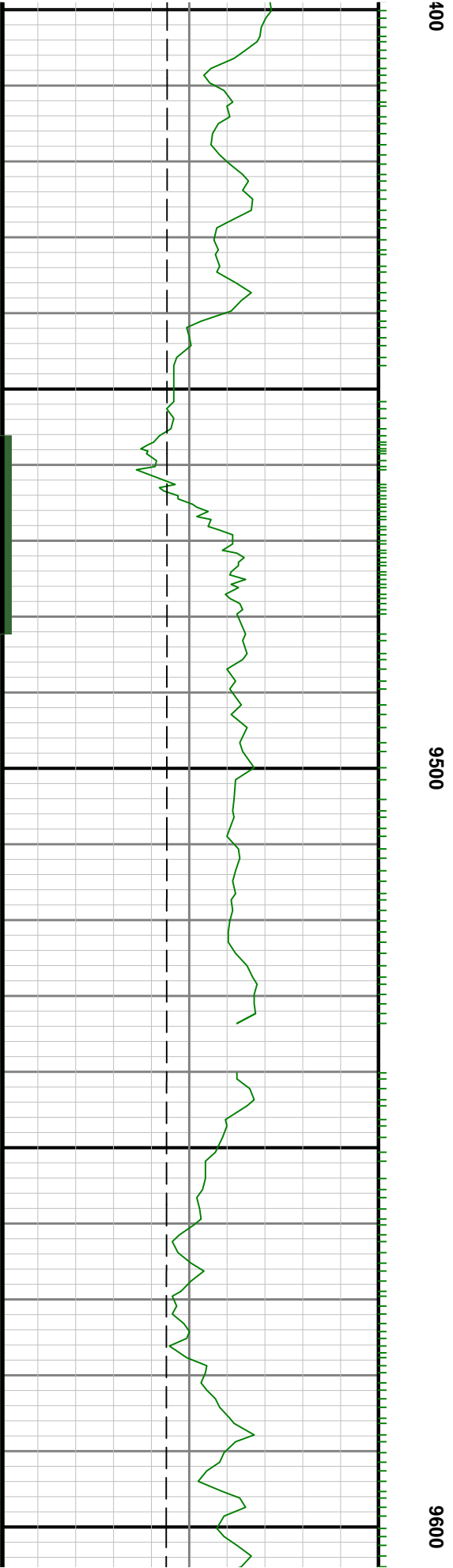
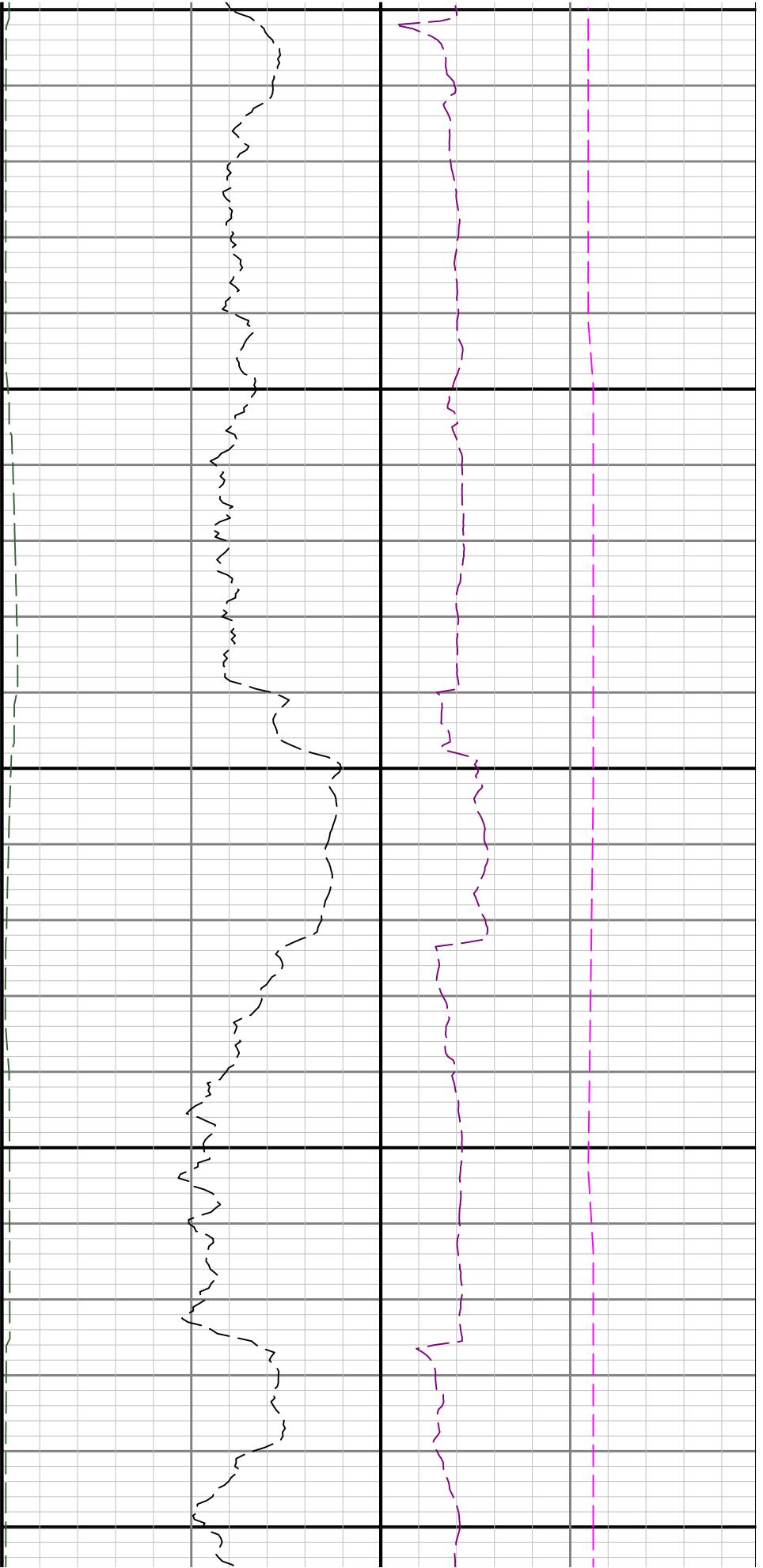
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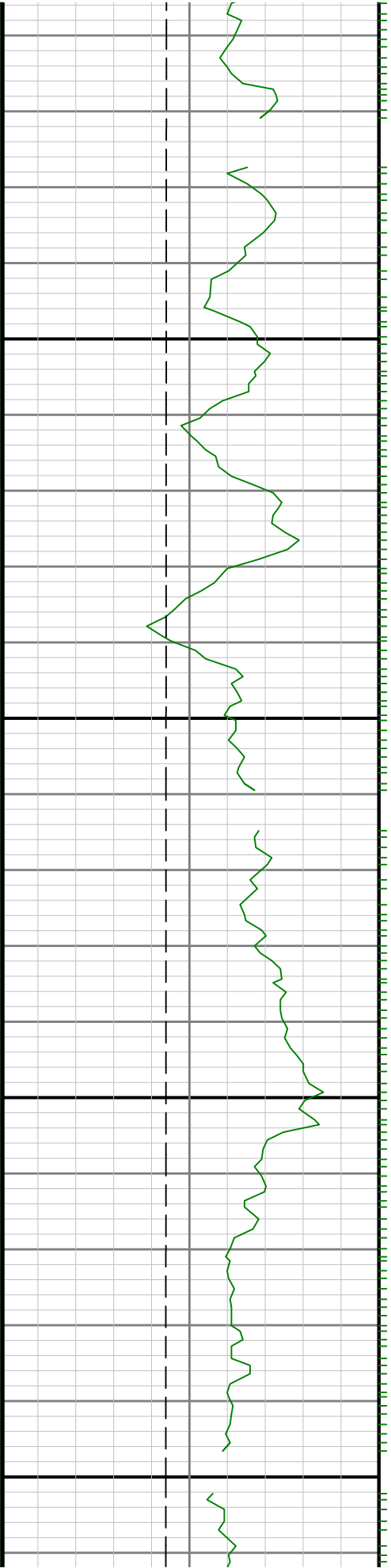
