



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Burkhardt 37N-3HZ

Measured Depth

Field: Weld County (Kerr McGee)

County: Continental US State: United States

Status:

Final Print

Surface Location:

Latitude: 40° 5' 10.122" N

Longitude: 104° 45' 38.088" W

Other Services:

API Number: 05-123-39182-00

SEC: 3

TWP: 1N

RNG: 66W

Directional VSS

Permanent Datum (P.D.): Ground Level

Elevation: 5060.00 ft.

Elevations: N/A

Log Measured From: Rig Floor

16.00 ft.

Above P.D.

KB: N/A

DF: 5076.00 ft.

GL: 5060.00 ft.

Depth Reference: Driller's Depth

Interval Logged

Dates

Top: 6785.0 ft.

Date From: 17/Sep/14

Dip Angle: 66.62 °

Azi Reference North: True

Bottom: 11788.0 ft.

Date To: 19/Sep/15

Total

Mag to Reference

Spud Date: 17/Sep/14

Field Strength: 52894.0 nT

North Correction: 8.36 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13,500 in.	Surface	1680.0 ft.	9.625 in.	36.00 lb/ft	Surface	1670.0 ft.
8,750 in.	1670.0 ft.	7800.0 ft.	7.000 in.	26.00 lb/ft	Surface	7790.0 ft.
6,125 in.	7790.0 ft.	11788.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	5000.0 ft.	13,500 in.	1680.0 ft.	0.0 ° / 0.0 °	0.2 ° / 189.8 °
Water Based Mud	5000.0 ft.	11788.0 ft.	8,750 in.	6130.0 ft.	0.2 ° / 213.9 °	89.4 ° / 179.3 °
			6,125 in.	3998.0 ft.	89.1 ° / 179.0 °	91.5 ° / 180.2 °
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig: Xtreme 6	/ Xtreme Coili Drilling Corp
PAIS	6.4.1.34	Job No: 6628515	/ D&E
		District / Unit: RMD	

INTEQ does not guarantee the accuracy or correctness of interpretations provided in or from this log. Since all interpretations are opinions based on measurements, INTEQ shall under no circumstances be responsible for consequential damages or any other loss, costs, damages or expenses incurred or sustained in connection with the use of any such interpretations. INTEQ disclaims all expressed and implied warranties related to this service. INTEQ's liabilities and obligations shall be governed by INTEQ's Standard Terms and Conditions.

Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	2	8.750	PDC	6.000	Steerable	6785.0	7800.0	1670.0	7800.0	17/Sep/2014 09:00	19/Sep/2014 04:00	31.9
2	2	3	6.125	PDC	4.000	Steerable	7752.0	11788.0	7790.0	11788.0	20/Sep/2014 02:38	21/Sep/2014 23:30	27.8

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	17/Sep/2014	22/Sep/2014	Ryan Kielian	17/Sep/2014	22/Sep/2014			
Jake Miller	17/Sep/2014	22/Sep/2014	Courtney Korner	17/Sep/2014	22/Sep/2014			

Witness	
Name	LWD Run Number
David Cornett	1, 2
Joe Wallem	1, 2

Mud Properties Record												
Date / Time		LWD	Measured	Mud	Density	Viscosity	pH	Fluid	Oil /	Source	Total	K+
		Run No.	Depth	Type				Loss	Water		Chlorides	
			(ft.)		(ppg)	(cp)		(cc)			(ppm)	(%)
17/Sep/2014	21:45	1	3689.0	Fresh Water	8.5	29	9.0	N/A	0 / 99	Active Pit	1700	N/A
18/Sep/2014	07:00	1	5643.0	Water Based Mud	9.1	38	9.1	6.6	1 / 95	Active Pit	3000	N/A
18/Sep/2014	21:00	1	7779.0	Water Based Mud	10.2	47	9.0	4.4	2 / 89	Active Pit	3500	N/A
20/Sep/2014	09:00	2	7980.0	Water Based Mud	9.6	40	9.6	4.4	2 / 92	Active Pit	2900	N/A
20/Sep/2014	22:00	2	10031.0	Water Based Mud	9.6	44	9.4	4.3	2 / 92	Active Pit	3000	N/A

Mnemonics		
Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft.
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	klbs

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12093879	Directional	47.17	6.750	3.250
1	SRIG	12622667	Gamma	43.80	6.750	3.250
2	DIR	13134419	Directional	48.59	4.750	2.750
2	SRIG	12554661	Gamma	45.21	4.750	2.750

Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments
1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1680 to 6875 ft. MD (1679.95 to 6842.11 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6875 to 7800 ft. MD (6842.11 to 7385.83 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
2.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7800 to 11788 ft. MD (7385.83 ft. to 7387.77 TVD) behind an 6 1/8 inch bit and steerable assembly.

3.) A sliding indicator is shown on the left edge of track 1 as a heavy line. This indicator has been depth-shifted to the gamma ray sensor offset to correspond with gamma ray data.

4.) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to the 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.)	LWD Run No.	Remark
1	7780	6.125	2	The interval from 7760 to 7800 ft. MD (7385.00 to 7385.82 ft. TVD) was logged up to 33 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly, run intermediate casing, cementing operations, and to pick up the lateral assembly.
2	11765	6.125	2	The interval from 11742 to 11788 ft. MD (7388.96 to 7387.76 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.



Company : Anadarko
Well : Burkhardt 37N-3HZ
Interval : 6765.00 - 11805.00 feet
Created : 21/Sep/2014 3:01:57 PM

Gamma Ray Apparent 0.5 ft Avg GRAX

0 150
API
True Vertical Depth TVD
7500 6500
ft

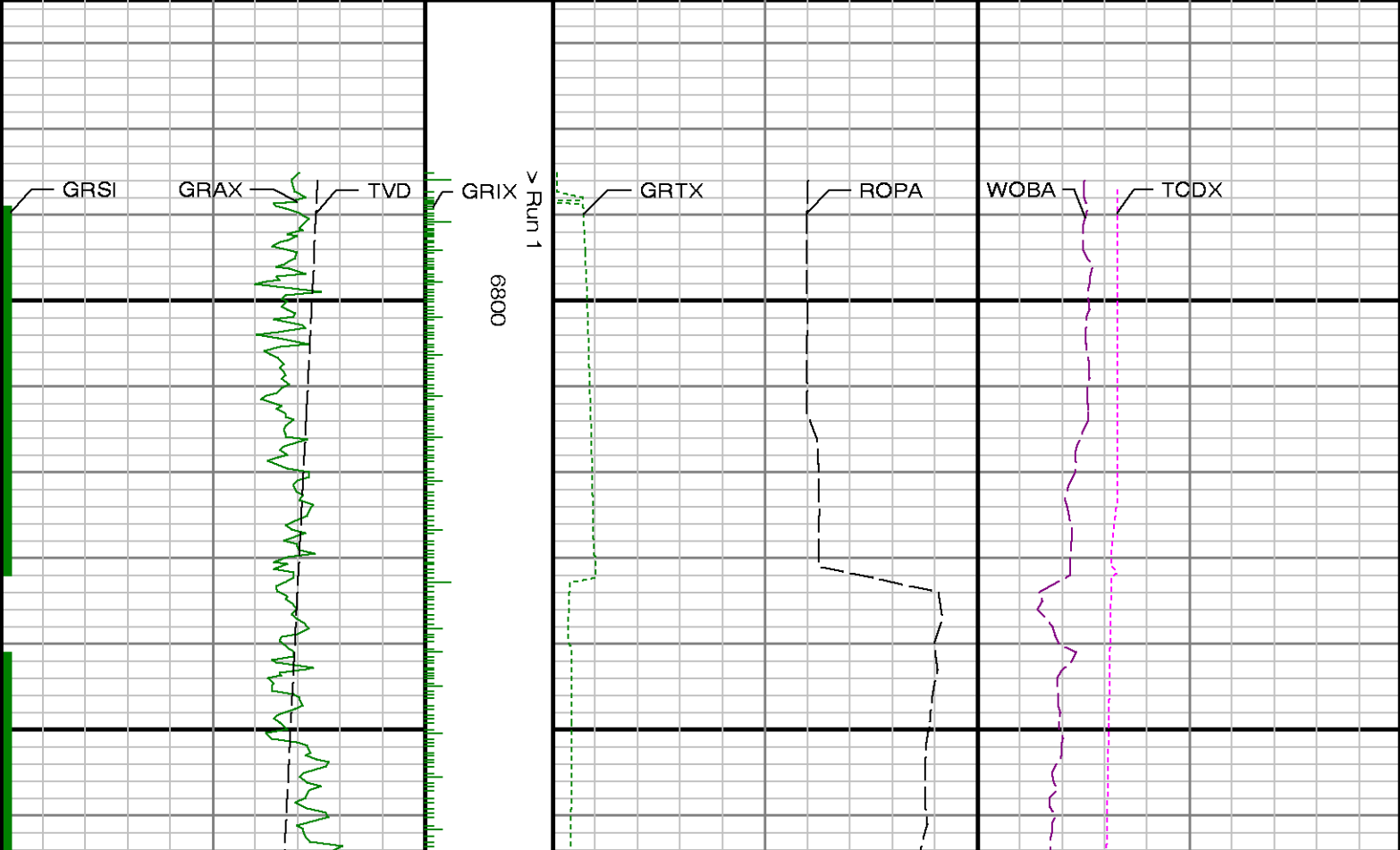
MD feet 1:240

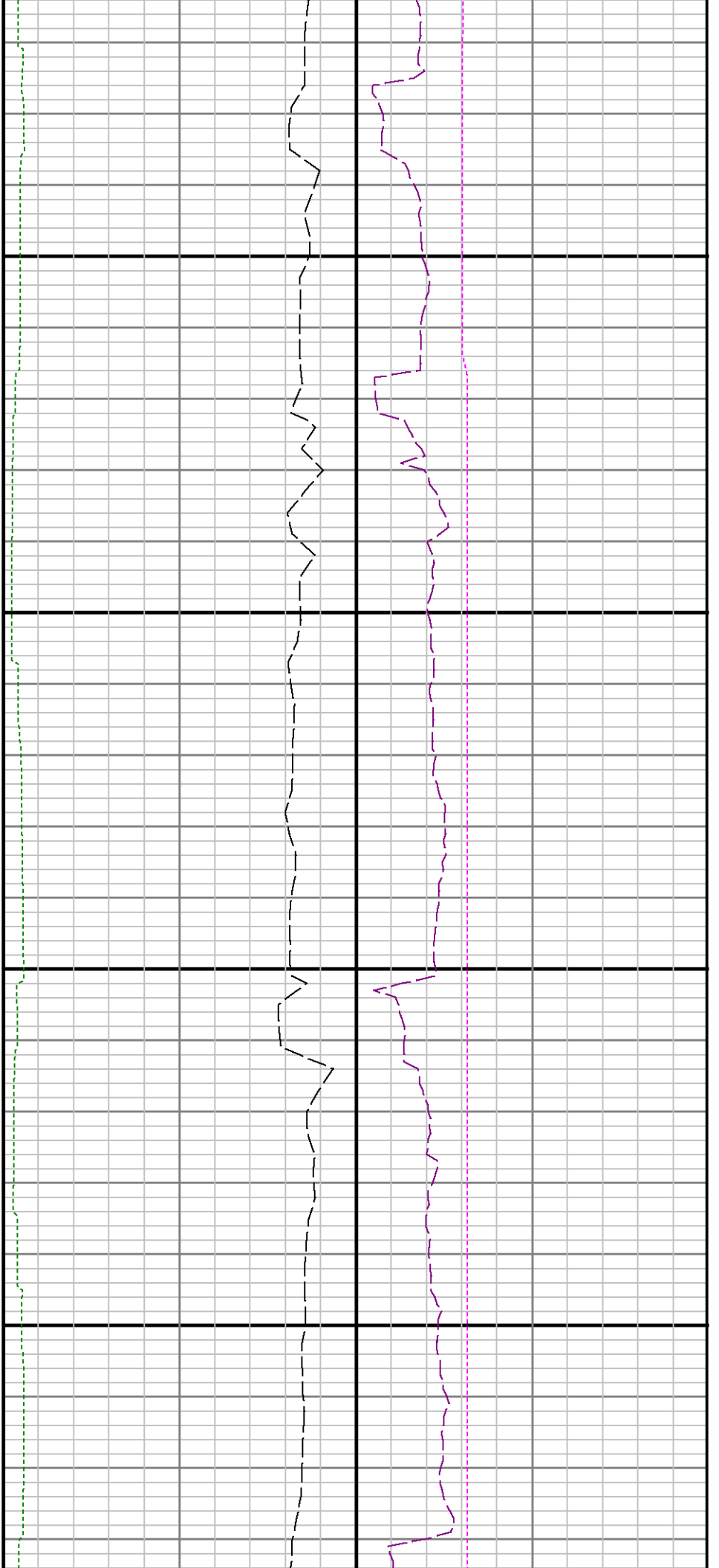
Rate of Penetration 3.0 ft Avg ROPA

1000 0
ft/hr
Gamma Time Since Drilled GRTX
0 600
min

Surface Weight On Bit 1.0 ft Avg WOBA

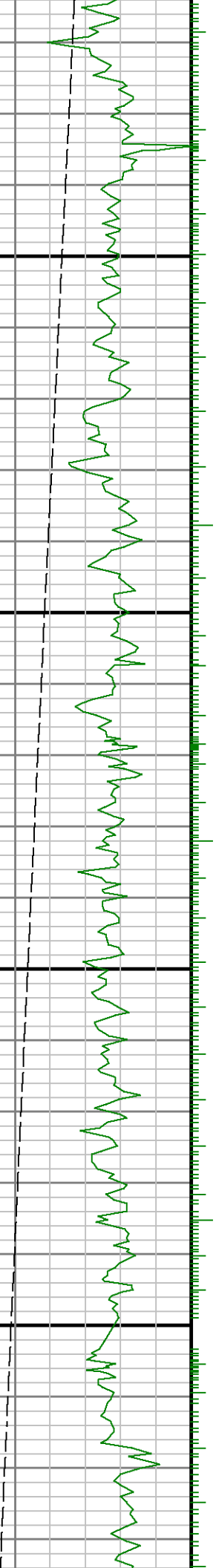
0 100
klbf
Downhole Temperature TCDX
100 300
degF

