



LWD MEMORY LOG

Gamma Ray
Up/Down Gamma Ray

Company: CCRP Operating Inc.

Well: Salt Ranch Fee 506-1035H

Field: Weld County (NAD 83/TN)

County: Weld Country: United States

State: Colorado

Driller's Depth

Other Services:

Status: Final Print

Surface Location:

Latitude:

Longitude:

API No: 05-123-46500

SEC: 10

TWN: 11N

RGE: 64W

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

Elevation: 0.00 ft

Elev. KB: 5456.00 ft

Elev. DF: 5434.00 ft

Elev. GL: 5434.00 ft

Dates

Interval Drilled

Magnetic Field Reference

Date From: 2019-04-11

Top: (ft)

100.00

Azi Reference North: True

Dip Angle: (deg)

67.25

Date To: 2019-04-23

Bottom: (ft)

18057.00

Total Magnetic Field Strength: (nT)

52561

Spud Date: 2019-04-10

Mag to Reference North Correction: (deg)

8.11

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

22.00

2222.00

9.625

36.00

22.00

2219.00

8.500

2222.00

18057.00

Mud Record

Deviation Record

Type

From (ft)

To (ft)

Hole Size (in)

Interval (ft)

Inc | Az (Start)

Inc | Az (End)

Water Based Mud

100.00

2222.00

13.500

2122.00

0.59 | 48.33

2.48 | 81.60

Diesel-Oil Based Mud

2222.00

18057.00

8.500

15835.00

2.48 | 81.60

89.08 | 359.30

Acquisition System

Software Version

Other

Baker Hughes Cadence

RT 5.0

5.0.8260.3

Rig: Unit 406

Contractor: Unit

District: R.M.A.

Unit: D & E

© 2019 GE. All rights reserved. GE, the GE monogram, and the GE logo are trademarks of General Electric Company. All other trademarks are the property of their respective owners. The BHGE logo is a trademark of Baker Hughes, a GE company, LLC. GE and the GE monogram are trademarks of General Electric Company used under trademark license.

Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	13.500	PDC	4.75	Steerable	0.00	0.00	100.00	2222.00	N/A	N/A	8.10
2	1	8.500	PDC	4.00	AutoTrak Curve	2209.00	18043.00	2222.00	18057.00	2019-04-19 20:35	2019-04-22 17:48	65.65

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Zac Williams	2019-04-11	2019-04-23	Ryan Marshall	2019-04-19	2019-04-23			

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+ (%)
2019-04-11 08:00	1	100.00	Water Based Mud	8.9	2	8	1.0	0/95.5	Active Pit	993	0.00
2019-04-19 16:00	2	2222.00	Diesel-Oil Based Mud	9.5	10	N/A	18.0	70/18	Active Pit	28958	0.00
2019-04-20 16:00	2	7401.00	Diesel-Oil Based Mud	9.5	11	N/A	22.0	68/19.2	Active Pit	40000	0.00
2019-04-21 16:00	2	12757.00	Diesel-Oil Based Mud	10.0	12	N/A	22.0	67/18	Active Pit	32000	0.00
2019-04-22 16:00	2	17715.00	Diesel-Oil Based Mud	10.1	12	N/A	22.0	70/15	Active Pit	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	10350729	VSS	16.47	52.64	8.063	0.000
1	NaviTrak	10350729	Directional (mag)	16.47	52.64	8.063	0.000
2	AutoTrak Curve Steering Unit	41564691	Near Bit Inclination	5.93	6.73	7.000	4.330
2	AutoTrak Curve Steering Unit	41564691	Near Bit VSS	5.93	6.73	7.000	4.330
2	AutoTrak Curve MWD	12188147	Gamma (single)	2.77	12.90	7.000	3.250
2	AutoTrak Curve MWD	12188147	Directional (mag)	12.29	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
NTK	NaviTrak	Probe Based Directional Module, NaviTrak Platform
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 the lack of control by Baker Hughes, depth calibrations and measurements could not be independently verified.
- 2
- Baker Hughes LWD run 1 utilized a 8 inch NaviTrak services (Directional) behind a 13.5 inch bit and steerable assembly from 100 to 2222 feet MD (100 to 2222 feet TVD).
- 3
- Baker Hughes LWD run 2 utilized a 6.75 inch NaviGamma services (Directional and Gamma Ray) behind a 8.5 inch bit and rotary steerable assembly from 2222 to 18057 feet MD (2222 to 7950 feet TVD).
- 4
- Baker Hughes LWD run 2 utilized a 6.75 inch NaviGamma services (Up/Down Gamma Ray) from 7400 to 18057 feet MD (7132 to 7950 feet TVD) as per customer request.

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	18050.00	8.500	2	The interval from 18043 to 18057 feet MD (7950 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	Gamma Ray - Apparent - Memory	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	Gamma Ray - Time Since Drilled - Memory	min
GRCDM	Gamma Ray - Hole Size - Mud Weight - Corrected - Down Quadrant - Memory 0.5 ft Average	API
GRCUM	Gamma Ray - Hole Size - Mud Weight - Corrected - Up Quadrant - Memory 0.5 ft Average	API
TCDM	Directional Real-Time Survey Temperature	degF

BAKER HUGHES

a GE company

GE

Company

Well

Interval

Created

CCR Operating Inc.

Salt Ranch Fee 506-1035H

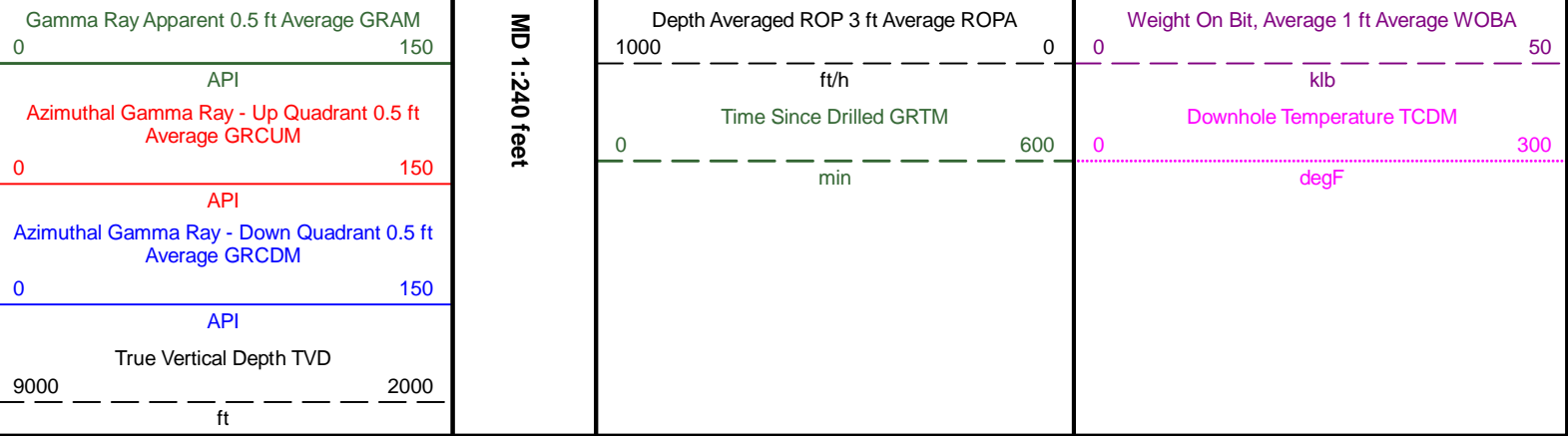
Date From: 2019-04-11 03:05

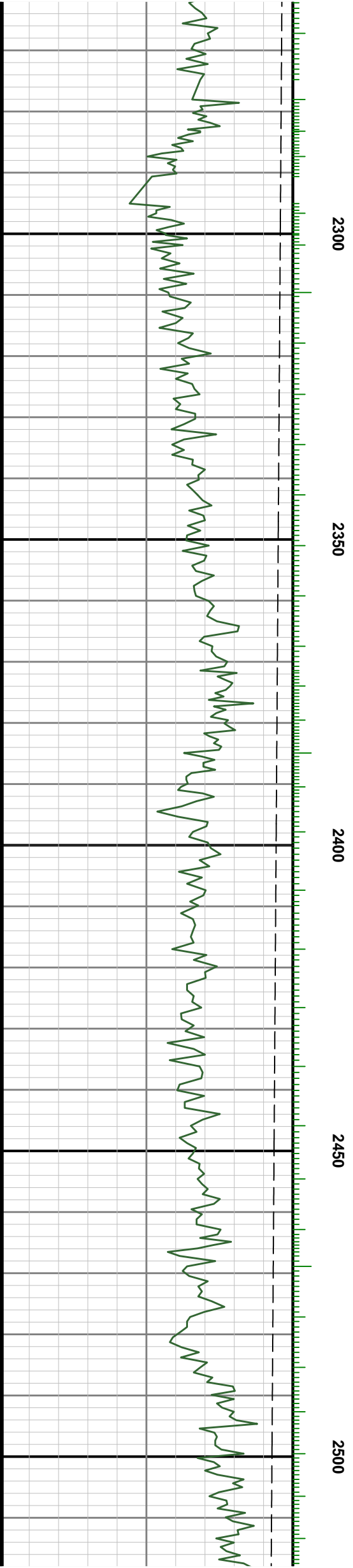
Date To: 2019-04-23 05:48

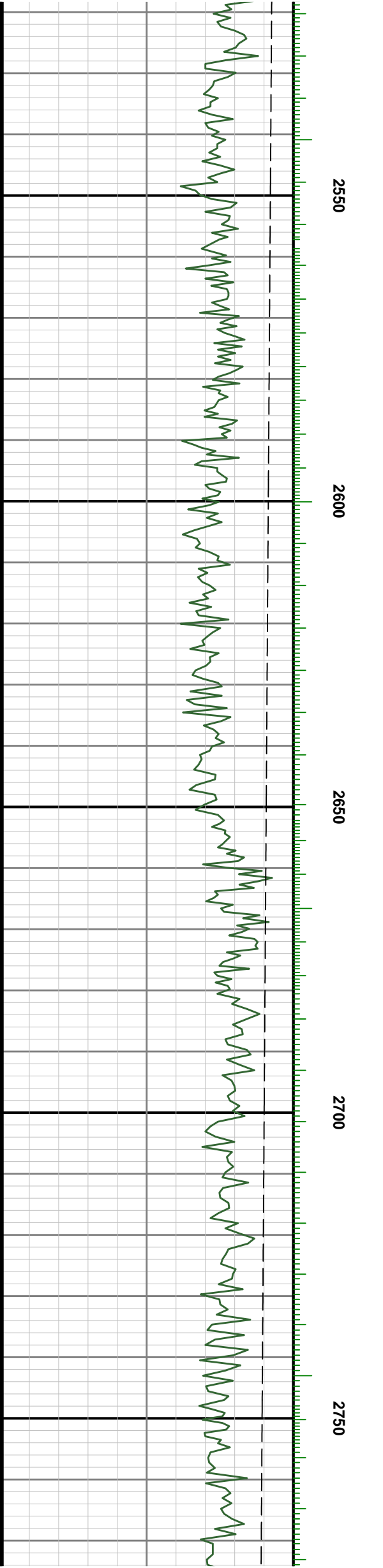
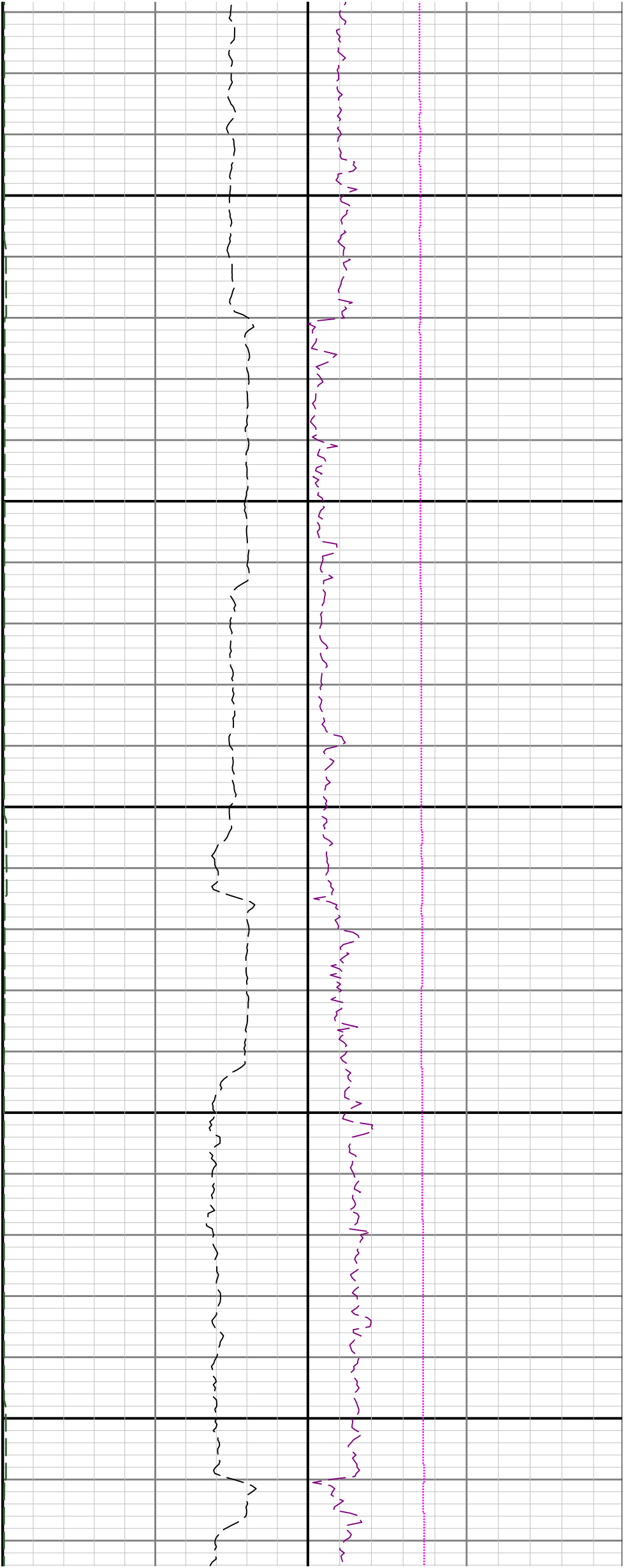
2019-04-23 09:03:56

