



Real Time Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Kerr-McGee Oil & Gas Onshore LP

1:240

Well: Wirkner-Vance 30N-36HZ

Measured Depth

Field: Weld County (Kerr McGee)

Region: Continental US Country: United States

Status:

Final Print

Surface Location:

Latitude: 40° 10' 31.274" N

Longitude: 104° 50' 42.918" W

Other Services:

API Number:

051233788500

Section:

TWN: 3N

Range: 67W

Permanent Datum (P.D.): Ground Level

Elevation:

4822.00 ft.

Elevations:

Log Measured From:

Kelly Bushing

13.00 ft.

Above P.D.

KB: 4835.00 ft.

DF: N/A

Depth Reference:

Driller's Depth

GL: 4822.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6573 ft. Date From: 24/Dec/13 Dip Angle: 66.97 ° Az Reference North: True

Bottom: 11656 ft. Date To: 31/Dec/13 Total Mag to Reference

Spud Date: 24/Dec/13 Field Strength: 52712.0 nT North Correction: 8.59 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1010 ft.	7576 ft.	9.625 in.	36.00 lb/ft	0 ft.	1010 ft.
6.125 in.	7576 ft.	11705 ft.	7.000 in.	26.00 lb/ft	1010 ft.	7566 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based - Fresh	1010 ft.	11705 ft.	8.750 in.	6566 ft.	0.1 ° / 311.2 °	83.5 ° / 355.5 °
			6.125 in.	4129 ft.	83.5 ° / 355.5 °	90.8 ° / 1.3 °
					/	/
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rigi / Contractor:	Ensign 138	/ Ensign Drilling
PATS	6.4.1.34	Job No:	2RLYQ32	
		District / Unit:	RMD	/ D & E

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Log Run Summary

LWD	BHA	Bit	Bit	Bit	Bit	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
Run	Run	Run	Size	Type	Gauge		Top	Bottom	From	To	Start	End	
No.	No.	No.	(in.)		Lenath (in.)		(ft.)	(ft.)	(ft.)	(ft.)			
1	1	1	8.750	PDC	3.000	Steerable	0	0	1010	1058	25/Dec/2013 02:00	25/Dec/2013 7:30	1.7
2	2	2	8.750	PDC	3.000	Steerable	0	0	1058	6564	25/Dec/2013 8:20	27/Dec/2013 0:30	21.1
3	3	3	8.750	PDC	3.000	Steerable	6573	7525	6564	7576	27/Dec/2013 00:30	28/Dec/2013 12:00	24.98
4	4	4	6.125	PDC	6.000	Steerable	7525	11656	7576	11705	29/Dec/2013 20:00	31/Dec/2013 20:51	35.8

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
		Wellsite			Wellsite			Wellsite
Brad Jones	24/Dec/2013	25/Dec/2013	Andrew Overbey	24/Dec/2013	31/Dec/2013	Tyler Wall	26/Dec/2013	31/Dec/2013

Jimmy Nguyen	27/Dec/2013	27/Dec/2013	Robert Bartlett	24/Dec/2013	31/Dec/2013	Will Drake	24/Dec/2013	31/Dec/2013
Steve Martinez	24/Dec/2013	31/Dec/2013						

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
24/Dec/2013	21:00	1	1018	Water Based - Fresh	8.5	28	8.5	N/A	99/0	Active Mud Pits	800	0.0
25/Dec/2013	21:00	2	3174	Water Based - Fresh	8.4	28	8.7	N/A	99/0	Active Mud Pits	850	0.0
26/Dec/2013	21:00	2	6564	Water Based - Fresh	9.8	36	9.1	N/A	92/1	Active Mud Pits	1100	0.0
27/Dec/2013	21:00	3	6832	Water Based - Fresh	9.8	37	9.3	N/A	91/1	Active Mud Pits	1200	0.0
28/Dec/2013	21:00	3	7576	Water Based - Fresh	10.0	38	9.0	N/A	91/1	Active Mud Pits	1200	0.0
29/Dec/2013	21:00	4	7675	Water Based - Fresh	9.3	33	9.8	N/A	95/1	Active Mud Pits	1400	0.0
30/Dec/2013	21:00	4	9122	Water Based - Fresh	9.2	37	8.9	N/A	94/1	Active Mud Pits	1350	0.0

Mnemonics

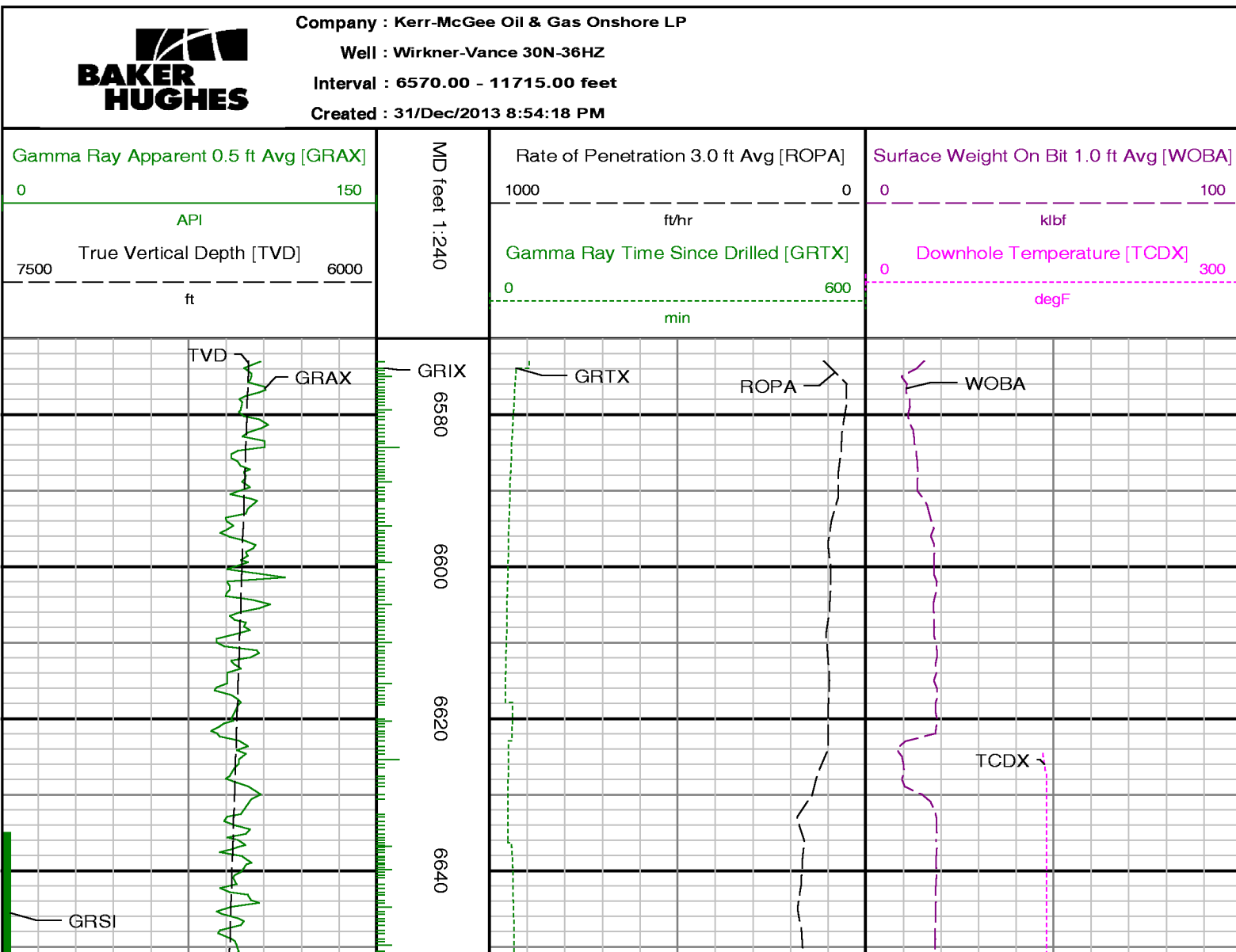
Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	mins
ROPA	Rate of Penetration, 3.0 ft. Avg	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOBA	Surface Weight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

