



## Gamma Ray

[illegible]

		(in)		(in)		(ft)	(ft)	(ft)	(ft)			(in)
1	1	8.500	PDC	2.00	AutoTrak Curve	1917.10	13976.67	1930.00	13989.57	2017-08-20 04:18	2017-08-22 05:20	43.36

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Emi Iyalla	2017-08-18	2017-08-22	Mark Herpin	2017-08-21	2017-08-22			

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+ (%)
2017-08-20 03:00	1	1930.00	Oil Based Mud	9.3	12	N/A	21.2	80/20	Active Pit	26500	0.00
2017-08-20 13:00	1	3799.00	Oil Based Mud	9.1	10	N/A	16.4	80/20	Active Pit	25000	0.00
2017-08-21 03:00	1	7272.00	Oil Based Mud	9.0	9	N/A	15.6	82.4/17.6	Active Pit	25000	0.00
2017-08-21 13:00	1	9685.00	Oil Based Mud	9.3	11	N/A	16.0	83.1/16.9	Active Pit	25000	0.00
2017-08-22 03:00	1	13321.00	Oil Based Mud	9.4	11	N/A	18.0	84.1/15.9	Active Pit	22500	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	ATC_SU	12194650	Near Bit Inclination	5.93	6.73	7.000	4.330
1	ATC_SU	12194650	Near Bit VSS	5.93	6.73	7.000	4.330
1	ATC_MWD	12284825	Gamma (single)	2.75	12.90	7.000	3.250
1	ATC_MWD	12284825	Directional (mag)	12.27	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
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 were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD run 1 utilized a 6.75 inch NaviGamma (Directional and Gamma Ray) services behind a 8.5 inch bit and rotary steerable assembly from 1930 to 13990 feet MD (1930 to 6460 feet TVD).


Remarks

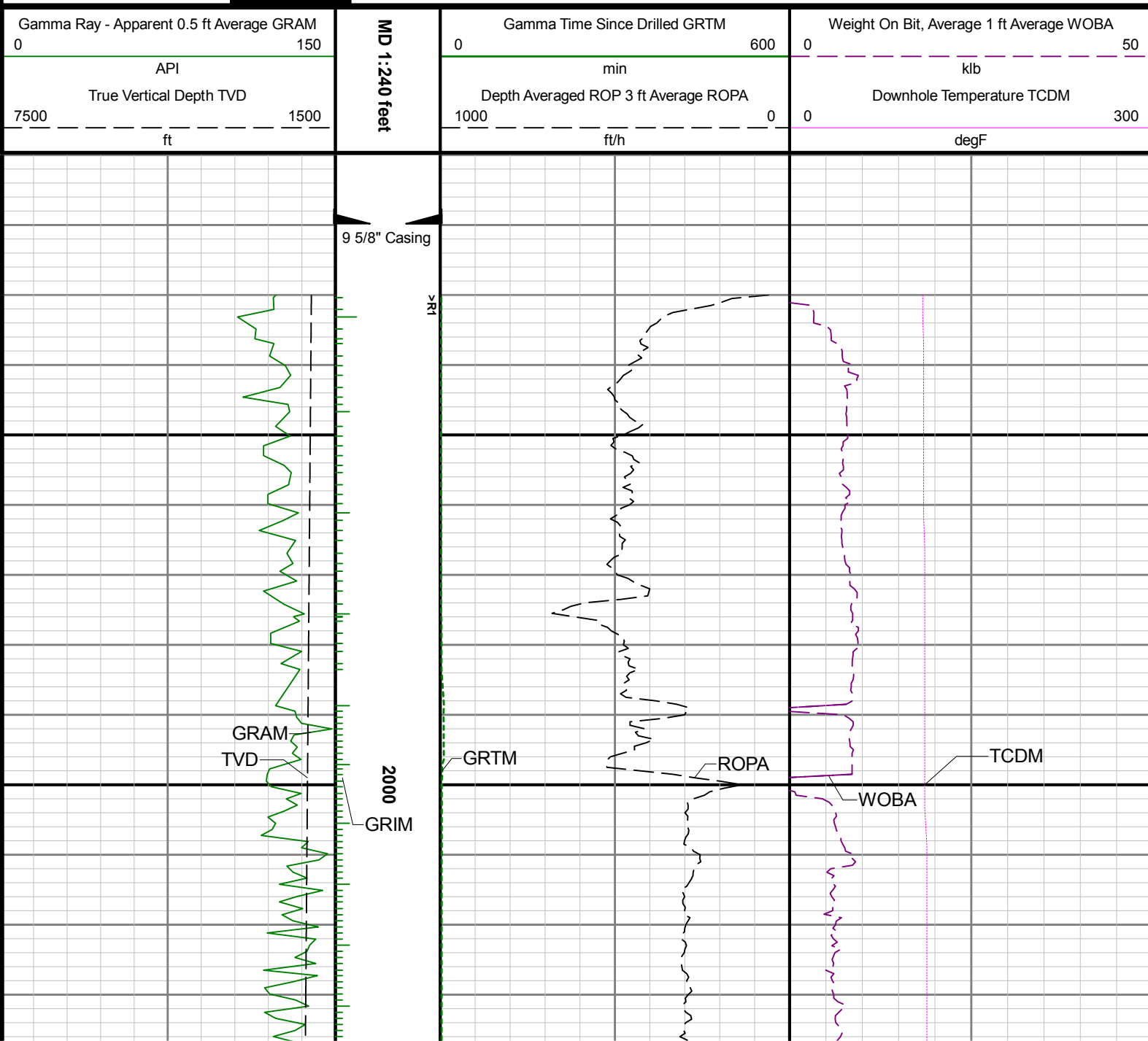
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	13977.00	8.500	1	The interval from 13977 to 13990 feet MD (6460 feet TVD) was not logged after being drilled due to sensor to bit offset at well TD.

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	OnTrak - Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	OnTrak - Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	OnTrak - Gamma Ray - Time Since Drilled - Memory	min
TCDM	Downhole Temperature	degF

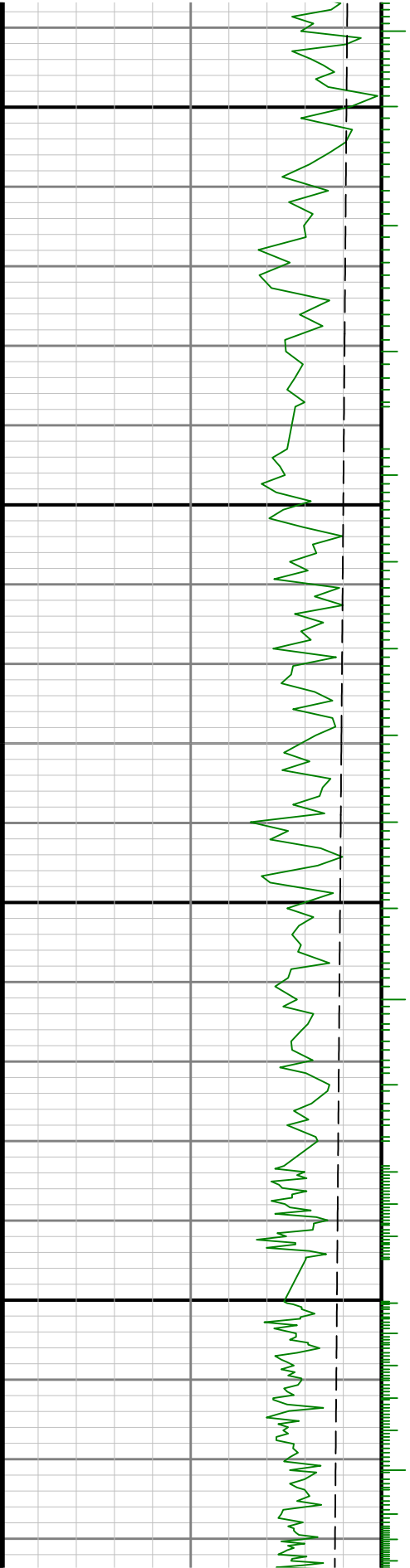
	<b>Company</b>	Noble Energy			
	<b>Well</b>	Wells Ranch BB11-643			
	<b>Interval</b>	<b>Date From:</b>	2017-08-20 02:30:00	<b>Top:</b>	1930.00
	<b>Created</b>	<b>Date To:</b>	2017-08-22 07:30:00	<b>Bottom:</b>	13990.00
		2017-08-22 14:58:44			

