



Azimuthal Gamma Ray
Gamma Ray

Scale:

1:240 MD

Depth Reference:

Driller's Depth

Company: Cub Creek Energy, LLC

Well: Litzenberger 4

Field: Weld

County: Weld Country: United States

State: Colorado Block: 1

Status:

Field Print

Surface Location:

Latitude:

Longitude:

Other Services:

API No: 05-123-42784-00-00

Job ID: 8562737

SEC:

8

TWN:

3N

RGE:

68W

Permanent Datum (P.D.): Mean Sea Level

Log Measured From: Rig Floor

Elevation:

0.00 ft

Above P.D.

5099.00 ft

Elev. KB:

Elev. DF:

Elev. GL:

5099.00 ft

5082.00 ft

N/A

Dates

Interval Logged

Magnetic Field Reference

Date From: 2017-06-07 Top: (ft) 1551.00

Date To: 2017-06-10 Bottom: (ft) 12018.21

Spud Date: 2017-05-16

Azi Reference North: True

Total Magnetic Field Strength: (nT)

Mag to Reference North Correction: (deg)

Dip Angle: (deg)

52342

8.52 E

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

100.00

1551.00

9.625

36.00

17.00

1541.00

8.500

1551.00

12100.00

Software Version

RT4.1

4.1.7763.3

Other

Rig:

Xtreme 18

Contractor:

Xtreme Drilling Corp.

District:

RMA

Unit:

D&E

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Log Run Summary												
Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	13.500	PDC	4.00	Steerable	0.00	0.00	100.00	1551.00	2017-05-16 19:17	2017-05-17 03:31	8.26
2	2	8.500	PDC	3.00	Rotary Steerable	1551.00	7337.00	1551.00	7350.00	2017-06-07 08:58	2017-06-09 02:27	36.86
3	3	8.500	PDC	3.00	Rotary Steerable	7337.00	7407.00	7350.00	7420.00	2017-06-09 15:52	2017-06-09 20:03	7.63
4	4	8.500	PDC	3.00	Rotary Steerable	7407.00	7536.00	7420.00	7548.00	2017-06-10 07:02	2017-06-10 12:16	7.26
5	5	8.500	PDC	3.00	Rotary Steerable	7536.00	12005.90	7548.00	12018.21	2017-06-11 03:09	2017-06-12 14:56	32.87

Crew												
Name			Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Enyonam Anyigba			2017-05-16	N/A	Steve Bueghly		2017-05-16	N/A				

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+ (%)
2017-05-16 23:45		1	150.00	Water Based Mud	8.4	1	8.8	N/A	0.5/99.5	Active Pit	600	0.00
2017-06-07 03:30		2	1551.00	Water Based Mud	8.4	28	8.3	N/A	0/100	Suction	1400	8.65
2017-06-08 18:01		2	6753.00	Water Based Mud	9.9	14	9.5	N/A	0/100	Suction	1500	0.00
2017-06-09 09:49		3	7350.00	Water Based Mud	9.9	12	9.3	N/A	0/100	Suction	1500	0.00
2017-06-10 02:03		4	7420.00	Water Based Mud	10.1	12	9.3	N/A	0/100	Suction	1600	0.00
2017-06-11 20:10		5	9511.00	Water Based Mud	10.1	13	9.3	N/A	0/100	Suction	1800	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			12813116	Directional (mag)			14.46	50.33	8.000	0.000	
1	NaviTrak			12813116	VSS			14.46	50.33	8.000	0.000	
2	ATC_SU			12252537	Near Bit Inclination			5.93	6.69	7.000	4.330	
2	ATC_SU			12252537	Near Bit VSS			5.93	6.69	7.000	4.330	
2	ATC_MWD			12252899	Gamma (single)			2.74	12.86	7.000	3.250	
2	ATC_MWD			12252899	Directional (mag)			12.27	22.39	7.000	3.250	
3	ATC_SU			14178991	Near Bit Inclination			5.93	6.69	7.000	4.330	
3	ATC_SU			14178991	Near Bit VSS			5.93	6.69	7.000	4.330	
3	ATC_MWD			12211066	Gamma (single)			2.76	12.94	7.000	3.250	
3	ATC_MWD			12211066	Directional (mag)			12.27	22.45	7.000	3.250	
4	ATC_SU			11713466	Near Bit VSS			5.93	6.69	7.000	4.330	


4	ATC_SU	11713466	Near Bit Inclination	5.93	6.69	7.000	4.330
4	ATC_MWD	13012733	Gamma (single)	2.19	12.31	7.000	3.250
4	ATC_MWD	13012733	Directional (mag)	12.27	22.39	7.000	3.250
5	ATC_SU	11713466	Near Bit VSS	5.93	6.69	7.000	4.330
5	ATC_SU	11713466	Near Bit Inclination	5.93	6.69	7.000	4.330
5	ATC_MWD	13012733	Gamma (single)	2.19	12.31	7.000	3.250
5	ATC_MWD	13012733	Directional (mag)	12.27	22.39	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

Curve Mnemonics

Presented Curves	Description	Units
GRADX	OnTrak - Gamma Ray - Apparent - Down Quadrant - Real-Time 0.5 ft Average	API
GRAUX	OnTrak - Gamma Ray - Apparent - Up Quadrant - Real-Time 0.5 ft Average	API
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	OnTrak - Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	OnTrak - Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	OnTrak - Gamma Ray - Time Since Drilled - Real-Time	min



Company

Well

Interval

Created

Cub Creek Energy, LLC

Litzenberger 4

Date From:

2017-06-07 02:58:52

Top:

1551.00

Date To:

2017-06-10 04:50:37

Bottom:

7529.00

2017-06-12

15:10:29

Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUX

0300

API

Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADX

0300

API

True Vertical Depth TVD

80006000

ft

MD 1:240 feet

Depth Averaged ROP 3 ft Average ROPA

10000

ft/h

Gamma Time Since Drilled GRTX

0600

min

Weight On Bit, Average 1 ft Average WOBA

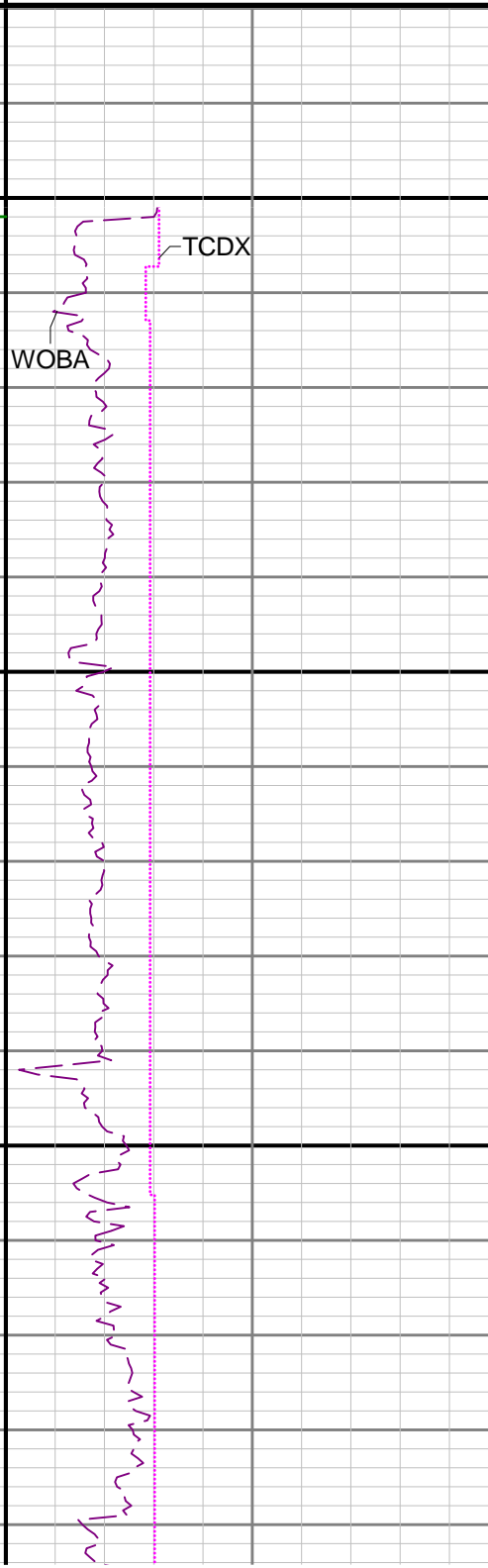
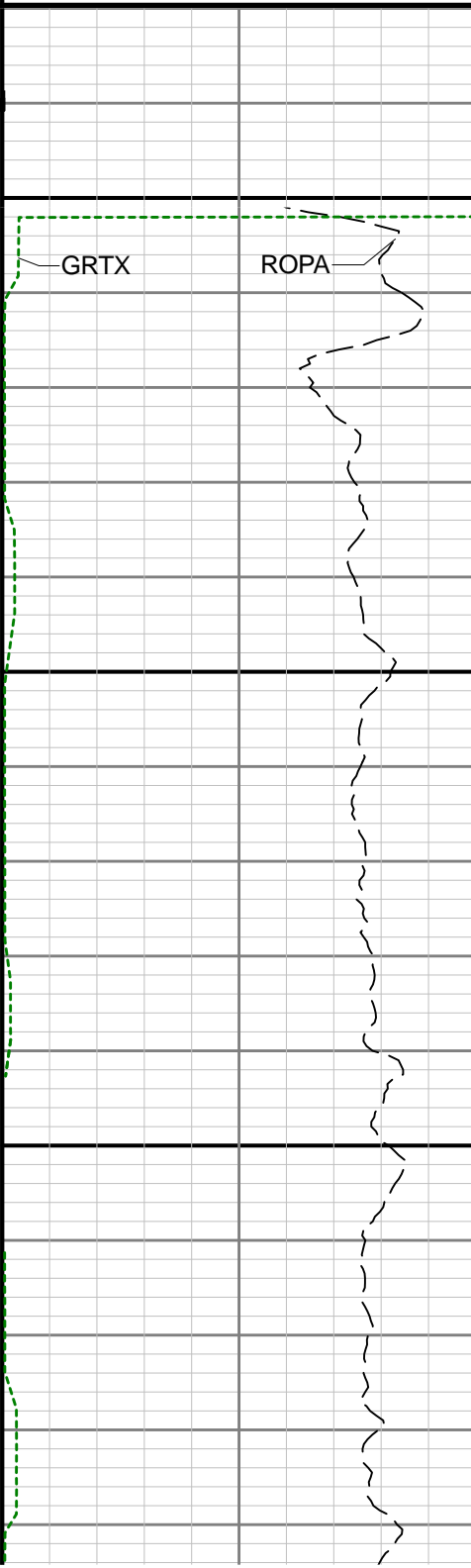
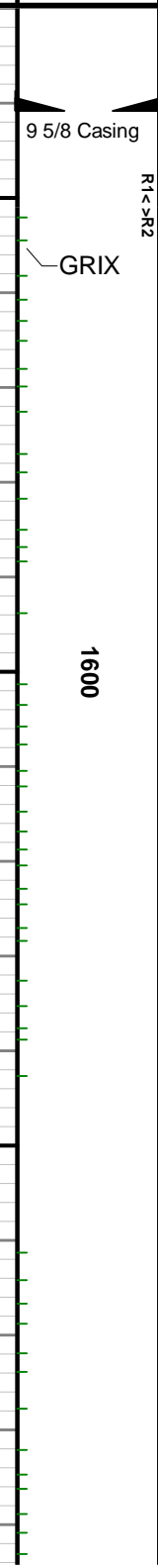
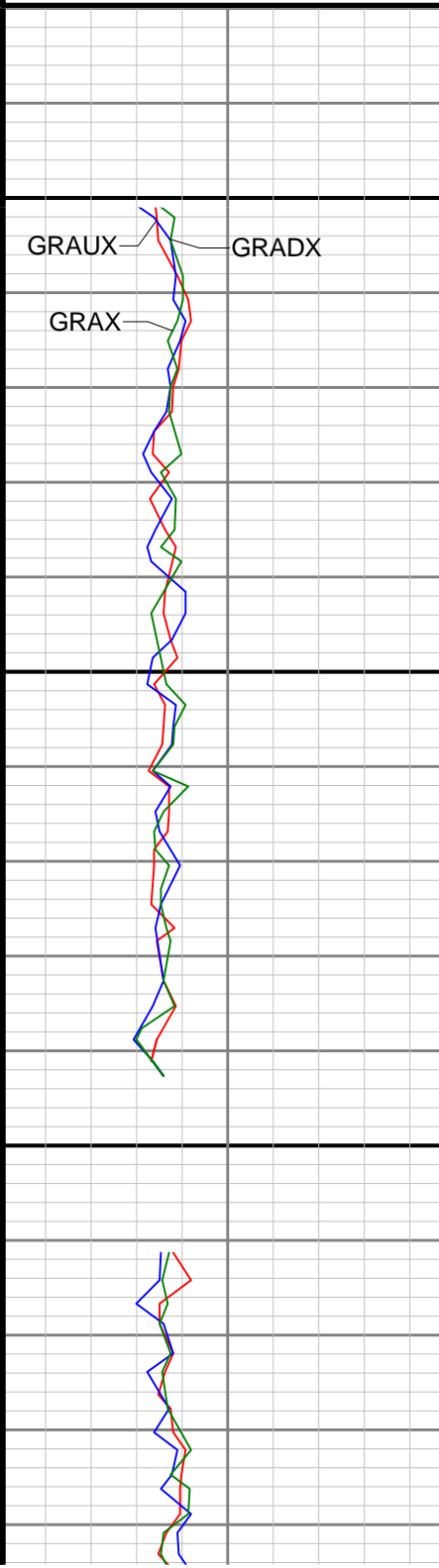
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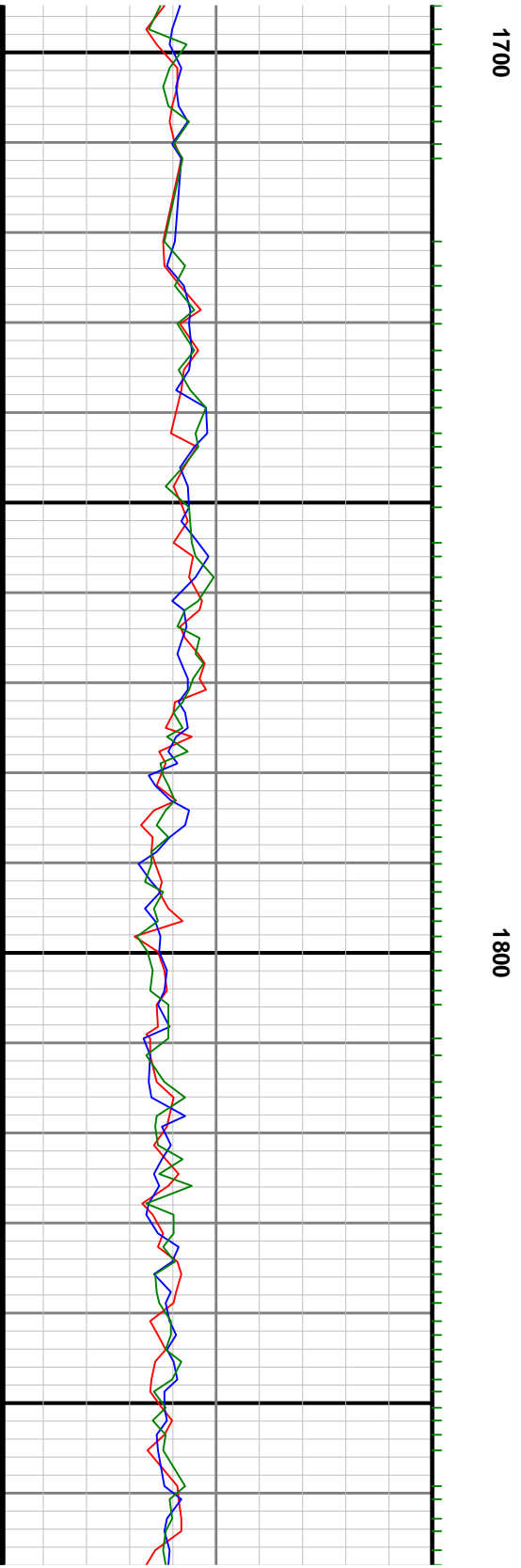
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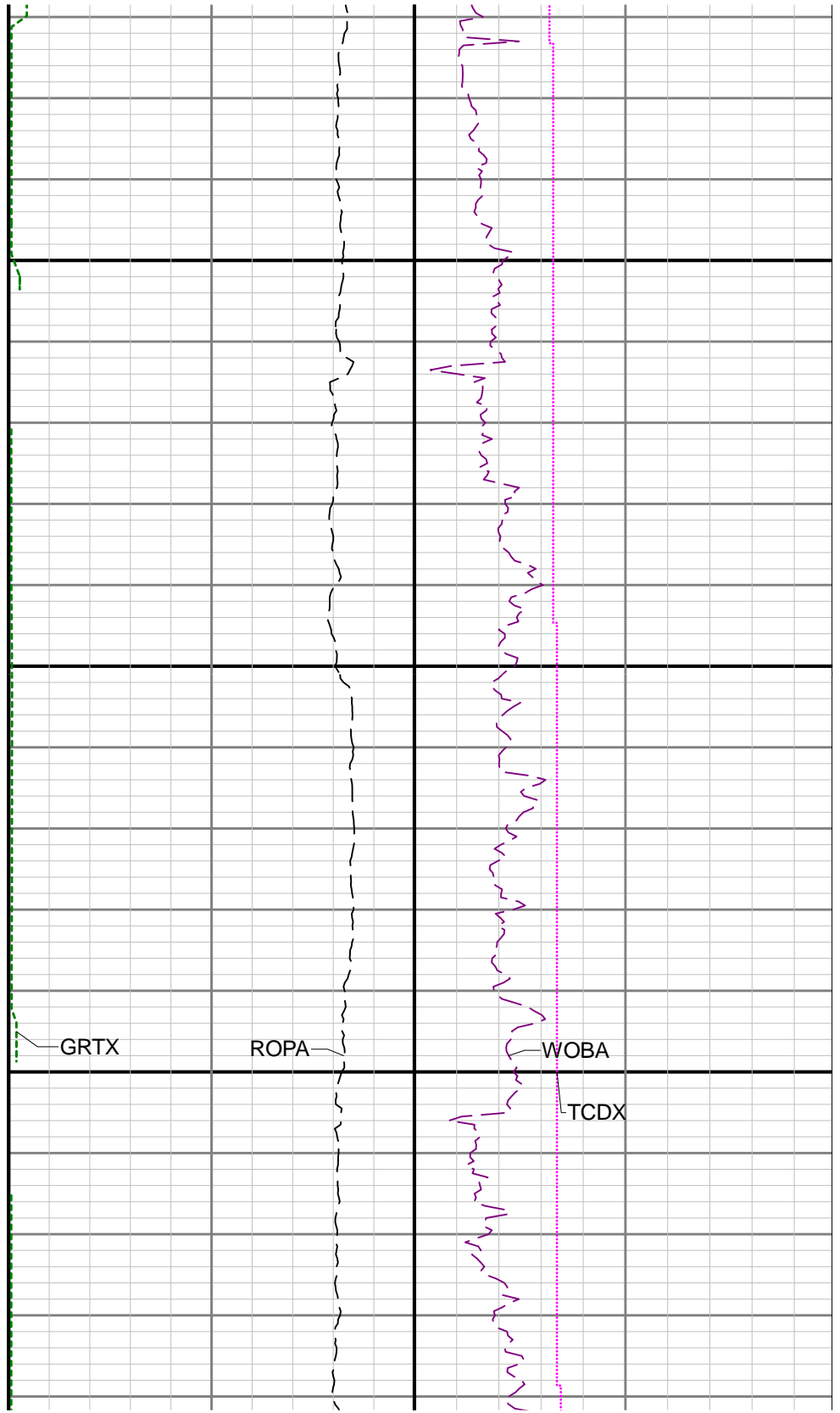
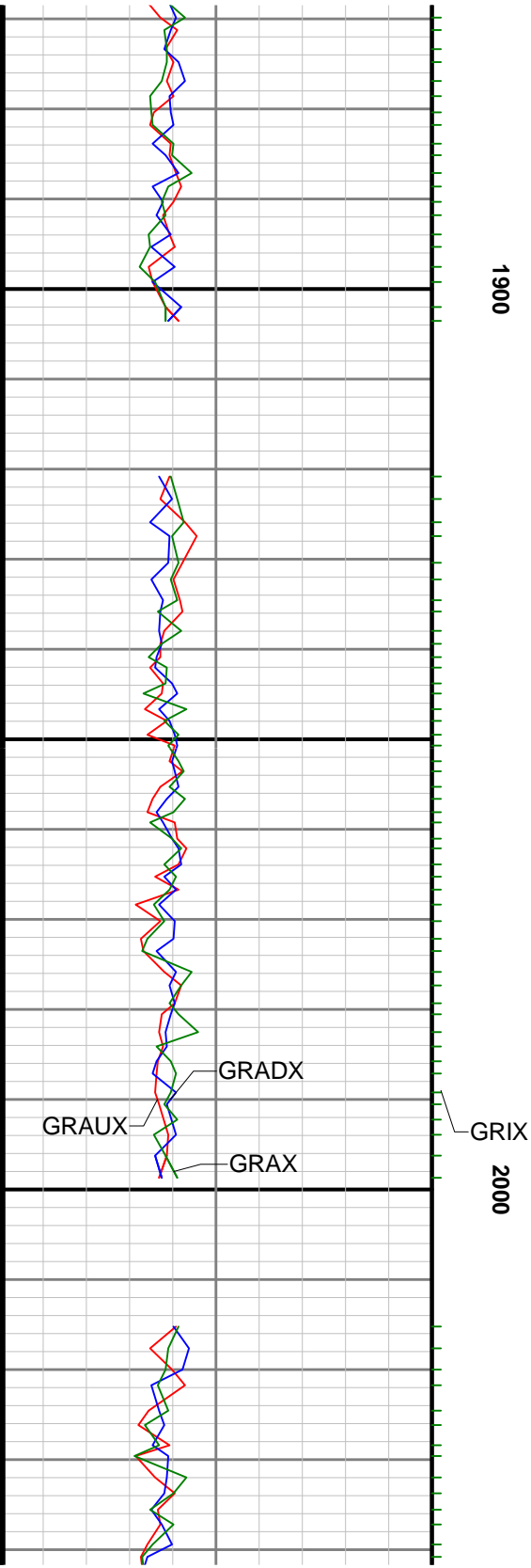
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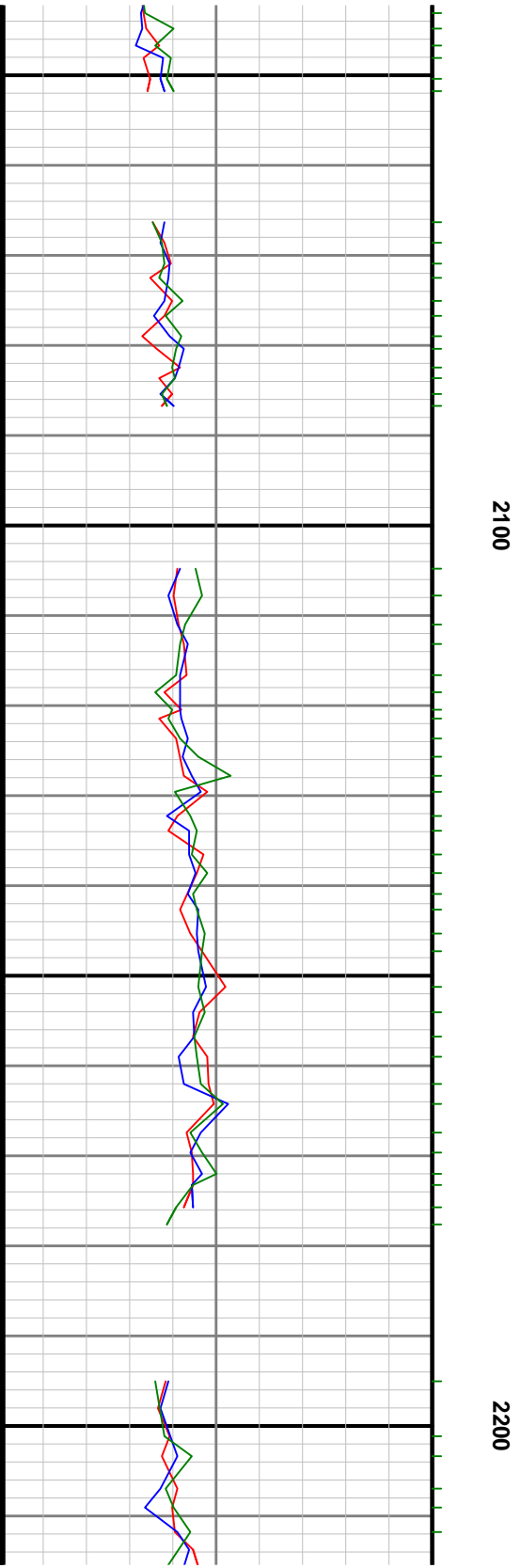
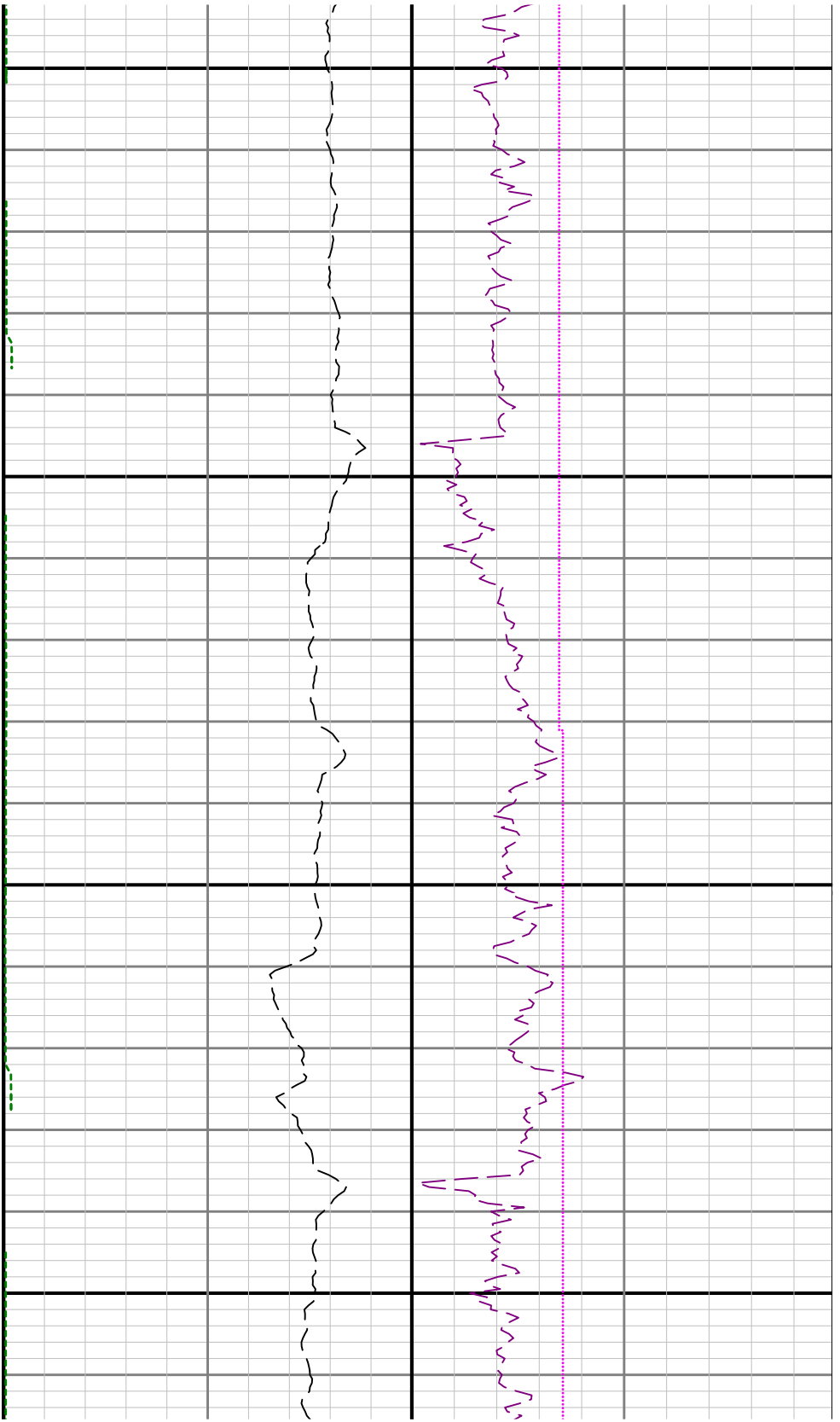
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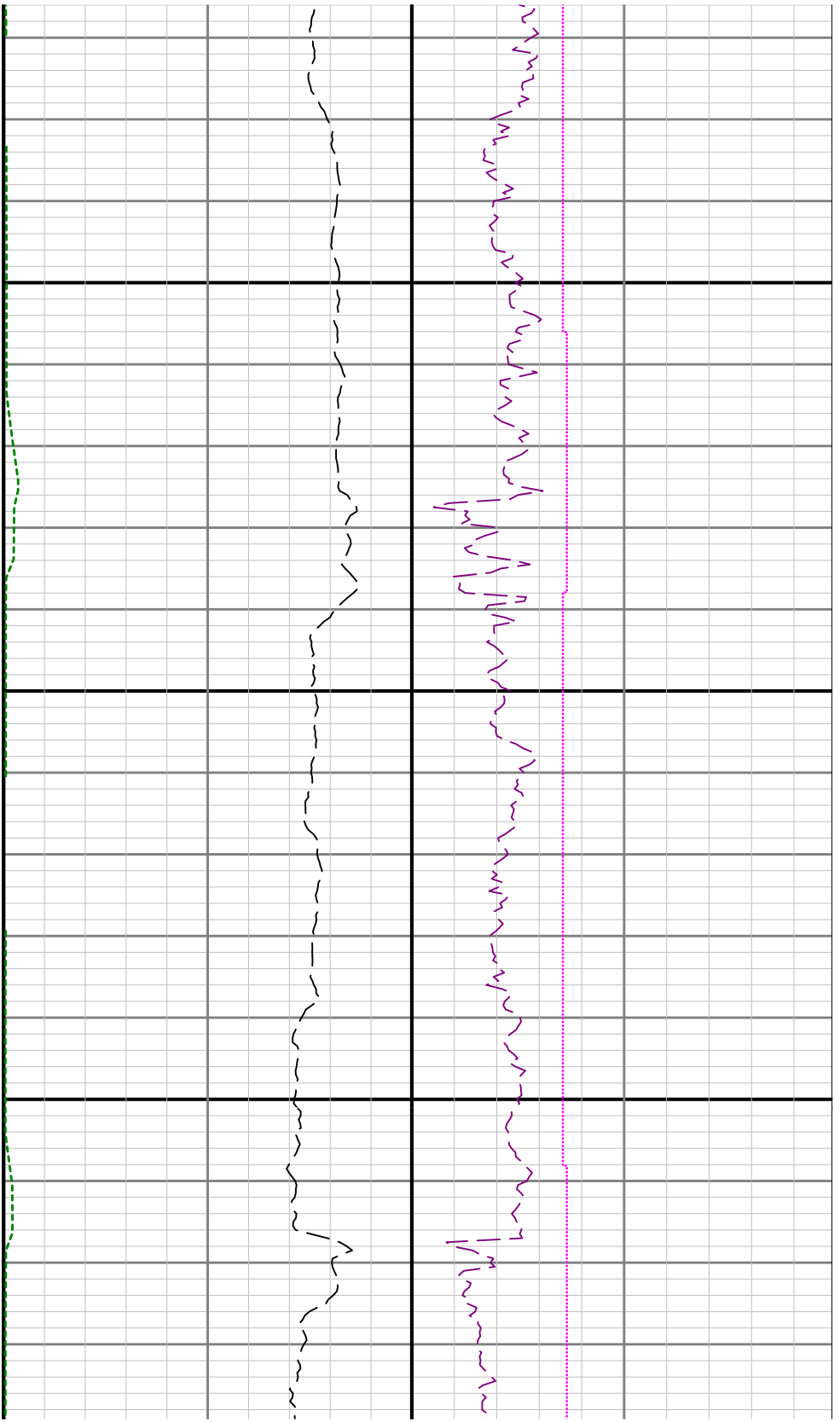
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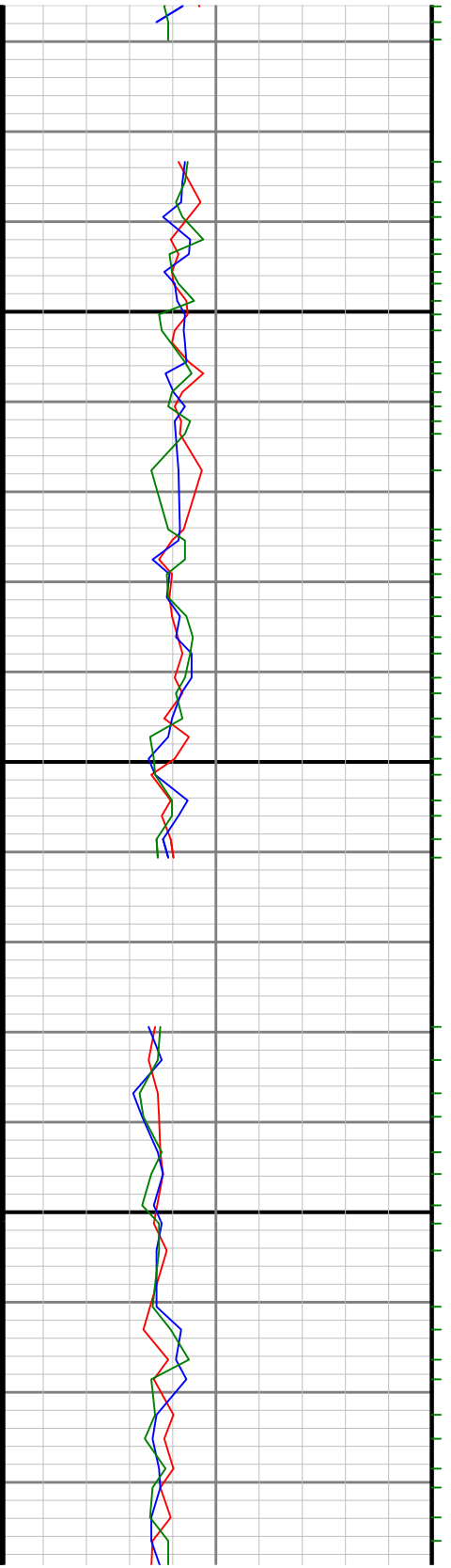


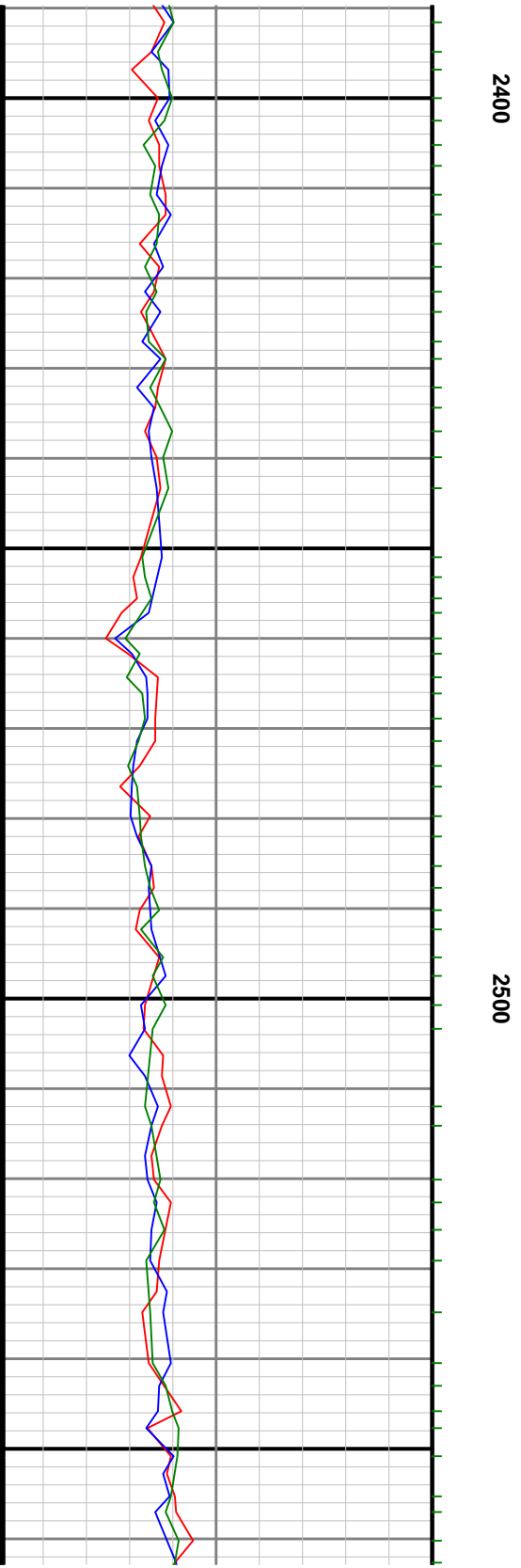


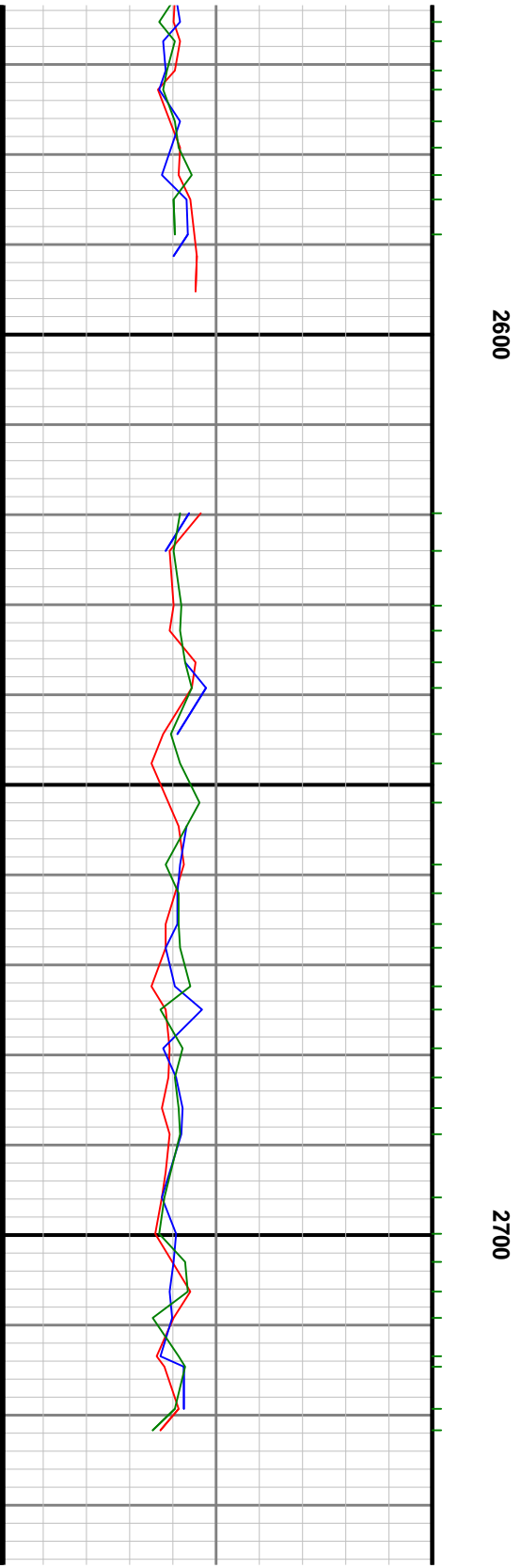
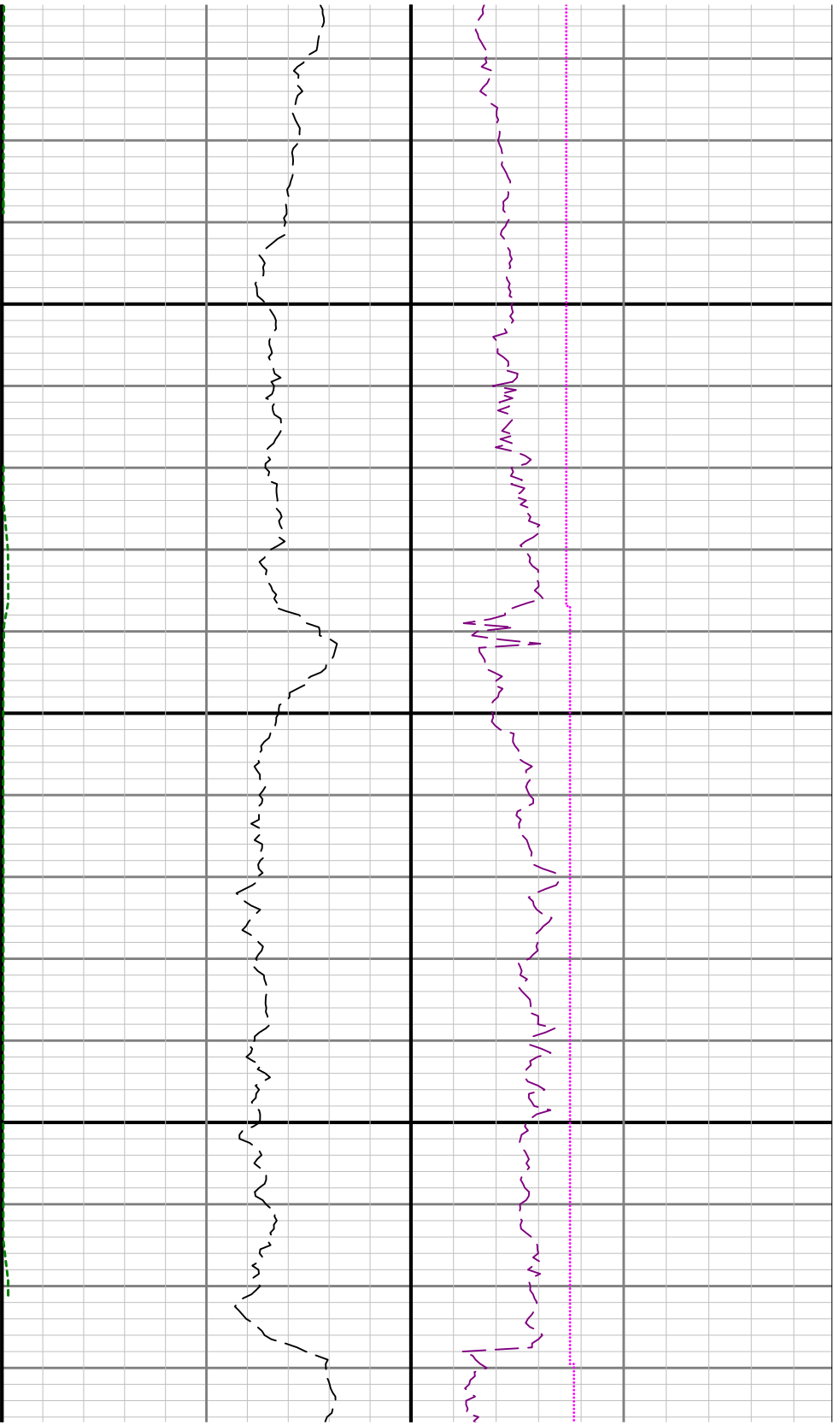


