


LWD MEMORY LOG COMPOSITE											
<div><div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div></div></div></div>				Gamma Ray							
Scale:		Company: VERDAD OIL & GAS									
1:240 MD		Well: BRNAK 01N-64W-10-1H									
Depth Reference:		Field: Weld County									
Driller's Depth		County: Weld									
		State: Colorado									
		Block: BRNAK 01N-64W-10-1H									
Status:		Surface Location:				Other Services:					
Final Print		Latitude:				040° 04' 21.166" N					
API No: 05-123-45000		Longitude:				104° 32' 30.725" W					
Job ID: 8704484						Directional					
Permanent Datum (P.D.):		Ground Level		Elevation:		5104.00 ft		Elev. KB:		N/A	
Log Measured From:		Rig Floor		Above P.D.		16.00 ft		Elev. DF:		5120.00 ft	
								Elev. GL:		5104.00 ft	
Dates											
Interval Logged						Magnetic Field Reference					
Date From: 2017-08-14		Top: (ft)		16.00		Azi Reference North:		True		Dip Angle: (deg)	
Date To: 2017-08-20		Bottom: (ft)		17283.00		Total Magnetic Field Strength: (nT)				52294	
Spud Date: 2017-08-14						Mag to Reference North Correction: (deg)				8.22 E	
Borehole Record											
Casing Record											
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)		From (ft)	
13.500		16.00		1770.00		9.625		36.00		16.00	
8.500		1770.00		17283.00							
Mud Record											
Deviation Record											
Type		From (ft)		To (ft)		Hole Size (in)		Interval (ft)		Inc Az (Start)	
Oil Based Mud		1770.00		17283.00		13.500		1769.42		0.90 262.45	
						8.500		15513.16		8.75 310.73	
										89.91 176.42	
Acquisition System											
Software Version		RT4.1		Rig:		Xtreme 20		Other			
PlotStudio		4.1.7763.3		Contractor:		Xtreme Drilling		Unit: D&E			
				District:		RMA					

2017-08-16 17:30	2	3696.00	Oil Based Mud	9.5	68	N/A	10.0	67/33	Active Pit	42500	0.00
2017-08-17 05:00	2	6894.00	Oil Based Mud	9.6	65	N/A	10.0	67/33	Active Pit	41000	0.00
2017-08-17 17:30	2	8994.00	Oil Based Mud	9.8	58	N/A	9.0	67/33	Active Pit	42000	0.00
2017-08-18 05:00	2	11419.00	Oil Based Mud	9.8	58	N/A	9.0	67/33	Active Pit	41500	0.00
2017-08-19 17:30	3	13821.00	Oil Based Mud	9.8	58	N/A	9.0	67/33	Active Pit	41000	0.00
2017-08-20 05:00	3	14974.00	Oil Based Mud	9.8	58	N/A	9.0	67/33	Active Pit	41500	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviTrak	13225696	Directional (mag)	15.02	58.40	8.000	0.000
1	NaviTrak	13225696	VSS	15.02	58.40	8.000	0.000
2	ATC_SU	14262244	Near Bit VSS	5.93	6.71	6.750	4.330
2	ATC_SU	14262244	Near Bit Inclination	5.93	6.71	6.750	4.330
2	ATC_MWD	12603327	Gamma (single)	2.73	12.88	6.750	3.250
2	ATC_MWD	12603327	Directional (mag)	12.26	22.41	6.750	3.250
3	ATC_SU	14262244	Near Bit VSS	5.93	6.71	6.750	4.330
3	ATC_SU	14262244	Near Bit Inclination	5.93	6.71	6.750	4.330
3	ATC_MWD	12603327	Gamma (single)	2.73	12.88	6.750	3.250
3	ATC_MWD	12603327	Directional (mag)	12.26	22.41	6.750	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
NTK	NaviTrak	Probe Based Directional Module, NaviTrak Platform
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments

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.
2	Baker Hughes LWD Runs 2 and 3 utilized 6 3/4 inch Navigamma services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1770 to 17283 feet MD (1761 to 7120 feet TVD).

Remarks

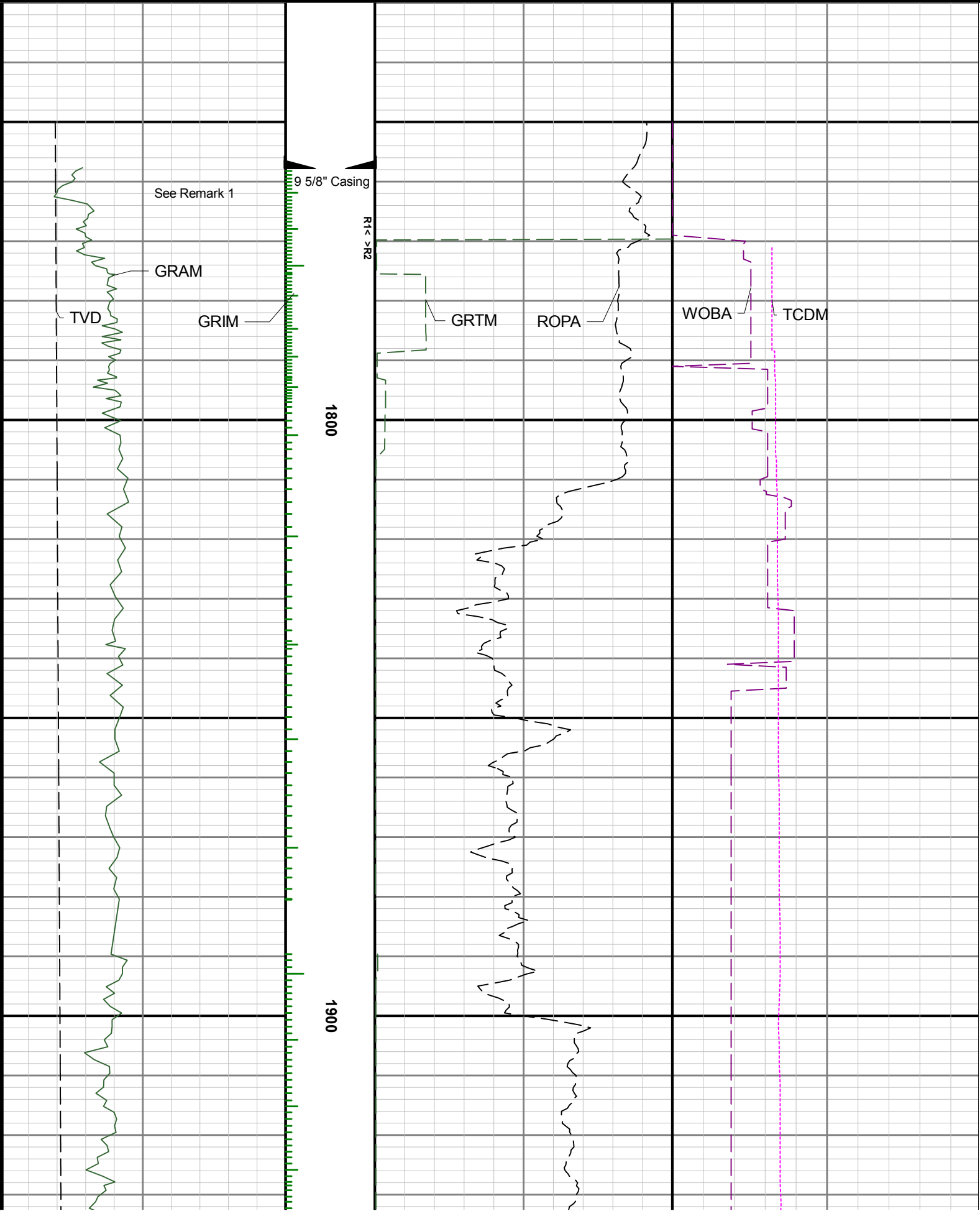
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1770.00	8.500	2	Baker Hughes LWD began logging services at 1729 feet MD (1724 feet TVD) per client request.
2	13725.00	8.500	3	The interval from 13724 to 13736 feet MD (7148 feet TVD) was drilled while troubleshooting AutoTrak Curve tool failure in Run 2.
3	13740.00	8.500	3	The interval from 13736 to 13749 feet MD (7148 feet TVD) was logged up to 21 hours after drilling due to tripping for a new AutoTrak Curve tool failure.
4	17257.00	8.500	3	The interval from 17270 to 17283 feet MD (7120 feet TVD) was not logged due to sensor to bit offset at well TD.

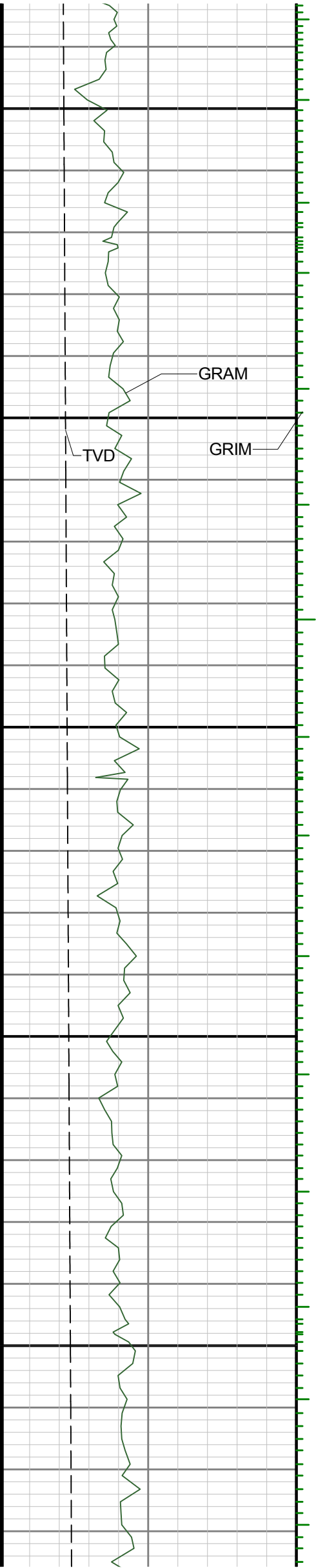
Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	OnTrak - Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	OnTrak - Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	OnTrak - Gamma Ray - Time Since Drilled - Memory	min
GRADM	OnTrak - Gamma Ray - Apparent - Down Quadrant - Memory 0.5 ft Average	API
GRAUM	OnTrak - Gamma Ray - Apparent - Up Quadrant - Memory 0.5 ft Average	API
TCDM	Downhole Temperature	degF

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	Well	BRNAK 01N-64W-10-1H			
	Interval	Date From:	2017-08-14 15:48:38	Top:	1750.00
		Date To:	2017-08-20 17:40:54	Bottom:	17283.00

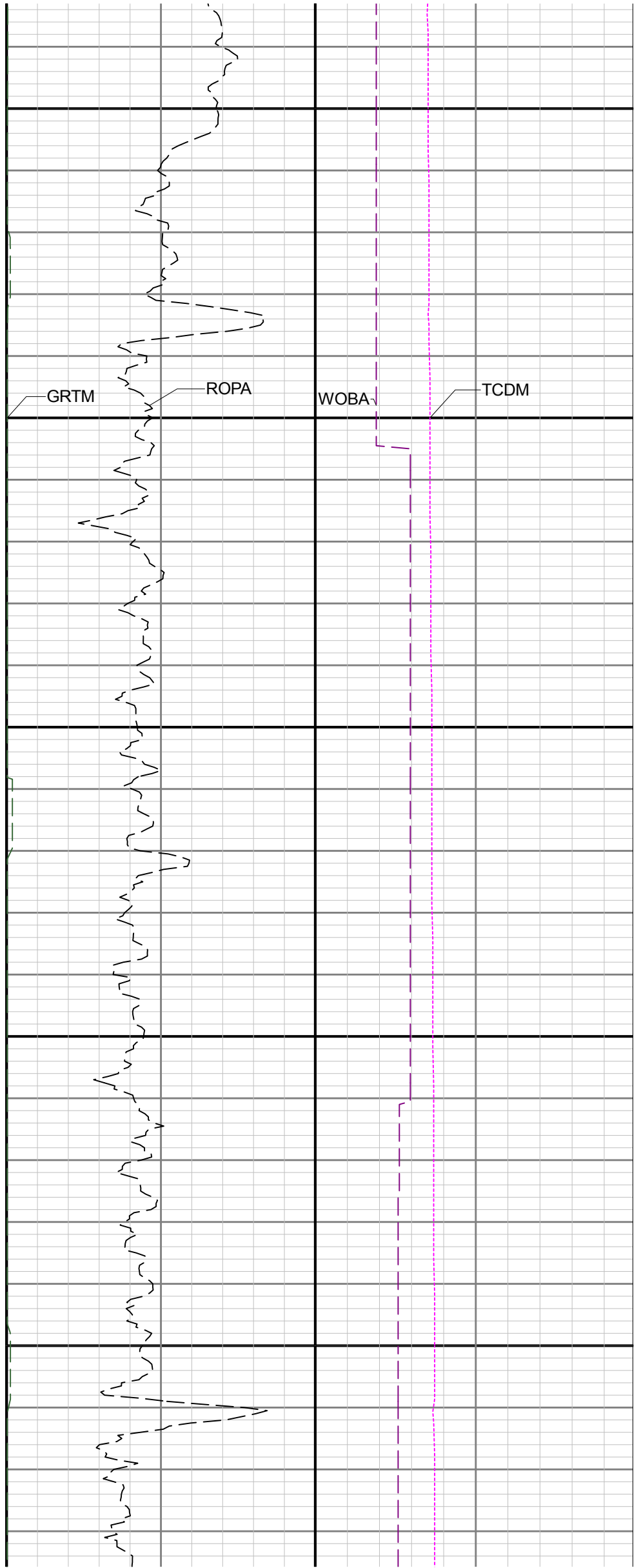
Gamma Ray Apparent 0.5 ft Average [GRAM] 0250	MD 1:240 feet	Depth Averaged ROP 3 ft Average [ROPA] 1200ft/h0	Weight On Bit 1 ft Average [WOBA] 050
API Gamma Ray Apparent UP 0.5 ft Average [GRAUM] 0250		Time Since Drilled [GRTM] 0600	klb Downhole Temperature [TCDM] 0300
API Gamma Ray Apparent DOWN 0.5 ft Average [GRADM] 0250		min	degF
API True Vertical Depth [TVD] 09000 ft			

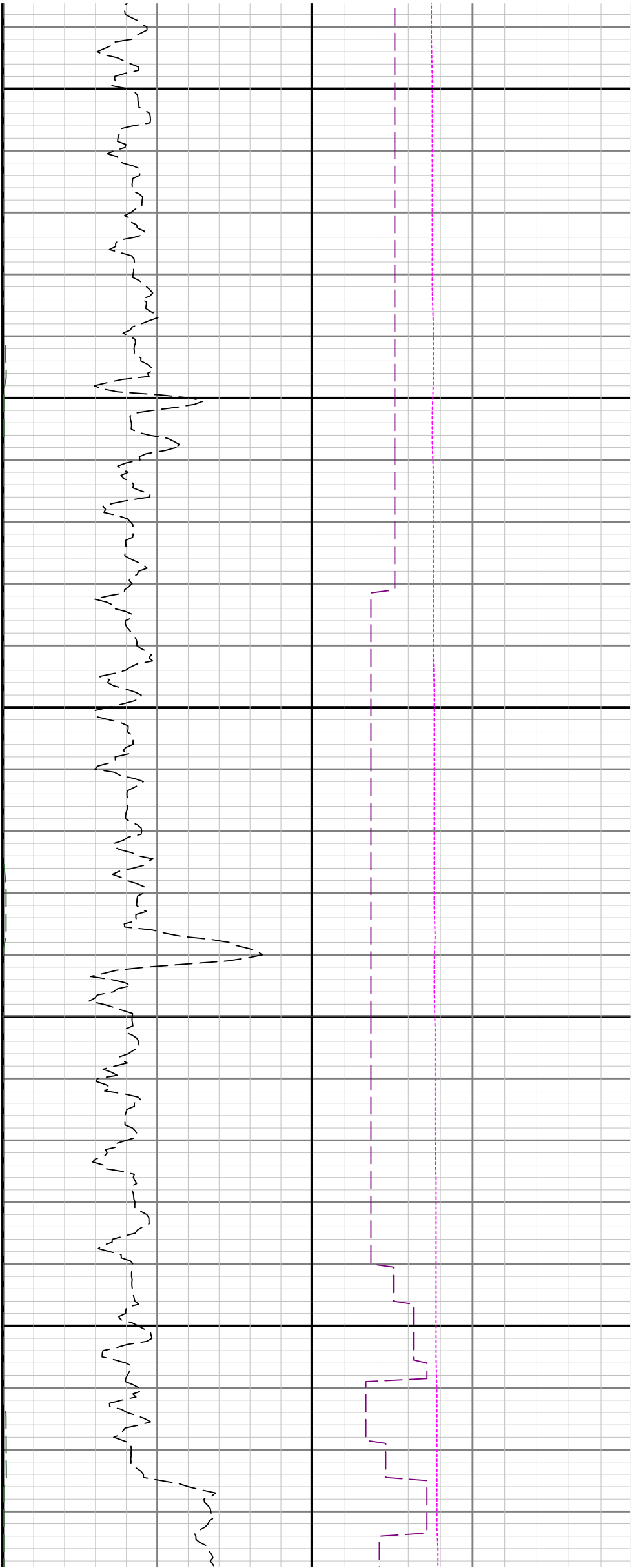




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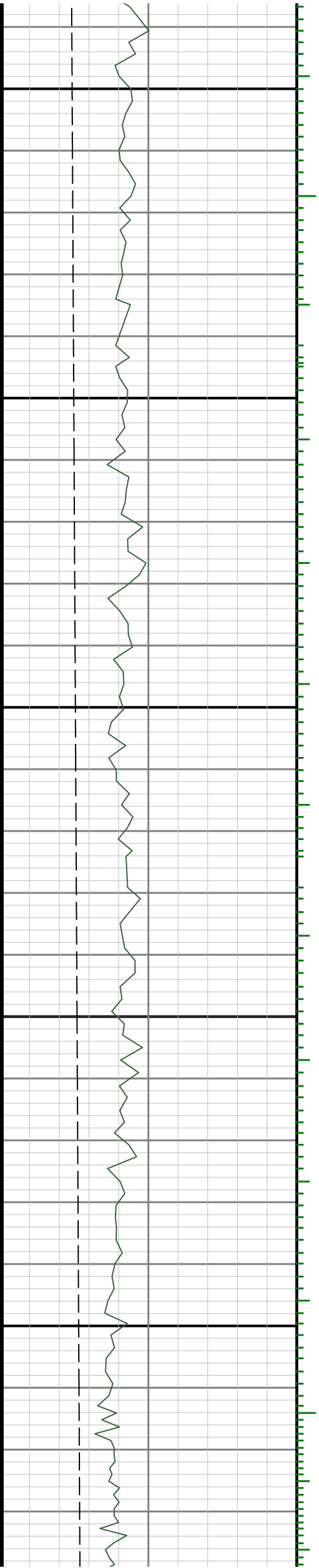


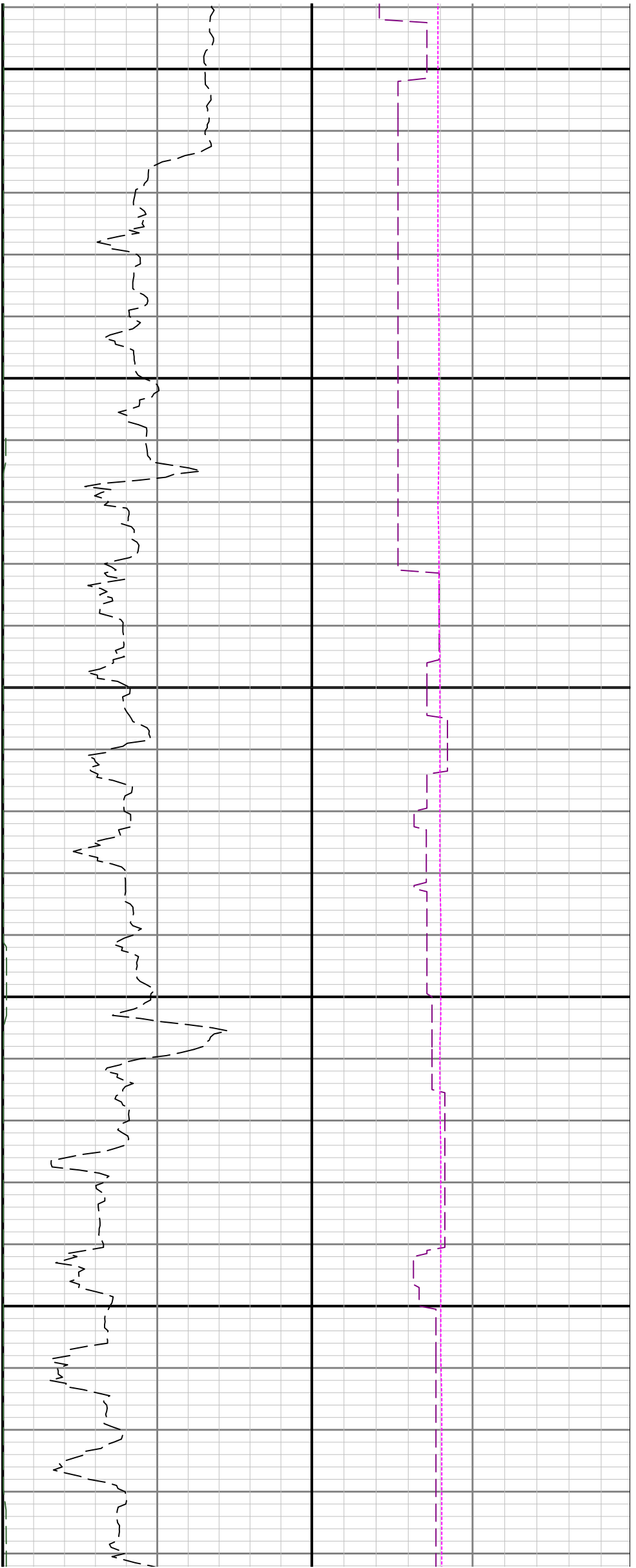


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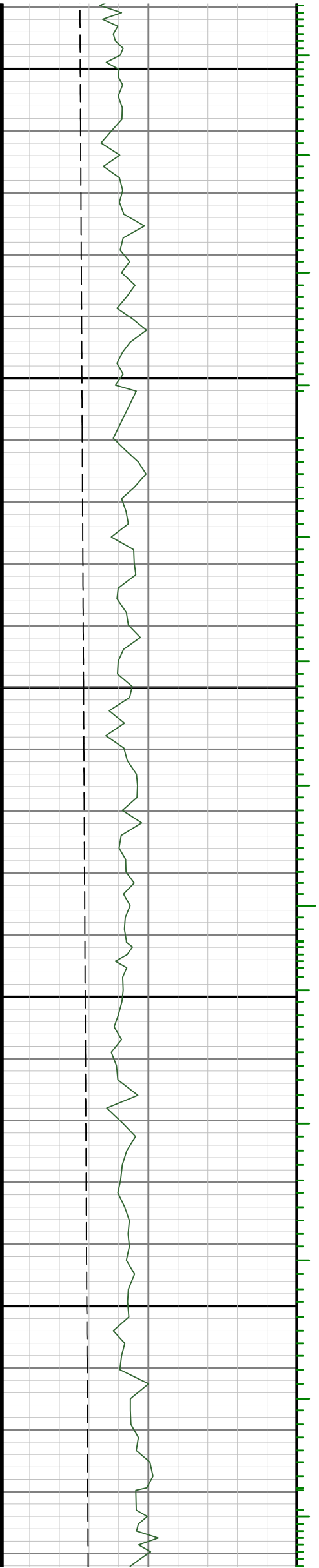
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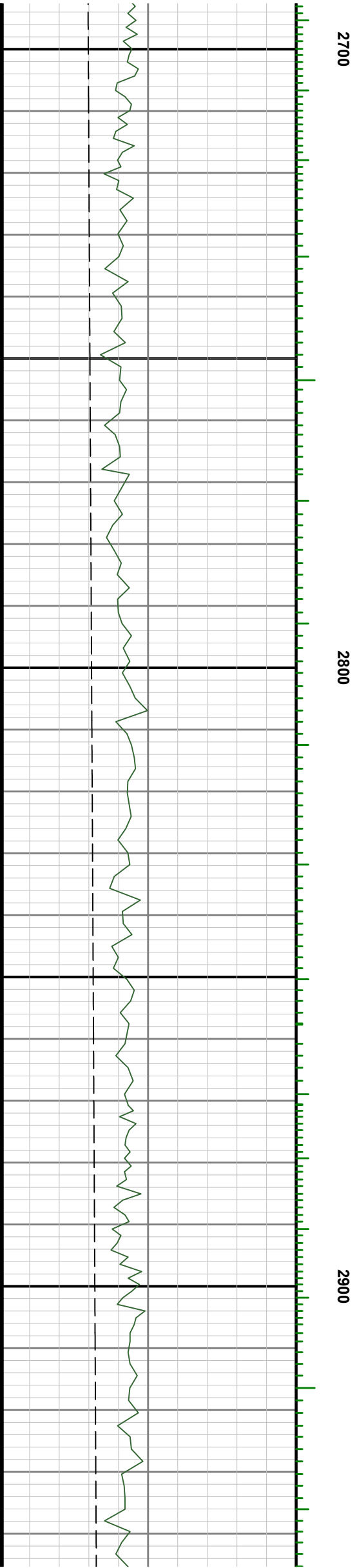
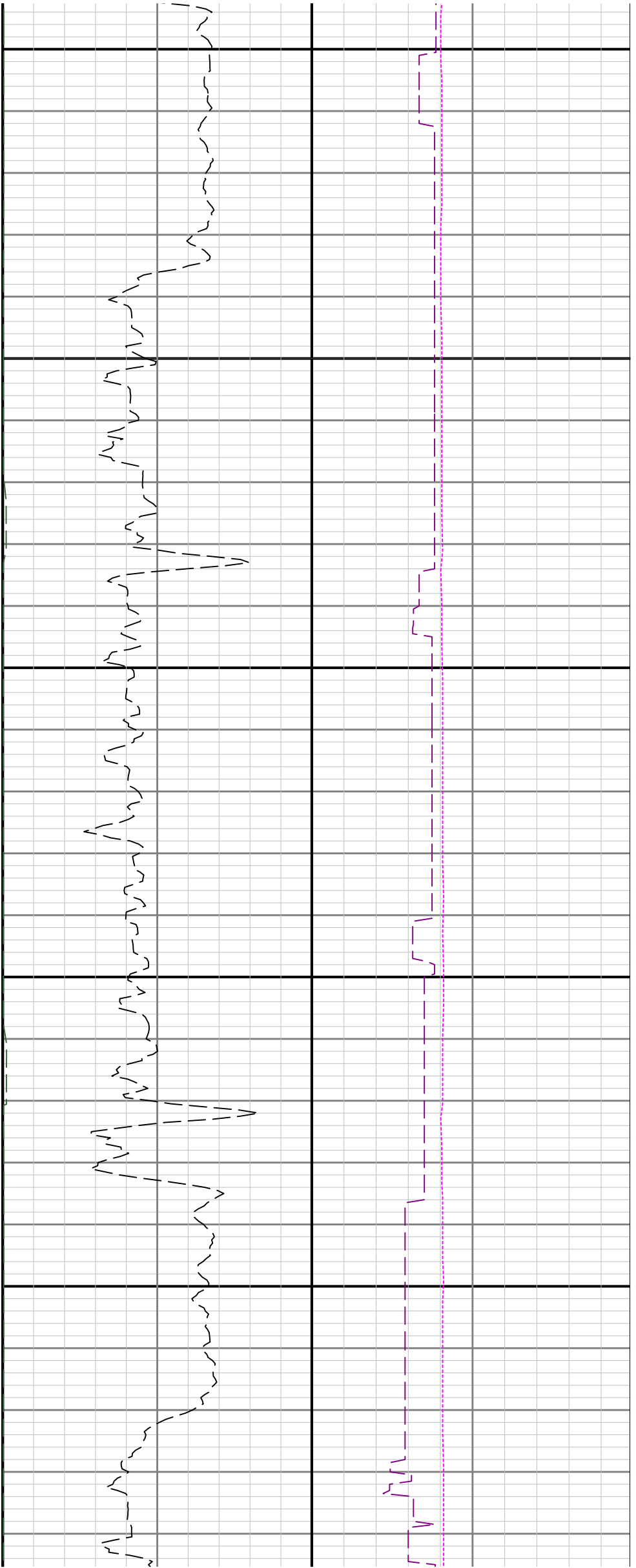


