



Realtime Logs

Natural Formation Evaluation
Gamma Ray

Scale: Company: Anadarko

1:240 Well: 3D 15C-21HZ

MEASURED DEPTH Field: WELD COUNTY (KERR MCGEE)

Status: County: Weld State: Colorado

Surface Location: Other Services:

Final Print Latitude: 40° 7' 48.738" N

API Number: 05-123-3810000 Longitude: 104° 46' 35.159" W

Section:21

TWN: 2N

Range:66W

Permanent Datum (P.D.): Ground Level Elevation: 5006.00 ft.

Elevations: 5006.00 ft.

Log Measured From: Kelly Bushing 17.00 ft. Above P.D.

KB: 5006.00 ft.

Depth Reference: Driller's Depth Elevations: 17.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6860 ft. Date From: 13/Dec/13 Dip Angle: 66.90 ° Azi Reference North: True

Bottom: 11818 ft. Date To: 19/Dec/13 Total Mag to Reference

Spud Date: 13/Dec/13 Field Strength: 52905.0 nT North Correction: 8.49 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1059 ft.	9.000 in.	36.00 lb/ft	Surface	1047 ft.
8.750 in.	1059 ft.	7735 ft.	7.000 in.	26.00 lb/ft	Surface	7664 ft.
6.125 in.	7735 ft.	11818 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Base	Surface	11818 ft.	13.500 in.	Surface	0.0 ° / 0.0 °	0.3 ° / 26.2 °
			8.750 in.	Intermediate	0.3 ° / 26.2 °	74.0 ° / 180.1 °
			6.125 in.	Lateral	74.0 ° / 180.1 °	89.6 ° / 180.1 °
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig: / Contractor:	Xtreme 8	/ Xtreme Coil Drilling
PATS	6.4.1.34	Job No.:	5895449	
		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	3.000	Mud Motor	6860	7686	6860	7735	14/Dec/2013 20:52	15/Dec/2013 13:50	37.6
2	2	2	6.125	PDC	6.500	Mud Motor	7686	11818	7735	11871	17/Dec/2013 14:59	18/Dec/2013 21:15	32.03

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Marcus Boucher	12/13/2013	12/18/2013	Shirley Arimah	12/13/2013	12/19/2013			

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+ (%)
14/Dec/2013	20:10	1	6910	Water Based	9.9	41	9.0	N/A	1/92	Flowline	1900	N/A
17/Dec/2013	20:00	2	8128	Water Based	9.6	38	9.5	N/A	3/90	Flowline	2300	N/A
18/Dec/2013	20:00	2	11826	Water Based	9.6	45	9.0	N/A	3/90	Flowline	2100	N/A

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 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	12546343	Directional	46.30	6.750	0.000
1	SRIG	12131429	Gamma	42.92	6.750	0.000
2	DIR	10427972	Directional	51.01	4.750	2.850
2	SRIG	10595781	Gamma	47.63	4.750	2.850

Service and Tool Mnemonics

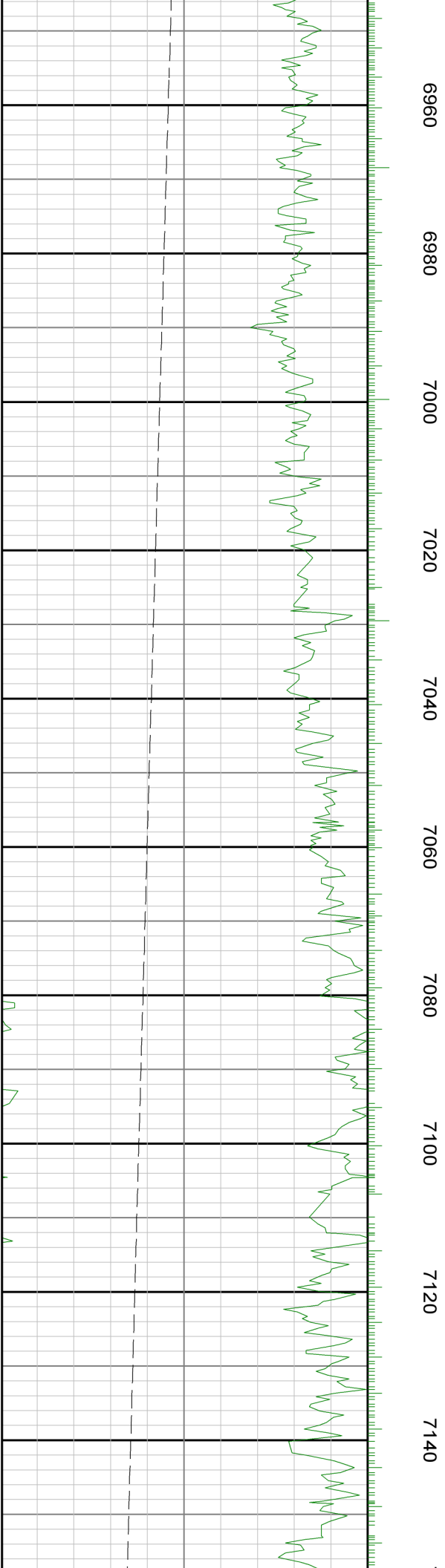
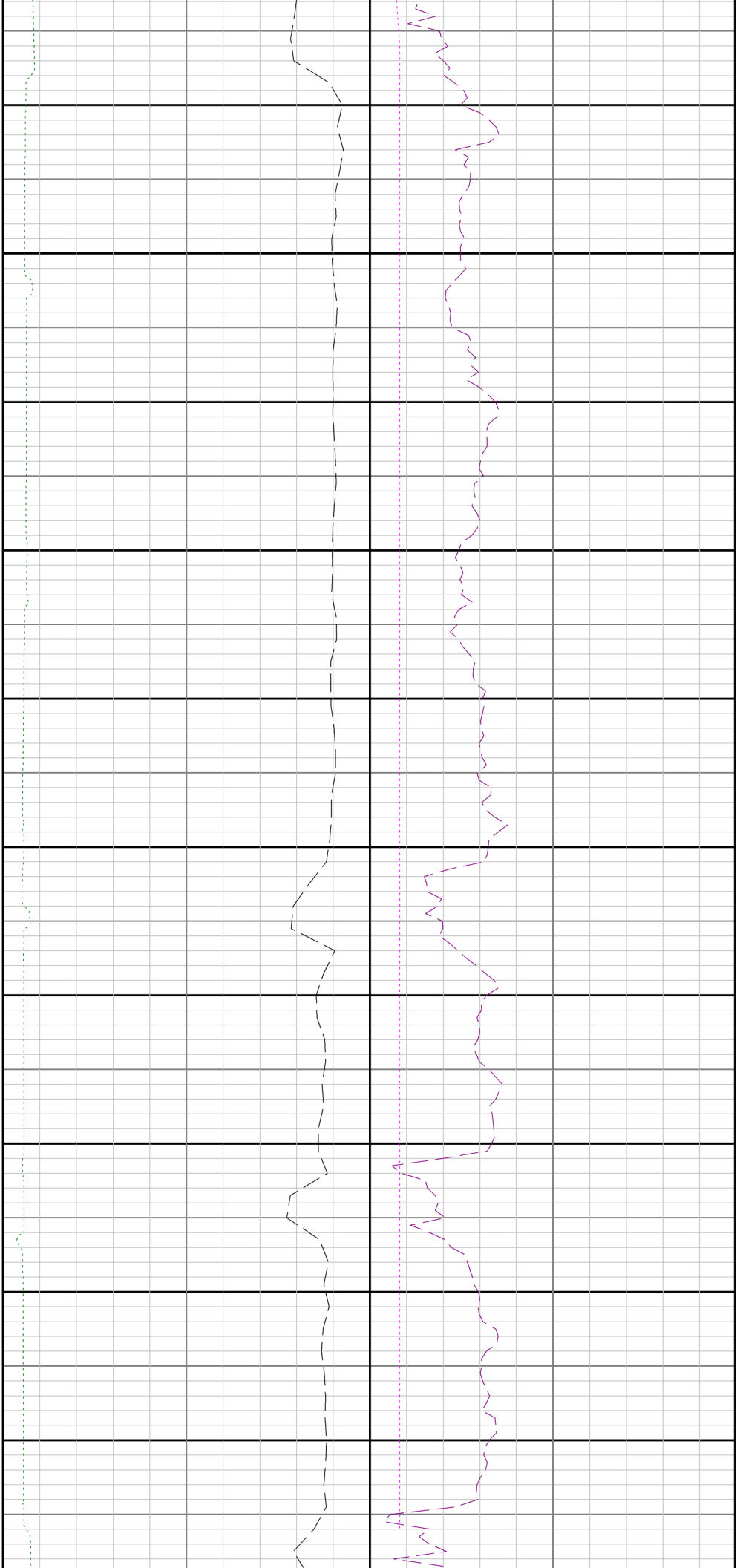
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

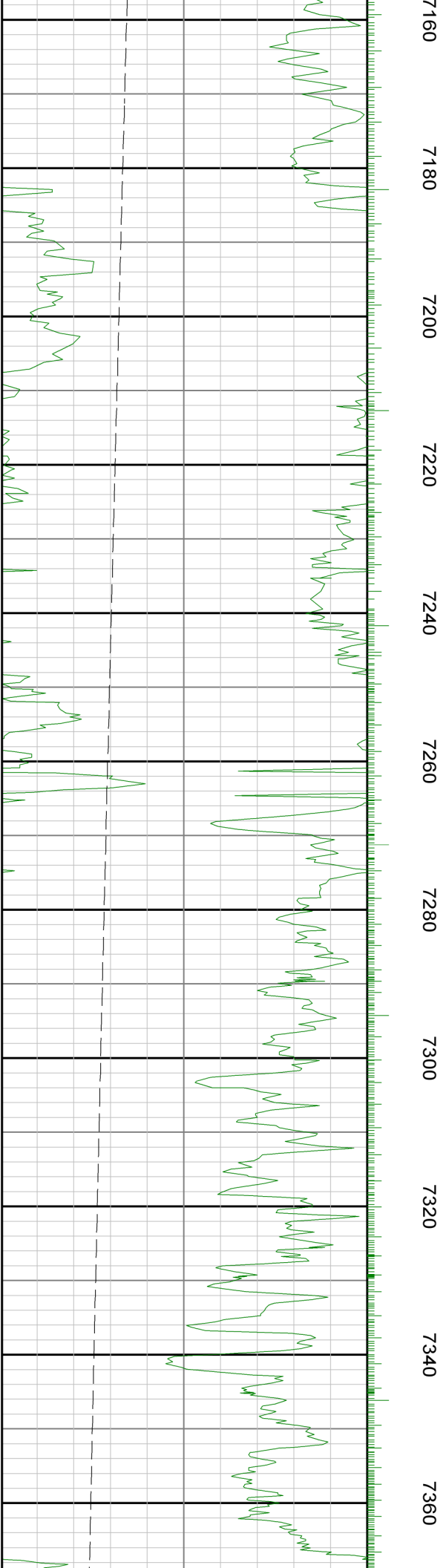
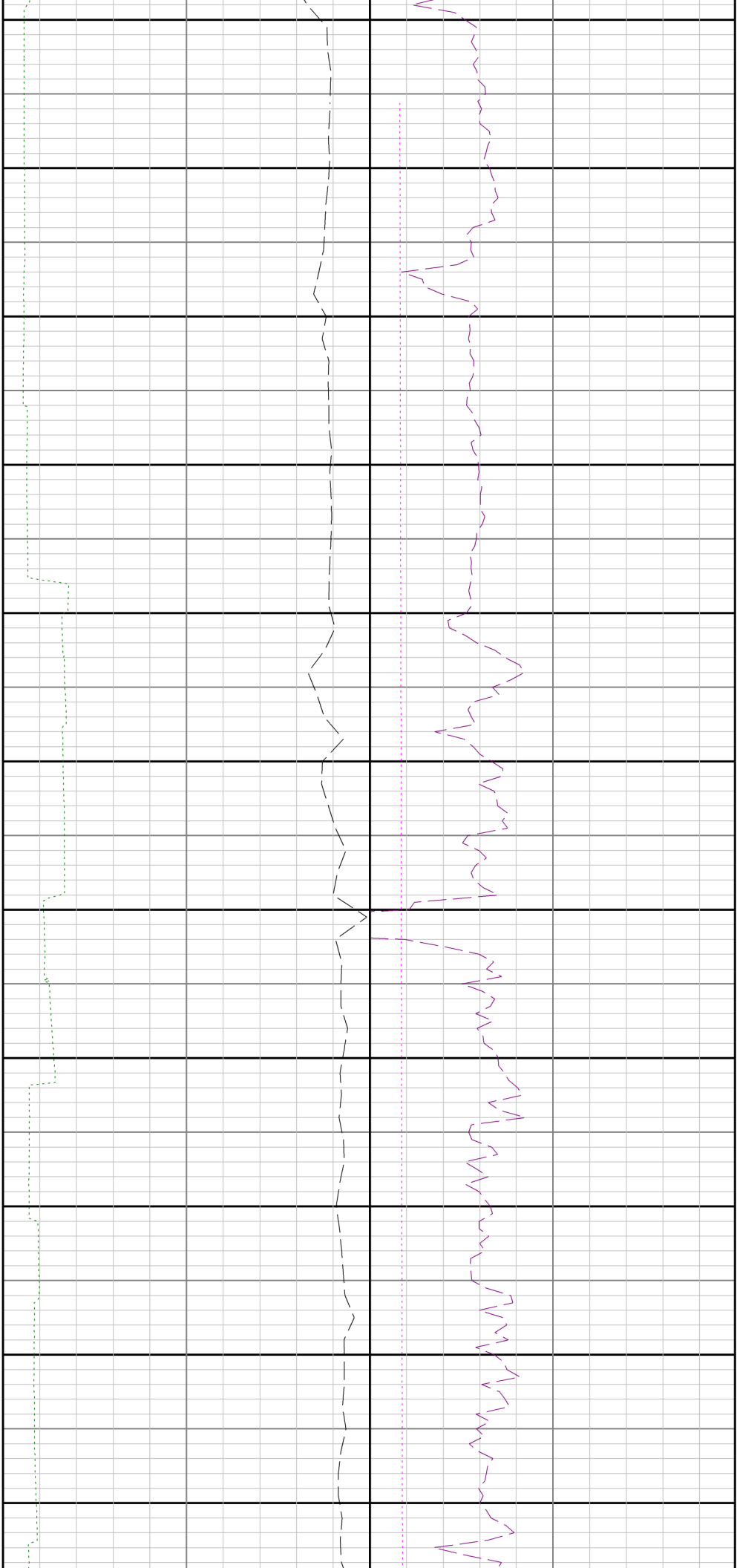
Comments

