



## REALTIME LOG

## Gamma Ray

Scale:	Company: Anadarko			
1:240 MD	Well: Rocky 38N-33HZ			
Depth Reference:	Field: Wattenburg			
Driller's Depth	County: Weld	Country: United States		
Status:	State: Colorado			
Final Print	Surface Location:	Other Services:		
API No: 05123442260000	Latitude:	F41°41'00"N 107°15'00"W		
Job ID: 8762650	Longitude:	Directional		
Permanent Datum (P.D.): Ground Level	SEC: 33	TWN: 2N	RGE: 6SW	
Log Measured From: Rig Floor	Elevation: Above P.D.	4930.00 ft	Elev. KB: 4947.00 ft	N/A
	17.00 ft	Elev. DF: 4930.00 ft	Elev. GL:	
Dates	Interval Logged	Magnetic Field Reference		
Date From: 2017-09-17	Top: (ft) 6500.00	Azi Reference North: True	Dip Angle: (deg) 66.63	
Date To: 2017-09-18	Bottom: (ft) 13352.00	Total Magnetic Field Strength: (nT)	52420	
Spud Date: 2017-09-18		Mag to Reference North Correction: (deg)	7.92 E	
Borehole Record				
Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)
13.500	97.00	1921.00	9.625	25.00
8.500	1921.00	13397.00		
Casing Record				
Mud Record				
Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)
Oil Based Mud	1921.00	13397.00	8.500	11476.00
			0.53	293.41
			91.36	177.27
Acquisition System				
Baker Hughes Cadence	RT4.1	Rig: XTreme 22		
PlotStudio	4.1.7763.3	Contractor: Anadarko		
		District: RMD	Unit: D & E	

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## Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	8.500	PDC	2.00	Steerable	6500.00	13352.00	1921.00	13397.00	2017-09-18 14:29	2017-09-20 11:57	54.44

## Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Will Roth	2017-09-16	2017-09-21	Teni Onafowokan	2017-09-18	2017-09-21			

### Mud Properties Record

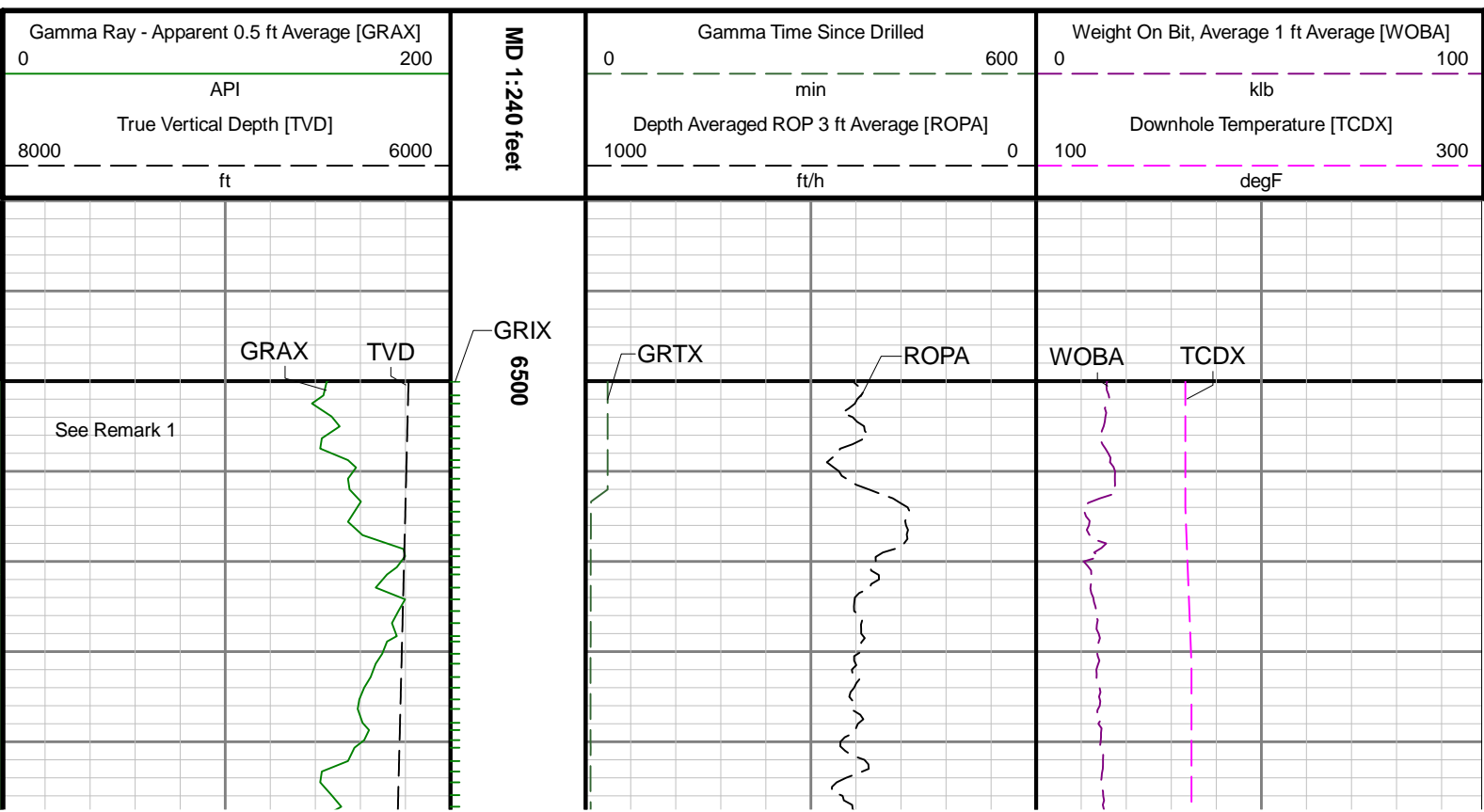
Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2017-09-18 05:28	1	2976.00	Oil Based Mud	9.2	22	N/A	N/A	65/35	Active Pit	41000	0.00
2017-09-18 11:03	1	1921.00	Oil Based Mud	9.3	19	N/A	N/A	71/29	Active Pit	40000	0.00
2017-09-20 19:01	1	11294.00	Oil Based Mud	9.2	23	N/A	N/A	63/37	Active Pit	43000	0.00

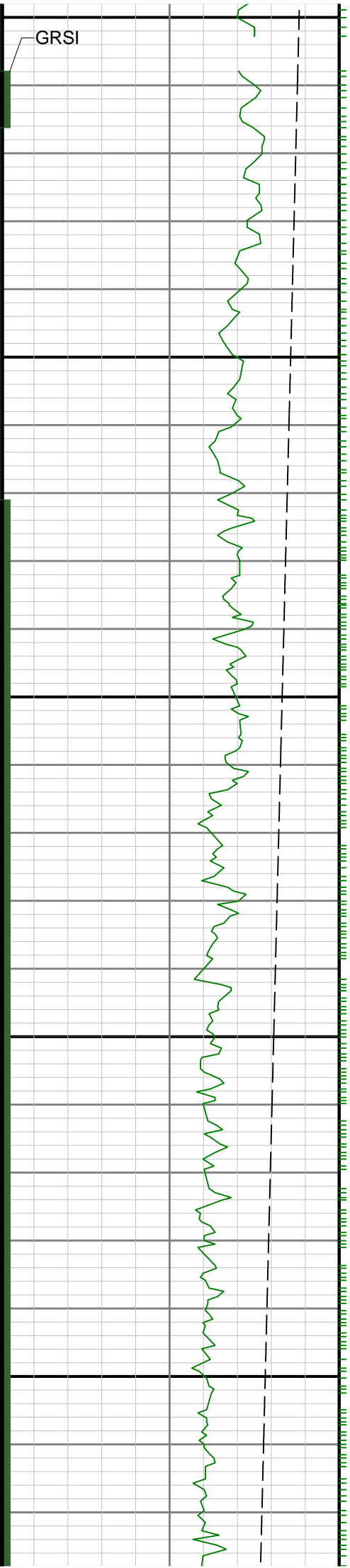
Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviGamma	13182650	Gamma (single)	10.96	45.48	6.500	3.250
1	NaviGamma	13719475	Directional (mag)	14.38	48.90	6.500	3.250
1	NaviGamma	13719475	VSS	14.38	48.90	6.500	3.250

Mnemonic	Name	Description
GAM	NaviGamma	Probe Based Gamma Module, NaviTrak Platform

- 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 6.50 inch NaviGamma services (Gamma Ray and Directional) behind a 8 1/2 inch bit and steerable assembly from 1921 to 13397 feet MD (1870 to 7125 feet TVD).
- 4 Numerous gaps are present throughout the log due to surveying while on bottom drilling ahead.
- 5 Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.

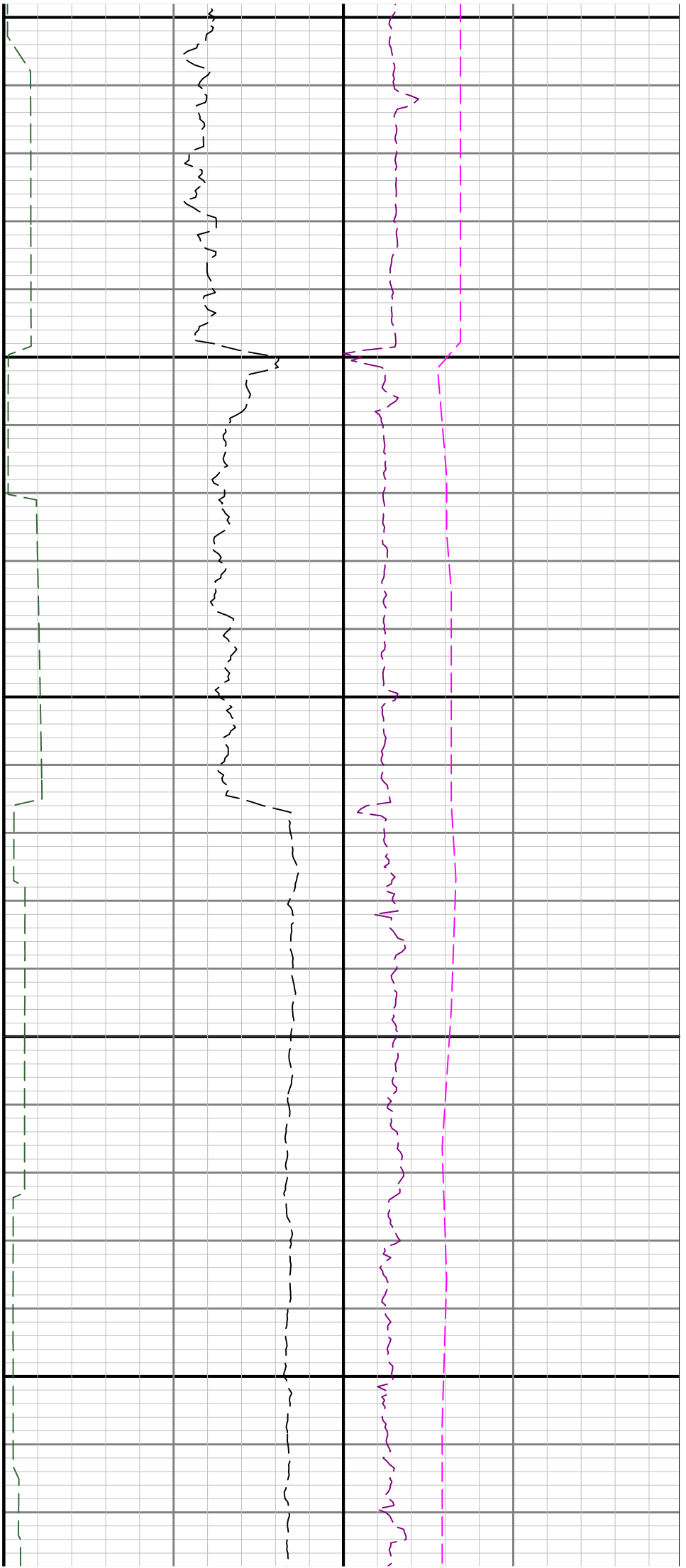
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	6500.00	8.500	1	Baker Hughes logging services began 6500 feet MD (6186 feet TVD) per customer request.
2	13360.00	8.500	1	The interval from 13352 to 13397 feet MD (7125 feet TVD) was not logged due to sensor to bit offset at the end of Run 1.

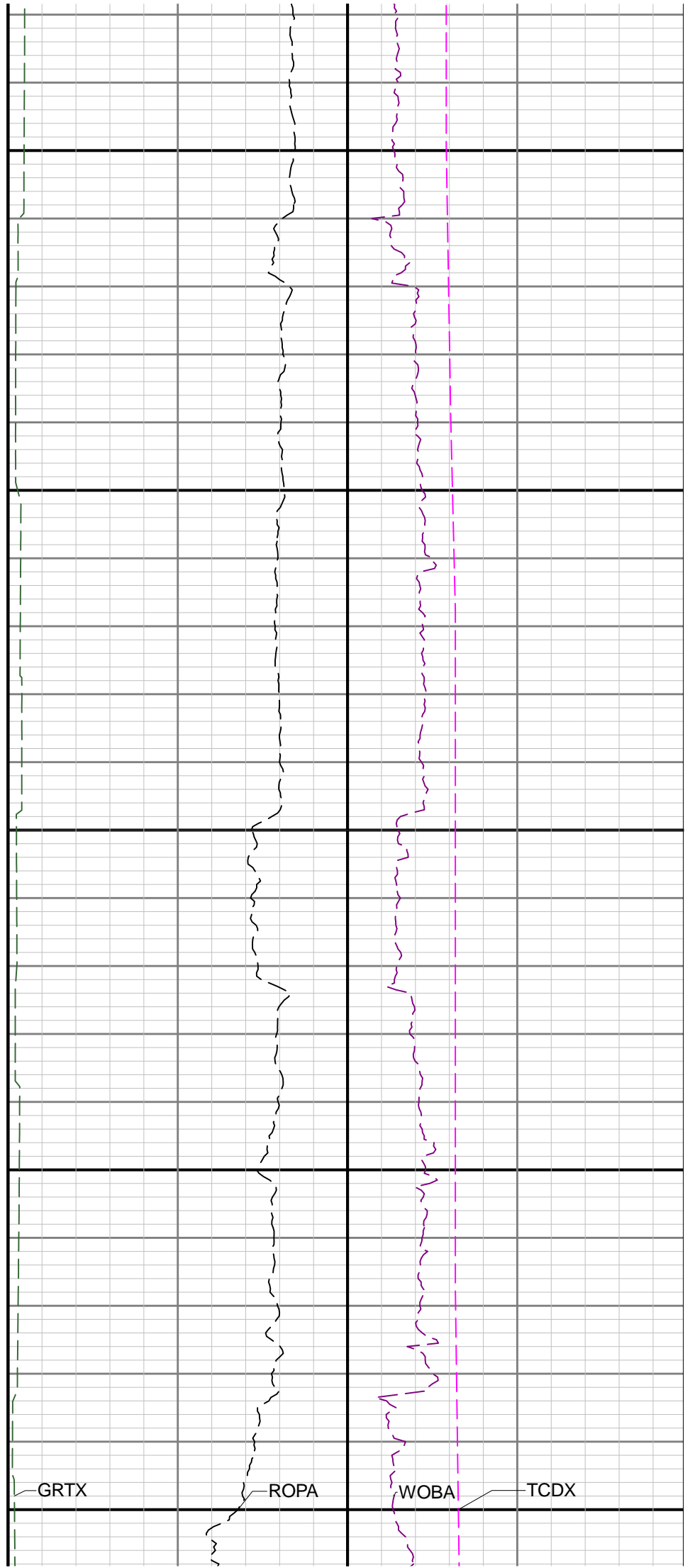
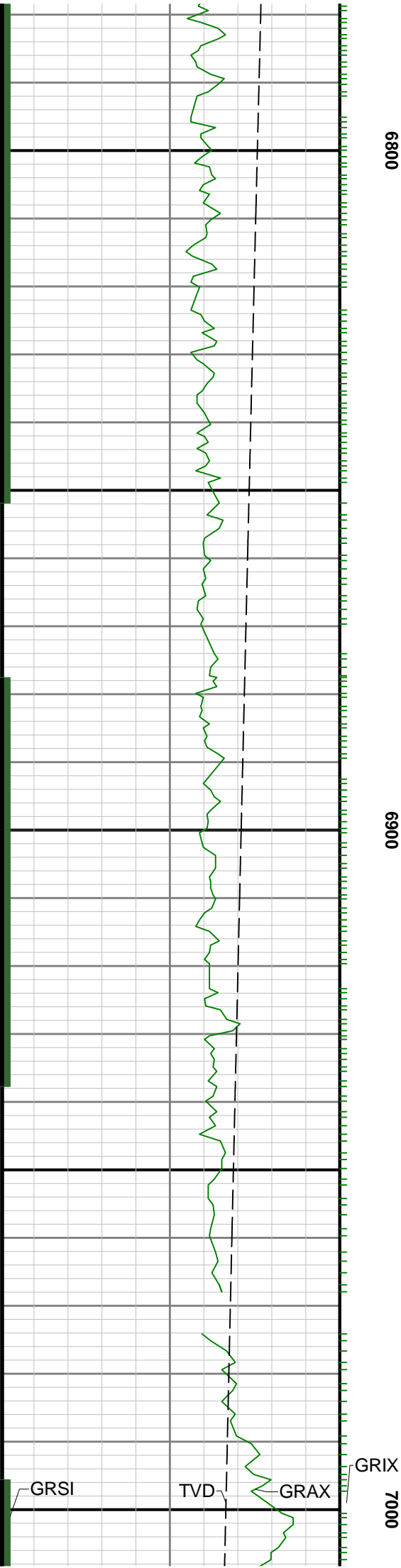


