



LWD REALTIME LOG

Gamma Ray

Scale:		Company: Anadarko	
1:240 MD		Well: Reese 21-4HZ	
Depth Reference:		Field: Wattenberg	
Driller's Depth		County: Weld	
Status:		State: Colorado	
Final Print		Block: 1	
API No: 05-123-47869-00		Surface Location:	
Job ID: 109623729		Latitude: 040° 07' 31.796" N	
Permanent Datum (P.D.): Mean Sea Level		Longitude: 104° 54' 14.130" W	
Log Measured From: Rig Floor		Other Services:	
Elevation: Above P.D.		Directional	
5019.00 ft		Elev. KB: N/A	
5019.00 ft		Elev. DF: 5019.00 ft	
4998.00 ft		Elev. GL: 4998.00 ft	
Dates		Magnetic Field Reference	
Interval Drilled		Azimuth Reference North: True	
Date From: 2019-02-17		Top: (ft) 1902.00	
Date To: 2019-02-21		Bottom: (ft) 15771.00	
Spud Date: 2019-02-17		Total Magnetic Field Strength: (nT) 52253	
Borehole Record		Mag to Reference North Correction: (deg) 8.31	
Casing Record		Hole Size (in)	
From (ft)		To (ft)	
13.500		21.00	
7.875		1902.00	
15771.00		9.625	
36.00		21.00	
1892.00		Weight (lb/ft)	
From (ft)		To (ft)	
Type		Mud Record	
From (ft)		To (ft)	
Oil Based Mud		1902.00	
15771.00		Hole Size (in)	
7.875		Interval (ft)	
13869.00		Inc Az (Start)	
15.29 151.90		Inc Az (End)	
91.22 358.04		Deviation Record	
Type		From (ft)	
To (ft)		Hole Size (in)	
Oil Based Mud		1902.00	
15771.00		7.875	
13869.00		Interval (ft)	
15.29 151.90		Inc Az (Start)	
91.22 358.04		Inc Az (End)	
91.22 358.04		Acquisition System	
Software Version		Other	
Baker Hughes Cadence		RT 4.2	
DeliverableGen		1.0.8107.2	
Rig: Precision Drilling 464		District: RMA	
Contractor: Precision Drilling		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	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	7.875	PDC	2.50	Steerable	1902.00	15720.00	1902.00	15771.00	2019-02-17 22:50	2019-02-21 02:51	67.41

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Kaewan Gardi	2019-02-17	2019-02-21	Mohammad Odetallah	2019-02-17	2019-02-21			

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+ (%)
2019-02-17 06:00	1	1902.00	Oil Based Mud	9.1	17	N/A	3.2	77/23	Active Pit	37392	0.00
2019-02-18 15:30	1	5893.00	Oil Based Mud	9.1	17	N/A	3.2	76/24	Active Pit	37392	0.00
2019-02-19 15:30	1	11689.00	Oil Based Mud	9.3	18	N/A	3.4	76/24	Active Pit	38351	0.00
2019-02-20 15:30	1	14667.00	Oil Based Mud	9.2	16	N/A	4.0	76/24	Active Pit	40000	0.00

Equipment and Service Data

Run	Tool	Serial	Measurement	Sensor	Bit	Max	Min
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No.		Number		Offset (ft)	Offset (ft)	O.D. (in)	I.D. (in)
1	Sensor Sub	G650-0290	Pressure	0.10	49.62	6.750	4.500
1	Sensor Sub	G650-0290	Gamma (single)	1.56	51.08	6.750	4.500
1	Sensor Sub	G650-0290	VSS	2.75	52.27	6.750	4.500
1	Sensor Sub	G650-0290	Directional (mag)	2.75	52.27	6.750	4.500

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	NaviTrak UT	EvoOne Electromagnetic and Mudpulse Module

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	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 1/2 inch NaviTrak UT services (Gamma Ray and Directional) behind a 7 7/8 inch bit and steerable assembly from 1902 to 15771 feet MD (1866 to 7553 feet TVD).
4	Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.
5	There are multiple gaps between 14350 and 15416 feet MD (7558 to 7564 feet TVD) due to poor decoding caused by formation change.

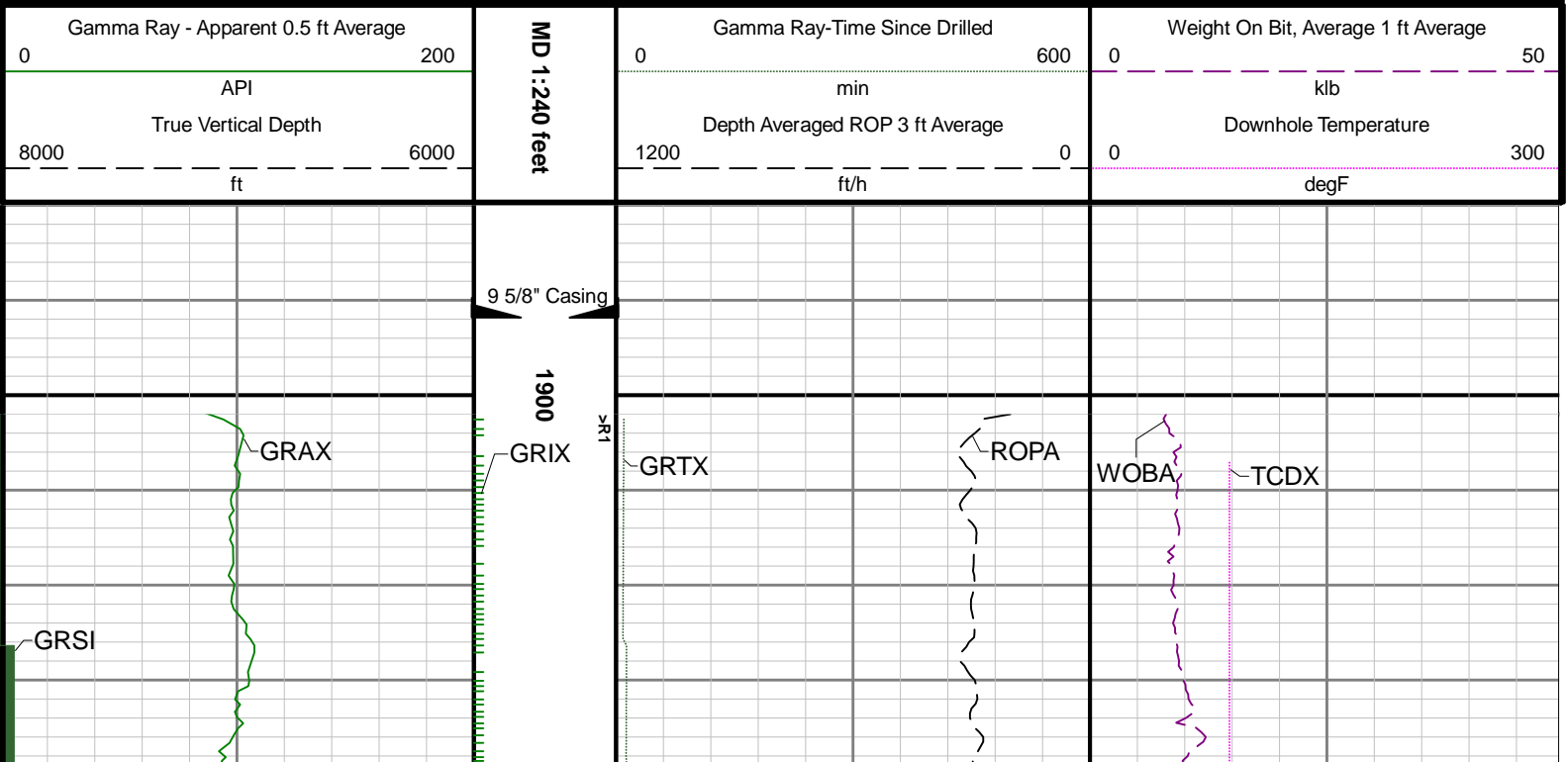
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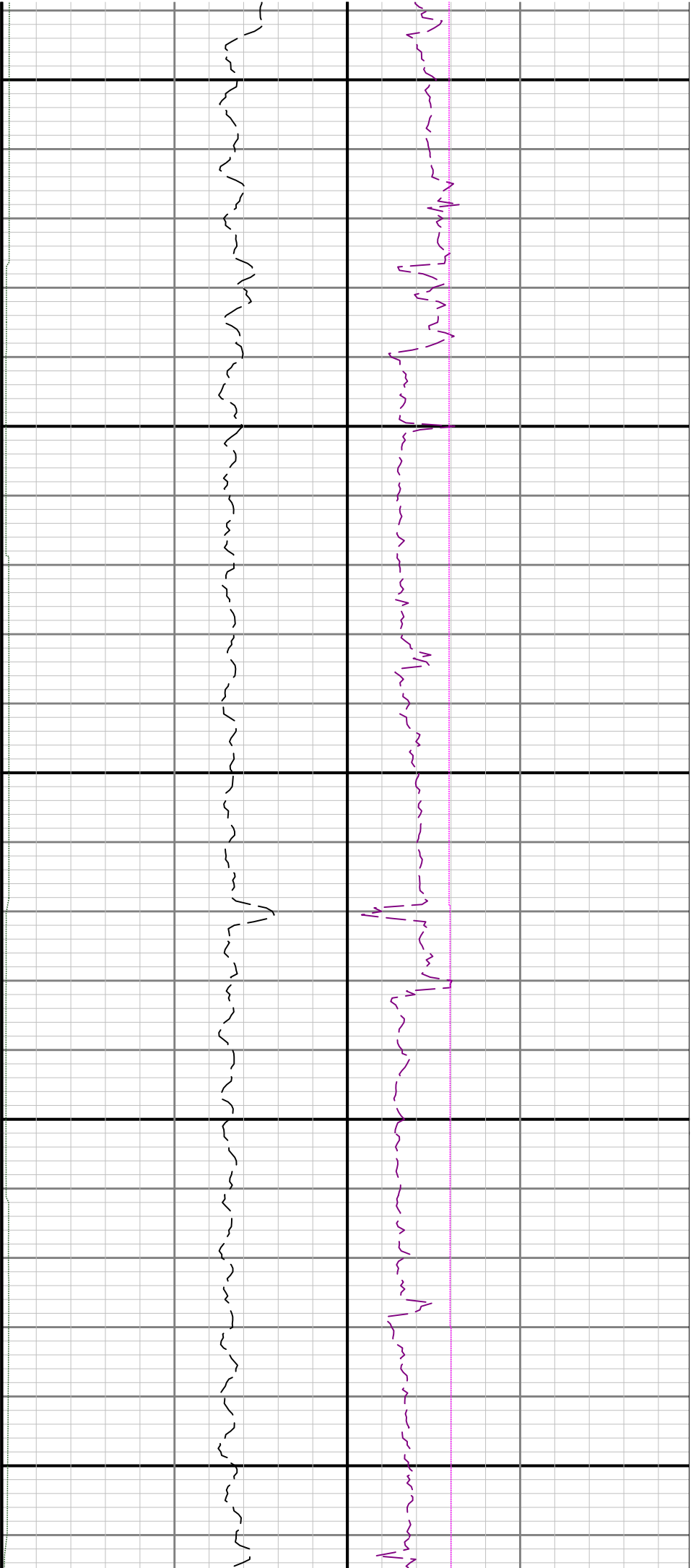
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	2245.00	7.875	1	The interval from 2241 to 2255 feet MD (2190 to 2203 feet TVD) was not logged due to issues with third party WITS.
2	2272.00	7.875	1	The interval from 2266 to 2279 feet MD (2214 to 2226 feet TVD) was not logged due to issues with third party WITS.
3	12485.00	7.875	1	The interval from 12480 to 12494 feet MD (7586 feet TVD) was not logged due to poor decoding while crossing into the Fort Hayes.
4	15735.00	7.875	1	The interval from 15720 to 15771 feet MD (7553 to 7554 feet TVD) was not logged due to sensor to bit offset at 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

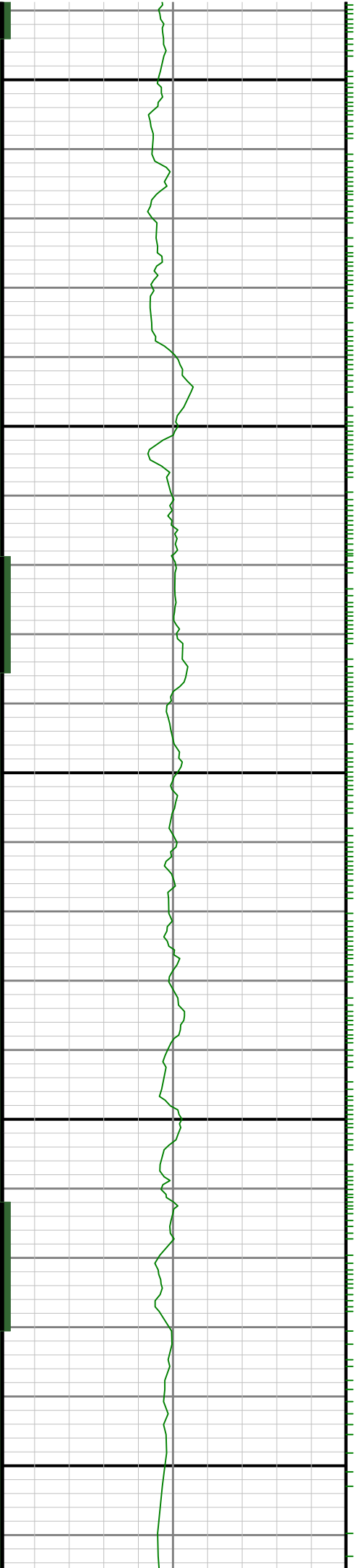
<div> <div>BAKER HUGHES</div> <div>a GE company</div> </div>	Company	Anadarko	
	Well	Reese 21-4HZ	
	Interval	Date From: 2019-02-17 21:05 Top: 1902.00 ft	Date To: 2019-02-21 07:41 Bottom: 15771.00 ft
	Created	2019-02-21 07:56:06	

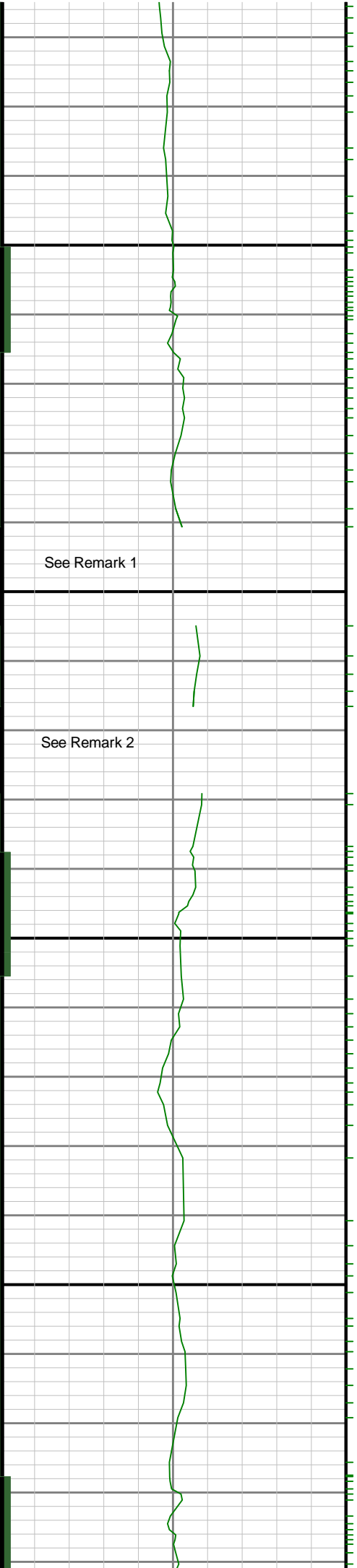




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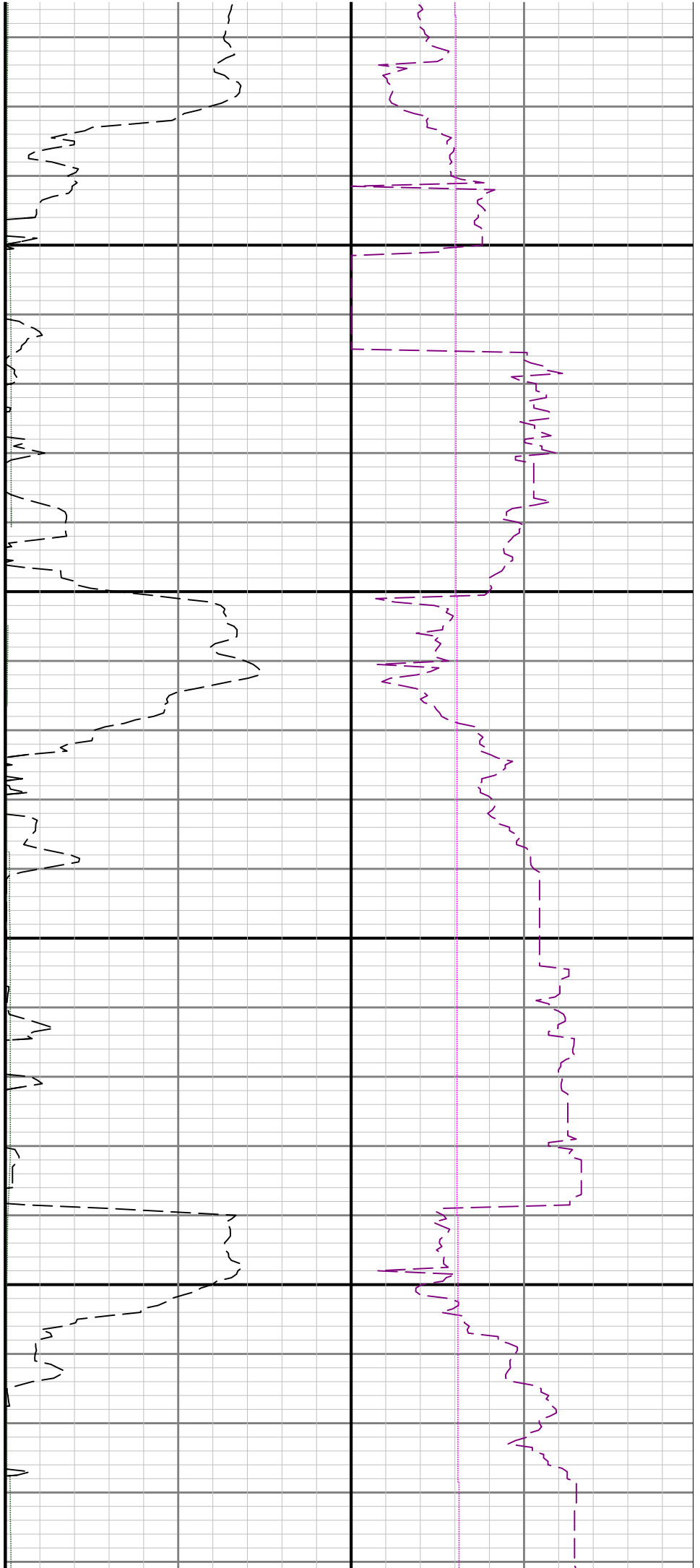
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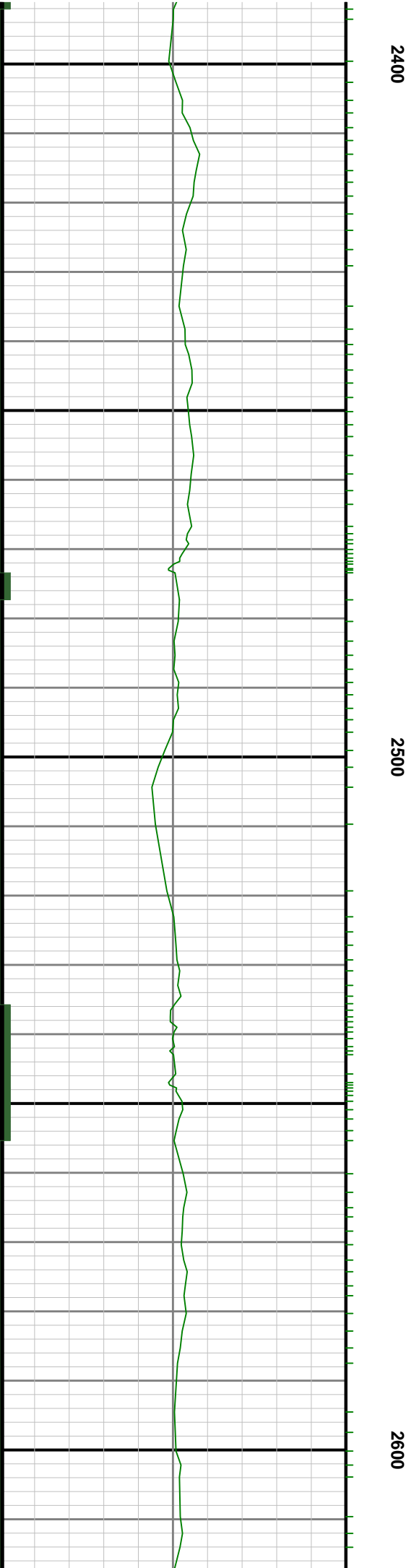
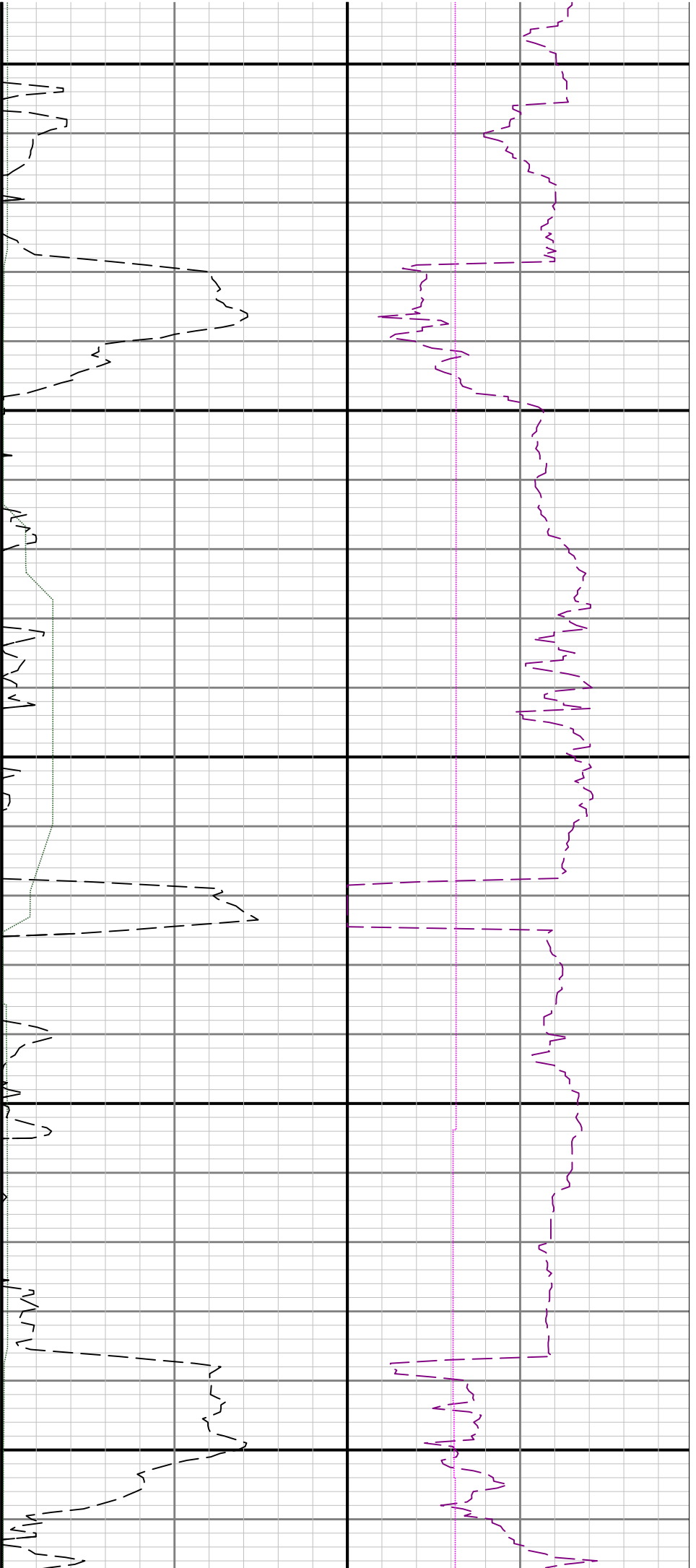


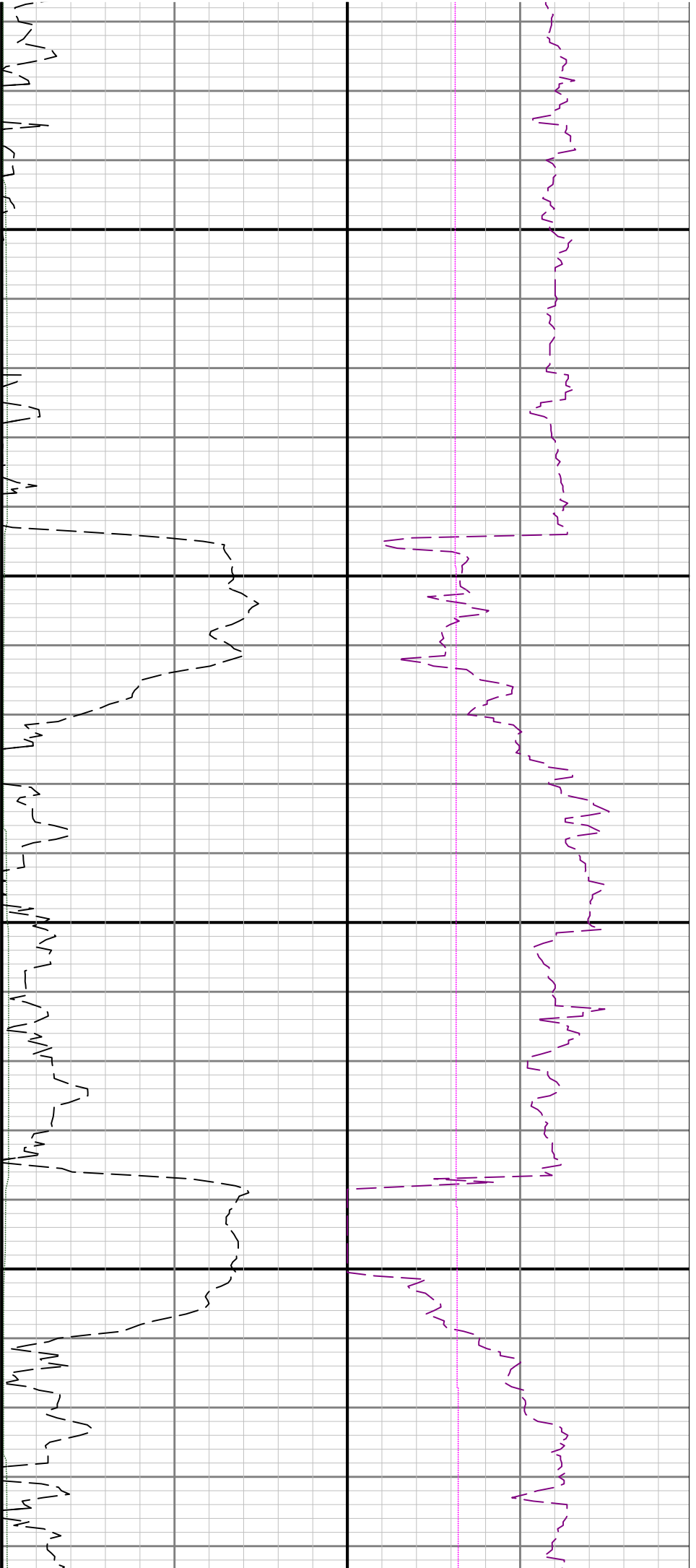


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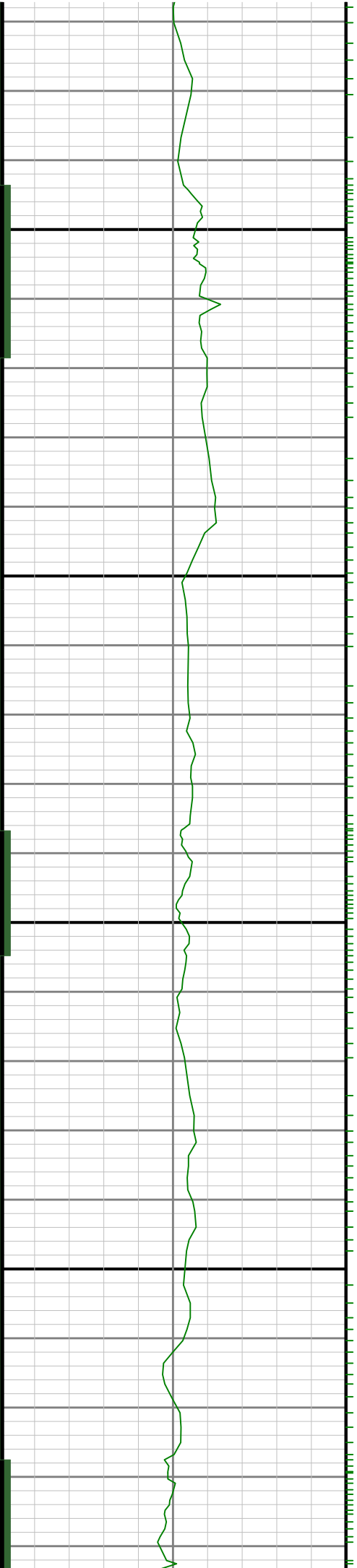


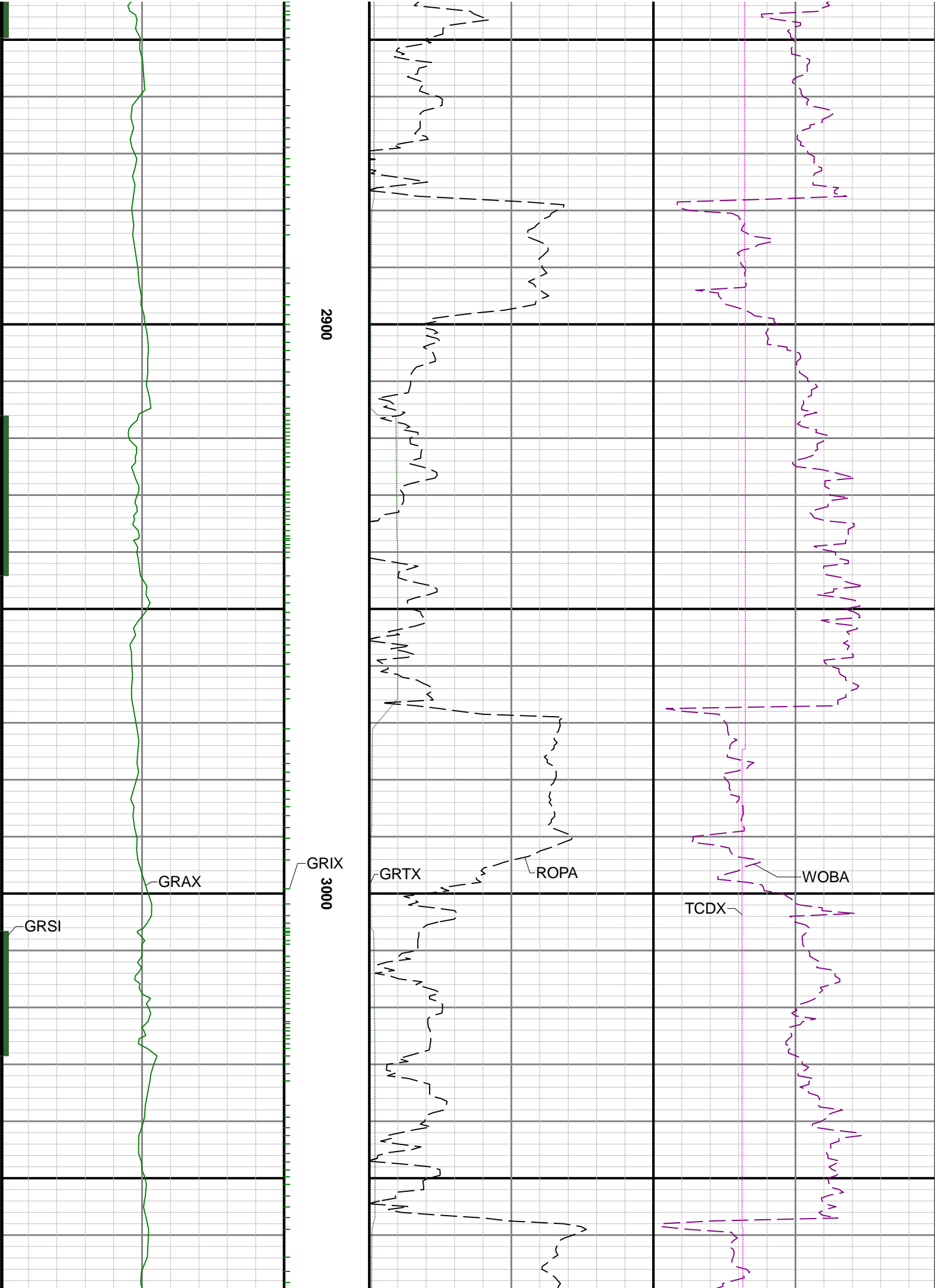


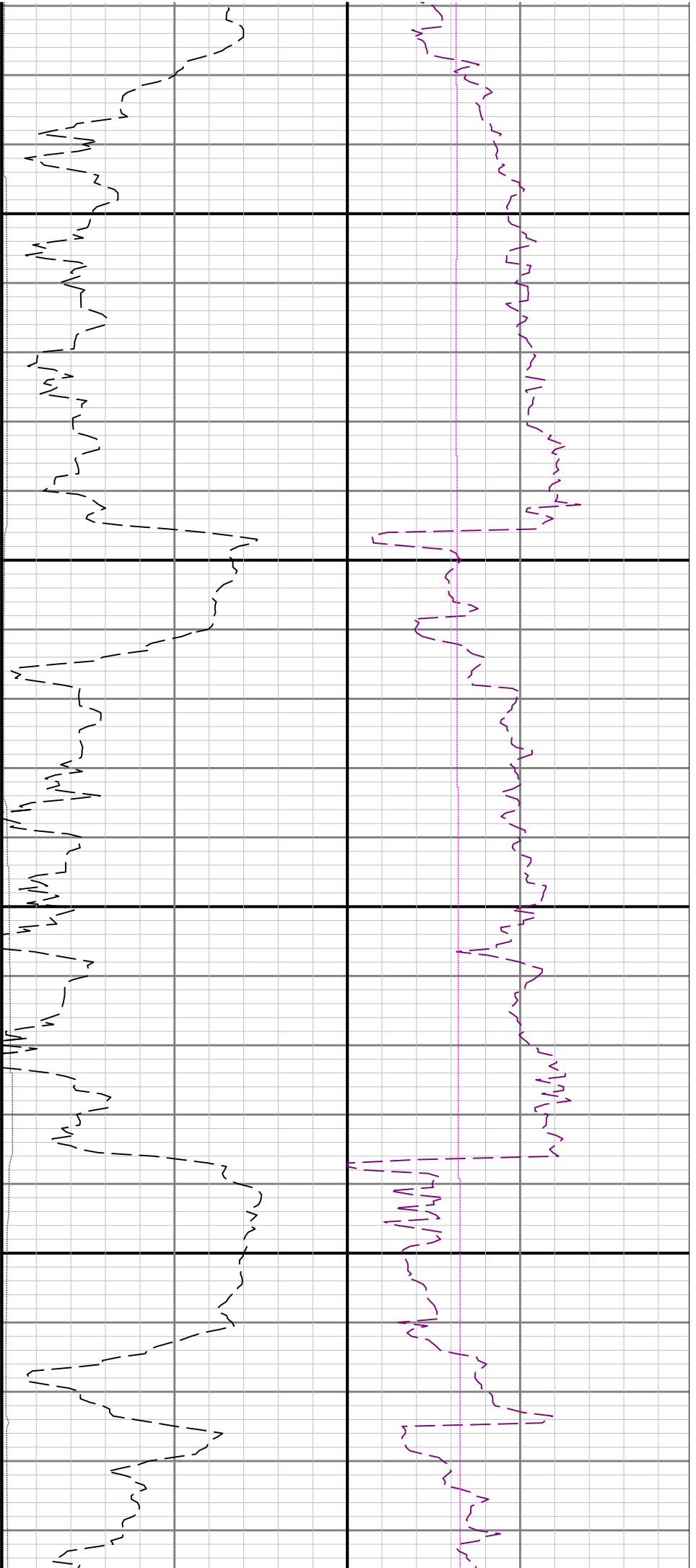


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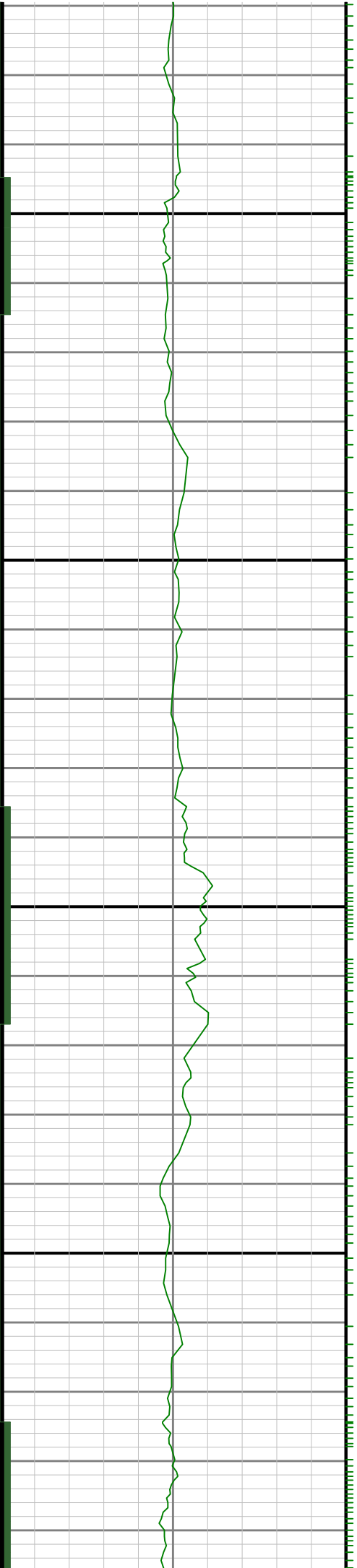