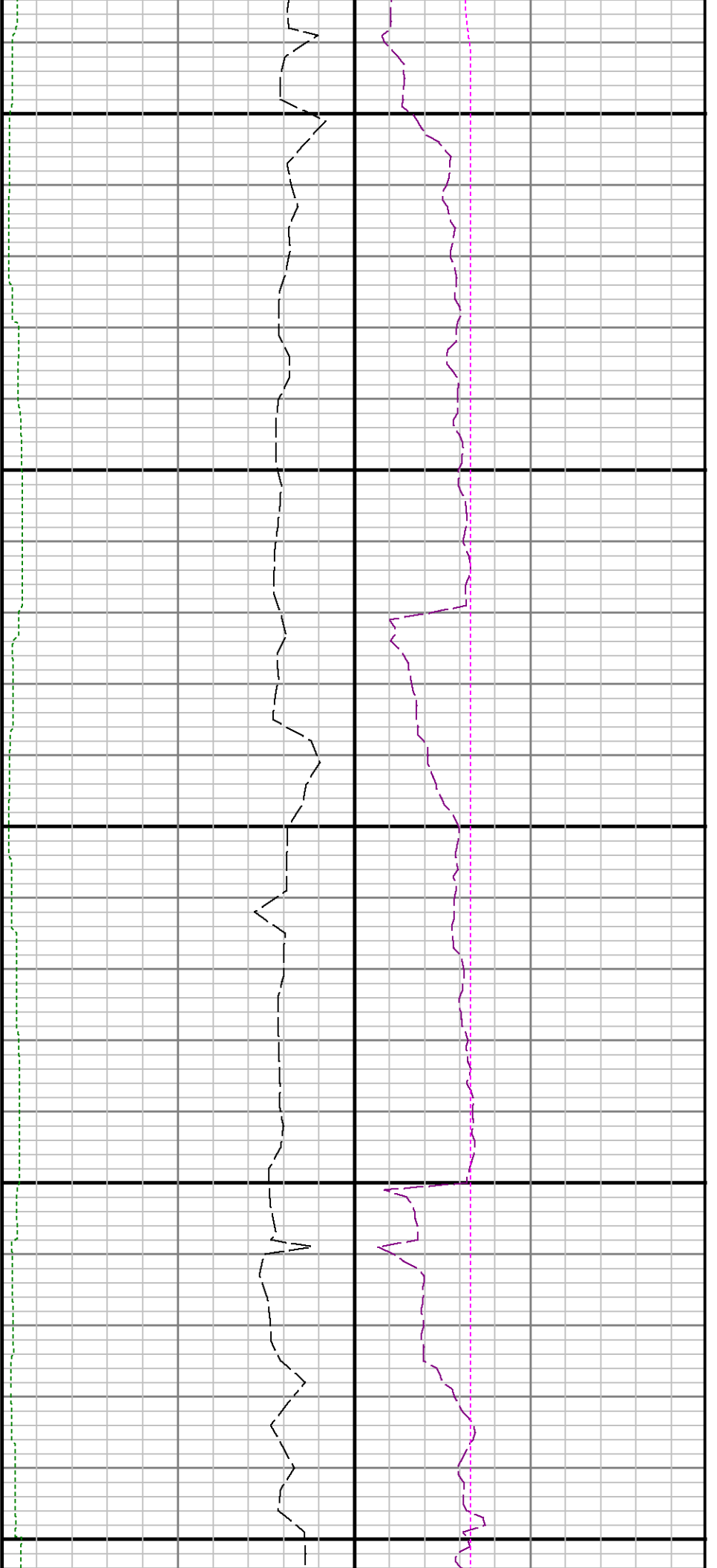




6900

7000

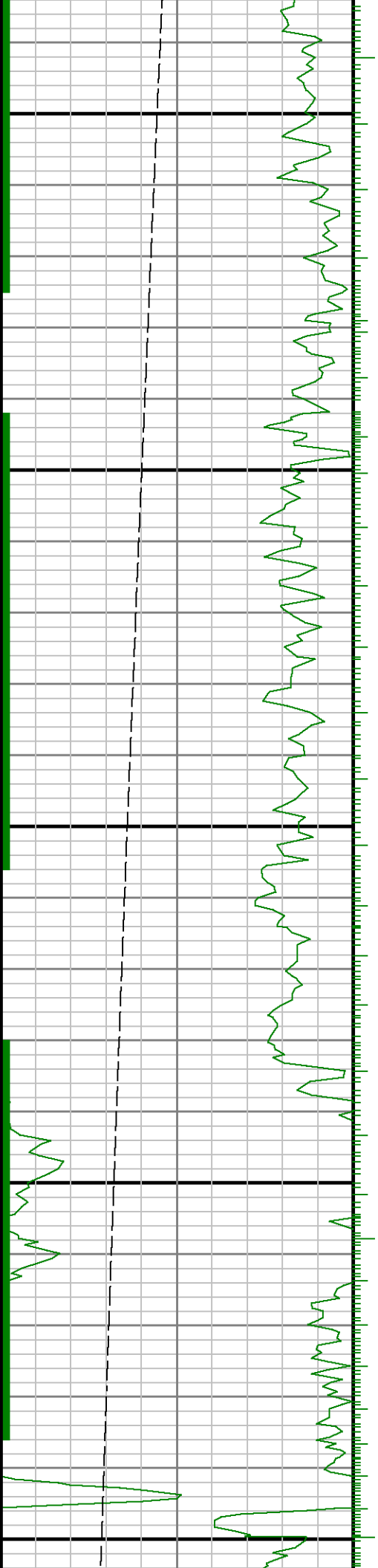


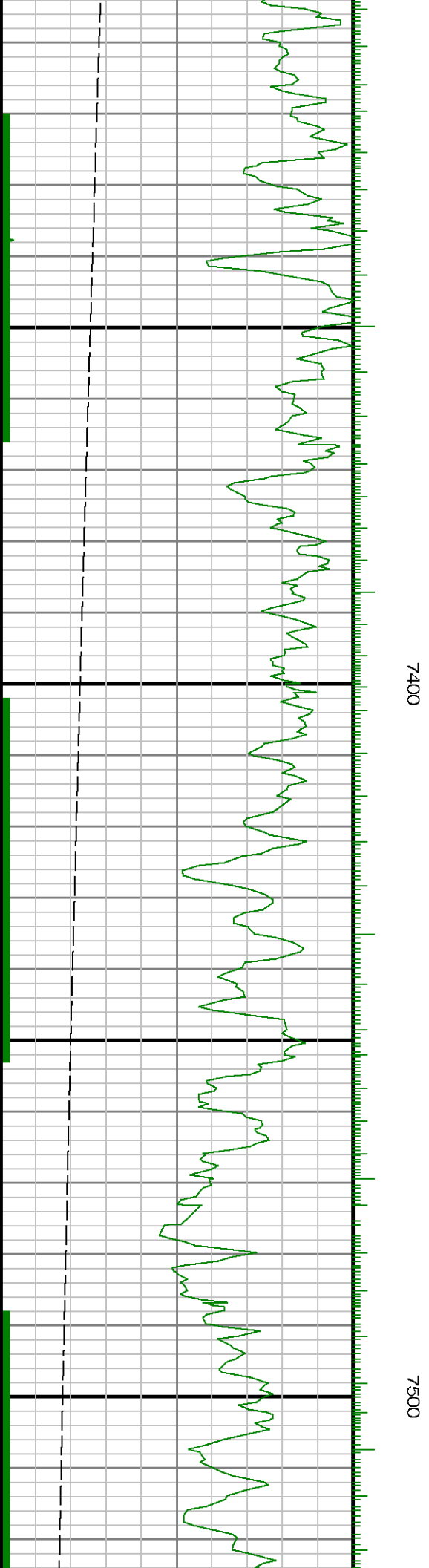
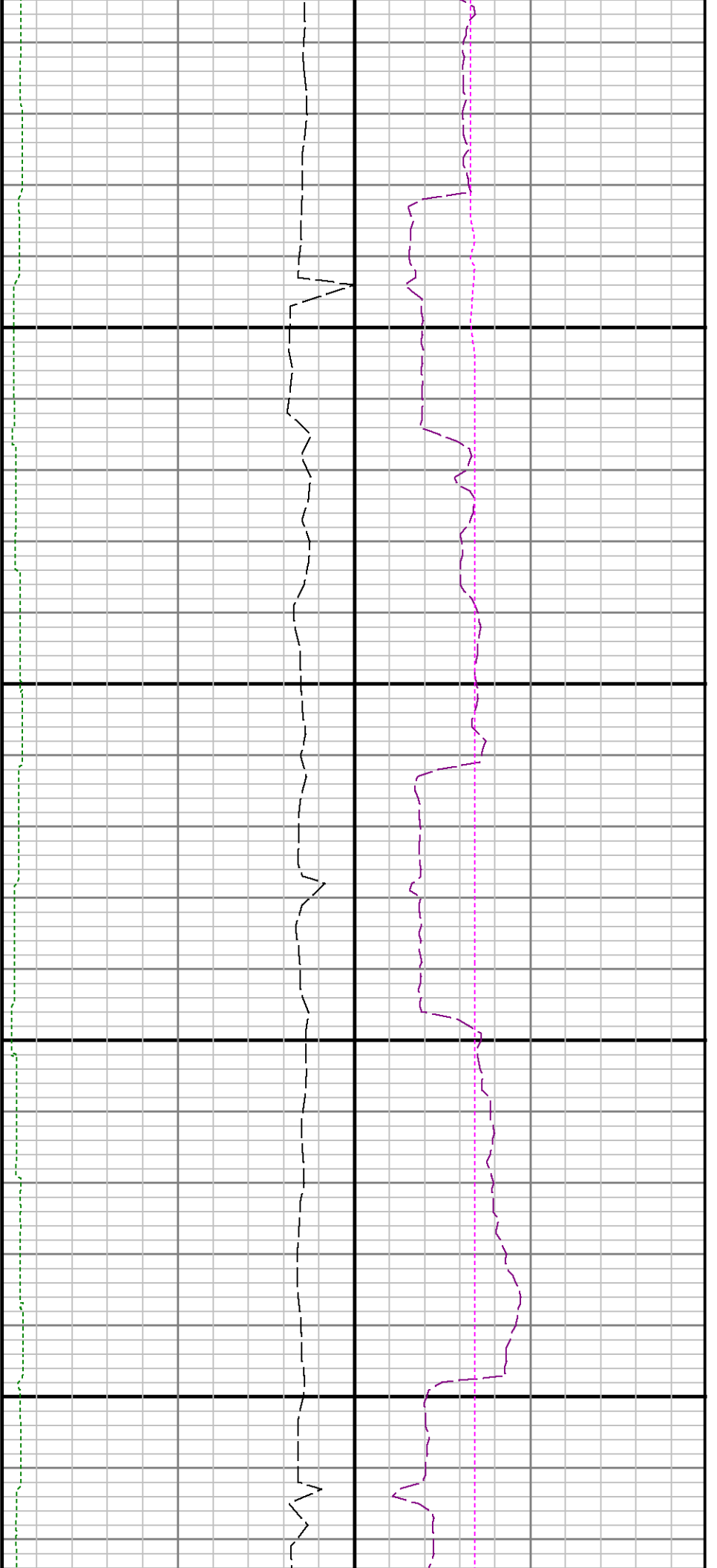