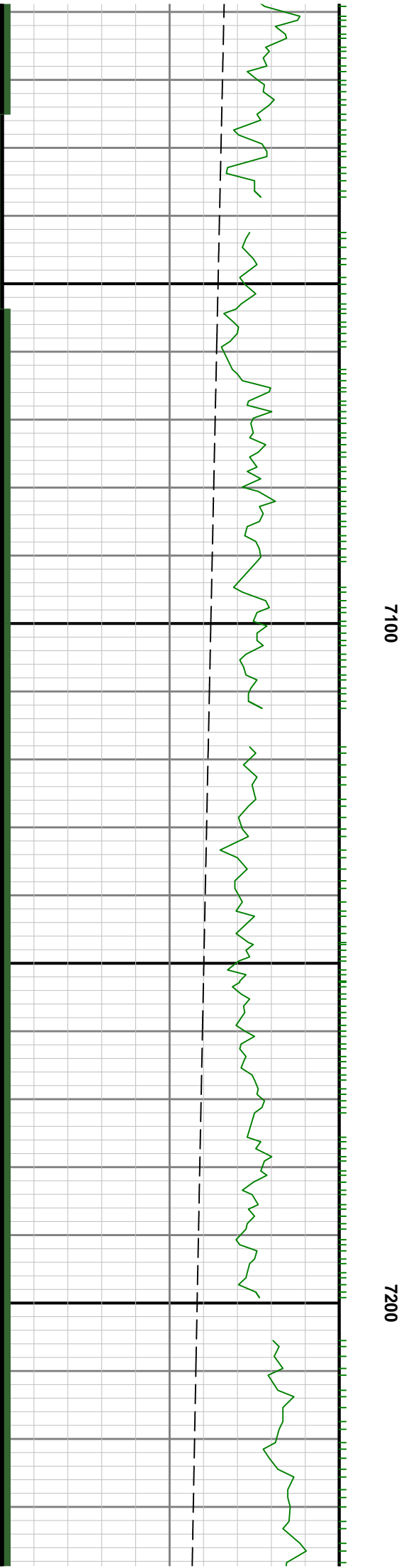
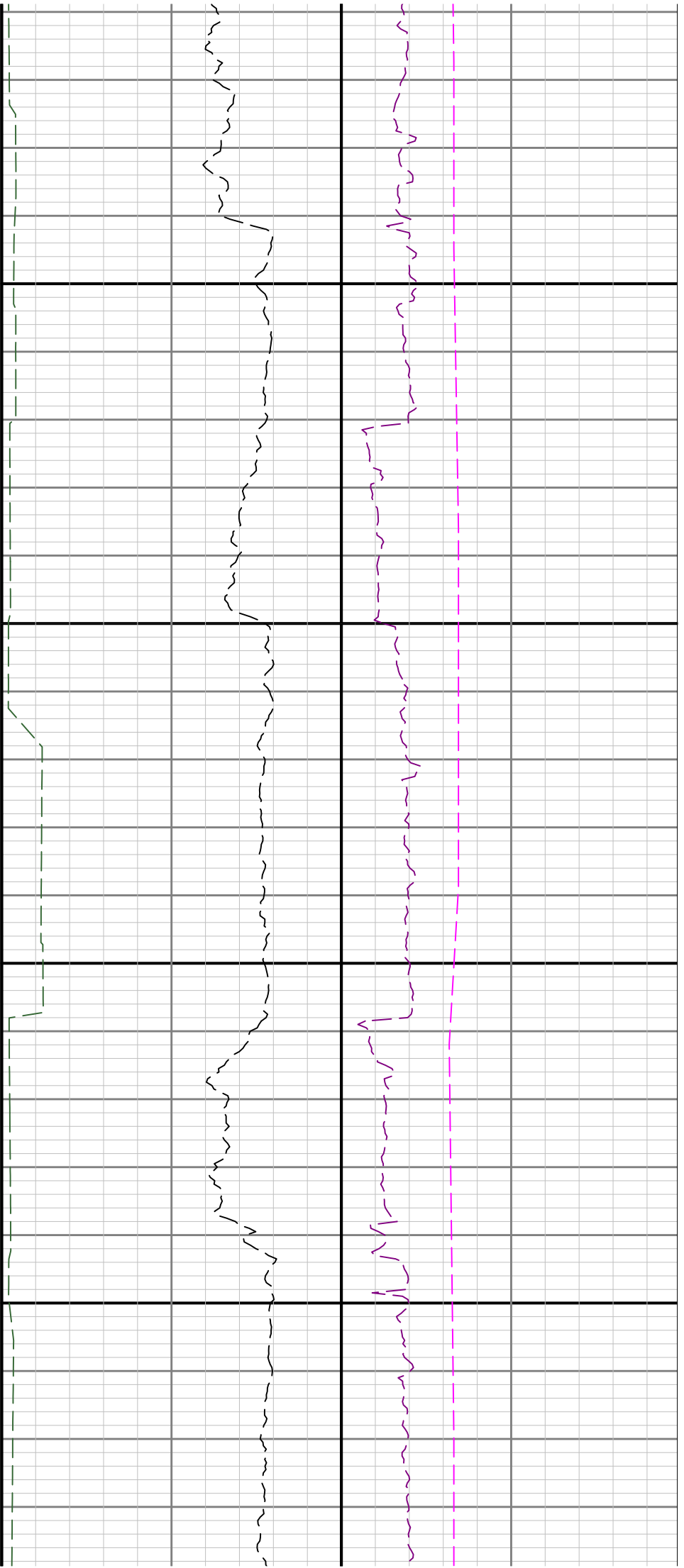


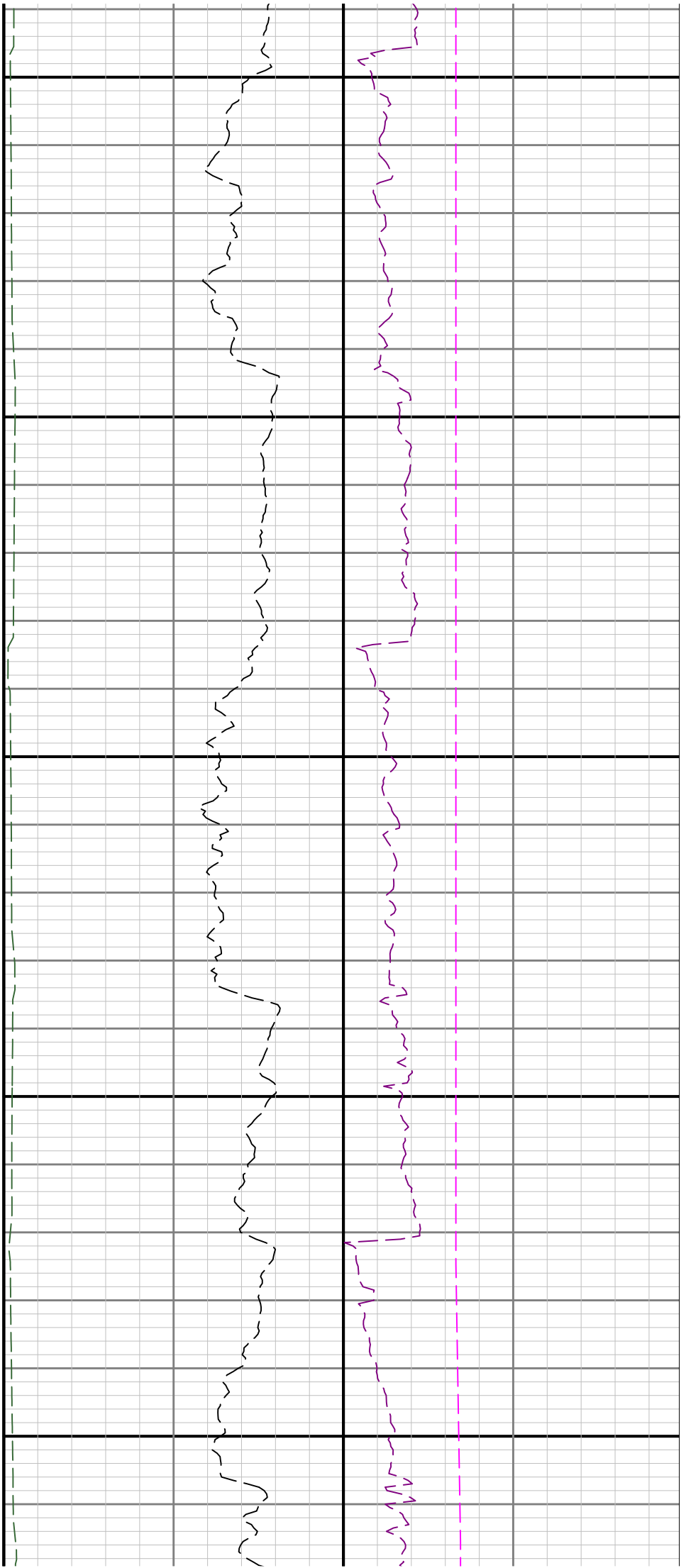
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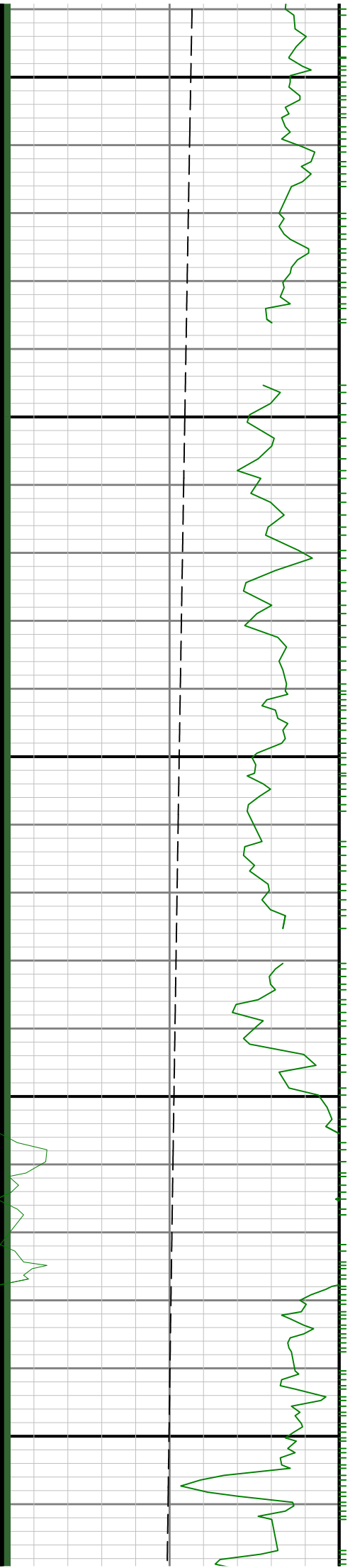


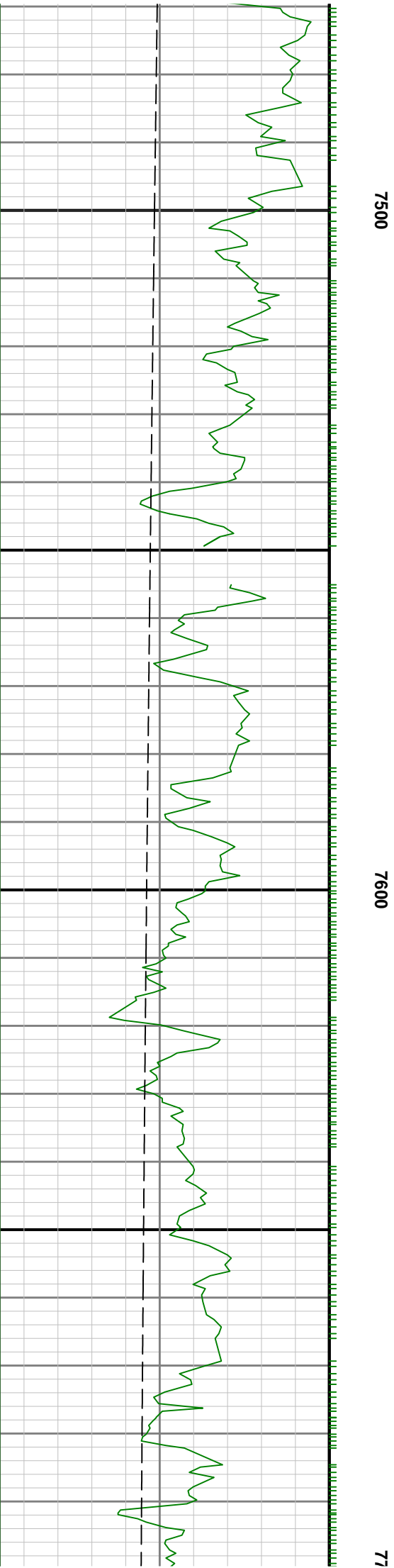


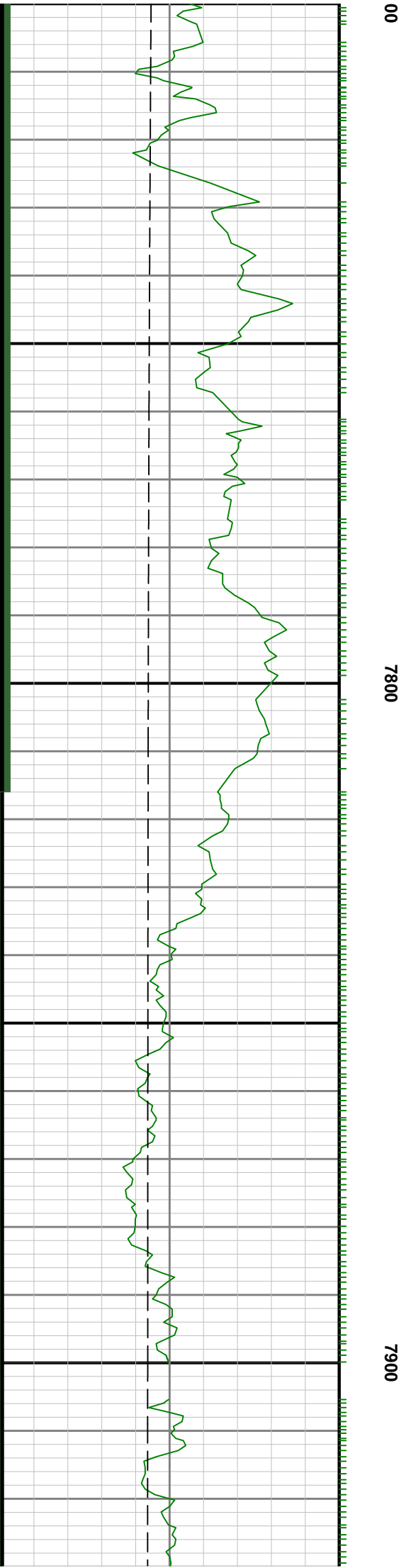
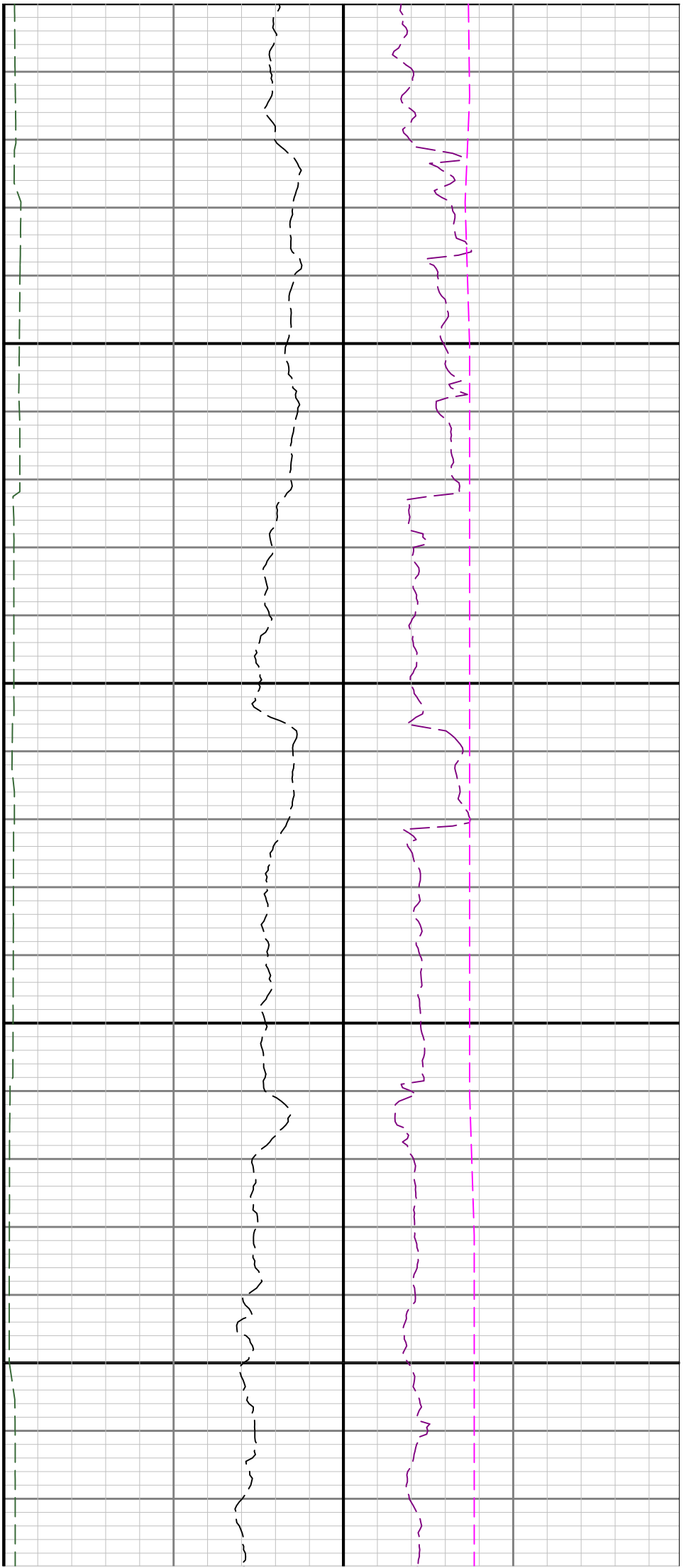


