



REALTIME LOG

Gamma Ray

REALTIME LOG						
<div>Baker Hughes a GE company</div>						Gamma Ray
Scale: 1:240 Measured Depth		Company: Anadarko Well: MAB 15-13HZ Field: Wattenburg				
Depth Reference:		County:		Country: United States		
Driller's Depth		State: Colorado				
Status:	Final Print		Surface Location:		Other Services:	
API No:	051234923200		Latitude:		040° 02' 45.046" N	
Job ID:	109687076		Longitude:		104° 45' 41.933" W	
Permanent Datum (P.D.): Ground Level		Elevation:	5113.00 ft		Elev. KB: N/A	
Log Measured From: Rig Floor		Above P.D.:	17.00 ft		Elev. DF: 5130.00 ft Elev. GL: 5113.00 ft	
Dates	Interval		Magnetic Field Reference			
From: 2019-05-17	Drilled (ft)	Logged (ft)	Azi Reference North:		True Dip Angle: (deg)	66.31
To: 2019-05-22	Top: 1868.00	Top: 1868.00	Total Magnetic Field Strength: (nT)			52162
Sput: 2019-05-17	Bottom: 18741.00	Bottom: 18699.00	Mag to Reference North Correction: (deg)			7.93
Borehole Record						
Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
13.500	17.00	1868.00	9.625	25.00	17.00	1858.00
7.875	1868.00	18741.00				
Mud Record	Deviation Record					
Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc Az (Start)	Inc Az (End)
Diesel-Oil Based Mud	1868.00	18741.00	7.875	16873.00	13.60 351.36	93.05 178.21
Acquisition System	Software Version		Other			
Baker Hughes Cadence Plot Studio	RT 5.1 5.1.8355.1	Rig: Contractor: District:	Akita 522 Akita Drilling RMA		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
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	7.875	PDC	3.00	Steerable	1868.00	18699.00	1868.00	18741.00	2019-05-17 15:27	2019-05-22 21:43	98.08

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Joshua Monroe	2019-05-17	2019-05-19	Teni Onafowokan	2019-05-17	2019-05-23	John Mason	2019-05-20	2019-05-23

Mud Properties Record

Date / Time	Run No.	Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2019-05-16 06:51	1	1880.00	Diesel-Oil Based Mud	9.5	15	N/A	N/A	69/20	Active Pit	32000	0.00
2019-05-18 07:00	1	6455.00	Diesel-Oil Based Mud	9.0	14	N/A	N/A	69/22	Active Pit	32000	0.00
2019-05-19 18:00	1	13238.00	Diesel-Oil Based Mud	8.9	16	N/A	N/A	67/24	Active Pit	34000	0.00
2019-05-20 07:00	1	15289.00	Diesel-Oil Based Mud	9.1	17	N/A	N/A	67/23	Active Pit	33000	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	NaviGamma	12366178	Gamma (single)	11.89	42.24	6.500	3.250
1	NaviGamma	12366178	Directional (mag)	15.31	45.66	6.500	3.250
1	NaviGamma	12366178	VSS	15.31	45.66	6.500	3.250

Service and Tool Mnemonics

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


Comments

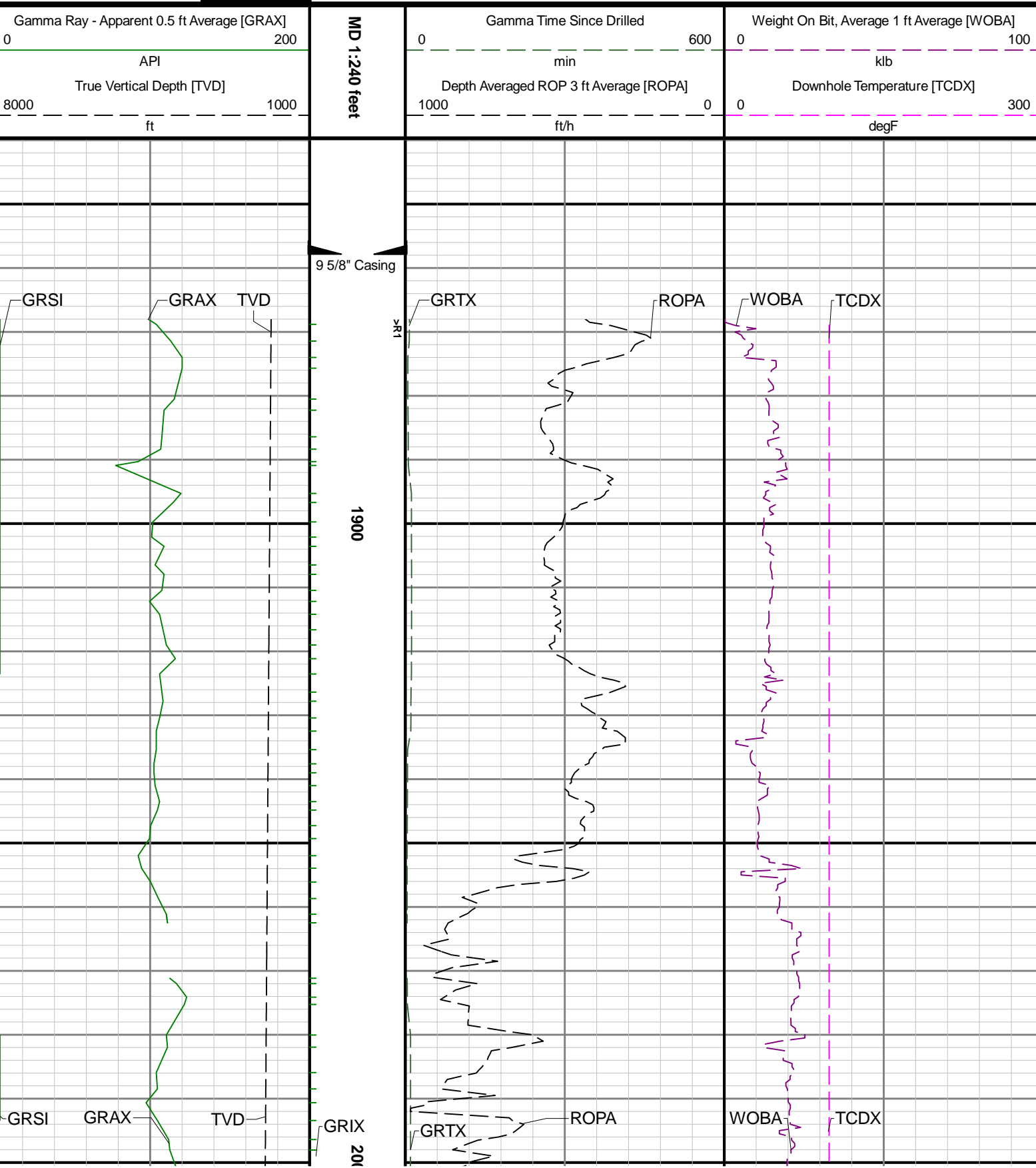
- 1 Depth measurements were obtained from a depth control system not supplied by Baker Hughes. Due to lack of control by Baker Hughes logging engineers depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to represent logging data.
- 2 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

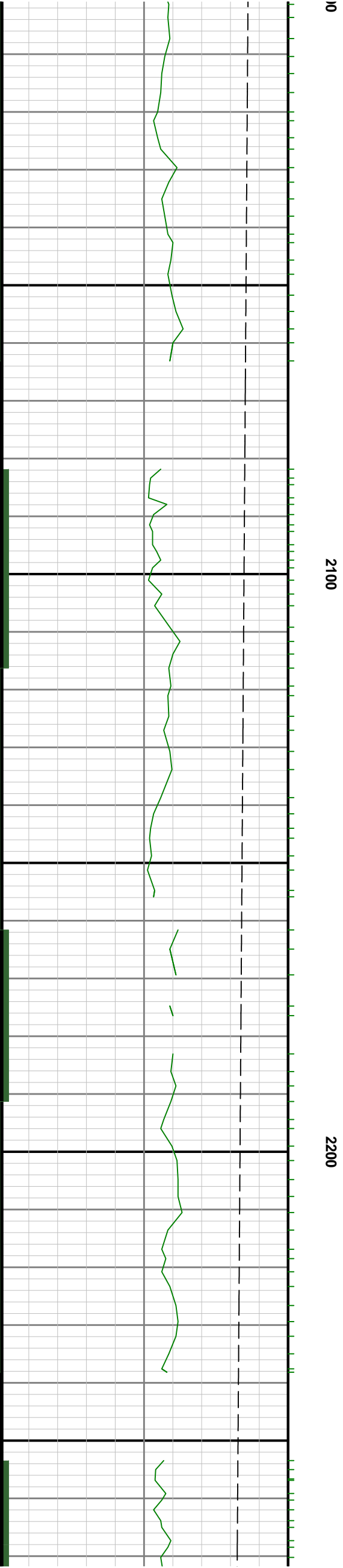
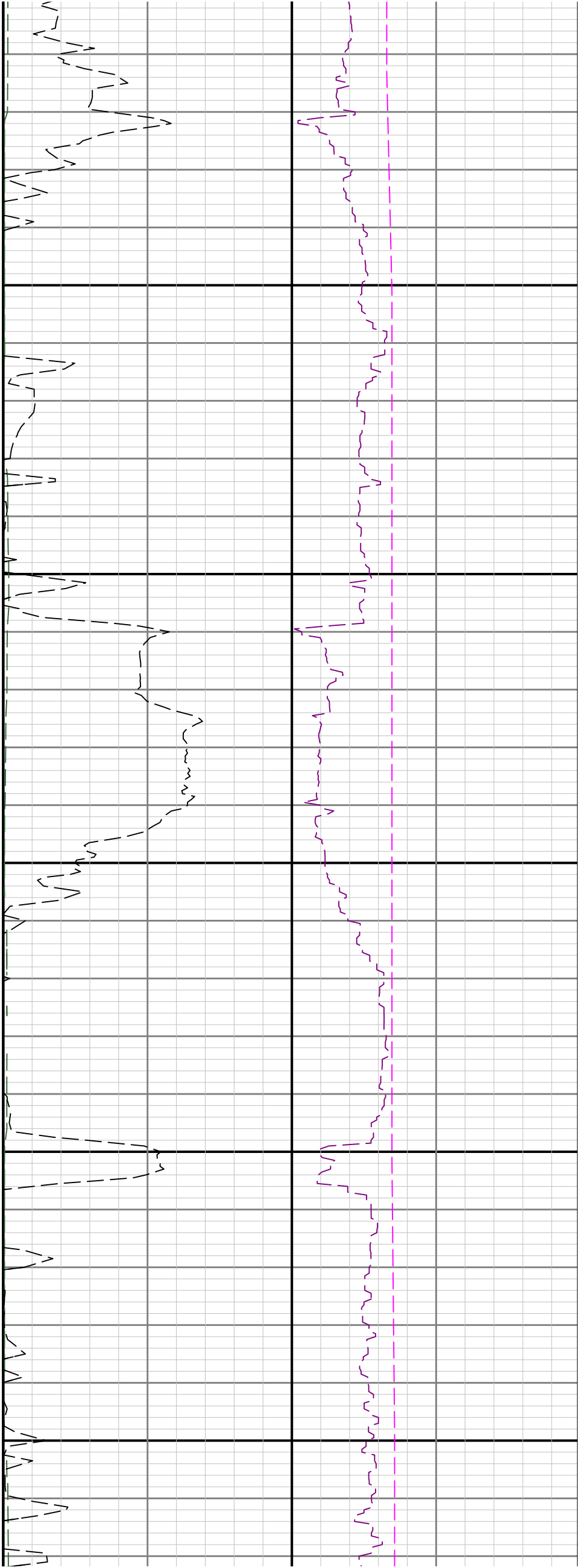
3 Gamma Ray data acquired while sliding
Baker Hughes run 1 utilized 6 1/2 inch Navigamma services (Directional and Gamma Ray) behind a 7 7/8 inch bit and steerable assembly from 1868 to 18741 feet MD (1844 to 7528 feet TVD).
4 Gamma Ray (GRAX) scale is presented from a 0 to 200 API scale at the request of the customer.
5 Numerous gaps are present throughout the log due to surveying while on bottom drilling ahead.

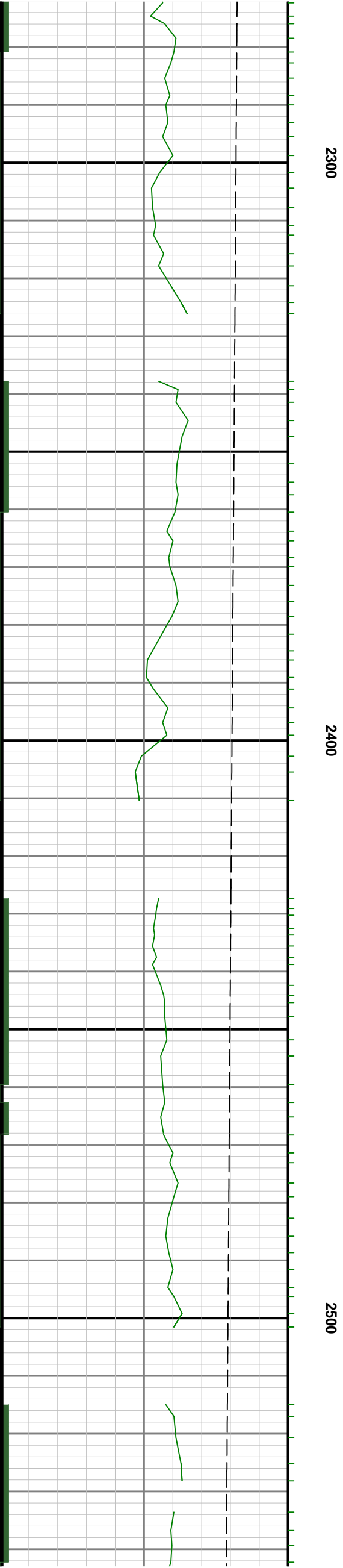
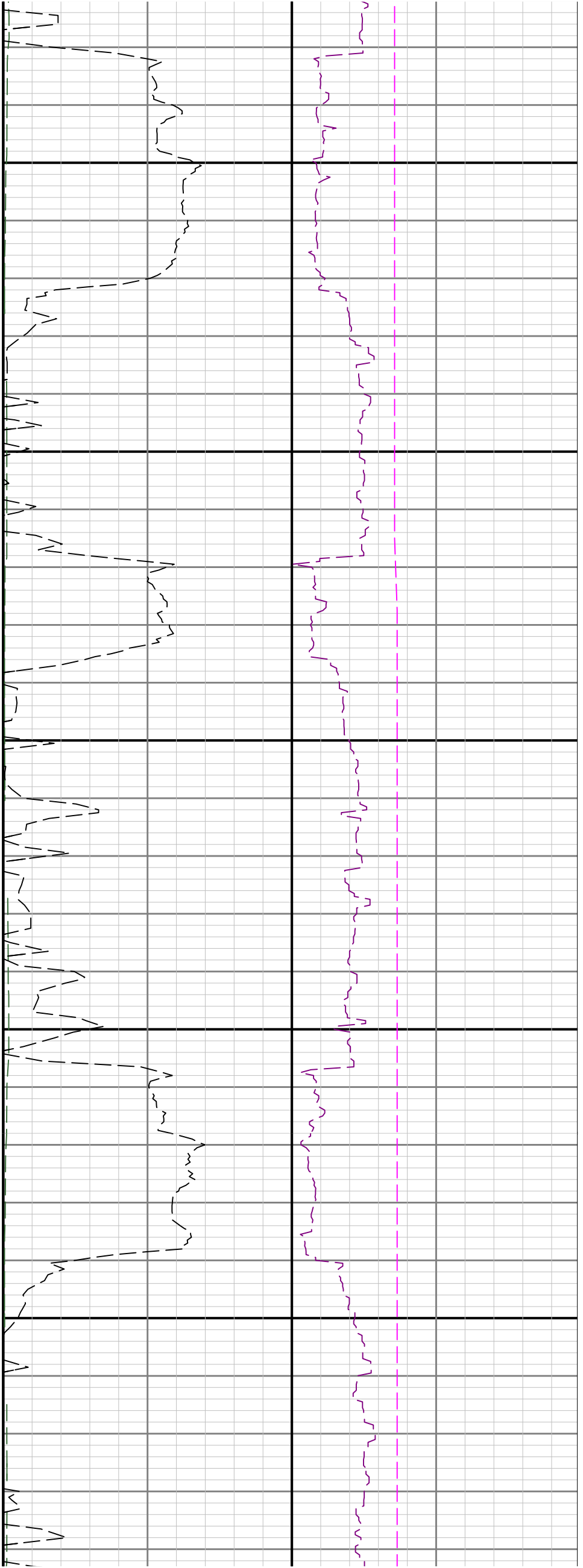
Remarks				
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	18710.00	7.875	1	The interval from 18699 to 18741 feet MD (7528 feet TVD) was not logged due to sensor to bit offset at well TD.

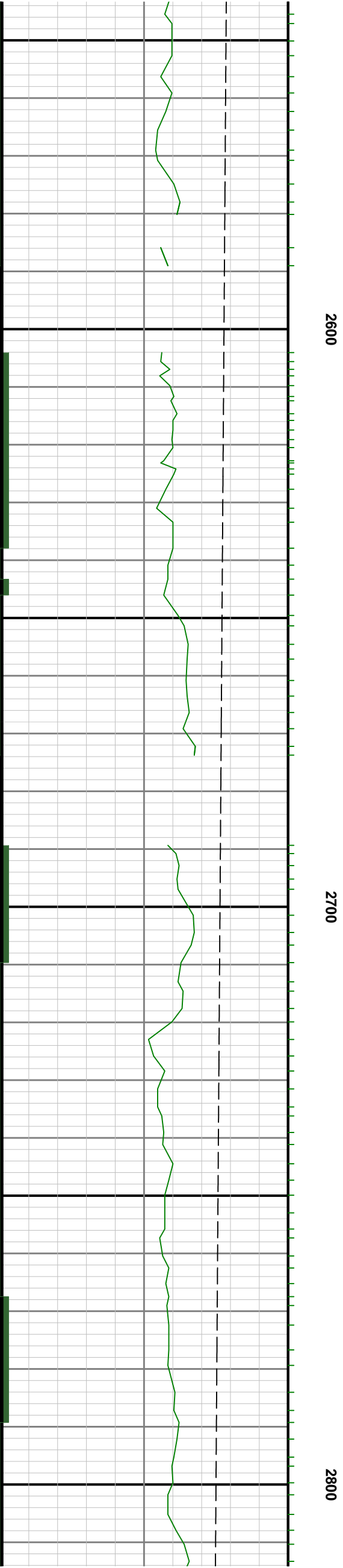
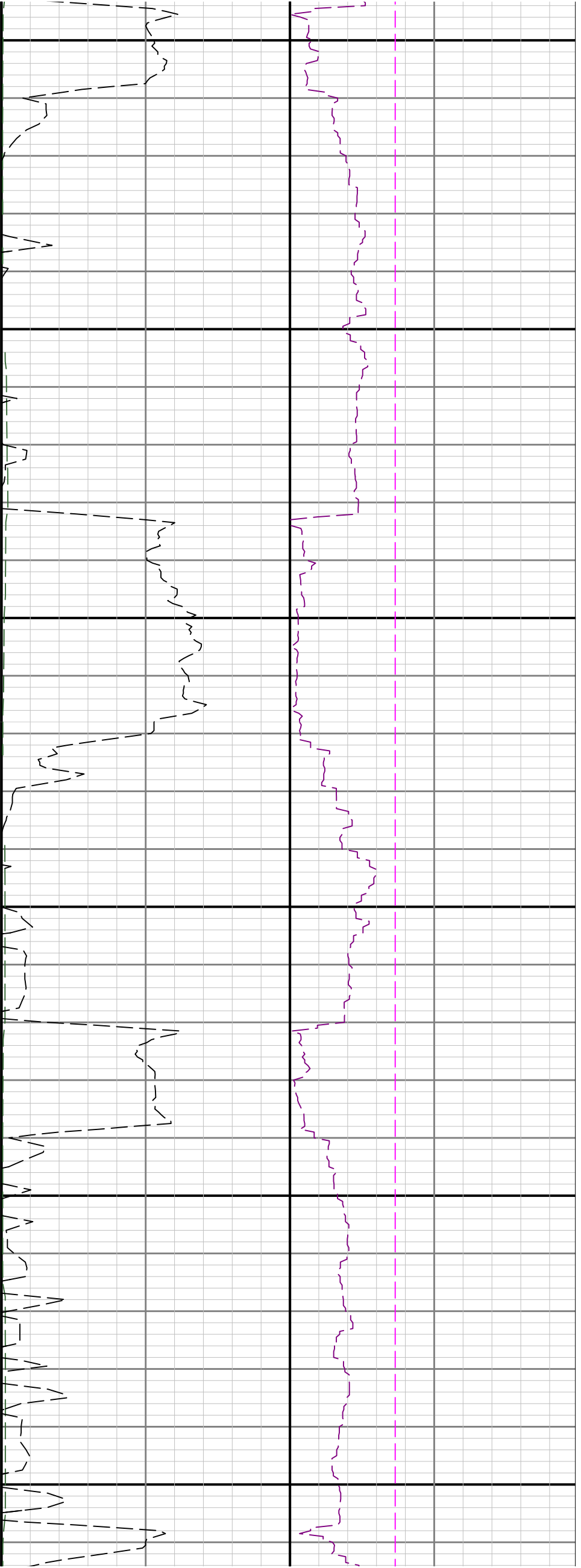
Curve Mnemonics		
Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	Gamma Ray - Data Point Indicator - Real-Time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

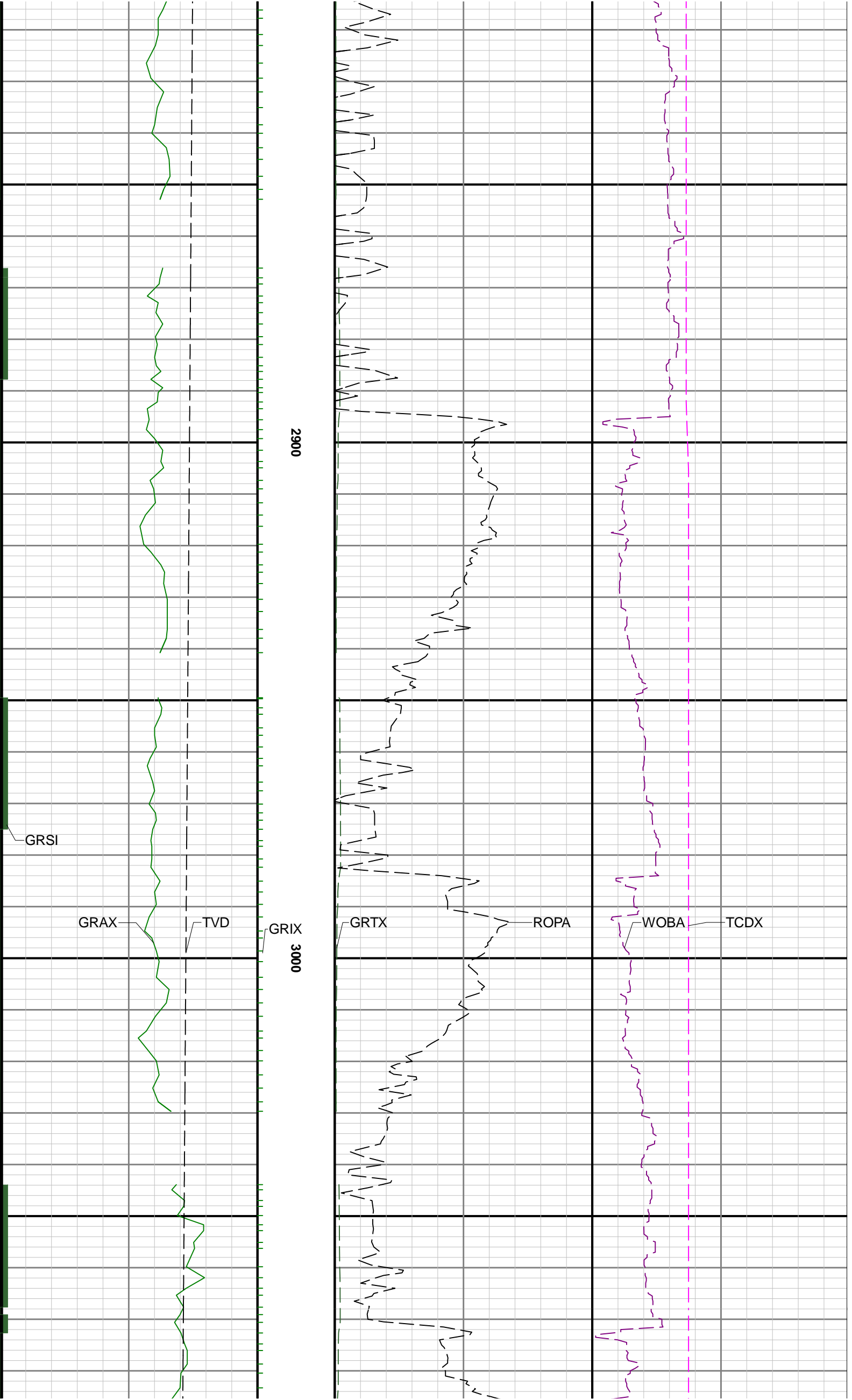
<div><div>BAKER HUGHES</div><div>a GE company</div></div> <div></div>	Company	Anadarko				
	Well	MAB 15-13HZ				
	Interval	Date From:	2019-05-17 12:13	Interval Drilled: (ft)	1868.00	- 18741.00
		Date To:	2019-05-22 21:43	Interval Logged: (ft)	1868.00	- 18699.00
		Created	2019-05-23 00:52:31			

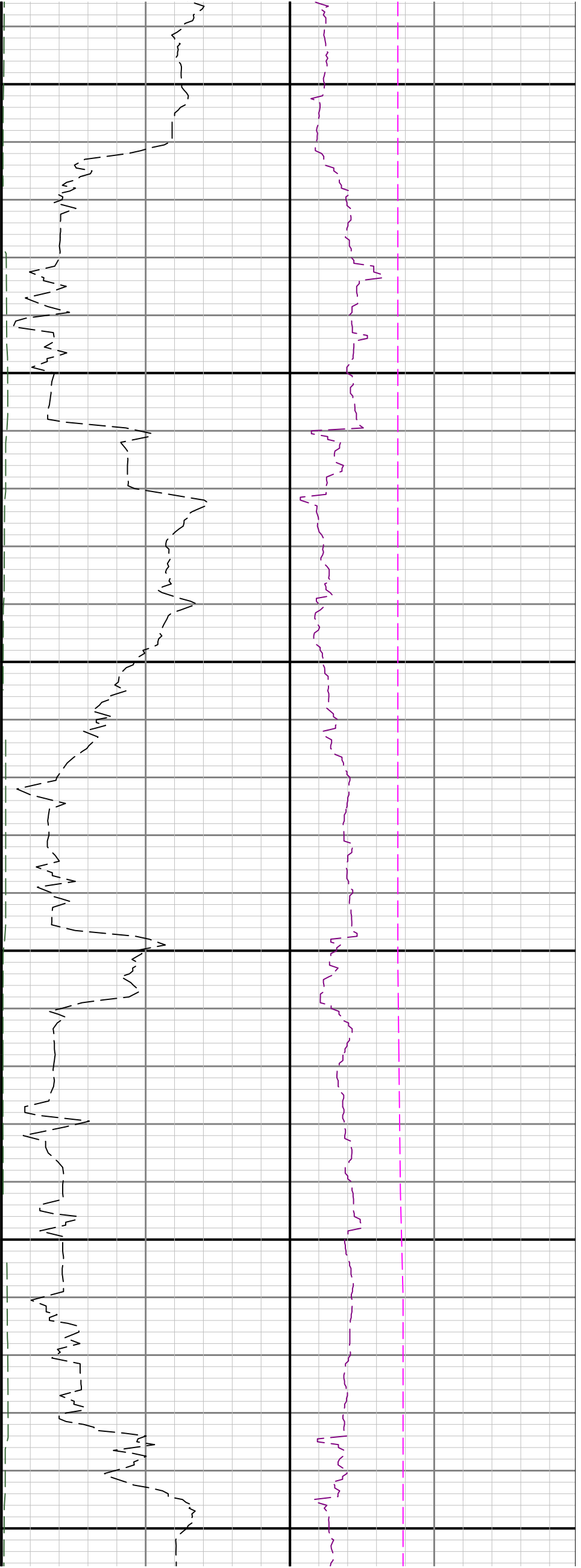








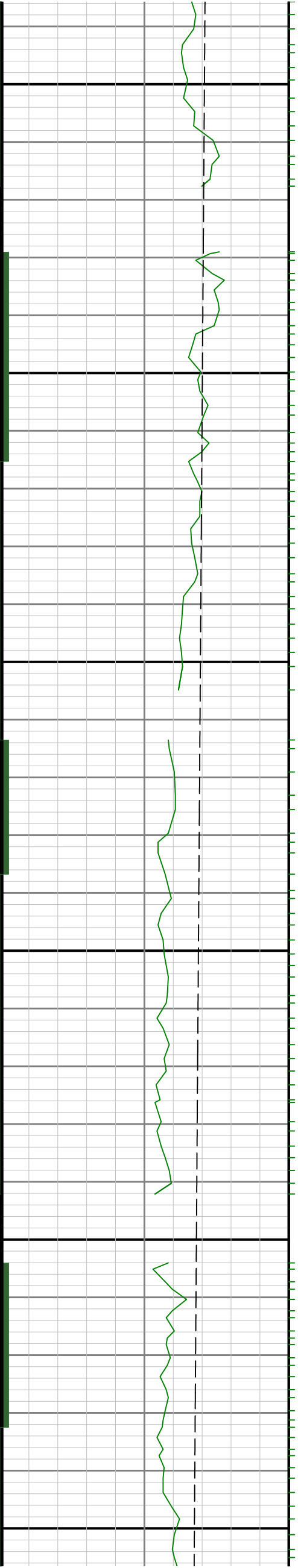


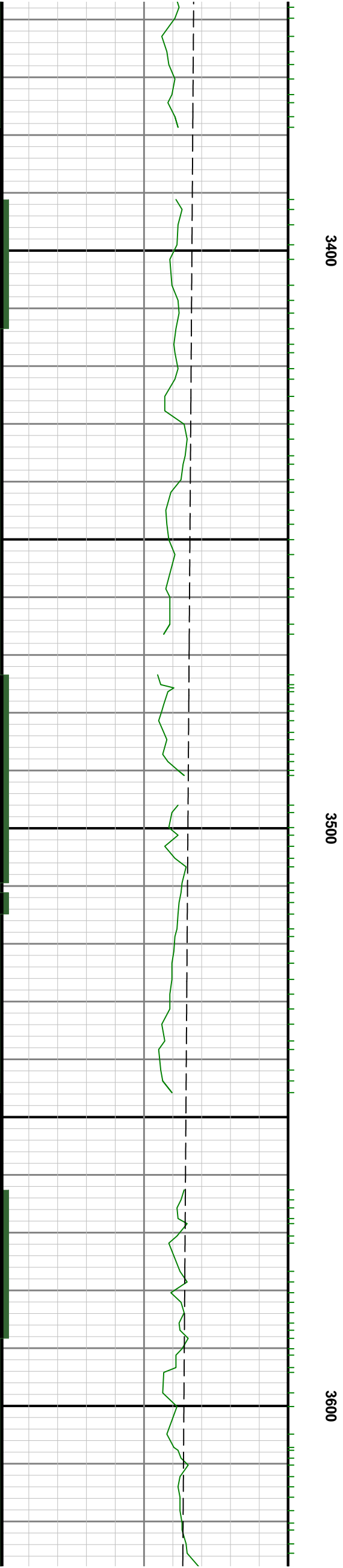
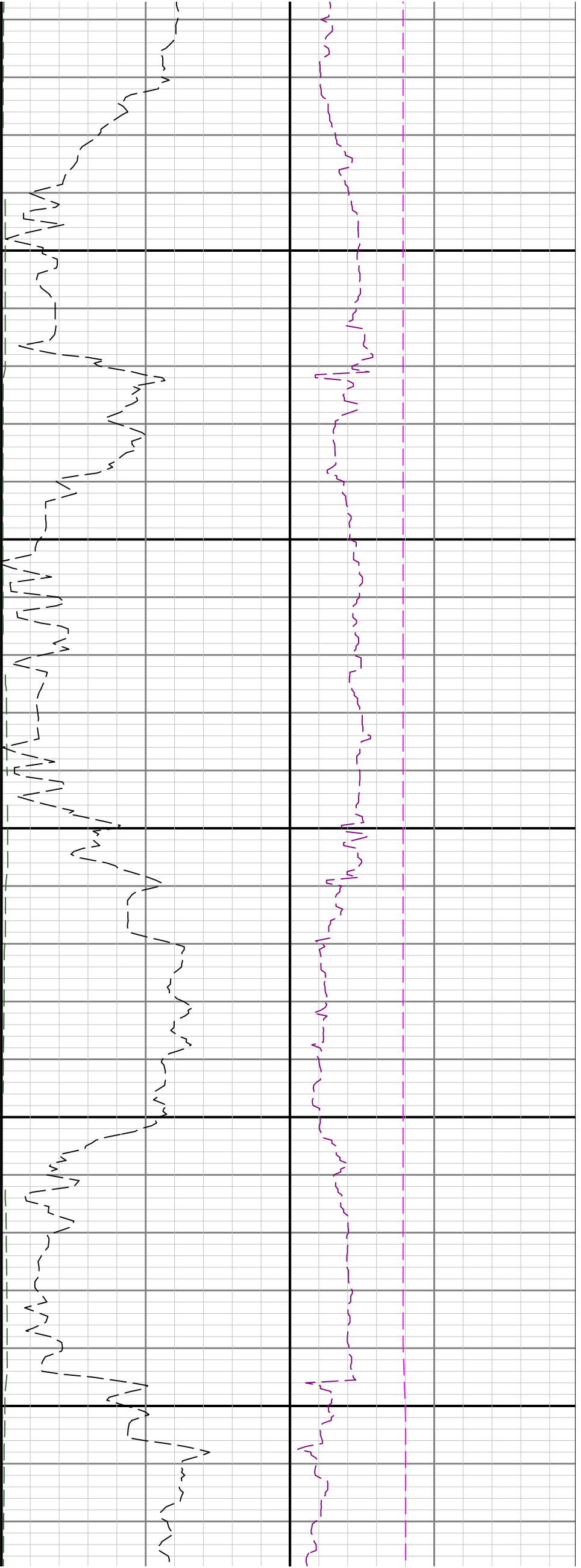