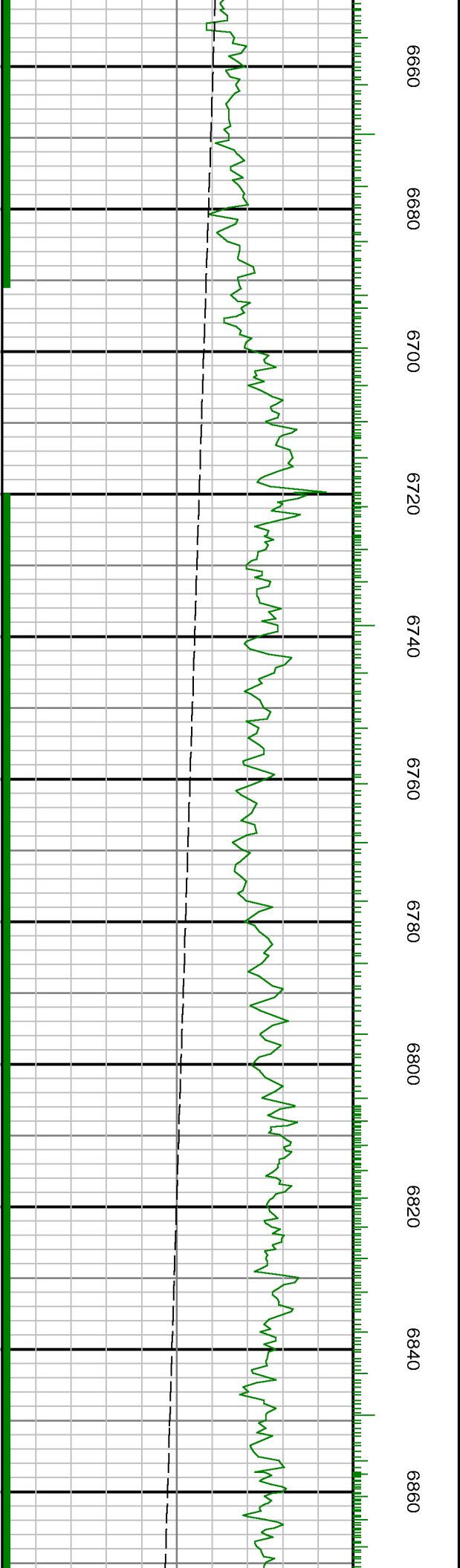
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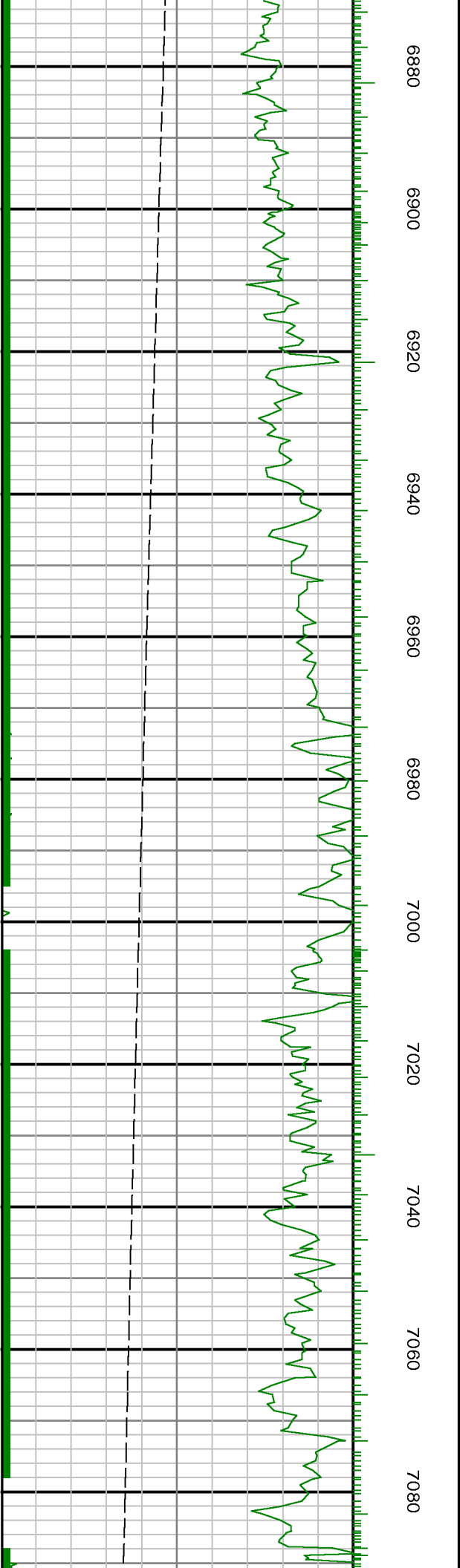
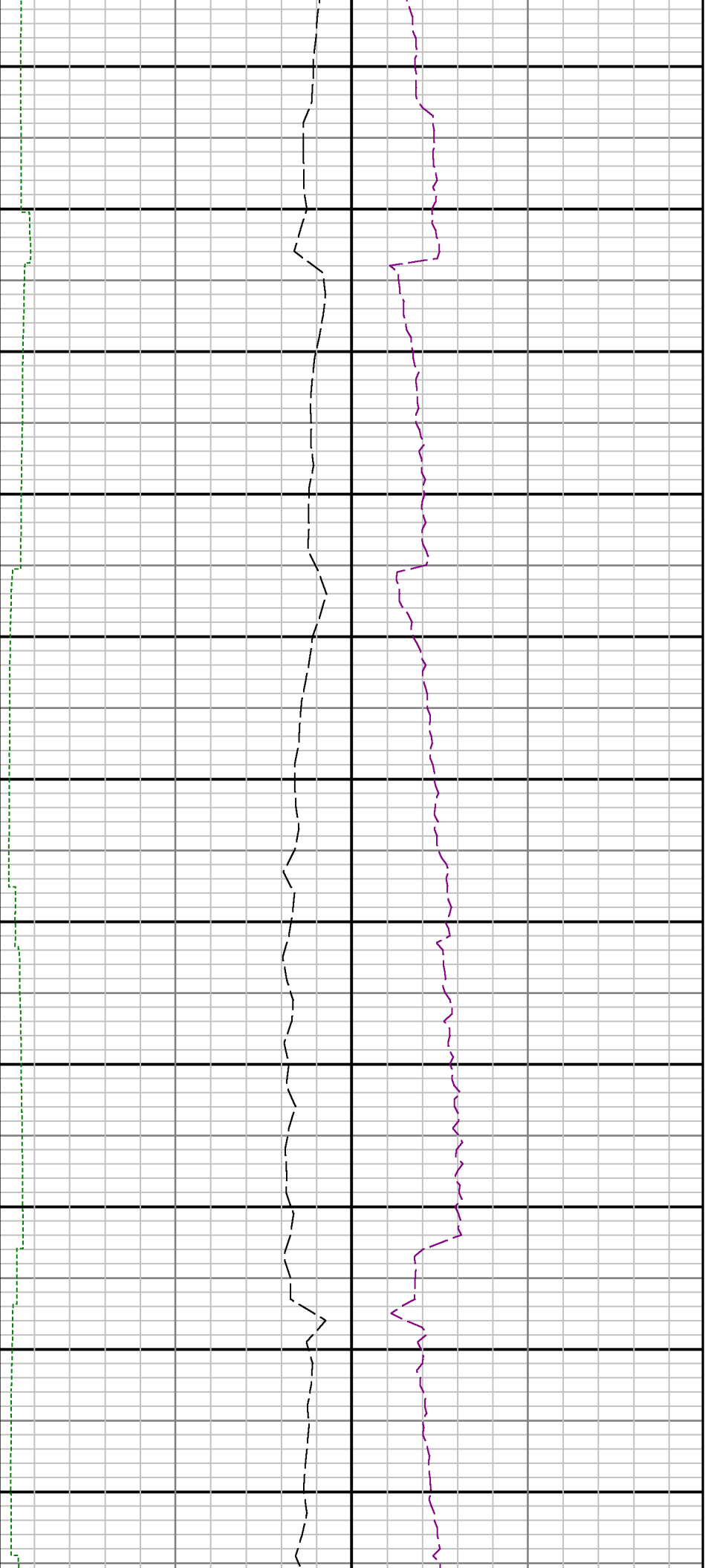
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12456778	Directional	57.29	6.750	3.250
1	SRIG	12673191	Gamma	53.92	6.750	3.250
2	DIR	12546334	Directional	57.31	6.750	3.250
2	SRIG	11703934	Gamma	53.94	6.750	3.250
3	DIR	12546334	Directional	53.05	6.750	3.250
3	SRIG	11703934	Gamma	49.68	6.750	3.250
4	DIR	11592525	Directional	53.28	4.750	2.625
4	SRIG	12578114	Gamma	49.90	4.750	2.625

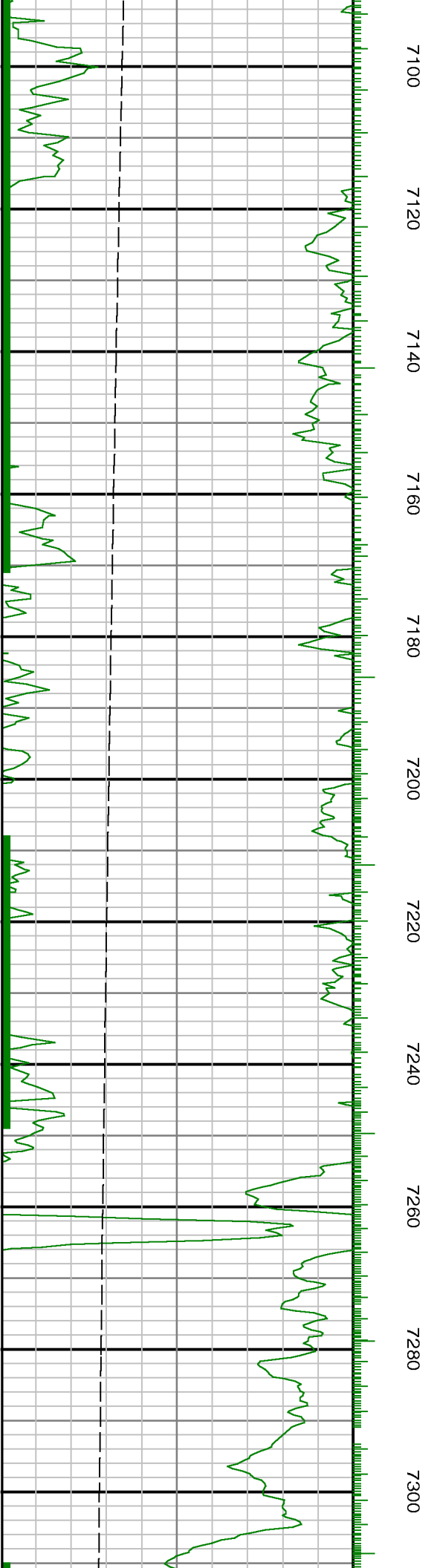
Service and Tool Mnemonics

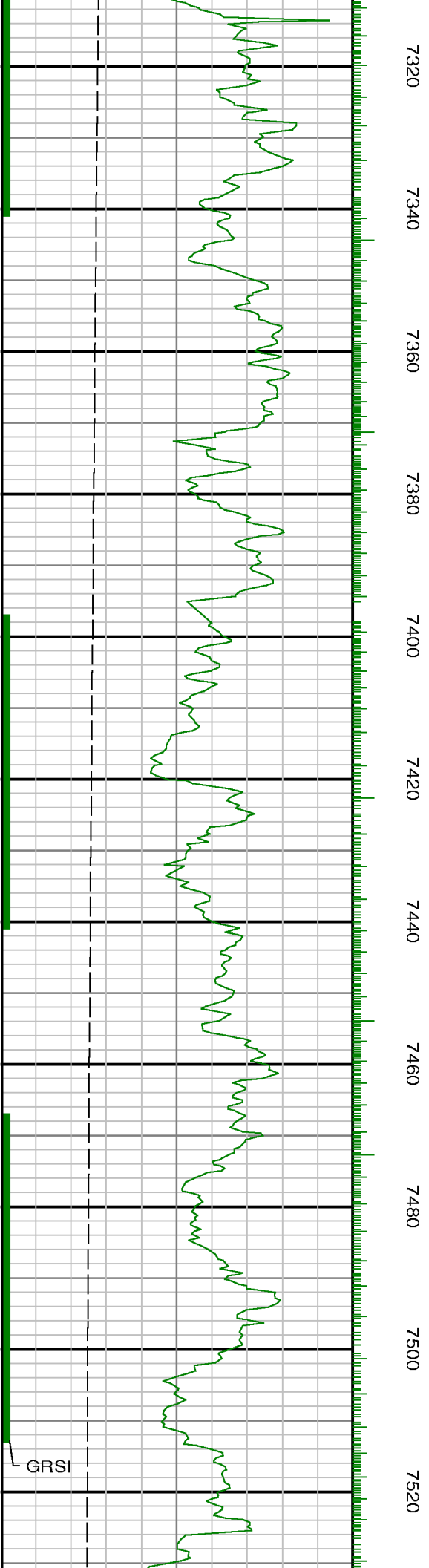
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module