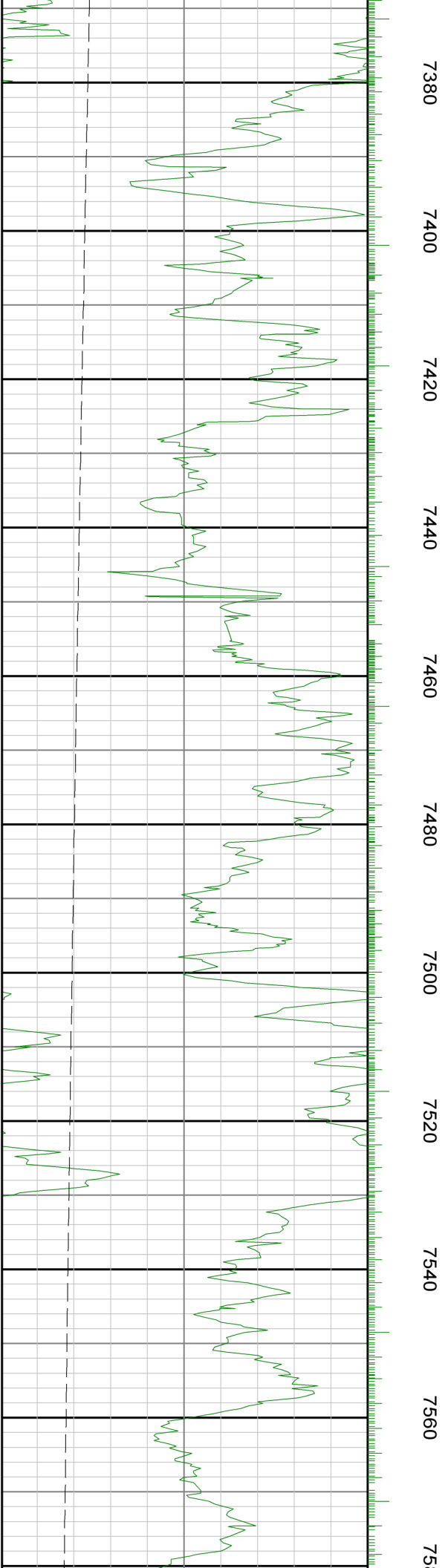
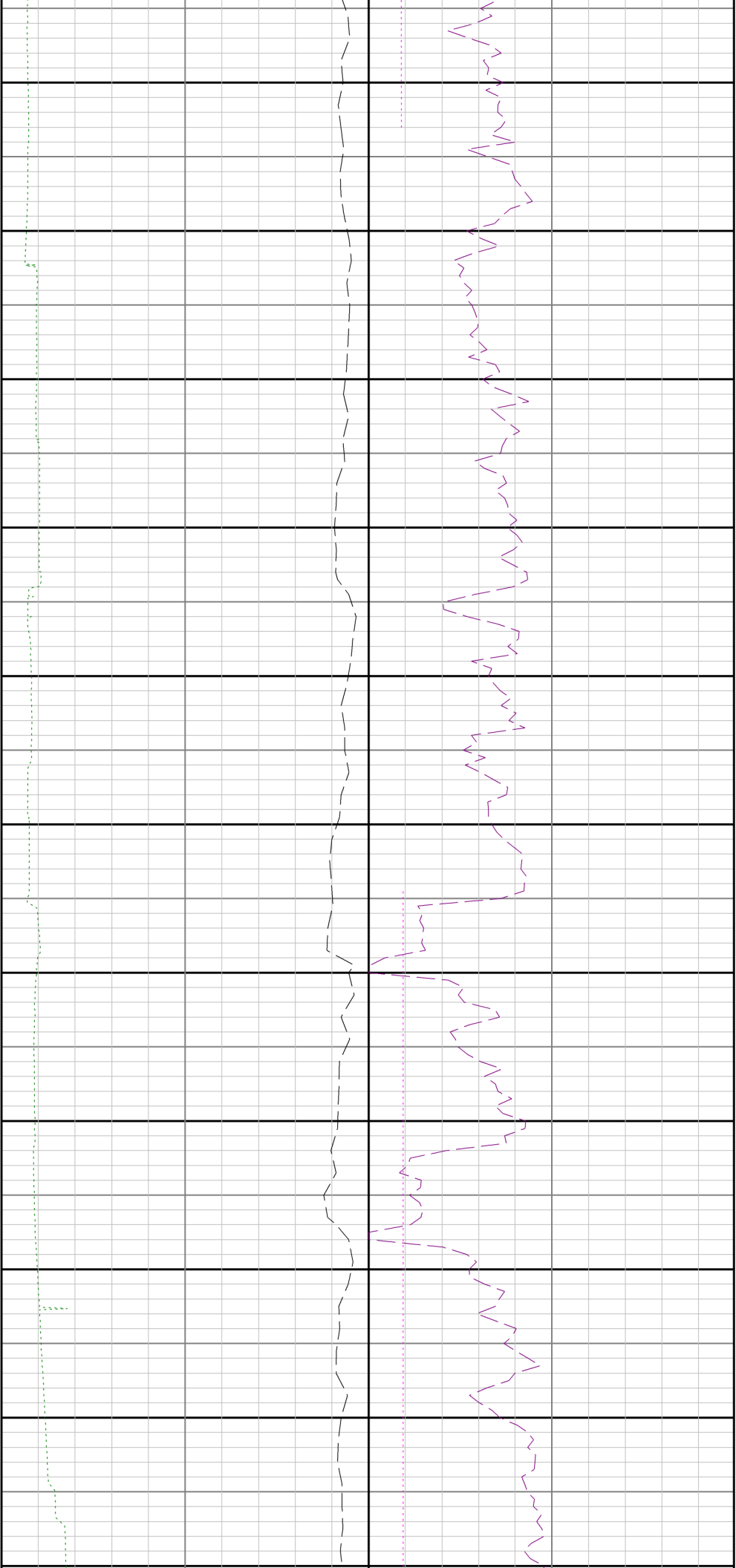
(1) Baker Hughes INTEQ run 1 a utilized 6 1/2 inch NaviTrak services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1059 to 7735 feet MD (1060 to 7456 feet TVD)
(2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviTrak services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7735 to 11818 feet MD (7456 to 7473 feet TVD)

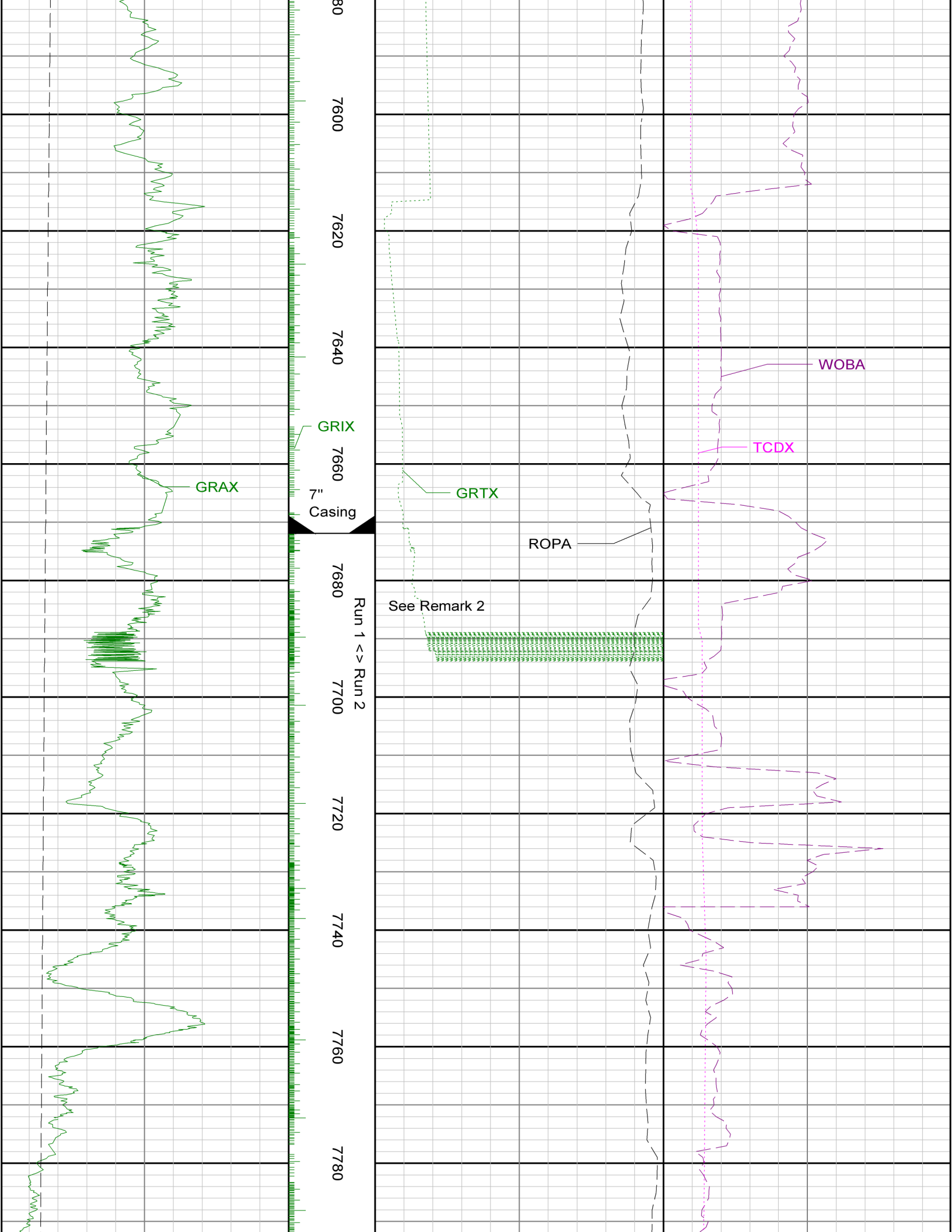
Remarks

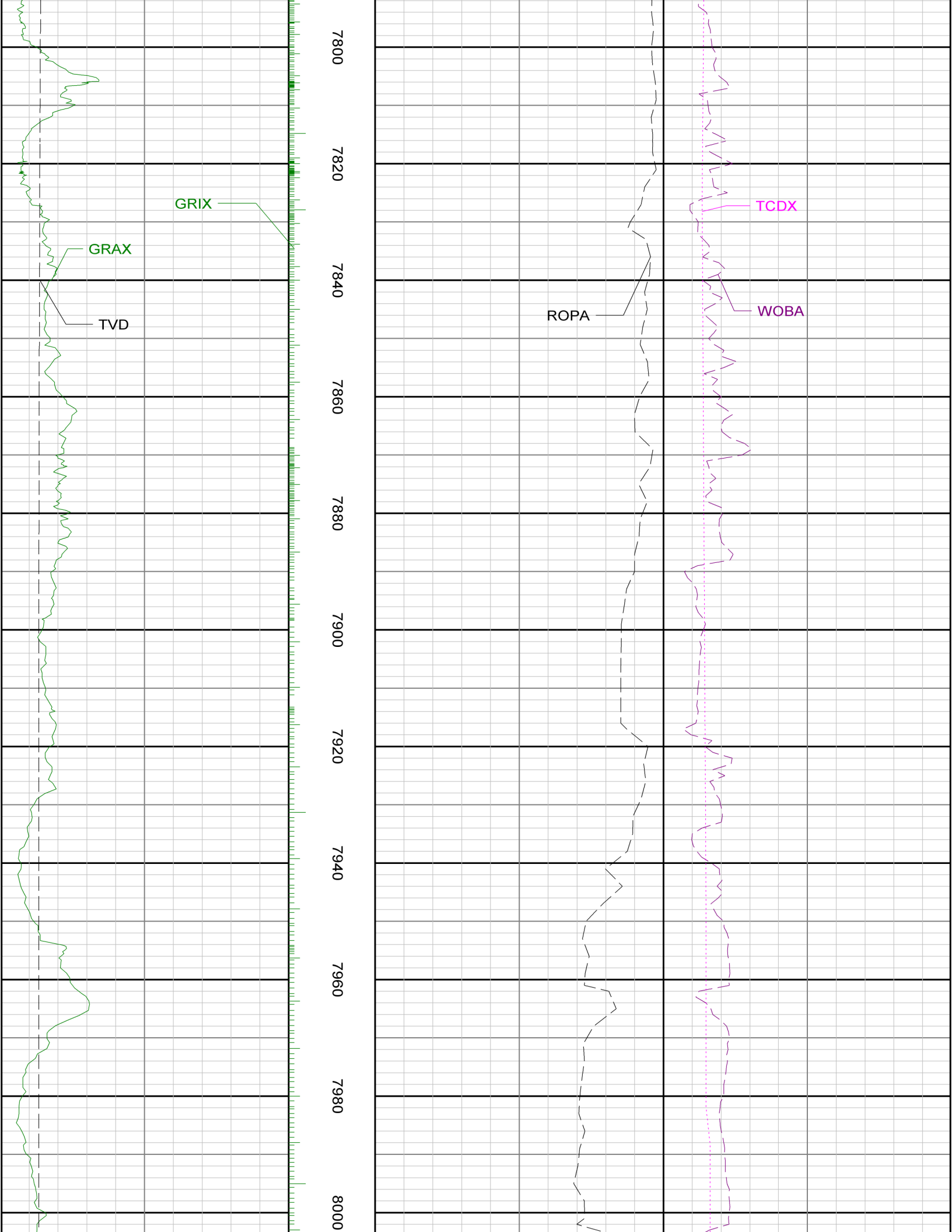
Number	Measured Depth	Hole Section	LWD Run No.	Remark
--------	-------------------	-----------------	----------------	--------