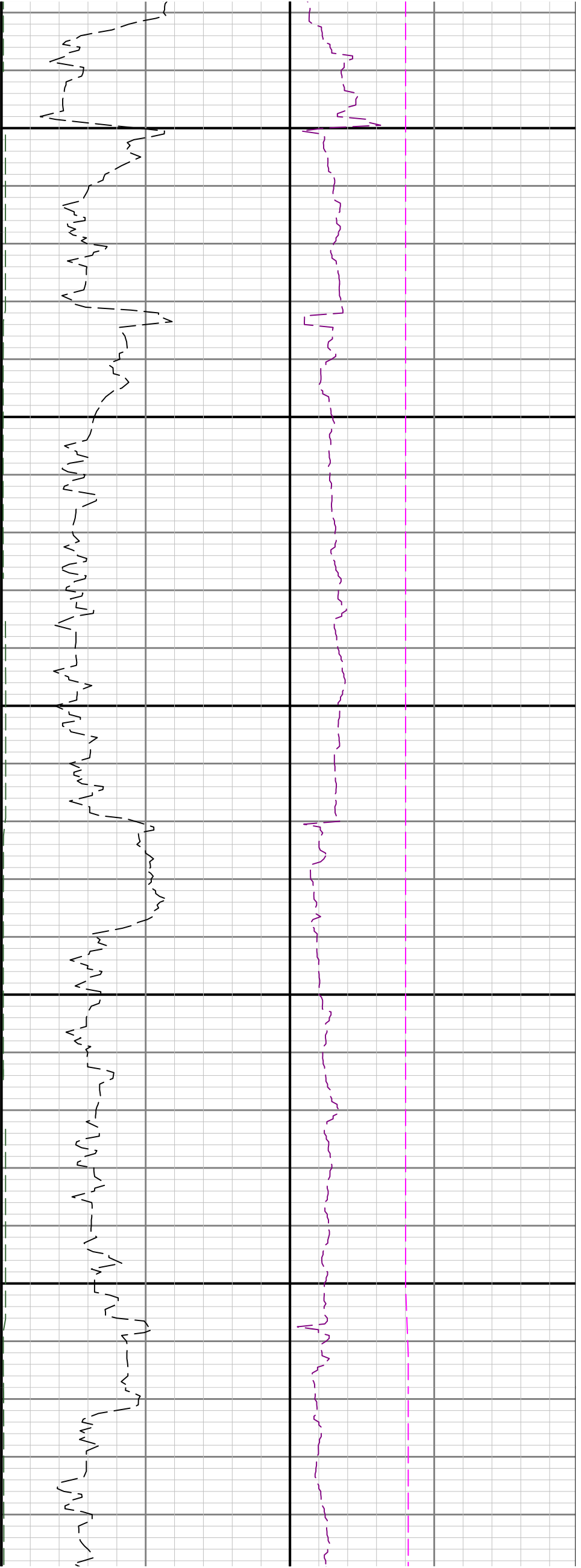
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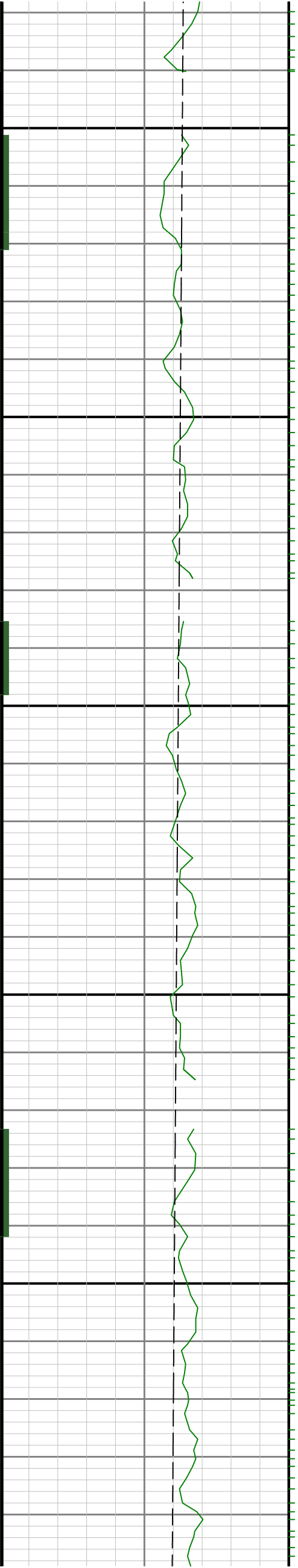


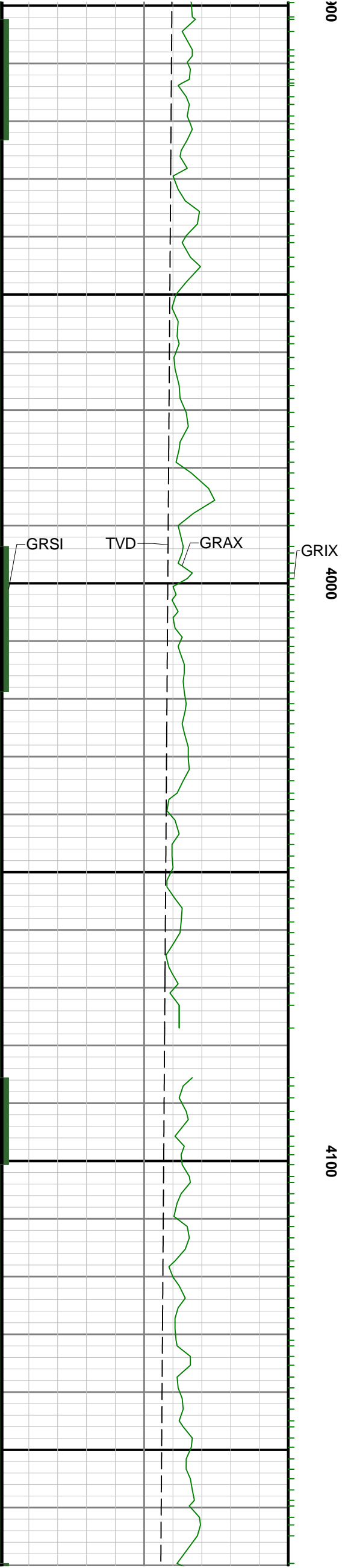
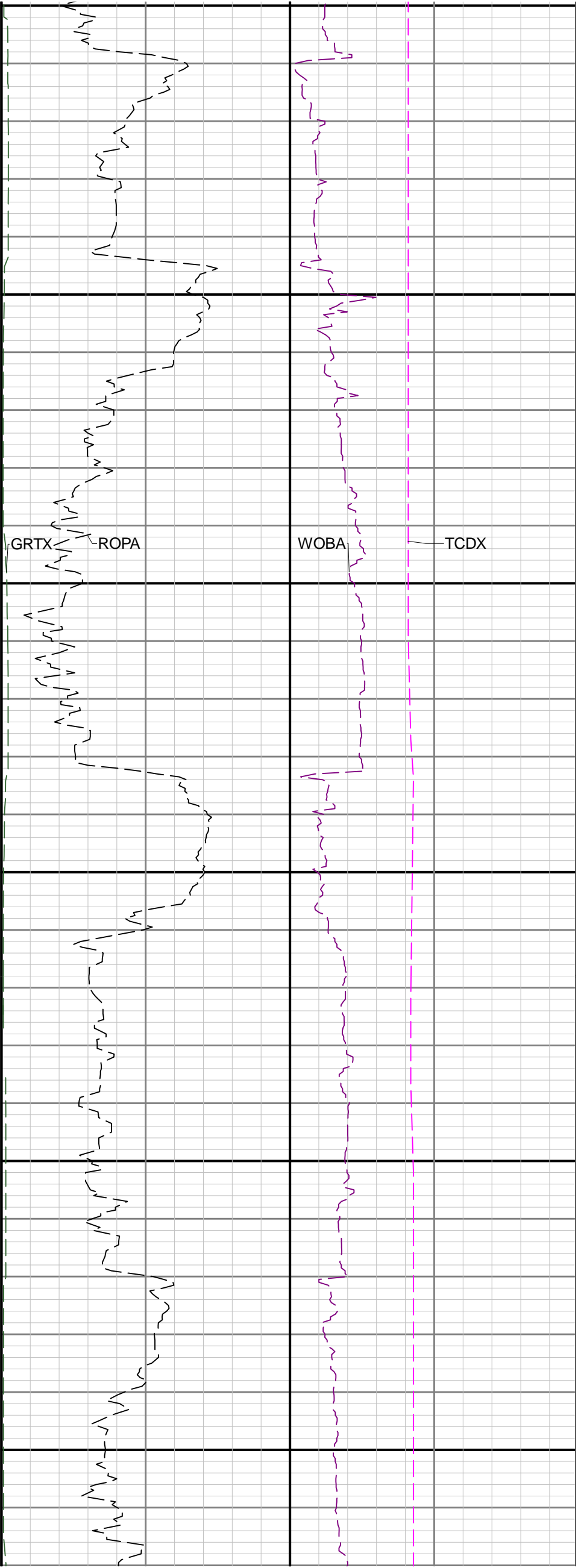


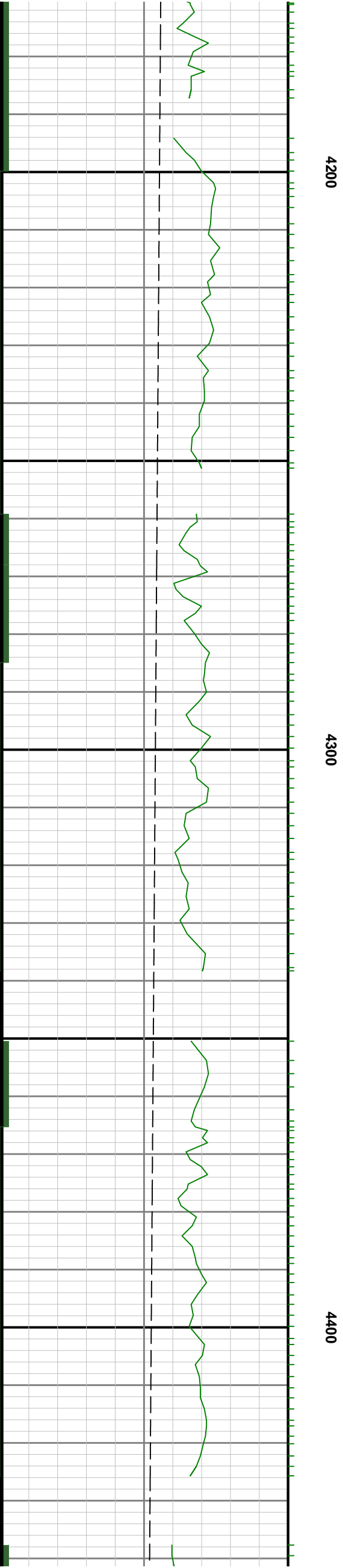
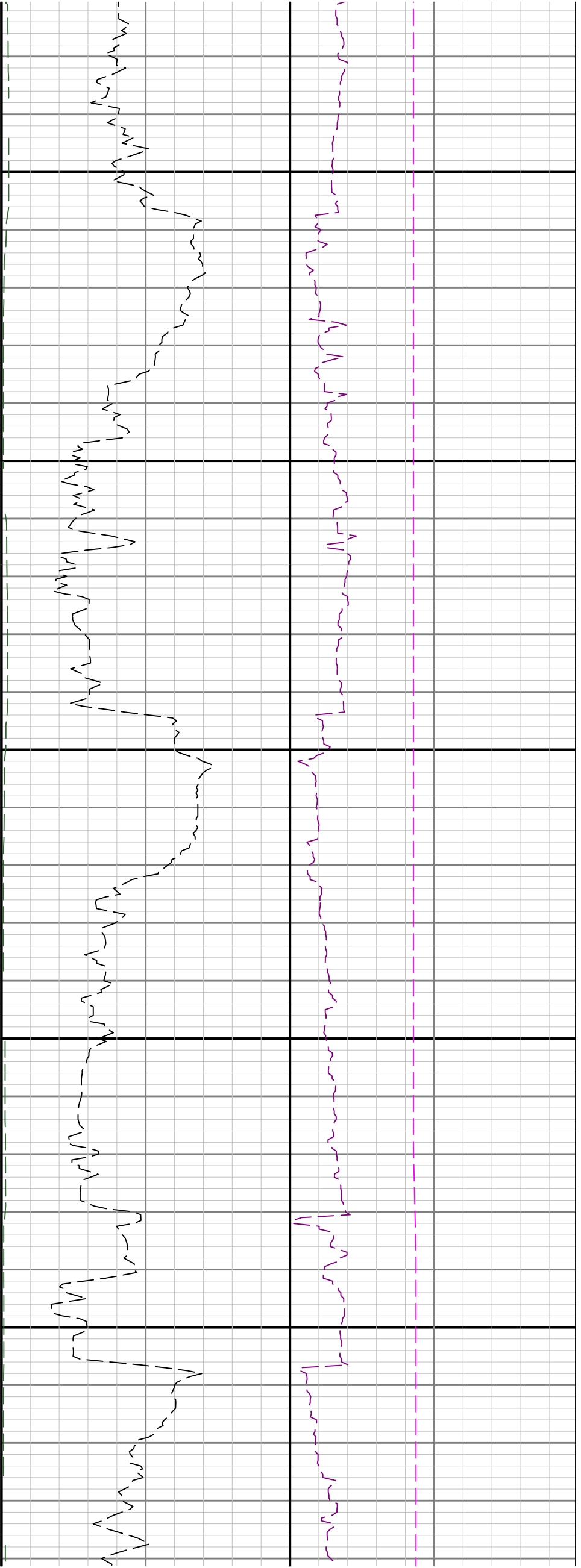
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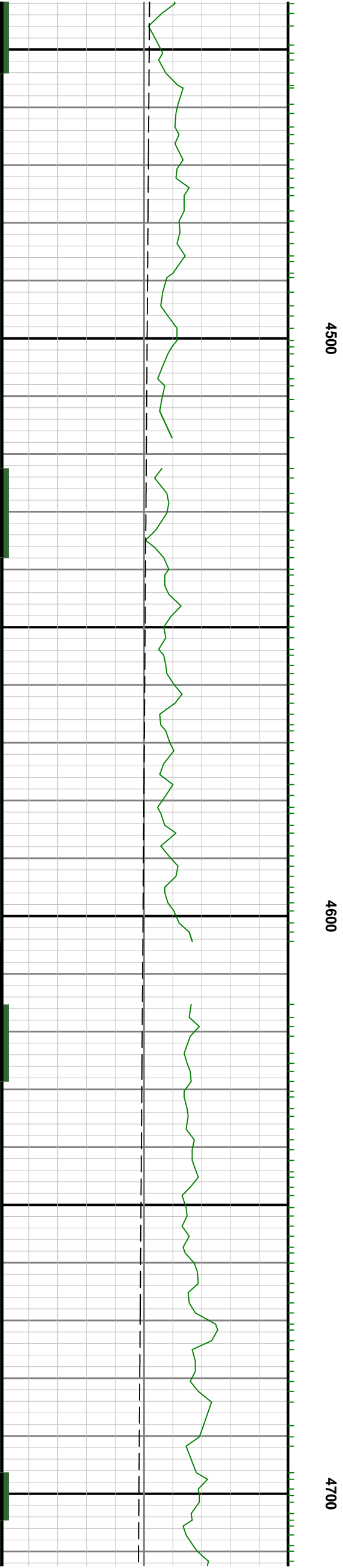
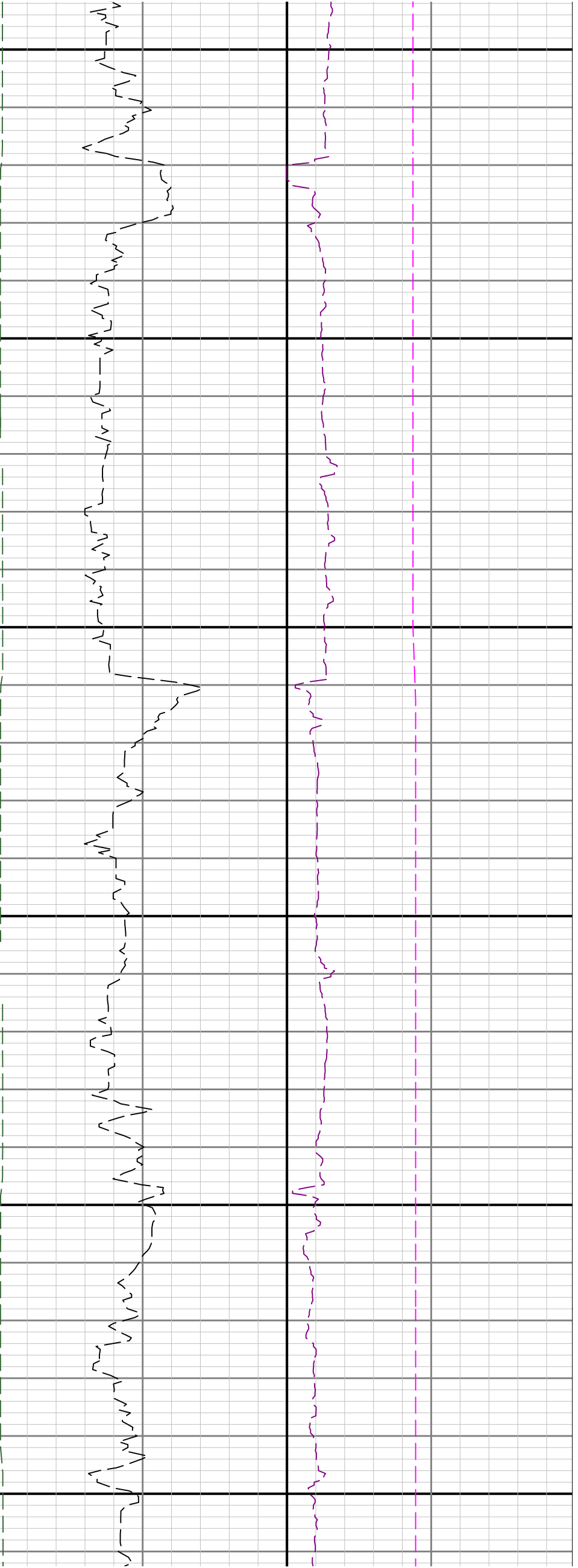
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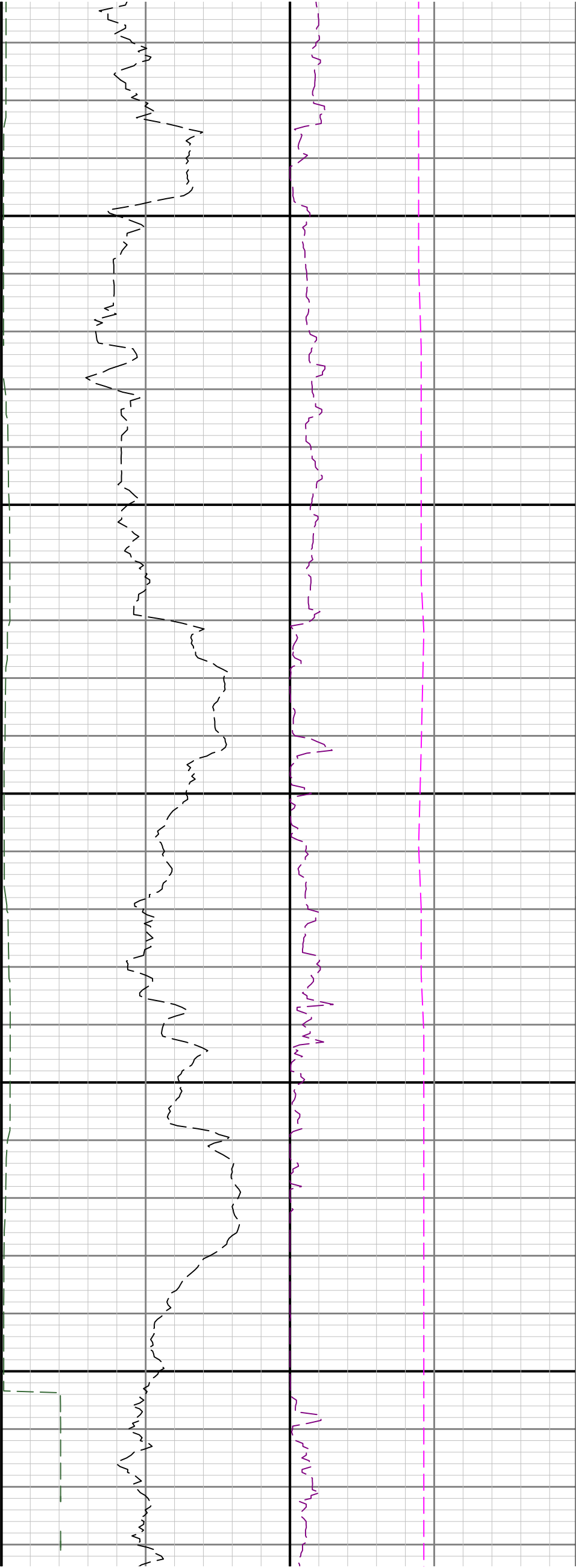
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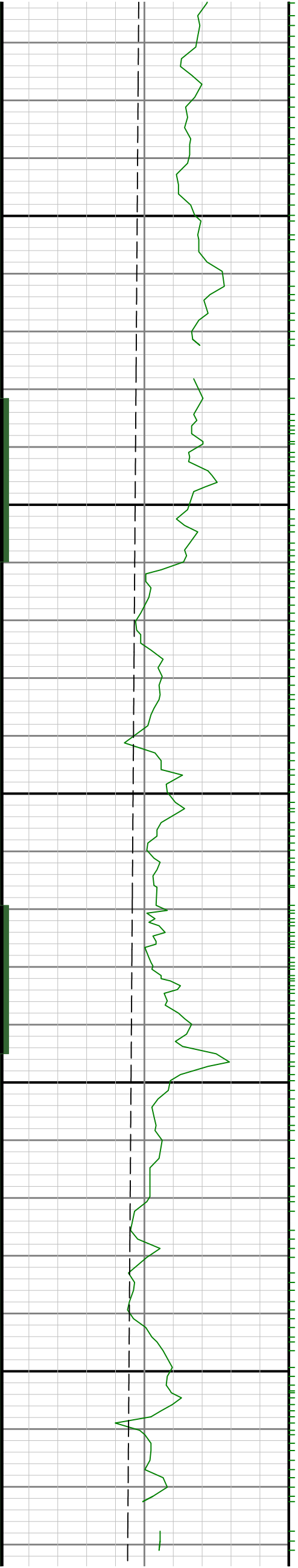


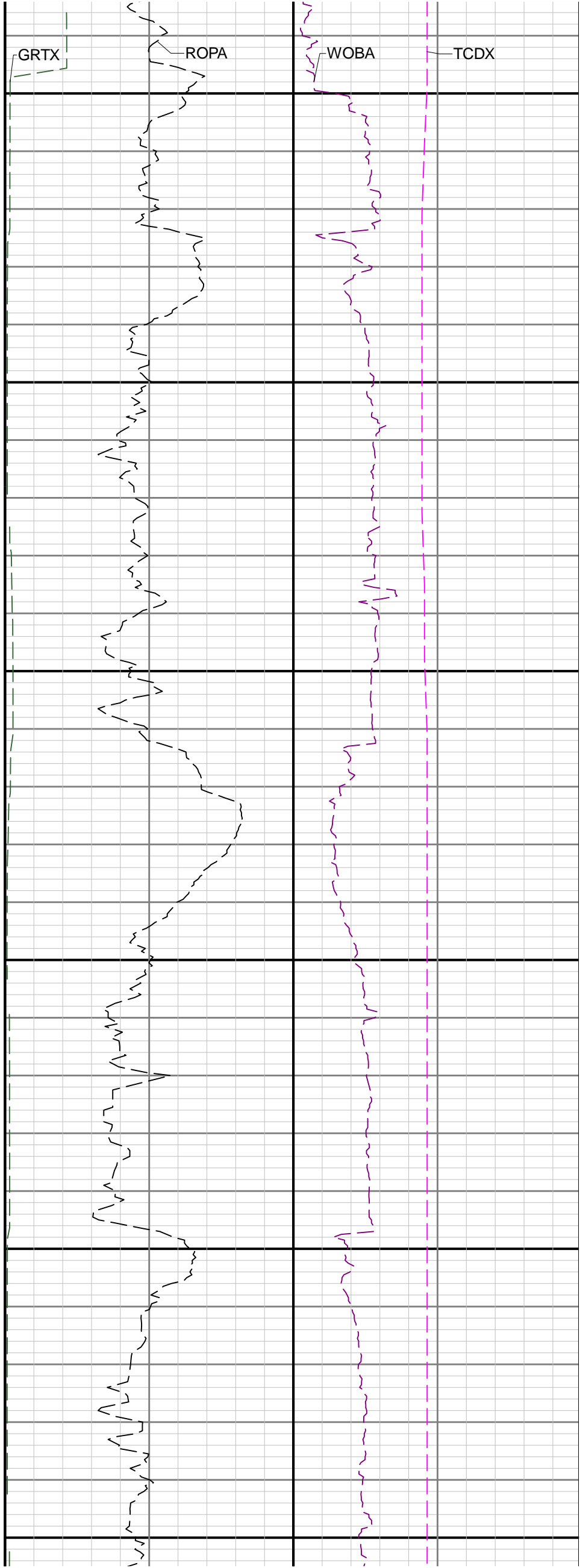
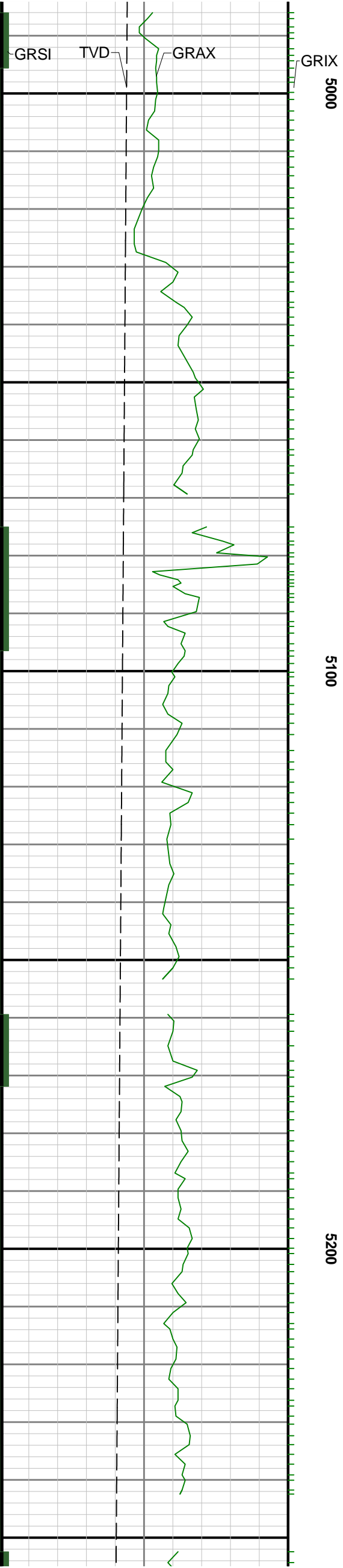


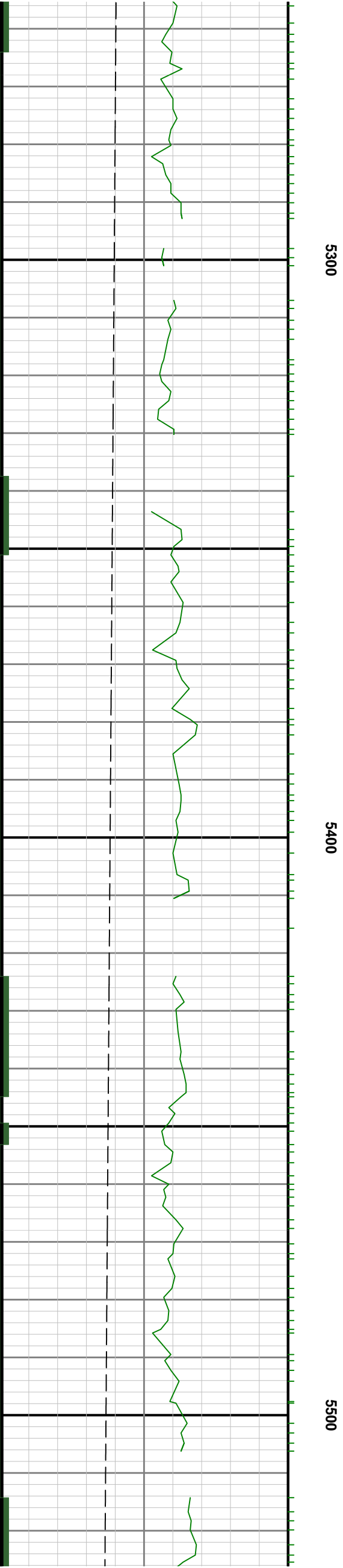
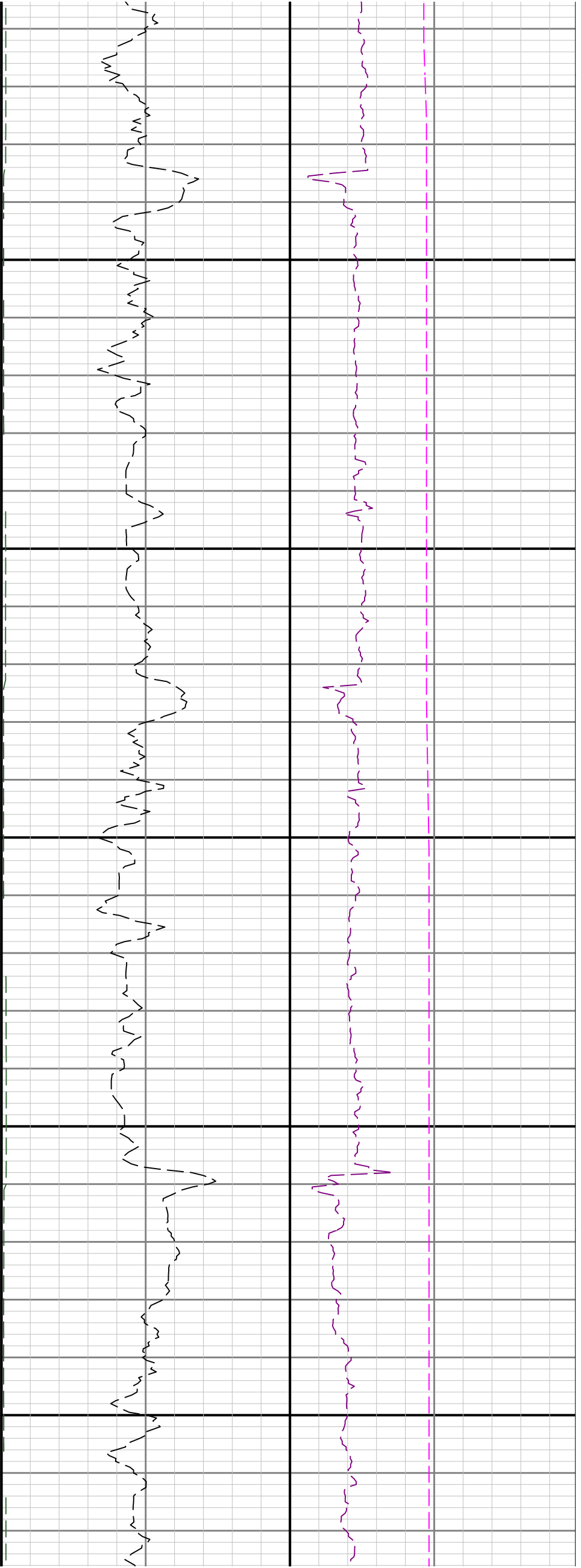