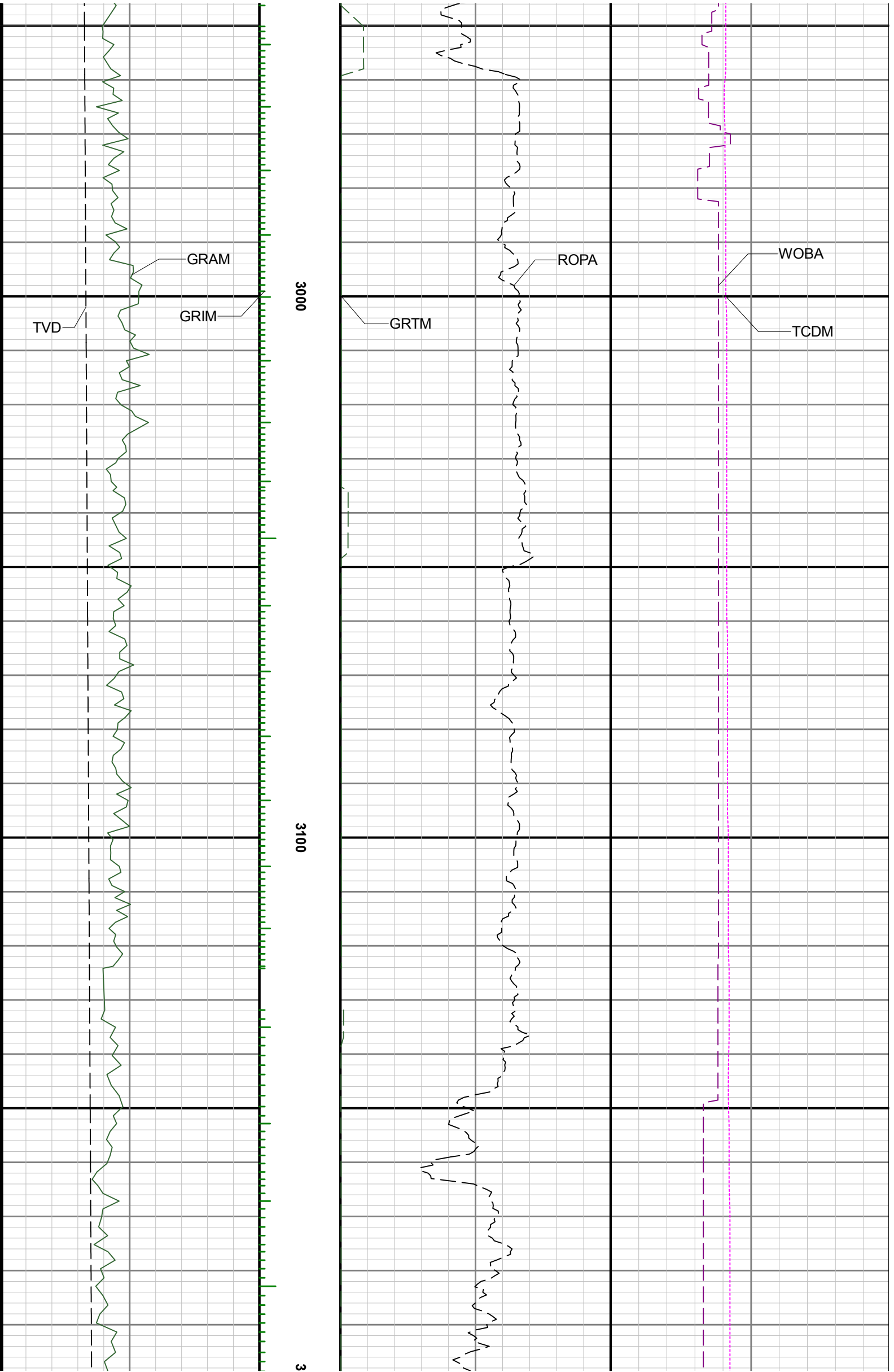


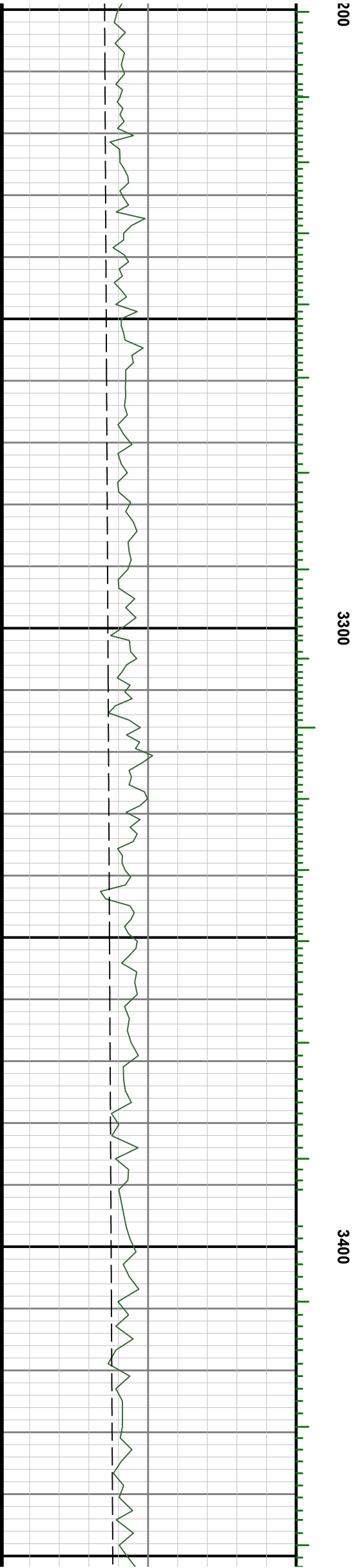
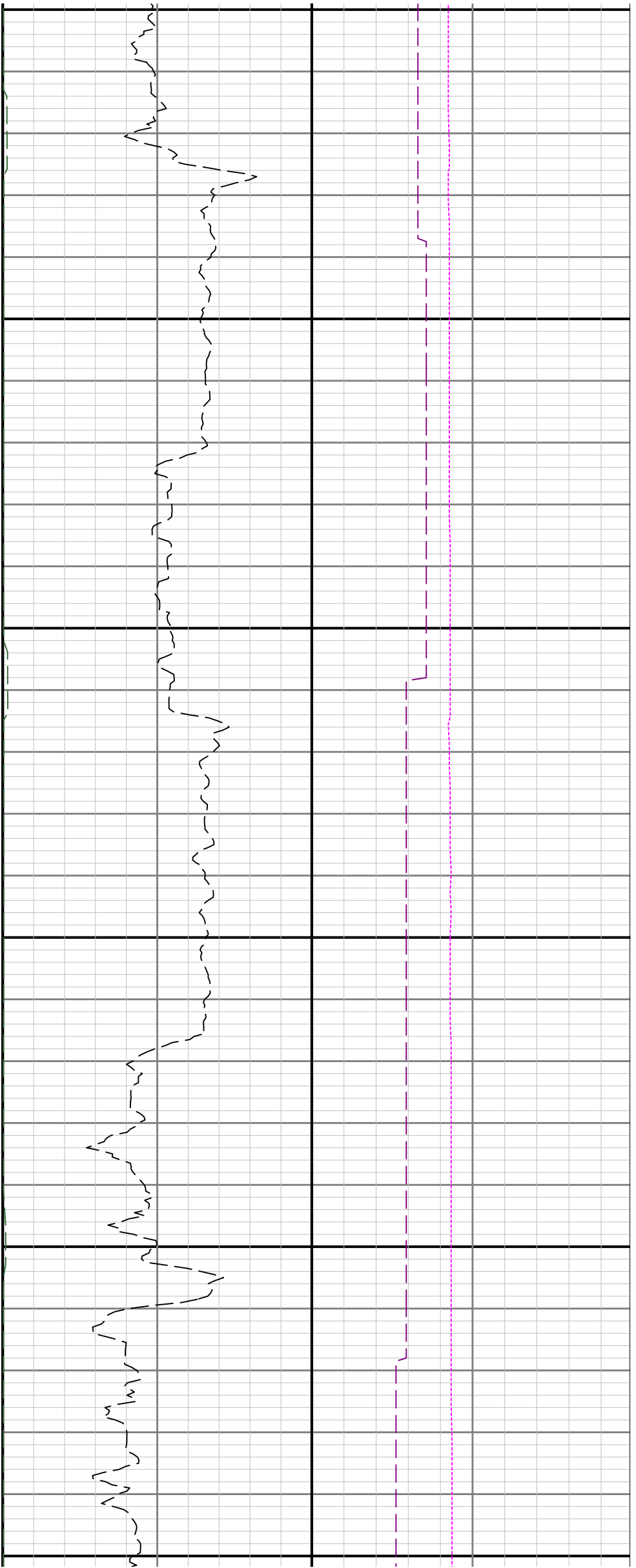
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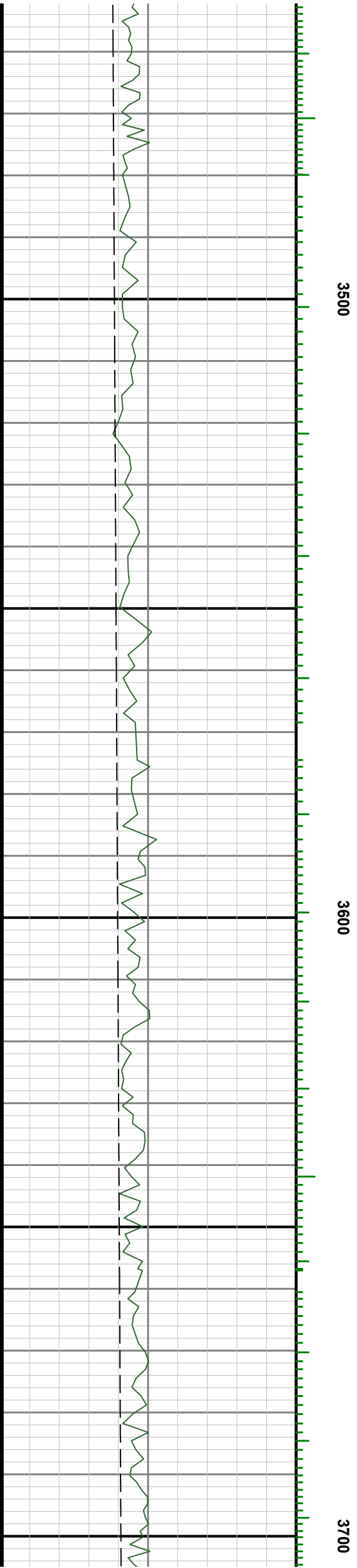
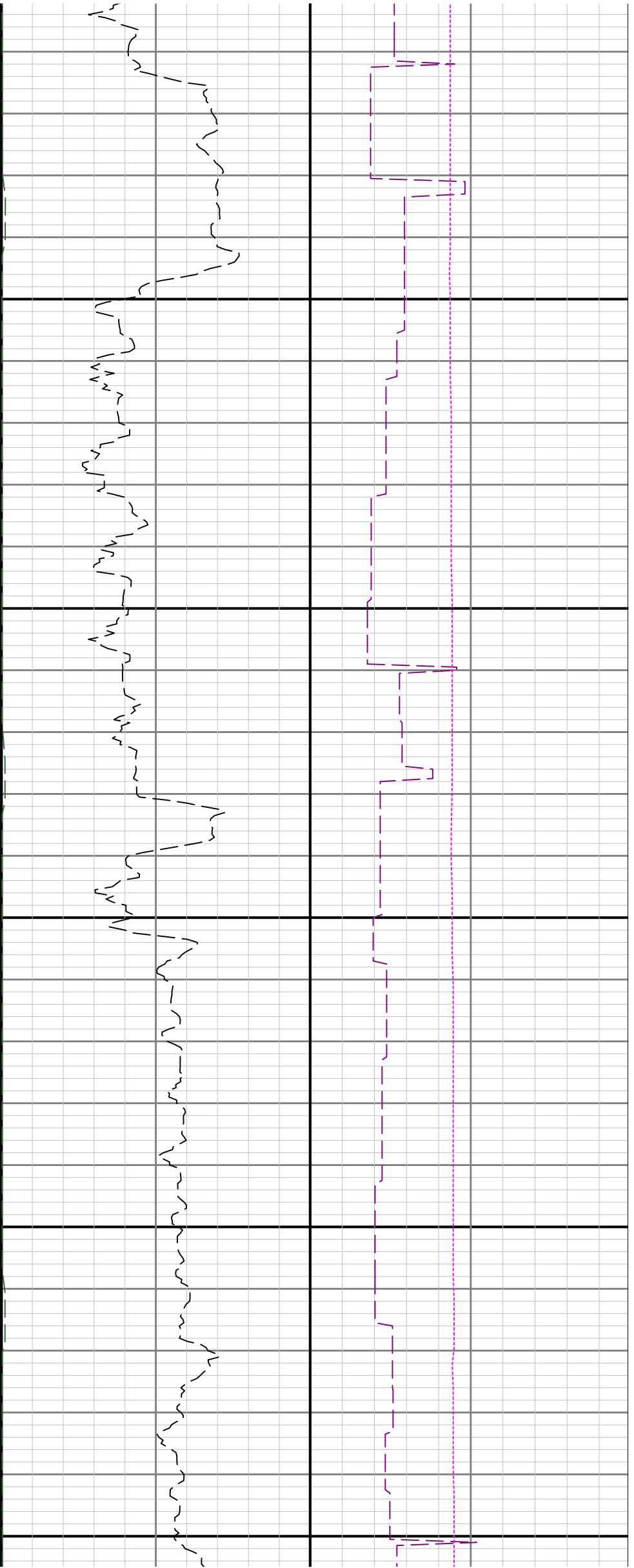
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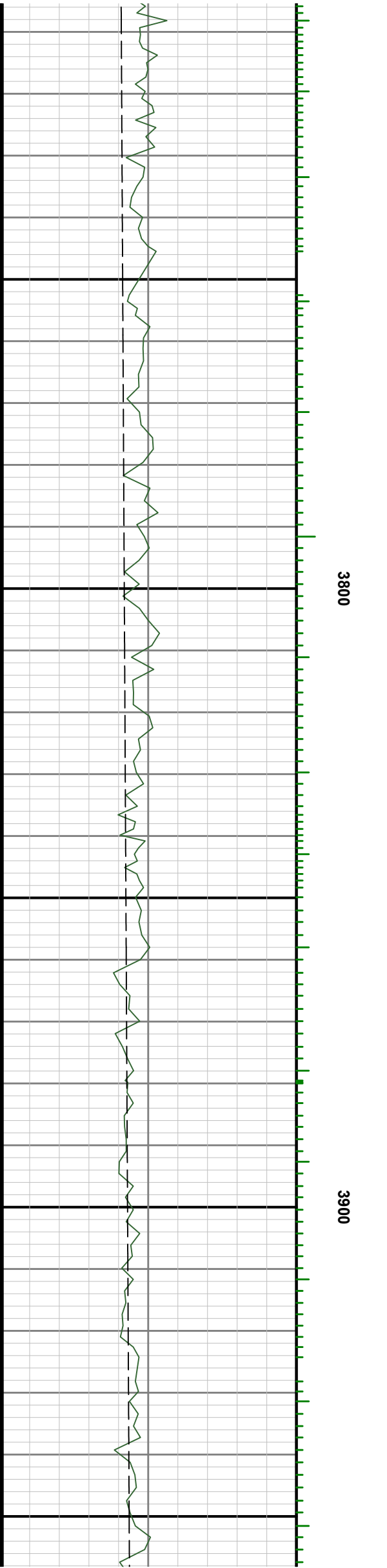
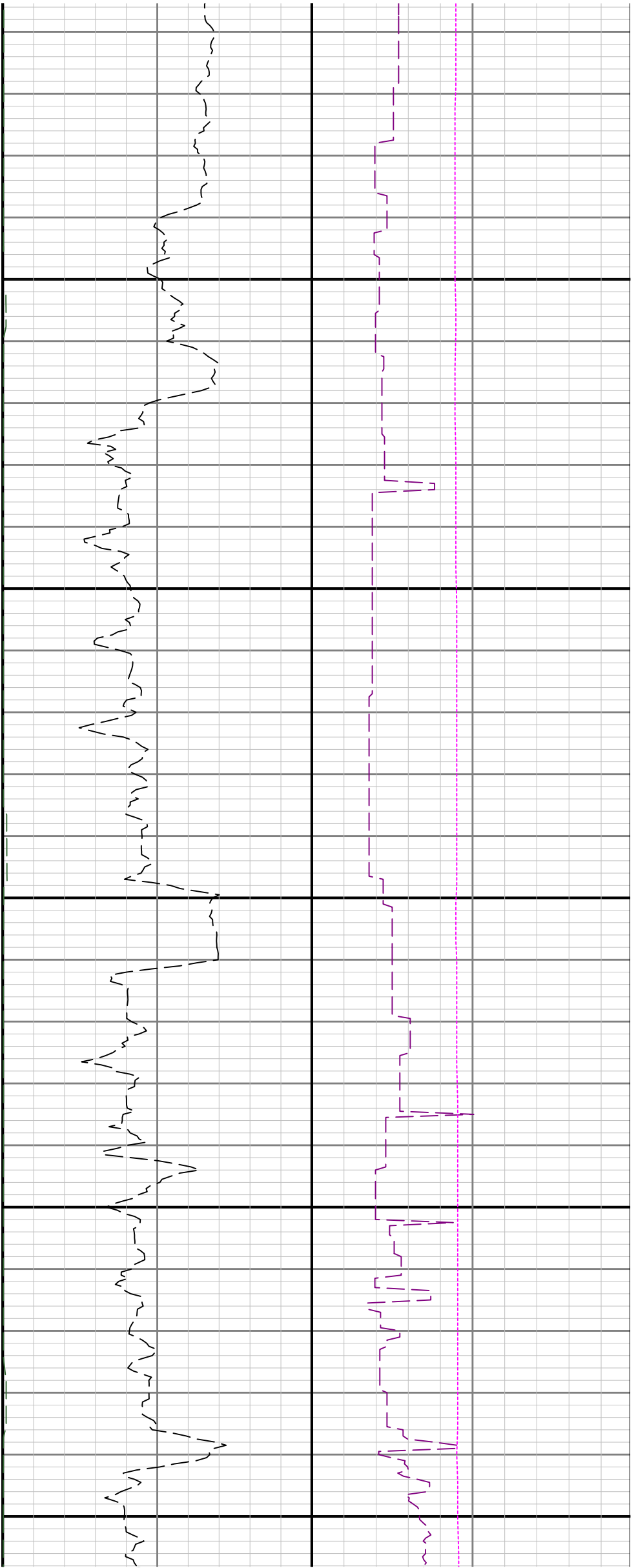


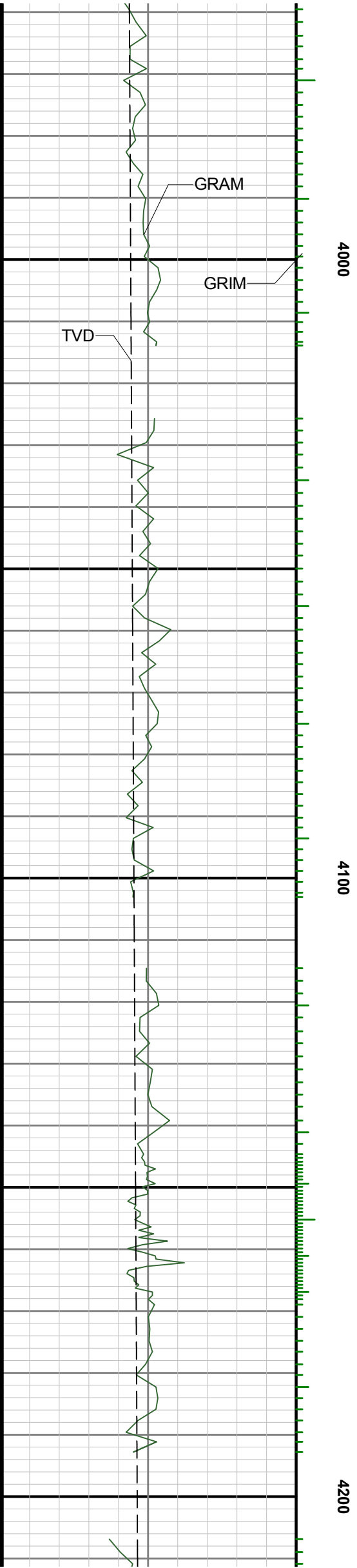
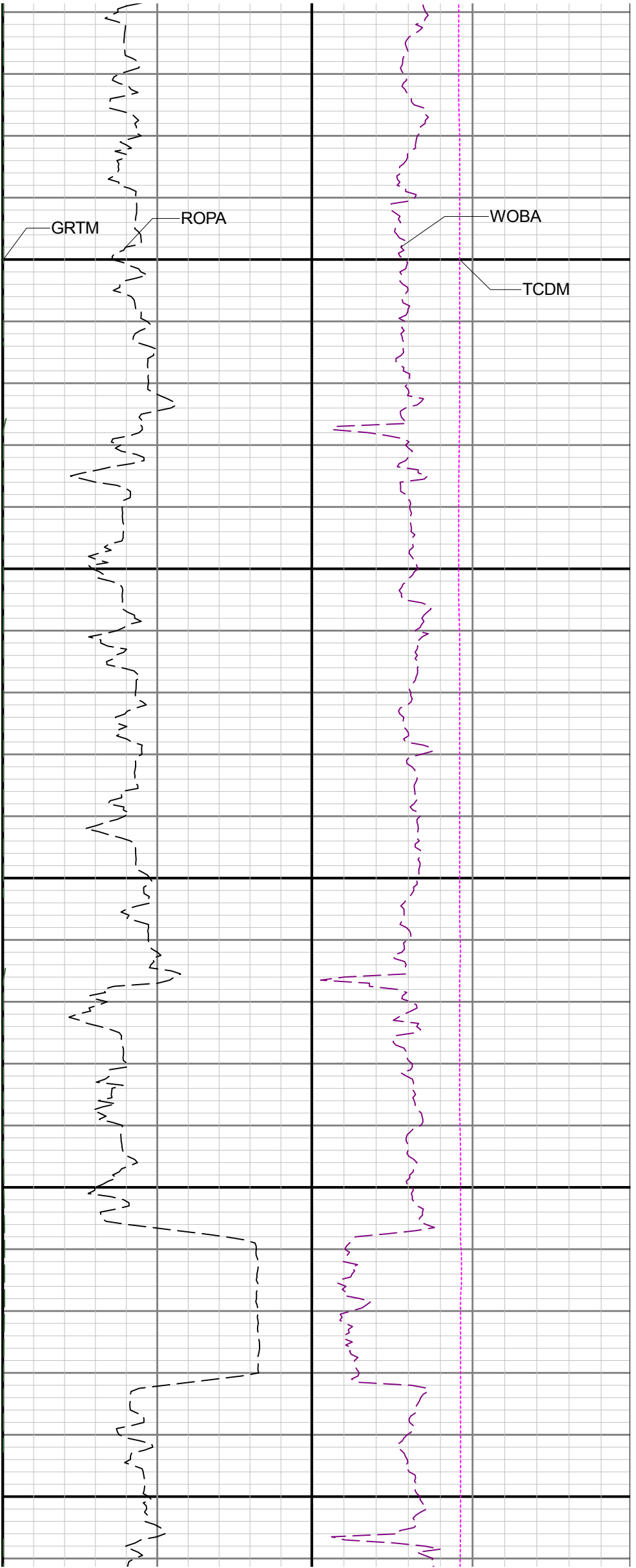


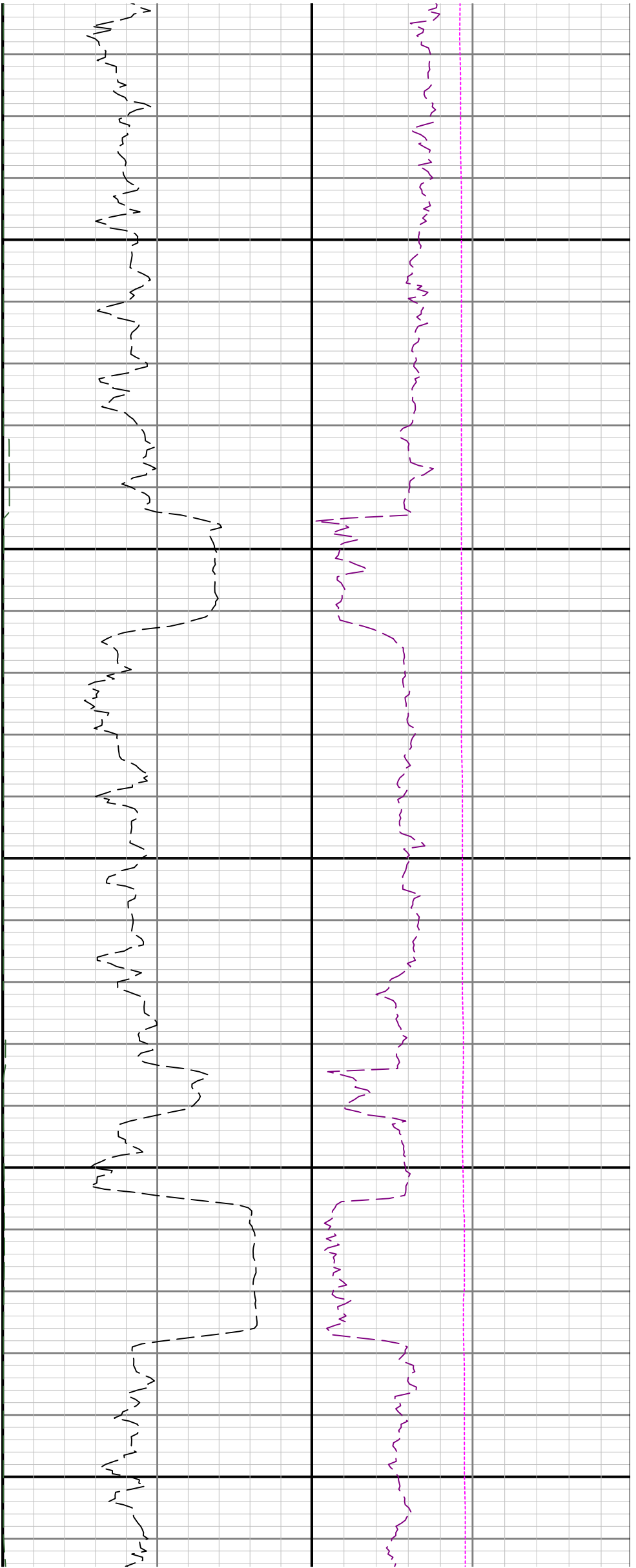






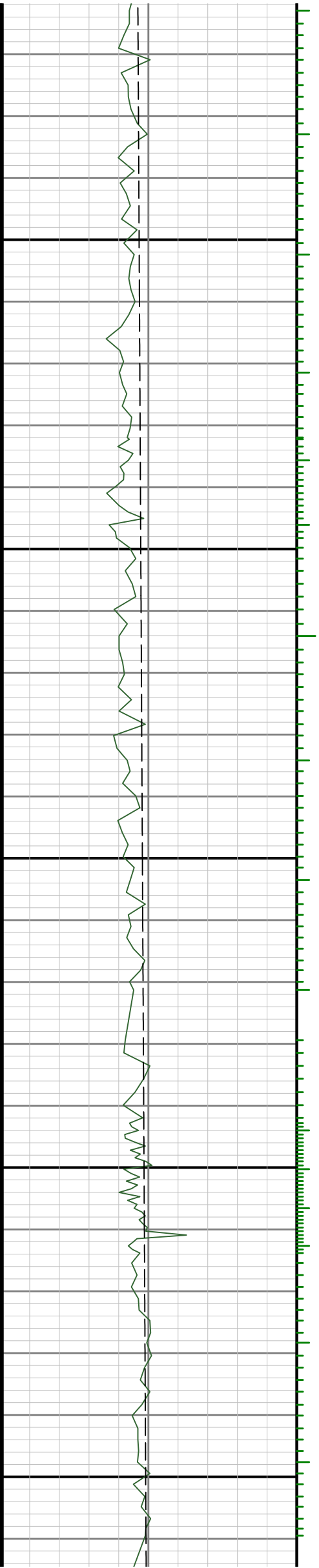


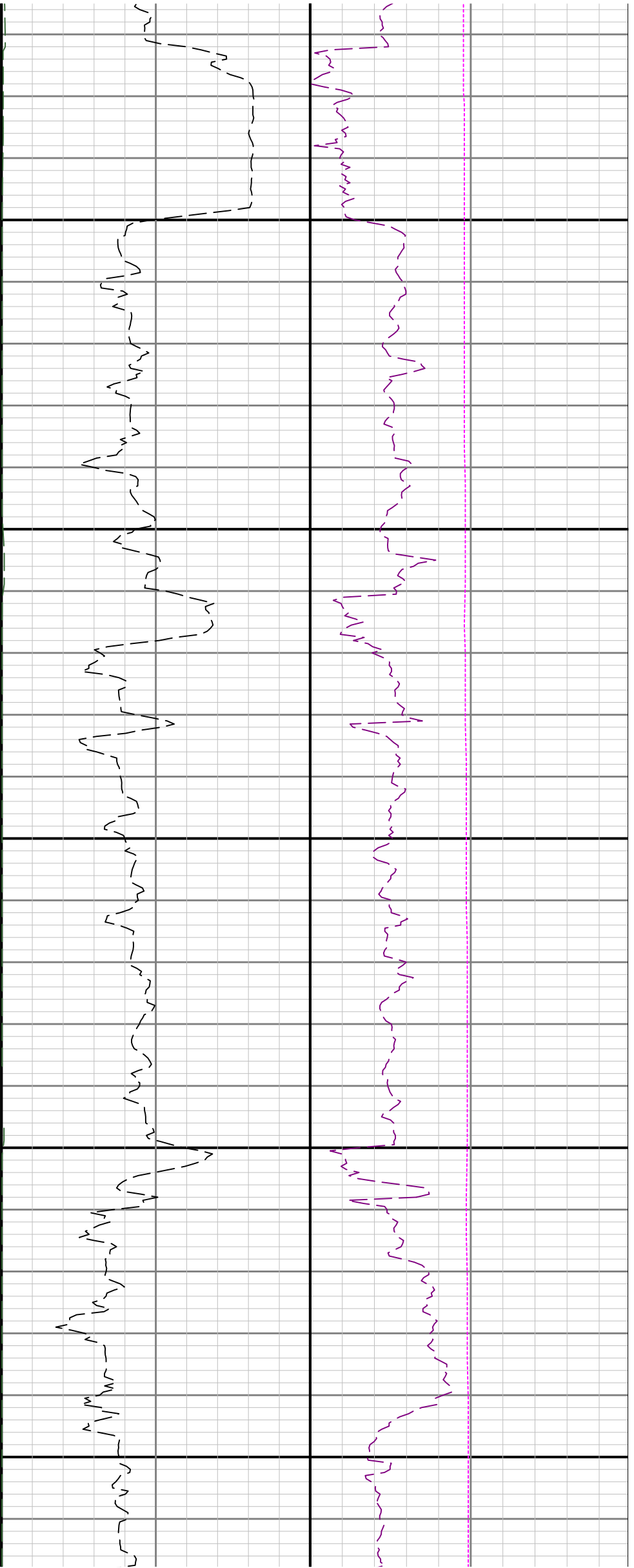




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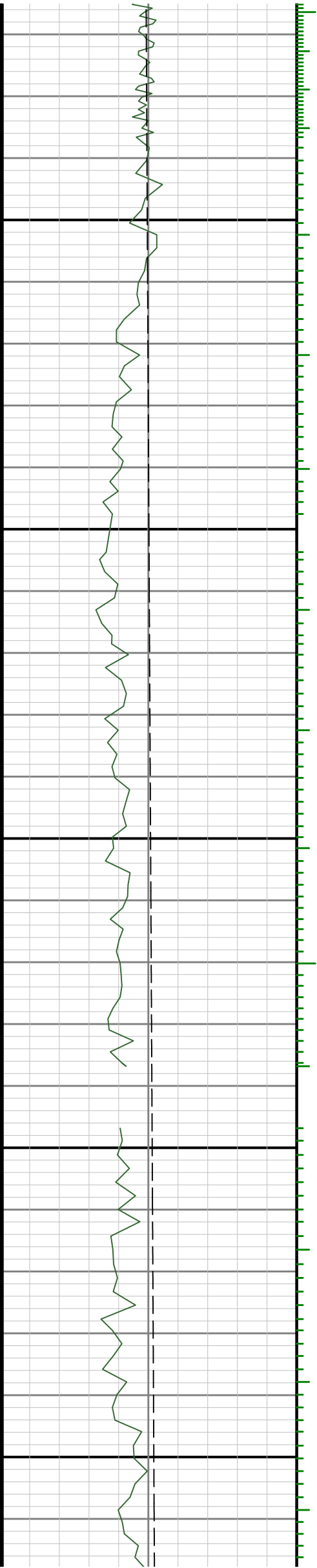


