



## LWD MEMORY LOG

# Gamma Ray

Scale:		Company: SRC Energy				
1:240 MD		Well: Falken 32N-9B-L				
Depth Reference:		Field: Weld County				
Driller's Depth		County: Weld County				
State:		Colorado				
Status:		Other Services:				
Final Print		Latitude: <div>40° 10' 00" N</div>				
API No: 05-123-45103		Longitude: <div>101° 15' 00" W</div>				
Job ID: 8728098		SEC: 11 TWN: 6N RGE: 66W				
Permanent Datum (P.D.): Mean Sea Level		Elevation: 0.00 ft				
Log Measured From: Rig Floor		Above P.D. 4835.00 ft				
		Elev. KB: N/A				
		Elev. DF: 4835.00 ft				
		Elev. GL: 4810.00 ft				
Dates		Magnetic Field Reference				
Interval Logged						
Date From: 2017-09-16		Top: (ft) 1830.00				
Date To: 2017-09-30		Bottom: (ft) 18910.00				
Spud Date: 2017-09-16		Azi Reference North: True				
		Dip Angle: (deg) 66.98				
		Total Magnetic Field Strength: (nT) 52688				
		Mag to Reference North Correction: (deg) 7.44 E				
Borehole Record		Casing Record				
Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
13.500	25.00	1830.00	9.625	36.00	25.00	1815.00
8.500	1830.00	18910.00				
Mud Record		Deviation Record				
Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Incl Az (Start)	Incl Az (End)
Oil Based Mud	1830.00	18910.00	13.500	1686.00	0.03   326.97	10.68   73.51
			8.500	17080.00	10.68   73.51	90.99   270.02
Acquisition System		Software Version		Other		
Baker Hughes Cadence	RTA.1		Rig: PD 562			
PlotStudio	4.1.7763.3		Contractor: Precision Drilling		Unit: D&E	
			District: RMA			

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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	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
2	2	8.500	PDC	3.00	AutoTrak Curve	1815.00	18897.00	1815.00	18910.00	2017-09-27 13:07	2017-09-30 21:57	71.74

## Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Matthew Leopold	2017-09-27	2017-09-28	Garrett Gerdson	2017-09-28	2017-10-01			

## 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+ (%)
2017-09-27 09:19	2	1830.00	Oil Based Mud	9.6	21	N/A	9.0	78/22	Active Pit	35000	0.00
2017-09-28 04:00	2	5950.00	Oil Based Mud	9.6	25	N/A	9.6	81/19	Active Pit	50000	0.00
2017-09-28 16:00	2	8279.00	Oil Based Mud	10.2	55	N/A	9.0	68/32	Active Pit	47000	0.00
2017-09-29 04:00	2	10755.00	Oil Based Mud	10.2	49	N/A	9.0	69/31	Active Pit	46000	0.00
2017-09-29 16:00	2	13354.00	Oil Based Mud	10.2	48	N/A	9.4	68/32	Active Pit	47000	0.00
2017-09-30 04:00	2	15860.00	Oil Based Mud	10.2	48	N/A	9.4	68/32	Active Pit	48000	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)
2	ATC_SU	12406997	Near Bit Inclination	5.93	6.73	7.000	4.330
2	ATC_SU	12406997	Near Bit VSS	5.93	6.73	7.000	4.330
2	ATC_MWD	14146740	Gamma (single)	2.75	12.90	7.000	3.250
2	ATC_MWD	14146740	Directional (mag)	12.27	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
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

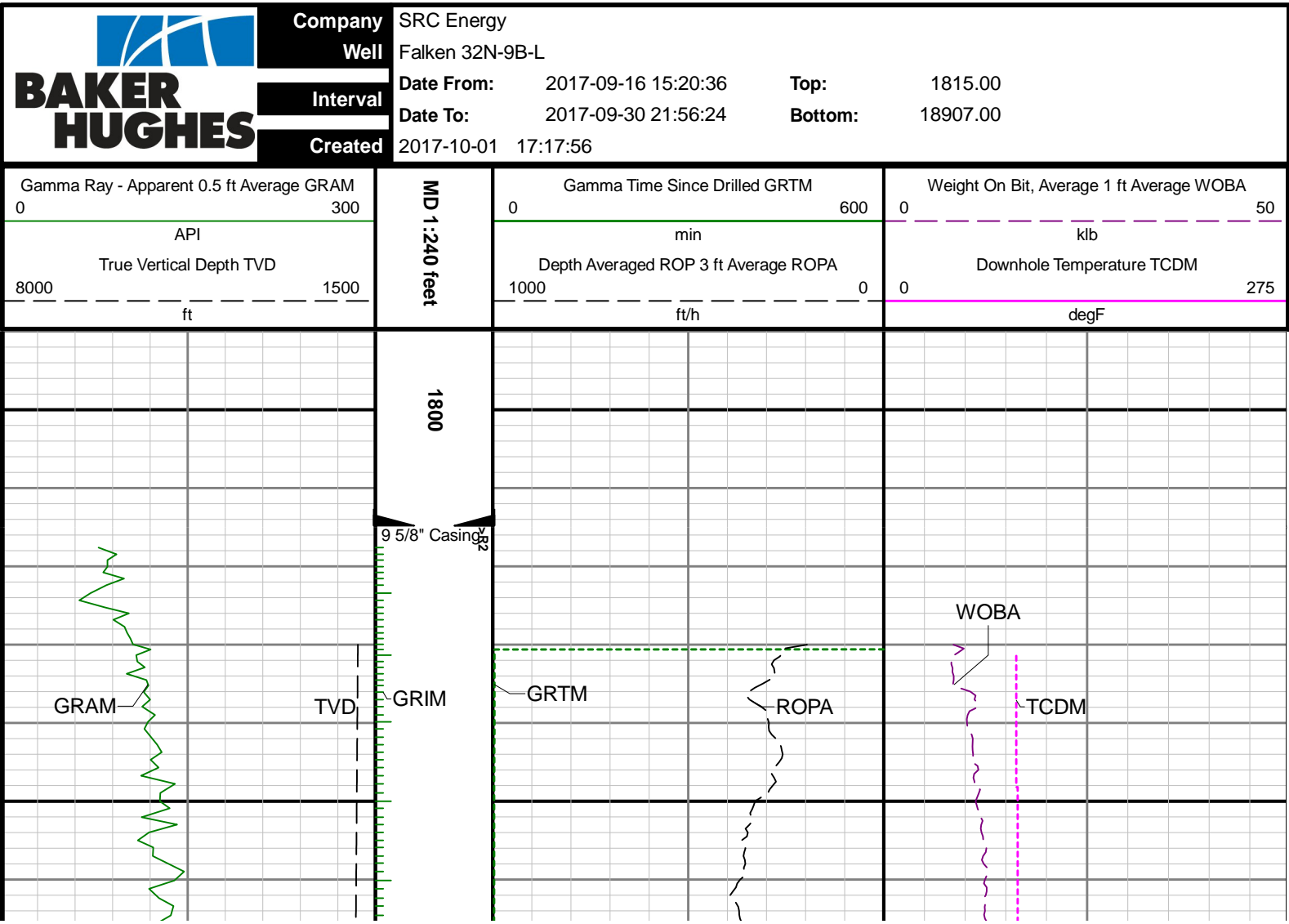
1	Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD Run 1 utilized 8 inch NaviTrak service (Directional only) behind a 13 1/2 inch bit and steerable assembly from surface to 1830 feet MD (surface to 1804 feet TVD). No logging data was acquired during this run.
3	Baker Hughes LWD Run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1830 to 18910 feet MD (1804 to 7091 feet TVD).
4	Gamma Ray Curve (GRAM) is presented 0 to 300 API per customer request.

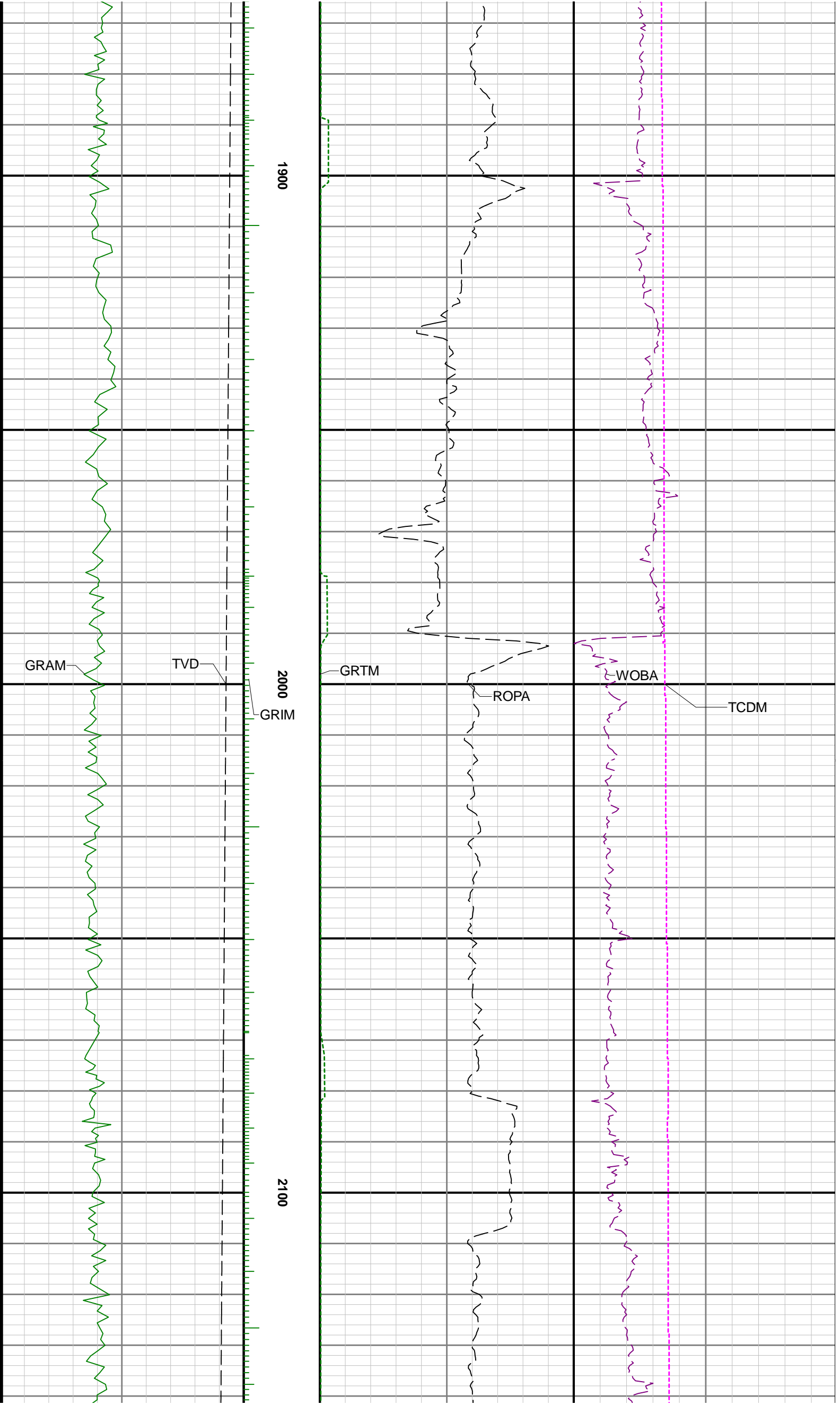
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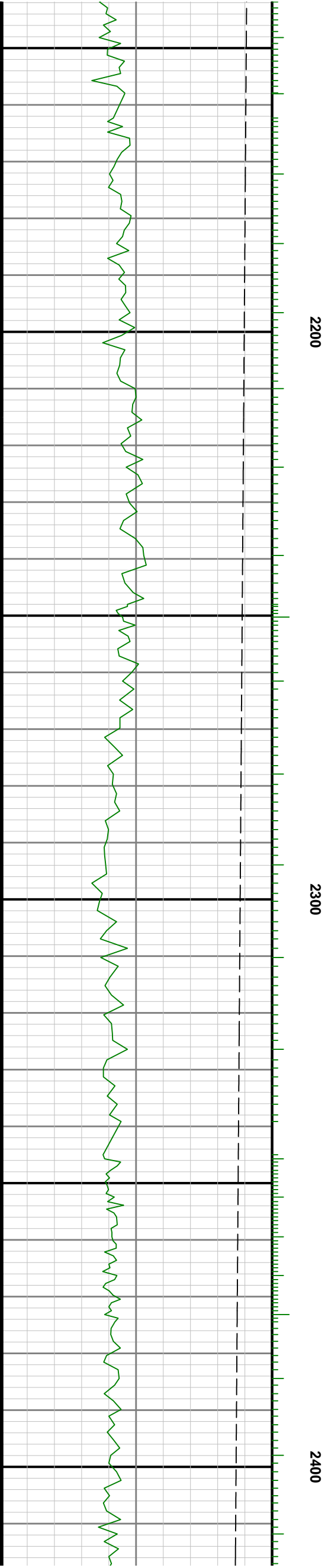
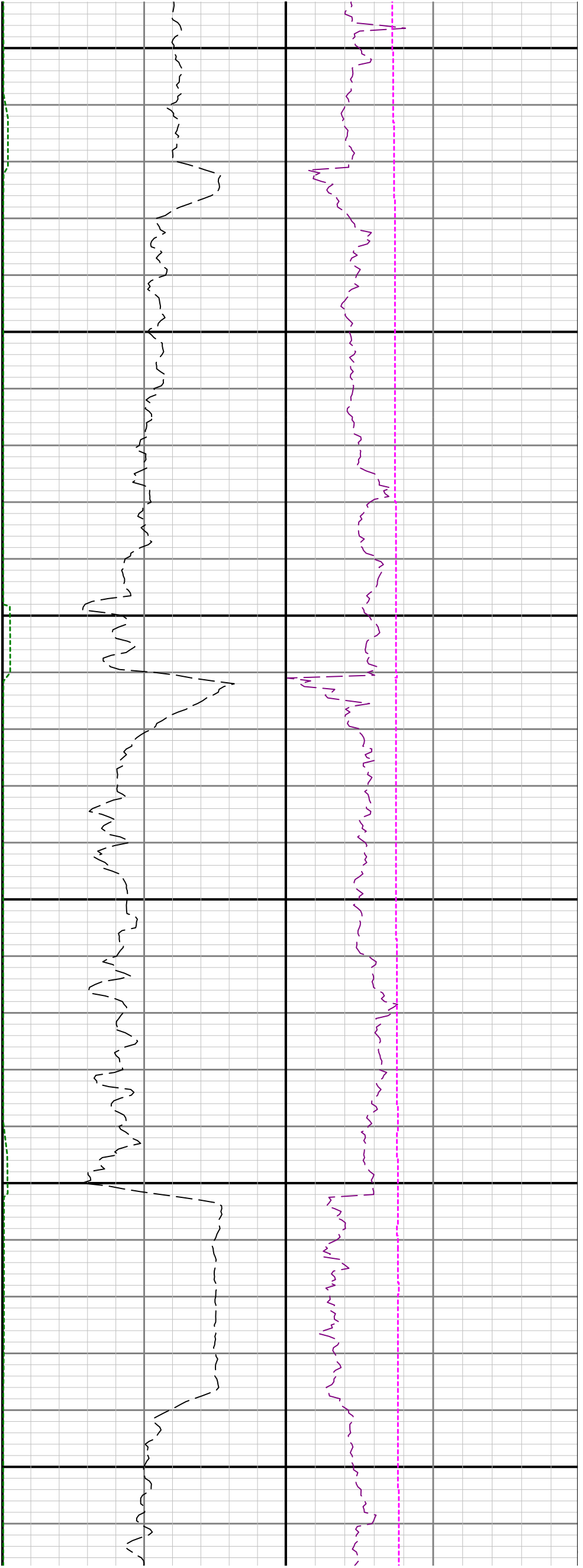
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	18900.00	8.500	2	The interval from 18897 to 18910 feet MD (7091 feet TVD) was not logged due to sensor to bit offset at well TD.

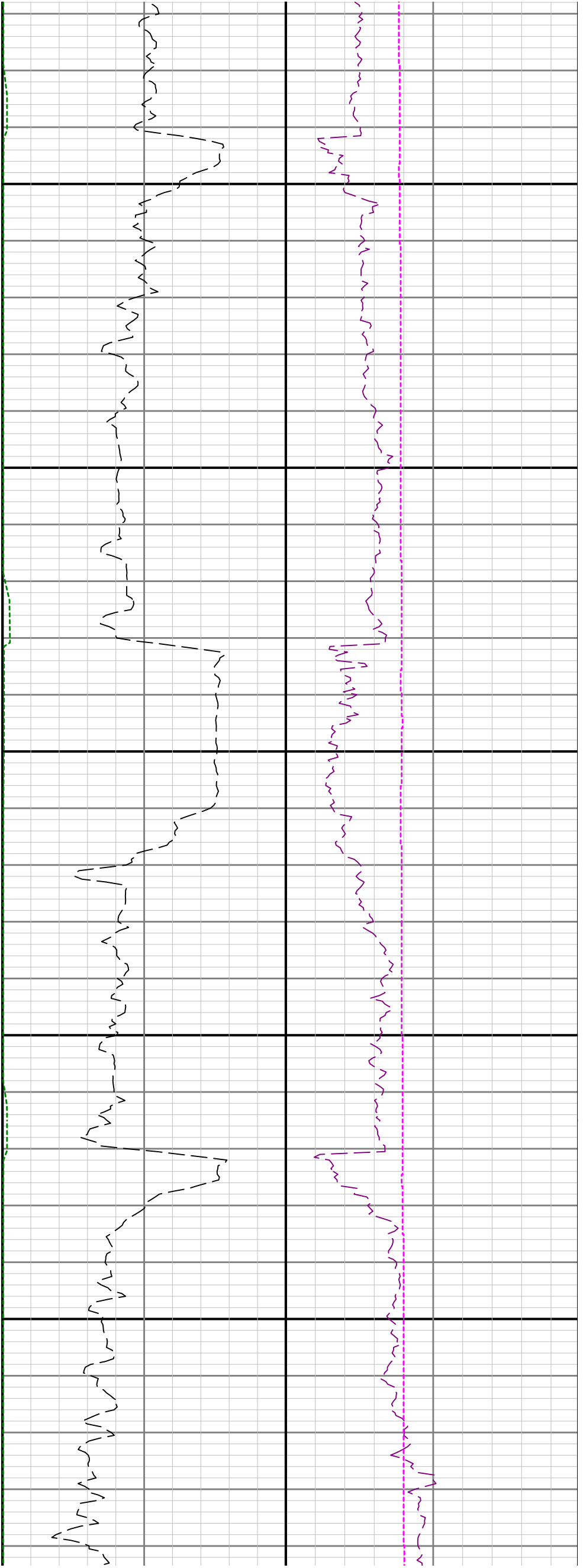
Curve Mnemonics

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
TCDM	Downhole Temperature	degF



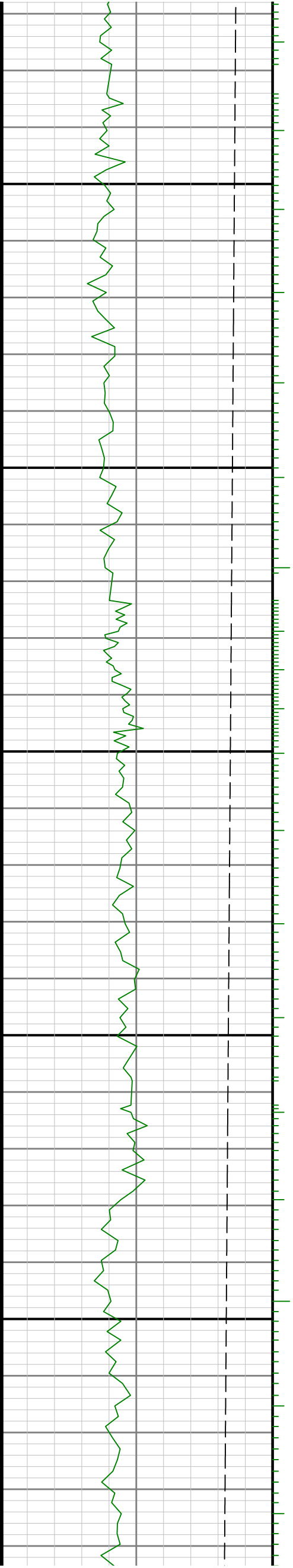


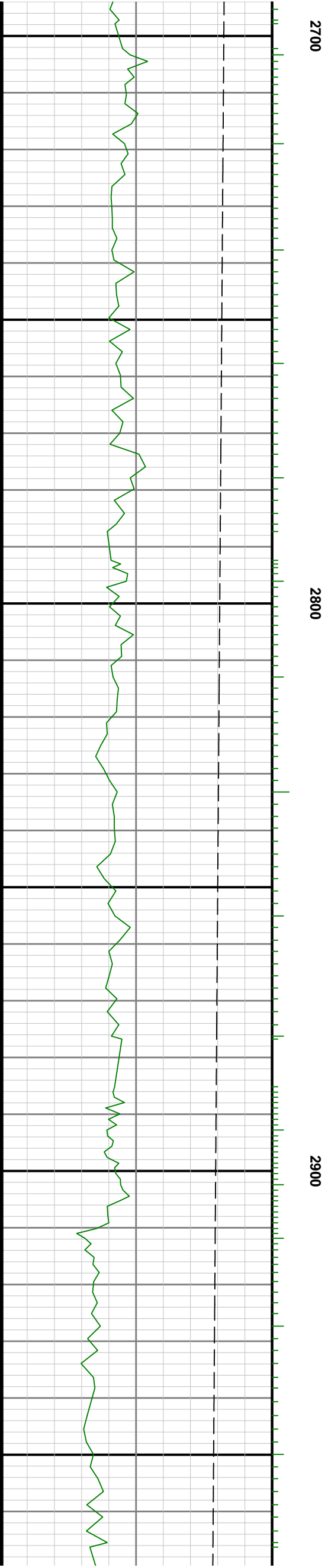
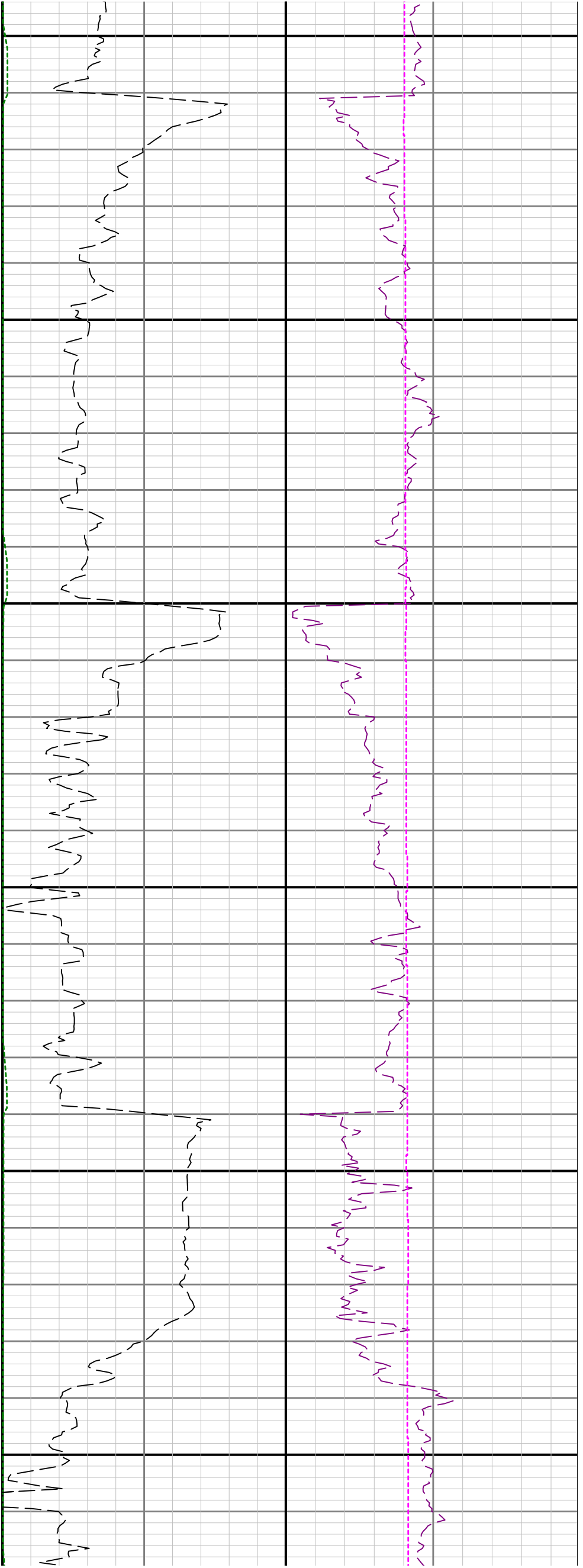


