



LWD MEMORY LOG

Gamma Ray

Scale:

1:600

Measured Depth

Company: Verdad Resources

Well: TIMBRO 9-59-8B-9-8

Field: Wattenberg

County: Weld Country: United States

Depth Reference:

Driller's Depth

State: Colorado

Status:

Final Print

Surface Location:

Latitude: 040° 45' 41.512" N

Longitude: 104° 00' 34.283" W

Other Services:

API No: 05-123-47572-00

Job ID: 109815592

SEC: 8 TWN: 9N RGE: 59W

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

Elevation:

0.00 ft

Log Measured From: Rig Floor

Above P.D.:

5068.00 ft

Elev. KB:

24.00 ft

Elev. DF:

5068.00 ft

Elev. GL:

5044.00 ft

Dates

Interval

Magnetic Field Reference

From: 2019-06-14

To: 2019-06-17

Drilled (ft)

1913.00

Logged (ft)

1913.00

Azi Reference North:

True

Dip Angle: (deg)

67.18

Top: 2019-06-17

Bottom: 16305.00

Top: 1913.00

Bottom: 16292.00

Total Magnetic Field Strength: (nT)

52477

Mag to Reference North Correction: (deg)

7.78

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

80.00

1913.00

16.000

42.00

24.00

80.00

8.500

1913.00

16305.00

9.625

36.00

80.00

1903.00

Mud Record

Deviation Record

Type

From (ft)

To (ft)

Hole Size (in)

Interval (ft)

Inc | Az (Start)

Inc | Az (End)

Synthetic Based Mud

1913.00

16305.00

13.500

1913.00

0.40 | 313.20

9.97 | 237.65

8.500

14415.00

9.97 | 237.65

90.25 | 88.65

Acquisition System

Software Version

Other

Cadence

RT 5.2

Rig:

H&P290

Plot Studio

5.2.8472.1

Contractor:

Helmerich & Payne Drilling Co

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 (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
2	2	8.500	PDC	3.00	AutoTrak Curve	1913.00	16292.00	1913.00	16305.00	2019-06-14 09:50	2019-06-17 09:40	69.04

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Douglas Rusco	2019-05-20	2019-05-20	Emuobosan Onosu	2019-05-20	2019-06-17			

Mud Properties Record

Date / Time	Run No.	Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2019-06-14 07:30	2	1913.00	Synthetic Based Mud	9.3	47	N/A	N/A	80/20	Active Pit	35000	0.00
2019-06-14 19:30	2	3987.00	Synthetic Based Mud	9.4	48	N/A	N/A	71/29	Active Pit	41000	0.00
2019-06-15 07:23	2	6309.00	Synthetic Based Mud	9.5	53	N/A	N/A	80/20	Active Pit	44000	0.00
2019-06-15 20:00	2	9091.00	Synthetic Based Mud	9.7	47	N/A	N/A	70/30	Active Pit	42000	0.00
2019-06-16 08:46	2	11597.00	Synthetic Based Mud	9.9	52	N/A	N/A	69/31	Active Pit	43000	0.00
2019-06-16 20:00	2	13860.00	Synthetic Based Mud	9.9	52	N/A	N/A	69/31	Active Pit	44000	0.00
2019-06-17 08:21	2	16246.00	Synthetic Based Mud	9.8	62	N/A	N/A	69/31	Active Pit	39000	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)
2	AutoTrak Curve Steering Unit	14856336	Near Bit Inclination	5.93	6.76	7.000	4.330
2	AutoTrak Curve Steering Unit	14856336	Near Bit VSS	5.93	6.76	7.000	4.330
2	AutoTrak Curve MWD	14381973	Gamma (single)	2.20	12.37	7.000	3.250
2	AutoTrak Curve MWD	14381973	Directional (mag)	12.27	22.44	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit
ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	Auto Trak Curve LCPM

Comments

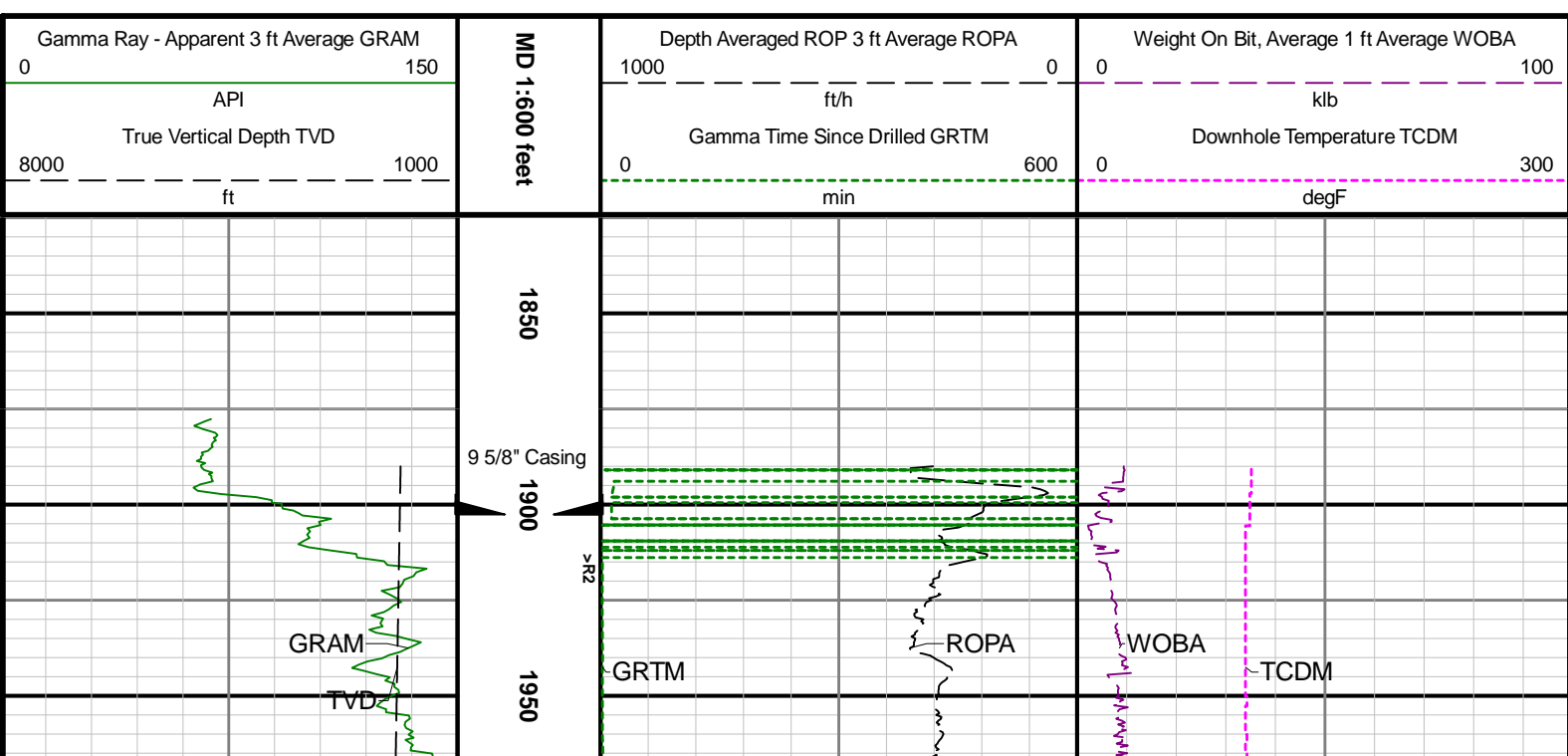
- 1

Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
- 2

Baker Hughes Run 2 utilized 6 3/4 inch Navigamma services (Gamma Ray and Directional) to log the interval from 1913 to 16305 feet MD (1894 to 6253 feet TVD).

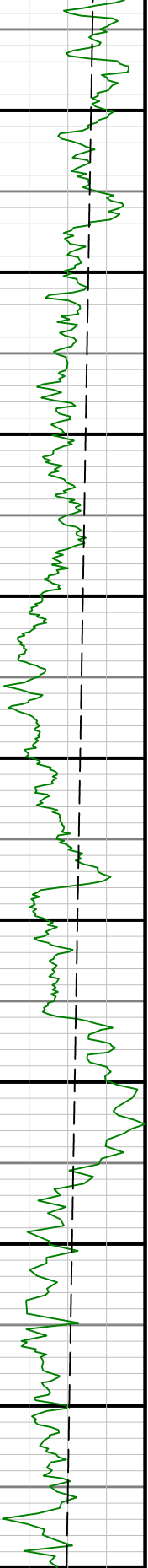
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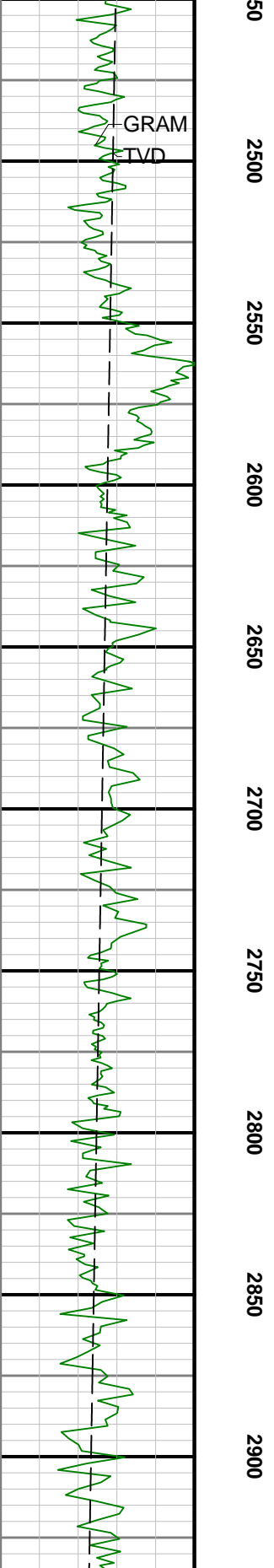
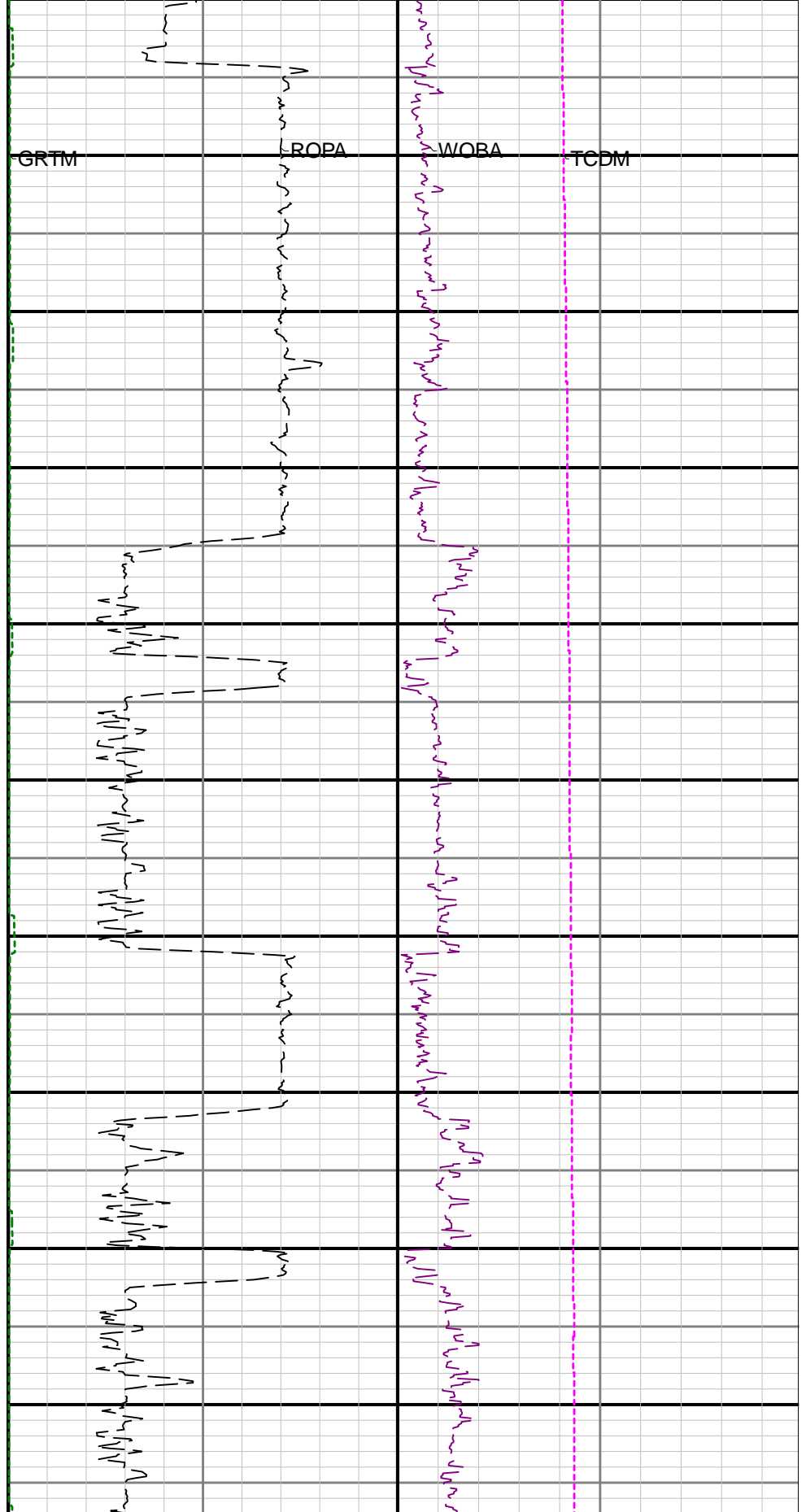
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	16300.00	8.500	2	The interval from 16292 to 16305 feet MD (6253 feet TVD) was not logged due to sensor to bit offset at Section TD.

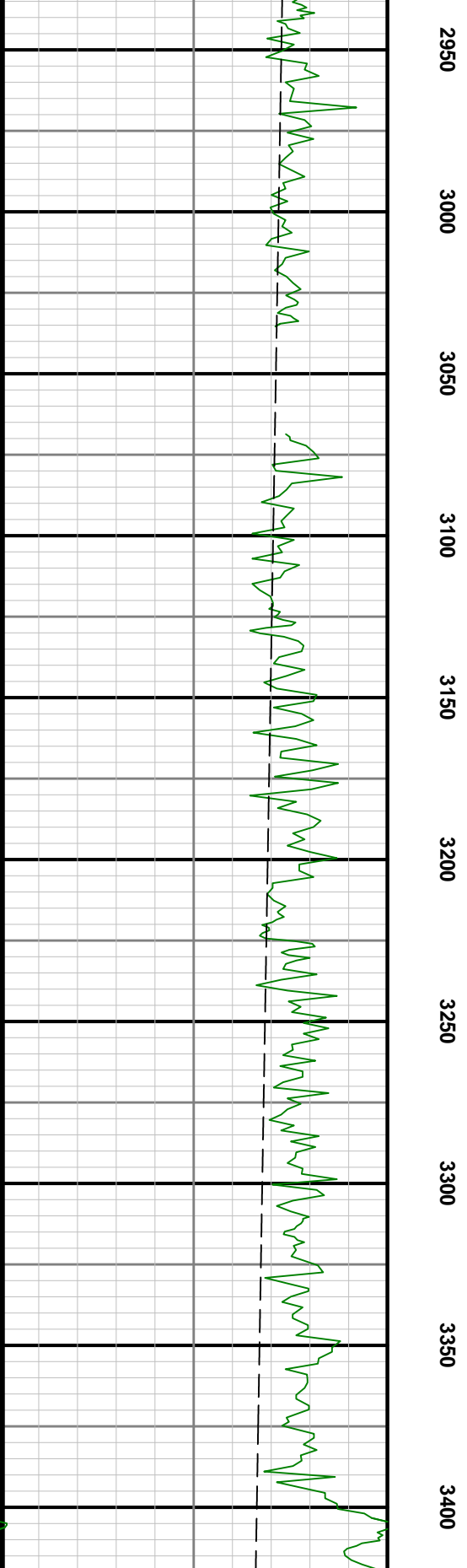
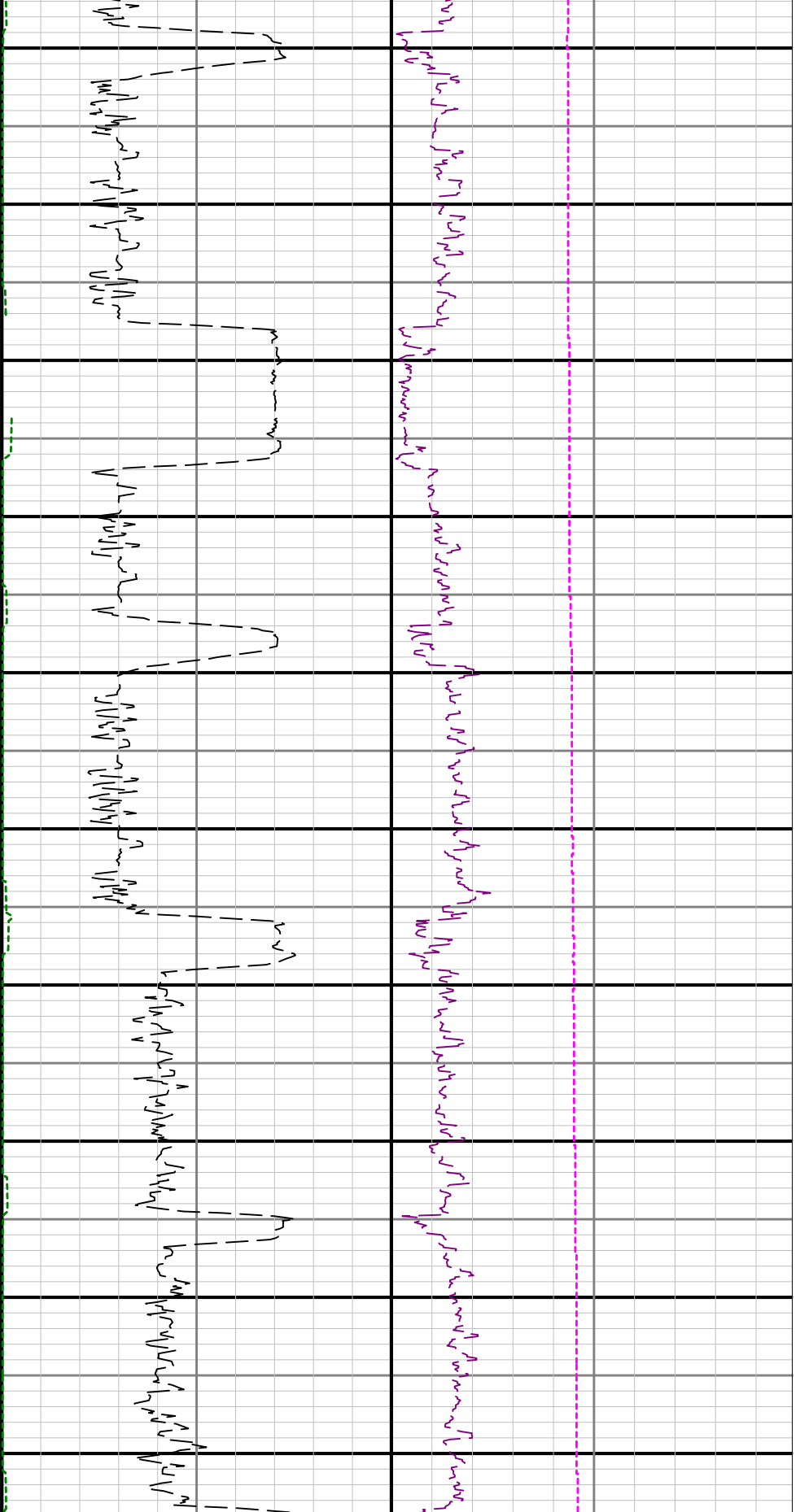