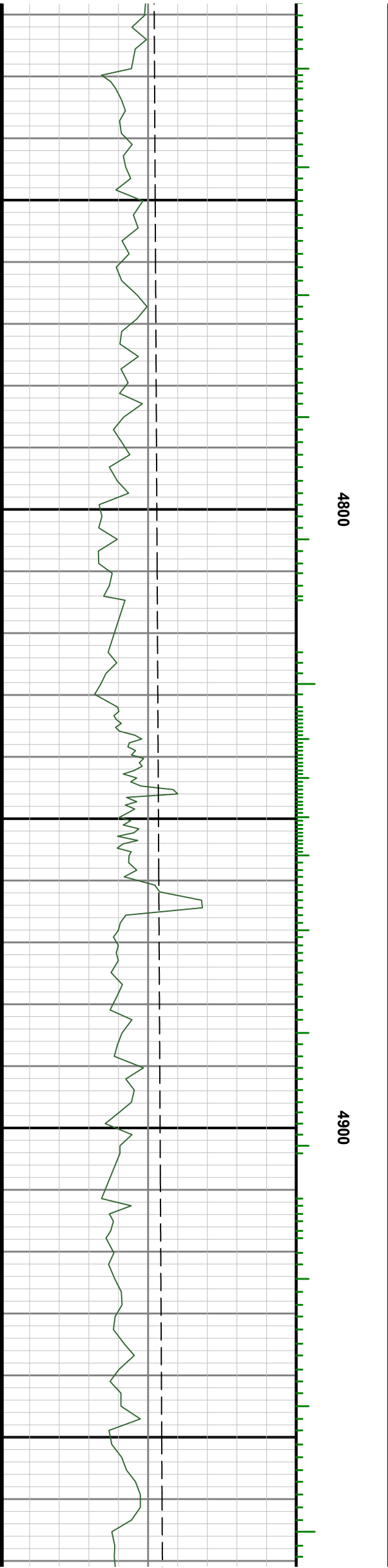
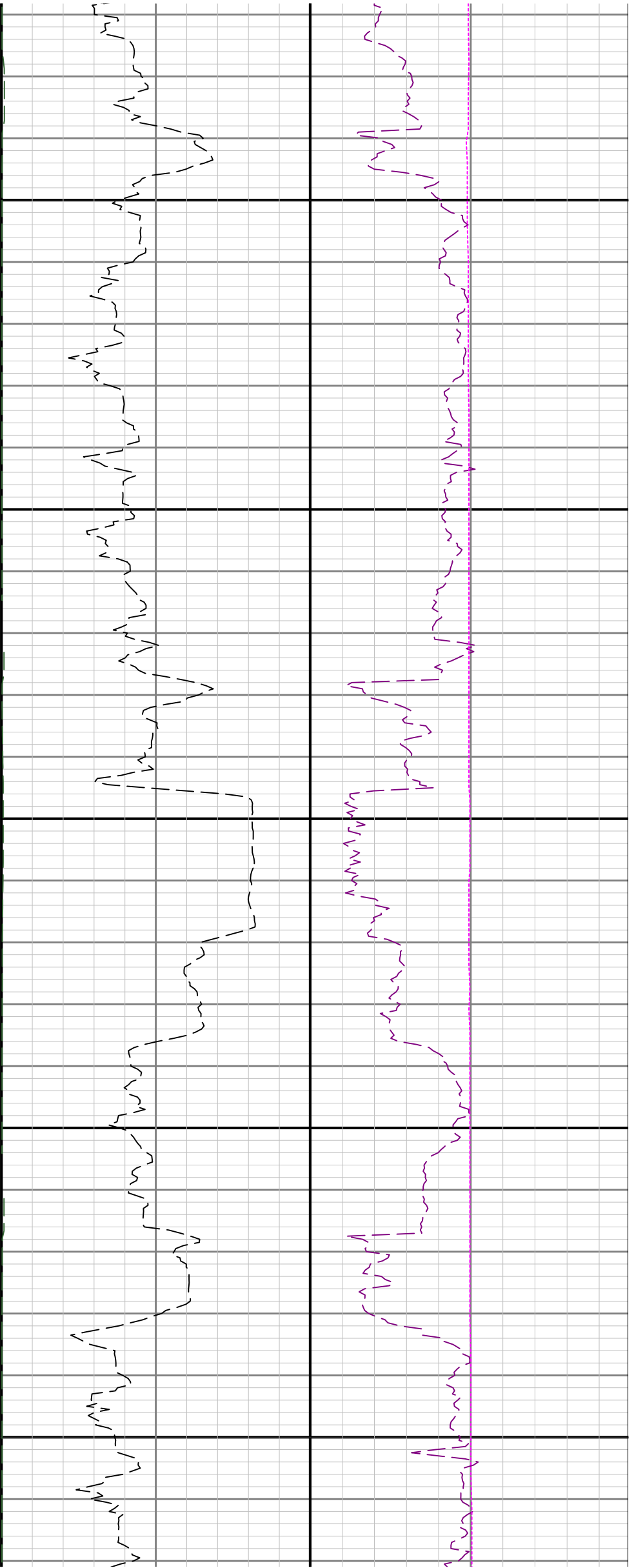


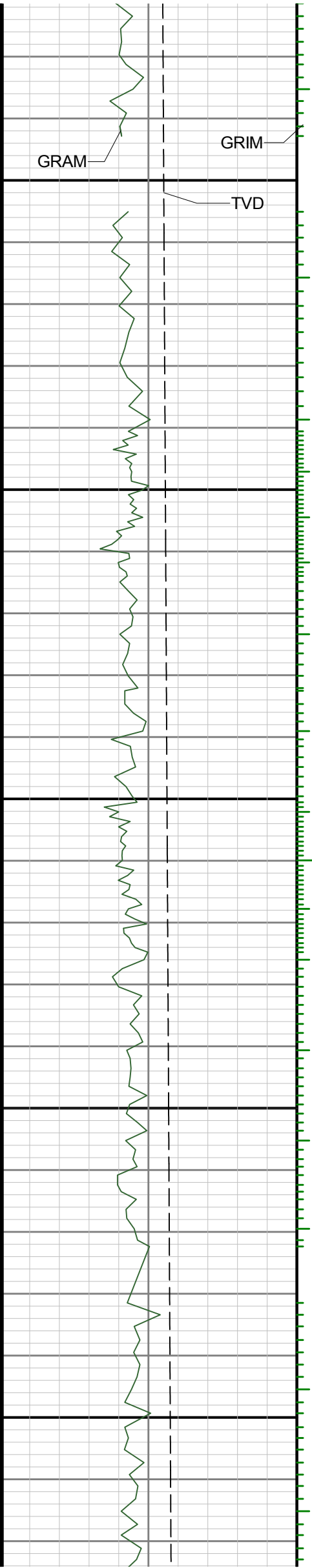
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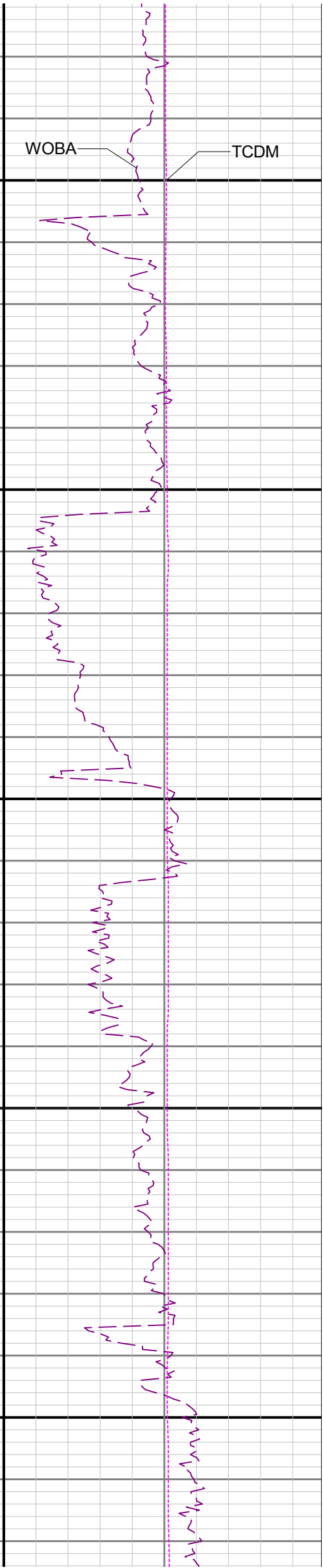
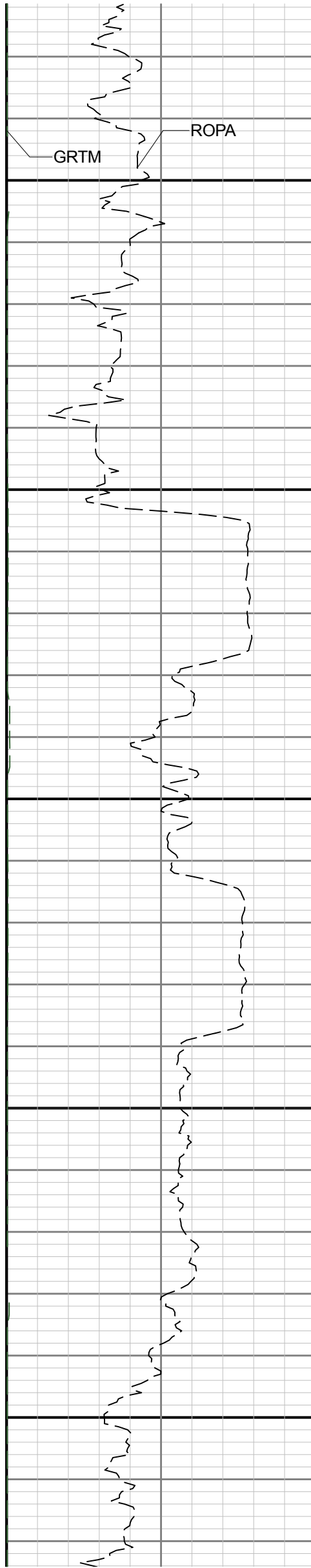


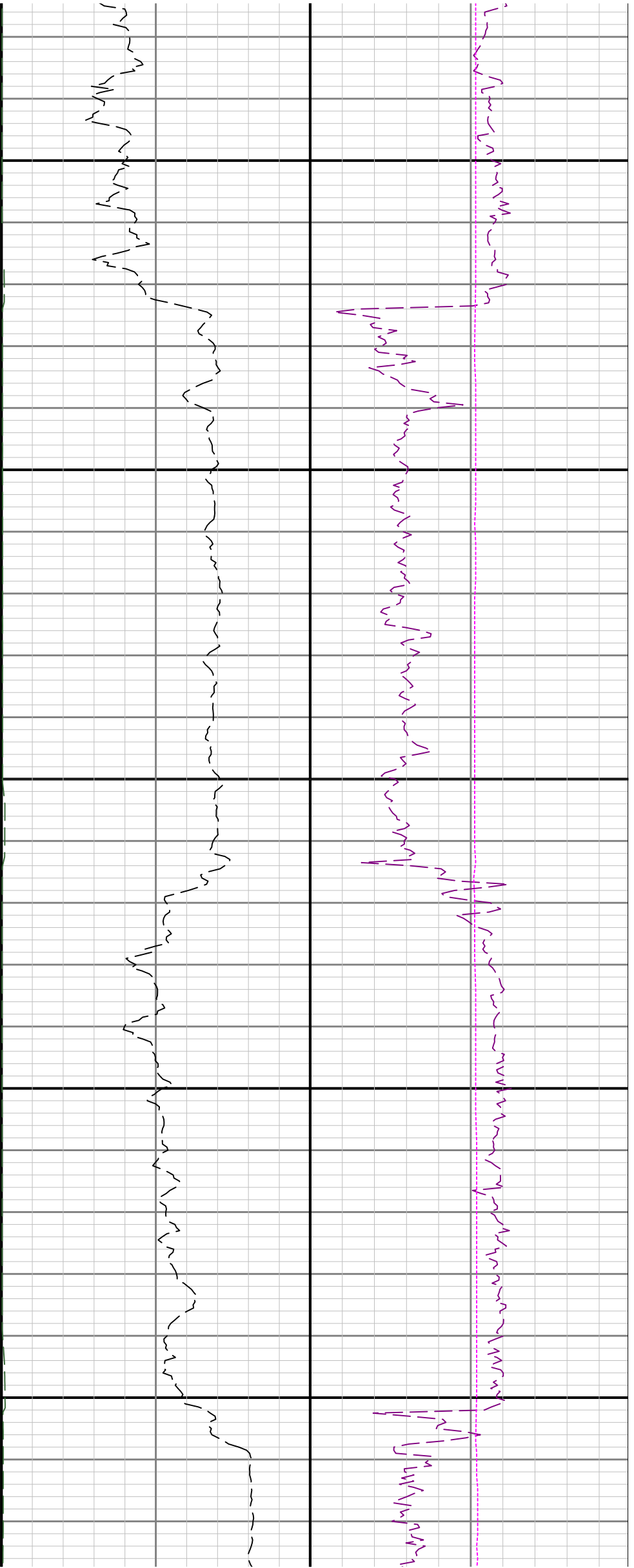


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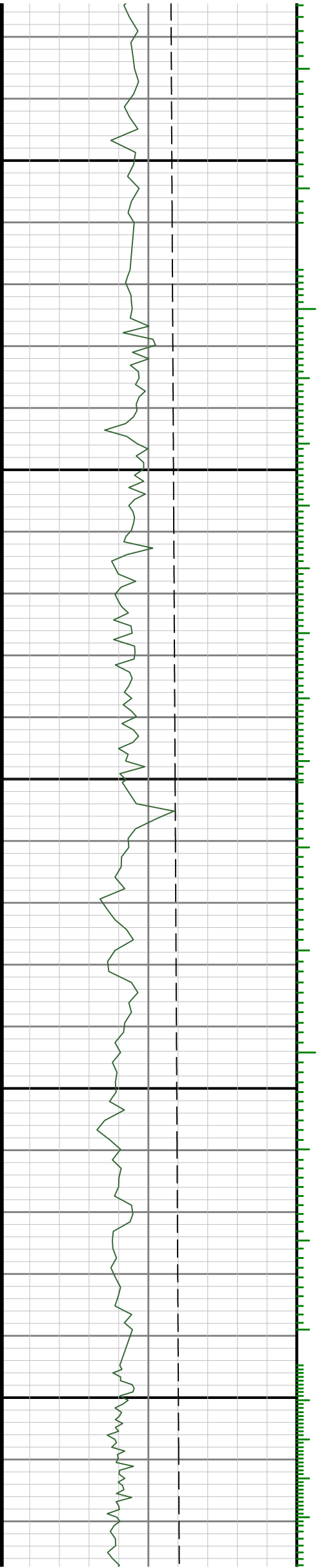
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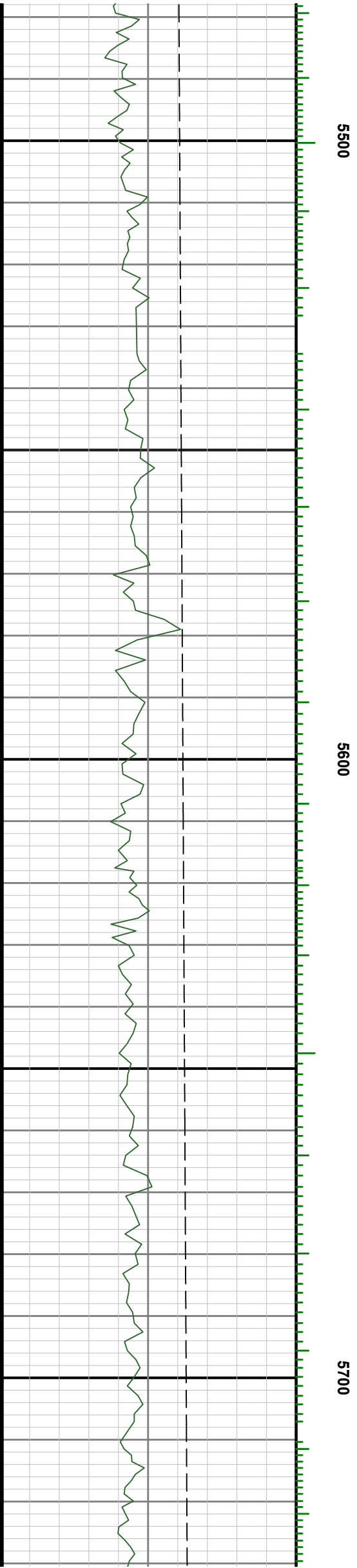
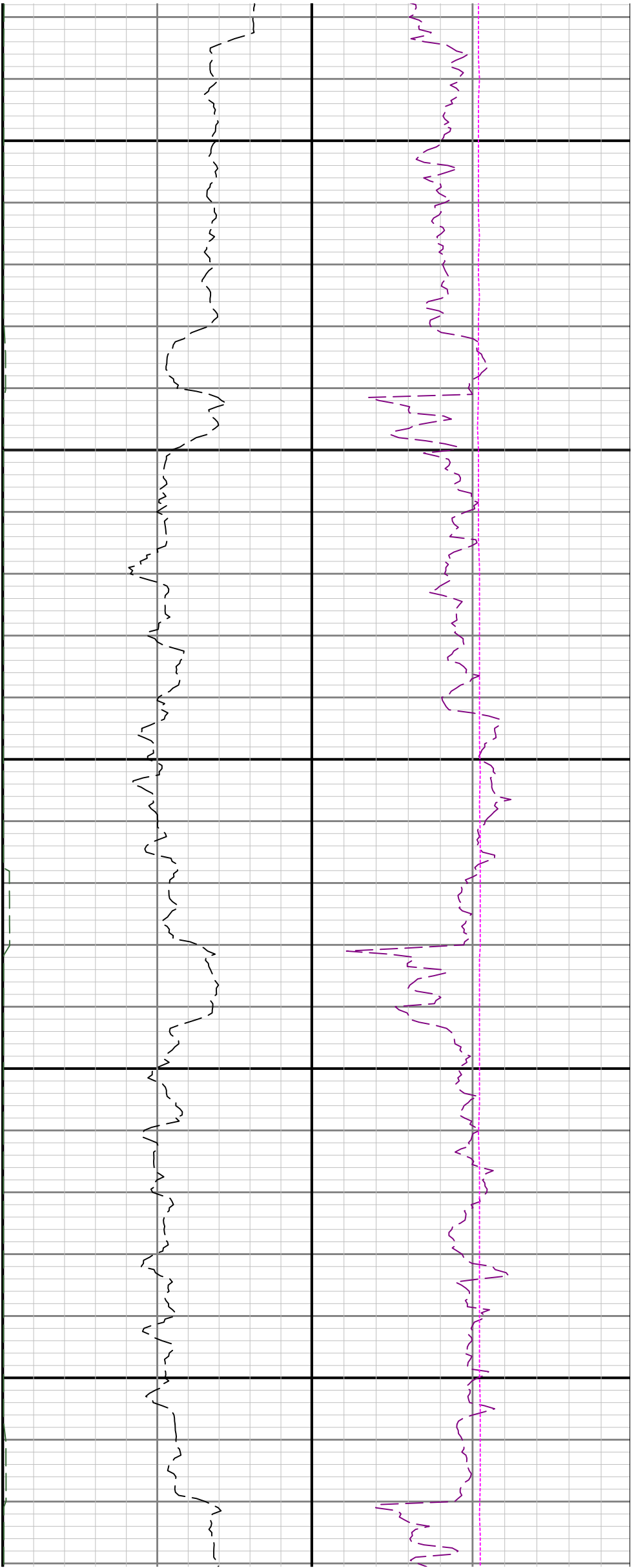


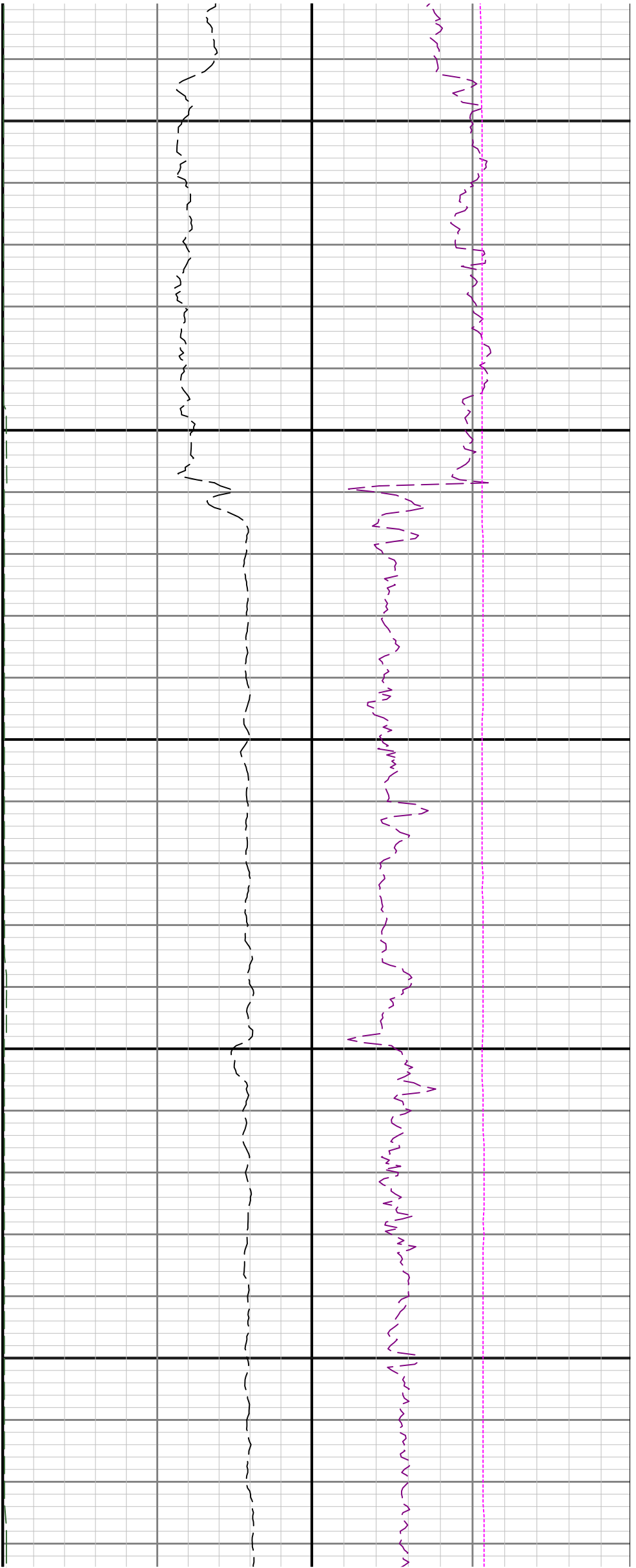


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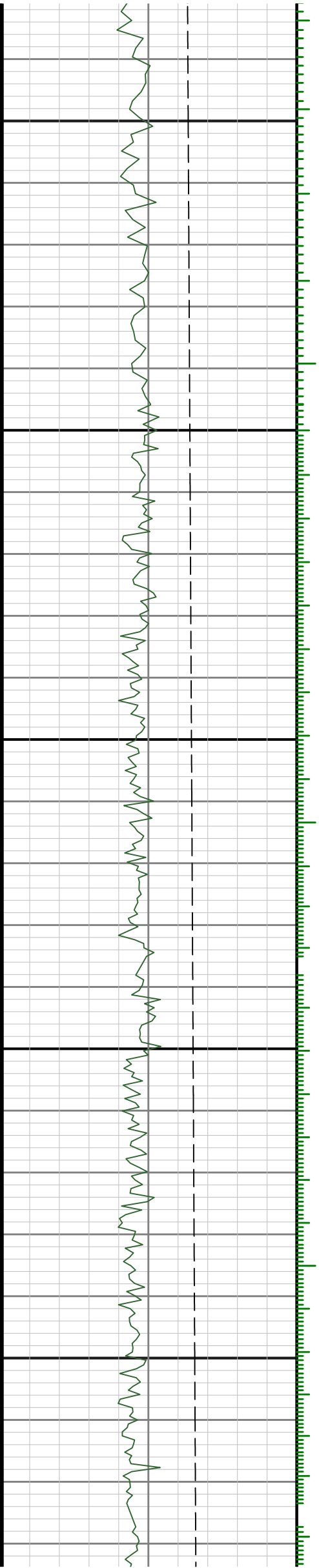


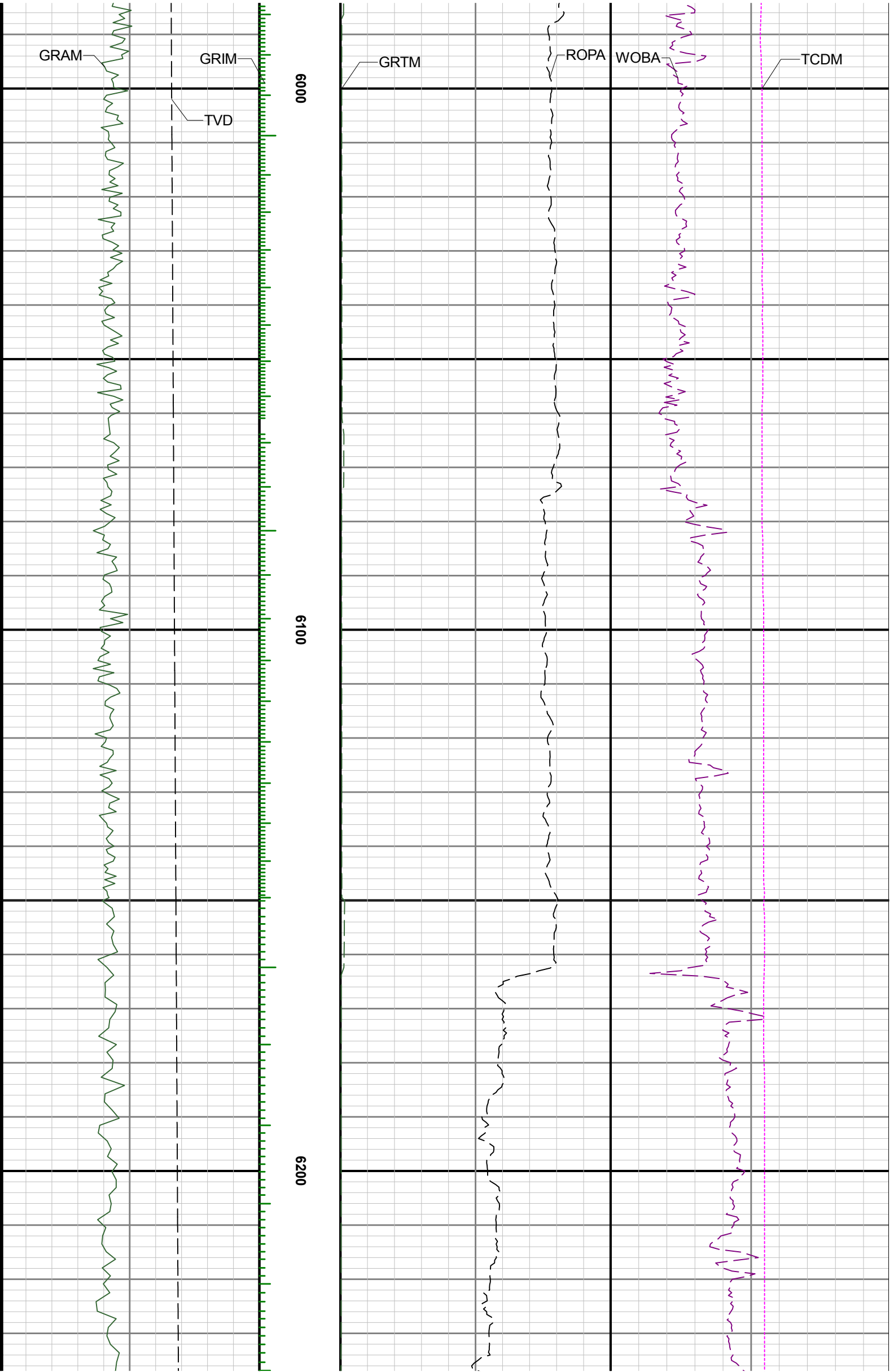


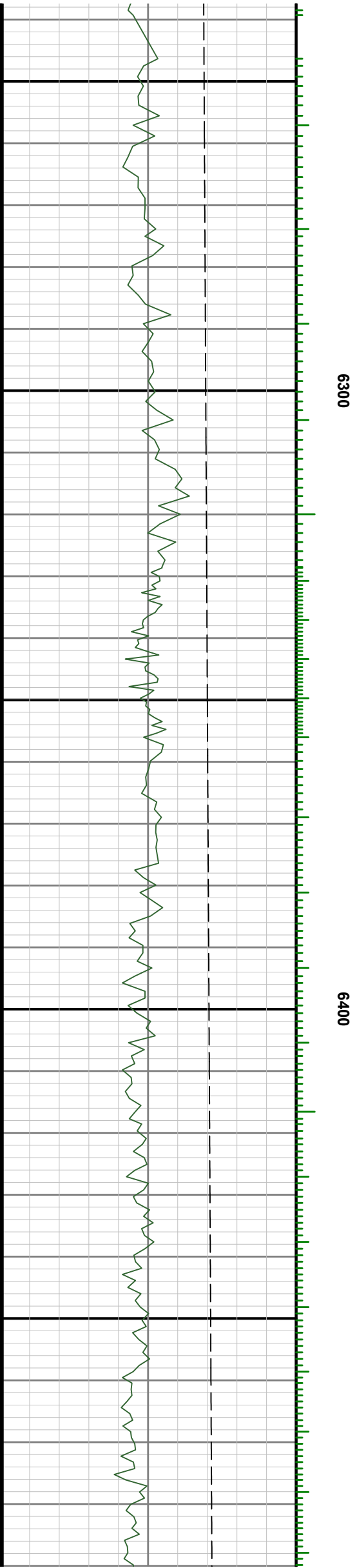
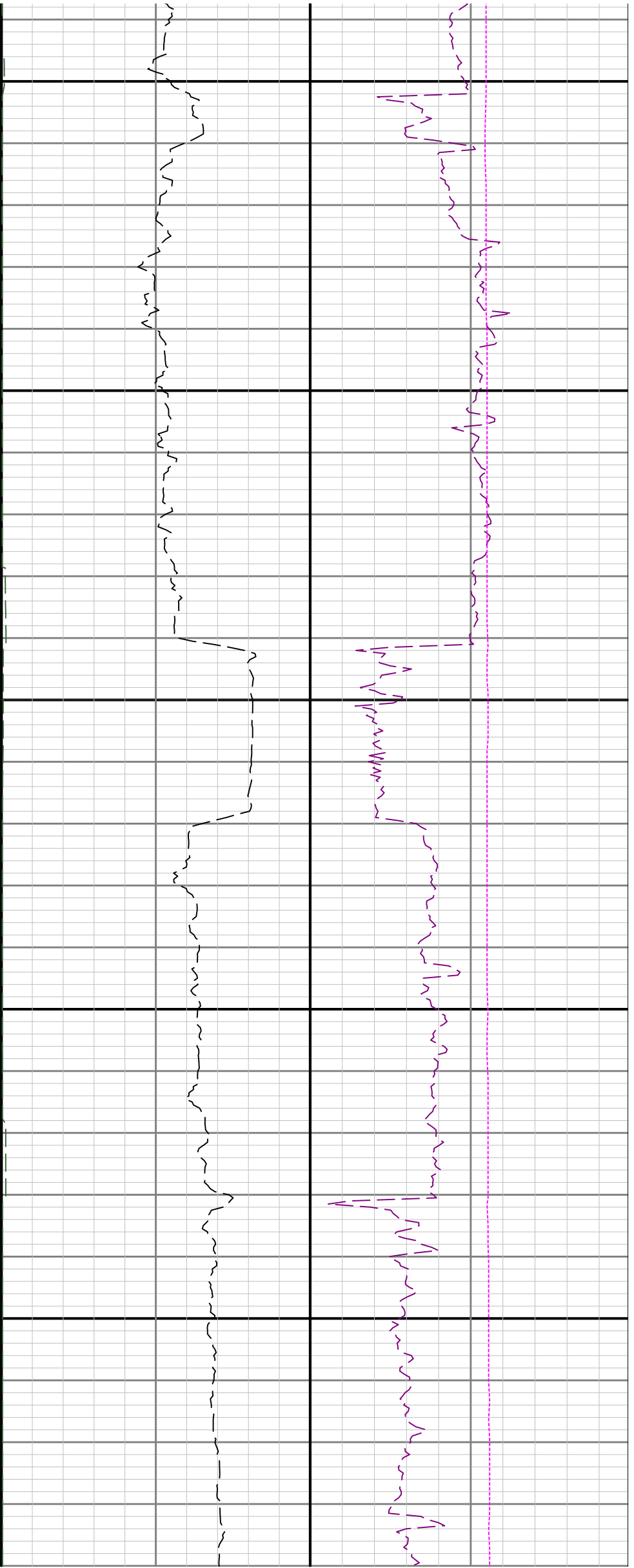