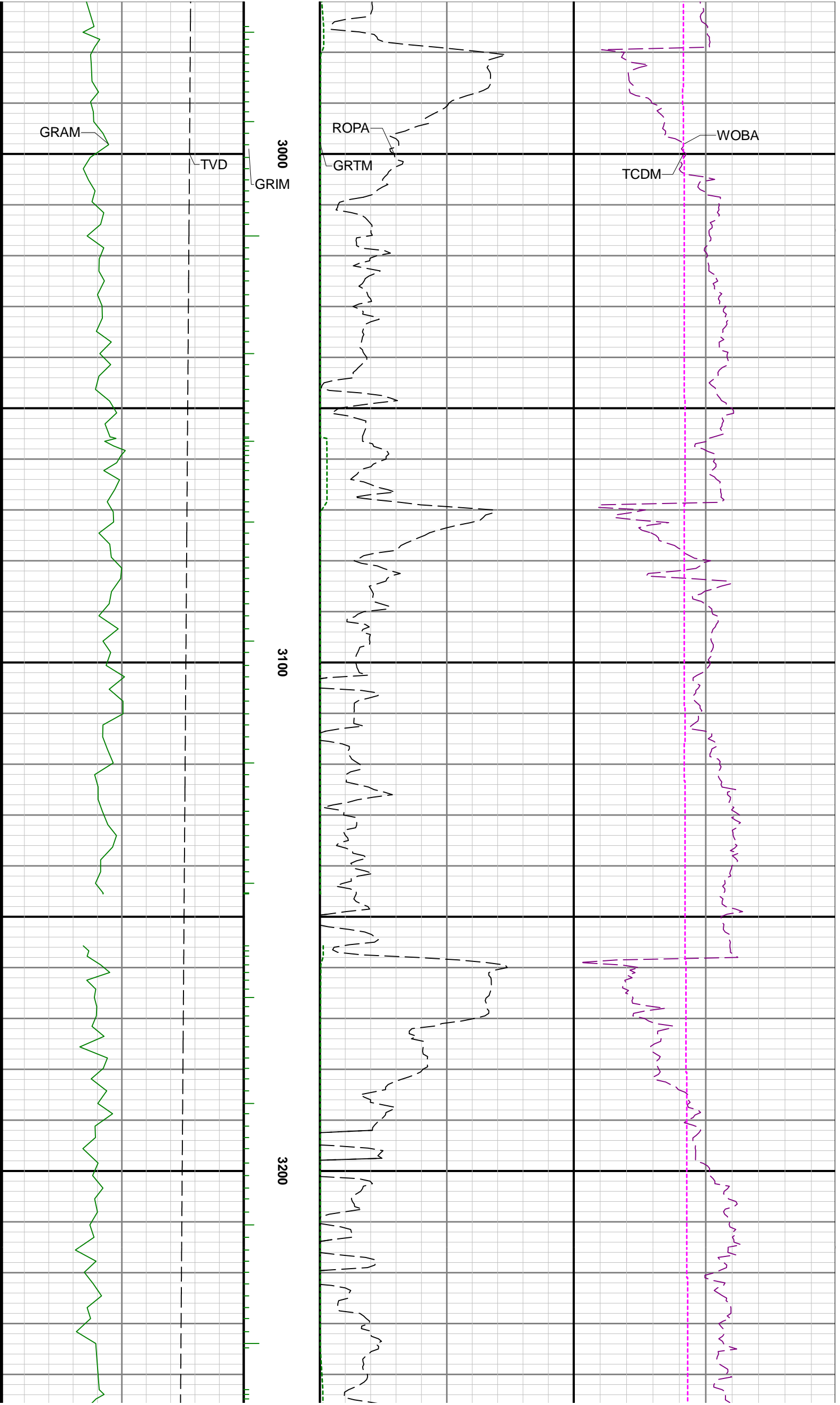


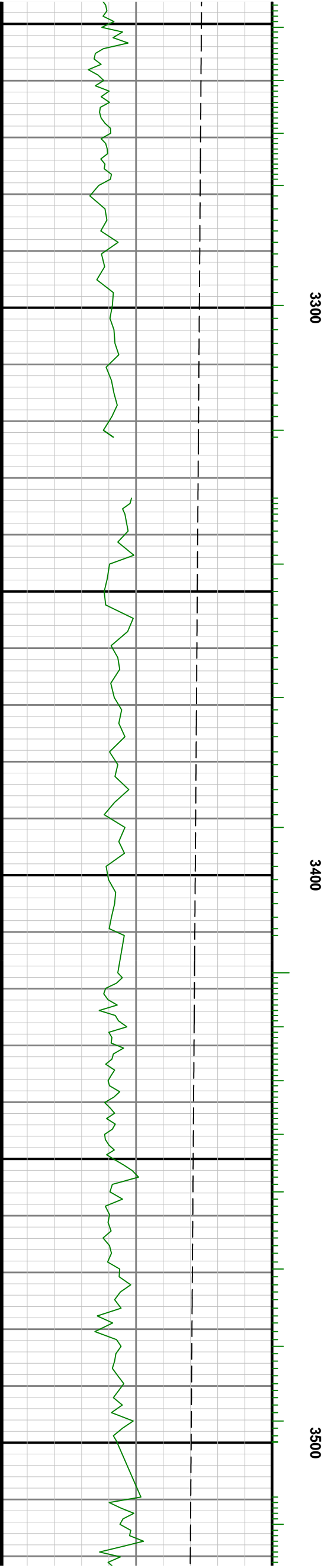
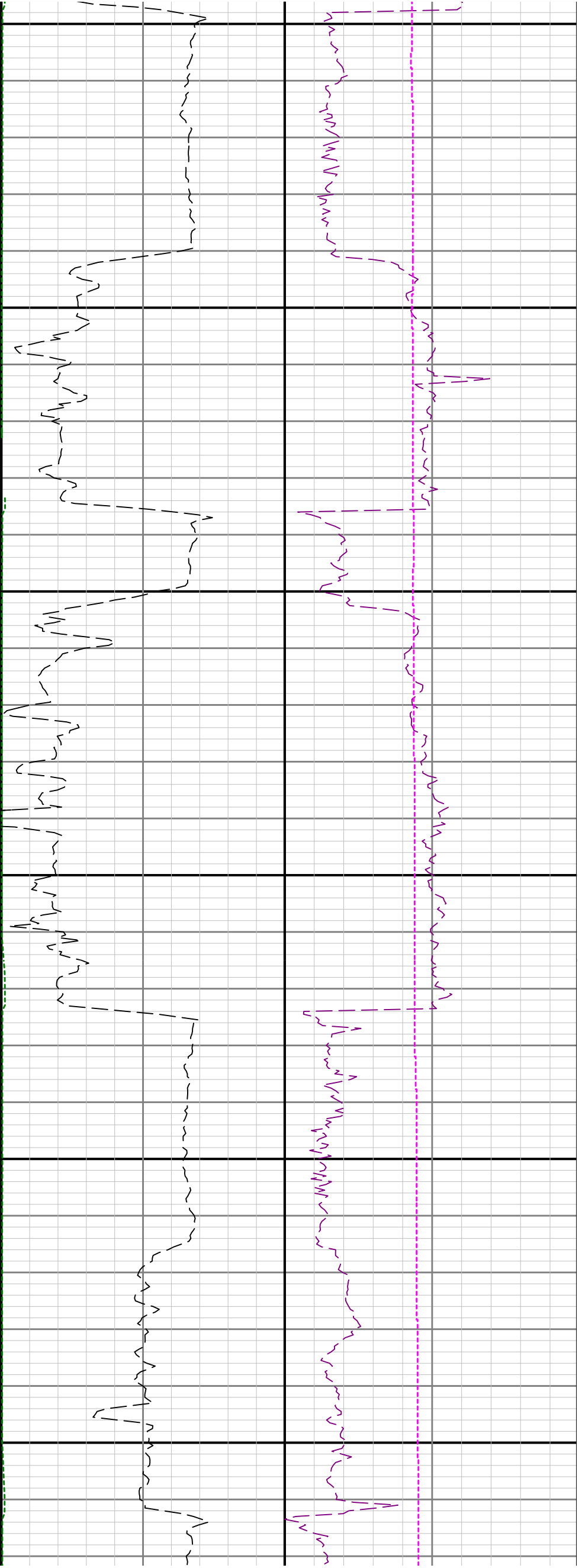
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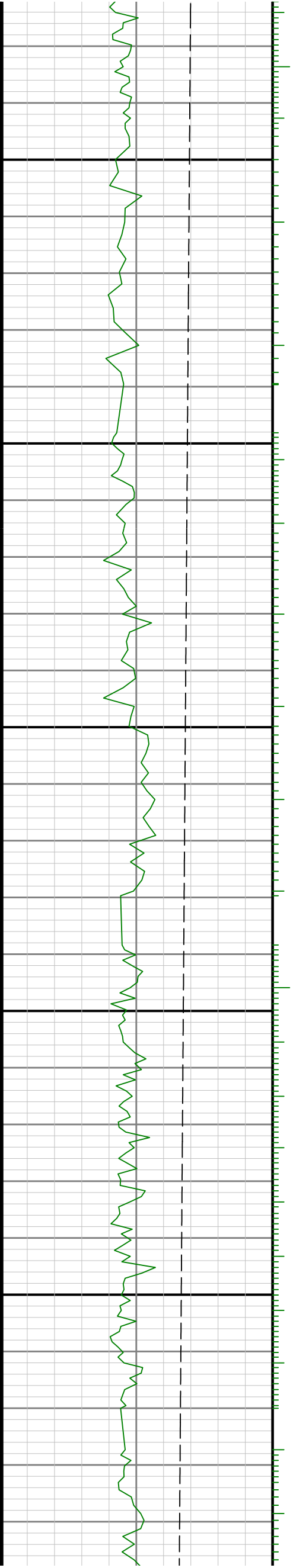
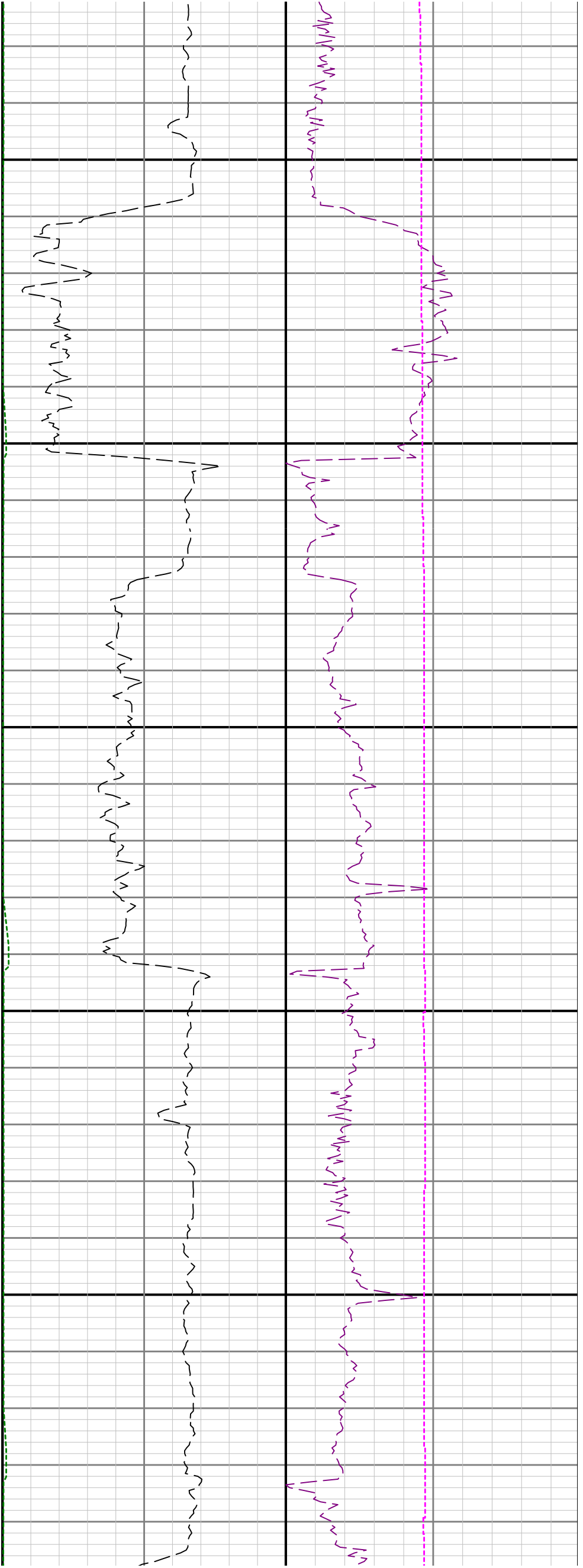


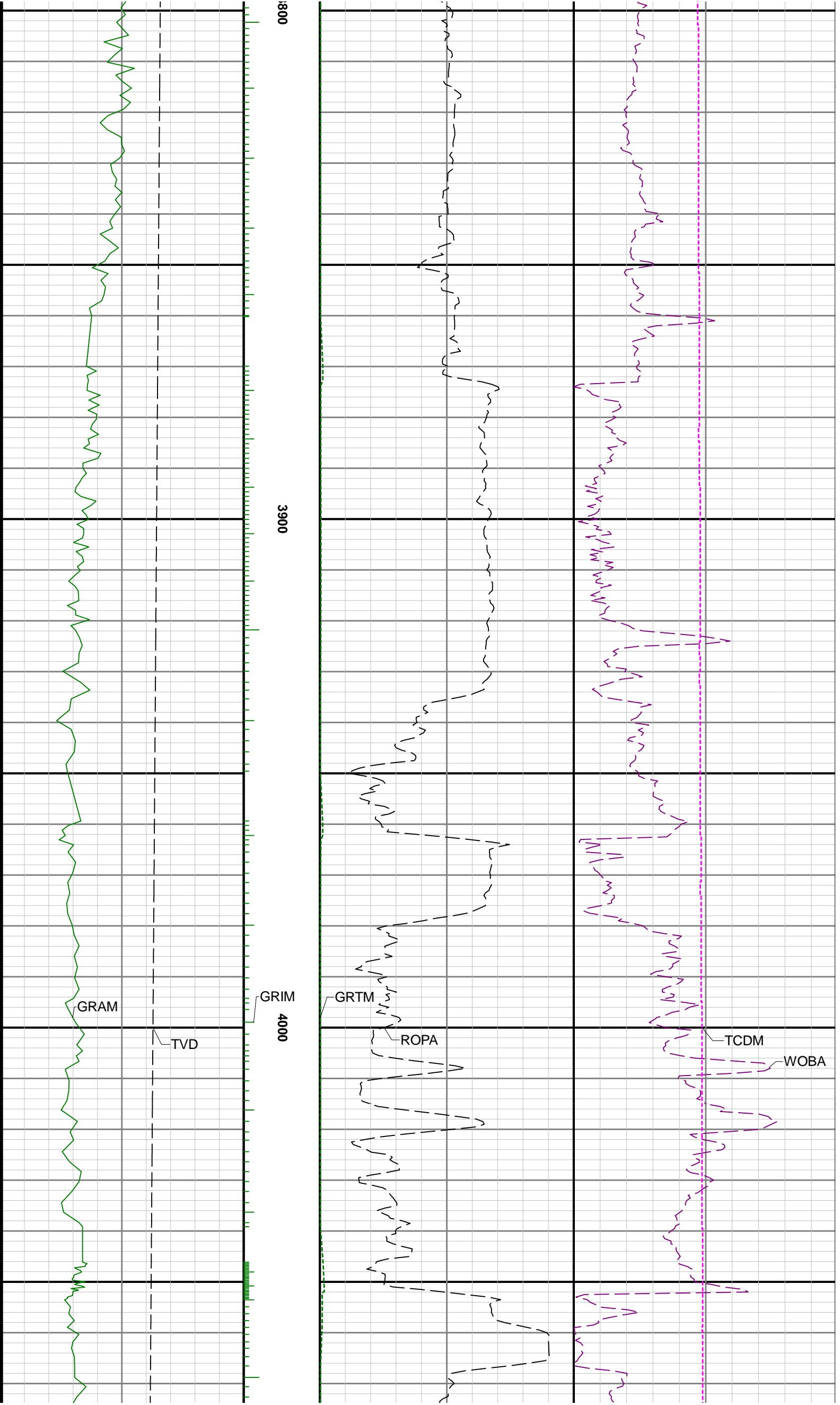


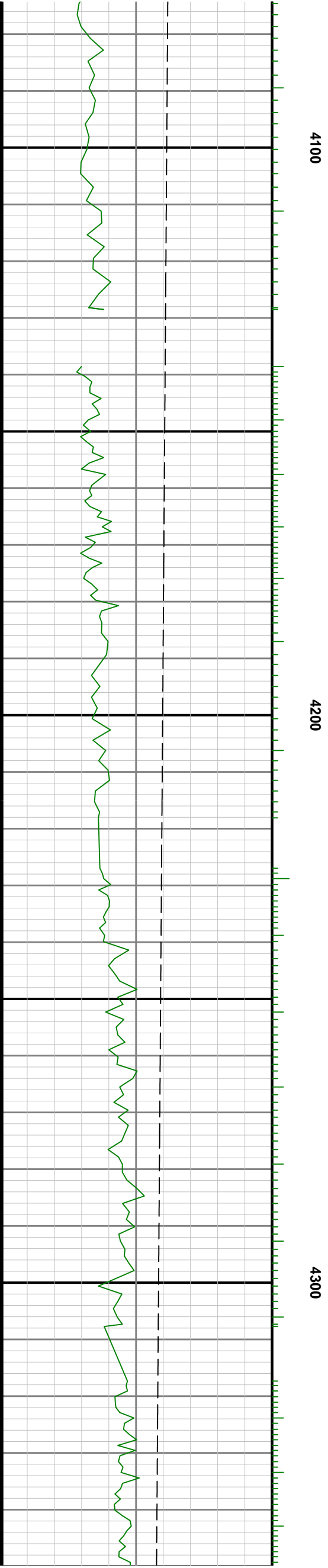
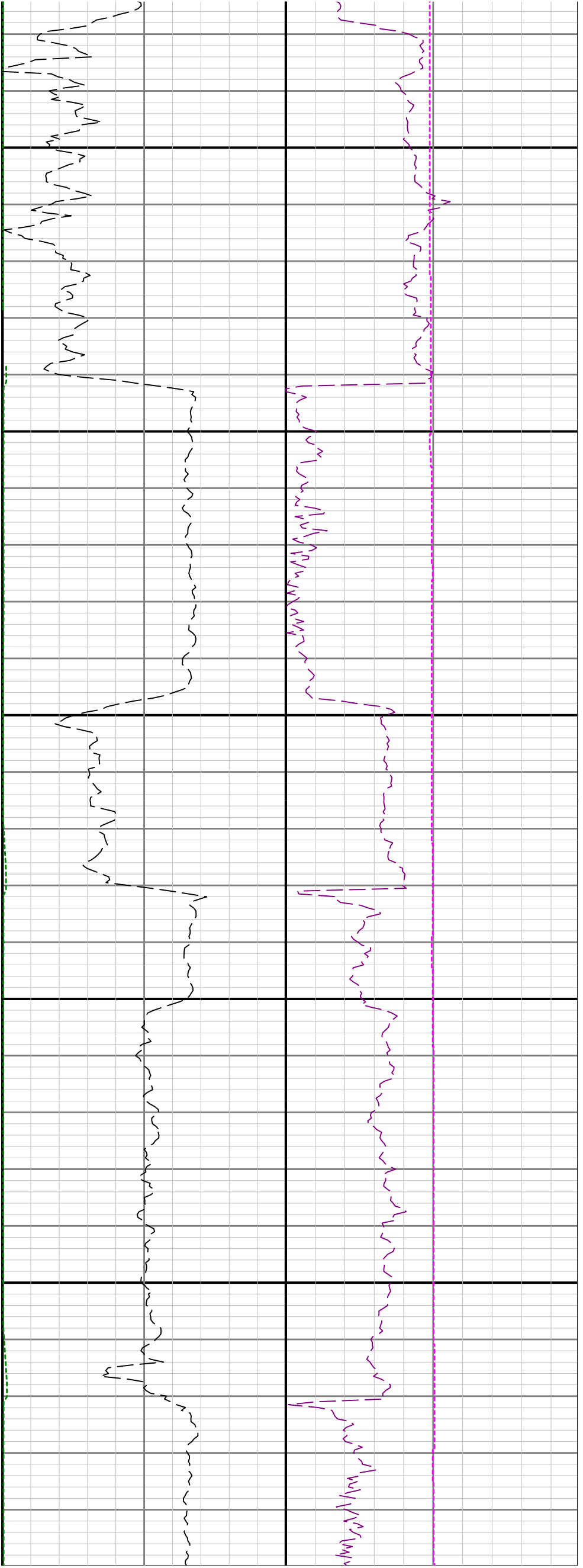


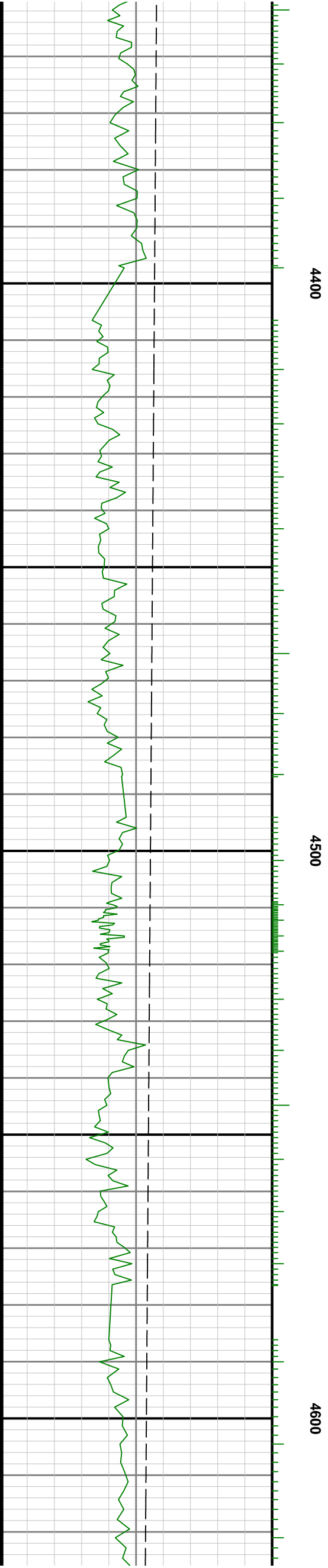
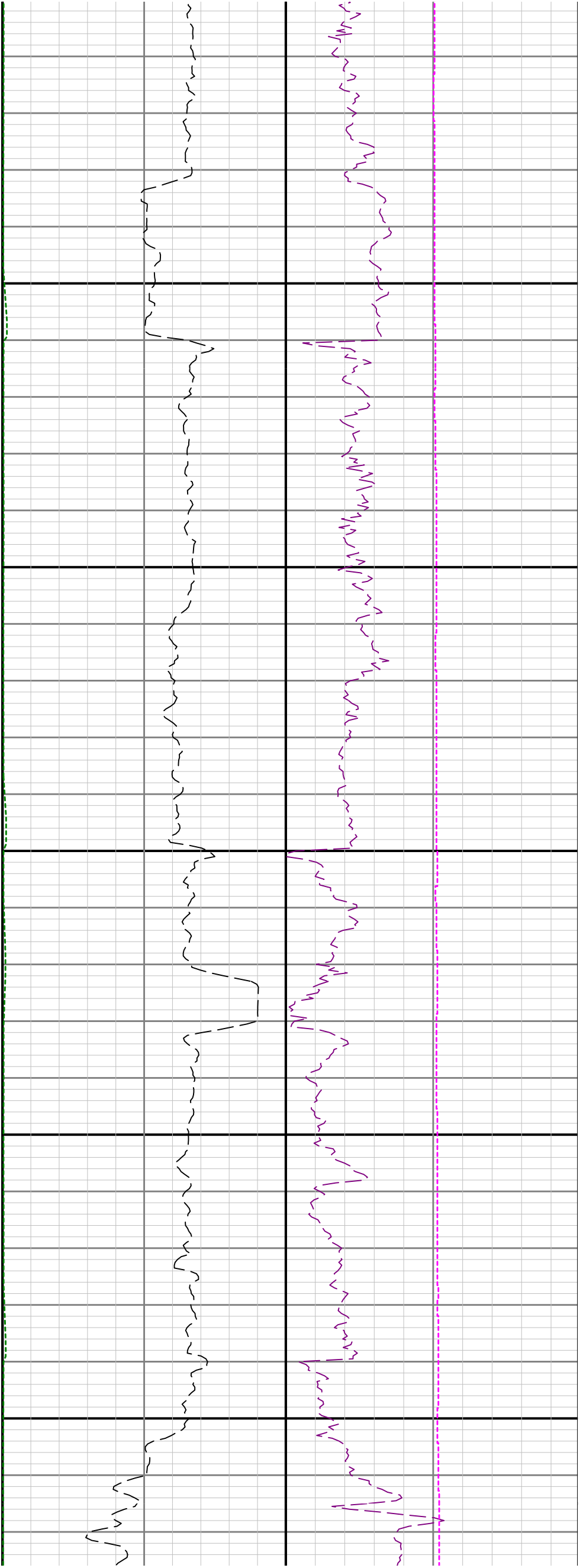


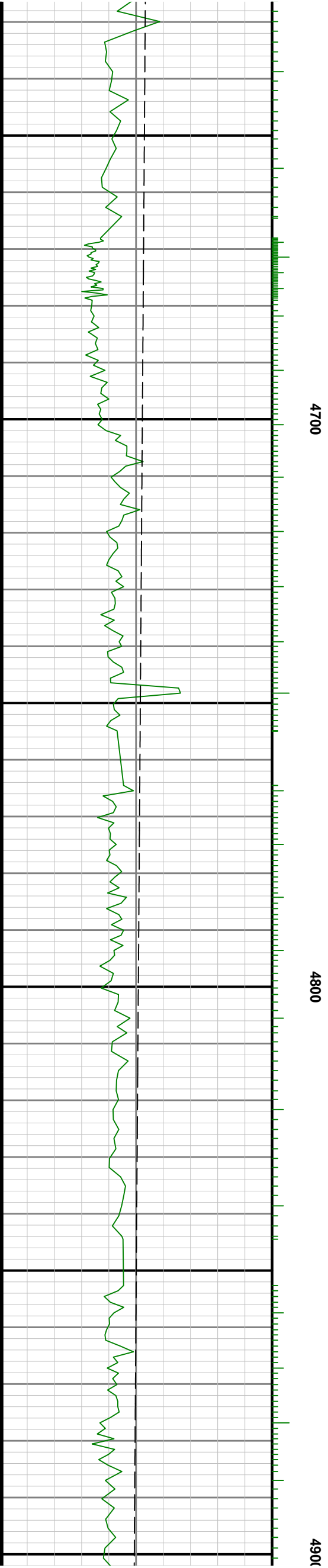
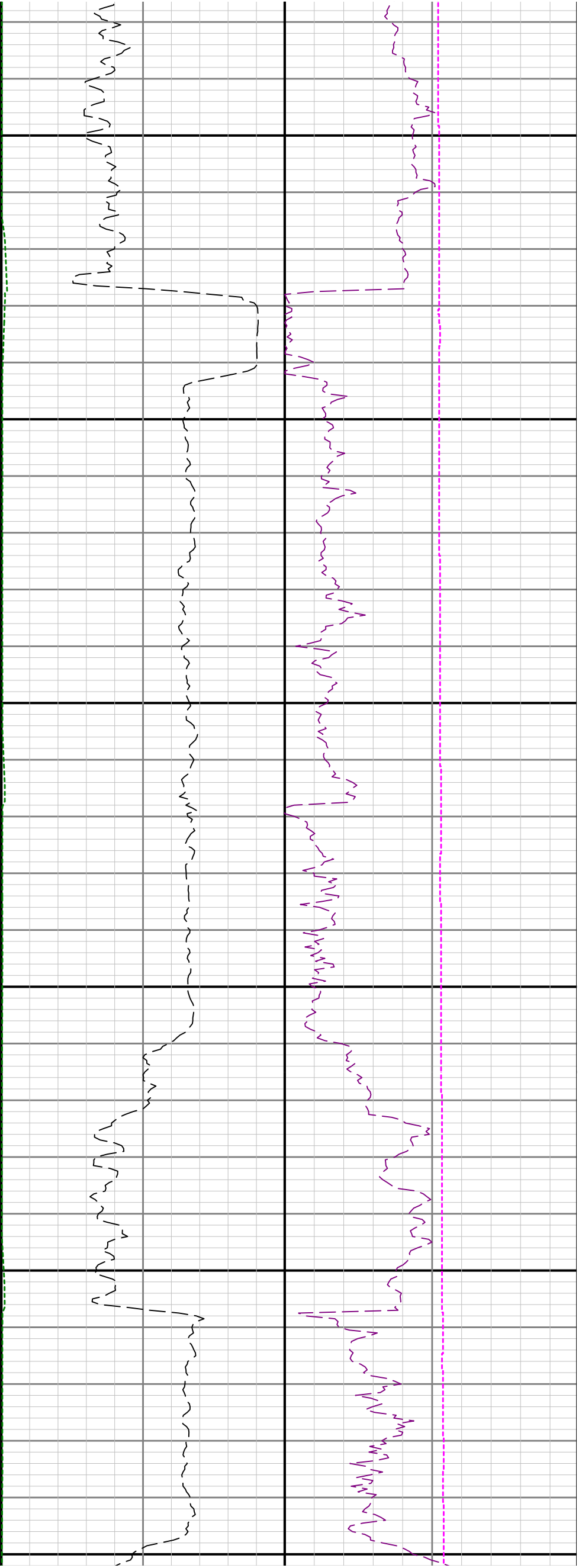


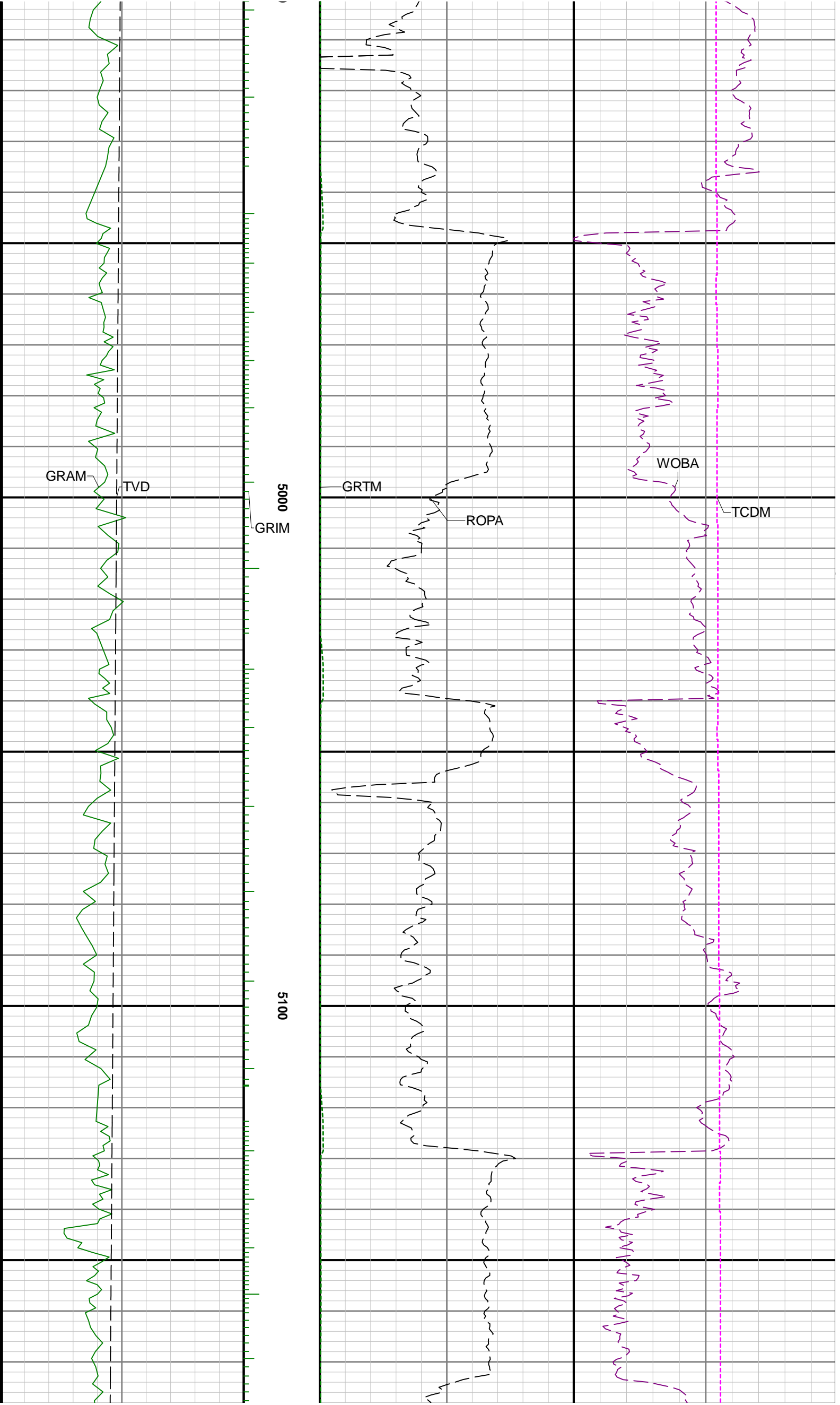


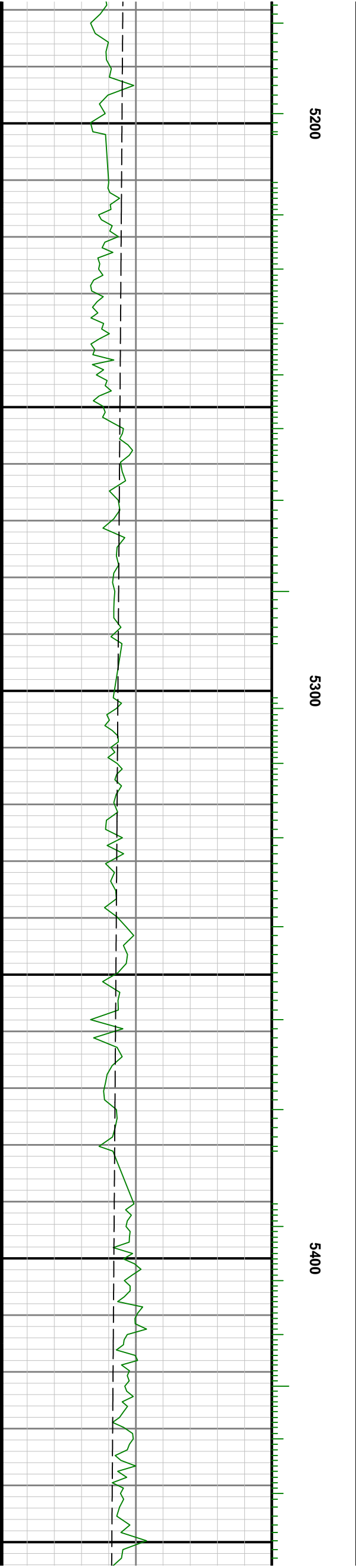
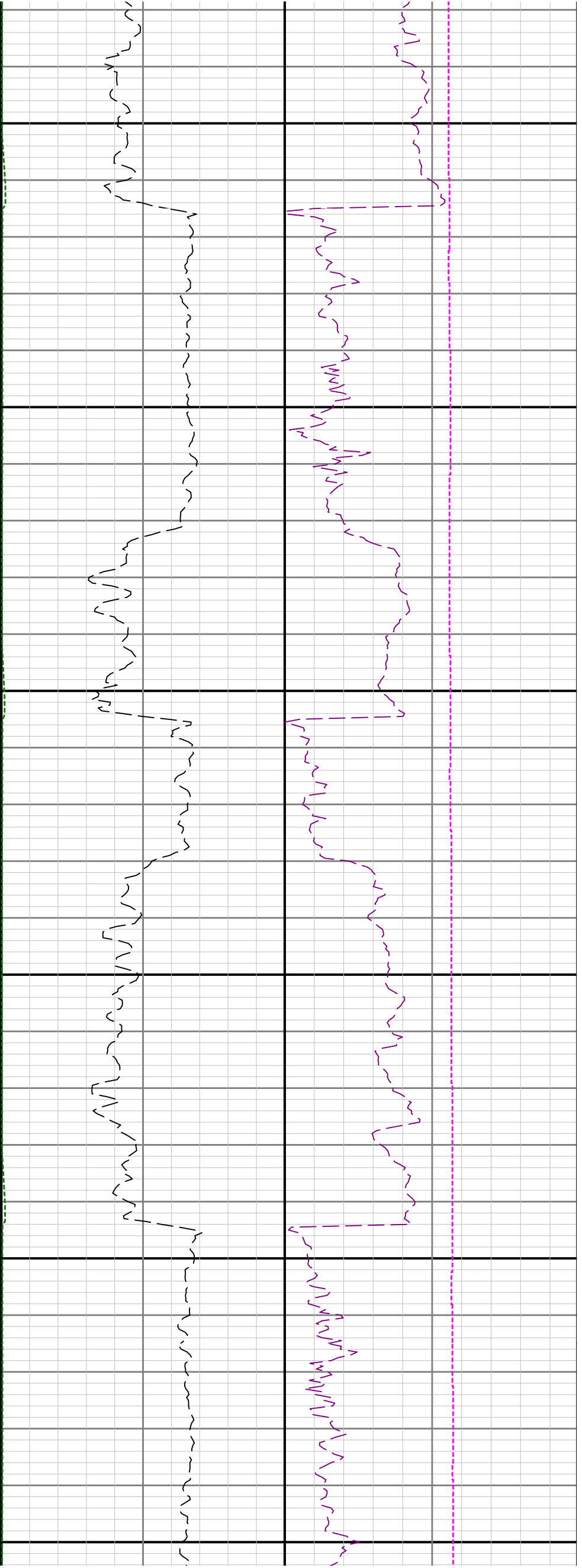