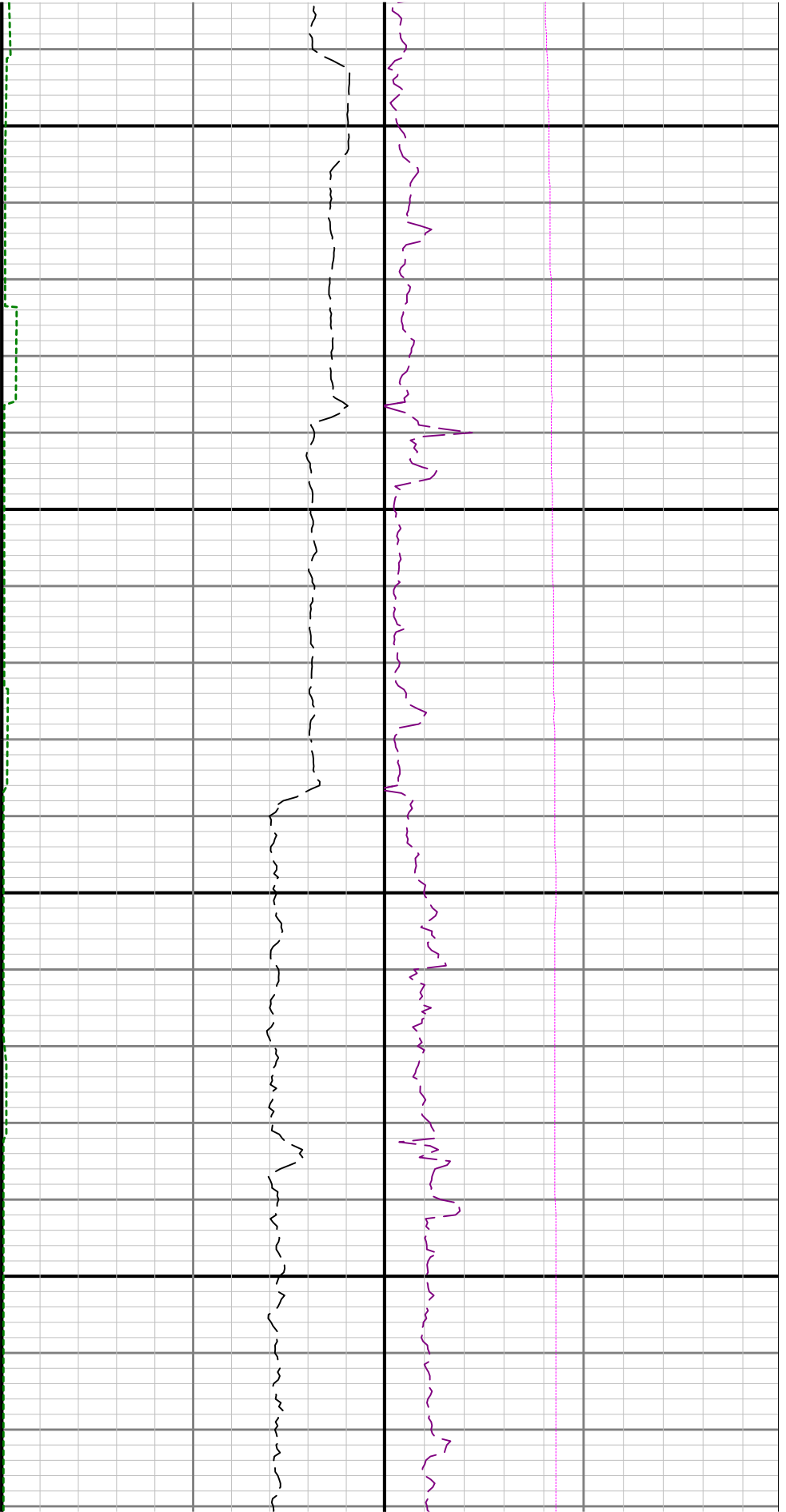




2100

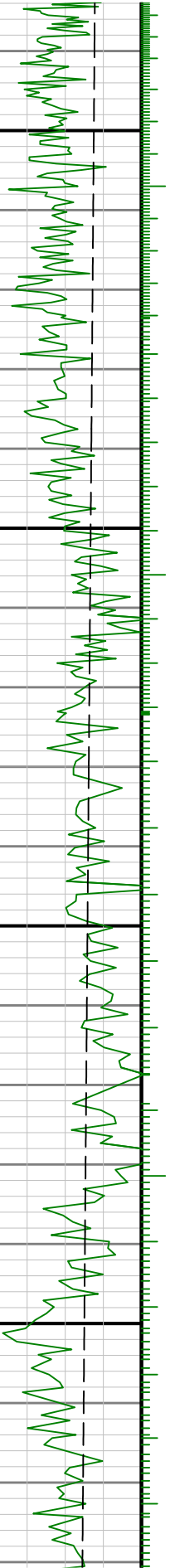
2200

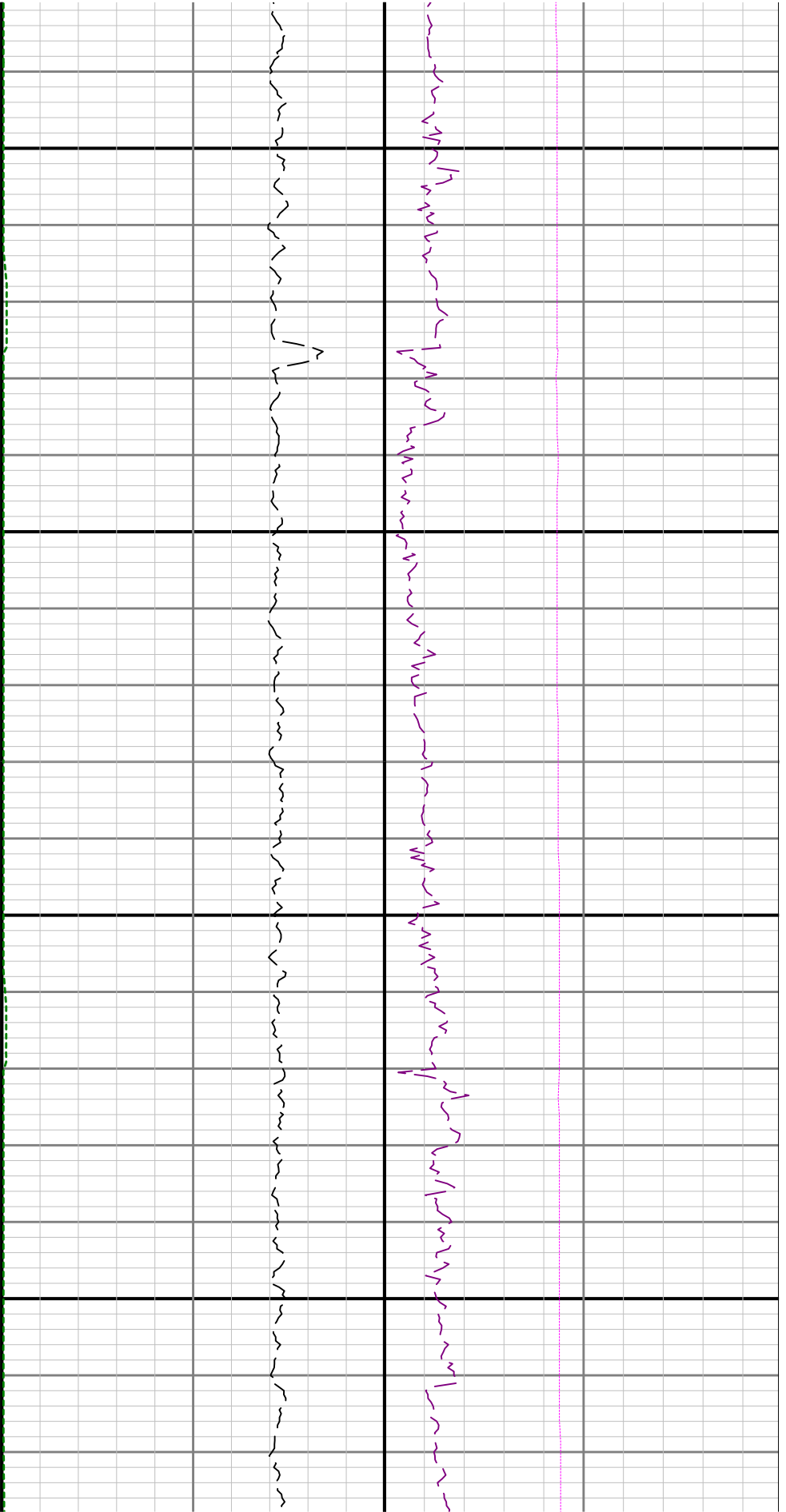




2300

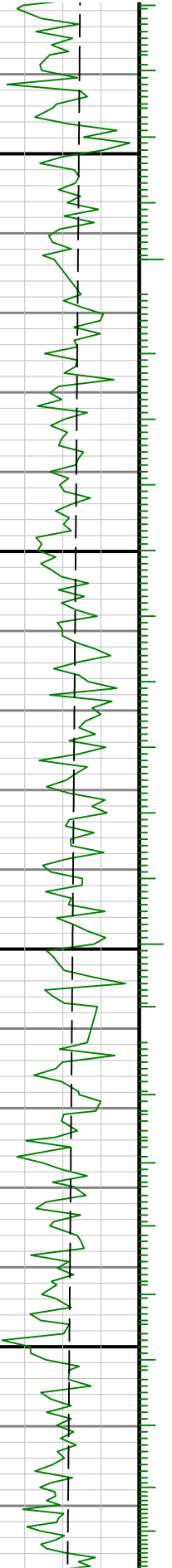
2400

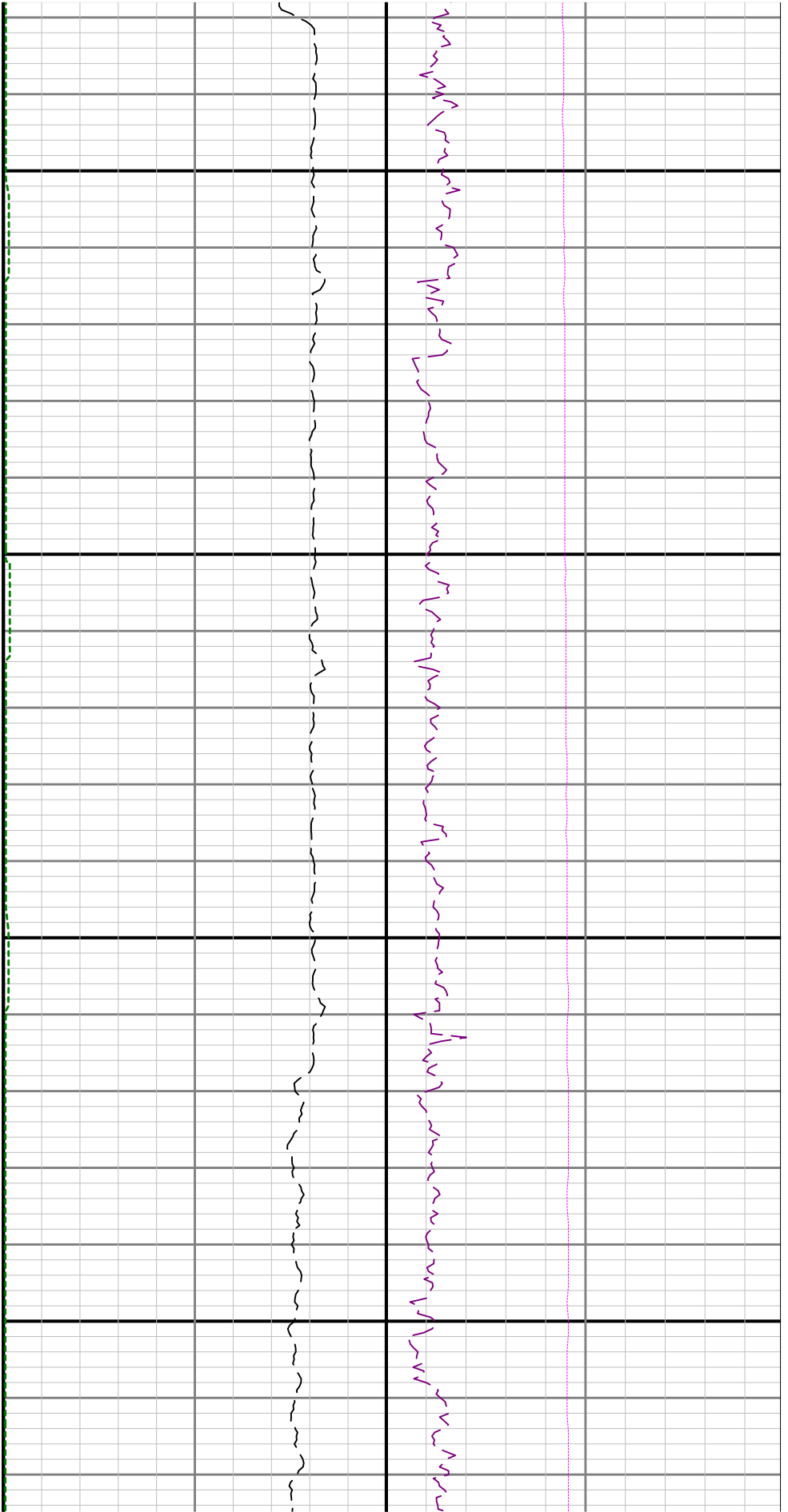




2500

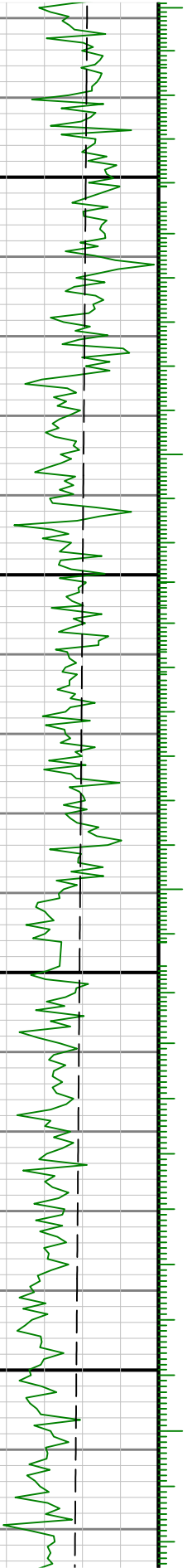
2600

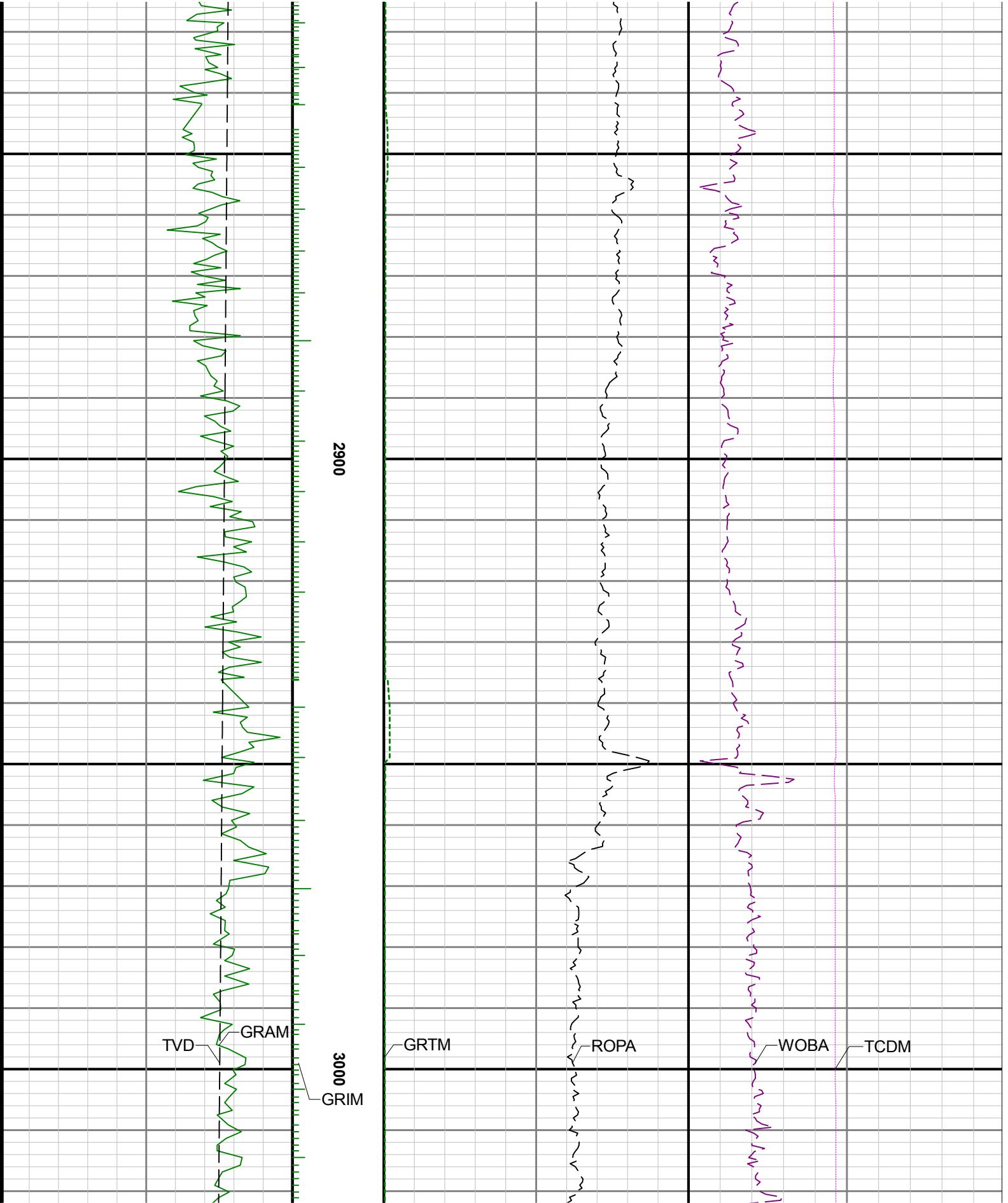




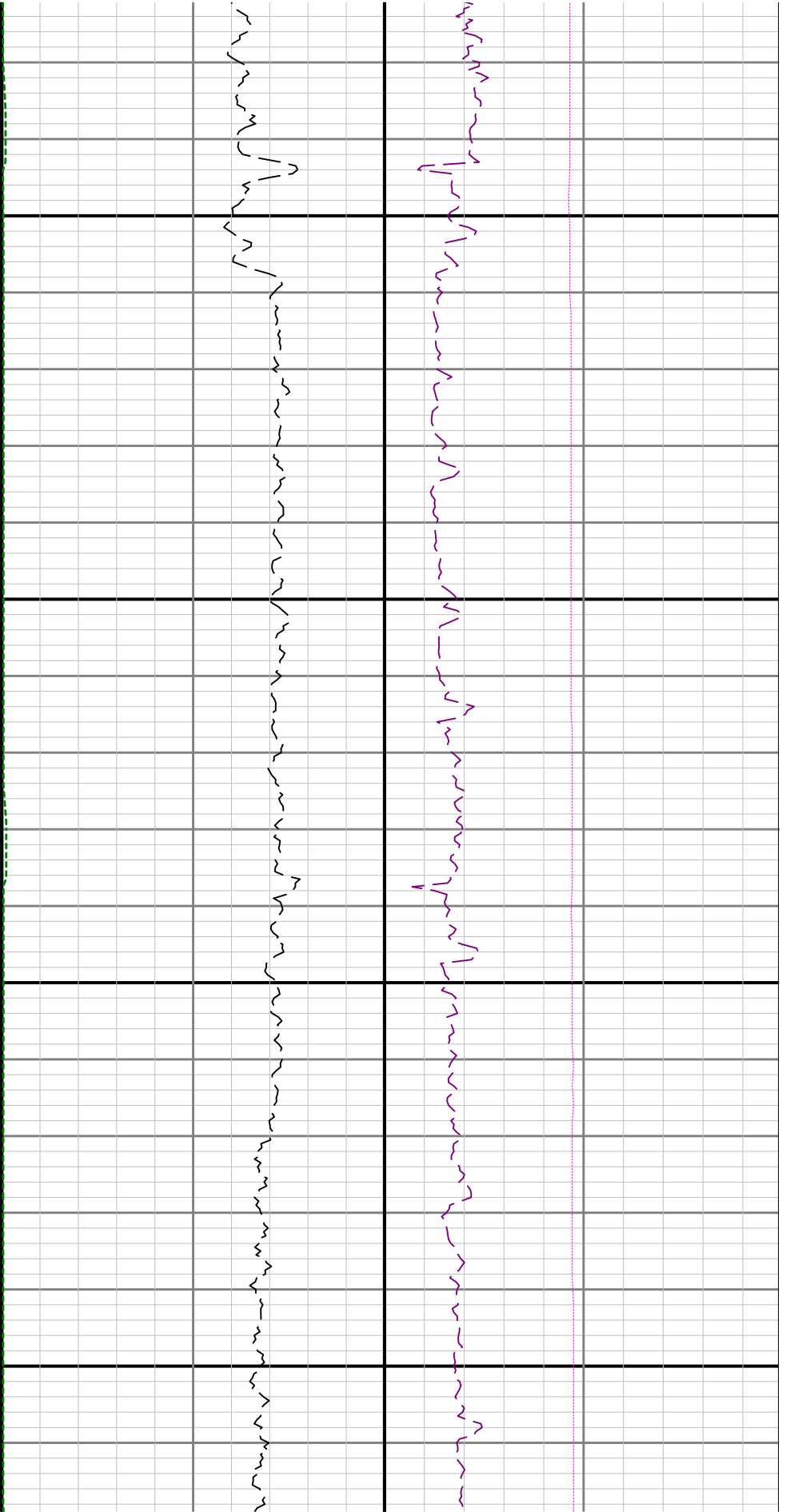
2700

2800



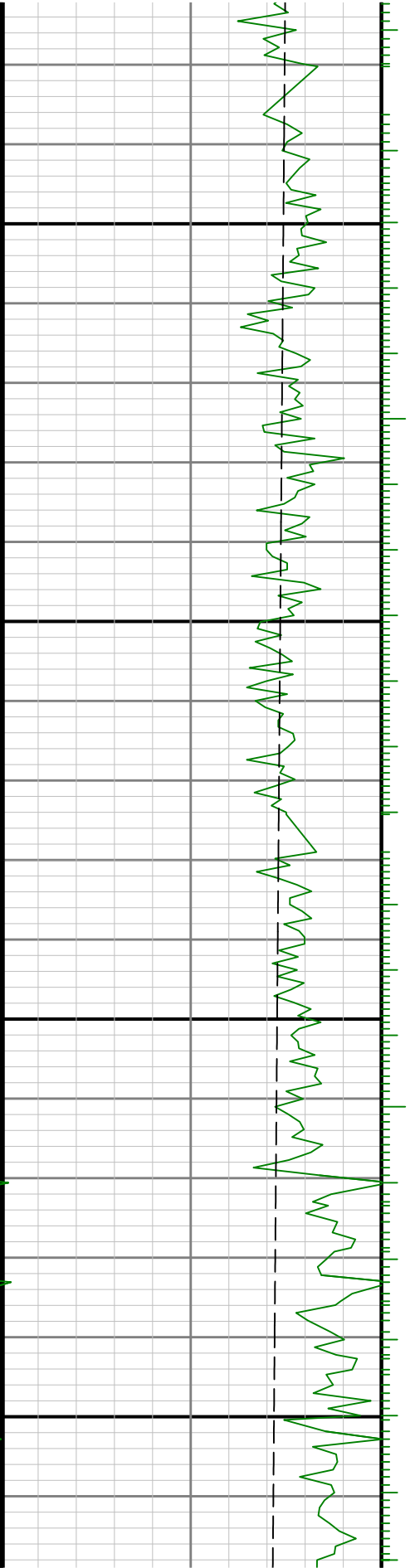


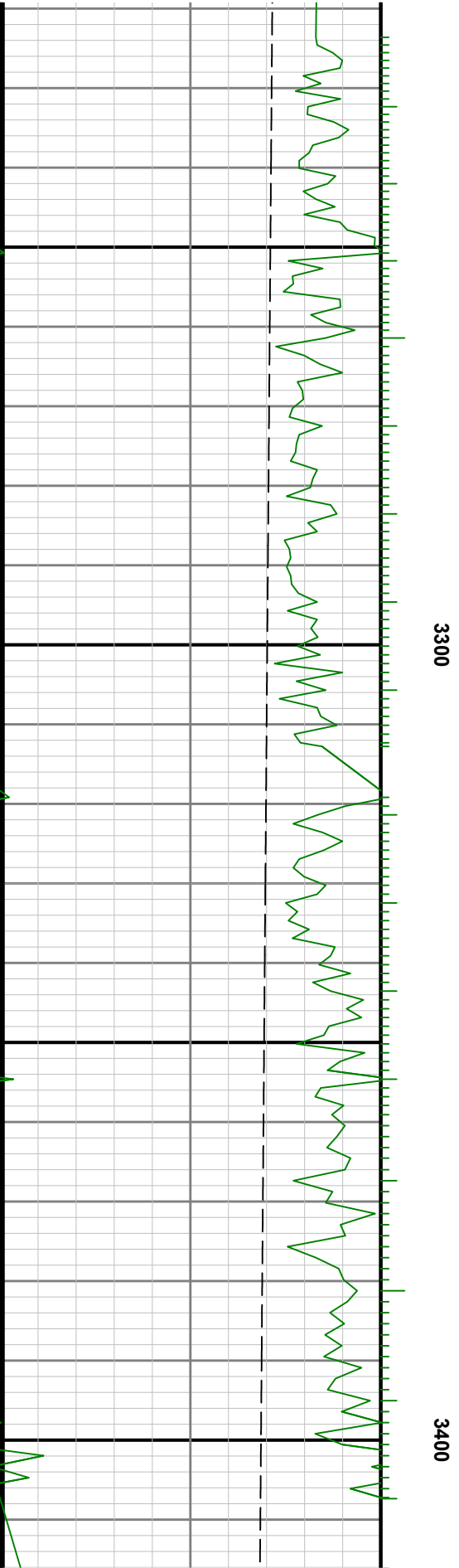


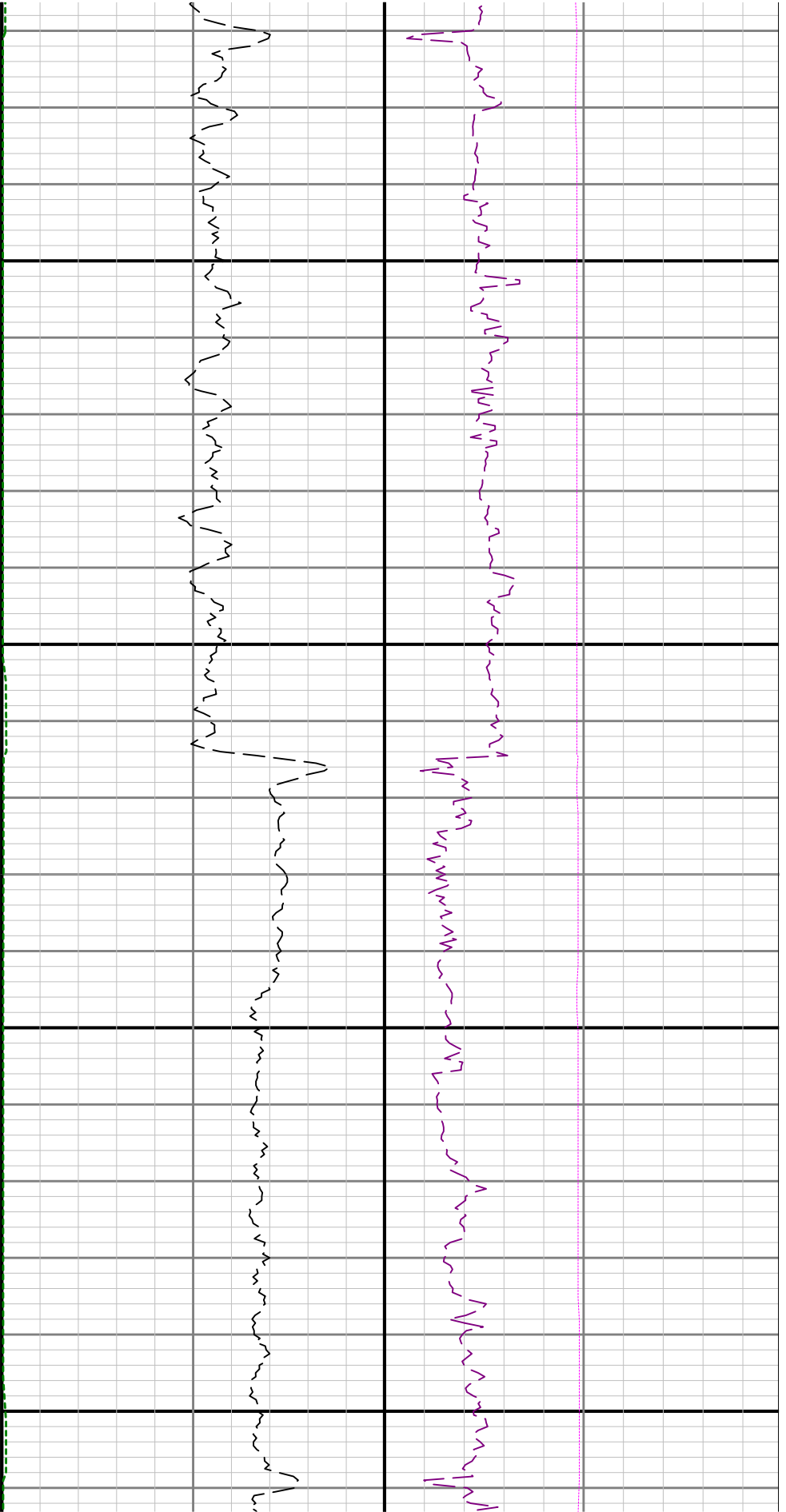


3100

3200

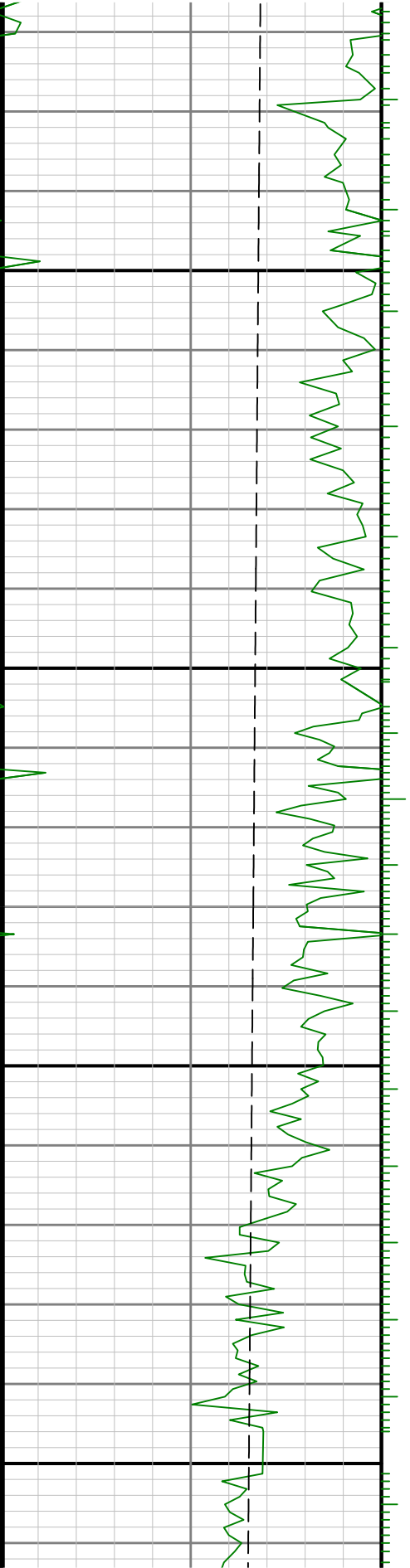


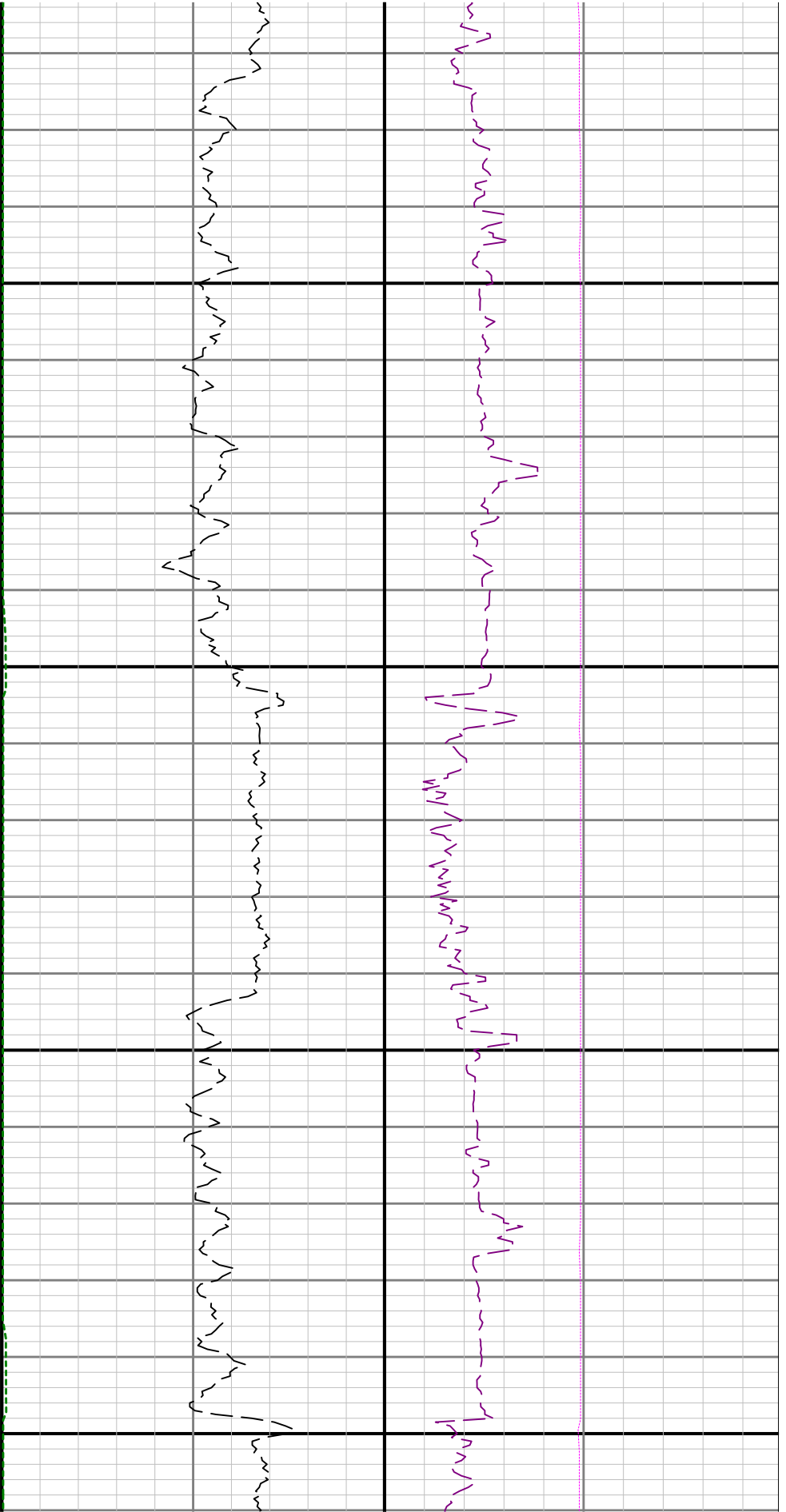




3500

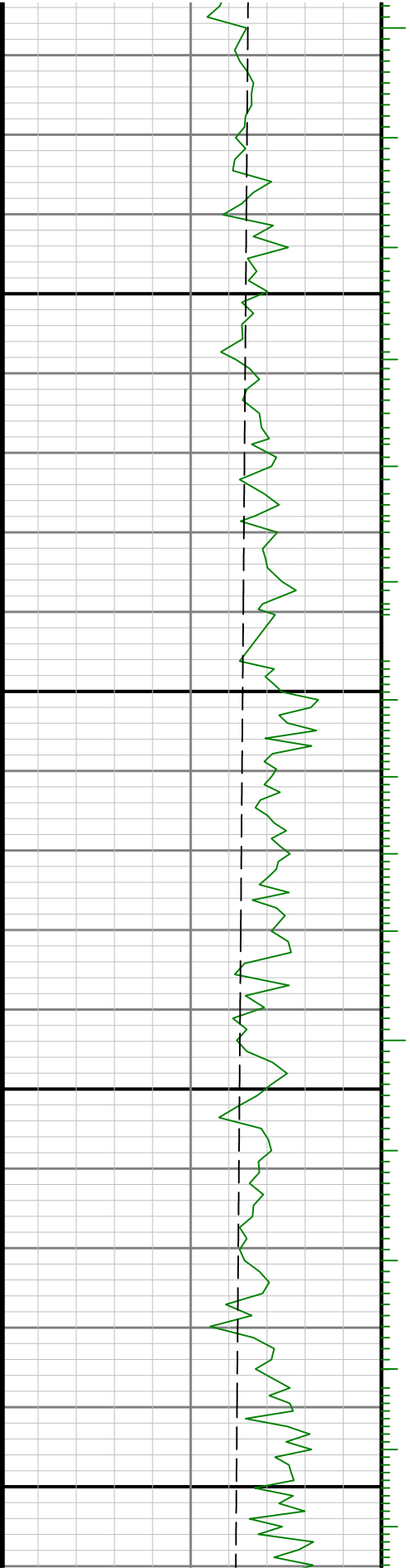
3600

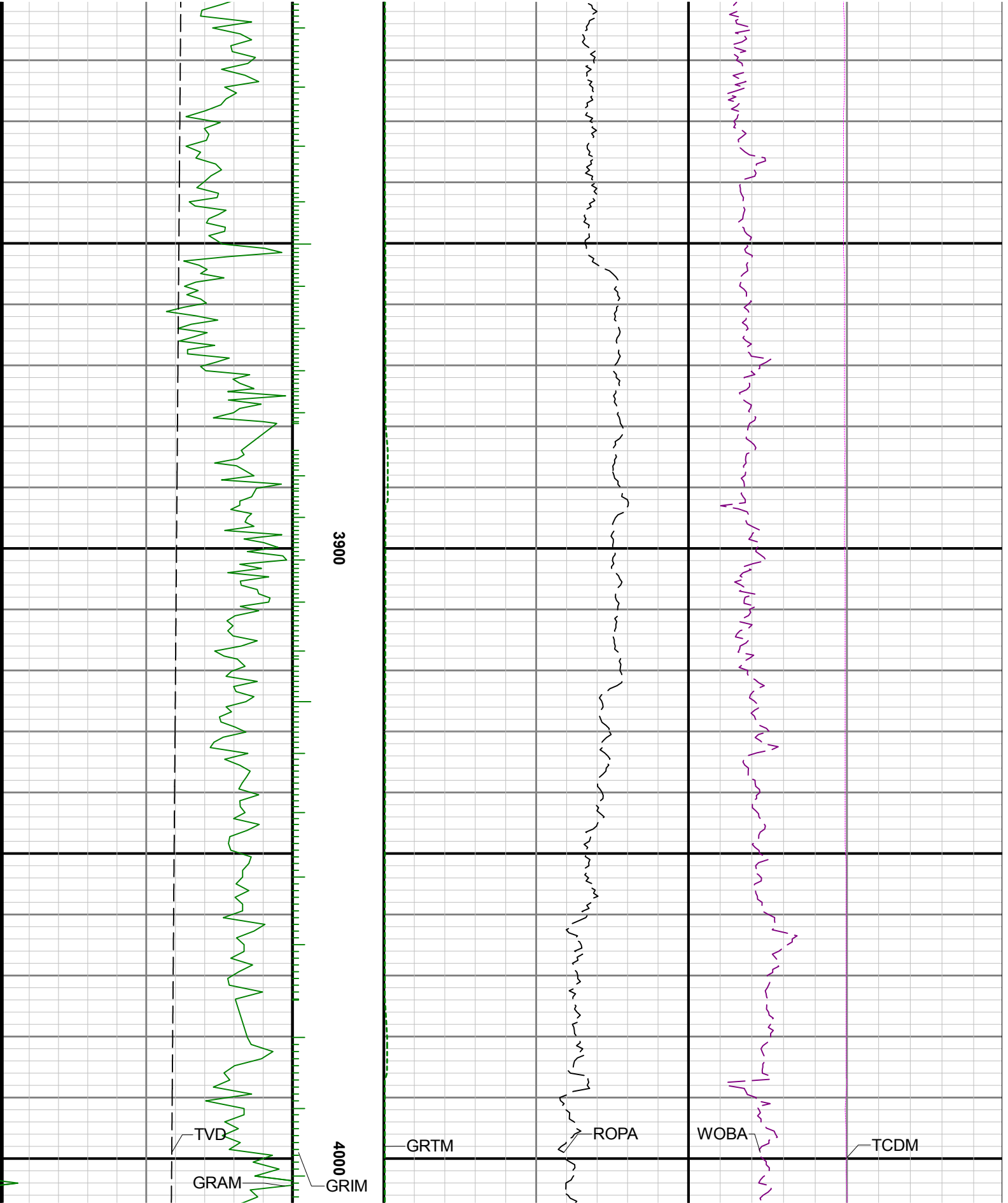


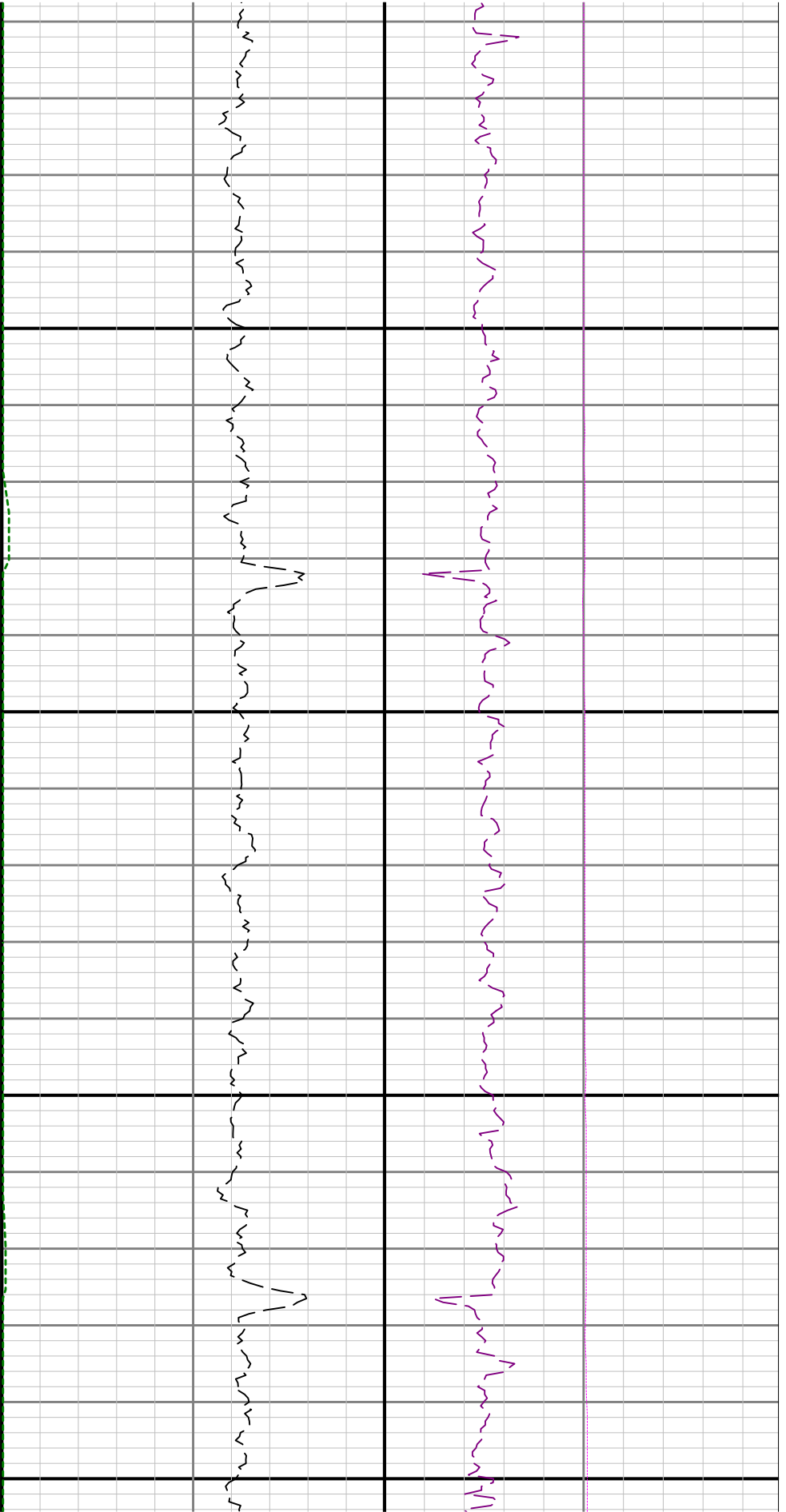


3700

3800

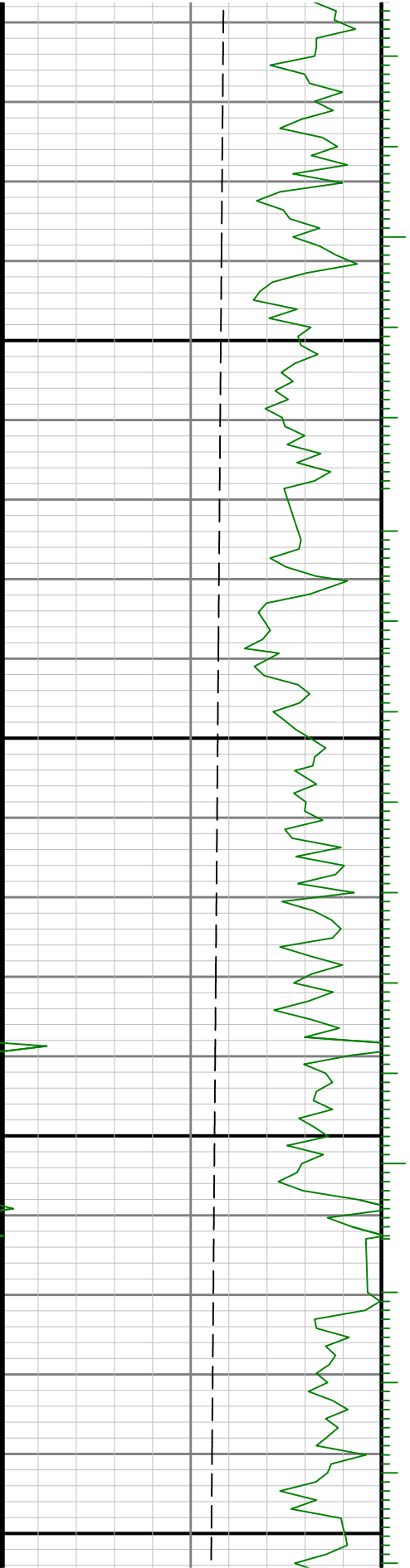


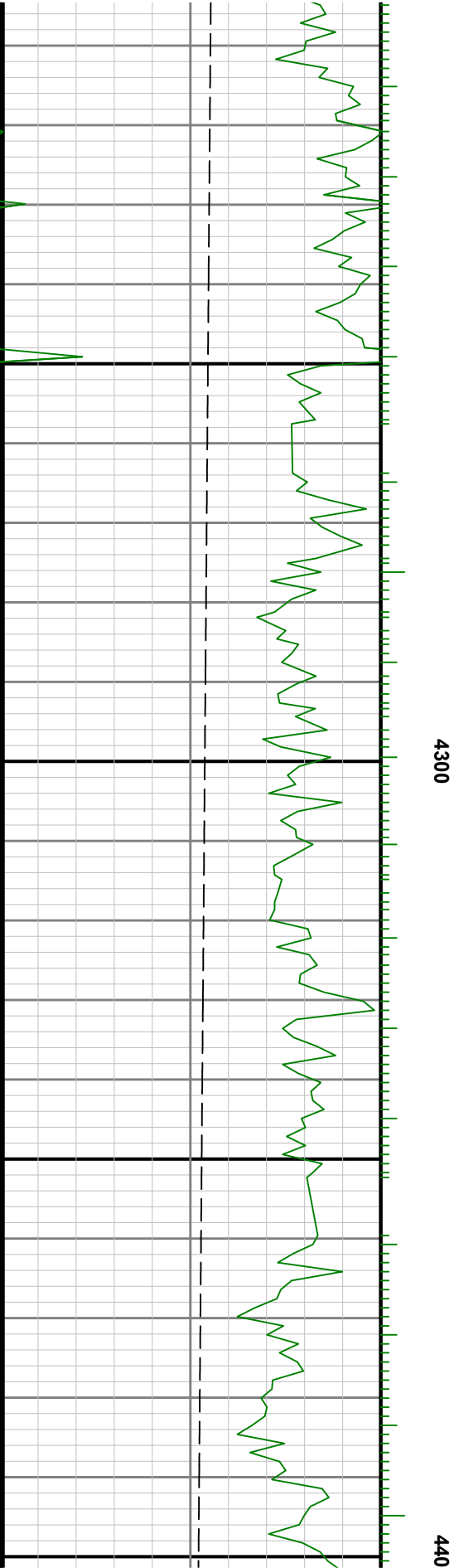
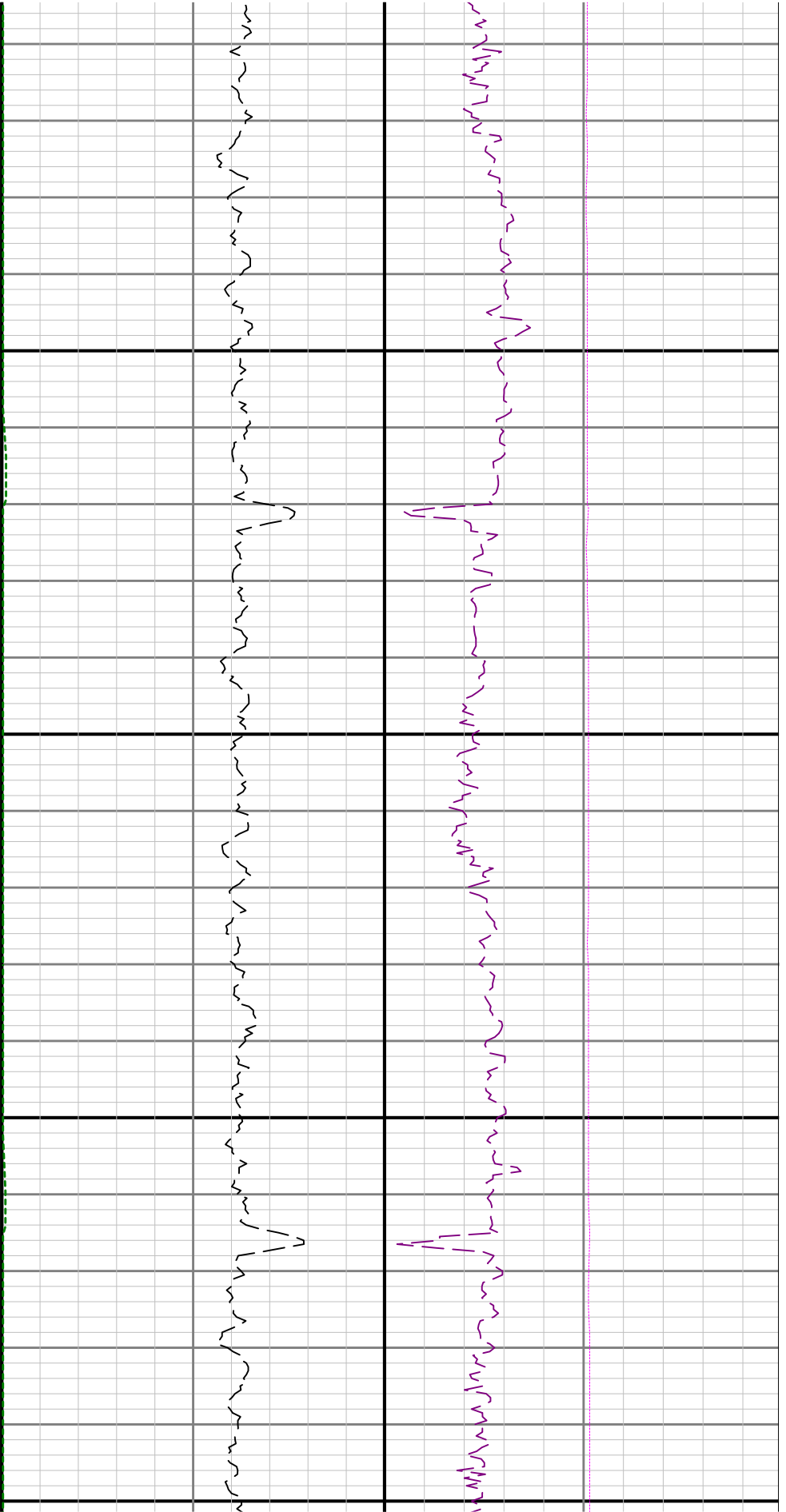


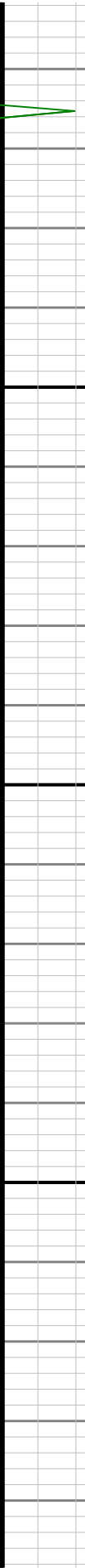
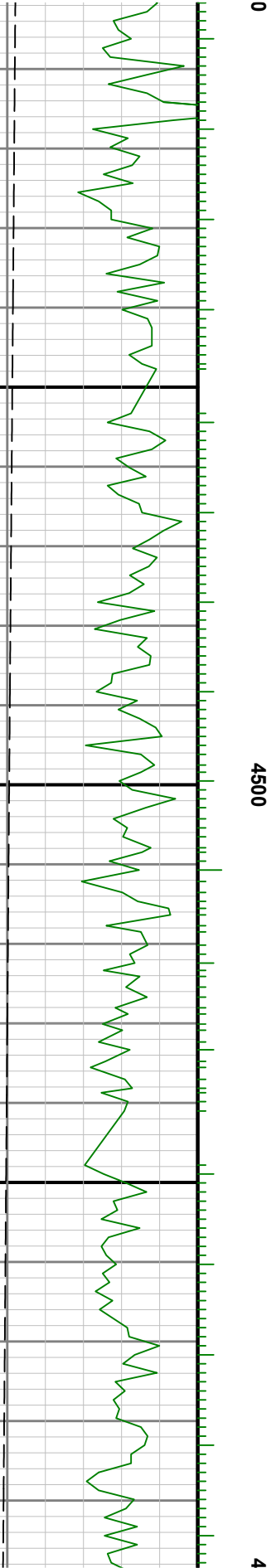
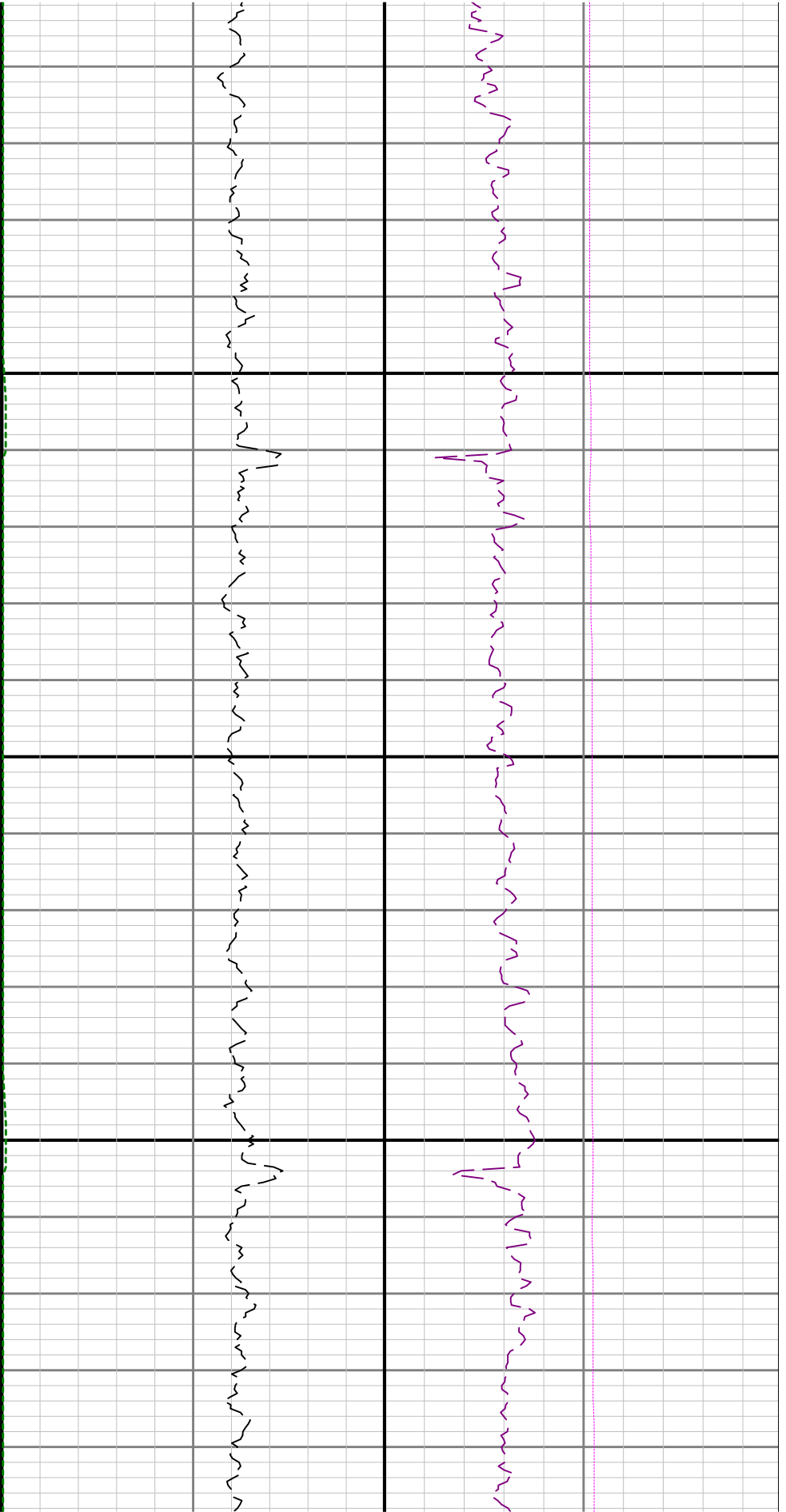


4100

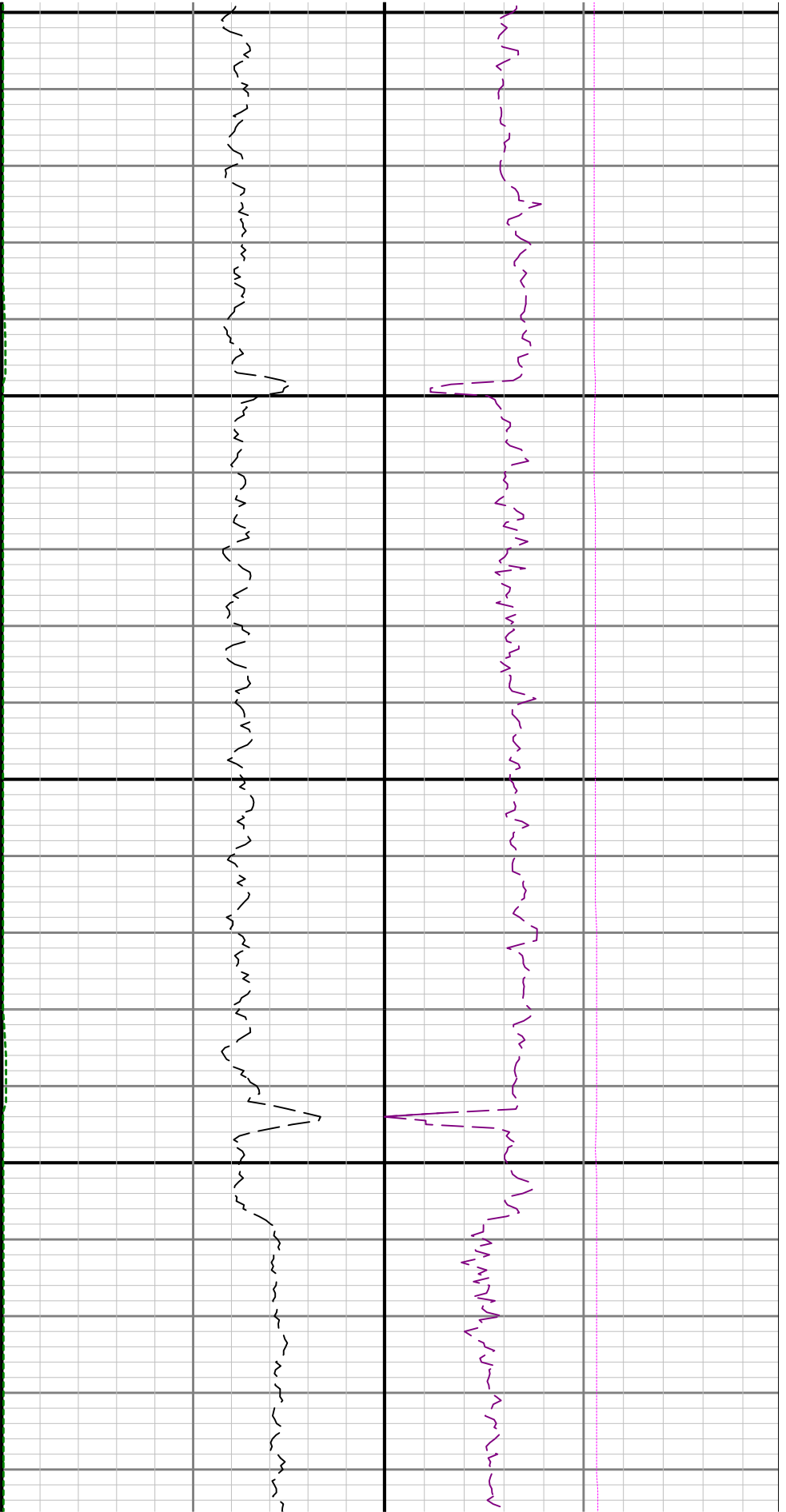
4200





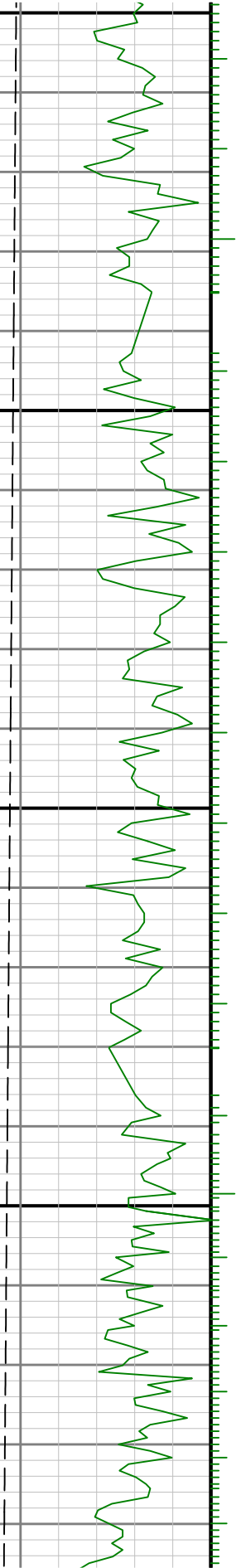


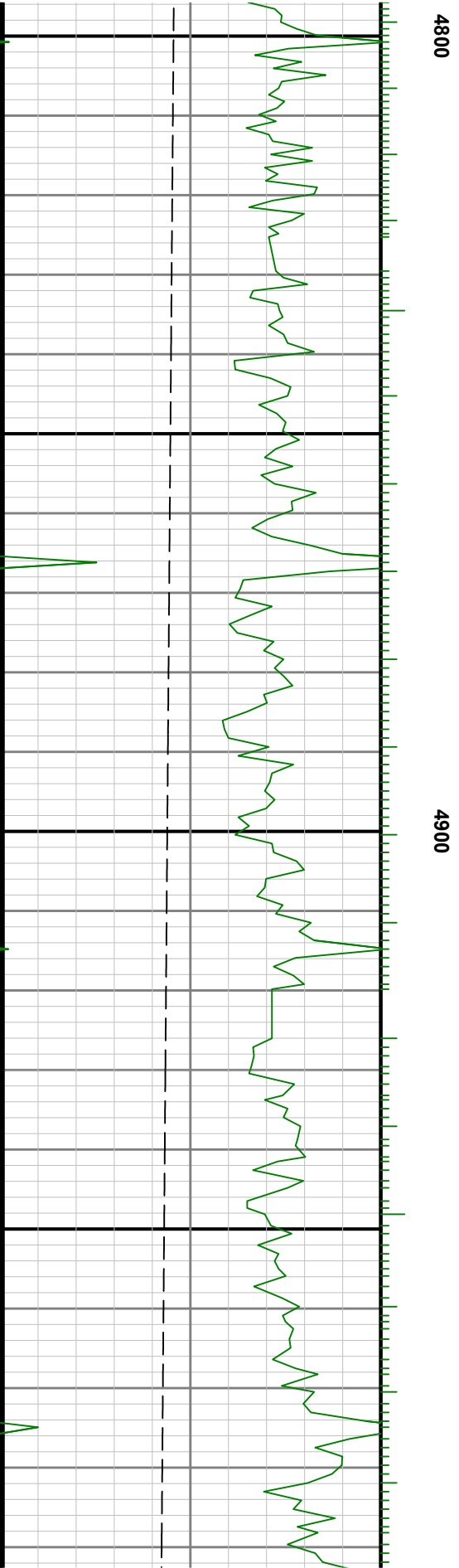
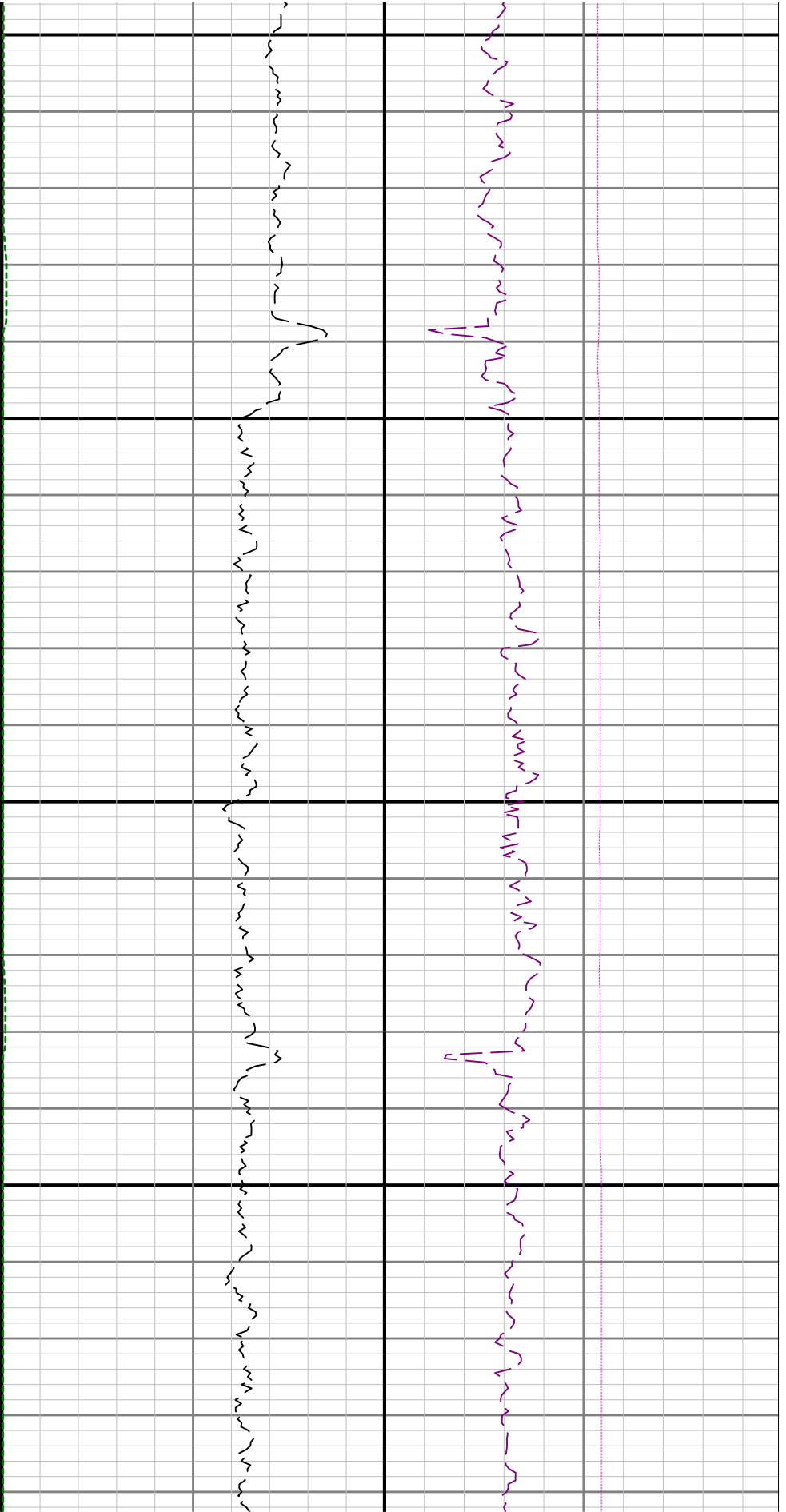