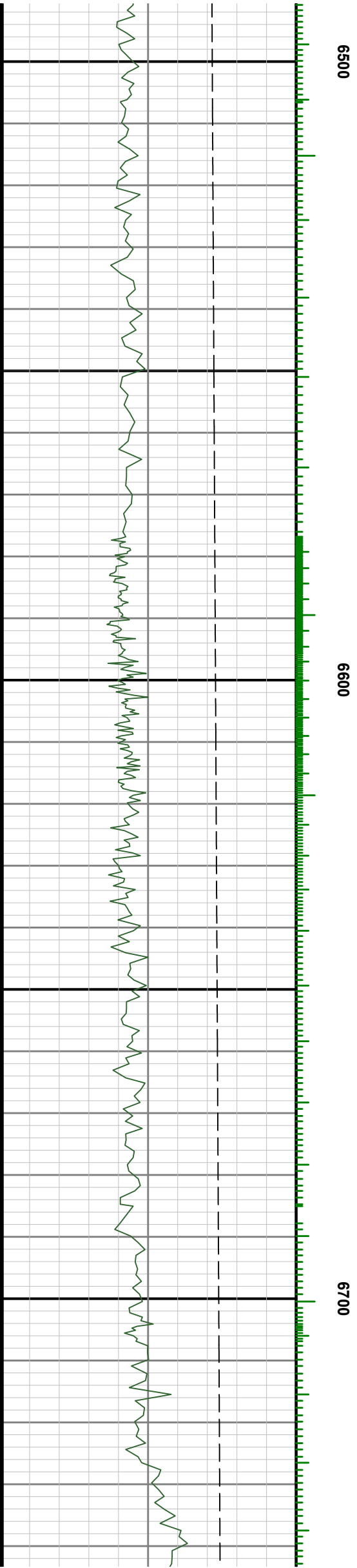
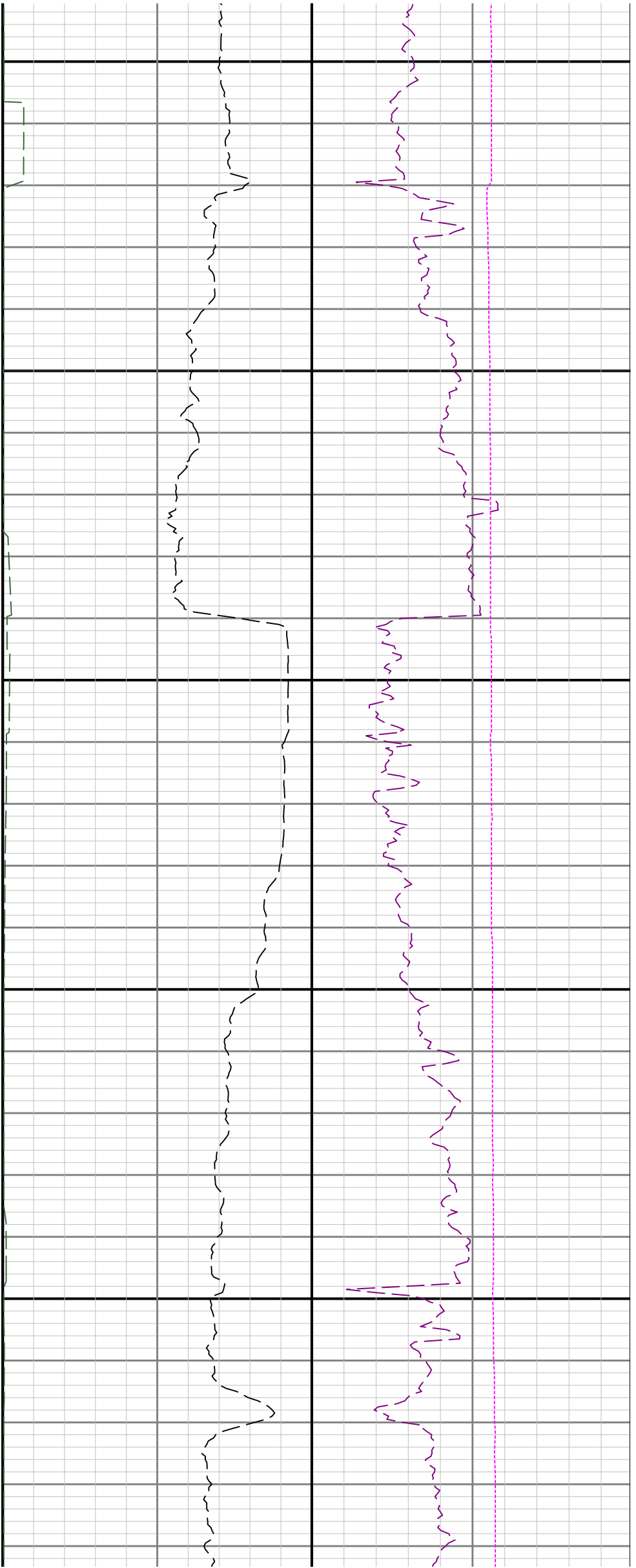
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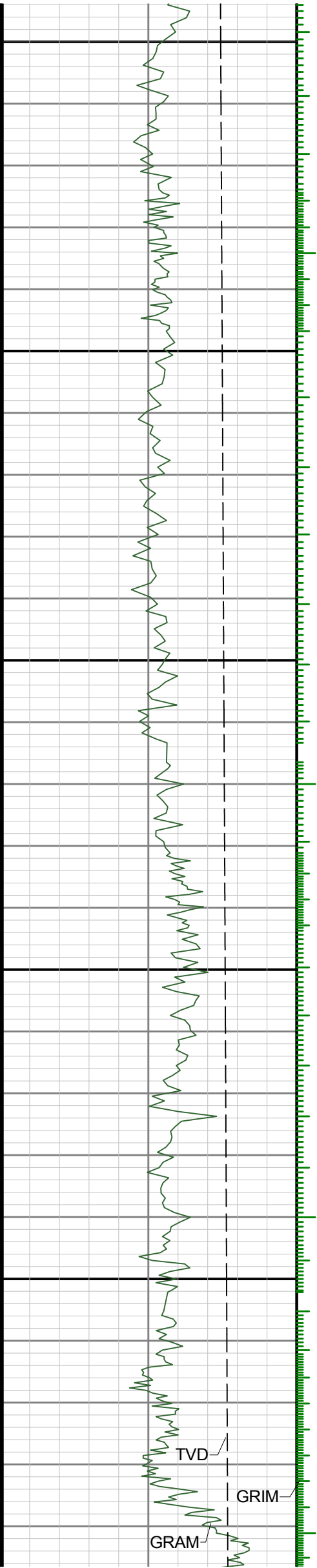
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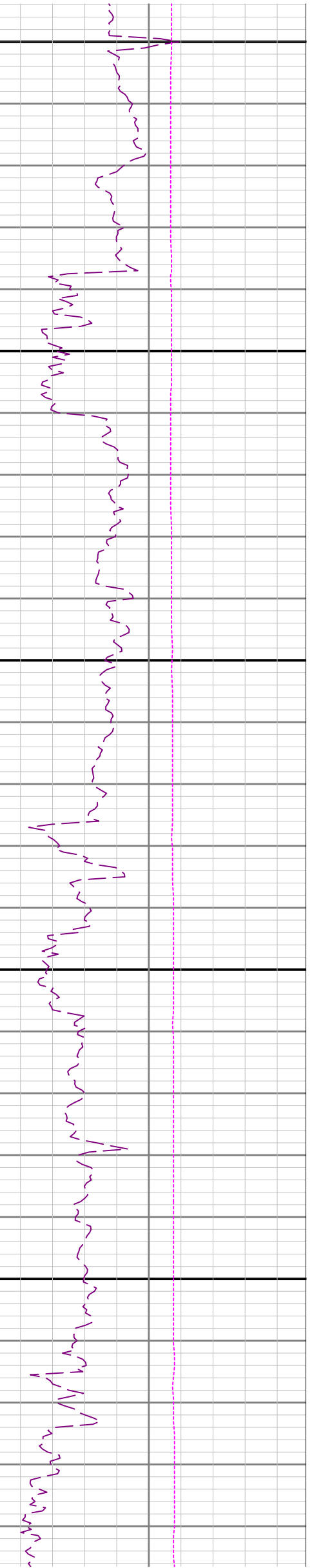
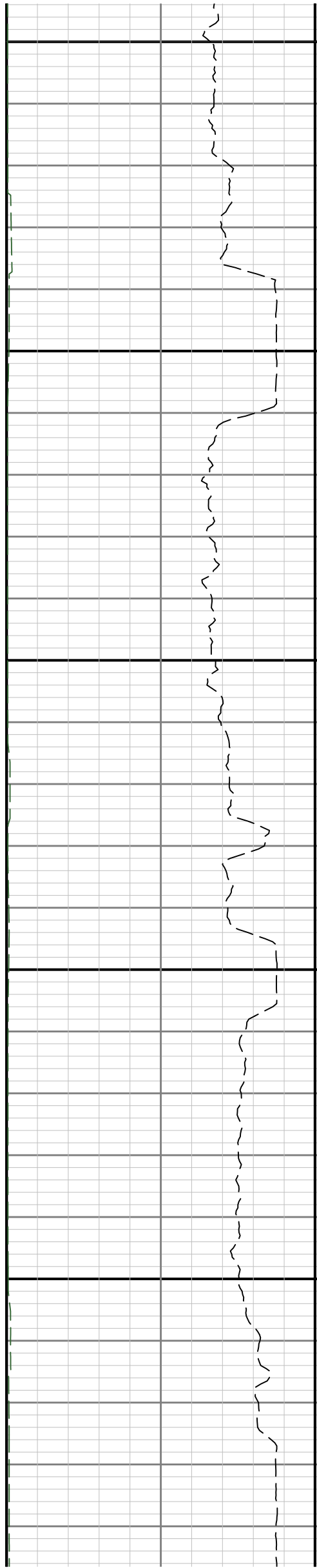


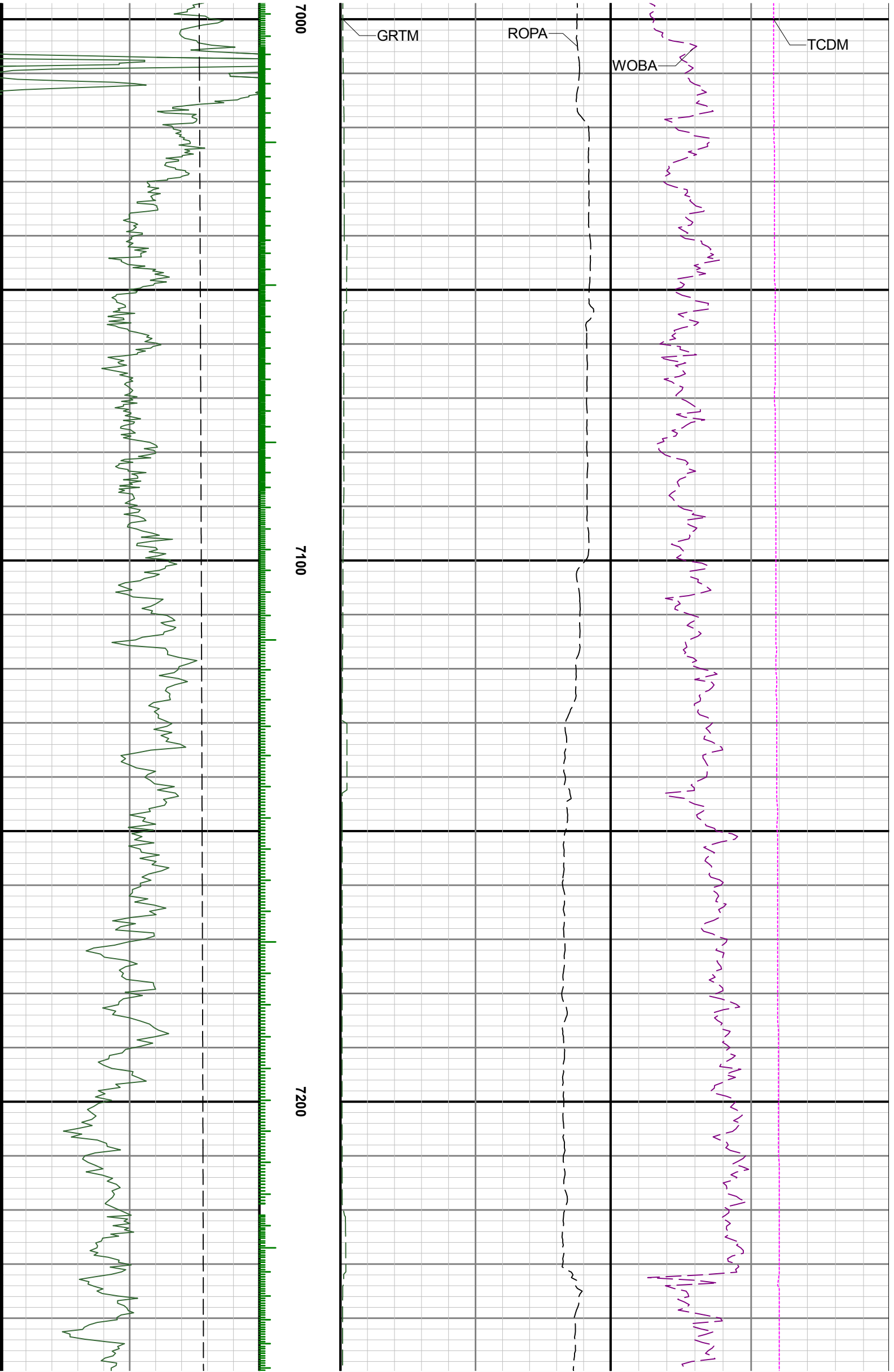


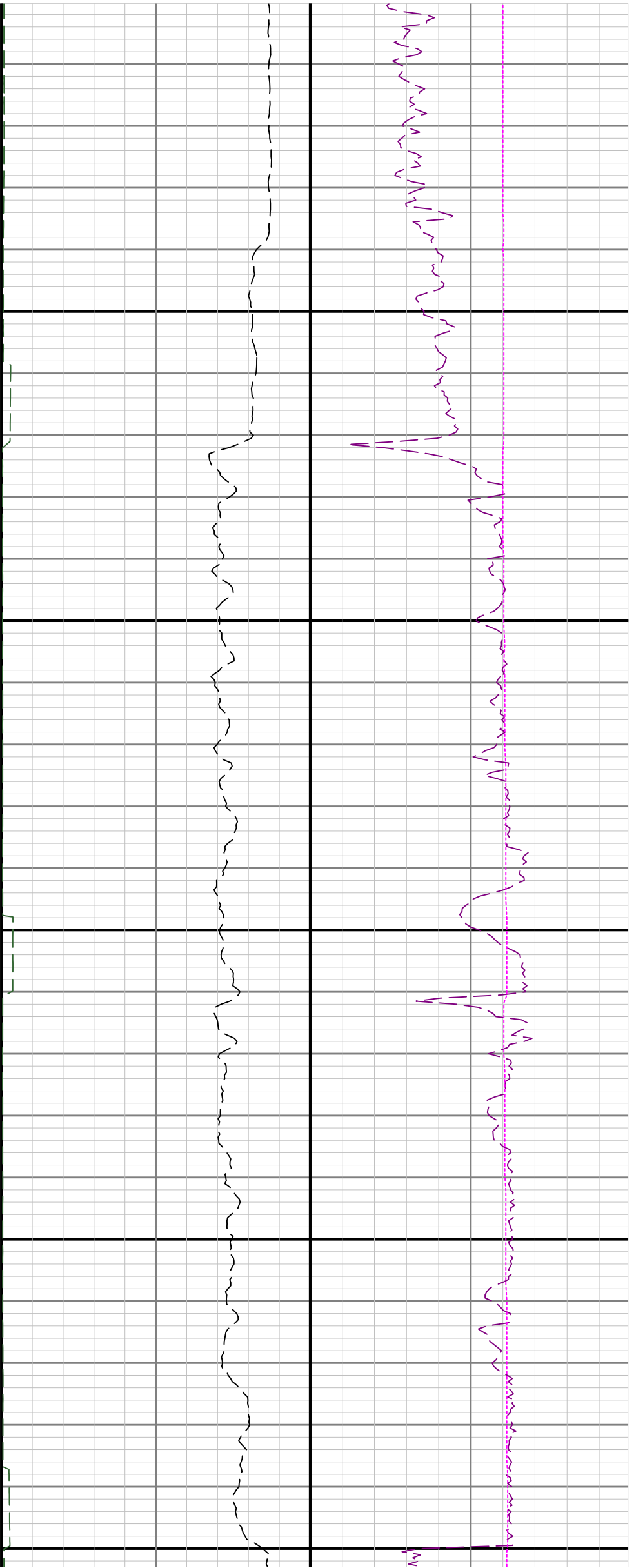


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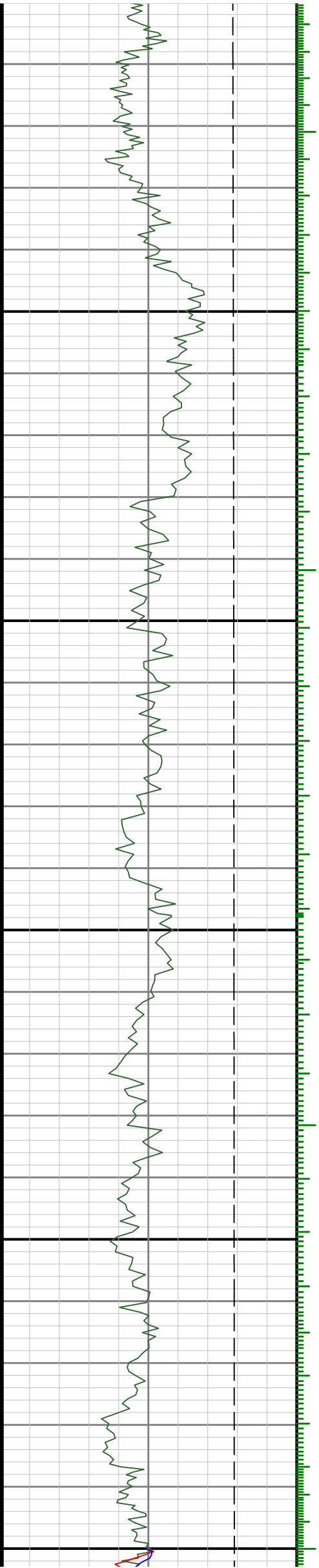


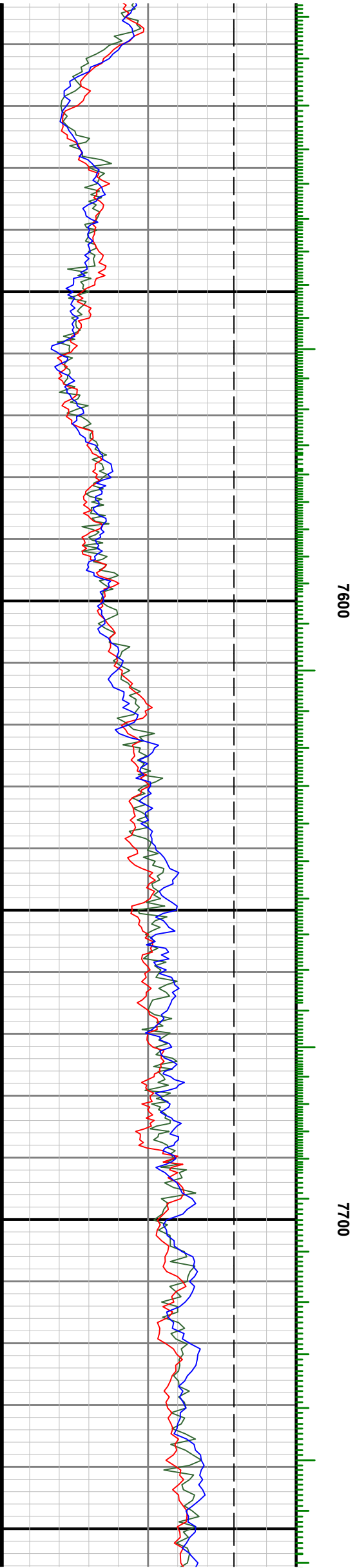
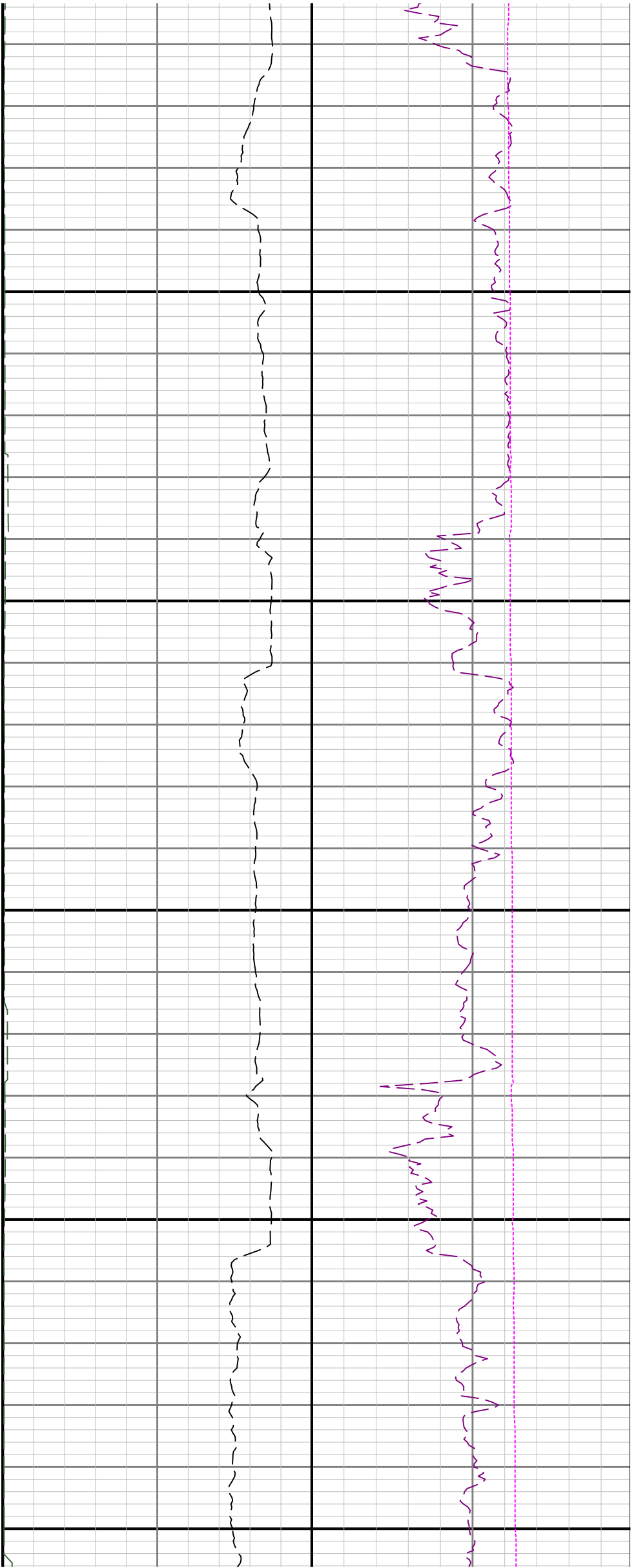