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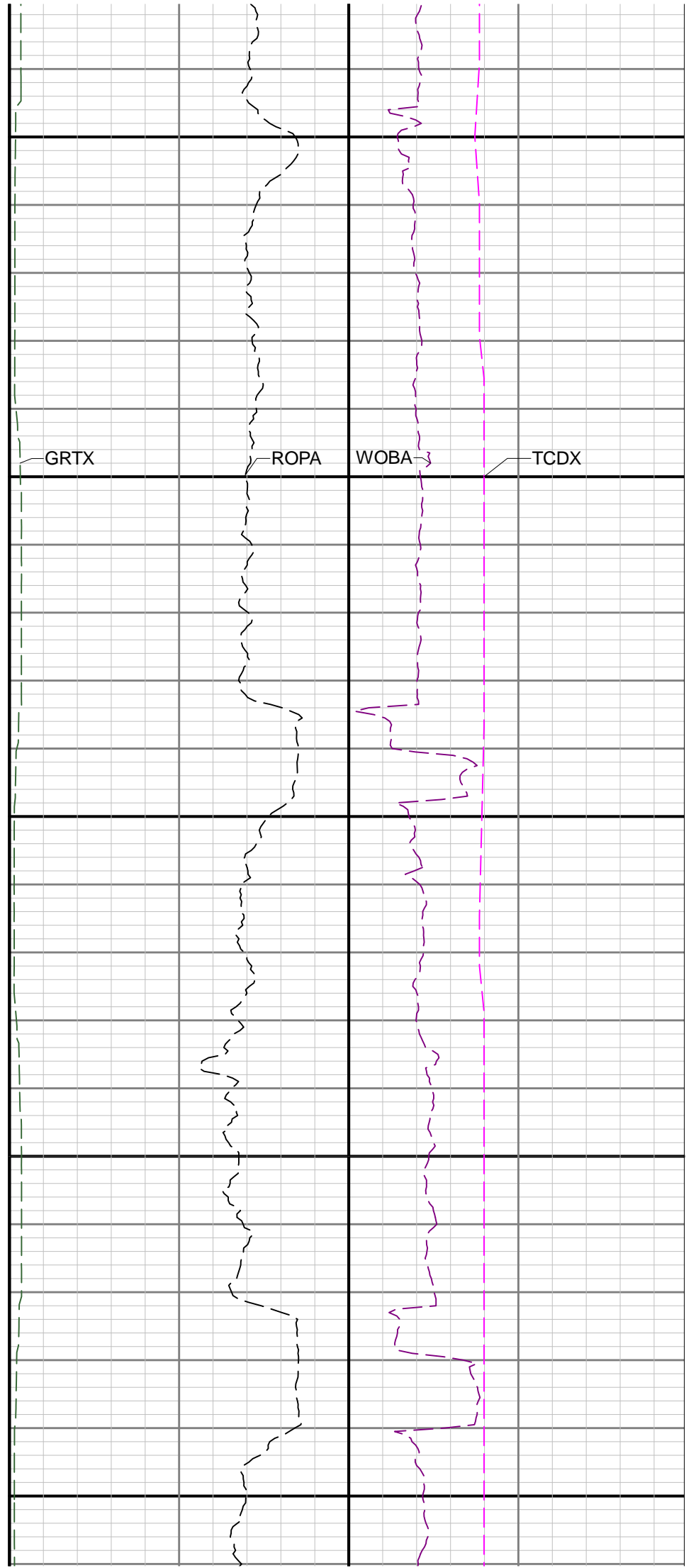
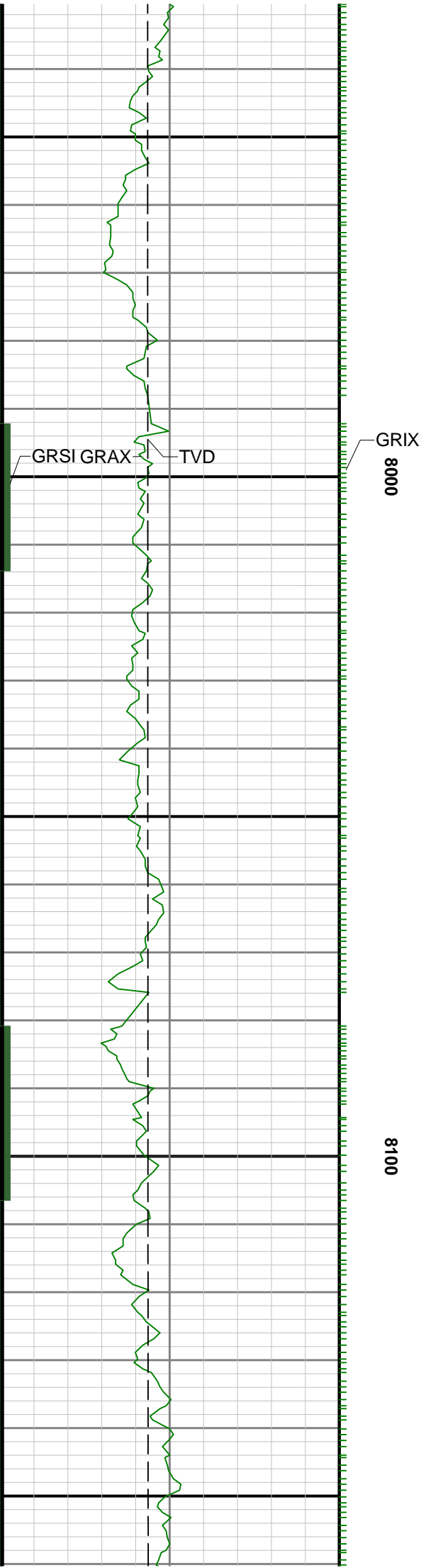
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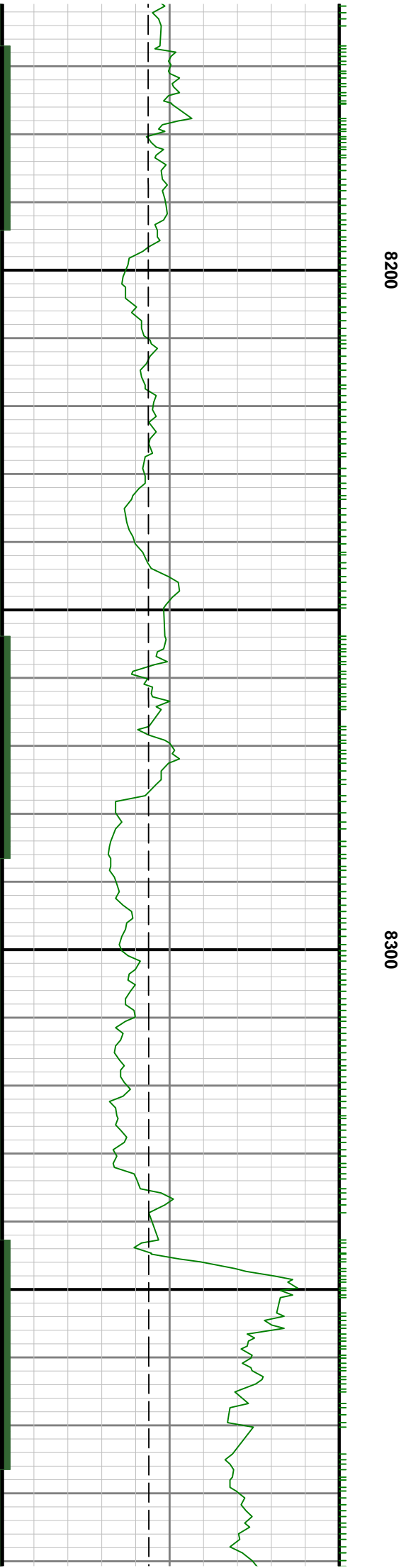
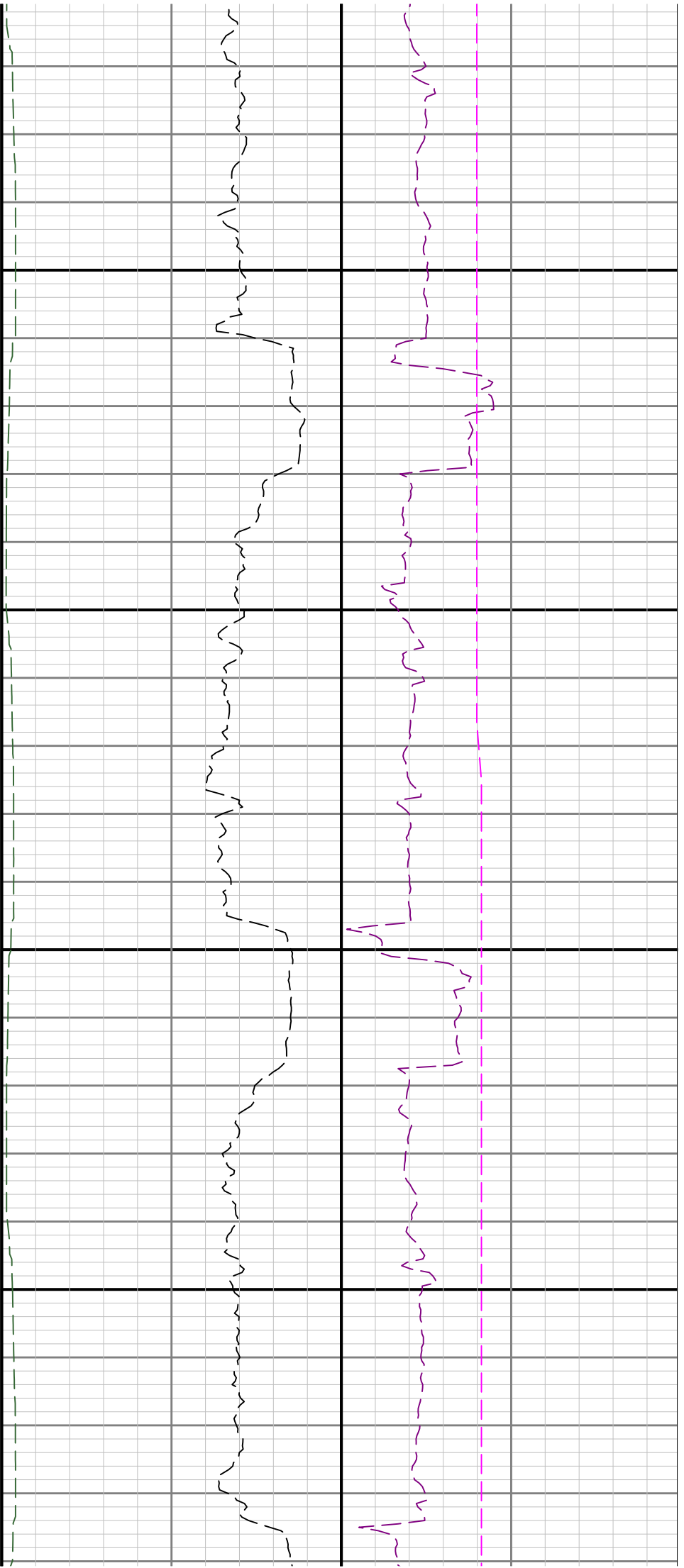


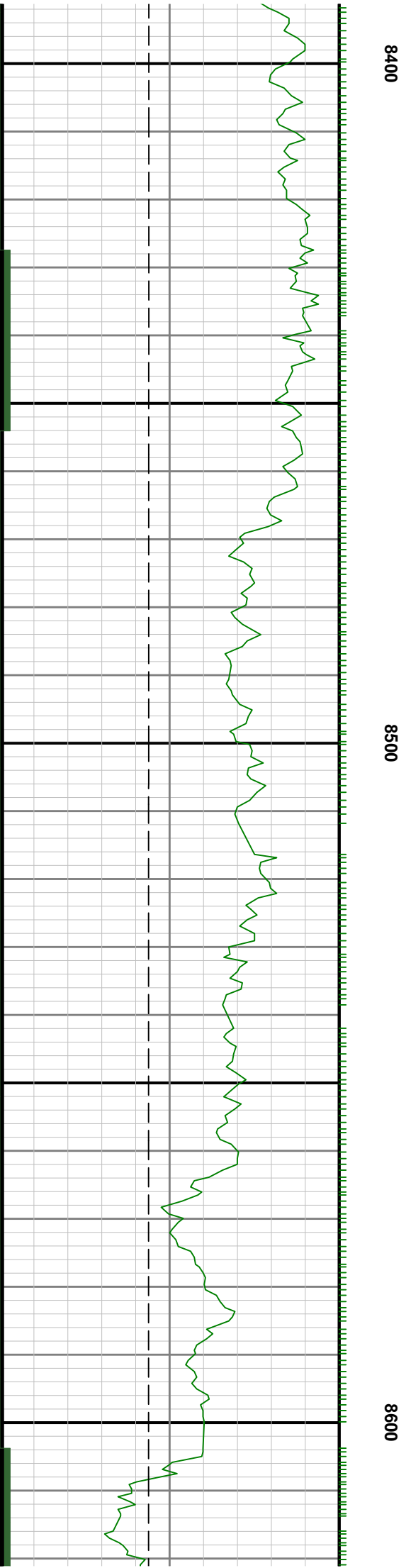
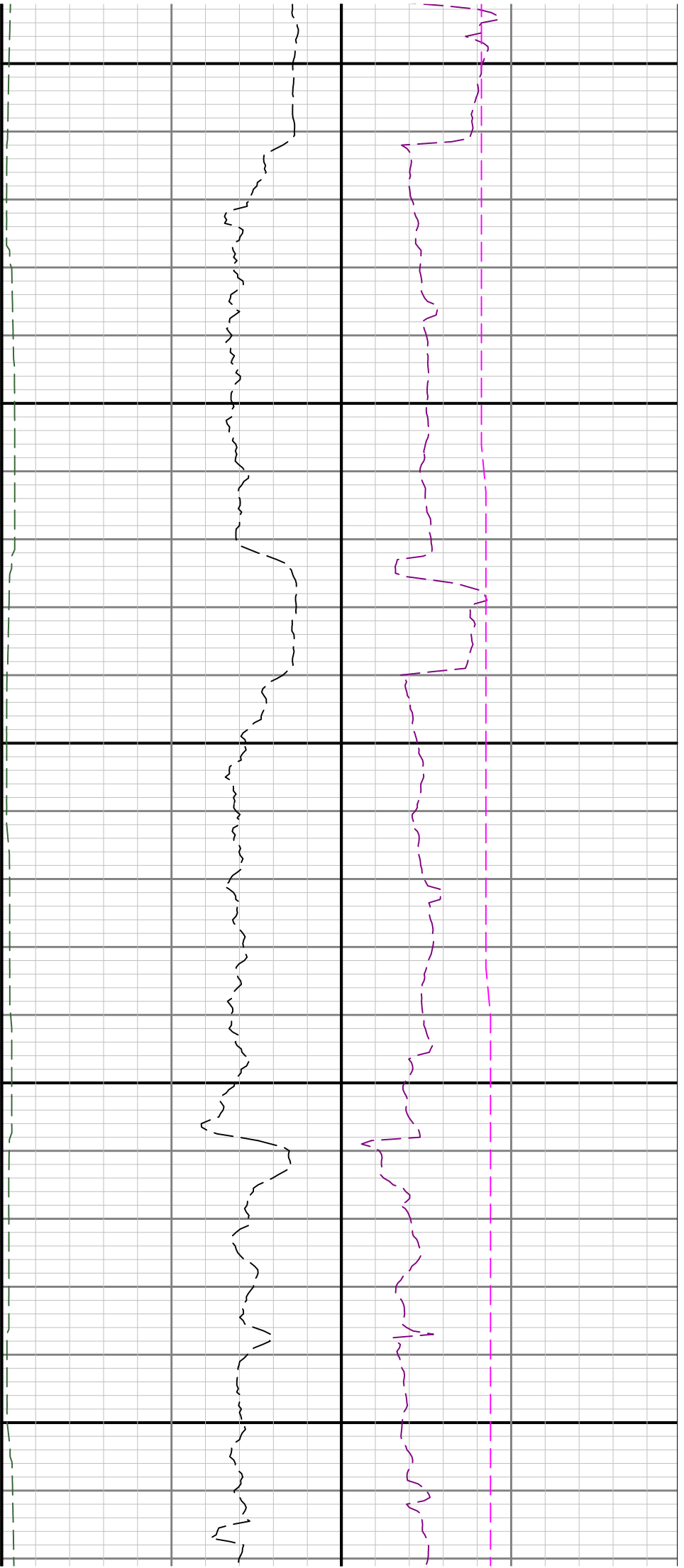