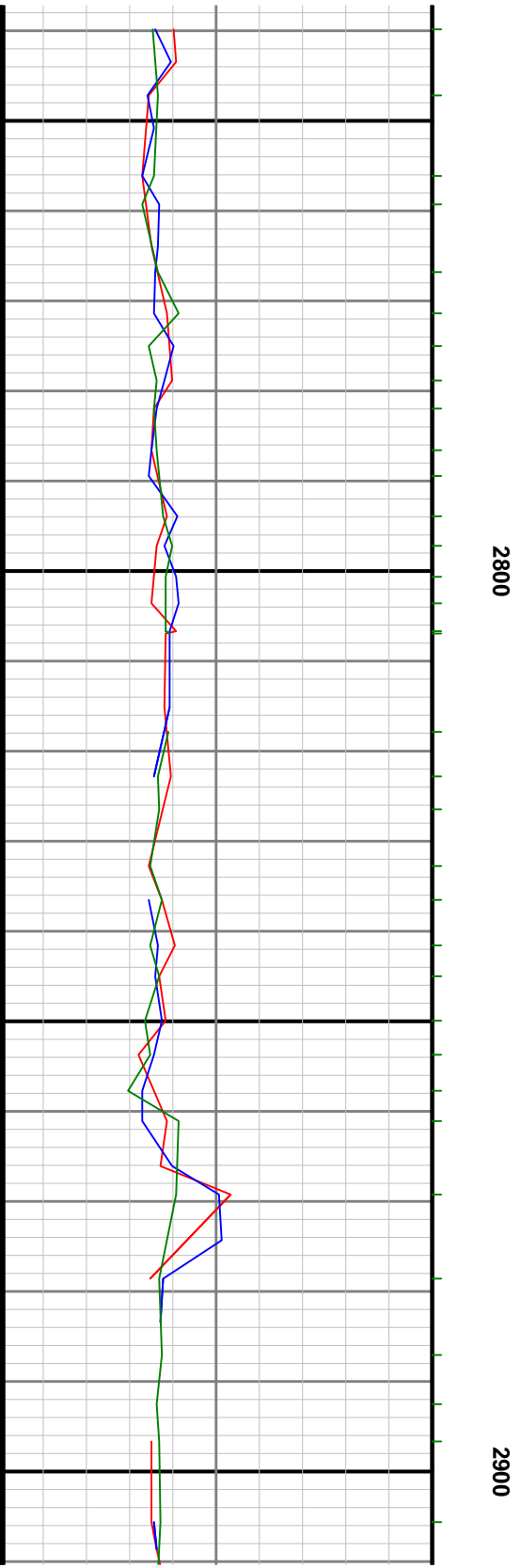
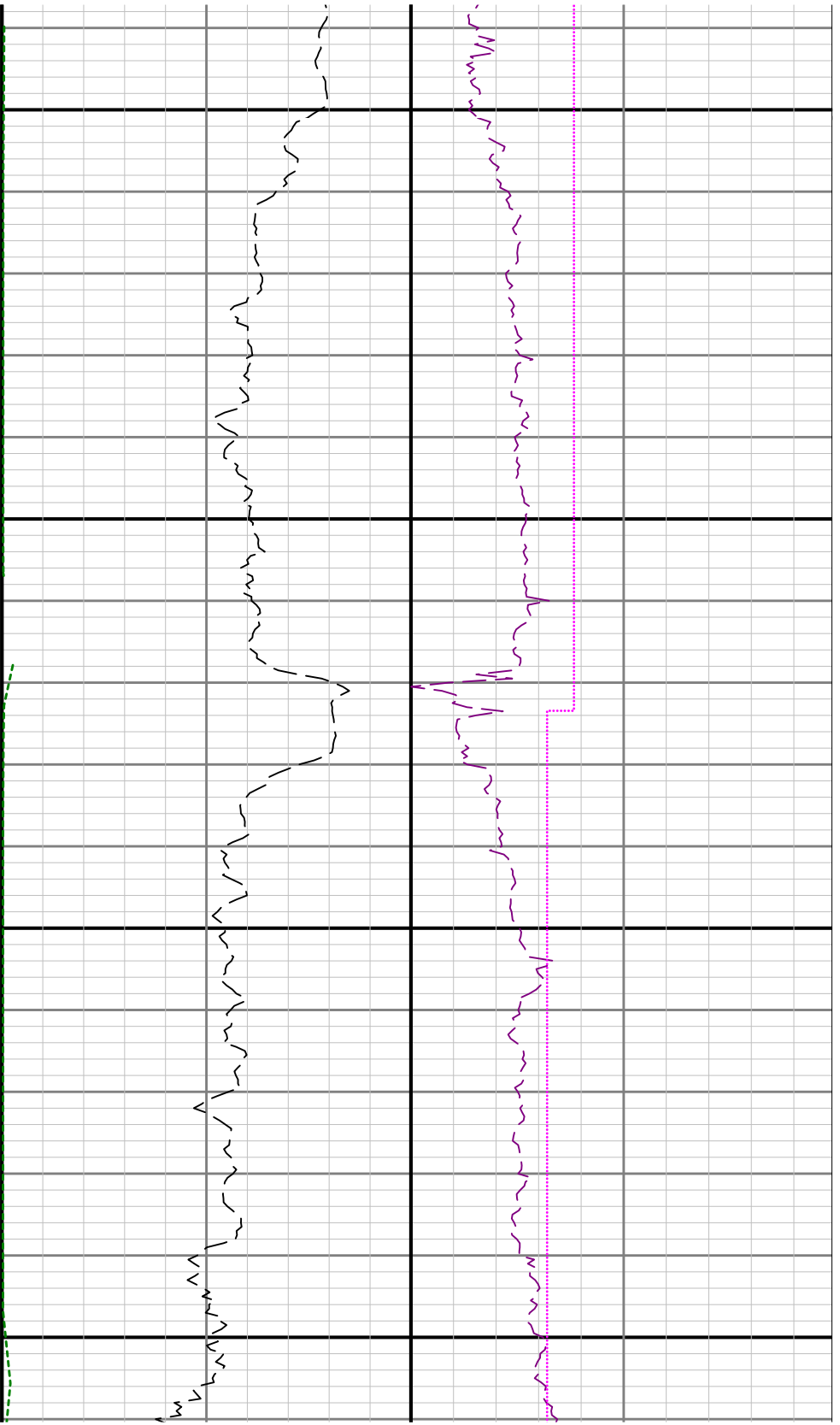


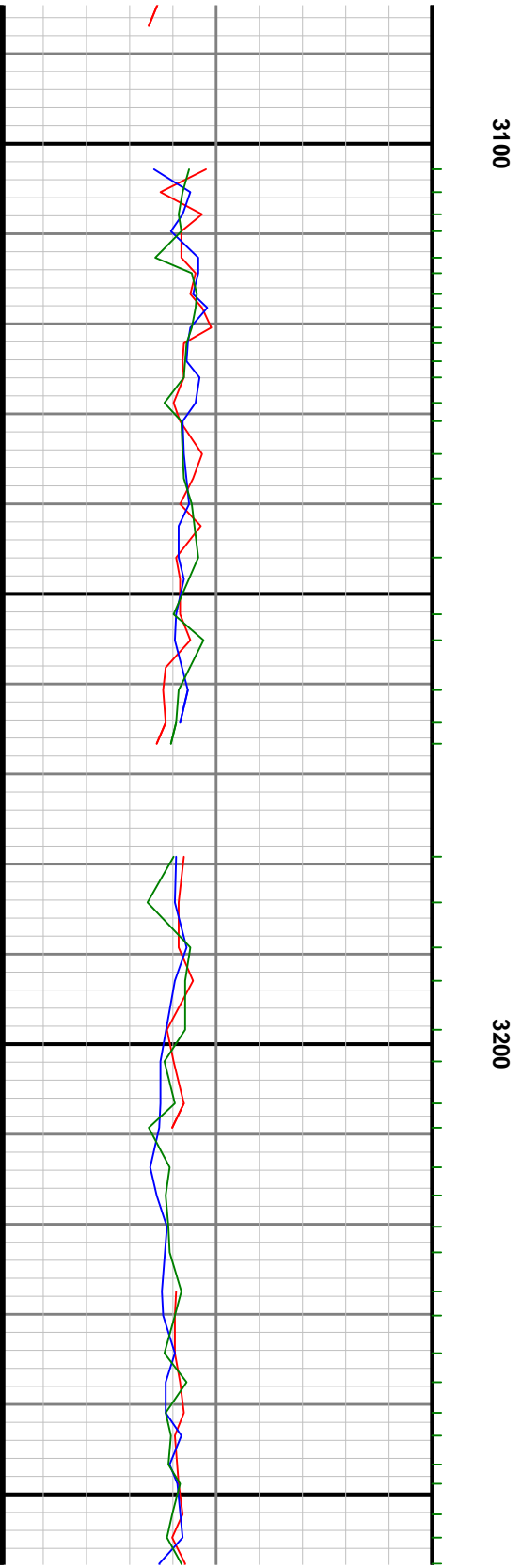
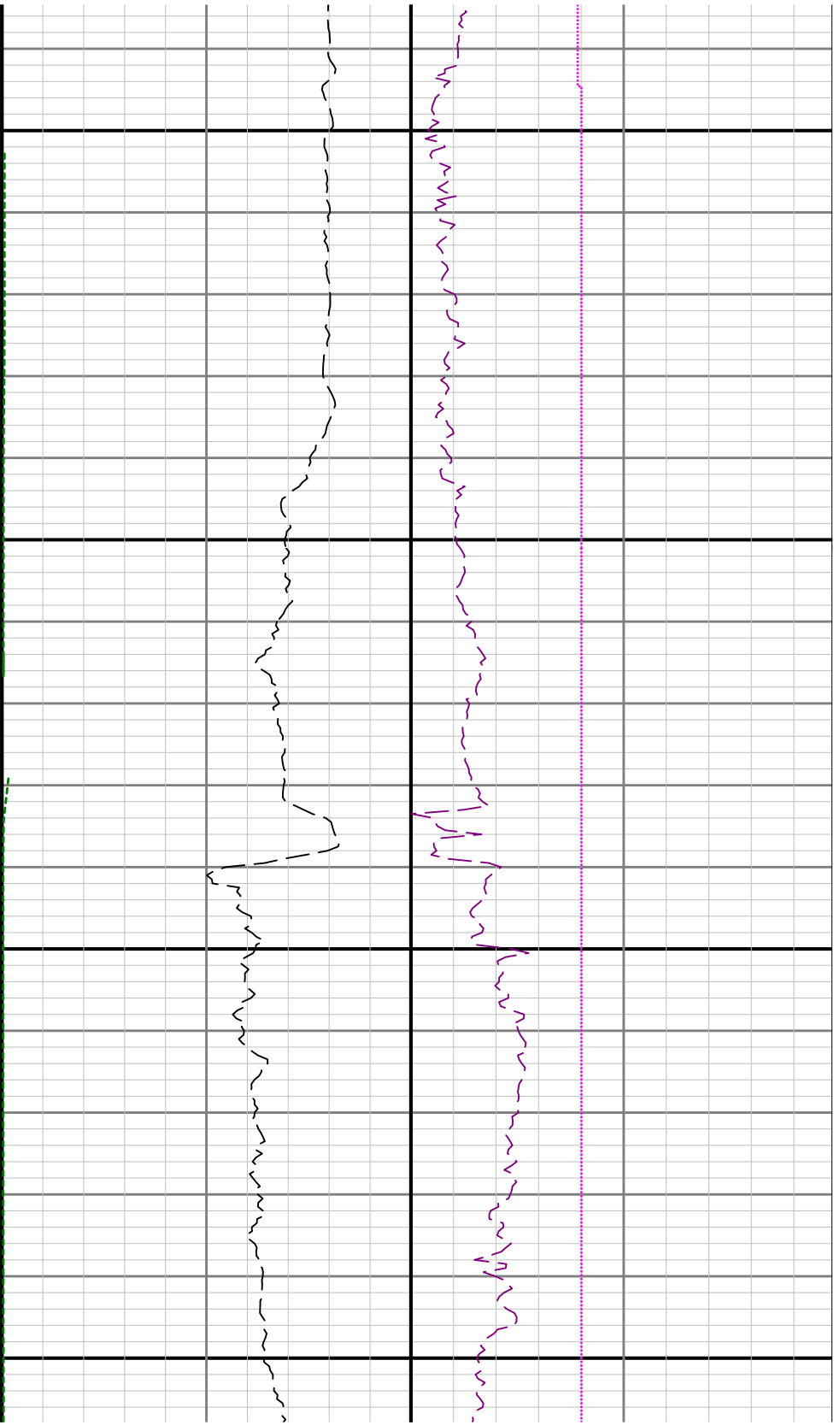
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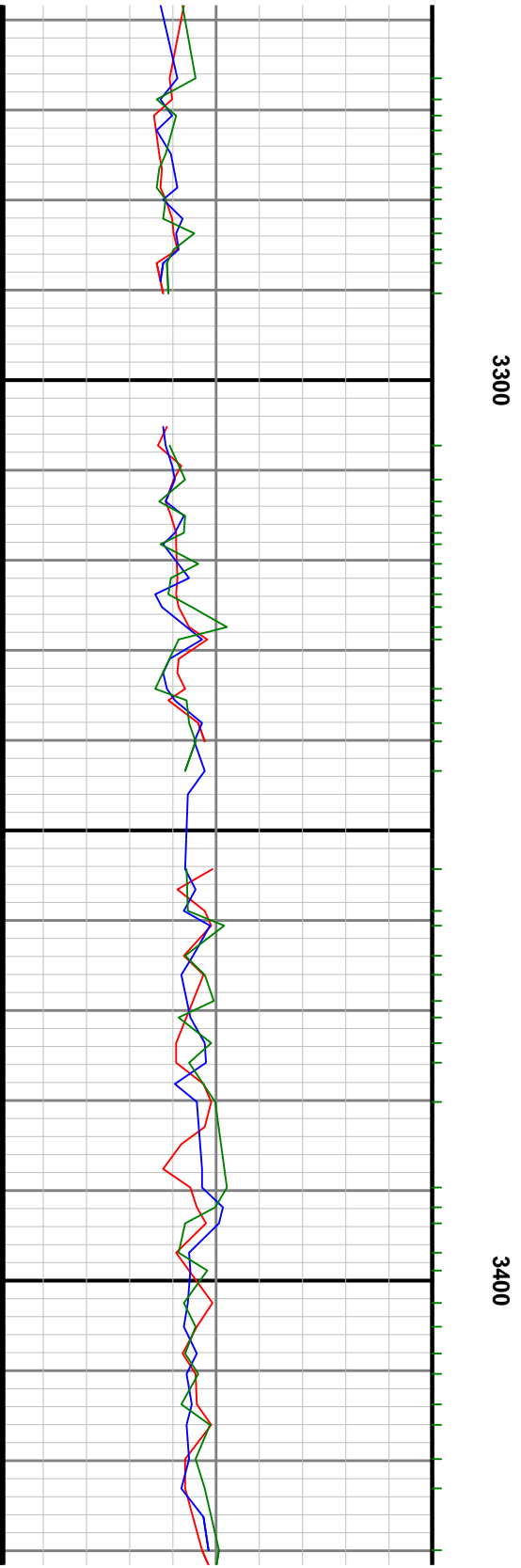
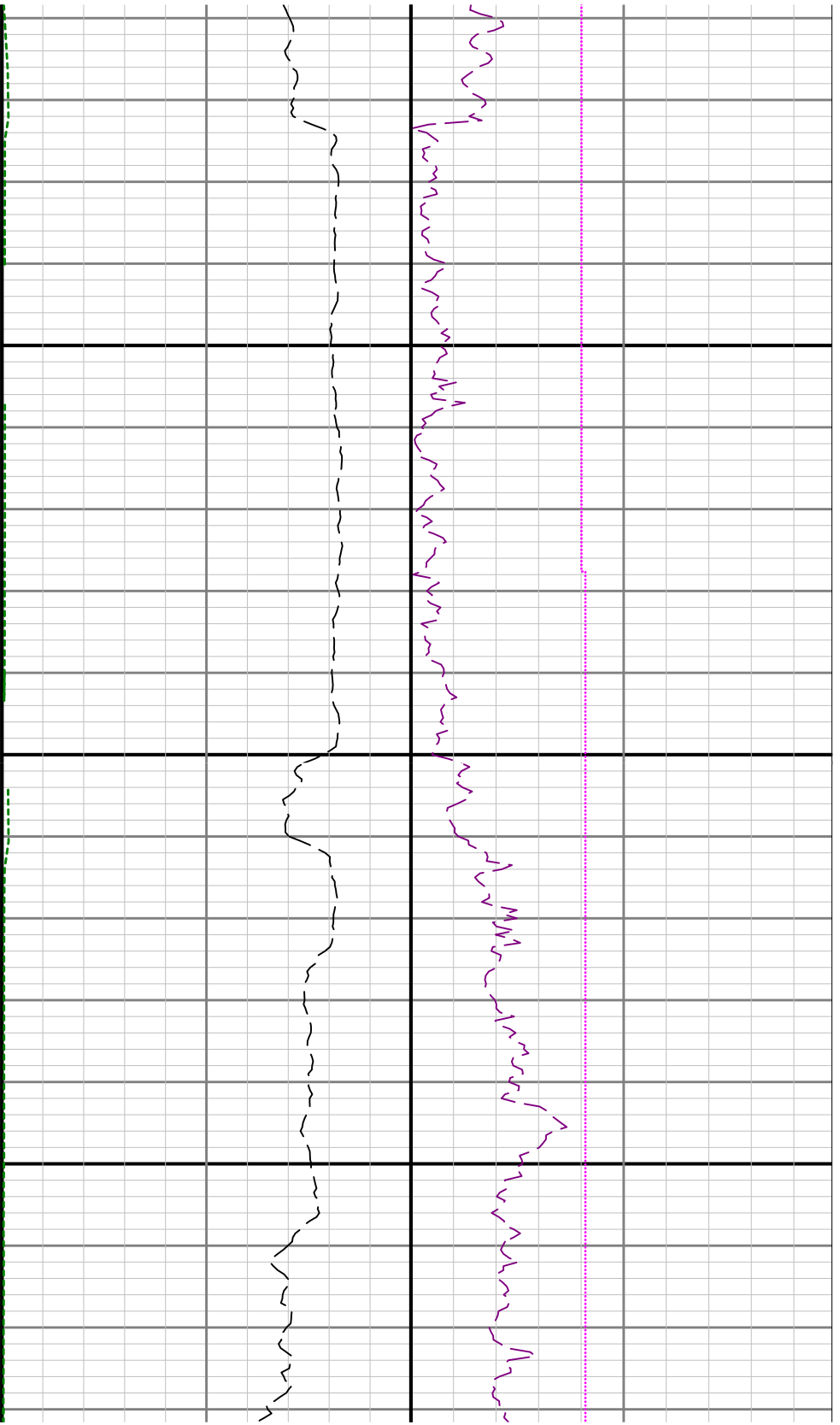


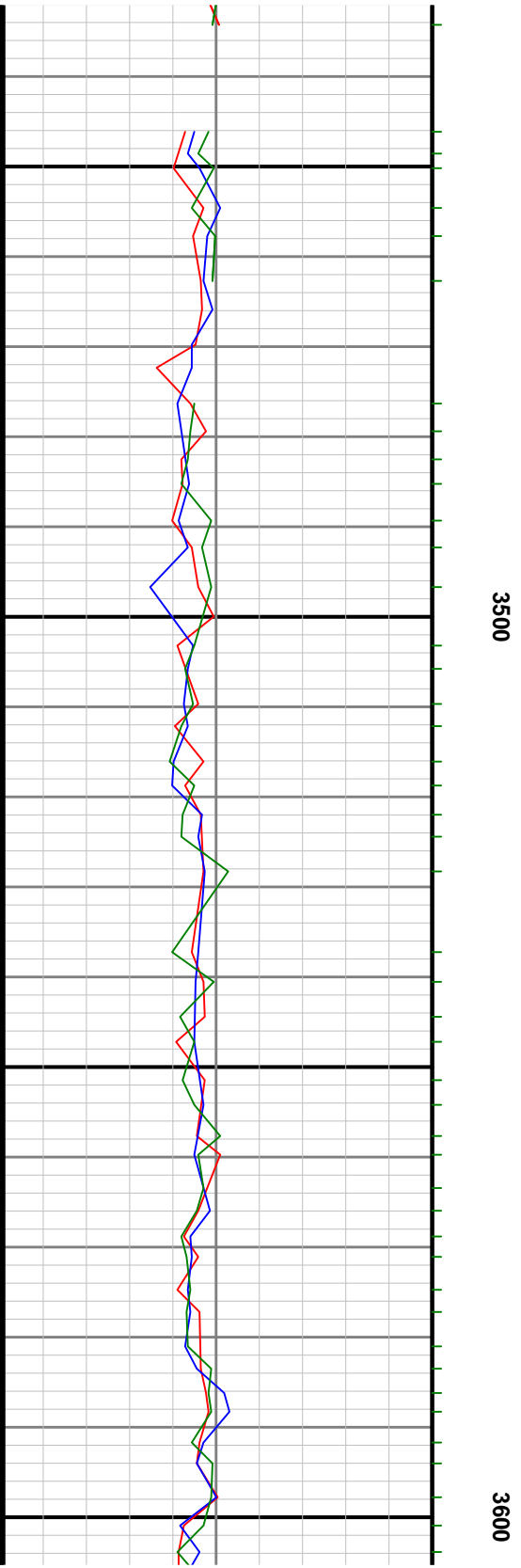
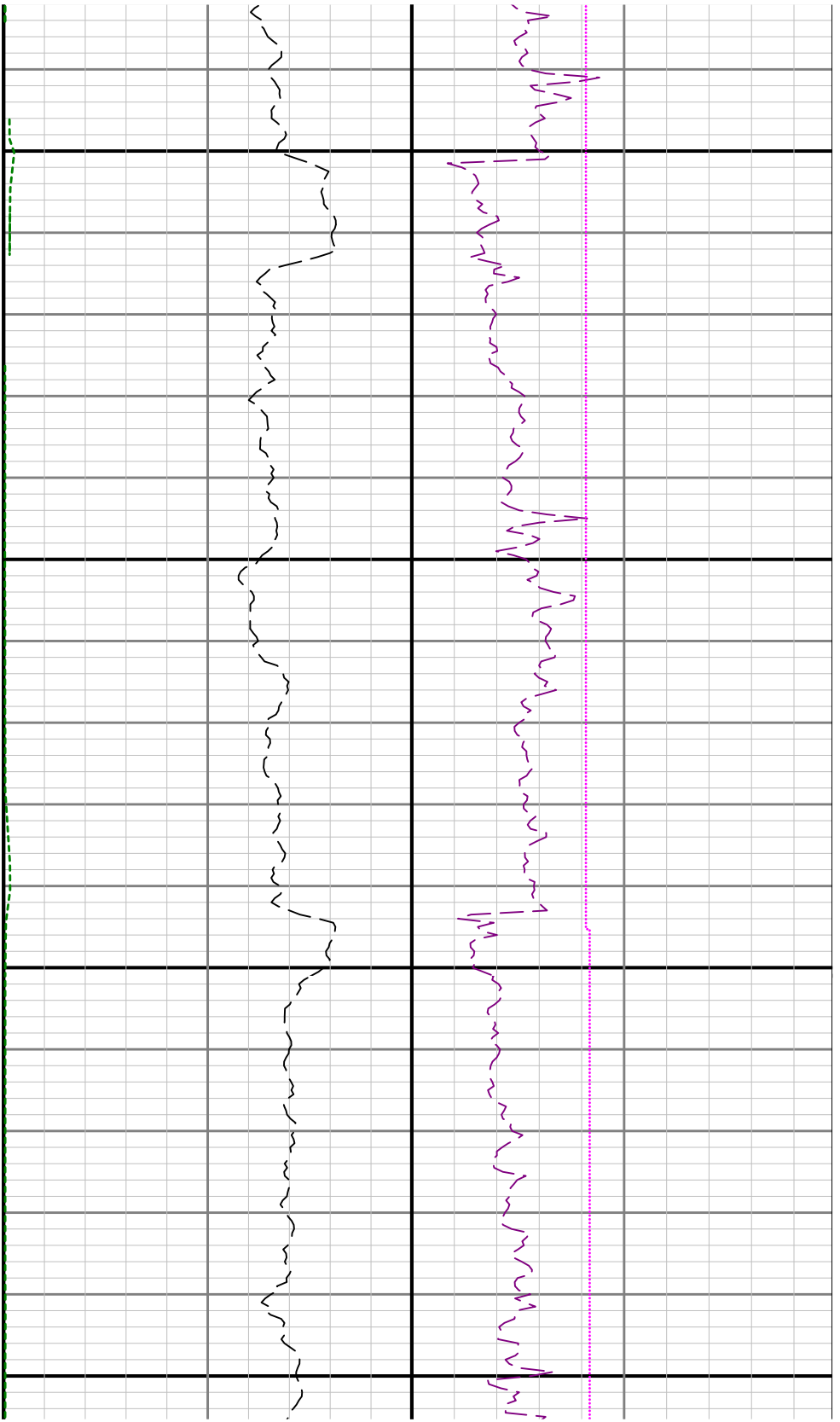


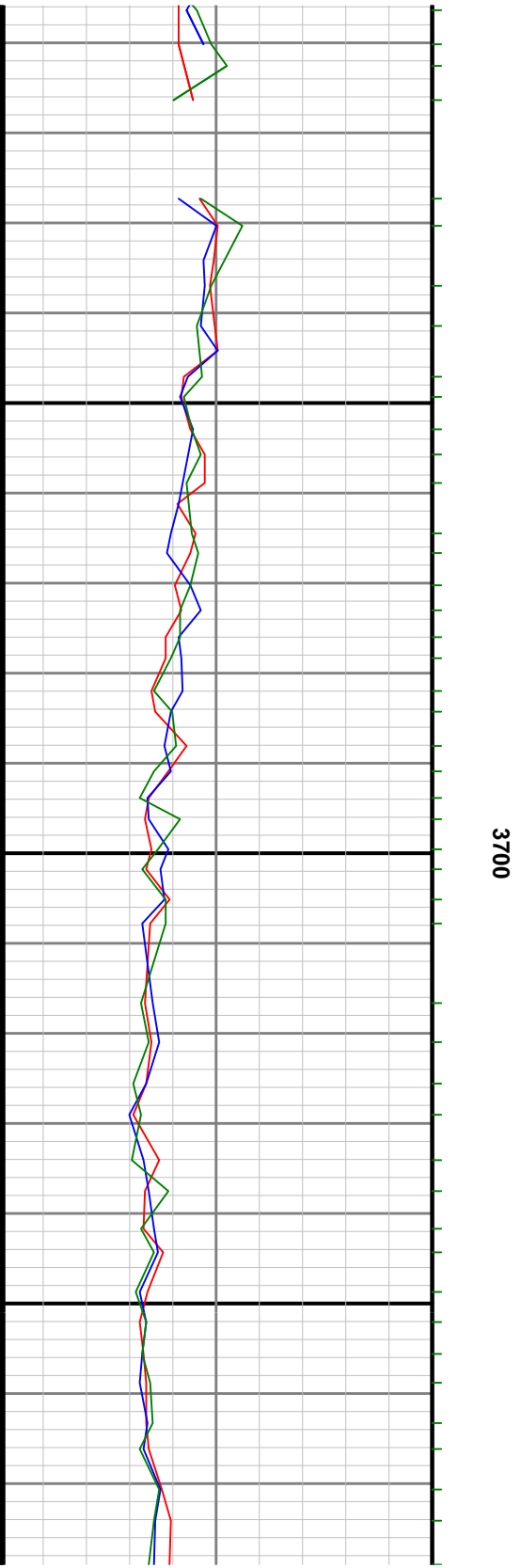
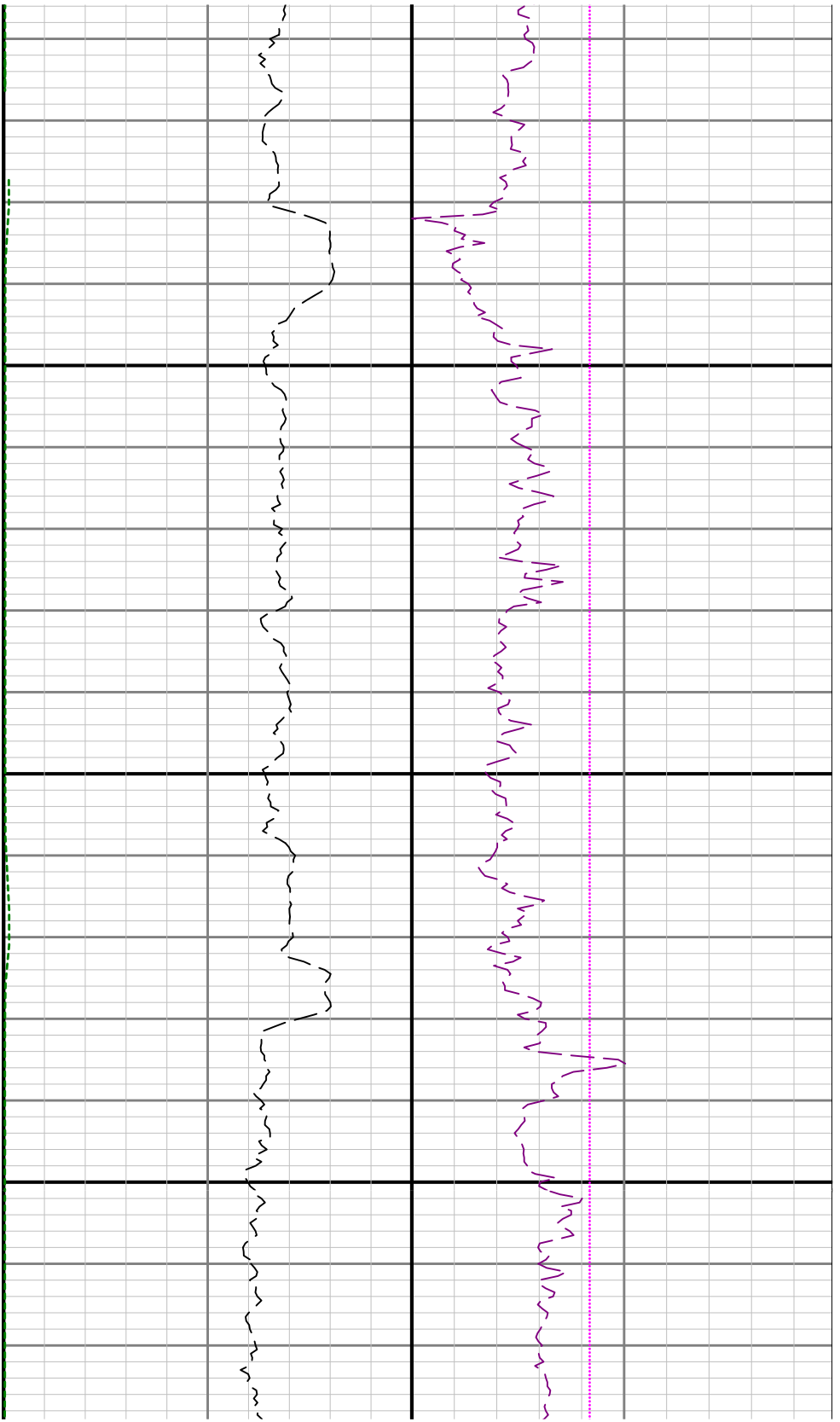


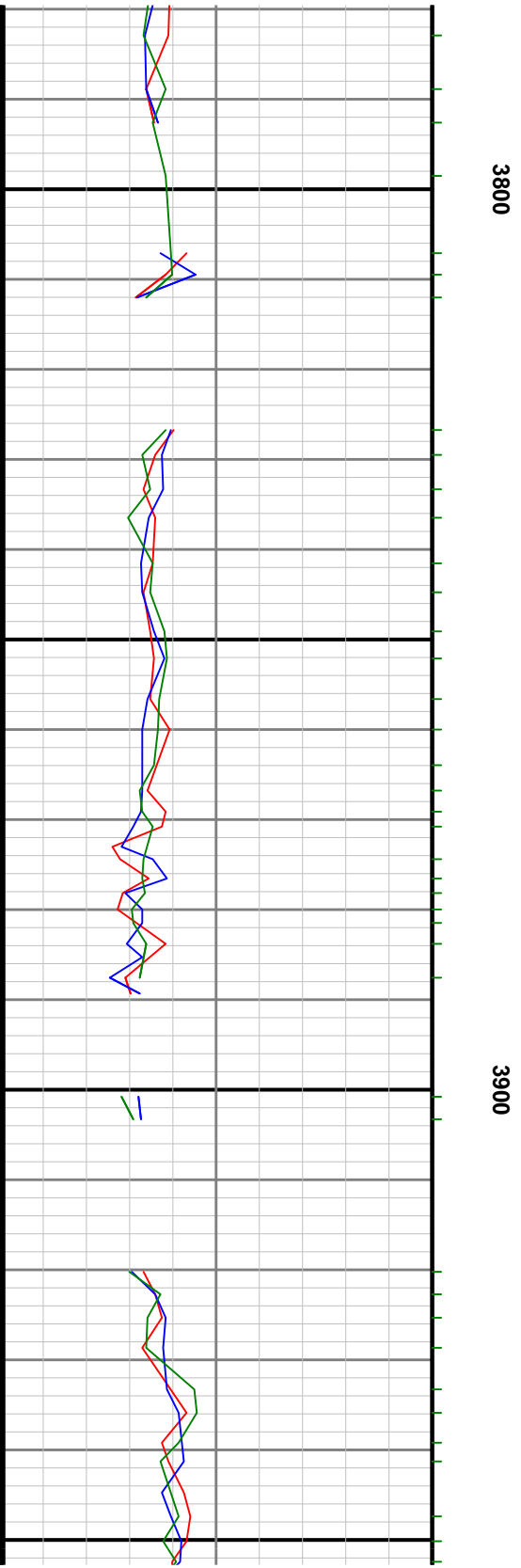
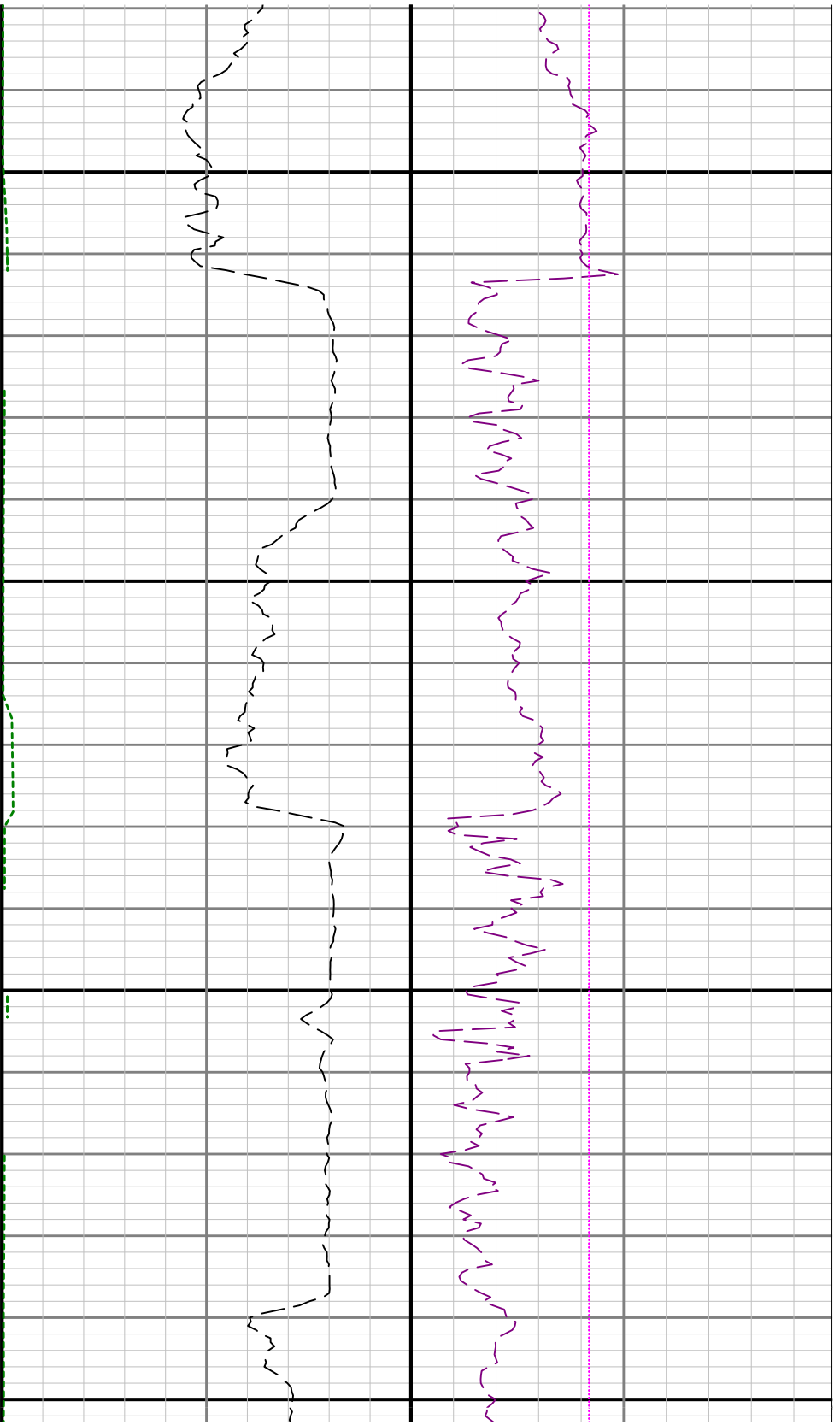