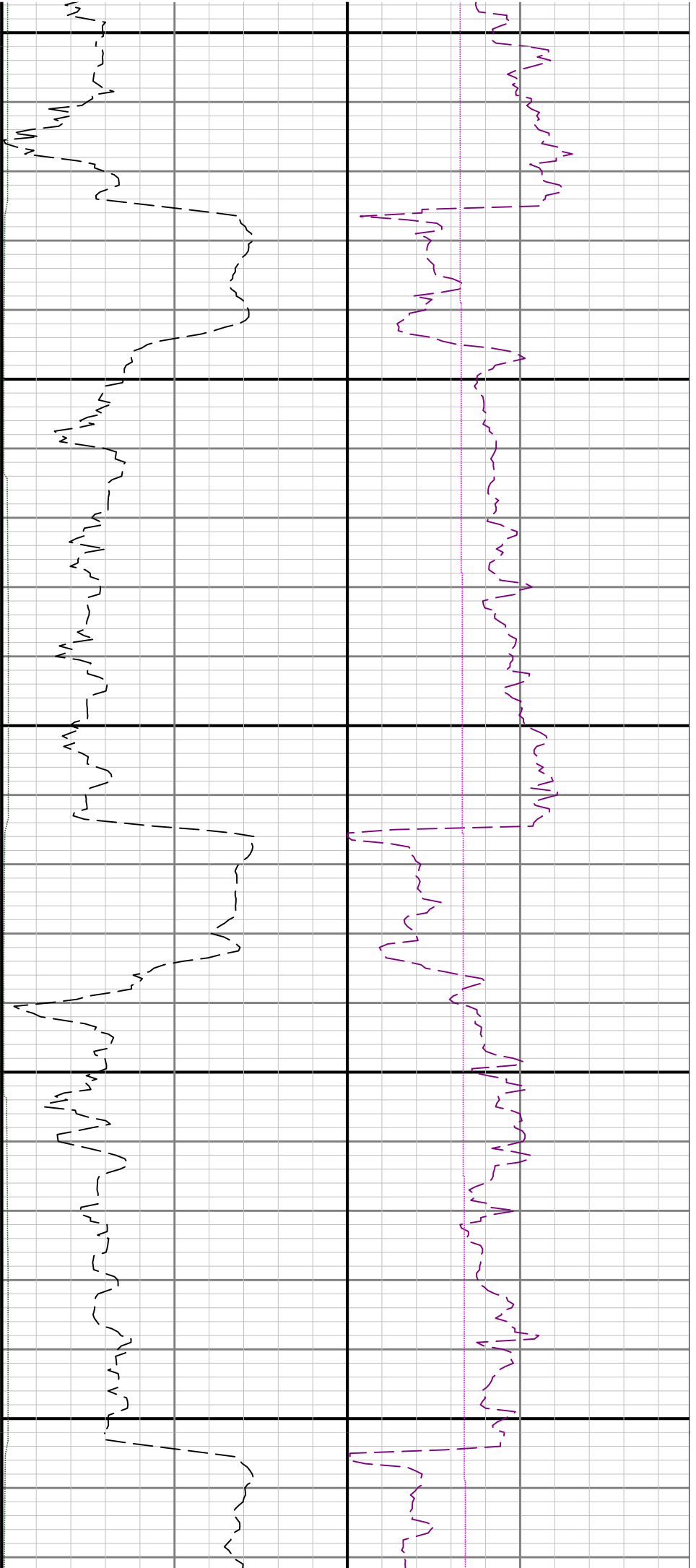




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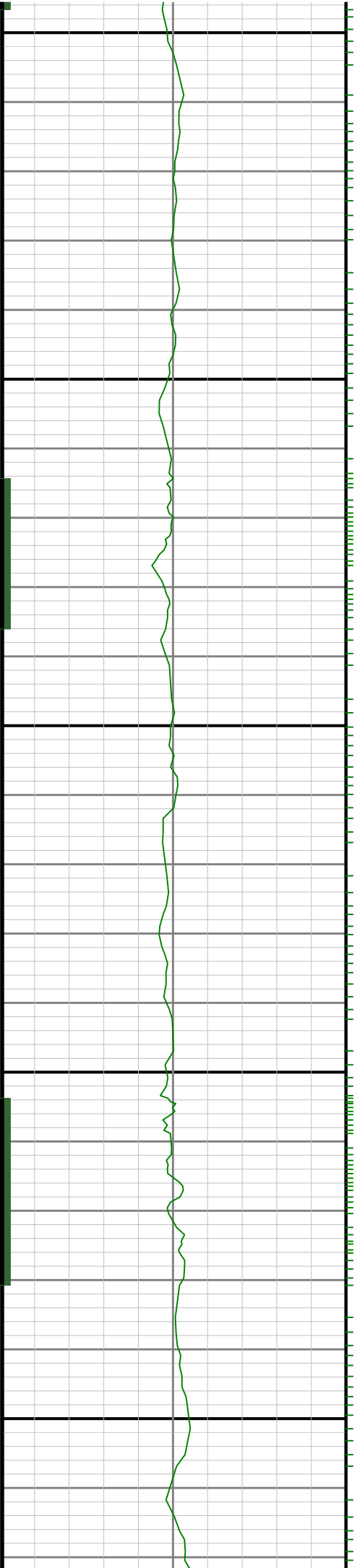


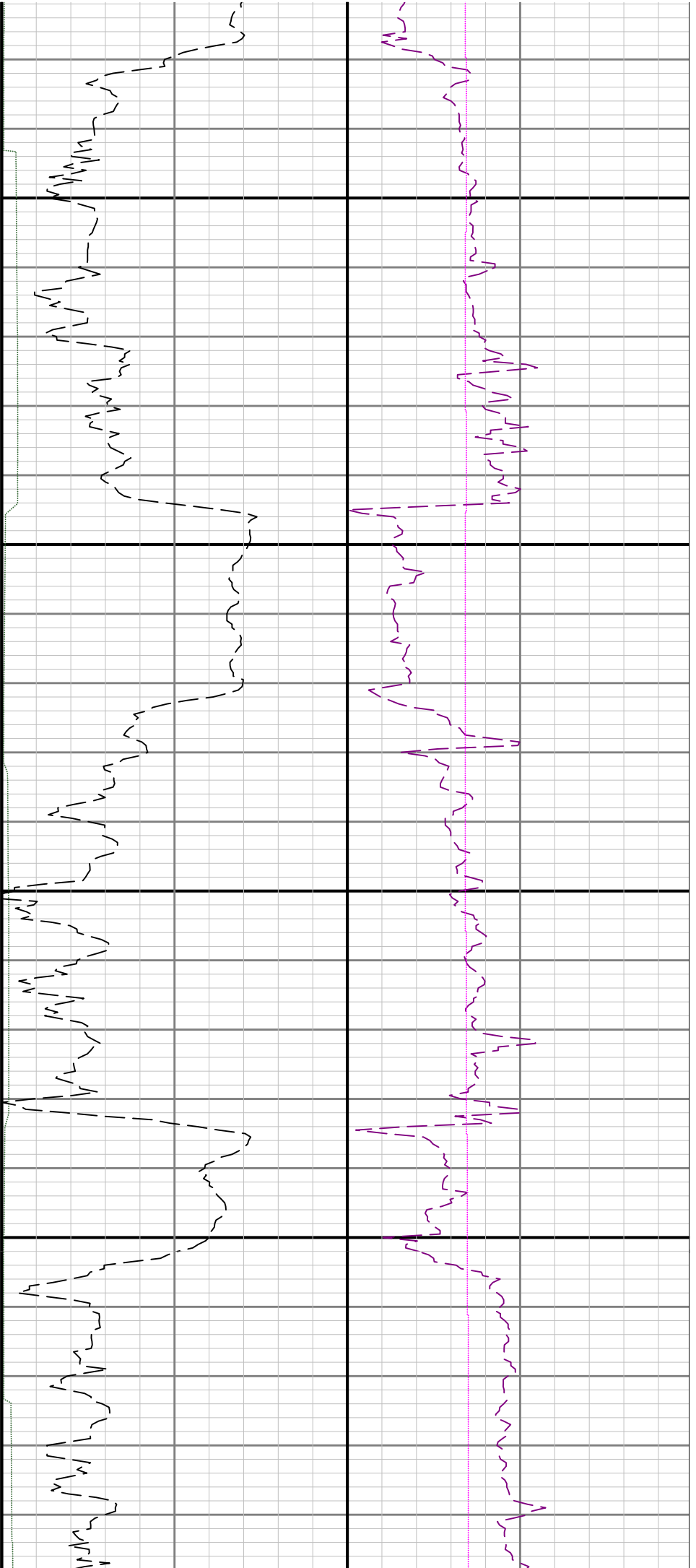


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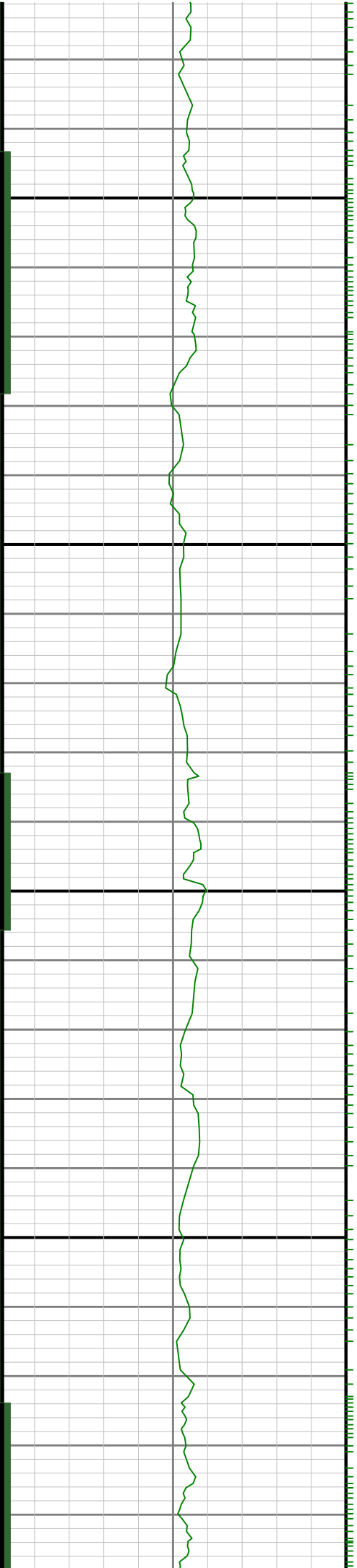
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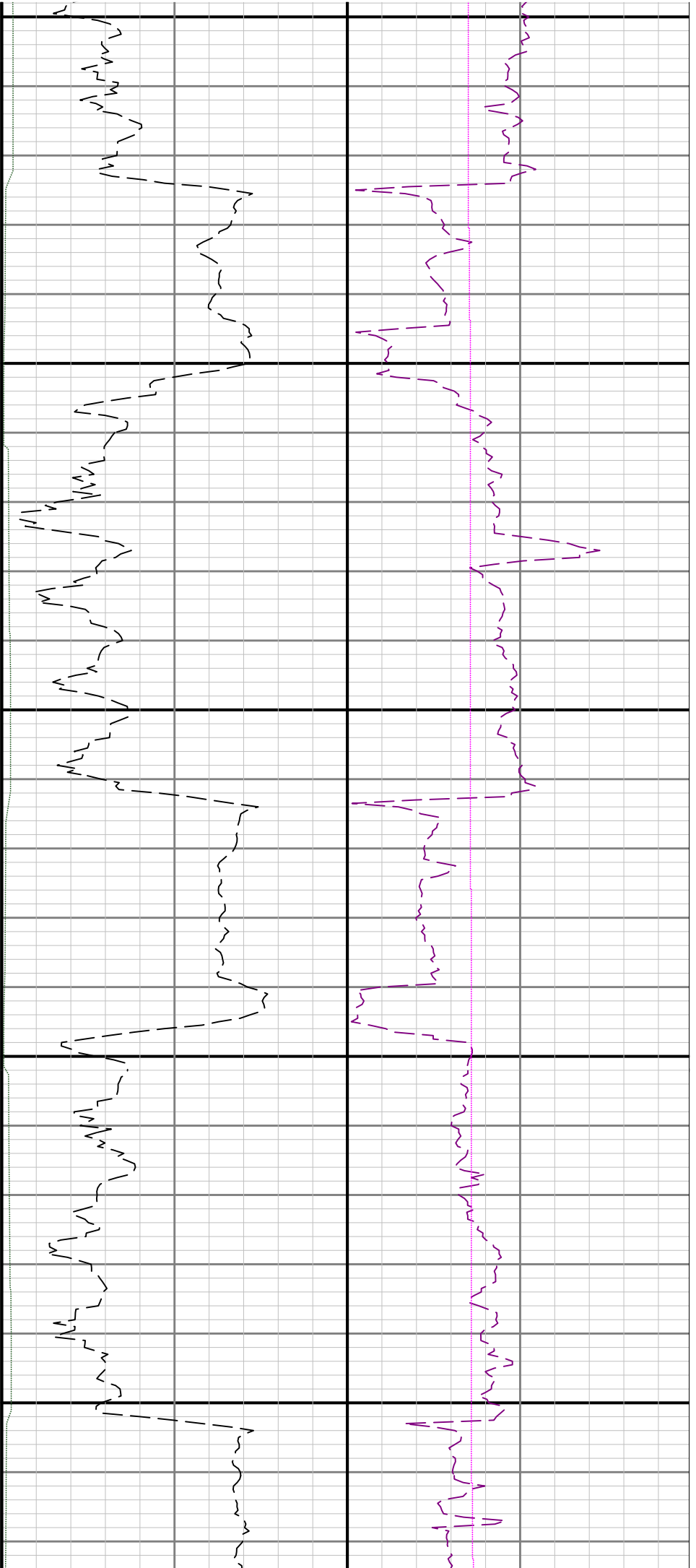




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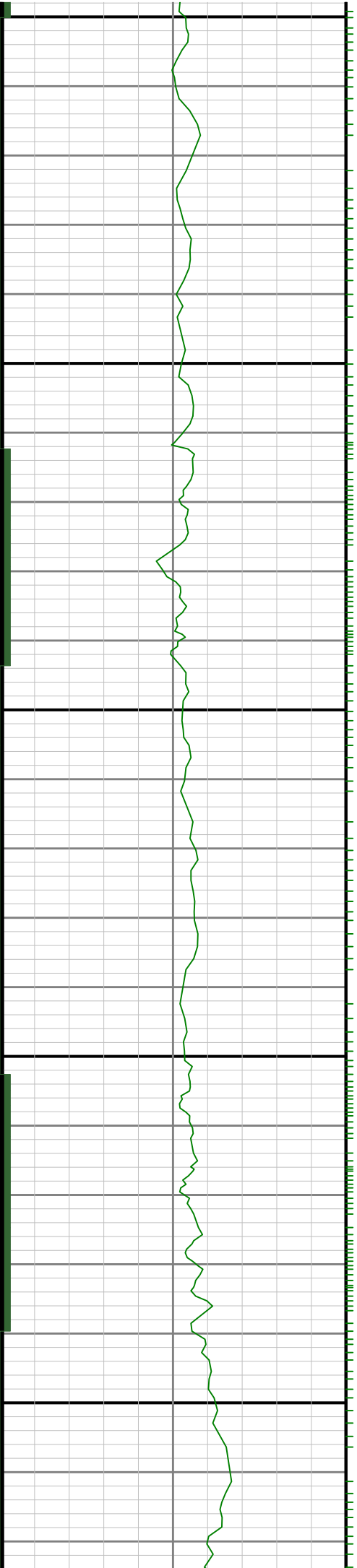
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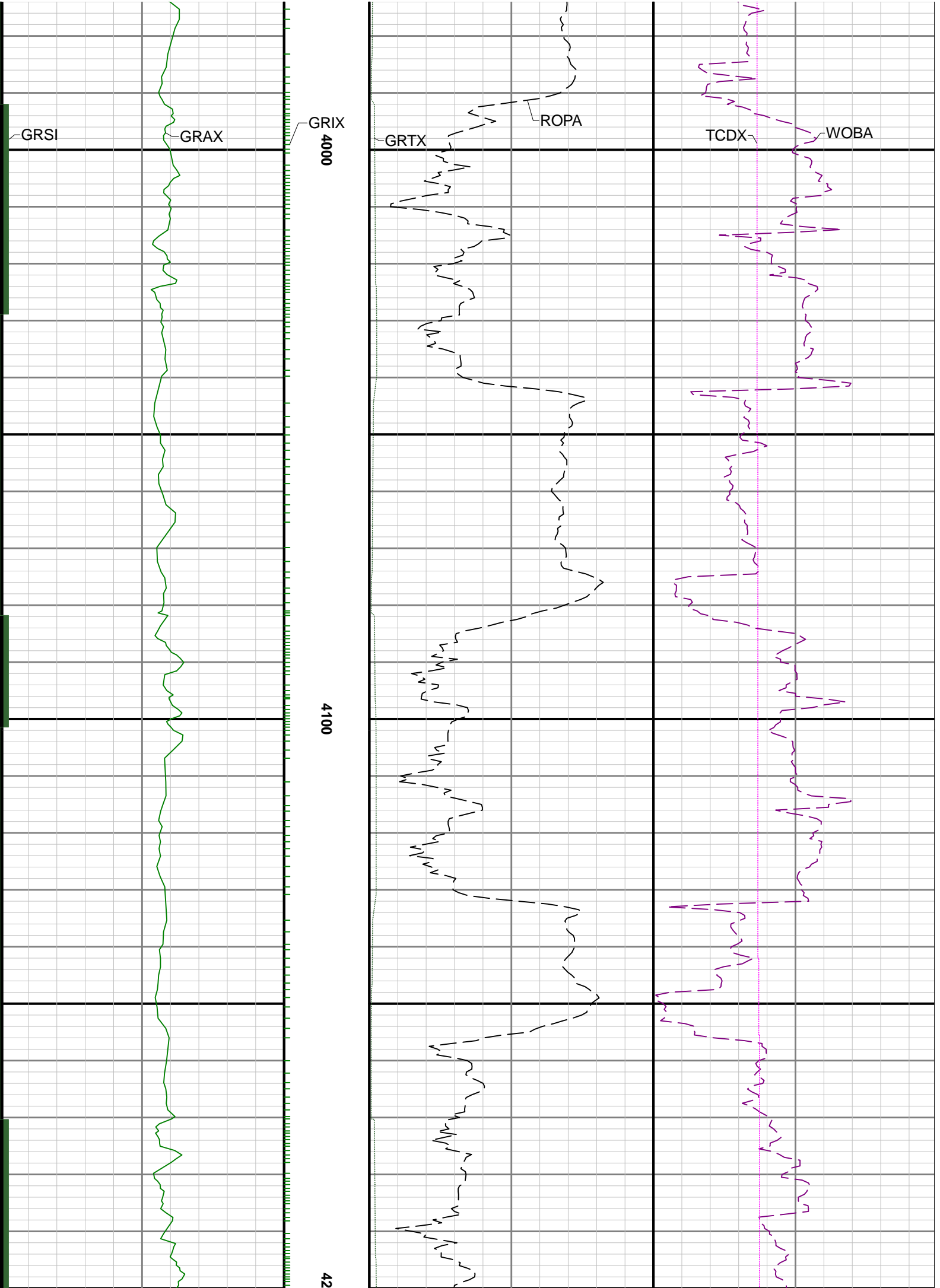


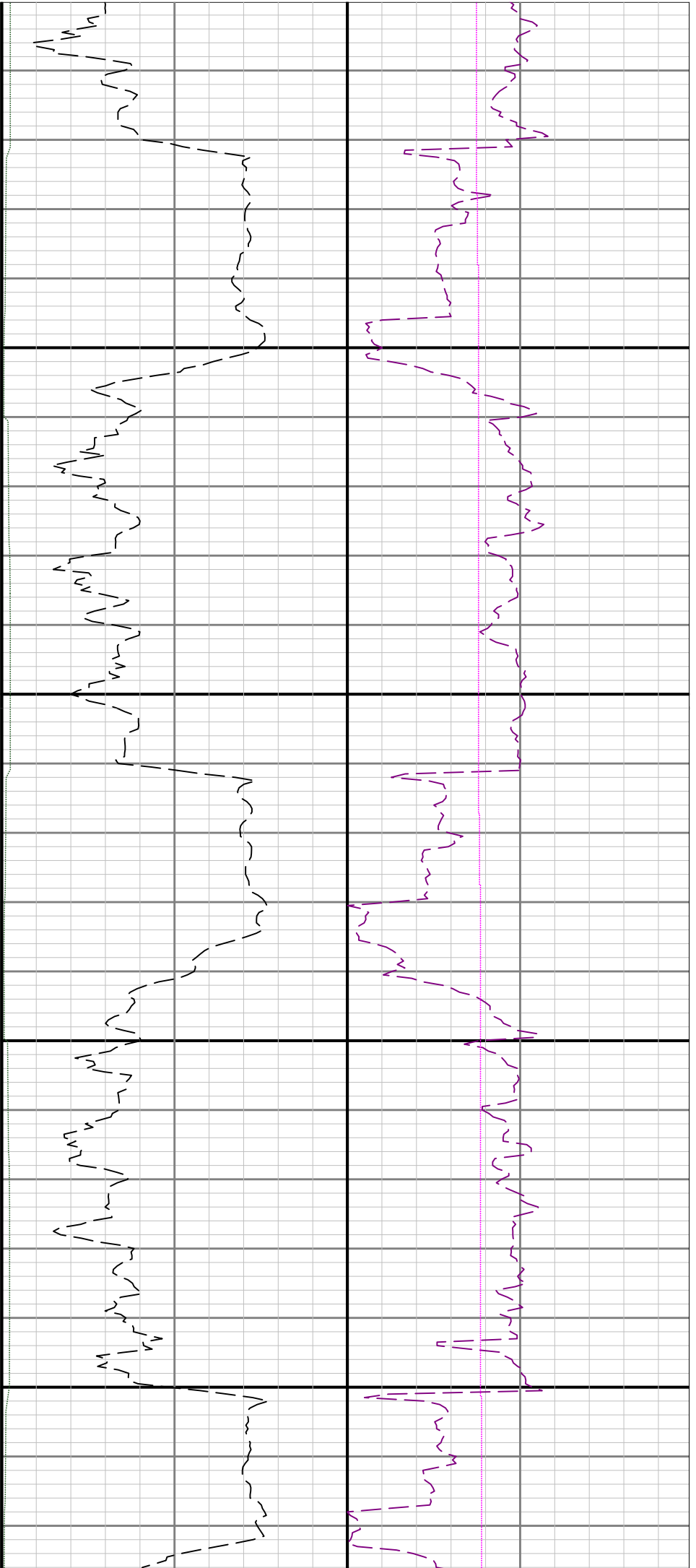


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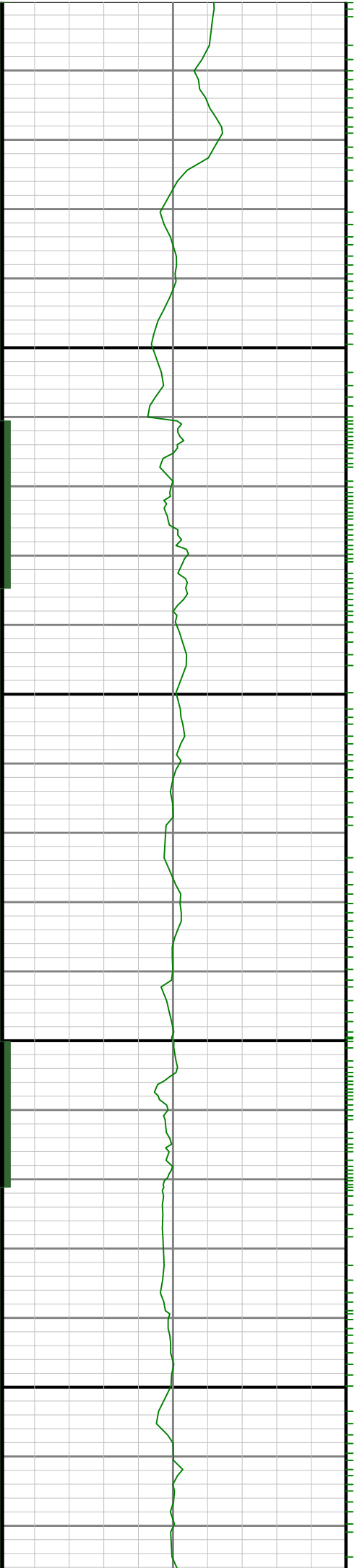


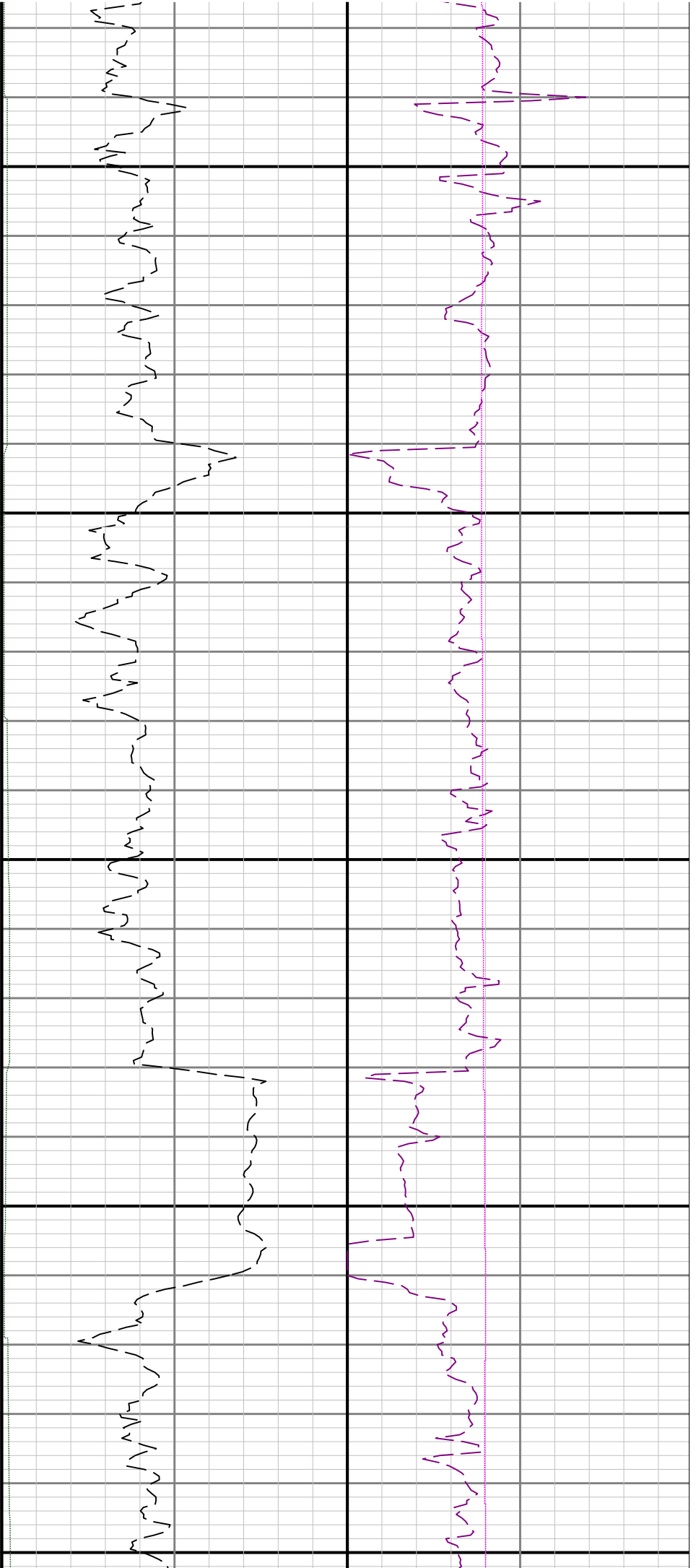


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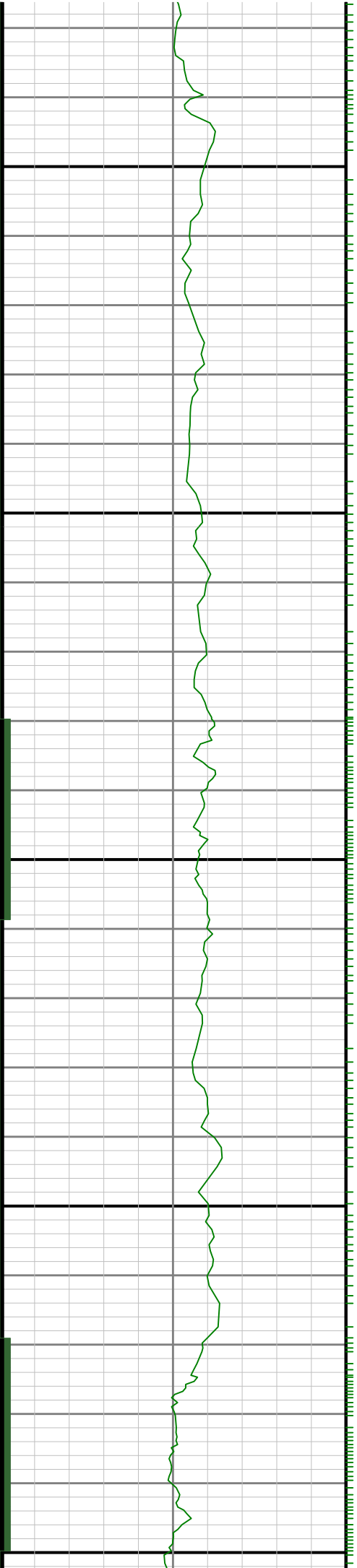
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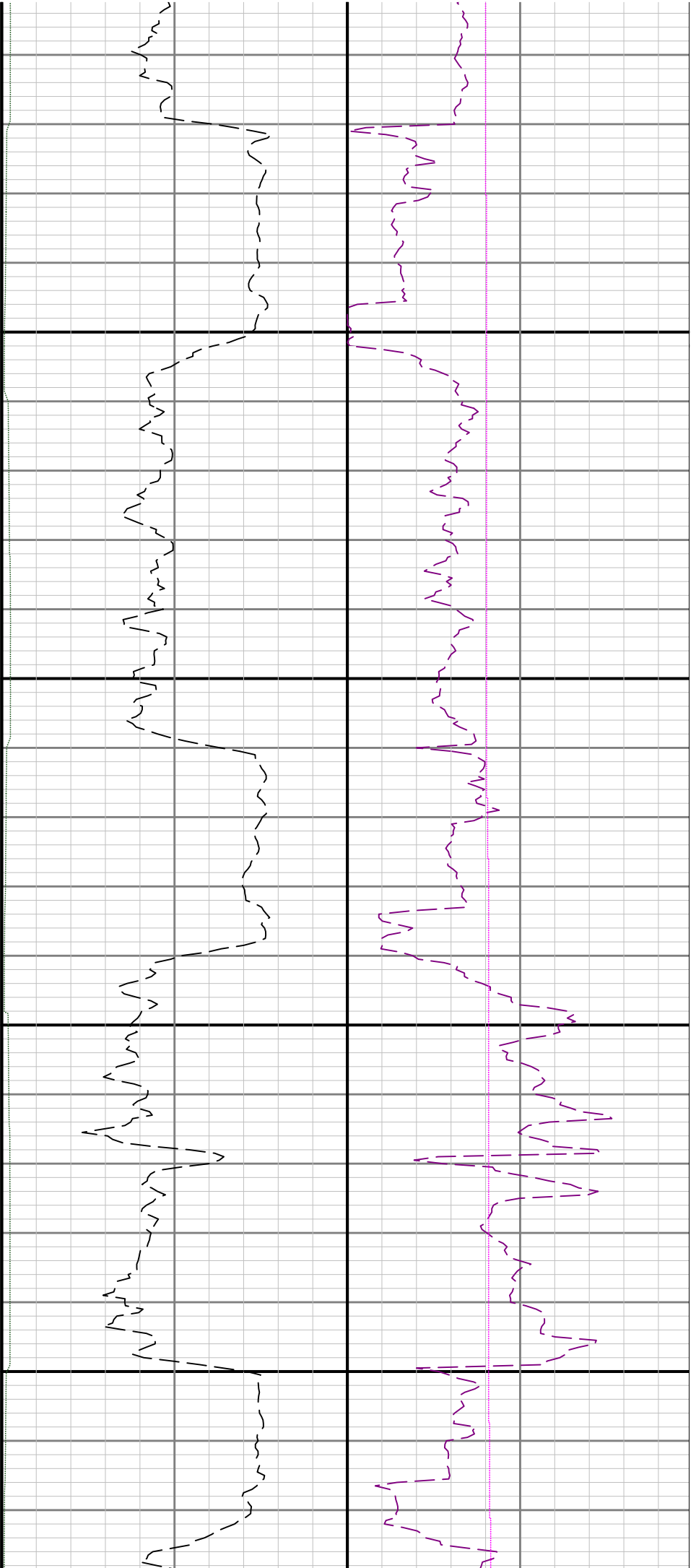




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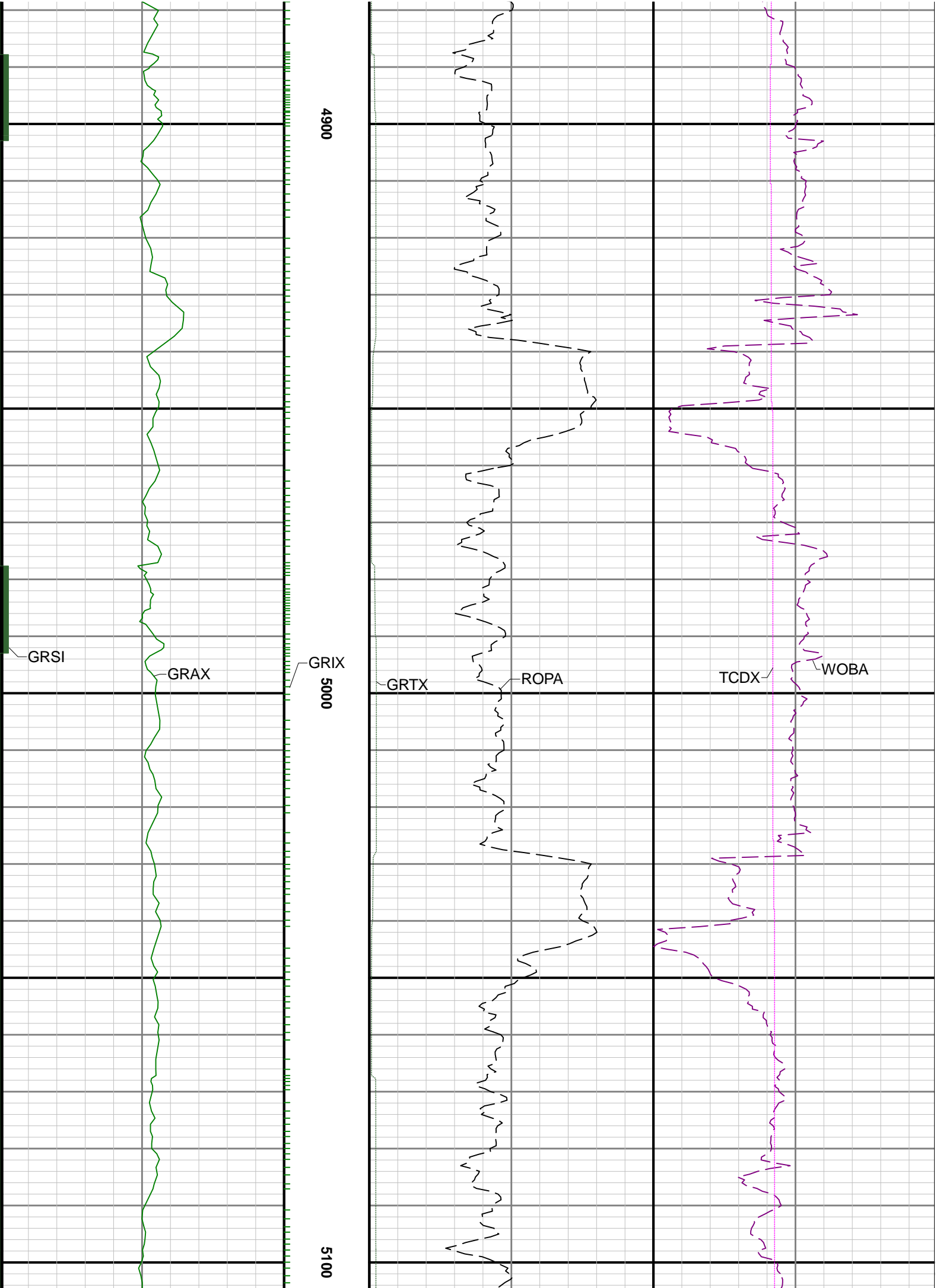


