



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Spurling 35C-34HZ

Measured Depth

Field: Weld County (Kerr-McGee)

County: Weld State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 06' 3.593" N

Longitude: 104° 52' 56.723" W

Other Services:

SEC: 34 TWP: 2N RNG: 67W

Directional
VSS

API Number:
05-123-39126-00

Permanent Datum (P.D.): Ground Level

Elevation: 5013.00 ft.

Elevations: N/A

Log Measured From:

Rig Floor

5029.00 ft.

Above P.D.

KB: N/A
DF: 5029.00 ft.
GL: 5013.00 ft.

Depth Reference:

Driller's Depth

GL:

Interval Logged

Dates

Magnetic Field Reference

Top: 7030.0 ft. Date From: 07/May/14 Date To: 13/May/14 Dip Angle: 66.67° Azi Reference North: True

Bottom: 12139.0 ft. Date To: 07/May/14 Spud Date: 07/May/14 Field Strength: 52849.0 nT North Correction: 8.60°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13,500 in.	Surface	1090.0 ft.	9.625 in.	36.00 lb/ft	Surface	1080.0 ft.
8,750 in.	1080.0 ft.	8108.0 ft.	7.000 in.	26.00 lb/ft	Surface	8099.0 ft.
6,125 in.	8099.0 ft.	12139.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	5200.0 ft.	13,500 in.	1090.0 ft.	0.0° / 0.0°	0.3° / 227.5°
Water Based	5200.0 ft.	12139.0 ft.	8,750 in.	7028.0 ft.	0.4° / 230.9°	87.5° / 179.9°
			6,125 in.	4040.5 ft.	86.8° / 179.9°	89.8° / 180.7°
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2,20U4	Rig:	Xtreme 6	/ Xtreme Coil Drilling Corp
PATS	6,4,1,34	Job No:	6324517	
		District / Unit:	RMD	/ D&E

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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	7030.0	8108.0	1080.0	8108.0	07/May/2014 21:25	10/May/2014 07:30	41.7
2	2	3	6.125	PDC	4.800	Steerable	8061.0	12139.0	8108.0	12139.0	11/May/2014 06:00	13/May/2014 06:00	28.3

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	07/May/2014	13/May/2014	Jake Miller	08/May/2014	13/May/2014	David Campbell	07/May/2014	13/May/2014

Witness

Name	LWD Run Number
Pat Cane	1, 2
Derrick Perry	1, 2

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+ (%)
07/May/2014	22:00	1	1080.0	Fresh Water	8.5	28	N/A	N/A	0/99	Active Pits	1100	N/A
08/May/2014	10:30	1	3458.0	Fresh Water	8.5	29	7.9	N/A	0/99	Active Pits	1500	N/A
08/May/2014	21:00	1	5206.0	Fresh Water	8.5	30	8.1	N/A	0/99	Active Pits	1600	N/A
09/May/2014	9:00	1	7208.0	Water Based	10.0	40	9.2	5.3	0/92	Active Pits	2500	N/A
09/May/2014	21:00	1	7913.0	Water Based	10.0	40	9.5	4.9	0/92	Active Pits	2700	N/A
10/May/2014	09:00	1	8108.0	Water Based	10.1	41	9.2	4.9	0/91	Active Pits	2700	N/A
10/May/2014	21:00	1	8108.0	Water Based	10.1	41	9.0	5.0	0/91	Active Pits	2800	N/A
11/May/2014	11:00	2	8108.0	Water Based	9.4	41	8.8	5.1	0/94	Active Pits	2800	N/A
11/May/2014	21:00	2	8987.0	Water Based	9.4	41	9.0	4.8	0/94	Active Pits	2900	N/A
12/May/2014	9:00	2	10710.0	Water Based	9.4	43	9.4	4.7	0/94	Active Pits	2900	N/A
12/May/2014	21:00	2	12139.0	Water Based	9.5	42	9.6	4.9	0/94	Active Pits	2800	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	11685175	Directional	45.23	6.750	3.250
1	SRIG	12283328	Gamma	41.86	6.750	3.250
2	DIR	12592563	Directional	47.94	4.750	2.750
2	SRIG	12613300	Gamma	44.56	4.750	2.750

