



Realtime Log

NATURAL FORMATION EVALUATION  
Gamma Ray

Scale: Company: Anadarko

1:240 Well: HENRICKSON FEDERAL 13N-18HZ

MEASURED DEPTH Field: WELD COUNTY (KERR MCGEE)

Region: Continental US Country: United States

Status: FIELD PRINT Surface Location: Other Services:

Latitude: 40° 14' 11.119" N

Longitude: 104° 49' 37.106" W

API Number: 051233767400

Section7

TWN: 3N

Range66W

Permanent Datum (P.D.): Ground Level Elevation: 4793.00 ft.

Log Measured From: Kelly Bushing 4806.00 ft. Above P.D.

Depth Reference: Driller's Depth Elevations: KB: 4806.00 ft. DF: N/A GL: 4793.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6525.0 ft. Date From: 12 Oct 2013 Dip Angle: 66.89 ° Azi Reference North: True

Bottom: 13384.0 ft. Date To: 17 Oct 2013 Total Mag to Reference

Spud Date: 10 Oct 2013 Field Strength: 52643.0 nT North Correction: 8.53 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1029.0 ft.	9.625 in.	36.00 lb/ft	Surface	10019.0 ft.
8.750 in.	1029.0 ft.	7610.0 ft.	7.000 in.	26.00 lb/ft	Surface	7600.0 ft.
6.125 in.	7610.0 ft.	13433.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	13433.0 ft.	8.750 in.	Intermediate	0.3 ° / 198.7 °	86.3 ° / 182.2 °
			6.125 in.	Lateral	86.3 ° / 182.2 °	89.1 ° / 180.2 °
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig: / Contractor:	Ensign 145	/ Ensign Drilling
PATS	6.4.1.34	Job No.:	5810843	
		District: / Unit:	RMD	/

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Log Run Summary

Run No.	BHA 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	Bottom	From	To	Start		End		
							(ft.)	(ft.)	(ft.)	(ft.)					
1	1	1	8.750	PDC	2.000	Steerable	6525.0	7551.0	6525.0	7610.0	12 Oct 2013 16:19	13 Oct 2013 05:28	32.6		
2	2	3	6.125	PDC	2.000	Steerable	7551.0	13384.0	7610.0	13433.0	14 Oct 2013 17:54	17 Oct 2013 00:58	55.1		

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Dickey	01 Oct 2013	17 Oct 2013	Walker Starr	10 Oct 2013	17 Oct 2013			

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
12 Oct 2013	21:45	1	7234.0	Water Based	9.5	43	8.5	5.0	0 / 94	Suction Line	1100	0.0
14 Oct 2013	22:30	2	8400.0	Water Based	9.4	41	9.0	4.0	1 / 93	Suction Line	1100	0.0
15 Oct 2013	22:00	2	11281.0	Water Based	9.4	45	8.5	4.0	2 / 92	Suction Line	1200	0.0
16 Oct 2013	22:00	2	13170.0	Water Based	9.7	44	9.0	4.5	3 / 89	Suction Line	1200	0.0

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent 0.5 ft Avg	API
GRIX	Gamma Ray Density	points
GRSI	Gamma Ray Sliding Indicator	Unitless
GRTX	Gamma Ray Time Since Drilled	Time
ROPA	Rate of Penetration 3.0 ft Avg	Ft/Hr
TCDX	Downhole Temperature	Degrees
TVD	True Vertical Depth	Feet
WOBA	Surface Weight On Bit 1.0 ft Avg	Klbf

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	11866045	Directional	57.83	6.750	2.875
1	SRIG	12461716	Gamma	54.45	6.750	2.875
2	DIR	12479858	Directional	52.34	4.750	2.625
2	SRIG	12564657	Gamma	48.97	4.750	2.625

Service and Tool Mnemonics

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

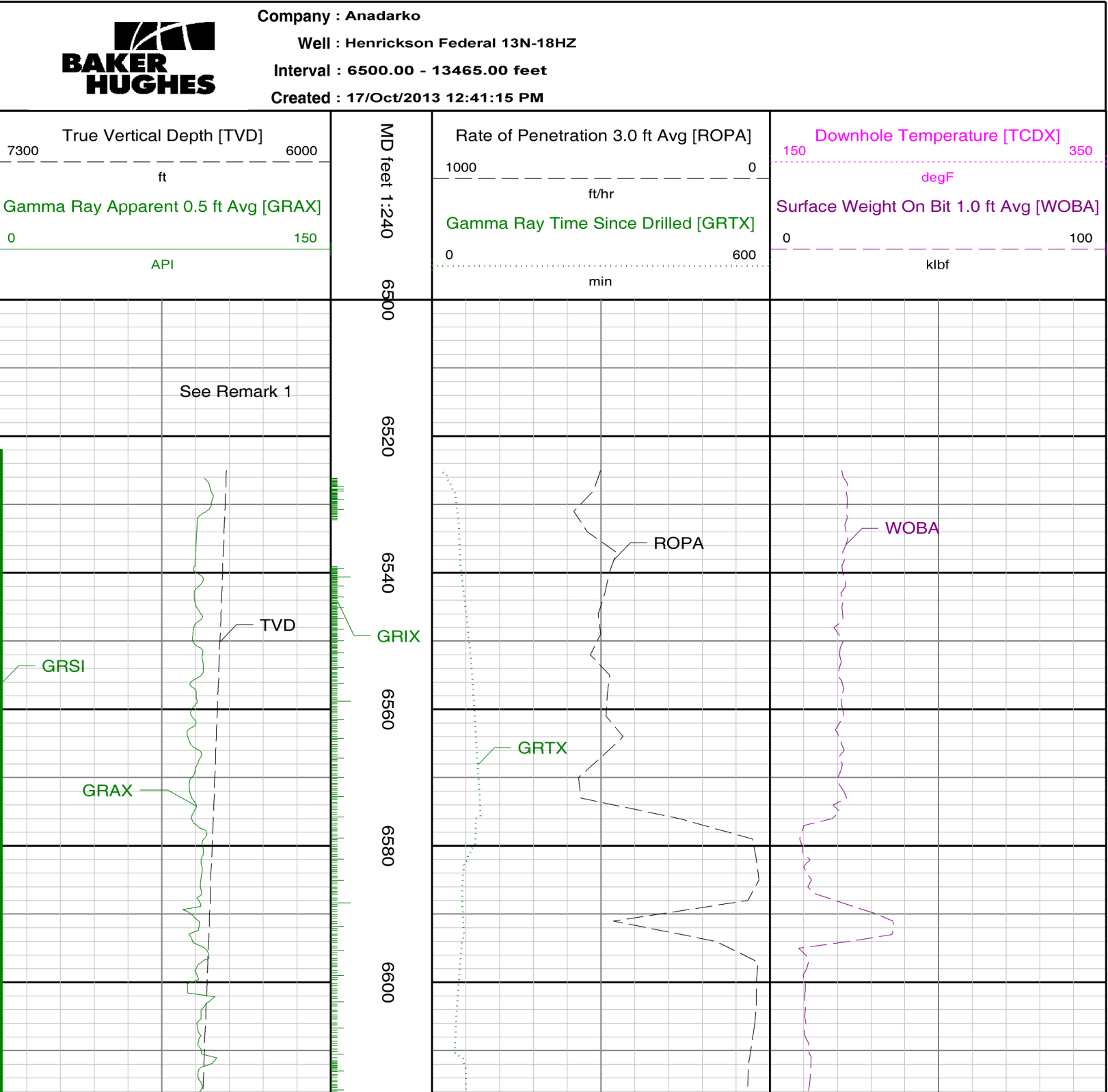
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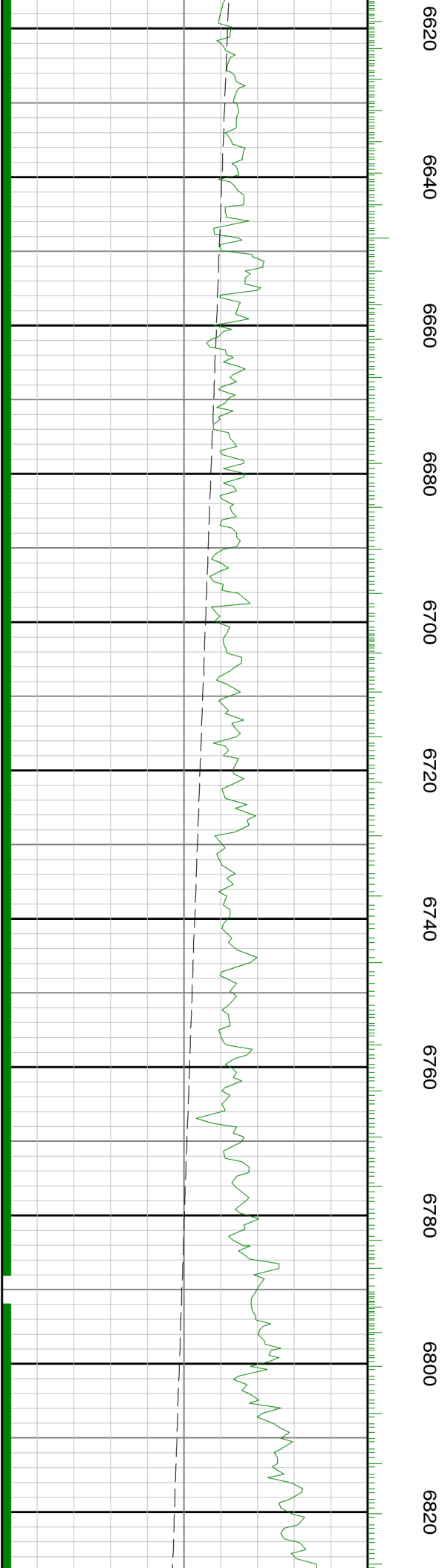
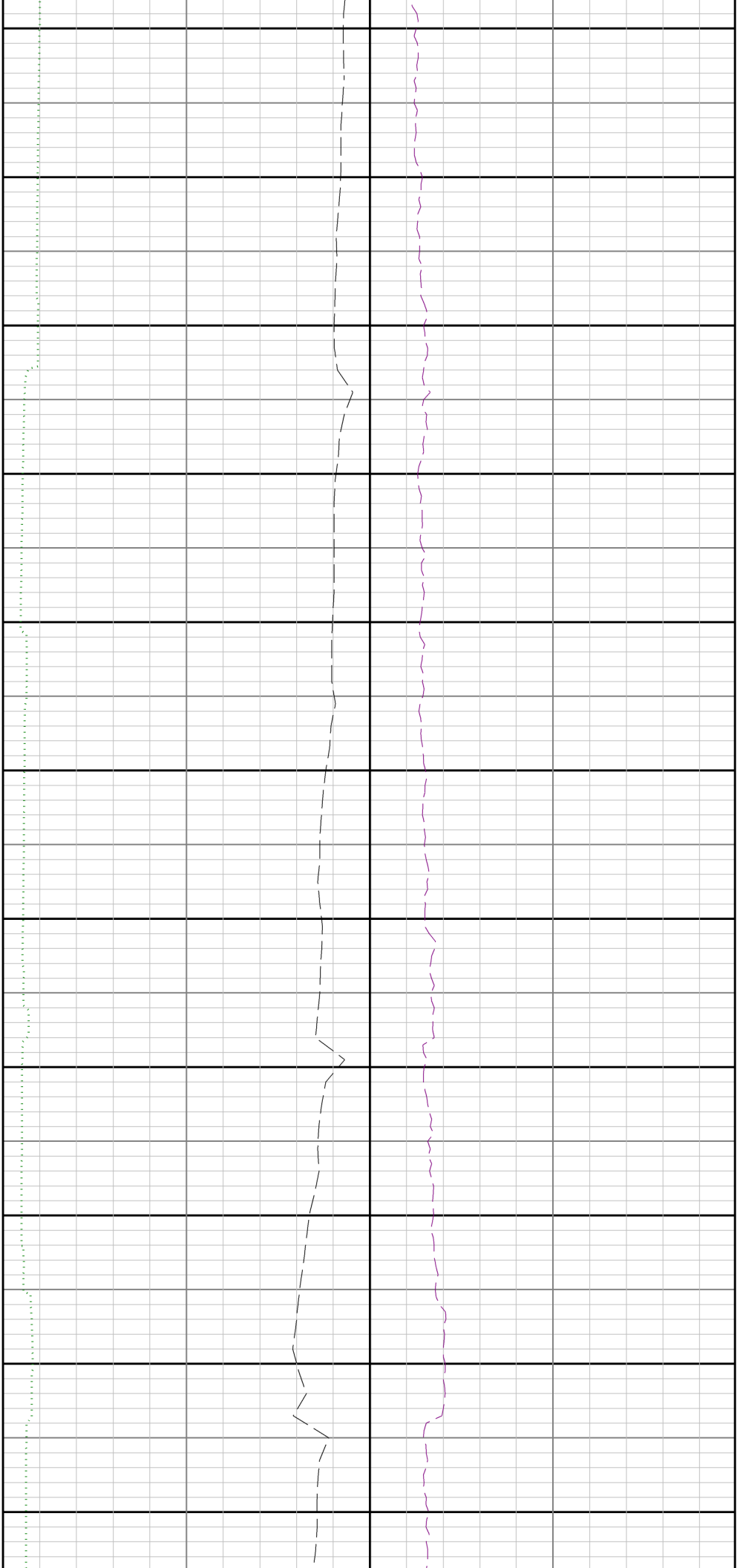
1) Baker Hughes INTEQ runs 1 utilized 6 1/2 inch NaviTrak services (Directional and VSS) behind an 8 3/4 inch bit and steerable assembly from 1029 to 7610 feet MD (1029 to 7075 feet TVD).
2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviGamma services (Directional, Gamma Ray, and VSS) behind a 6 1/8 inch bit and steerable assembly from 7610 to 13433 feet MD (7075 to 7075 feet TVD).

Remarks

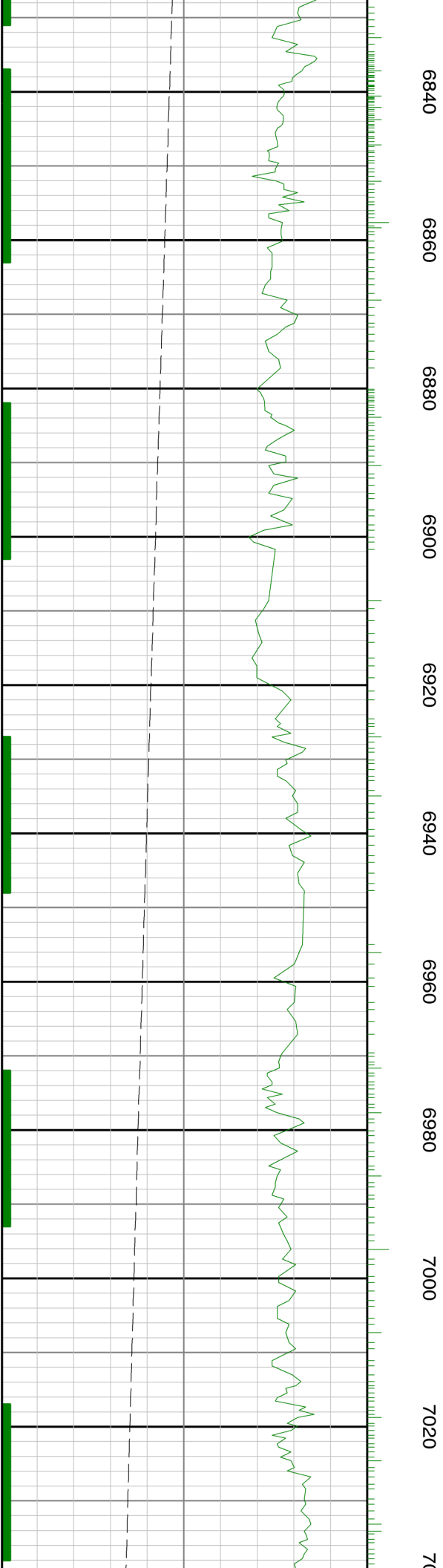
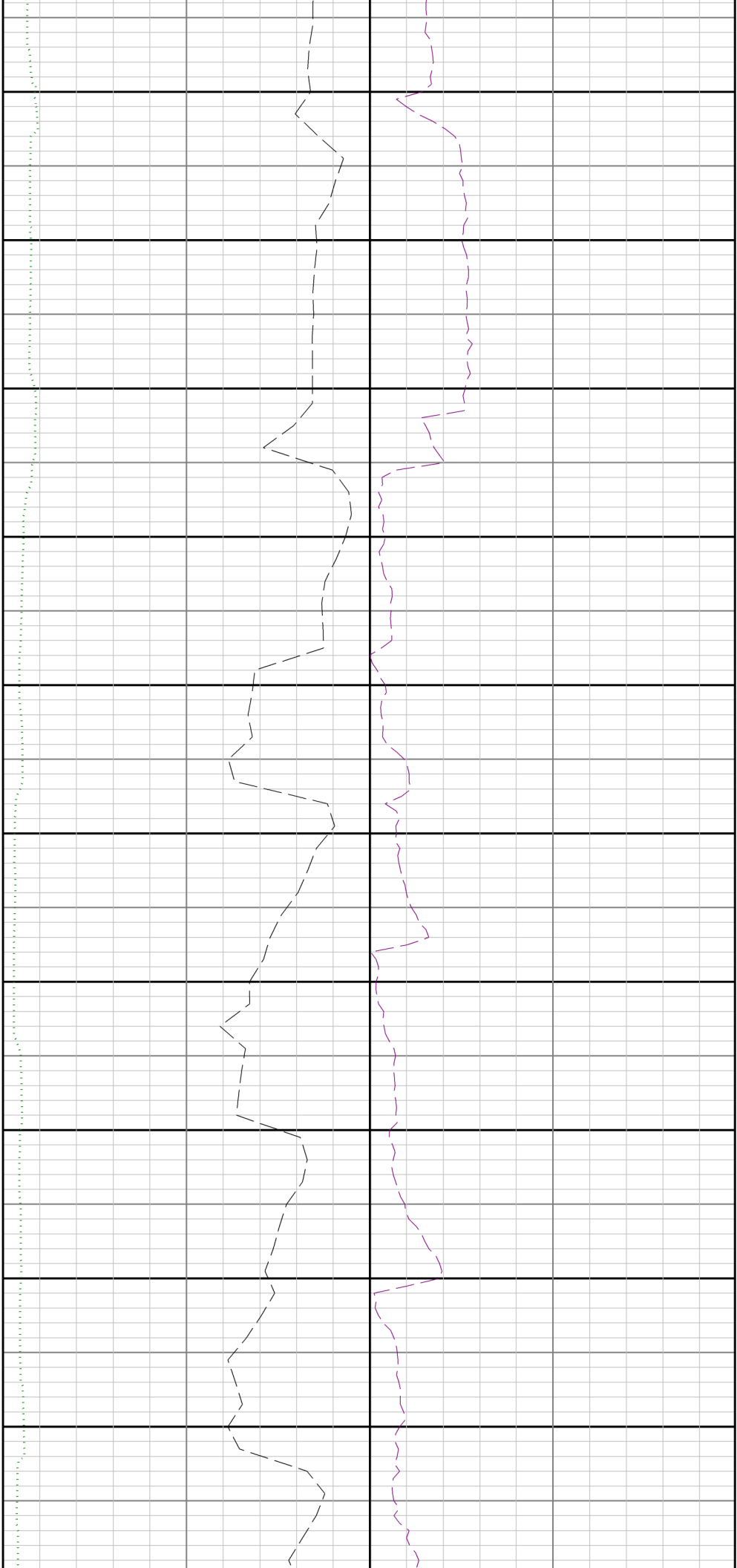
Number	Measured	Hole	LWD	Remark
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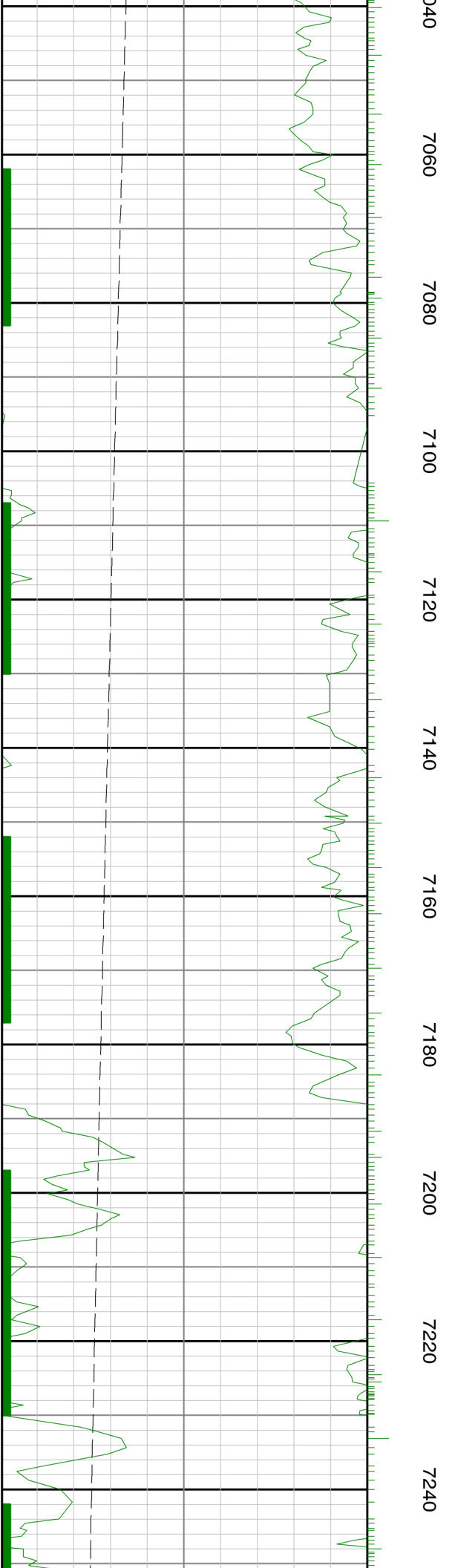
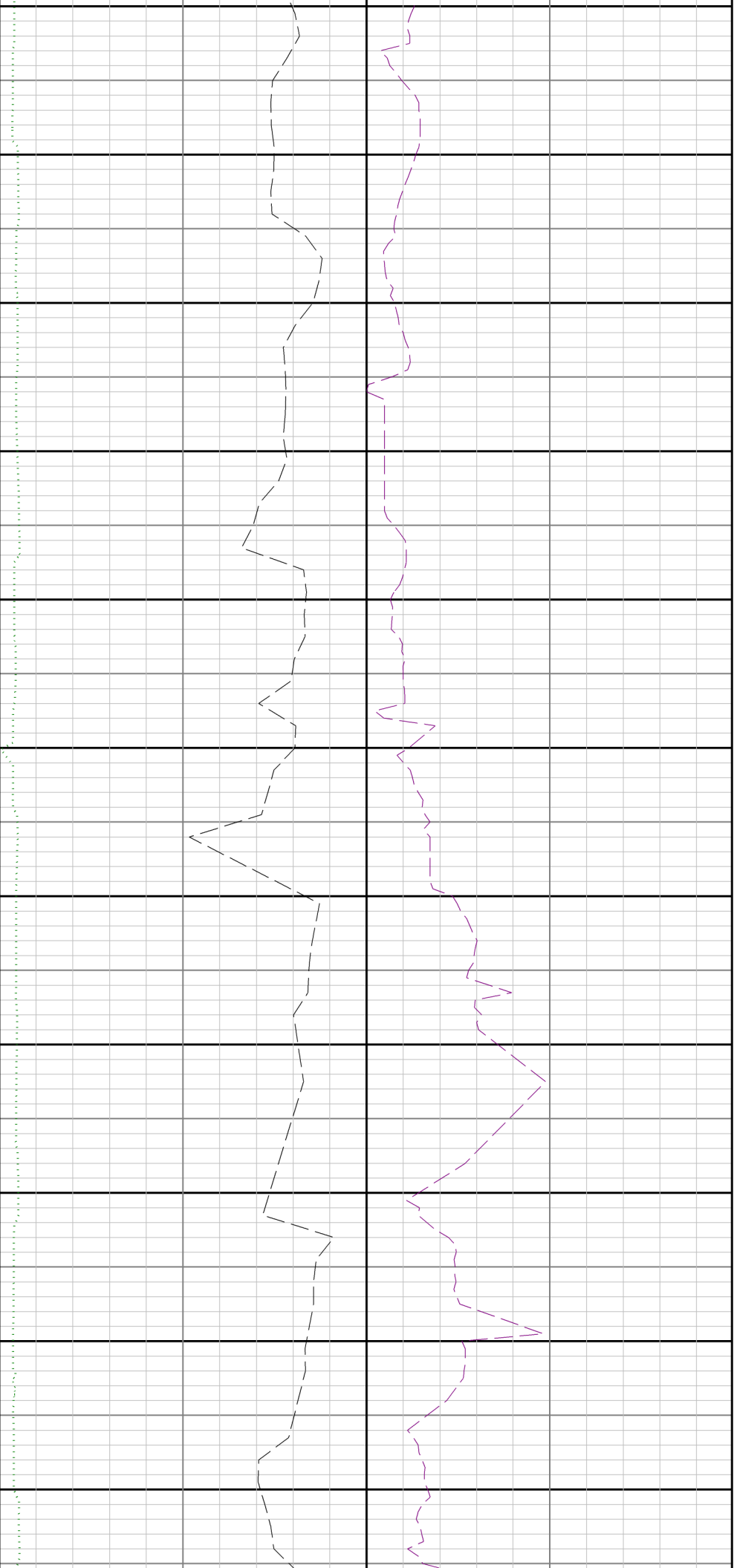
	Depth (ft.)	Section (in.)	Run No.	
1	6526	8.750	1	The interval from surface to 6526 feet MD feet MD (surface to 6403 feet TVD) was not logged since logging services began at 6526 feet MD.
2	7610	8.750	2	The interval from 7561 feet to 7610 feet MD (7072 to 7075 feet TVD) was logged up to 17.3 hours after being drilled due to casing and cementing operations and to pick up lateral tools.
3	13433	6.125	2	The interval from 13384 to 13433 feet MD (7074 to 7075 feet TVD) was not logged due to sensor to bit offset at well TD.