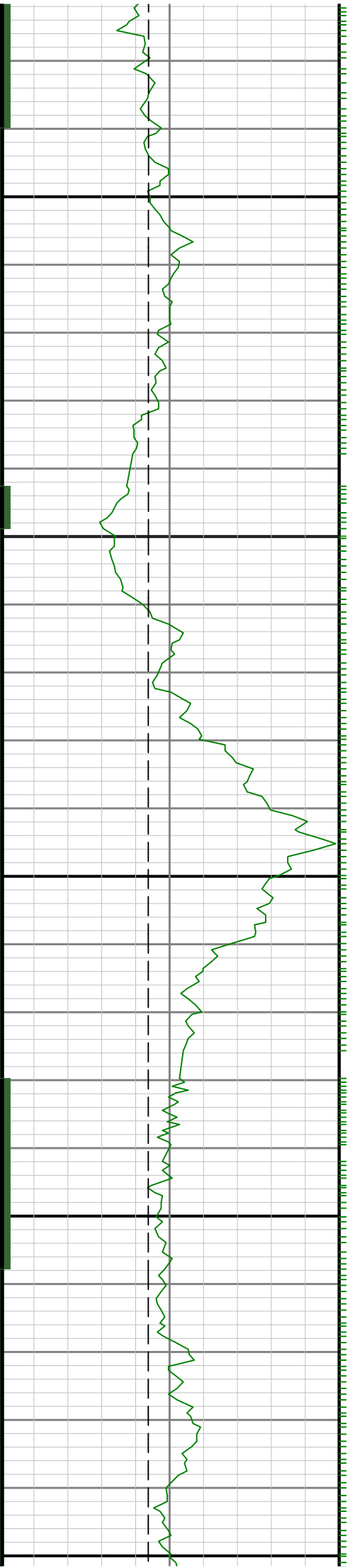






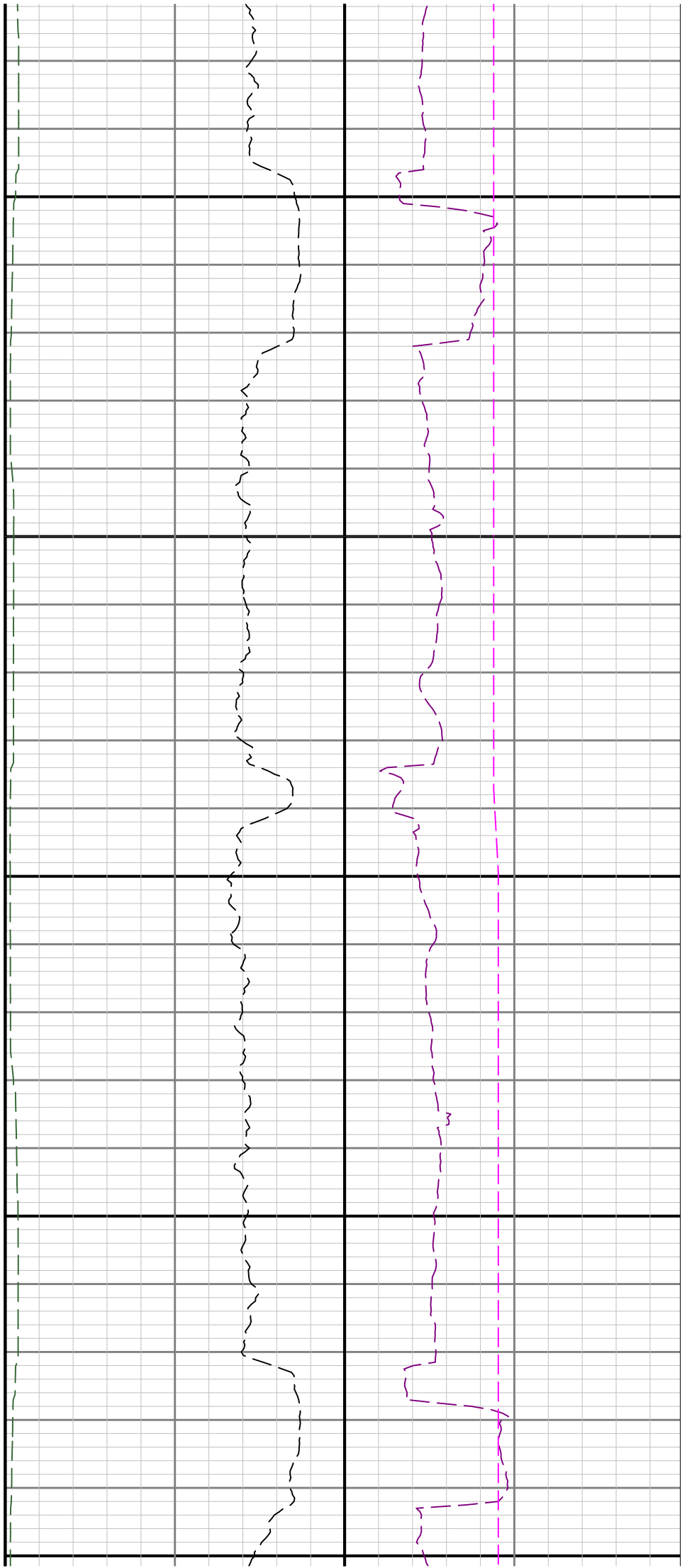




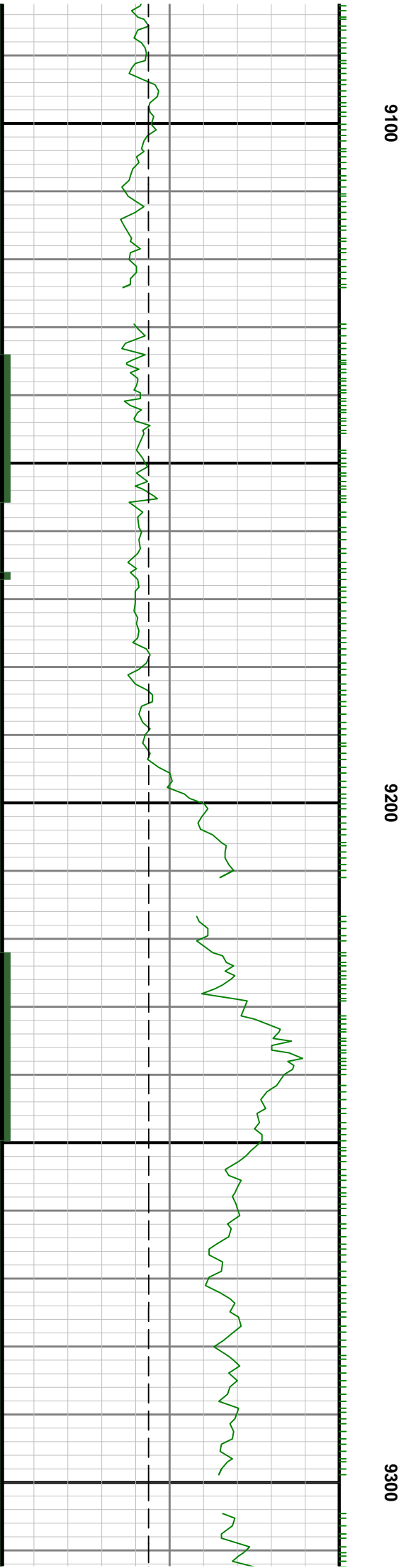
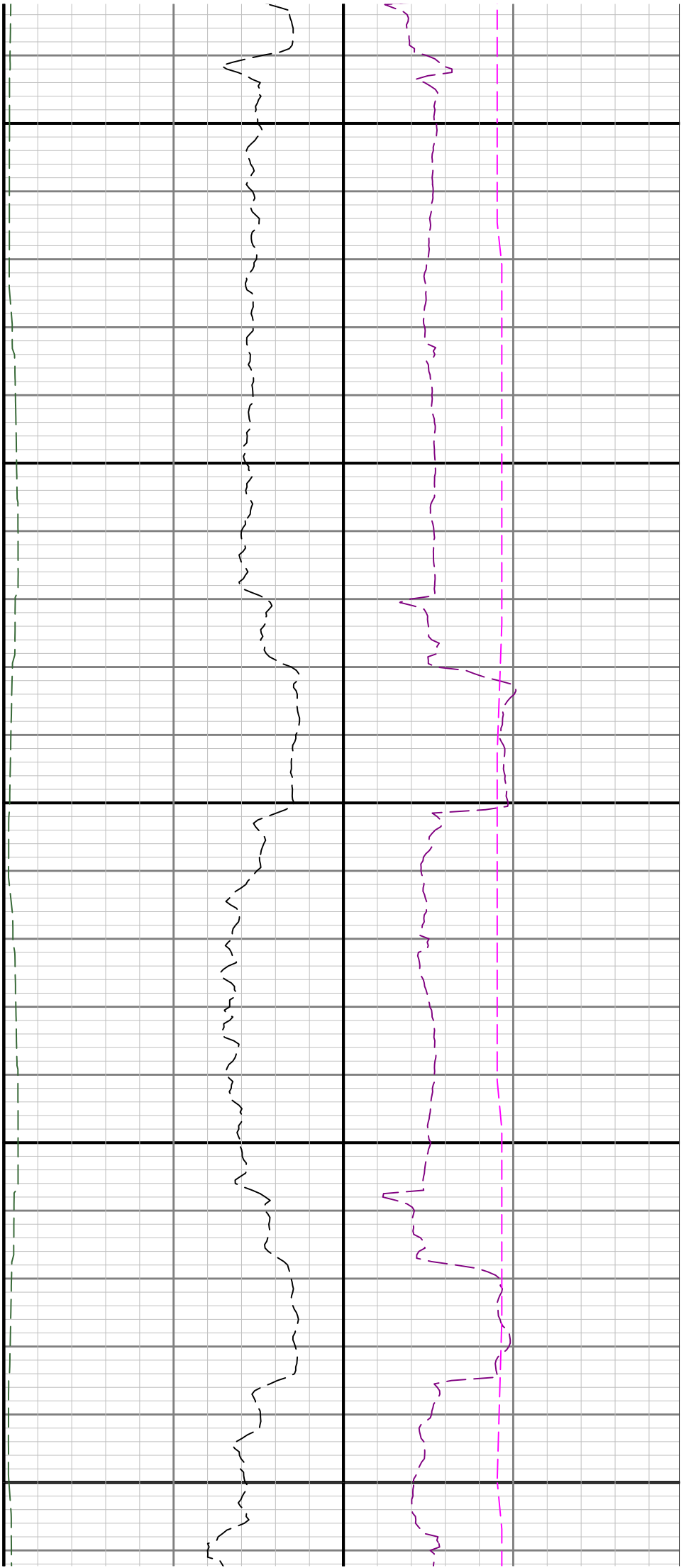


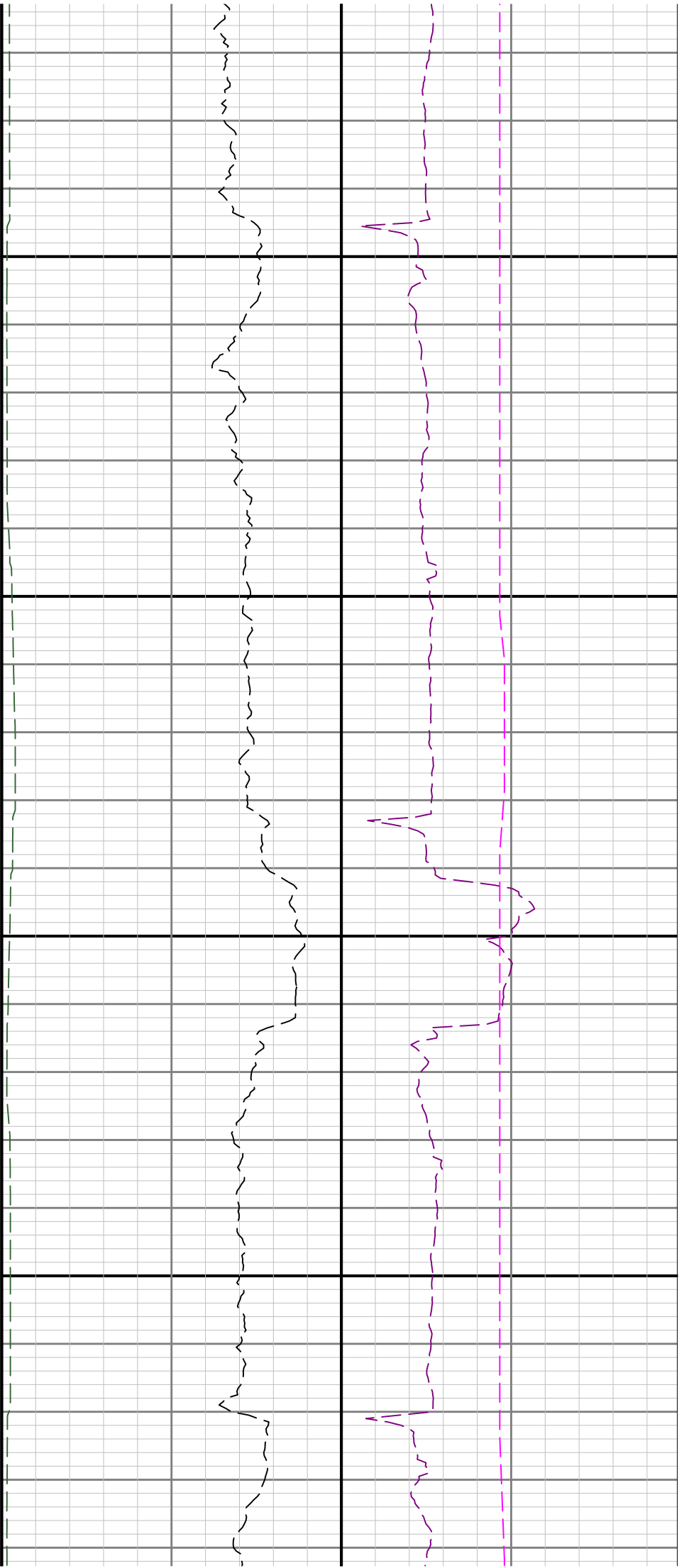
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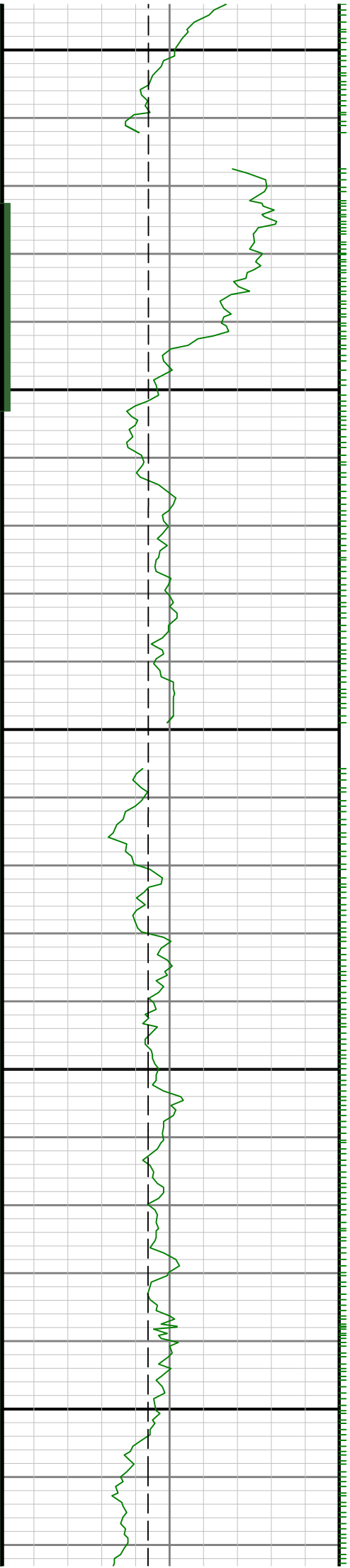






