



Gamma Ray

LWD MEMORY LOG COMPOSITE

Scale: Company: Verdad Oil & Gas Corporation

1:240 MD Well: Jackson 33-6H

Depth Reference: Field: Weld County

Driller's Depth Country: Weld County Country: United States

Status: State: Colorado Block: 1

API No: 05-123-46494 Surface Location: Other Services:

Job ID: 9077580 SEC: 33 TWN: 2N RGE: 64W Drilling Dynamics

Permanent Datum (P.D.): Mean Sea Level Elevation: 0.00 ft Elev. KB: N/A

Log Measured From: Rig Floor Above P.D. 5032.00 ft Elev. DF: 5032.00 ft

Dates Interval Logged Magnetic Field Reference

Date From: 2018-03-29 Top: (ft) 292.07 Azi Reference North: True Dip Angle: (deg) 66.64

Date To: 2018-04-02 Bottom: (ft) 12689.79 Total Magnetic Field Strength: (nT) 52209

Spud Date: 2018-03-29 Mag to Reference North Correction: (deg) 8.19E

Borehole Record Casing Record

Hole Size (in) From (ft) To (ft) Size (in) Weight (lb/ft) From (ft) To (ft)

8.500 1718.00 12689.00 9.625 32.00 0.00 1718.00

Type From (ft) To (ft) Hole Size (in) Interval (ft) Inc | Azi (Start) Inc | Azi (End)

Water Based Mud 80.00 1729.00 13.500 1729.00 2.28 43.30 13.07 48.06

Oil Based Mud 1729.00 12689.00 8.500 10960.00 13.07 48.06 88.86 179.01

Acquisition System Software Version Other

Baker Hughes Cadence RT4.1 Rig: Xtreme 24

PlotStudio 4.1.7763.3 Contractor: Xtreme District: D&E Unit: 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
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	13.500	PDC	4.00	Steerable	0.00	0.00	16.00	1729.00	2018-03-29 12:15	2018-03-29 17:53	5.83
2	2	8.500	PDC	3.00	AutoTrak Curve	1716.00	12676.00	1729.00	12689.00	2018-03-31 11:18	2018-04-03 07:41	46.15

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Andrew Chersin	2018-03-29	2018-04-03						

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+ (%)
2018-03-29 07:19	1	200.00	Water Based Mud	8.8	21	9.4	N/A	1/99	Active Pit	4000	0.00
2018-03-30 19:46	2	1729.00	Oil Based Mud	9.8	20	N/A	N/A	66/34	Active Pit	31000	0.00
2018-04-01 07:43	2	6585.00	Oil Based Mud	9.2	21	N/A	N/A	67.7/32.3	Active Pit	32000	0.00
2018-04-02 11:21	2	12449.00	Oil Based Mud	9.4	19	N/A	N/A	66/34	Active Pit	58000	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	12813115	VSS	15.51	58.60	8.000	3.250
1	NaviTrak	12813115	Directional (mag)	15.51	58.60	8.000	3.250
2	ATC_SU	11747241	Near Bit Inclination	5.93	6.74	7.000	4.330
2	ATC_SU	11747241	Near Bit VSS	5.93	6.74	7.000	4.330
2	ATC_MWD	12141354	Gamma (single)	2.75	12.91	7.000	3.250
2	ATC_MWD	12141354	Directional (mag)	12.27	22.43	7.000	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 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 drilling services run 1 utilized an 8 inch Navitrak service (Directional only) behind a 13 1/2 inch bit and steerable assembly from 80 to 1729 feet MD (80 to 1704 feet TVD).
3	Baker Hughes drilling services run 2 utilized a 6 3/4 inch Navigamma service (Directional and Gamma Ray) behind an 8 1/2 inch bit and rotary steerable assembly from 1729 to 12689 feet MD (1704 to 7068 feet TVD).



Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	12680.00	8.500	2	The interval from 12676 to 12689 feet MD (7068 feet TVD) was not logged due to sensor to bit offset at TD.

Curve Mnemonics

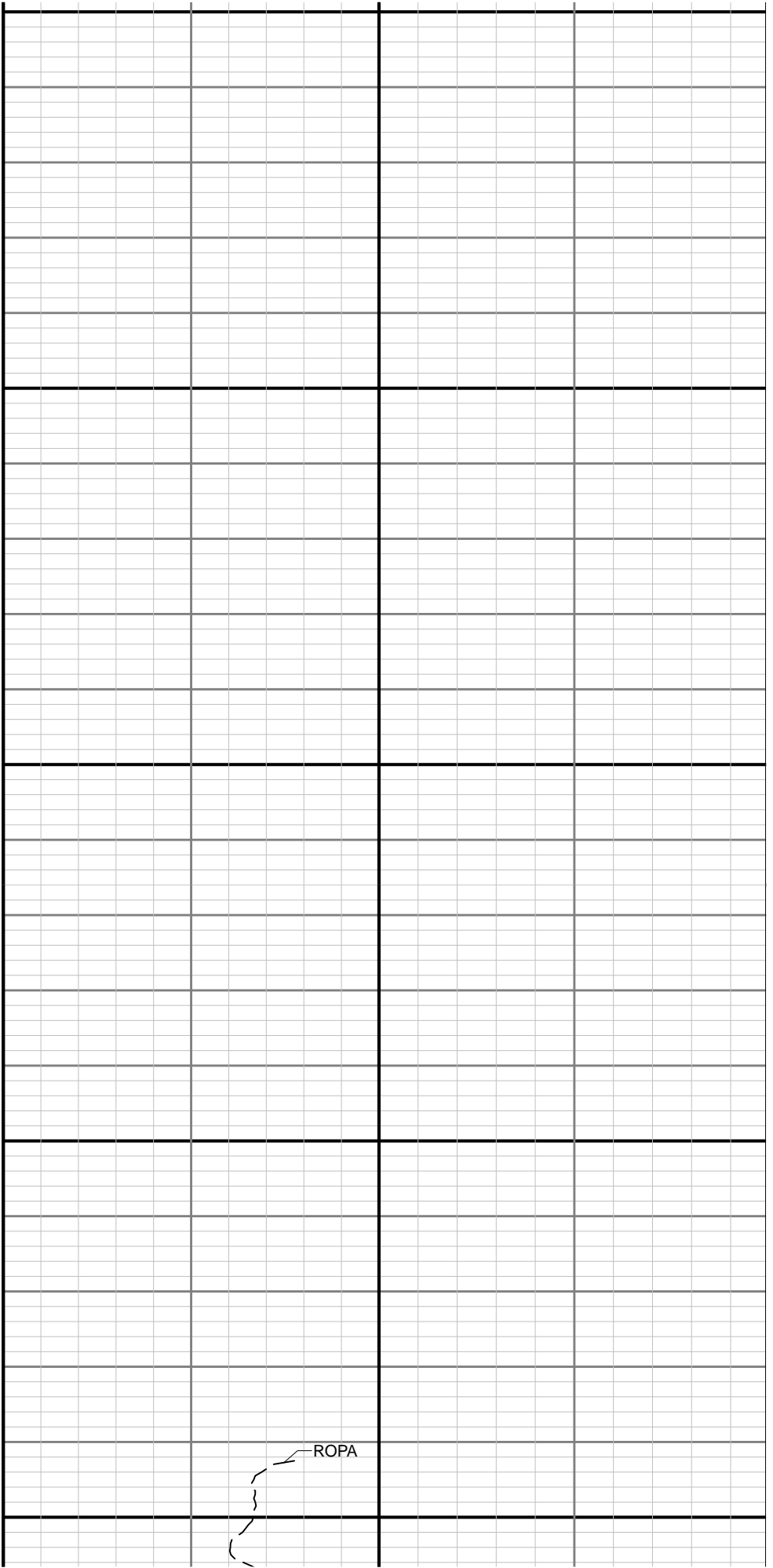
Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb

GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	Gamma Ray - Time Since Drilled - Memory	min
GRADM	Gamma Ray - Apparent - Down Quadrant - Memory 0.5 ft Average	API
GRAUM	Gamma Ray - Apparent - Up Quadrant - Memory 0.5 ft Average	API
TCDM	Downhole Temperature	degF

 a GE company		Company	Verdad Oil & Gas Corporation			
		Well	Jackson 33-6H			
		Interval	Date From:	2018-03-29 12:15:24	Top:	16.00
			Date To:	2018-04-02 12:51:35	Bottom:	12694.00
		Created	2018-04-03 11:31:18			

Gamma Ray - Apparent 0.5 ft Average GRAM	MD 1:240 feet	Gamma Time Since Drilled GRTM	Weight On Bit, Average 1 ft Average WOBA
0 300		0 600	0 50
API		min	klb
Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUM		Depth Averaged ROP 3 ft Average ROPA	Downhole Temperature TCDM
0 300		1000 0	0 300
API		ft/h	degF
Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADM			
0 300			
API			
True Vertical Depth TVD			
8000 6000			
ft			

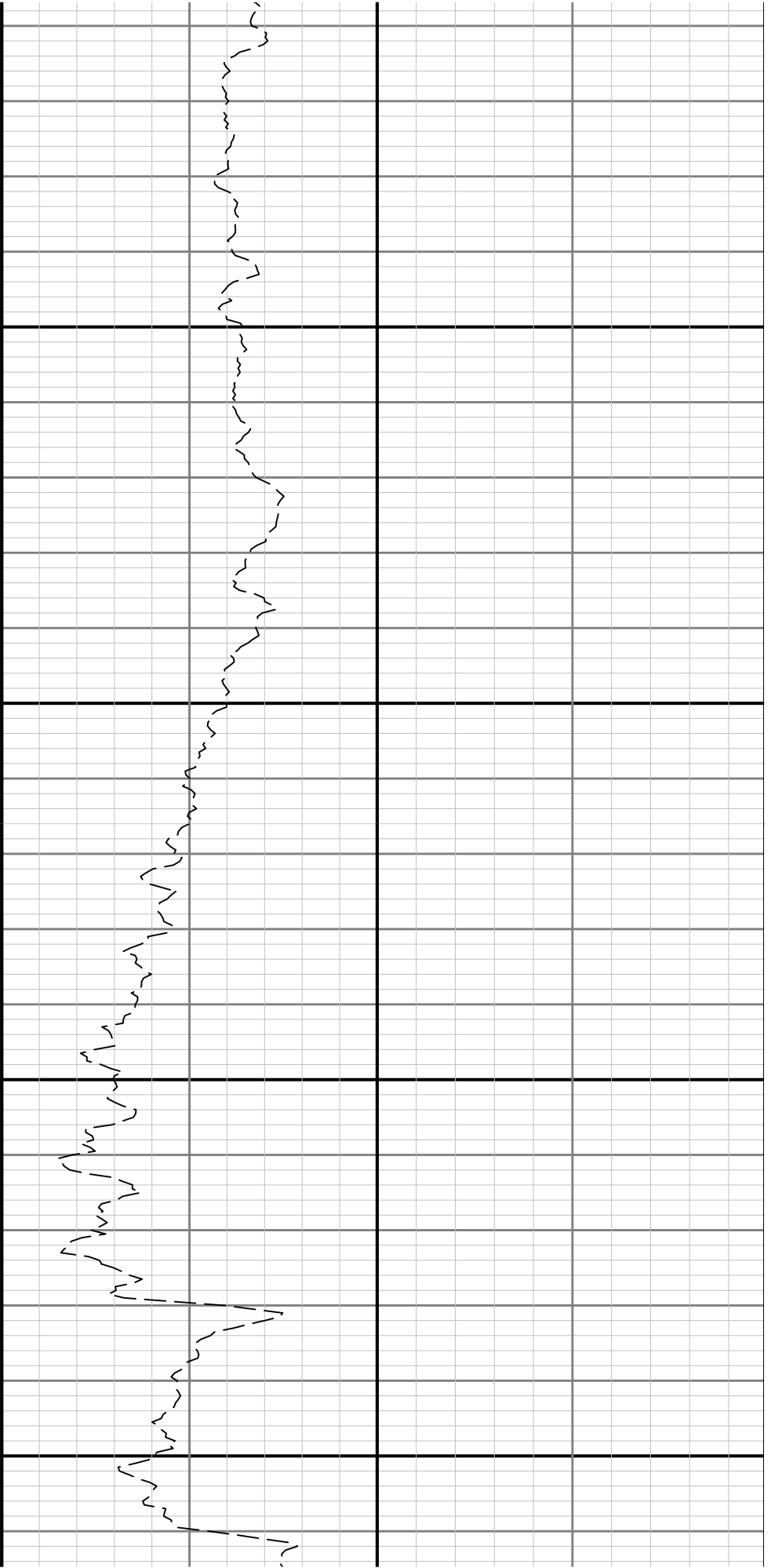
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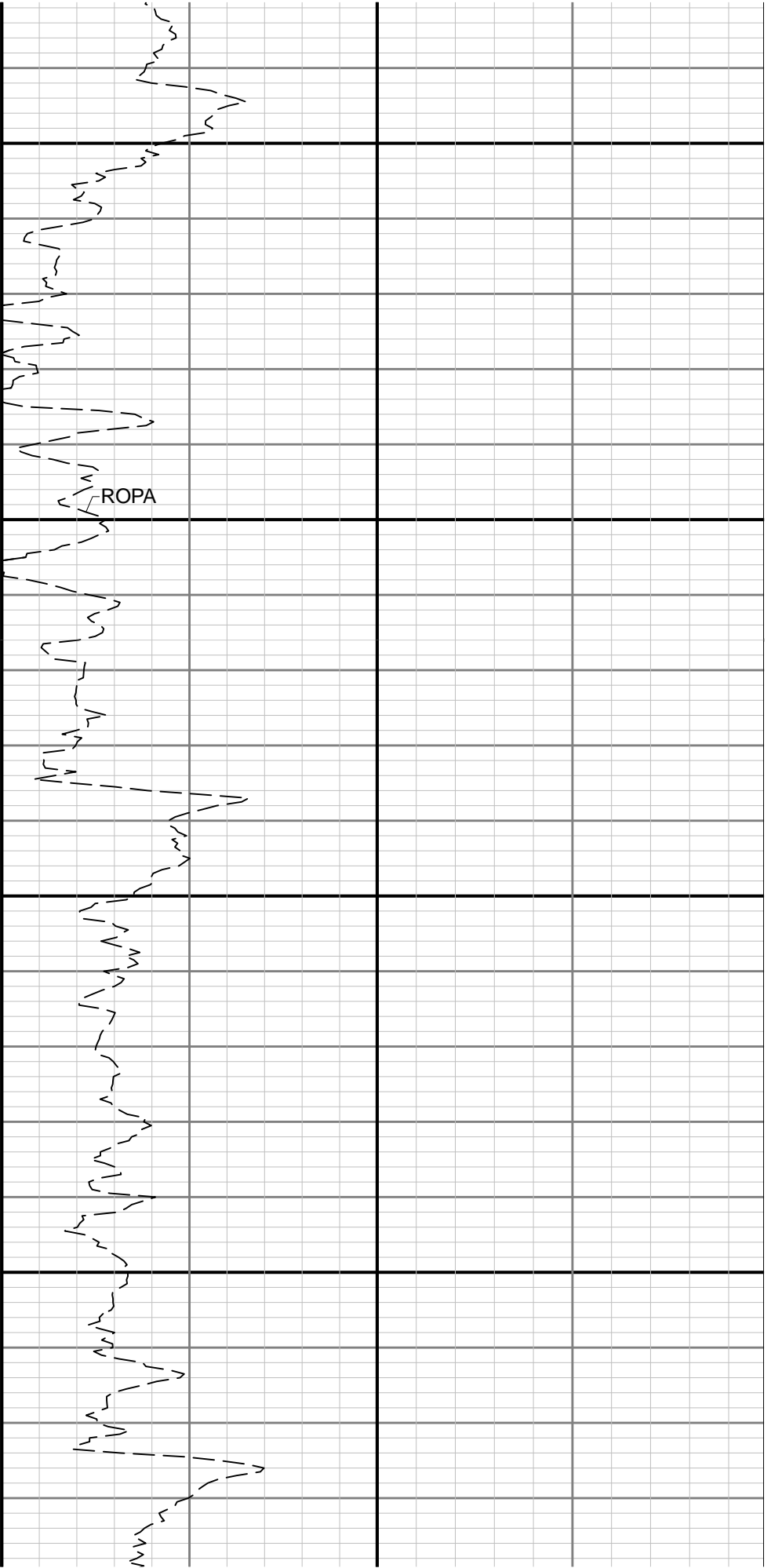
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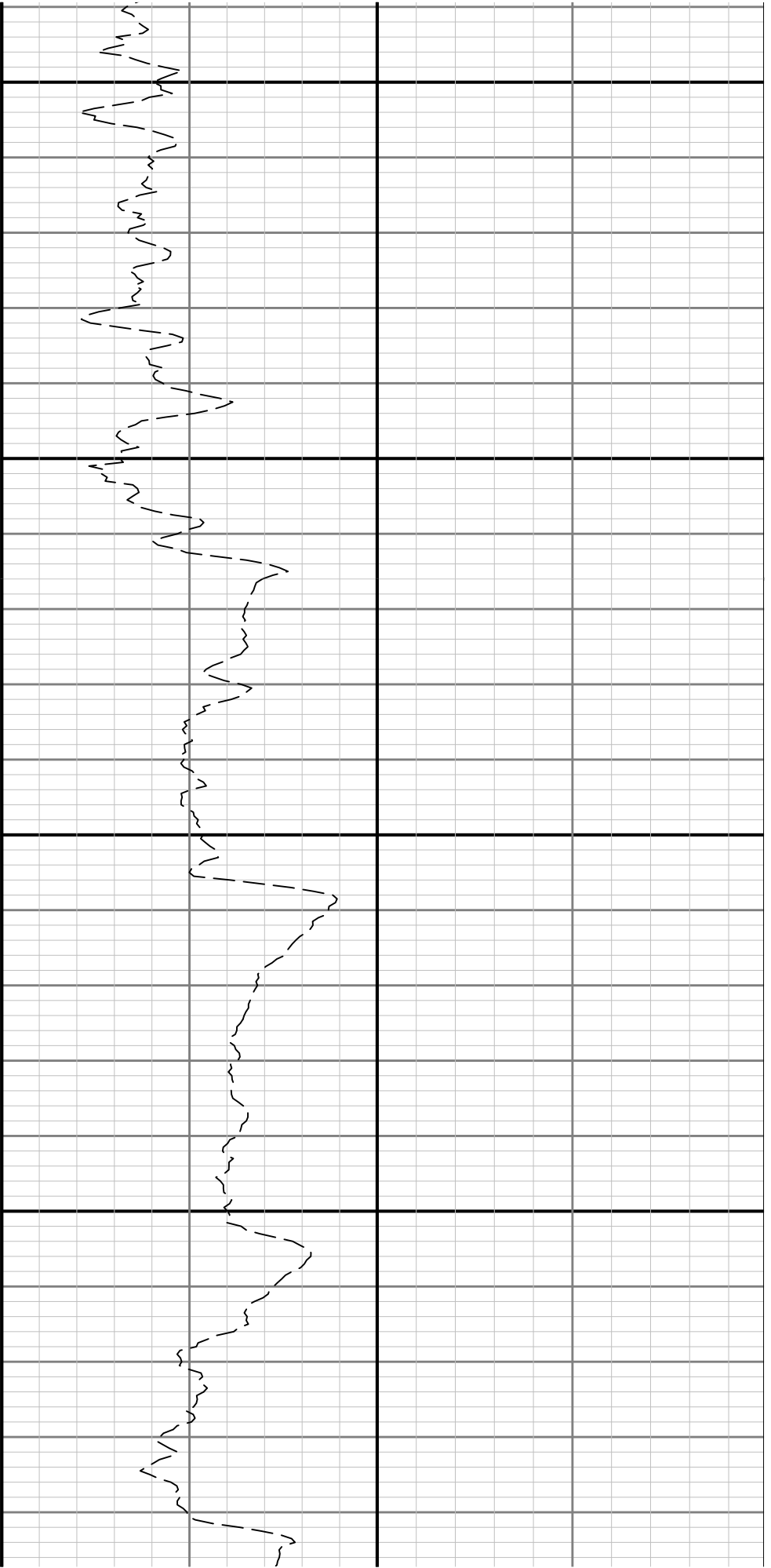




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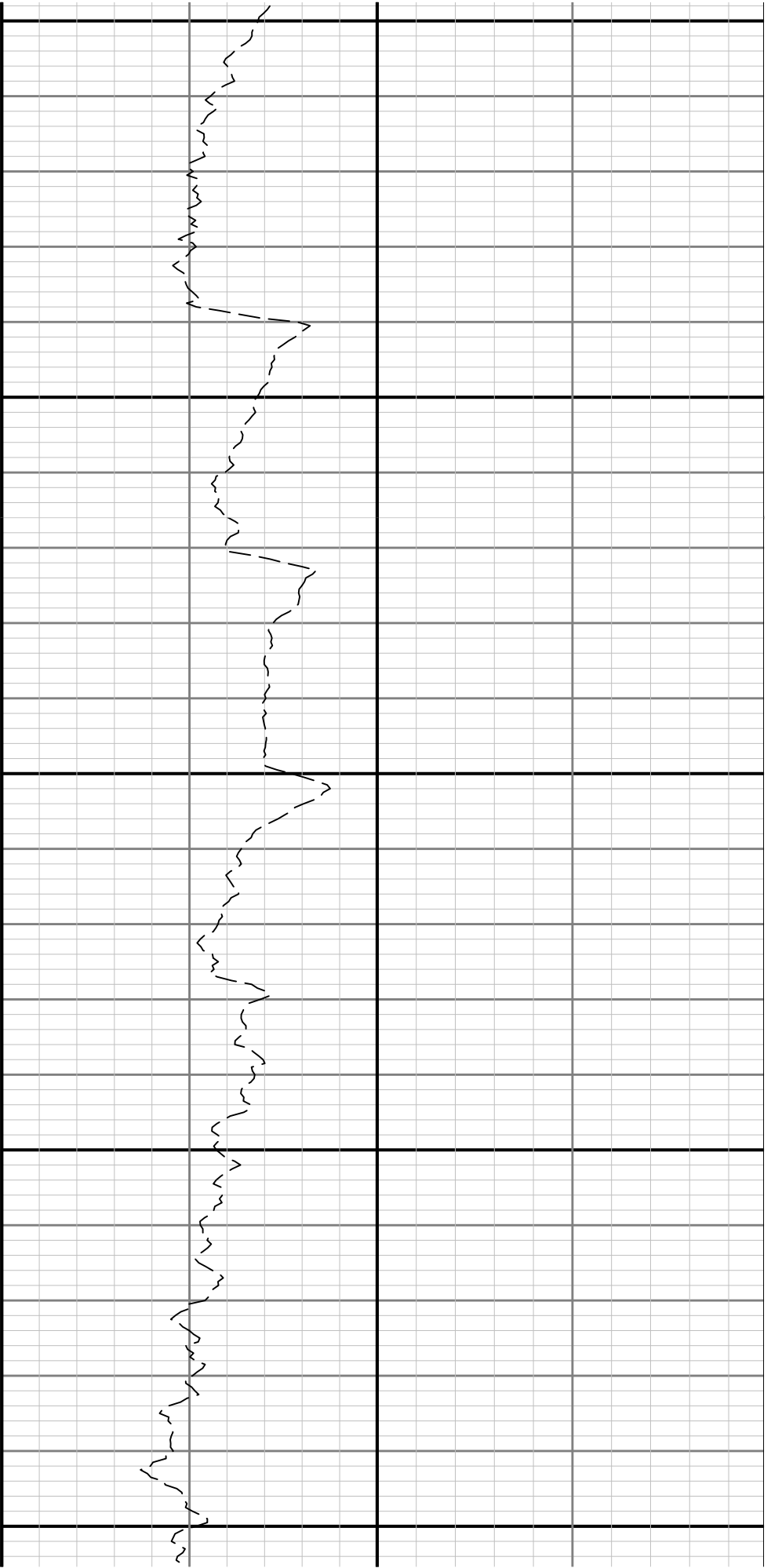
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ROPA



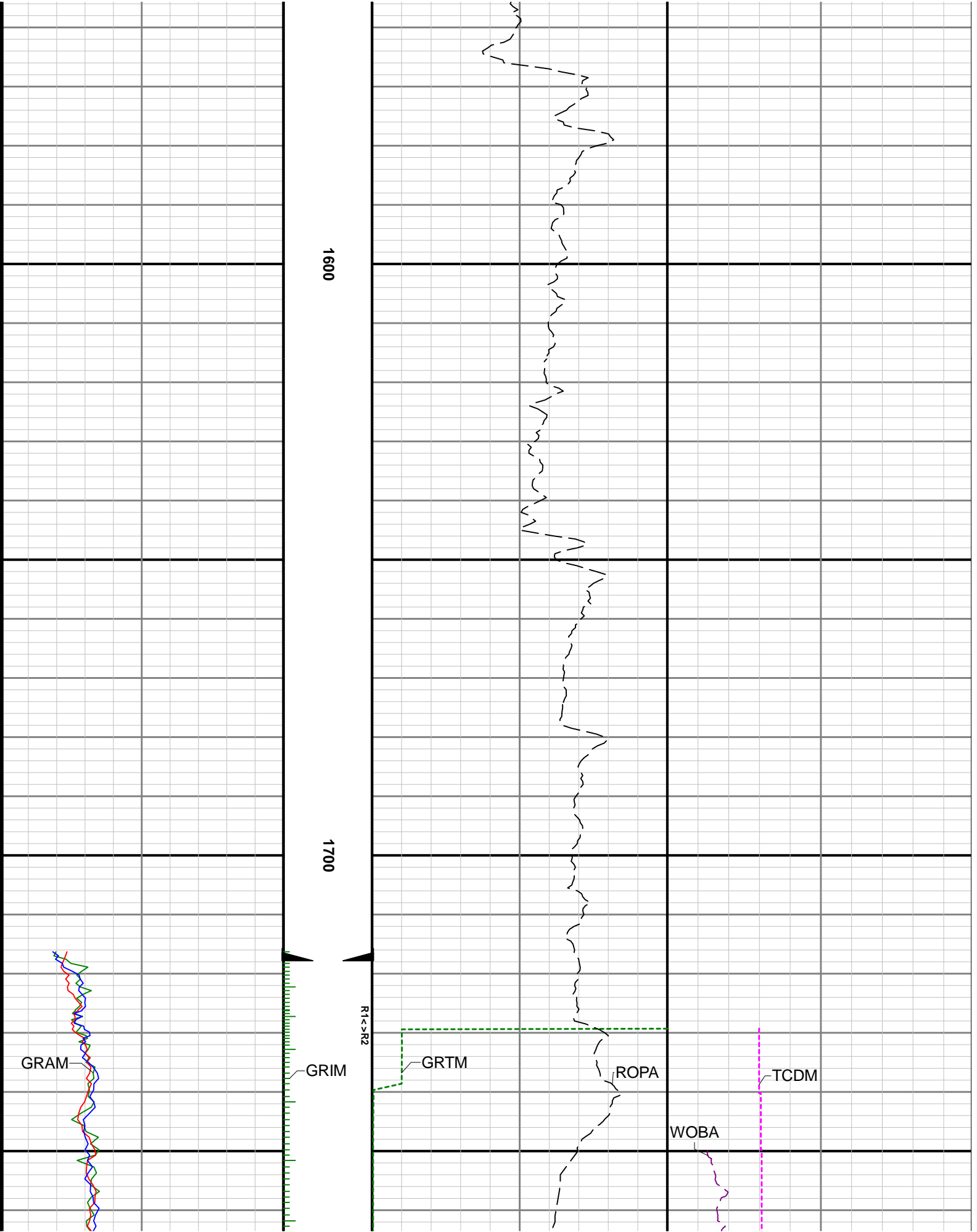
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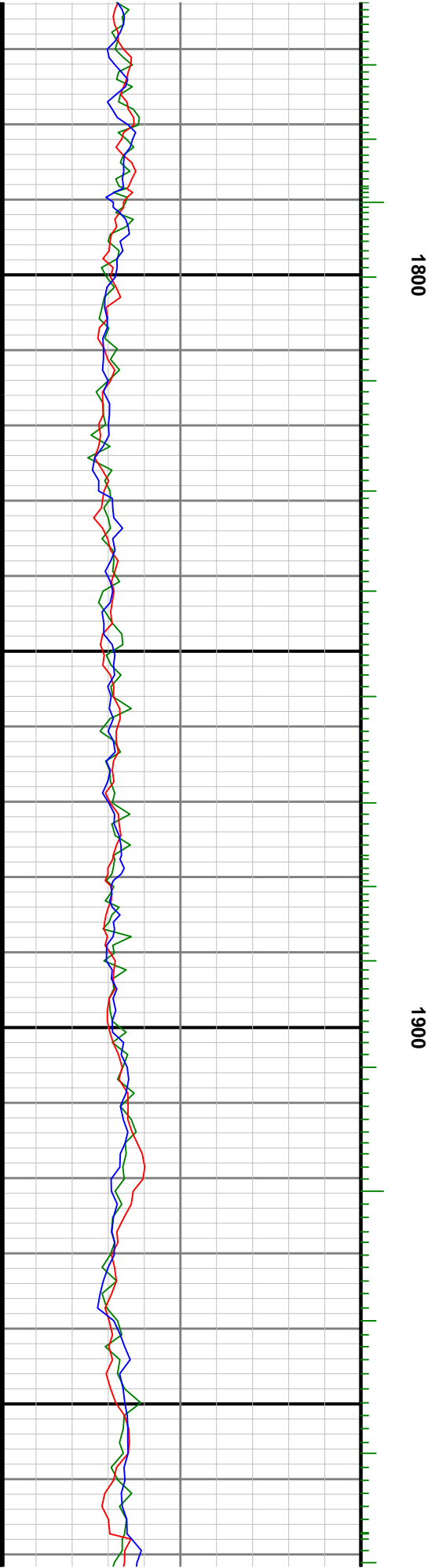
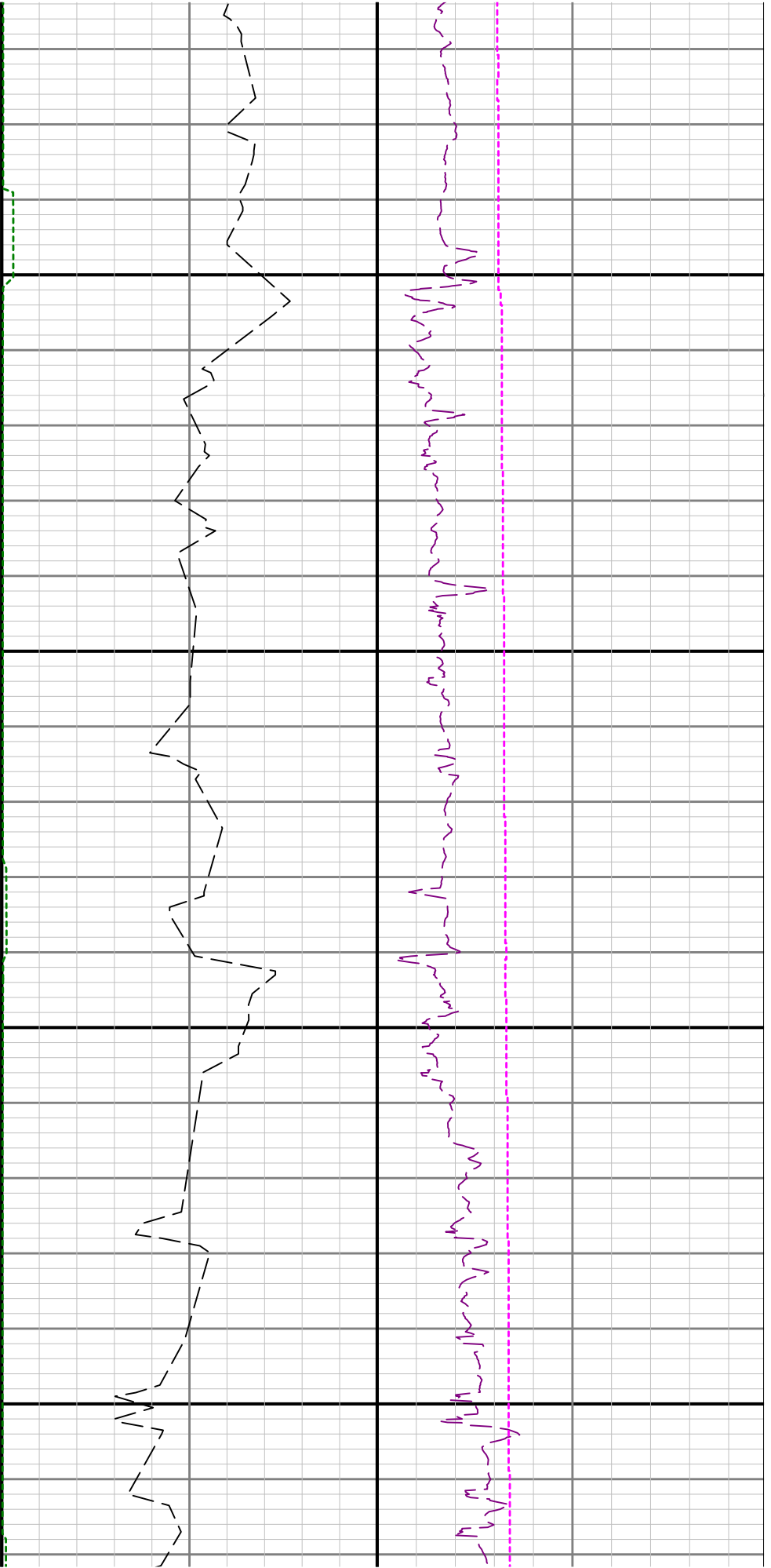
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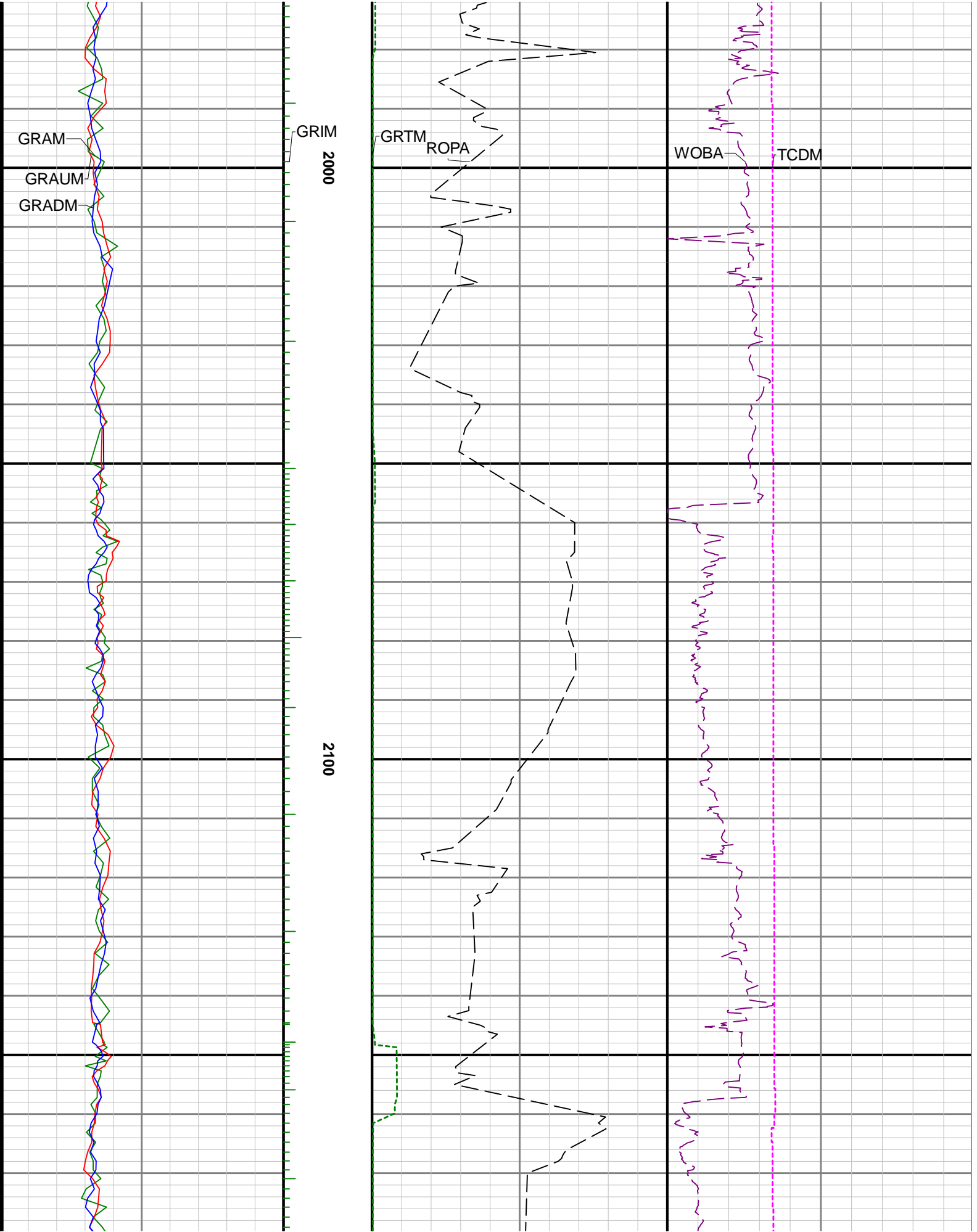


