



Gamma Ray

Scale:

1:240 MD

Depth Reference:

Driller's Depth

Company: Bonanza Creek Oil Company

Well: State Antelope 44-21-16XRNLNB

Field: Weld County

County: Weld Country: United States

State: Colorado

Status:

Final Print

Surface Location:

Latitude: 040° 22' 44.832" N

Longitude: 104° 19' 15.924" W

Other Services:

API No: 05-123-42765-0000

Job ID: 8648944

SEC: 21 TWN: 5N RGE: 62W

Permanent Datum (P.D.): Ground Level Elevation: 4677.00 ft

Log Measured From: Rig Floor Above P.D. 17.00 ft

Elev. KB: N/A
Elev. DF: 4694.00 ft
Elev. GL: 4677.00 ft

Dates

Interval Logged

Magnetic Field Reference

Date From: 2017-08-11 Top: (ft) 0.00

Date To: 2017-08-15 Bottom: (ft) 16322.63

Spud Date: 2017-07-29

Azi Reference North: True Dip Angle: (deg) 66.93

Total Magnetic Field Strength: (nT) 52491

Mag to Reference North Correction: (deg) 8.11 E

Borehole Record

Casing Record

Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
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13.500	17.00	1650.00	9.625	36.00	17.00	1624.00
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8.500	1650.00	16257.00				
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Mud Record

Deviation Record

Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc Azi (Start)	Inc Azi (End)
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Diesel-Oil Based Mud	0.00	16257.00	13.500	1633.00	0.79 107.88	0.99 74.10
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			8.500	14607.00	0.99 74.10	89.42 354.56
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Acquisition System Software Version Other

Baker Hughes Cadence

RT4.1

PlotStudio 4.1.7763.3

Rig: Xtreme 19

Contractor: Xtreme Drilling

District: D&E

Unit: RMA

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Log Run Summary

Run	Bit	Bit	Bit	Bit	Assembly	Logged Interval	Bit Depth Interval	Date / Time	Circ.
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No	Run No.	Size (in)	Type	Gauge Length (in)	Type	Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	Hours (h)
1	1	13.500	PDC	4.00	Steerable	137.00	1637.00	137.00	1650.00	2017-07-30 02:32	2017-07-30 11:41	6.95
2	2	8.500	PDC	2.50	AutoTrak Curve	1637.00	16245.00	1650.00	16257.00	2017-08-10 18:00	2017-08-15 21:53	88.56

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
John Bryson	2017-07-30	2017-08-10	Ty Jackson	2017-08-15	2017-08-16			

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+ (%)
2017-08-10 00:00	2	1650.00	Diesel-Oil Based Mud	9.2	16	N/A	10.0	70/30	Suction	30000	0.00
2017-08-11 00:00	2	2150.00	Diesel-Oil Based Mud	9.0	16	N/A	10.2	70/30	Suction	29000	0.00
2017-08-12 00:00	2	6005.00	Diesel-Oil Based Mud	9.2	15	N/A	10.1	70/30	Suction	29000	0.00
2017-08-13 00:00	2	9275.00	Diesel-Oil Based Mud	9.3	16	N/A	9.9	71/29	Suction	34000	0.00
2017-08-14 00:00	2	12700.00	Diesel-Oil Based Mud	9.3	16	N/A	9.8	75/25	Suction	34000	0.00
2017-08-15 00:00	2	16188.00	Diesel-Oil Based Mud	9.3	17	N/A	10.0	74/26	Suction	32000	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	11912324	Directional (mag)	16.31	52.23	8.000	3.250
1	NaviTrak	11912324	VSS	16.31	52.23	8.000	3.250
2	ATC_SU	12653420	Near Bit VSS	5.93	6.73	7.000	4.330
2	ATC_SU	12653420	Near Bit Inclination	5.93	6.73	7.000	4.330
2	ATC_MWD	13012733	Gamma (single)	2.13	12.35	7.000	3.250
2	ATC_MWD	13012733	Directional (mag)	12.27	22.49	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	Baker Hughes LWD Run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1637 to 16257 feet MD (1637 to 6341 feet TVD).
2	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.

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	5000.00	8.500	2	Baker Hughes LWD began logging services at 5000 feet MD (4920 feet TVD) per client request.
2	16257.00	8.500	2	The interval from 16245 to 16257 (6341 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 - 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



Company

Well

Interval

Created

Bonanza Creek Oil Company

State Antelope 44-21-16XRLNB

Date From:

2017-08-11 17:40:29

Top:

5000.00

Date To:

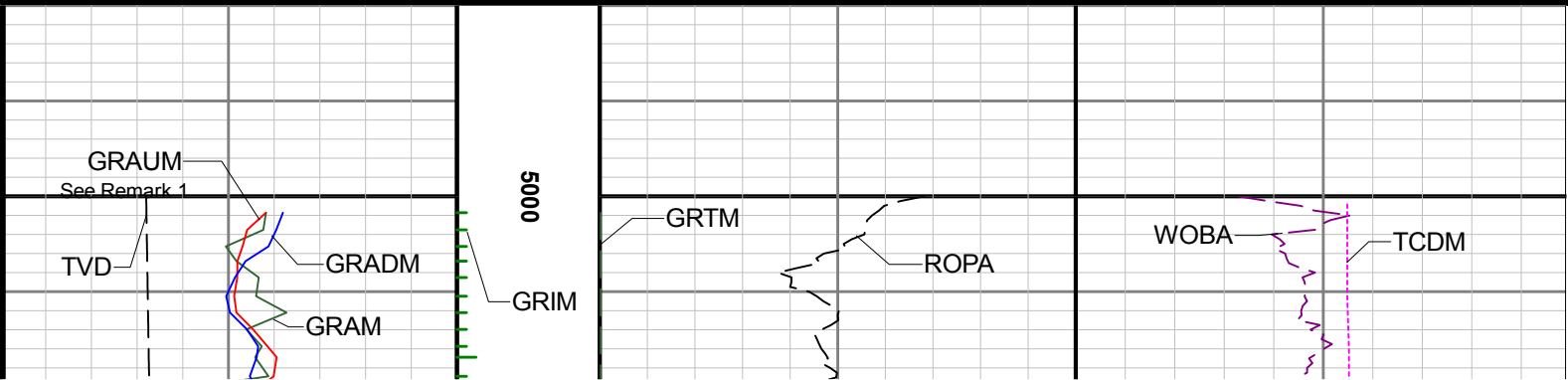
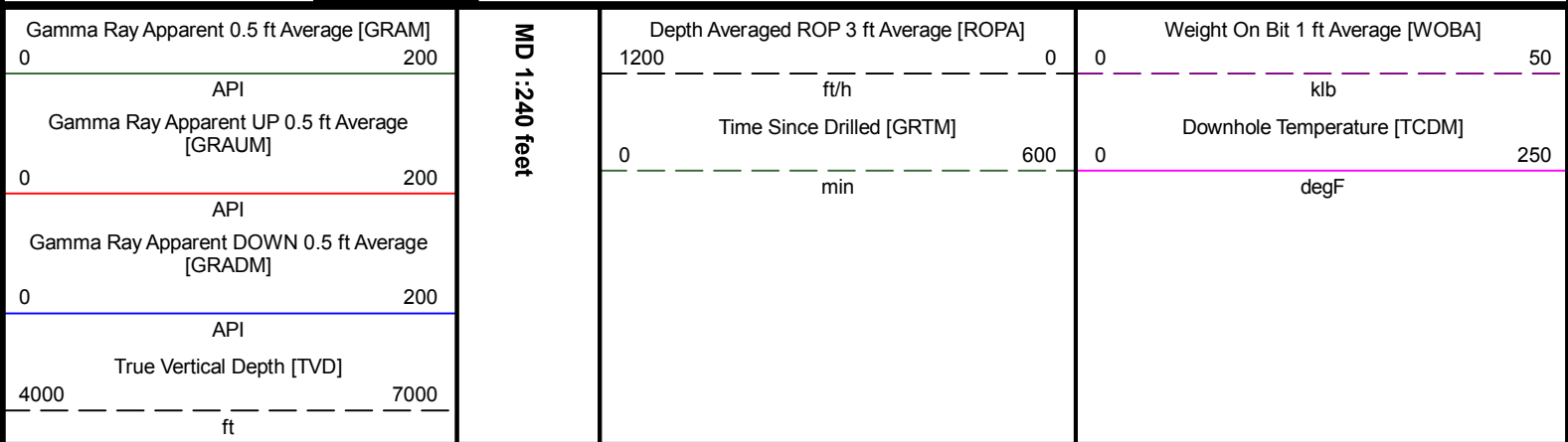
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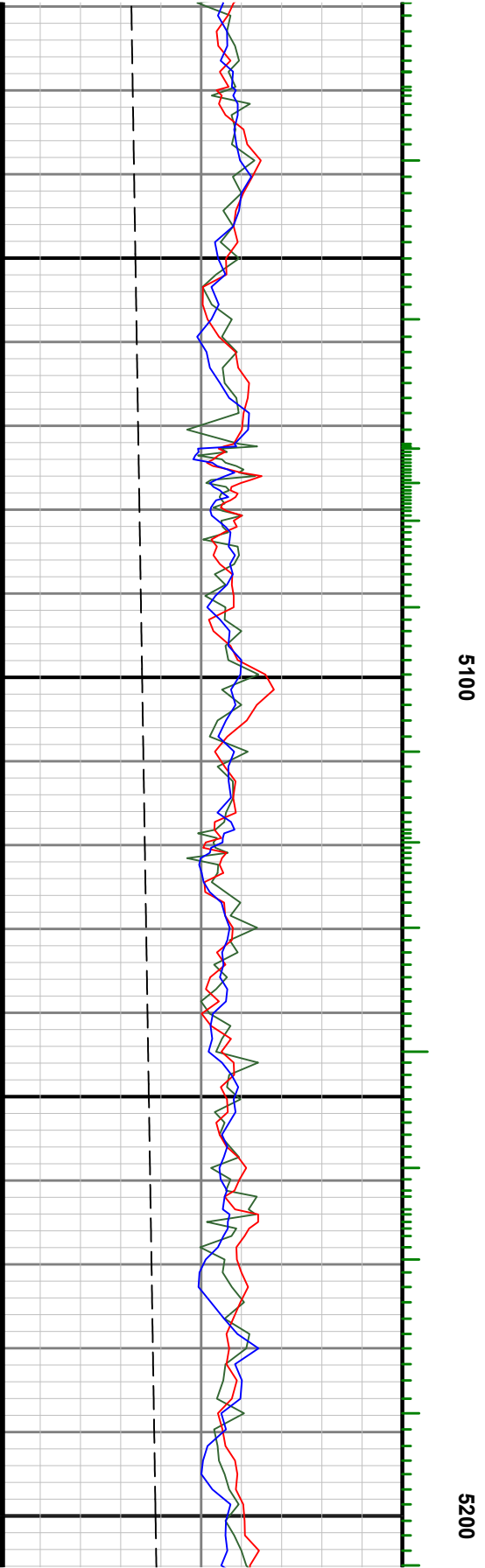
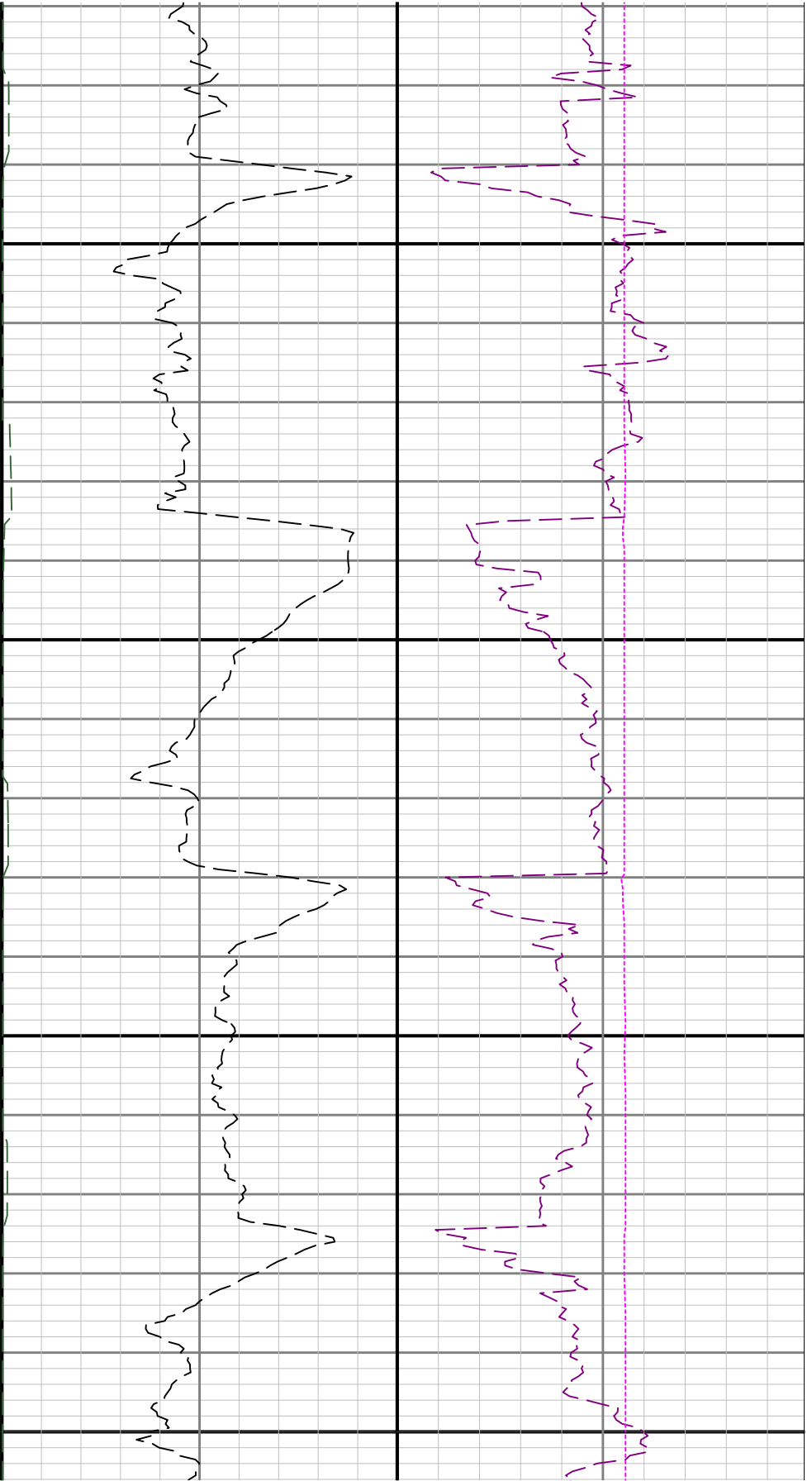
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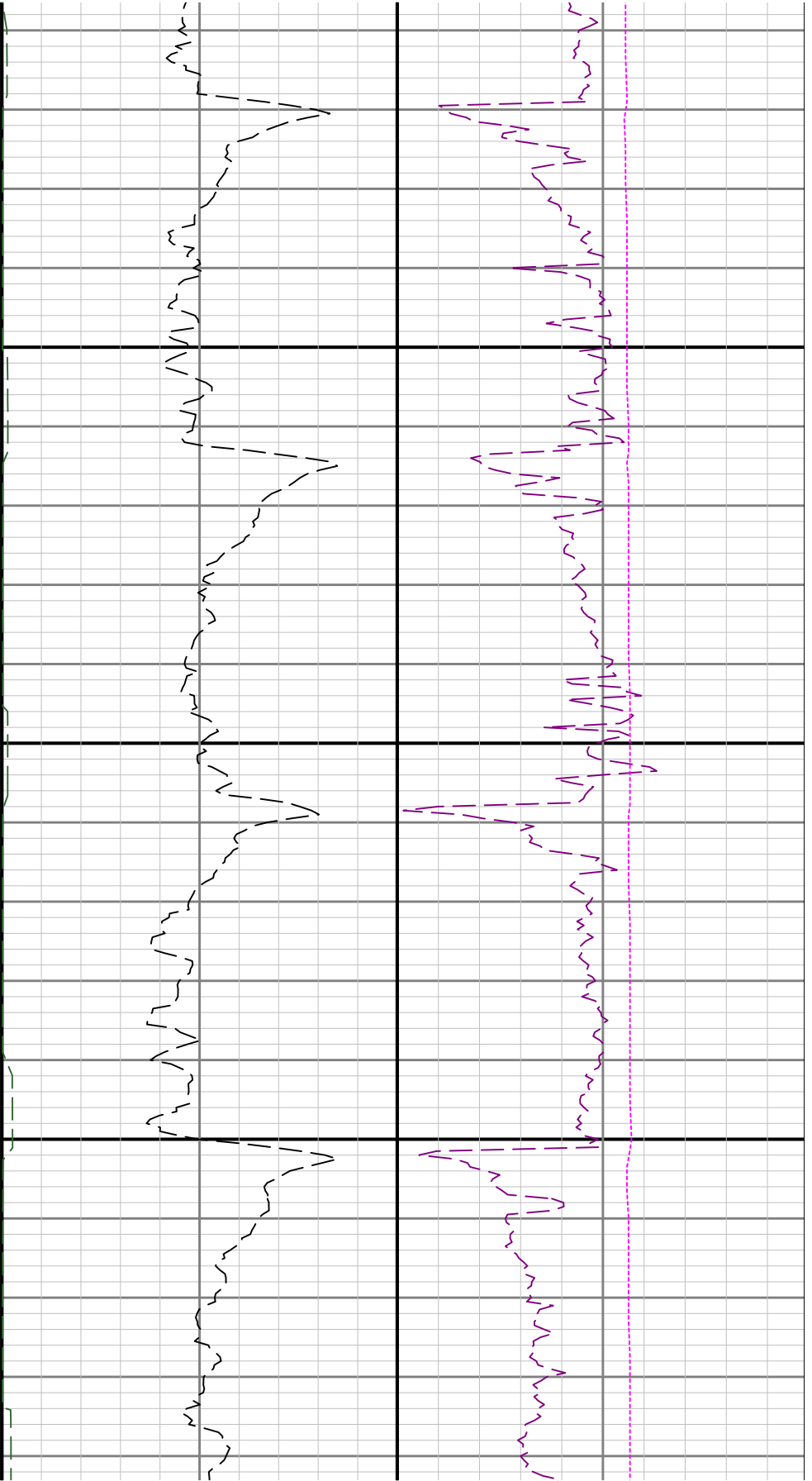
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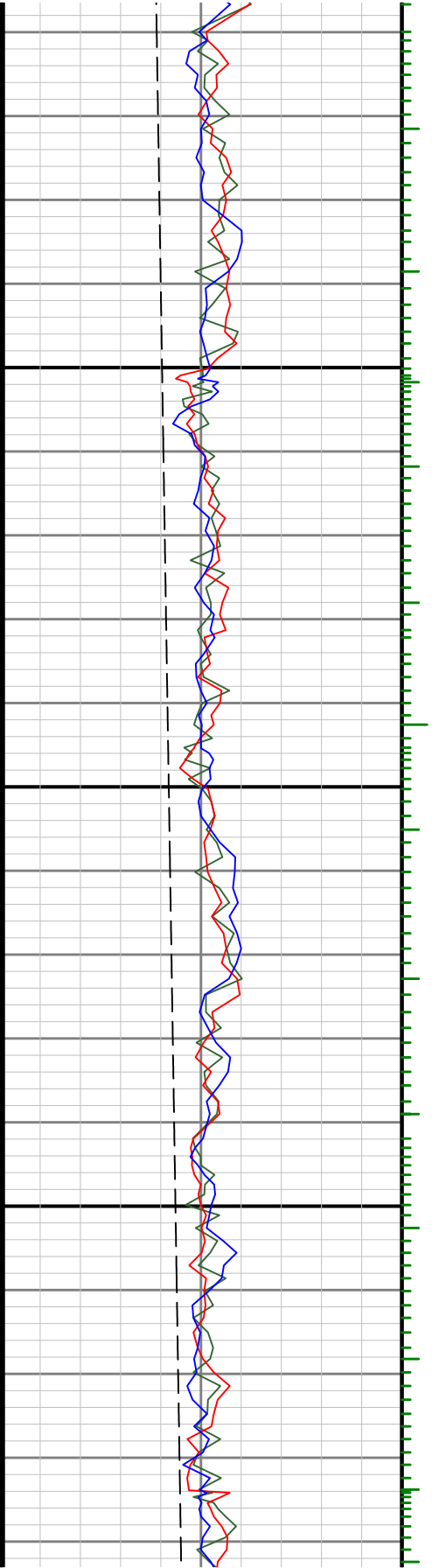
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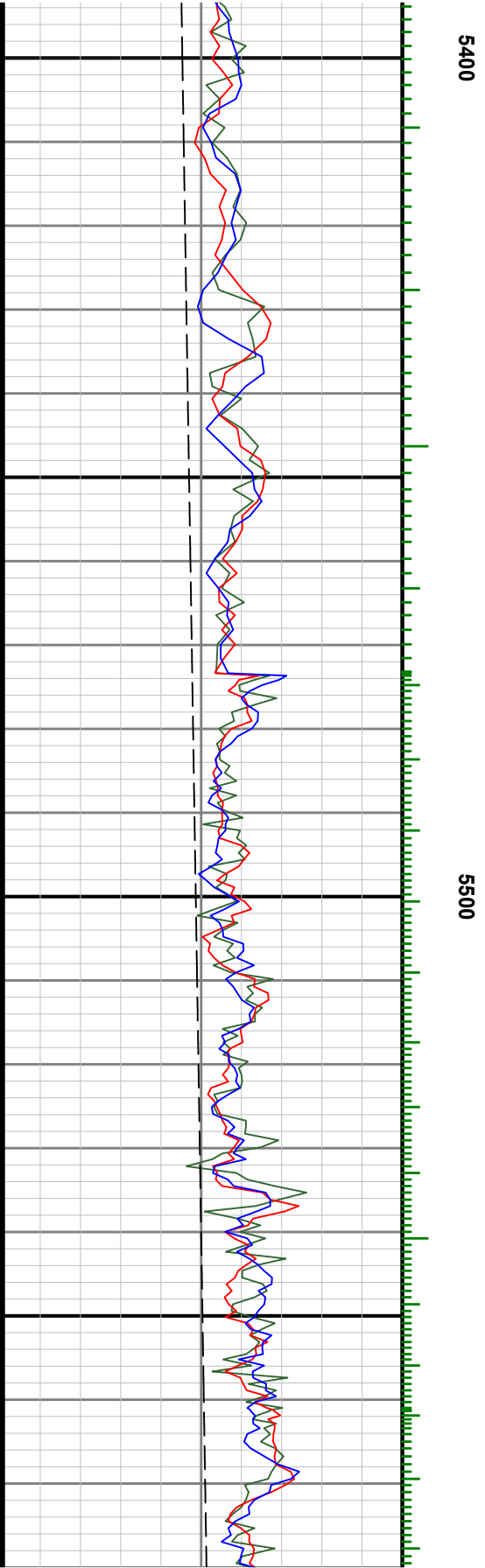
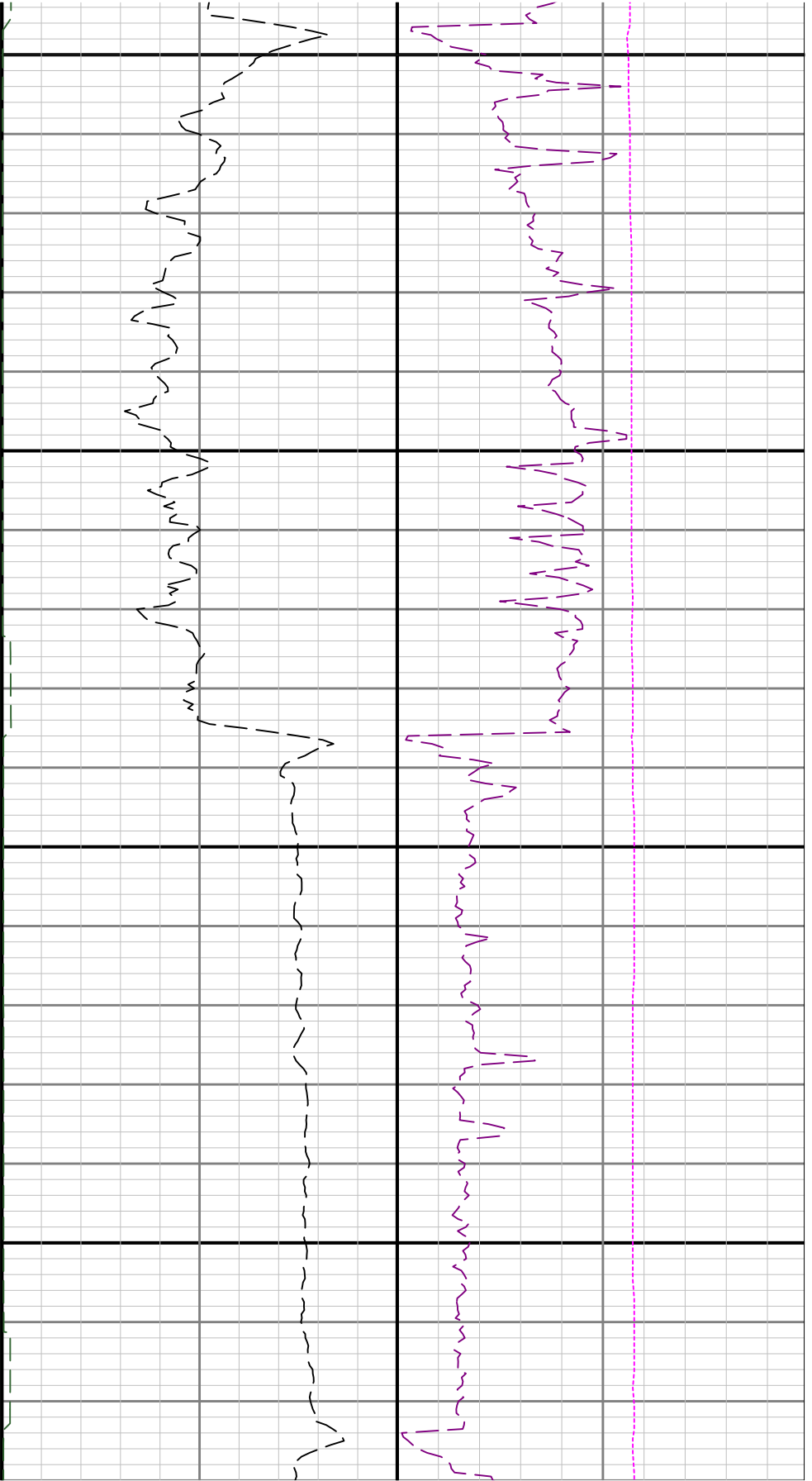


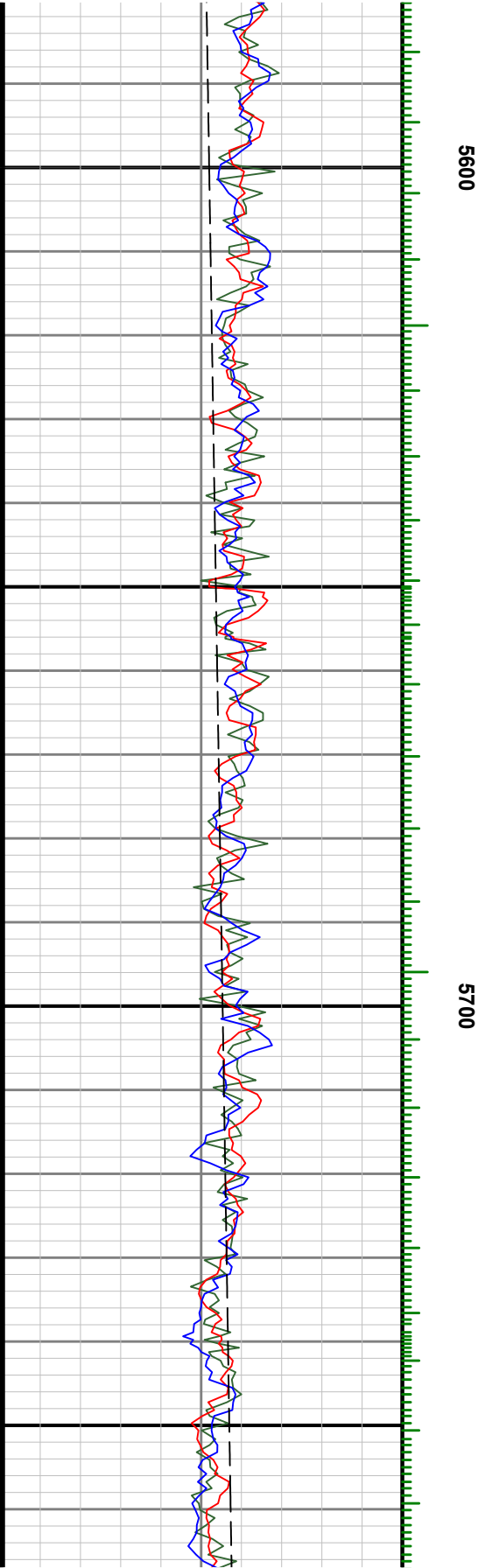
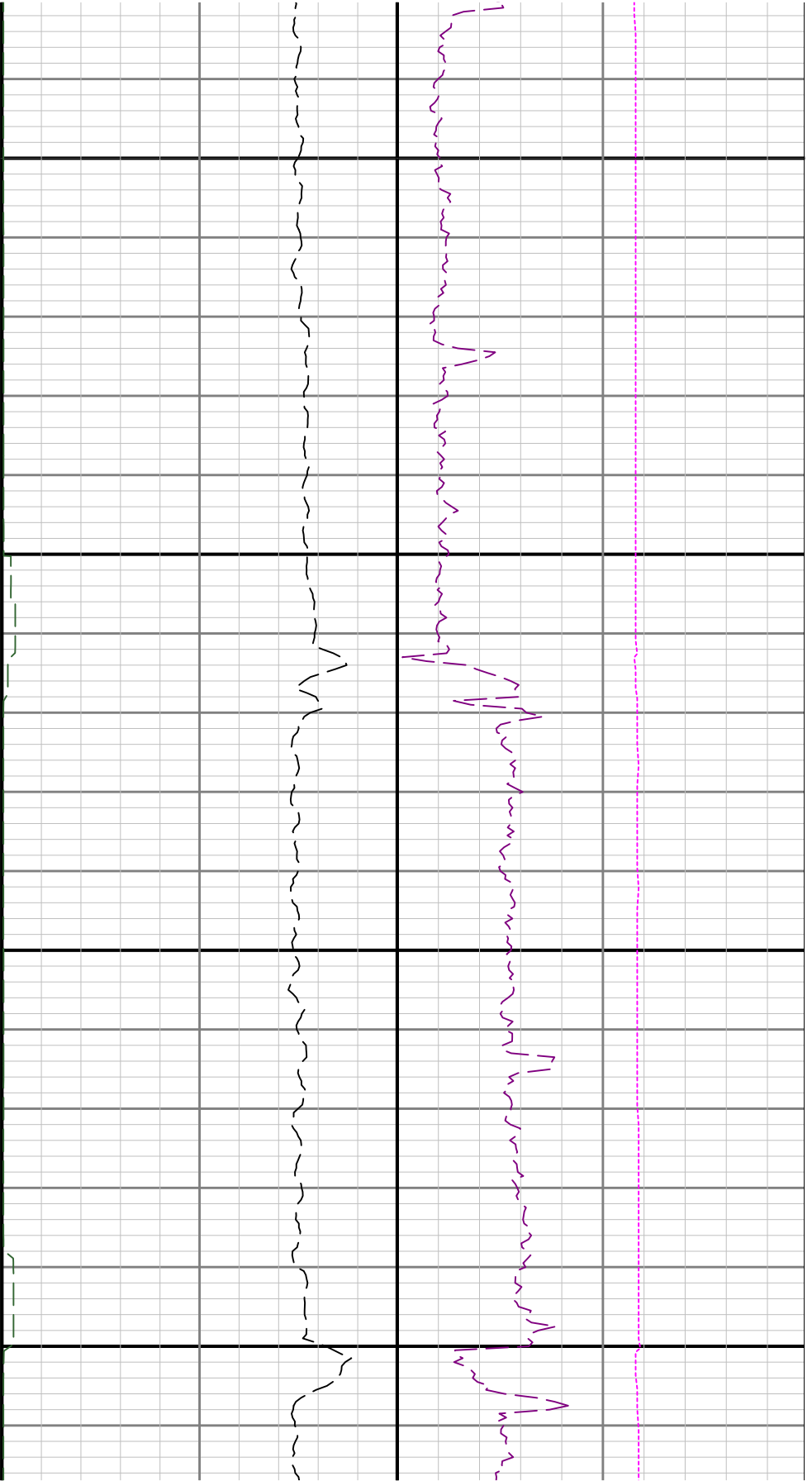


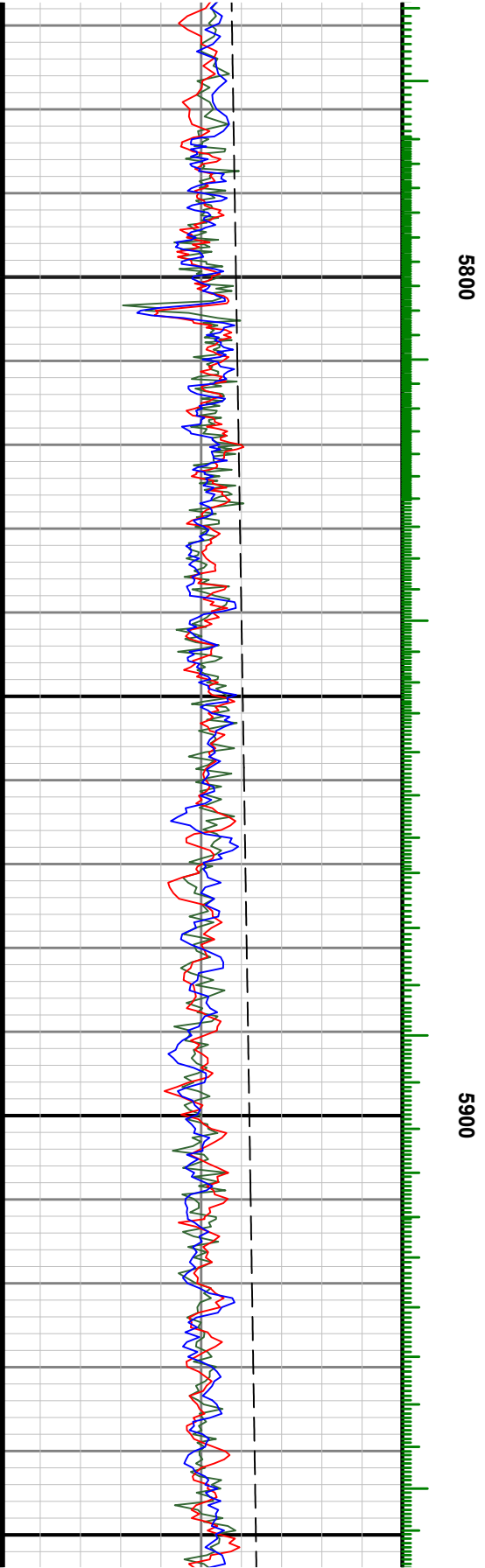
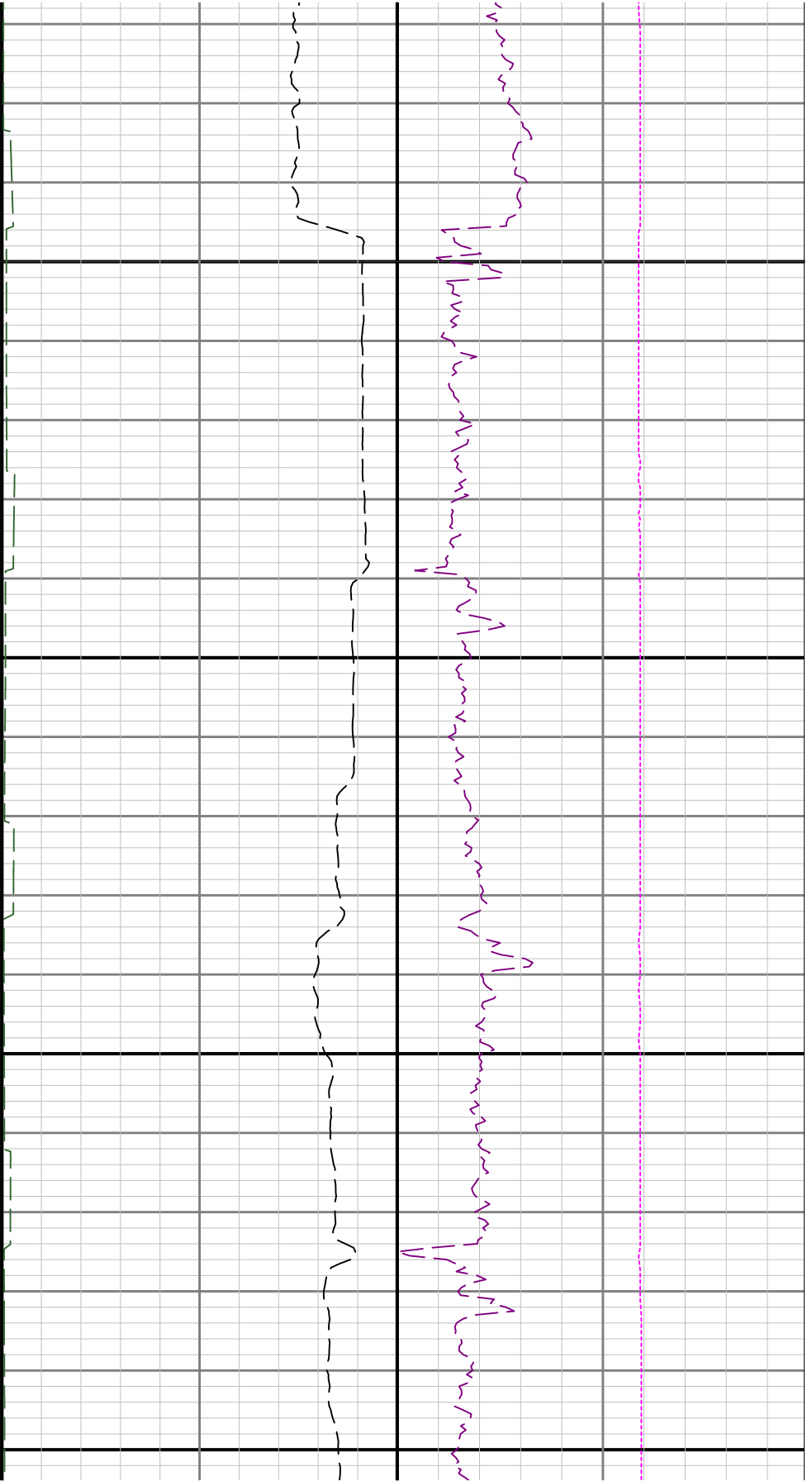