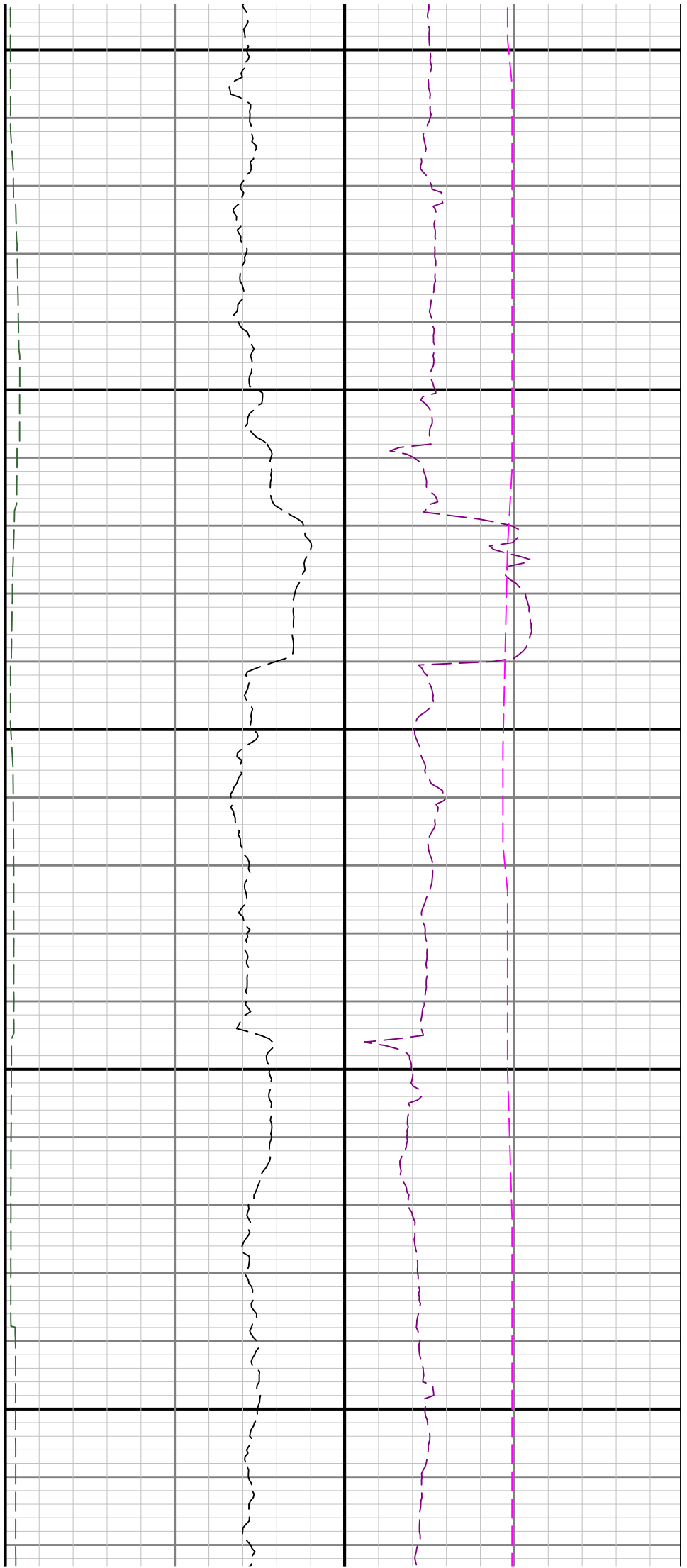
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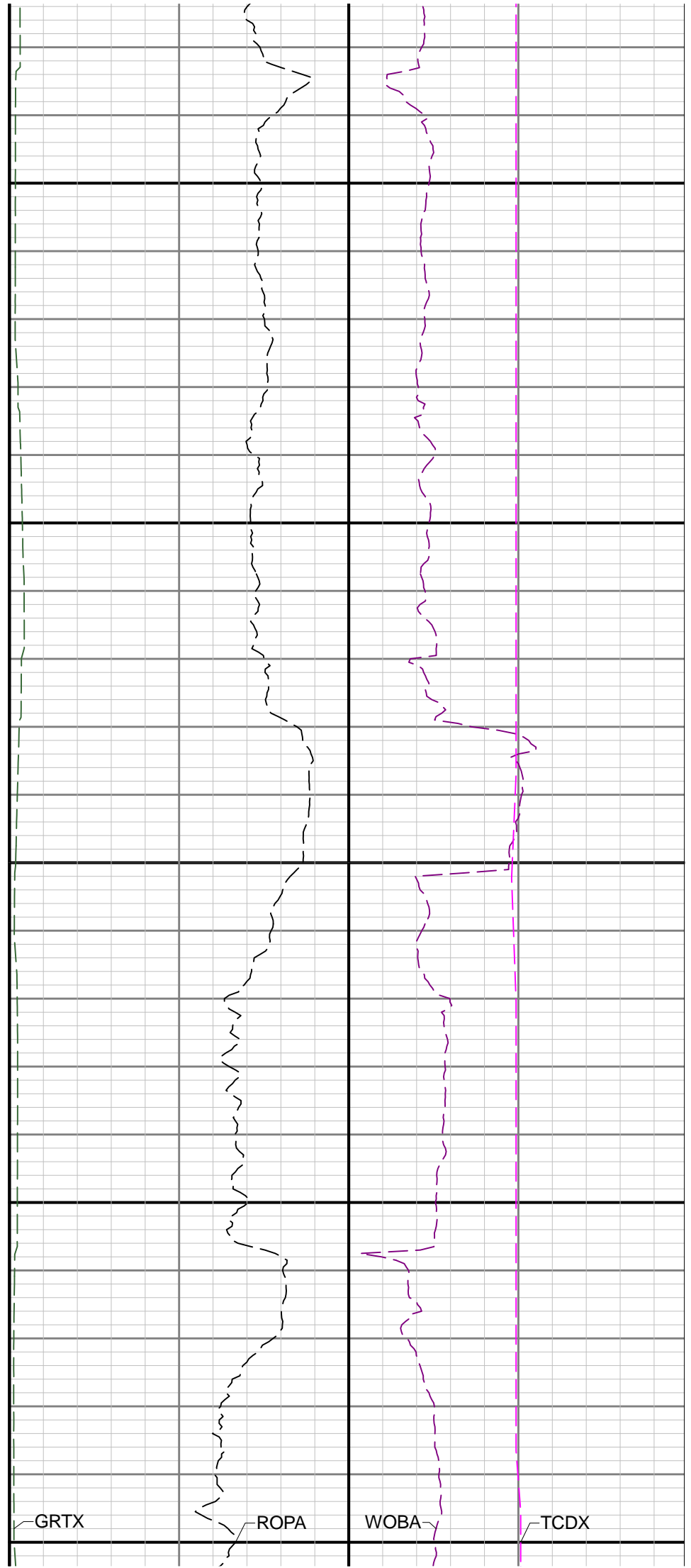
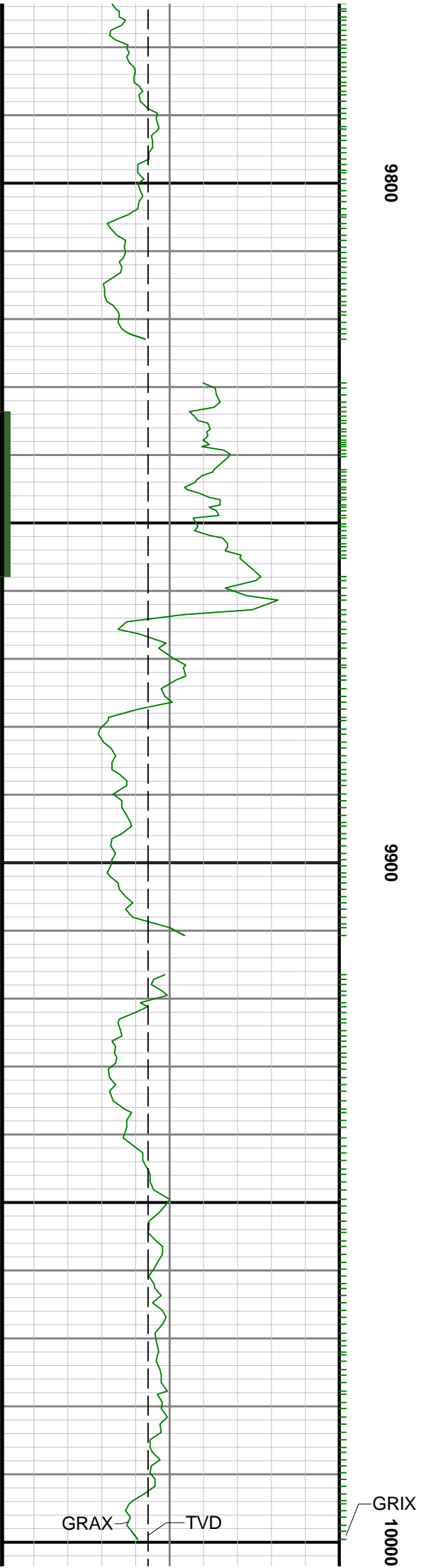


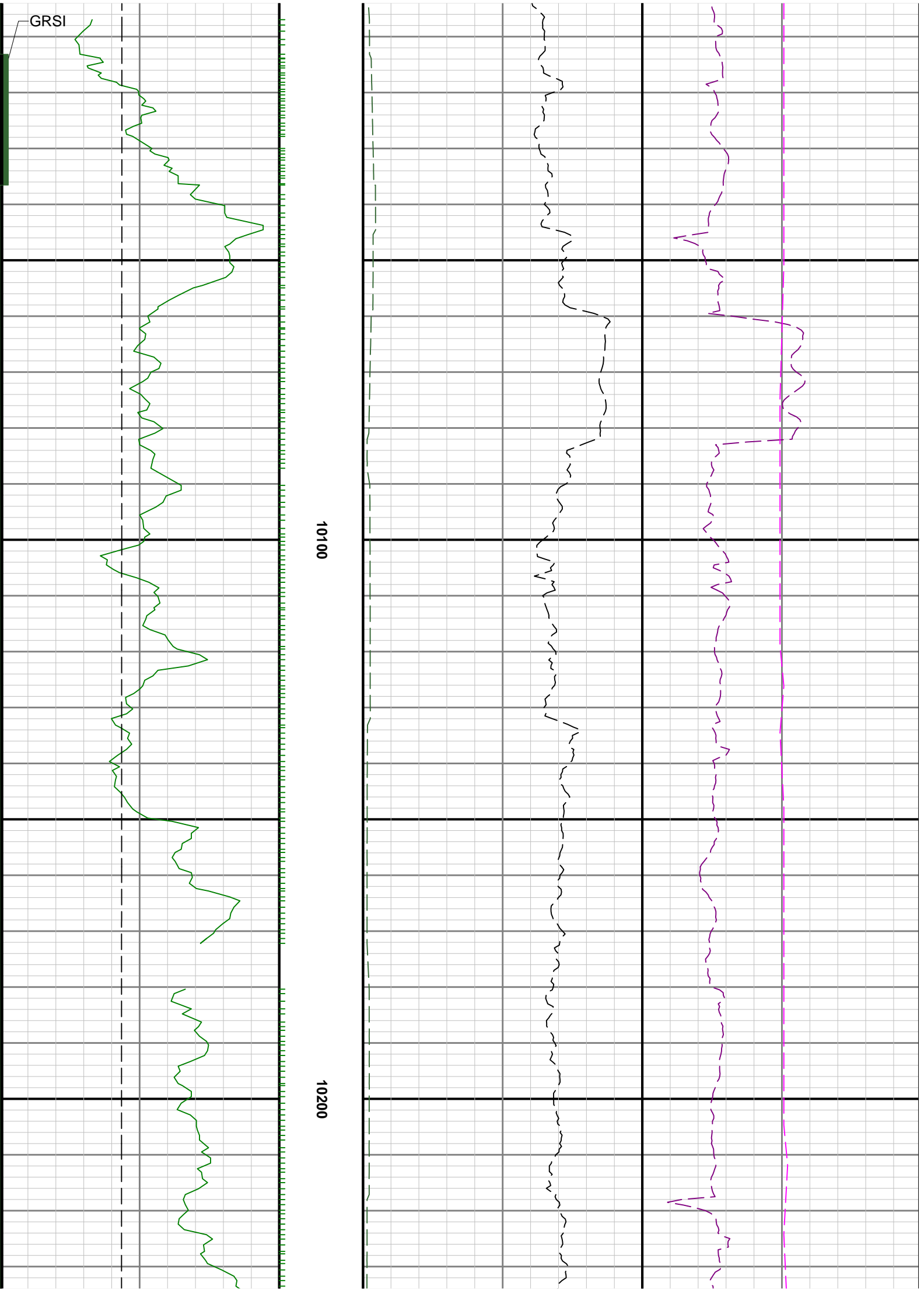
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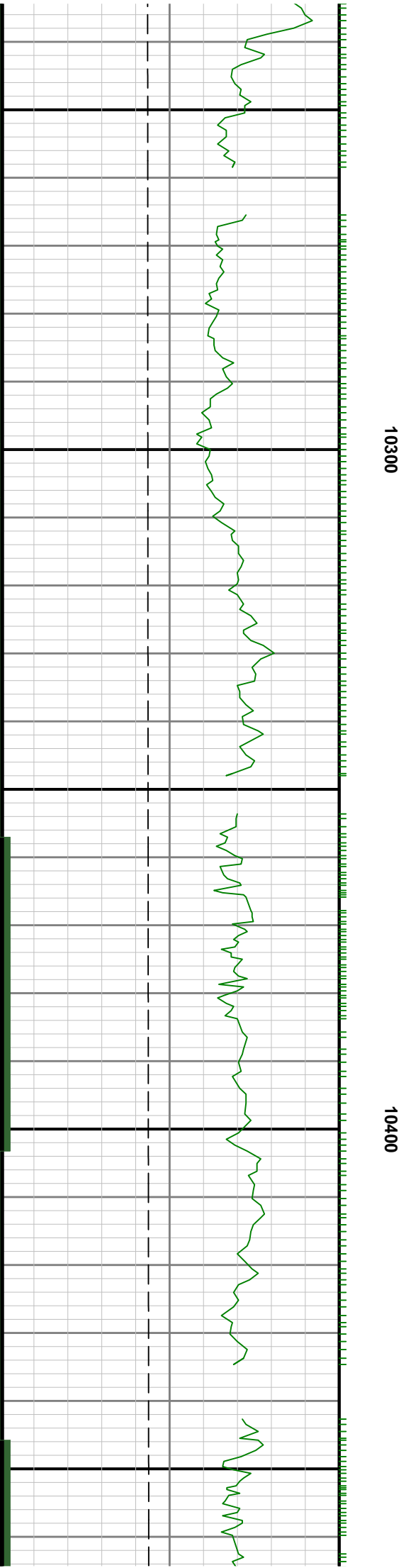
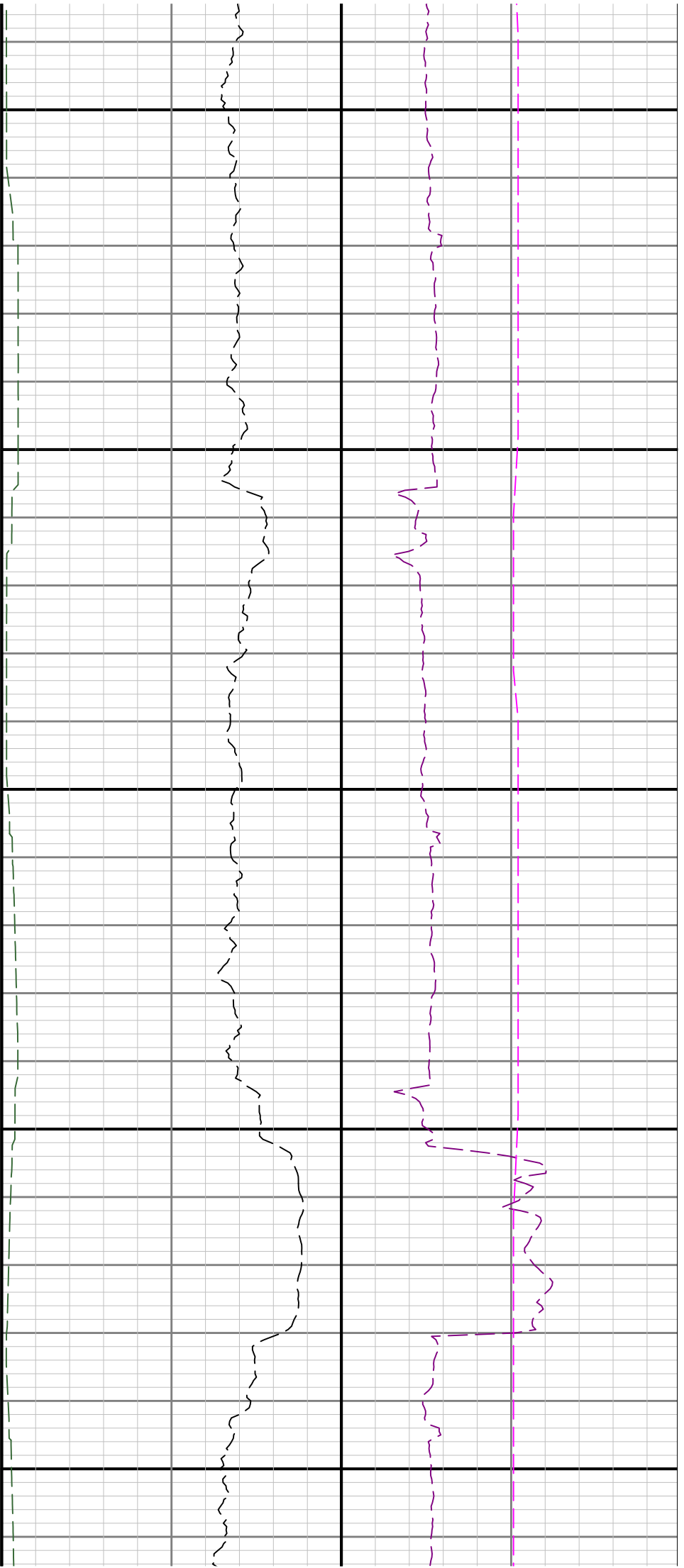
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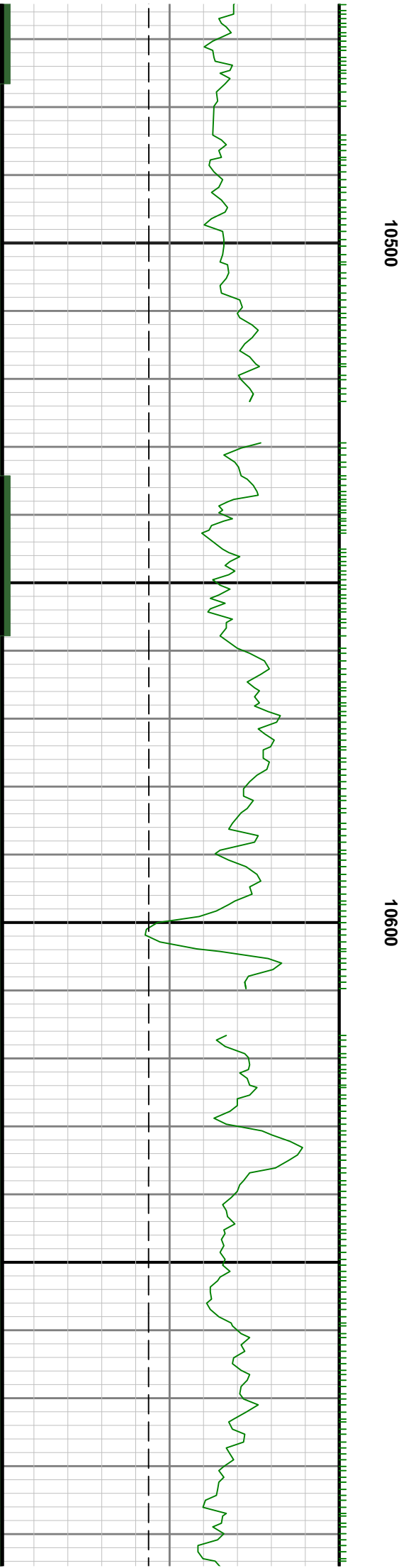
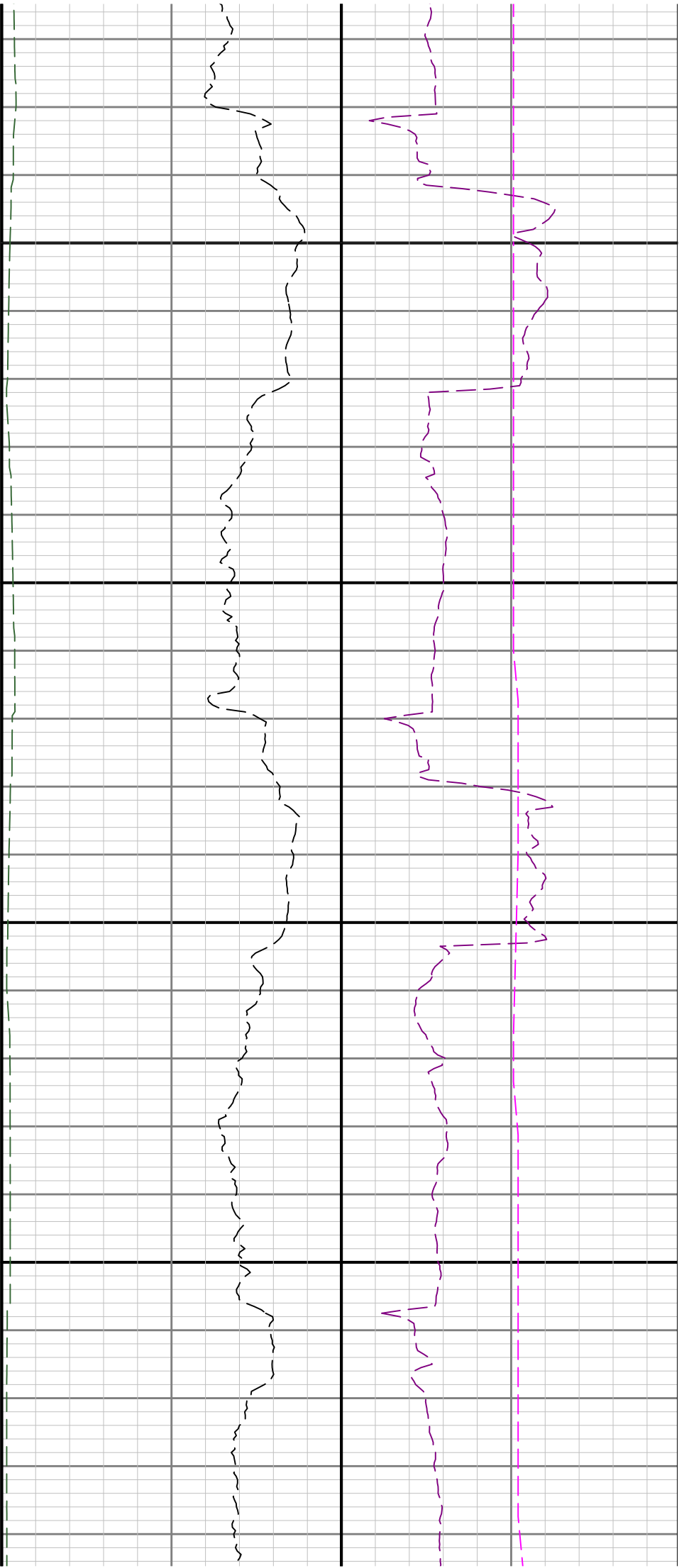


