

LWD MEMORY LOG



Azimuthal Gamma Ray

Scale:

Company: SRC Energy

1:240 MD

Well: Hood 23C-22-M

Depth Reference:

Field: Weld County (NAD83, TRUE NORTH

Driller's Depth

County: Weld Country: United States

State: Colorado

Status:

Final Print

Surface Location:

Latitude:

Longitude:

Other Services:

API No: 05-123-44373-00

Job ID: 8457212

SEC: 20

TWN: 6N

RGE: 66W

Permanent Datum (P.D.): Ground Level

Elevation: 4734.00 ft

Log Measured From: Rig Floor

Above P.D. 25.00 ft

Elev. KB:

Elev. DF:

Elev. GL: 4734.00 ft

Dates

Interval Logged

Magnetic Field Reference

Date From: 2017-04-27 Top: (ft) 1771.00

Date To: 2017-05-01 Bottom: (ft) 15425.00

Spud Date: 2017-03-15

Azi Reference North: True Dip Angle: (deg) 66.86

Total Magnetic Field Strength: (nT) 52716

Mag to Reference North Correction: (deg) 7.50E

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

25.00

1771.00

9.625

36.00

25.00

1765.00

8.500

1771.00

15425.00

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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 (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	13.500	PDC	4.25	Steerable	0.00	0.00	25.00	1771.00	2017-03-15 11:40	2017-03-16 01:50	10.63
2	2	8.500	PDC	3.00	Rotary Steerable	1771.00	15413.00	1771.00	15425.00	2017-04-28 03:45	2017-04-30 16:18	49.39

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite

Matthew Leopold	2017-04-27	2017-05-01										
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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+ (%)
2017-04-27 20:16	2	1771.00	Oil Based Mud	9.5	15	N/A	8.9	78/22	Suction	33000	0.00
2017-04-28 16:00	2	5374.57	Oil Based Mud	9.5	16	N/A	7.0	80/20	Suction	47000	0.00
2017-04-29 04:00	2	7362.63	Oil Based Mud	9.5	19	N/A	7.0	80/20	Suction	49000	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	Sensor Sub	ZAPS230930	VSS	11.88	59.46	8.000	3.250
1	Sensor Sub	ZAPS230930	Directional (mag)	11.88	59.46	8.000	3.250
1	Sensor Sub	ZAPS230930	Pressure	32.43	80.01	8.000	3.250
2	ATC_SU	12187651	Near Bit Inclination	5.93	6.73	7.000	4.330
2	ATC_SU	12187651	Near Bit VSS	5.93	6.73	7.000	4.330
2	ATC_MWD	12161072	Gamma (single)	2.75	12.90	7.000	3.250
2	ATC_MWD	12161072	Directional (mag)	12.27	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	APS	APS EM Module
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	Due to a sensor failure, depth measurements were not acquired from 1769 feet TVD to 1769 feet TVD. No logging data was acquired during this run.
3	Due to a sensor failure, depth measurements were not acquired from 15425 feet MD (1769 to 7187 feet TVD).
4	Gamma Ray Curves (GRAM-GRAUM-GRADM) are presented 0 to 300 API per customer request.


Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	15415.00	8.500	2	The interval from 15413 to 15425 feet MD (7187 feet TVD) was not logged due to sensor to bit offset at well TD.

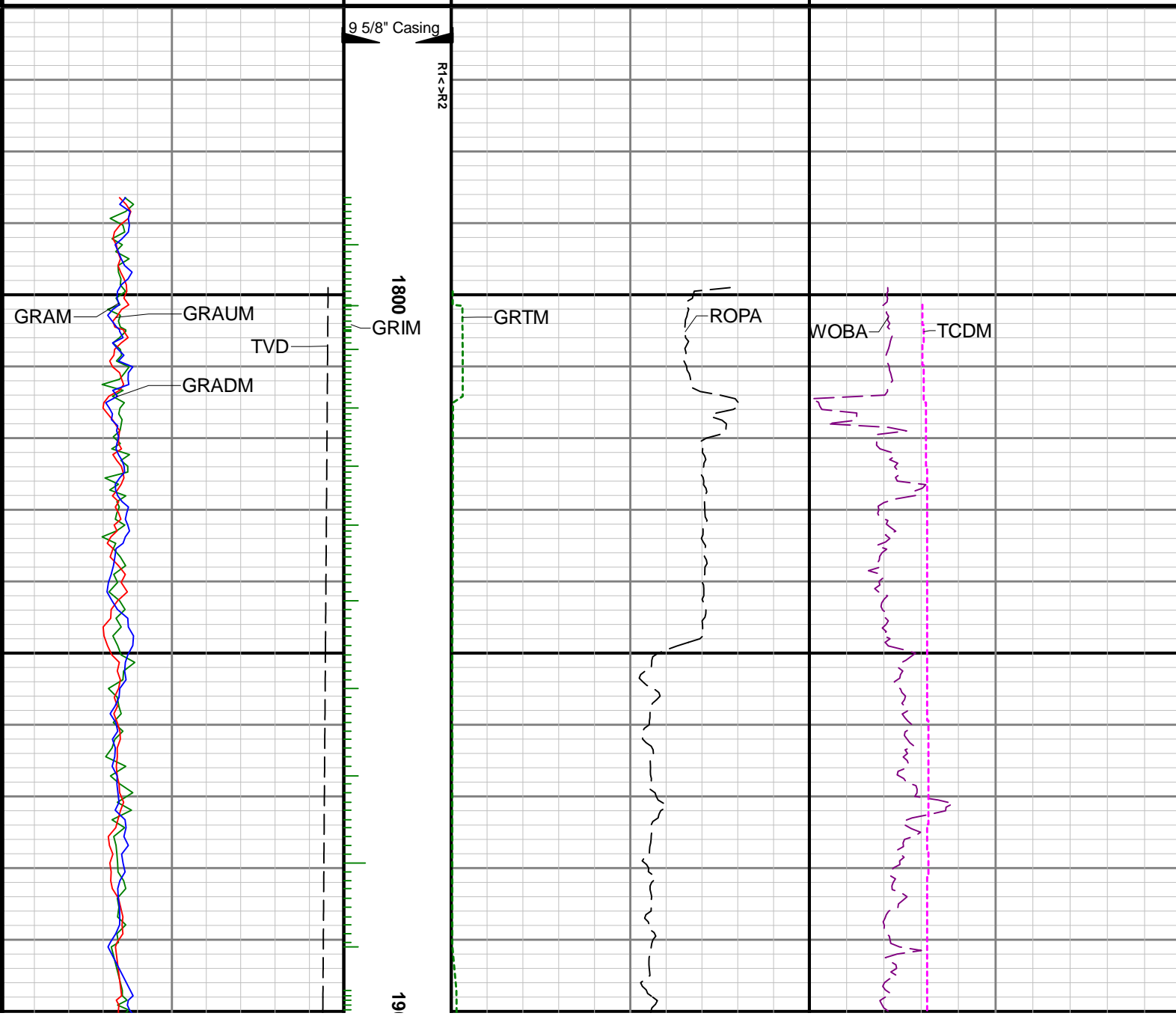
Curve Mnemonics

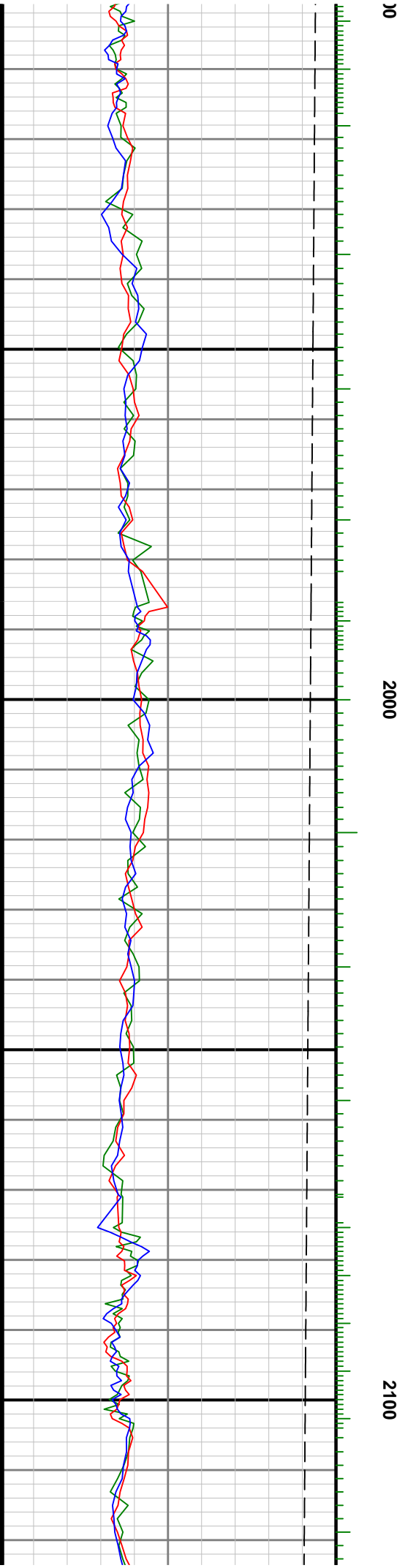
Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent 0.5 ft Average	API
GRIM	Gamma Ray Data Point Indicator	unitless
GRTM	Gamma Time Since Drilled	min
GRADM	Azimuthal Gamma Ray -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

GRADM	Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average	API
GRAUM	Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average	API
TCDM	Downhole Temperature	degF

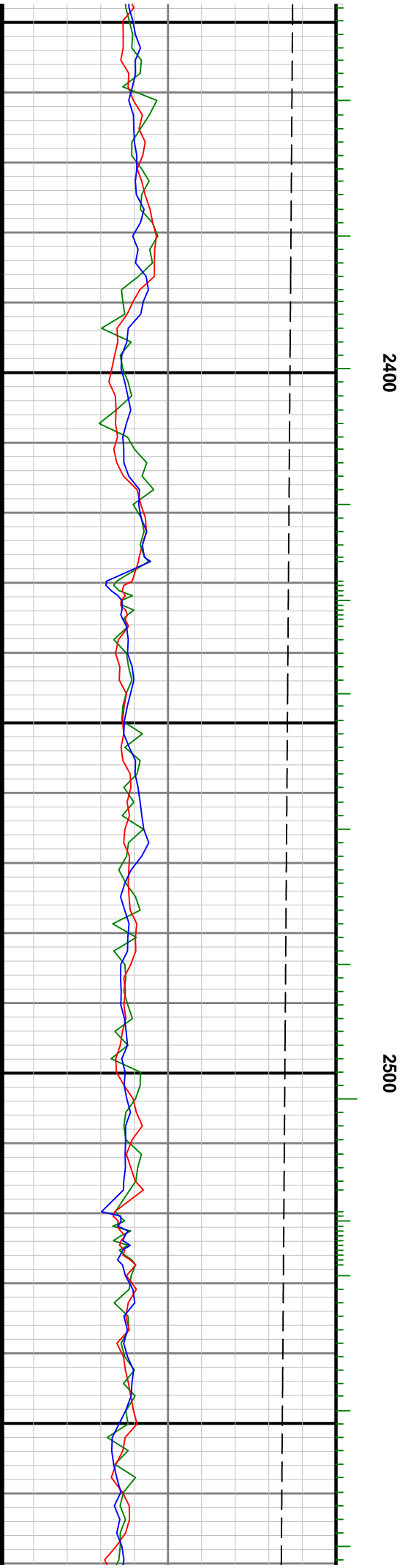
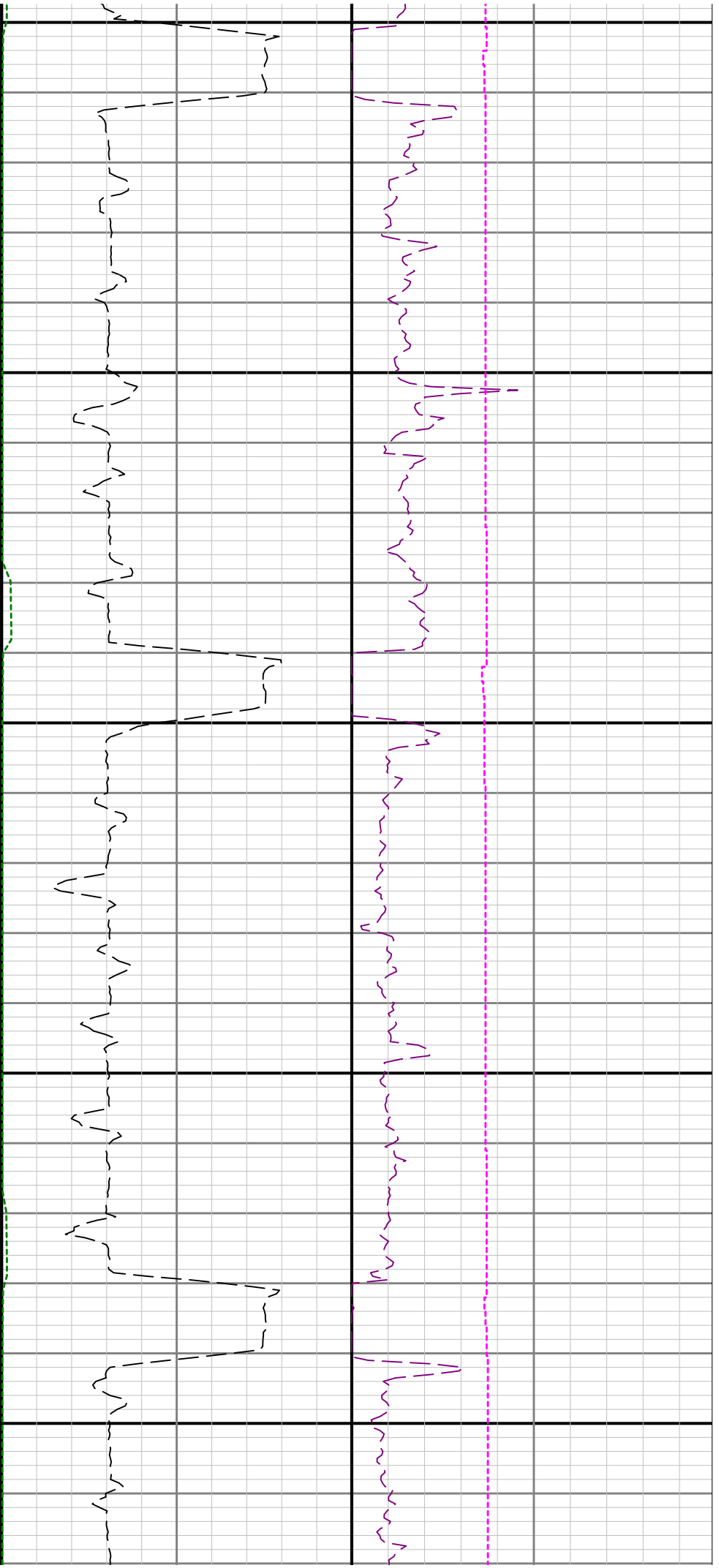
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	Well	Hood 23C-22-M	
	Interval	Date From:	2017-04-27 21:45:06
	Created	Date To:	2017-05-01 04:00:00
		Top:	1771.00
		Bottom:	15425.00
			2017-05-01 18:30

Gamma Ray - Apparent 0.5 ft Average GRAM 0 300	MD 1:240 feet	Gamma Time Since Drilled GRTM 0 600	Weight On Bit, Average 1 ft Average WOBA 0 50
API		min	klb
Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUM 0 300		Depth Averaged ROP 3 ft Average ROPA 1000 0	Downhole Temperature TCDM 0 275
API		ft/h	degF
Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADM 0 300			
API			
True Vertical Depth TVD 8000 1500			
ft			





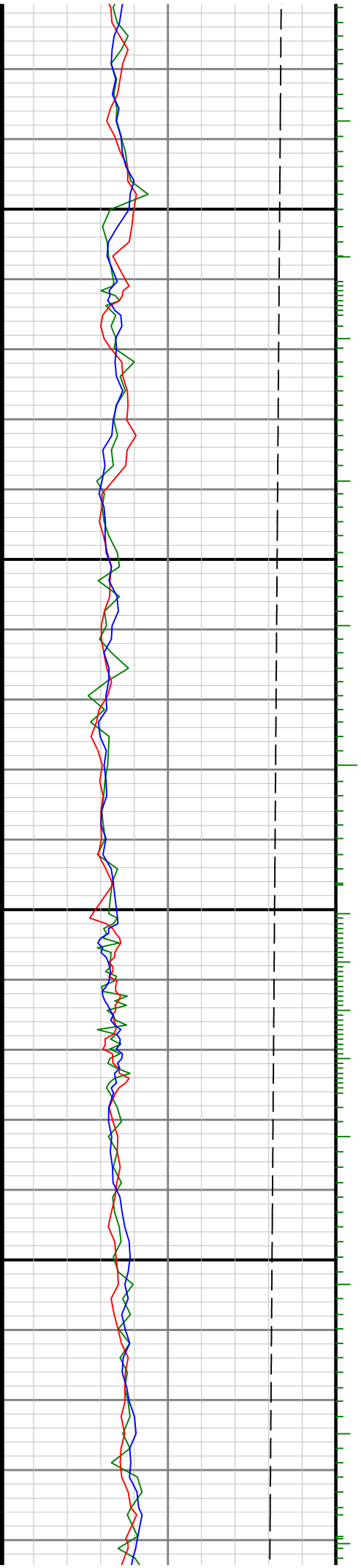


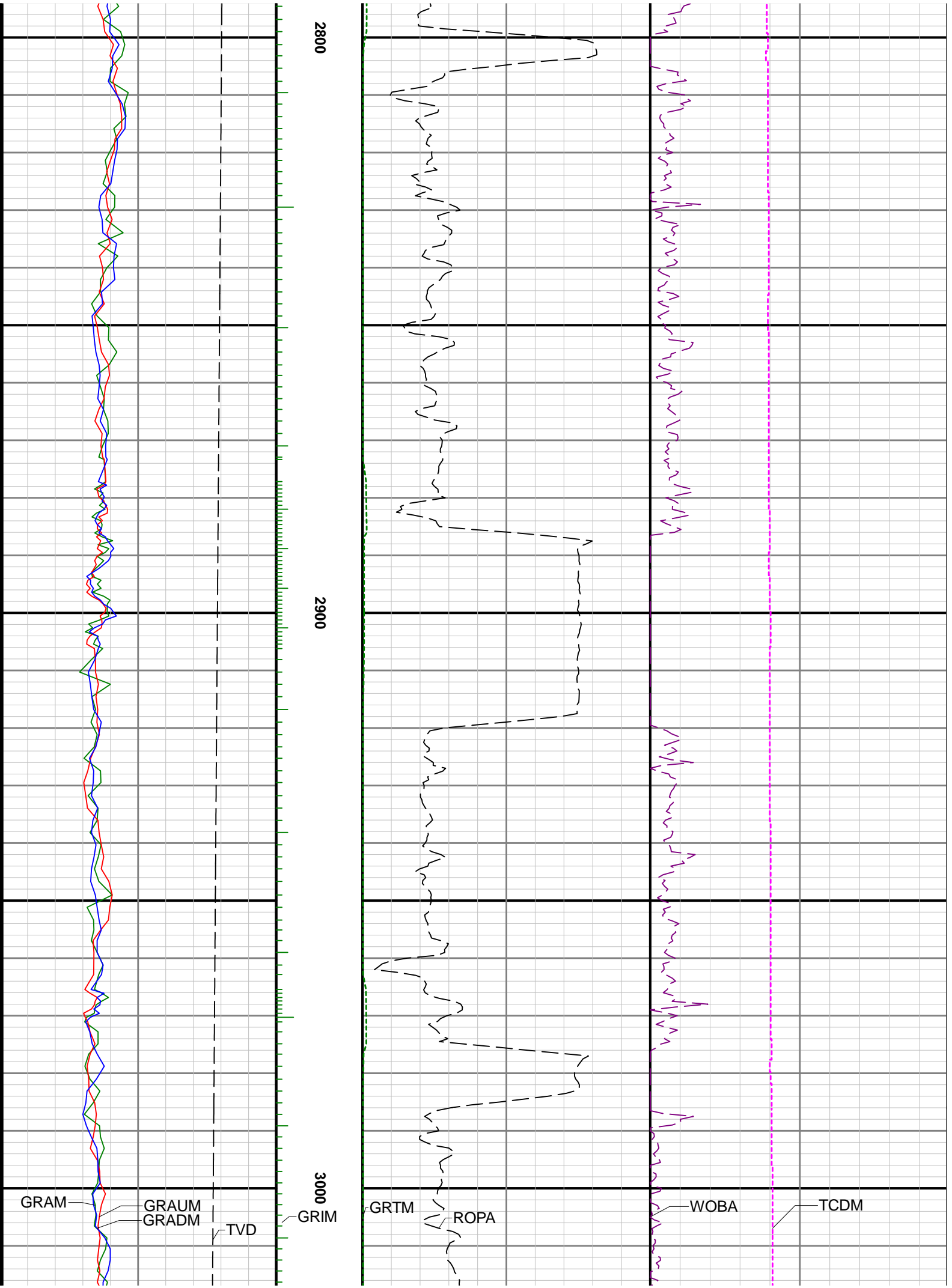




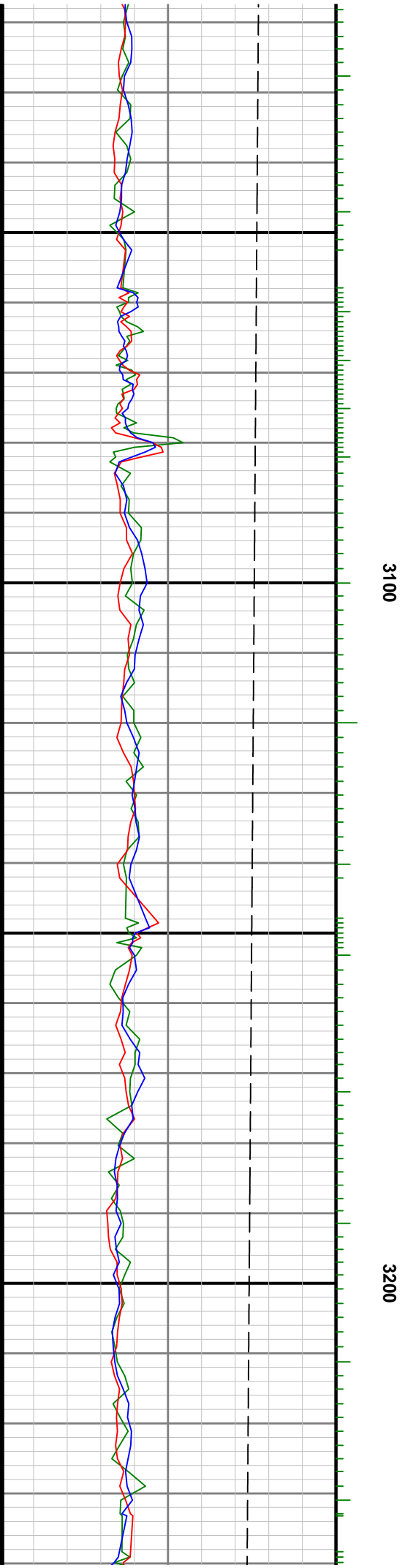
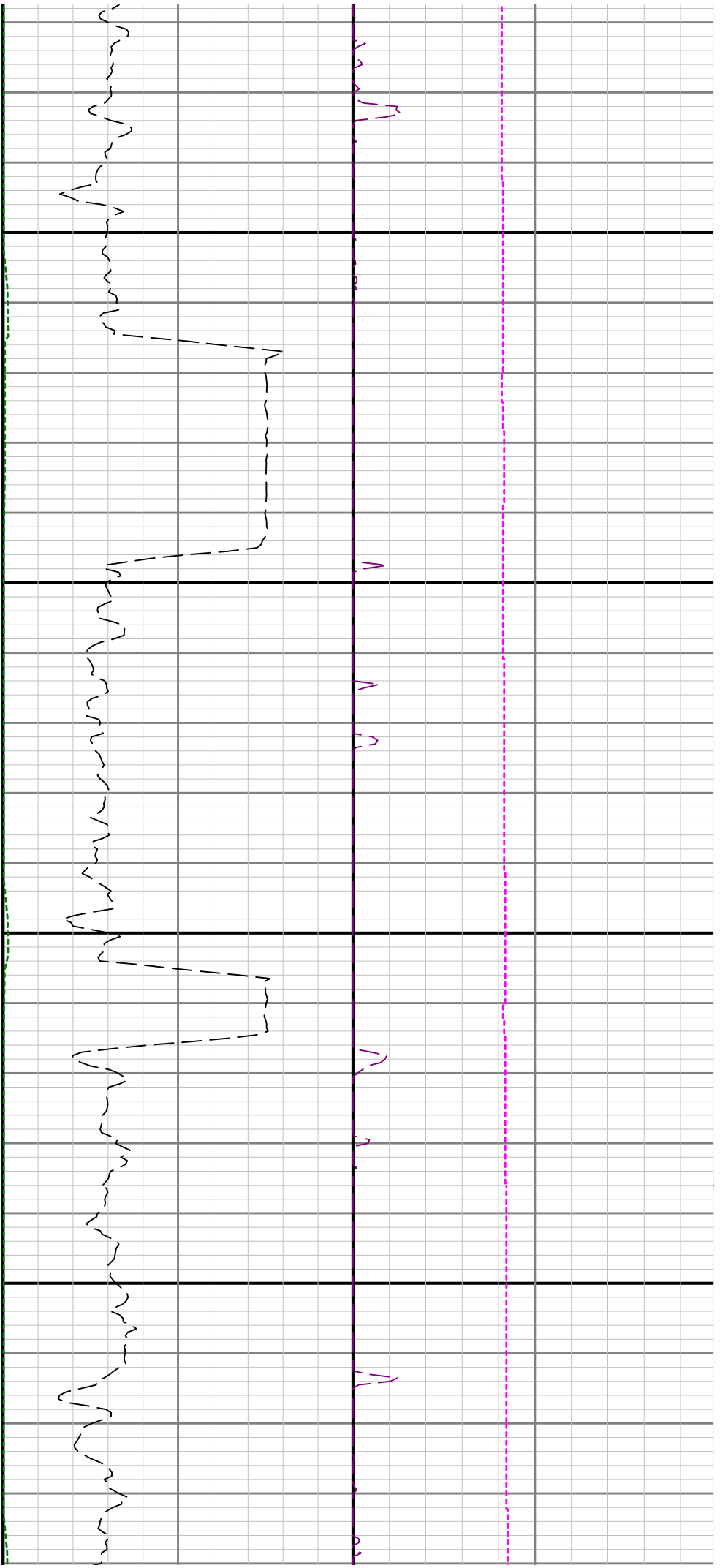
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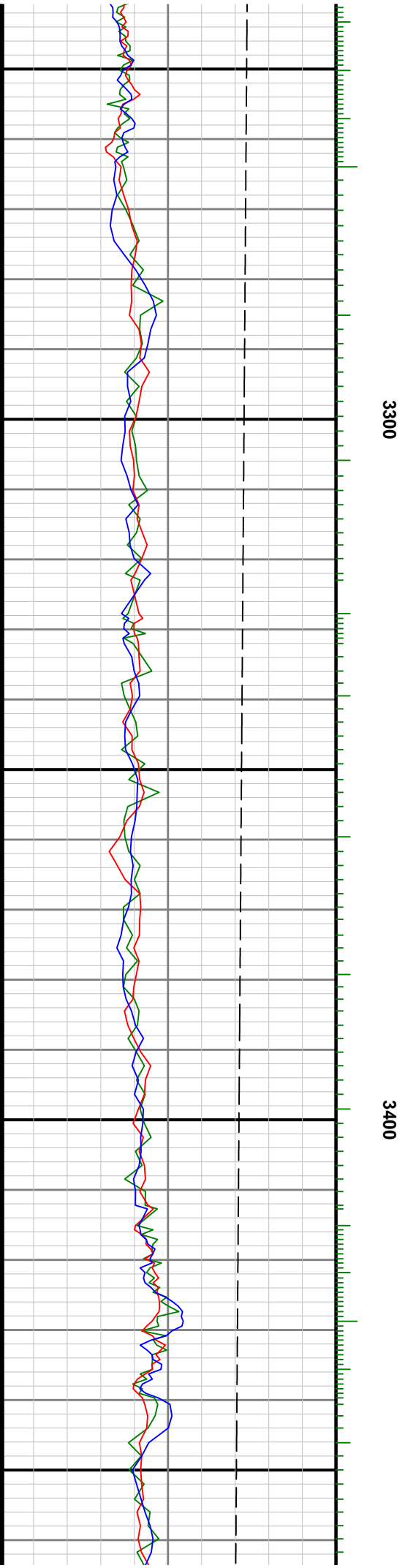
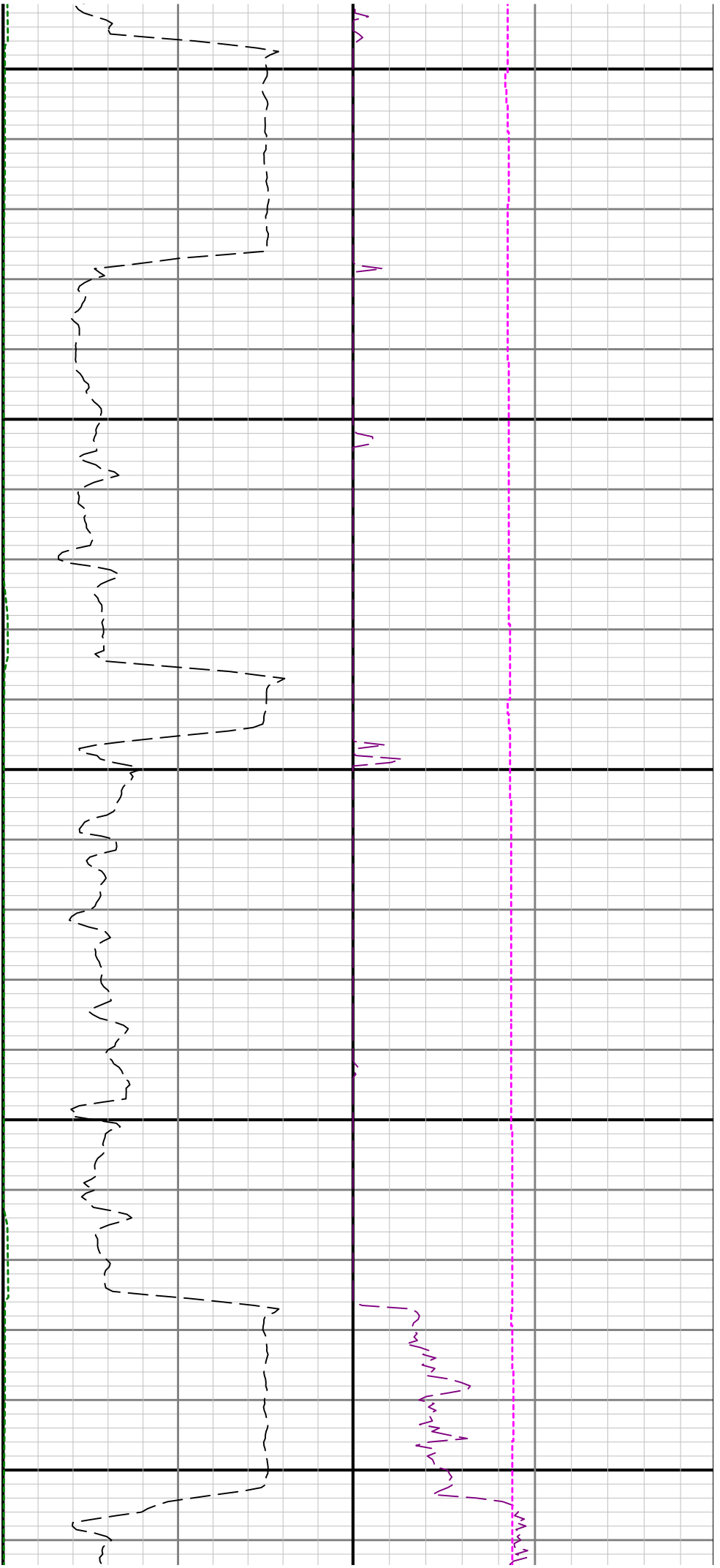
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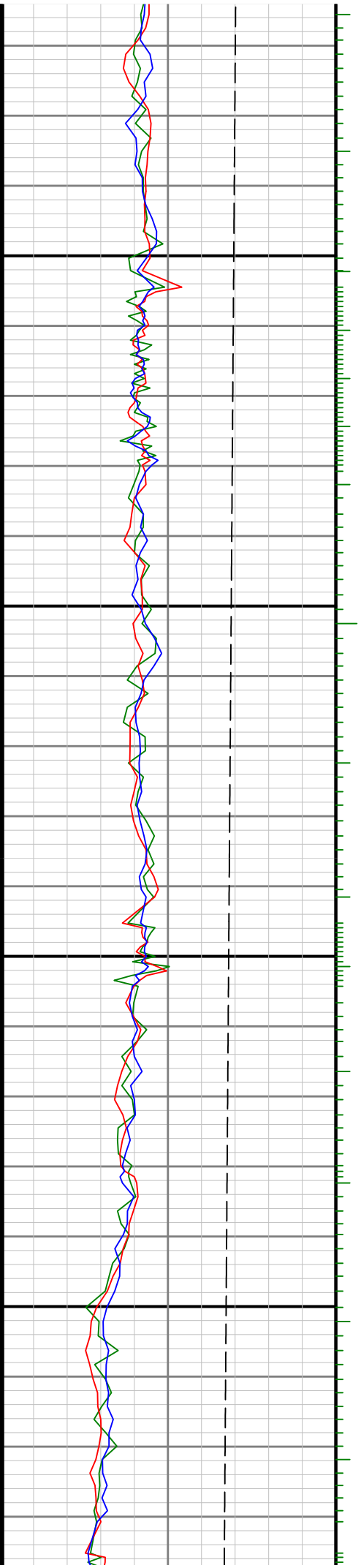