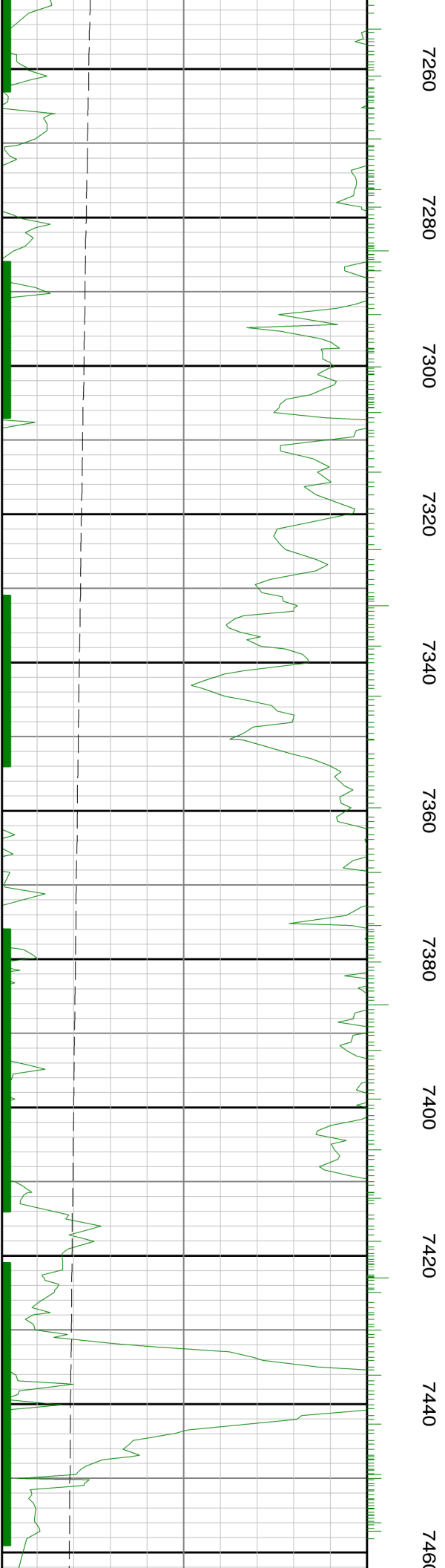
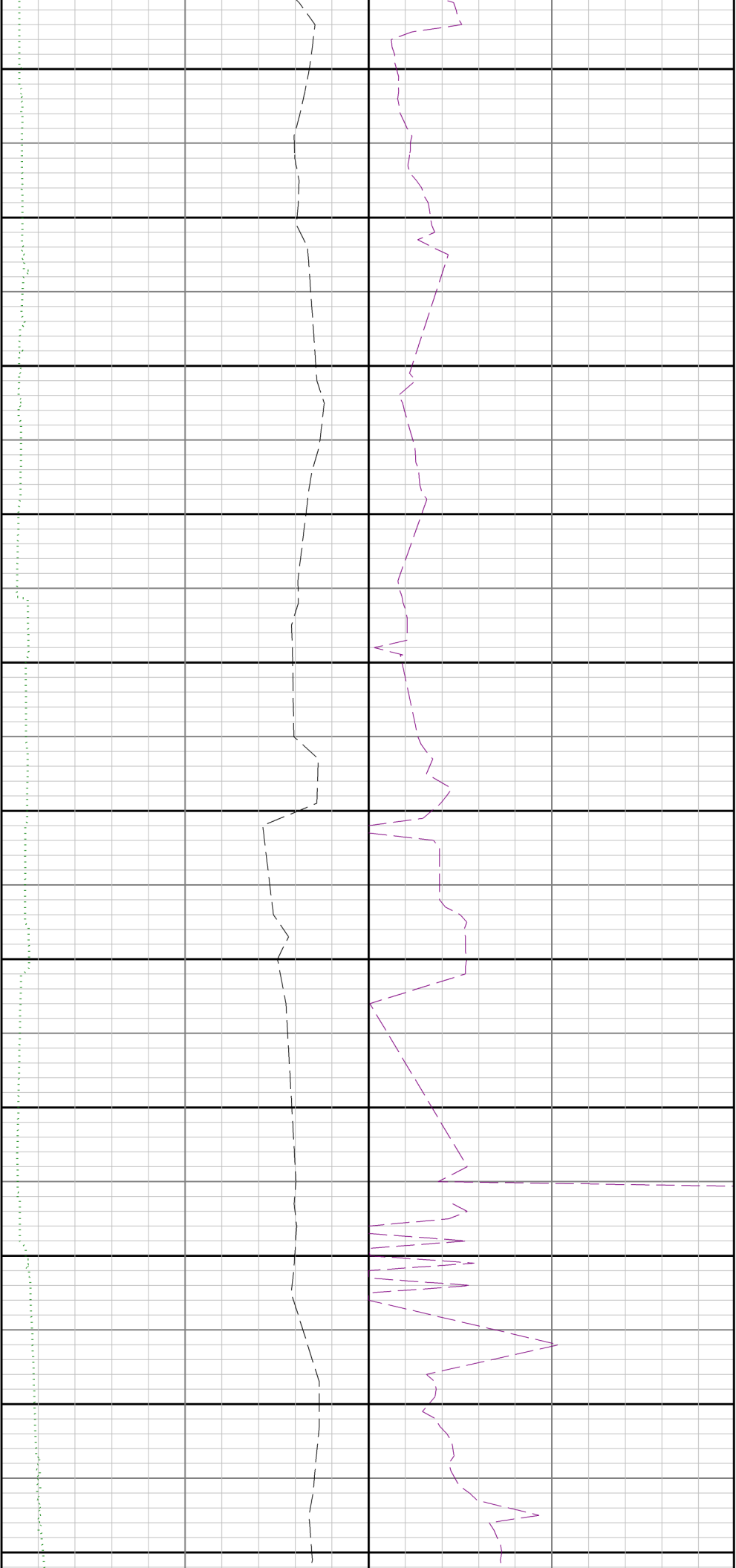


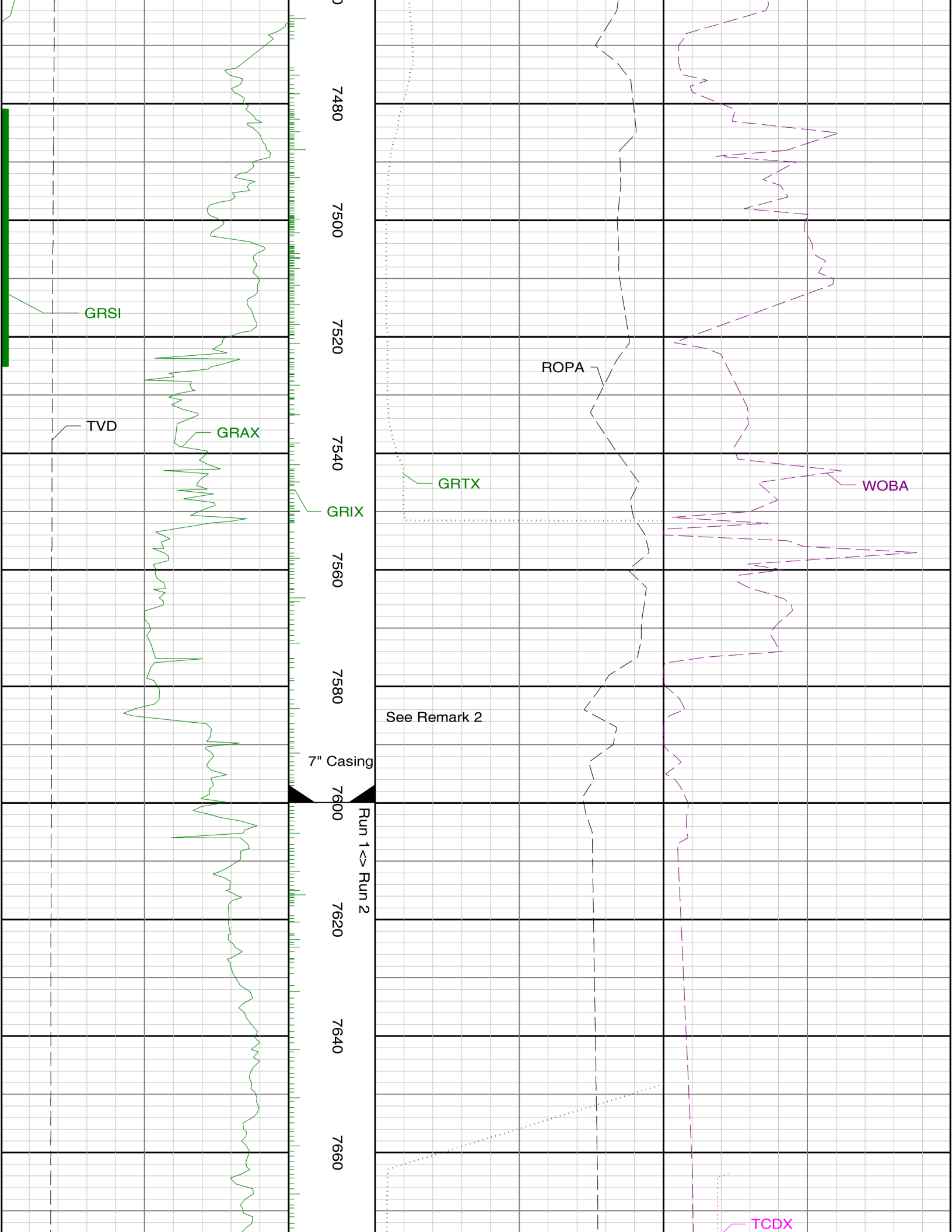


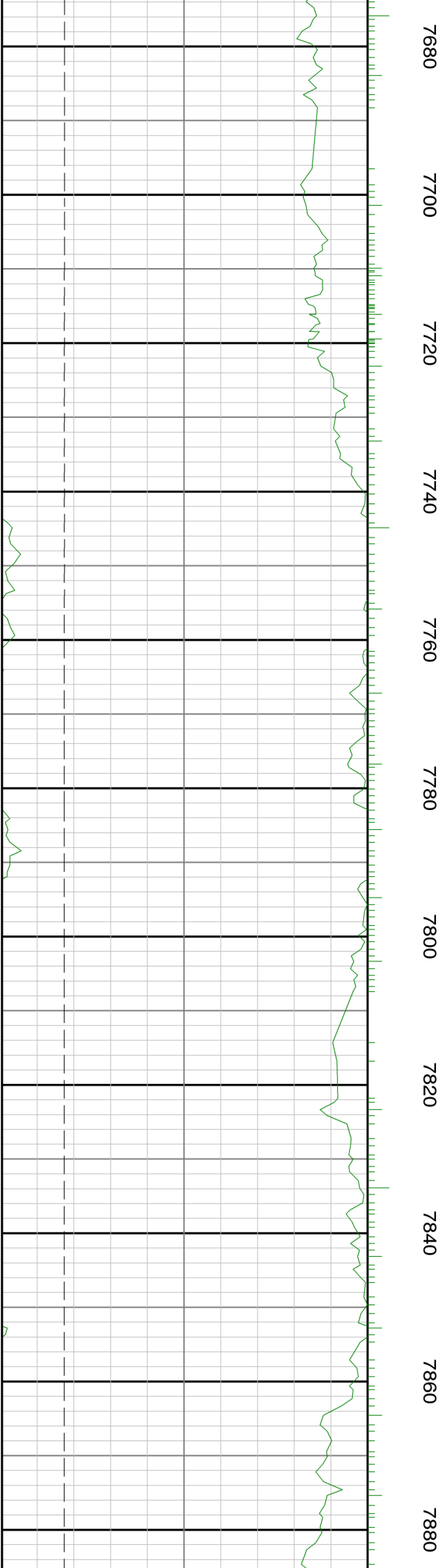
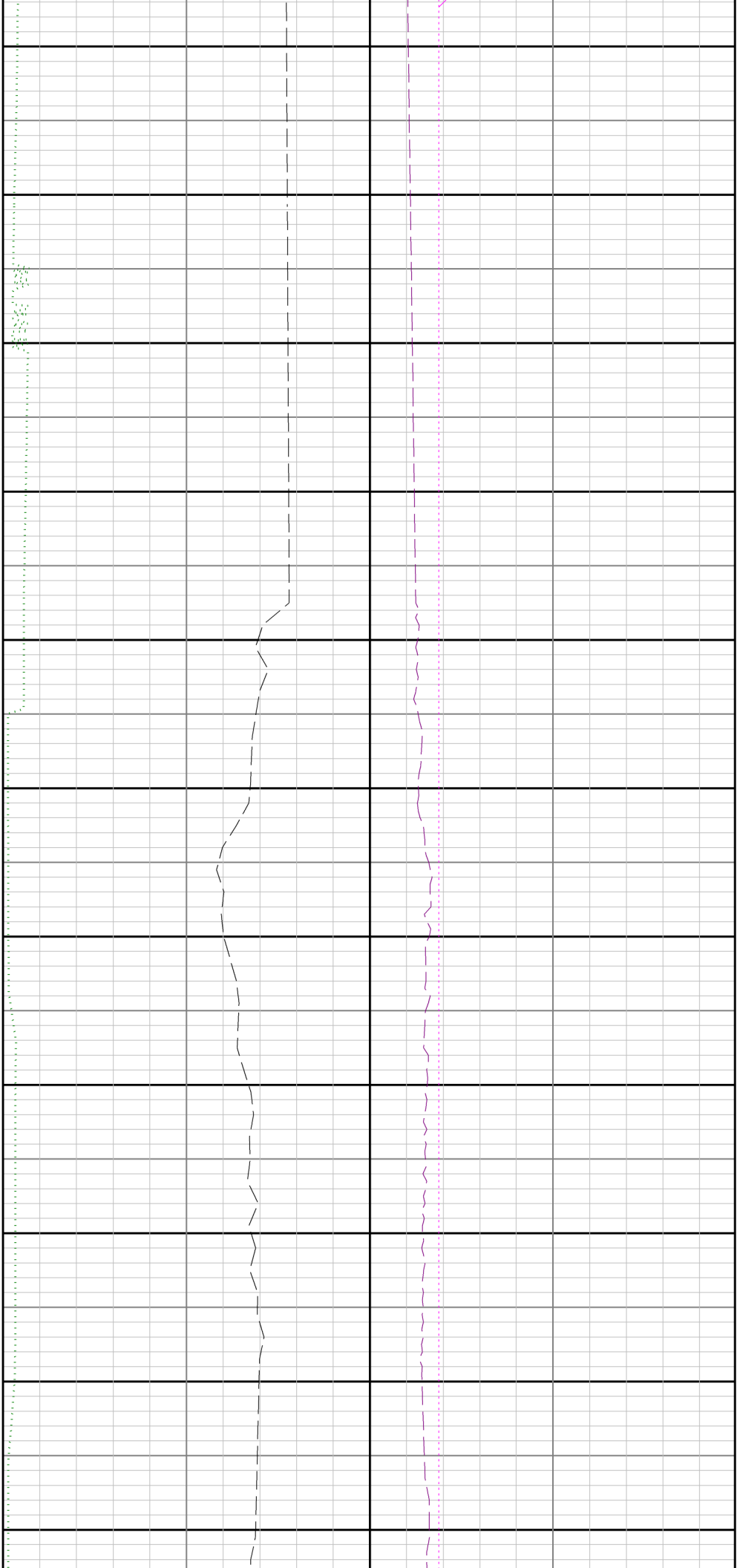