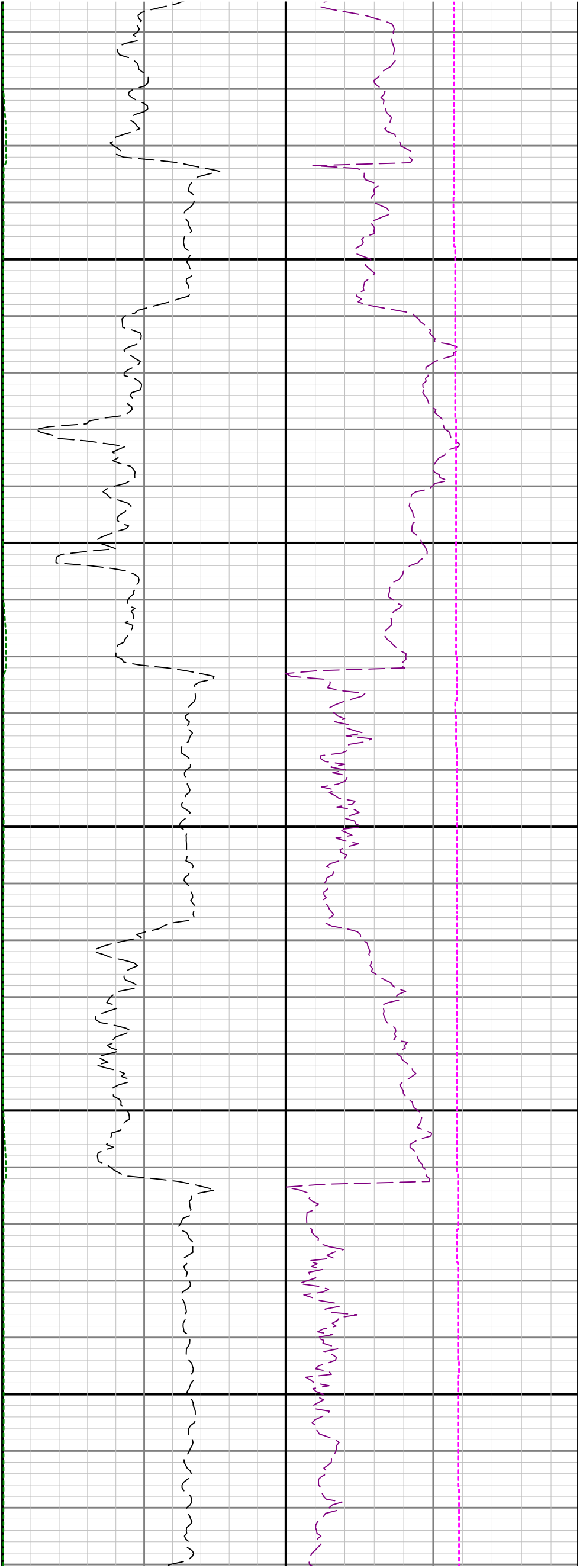








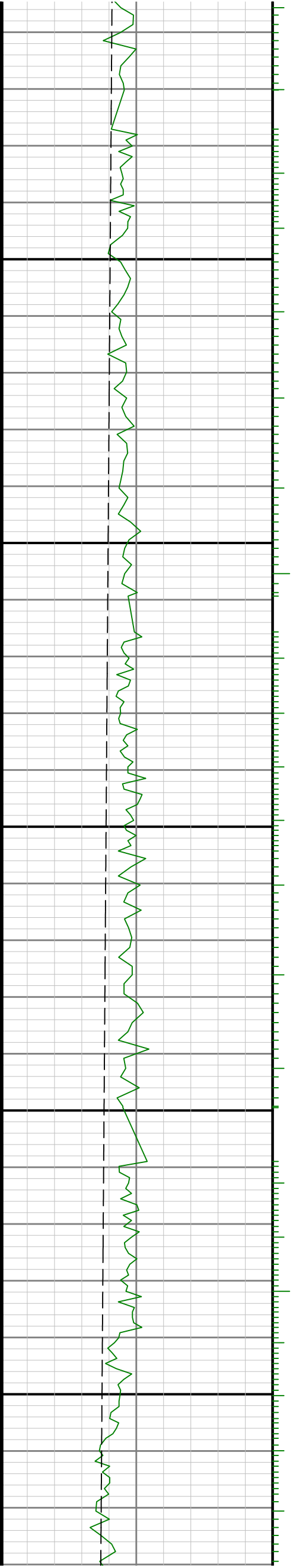




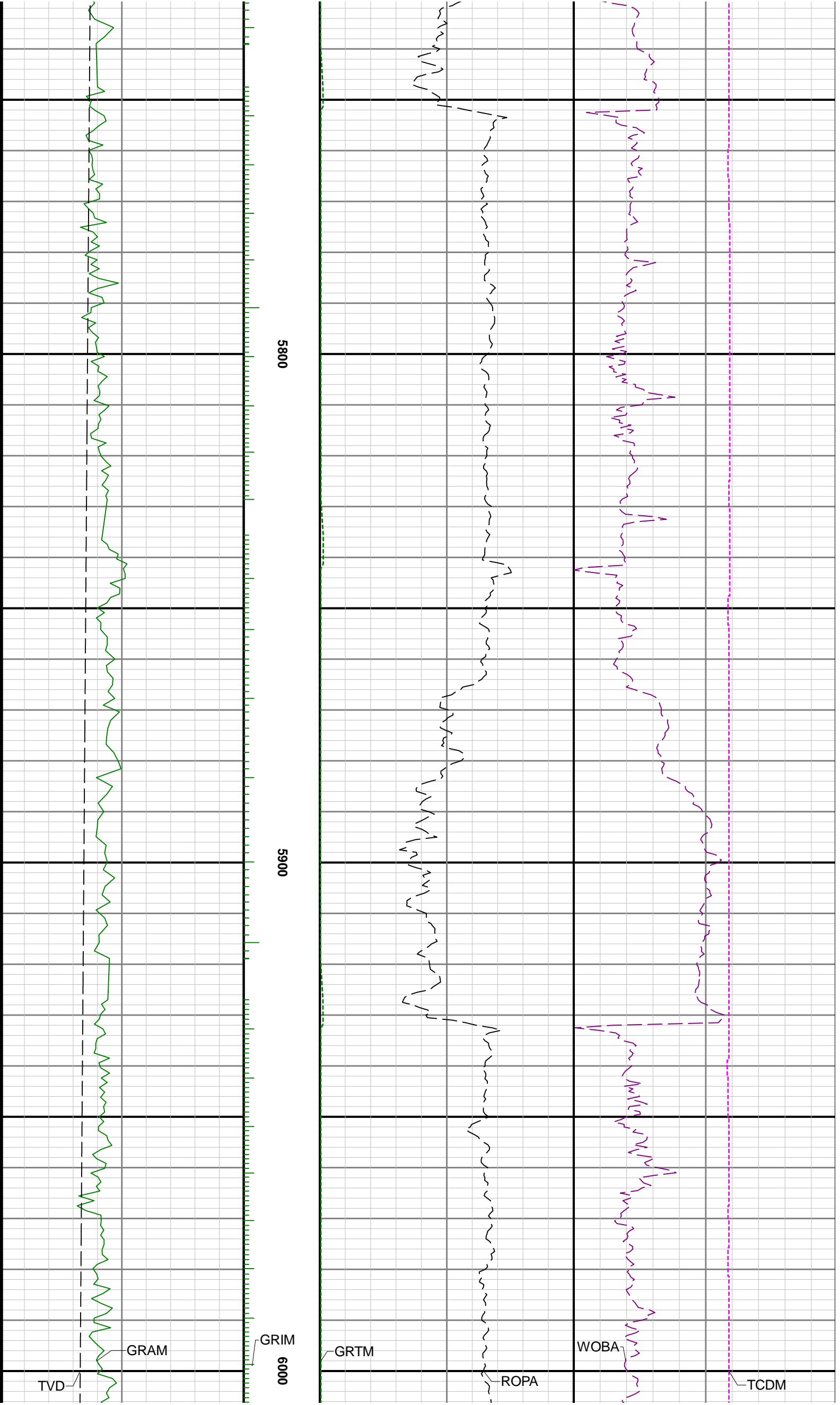
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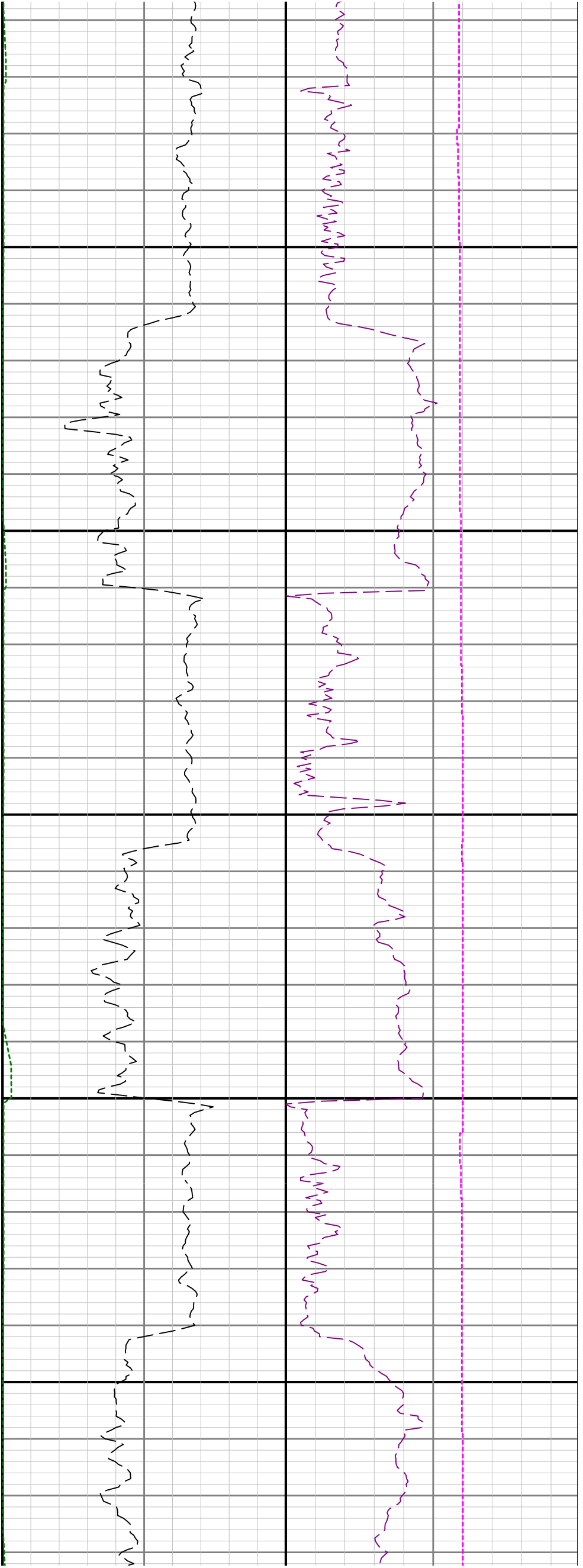
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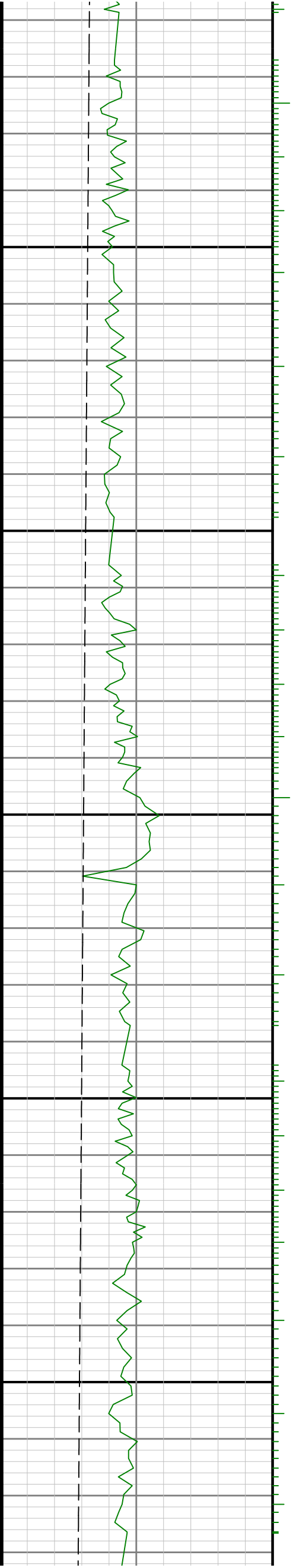


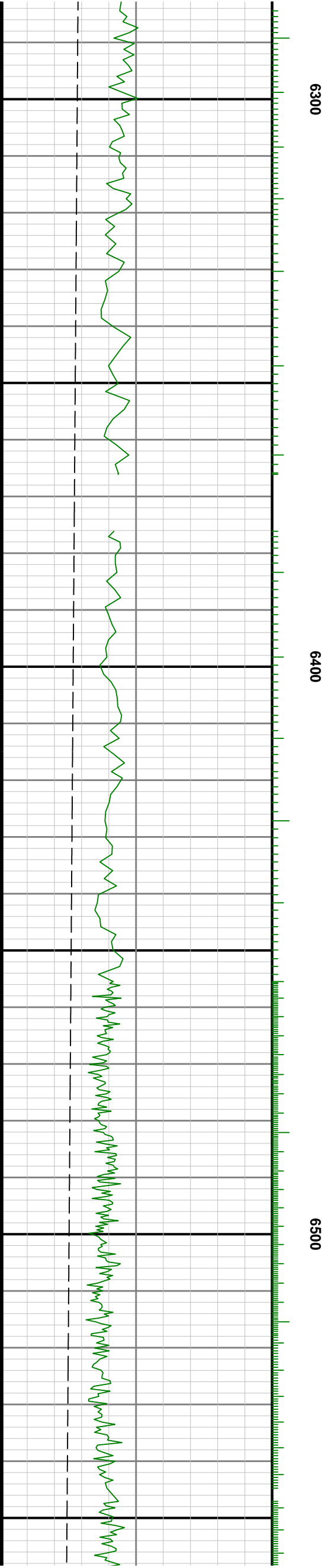
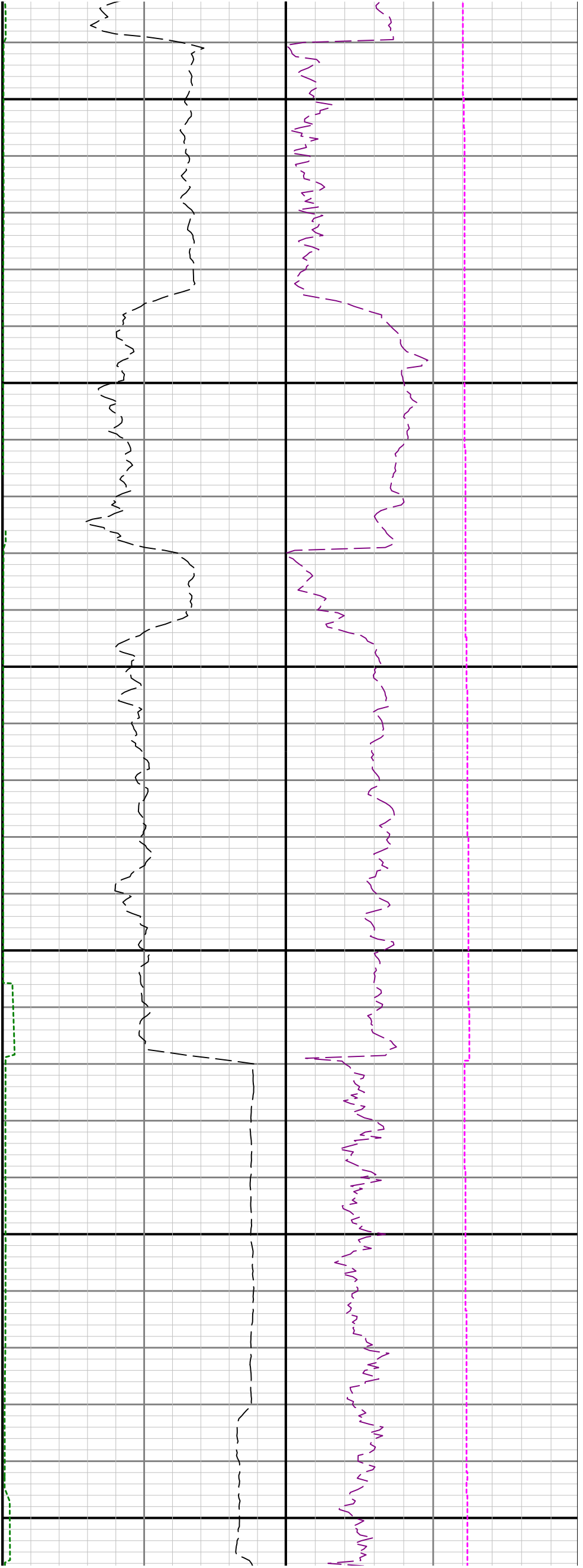


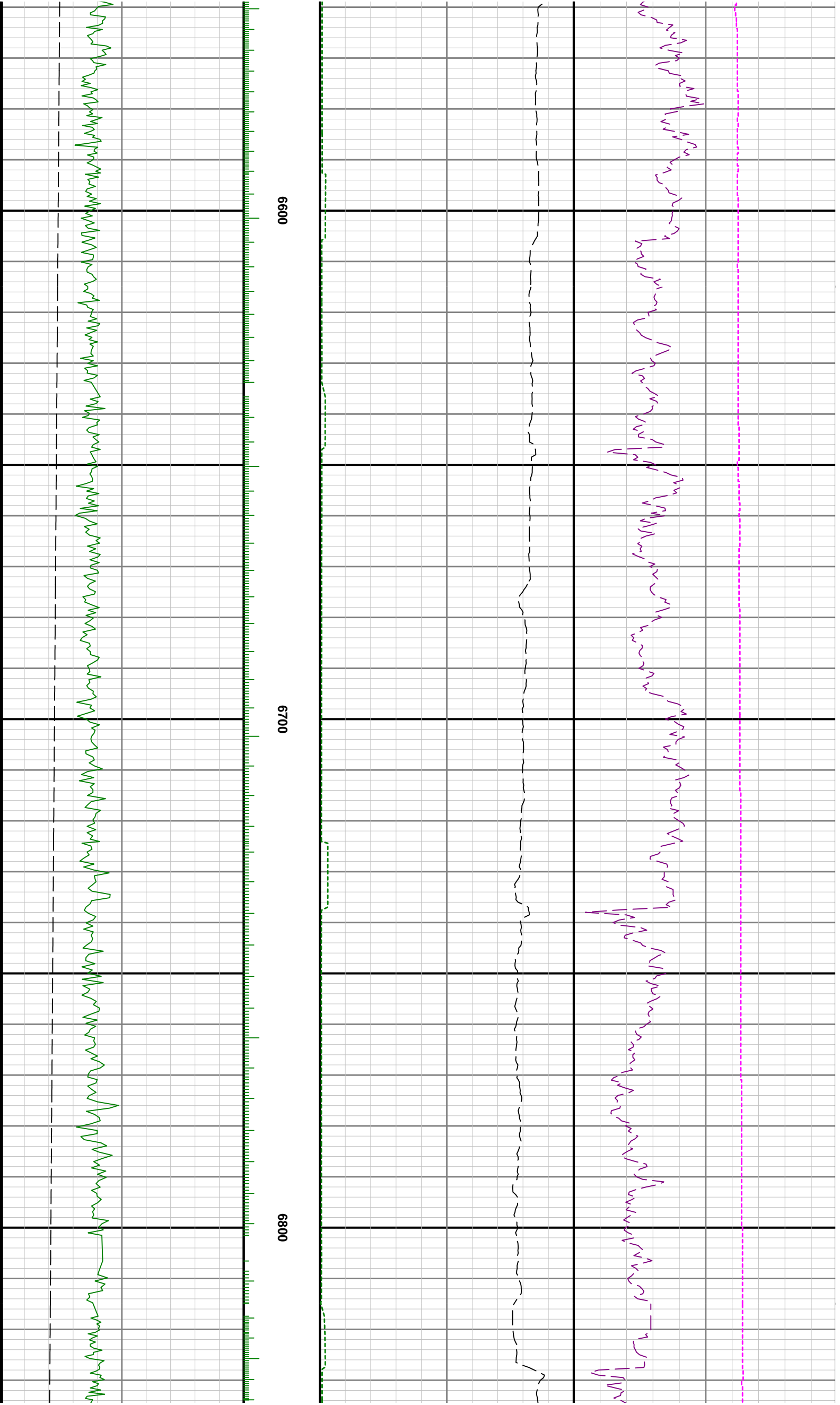


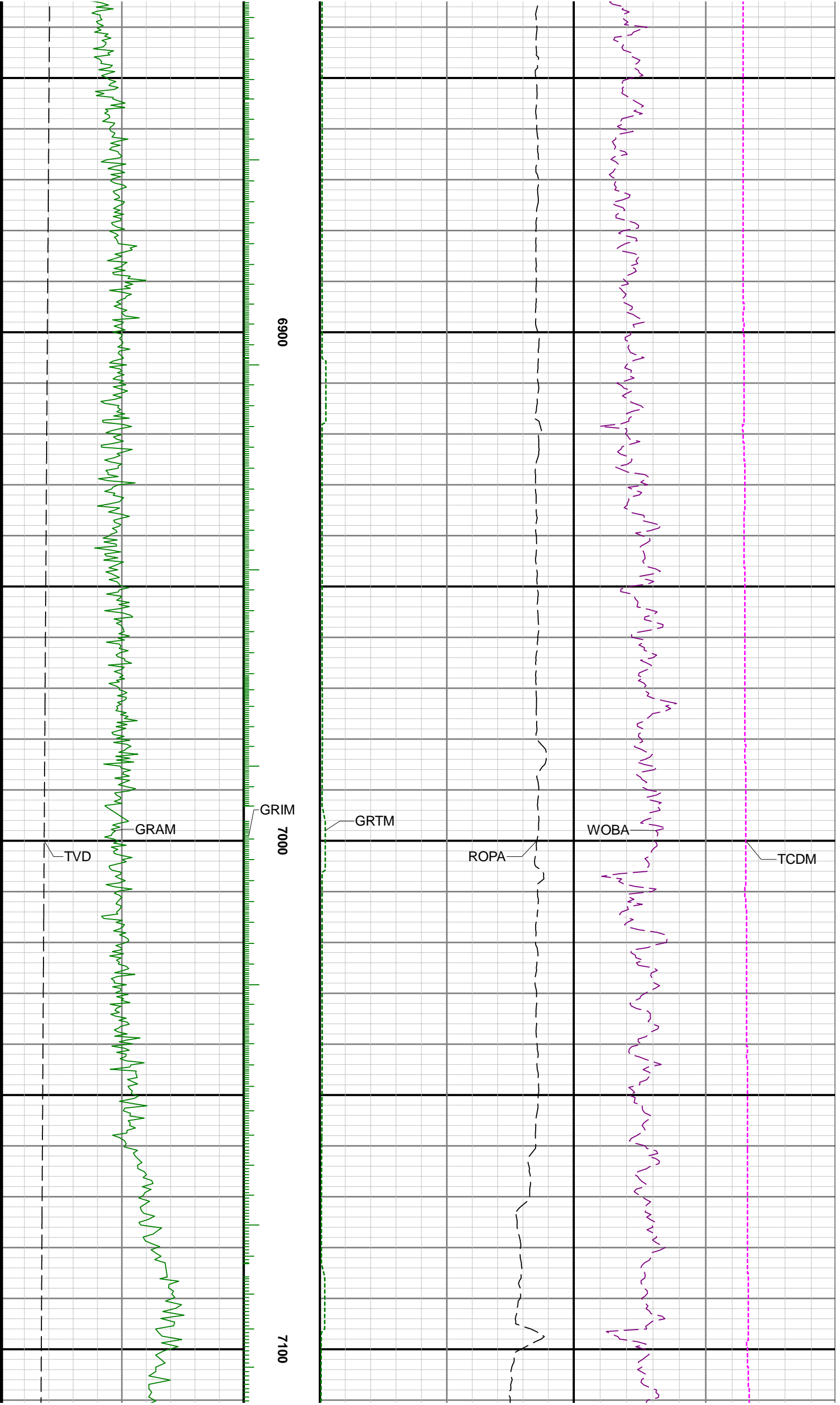
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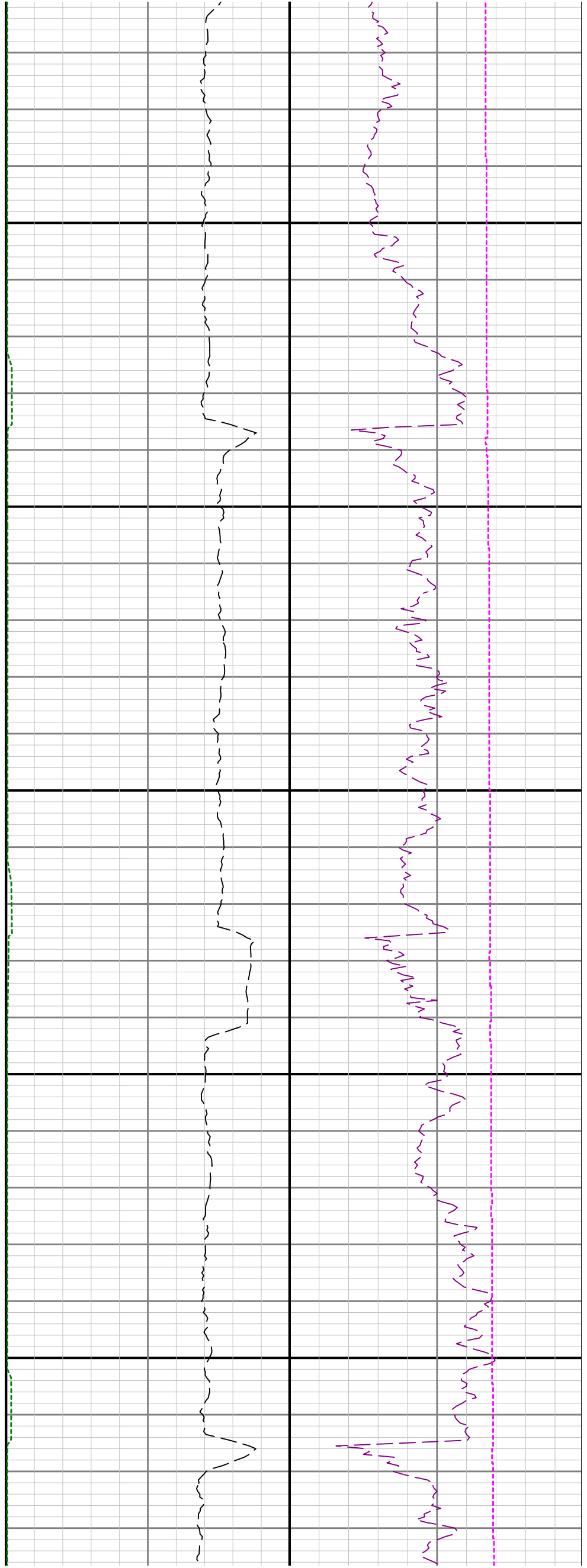
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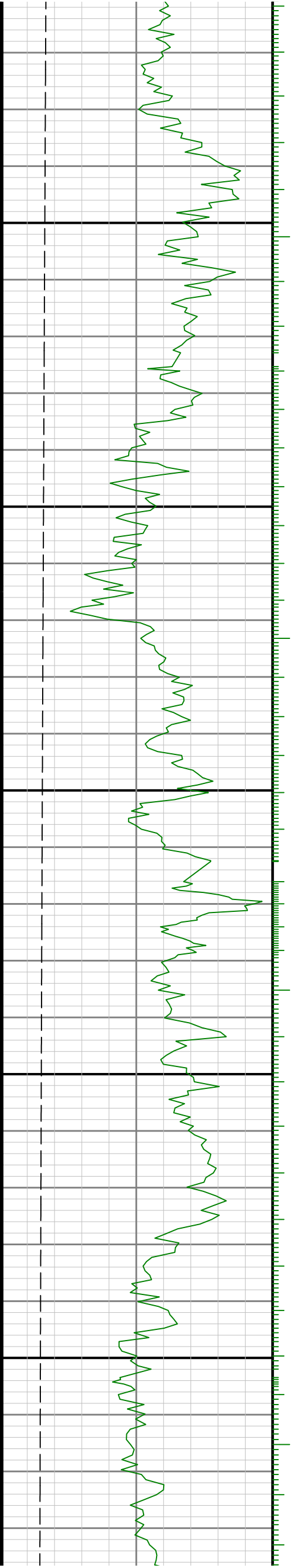


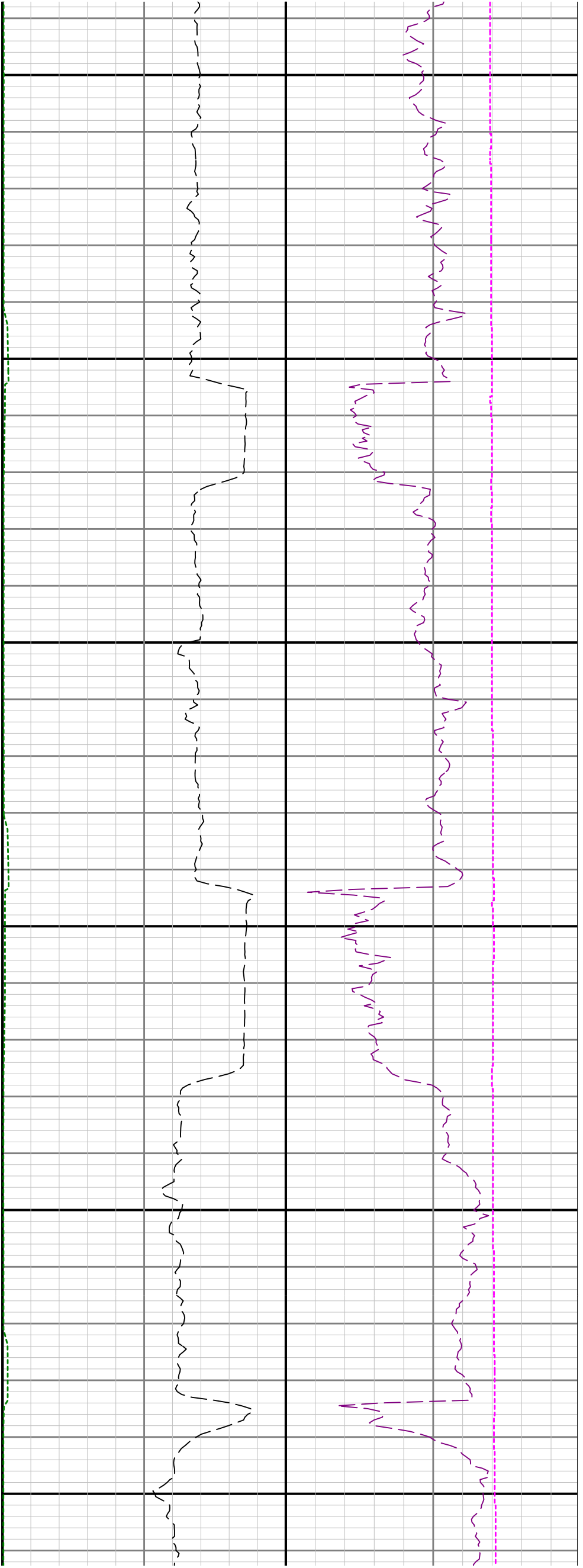




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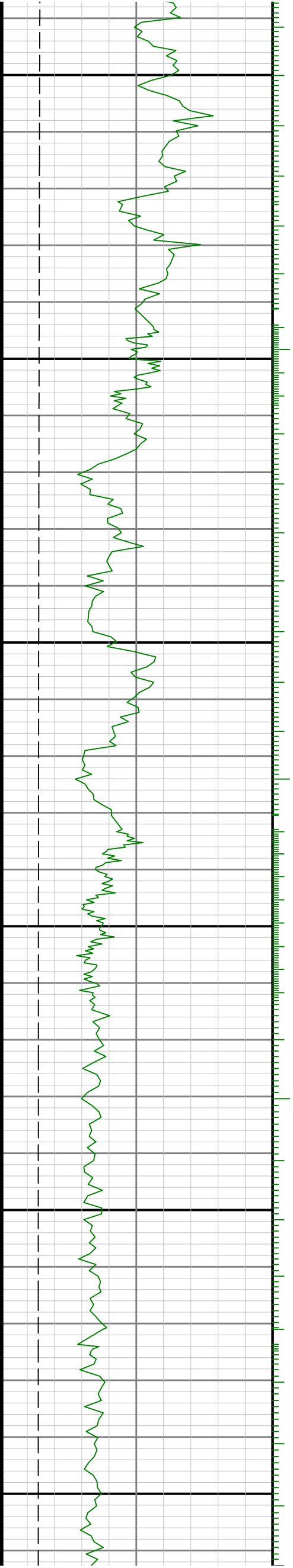