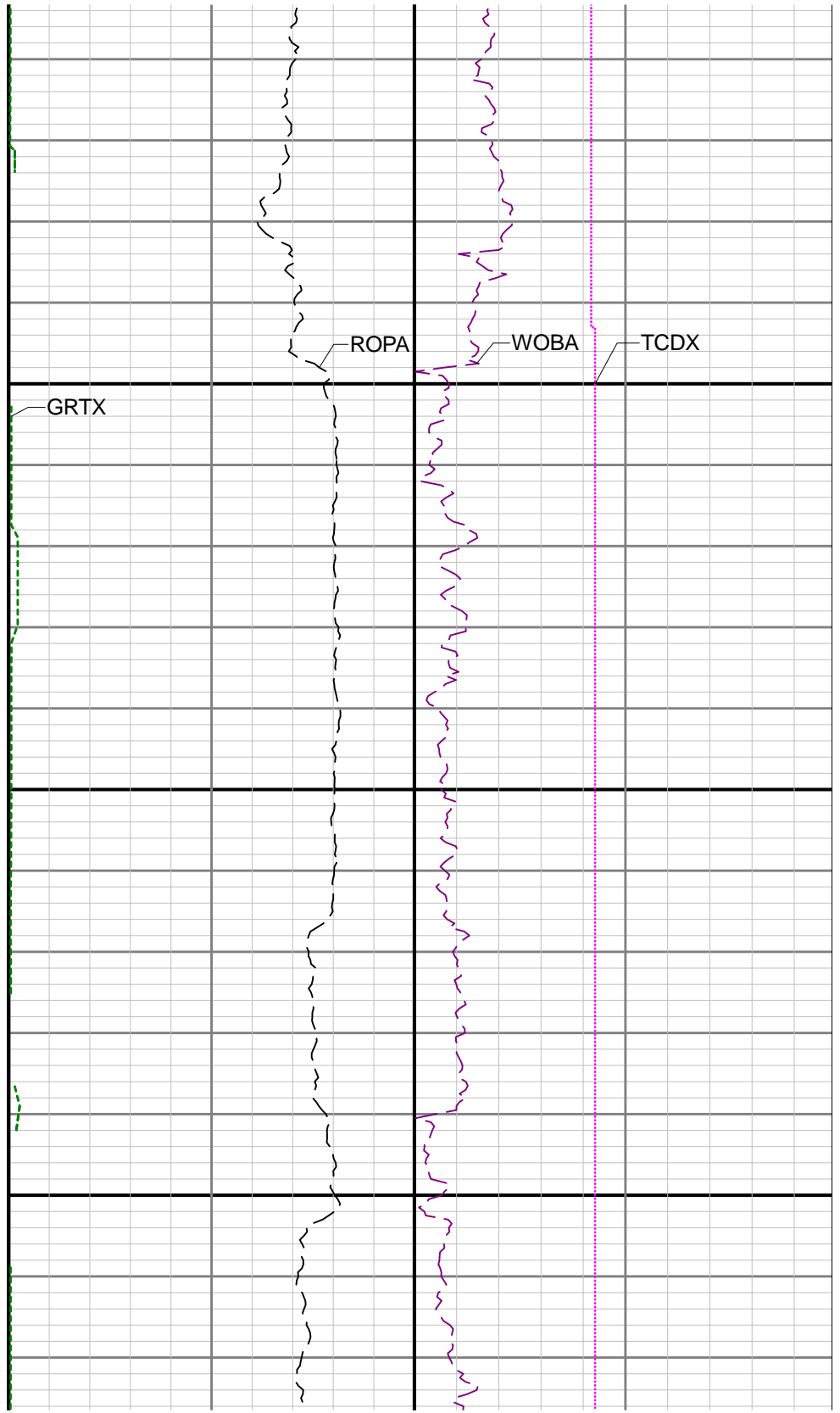
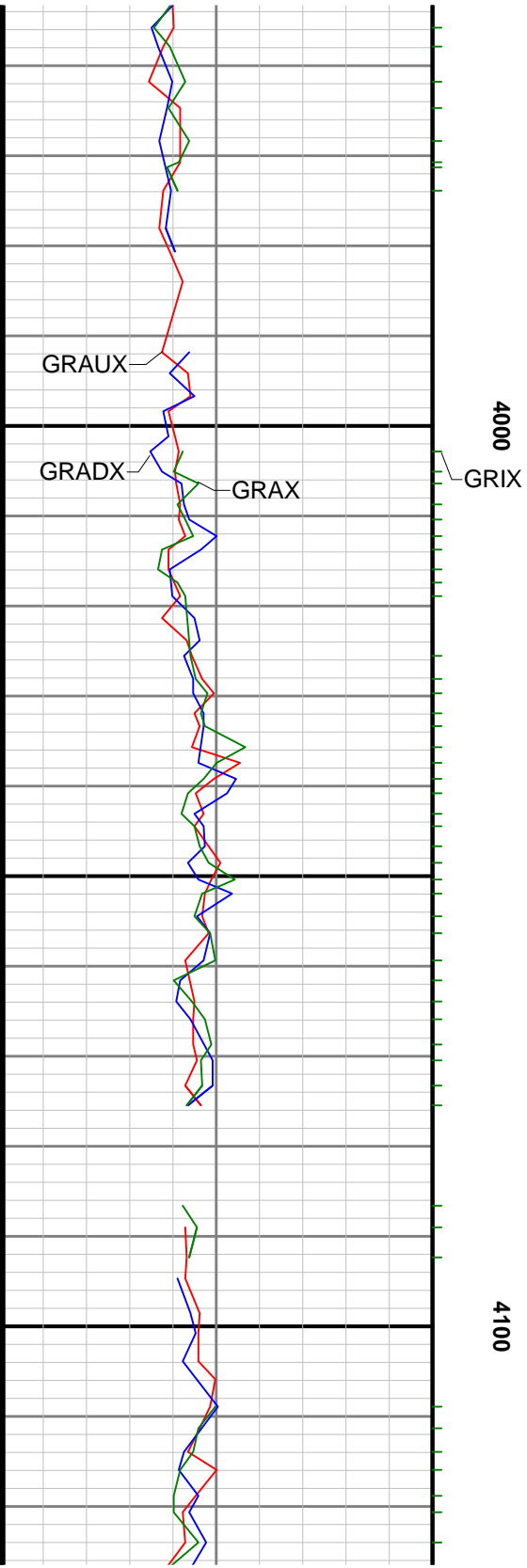


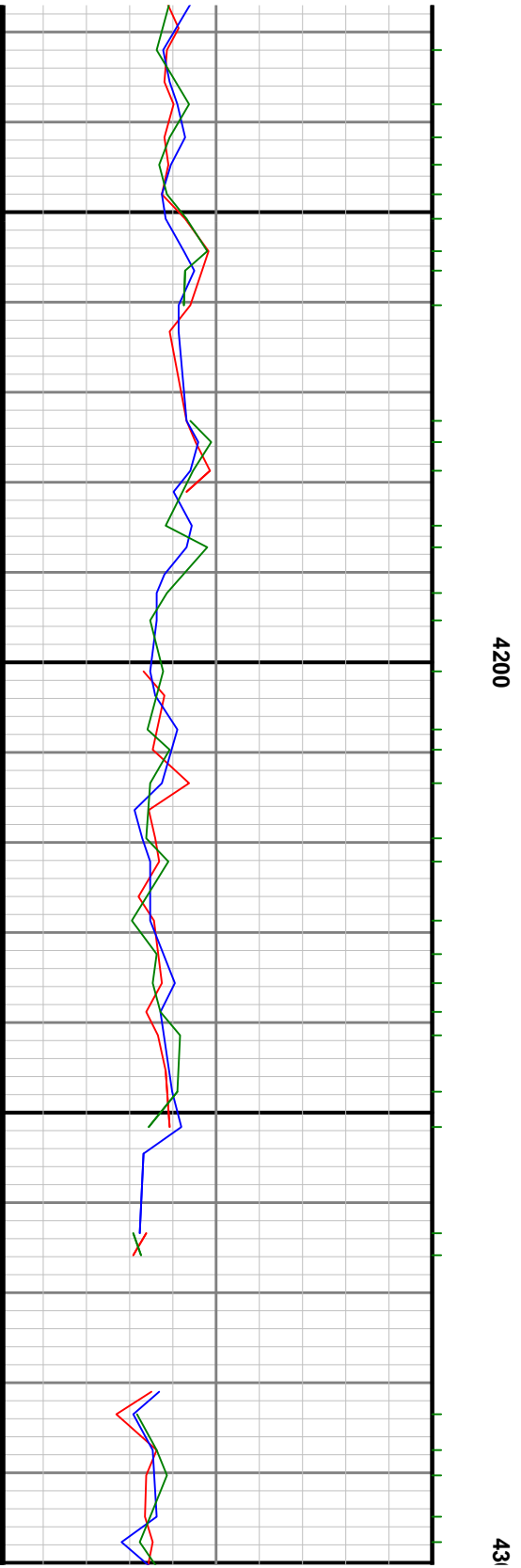
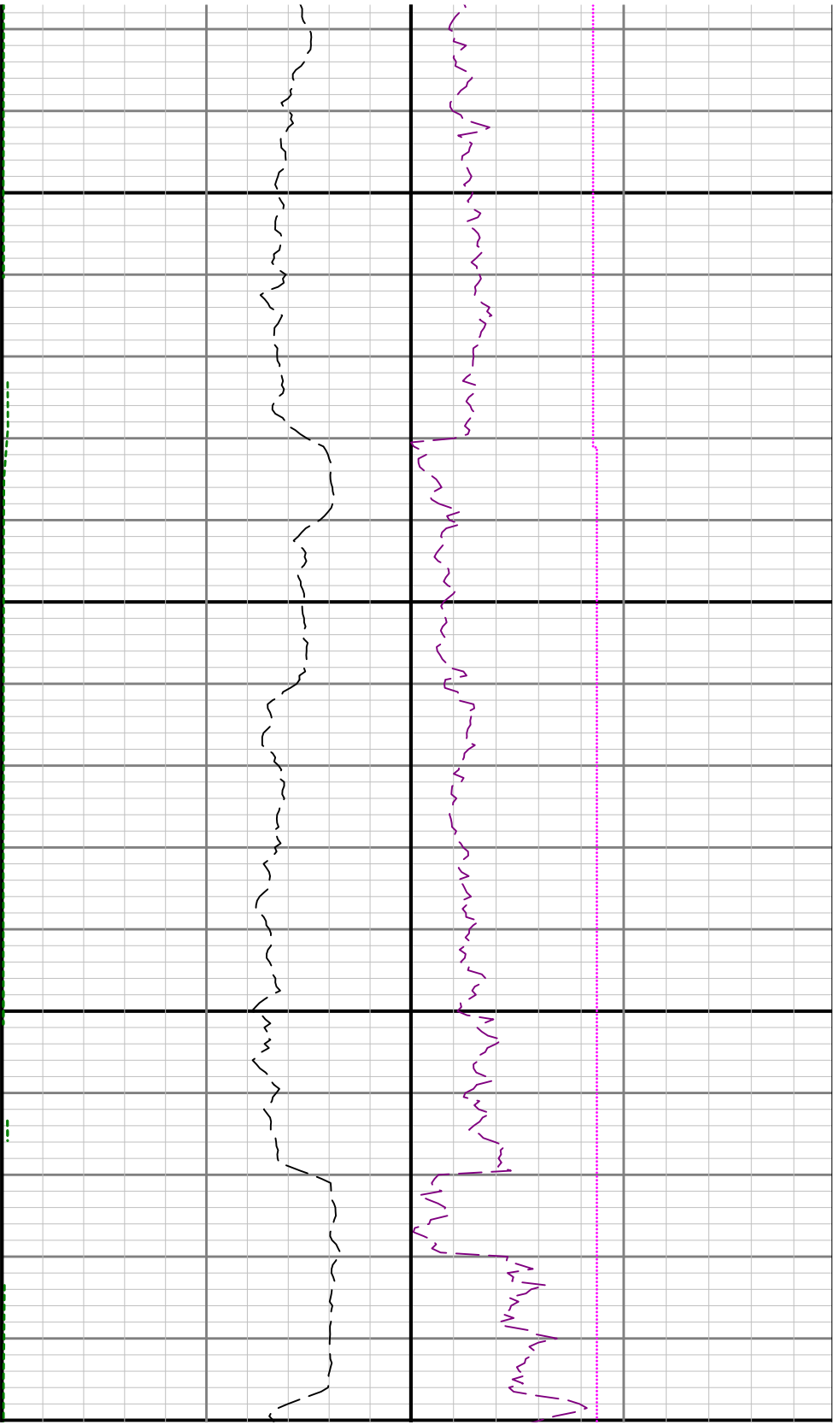


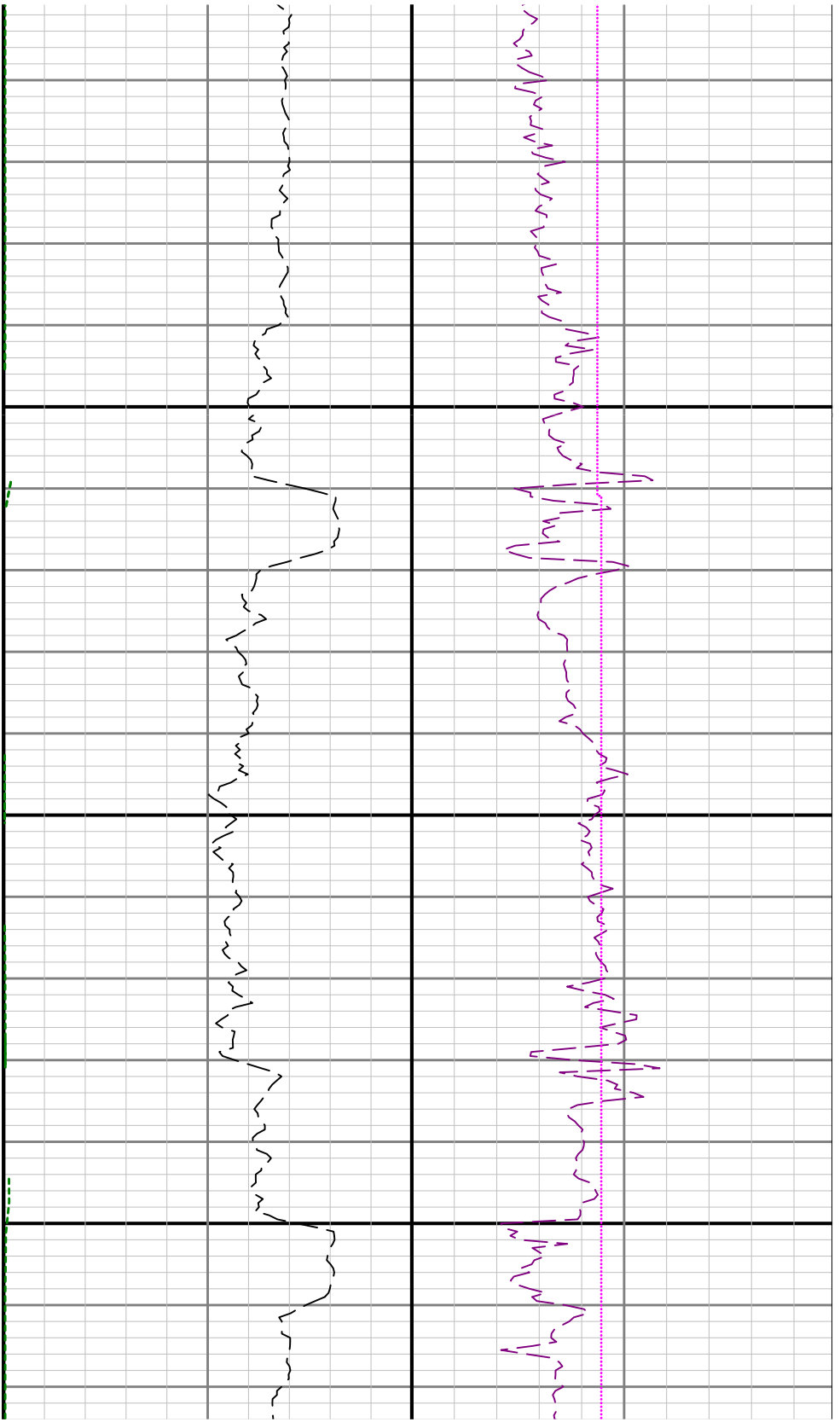


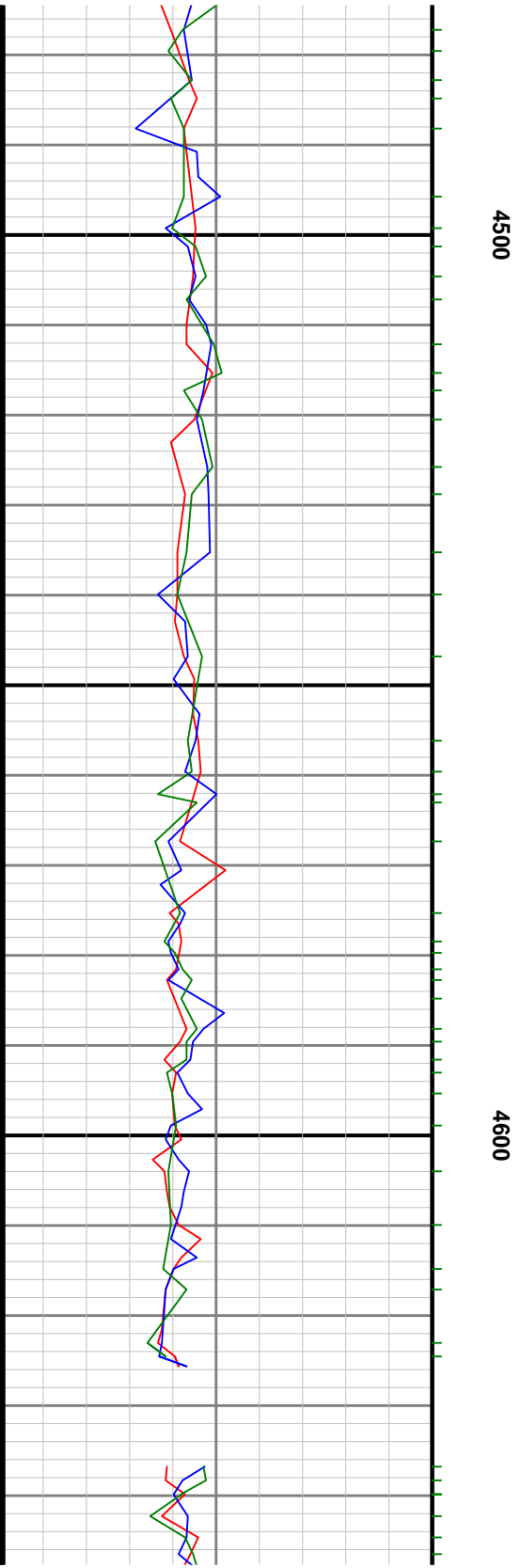
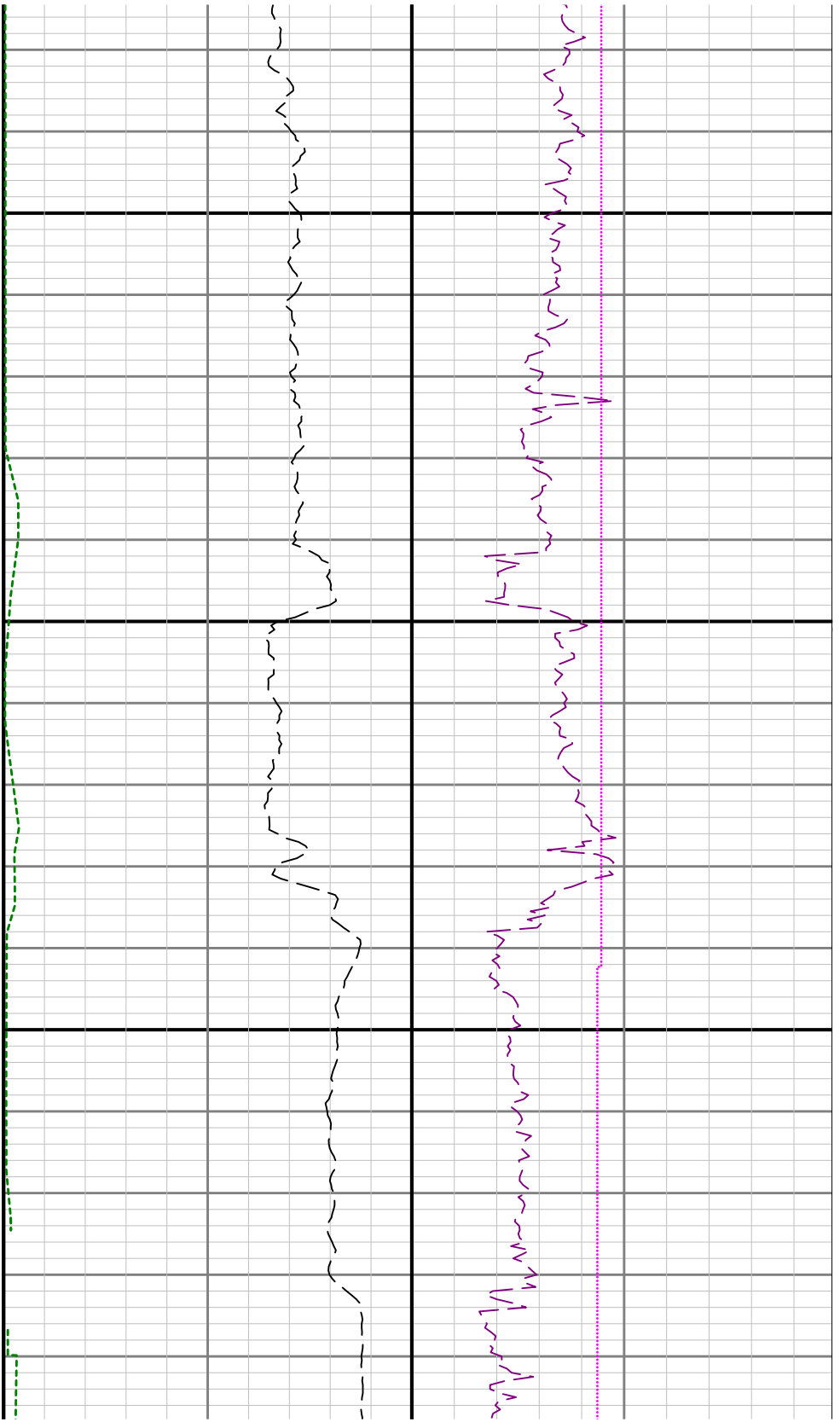


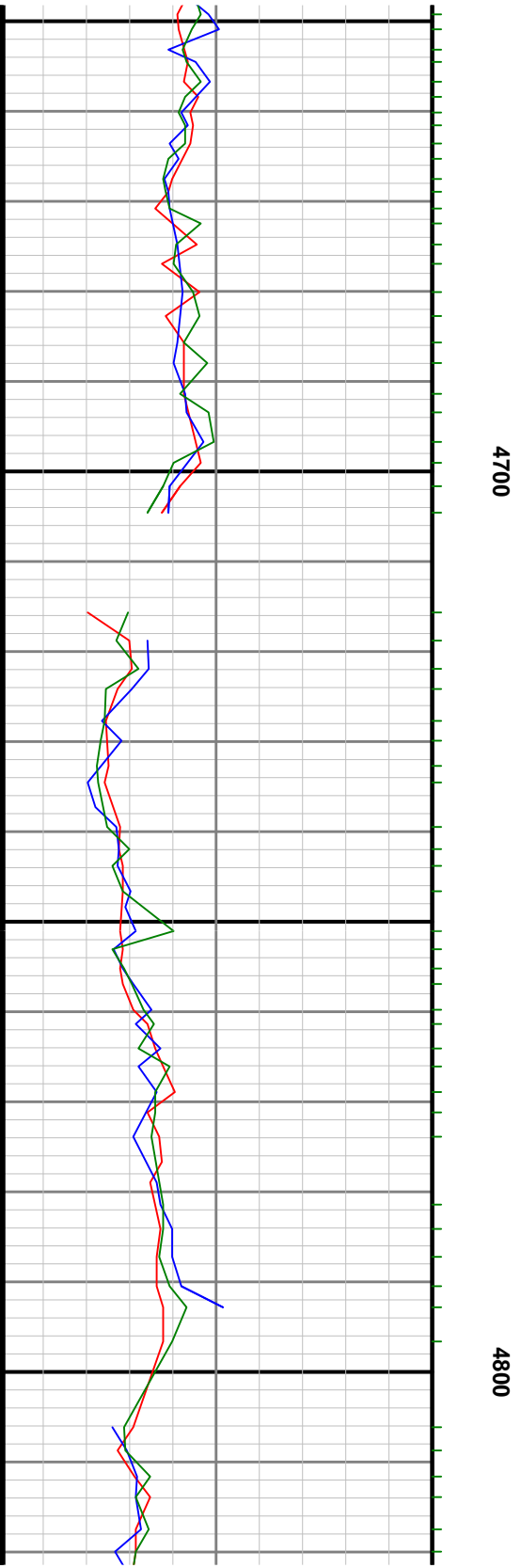
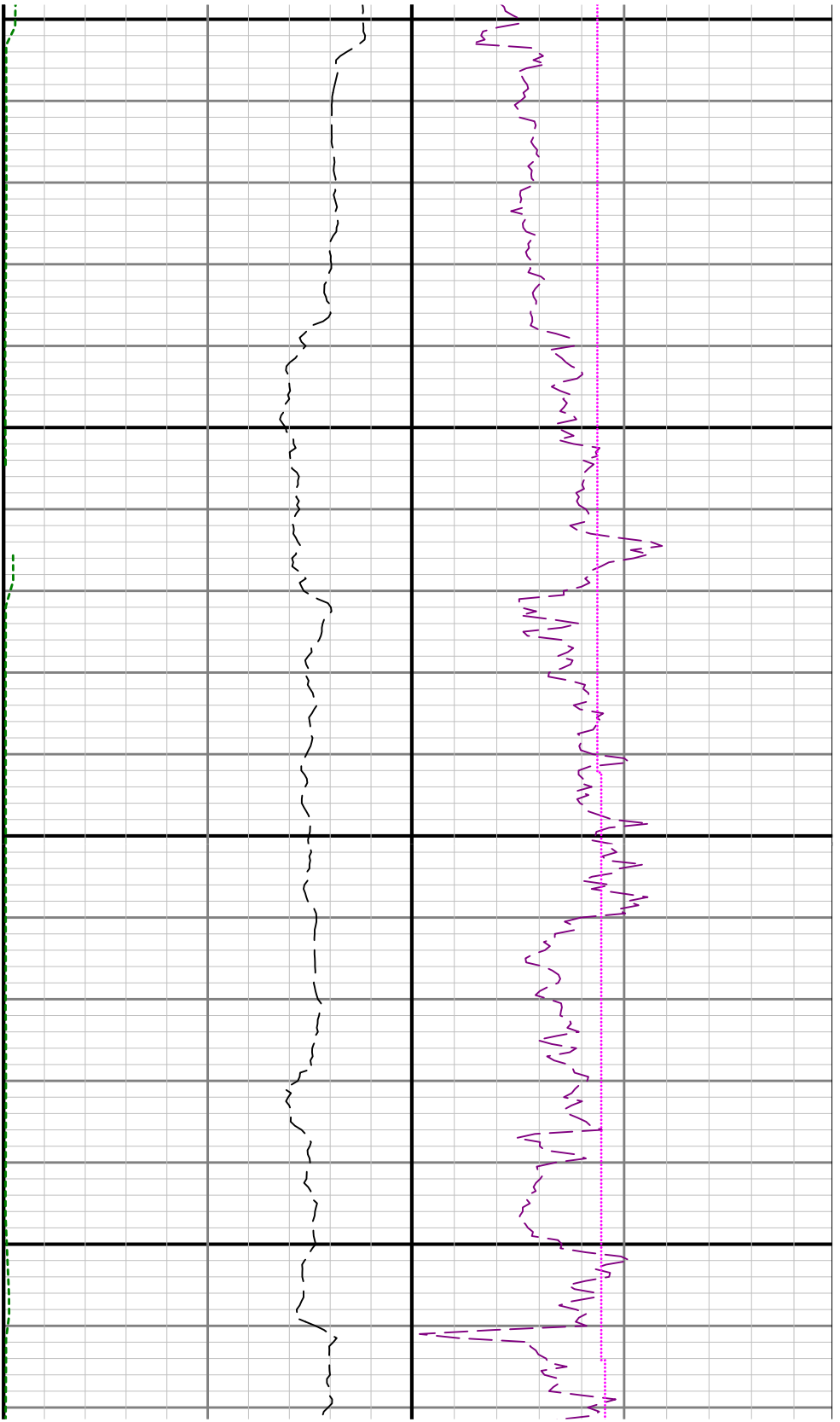


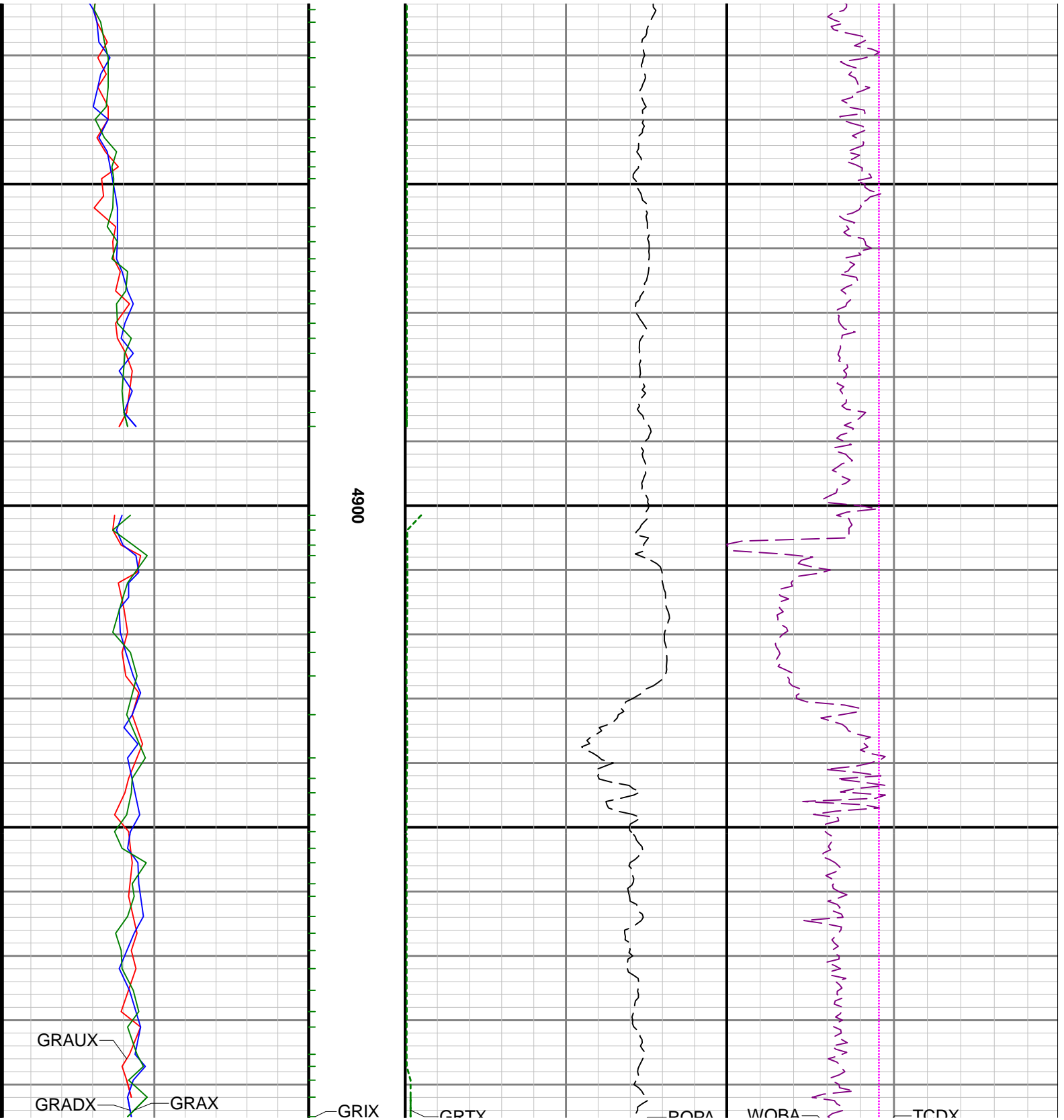


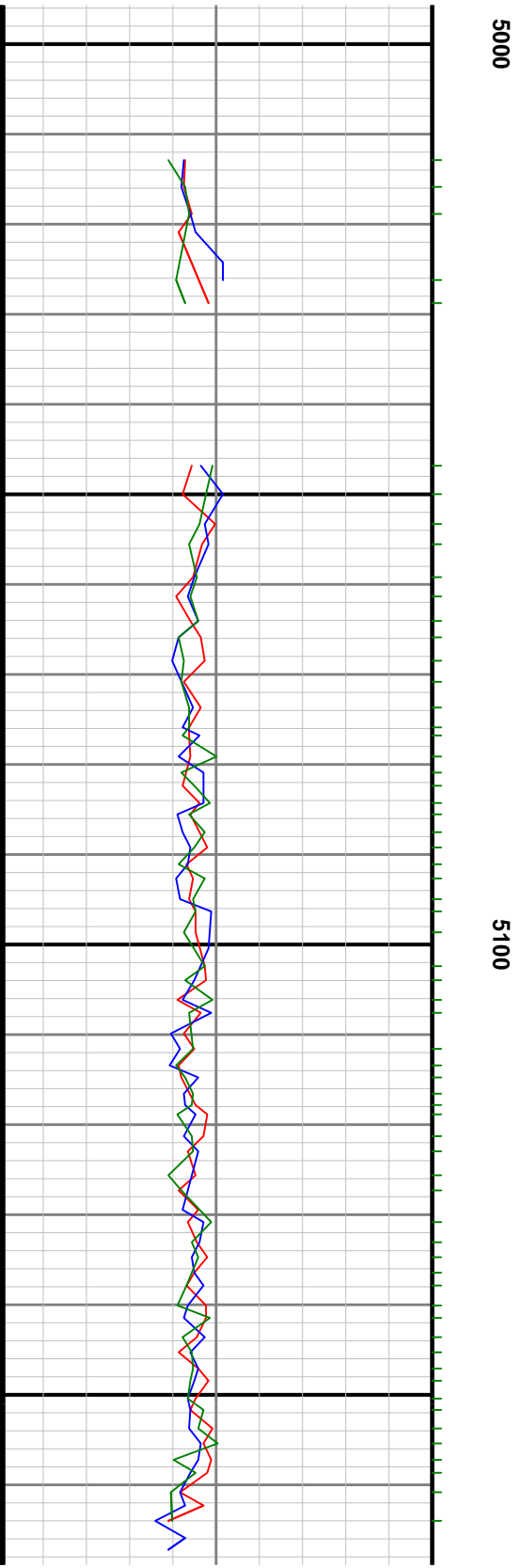


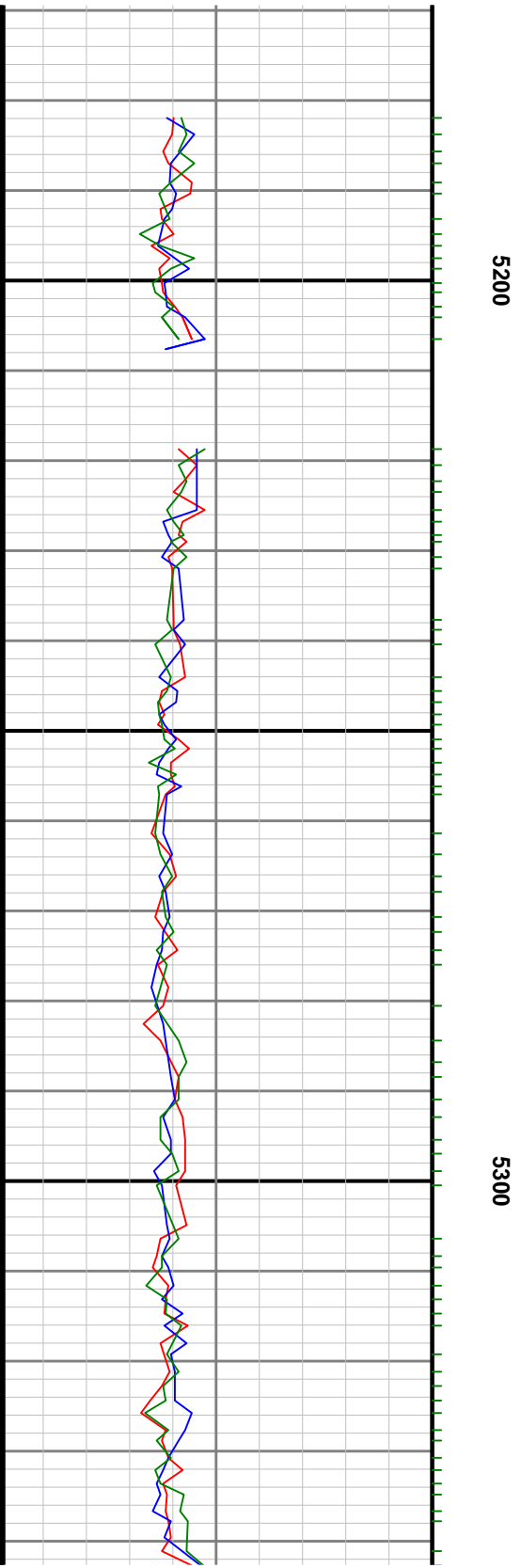
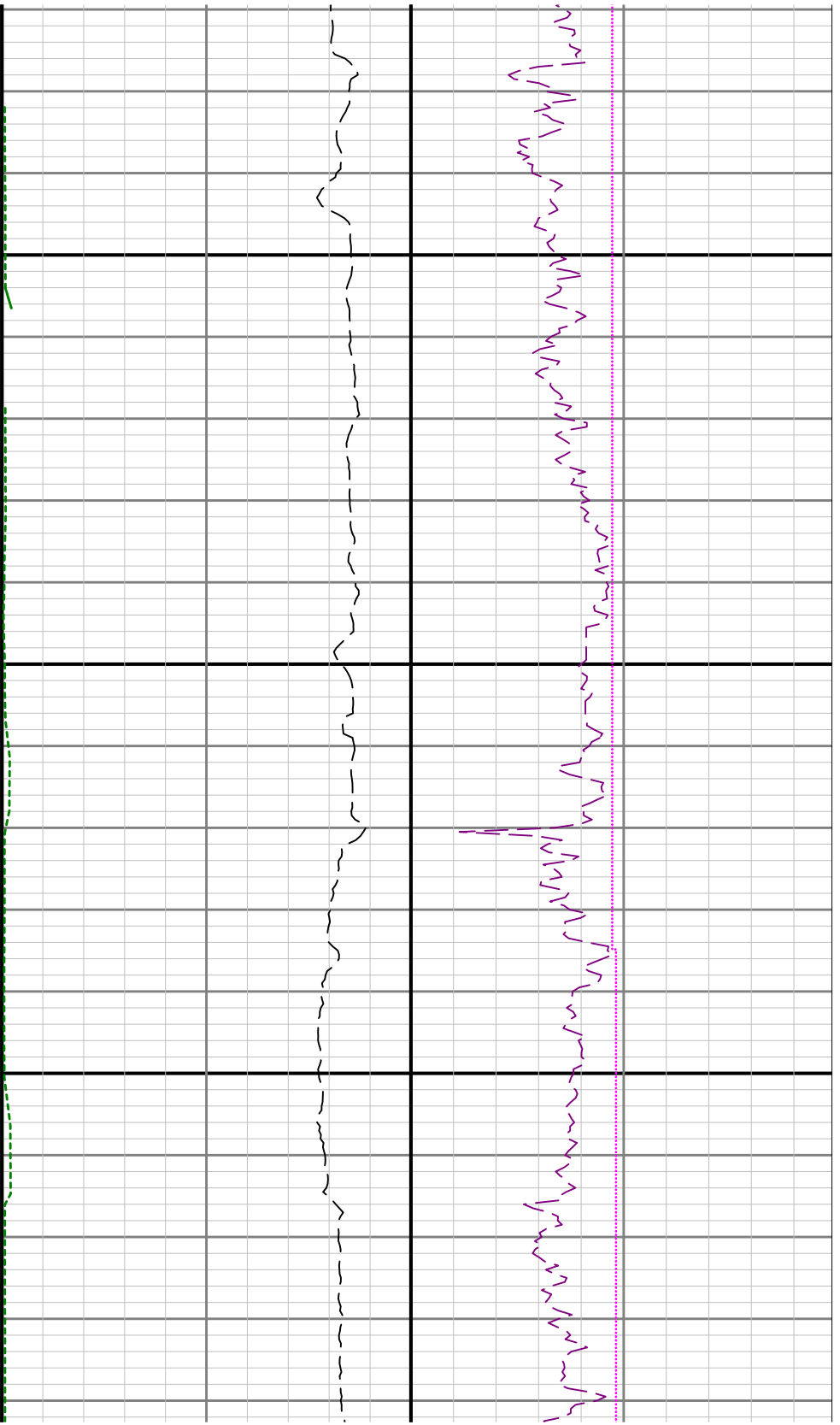