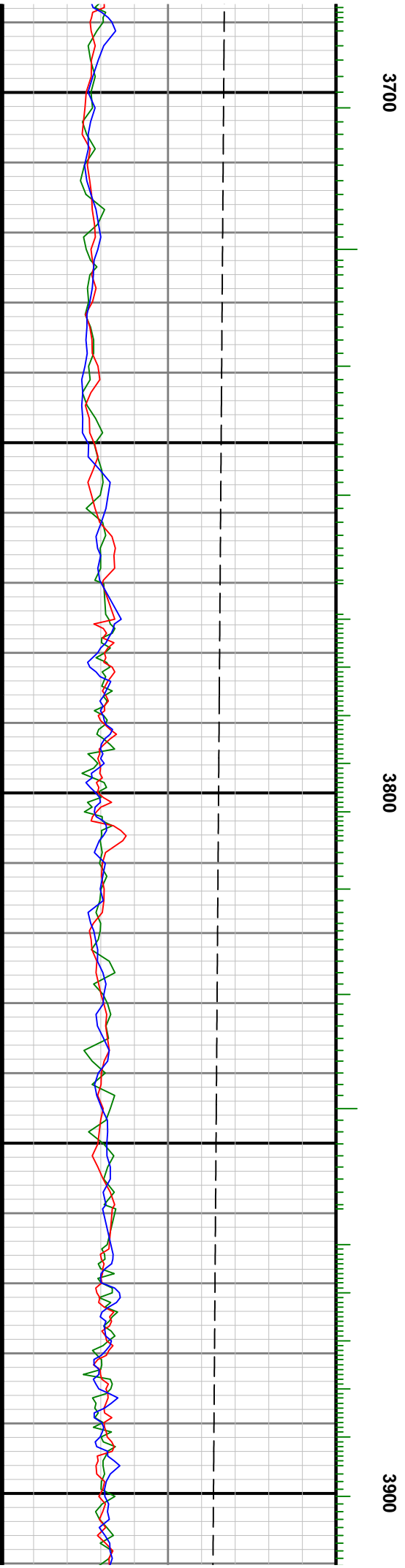
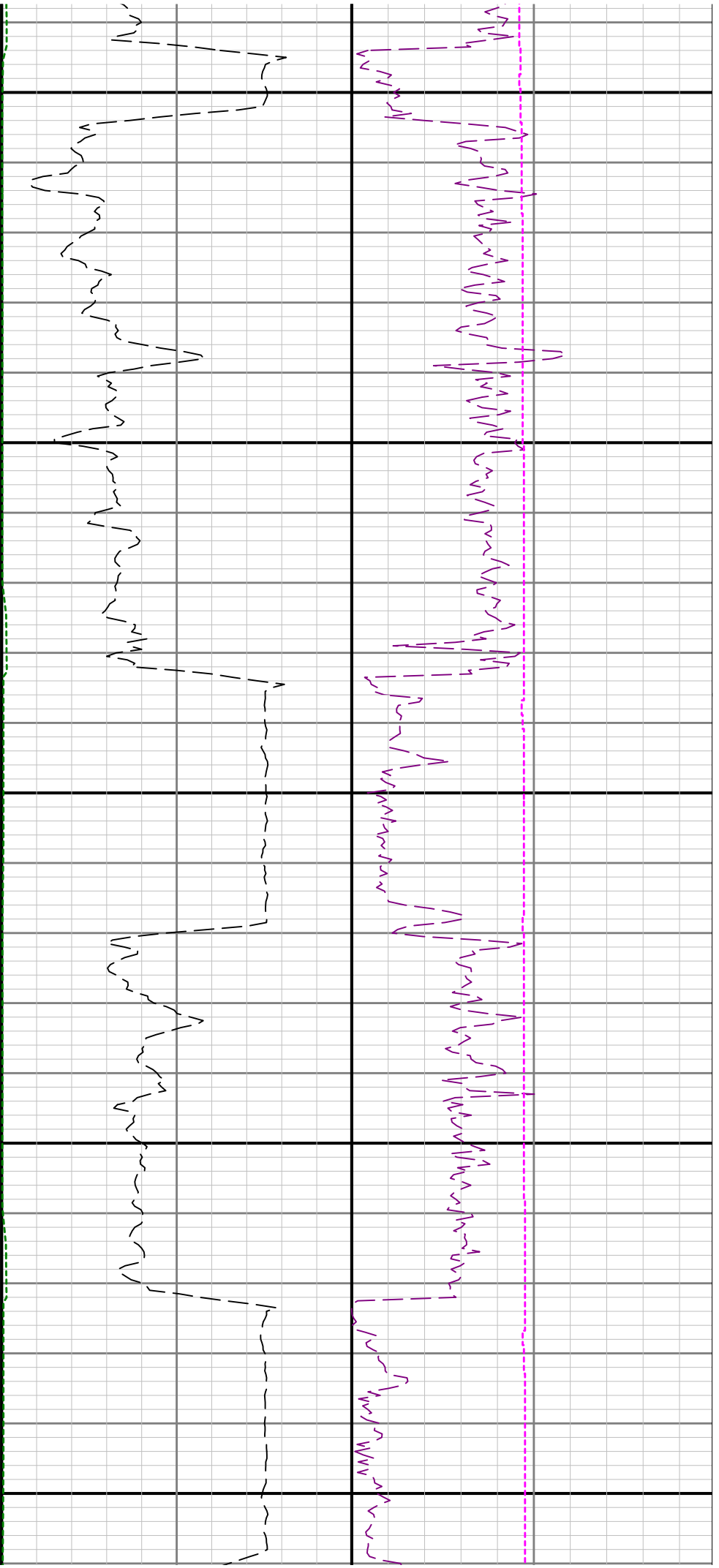


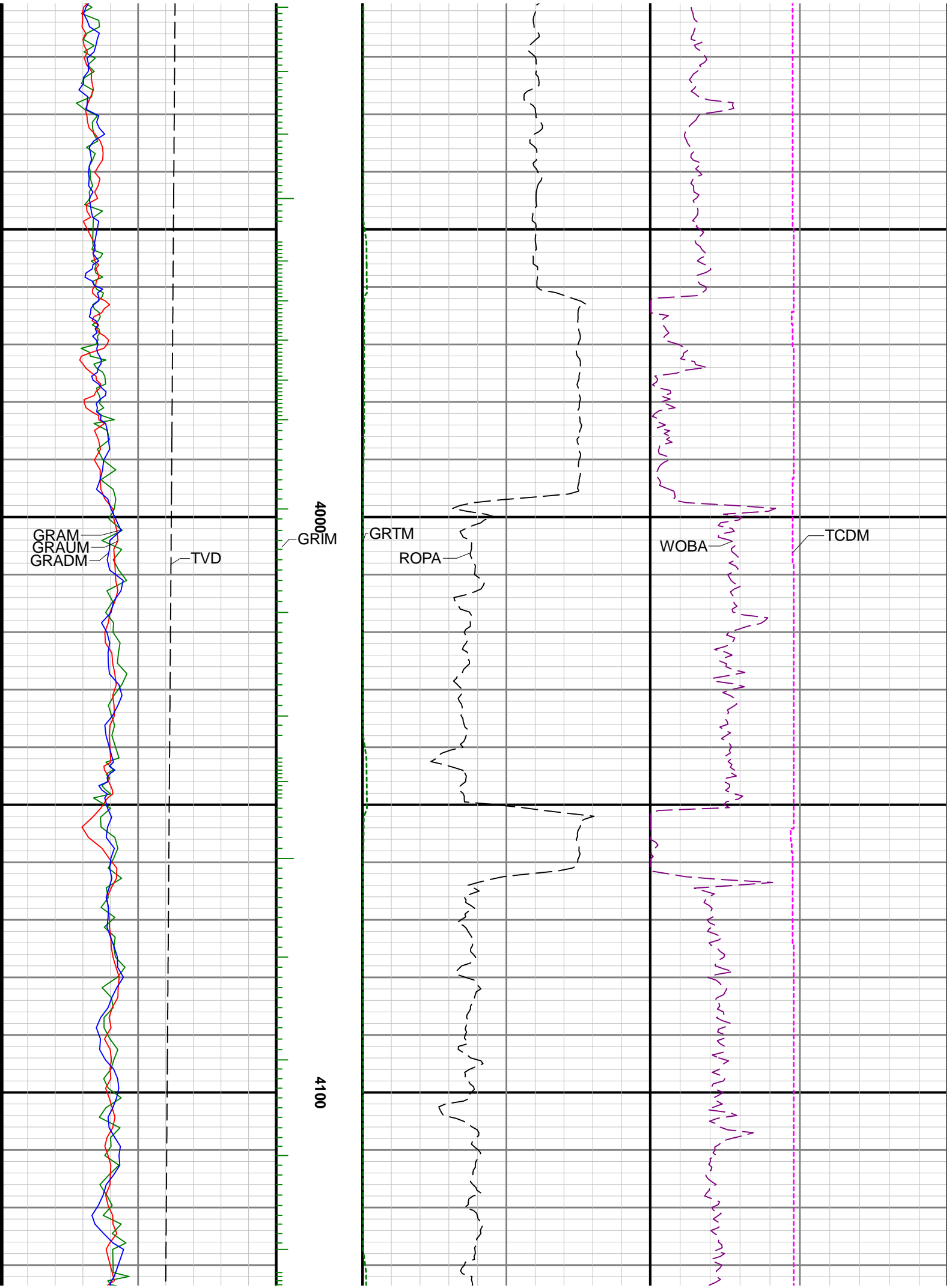


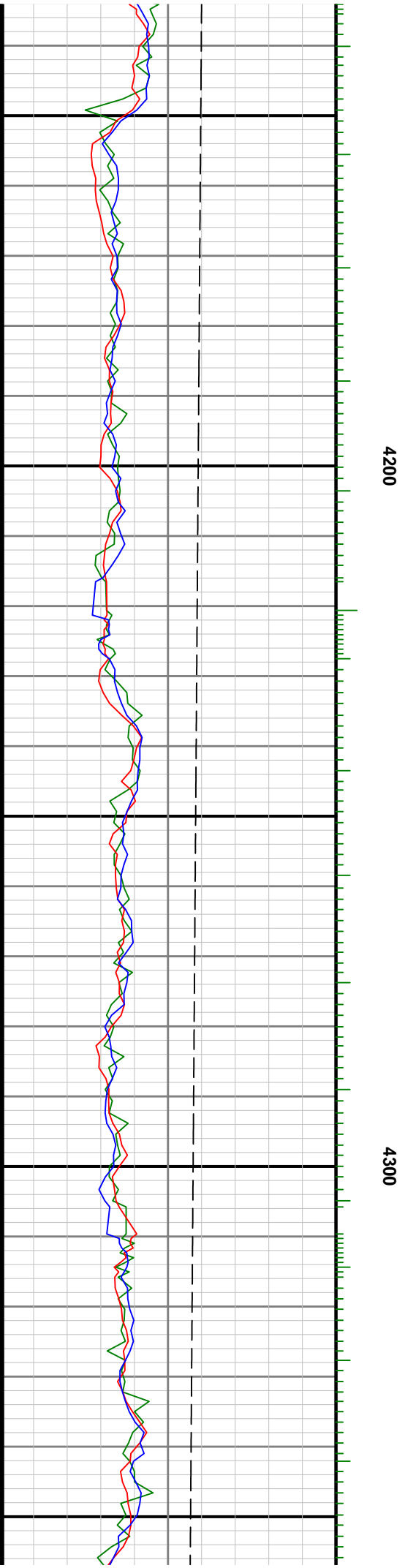
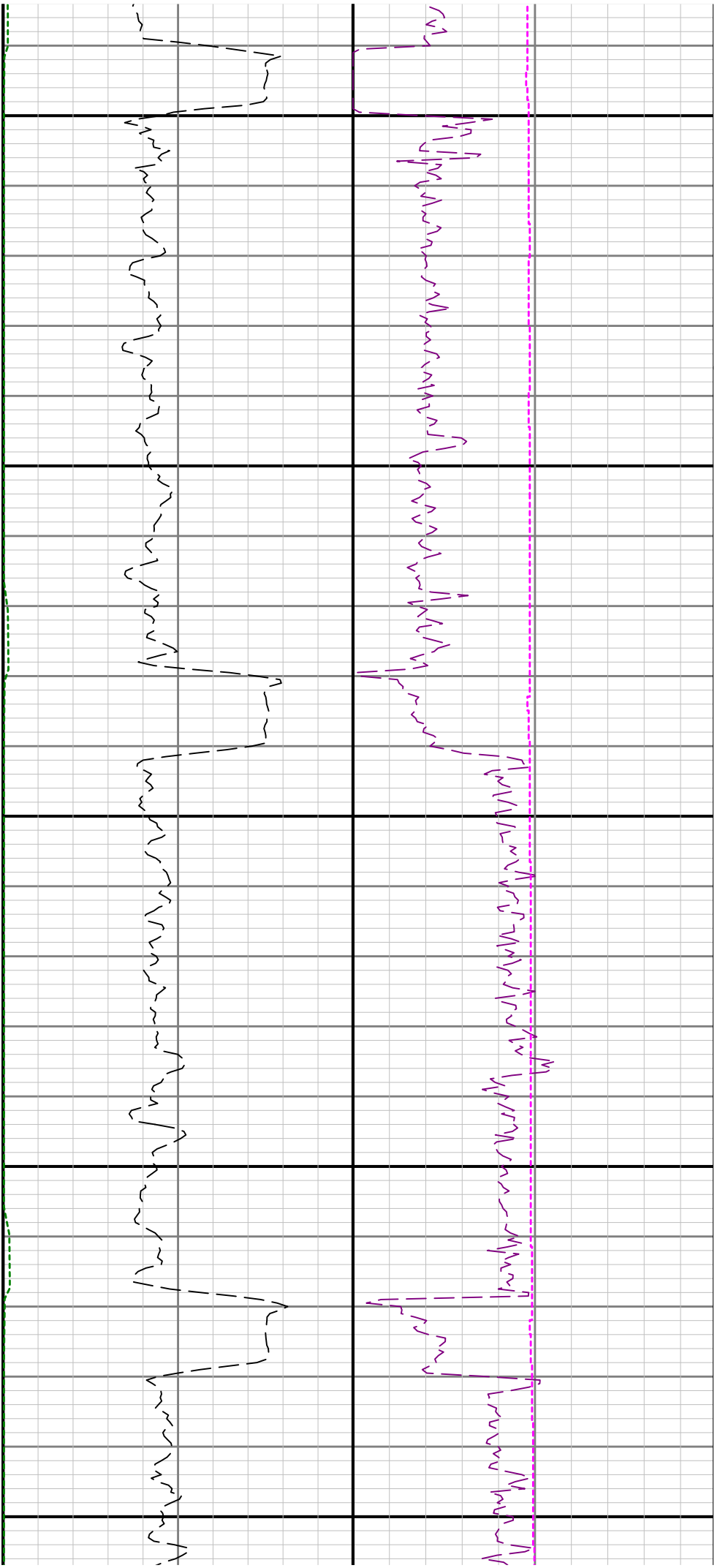
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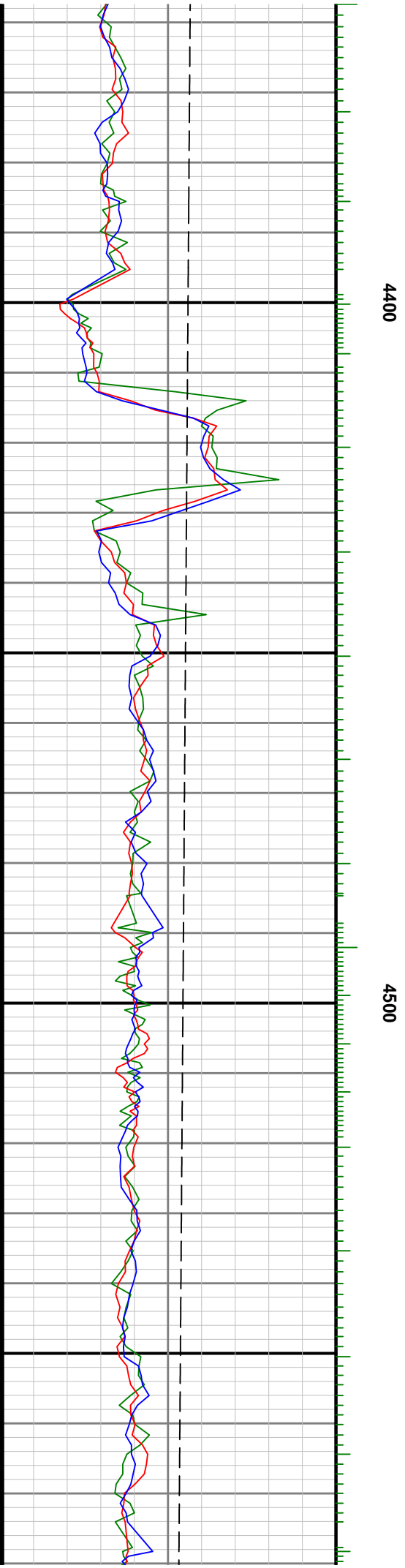
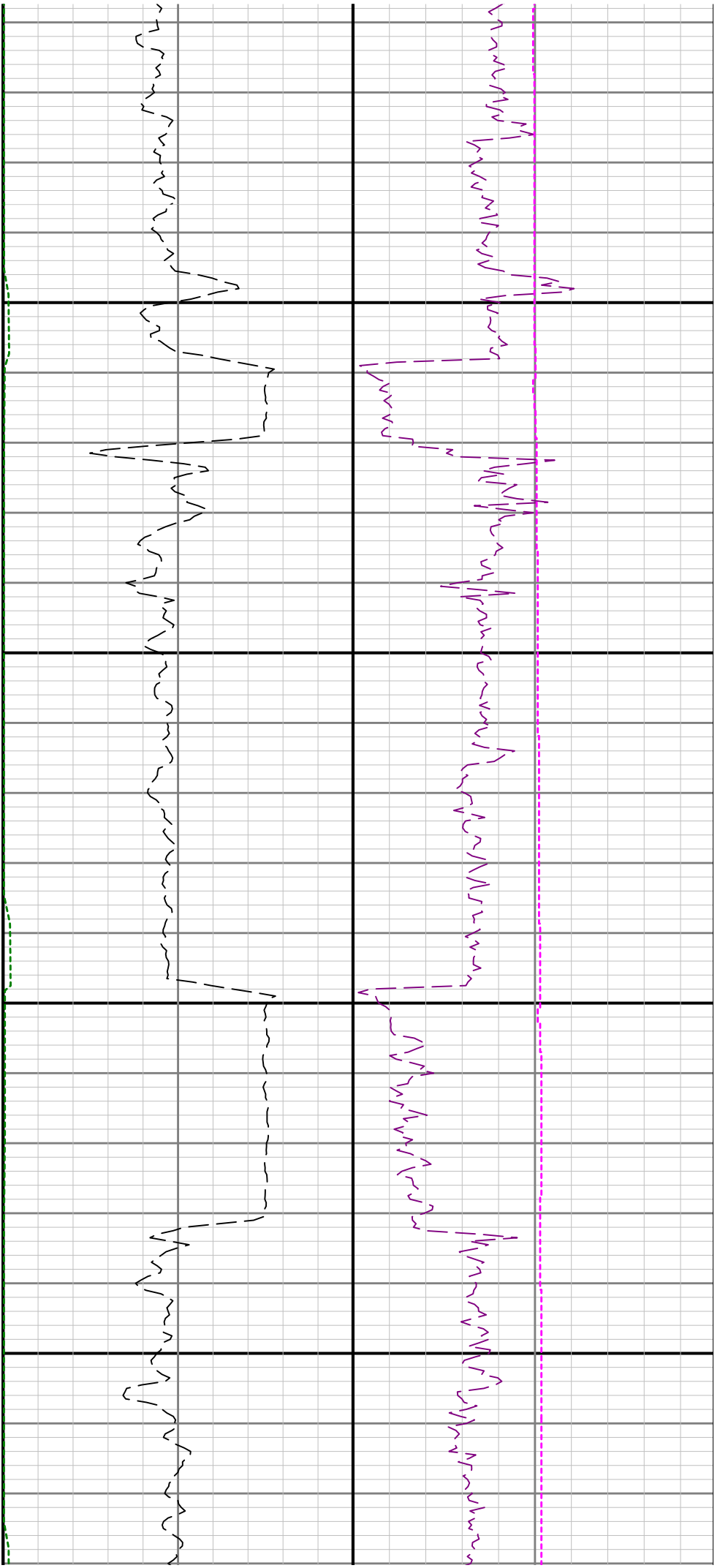
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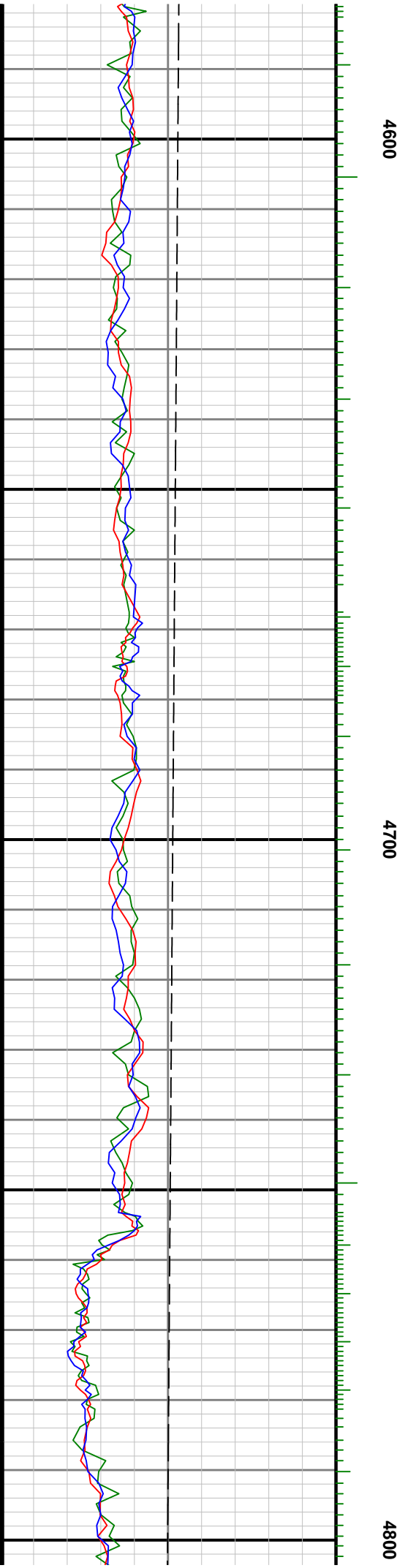
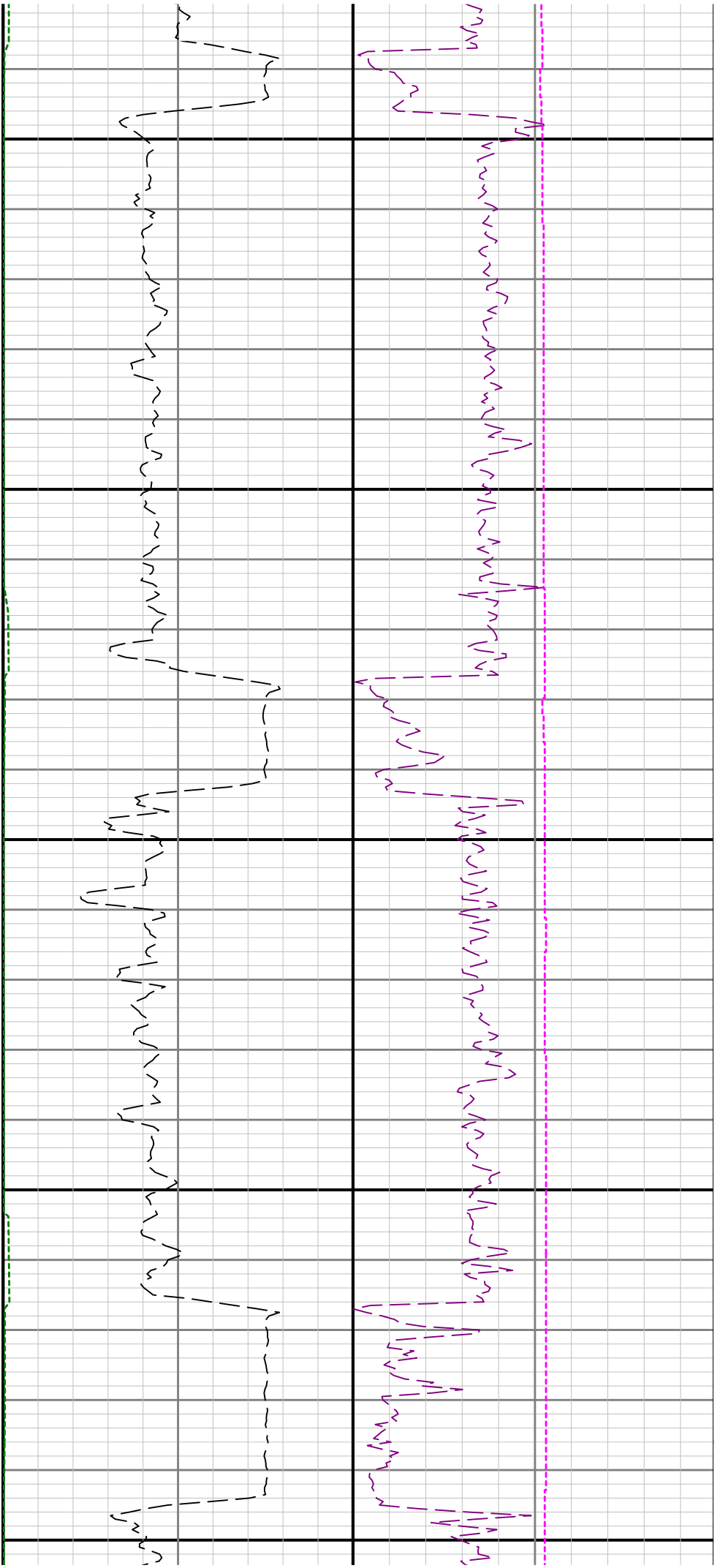