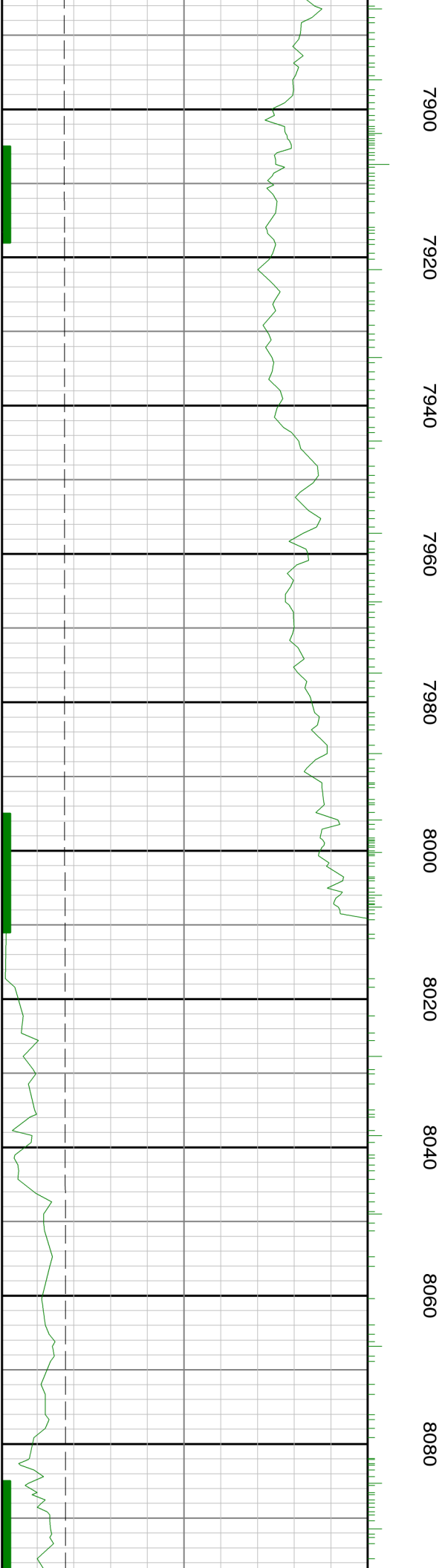
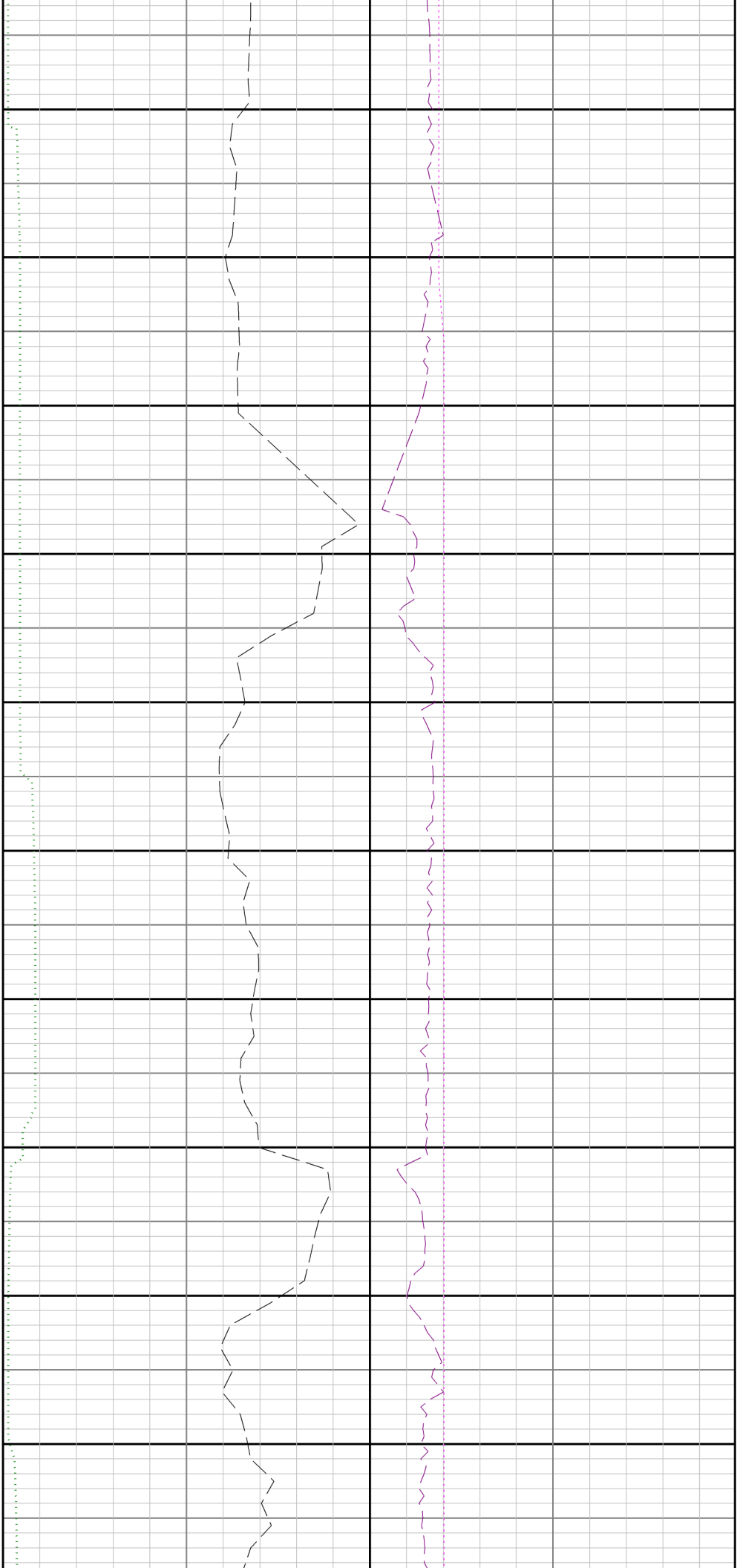


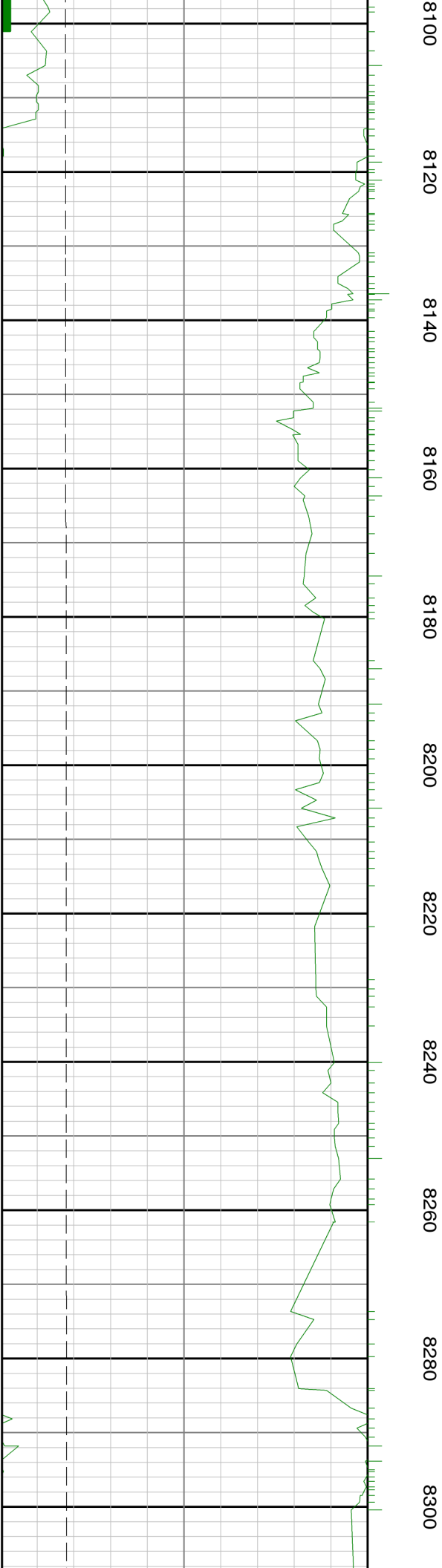
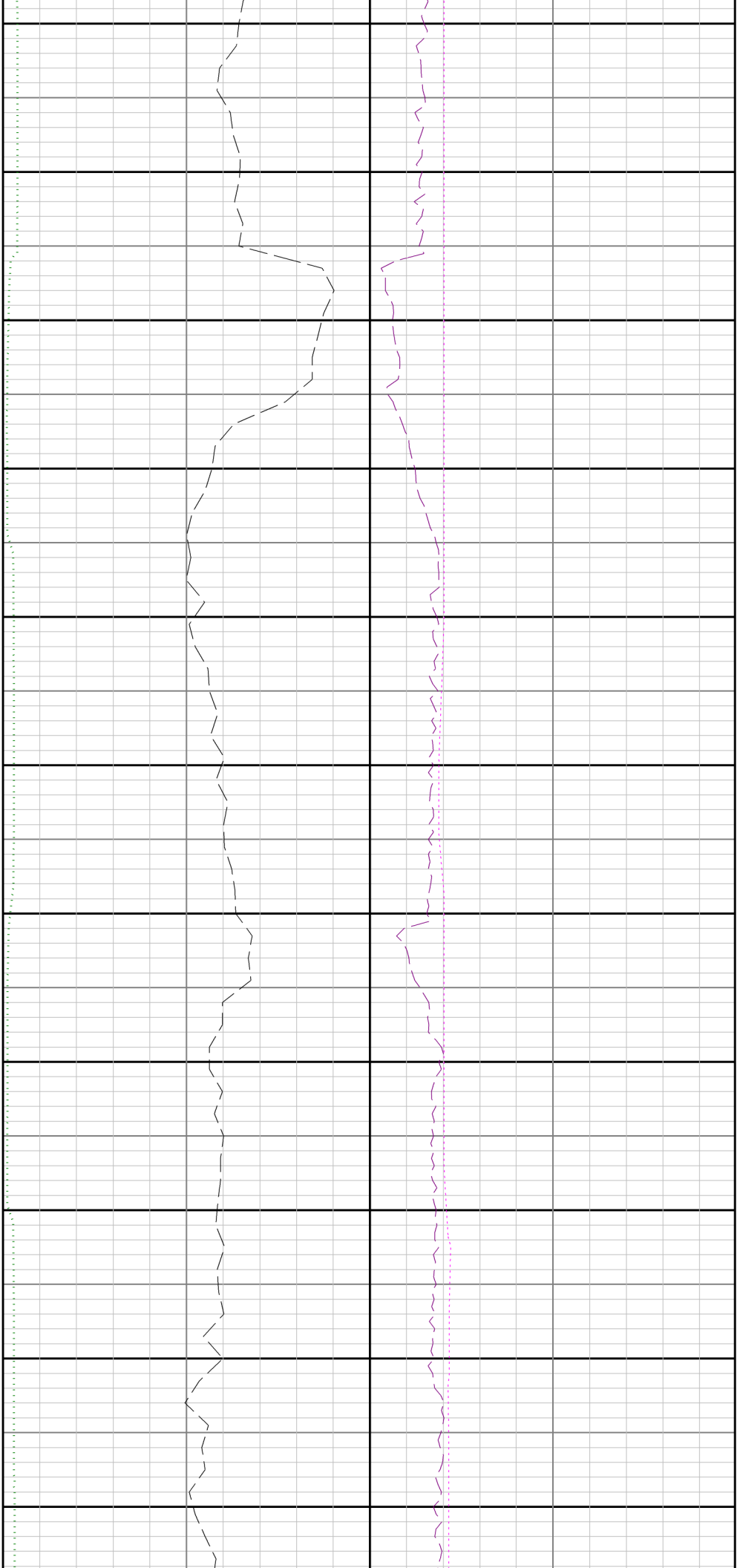


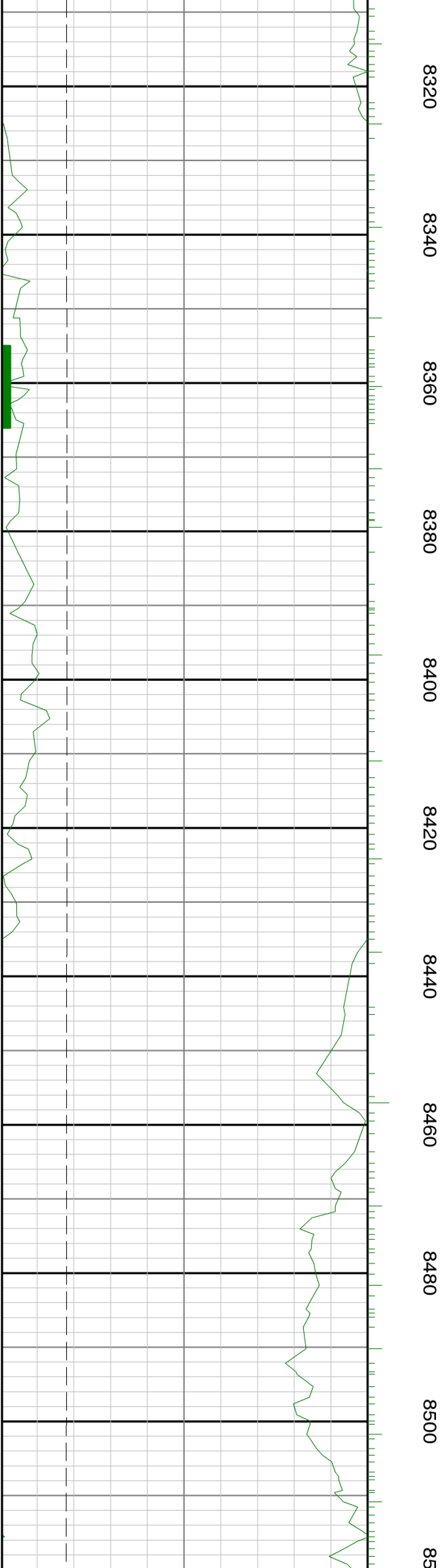
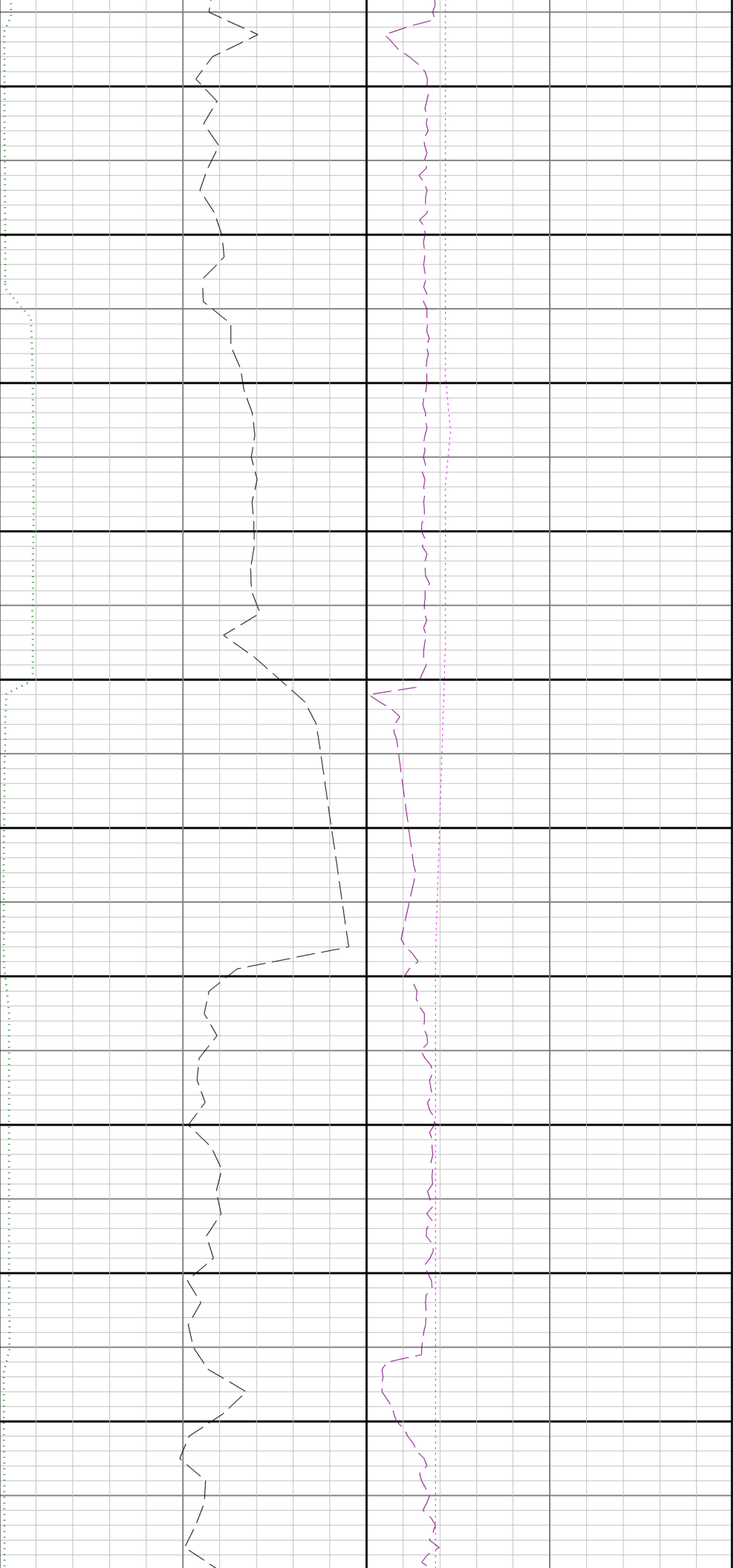