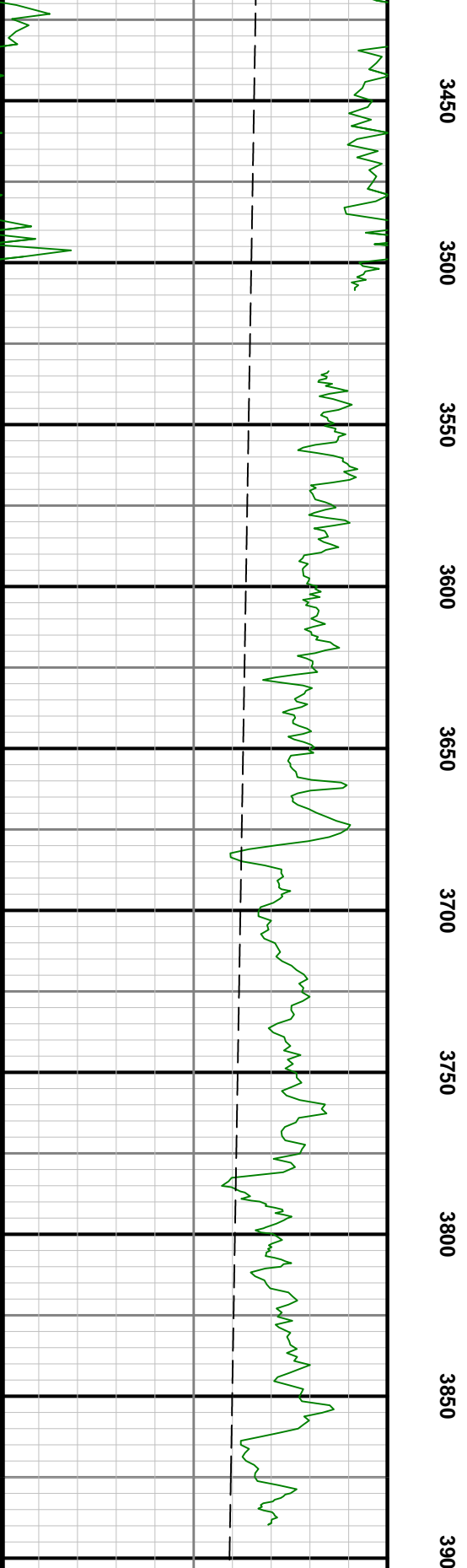
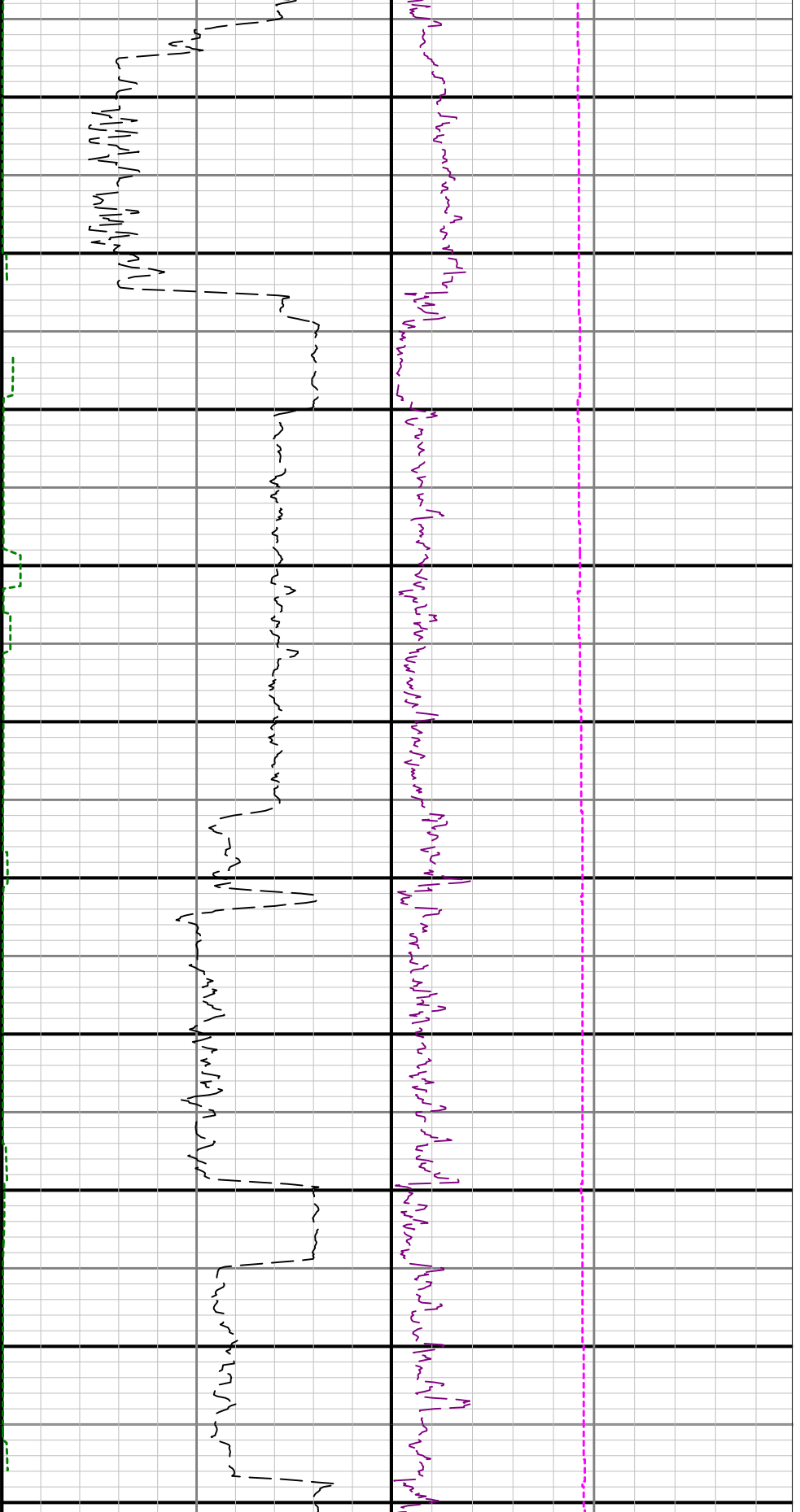


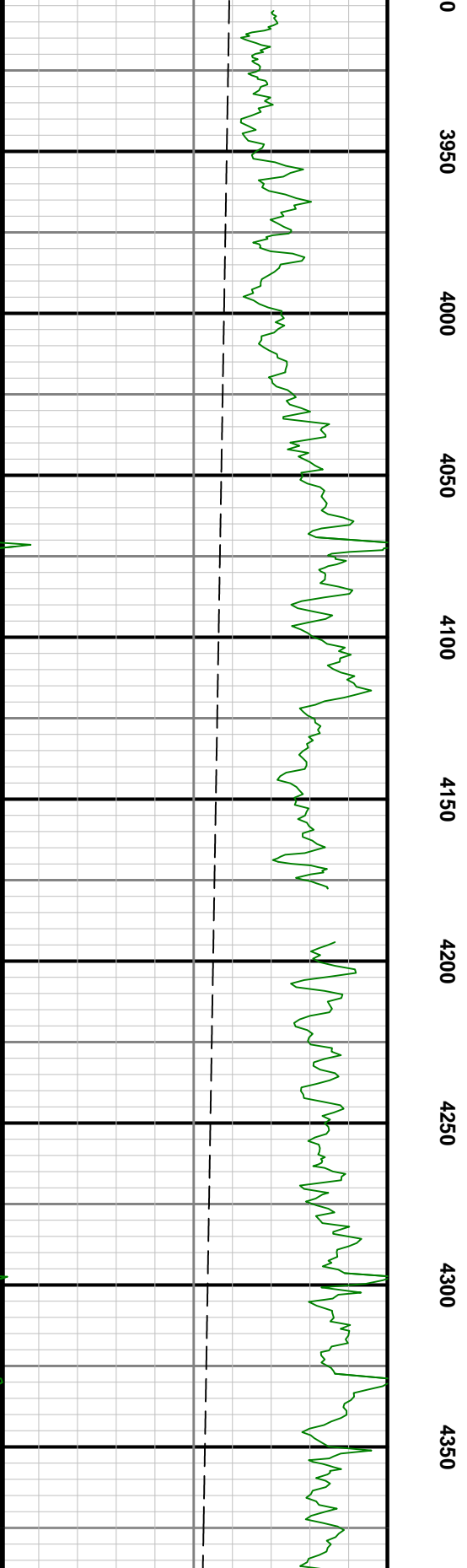
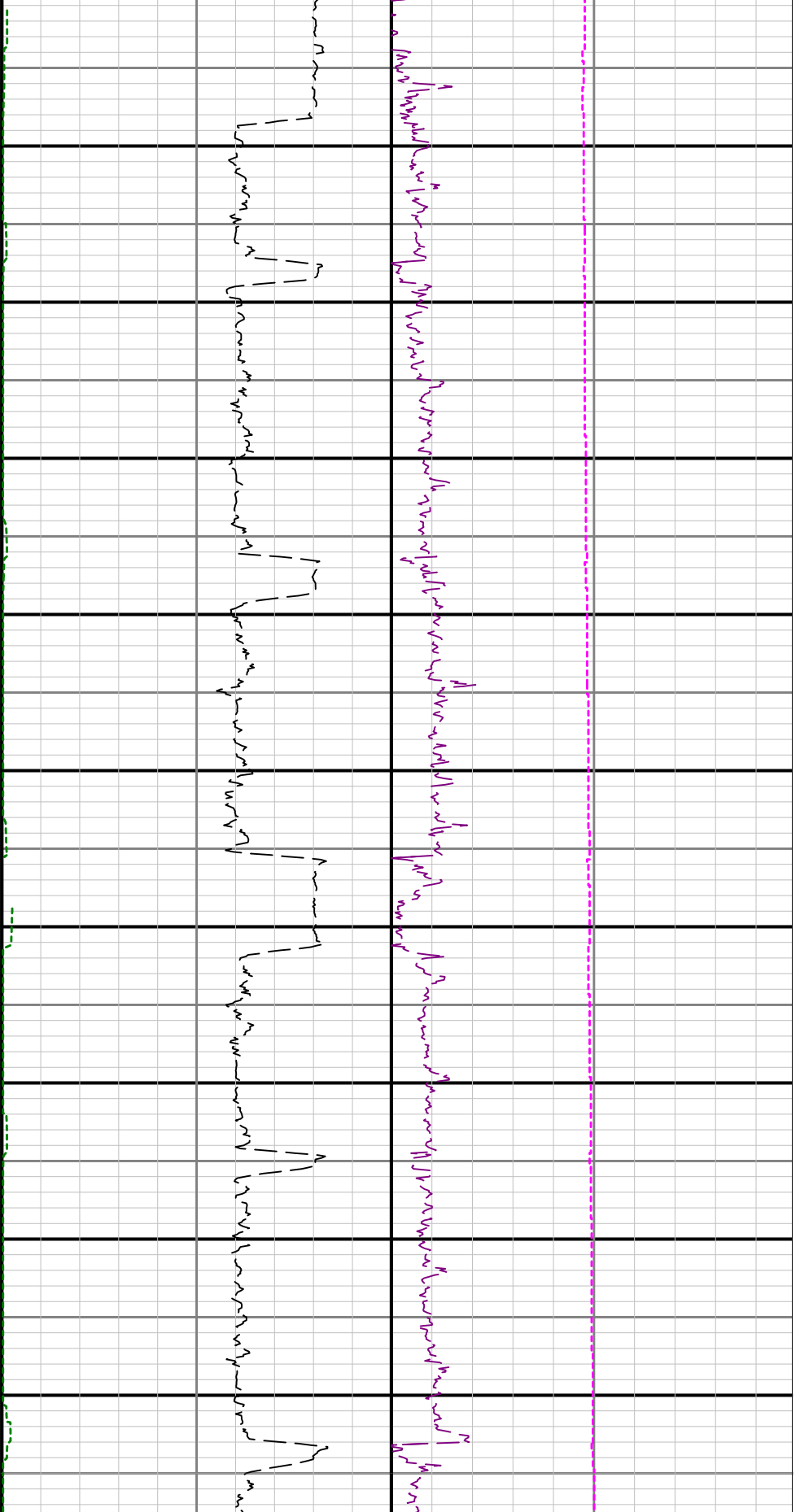
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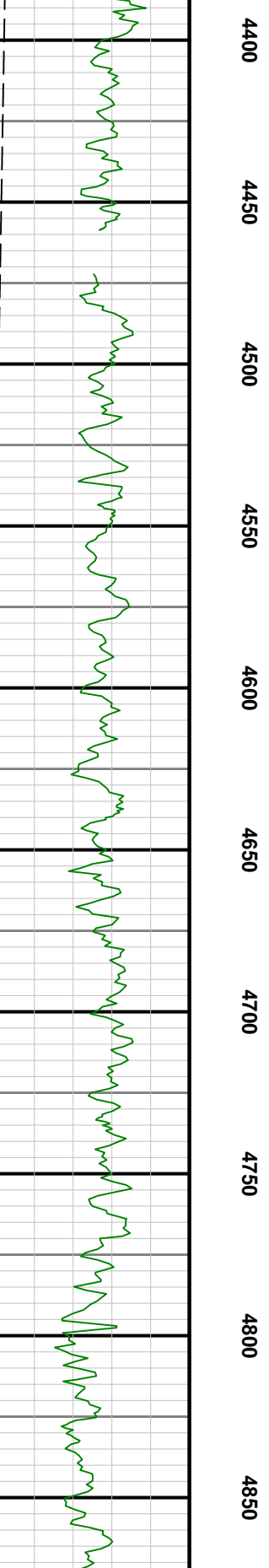
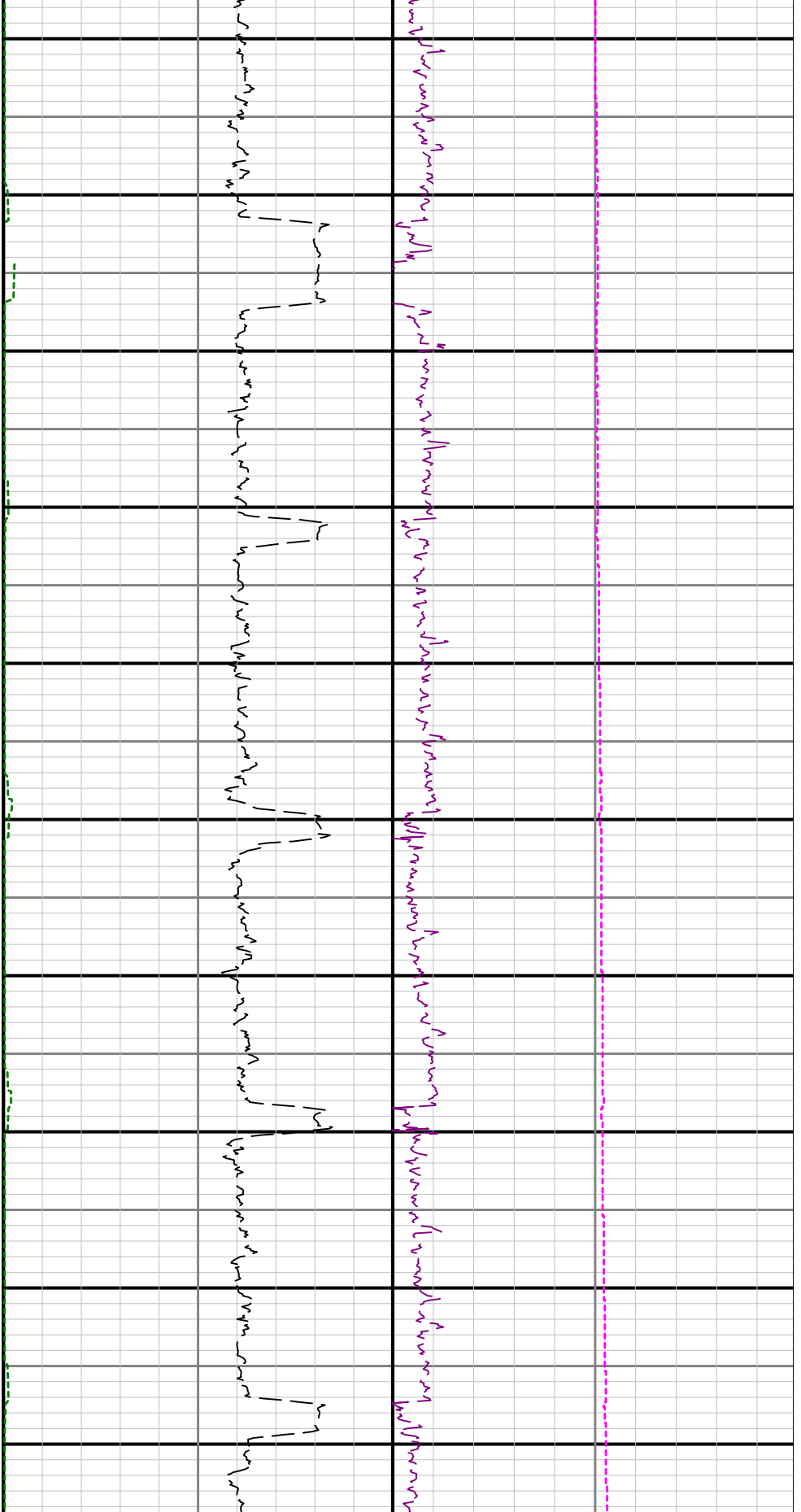