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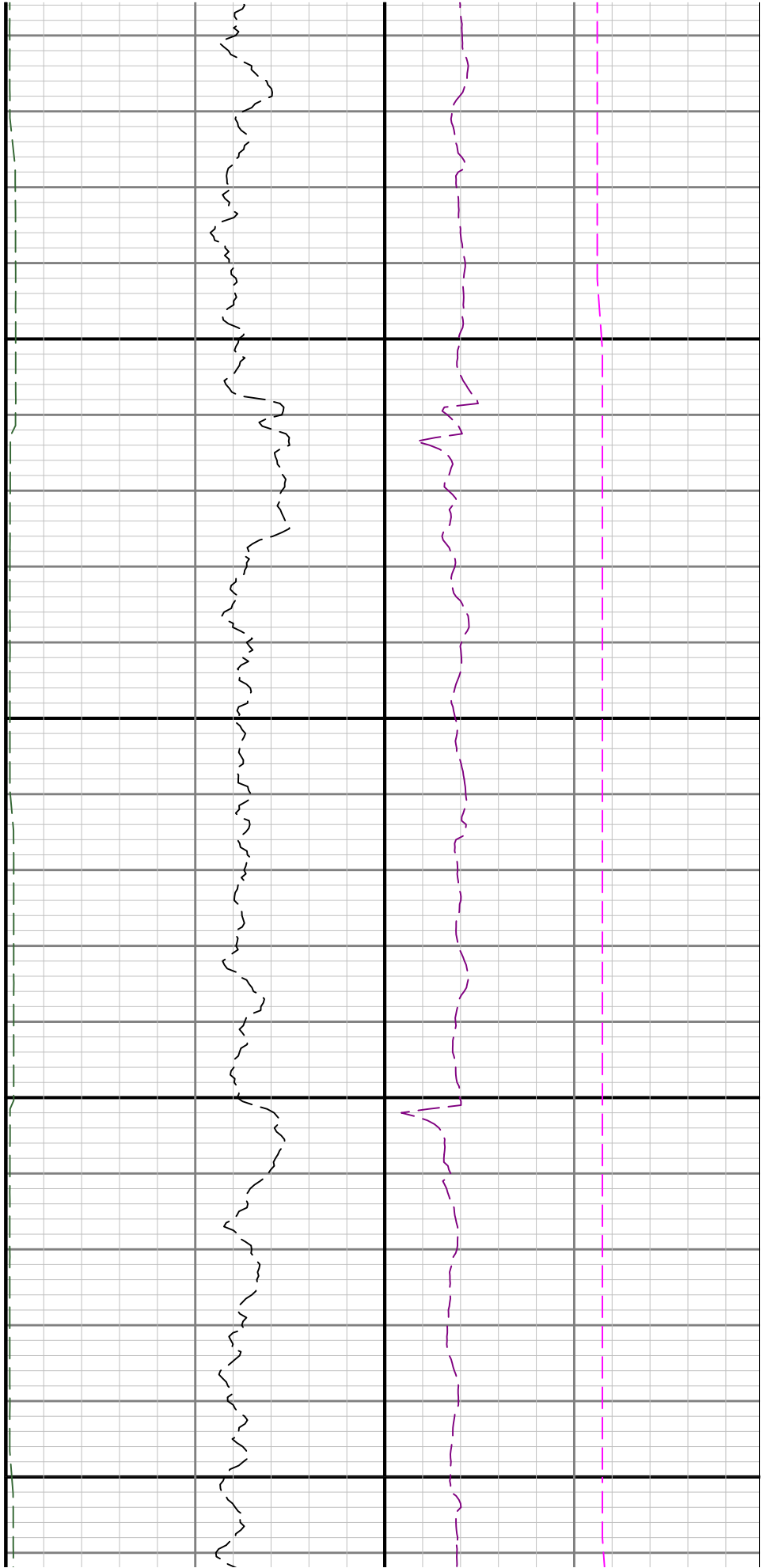


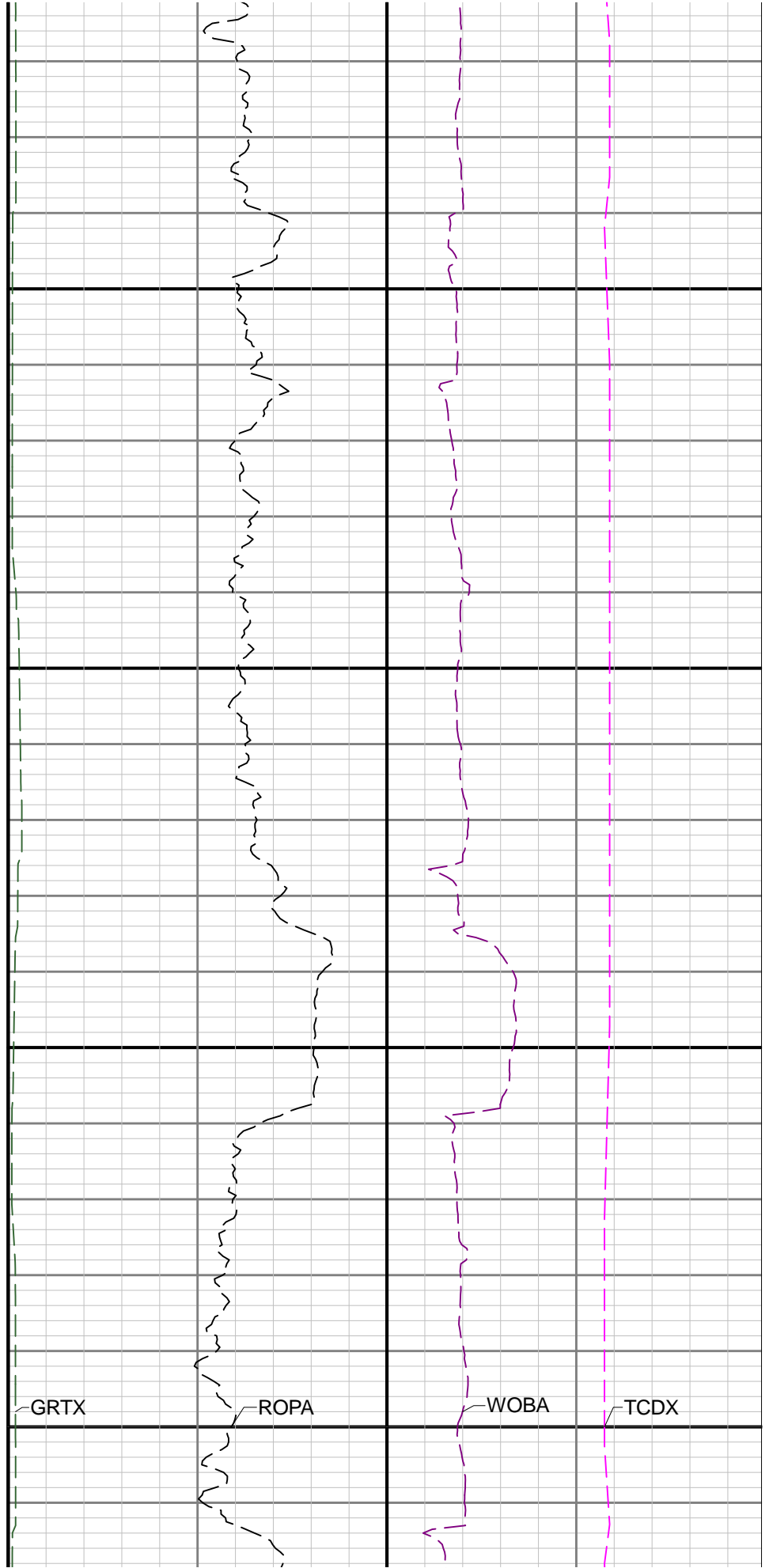
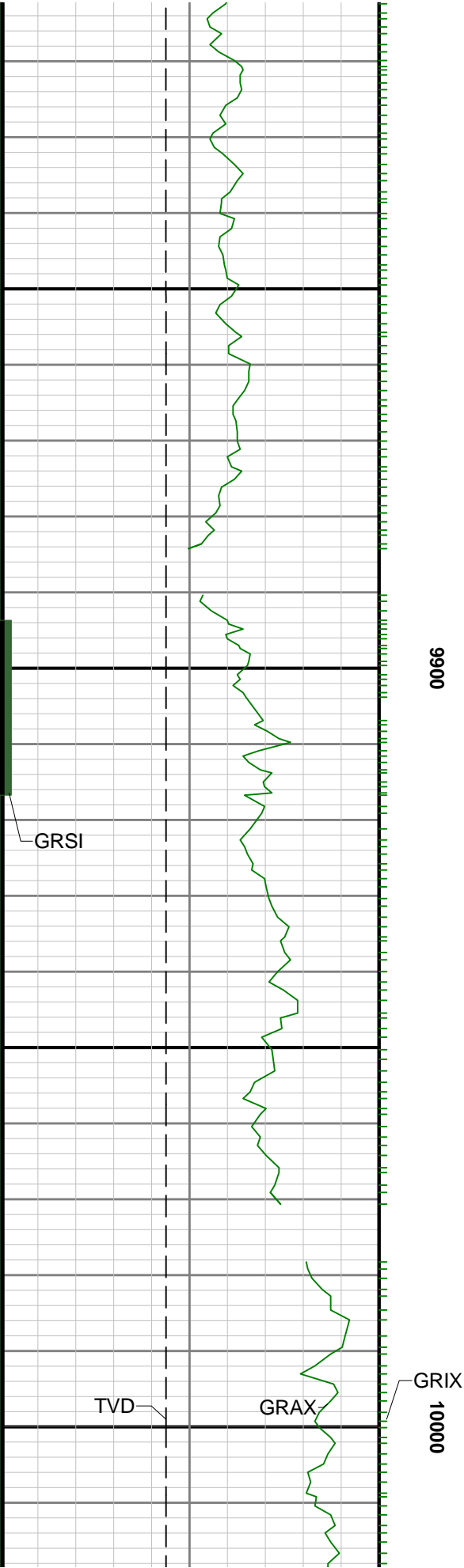


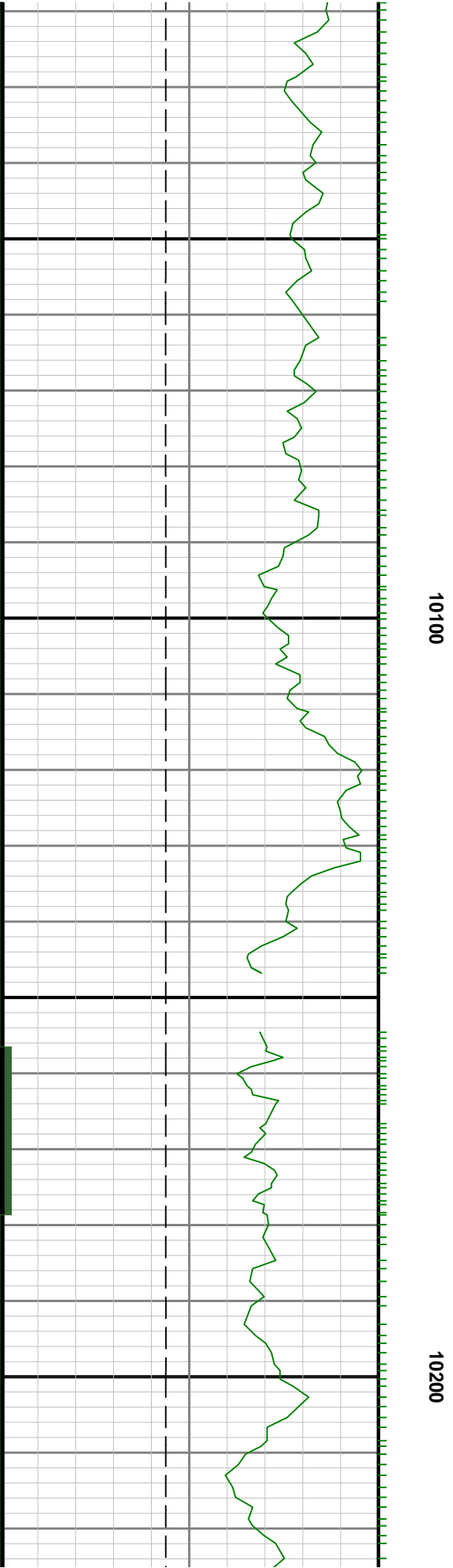