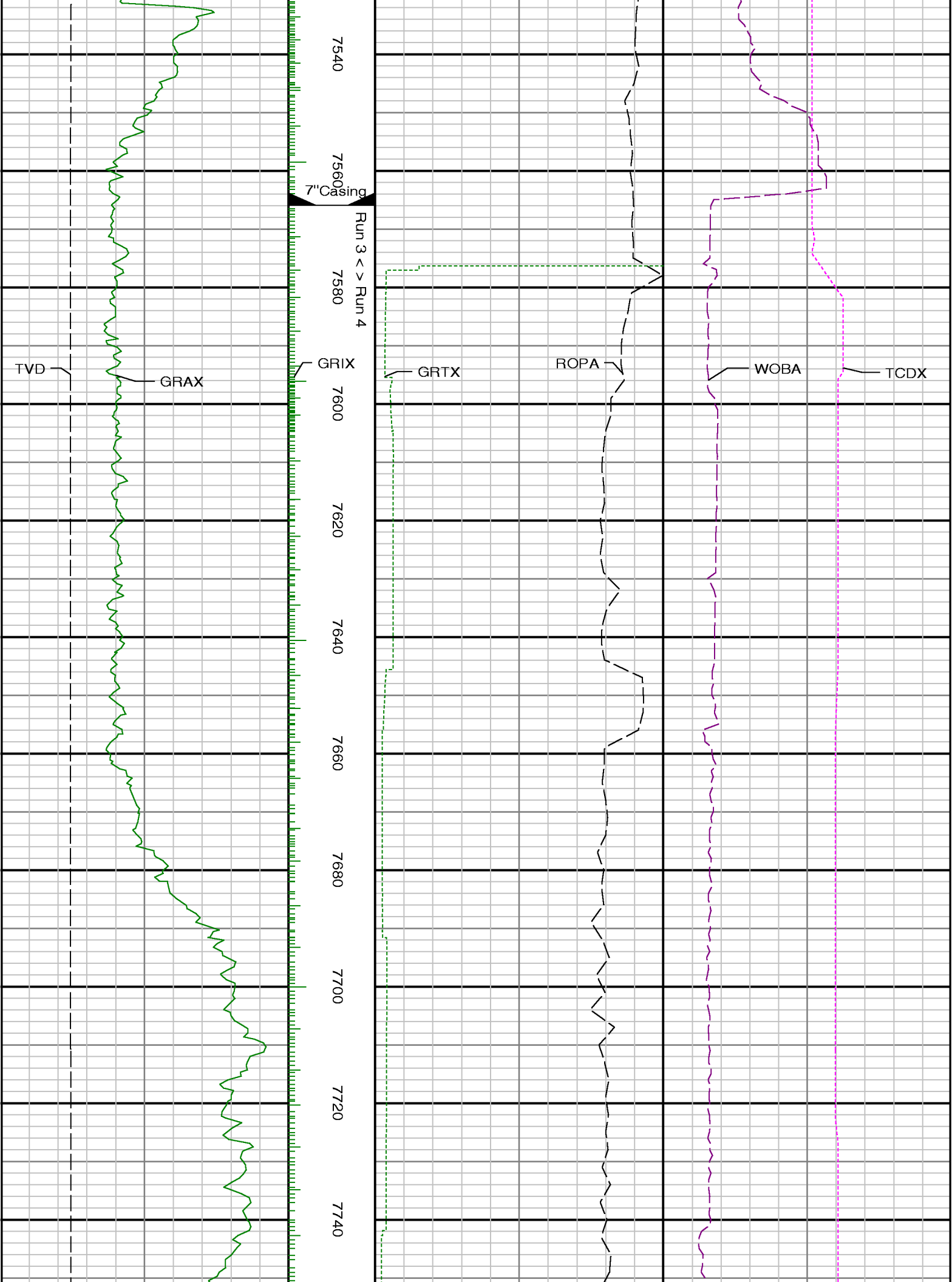


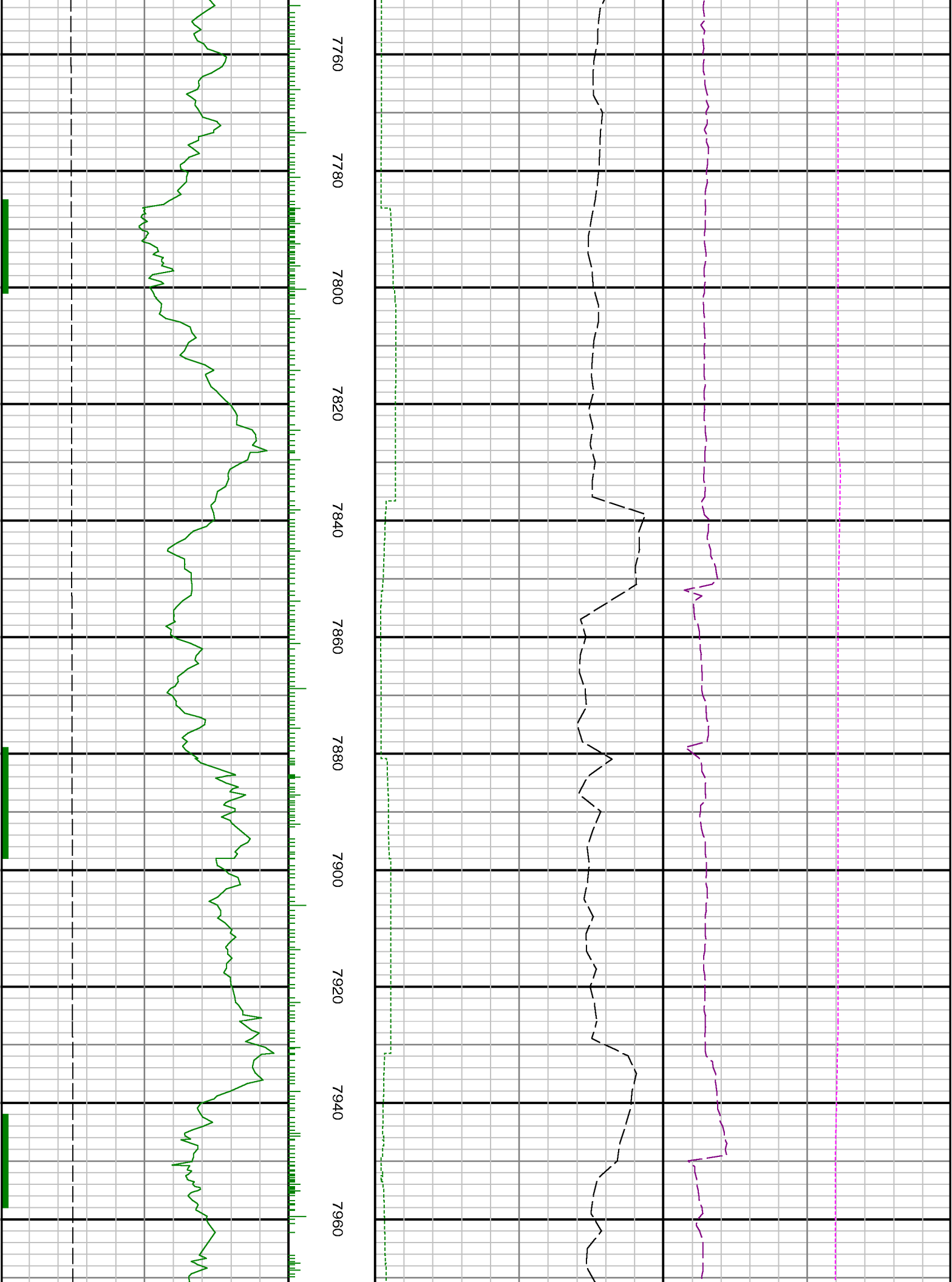


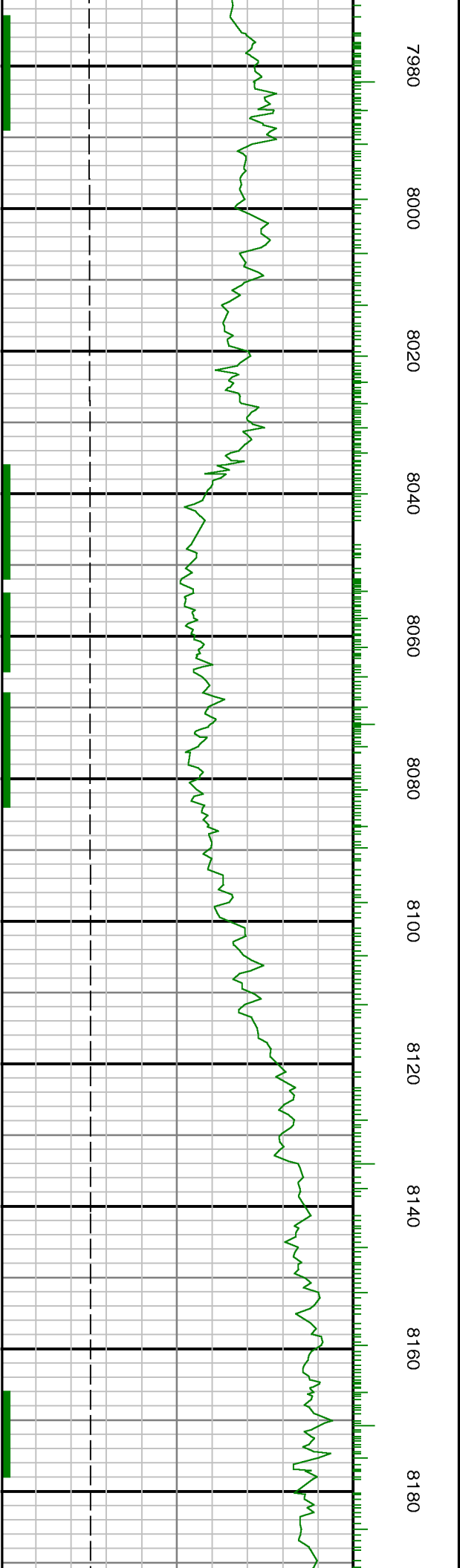
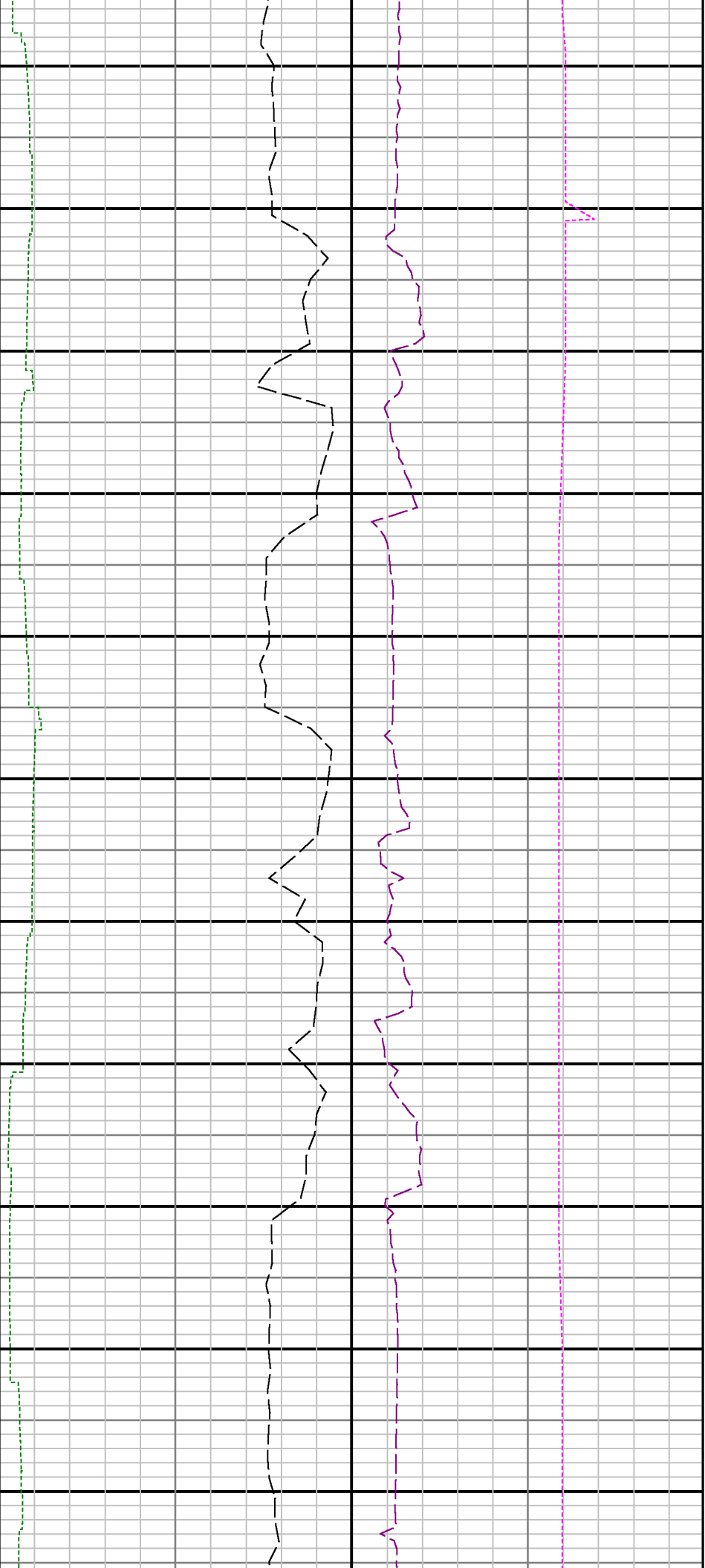