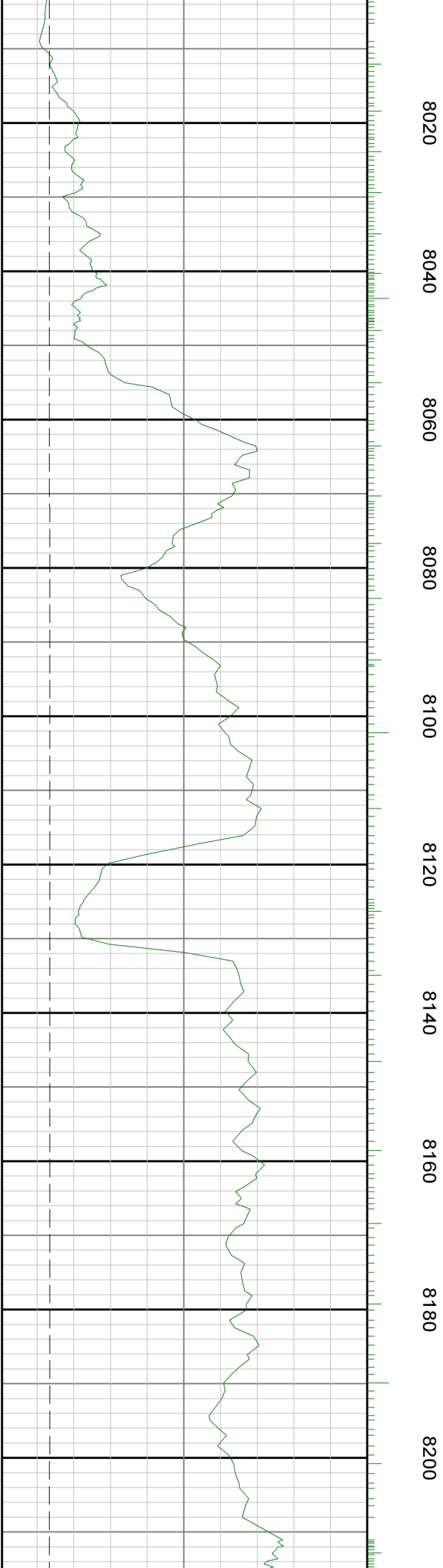
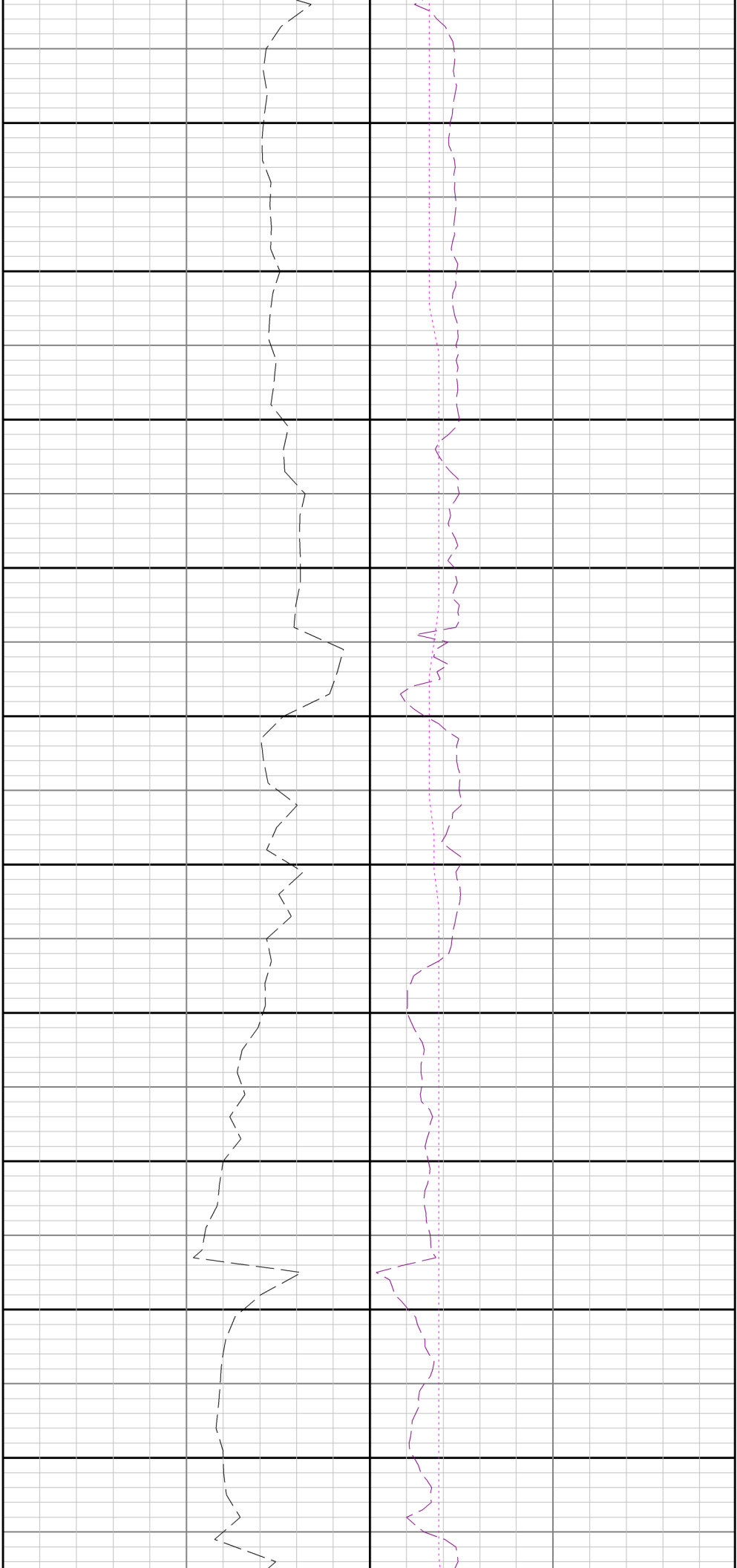


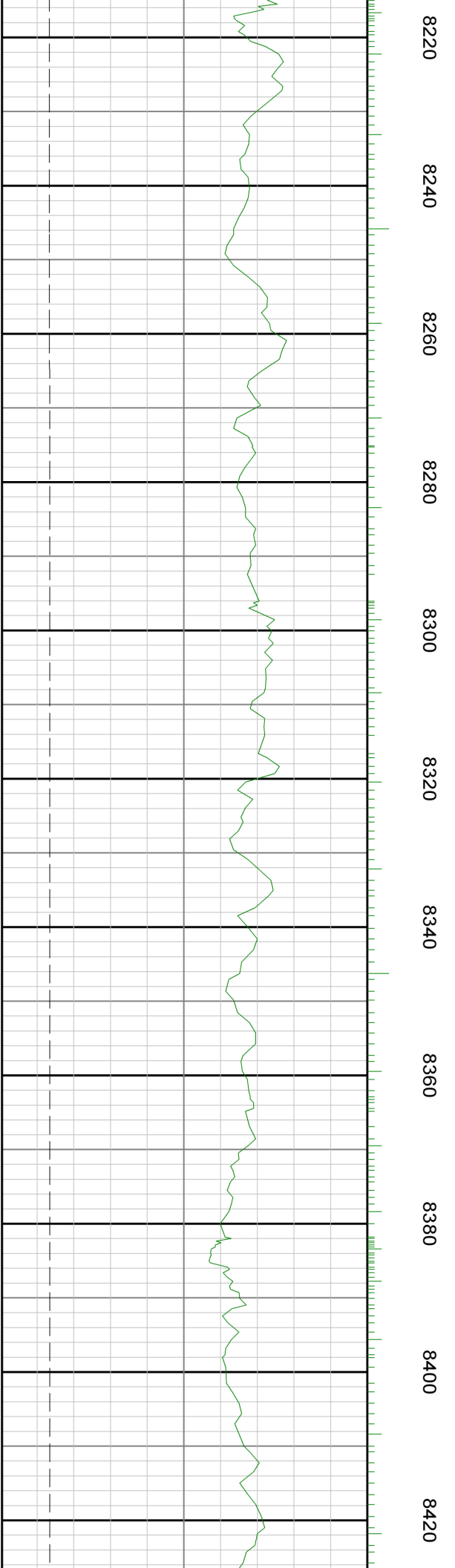
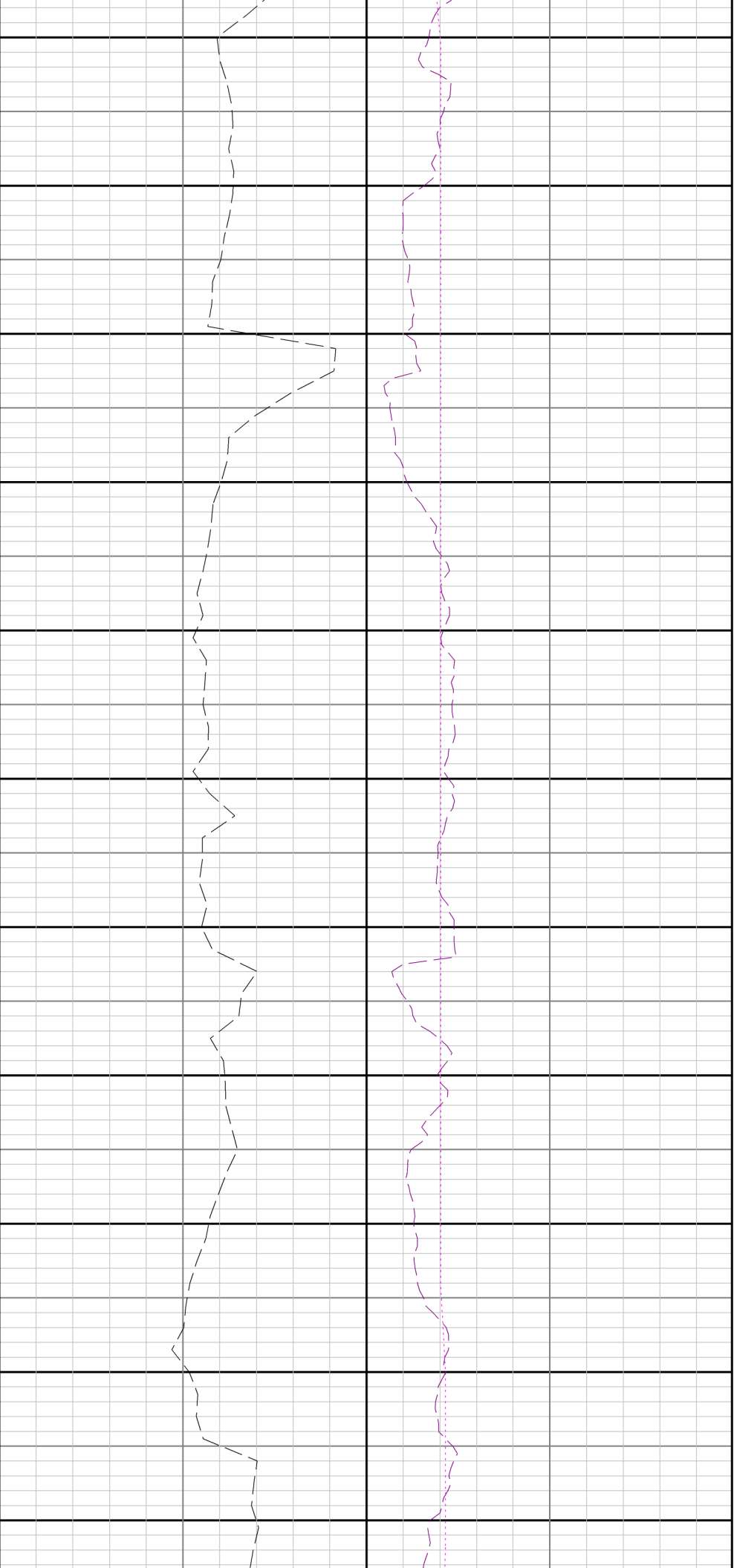


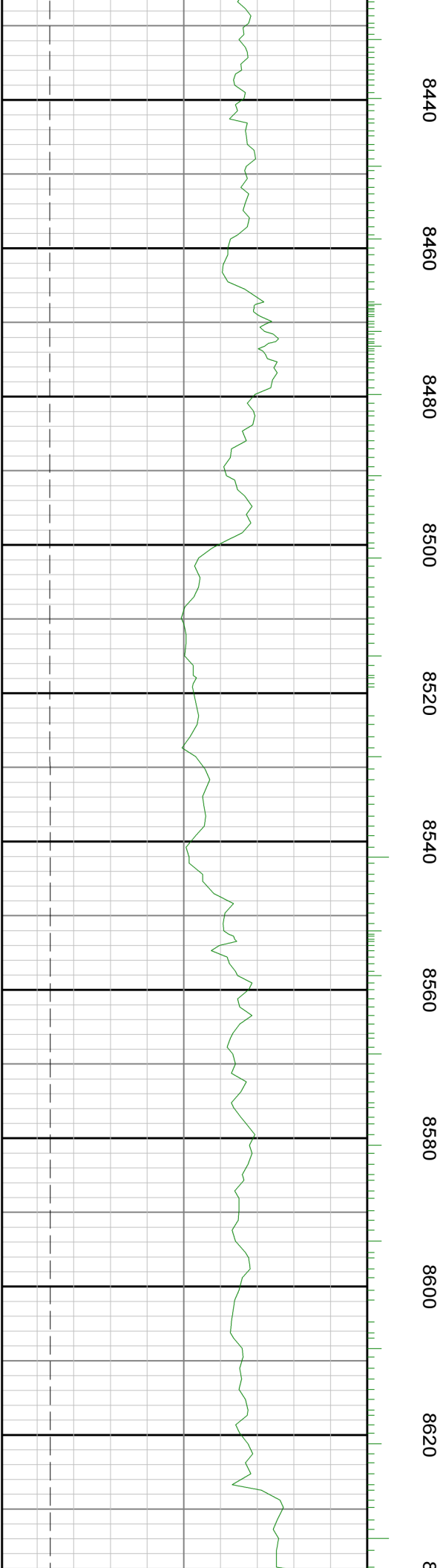
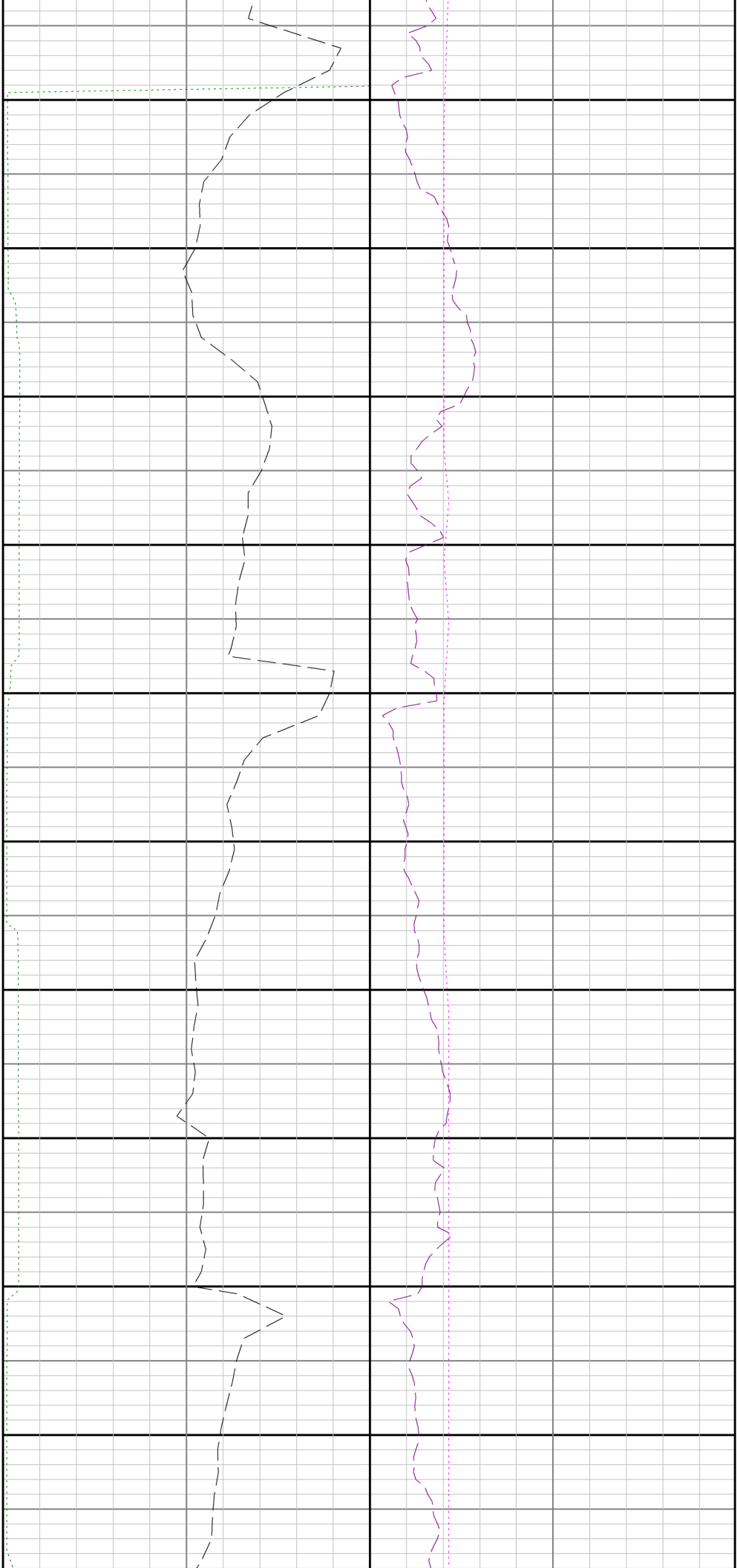