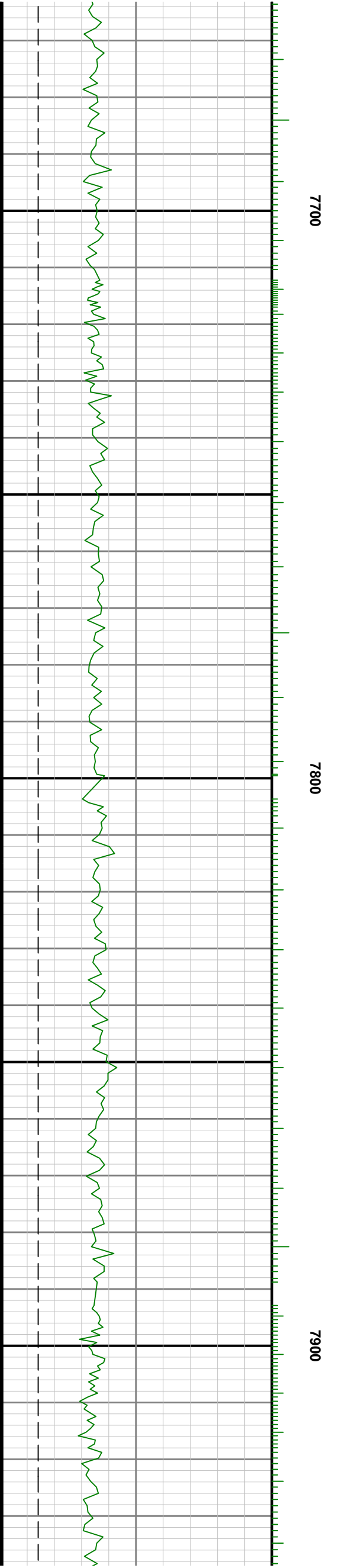


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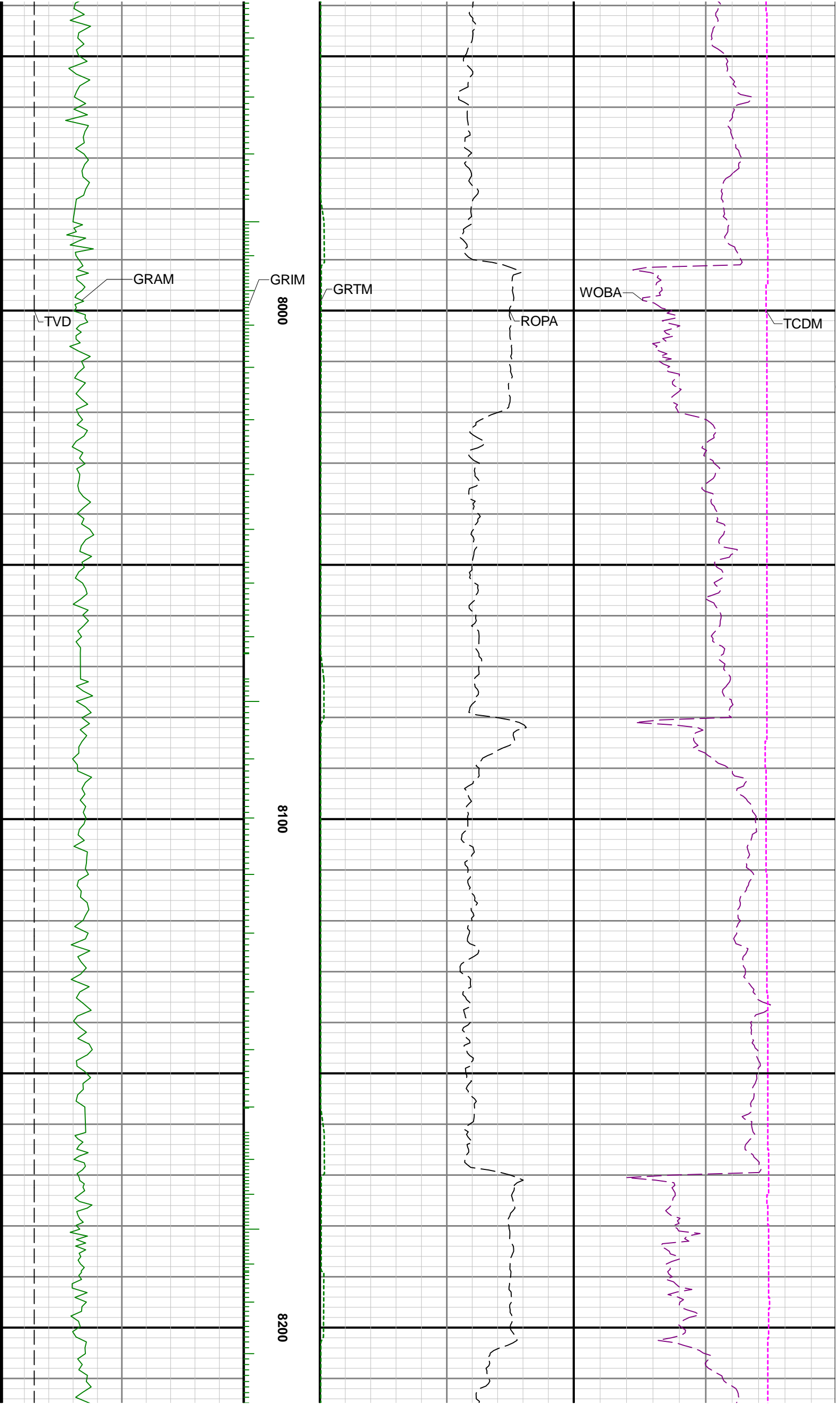
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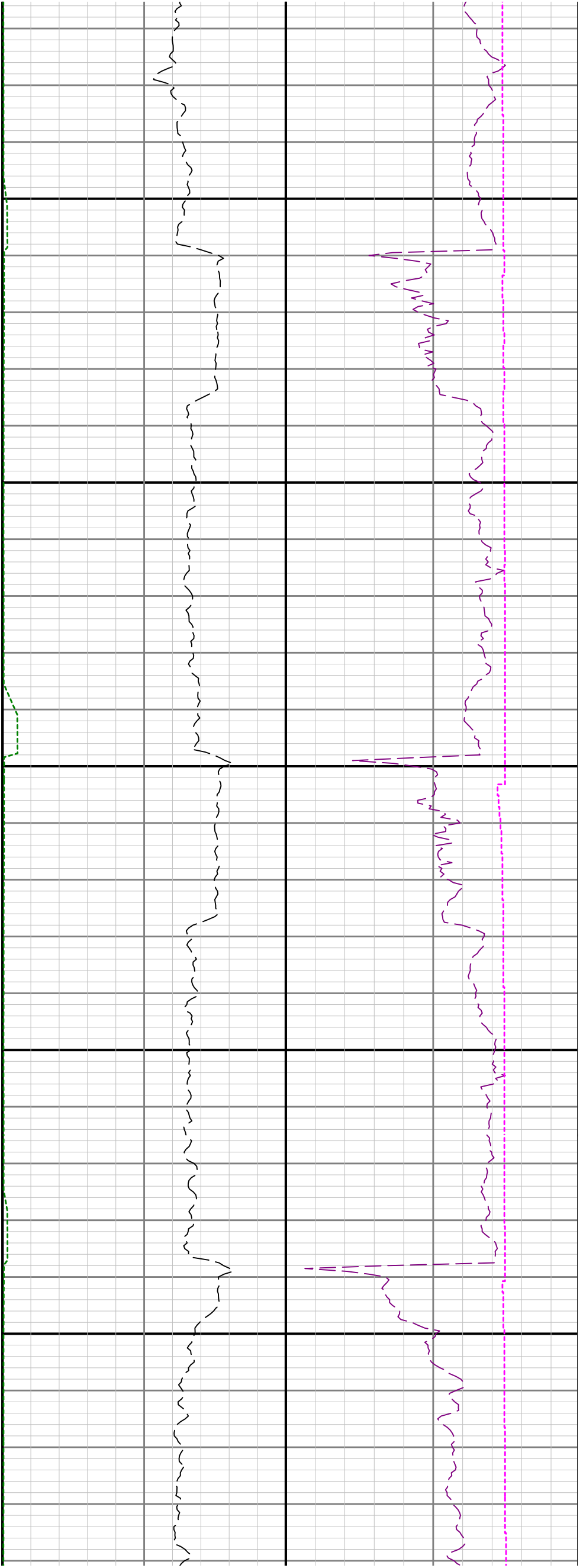
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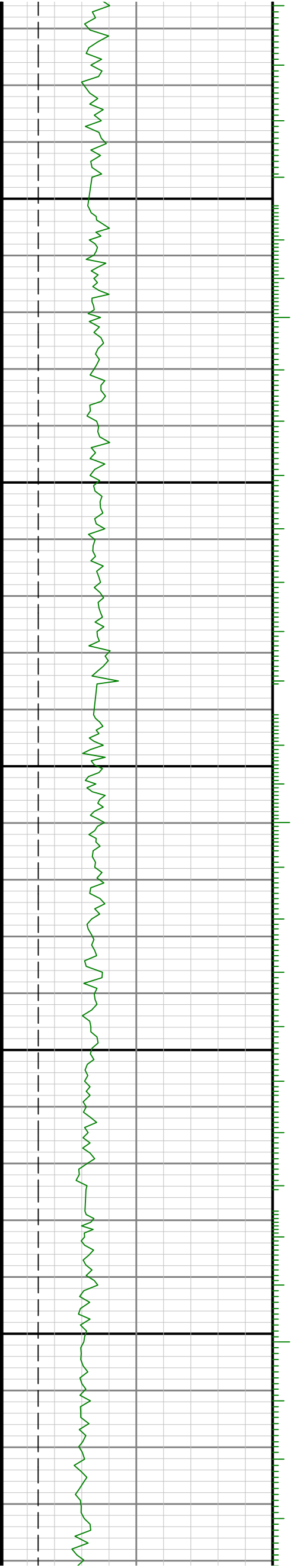


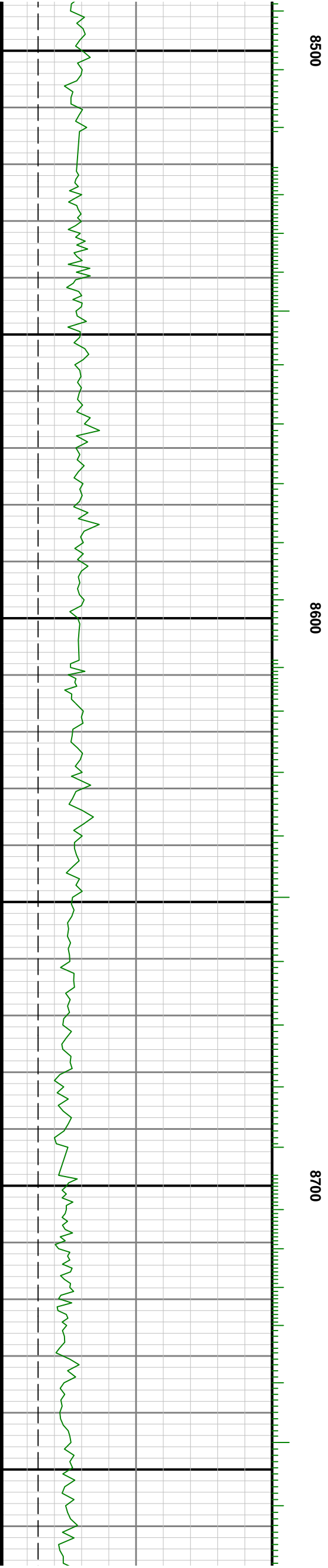
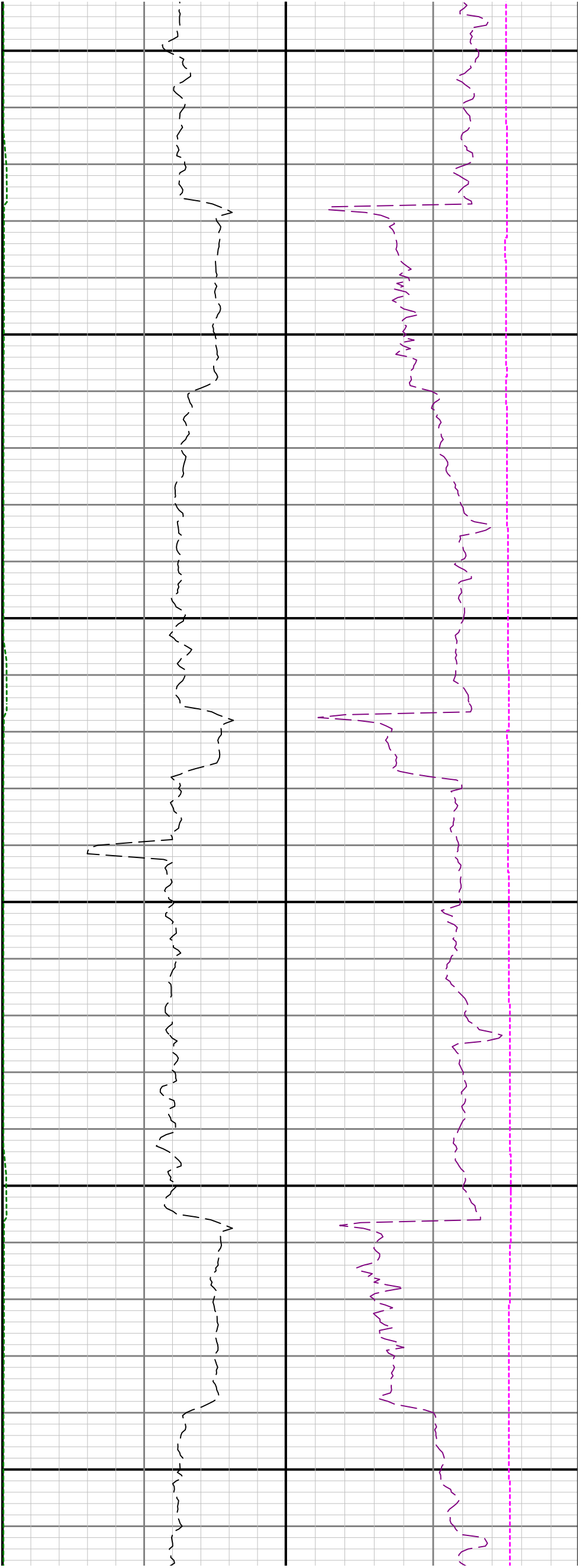


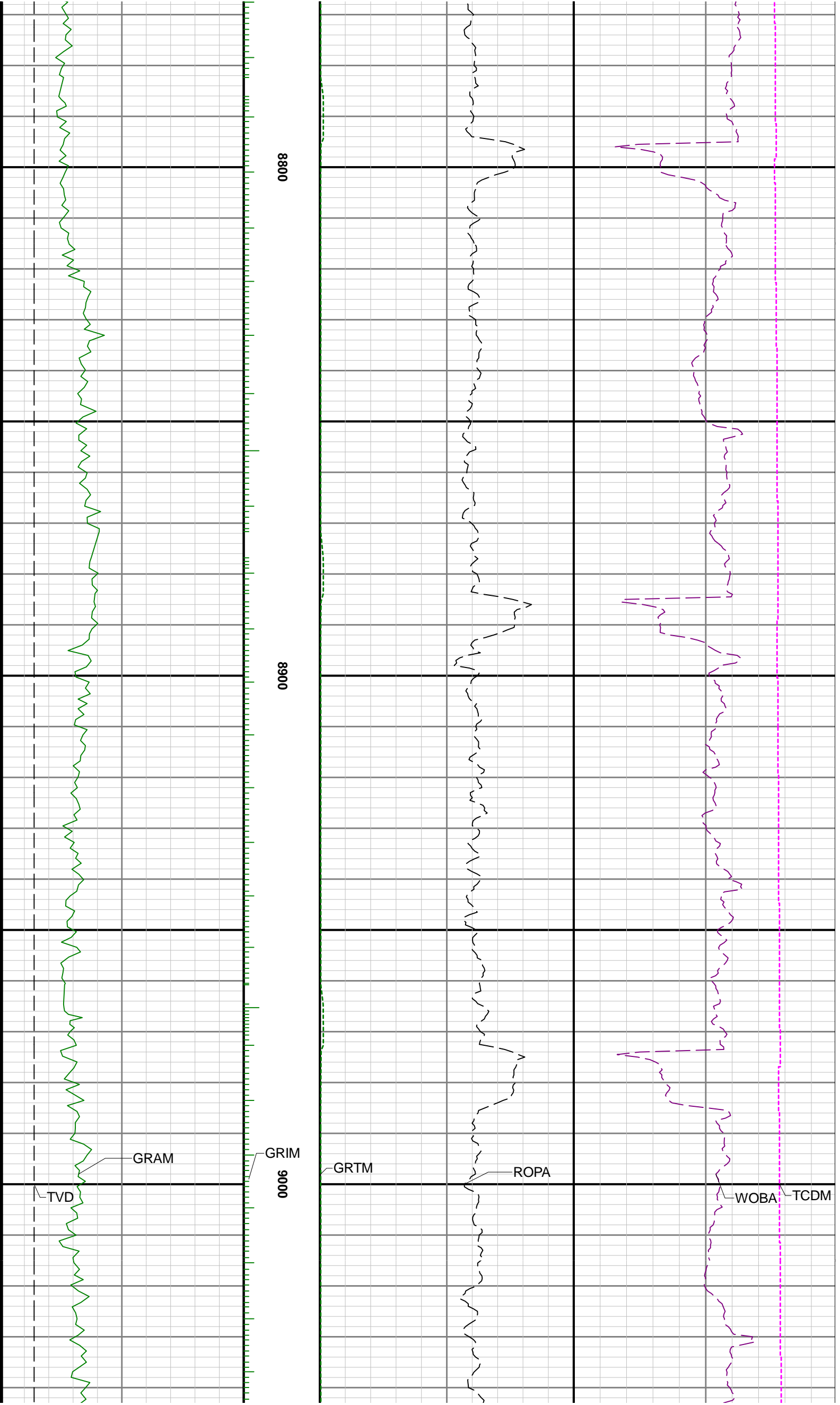


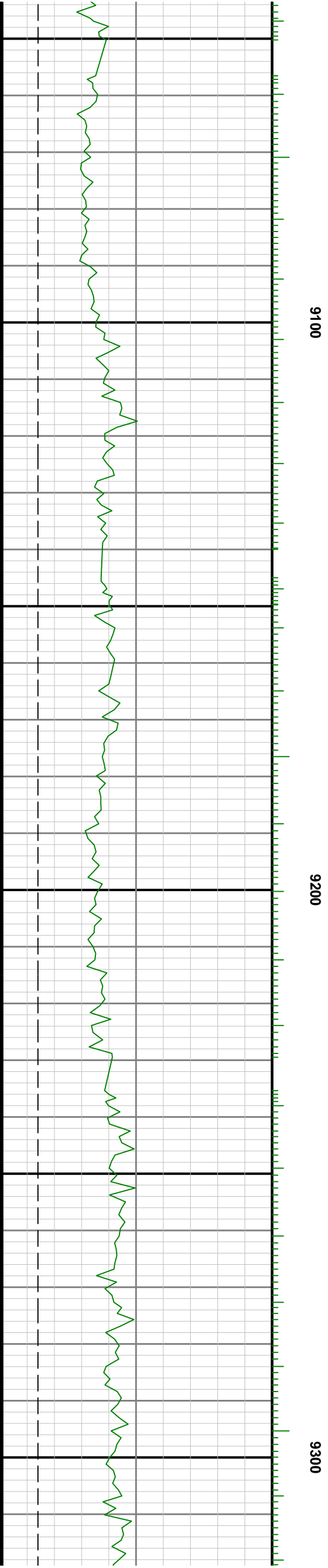
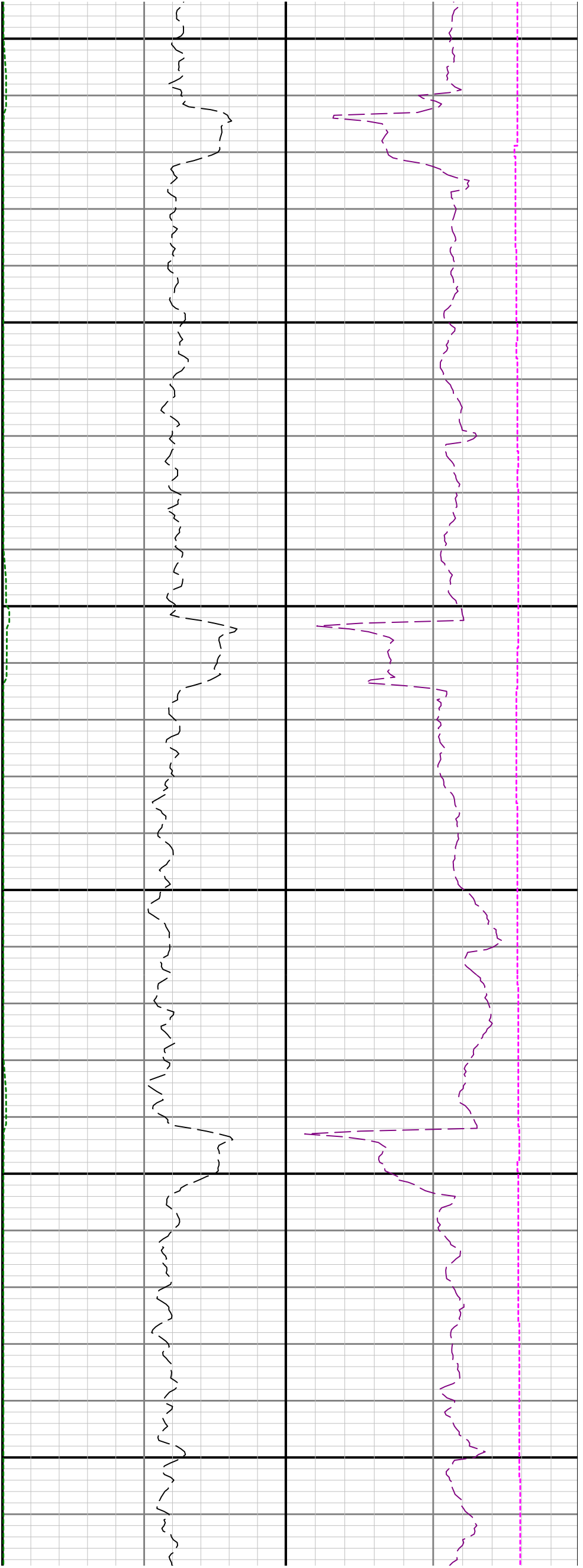
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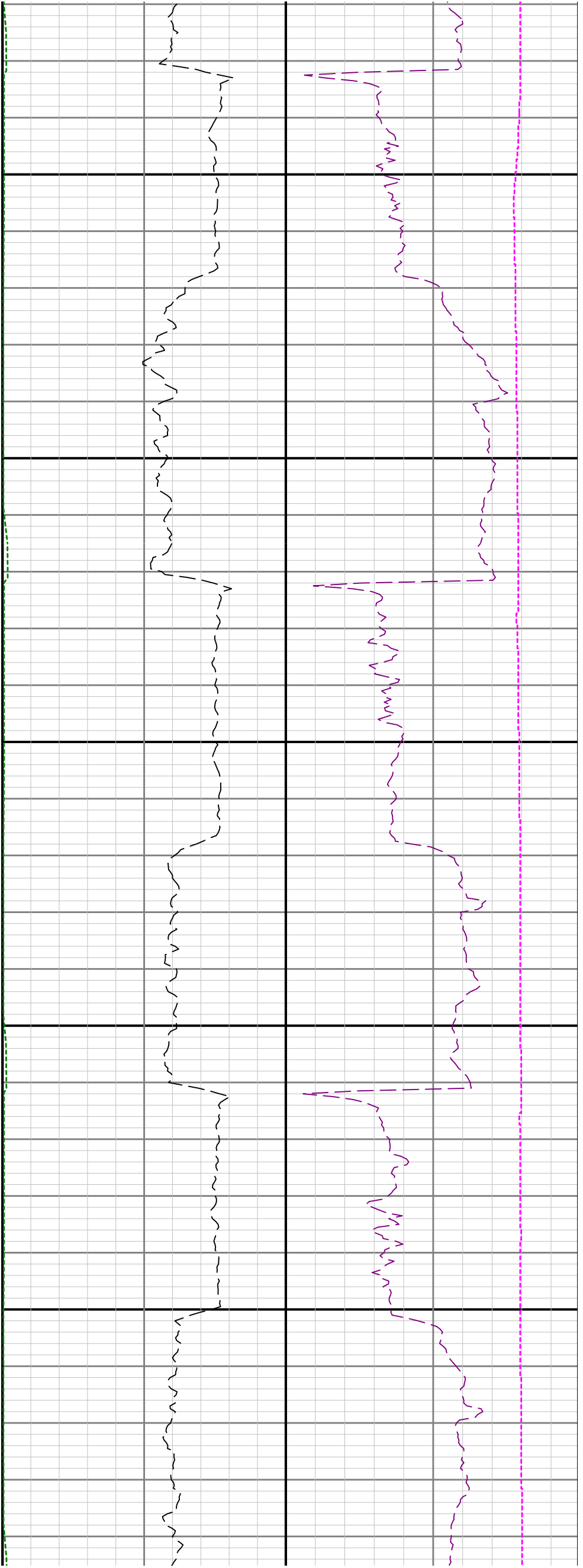
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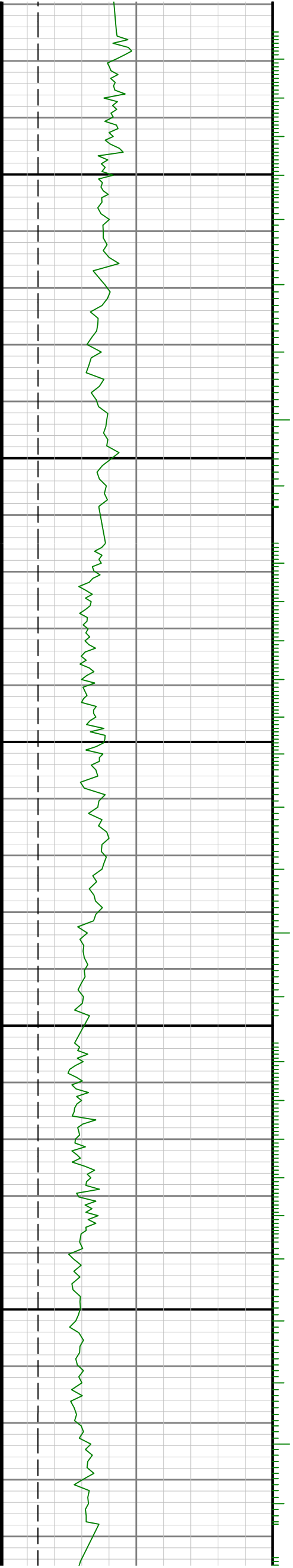


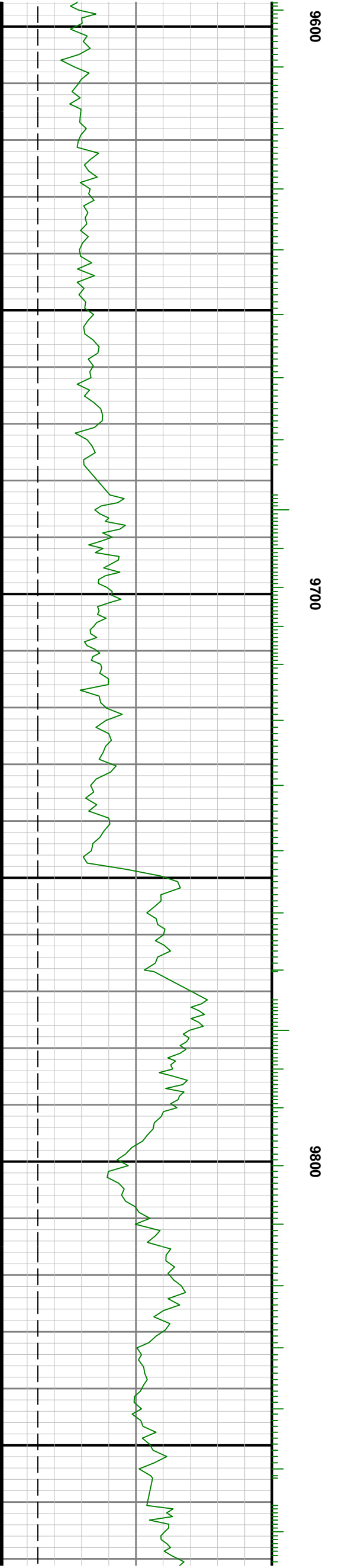
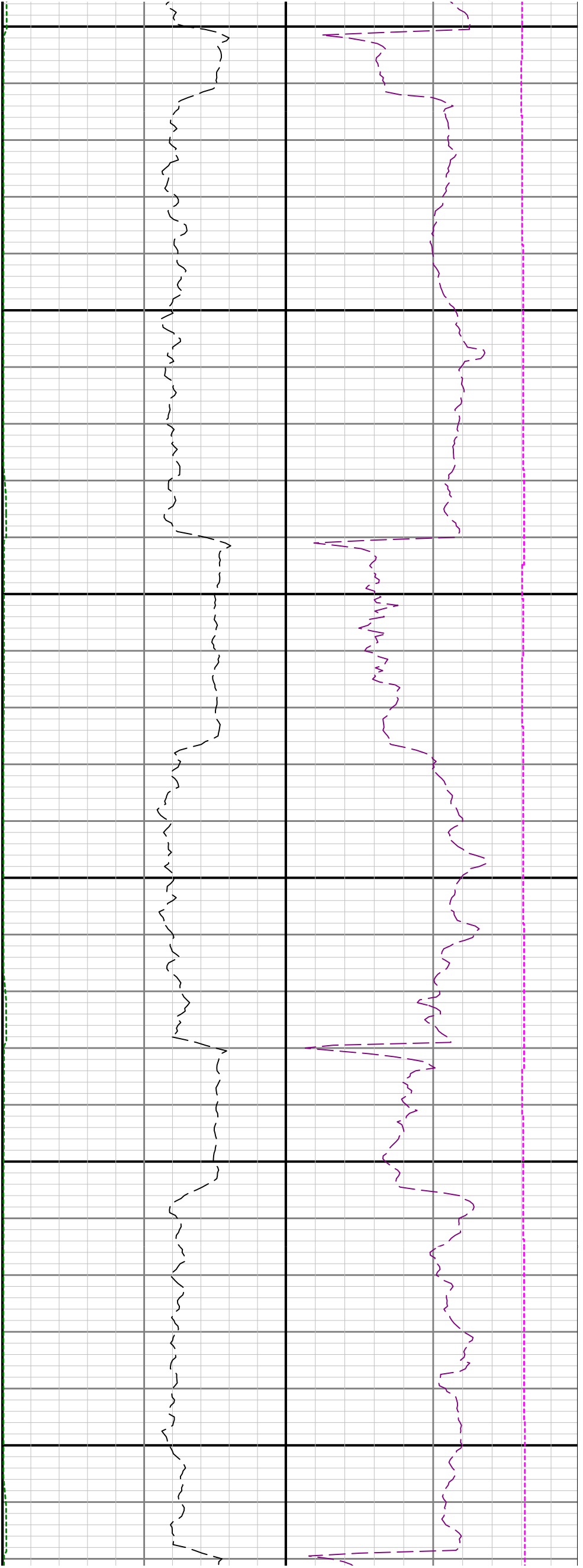