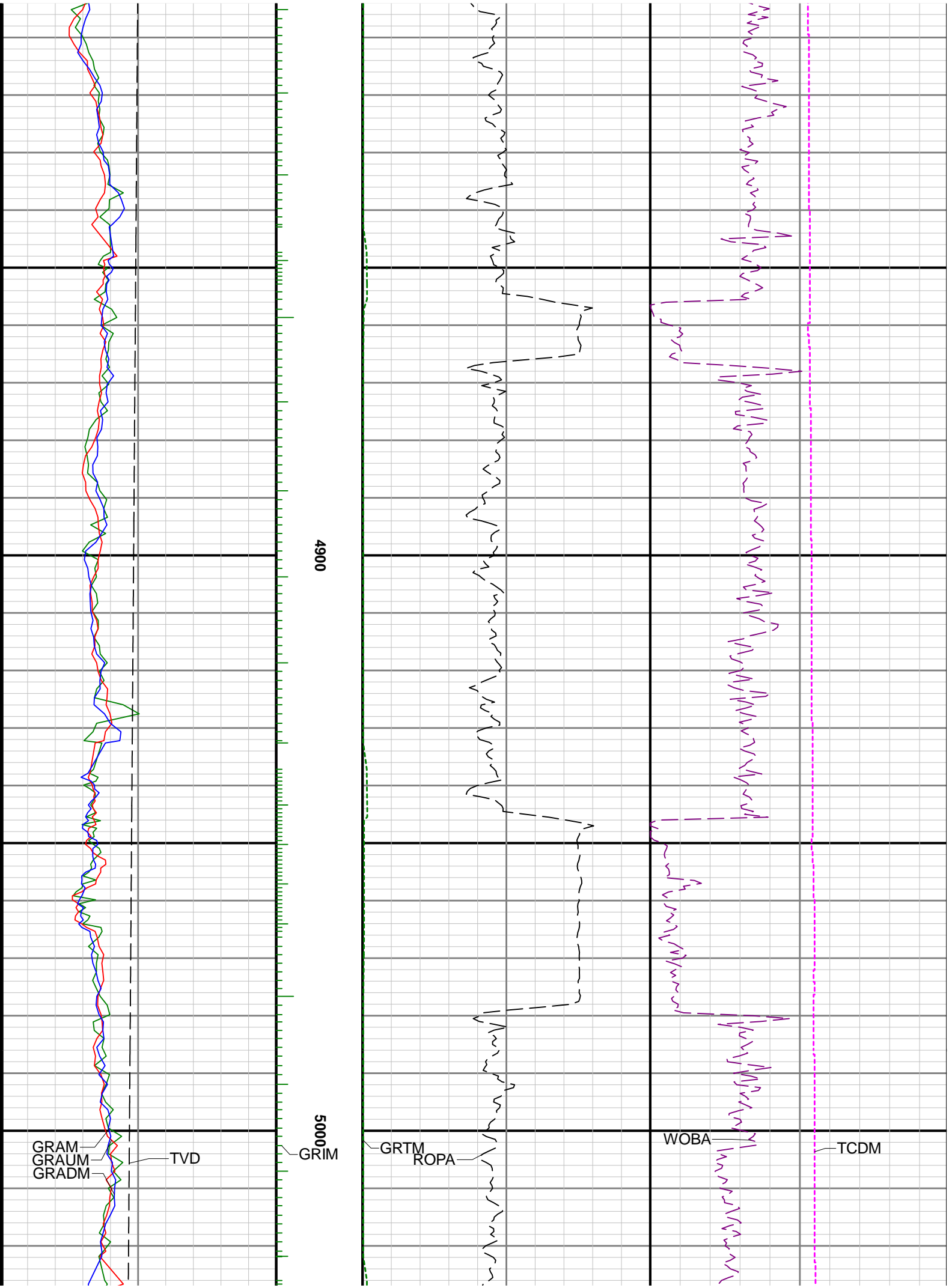


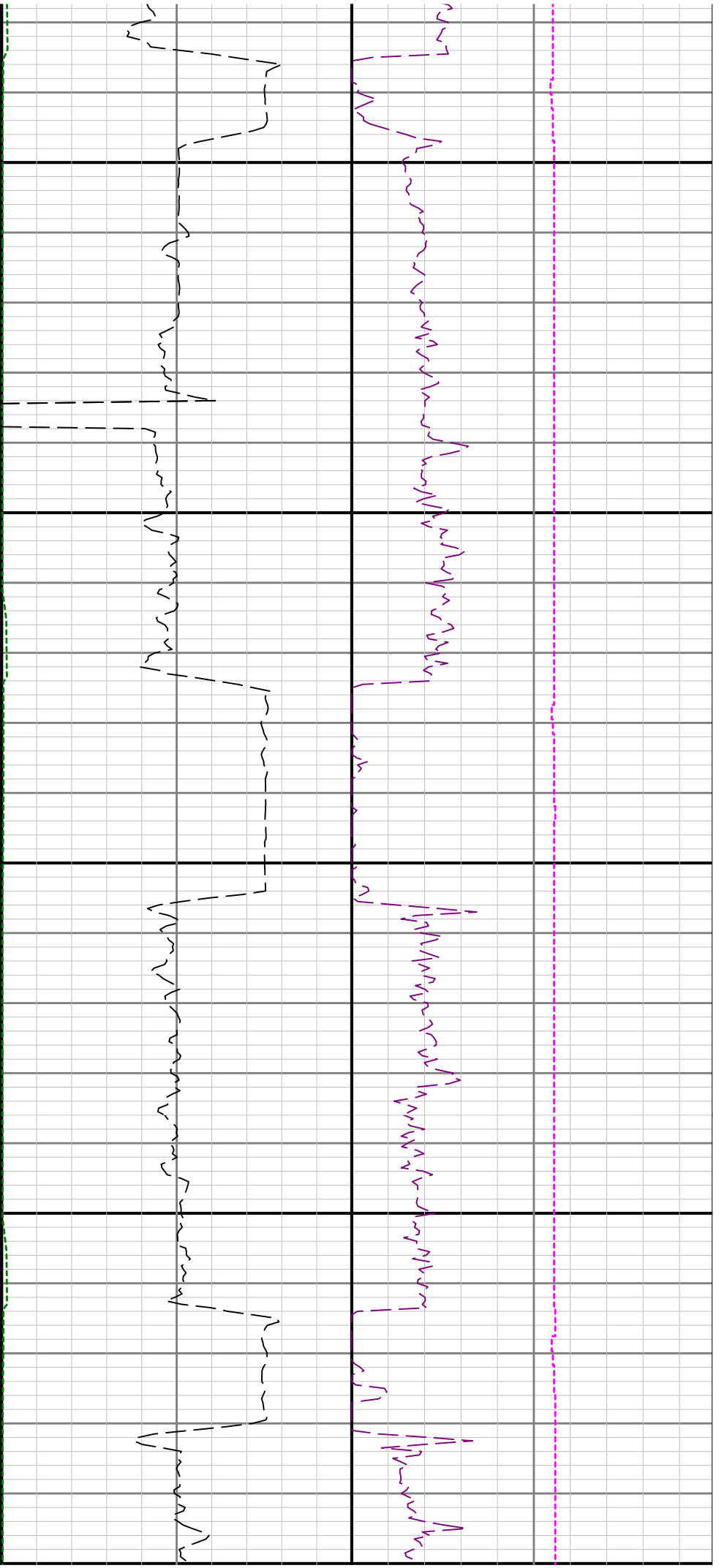






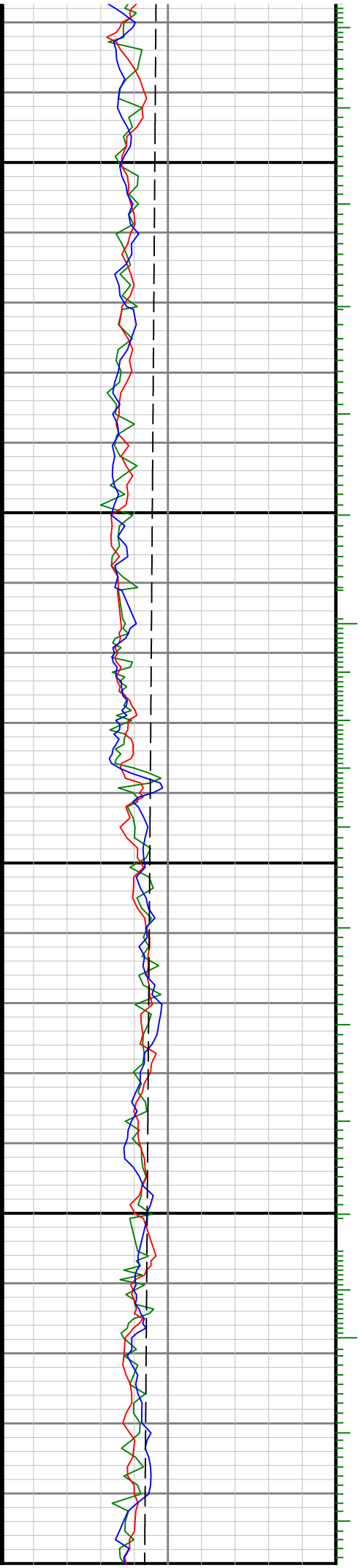


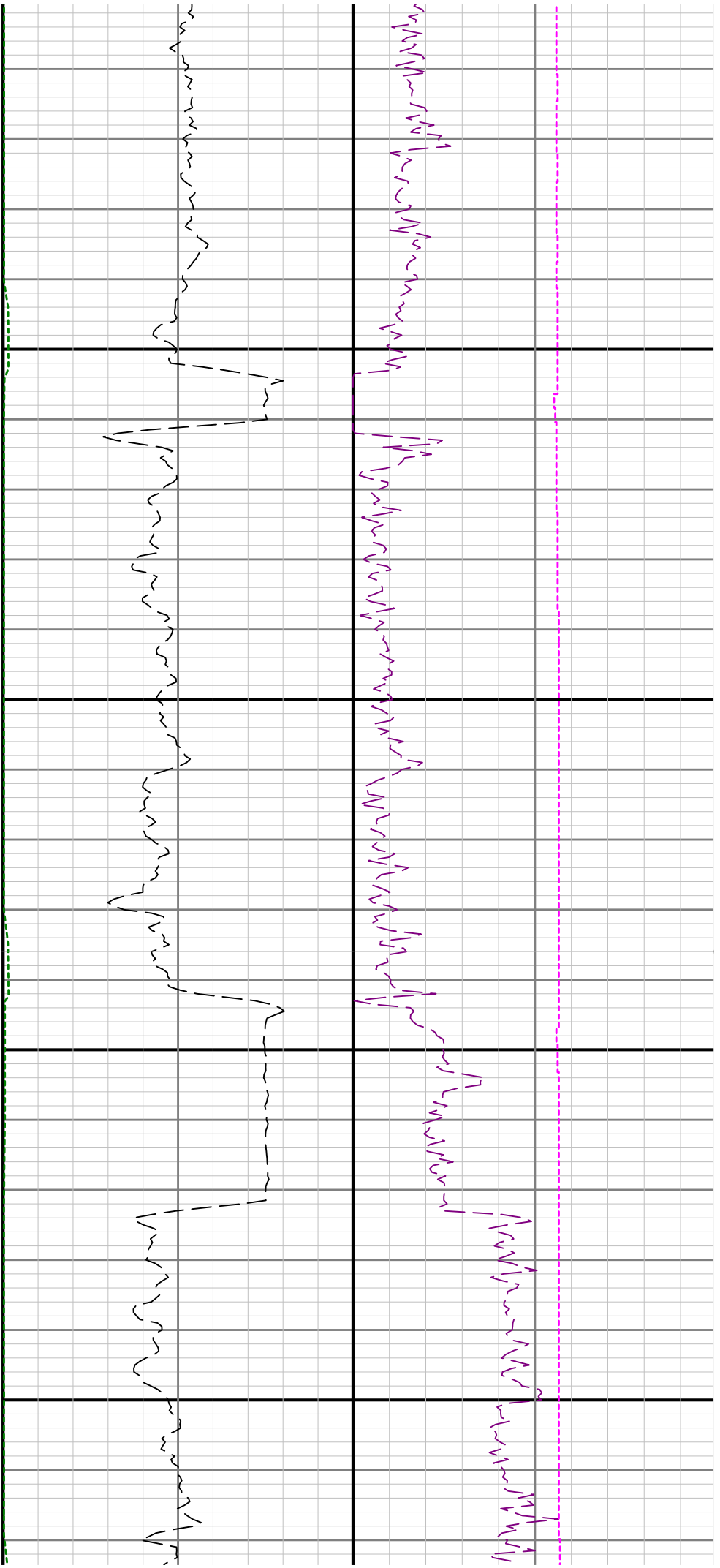




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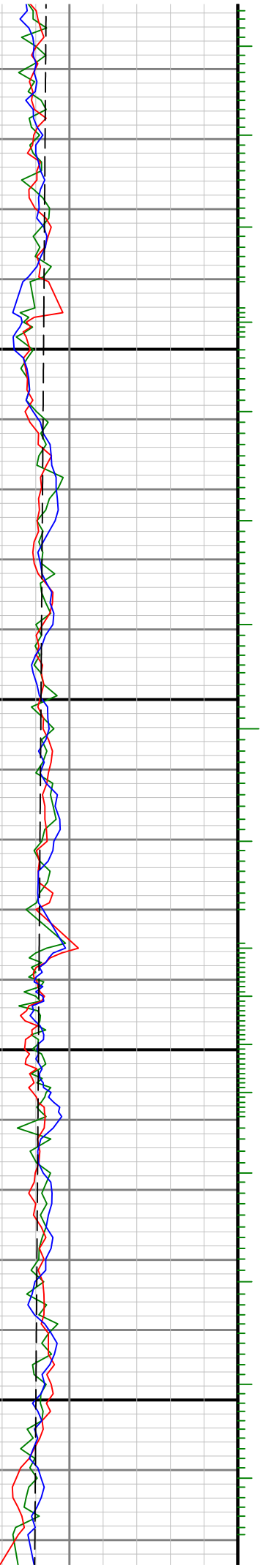
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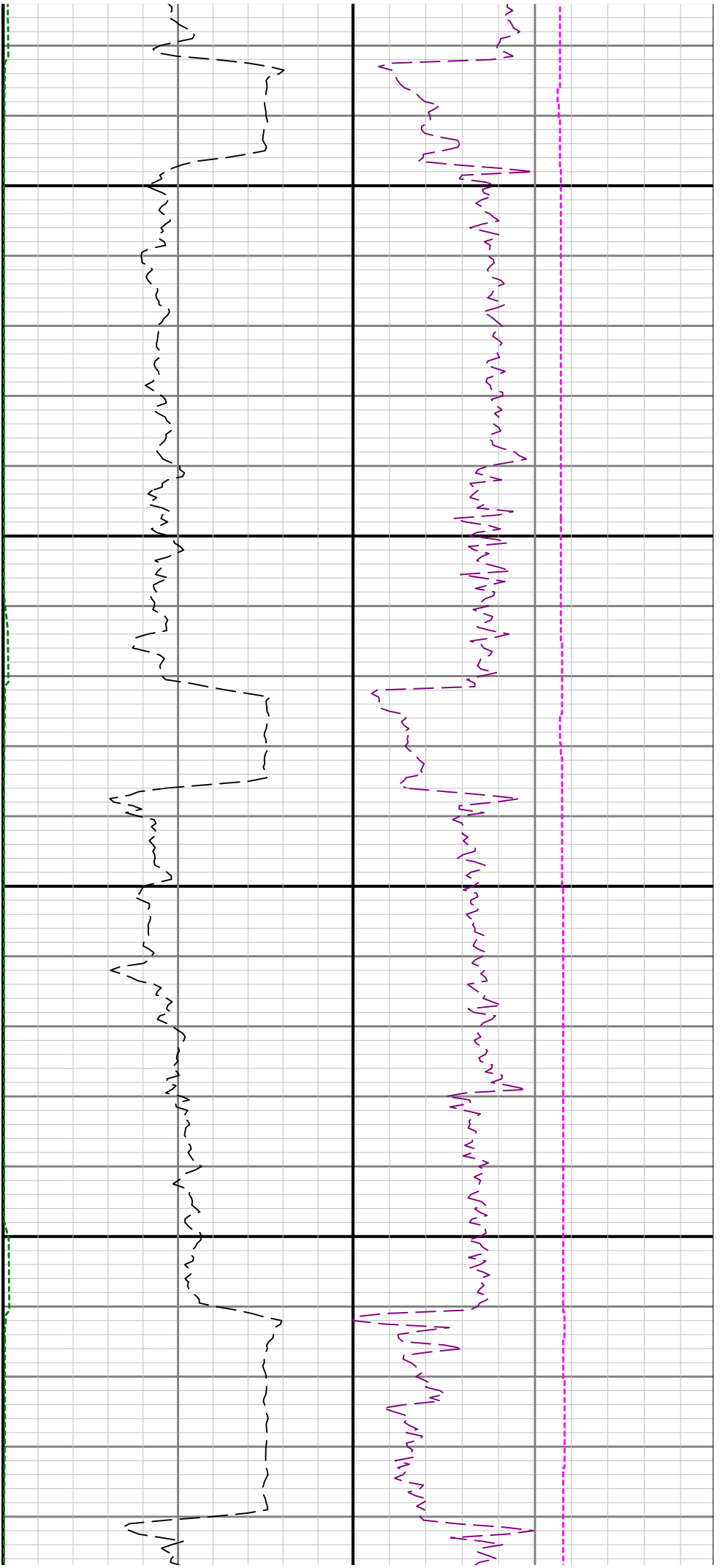




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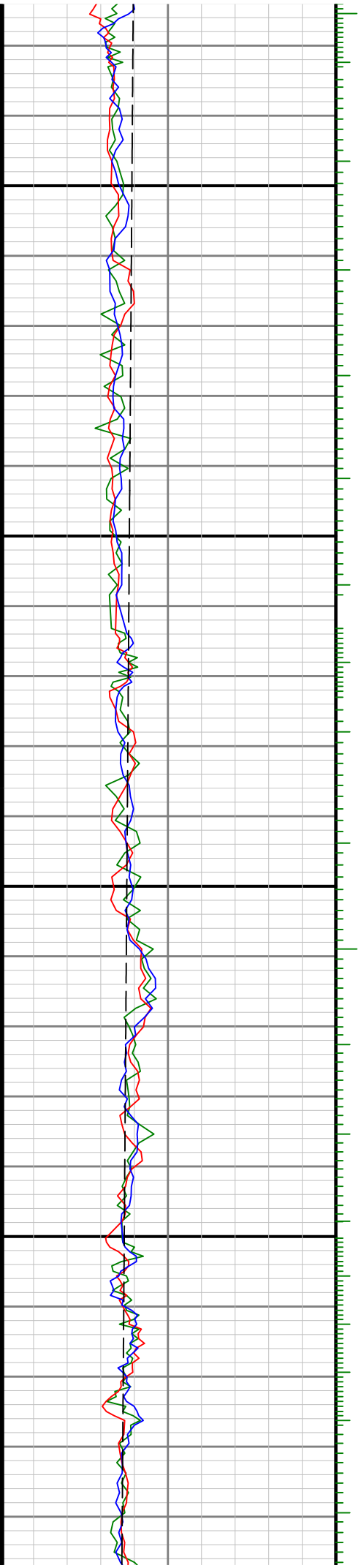
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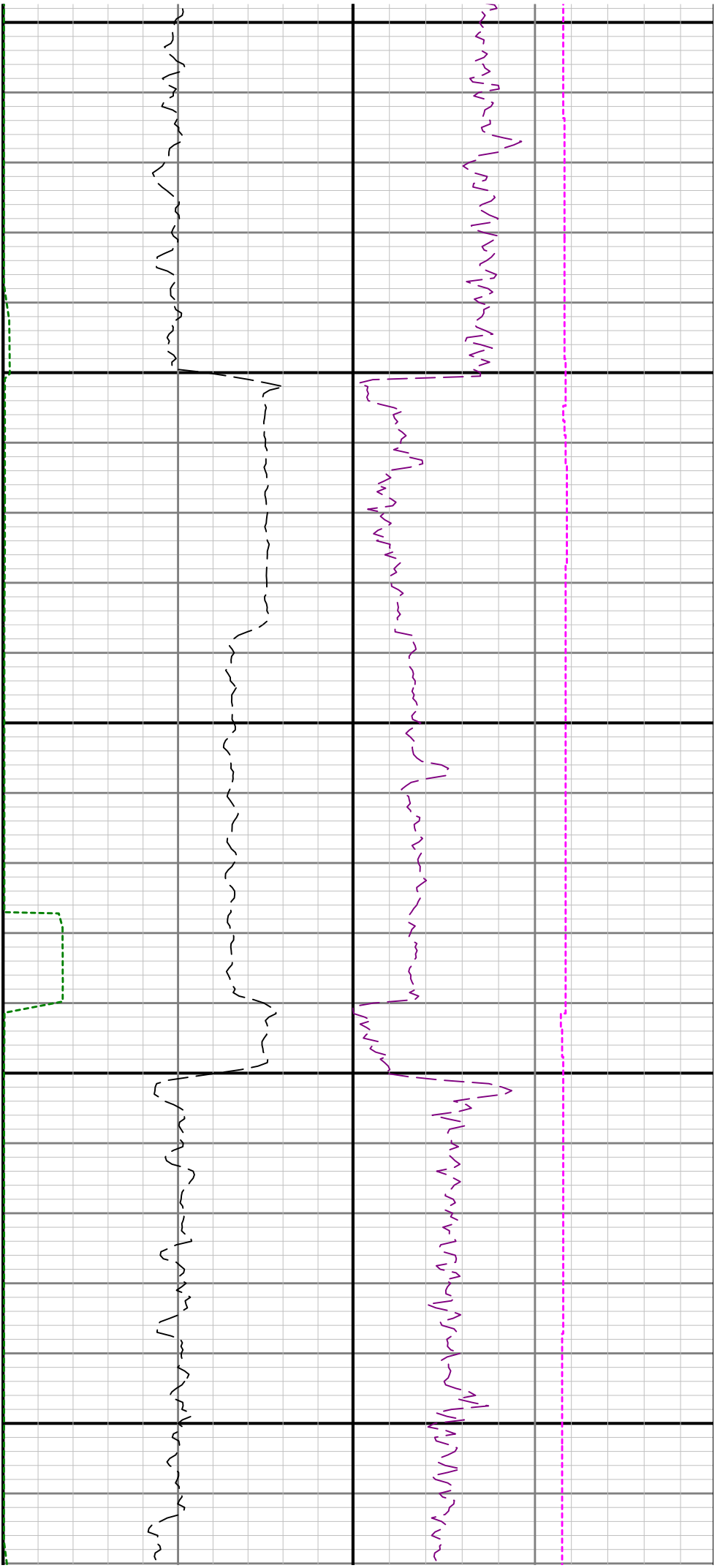




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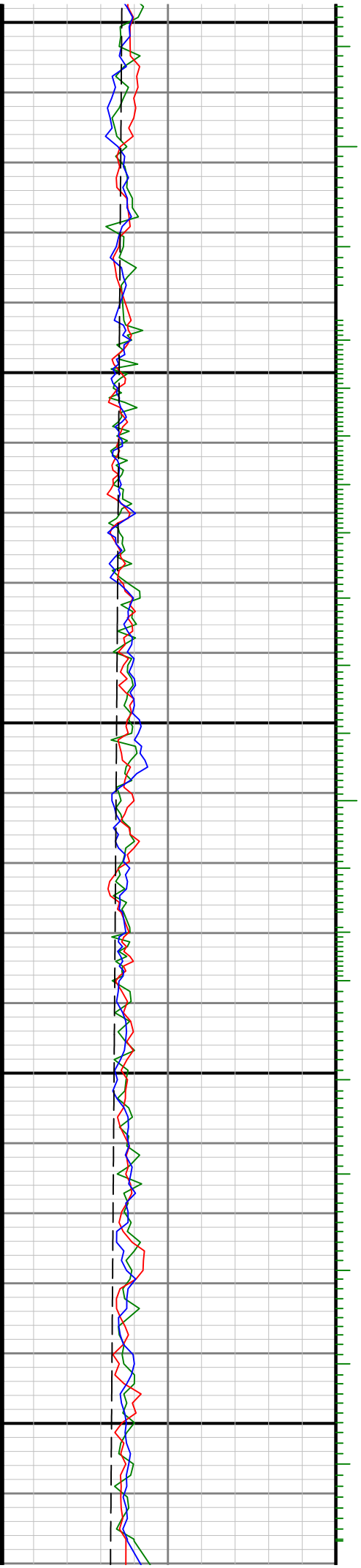


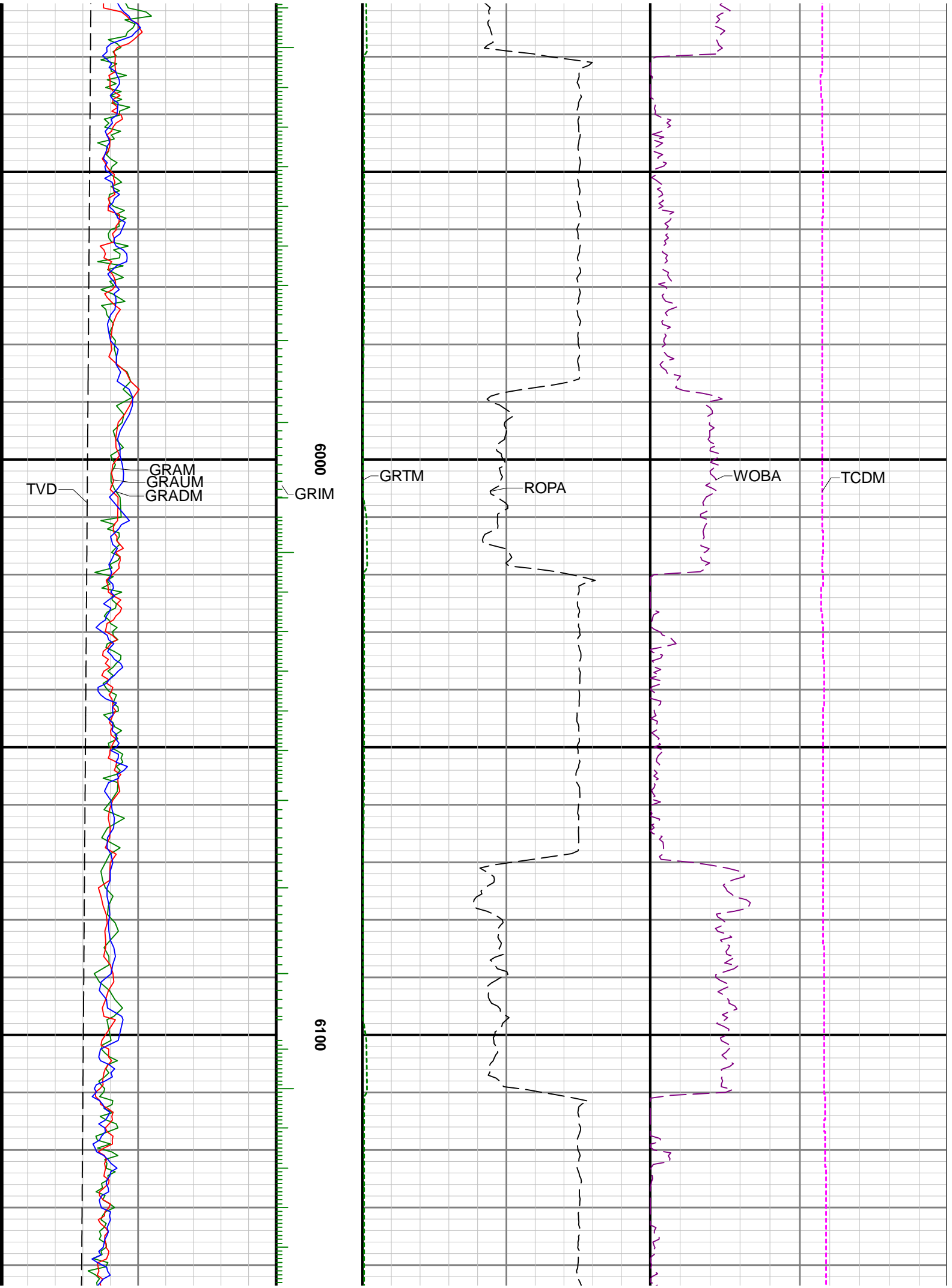


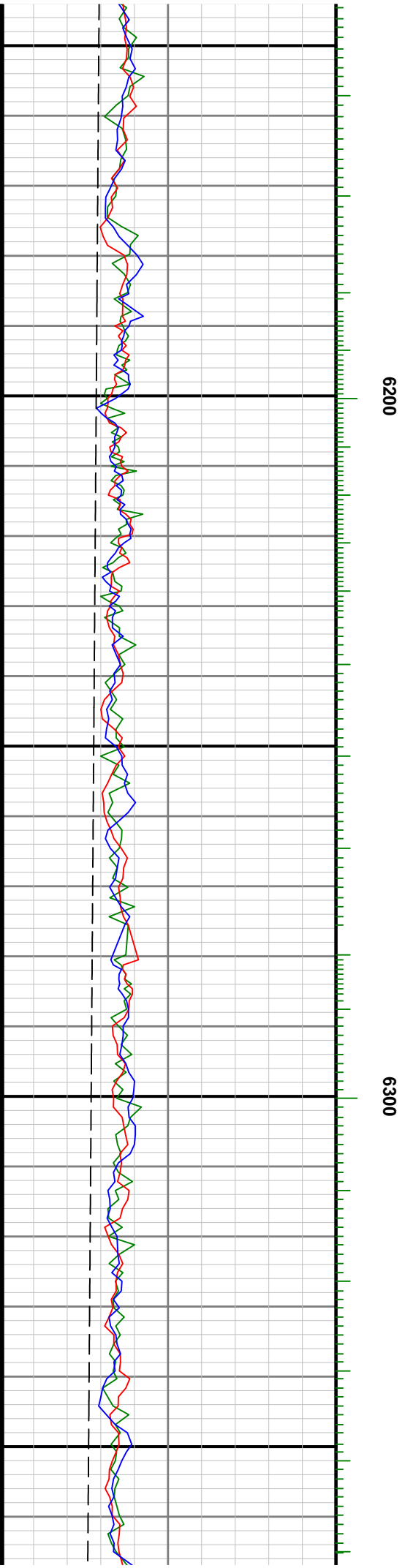
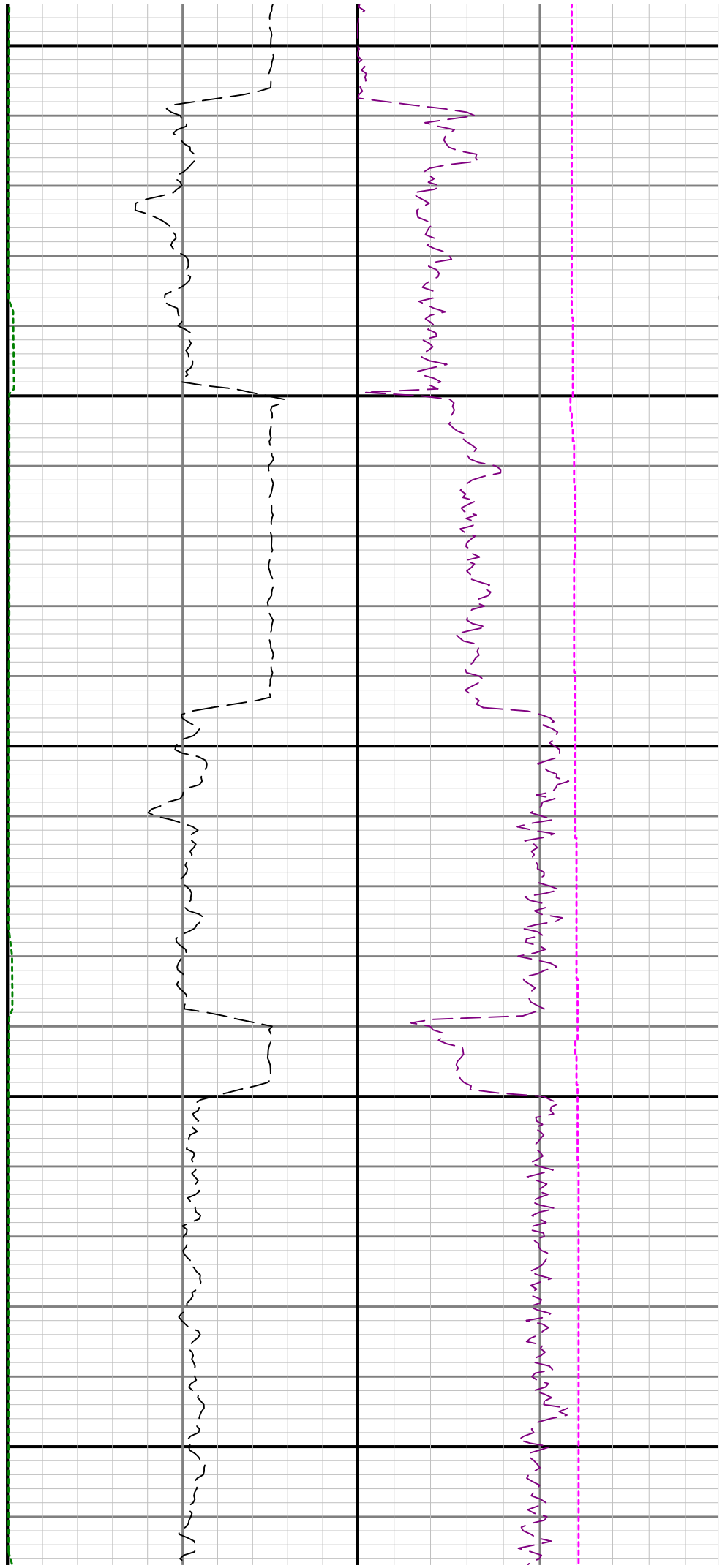
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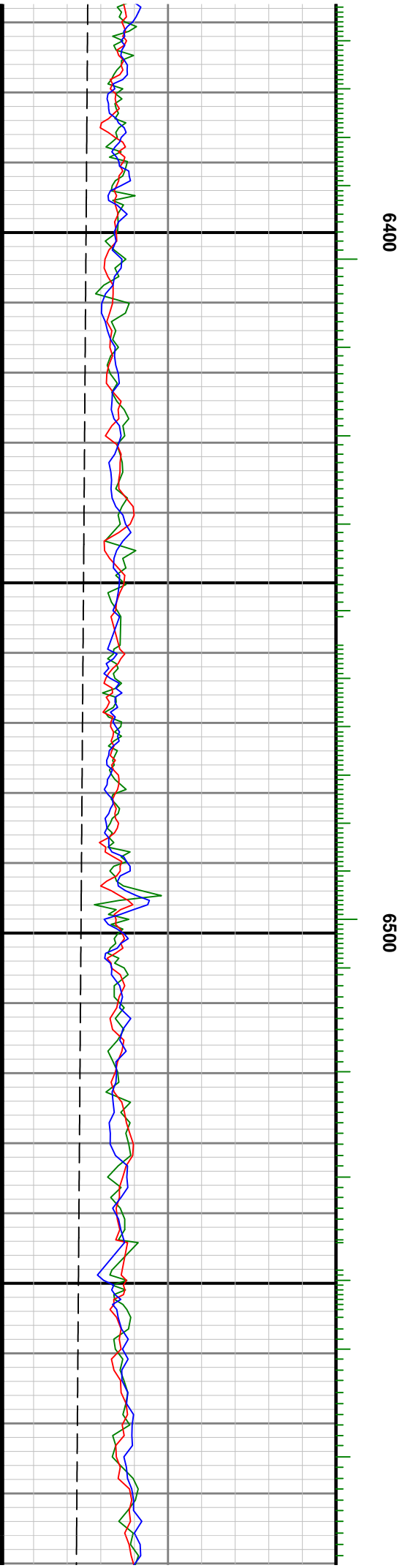
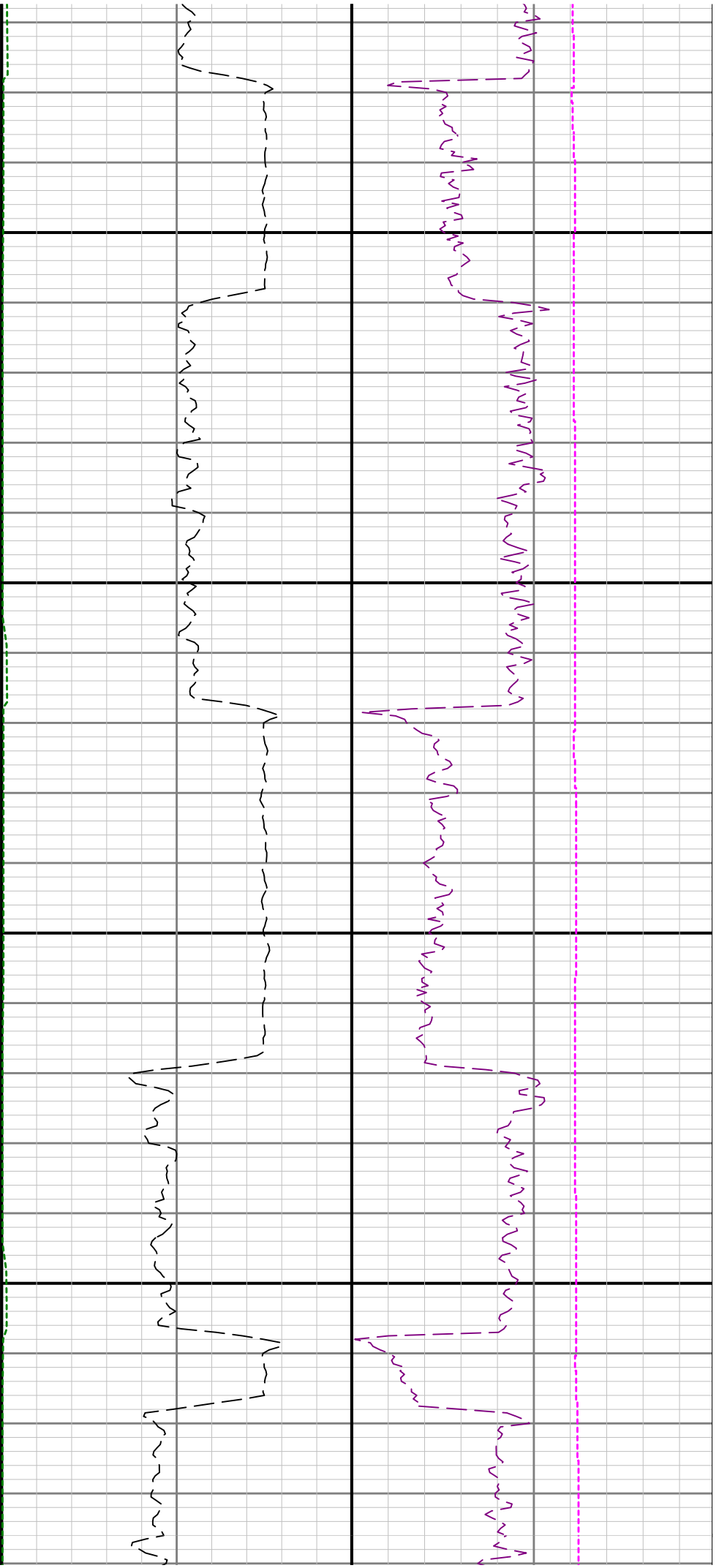
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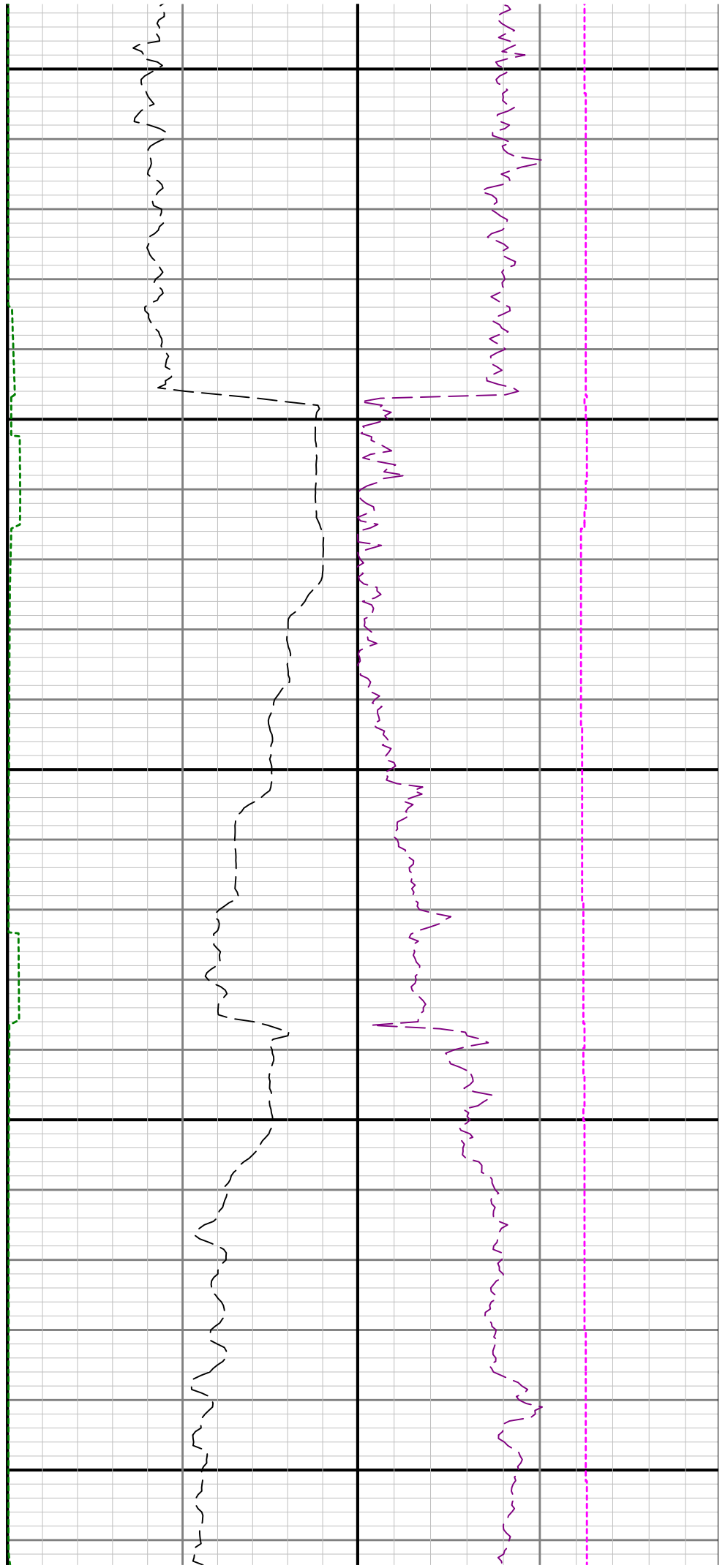
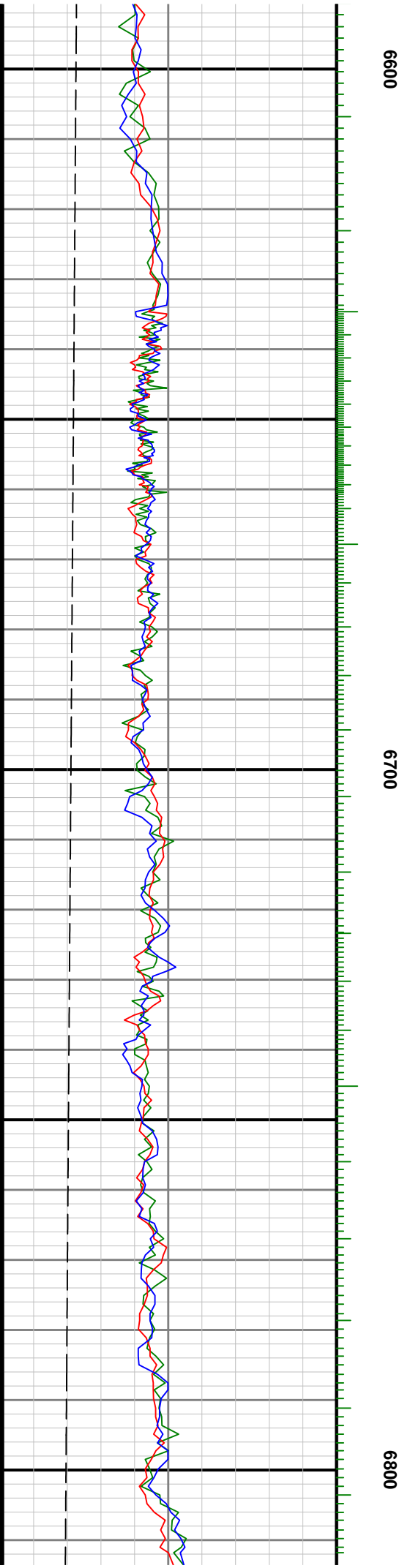