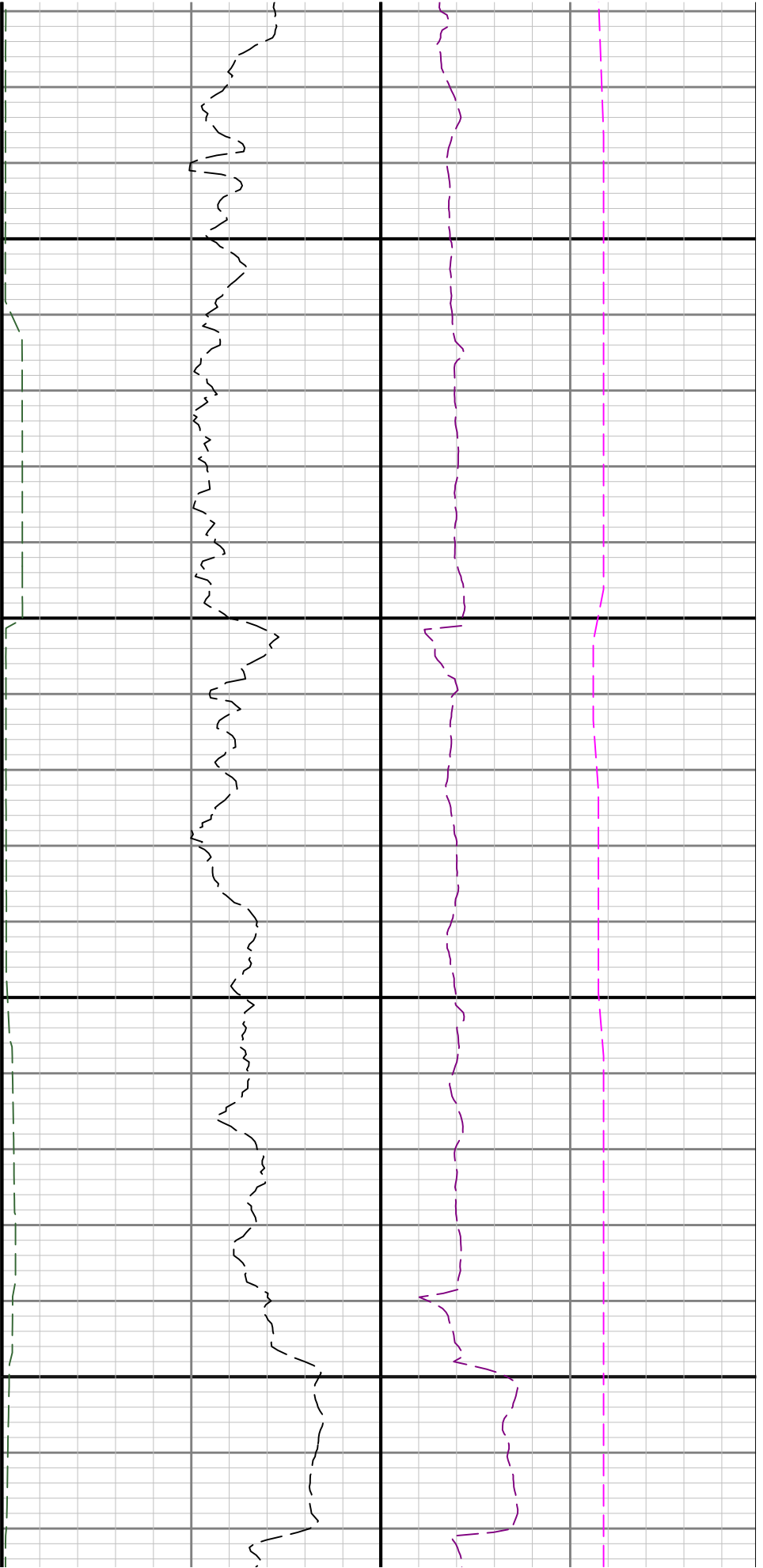


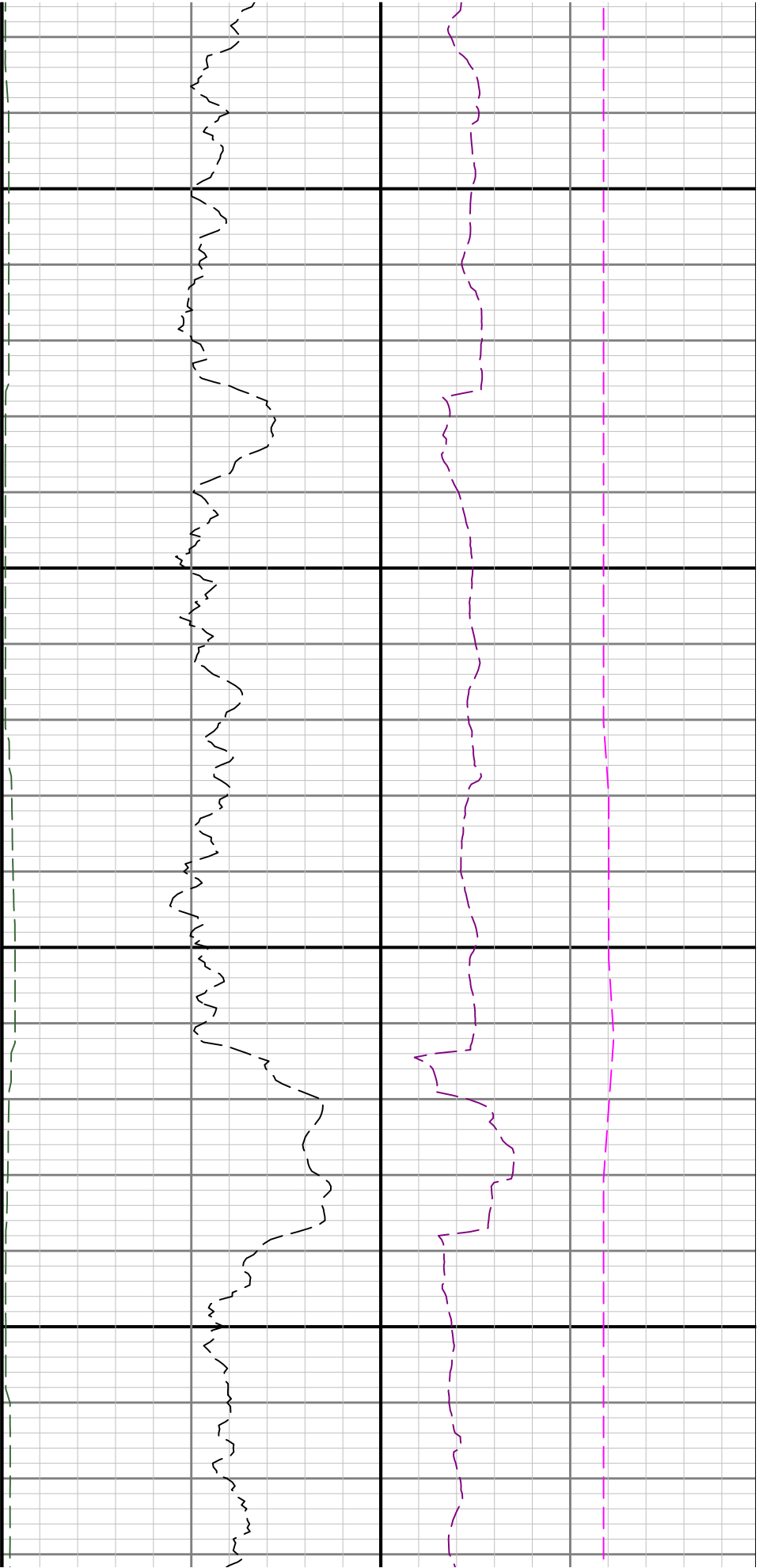
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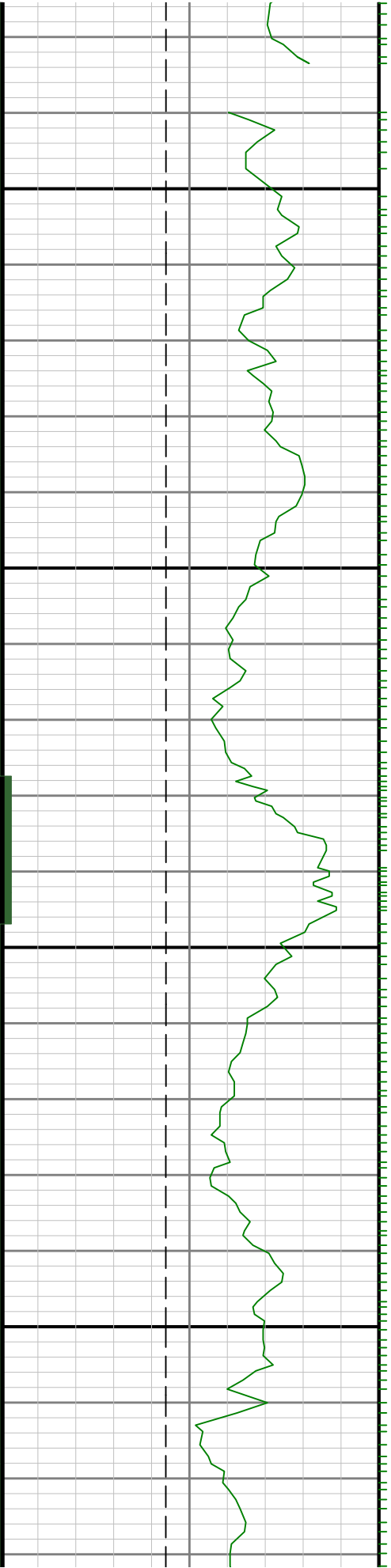