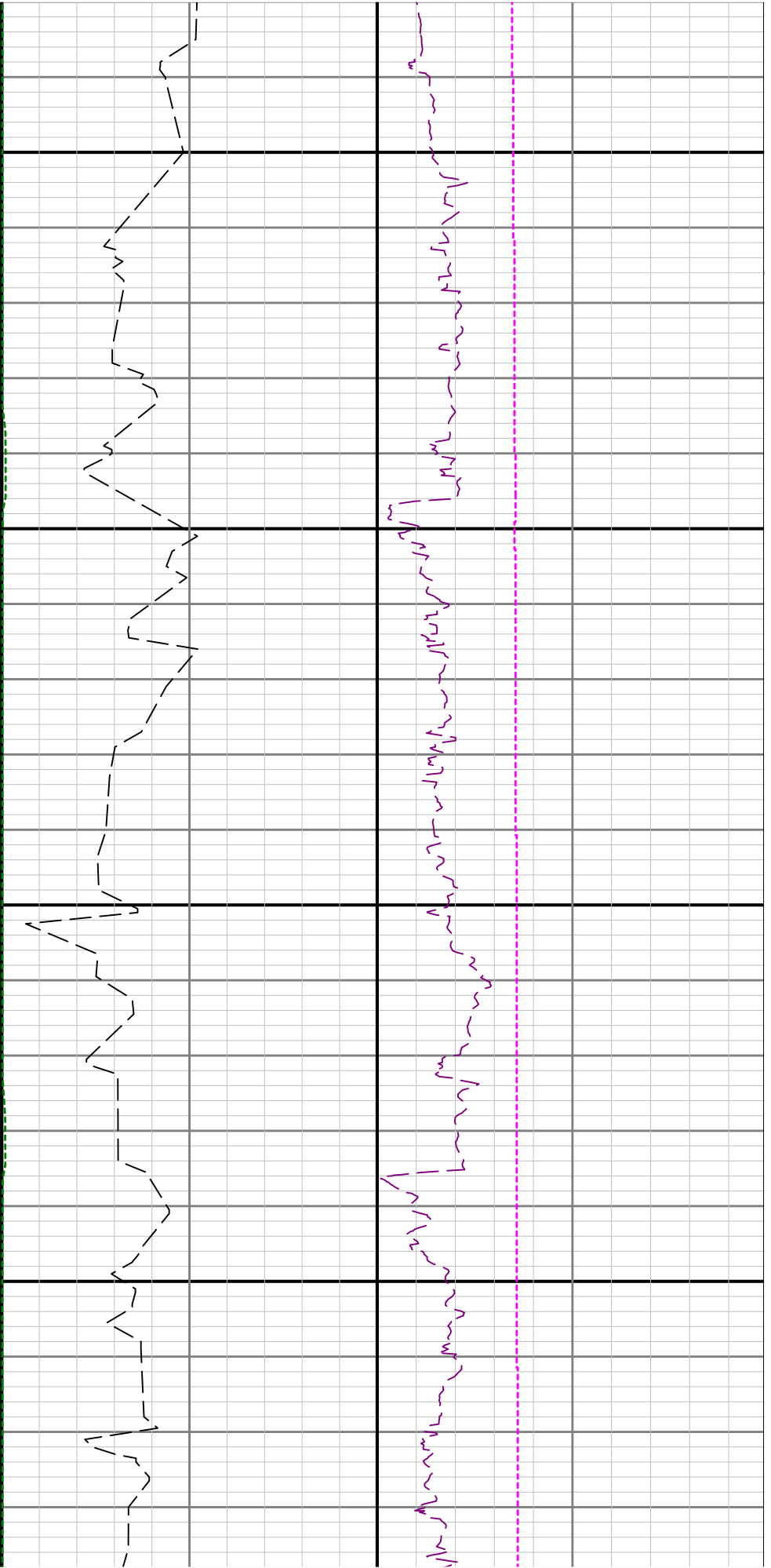
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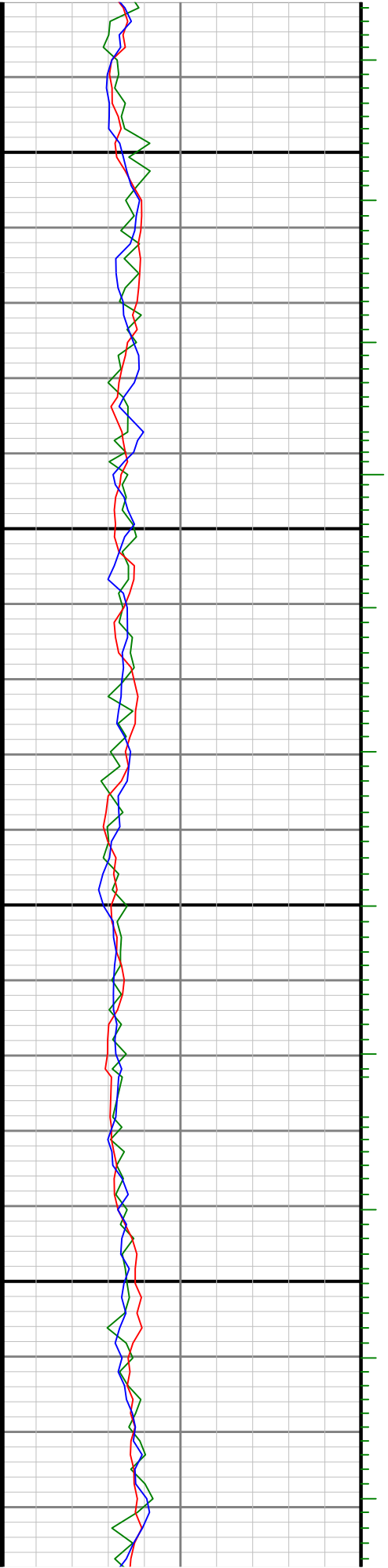


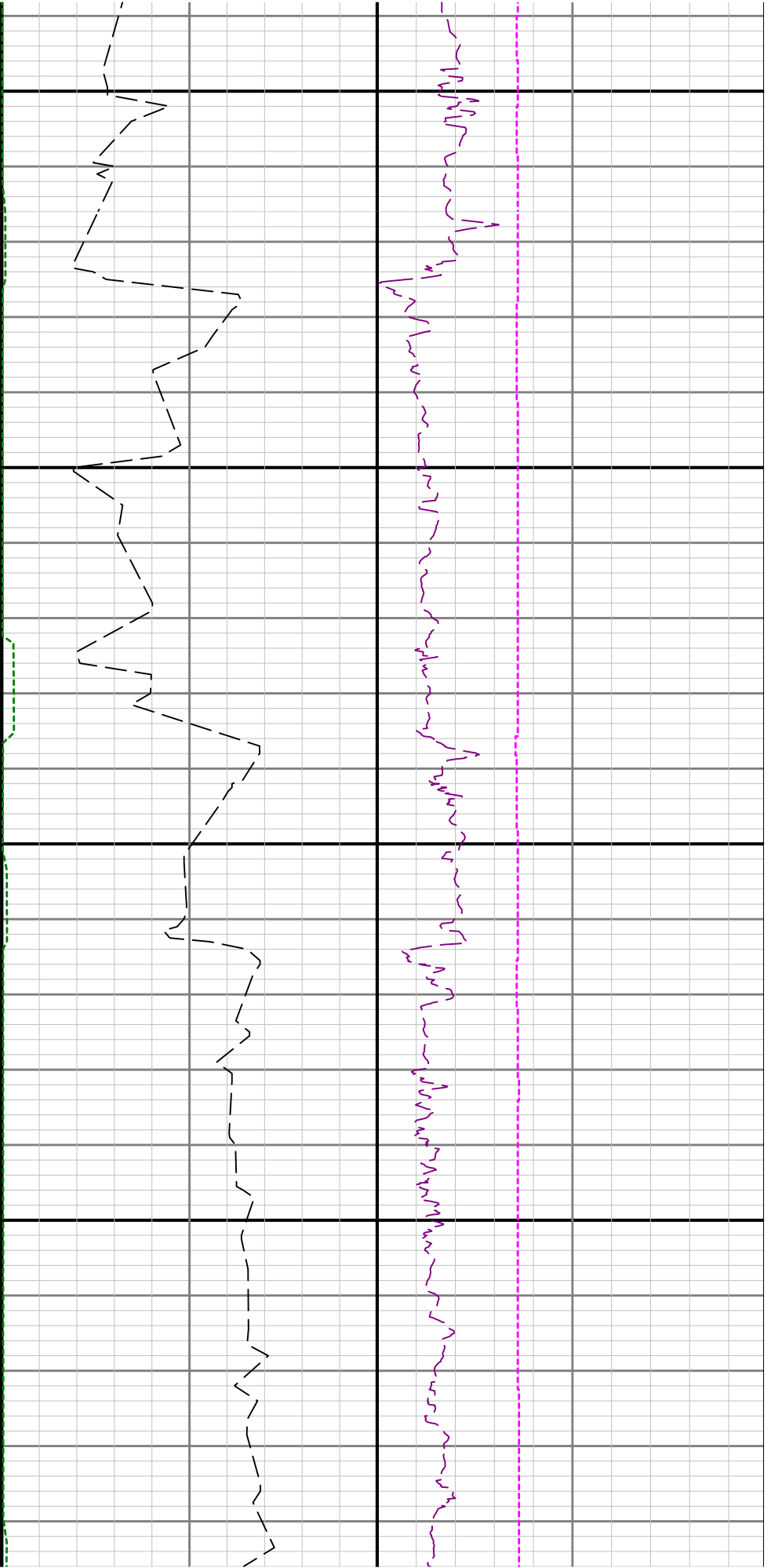




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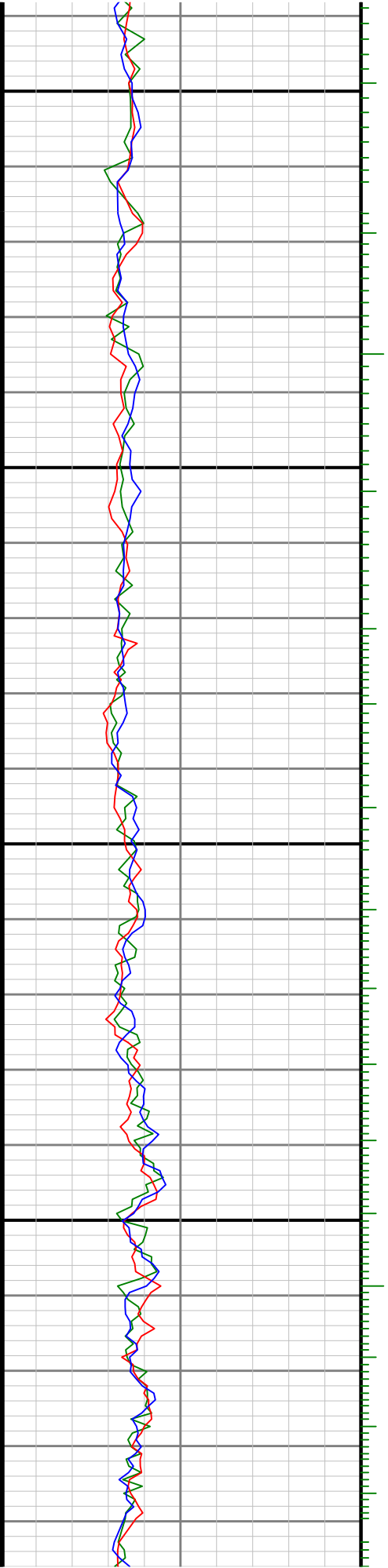
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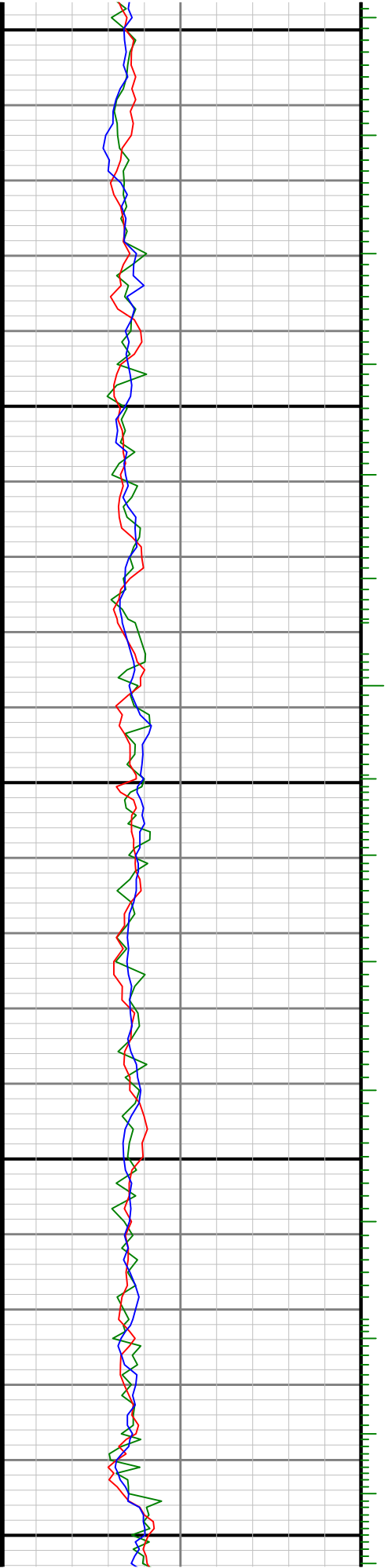


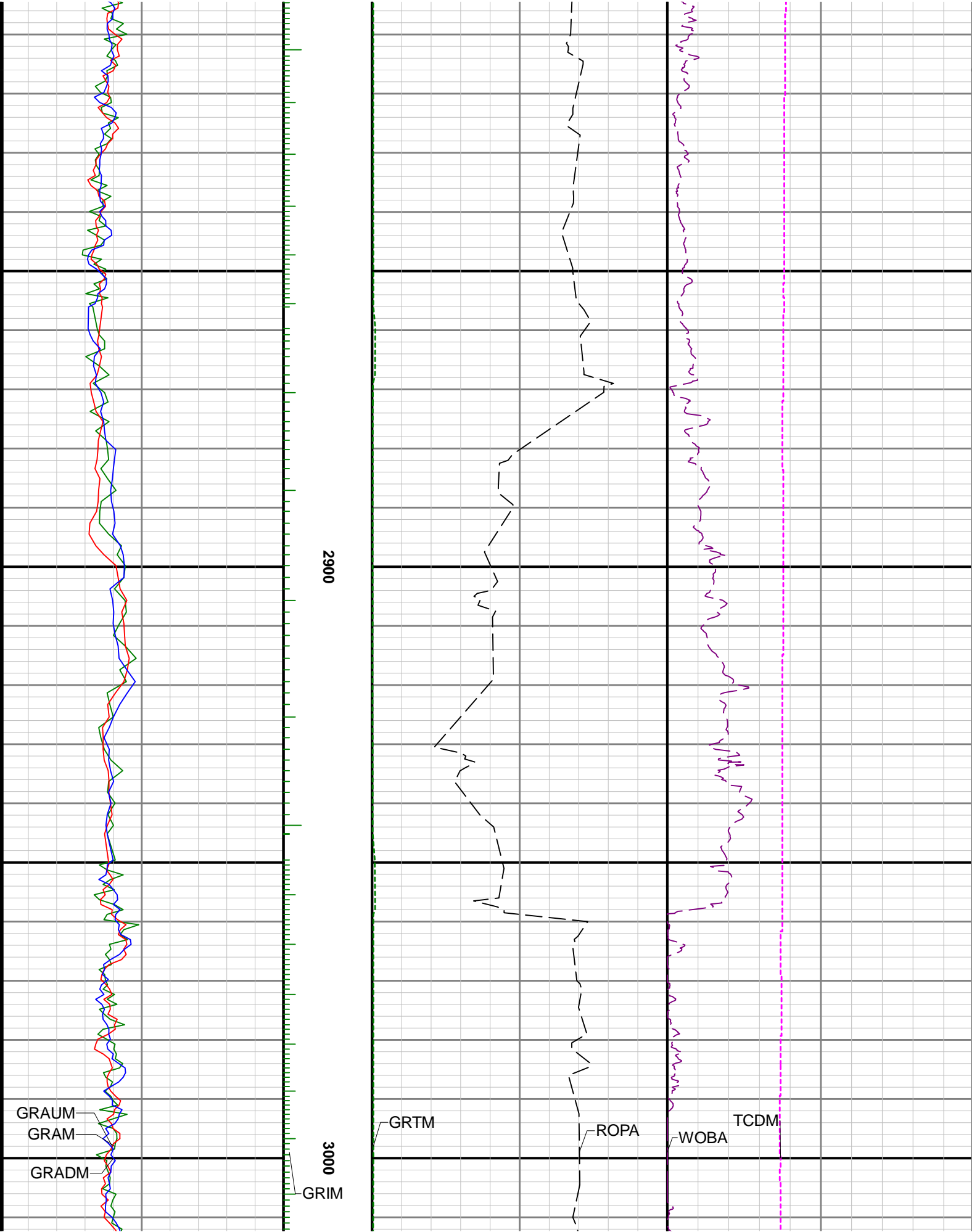


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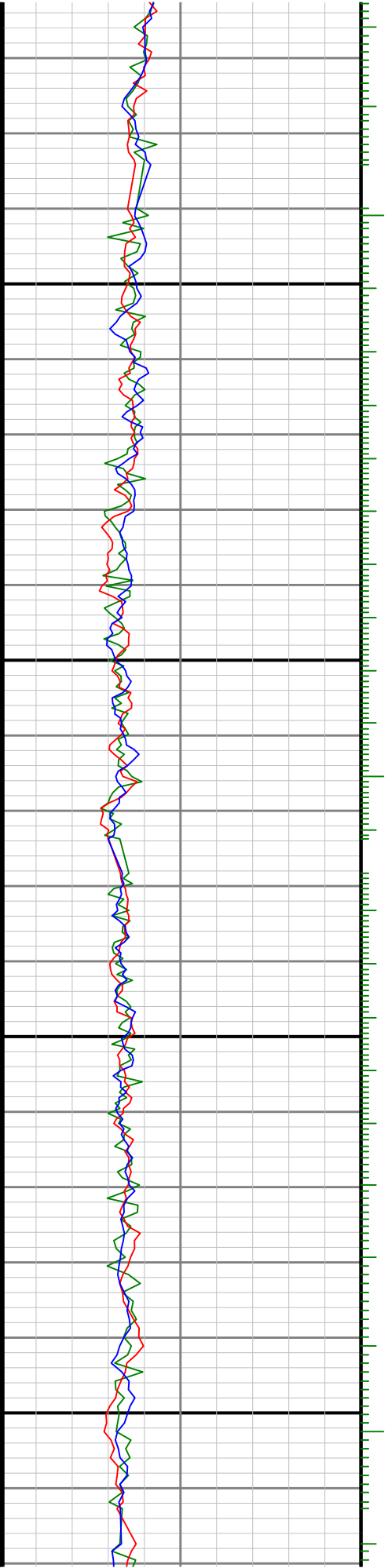


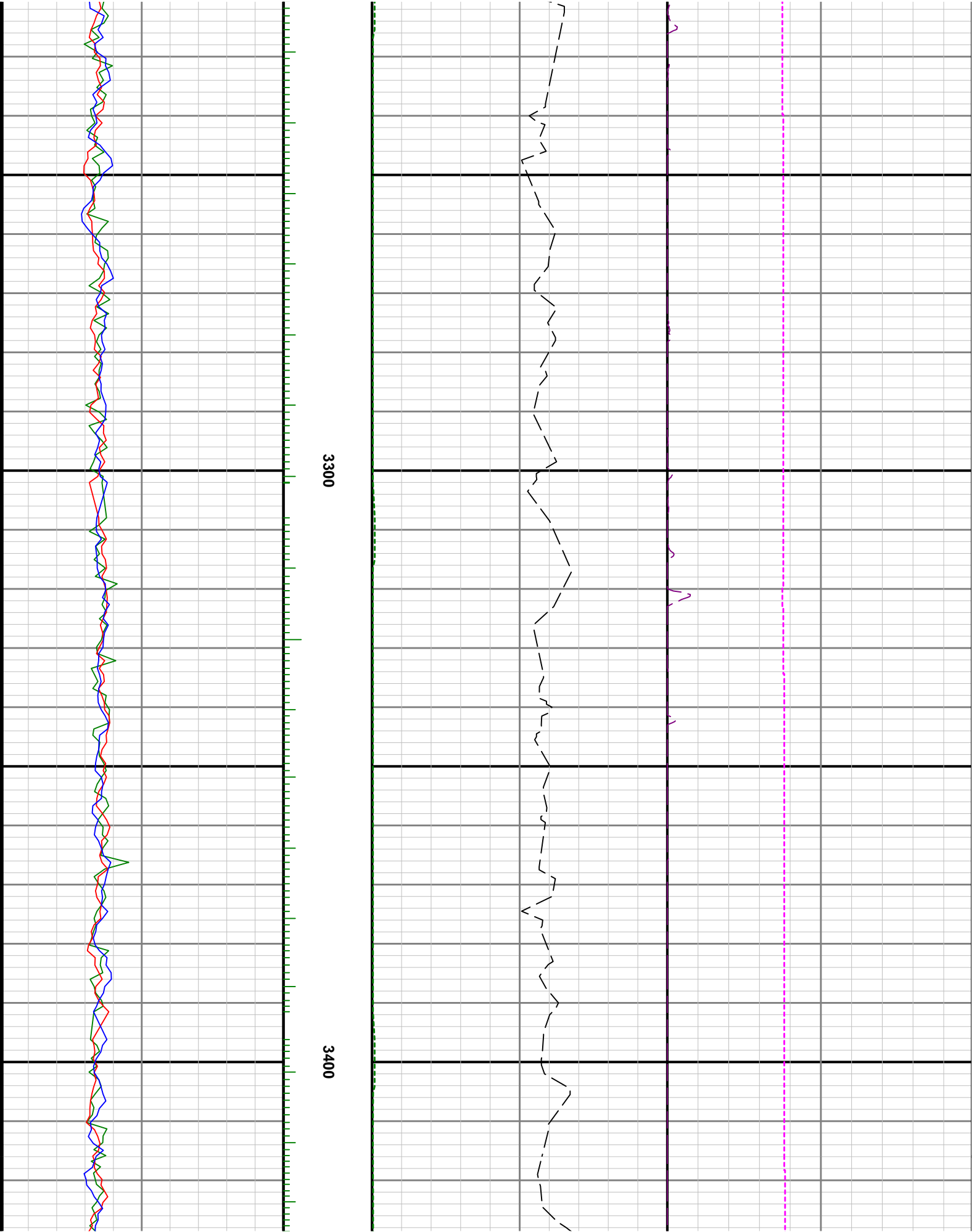


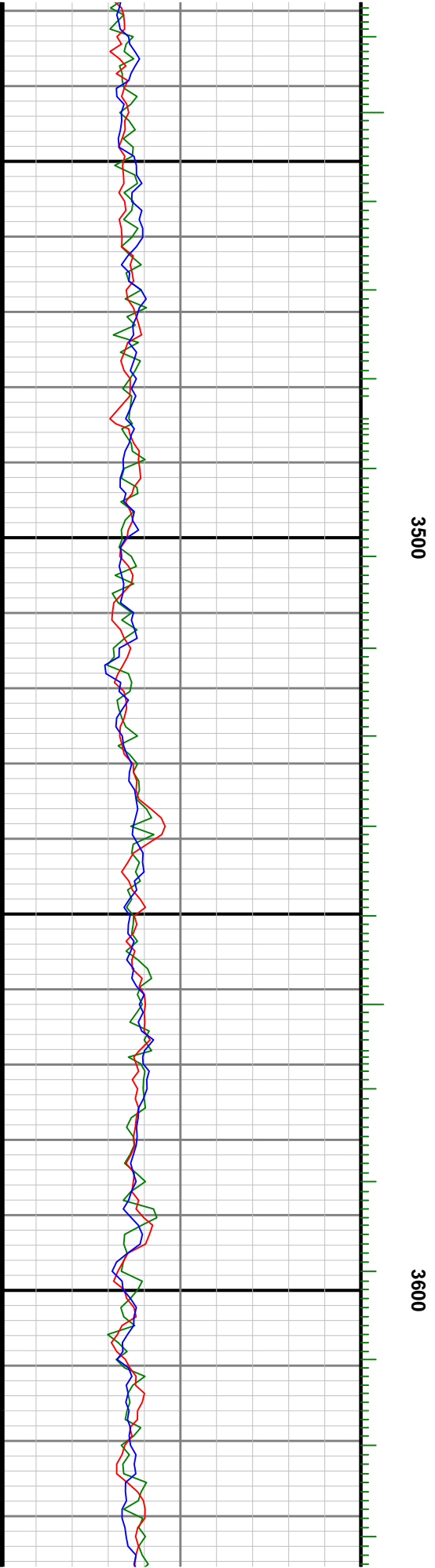


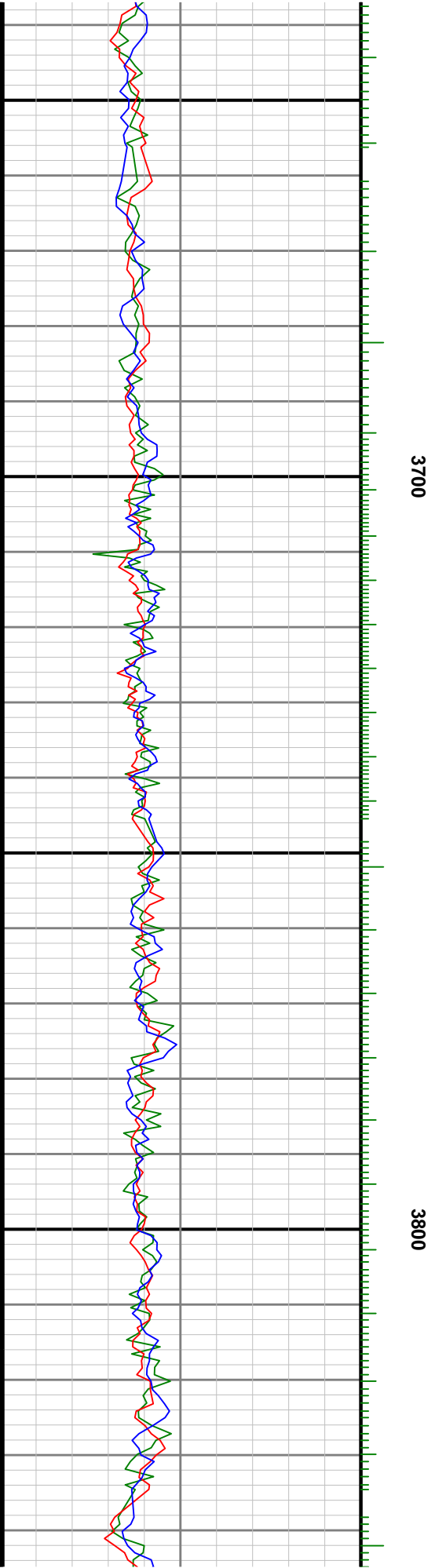
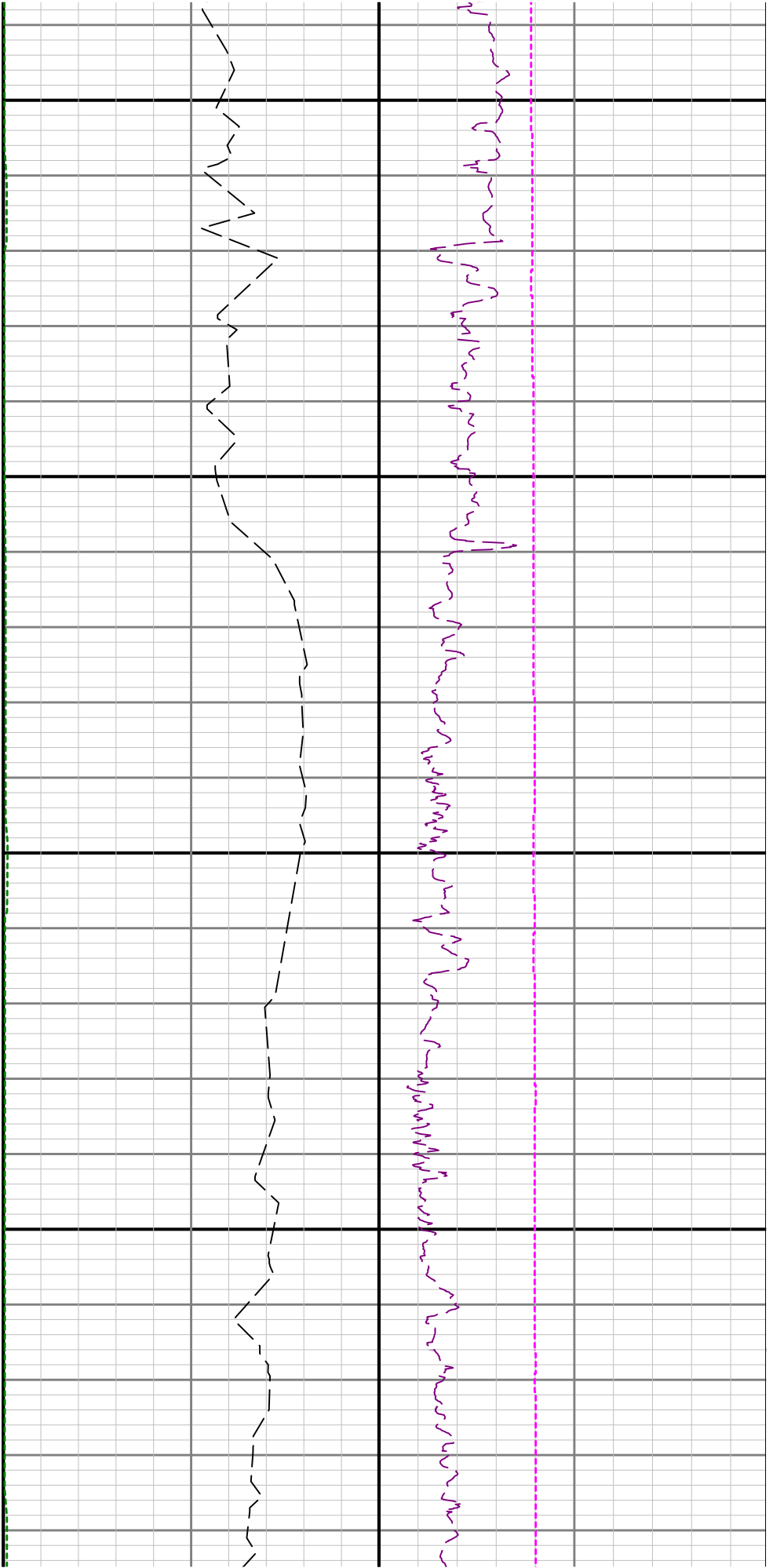
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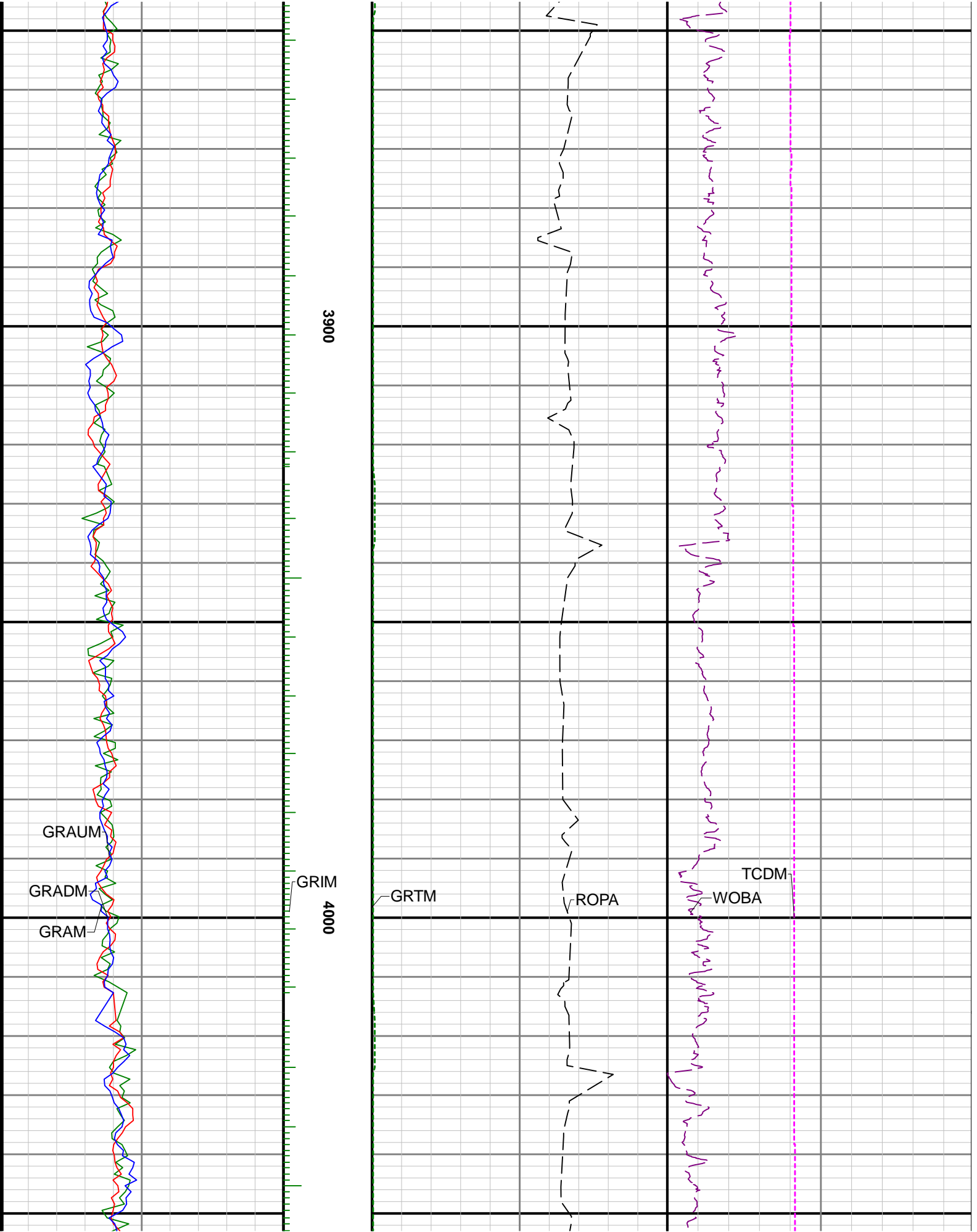
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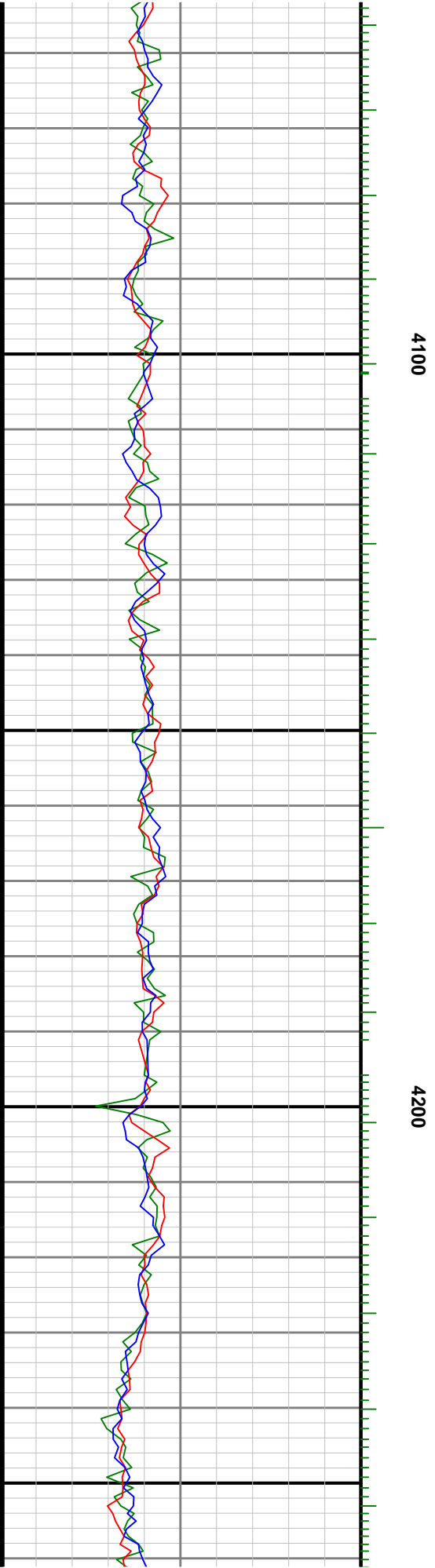
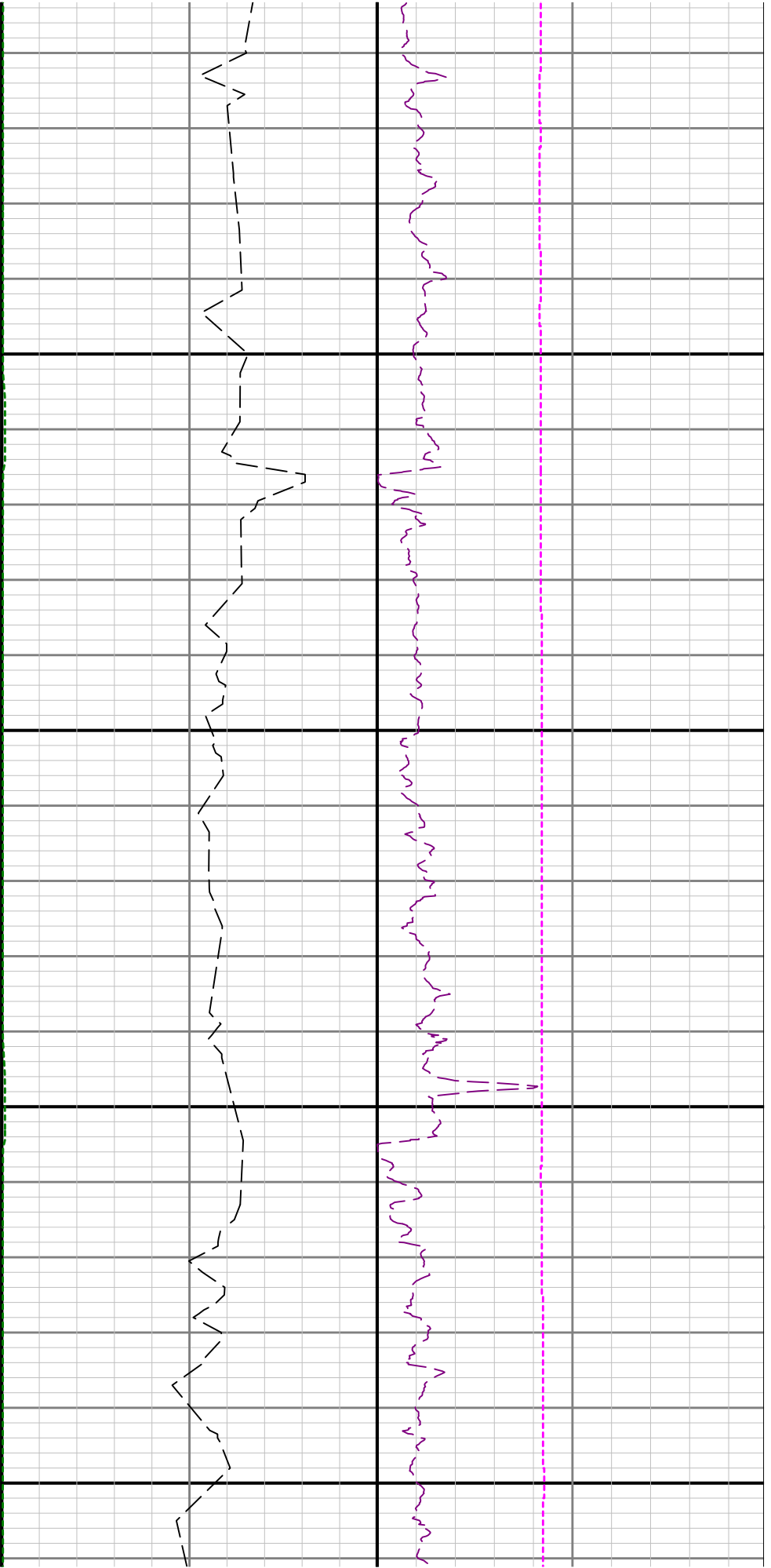