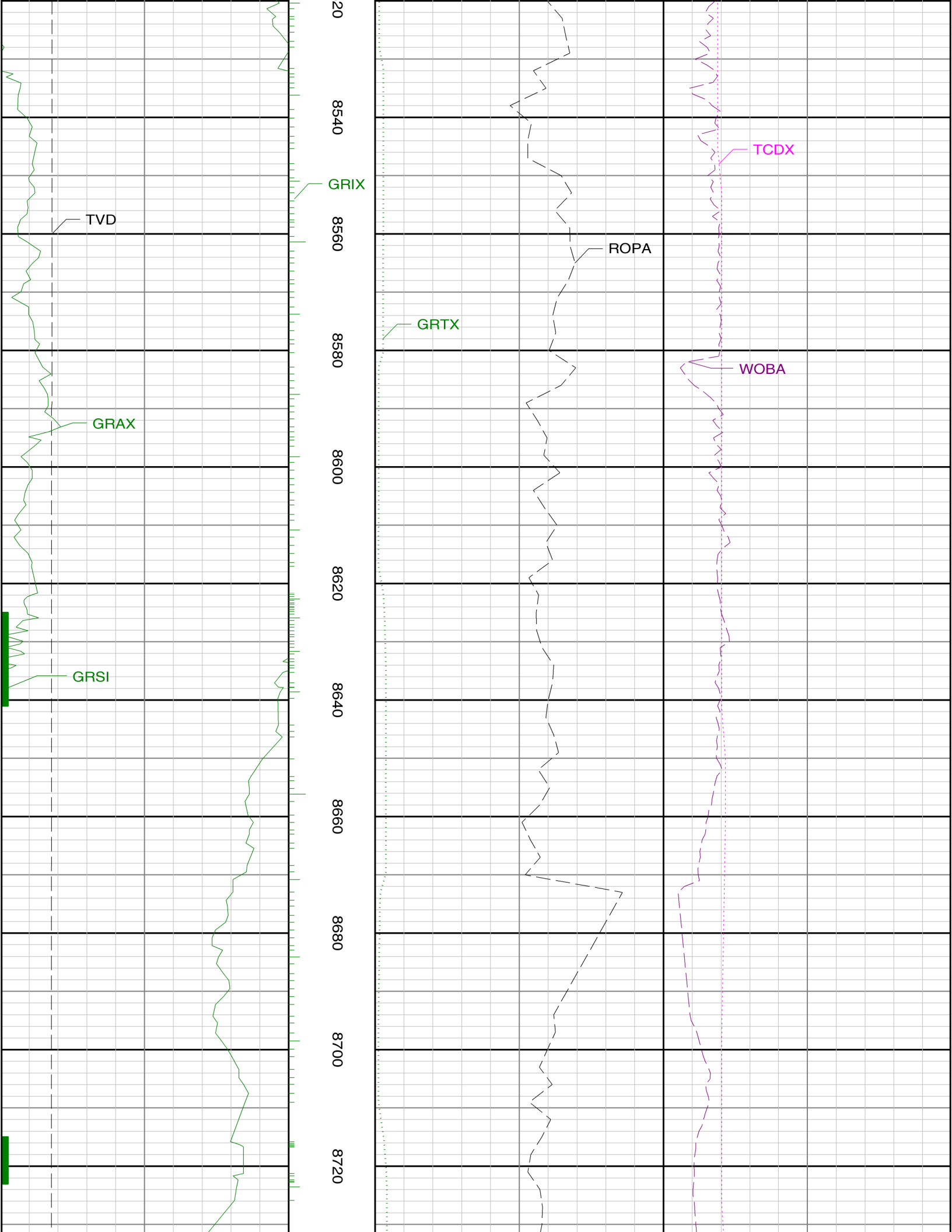


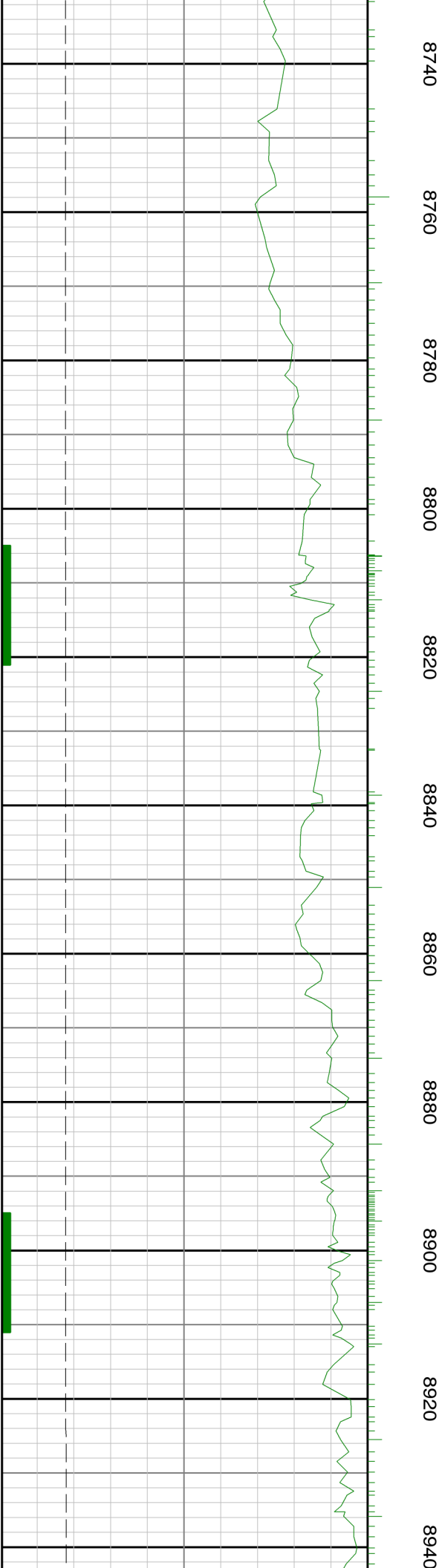
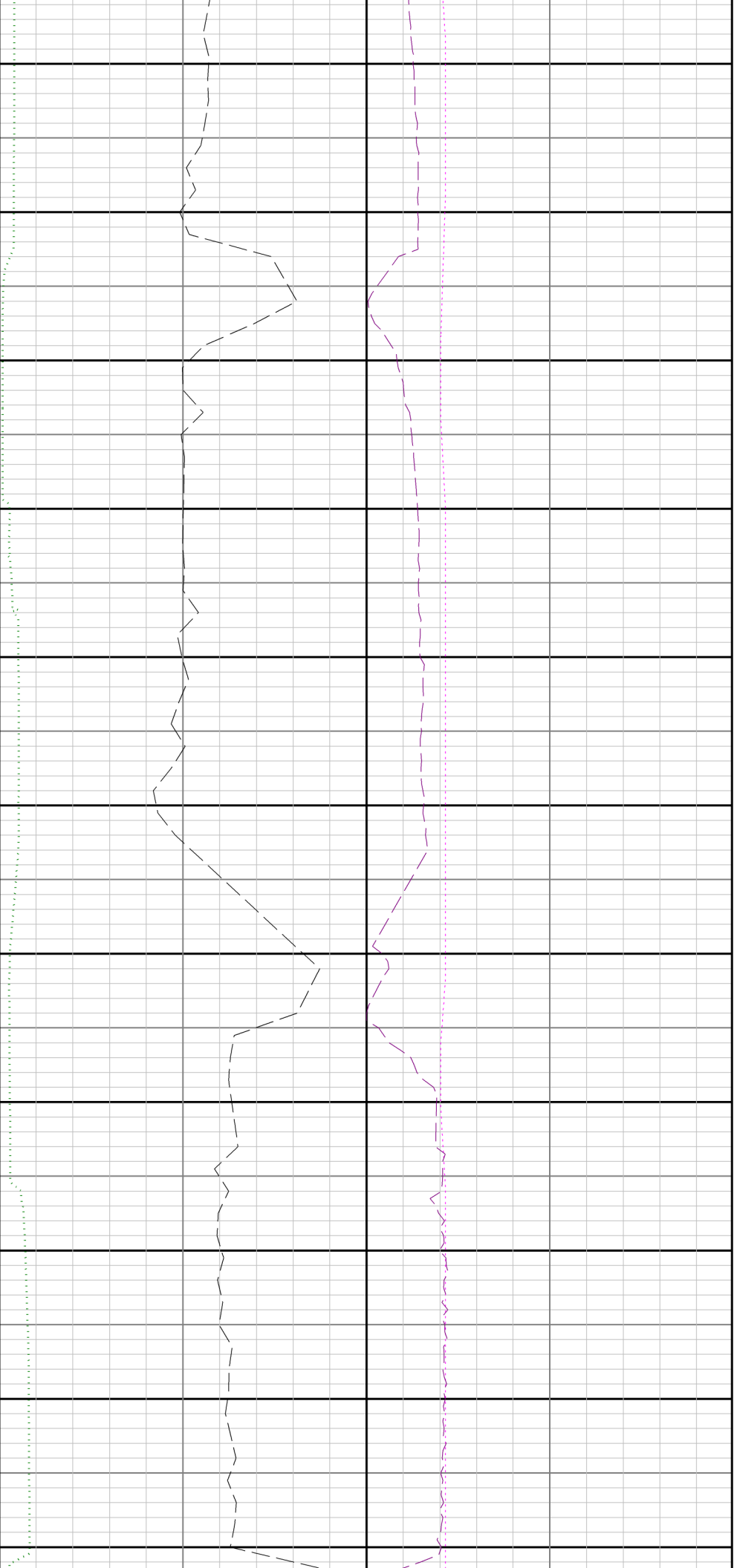


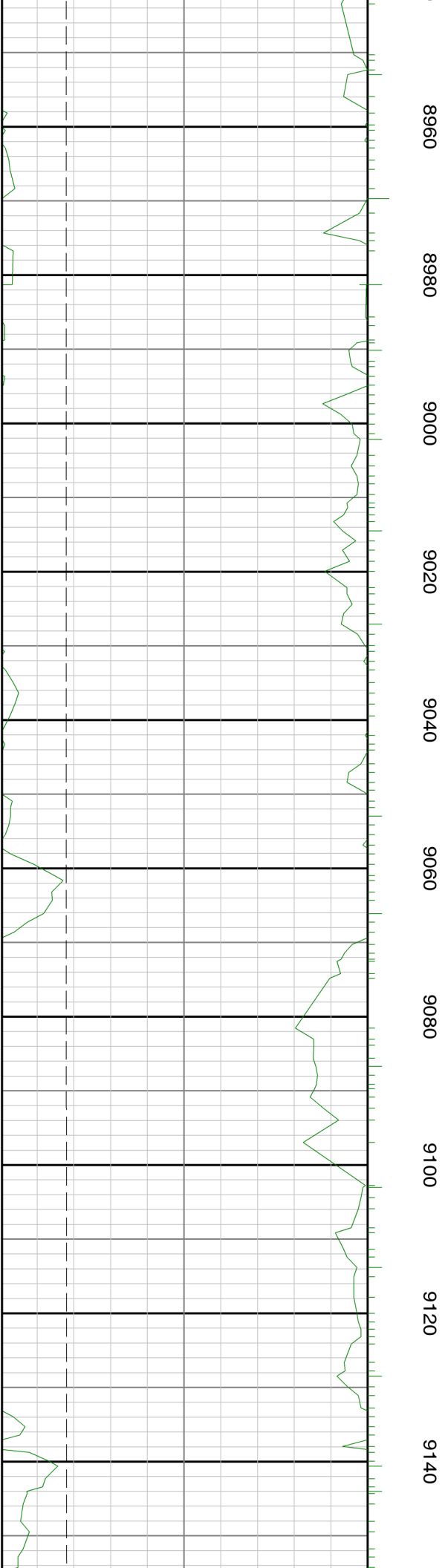
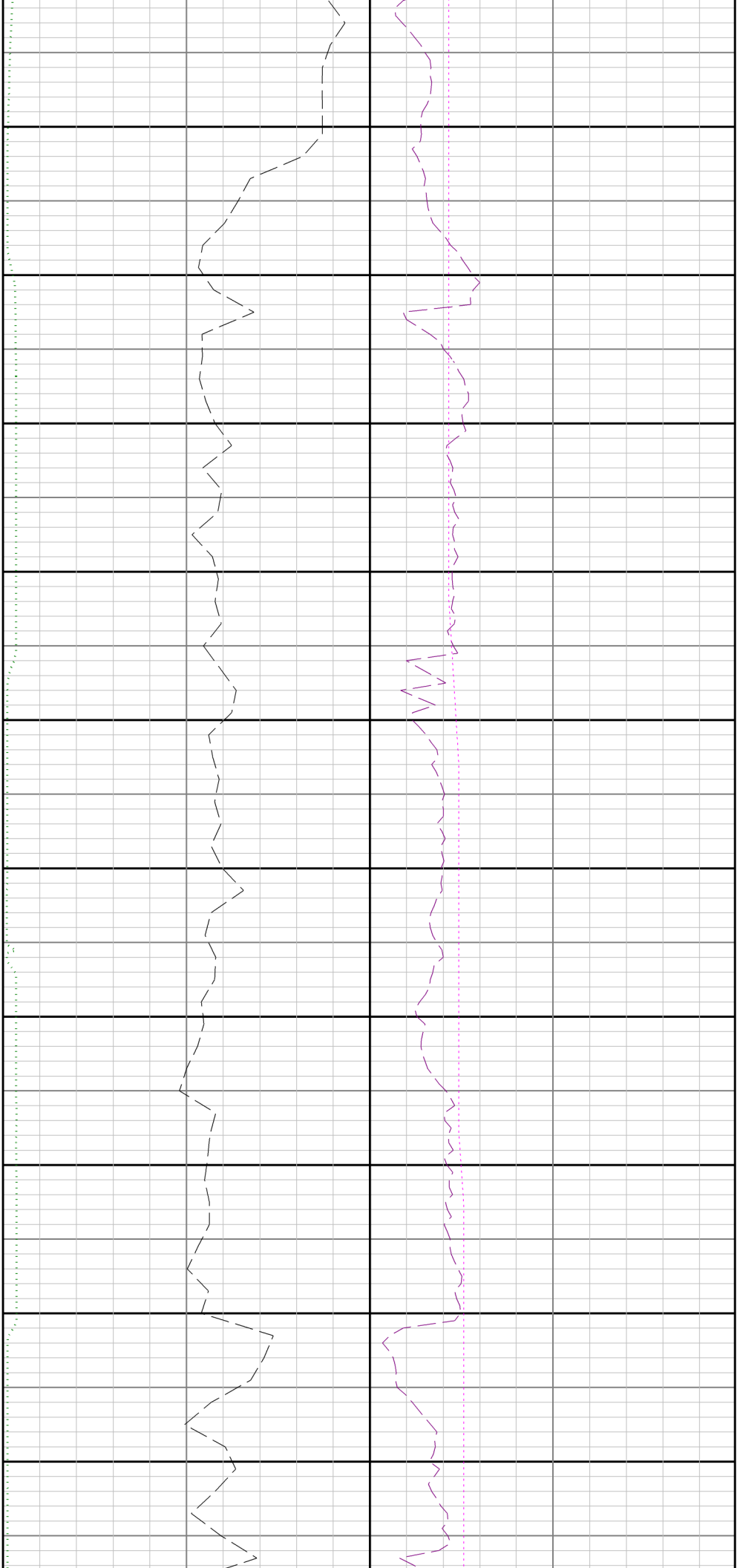


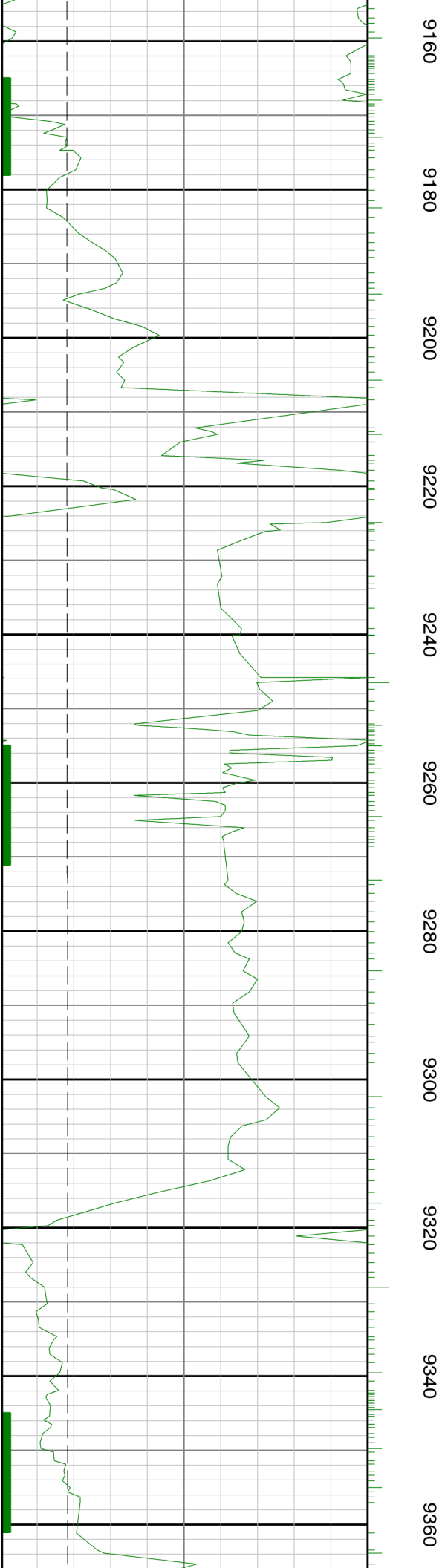
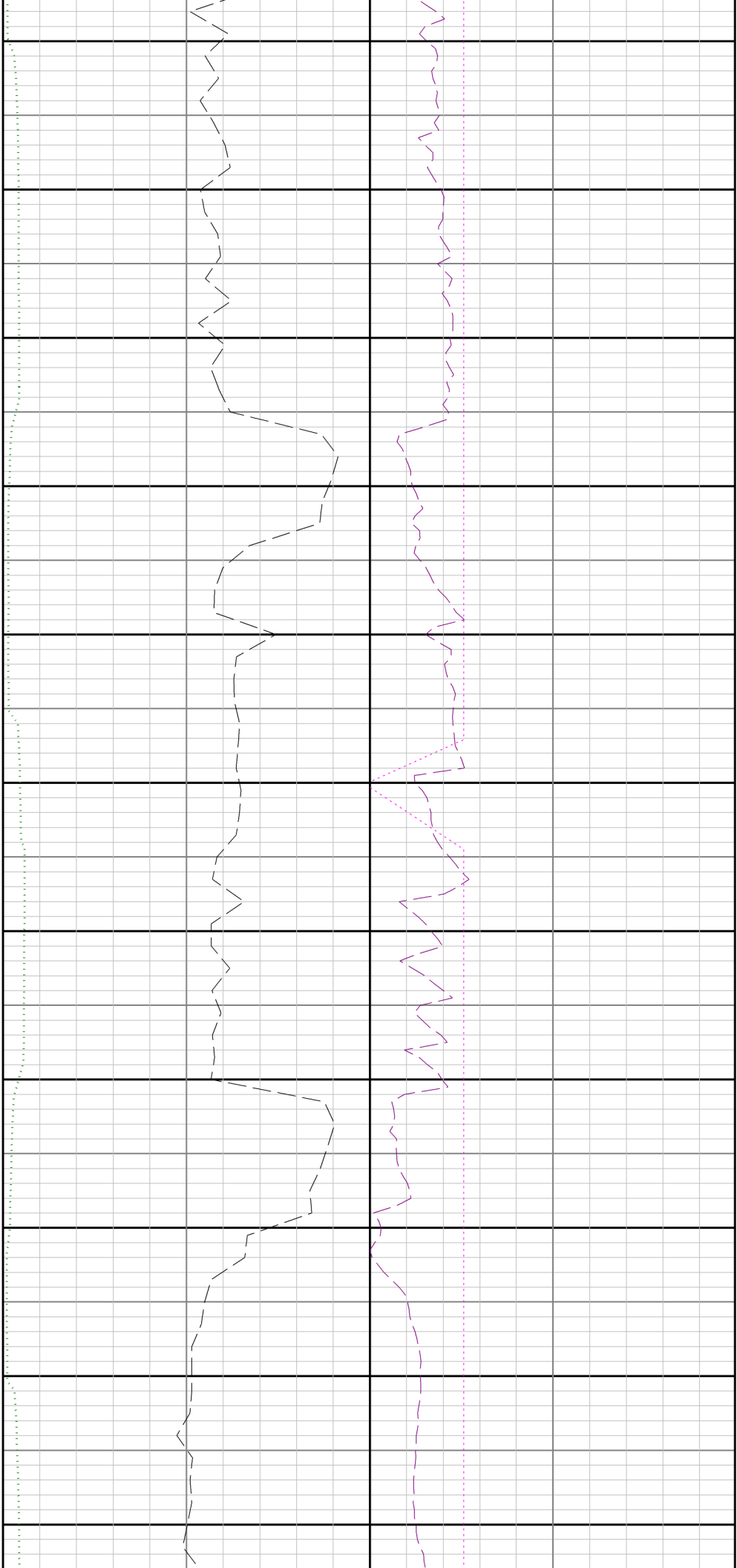


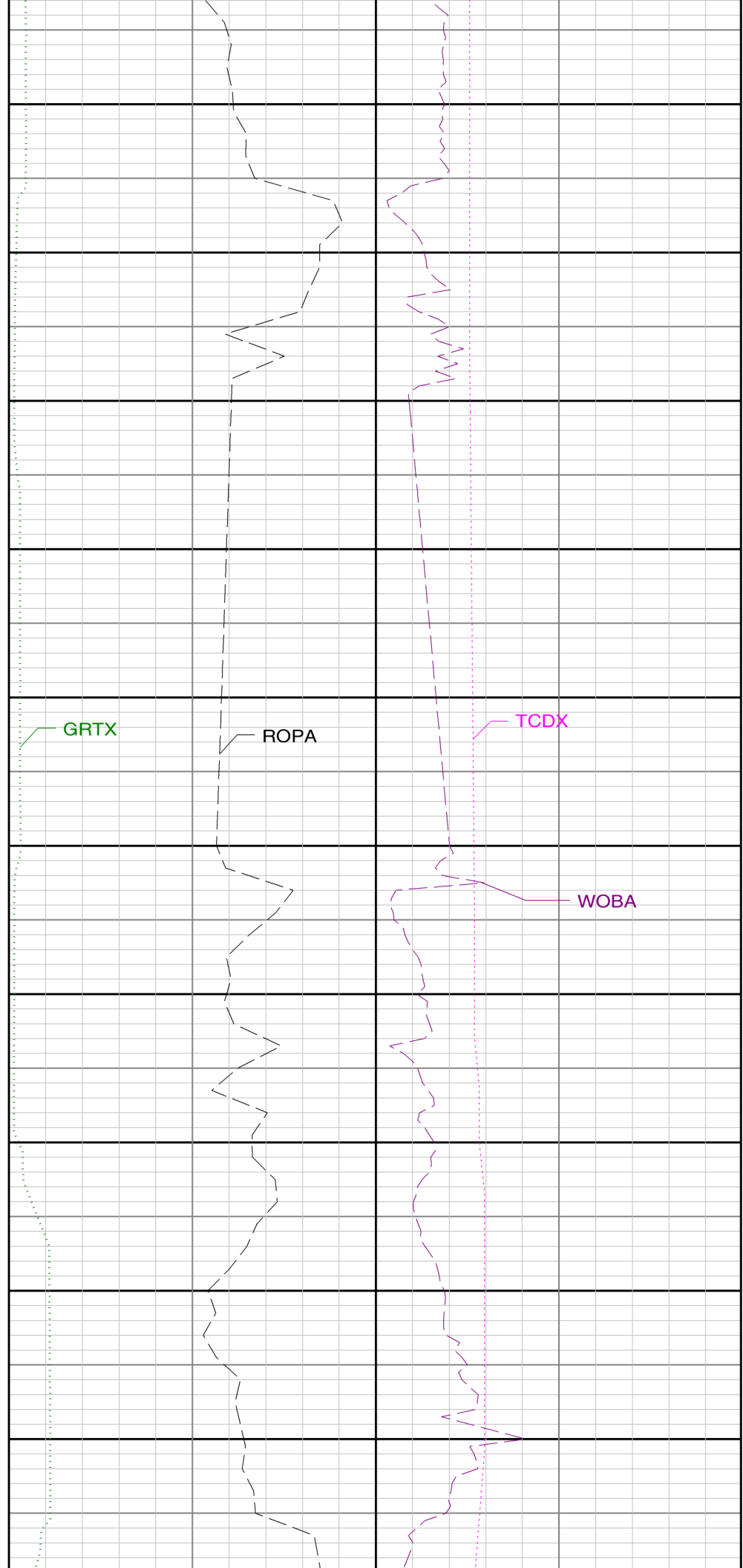
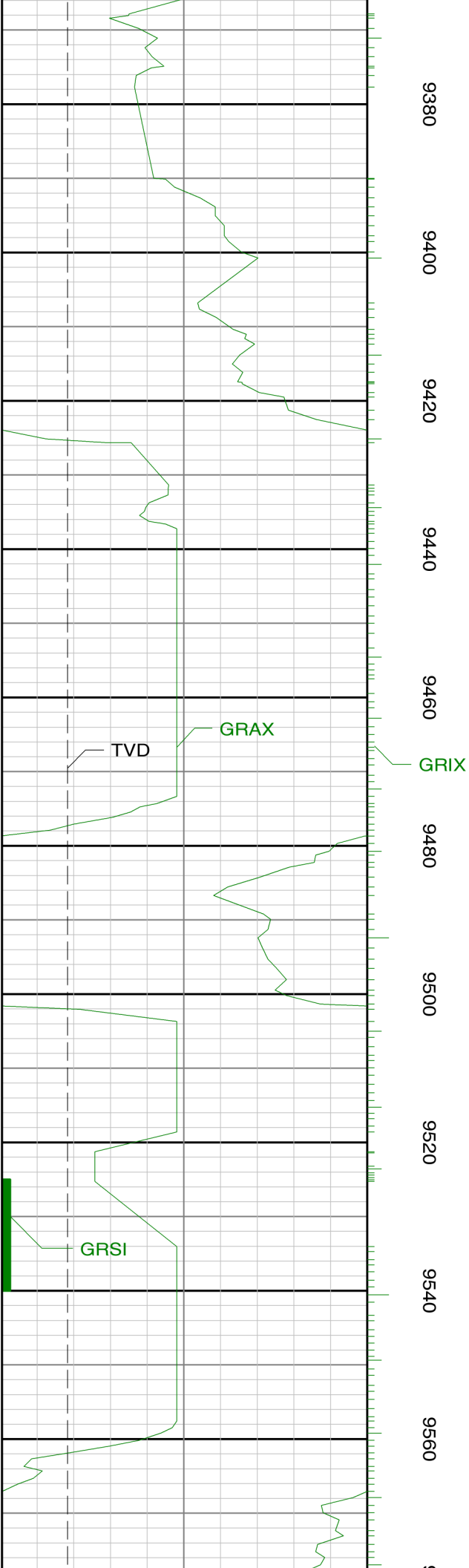