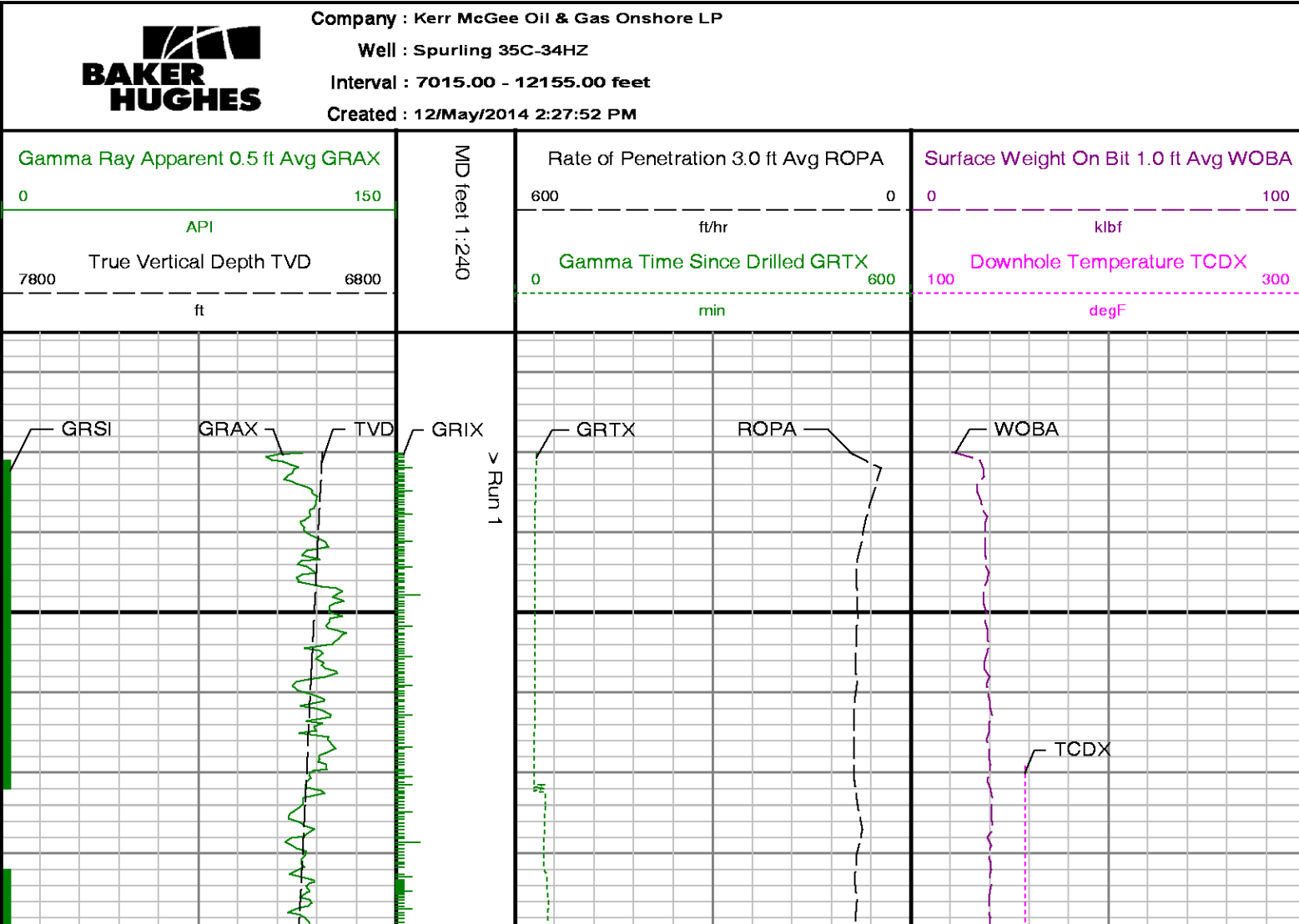
Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