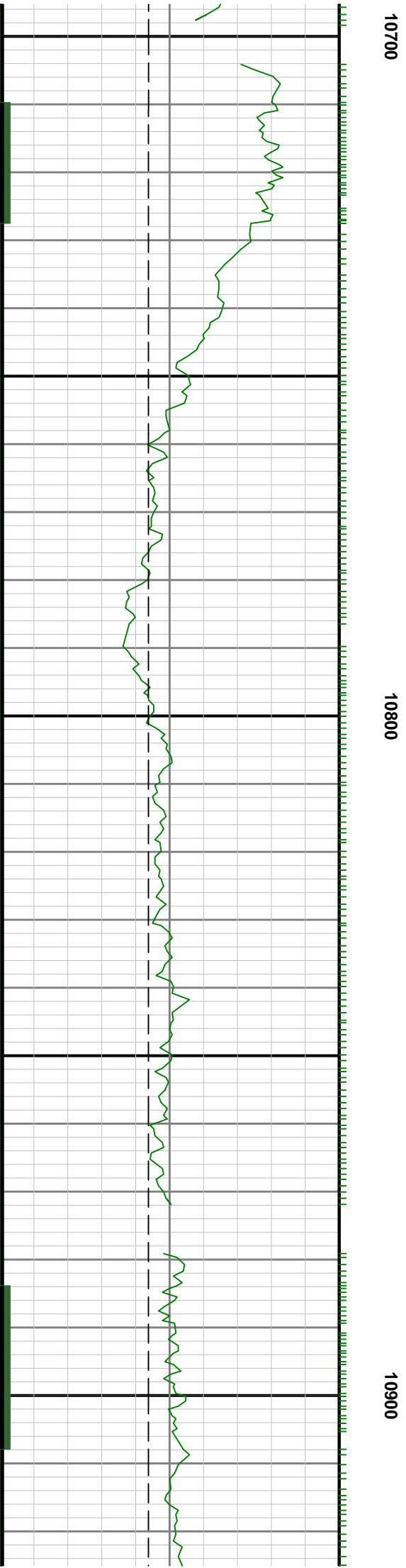
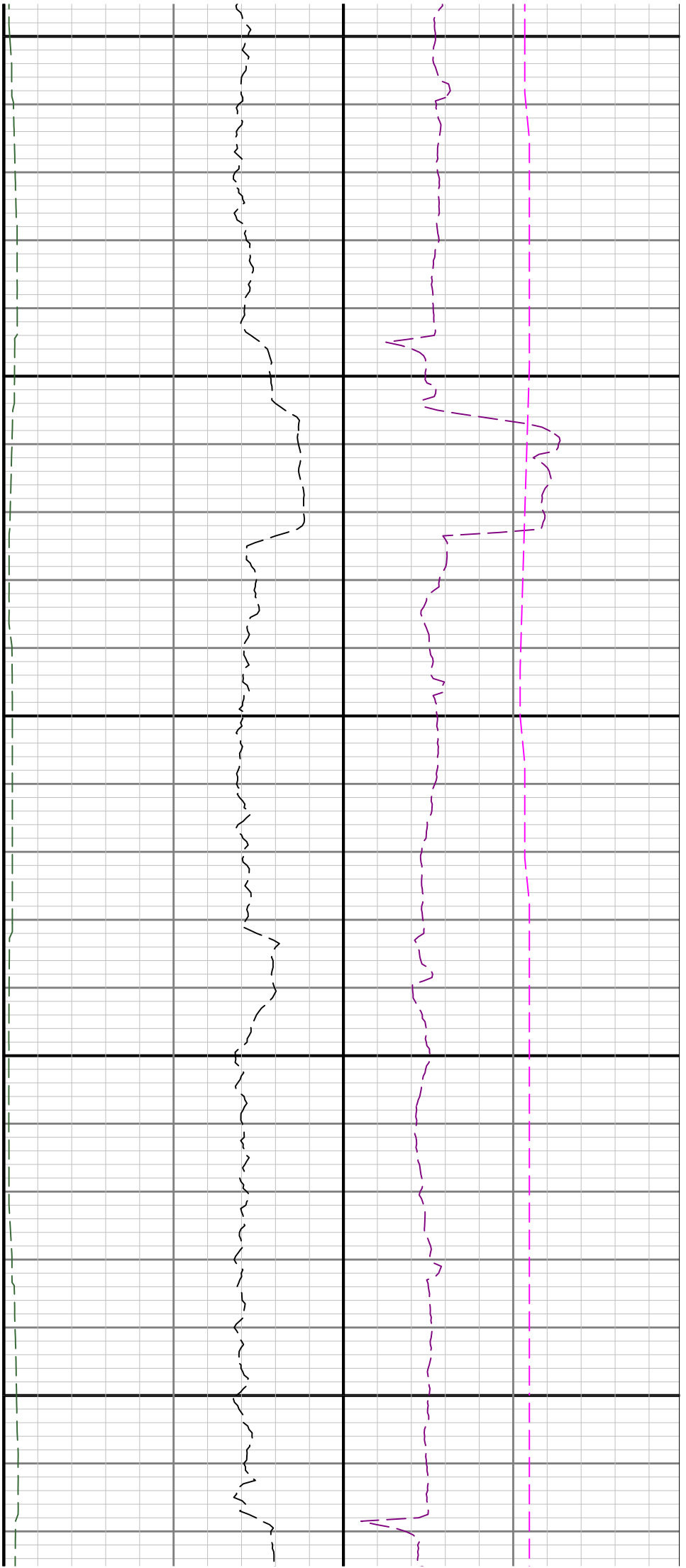


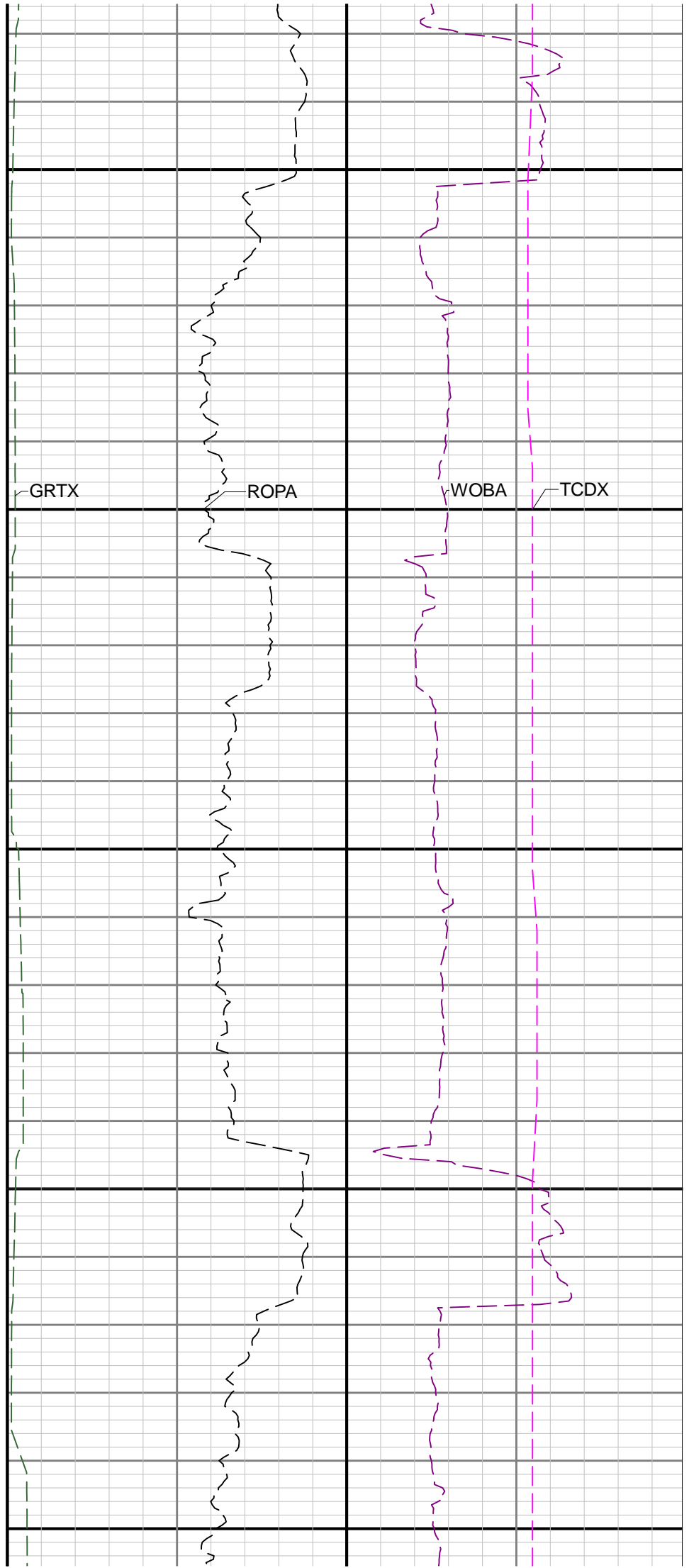
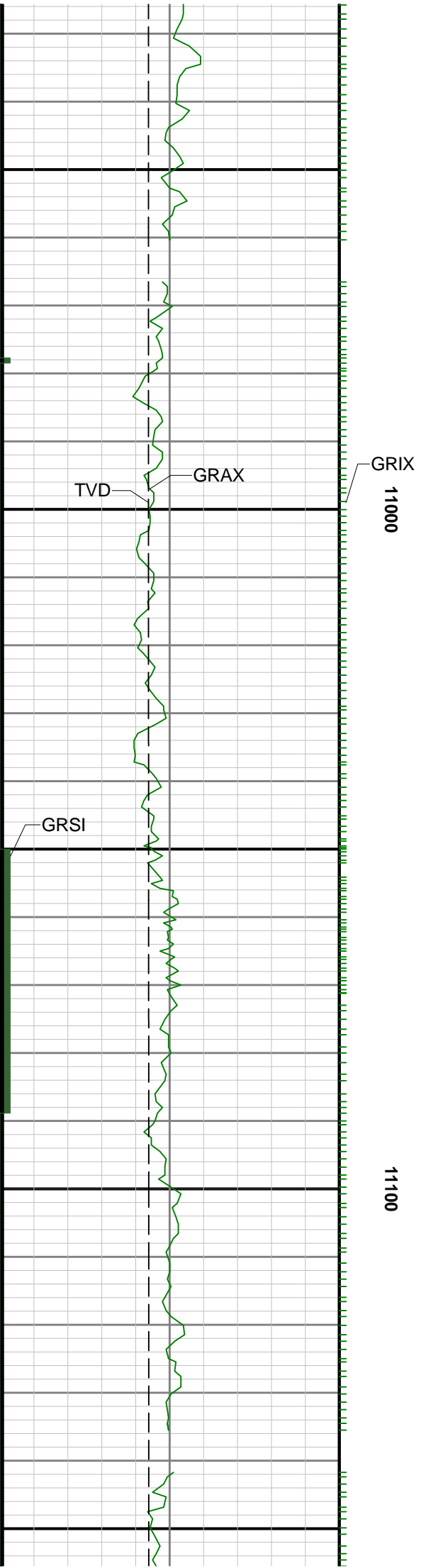