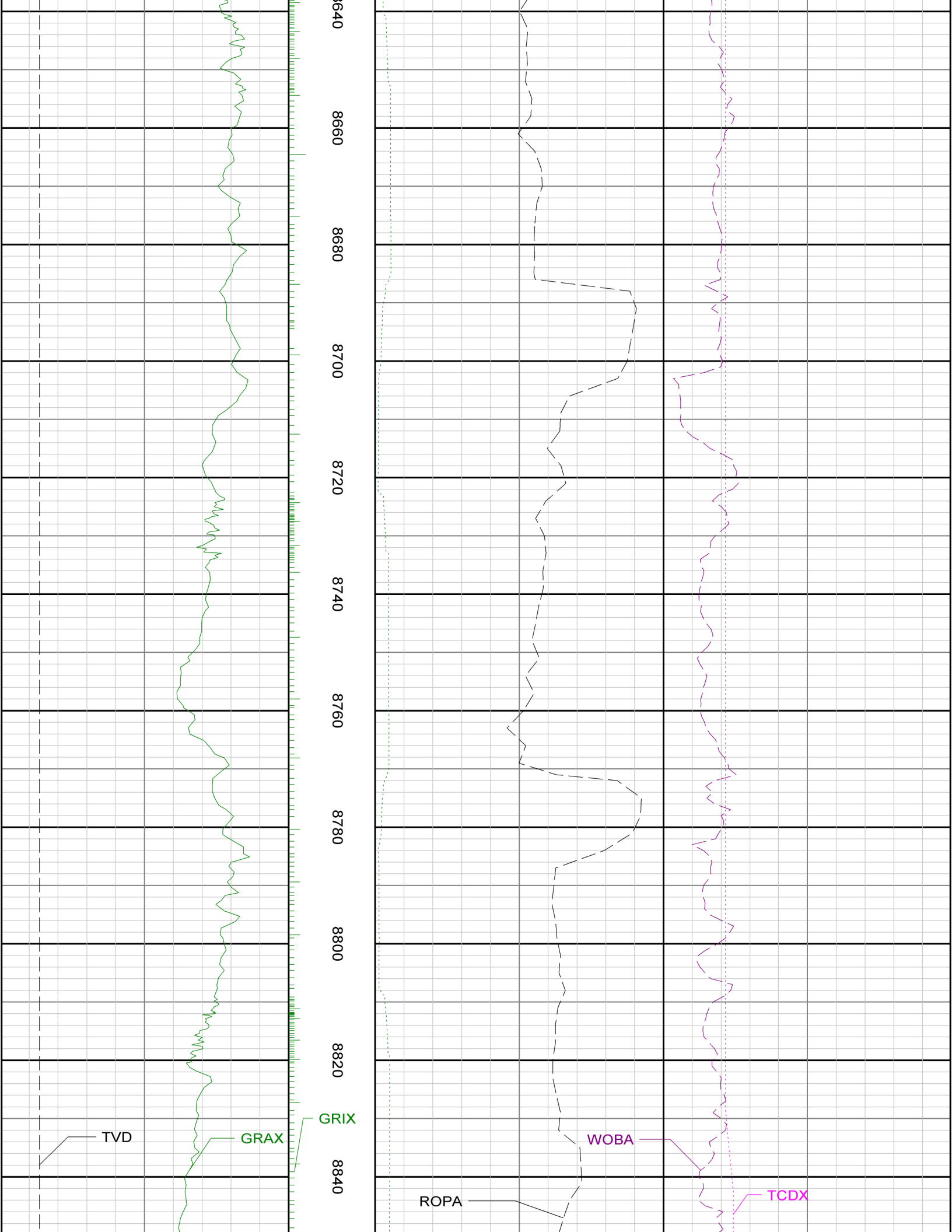


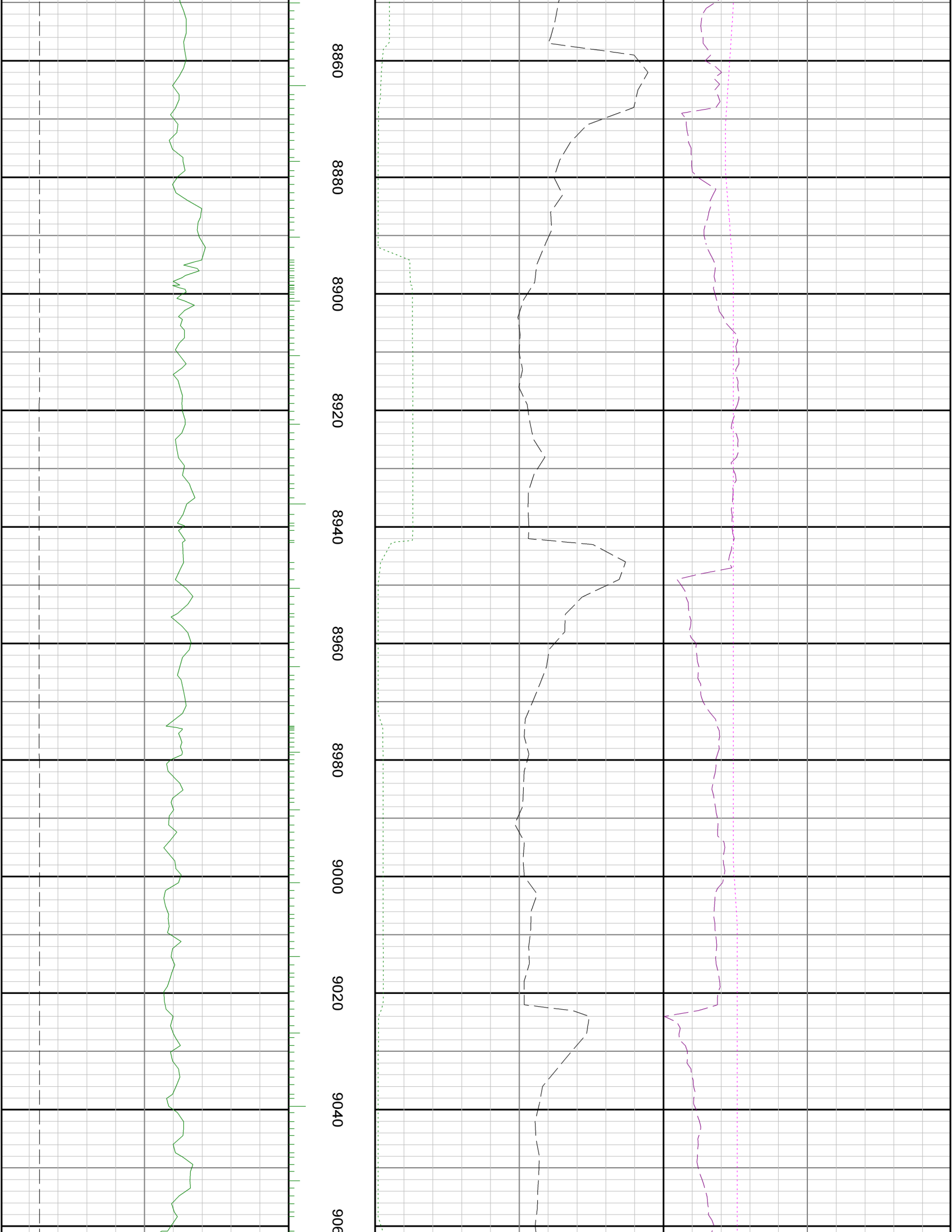


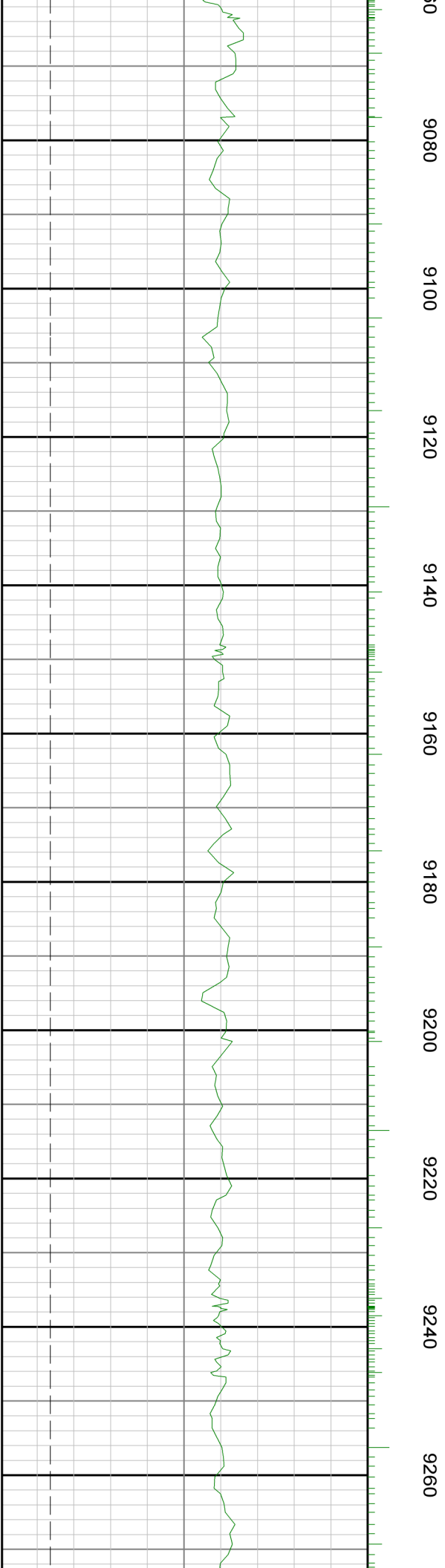
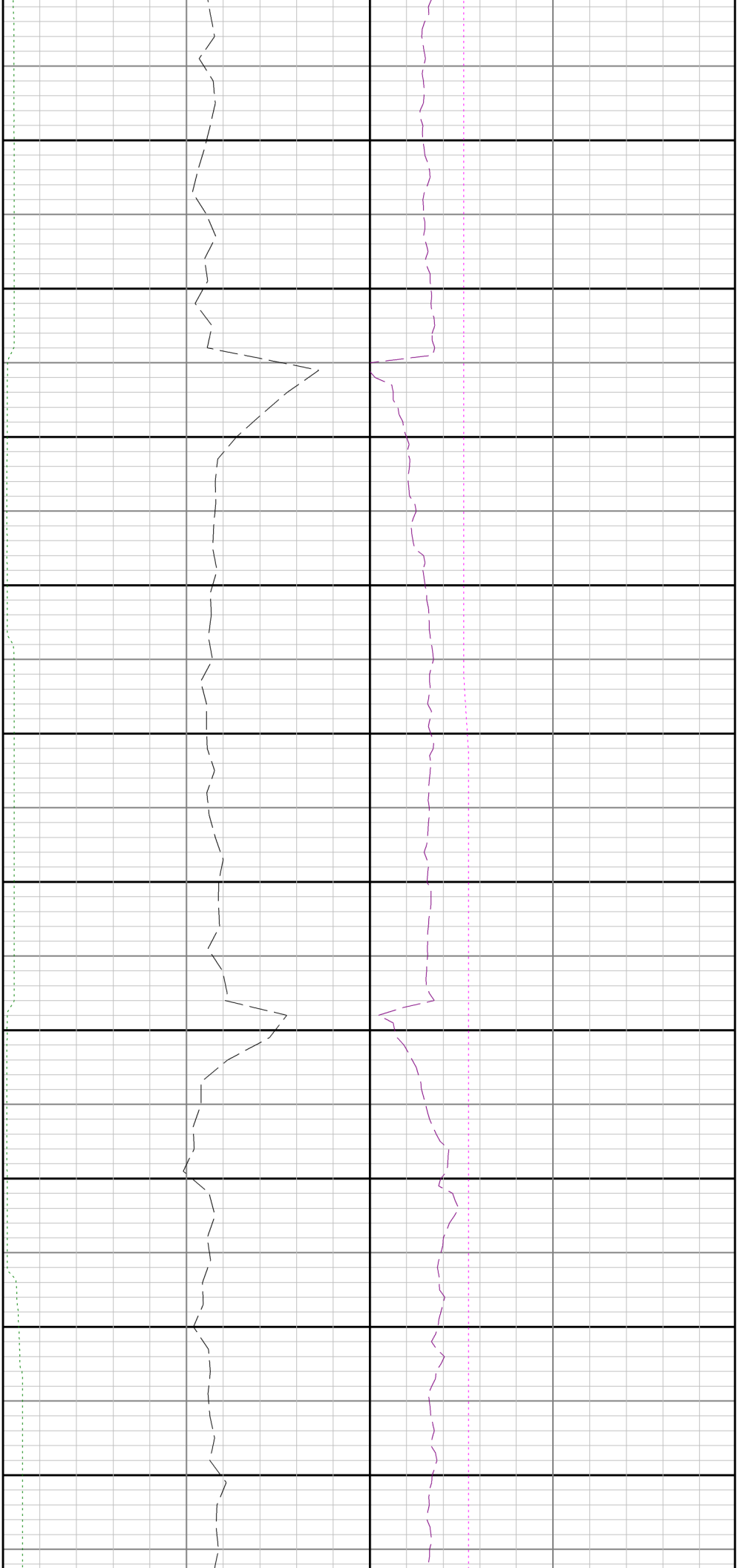