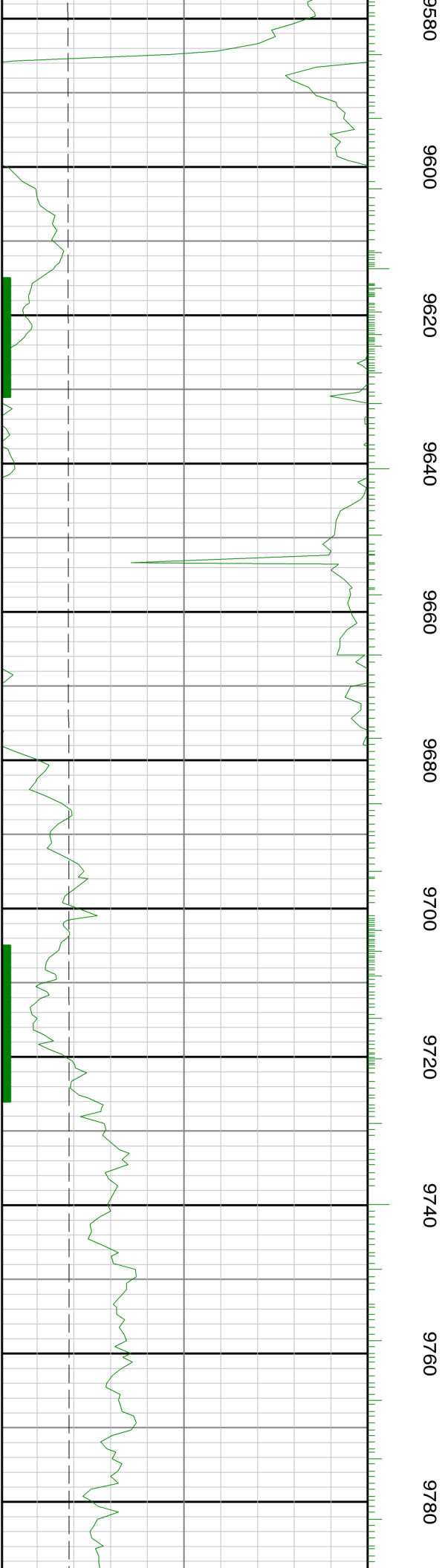
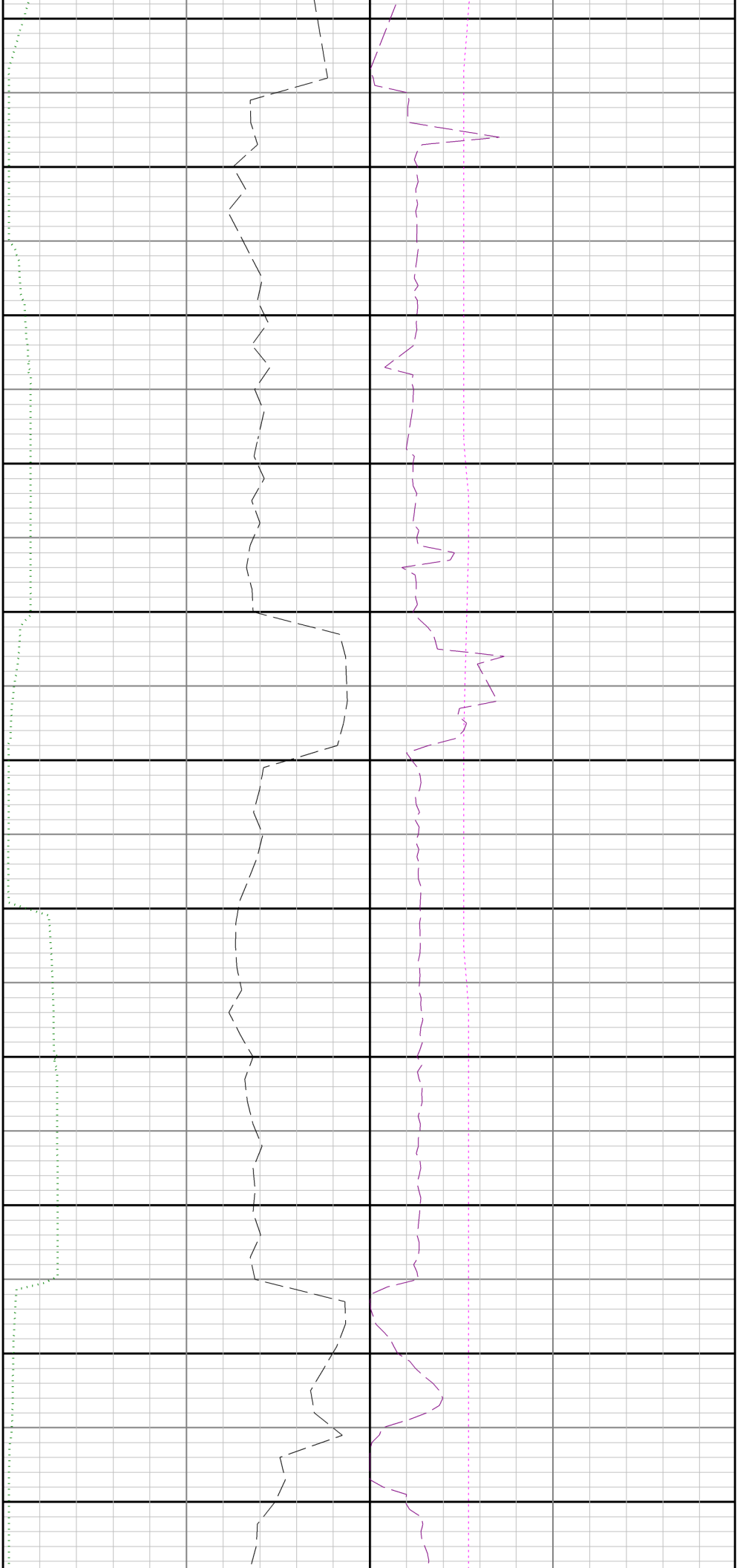


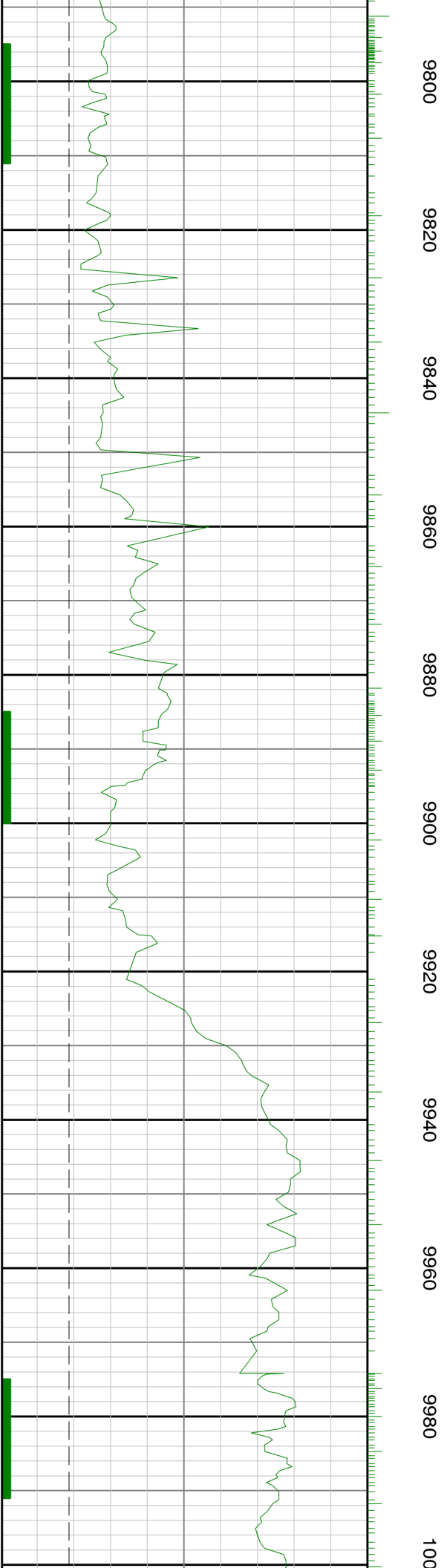
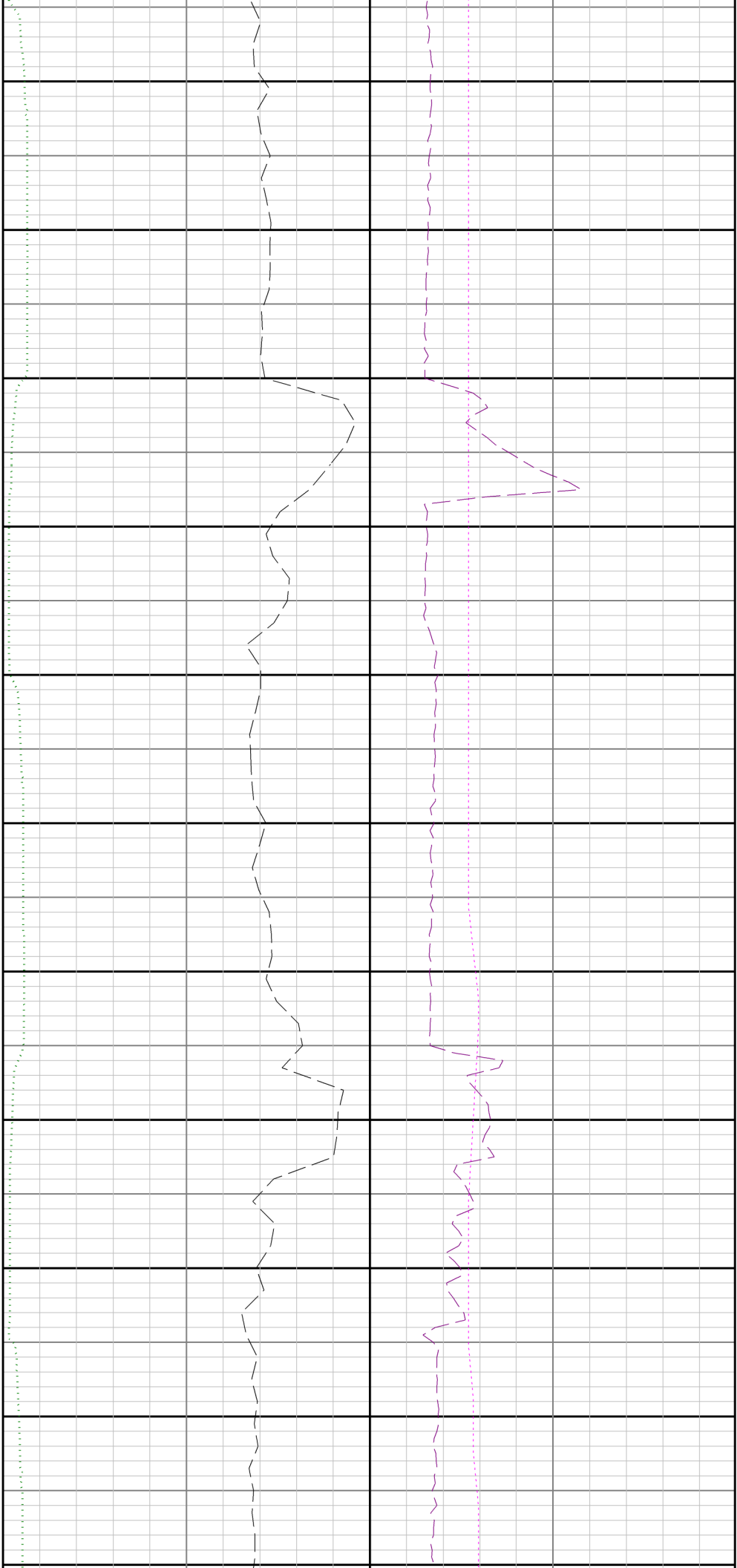


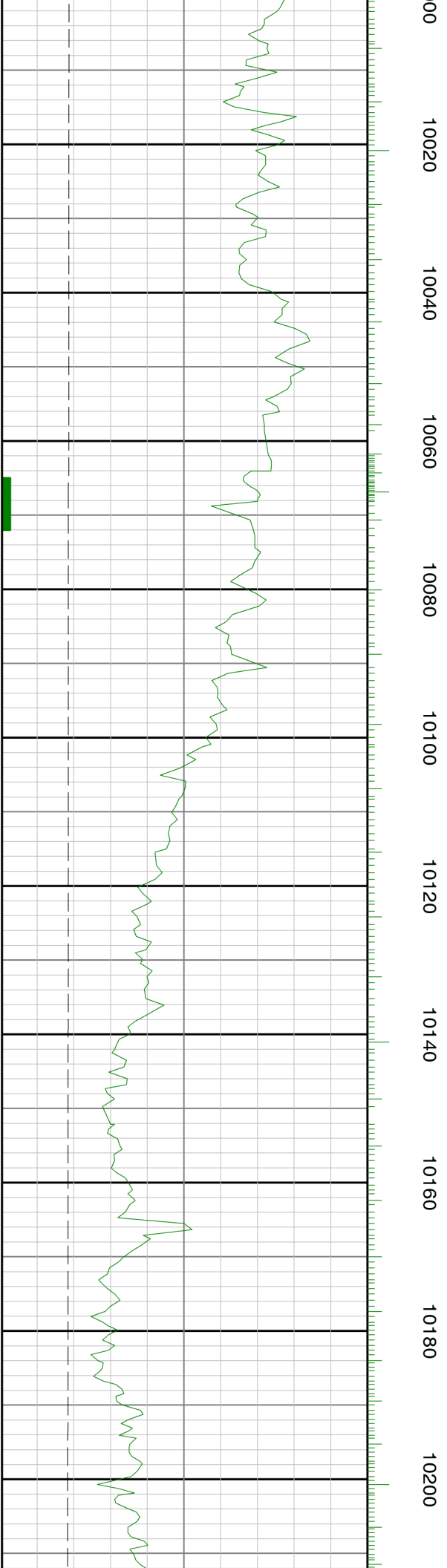
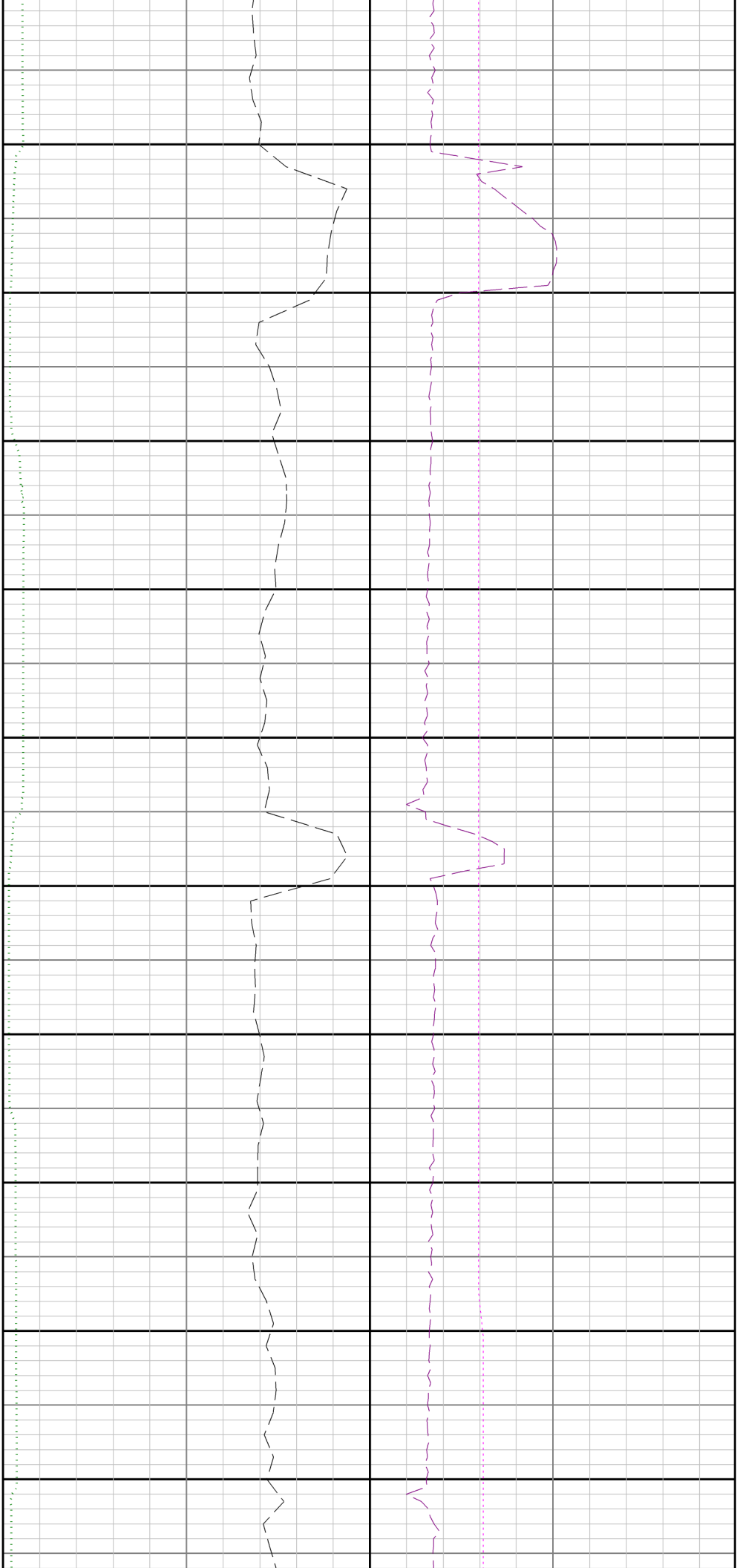