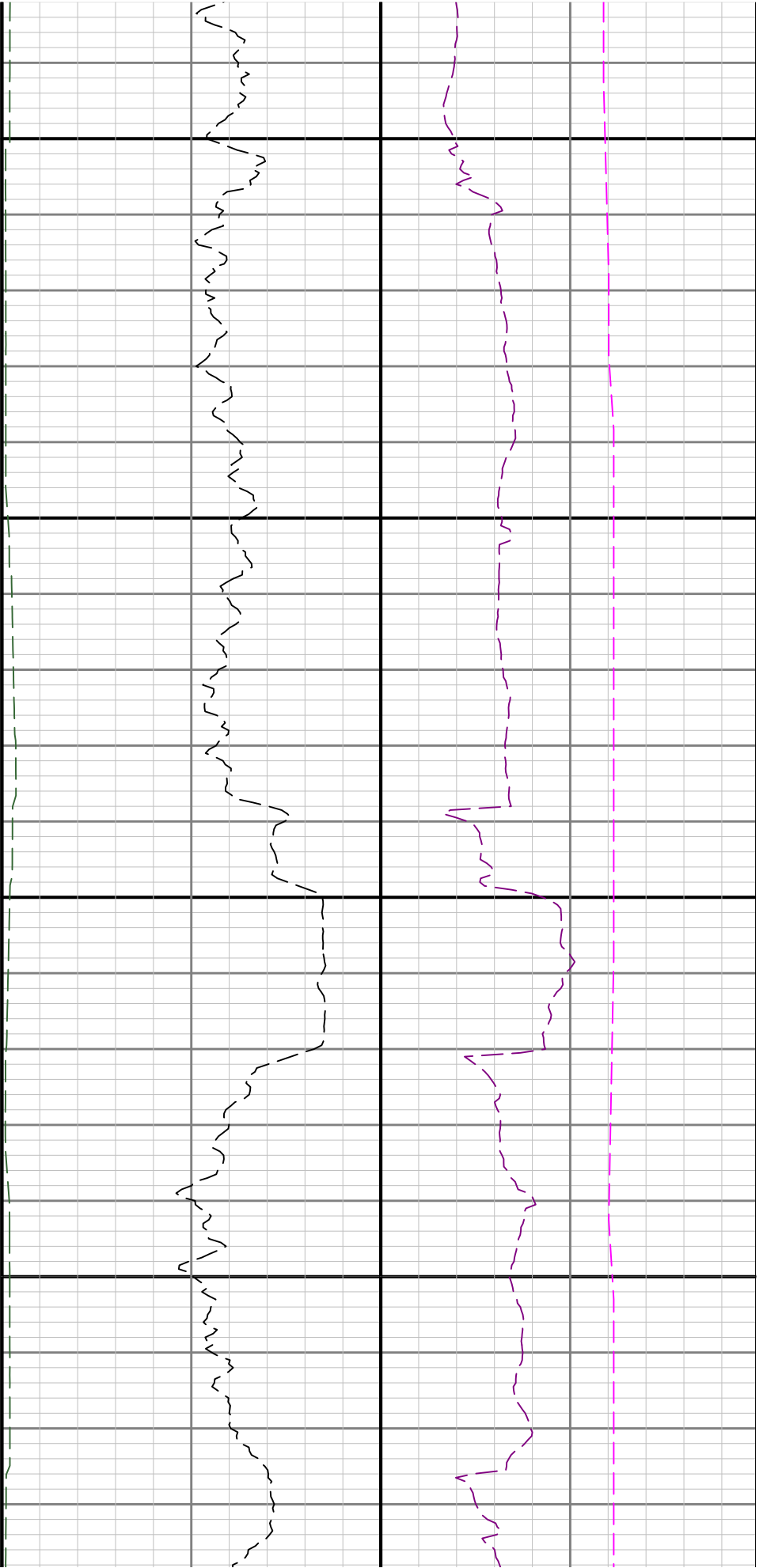




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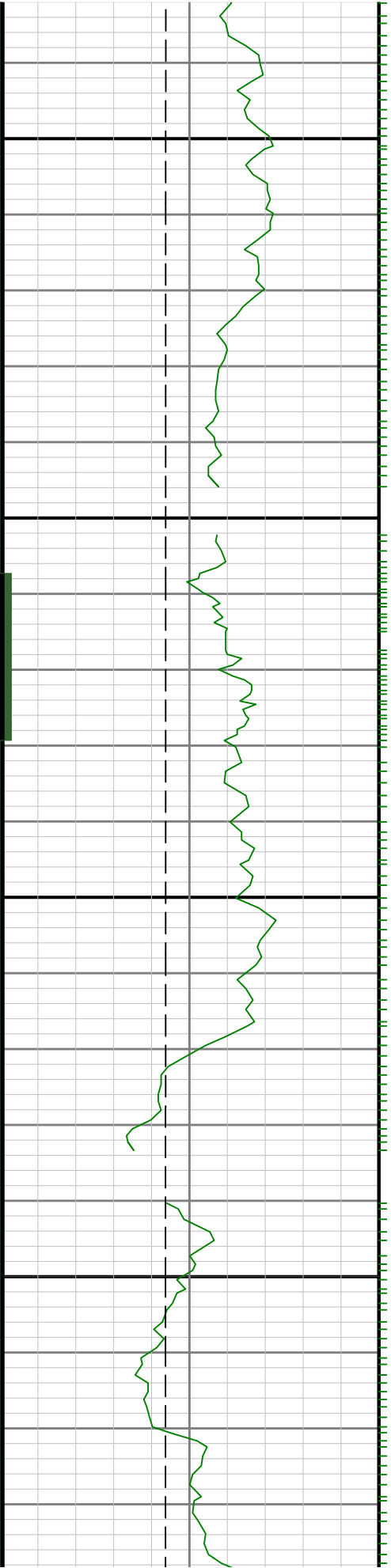
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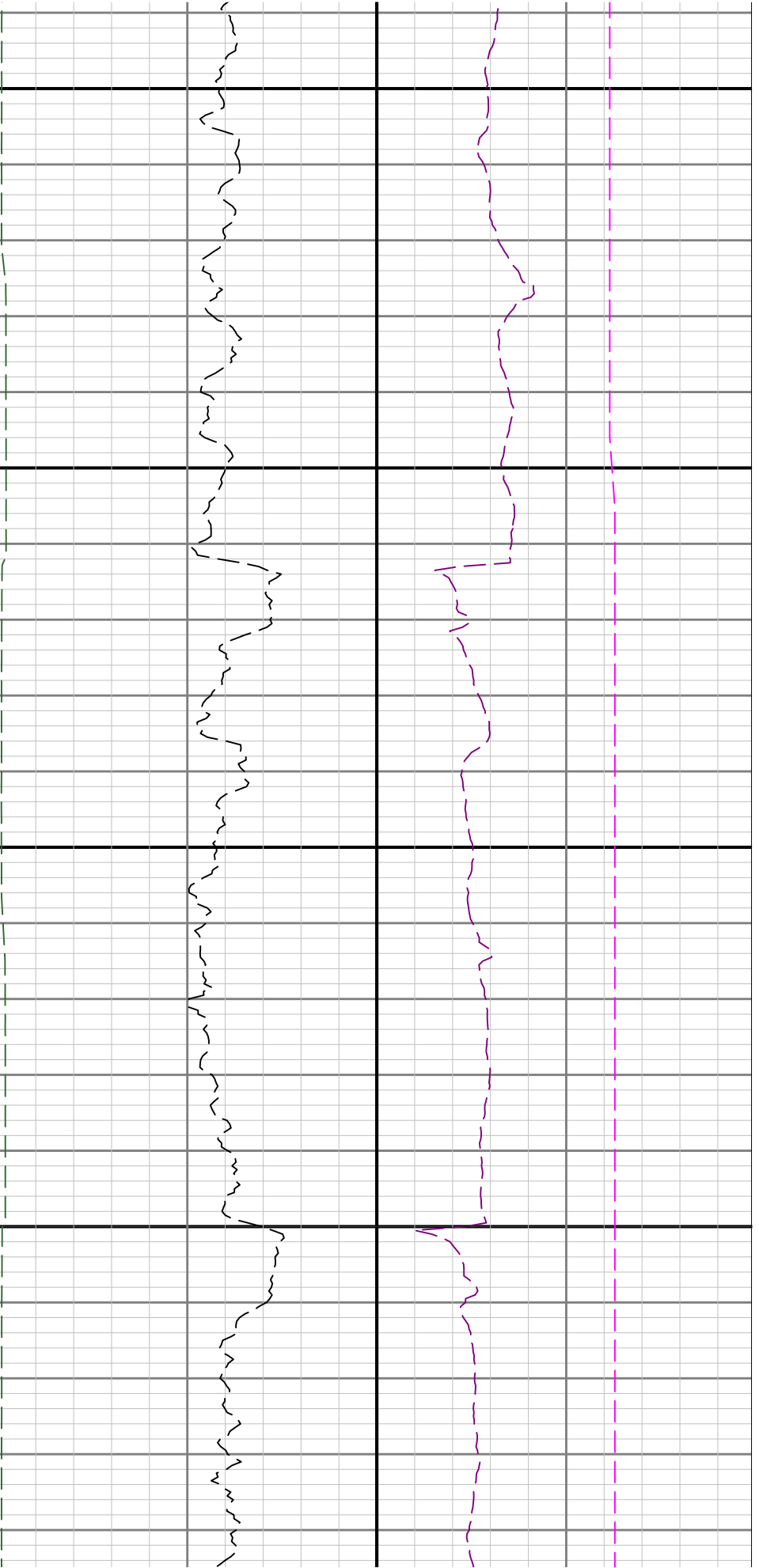