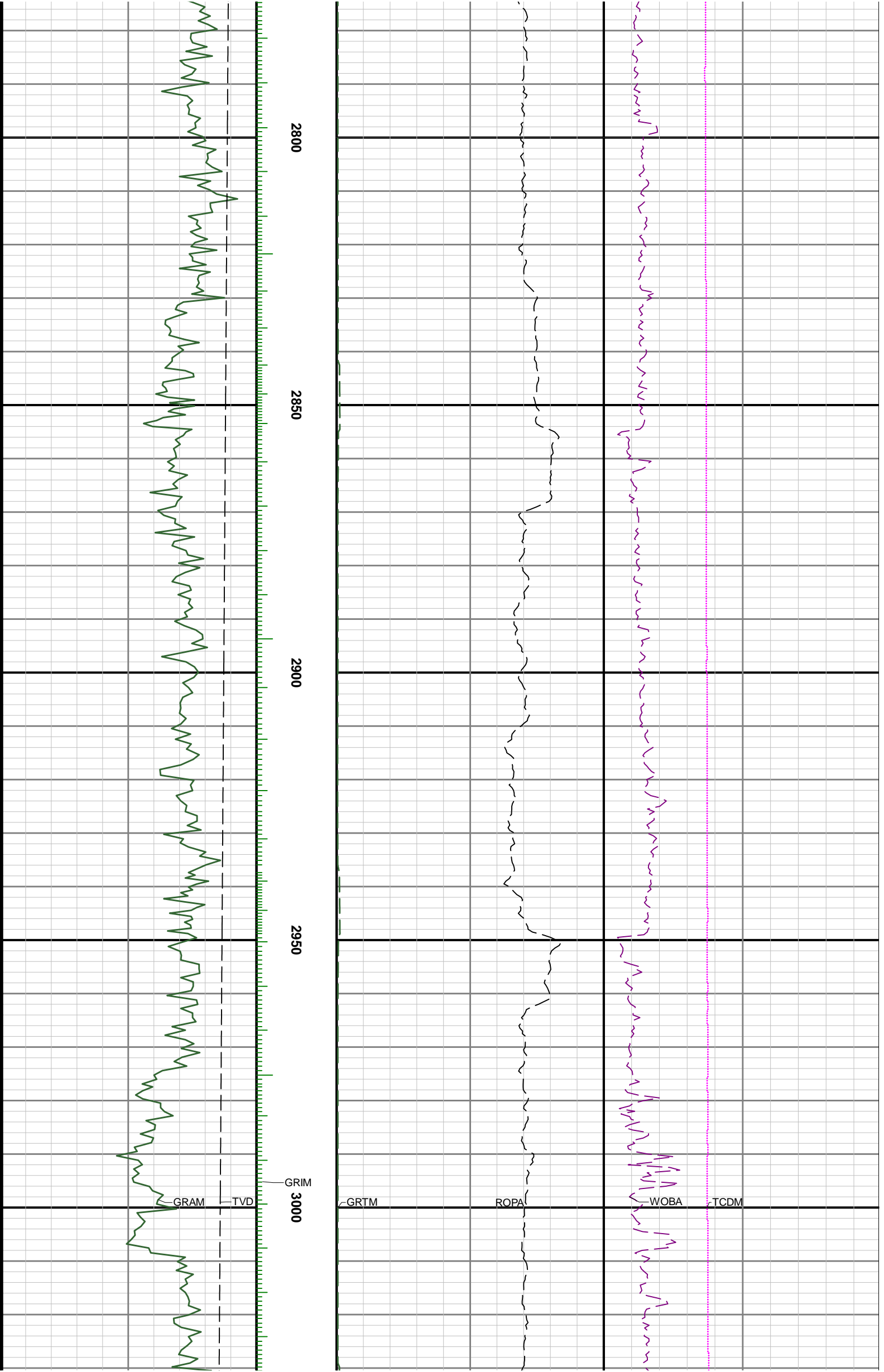
Top: 100.00 ft

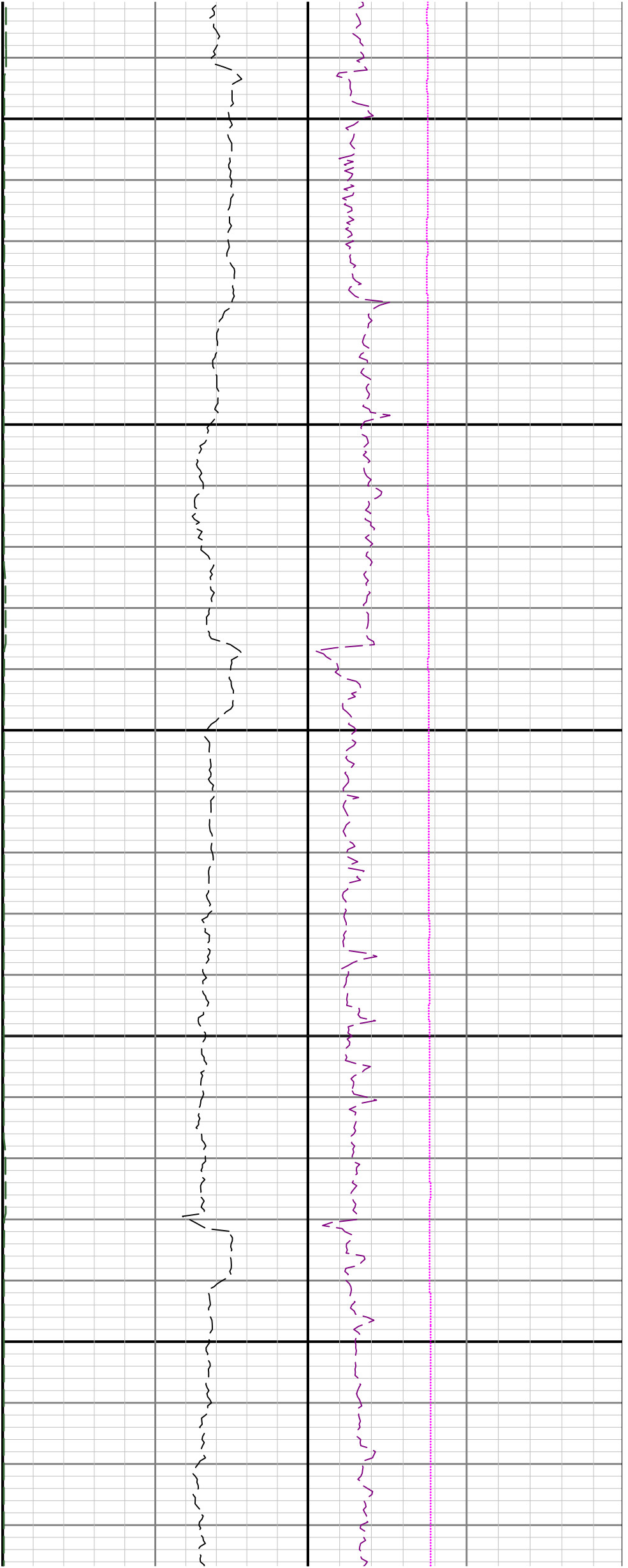
Bottom: 18057.00 ft



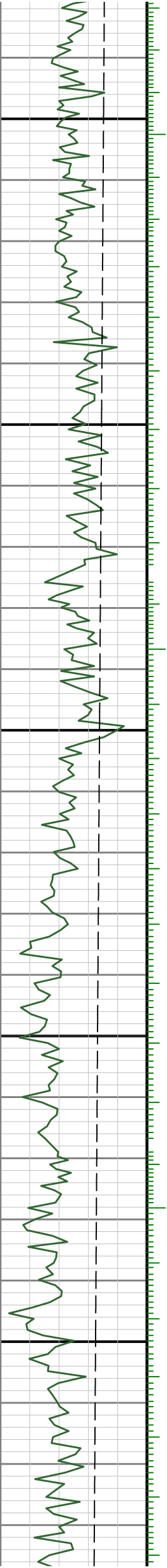


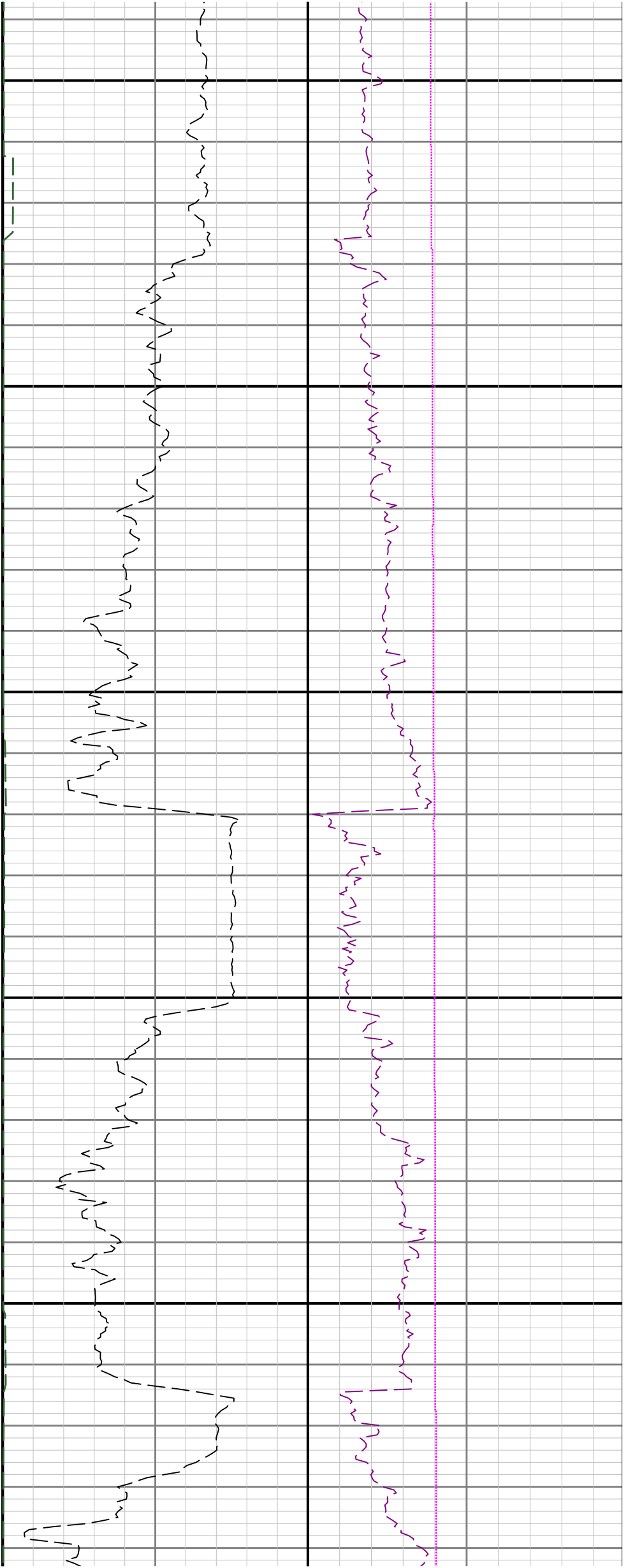






3050 3100 3150 3200 3250