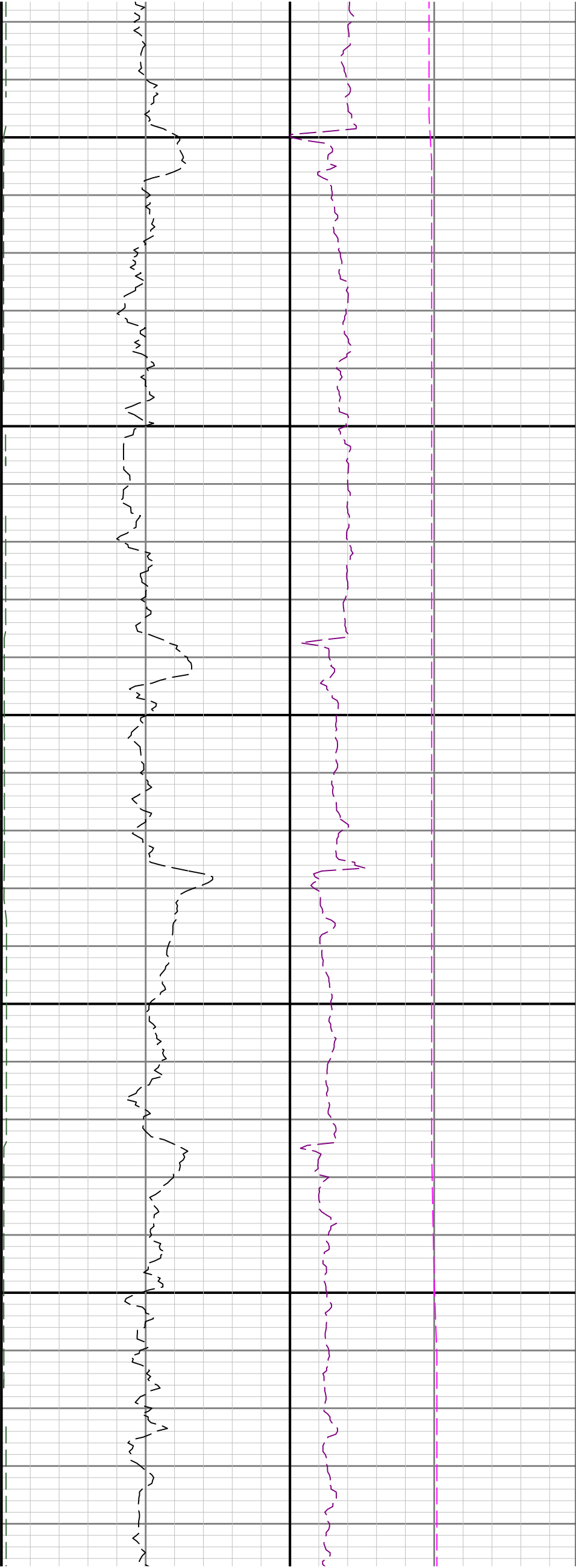
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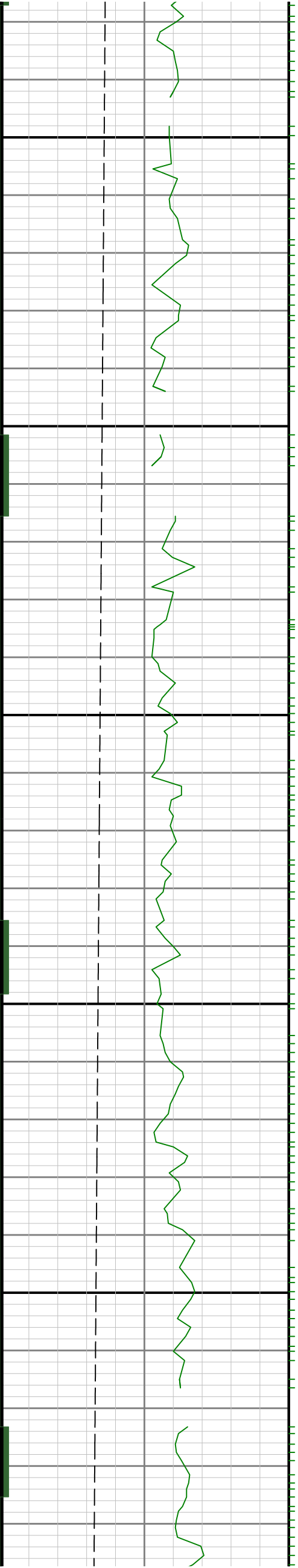


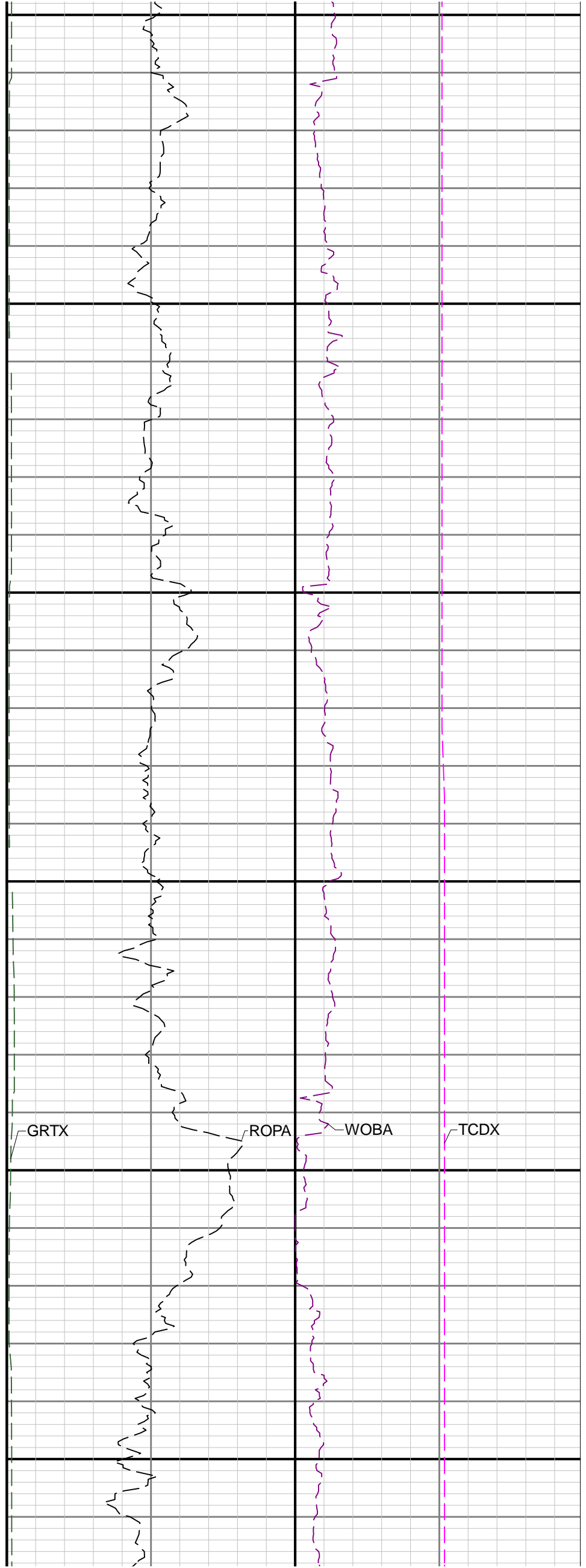
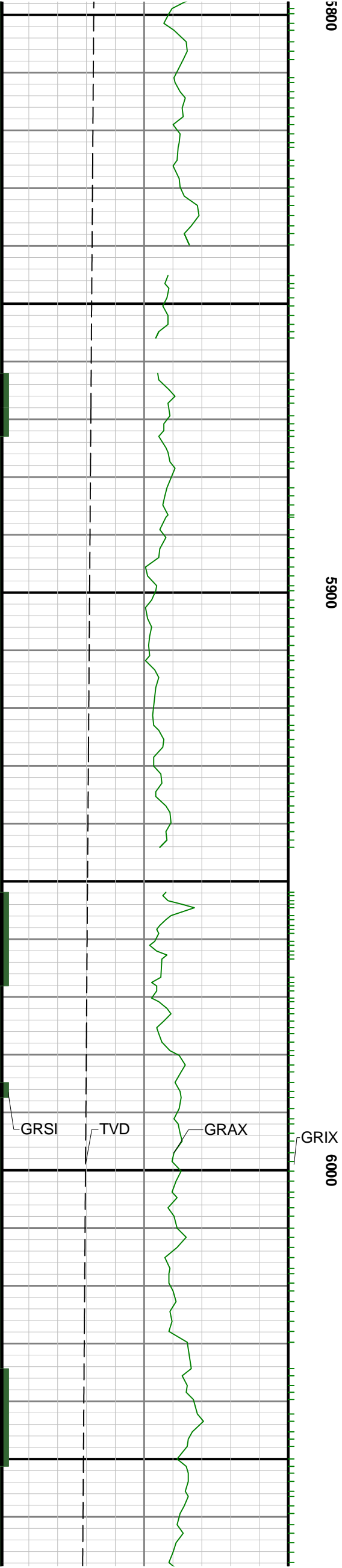


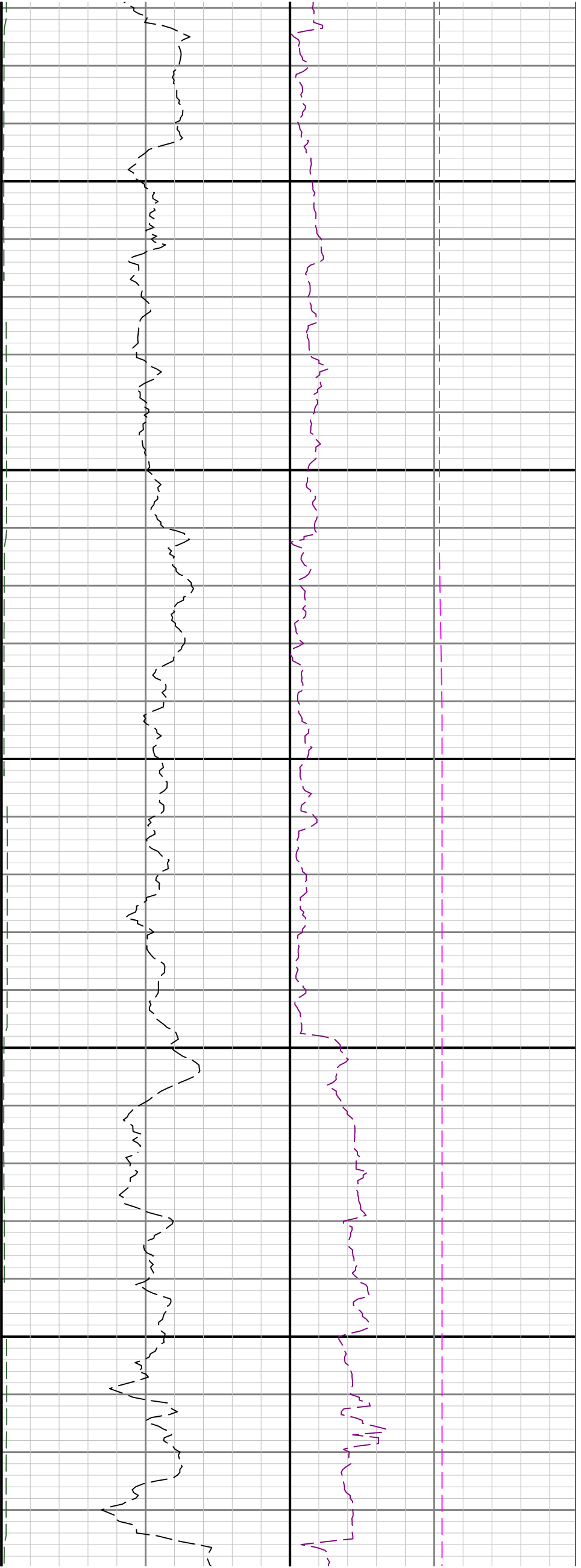


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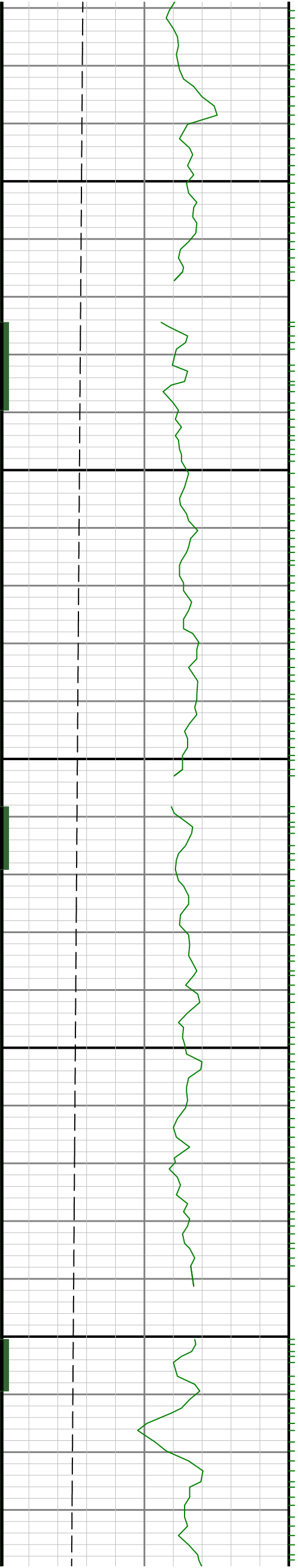


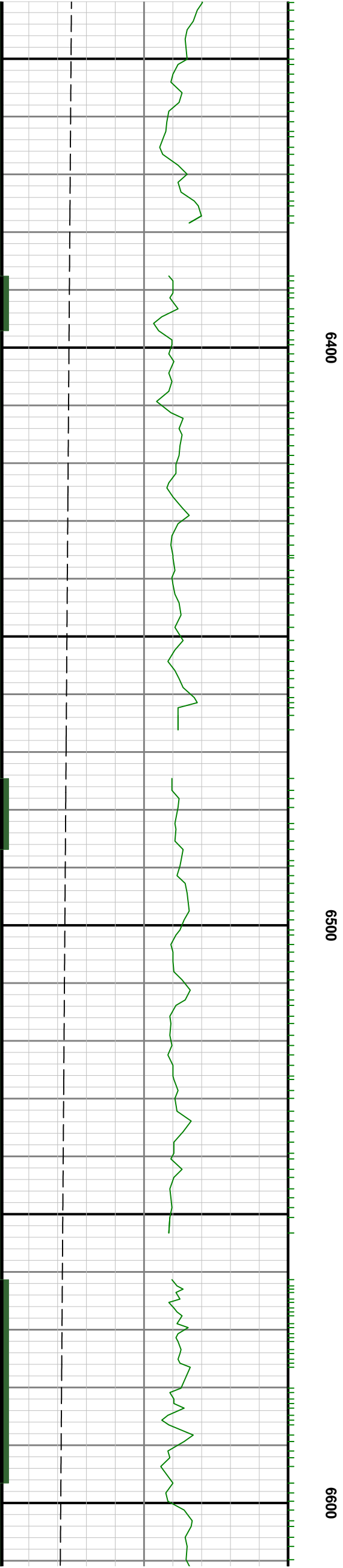
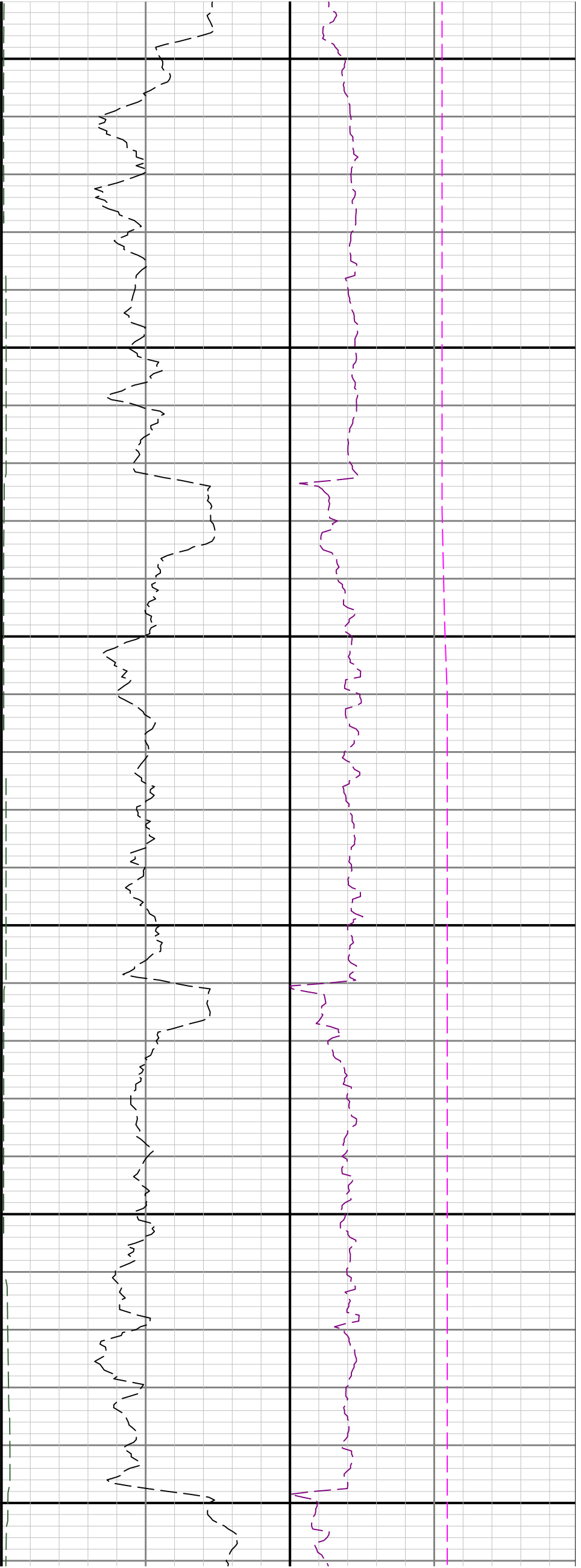


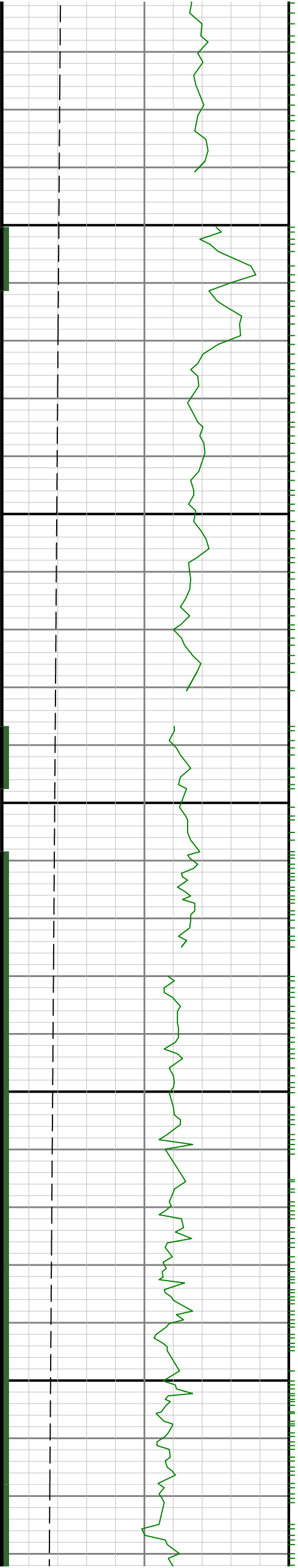
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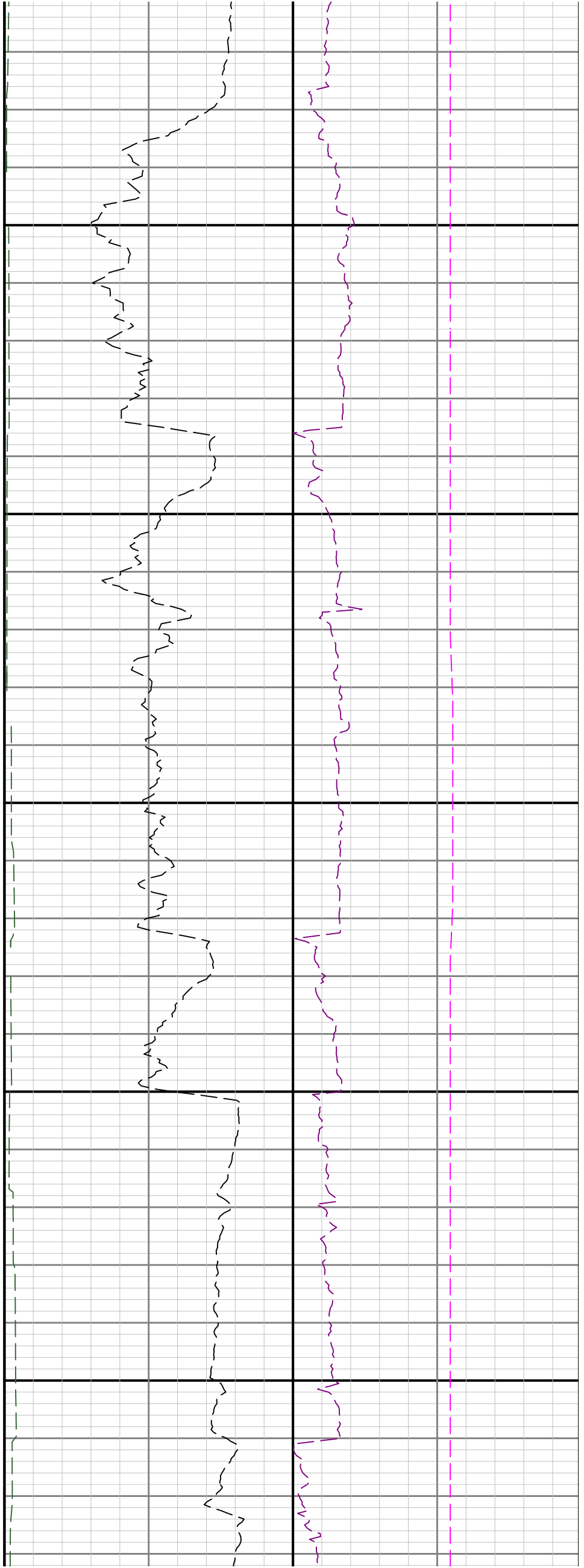


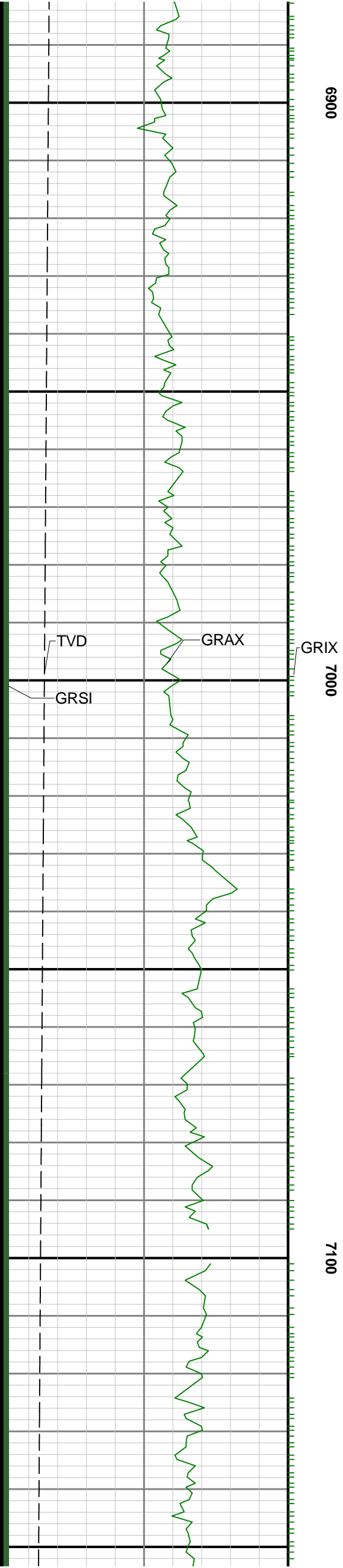
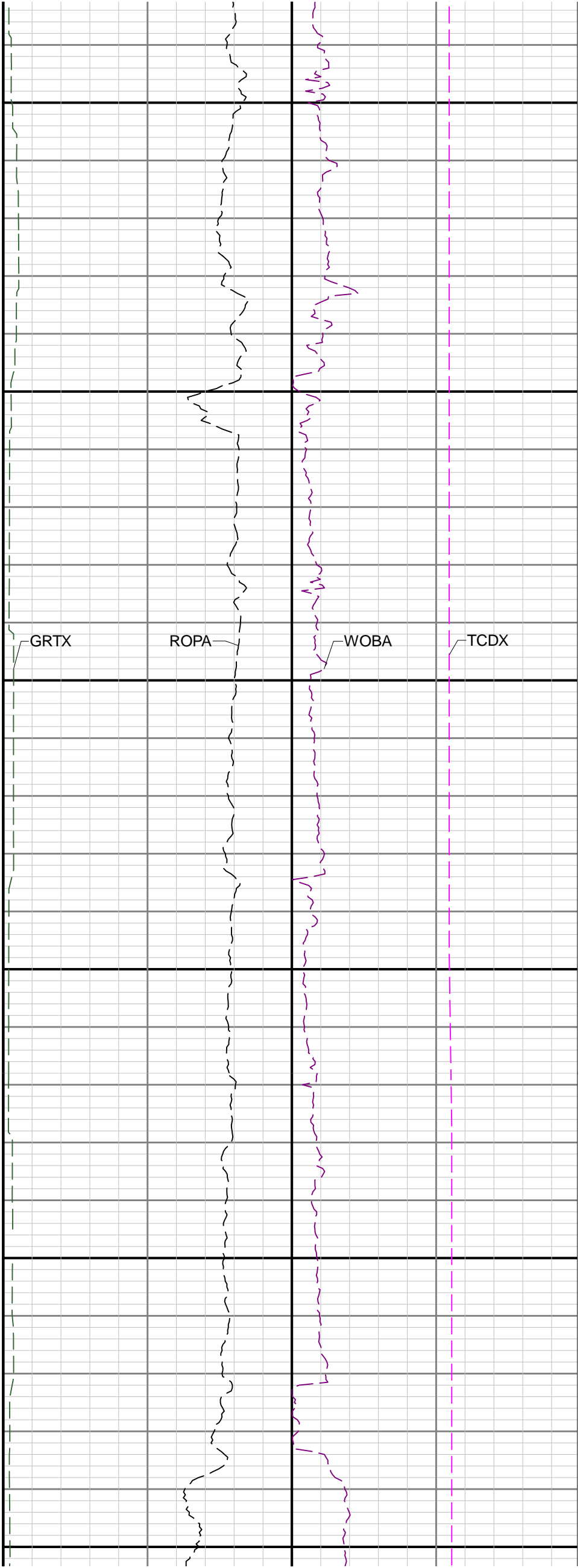


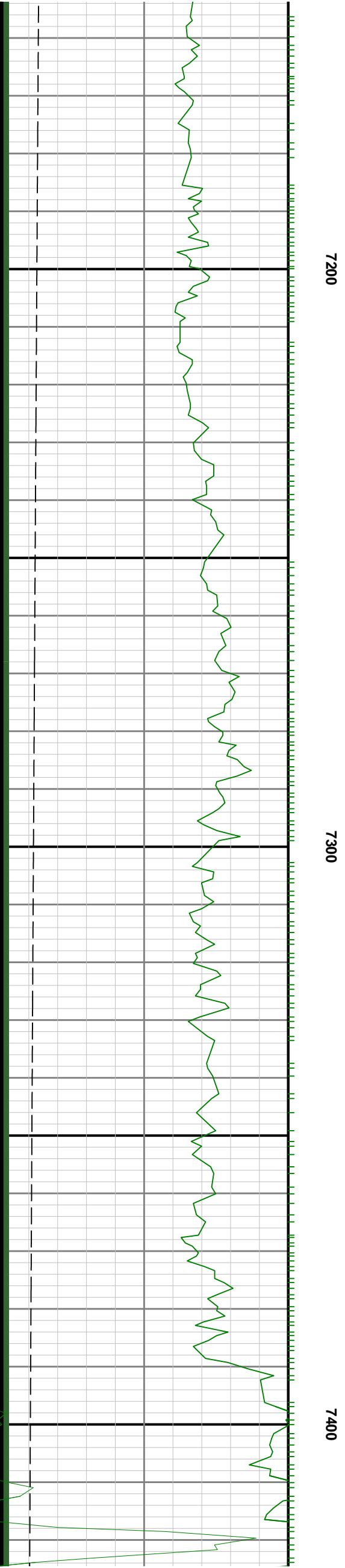
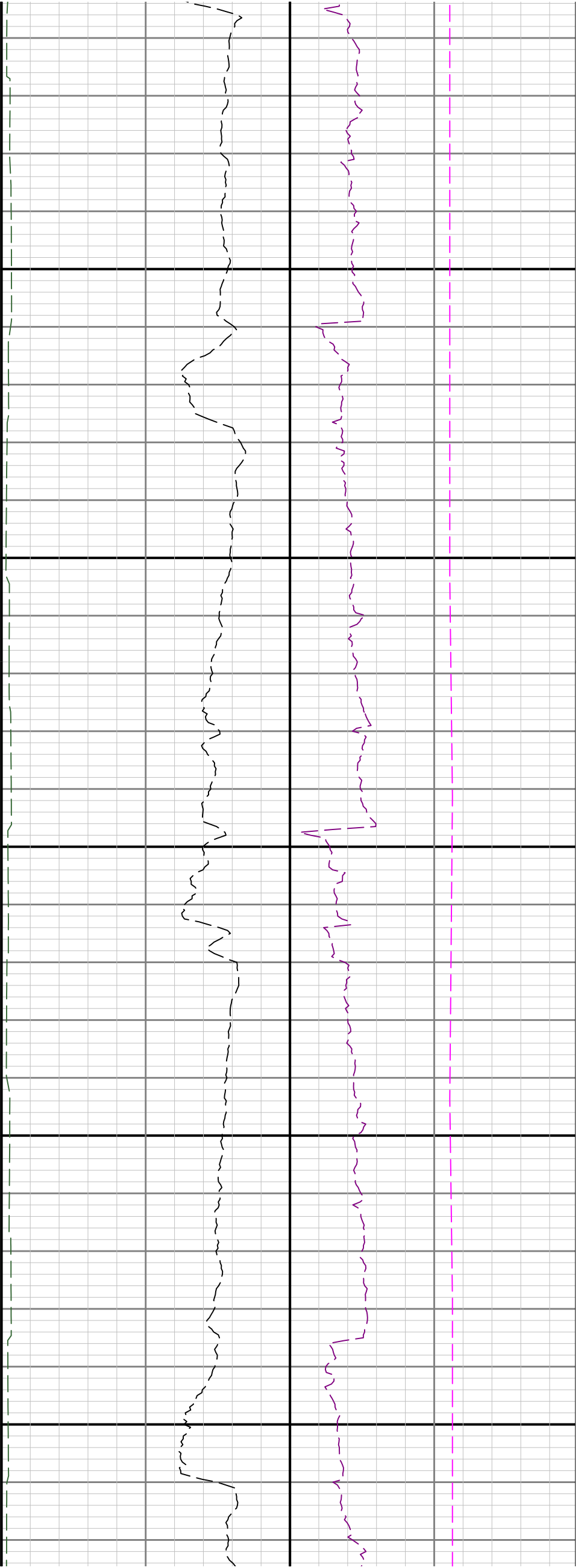