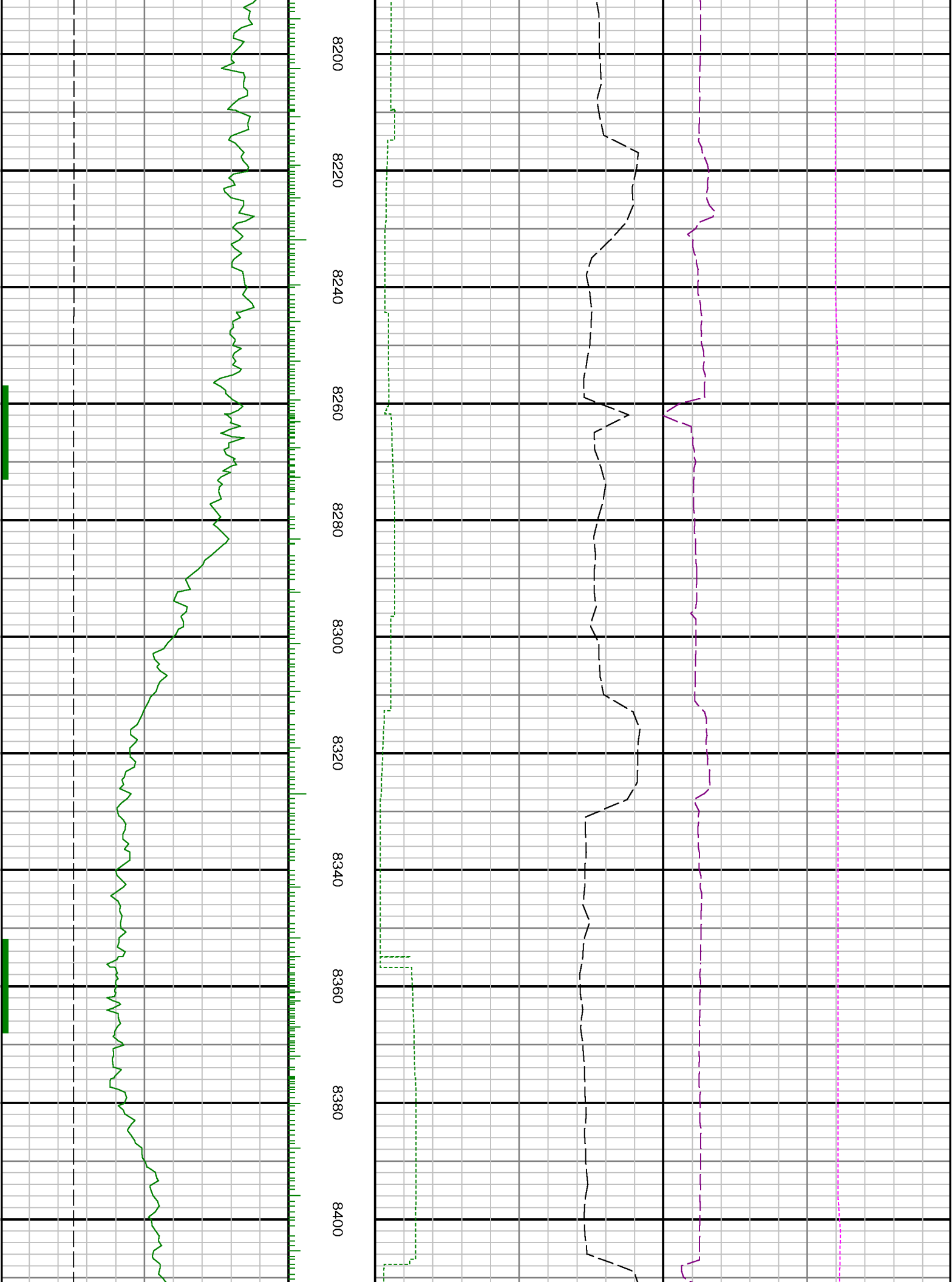


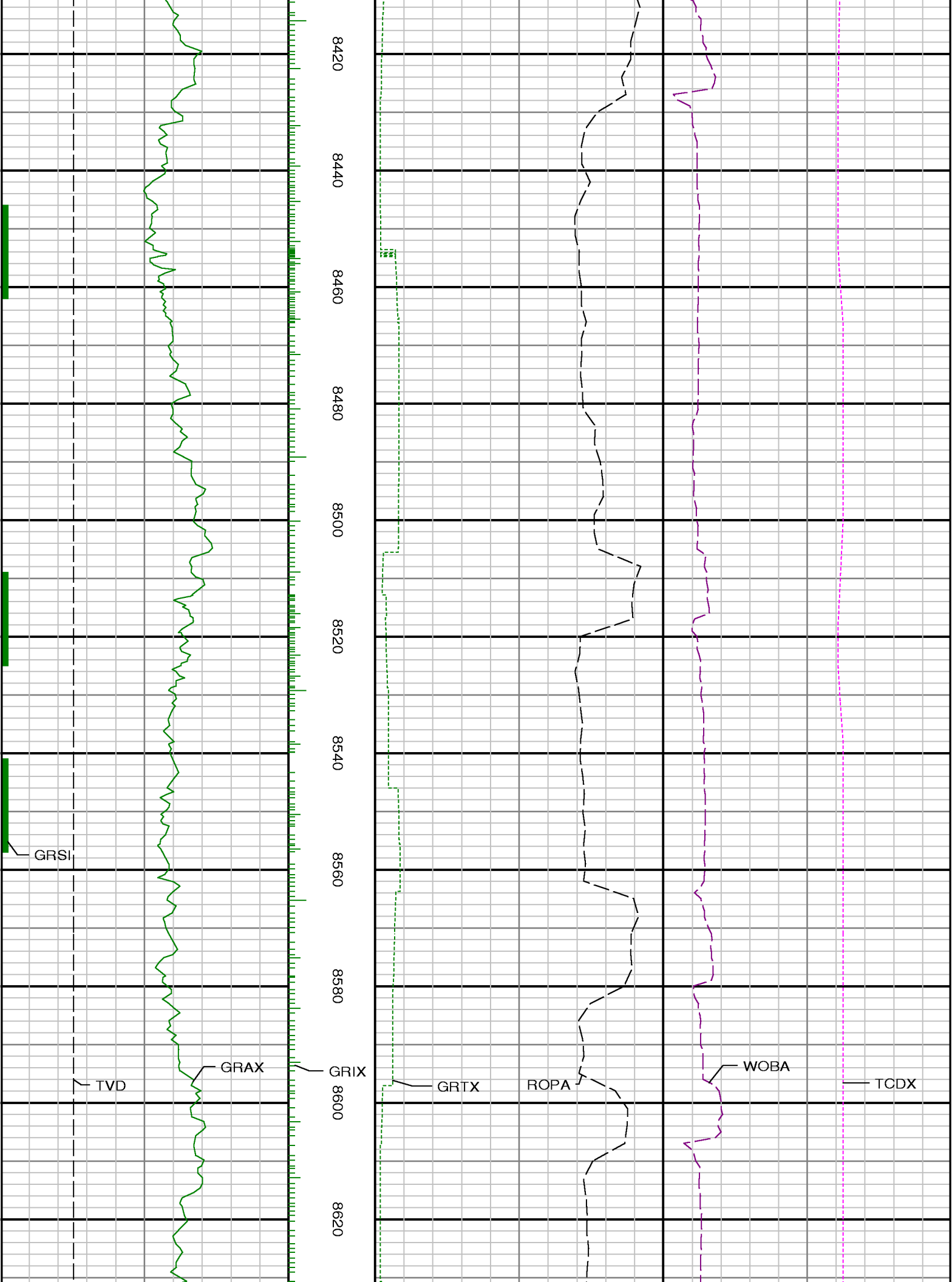
GRSI

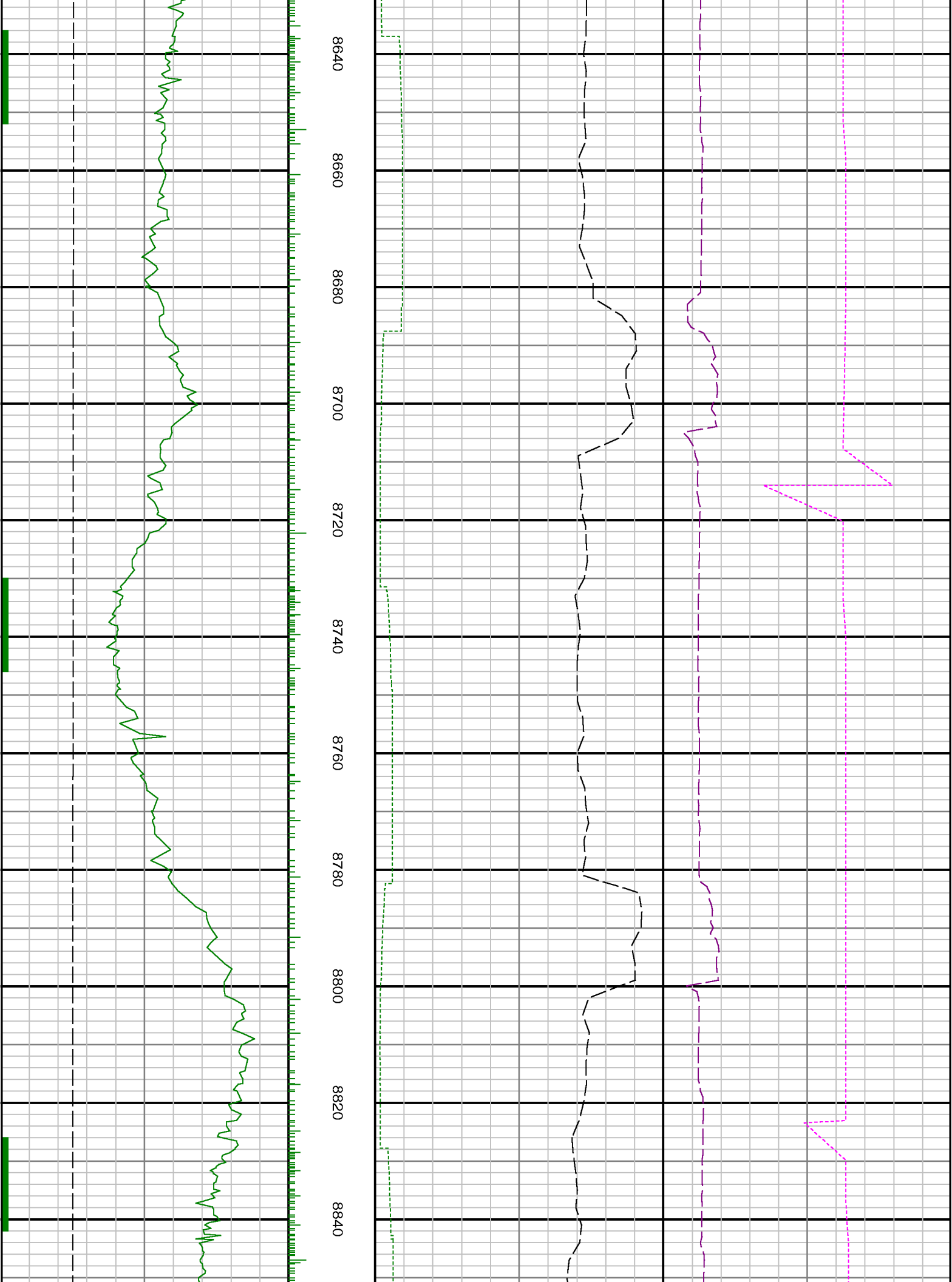


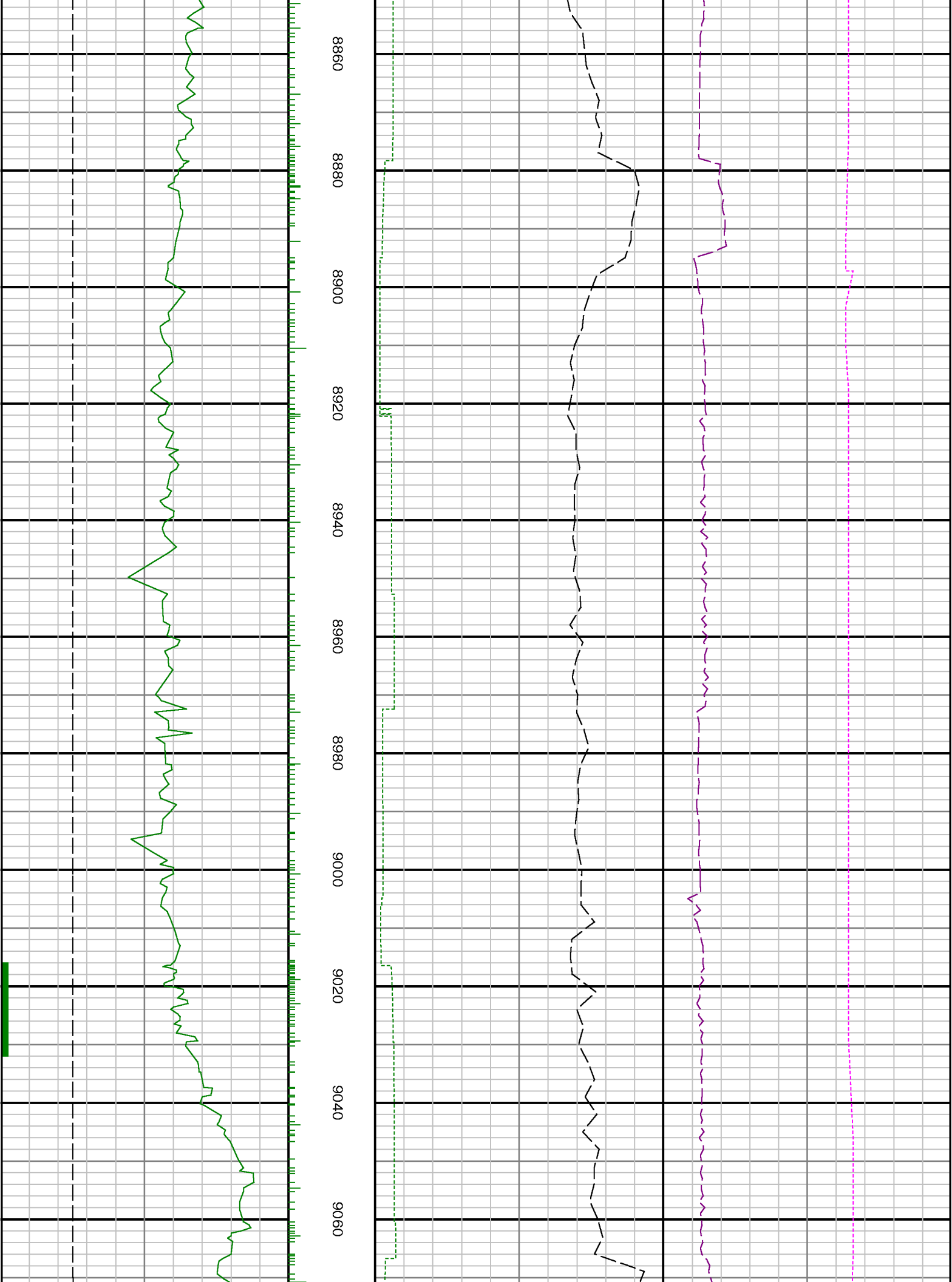


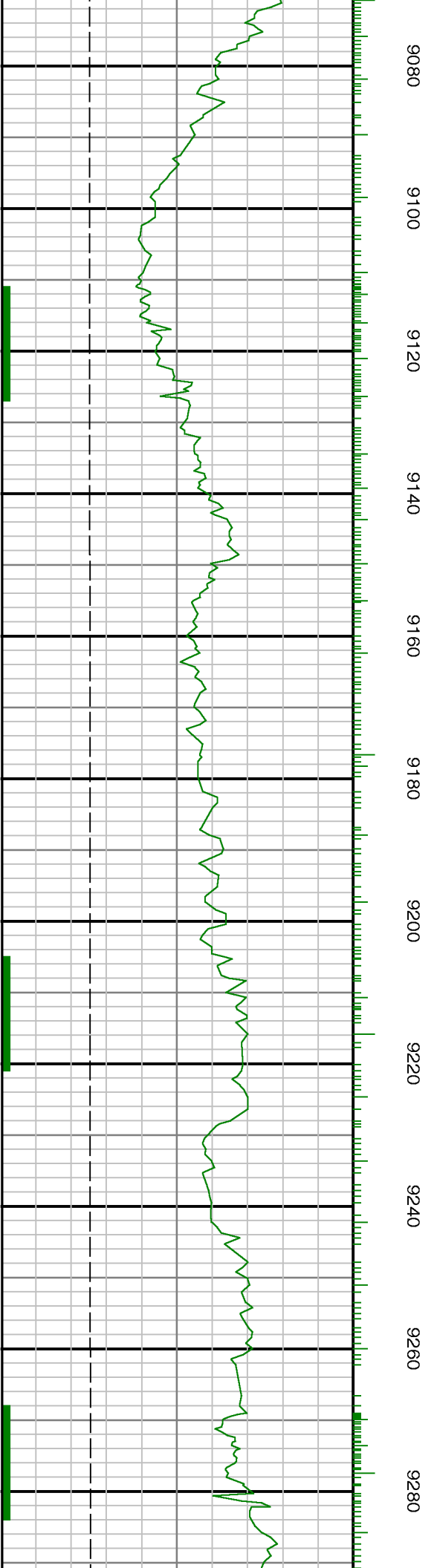


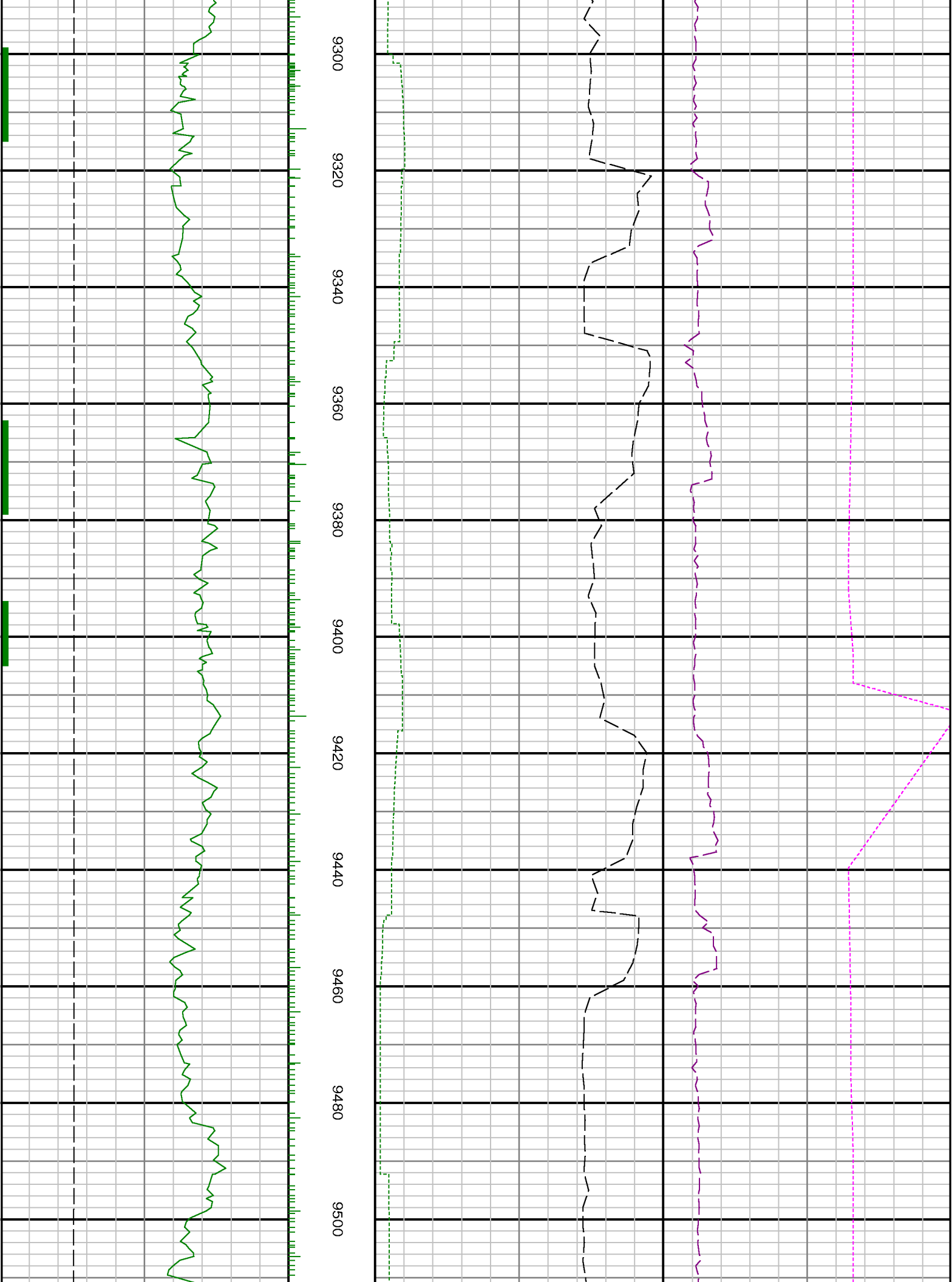