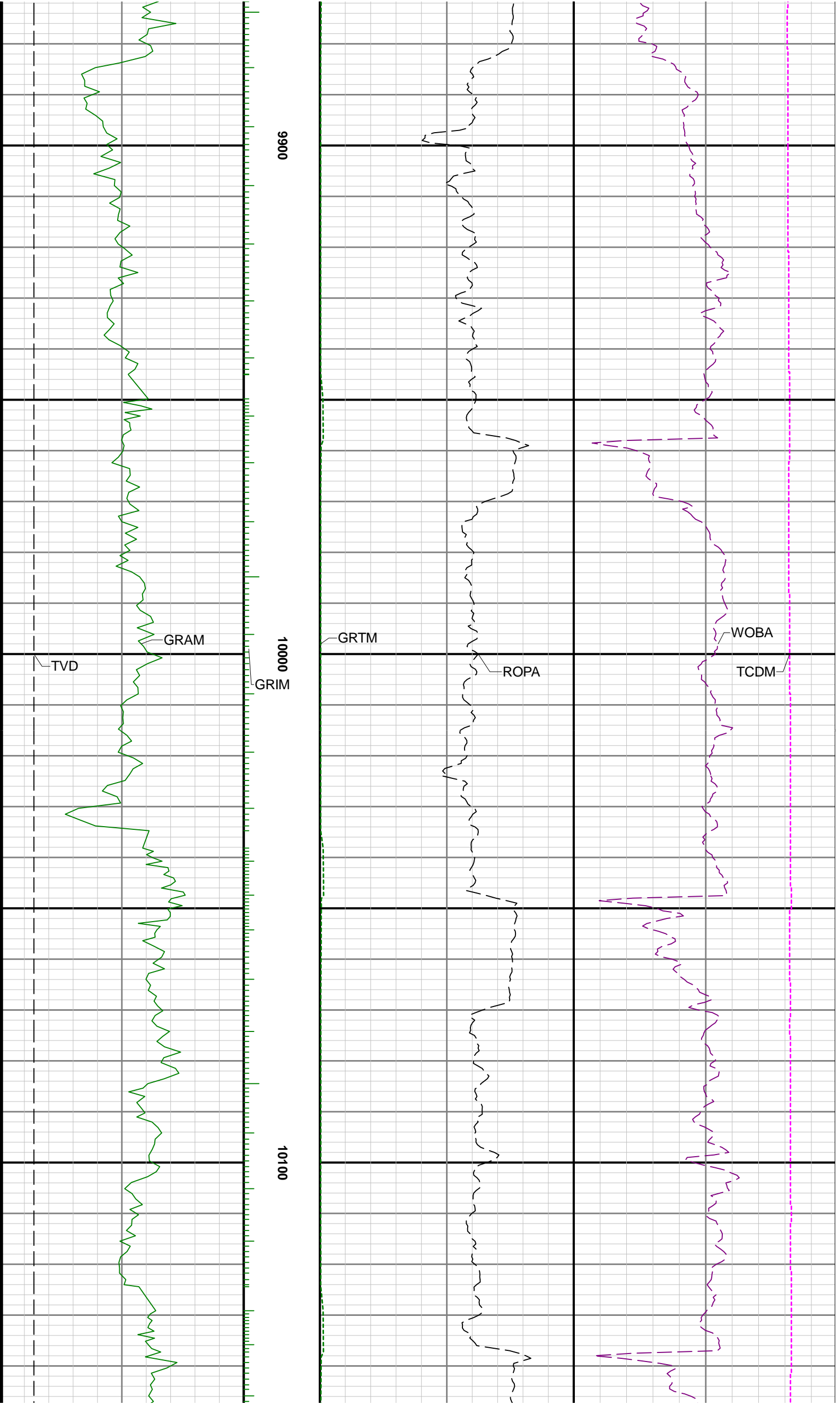


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GRIM

GRAM

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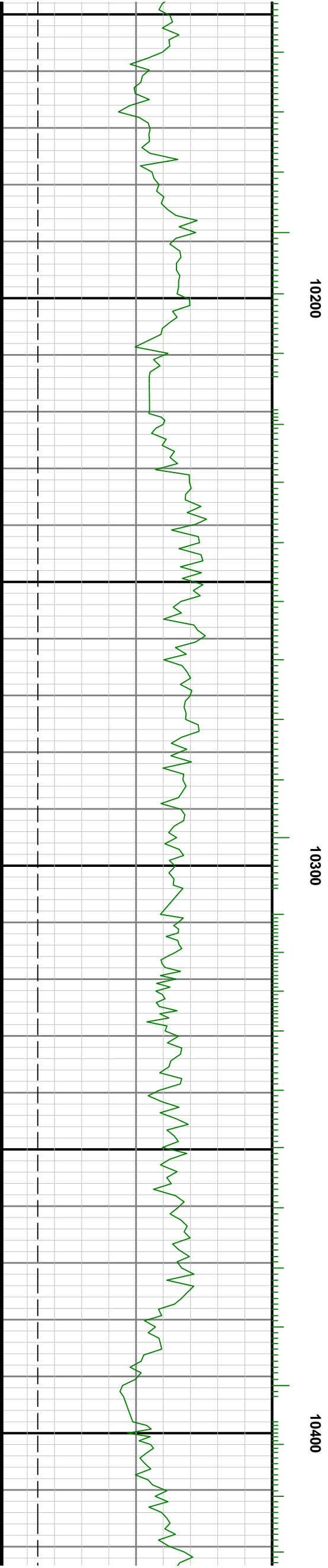
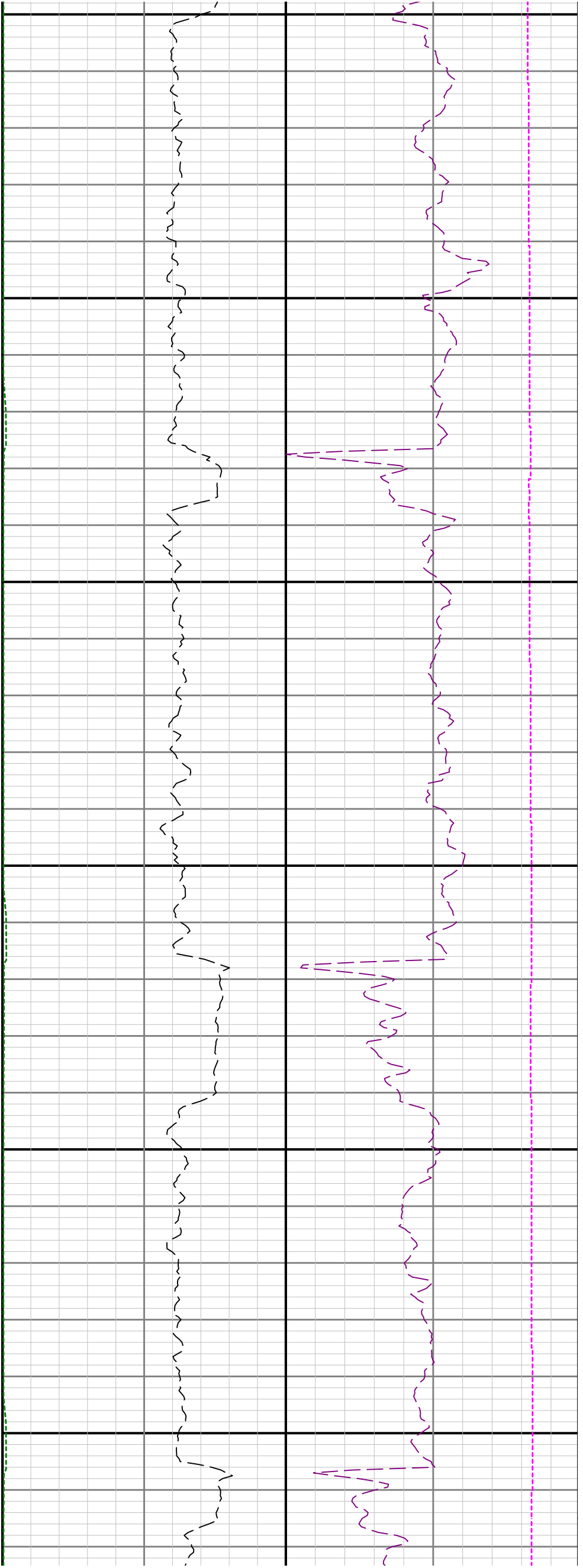
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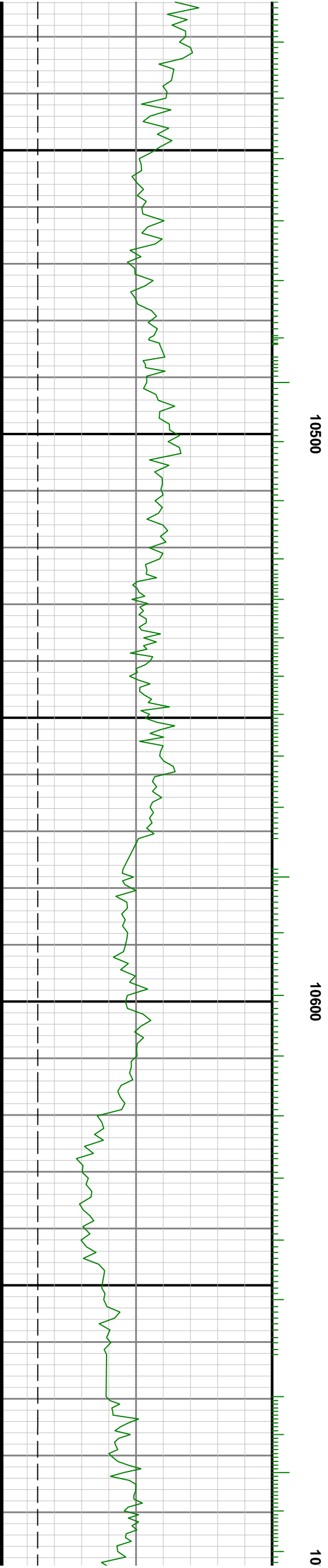
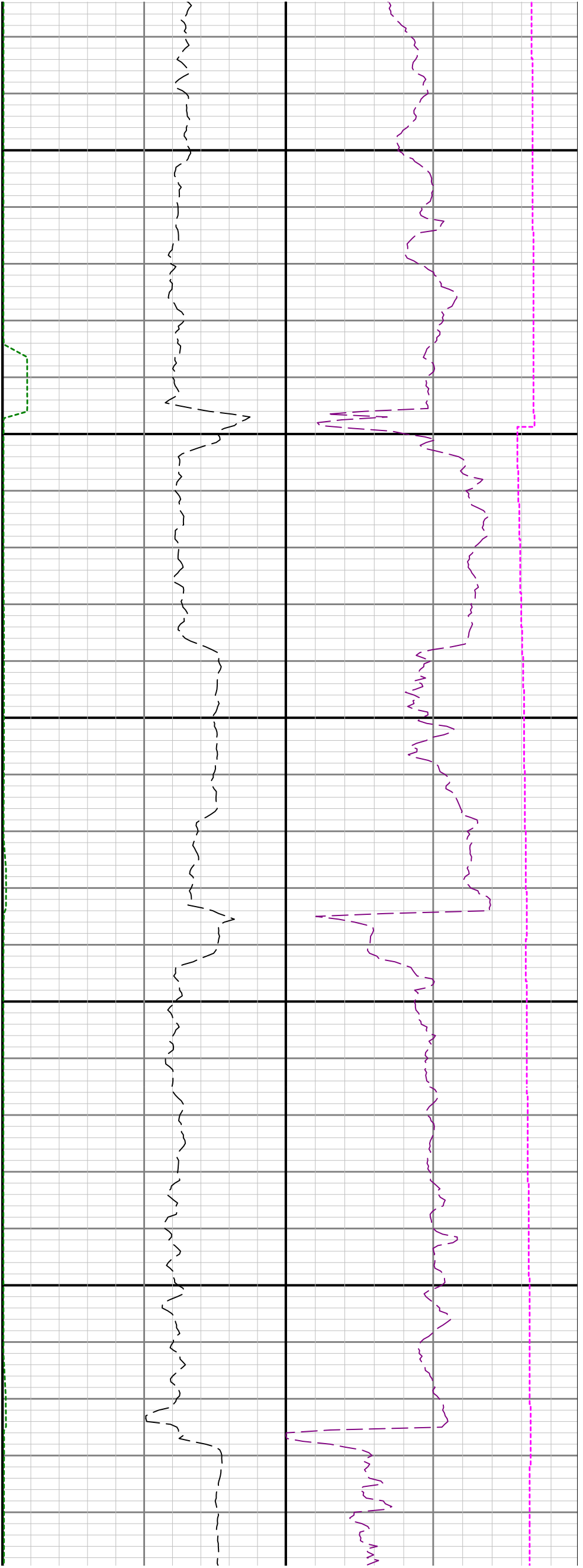
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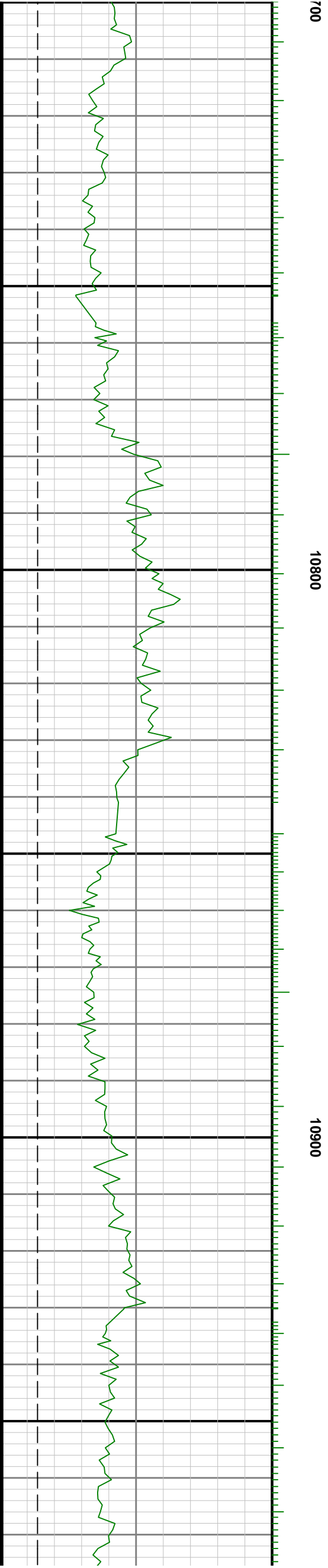
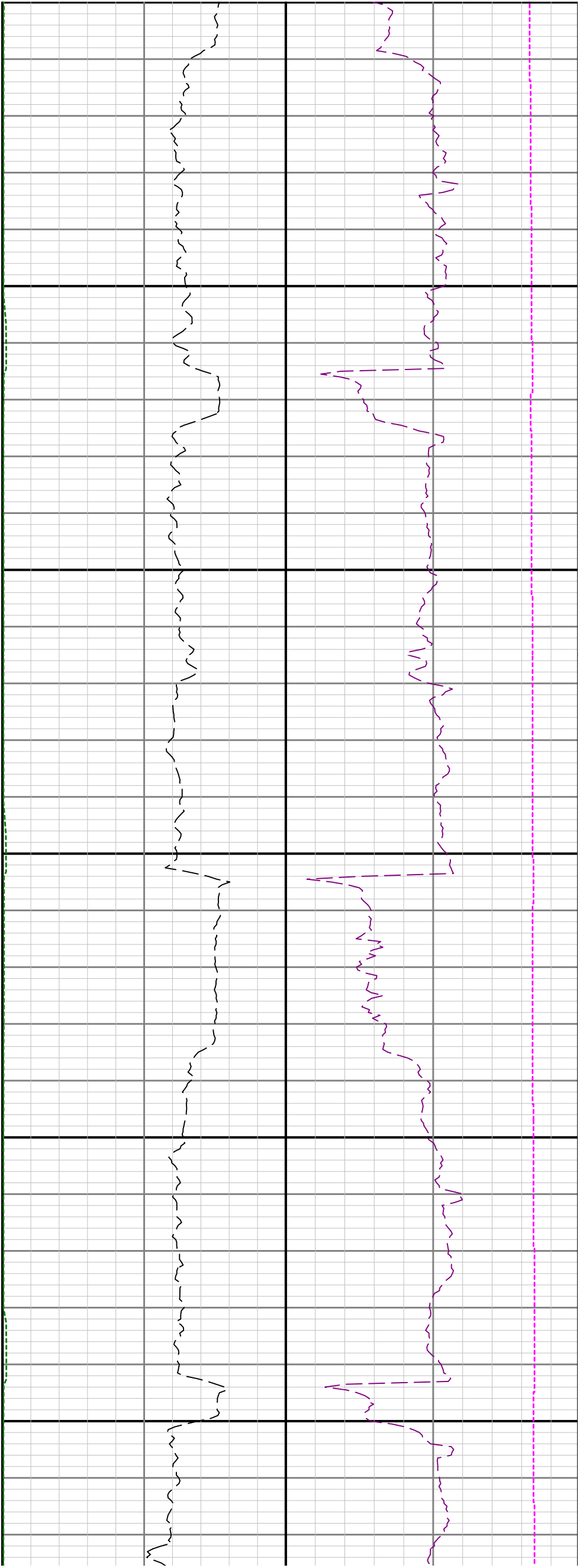
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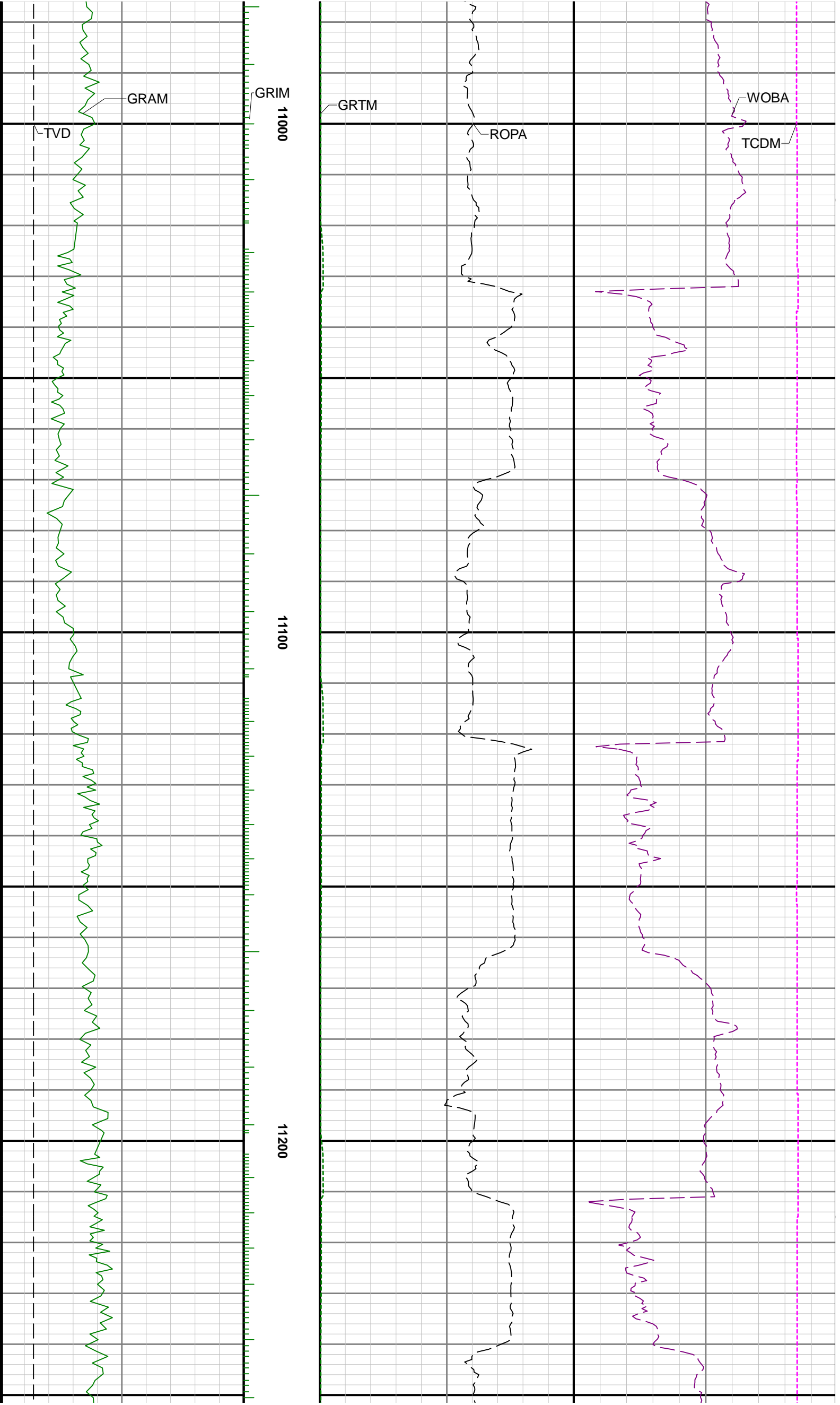
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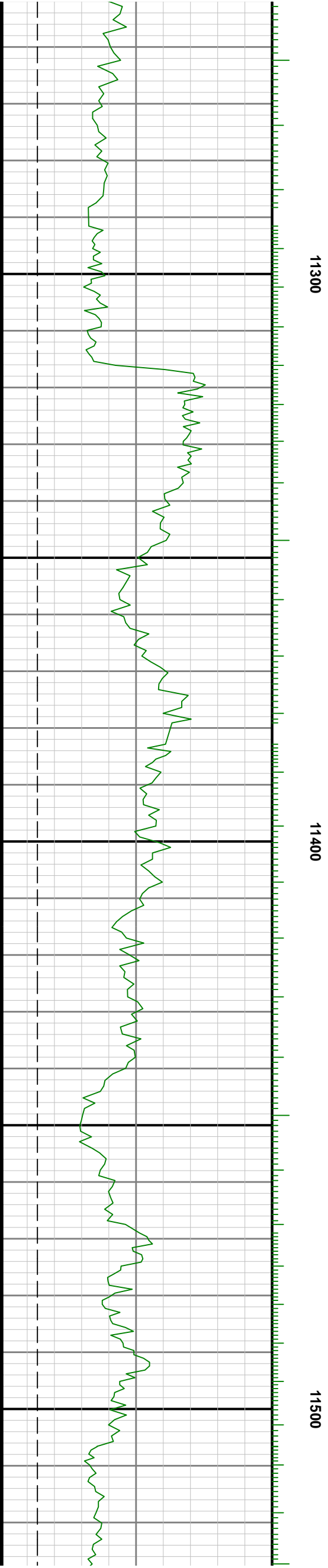
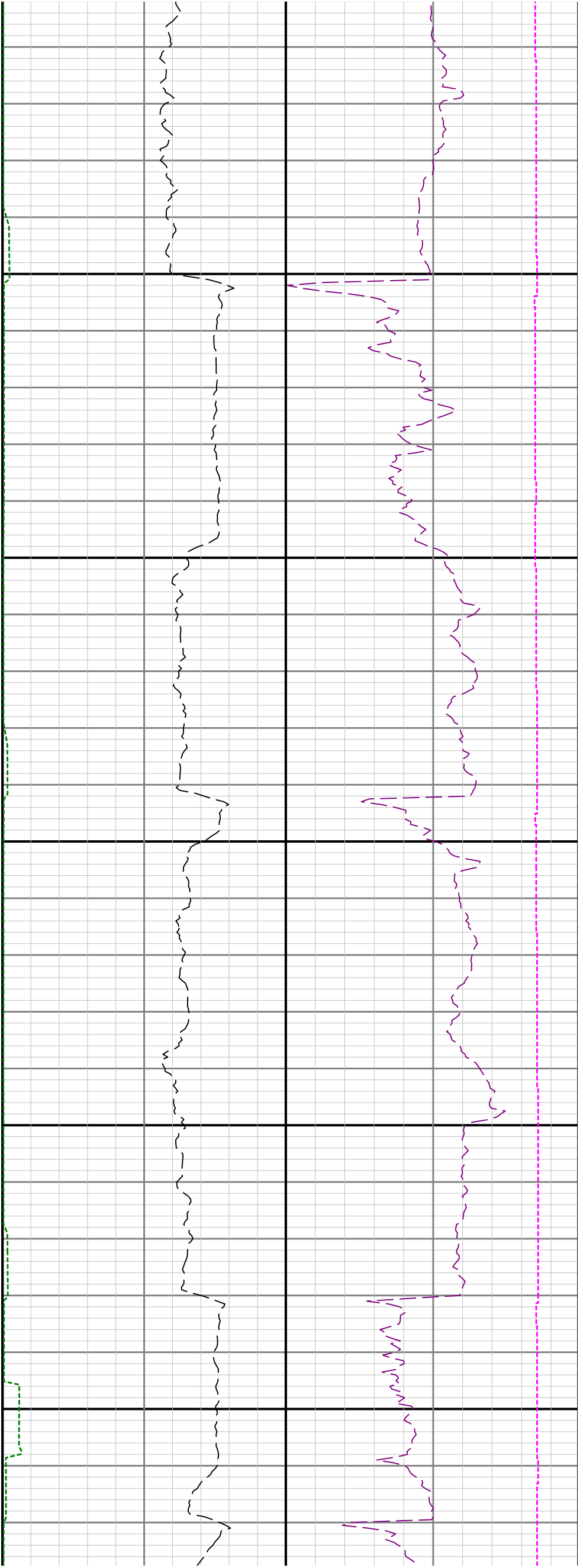


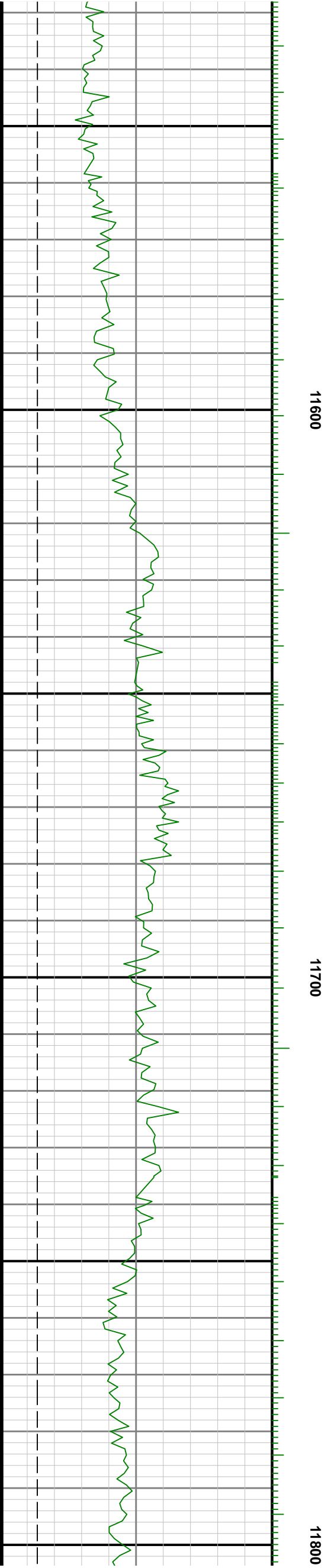
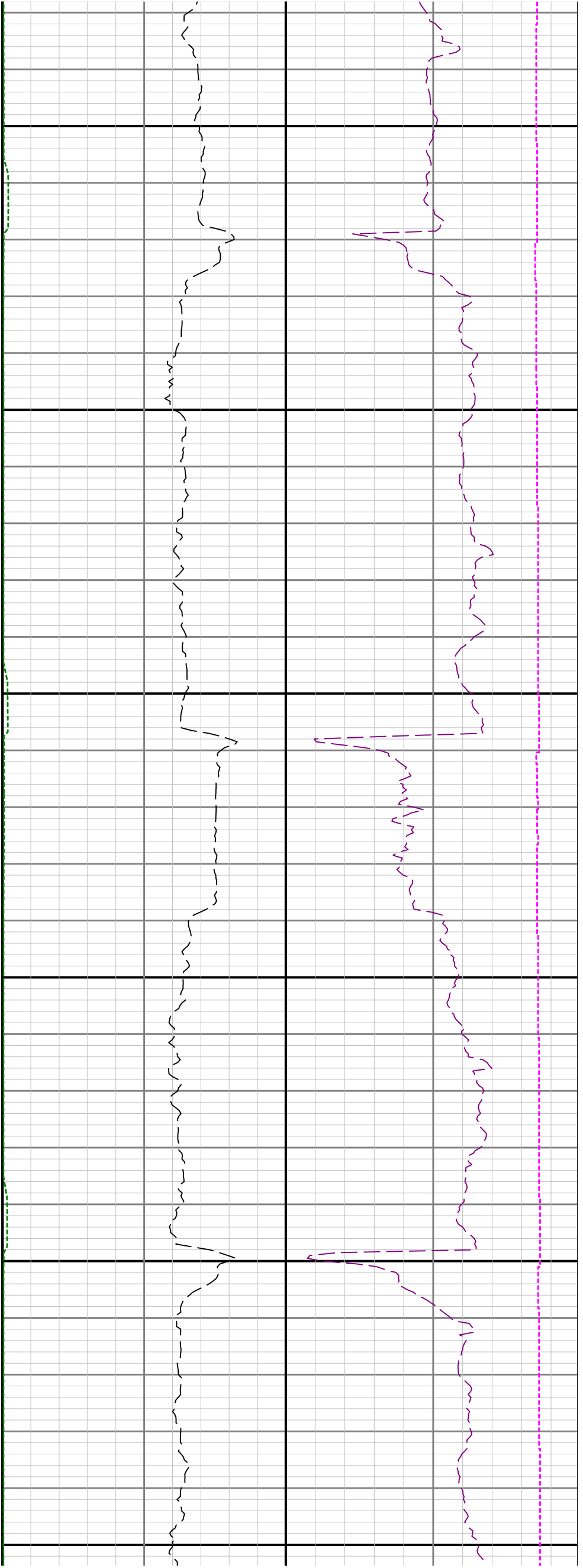