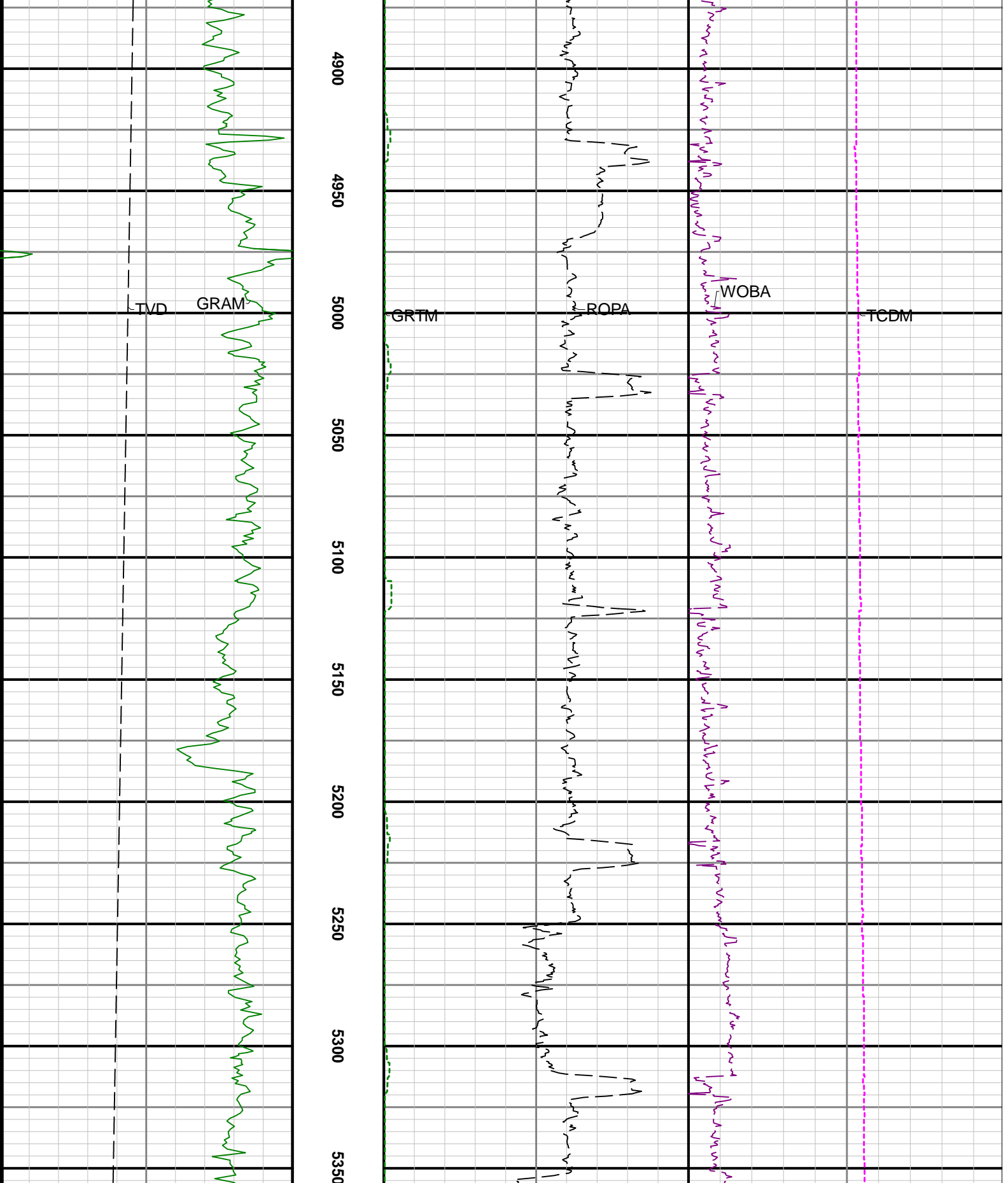


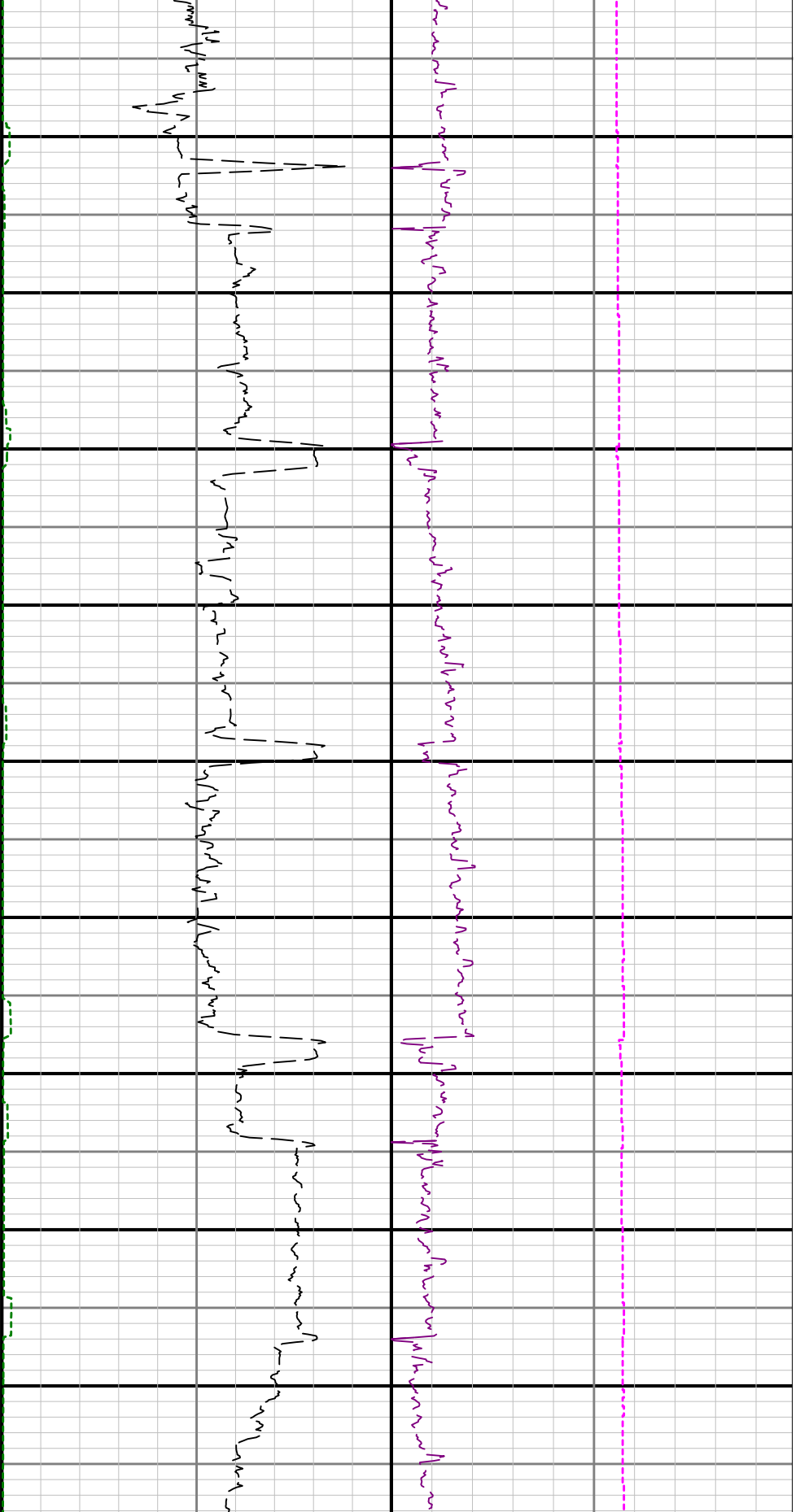




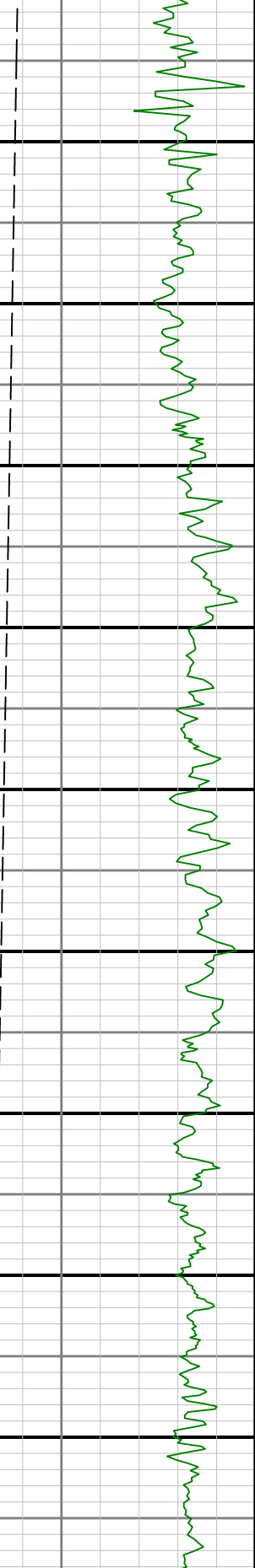


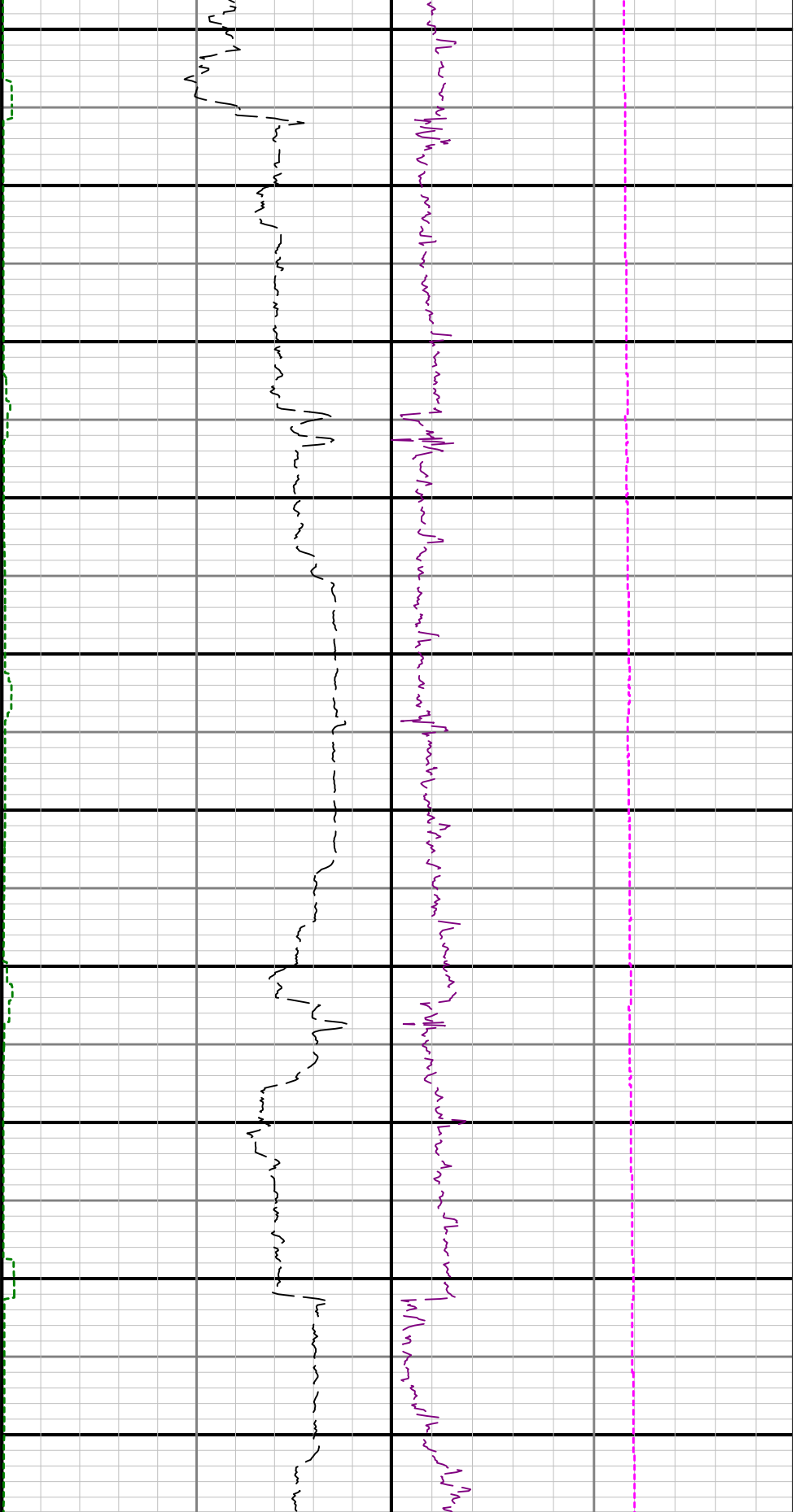




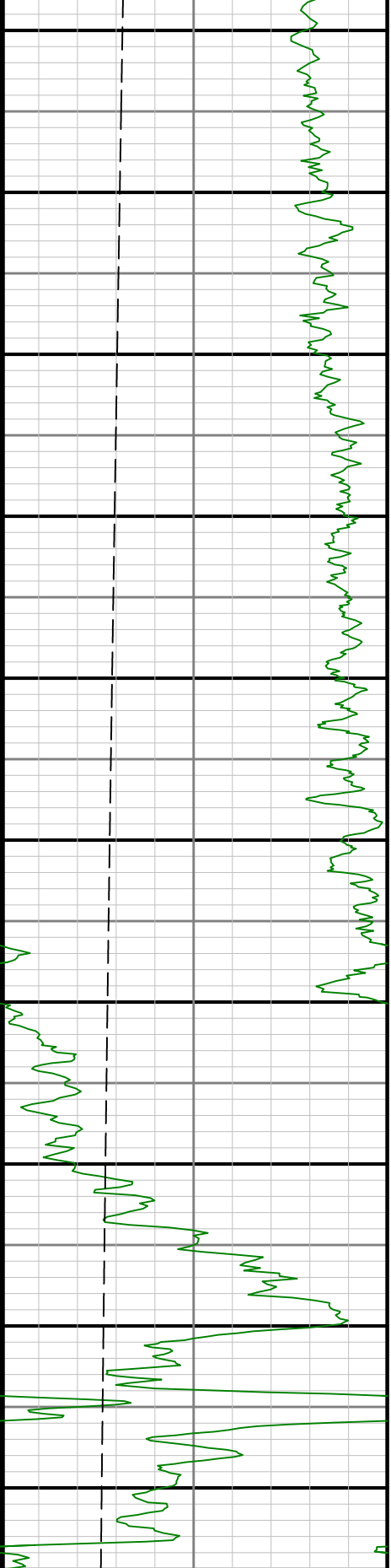


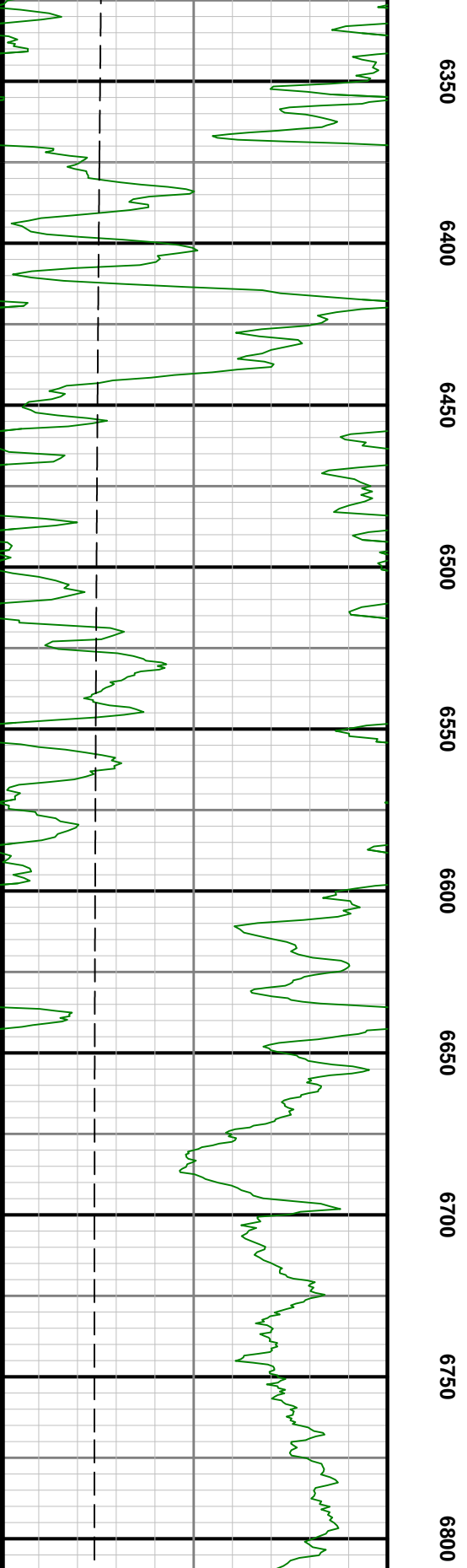
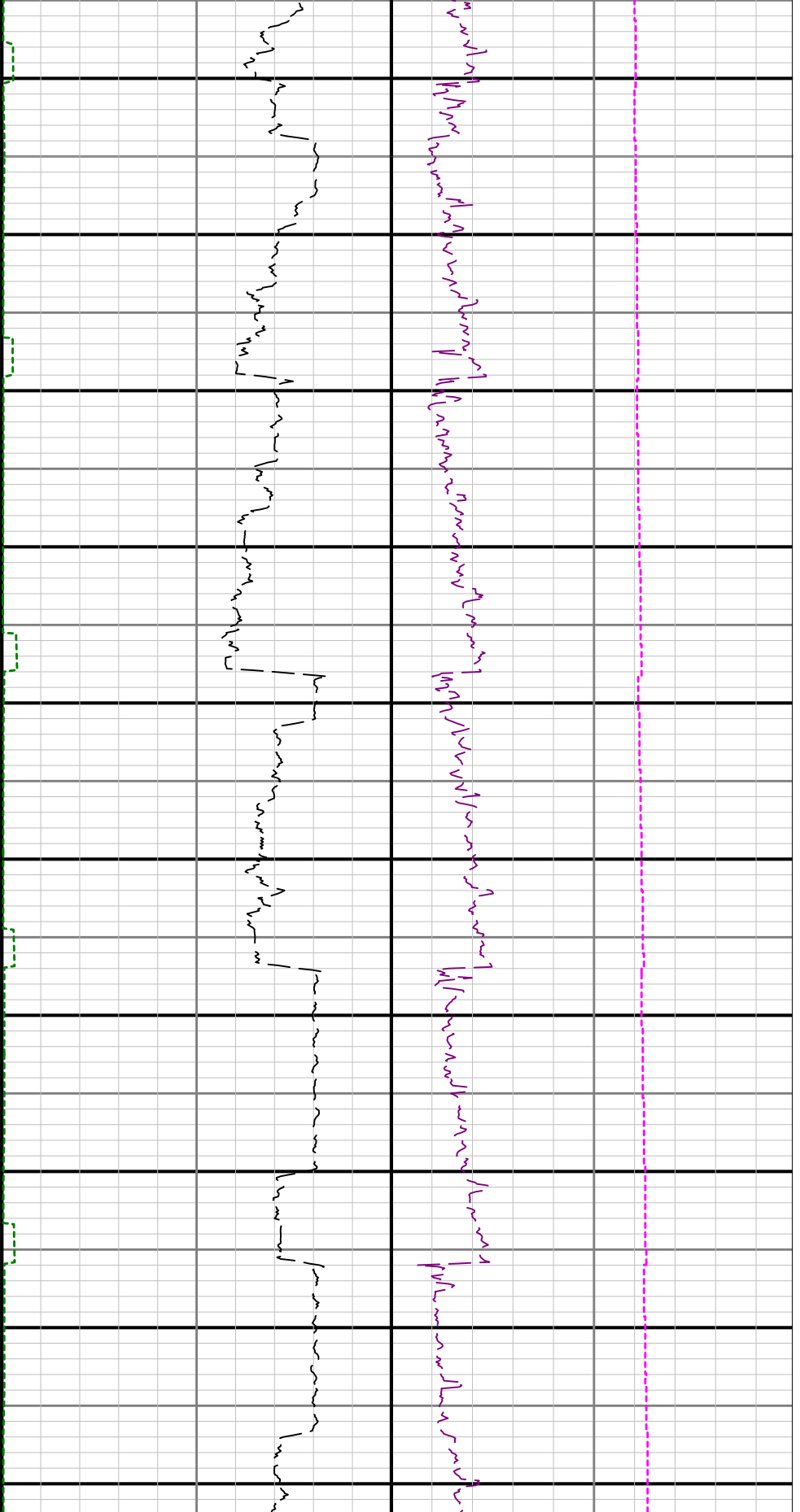
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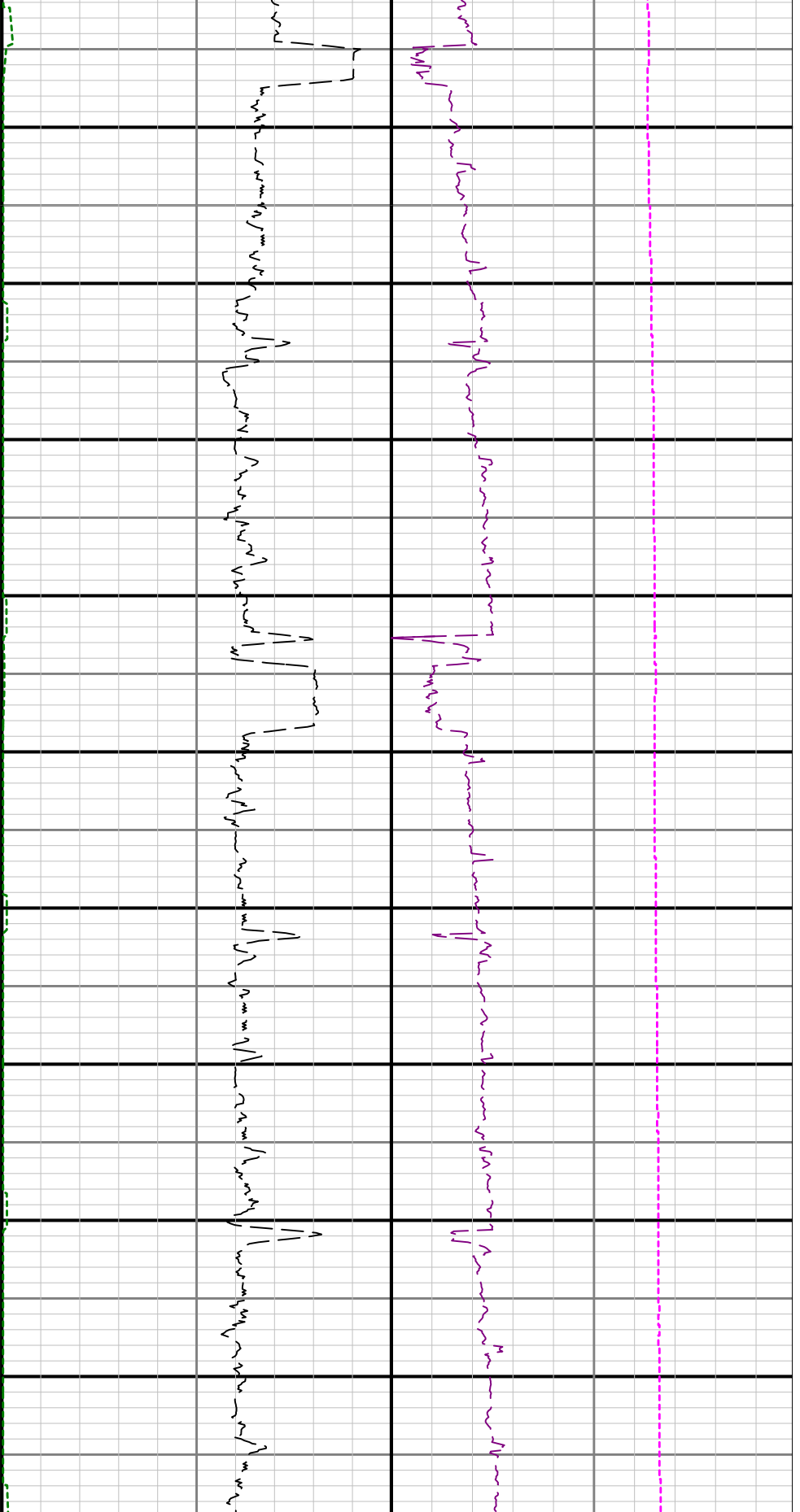