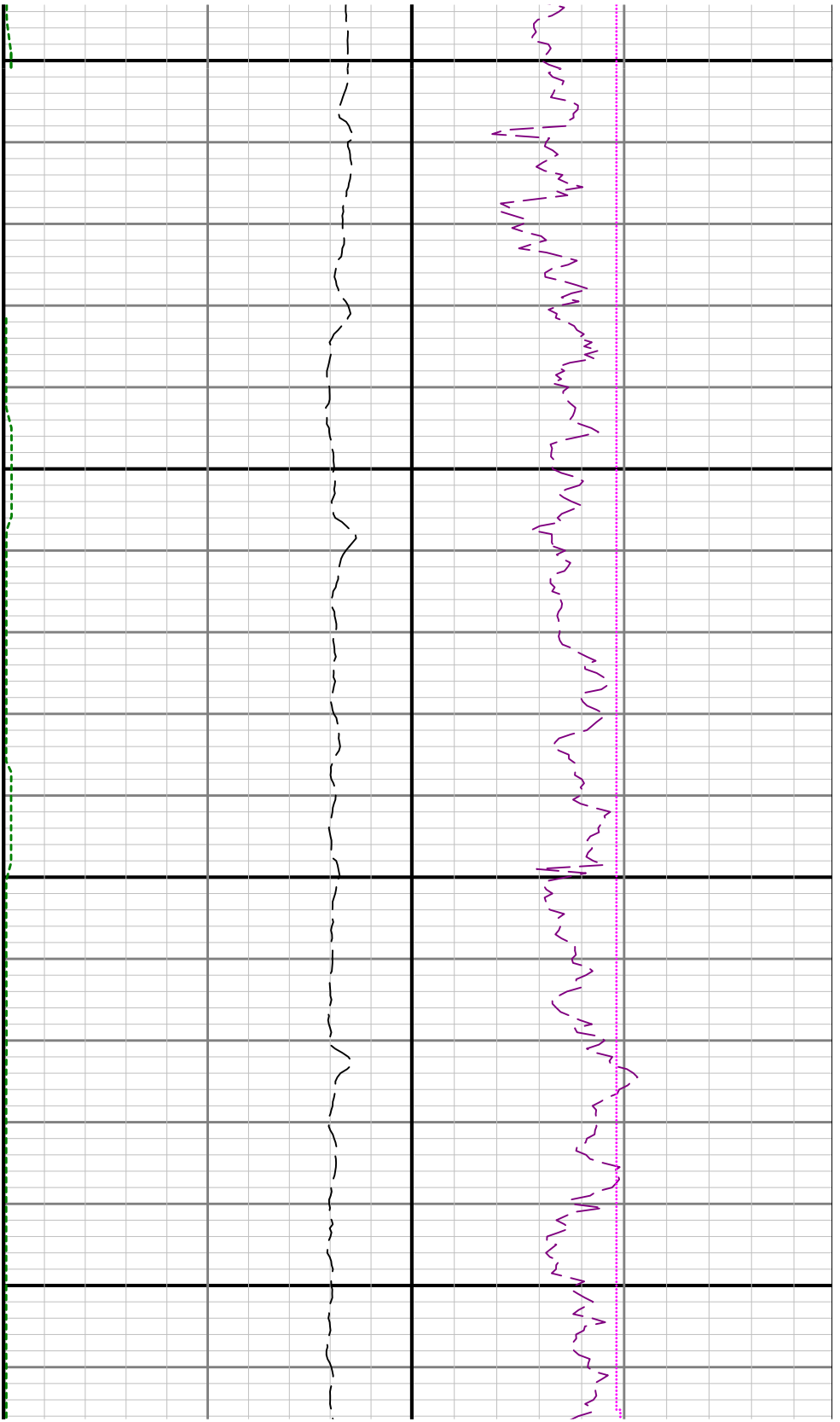






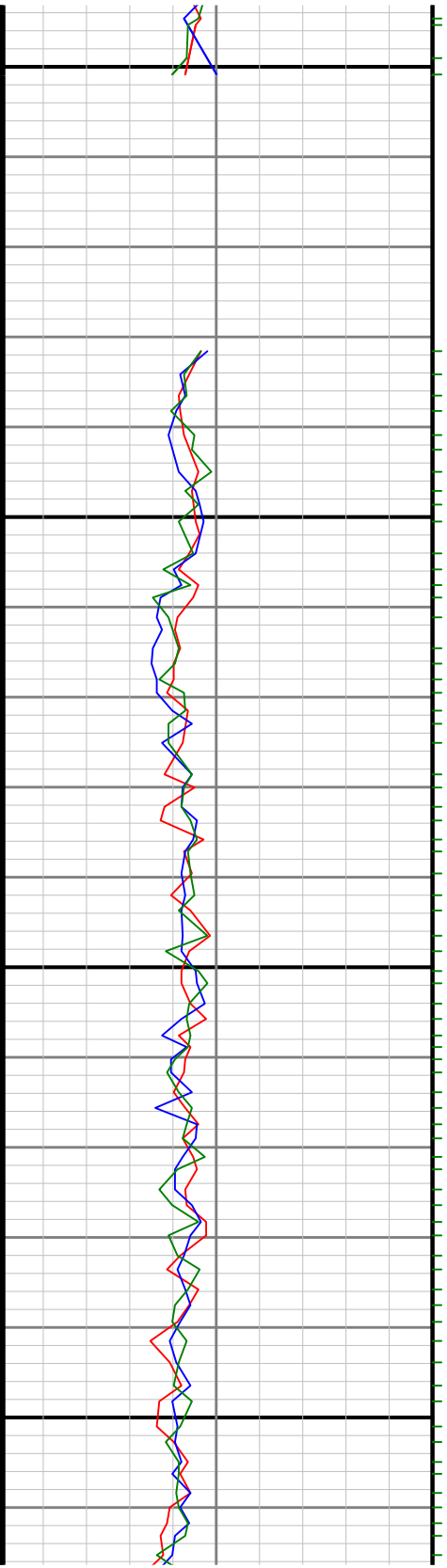


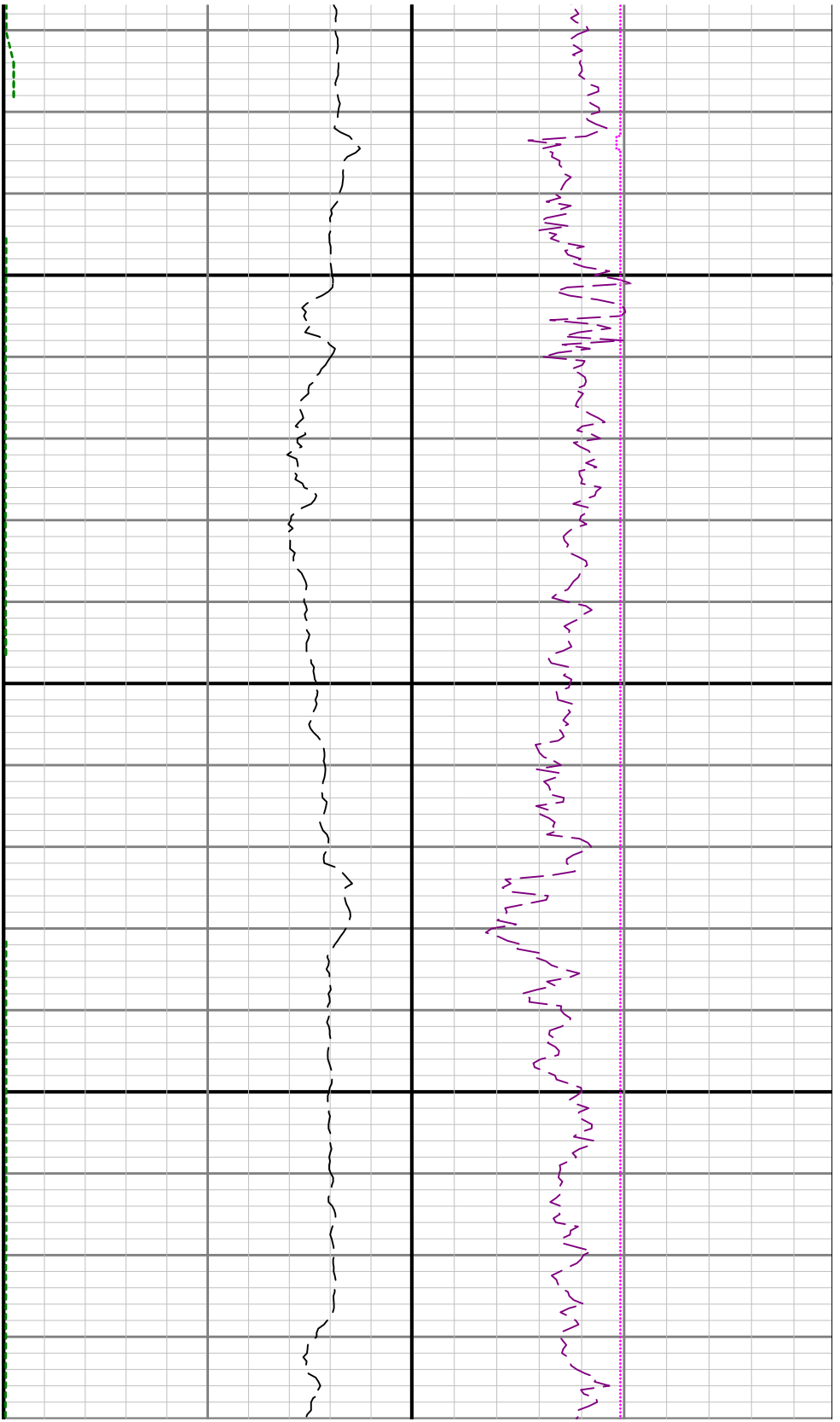




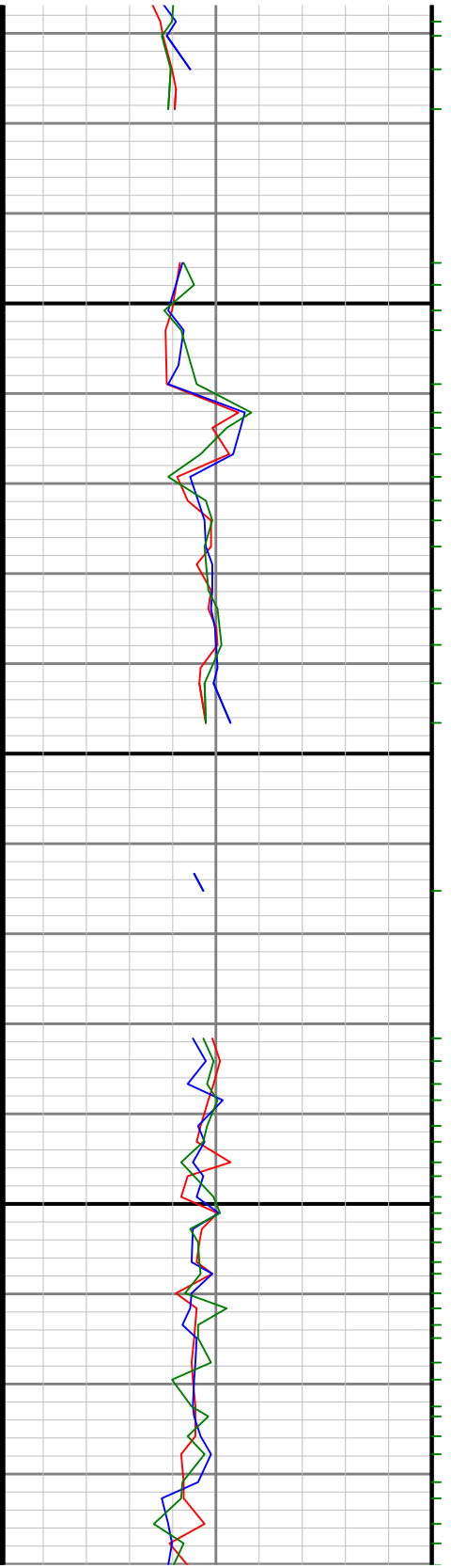
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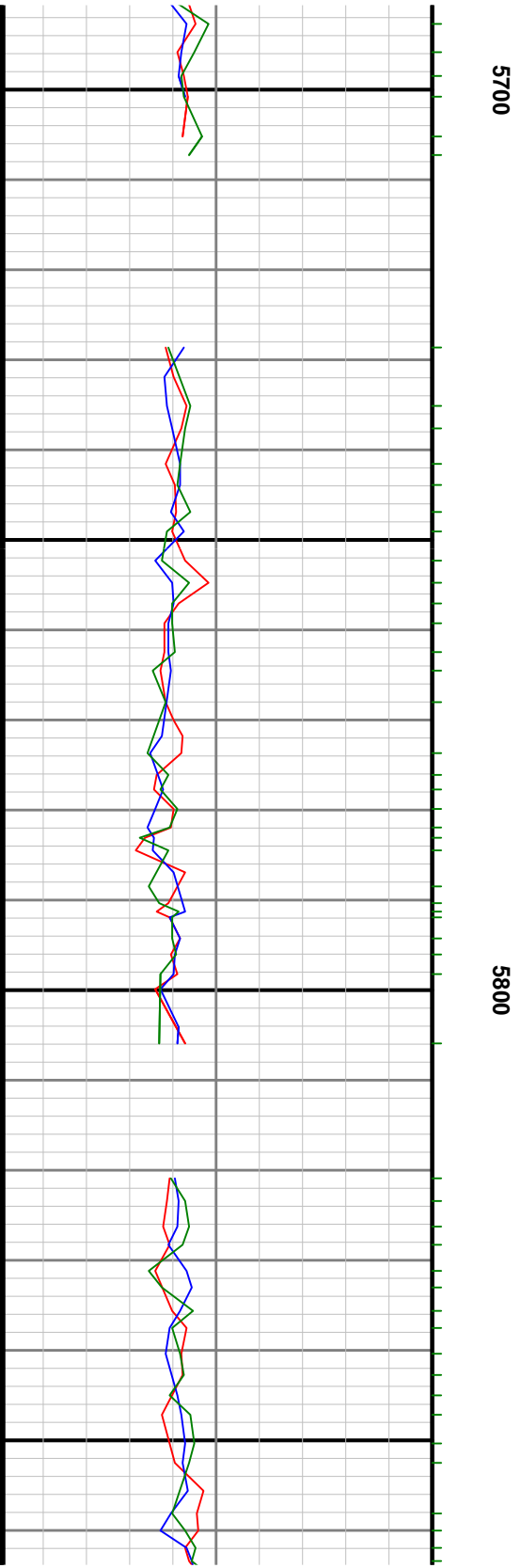
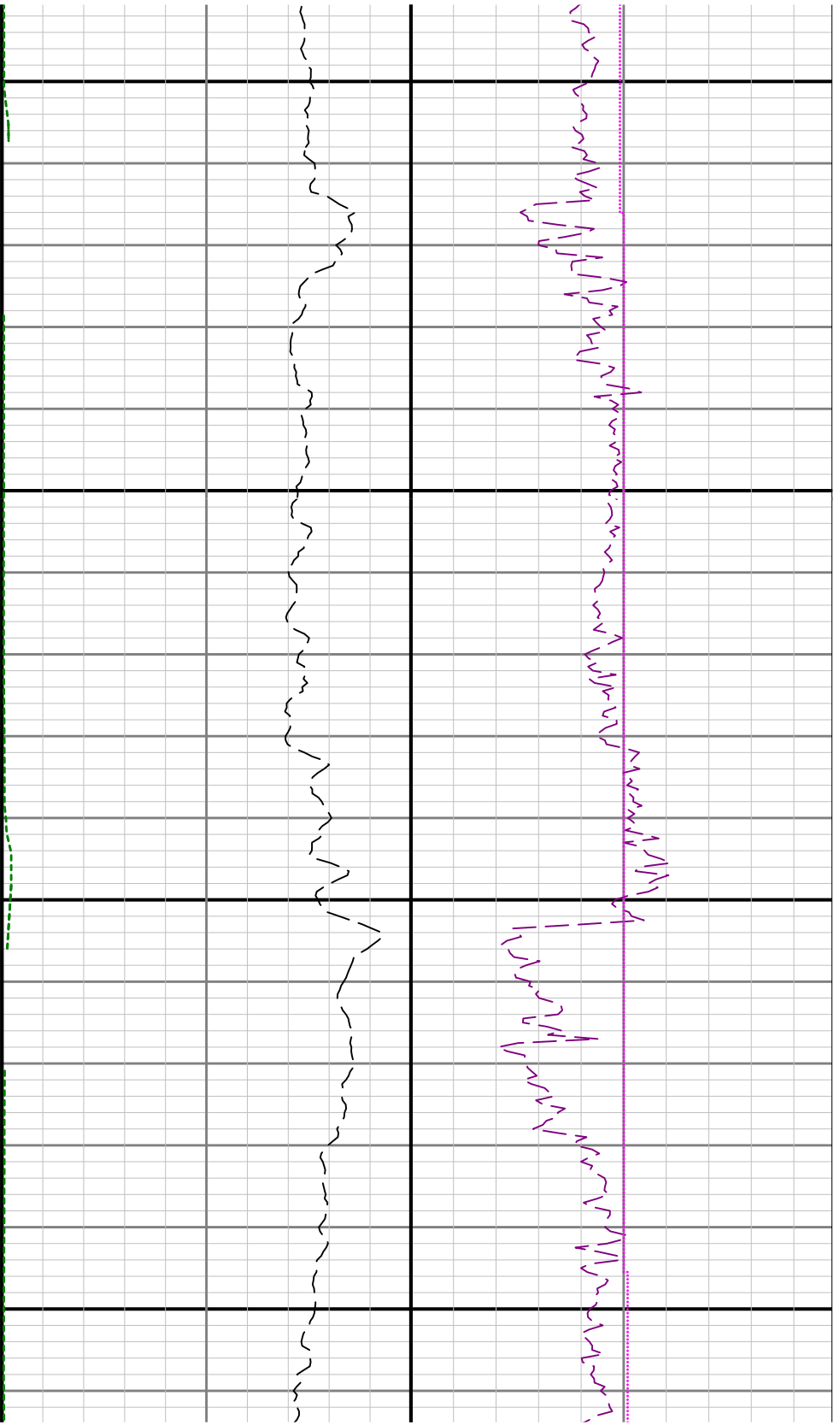
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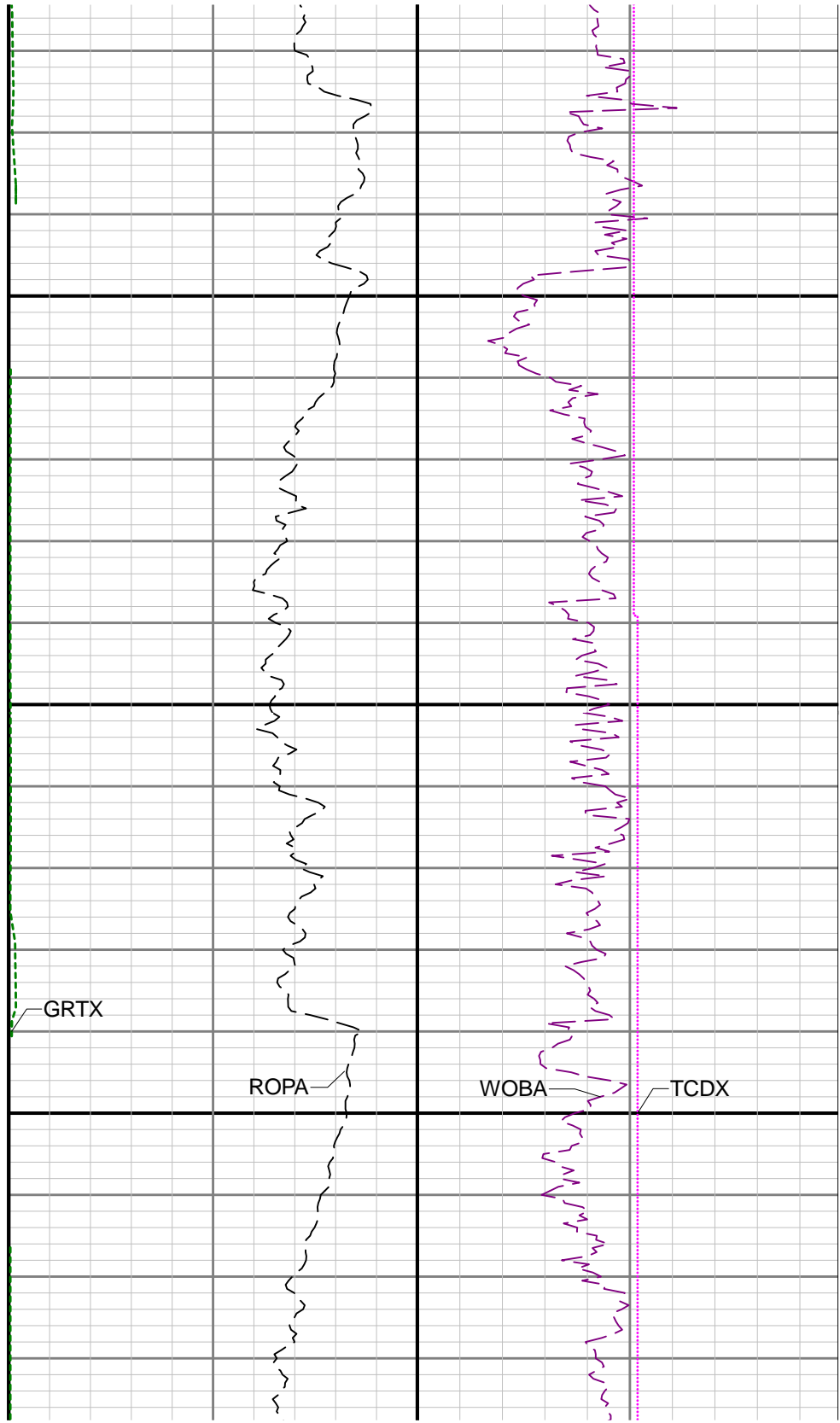
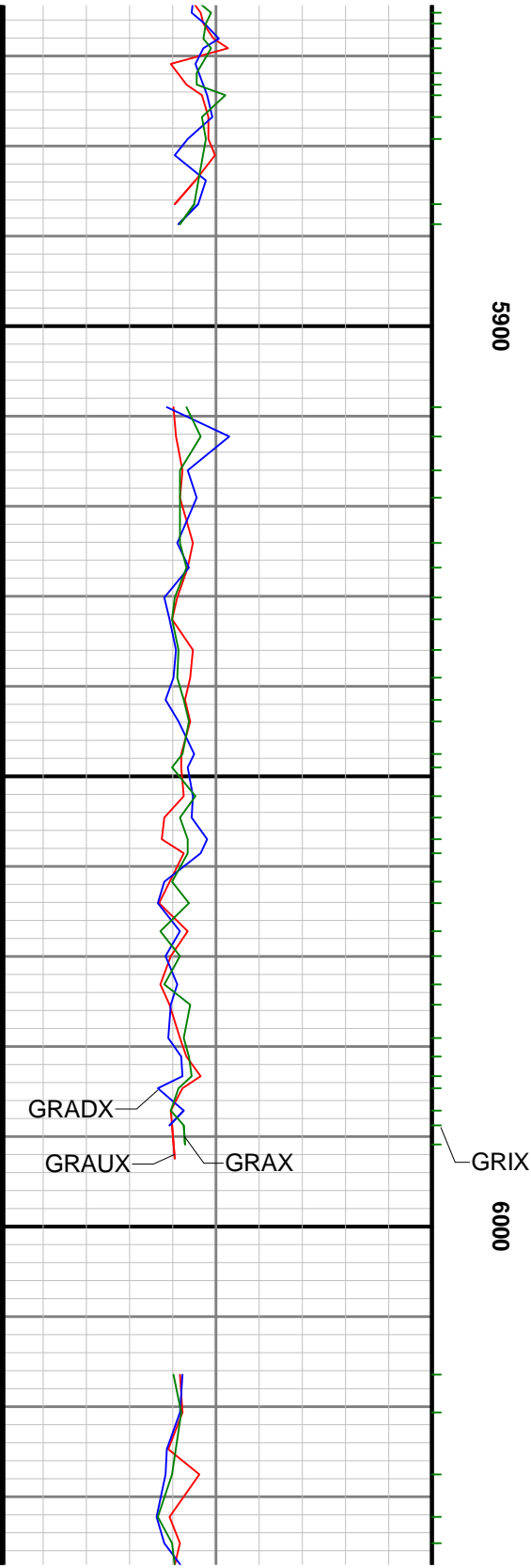


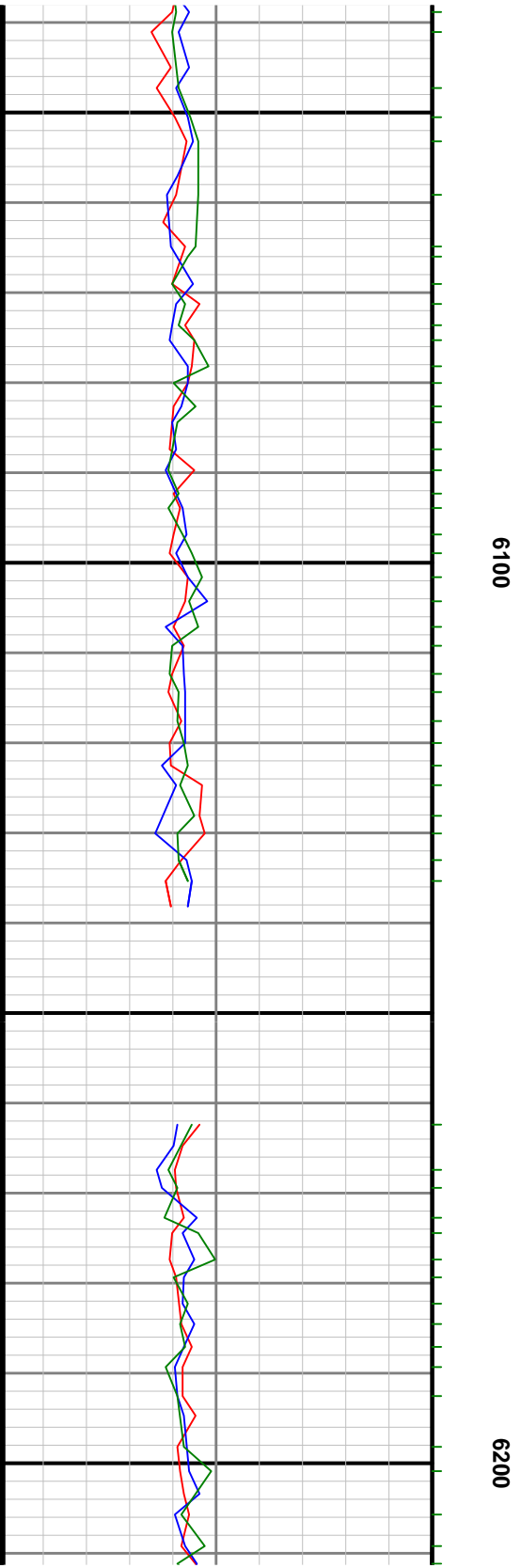
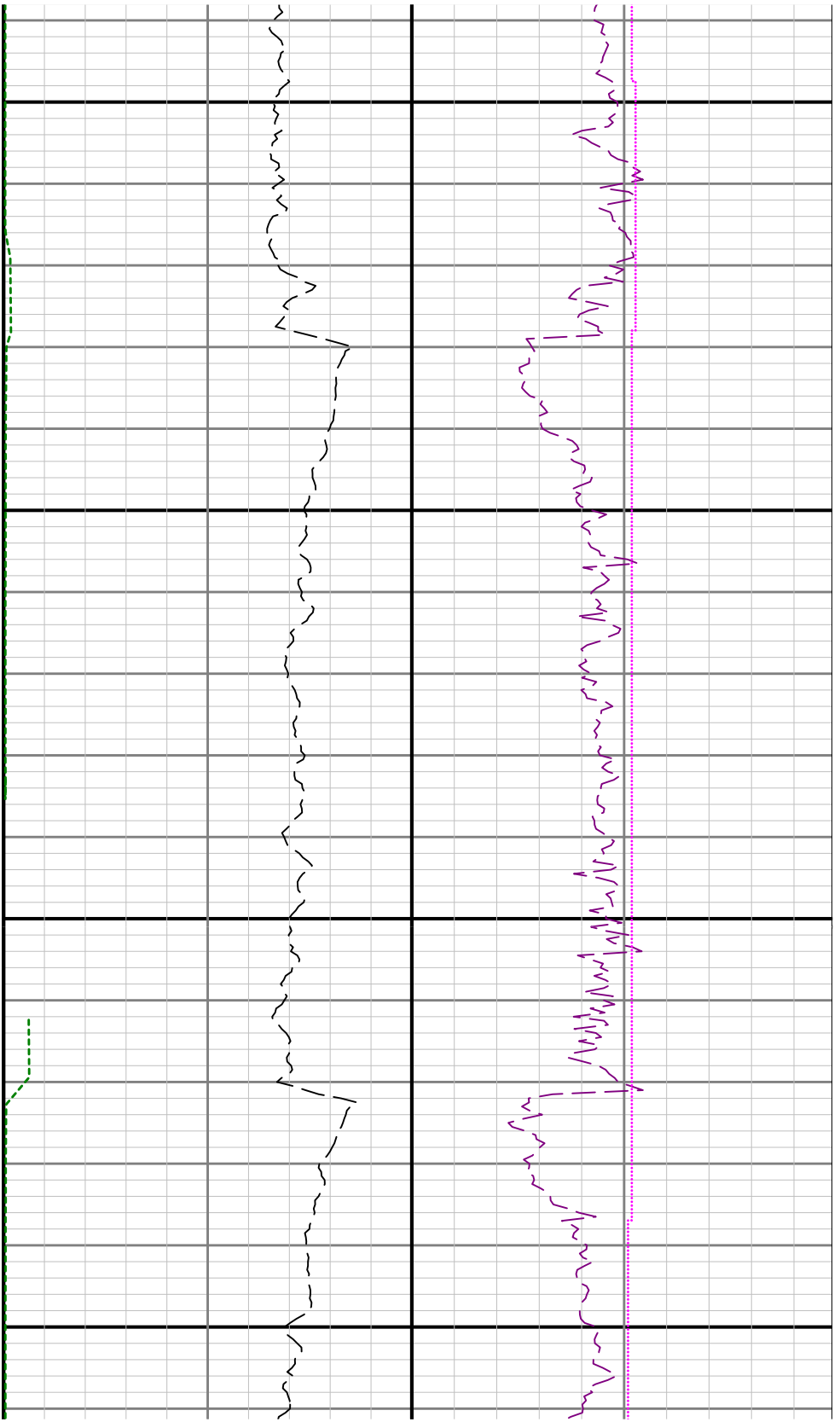


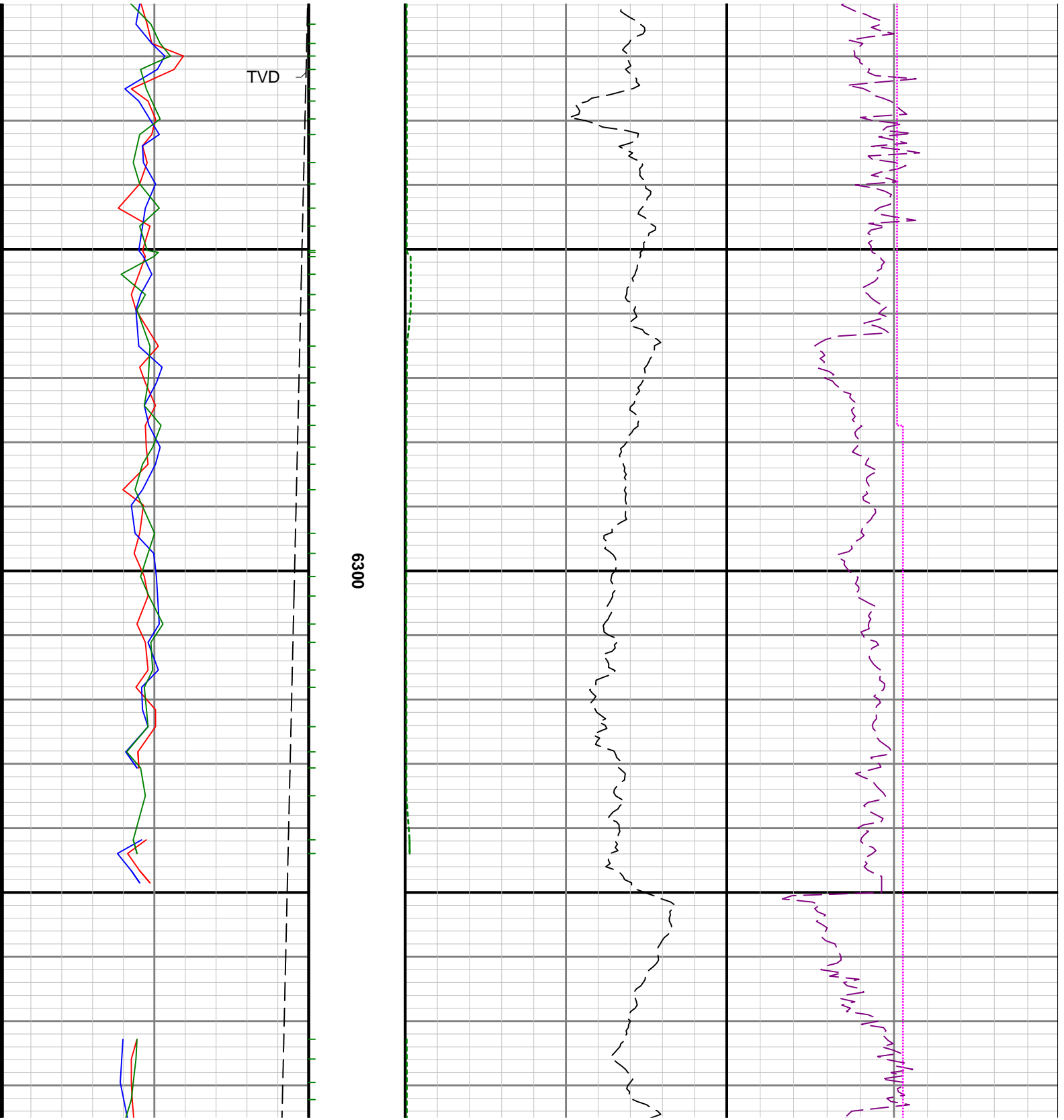
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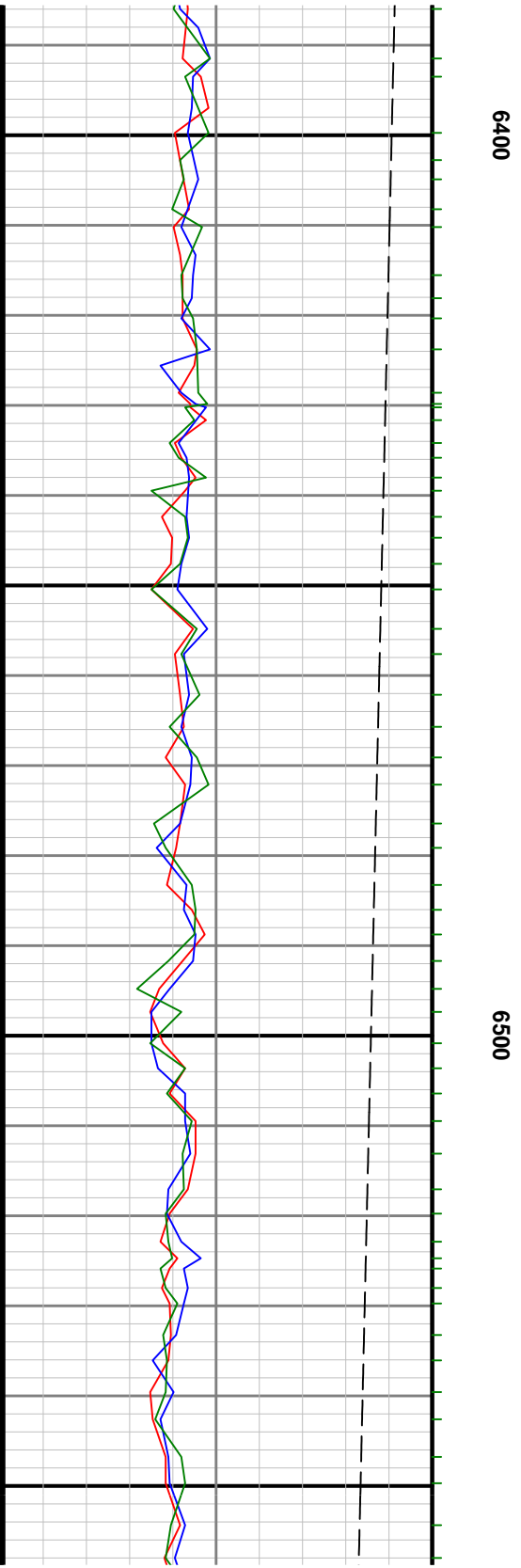
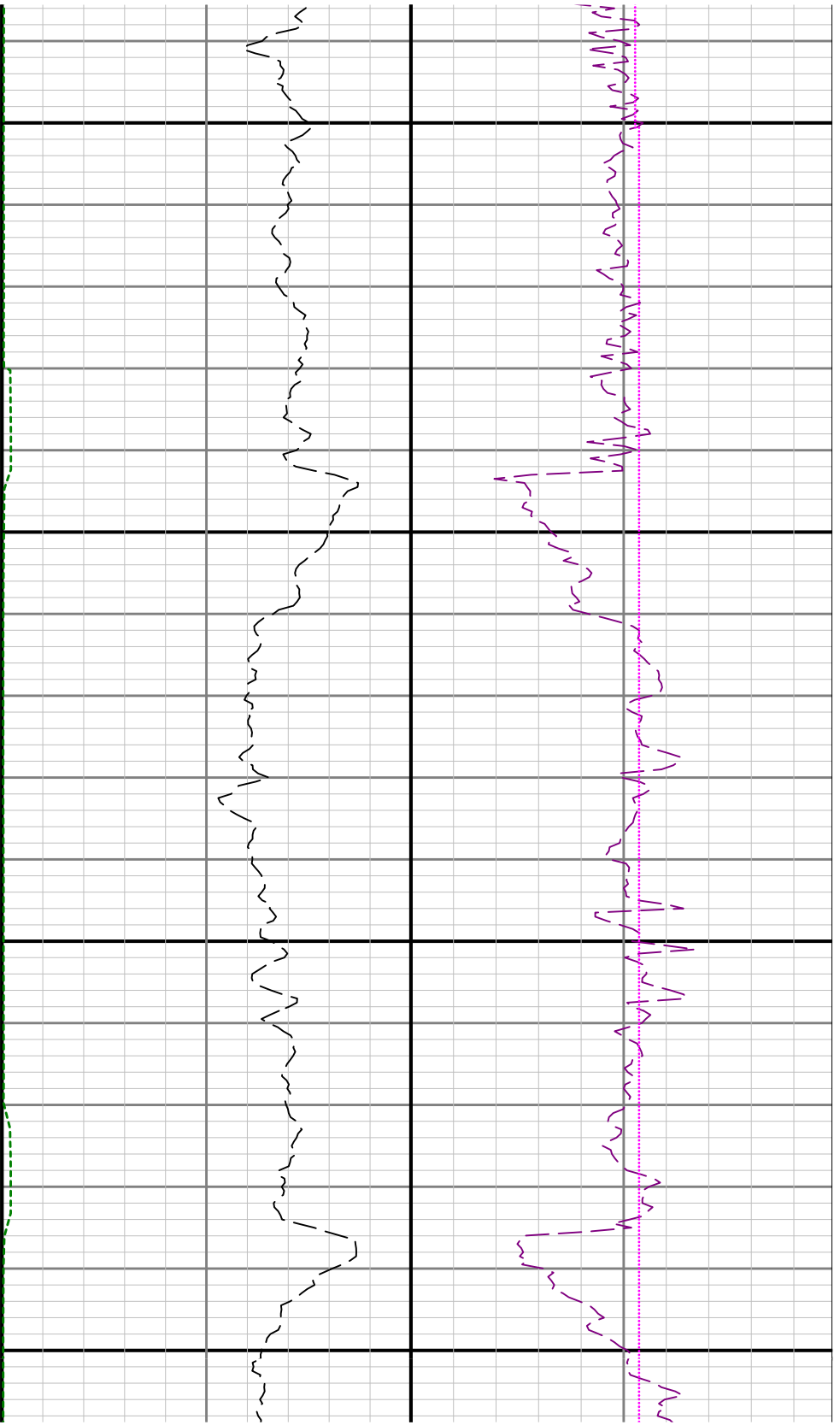