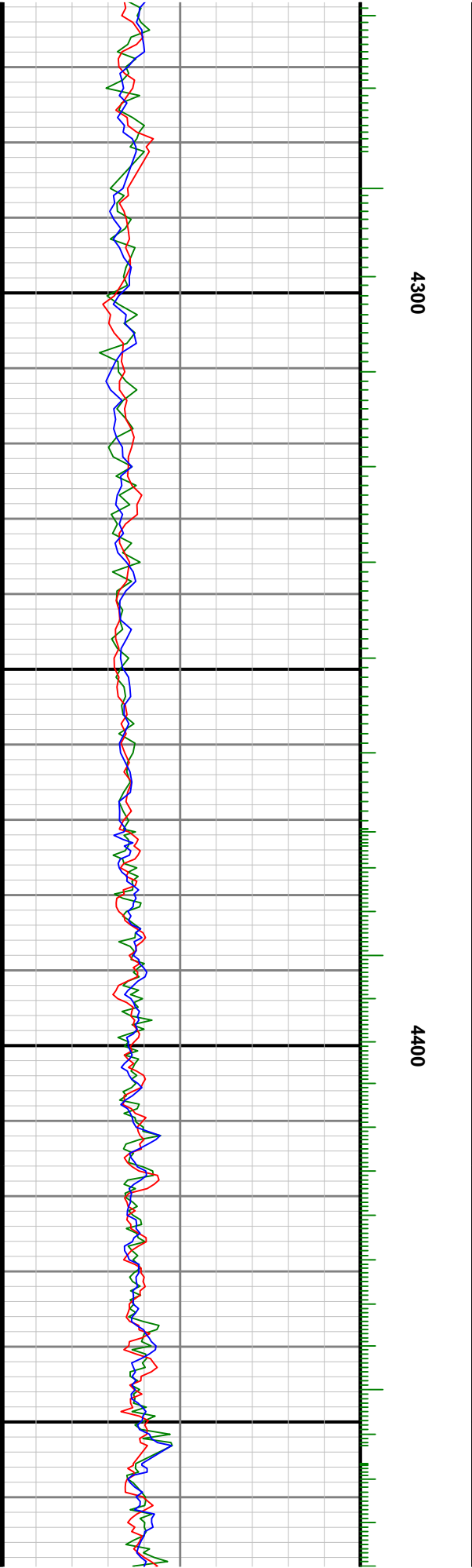
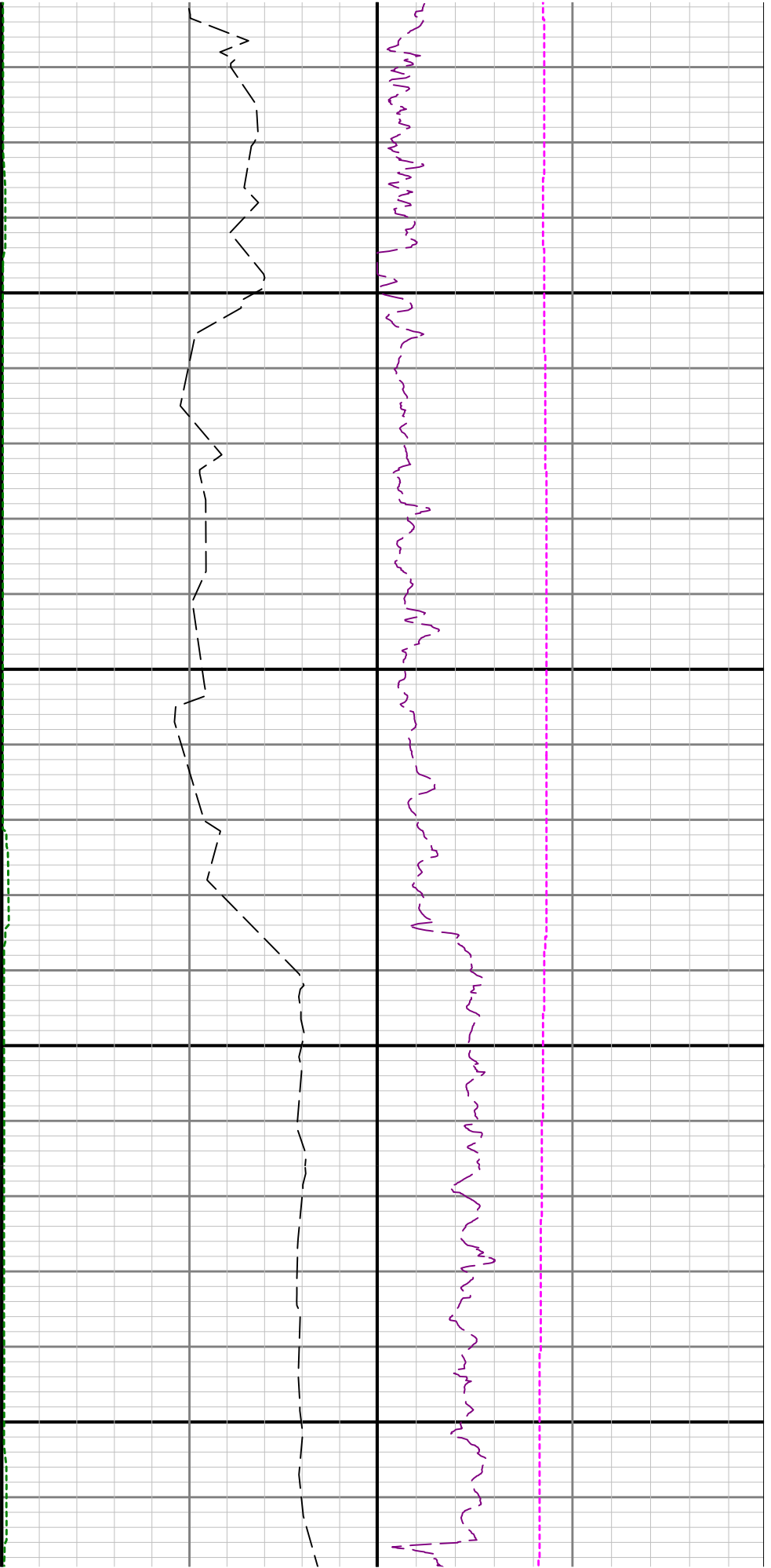


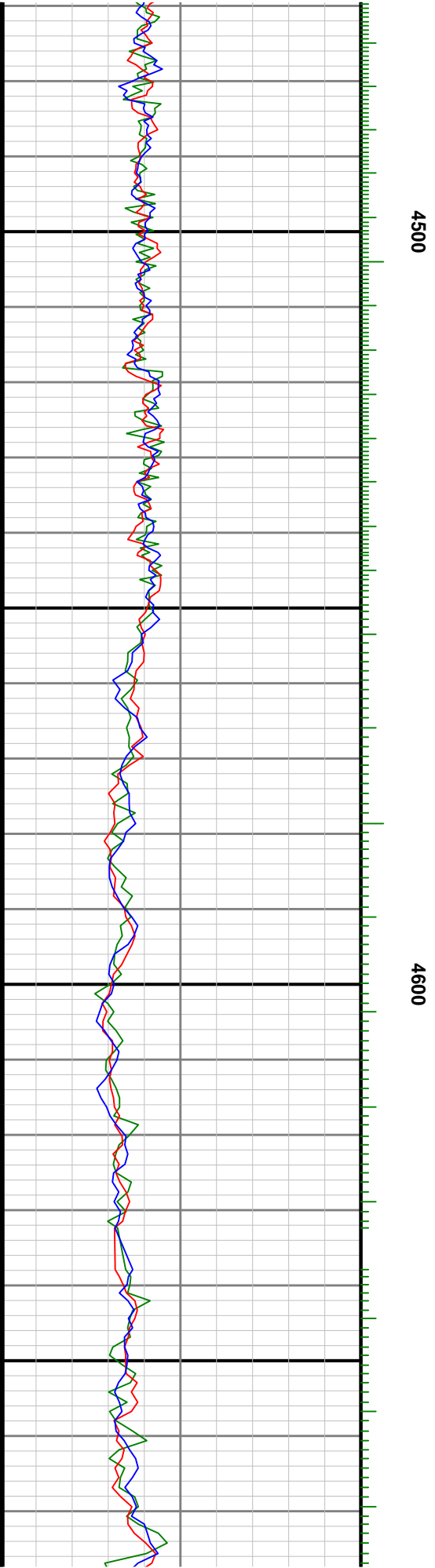
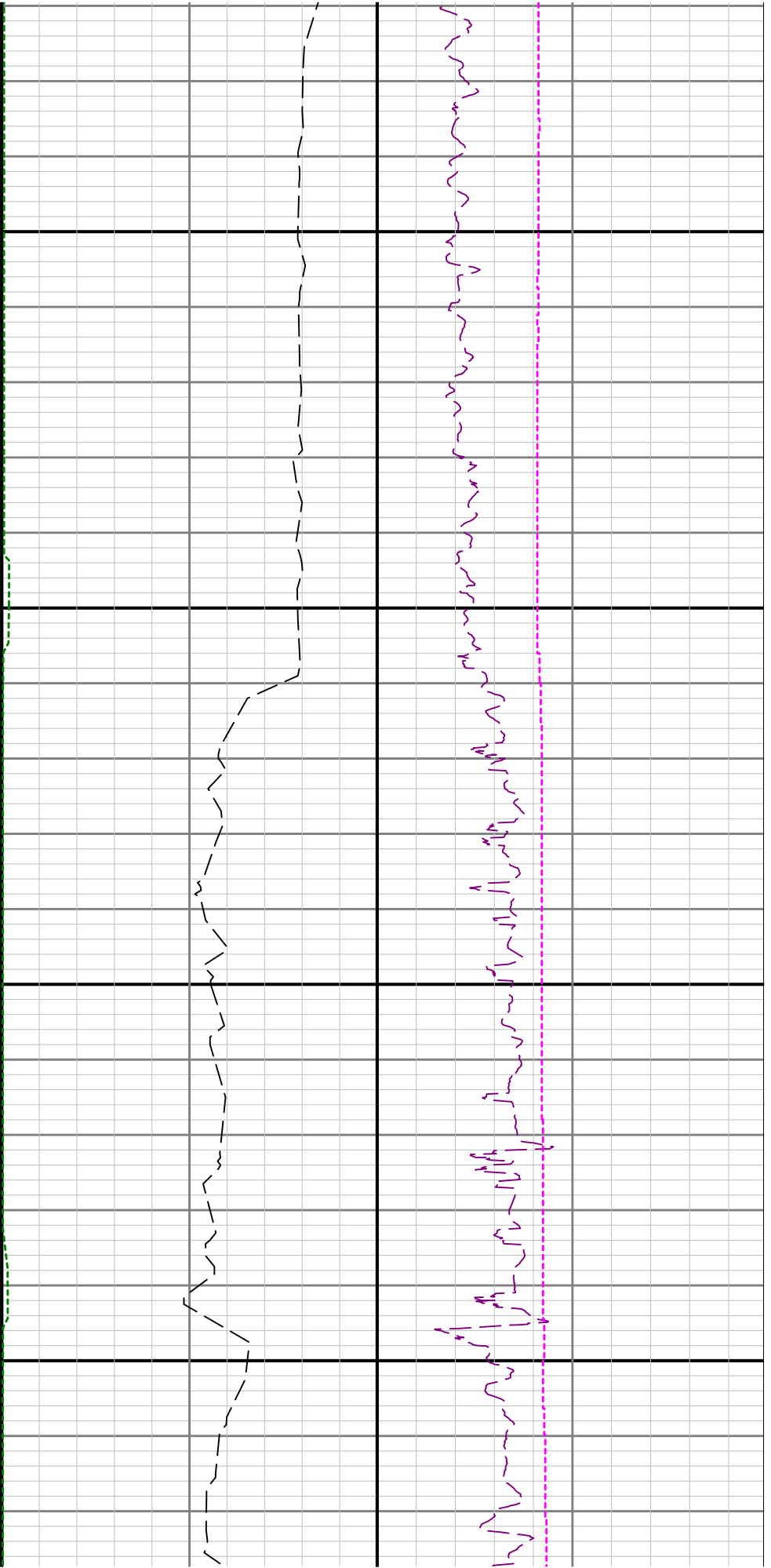


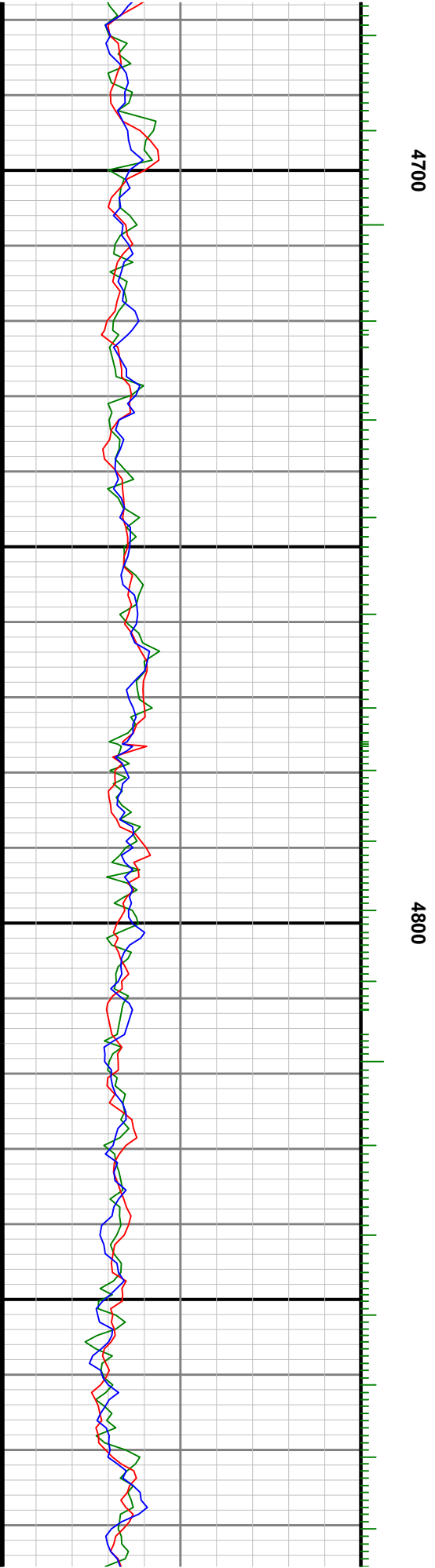
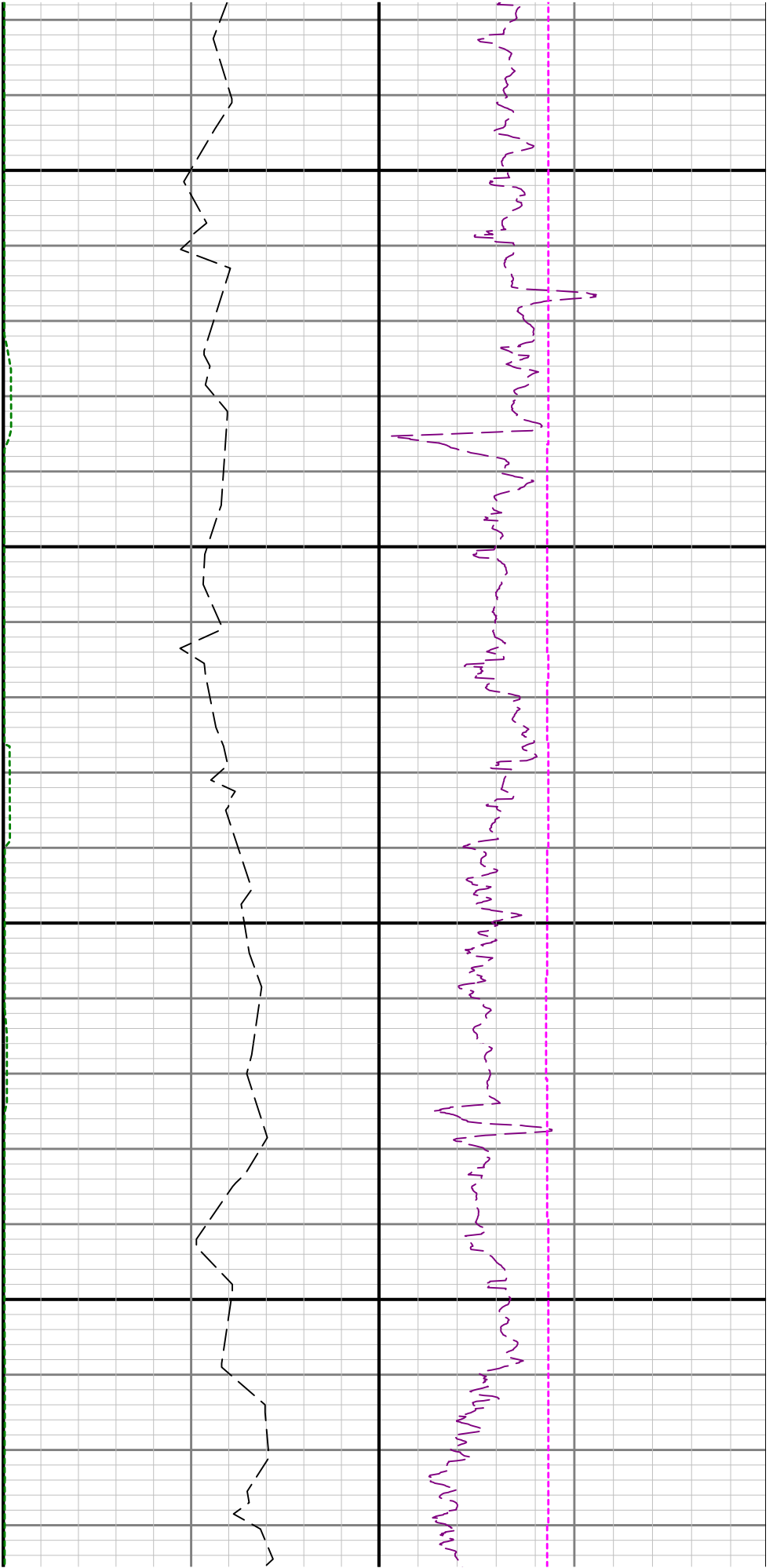


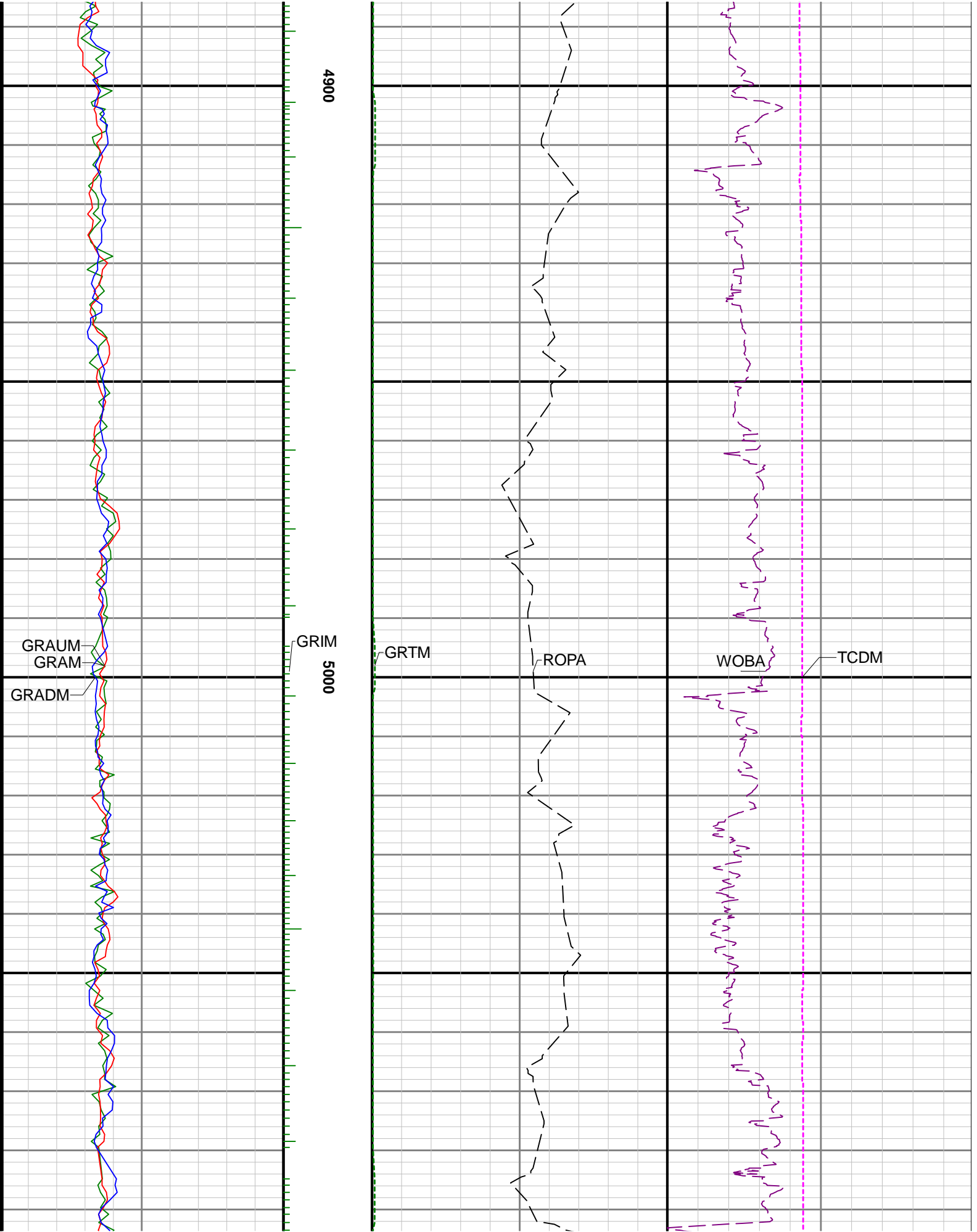


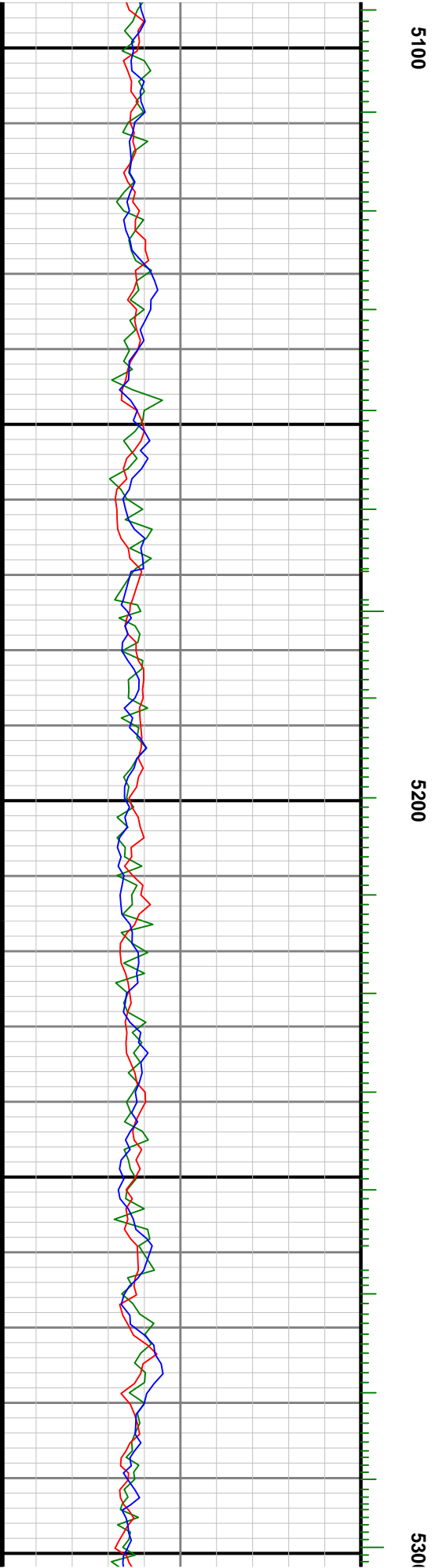
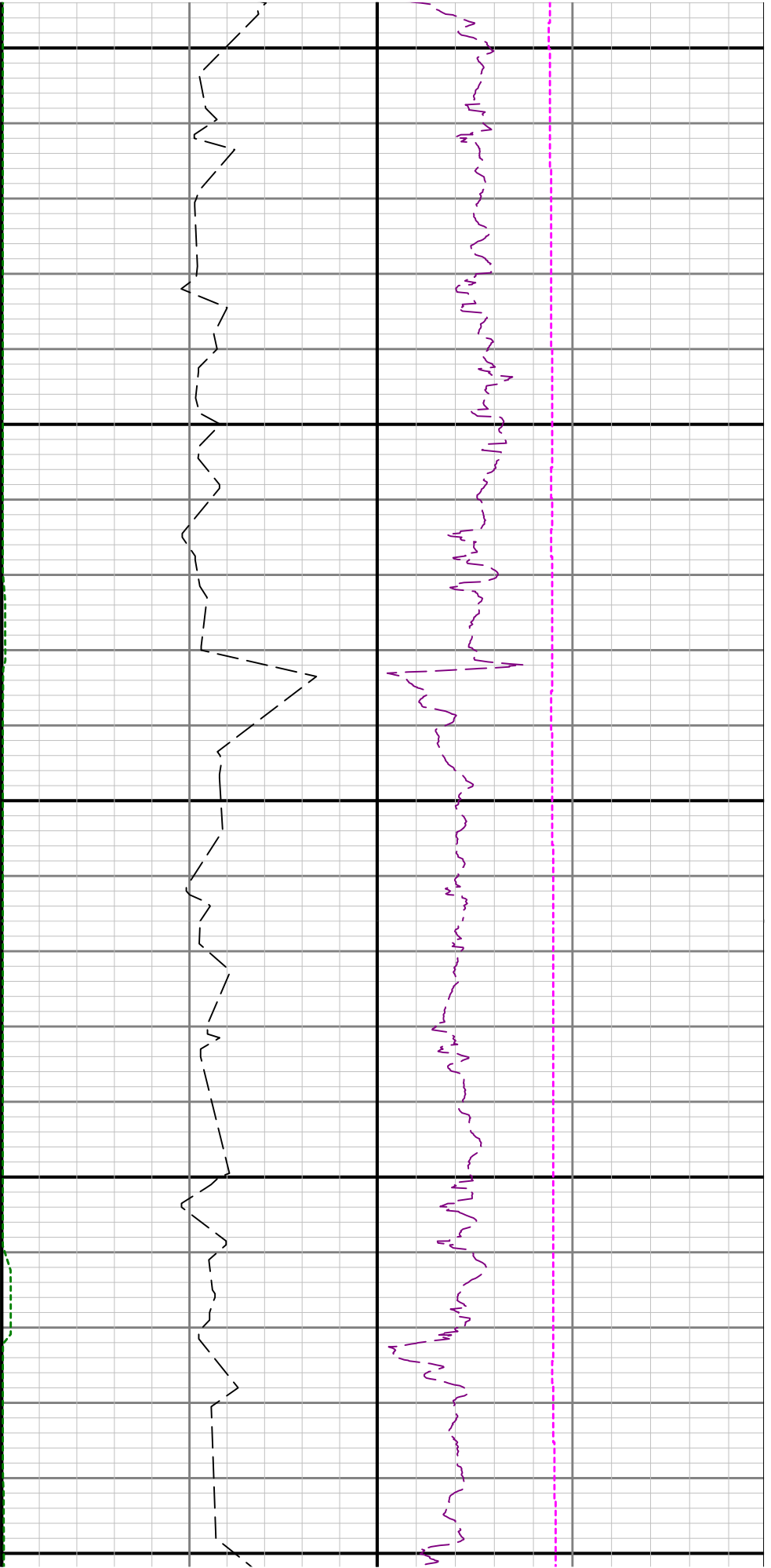