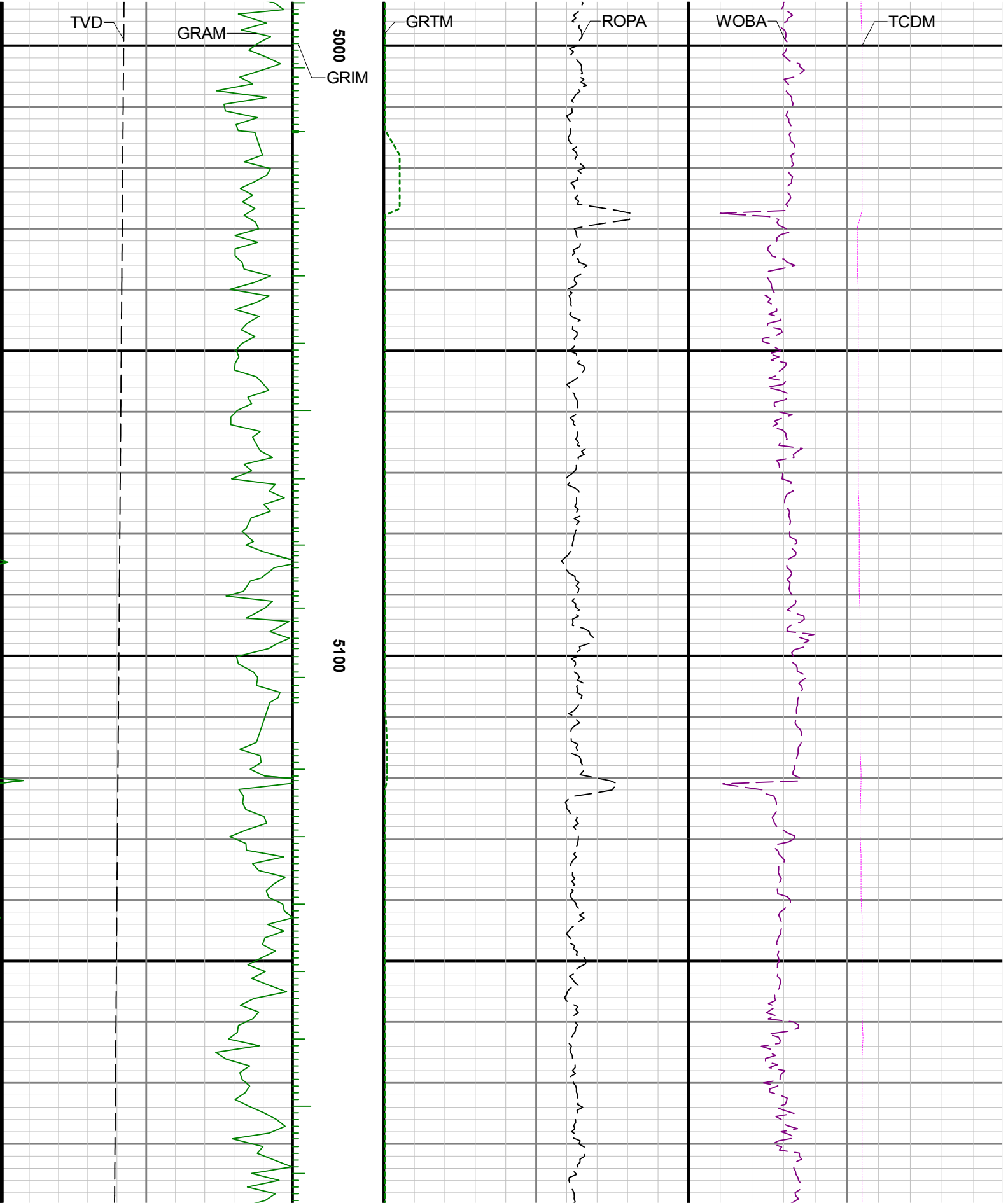


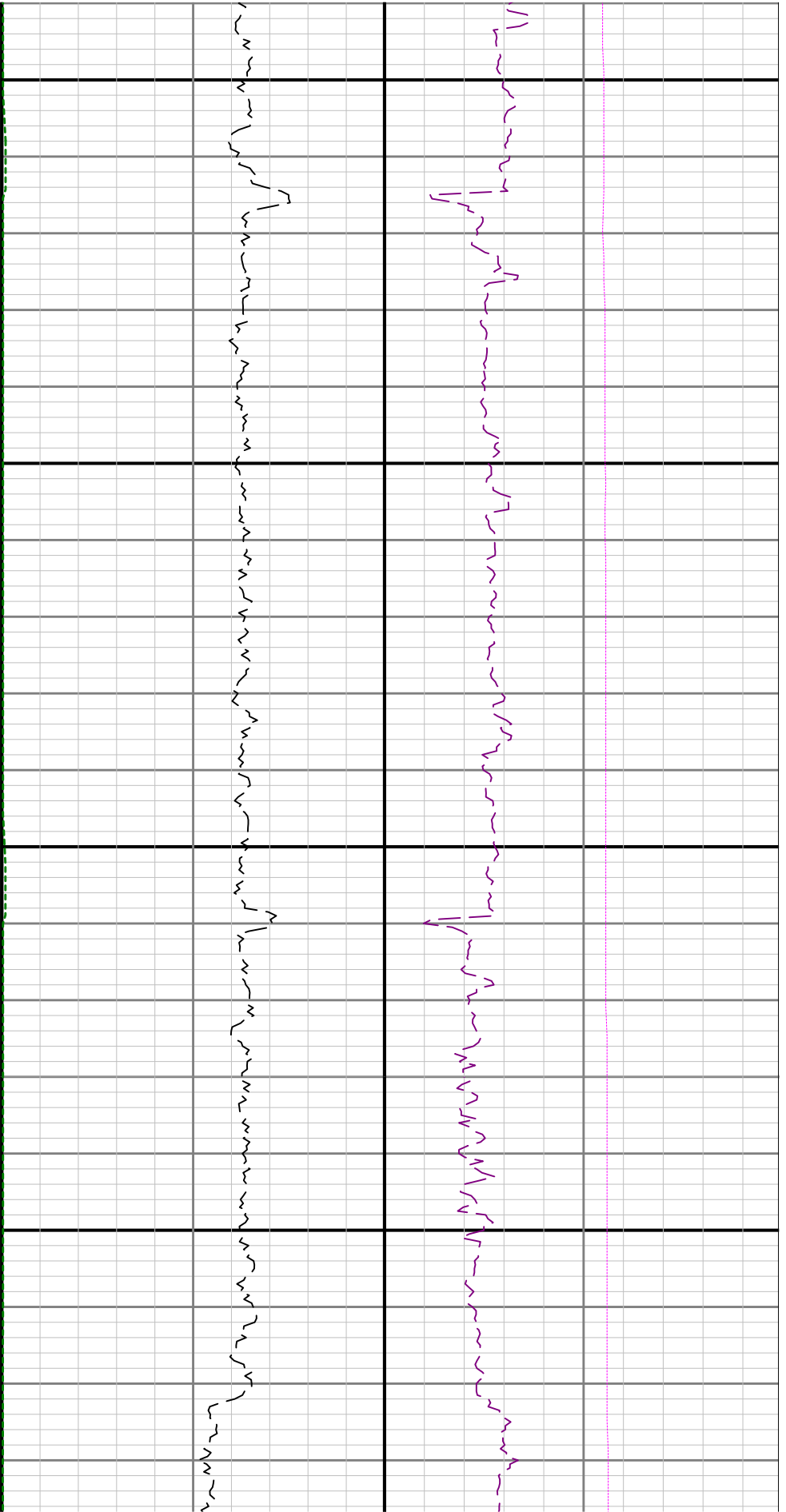
600

4700



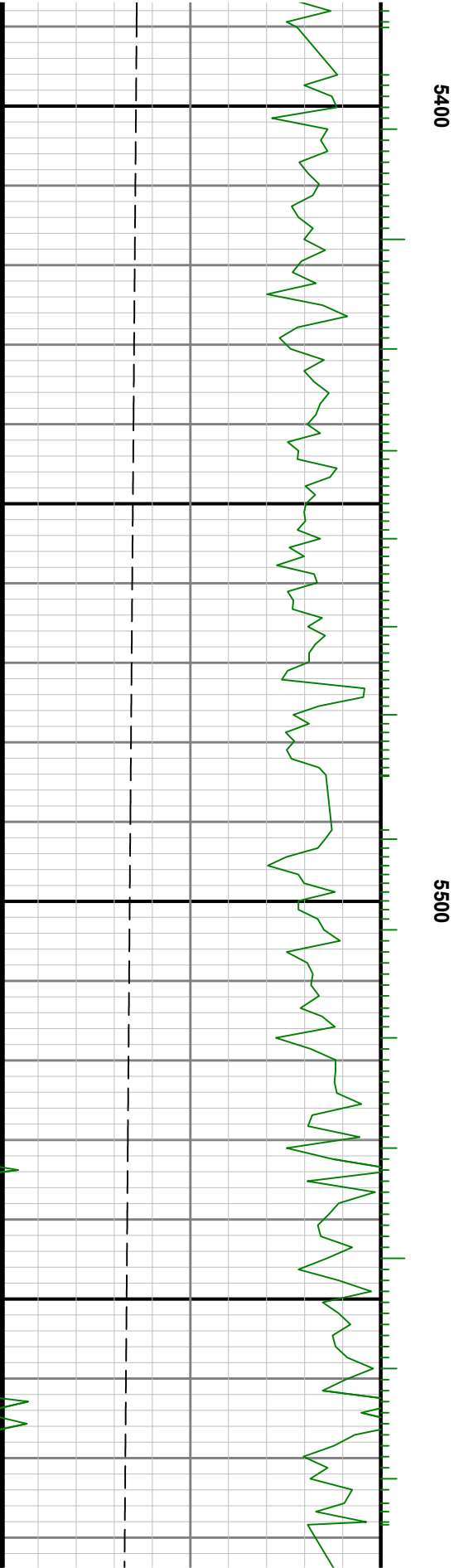
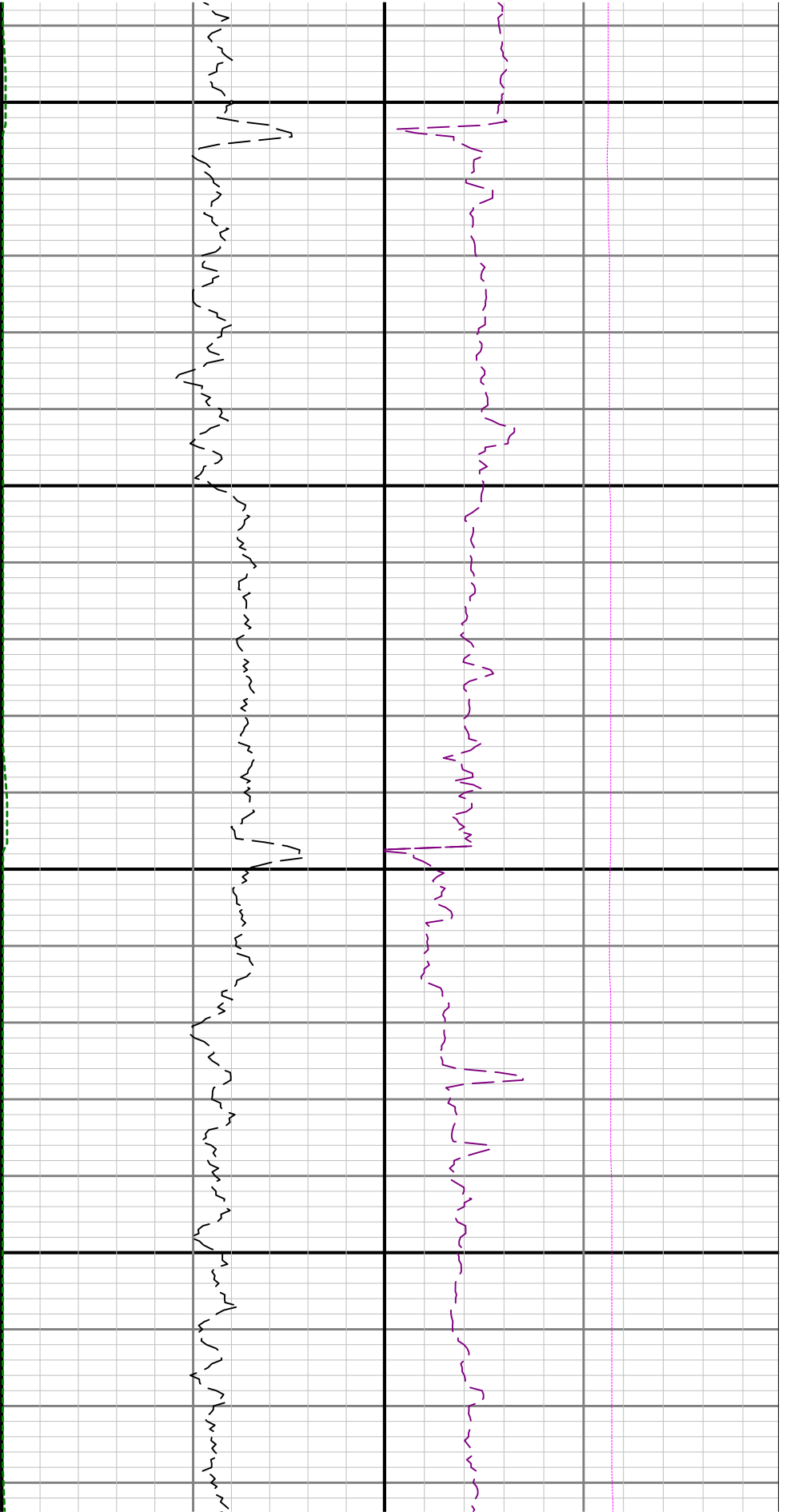