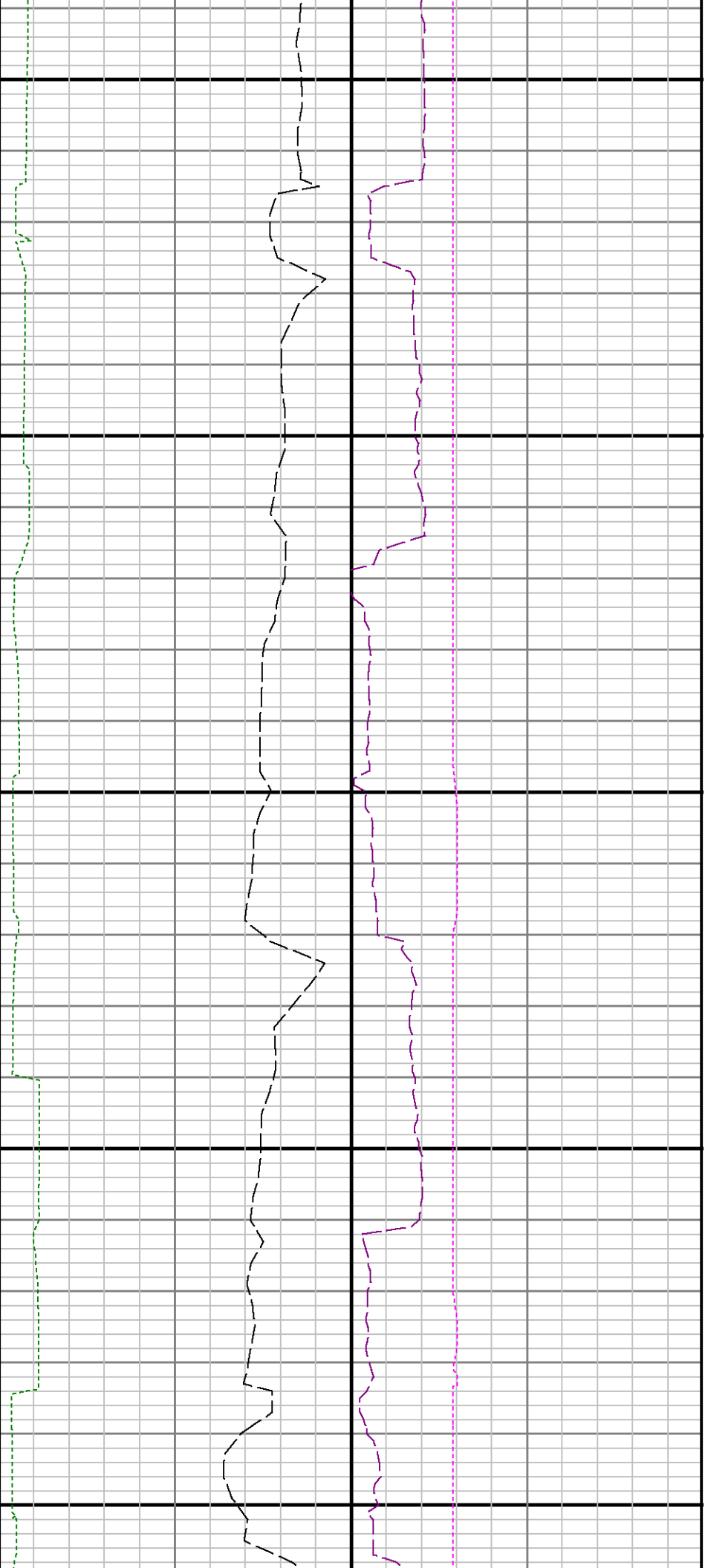
Comments

- 1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1080 to 7030 ft. MD (1079.97 to 6986.64 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 7030 to 8108 ft. MD (6986.64 to 7655.31 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 8108 to 12139 ft. MD (7655.31 ft. to 7660.40 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	8100	6.125	2	The interval from 8073 to 8123 ft. MD (7652.96 to 7655.81 ft. TVD) was logged up to 40.3 hours after being drilled due to a trip out of the hole to lay down the curve assembly, run intermediate casing, cementing operations, and to pick up the lateral assembly.
2	12115	6.125	2	The interval from 12089 to 12139 ft. MD (7660.23 to 7660.40 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.