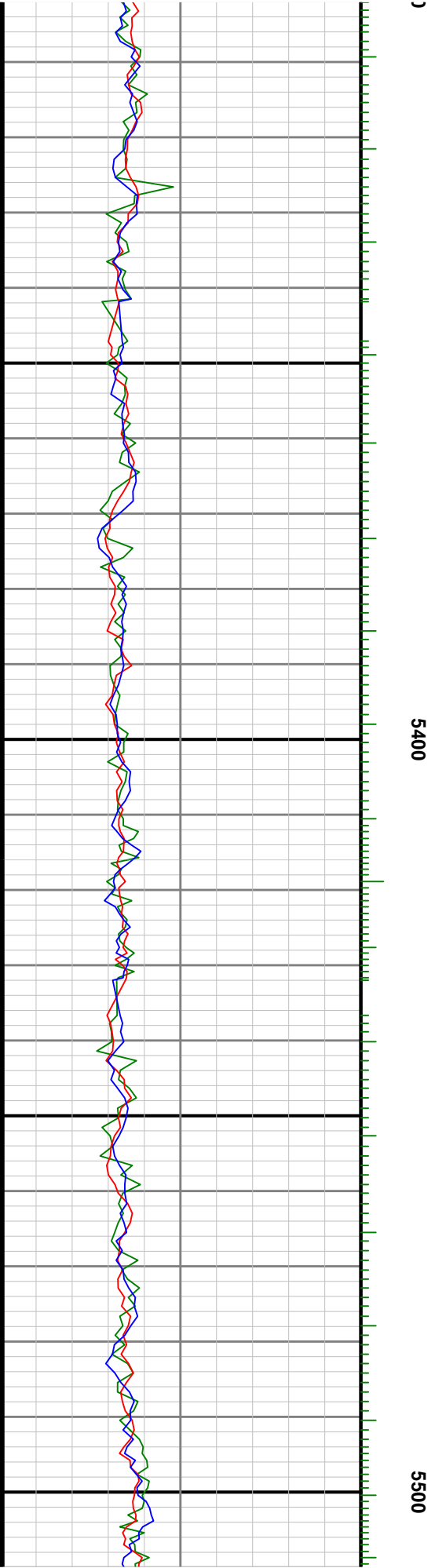
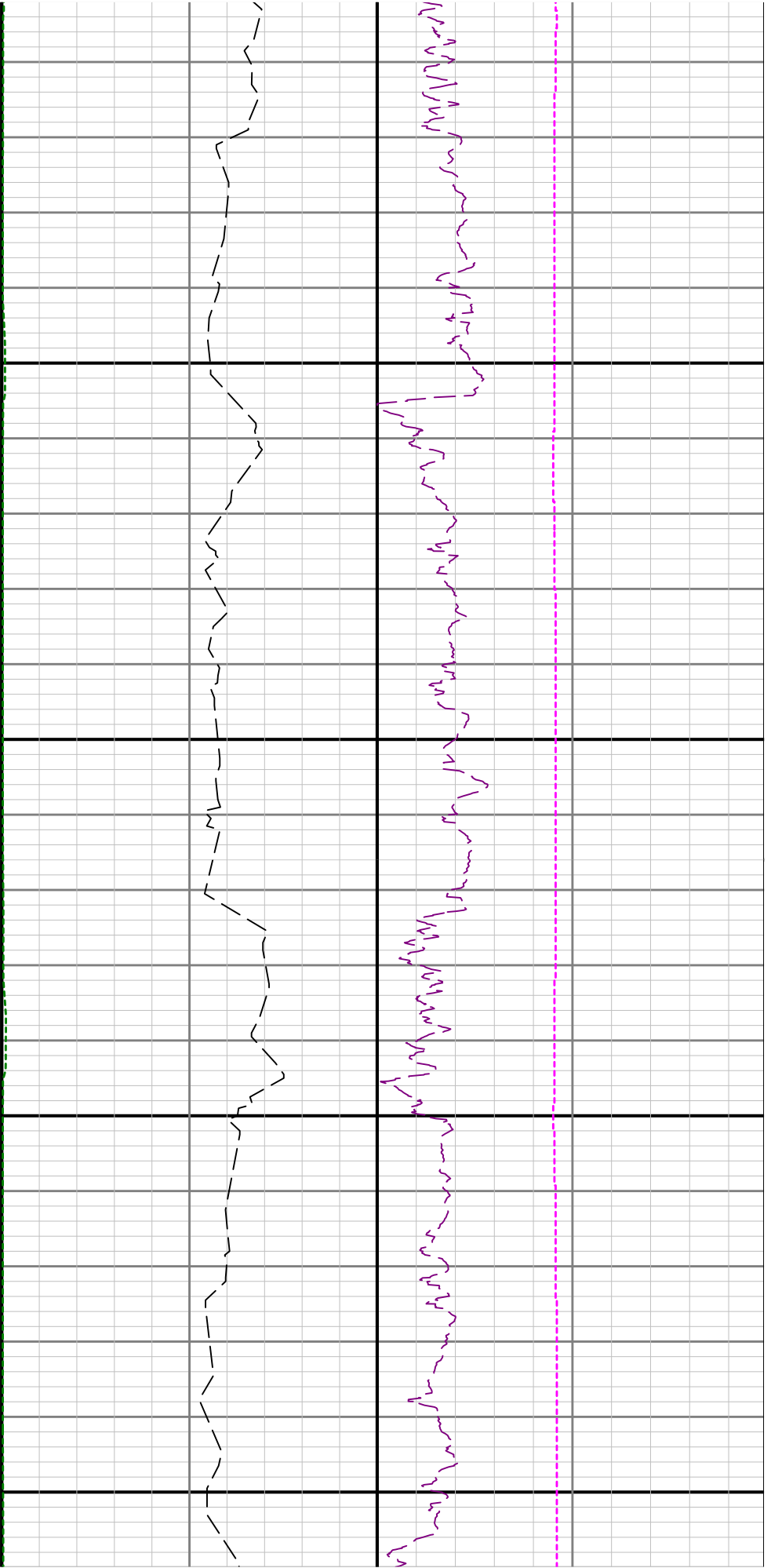


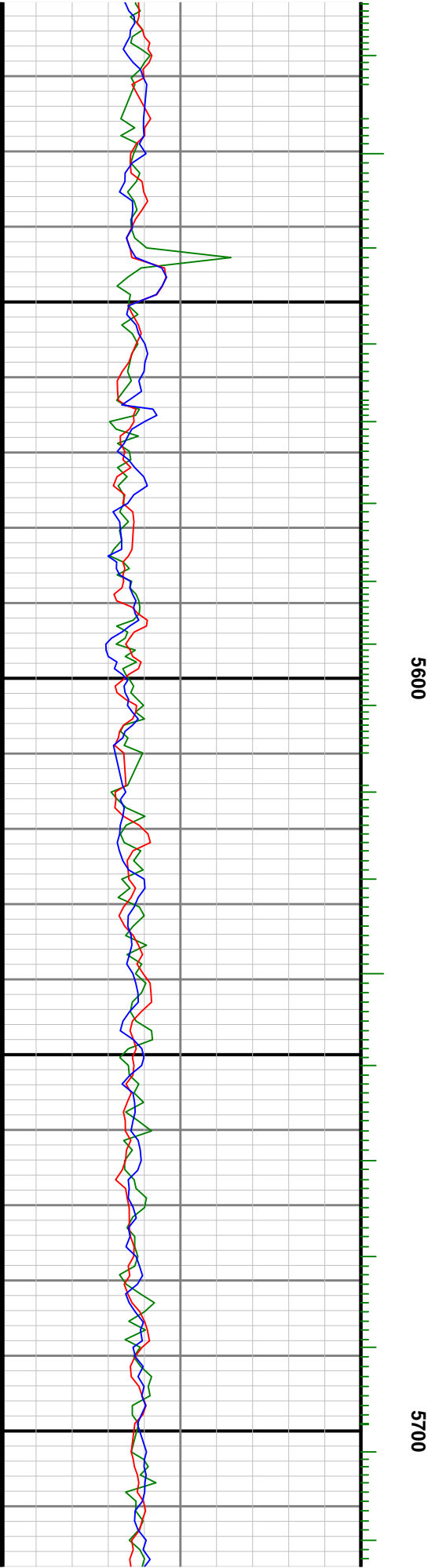
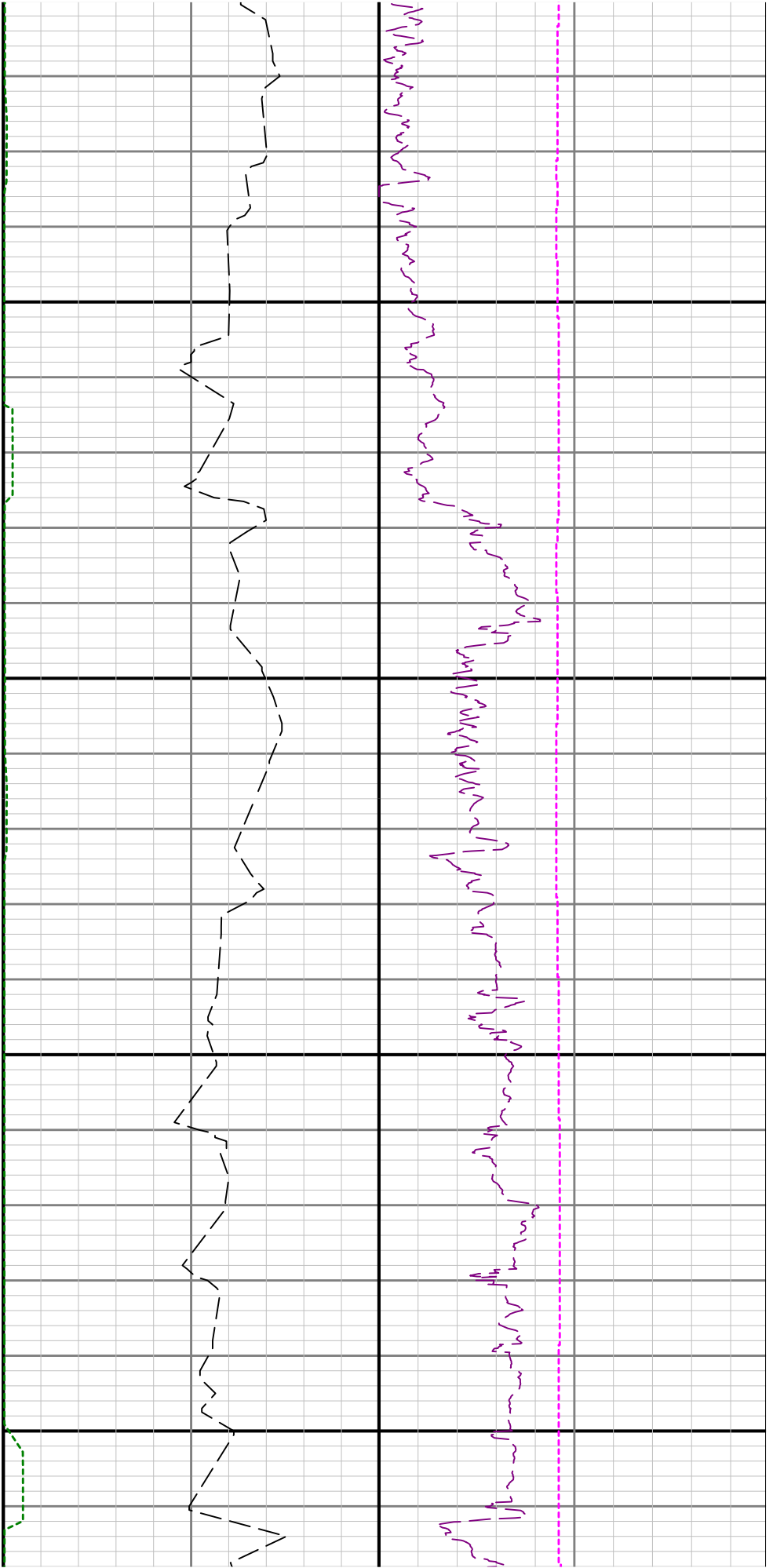


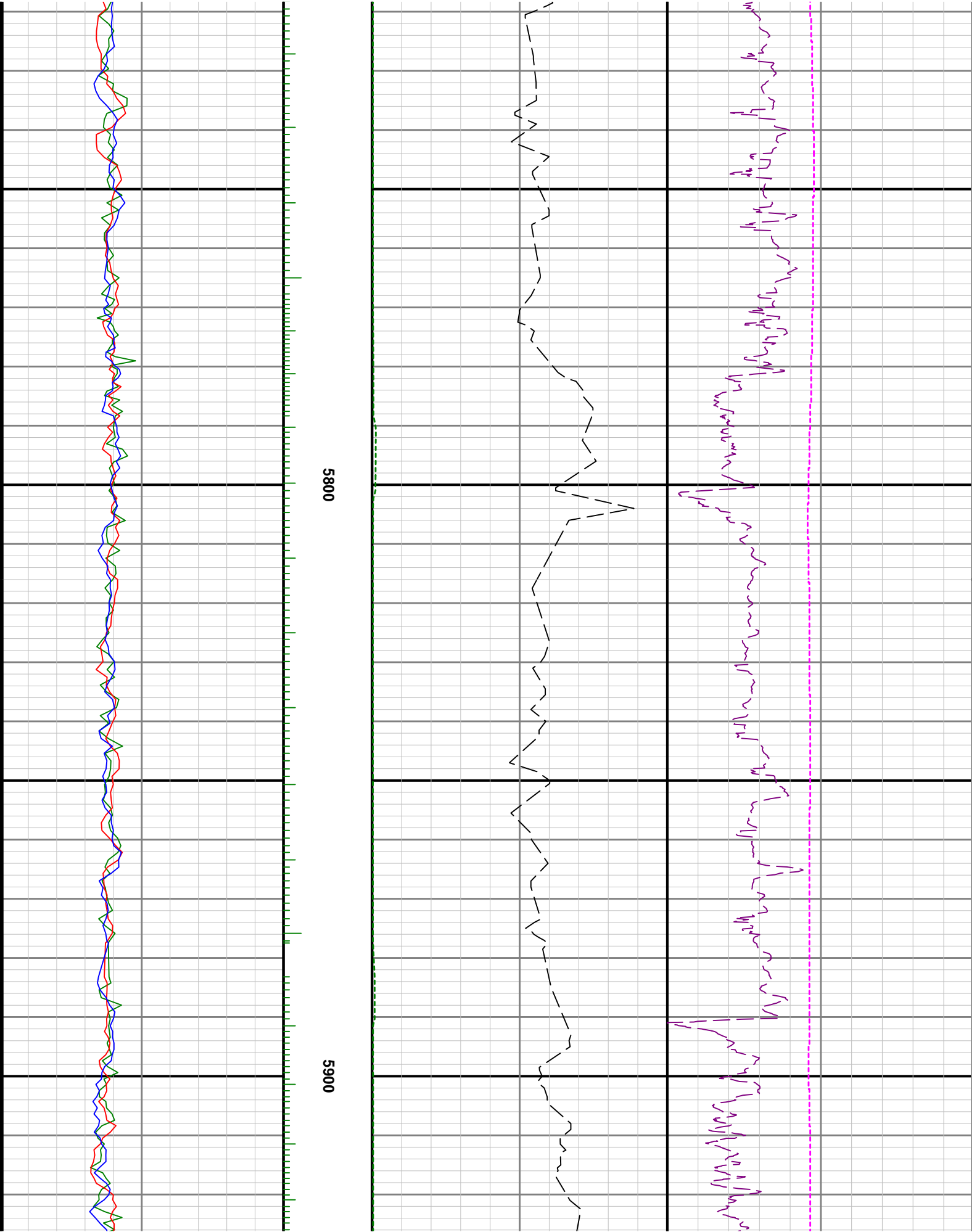


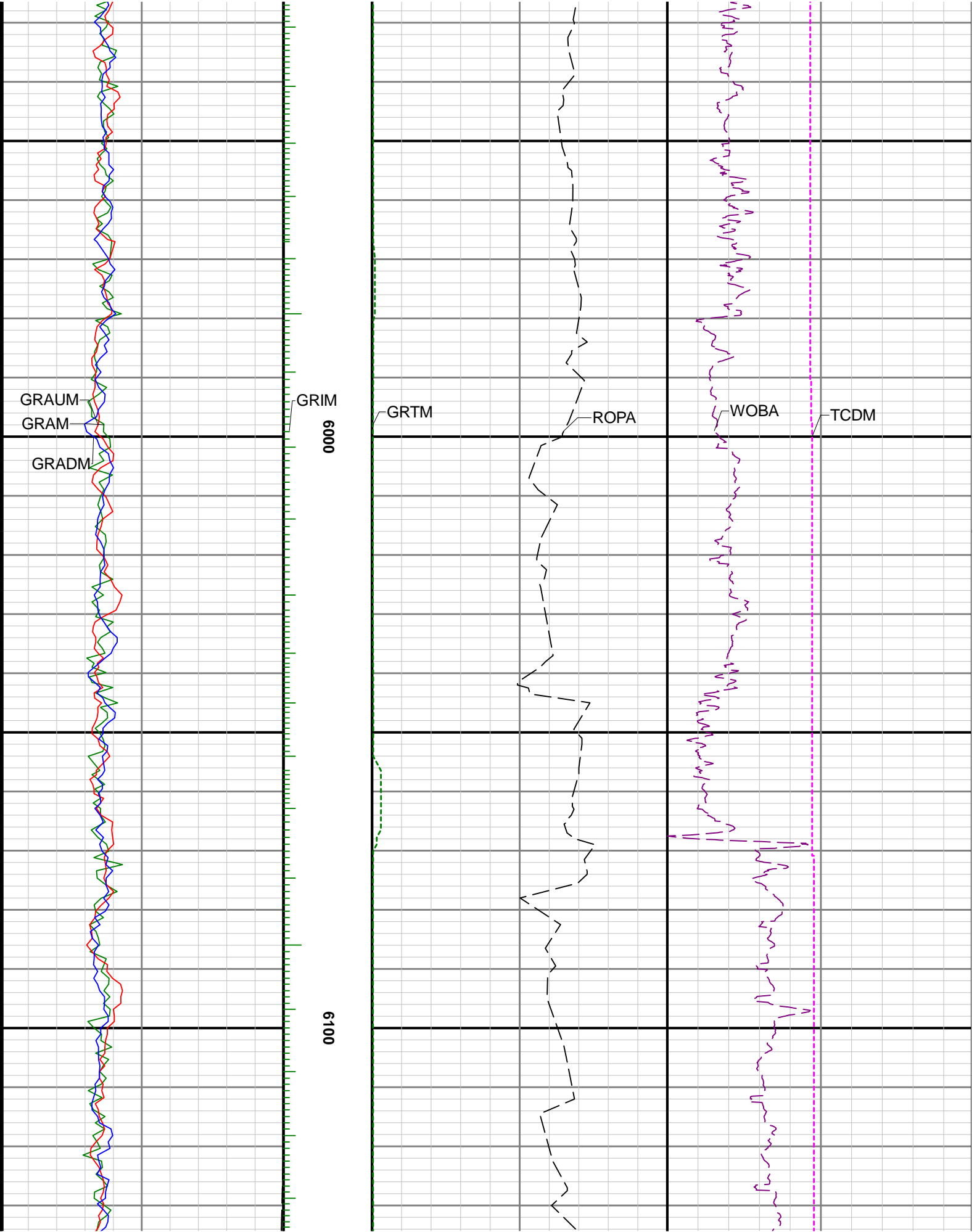


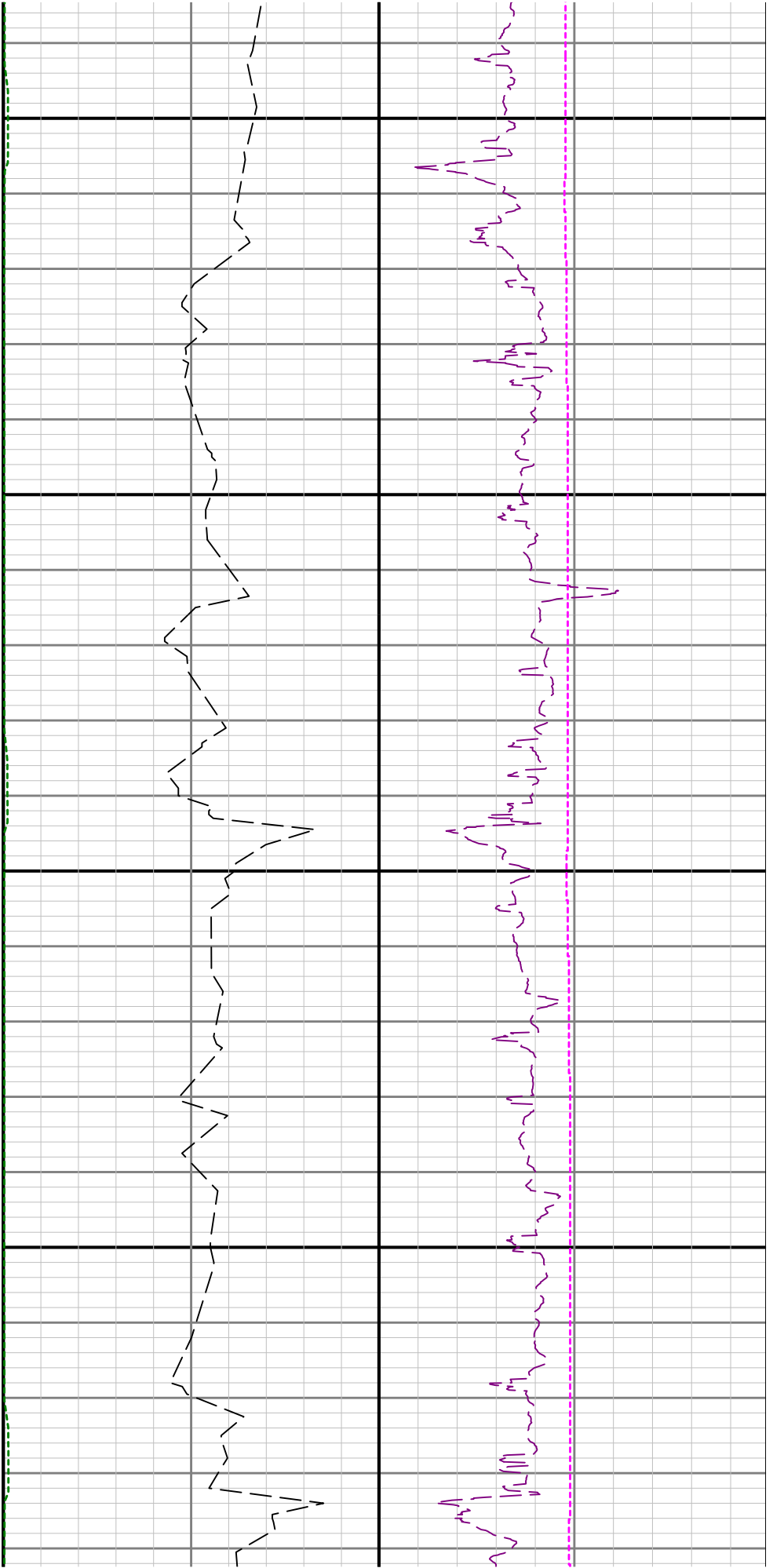






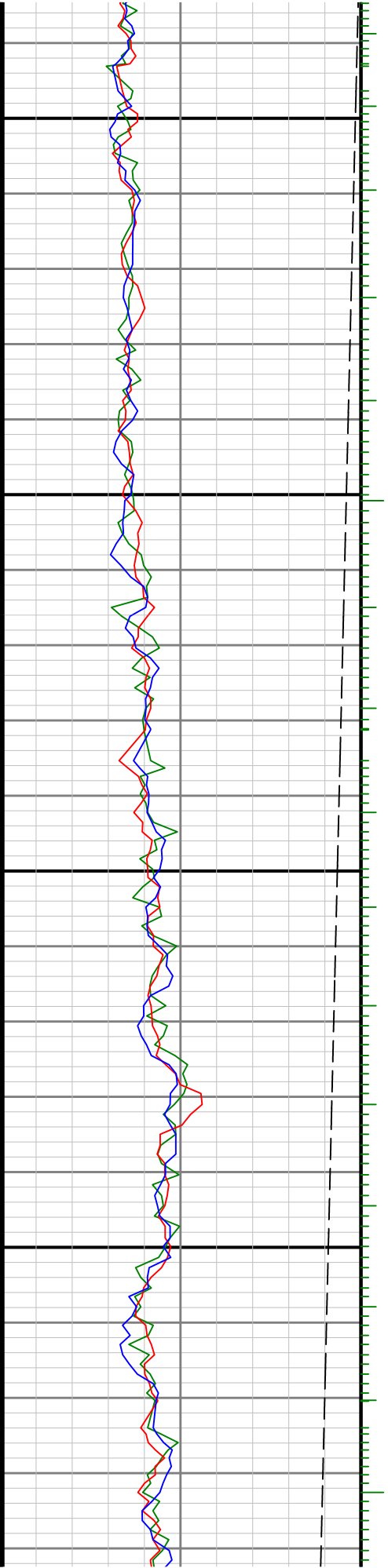


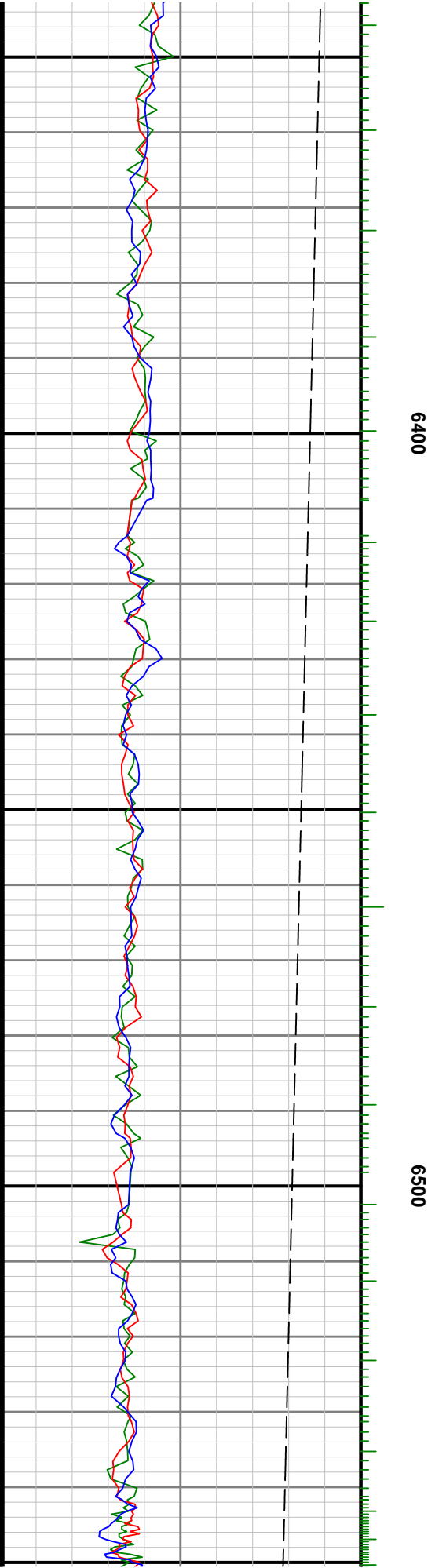
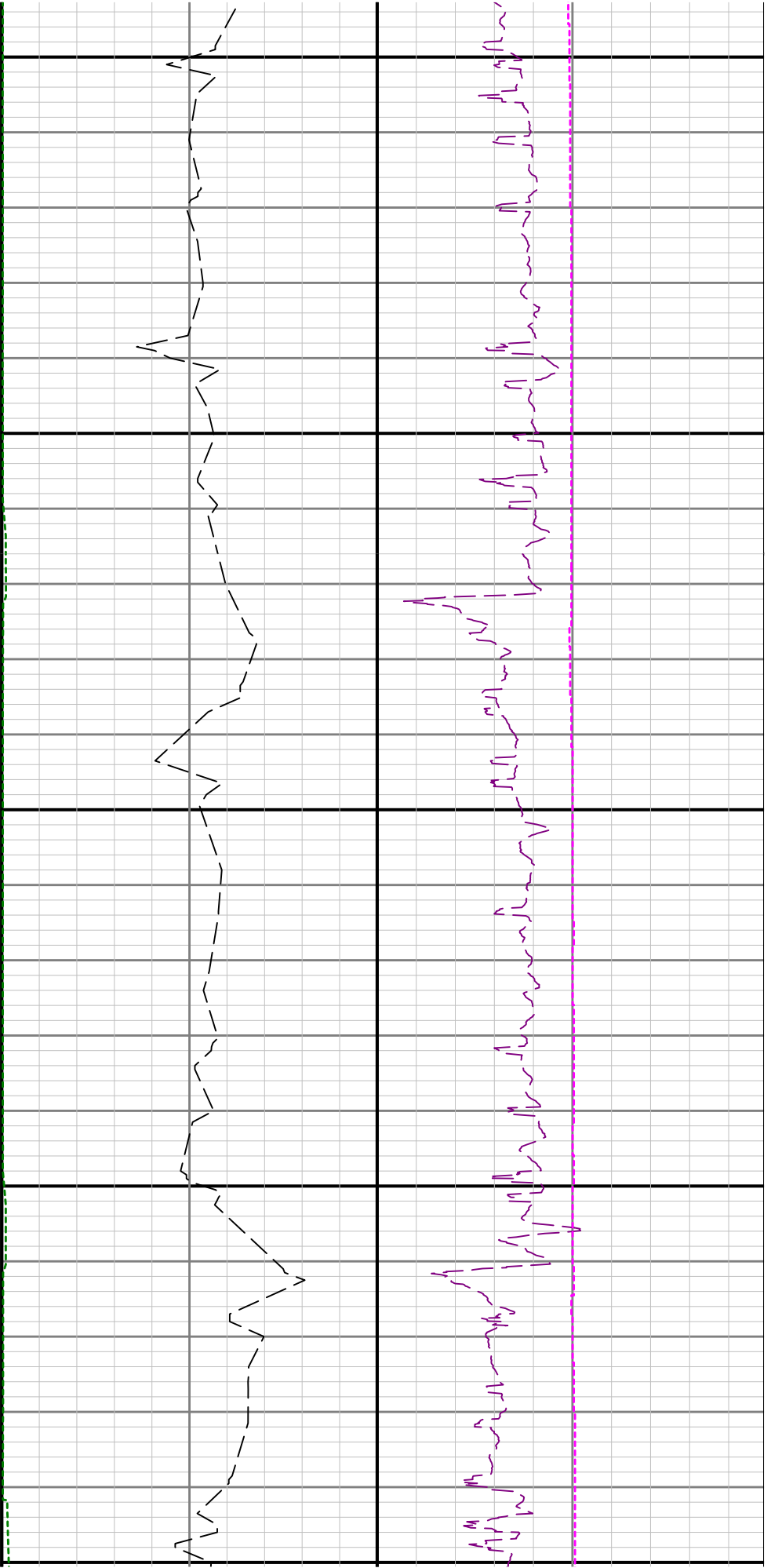


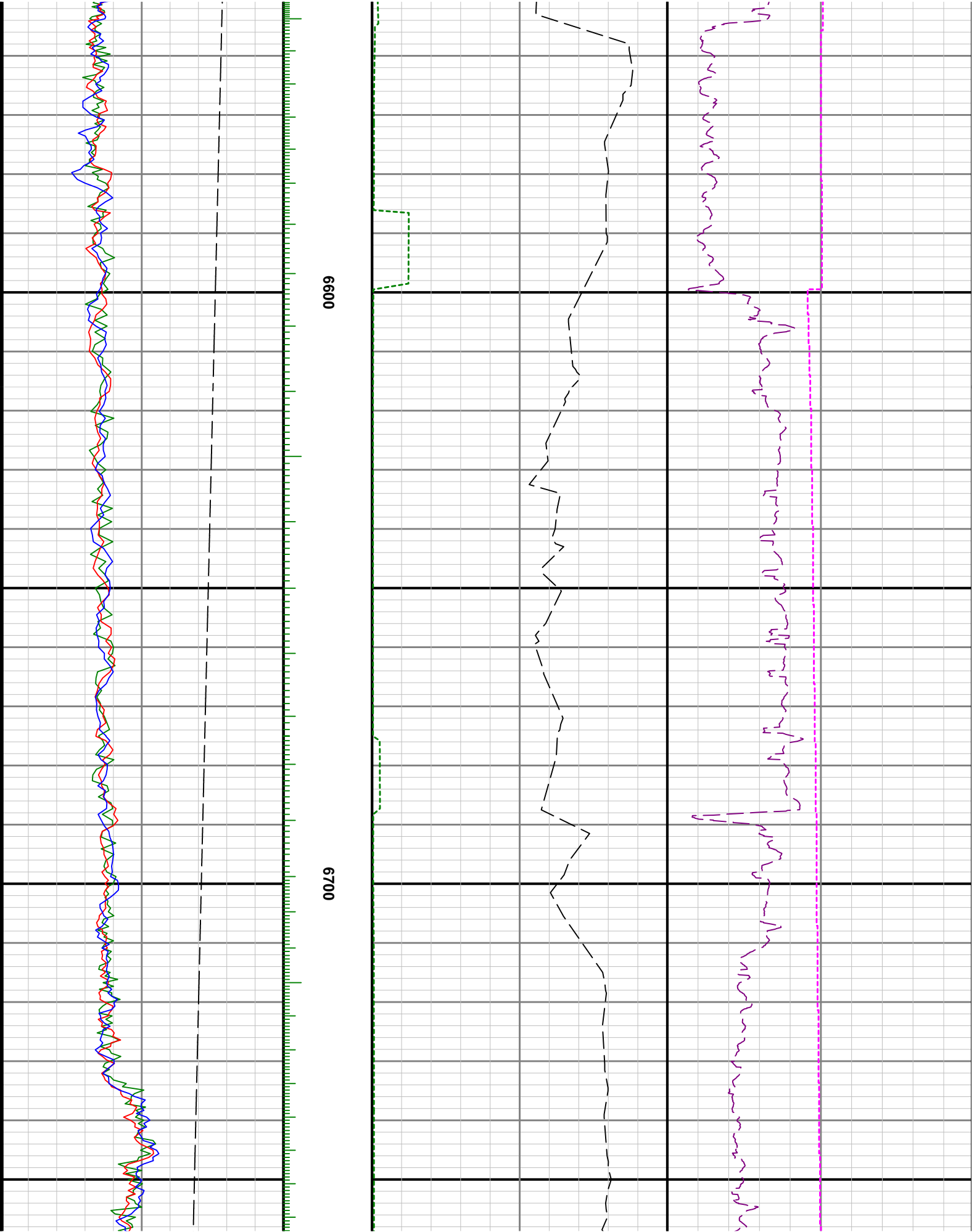


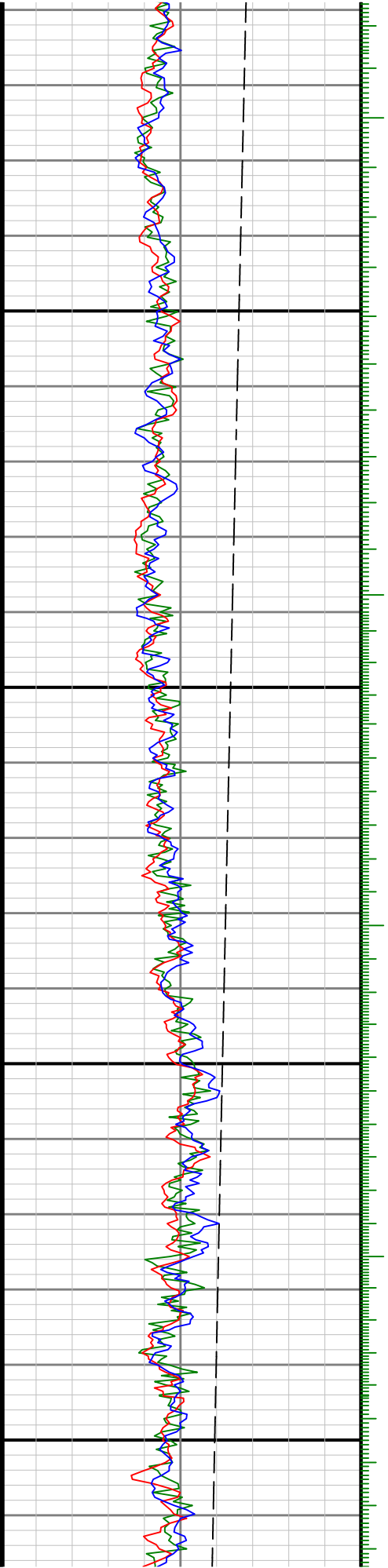
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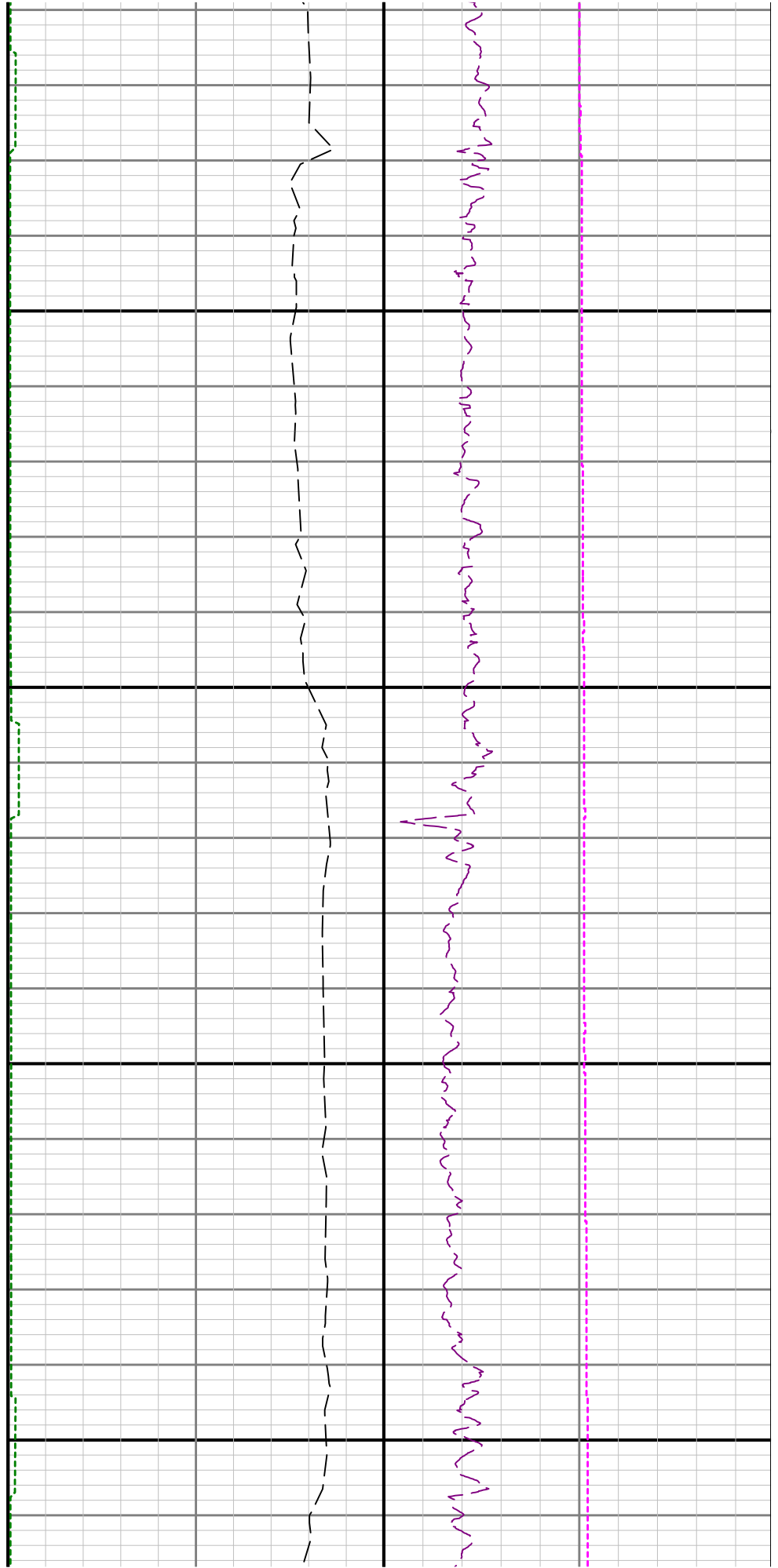