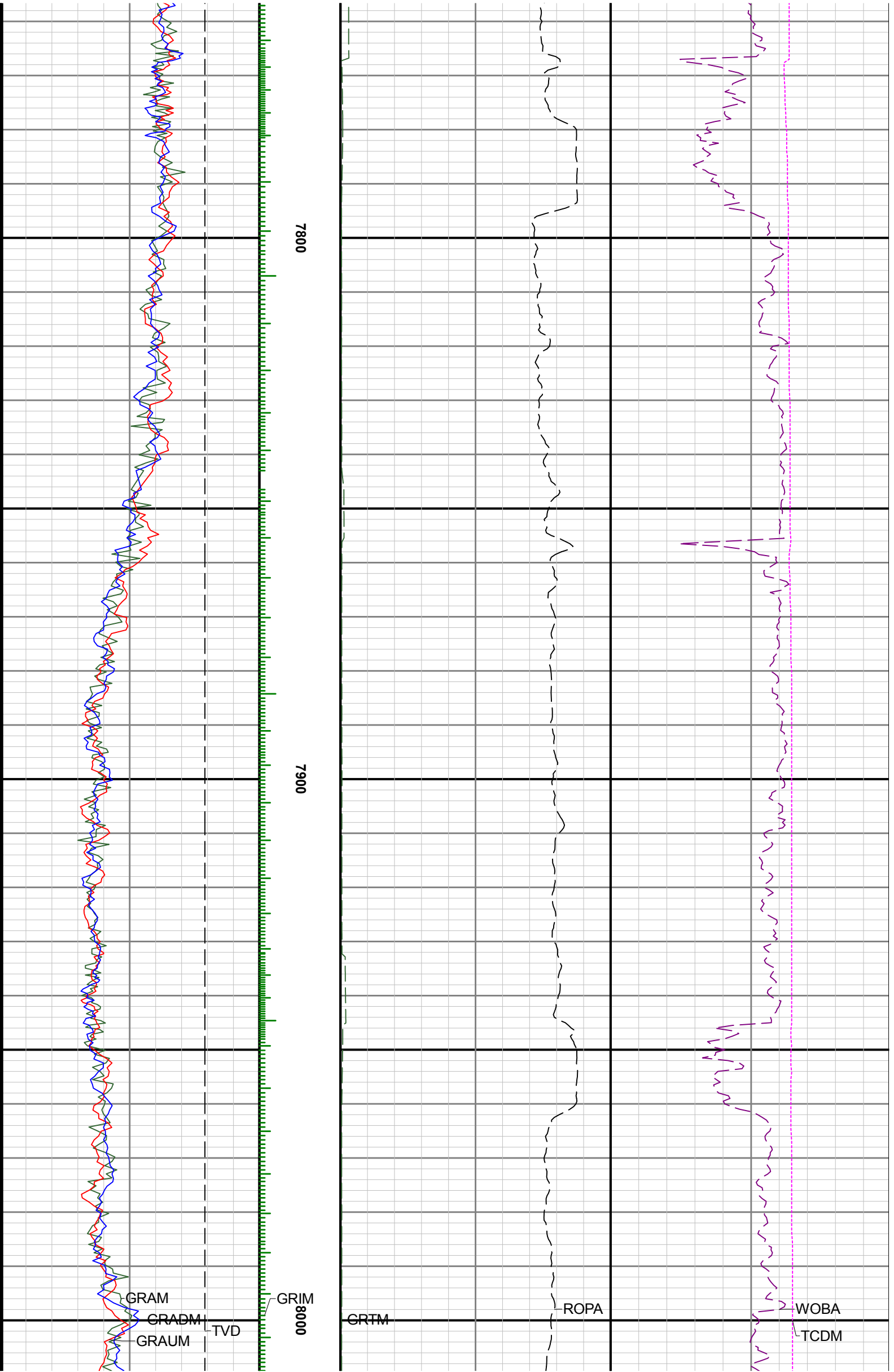
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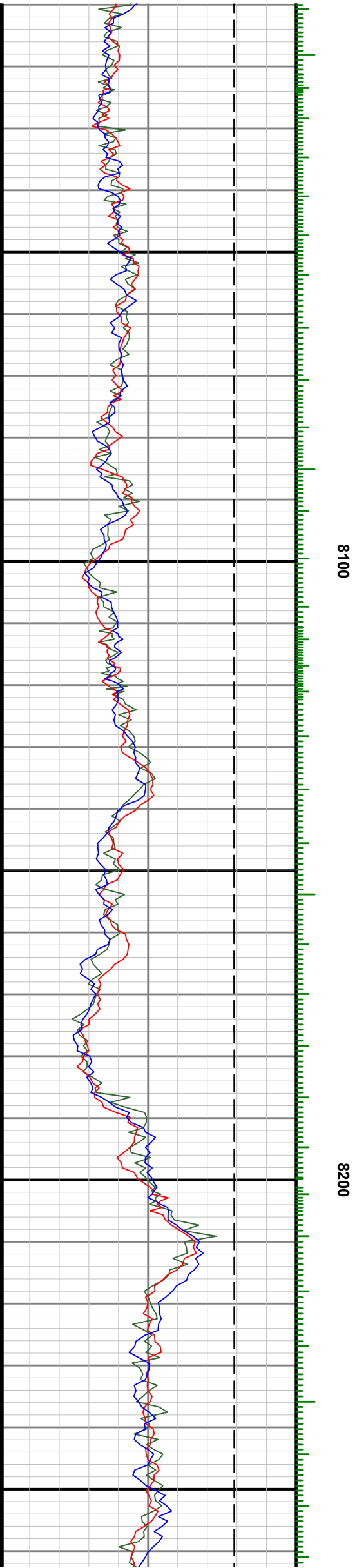
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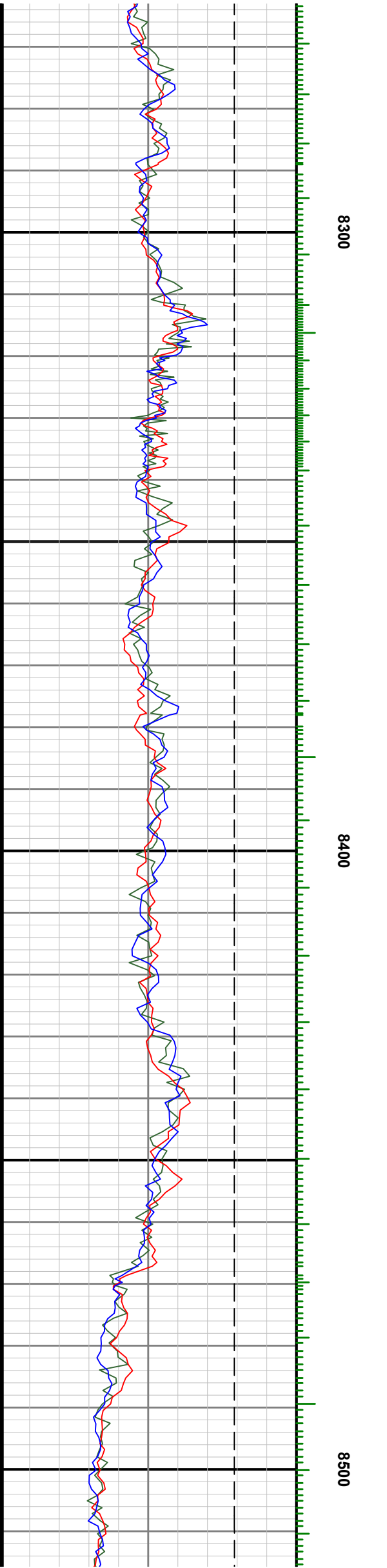
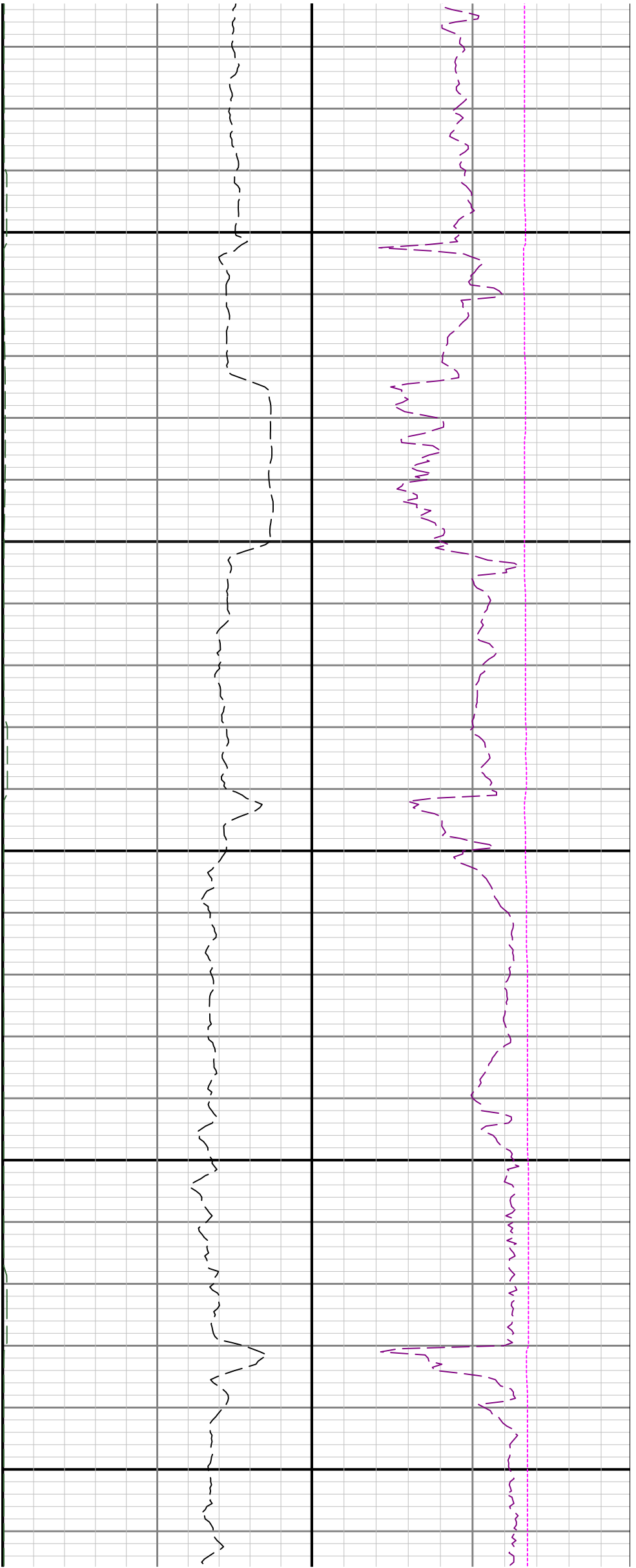
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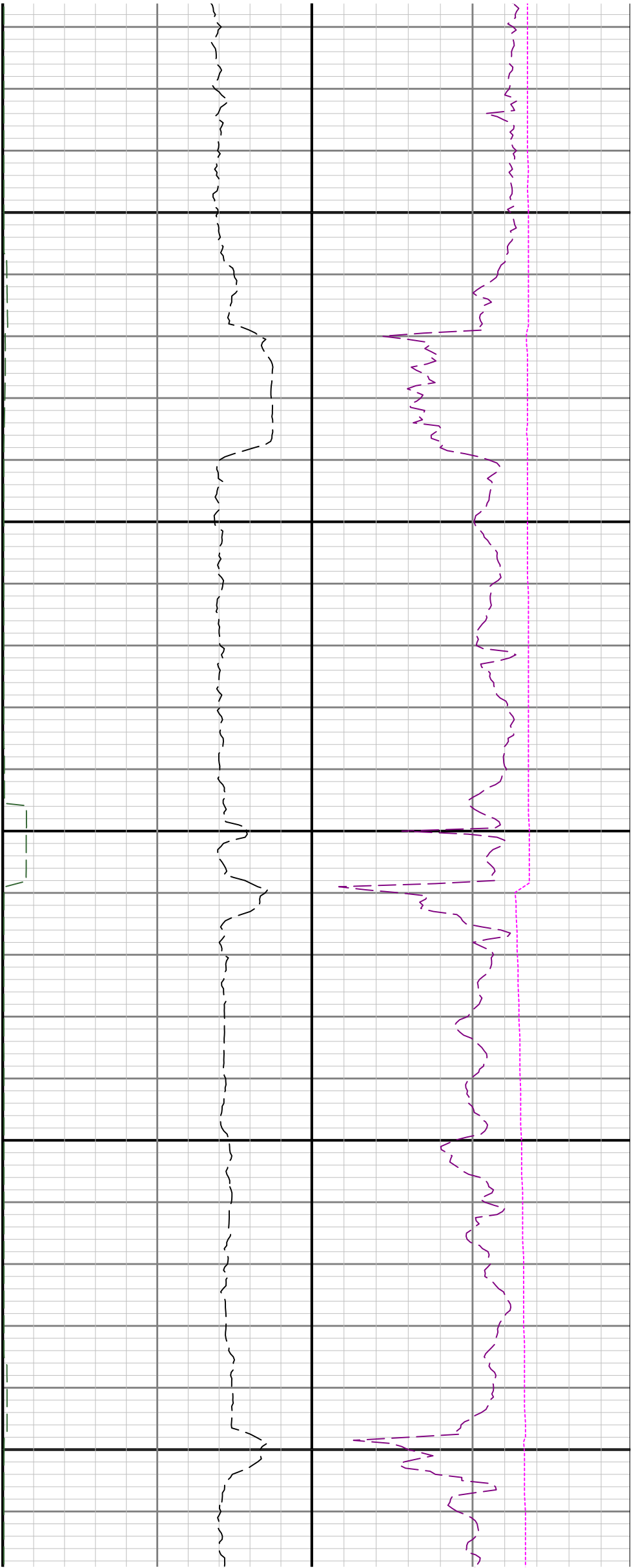






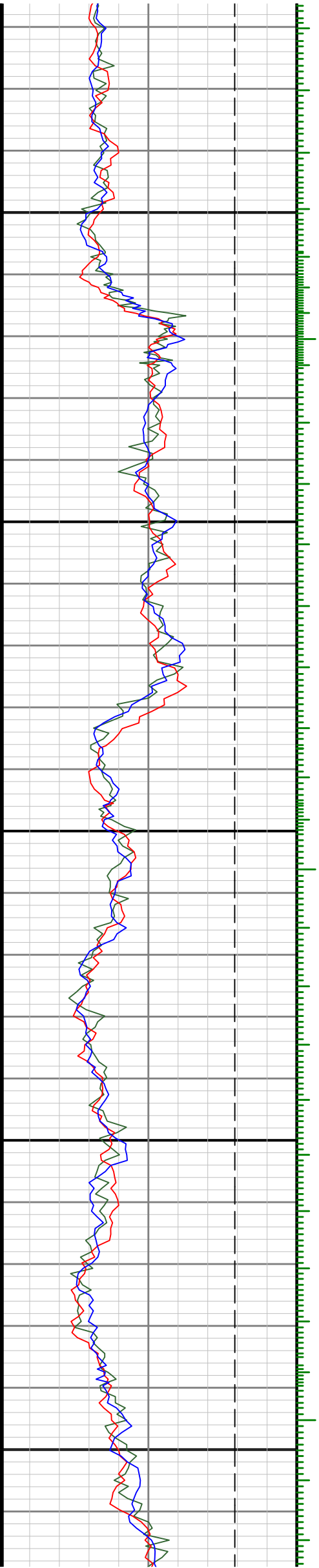


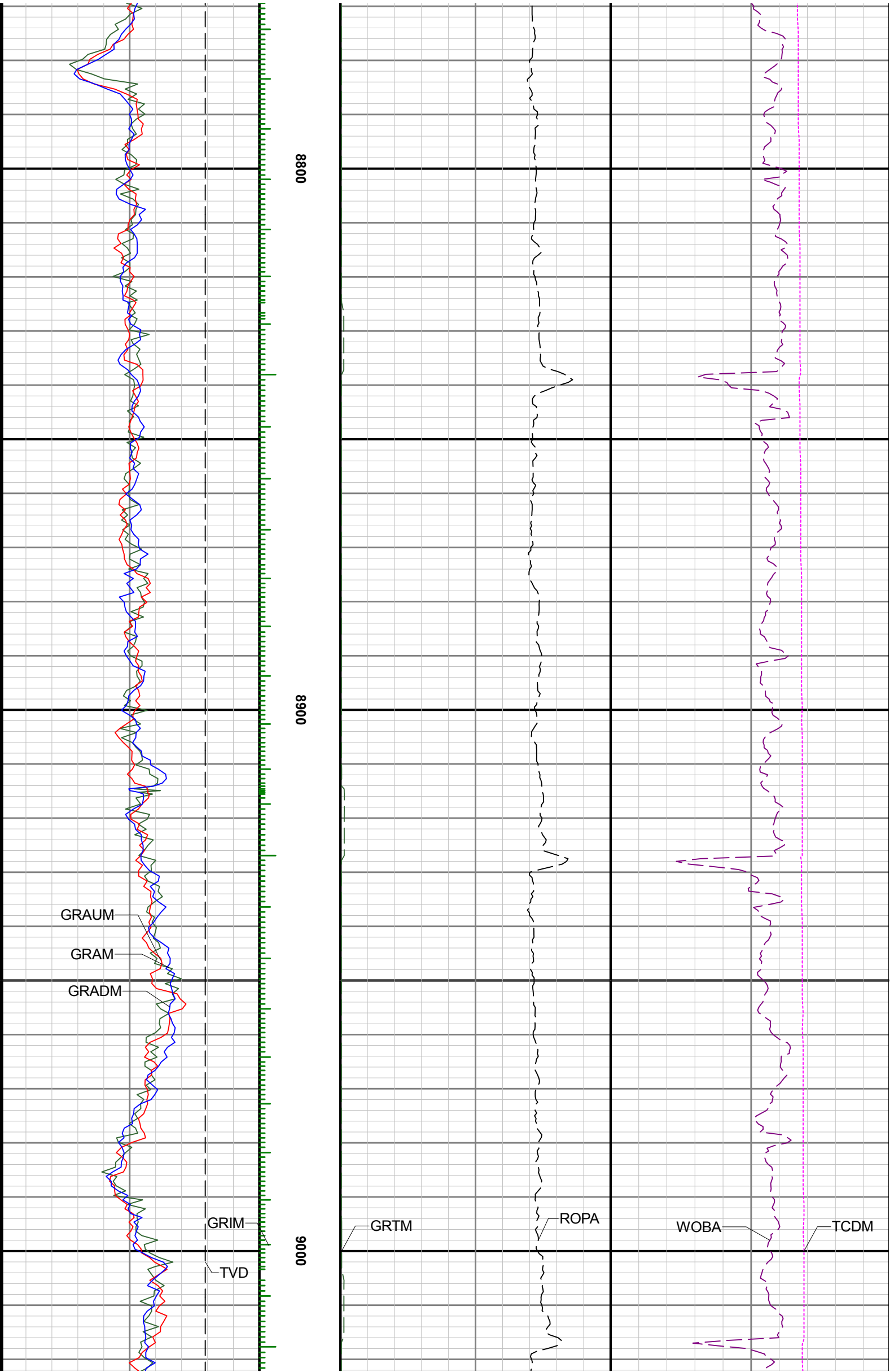


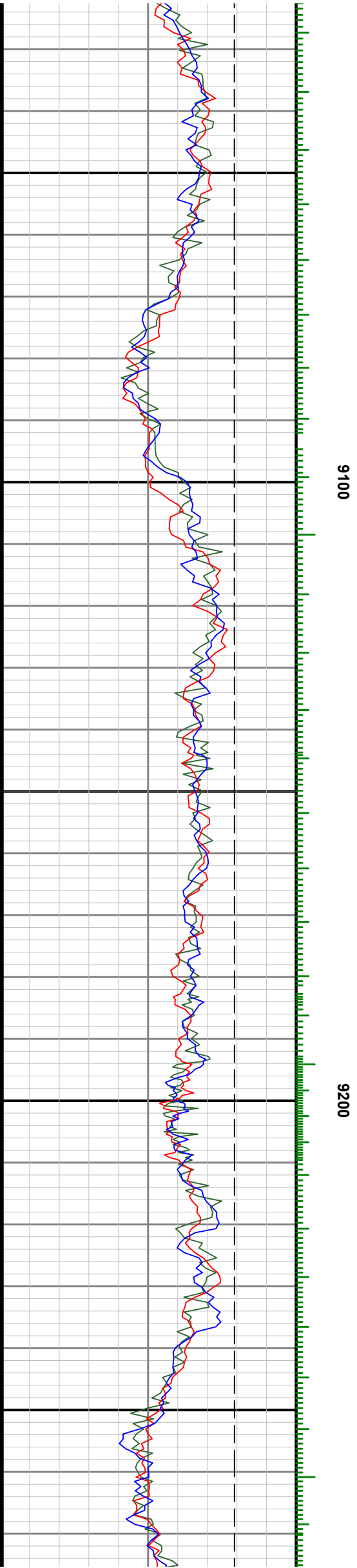
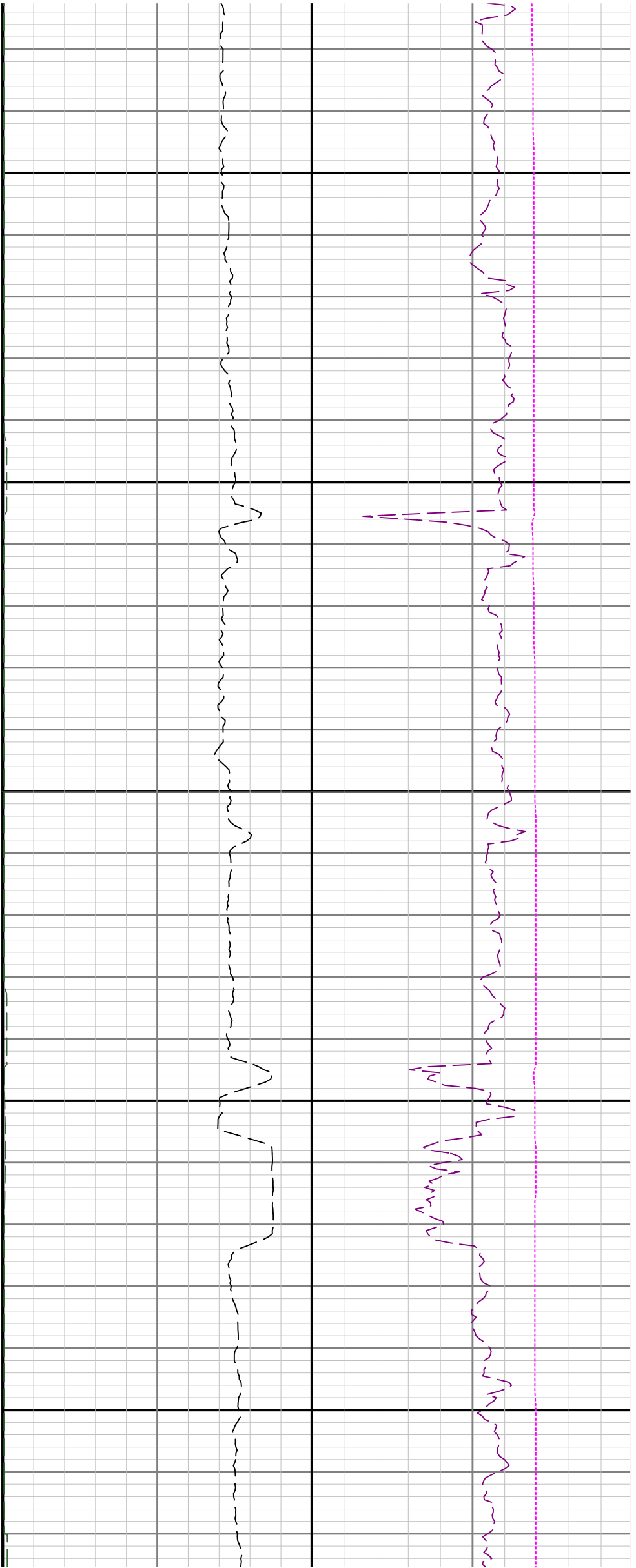


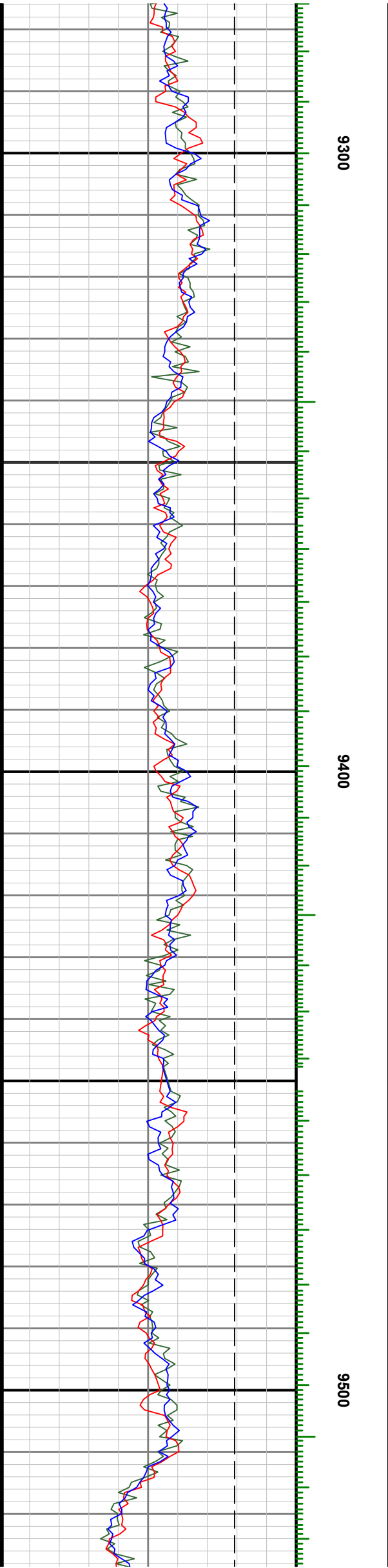
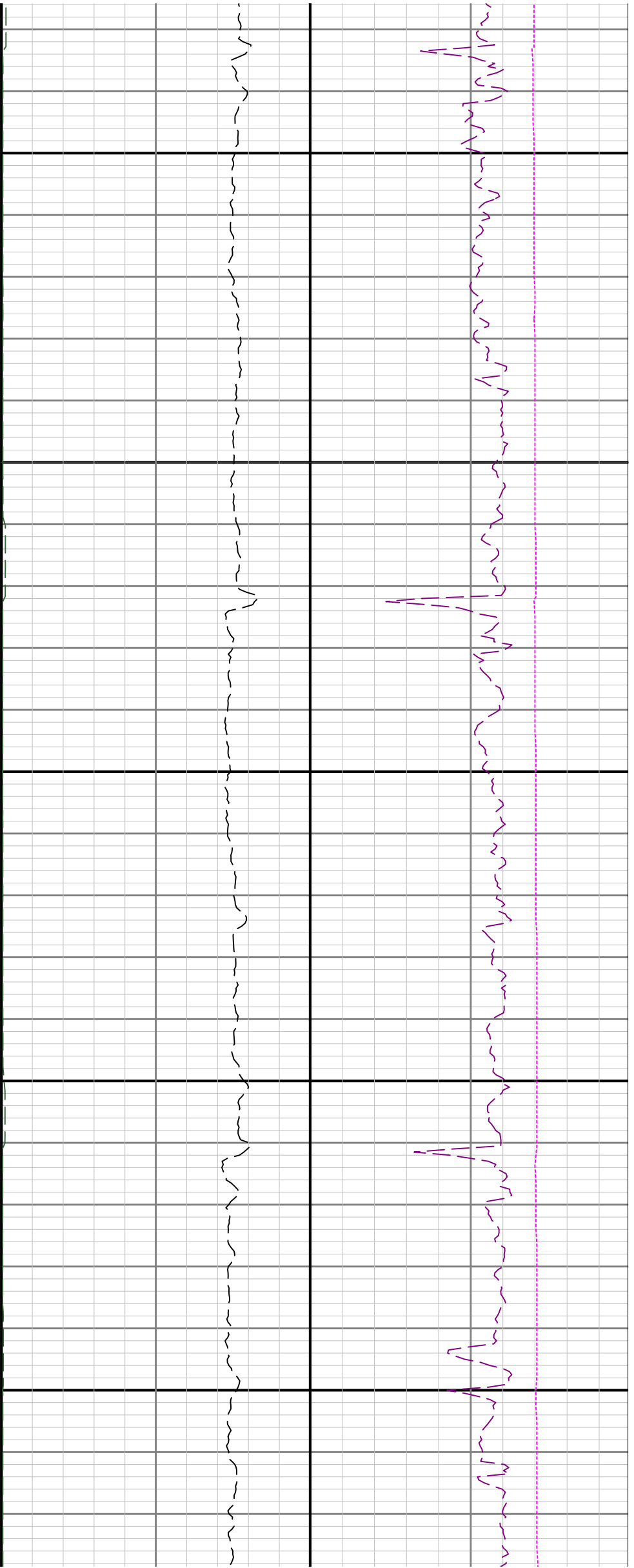
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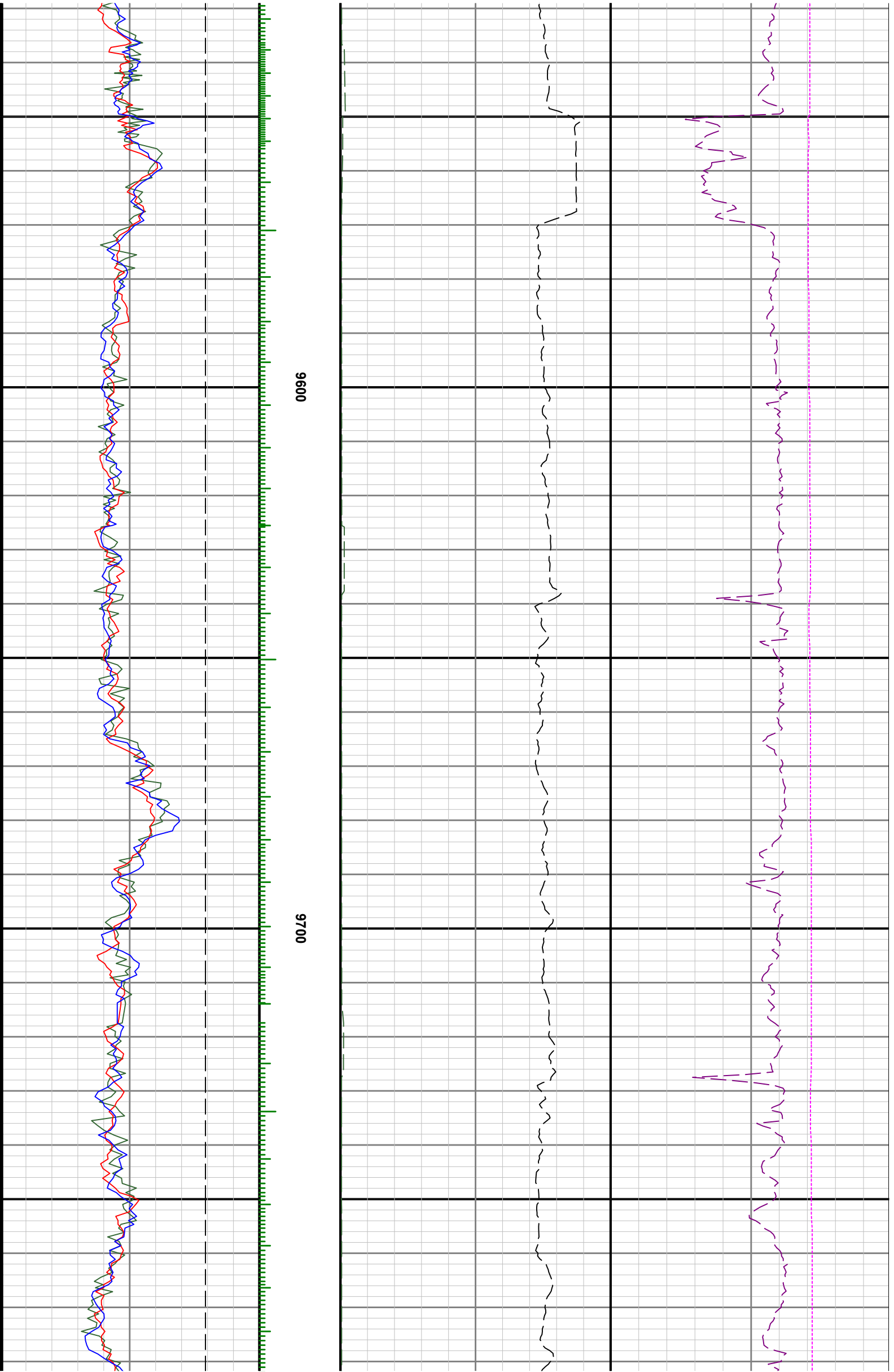
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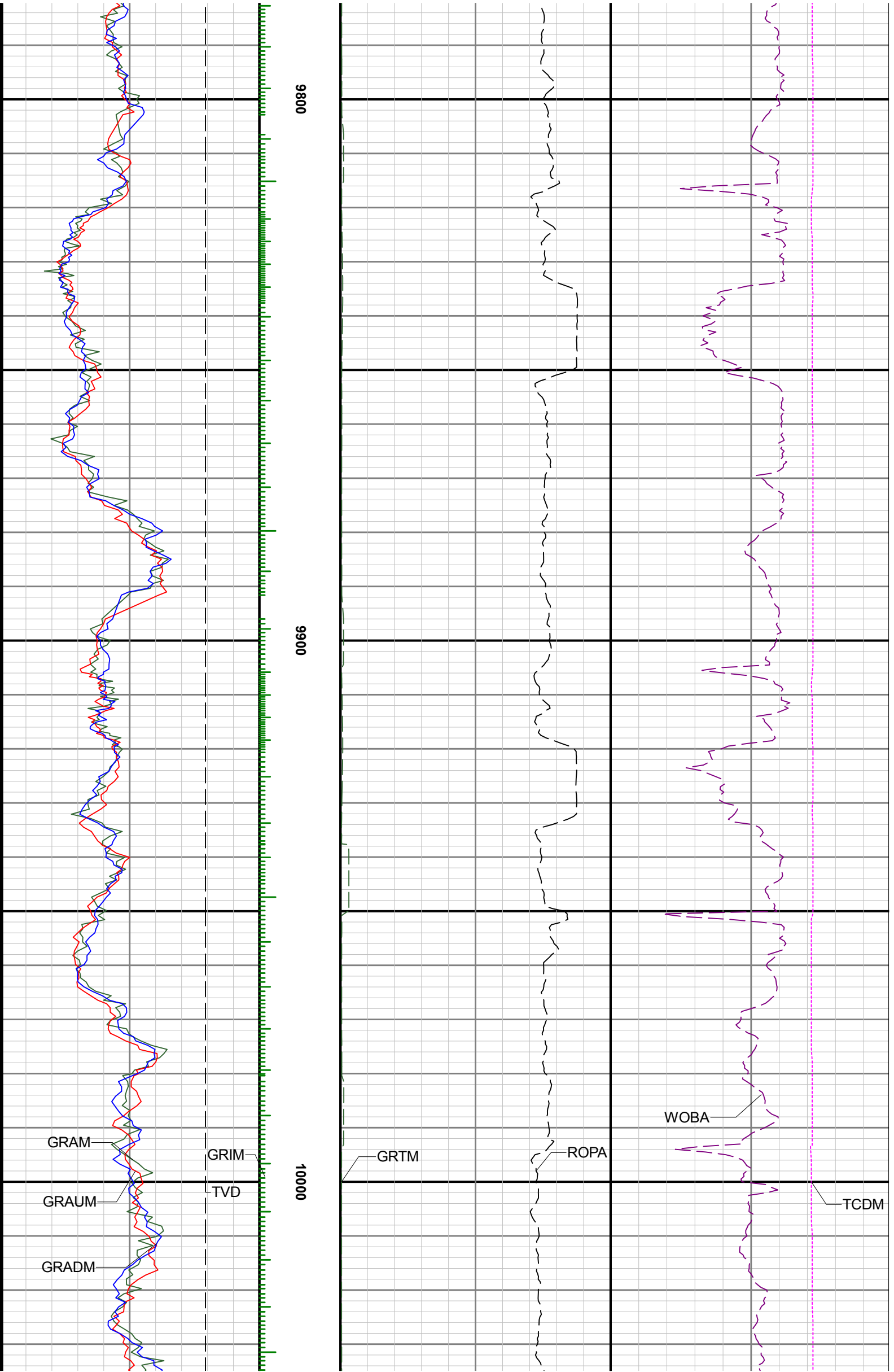