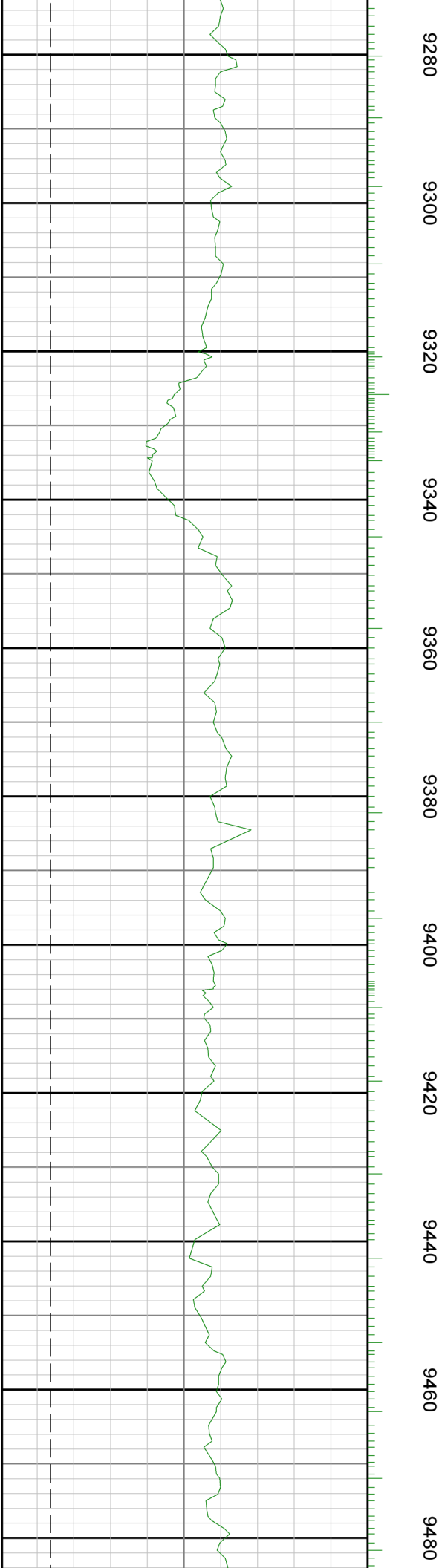
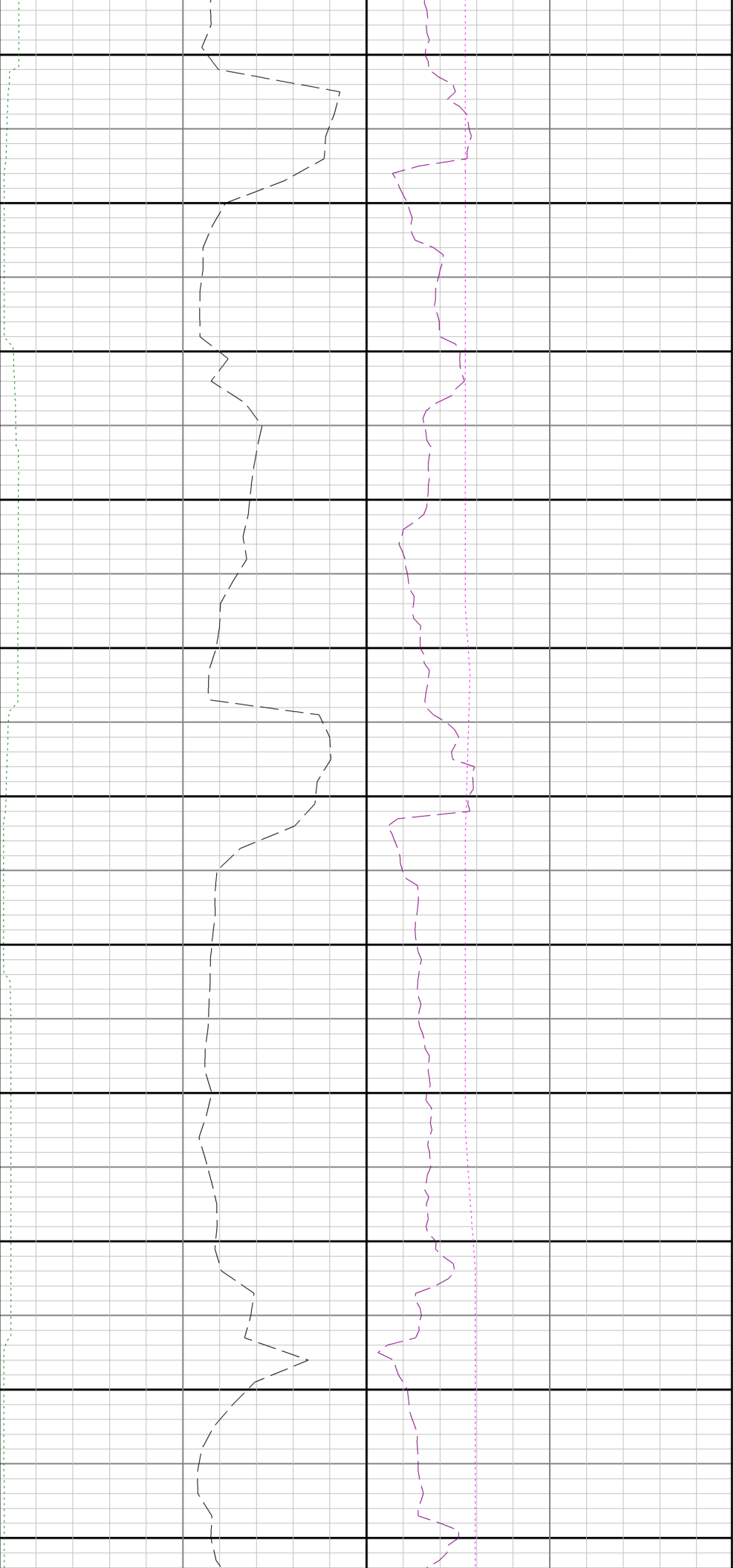