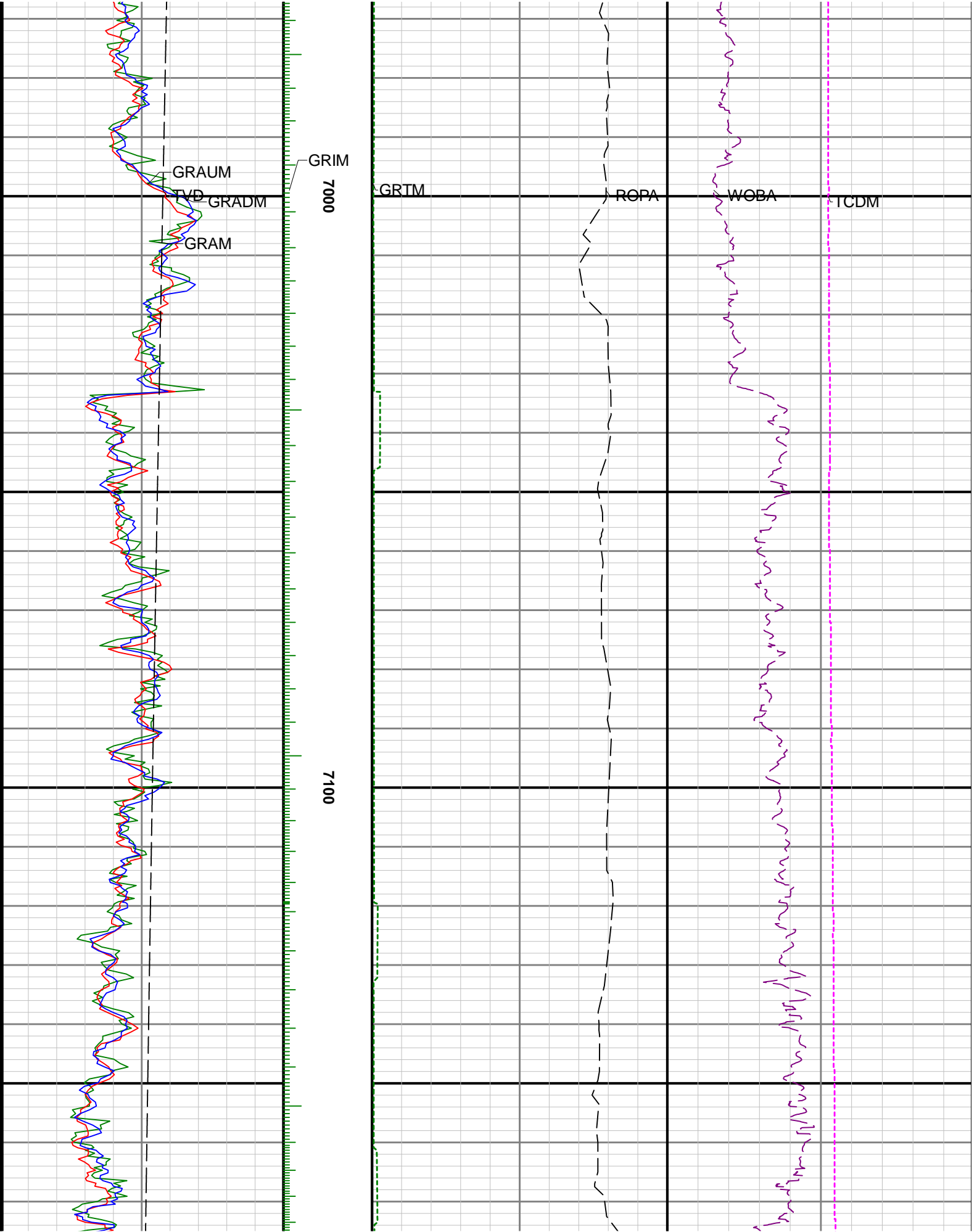


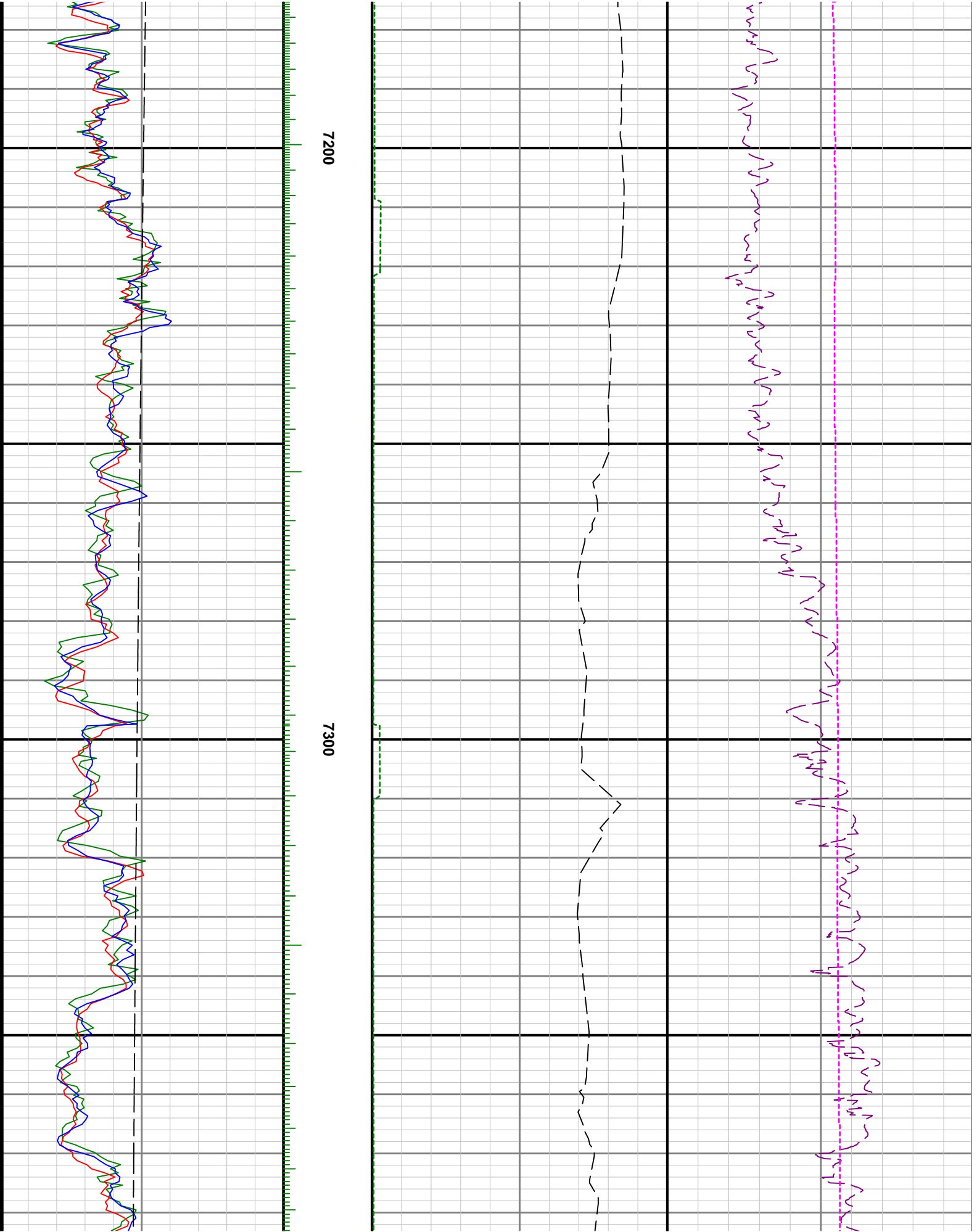


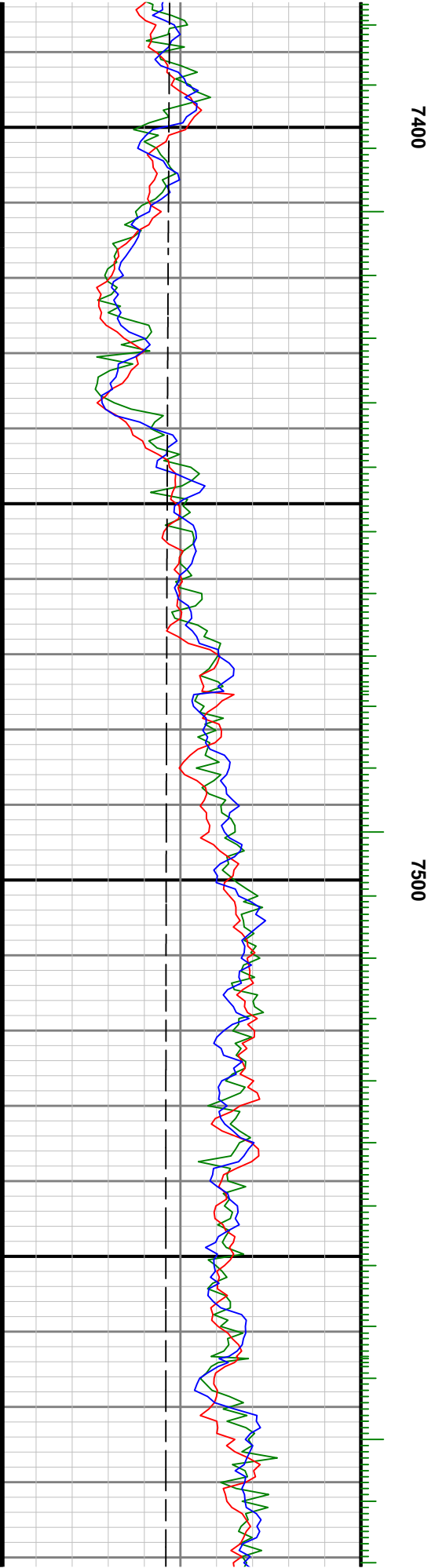
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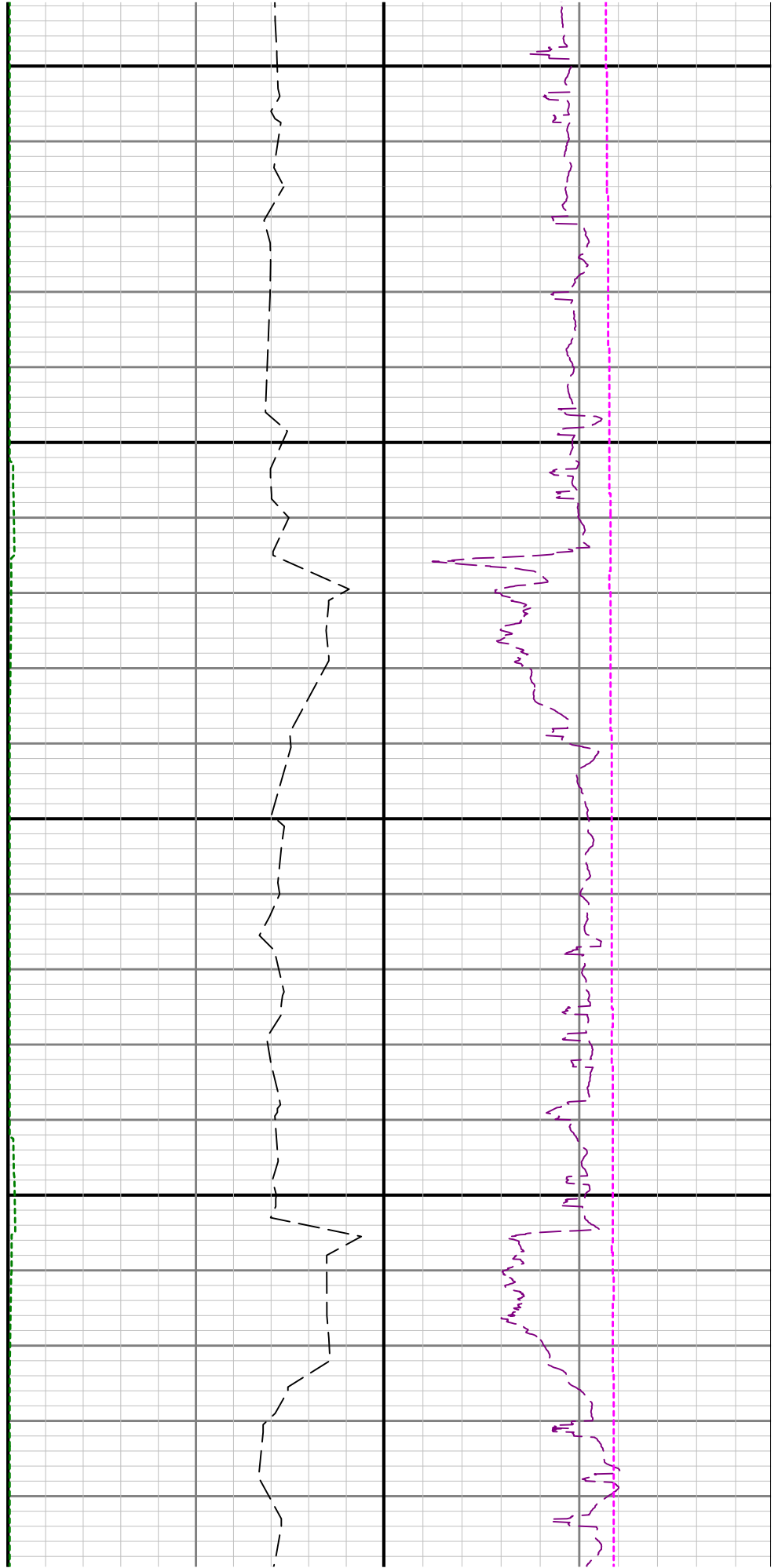
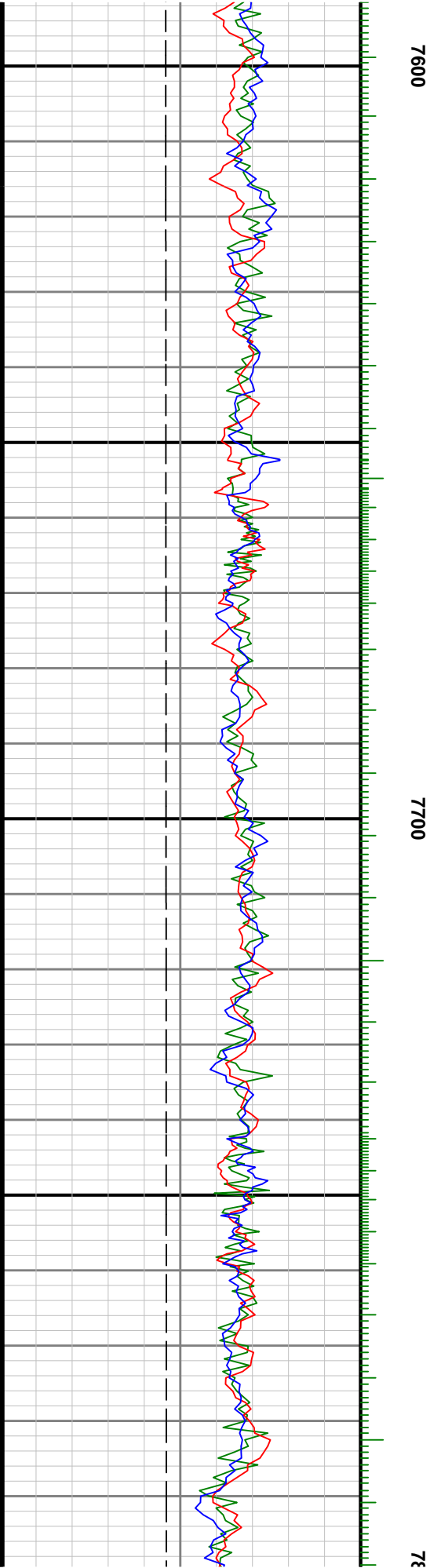
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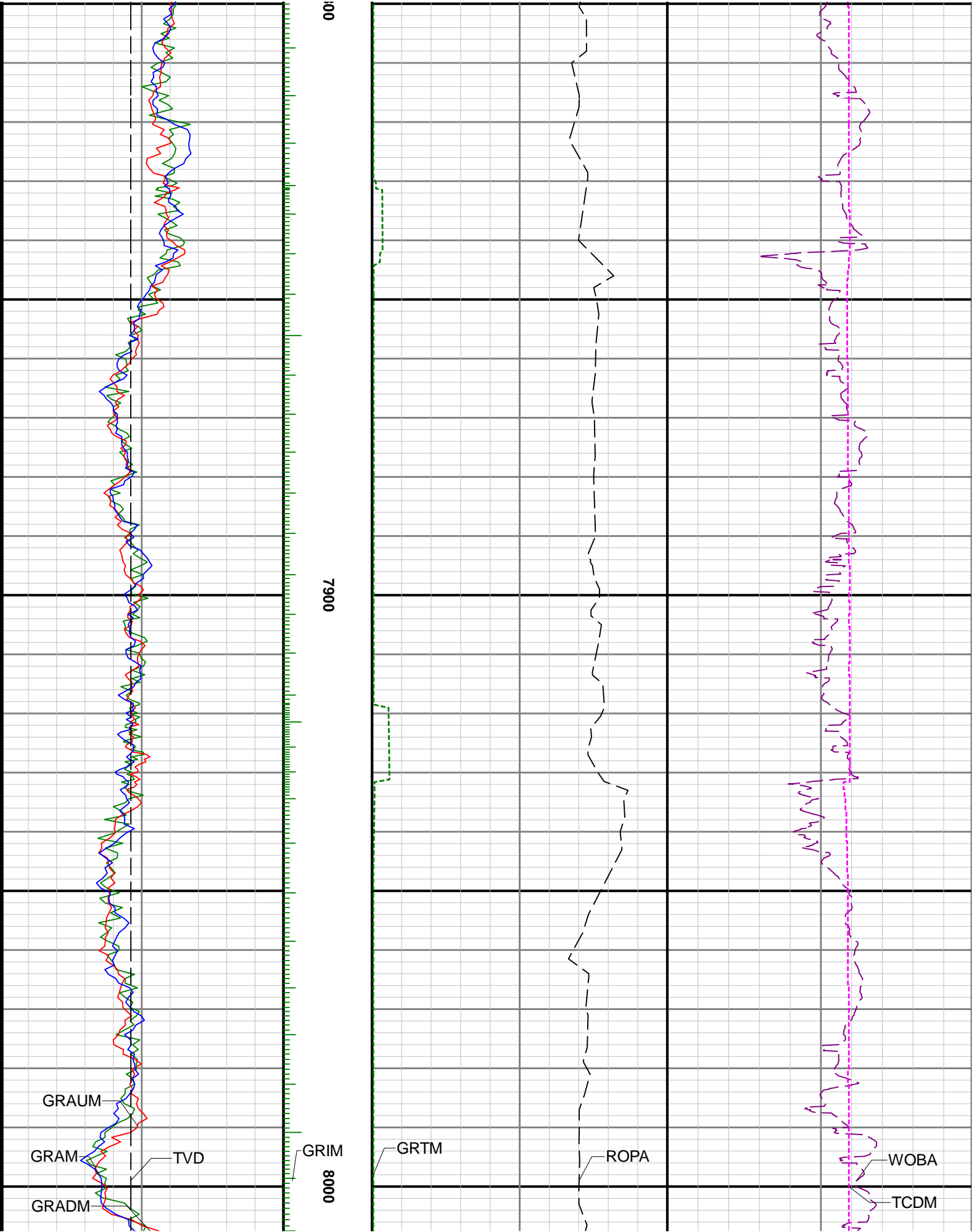


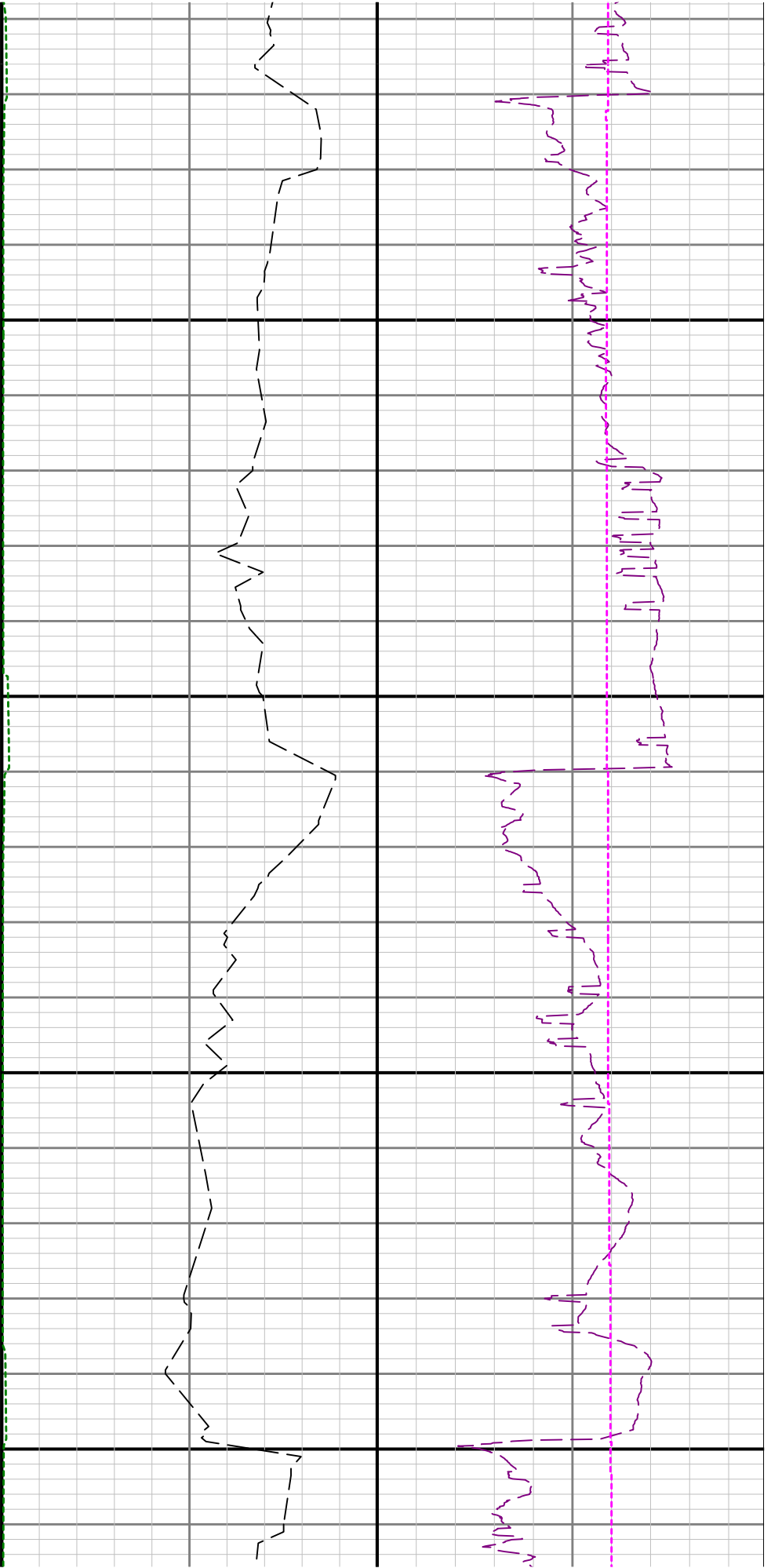






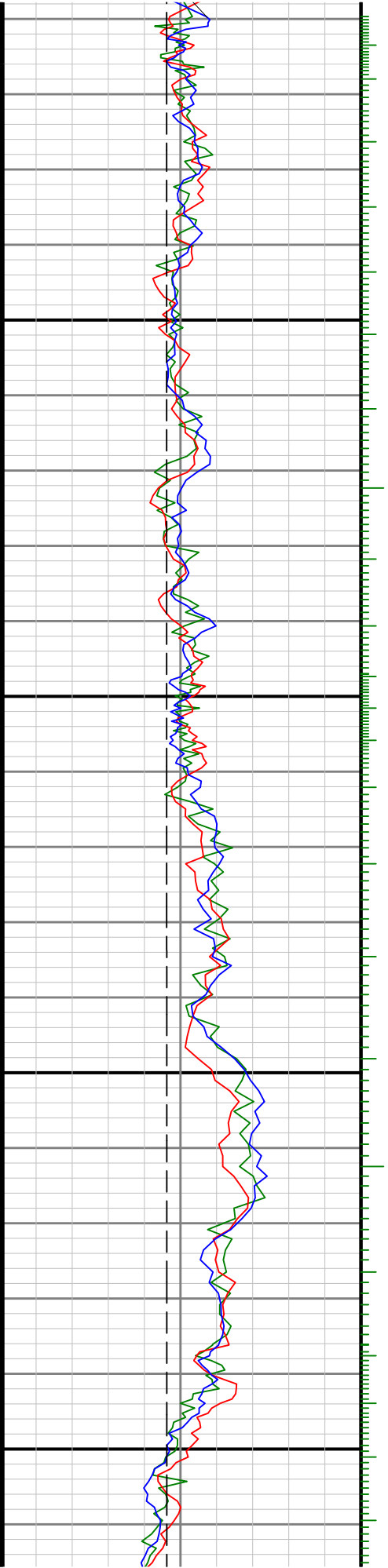


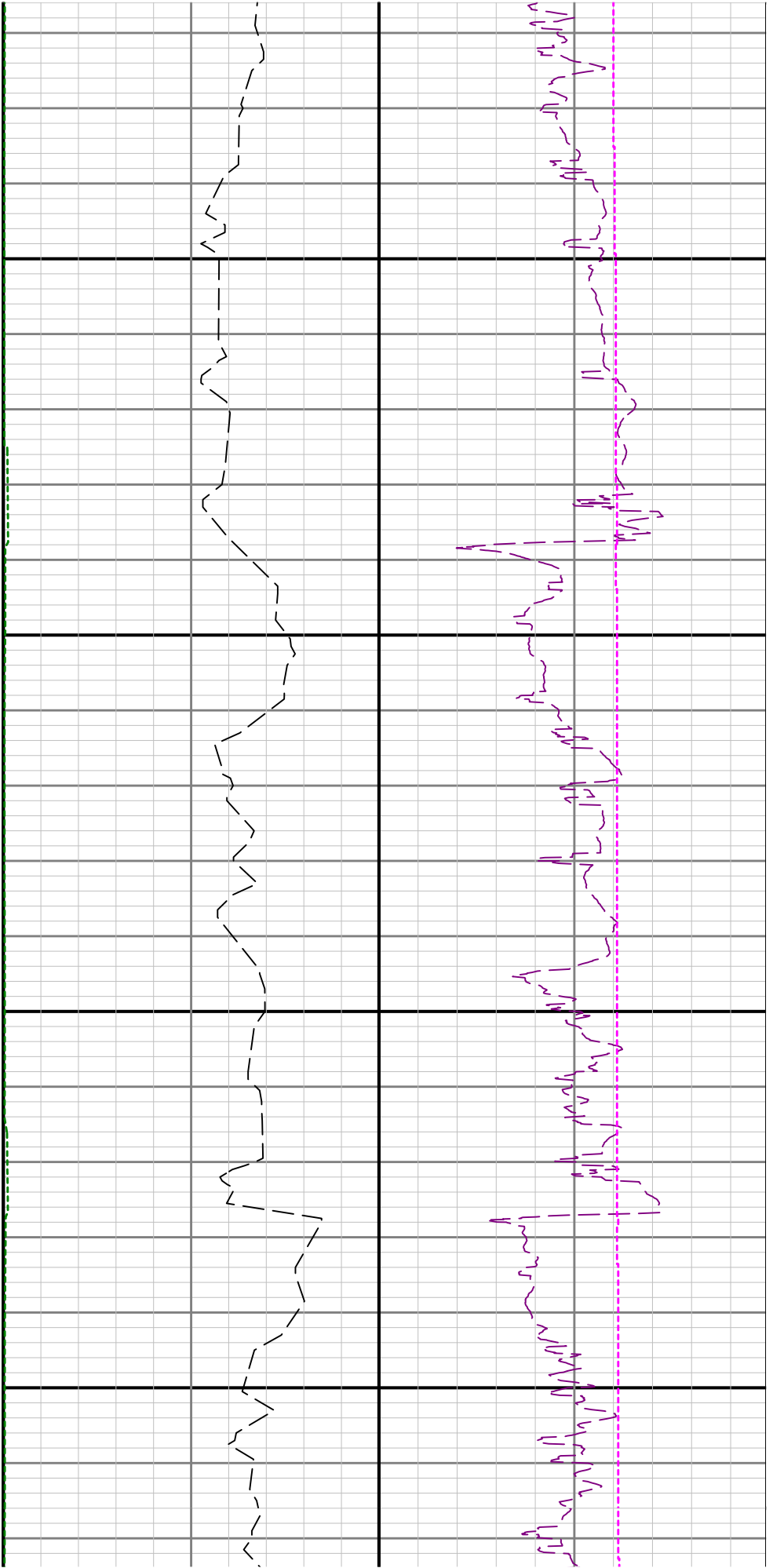




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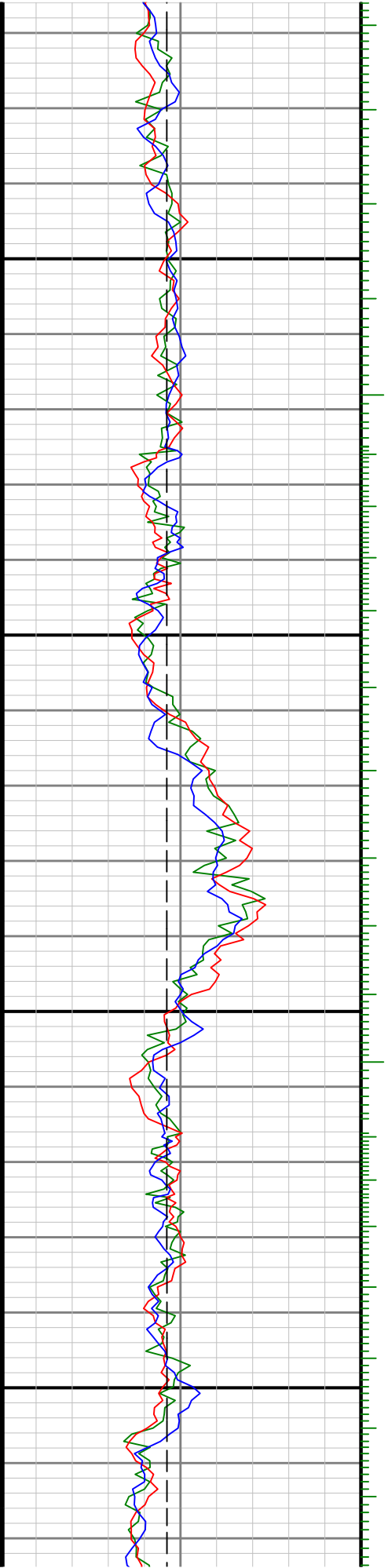
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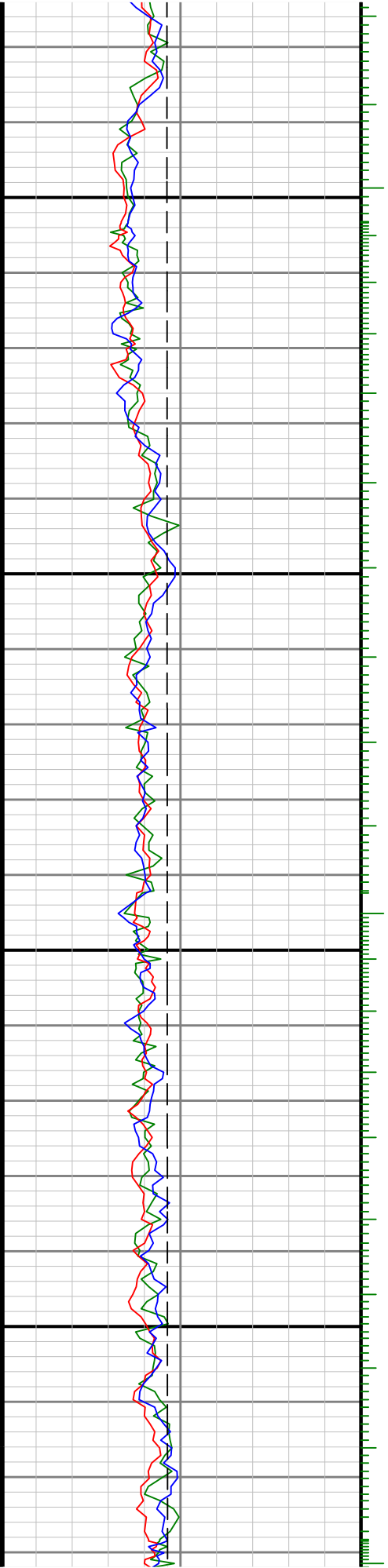