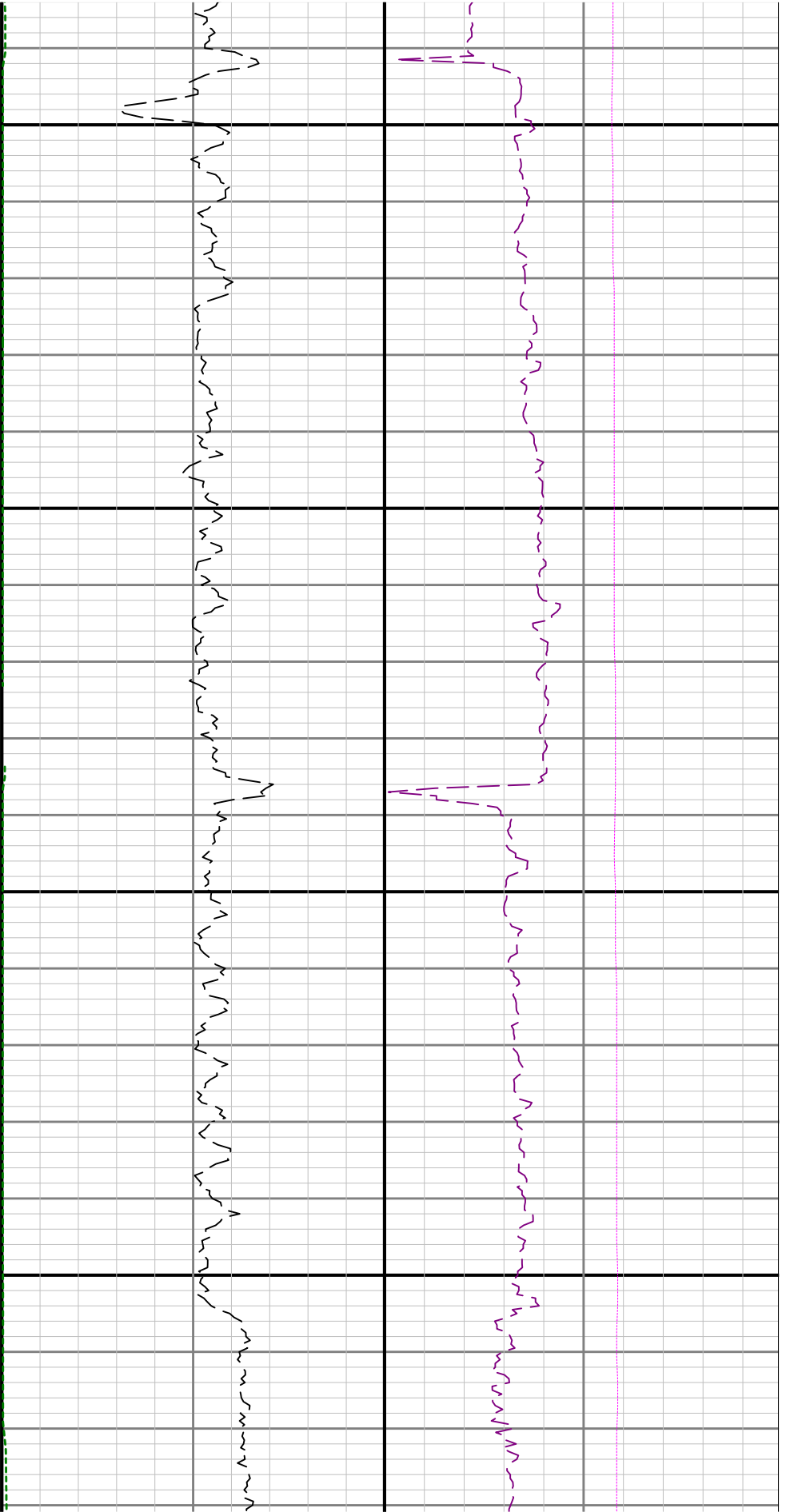




5200

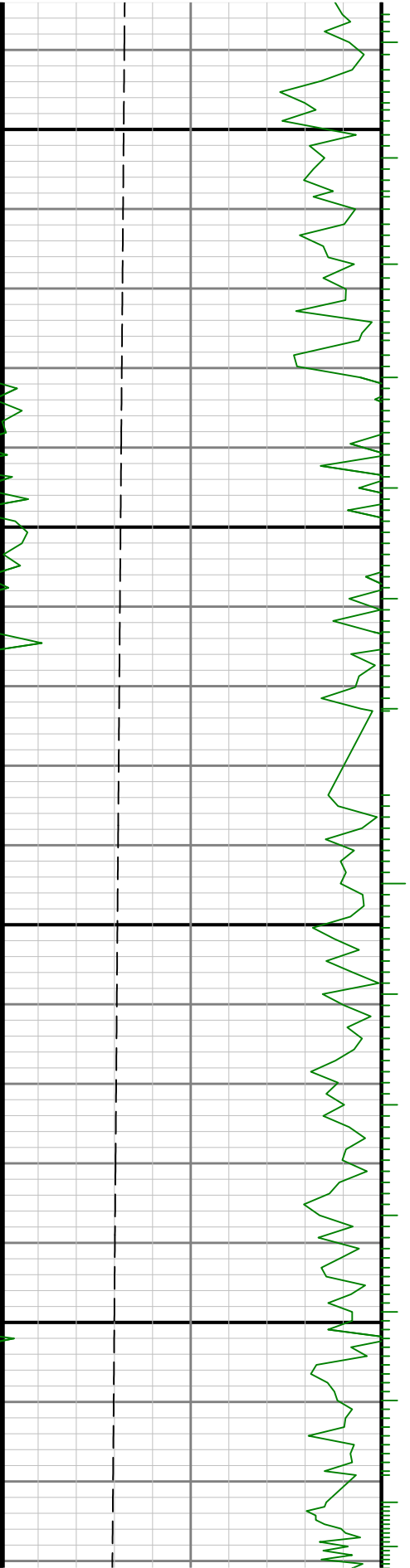
5300

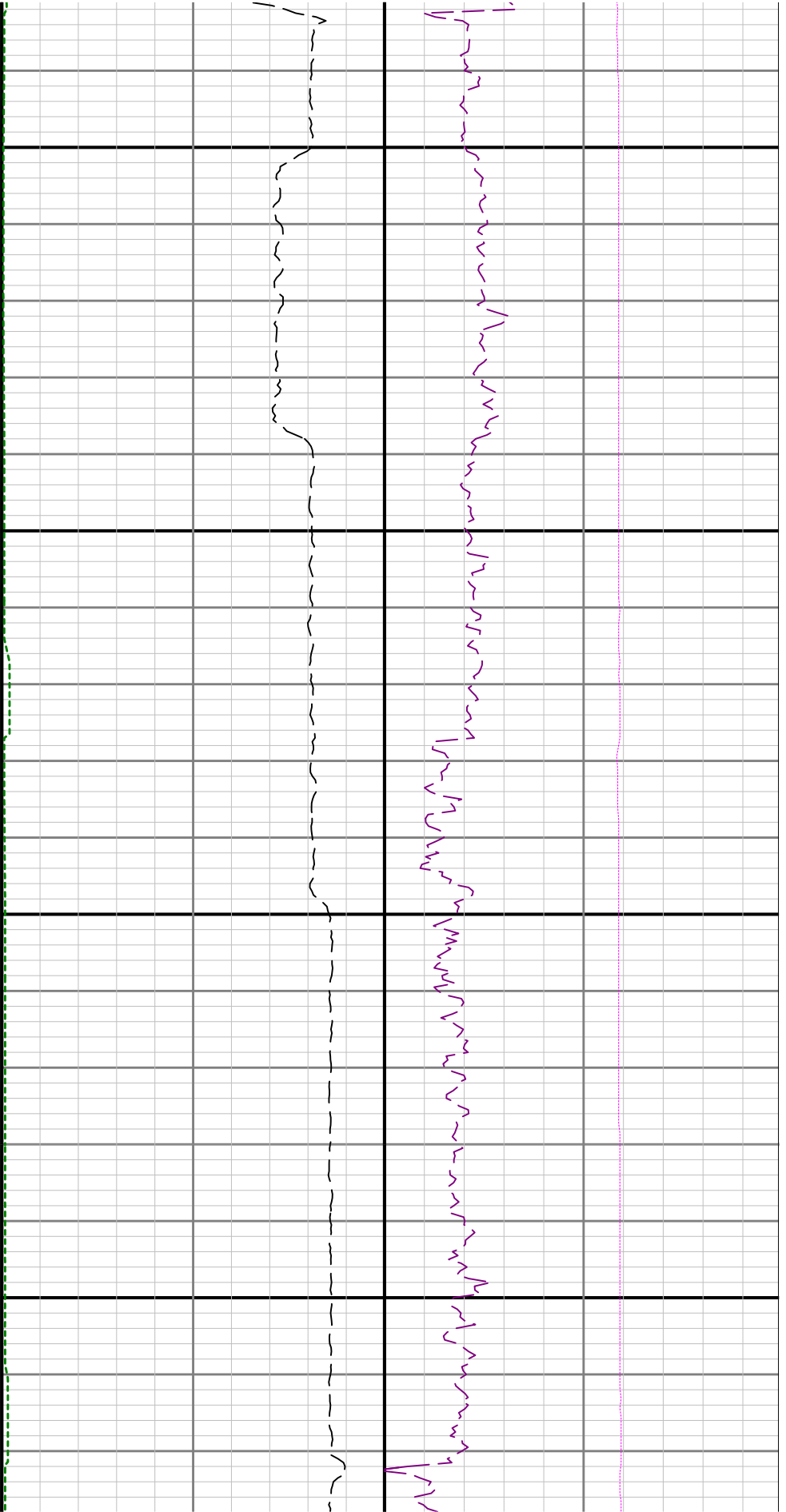




5600

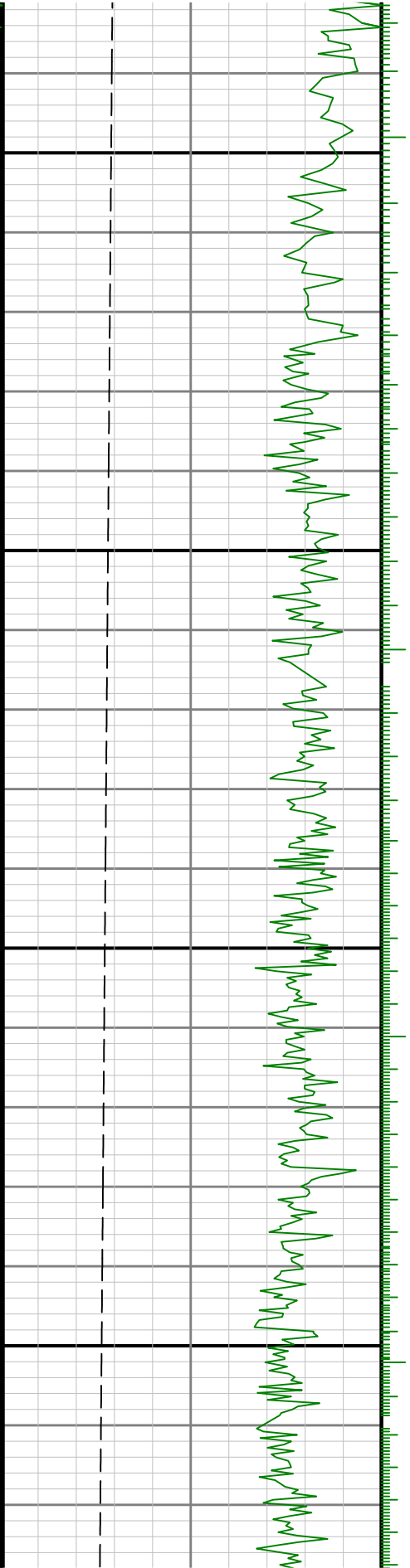
5700

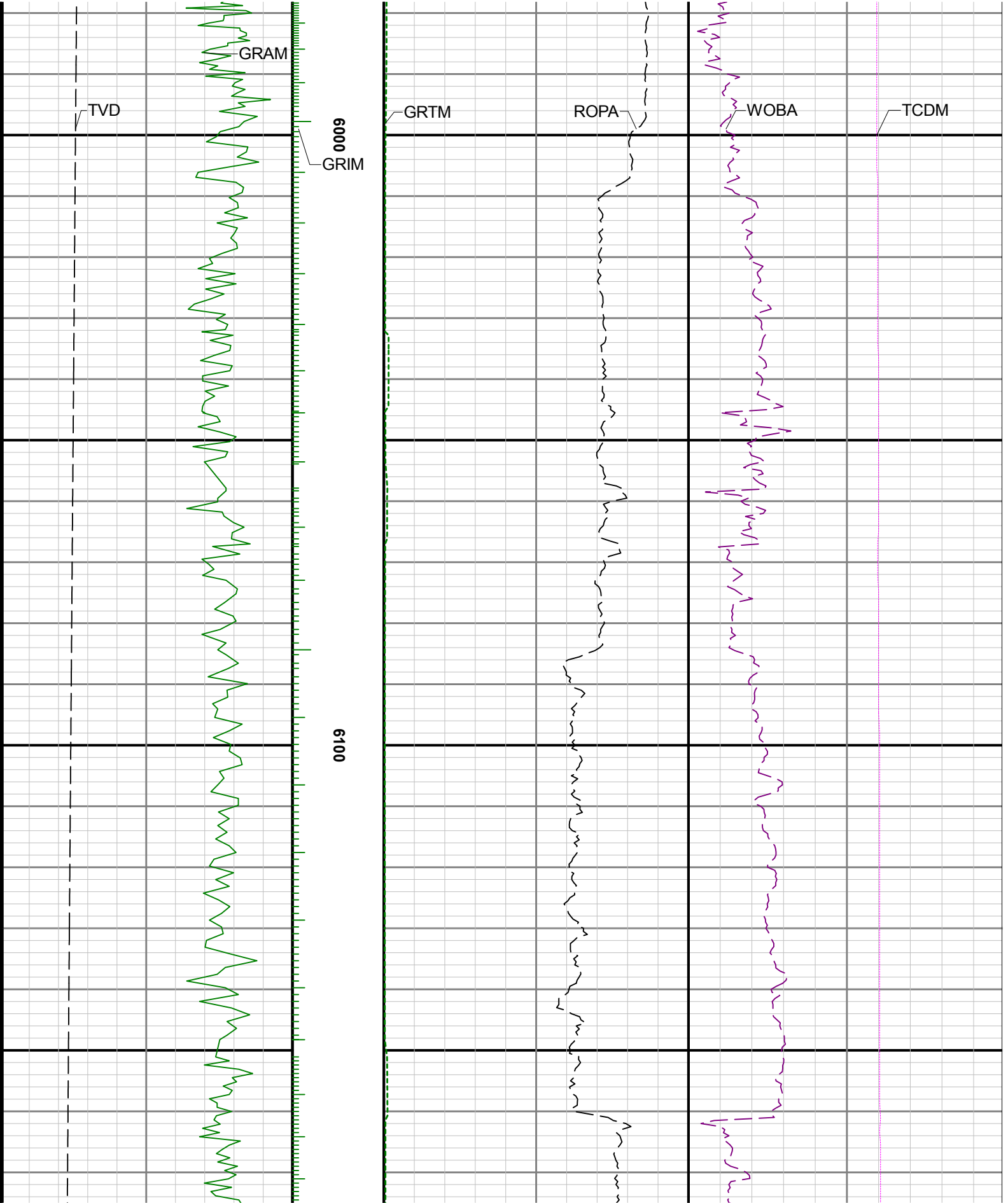




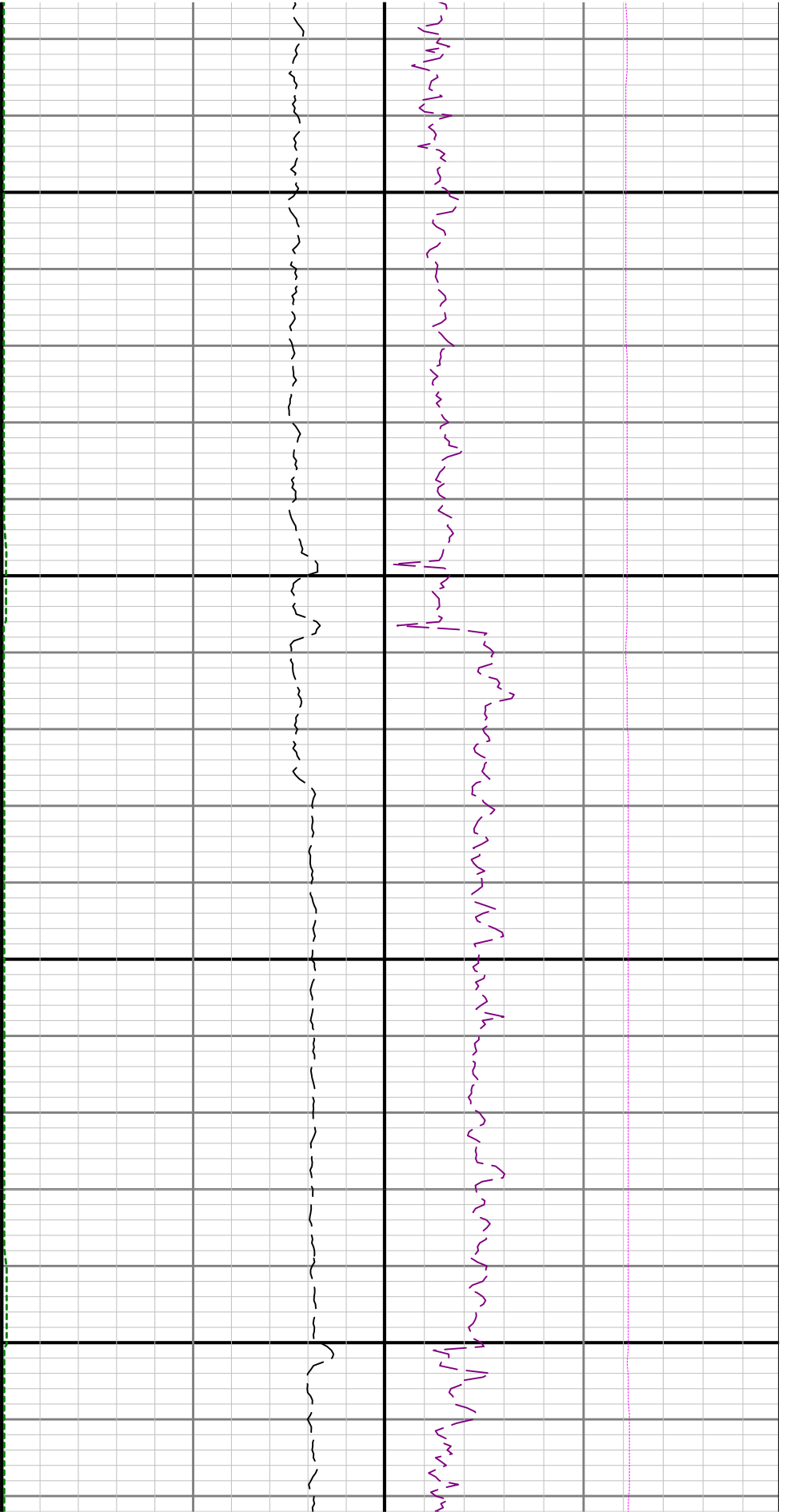
5800

5900



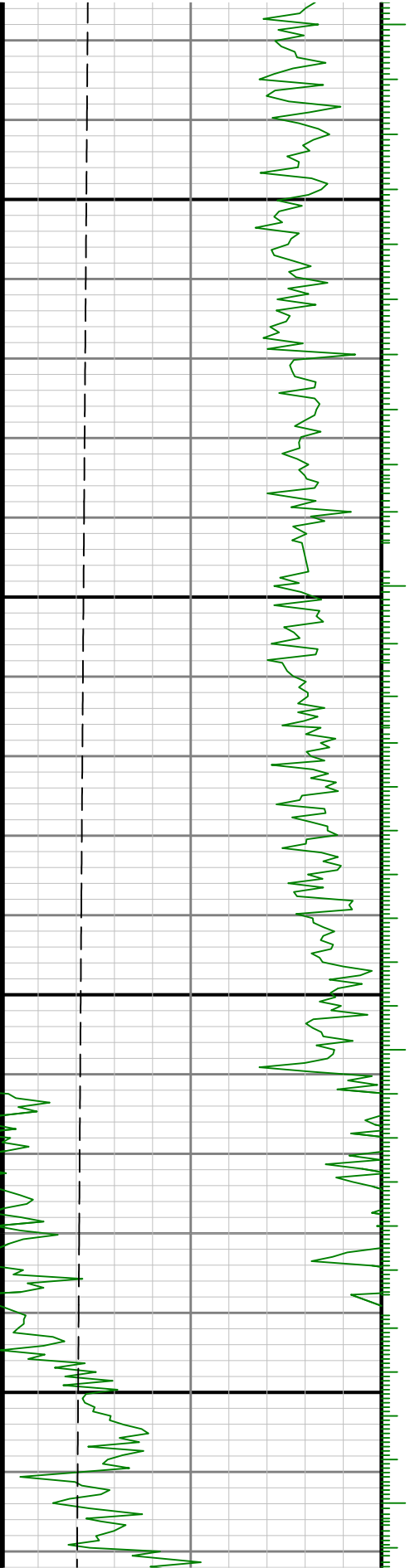


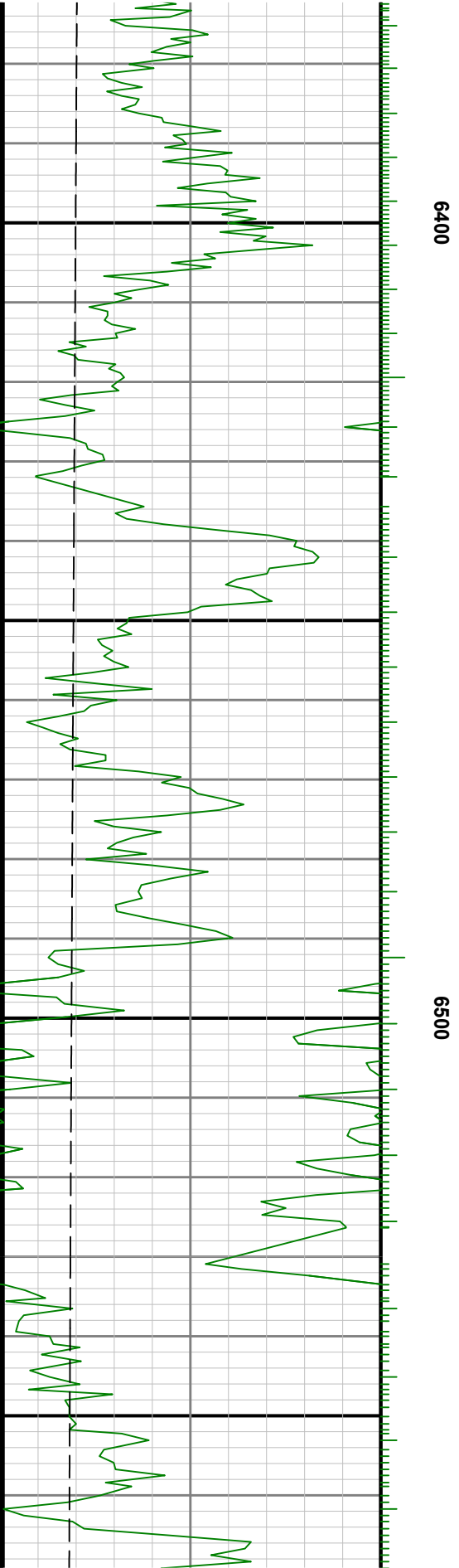
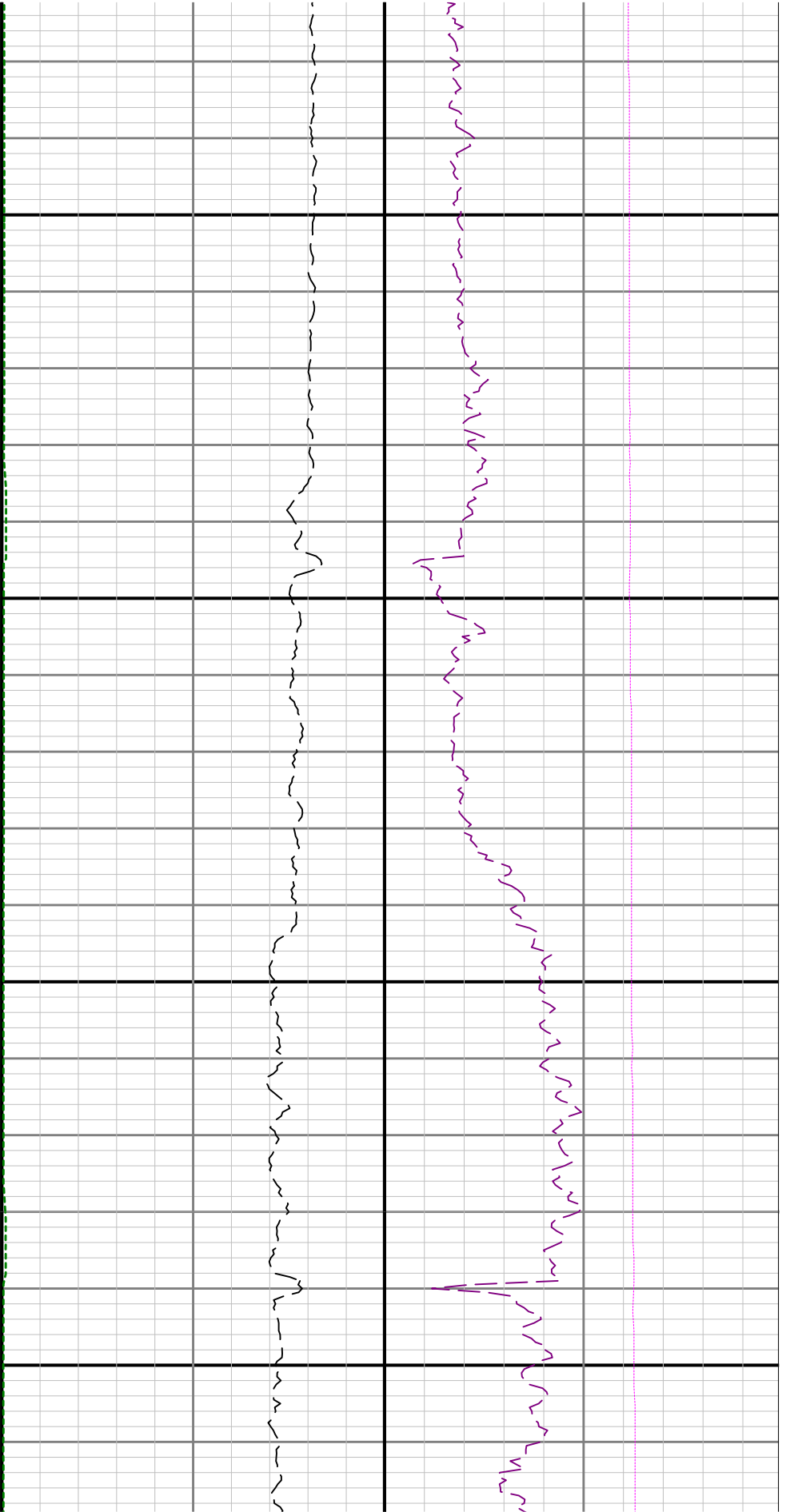


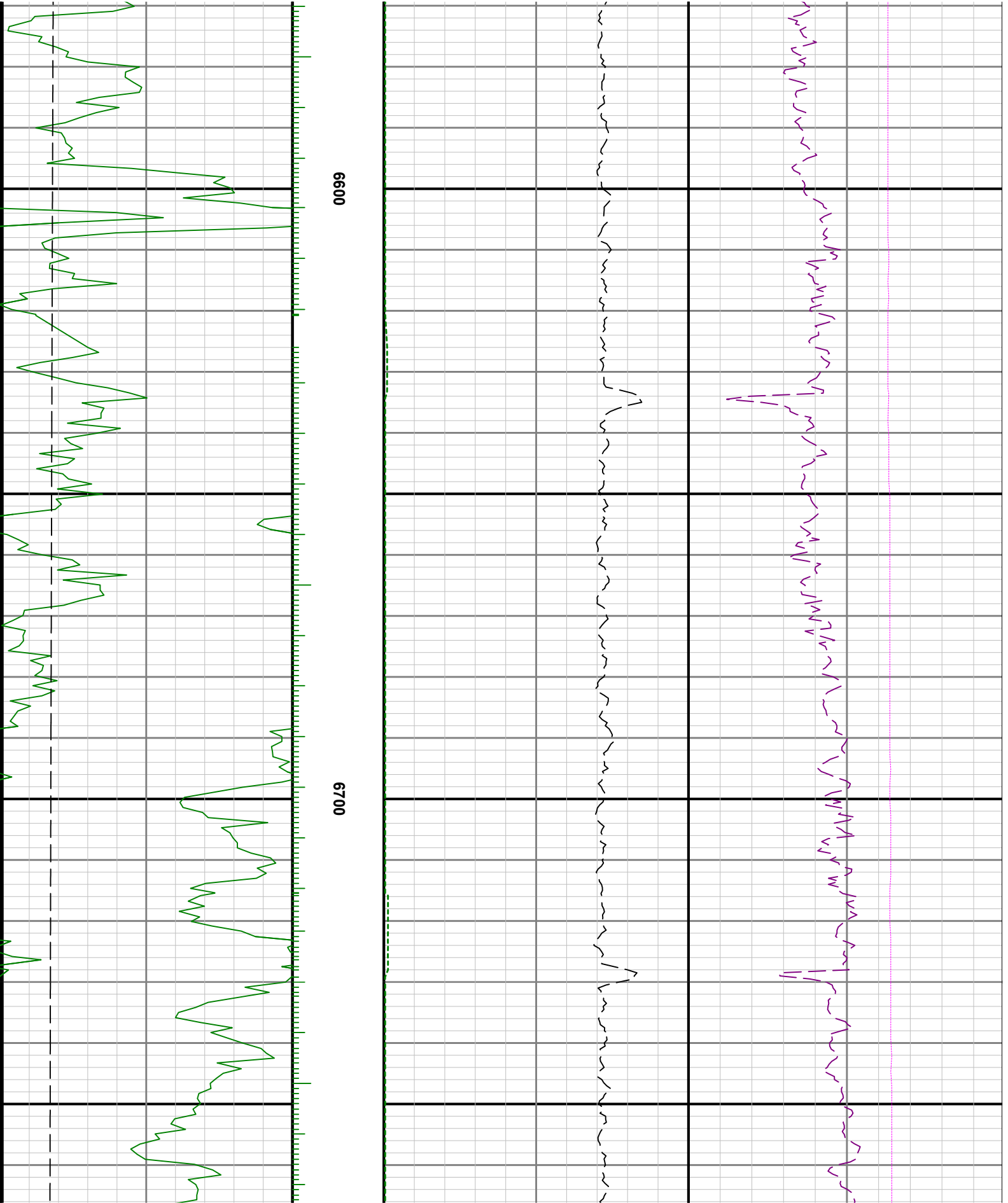


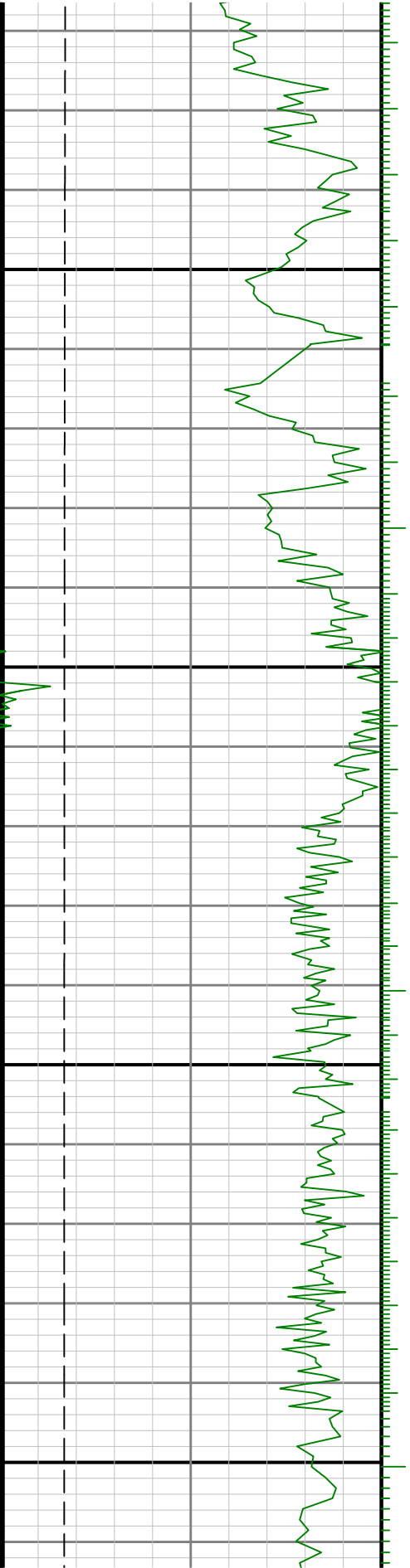
6200

6300



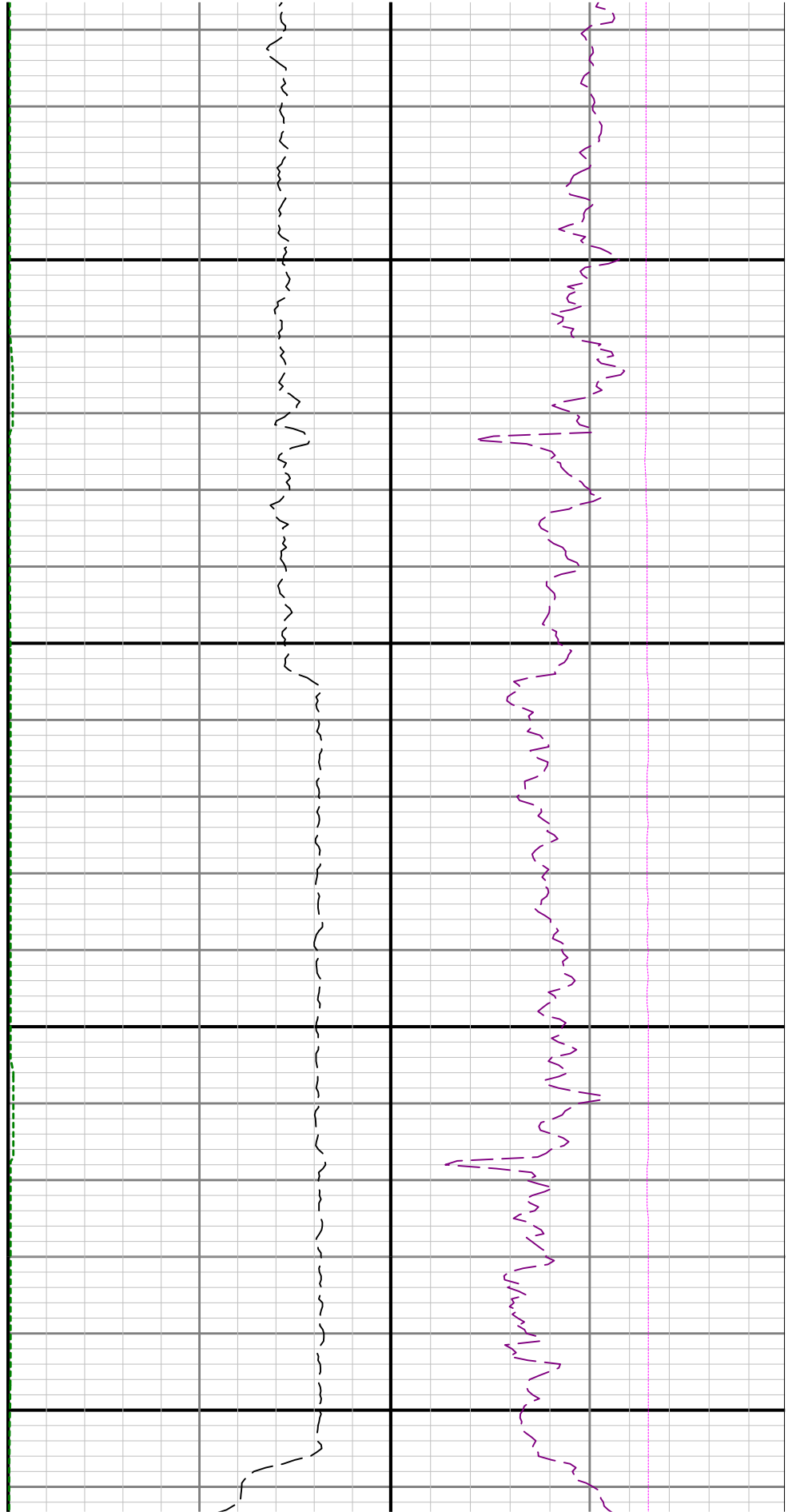


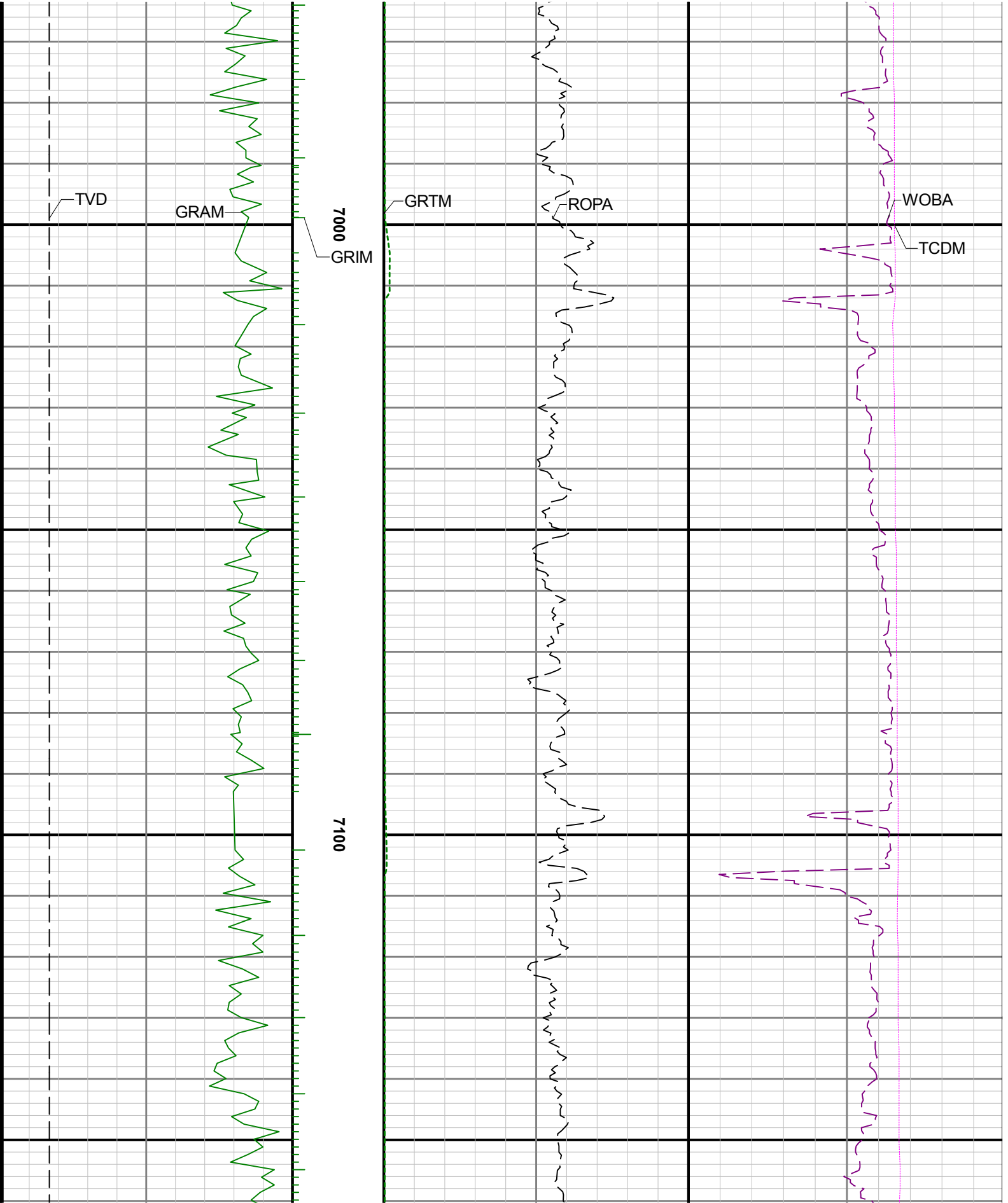


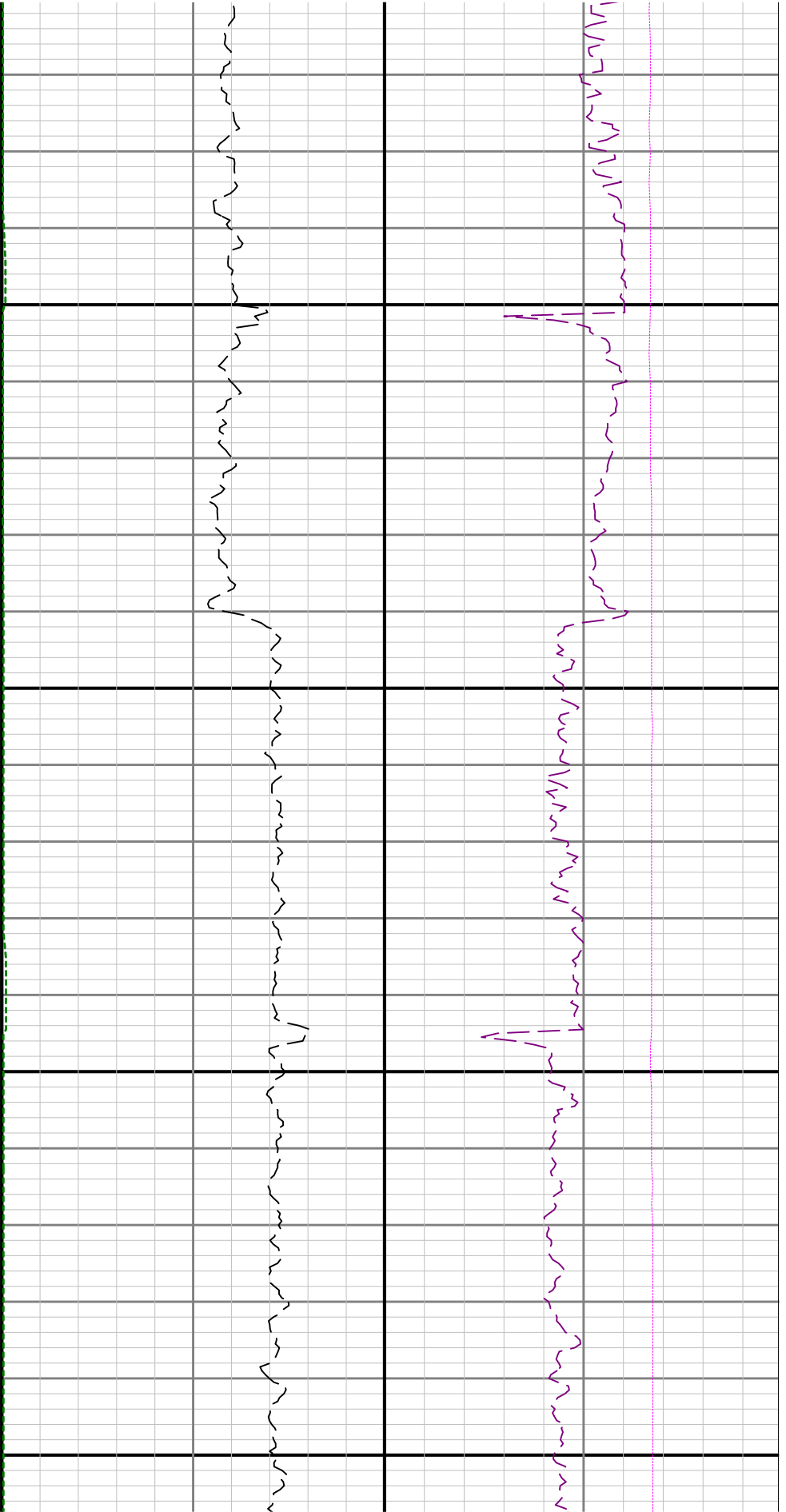


0089

6300

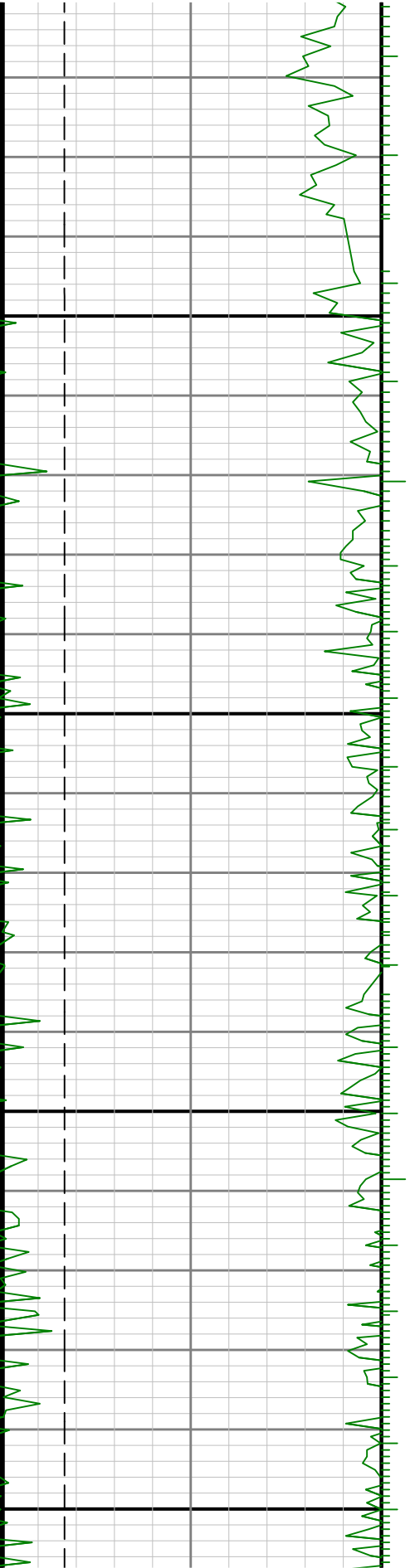






7200

7300

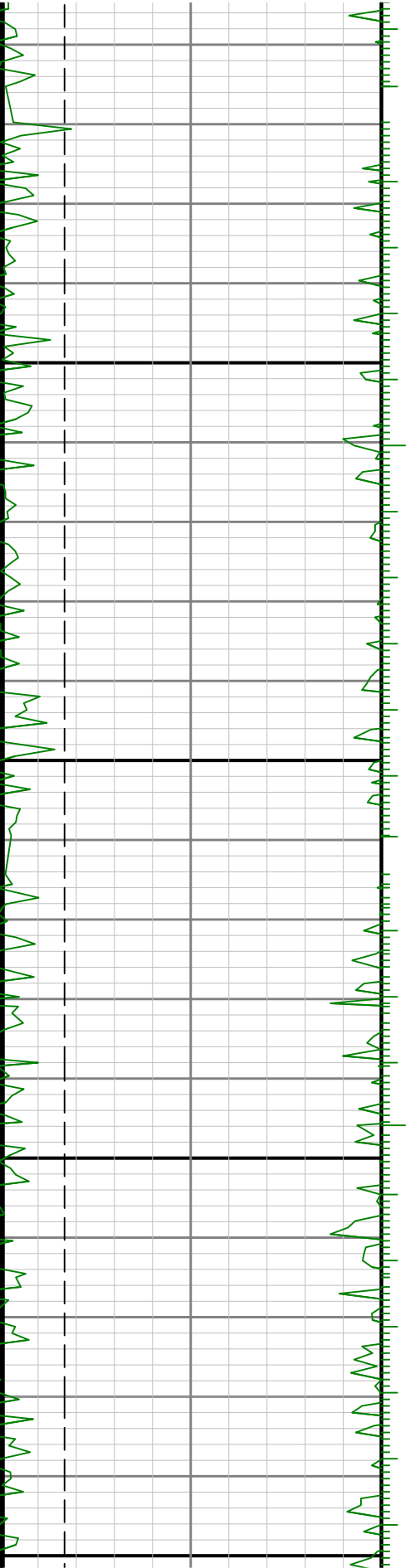




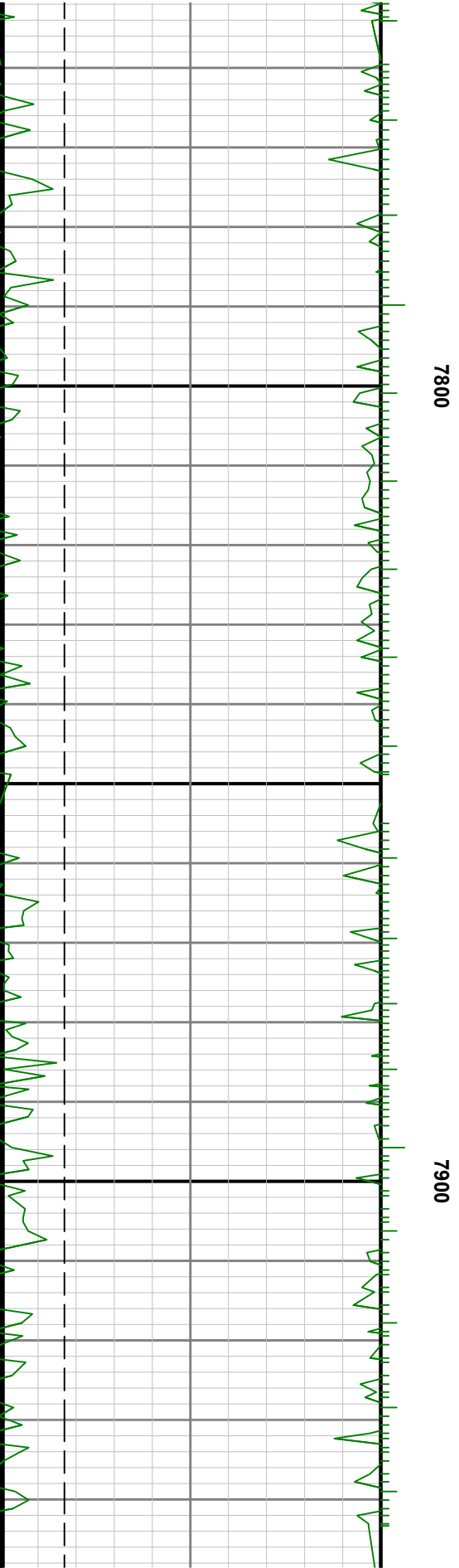
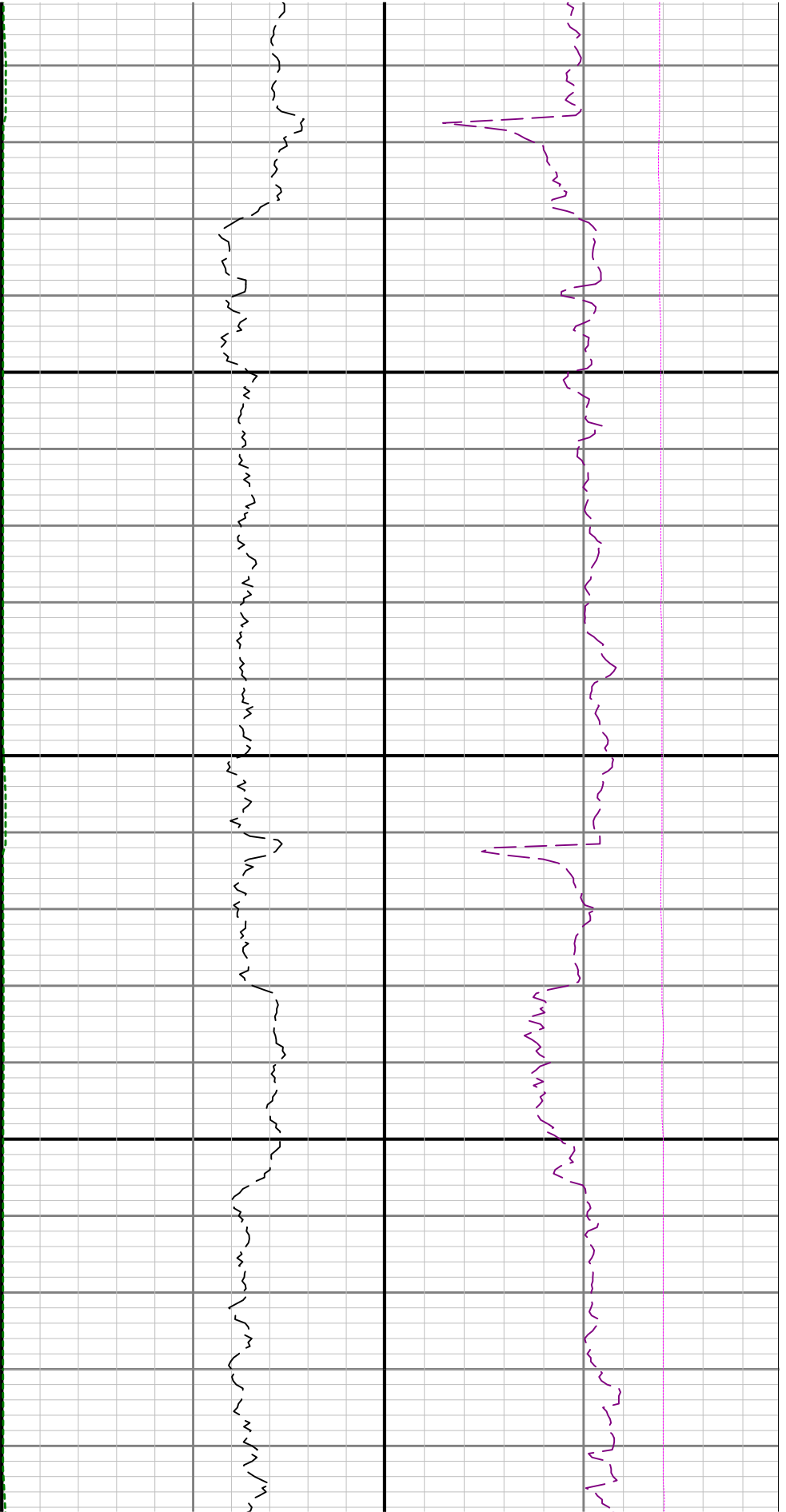