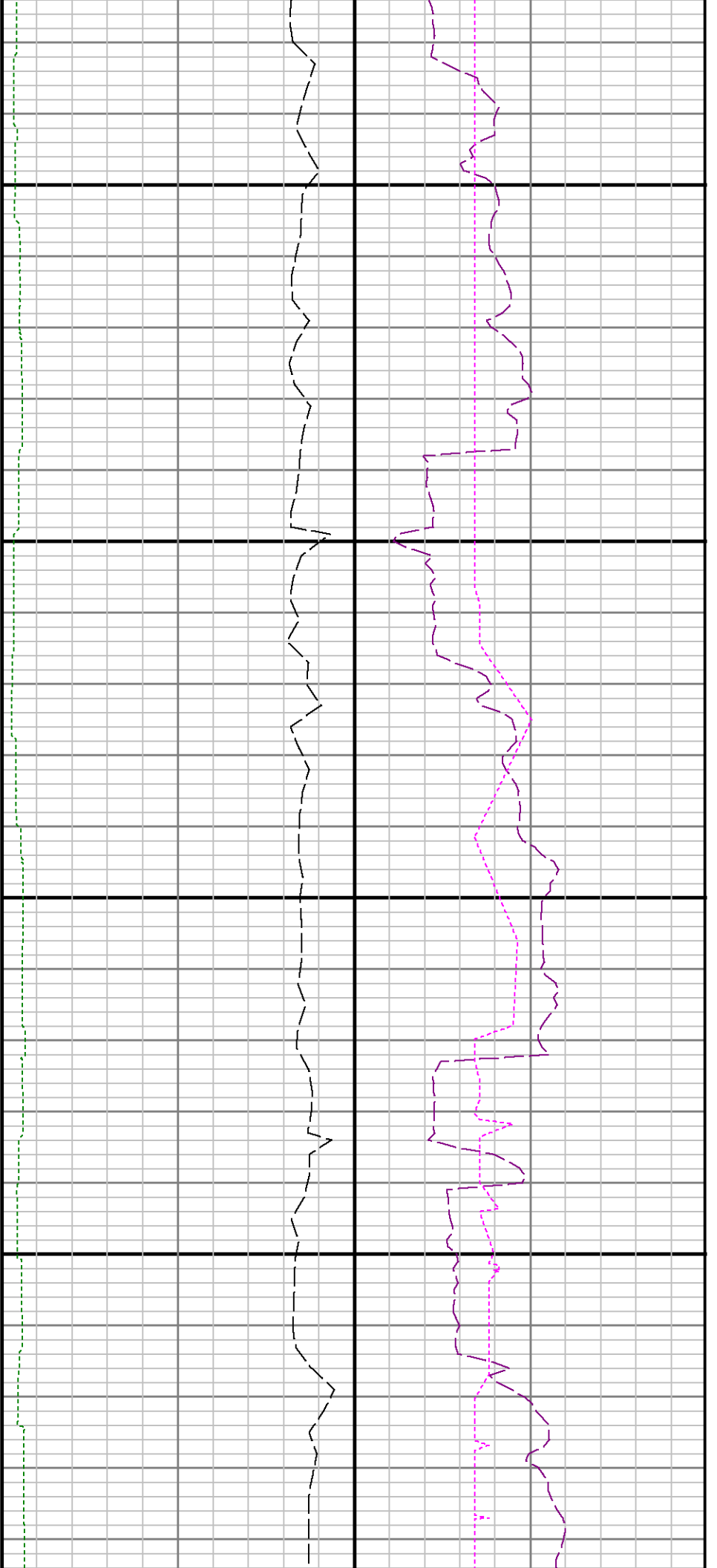
7100

7200

7300

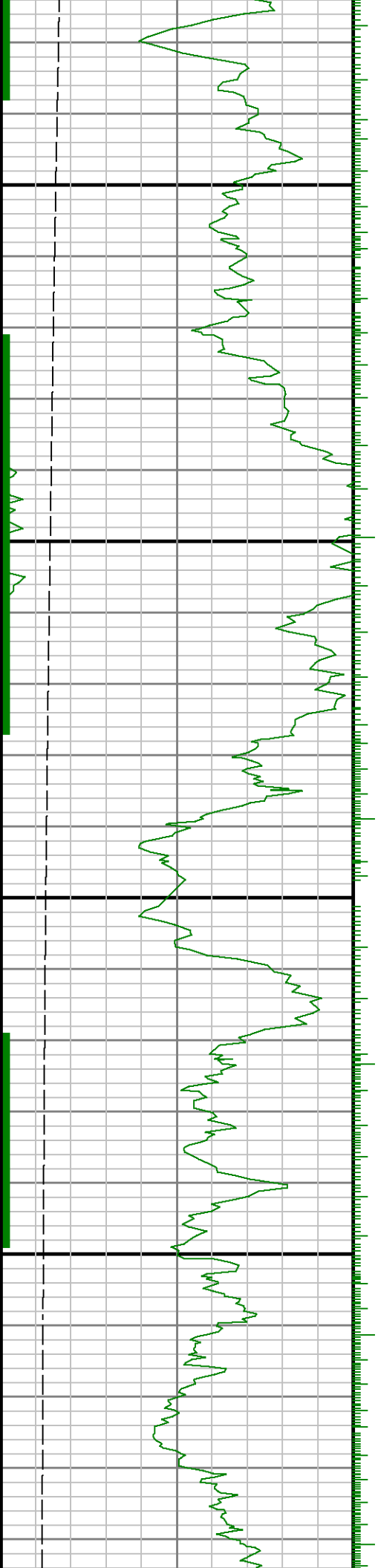


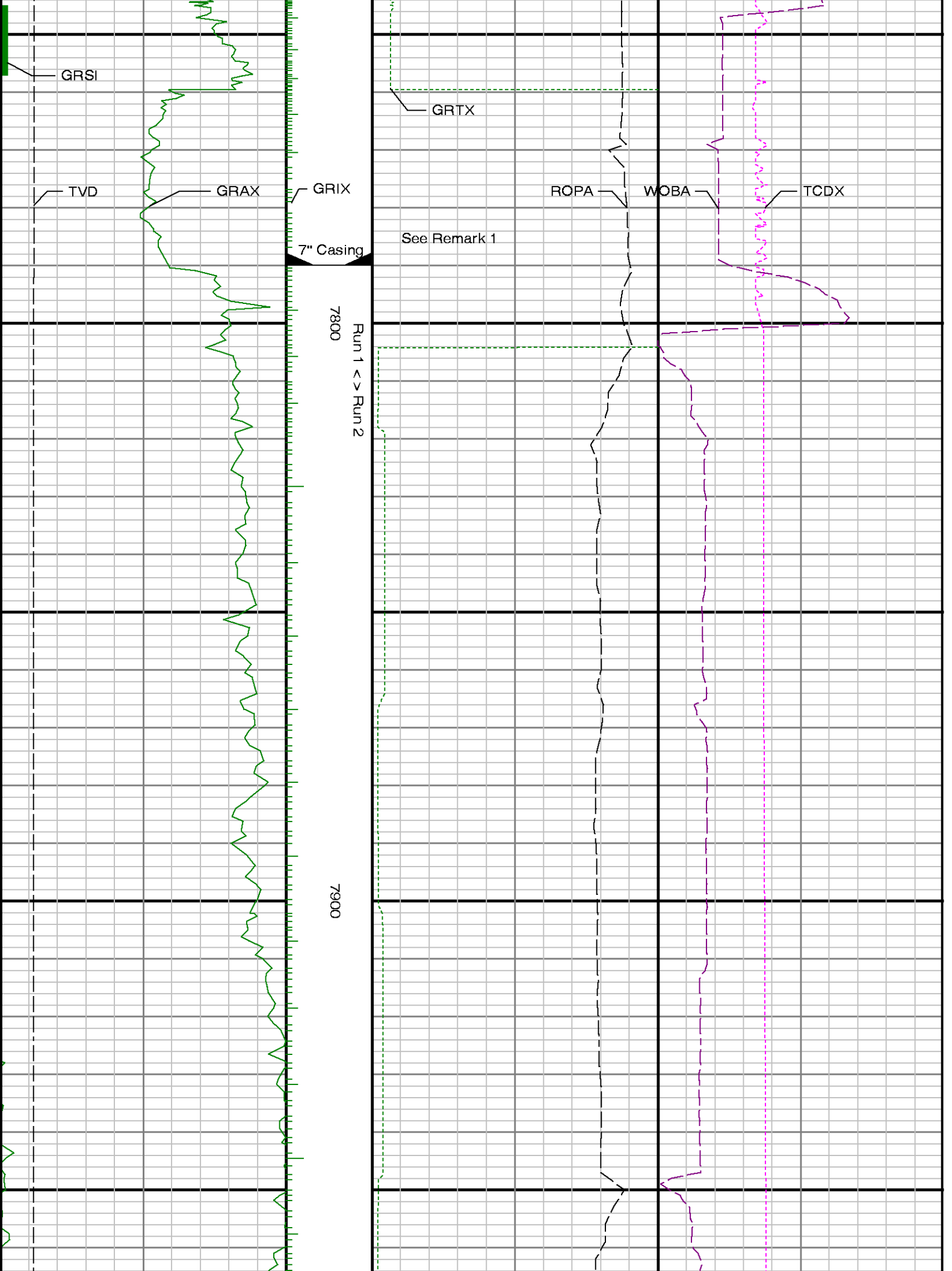


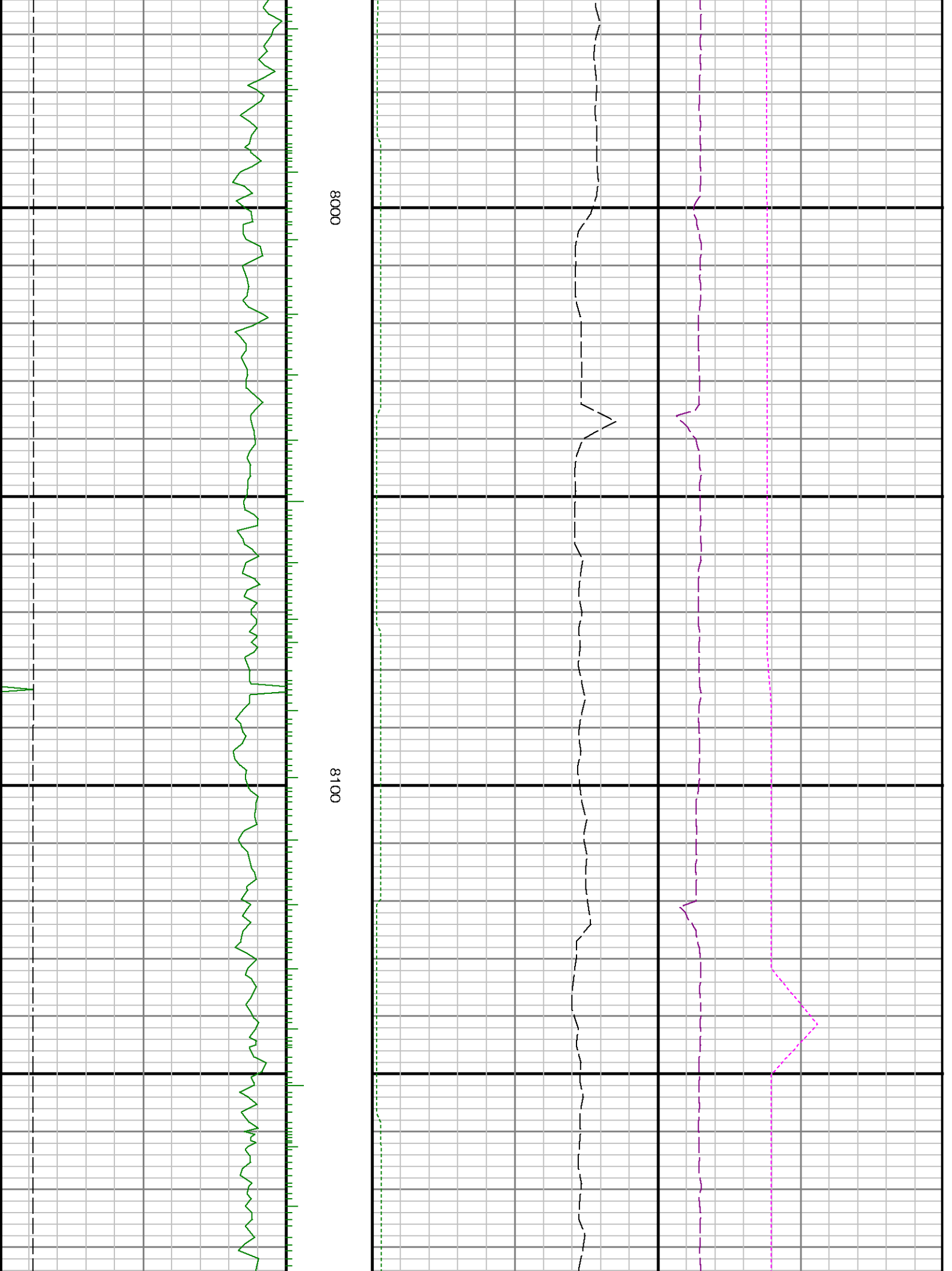


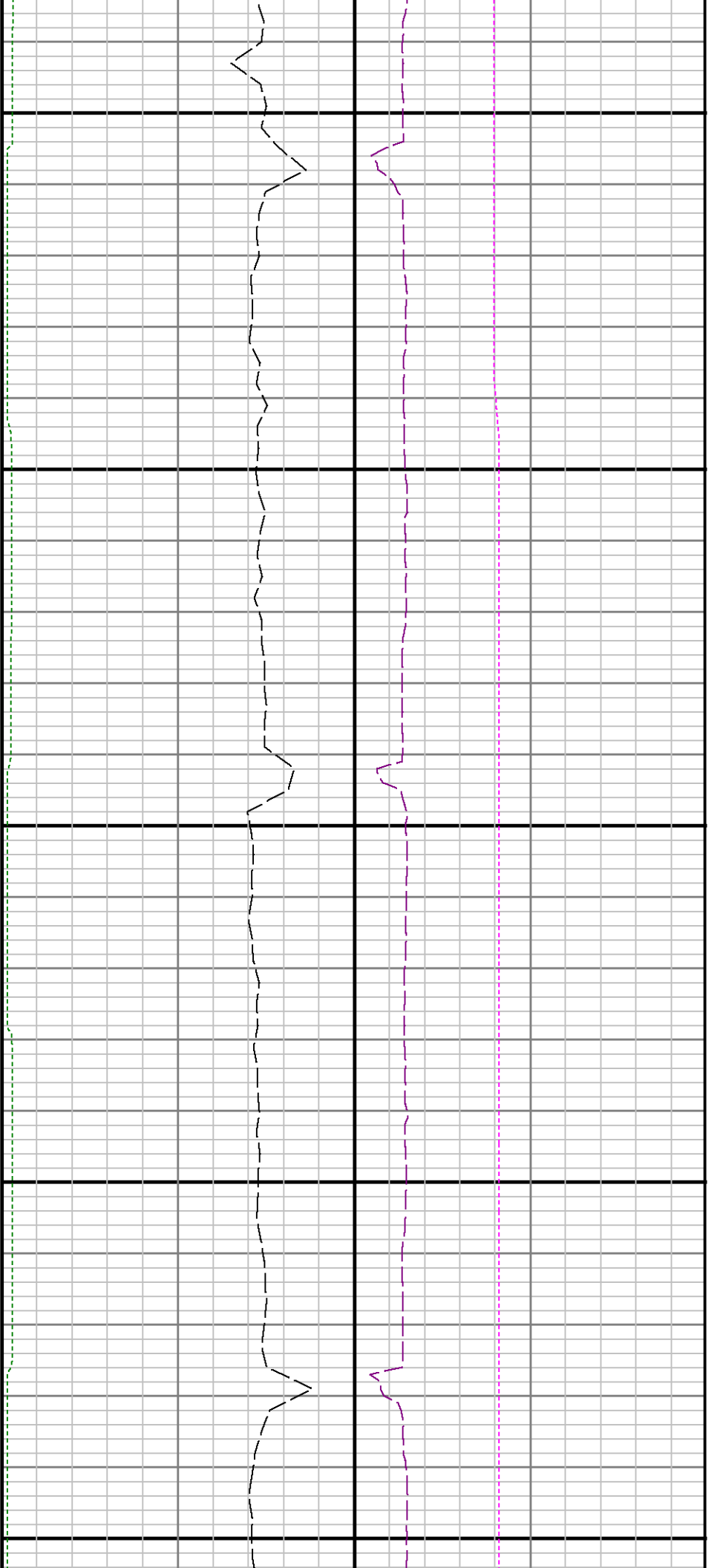
7600

7700