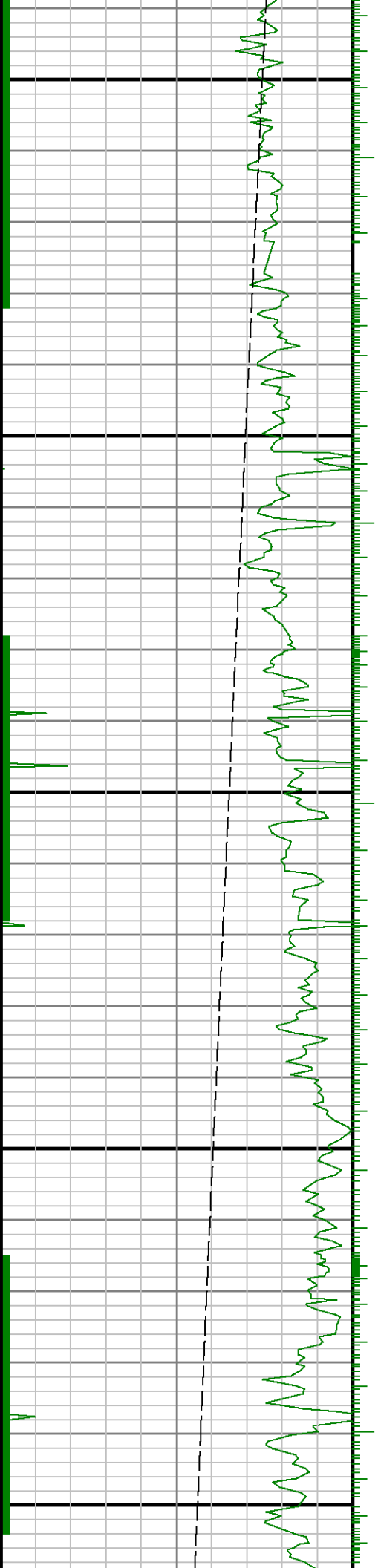


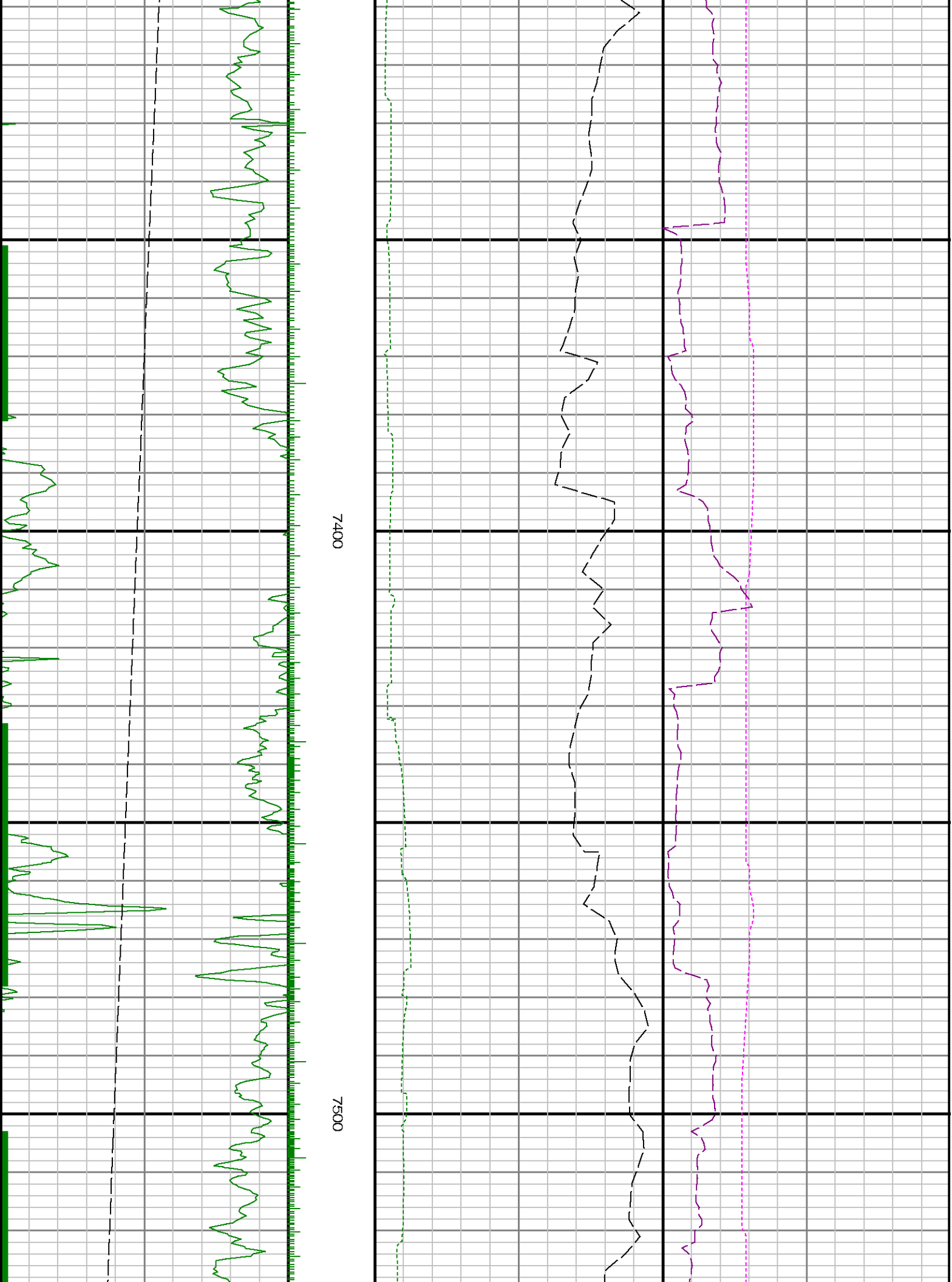