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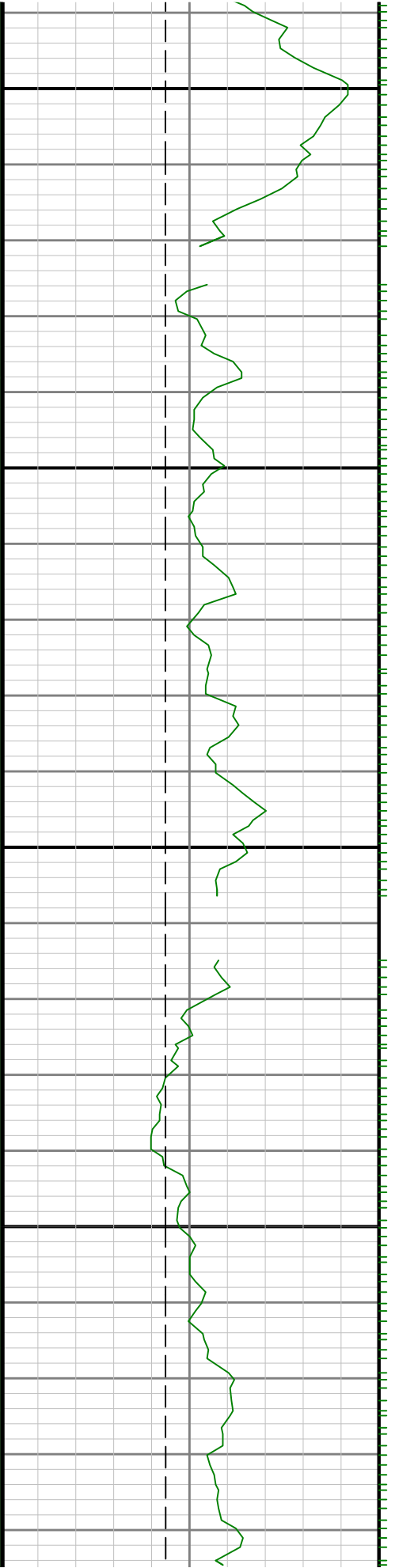
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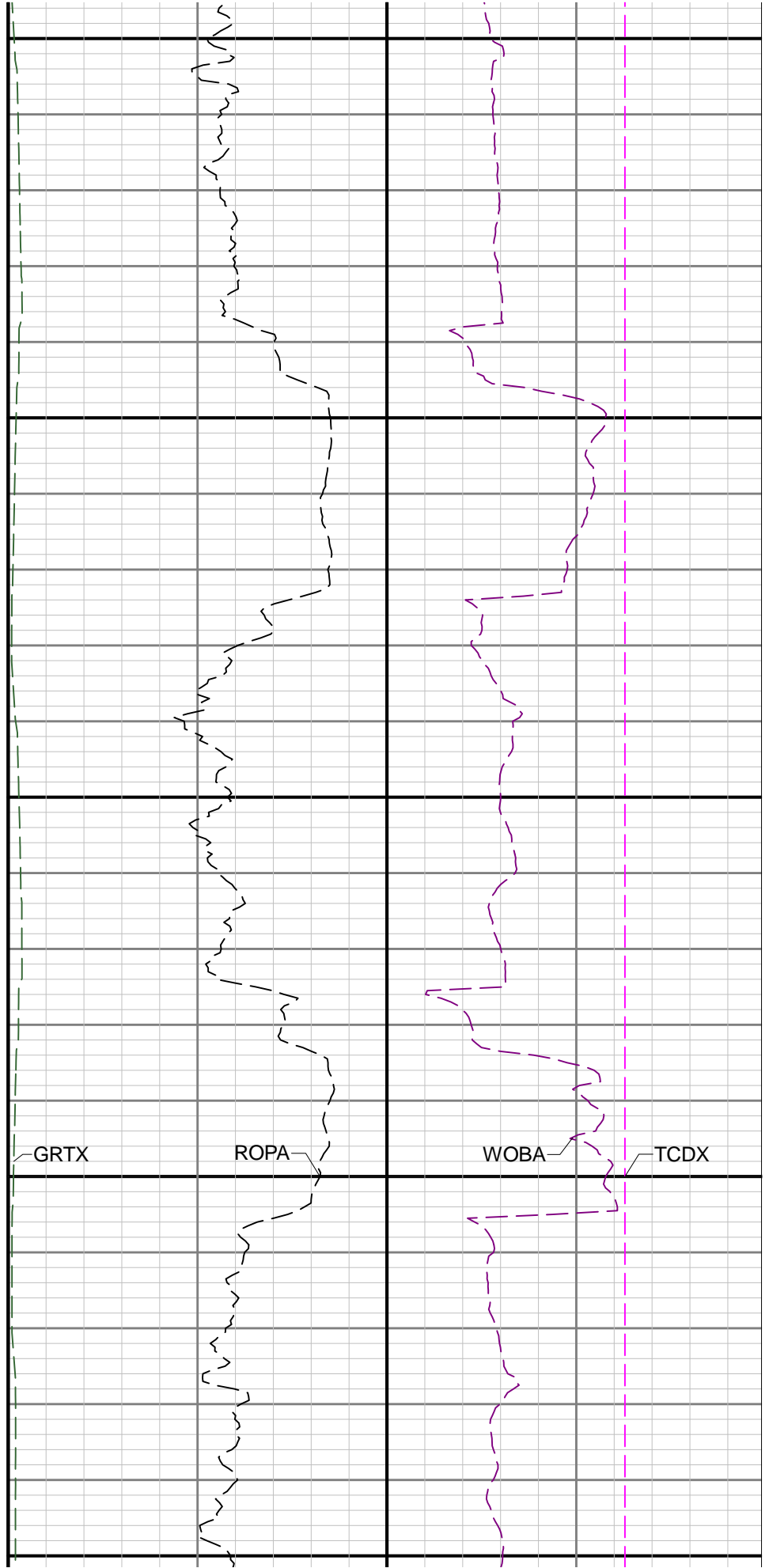