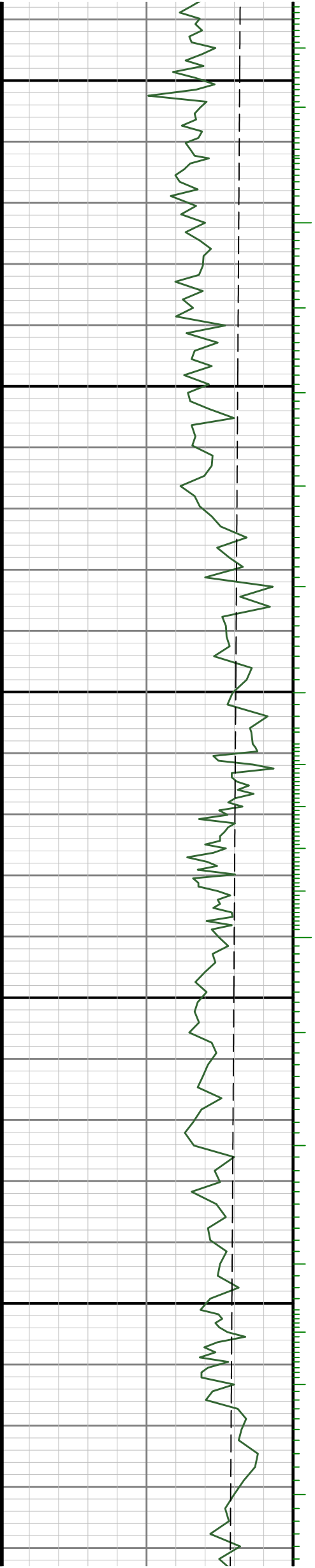
3300

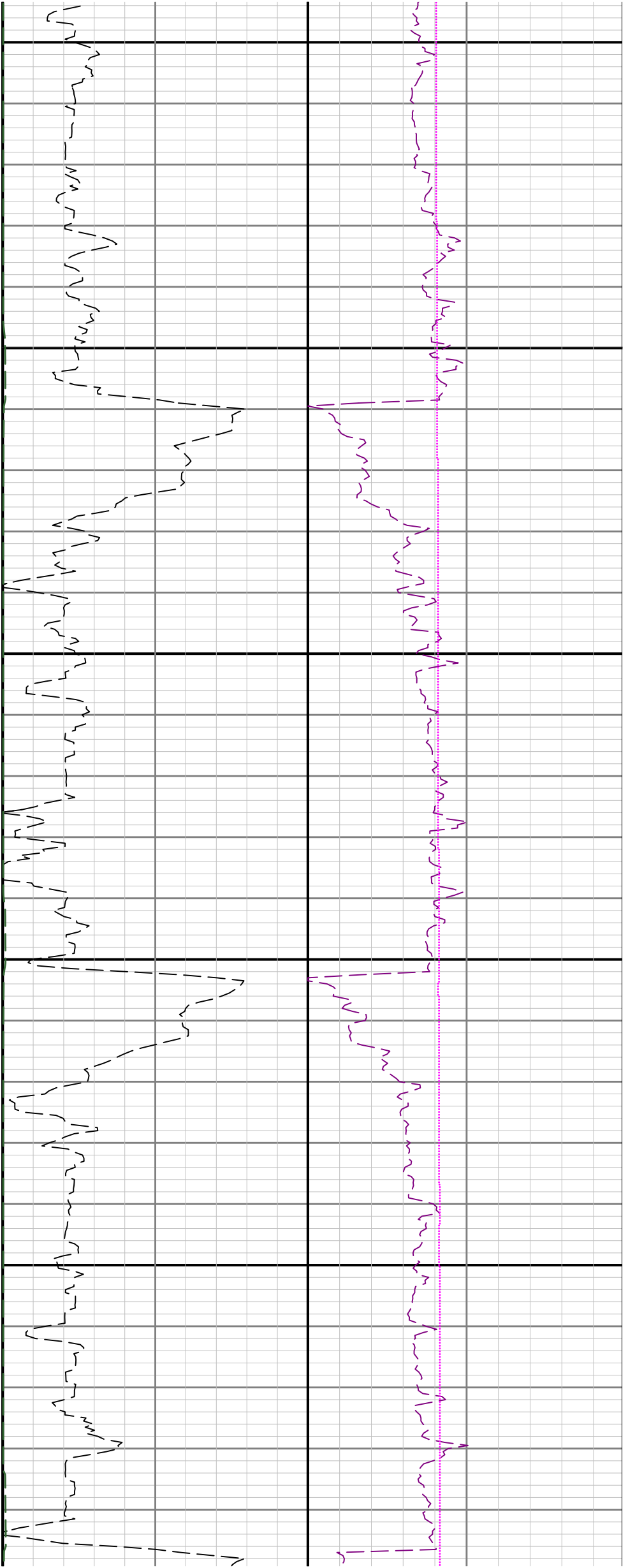
3350

3400

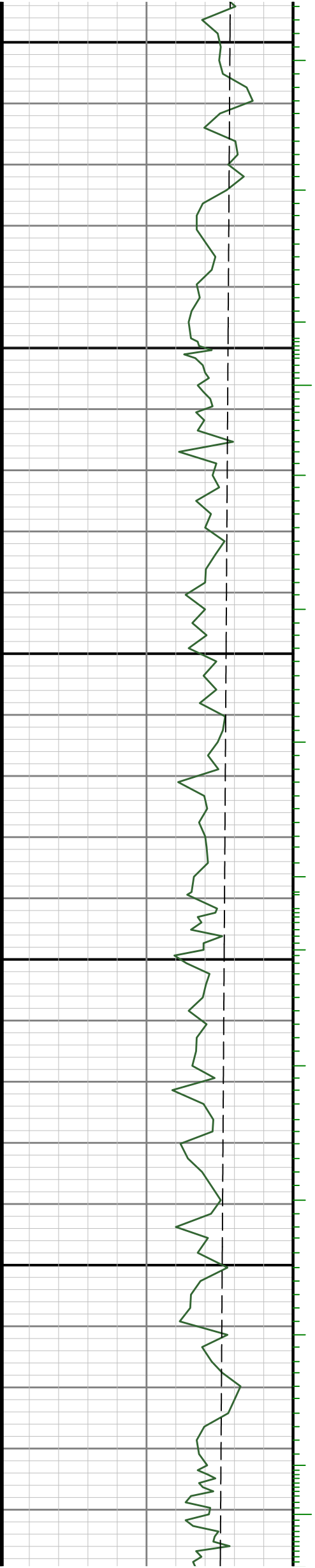
3450

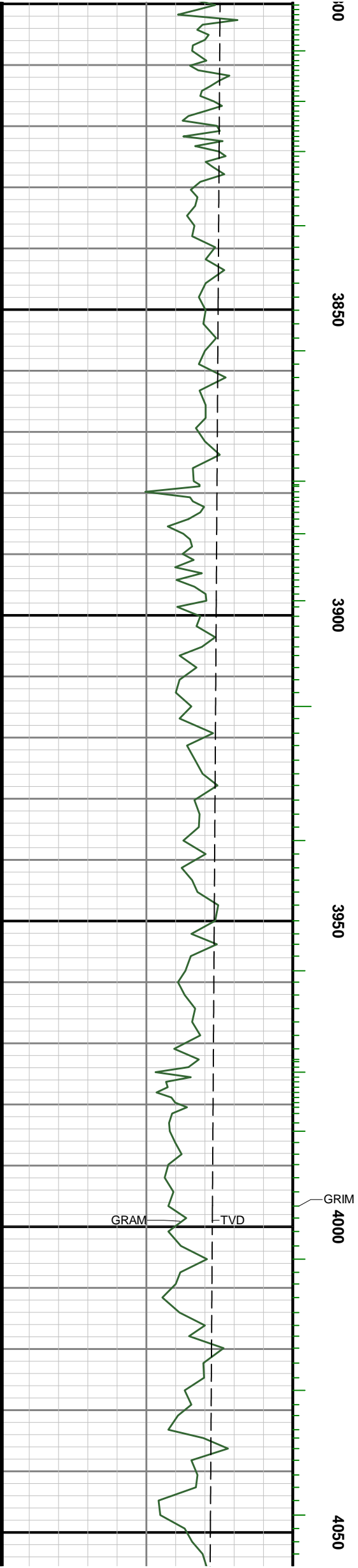
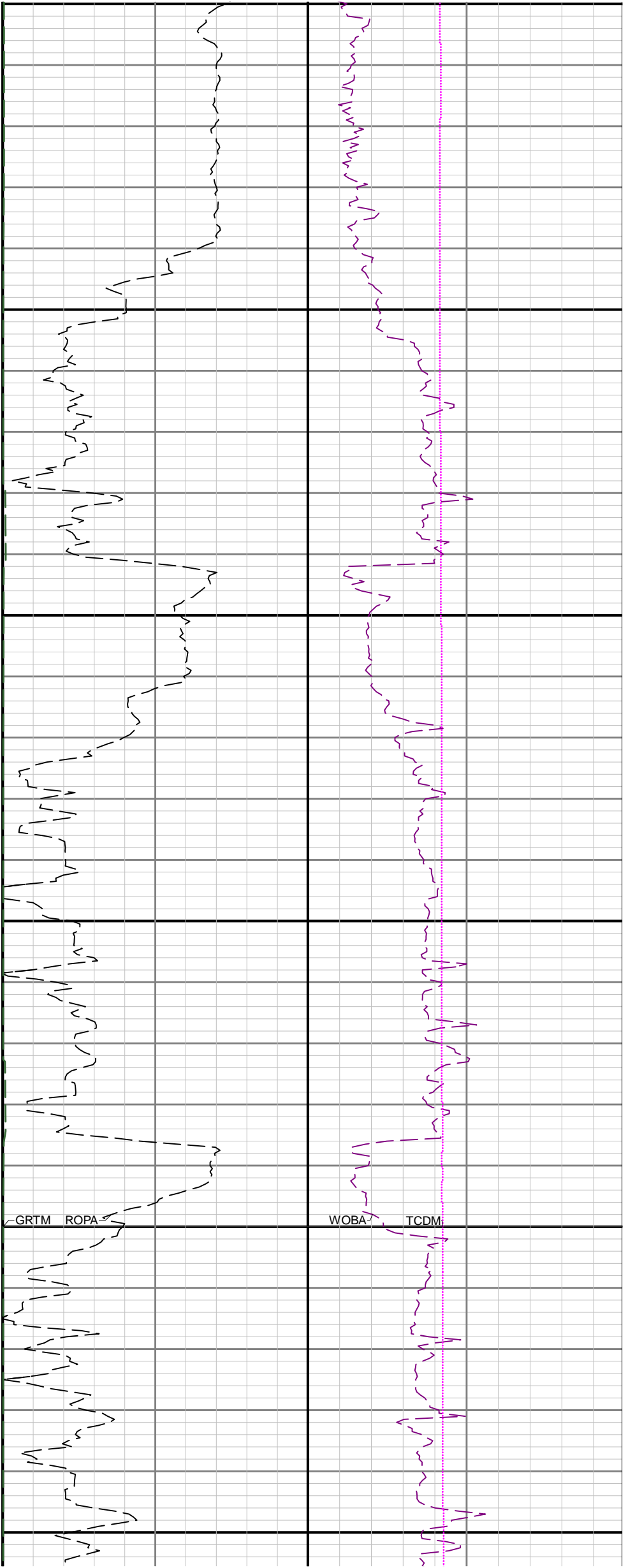
3500