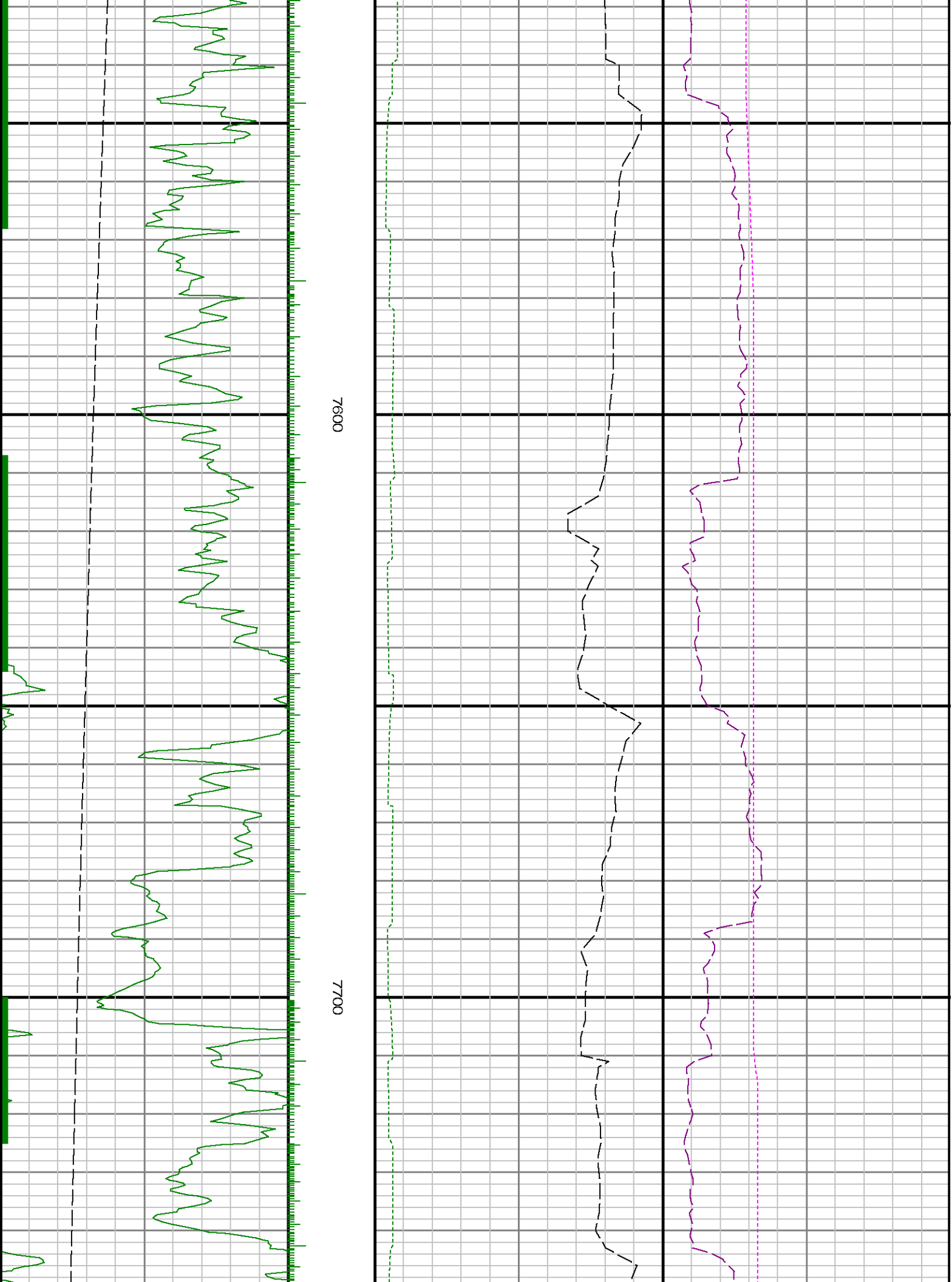
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