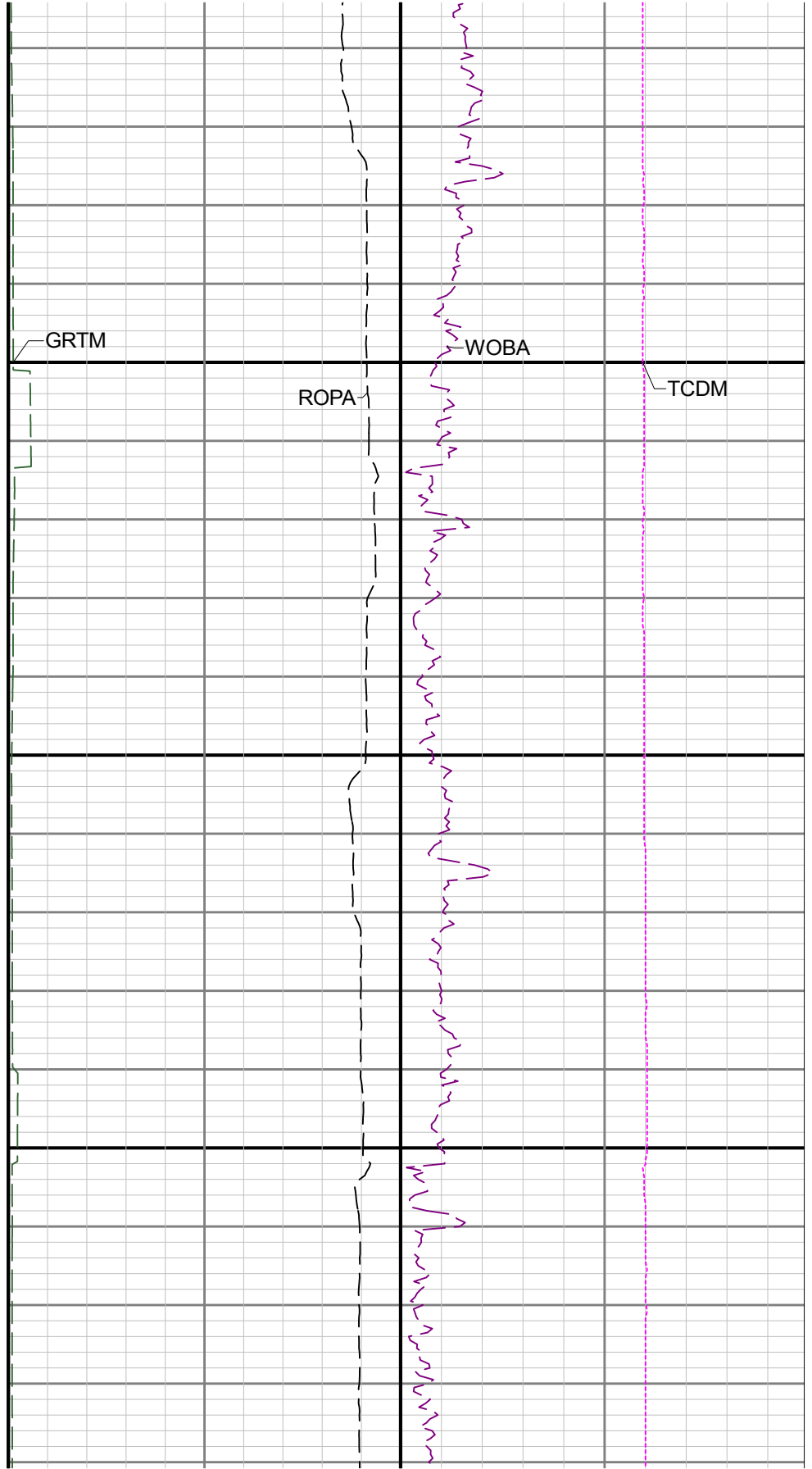
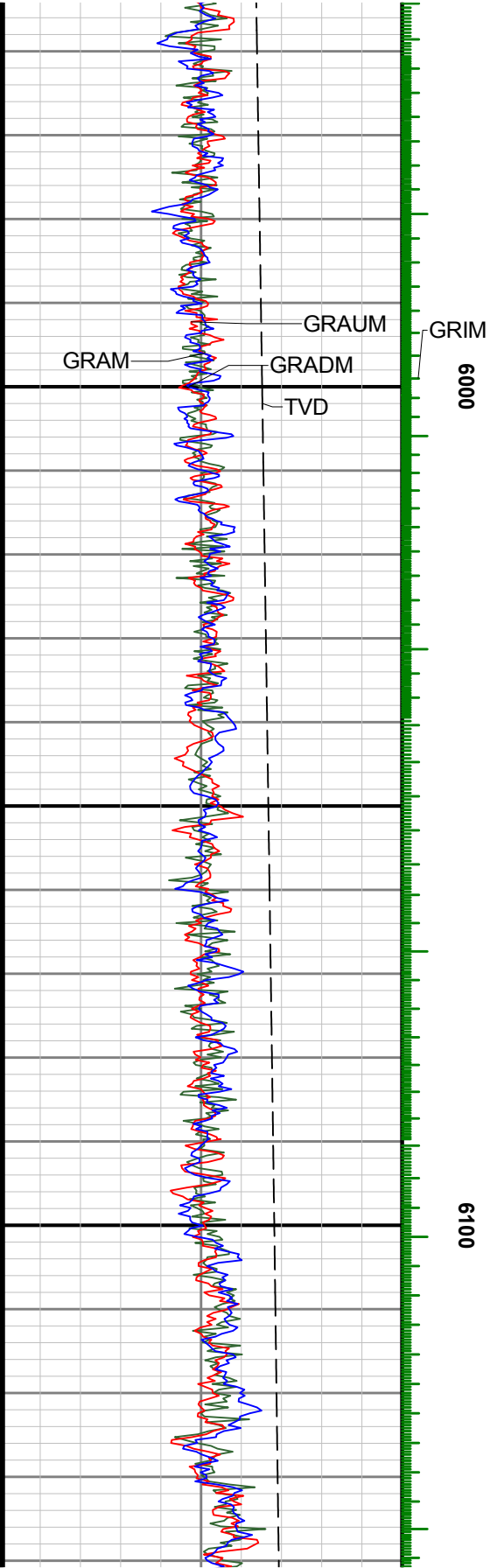
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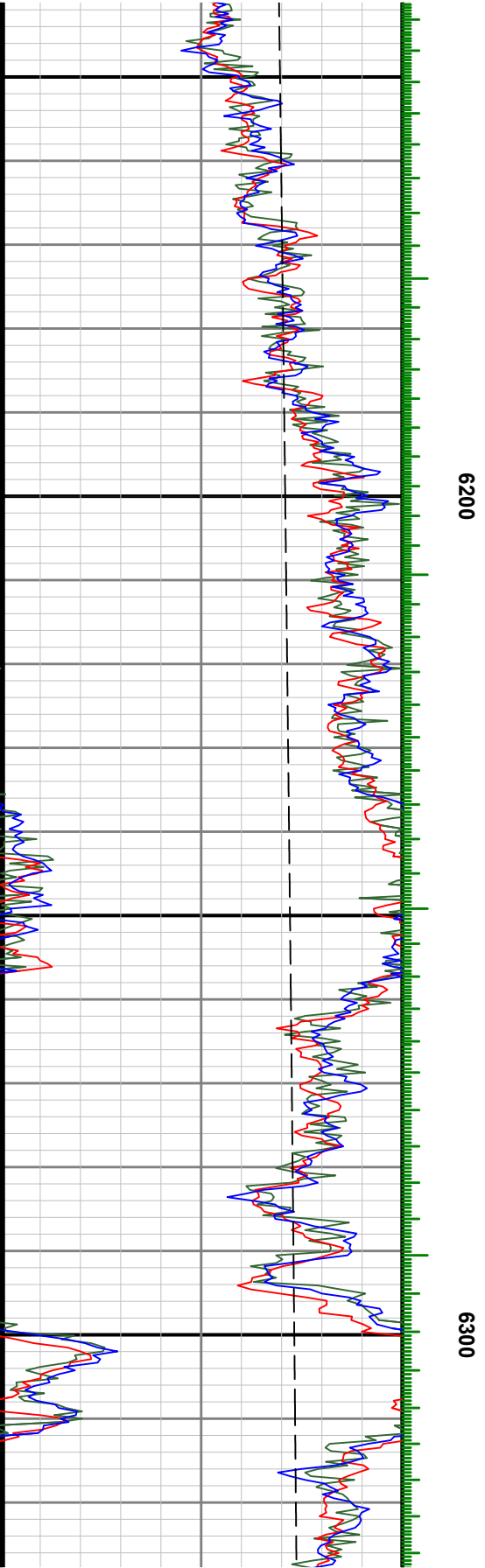
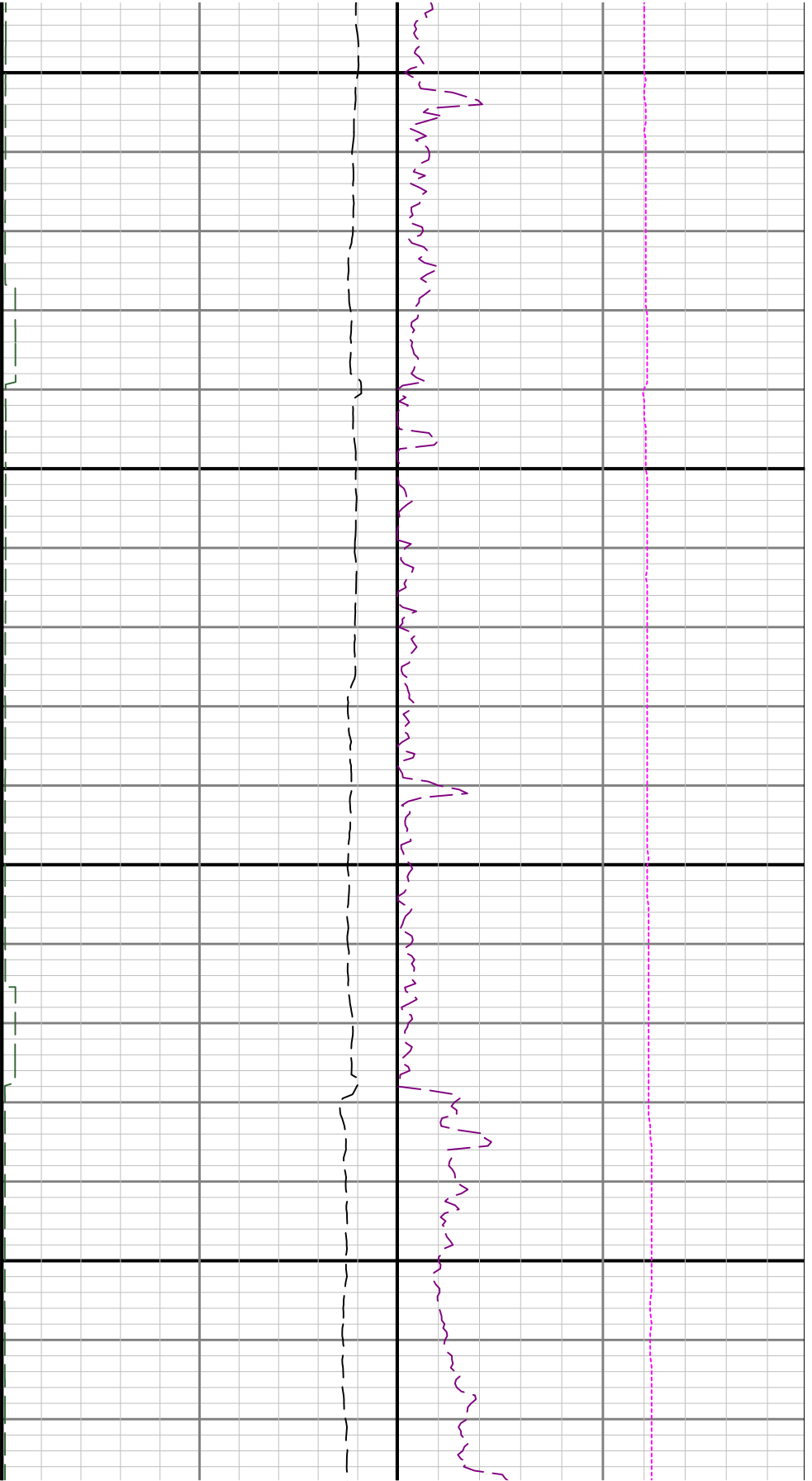


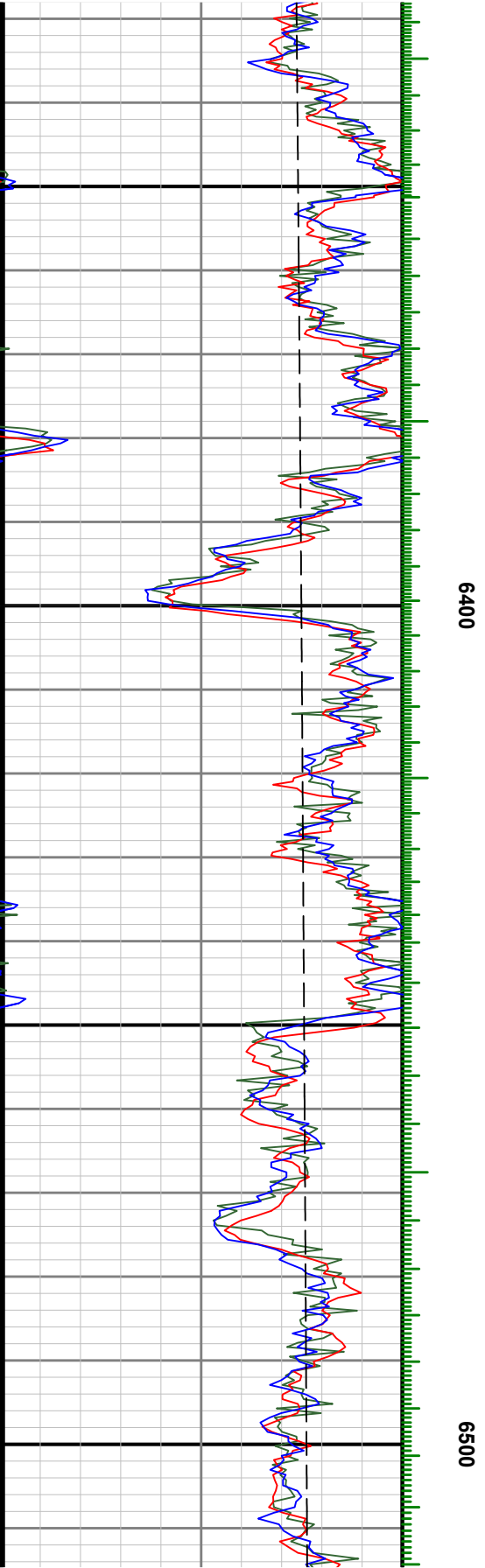
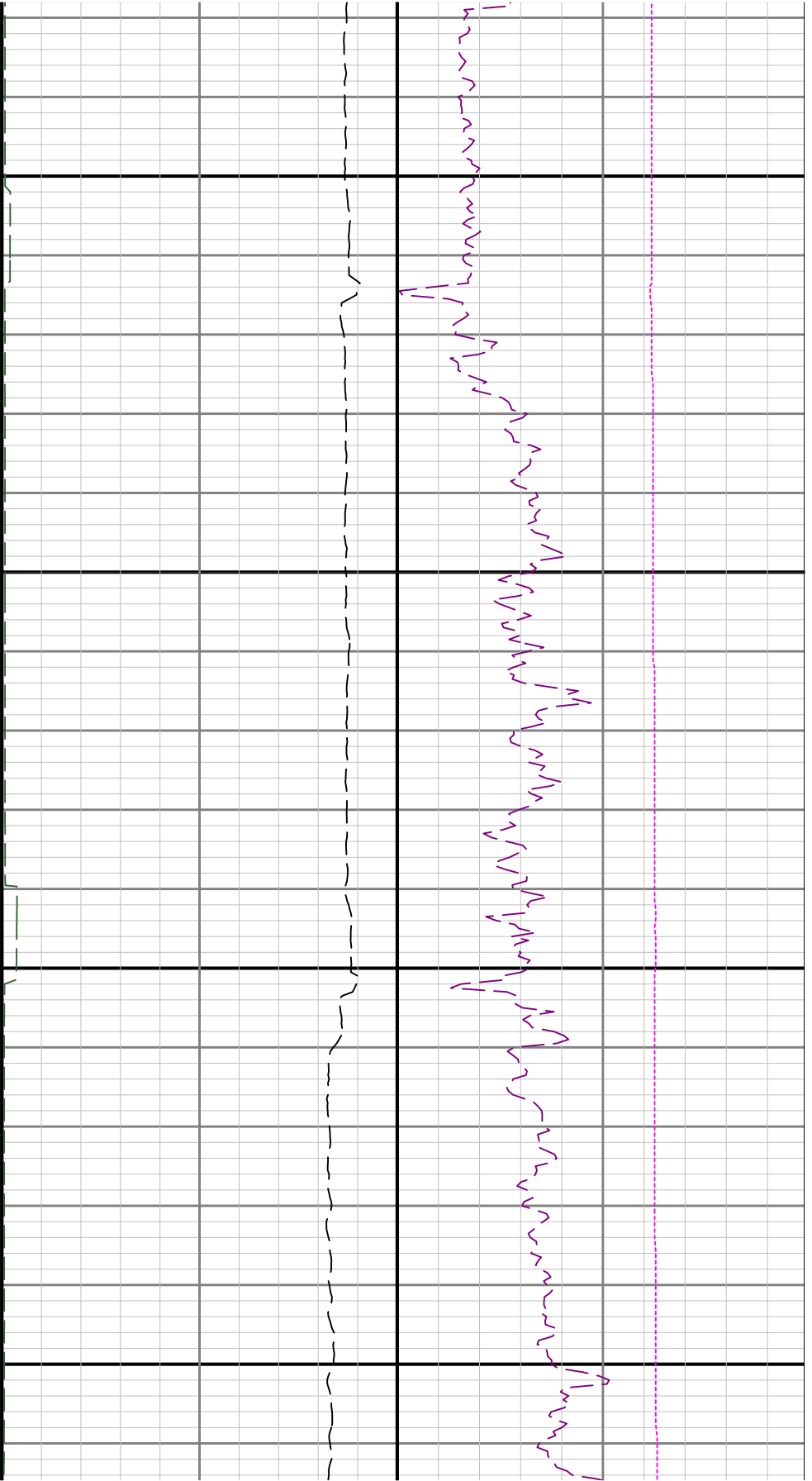


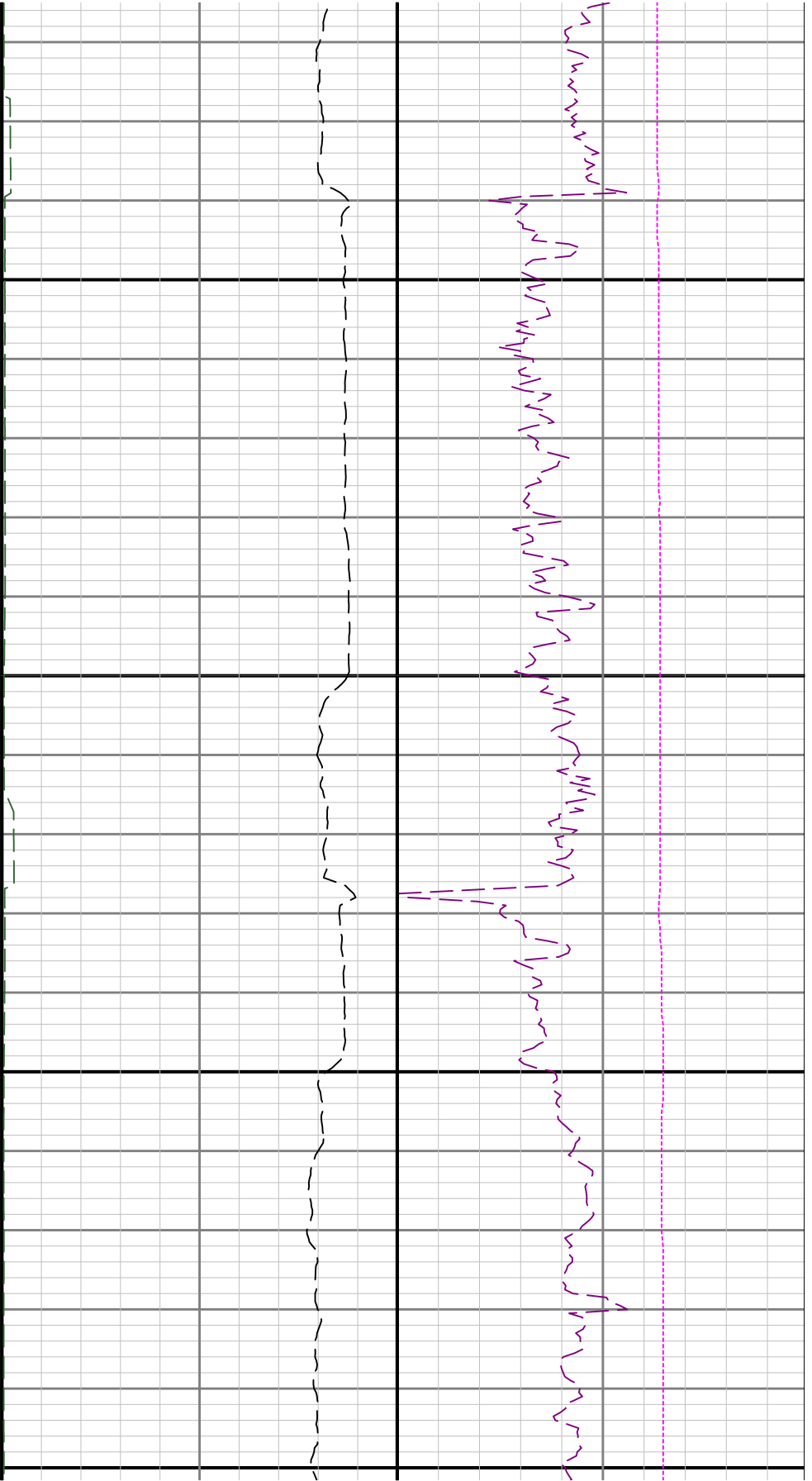






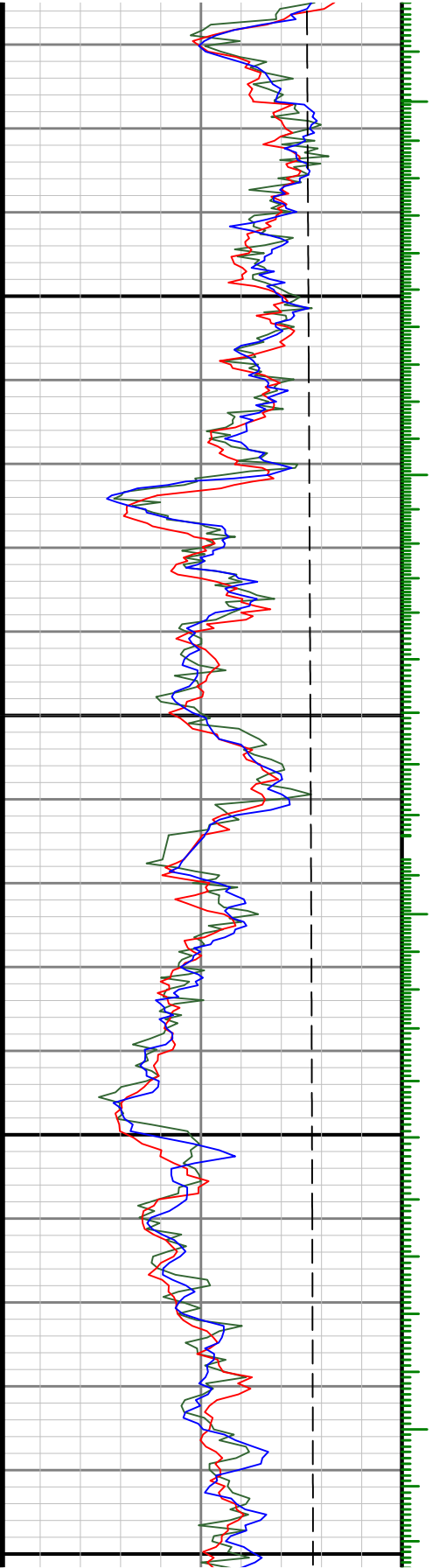


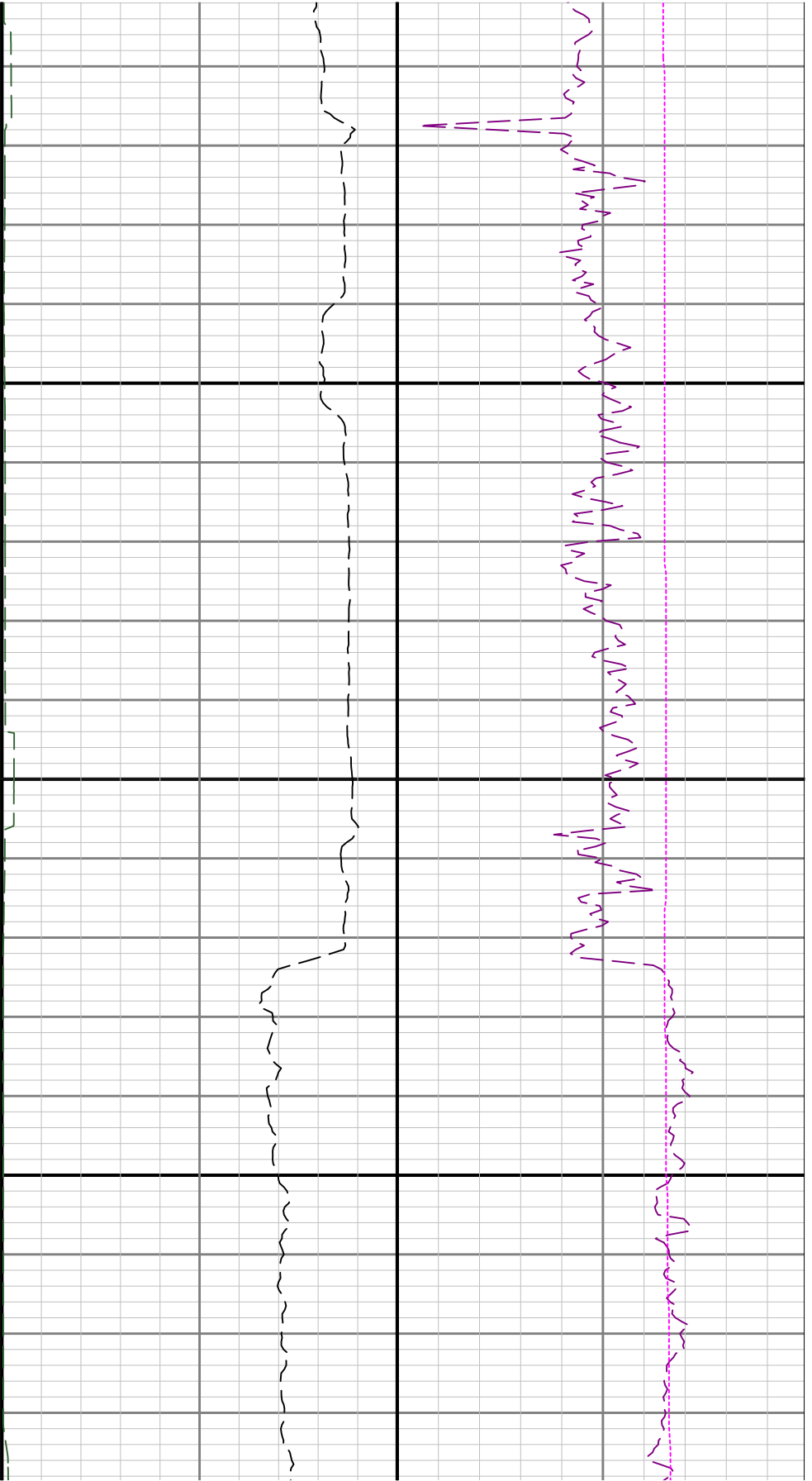




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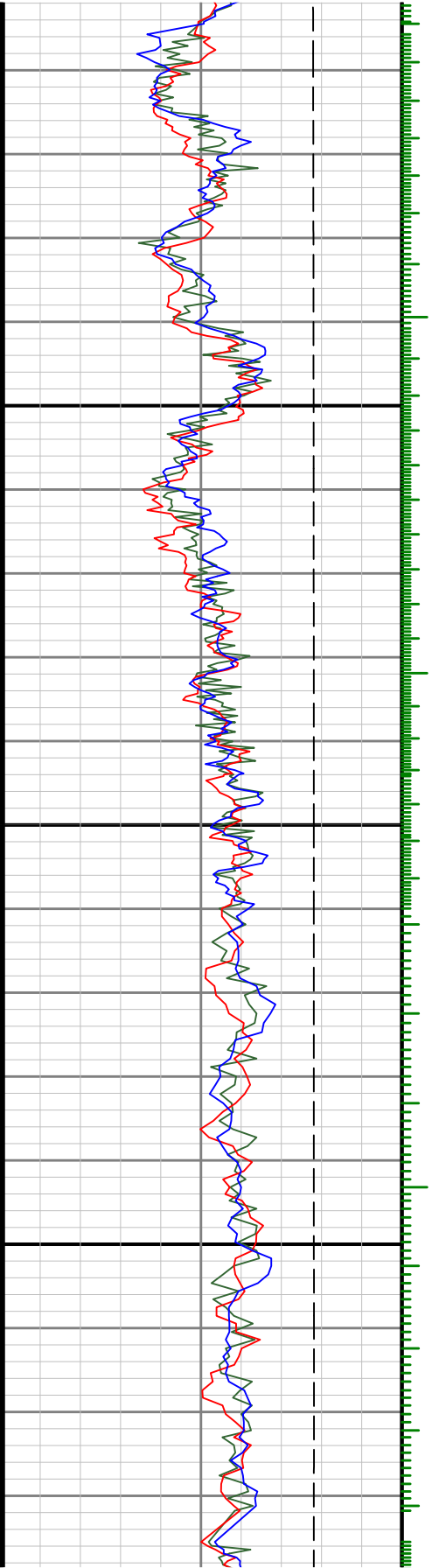
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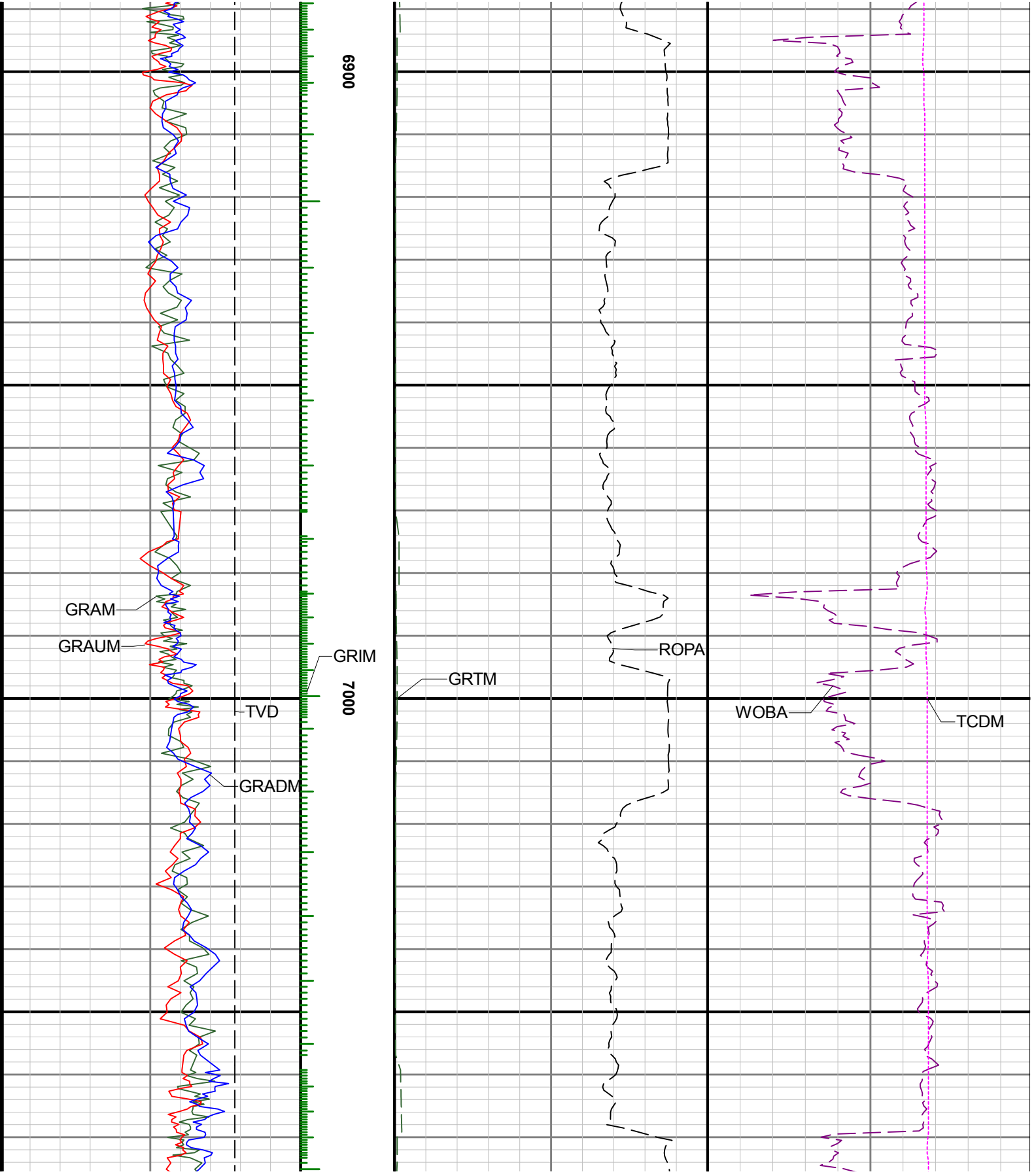


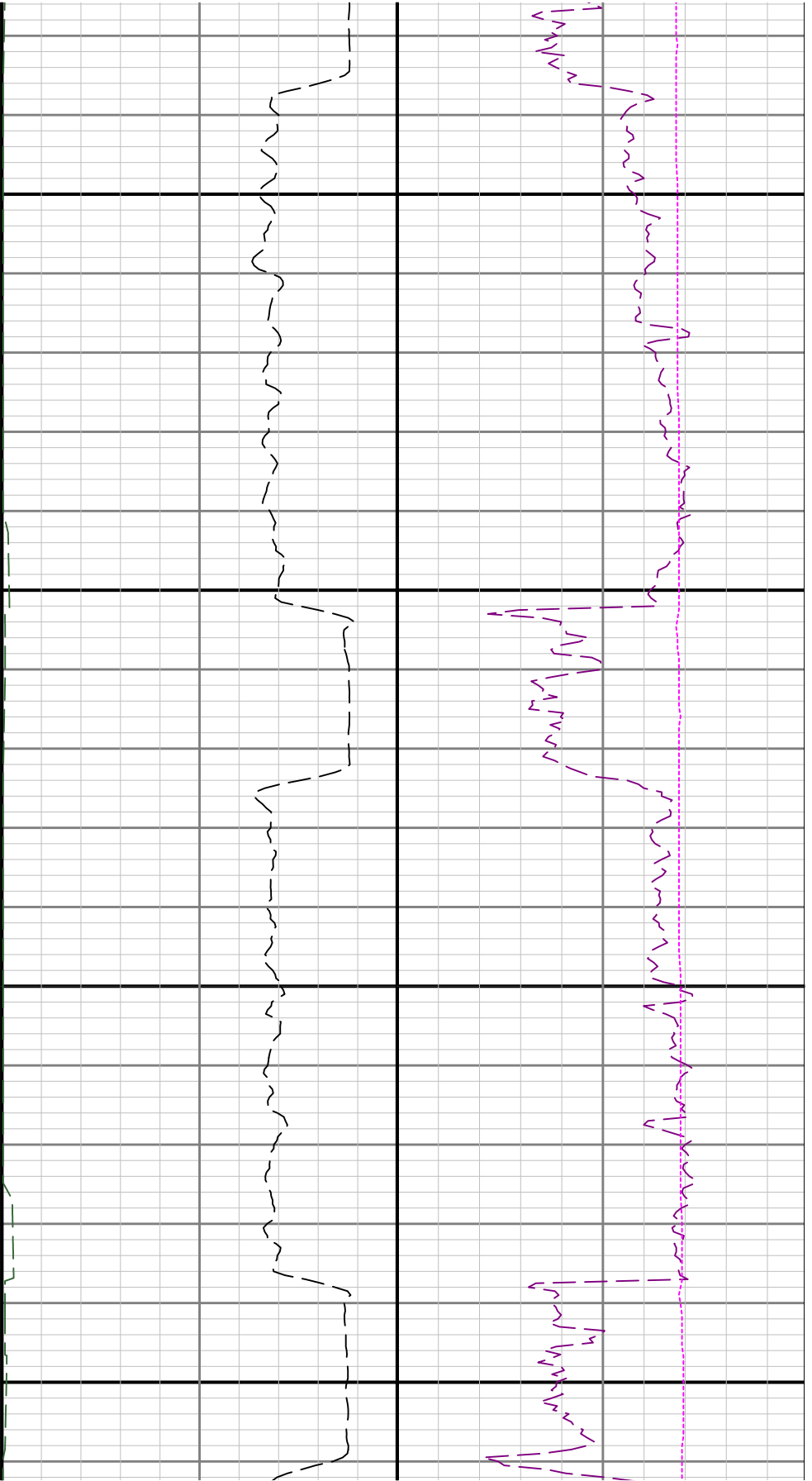


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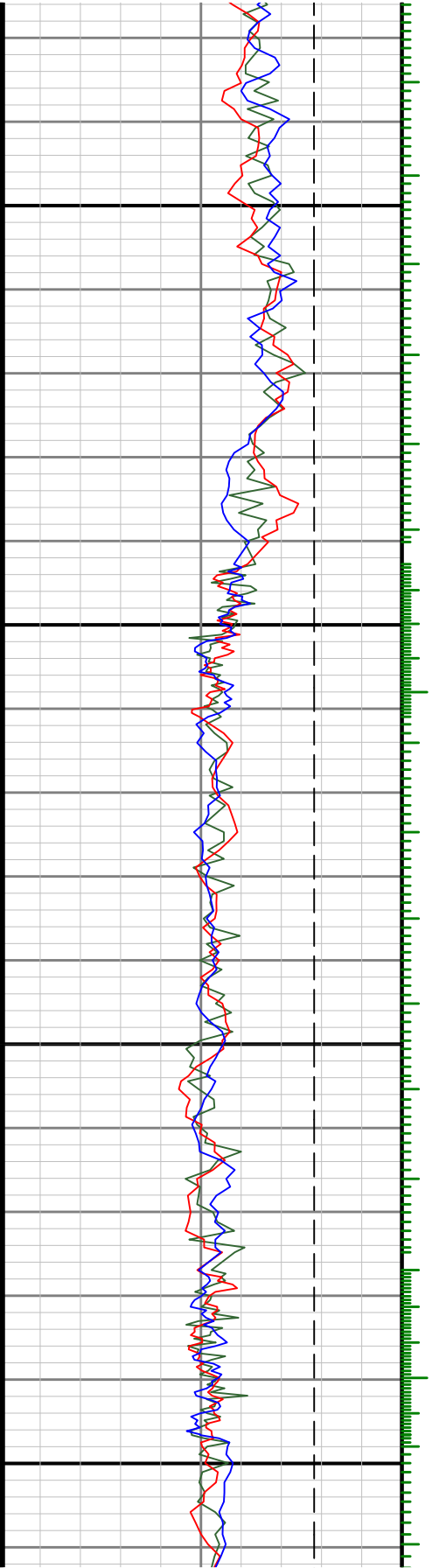