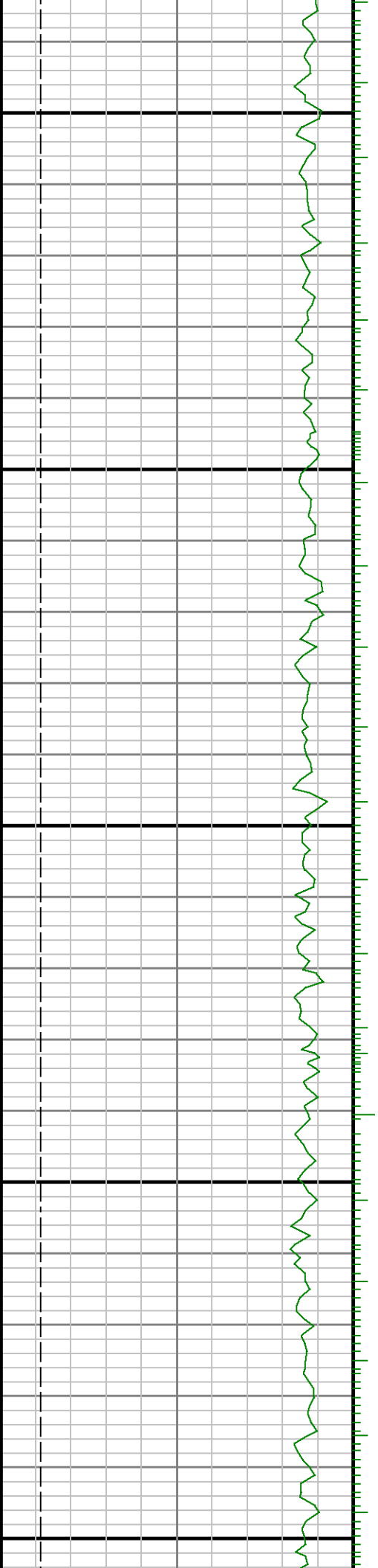


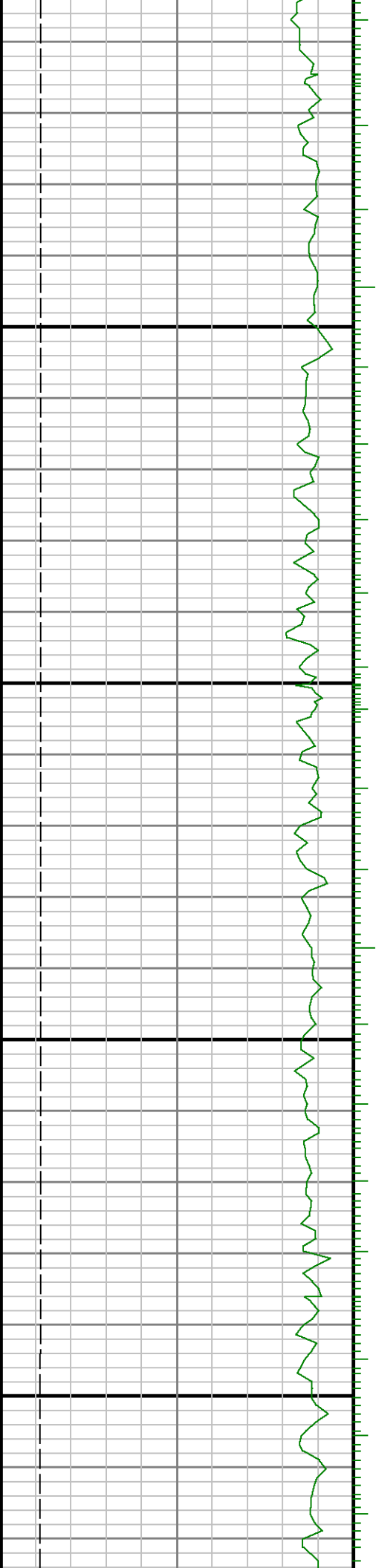


8200

8300

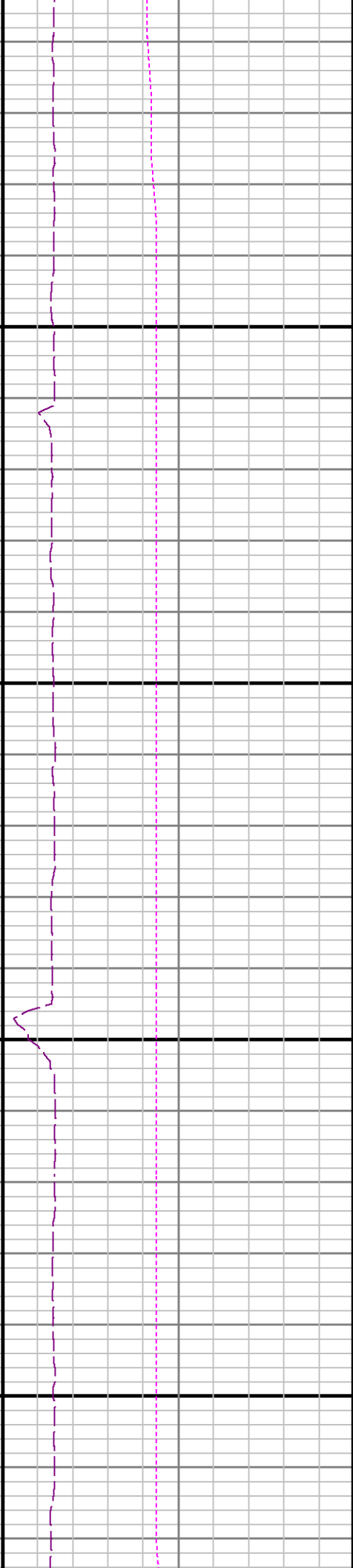
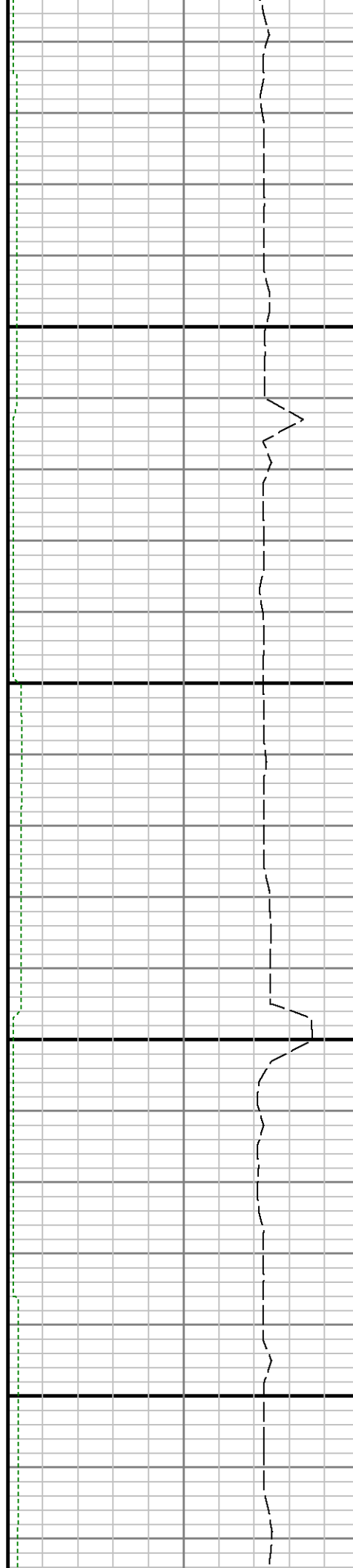
8400

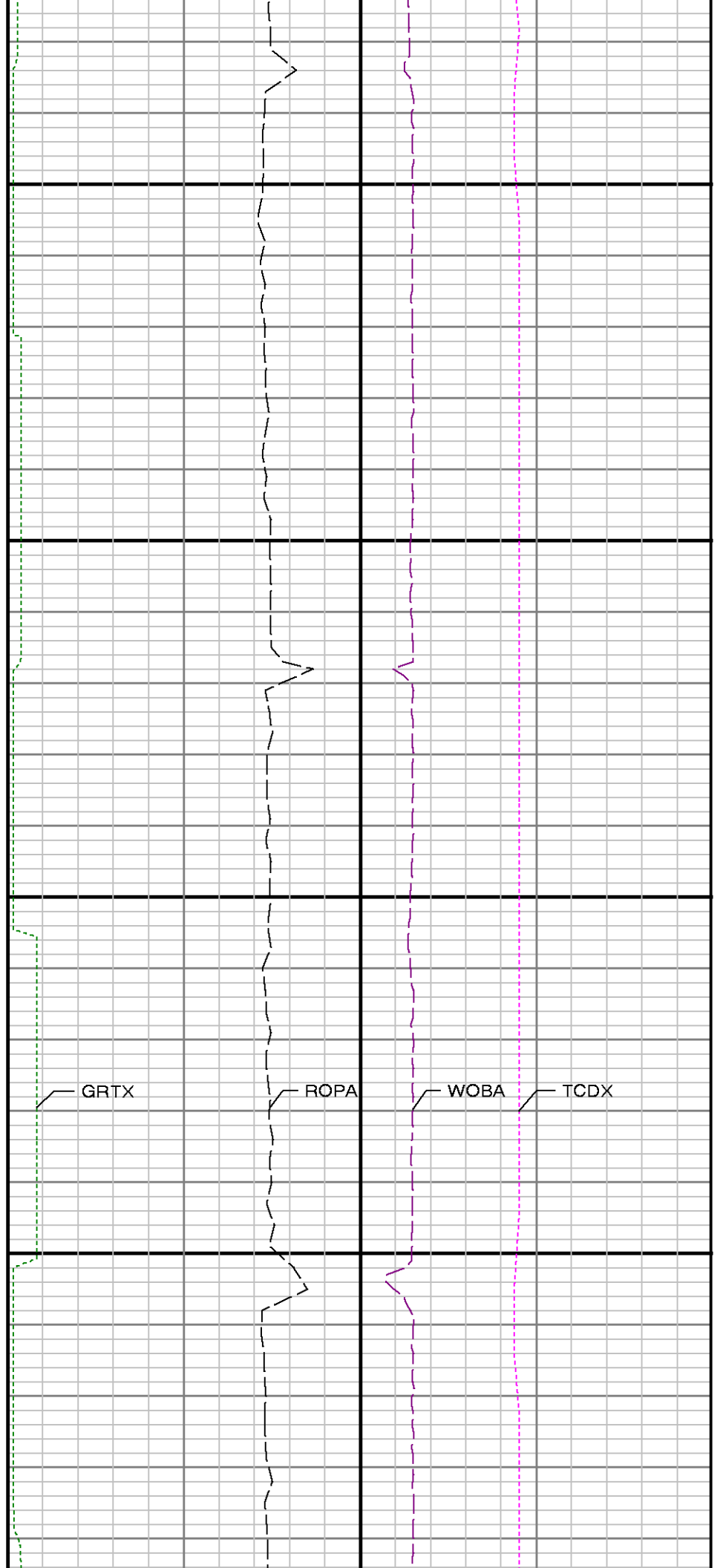
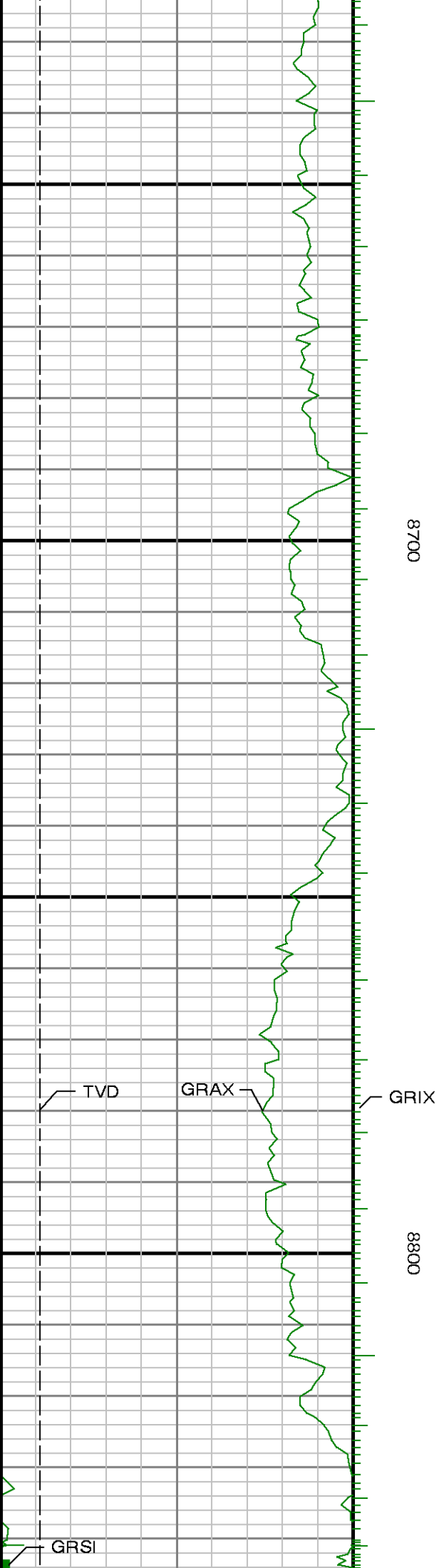