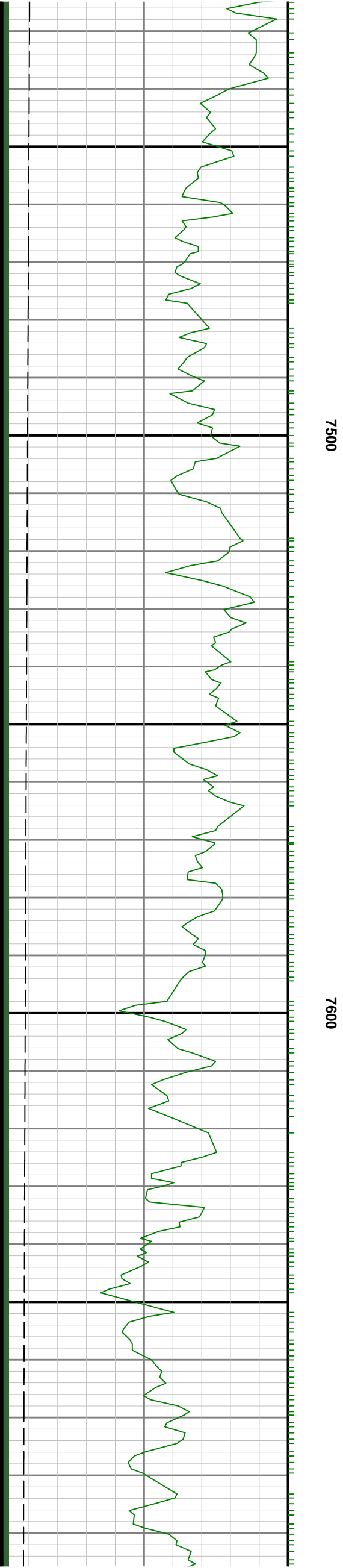
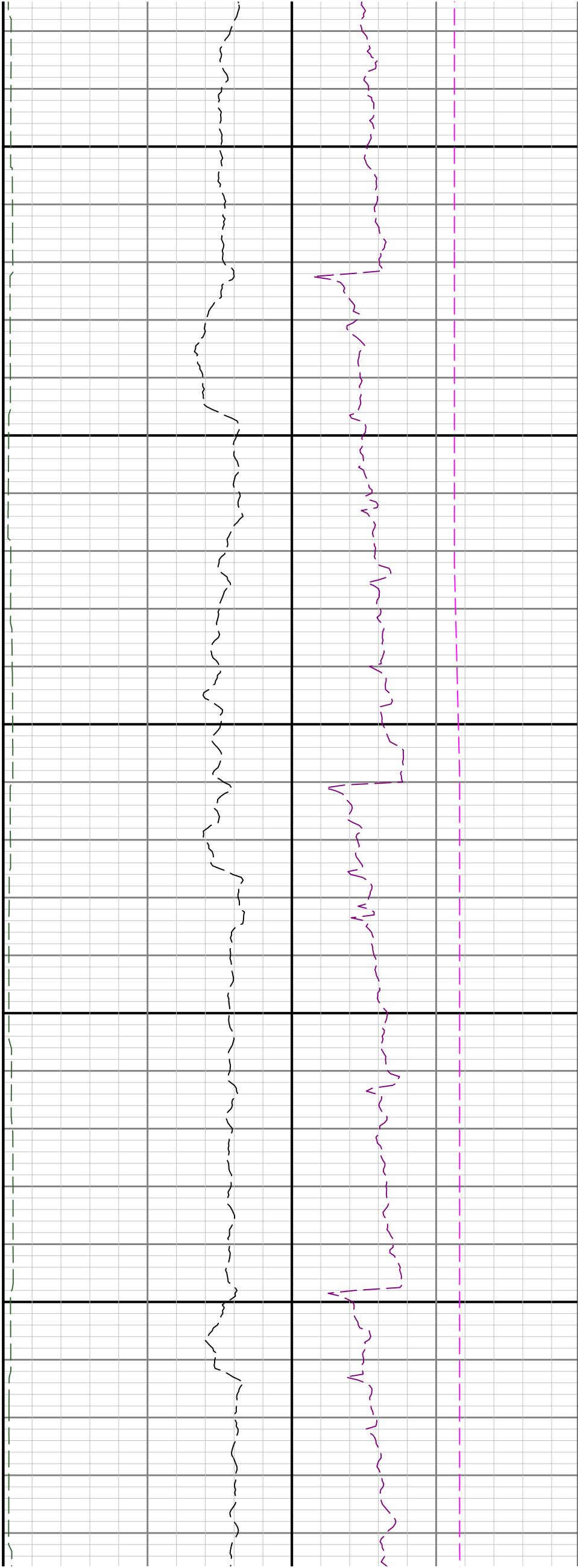
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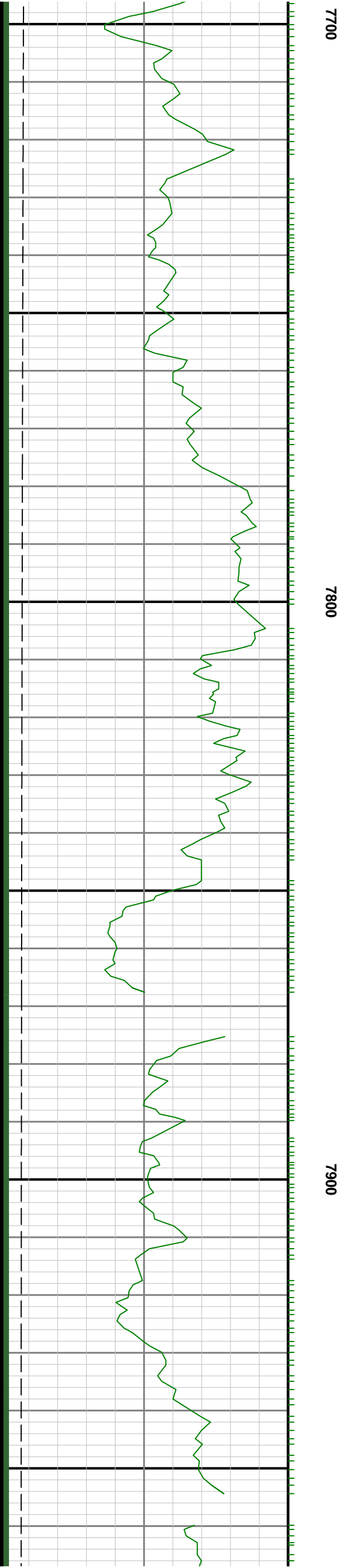
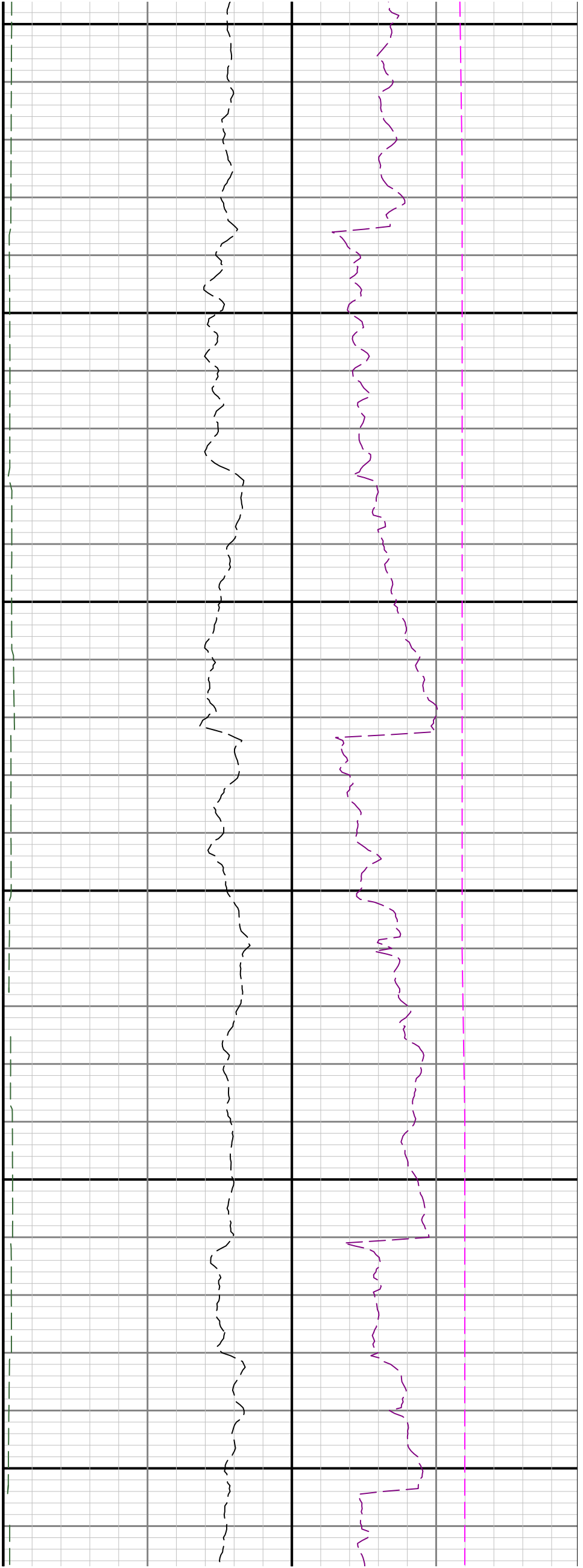
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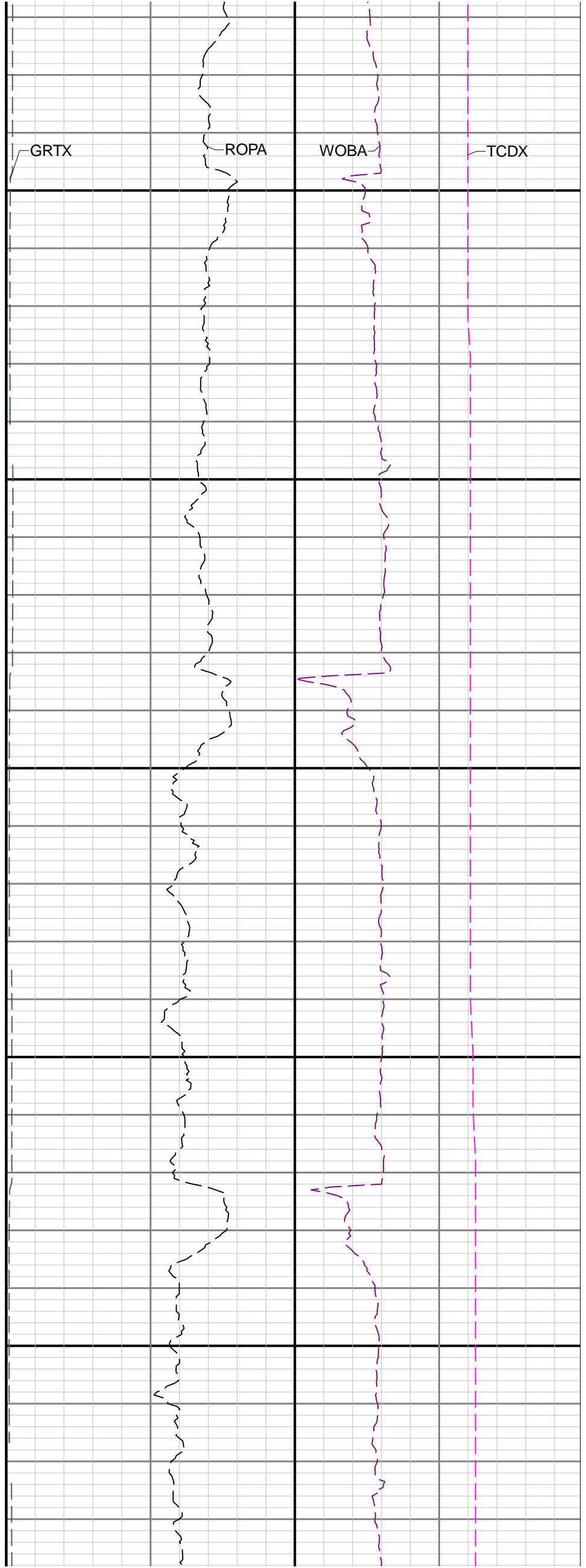
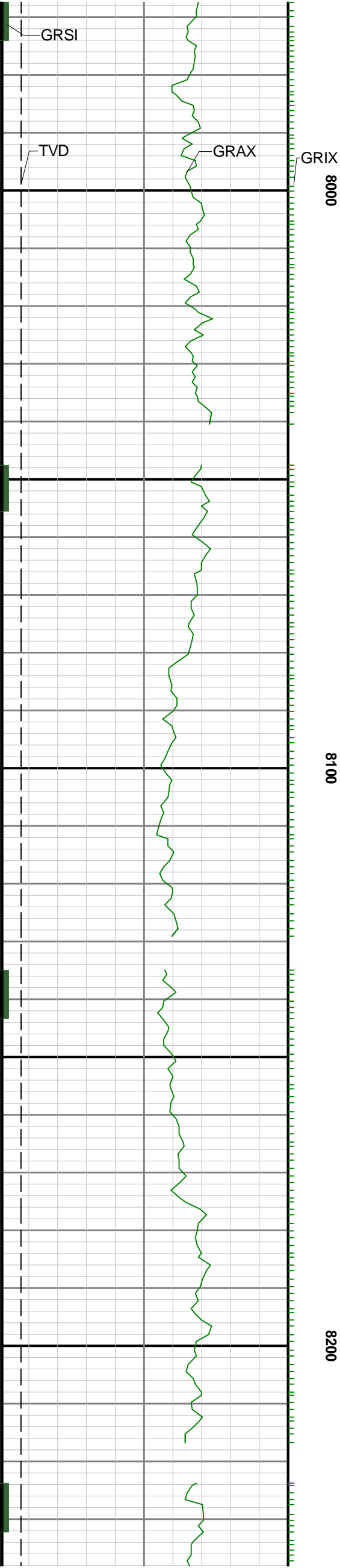


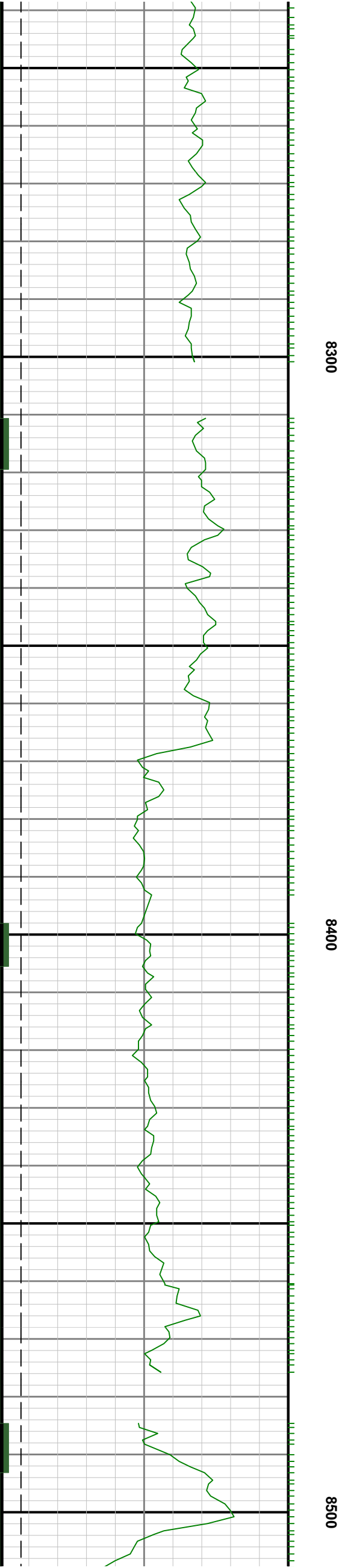
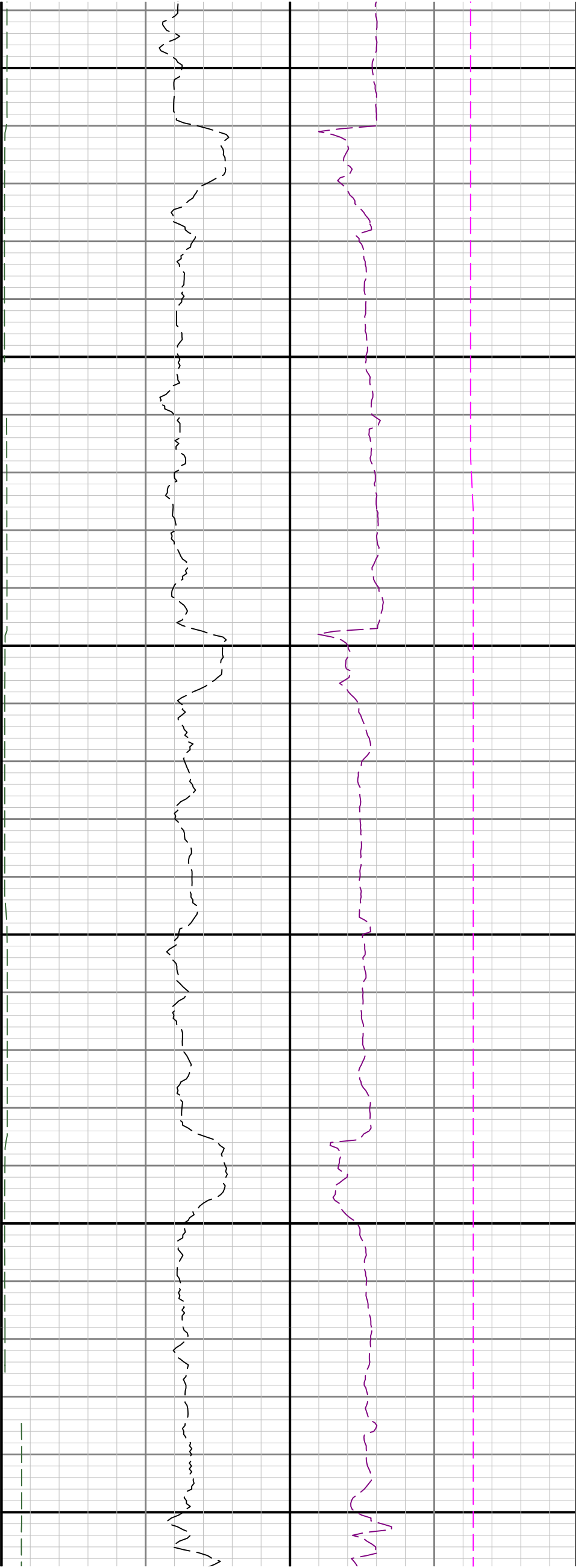


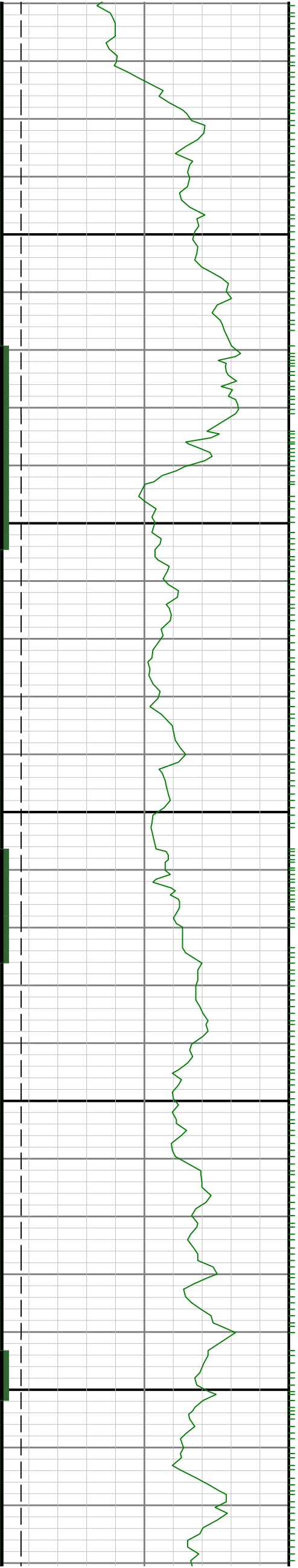






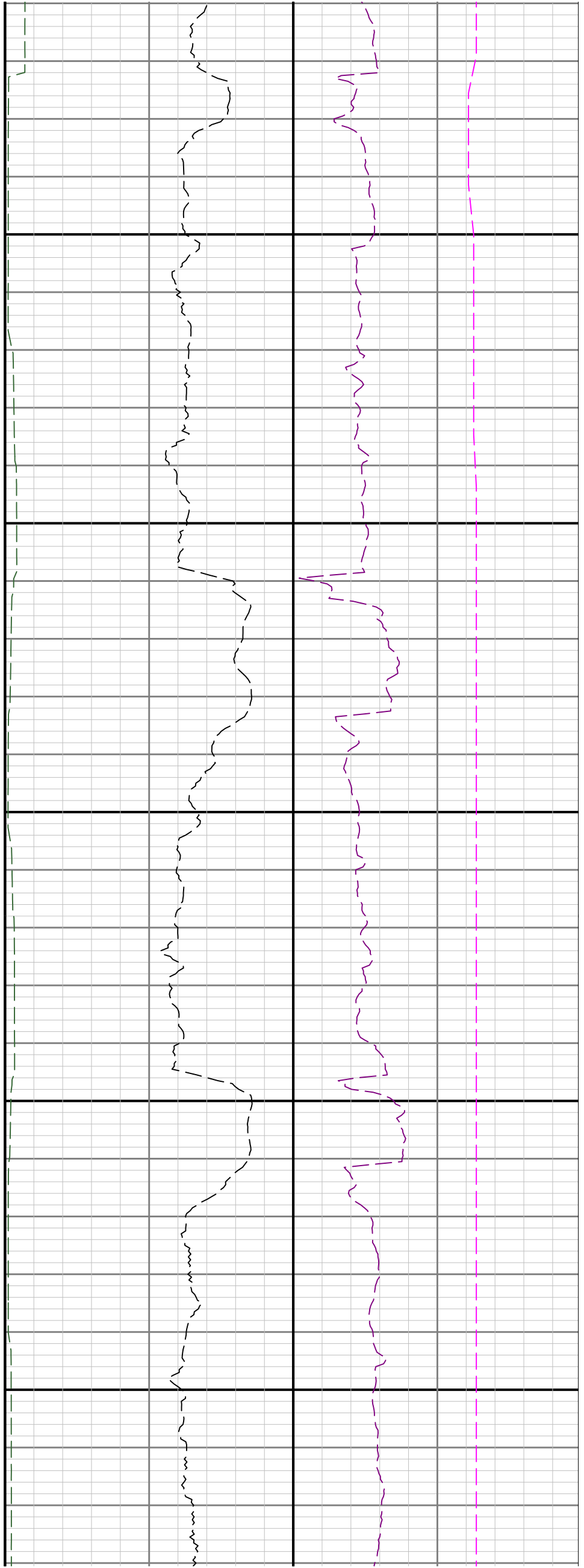


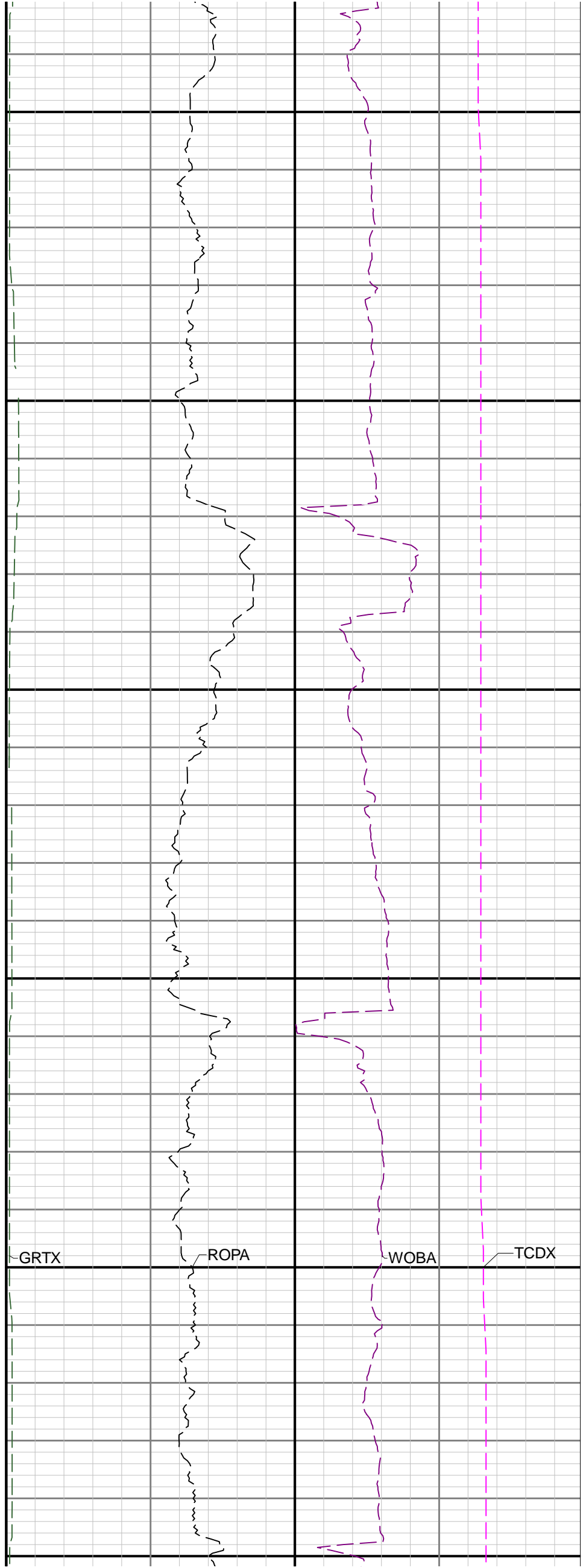
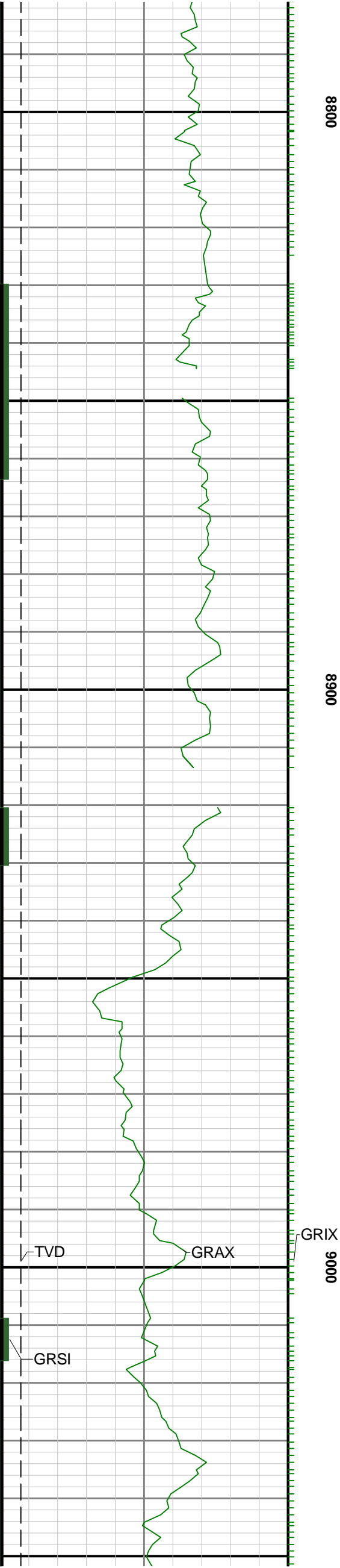


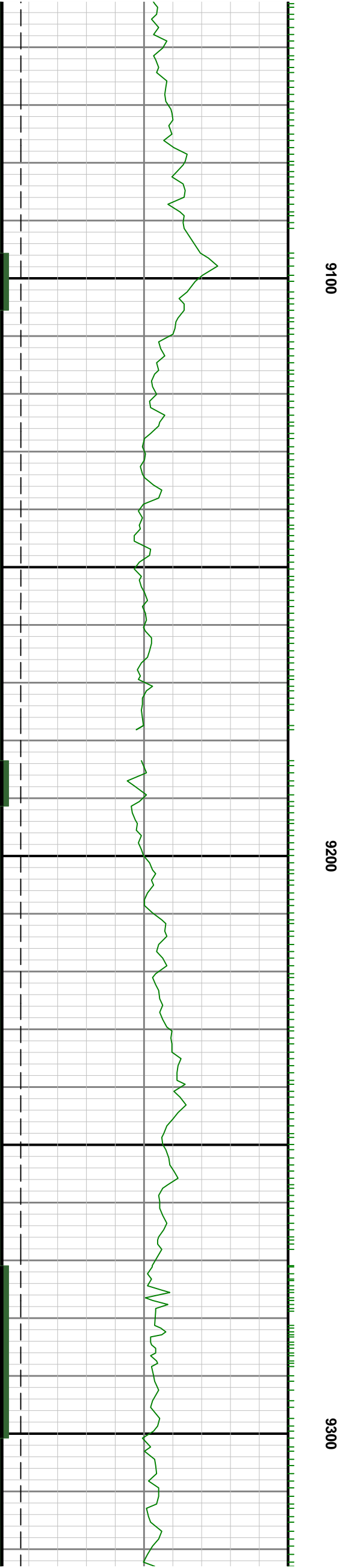
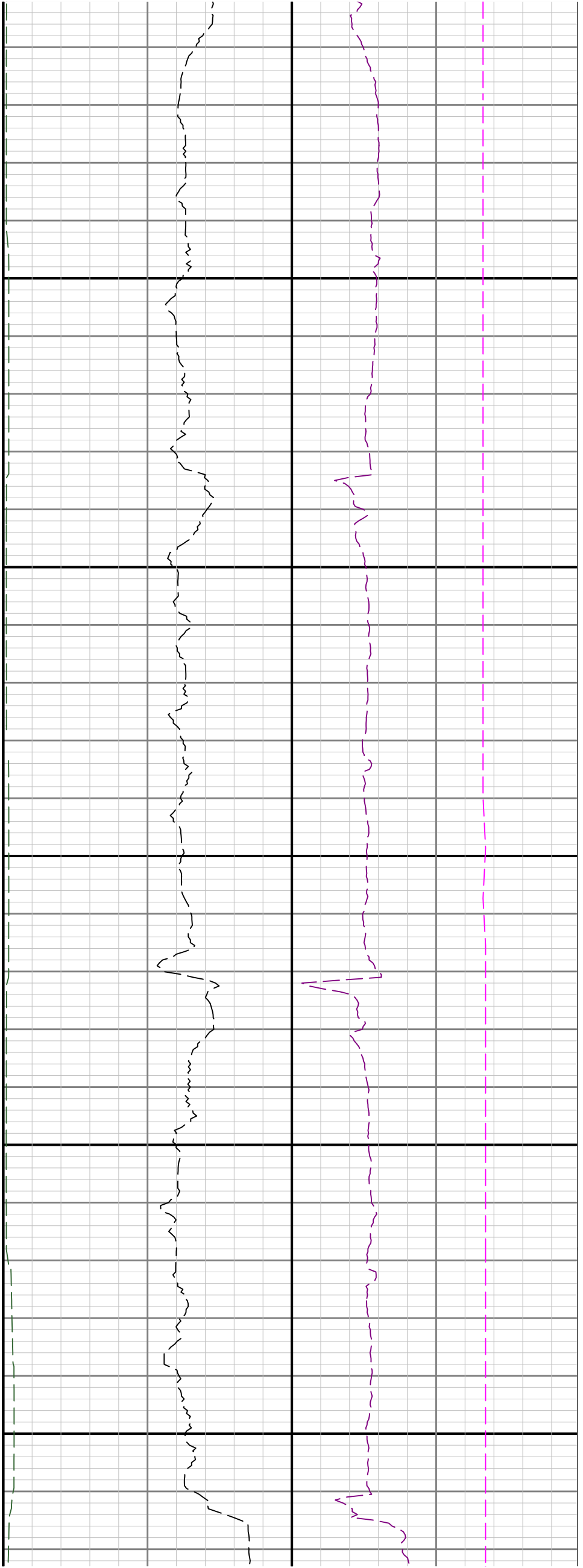


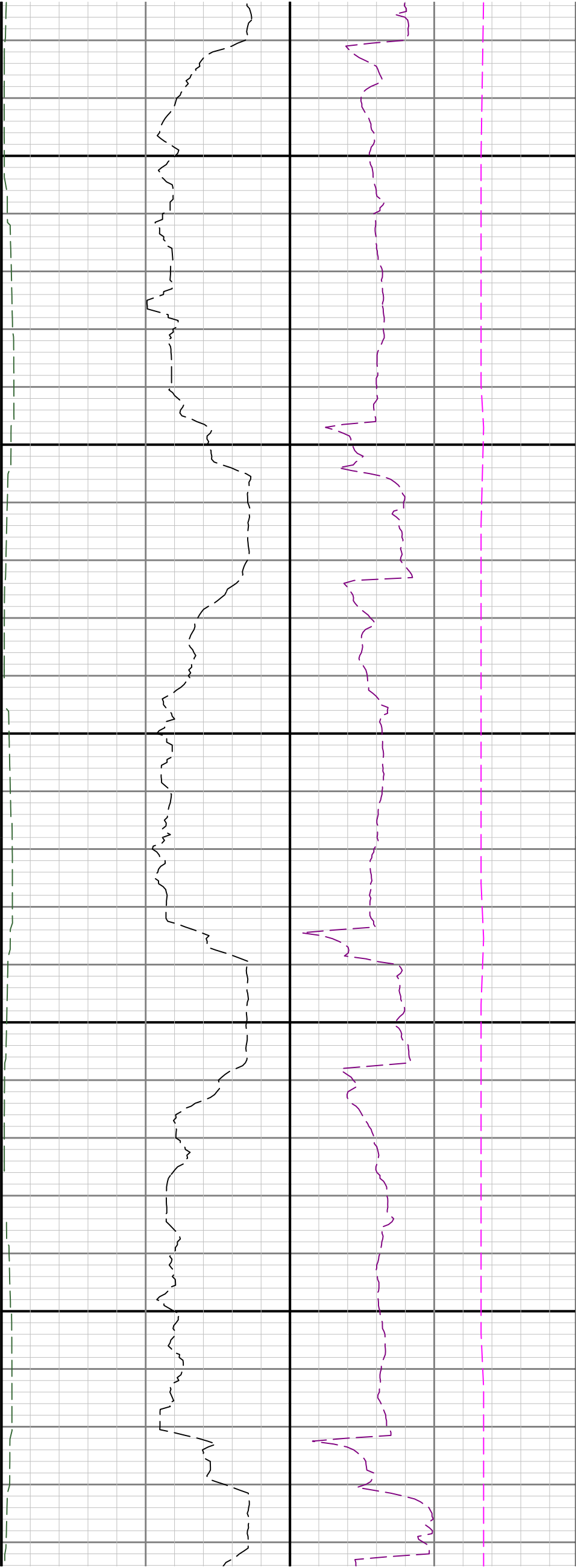
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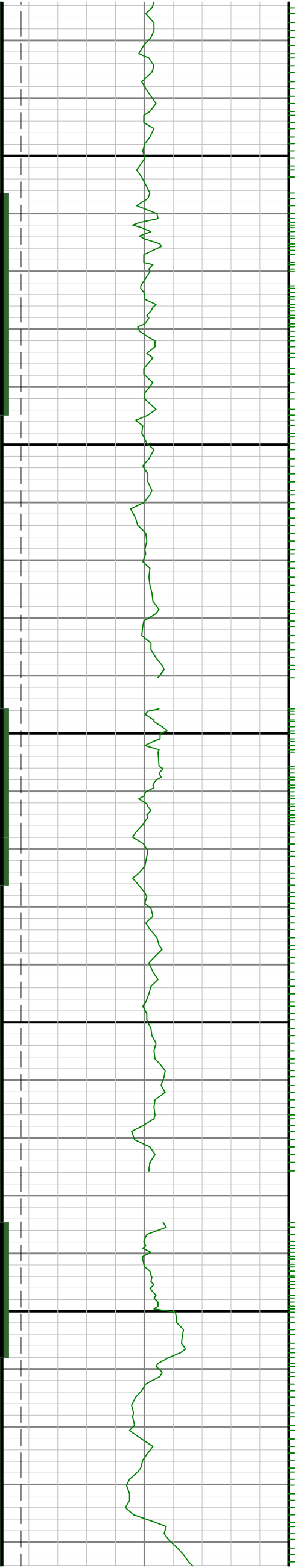