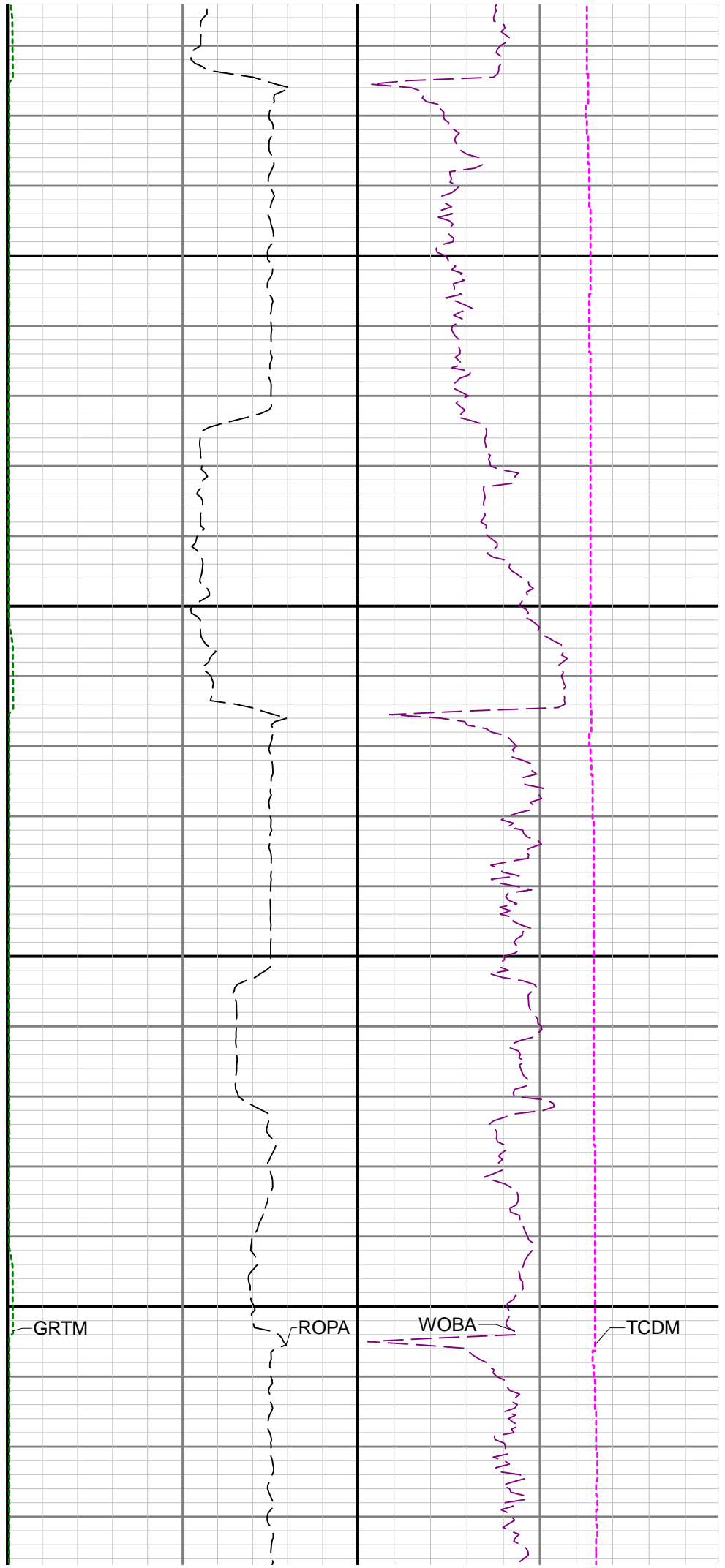
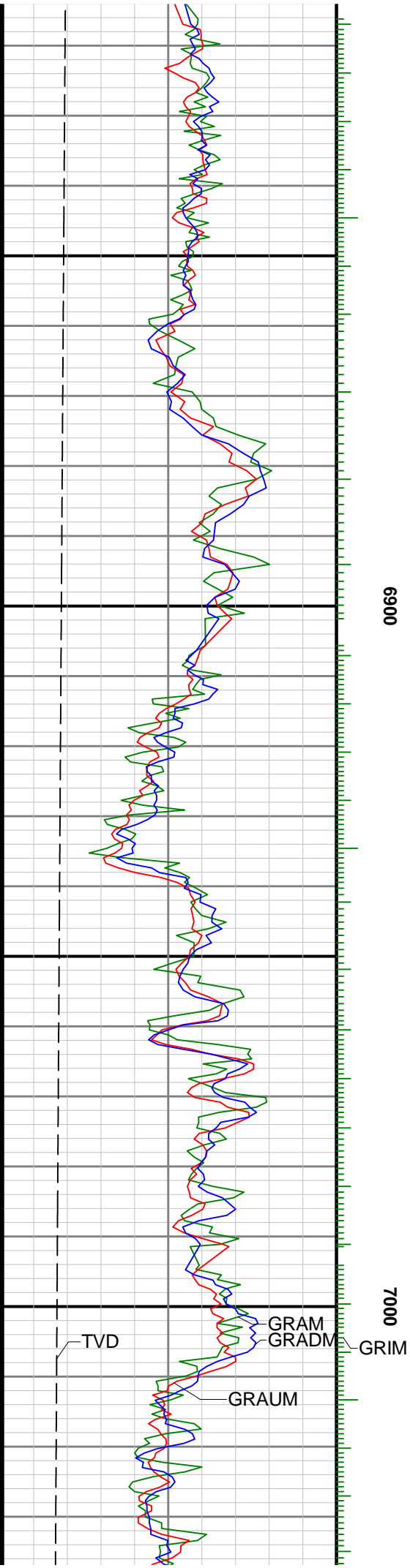


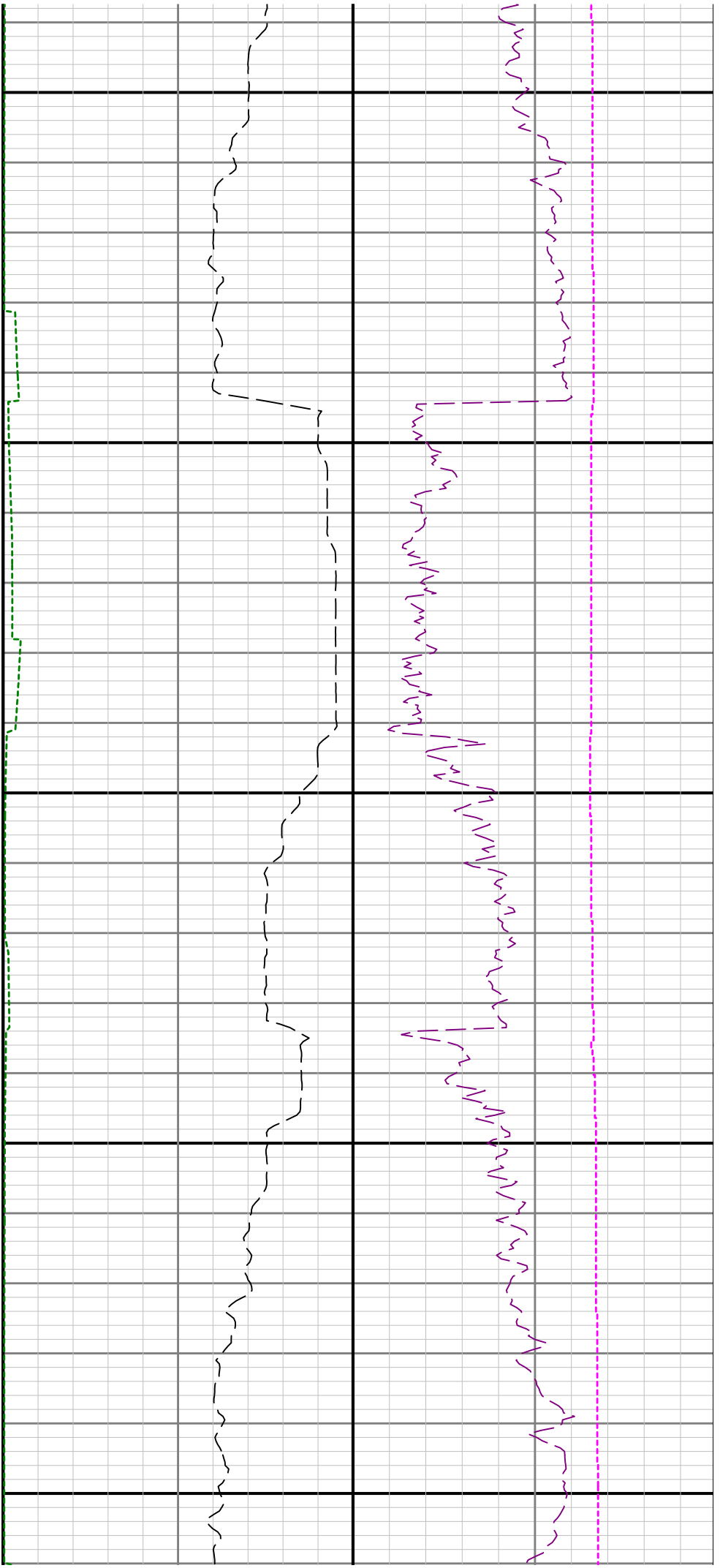






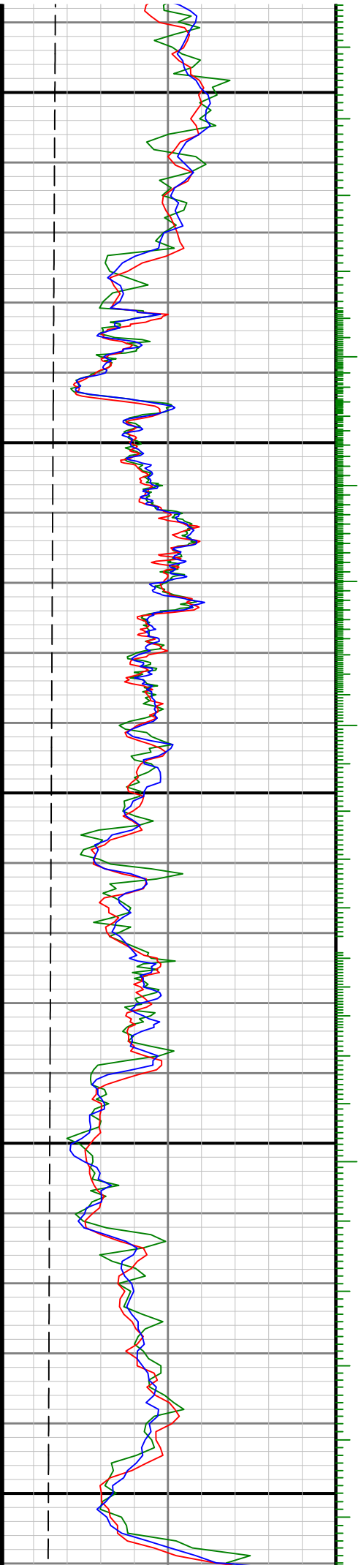


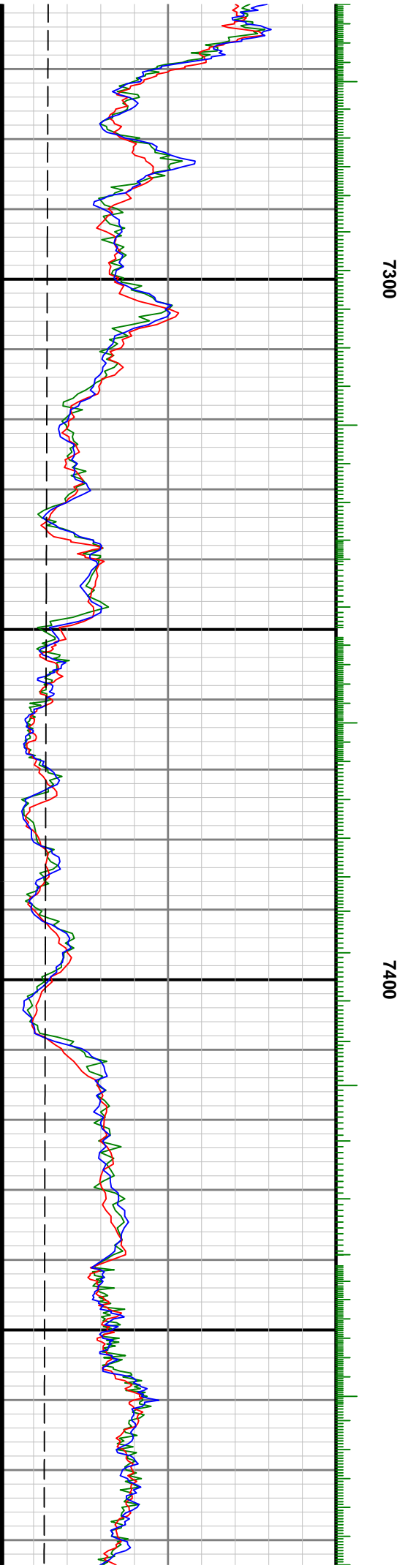
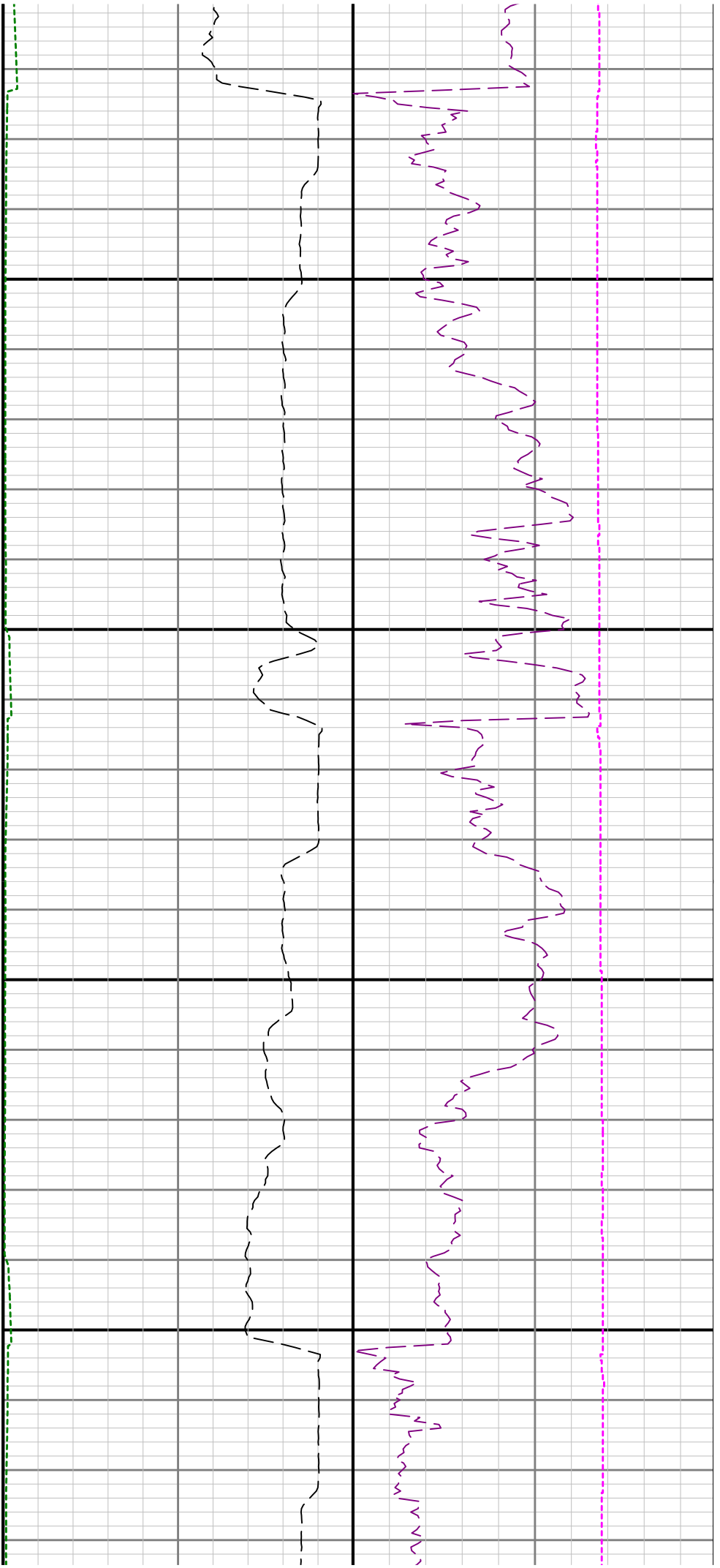


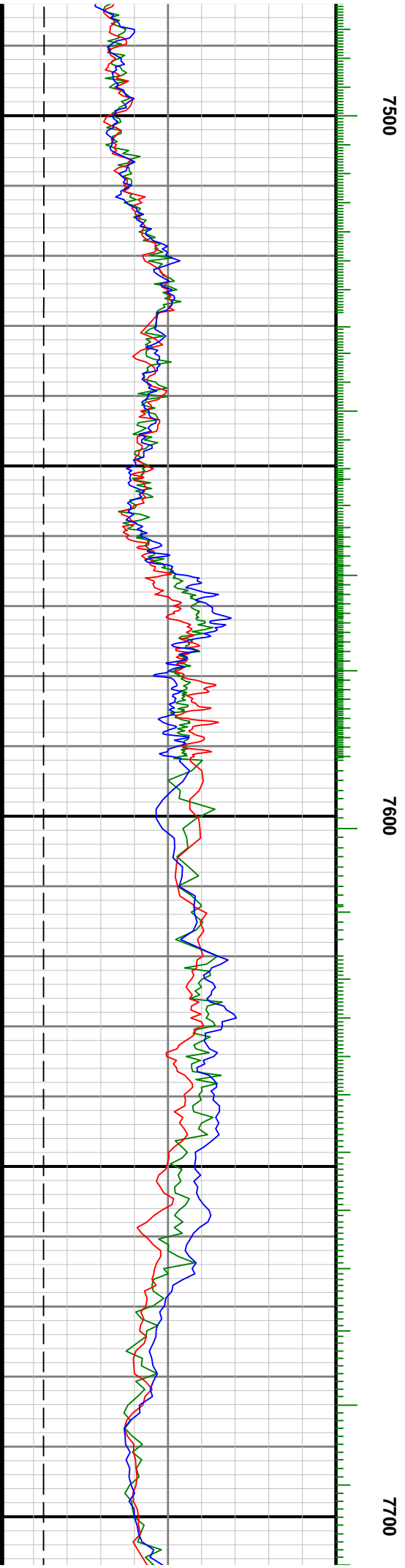
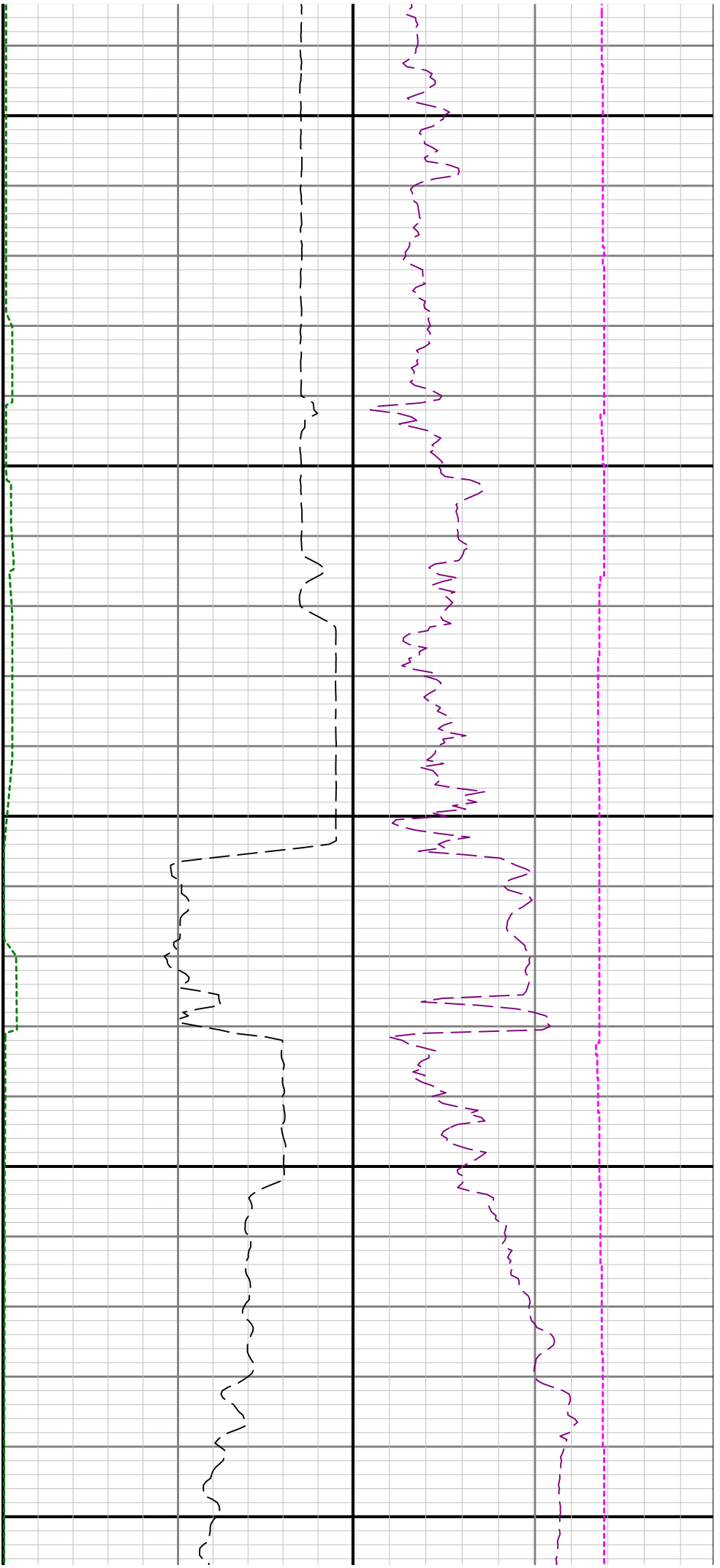


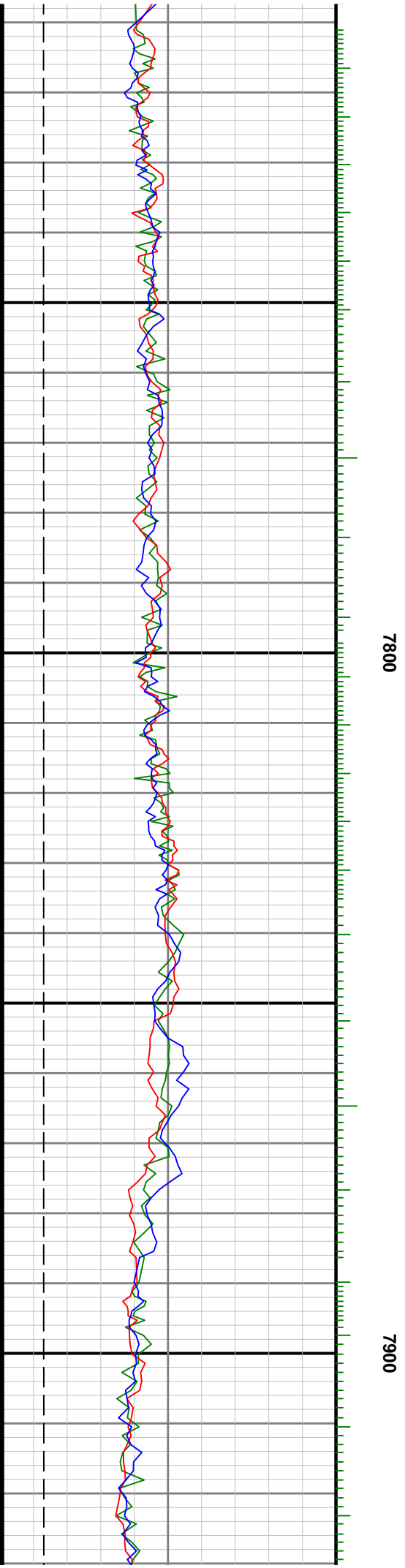
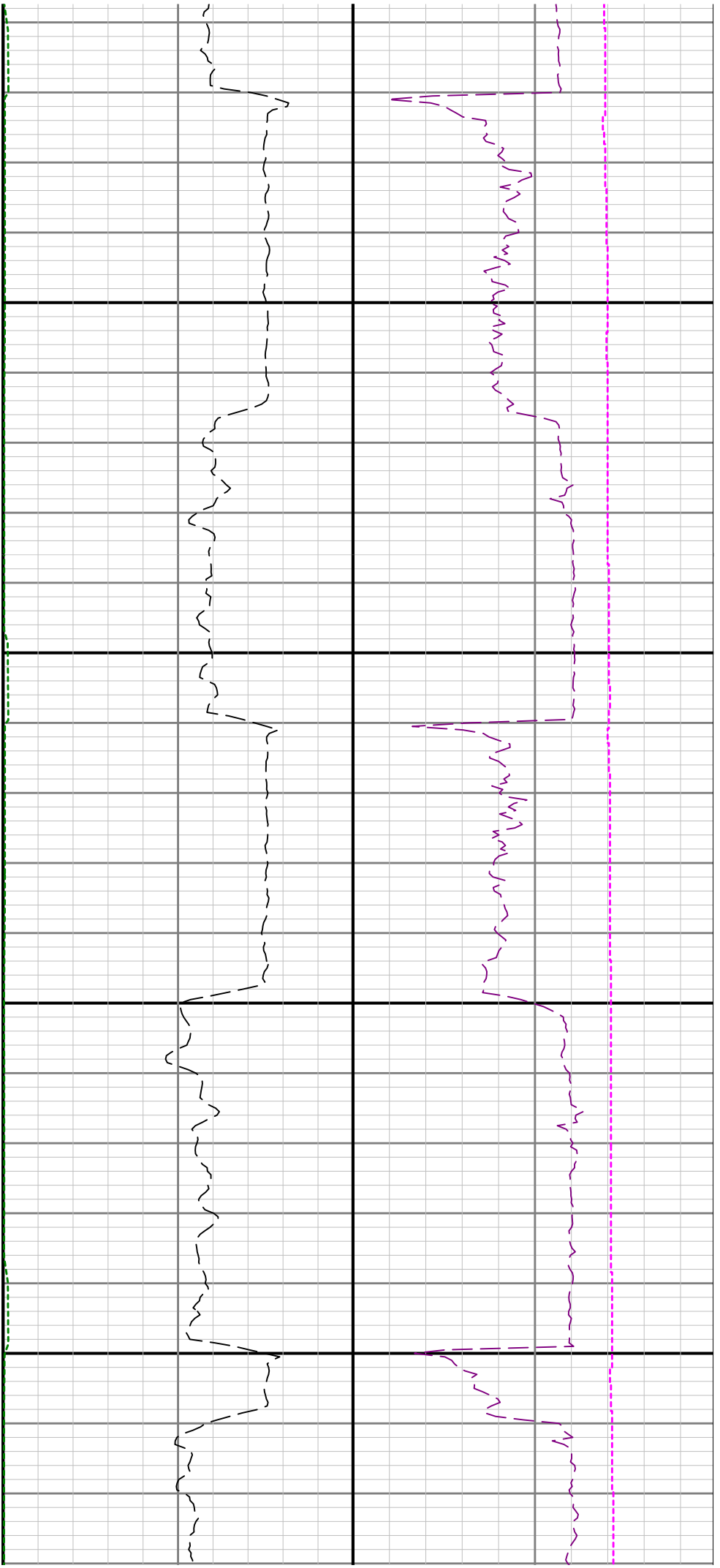
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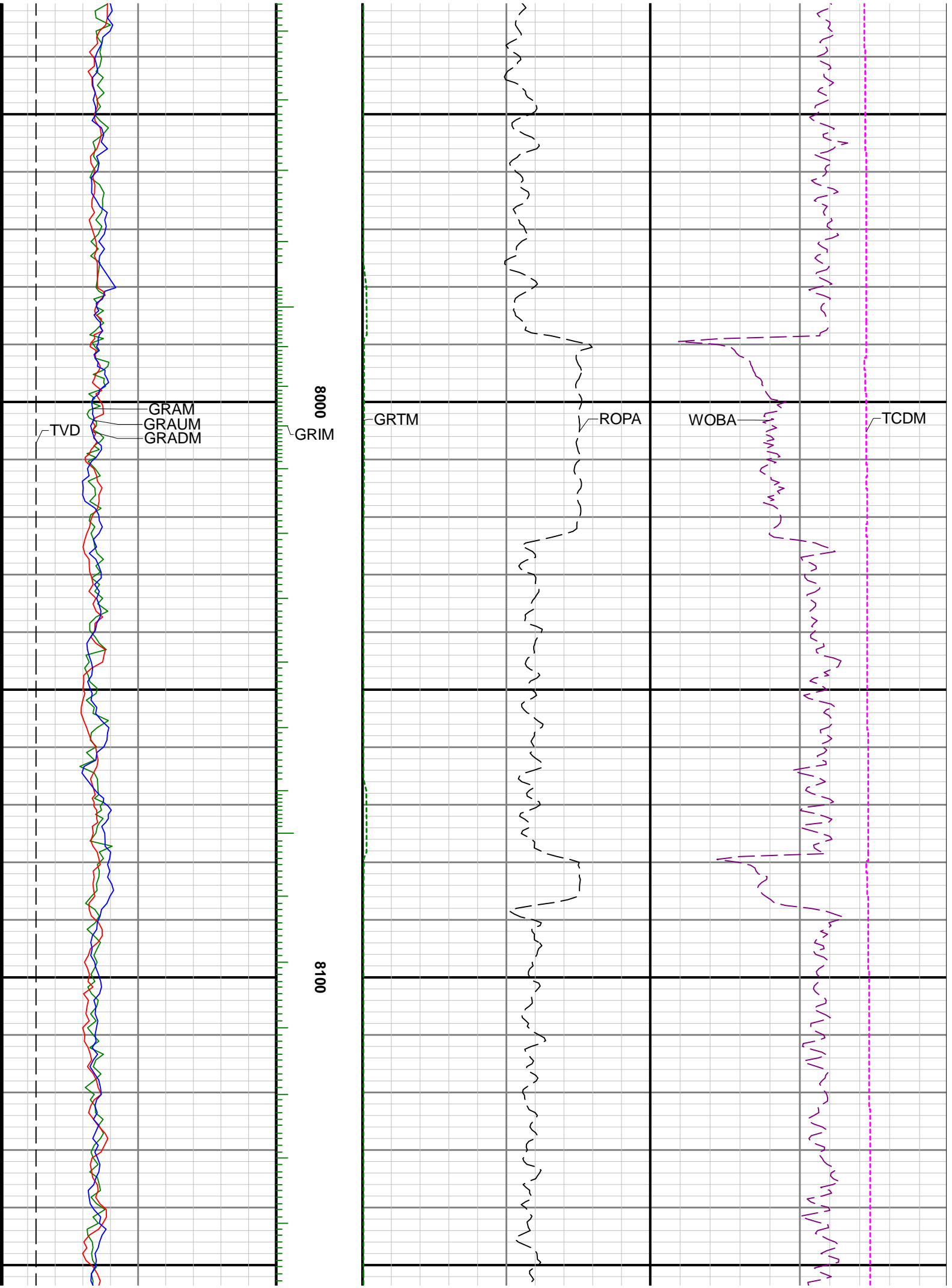
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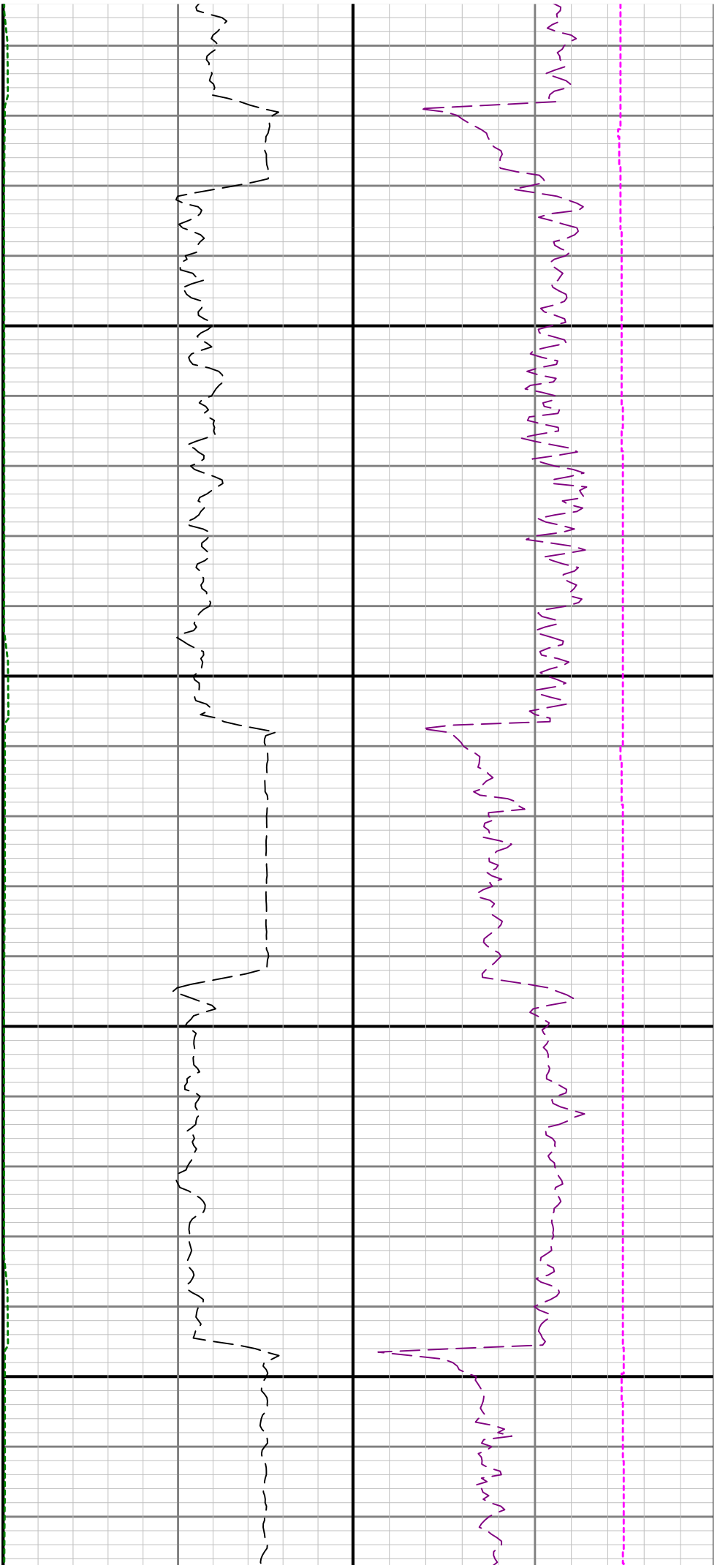