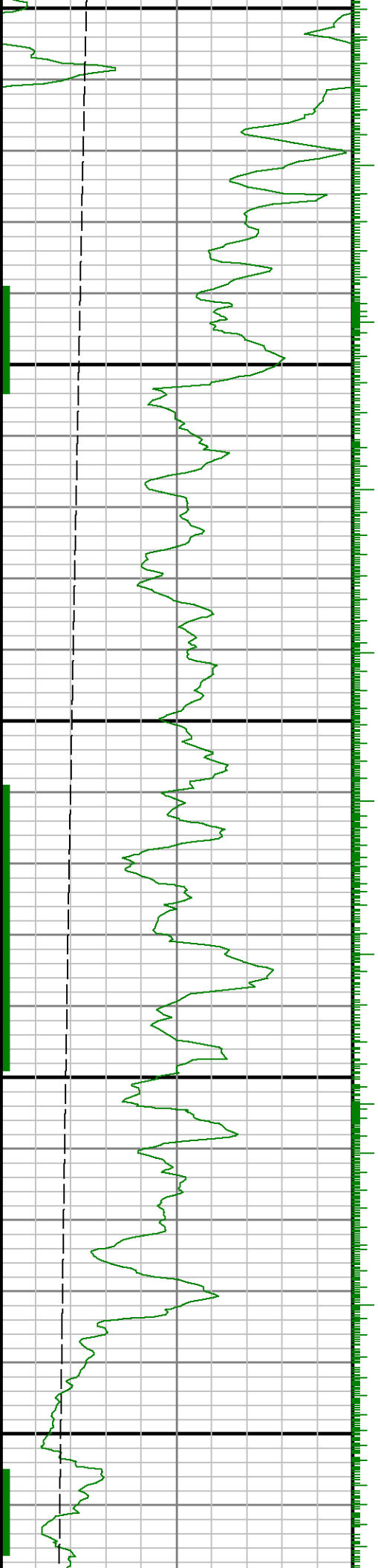
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7300