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6850

6900

6950

7000

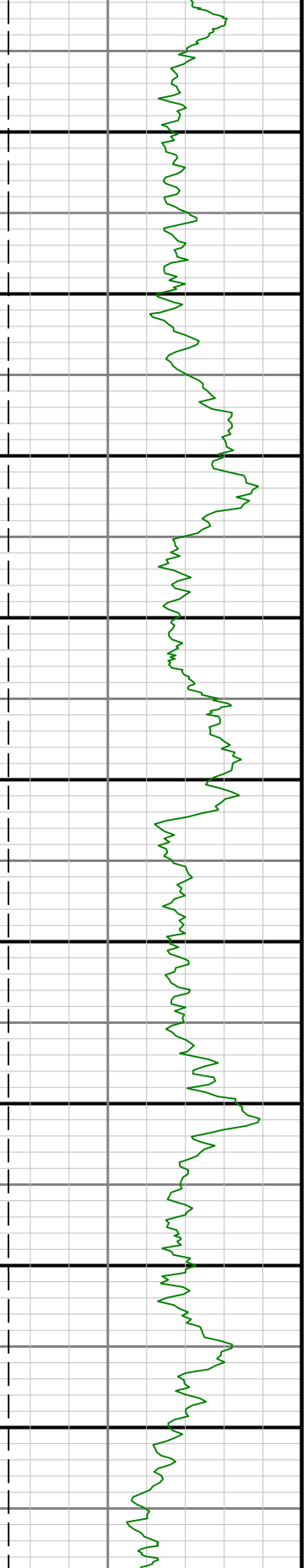
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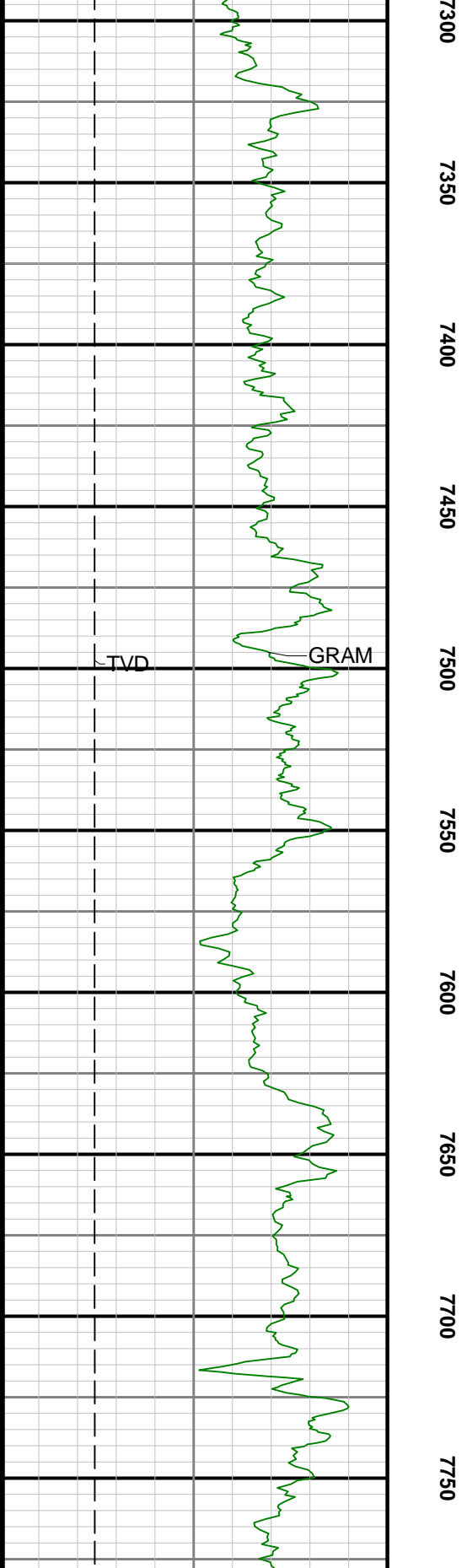
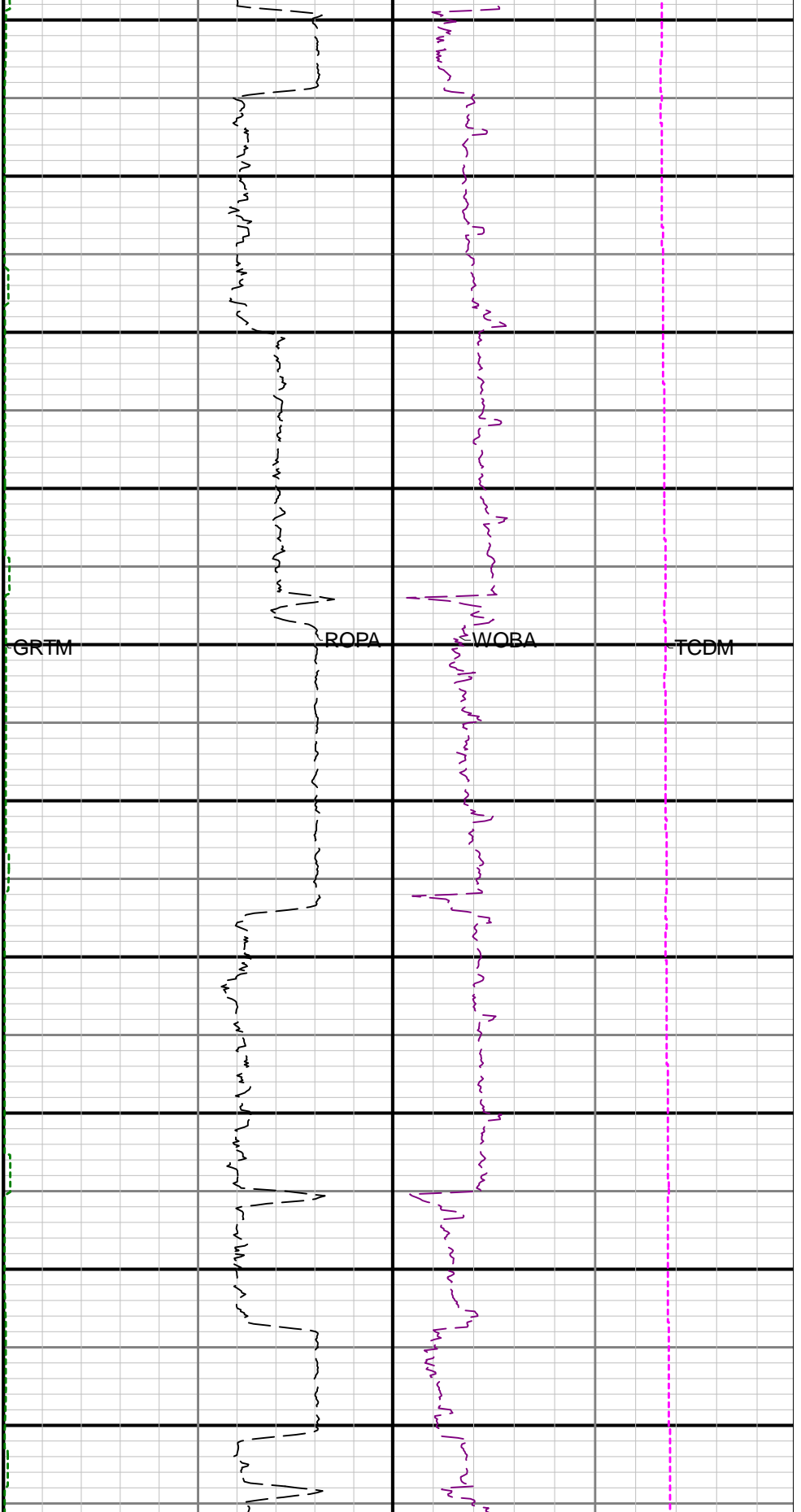
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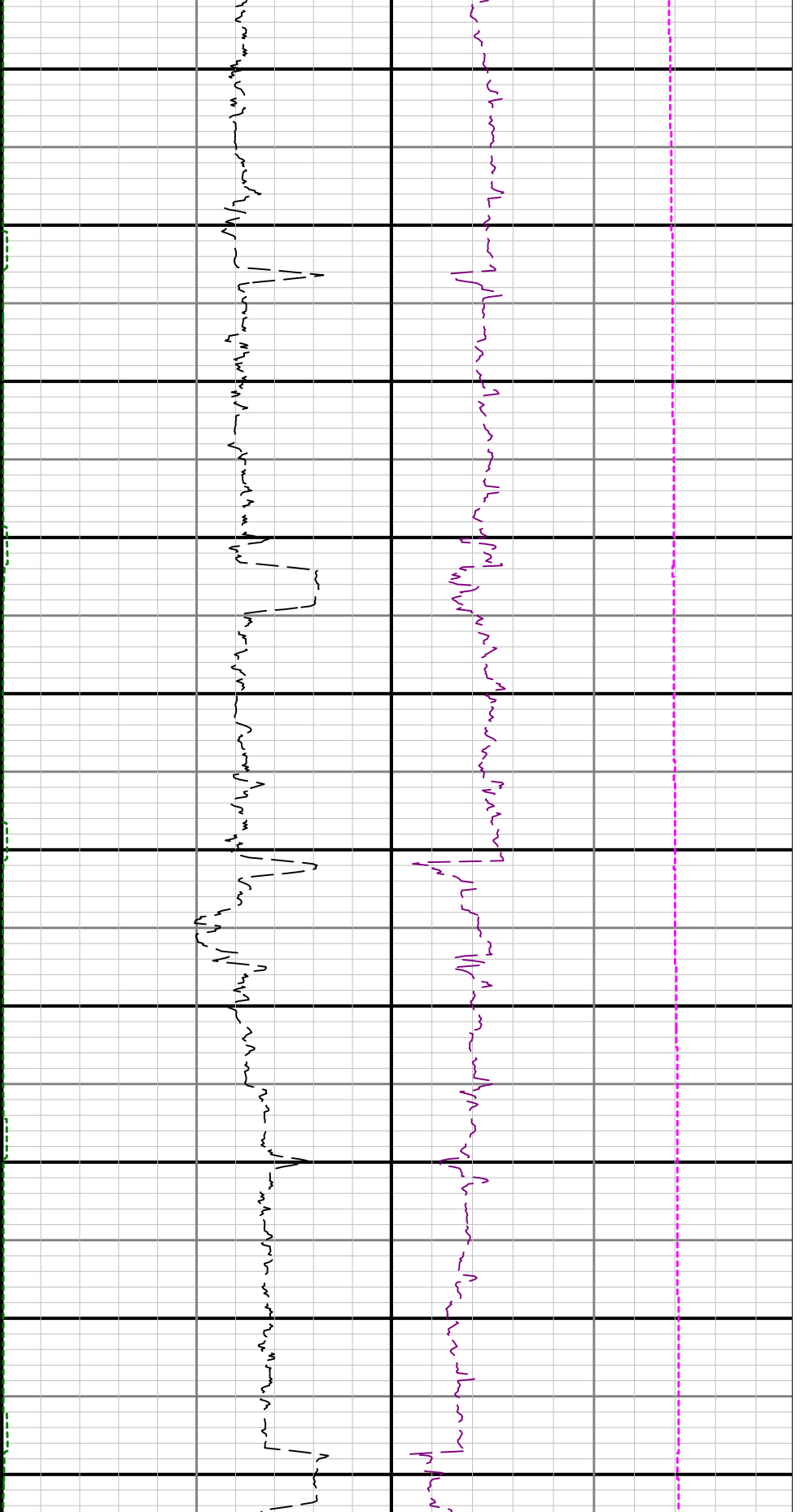
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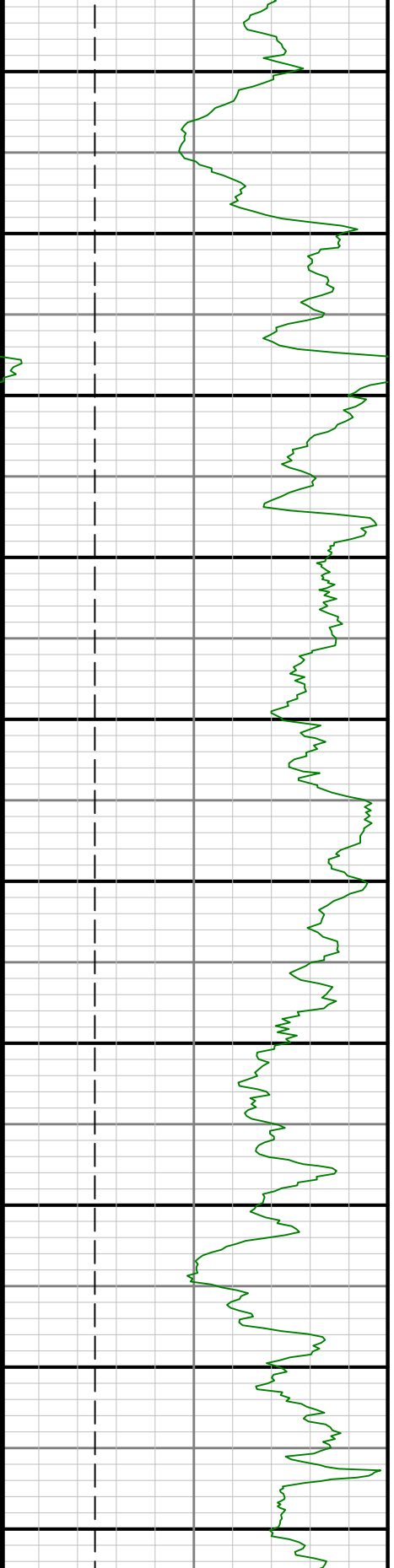
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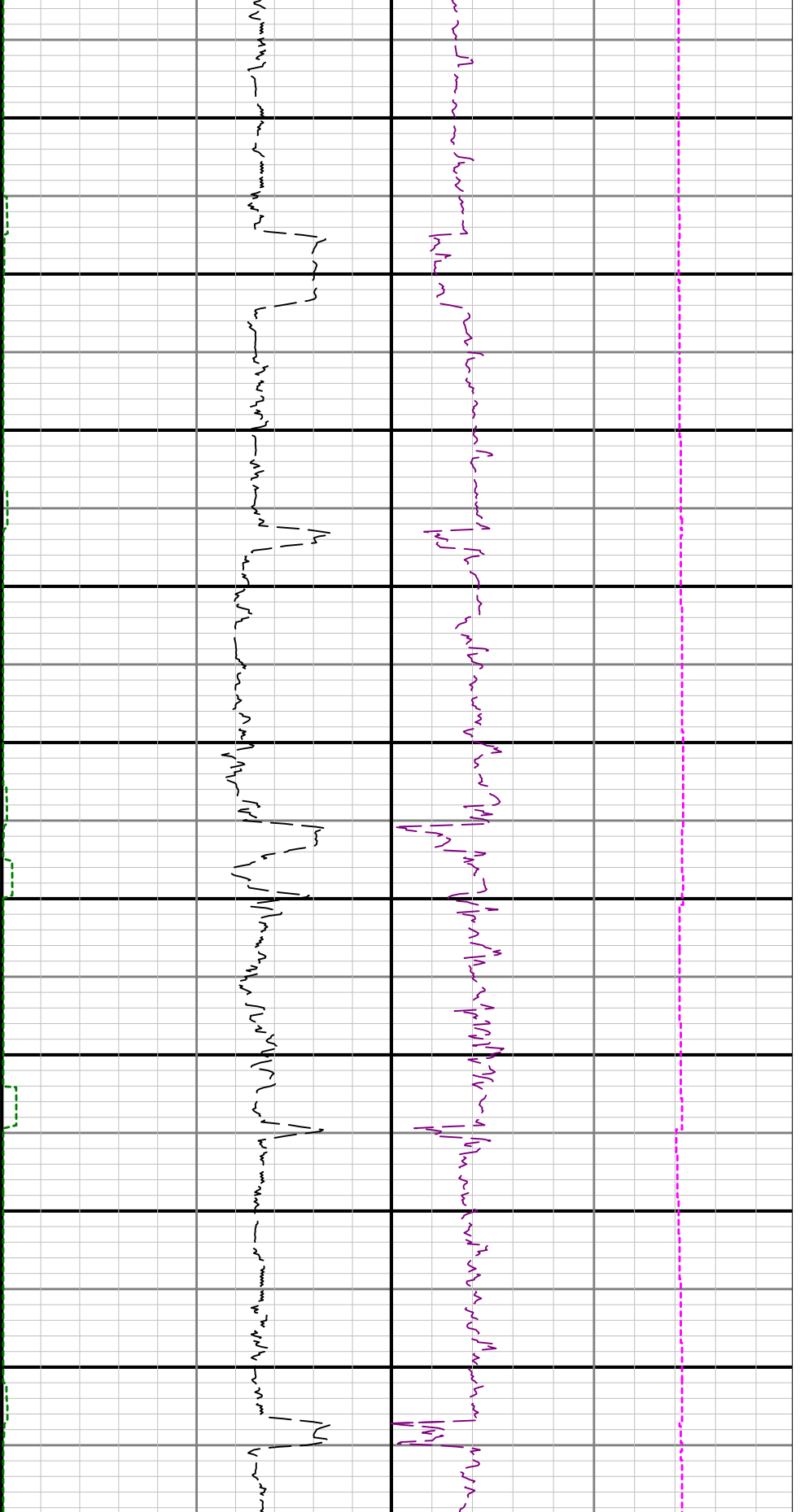