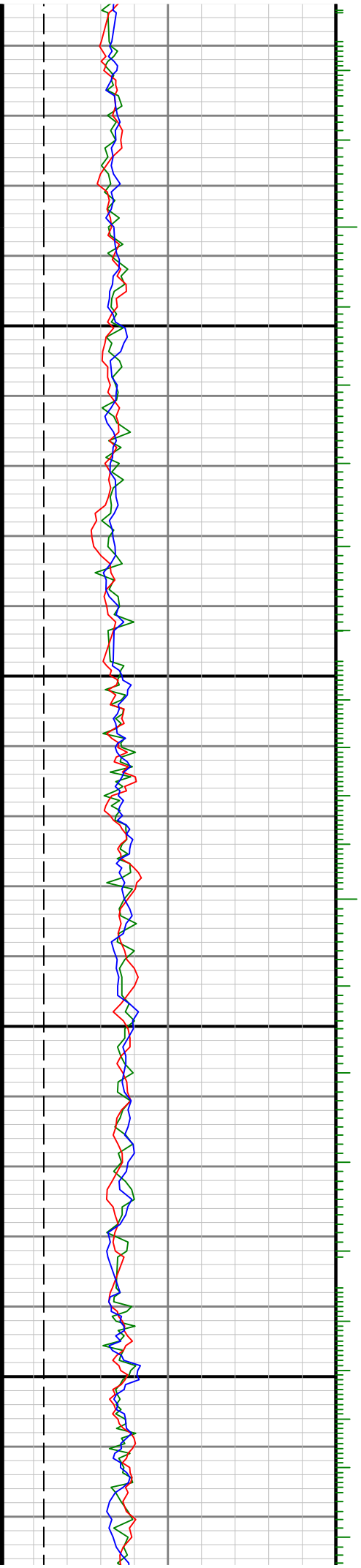




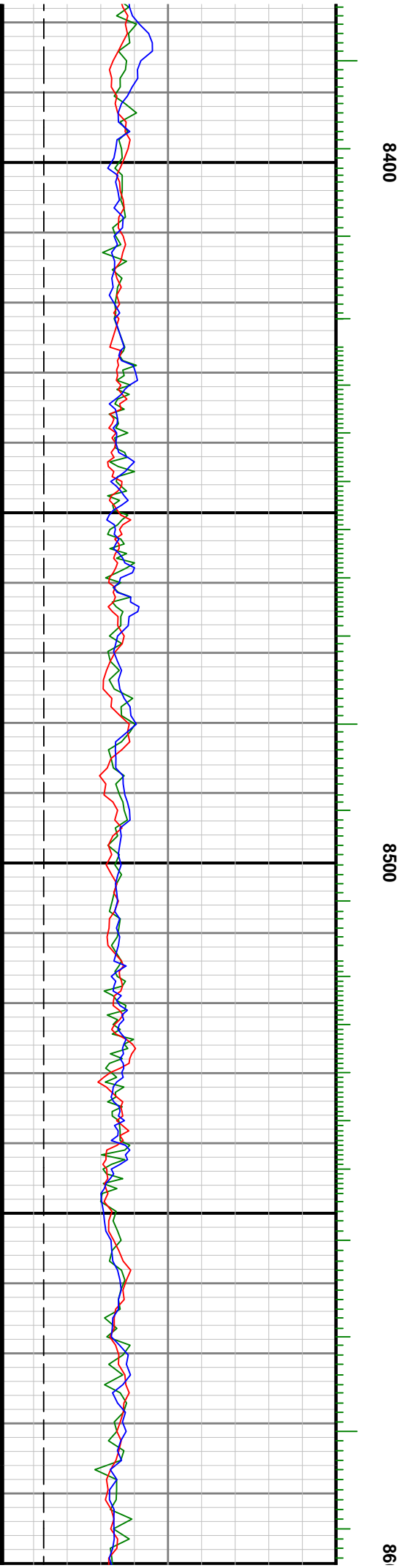
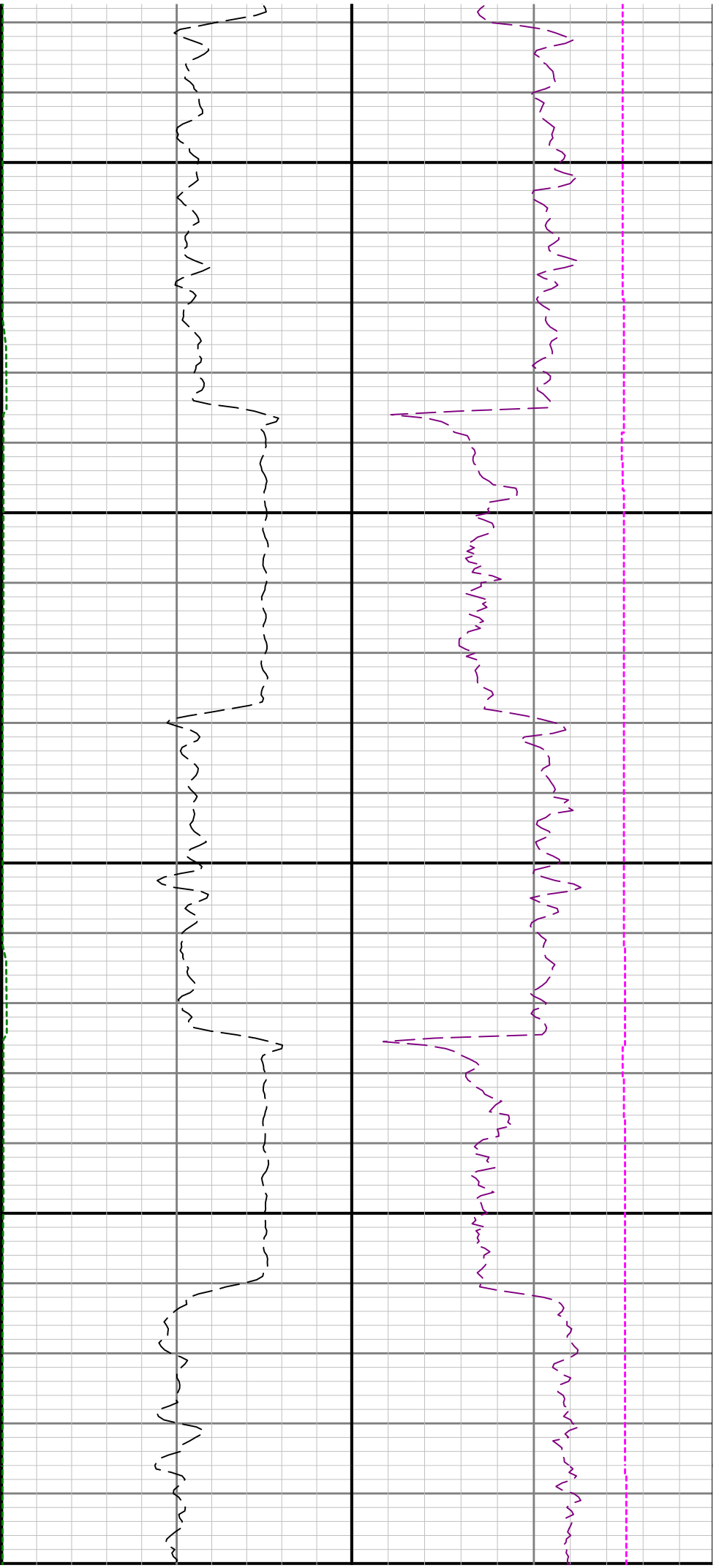


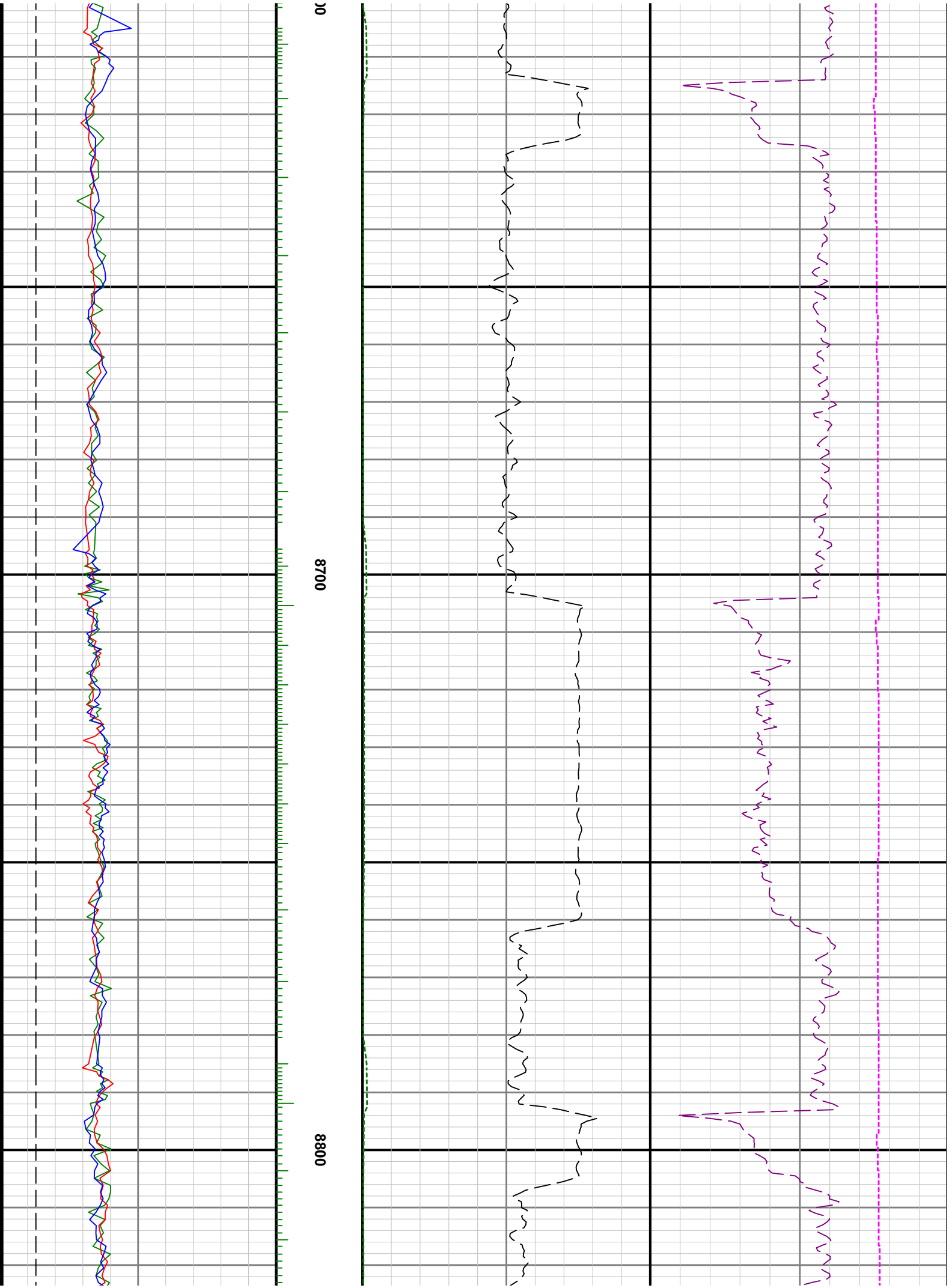
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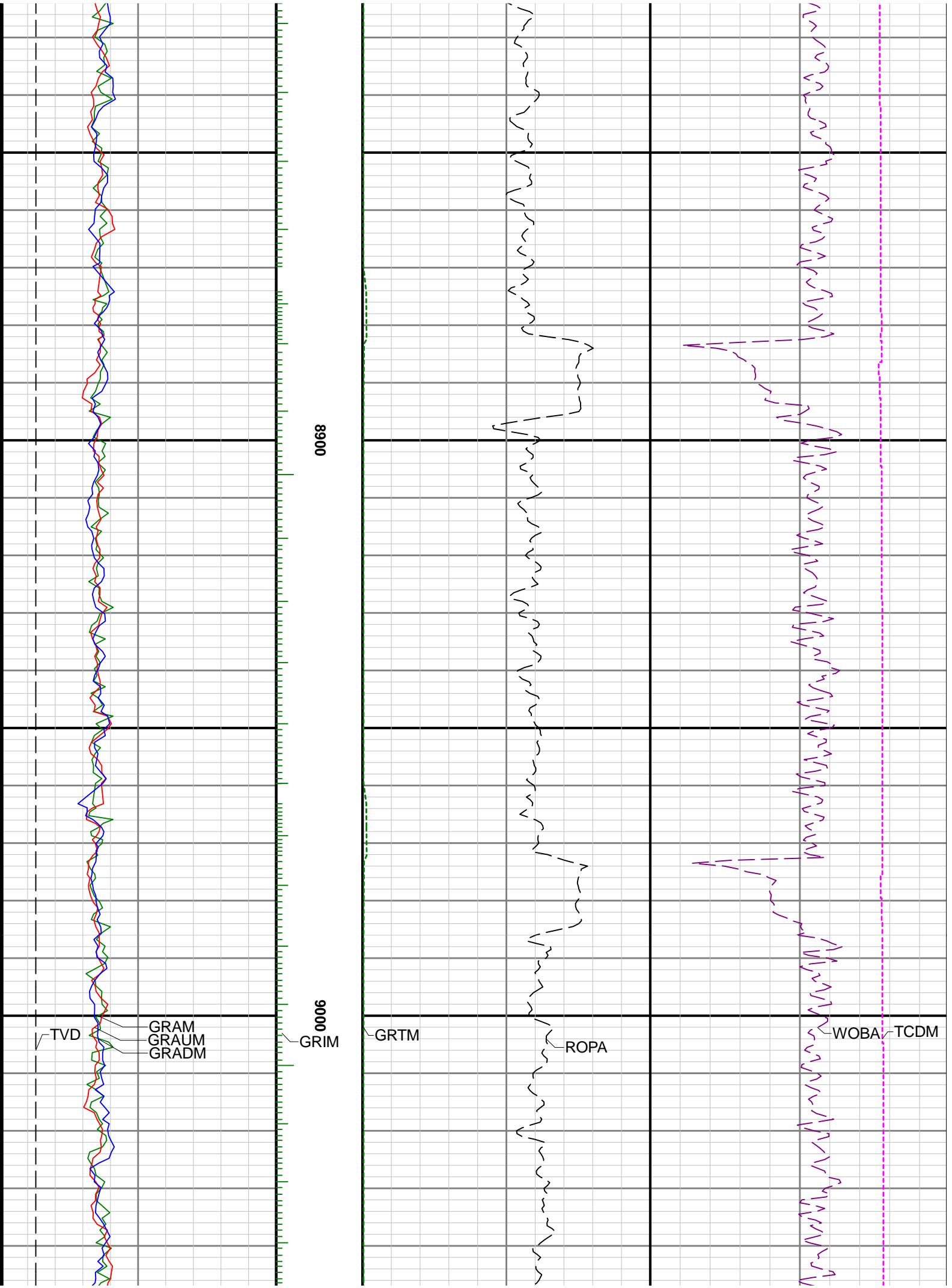
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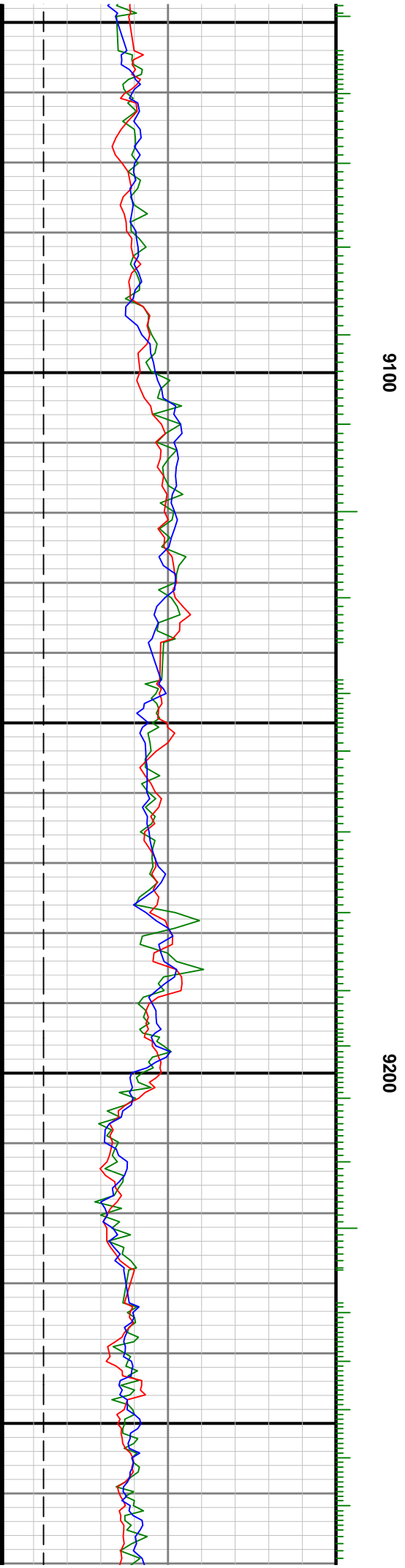
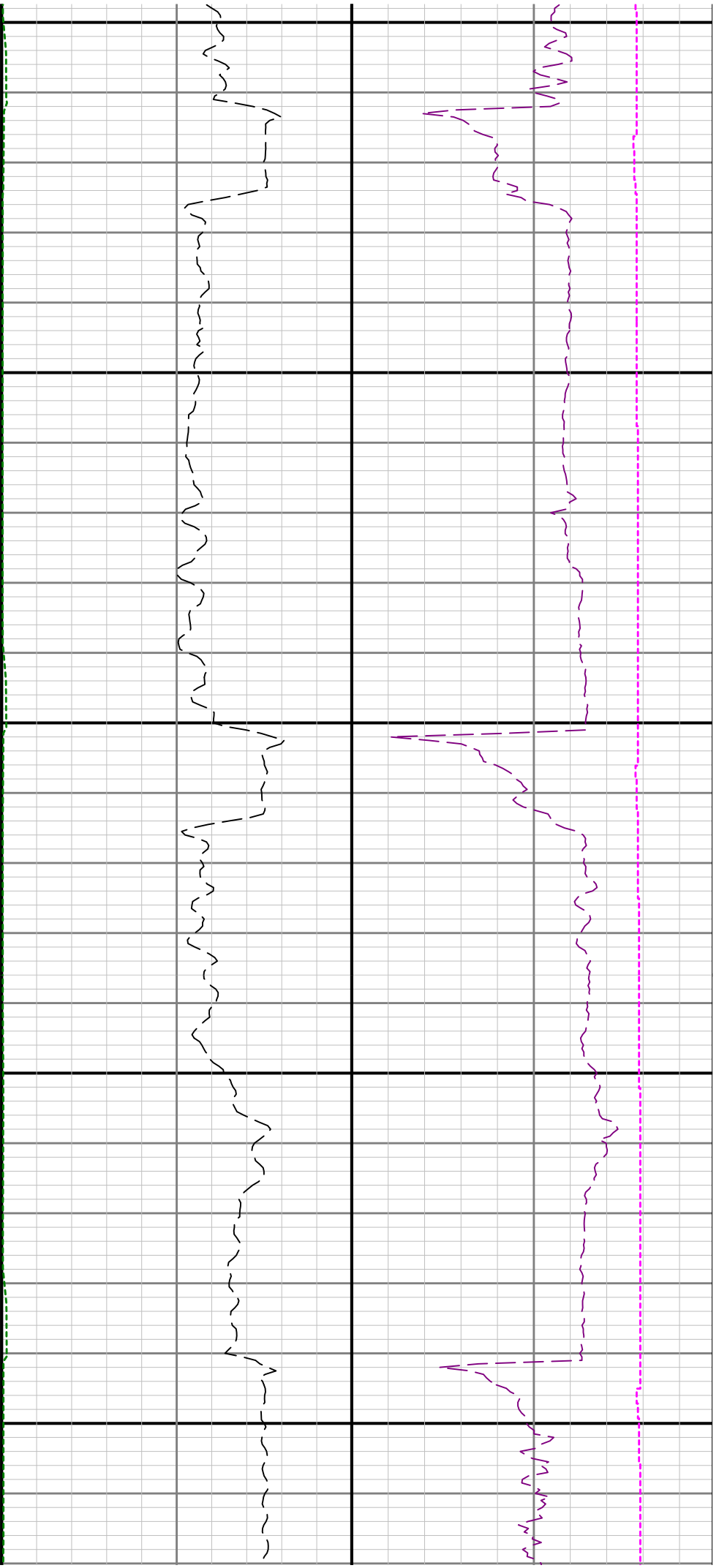


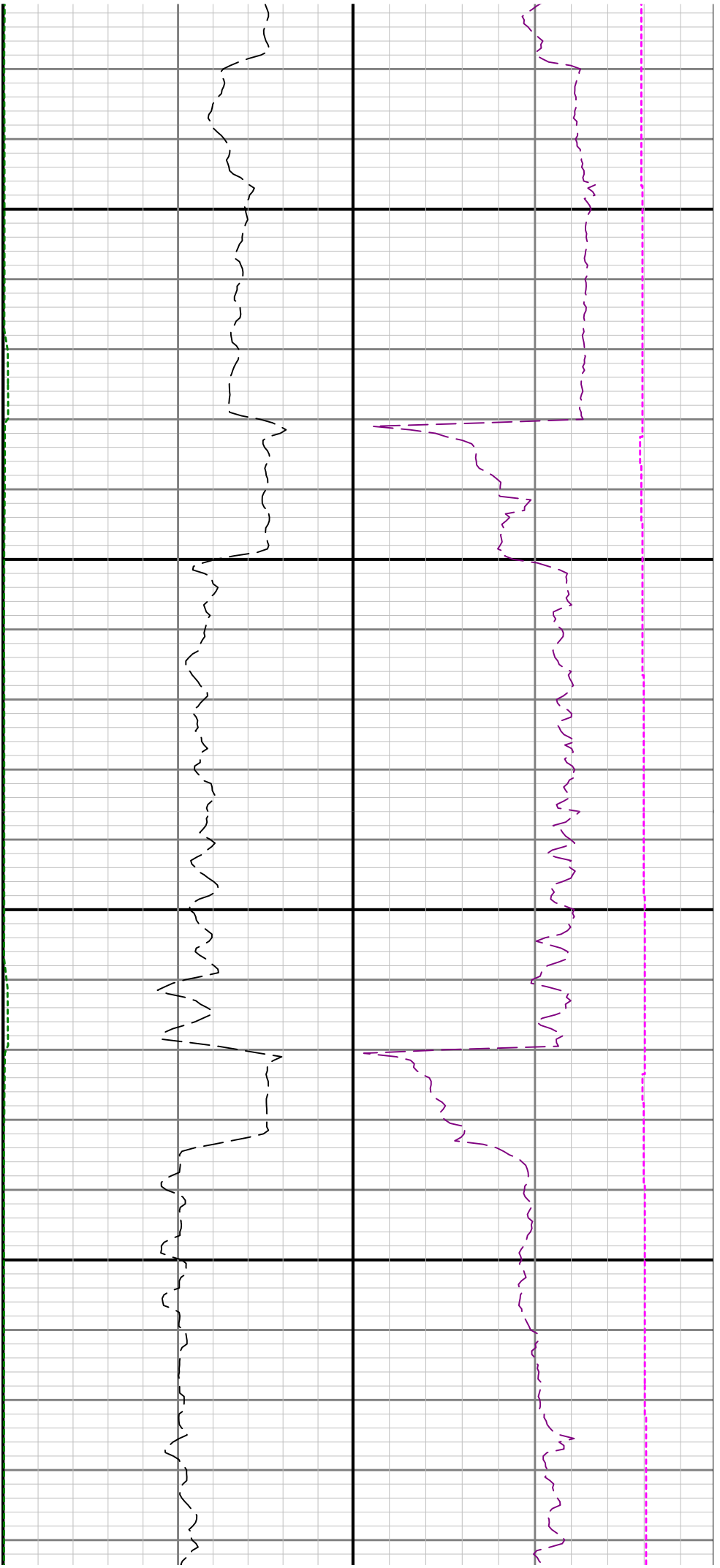






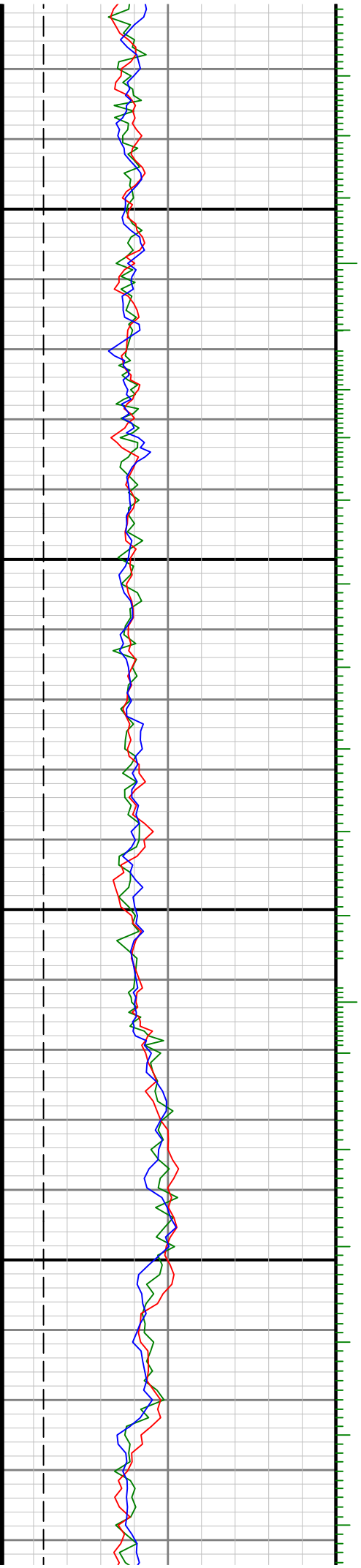


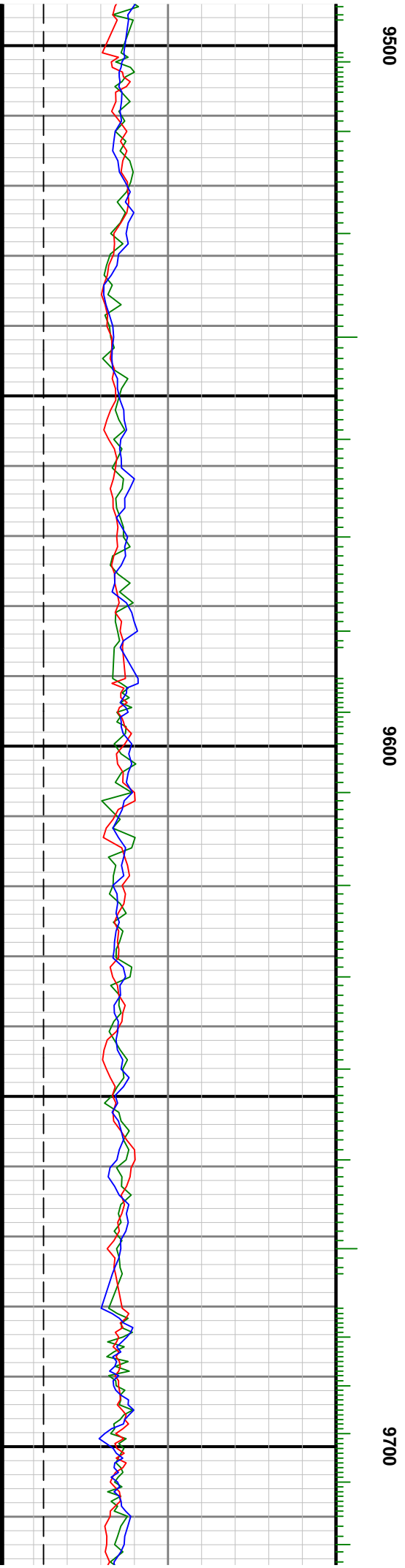


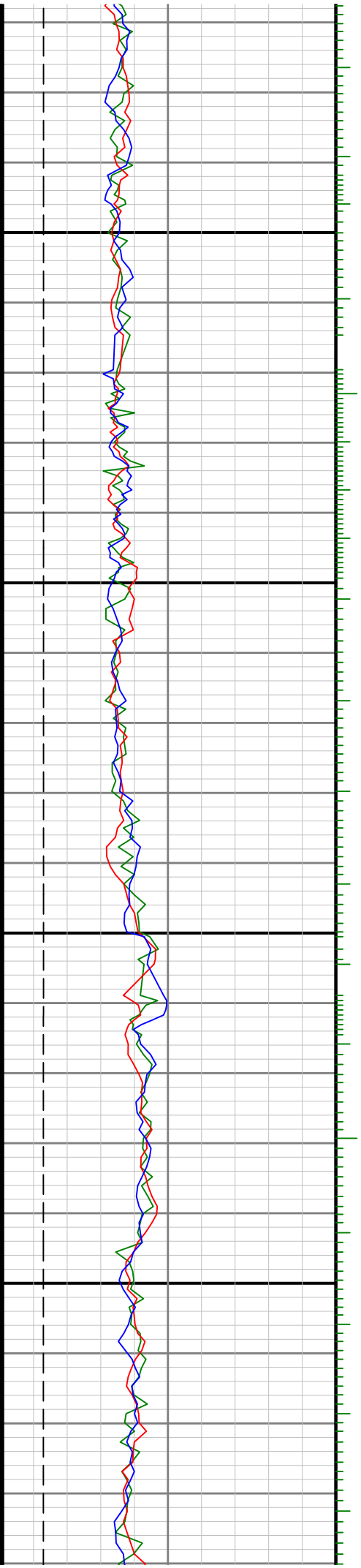


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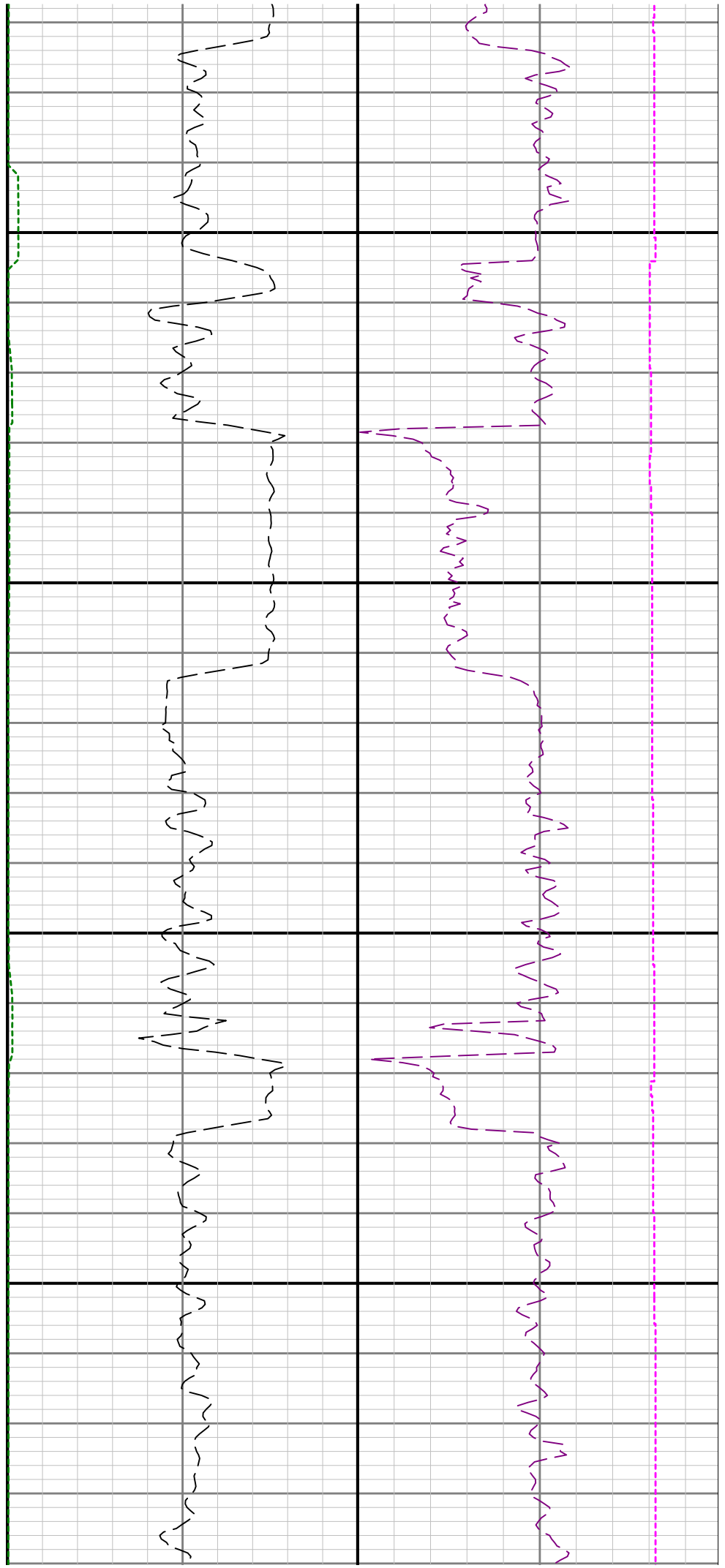