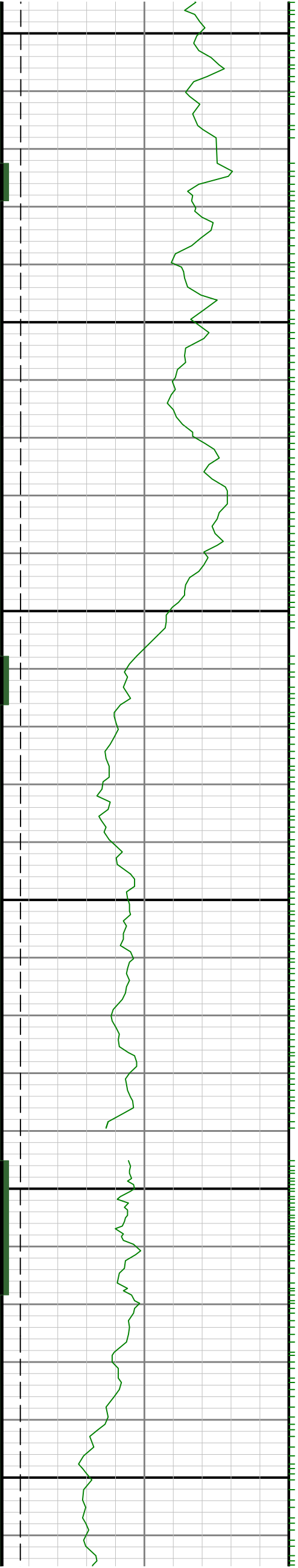




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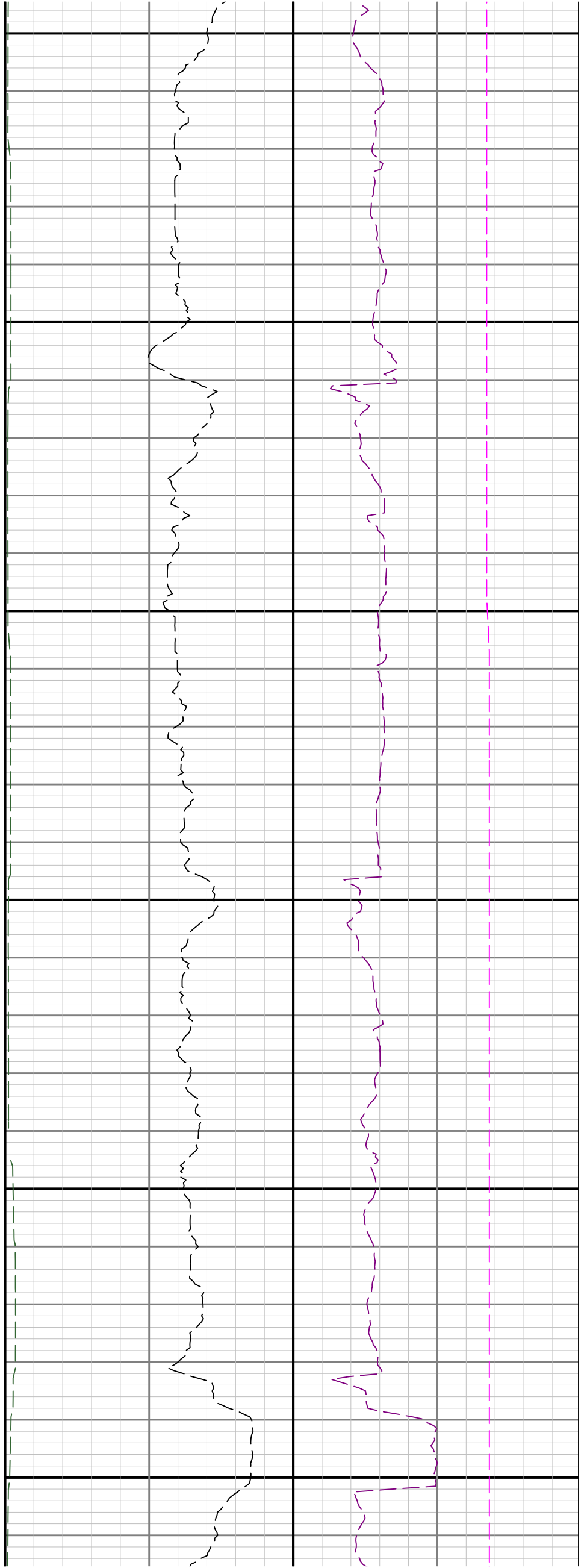


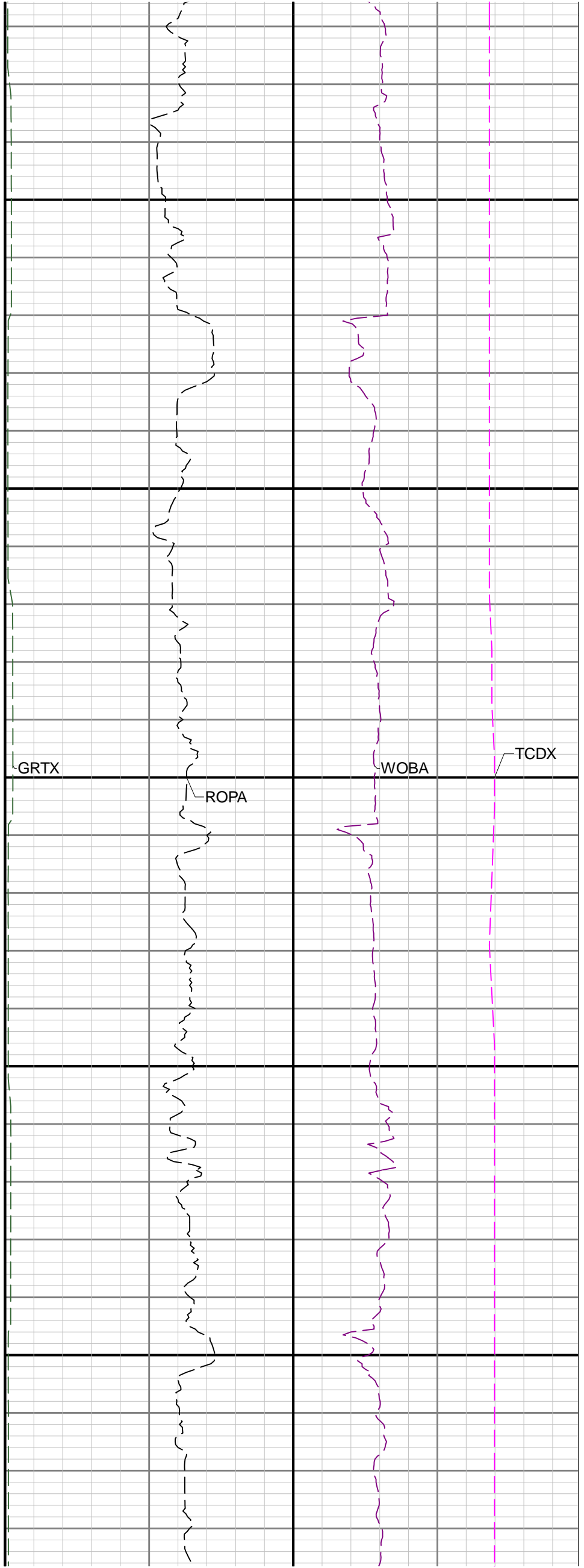
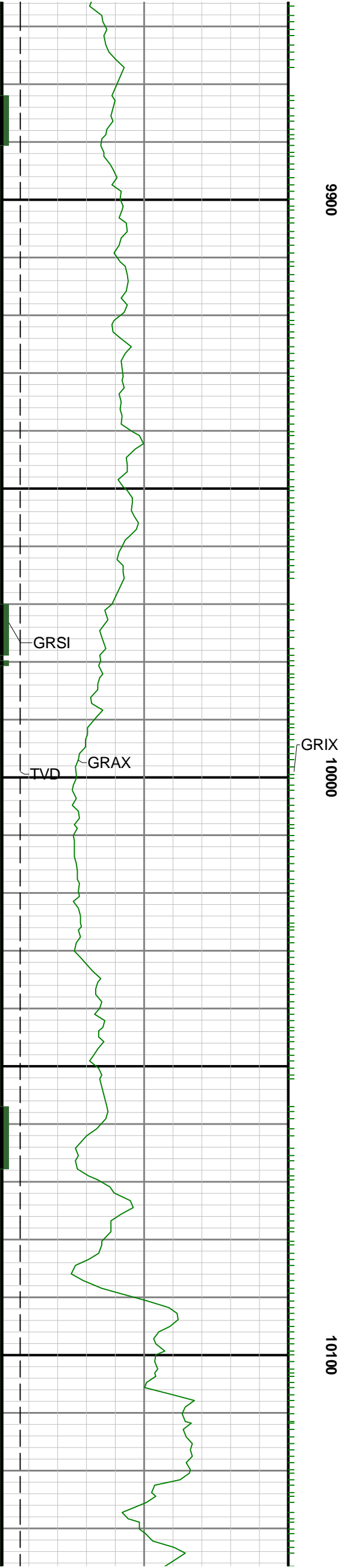


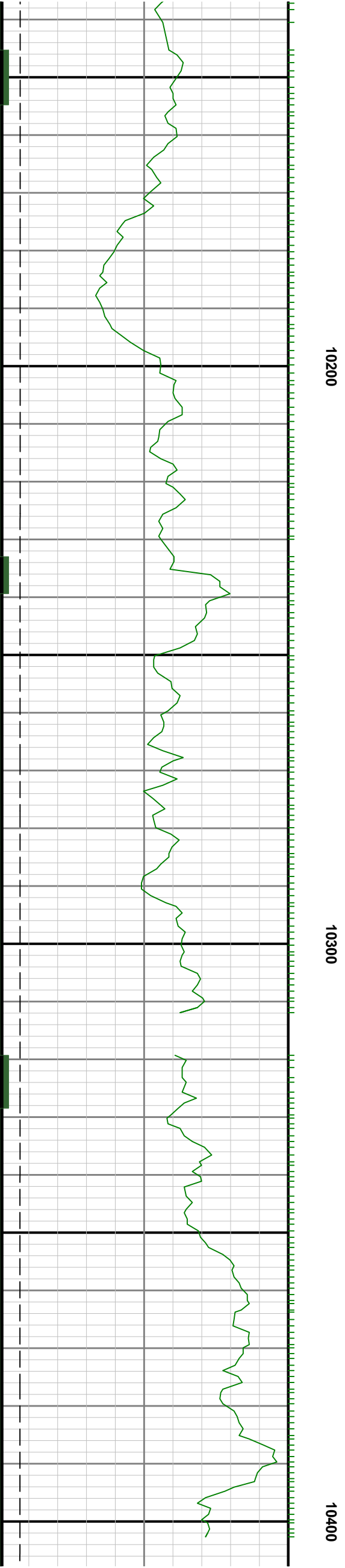
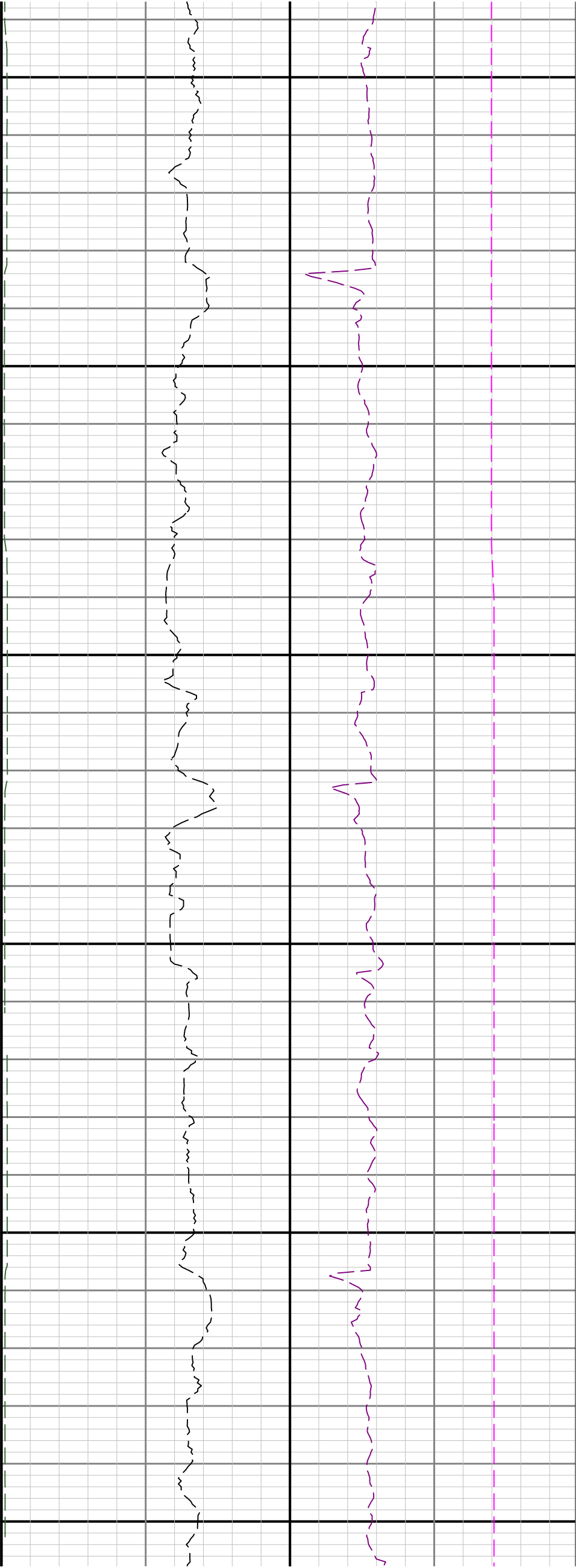
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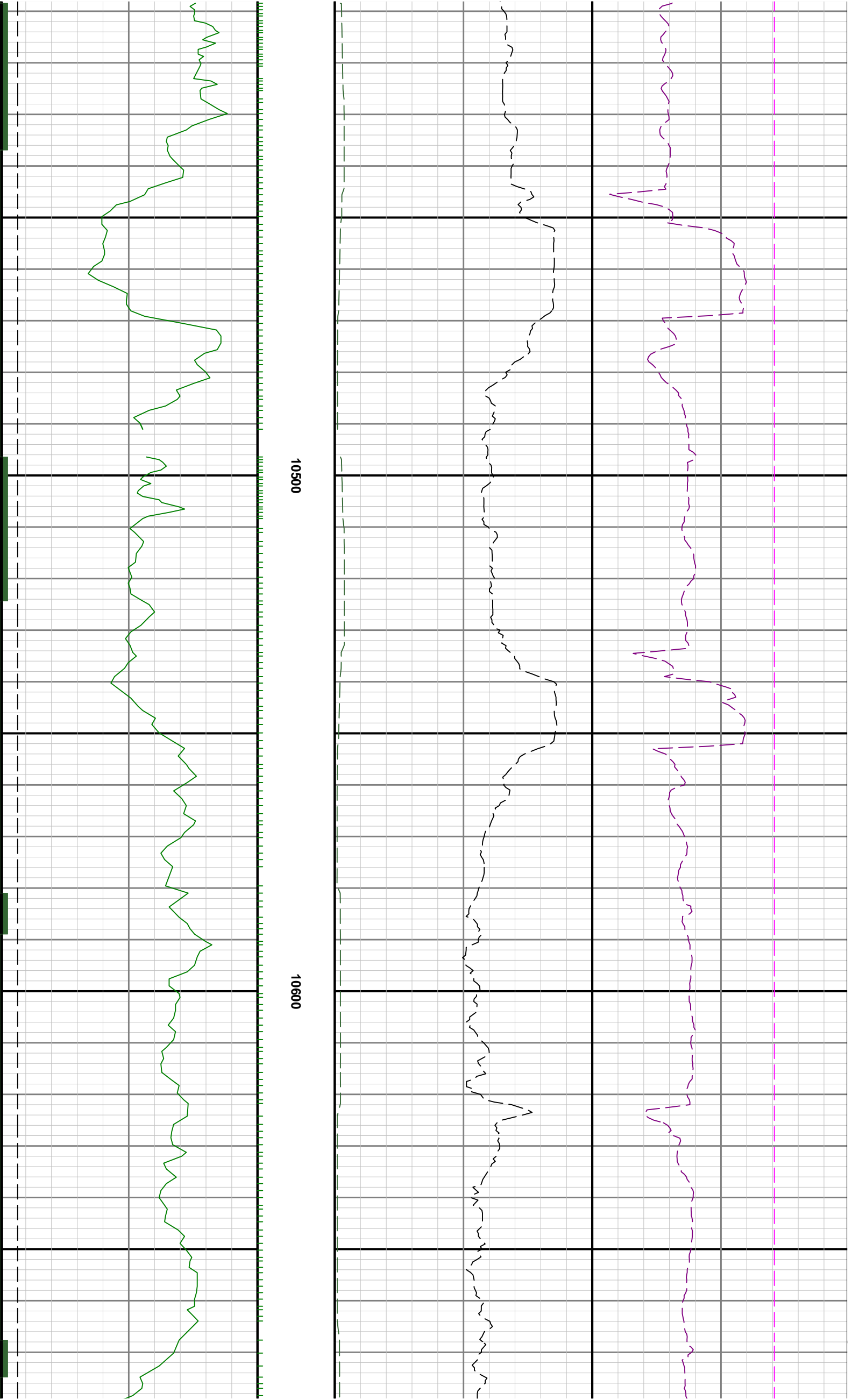
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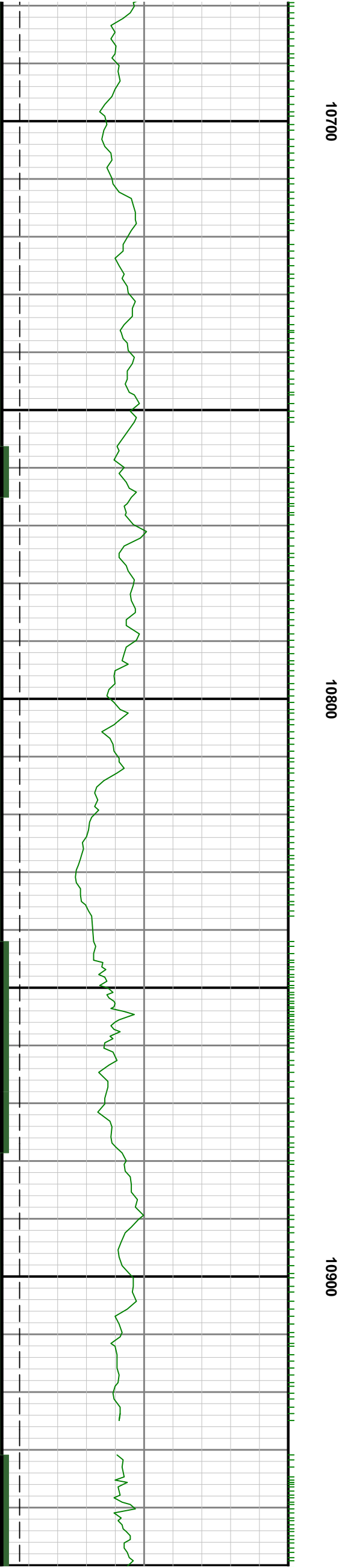
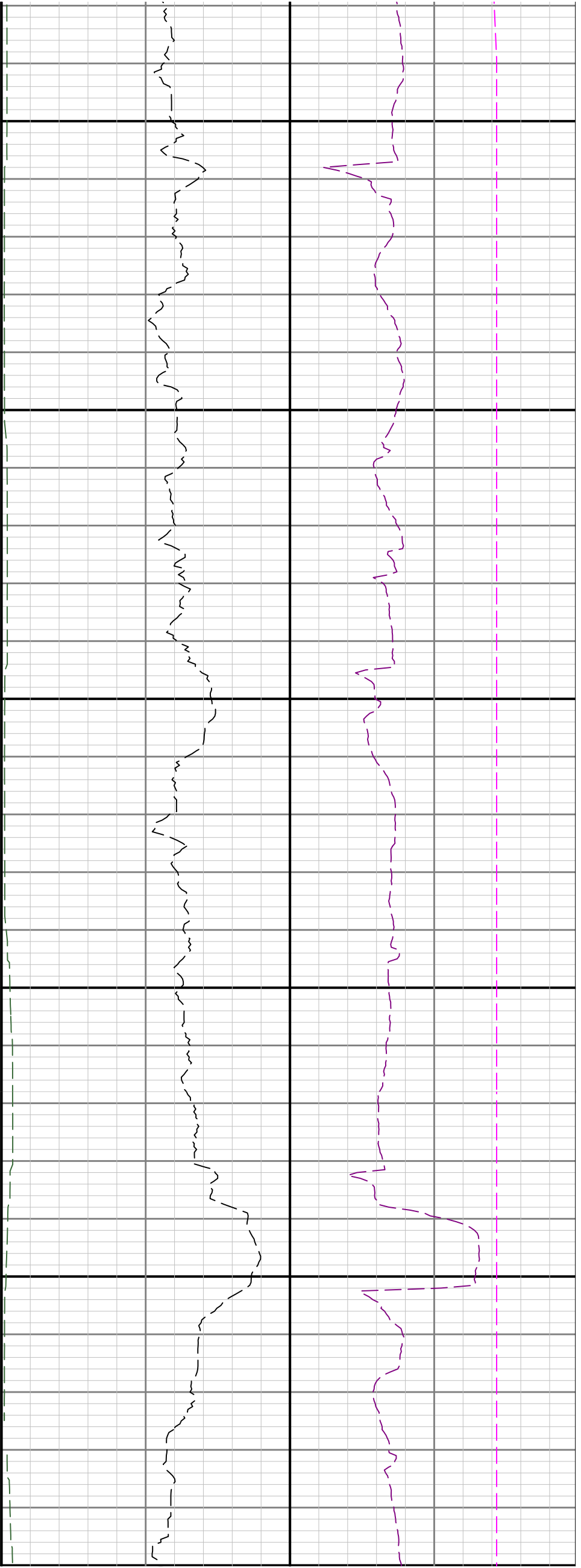
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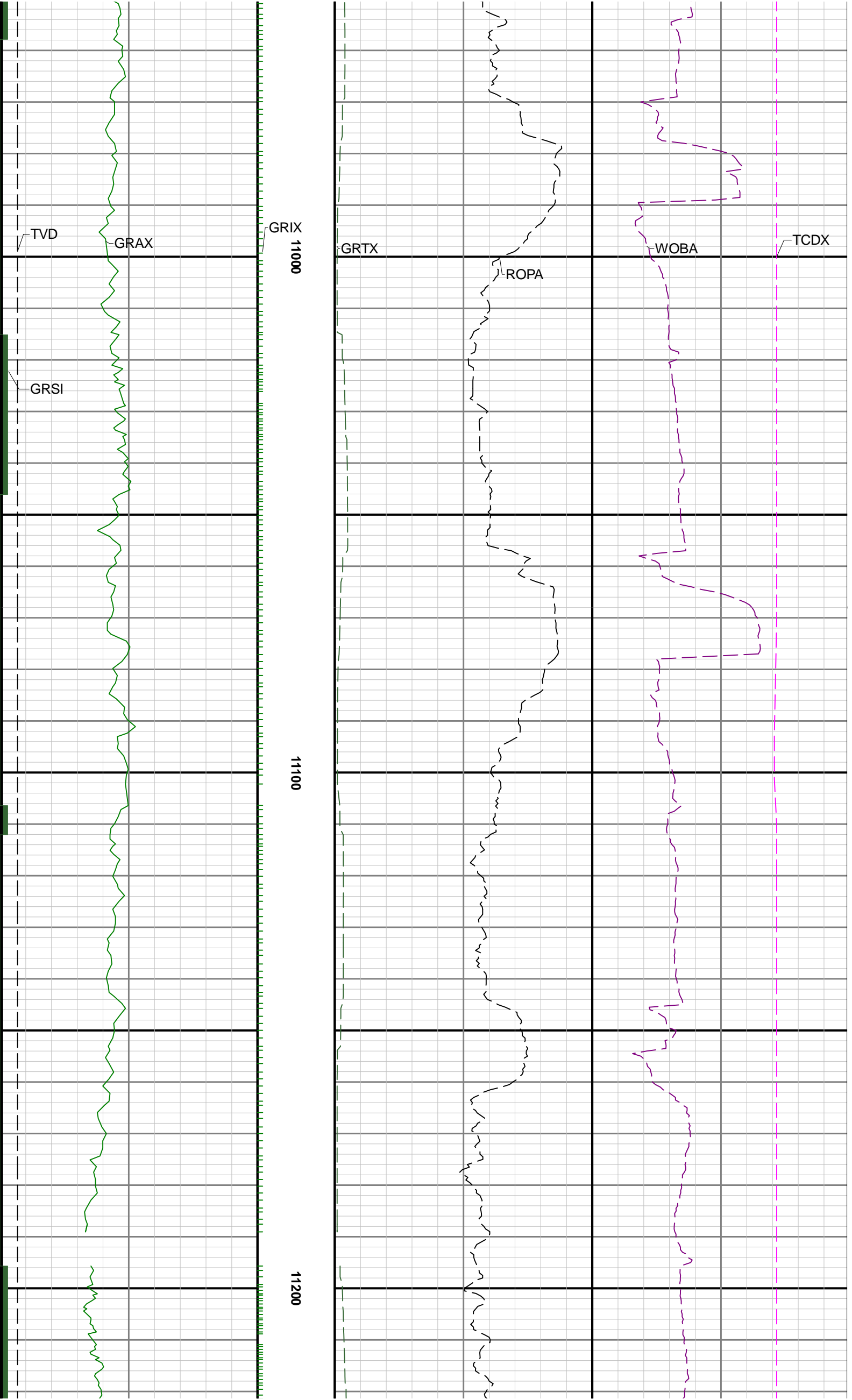


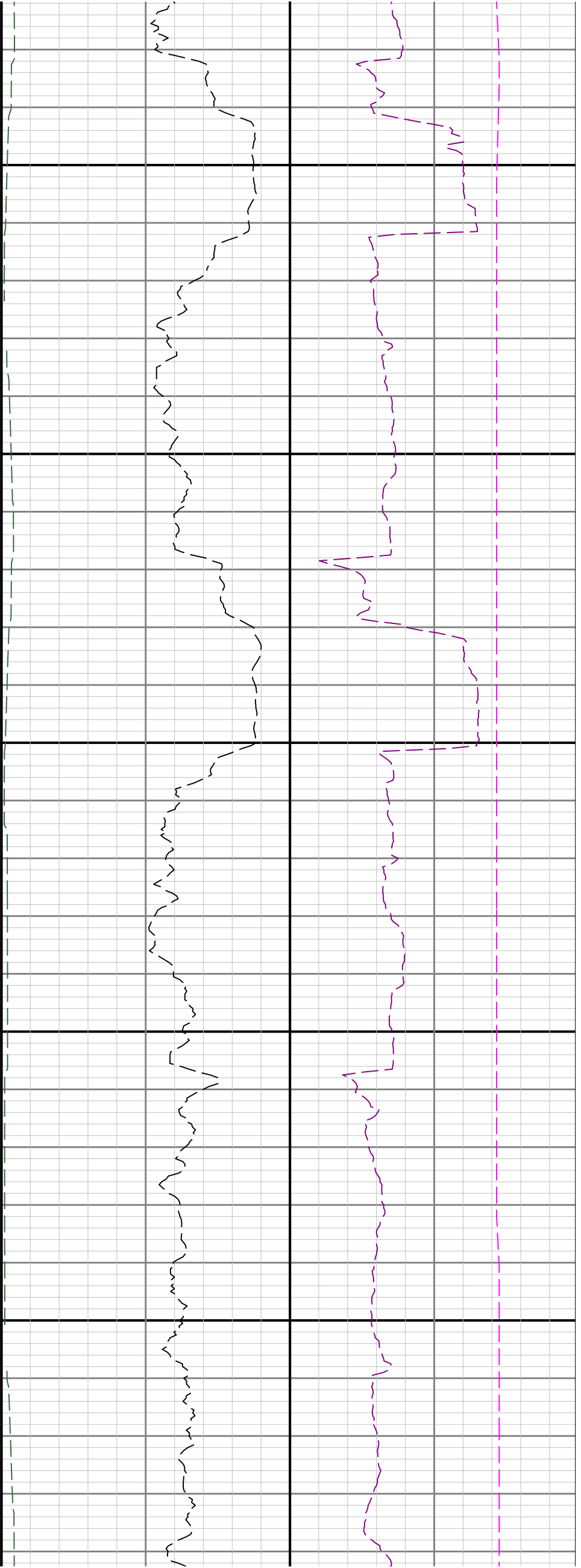






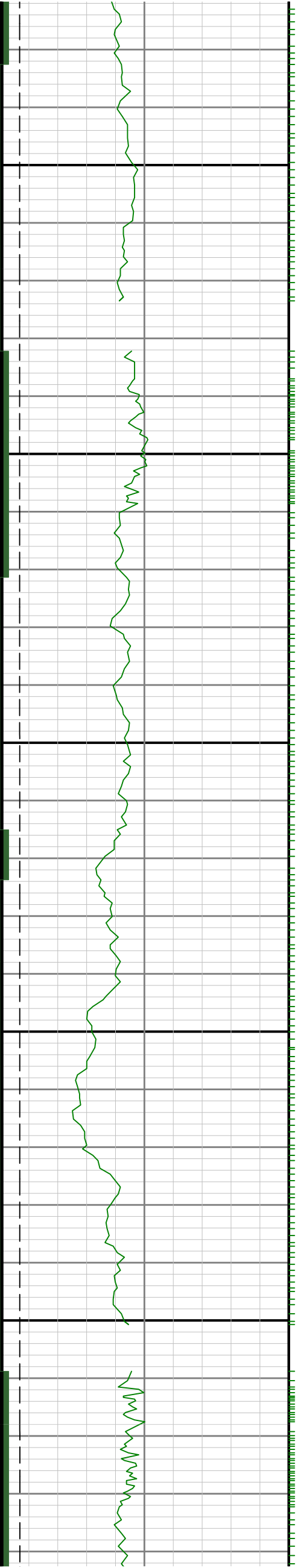


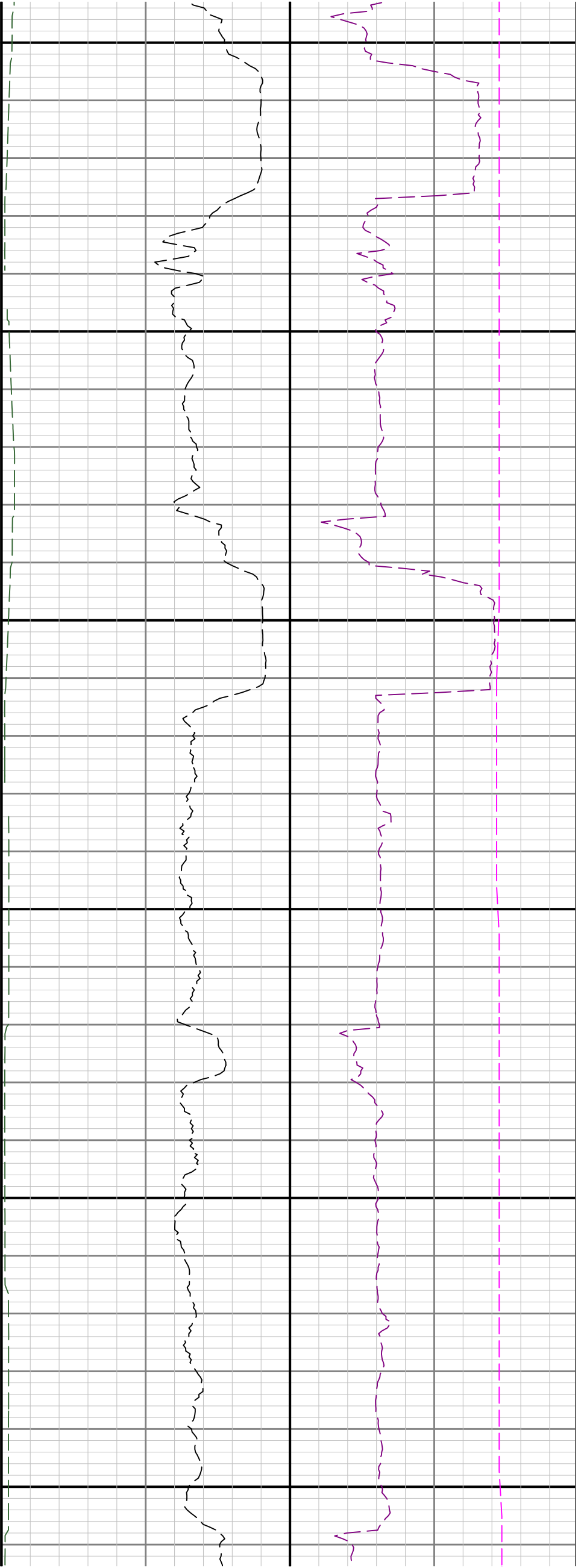




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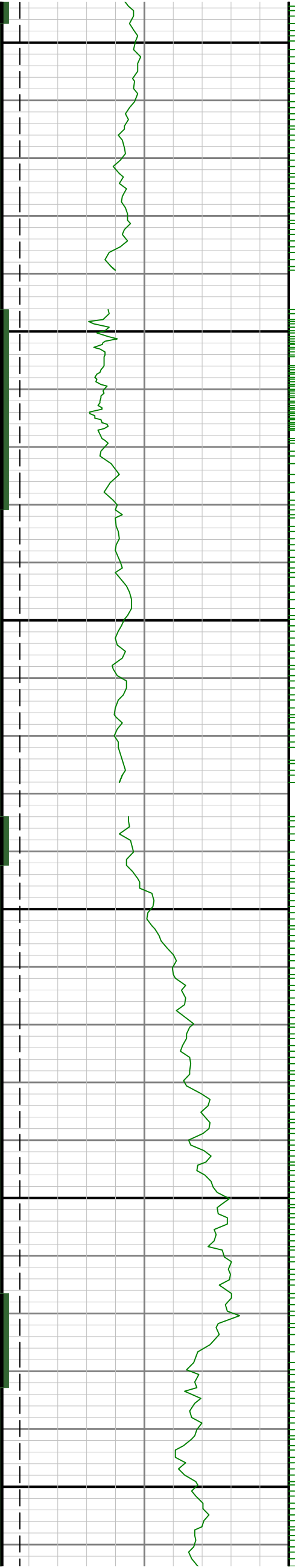