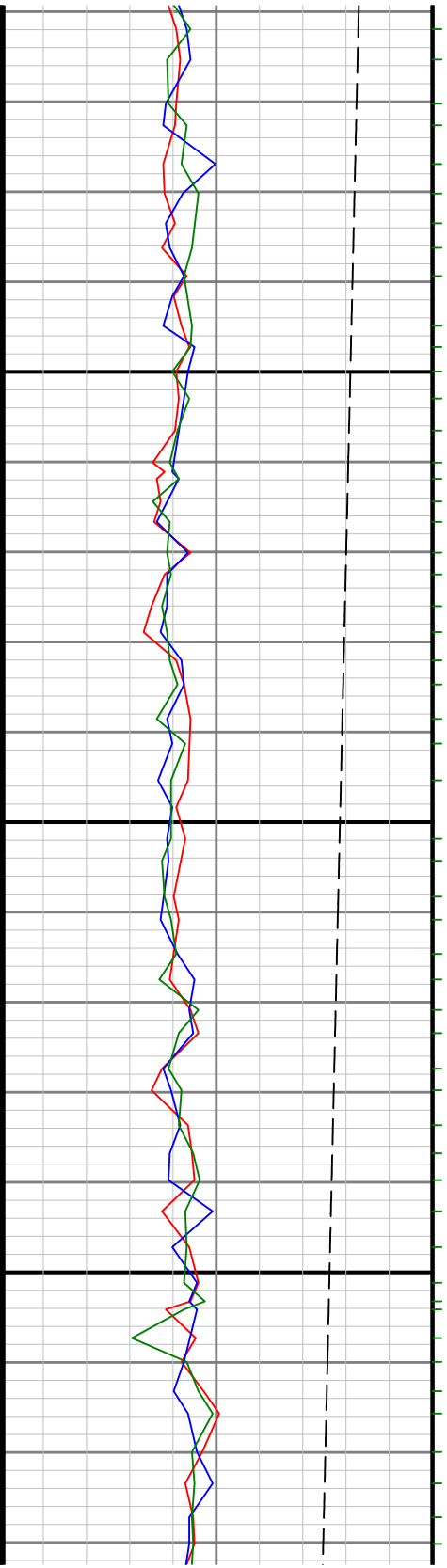






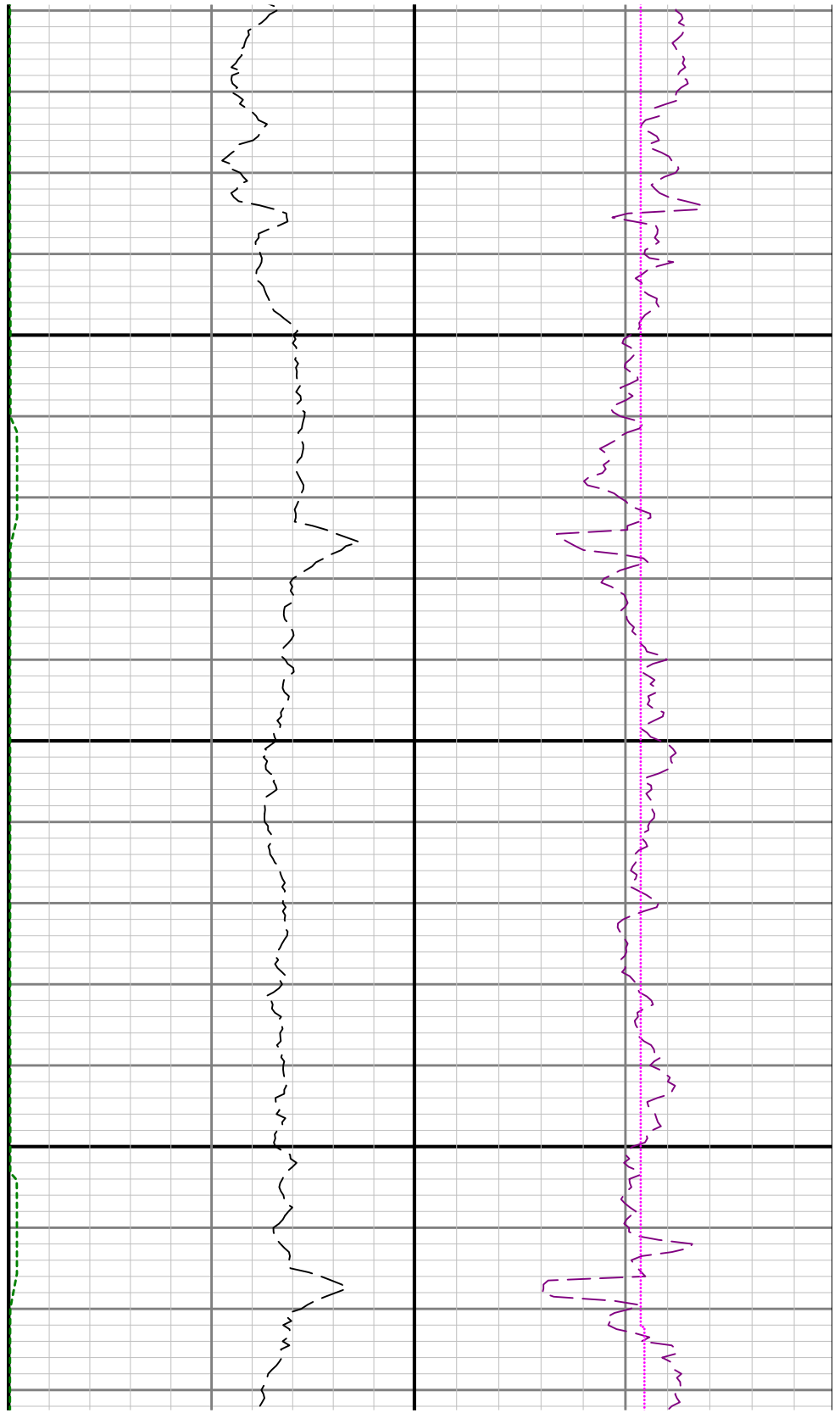


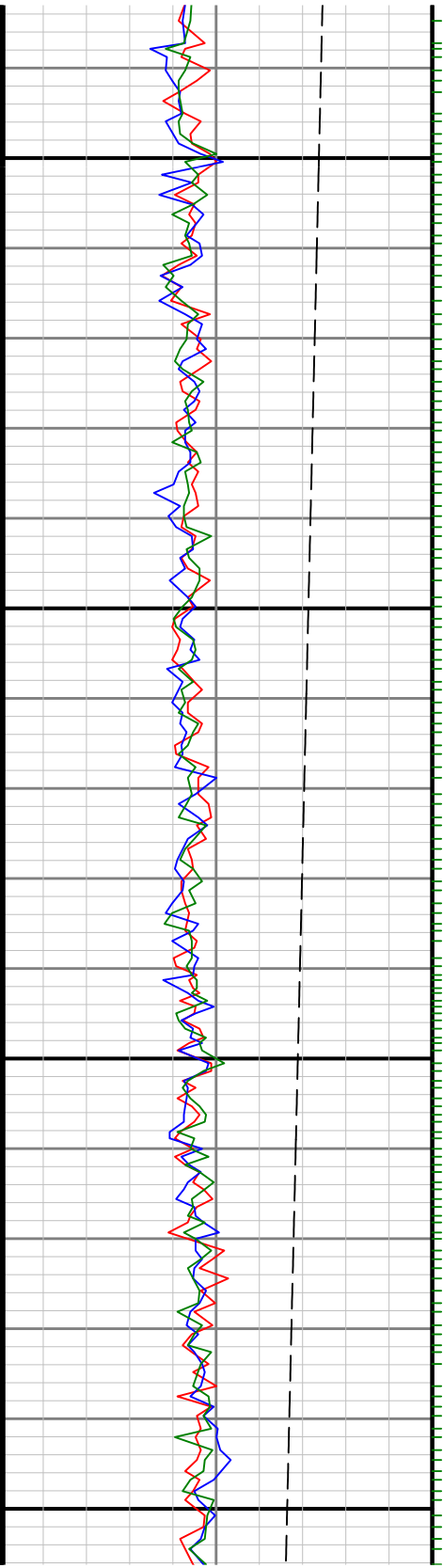




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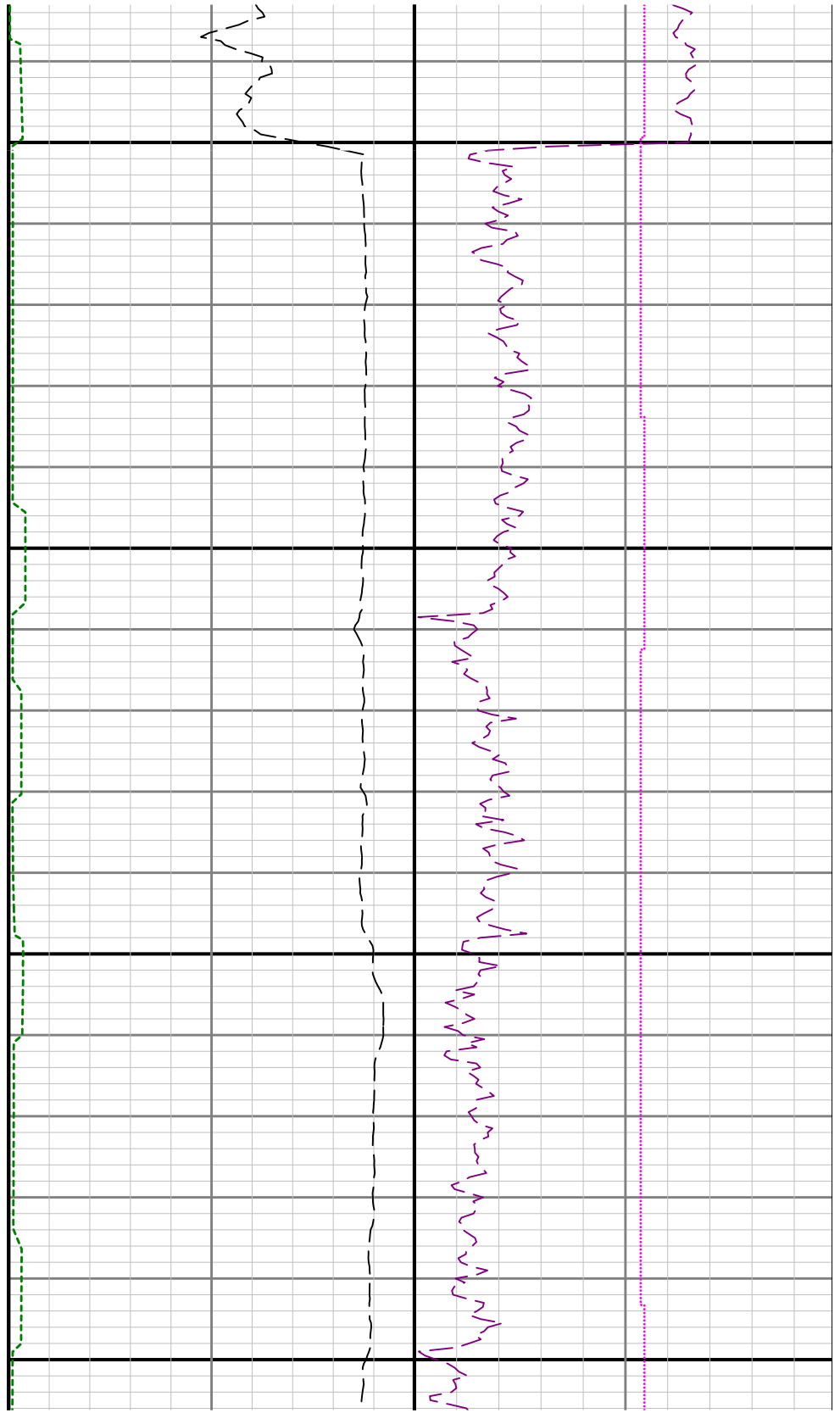
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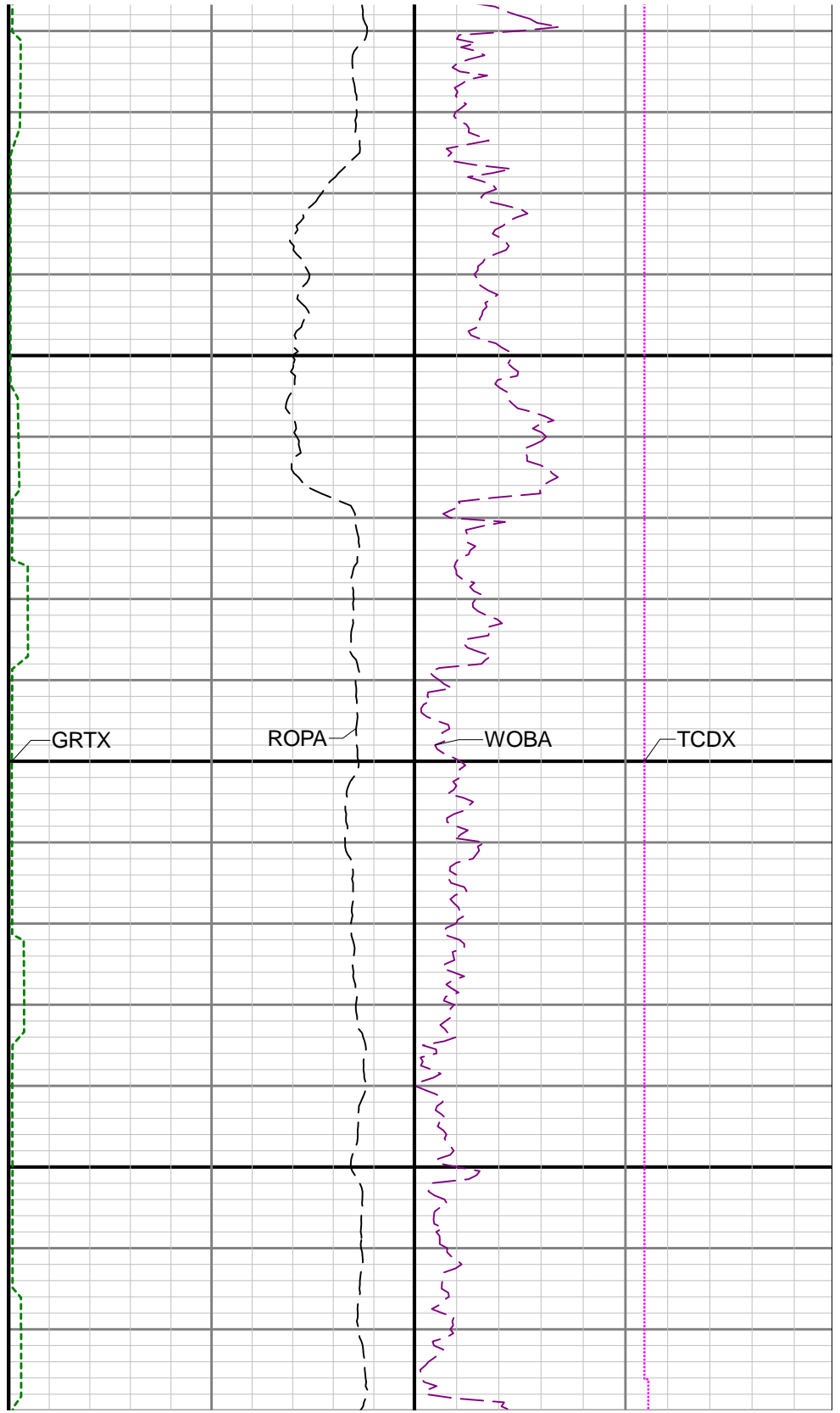
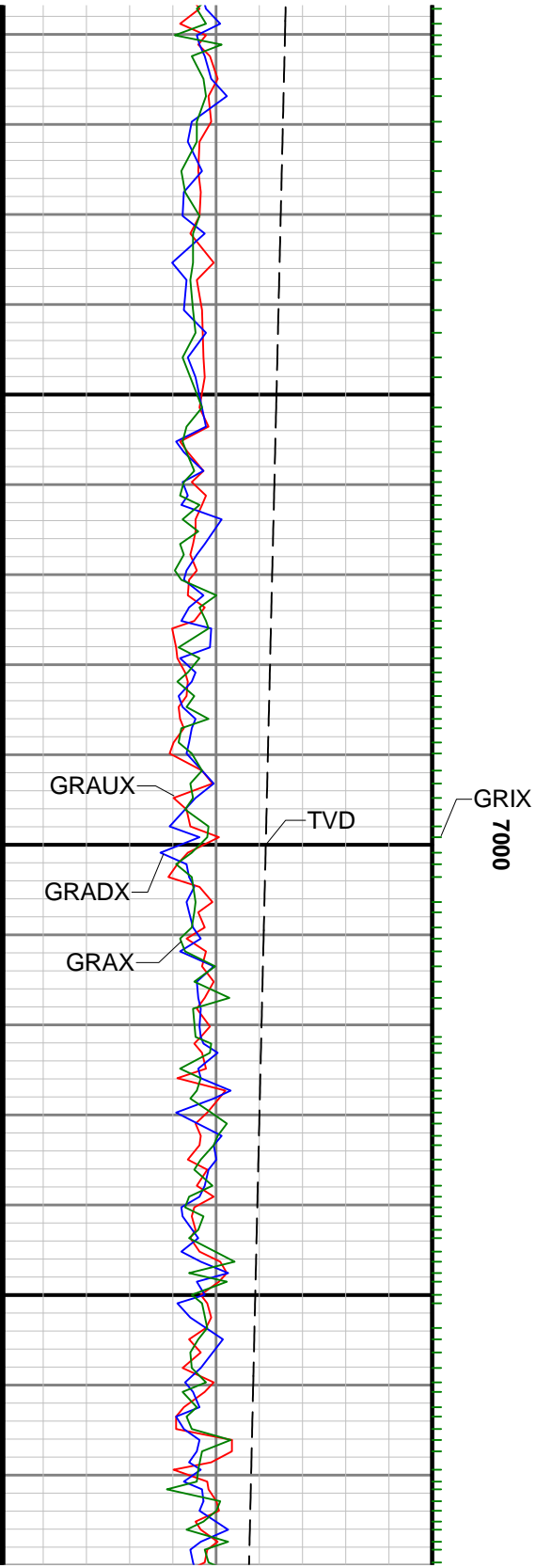


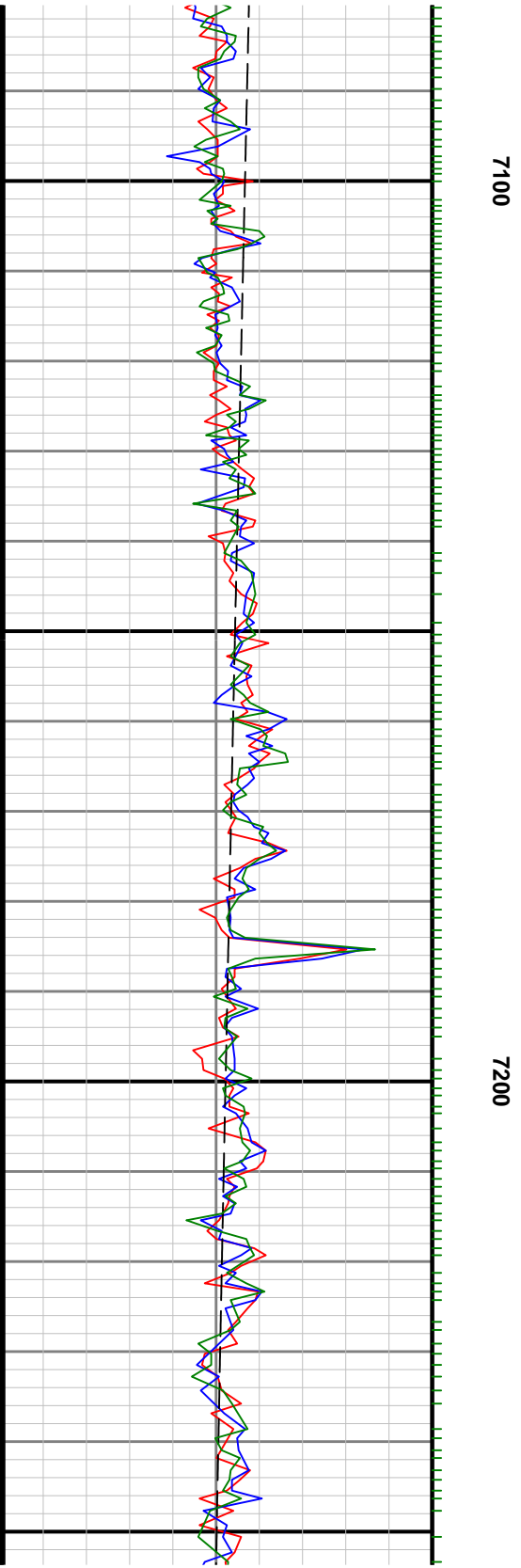
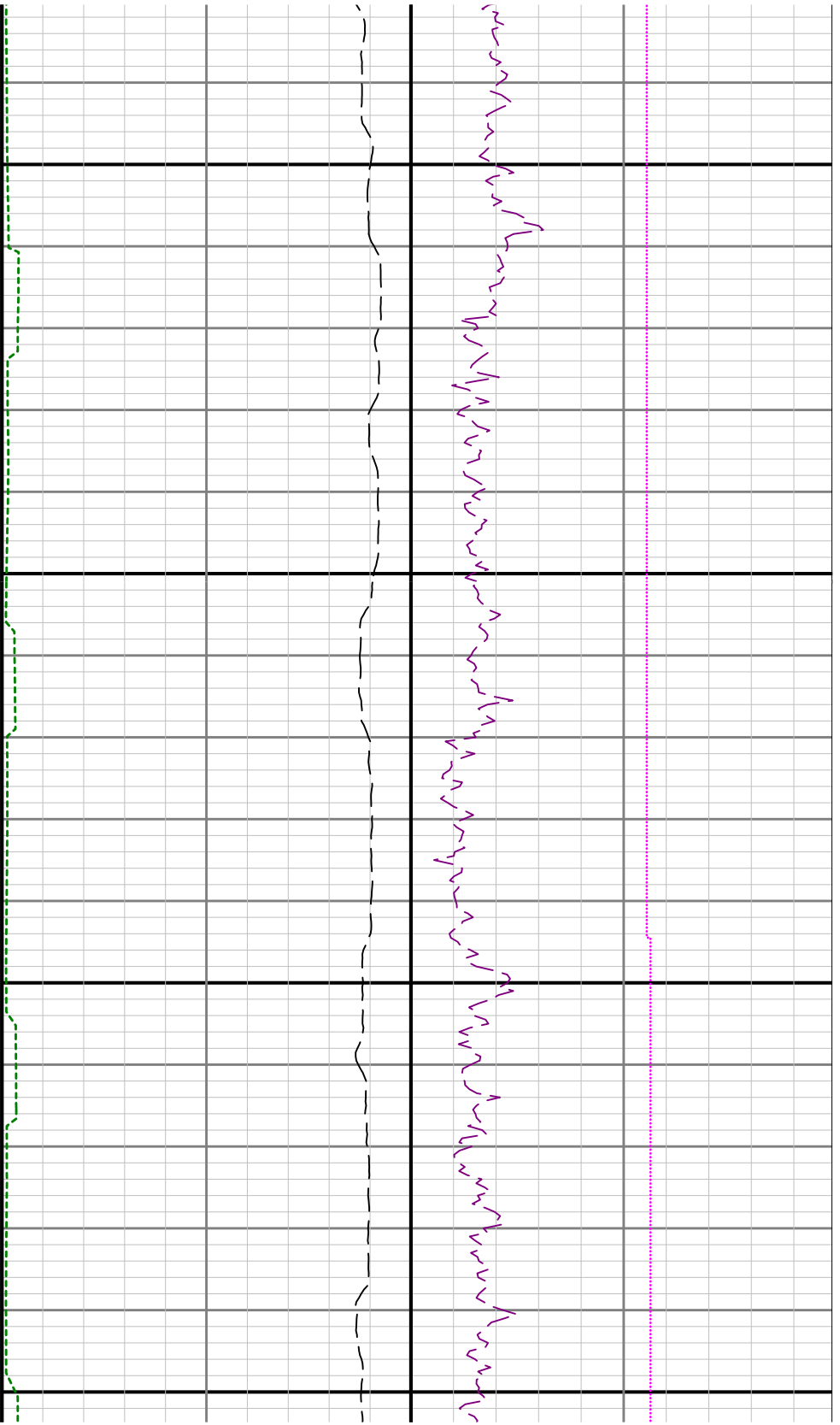


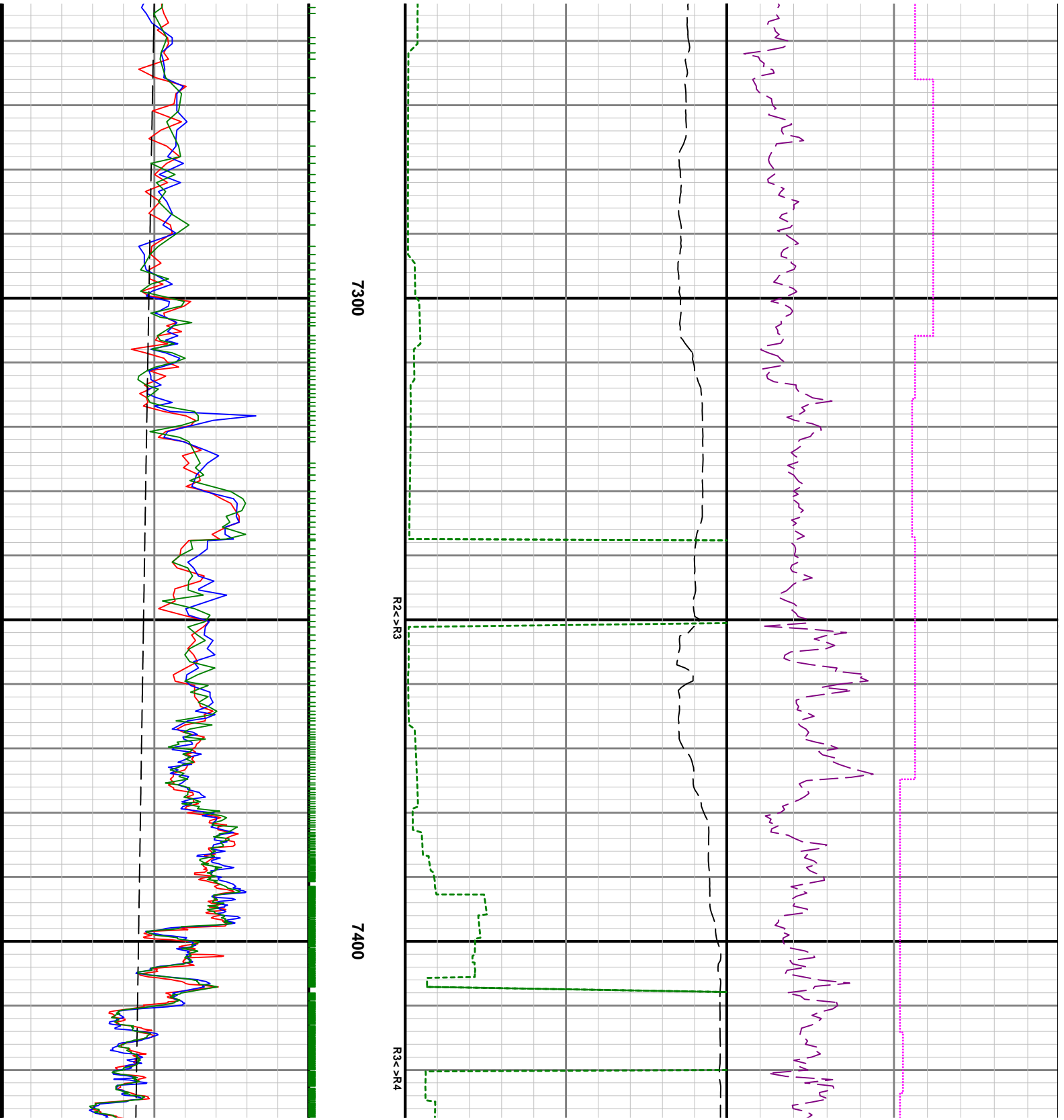
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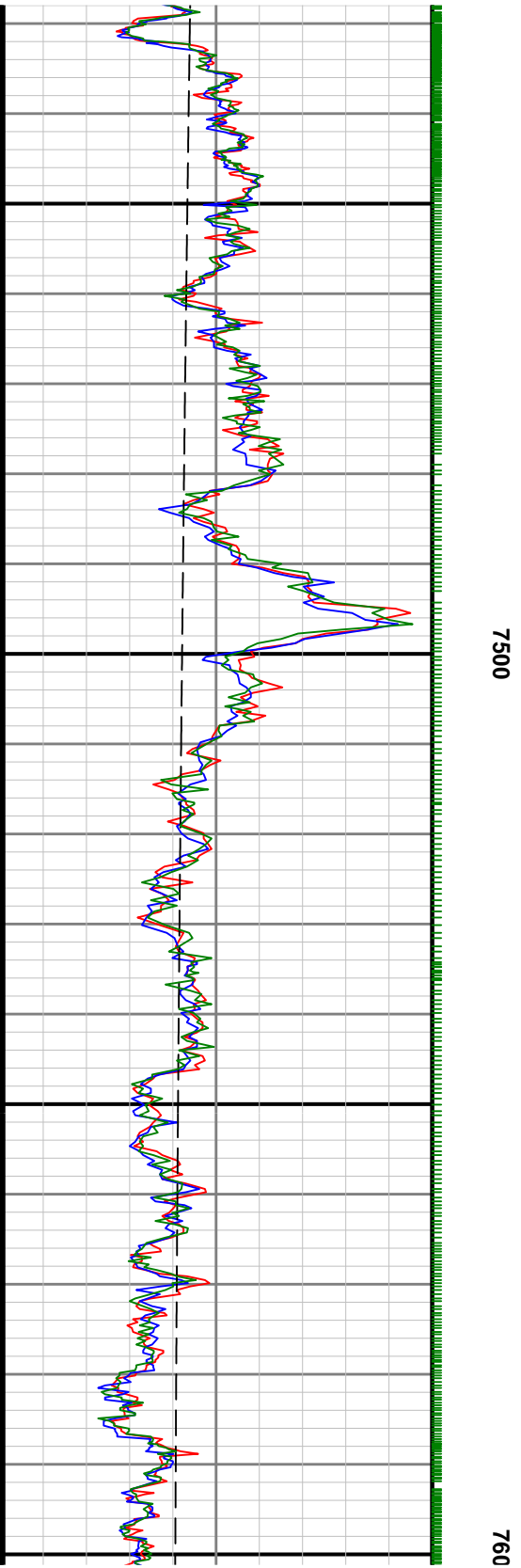
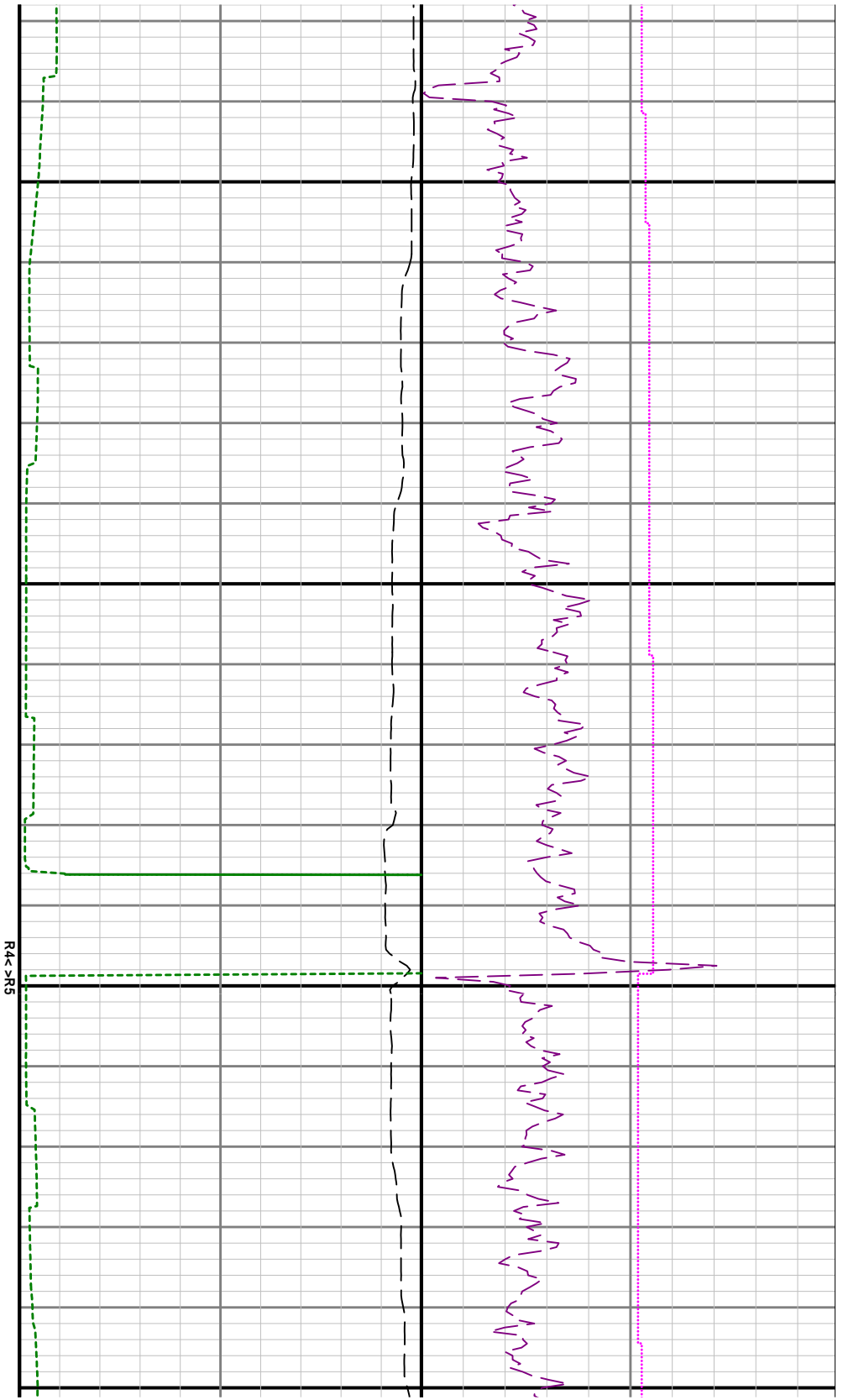
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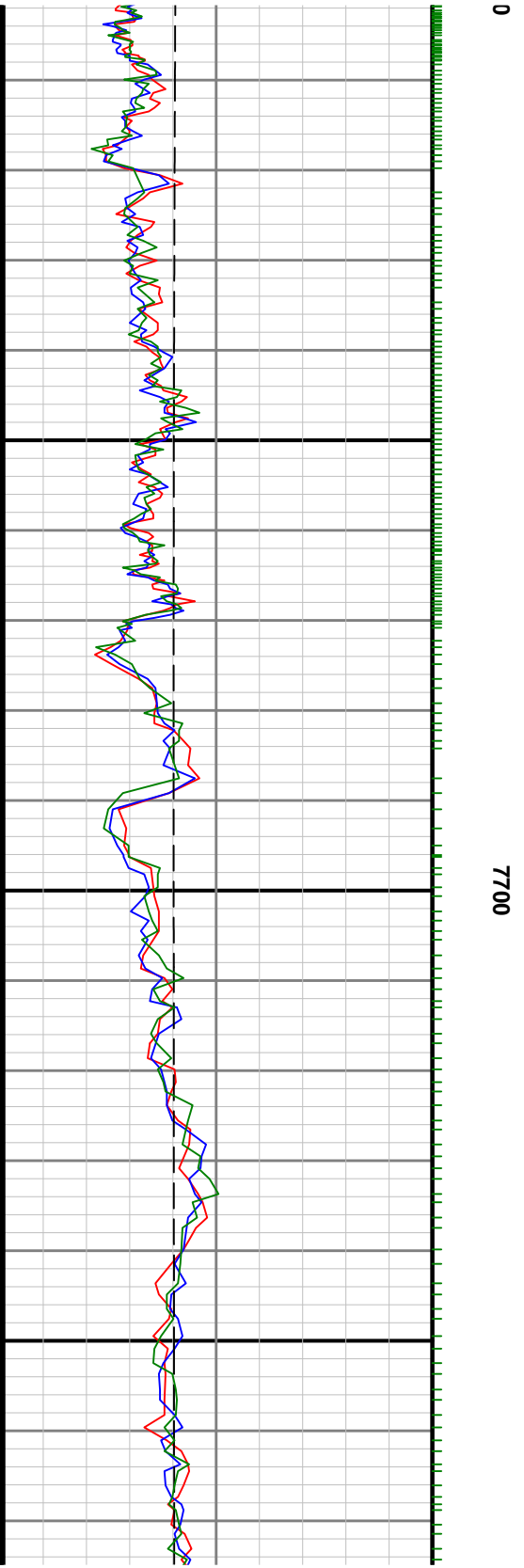
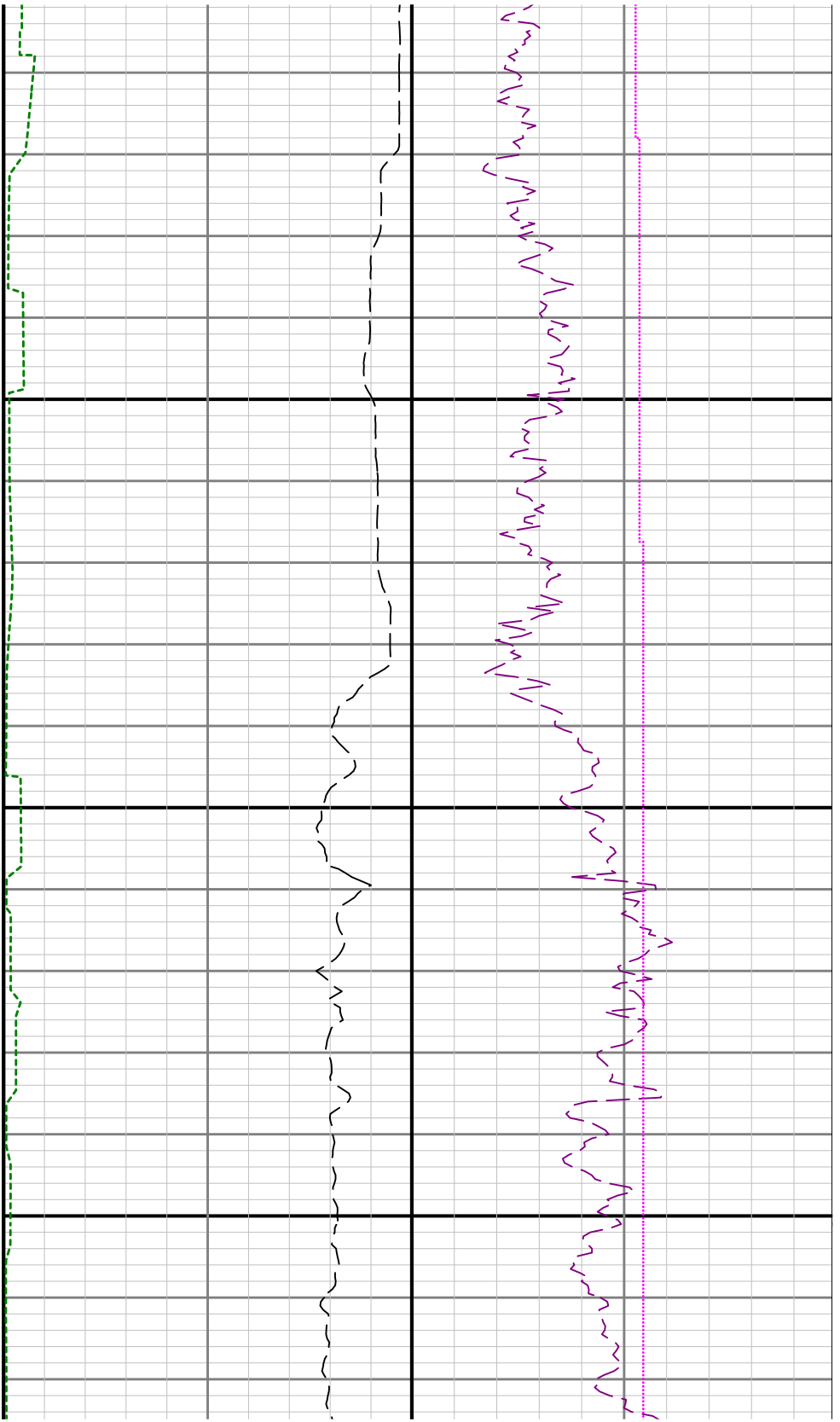