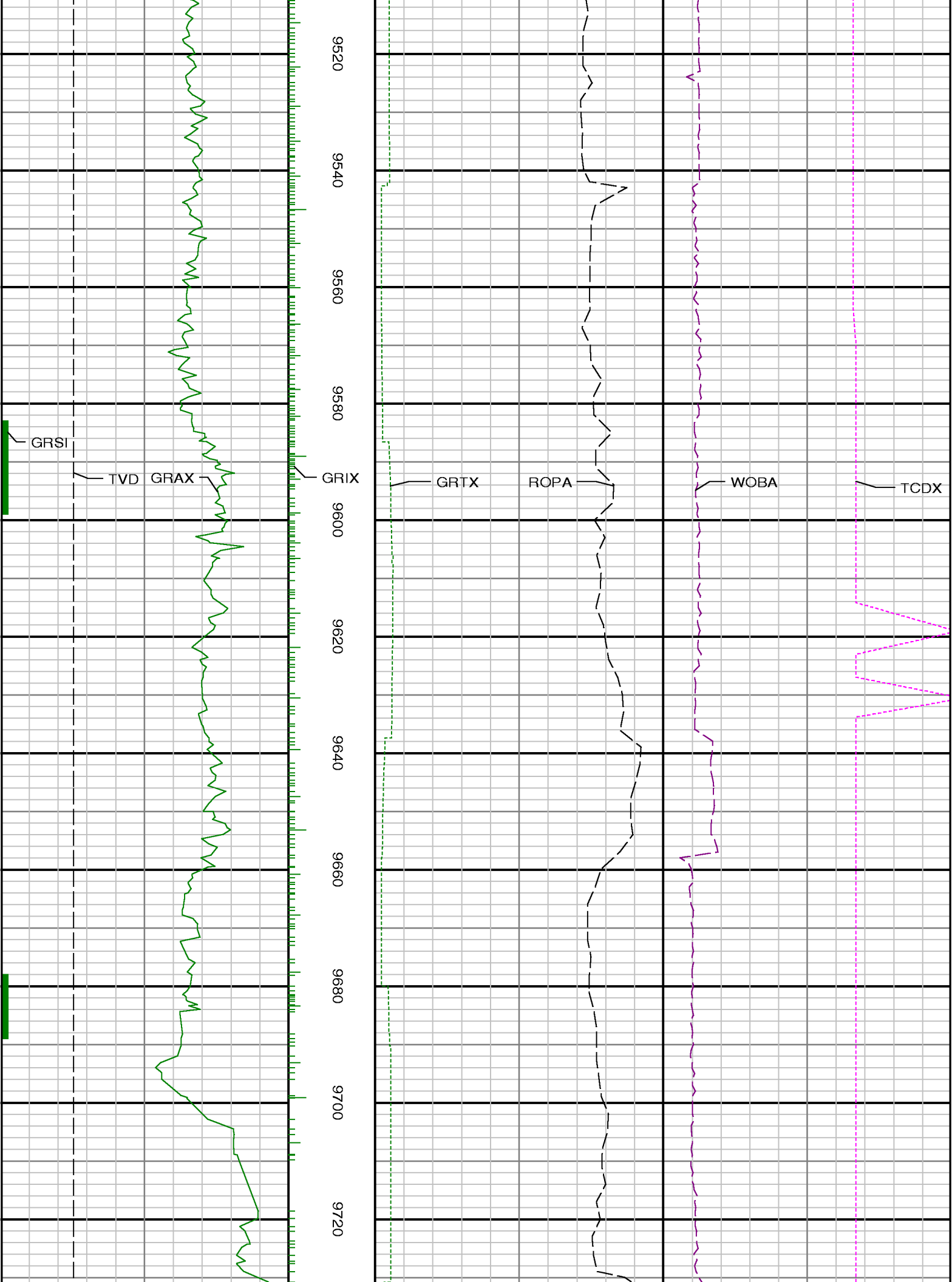


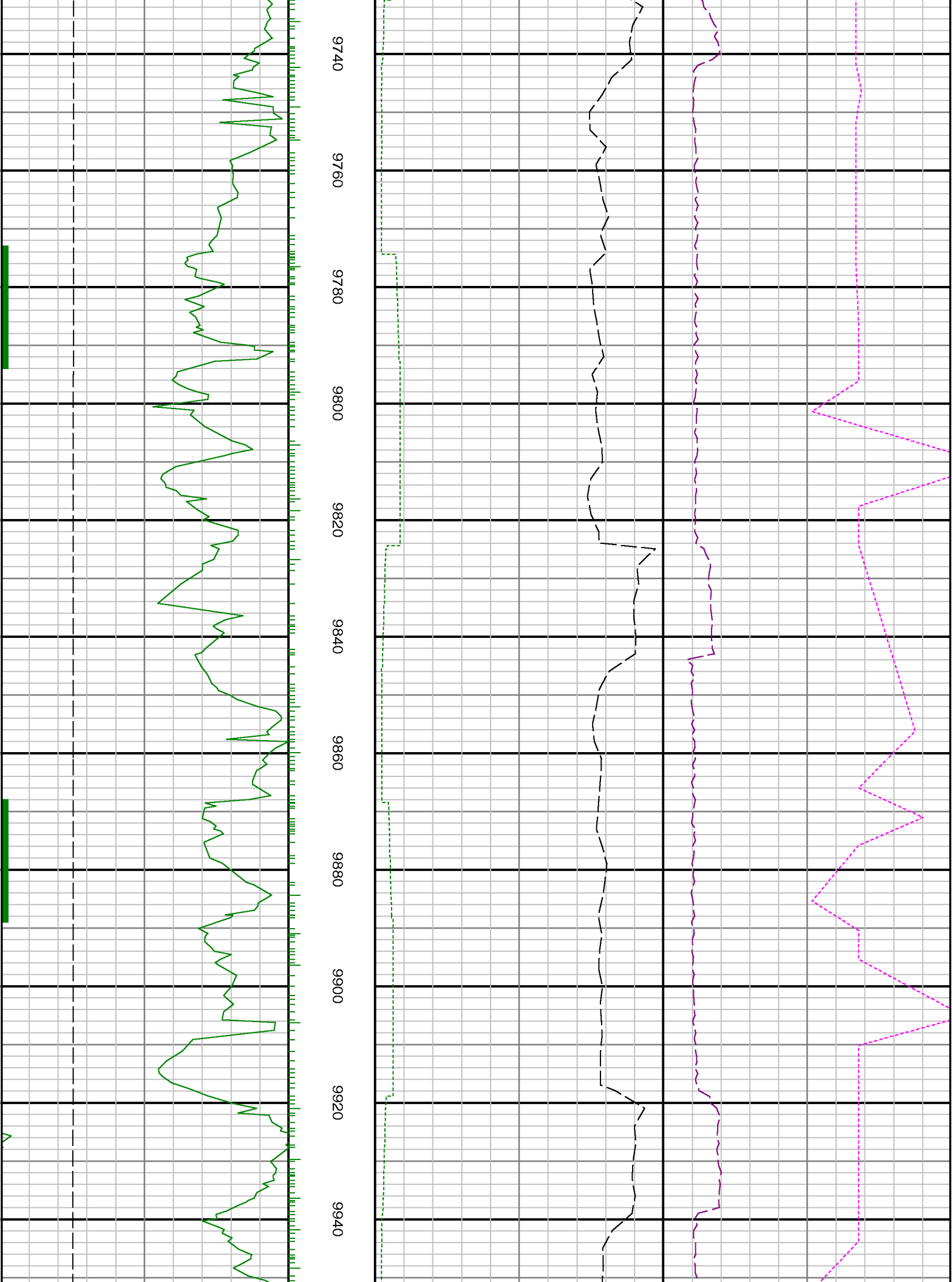


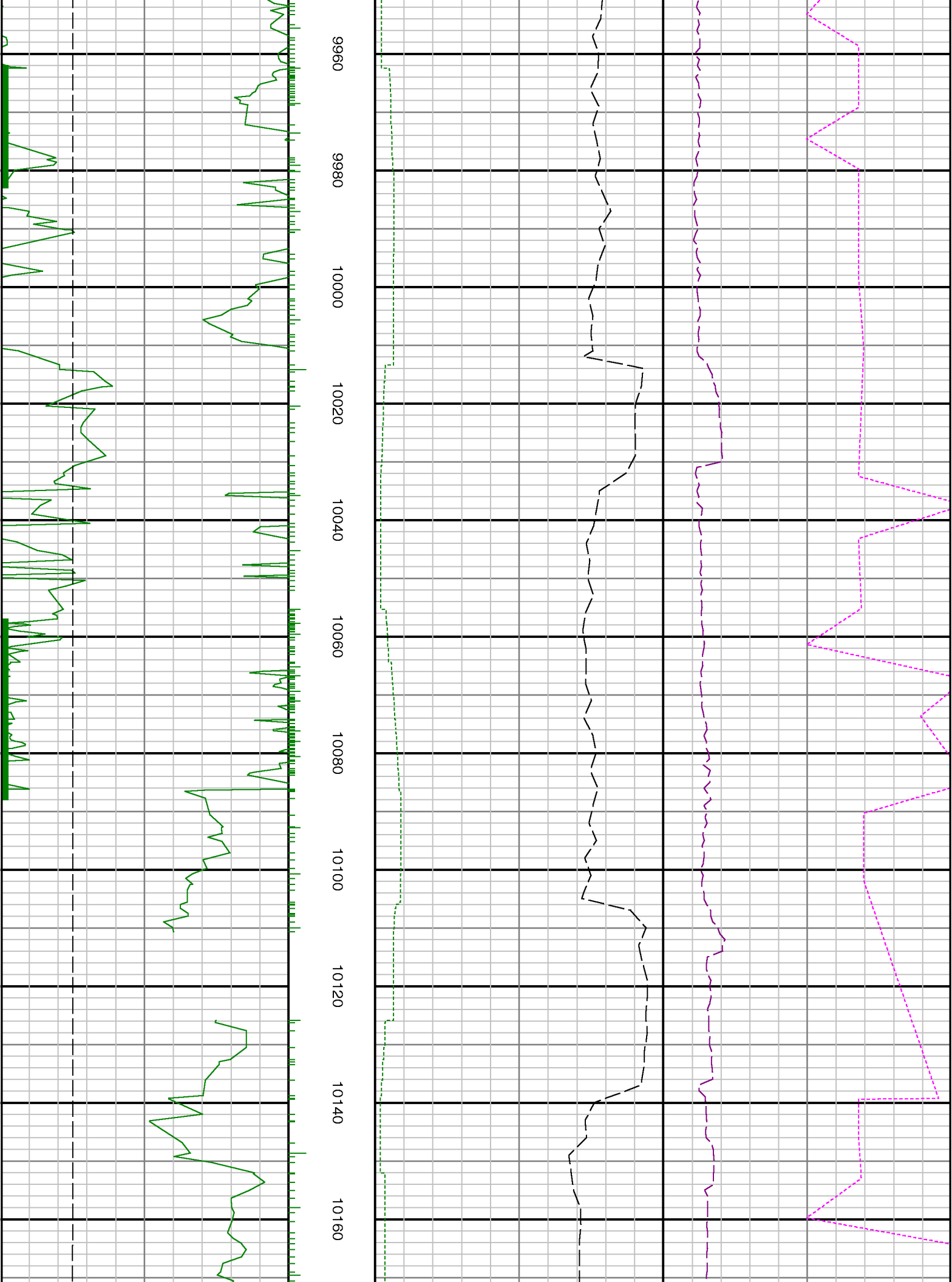


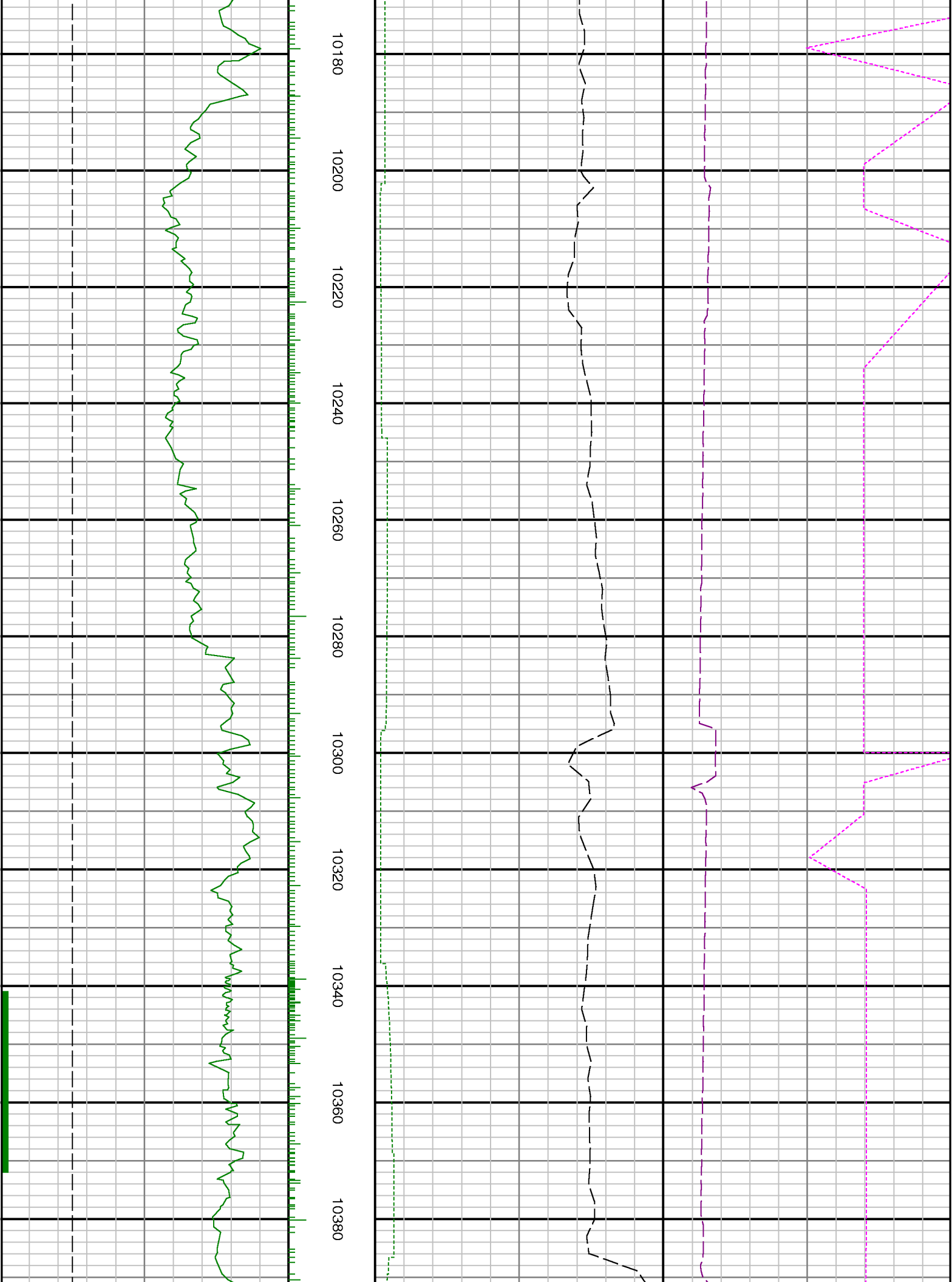


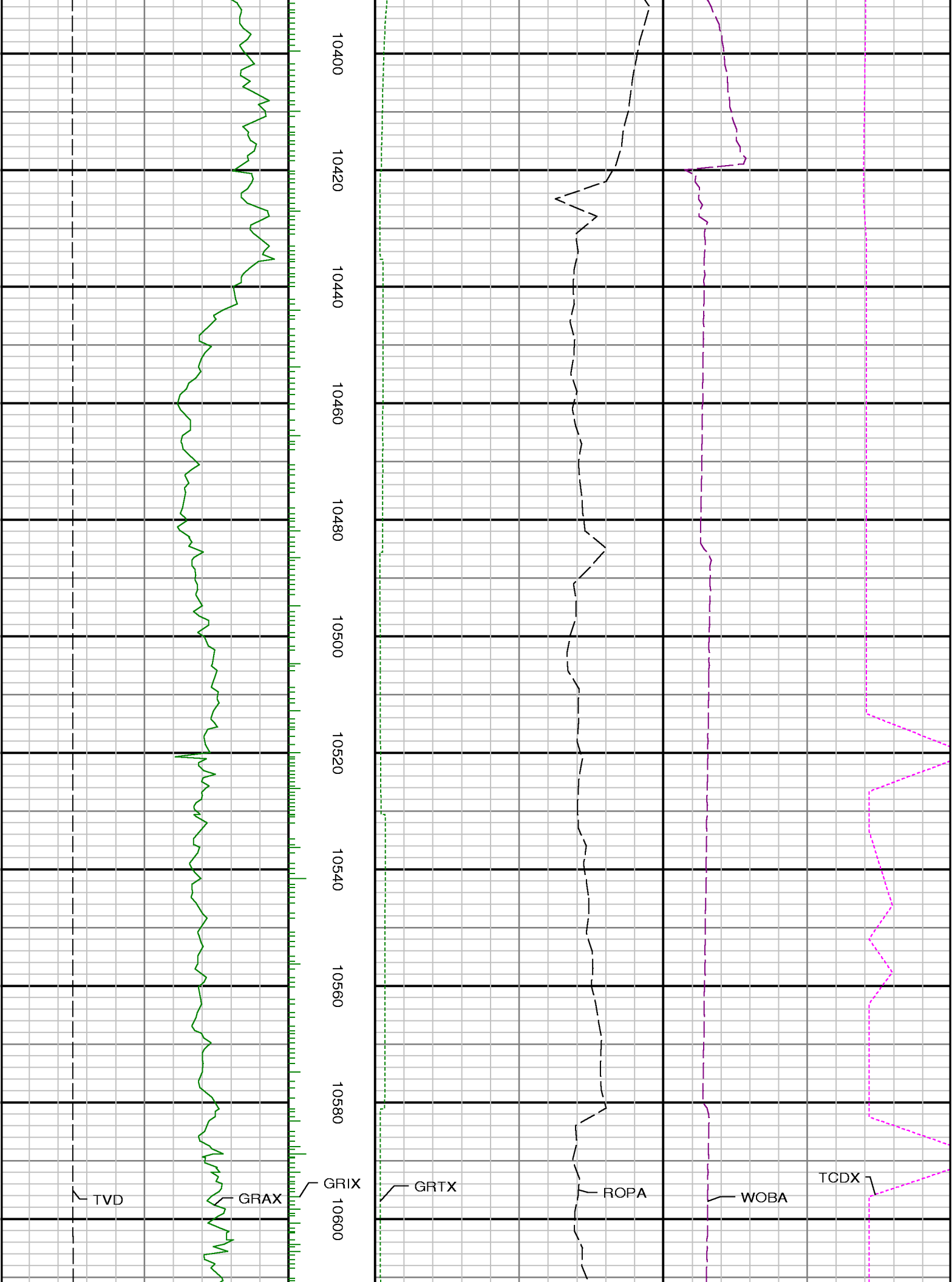


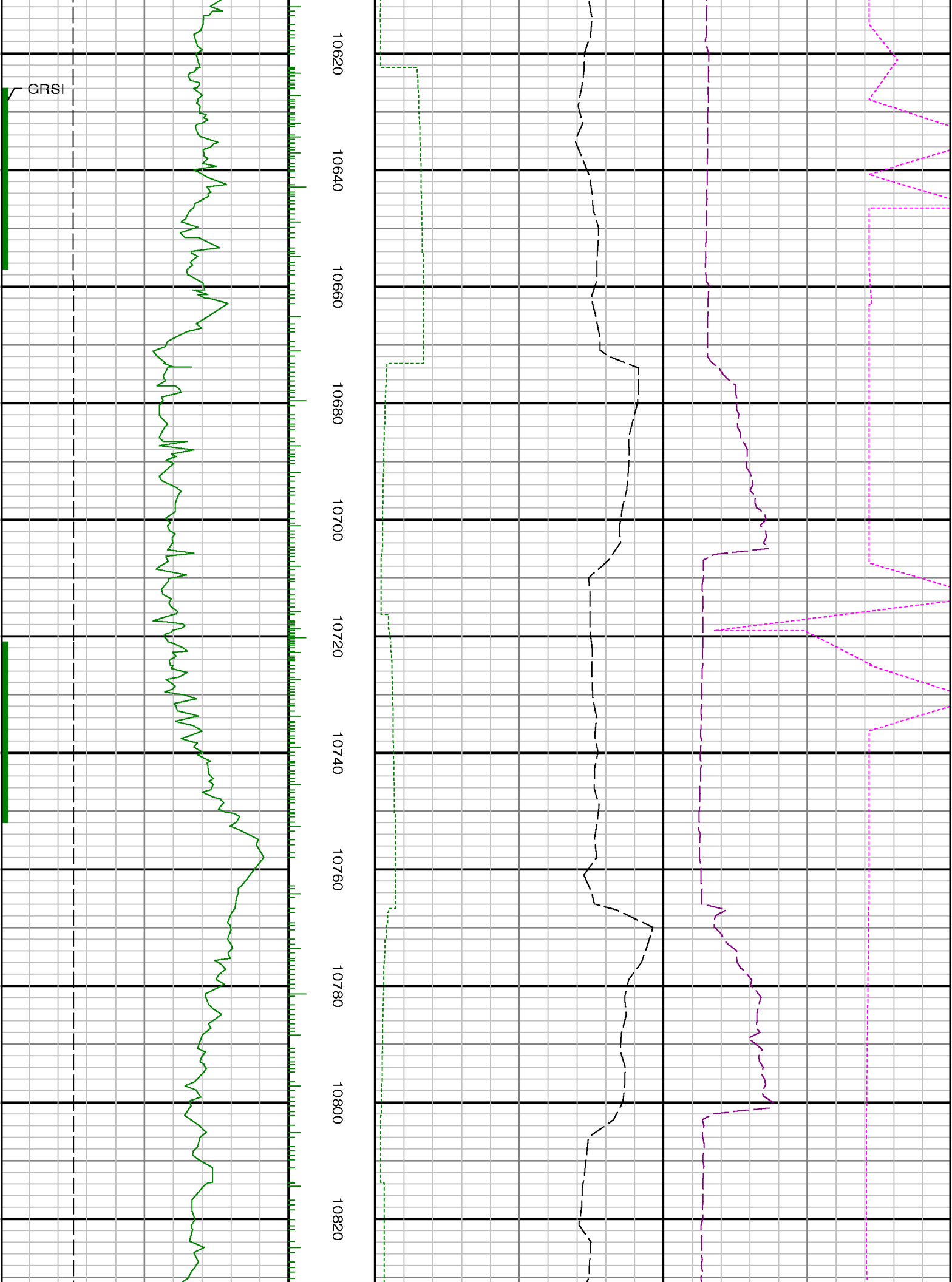