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8300

8350

8400

8450

8500

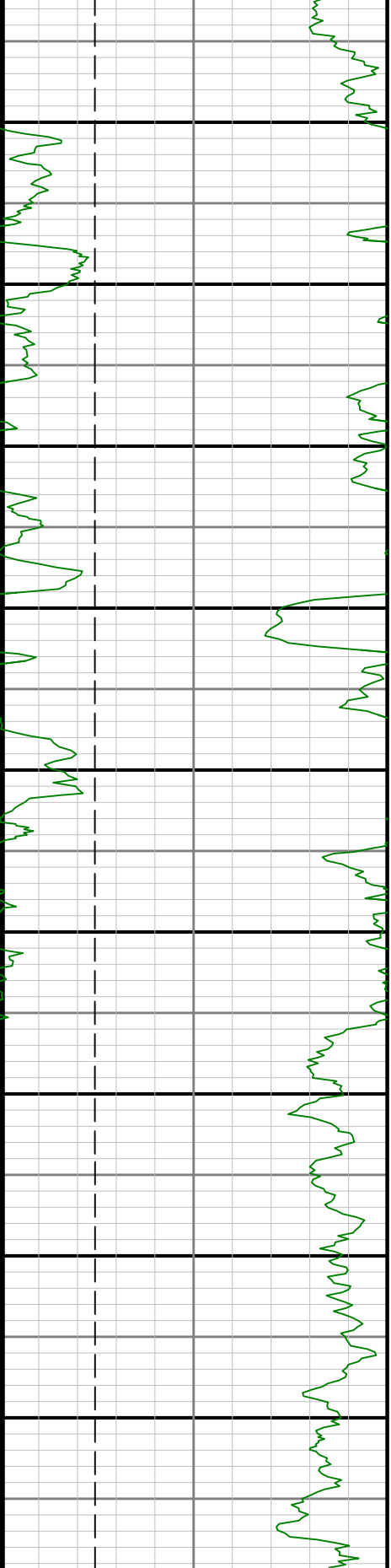
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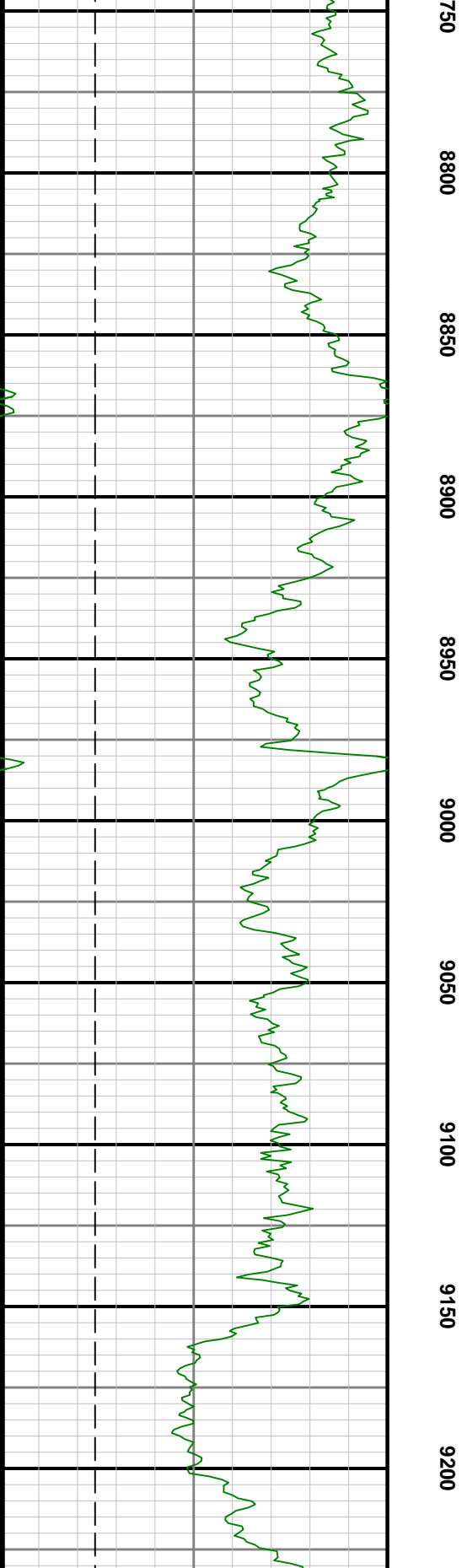
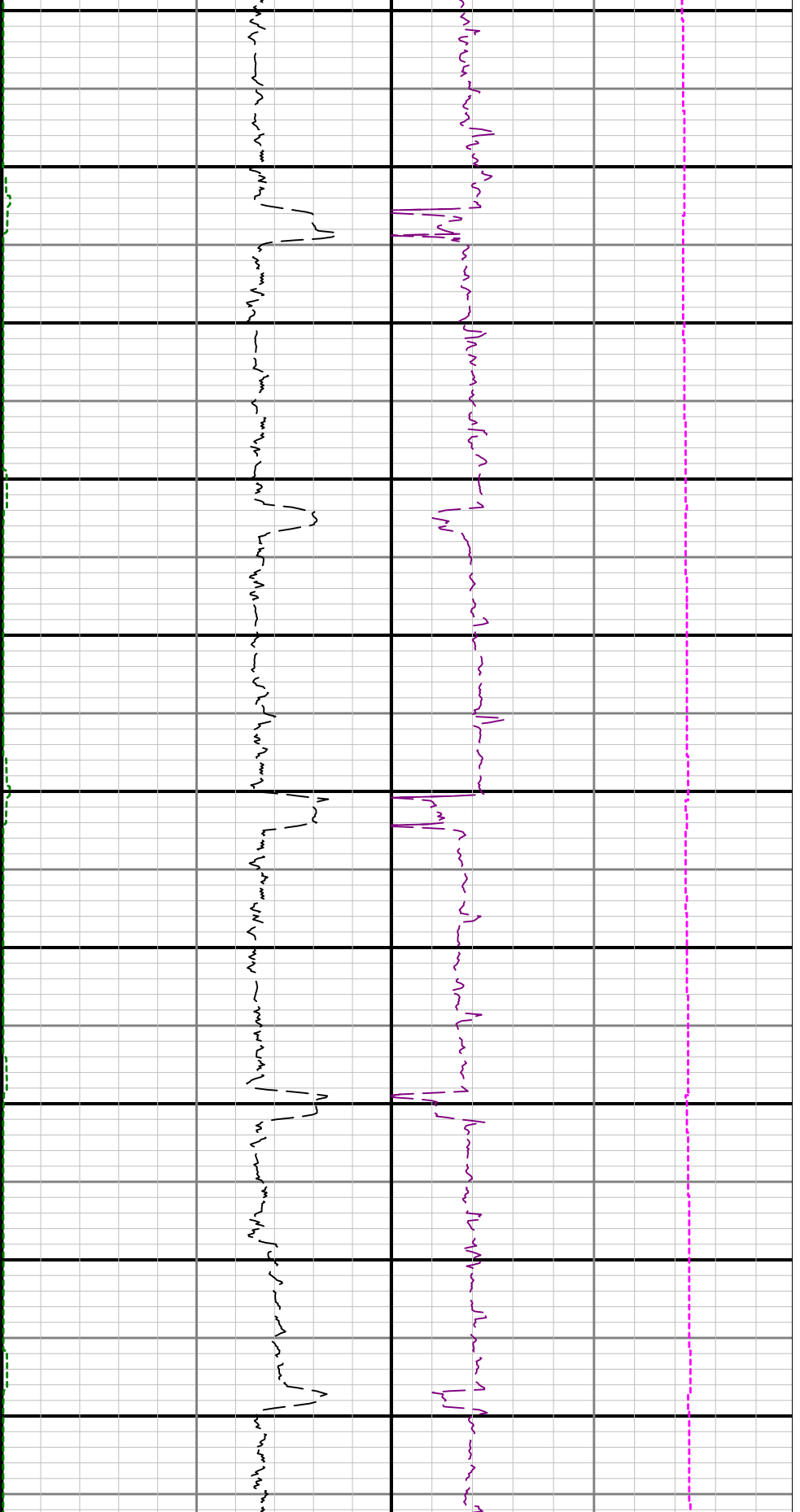
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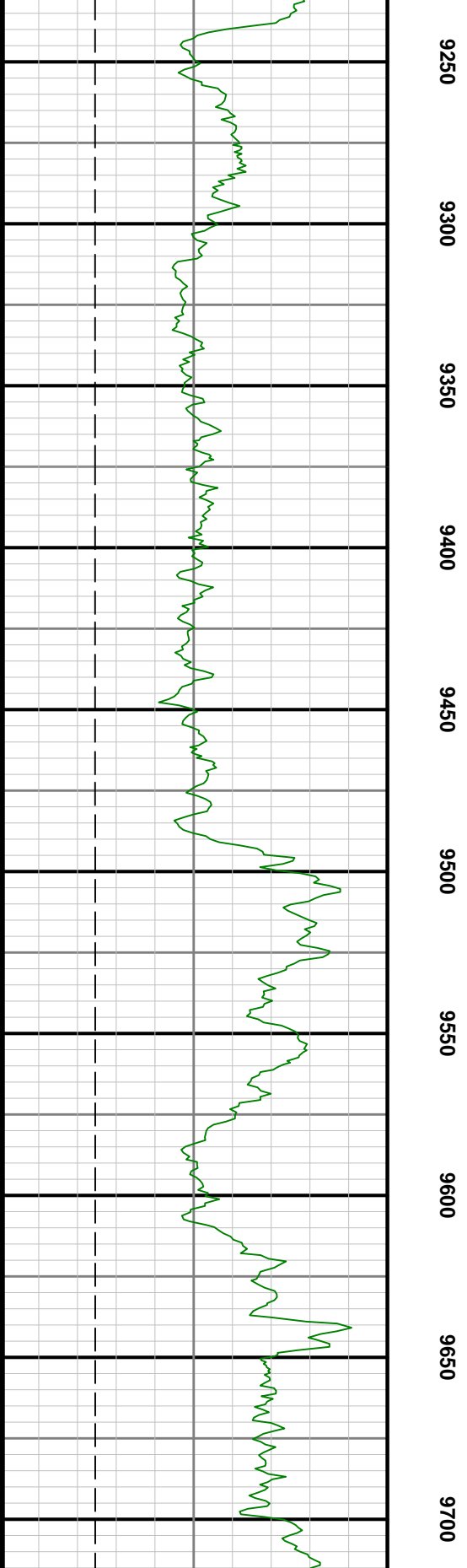
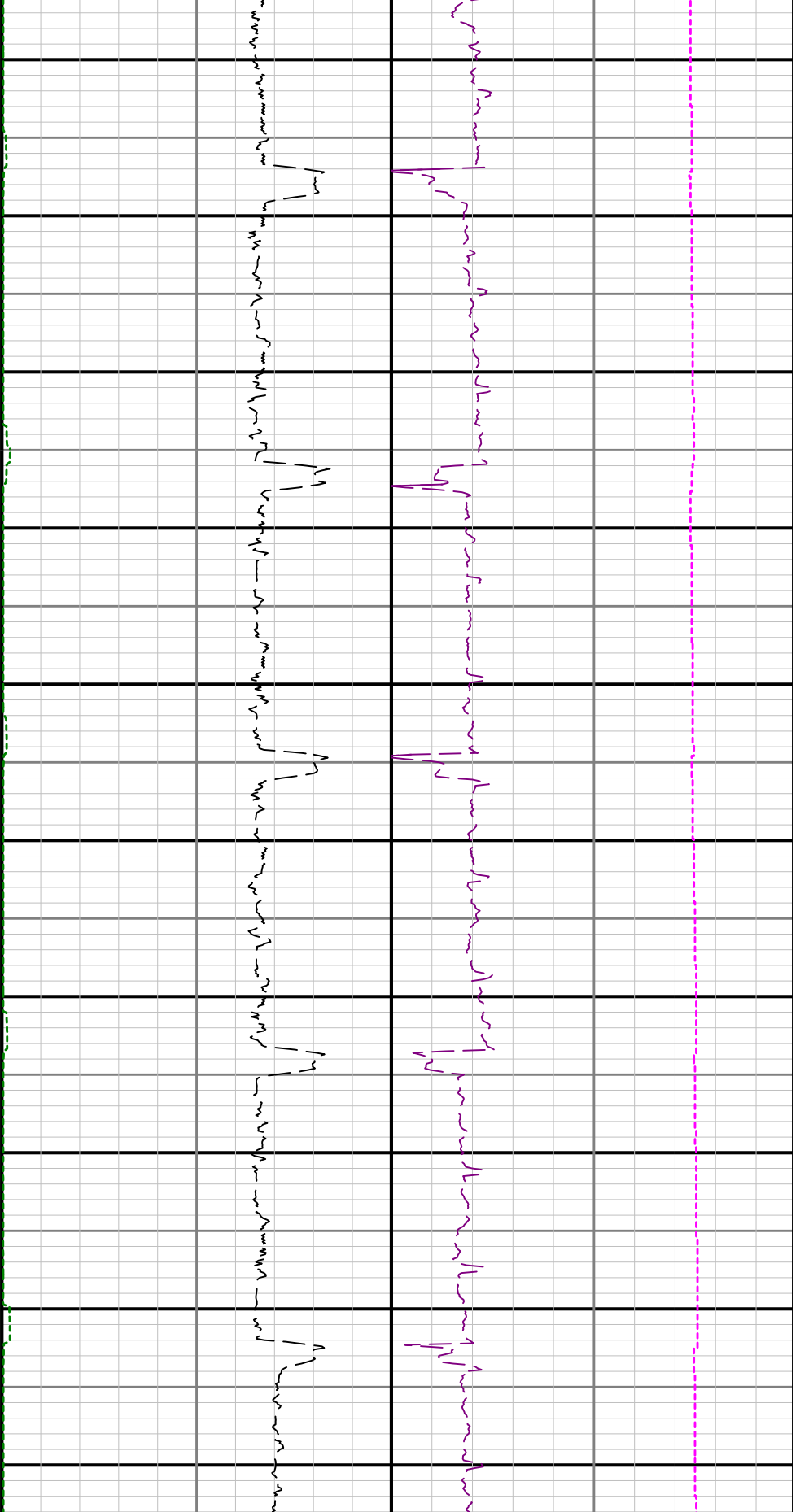
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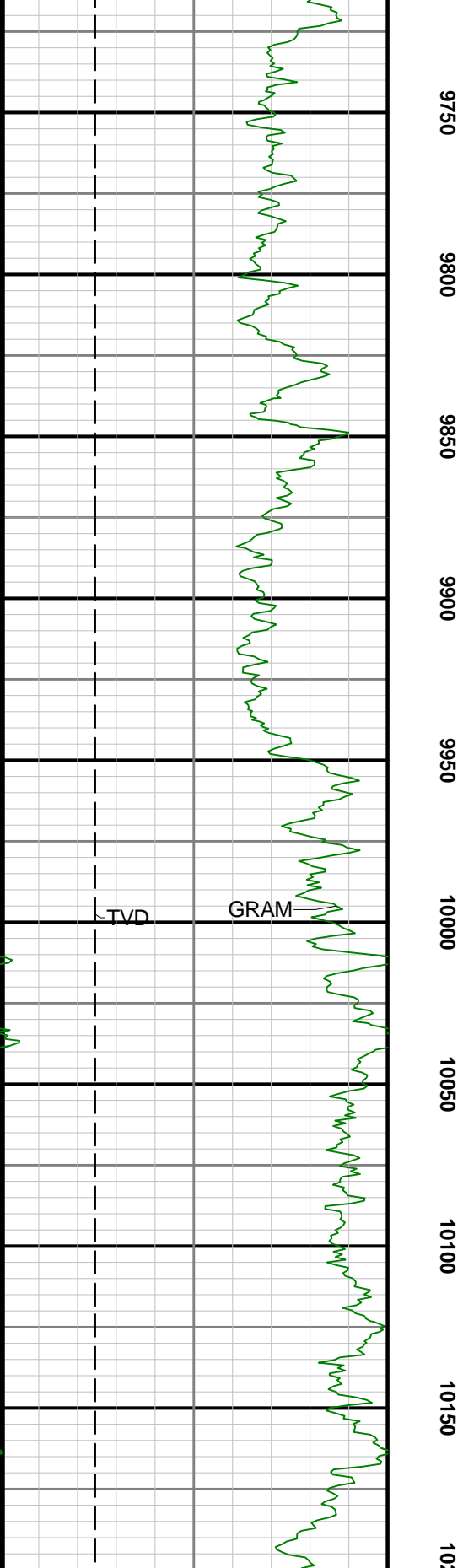
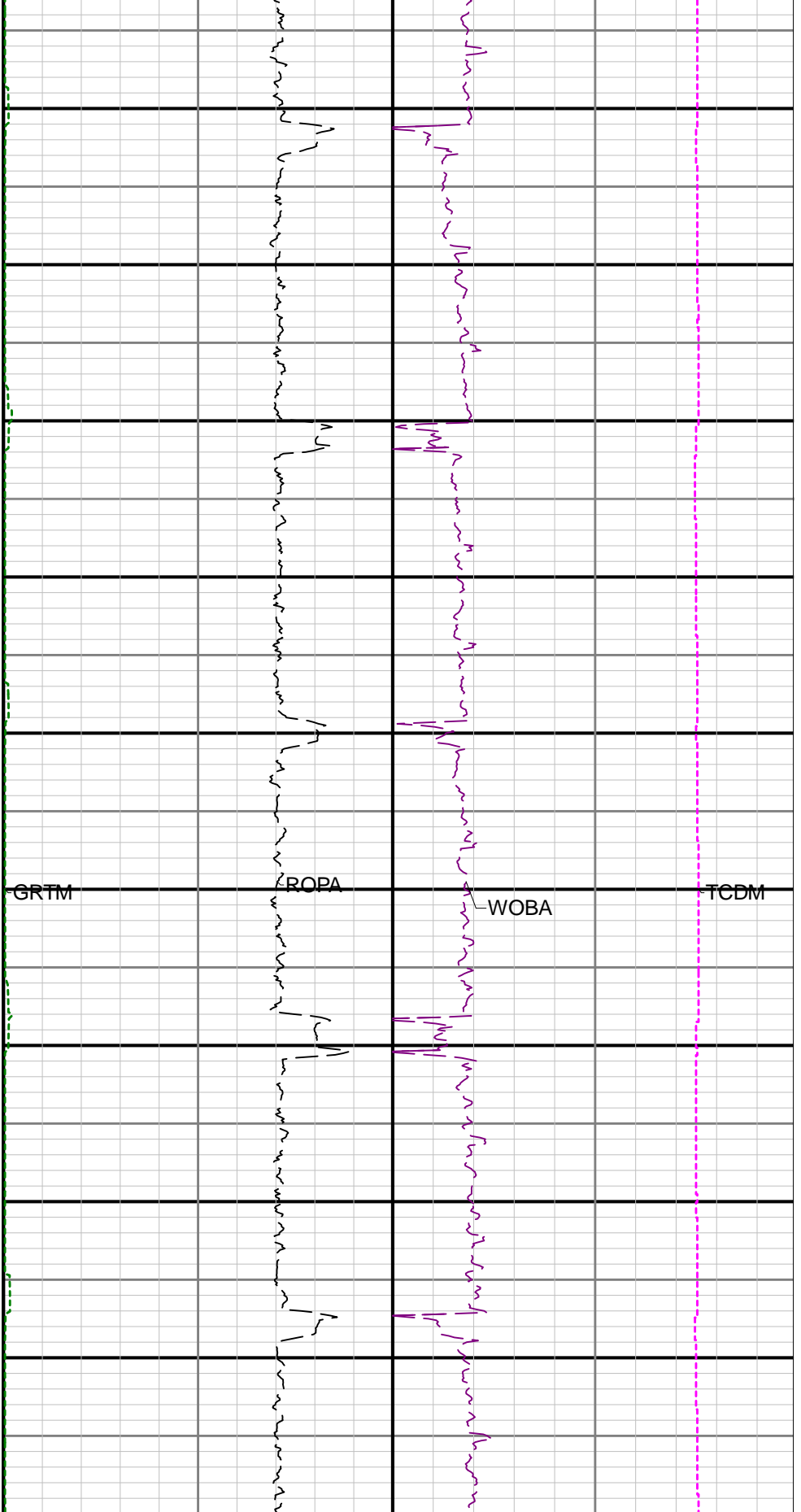
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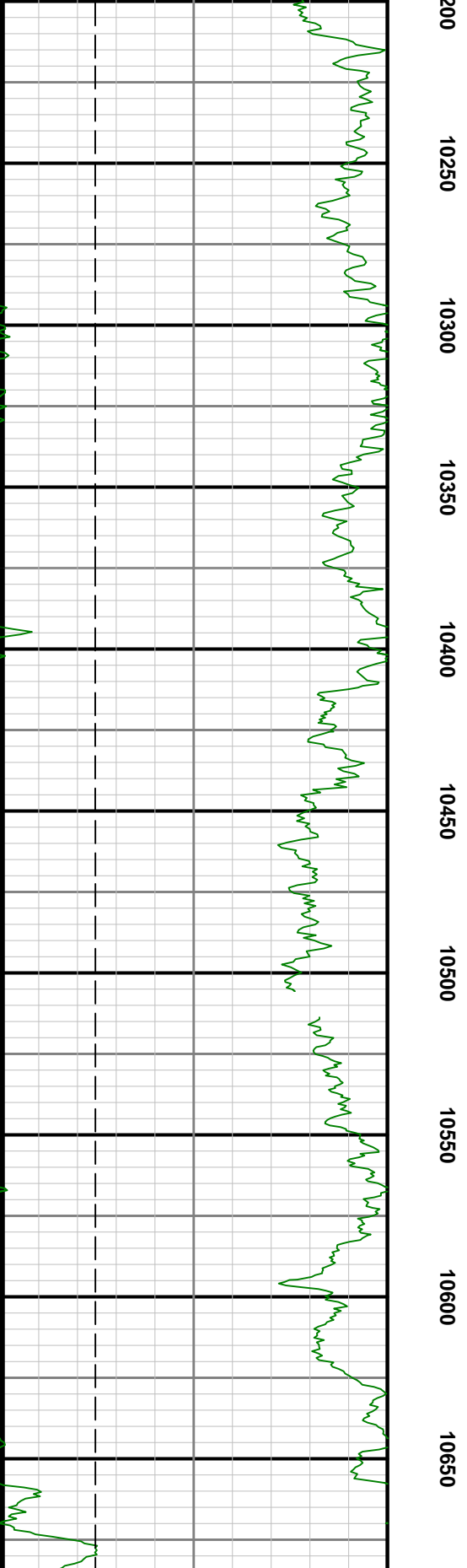
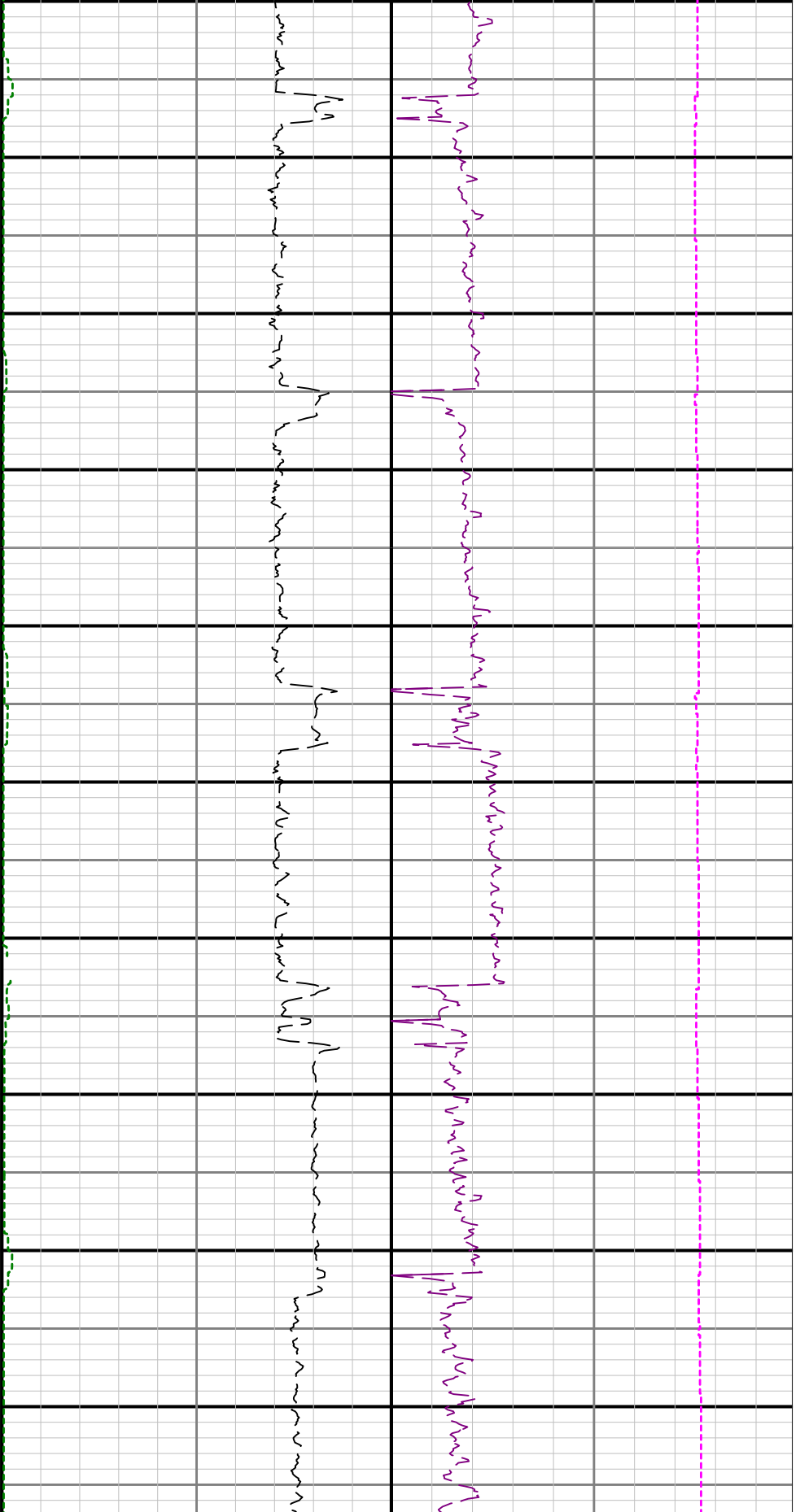
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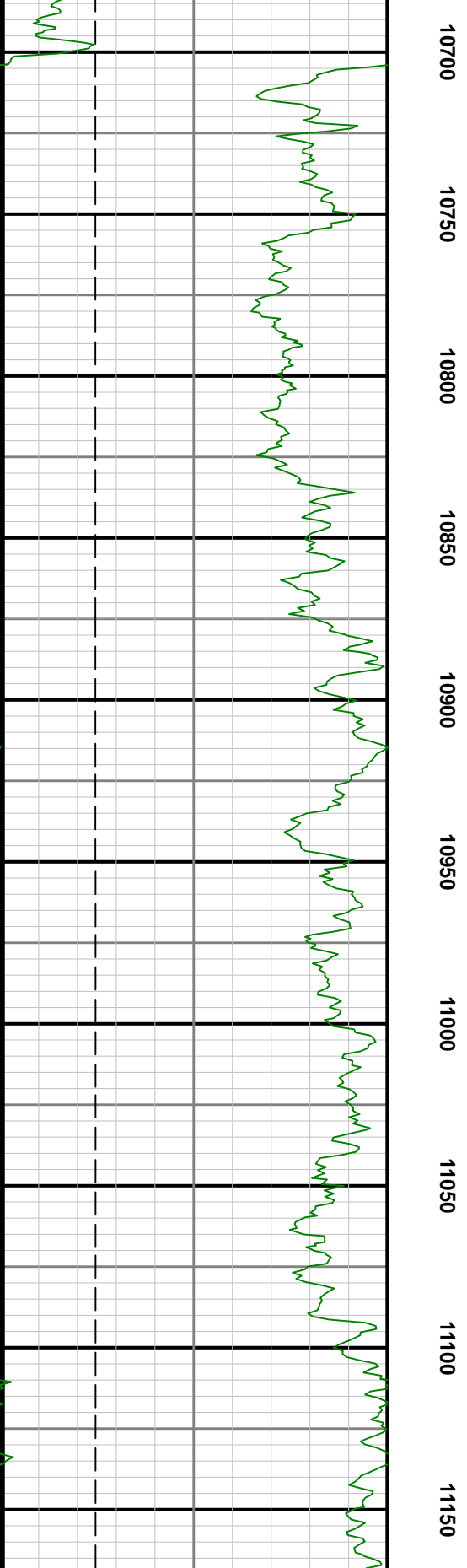
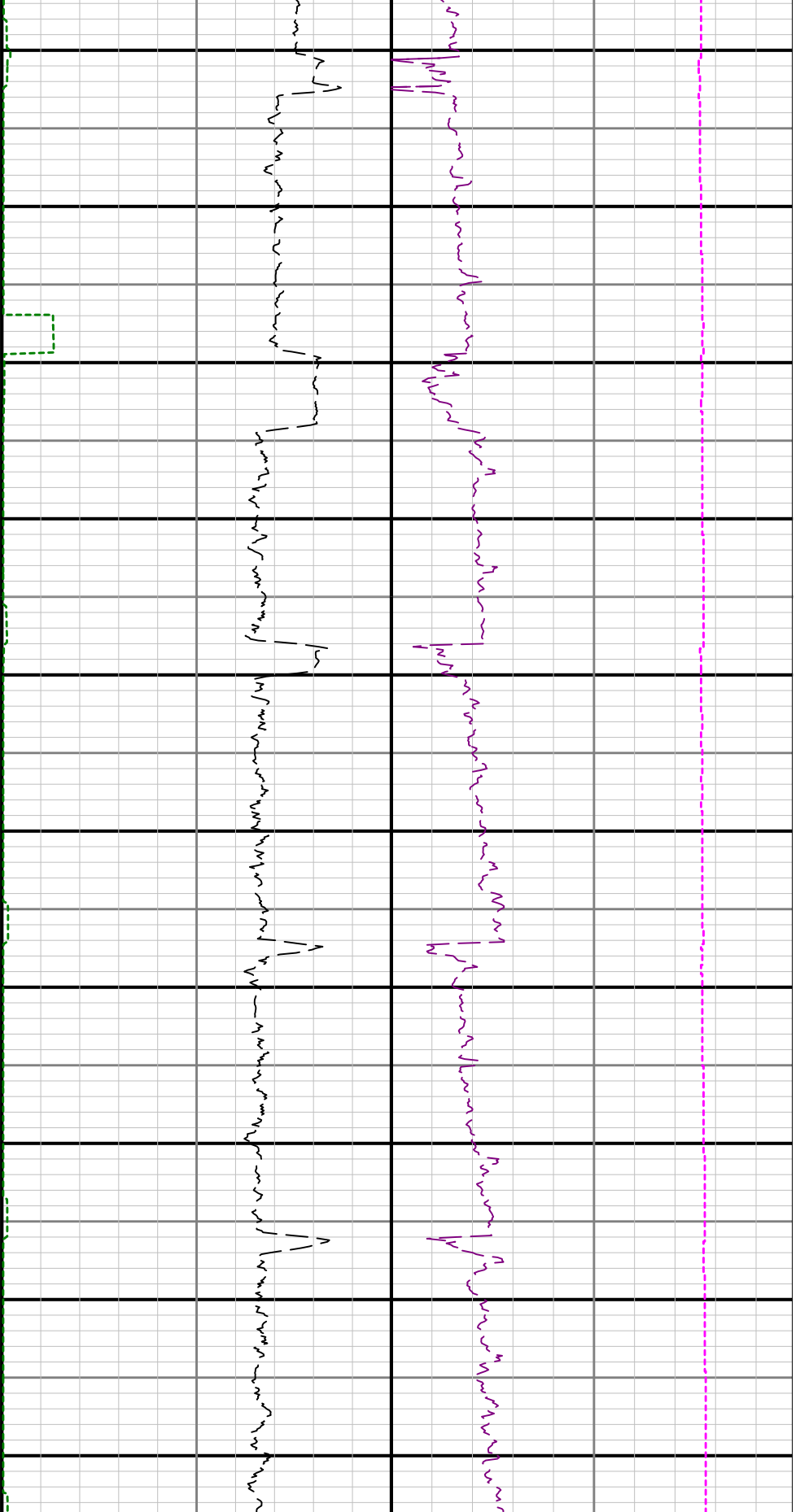