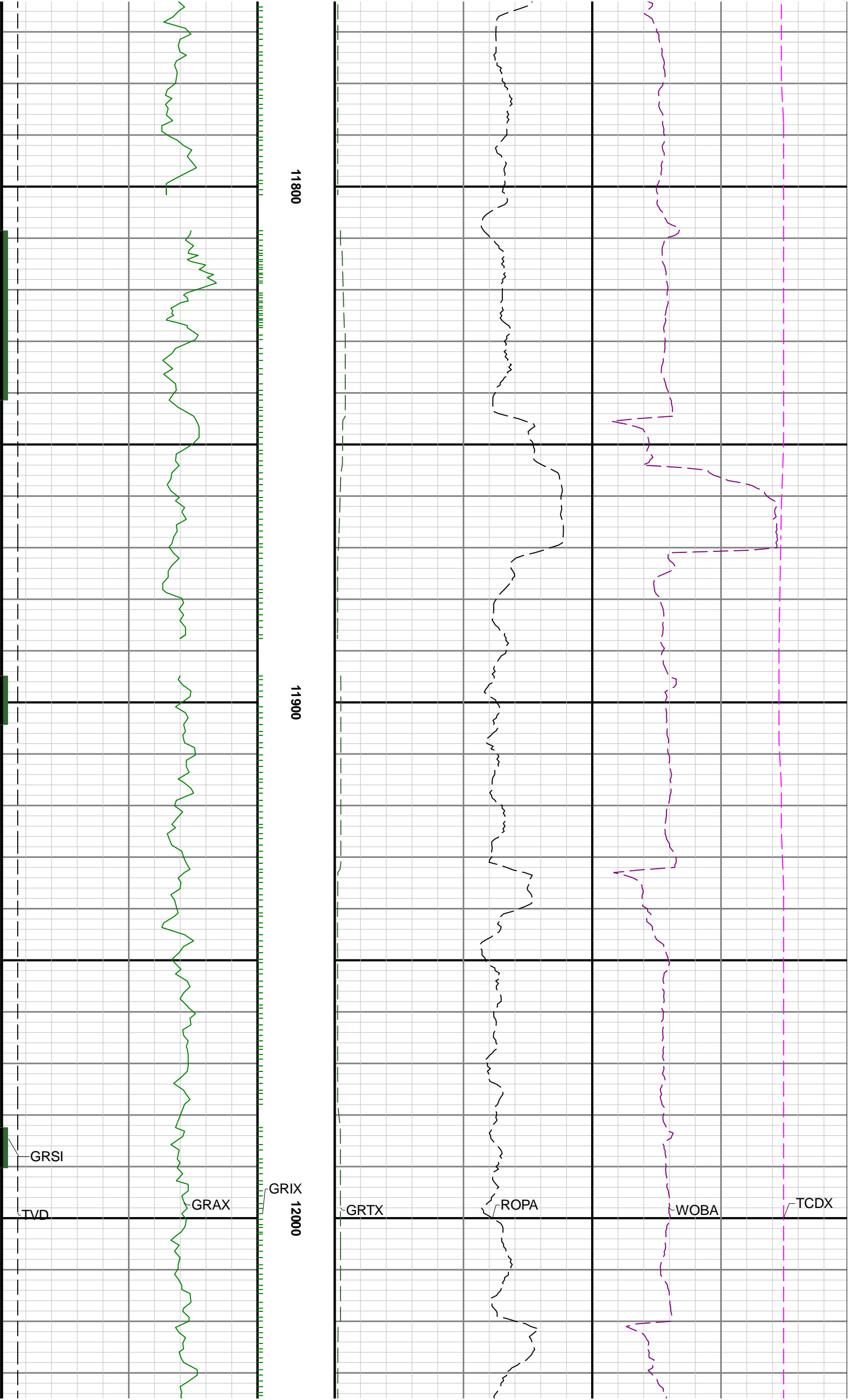


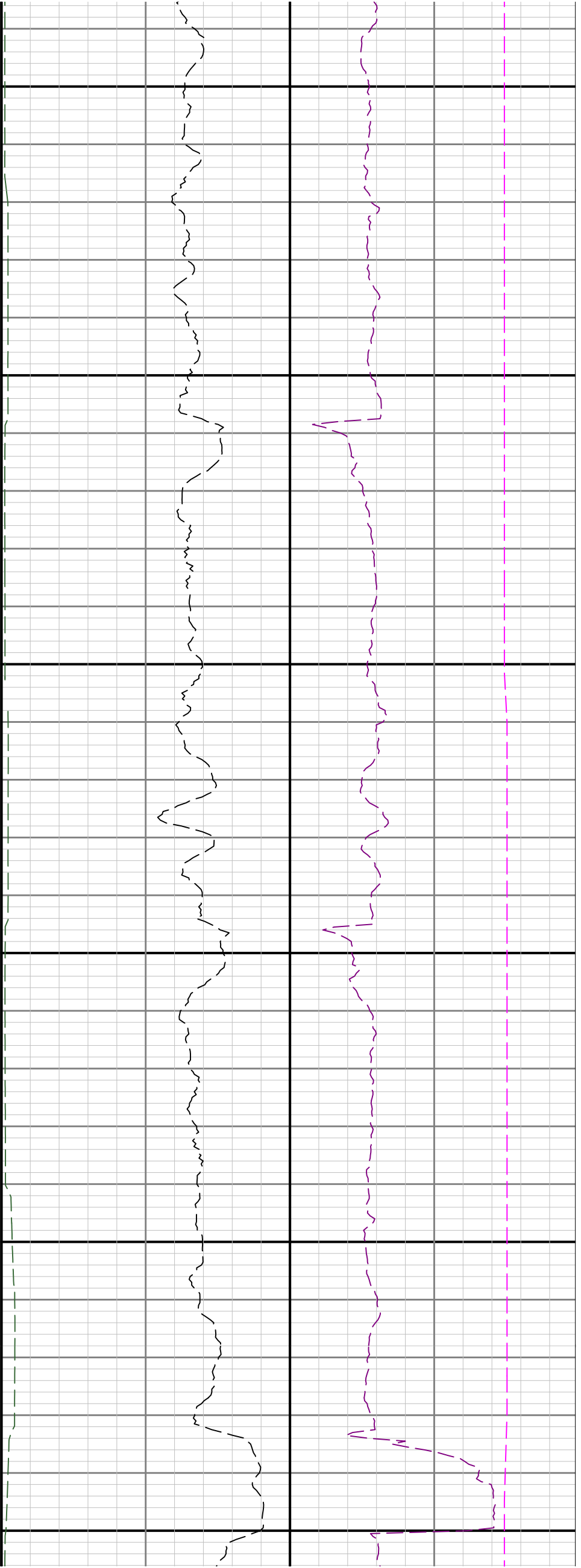
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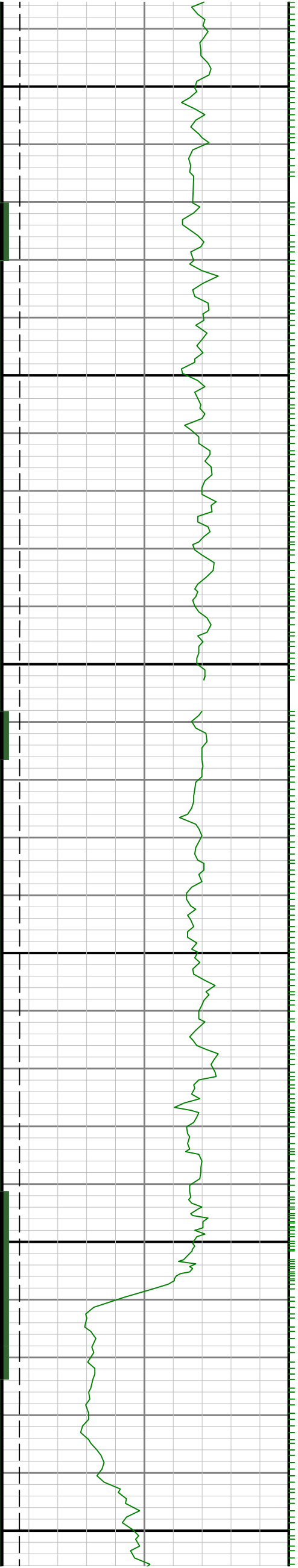


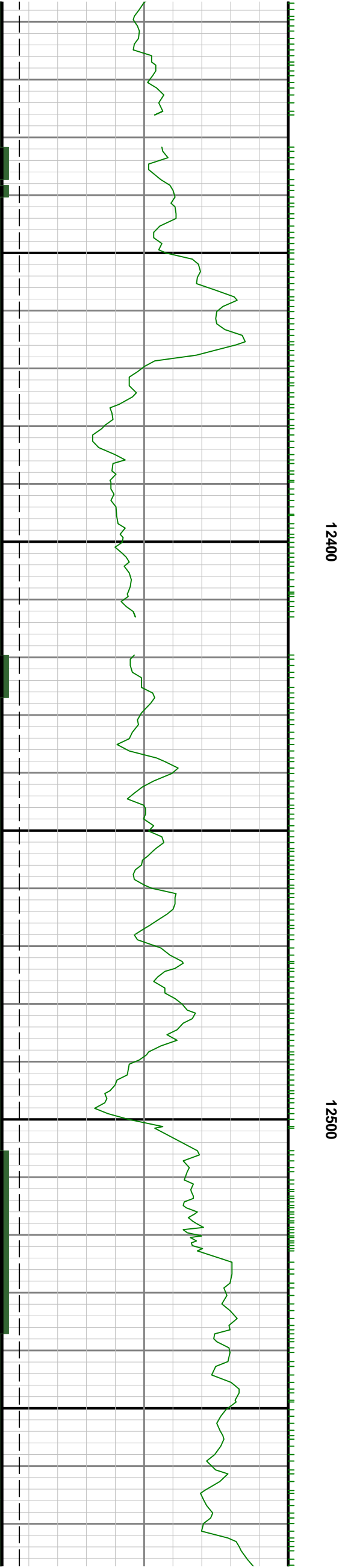
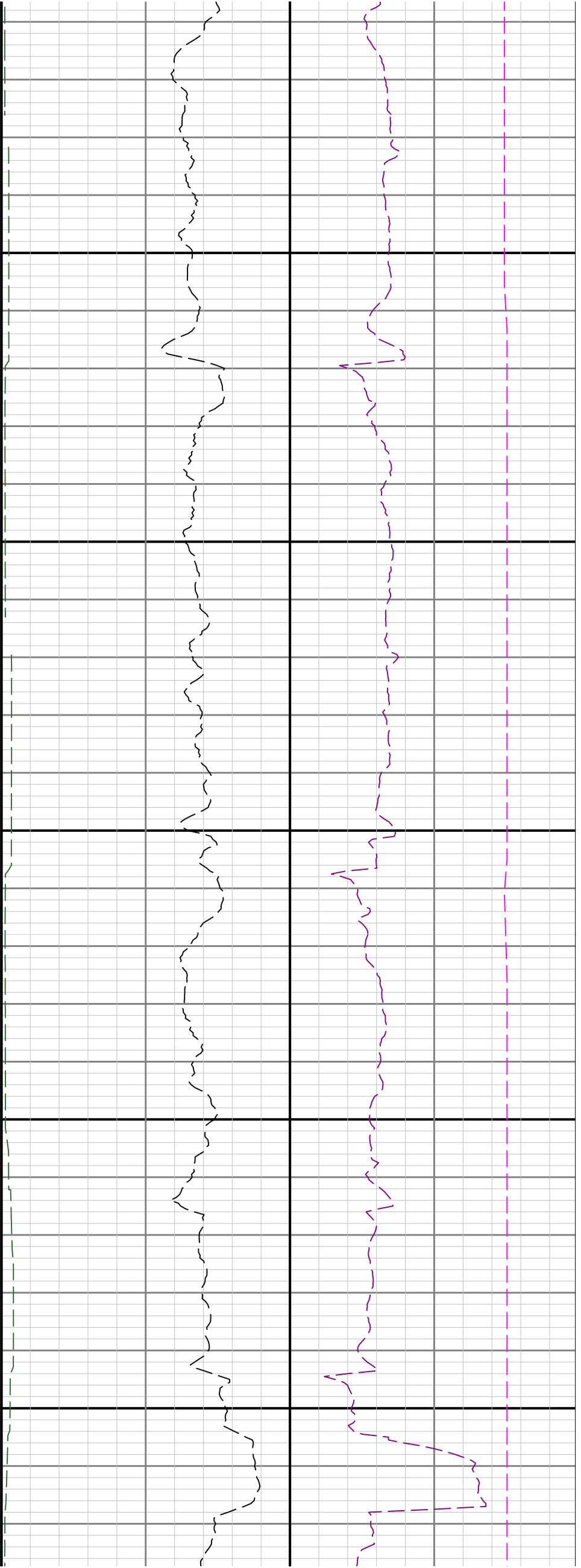


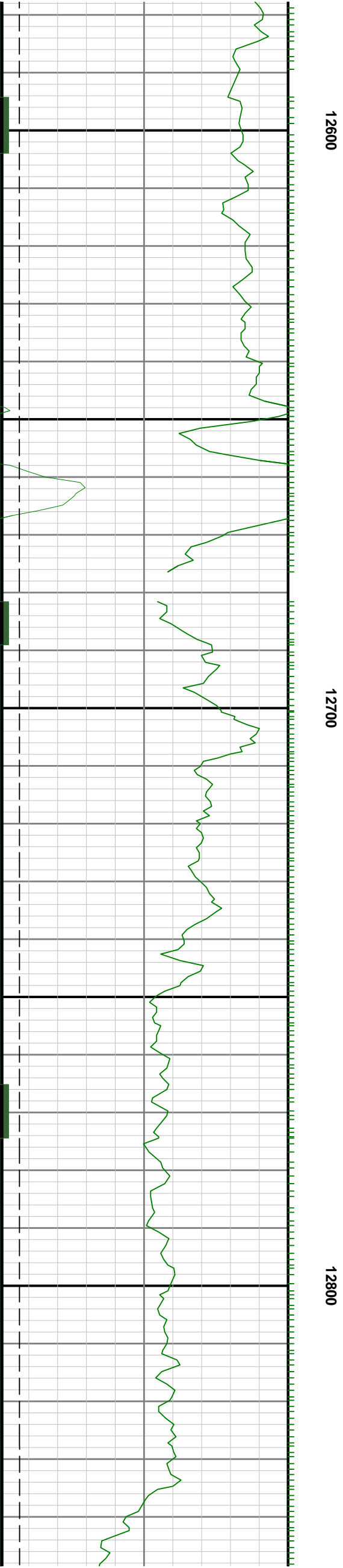
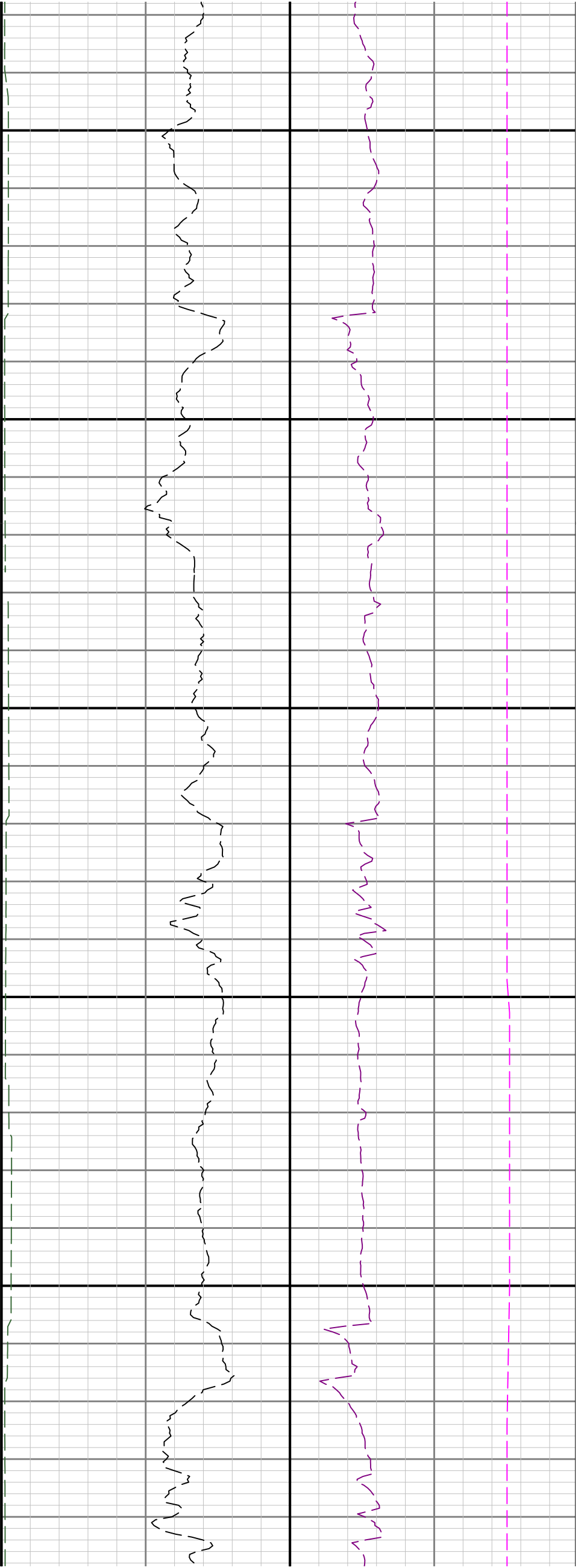
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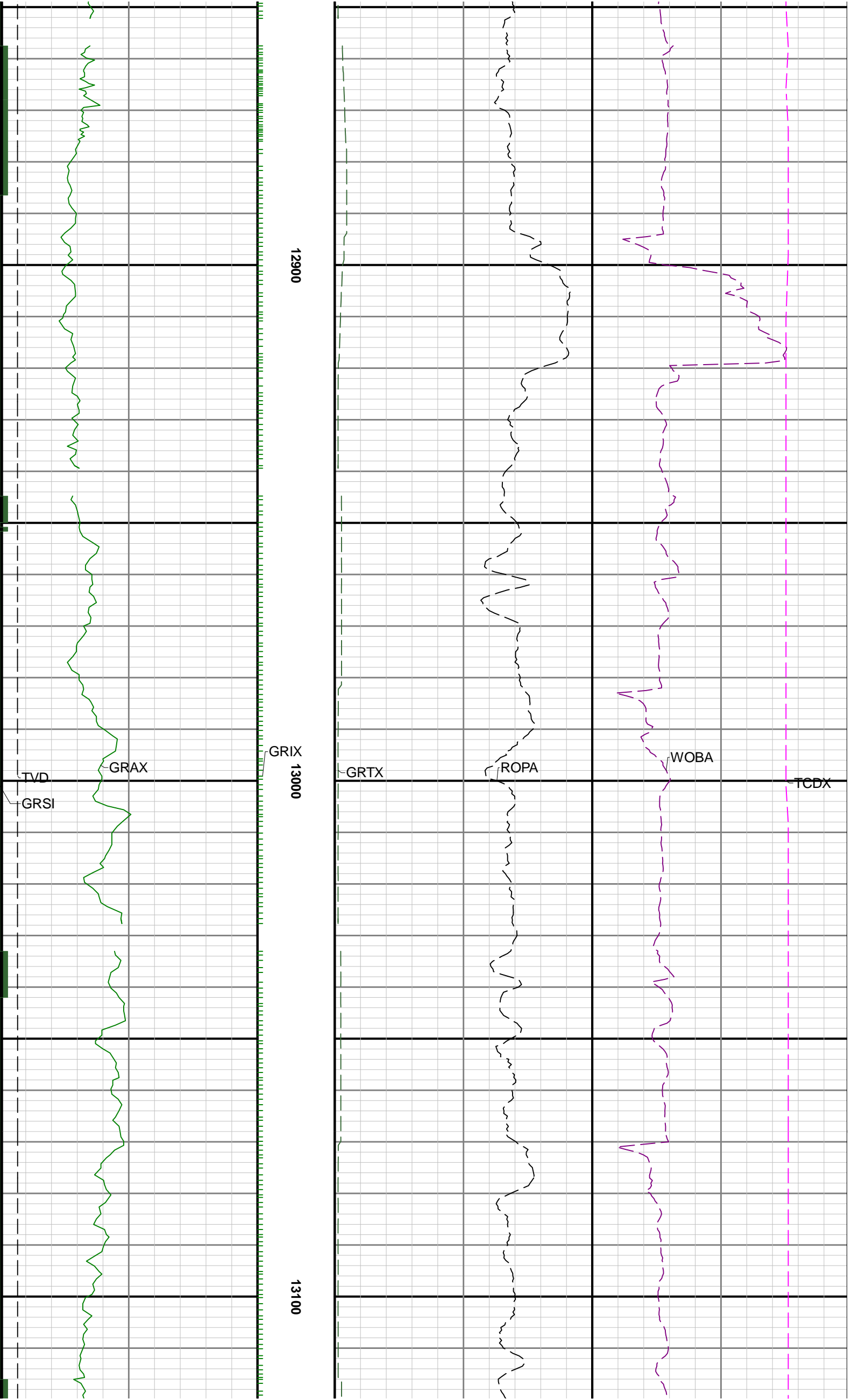
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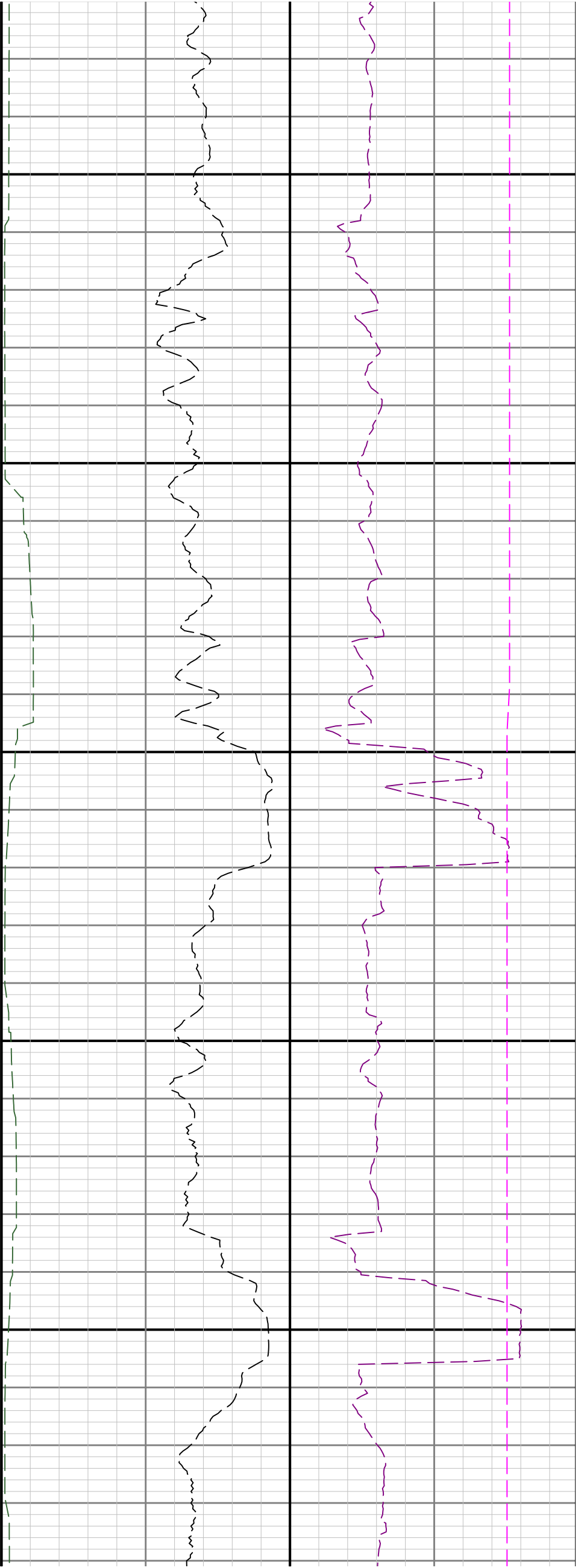
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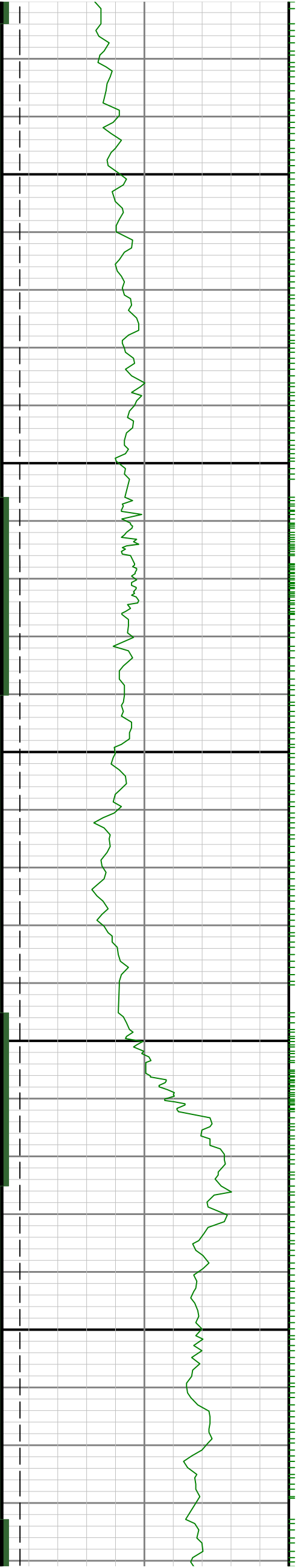


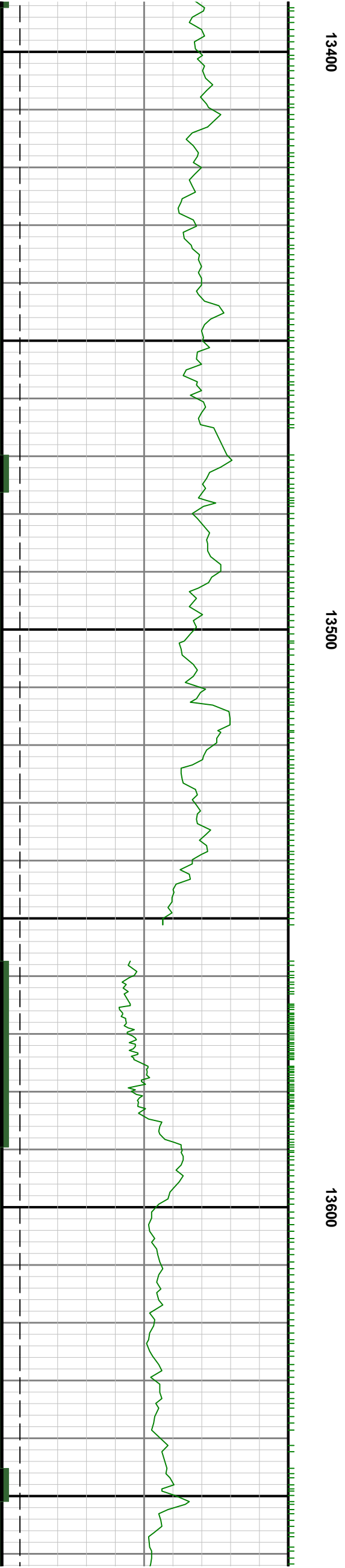
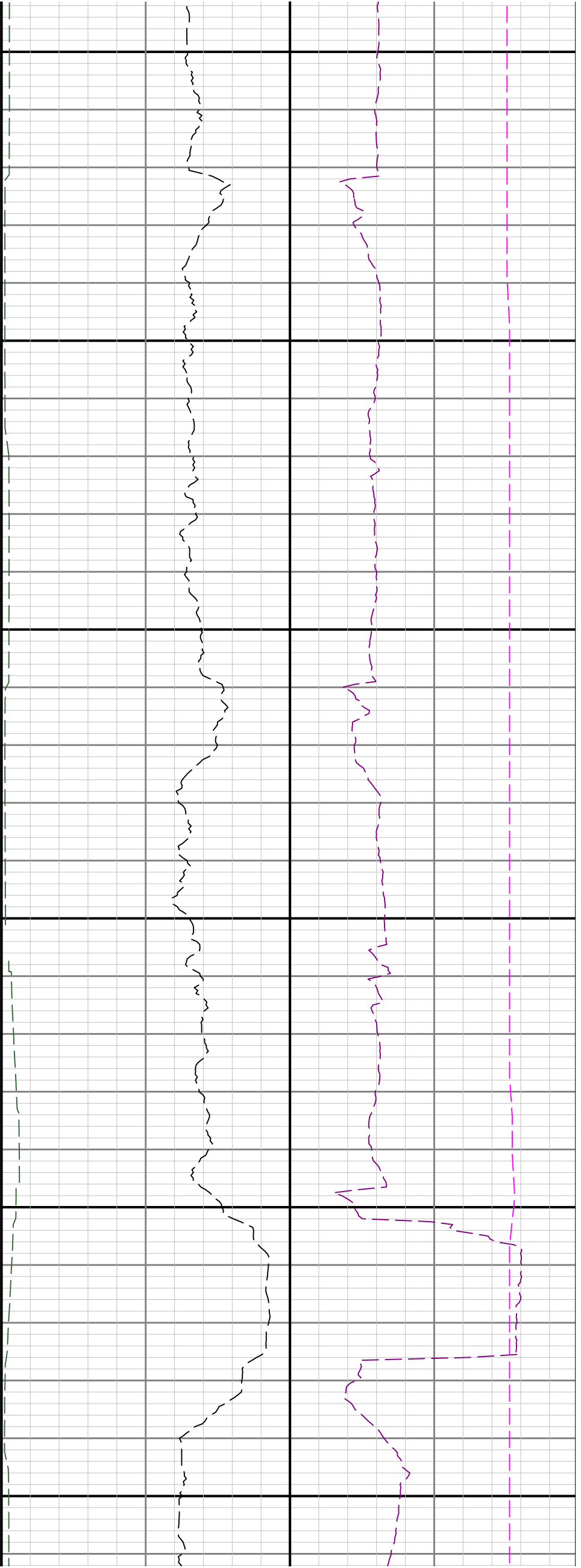


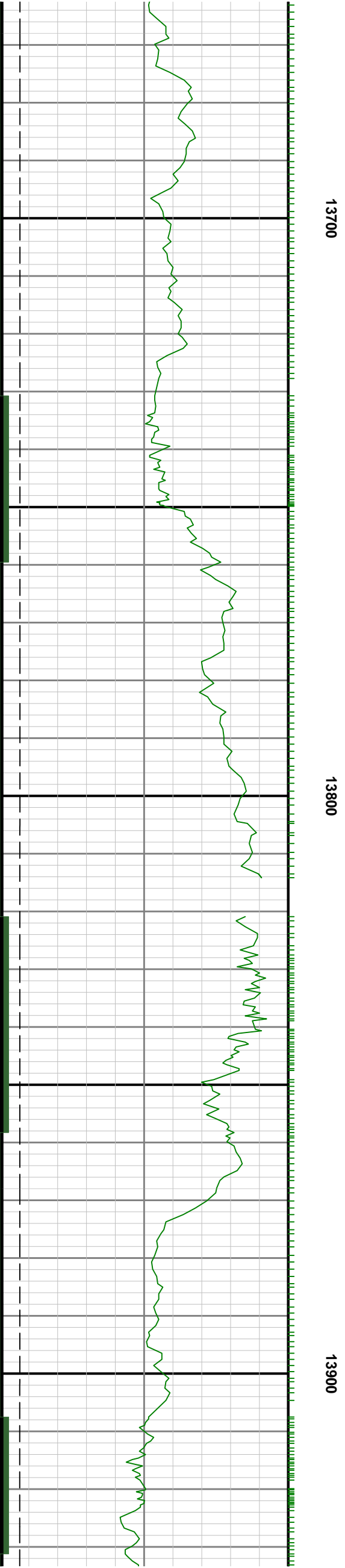
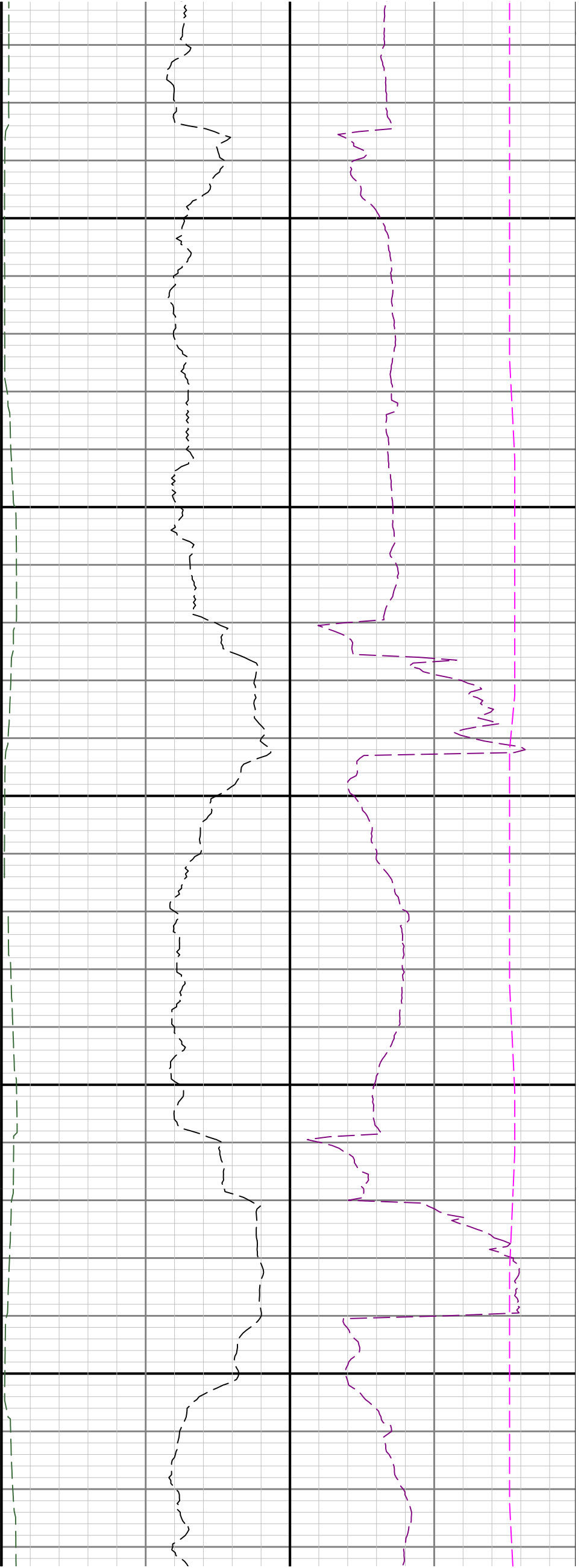