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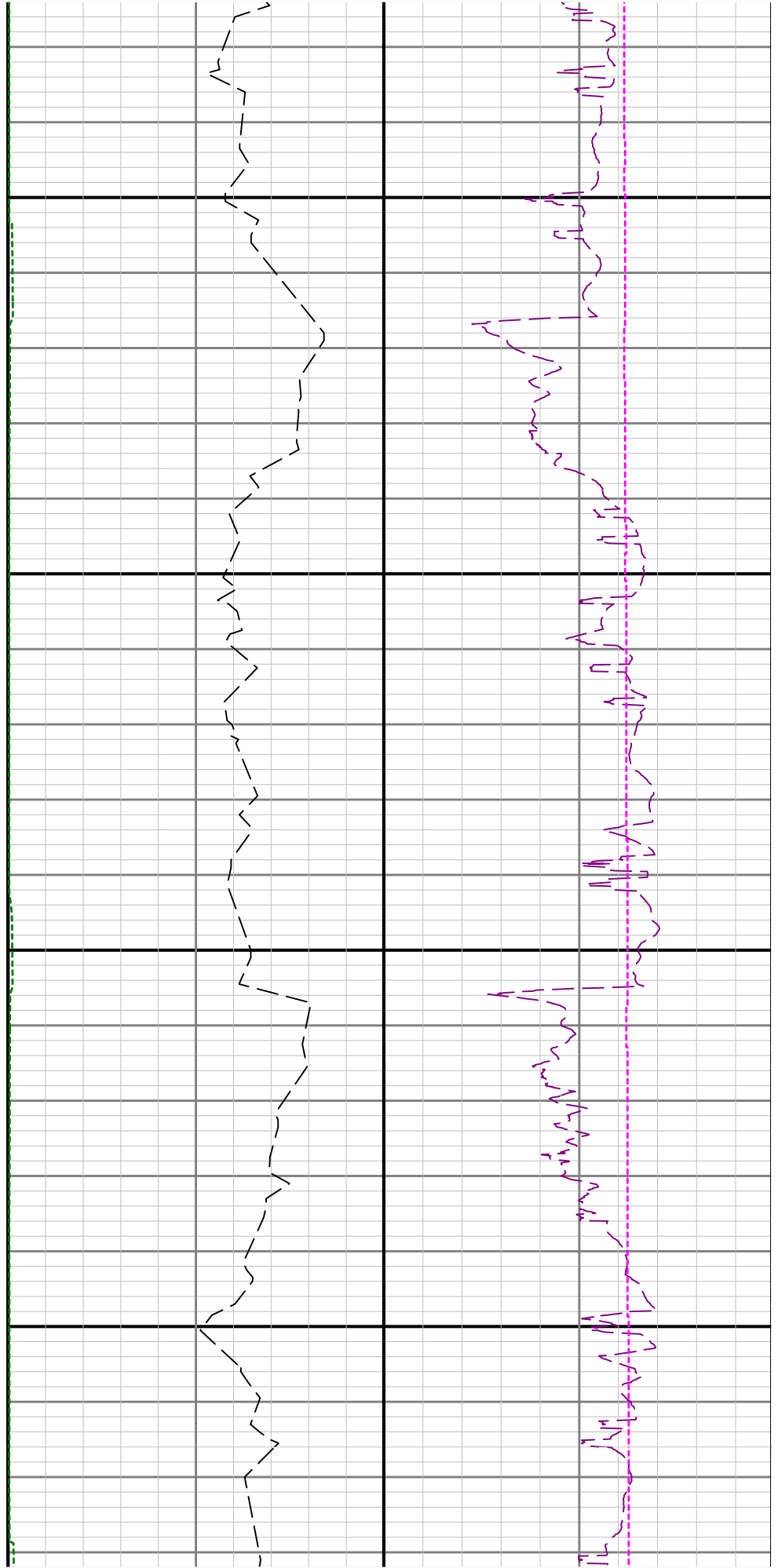
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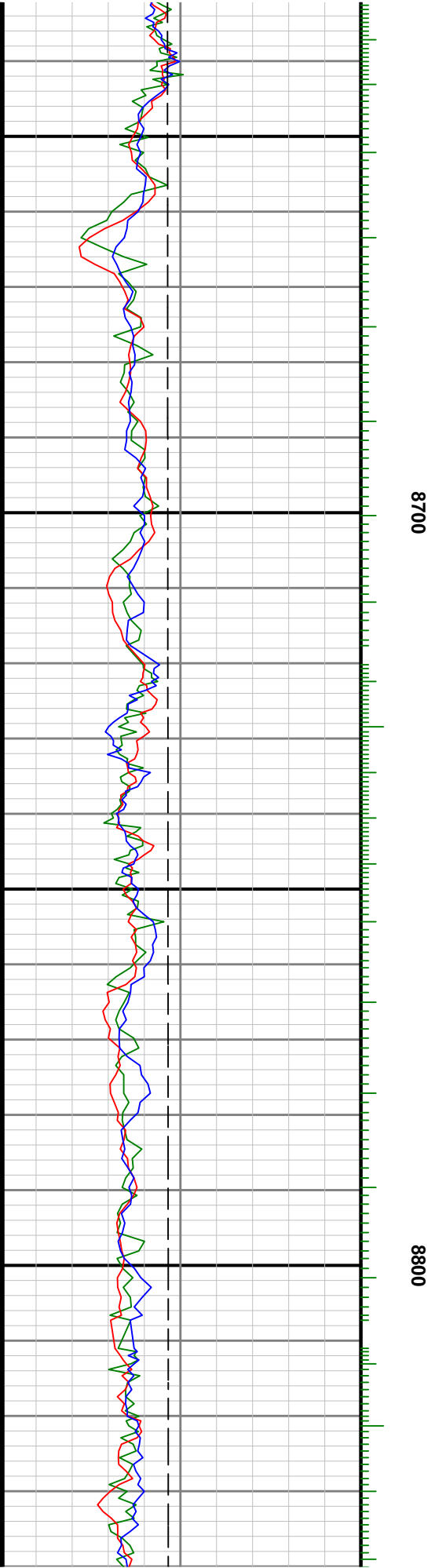
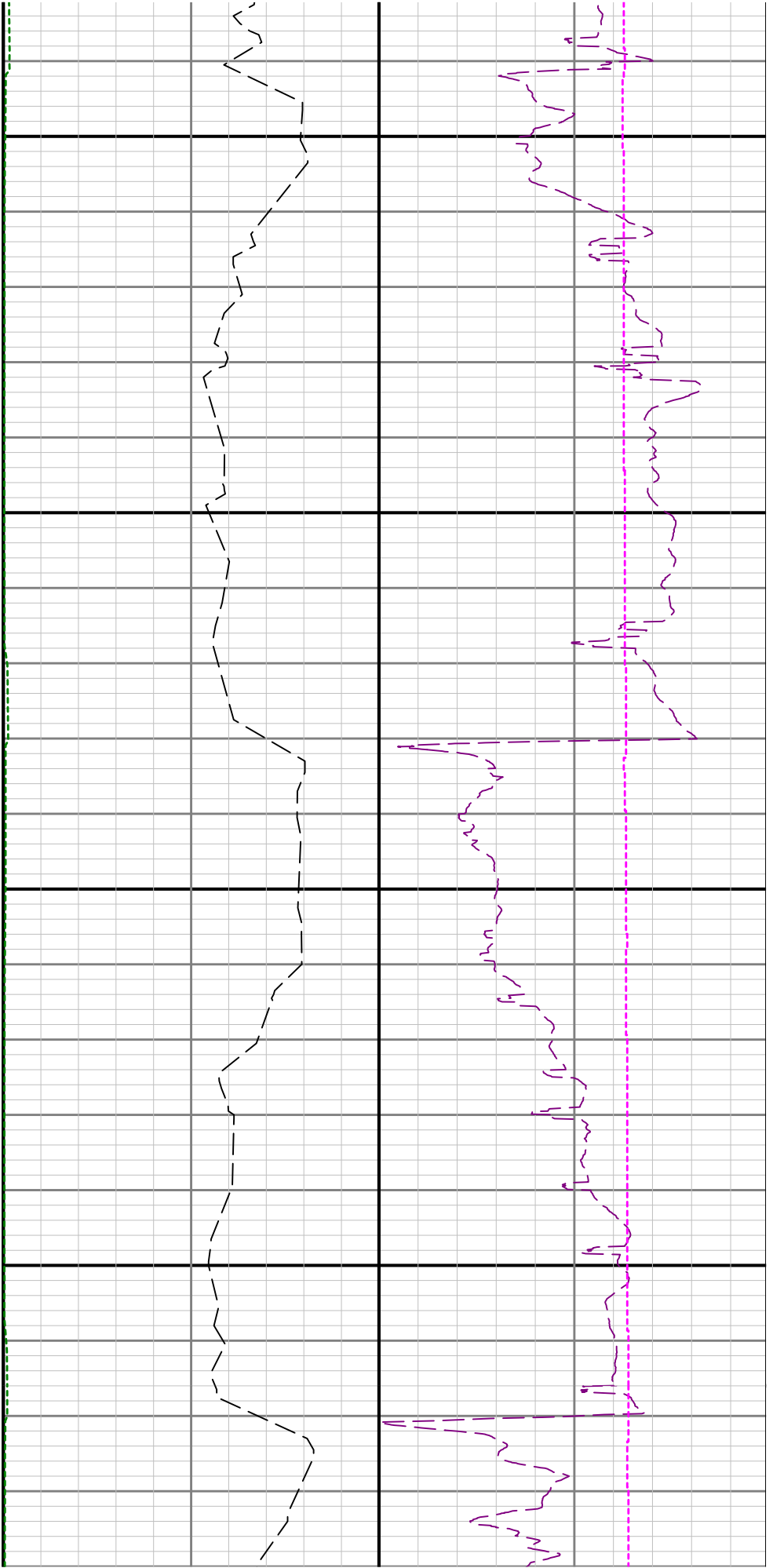


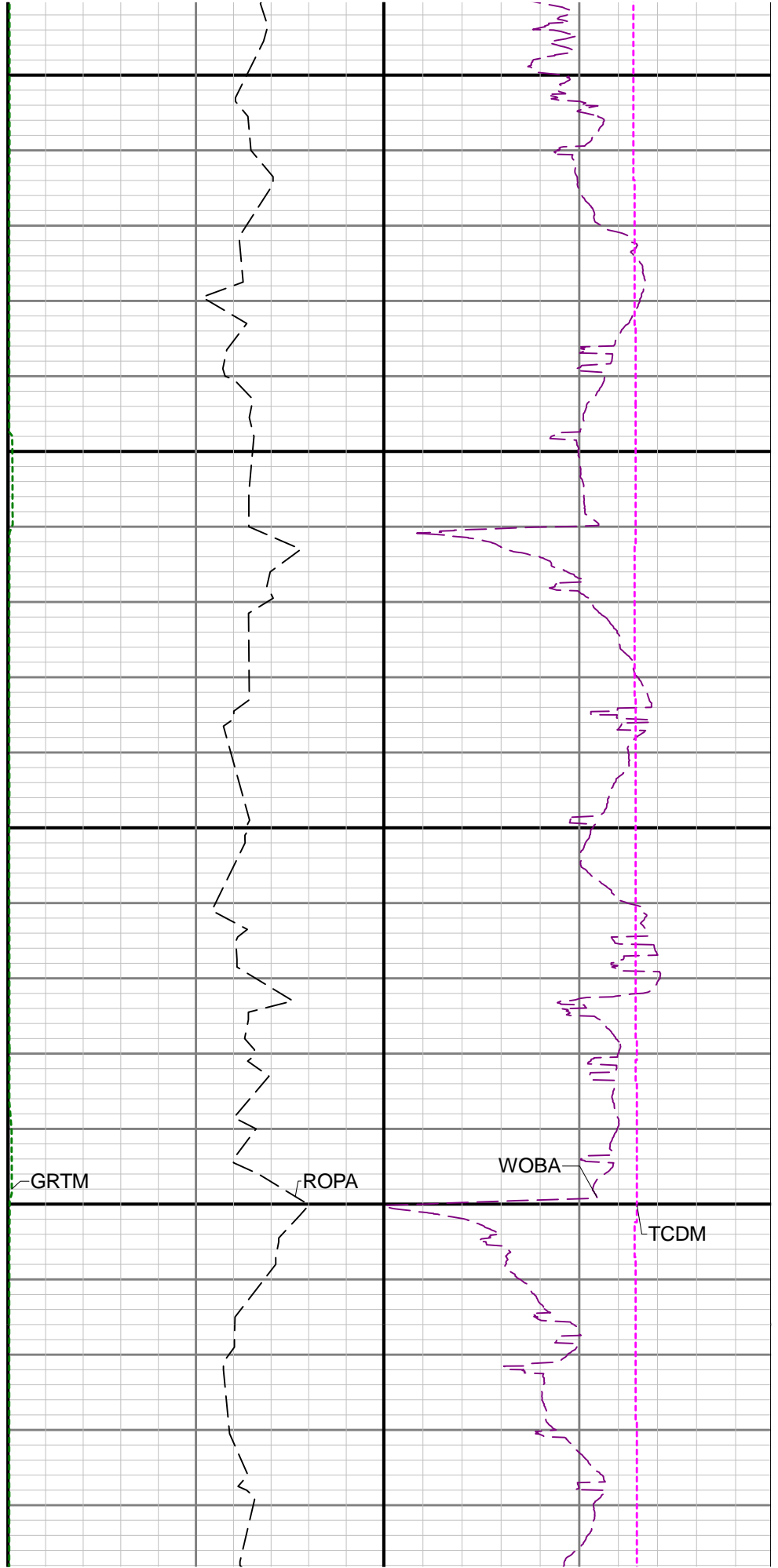
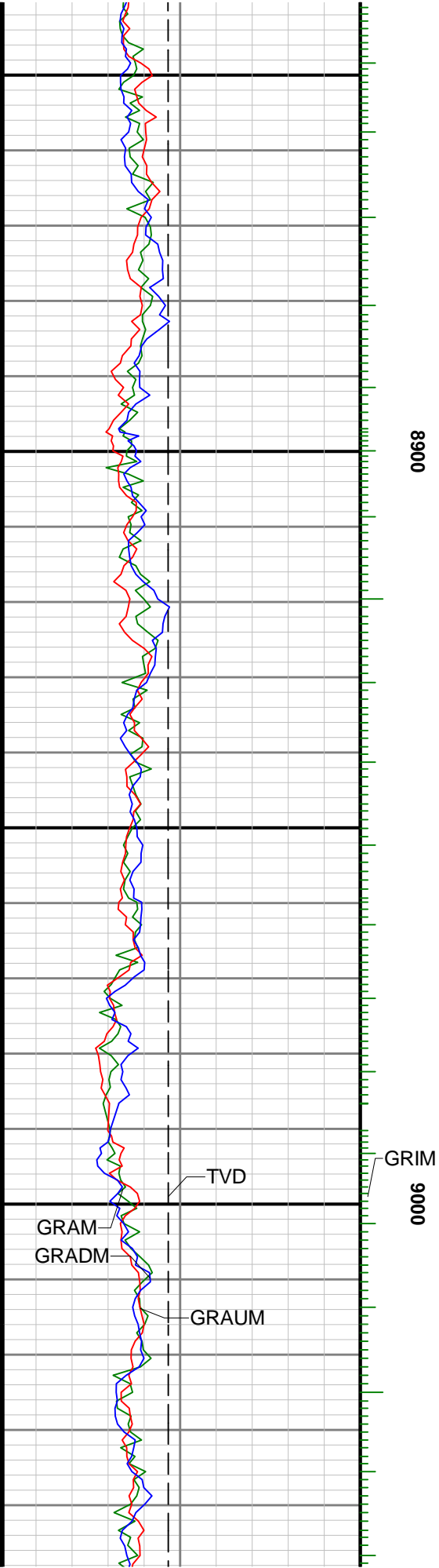


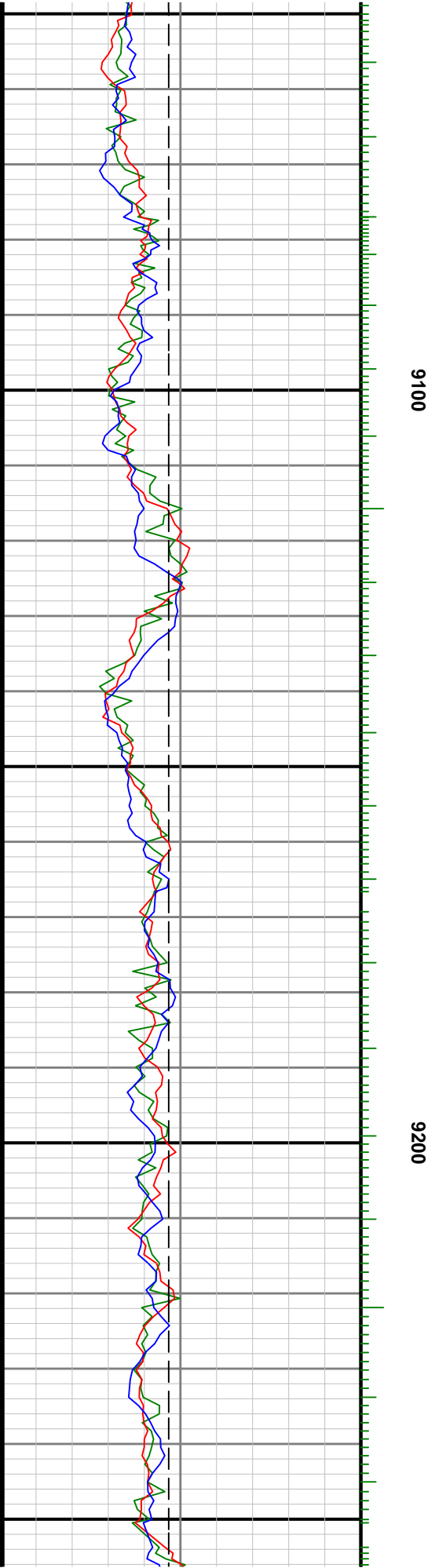
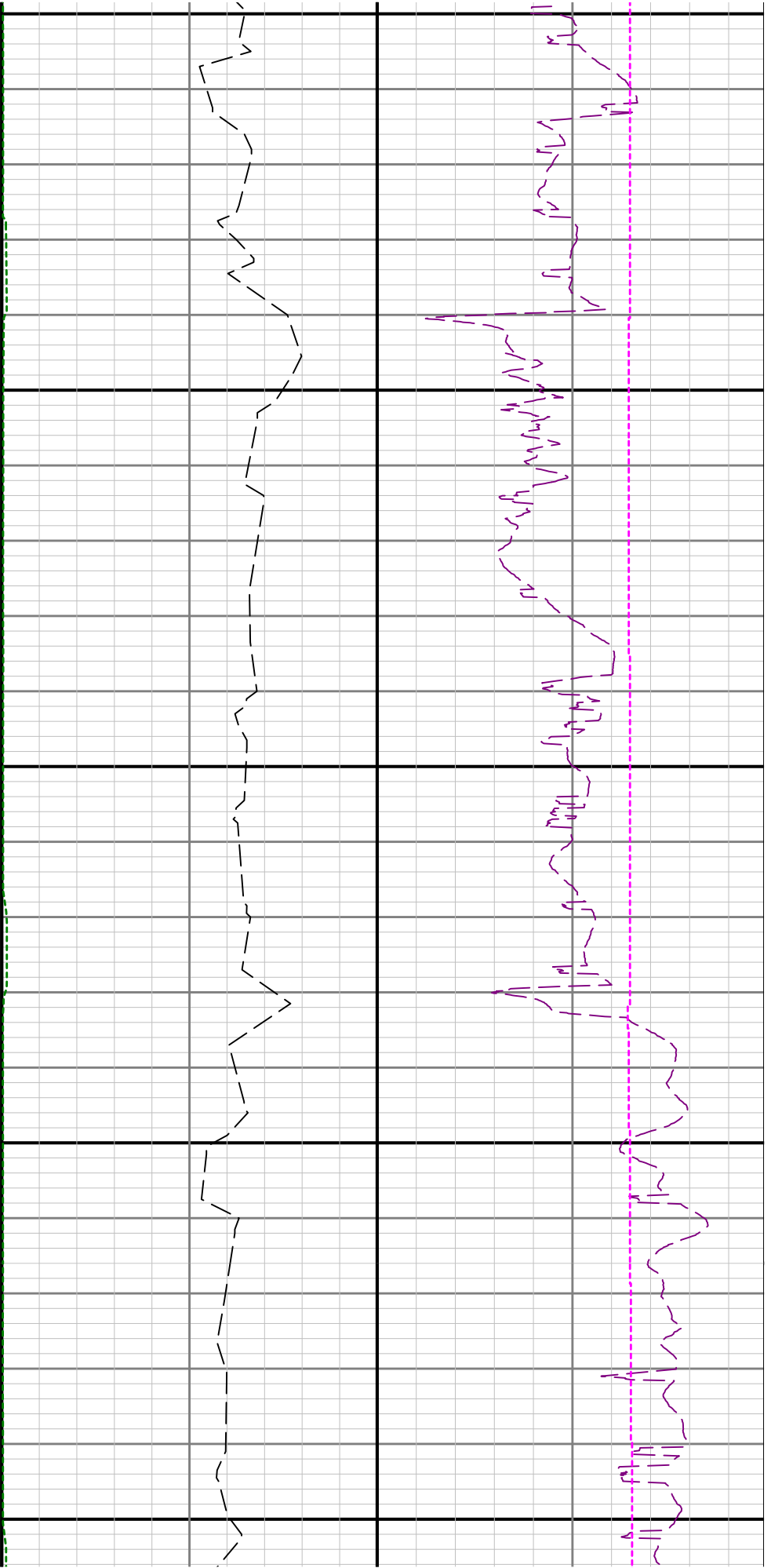
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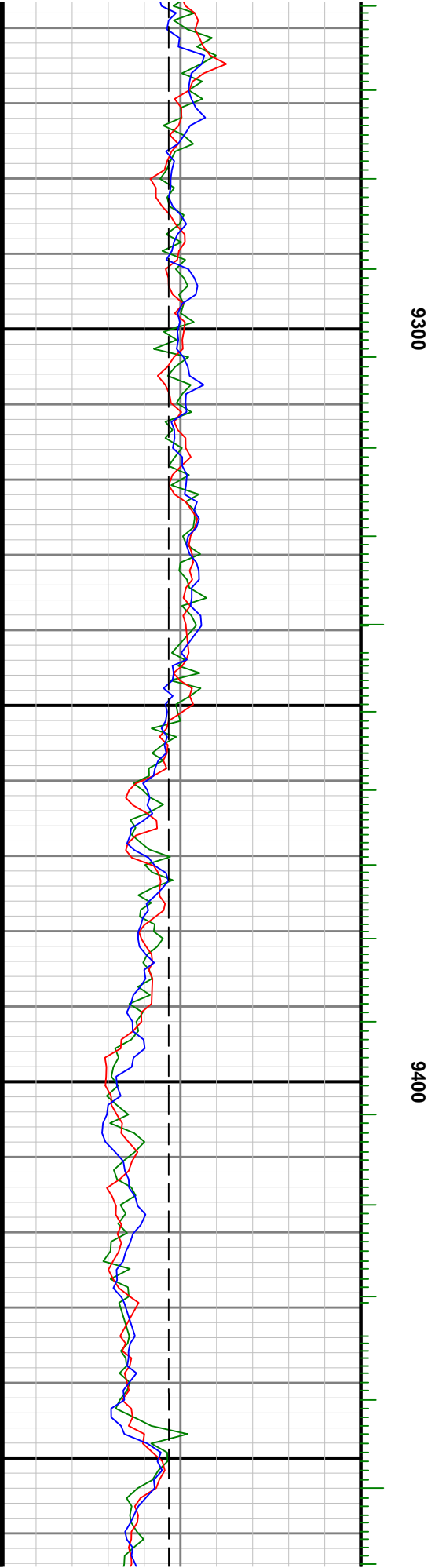
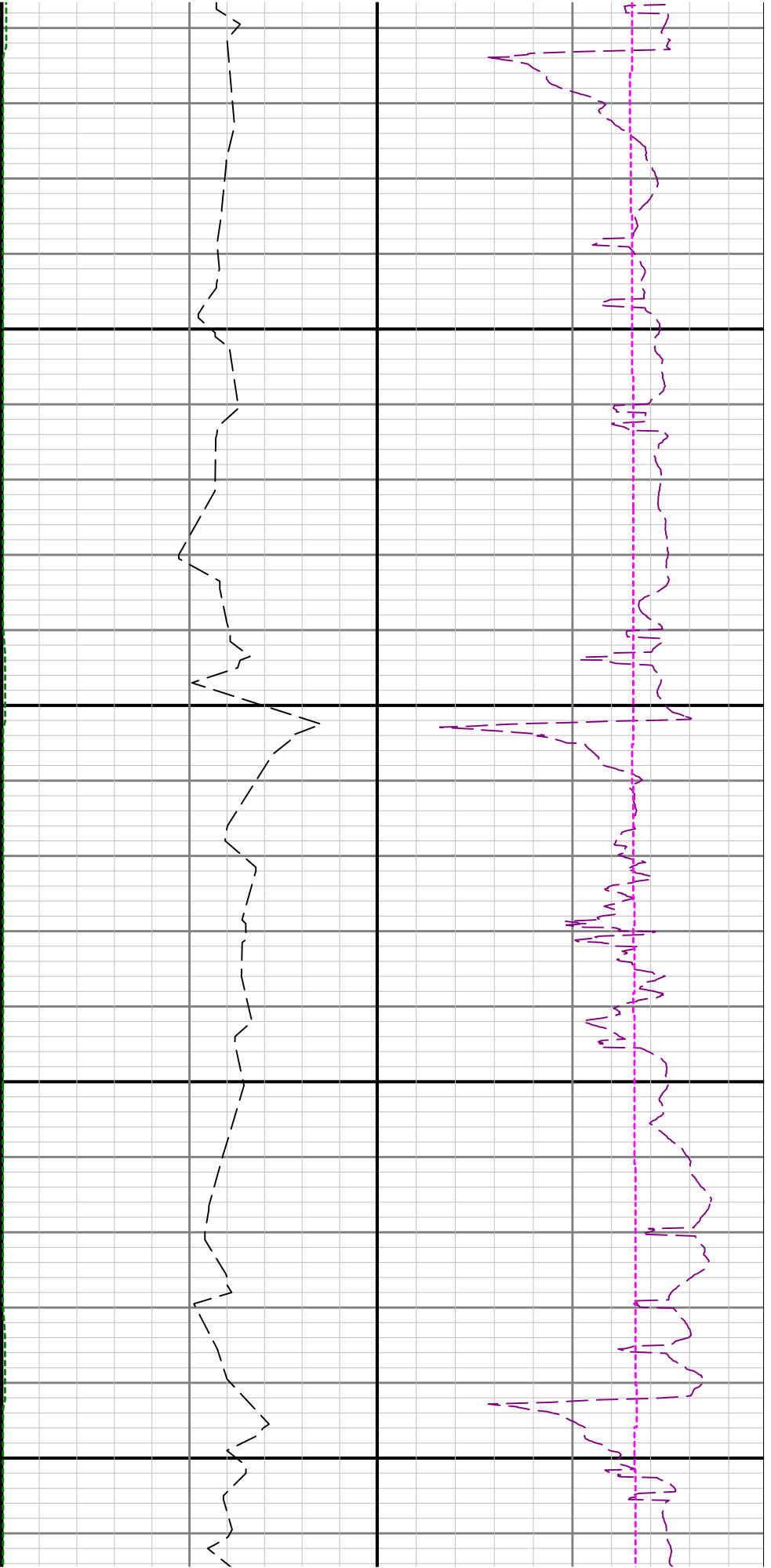
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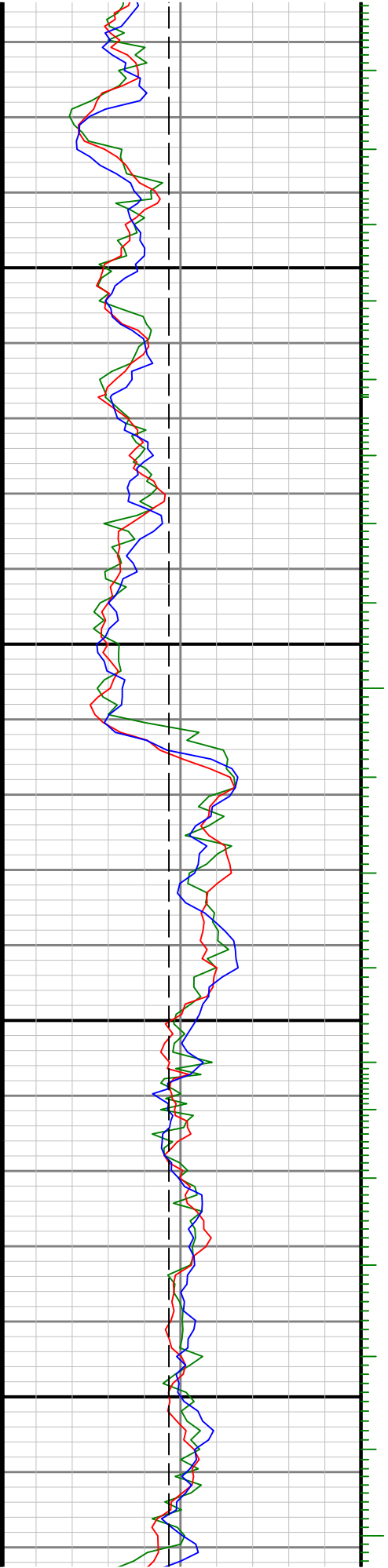






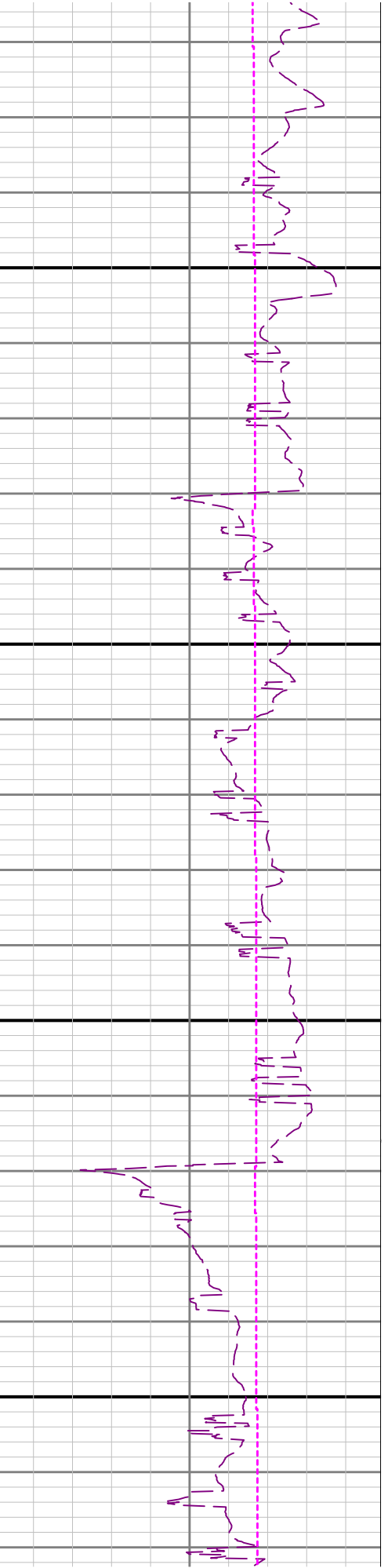
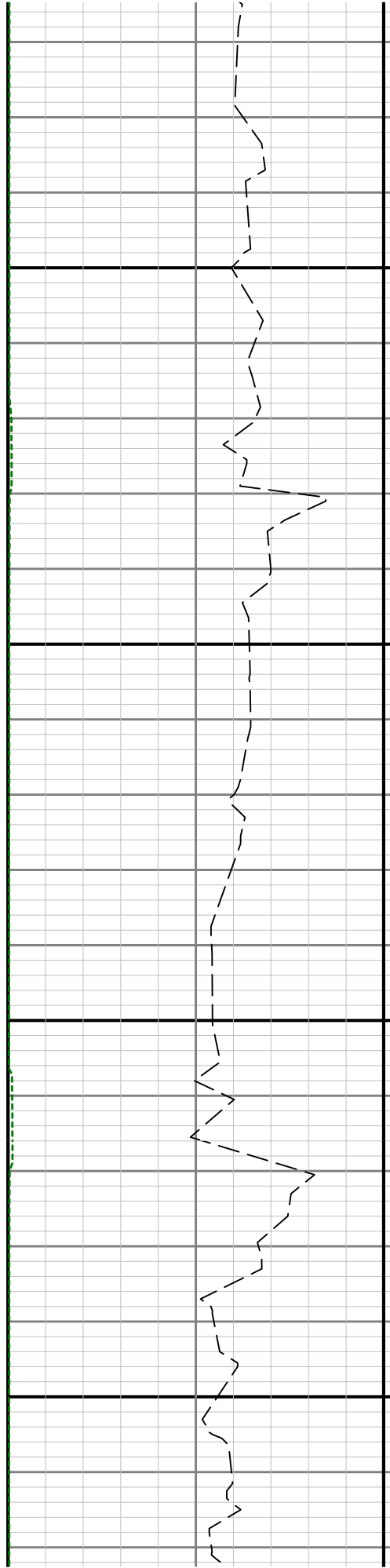