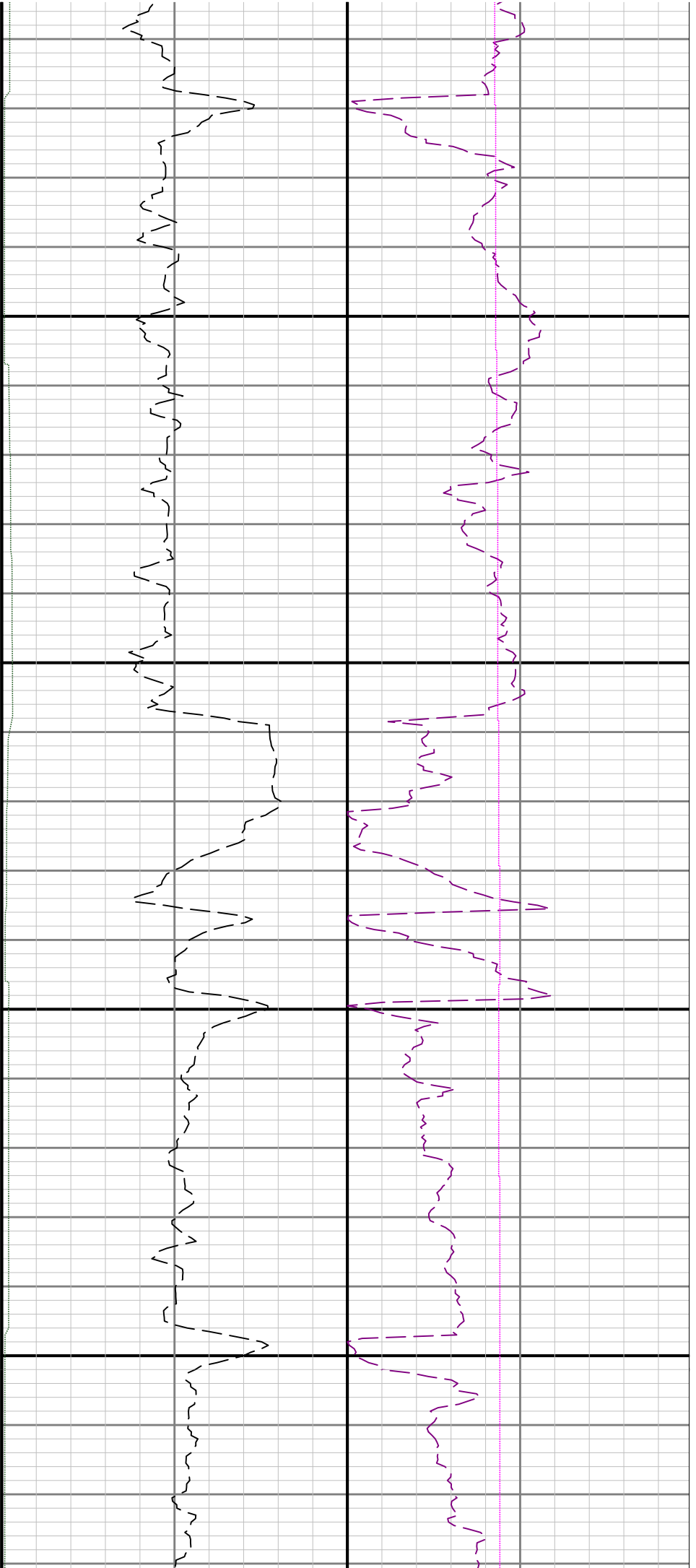


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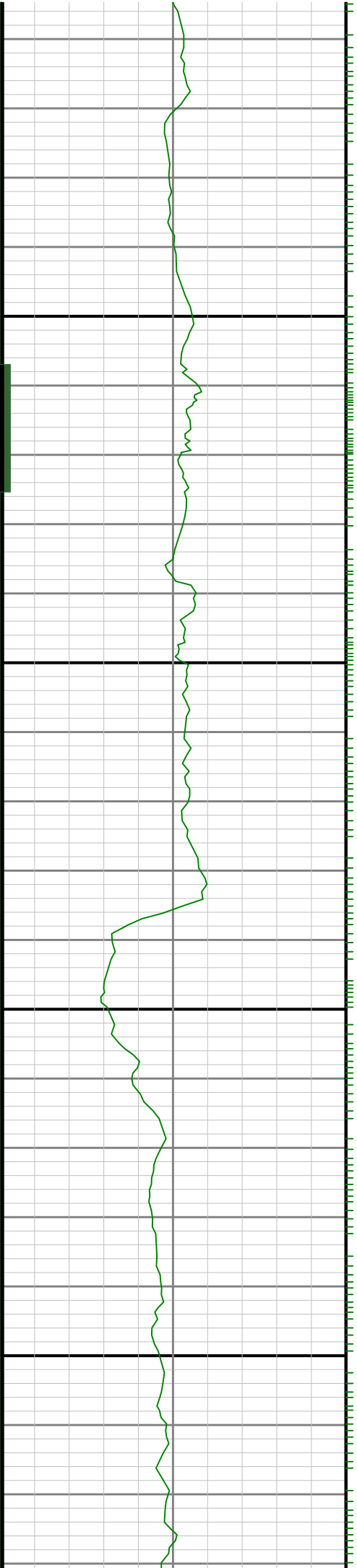


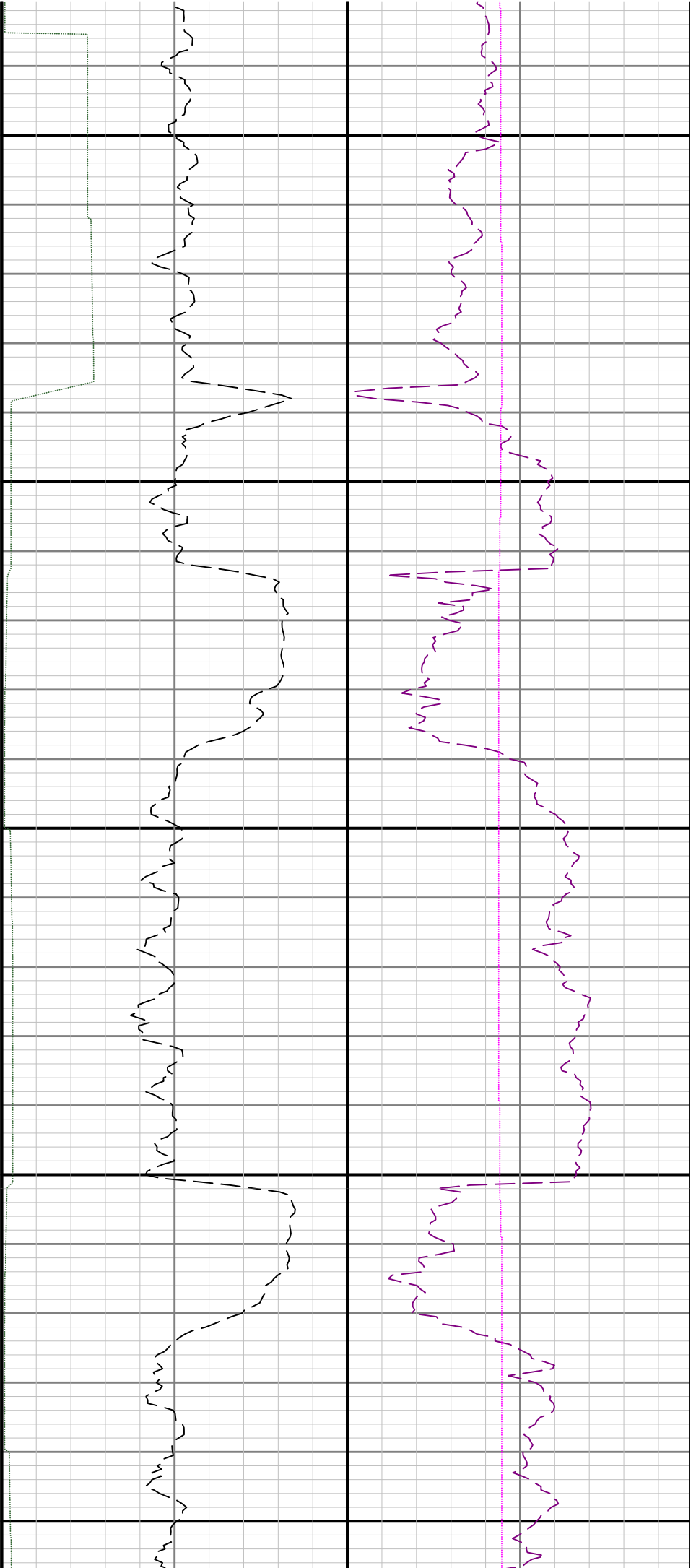




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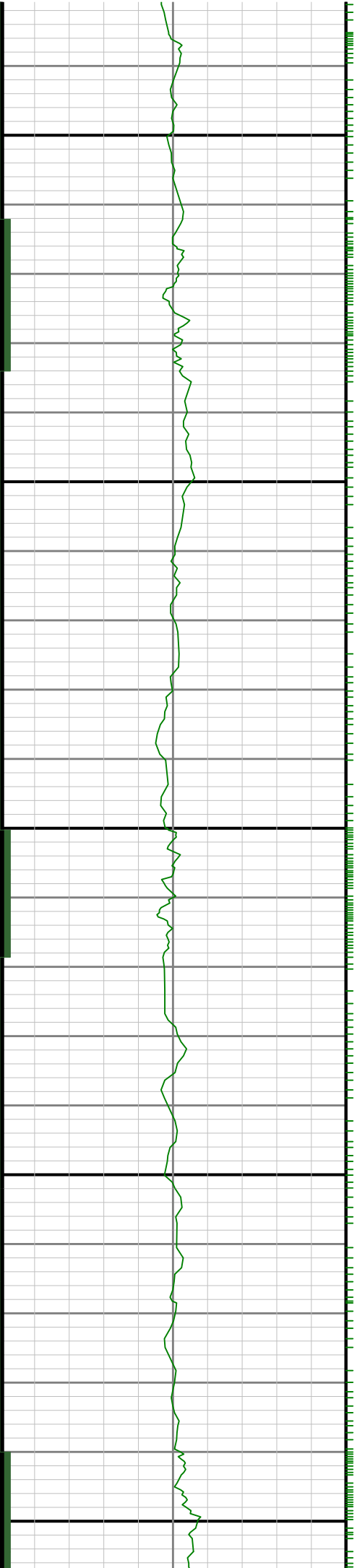
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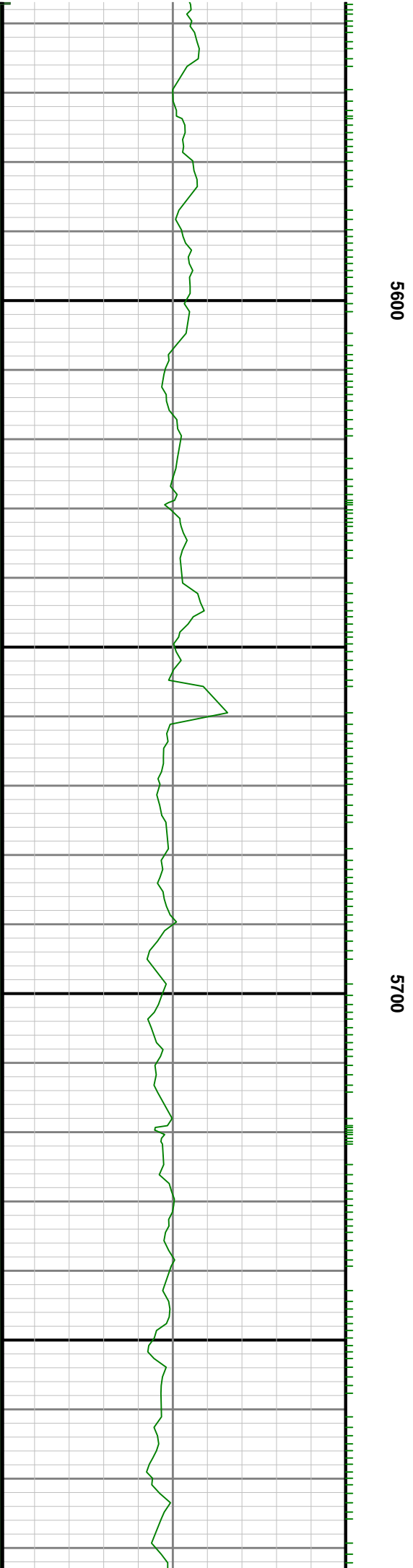
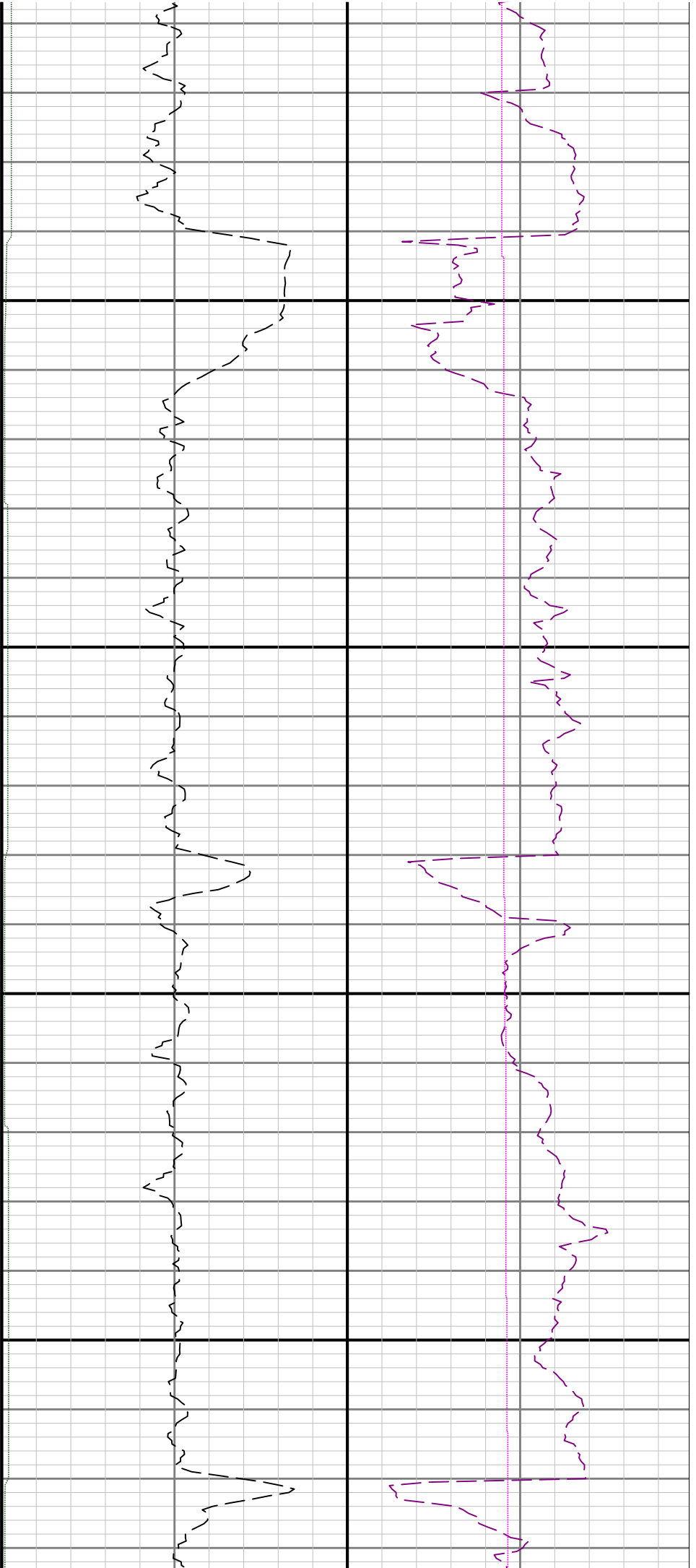


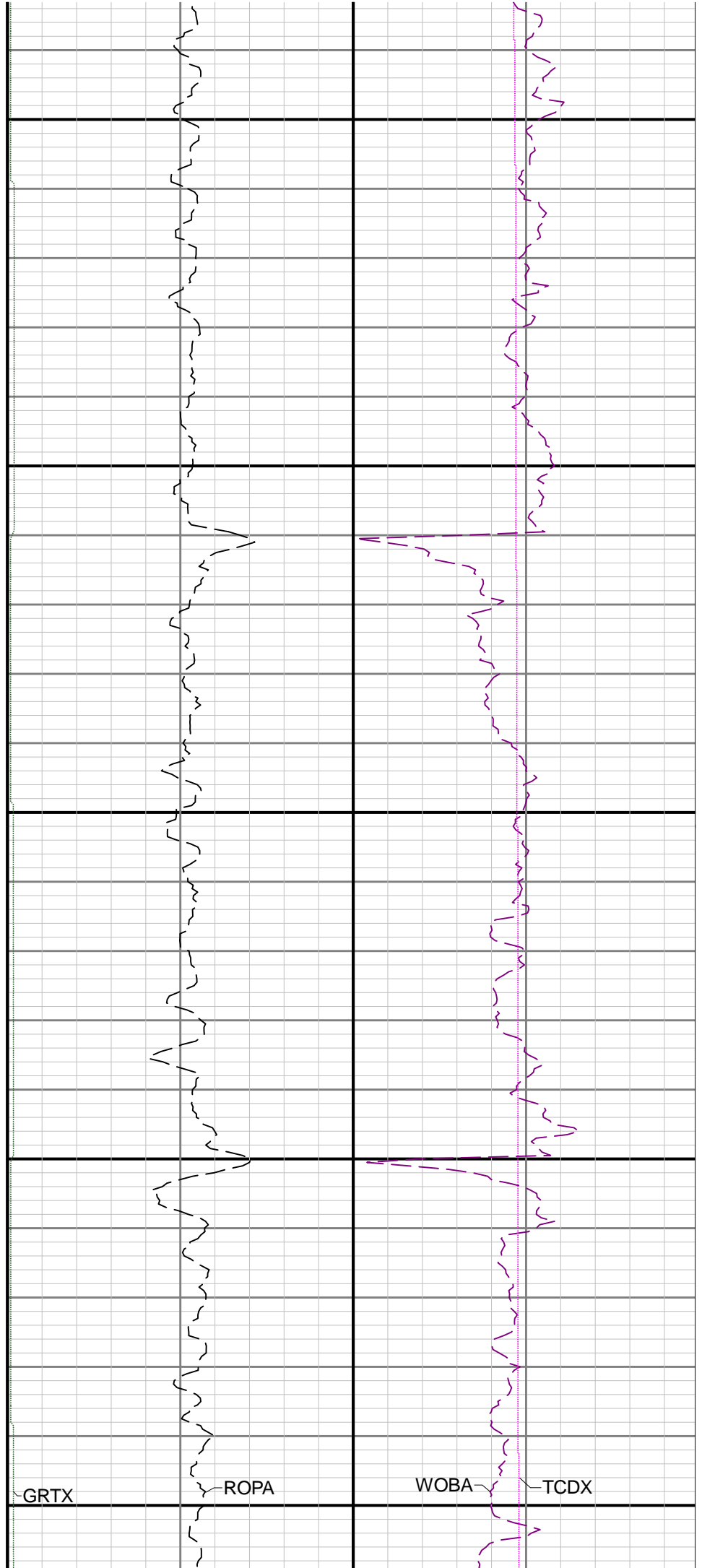
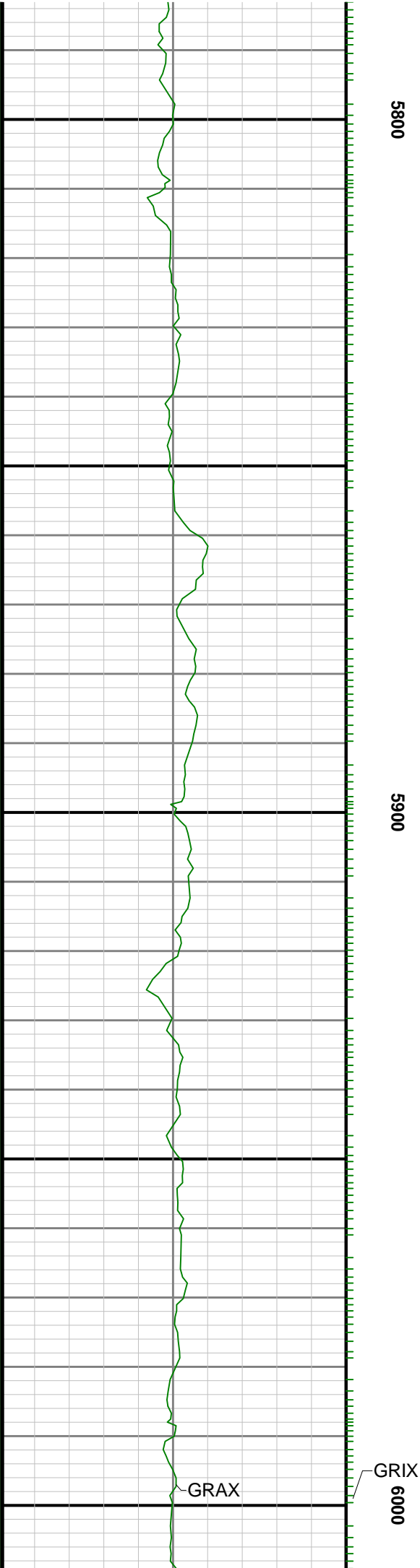


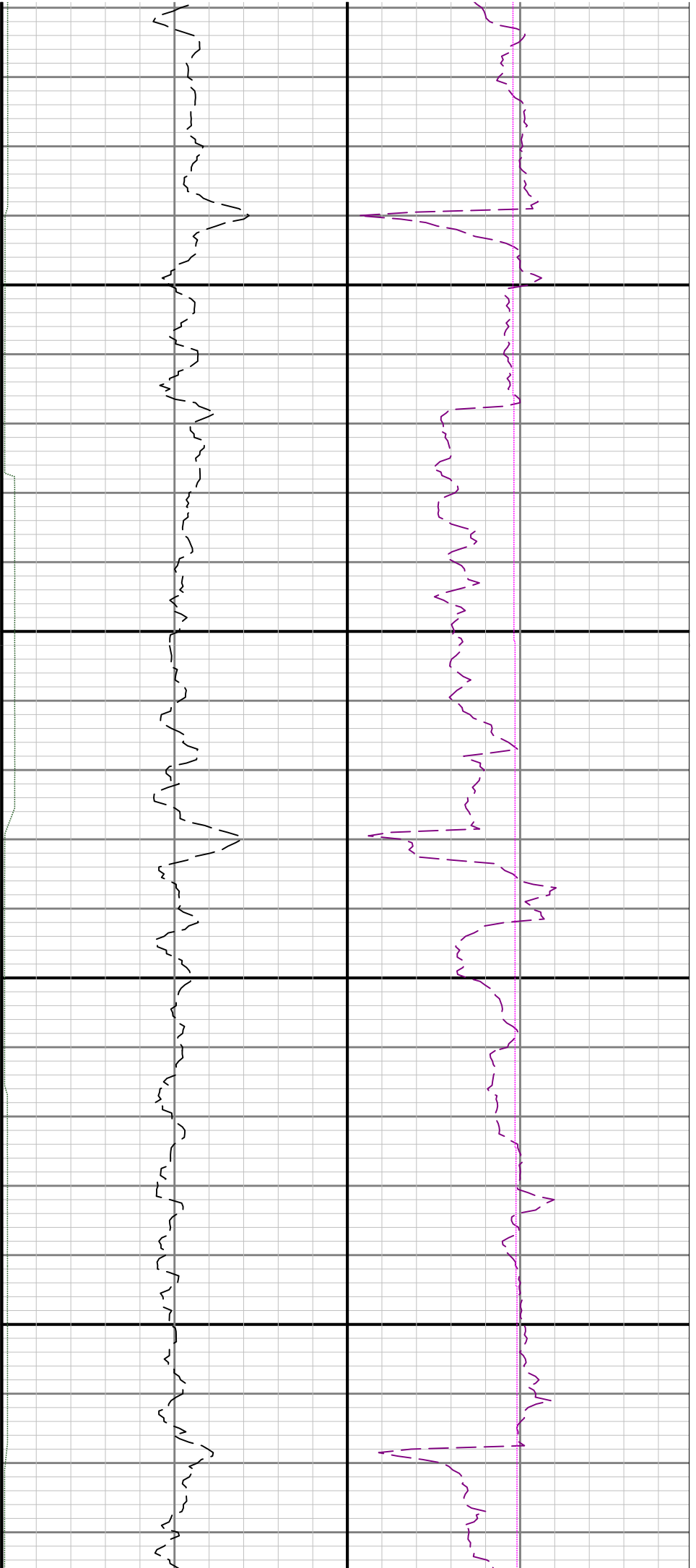
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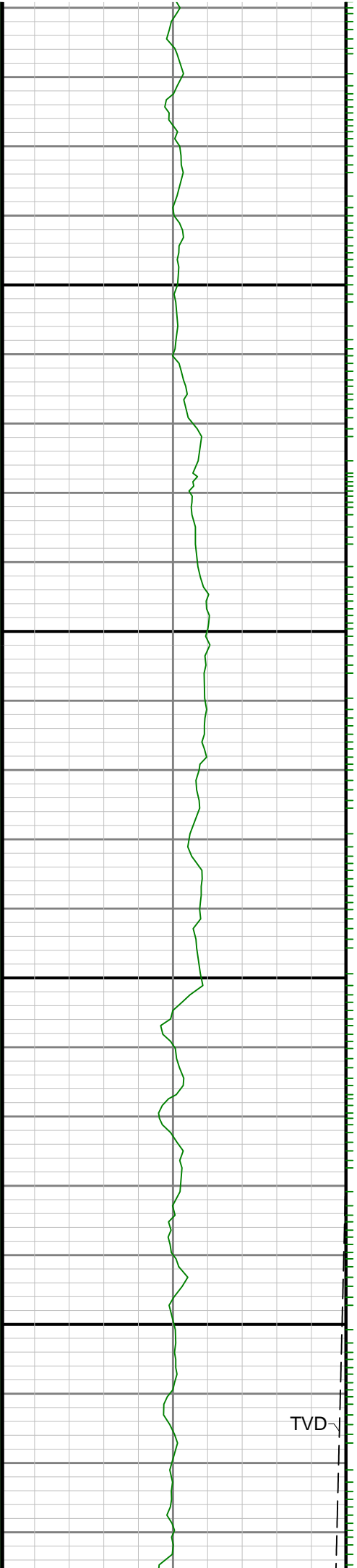


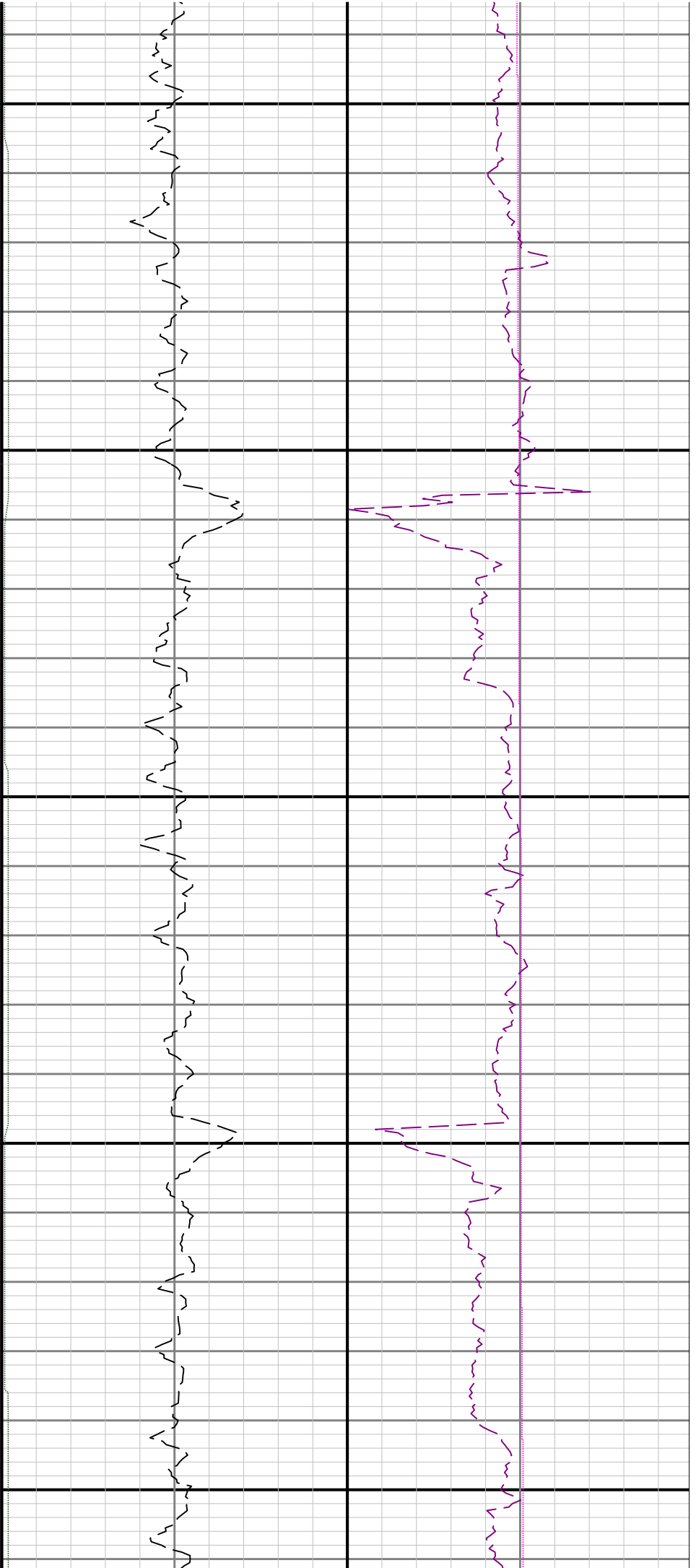


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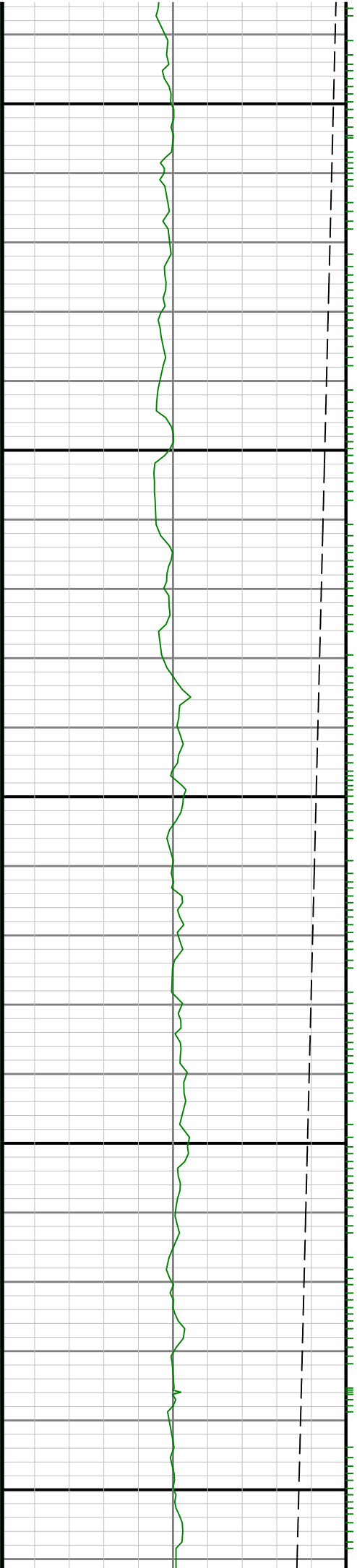
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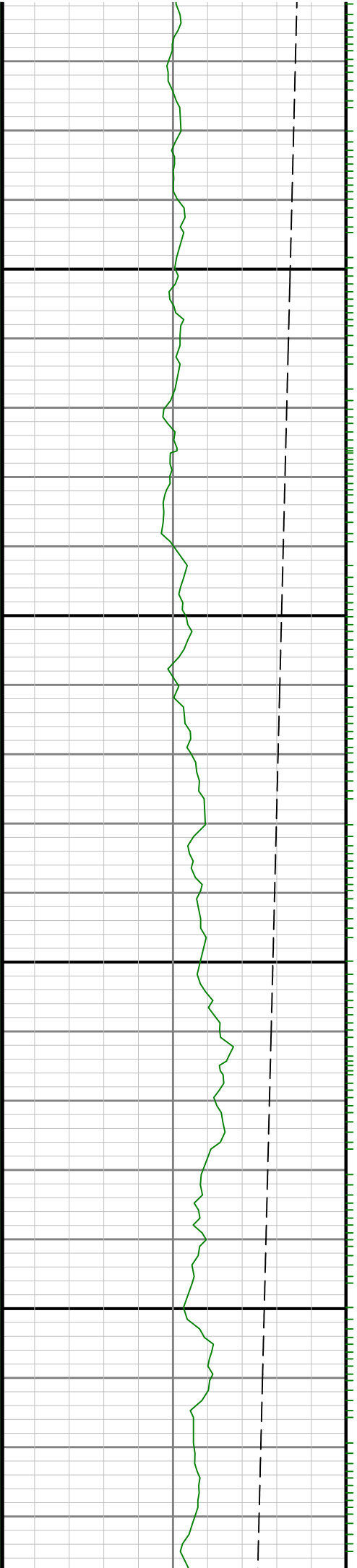




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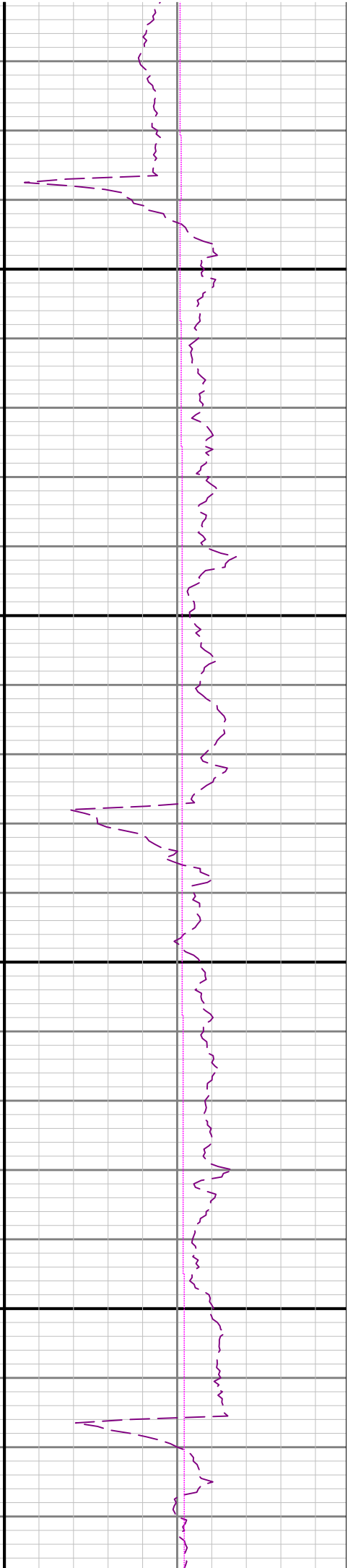
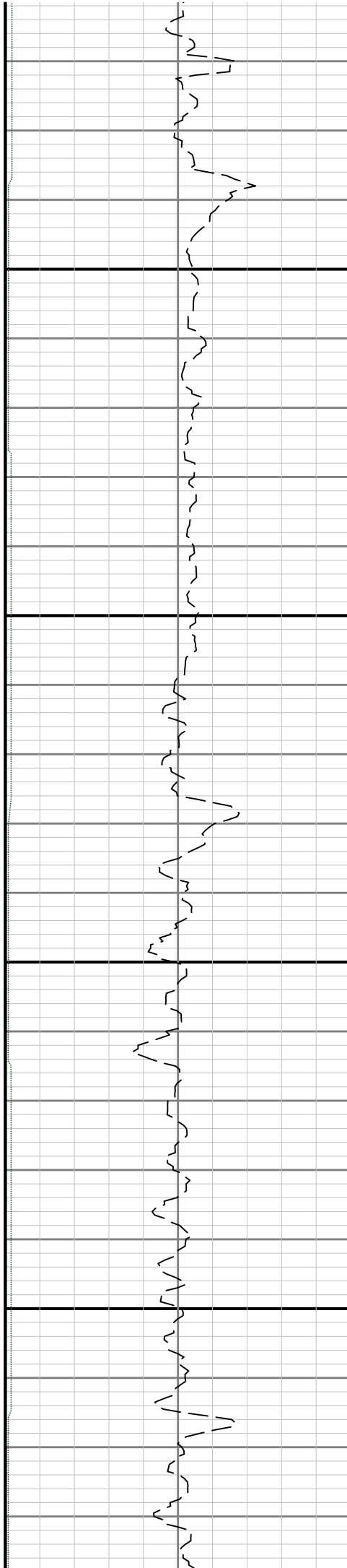
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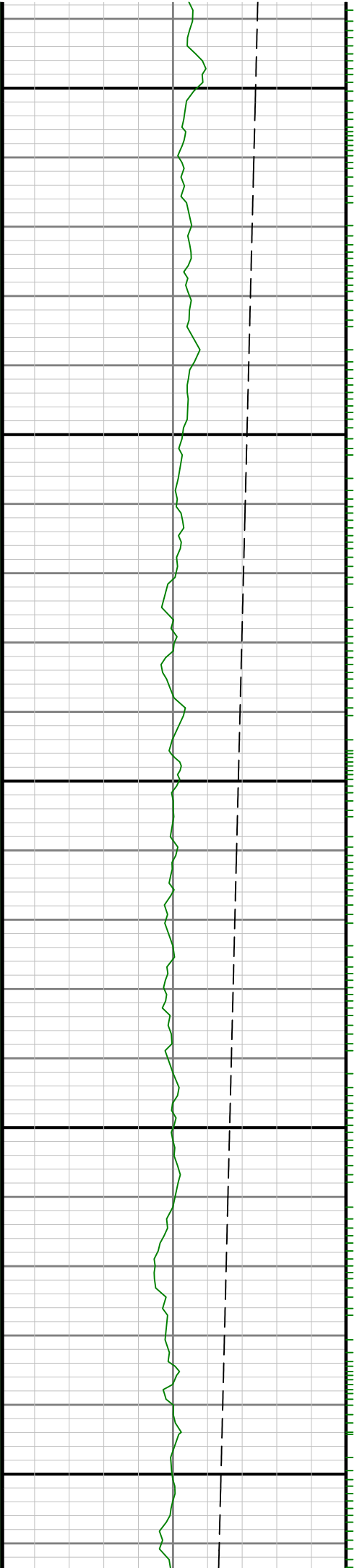