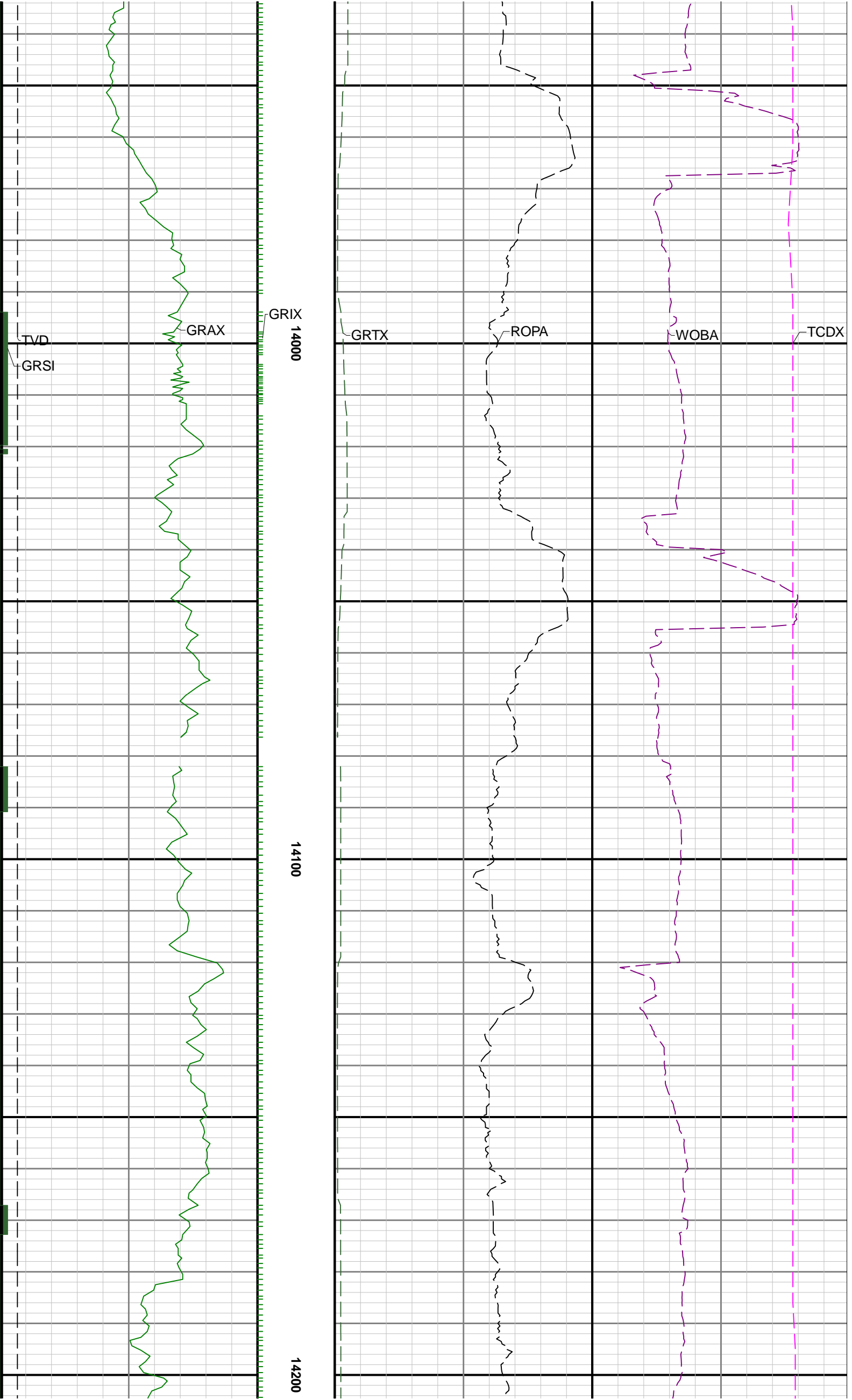
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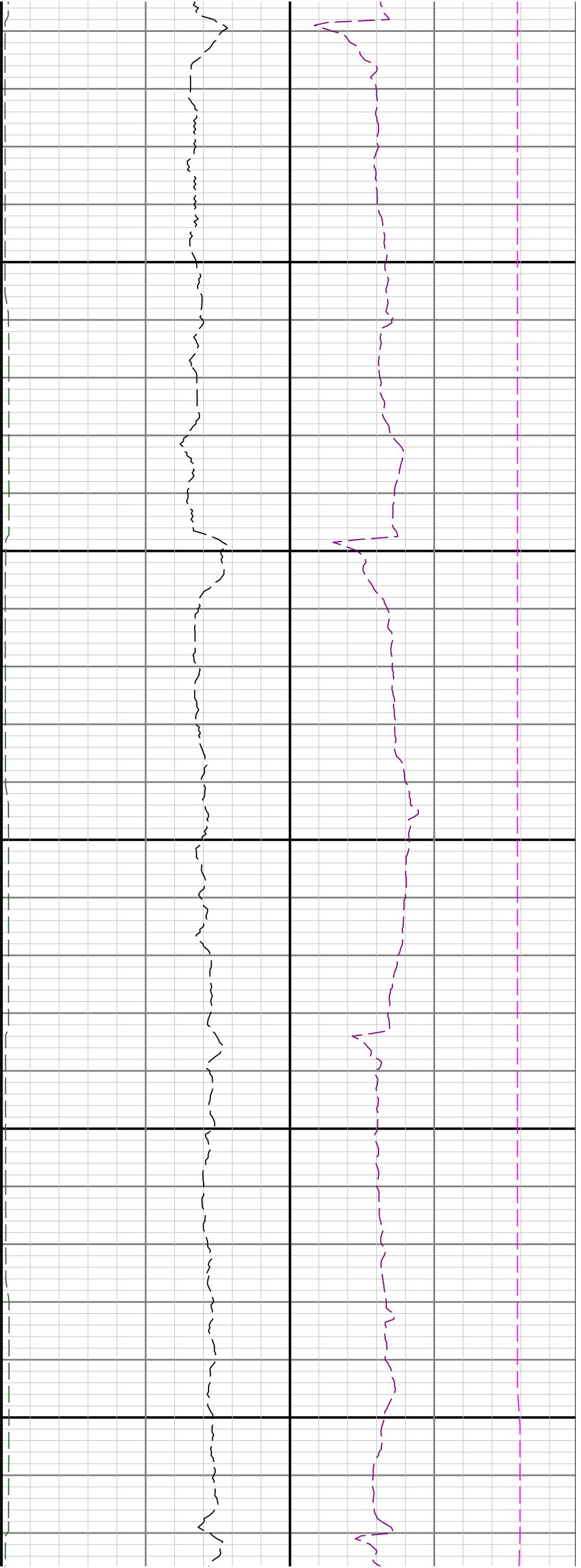
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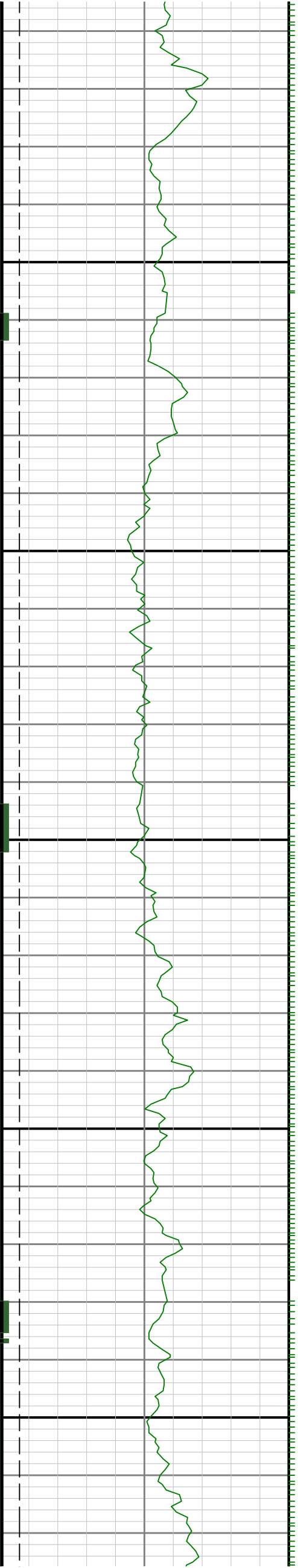


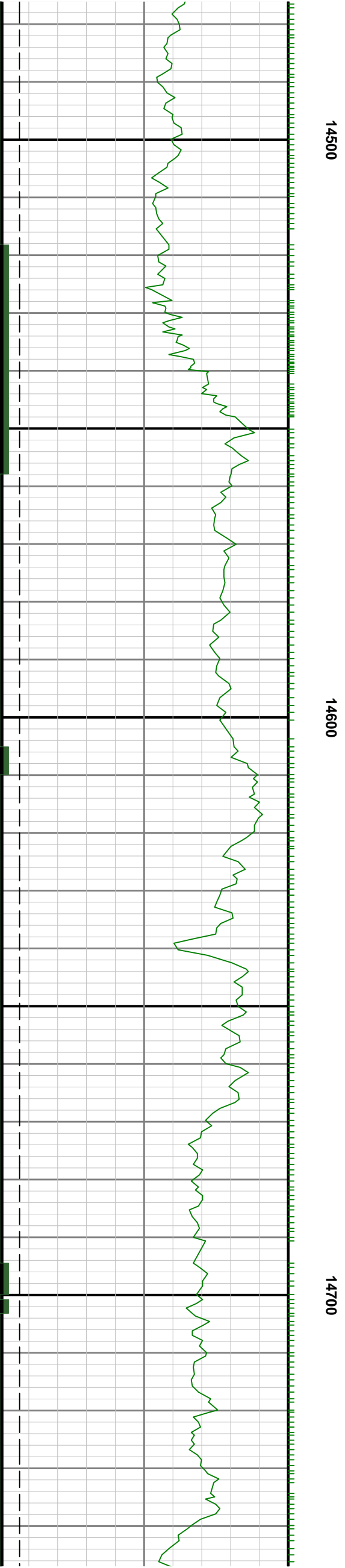
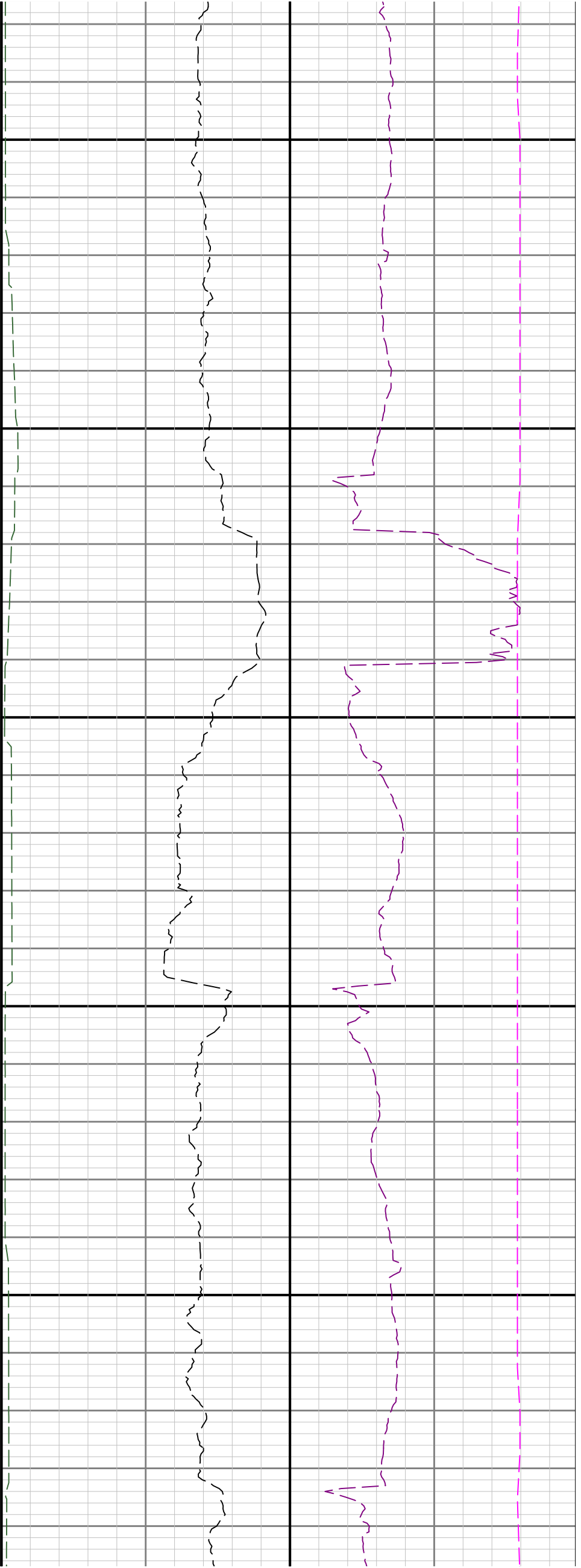


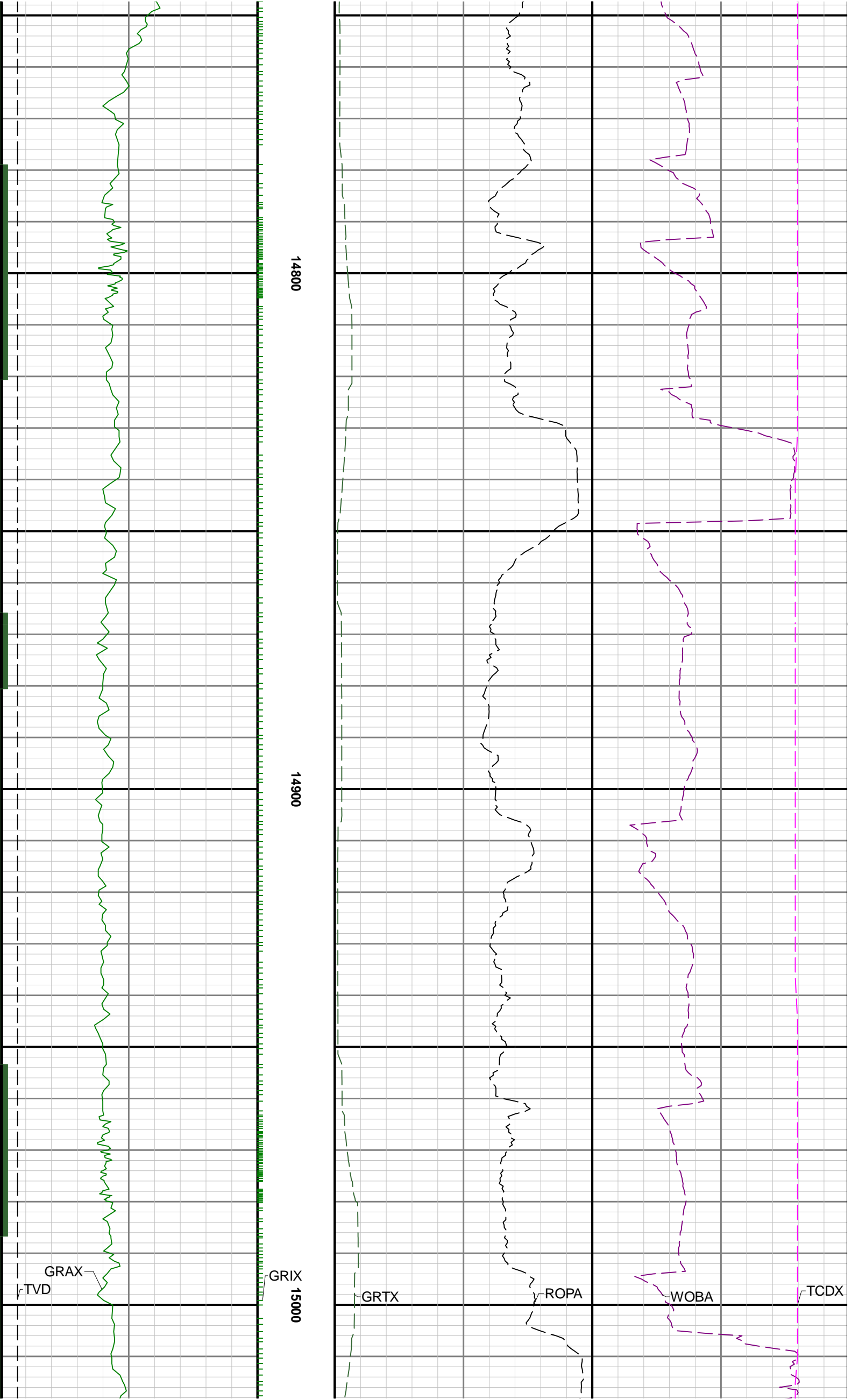


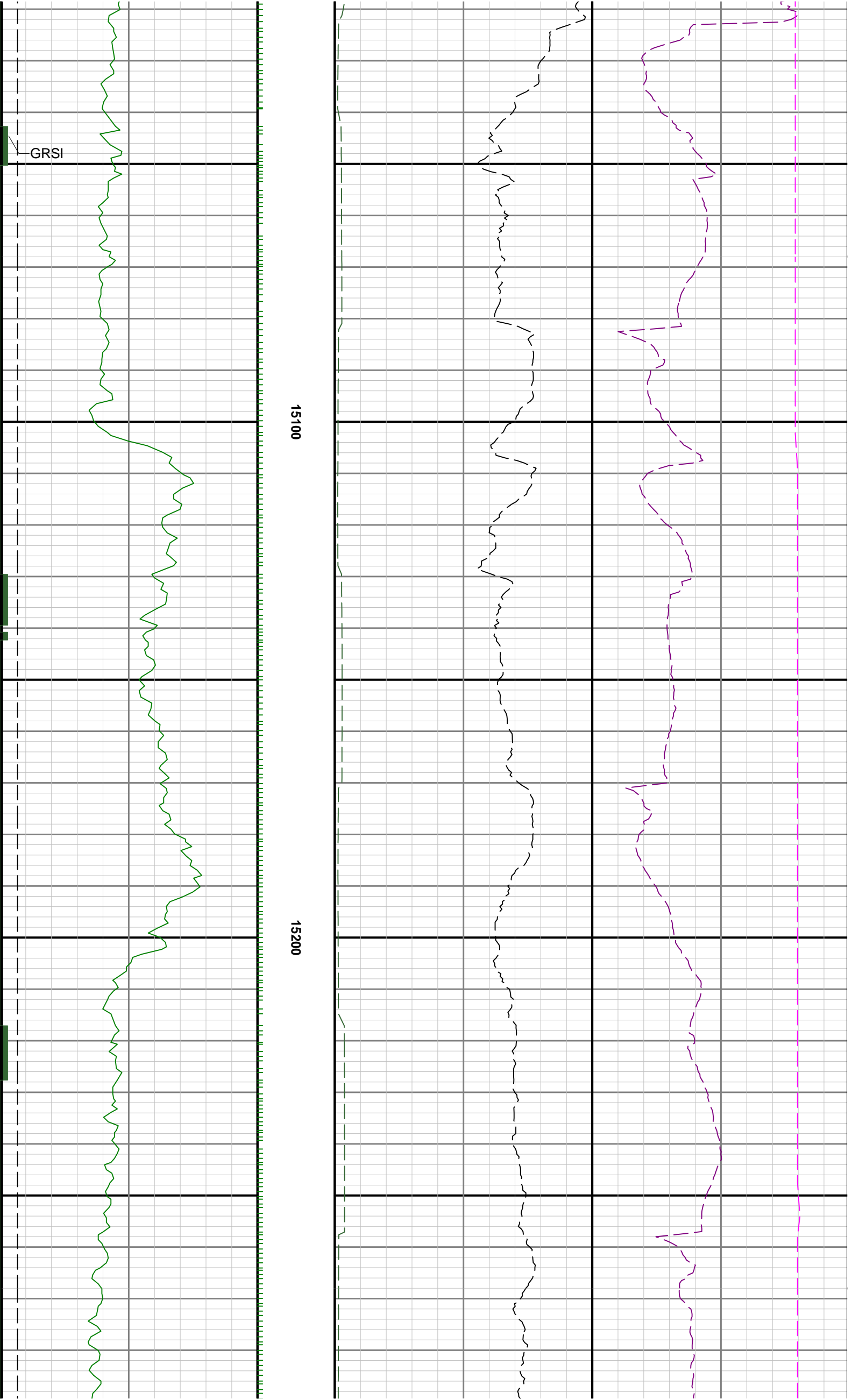
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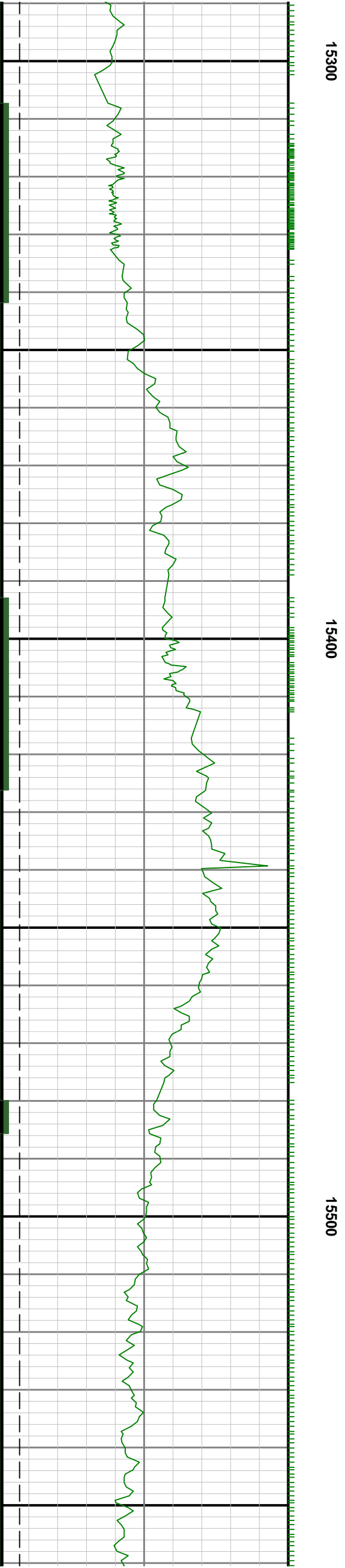
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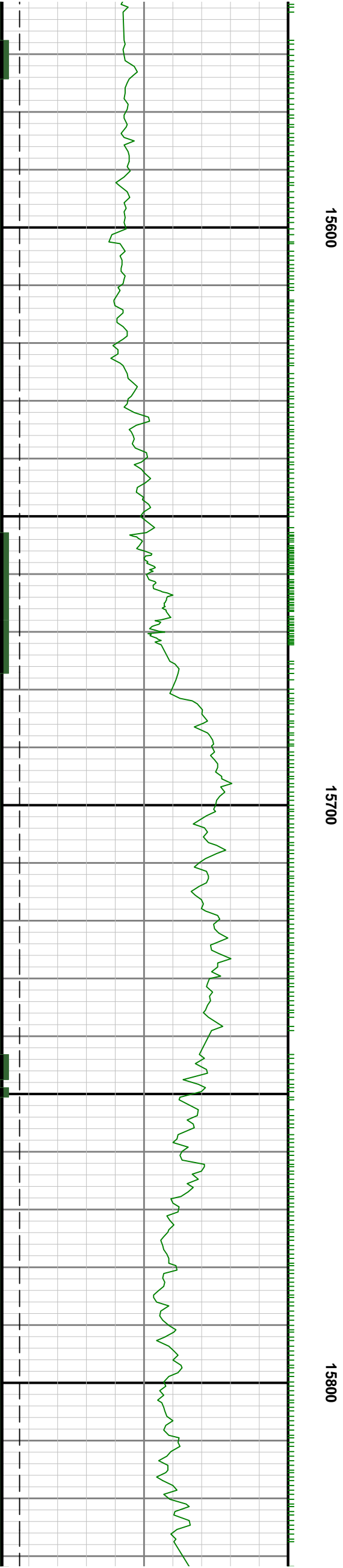
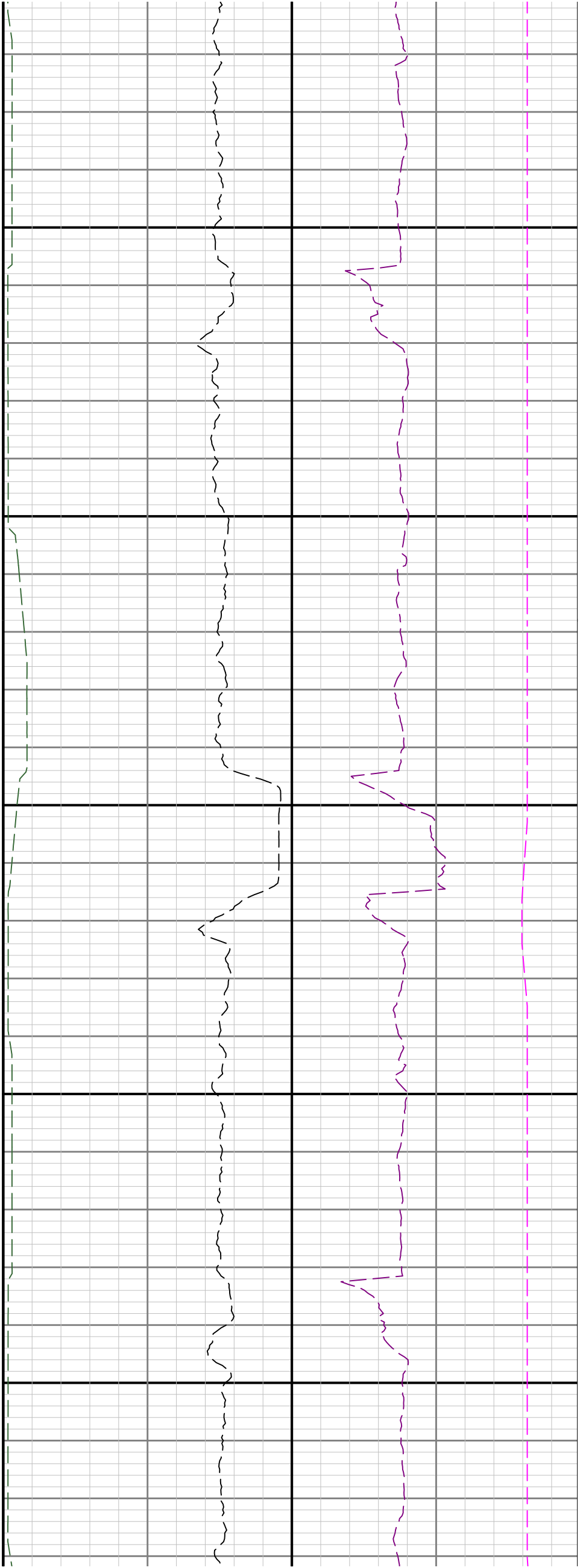