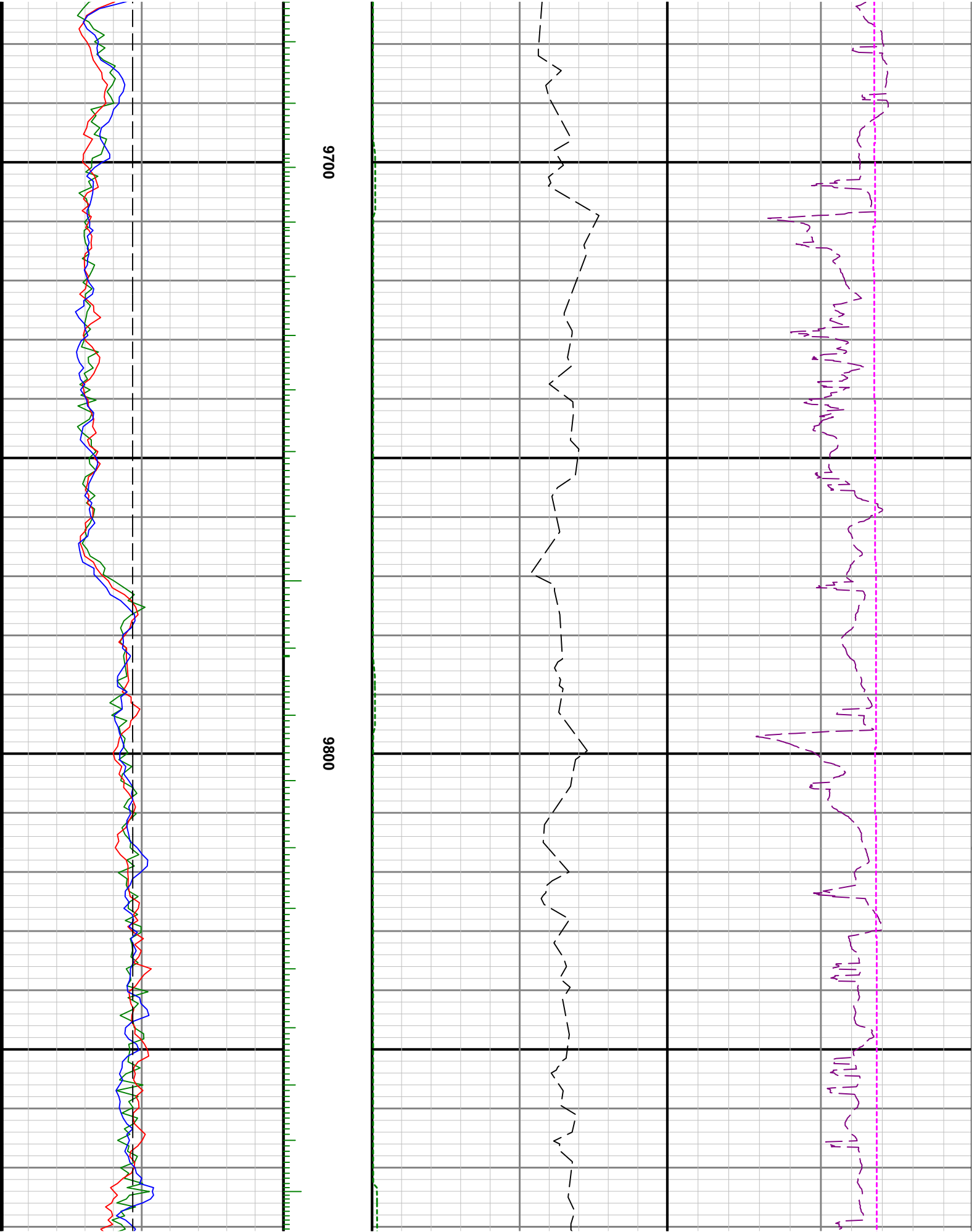


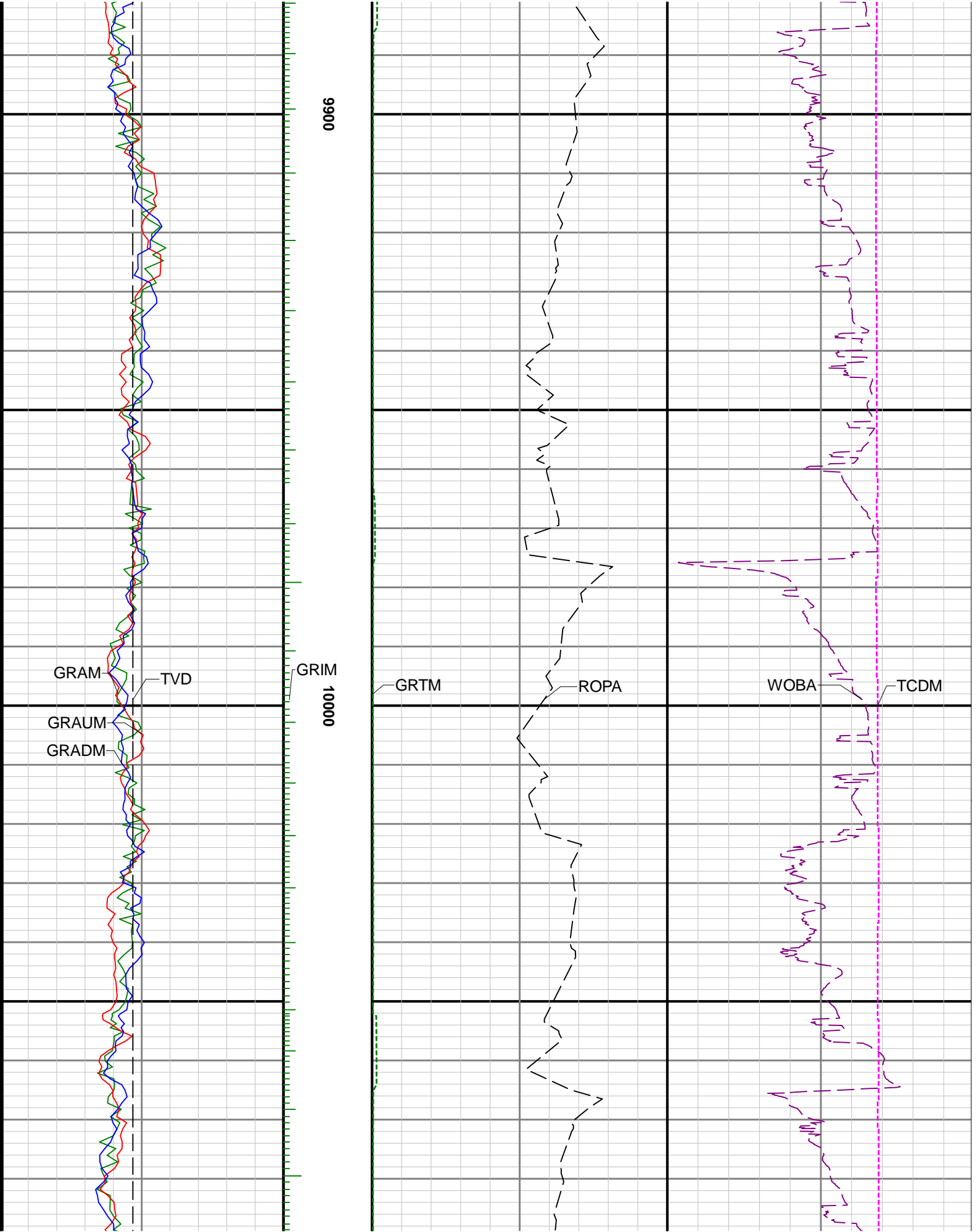


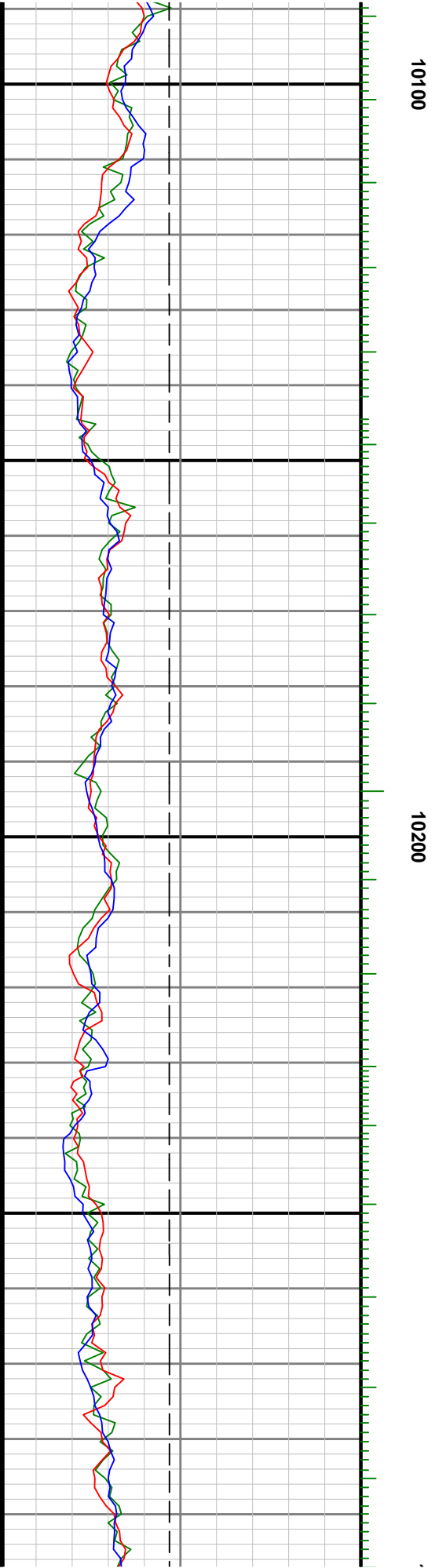
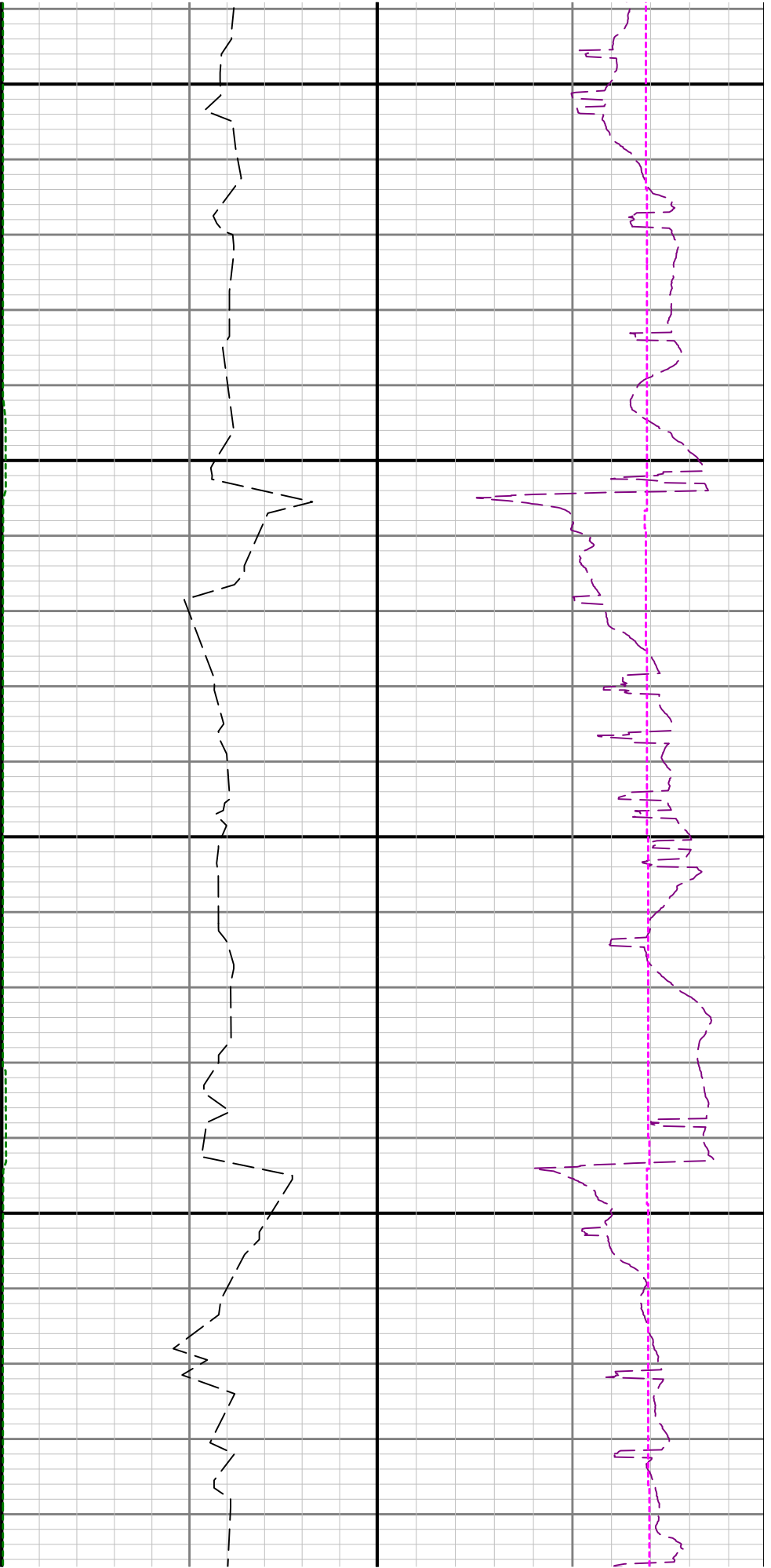
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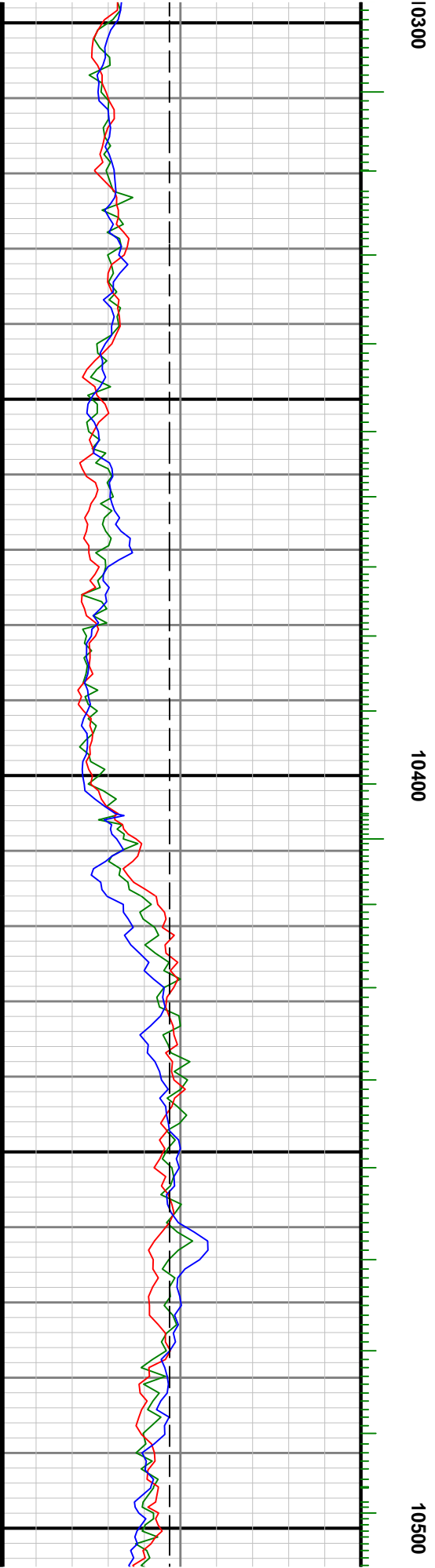
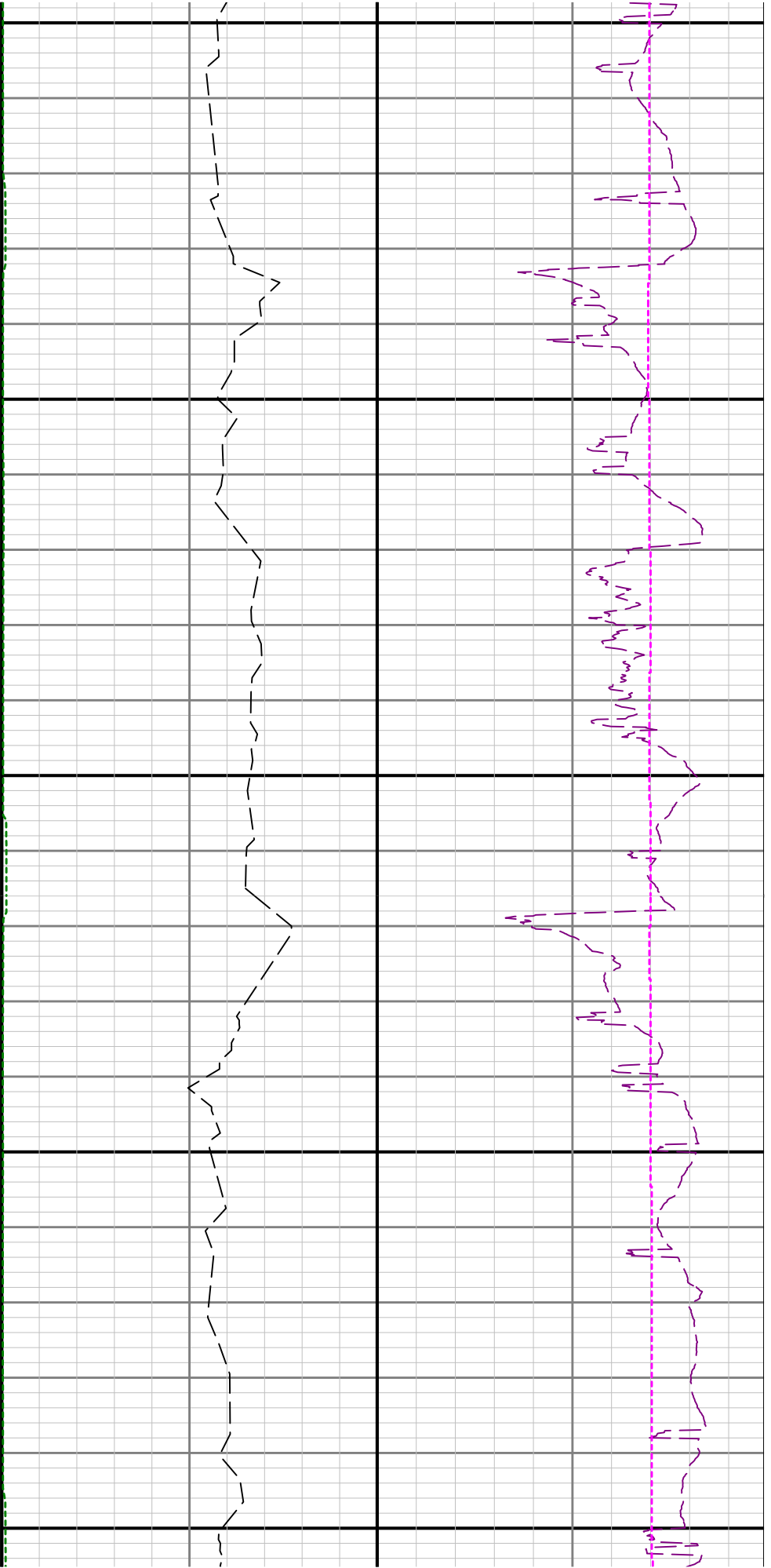
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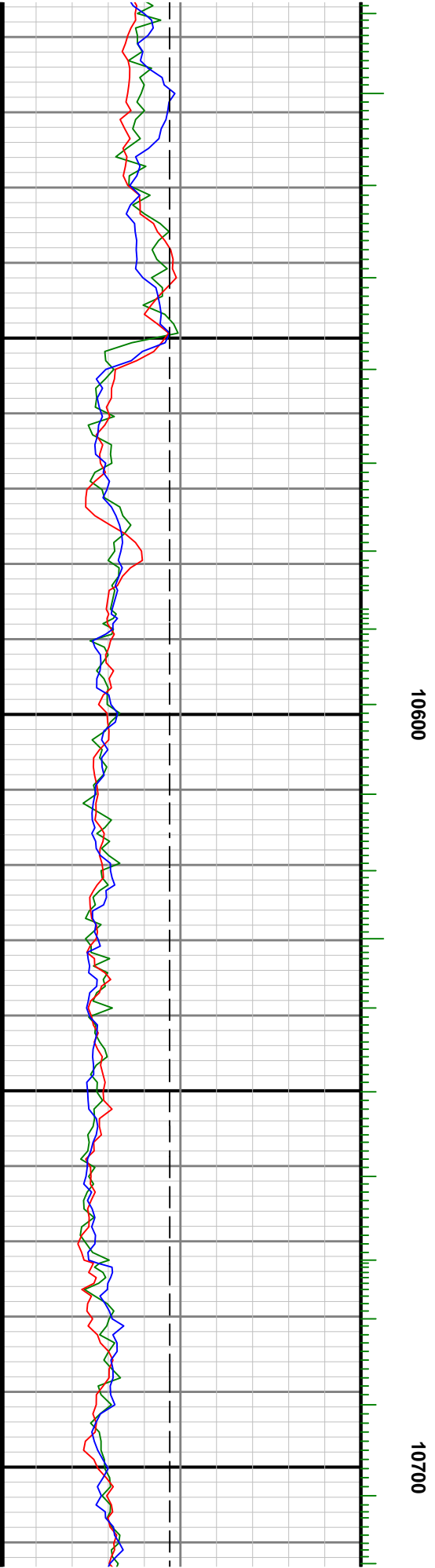
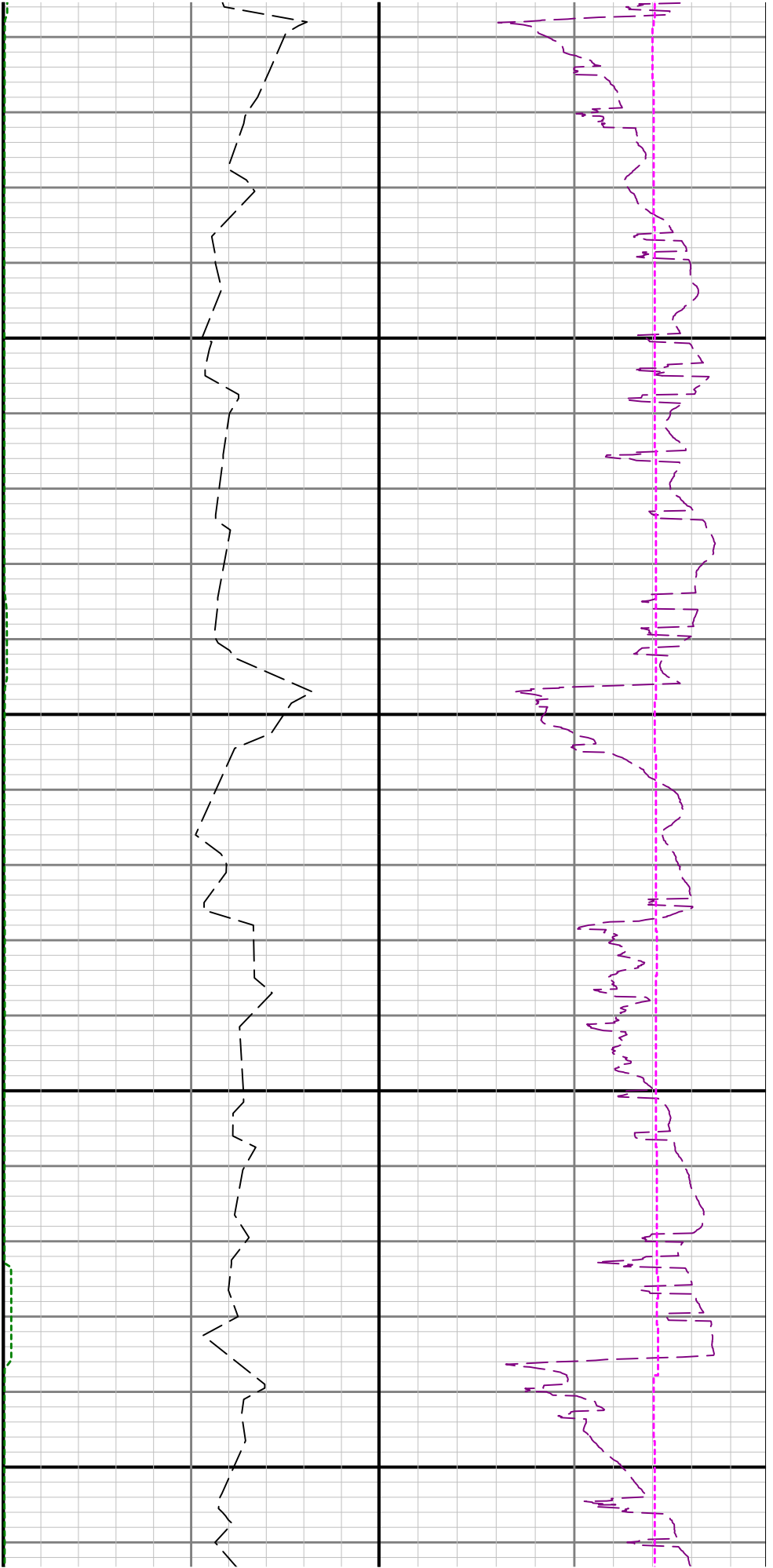


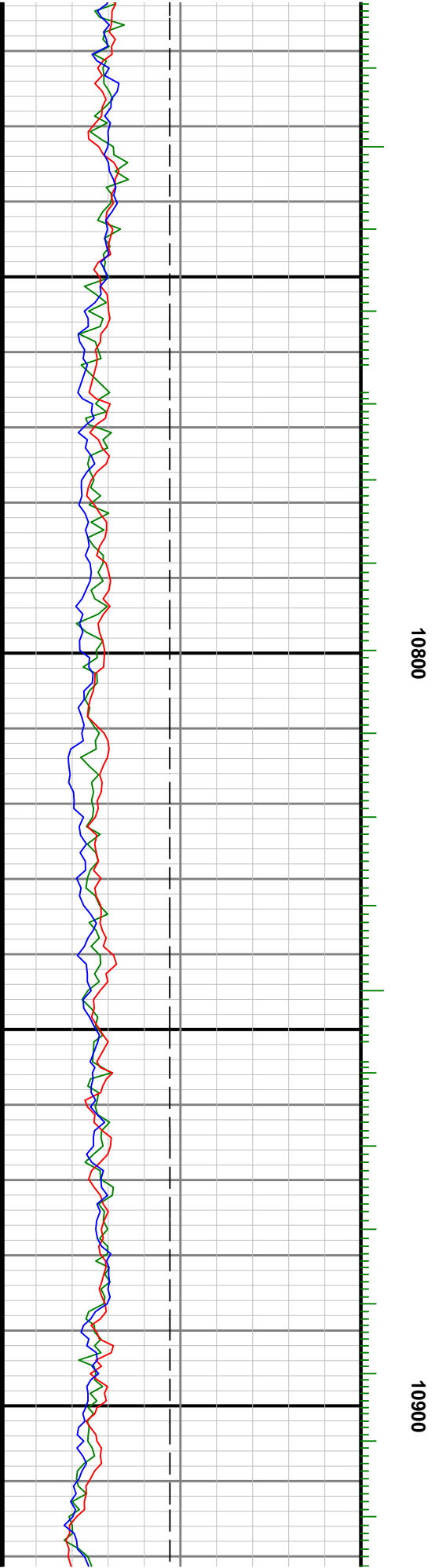
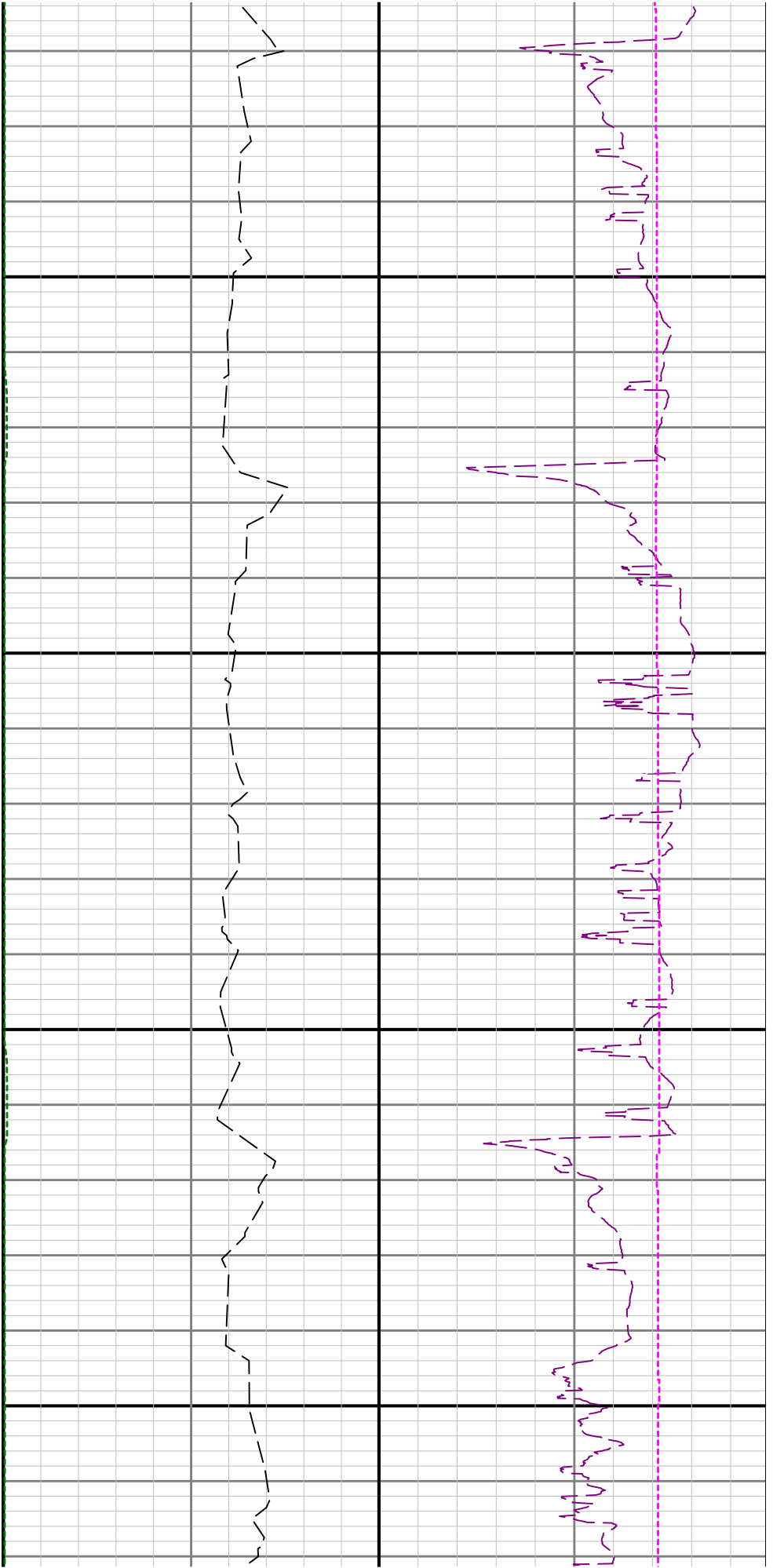