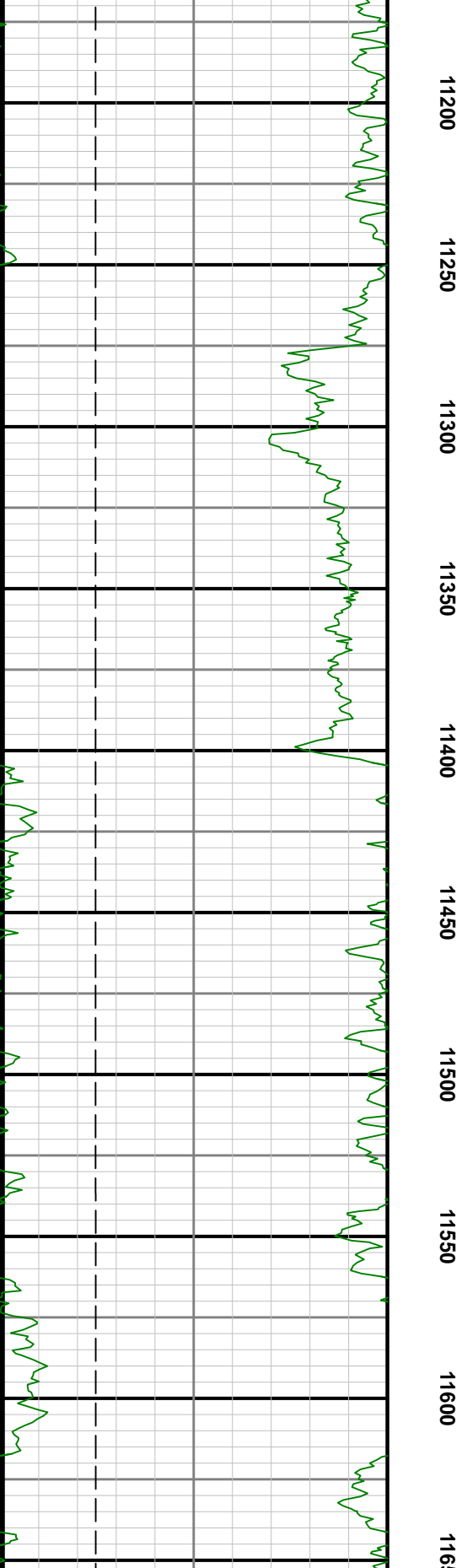
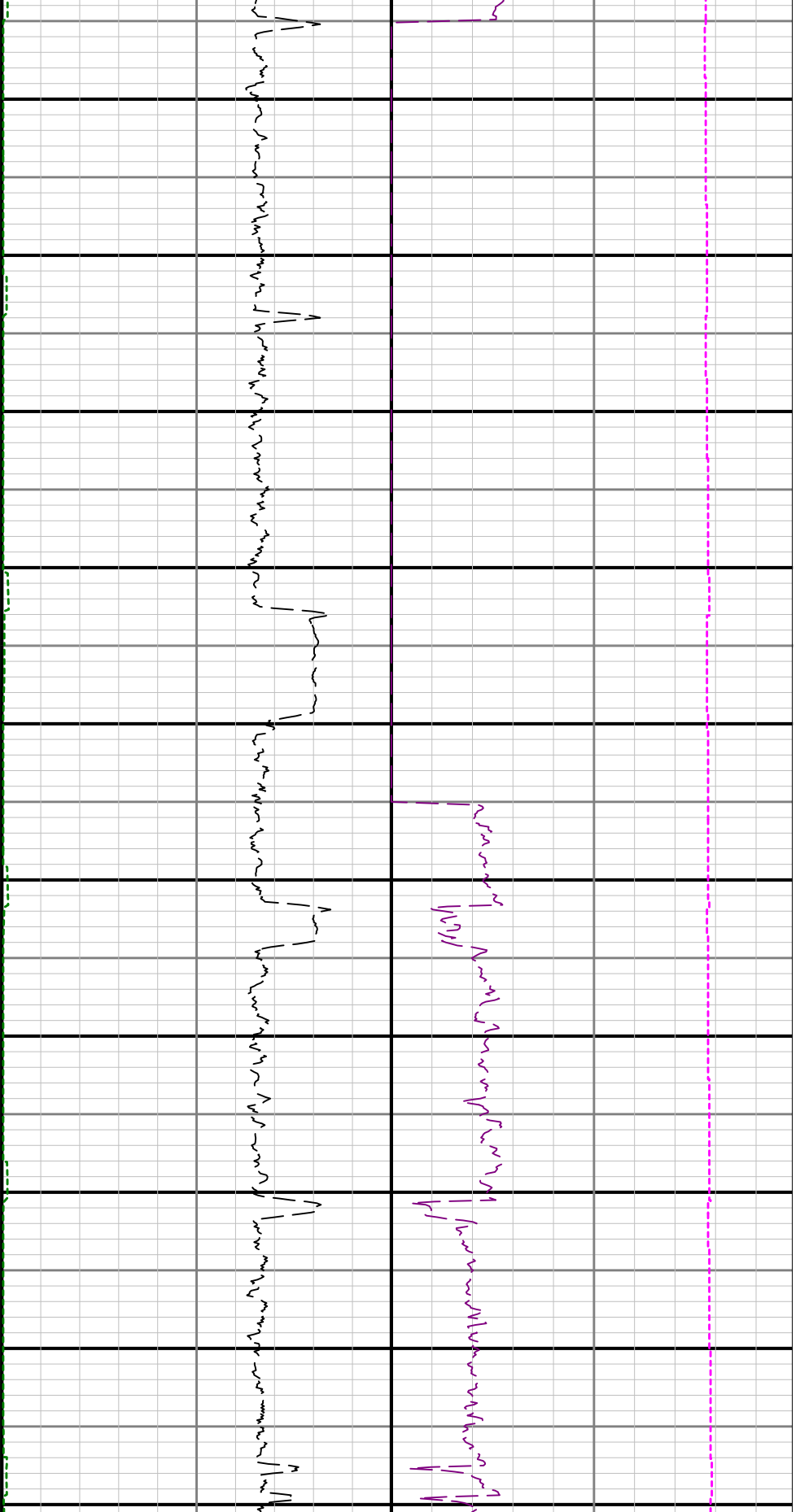


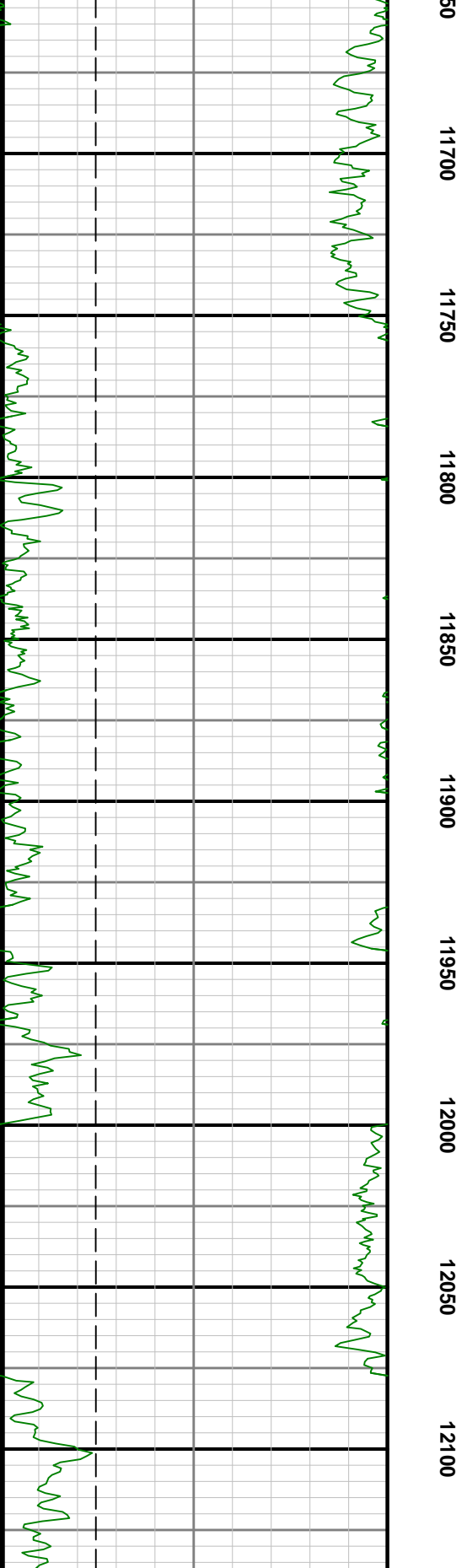
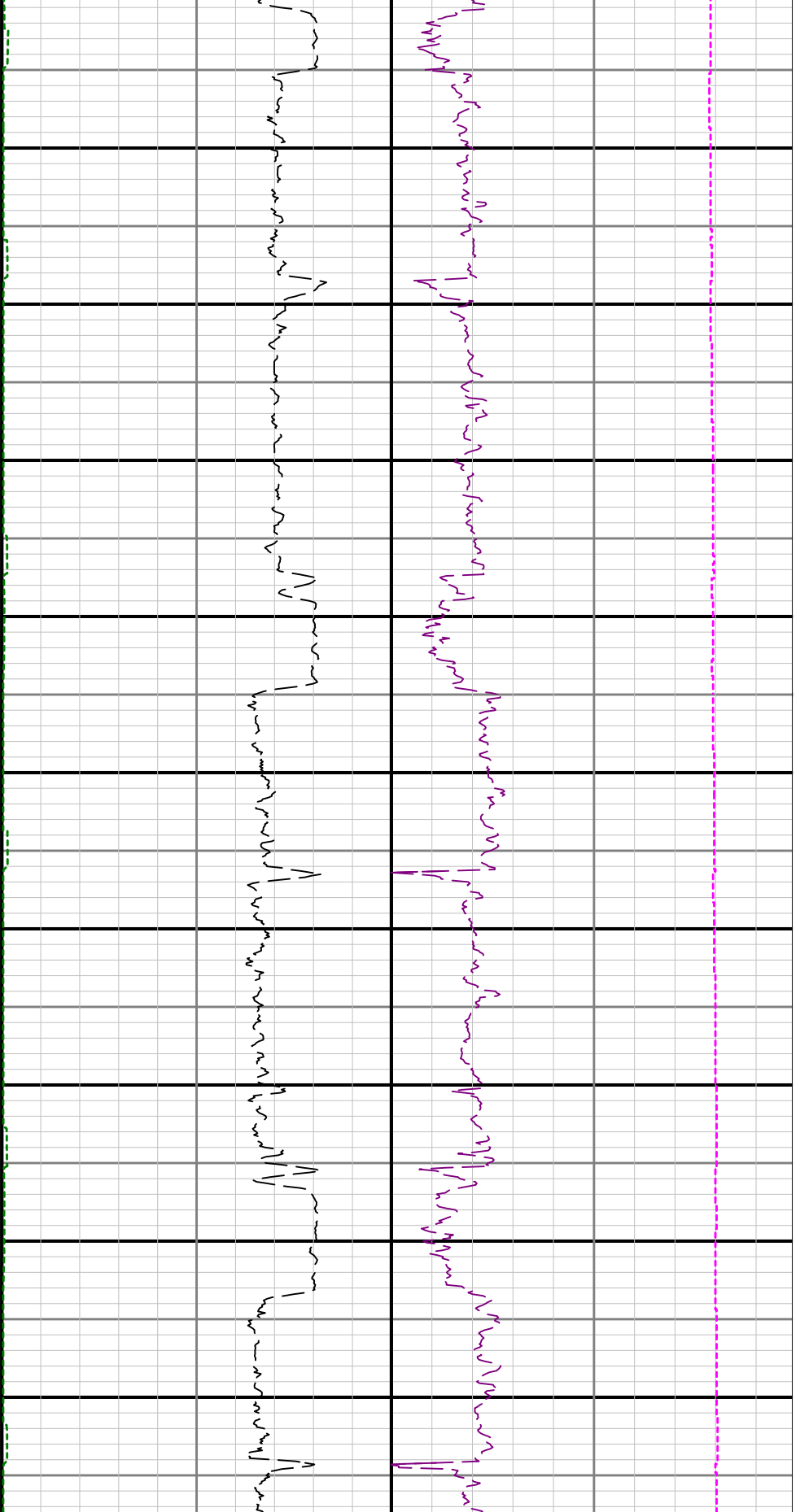


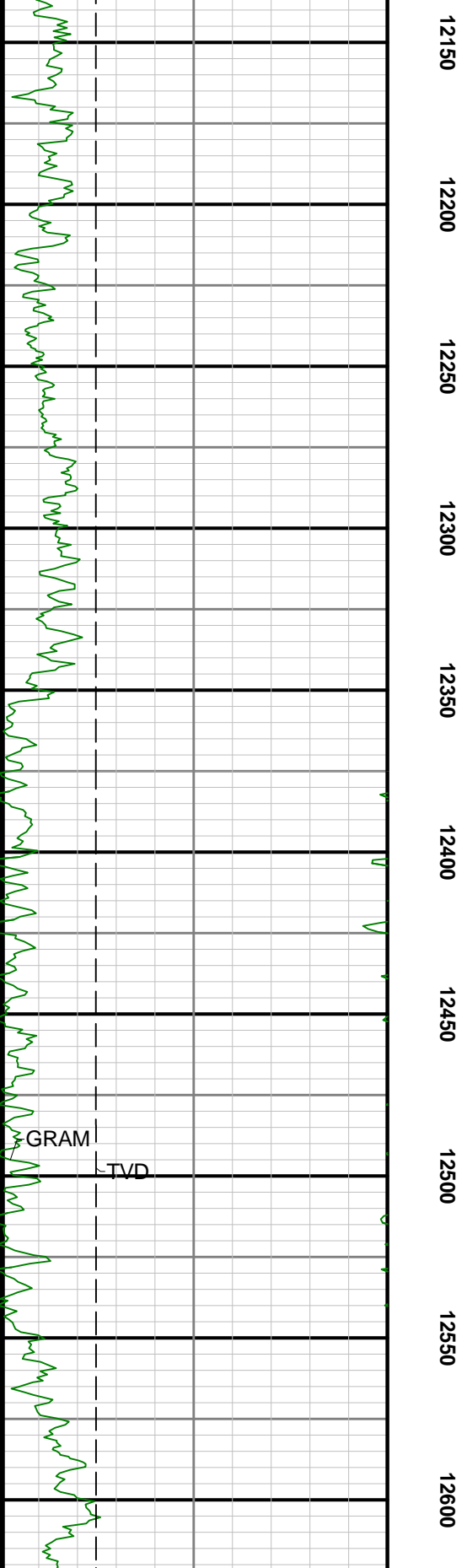
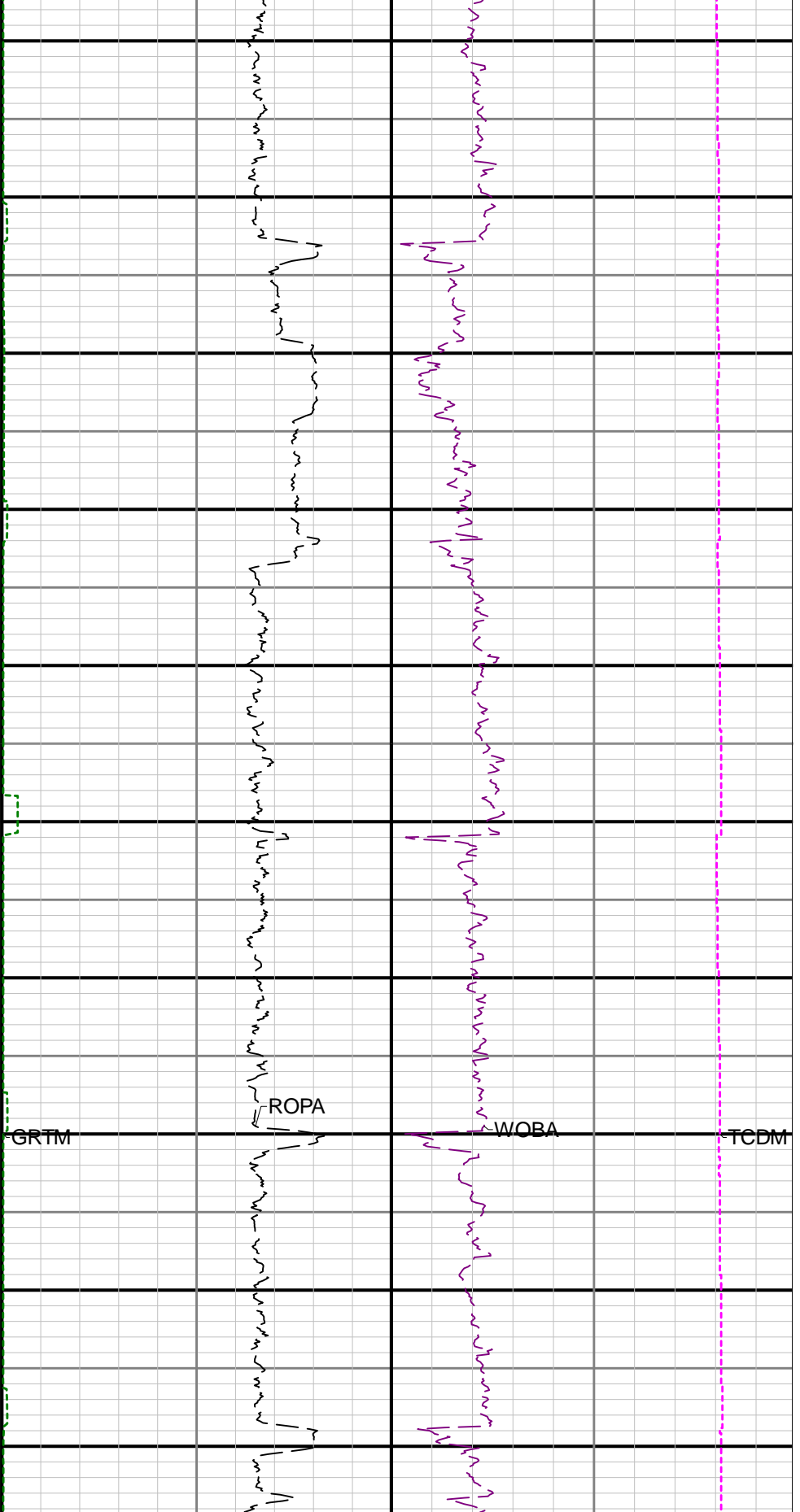