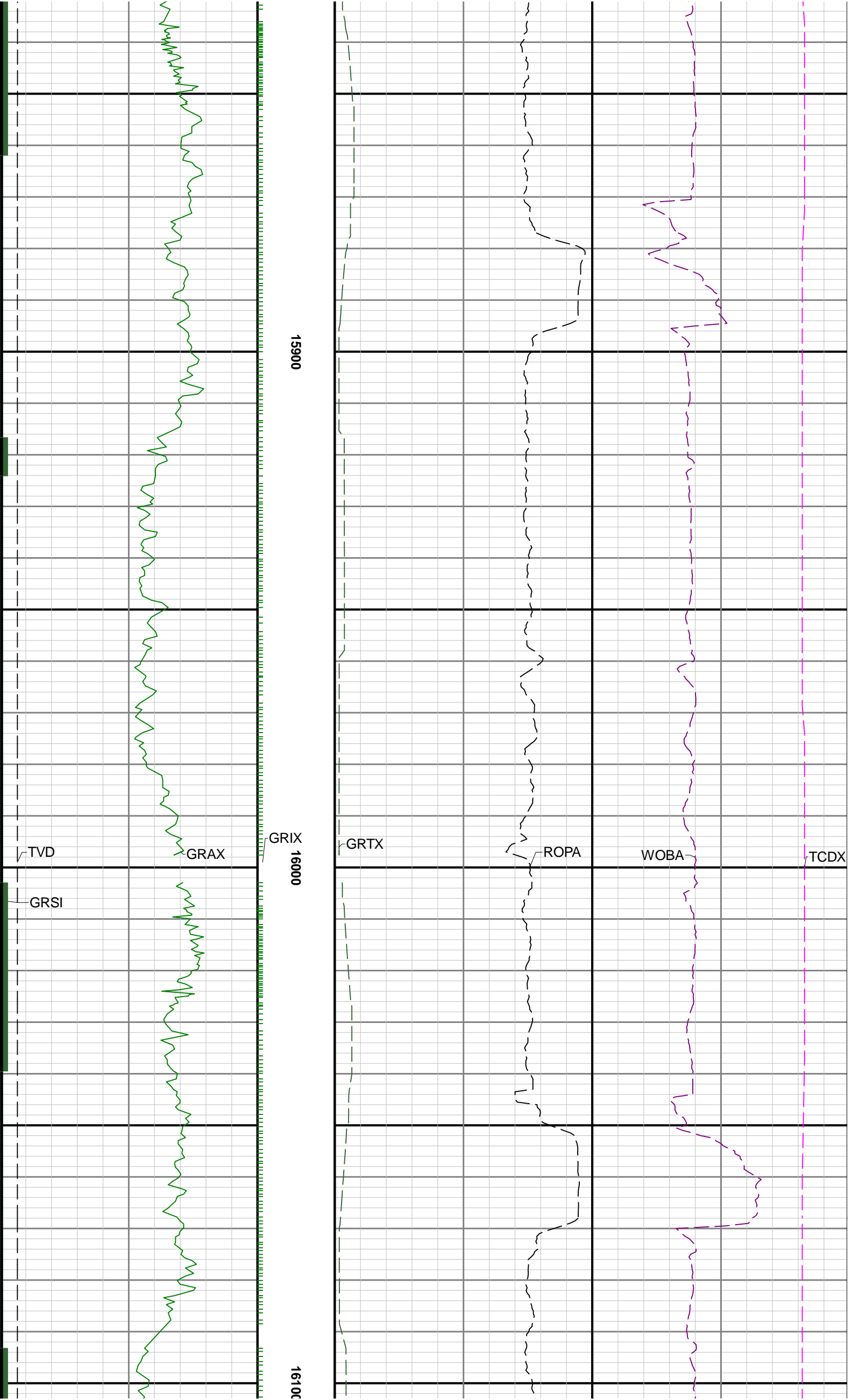


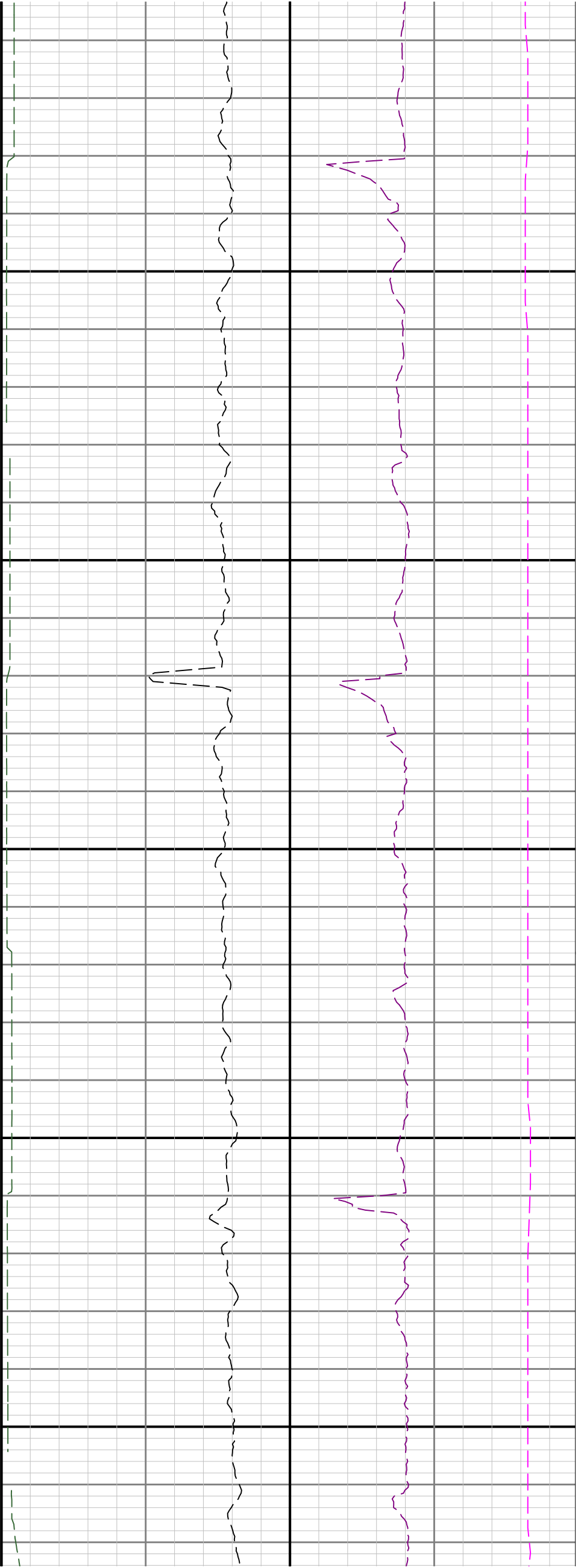






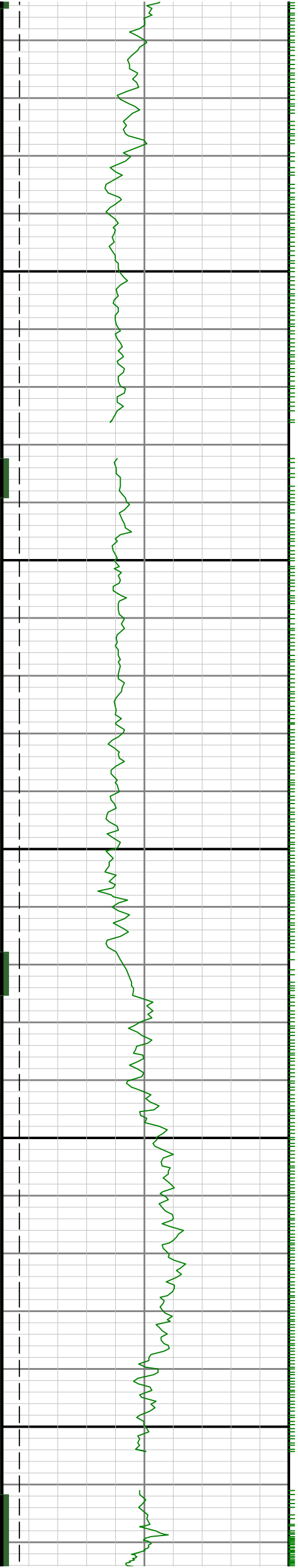


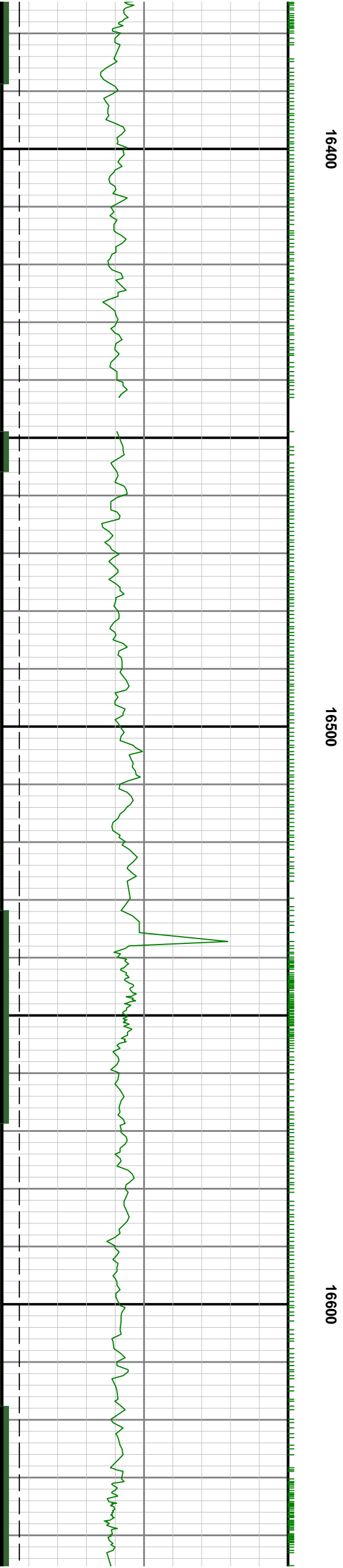
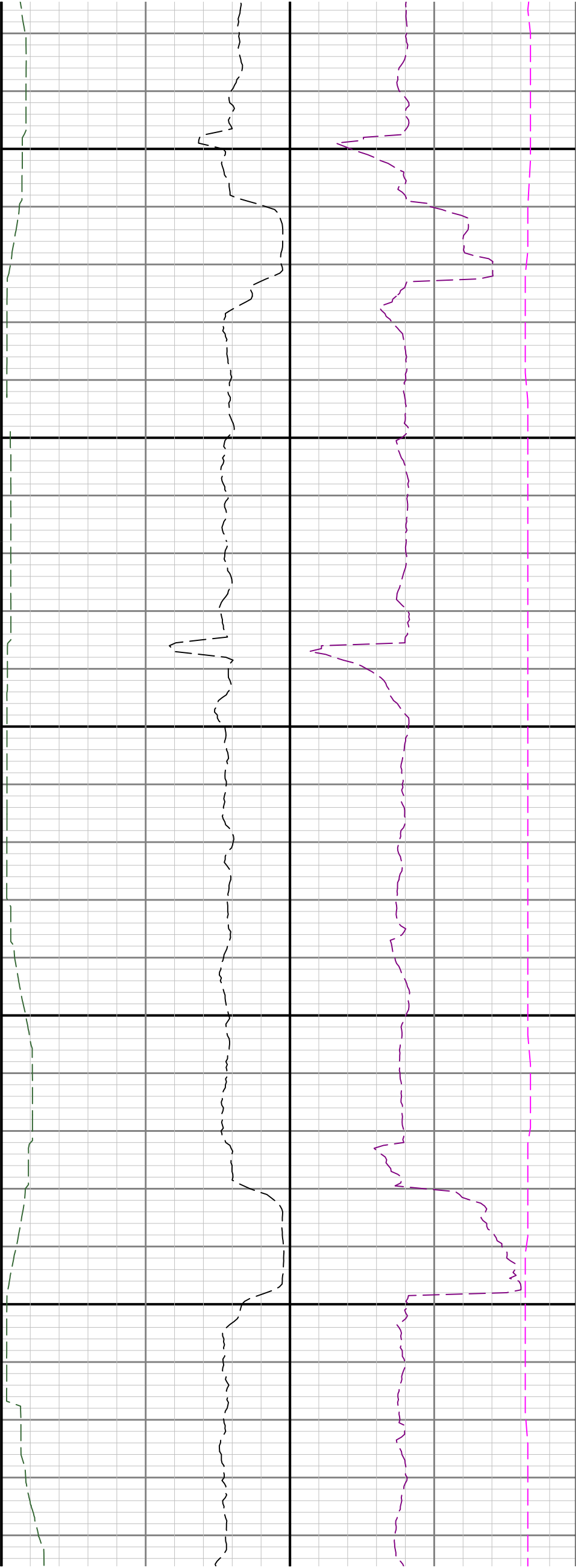


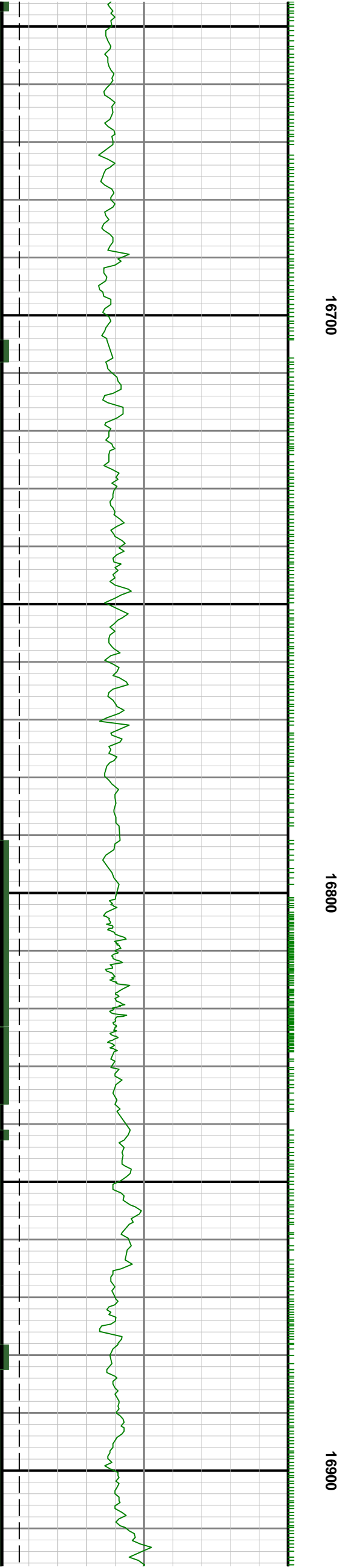
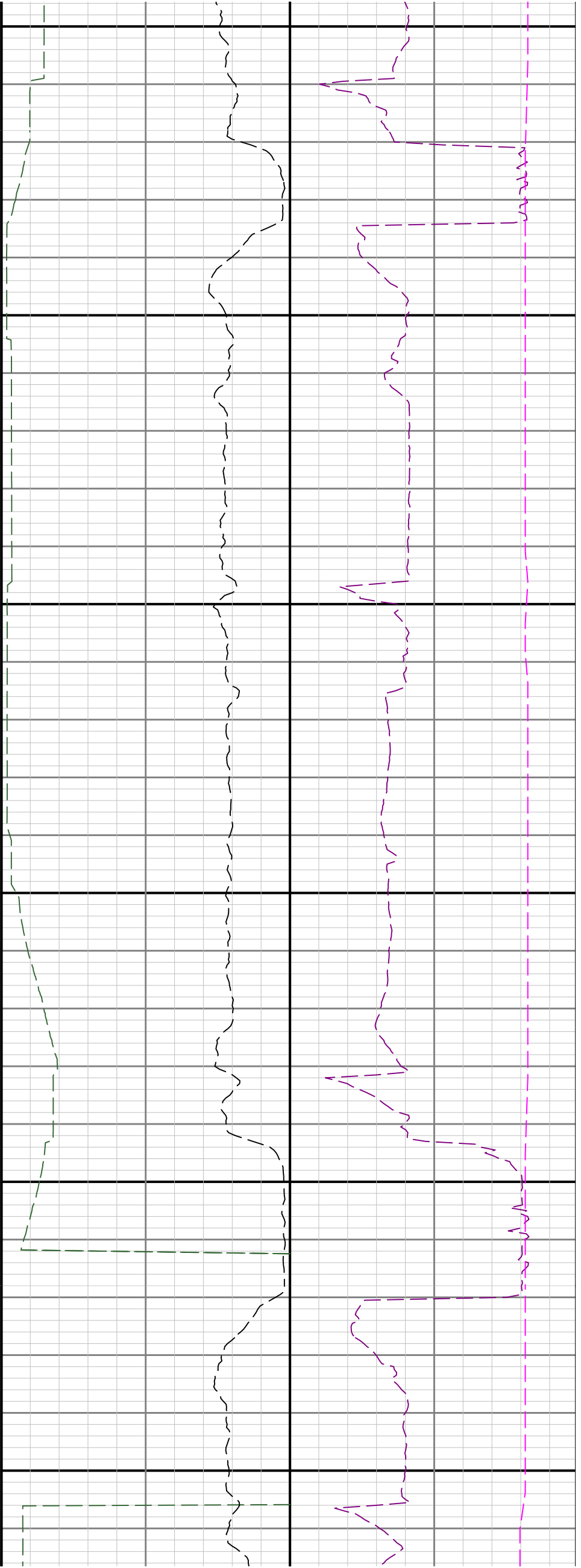


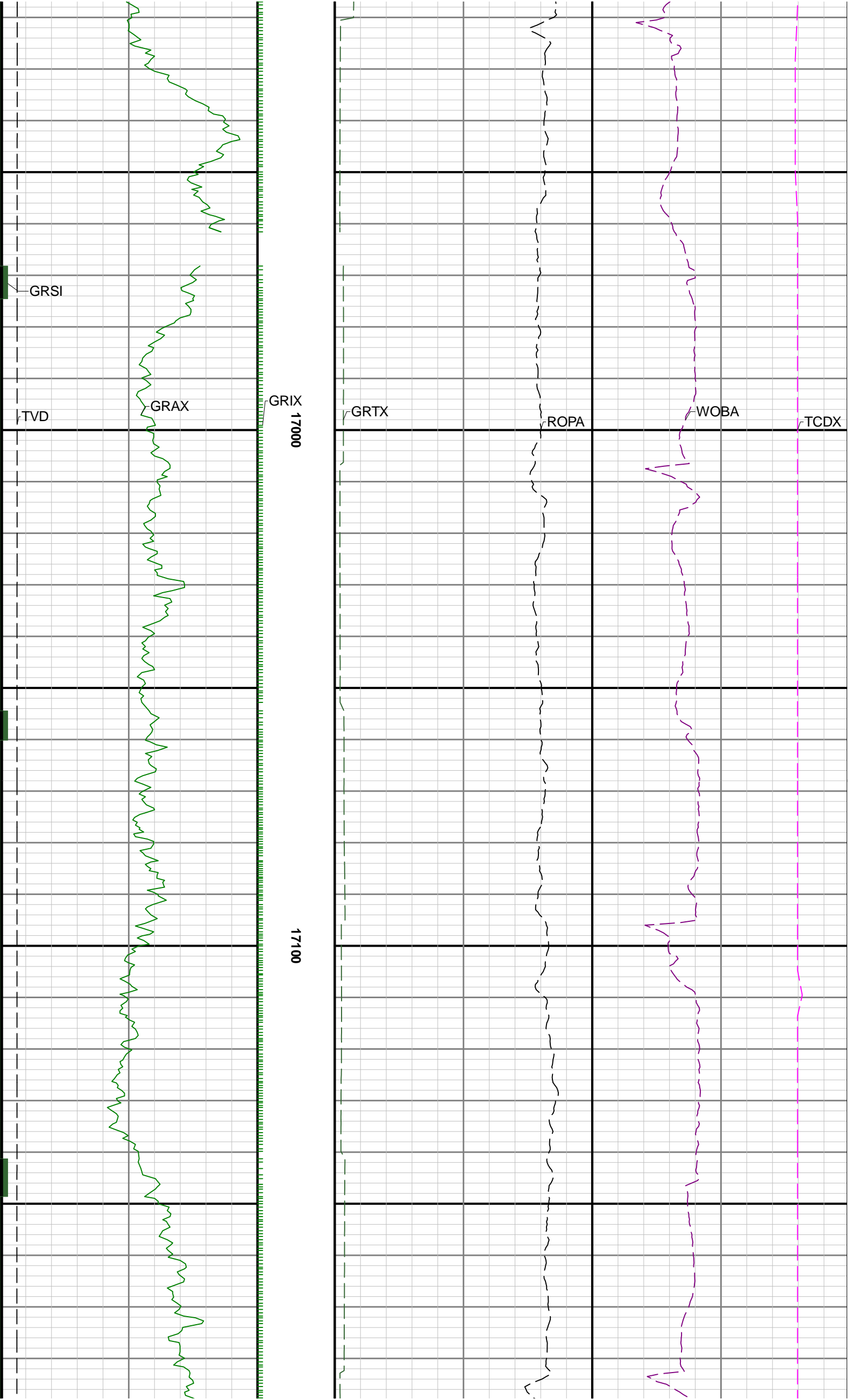
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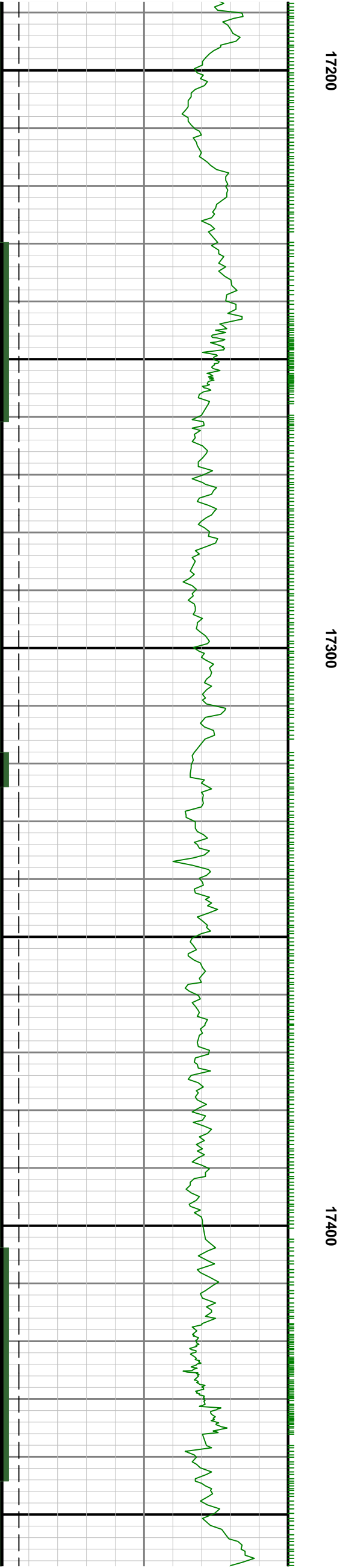
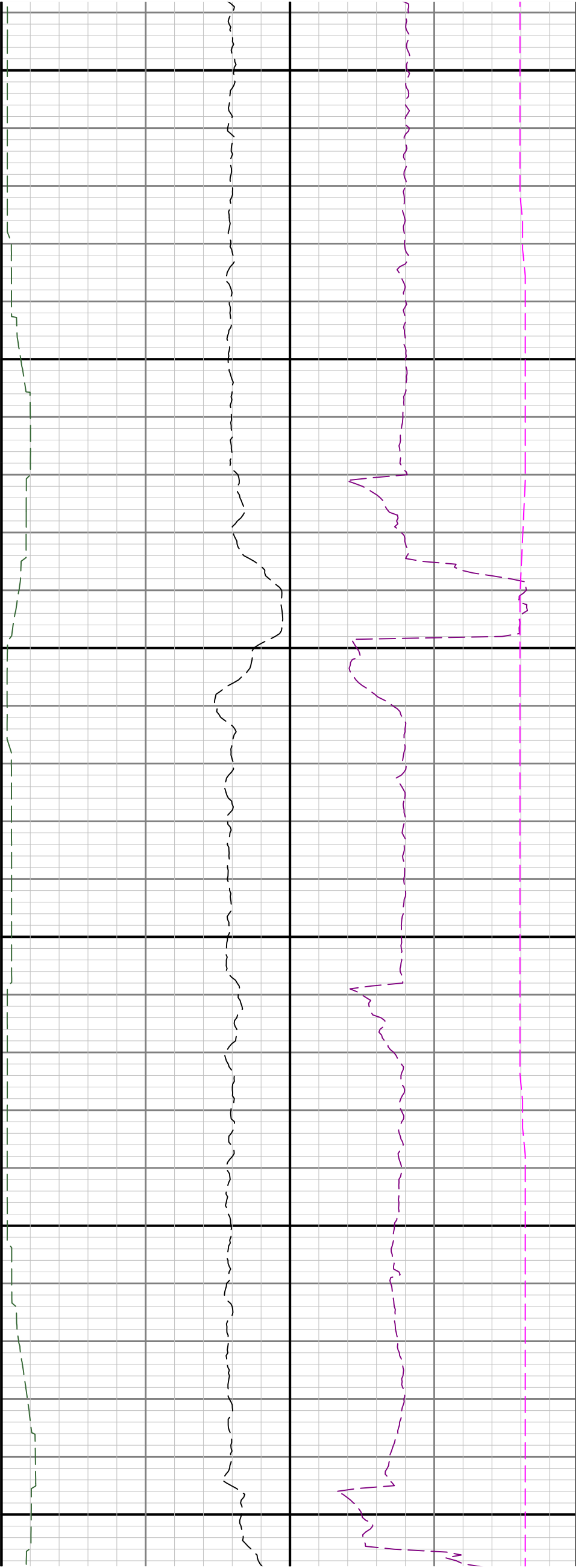
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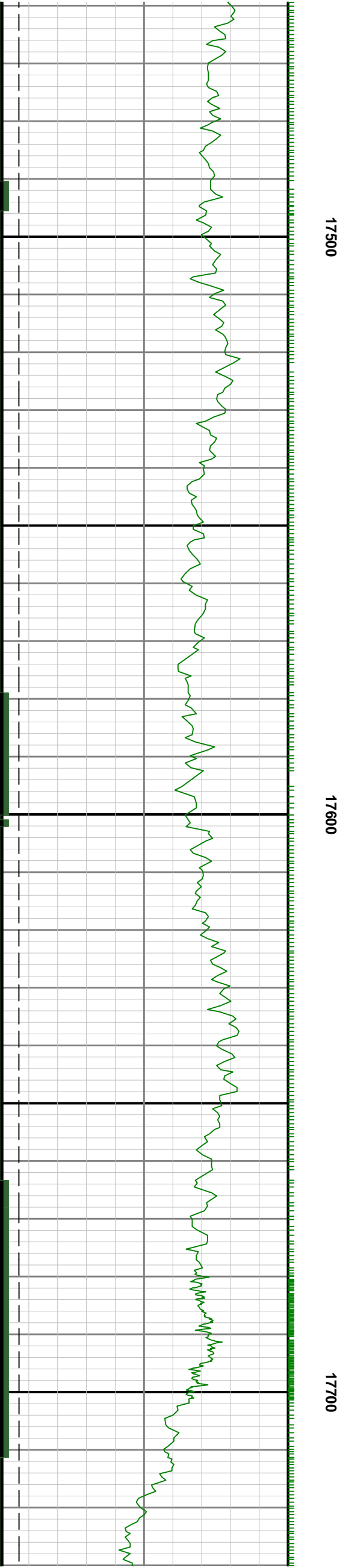
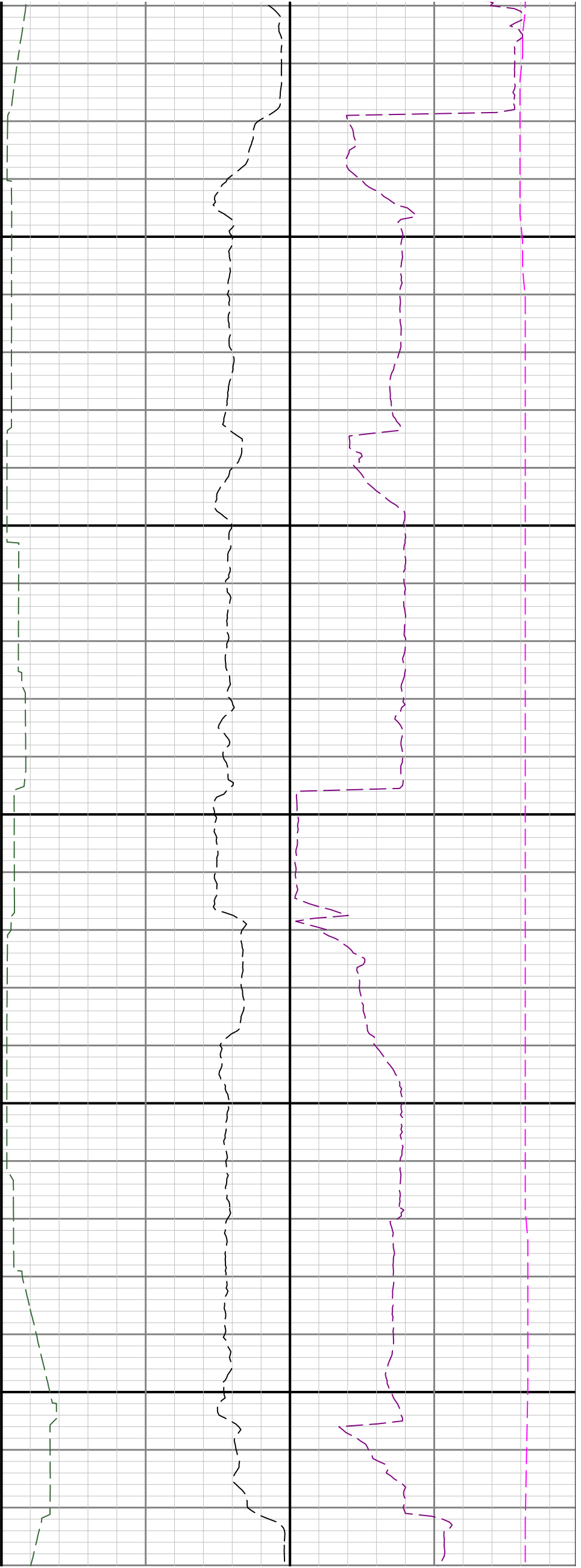


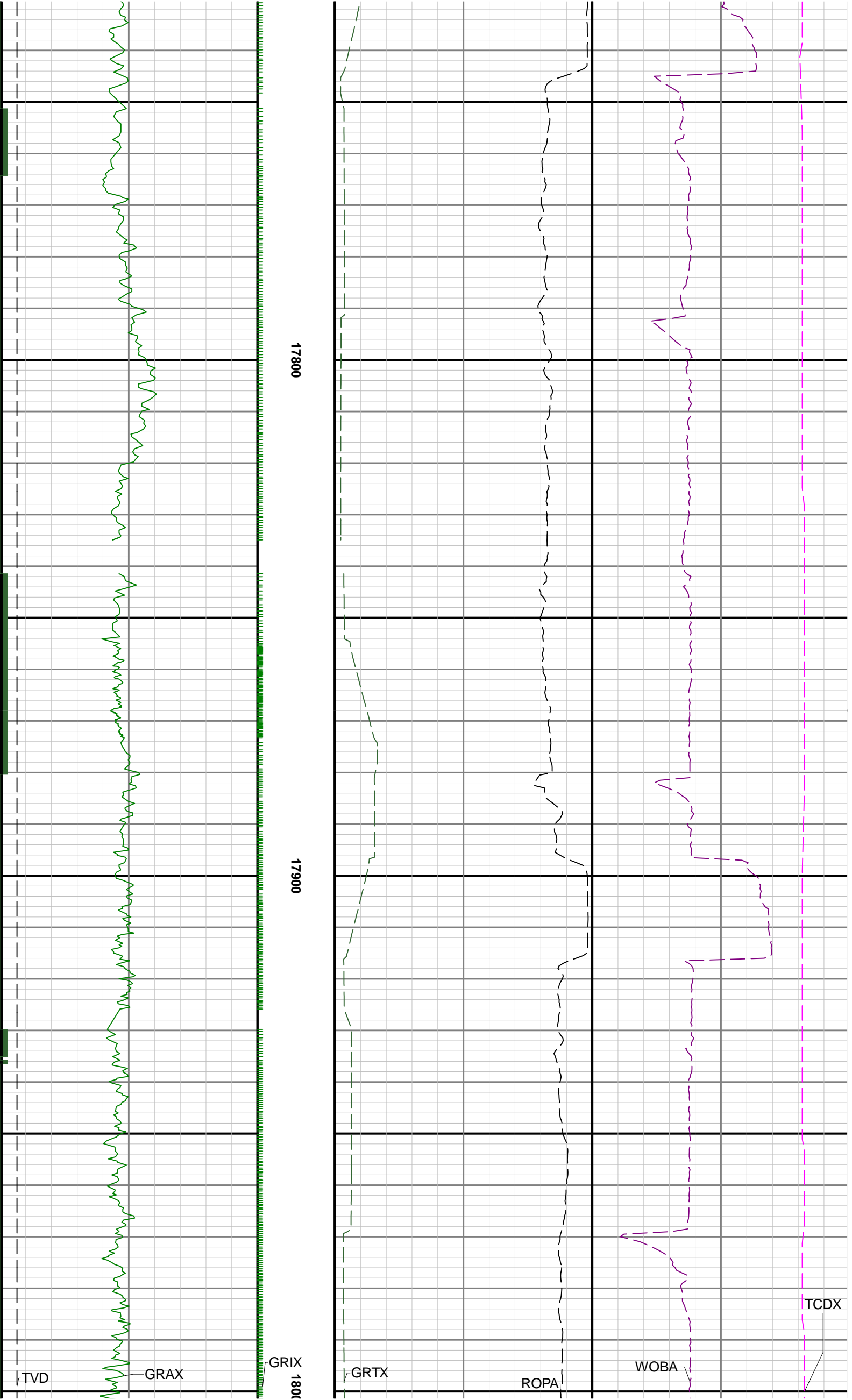


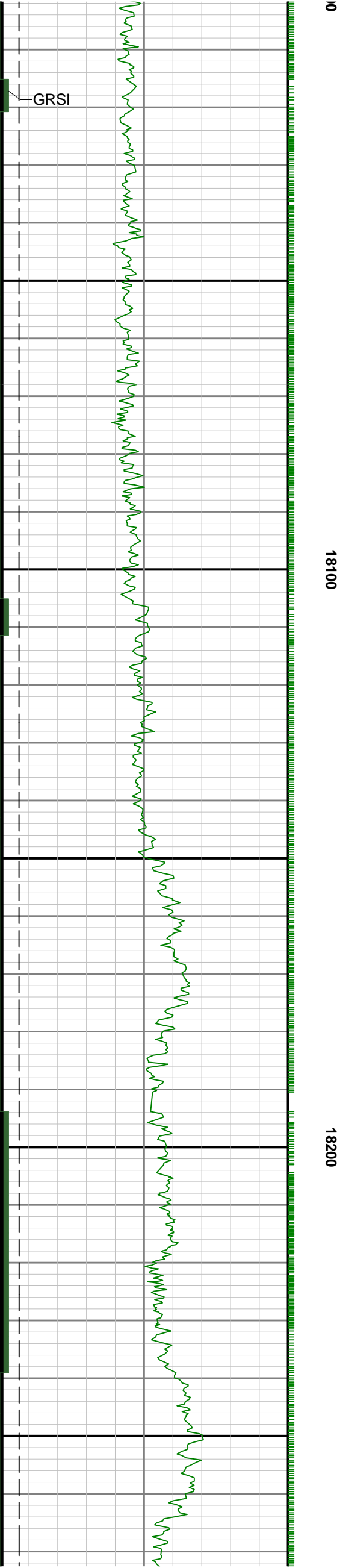
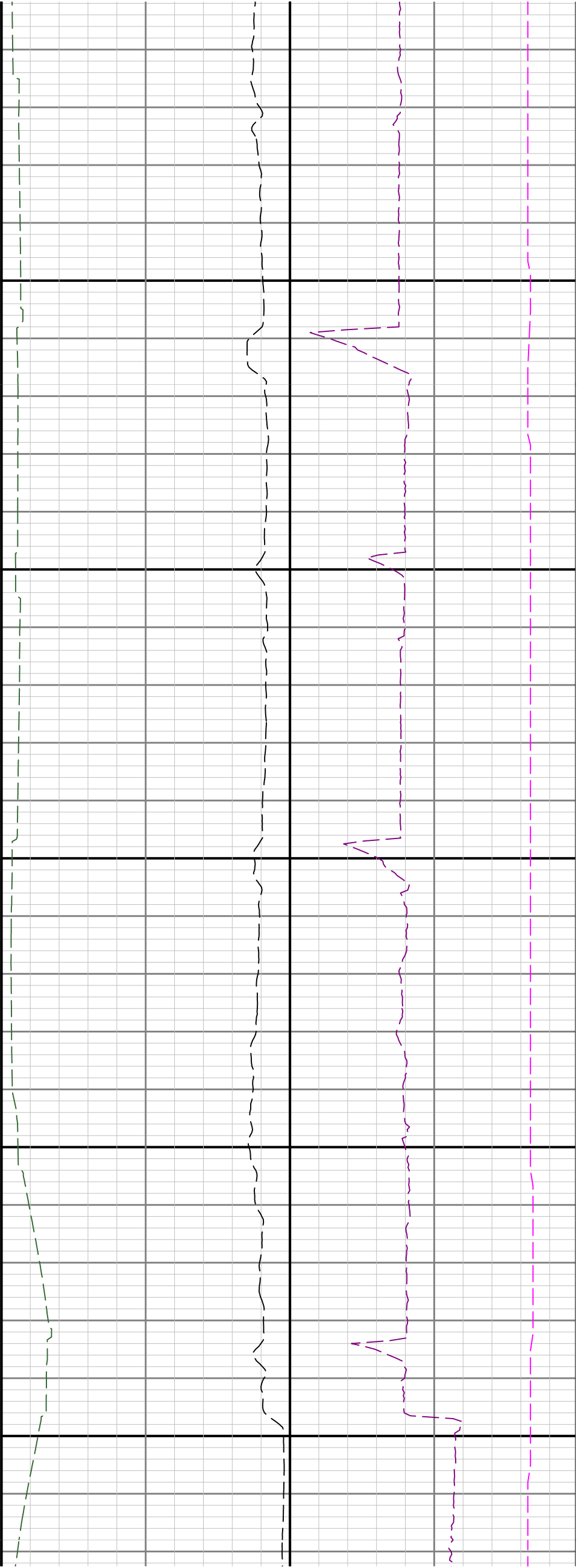












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