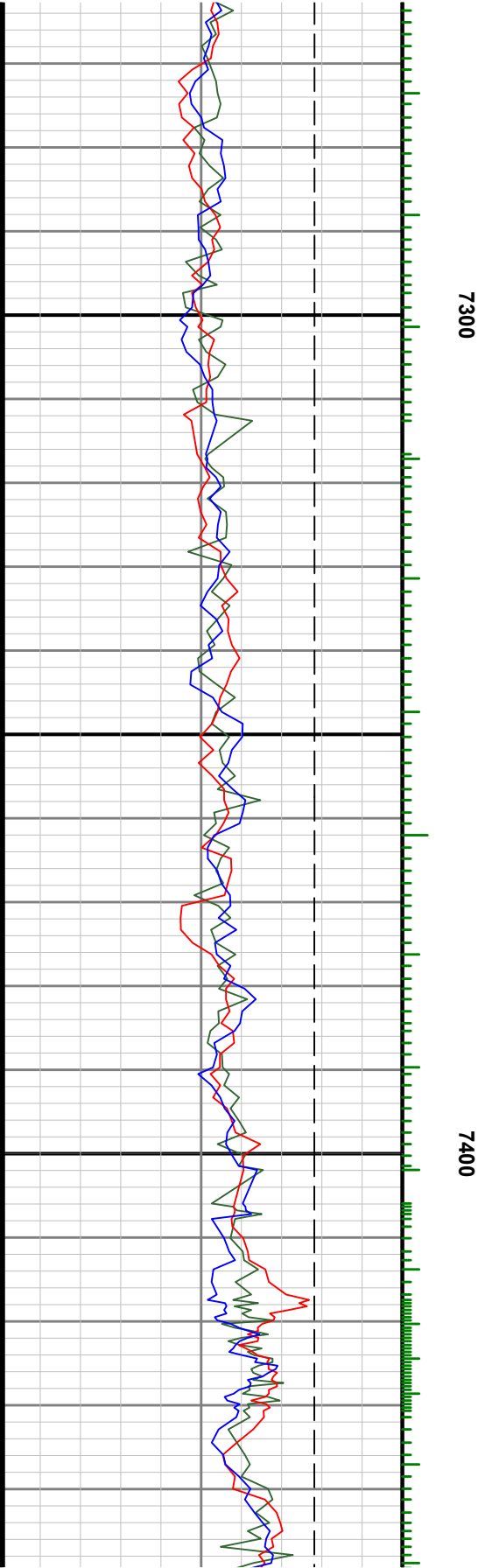
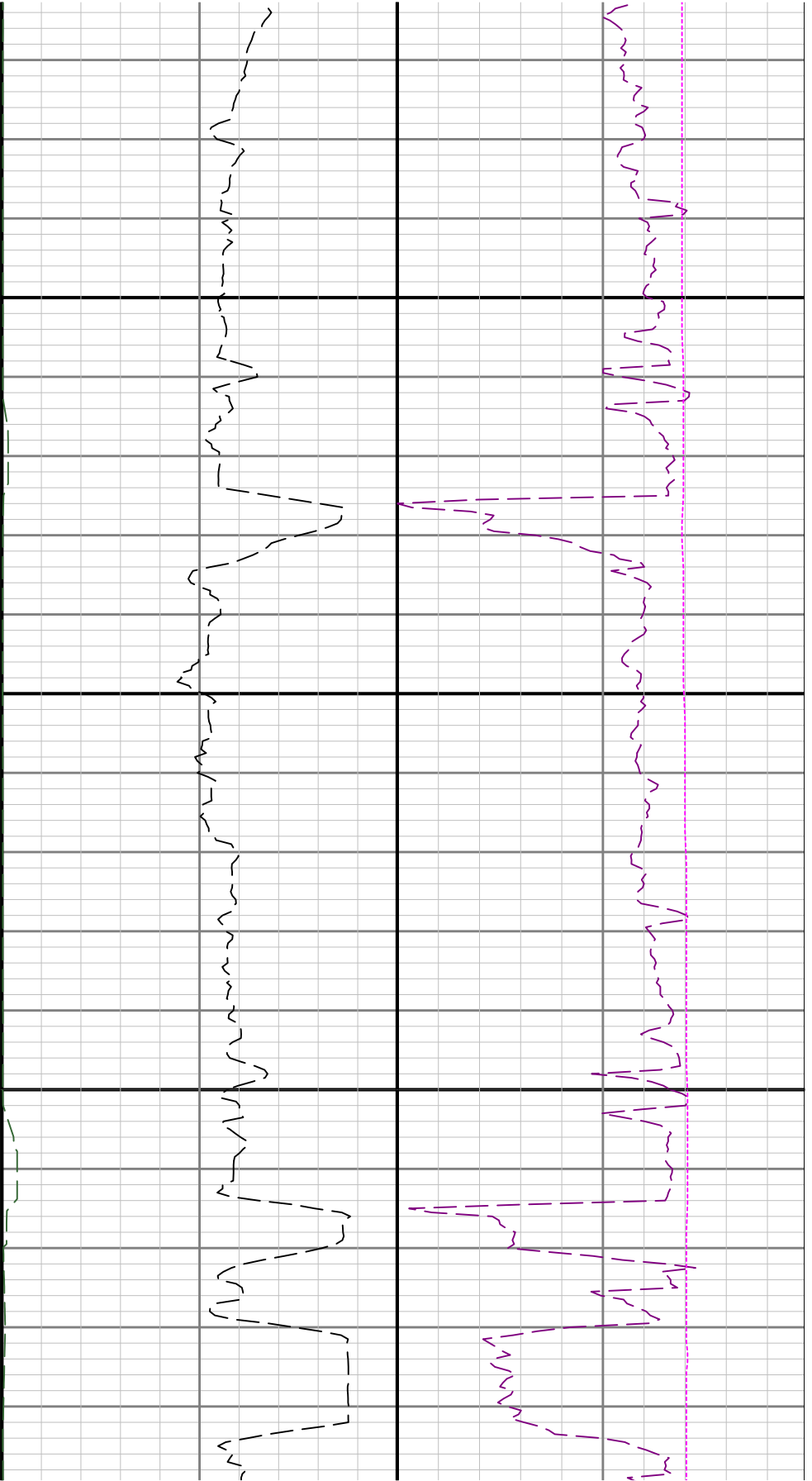


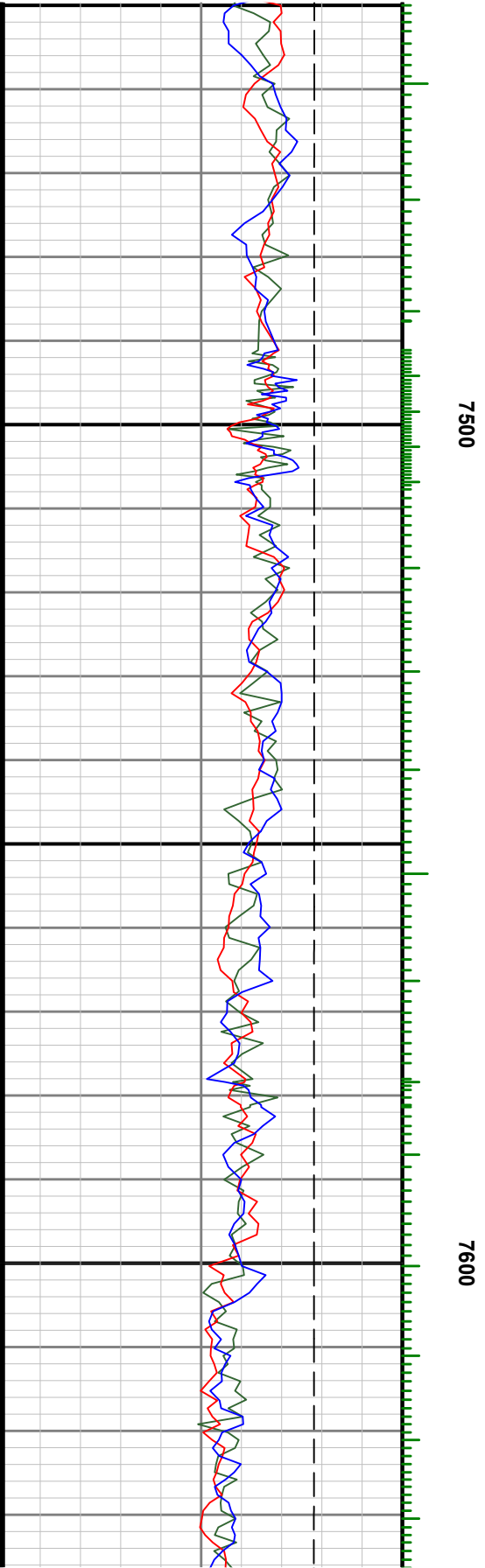
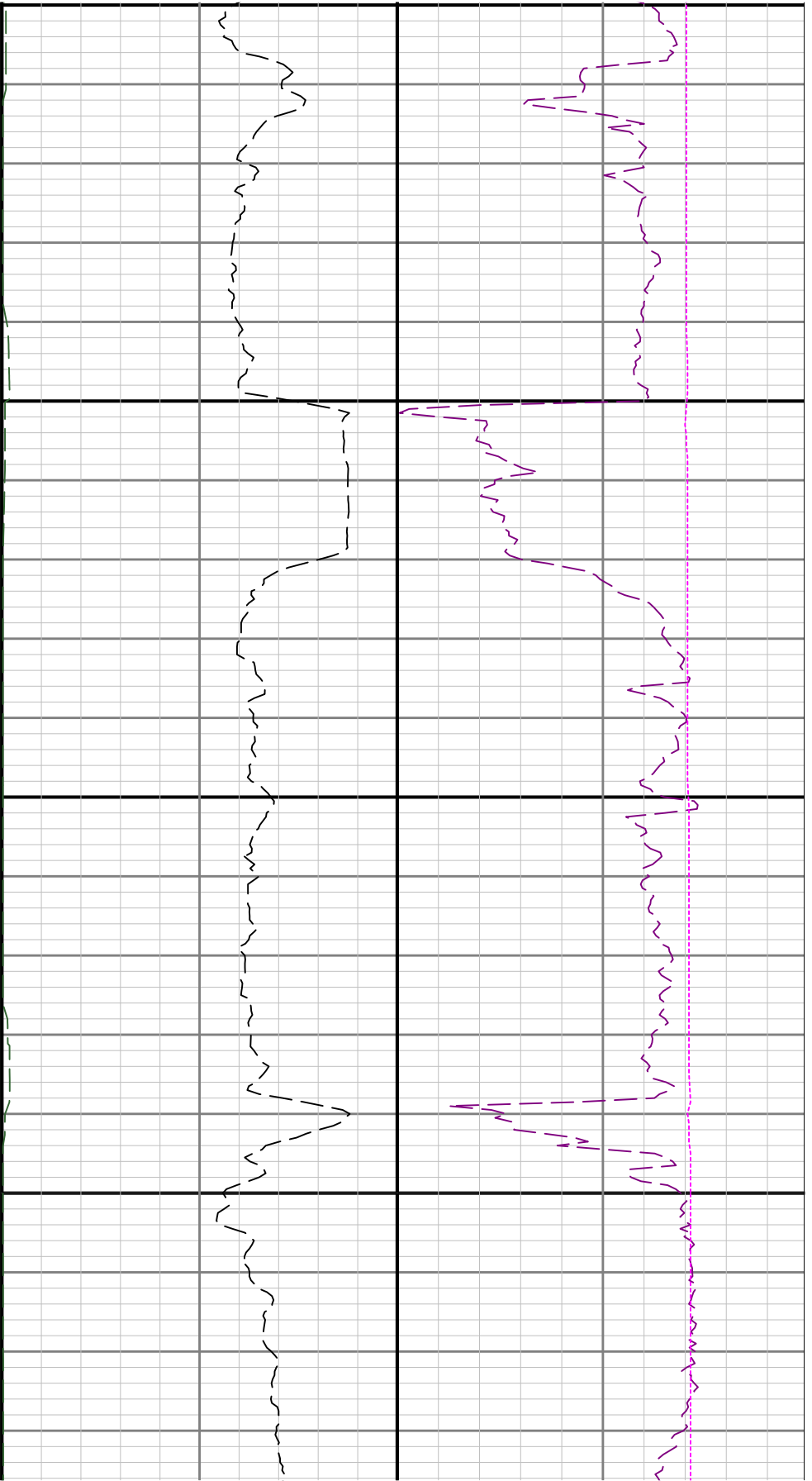


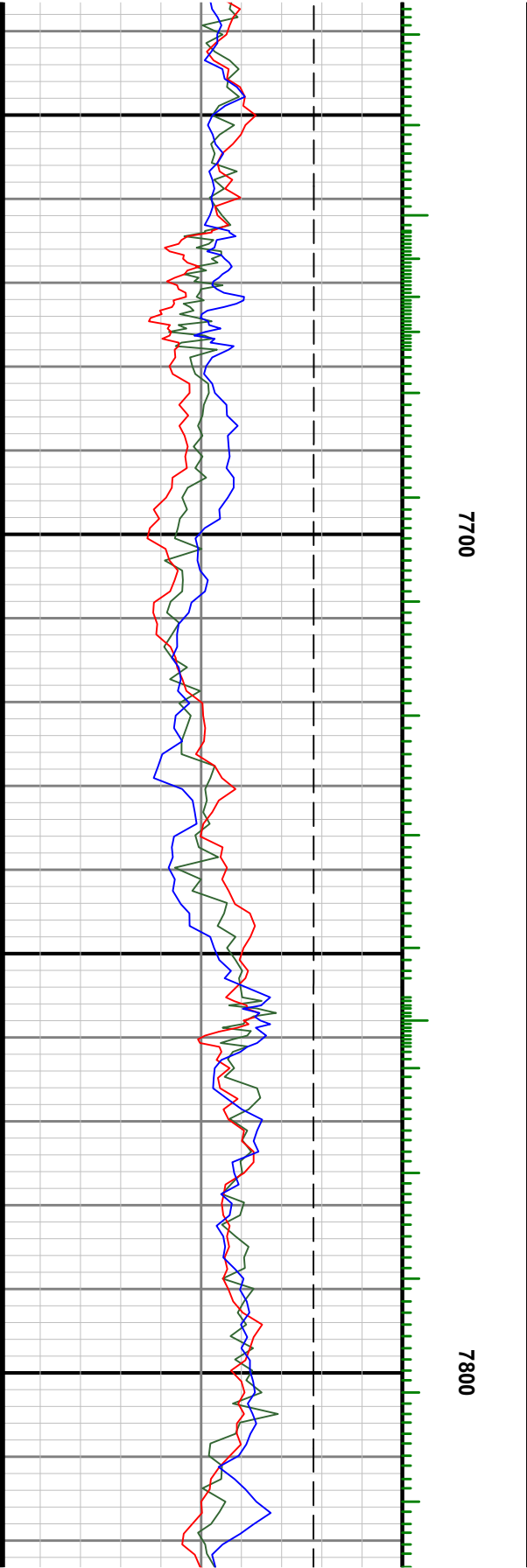
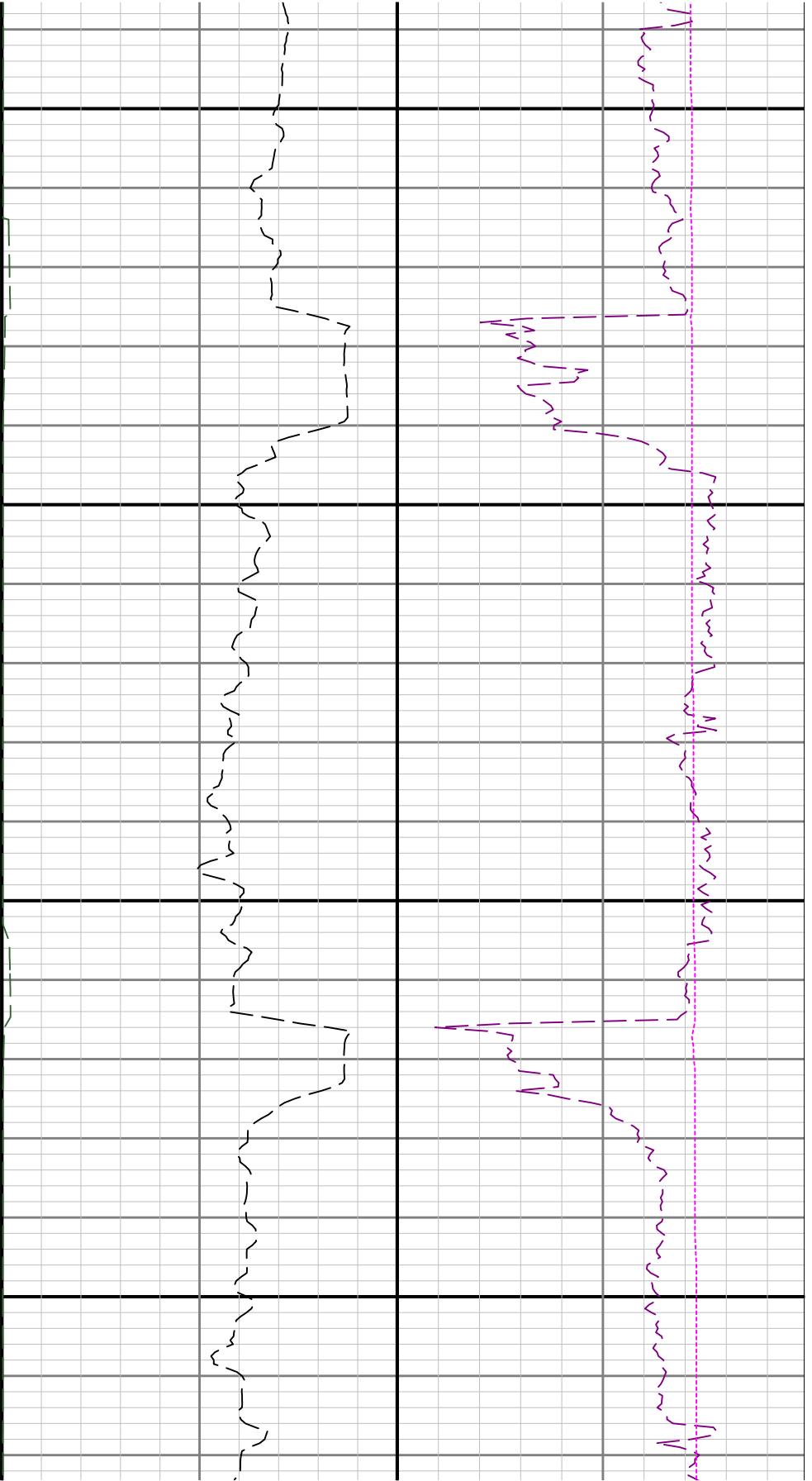
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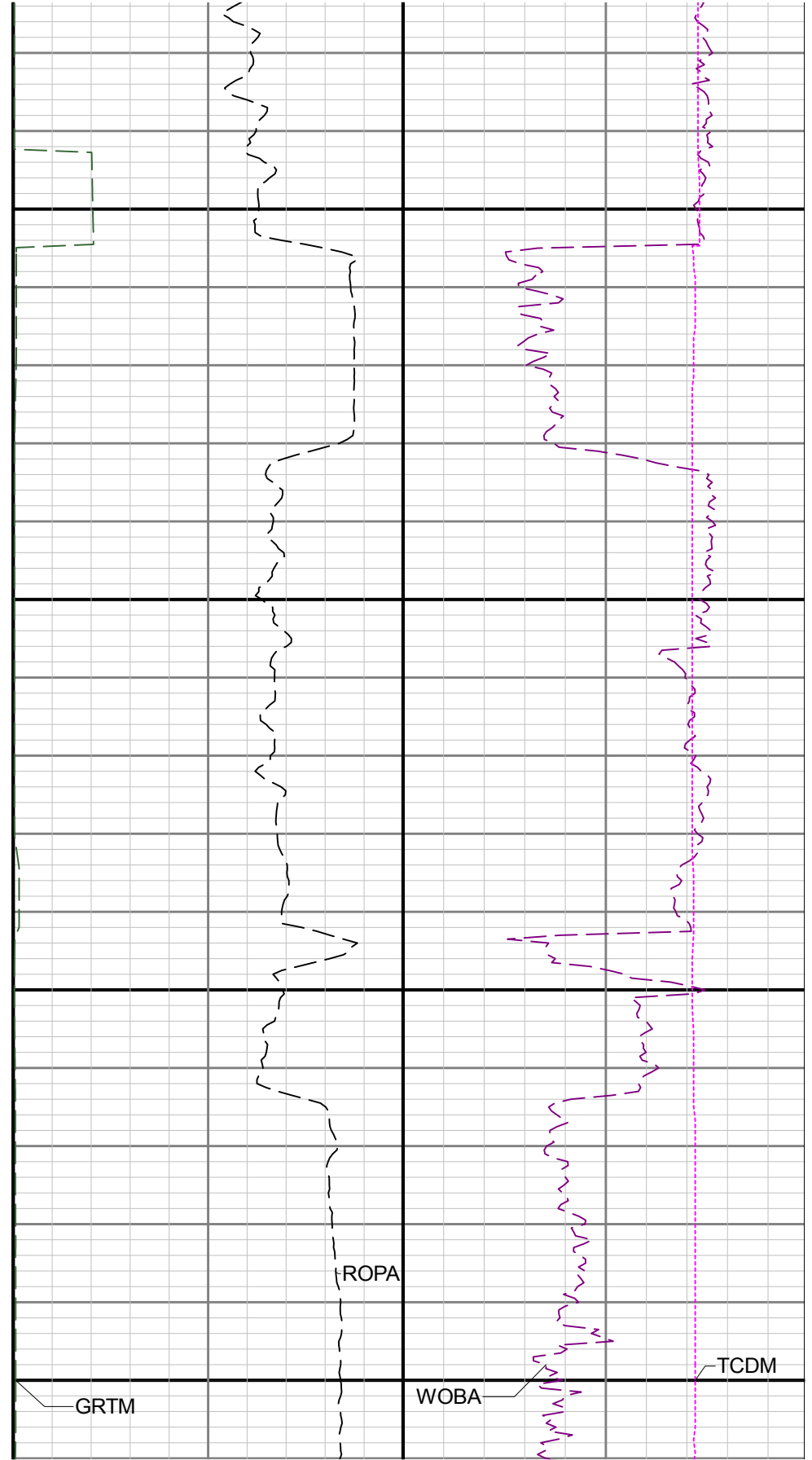
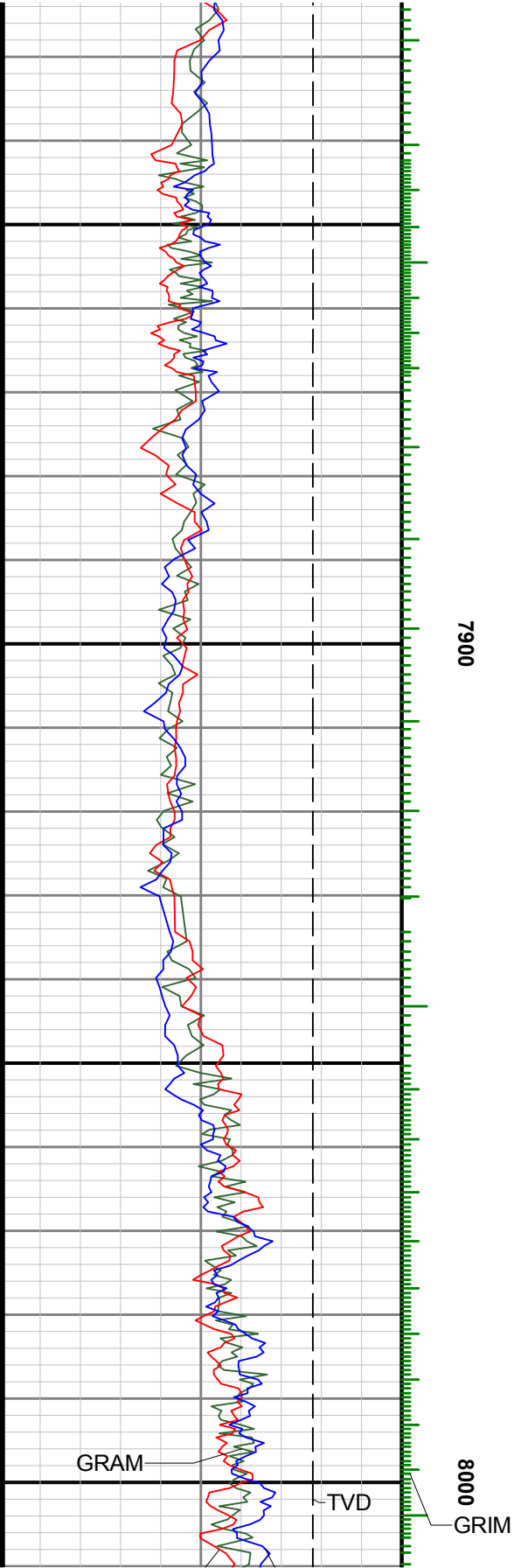
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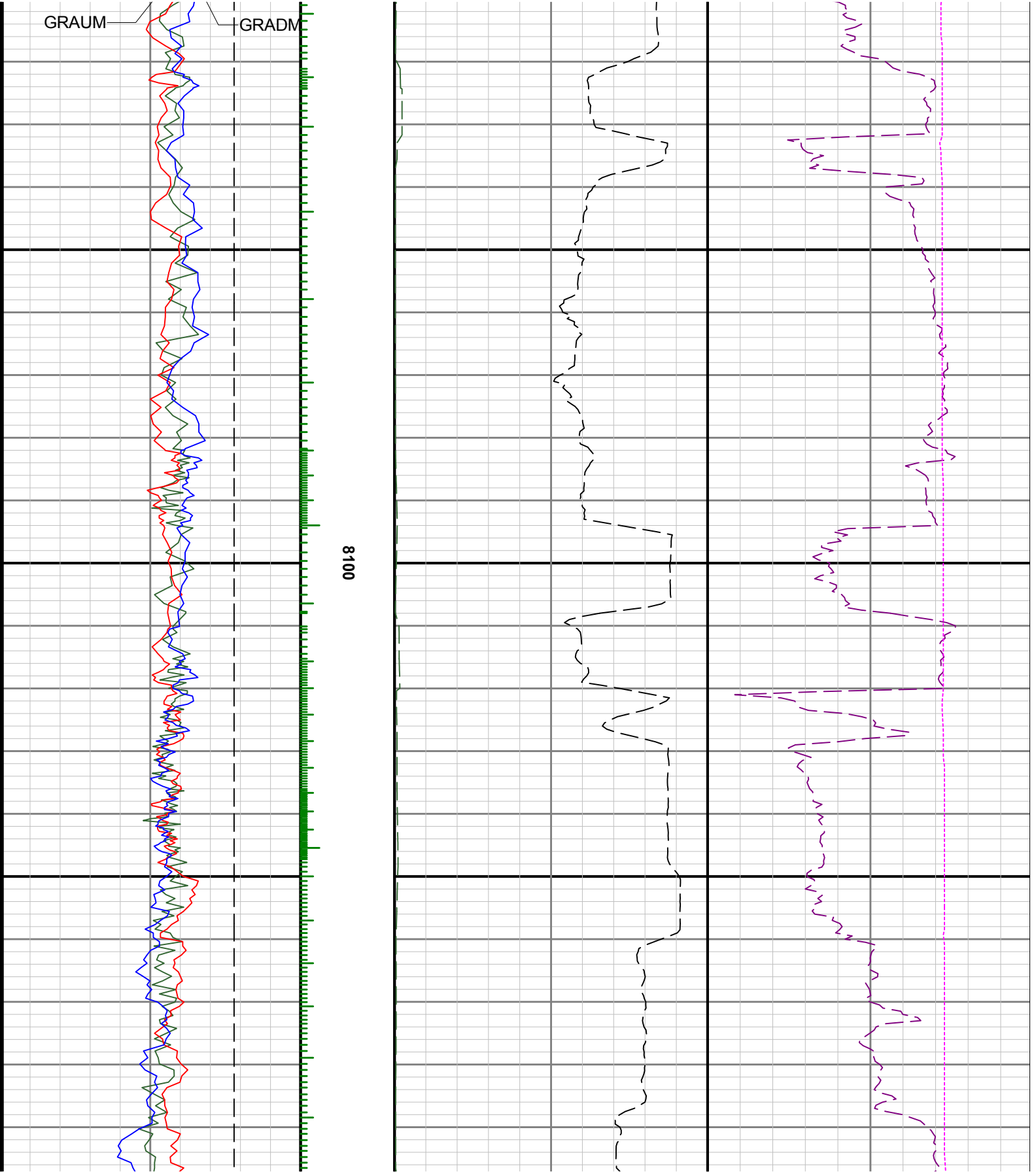


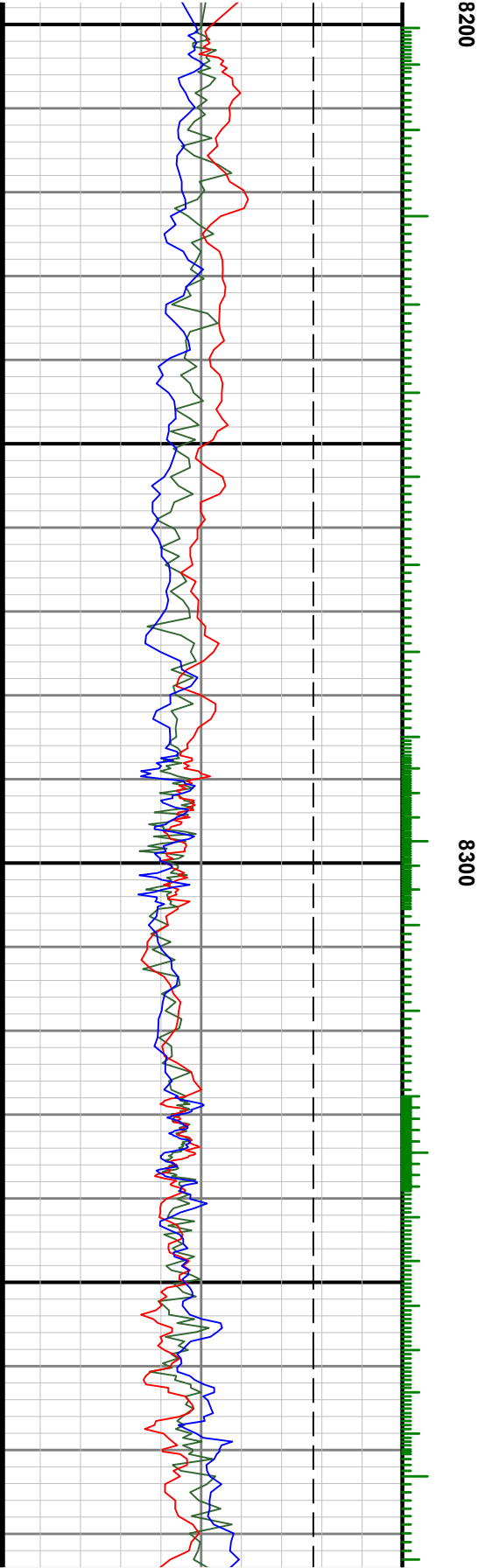
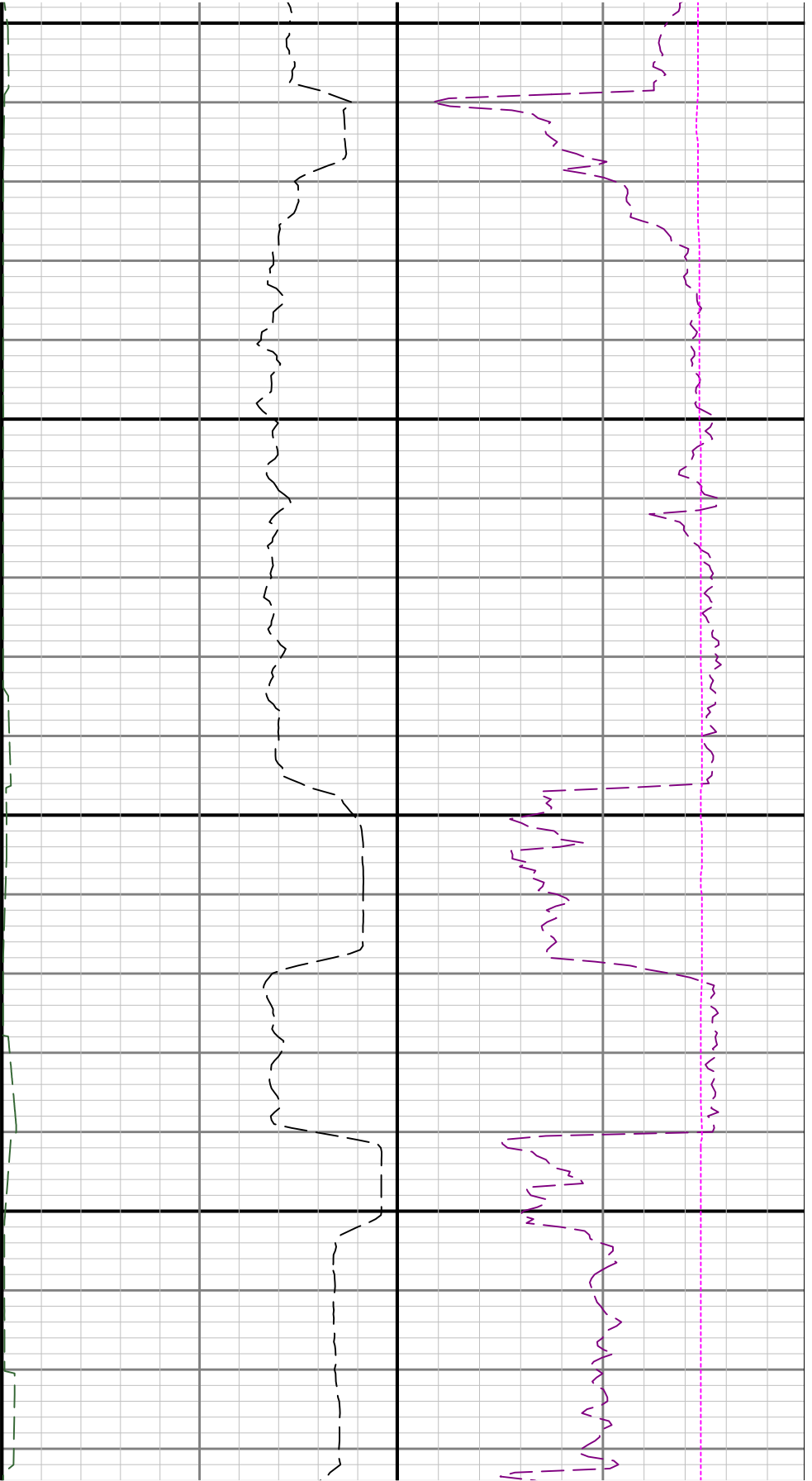


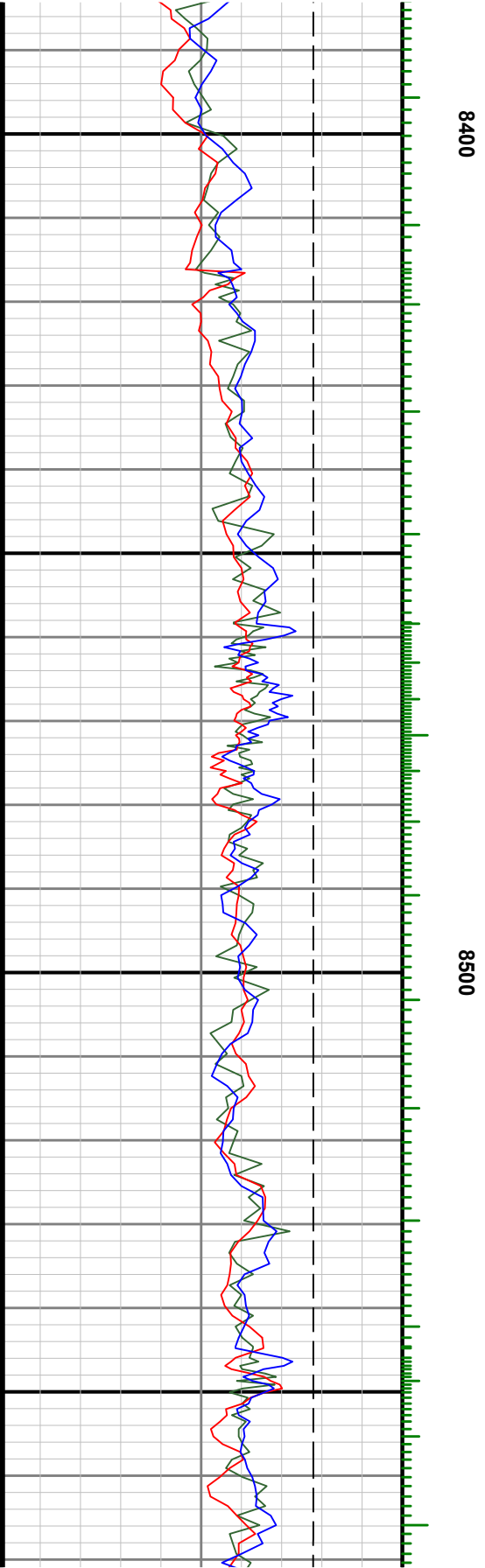
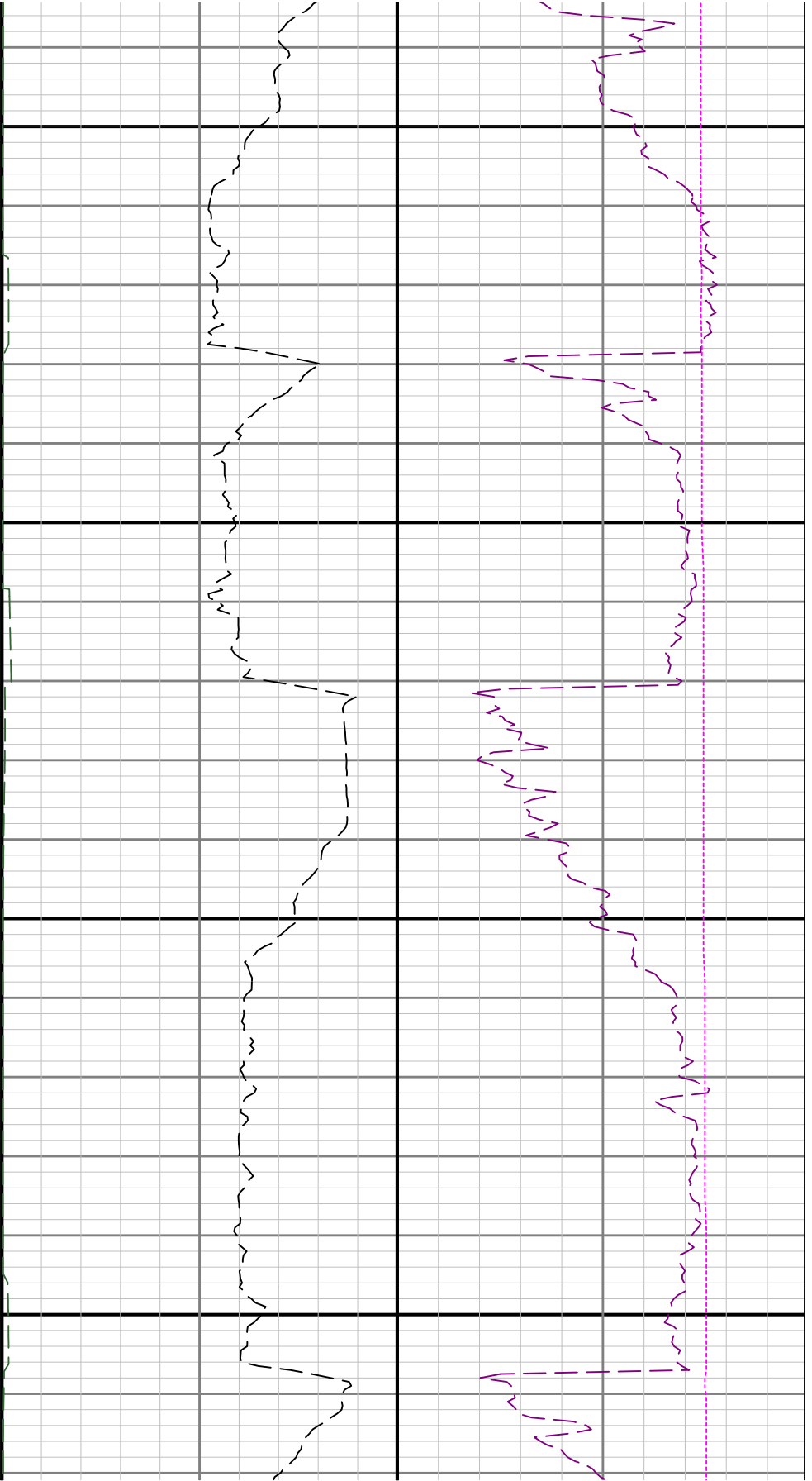