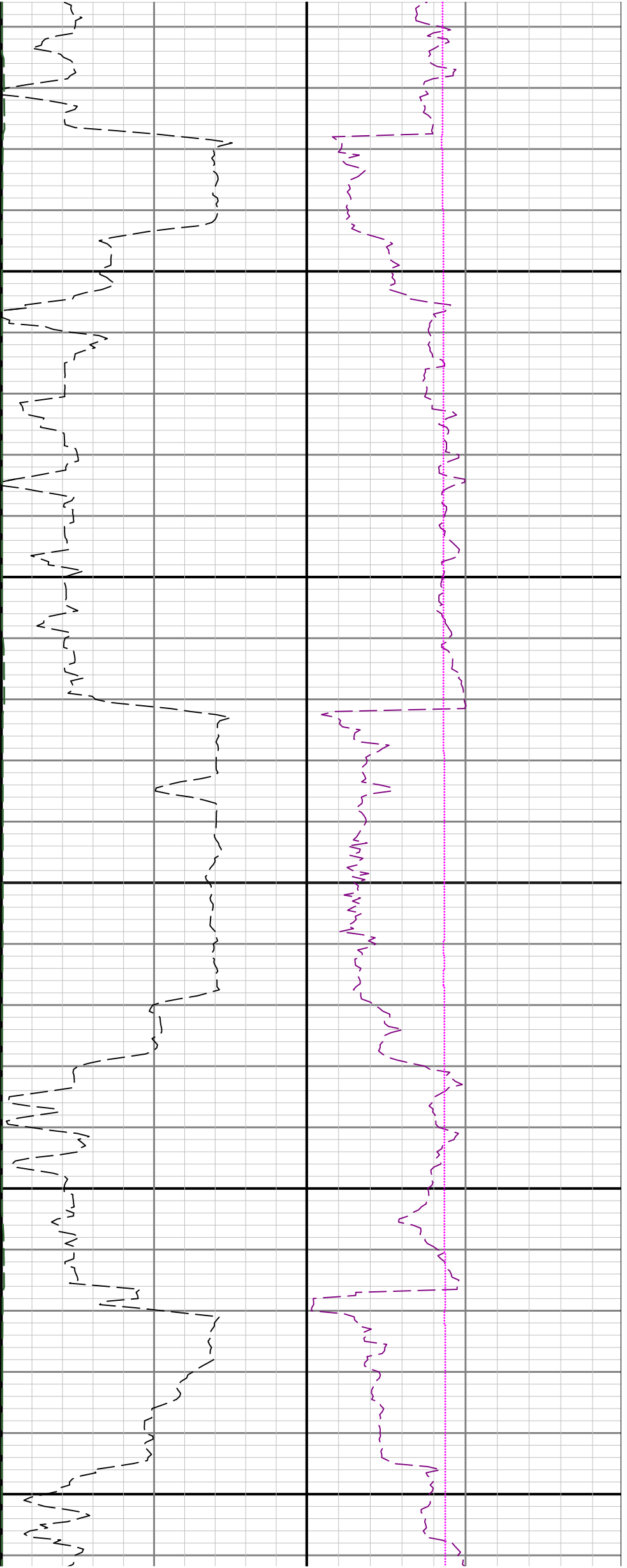




3550 3600 3650 3700 3750 3800







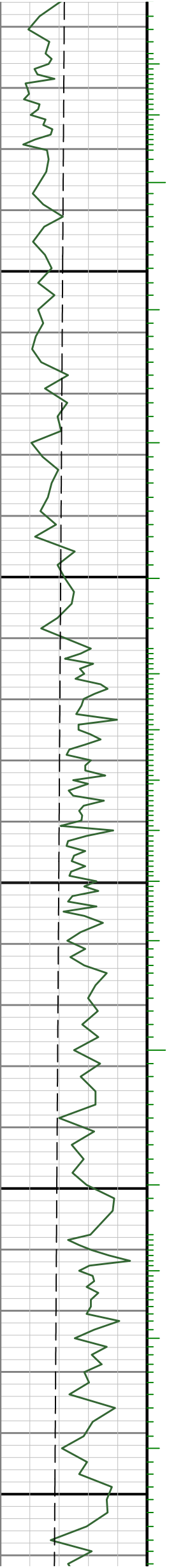
4100

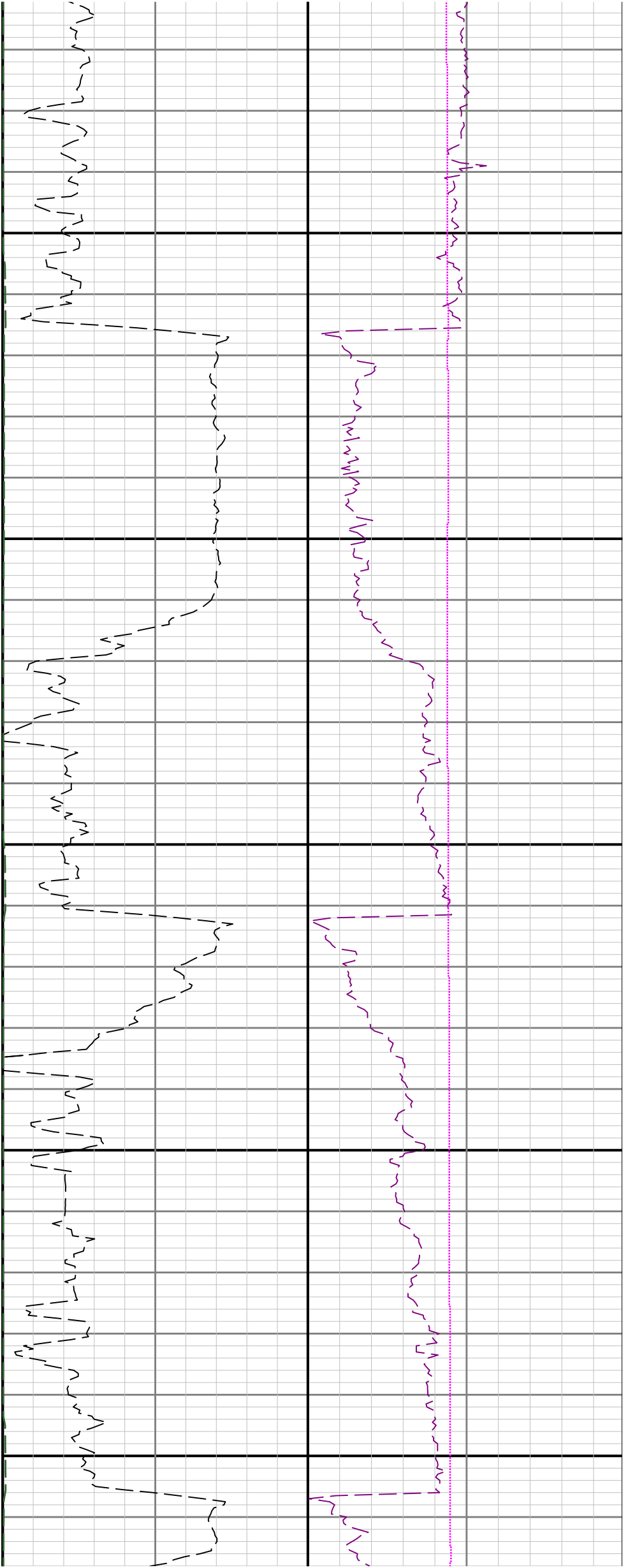
4150

4200

4250

4300





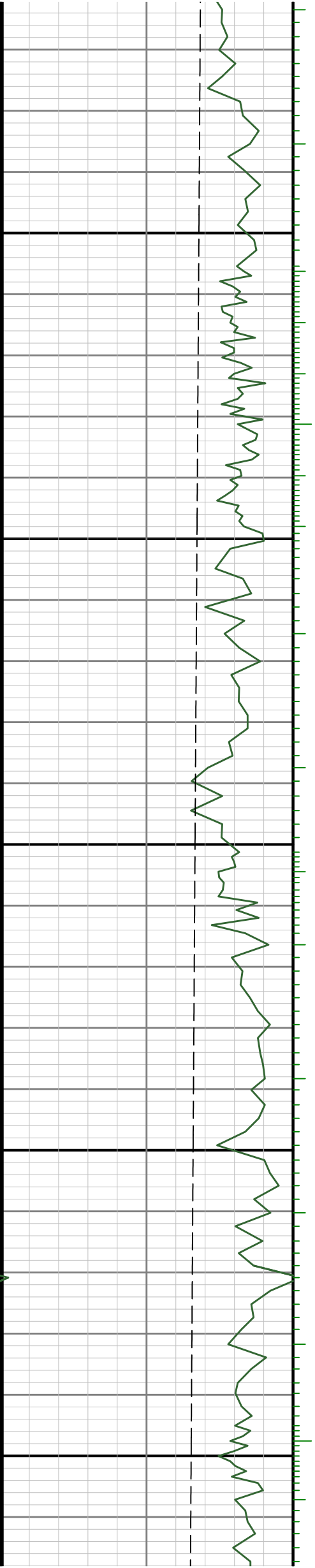
4350

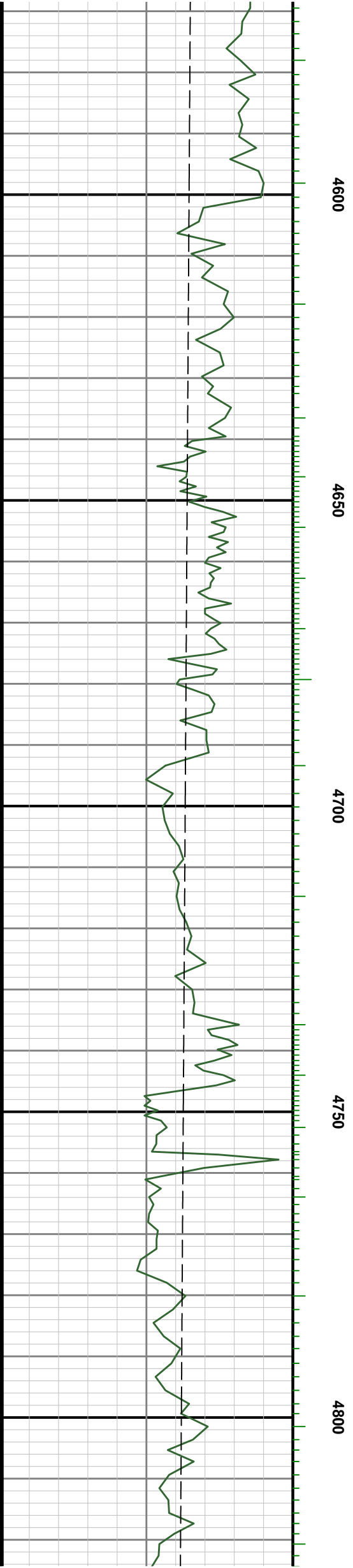
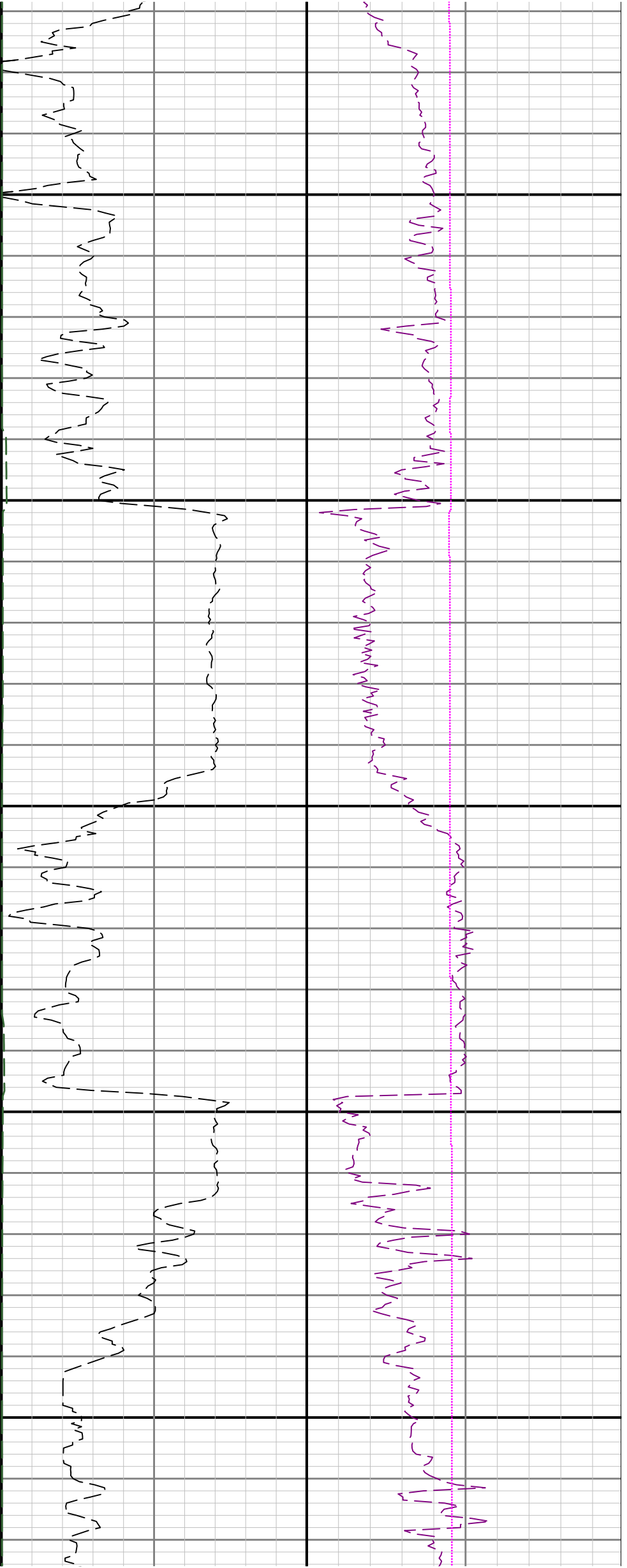
4400