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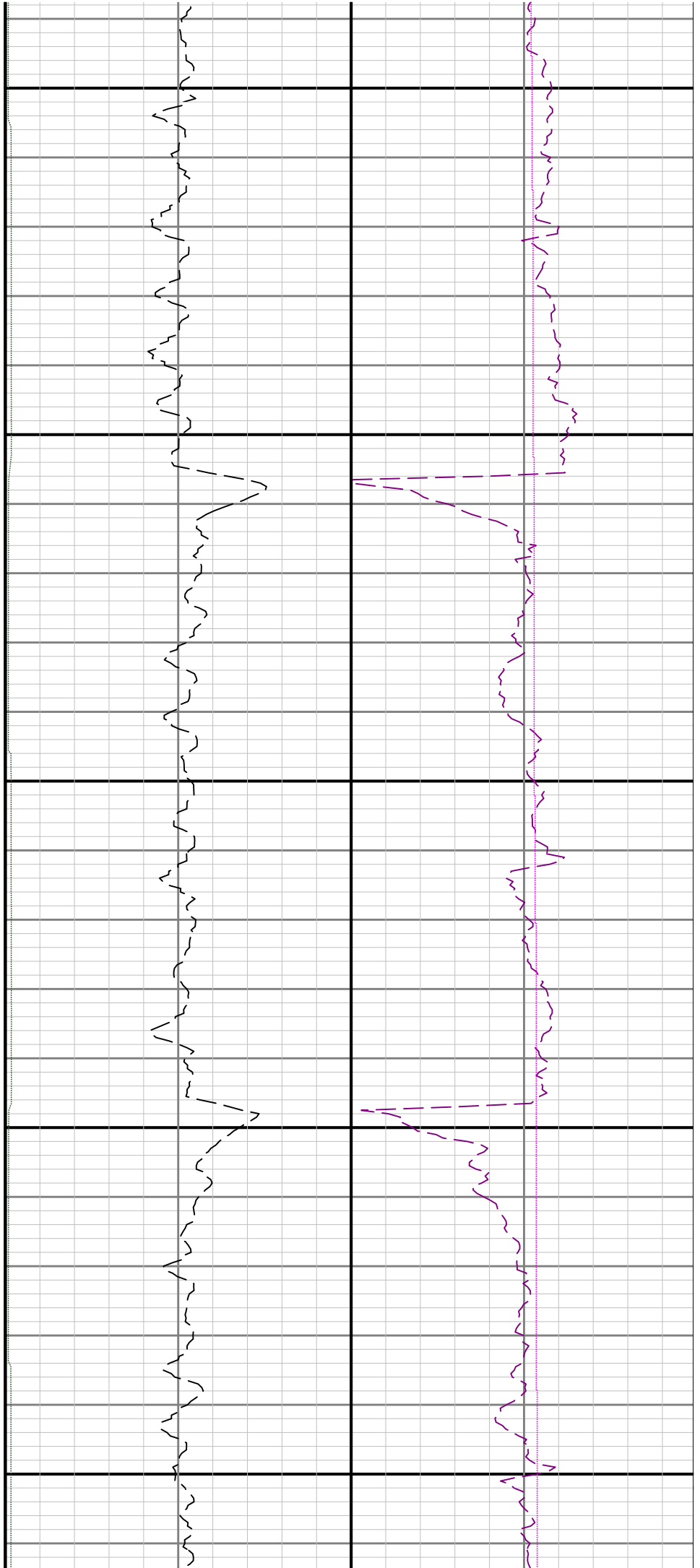


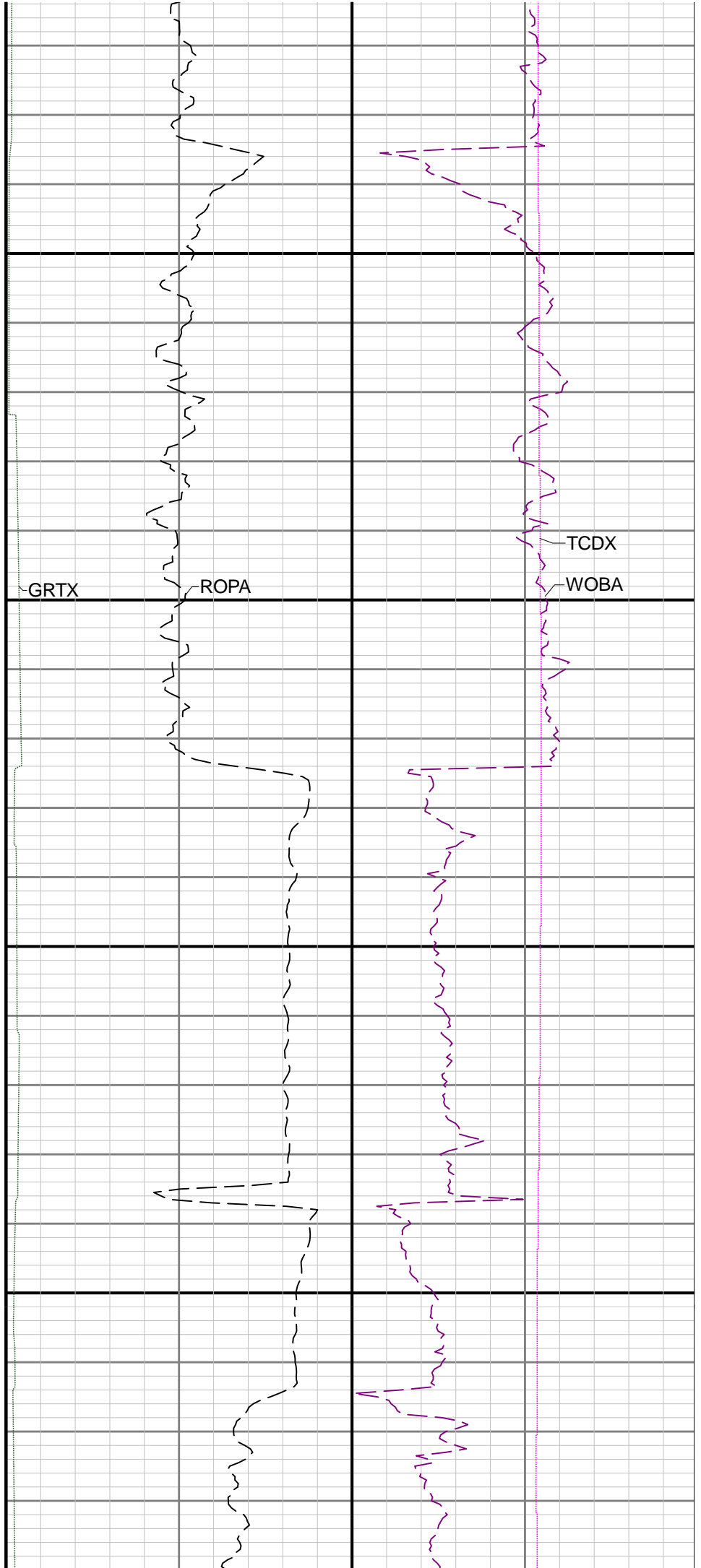
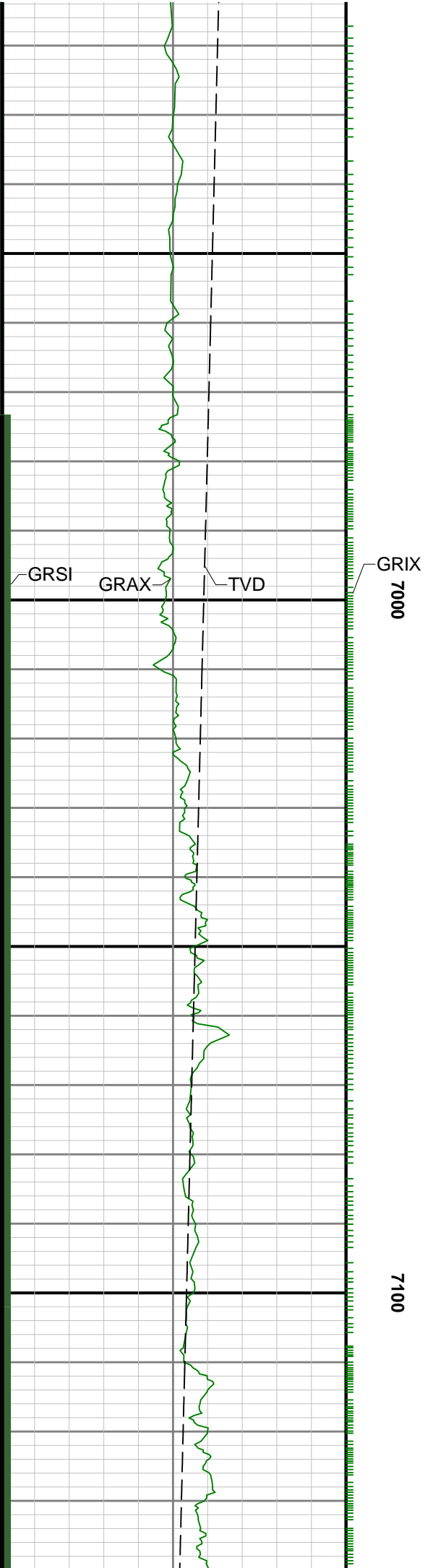


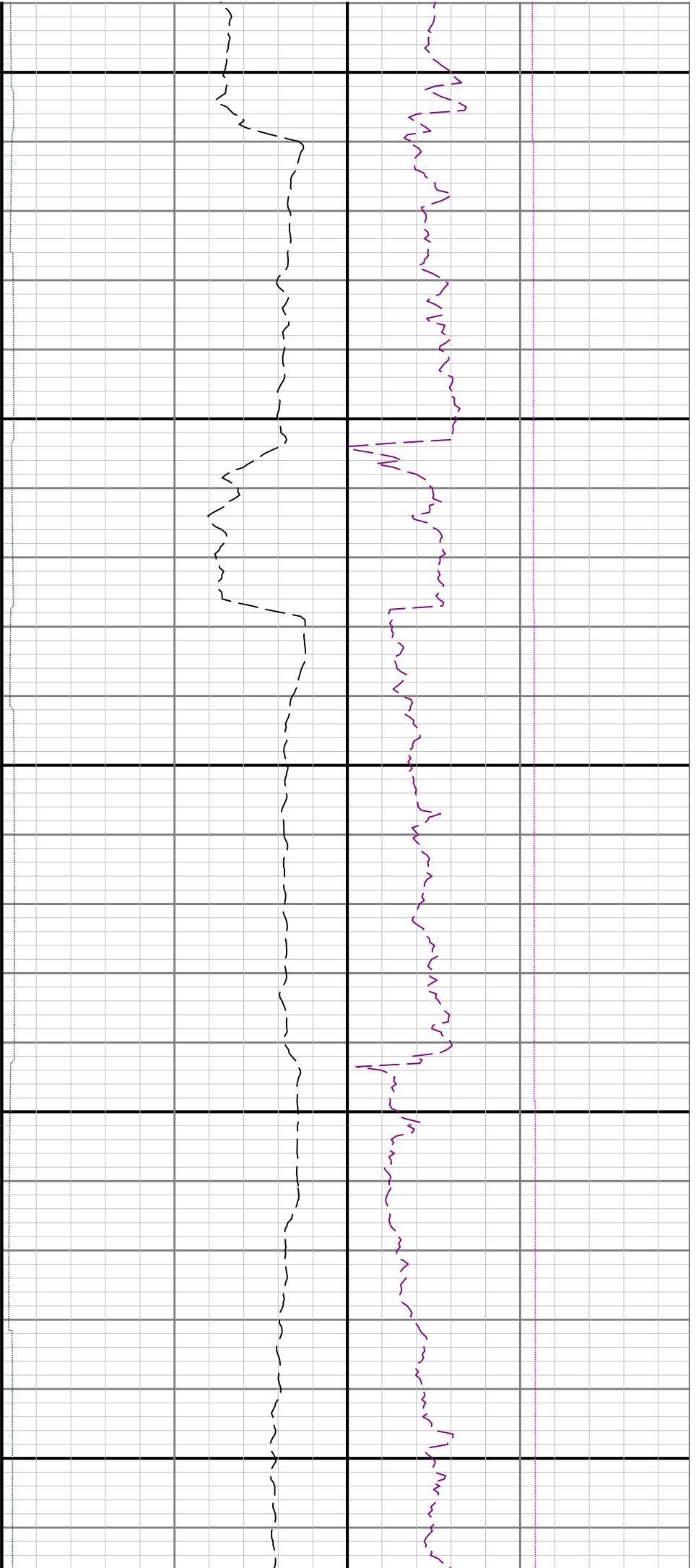
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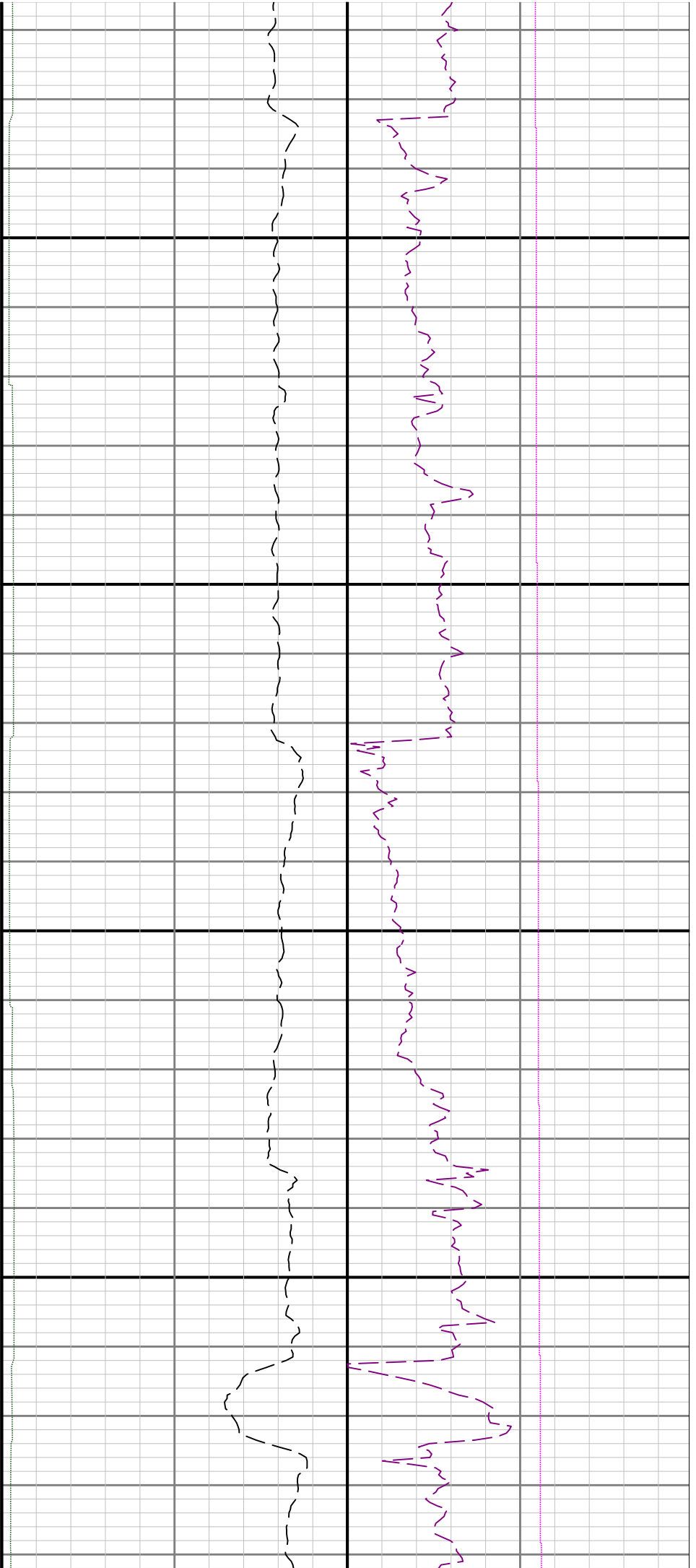






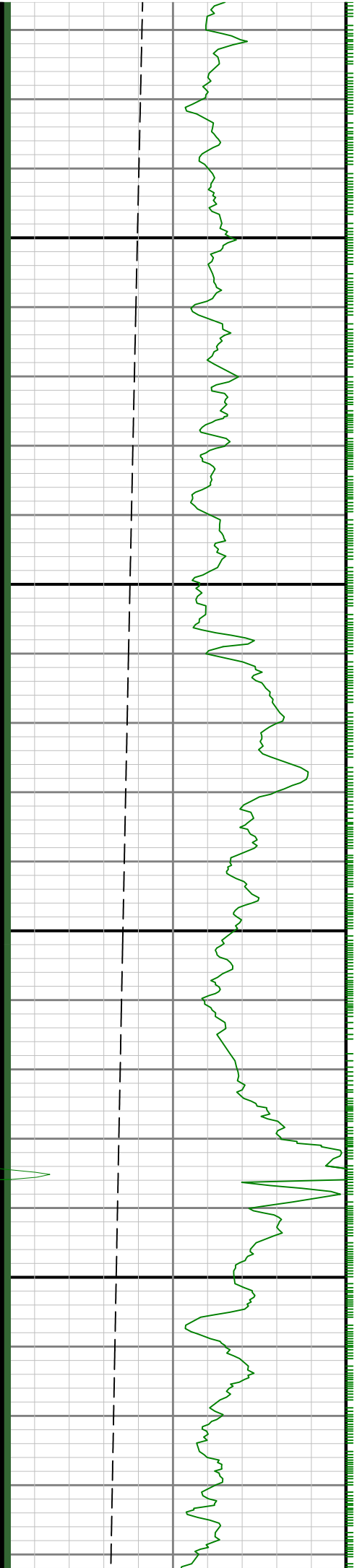
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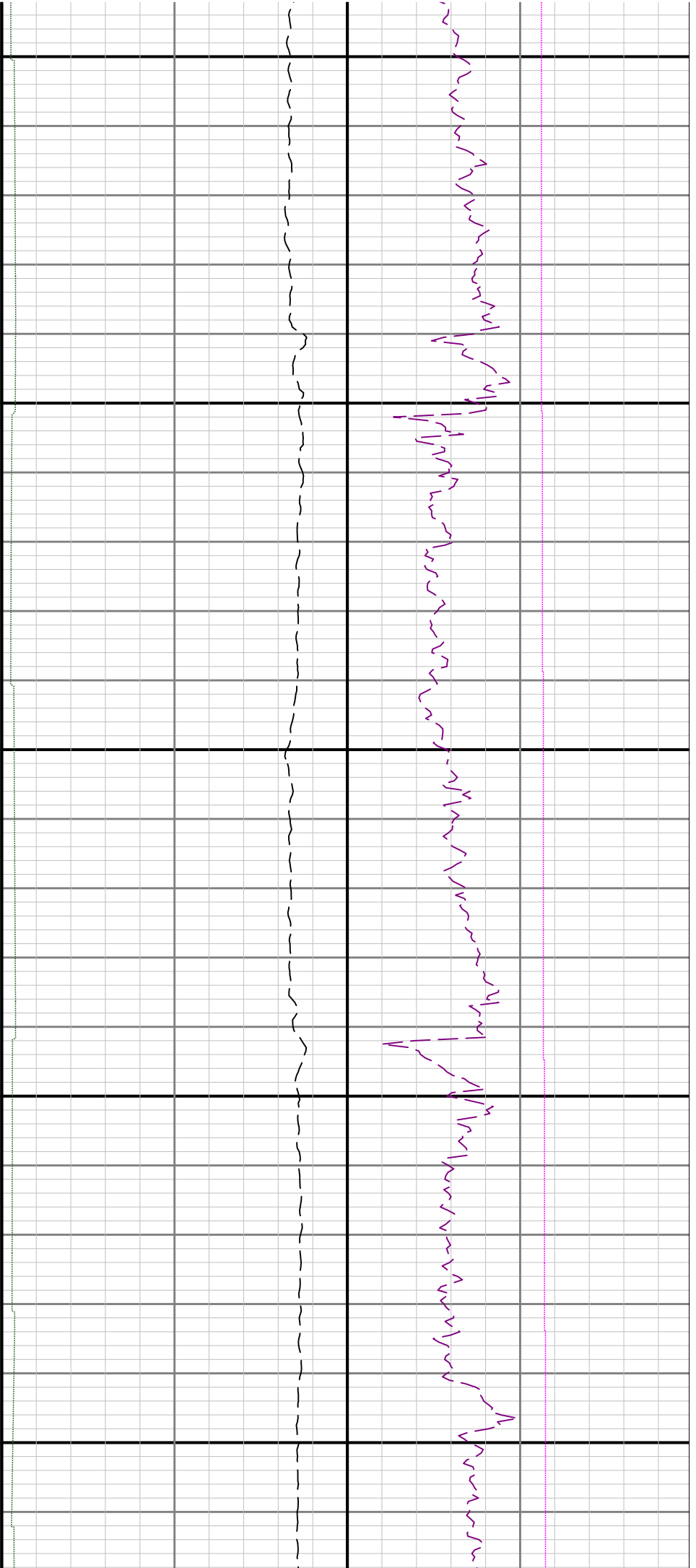
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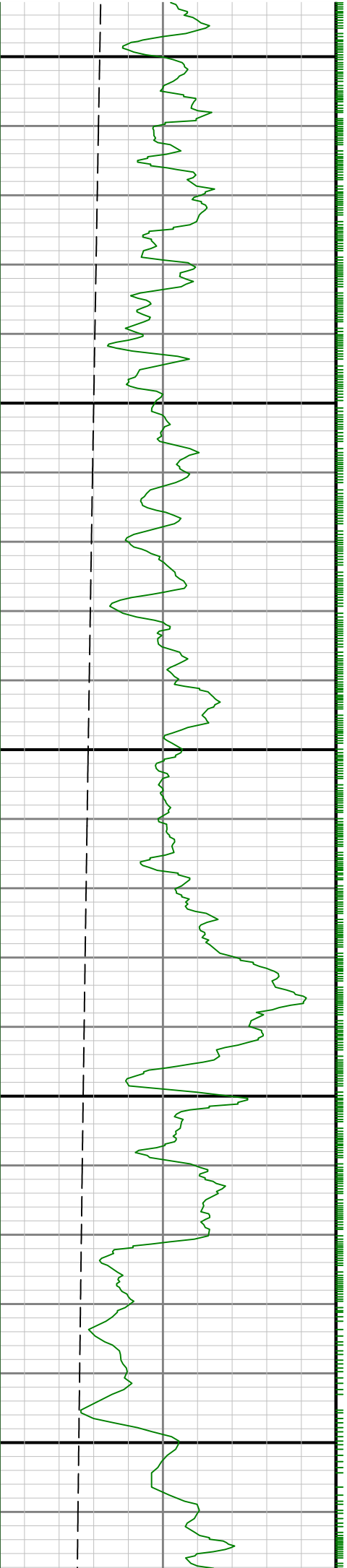


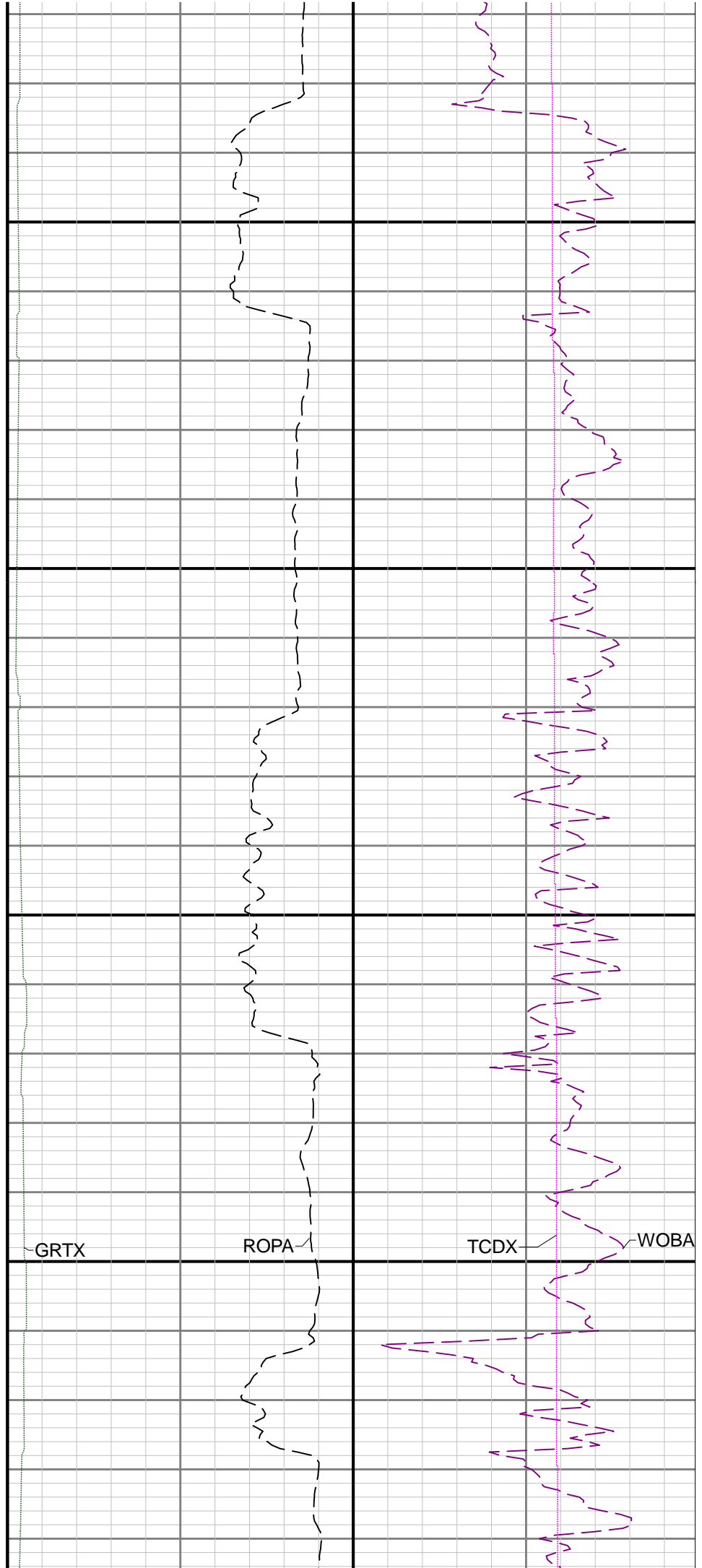
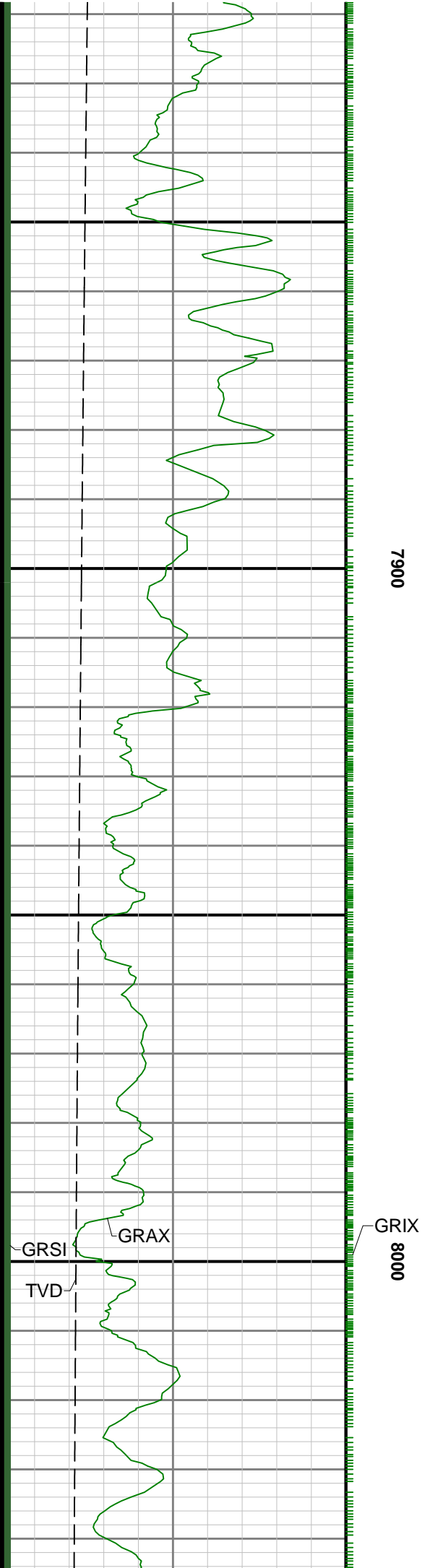


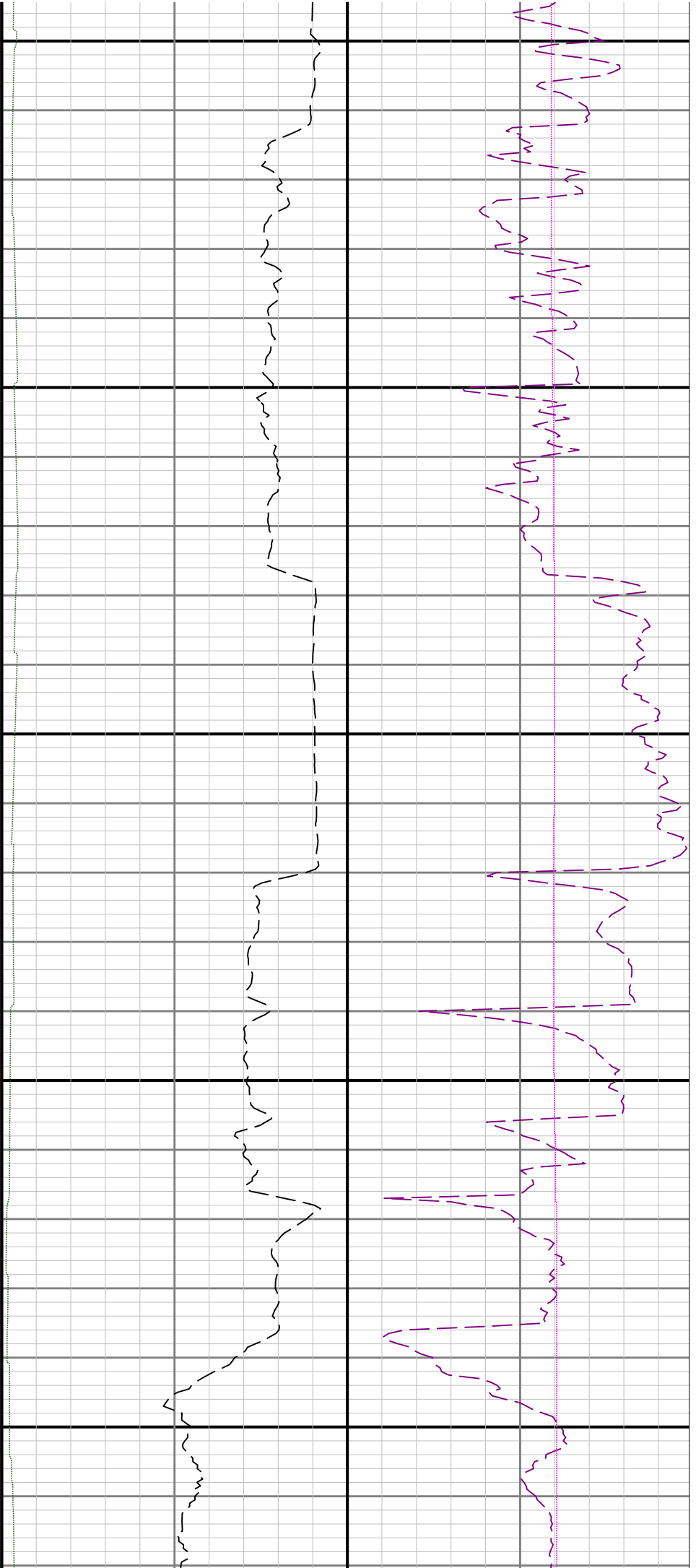
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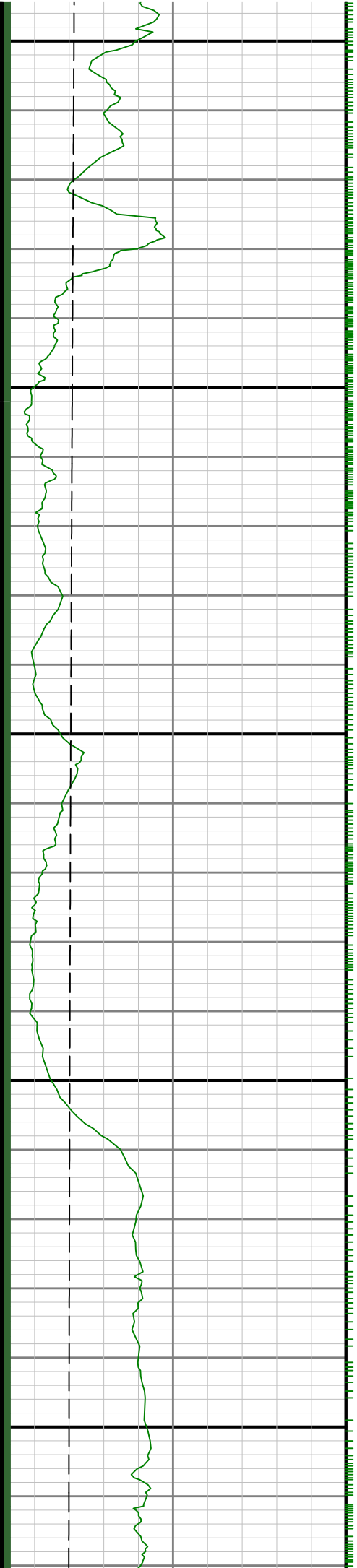