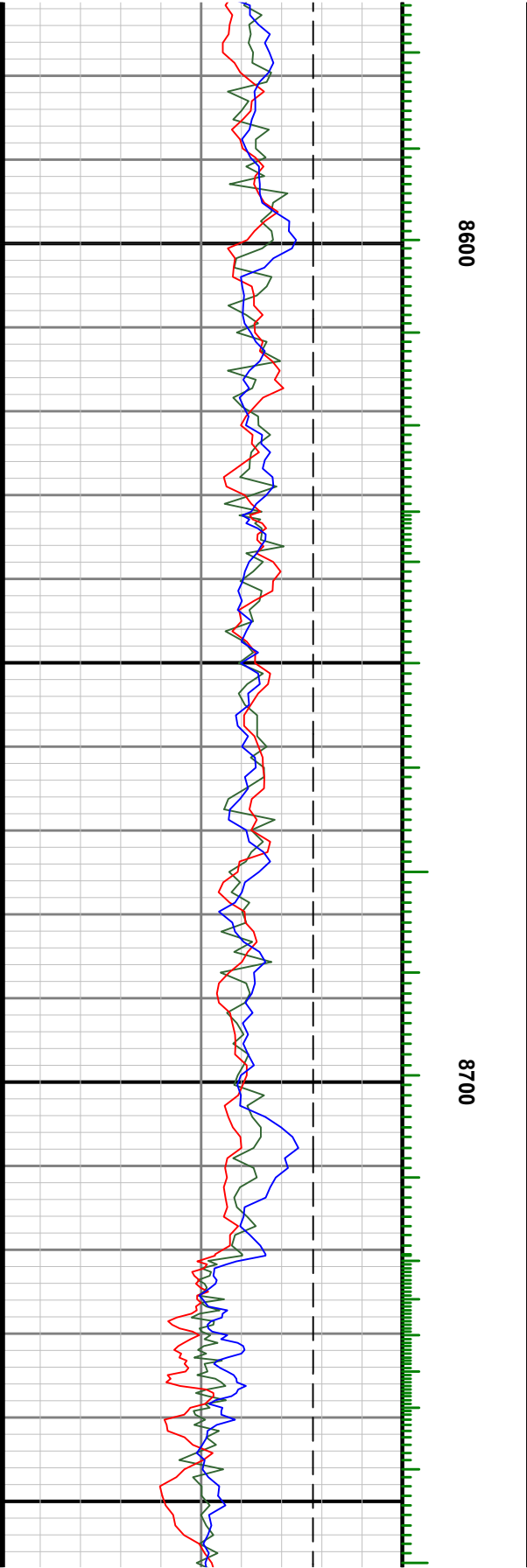


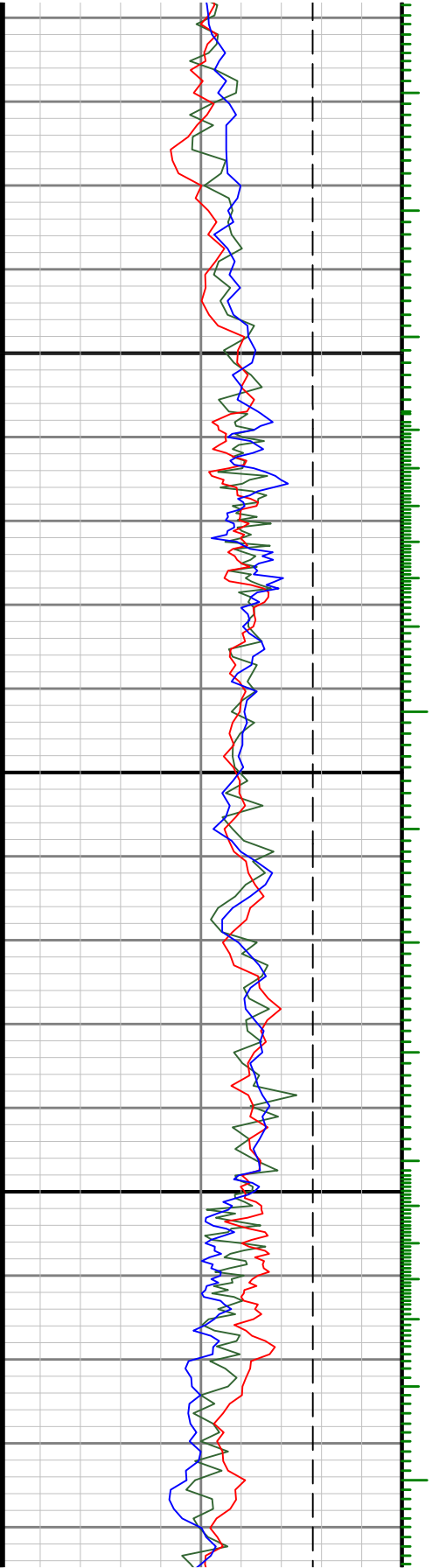






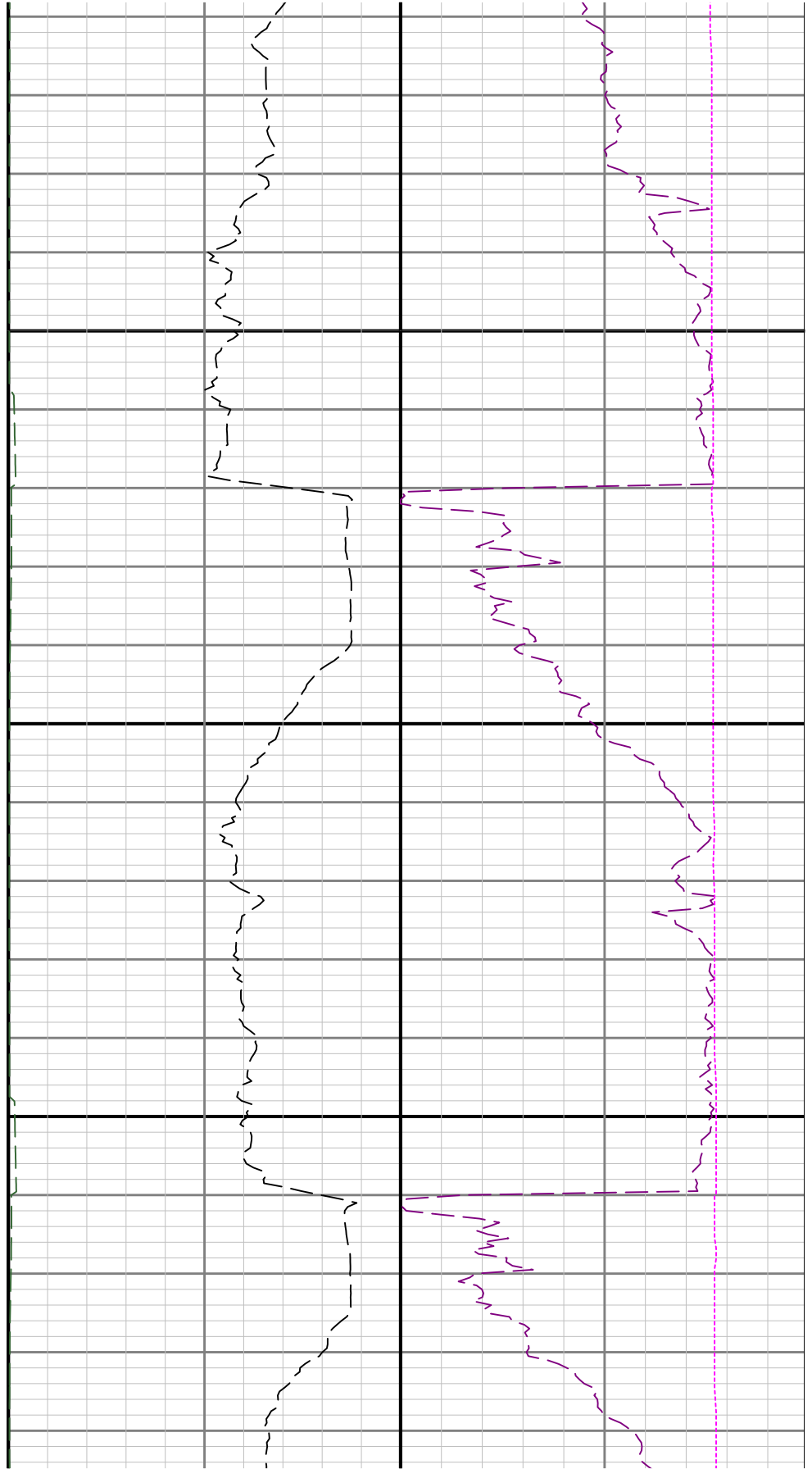


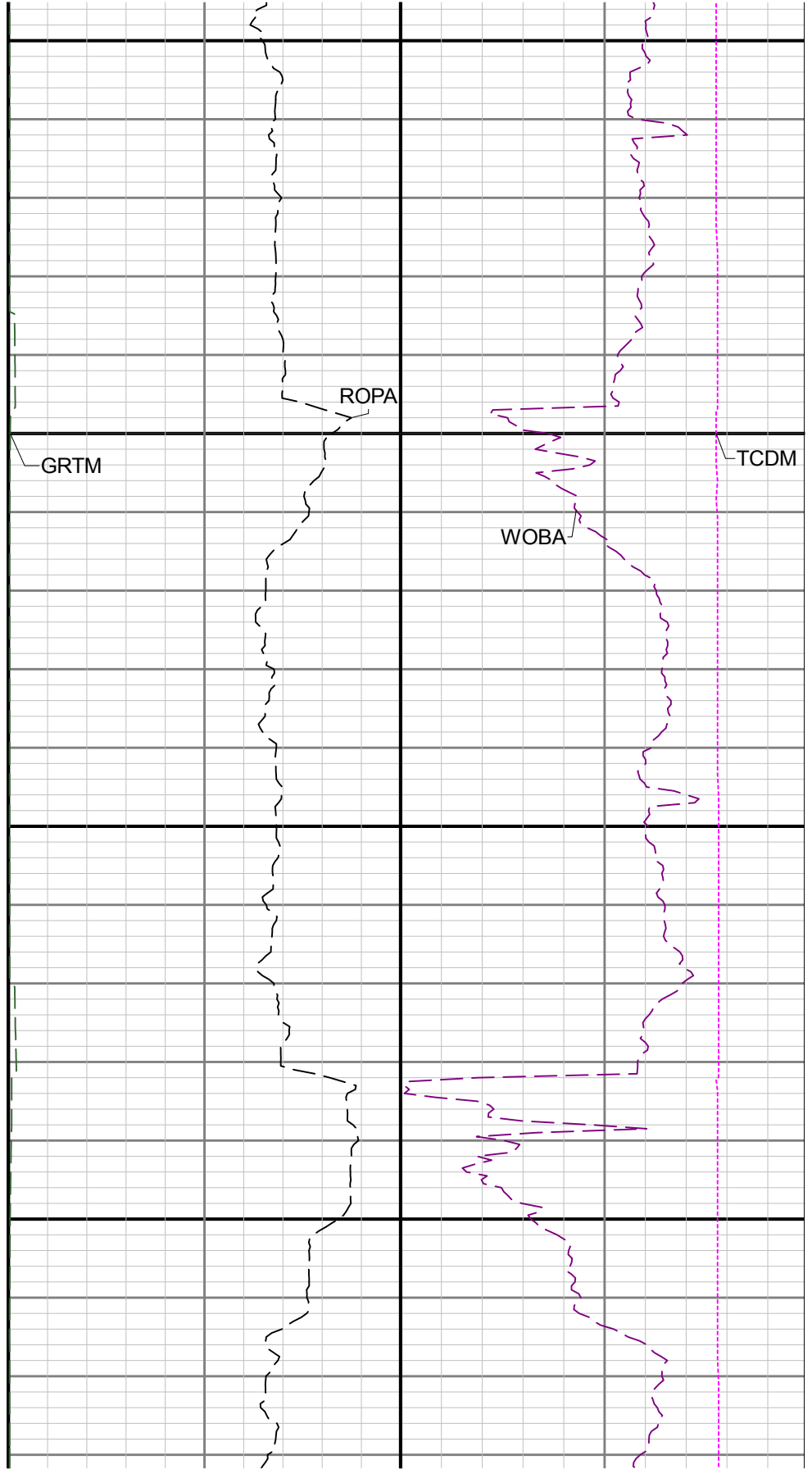
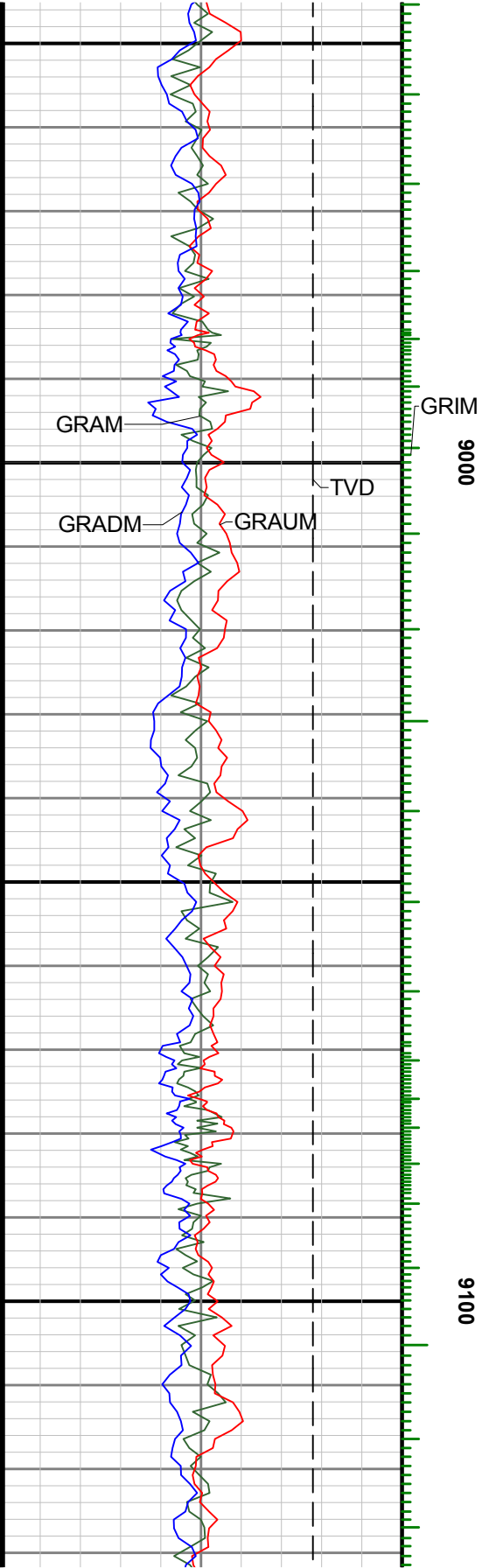


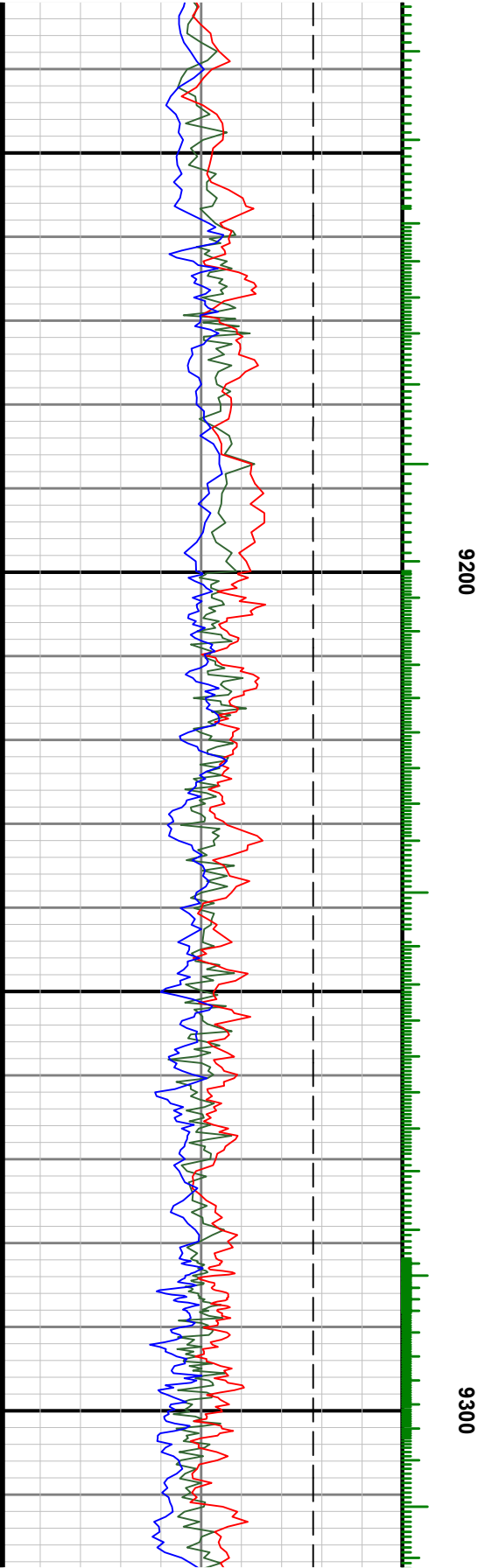
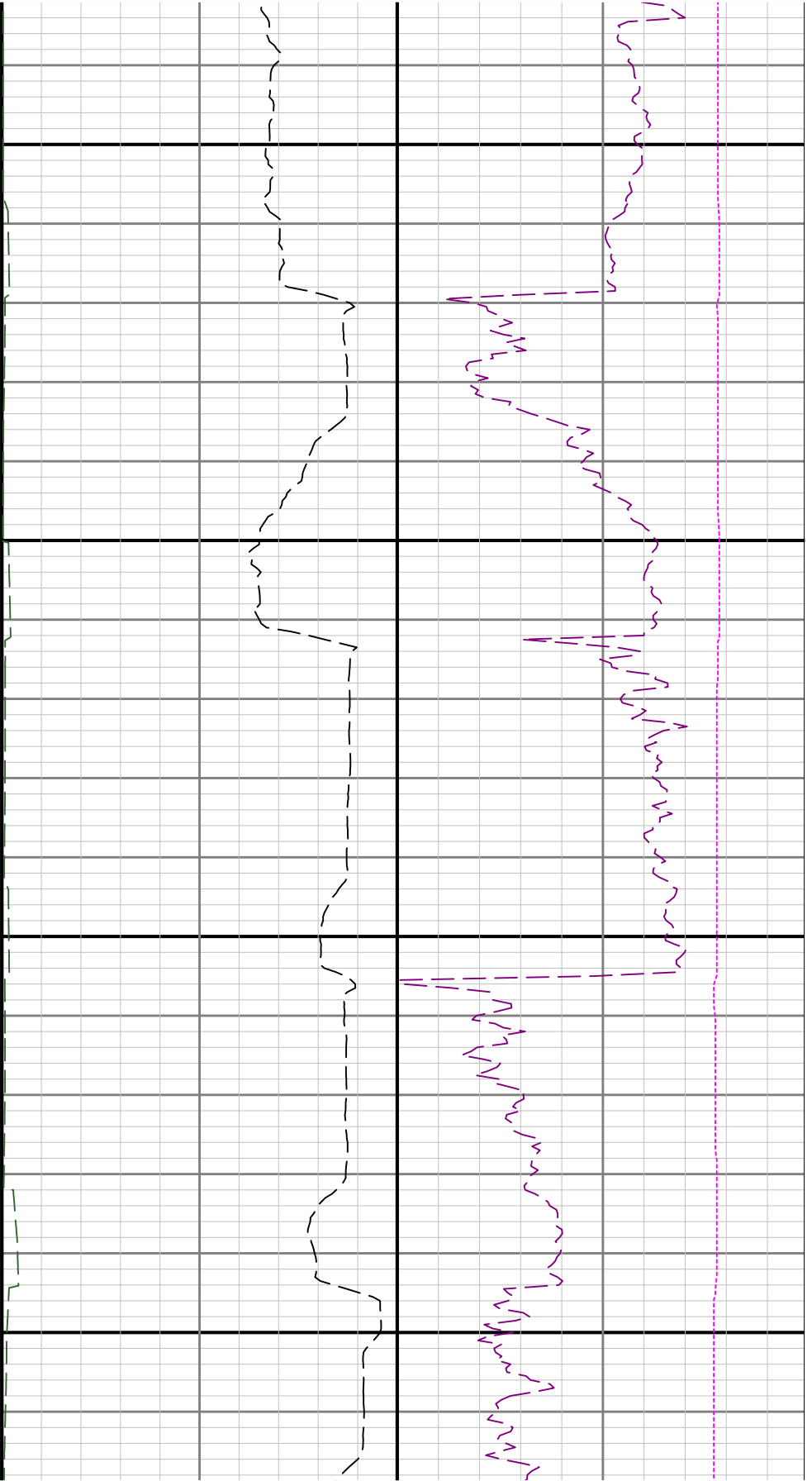


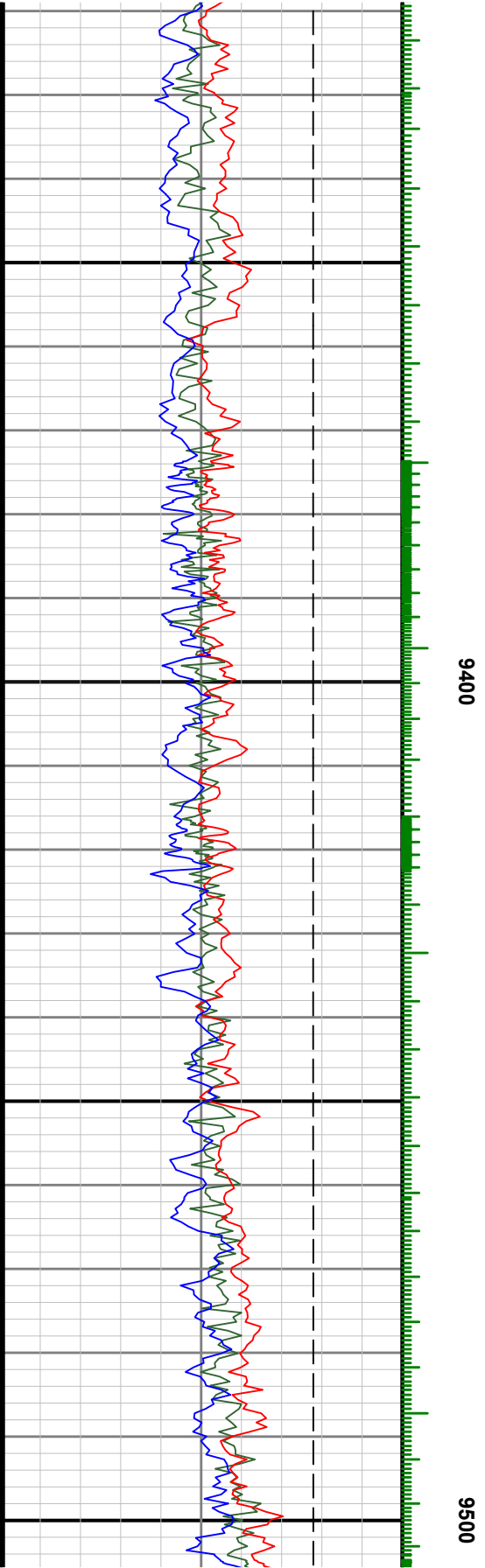
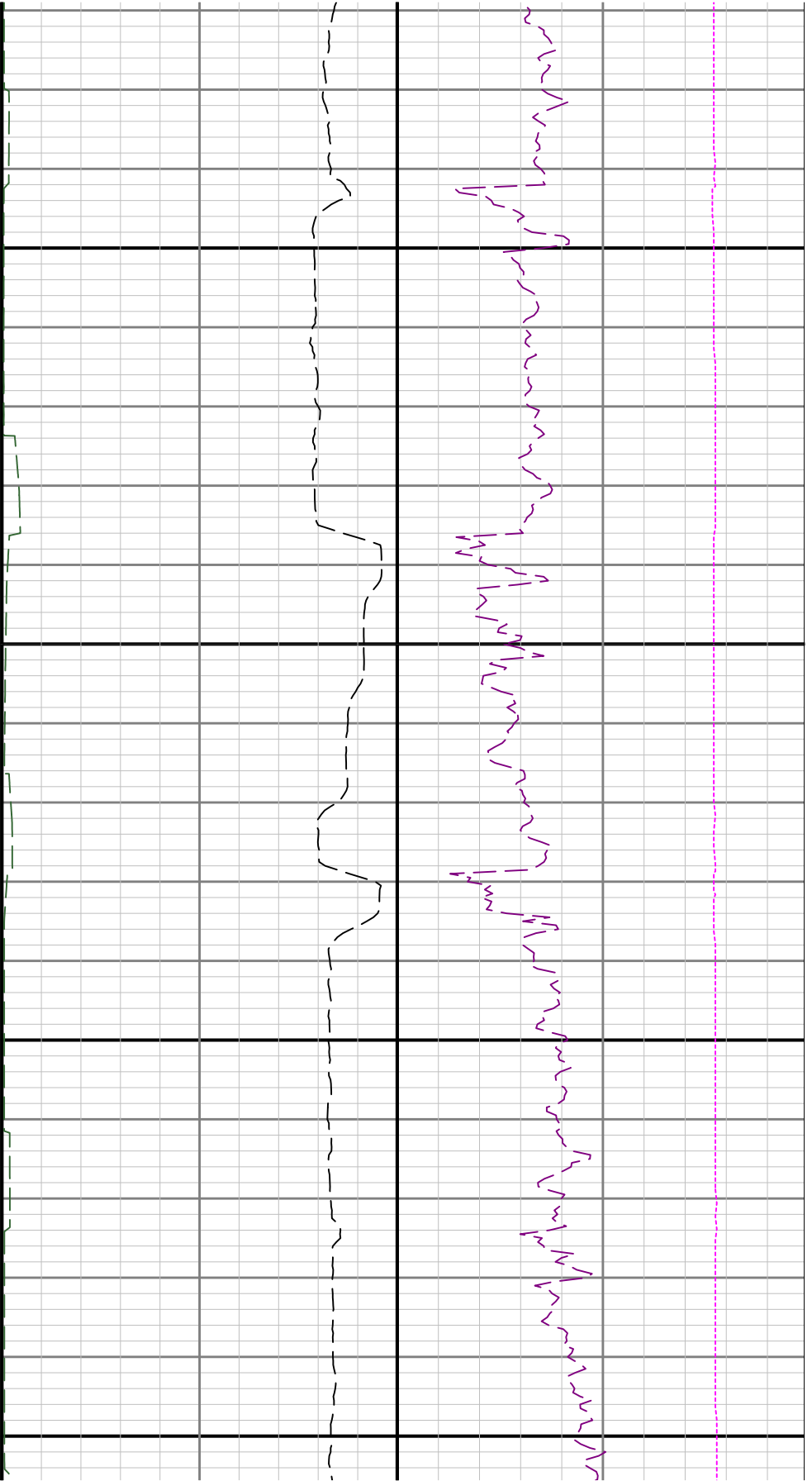
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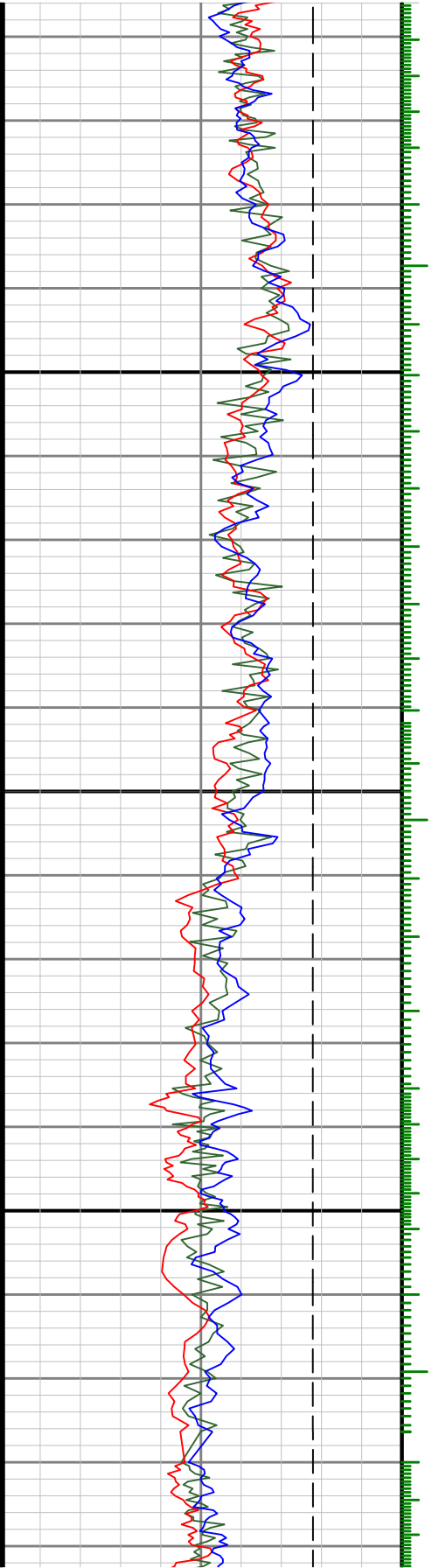
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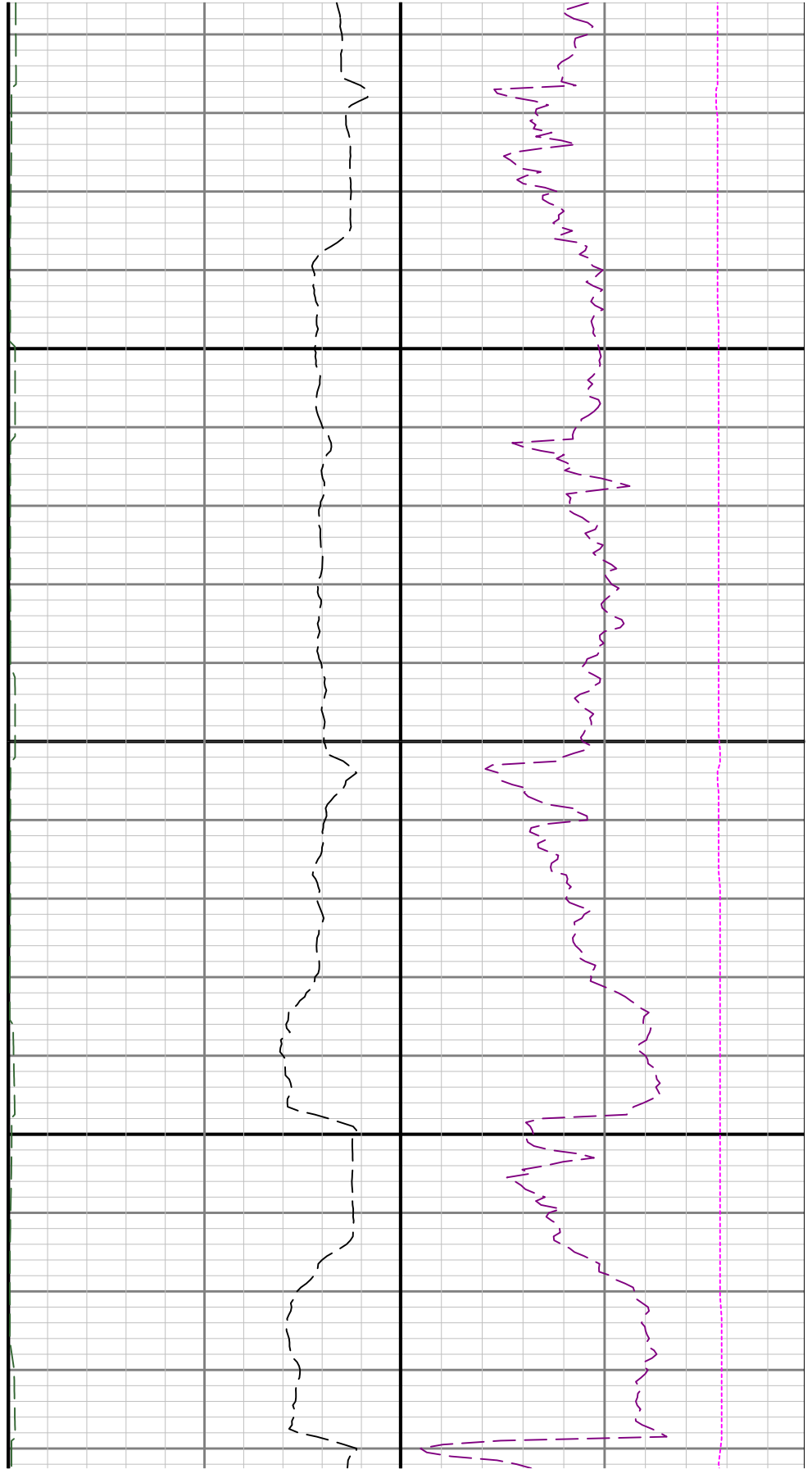


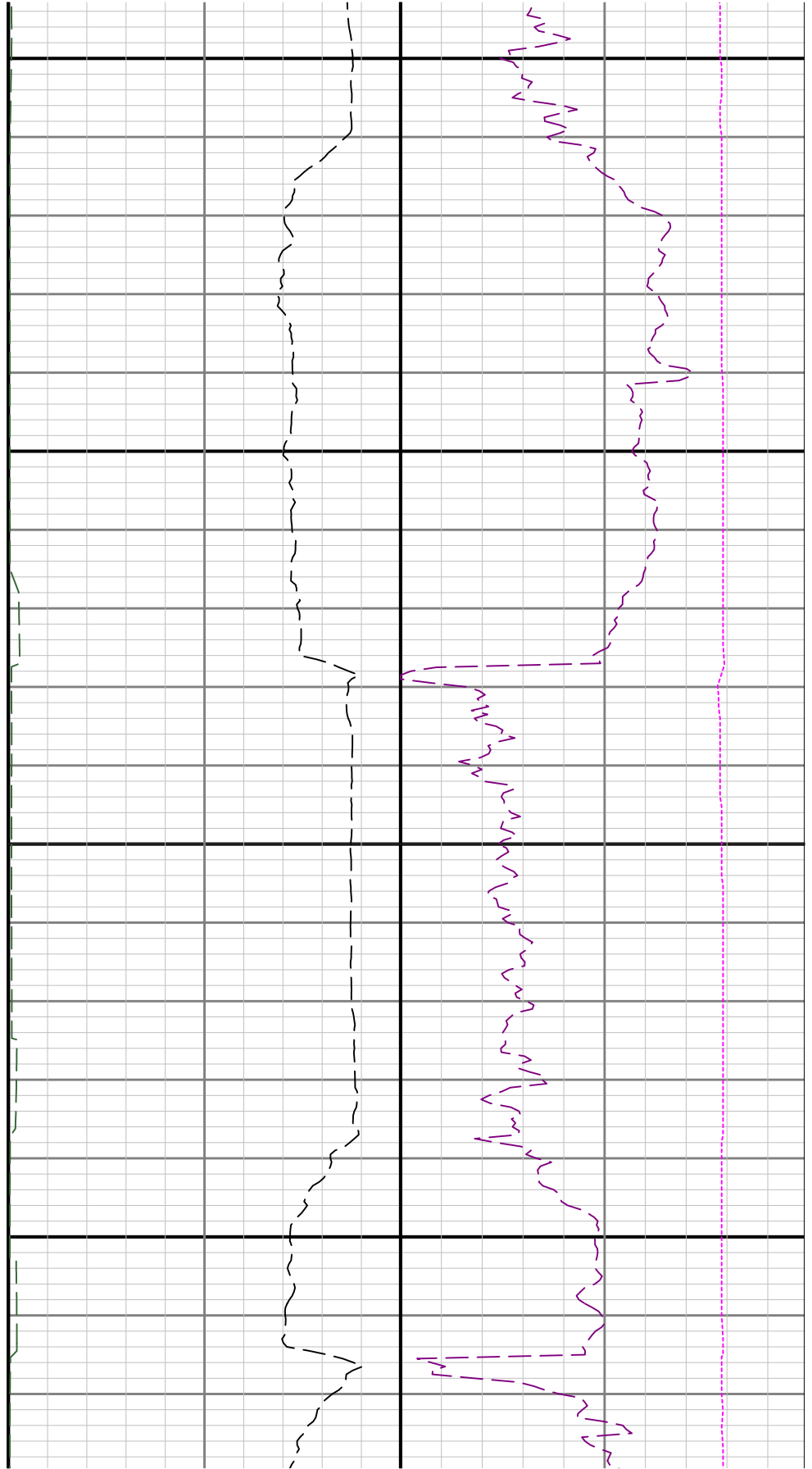
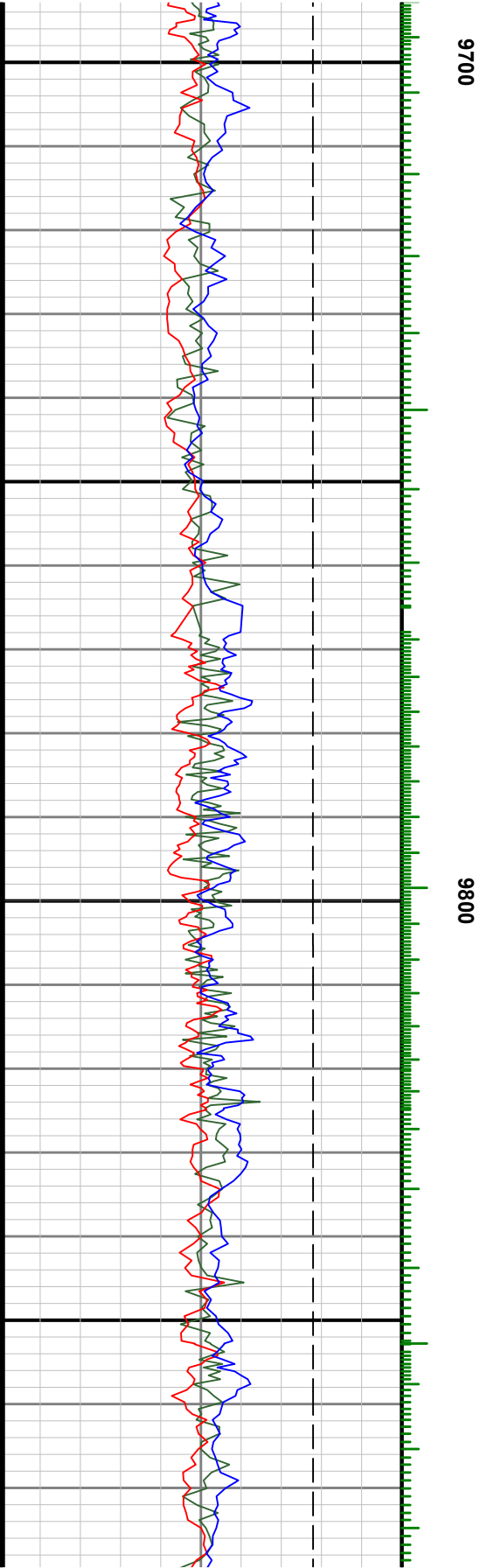