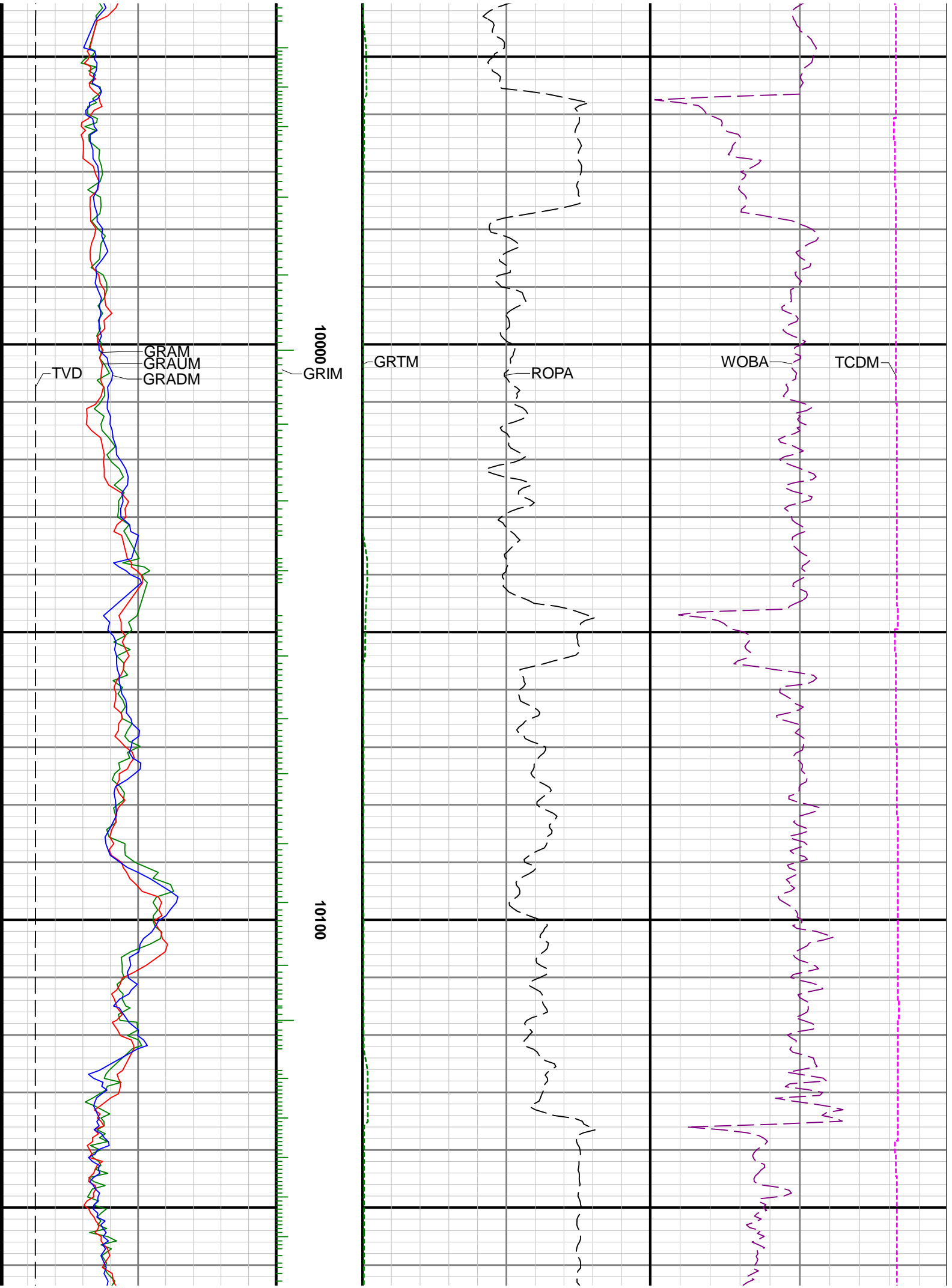




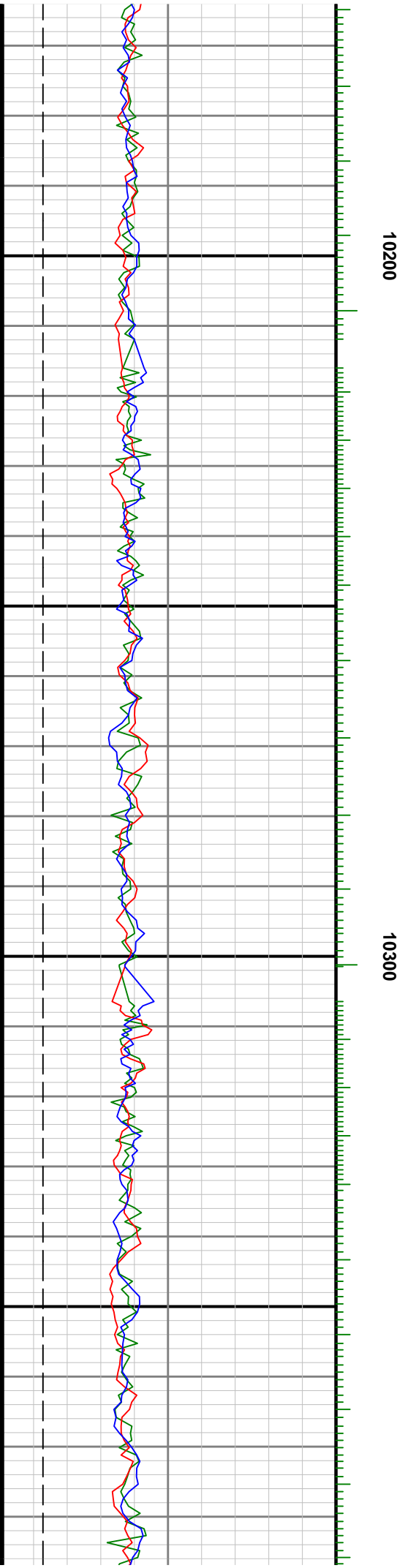
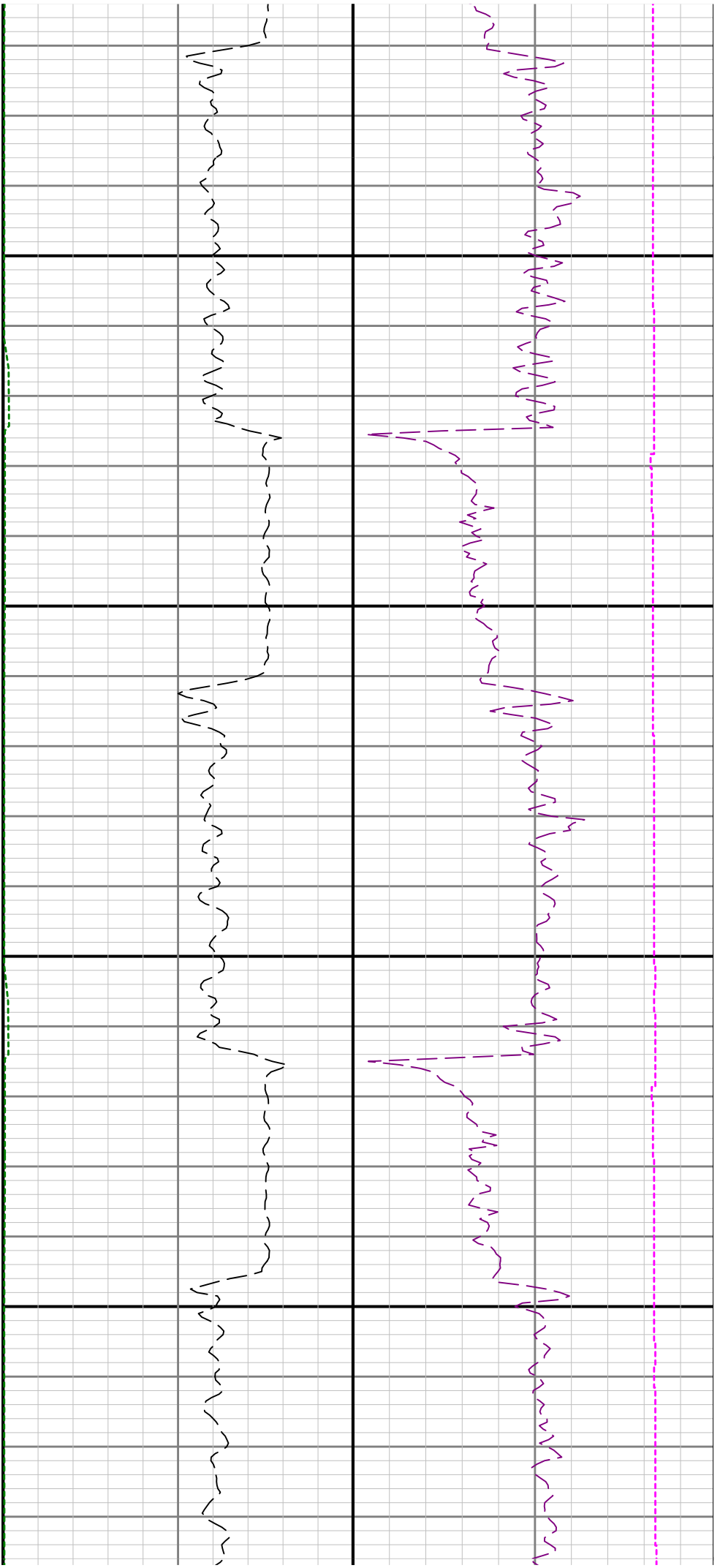
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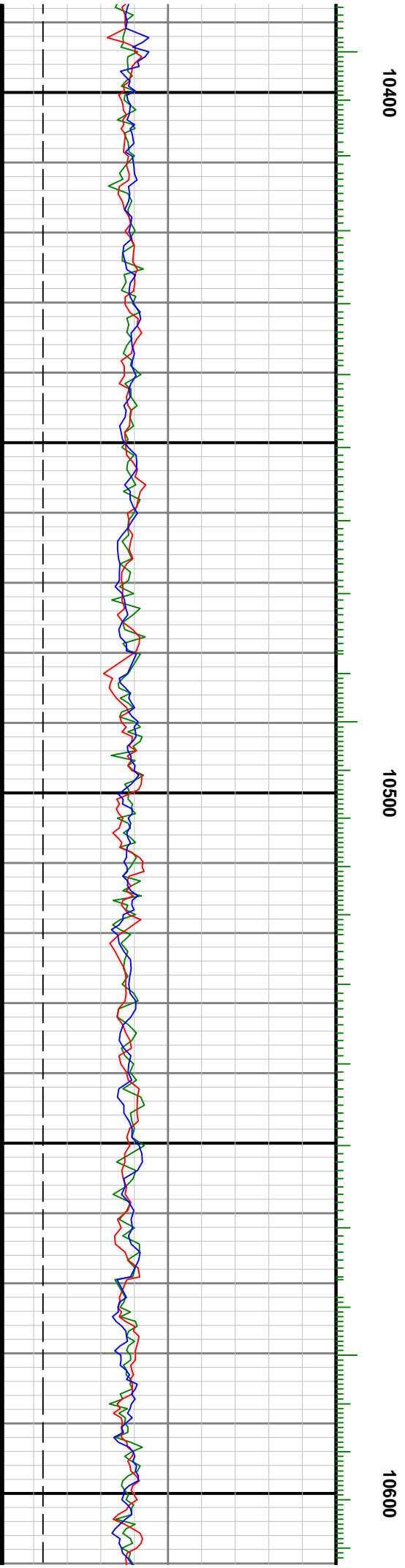
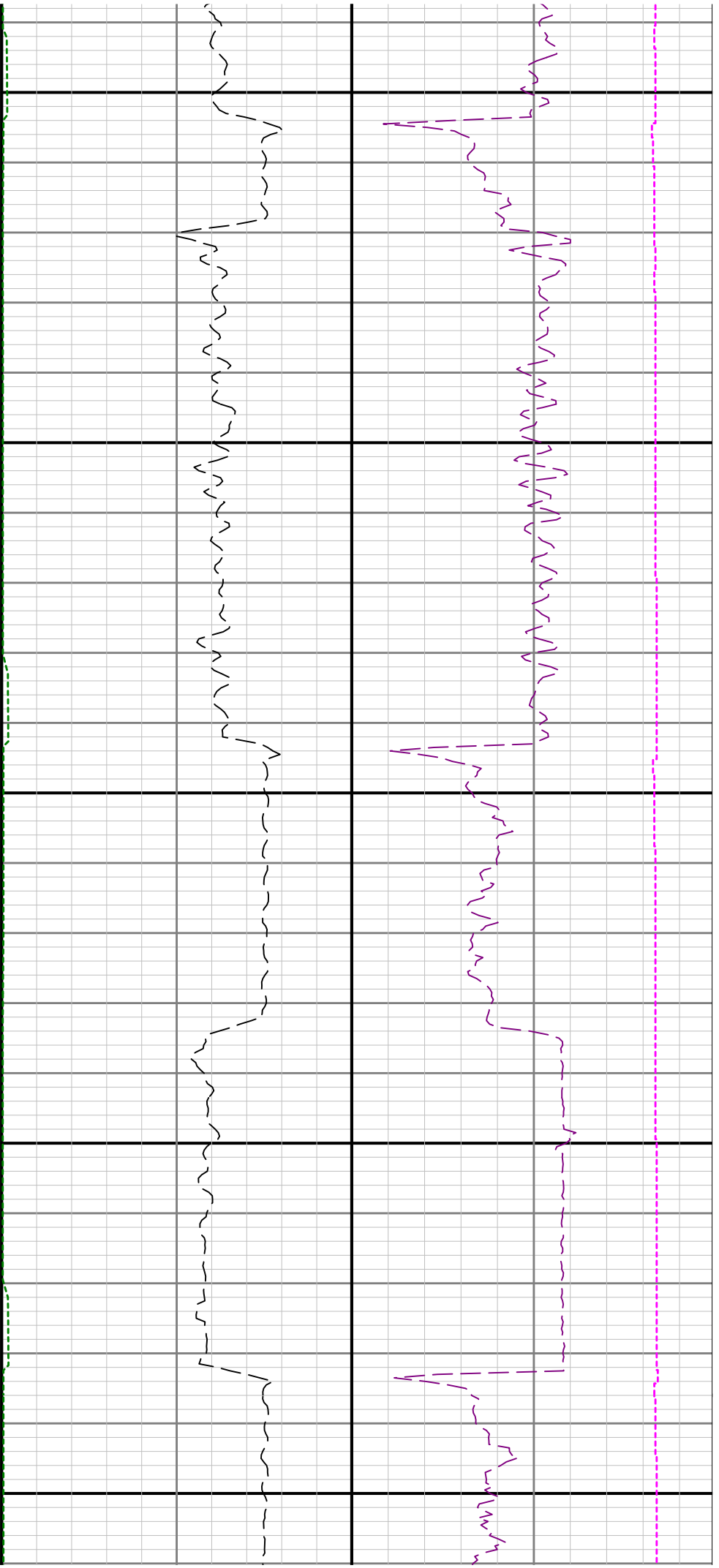
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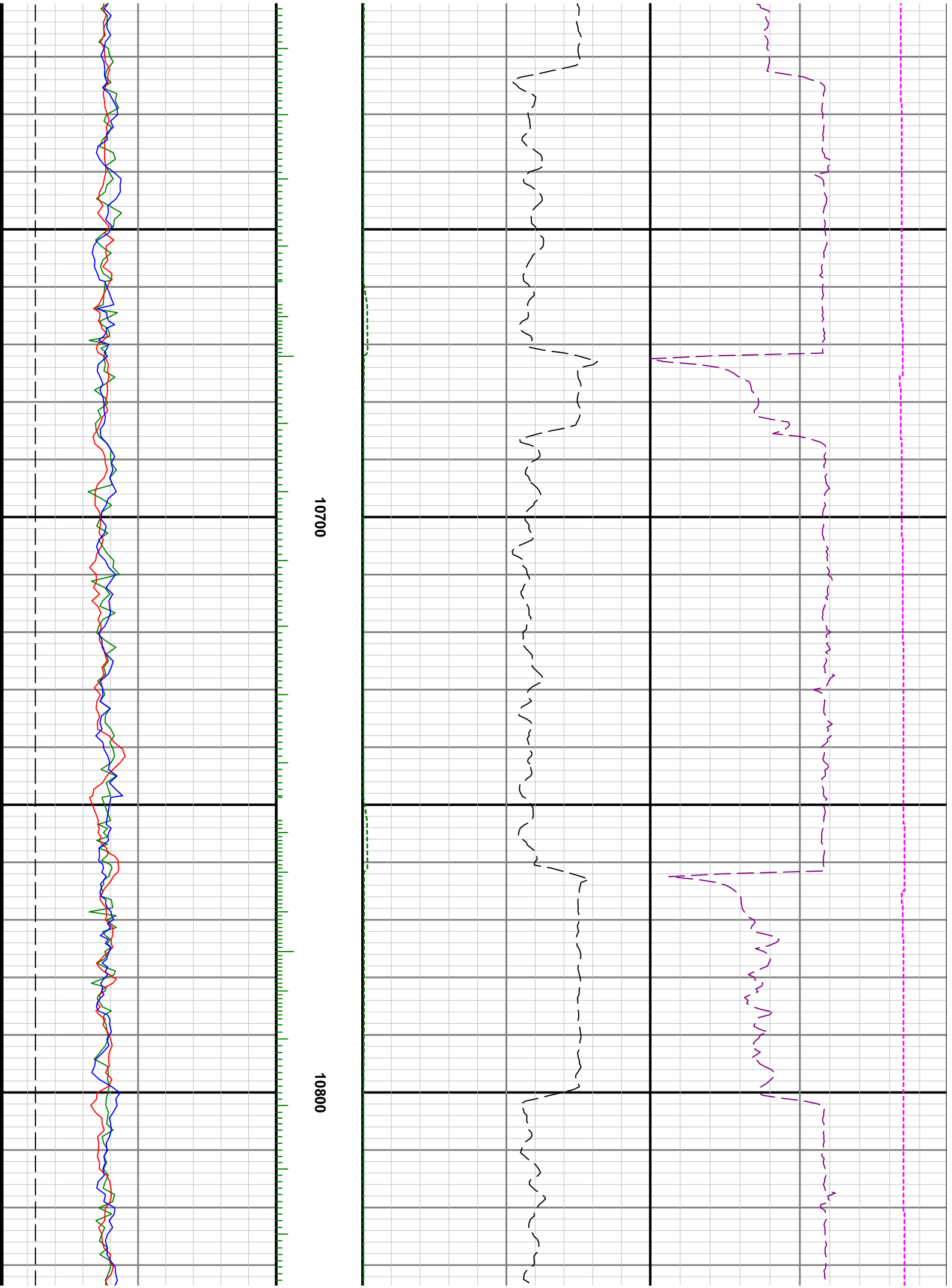


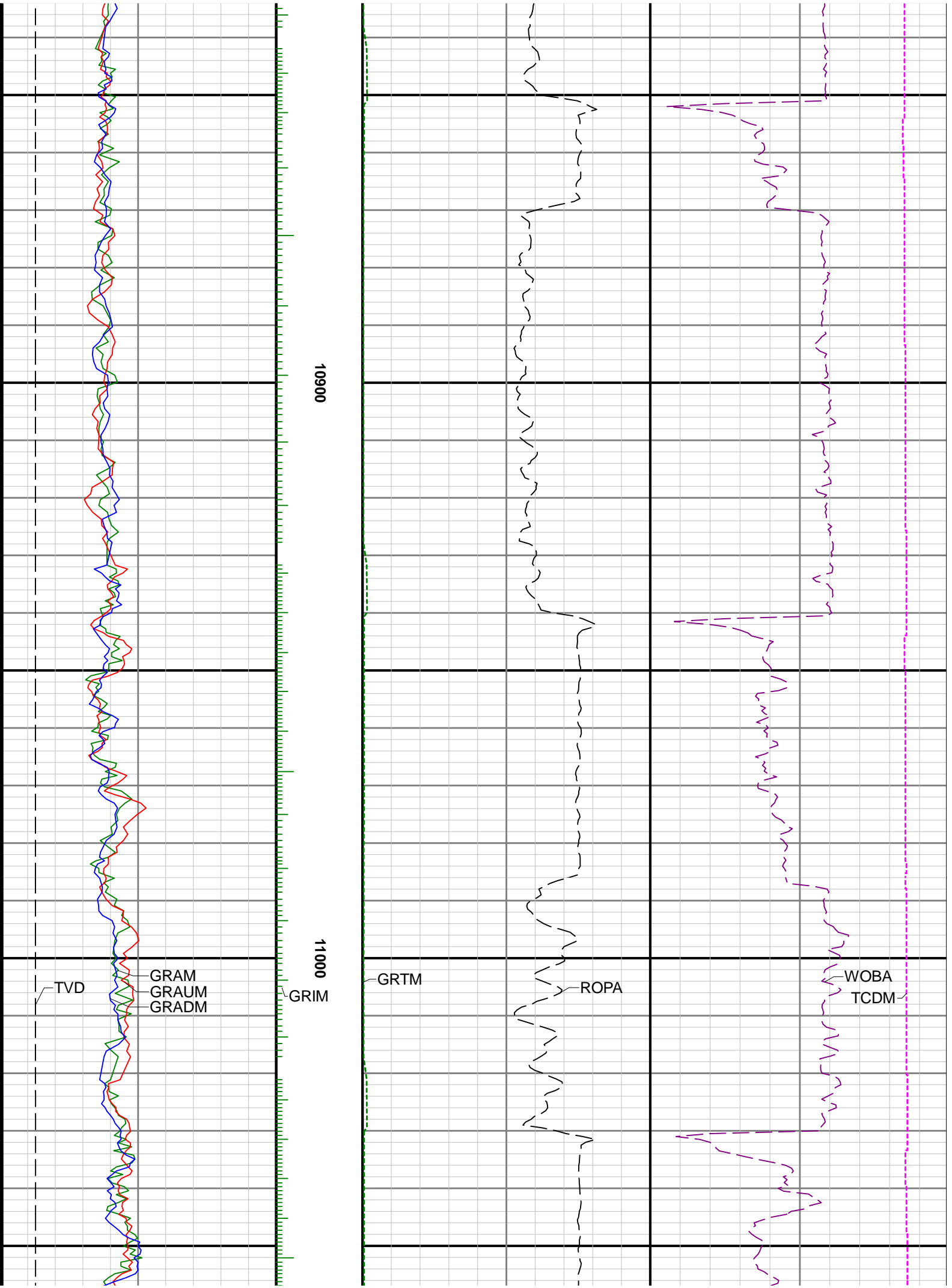


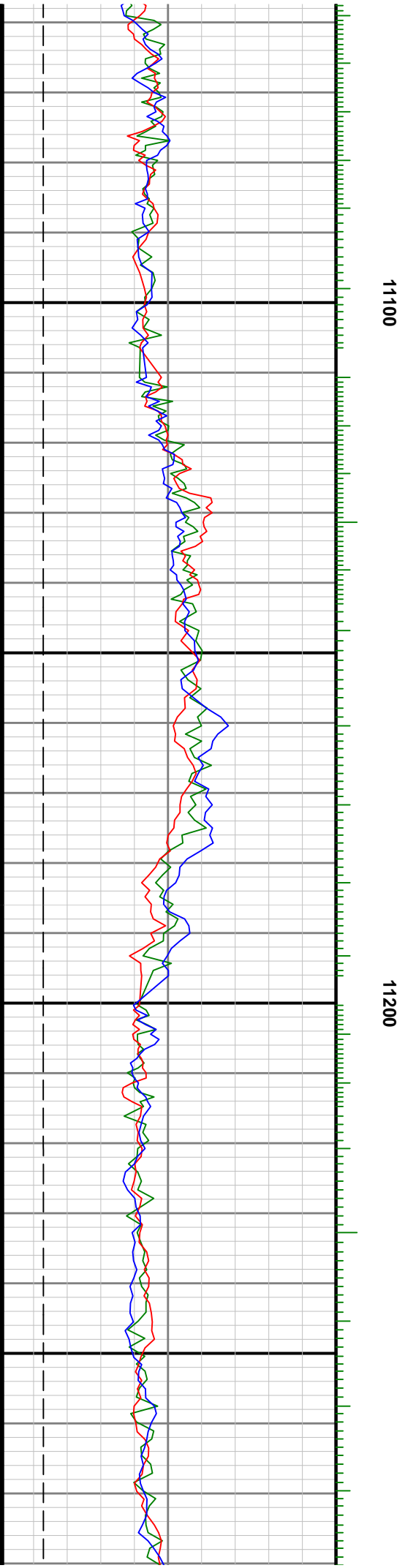
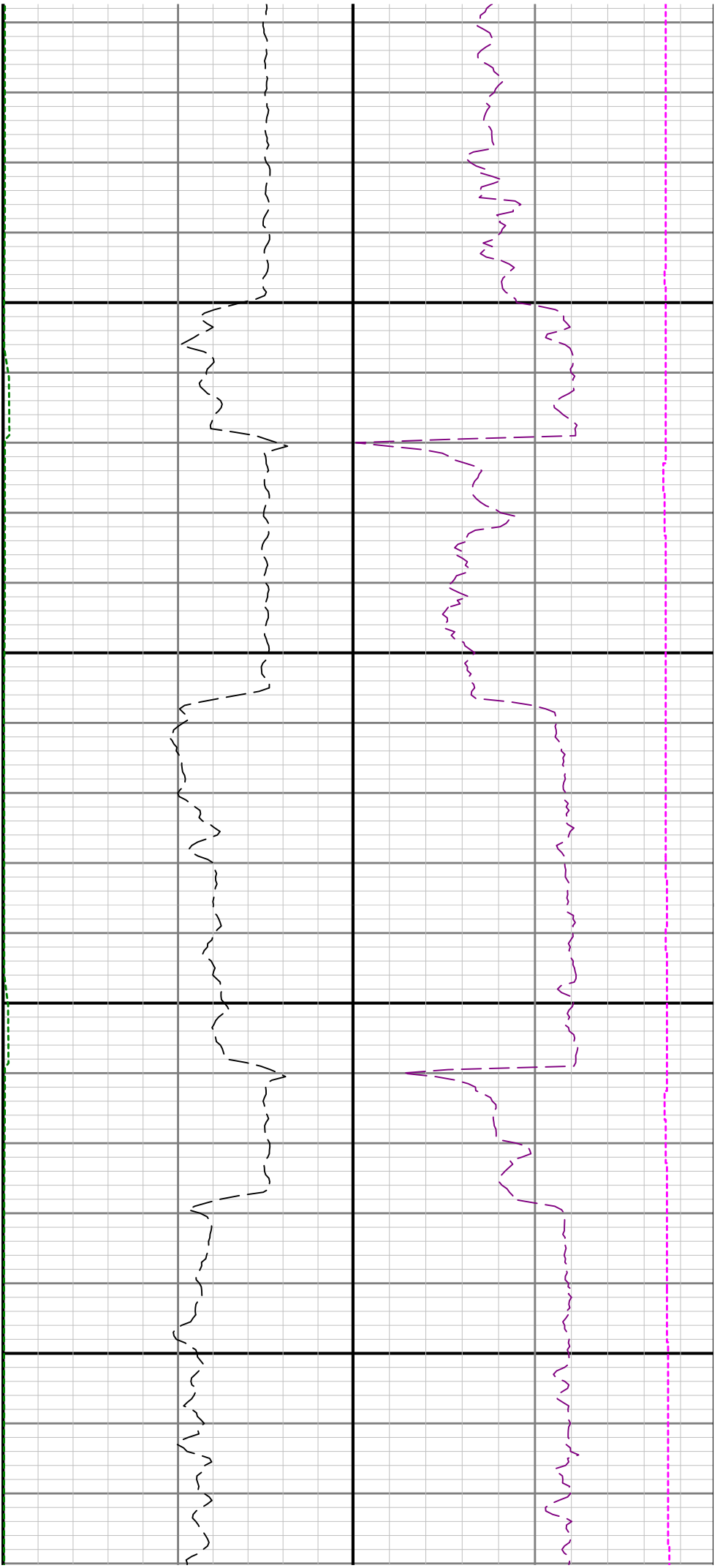