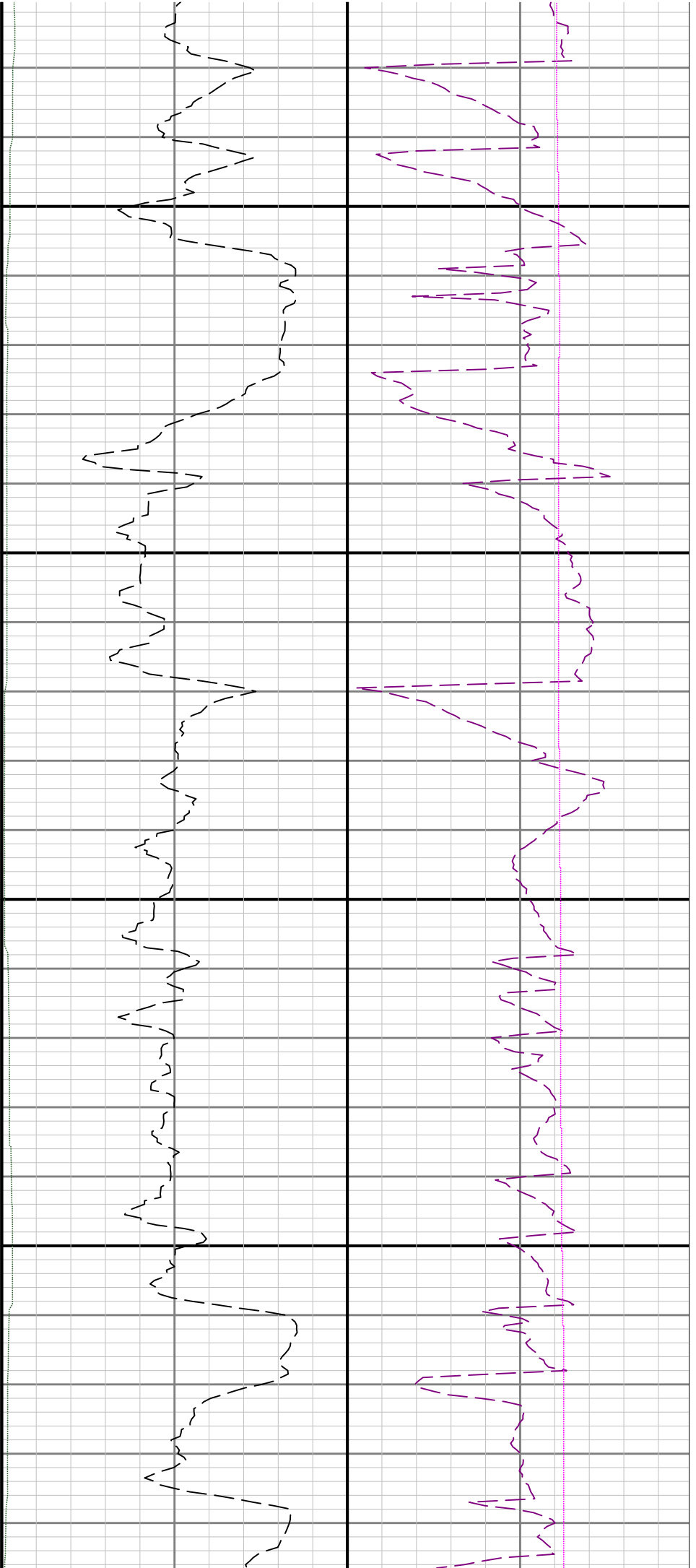




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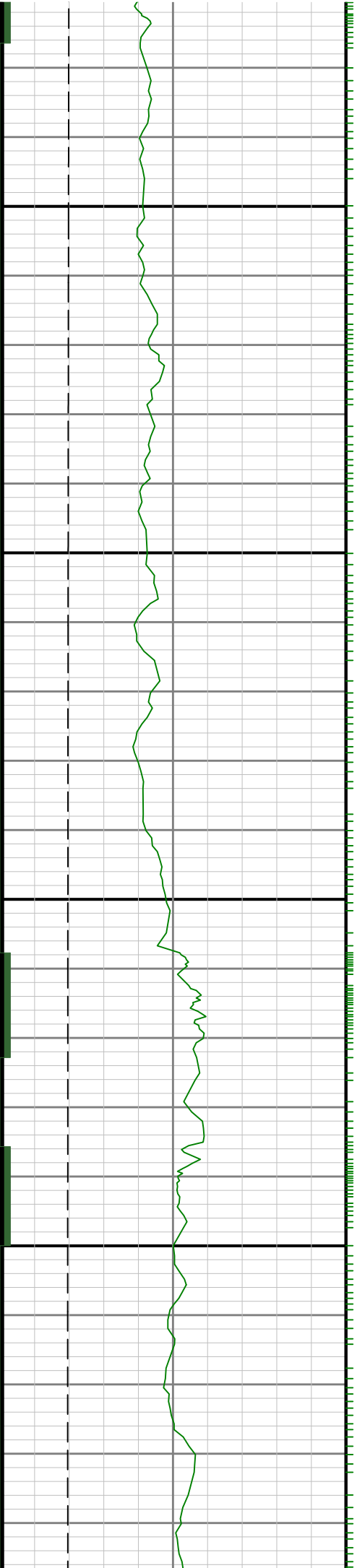
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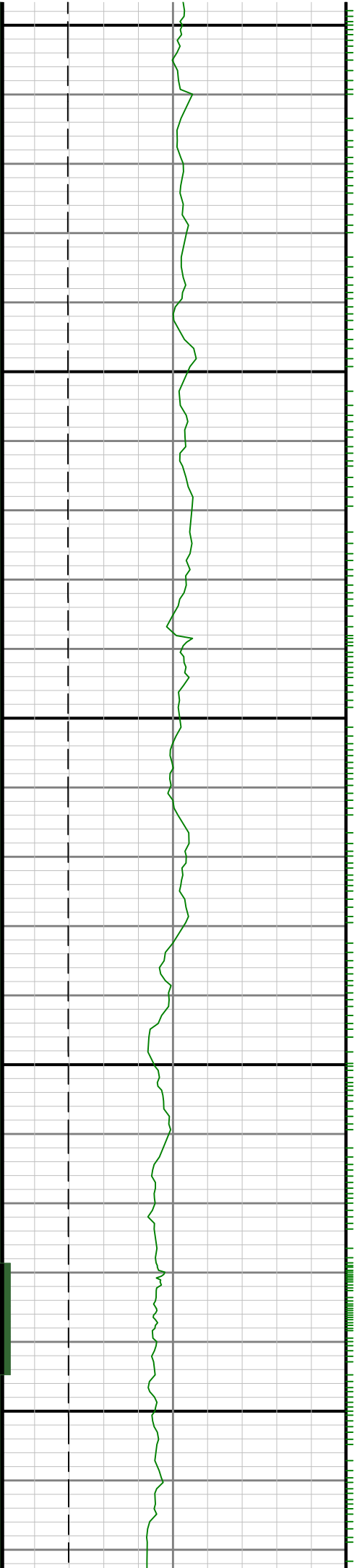




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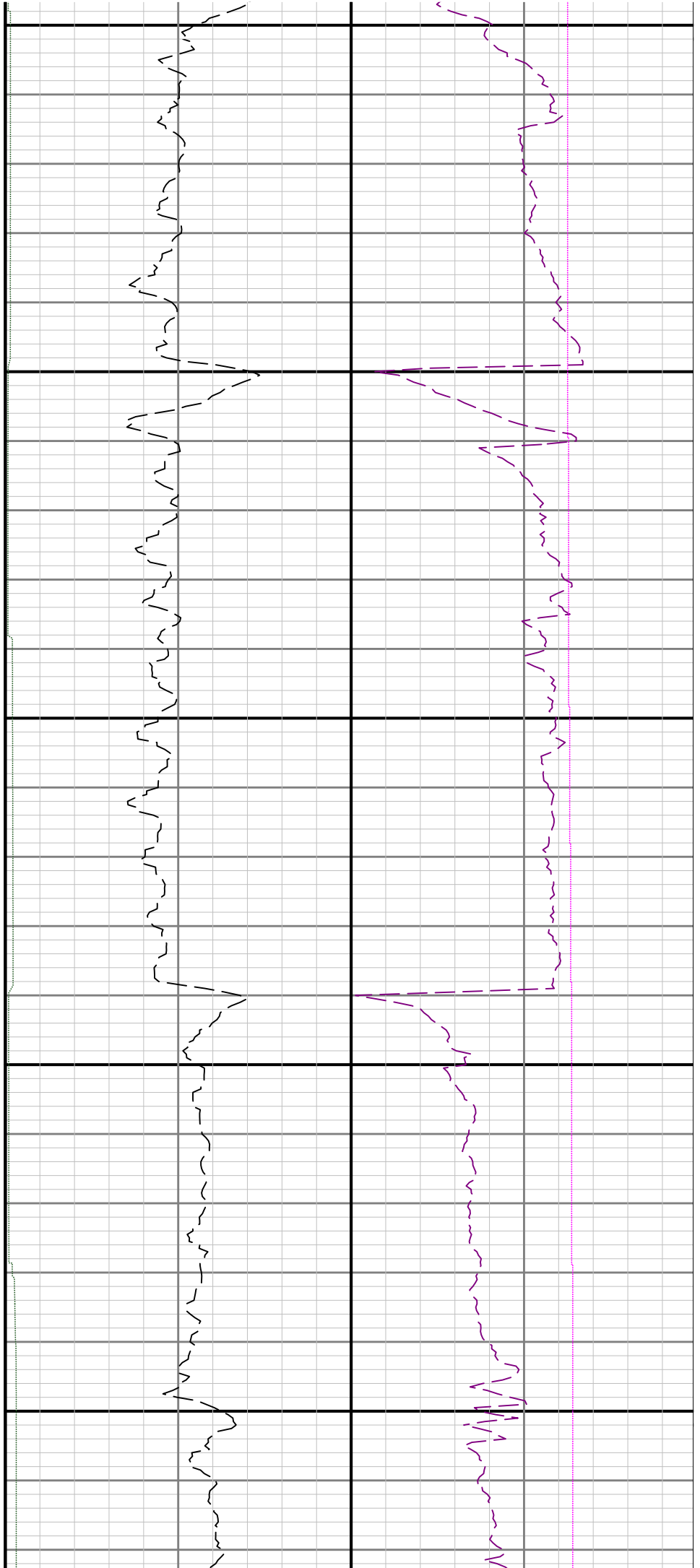


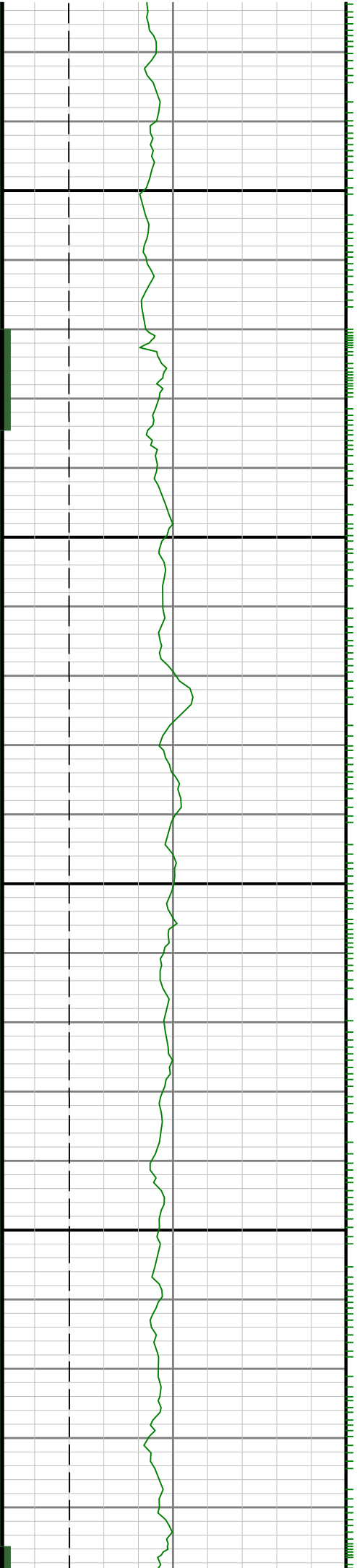


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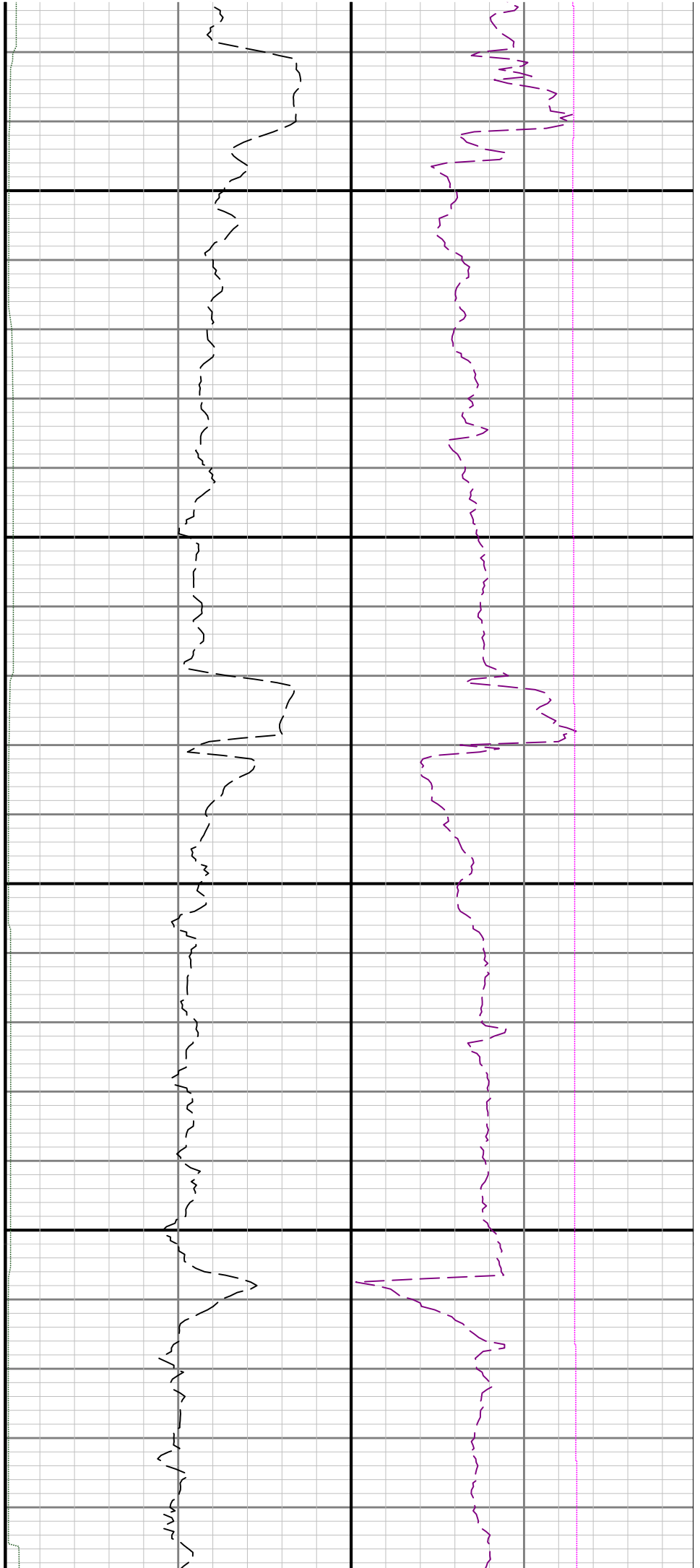
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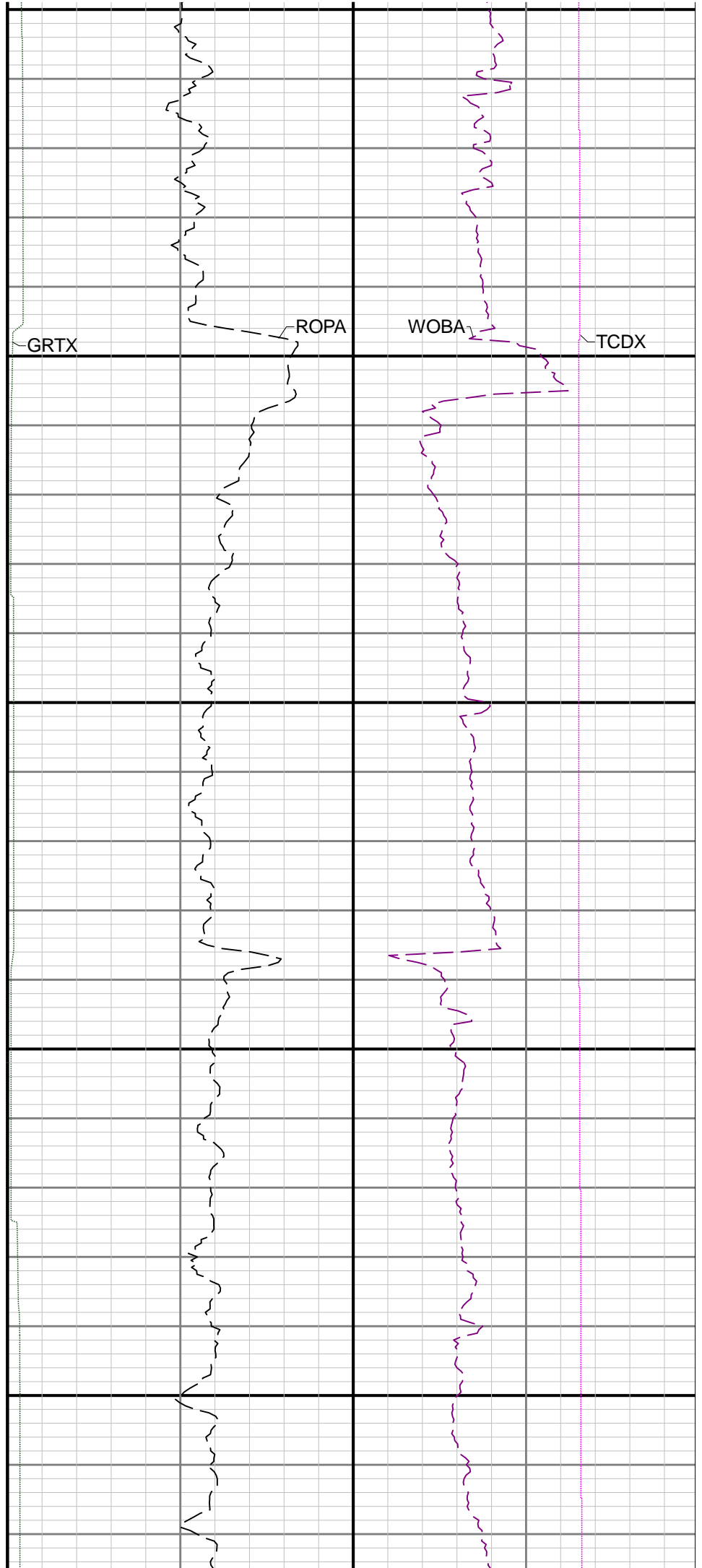
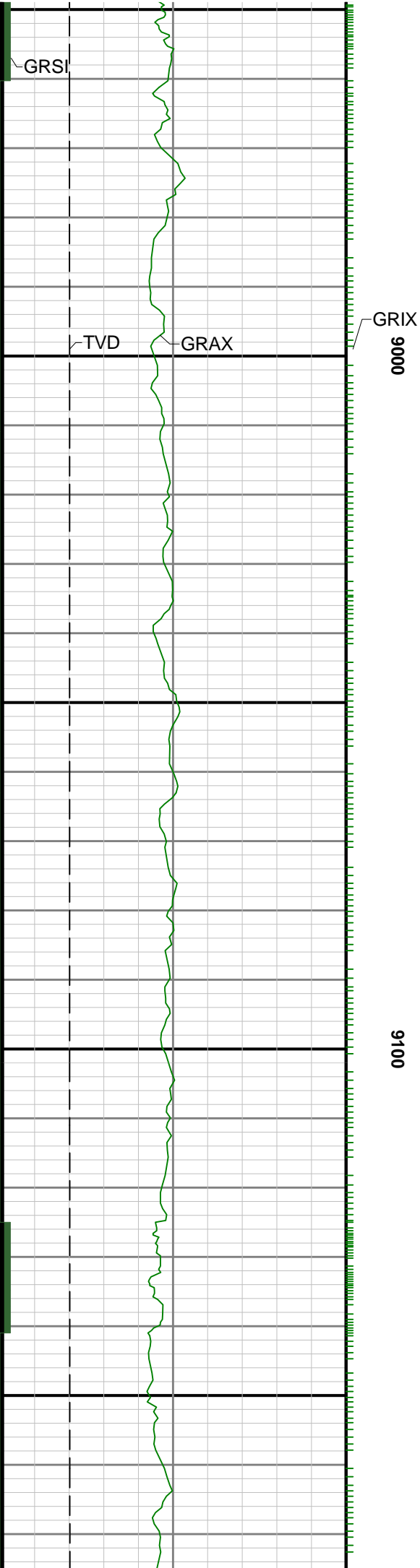


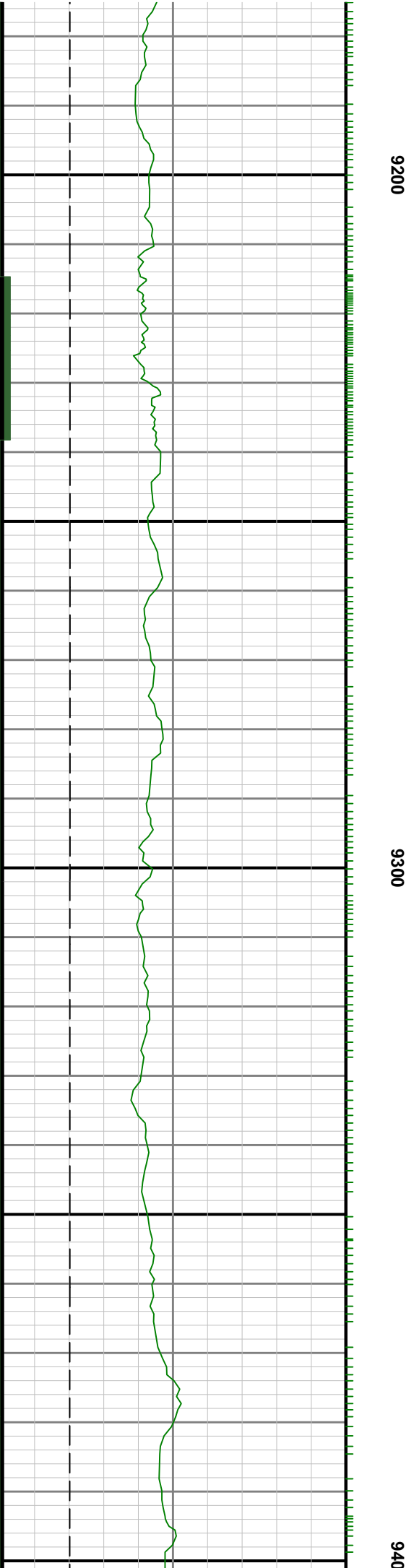
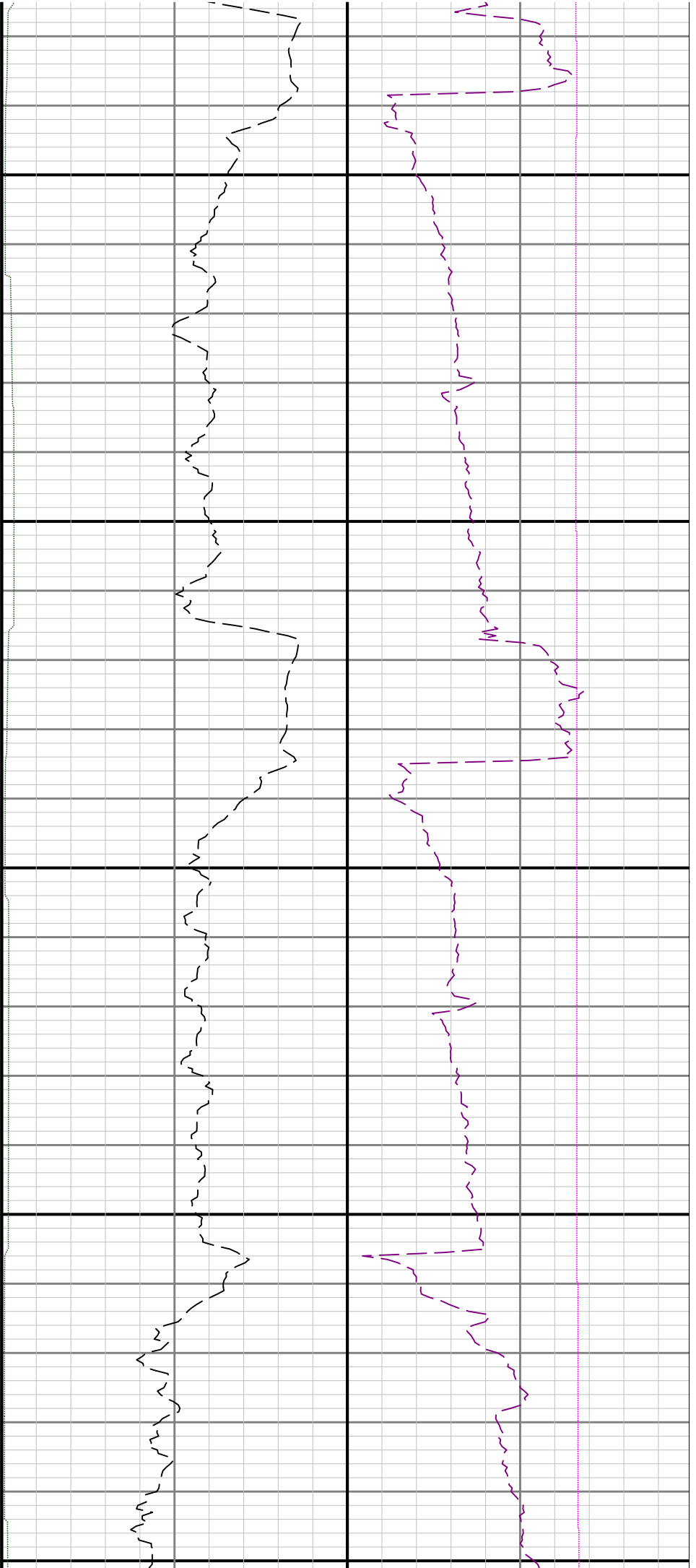


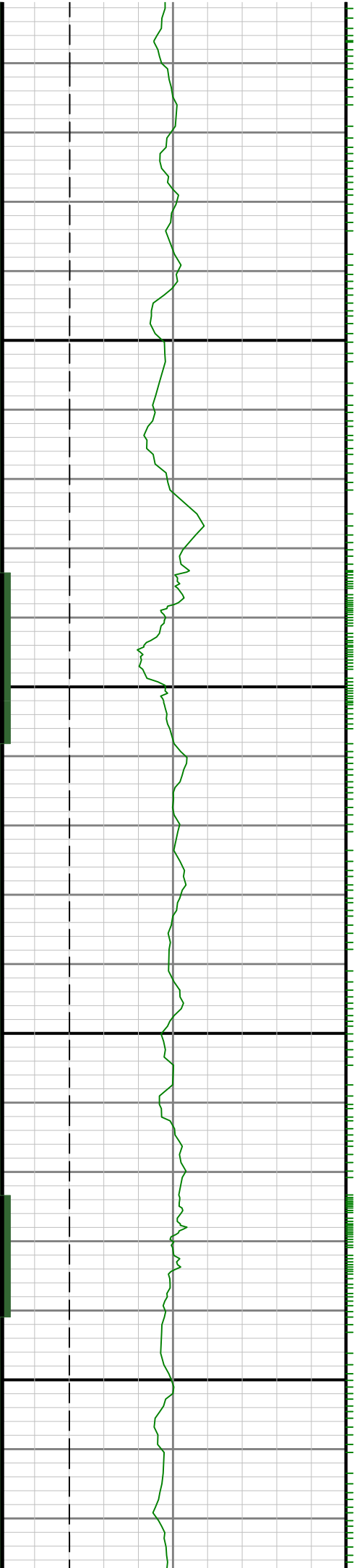
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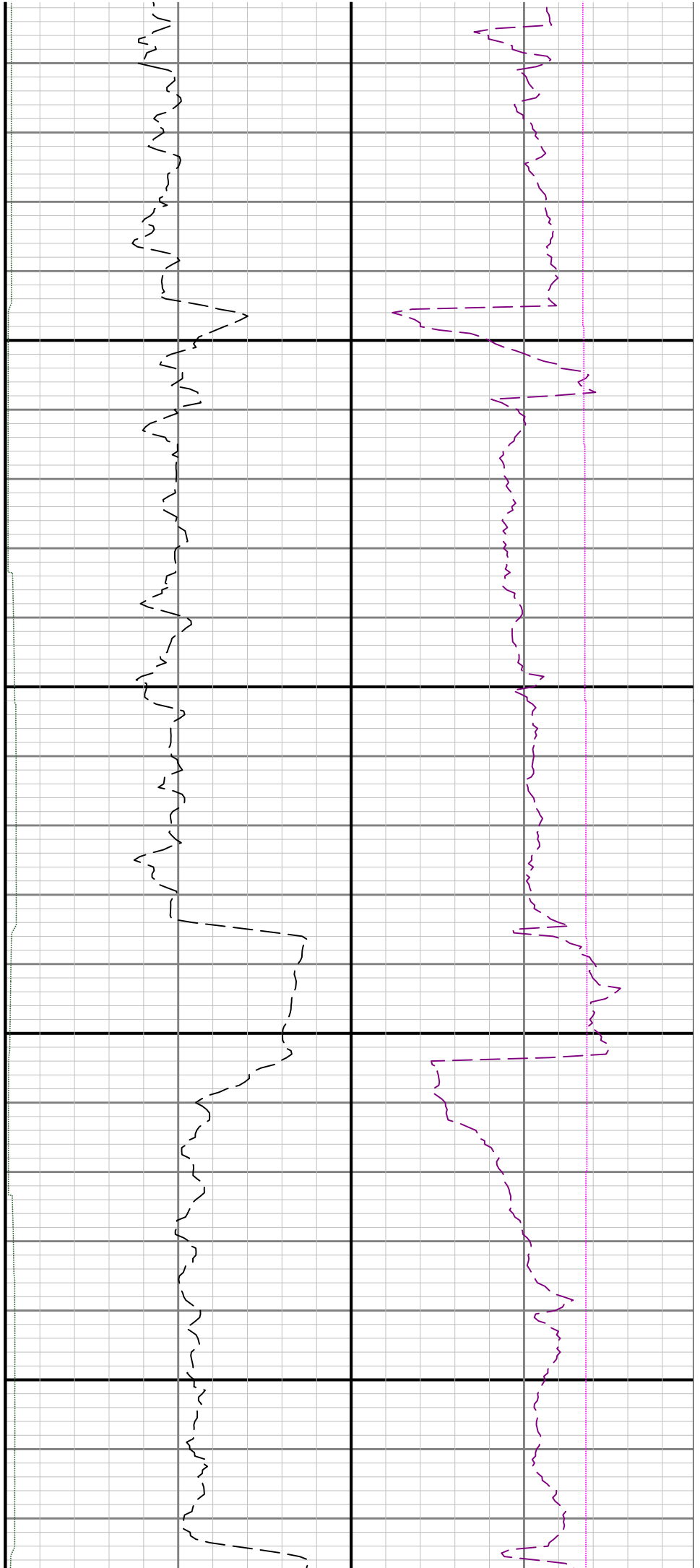


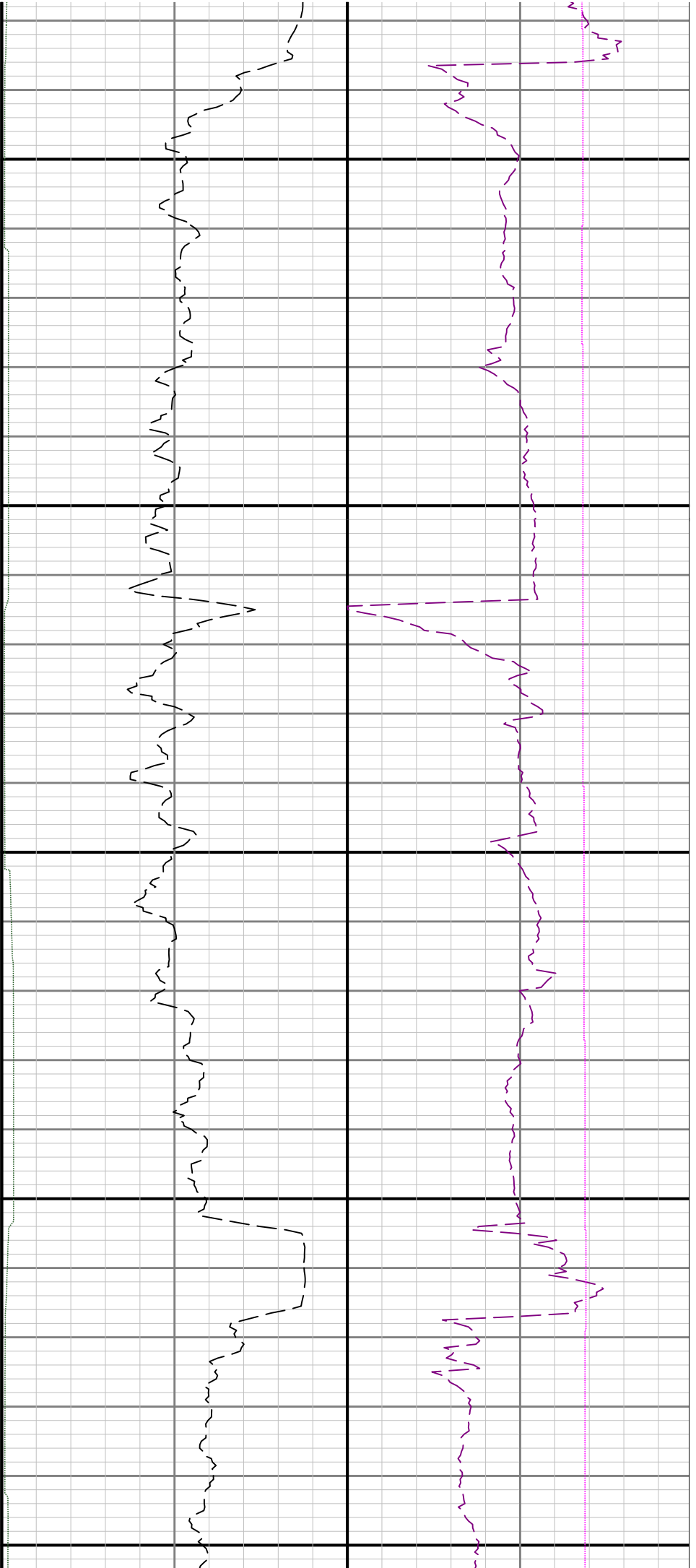


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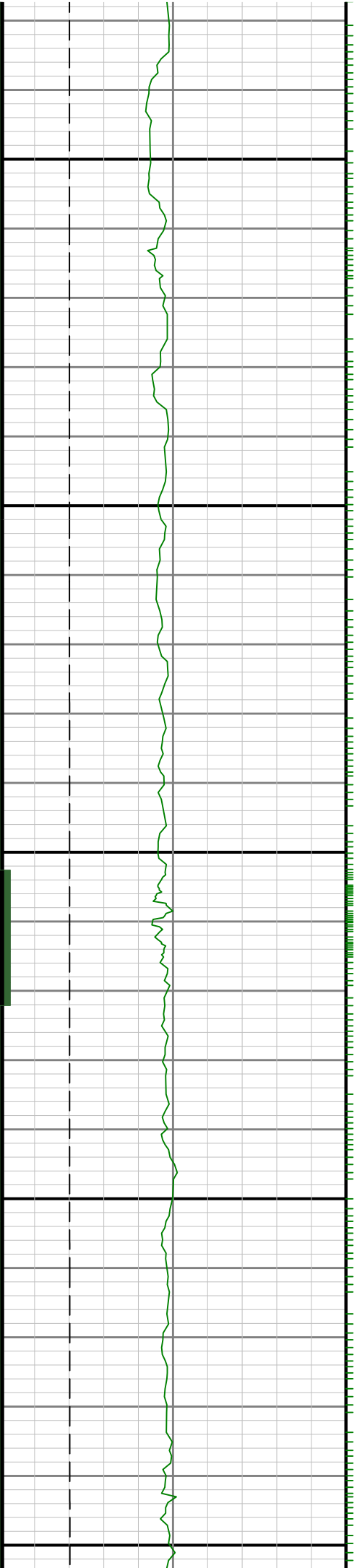
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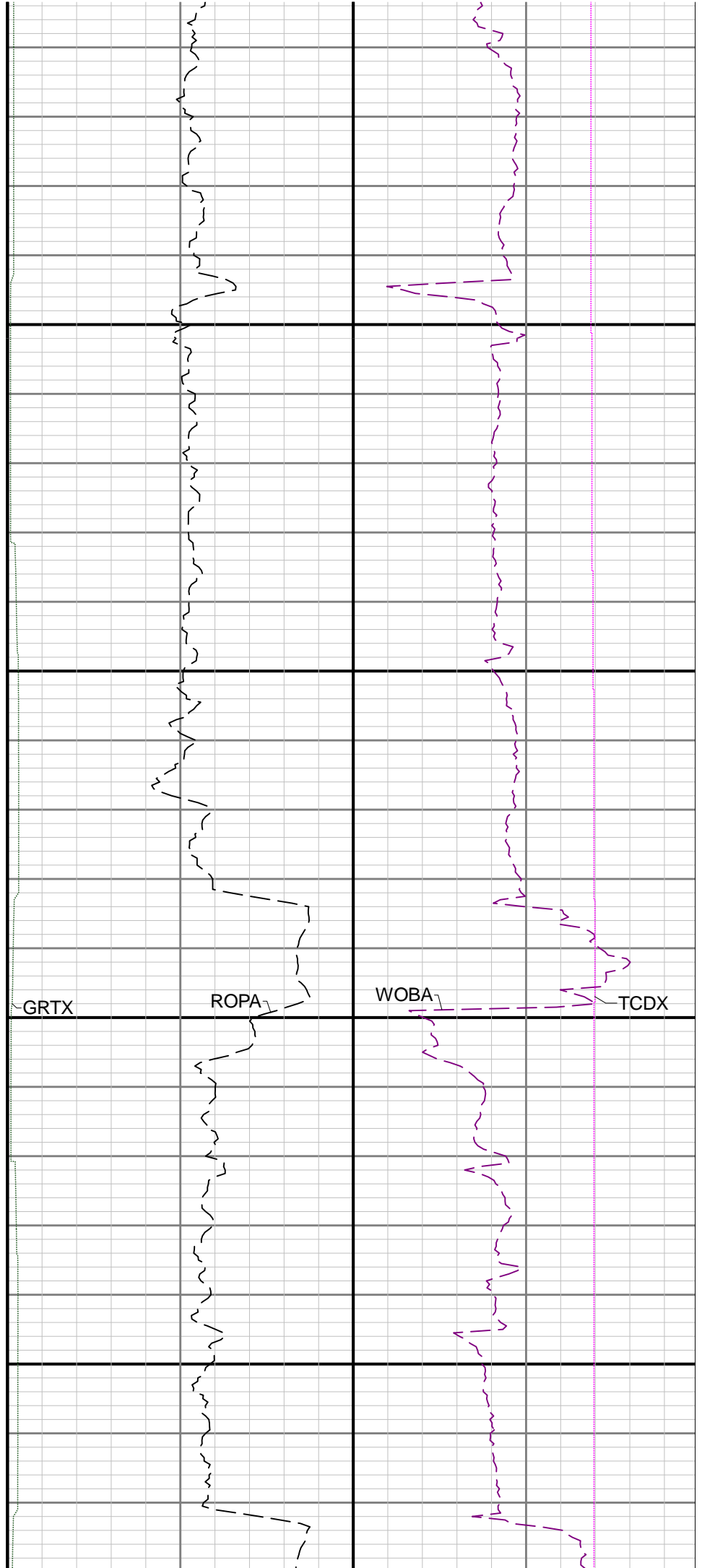
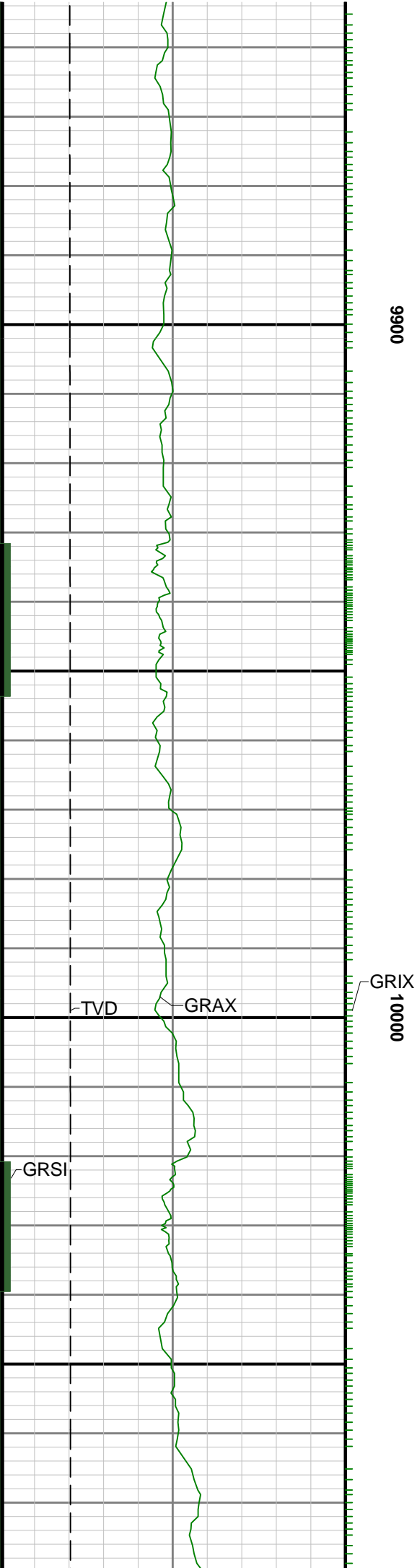