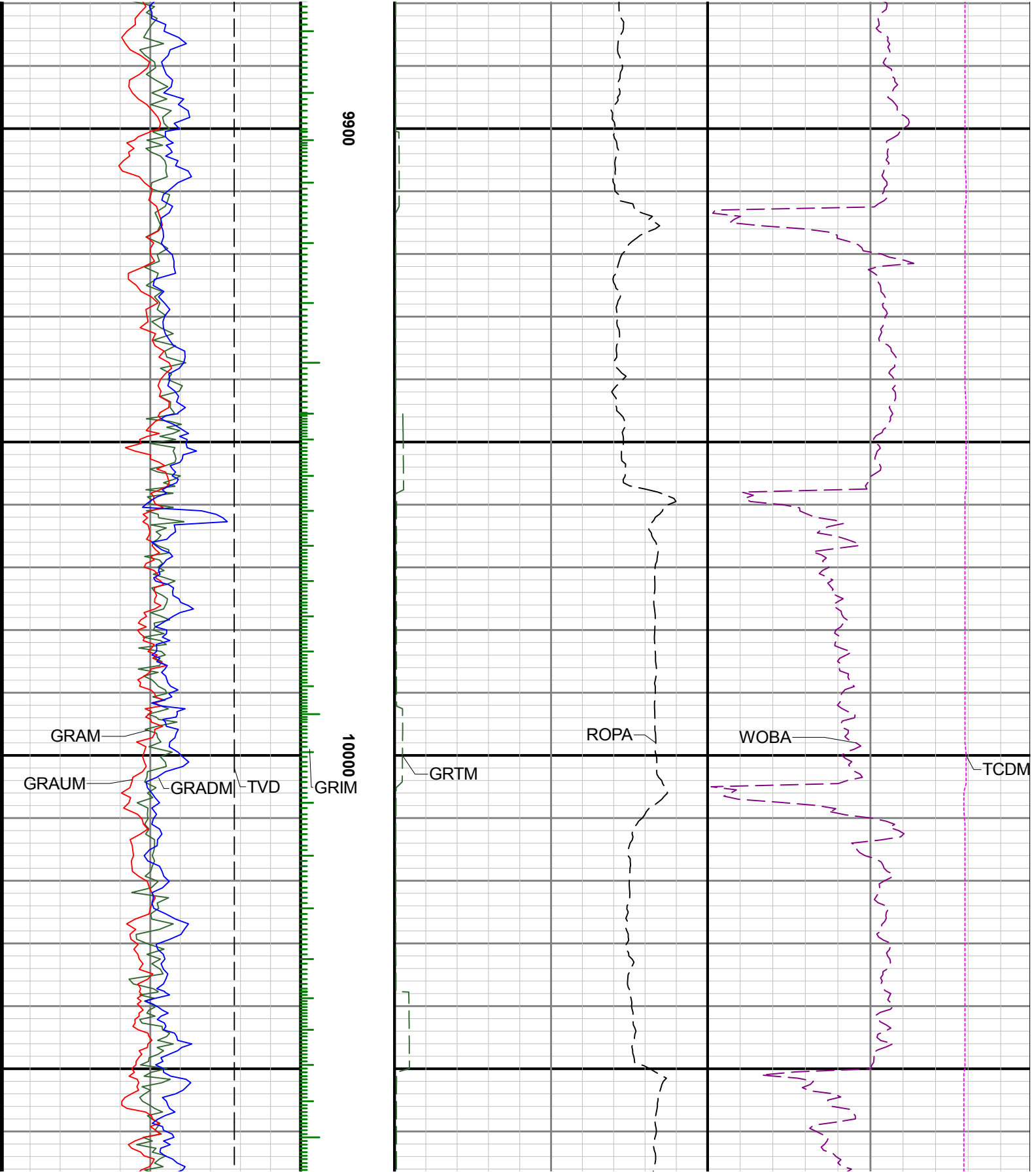


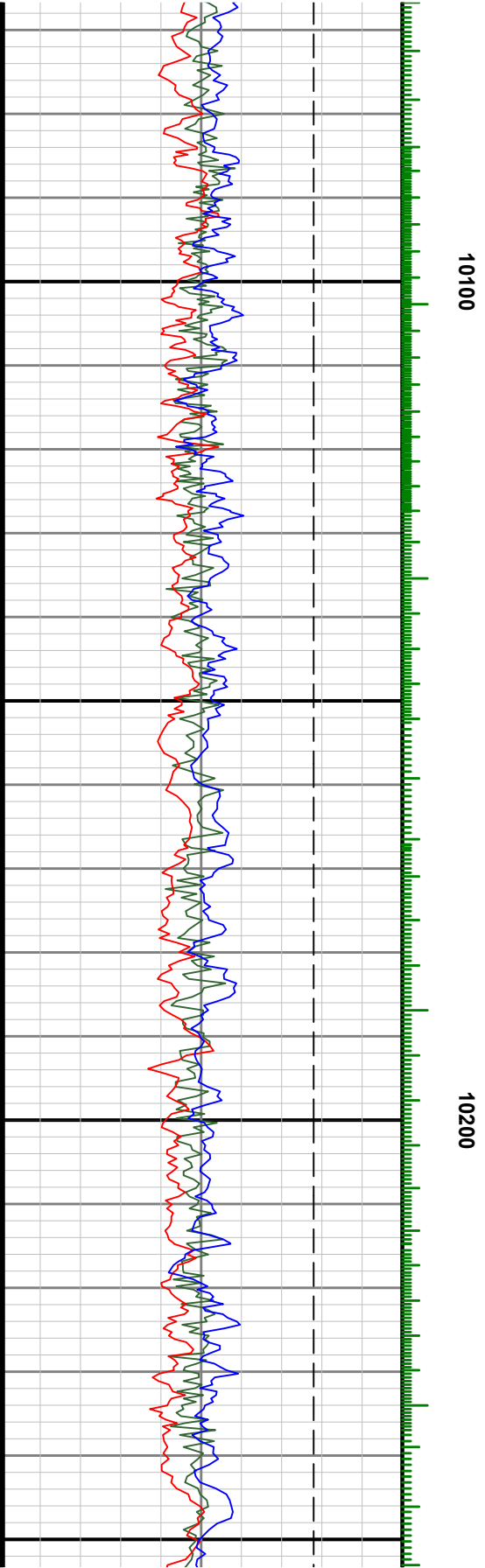
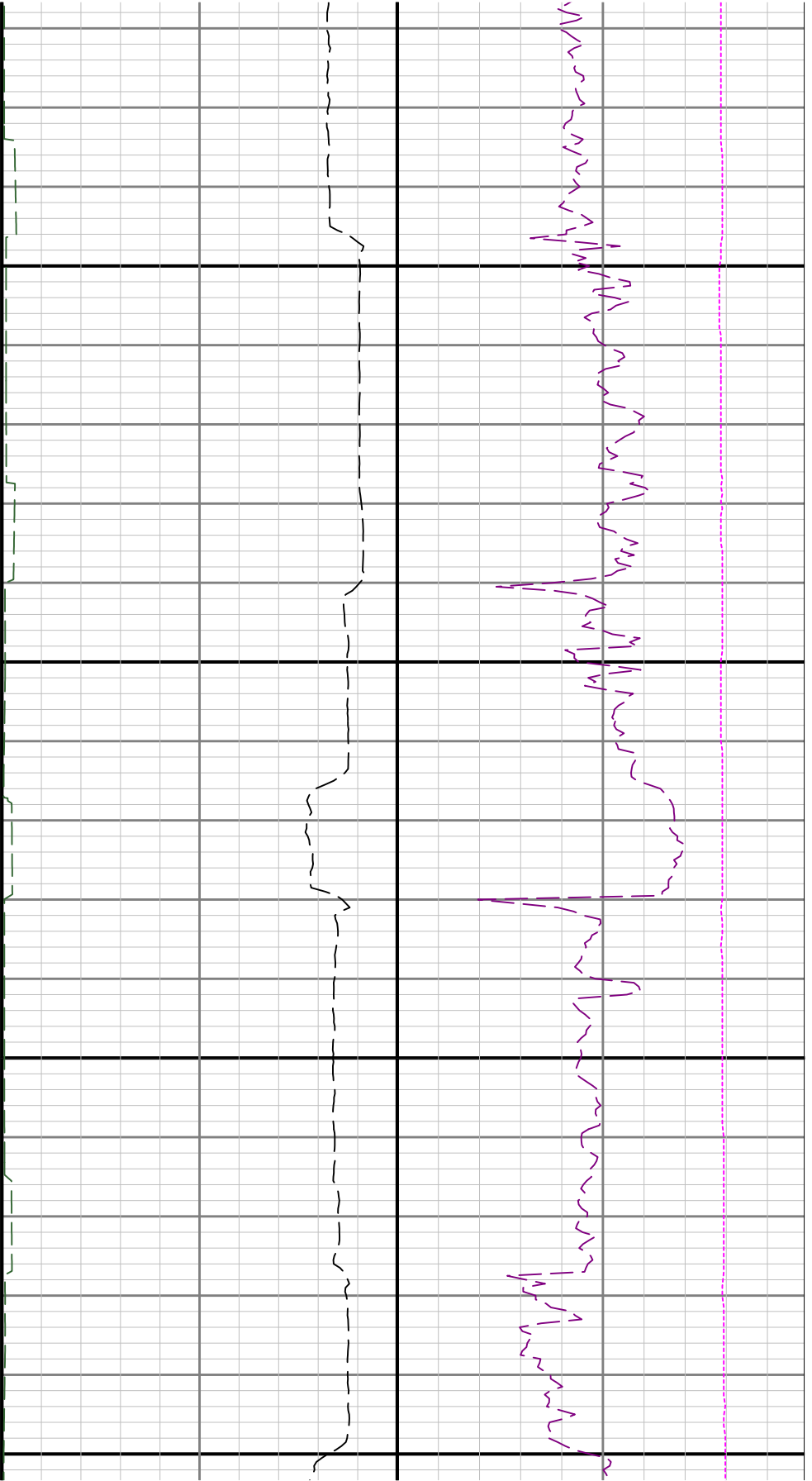


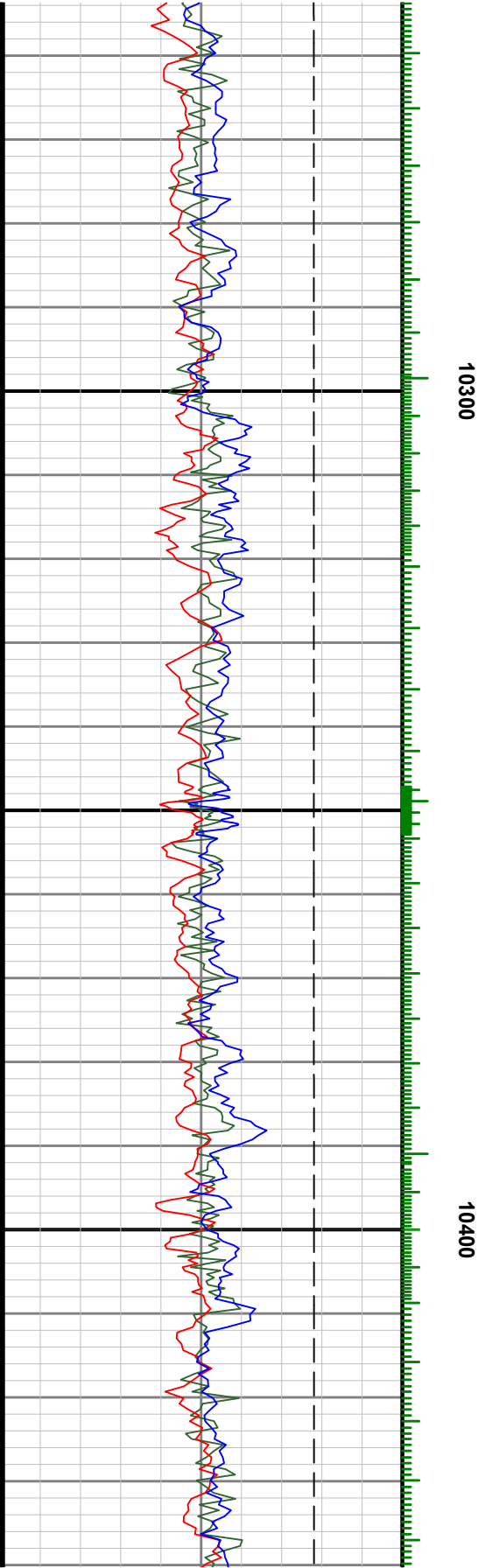
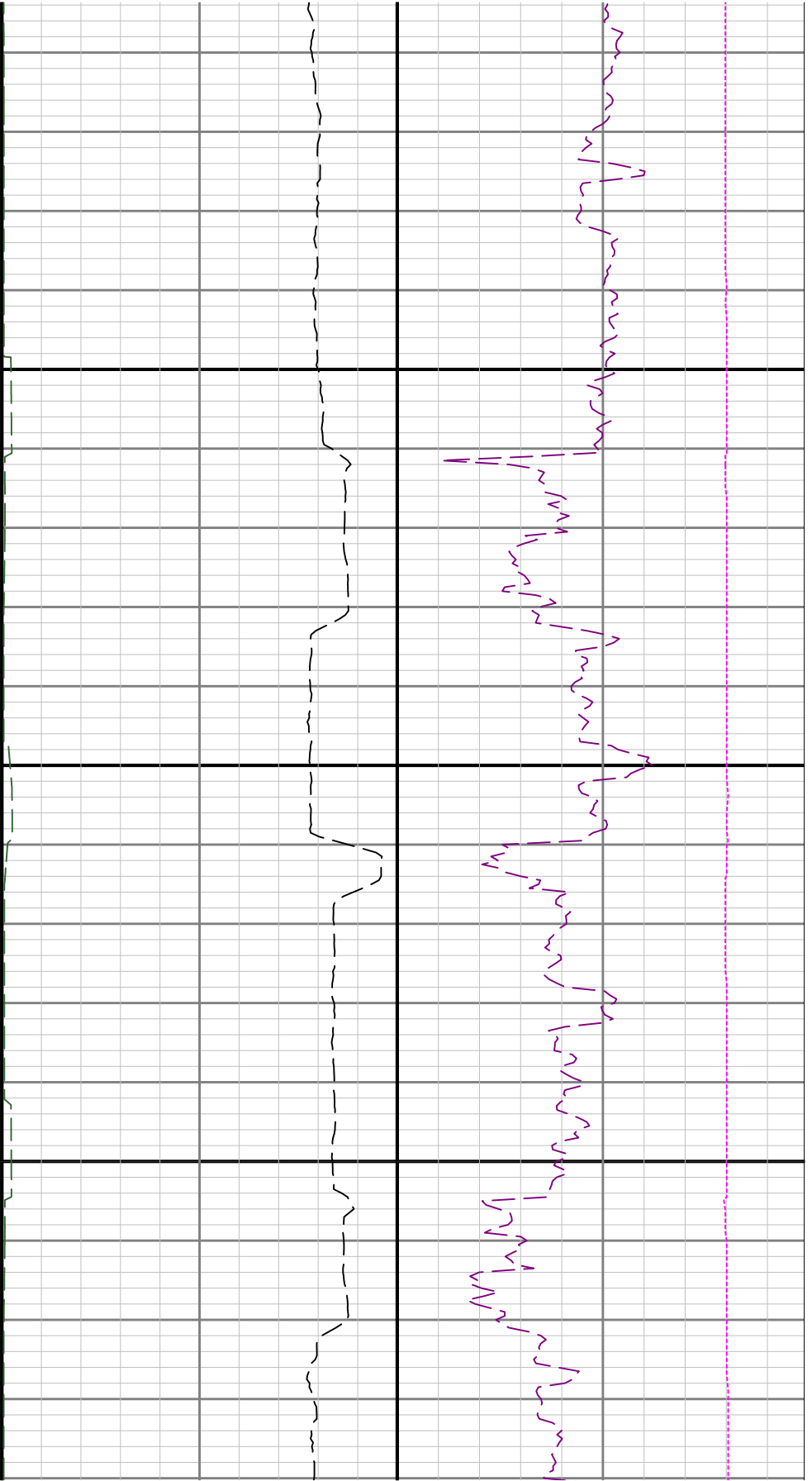
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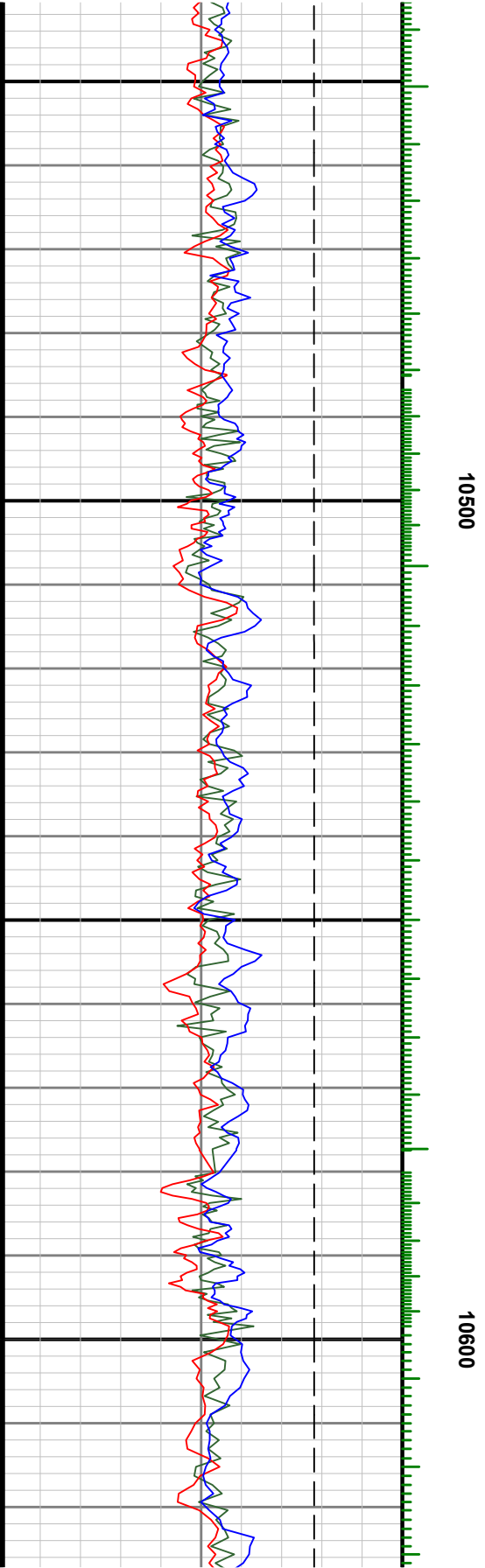
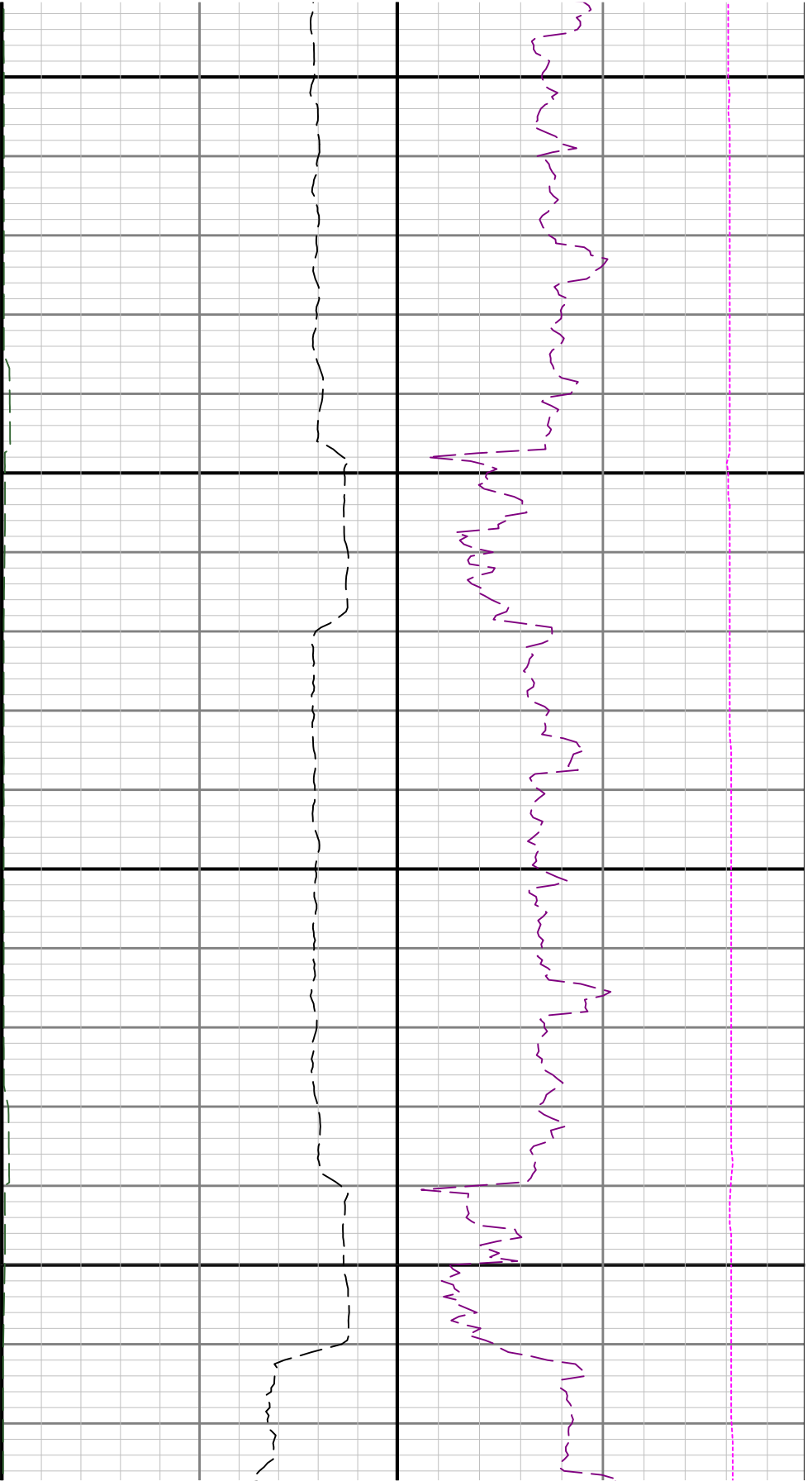


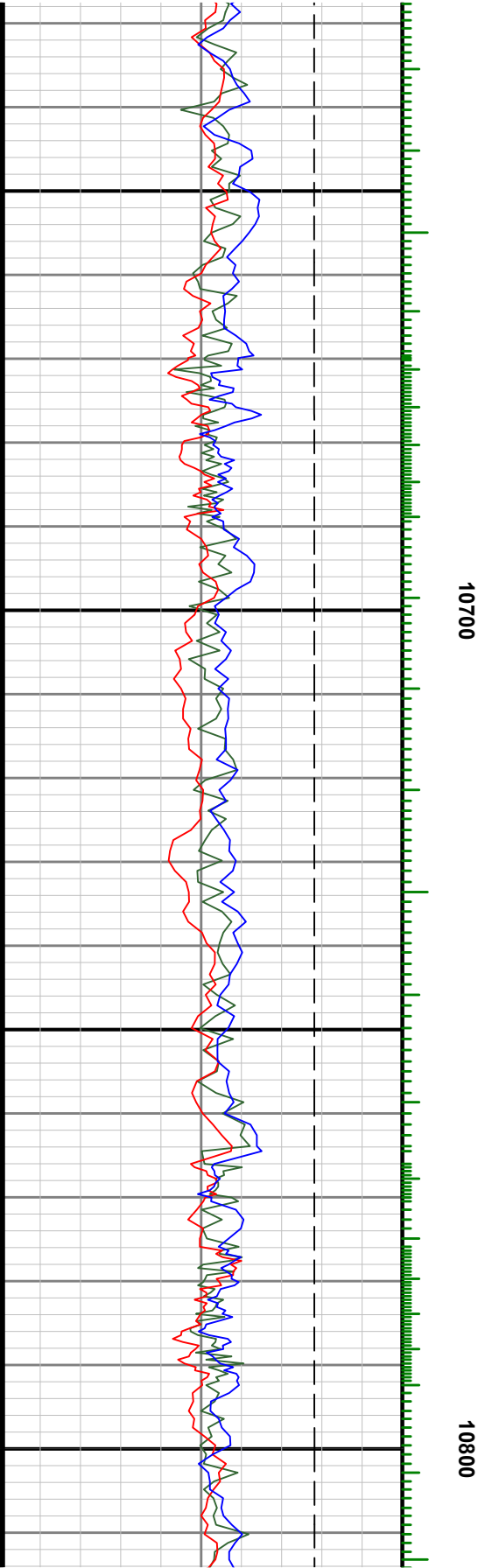
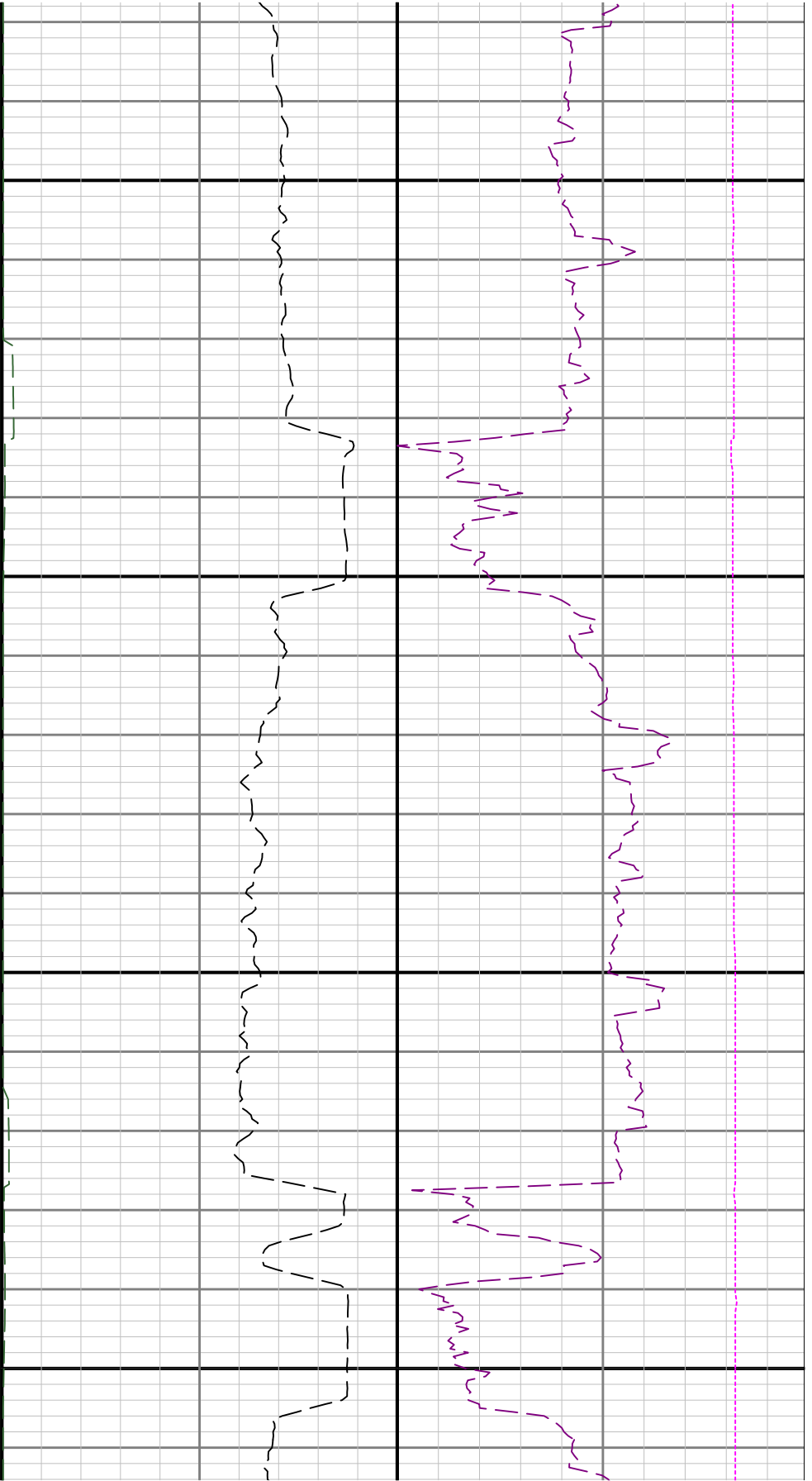


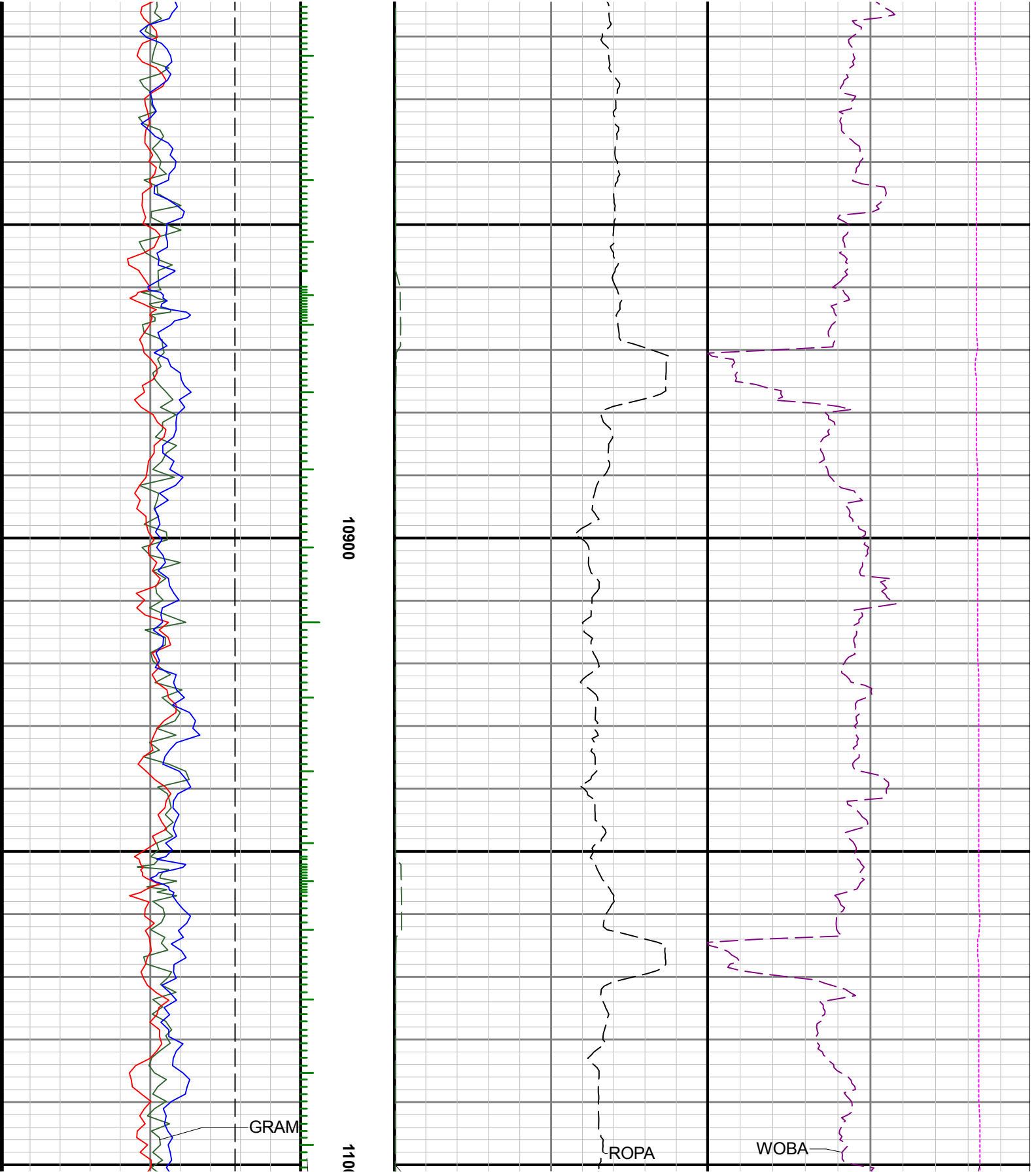


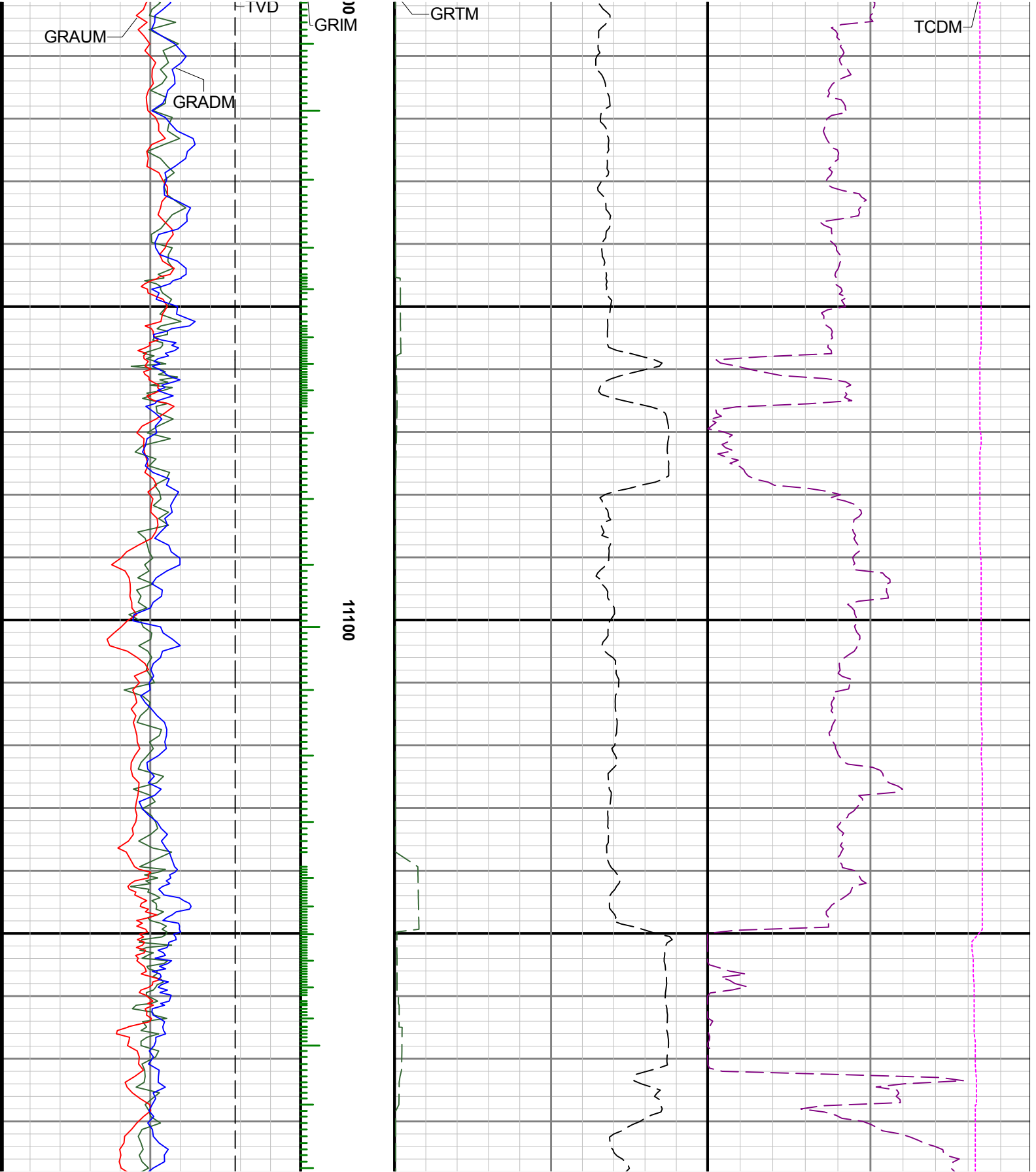


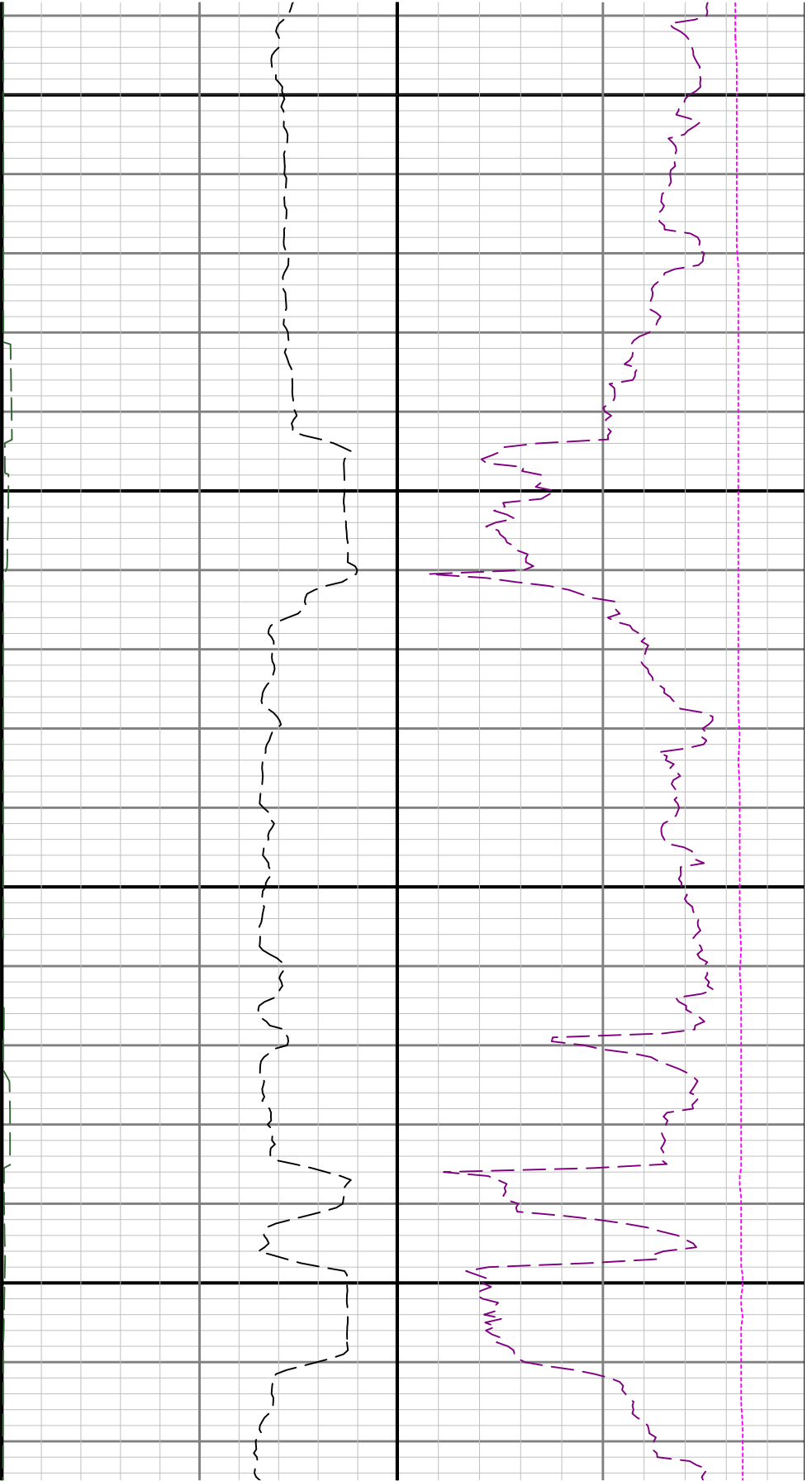






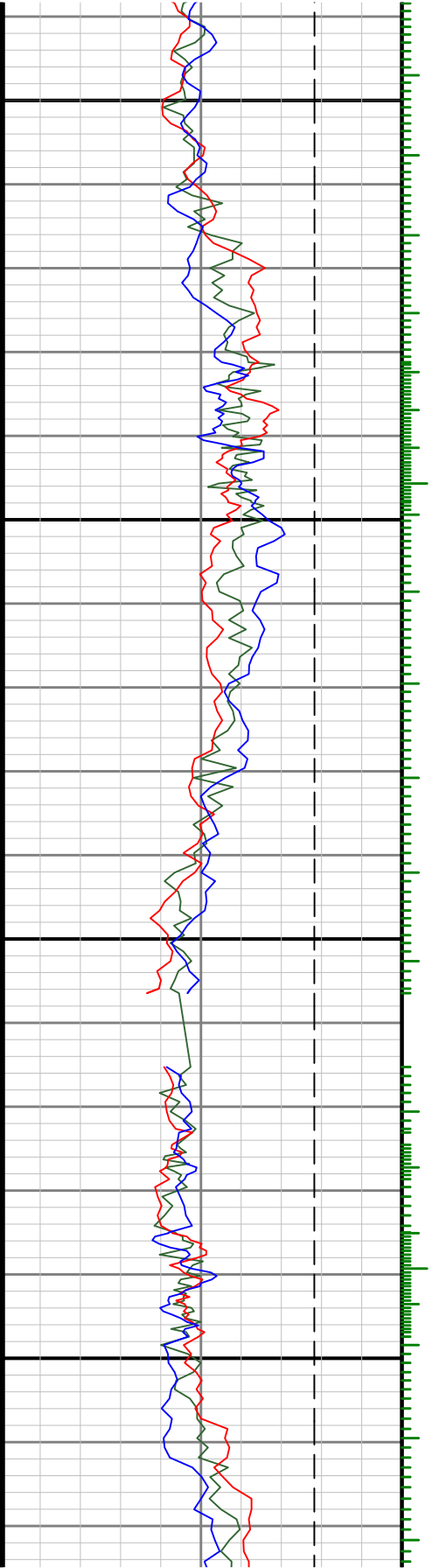


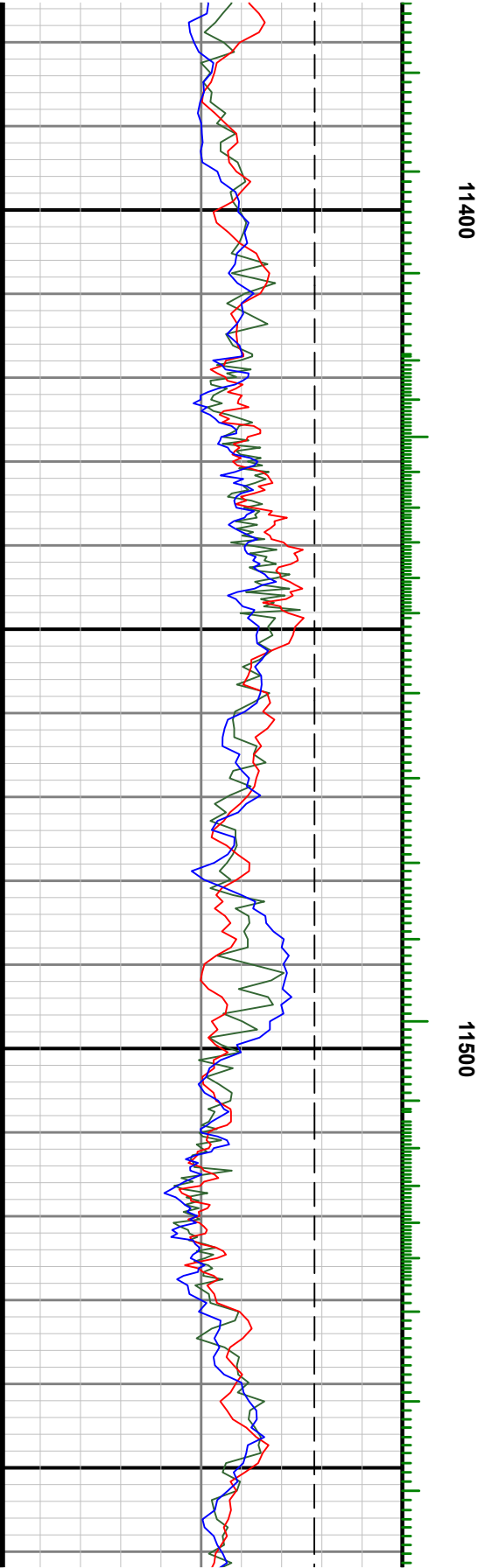
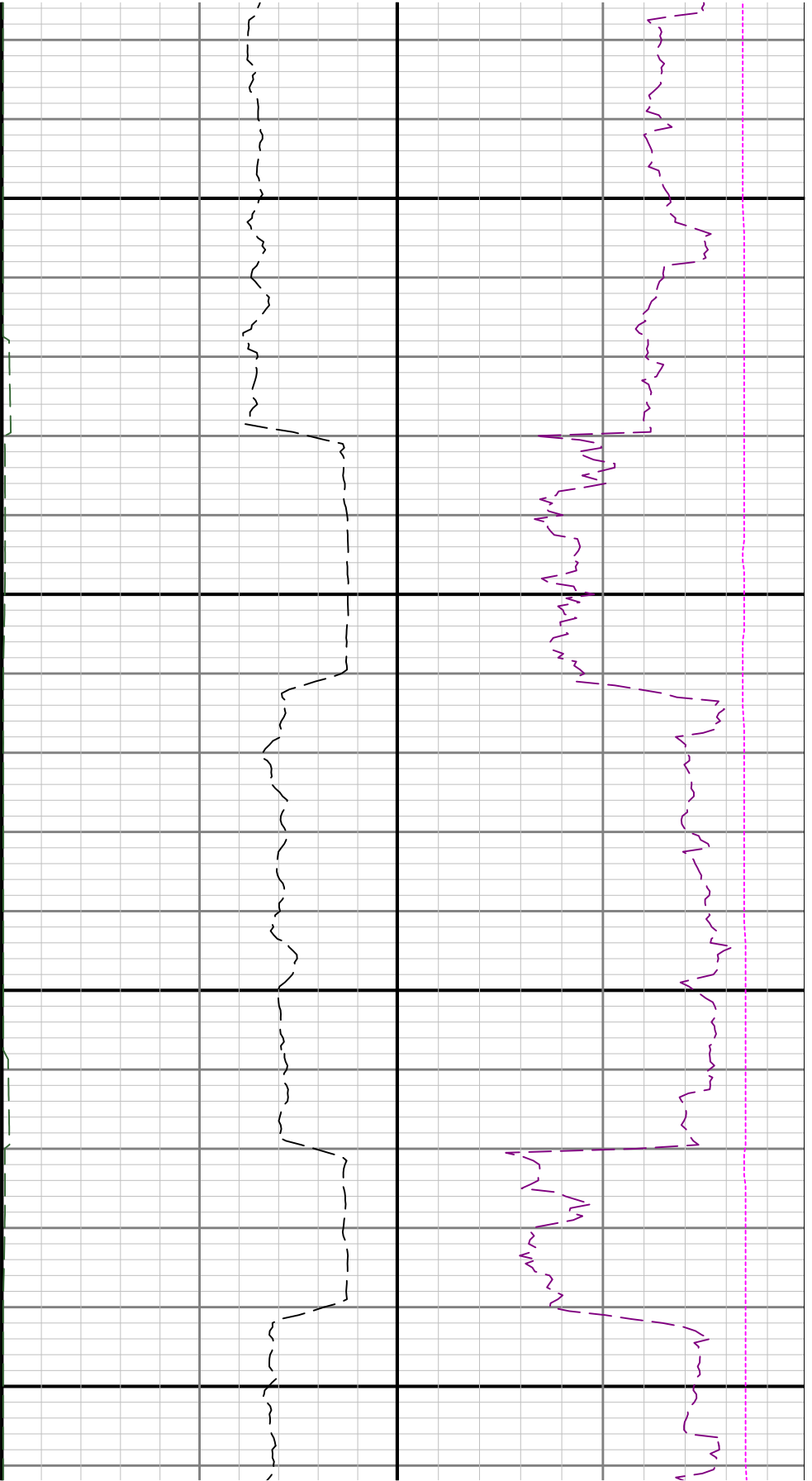