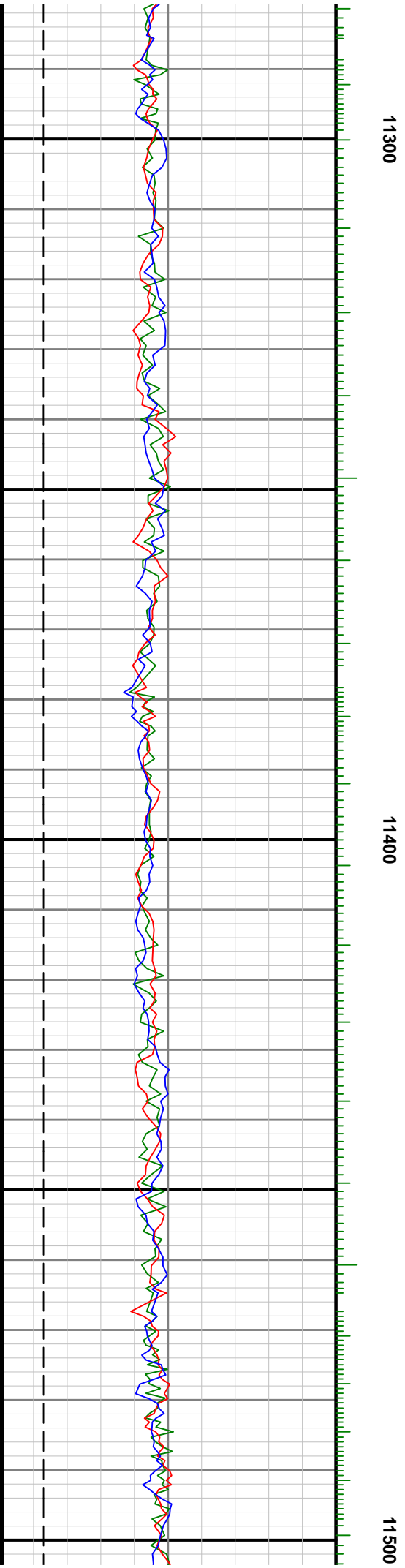


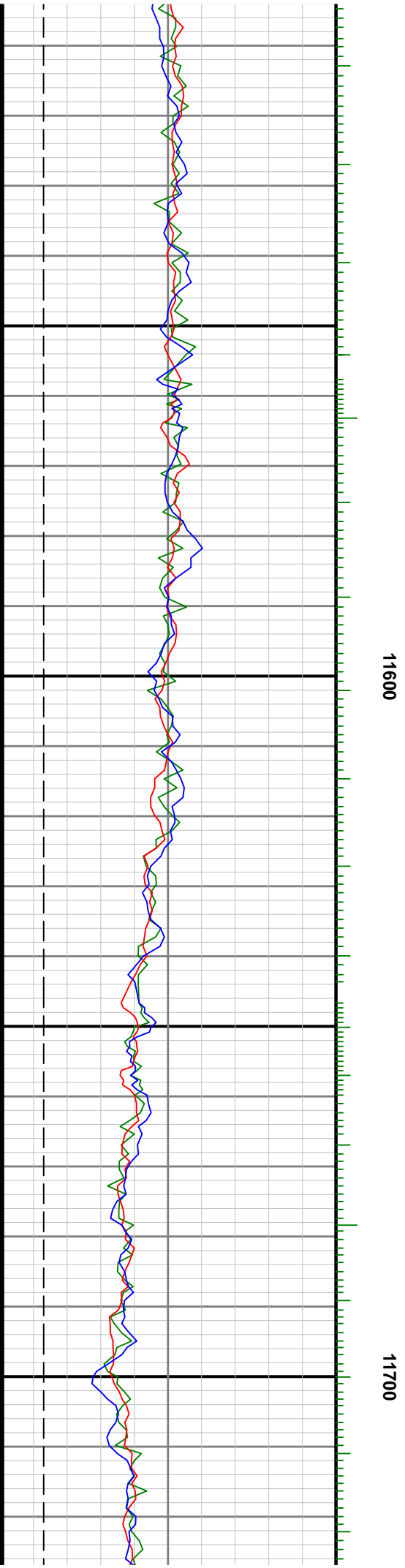
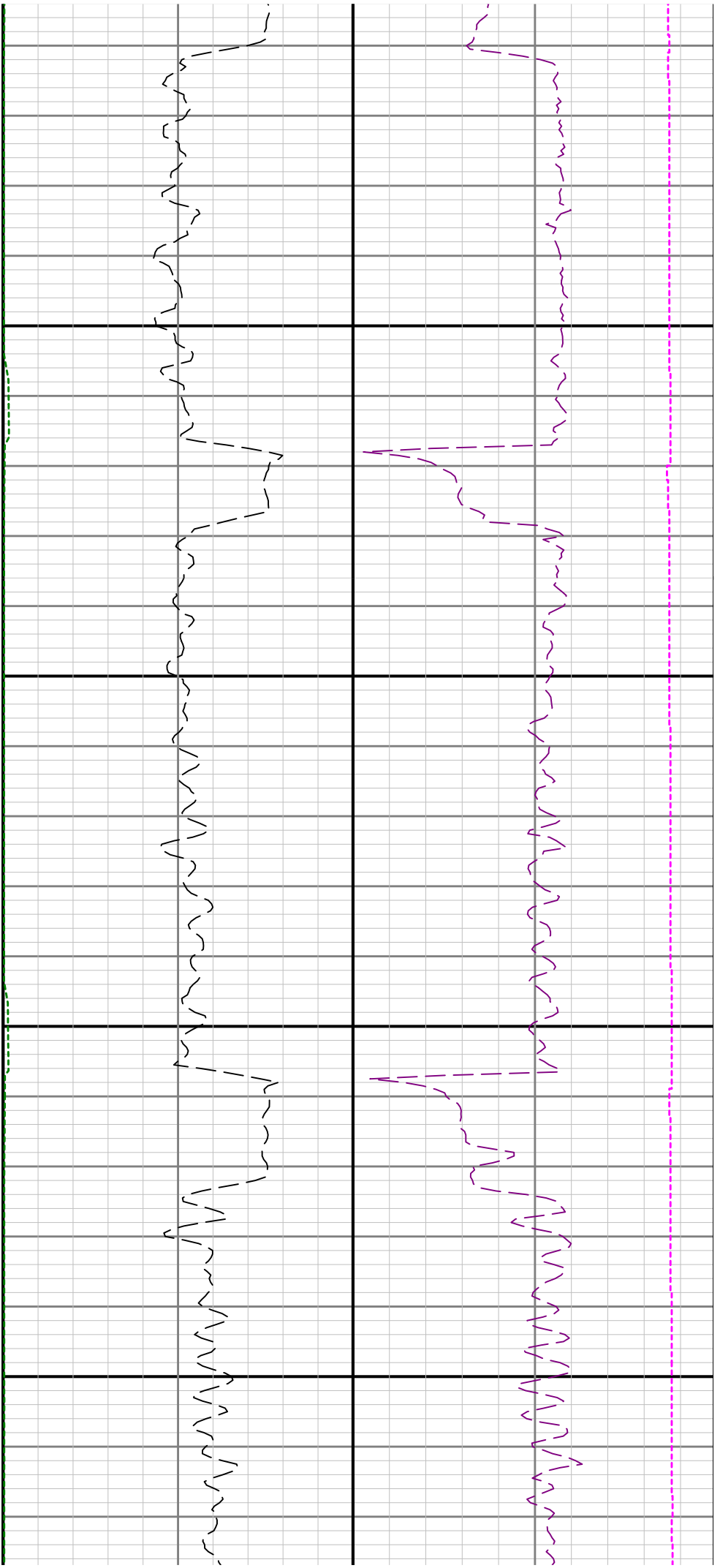


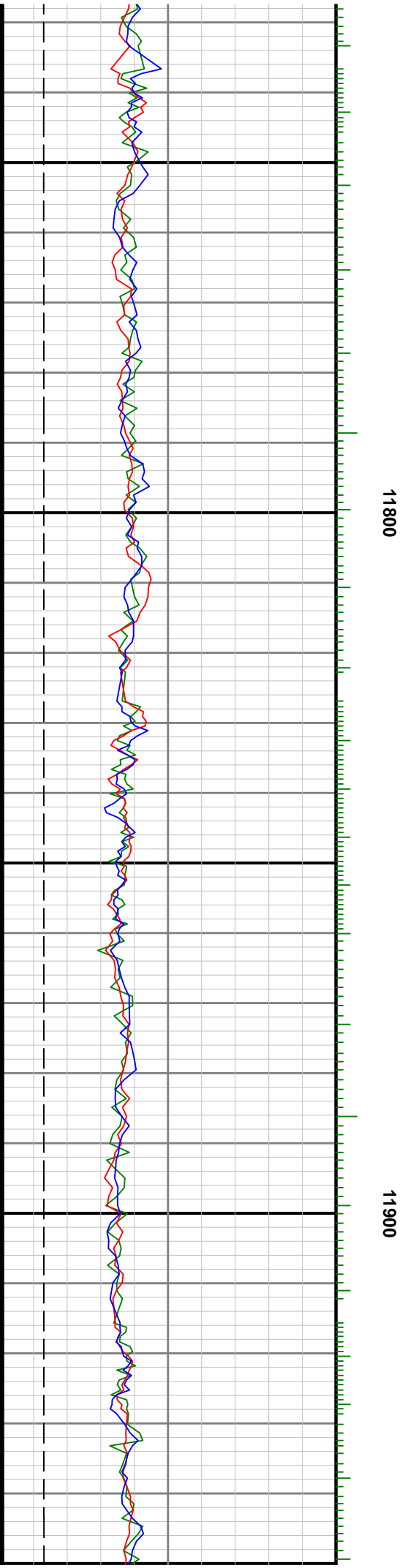
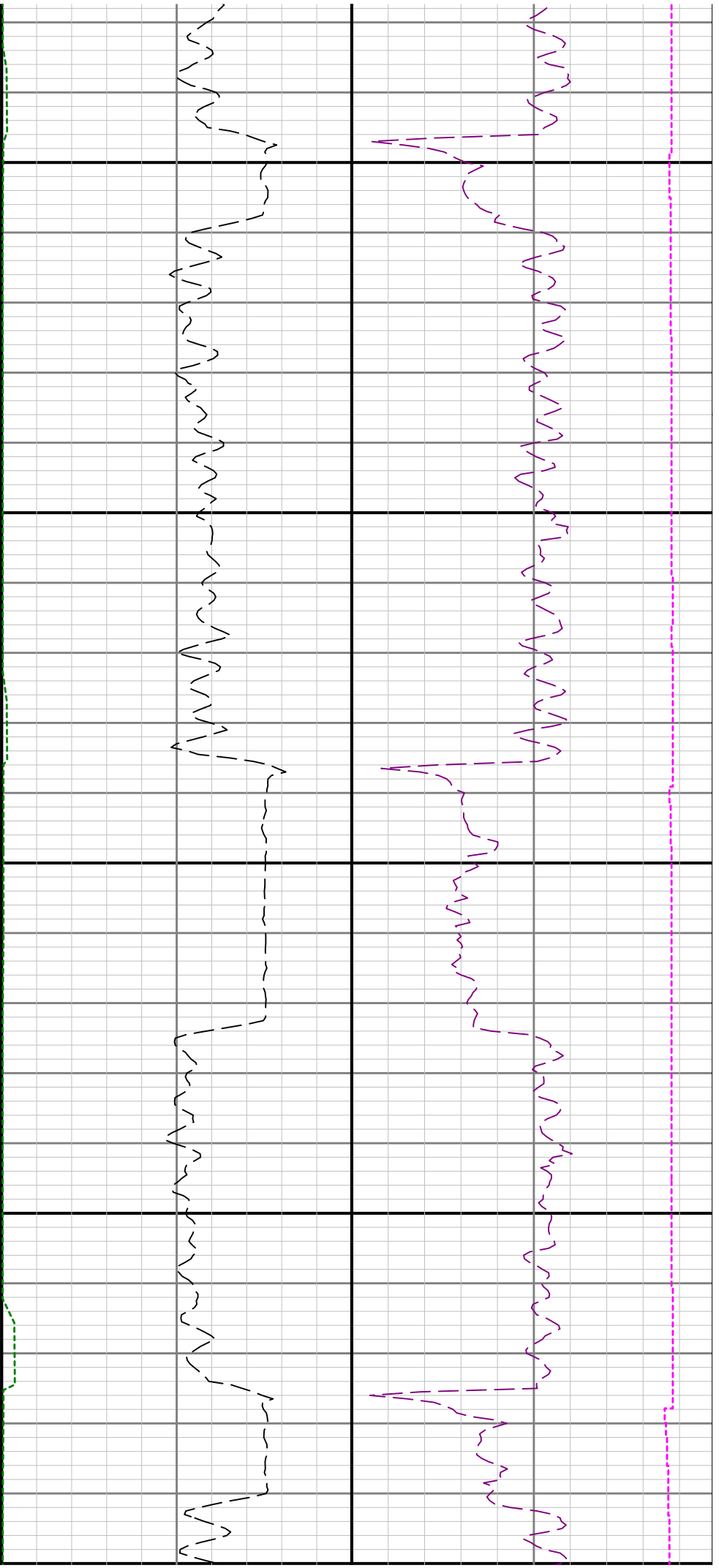




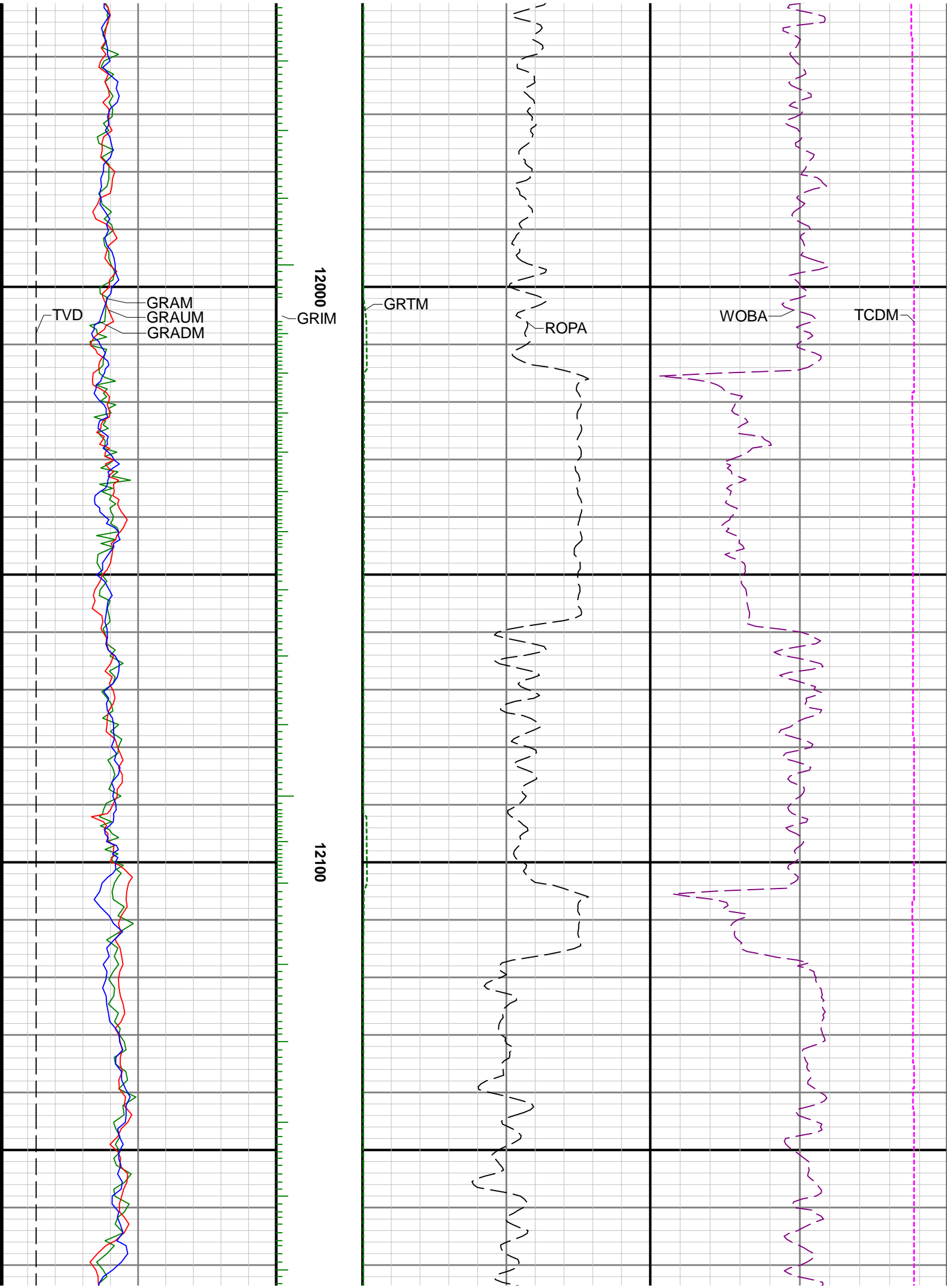


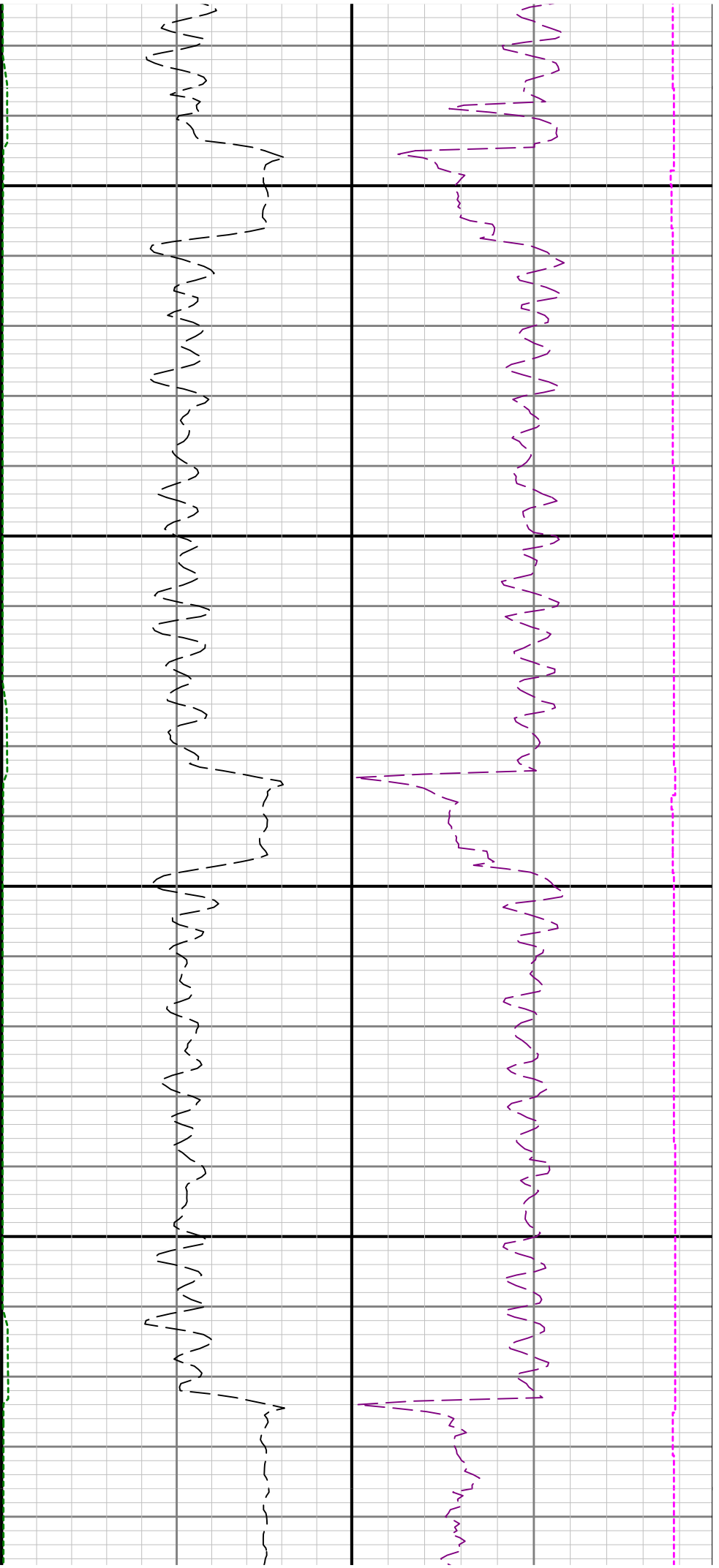






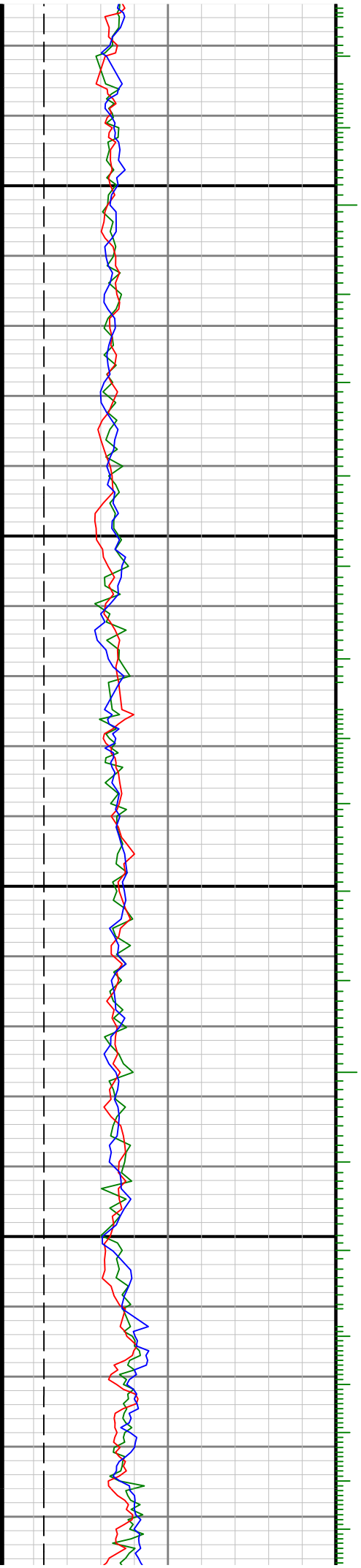


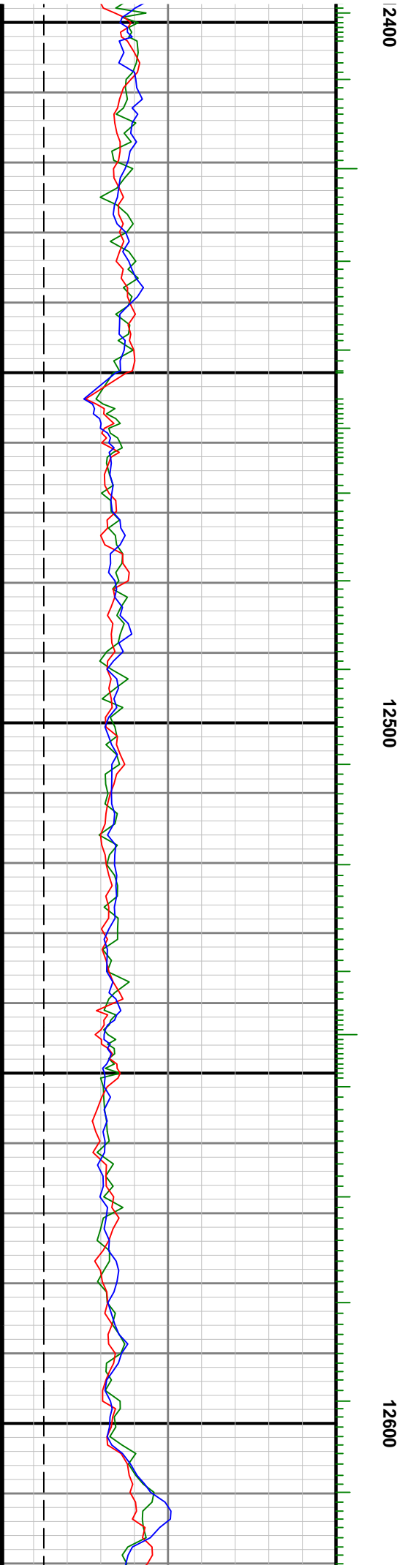
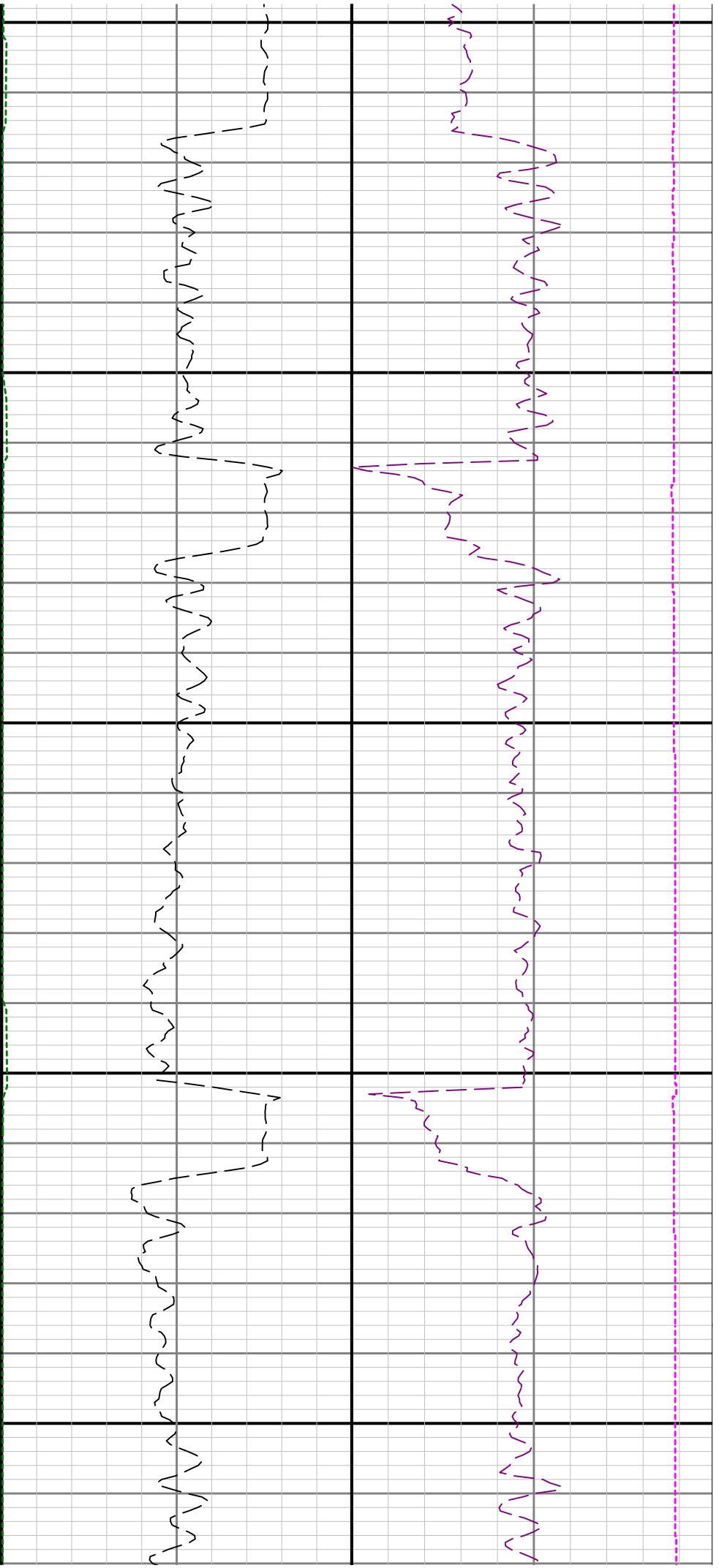


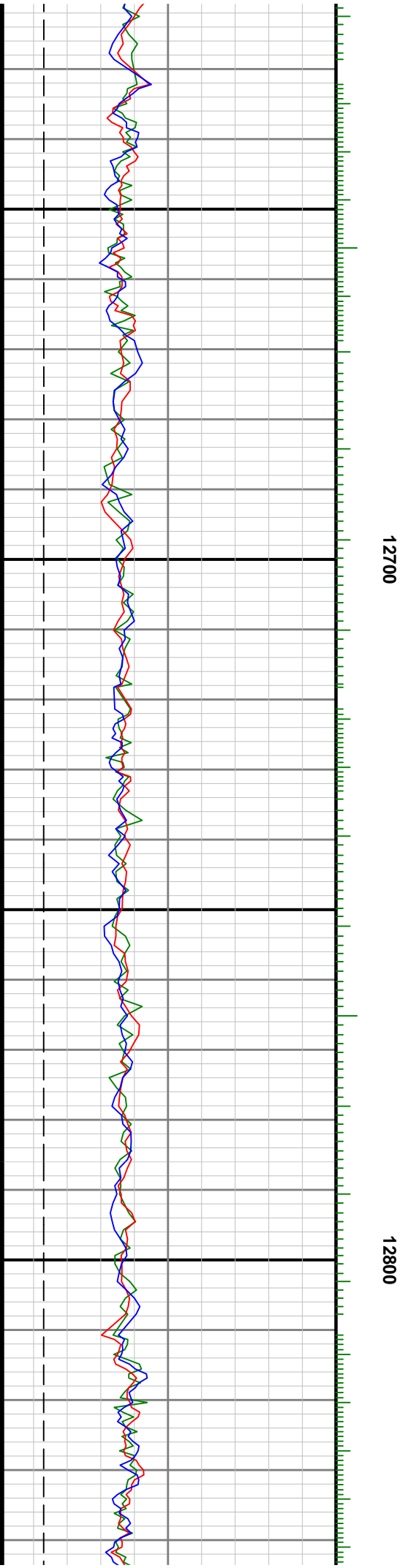
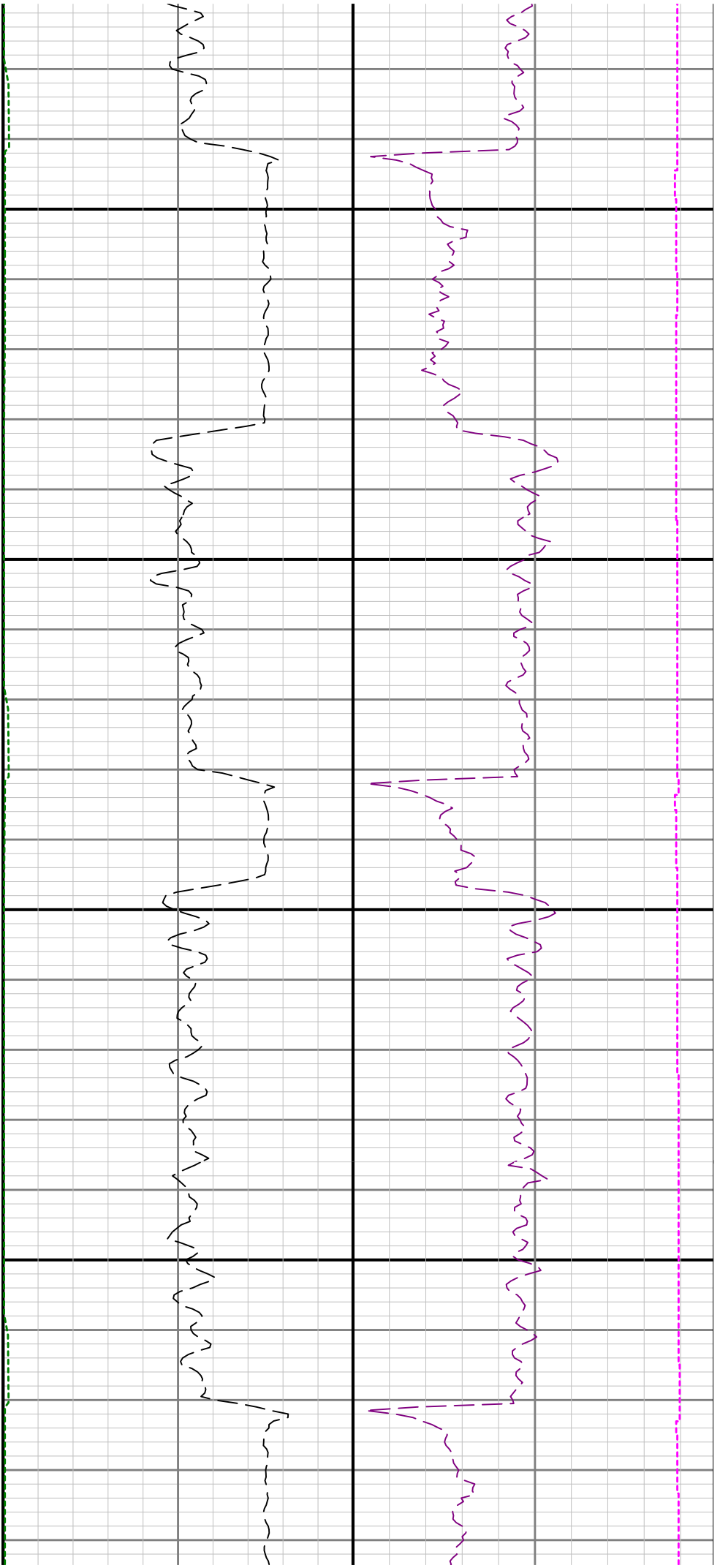