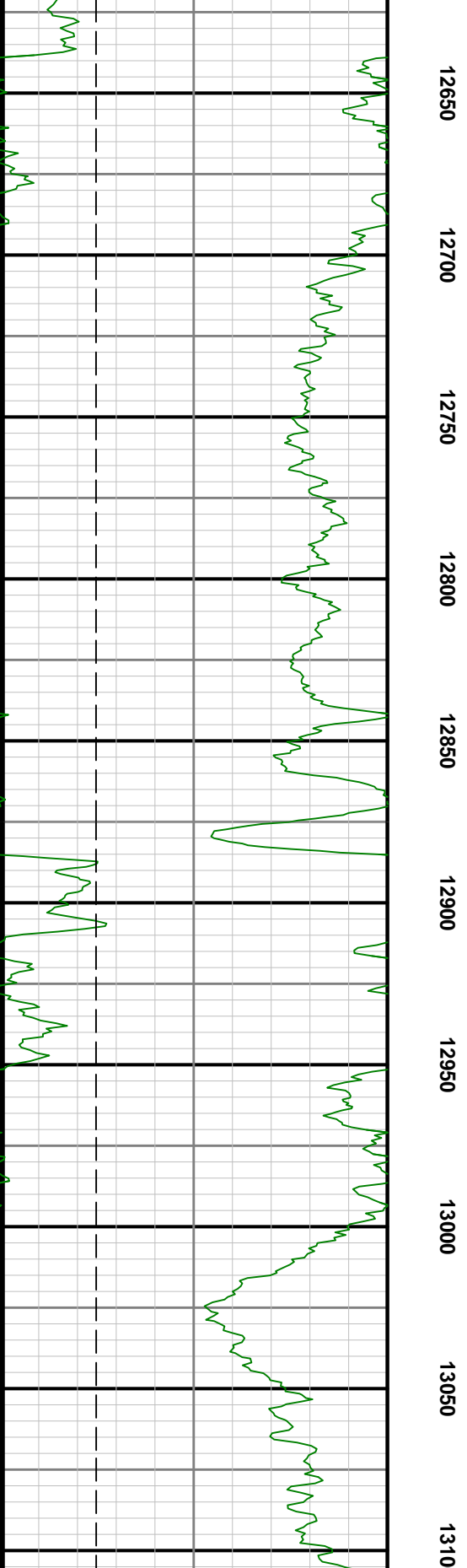
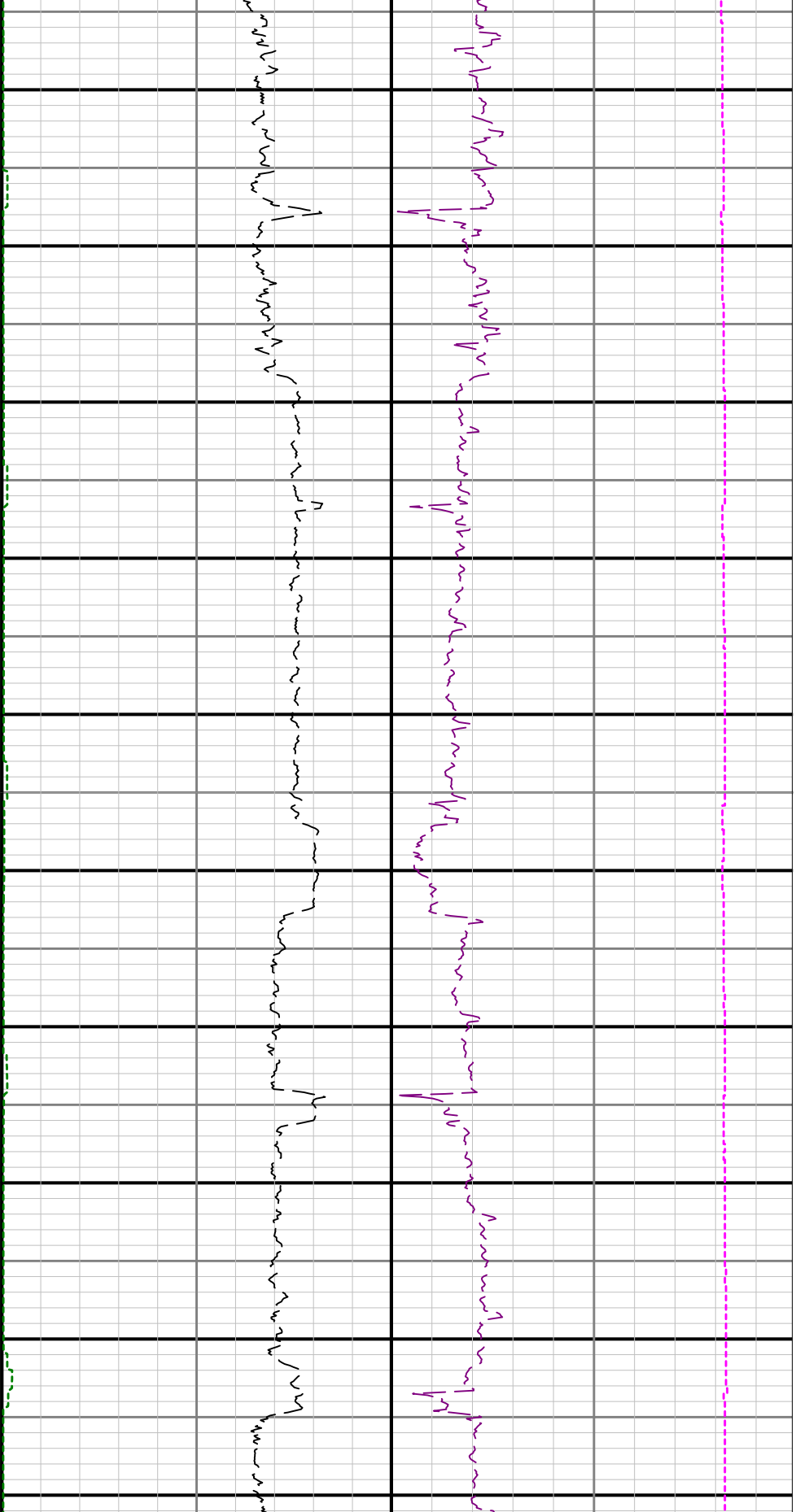


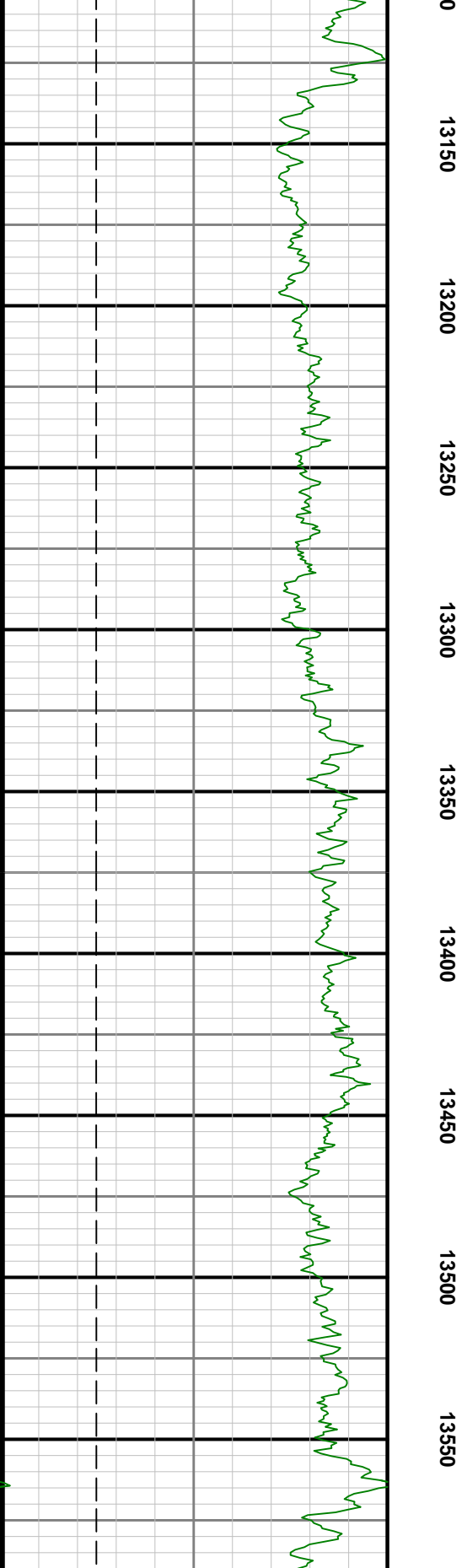
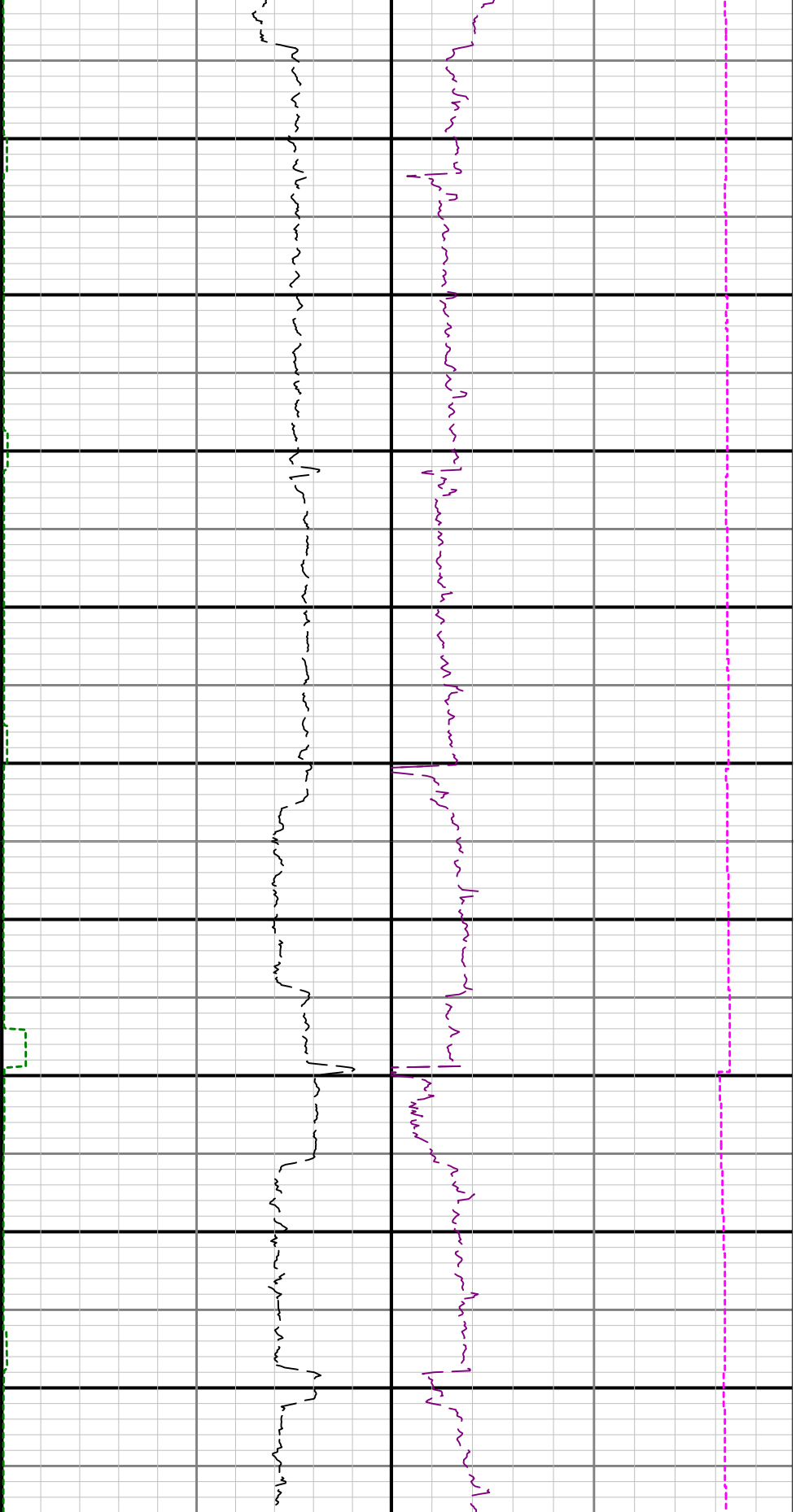


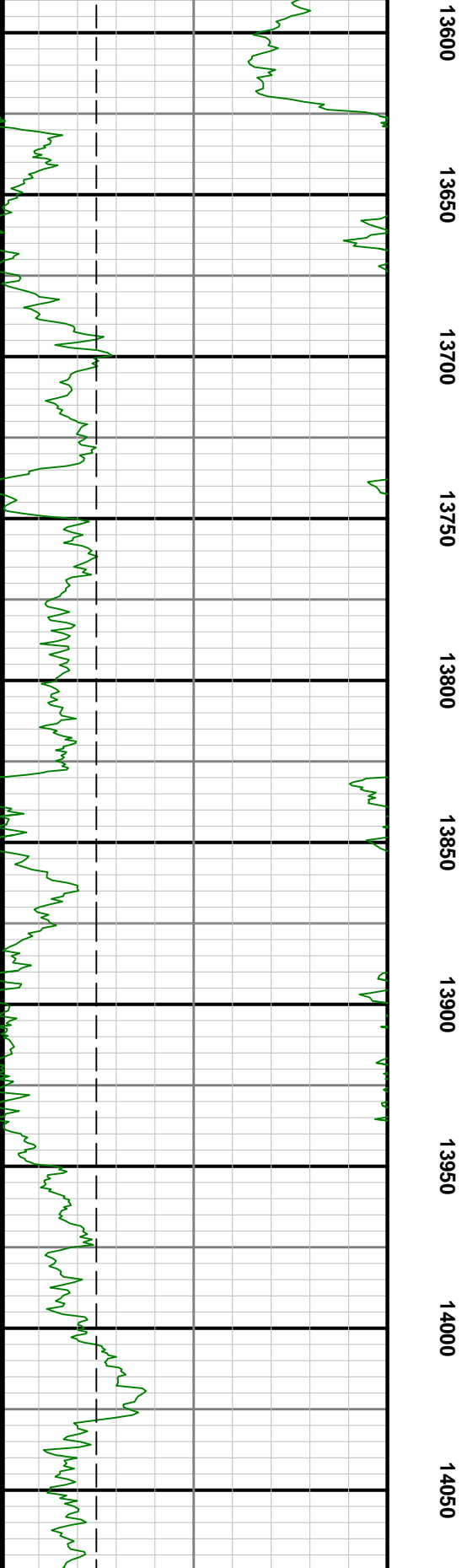
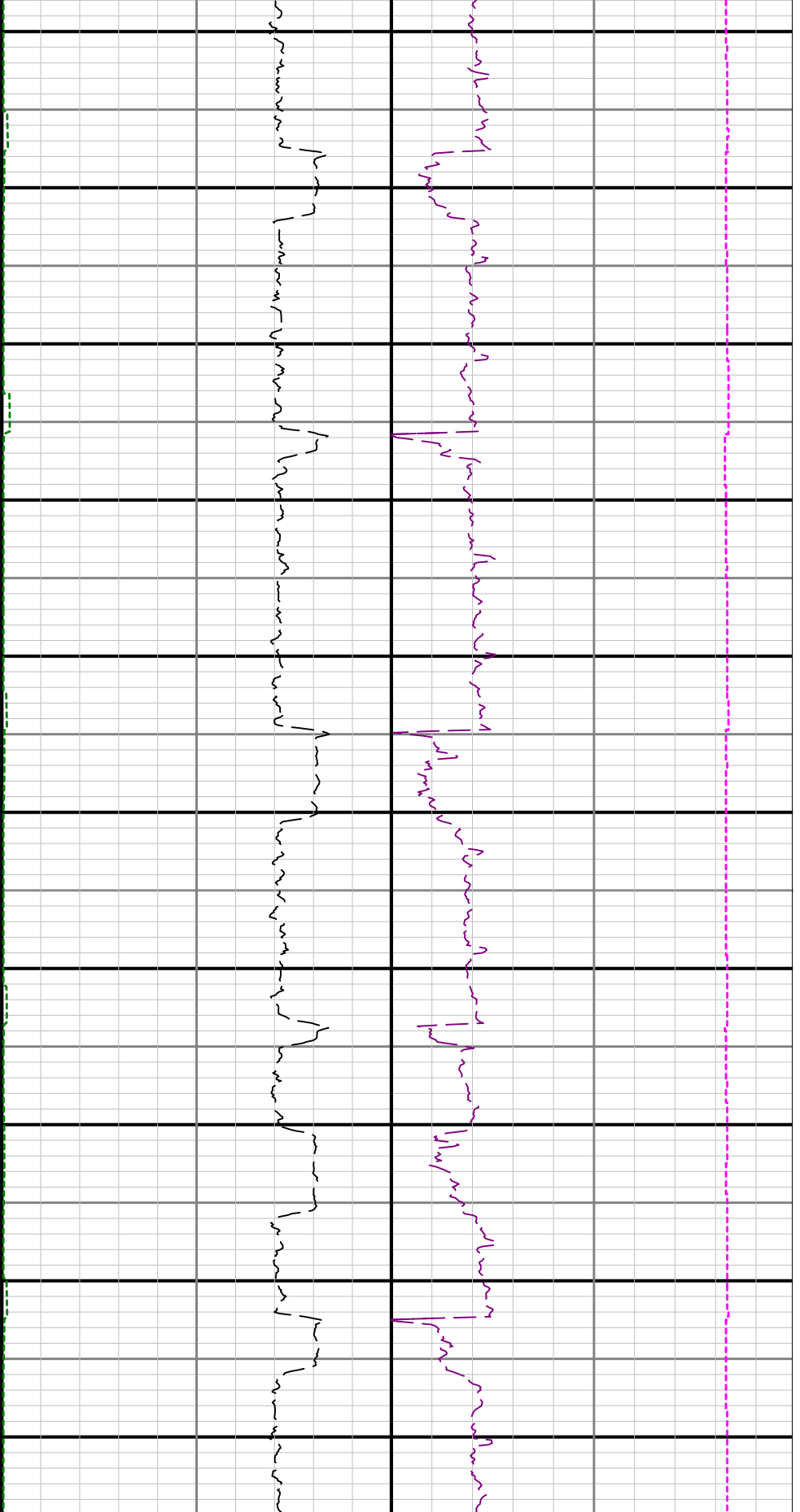


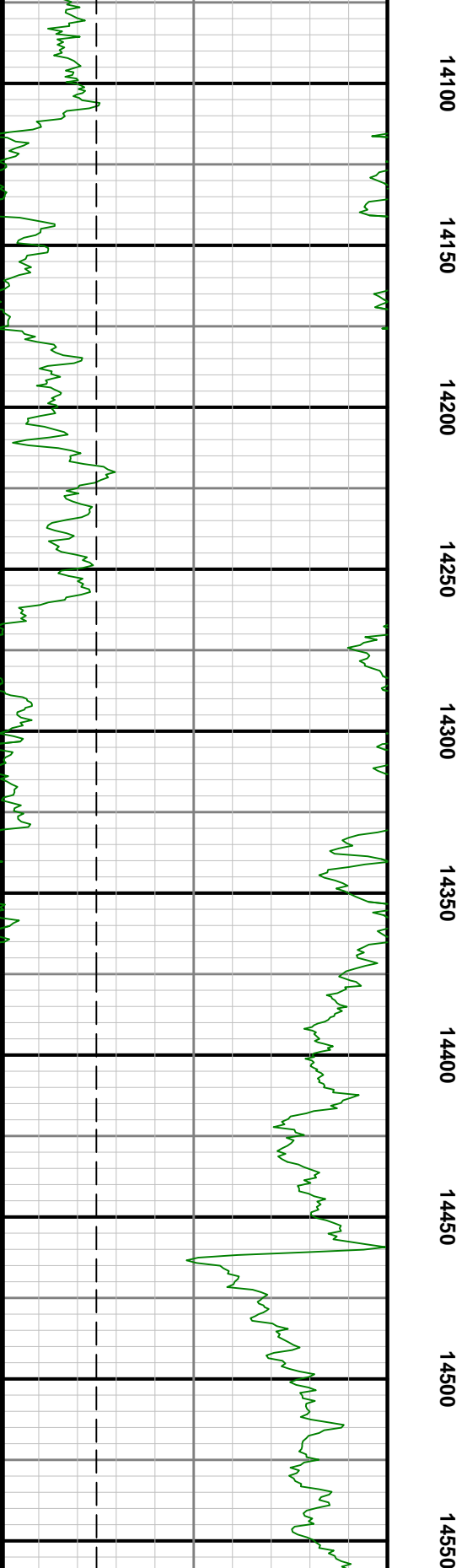
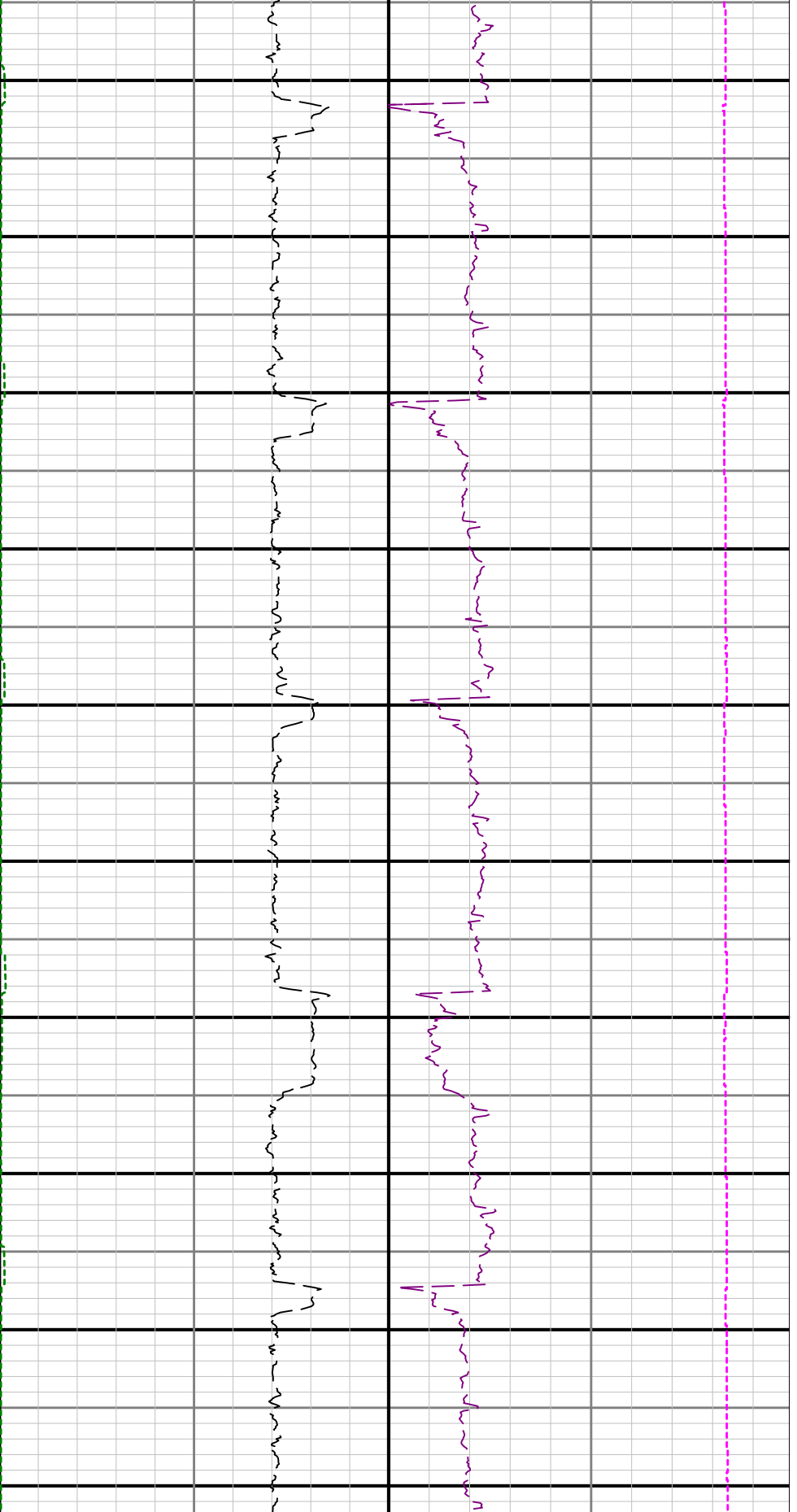