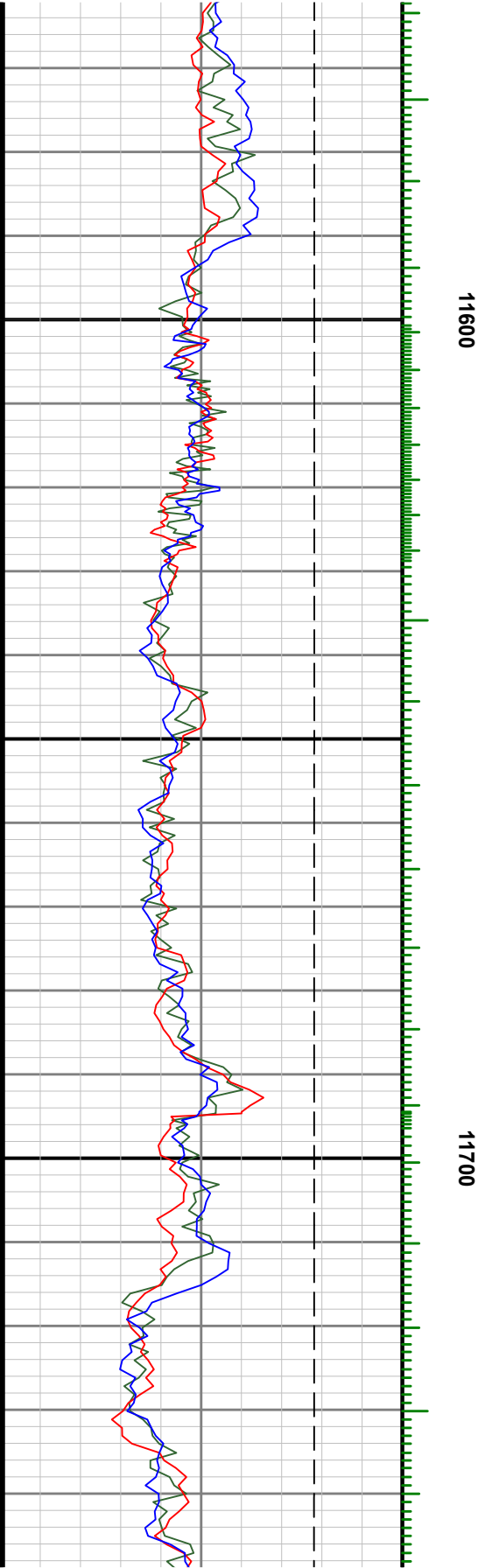
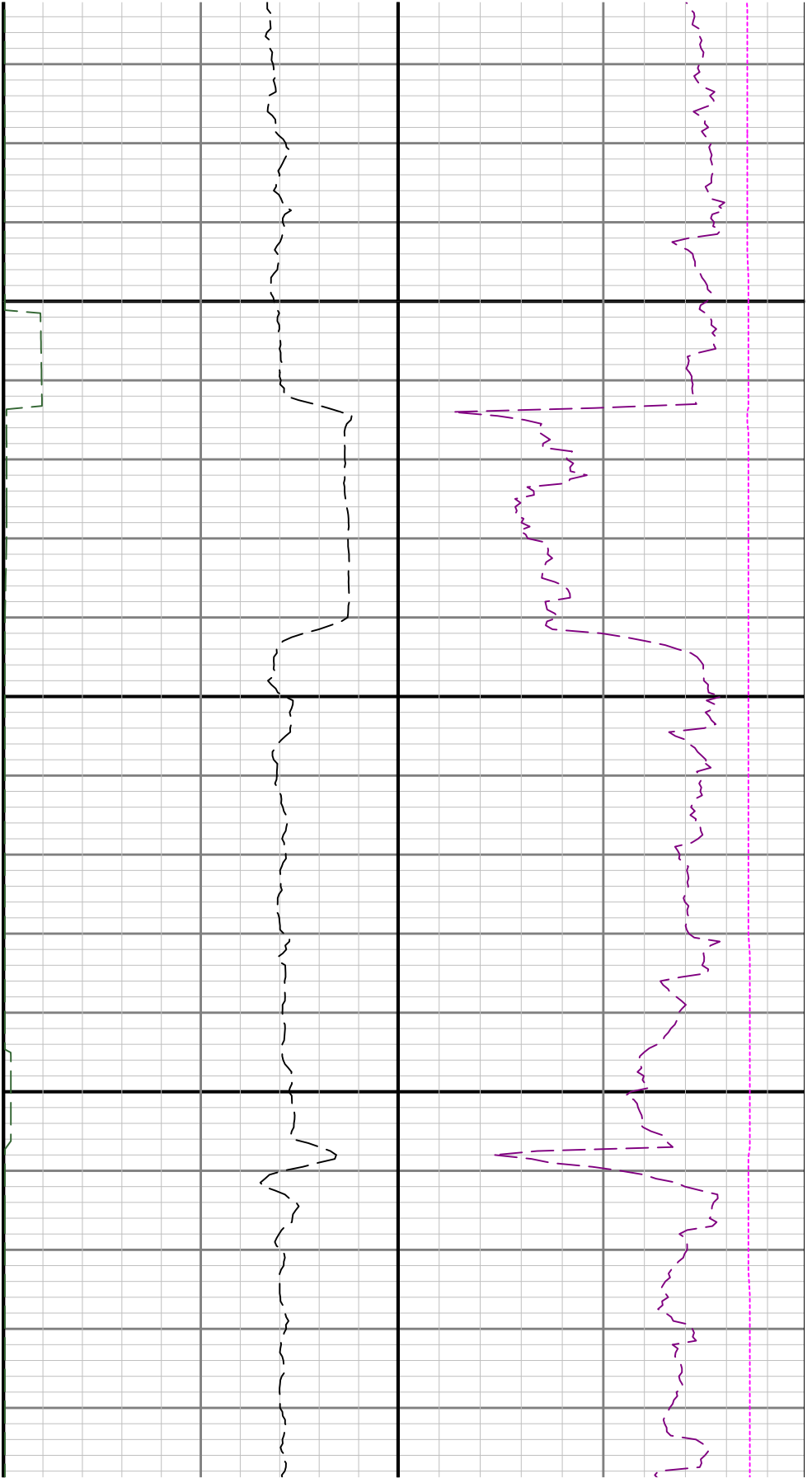


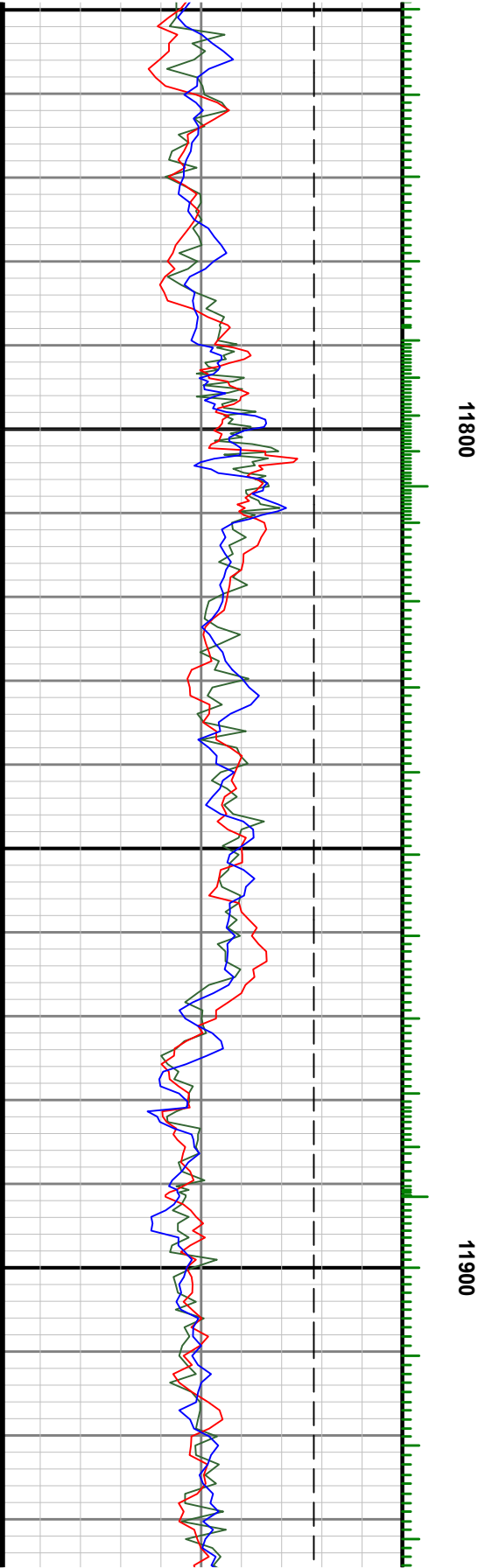
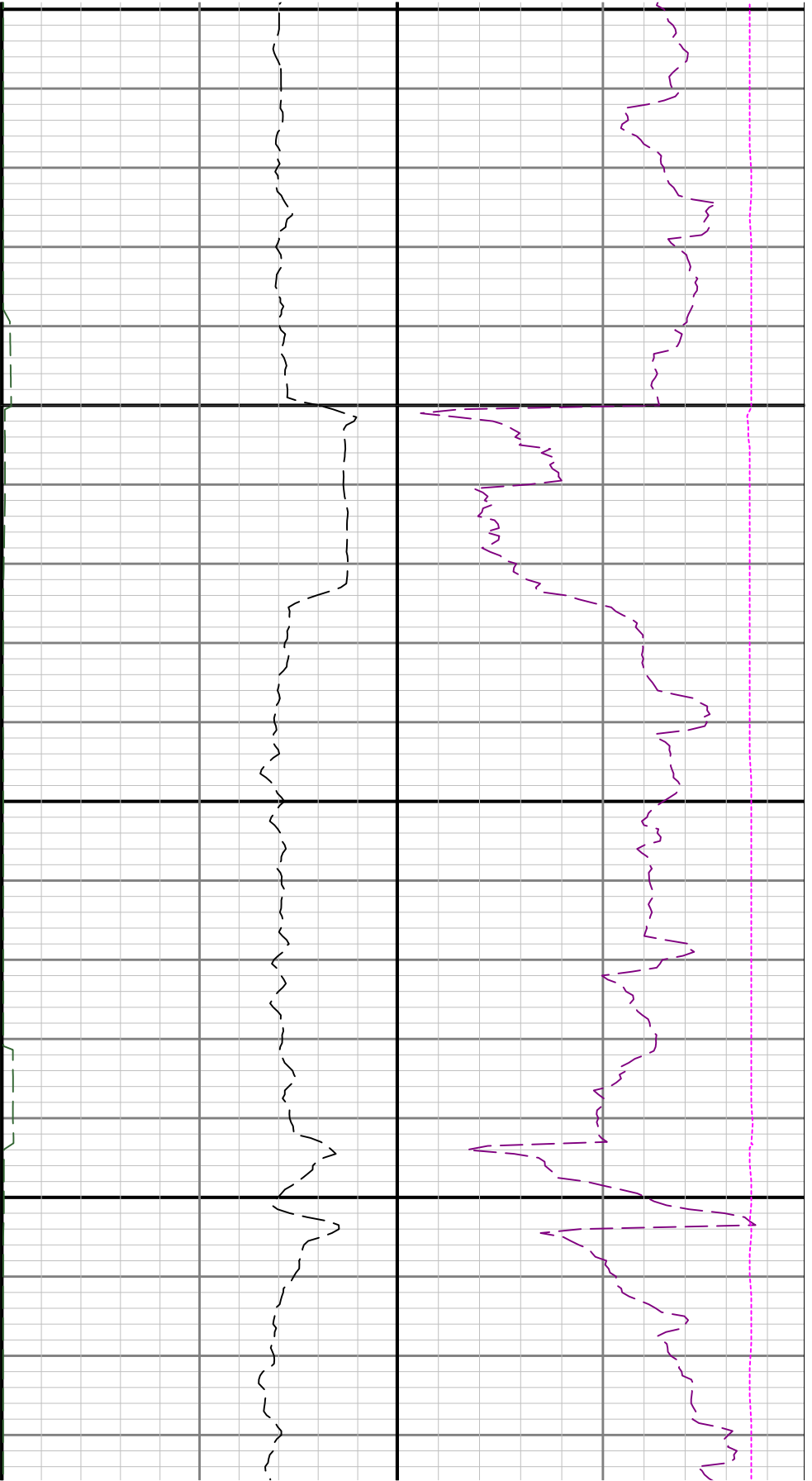
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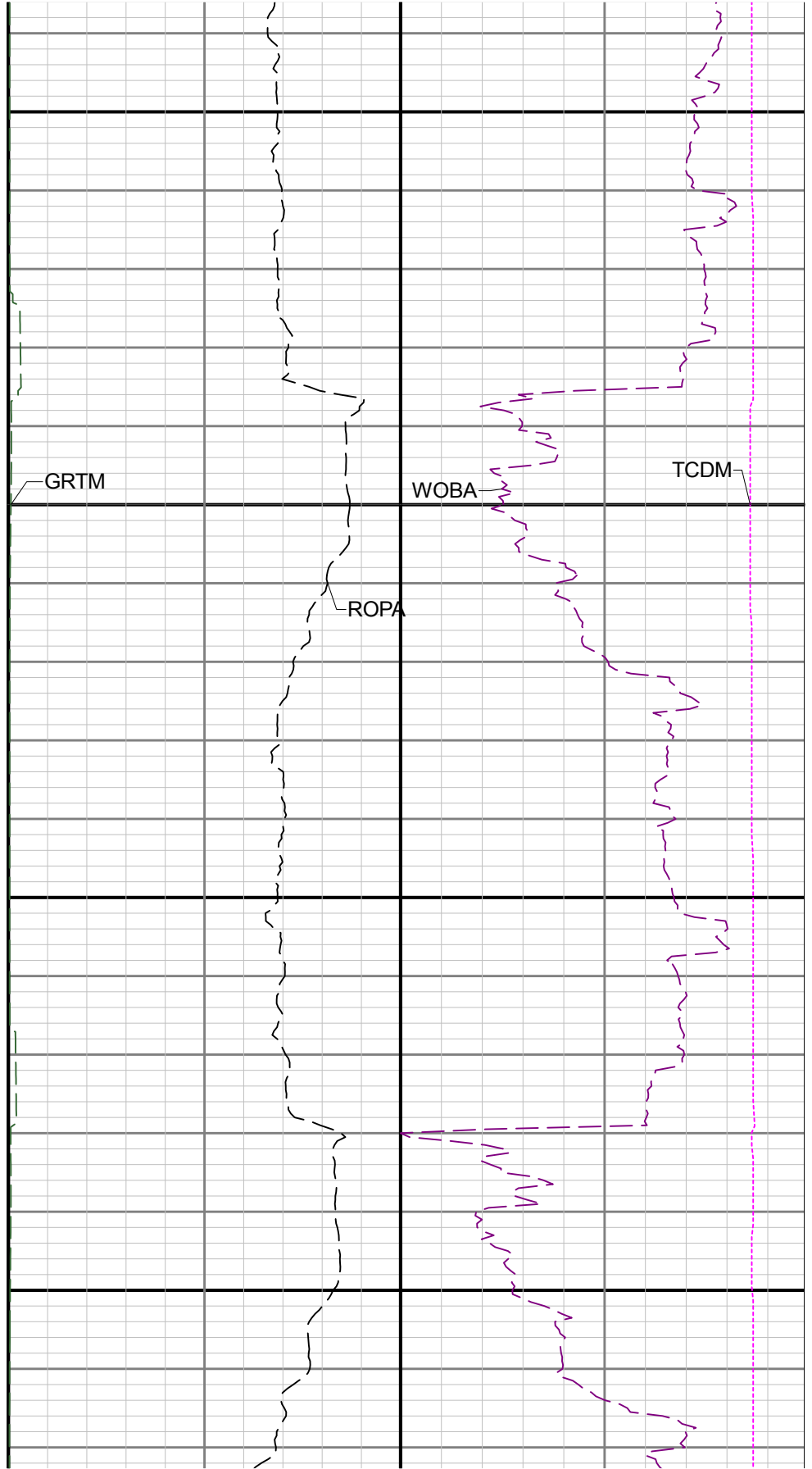
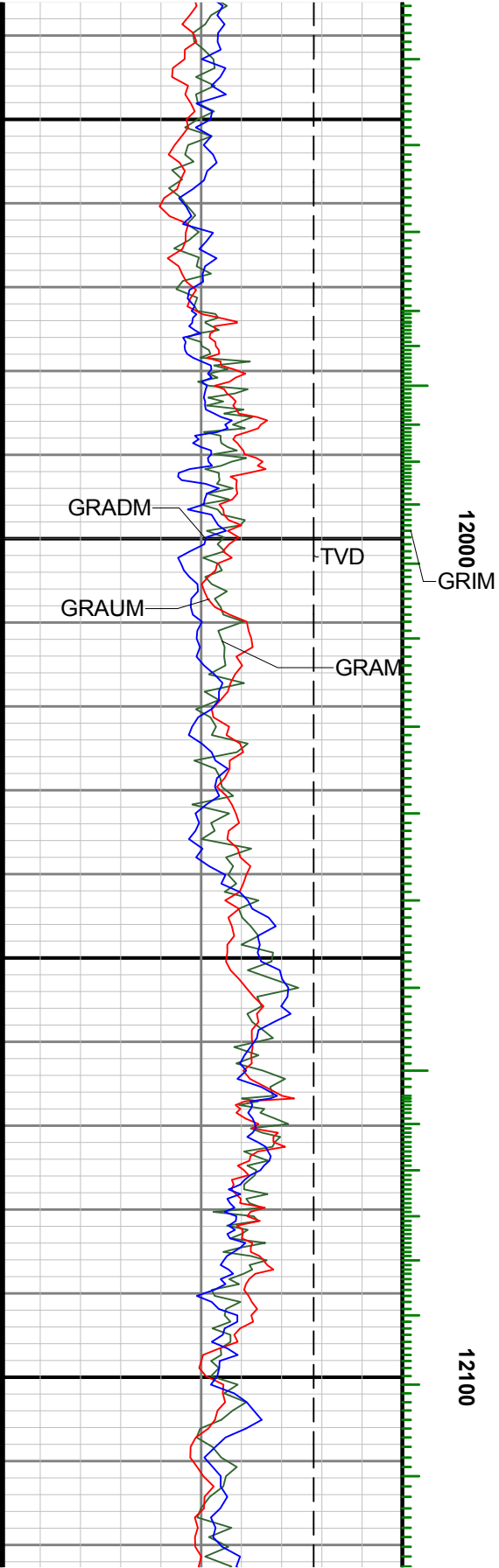
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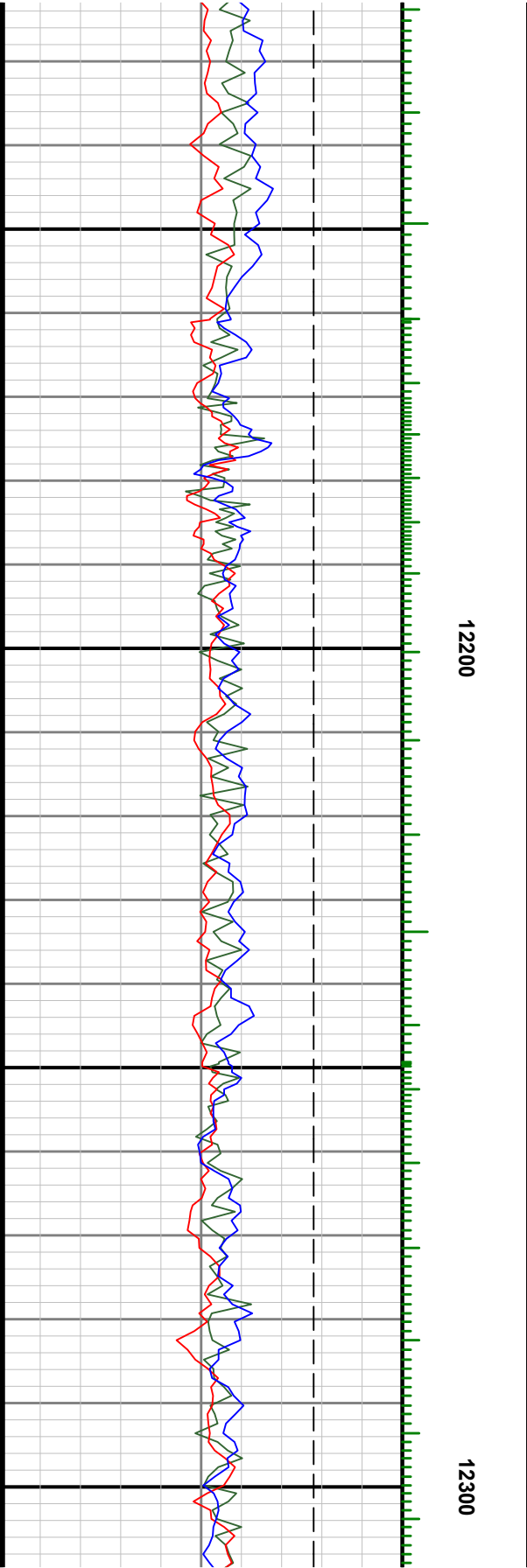
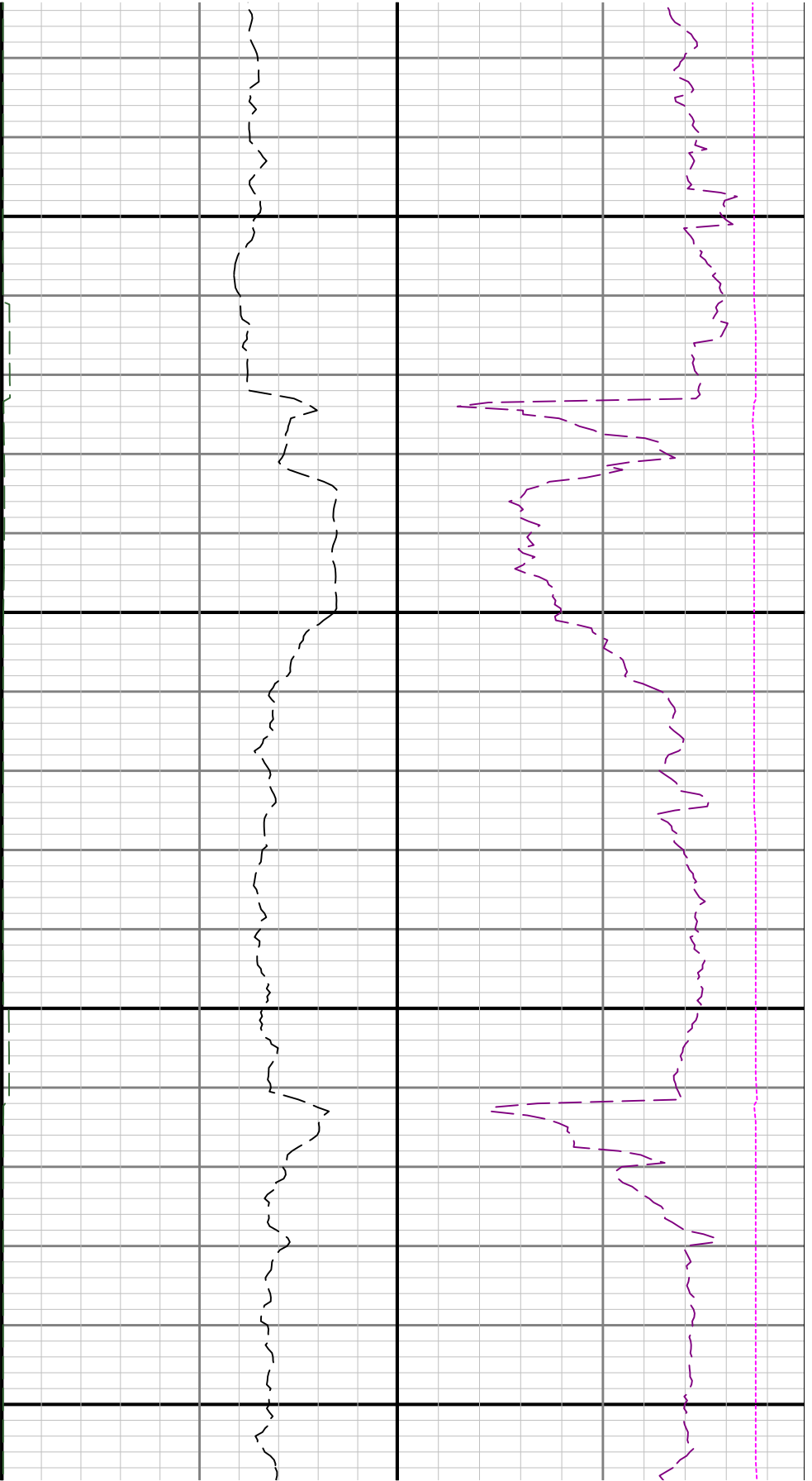


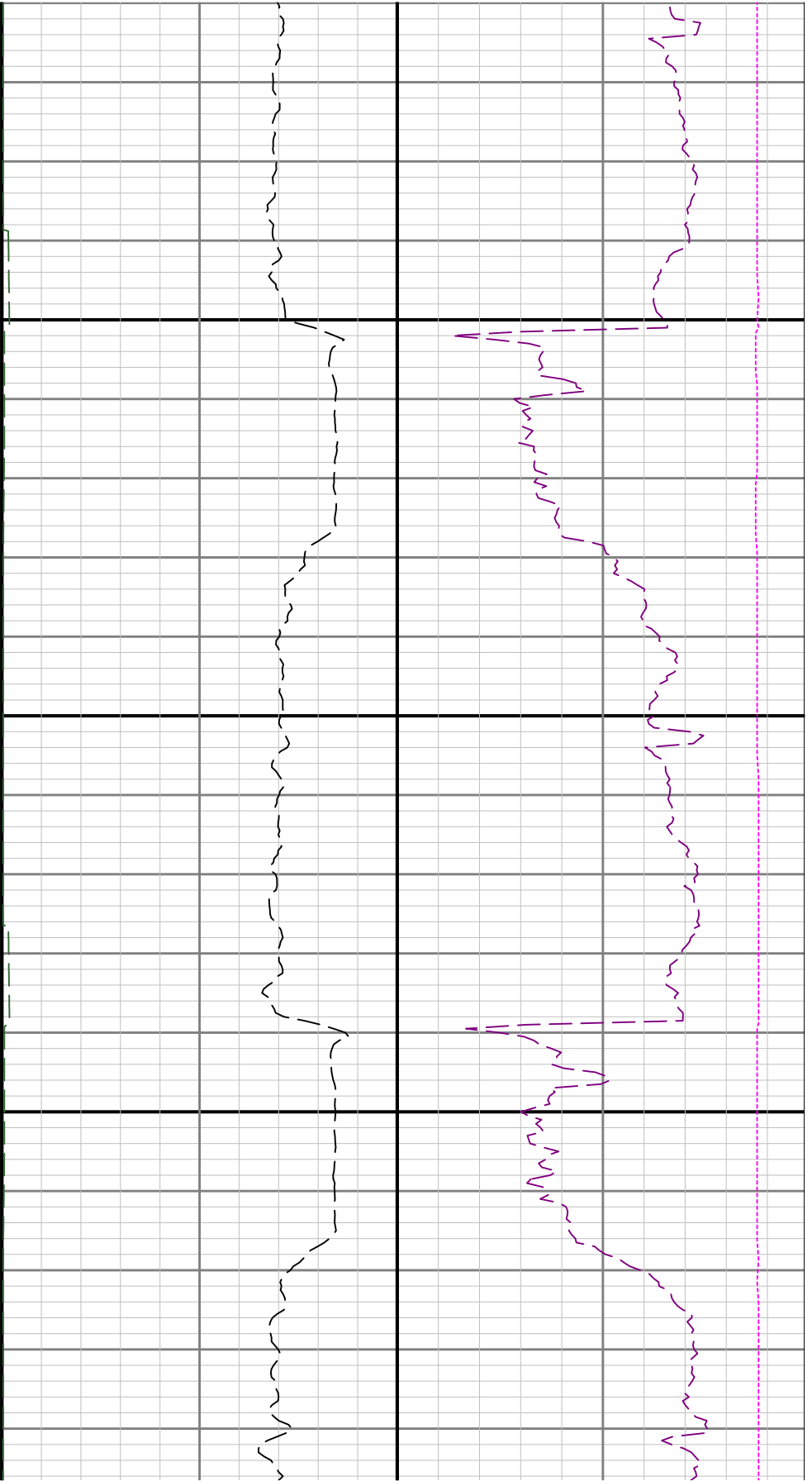




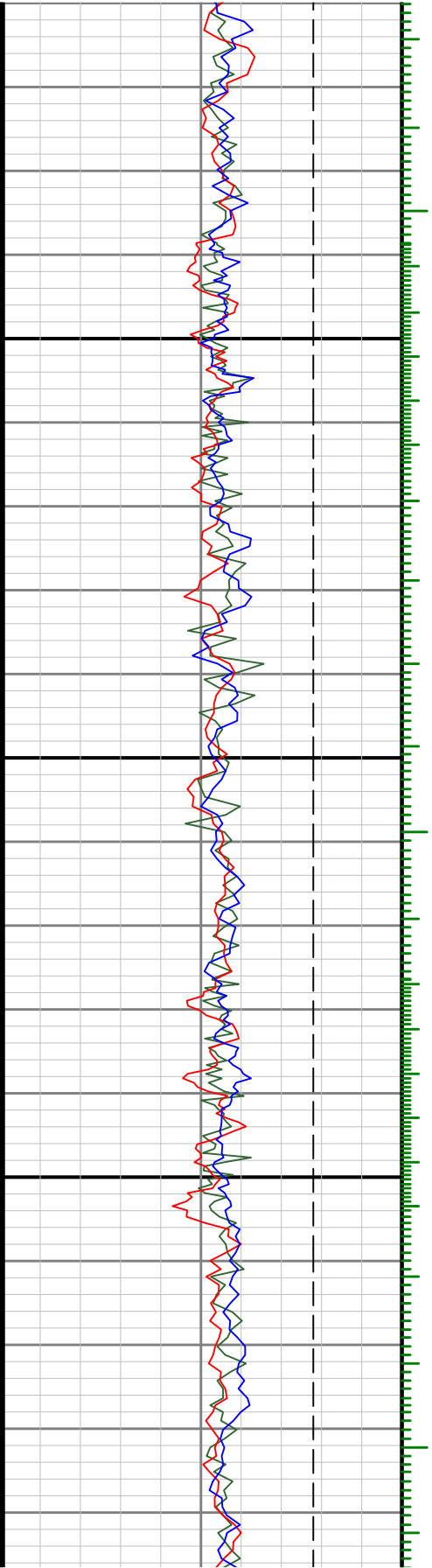


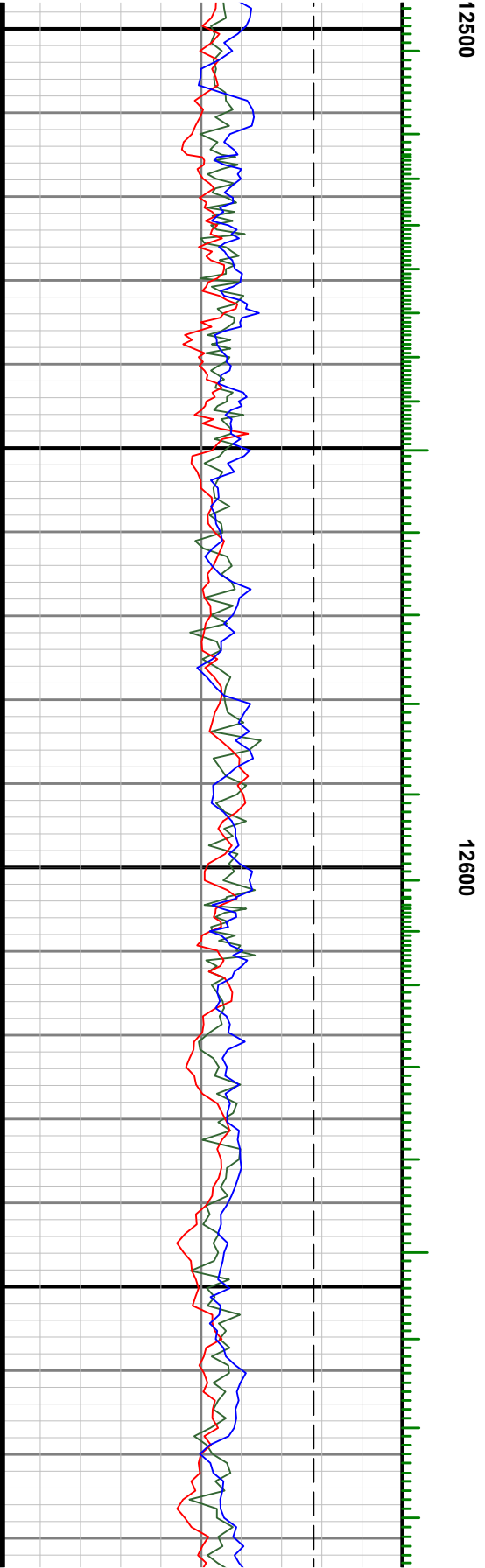
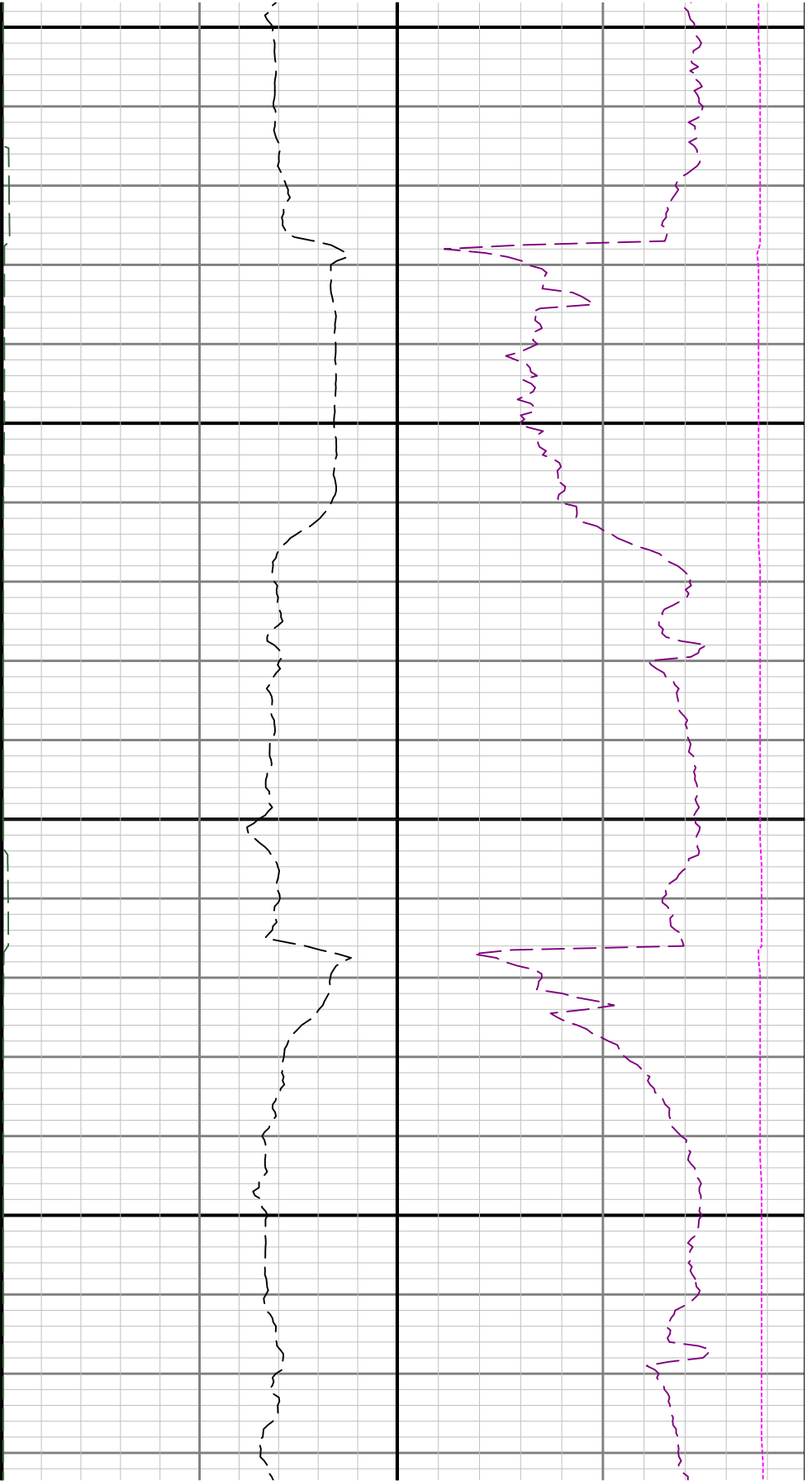