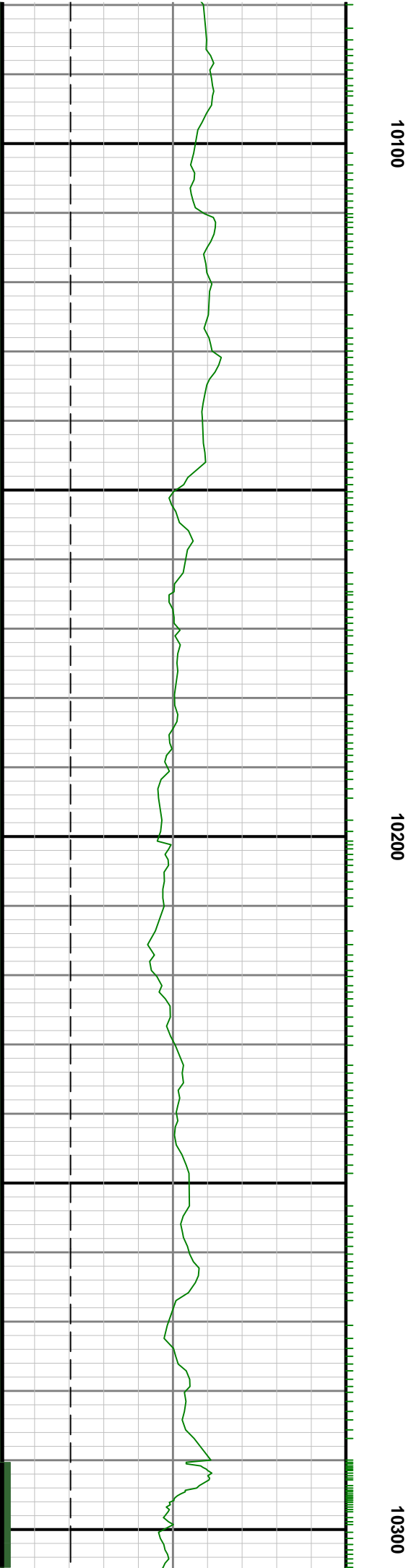
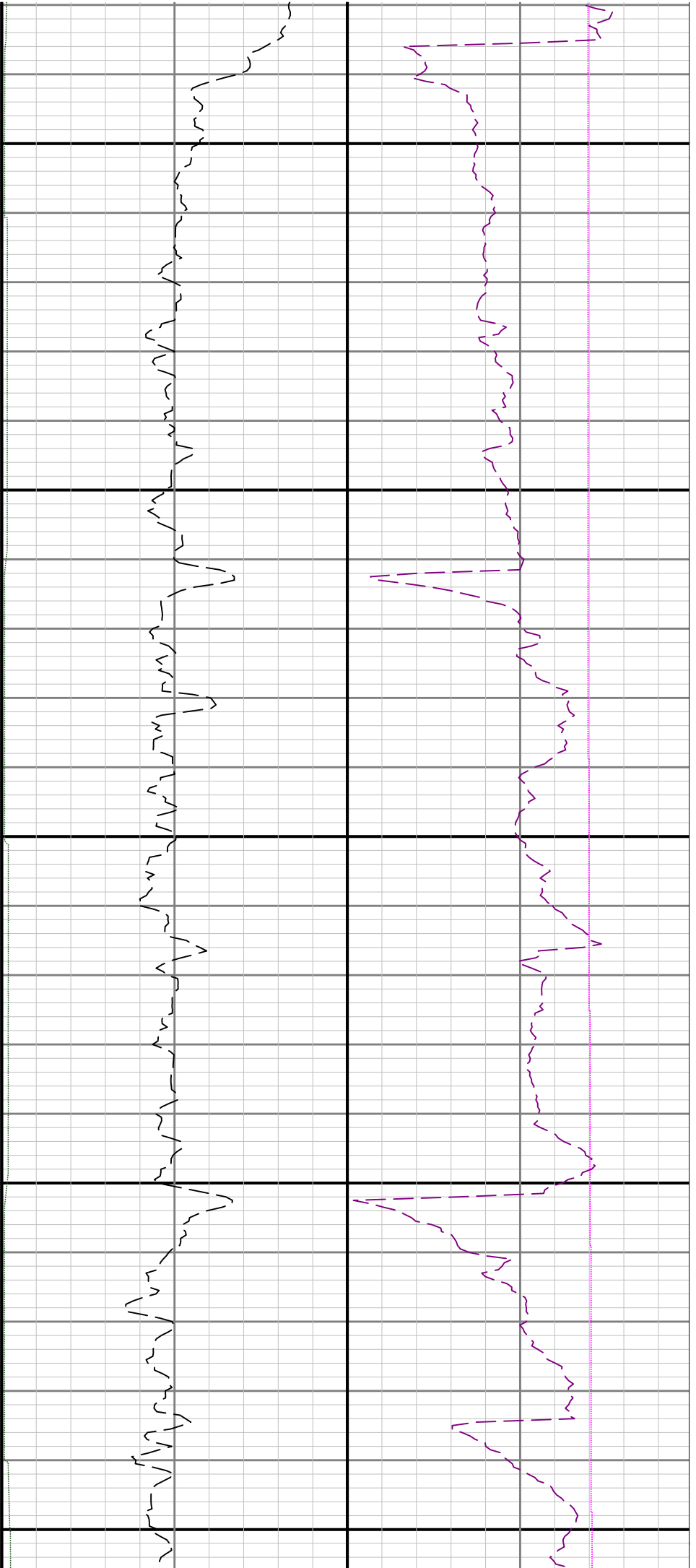


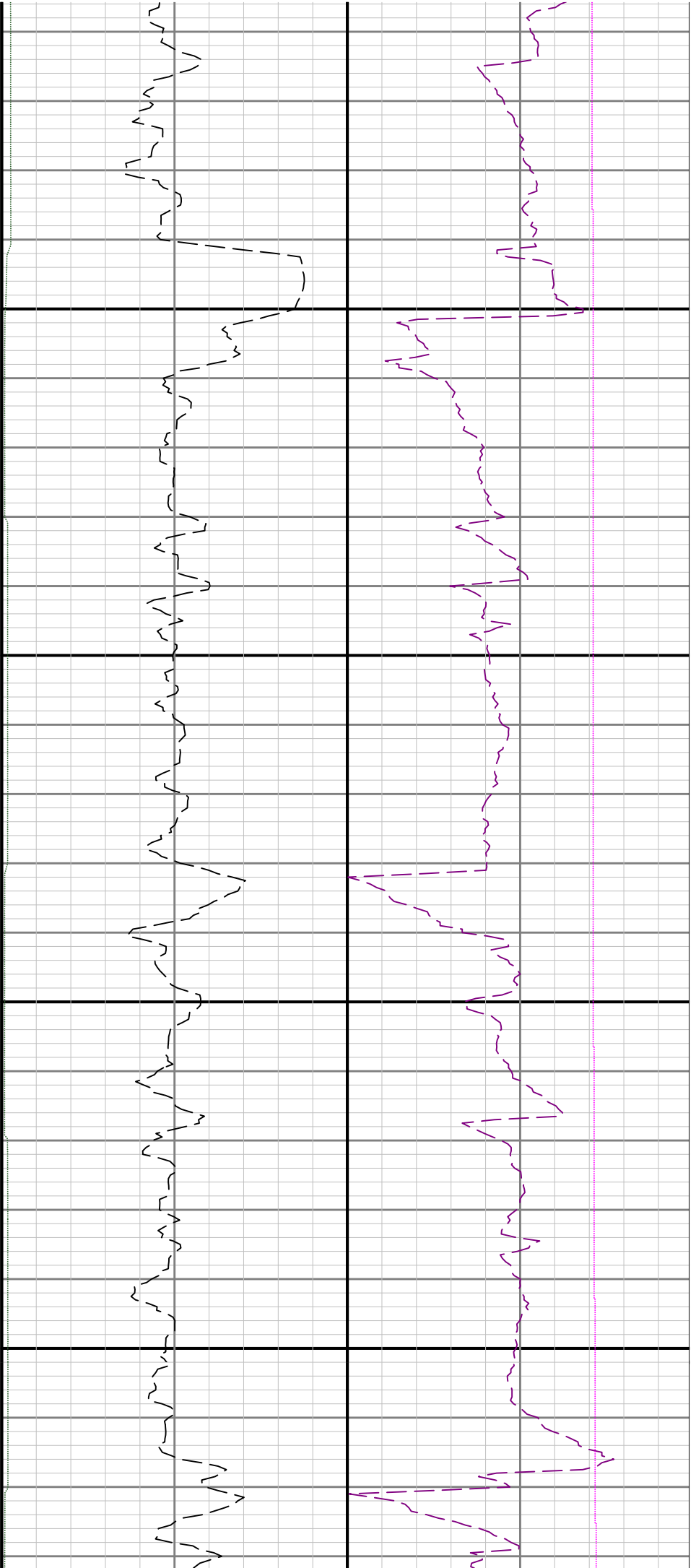
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9800



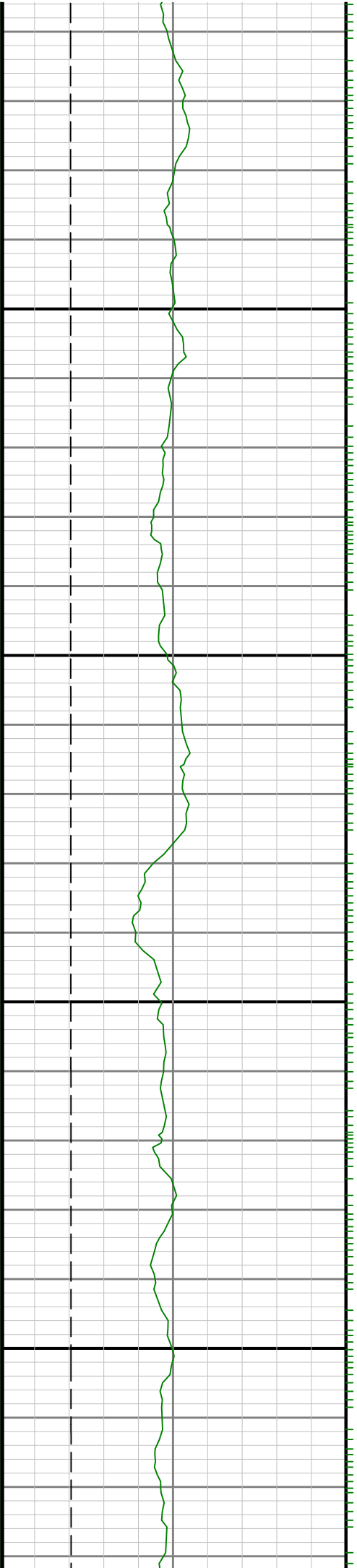


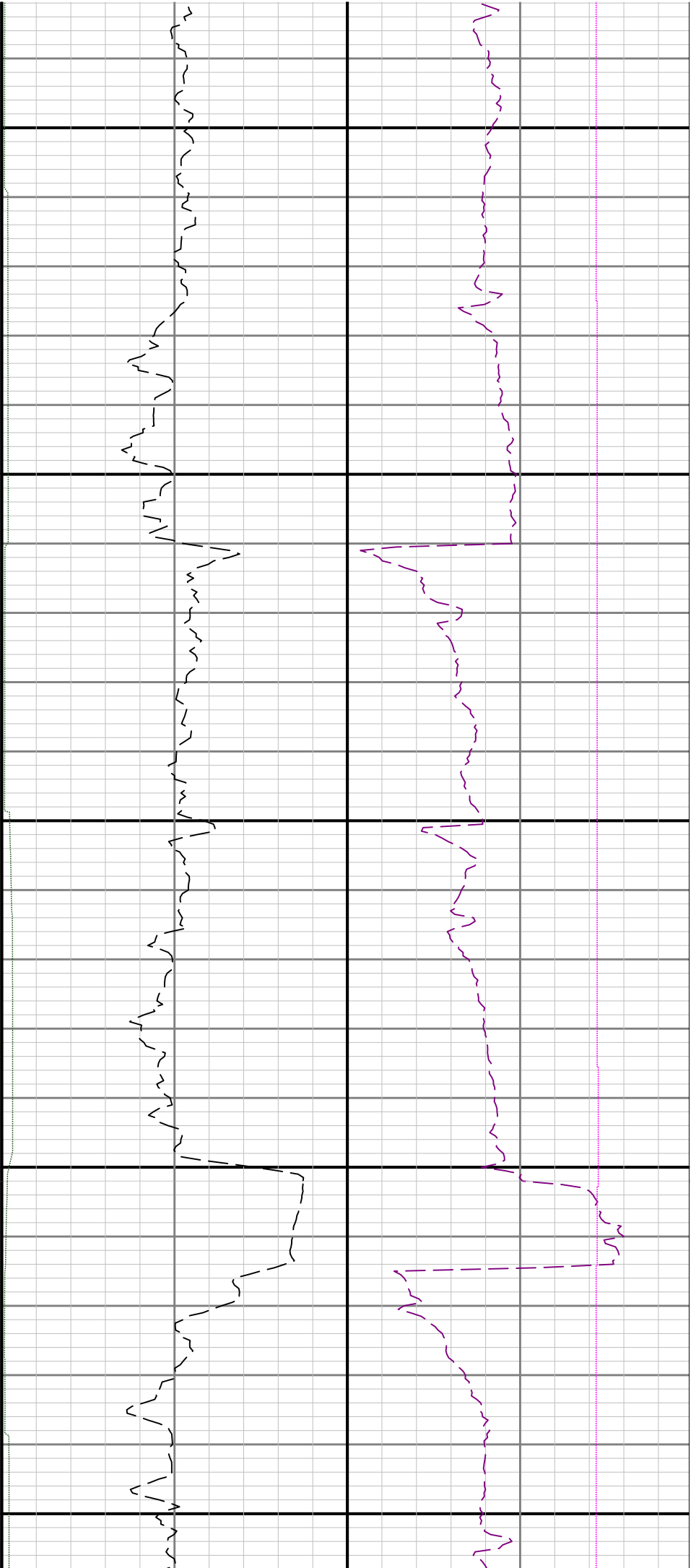




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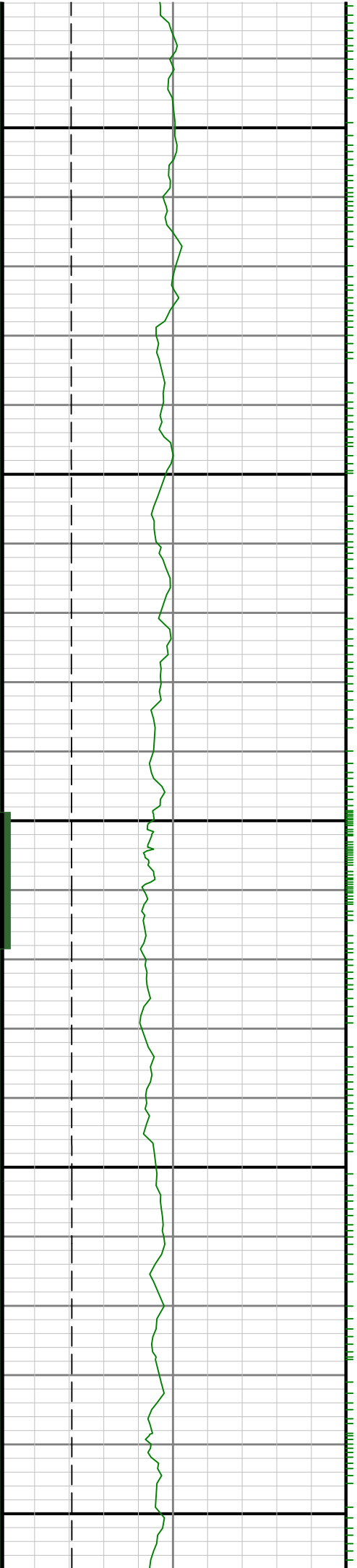
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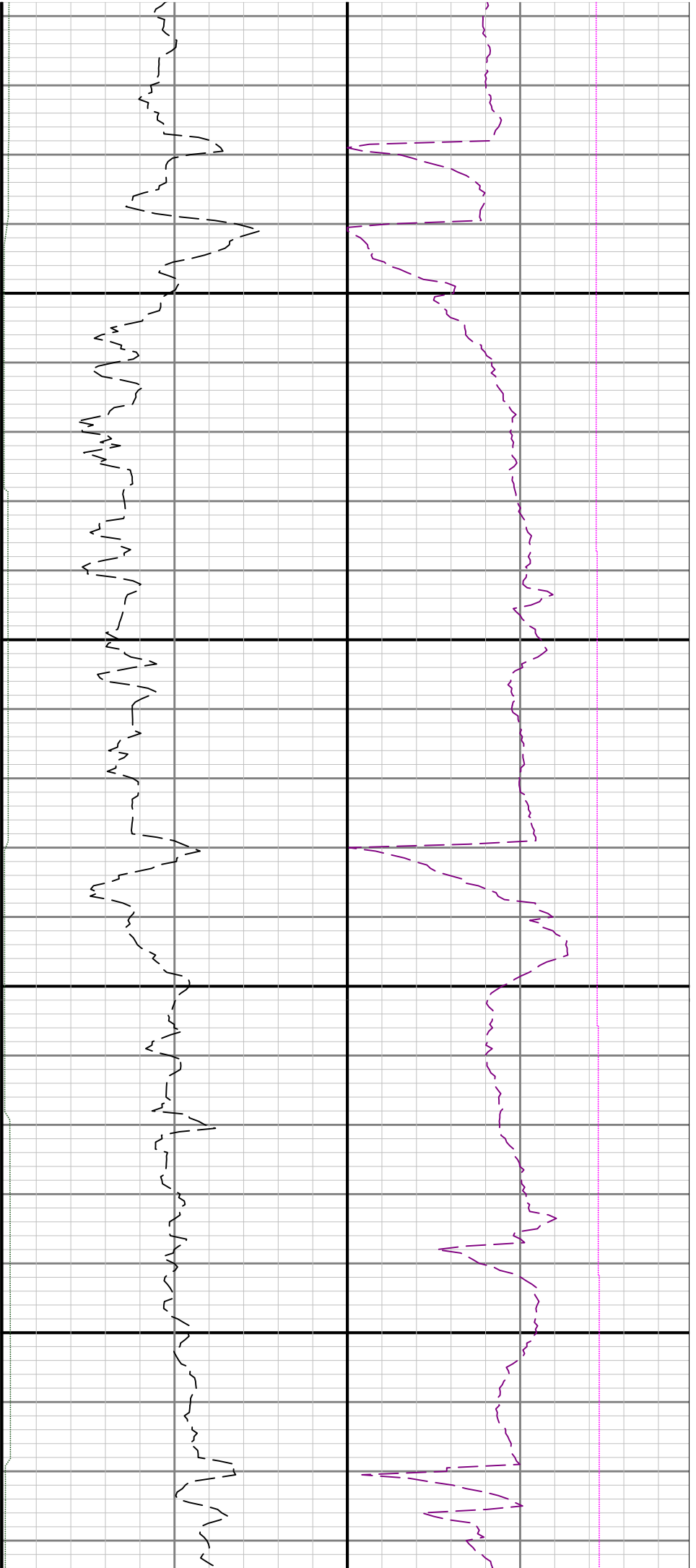




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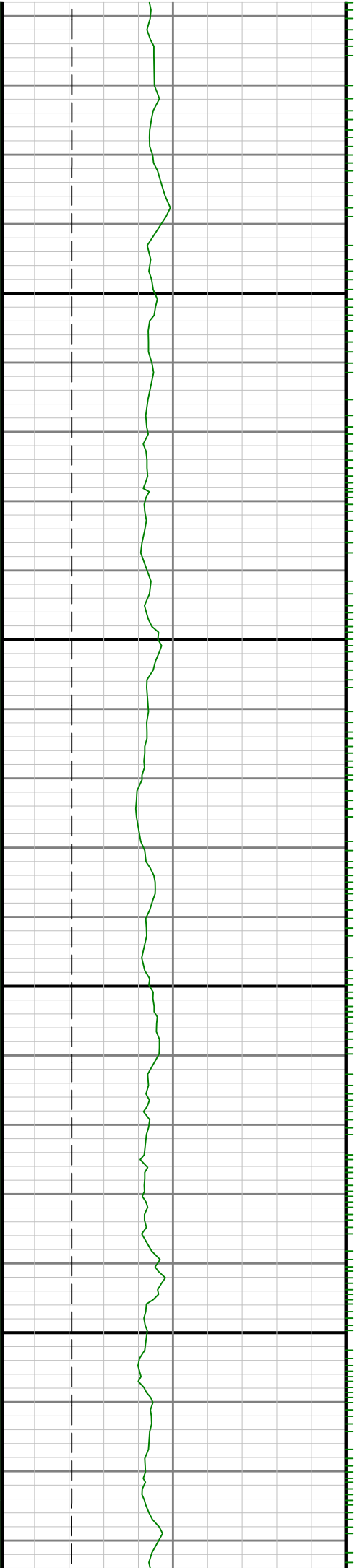
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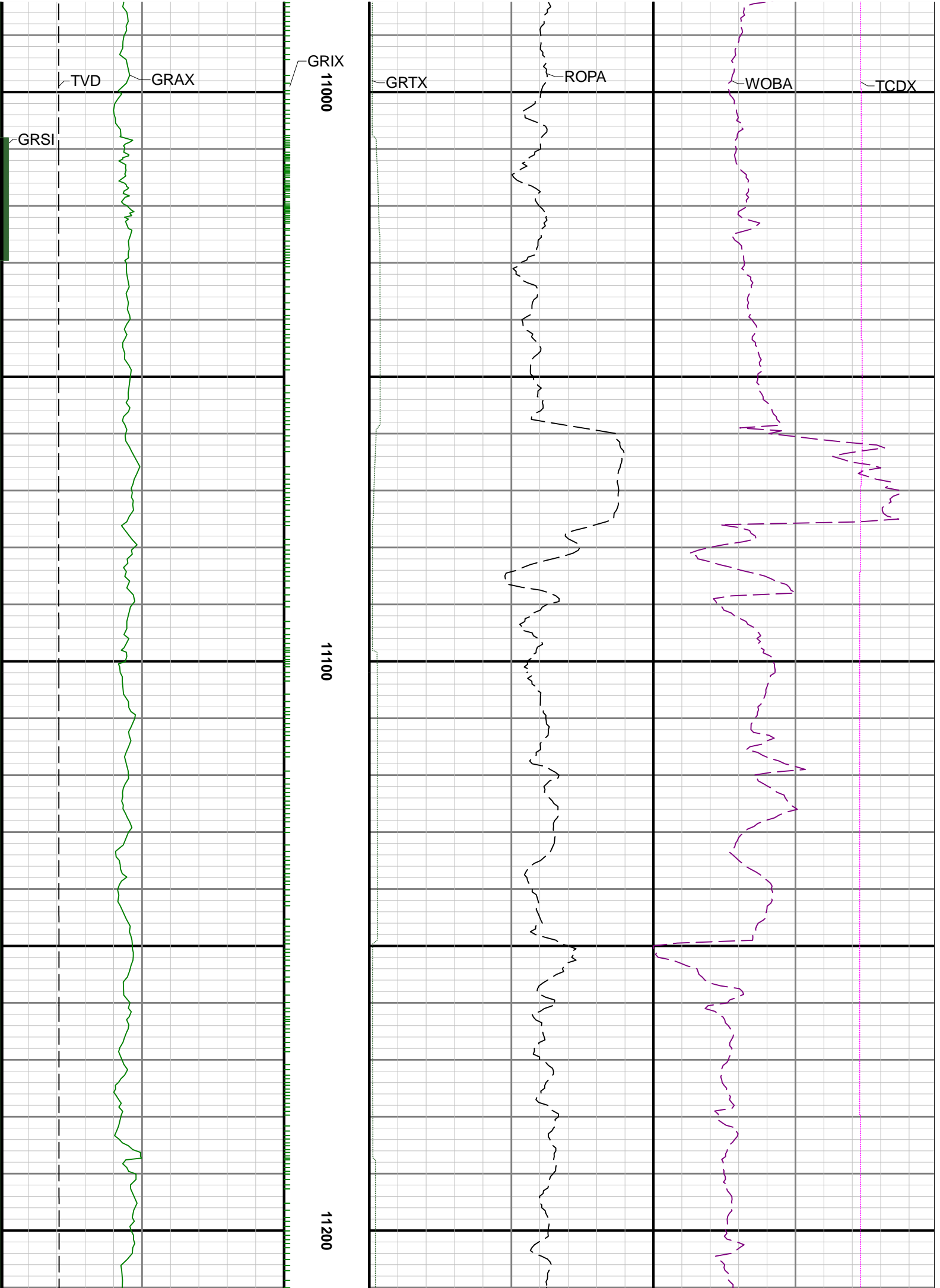


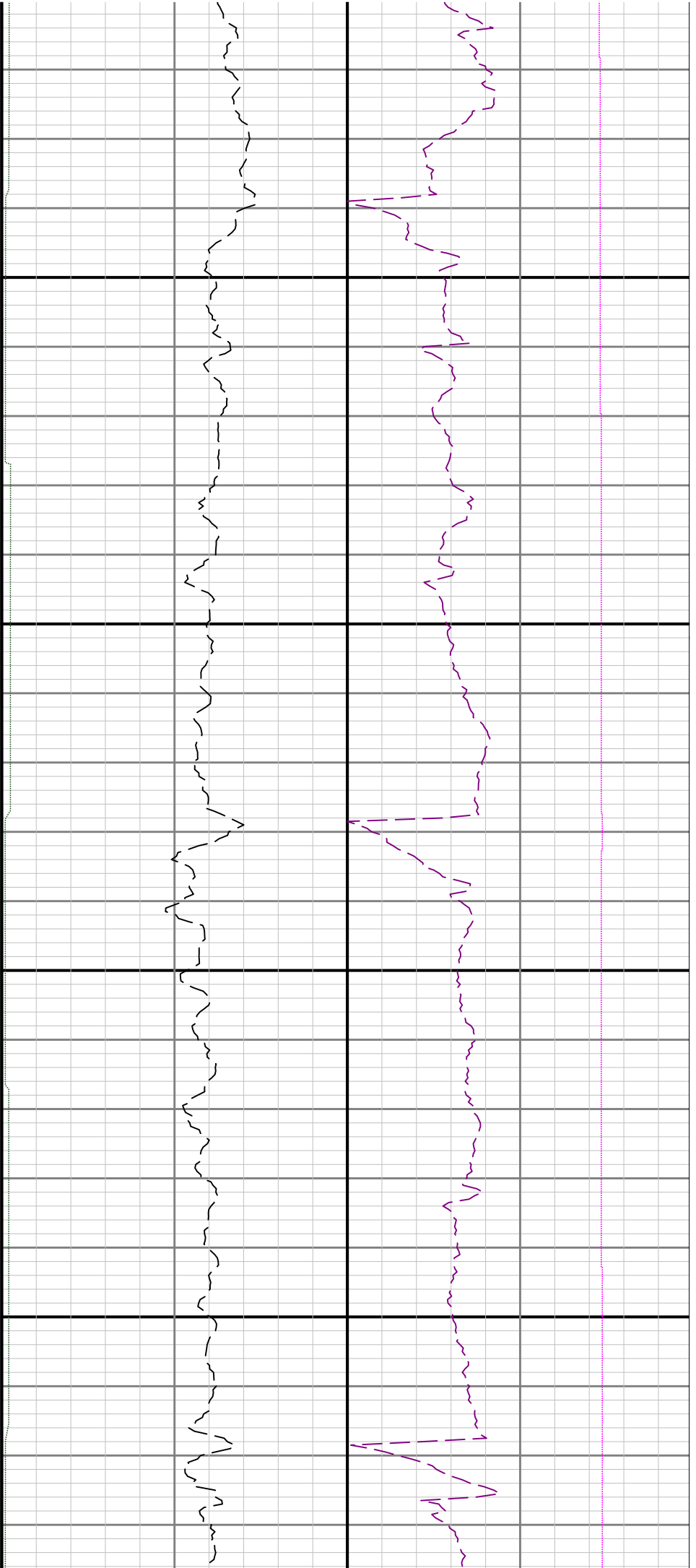


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10900

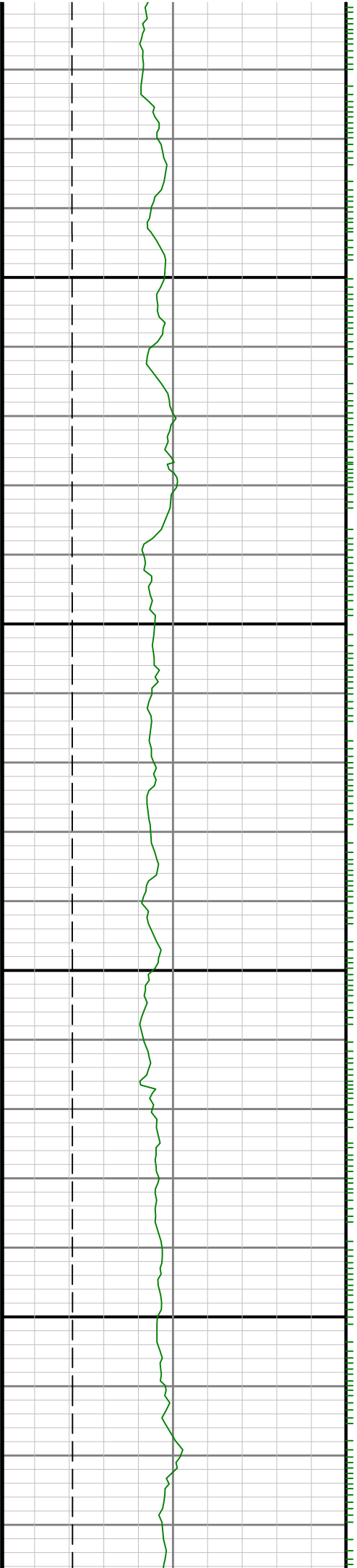


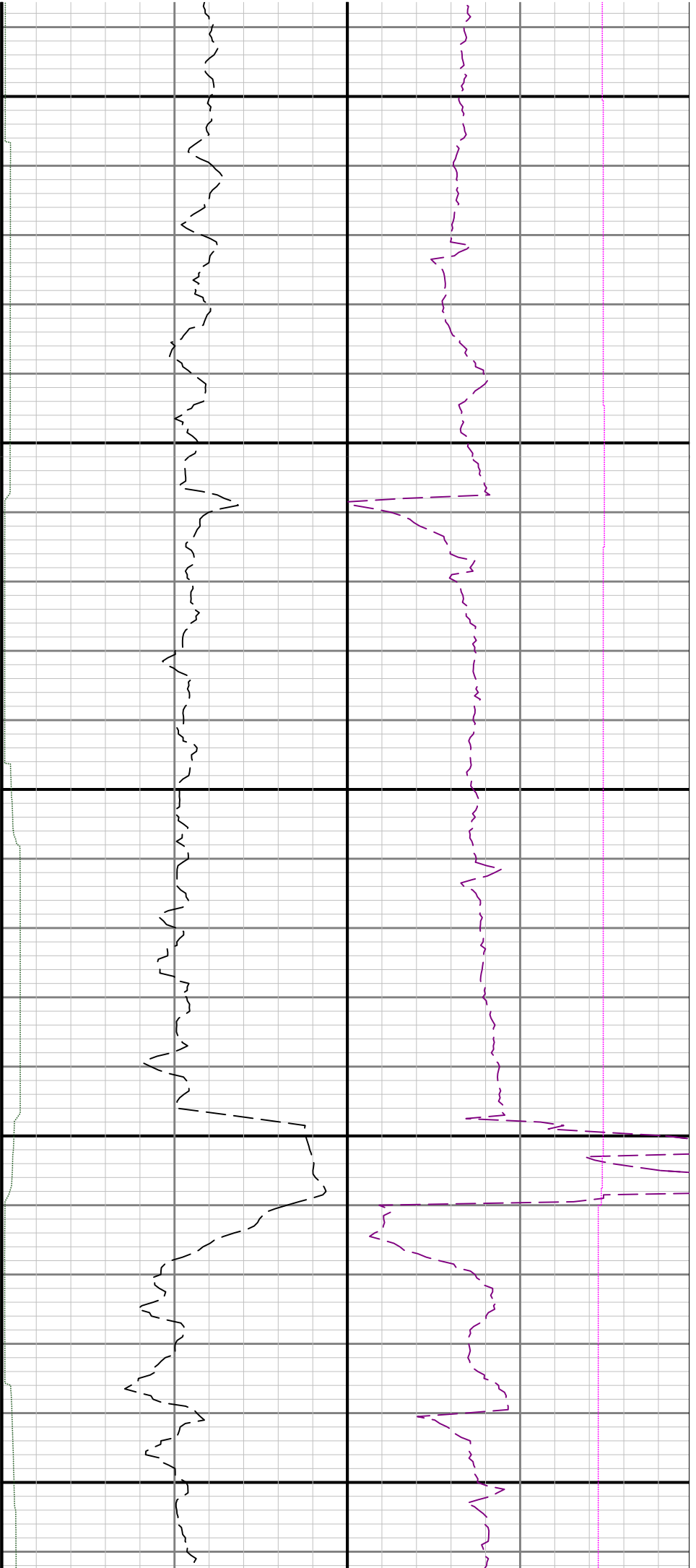




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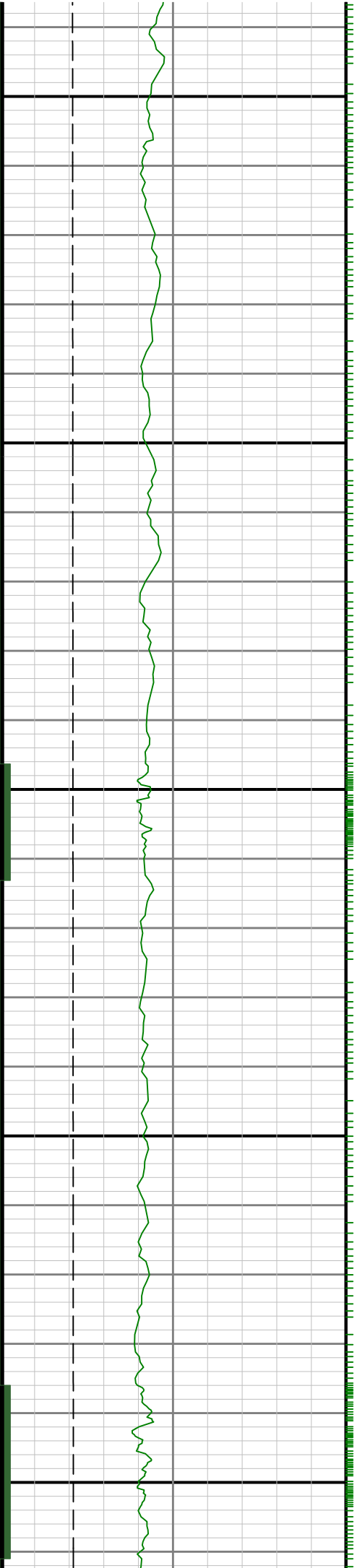
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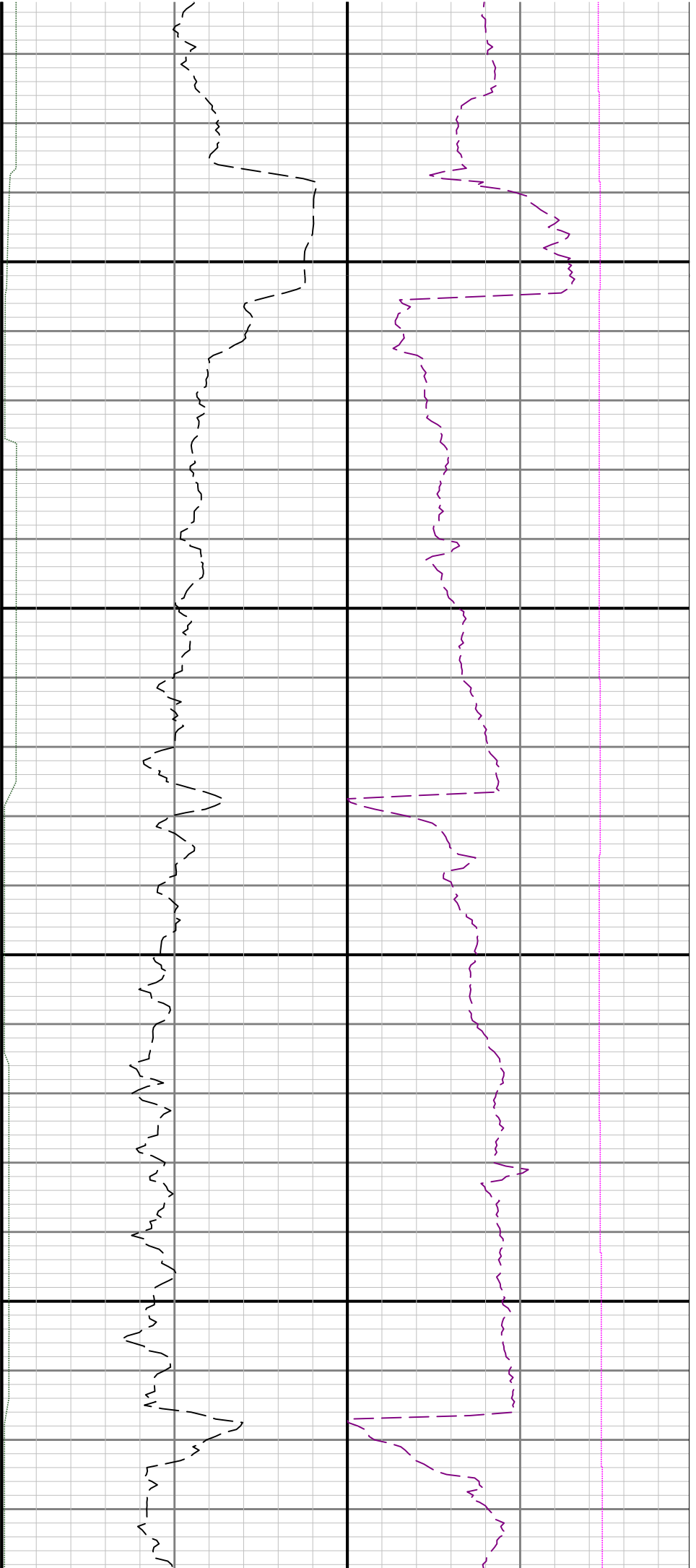