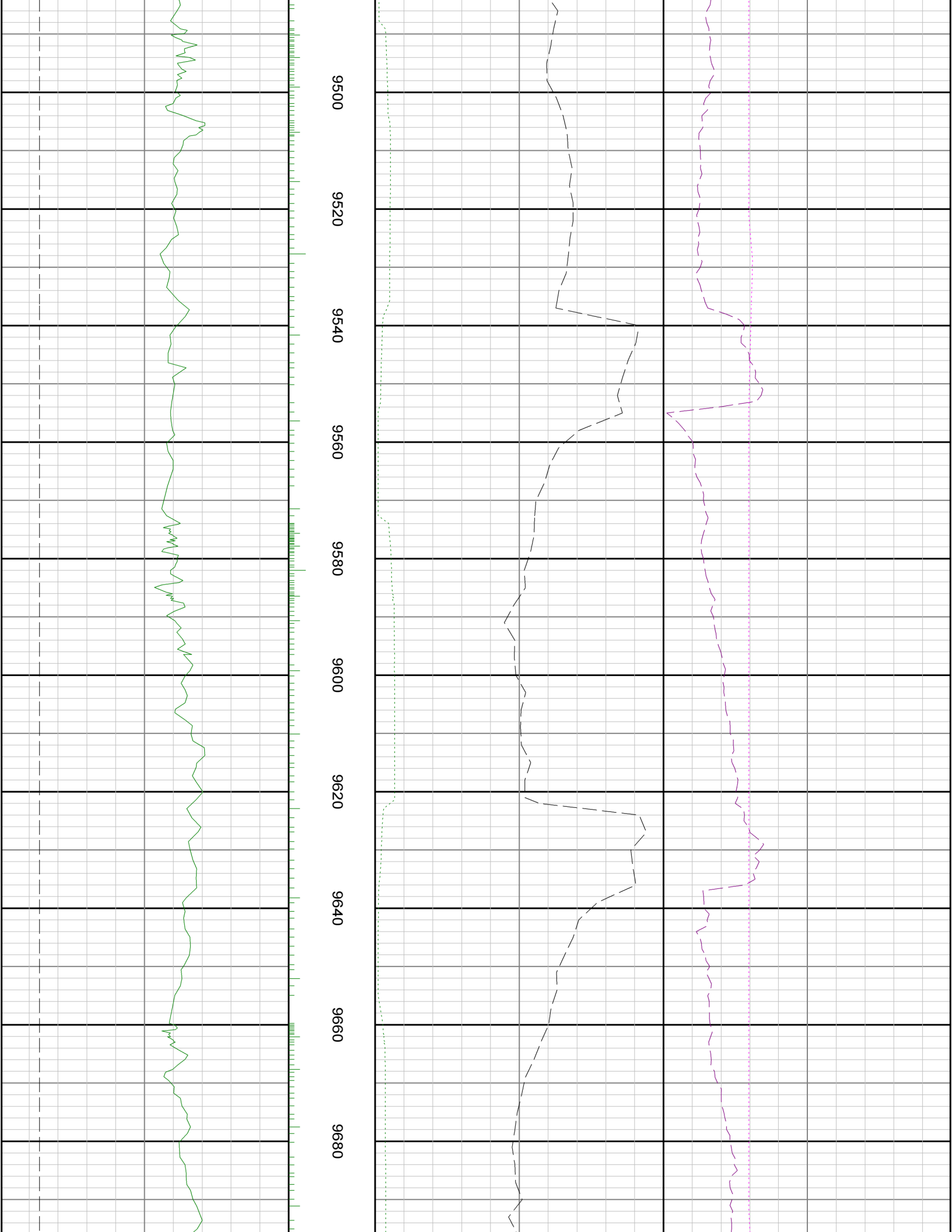


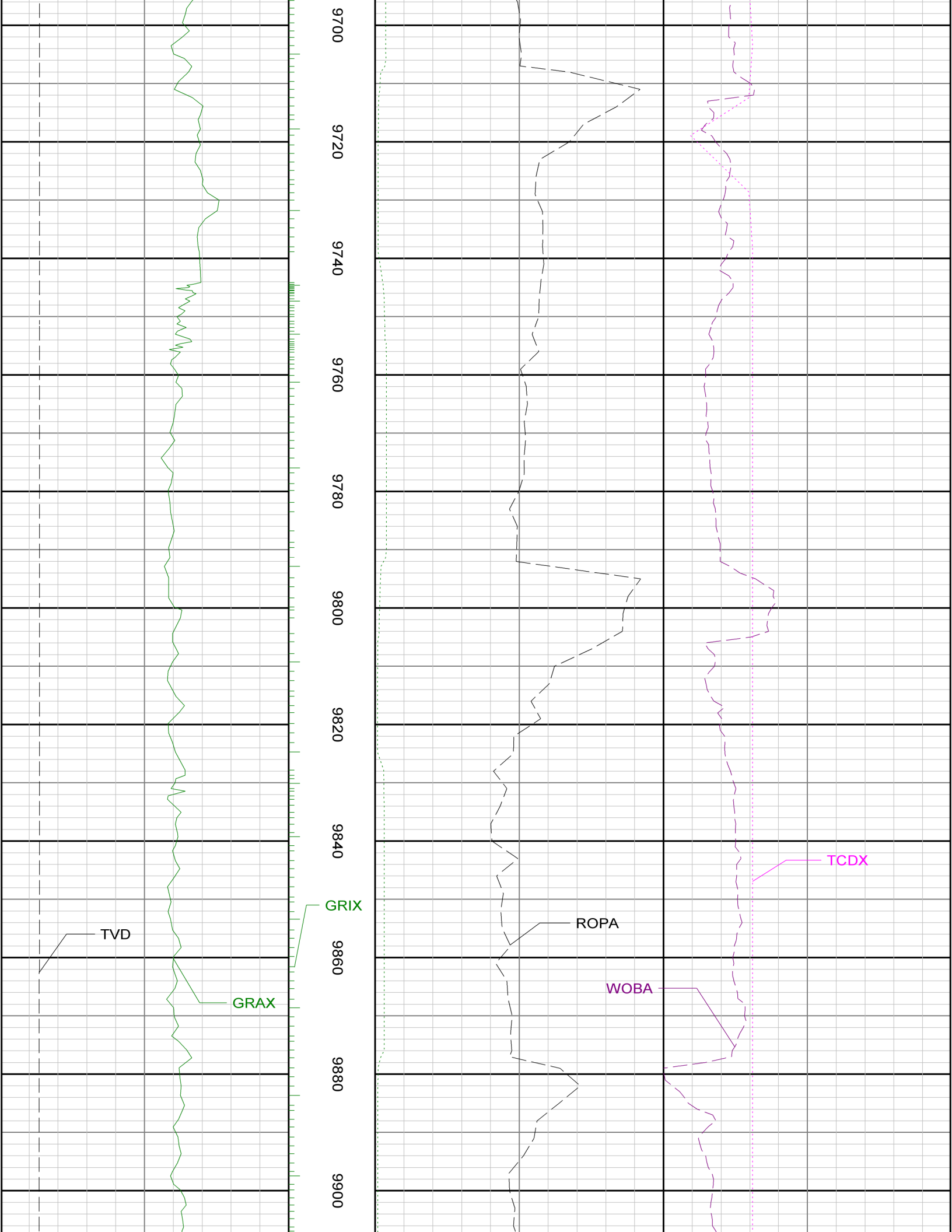


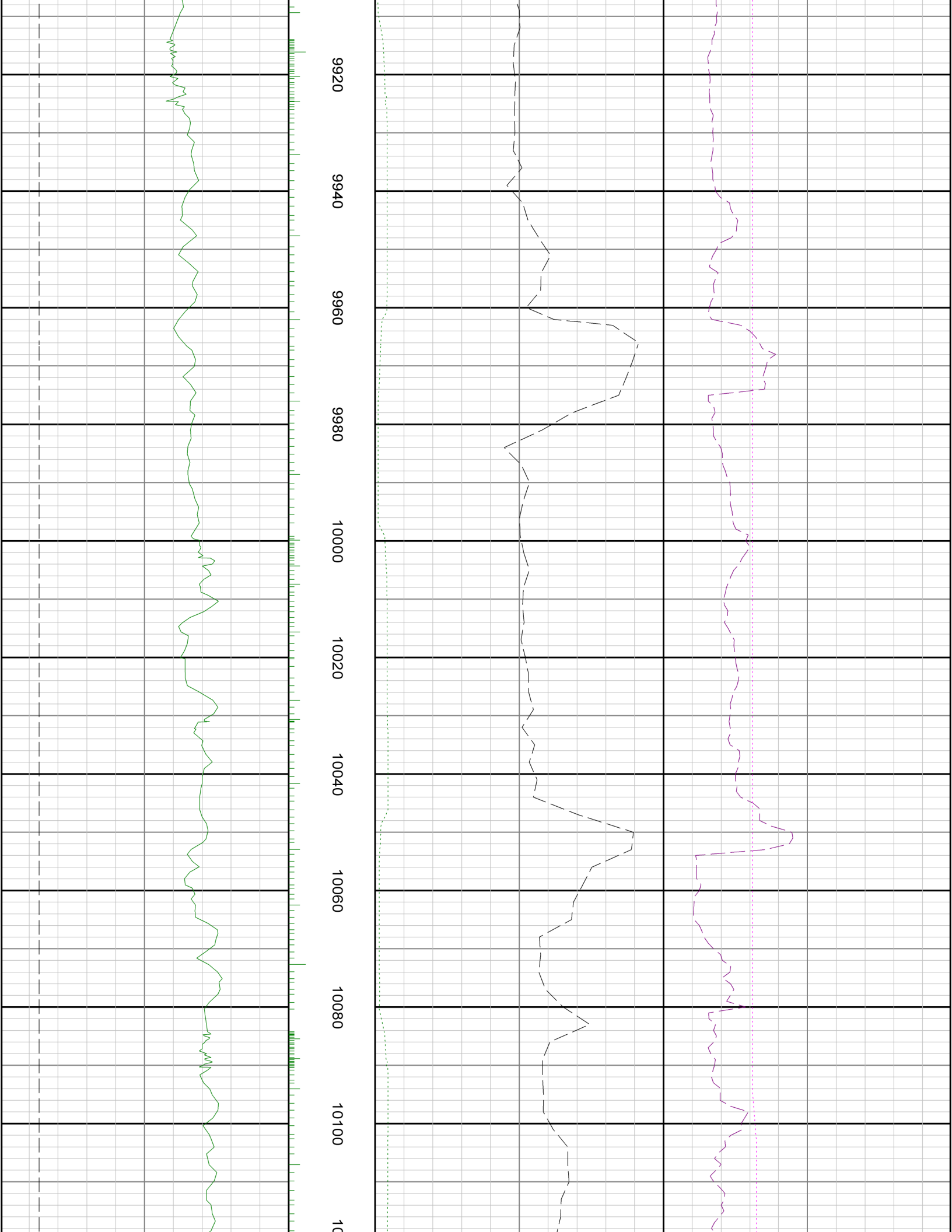


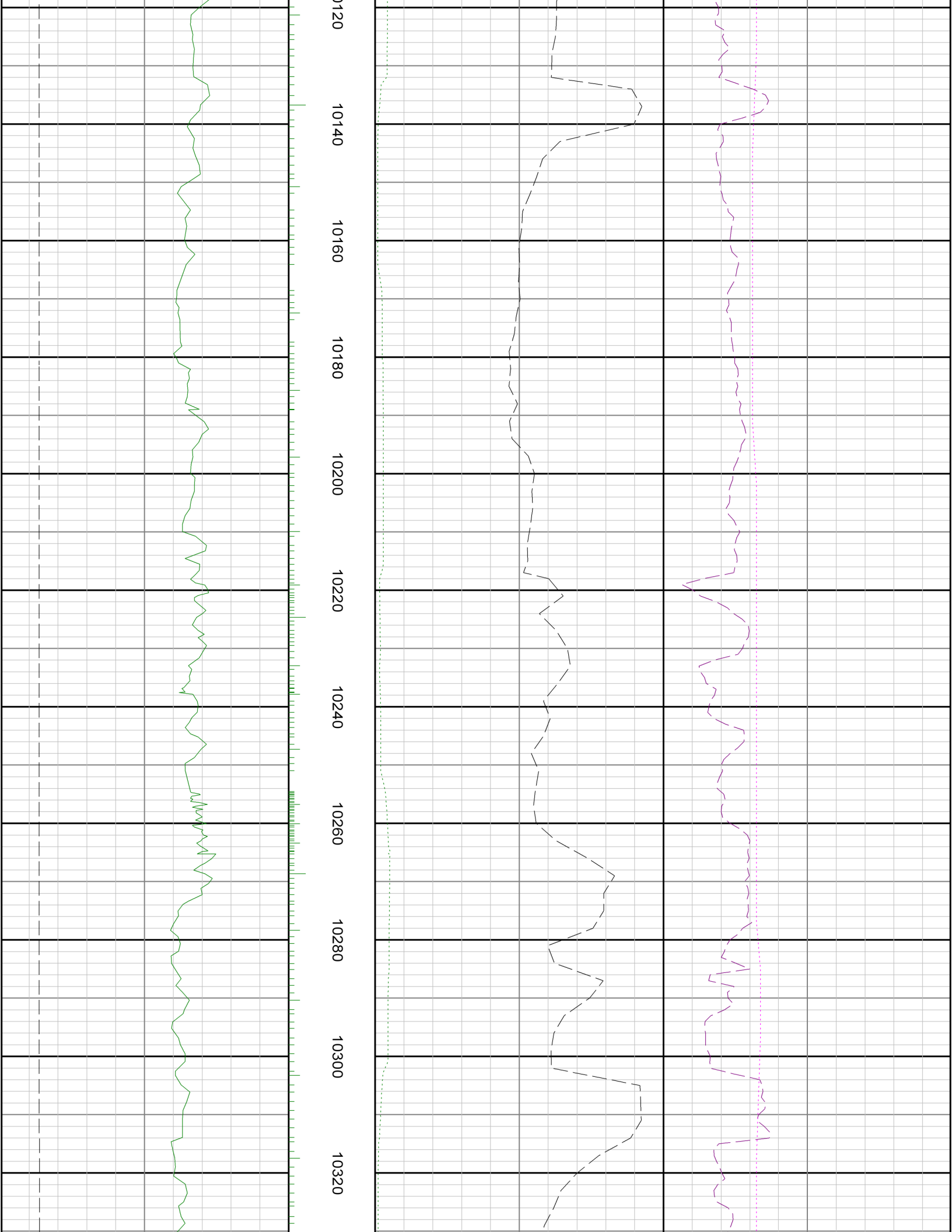


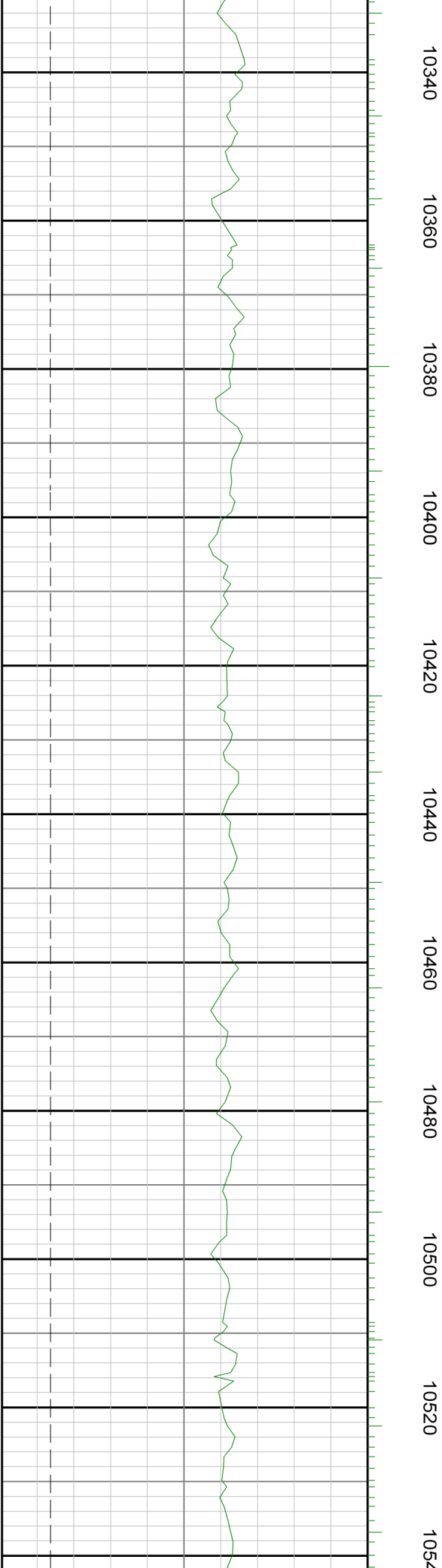
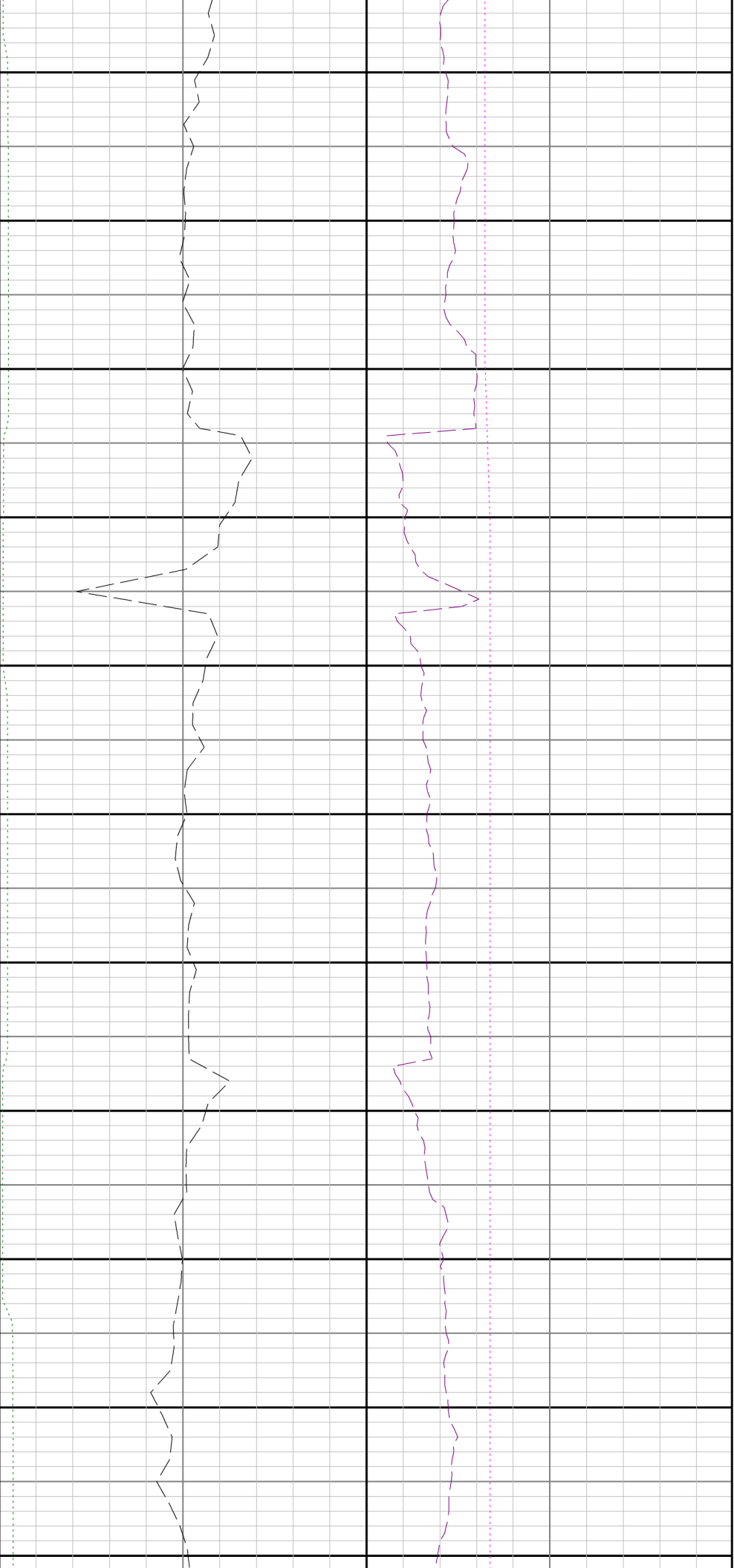