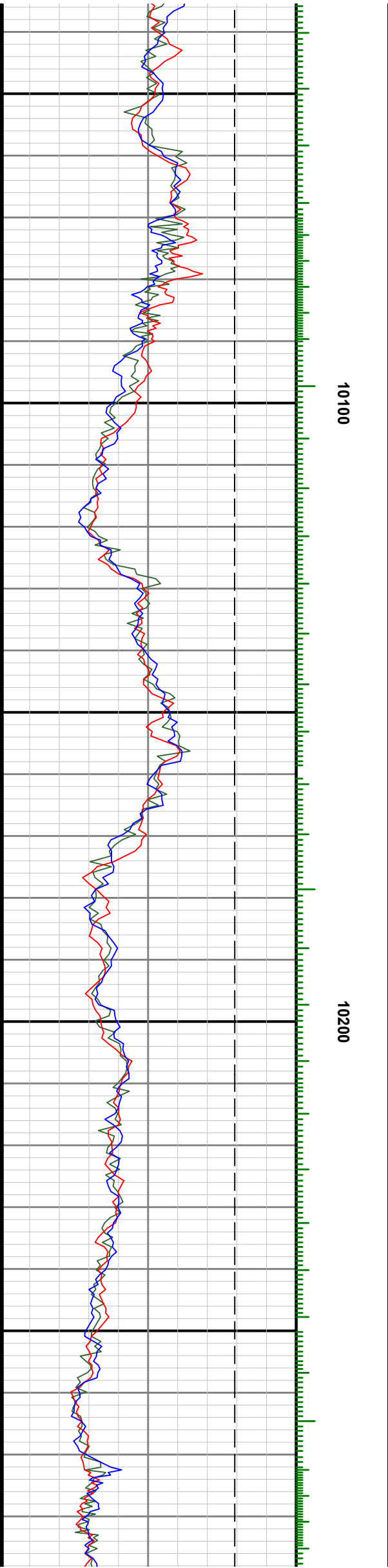
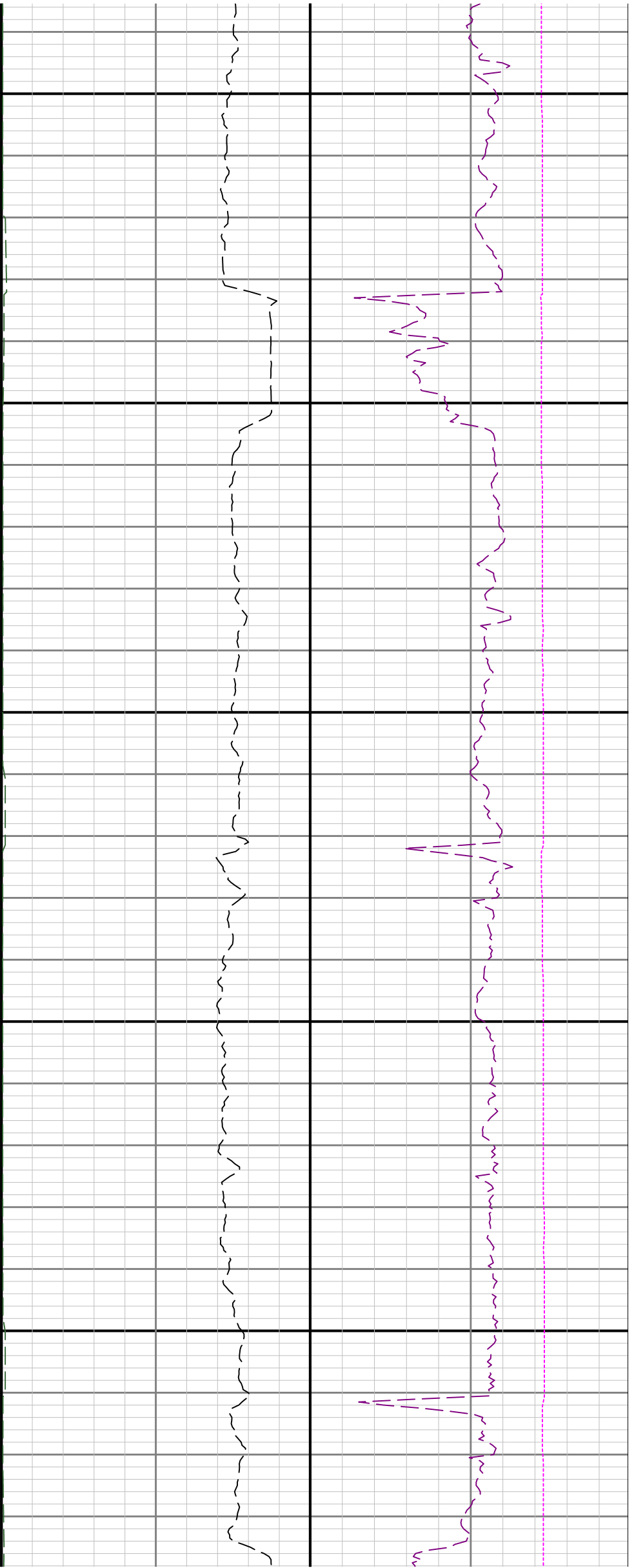


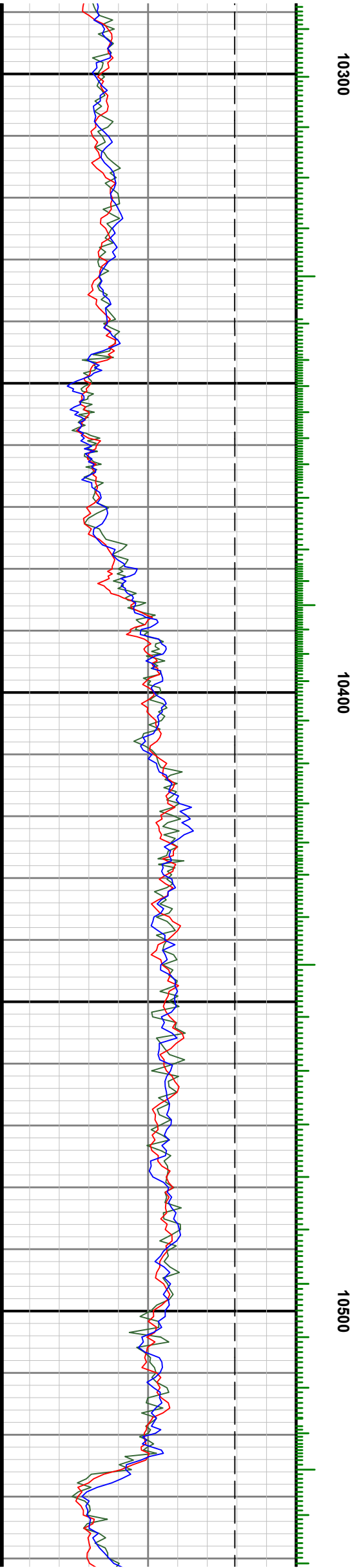
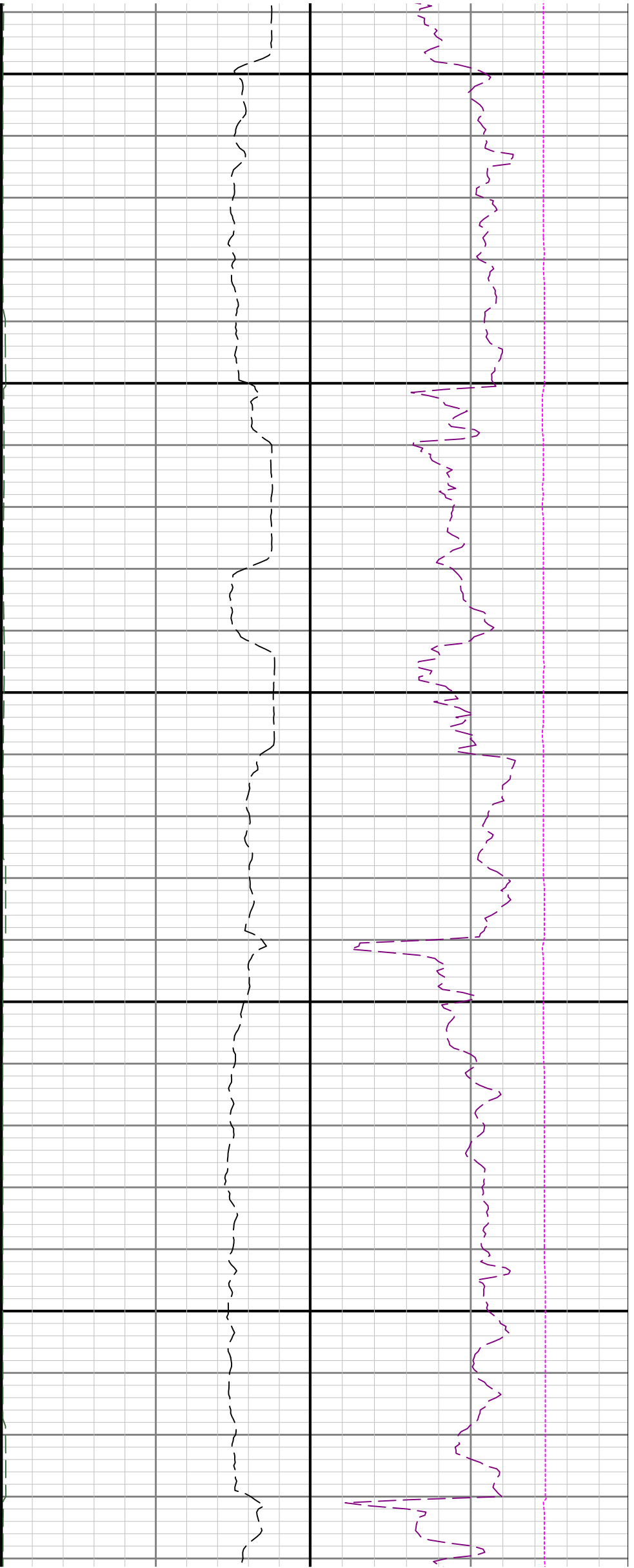


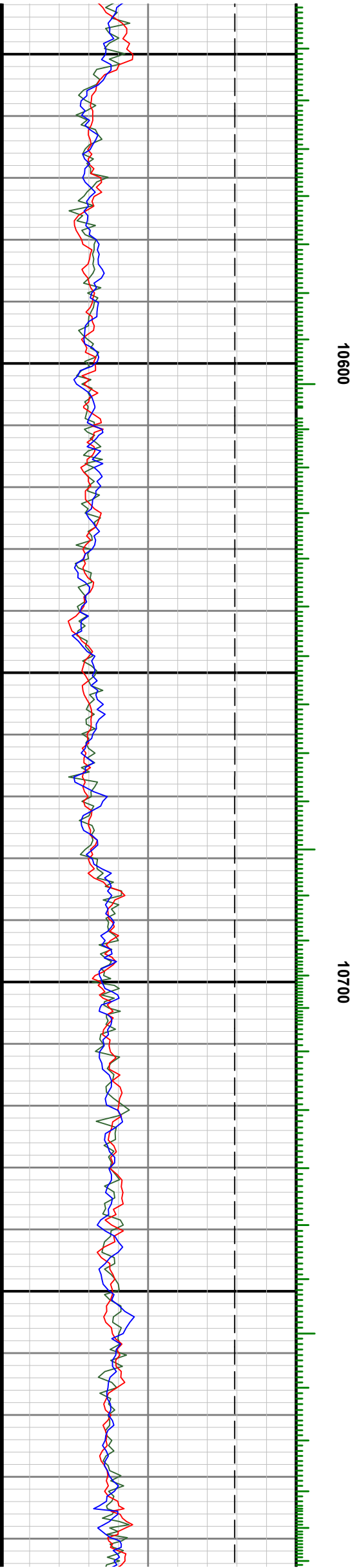
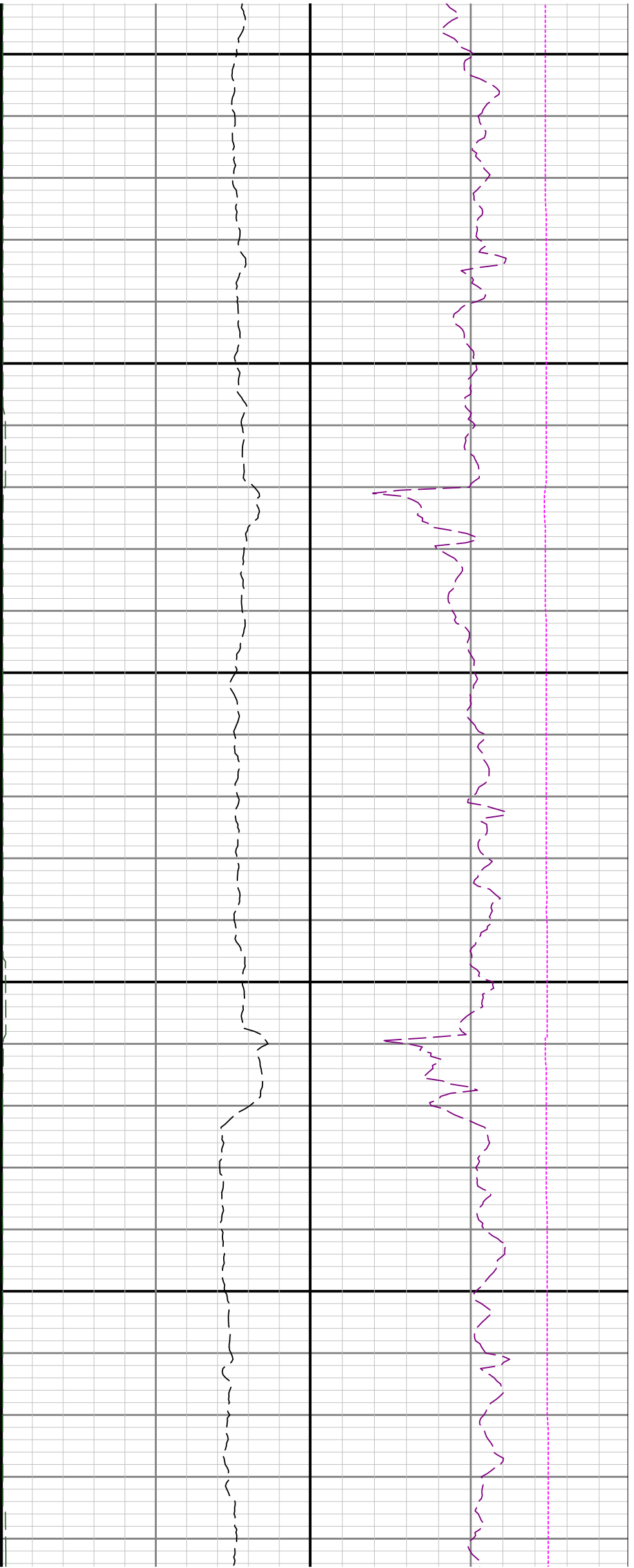


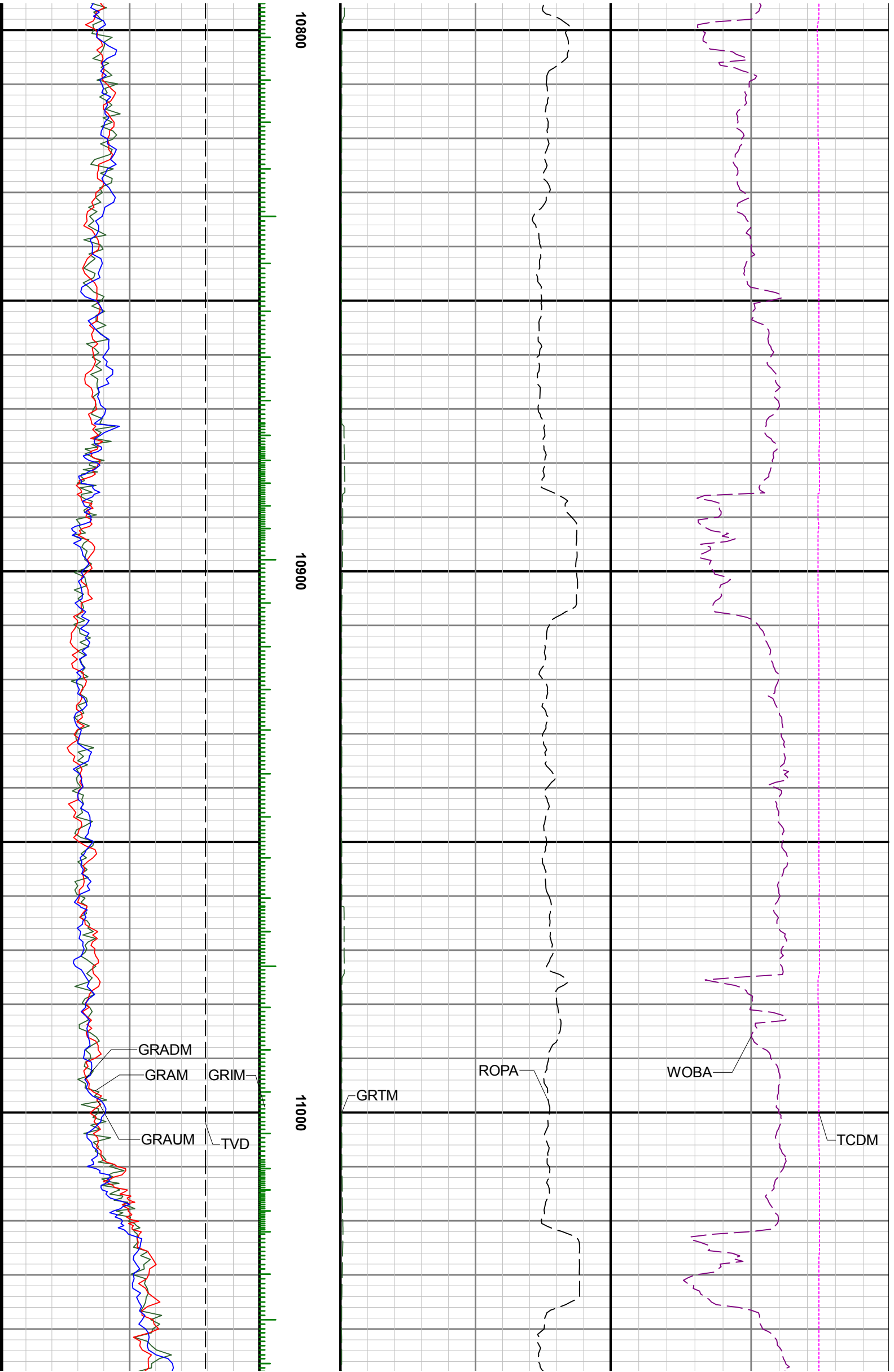


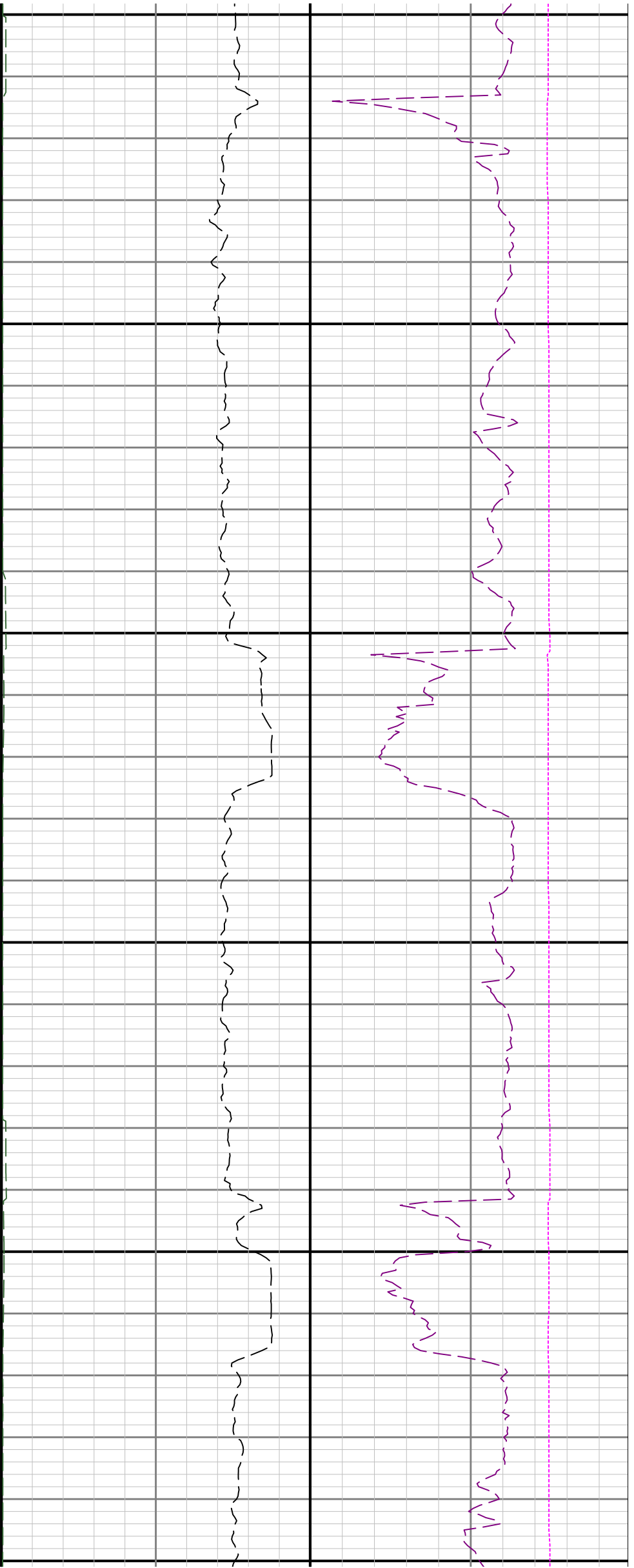








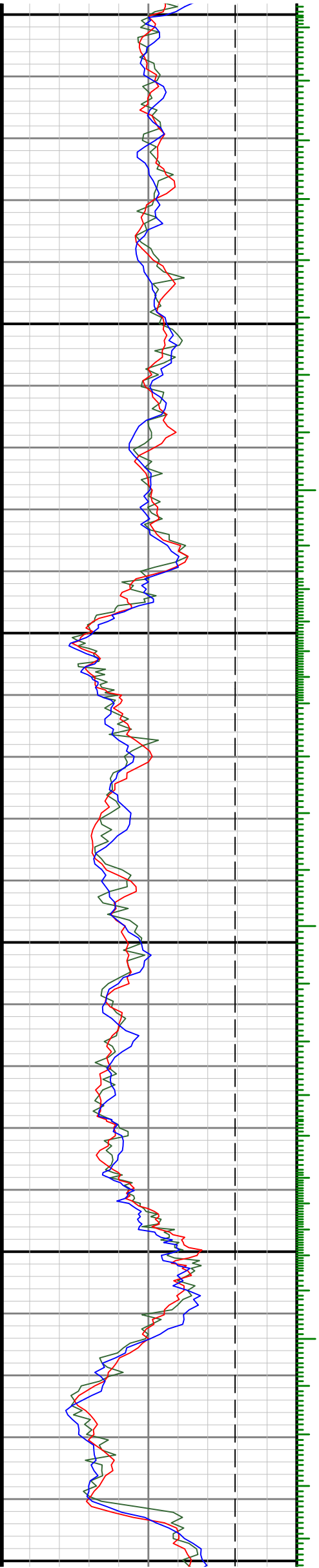


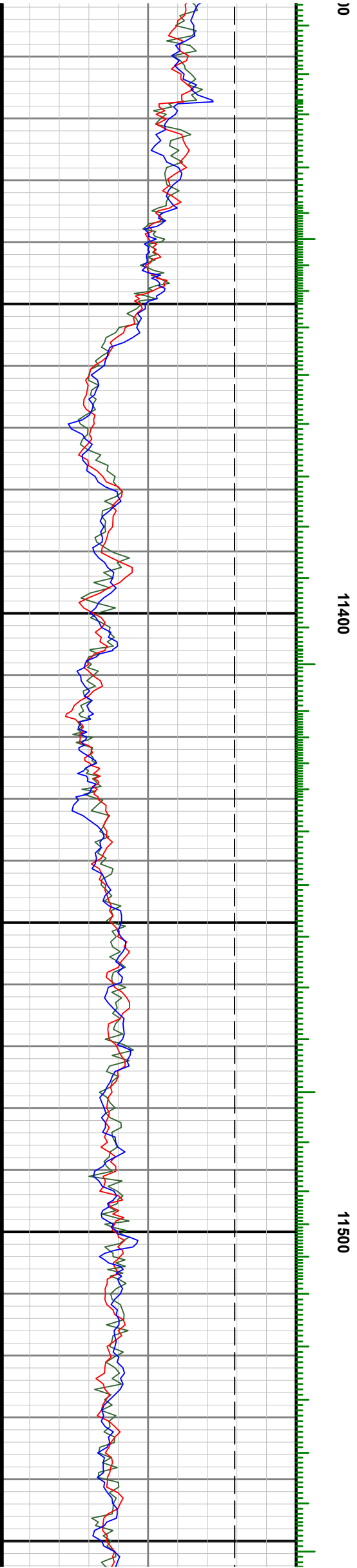
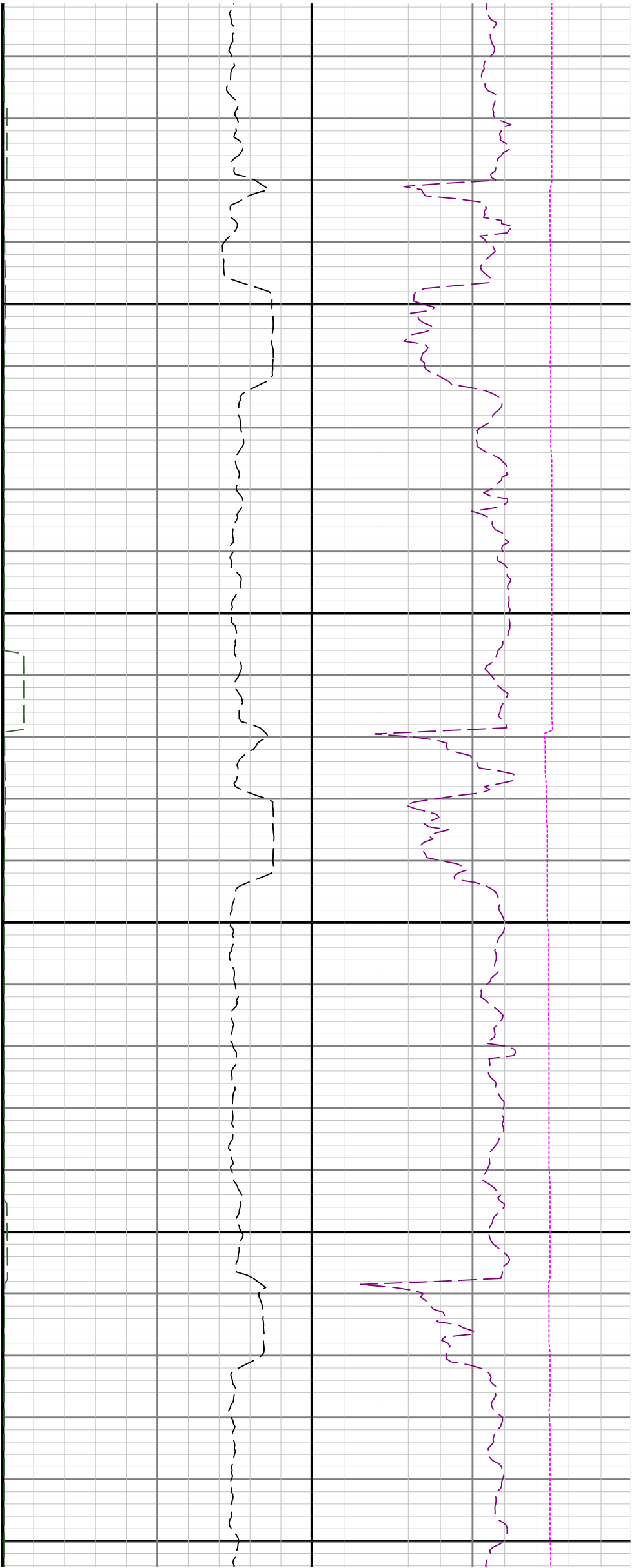