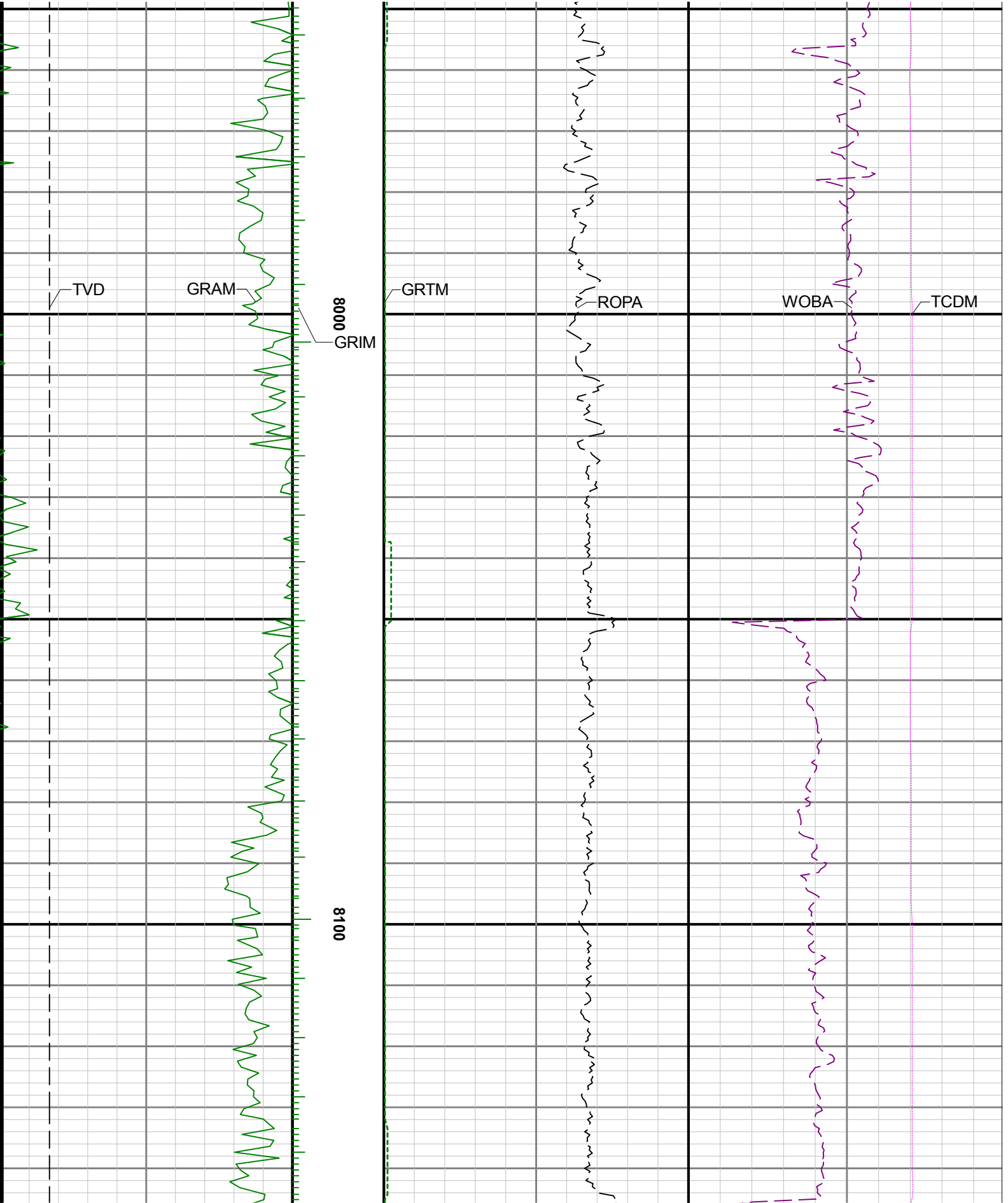
7600

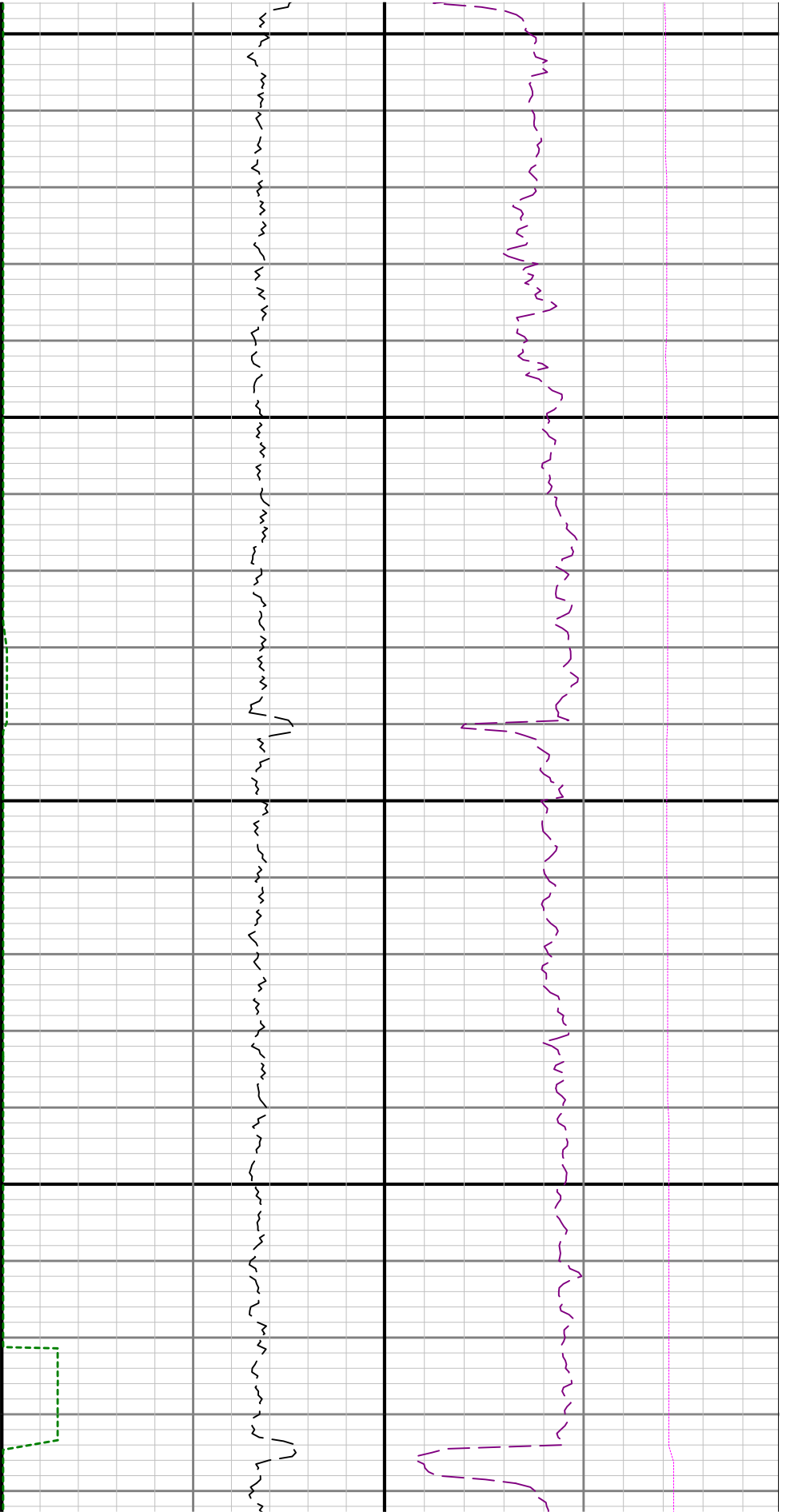
7700







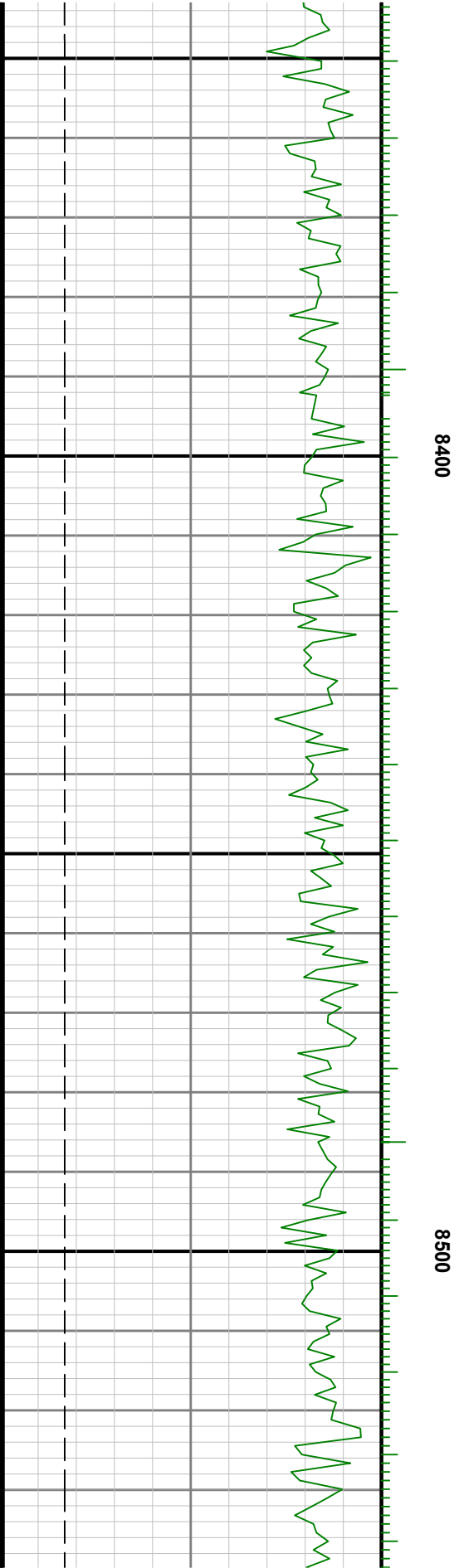
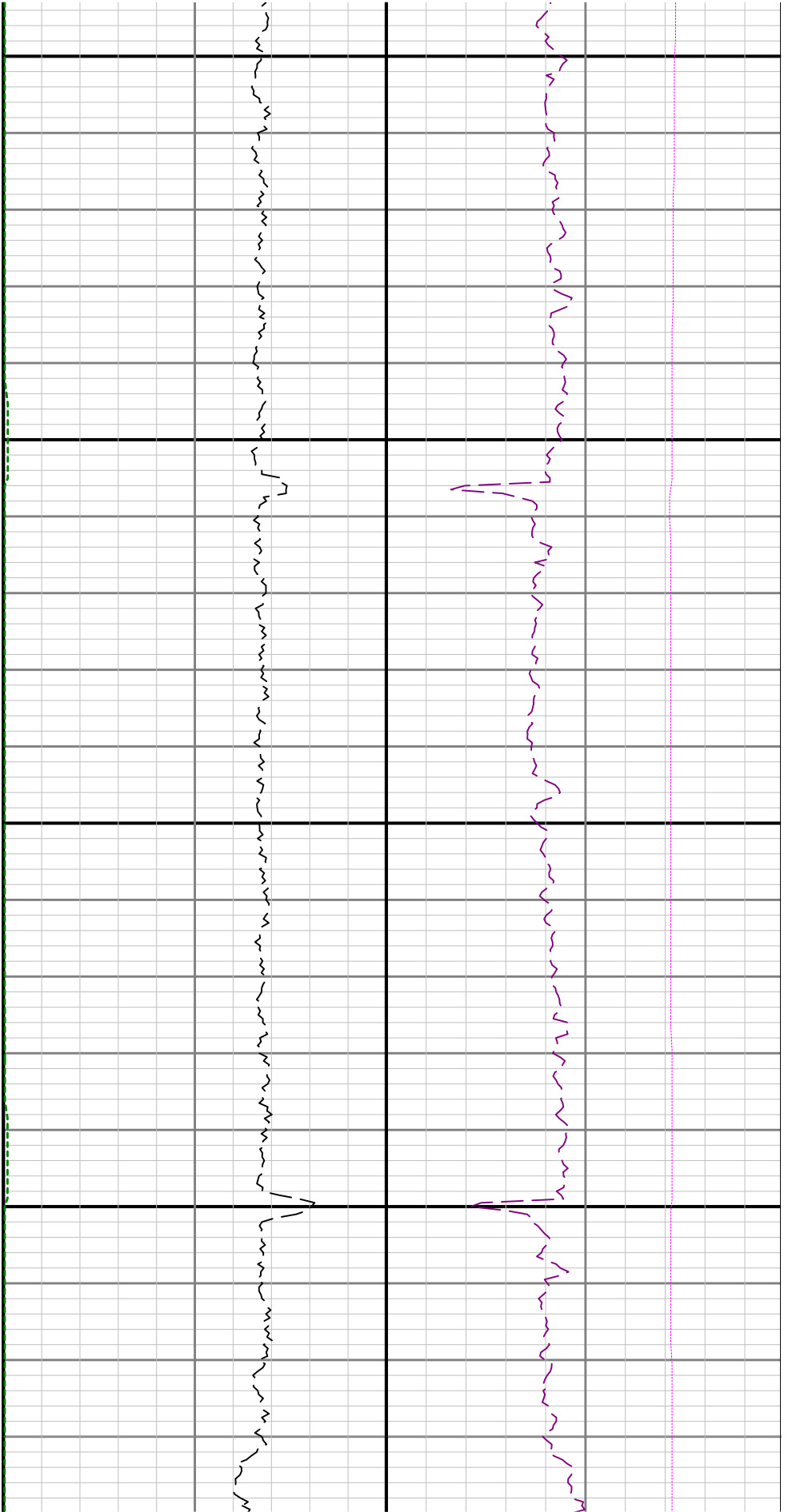


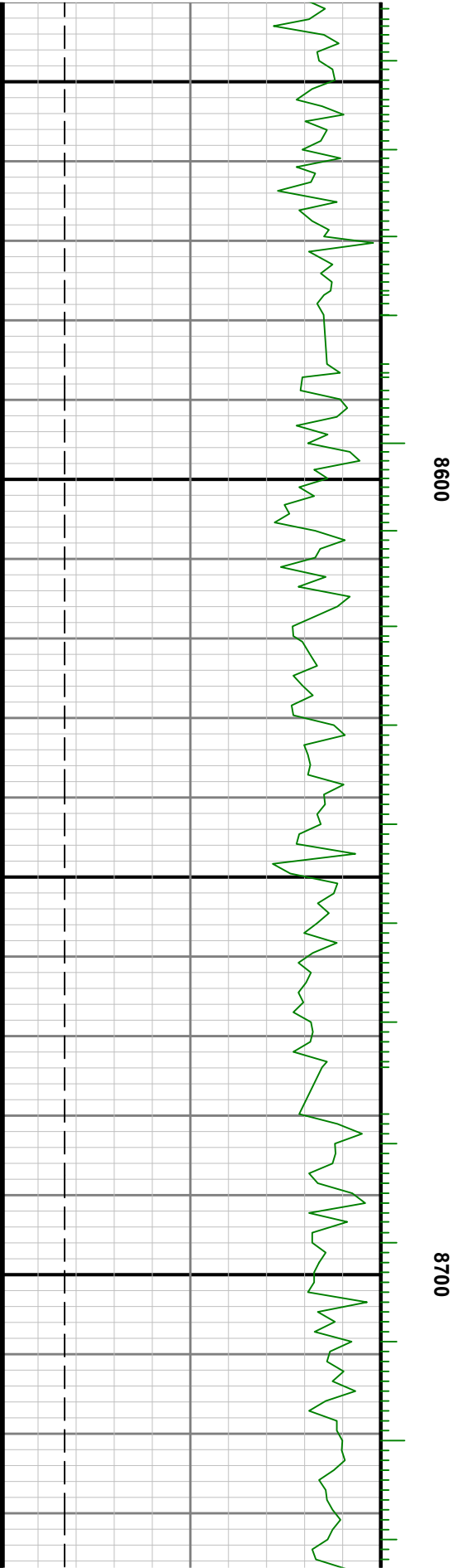
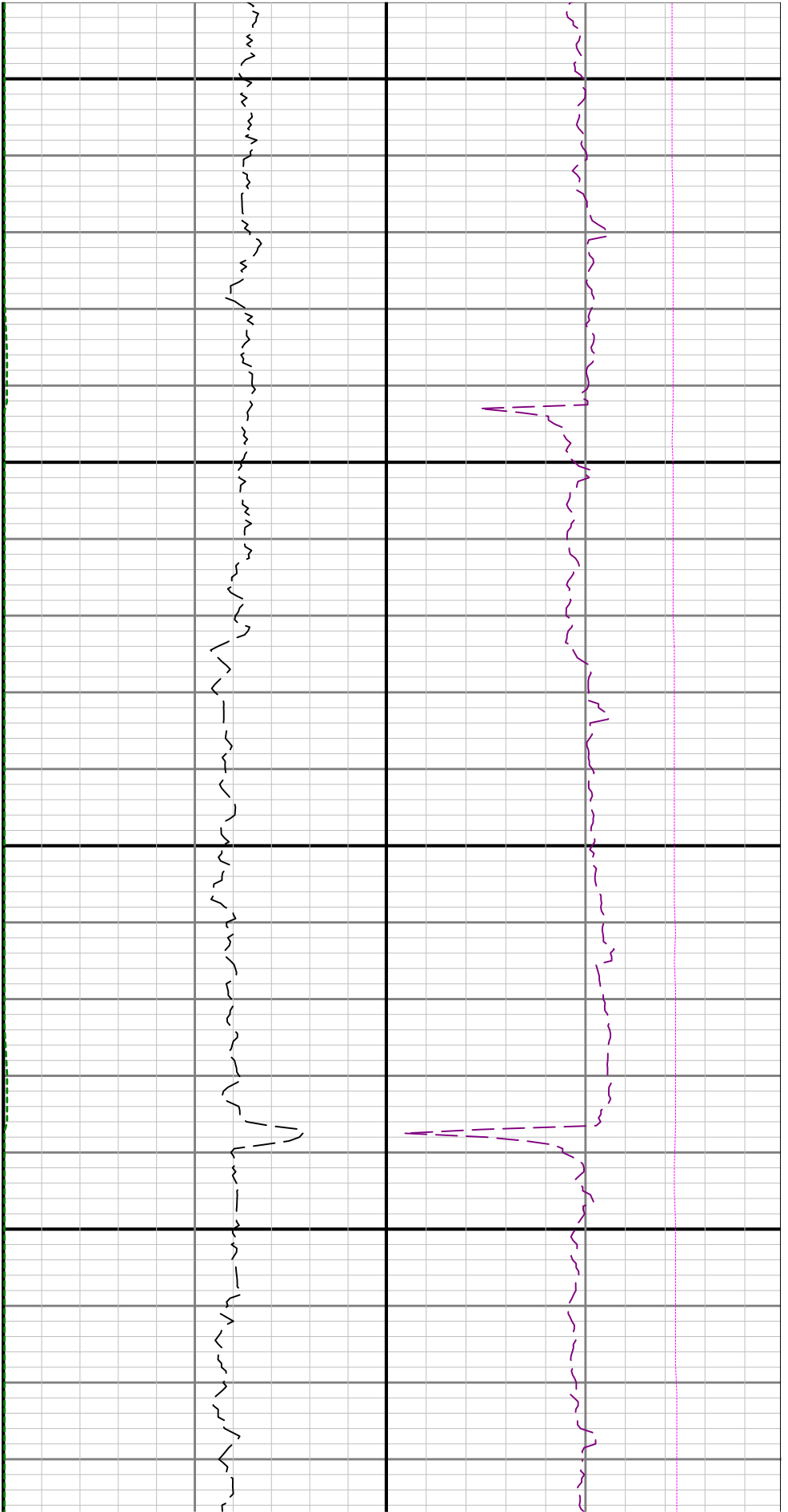


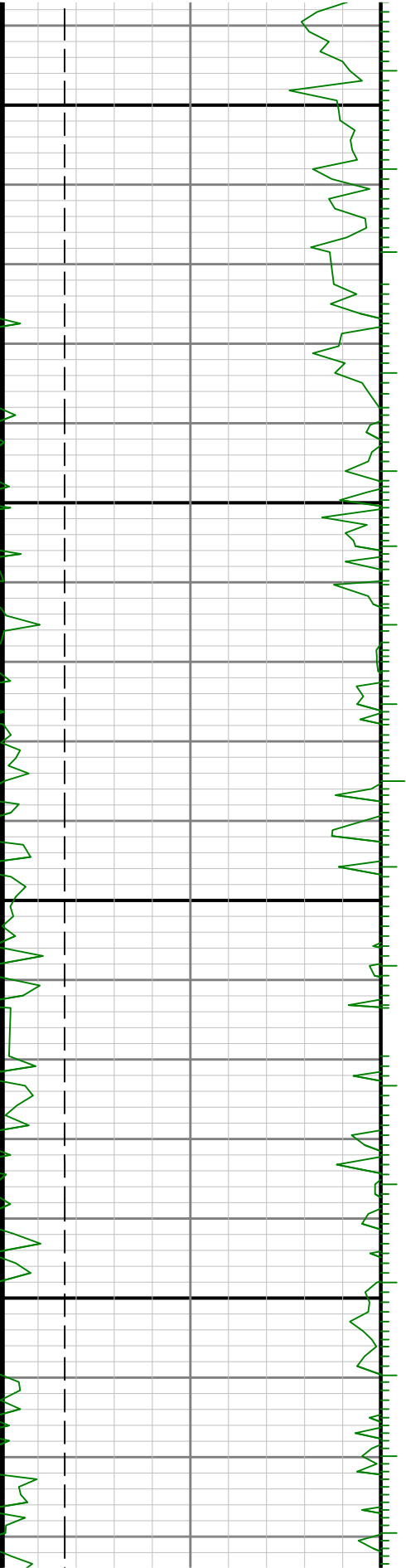
8200

8300



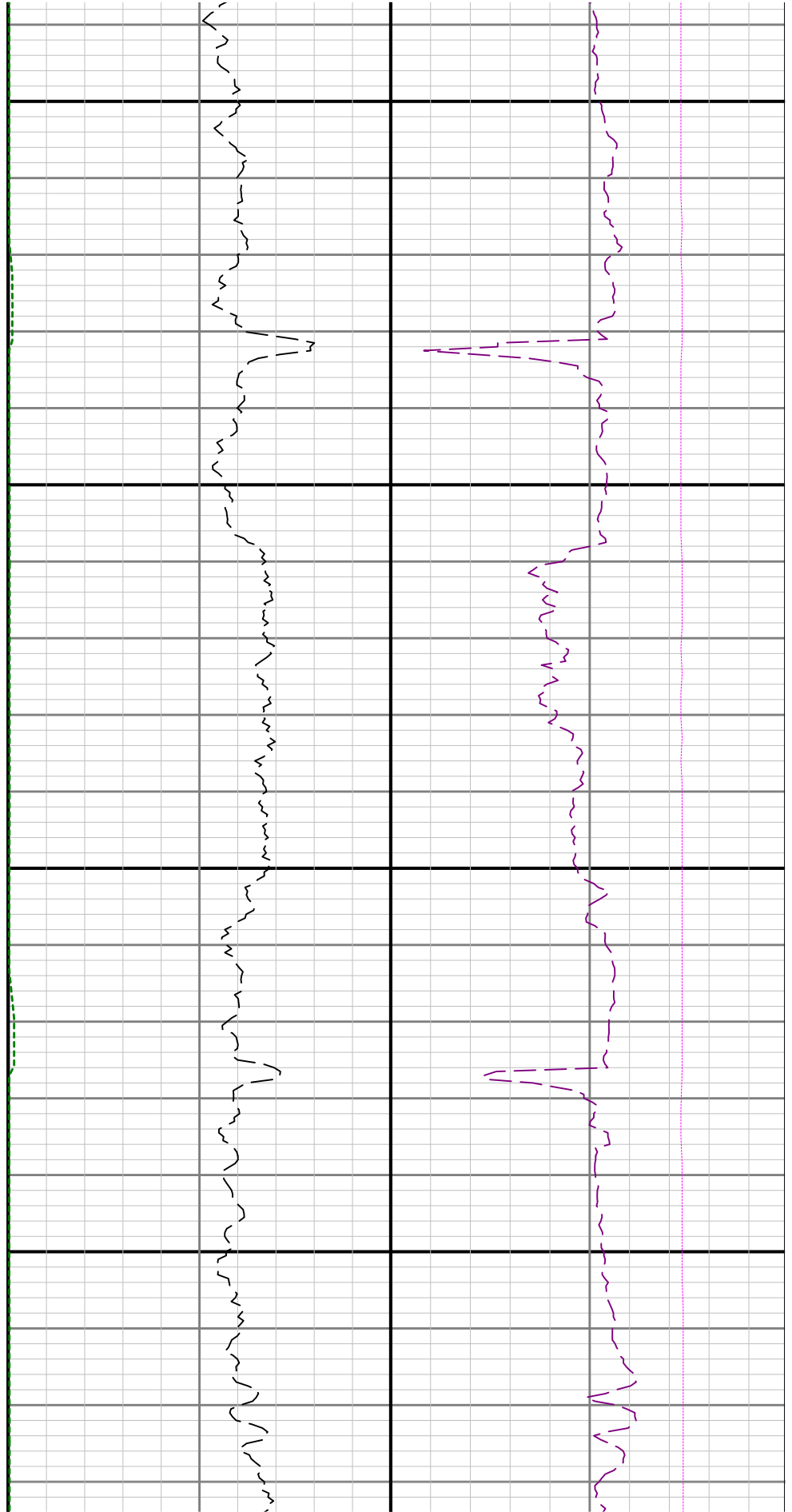


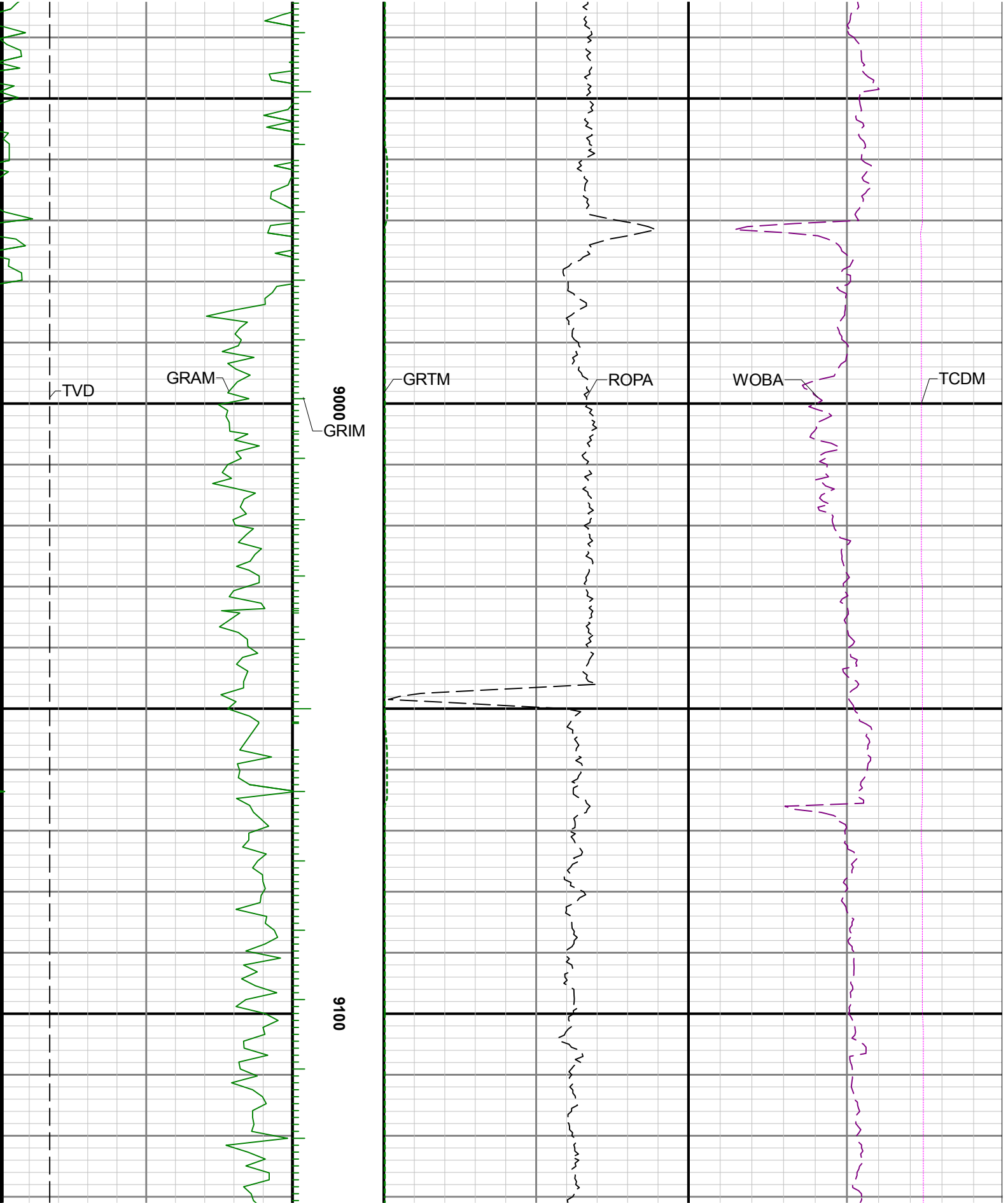


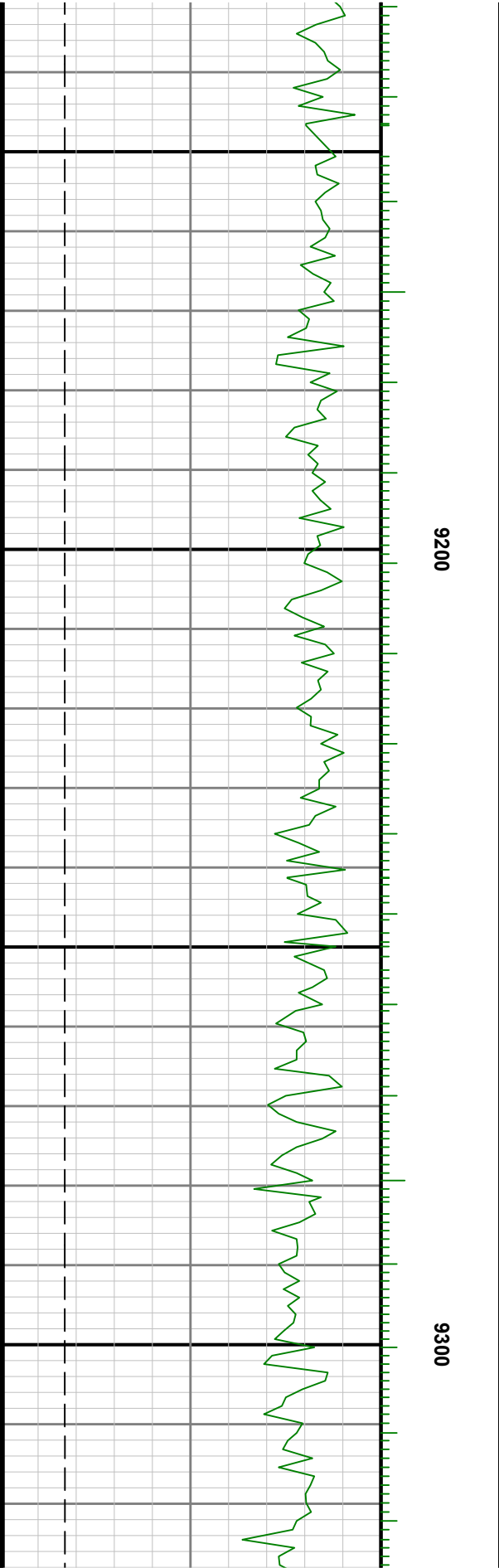
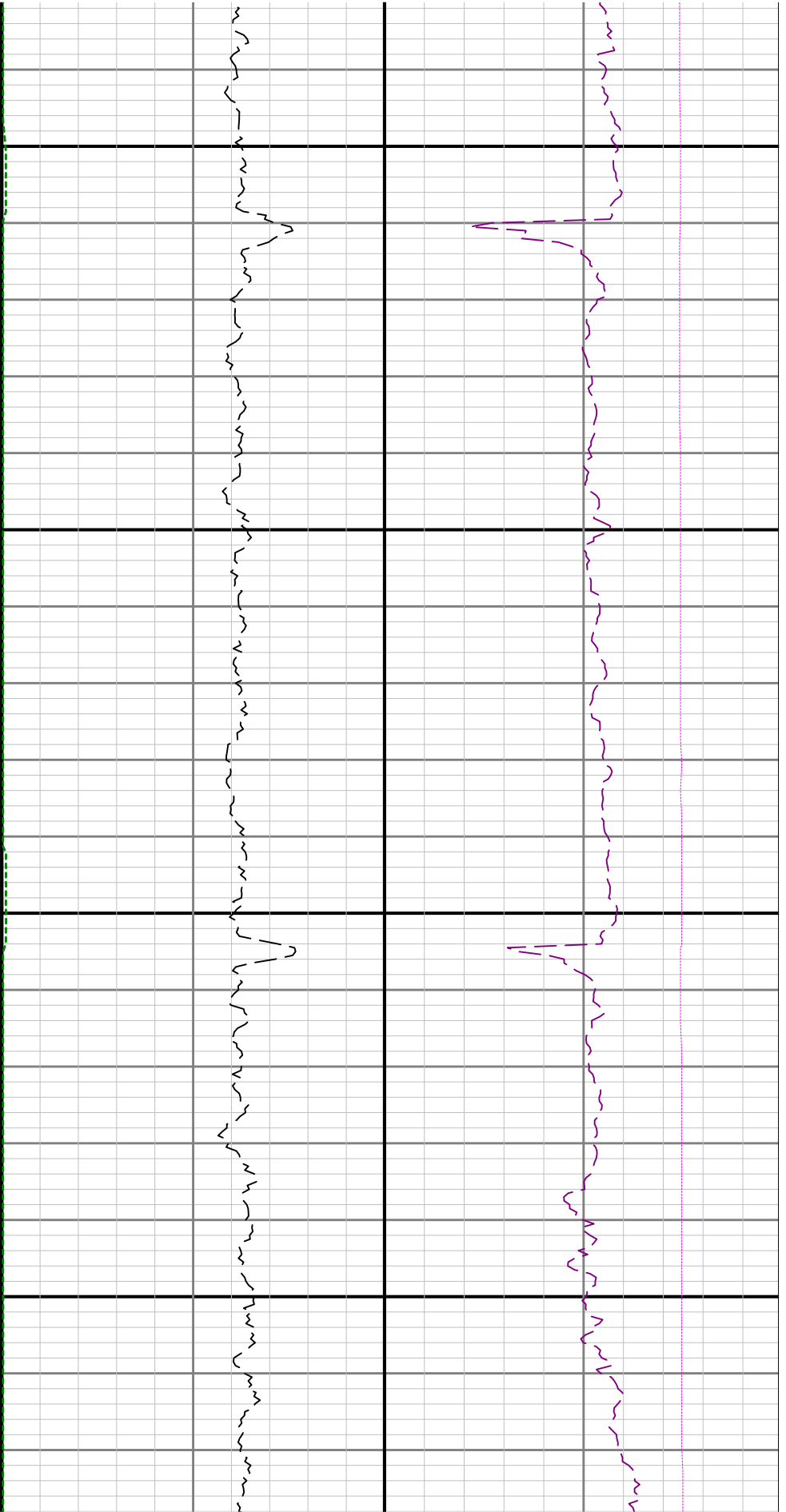


0068

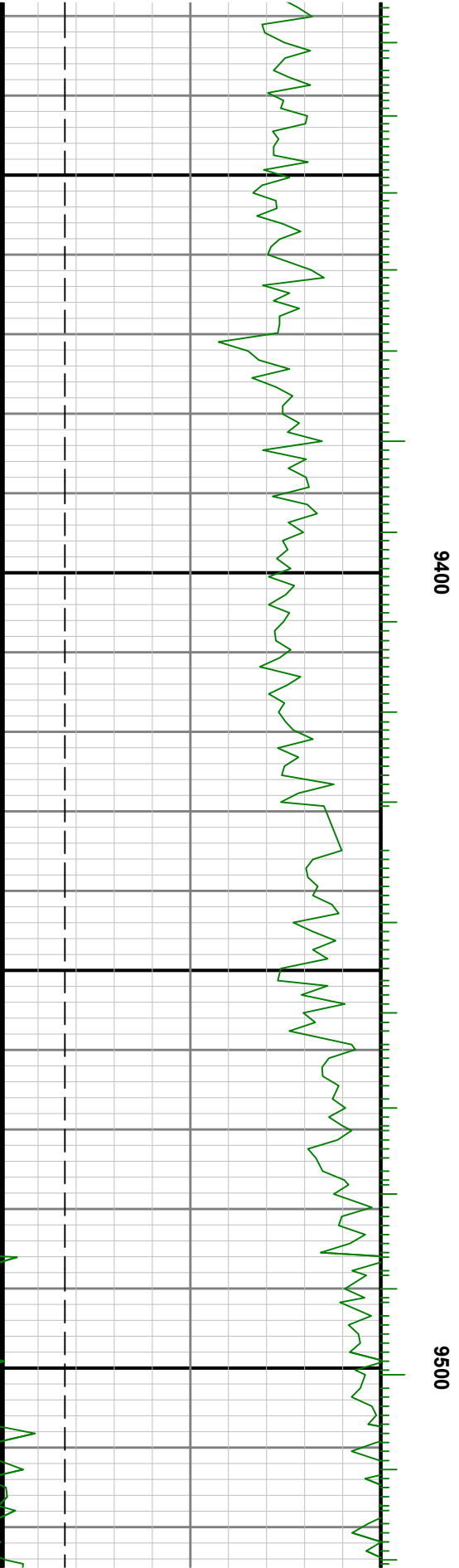
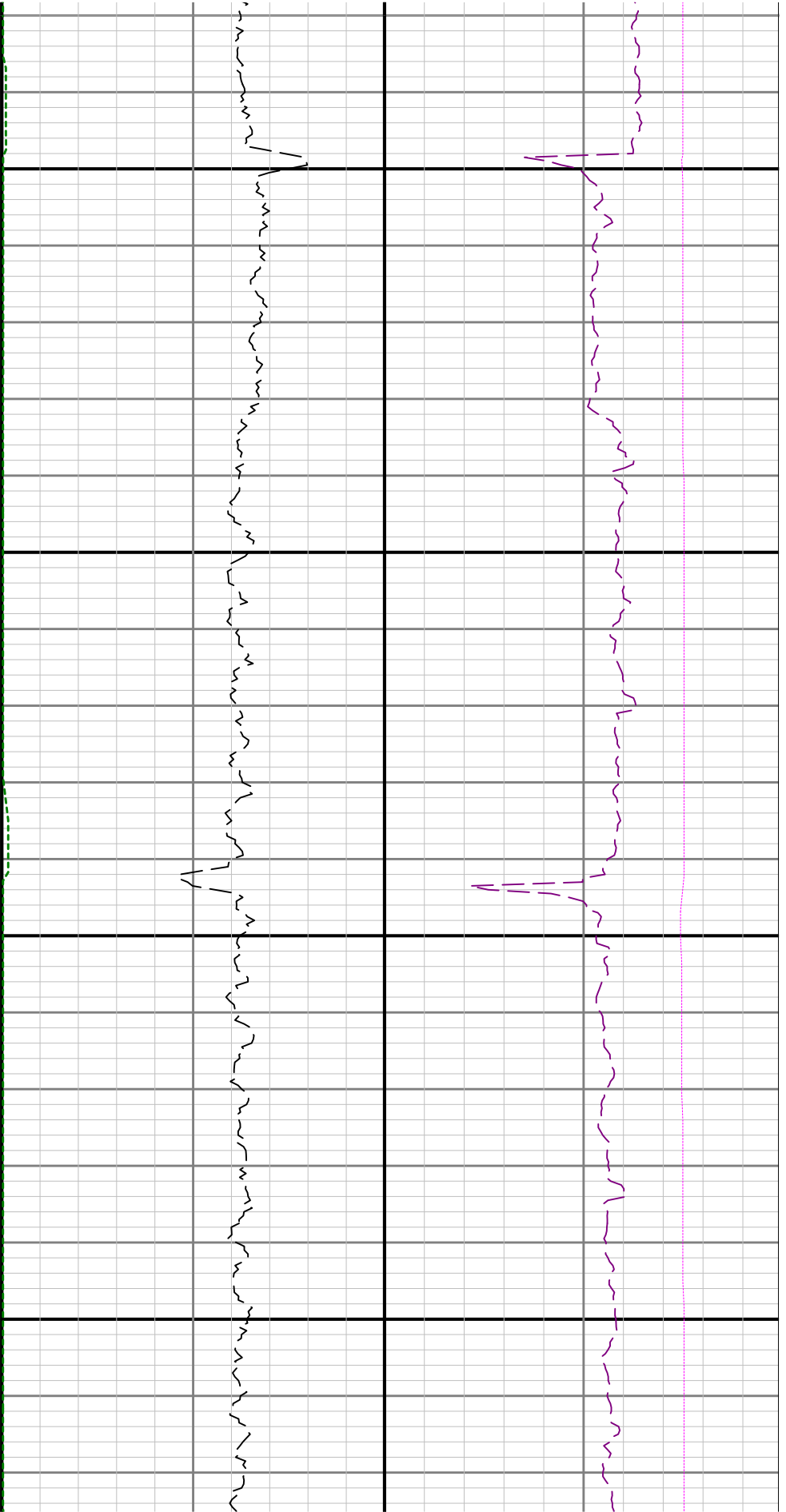
0088