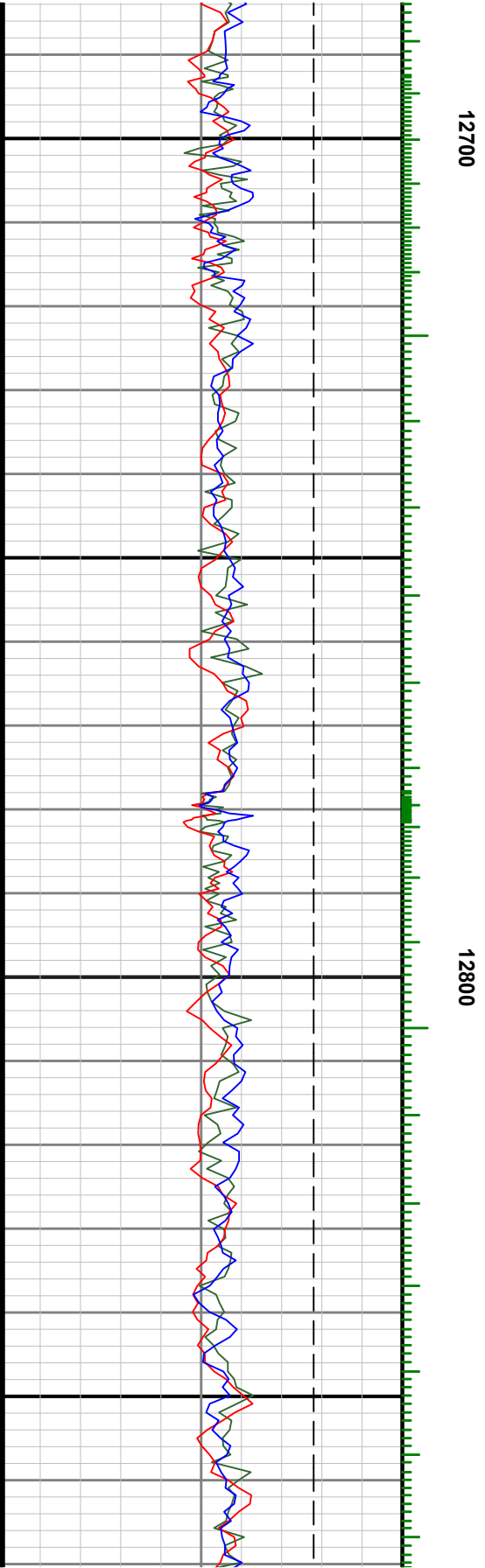
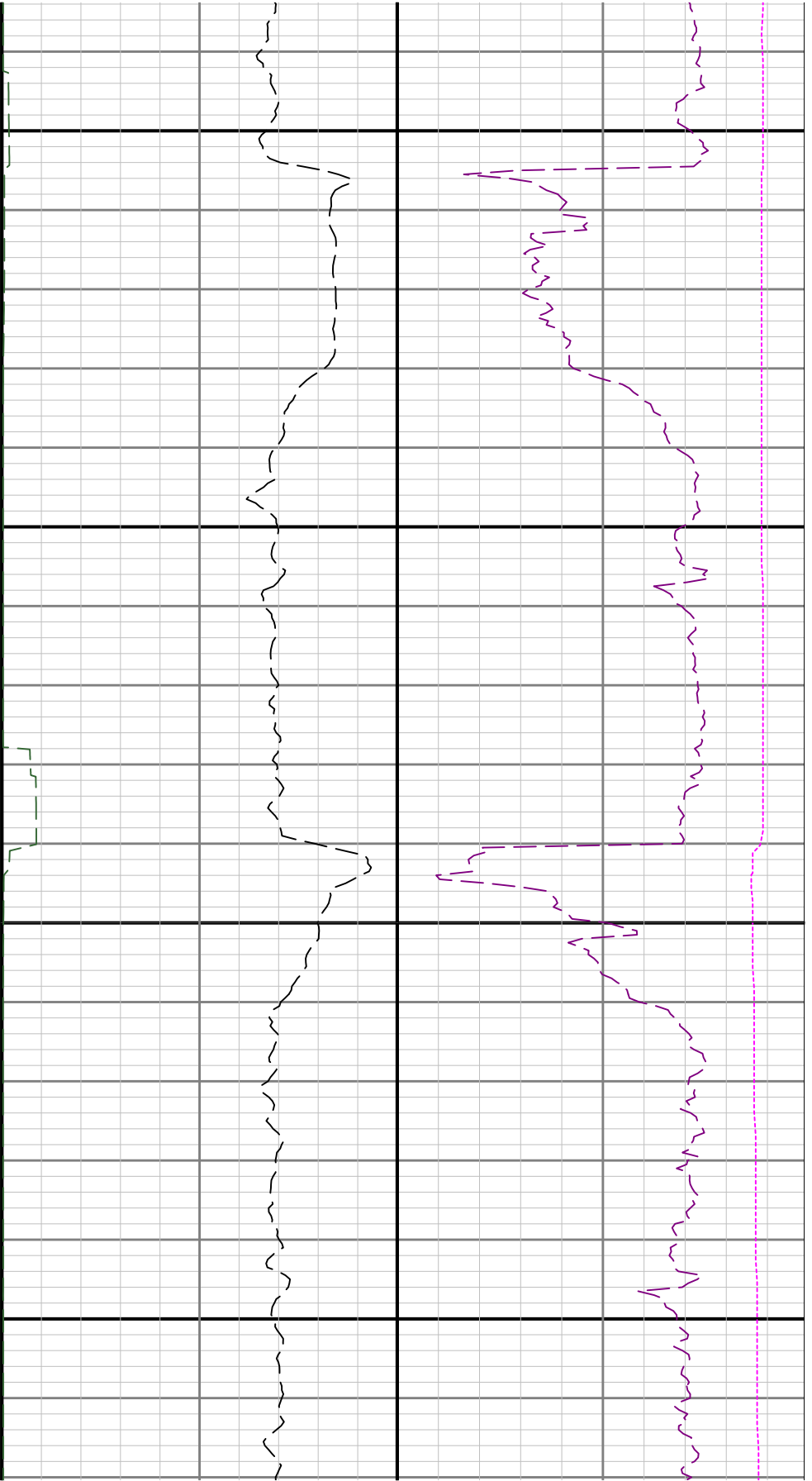


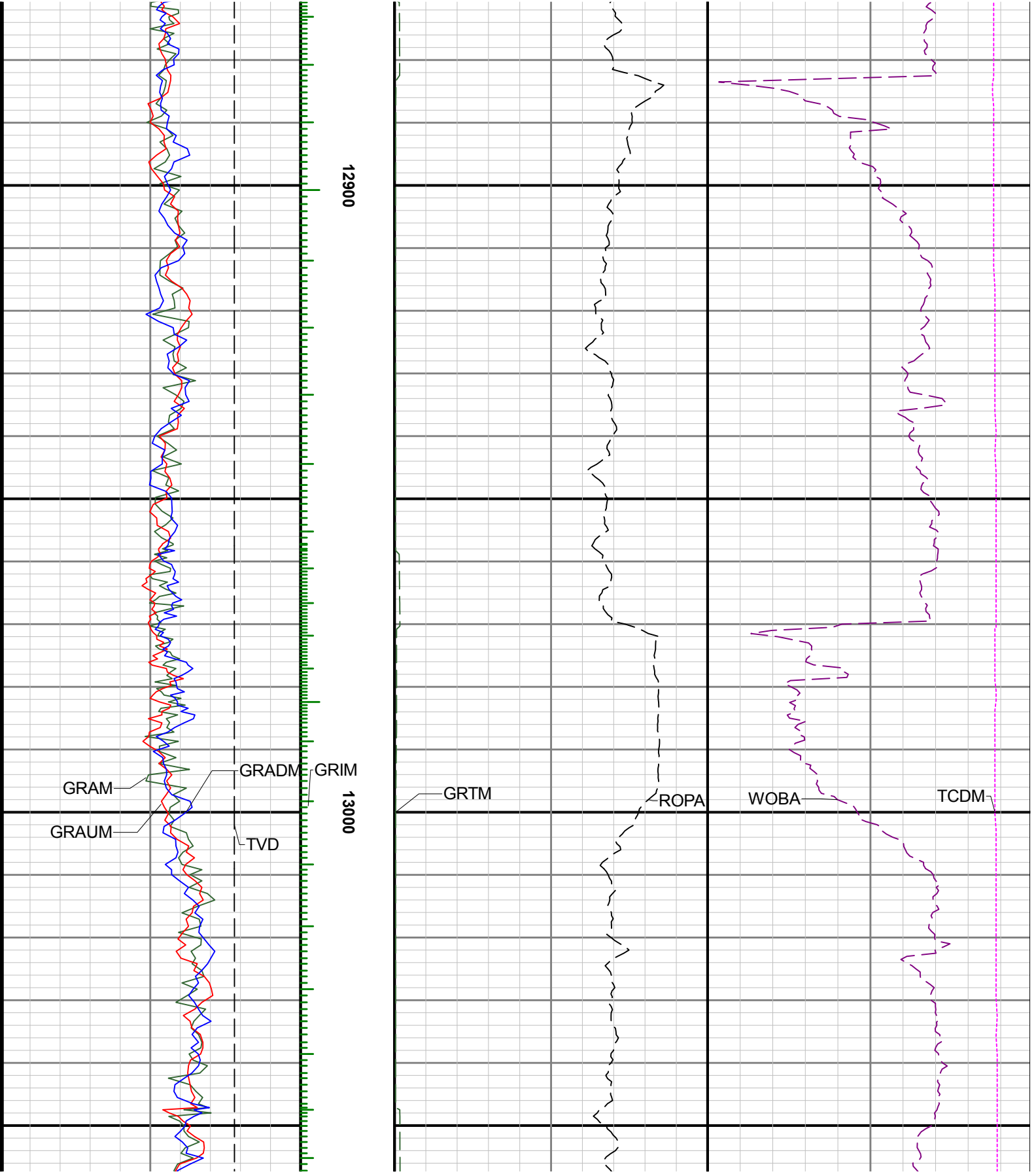


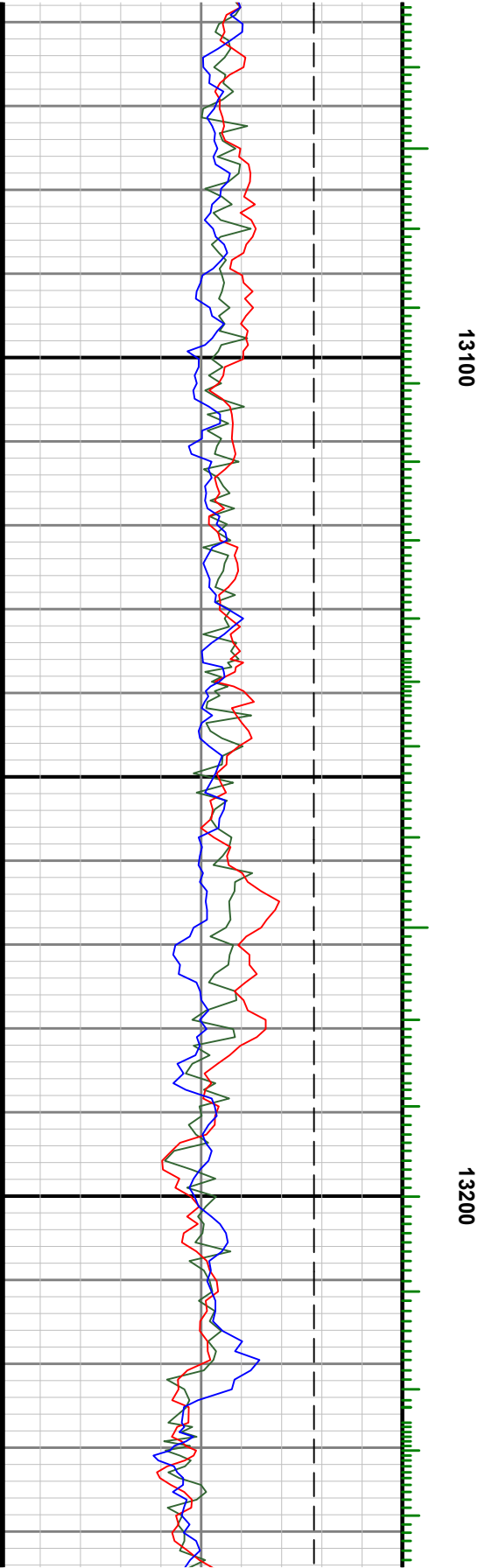
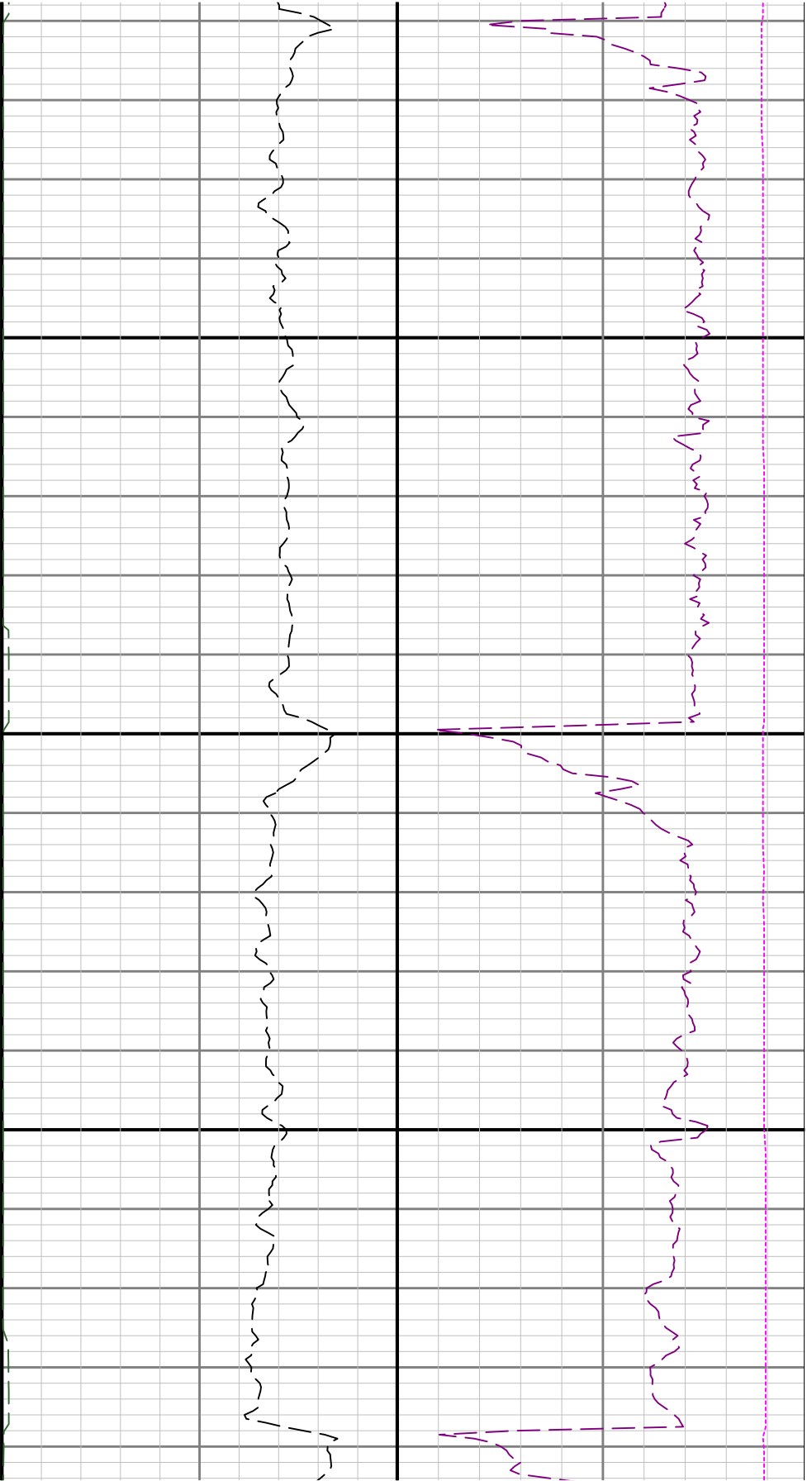
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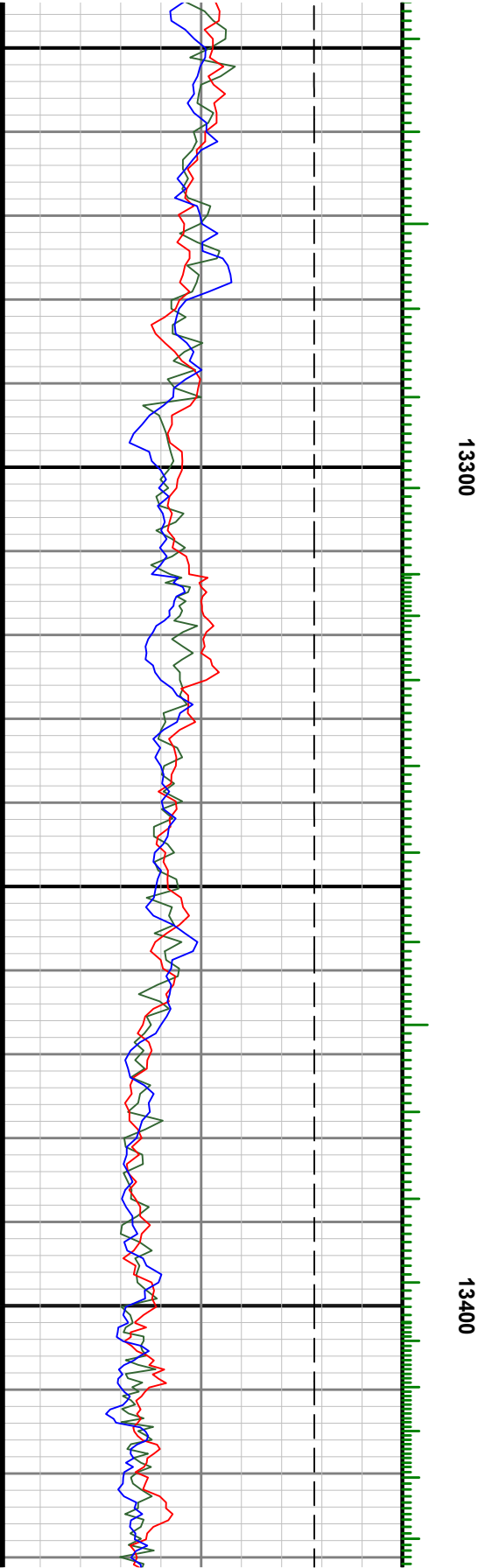
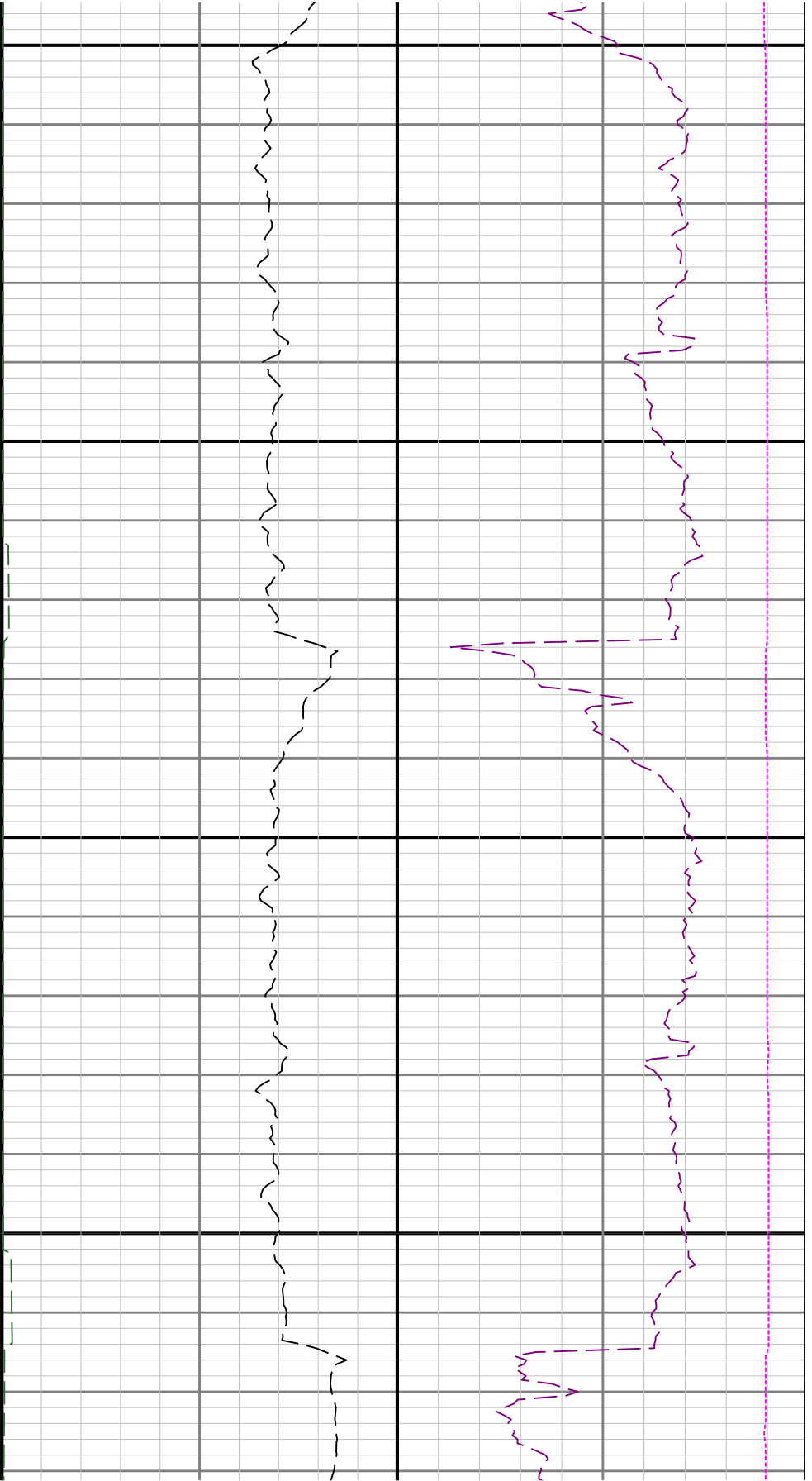


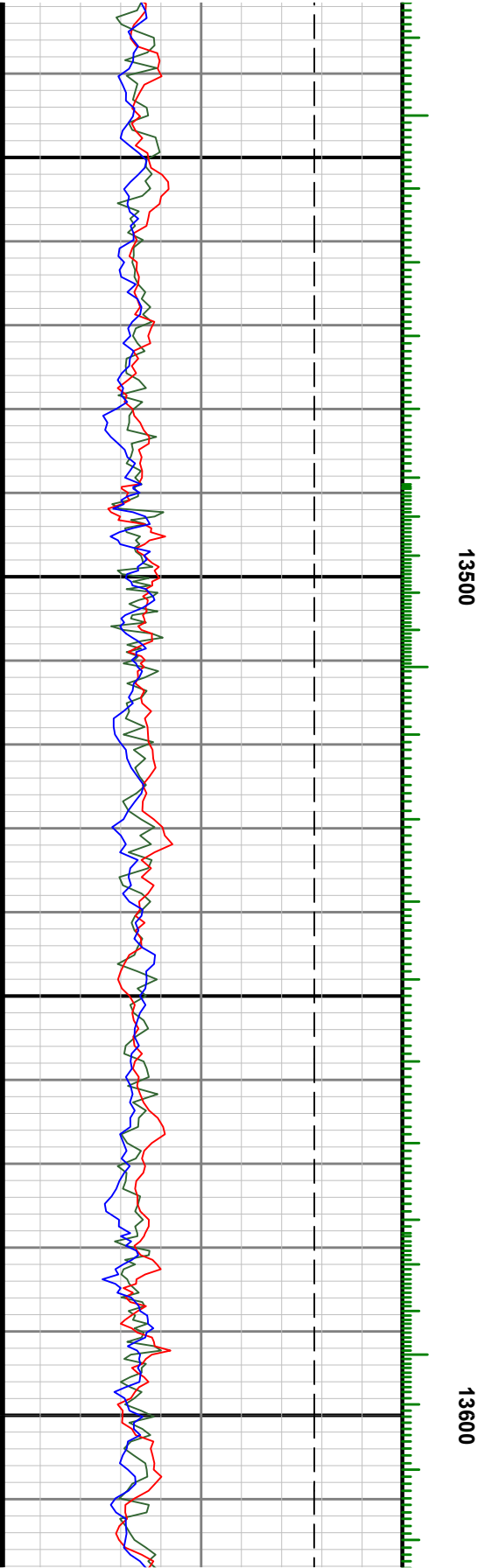
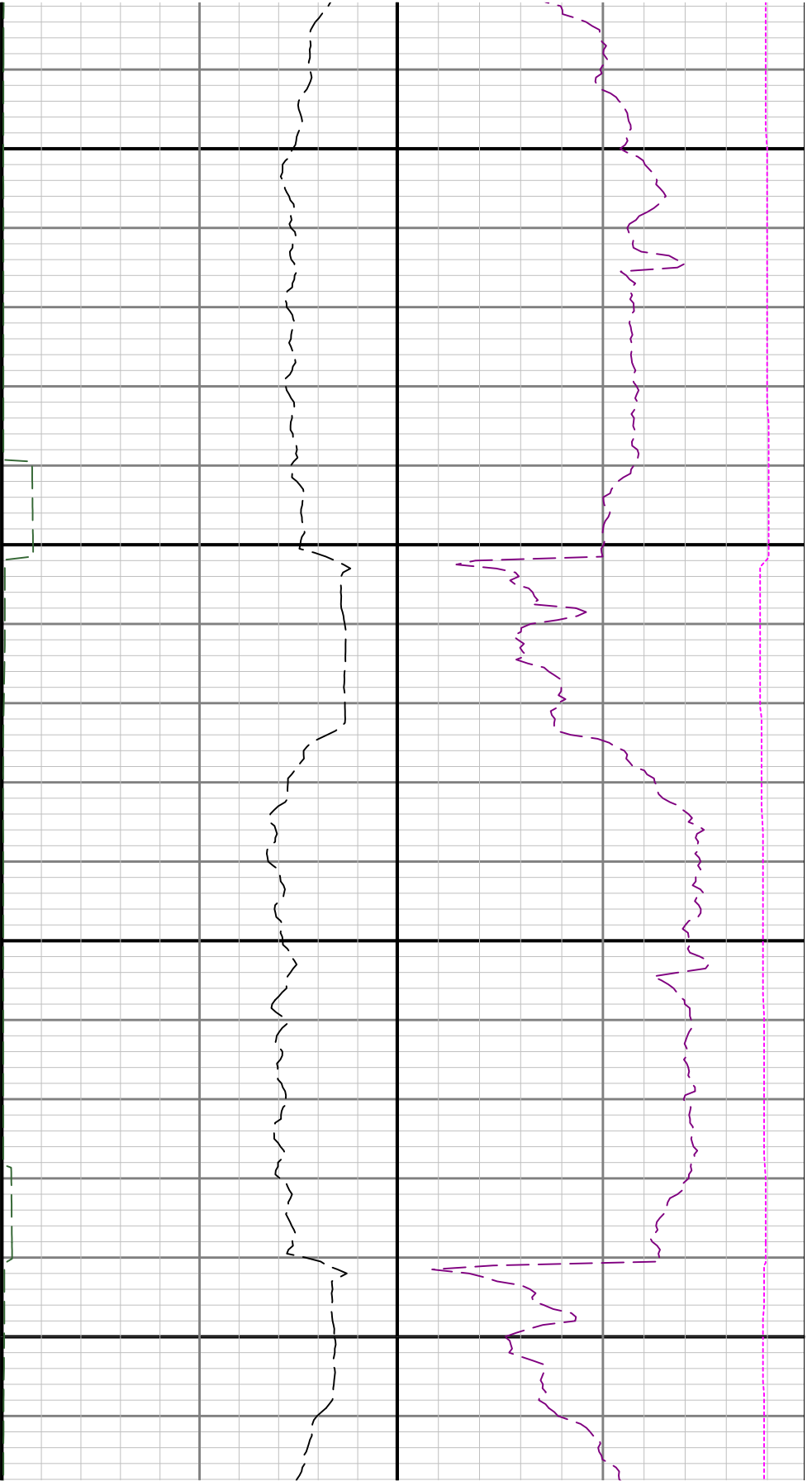


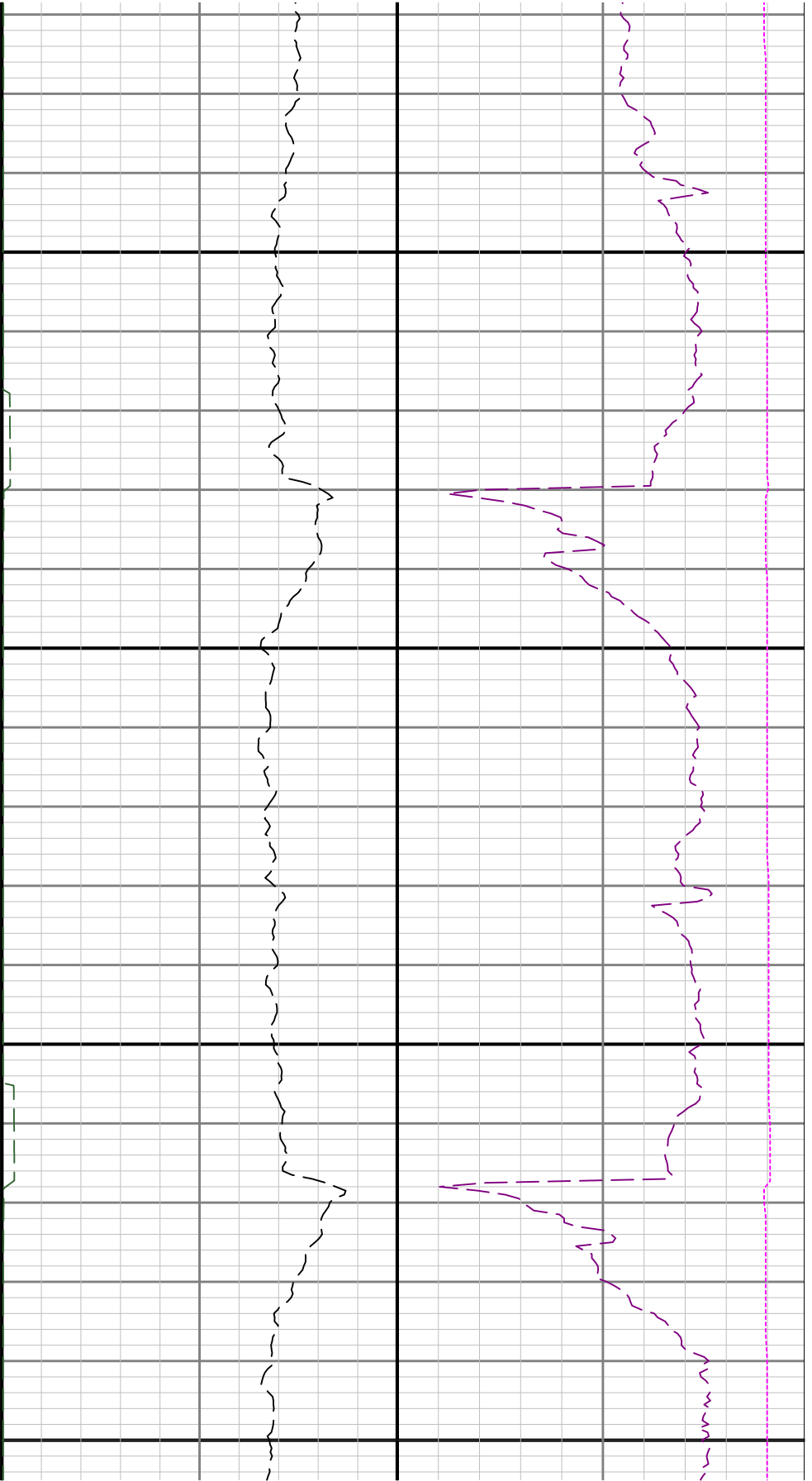






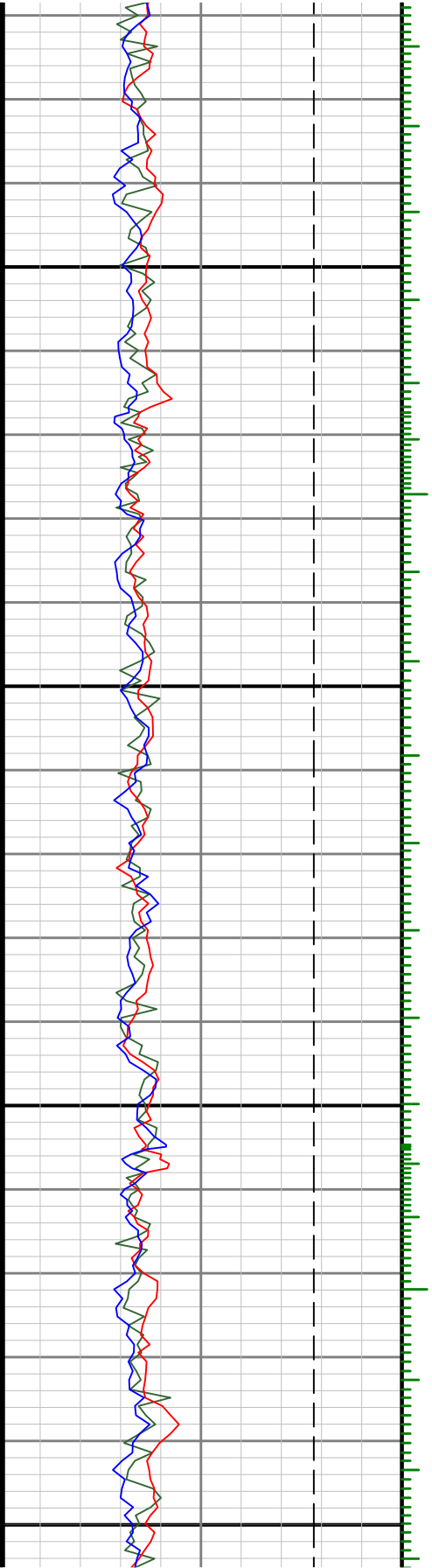


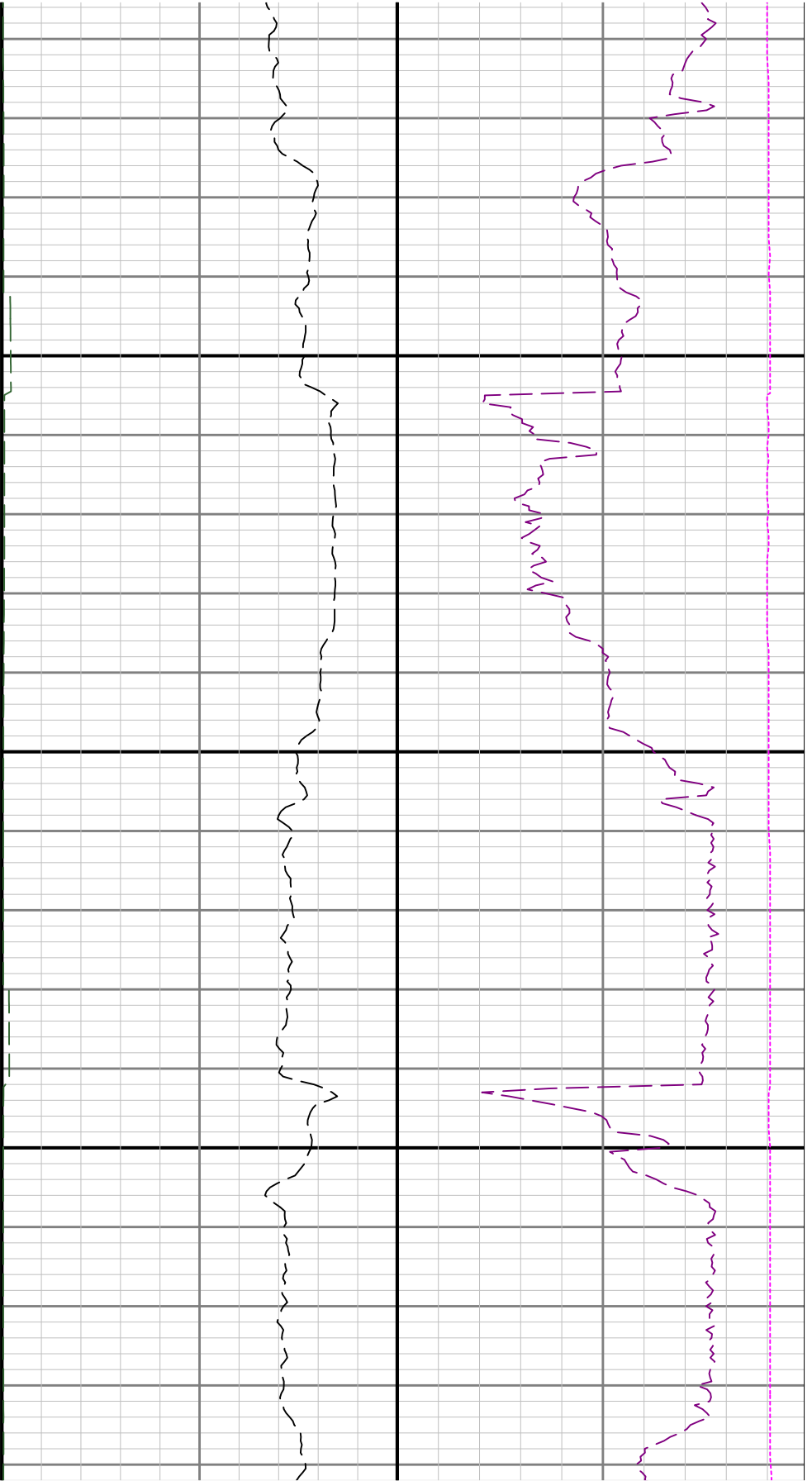




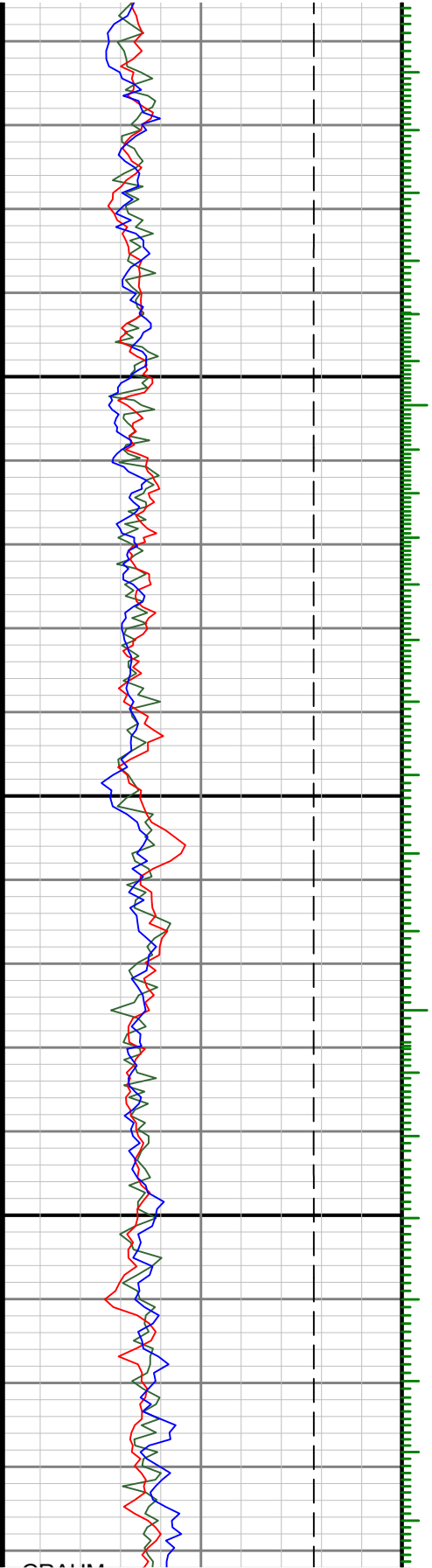
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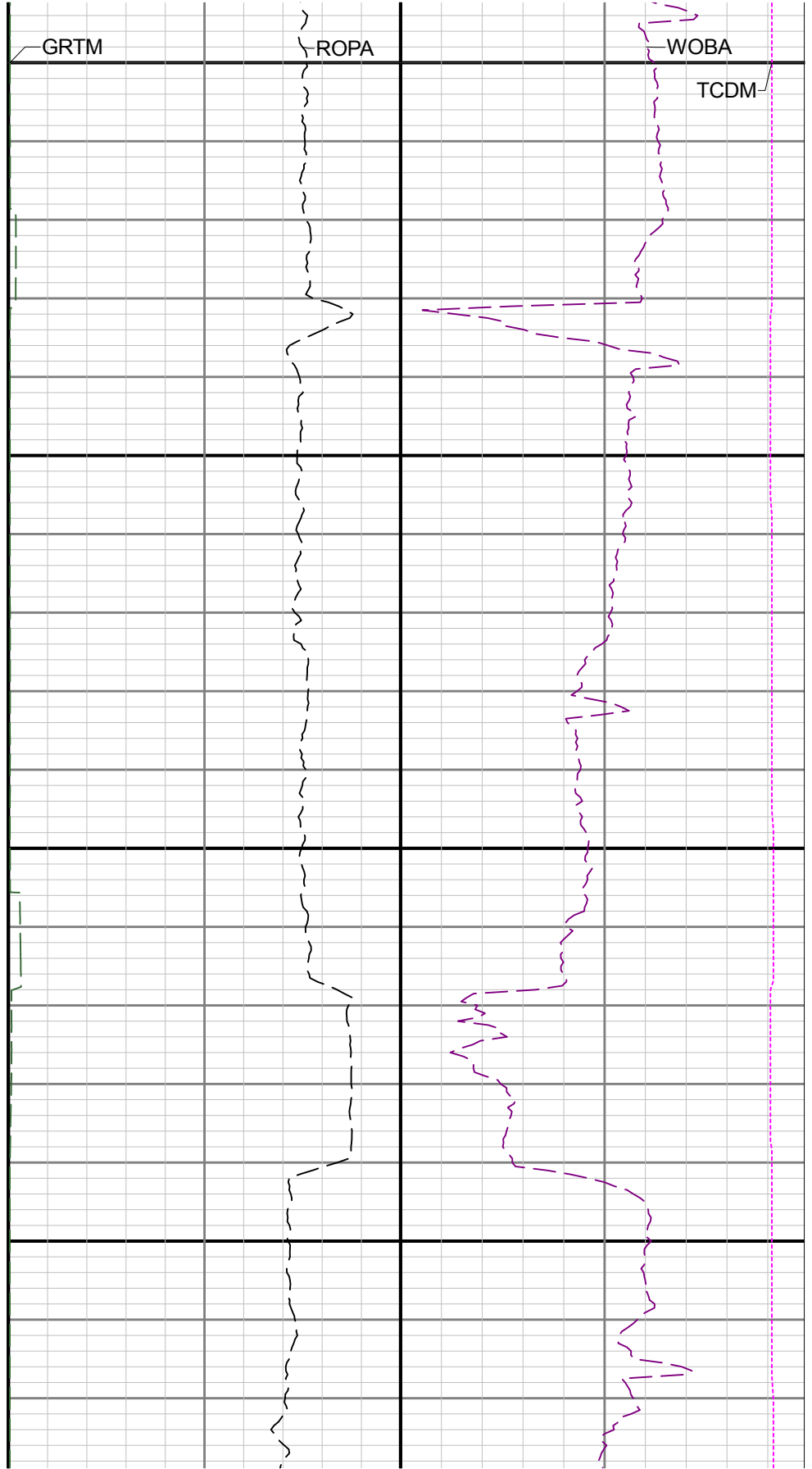
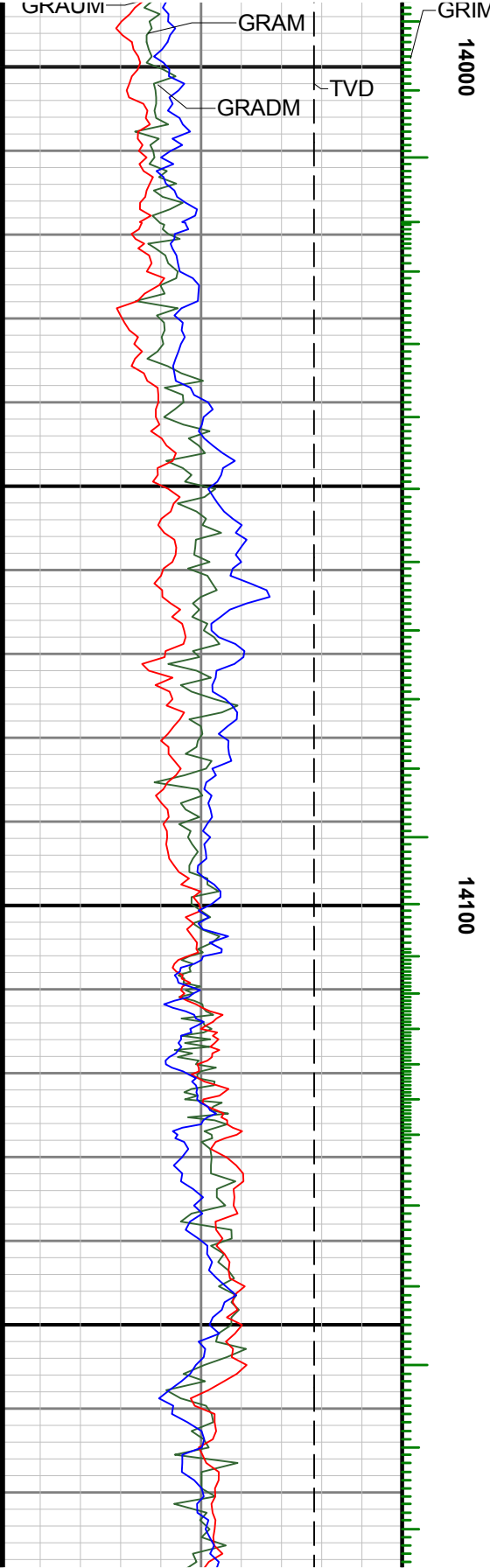