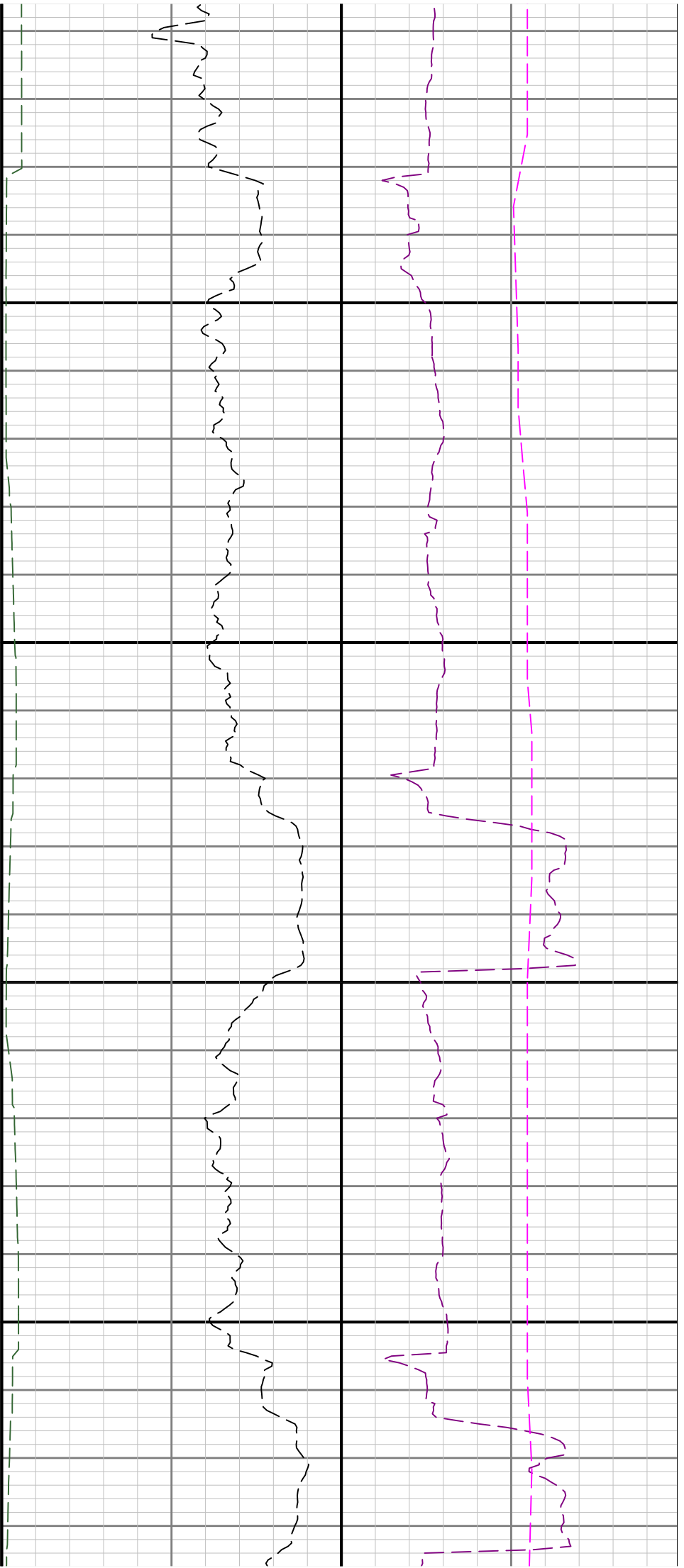






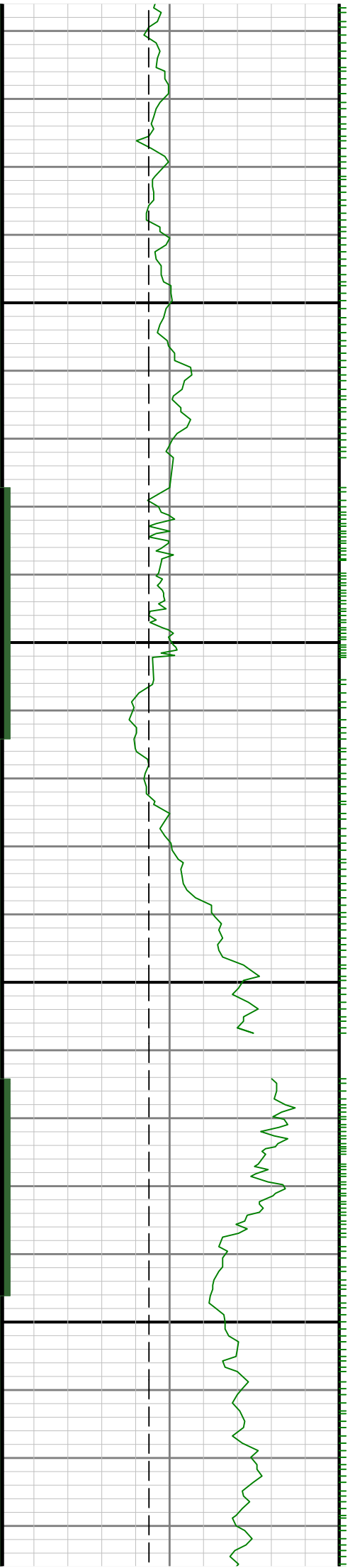


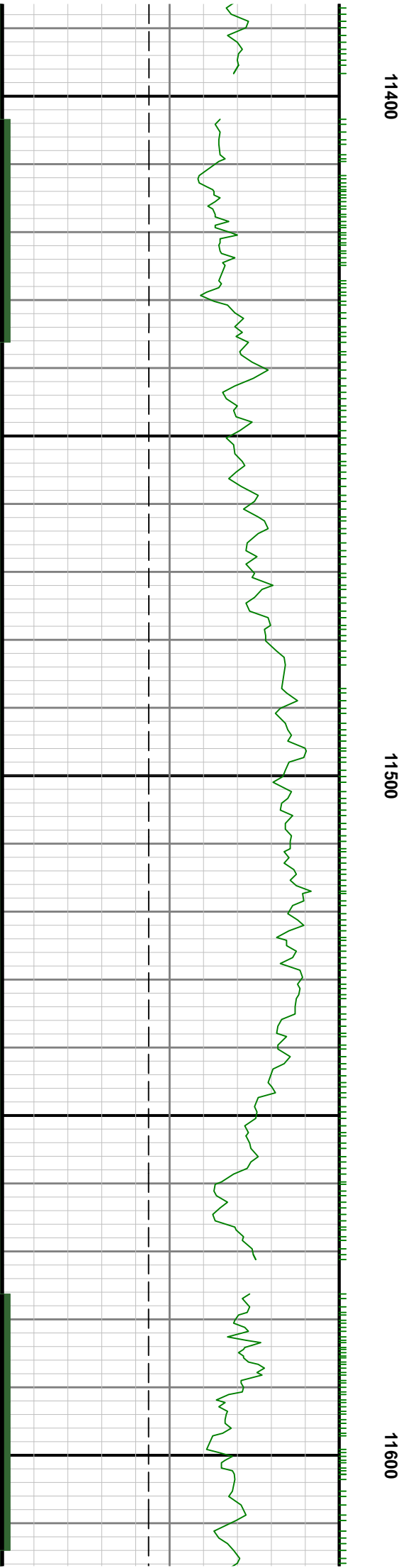
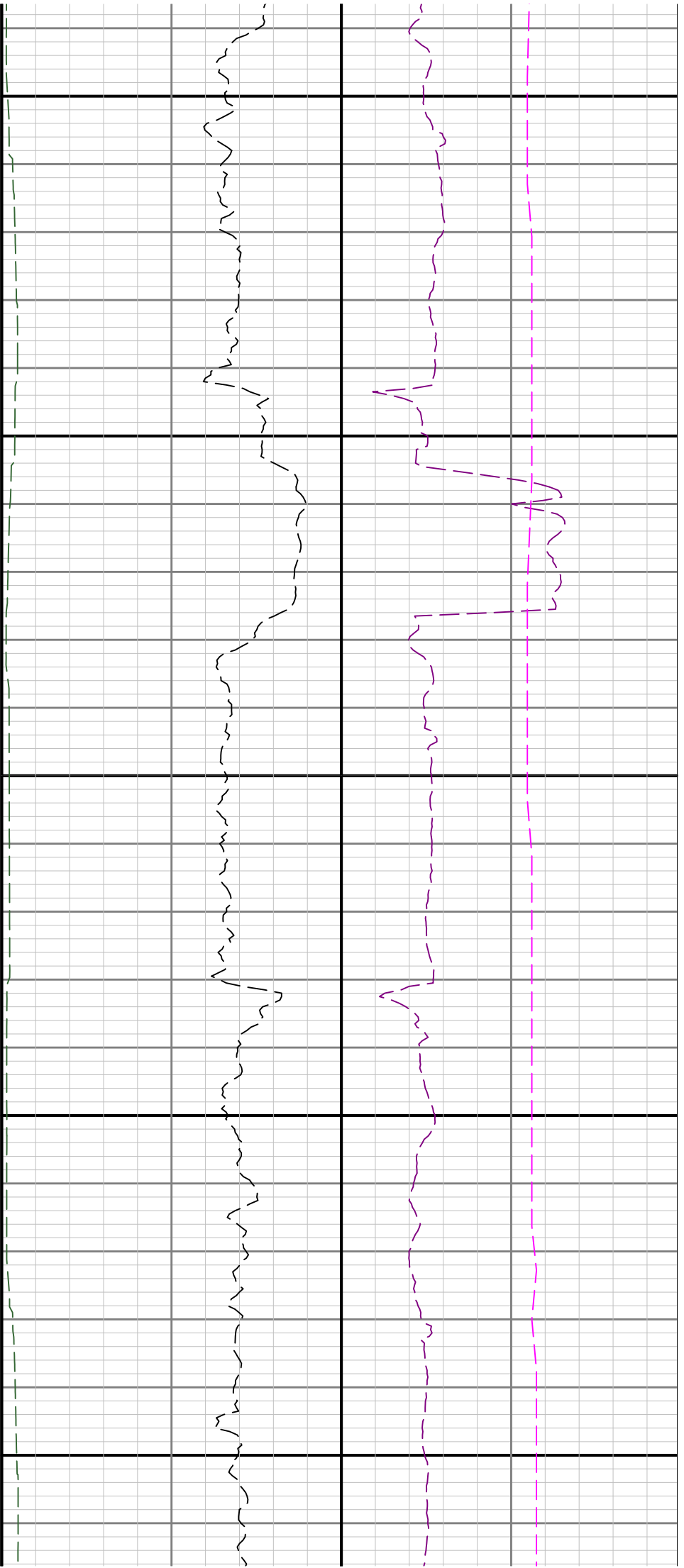




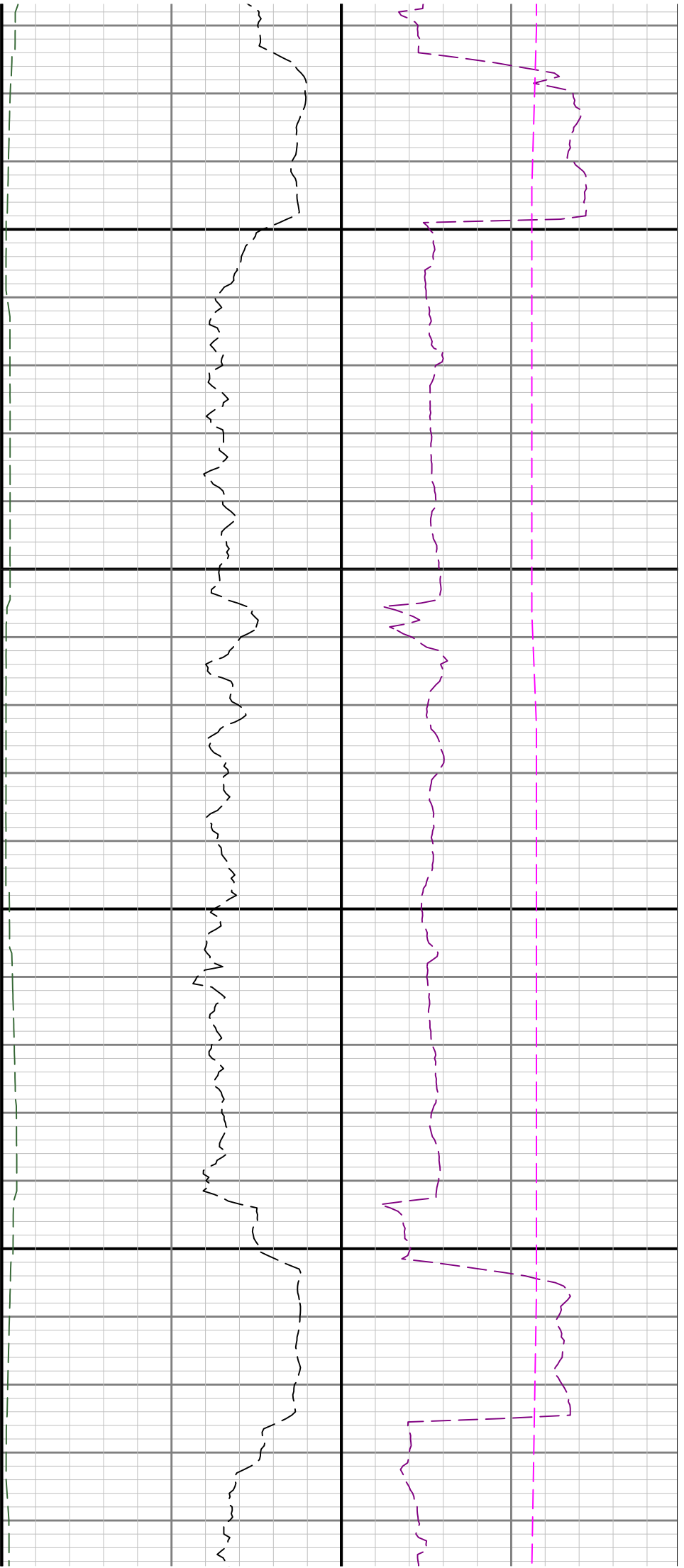
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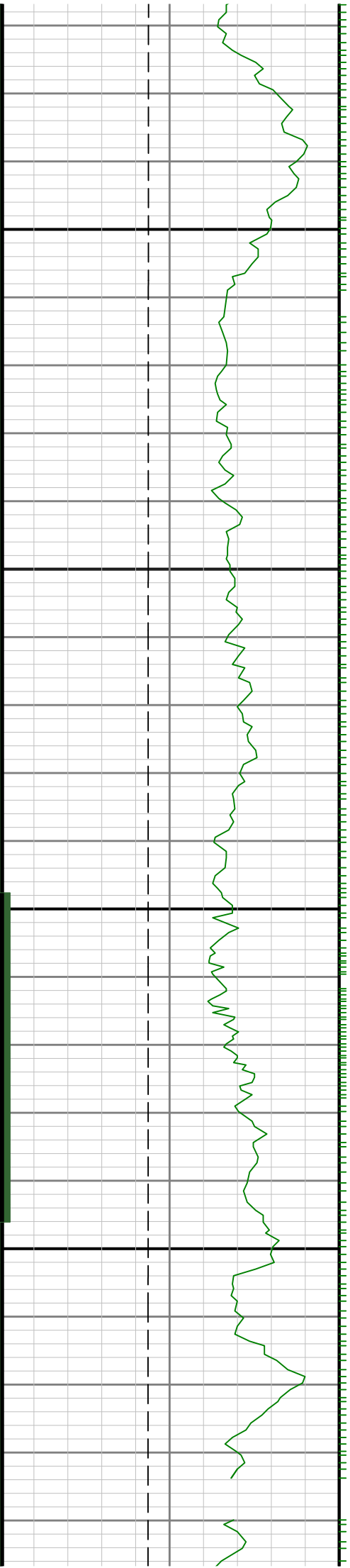