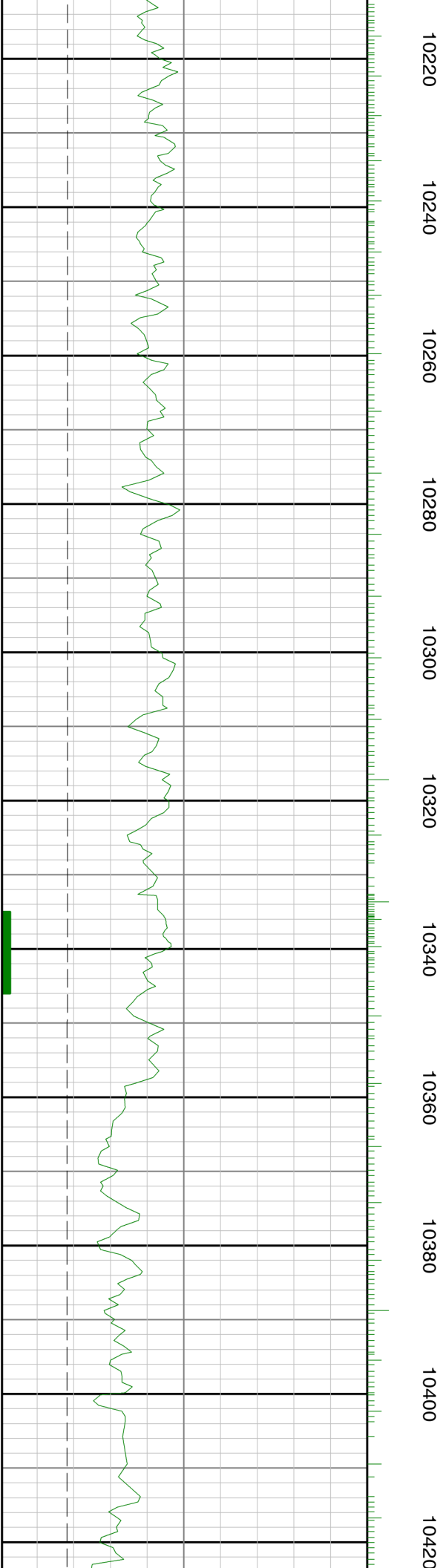


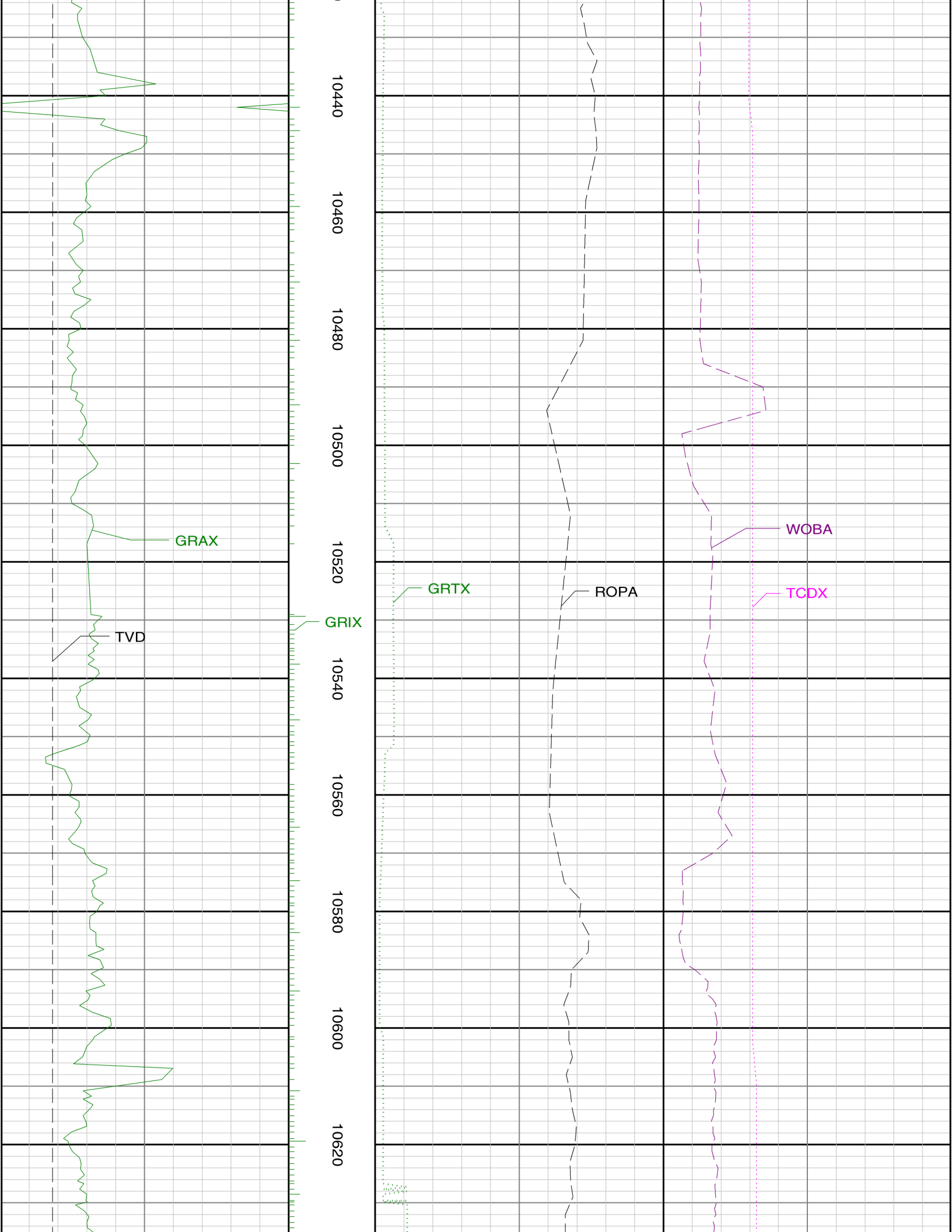


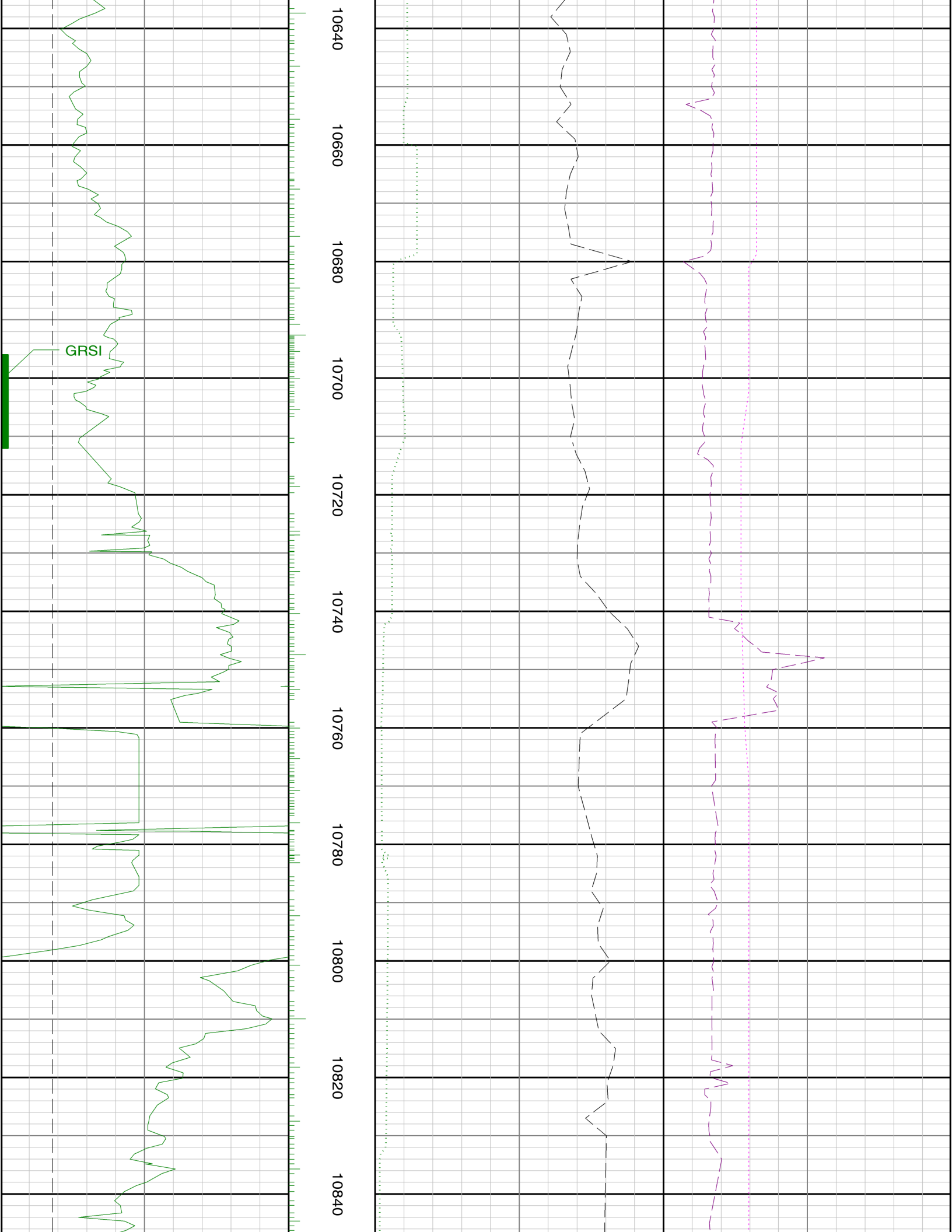


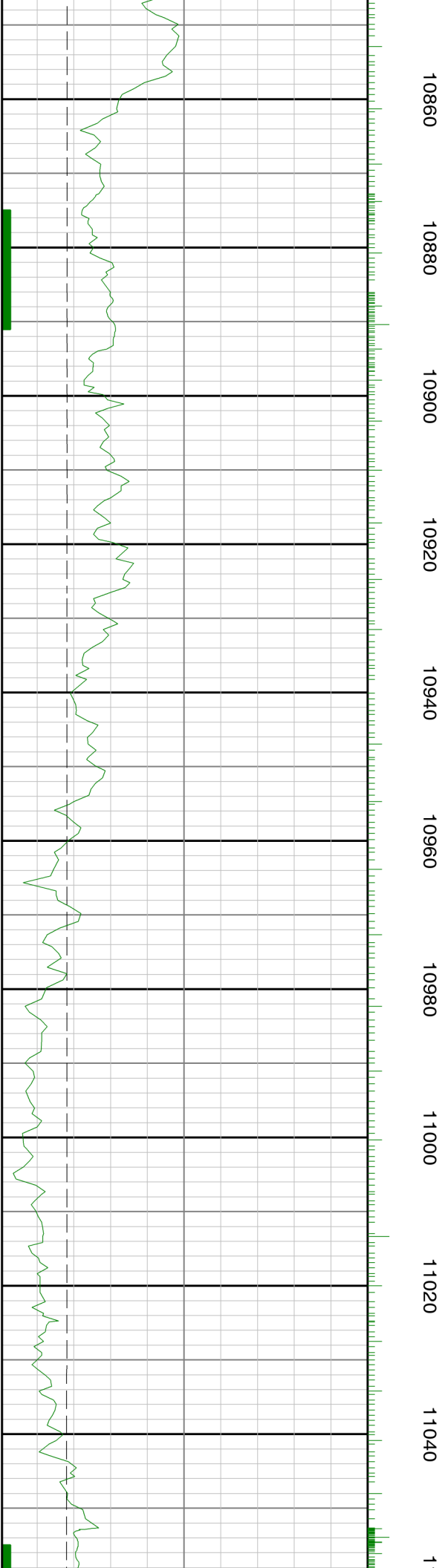
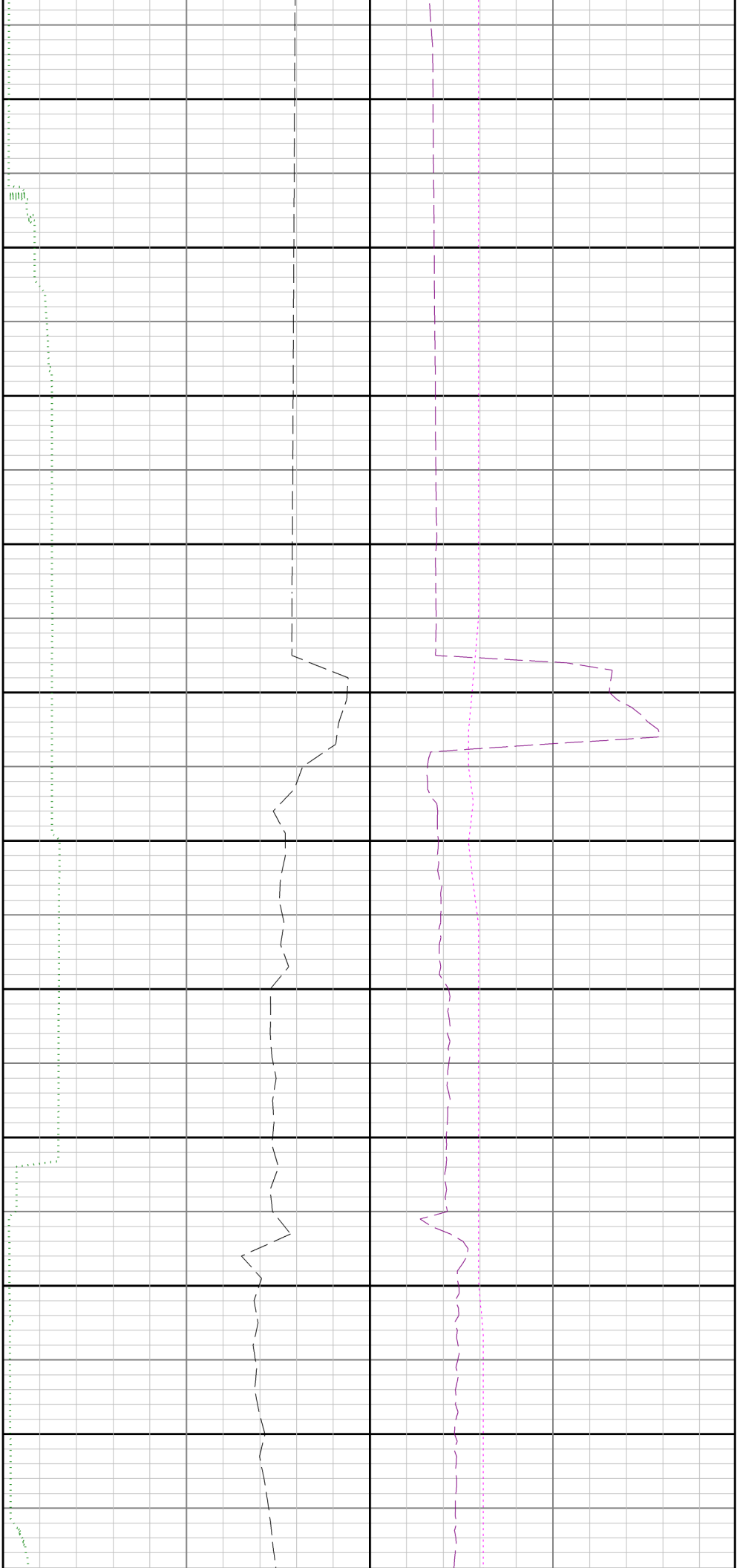


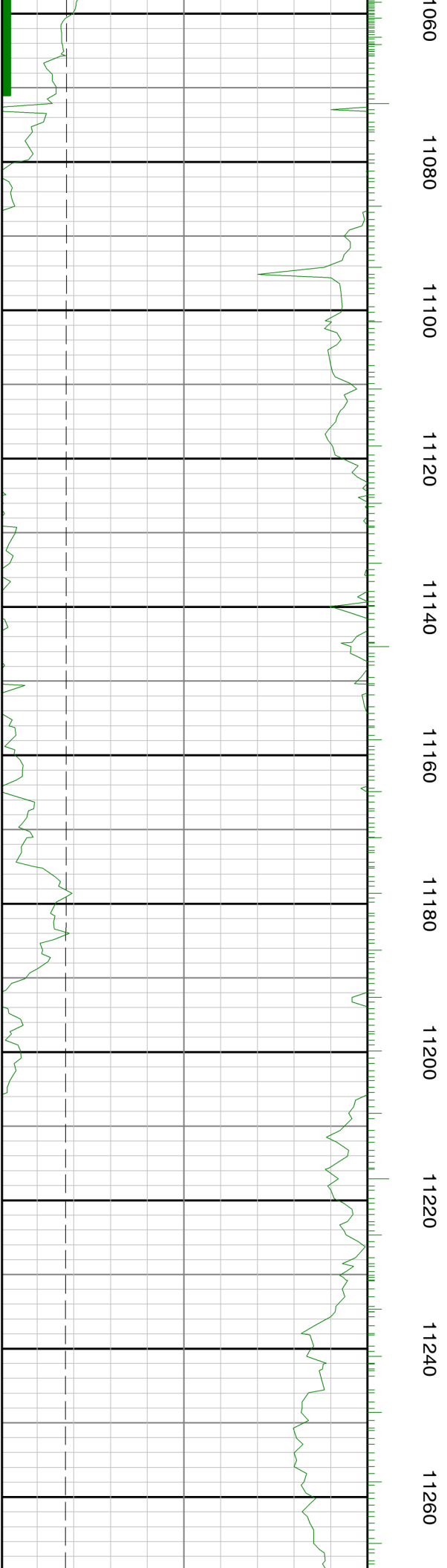
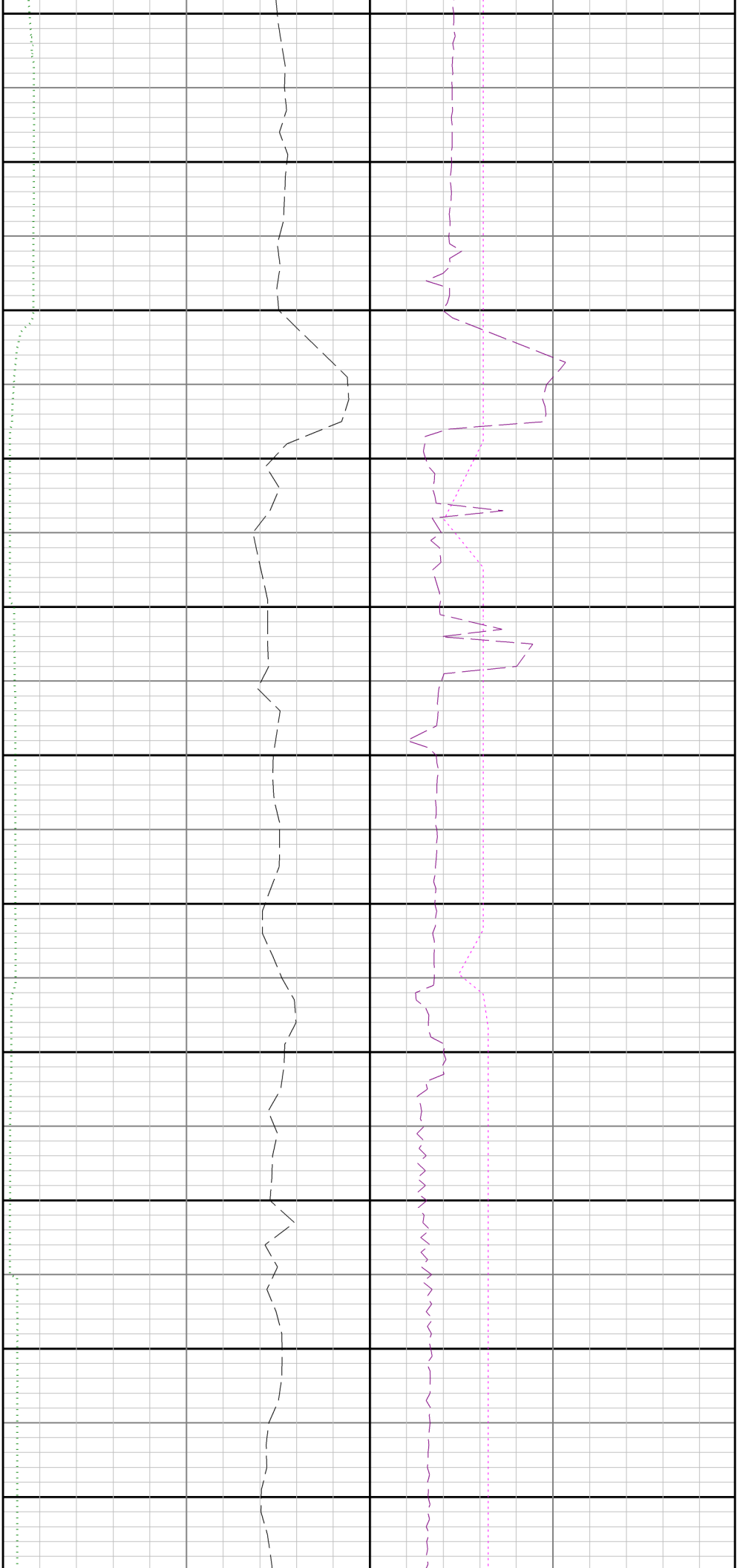


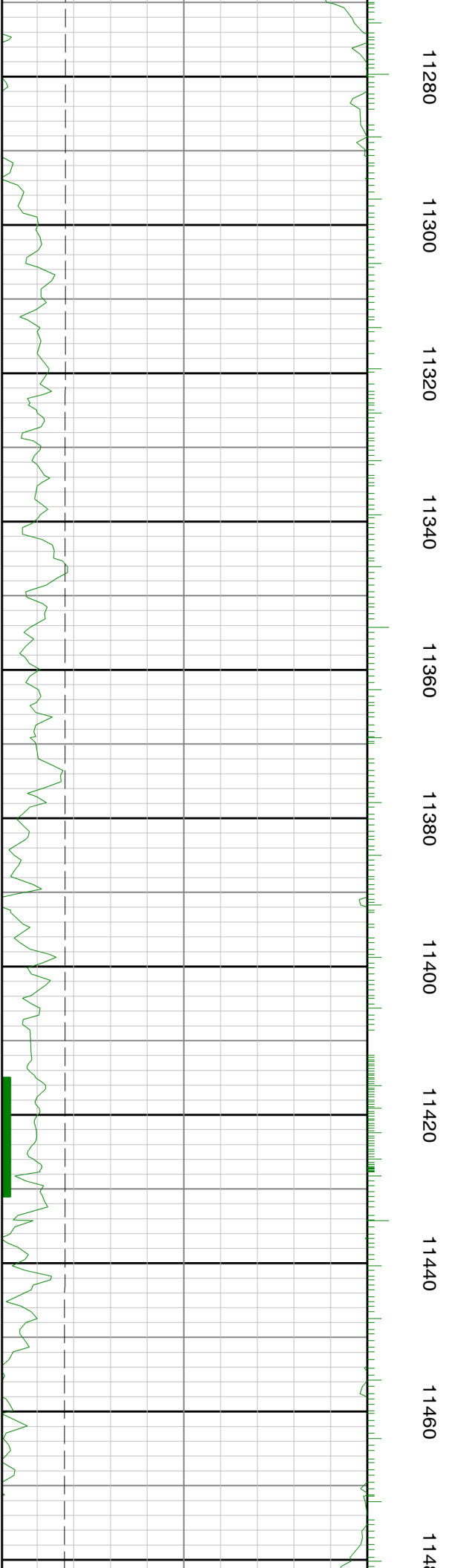
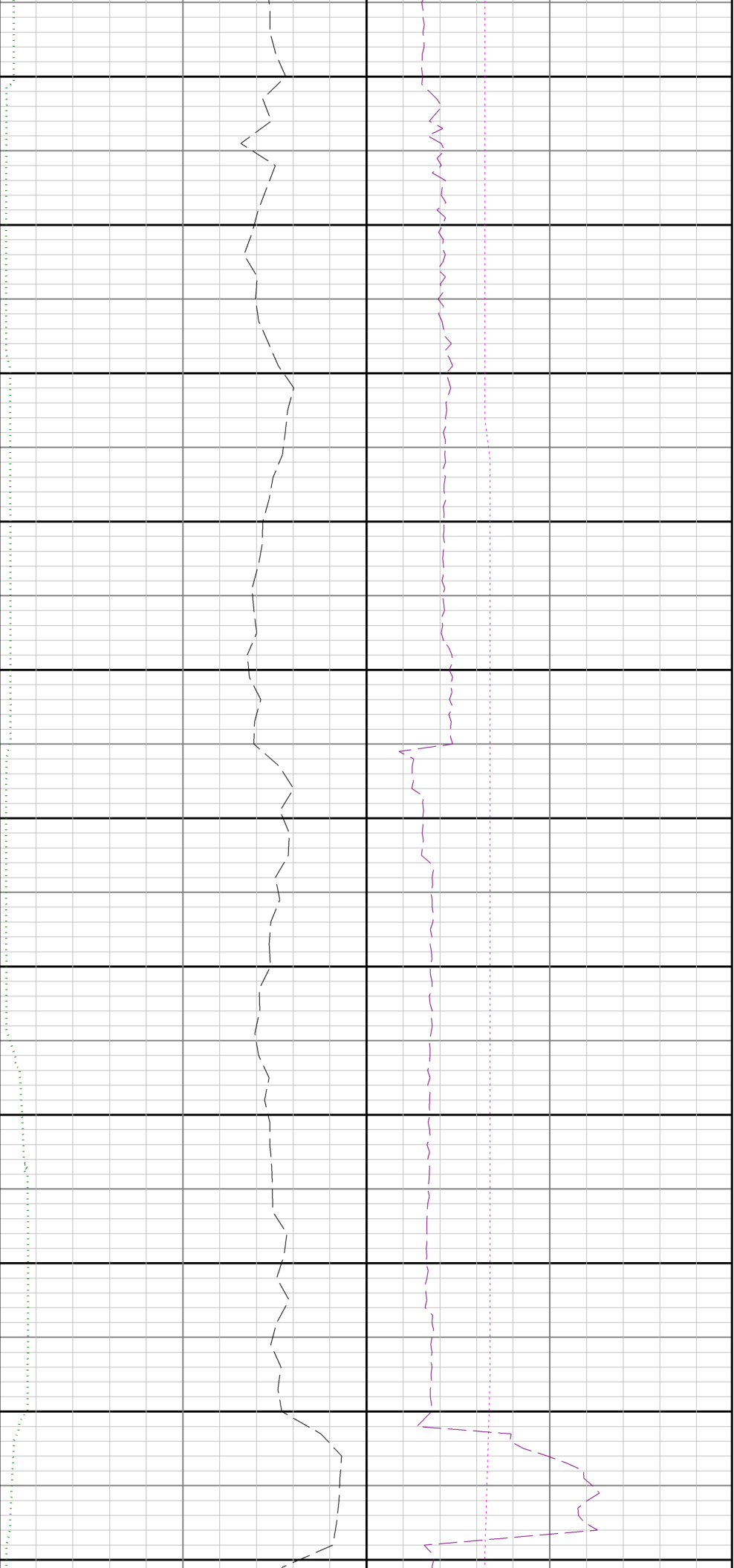