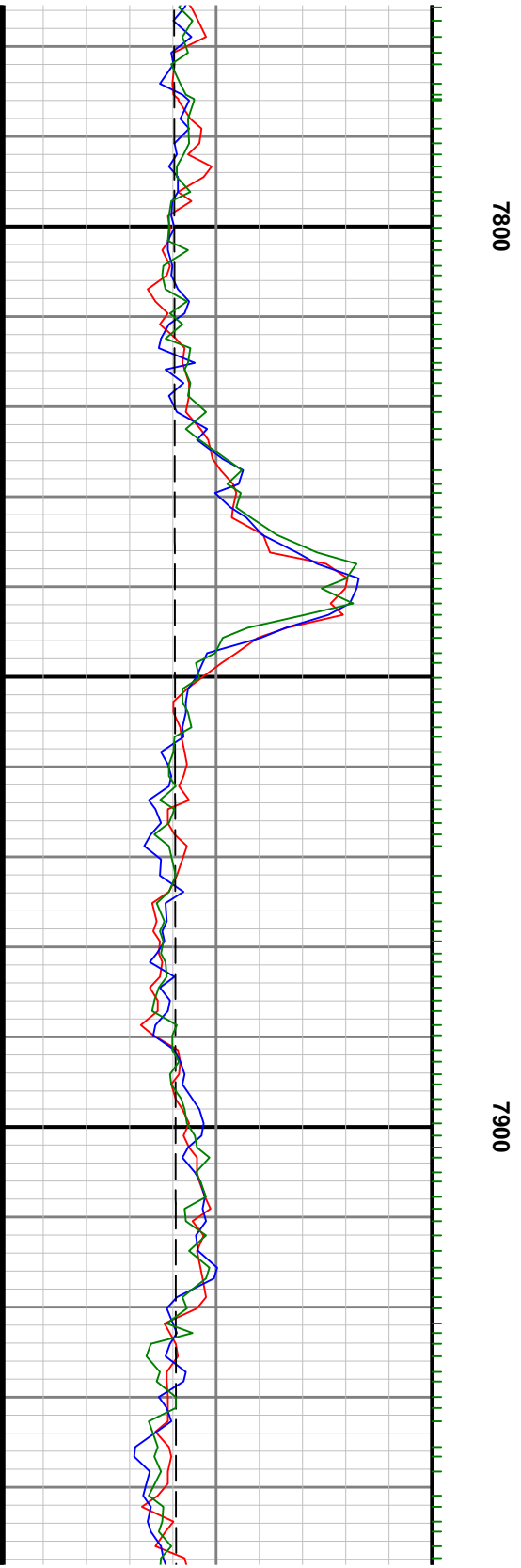
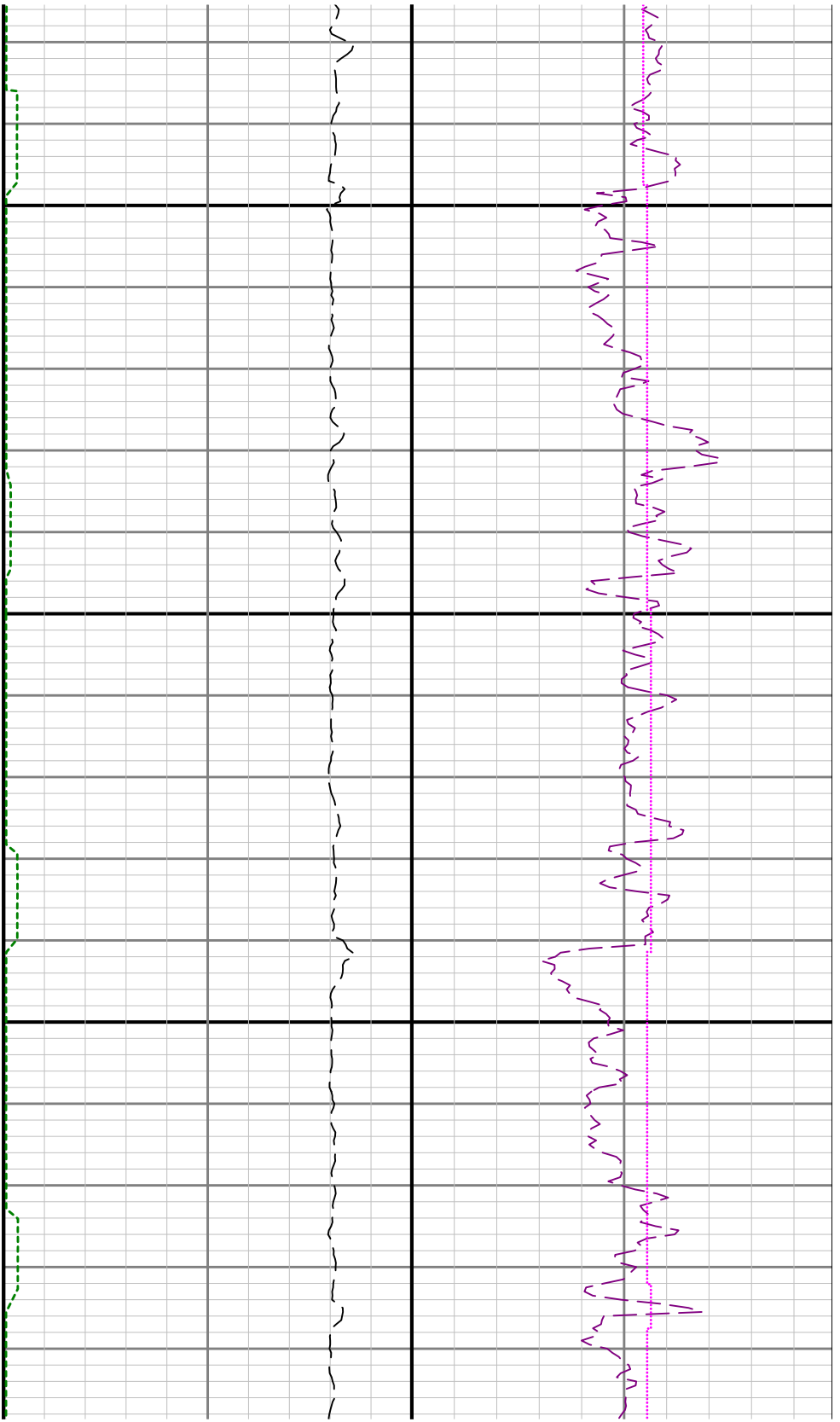


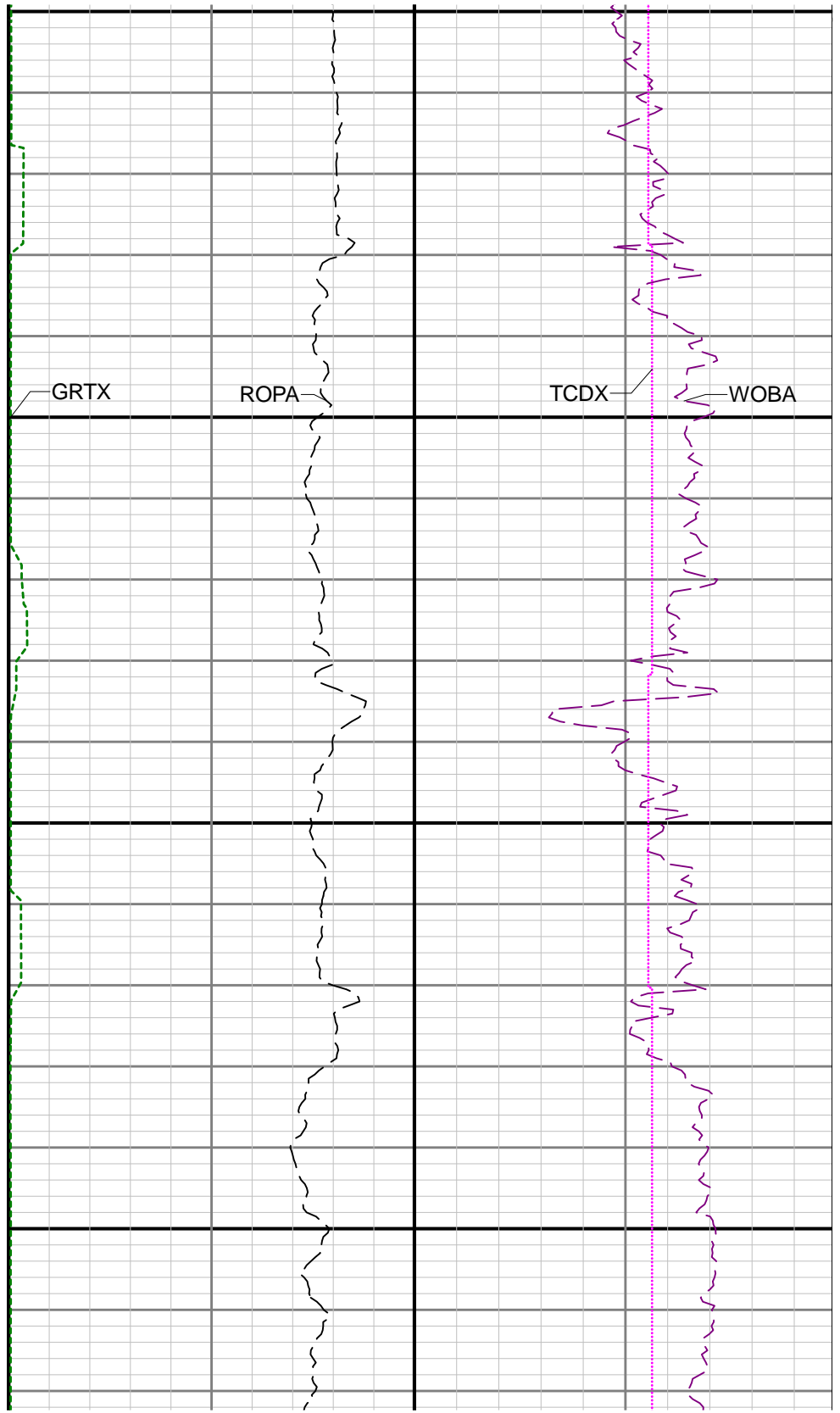
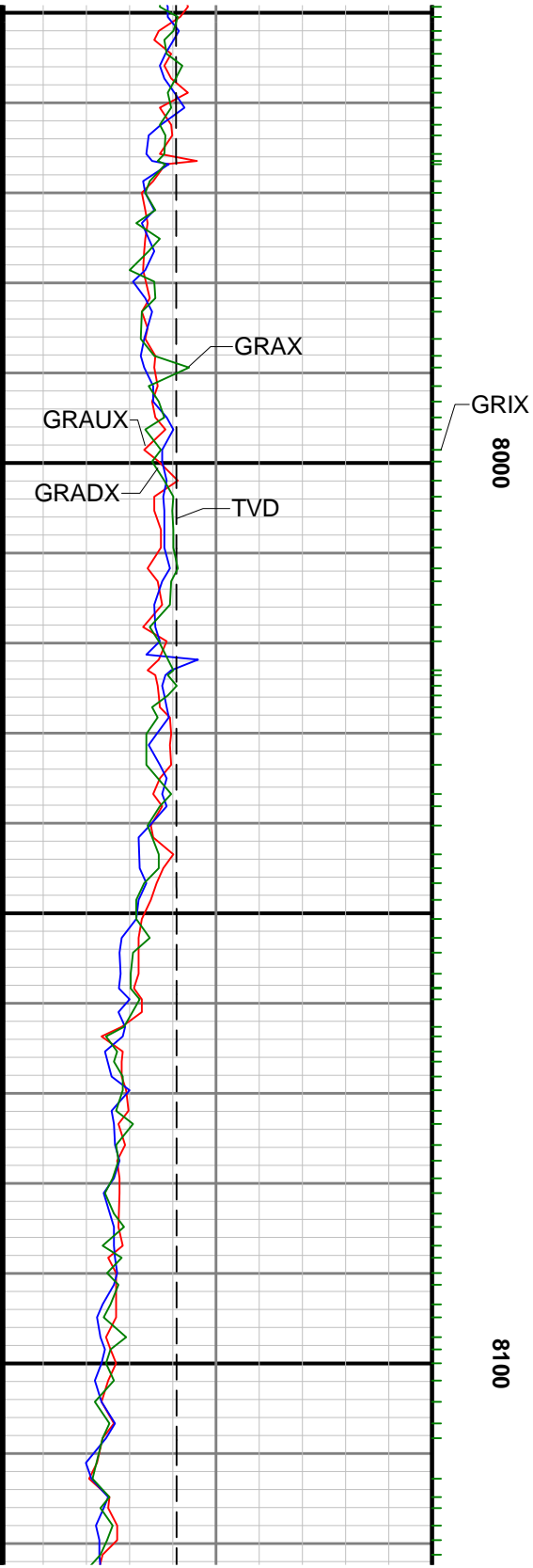


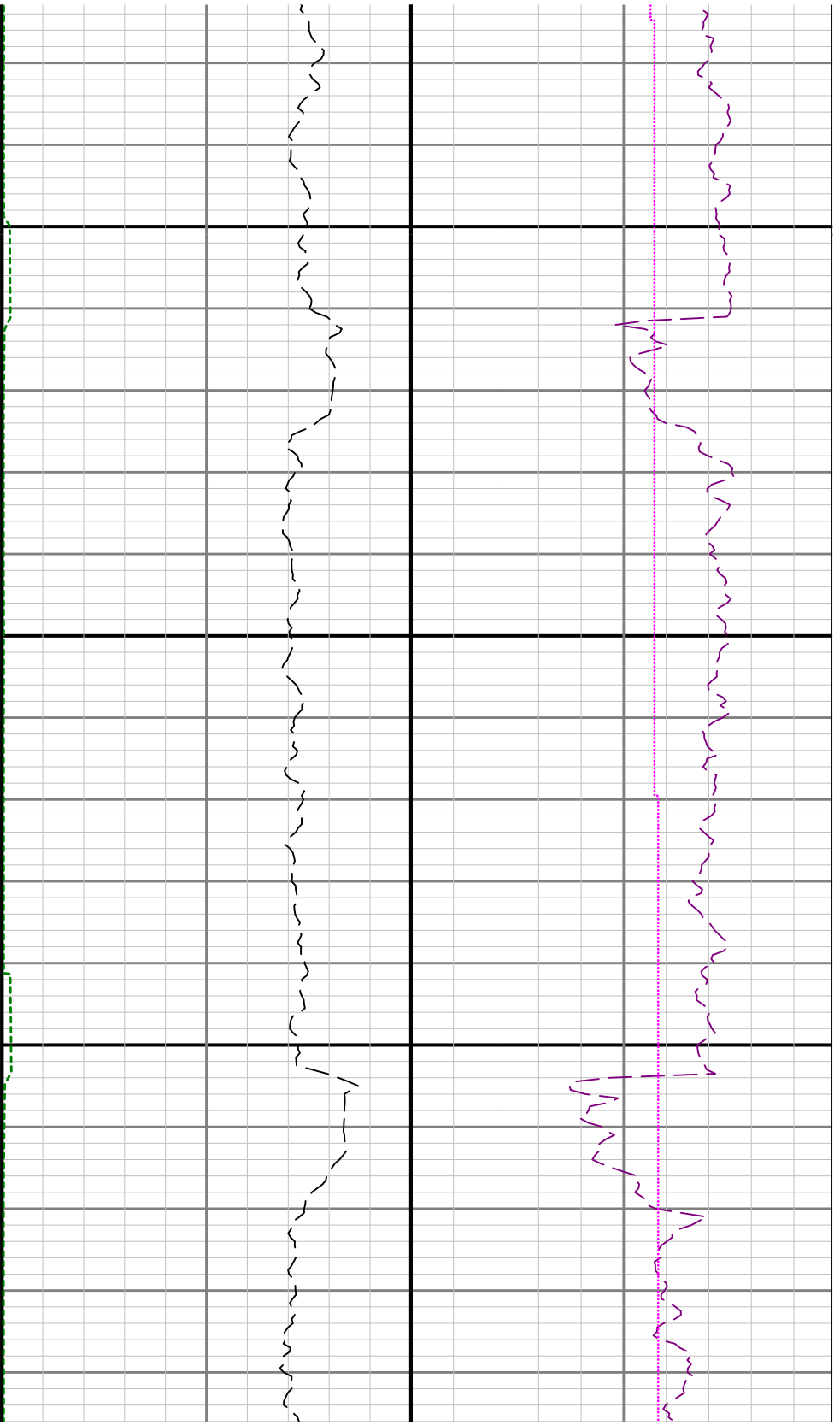




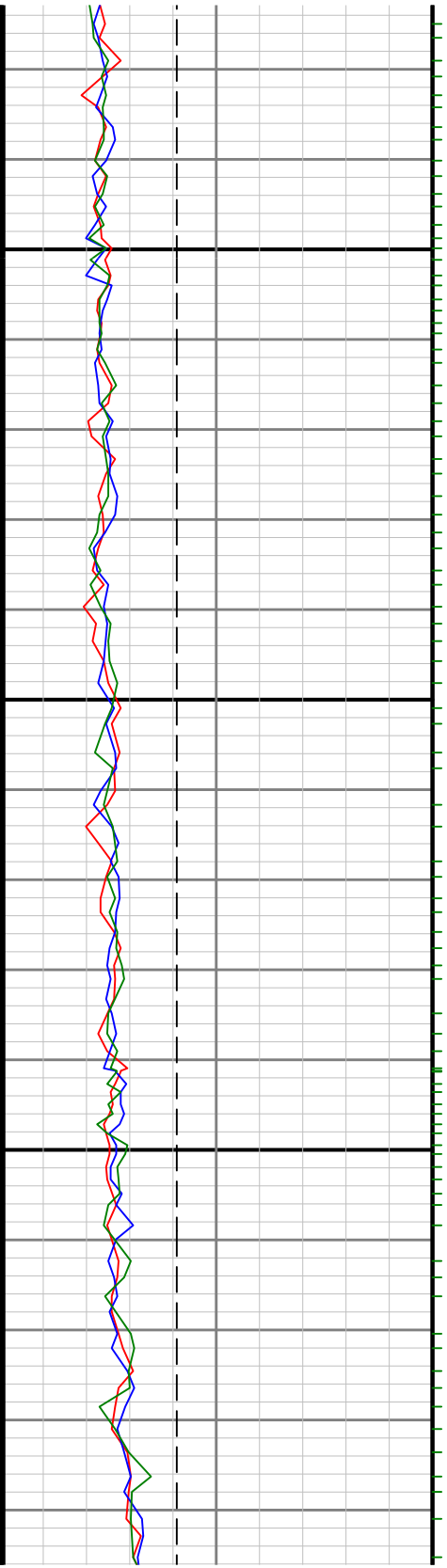


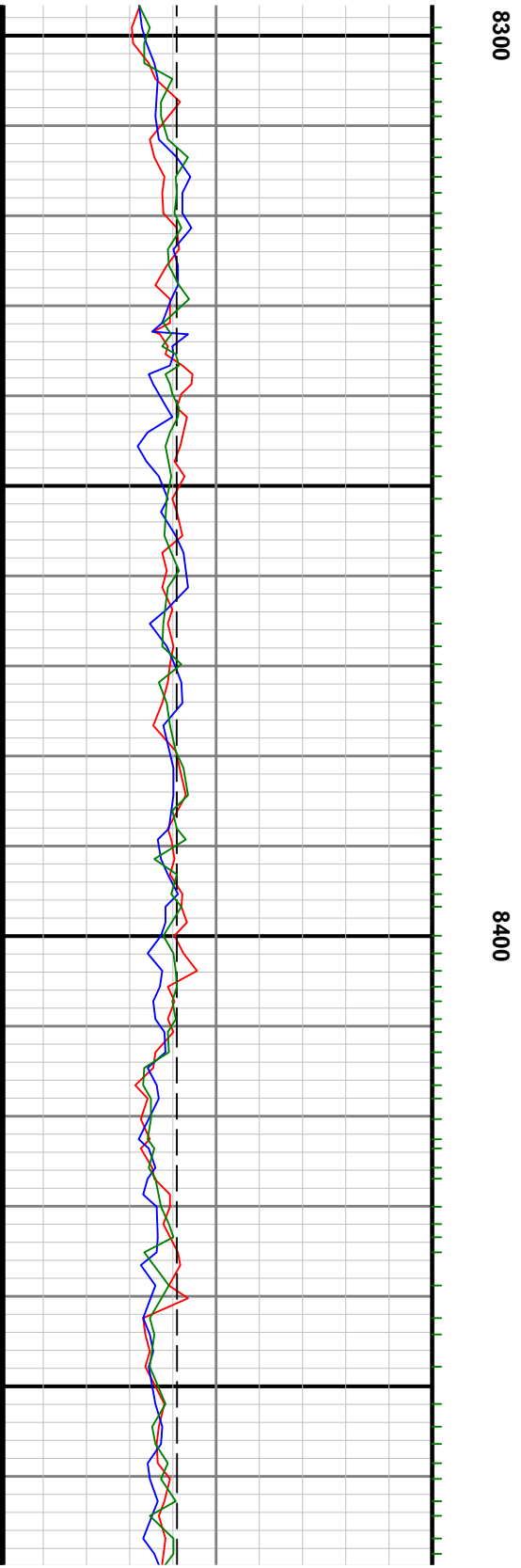


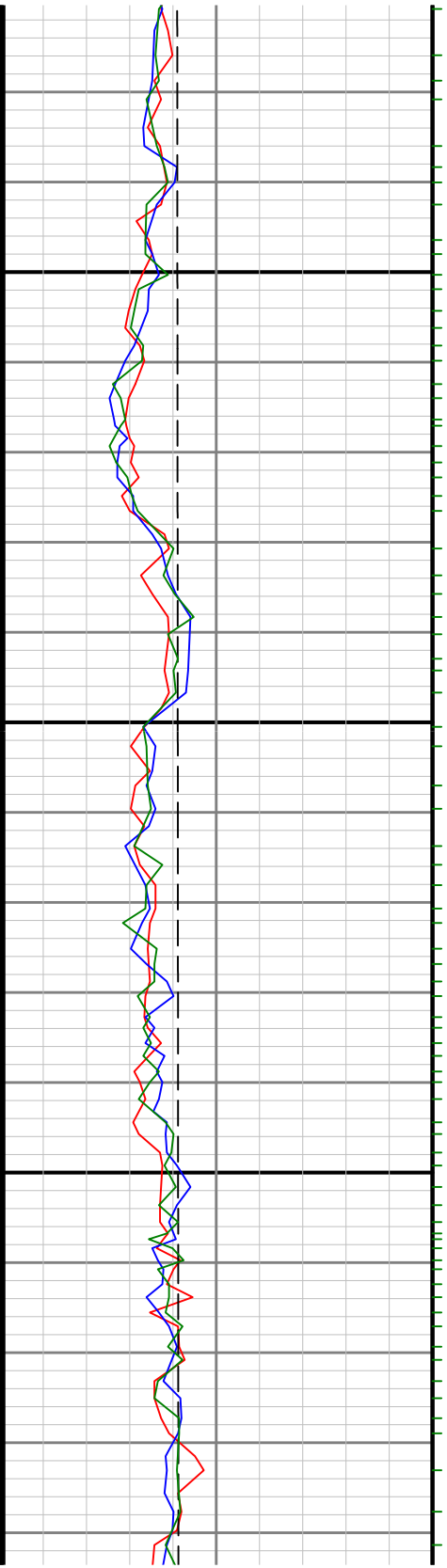




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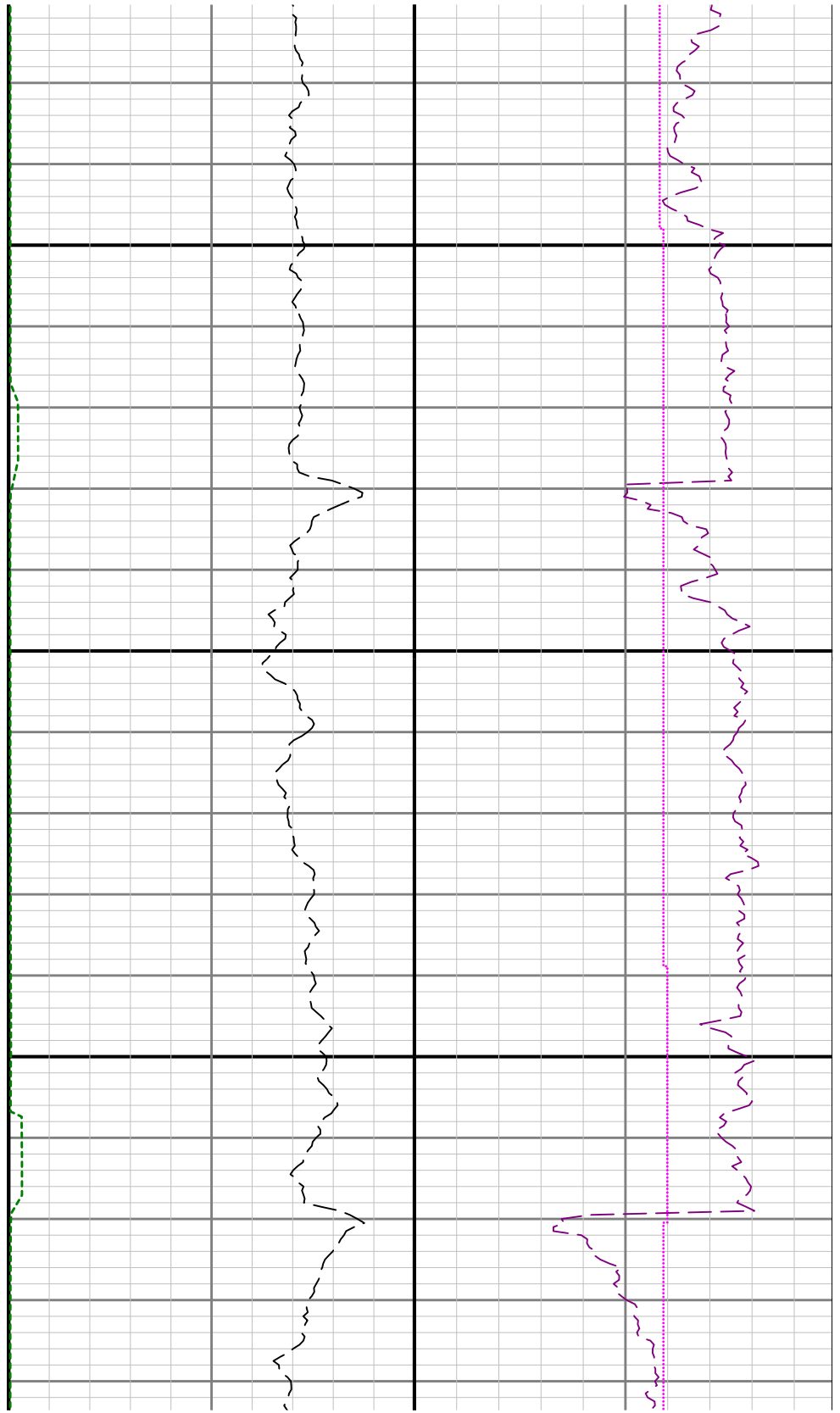


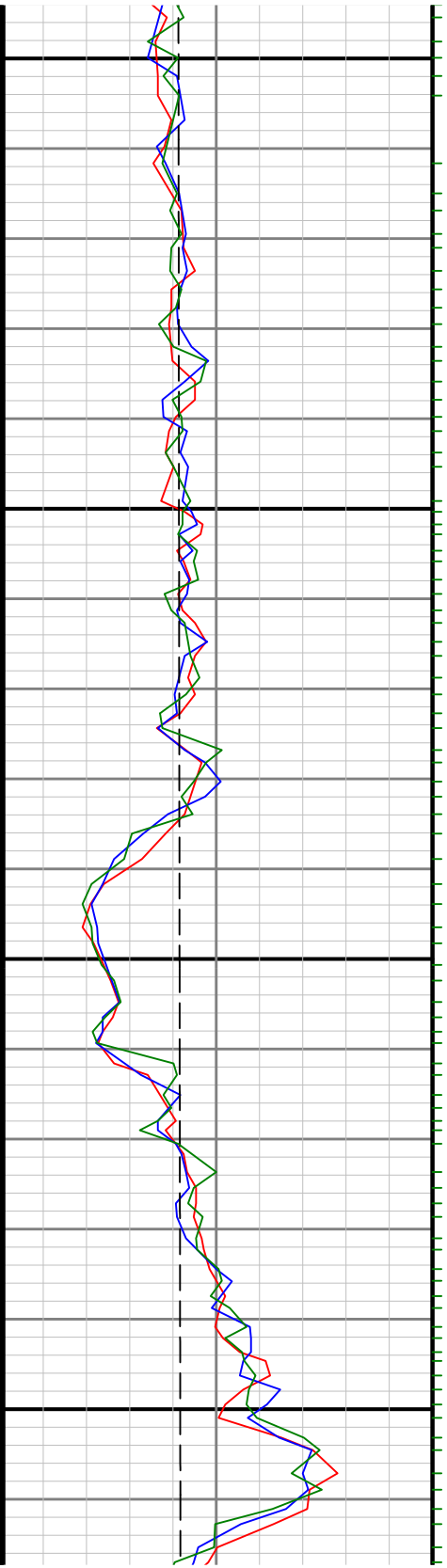




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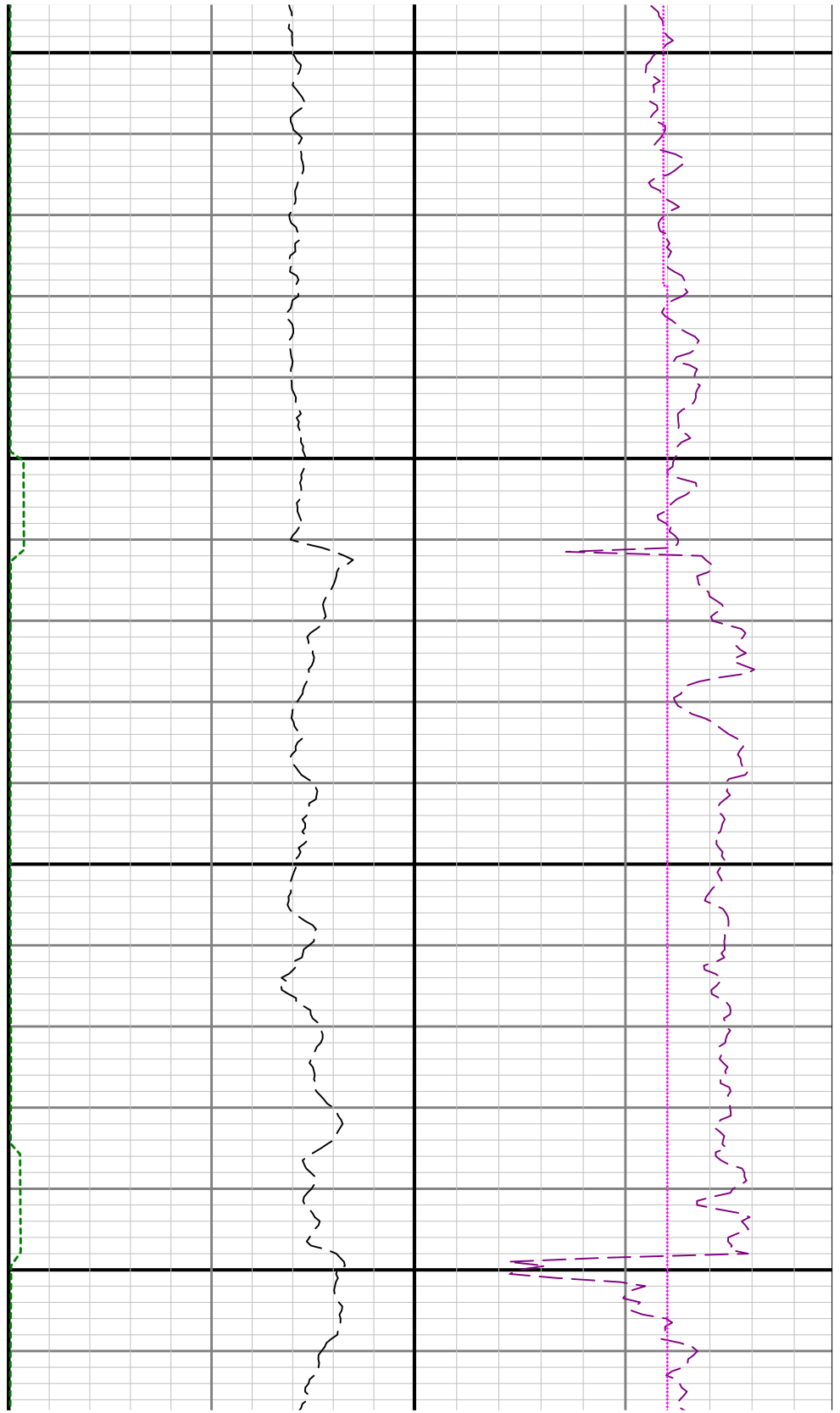
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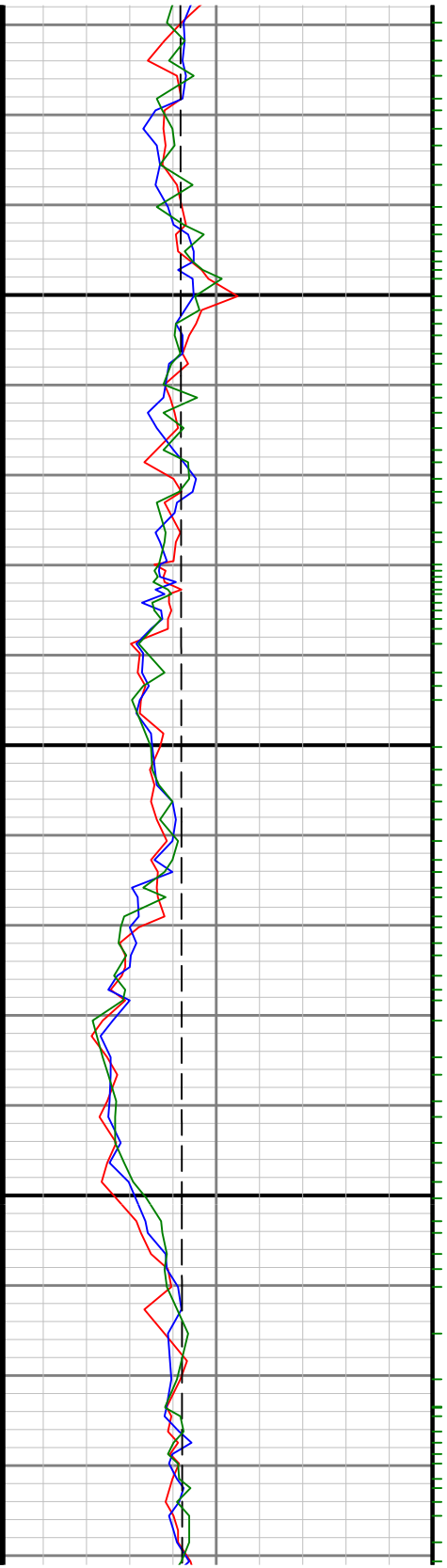