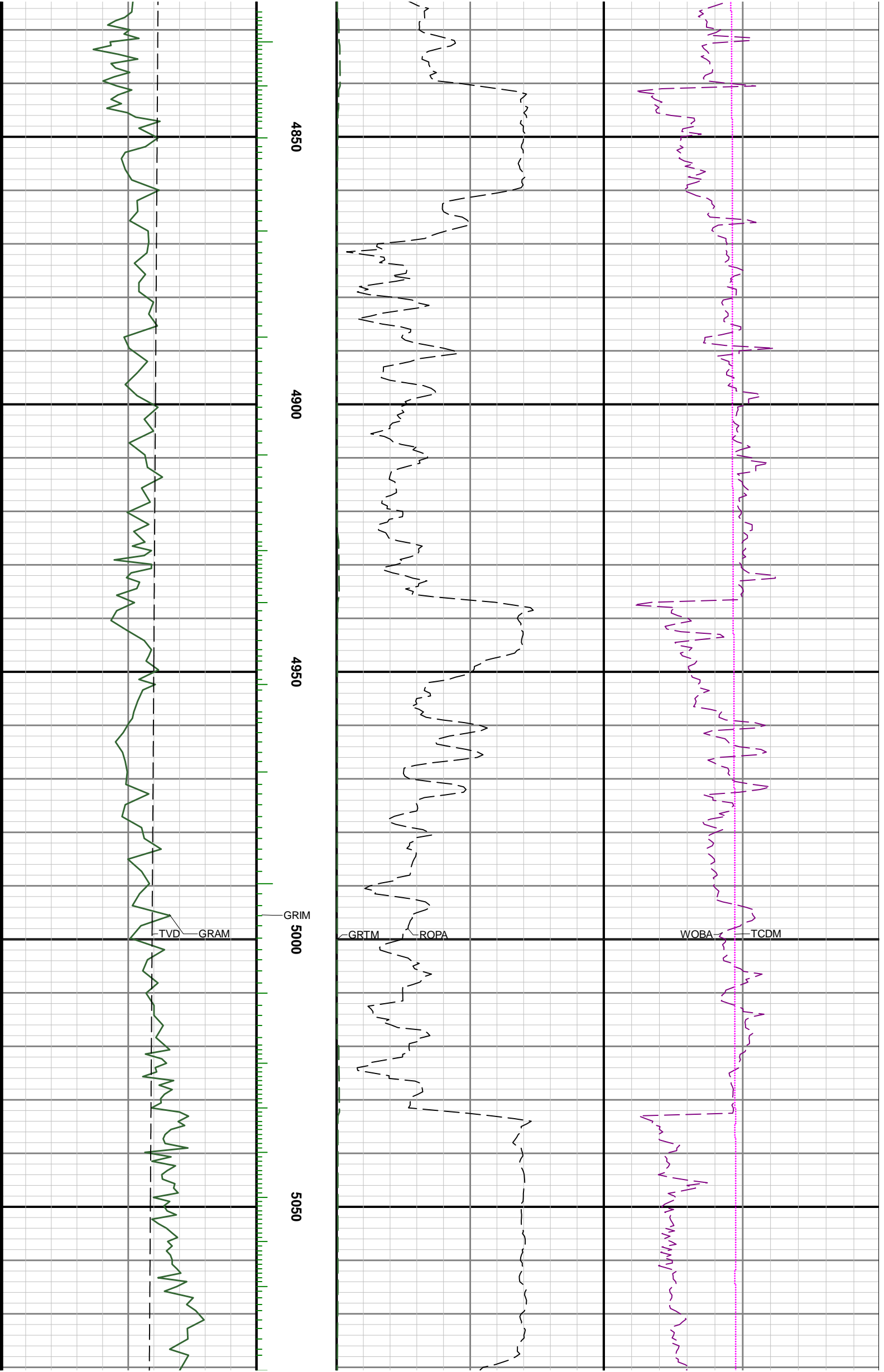
4450

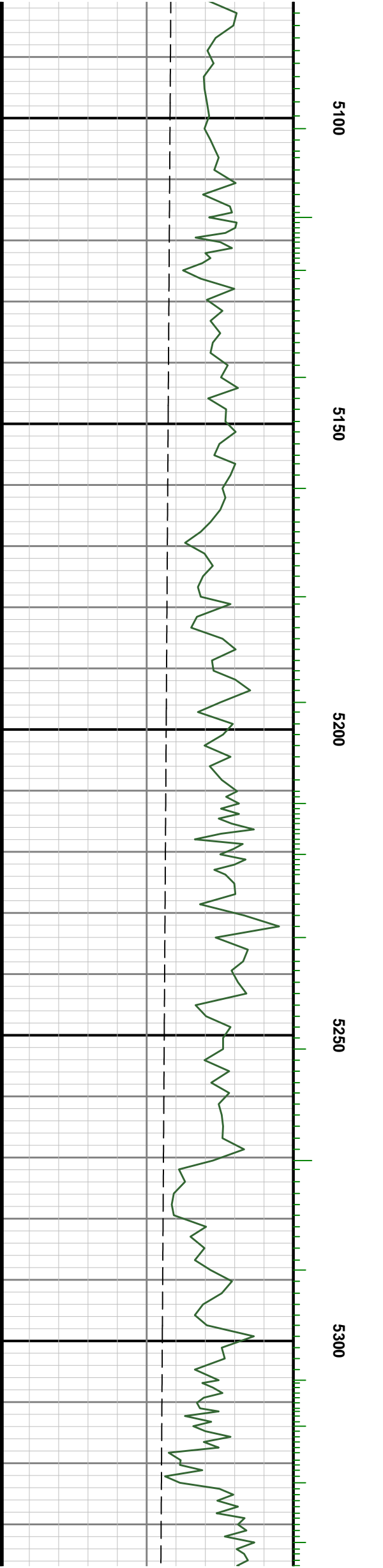
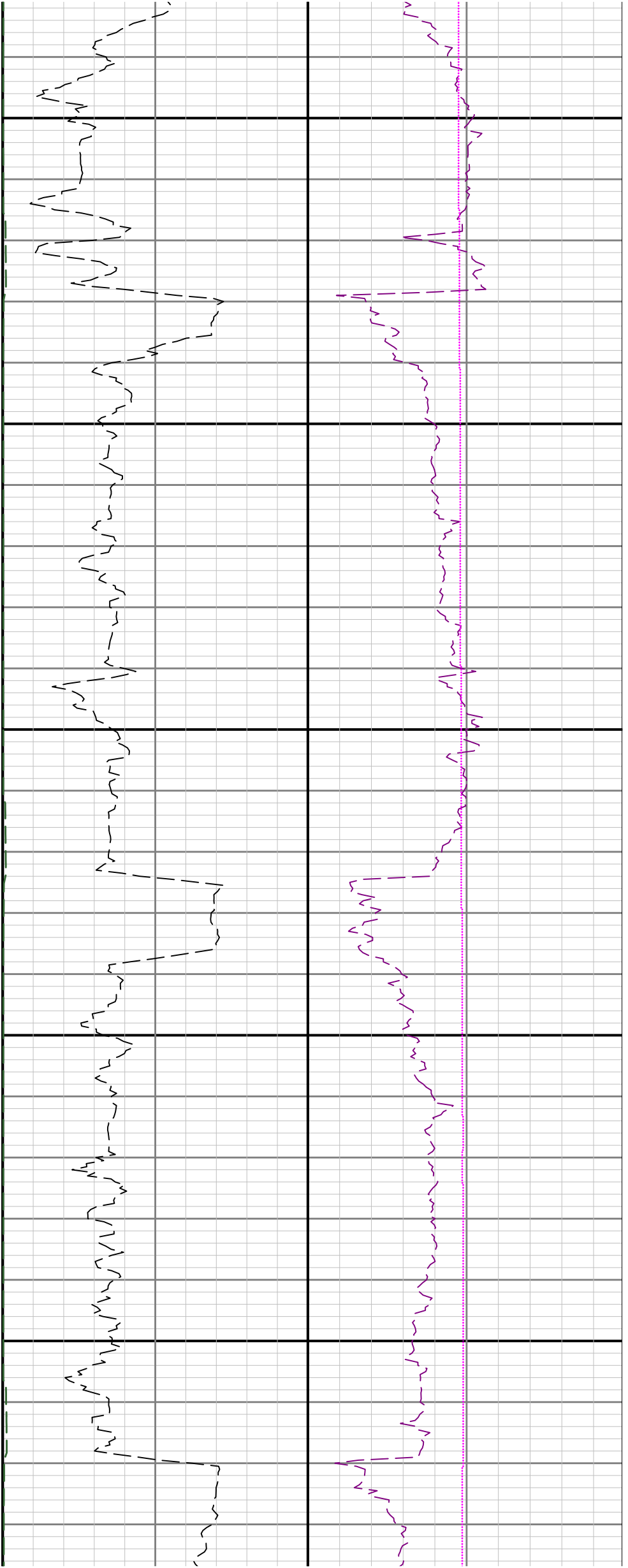
4500