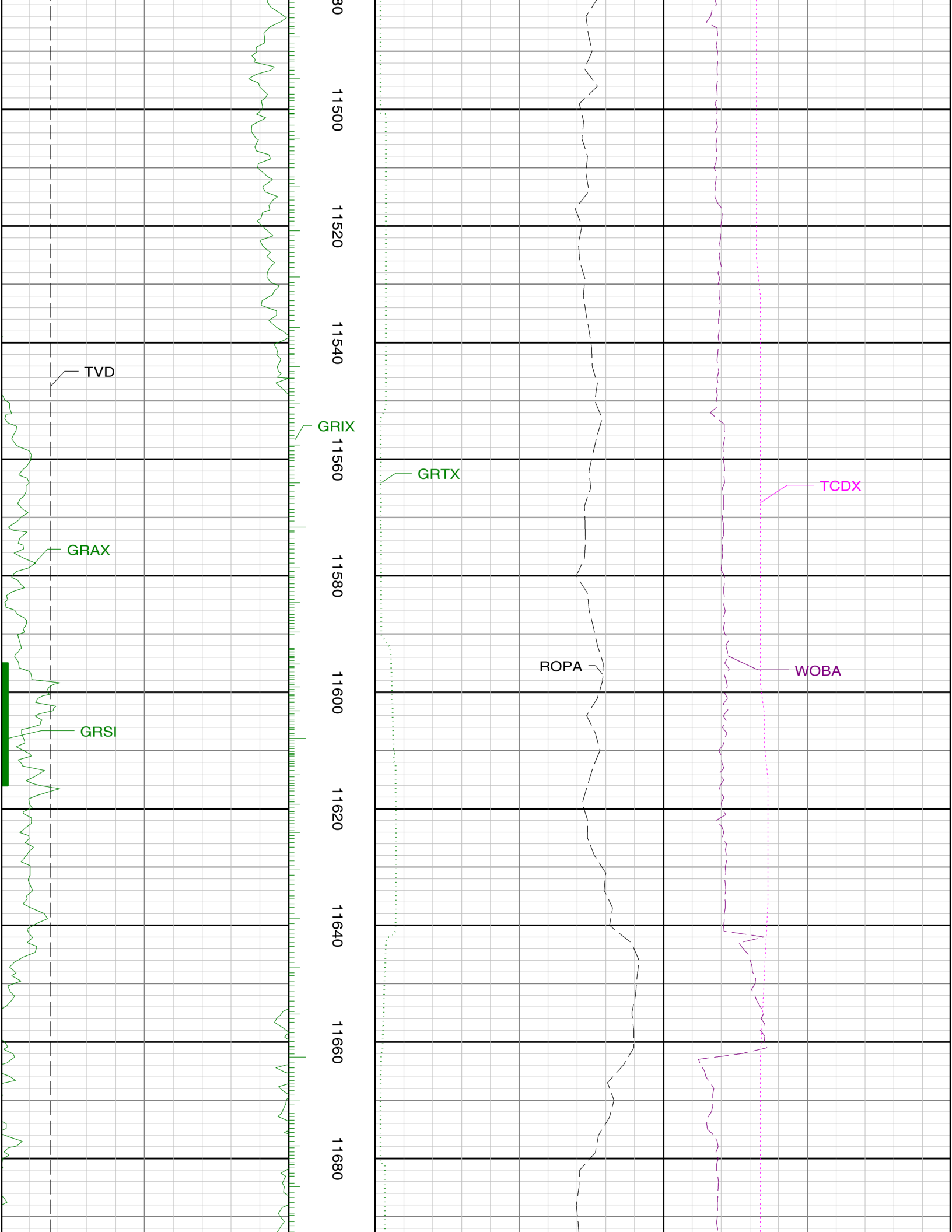


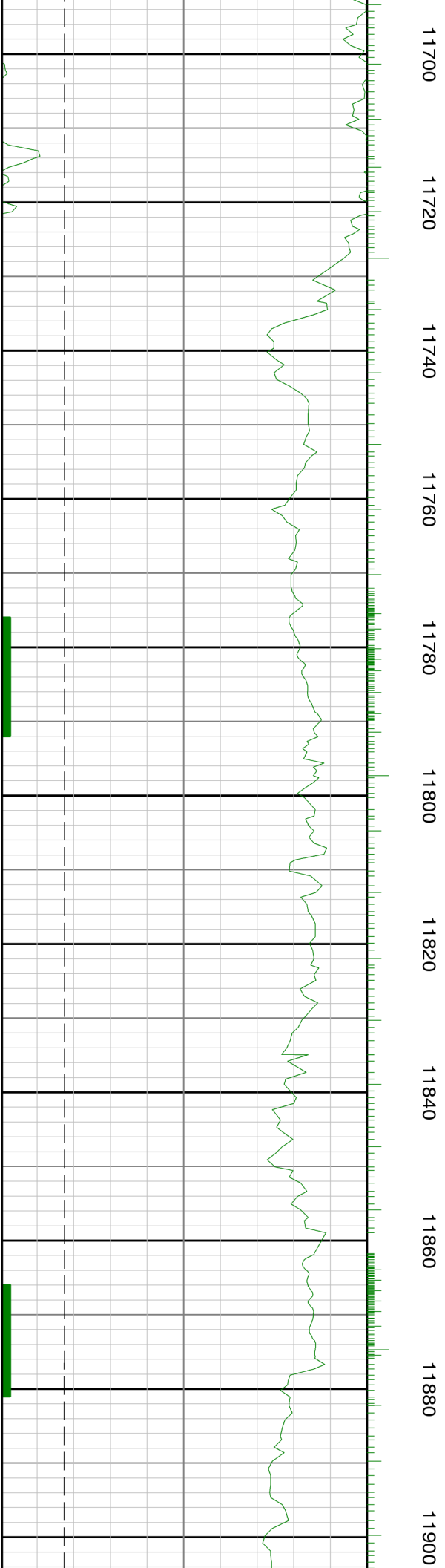
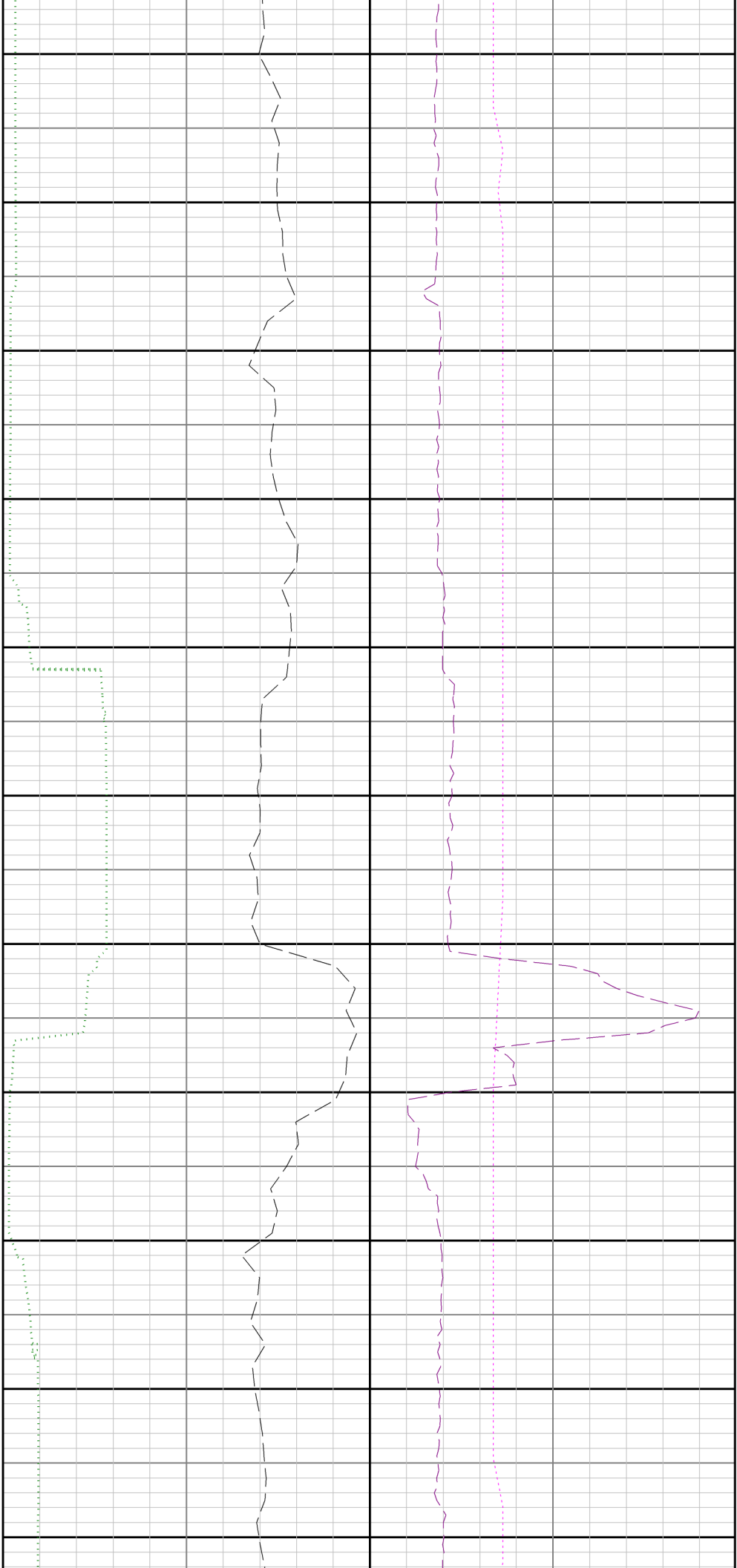




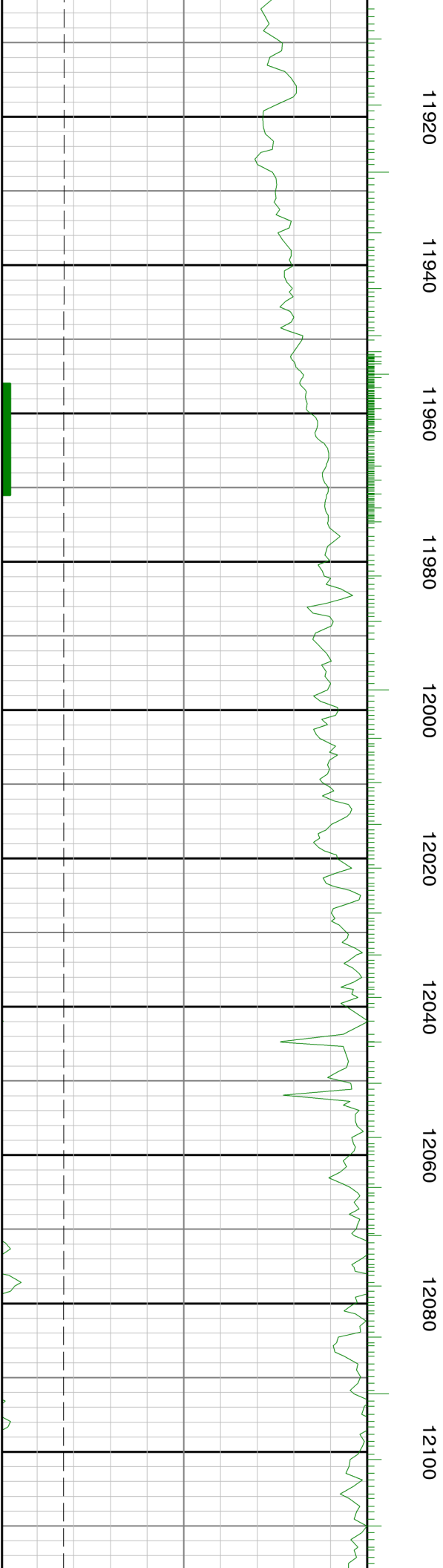
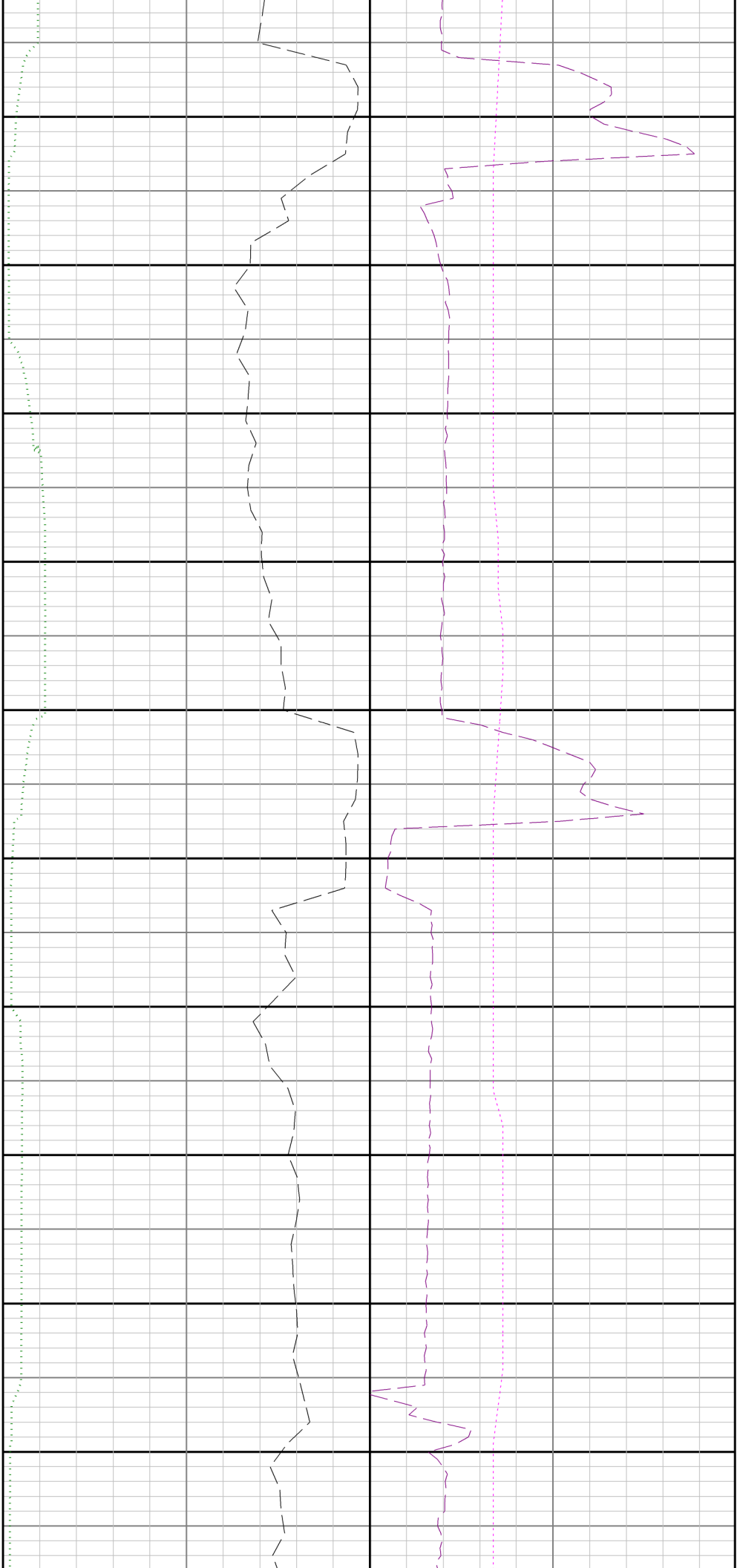


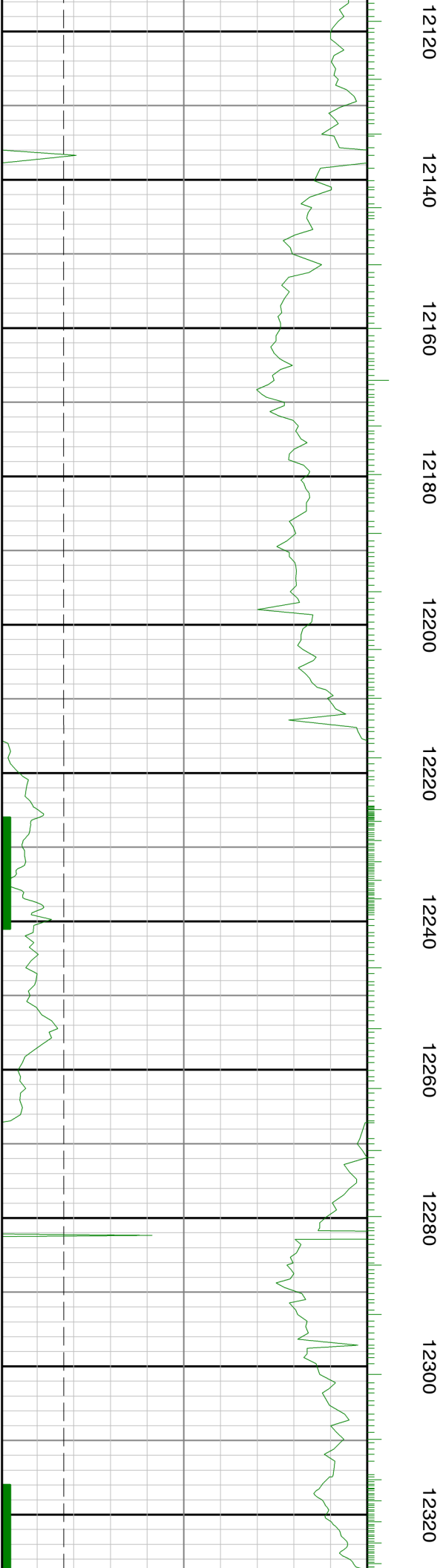
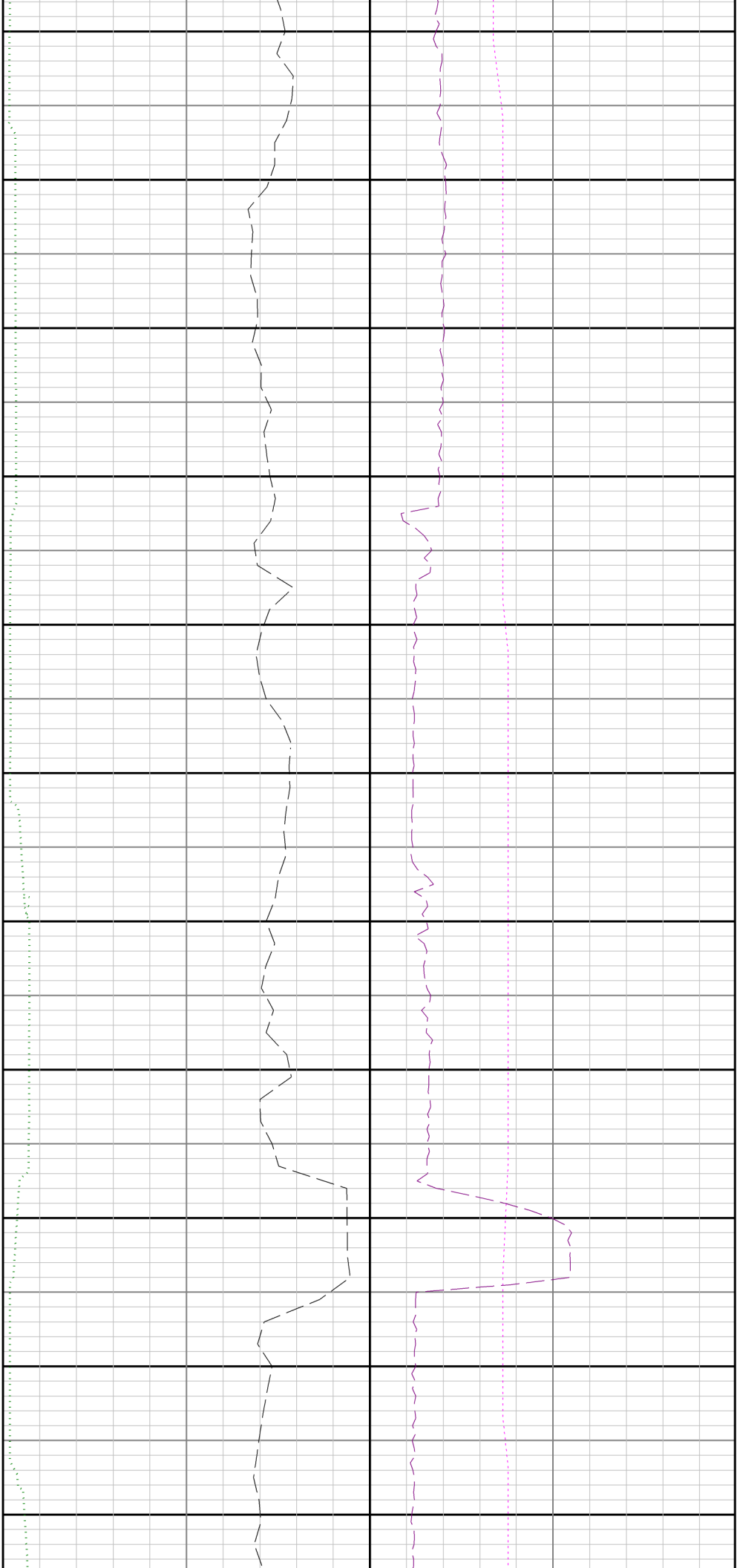