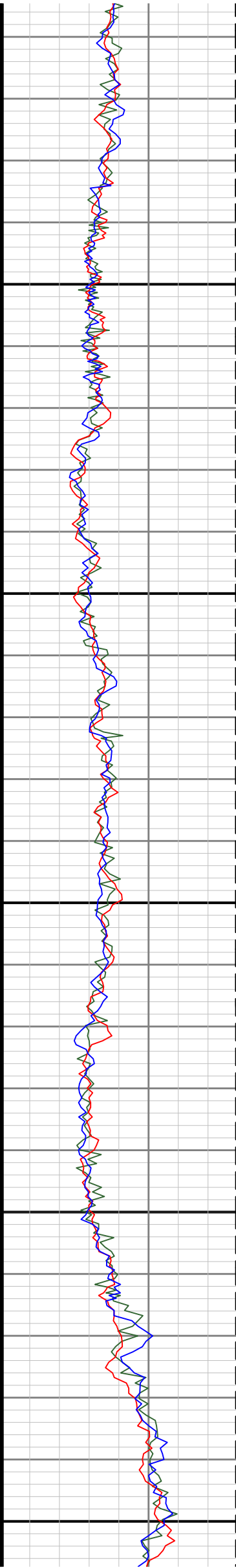
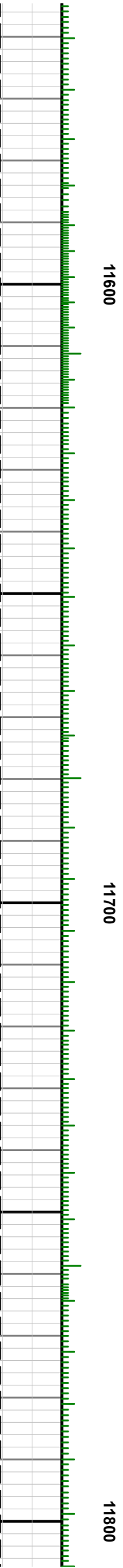
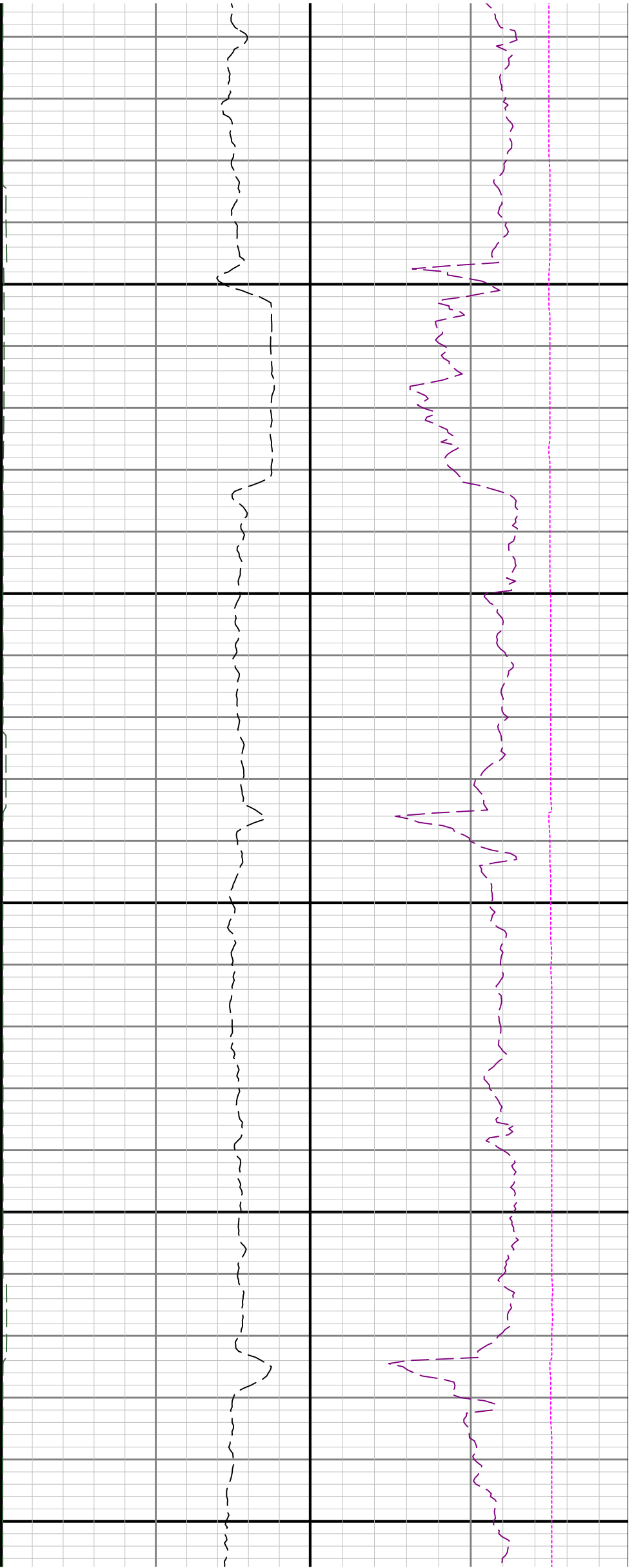
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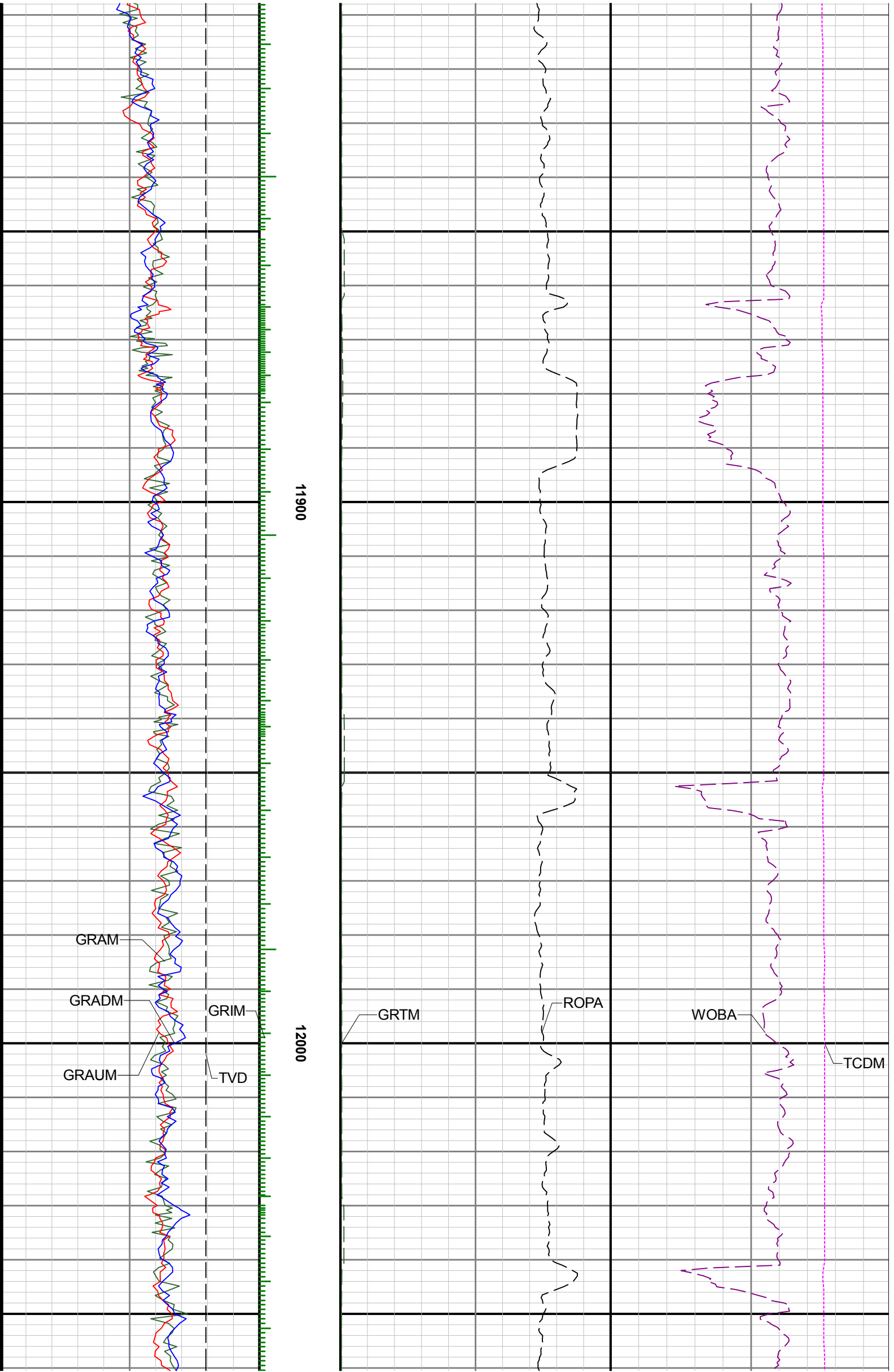
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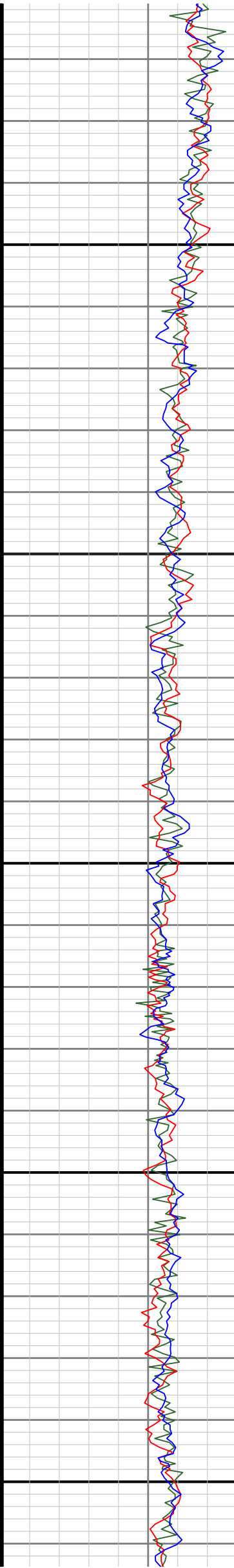
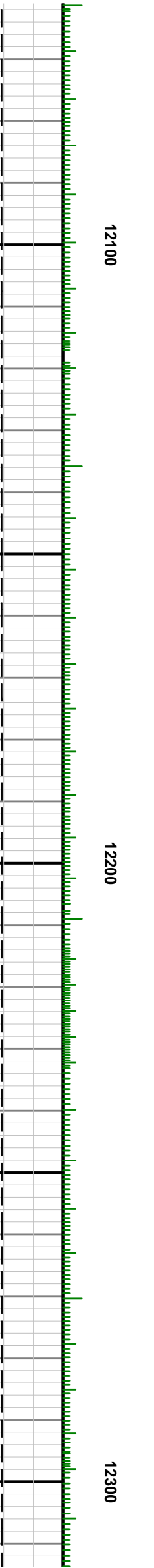
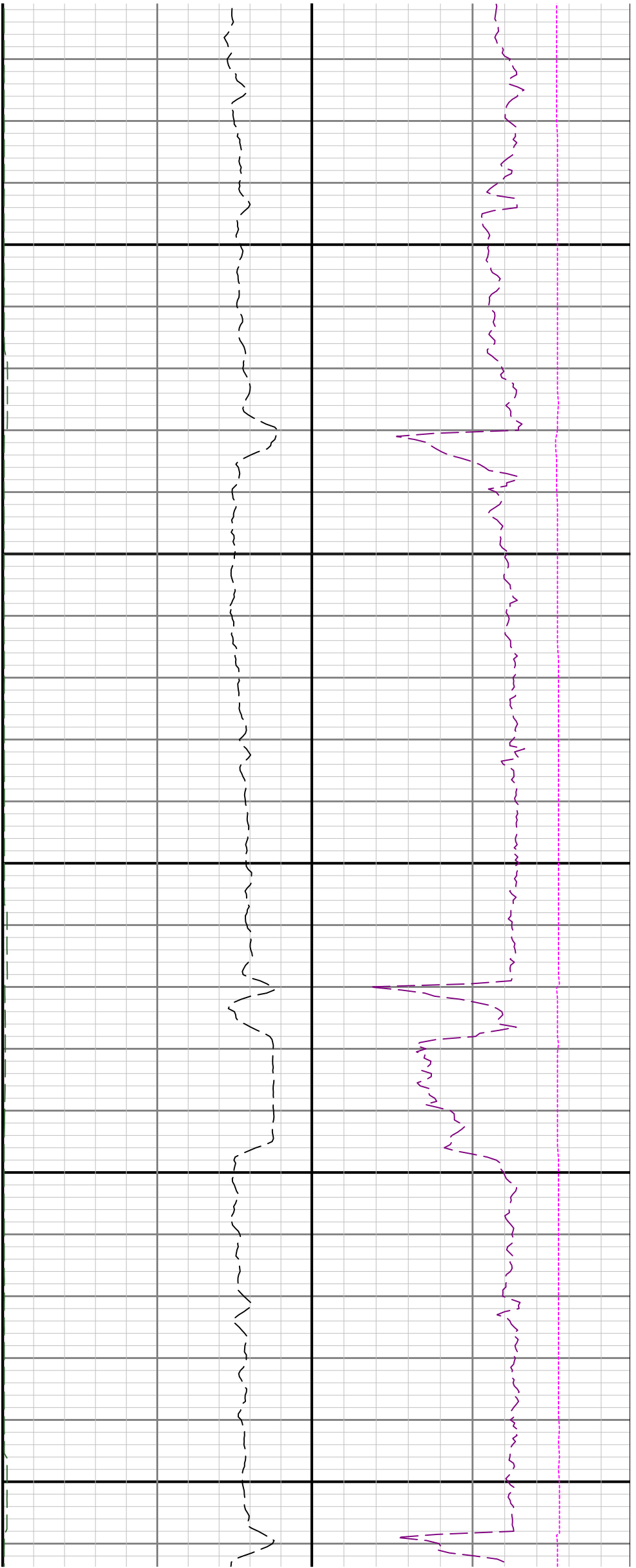
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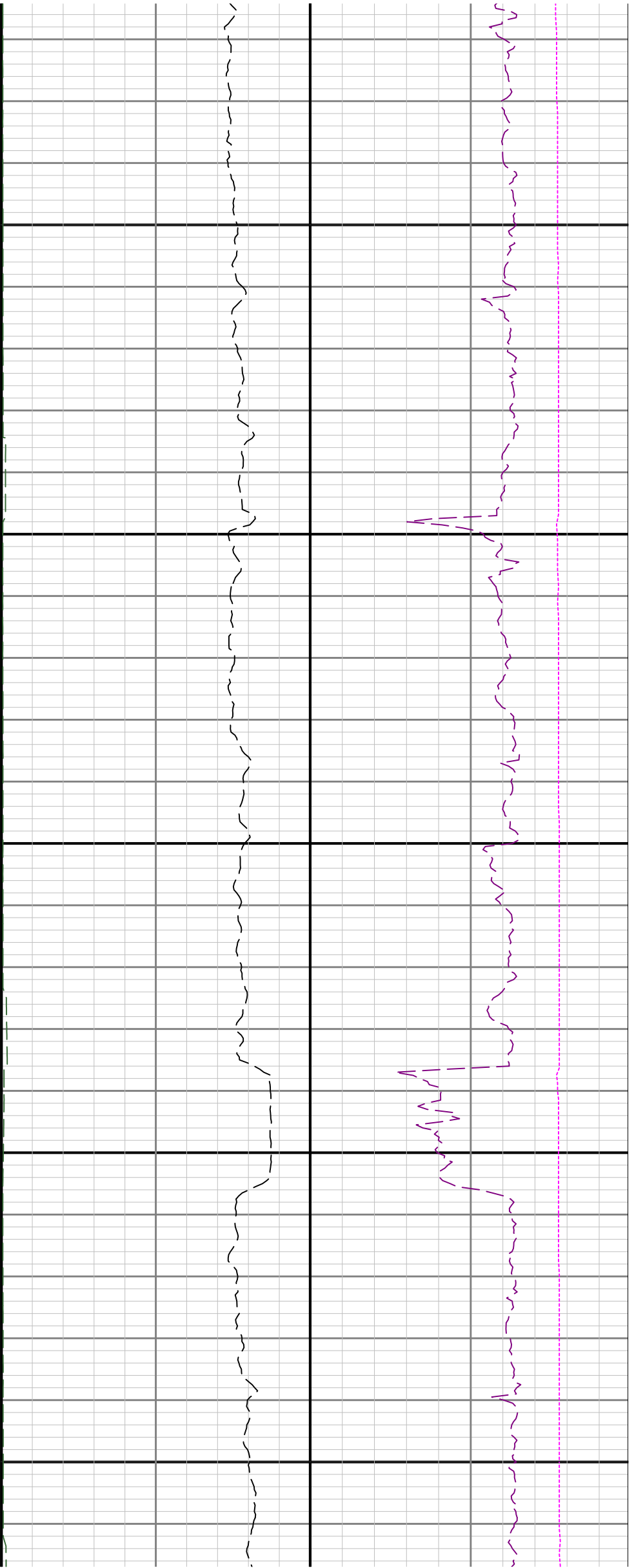






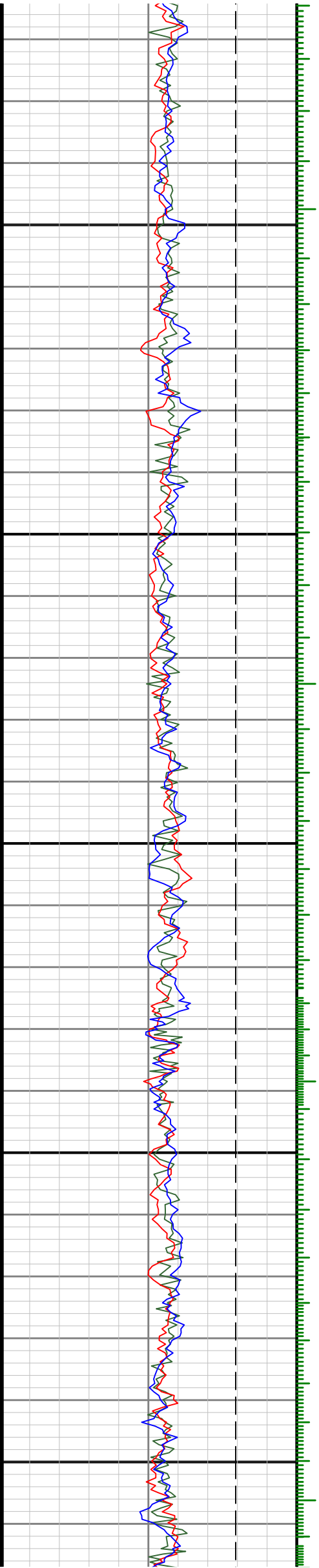


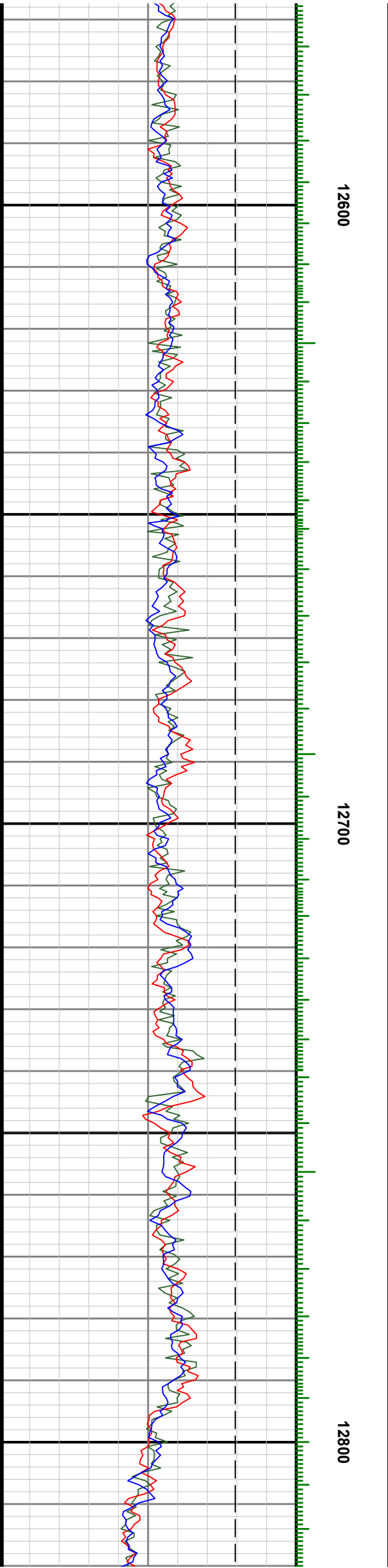
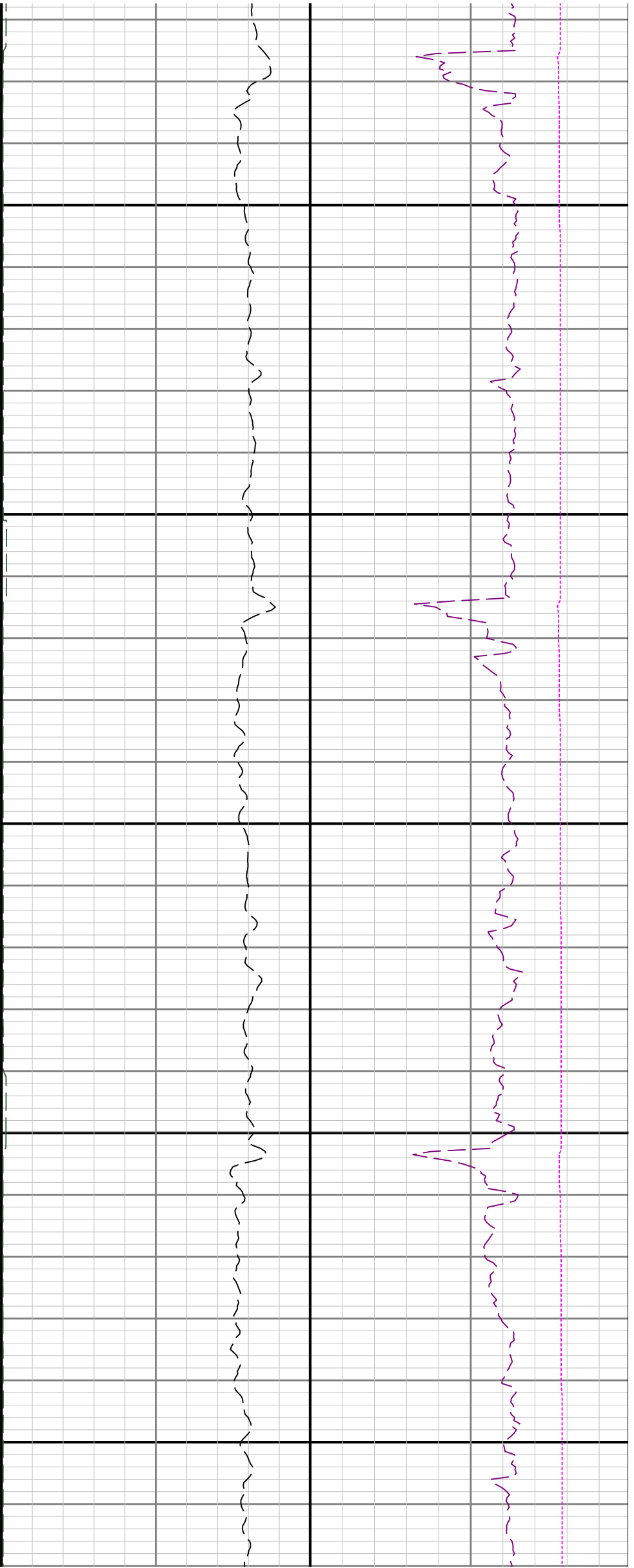


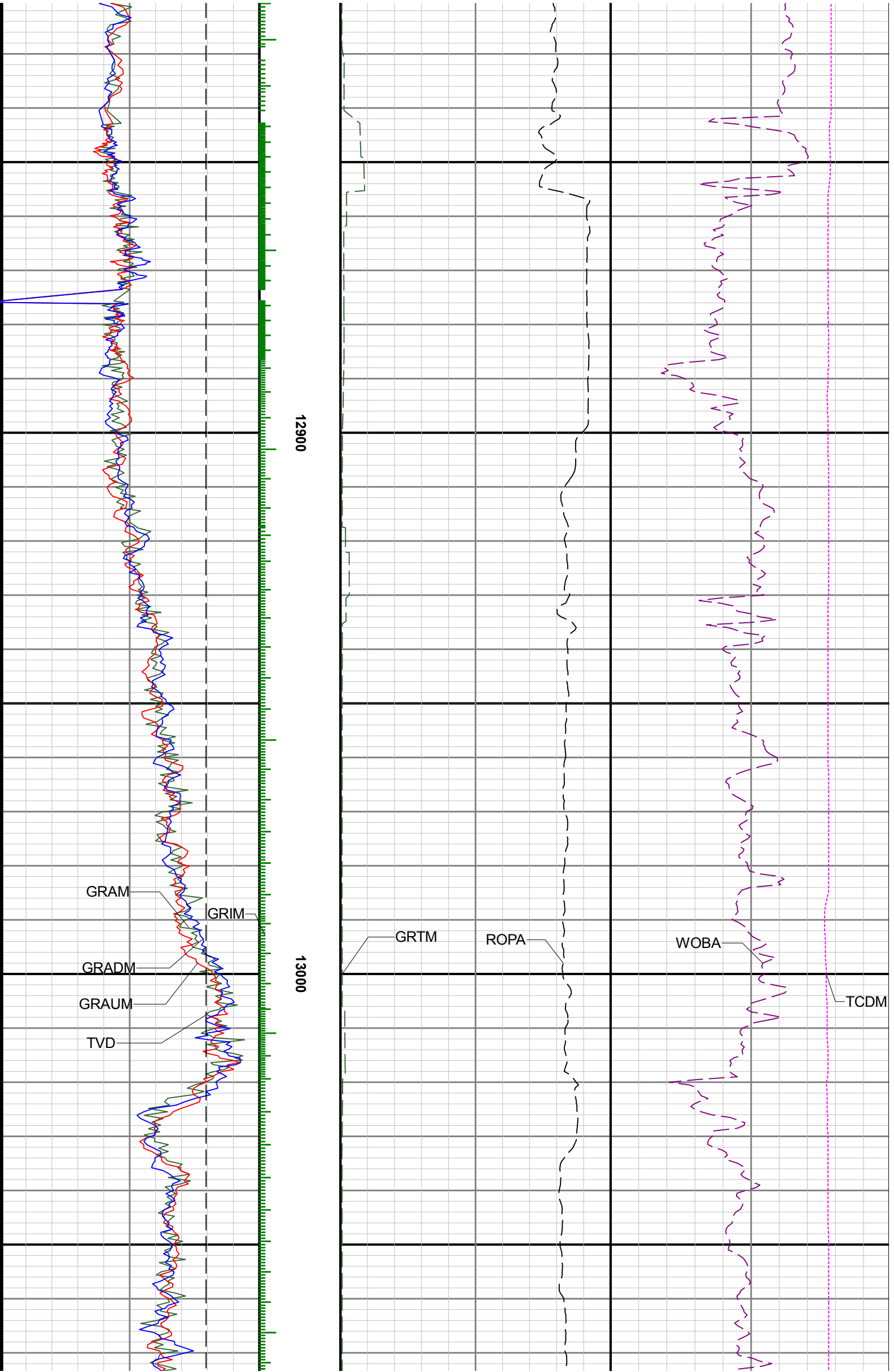


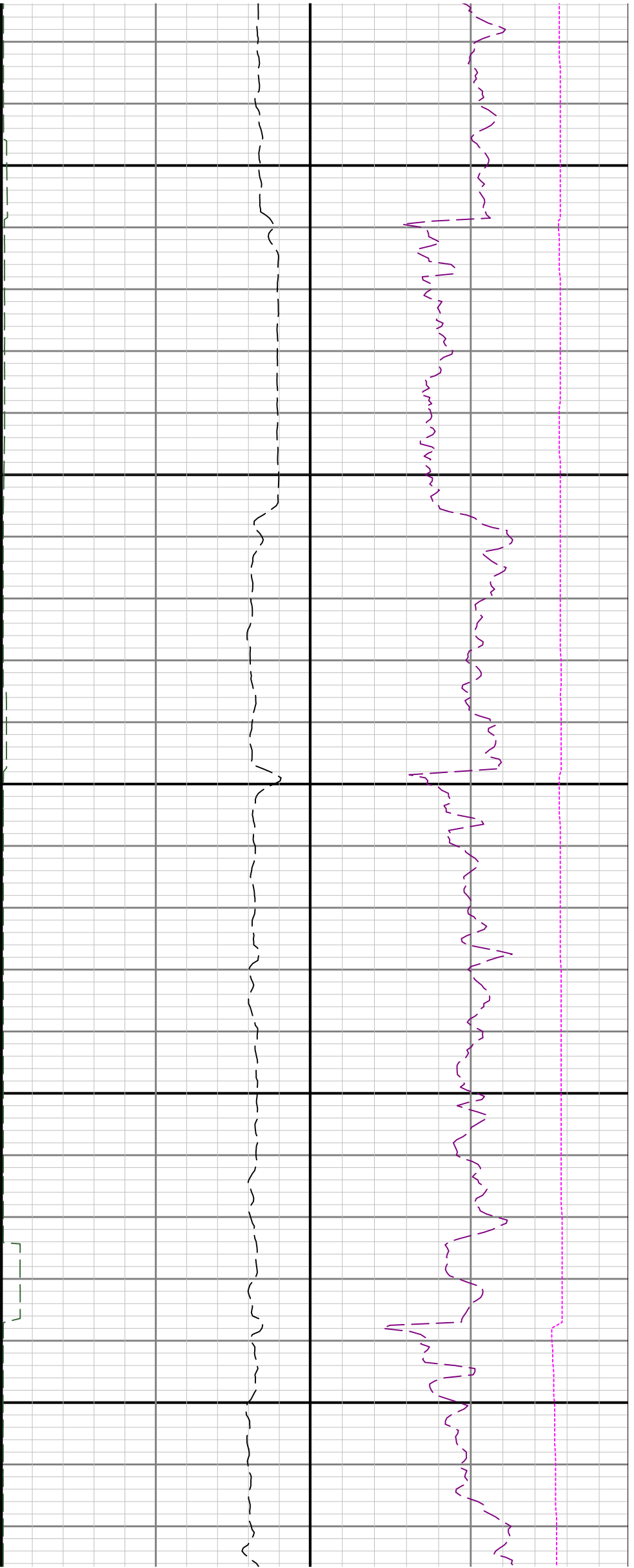
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12500