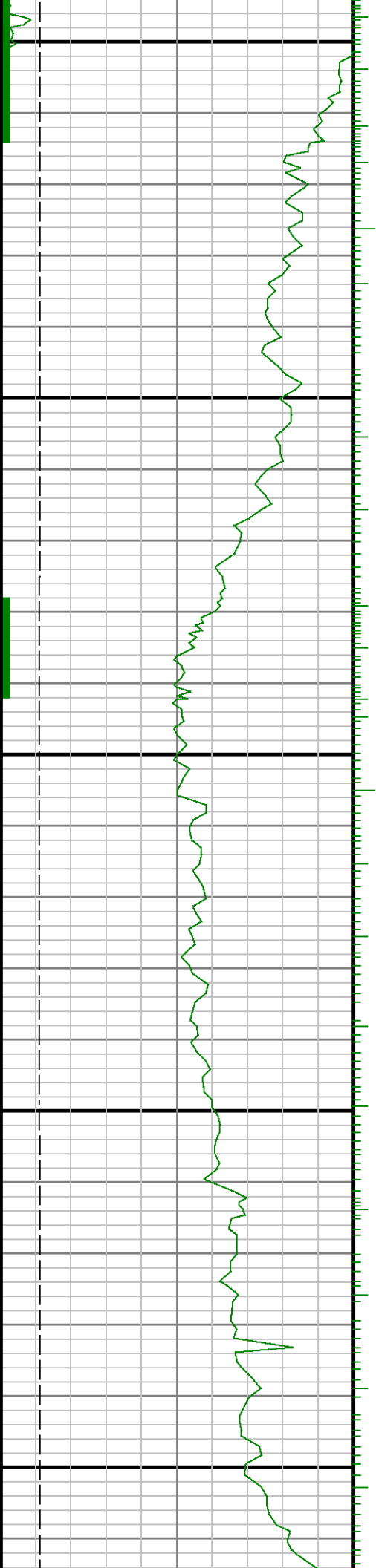


8600

8500

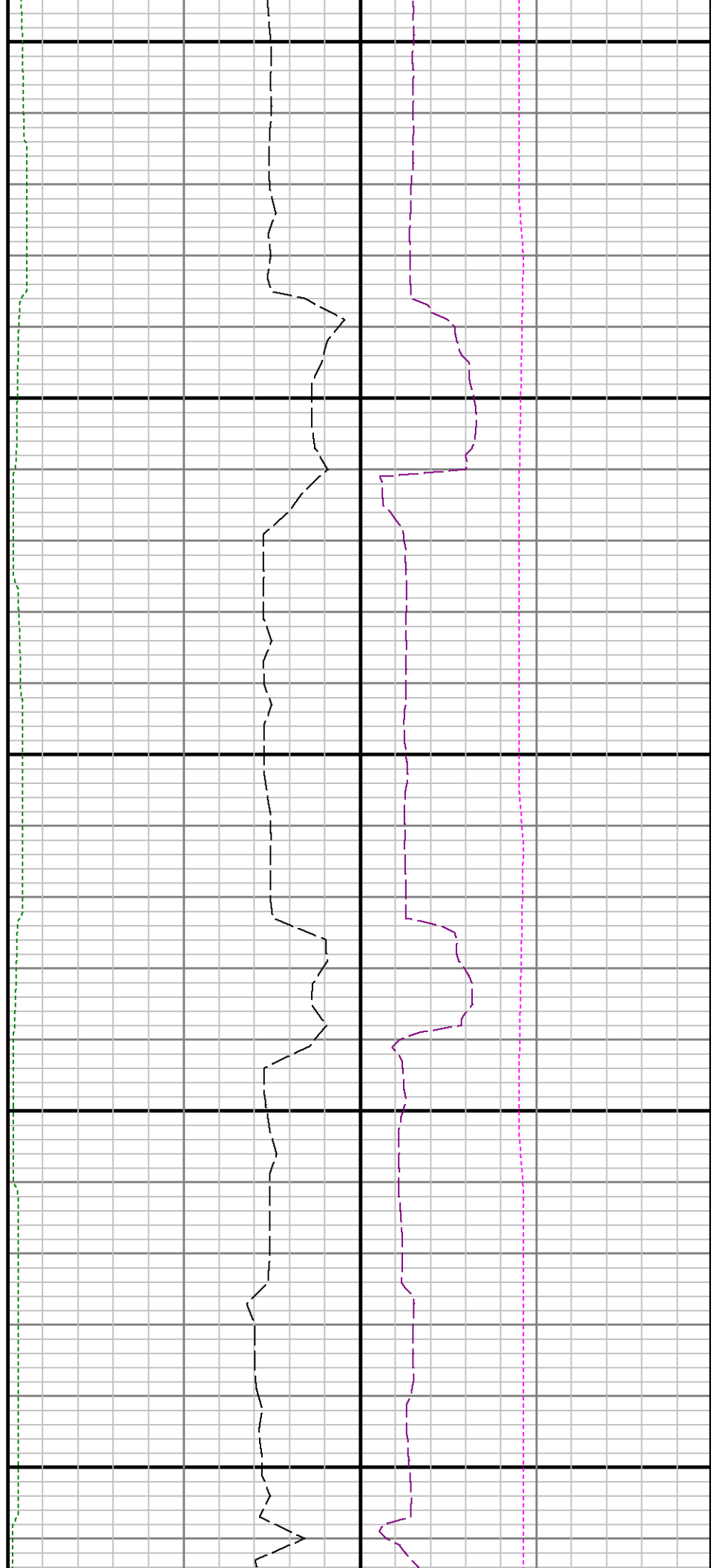


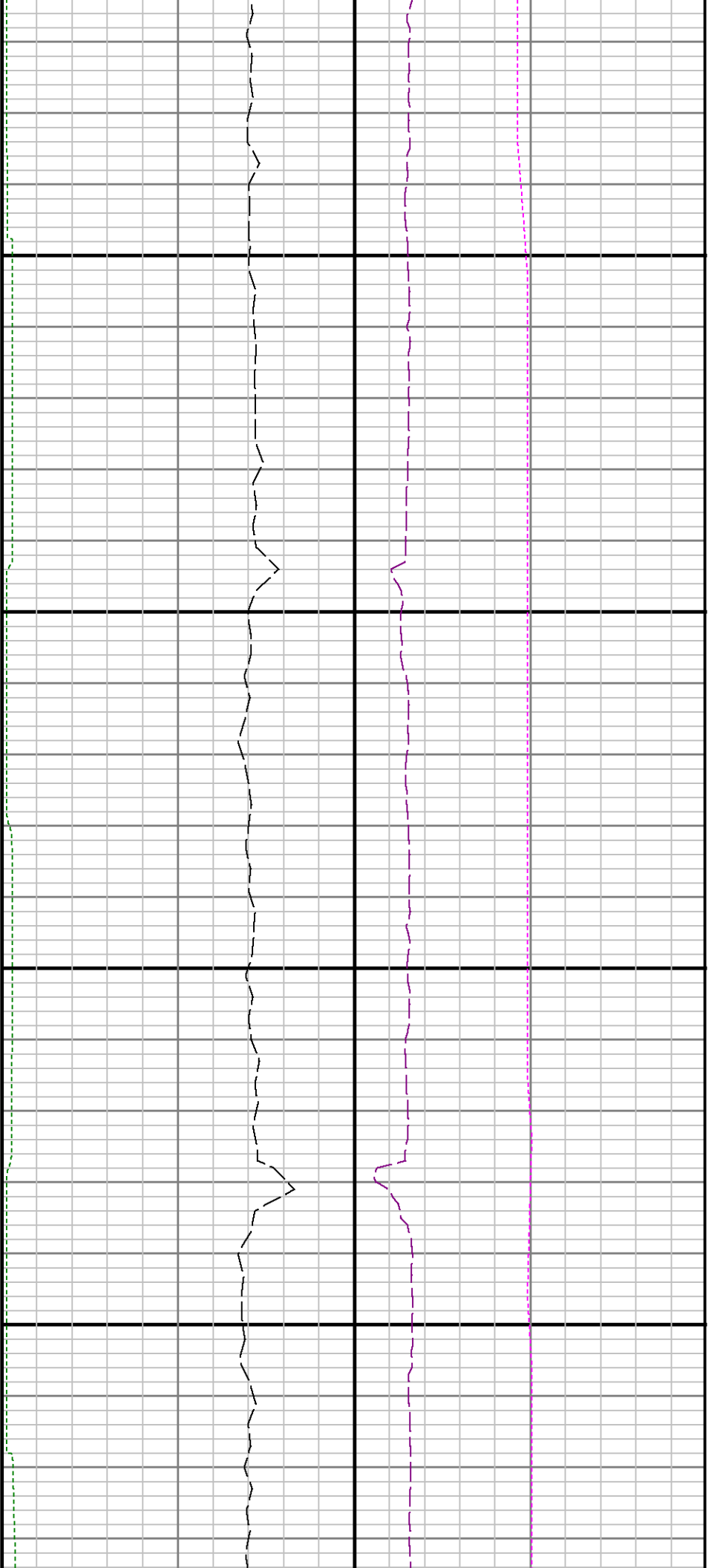




0006

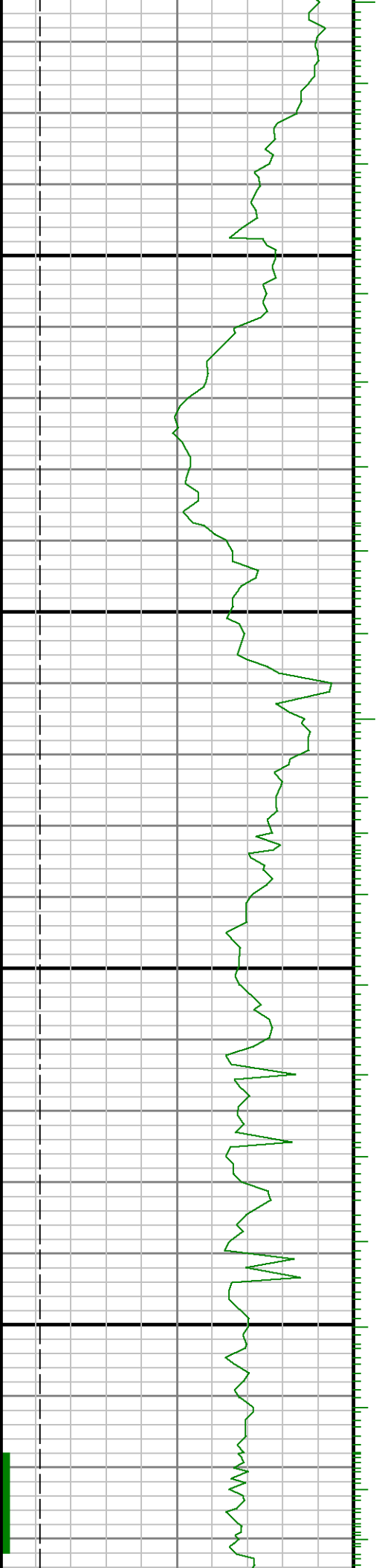