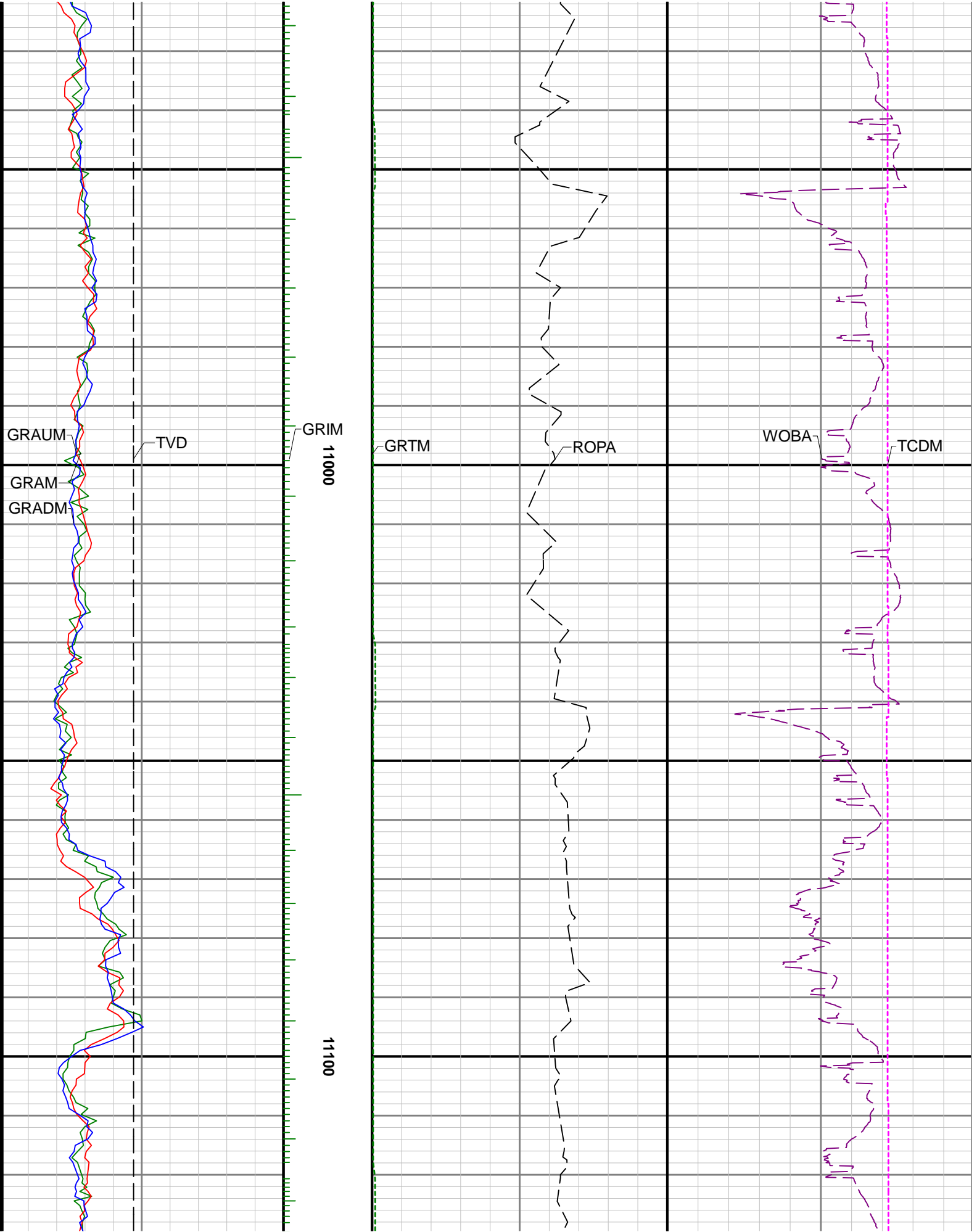


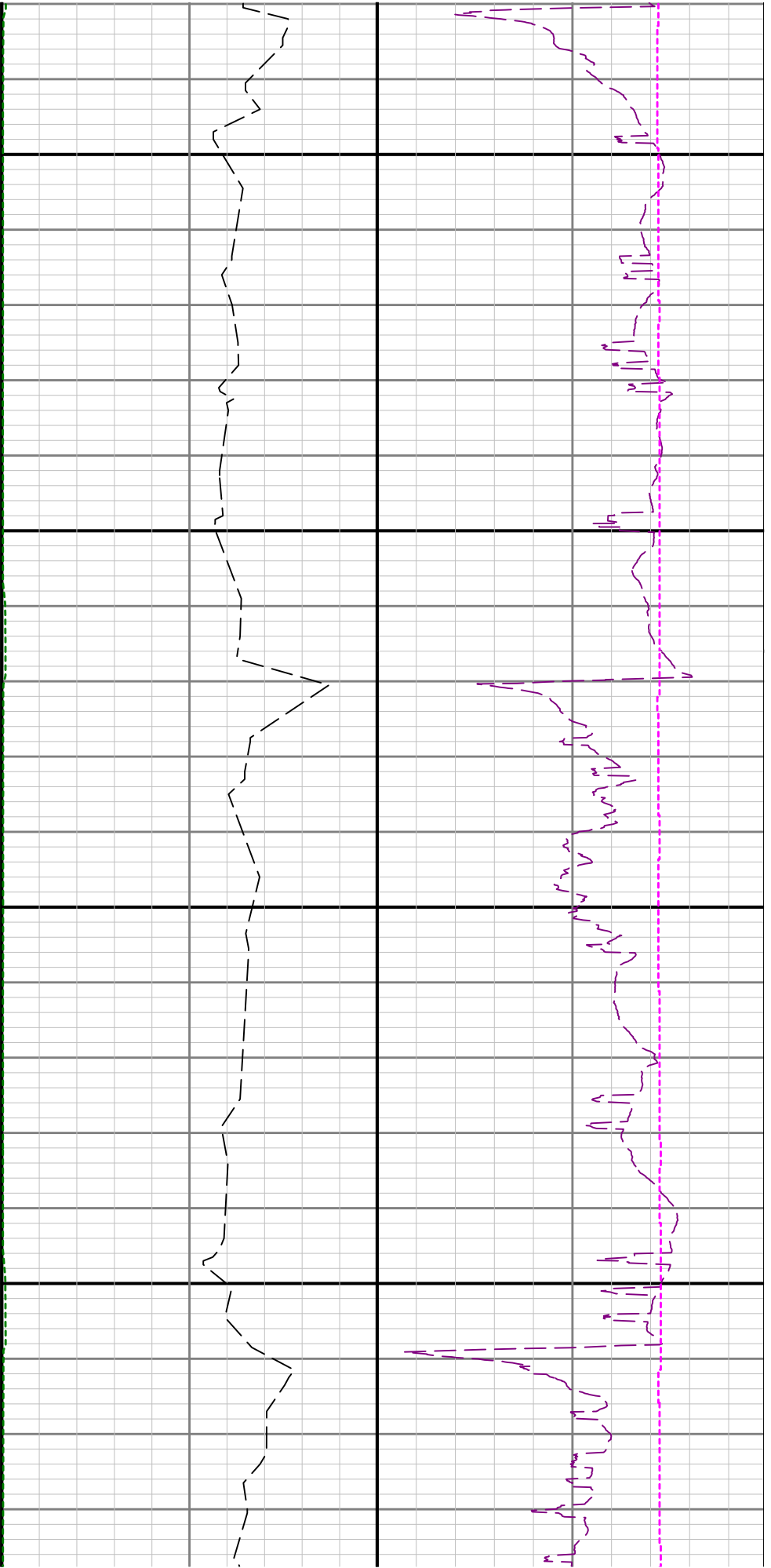






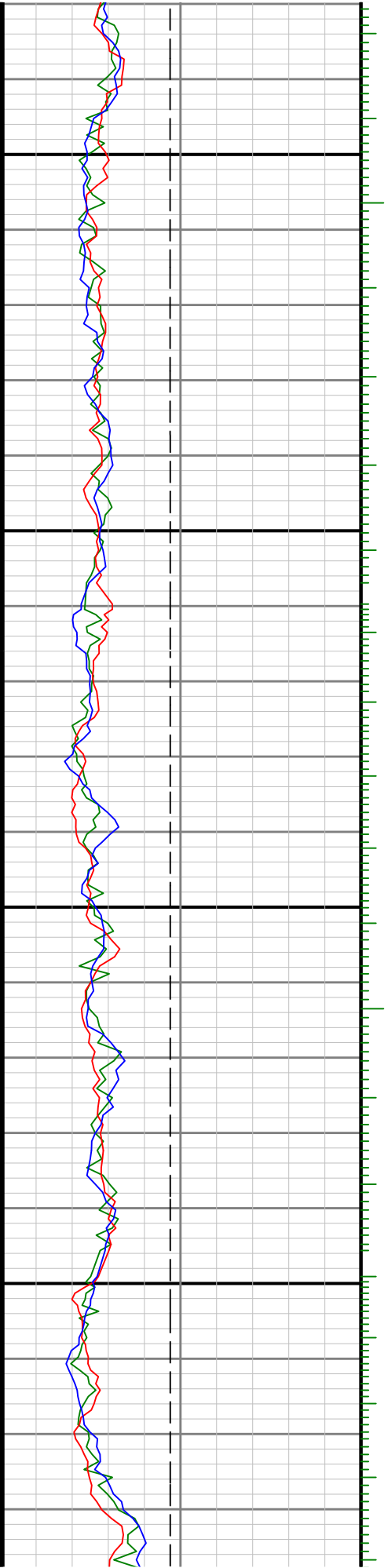


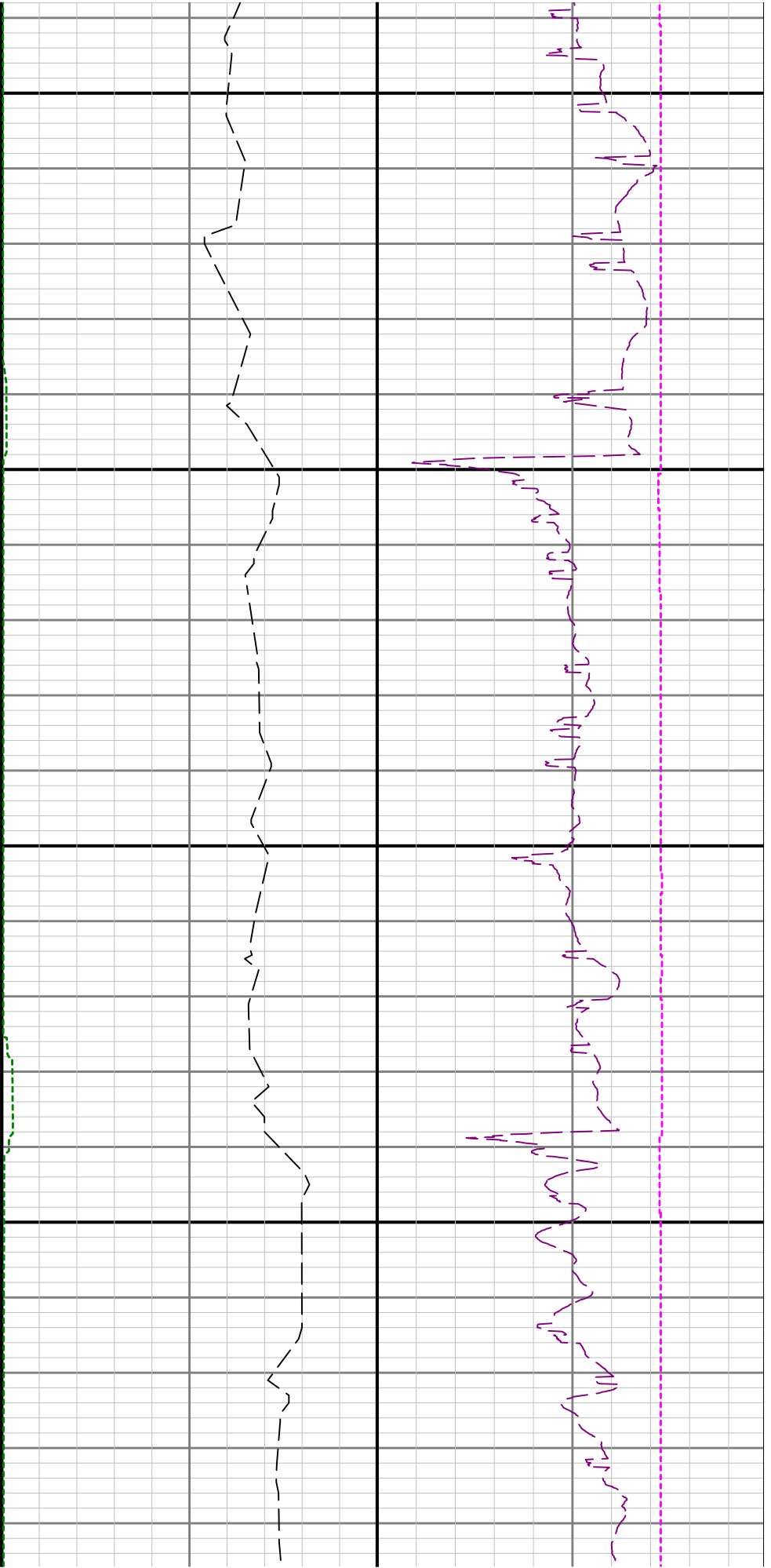




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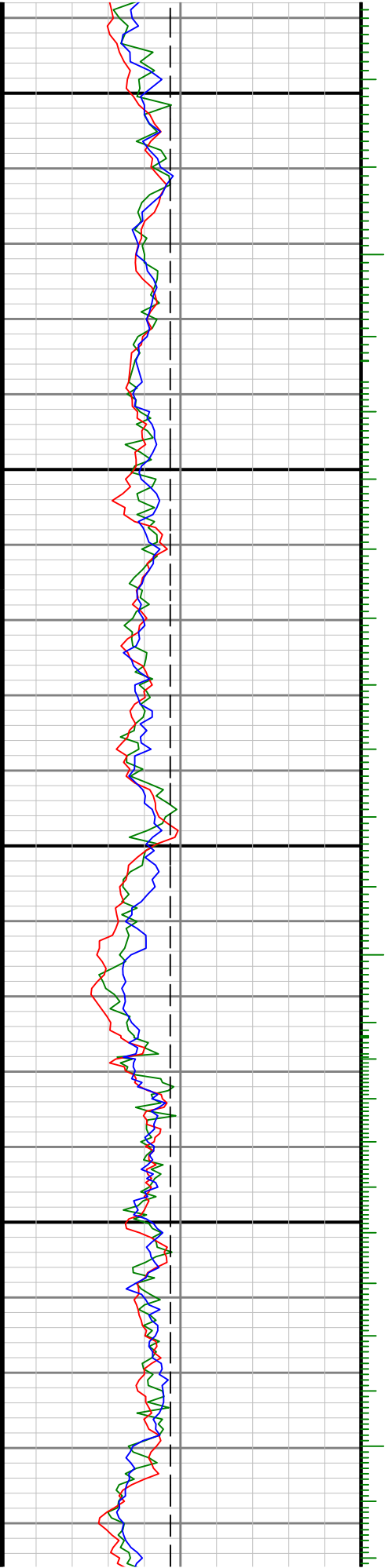
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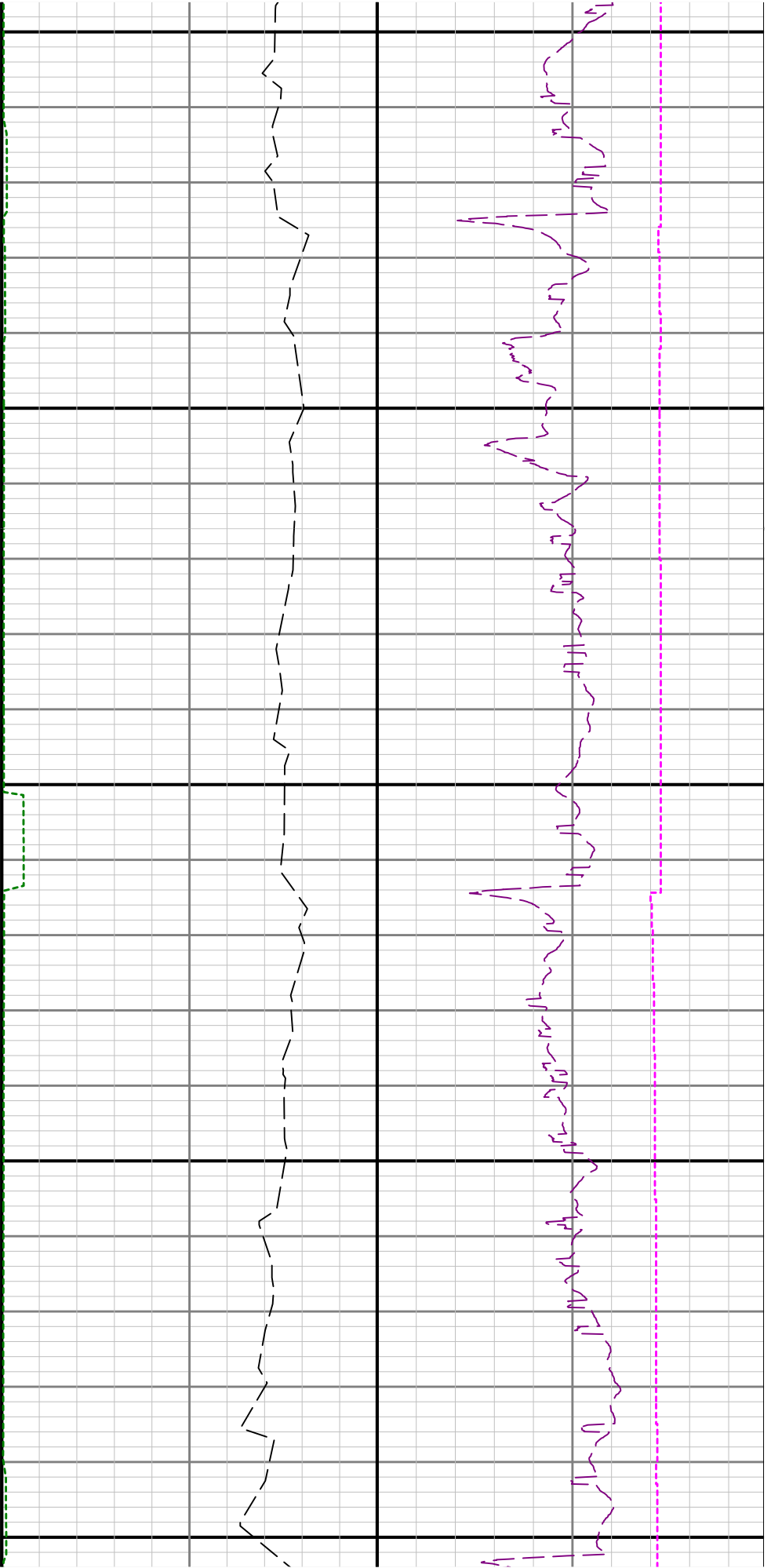




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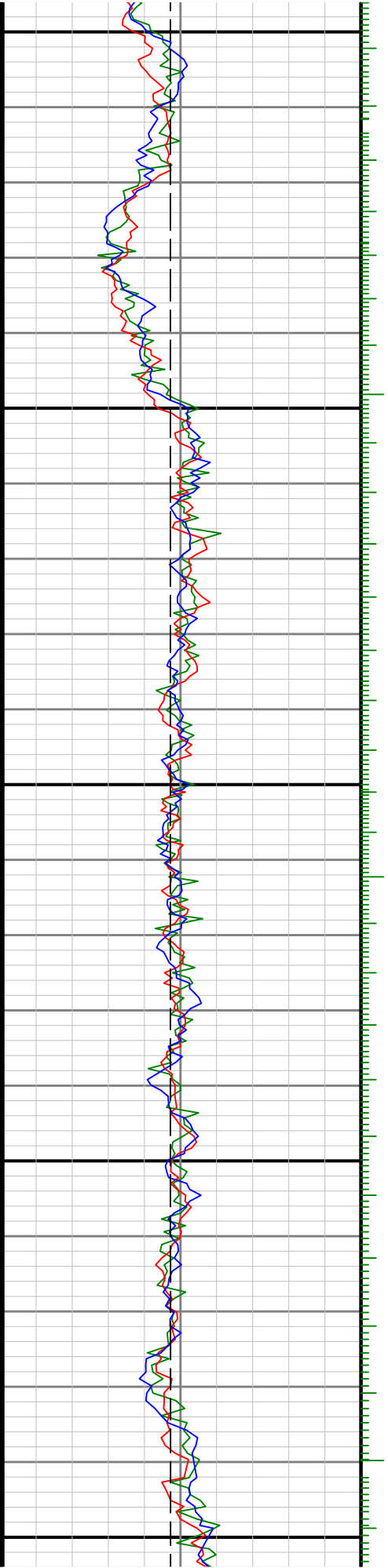
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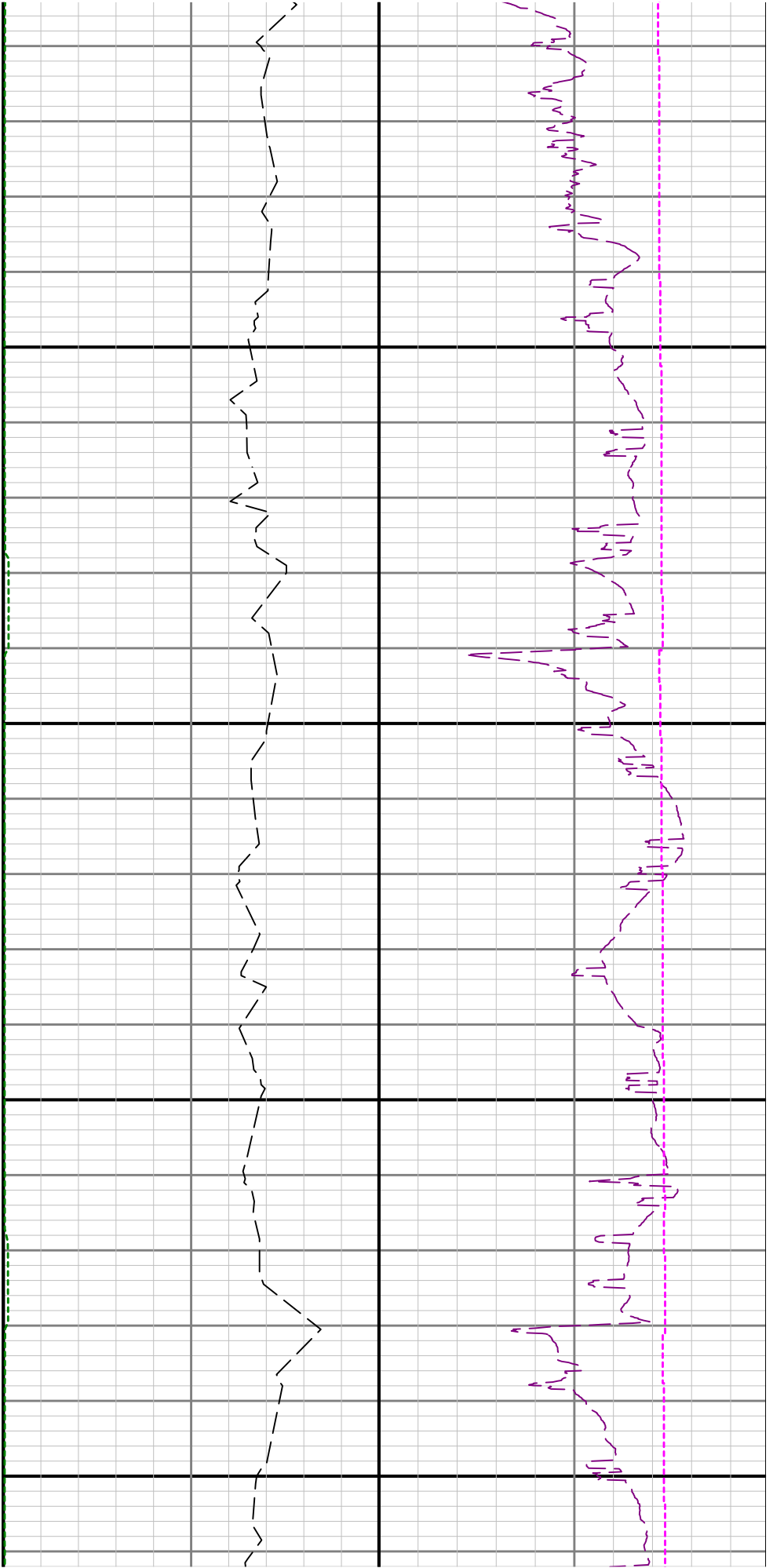




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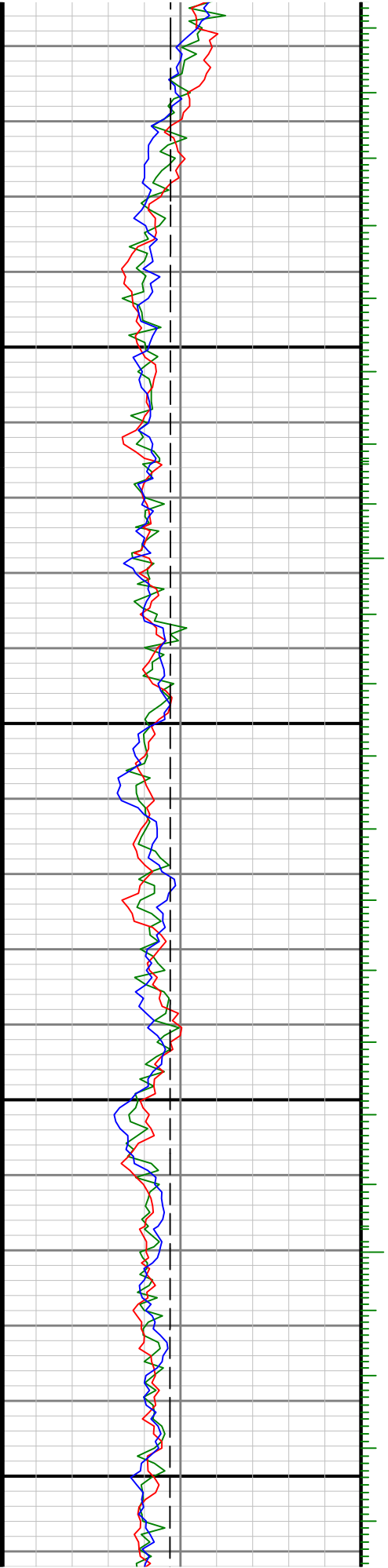
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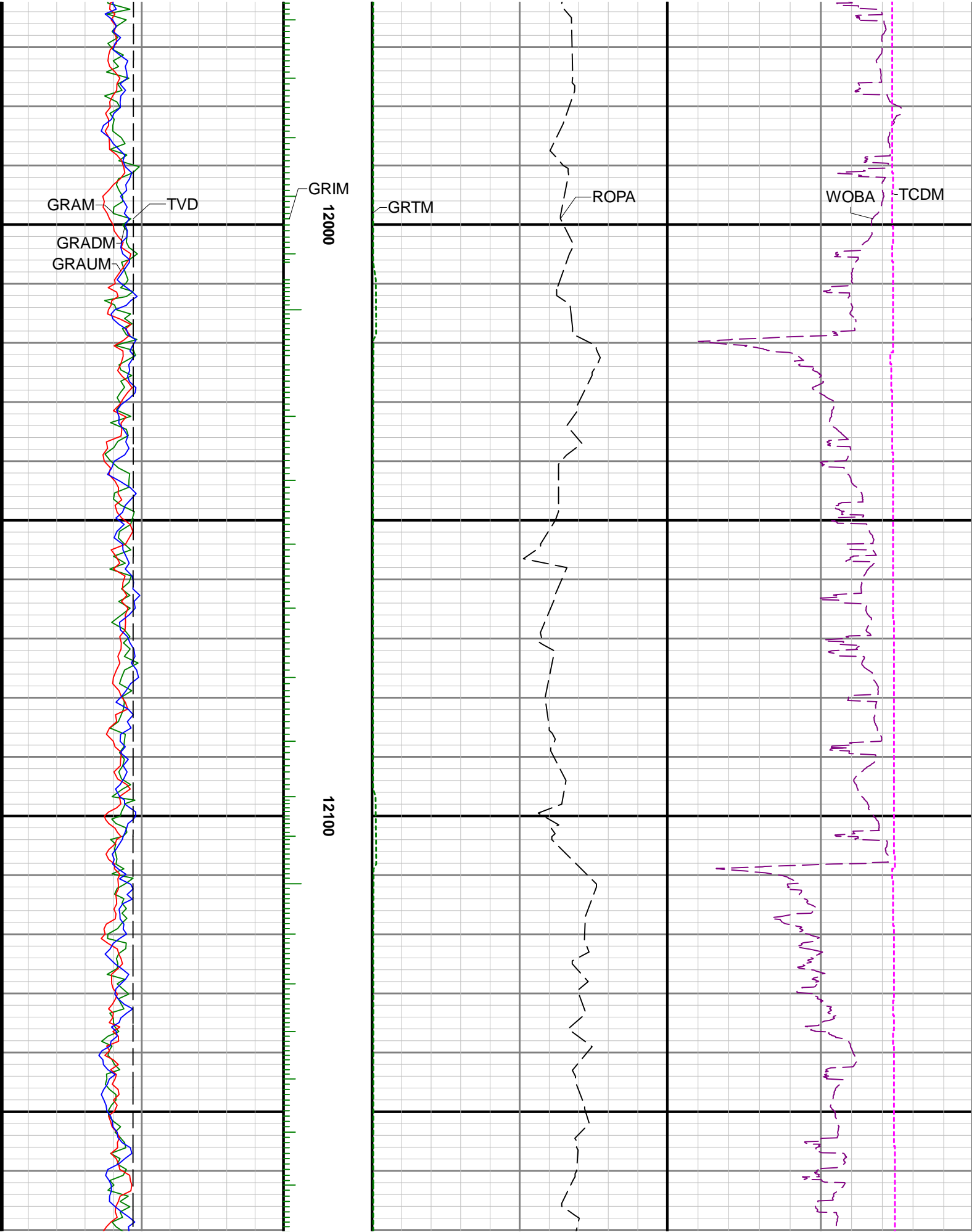


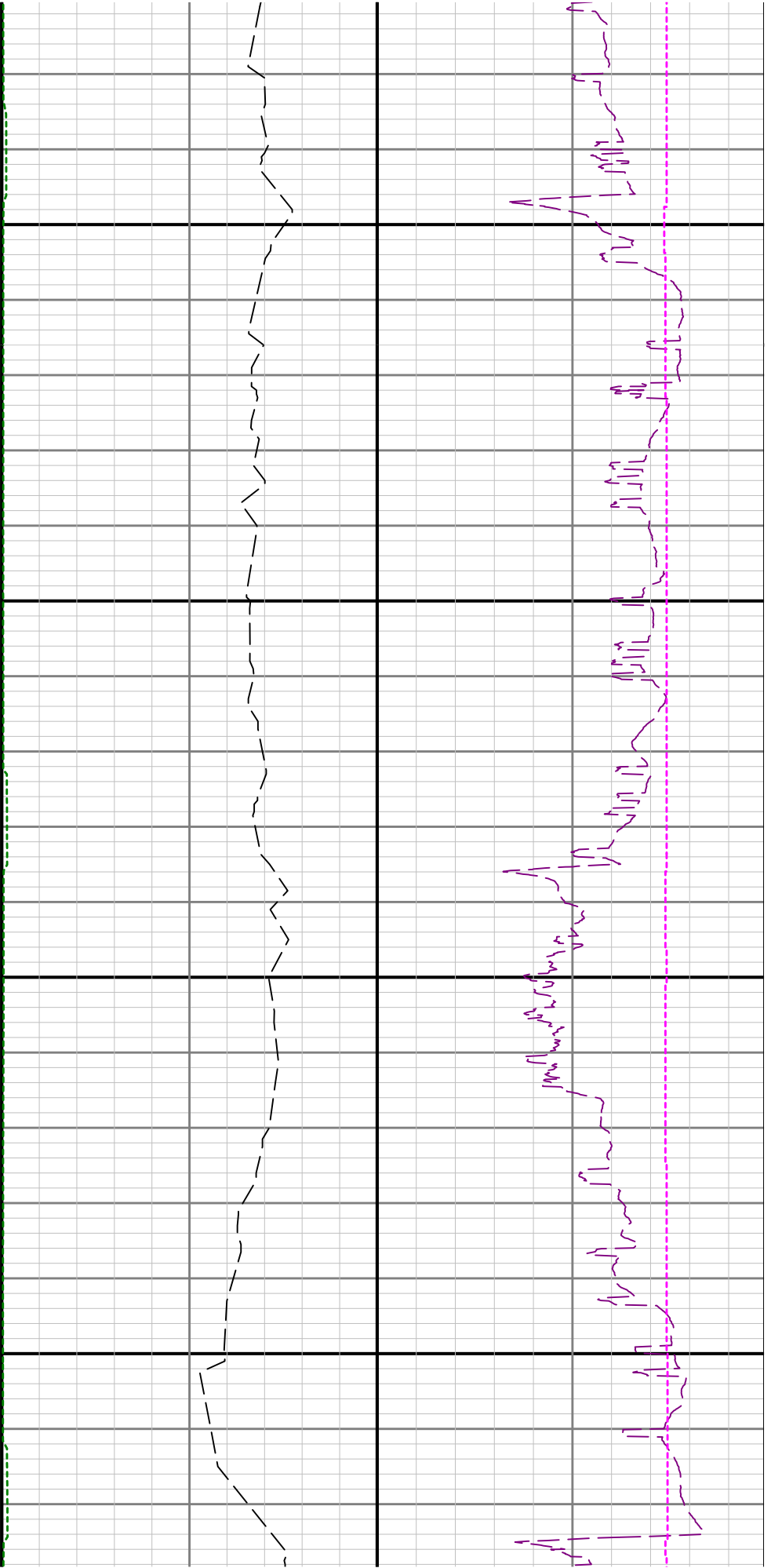


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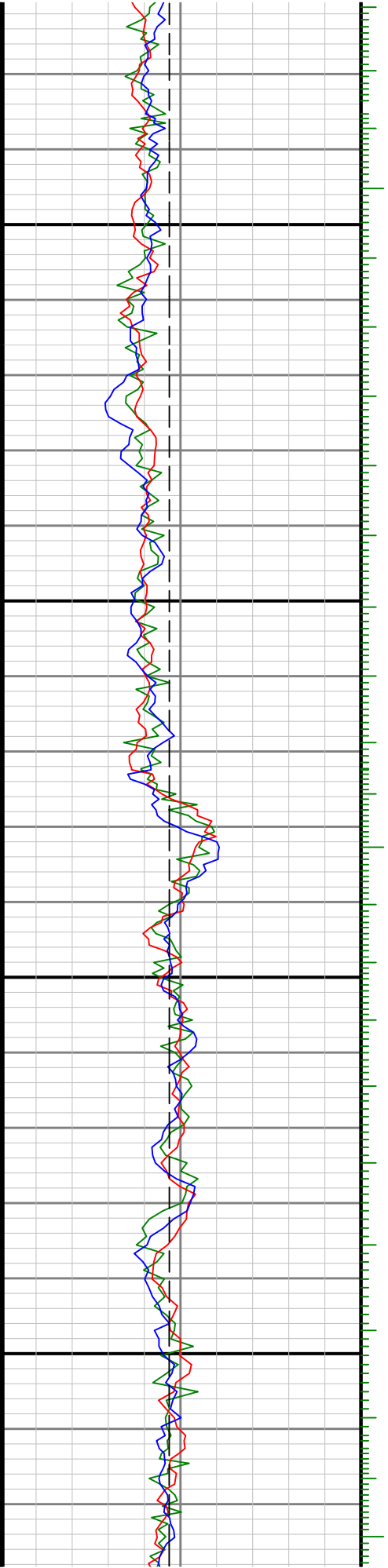


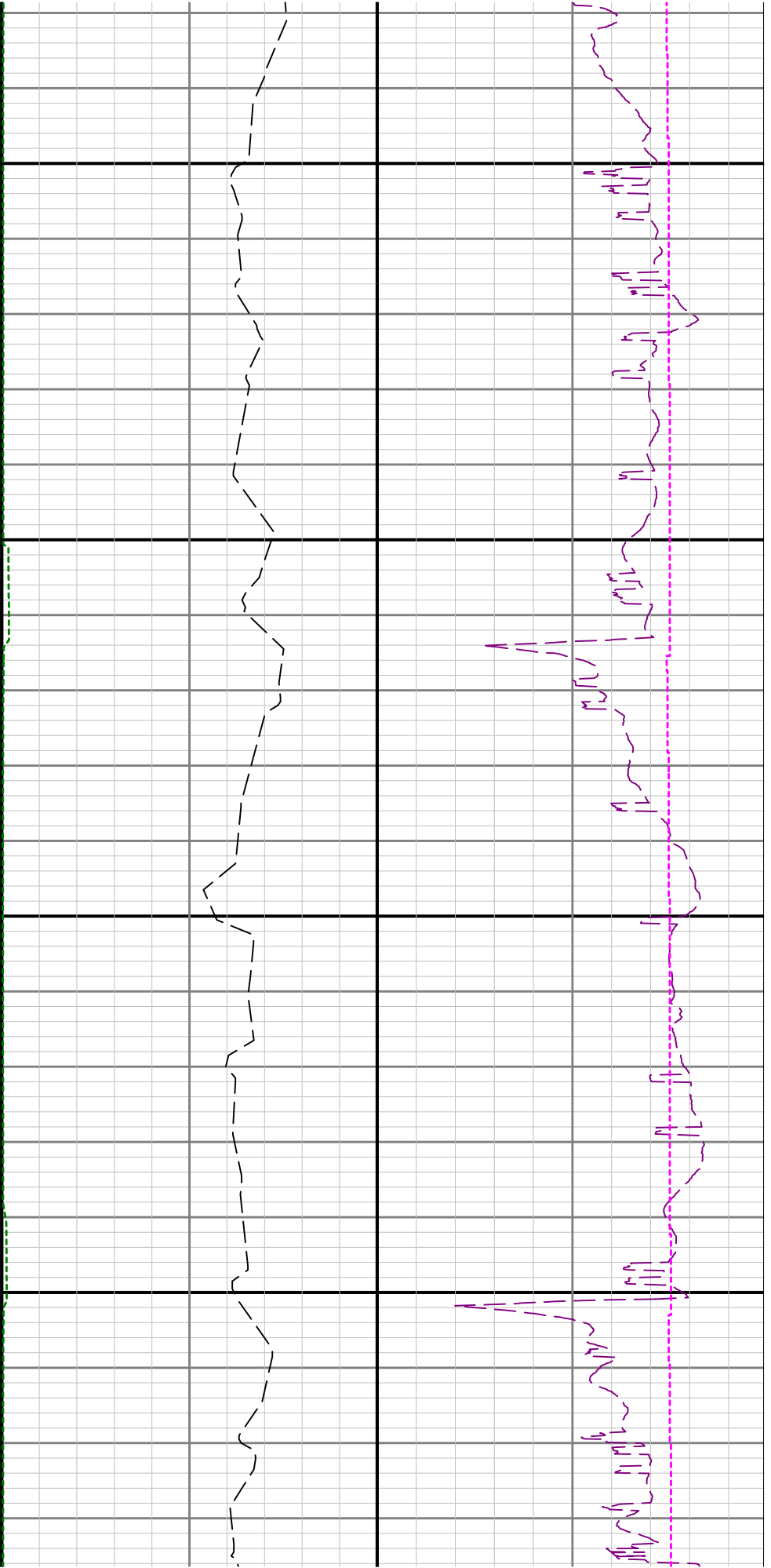




12200

12300





12400

12500