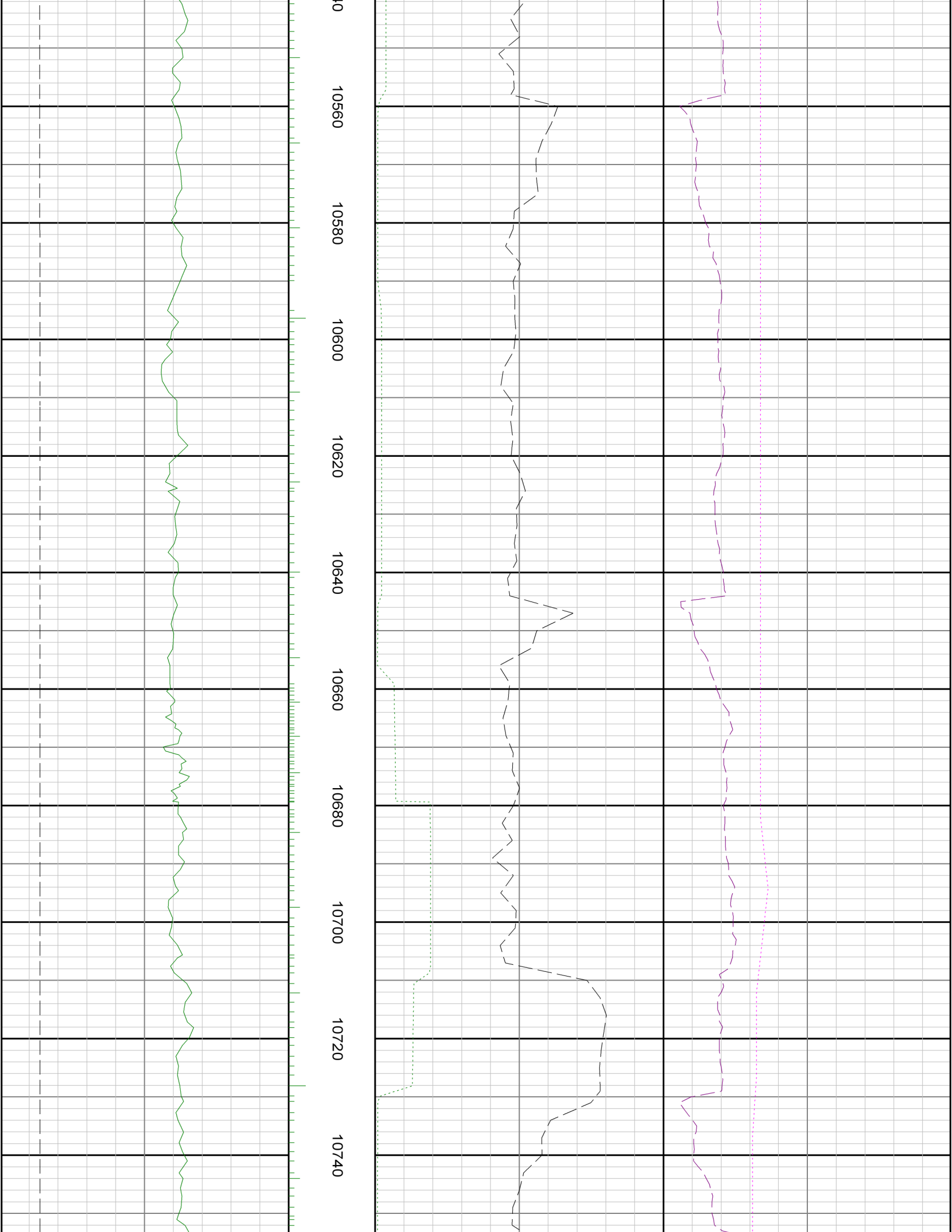


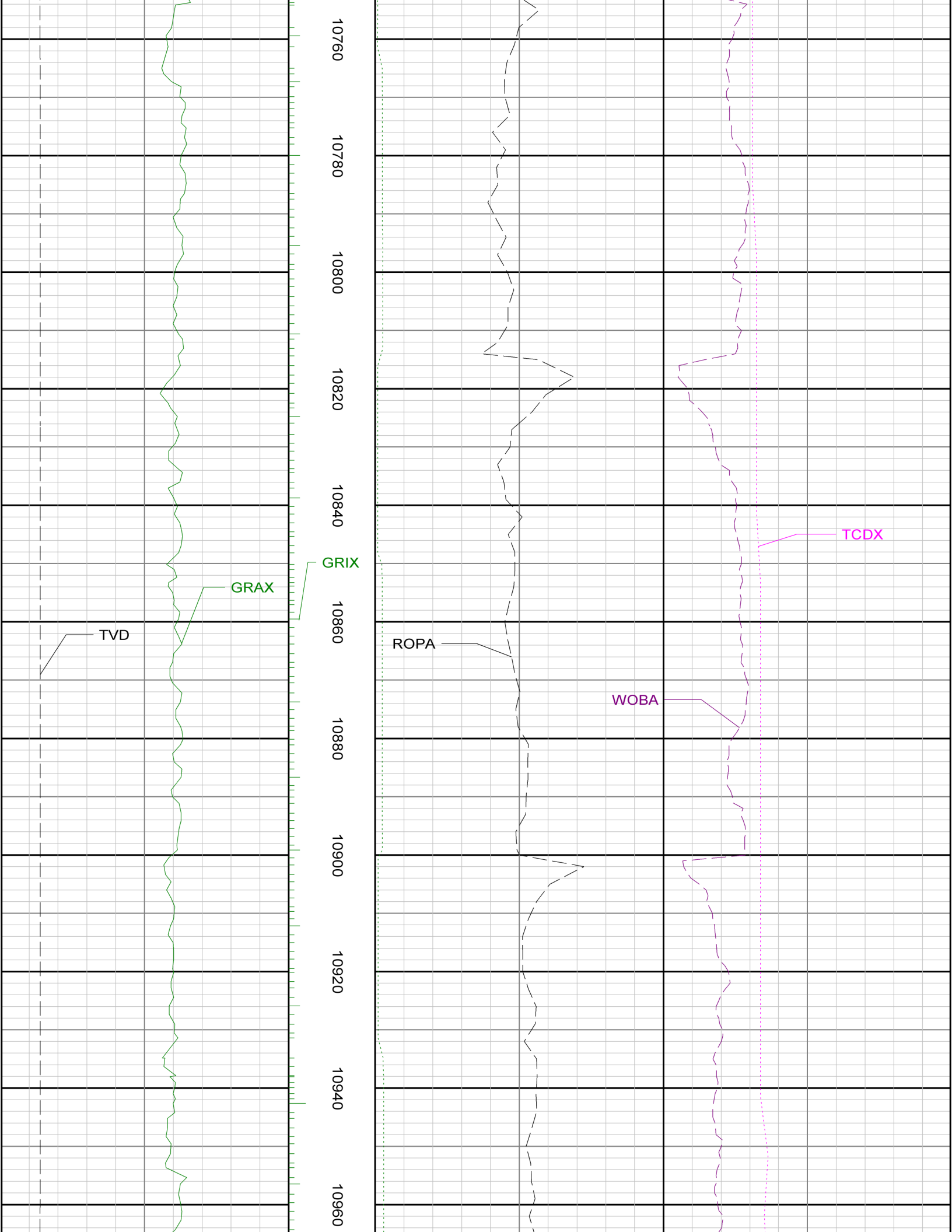


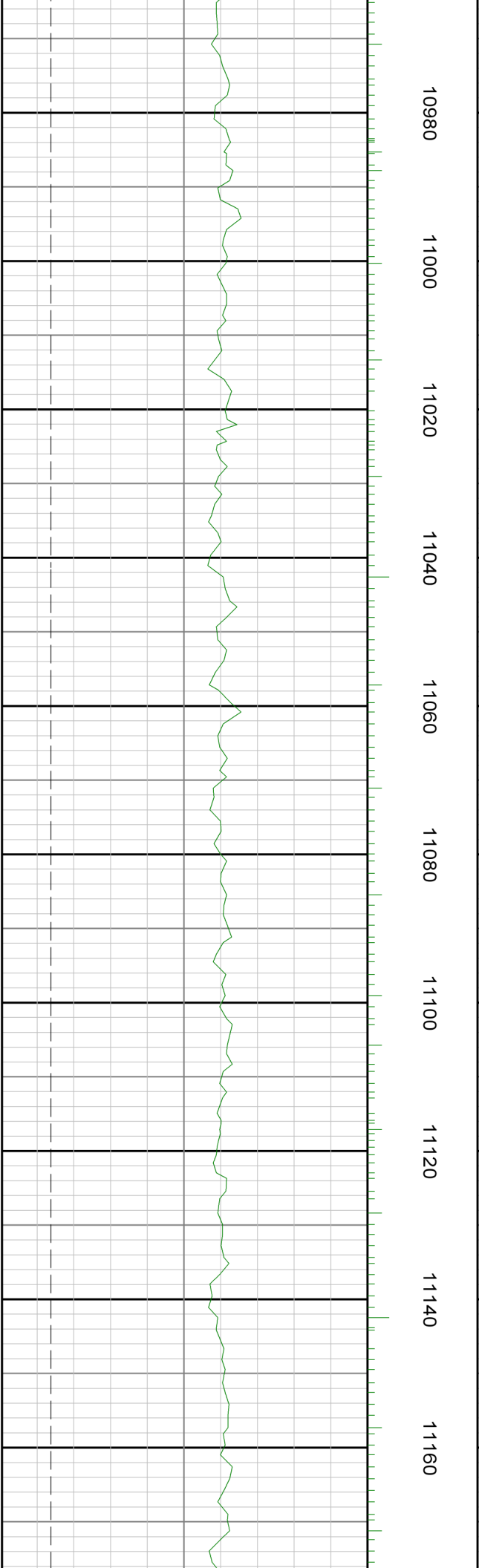
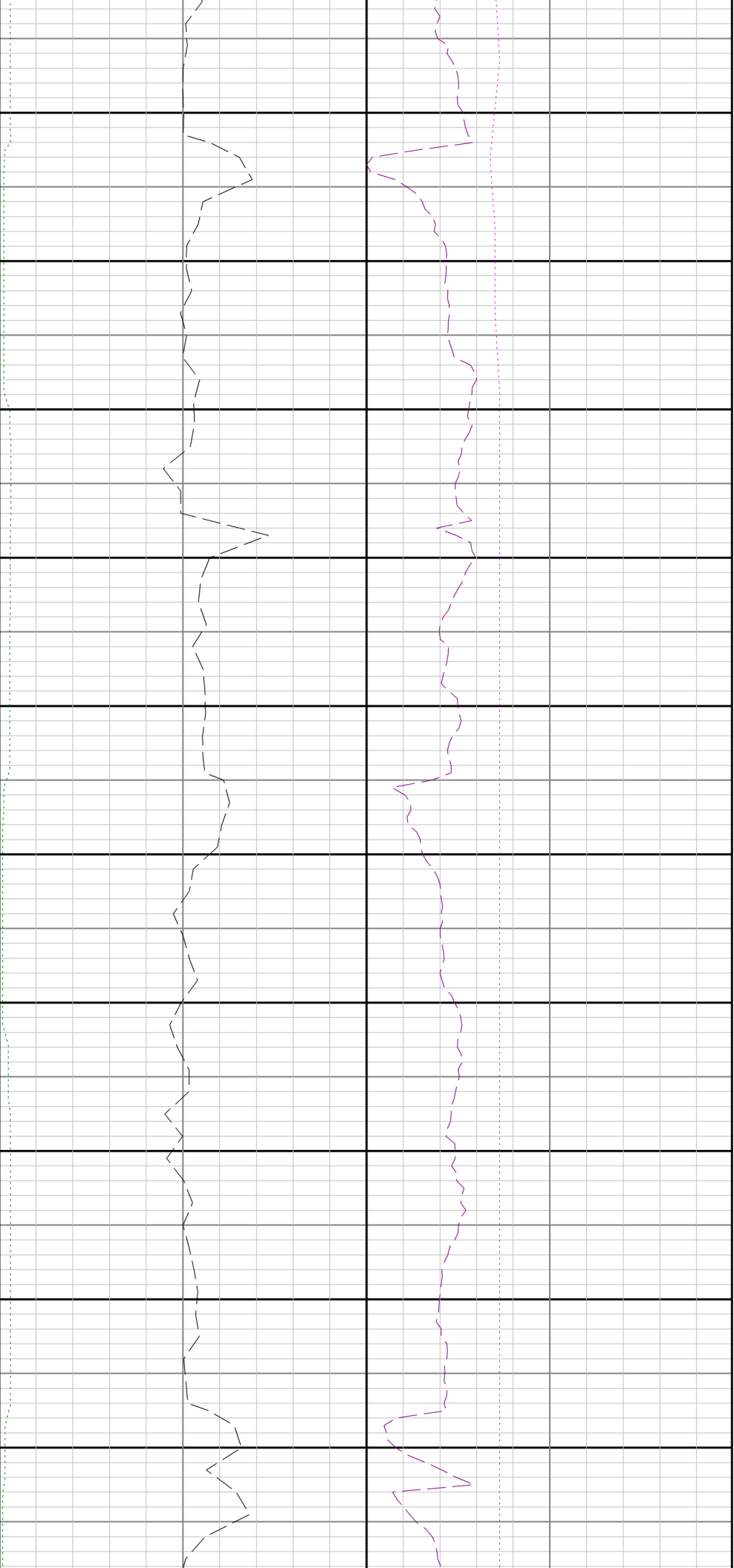