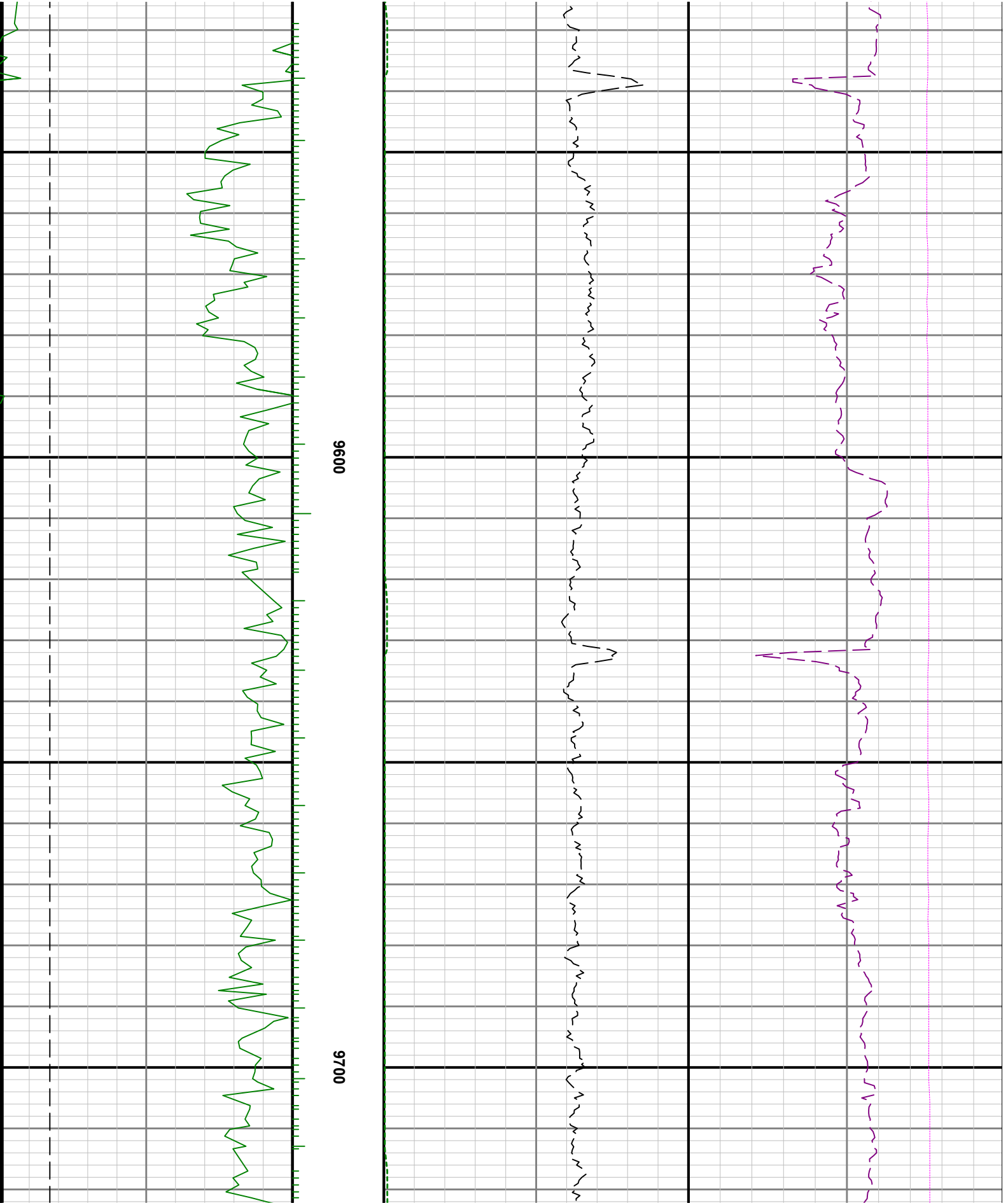


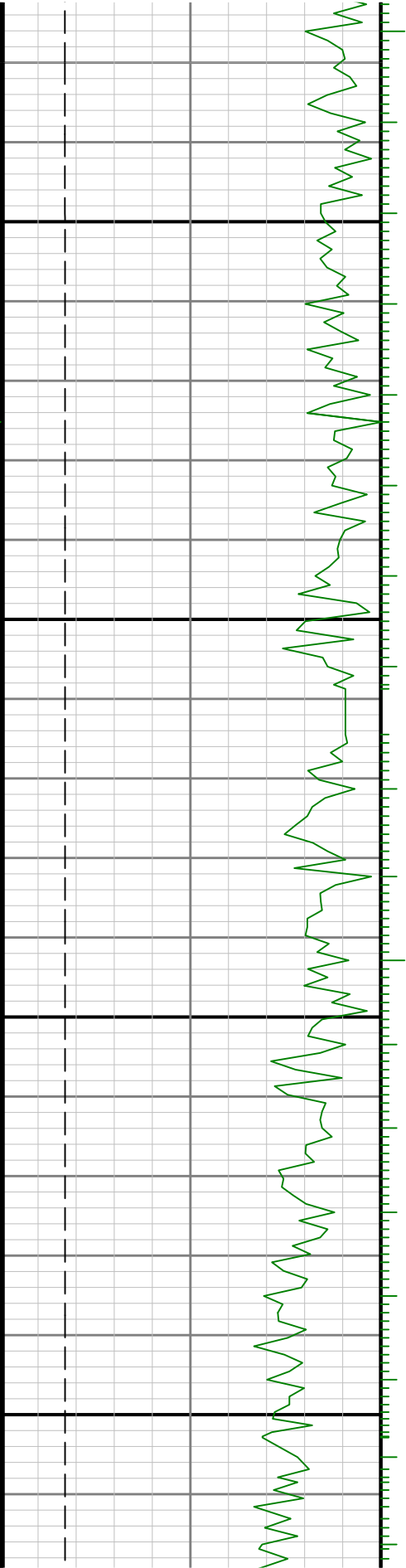






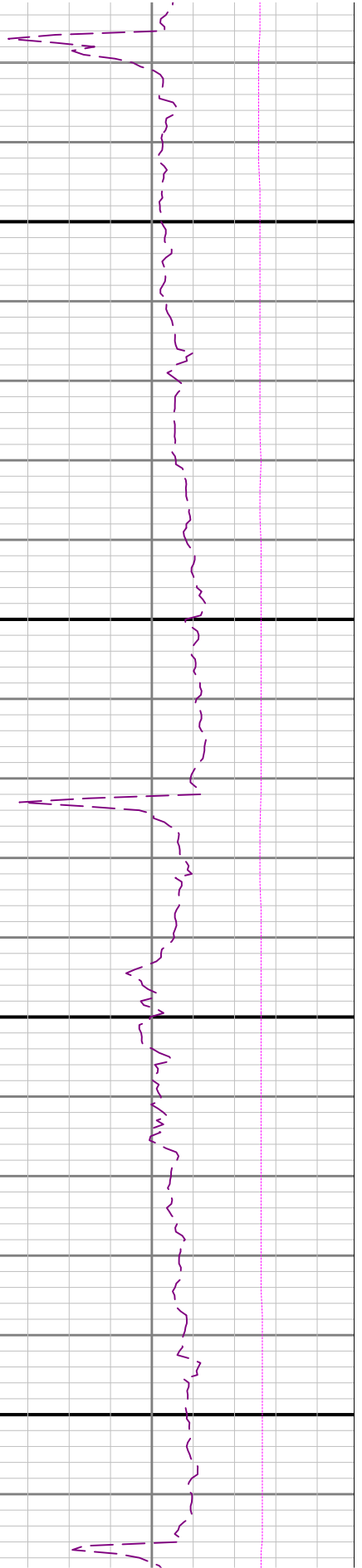
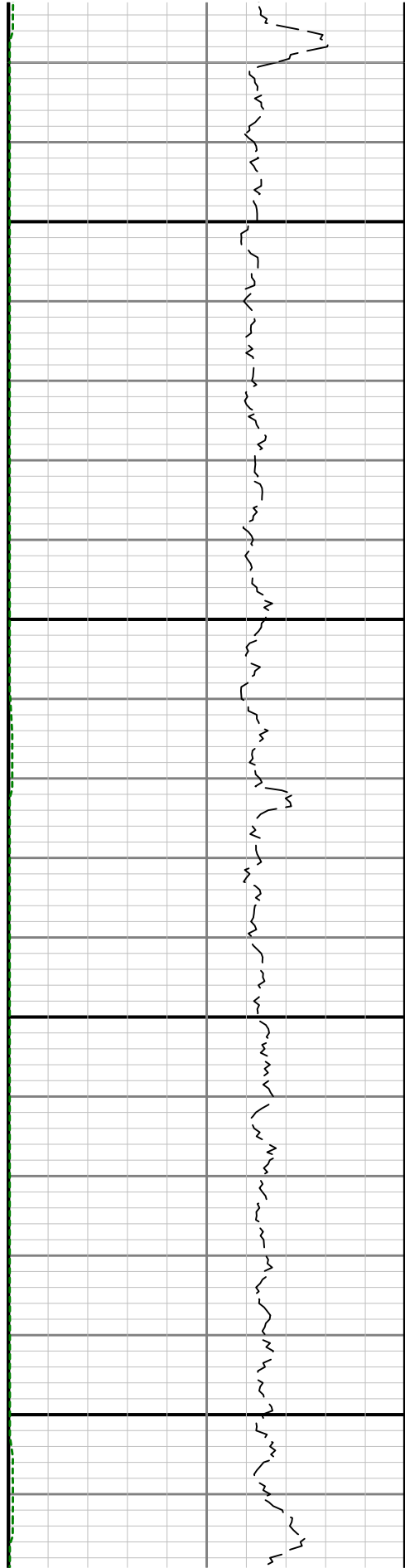


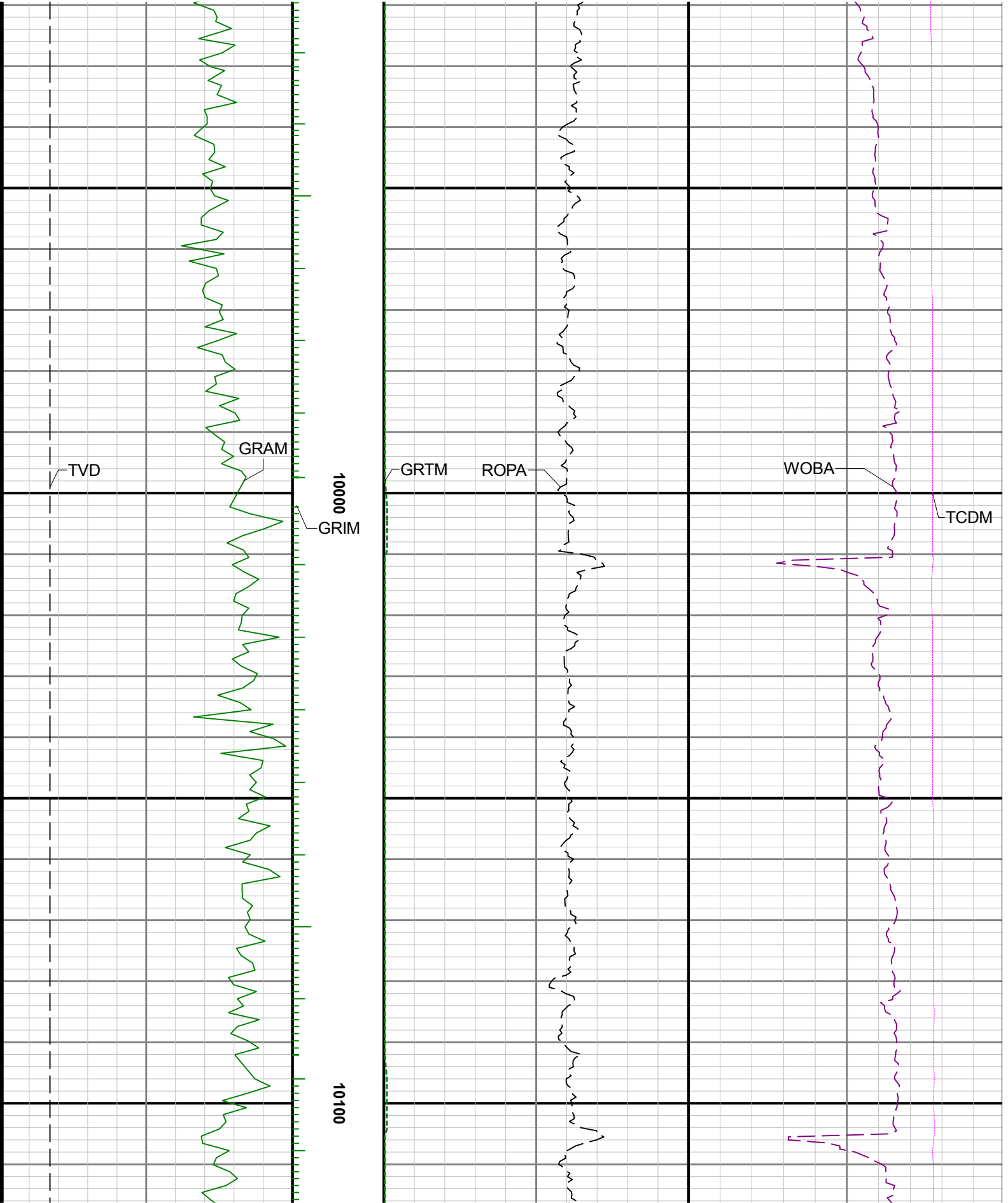


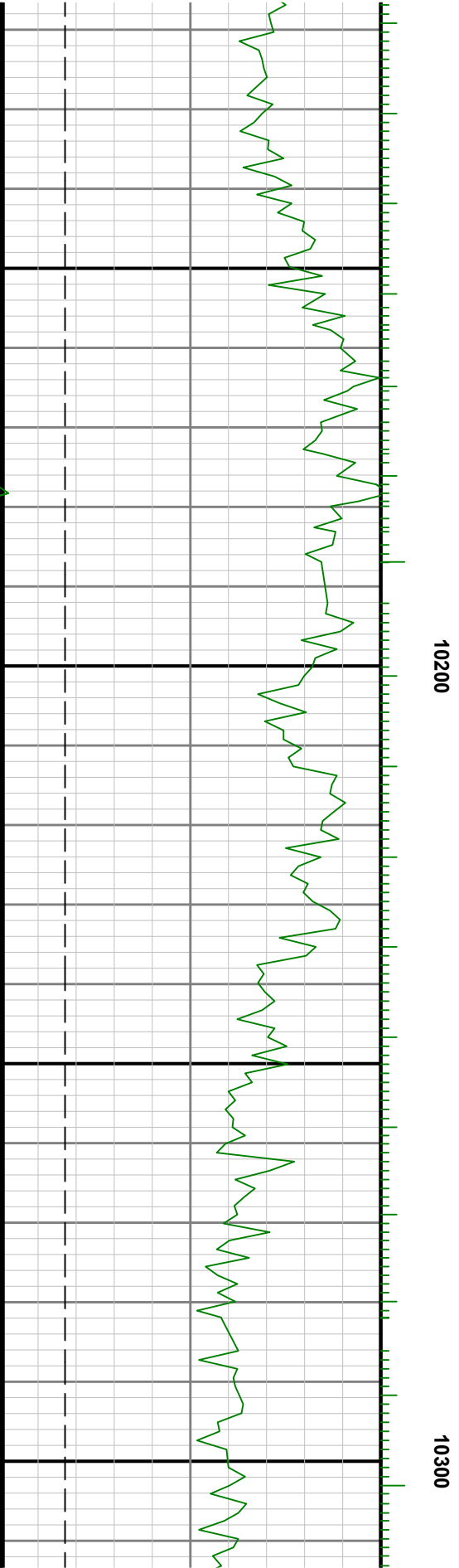


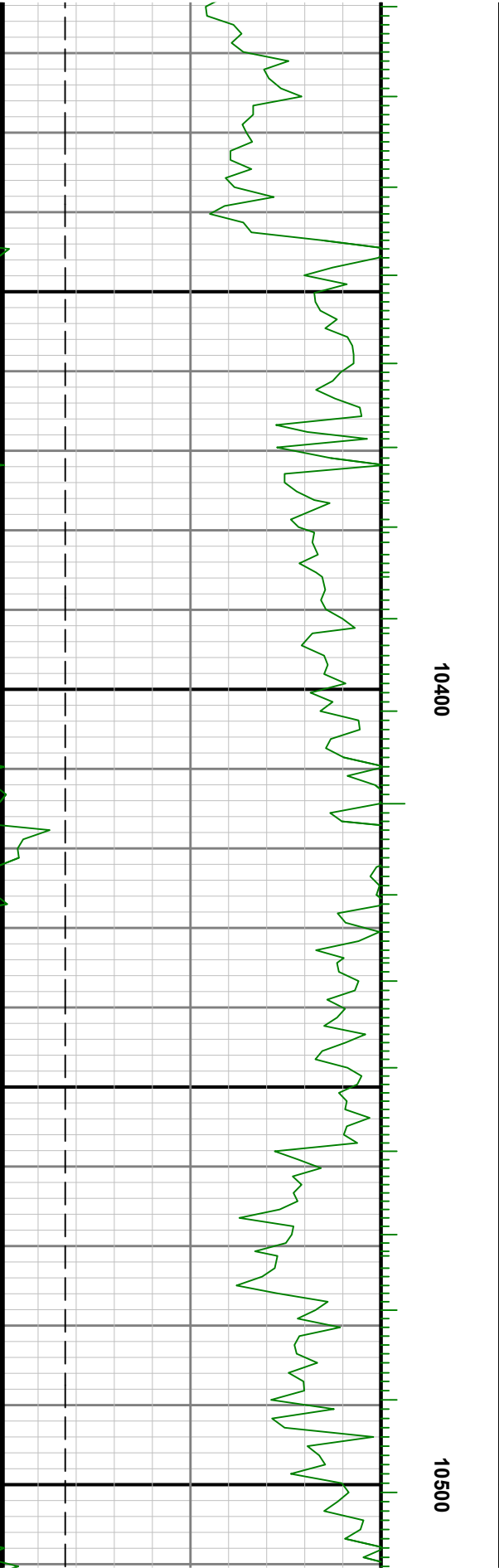
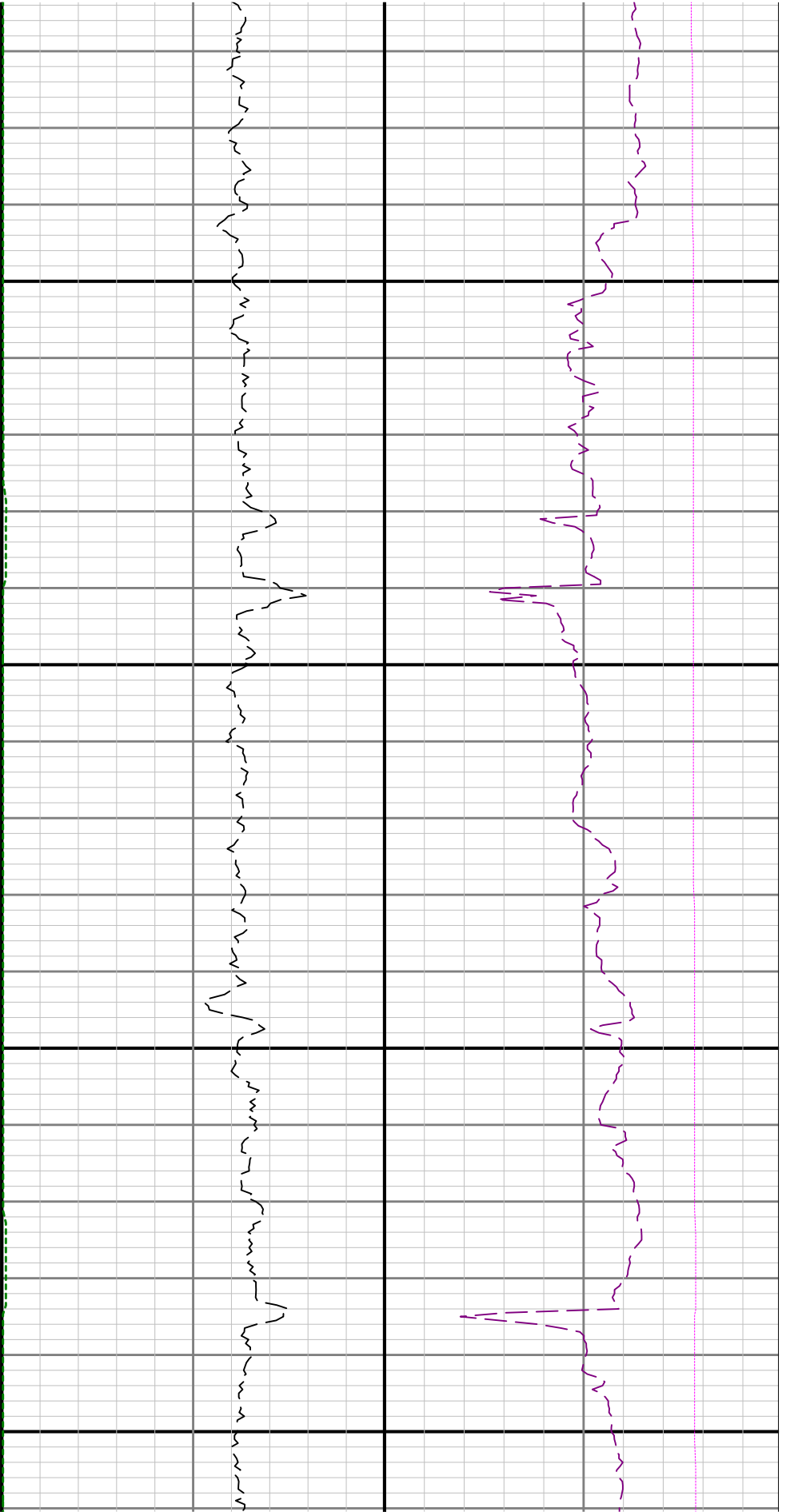
0066