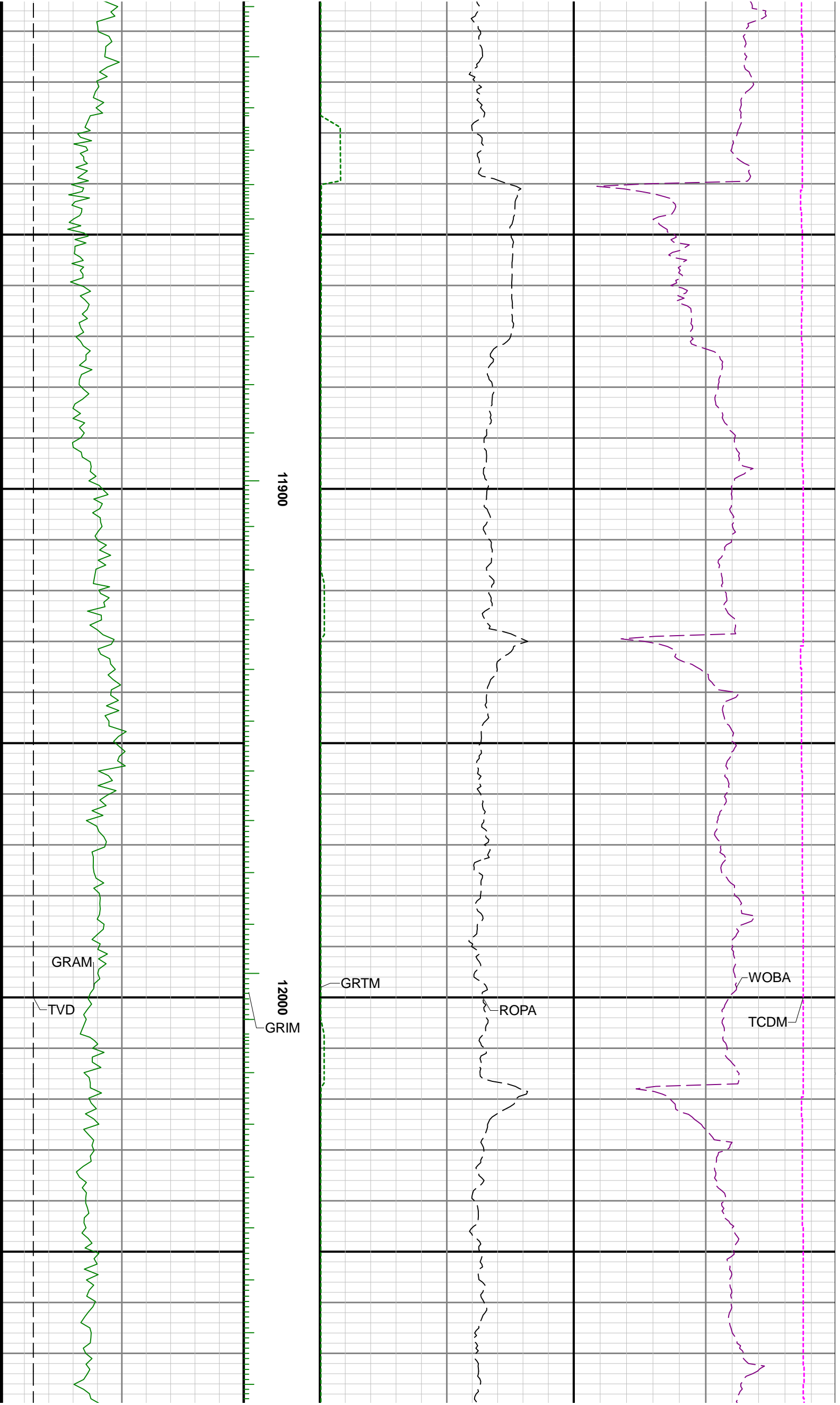


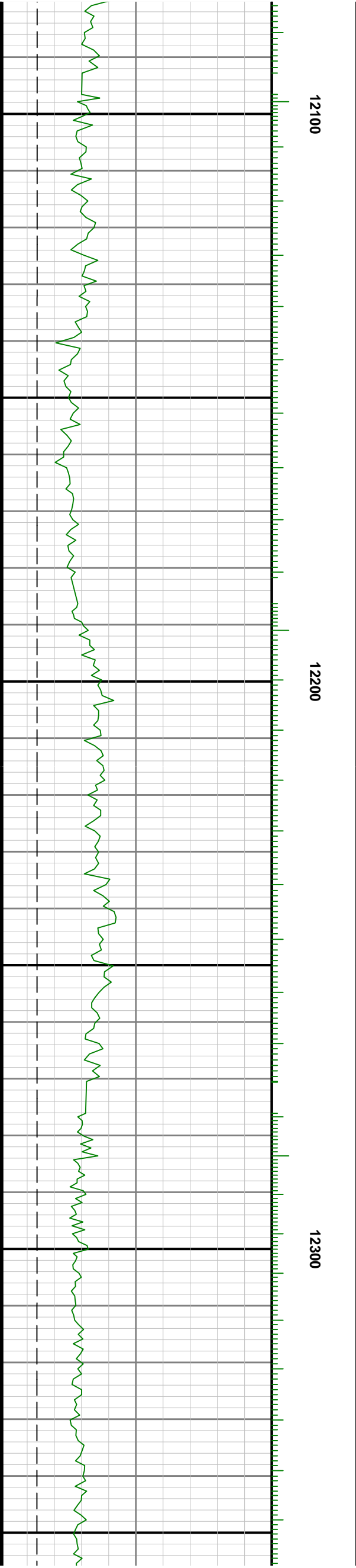
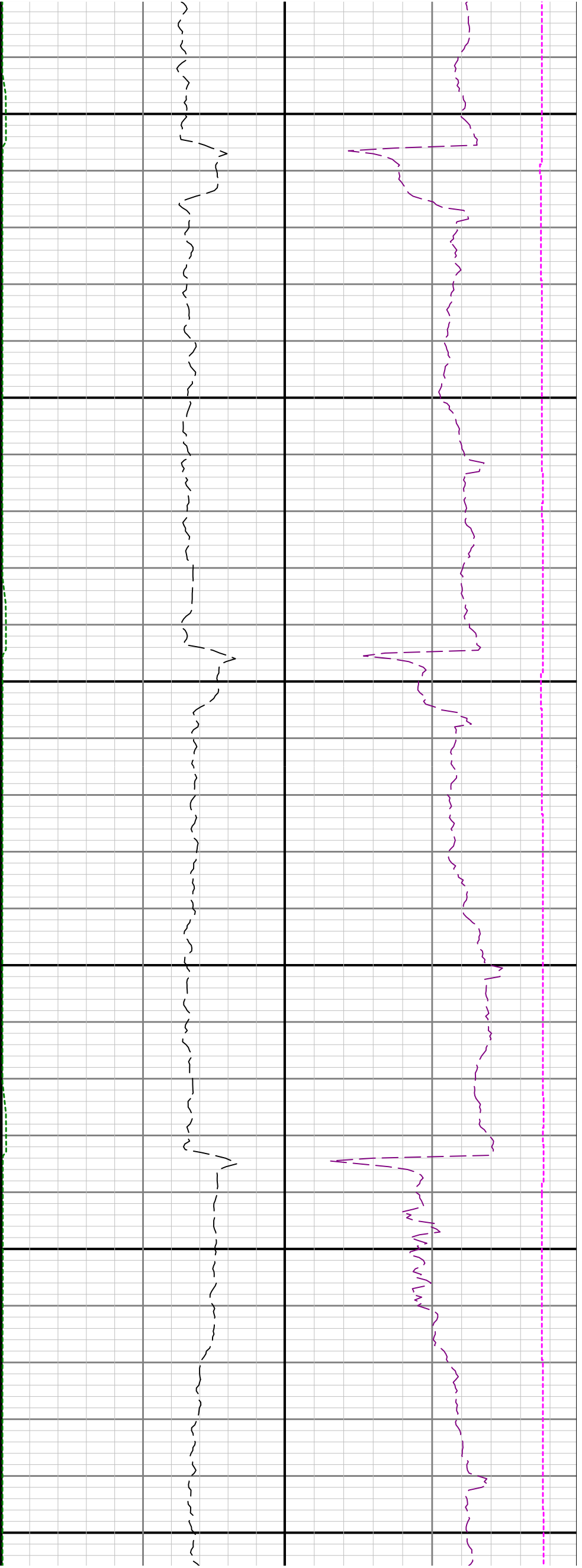




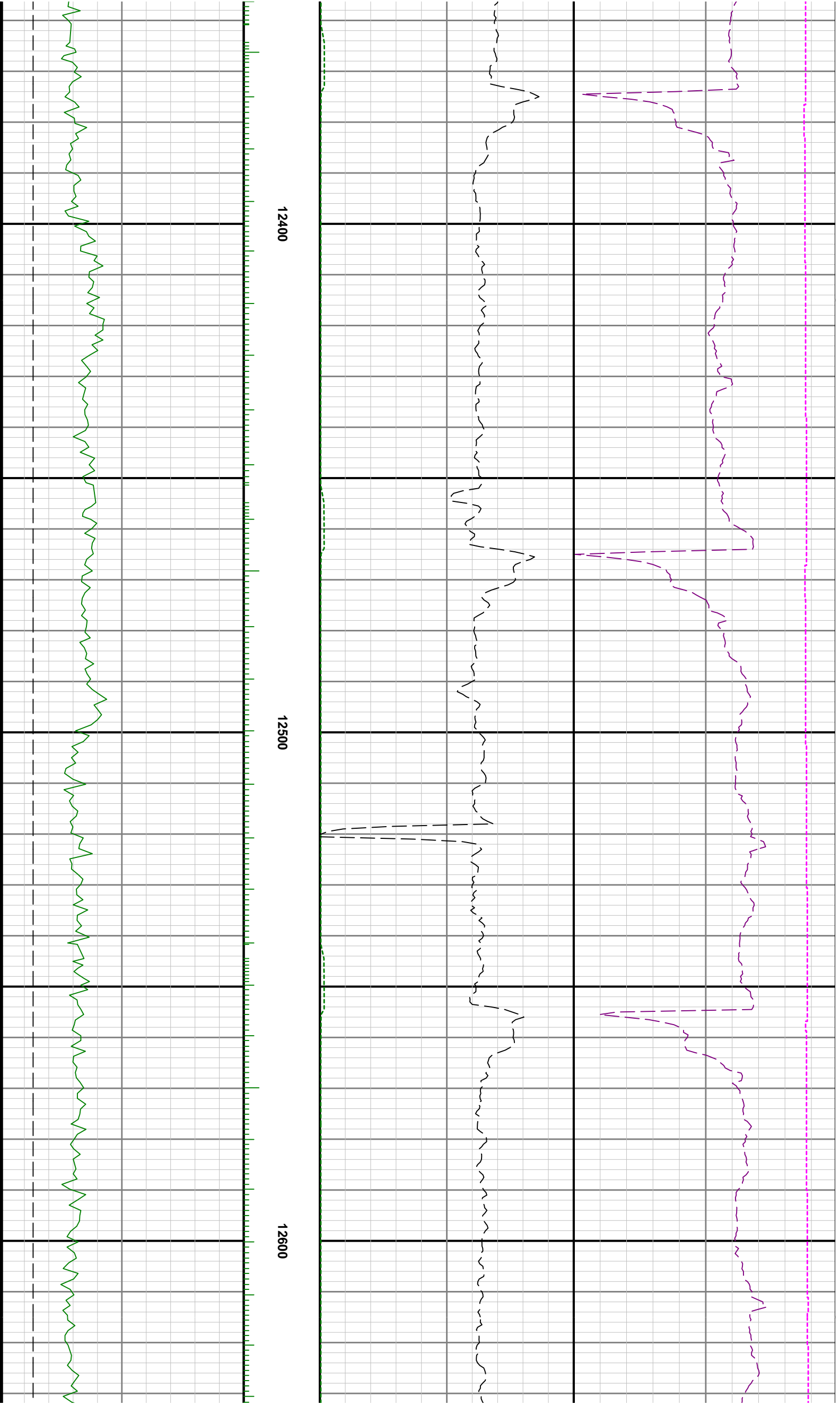


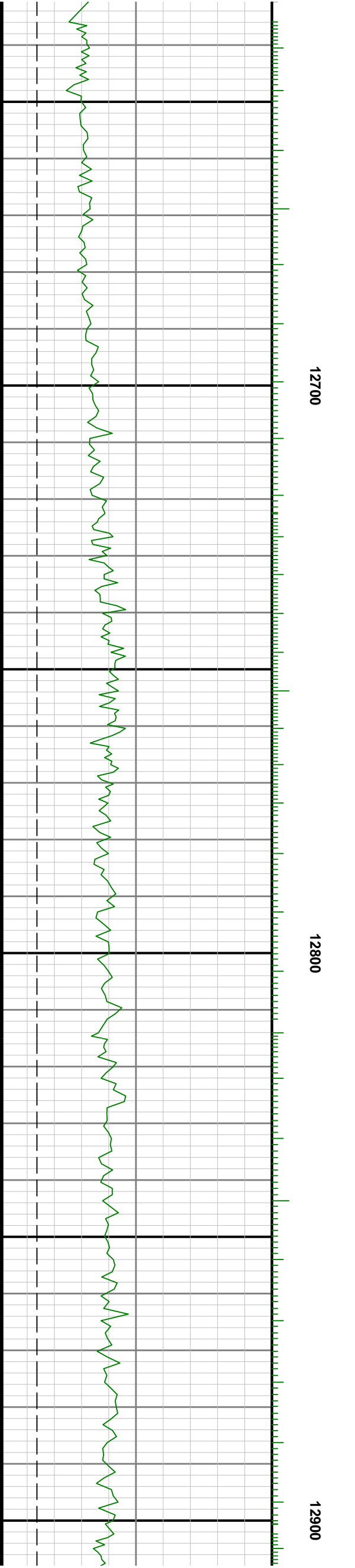
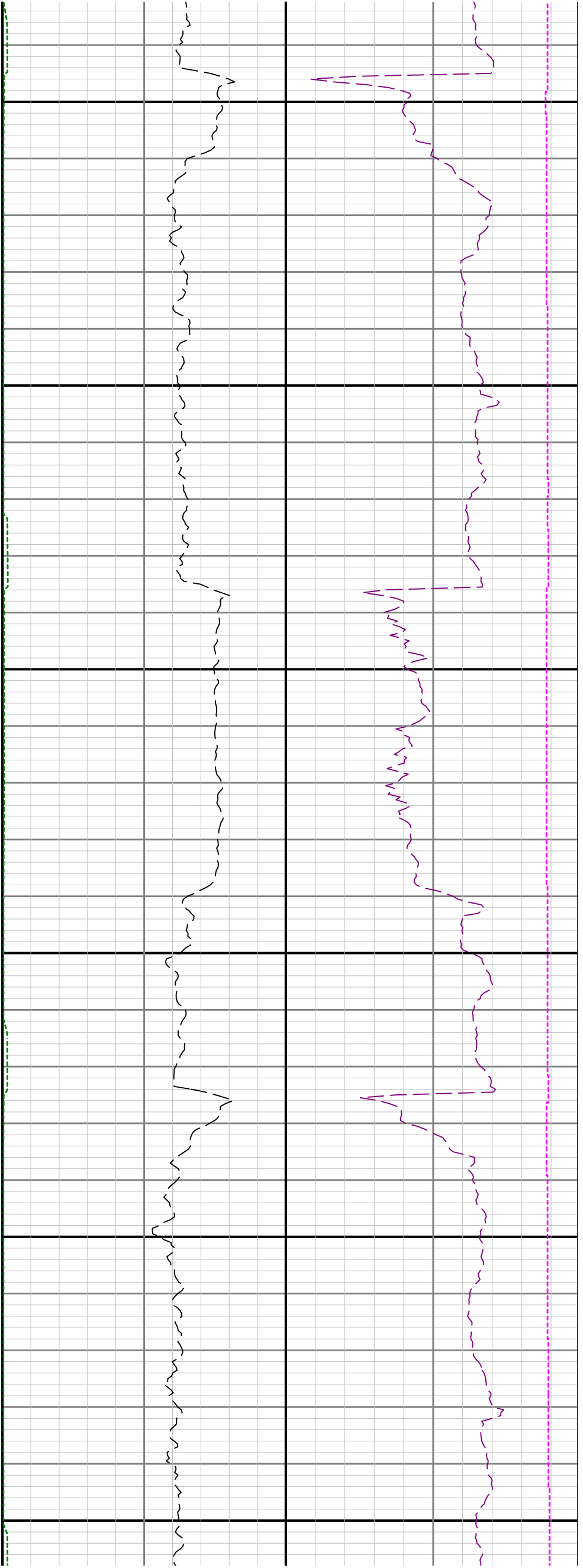


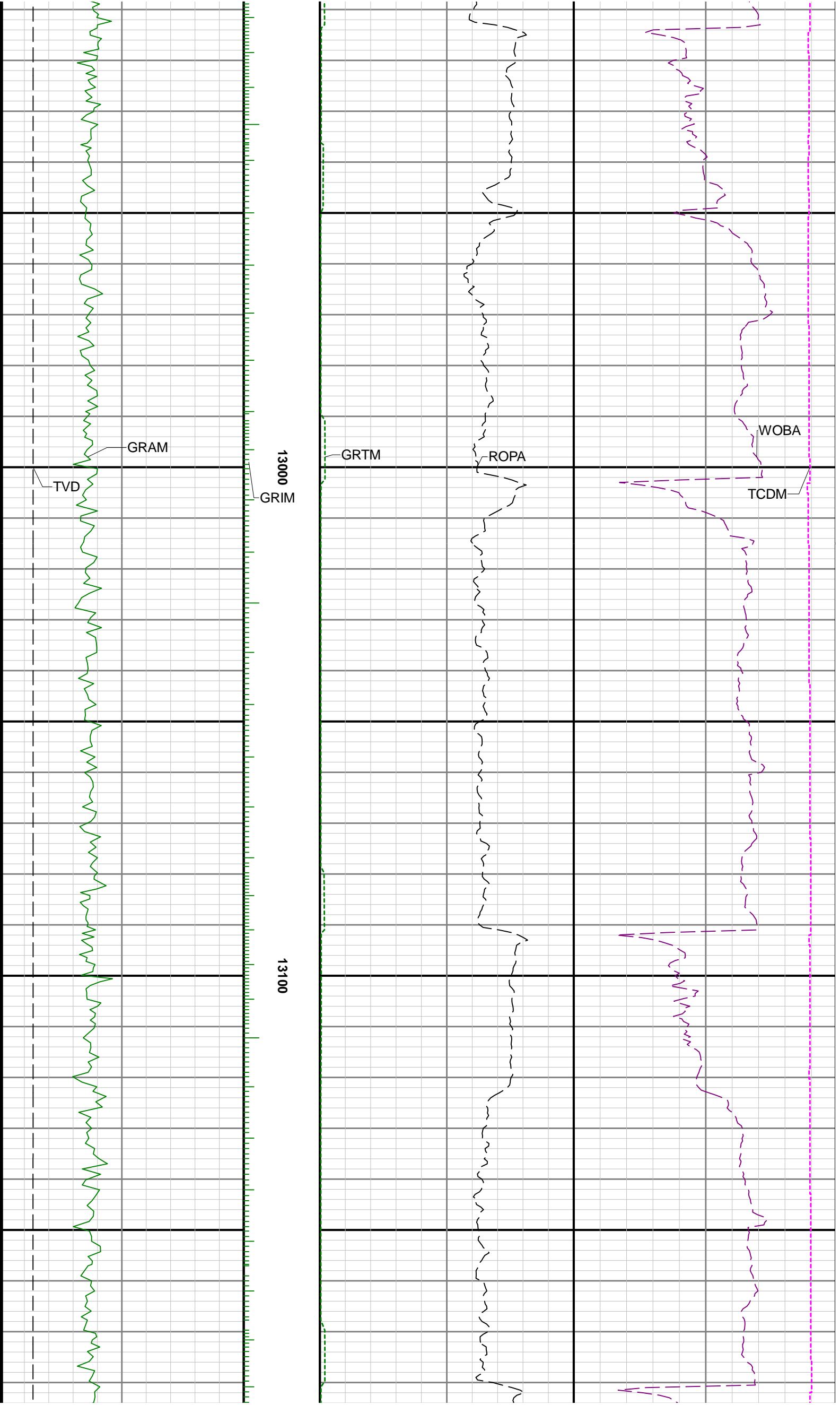


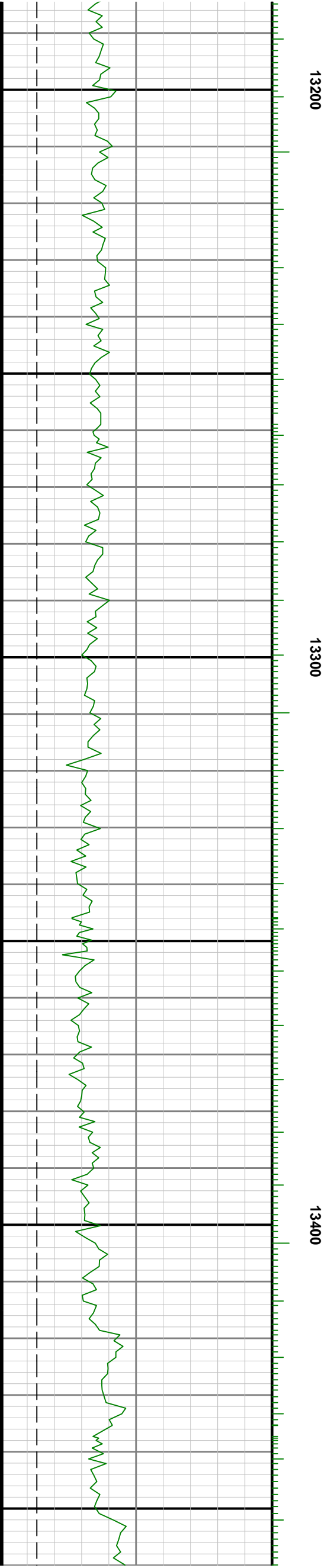
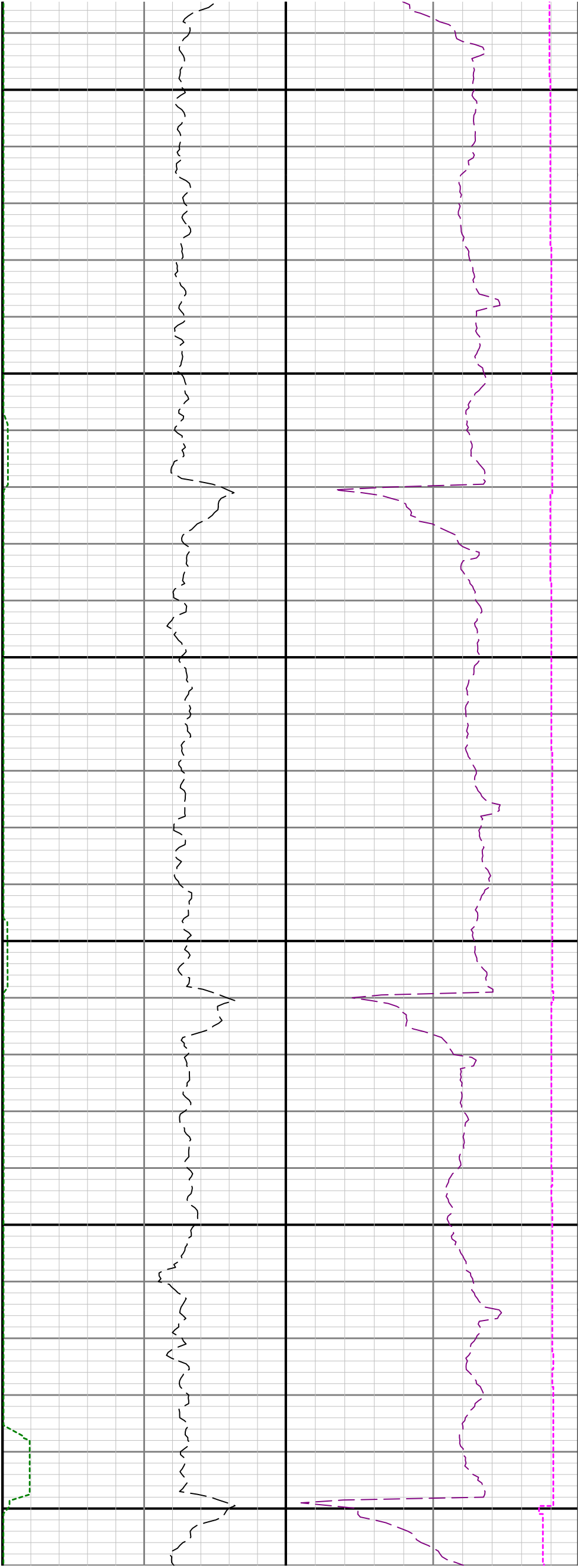


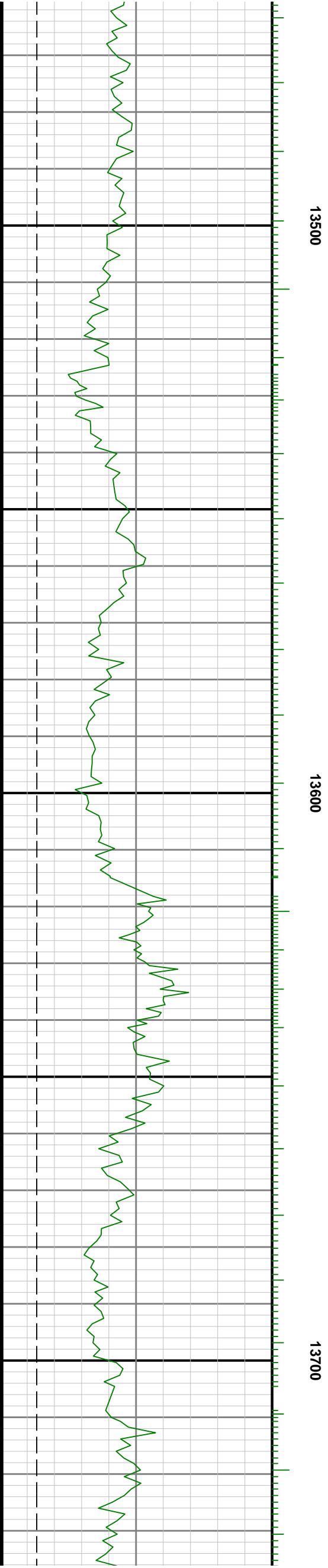
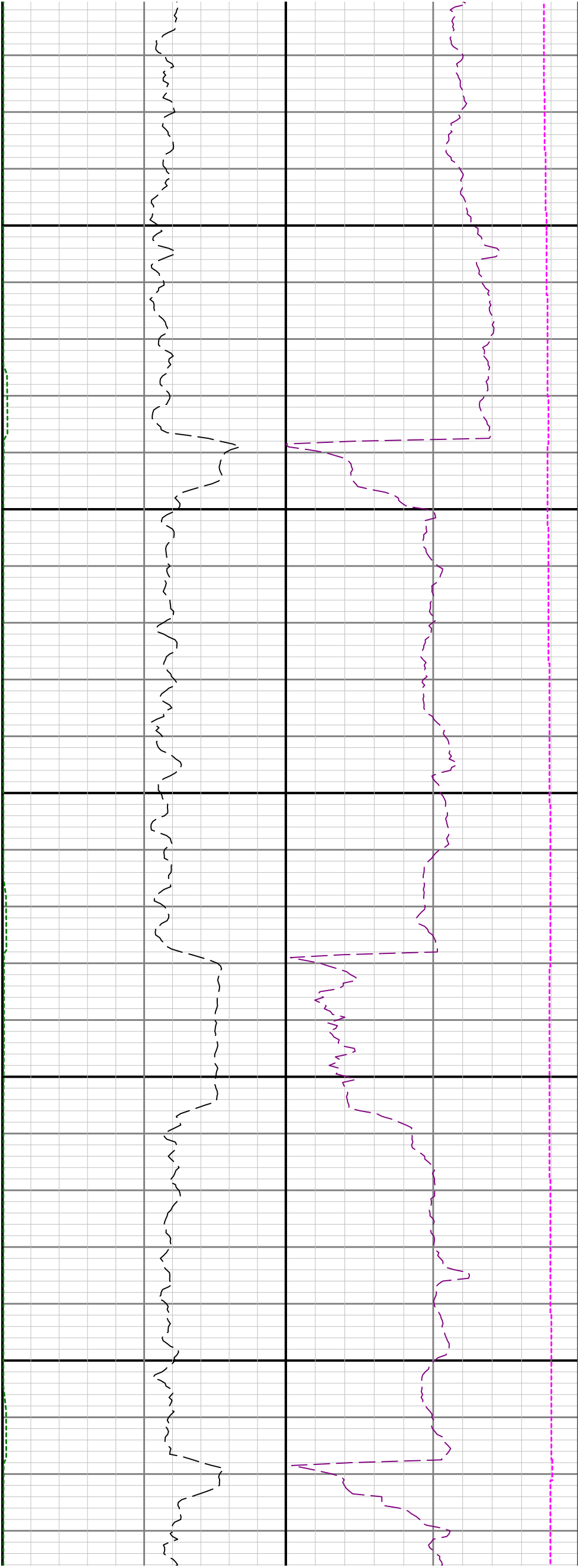