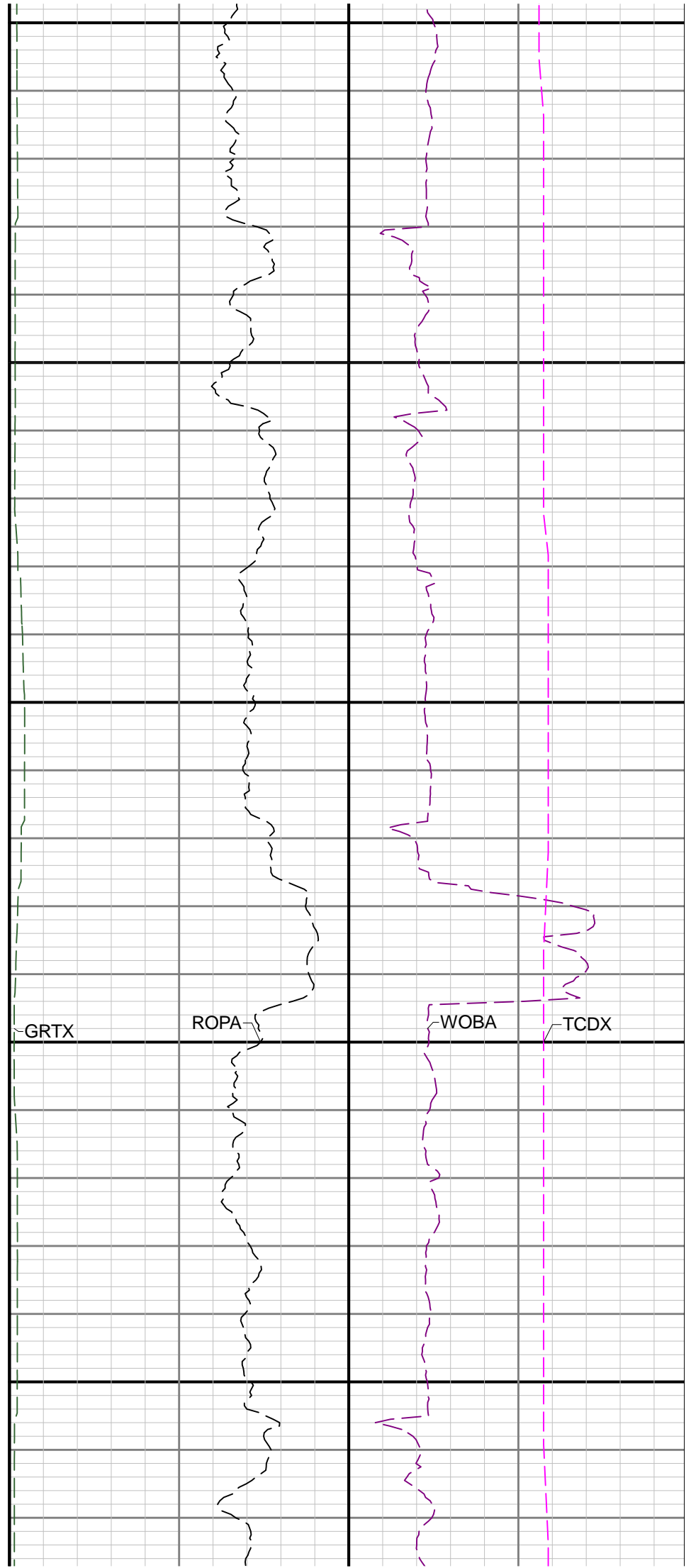
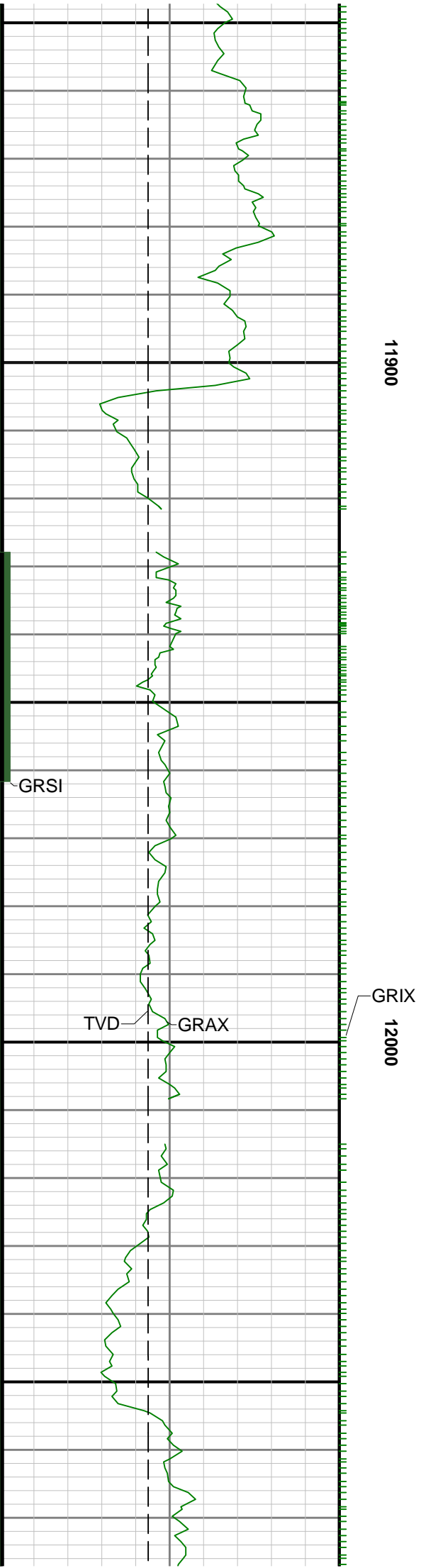


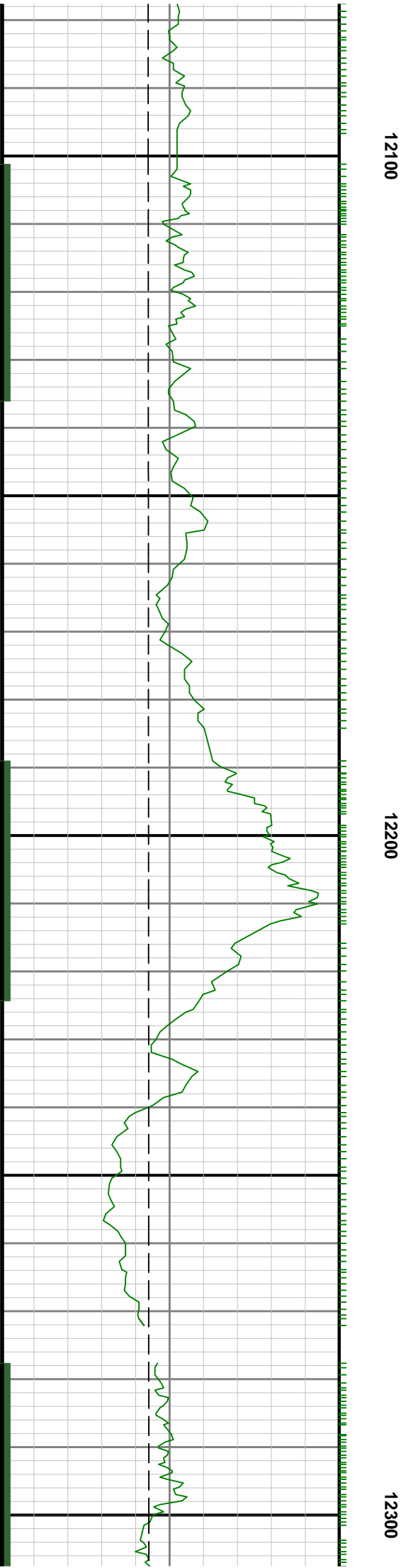
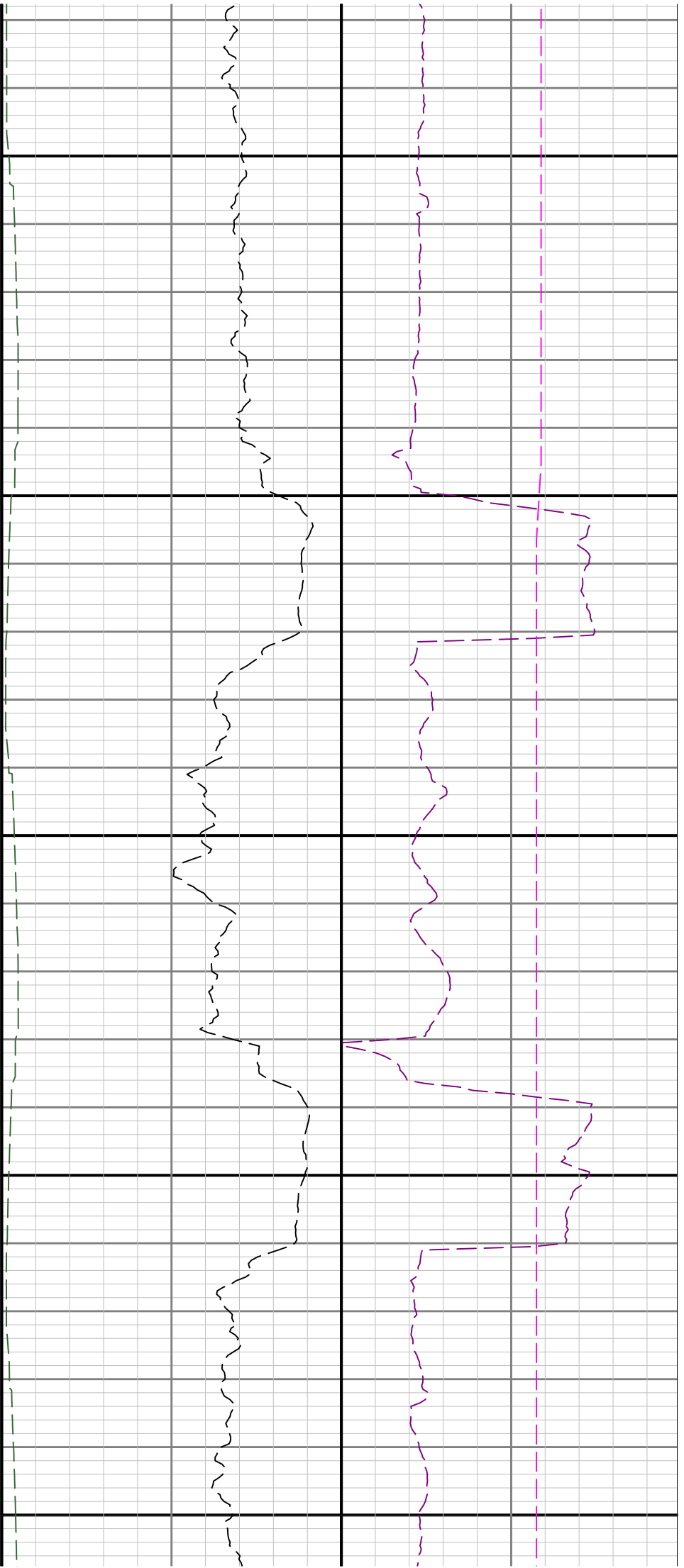


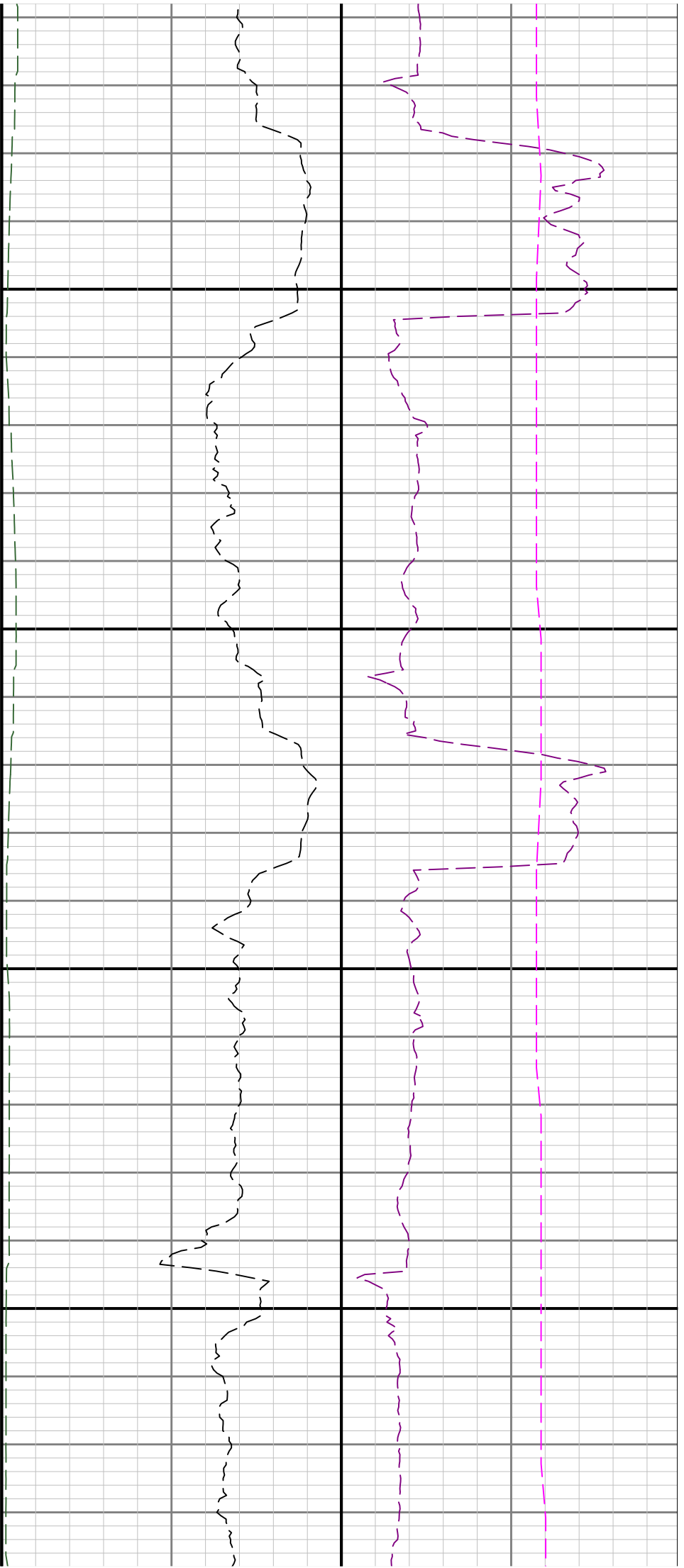
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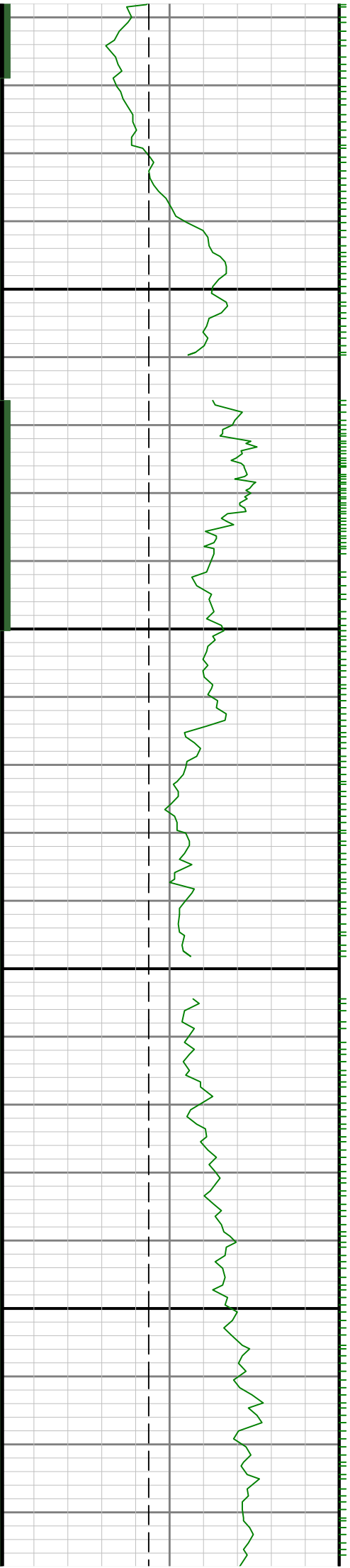


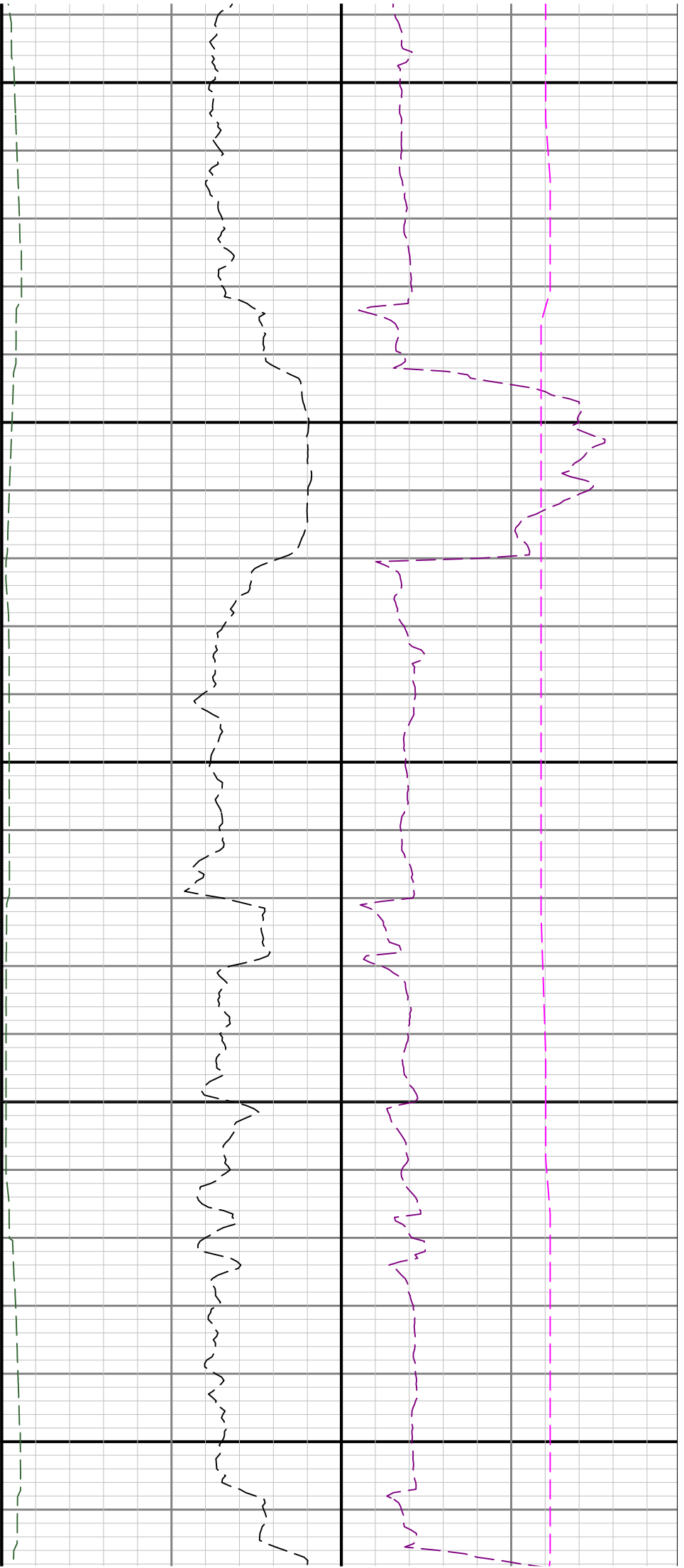




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