0068

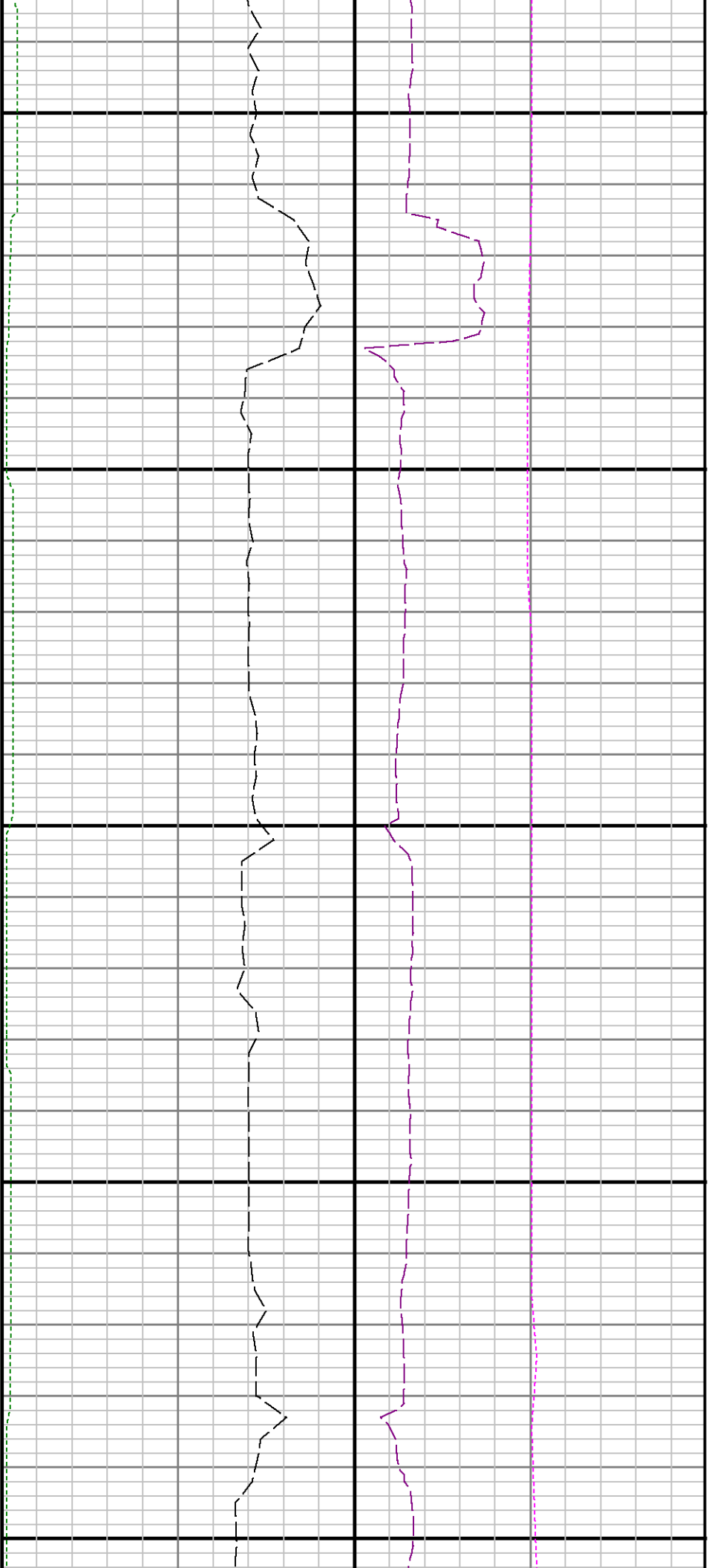




9100

9200

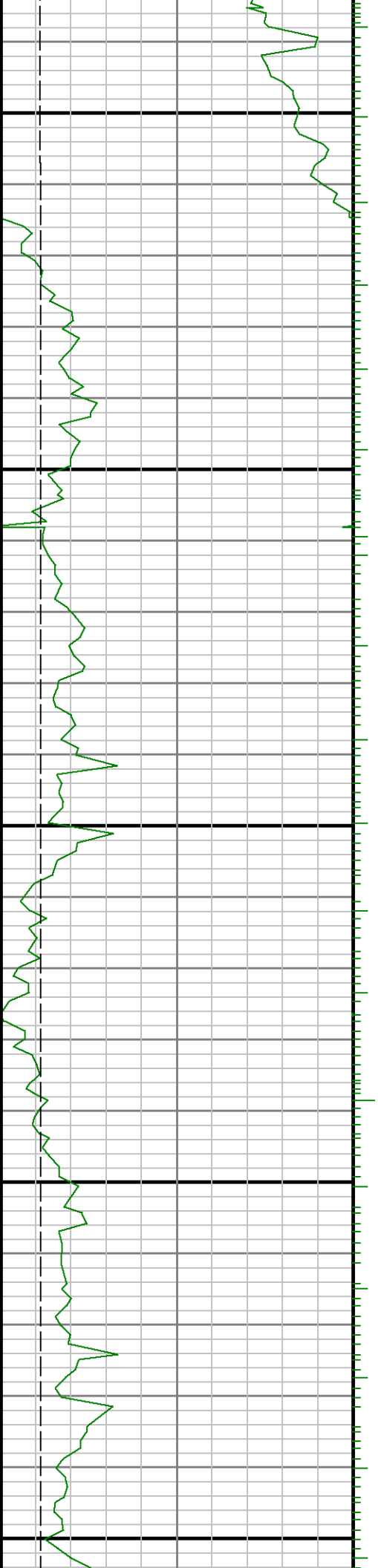


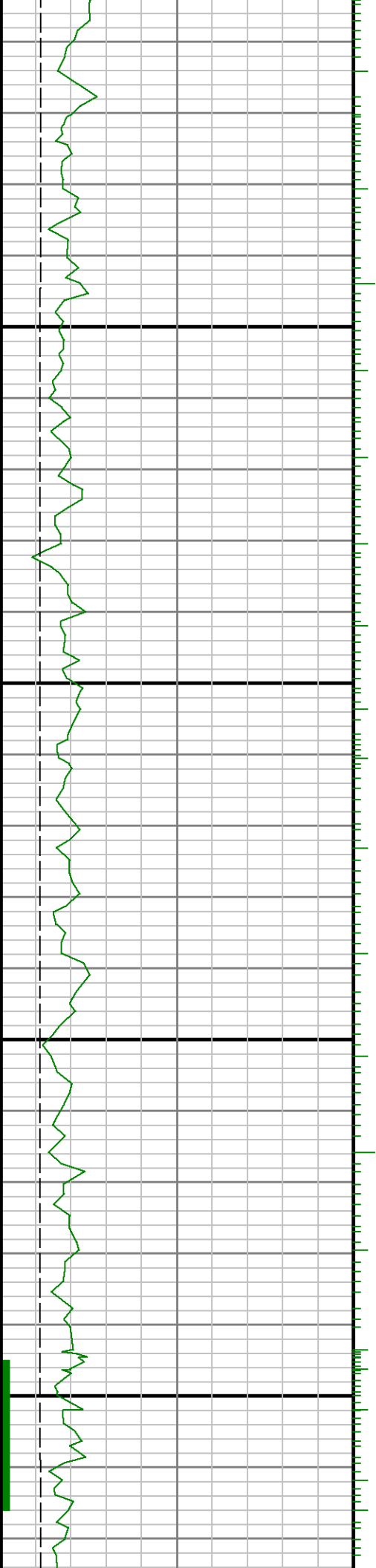


9300

9400

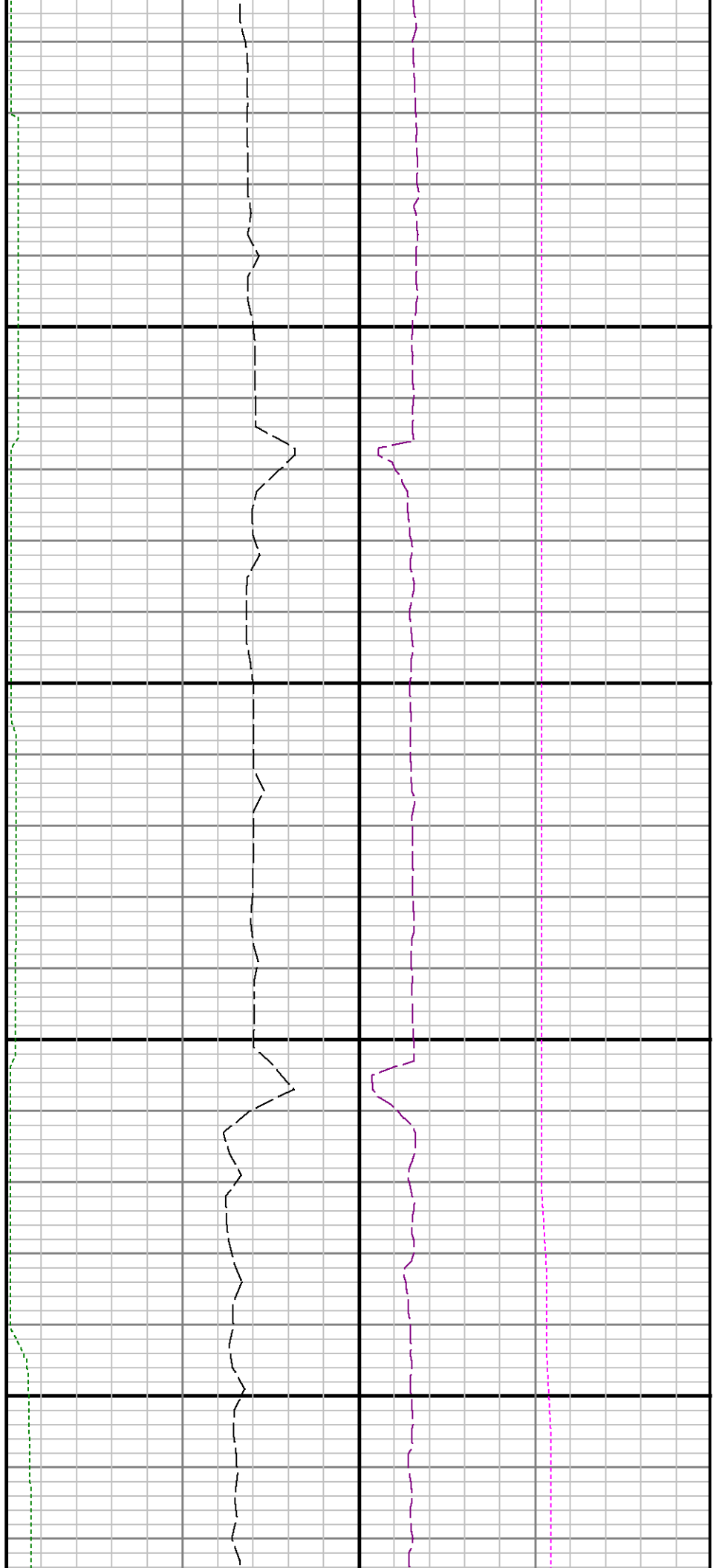