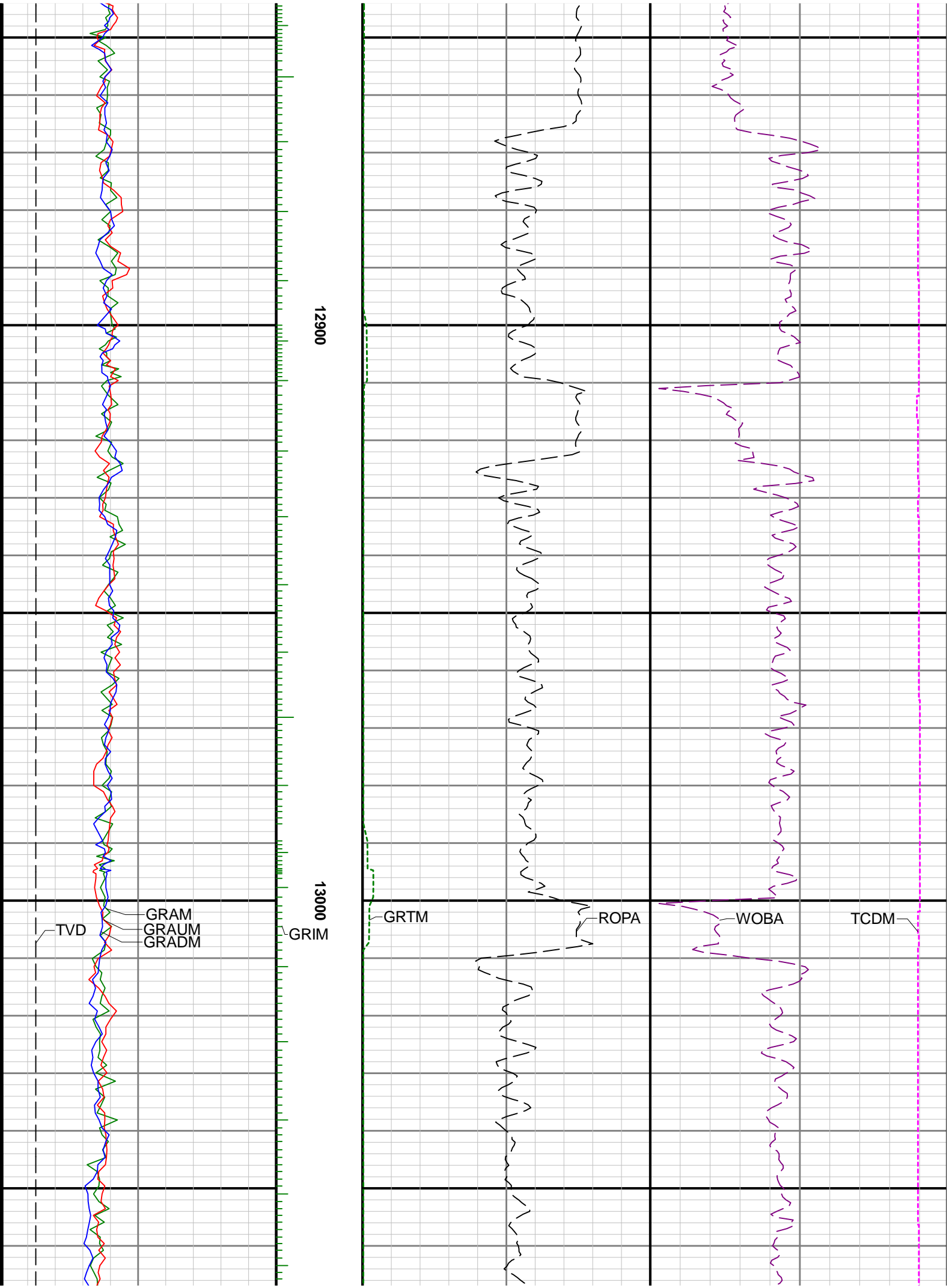
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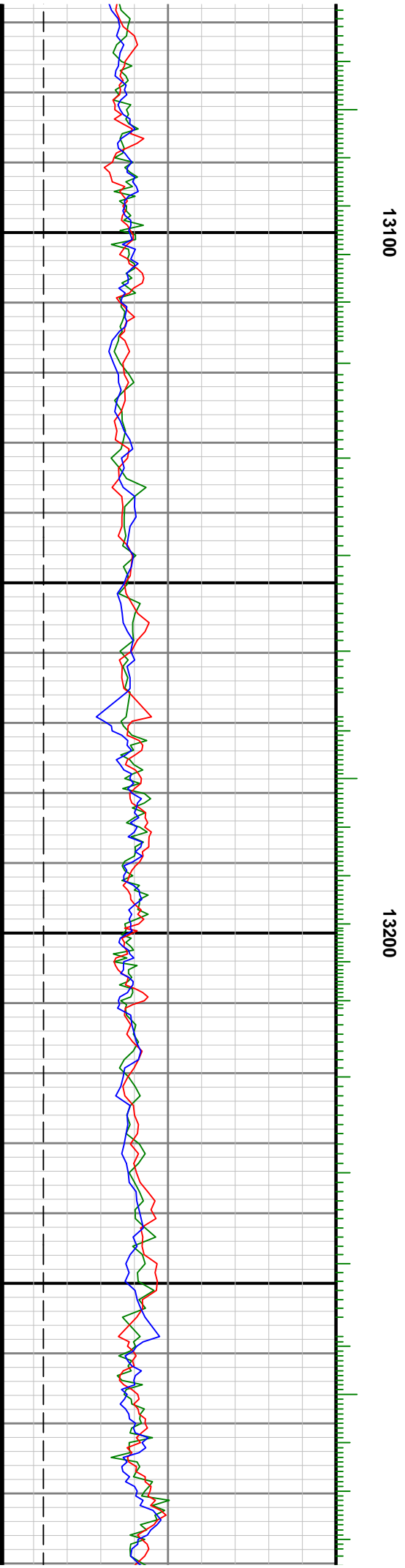
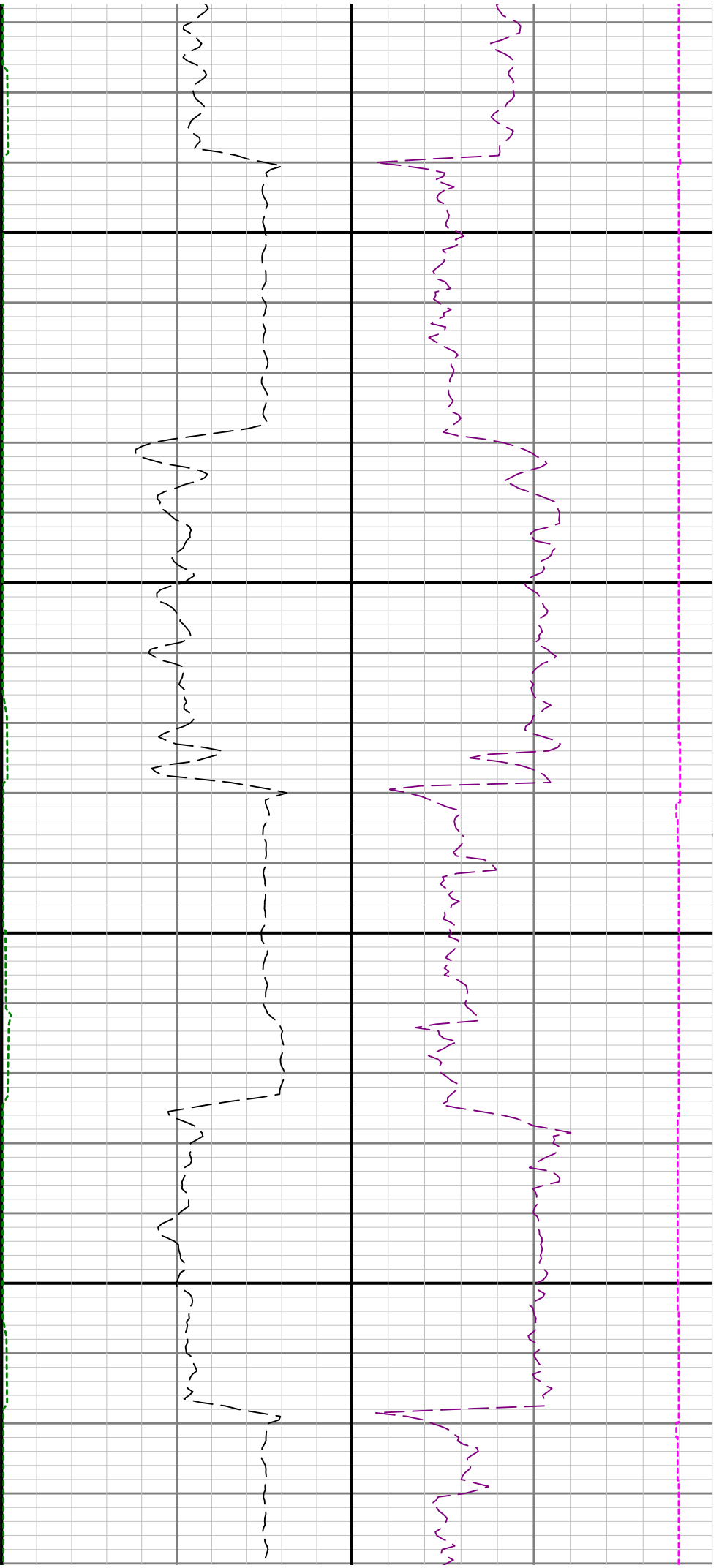
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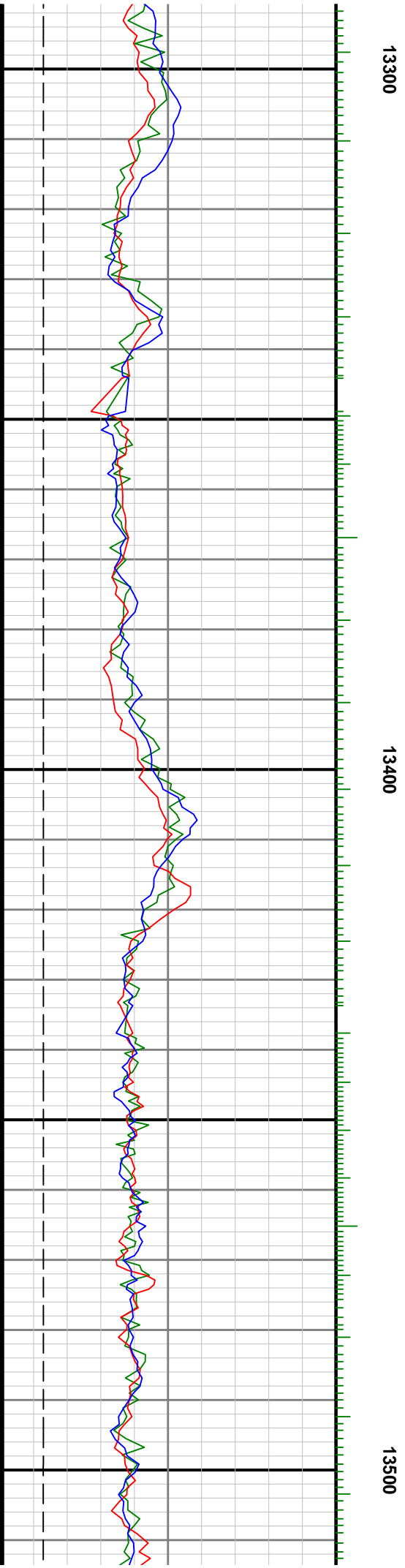
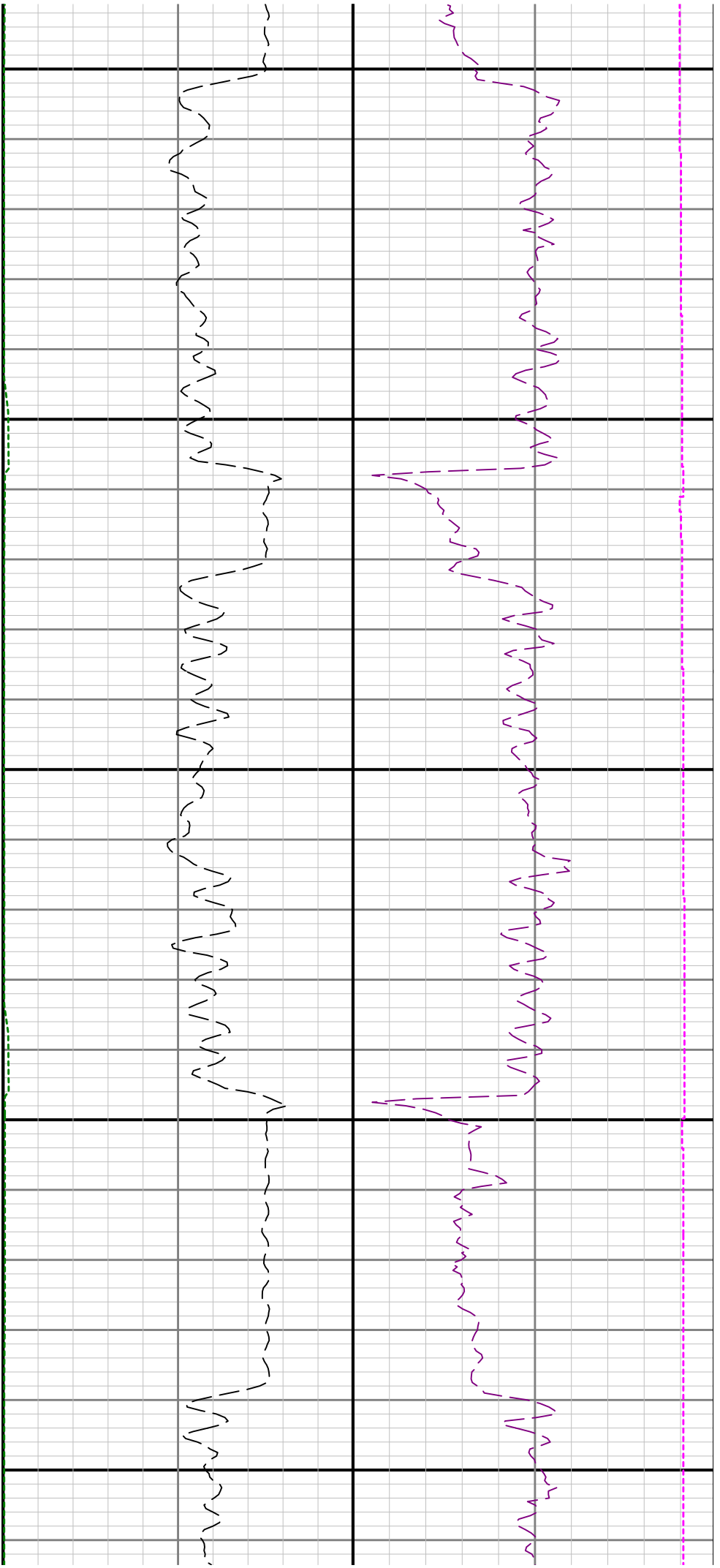








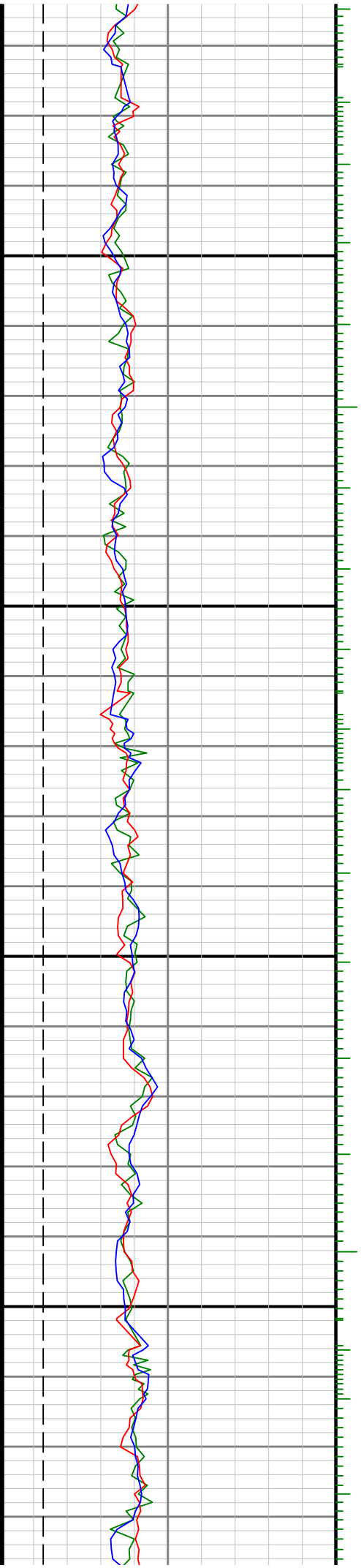




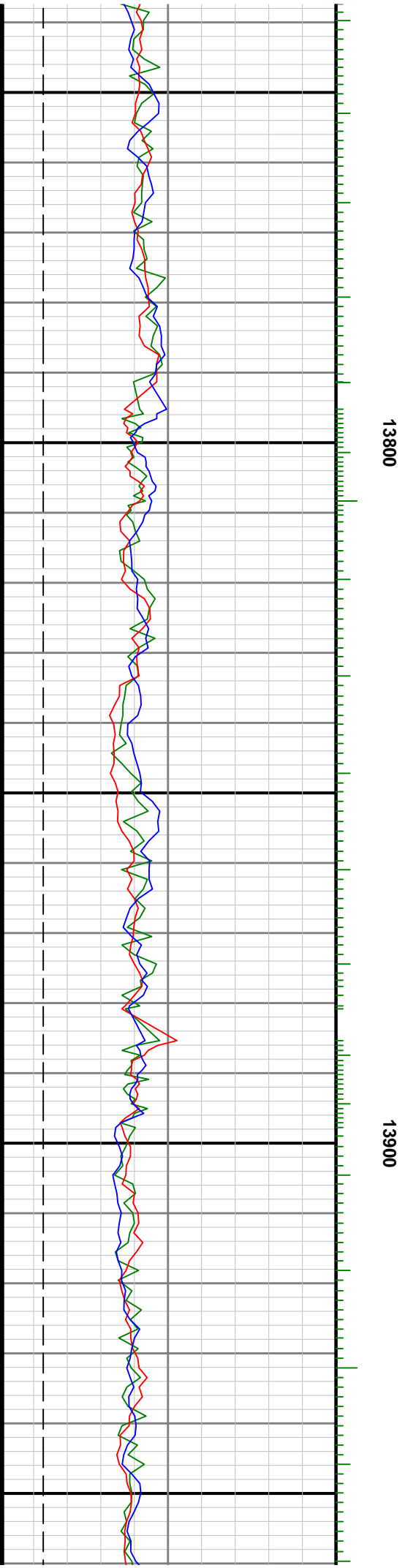
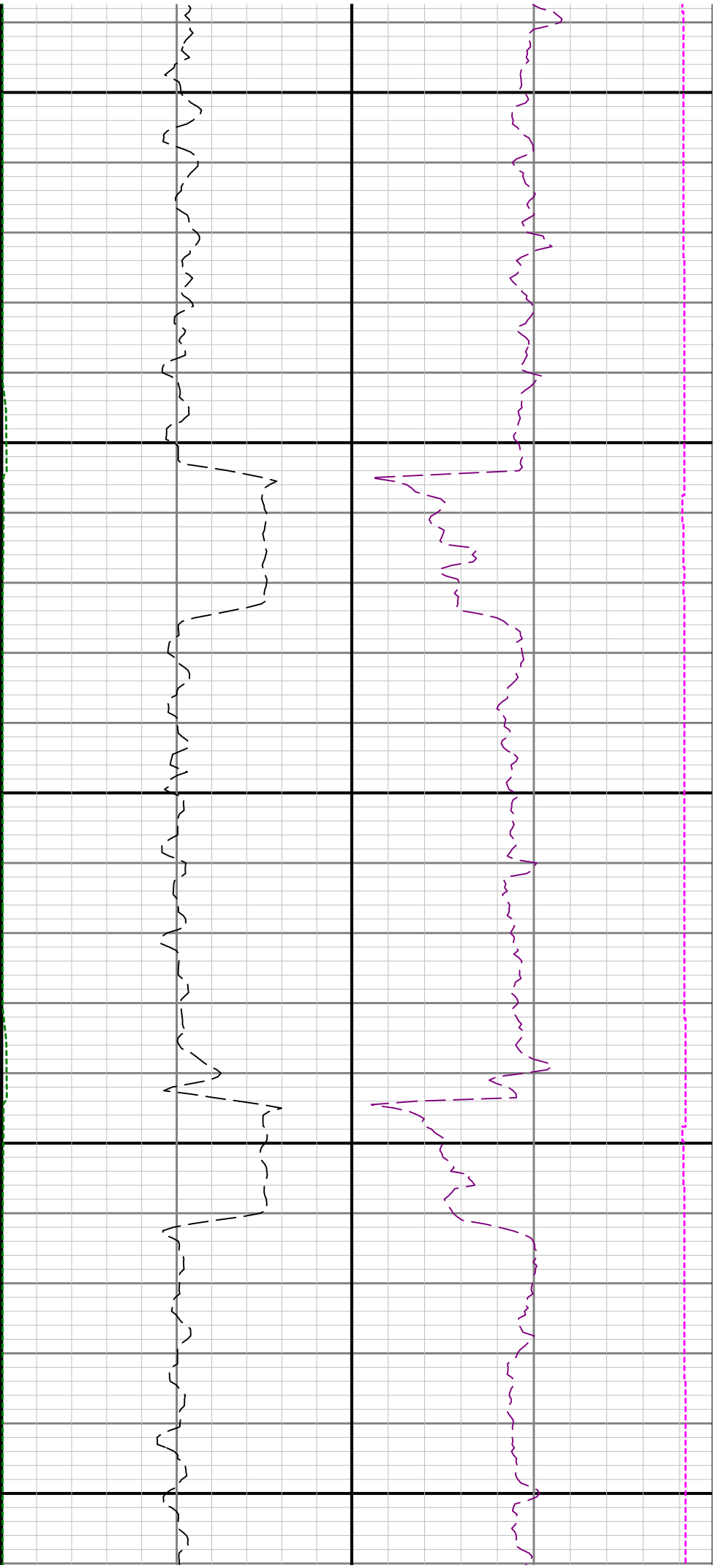


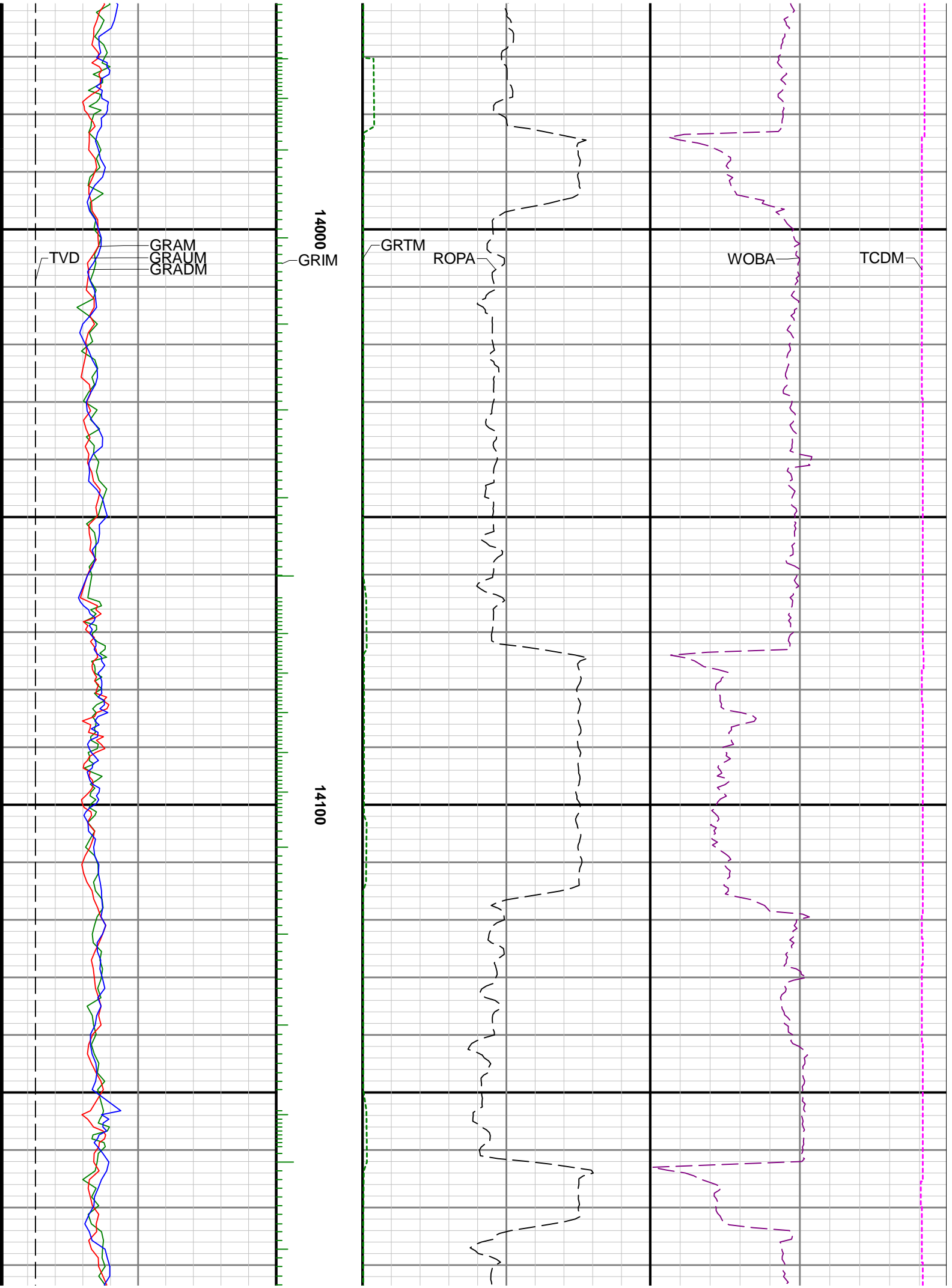
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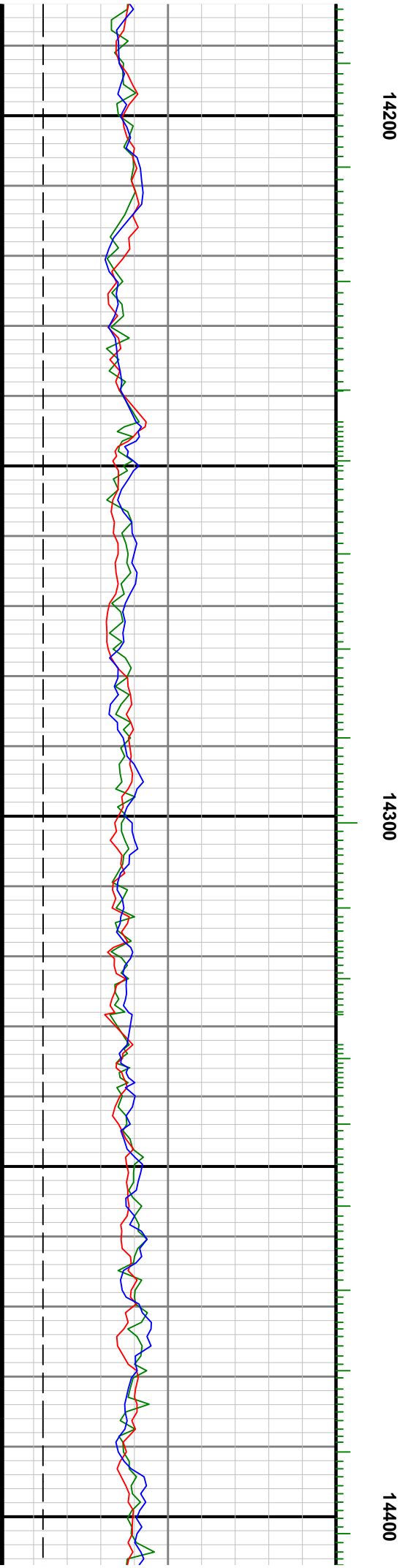
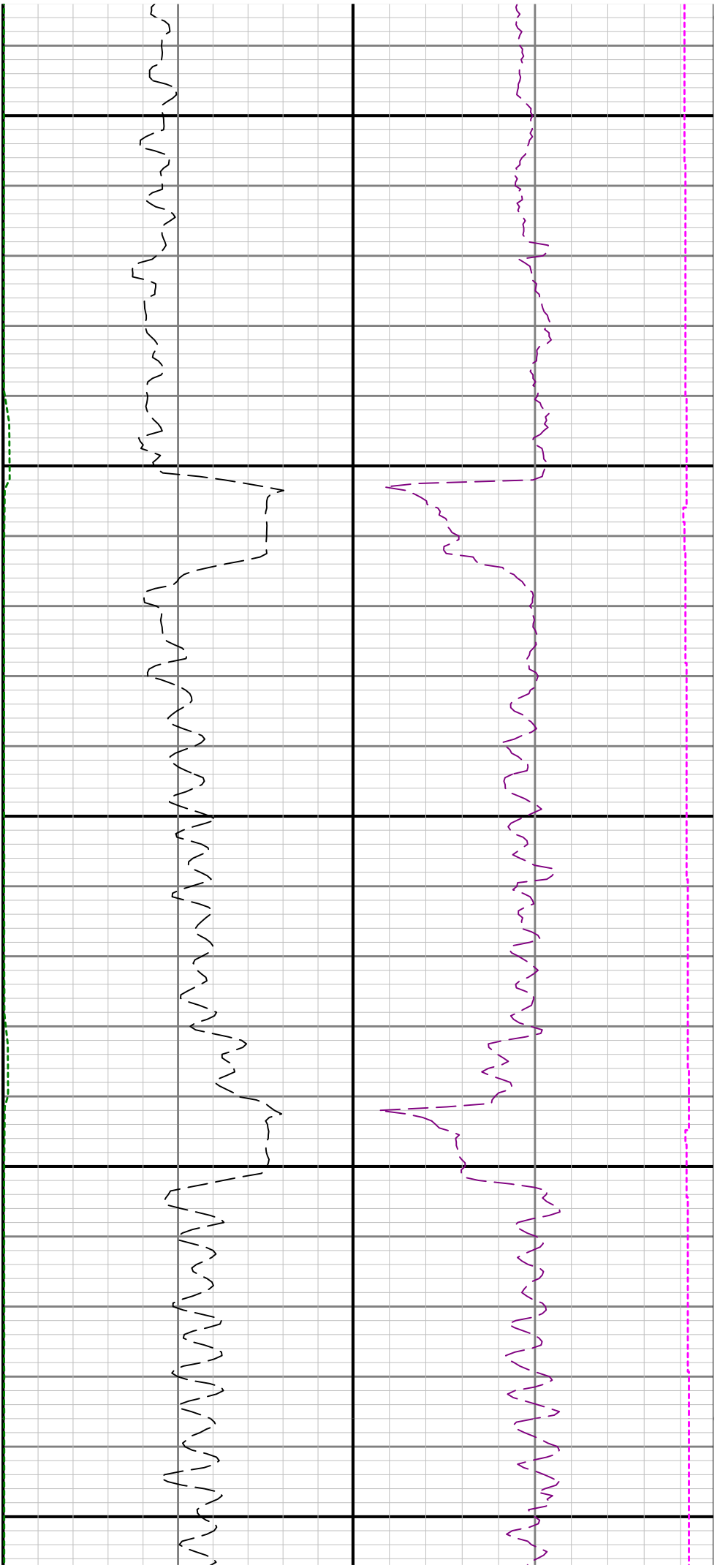
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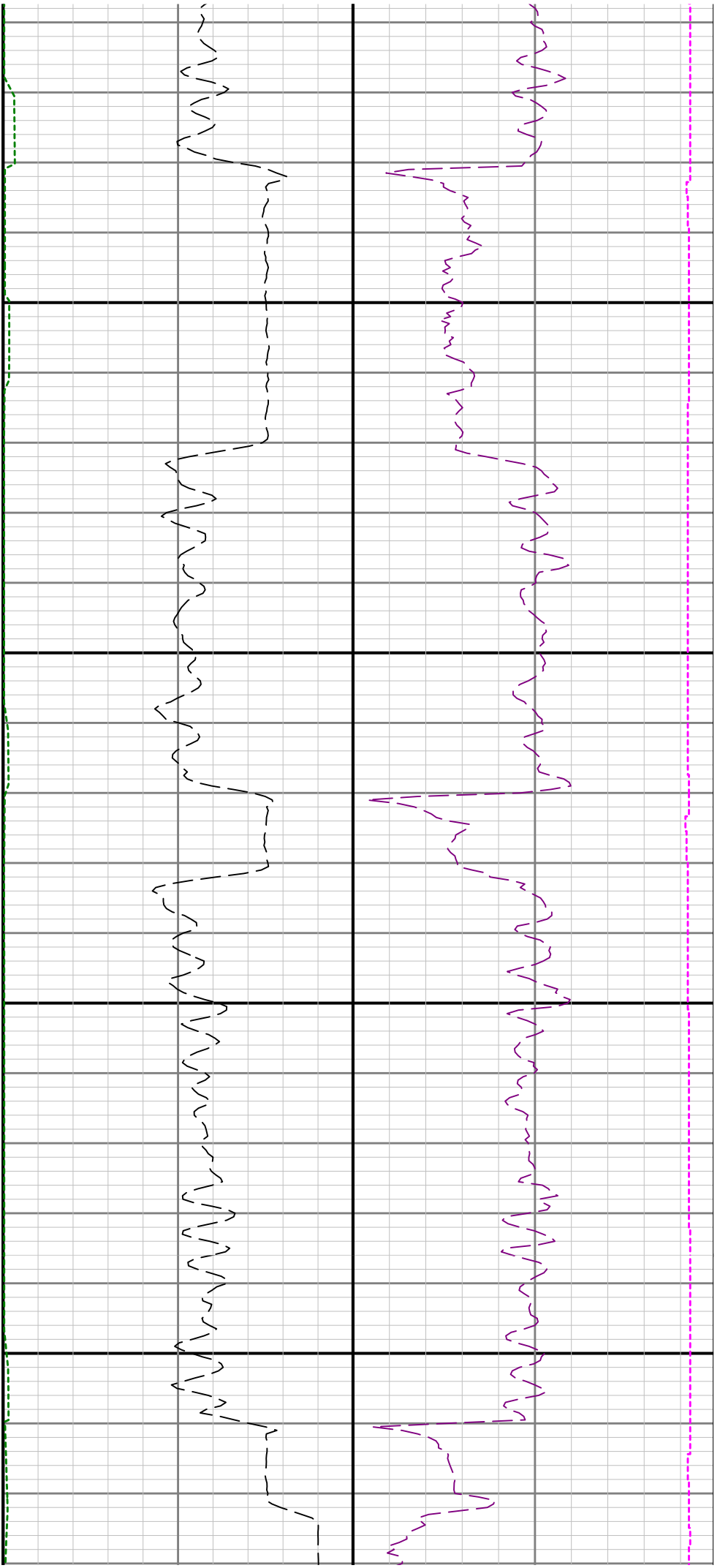












14500

14600