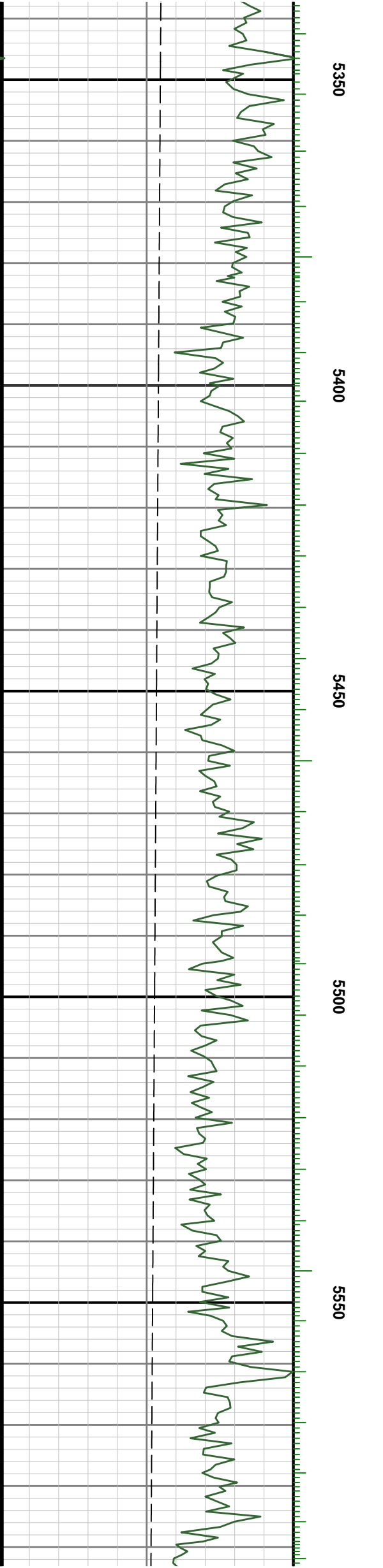
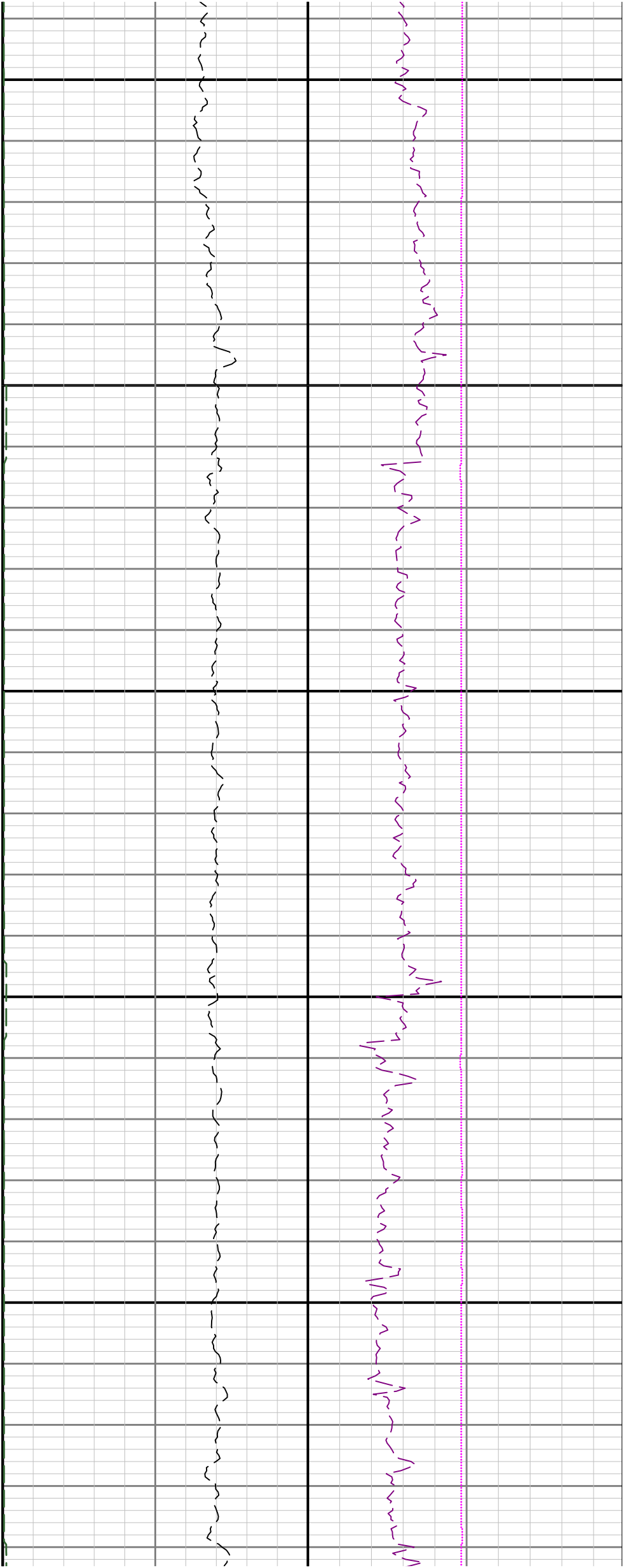
4550

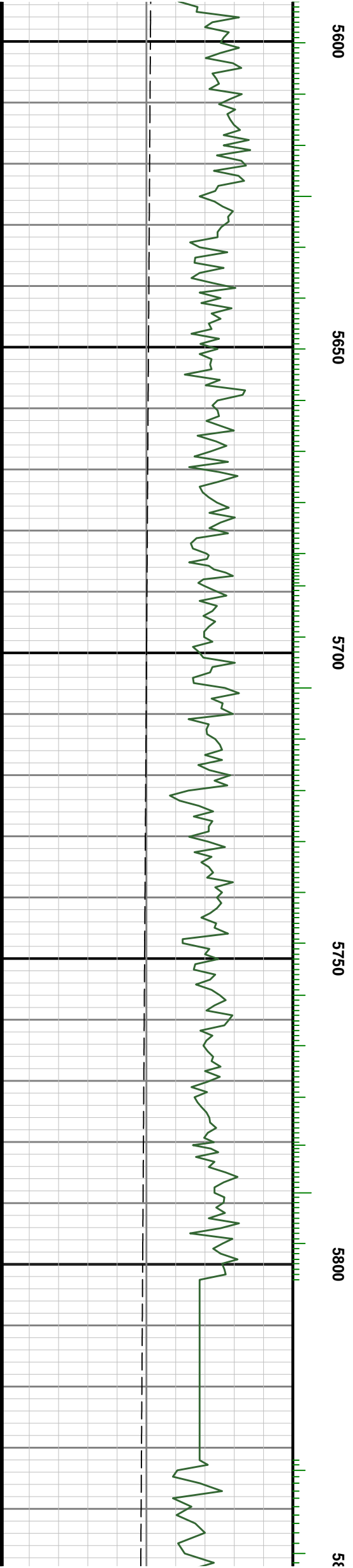
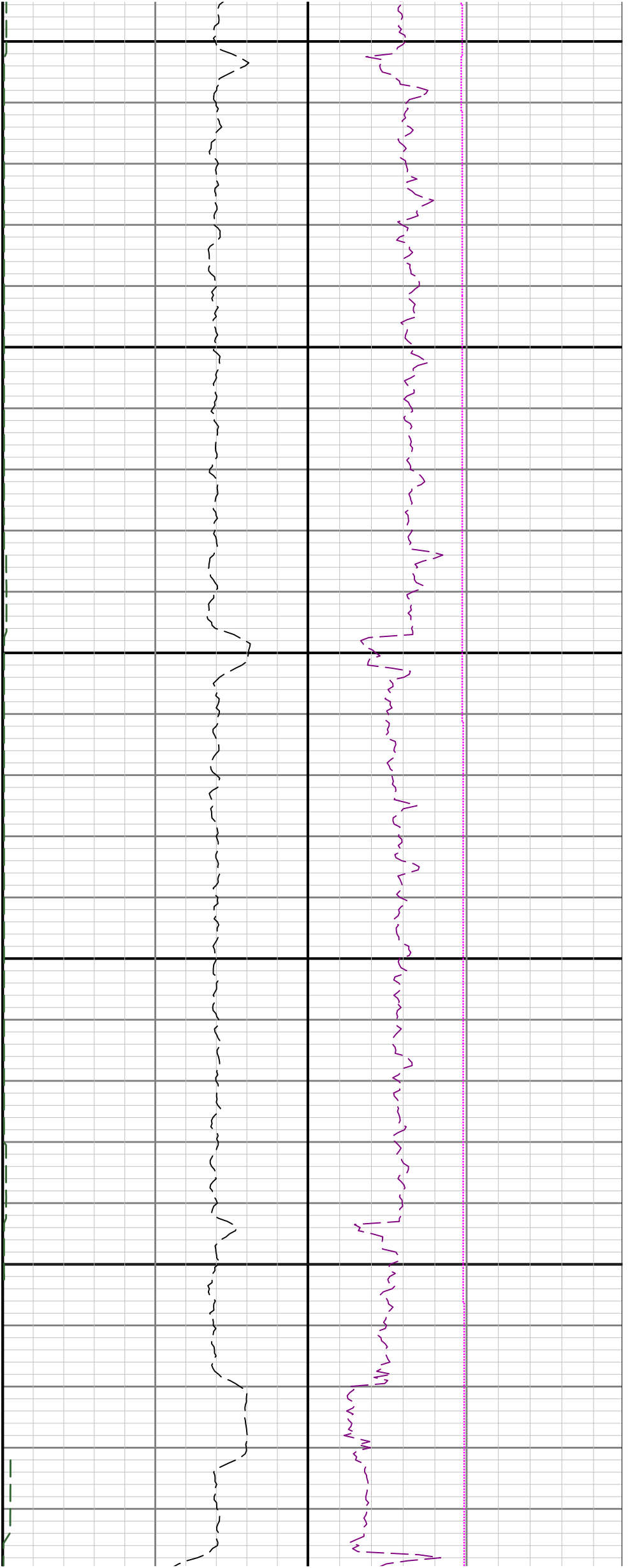


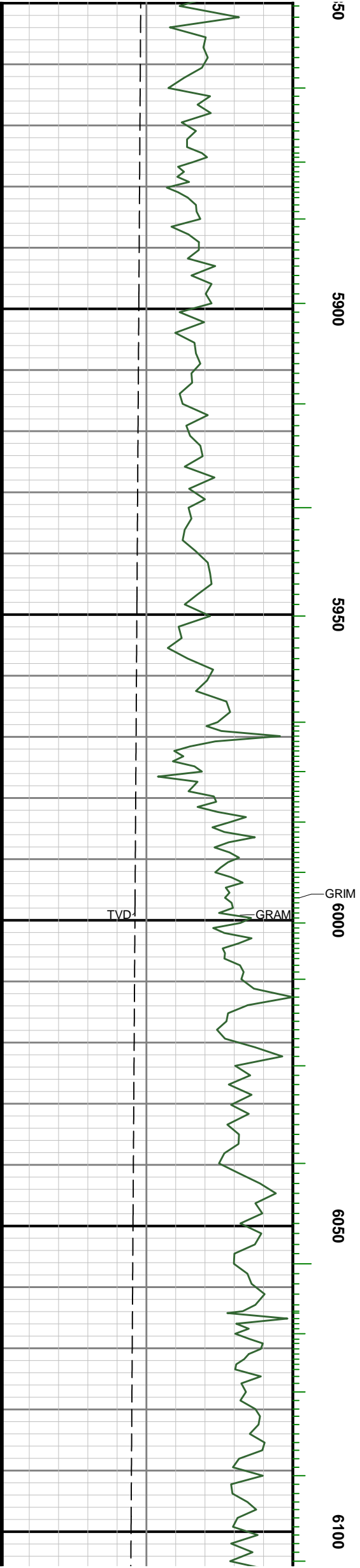
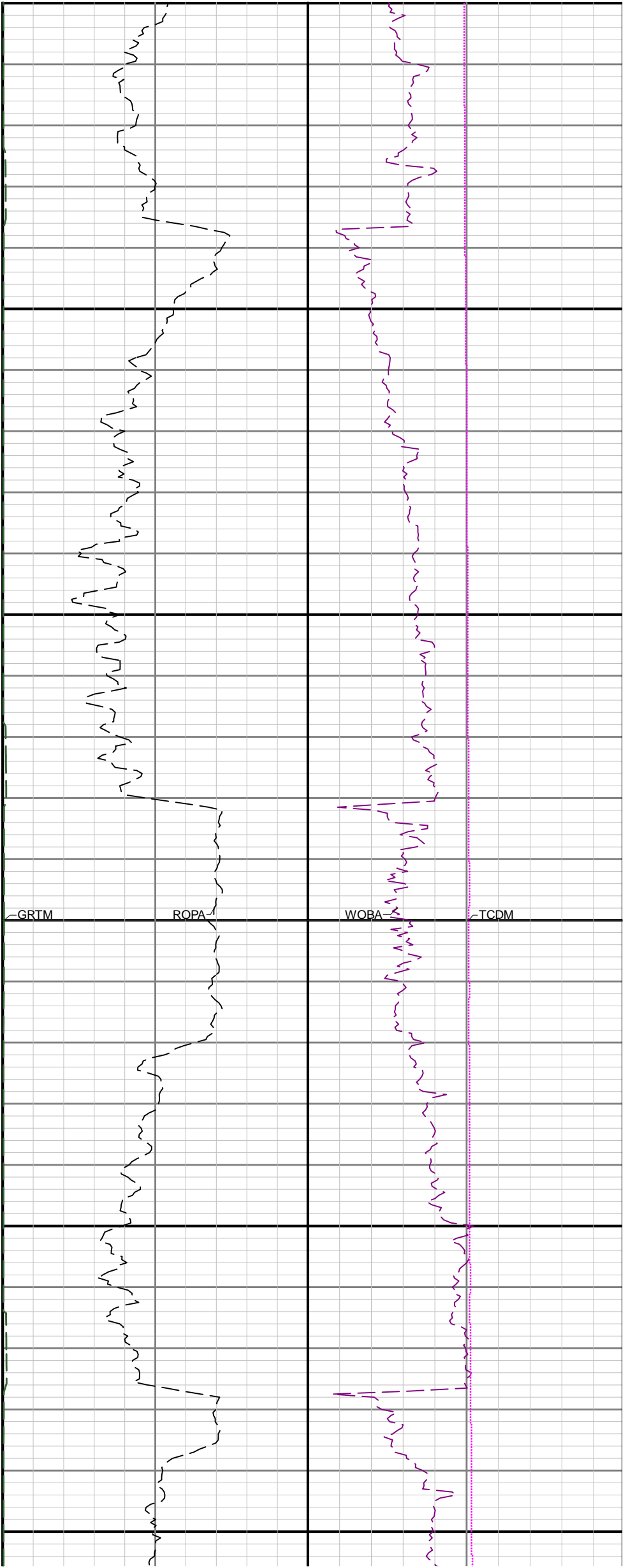