9500

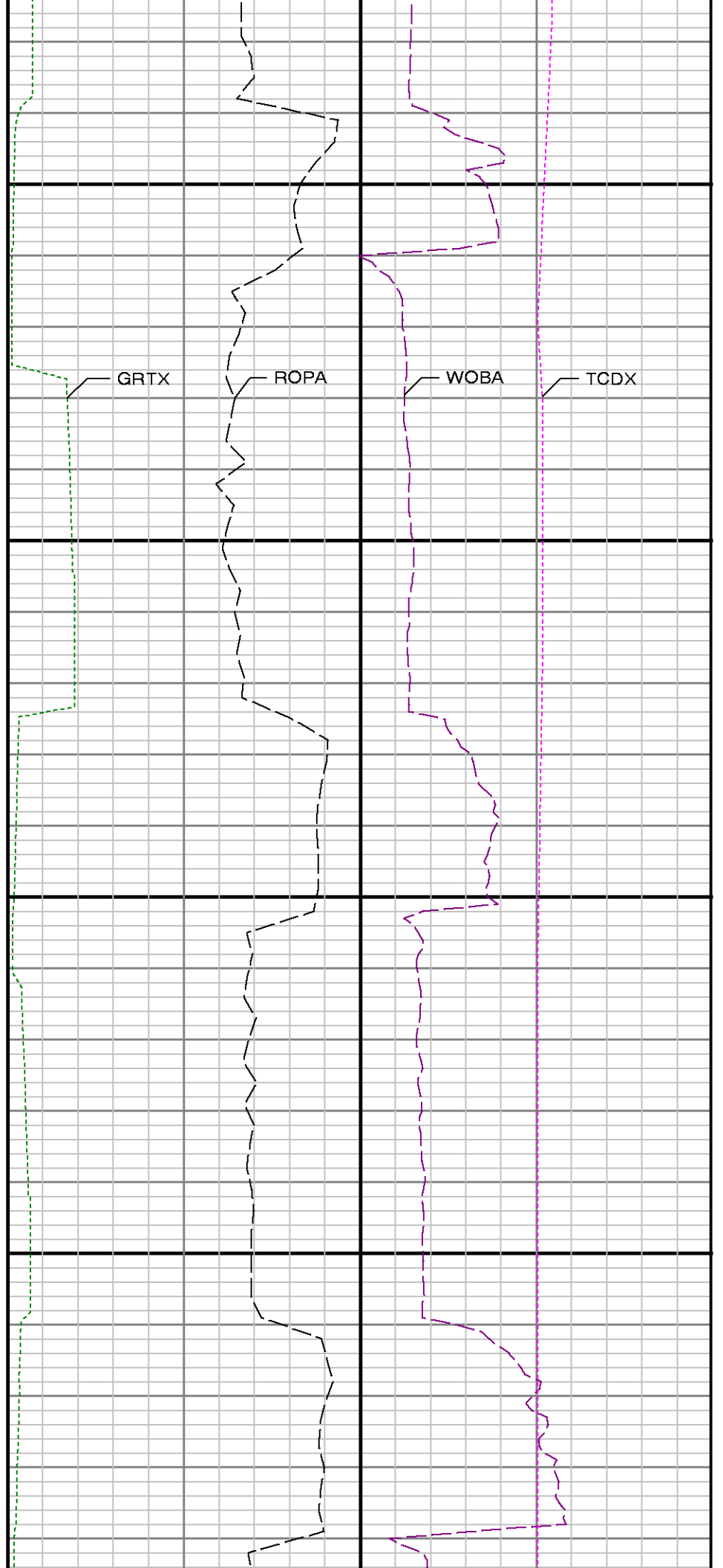
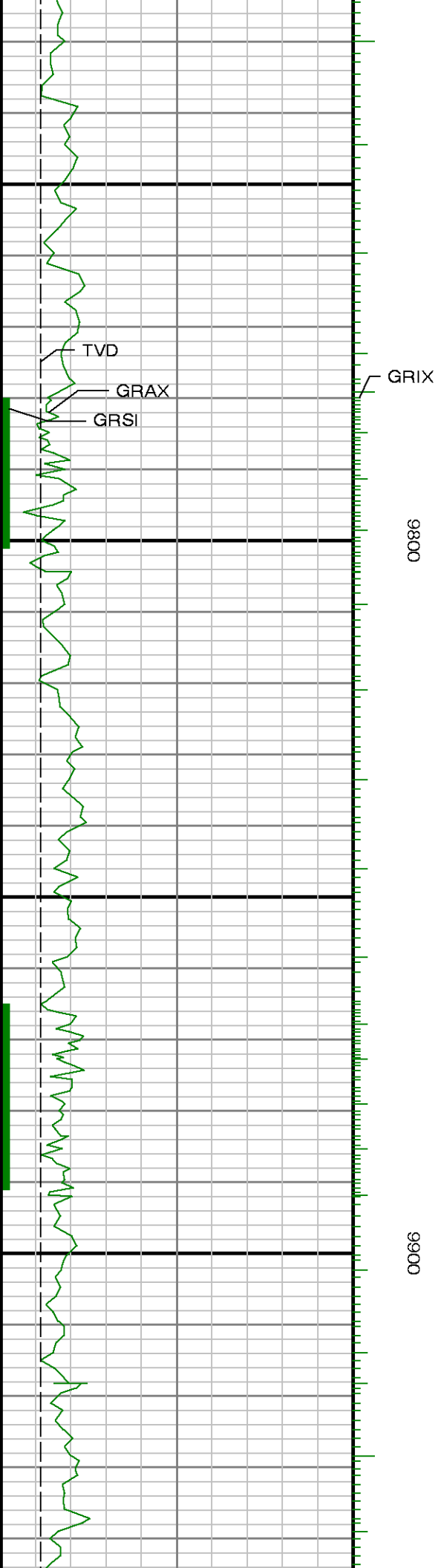


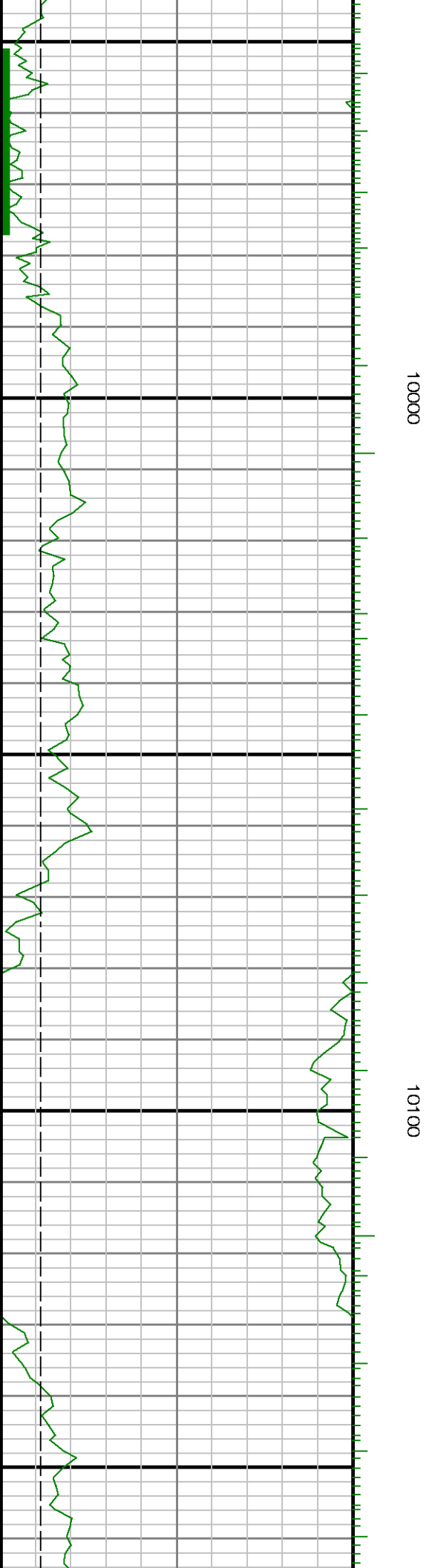
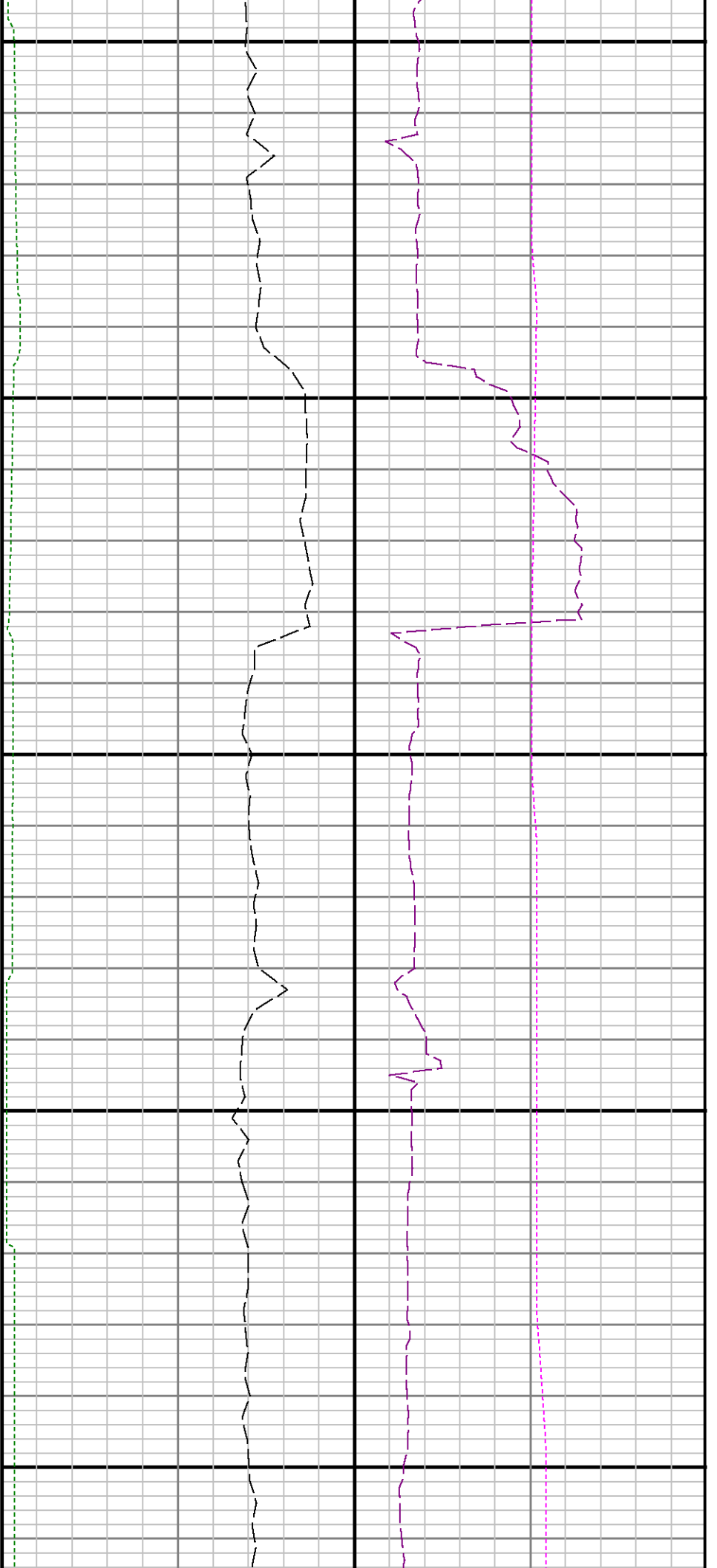