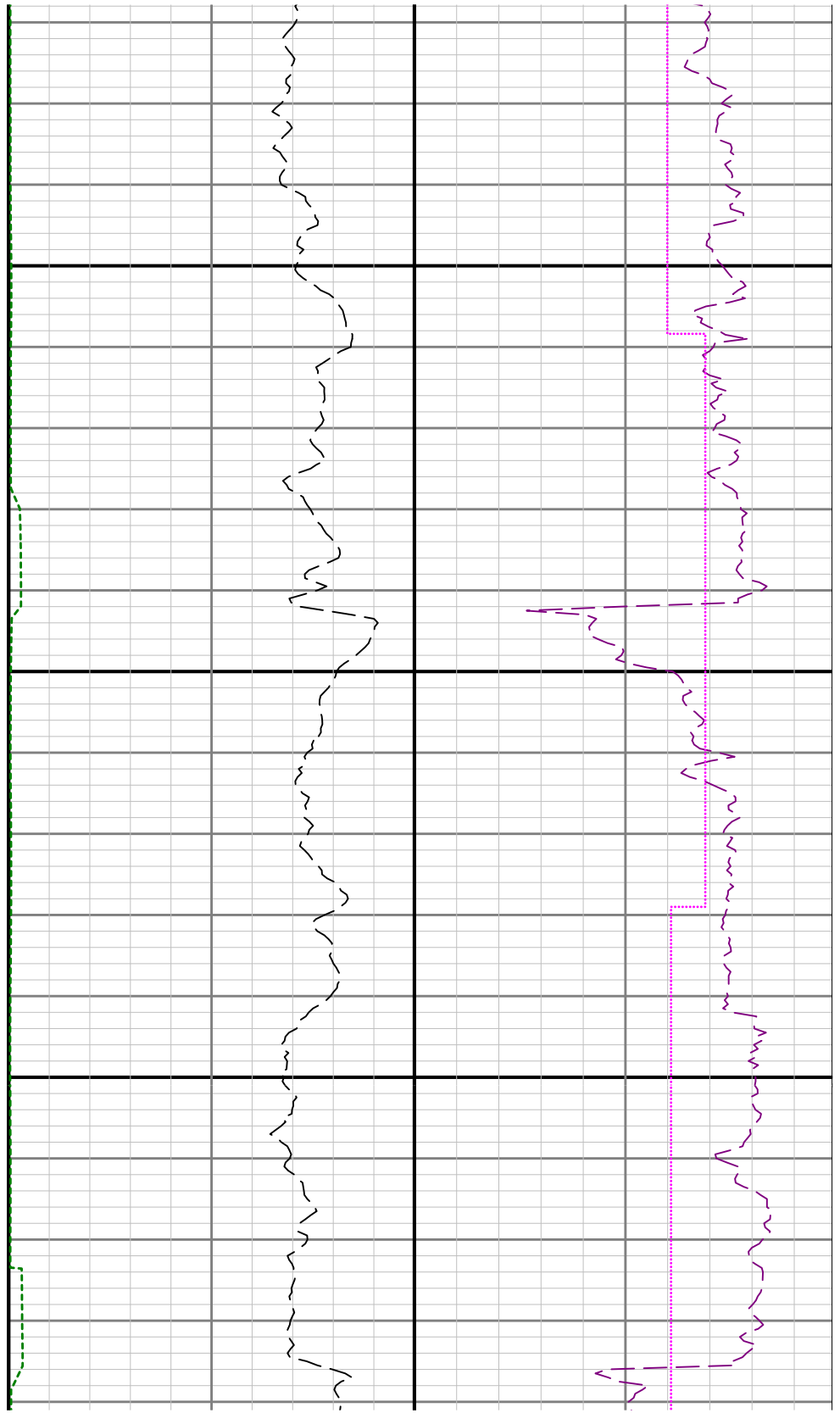
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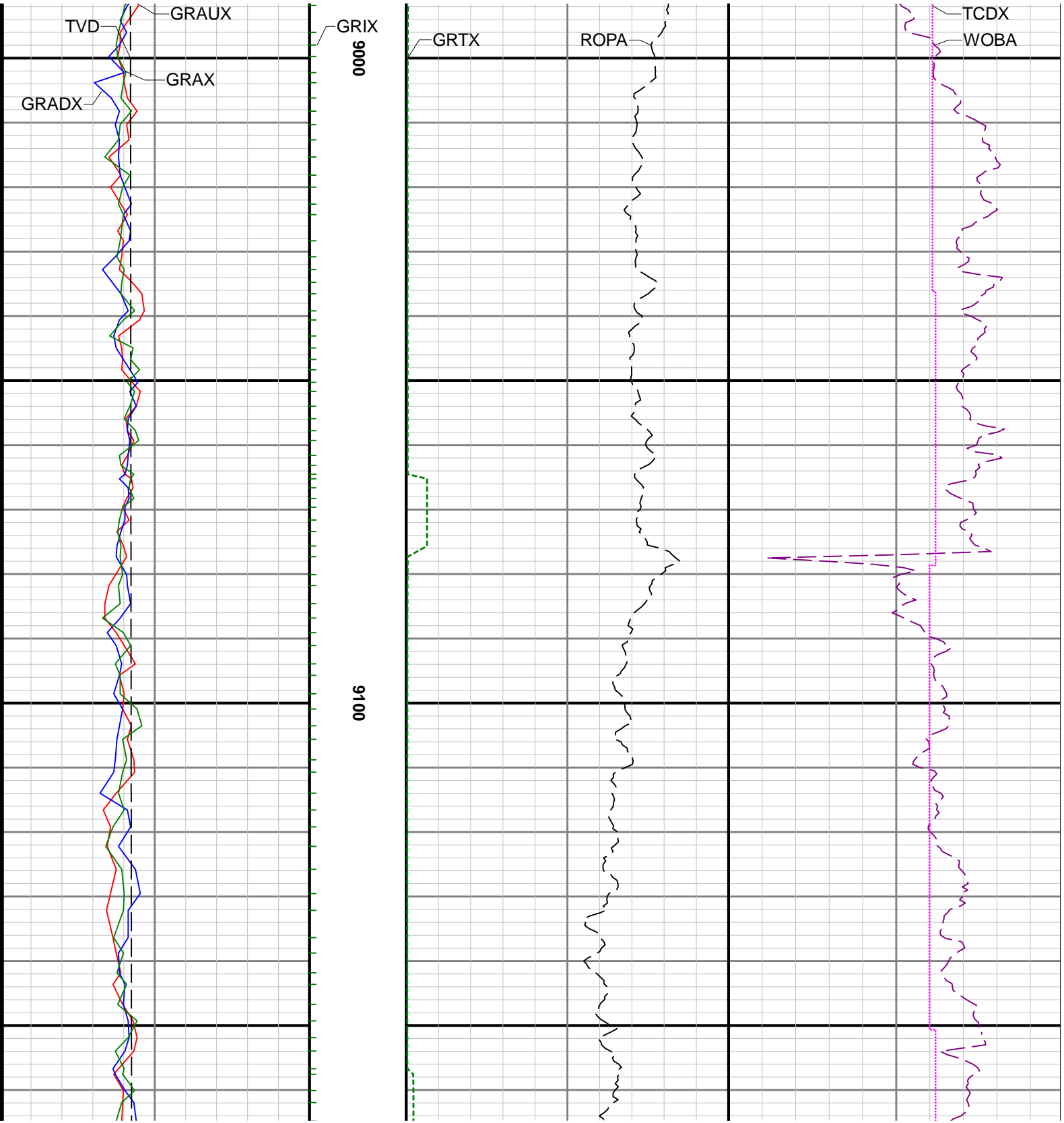
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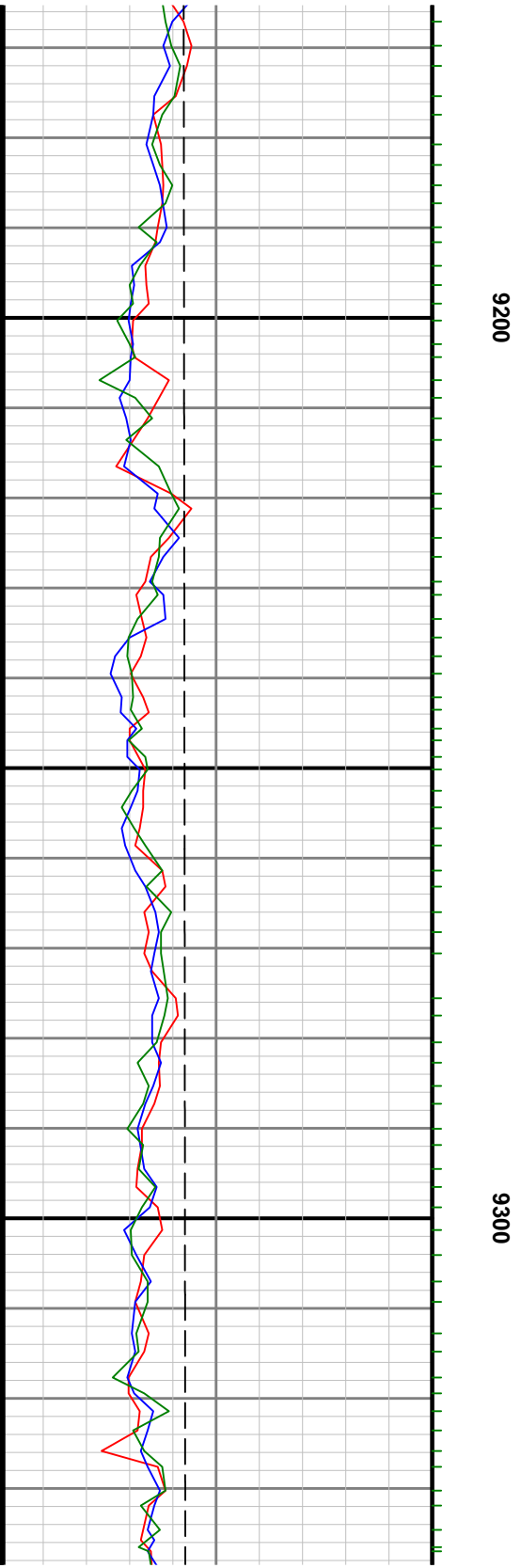
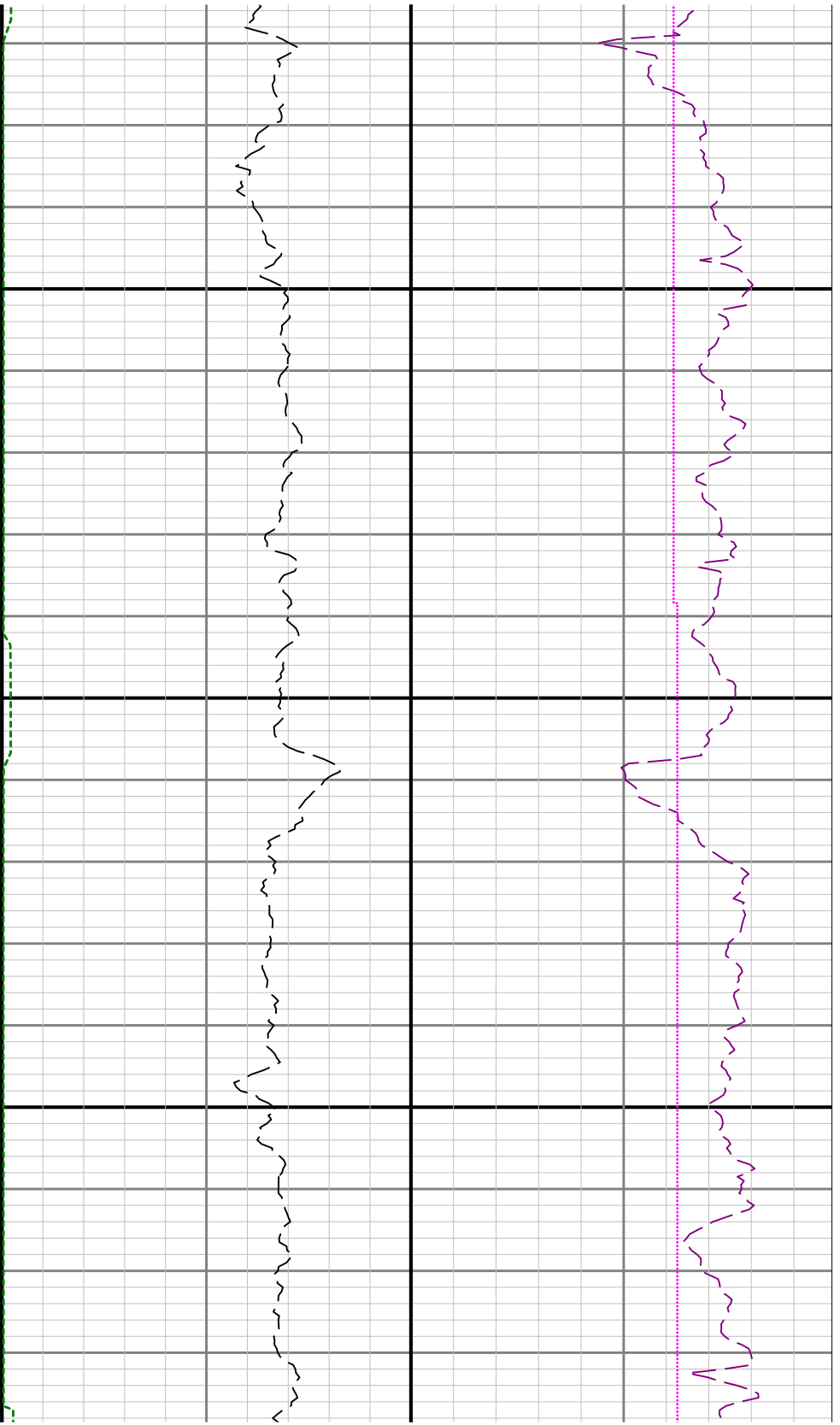


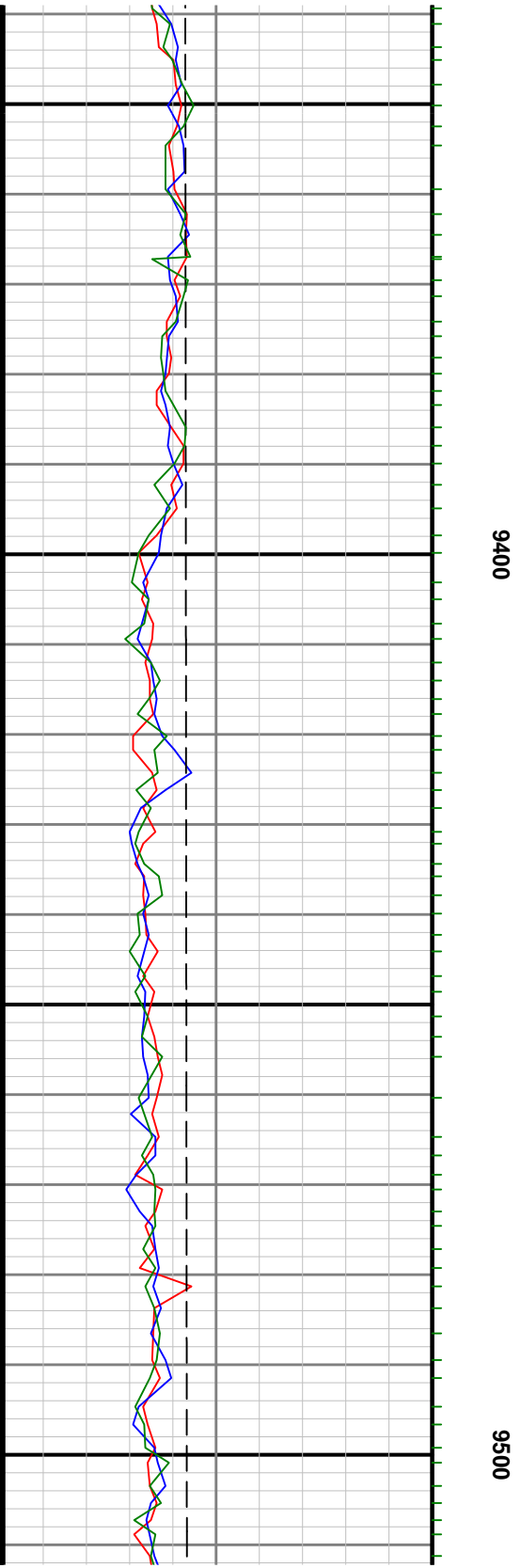
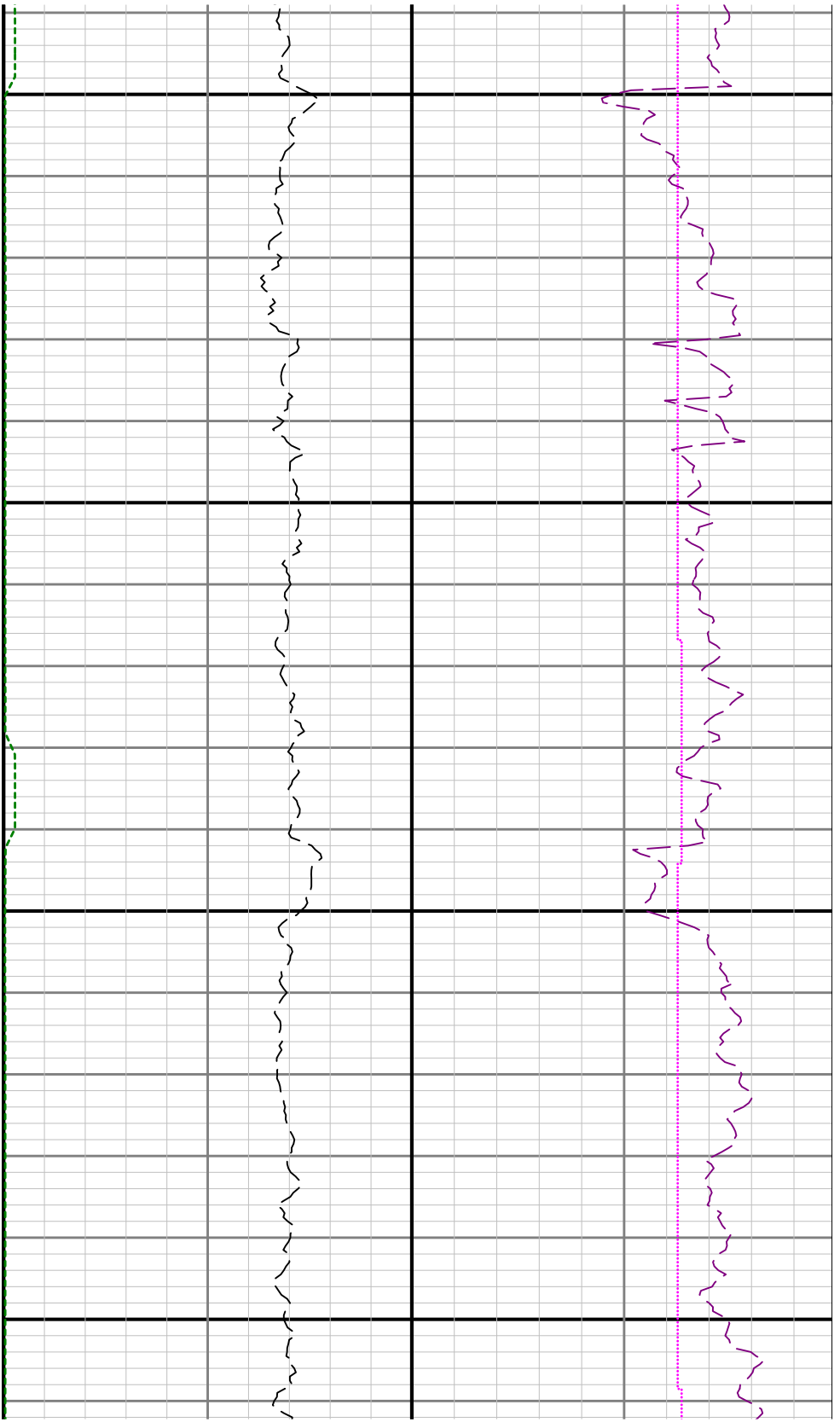


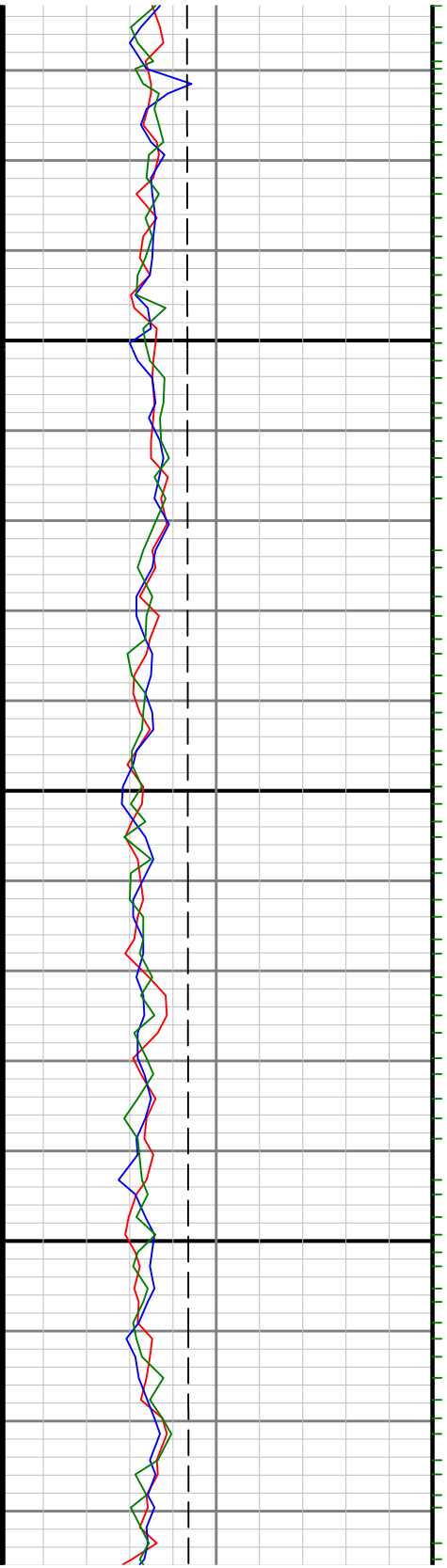
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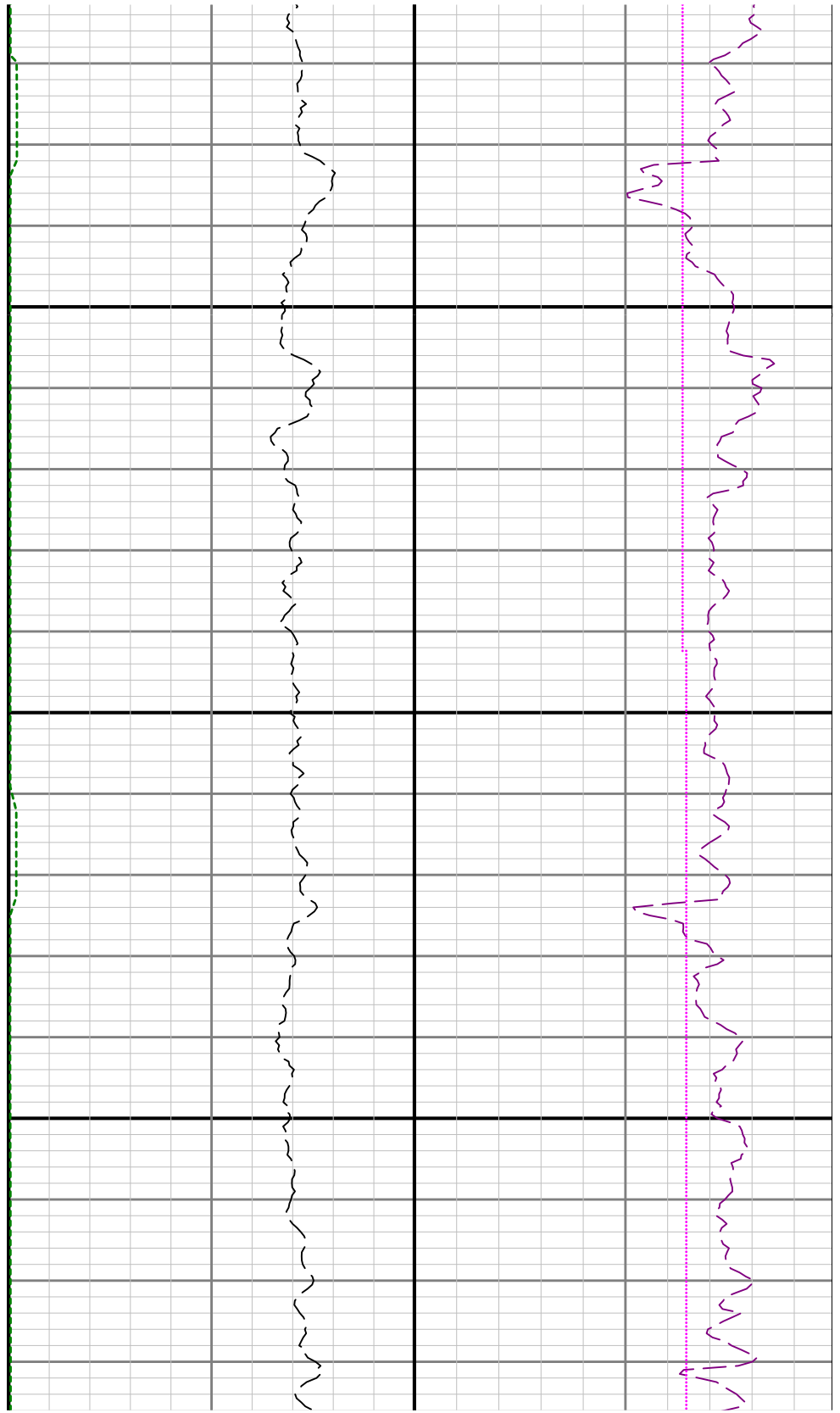


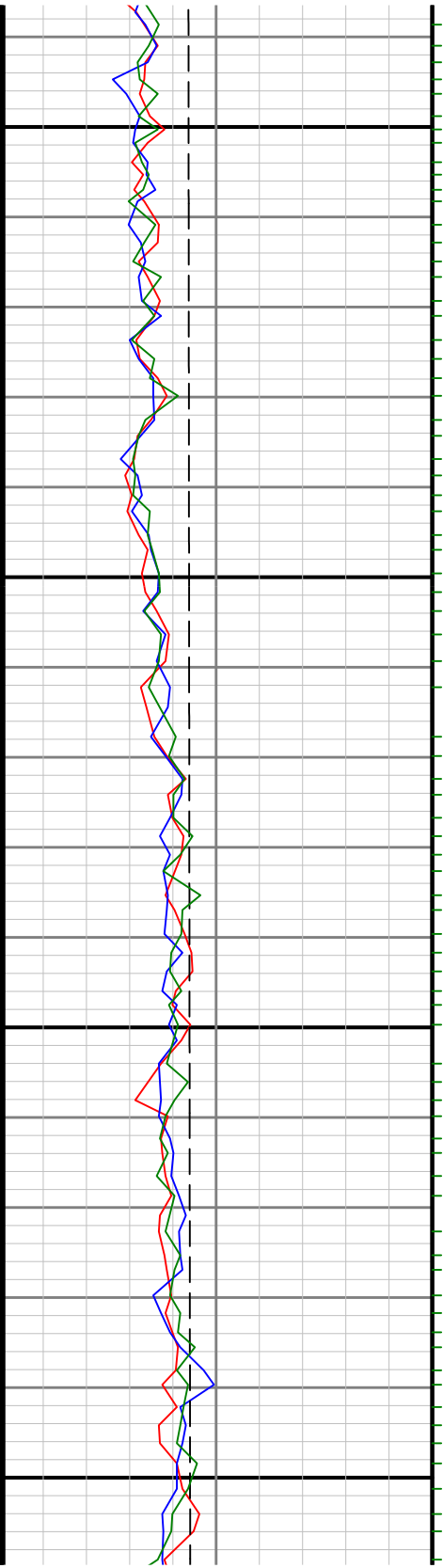






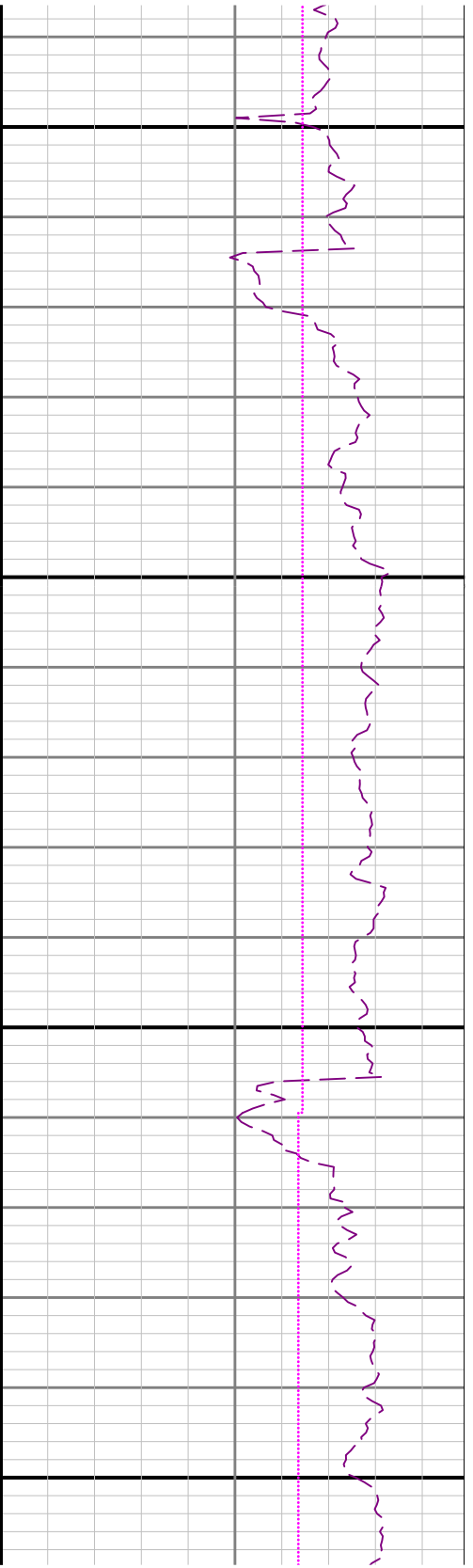
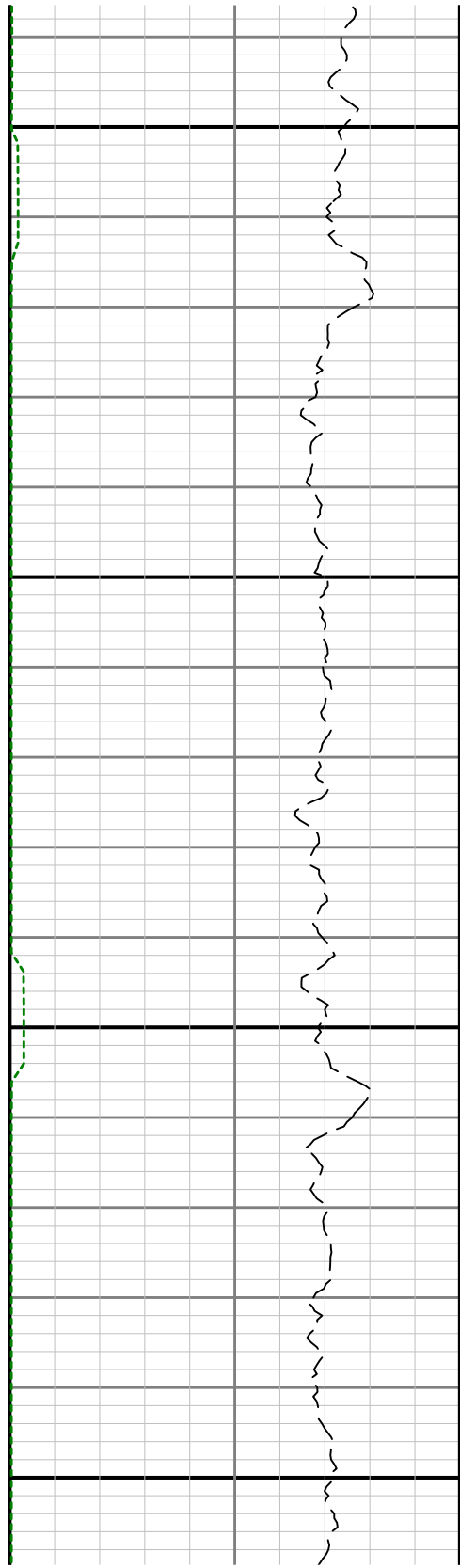
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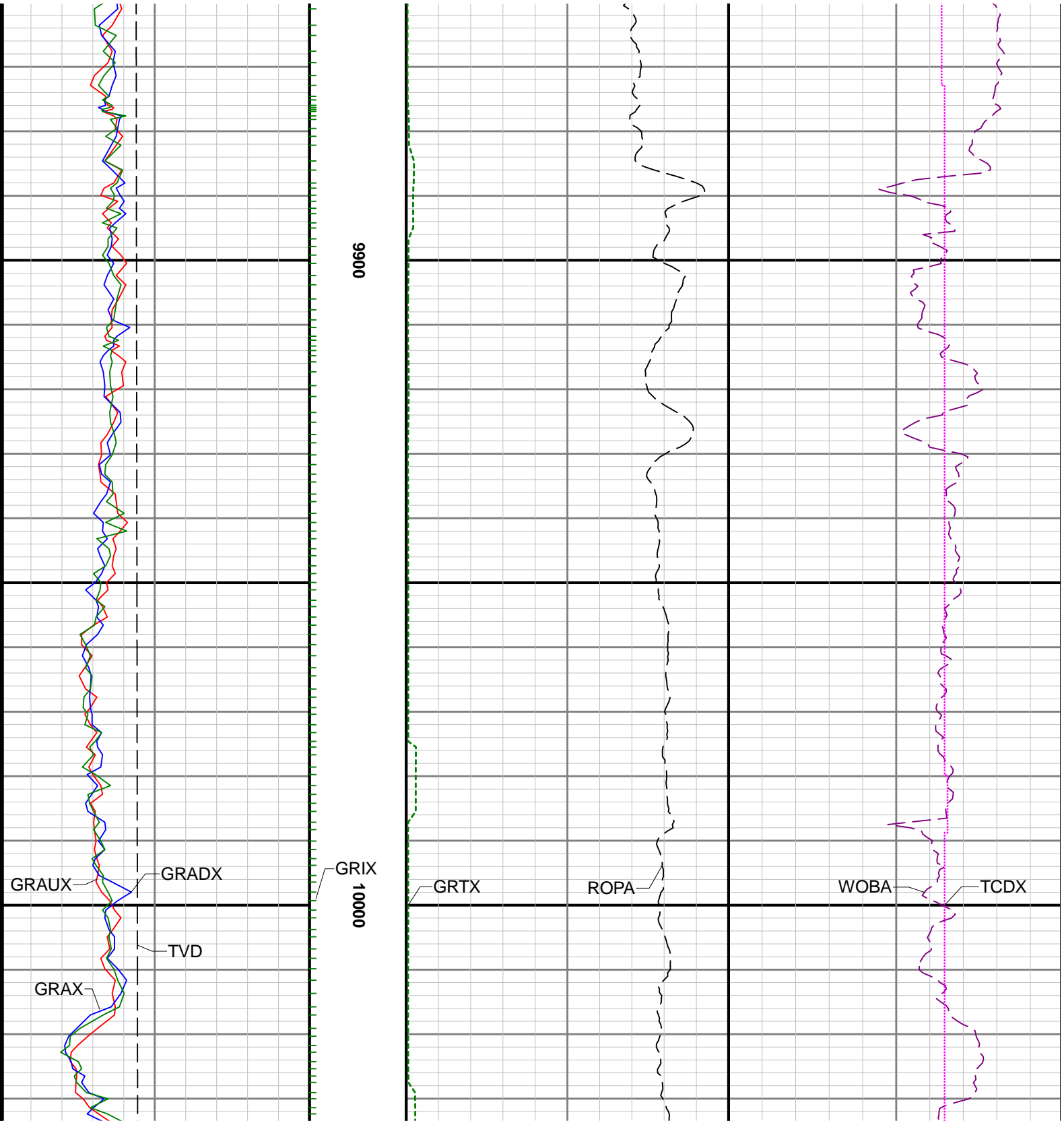


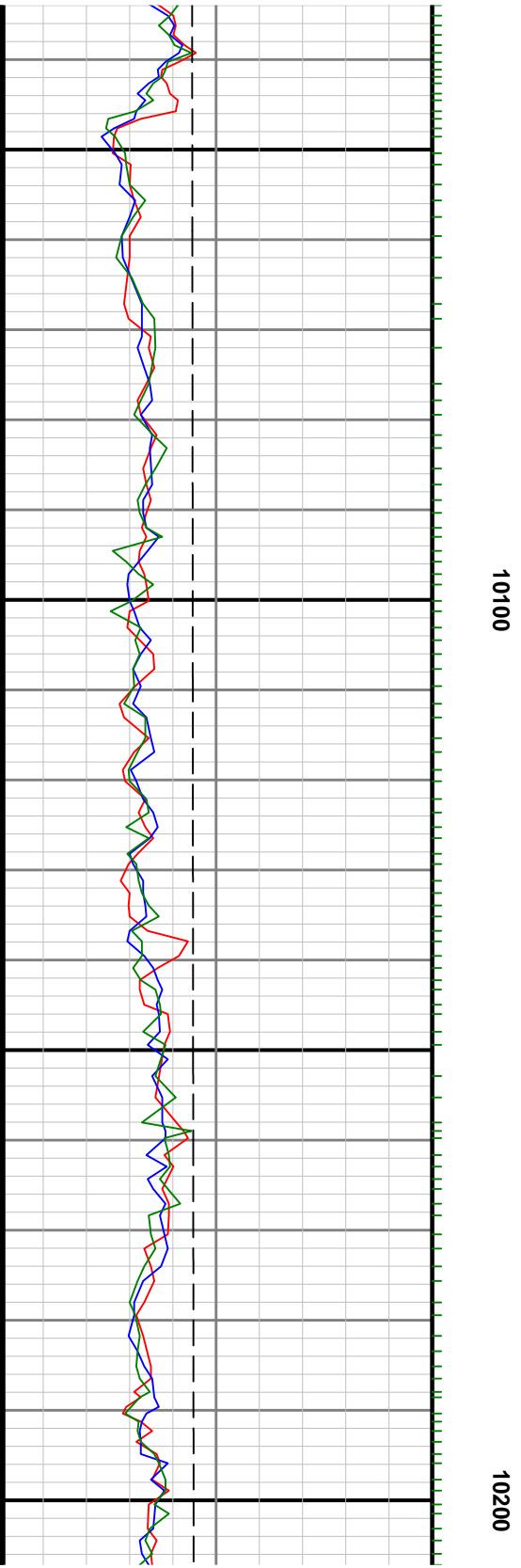
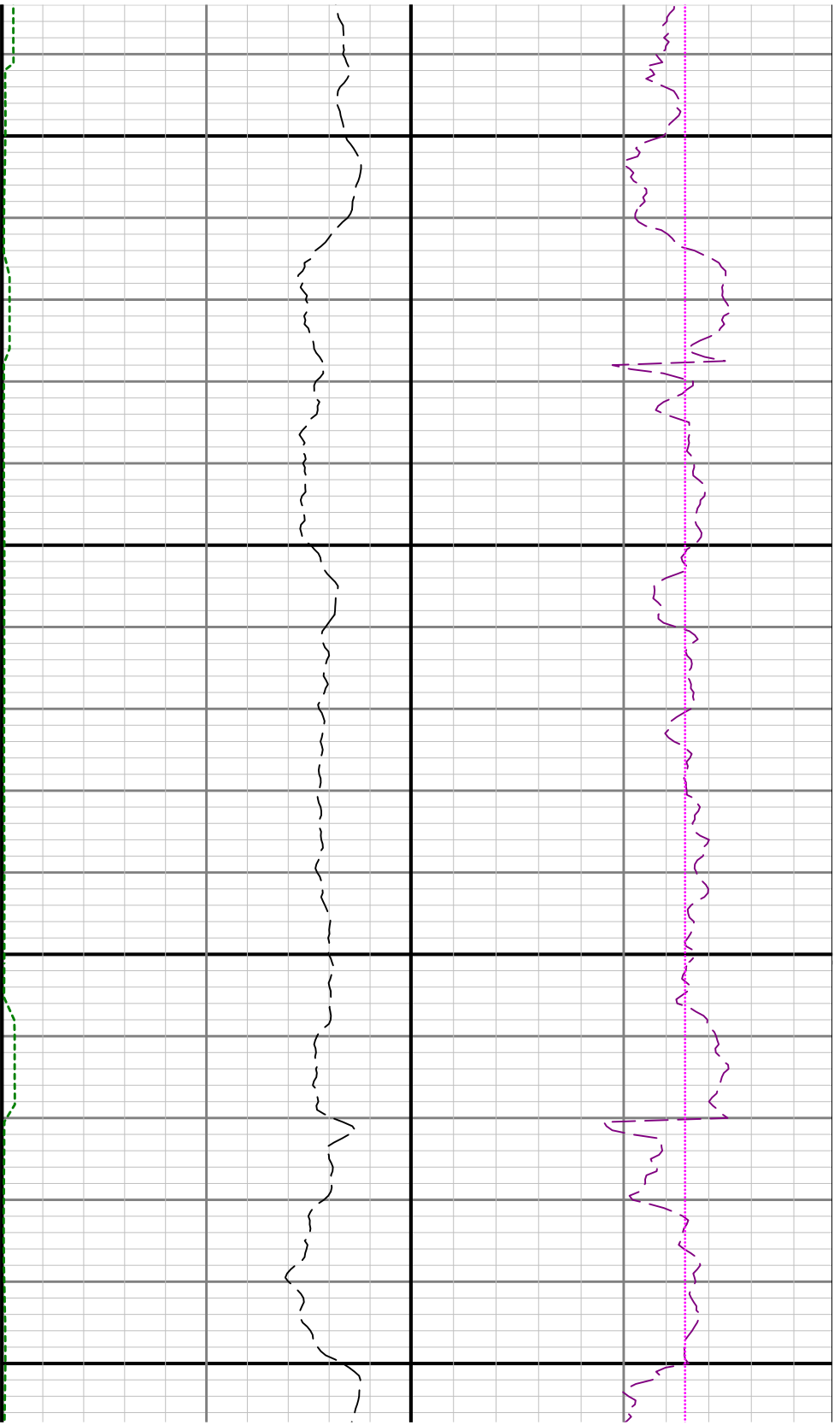