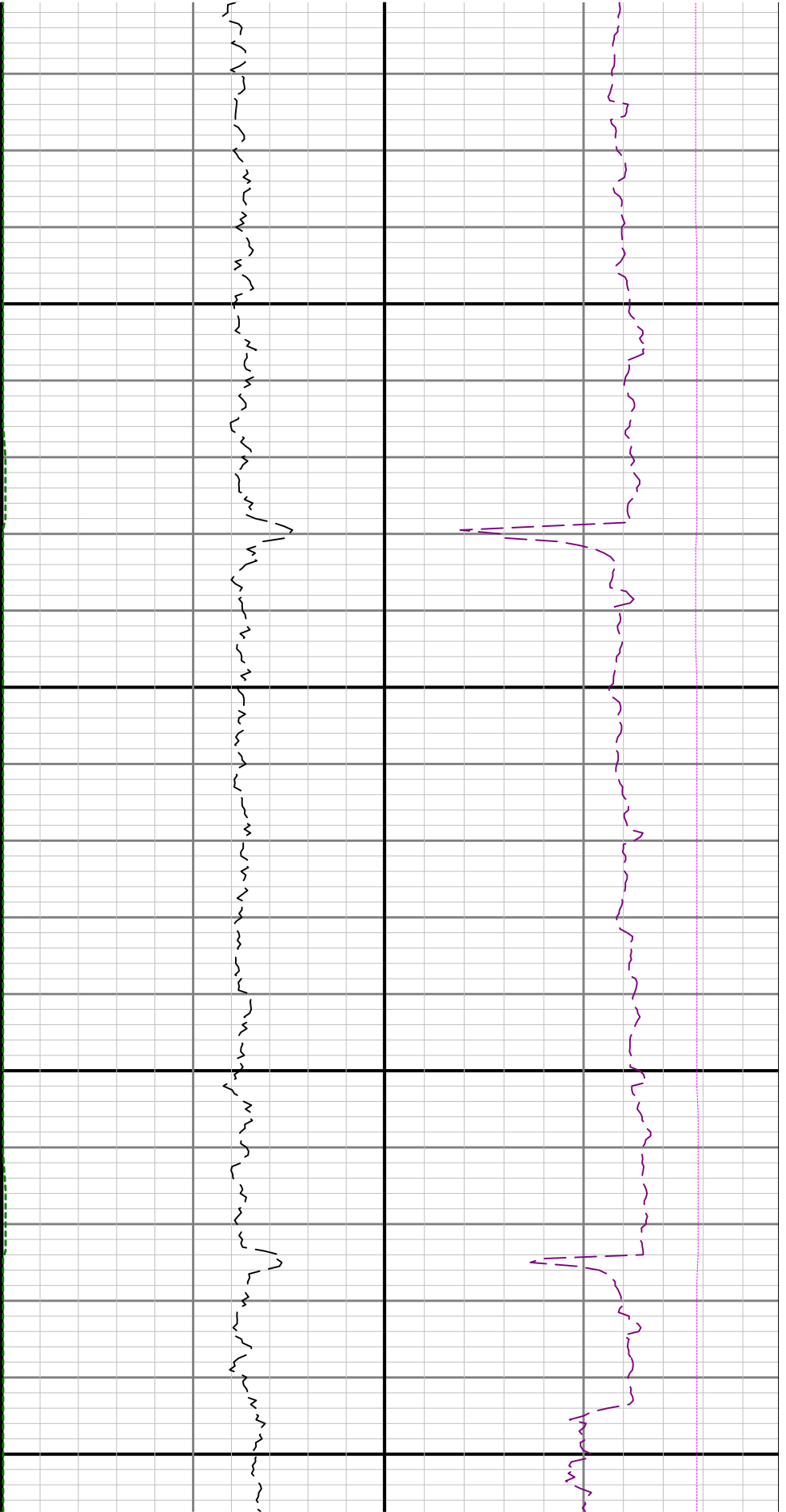
0086





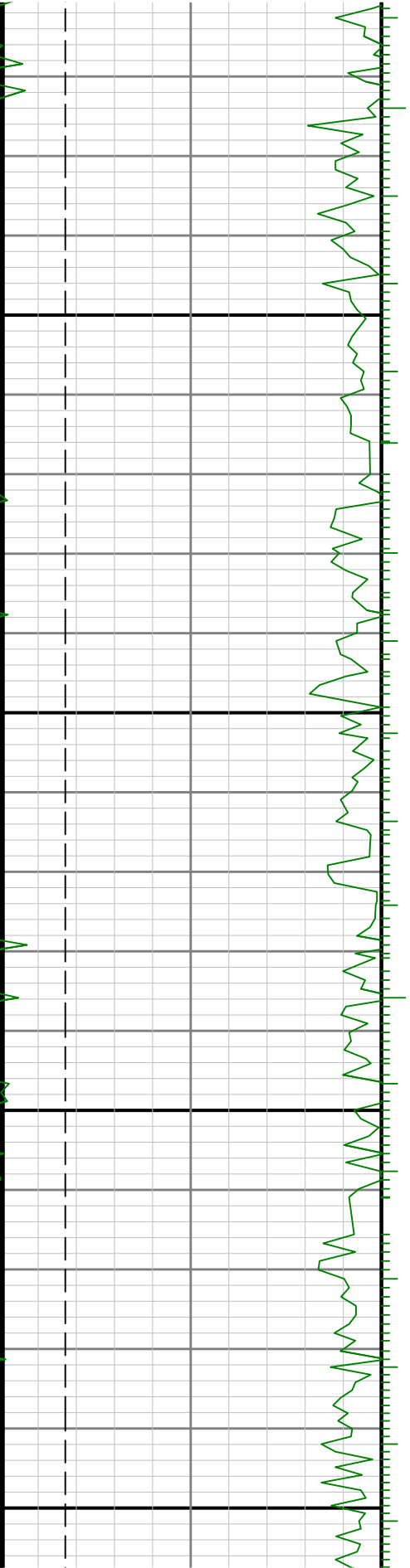






10600

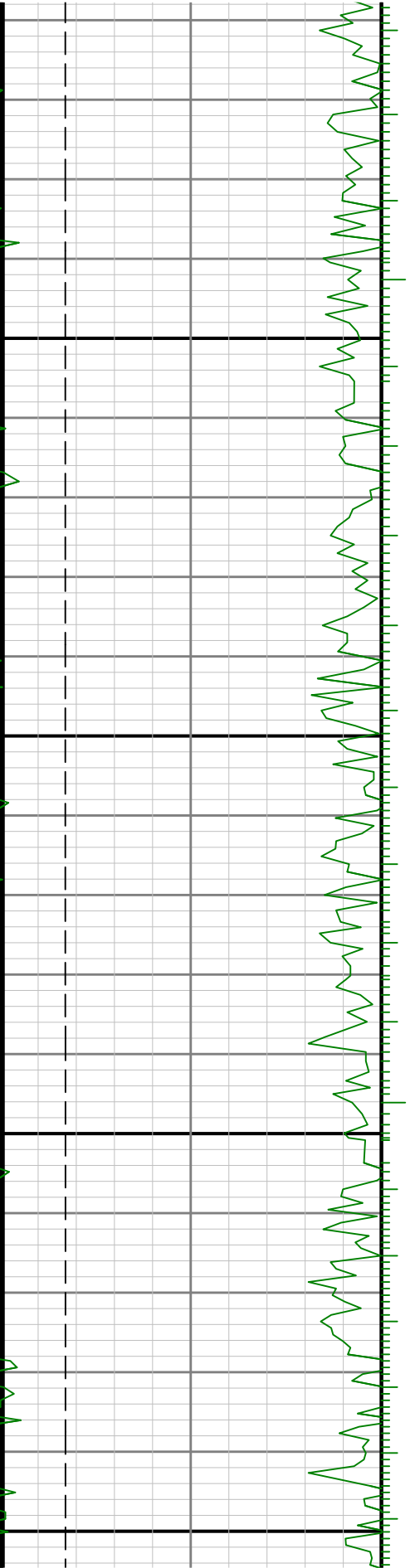
10700



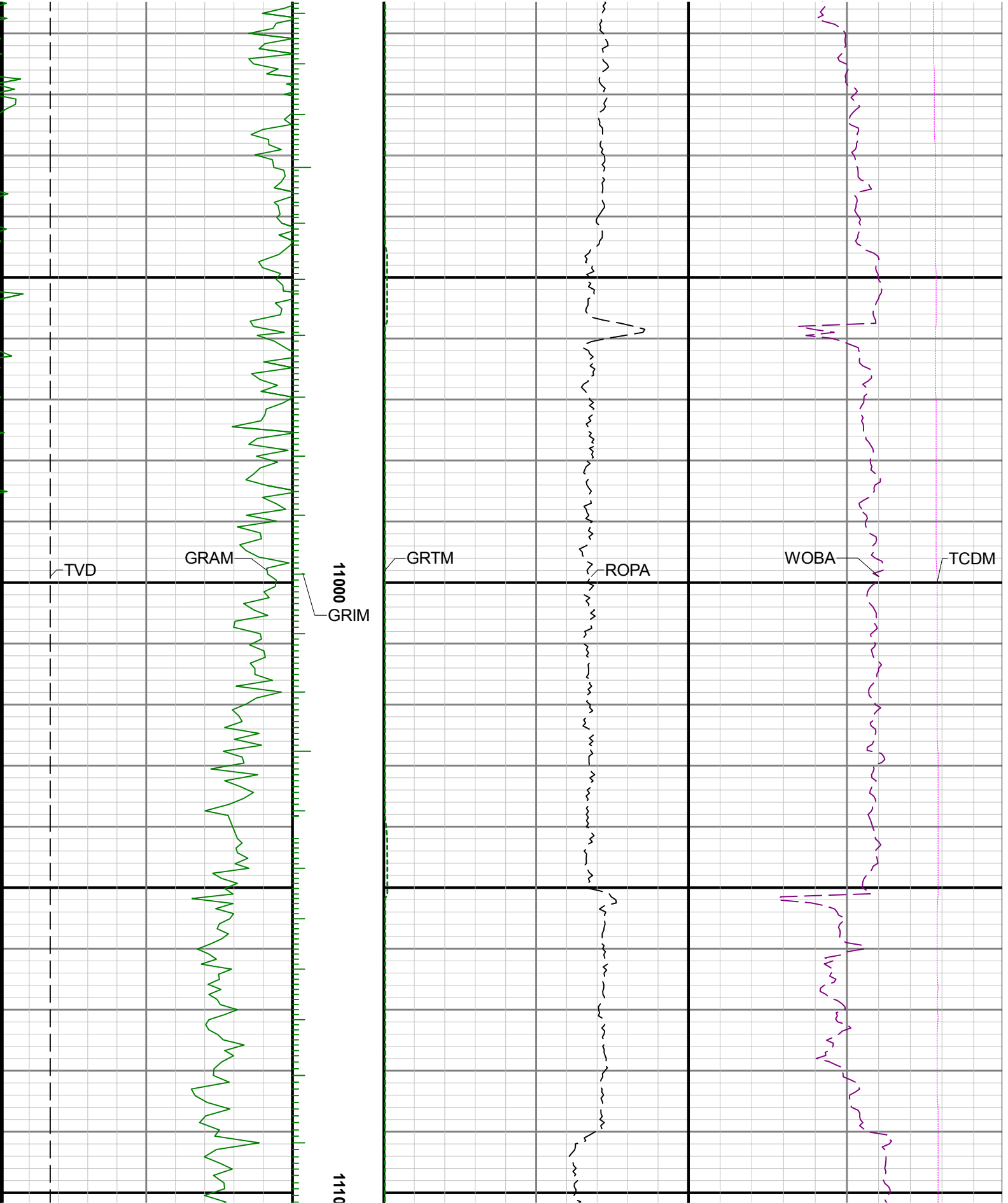


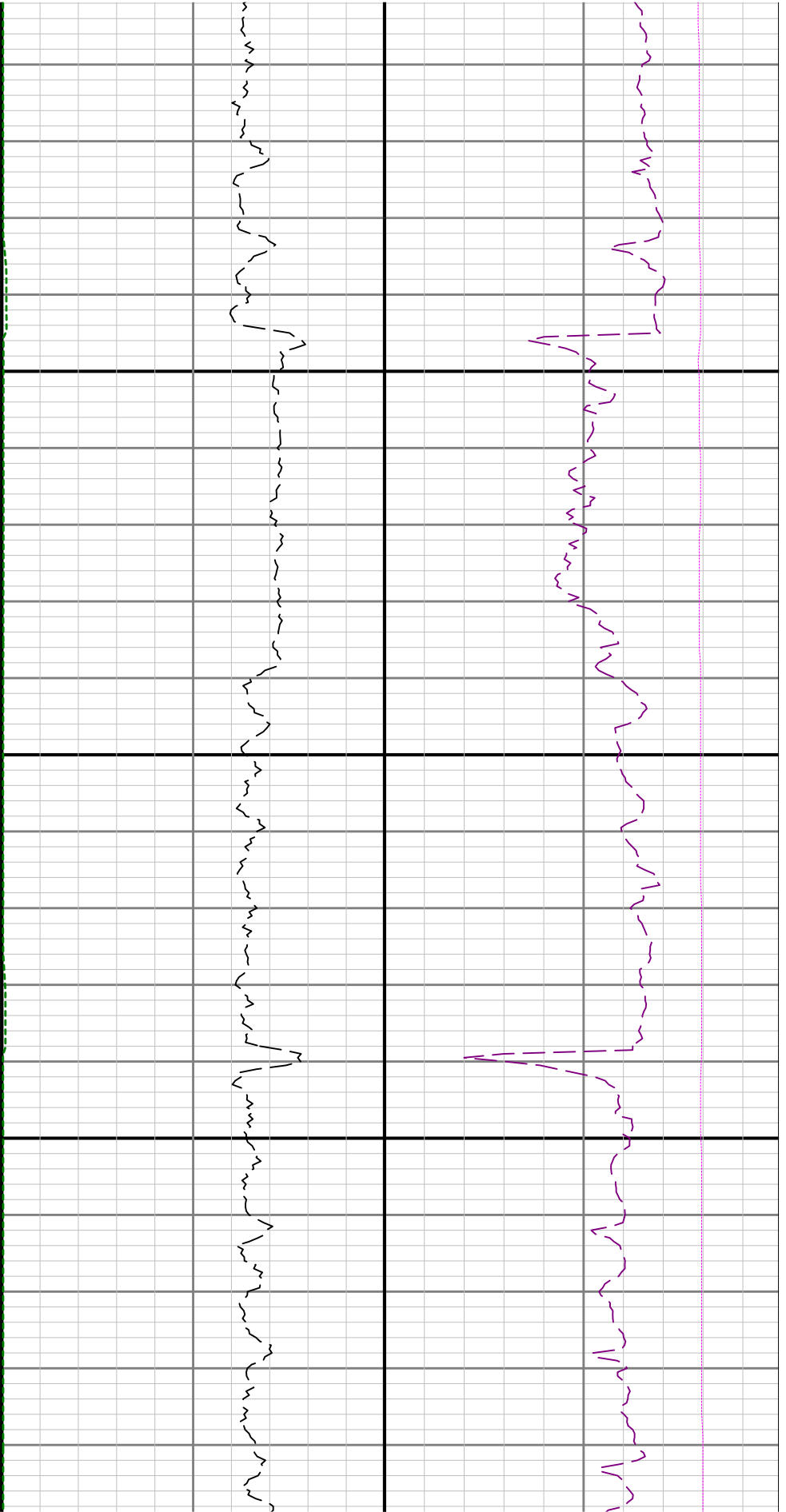
10800

10900

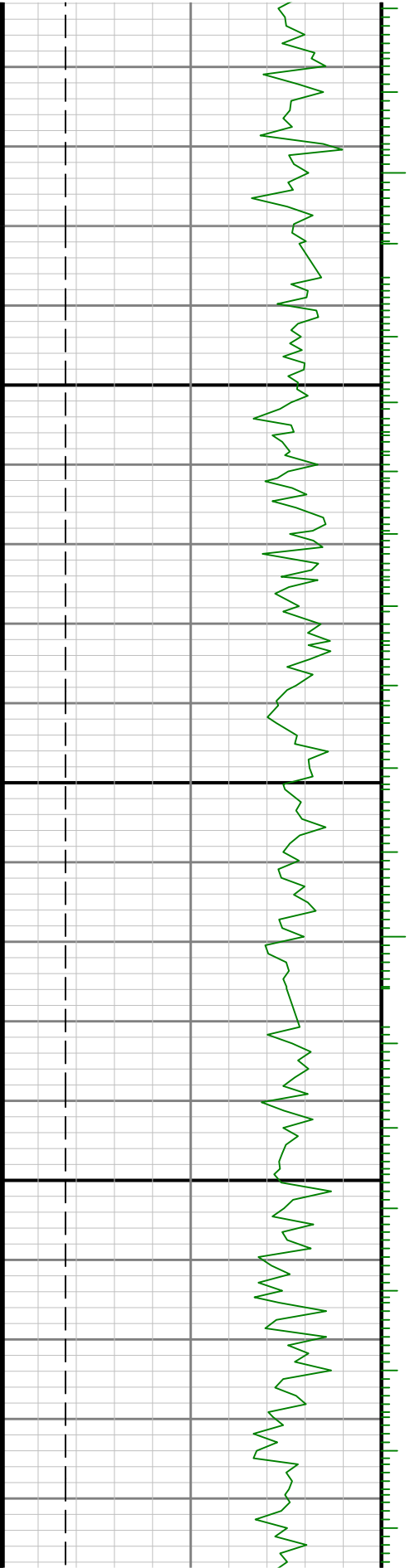


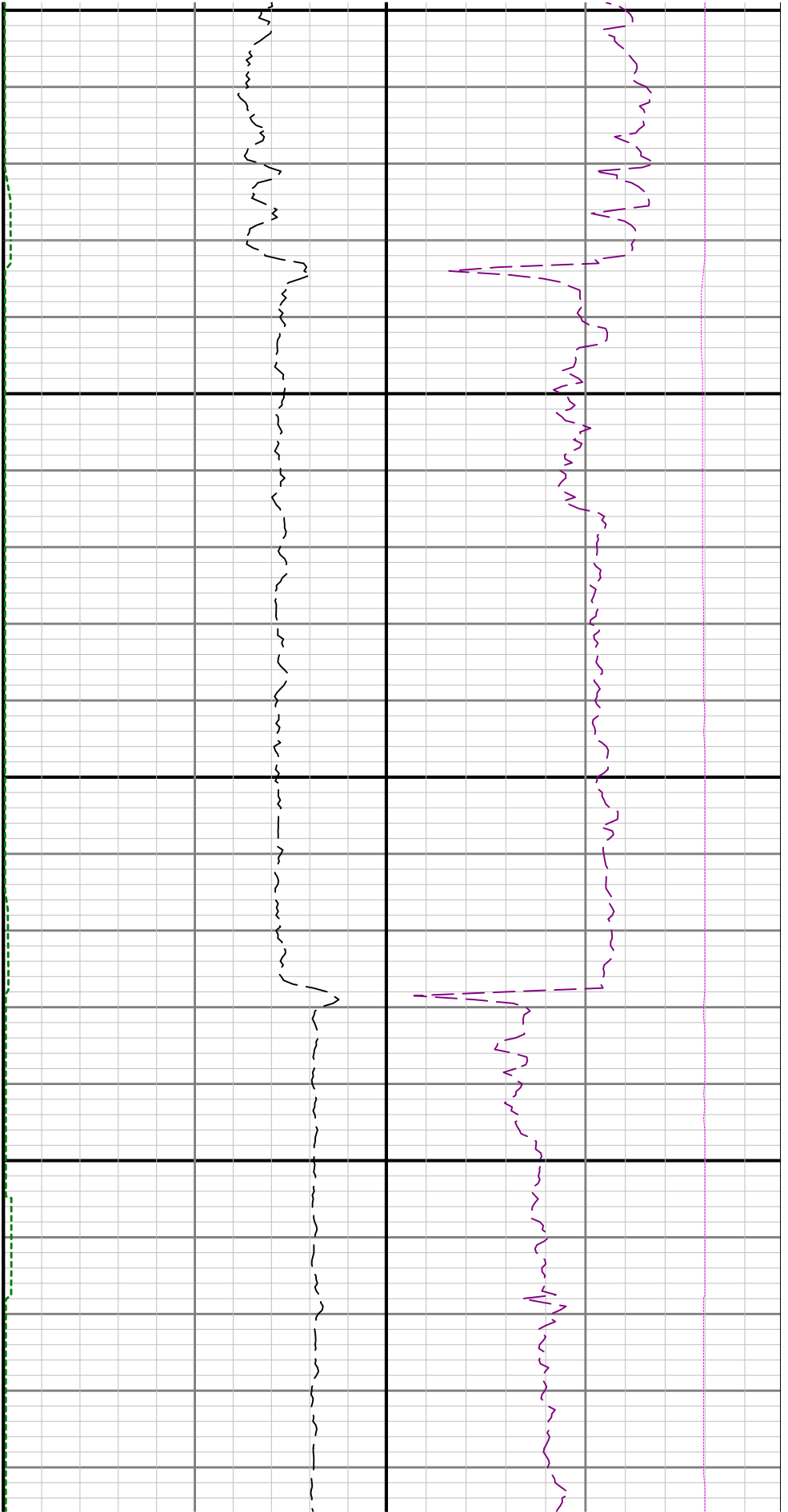






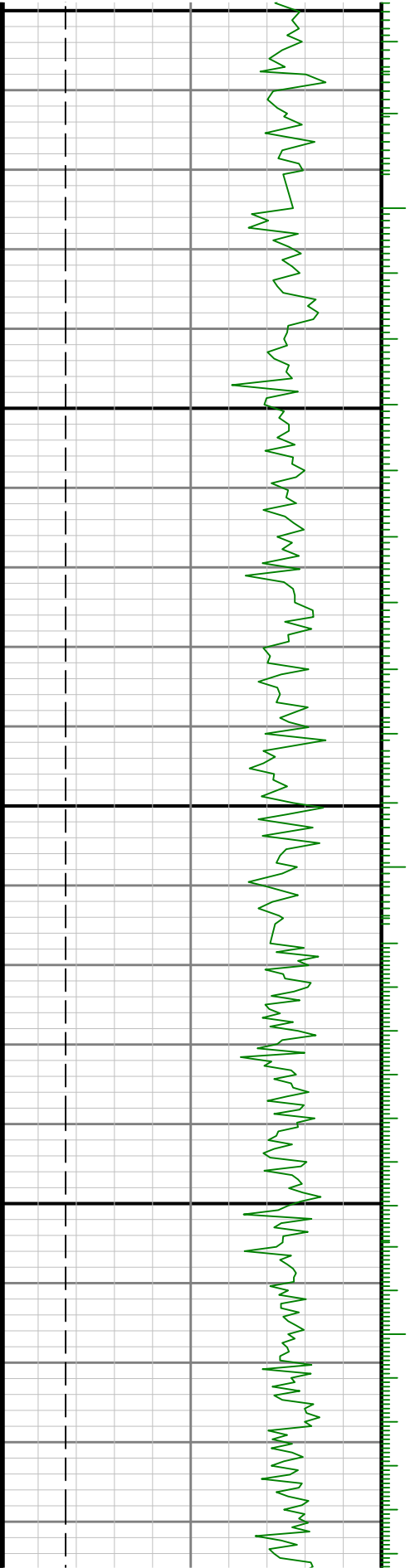
0 11200 11

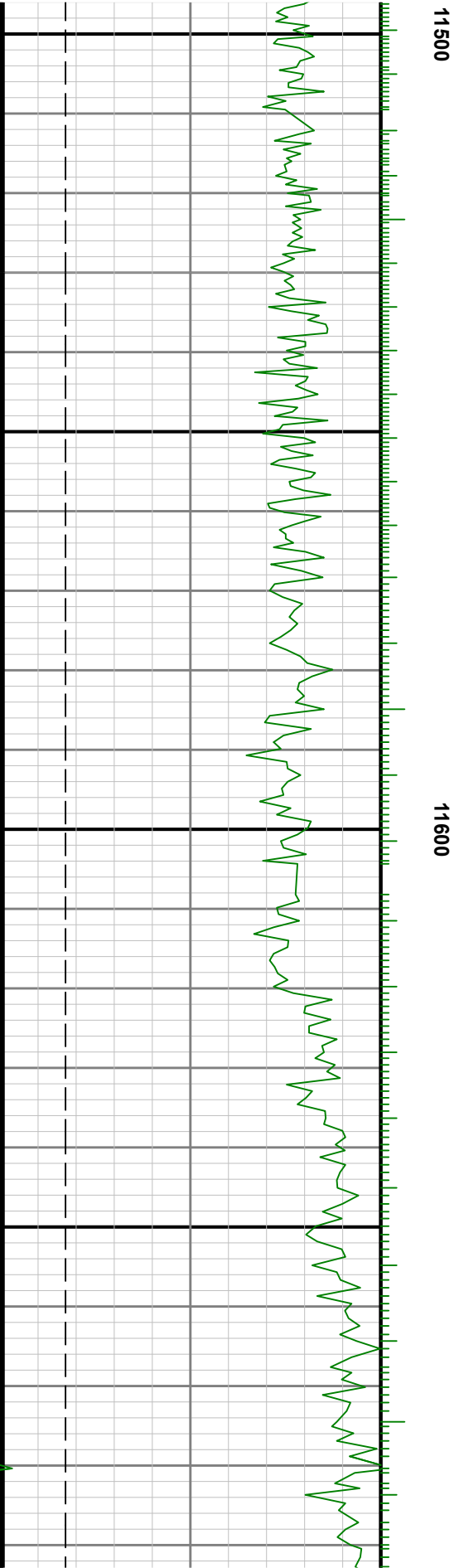
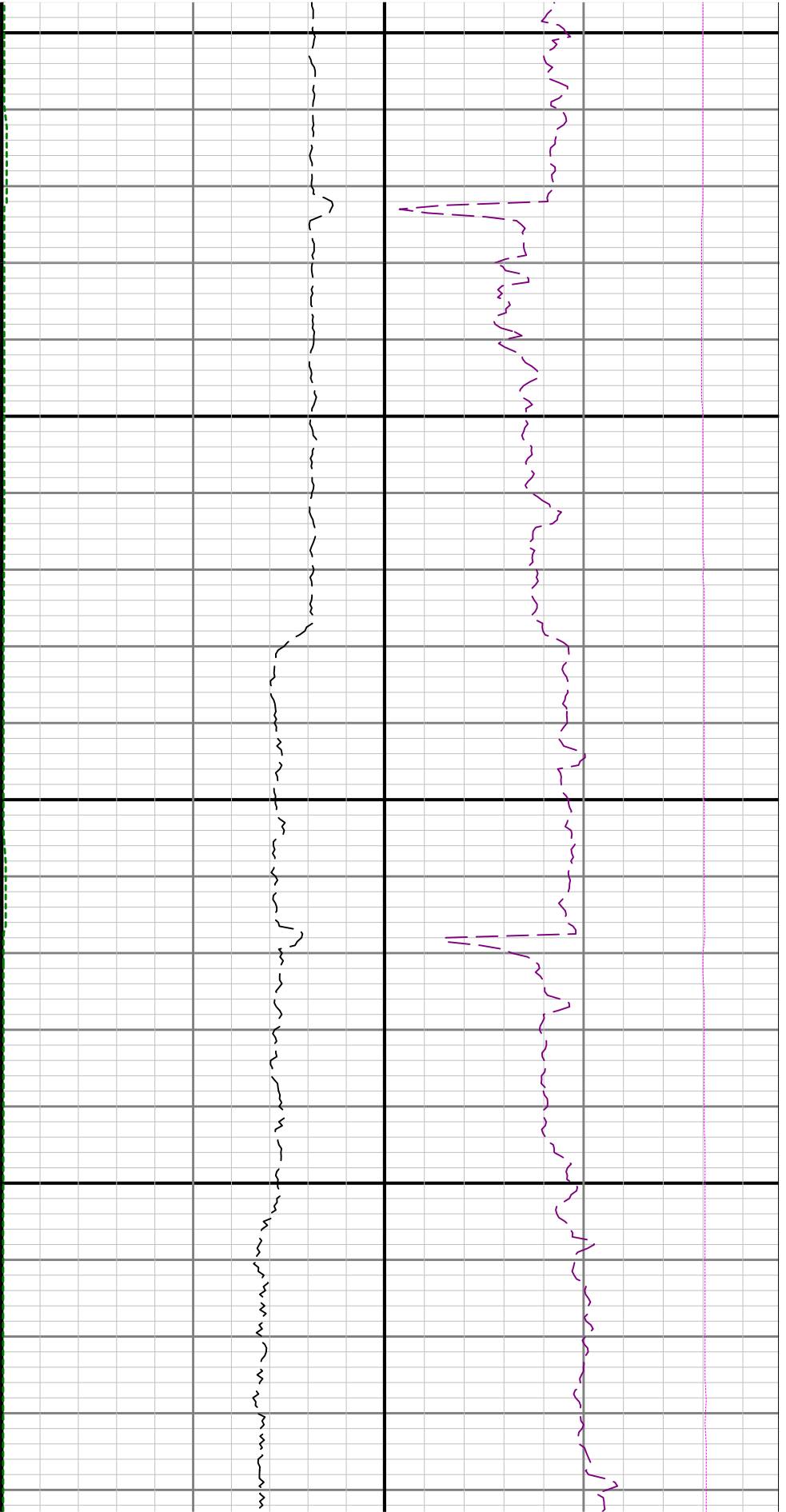