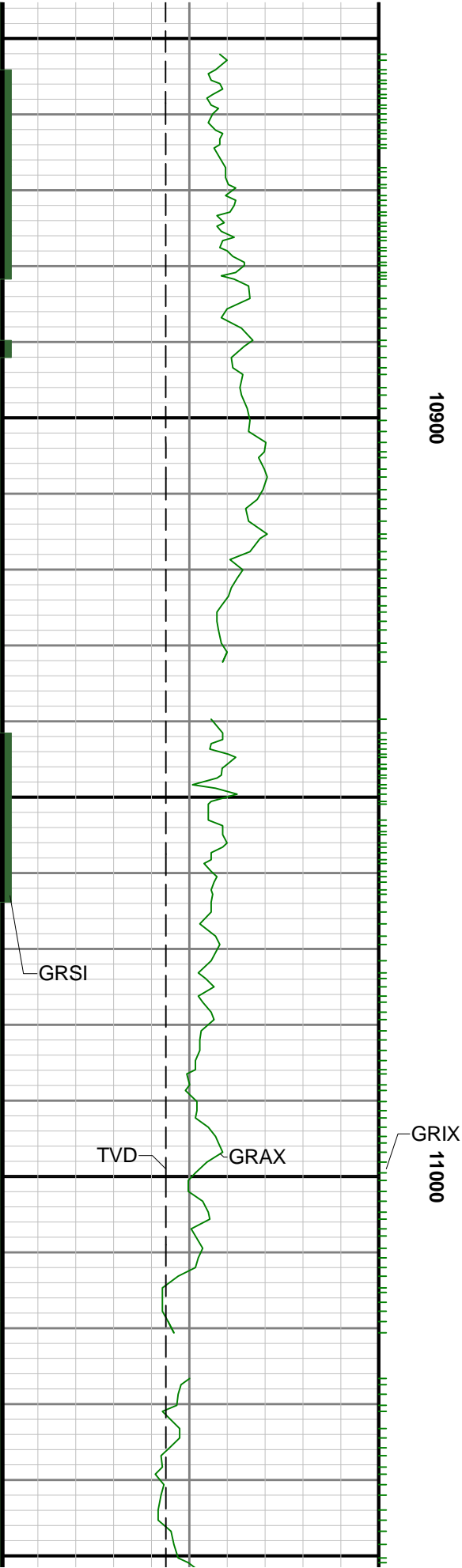


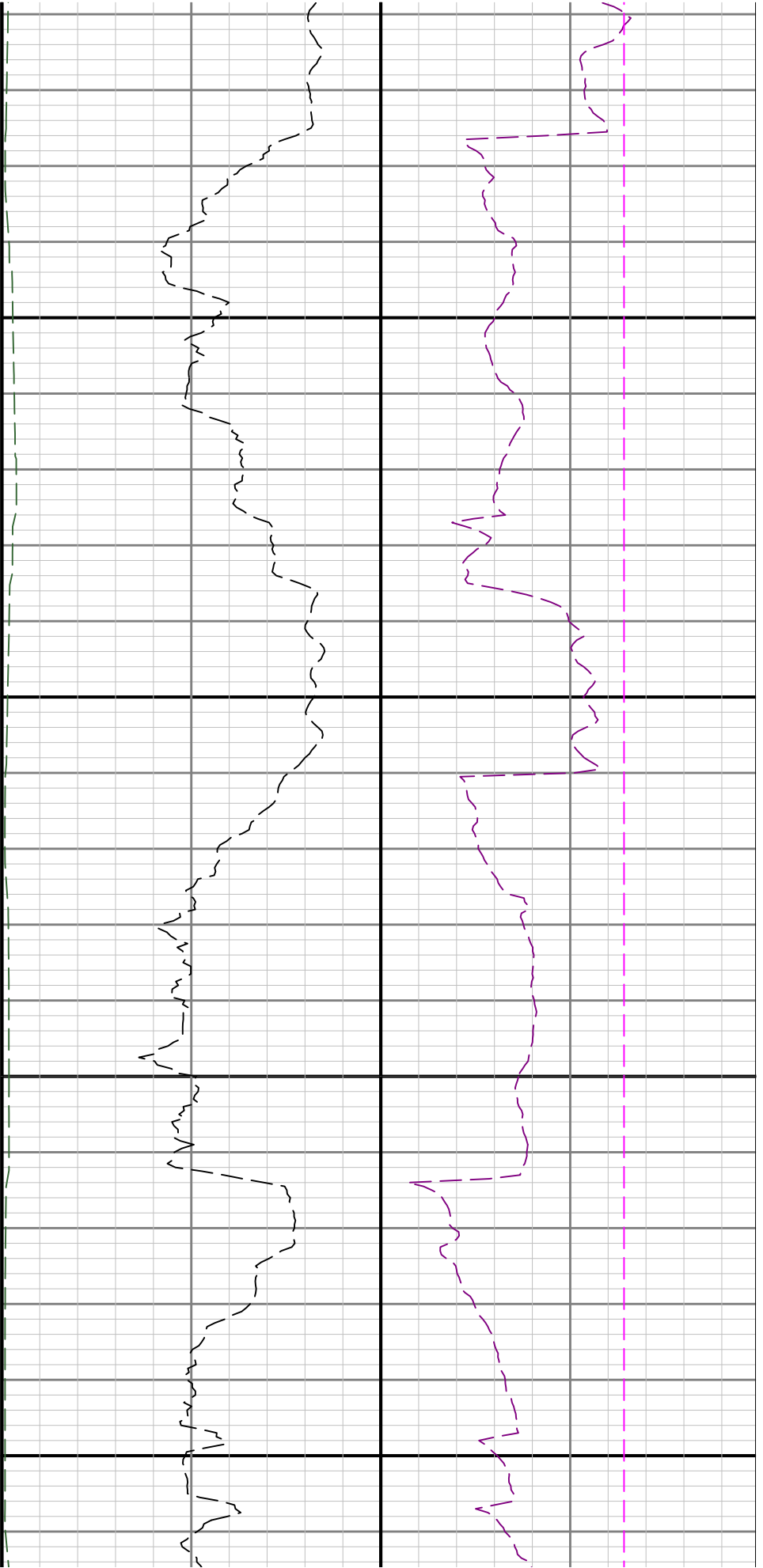


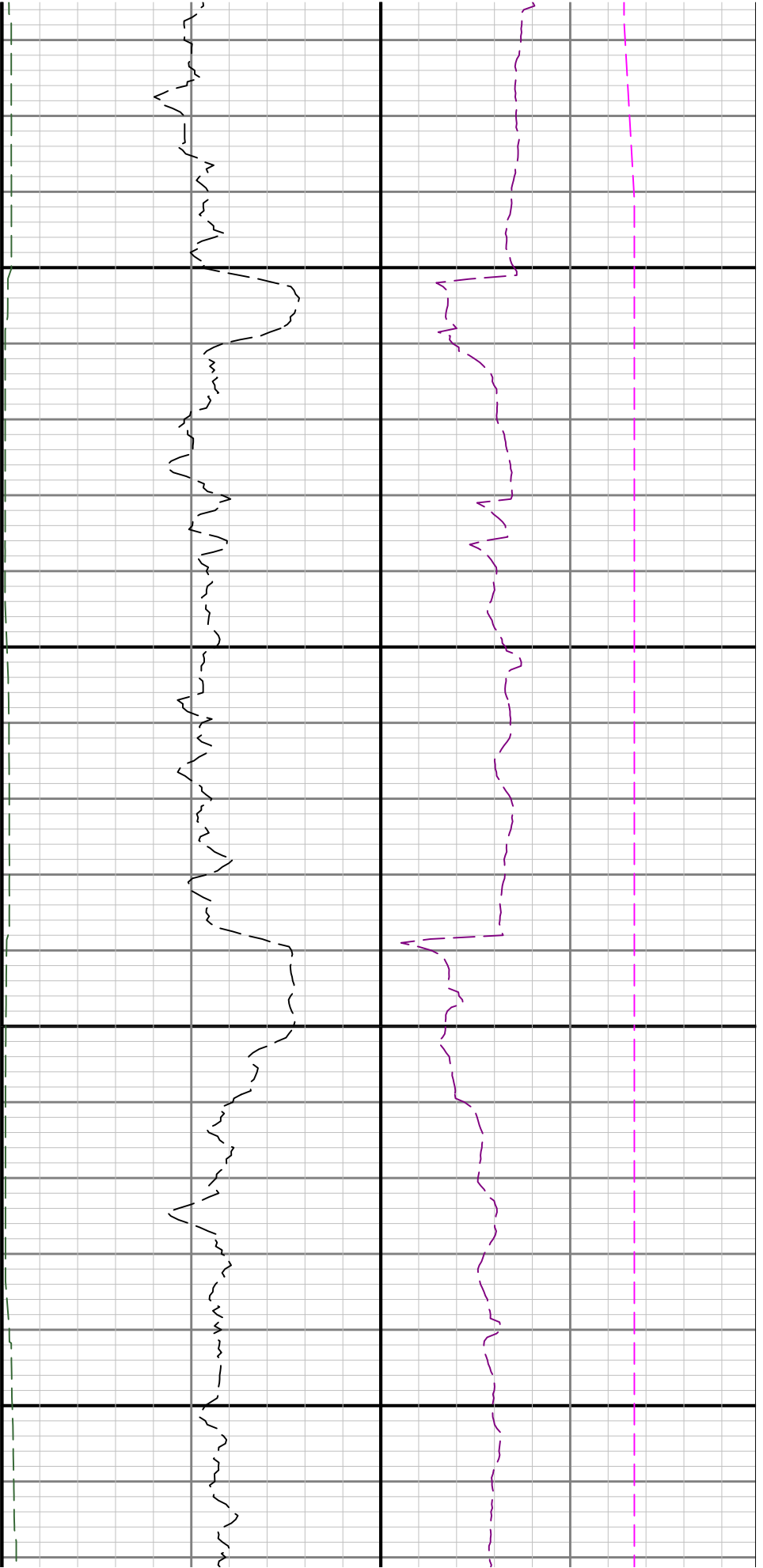
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