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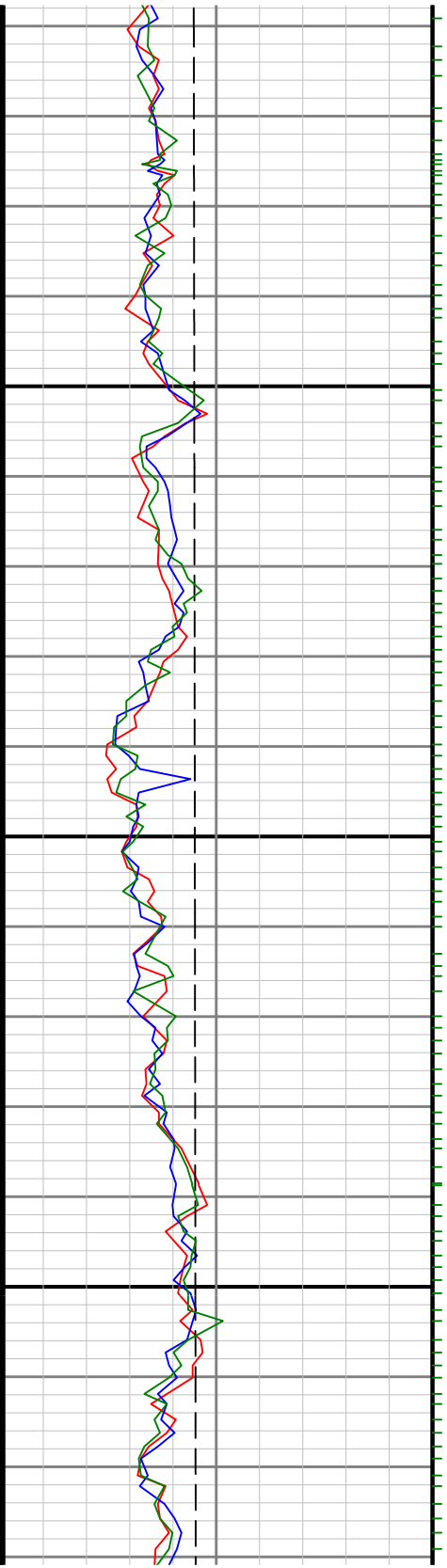


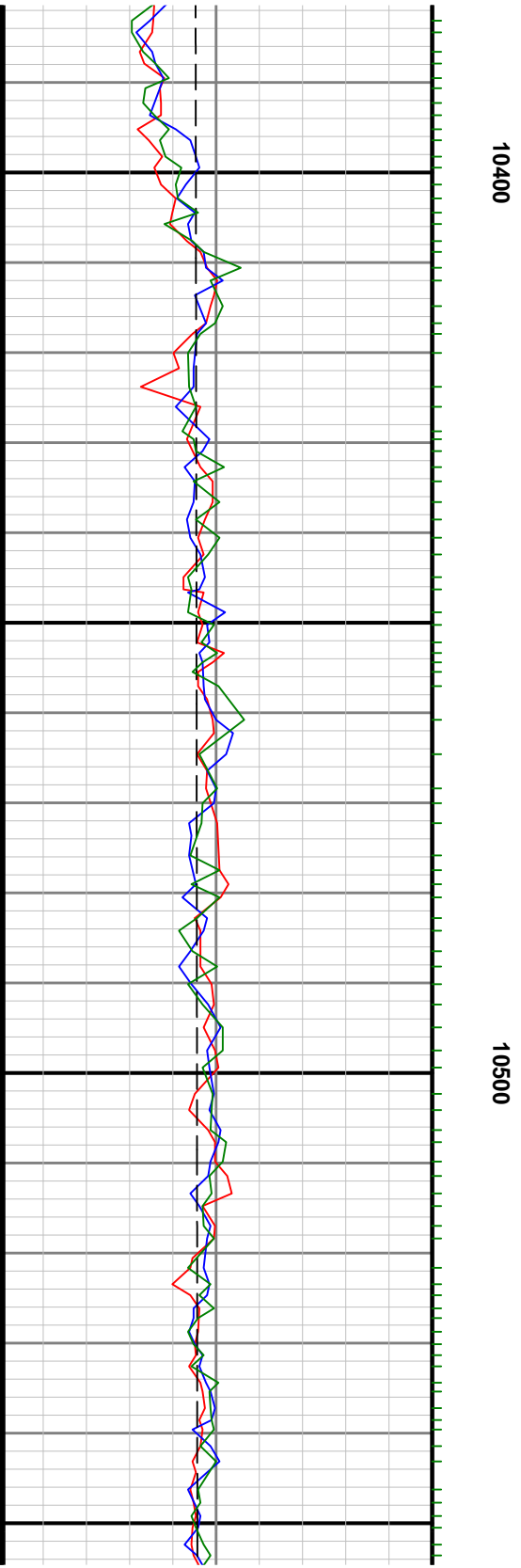
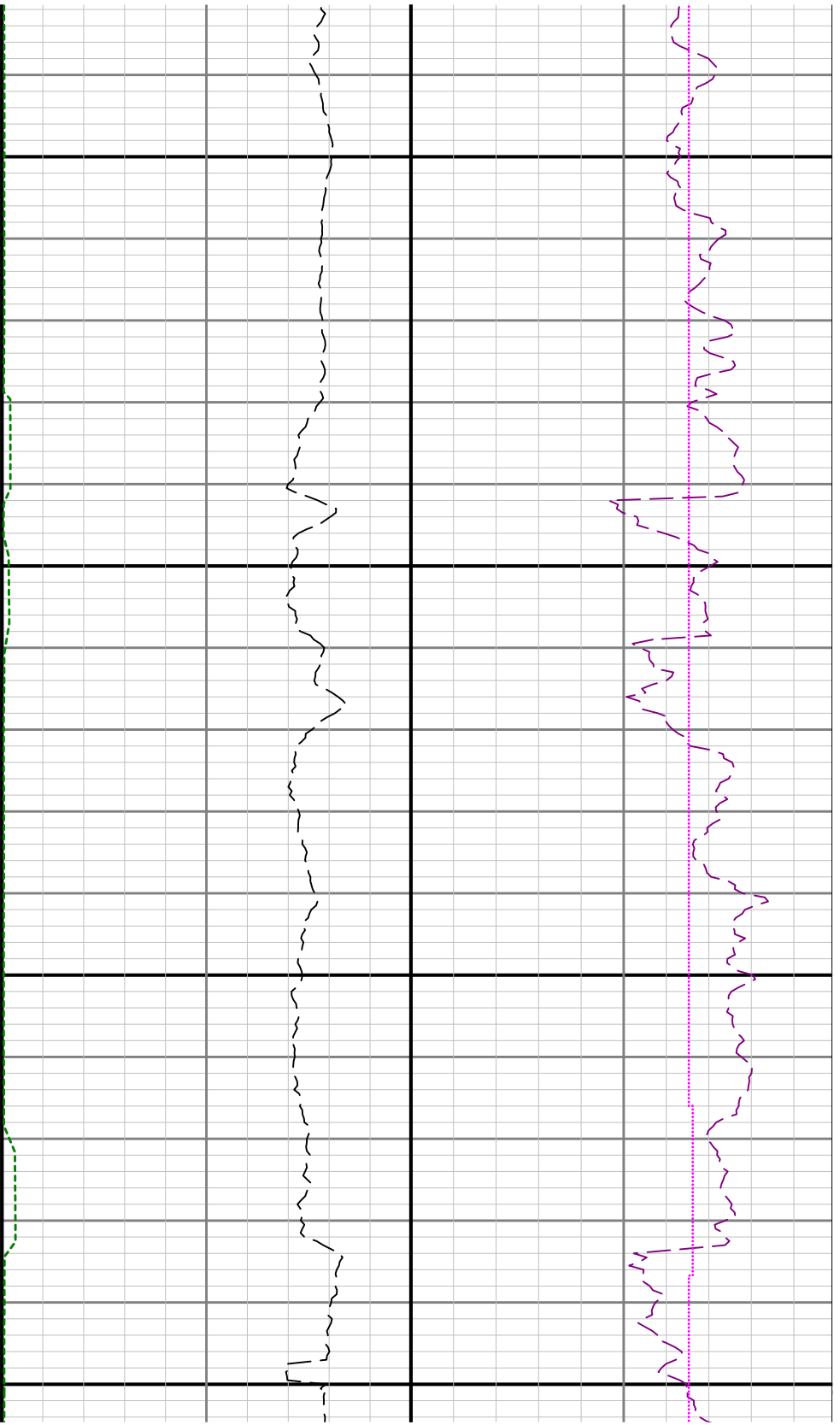


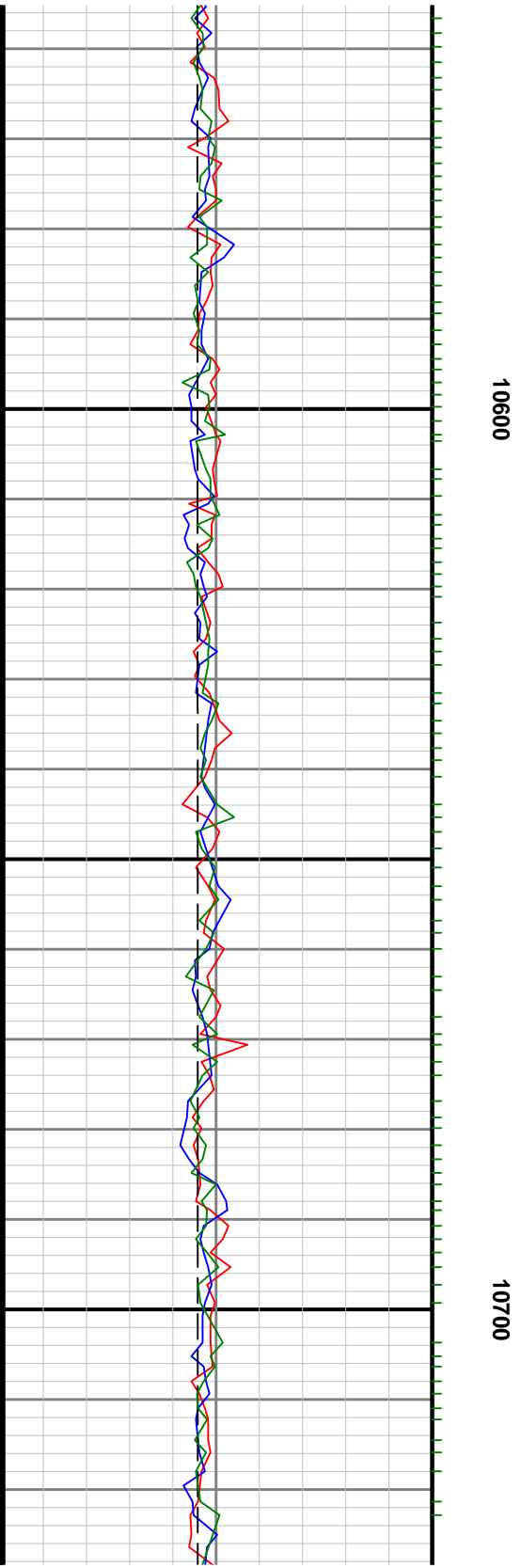
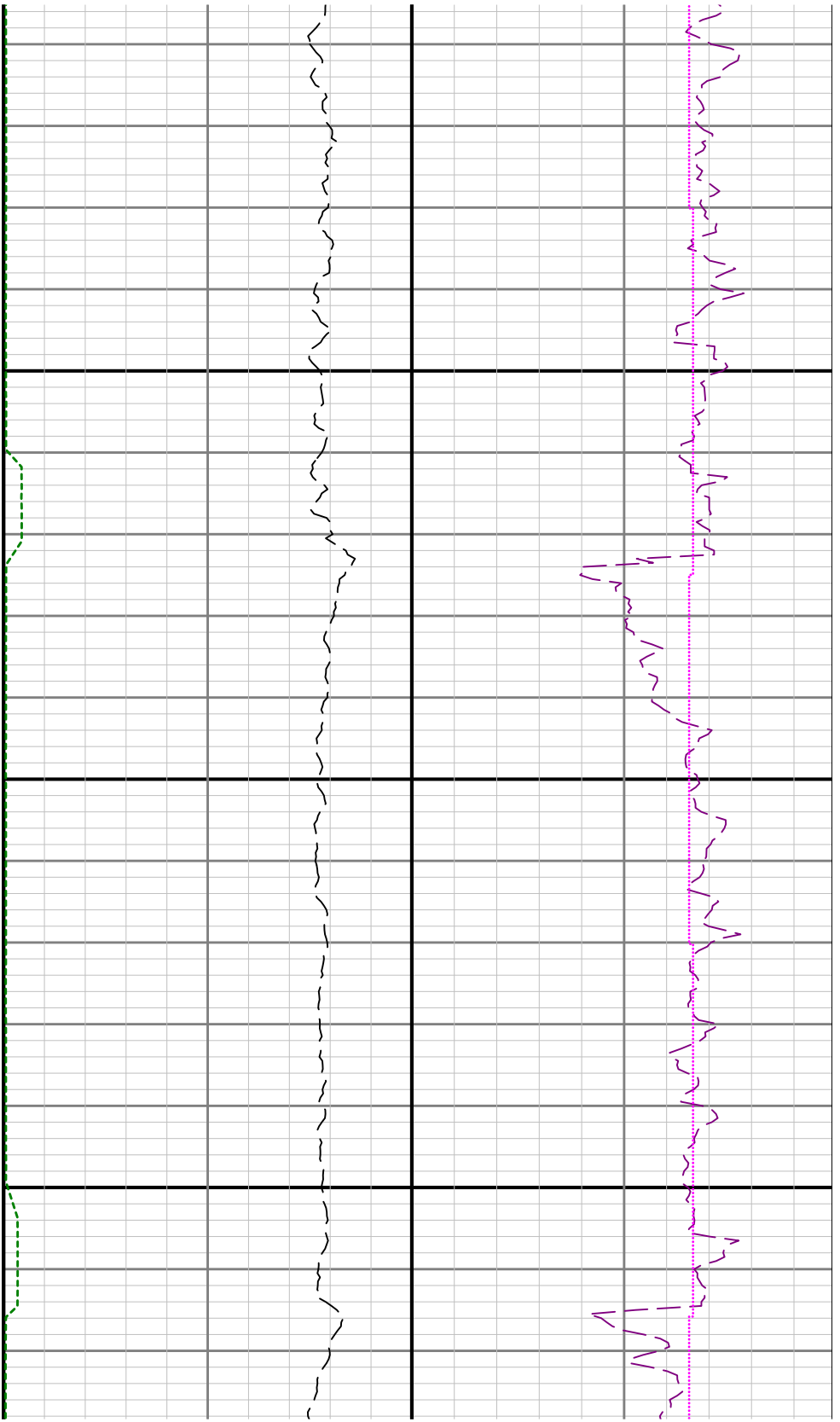


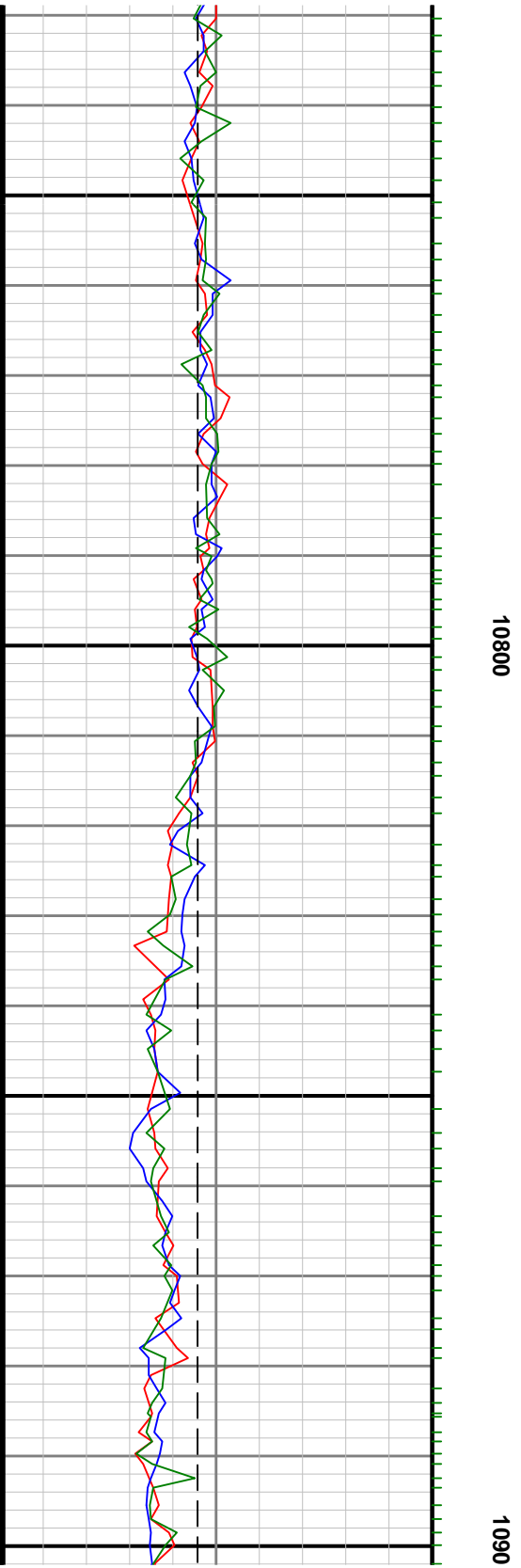
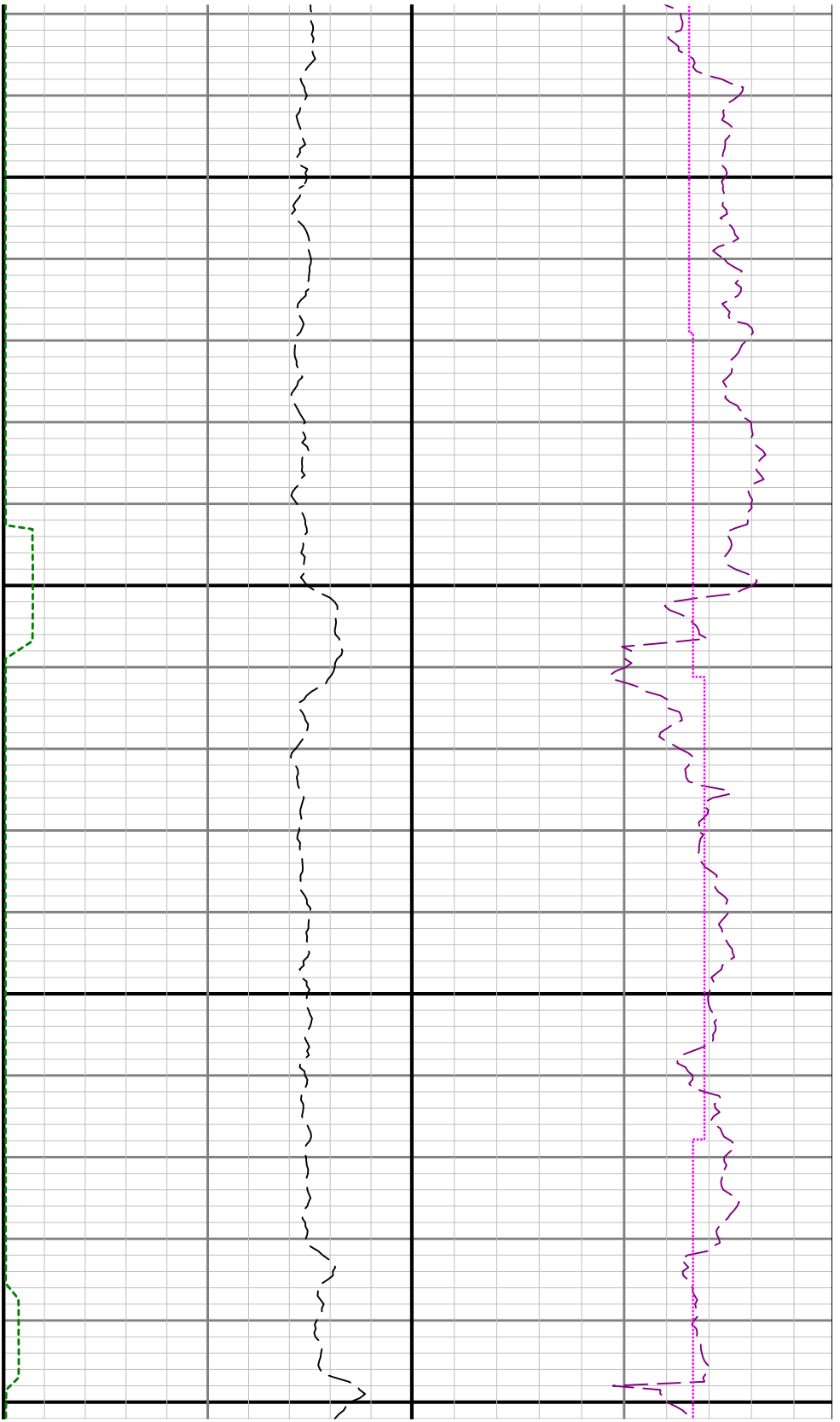


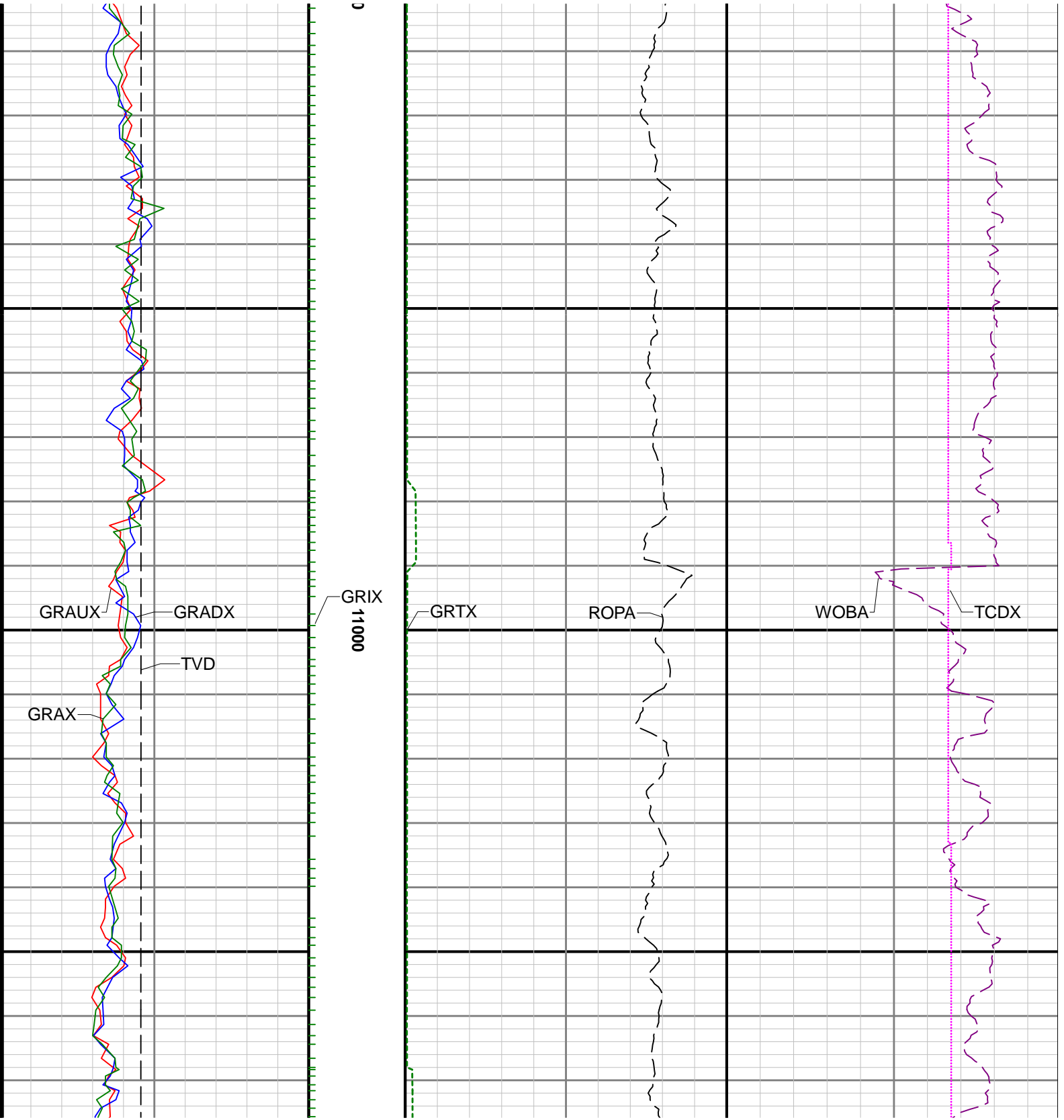
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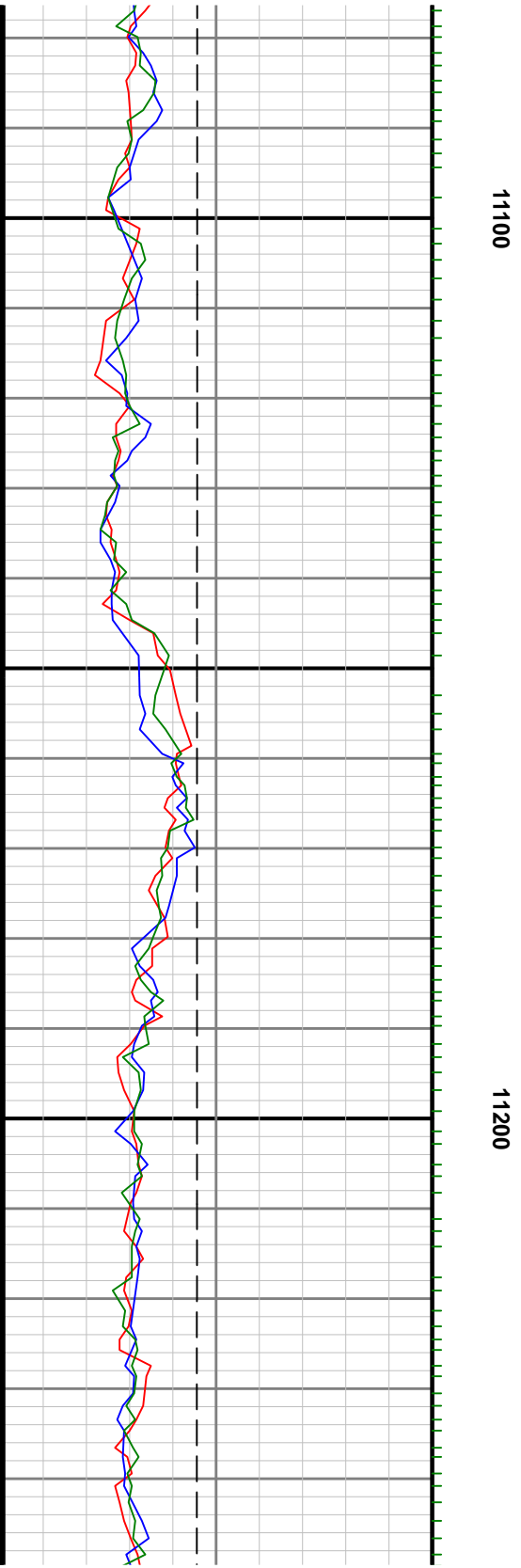
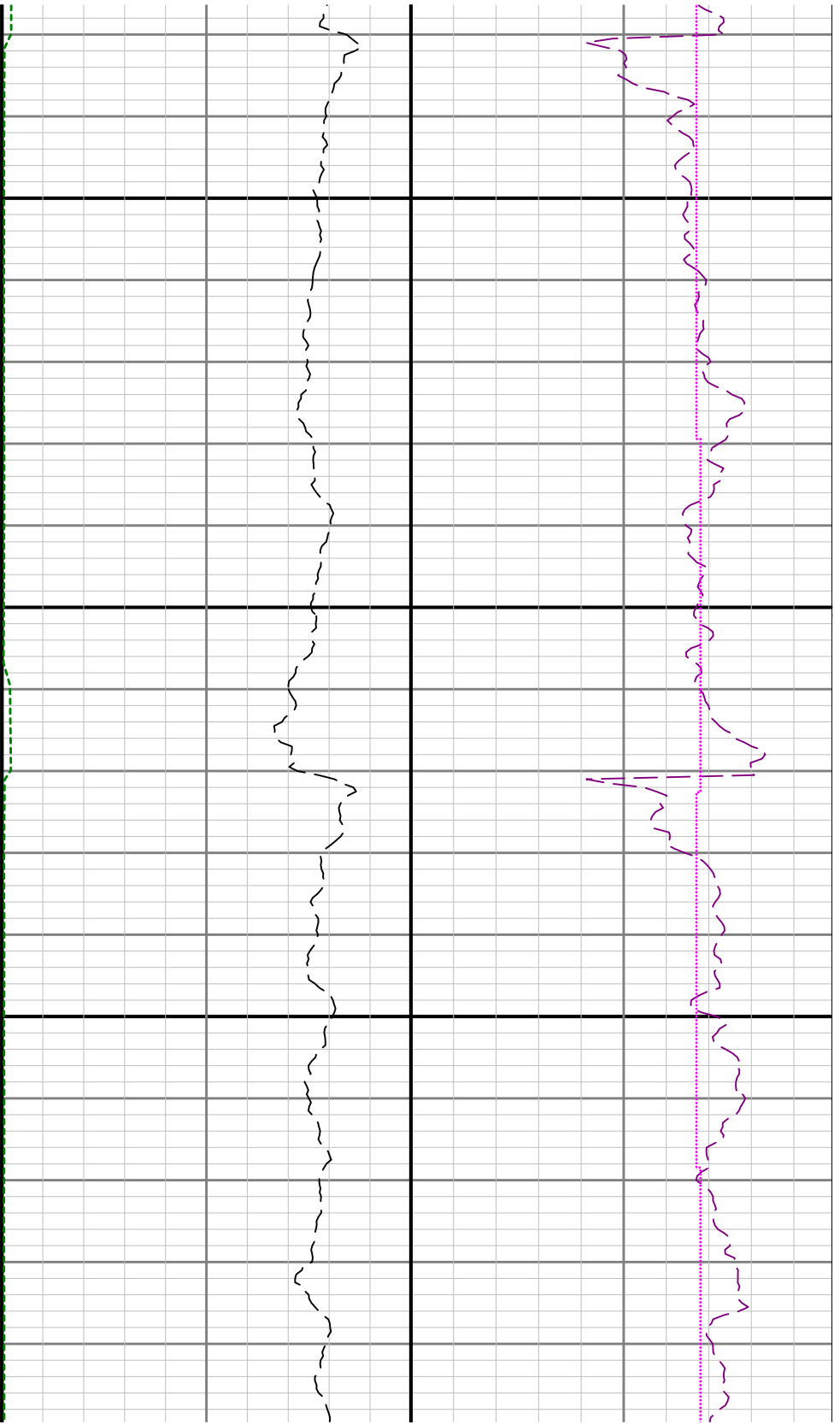


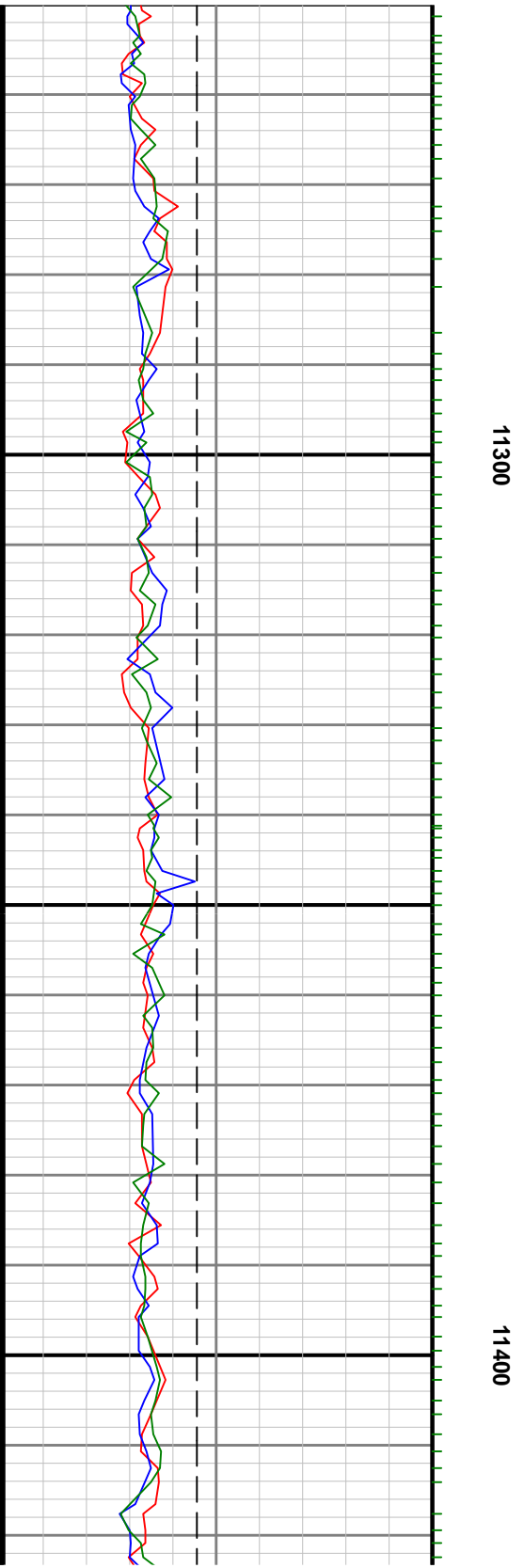
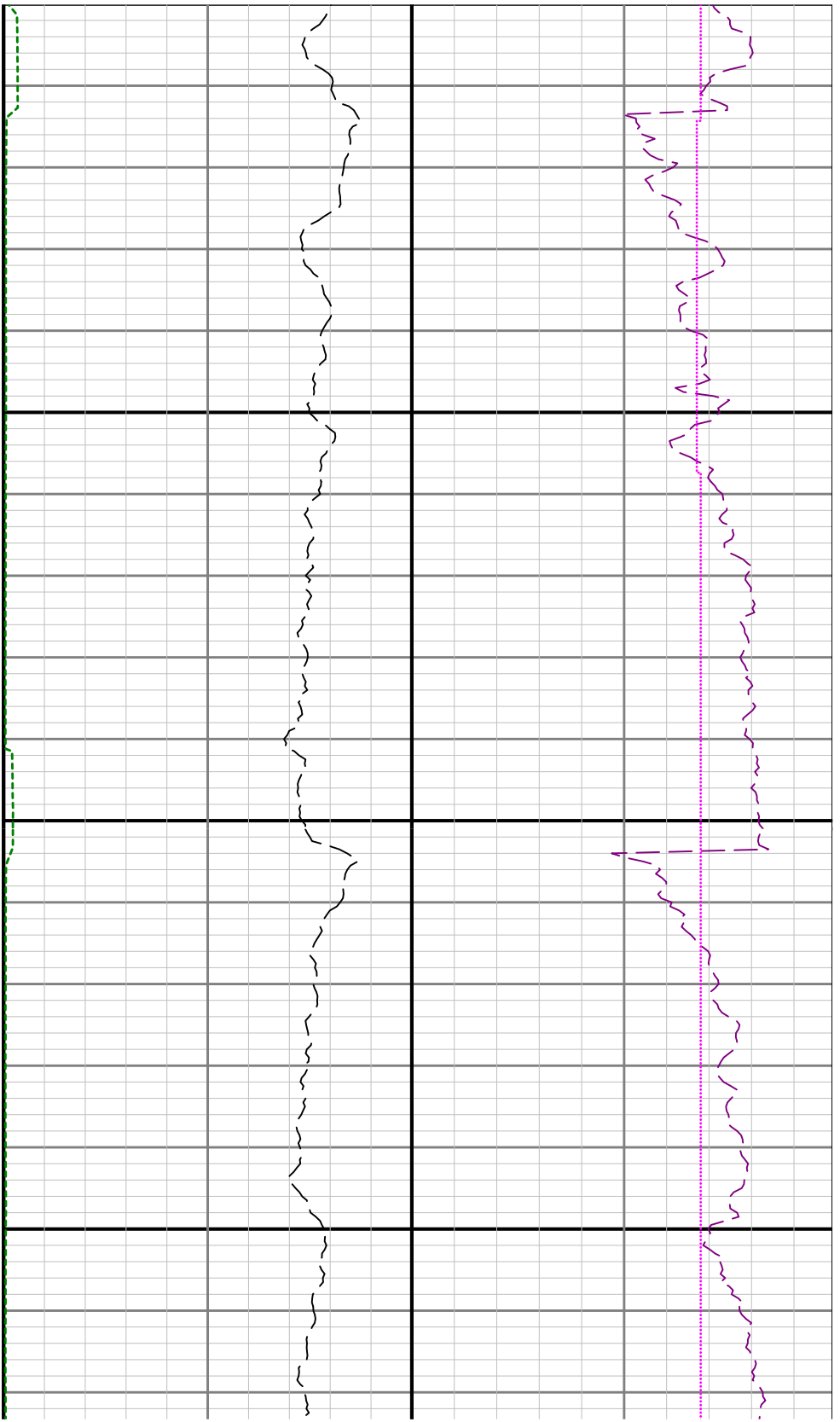


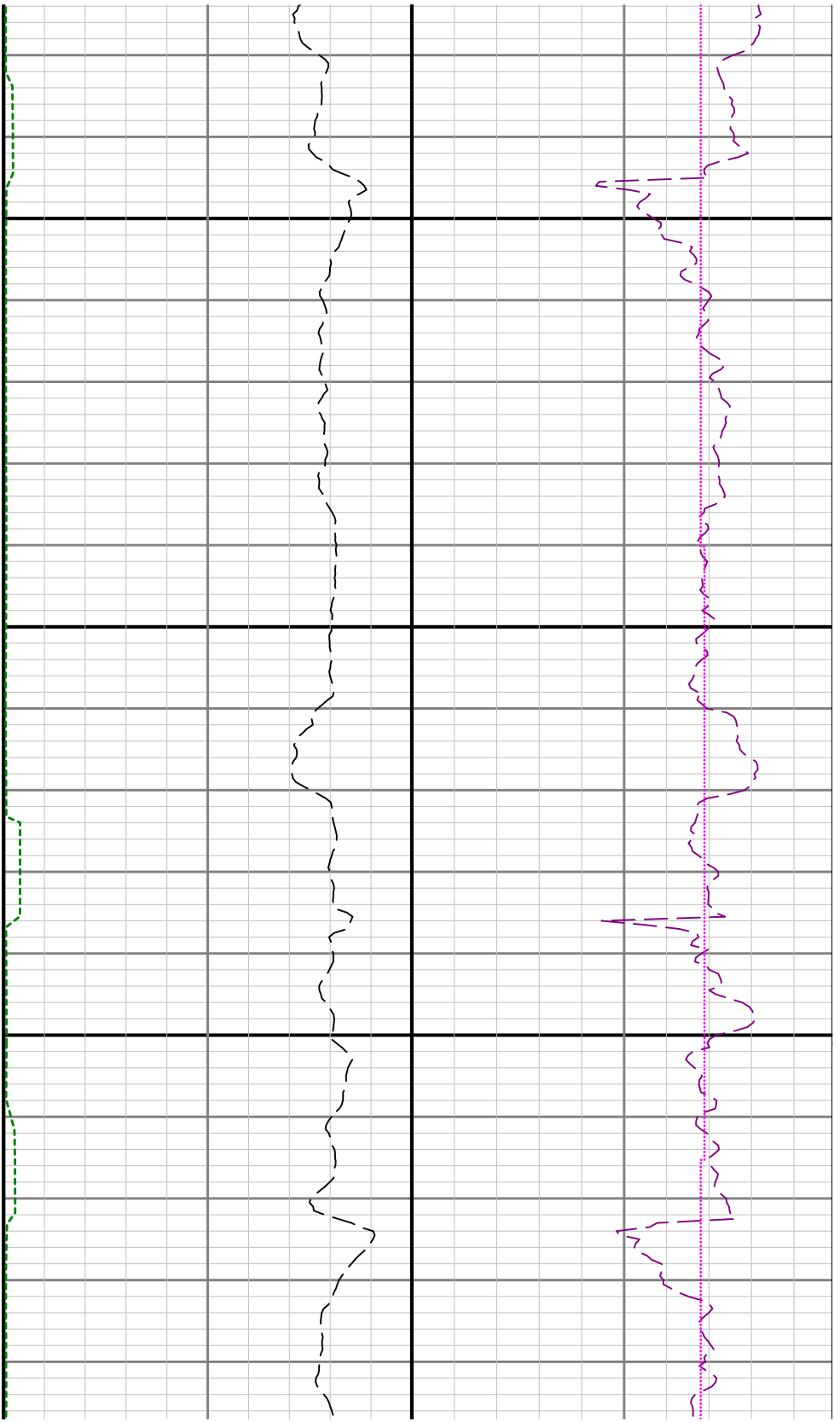












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