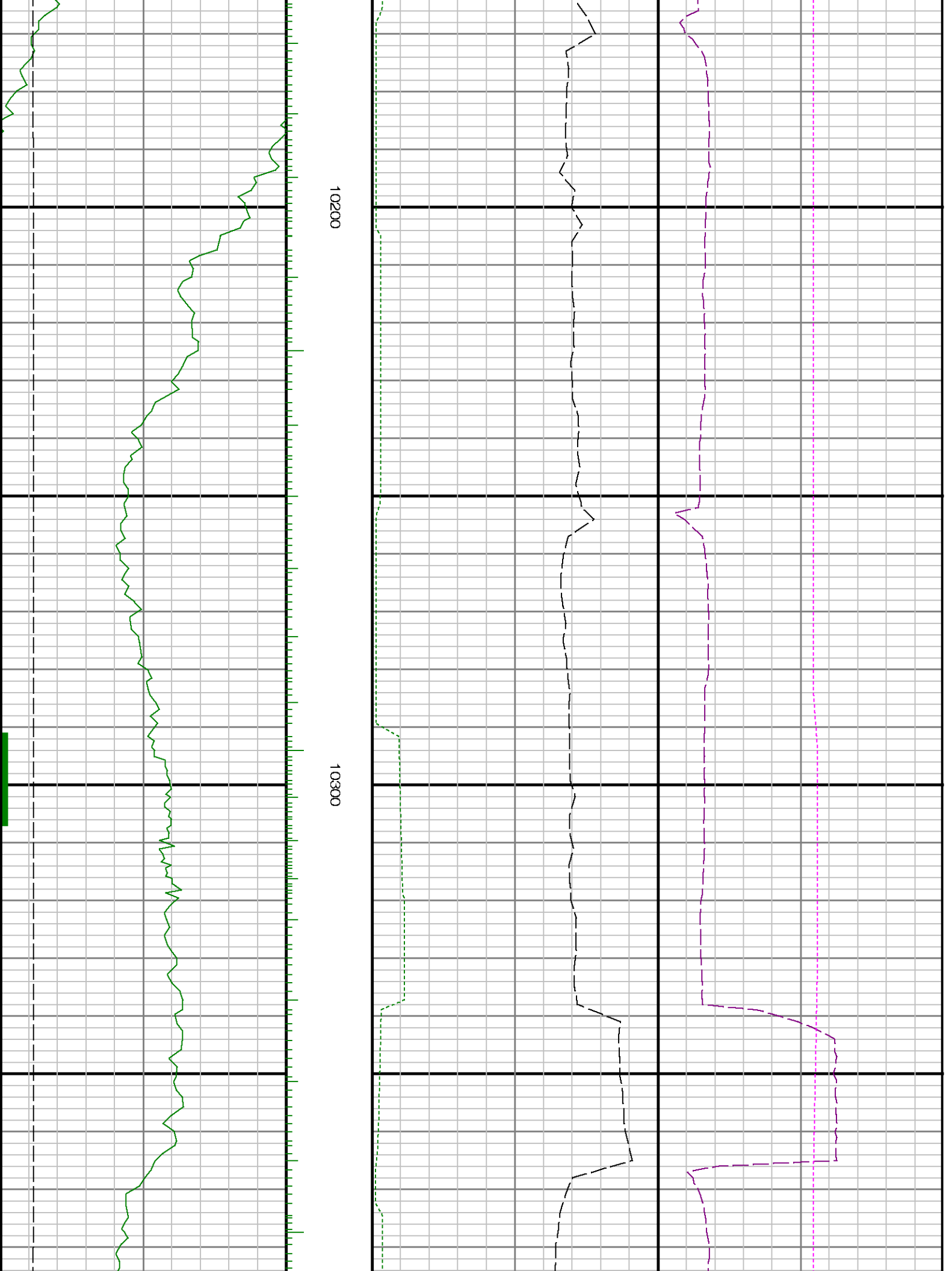
9600

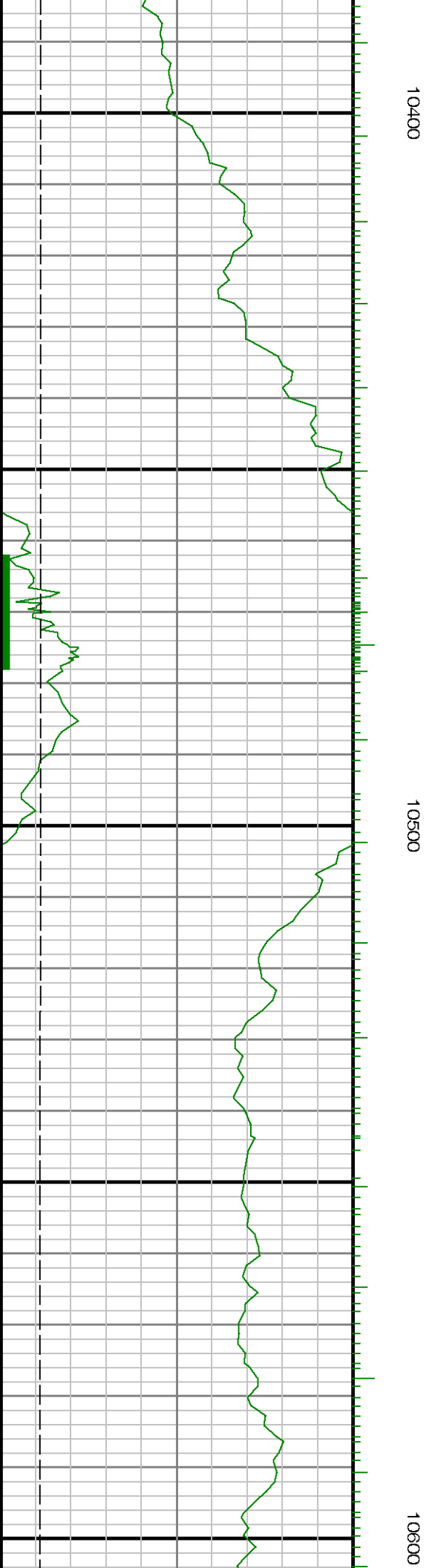
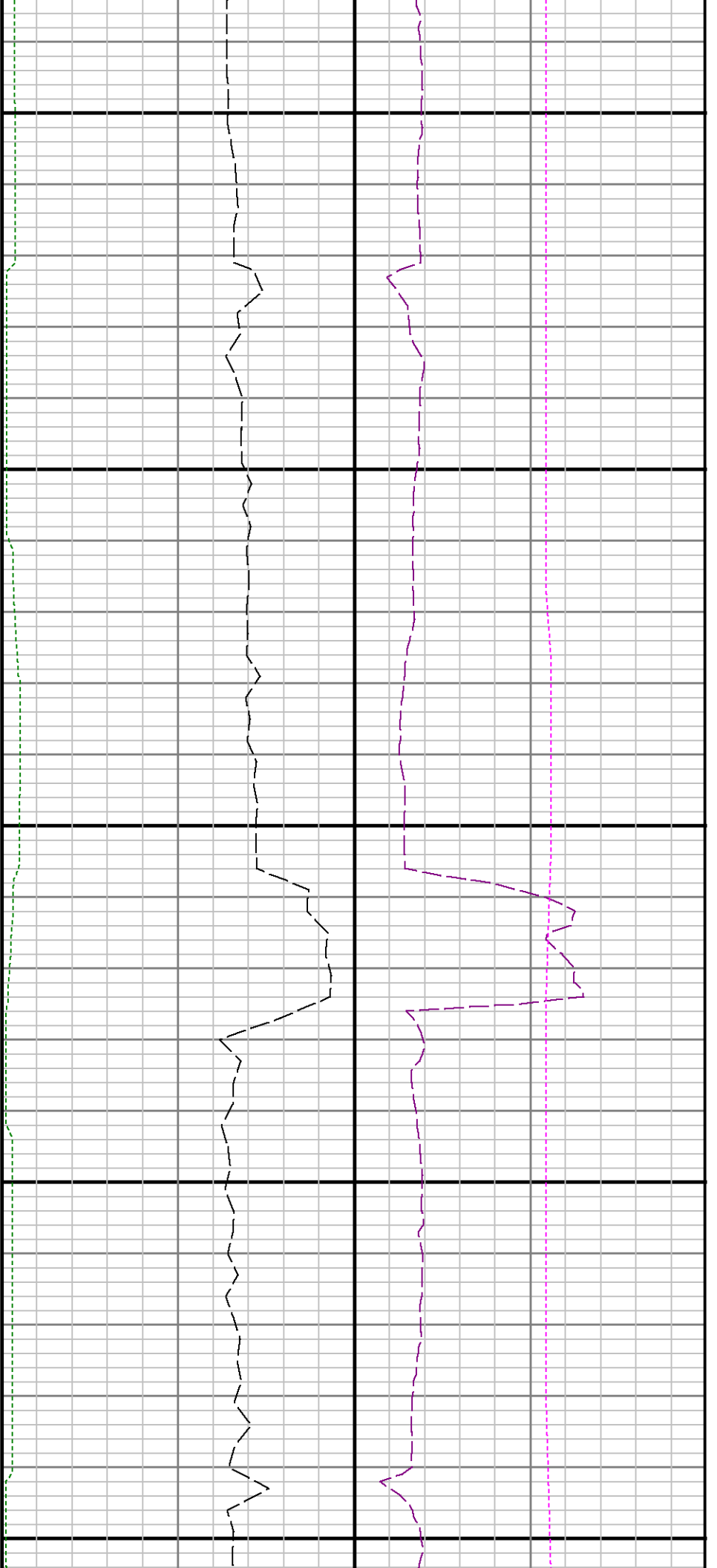
9700

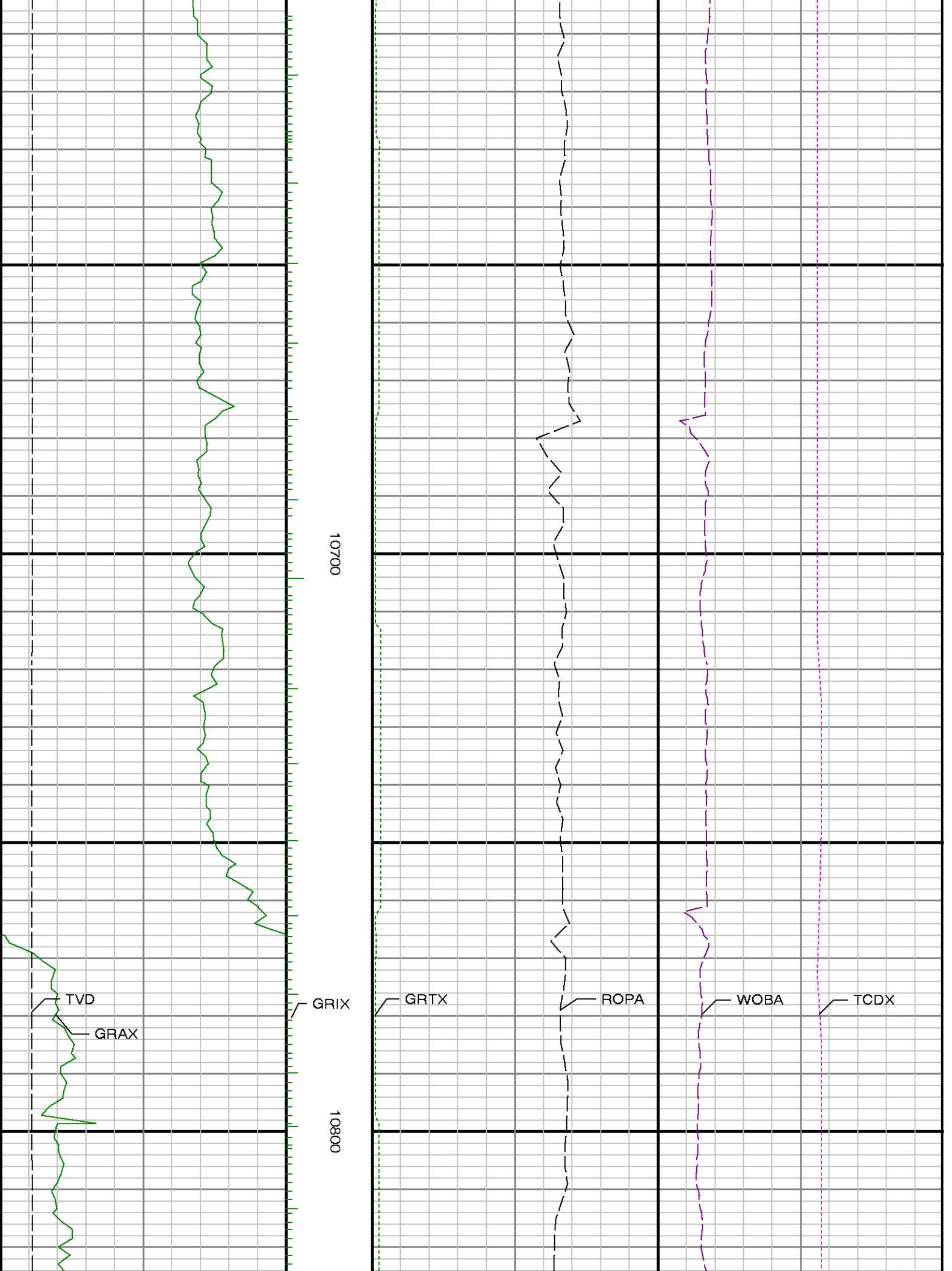




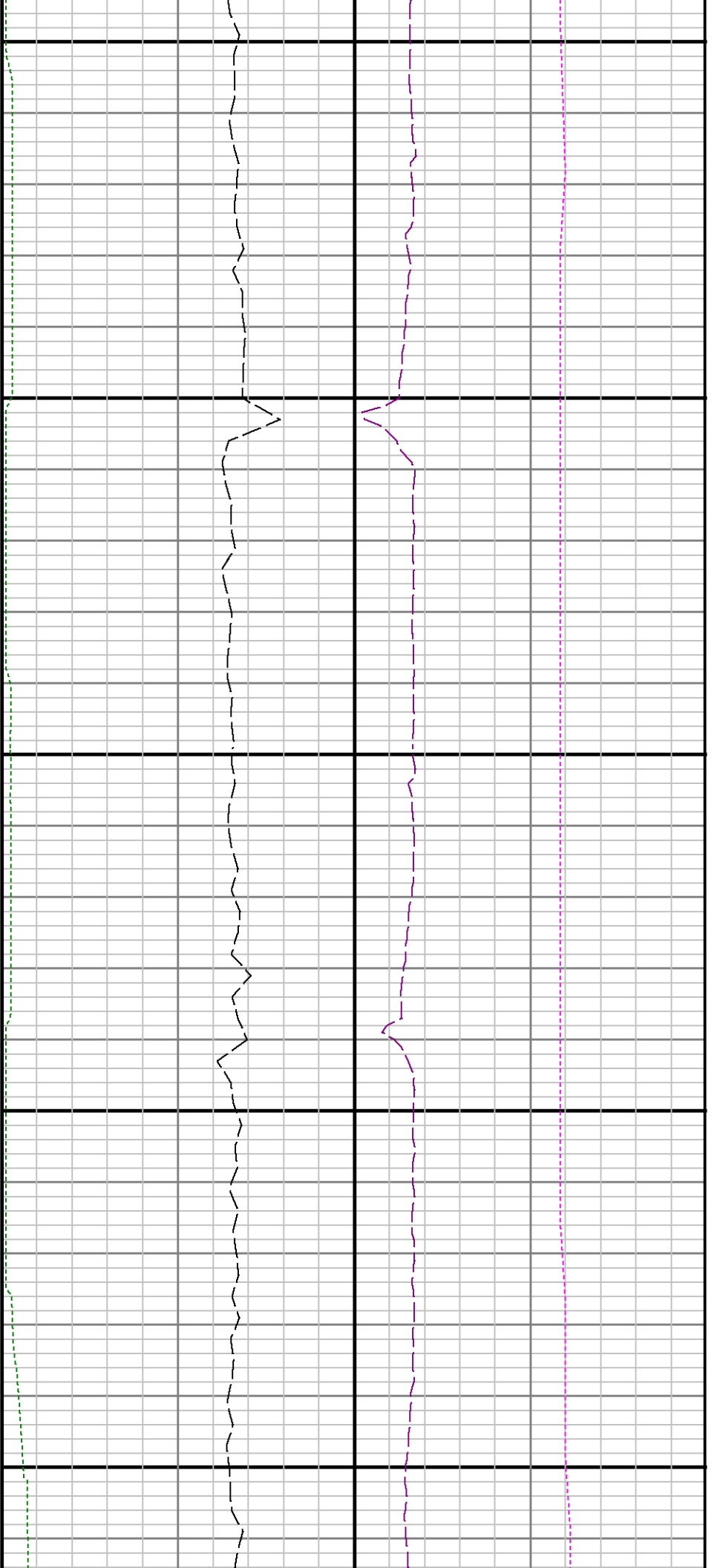












11100

11200