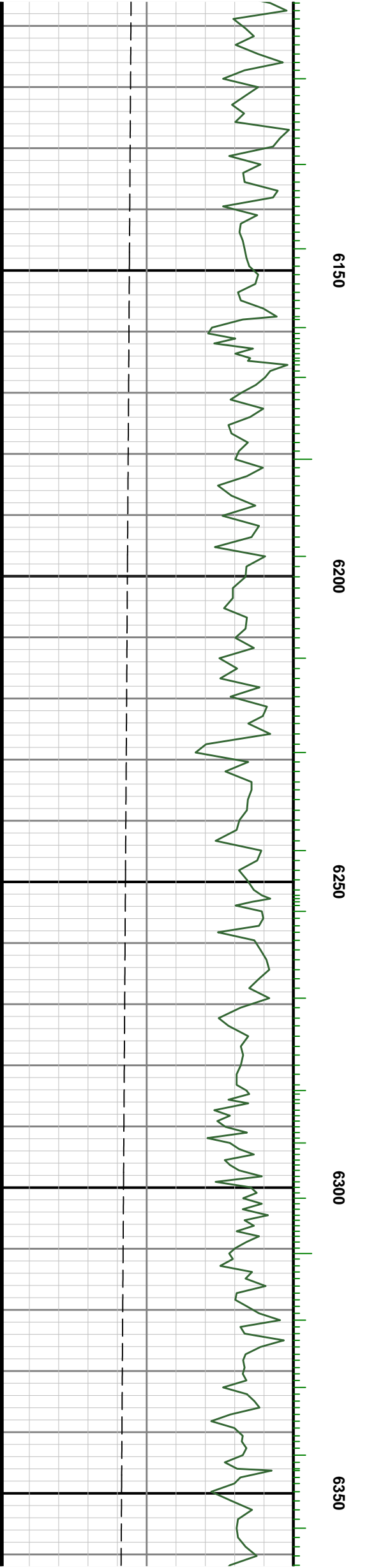
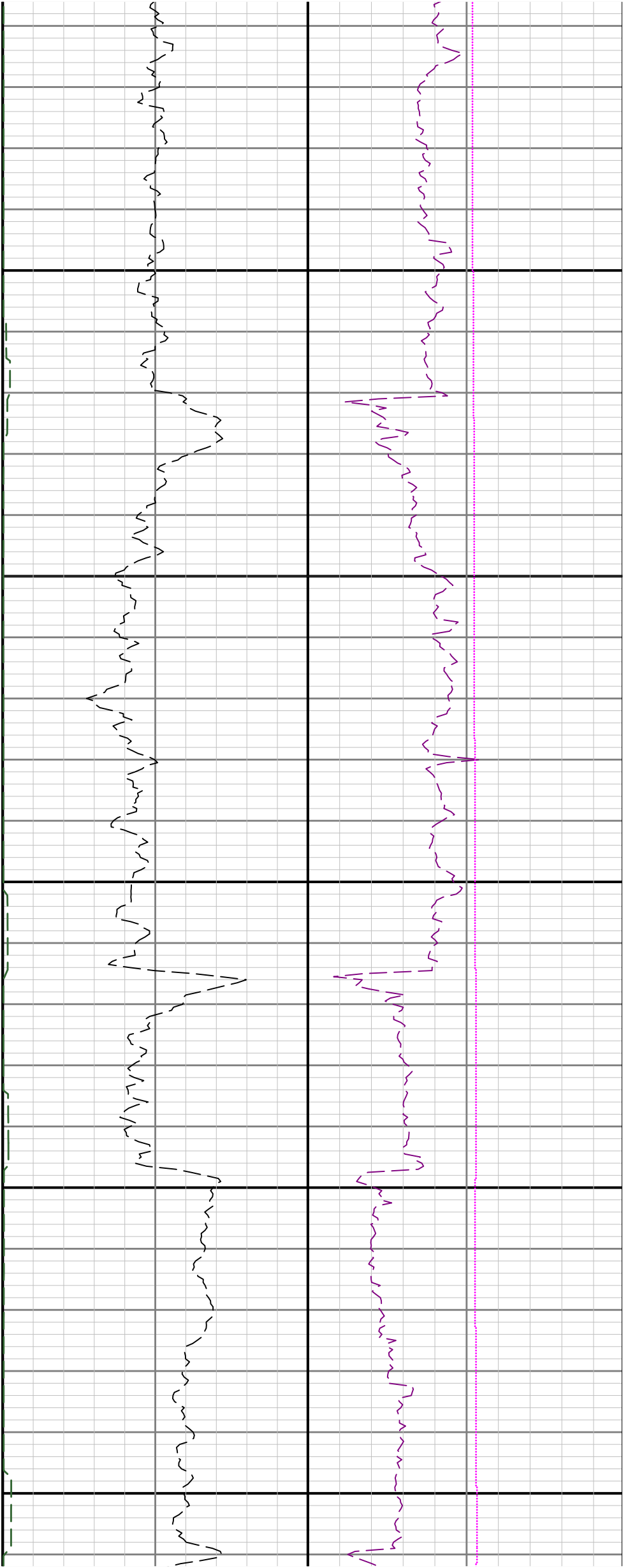


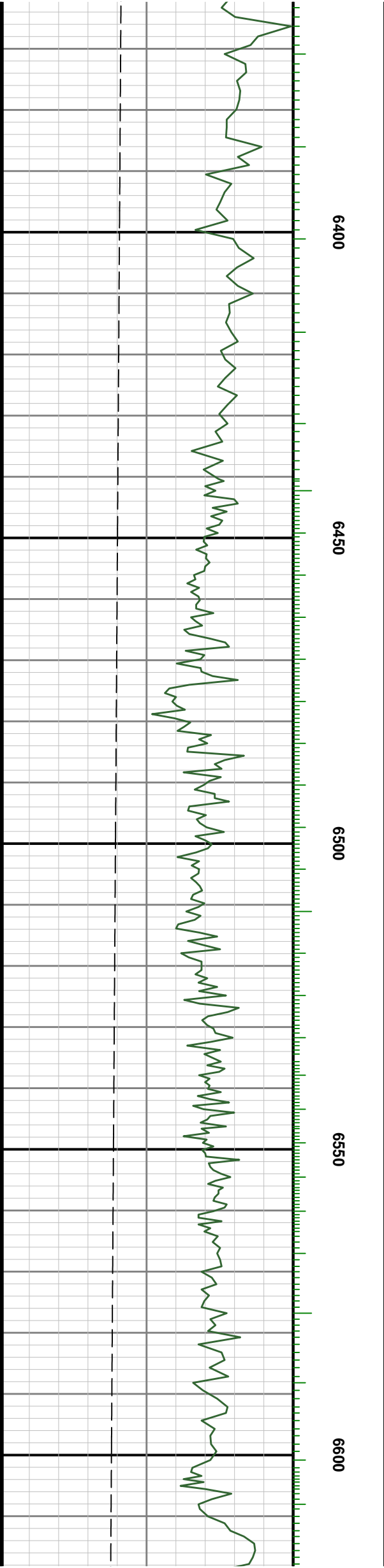
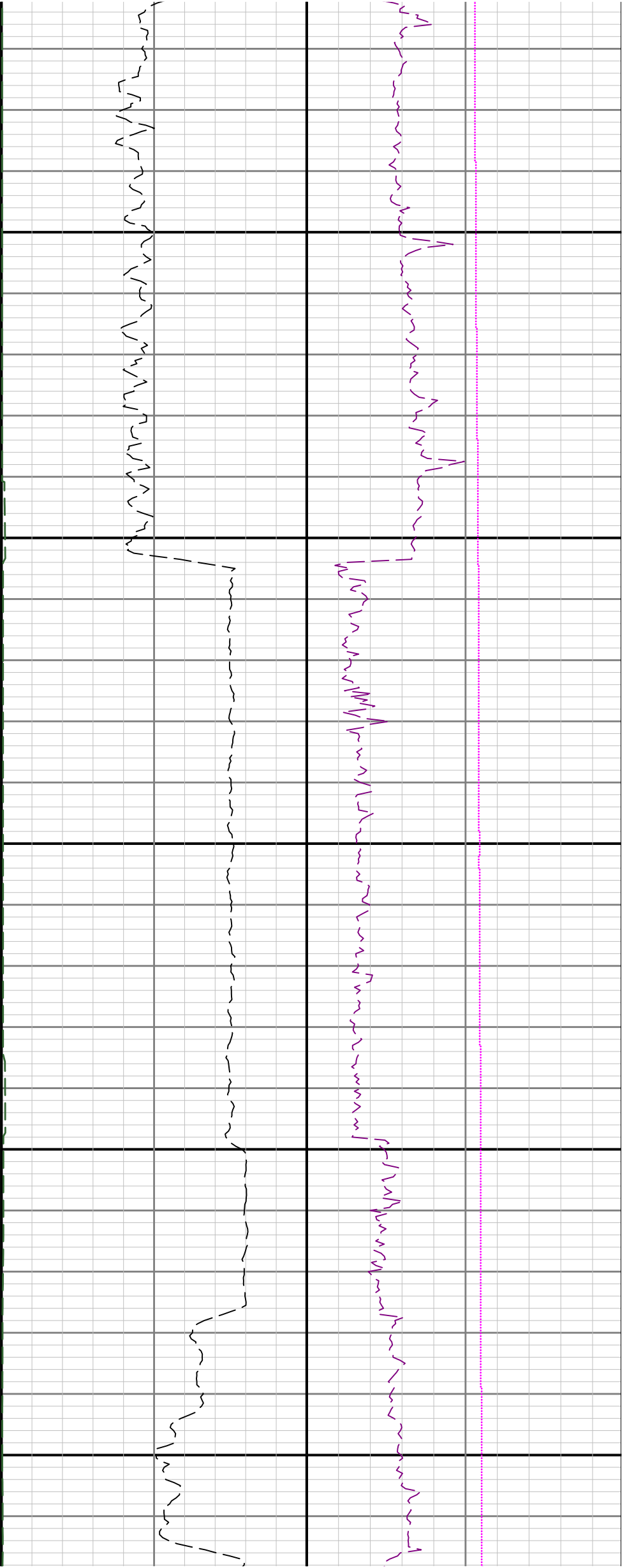