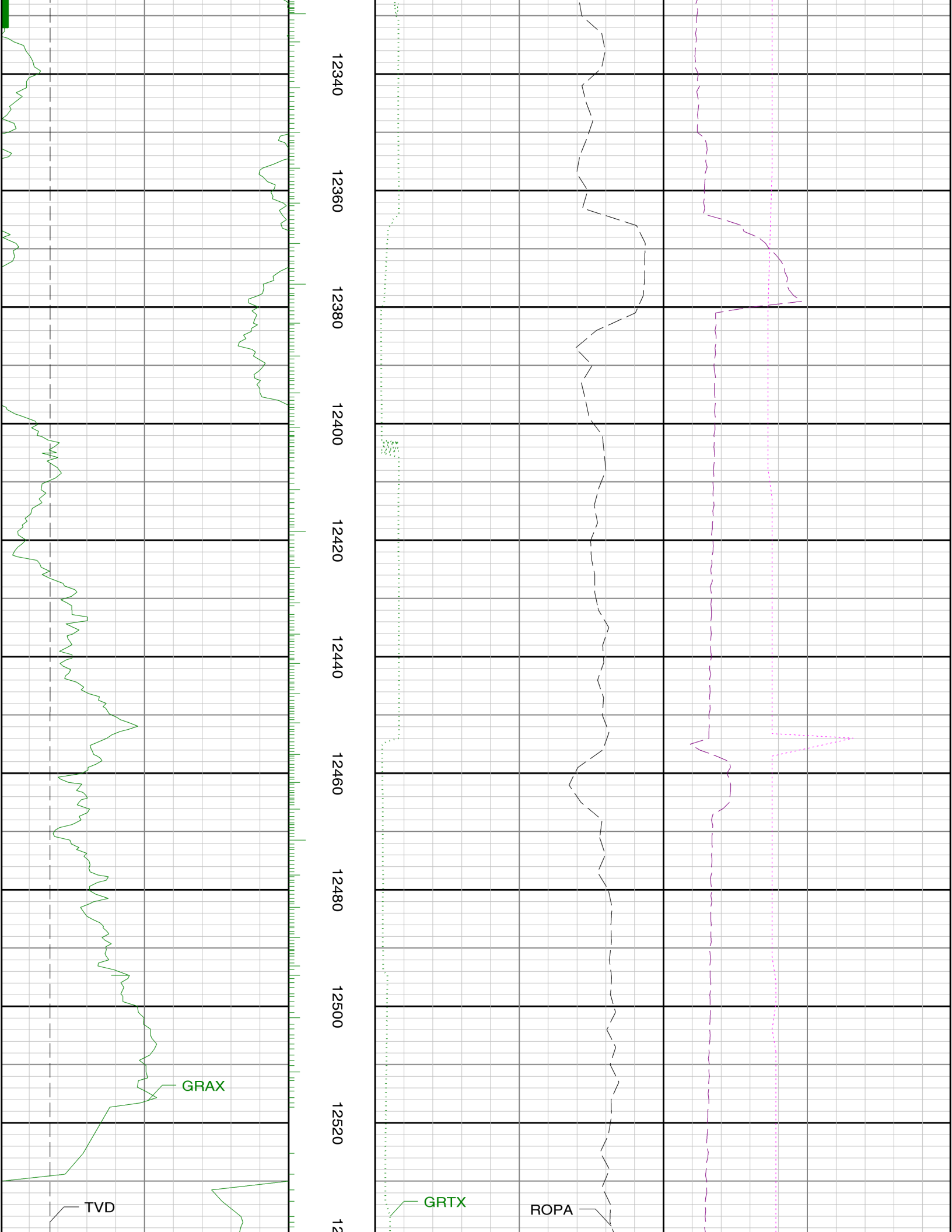


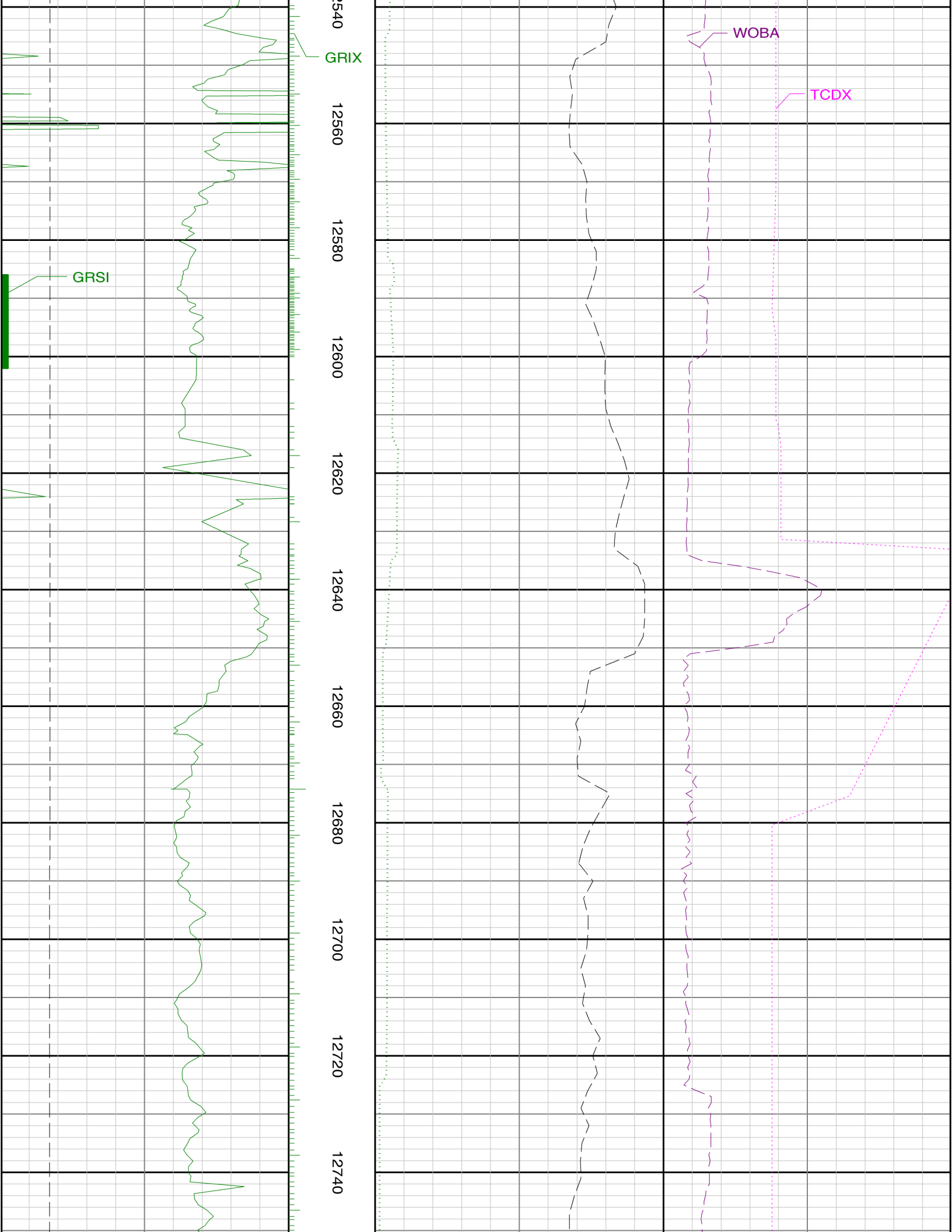


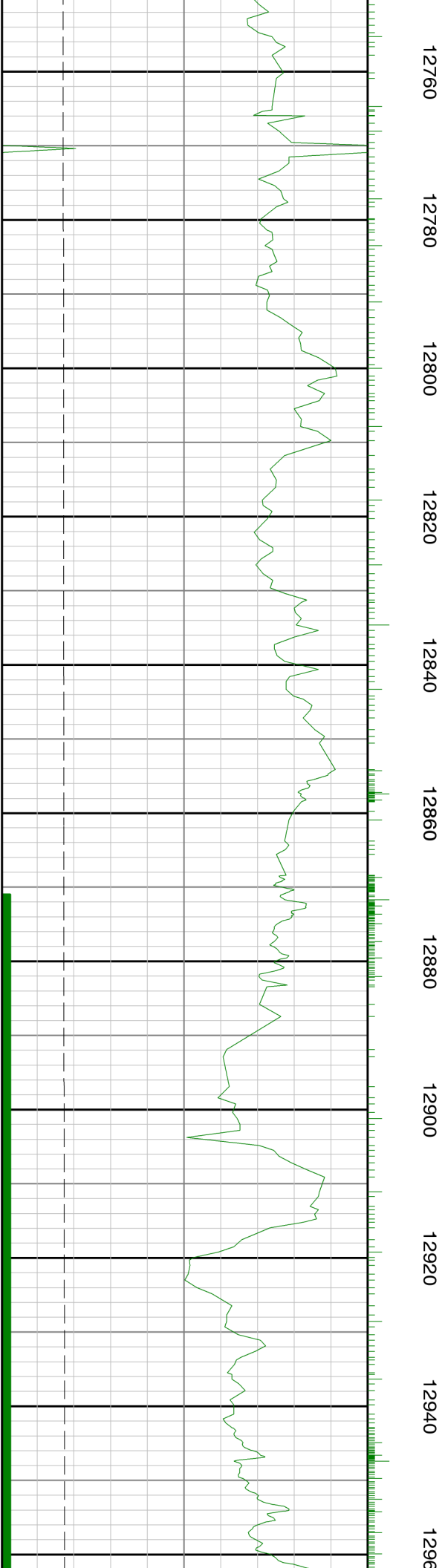
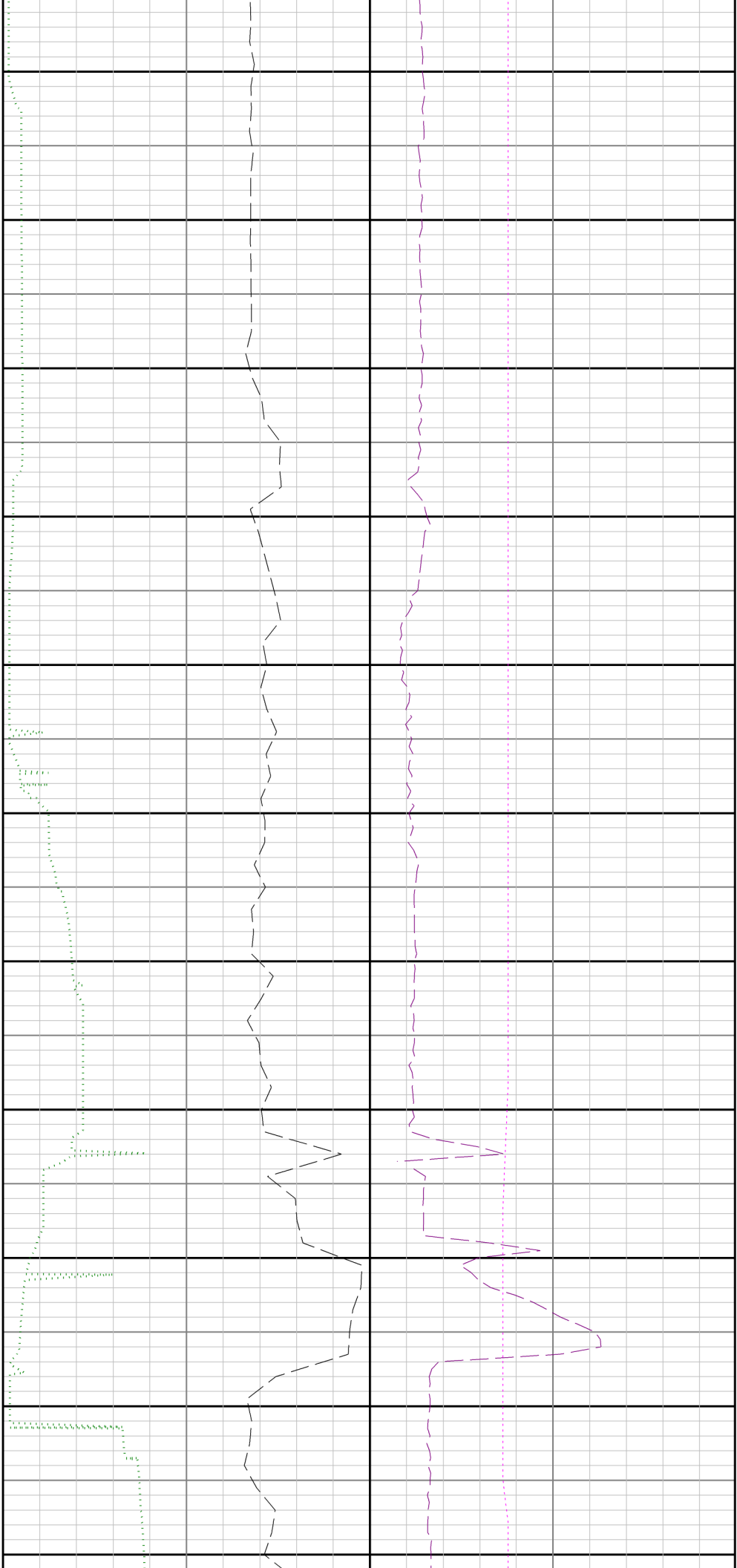


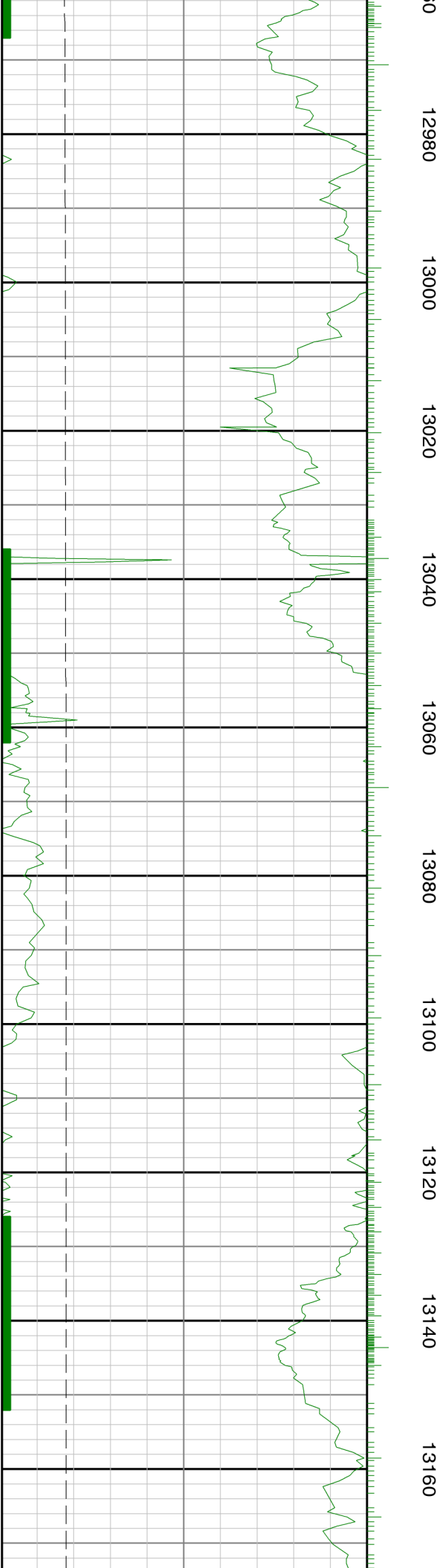


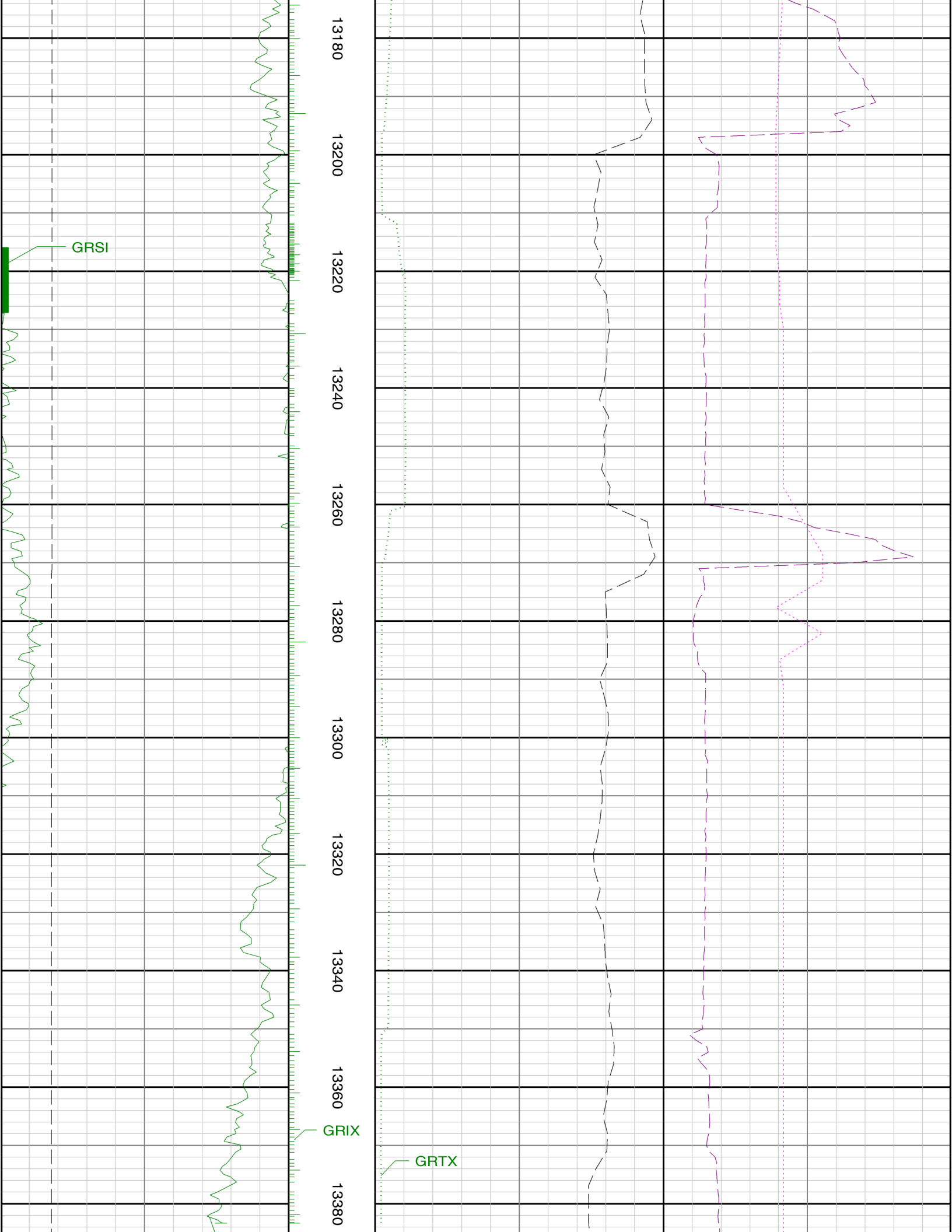












		Run 2			
		13400			
		13420			
TVD		13440	ROPA	TCDX	
See Remark 3		13460		WOBA	