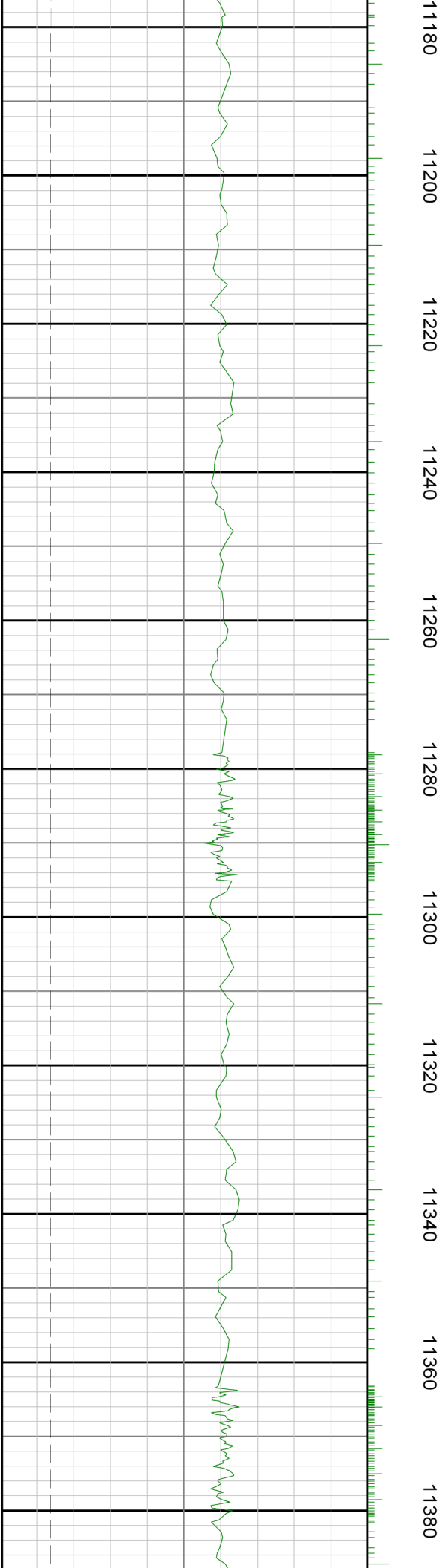
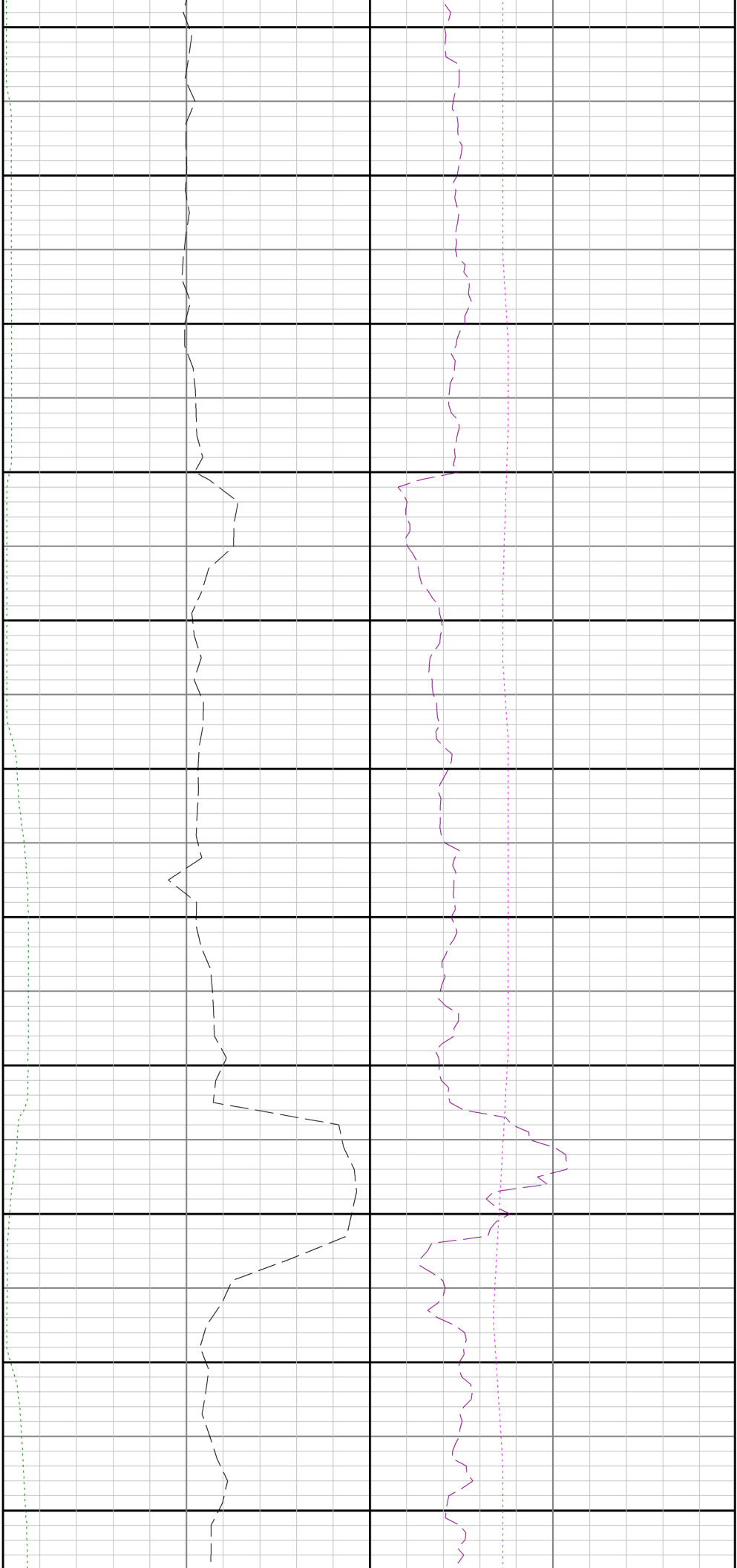


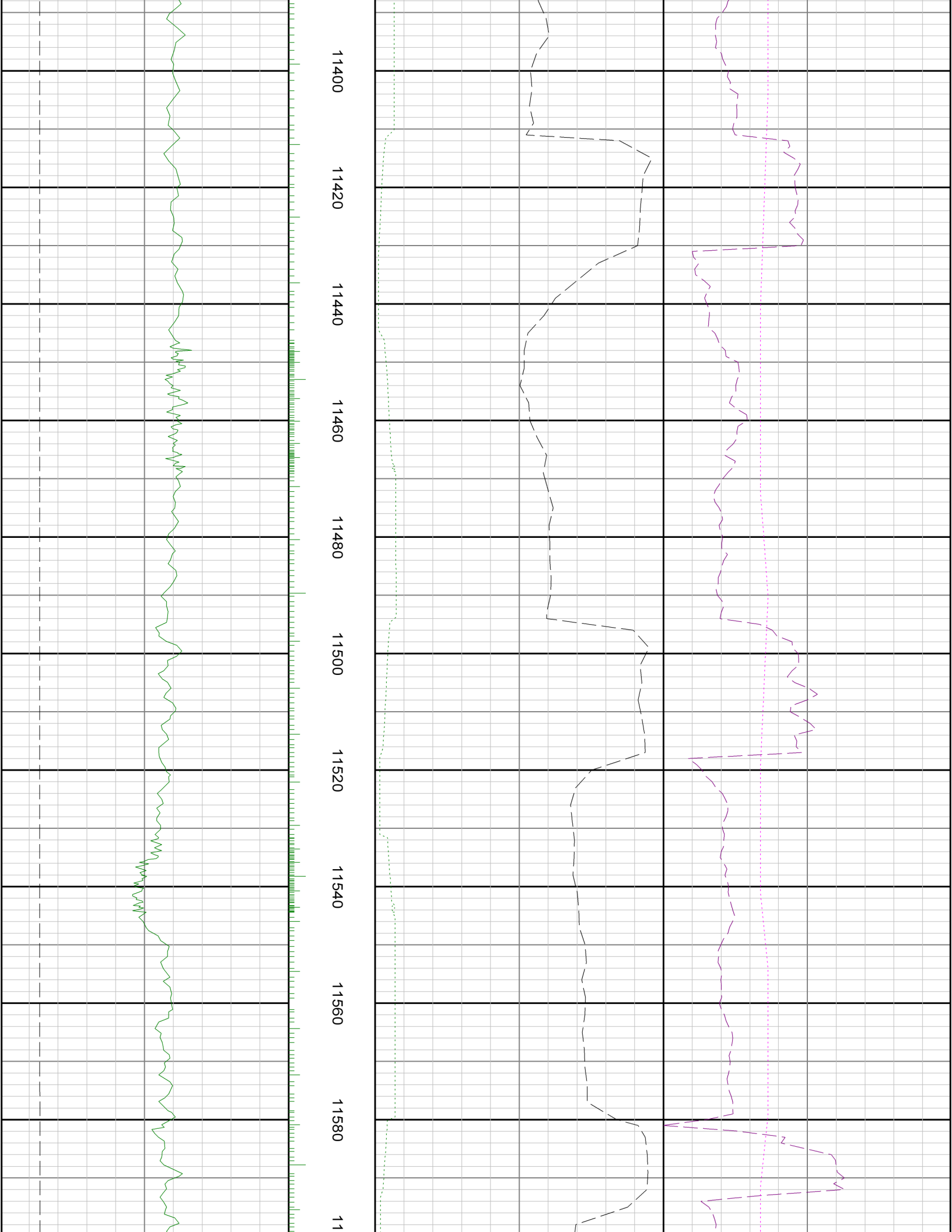


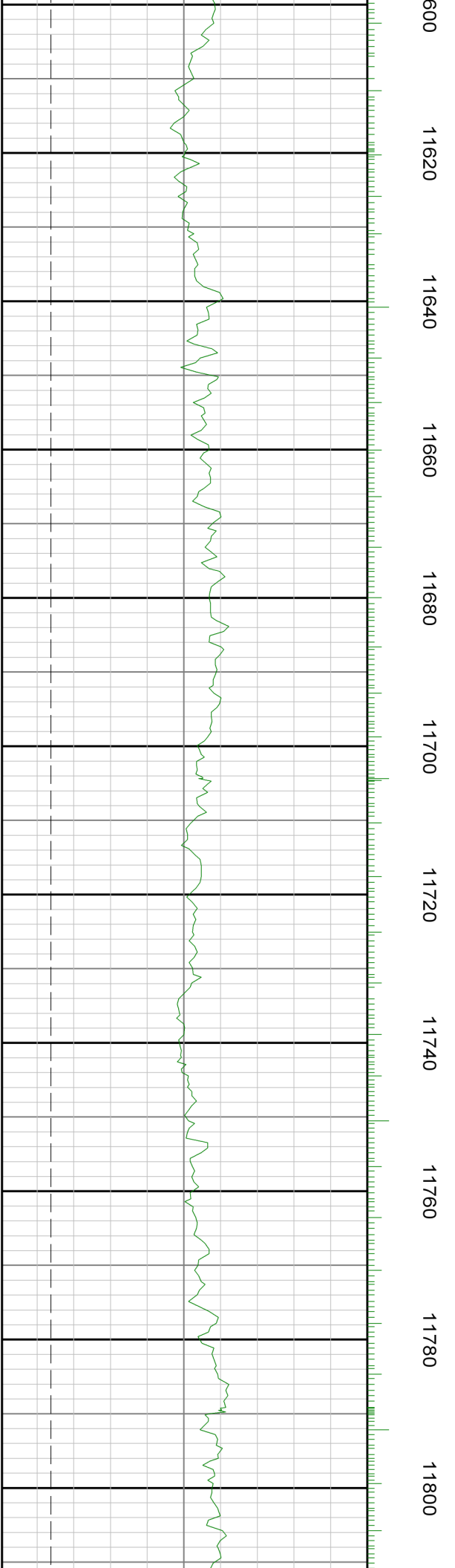
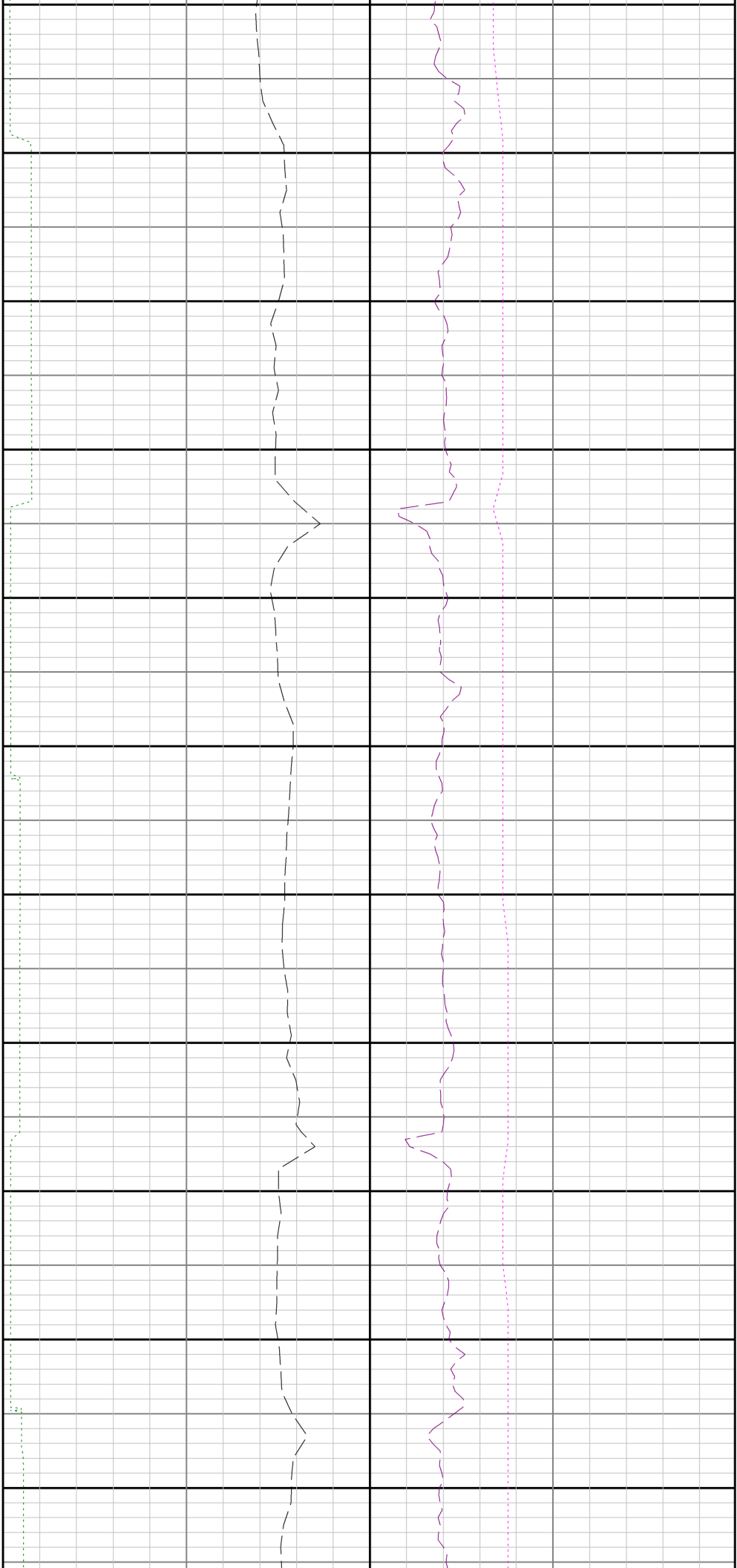












	<p>11820</p> <p>11840</p> <p>11860</p> <p>11880</p> <p>Run 2 <</p>	<p>See Remark 3</p>	
<p>Gamma Ray Apparent 0.5 ft Avg [GRAX]</p> <p>0 150</p> <p>API</p> <p>True Vertical Depth [TVD]</p> <p>7700 6000</p> <p>ft</p>	<p>MD feet 1:240</p>	<p>Rate of Penetration 3.0 ft Avg [ROPA]</p> <p>1000 0</p> <p>ft/hr</p> <p>Gamma Ray Time Since Drilled [GRTX]</p> <p>0 600</p> <p>min</p>	<p>Surface Weight On Bit 1.0 ft Avg [WOBA]</p> <p>0 100</p> <p>klbf</p> <p>Downhole Temperature [TCDX]</p> <p>150 350</p> <p>degF</p>