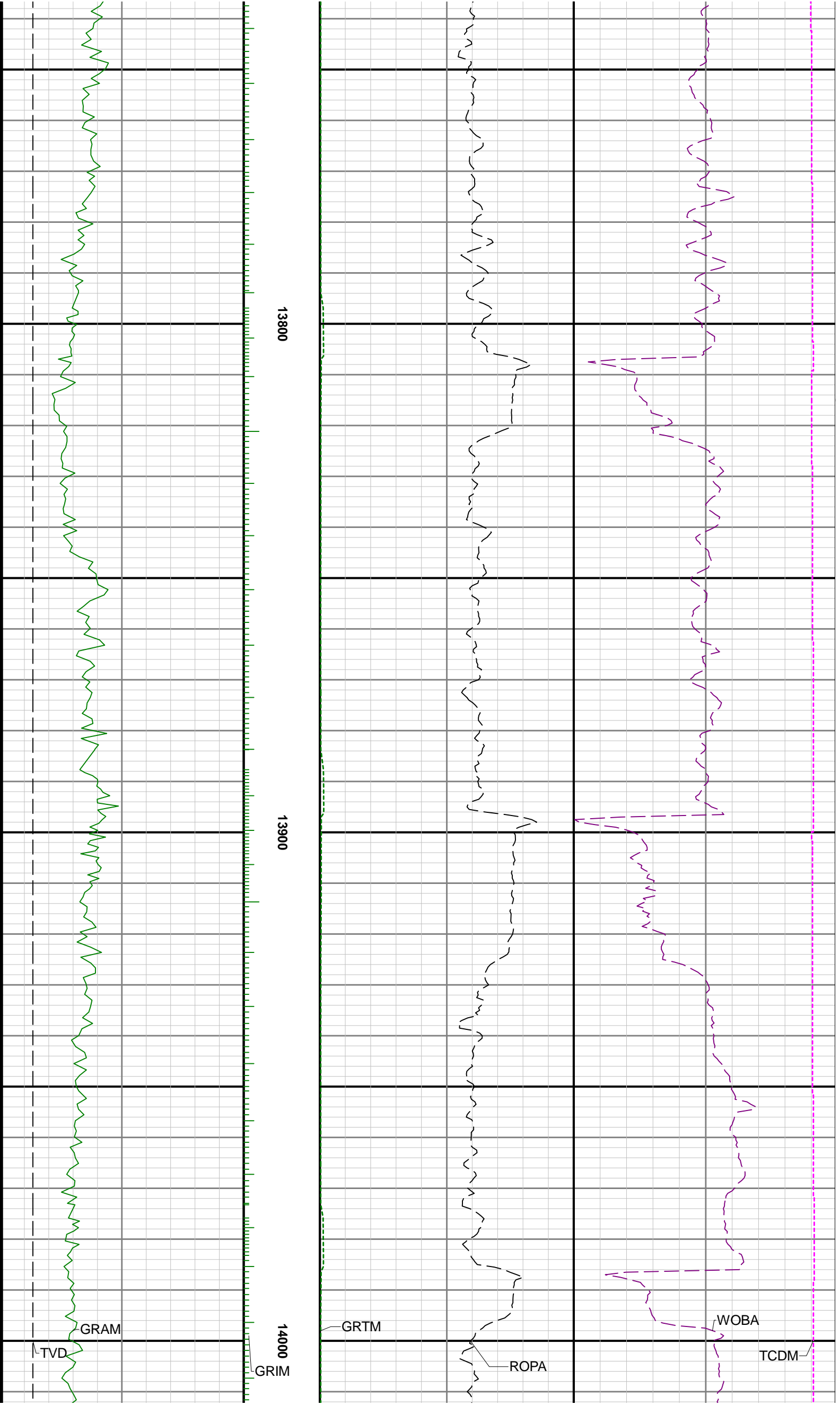


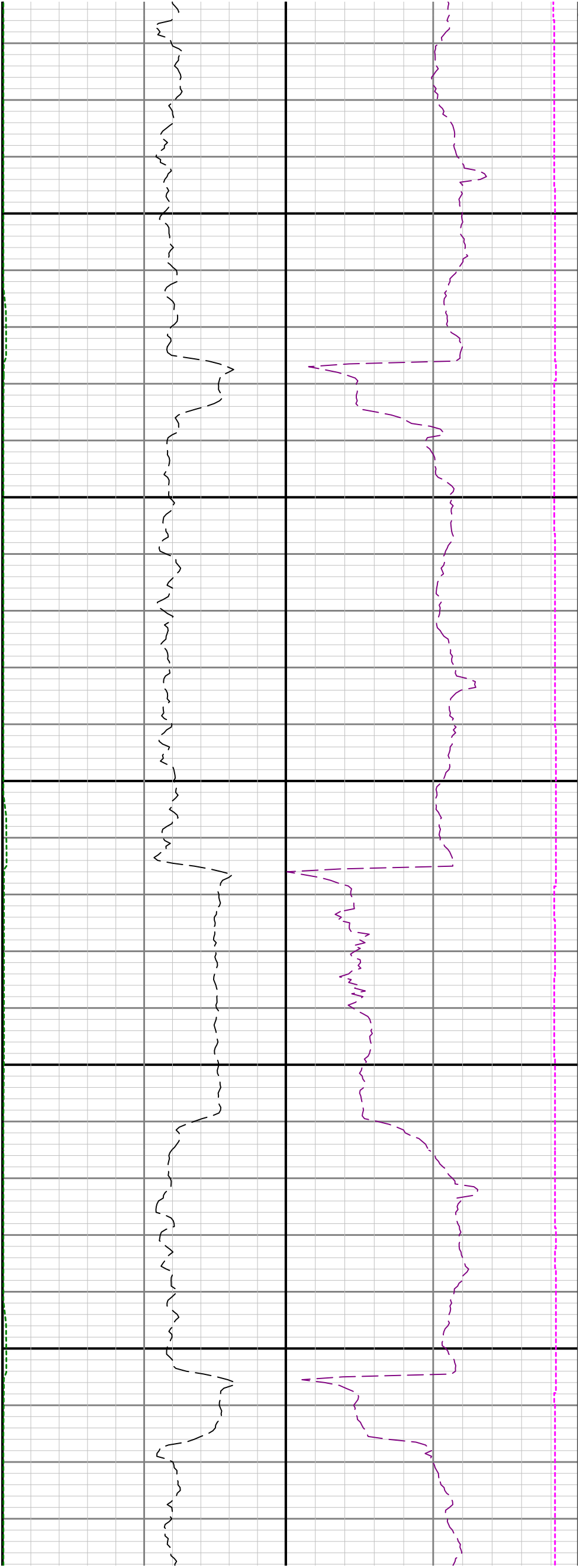






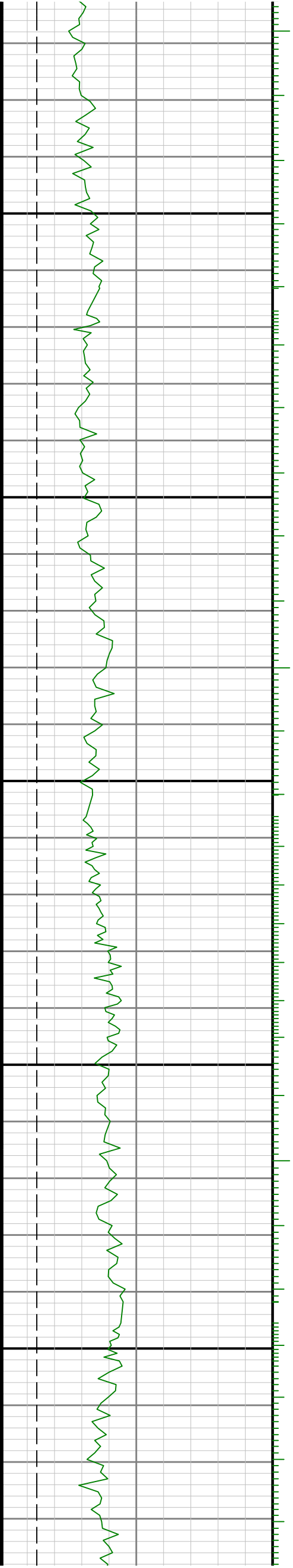


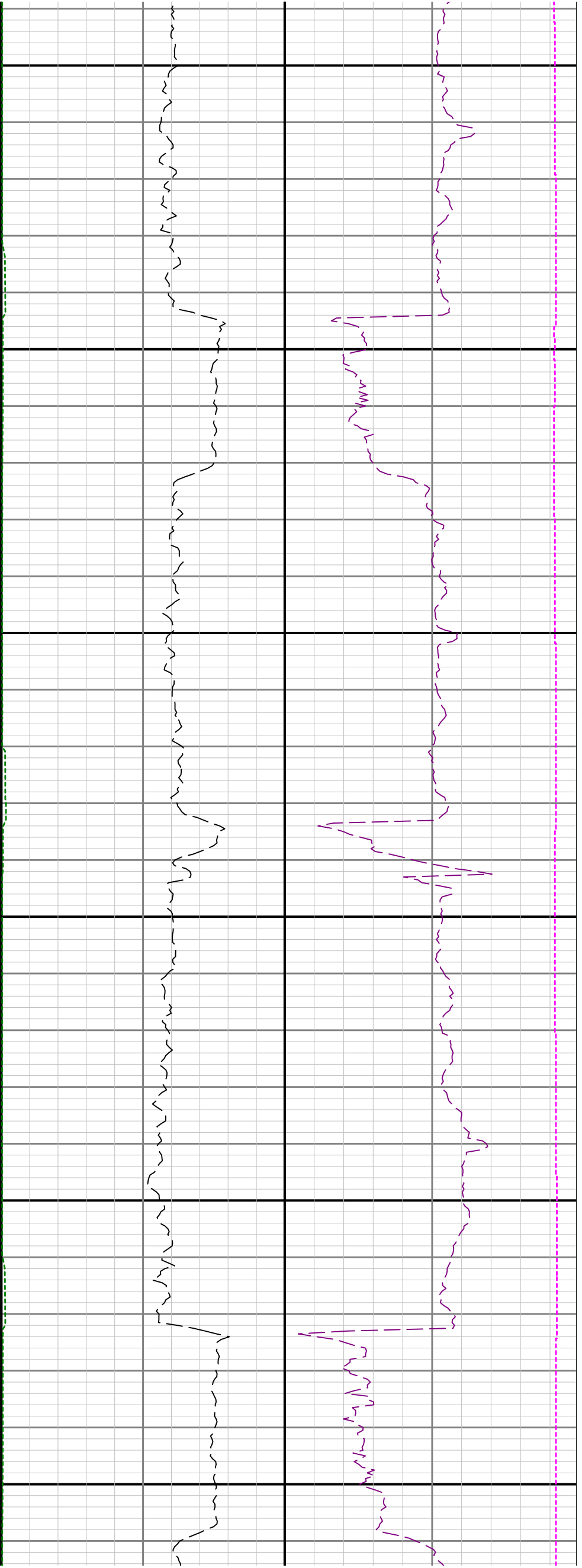




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14200

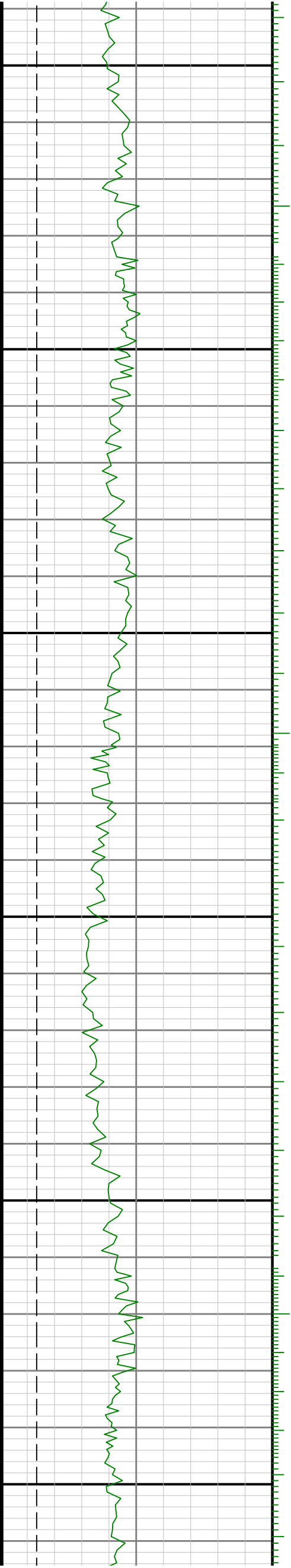




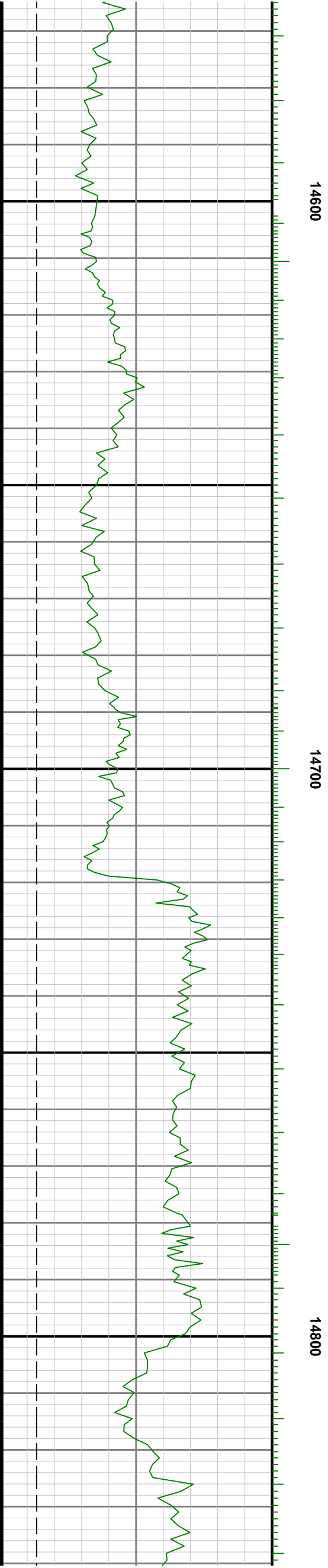
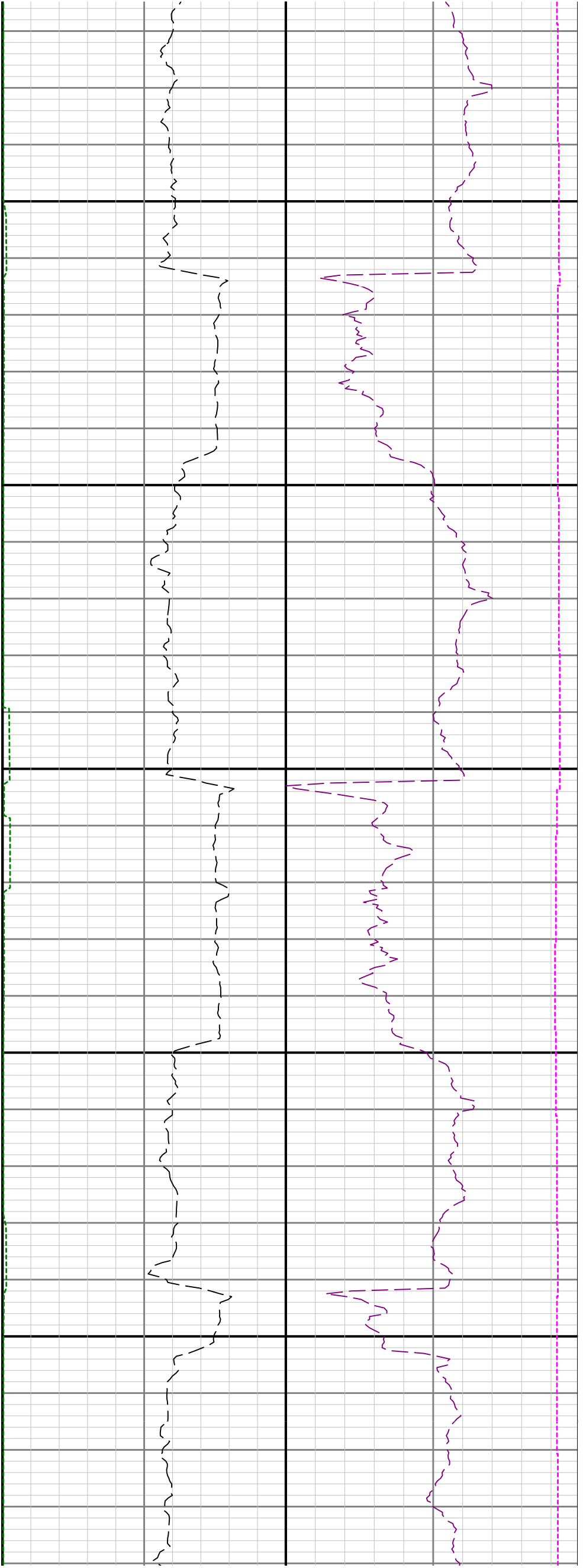
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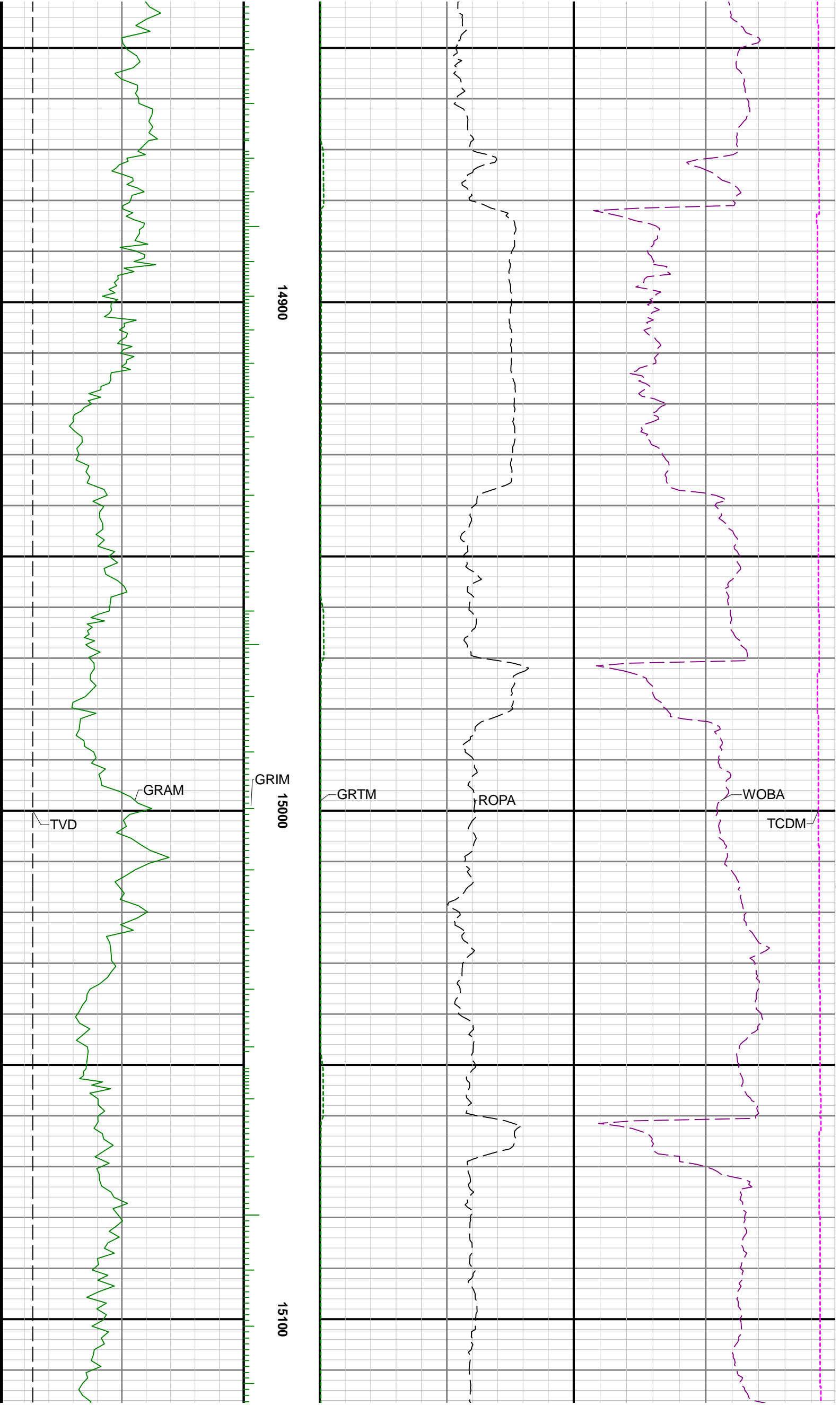
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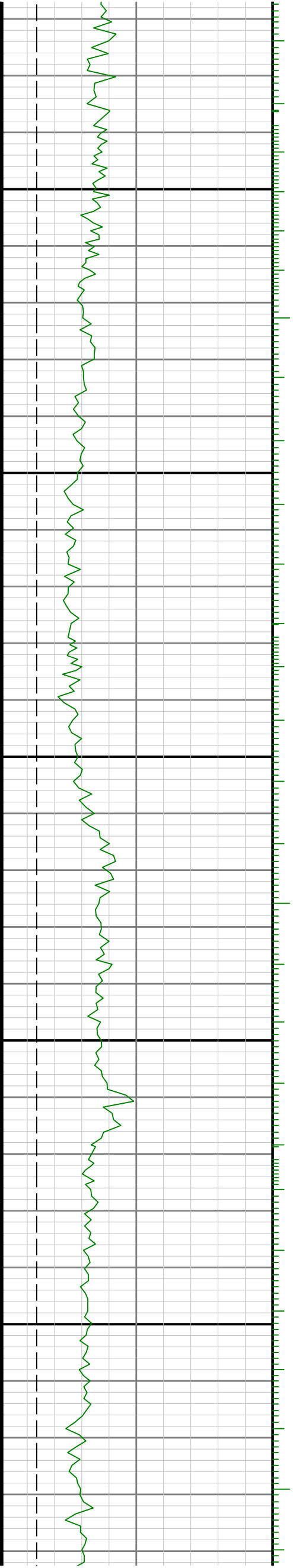
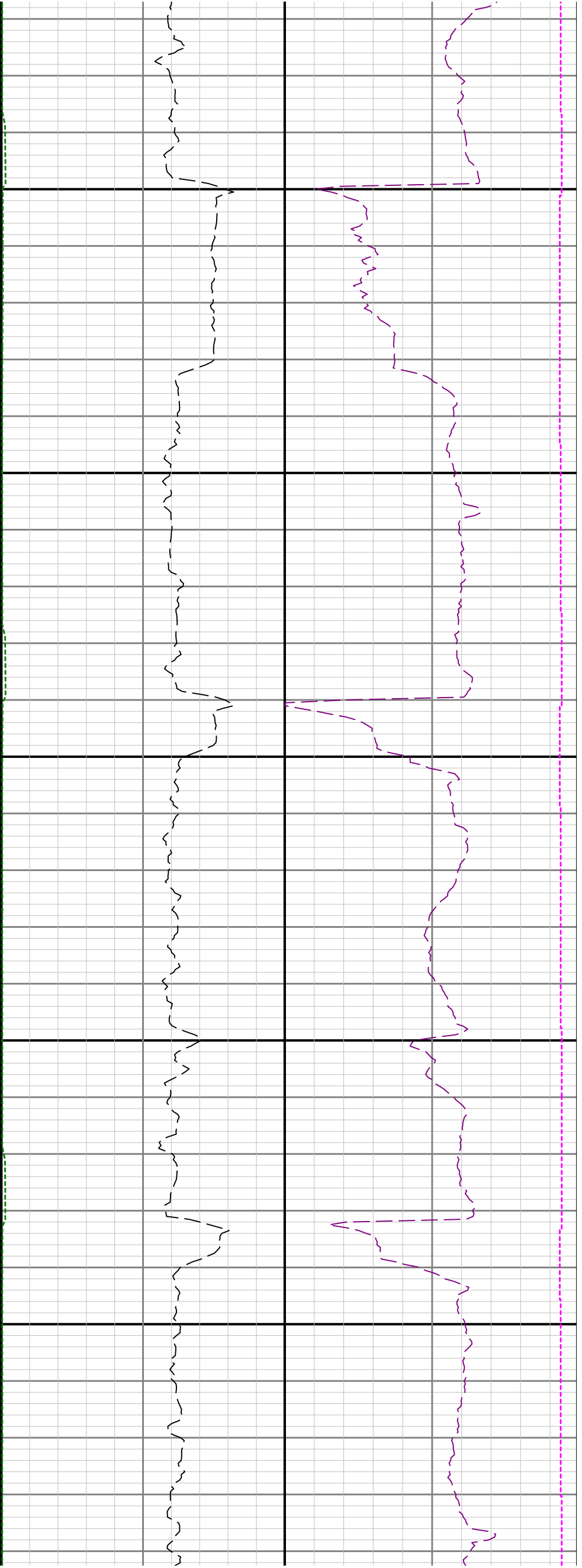
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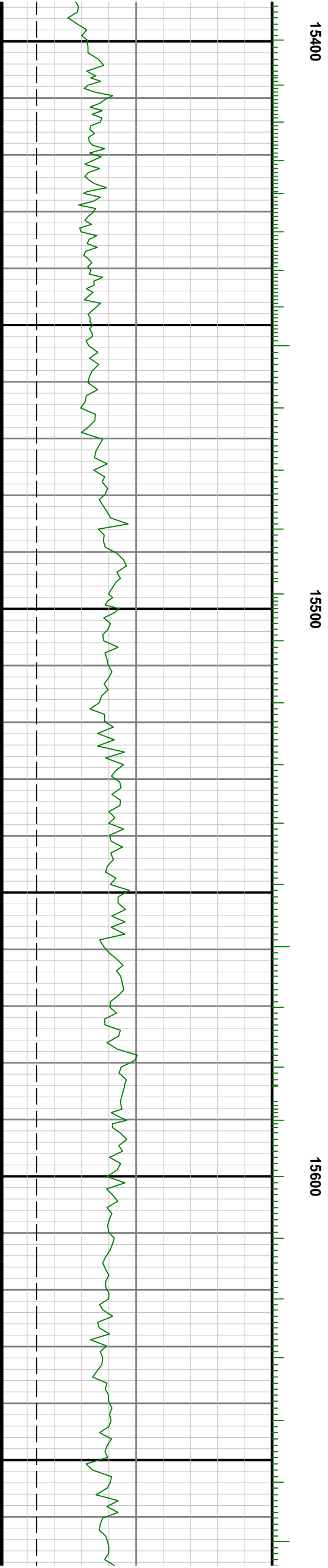
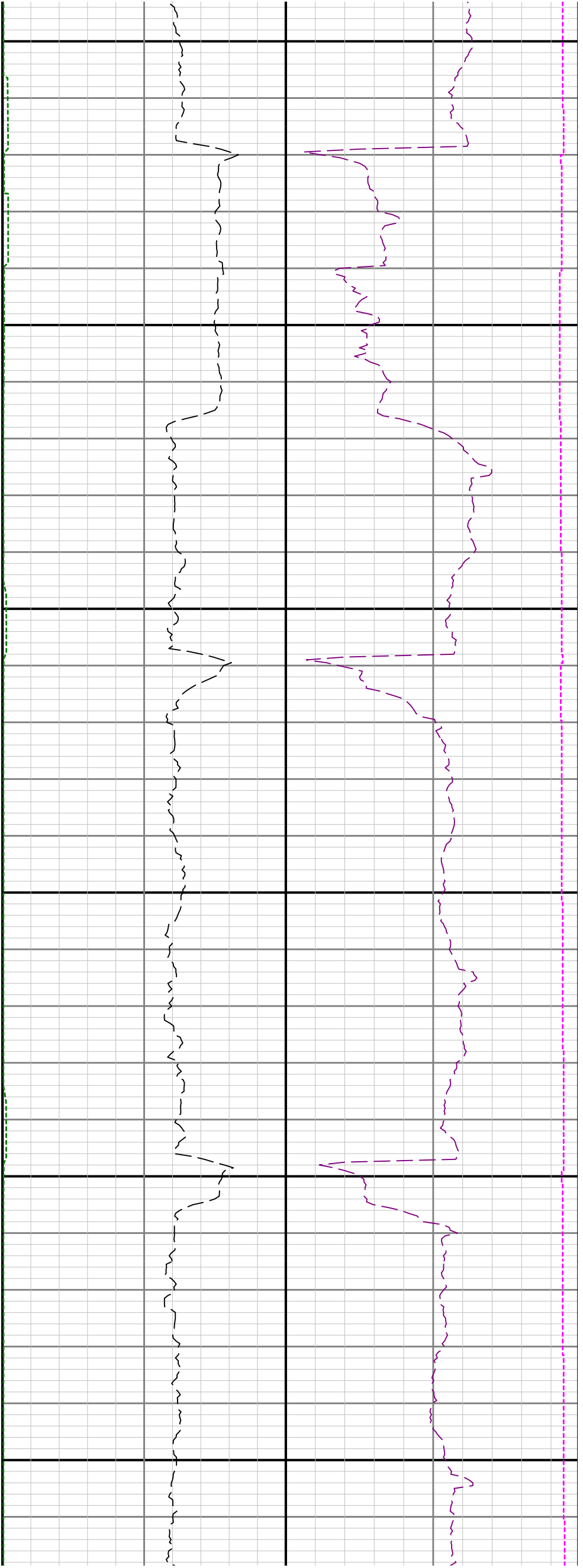