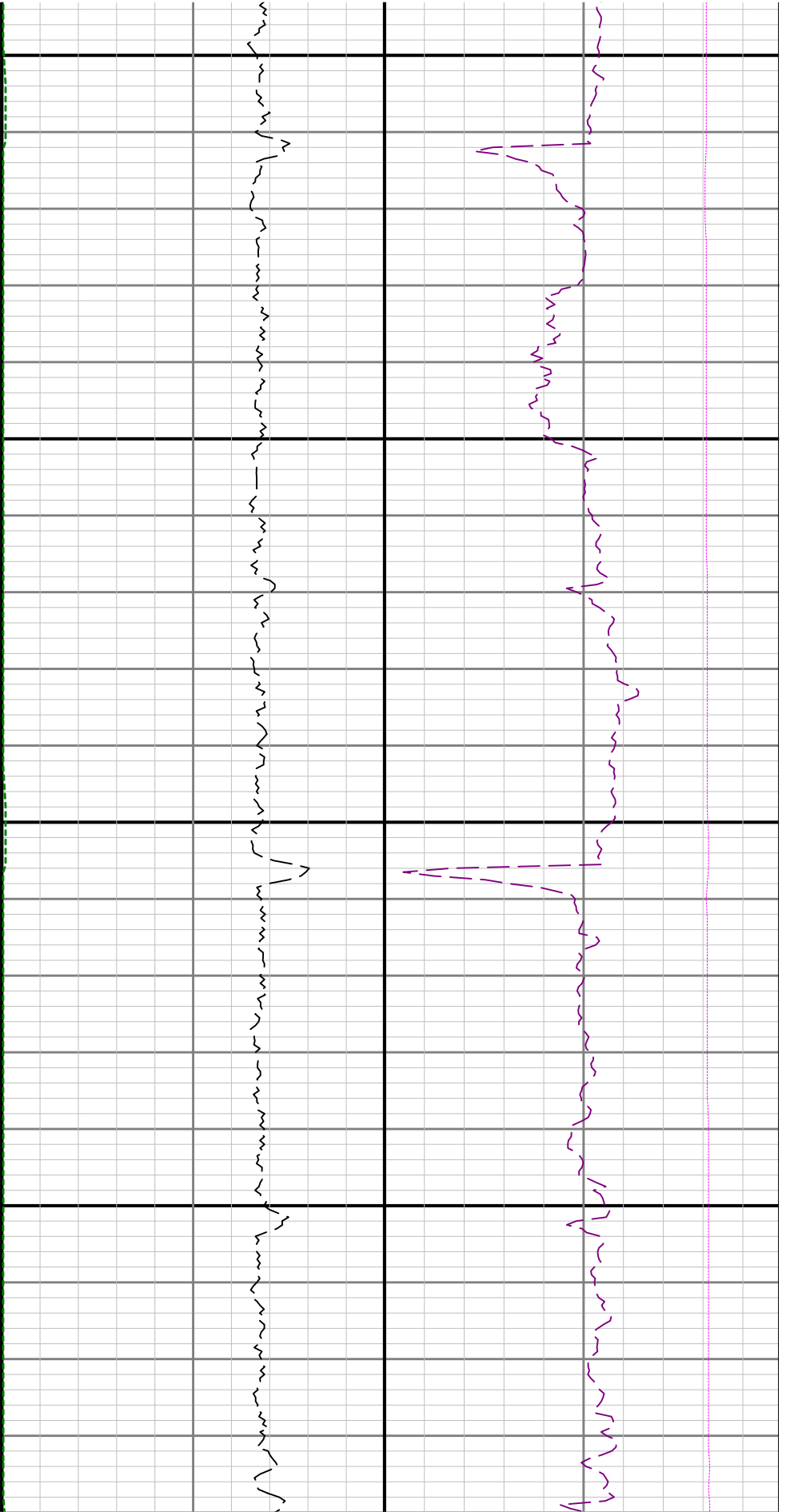


300

11400

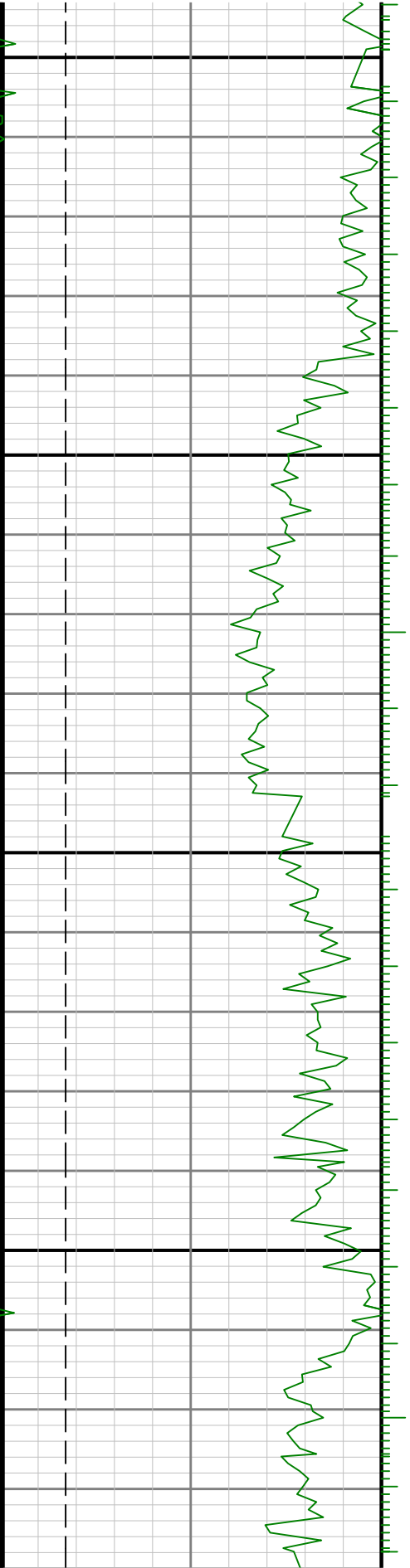


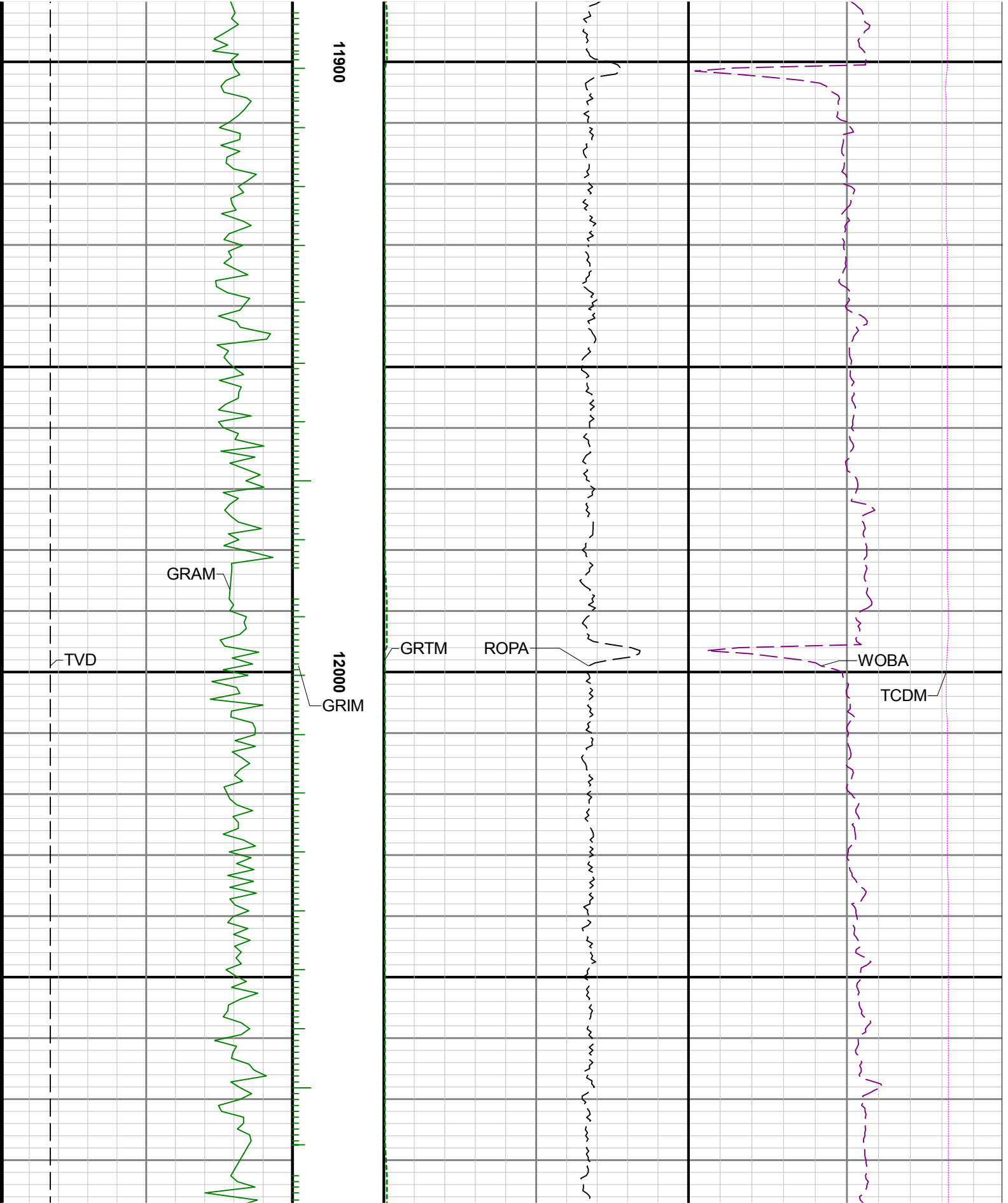


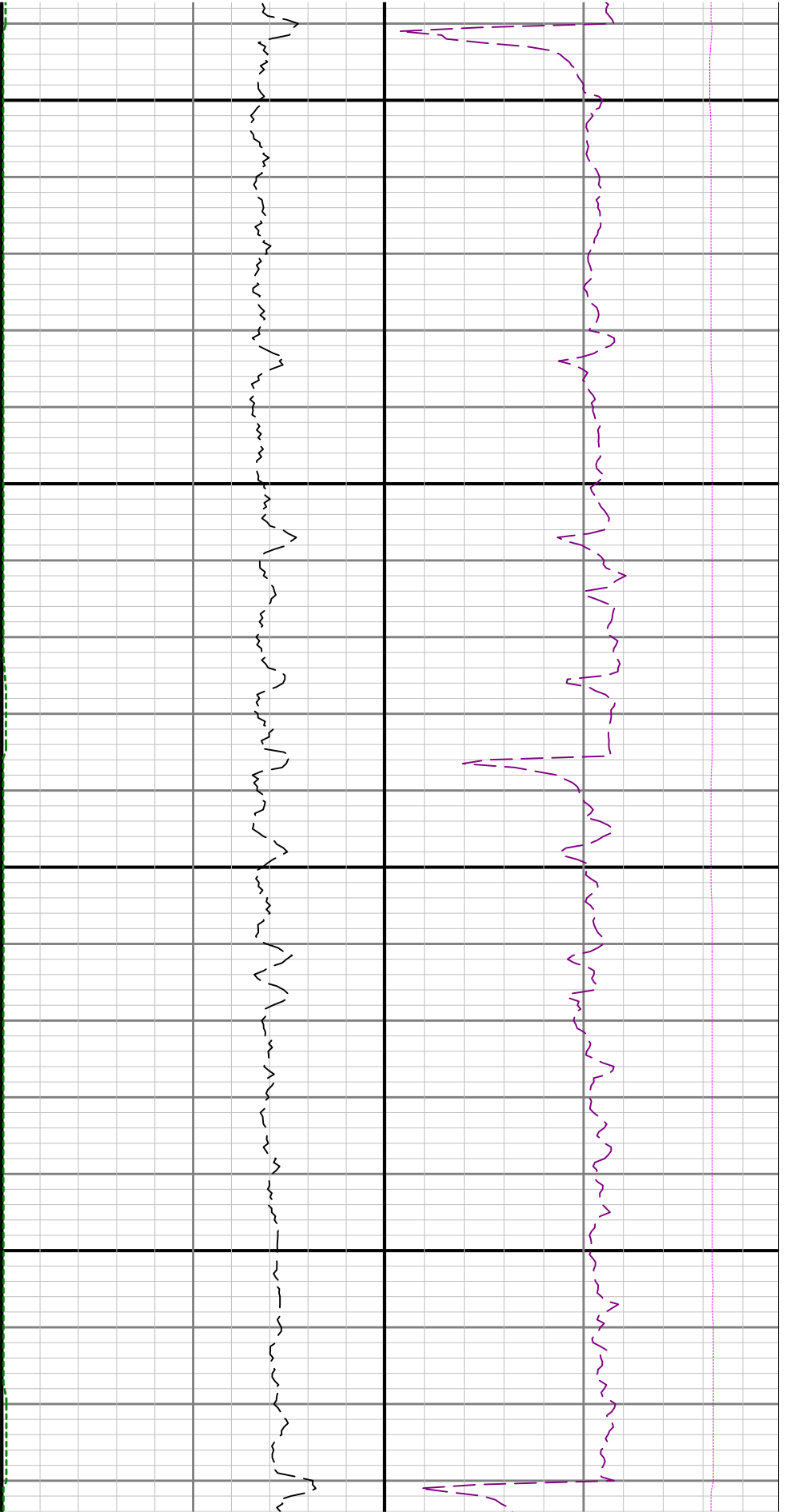


11700

11800

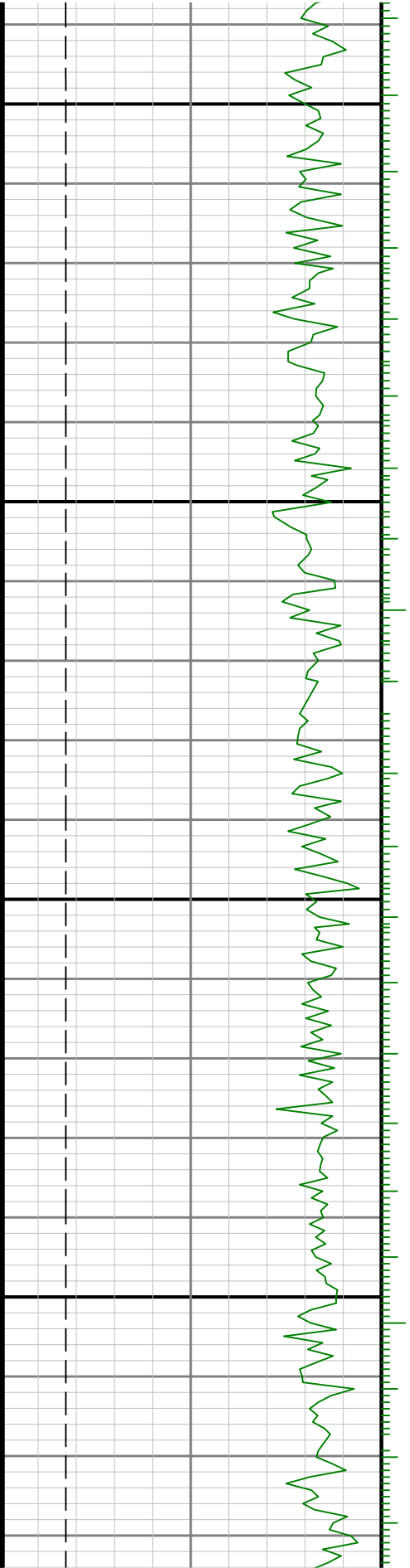


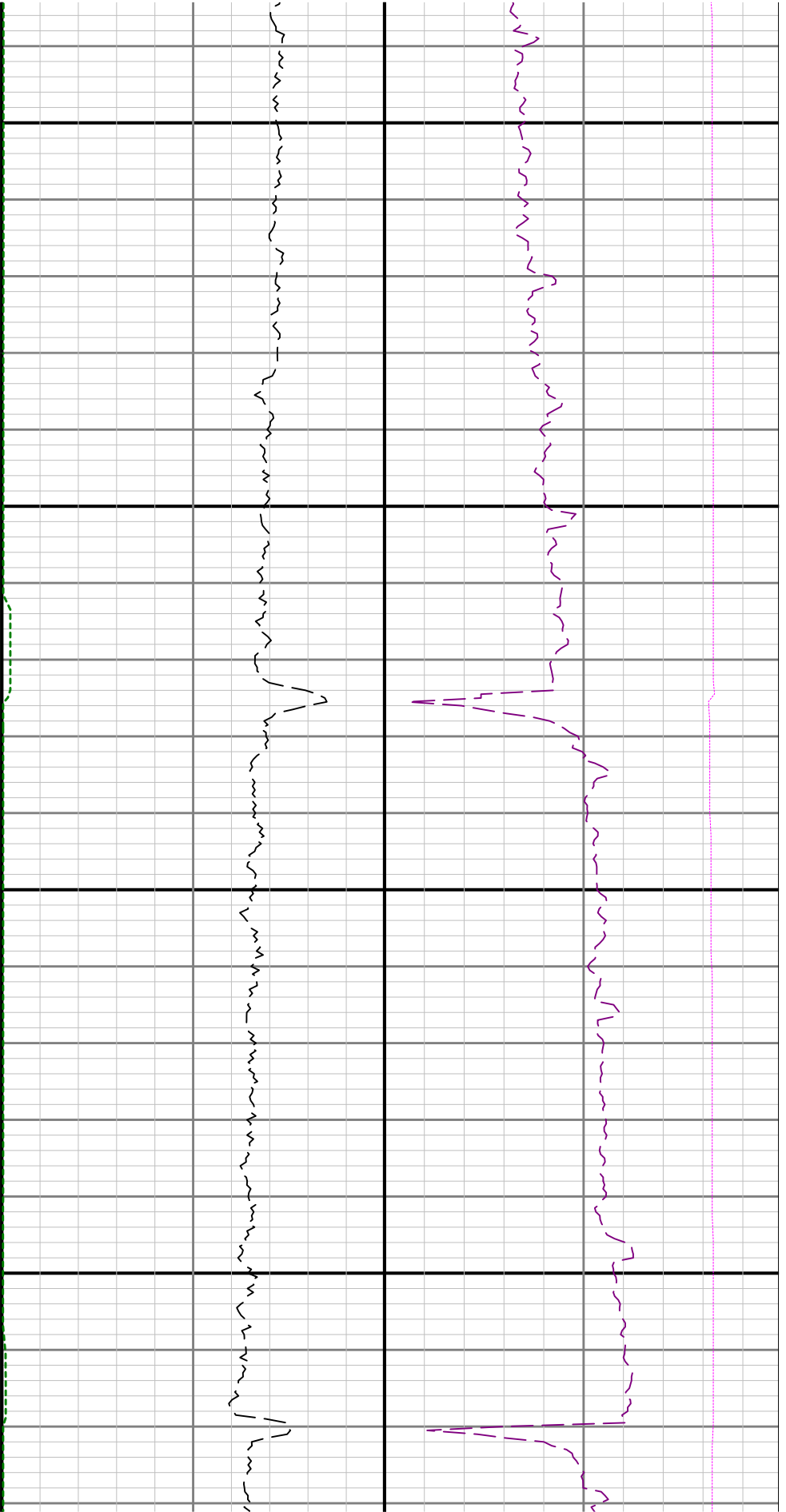




12100

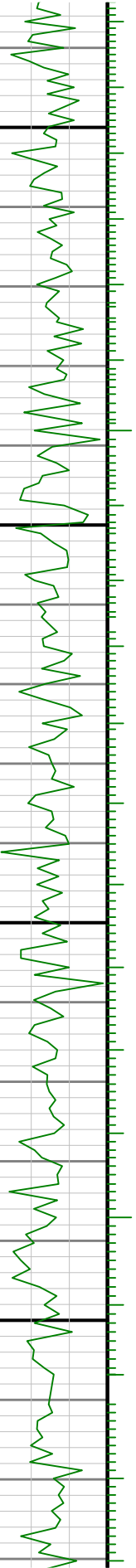
12200



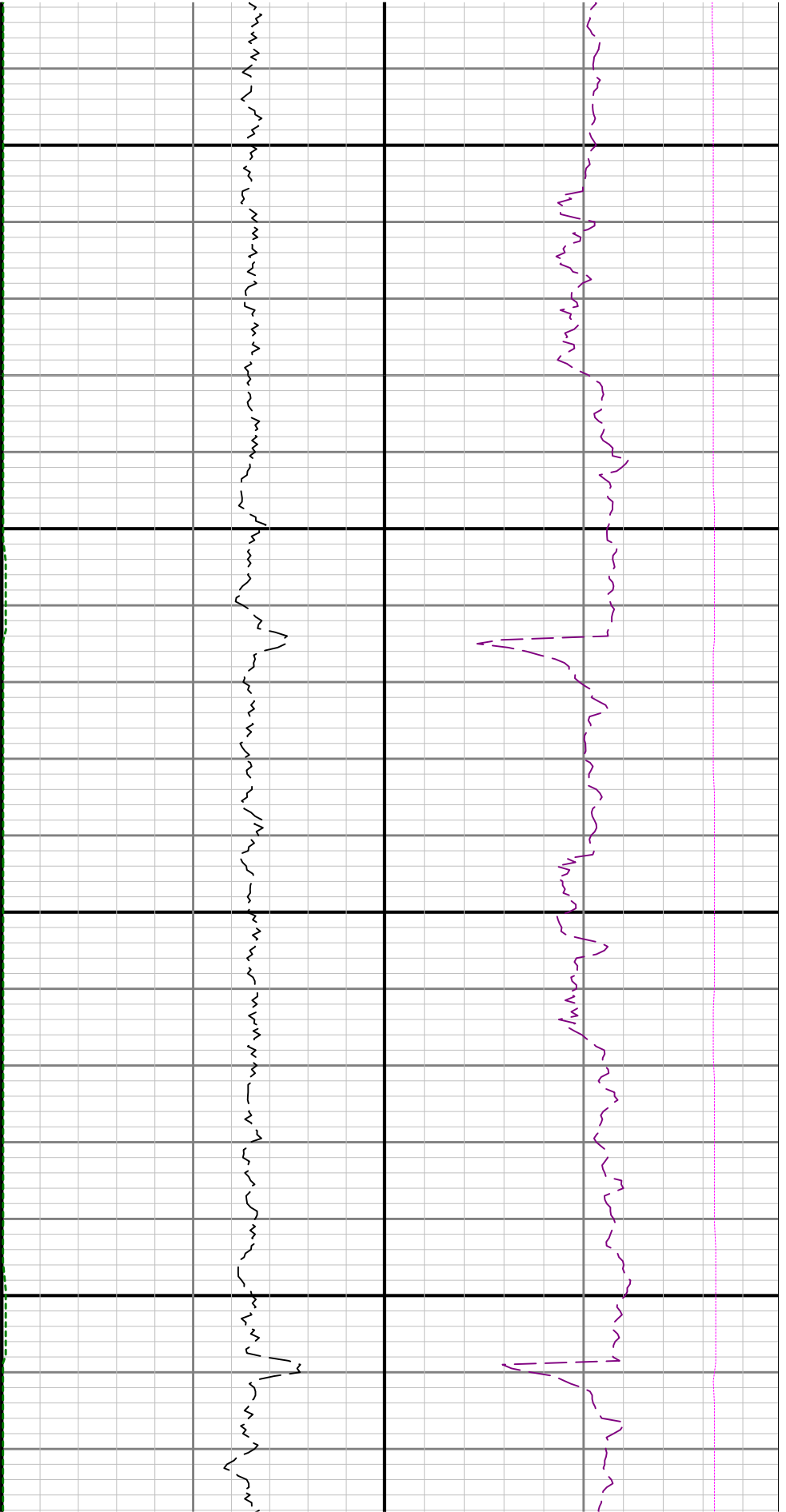


12300

12400

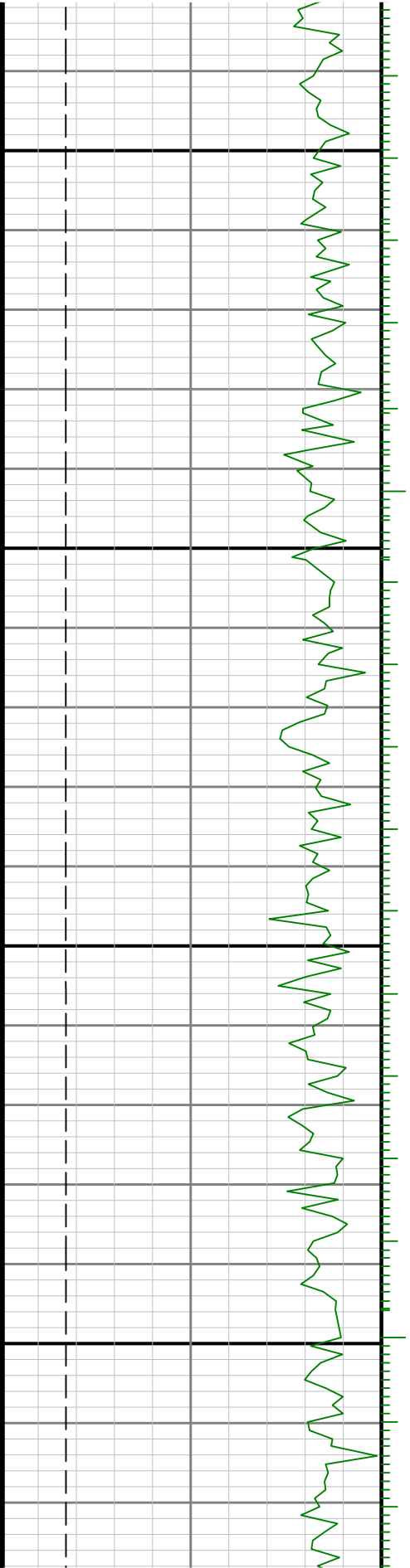


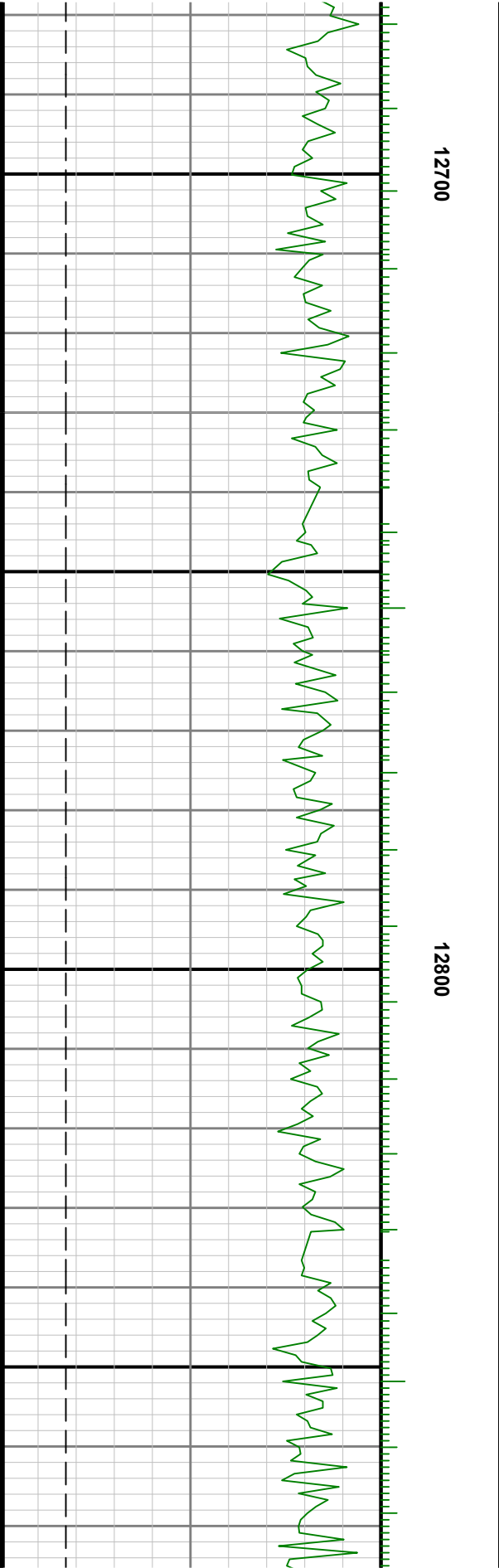
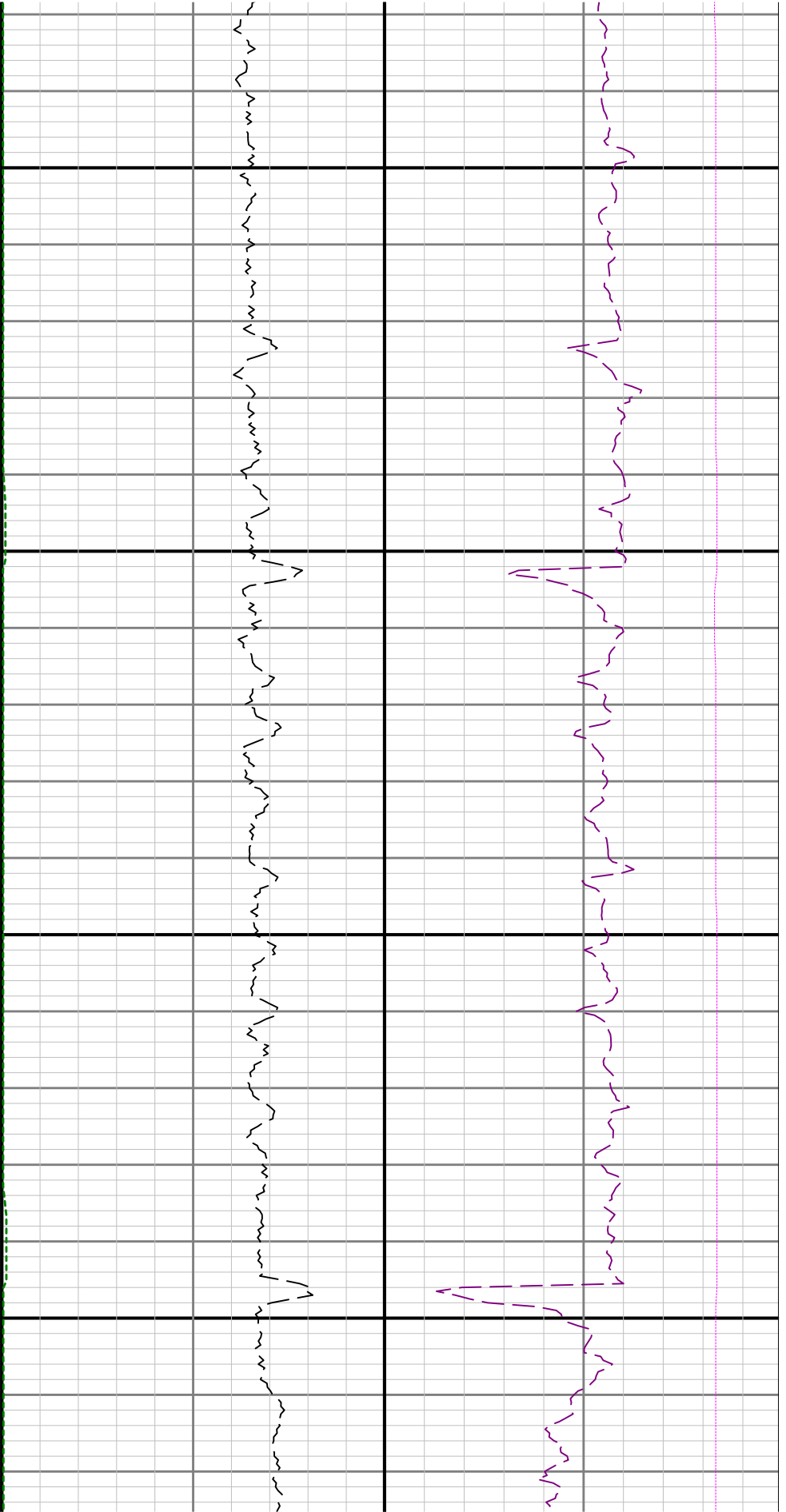


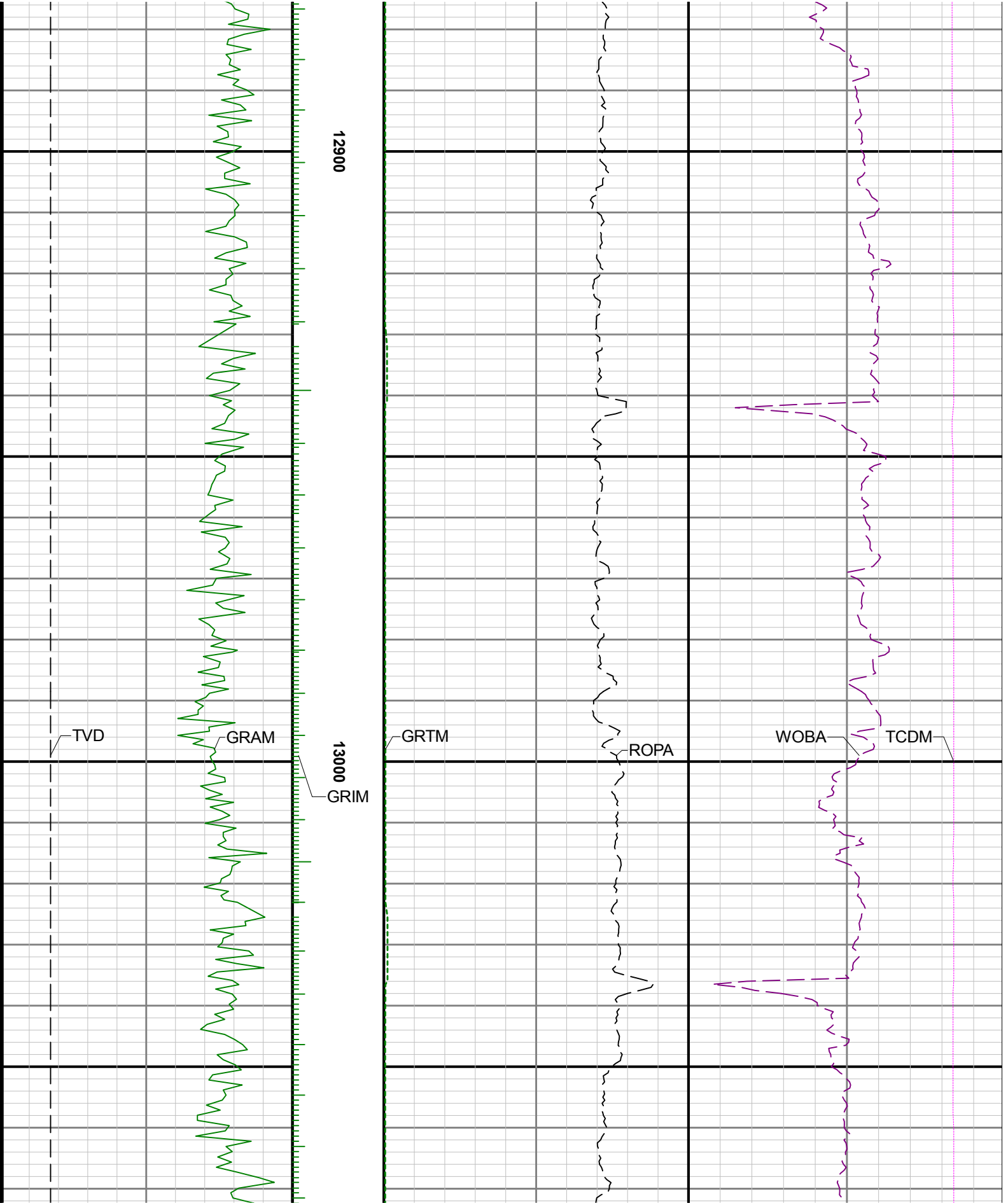


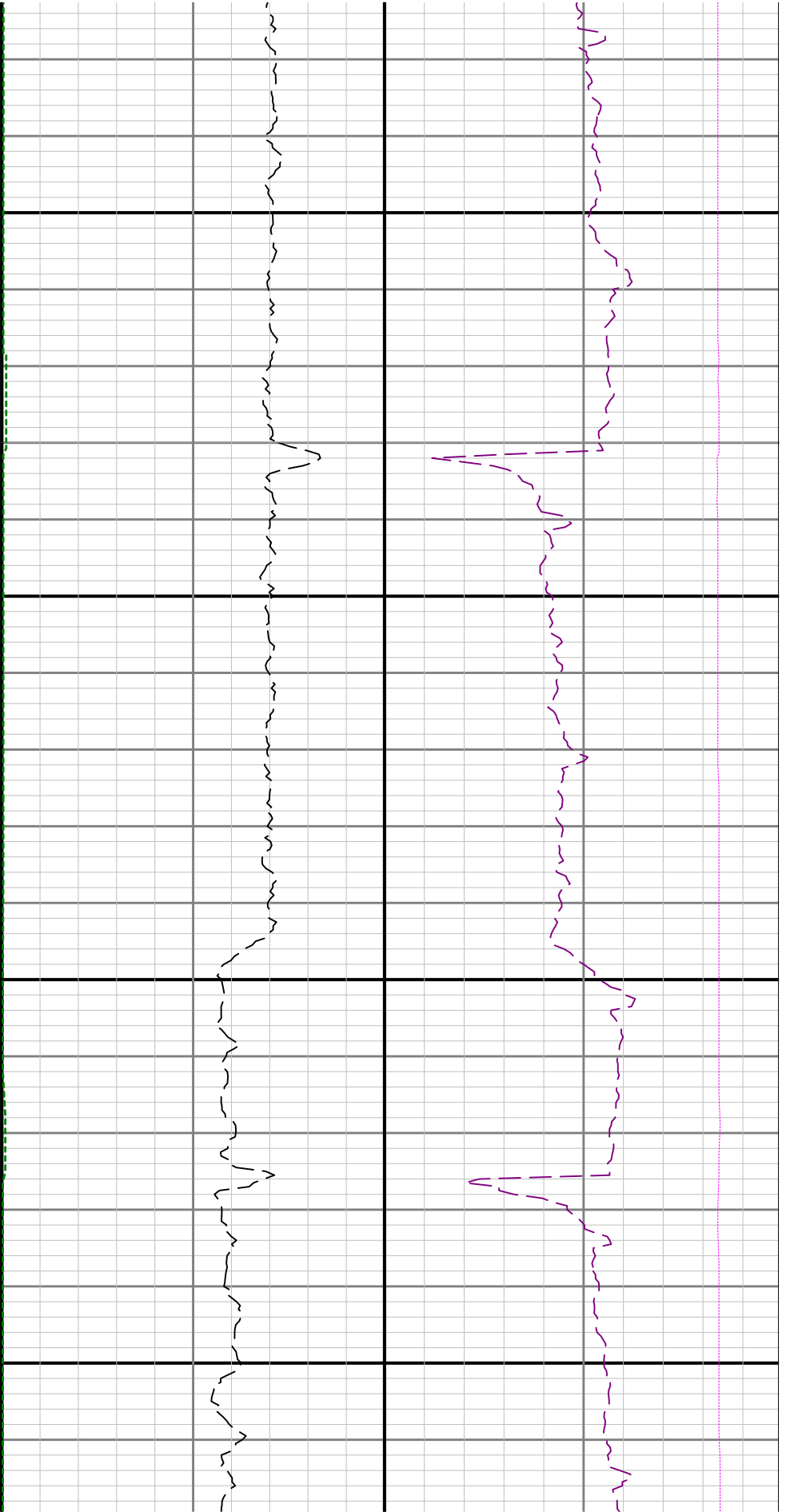
12500

12600



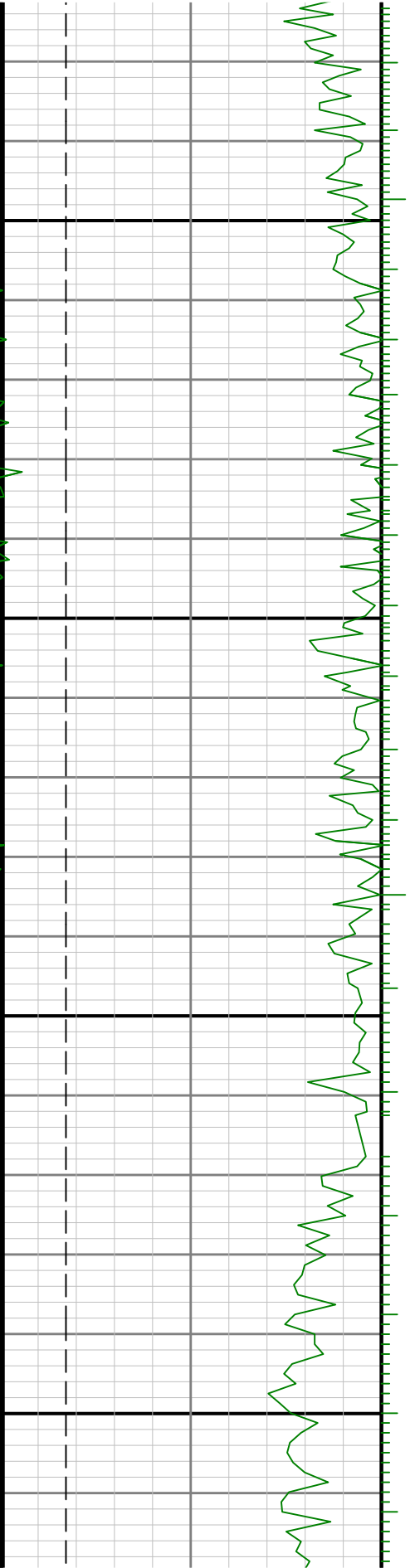


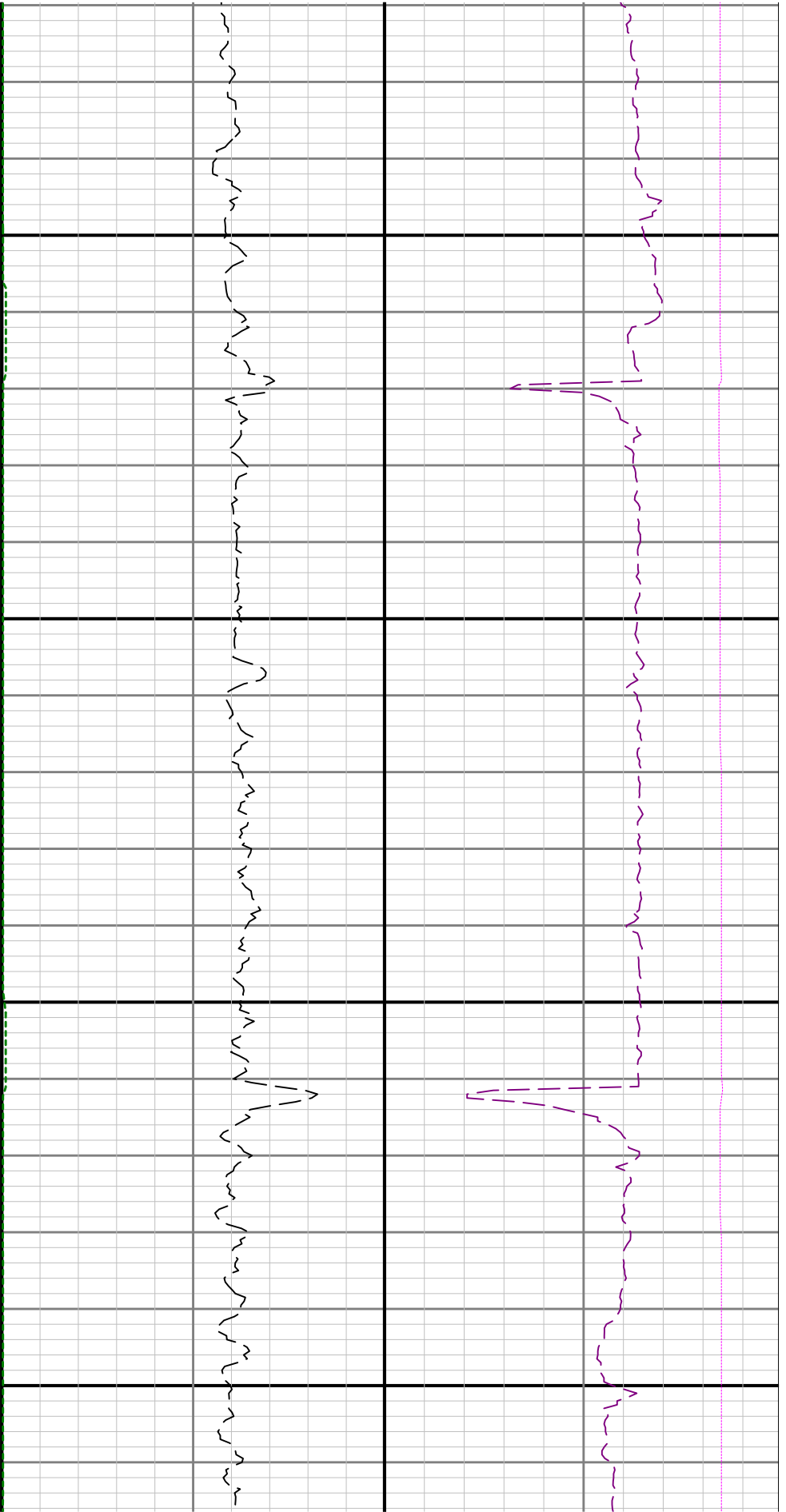




13100

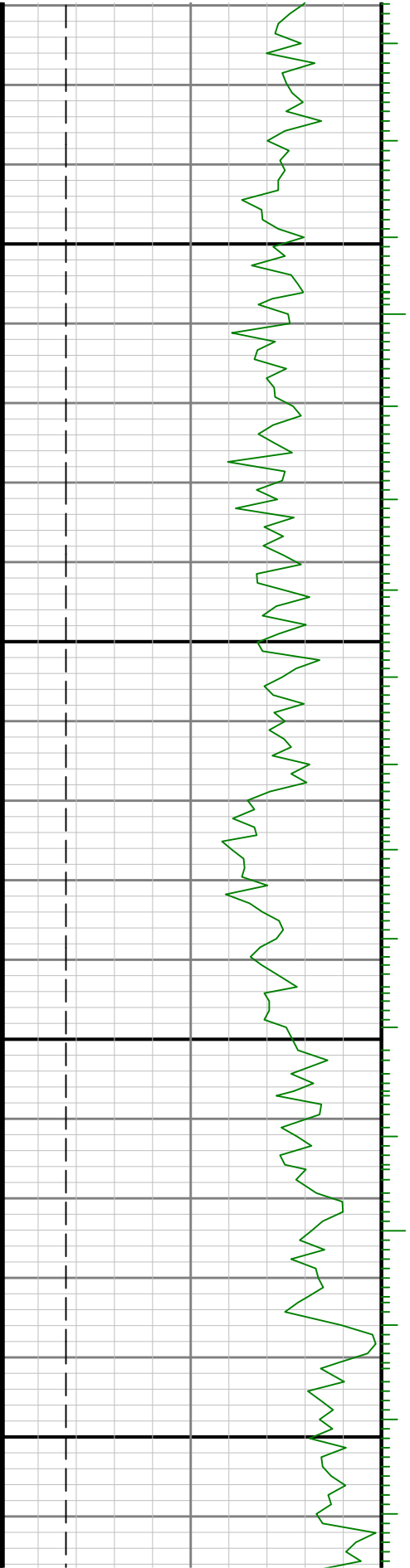
13200

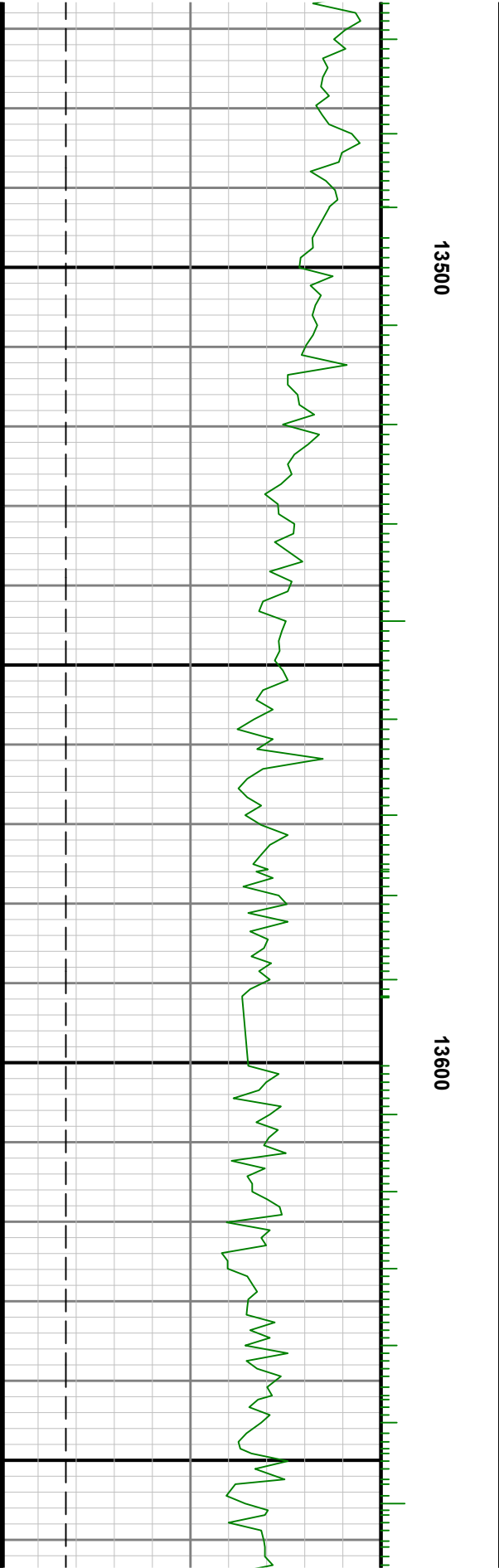
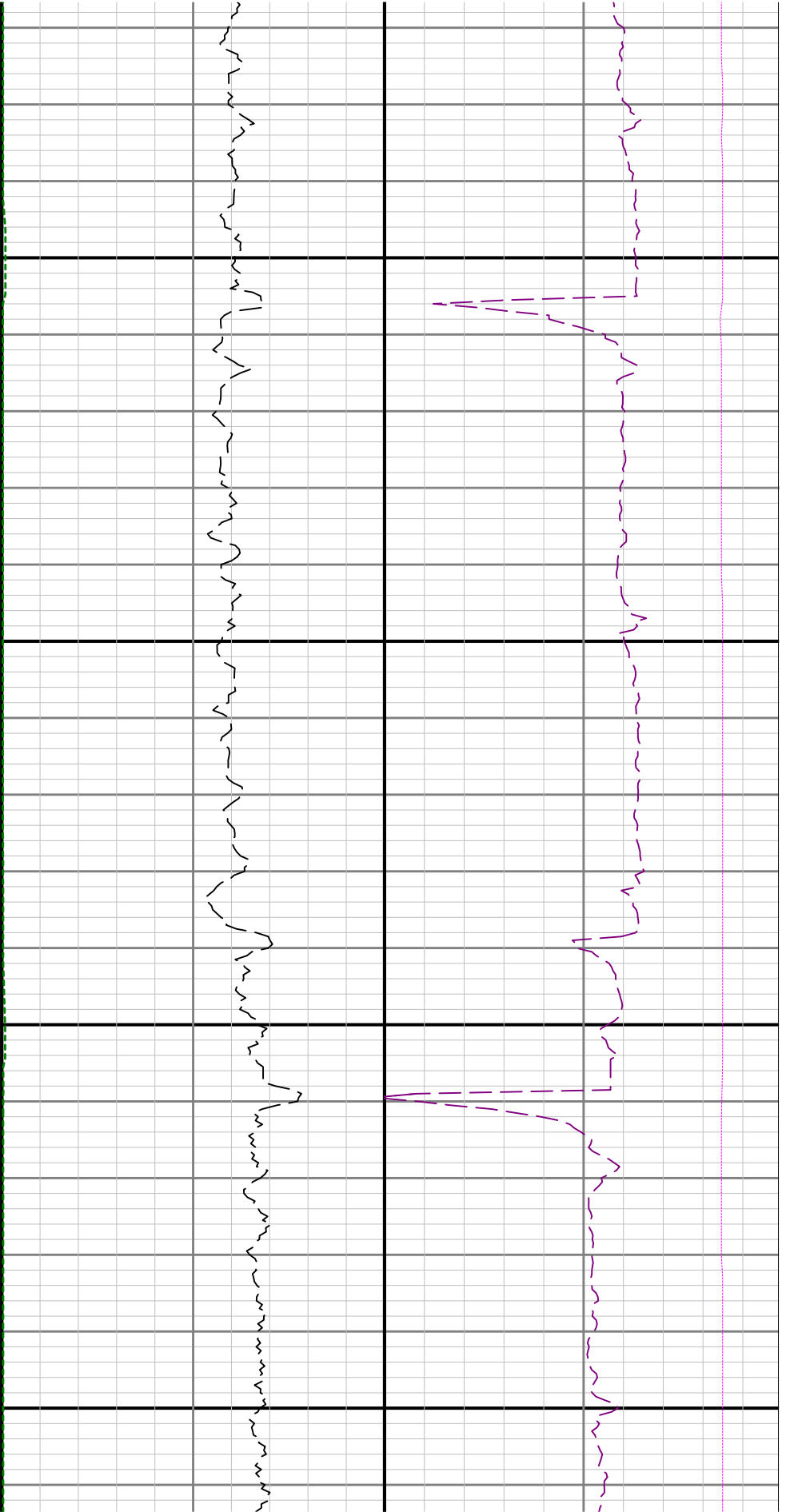


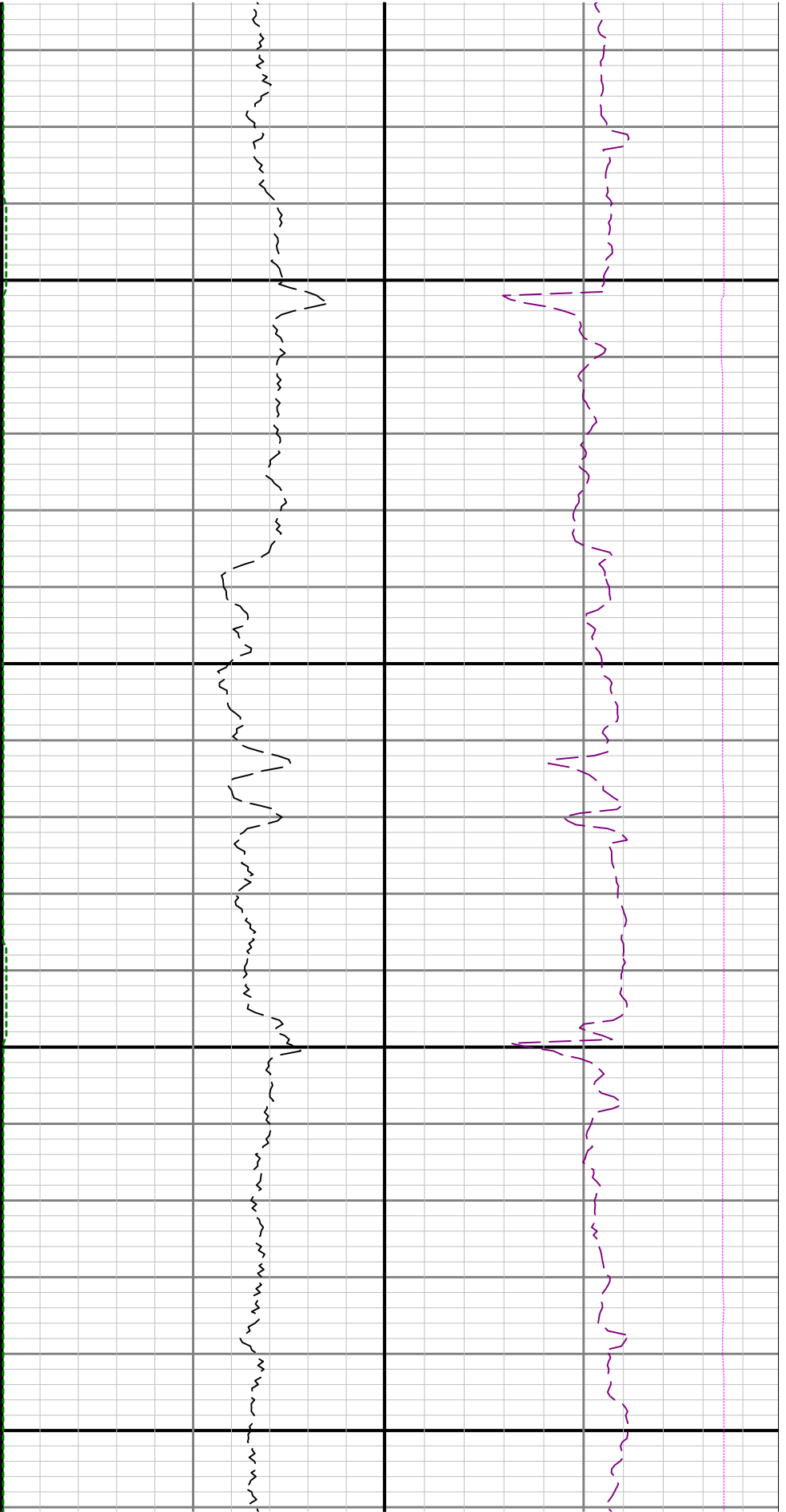


13300

13400







13700

13800