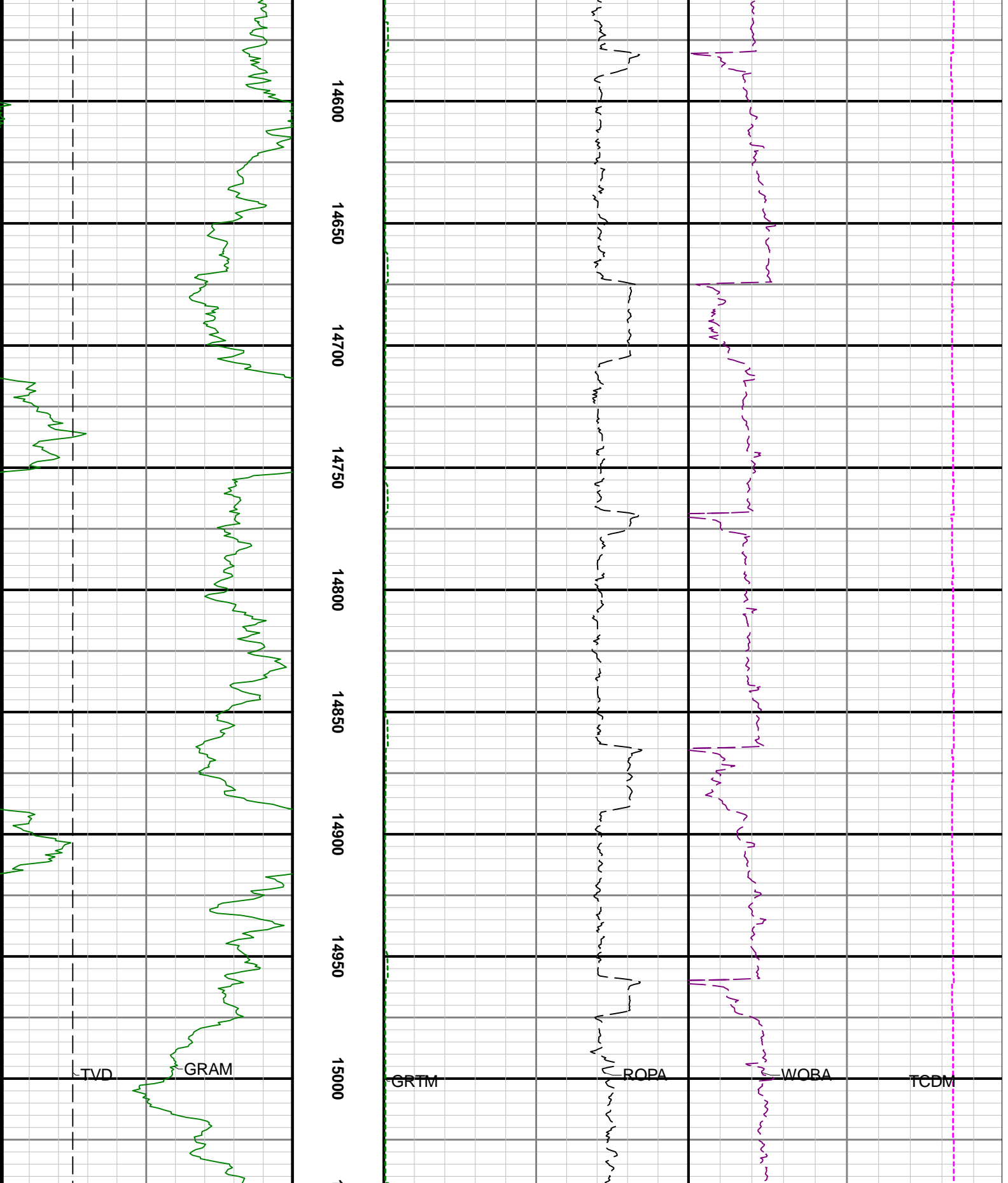


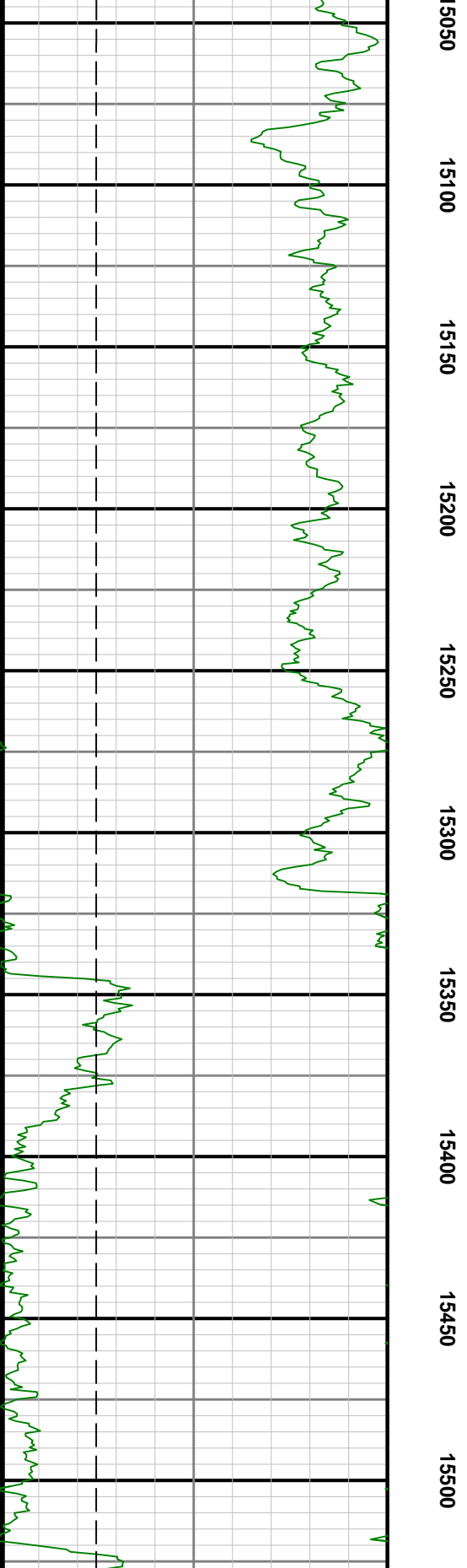
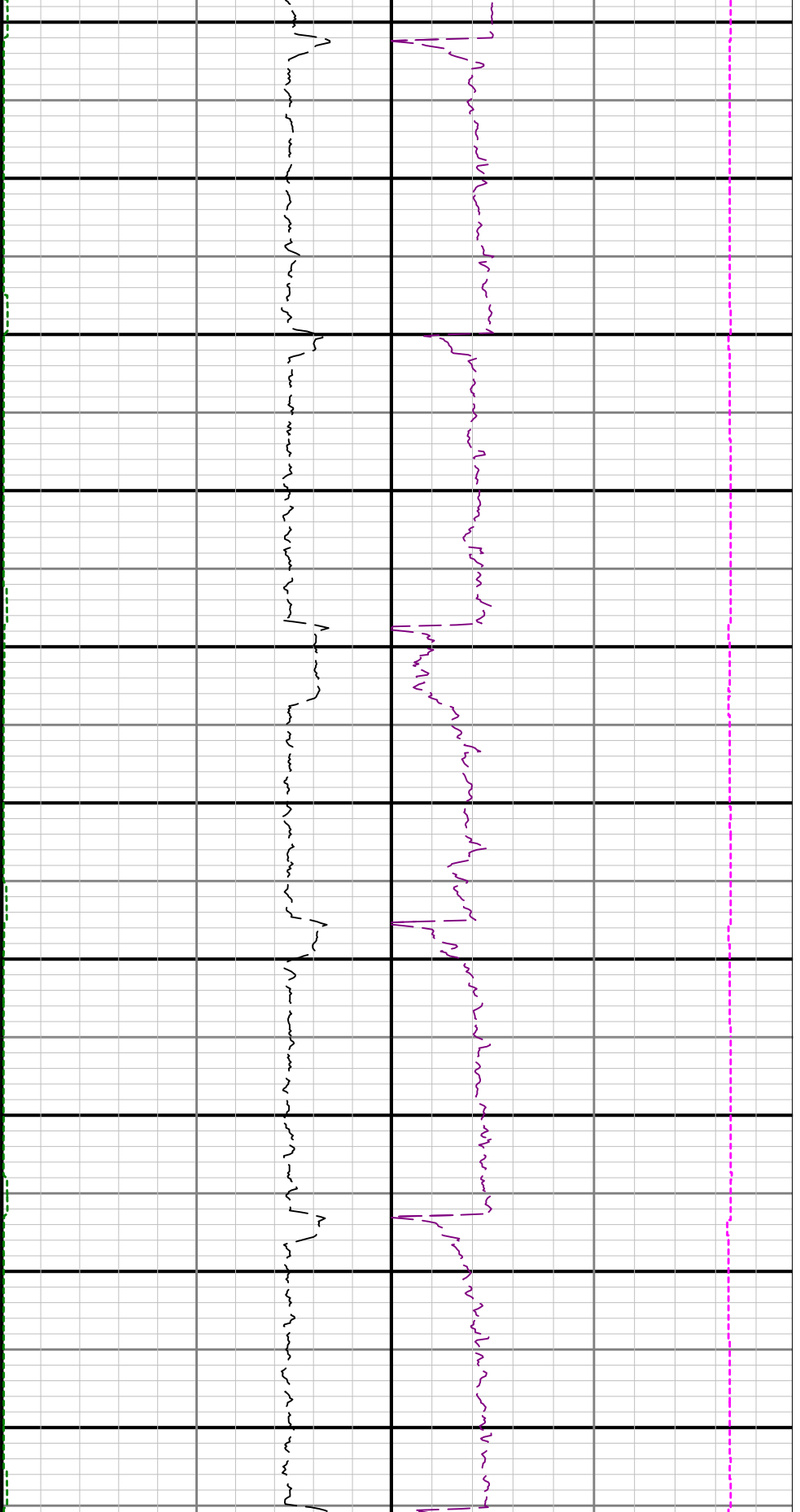


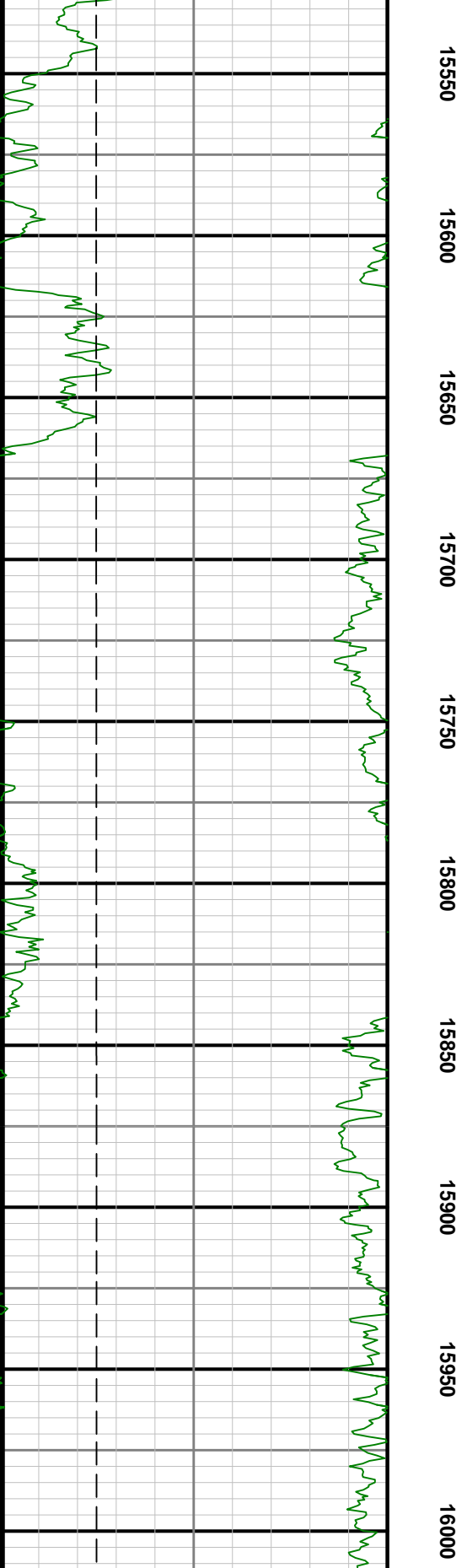
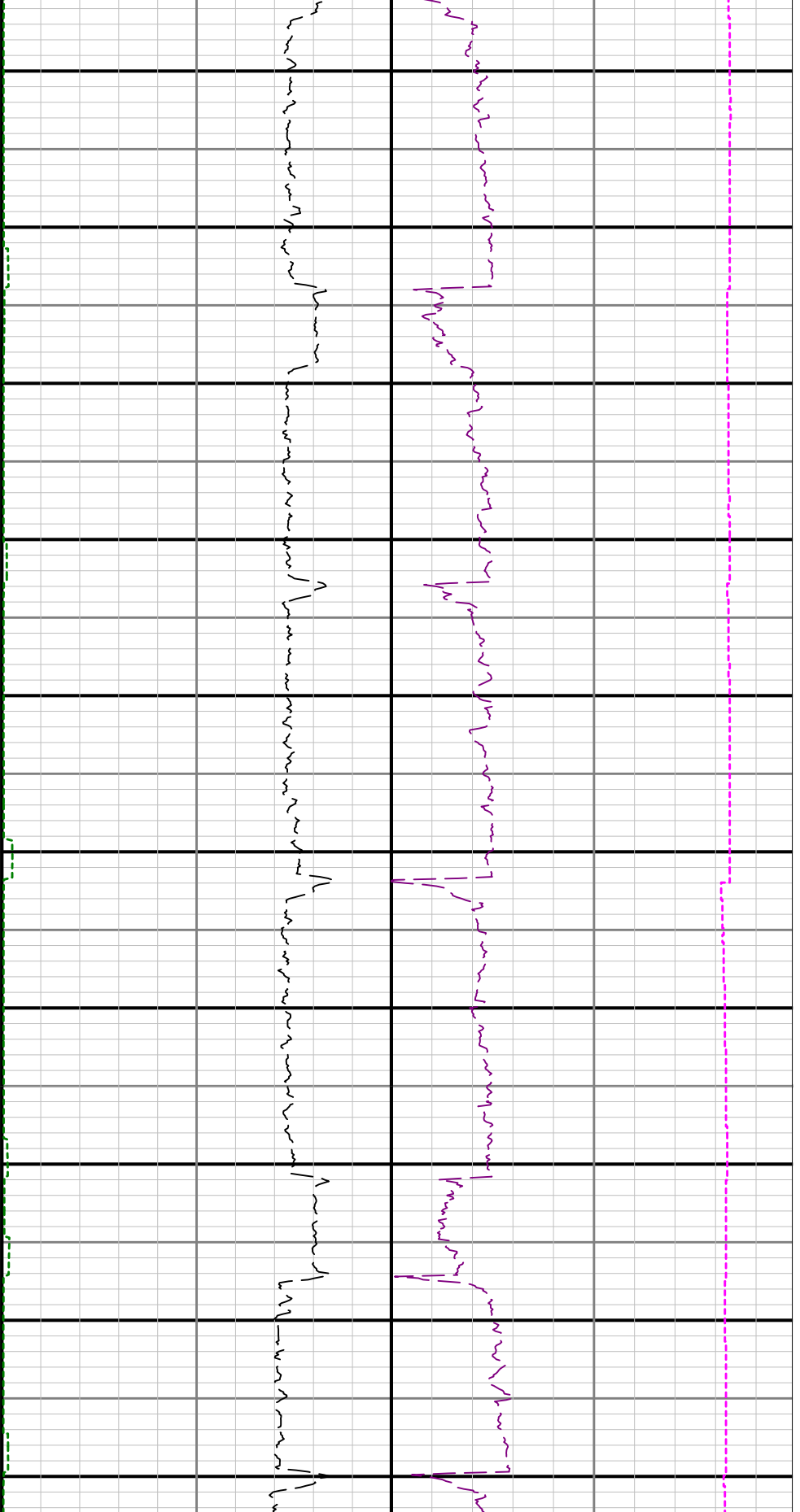


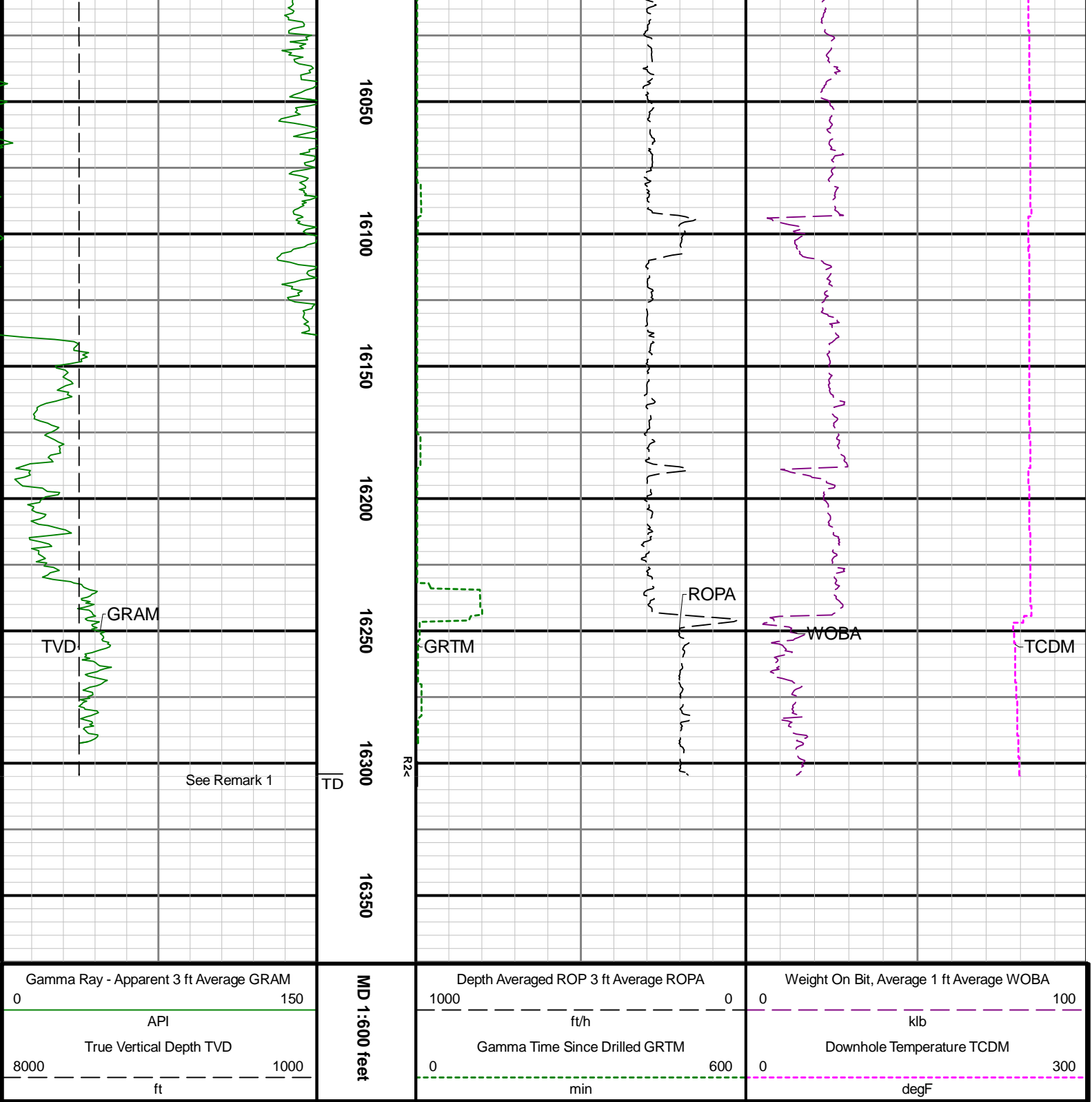












16050
16100
16150
16200
16250
16300
16350

MID 1:600 feet

R2<

GRTM

ROPA

WOBA

TCDM