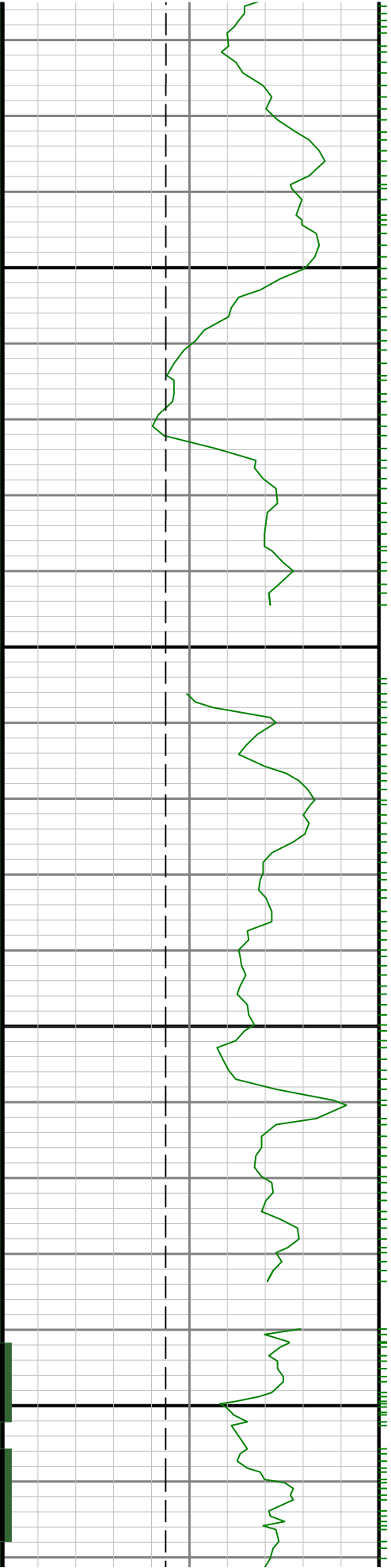


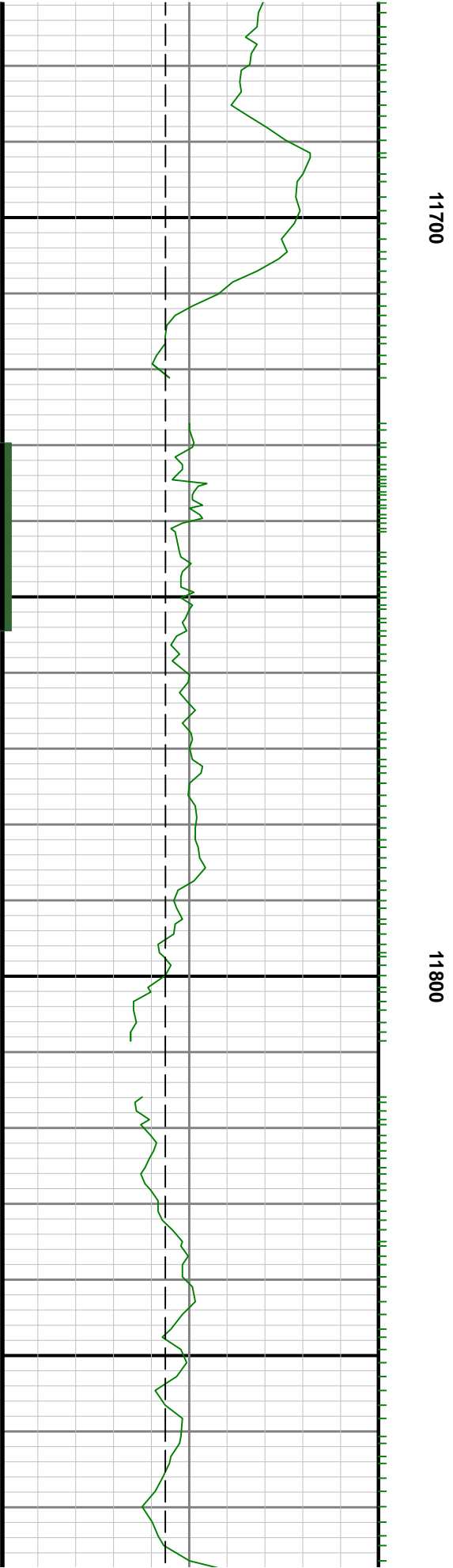
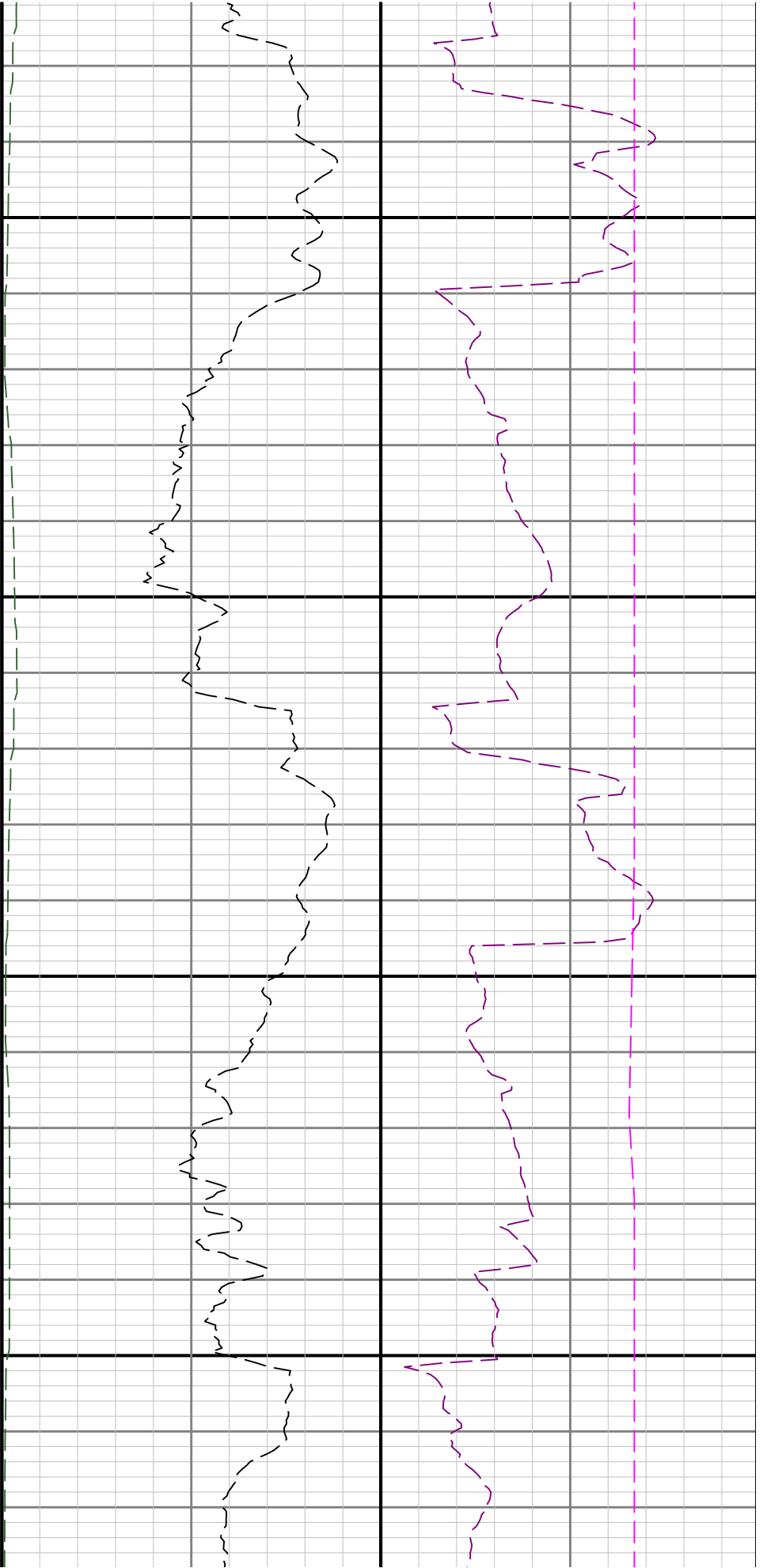


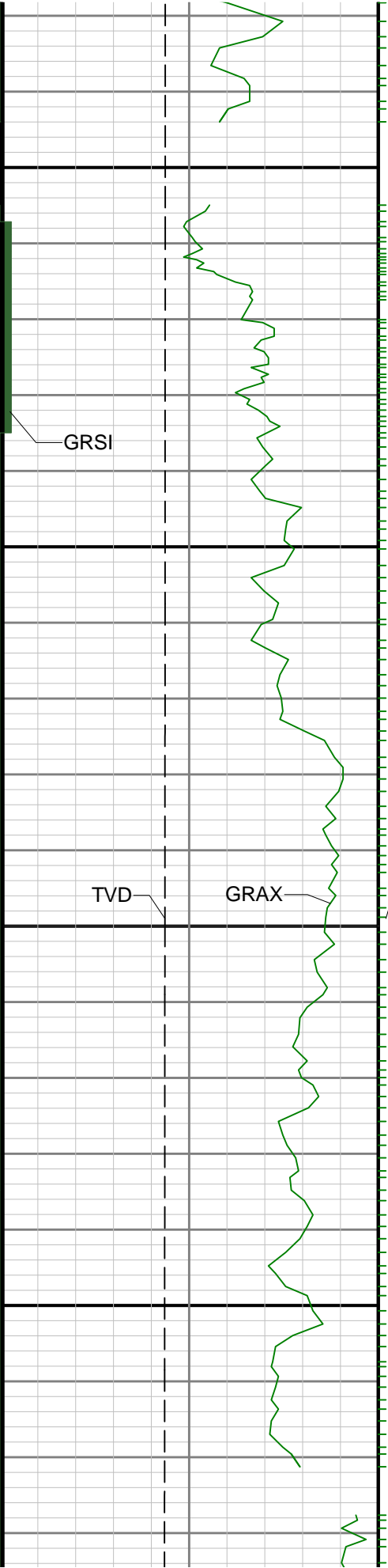


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