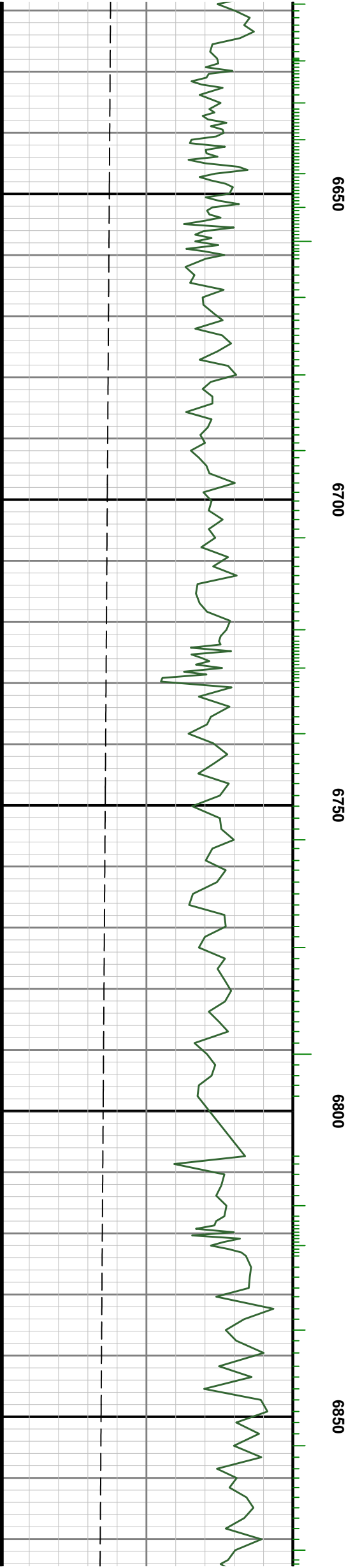
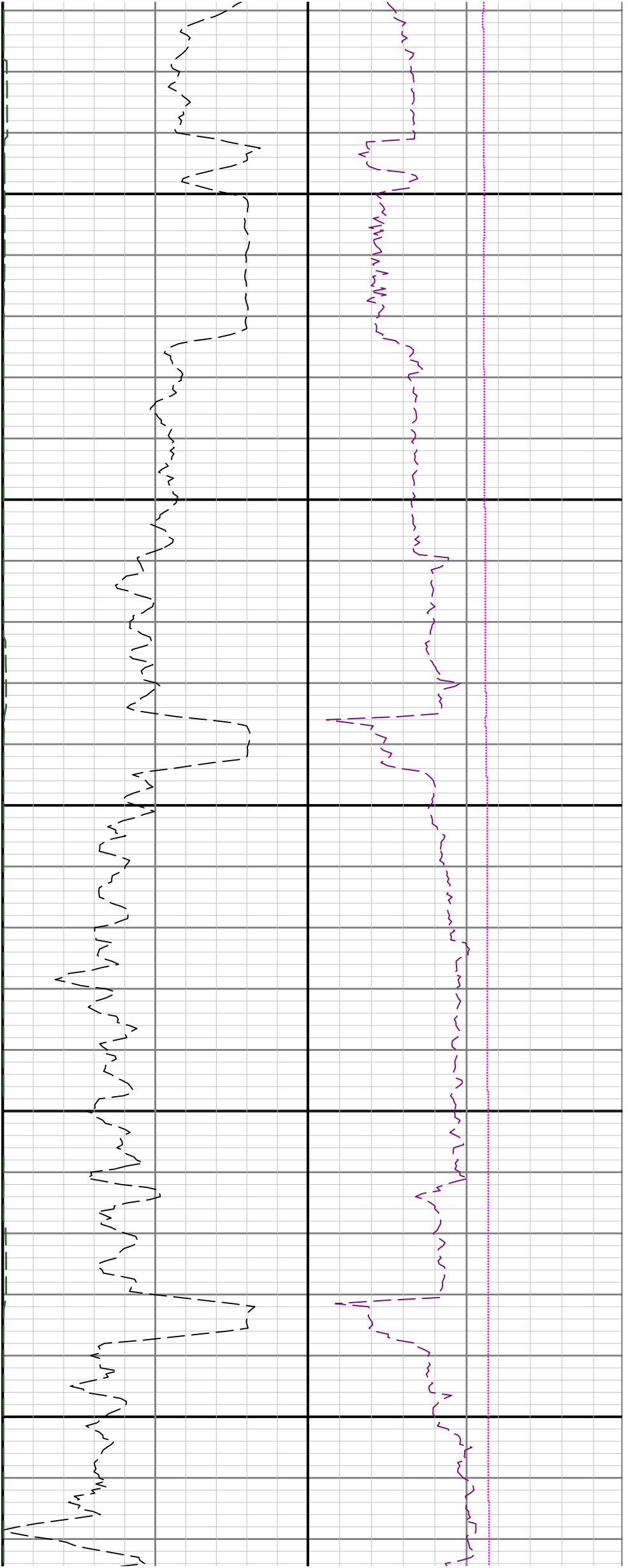


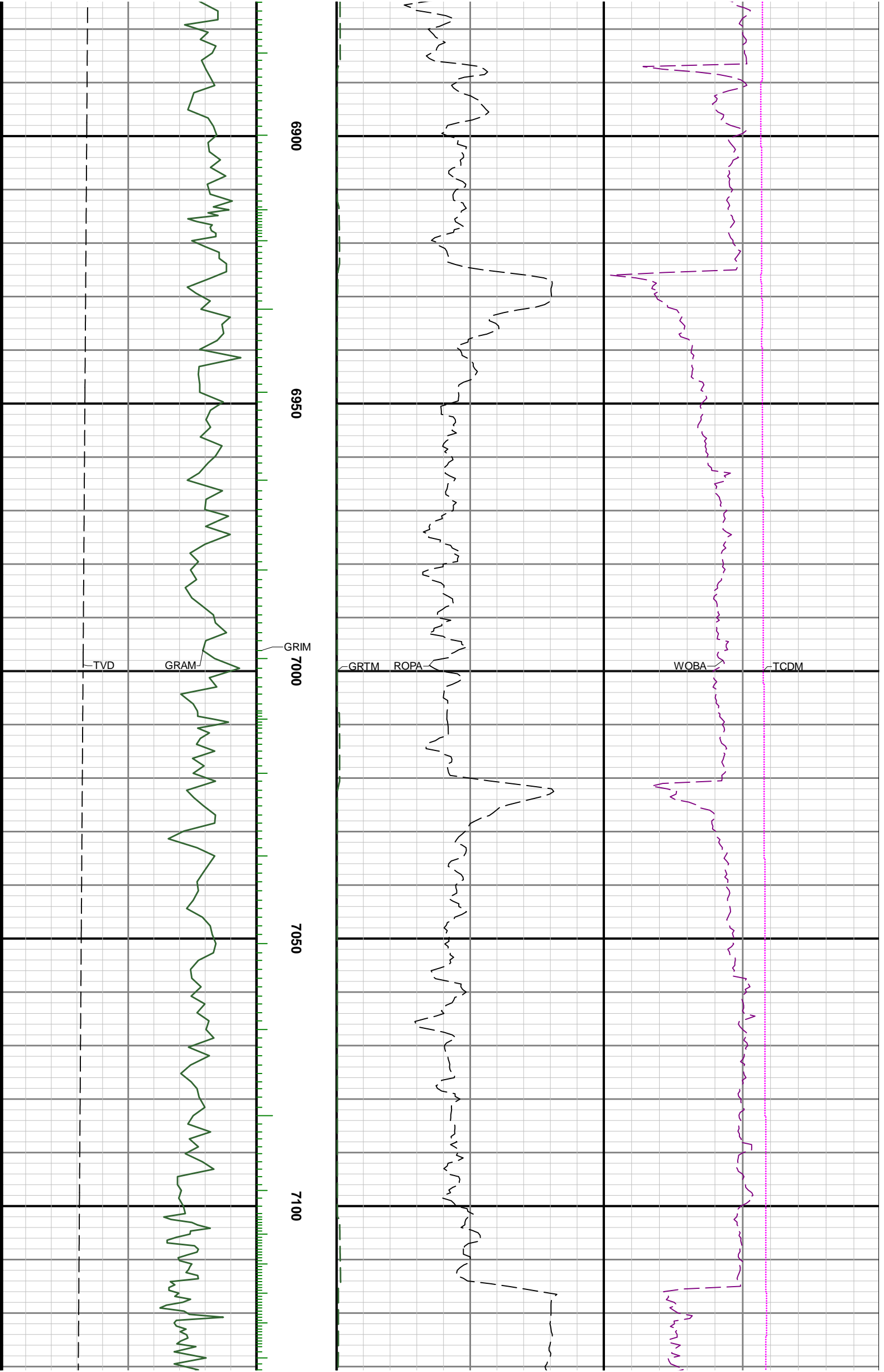


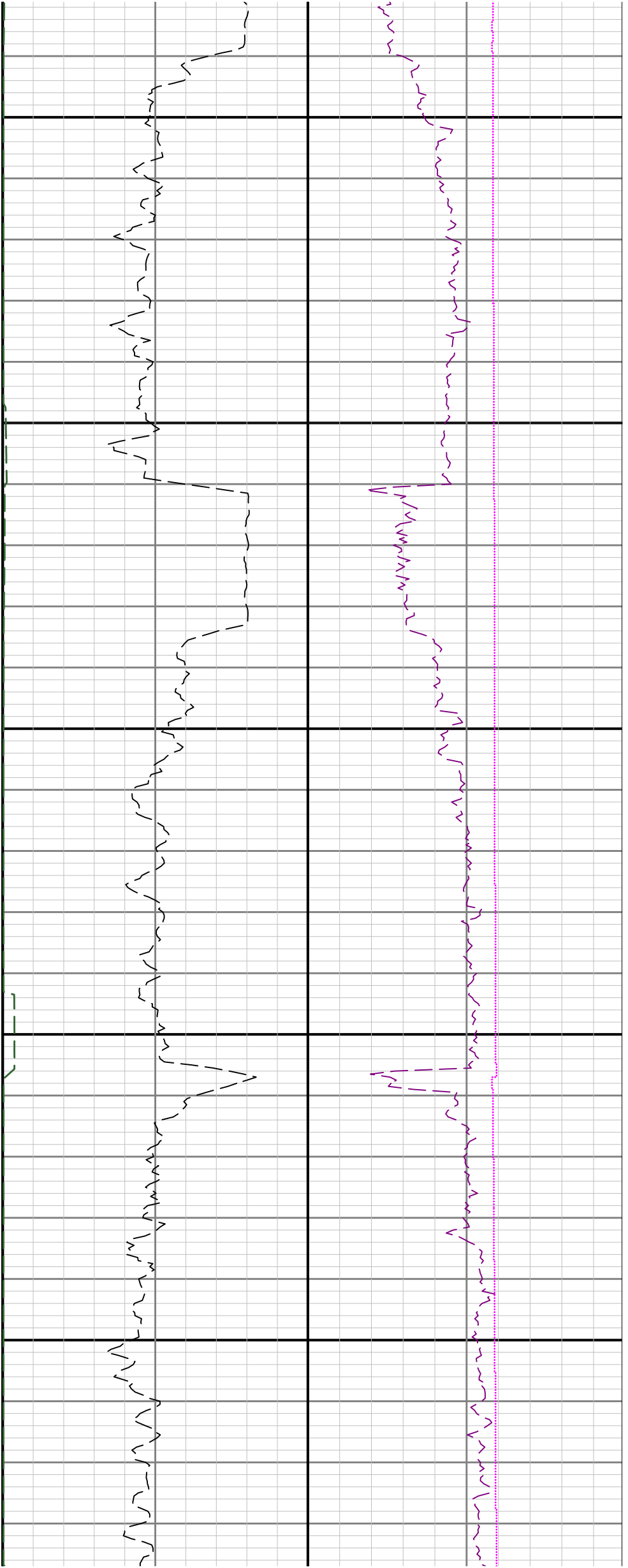












7150

7200

7250

7300

7350