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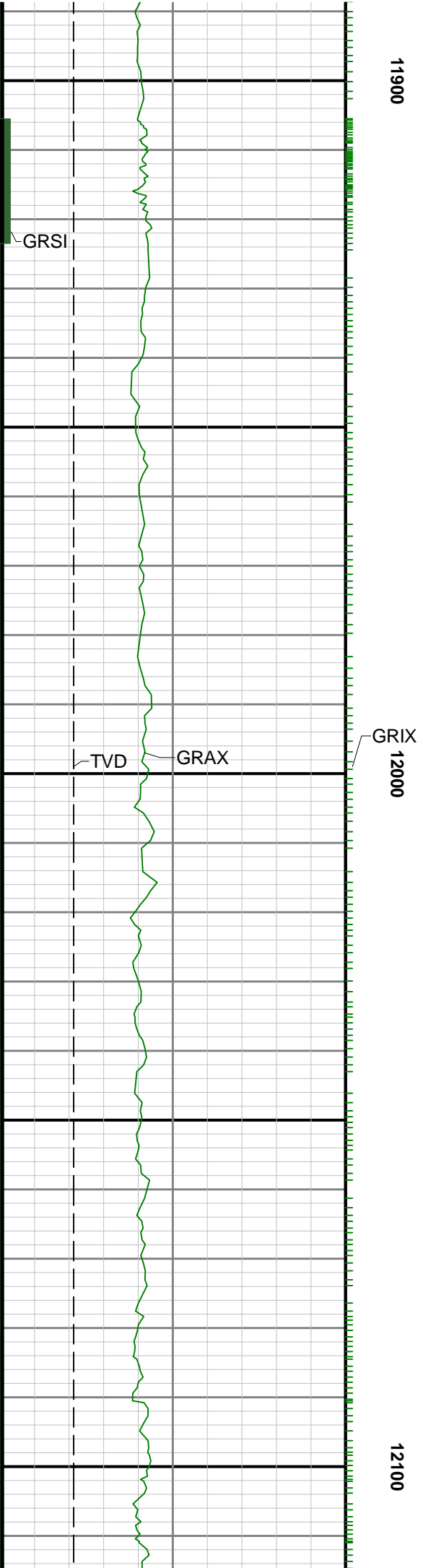
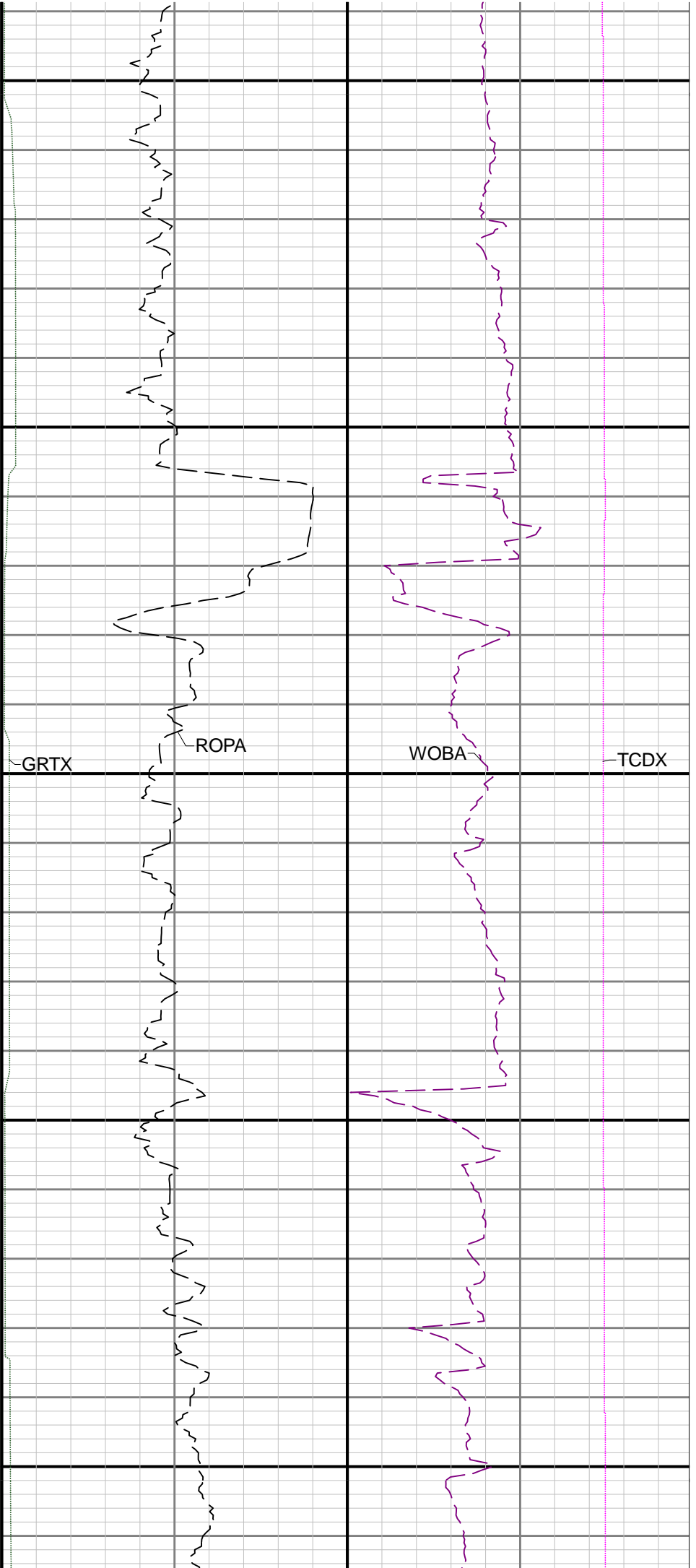
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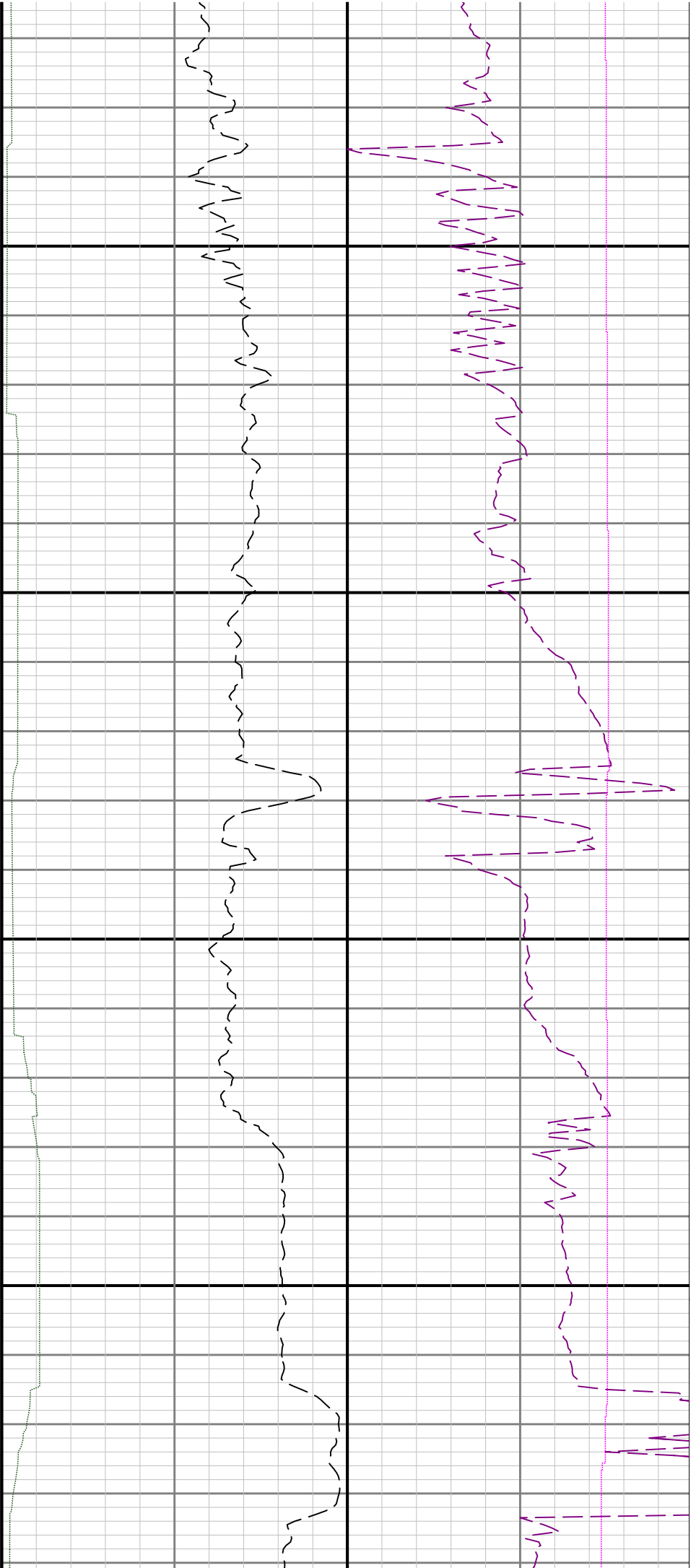




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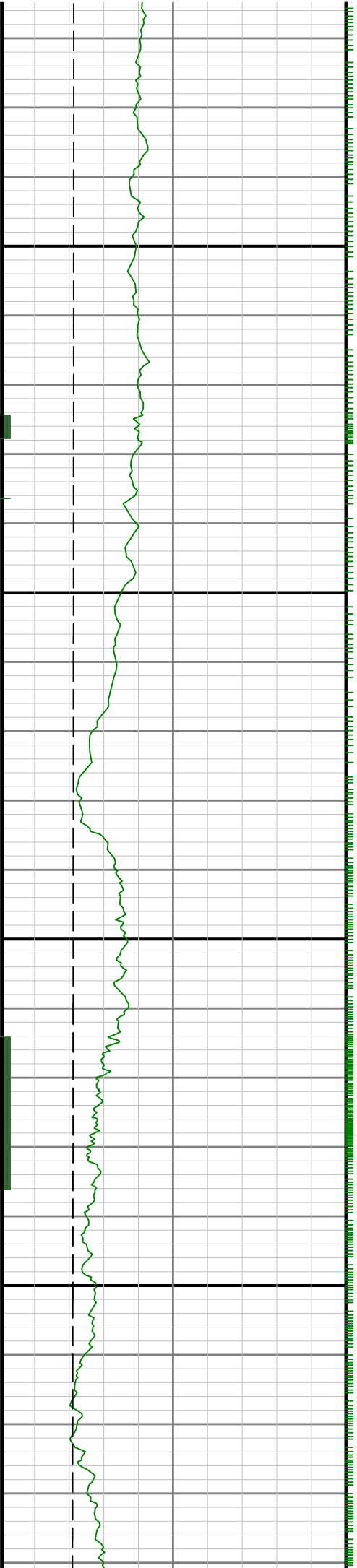
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12200

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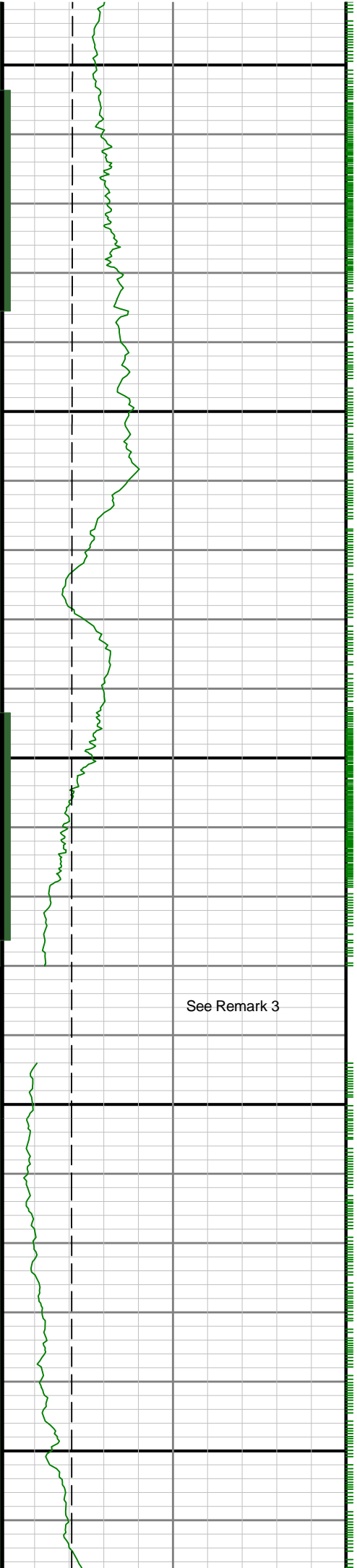


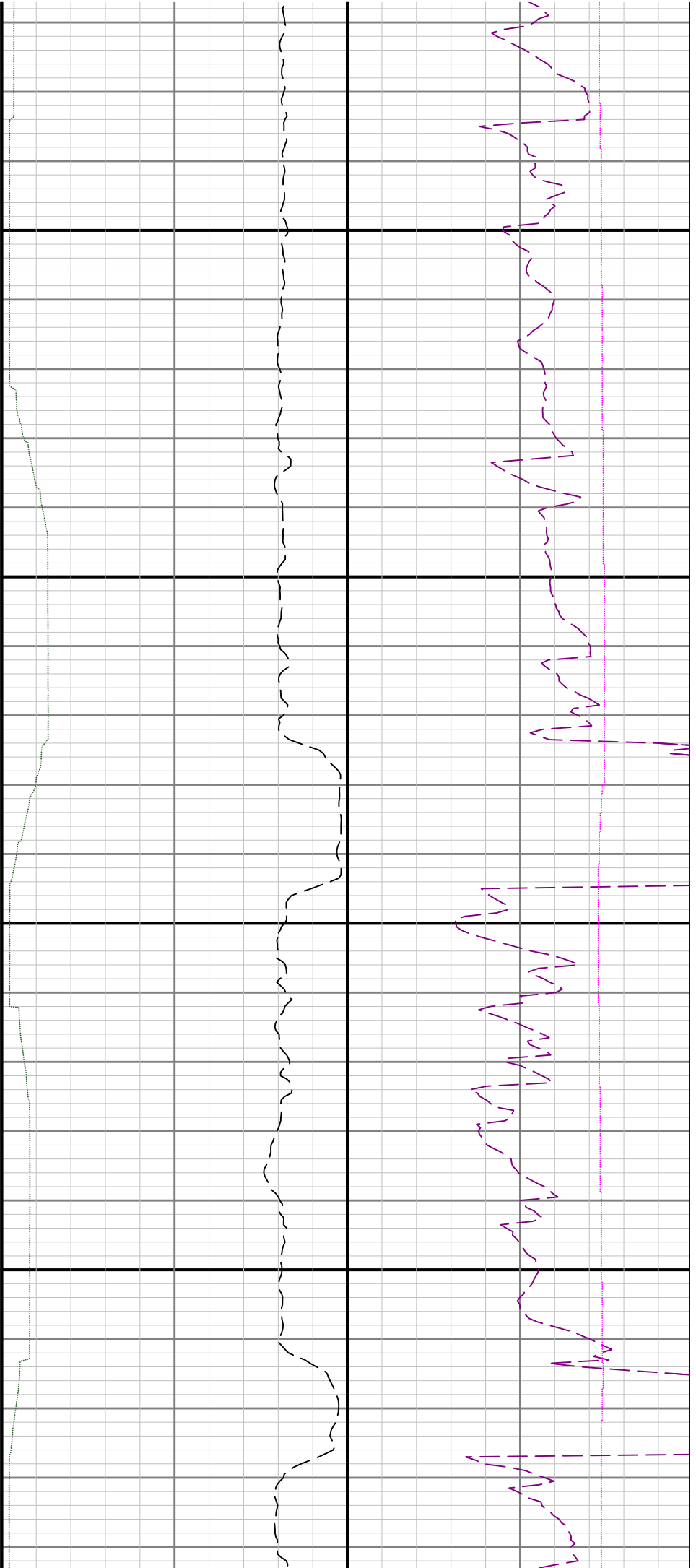


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12500

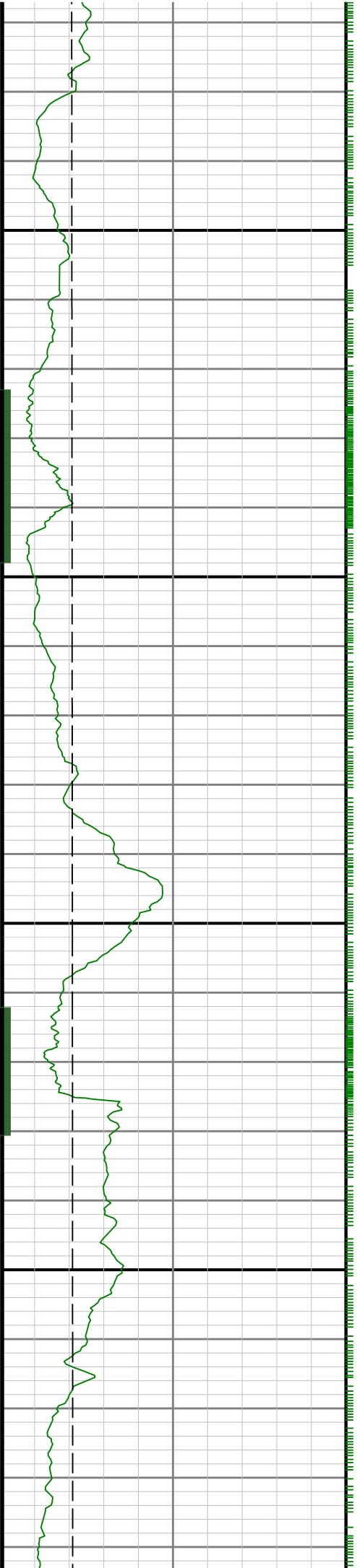
See Remark 3

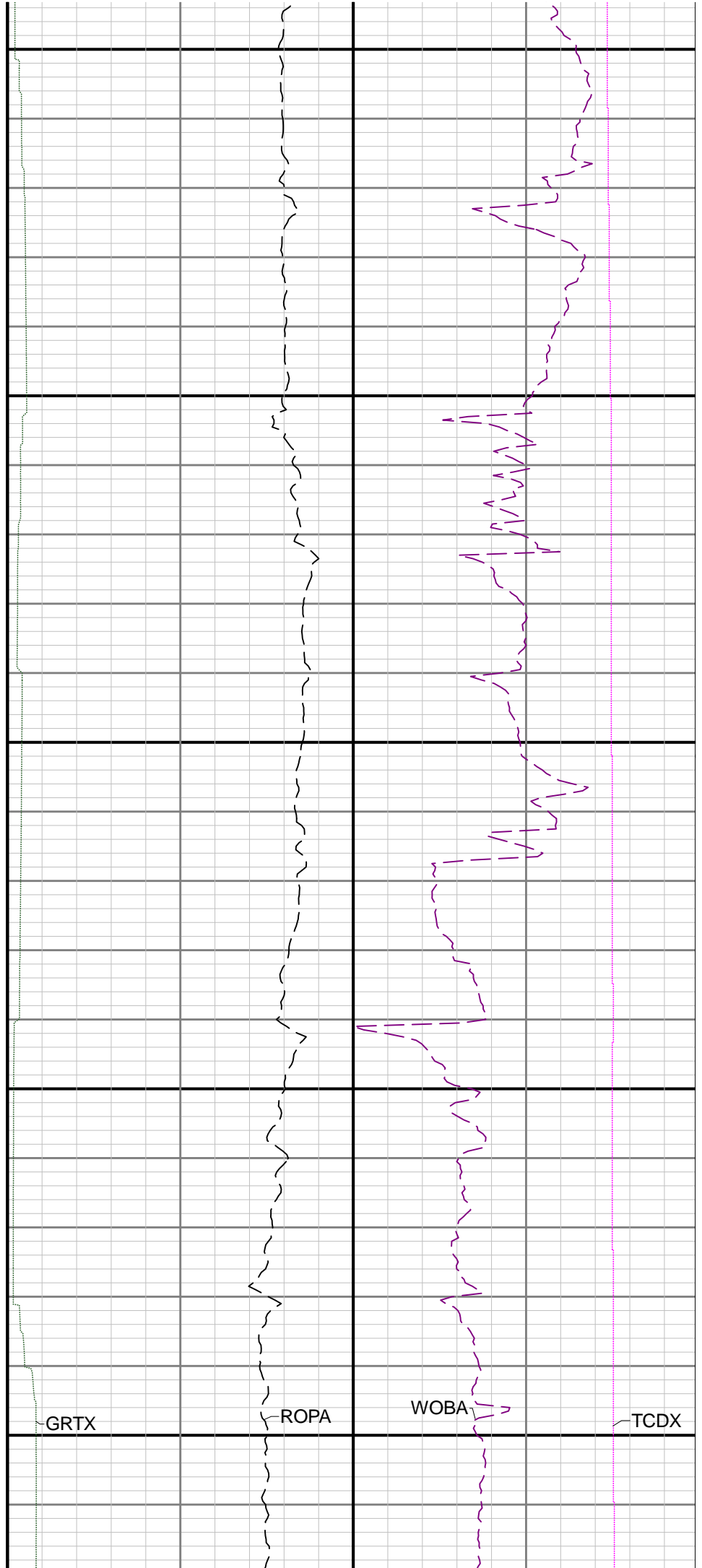
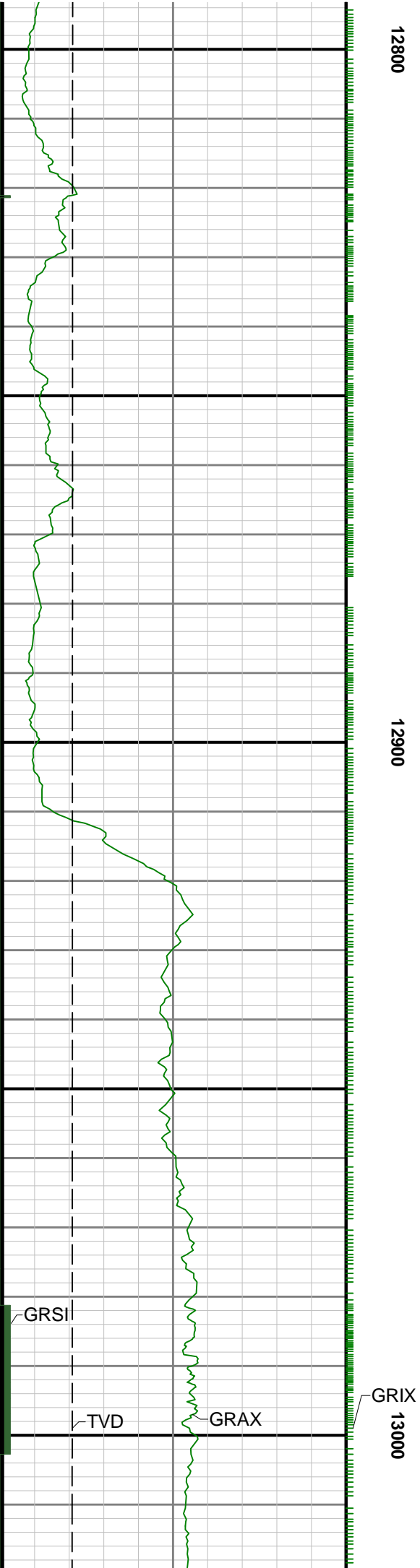


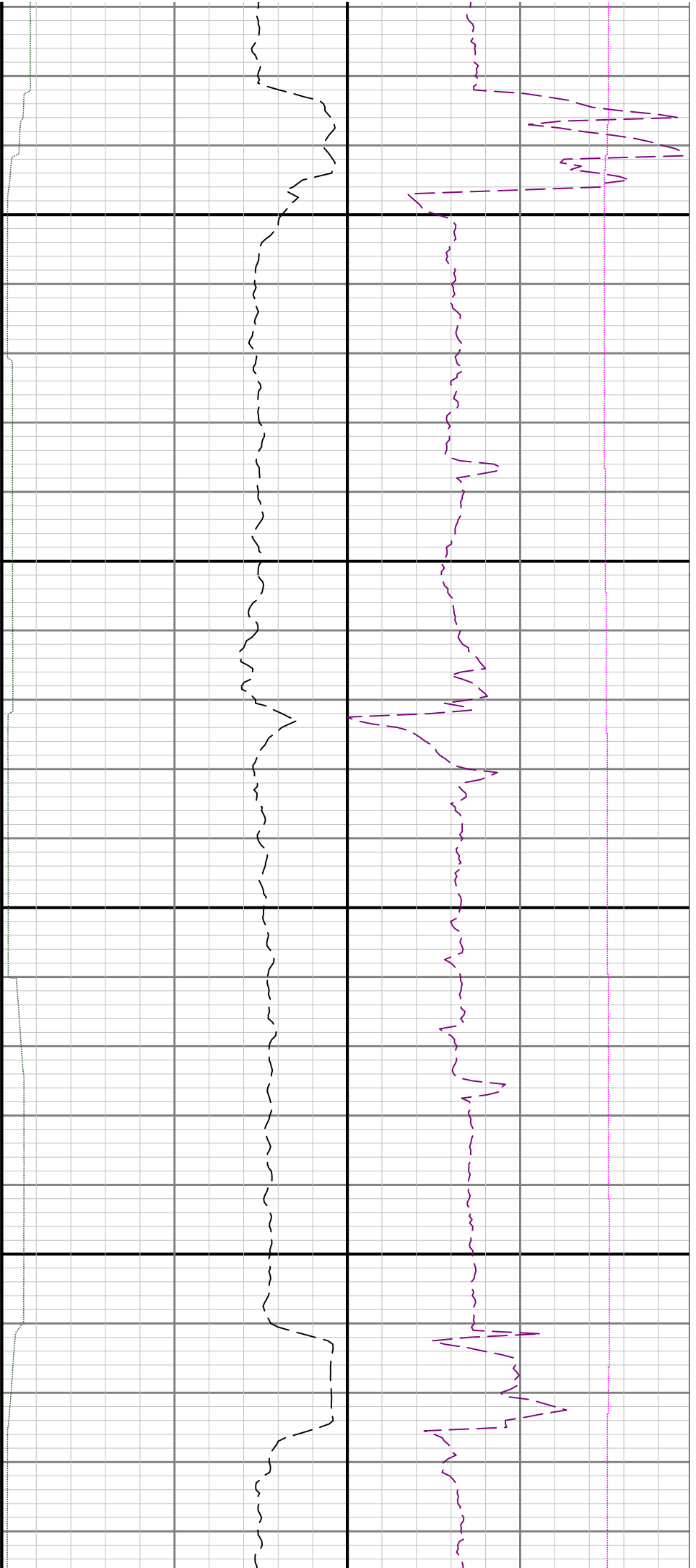


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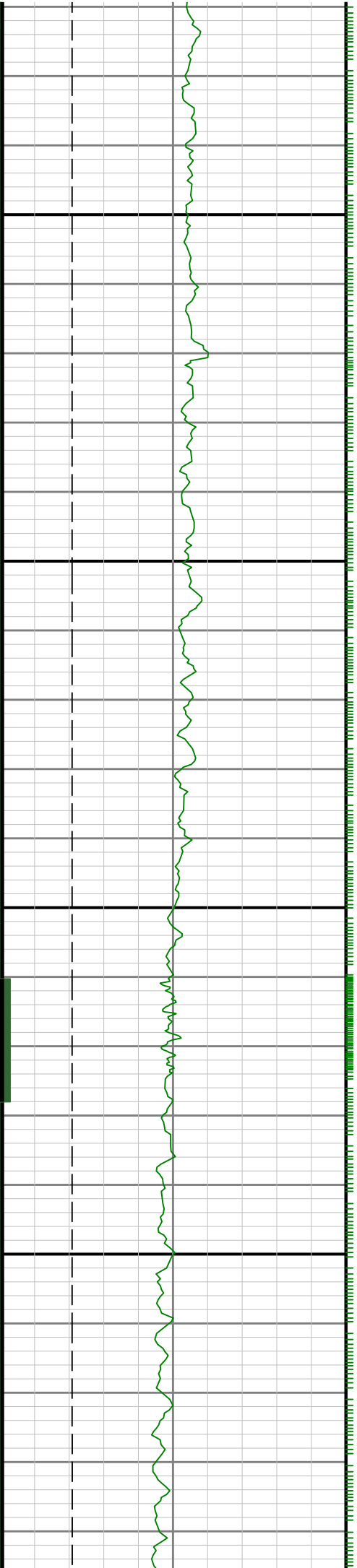


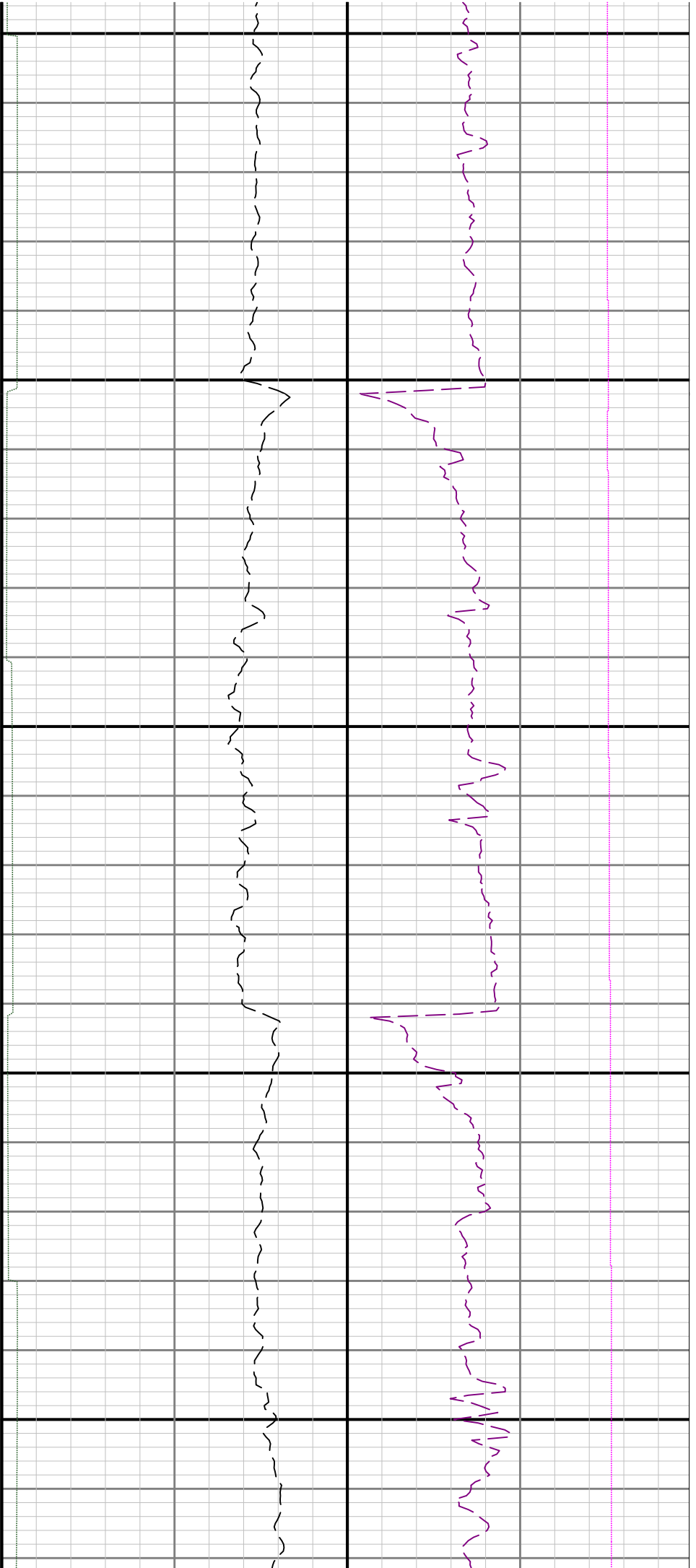




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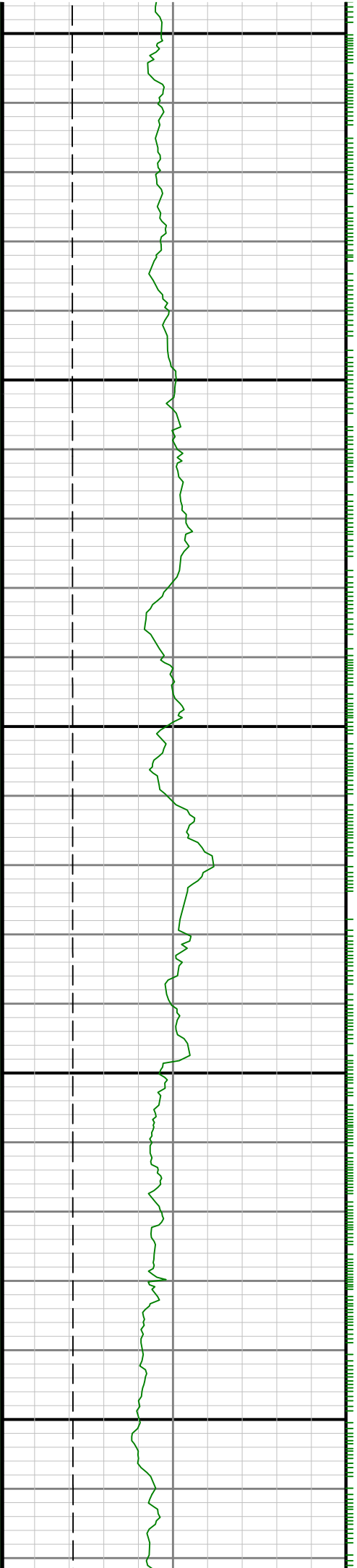
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13300