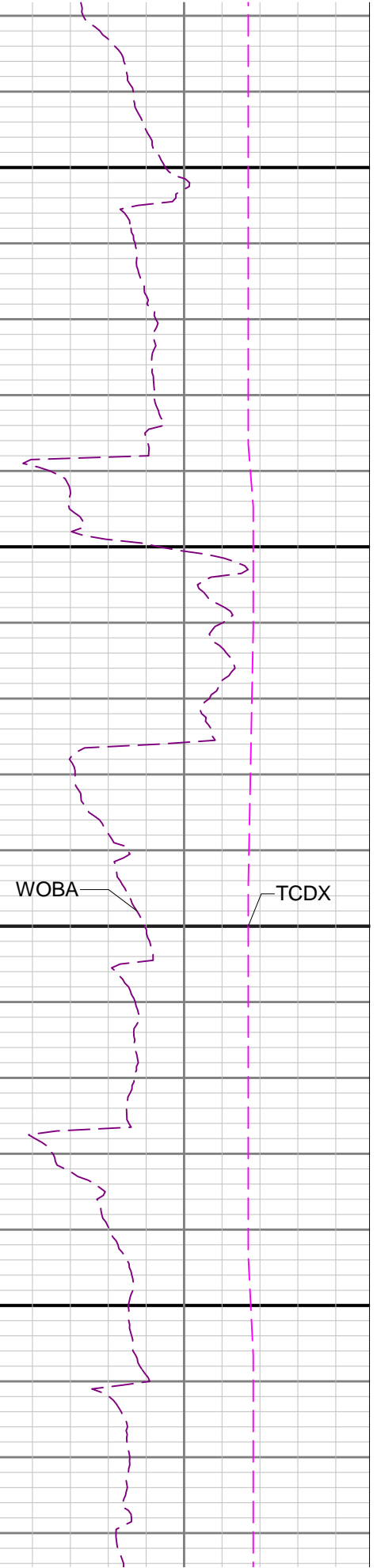
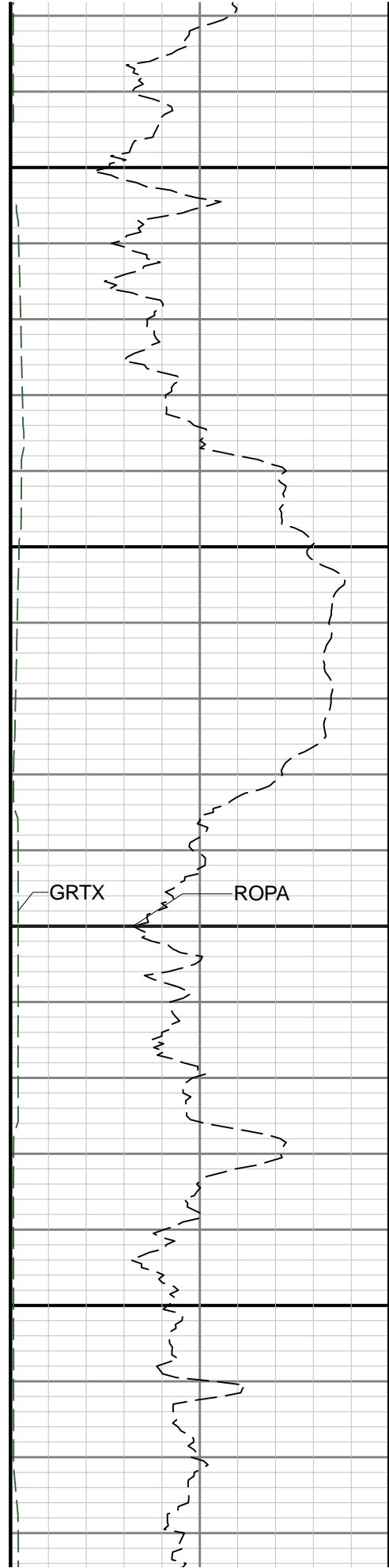


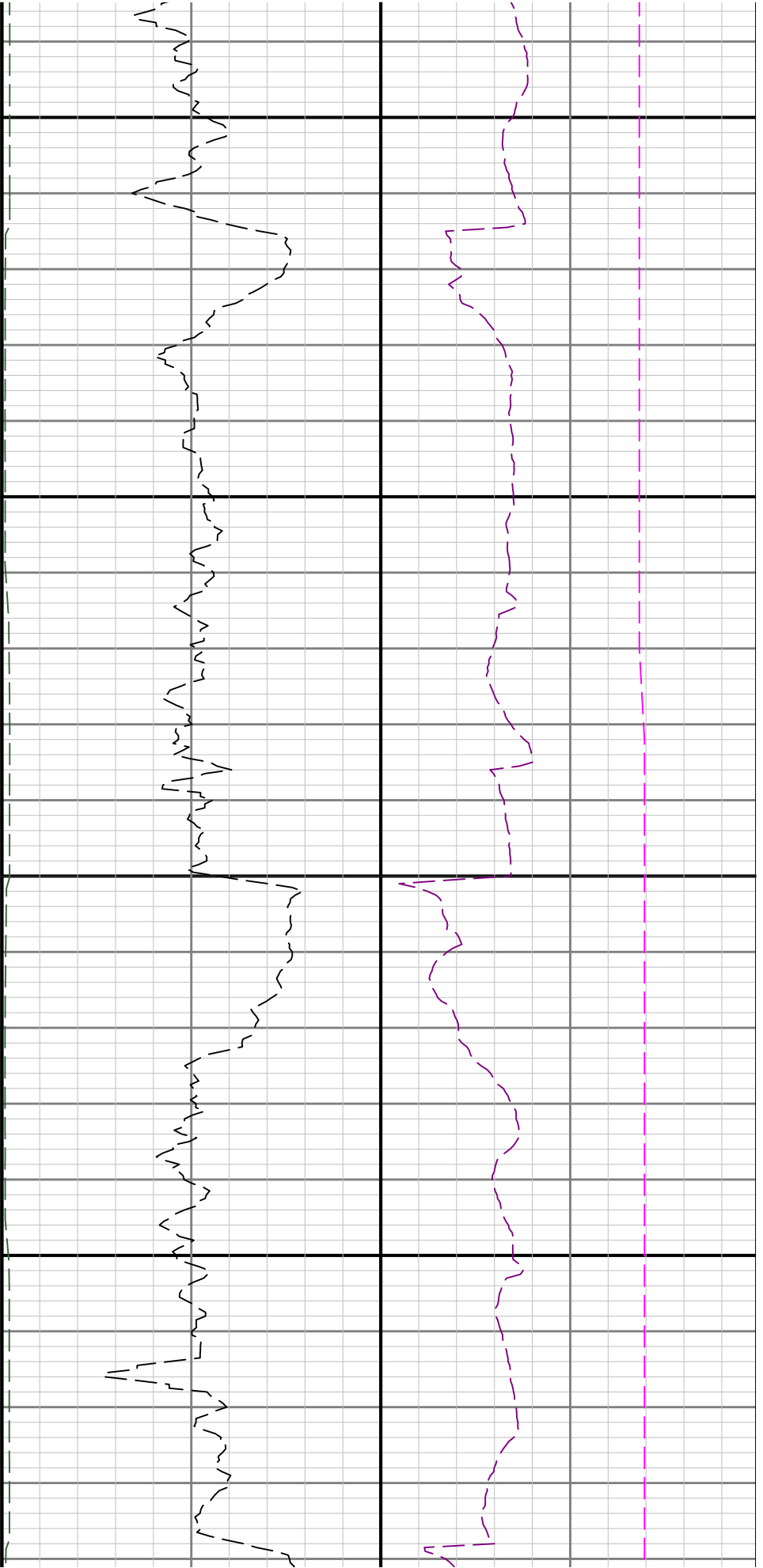




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