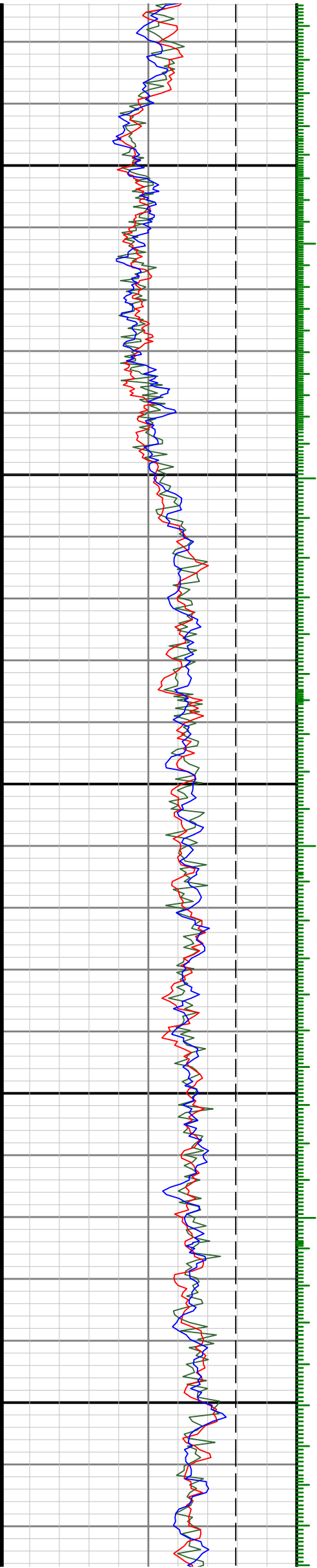


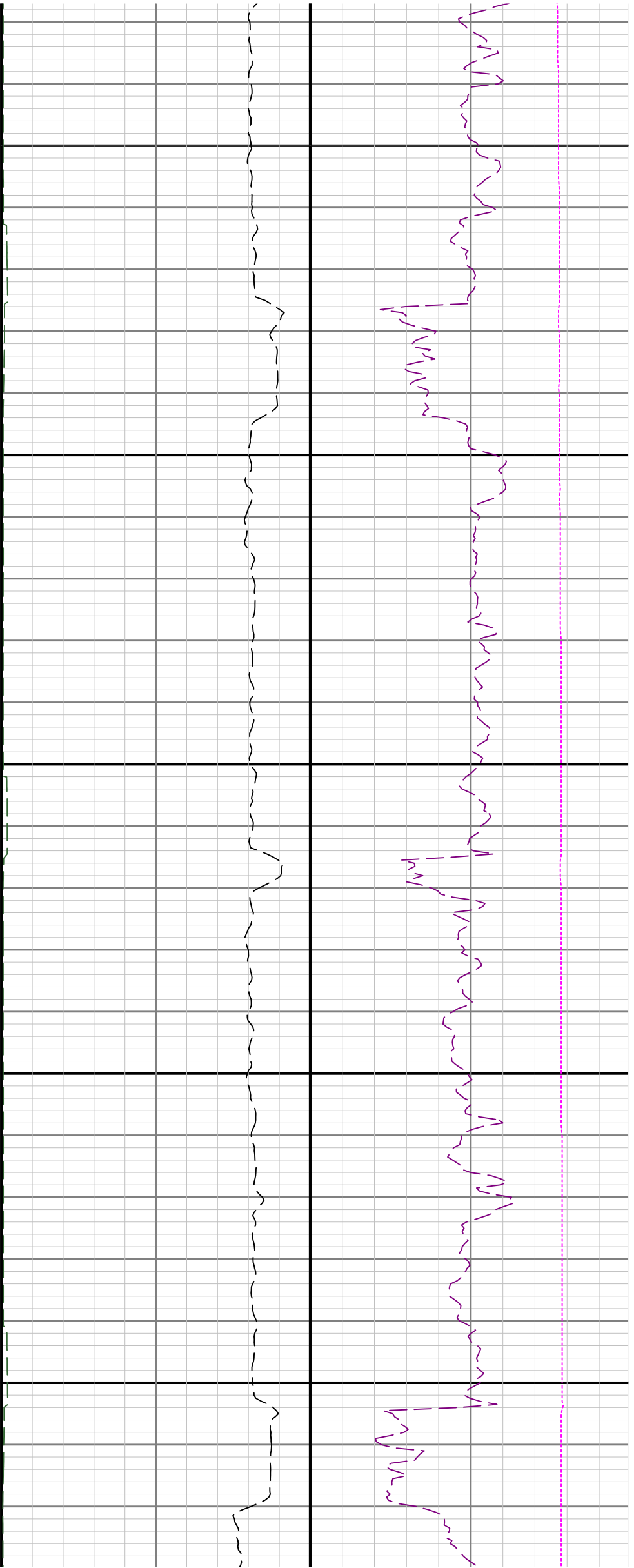


13100

13200

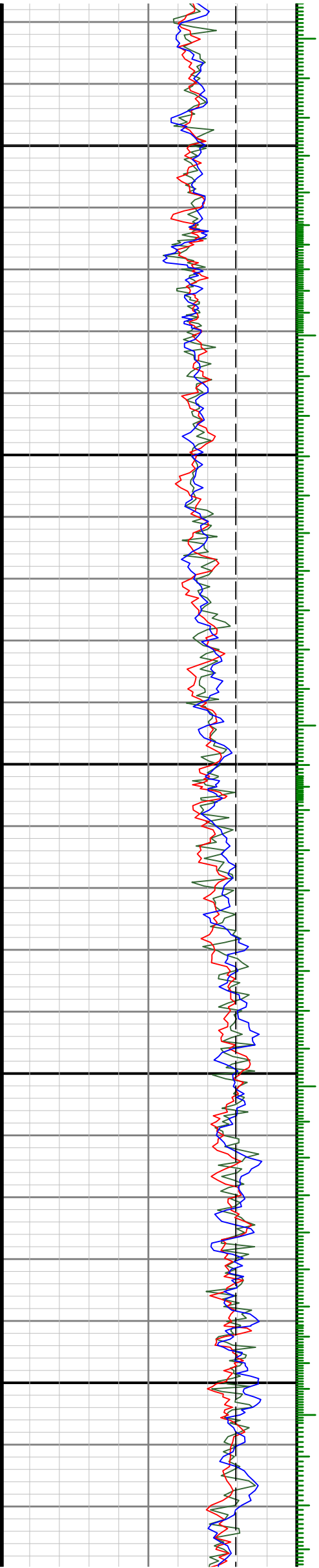
13300

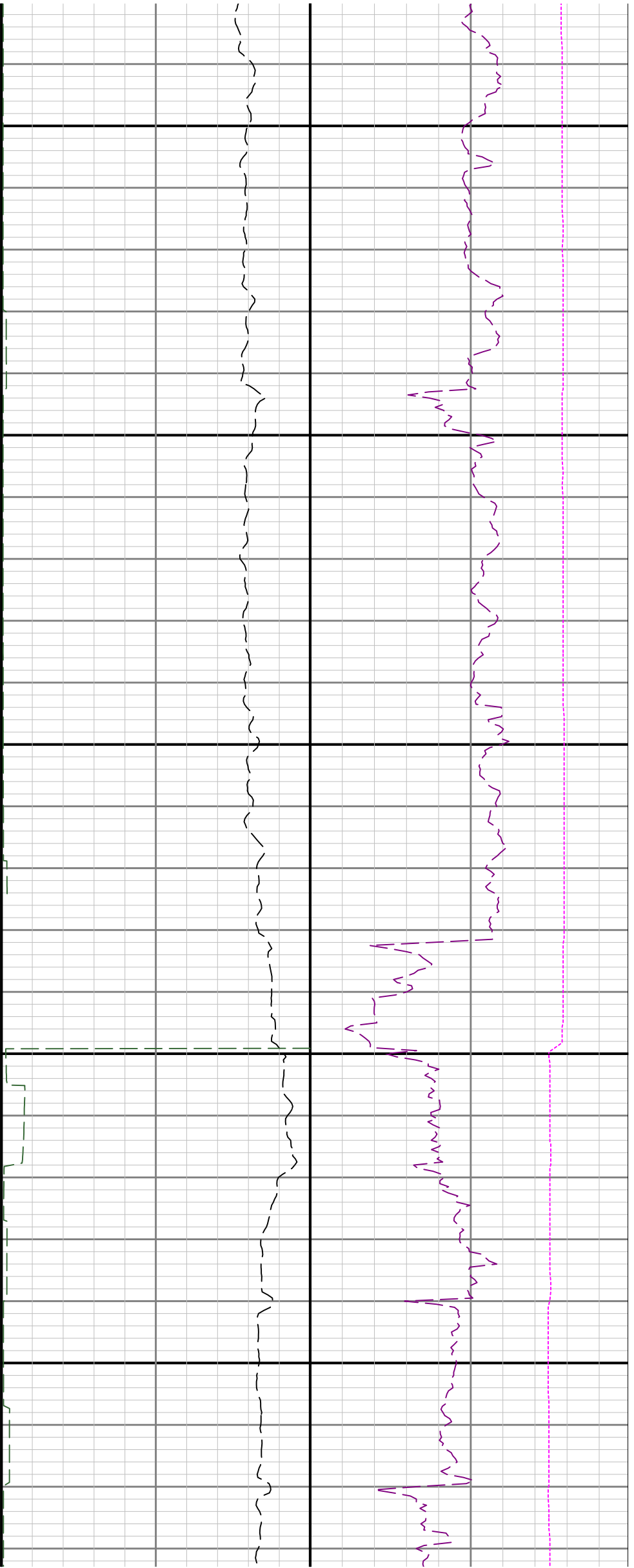




13400

13500

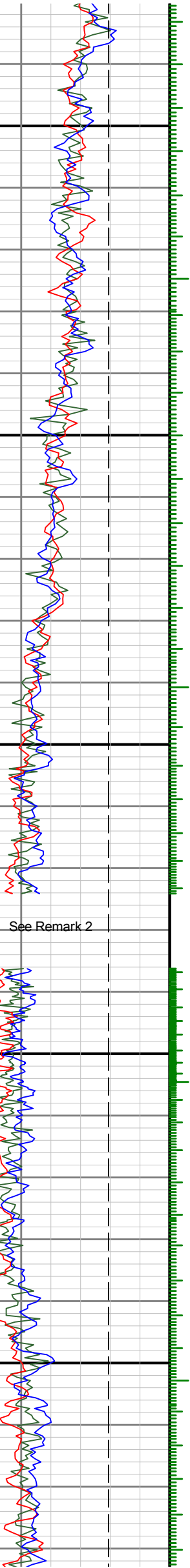




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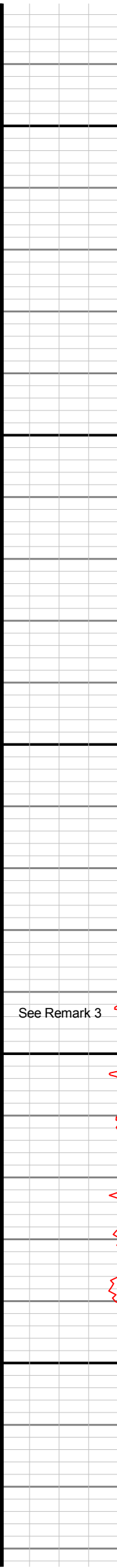
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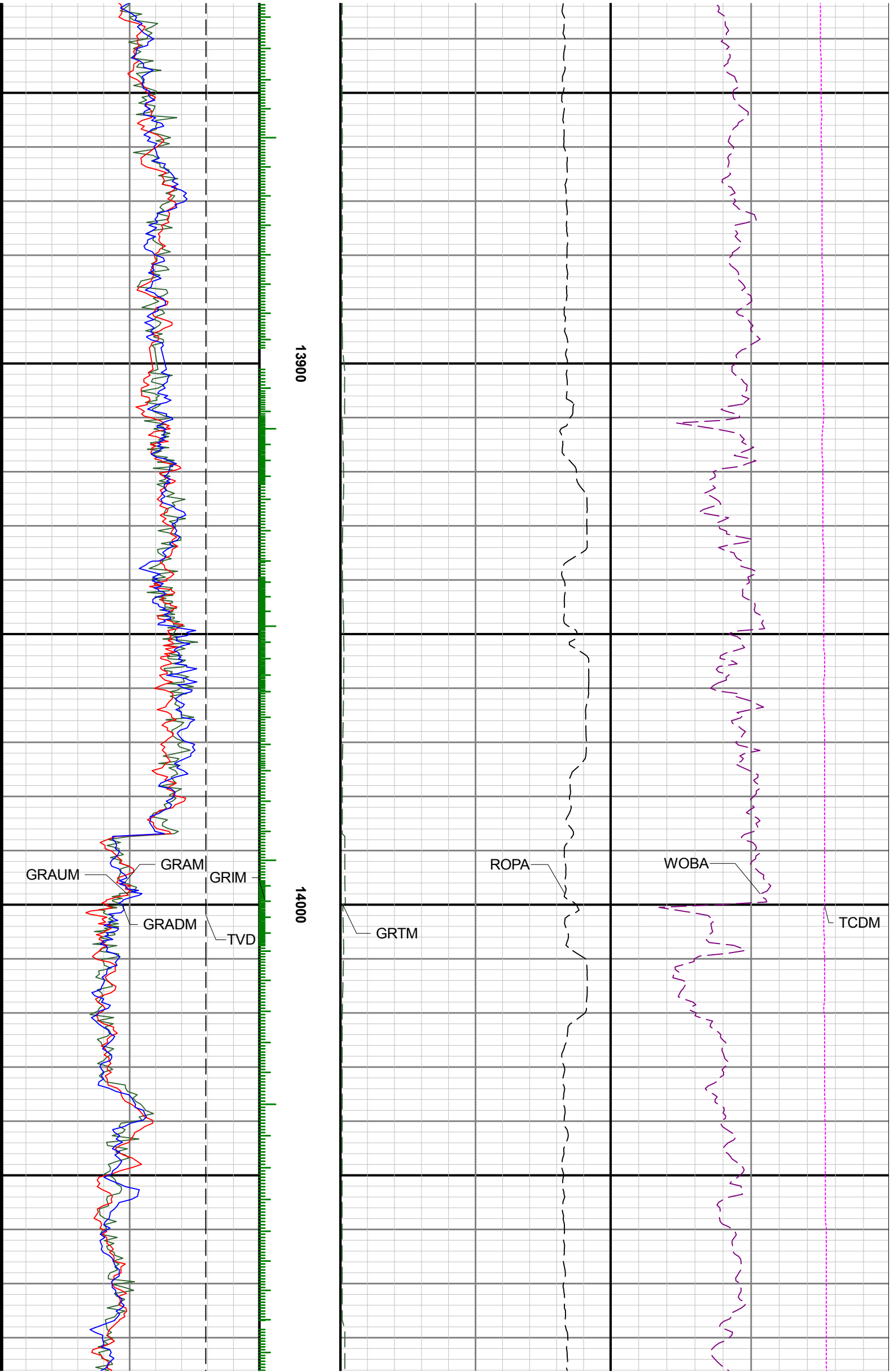
13800

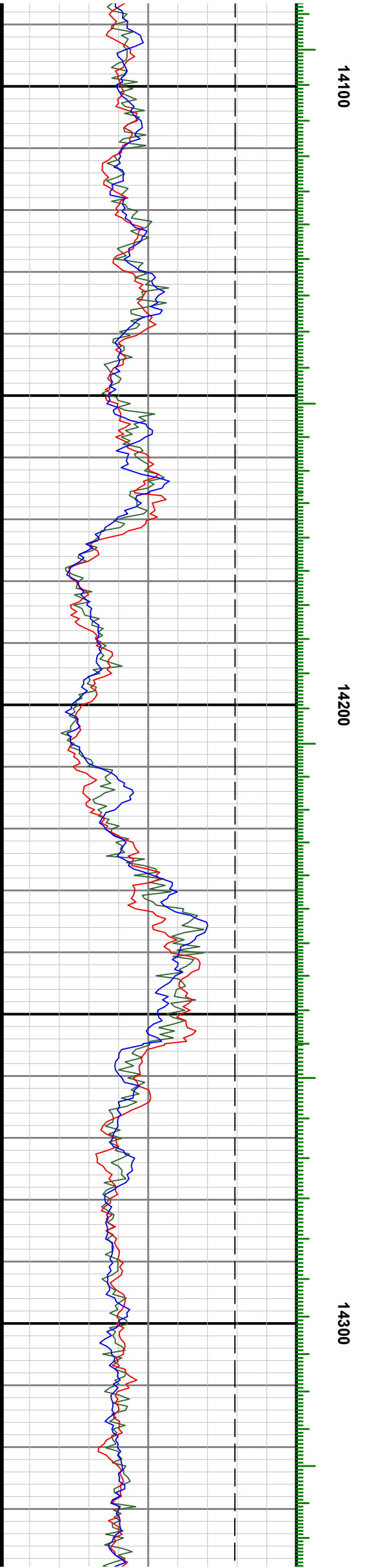
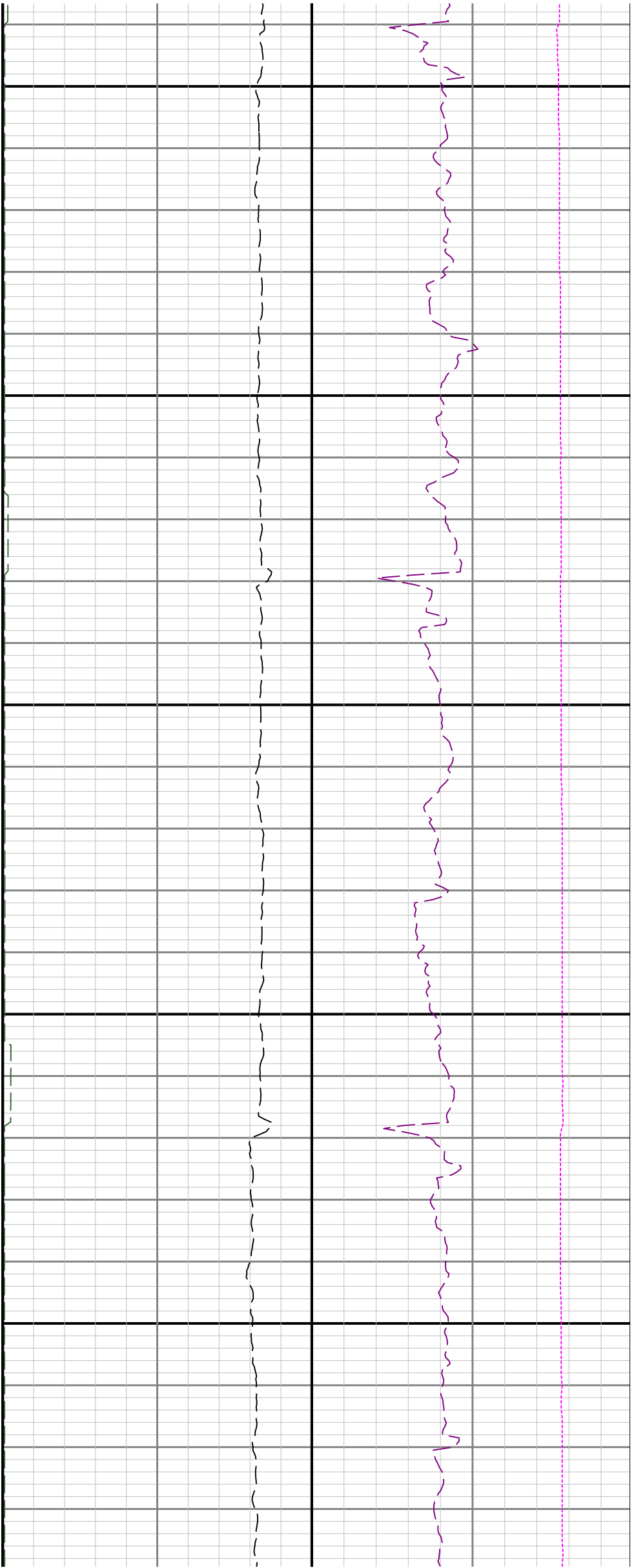


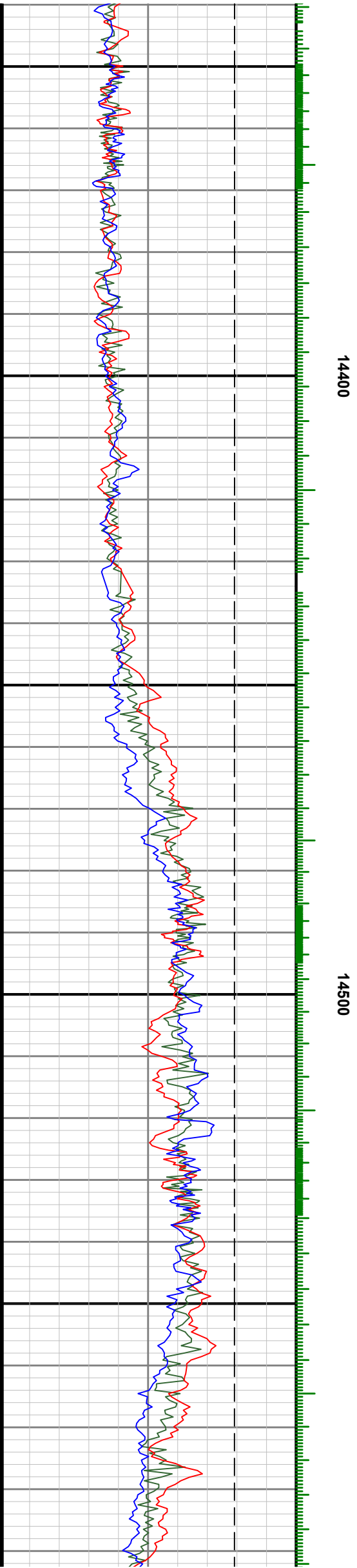
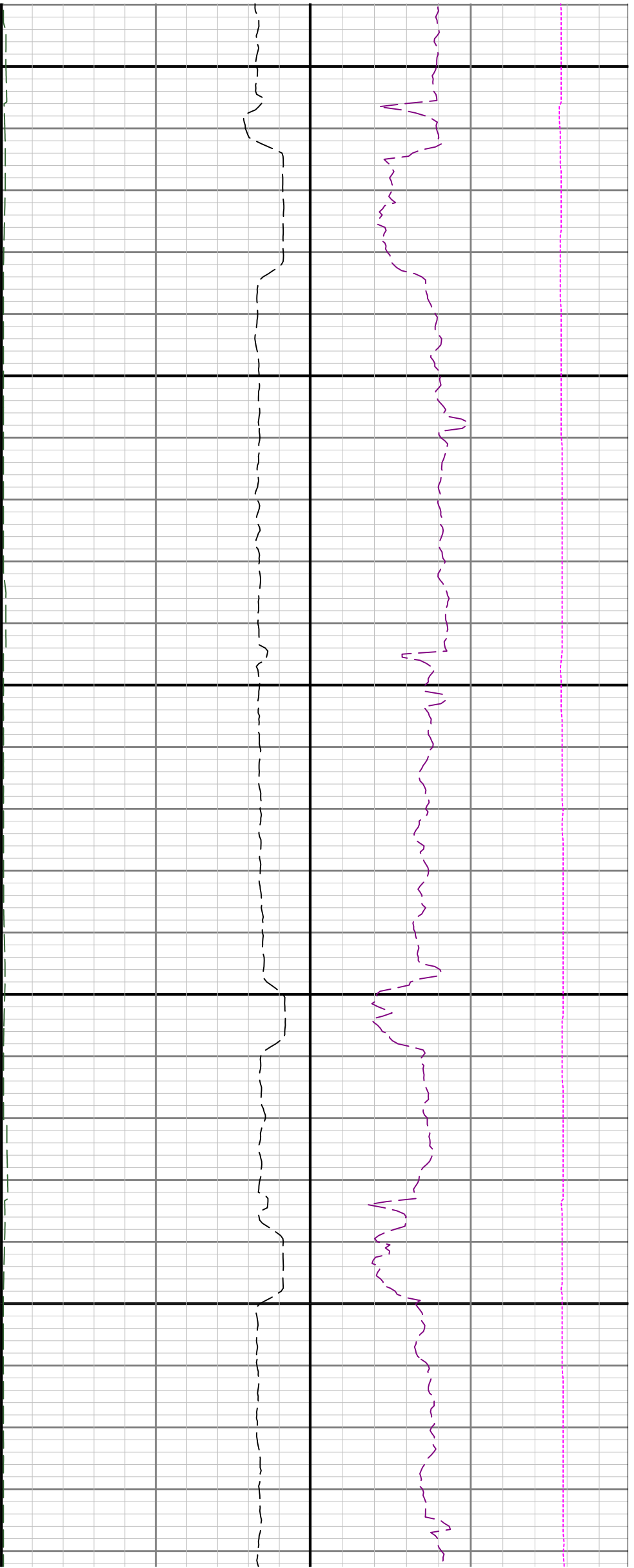
See Remark 2

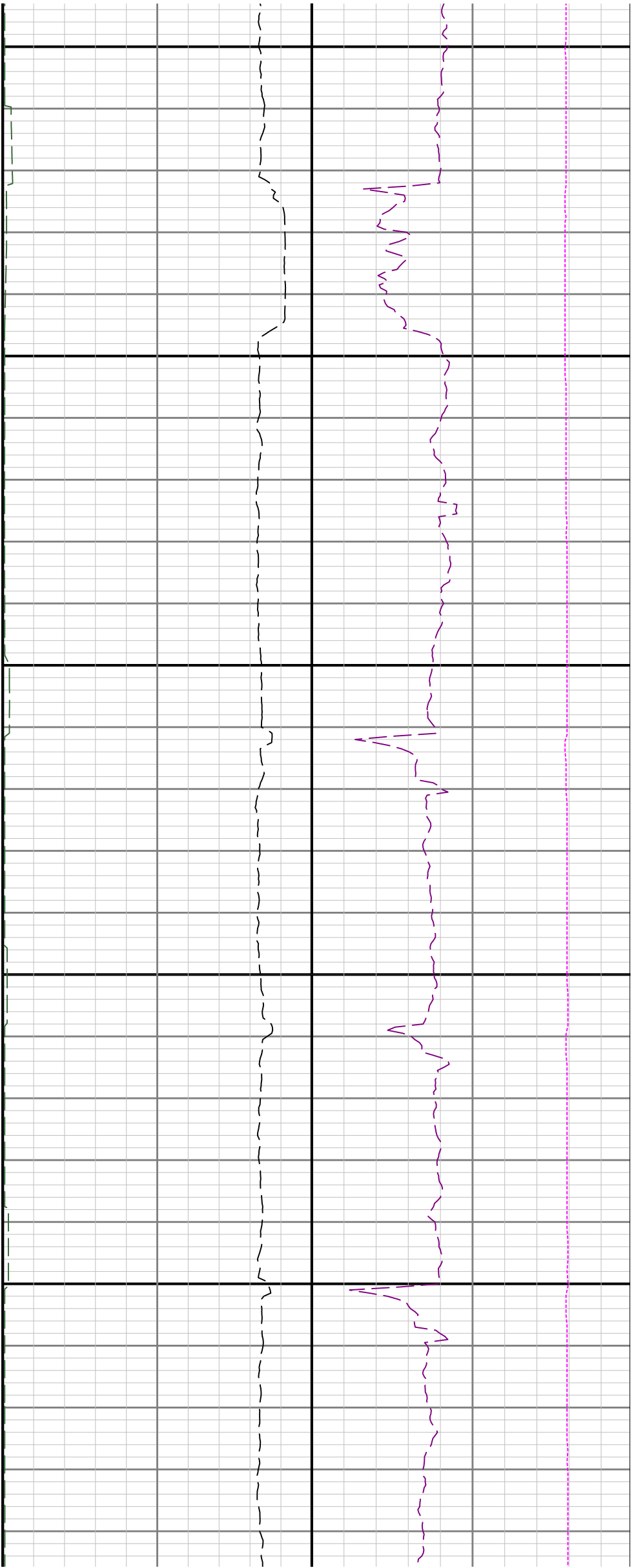
See Remark 3











14600 14700 14800