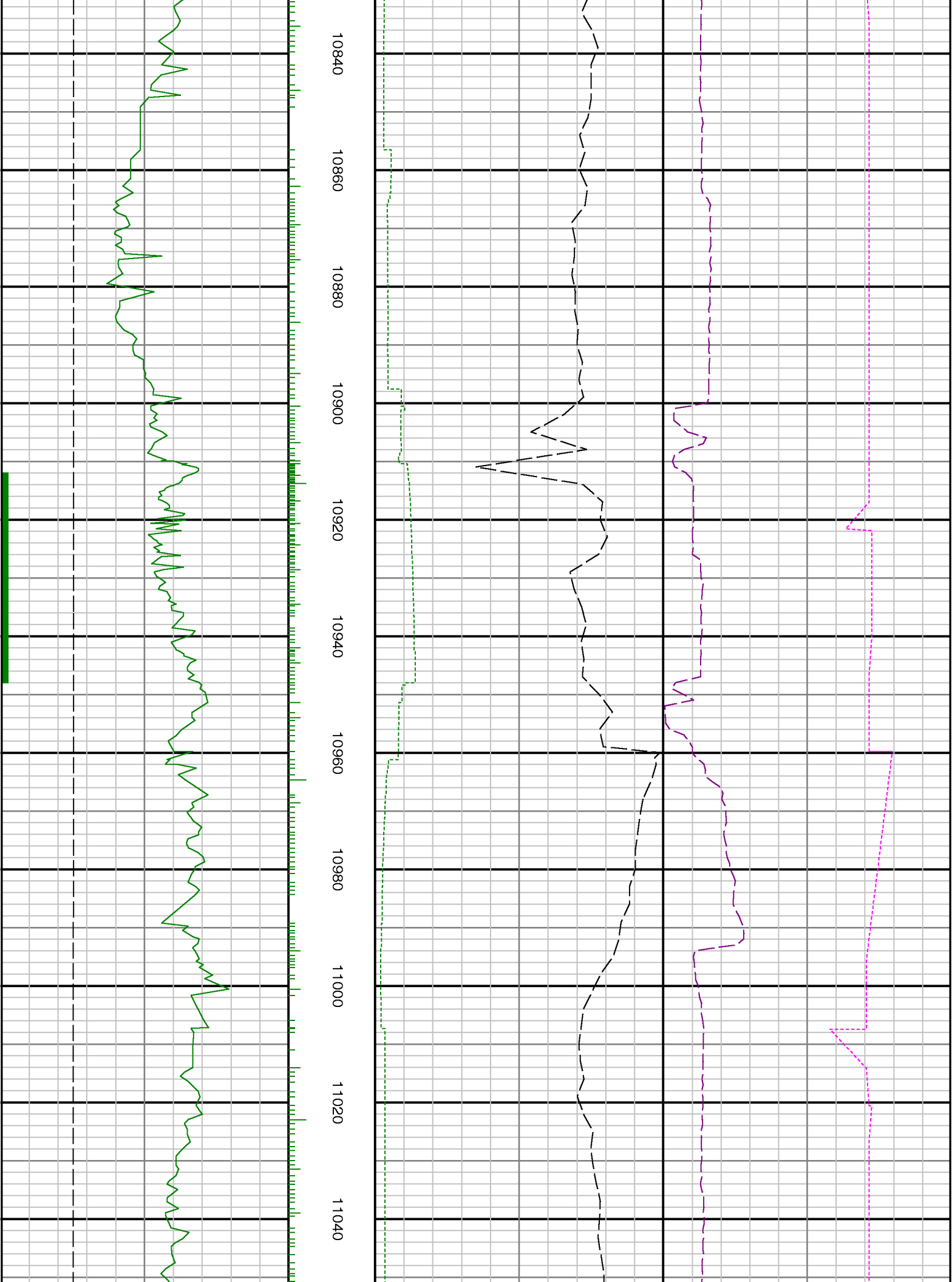


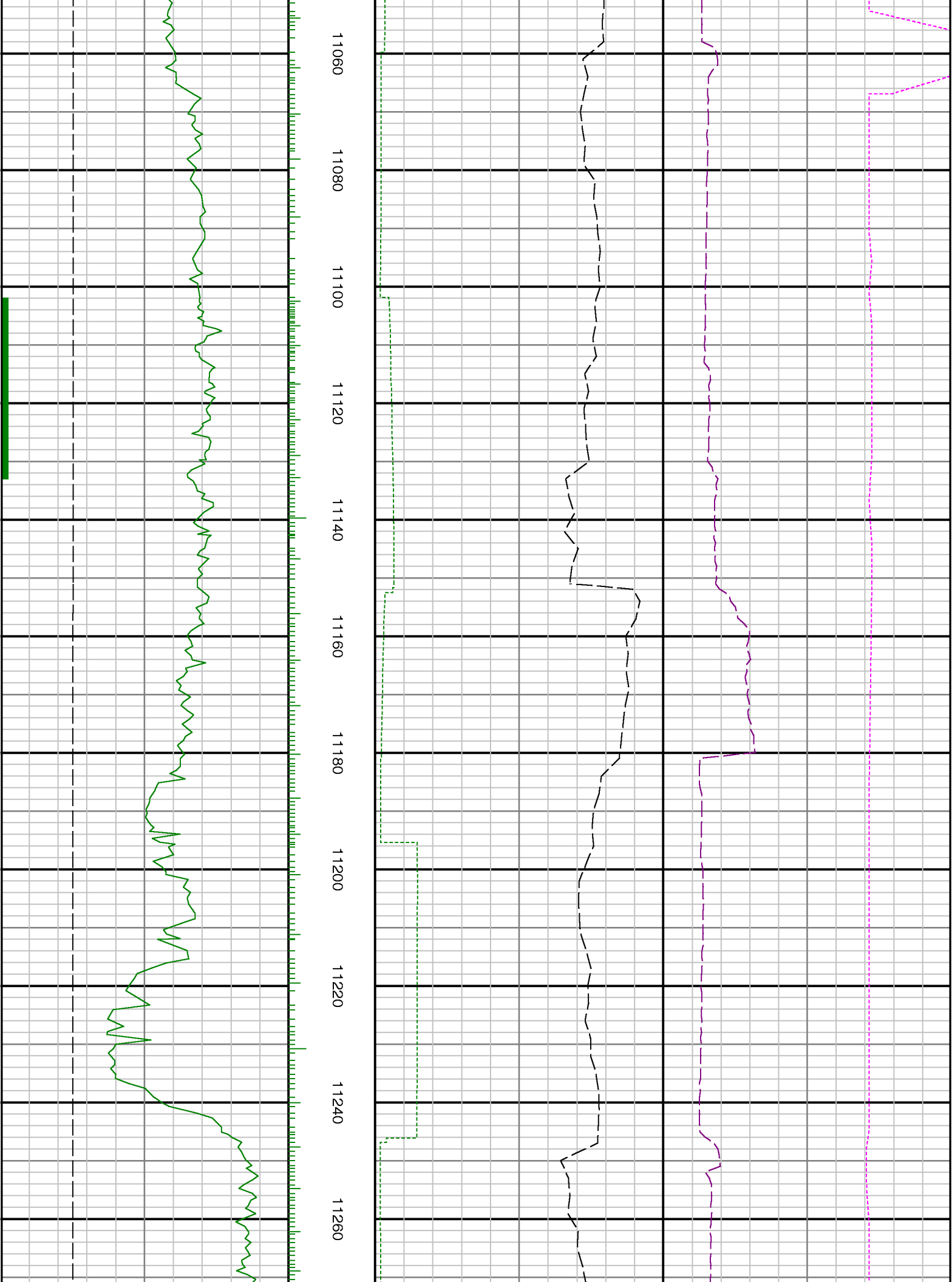


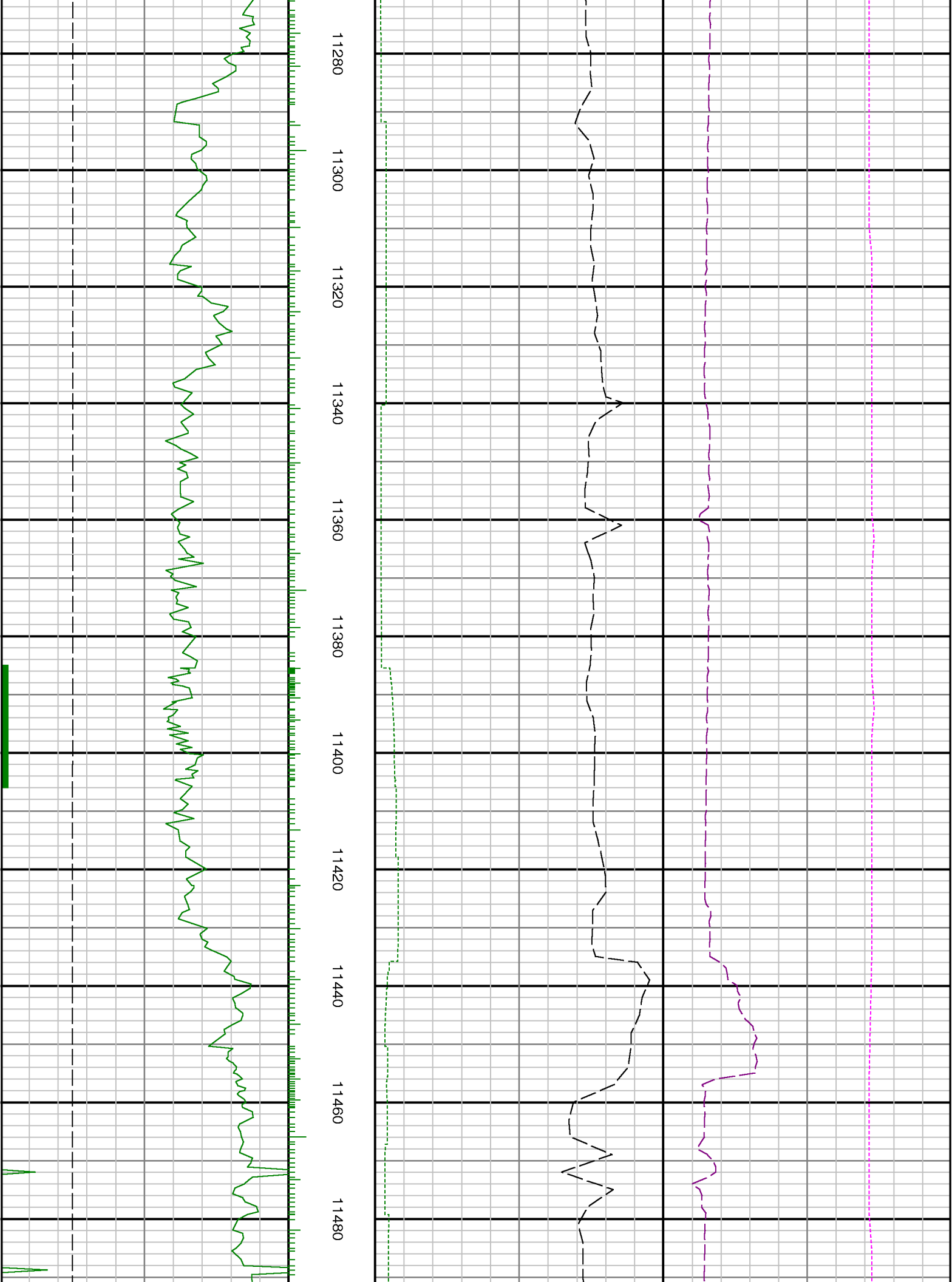


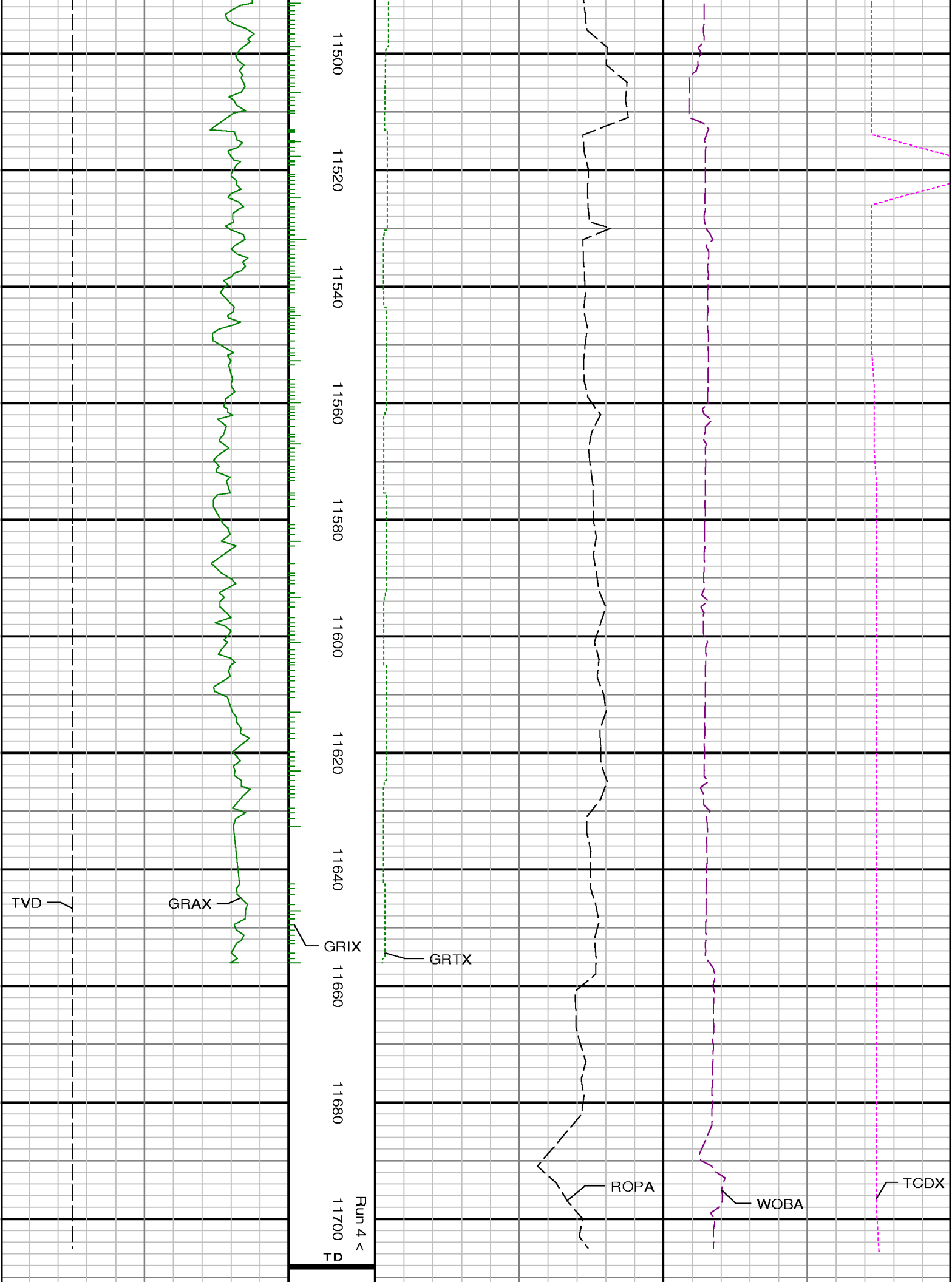












<div> <div>Gamma Ray Apparent 0.5 ft Avg [GRAX]</div> <div>0150</div> <div>API</div> <div>True Vertical Depth [TVD]</div> <div>75006000</div> <div>ft</div> </div>	<div>MD feet 1:240</div>	<div> <div>Rate of Penetration 3.0 ft Avg [ROPA]</div> <div>10000</div> <div>ft/hr</div> <div>Gamma Ray Time Since Drilled [GRTX]</div> <div>0600</div> <div>min</div> </div>	<div> <div>Surface Weight On Bit 1.0 ft Avg [WOBA]</div> <div>0100</div> <div>klbf</div> <div>Downhole Temperature [TCDX]</div> <div>0300</div> <div>degF</div> </div>
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