13400

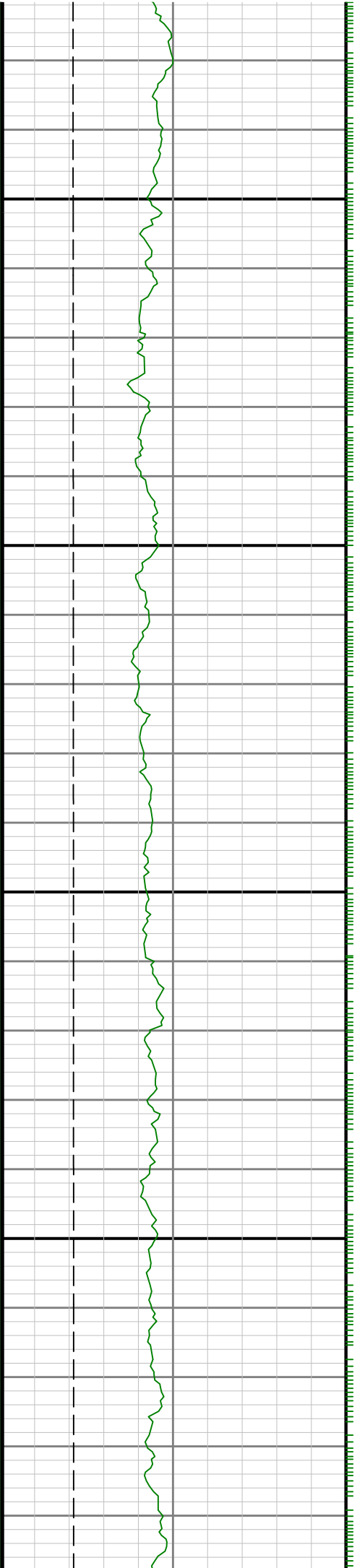


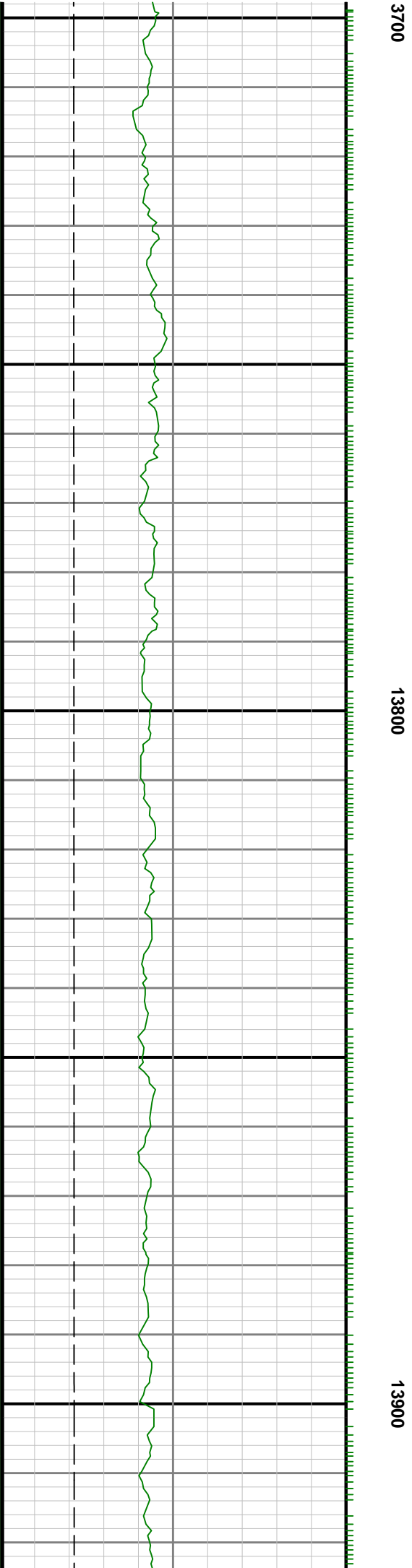
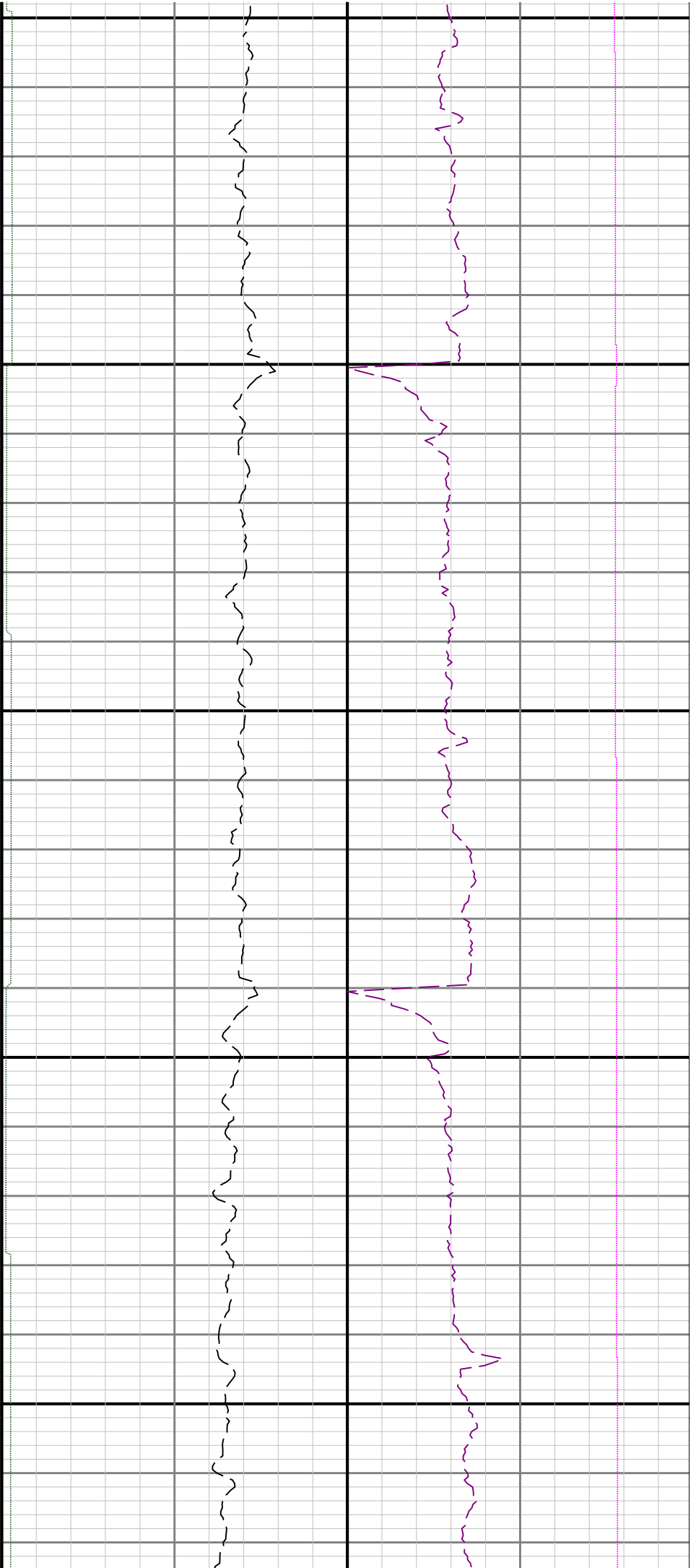


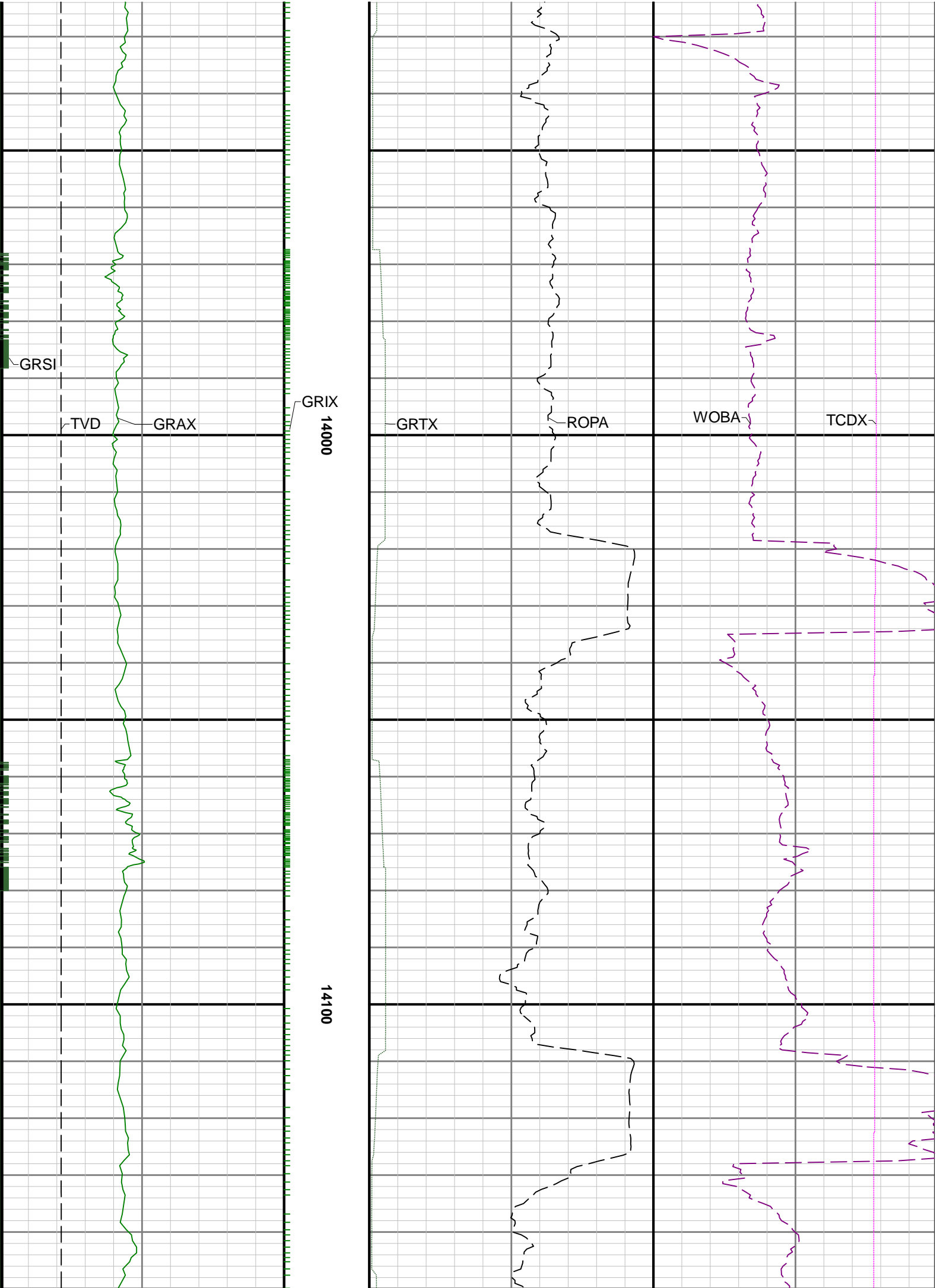
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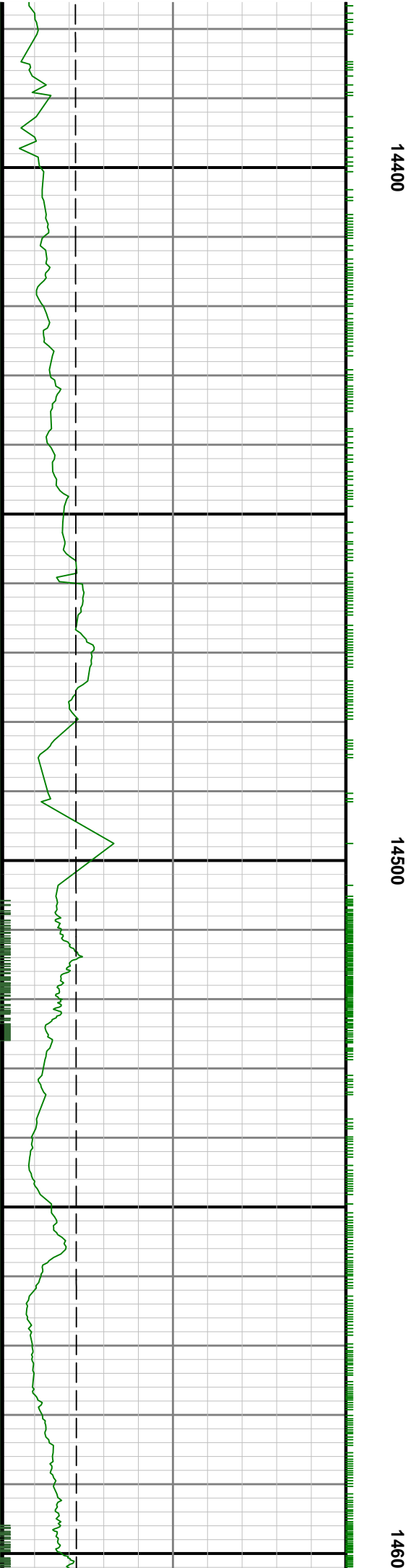
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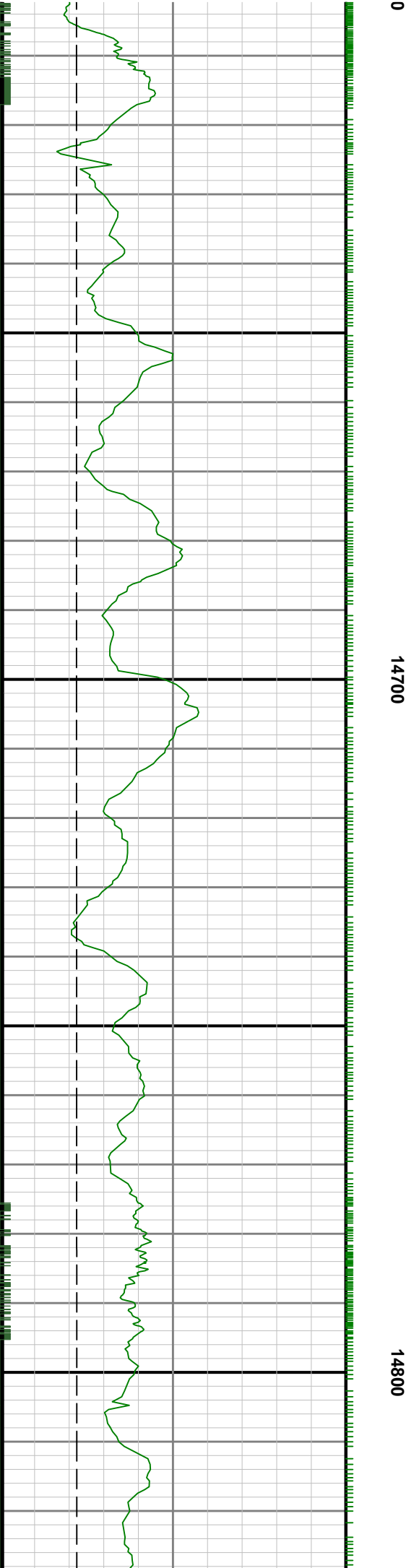
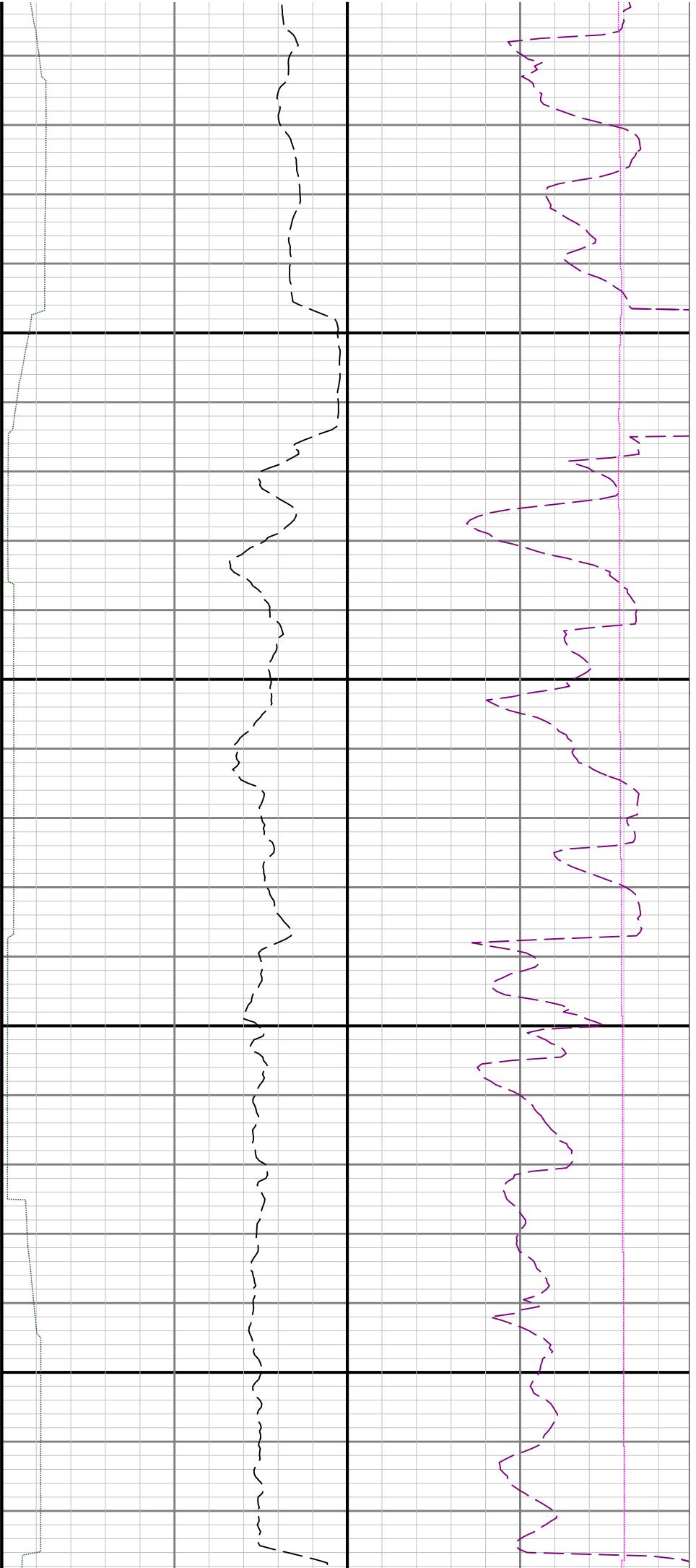
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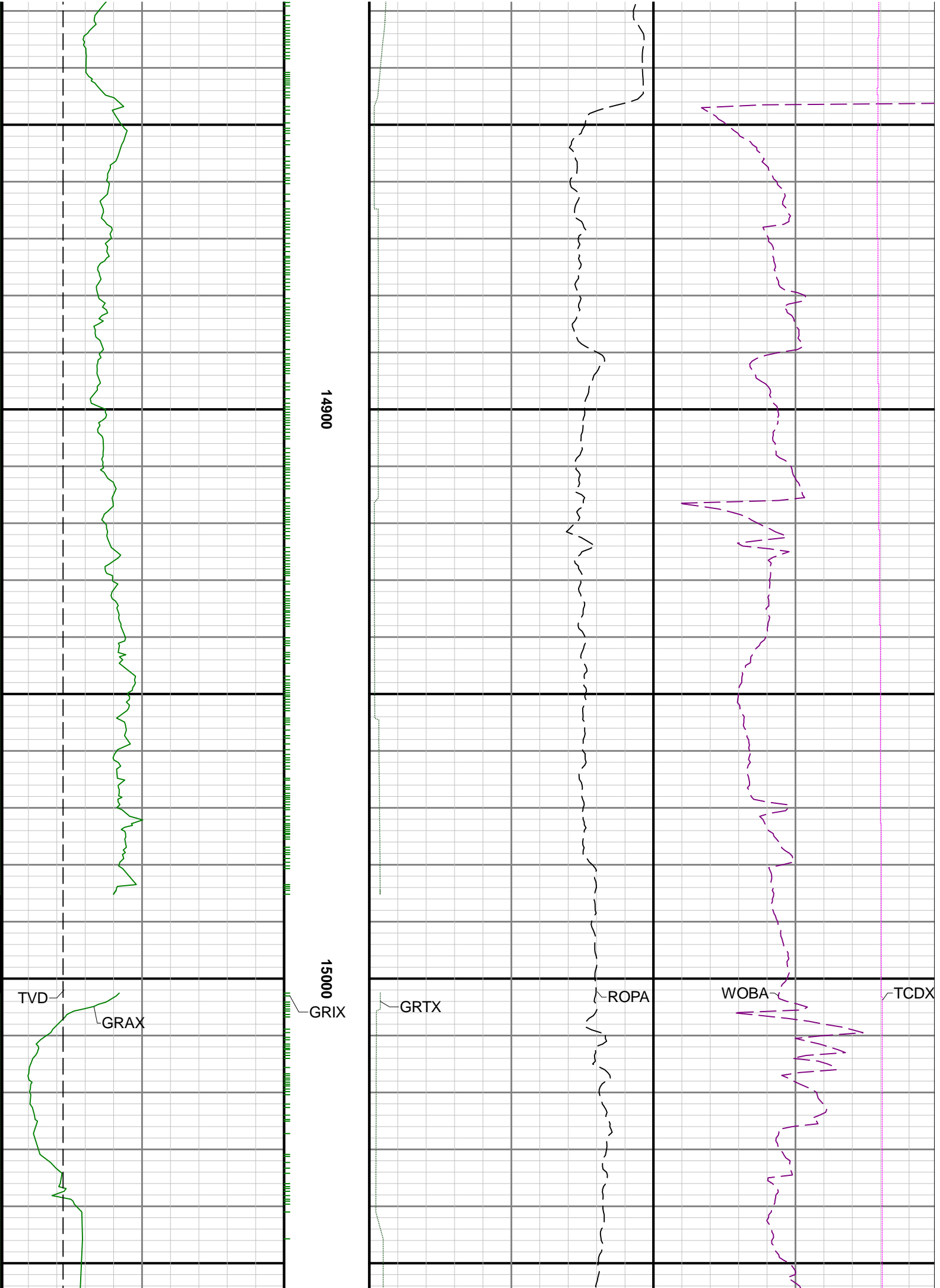


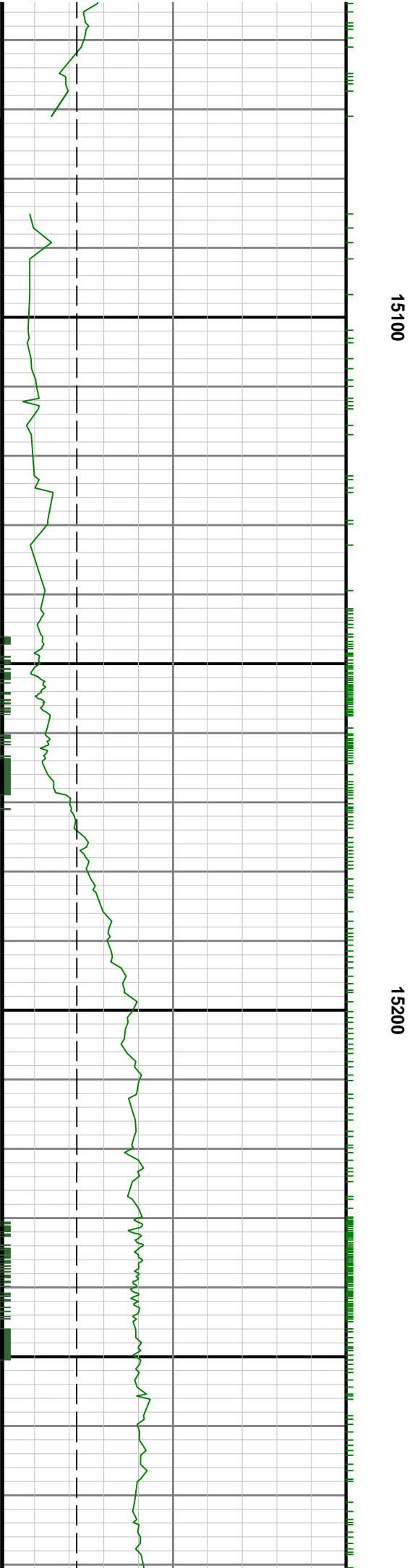
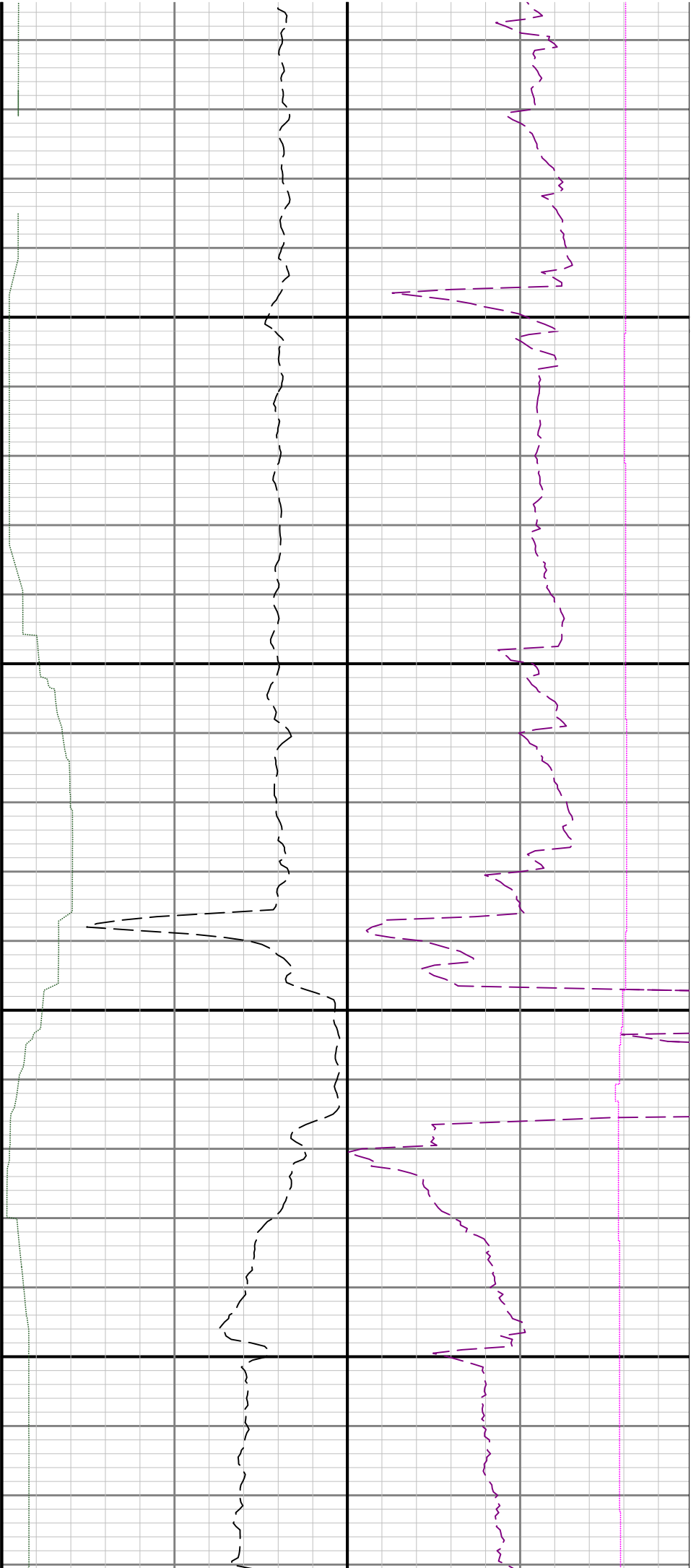


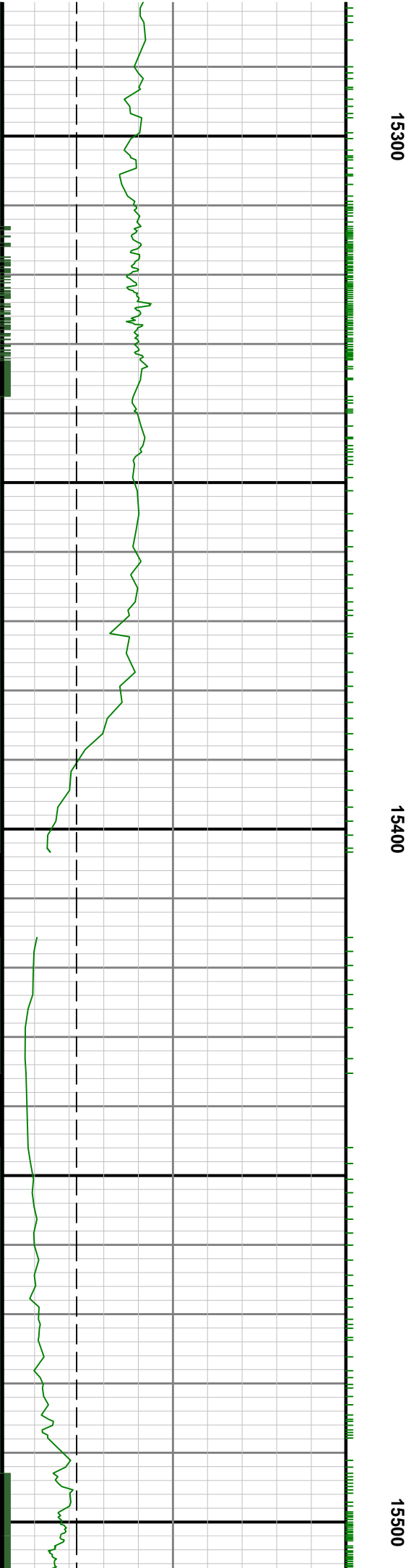


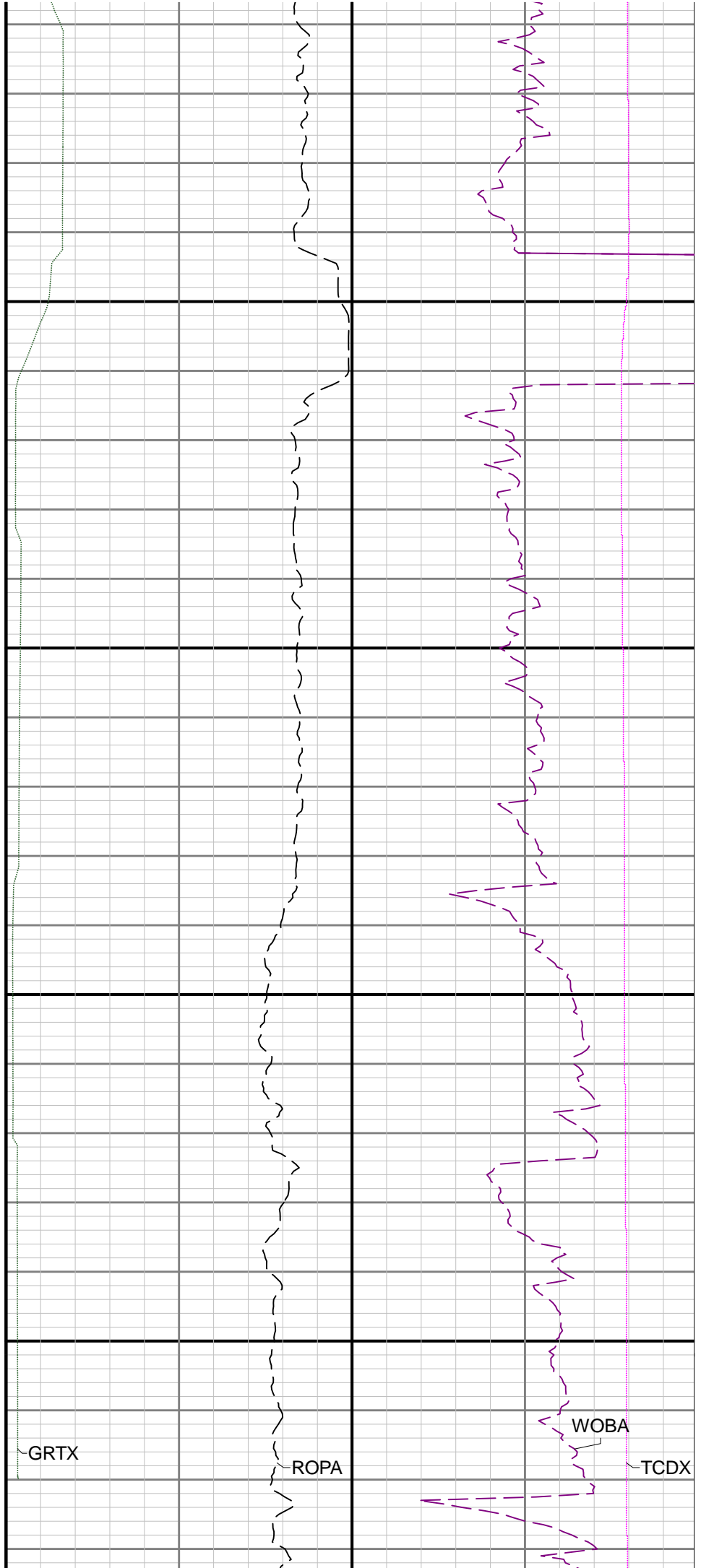
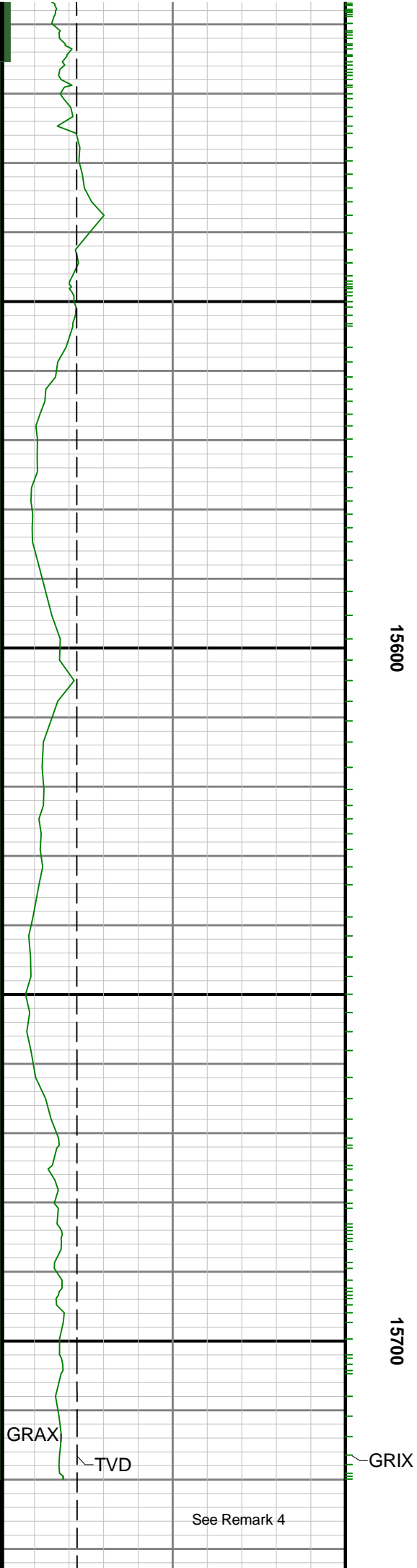


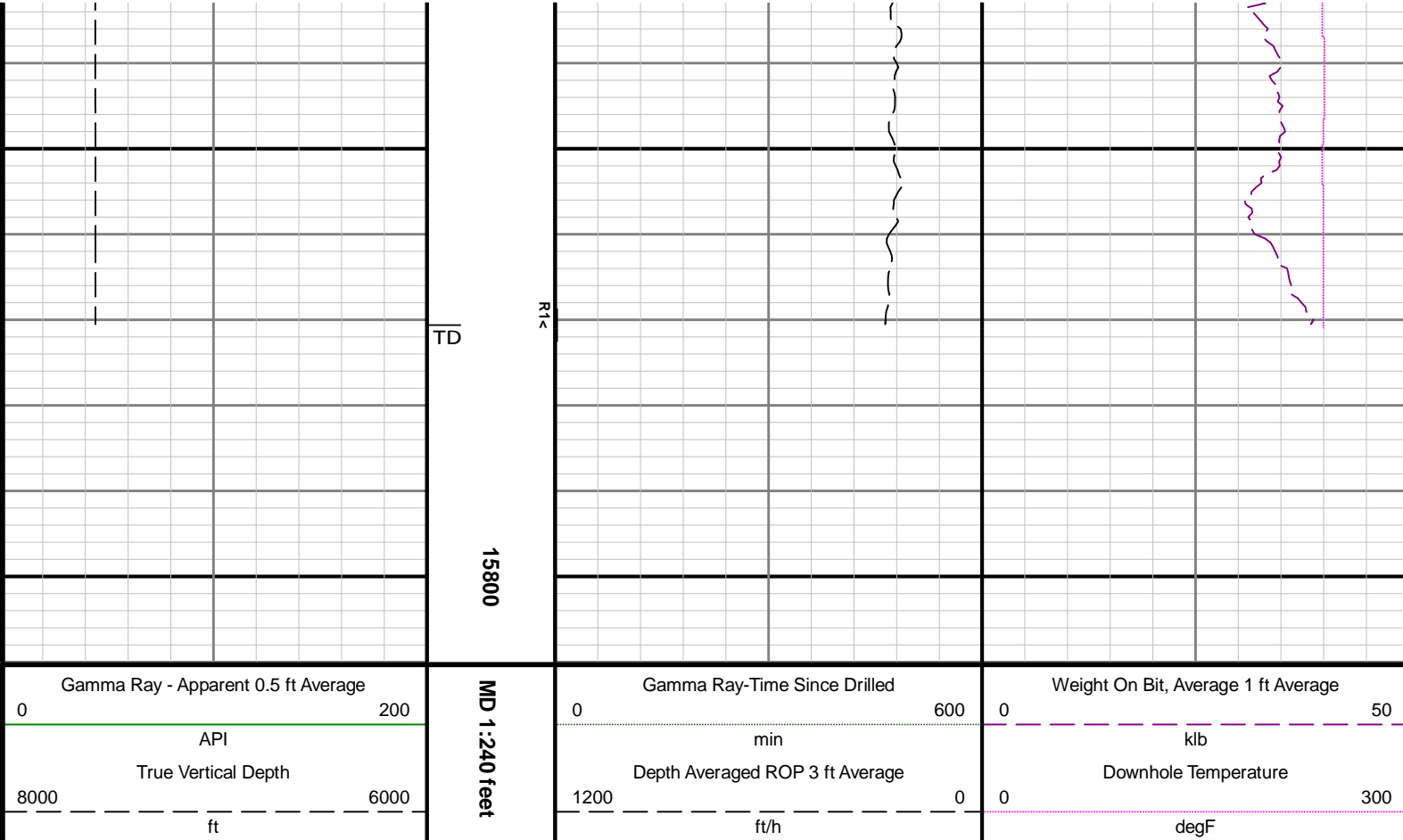













<div><div>BAKER HUGHES</div><div>a GE company</div></div> <div></div>		LWD REALTIME LOG			
		Gamma Ray			
Scale:	Company: Anadarko				
1:240 MD	Well: Reese 21-4HZ				
Depth Reference:	Field: Wattenberg				
Driller's Depth	County: Weld		Country: United States		
	State: Colorado		Block: 1		
Status:	Surface Location:			Other Services:	
Final Print	Latitude: 040° 07' 31.796" N			Directional	
	Longitude: 104° 54' 14.130" W				
API: 05-123-47869-00	SEC: 21 TWN: 2N RGE: 67W				
Job ID: 109623729					
Permanent Datum (P.D.): Mean Sea Level				Elevations:	
Elevation: 0.00 ft		Interval: 1902.00 ft - 15771.00 ft		Elev. KB: N/A	
Log Measured From: Rig Floor		Above P.D. 5019.00 ft		Elev. DF: 5019.00 ft	
		Created: 2019-02-21 07:56:50		Elev. GL: 4998.00 ft	