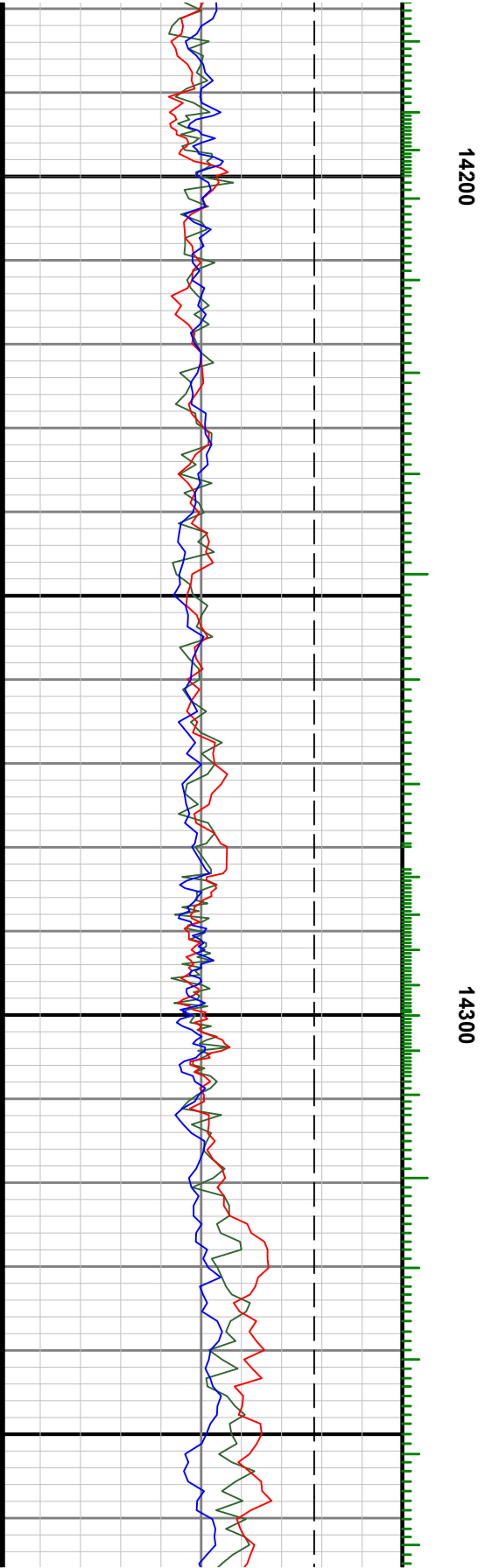
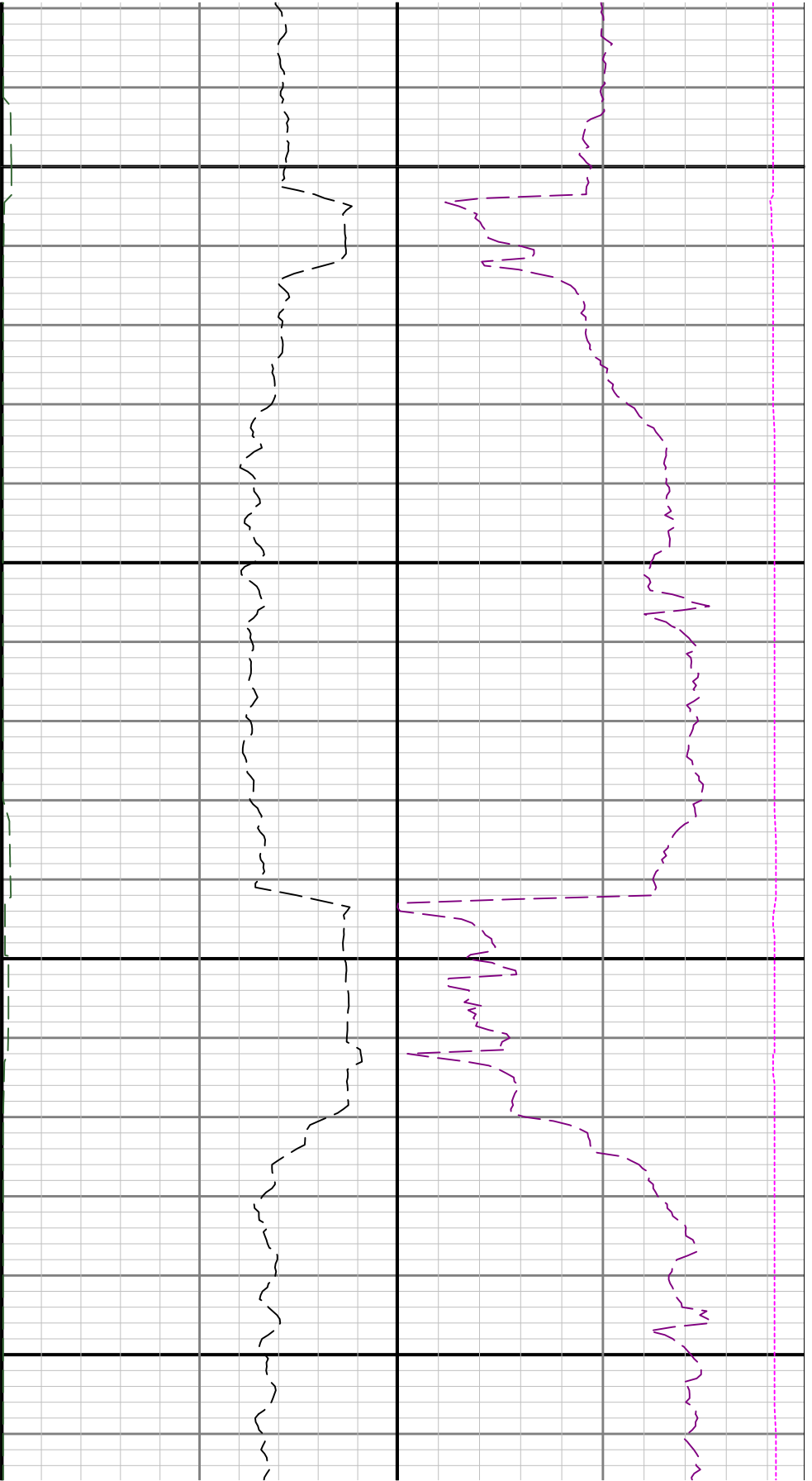


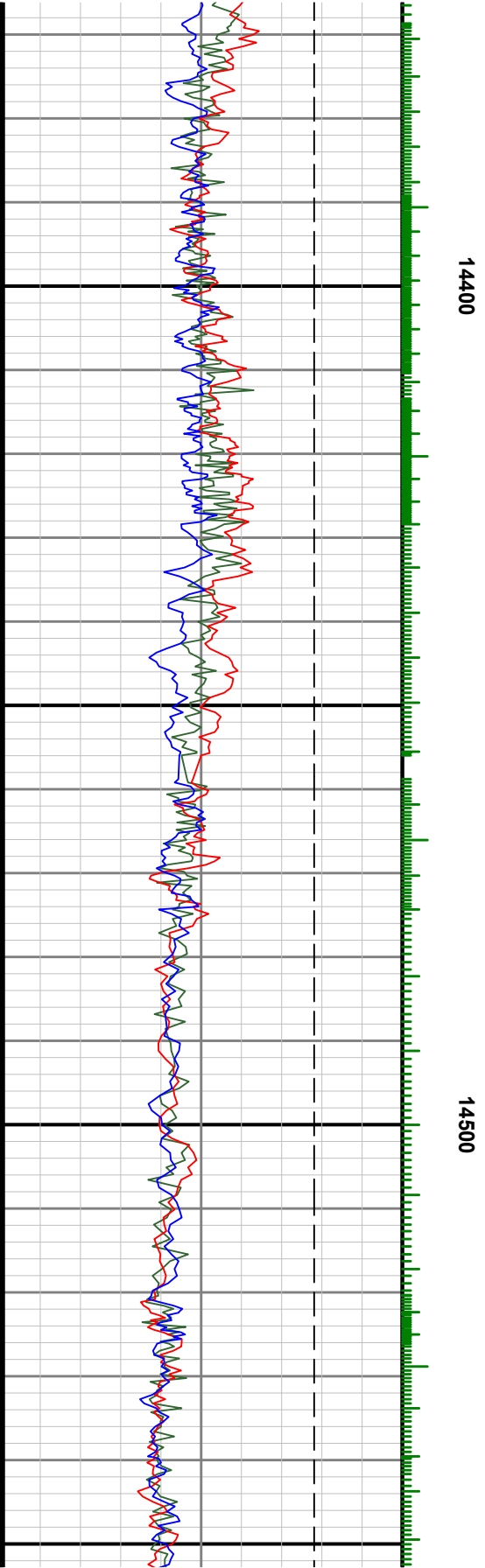
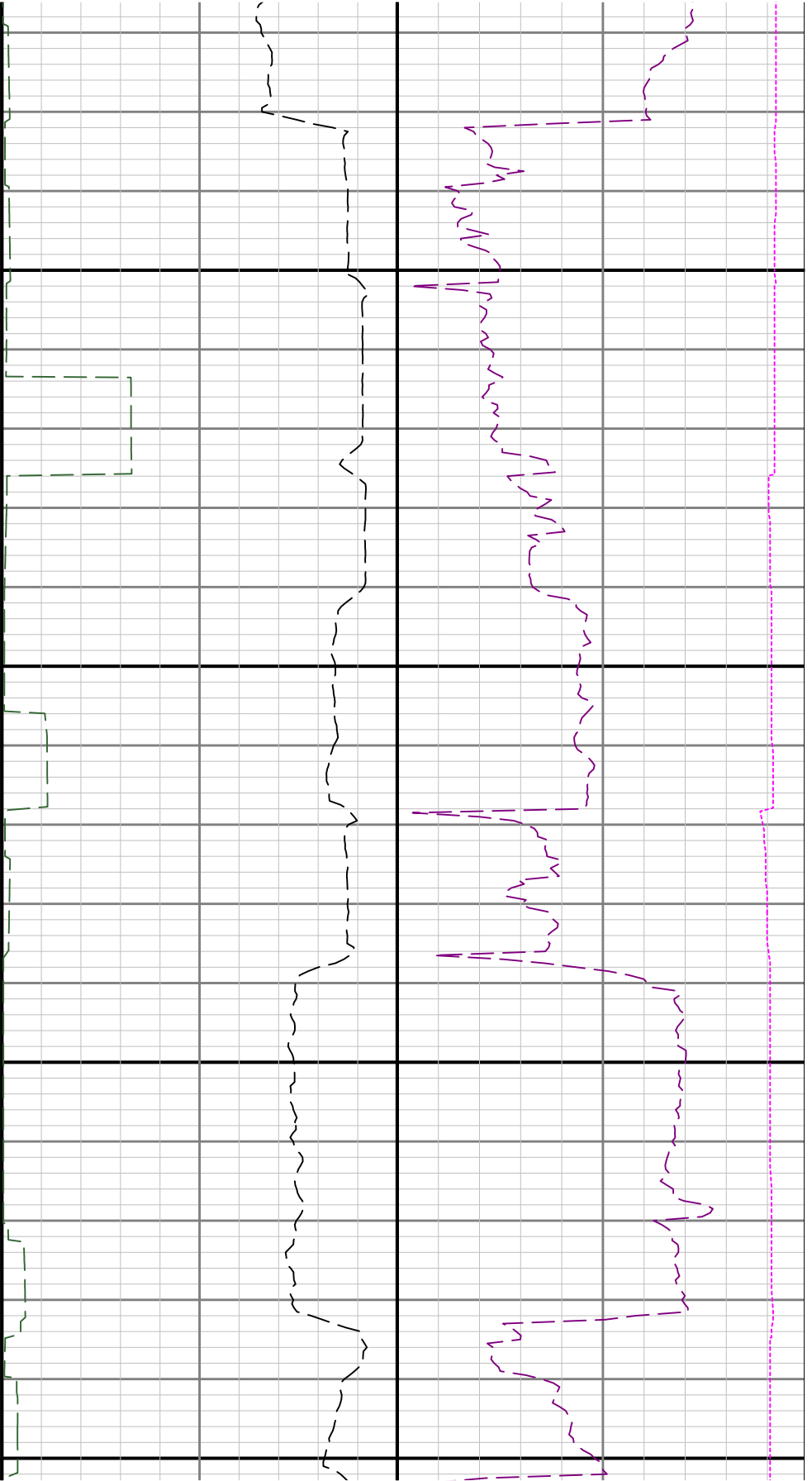
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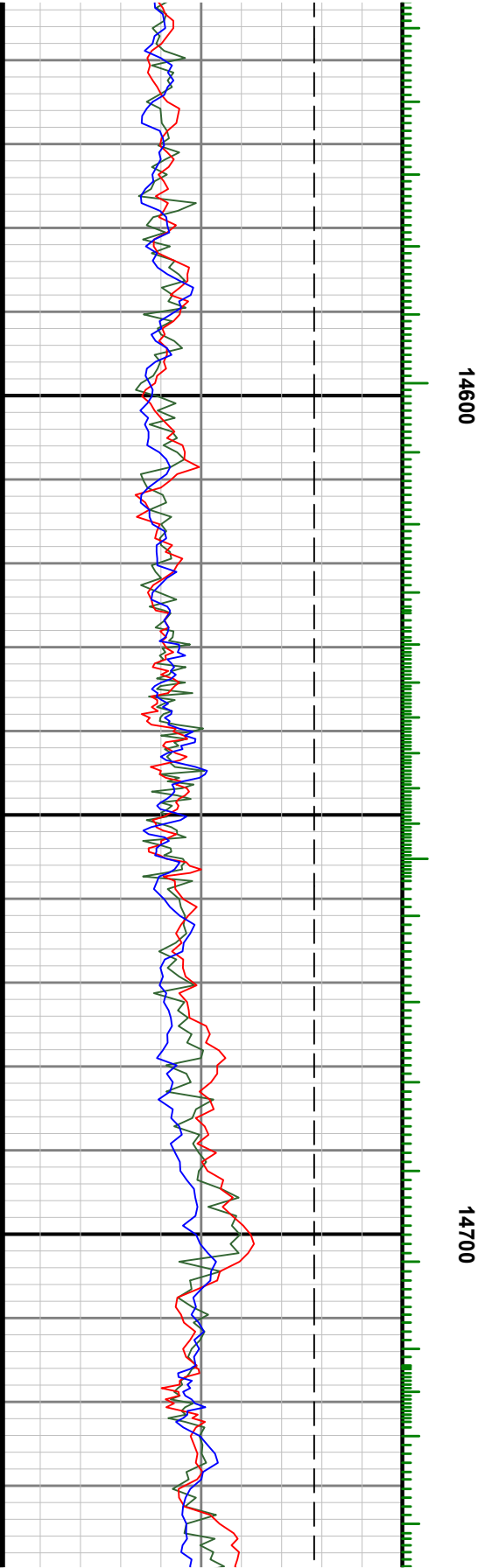
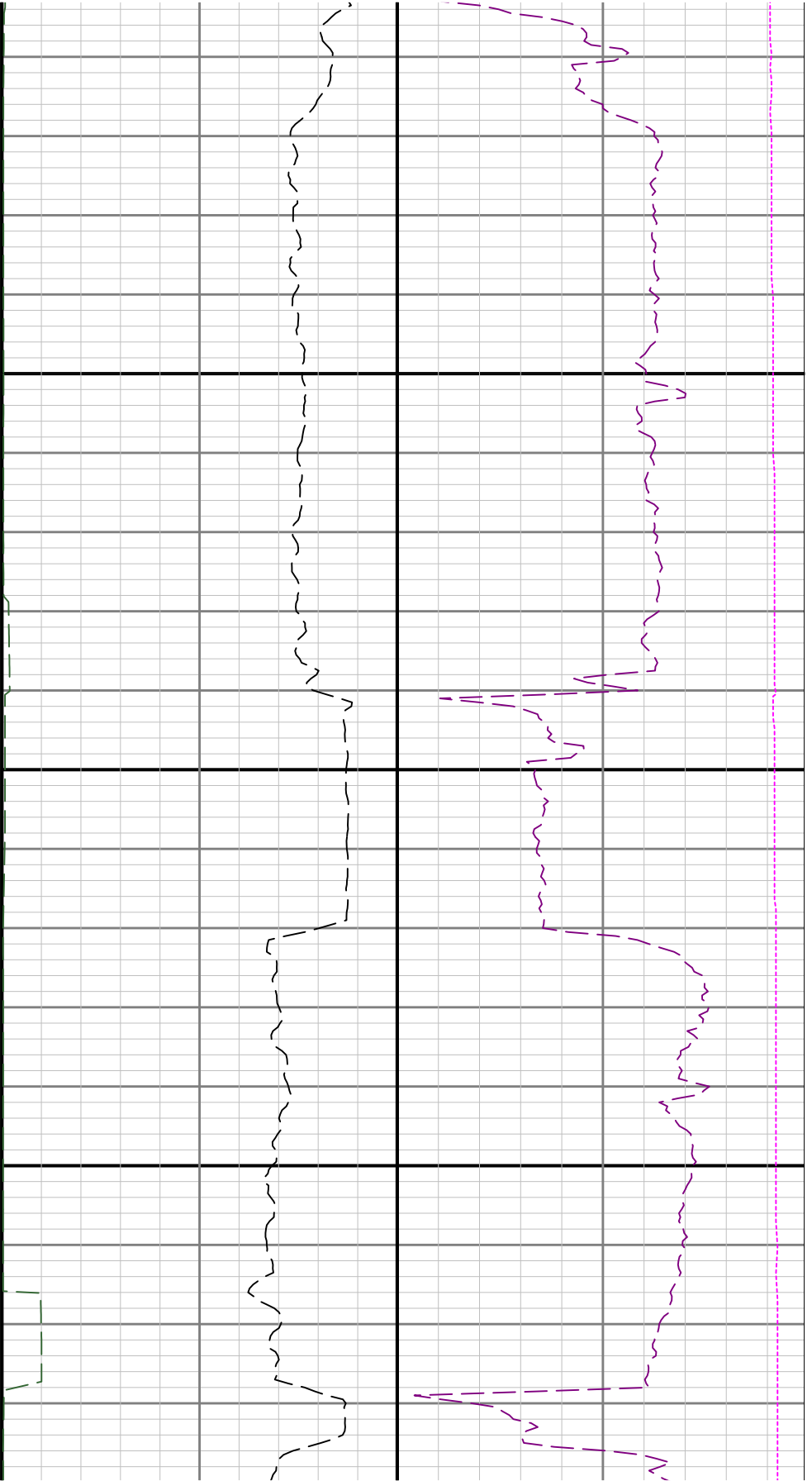


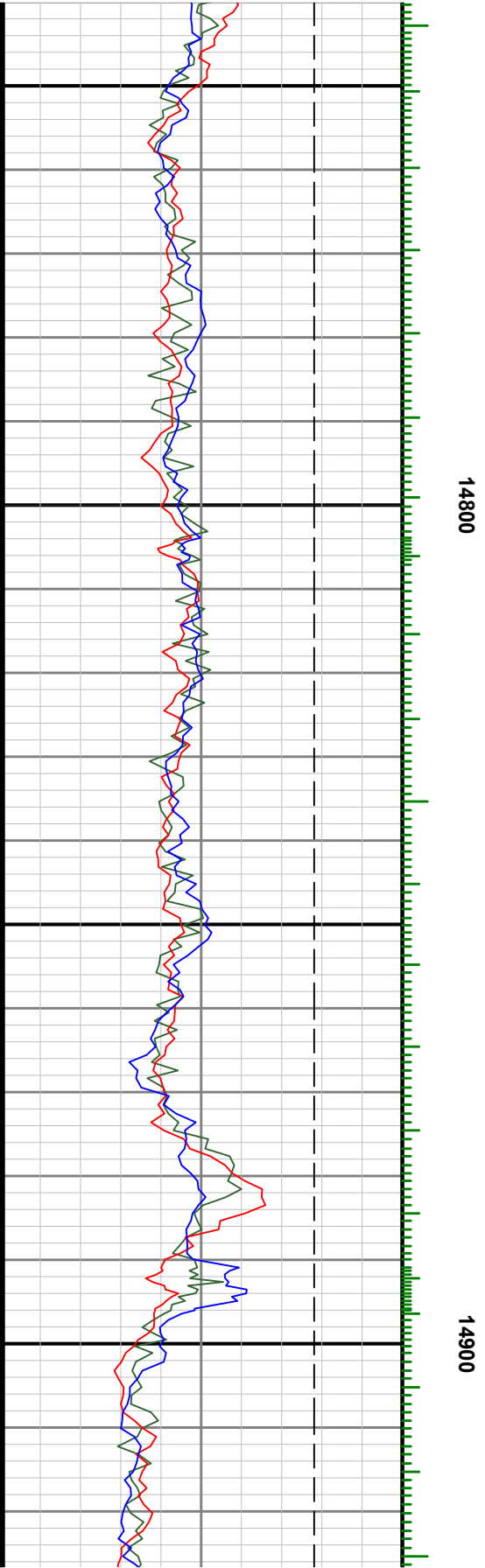
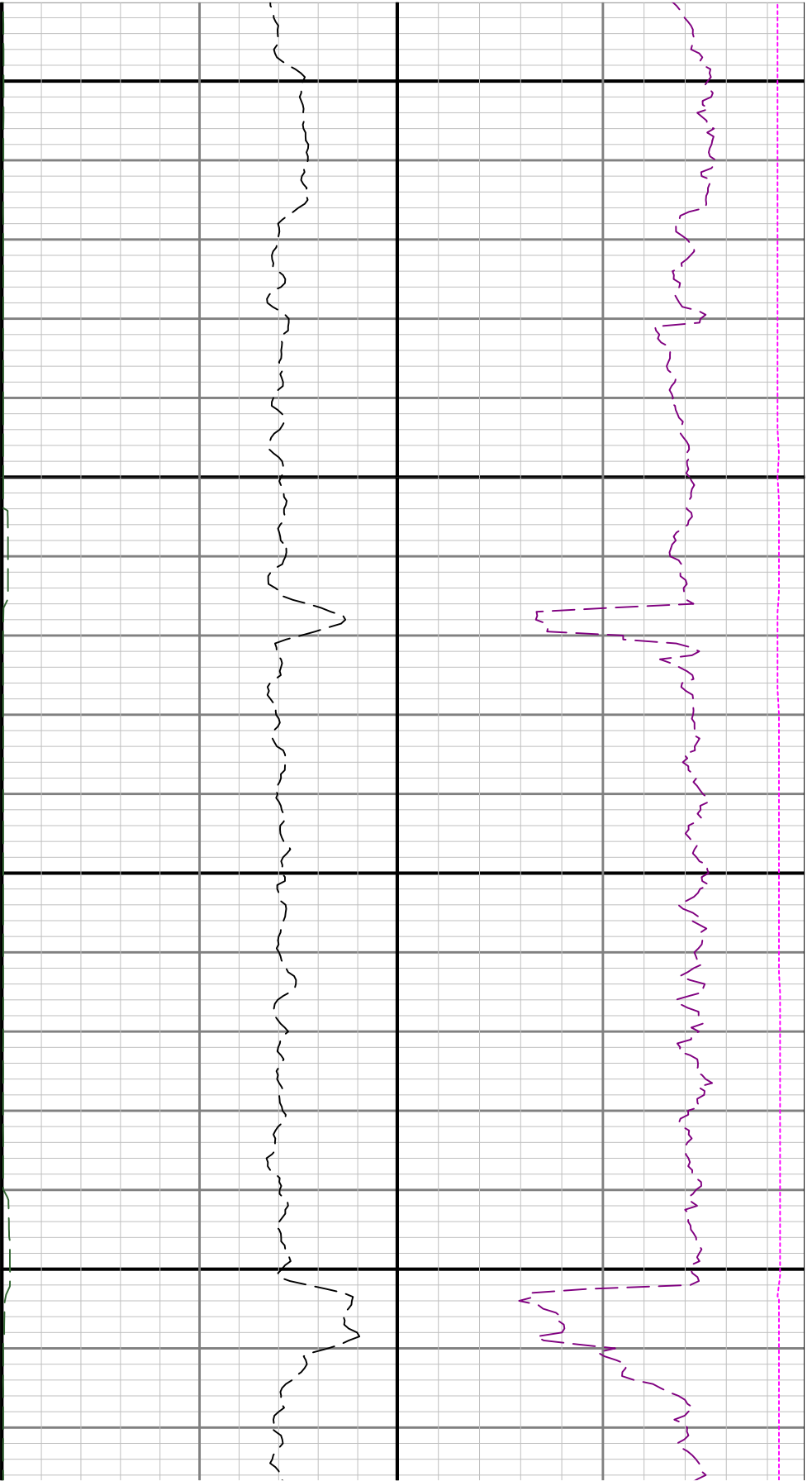
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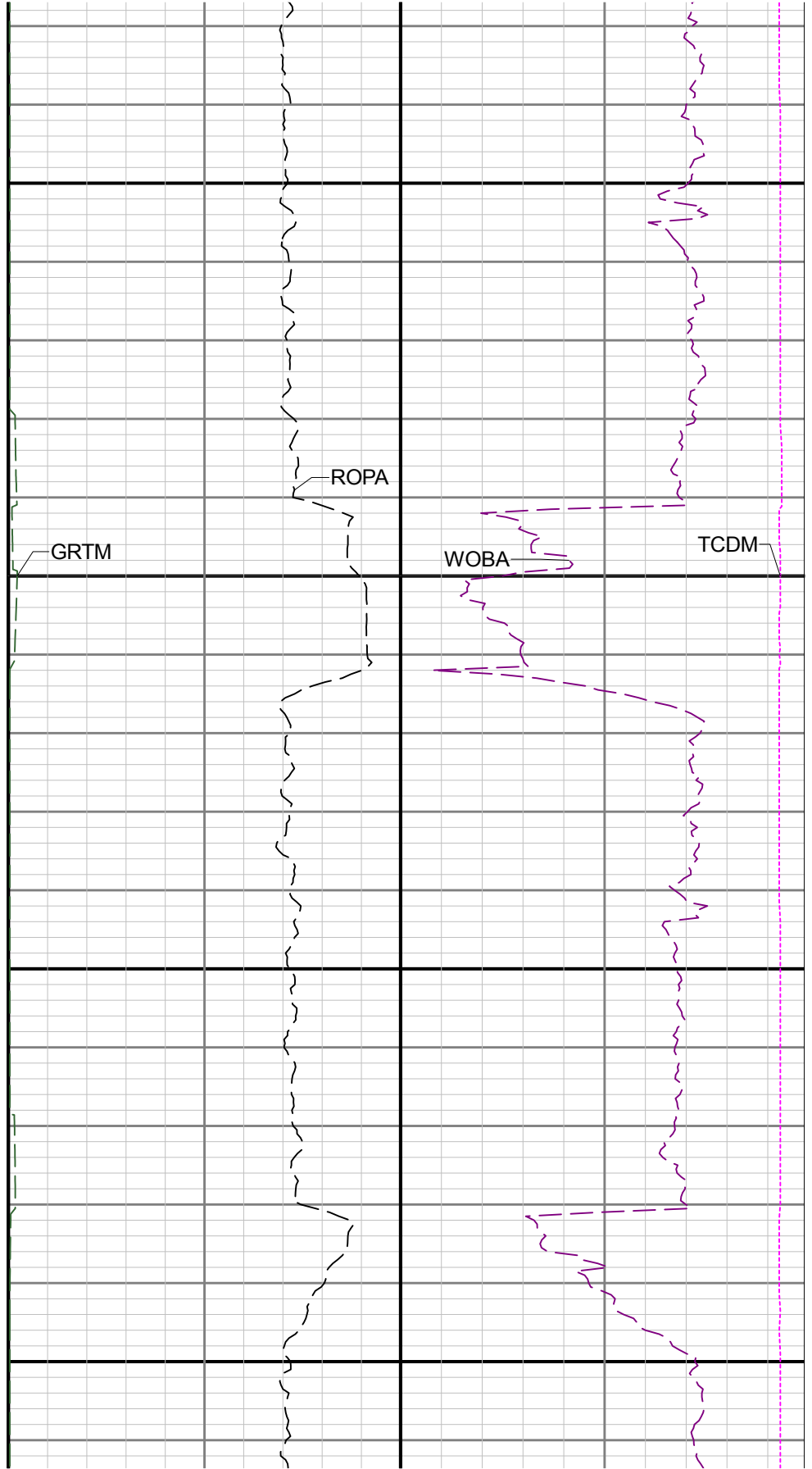
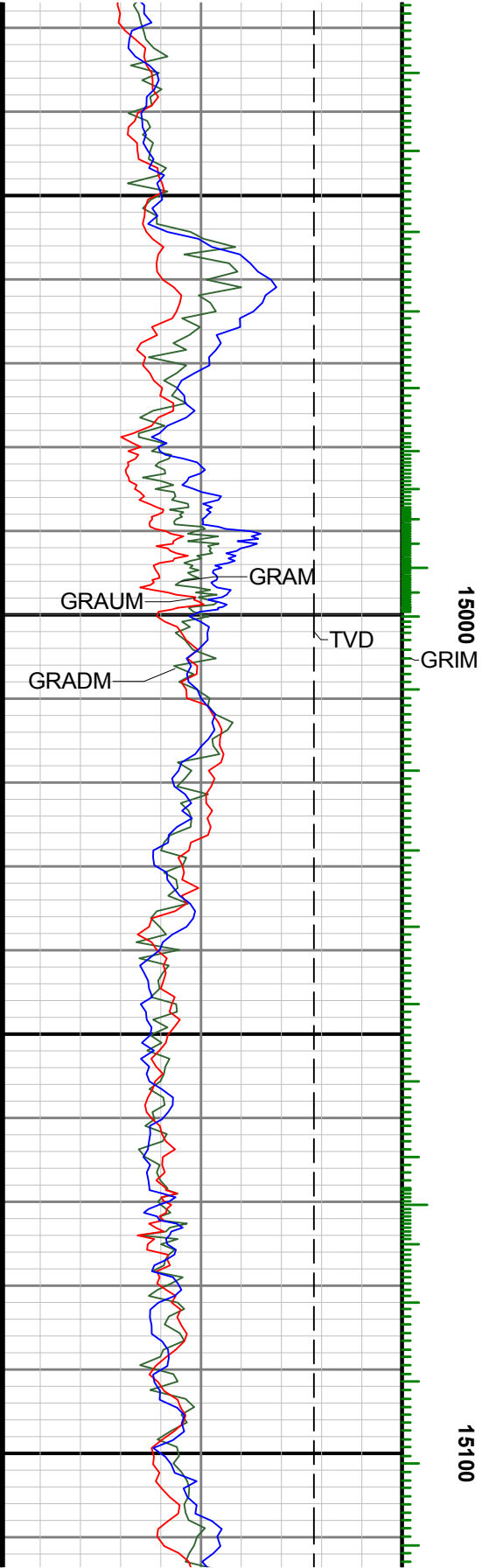


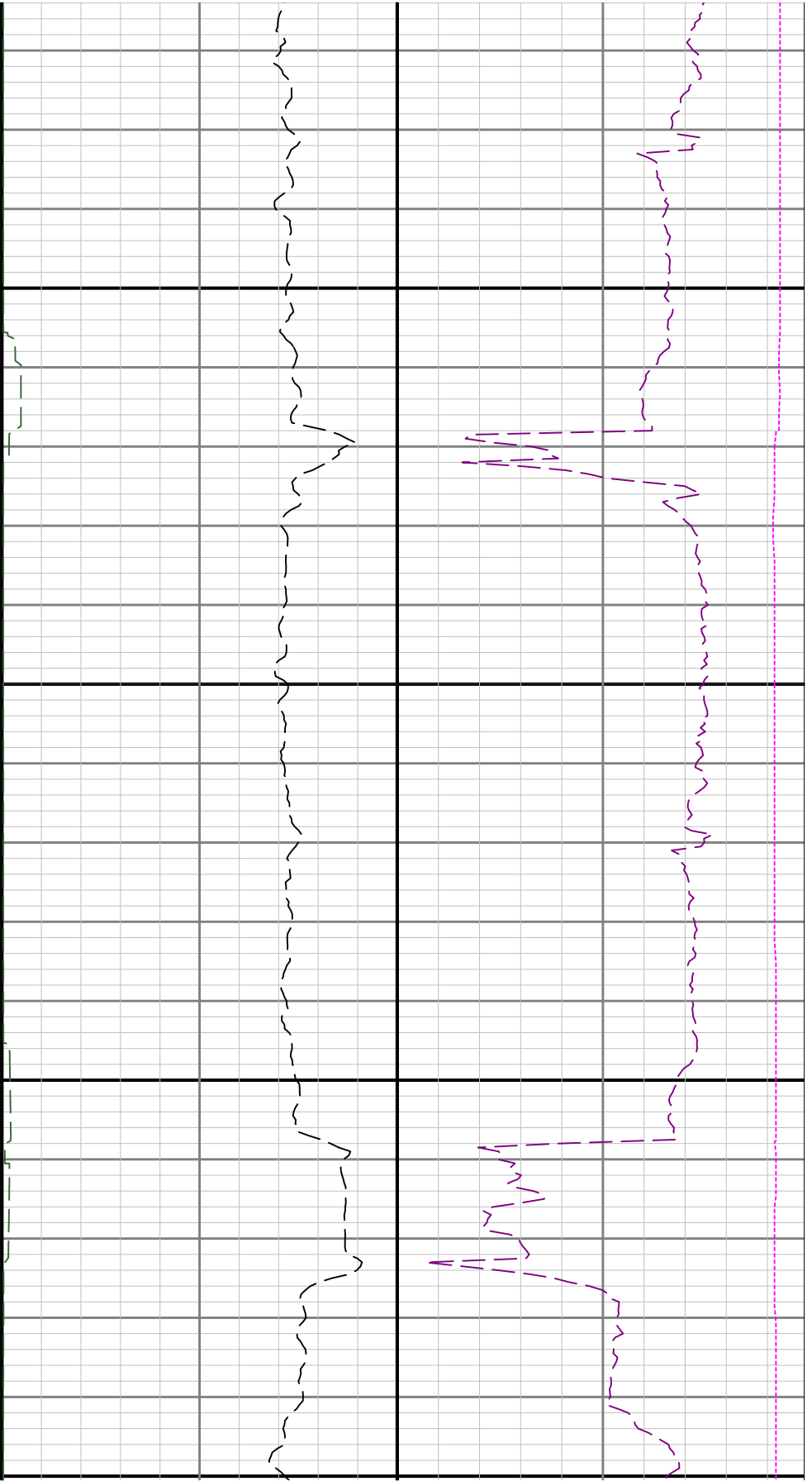












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