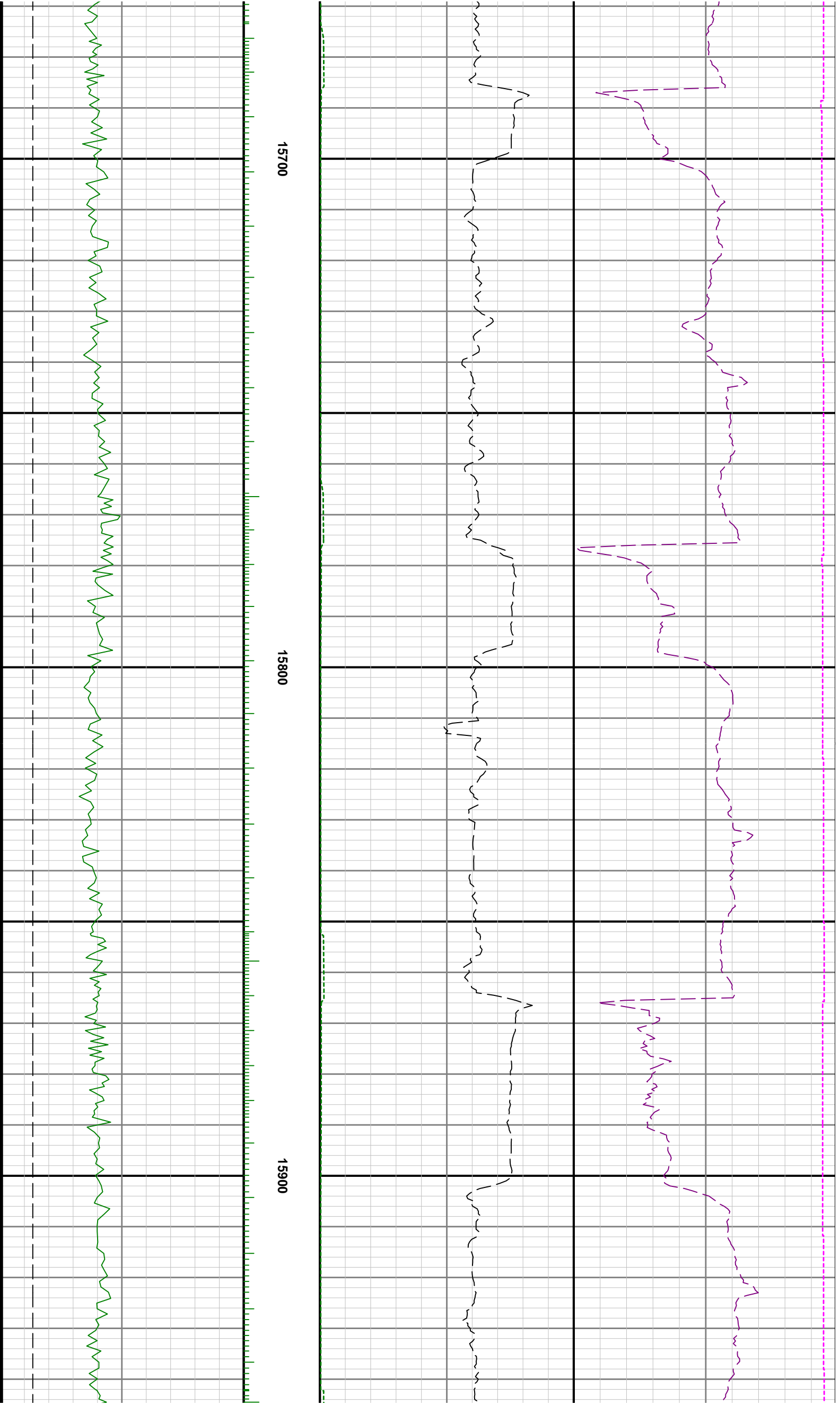


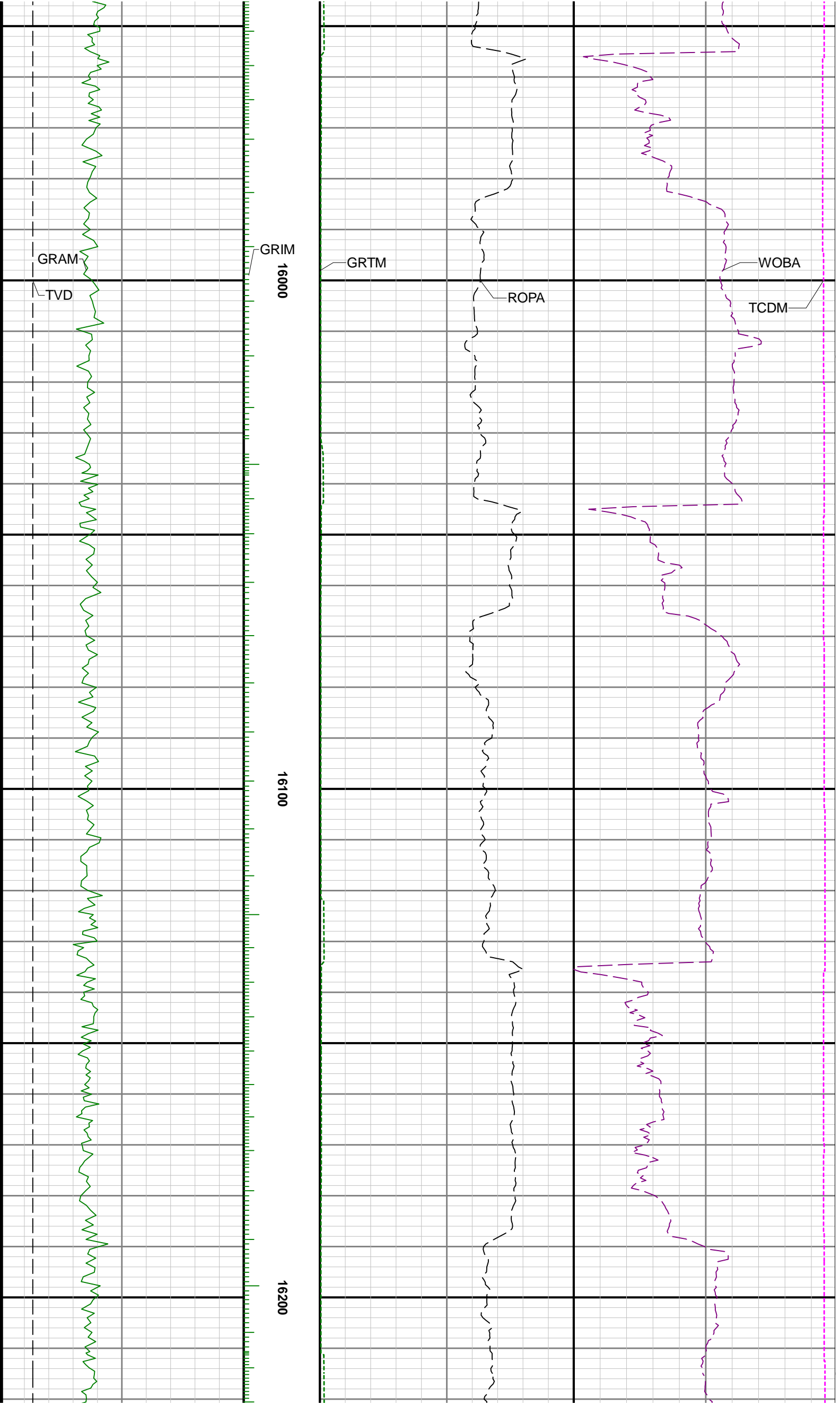


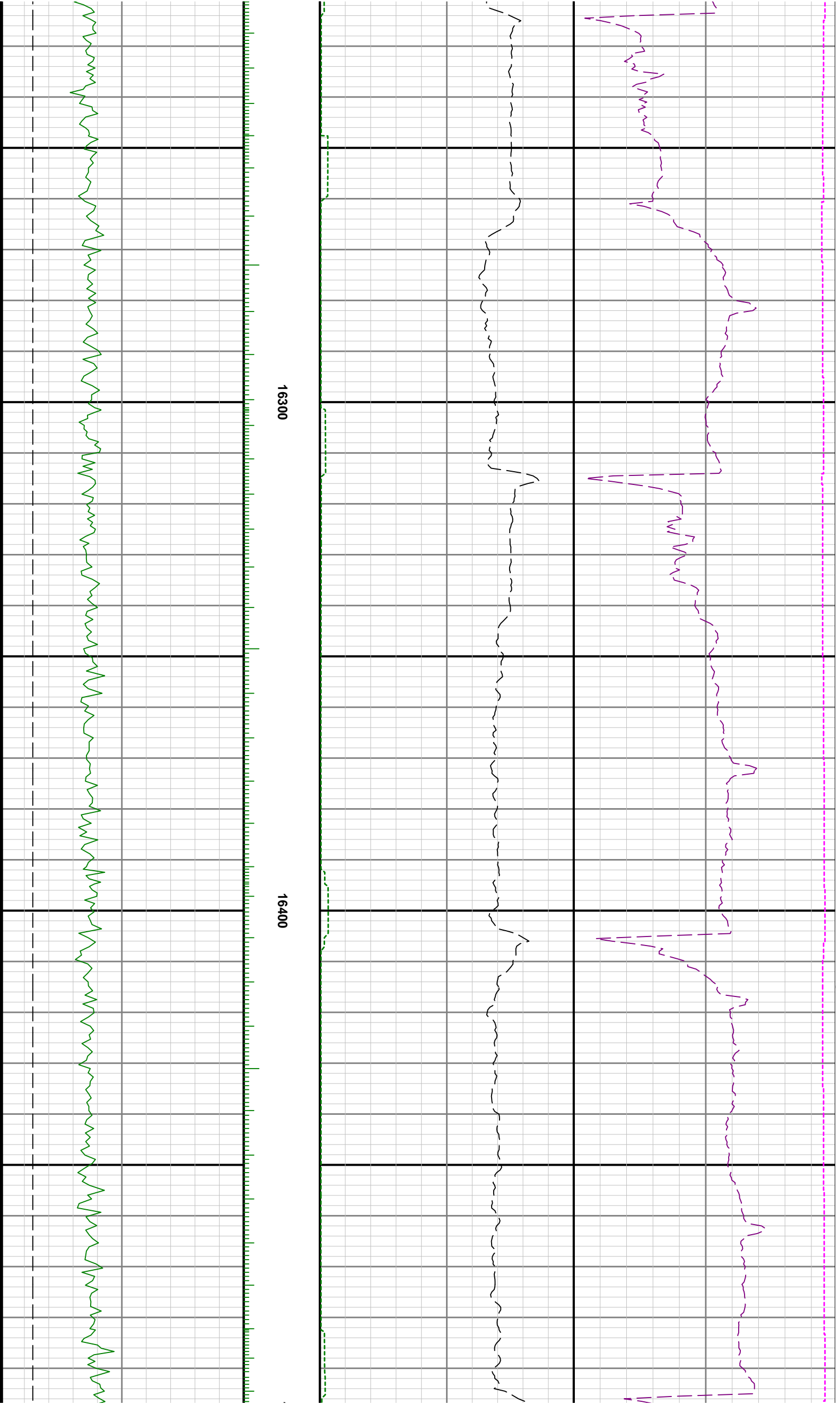


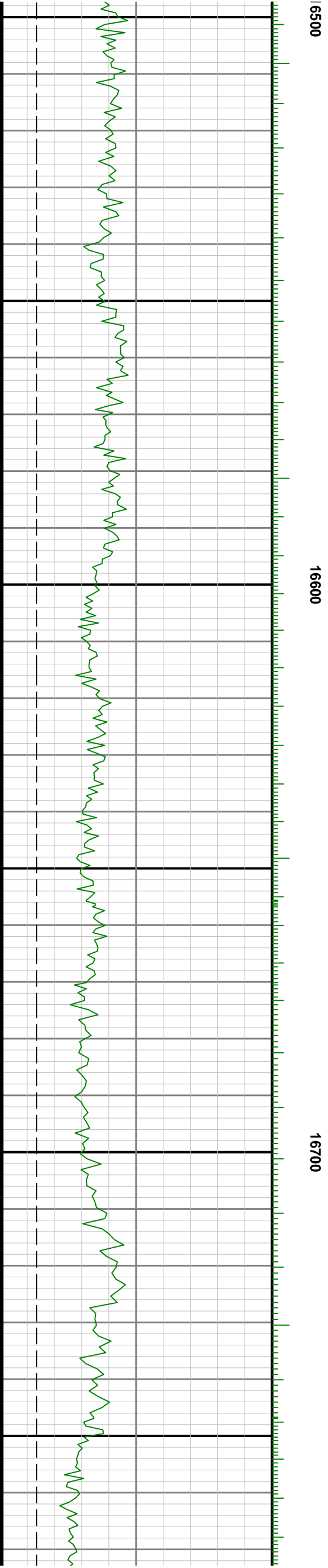




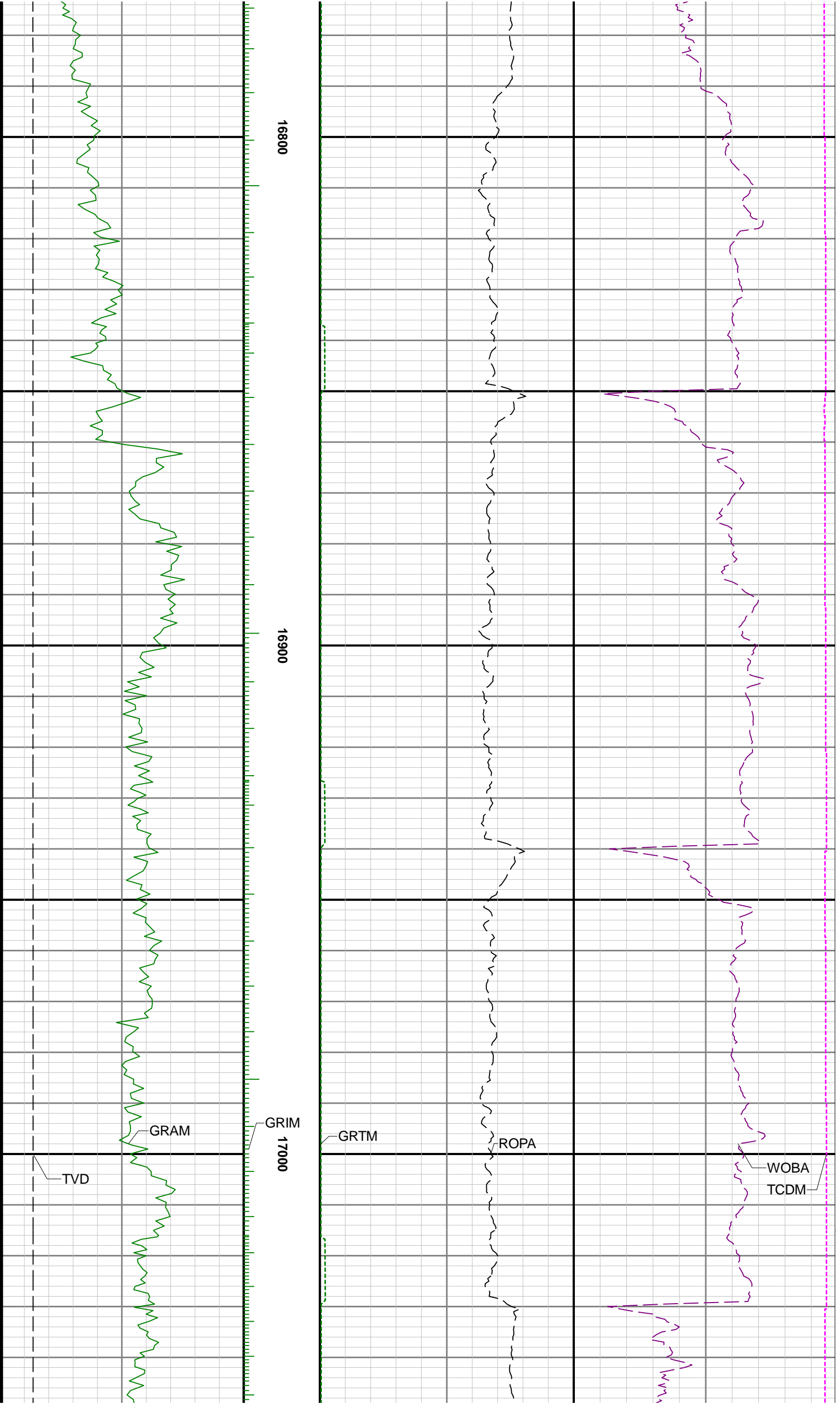


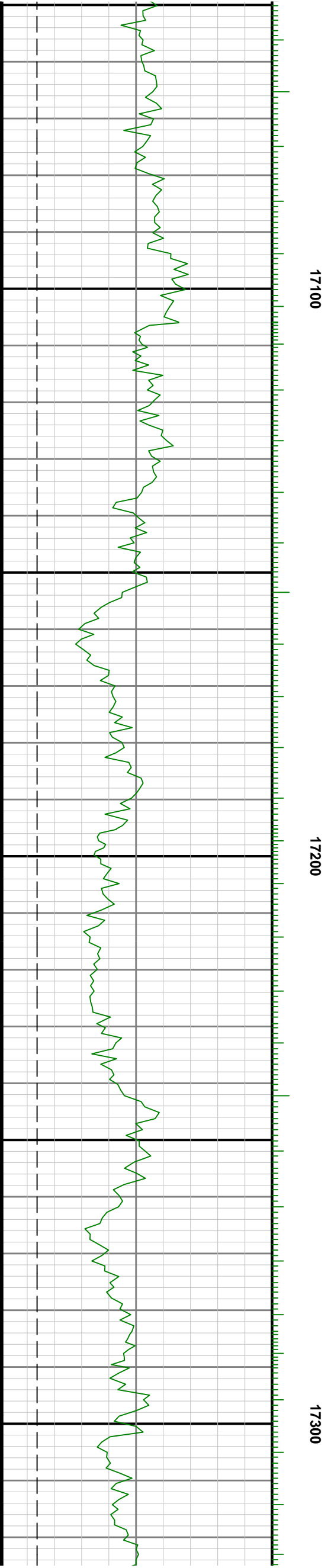
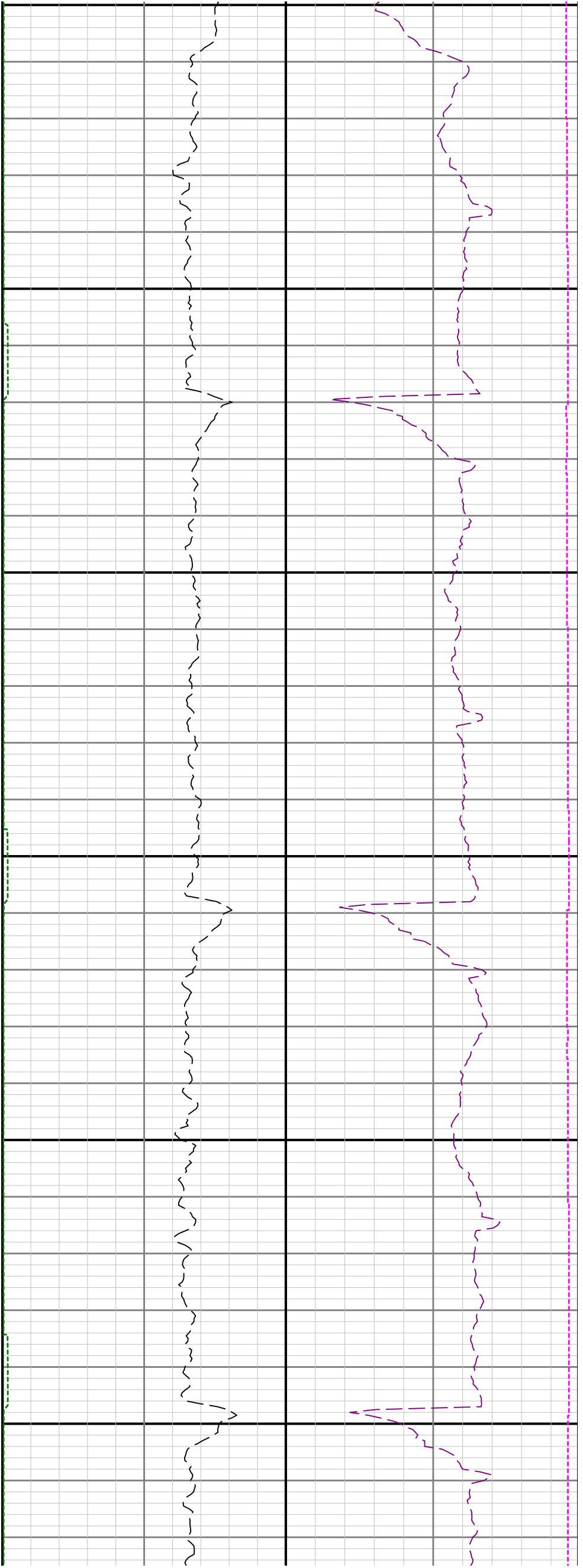


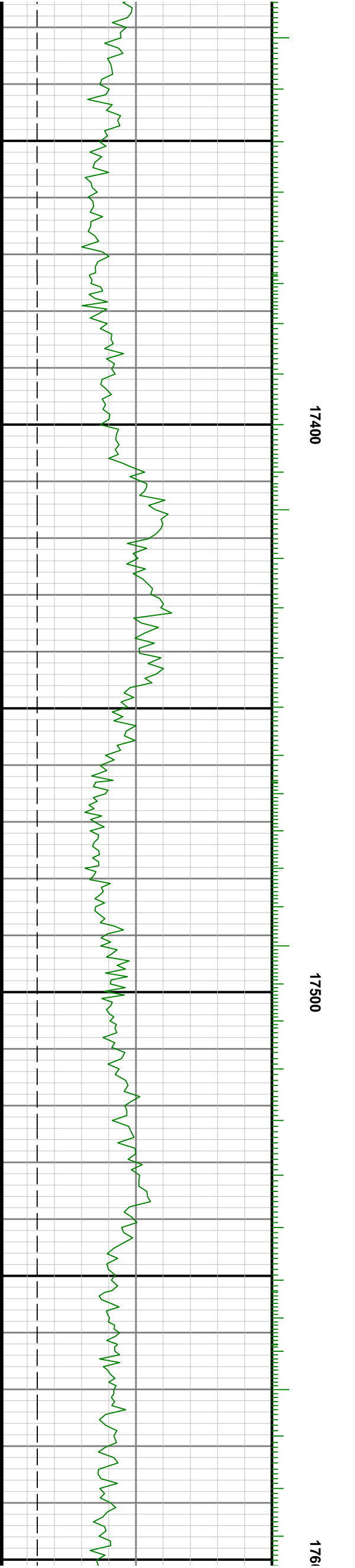
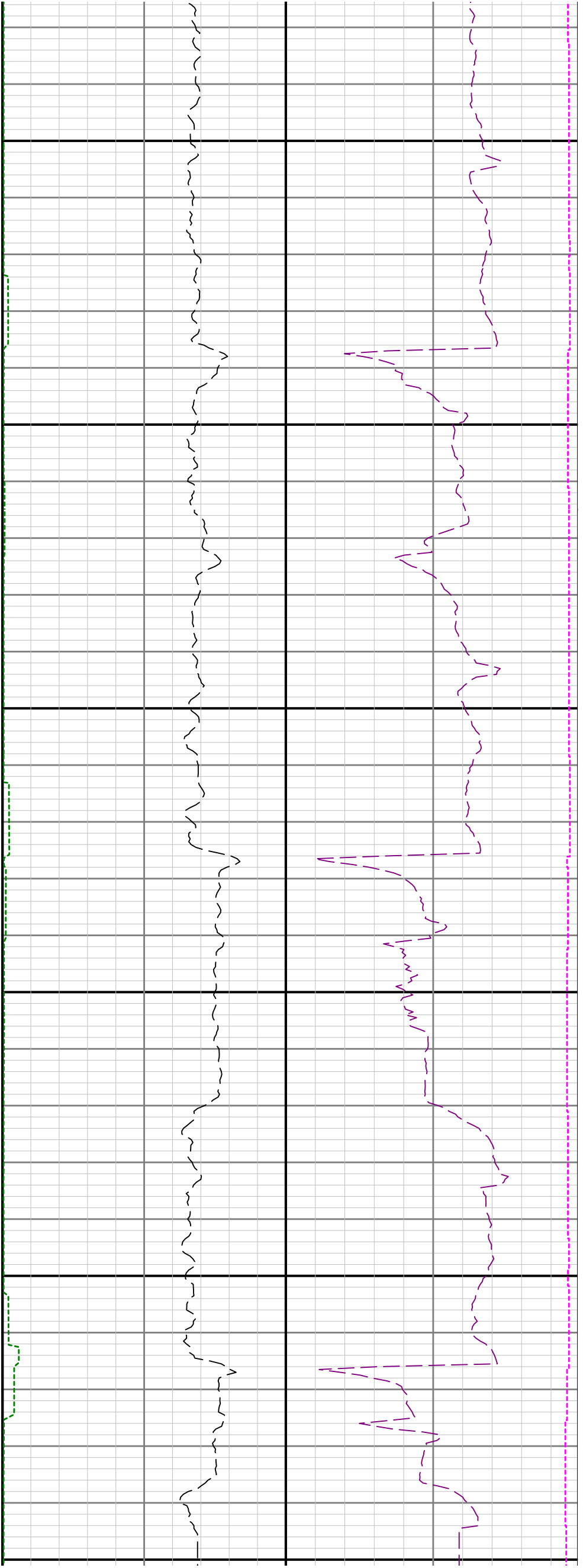


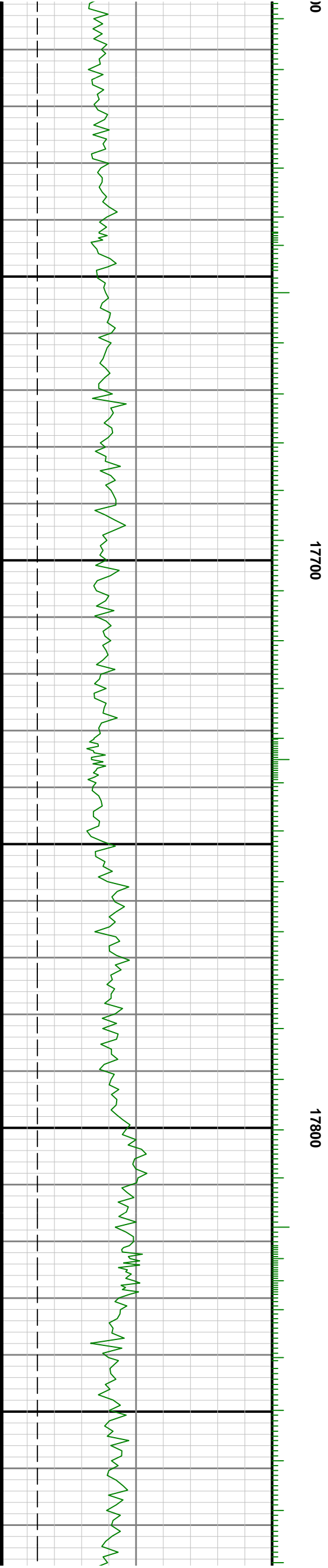
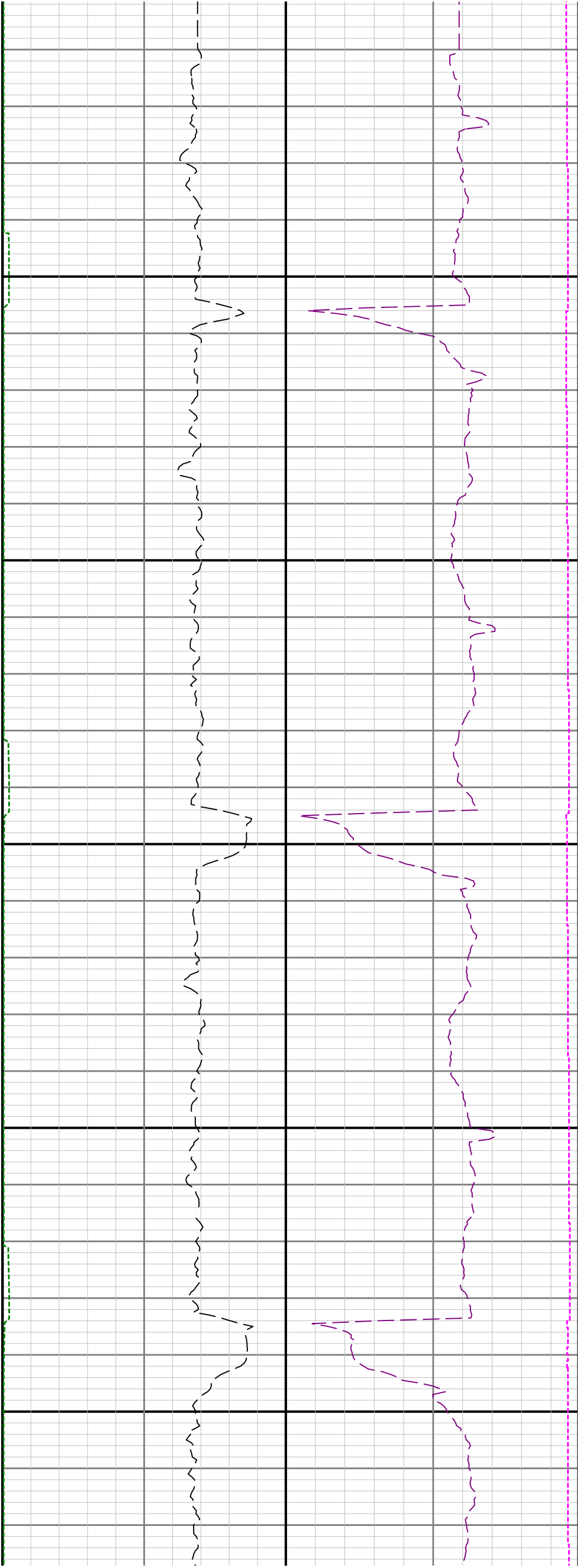


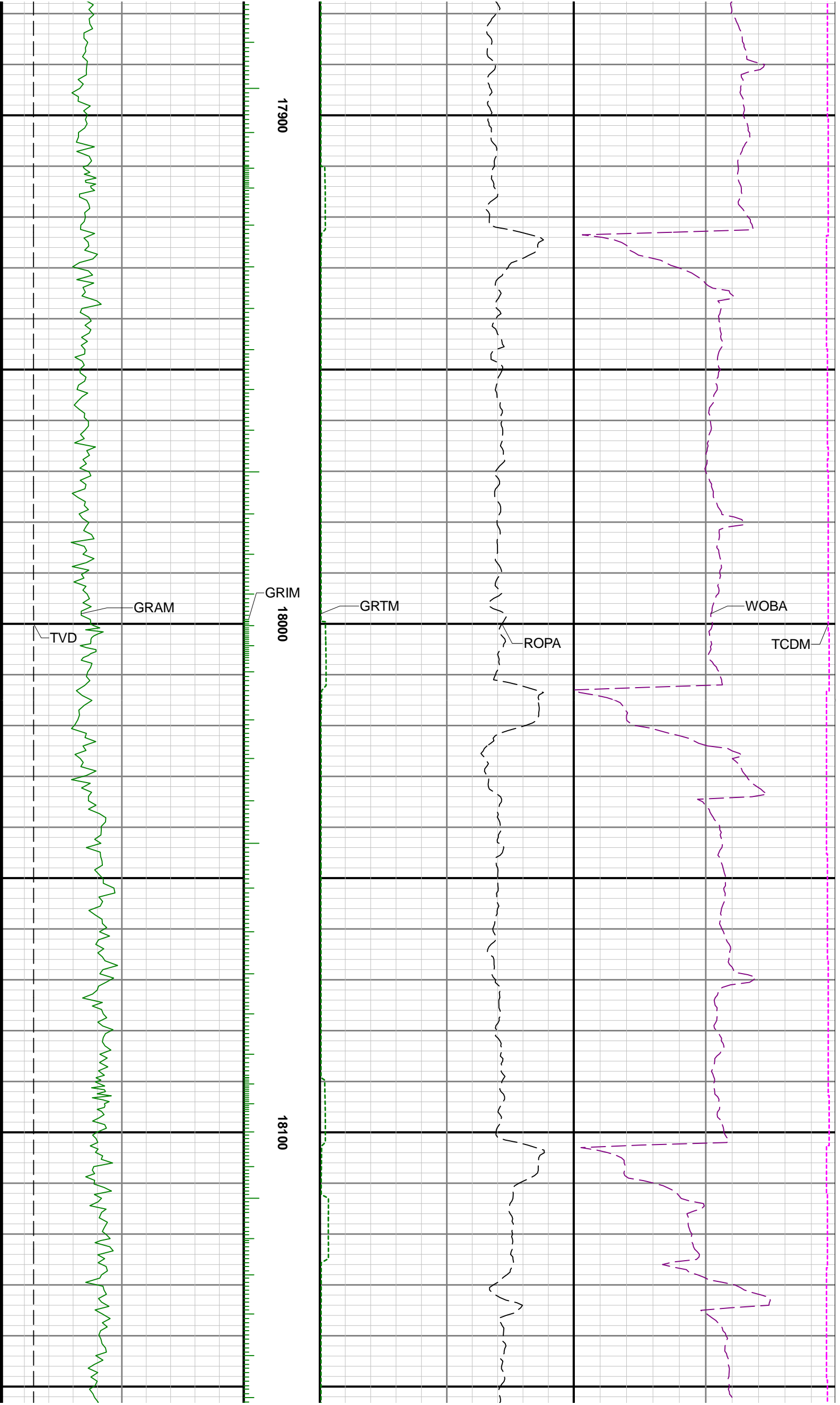


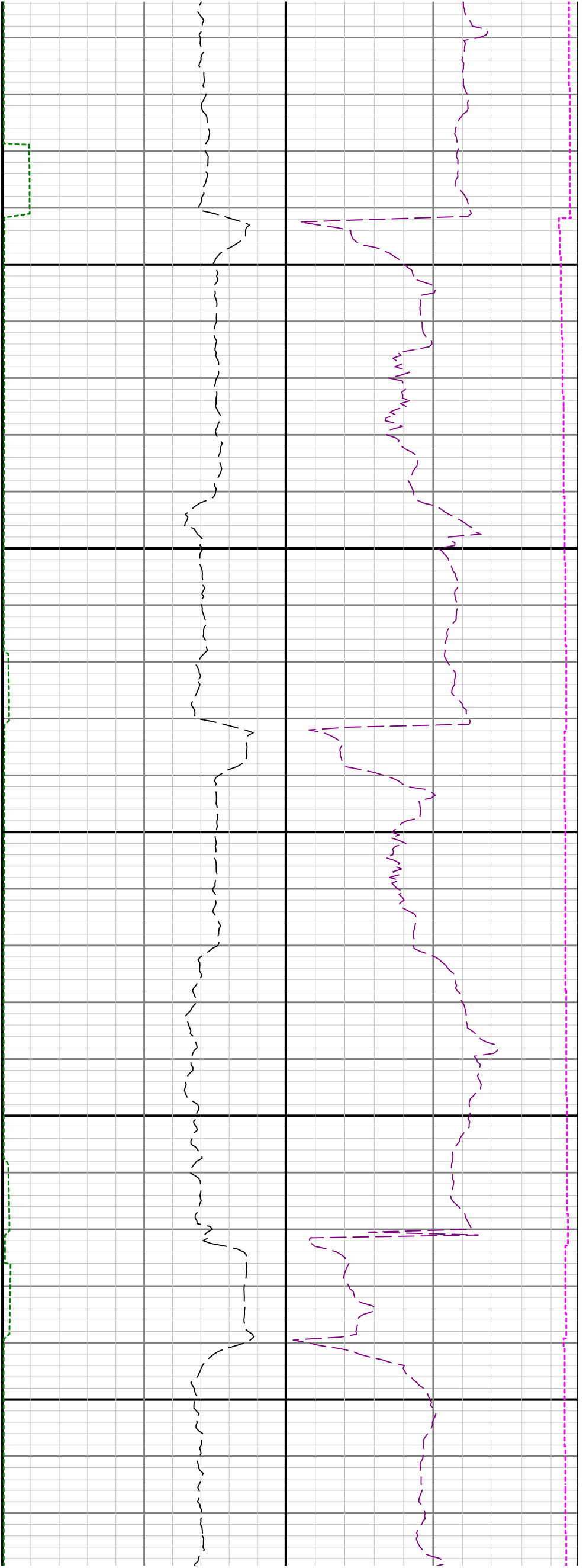












18200

18300

18400