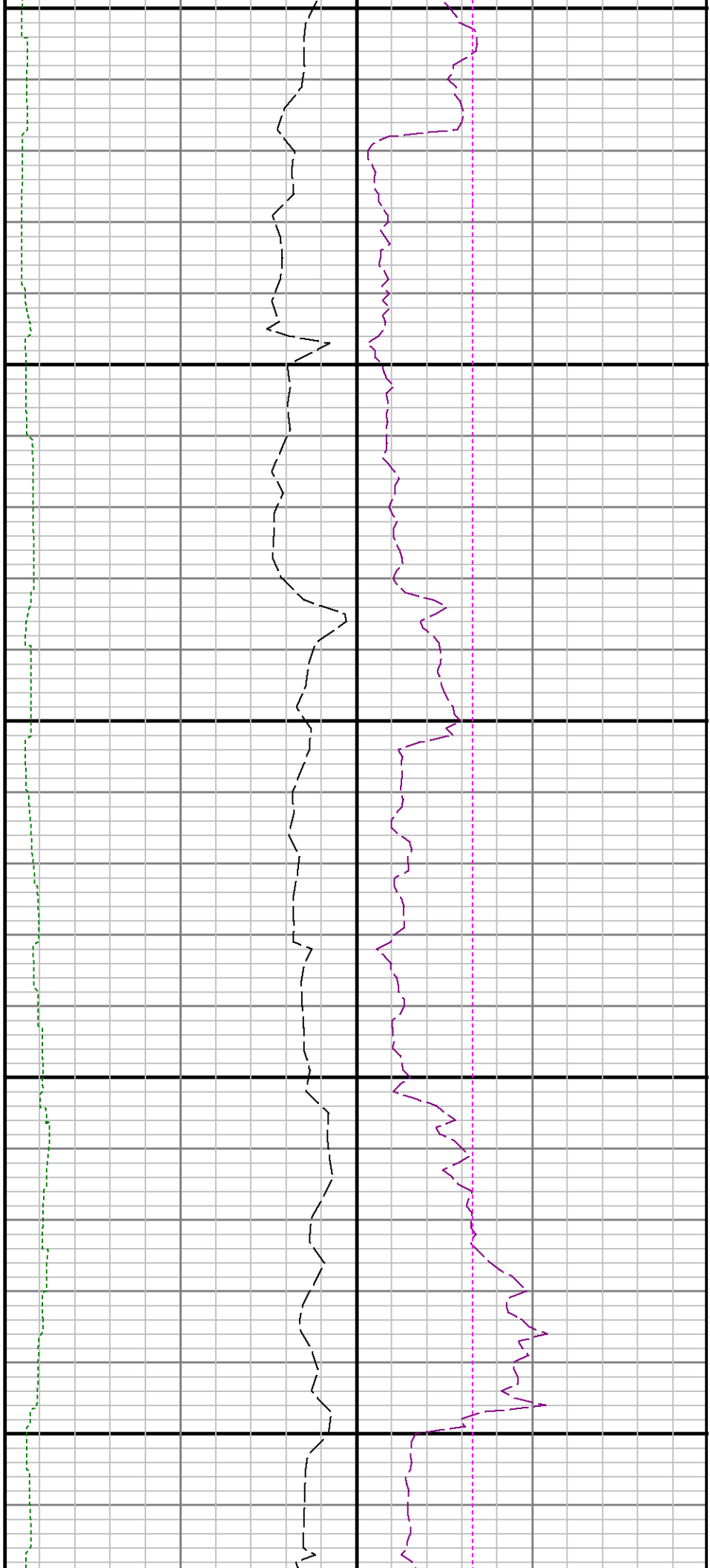


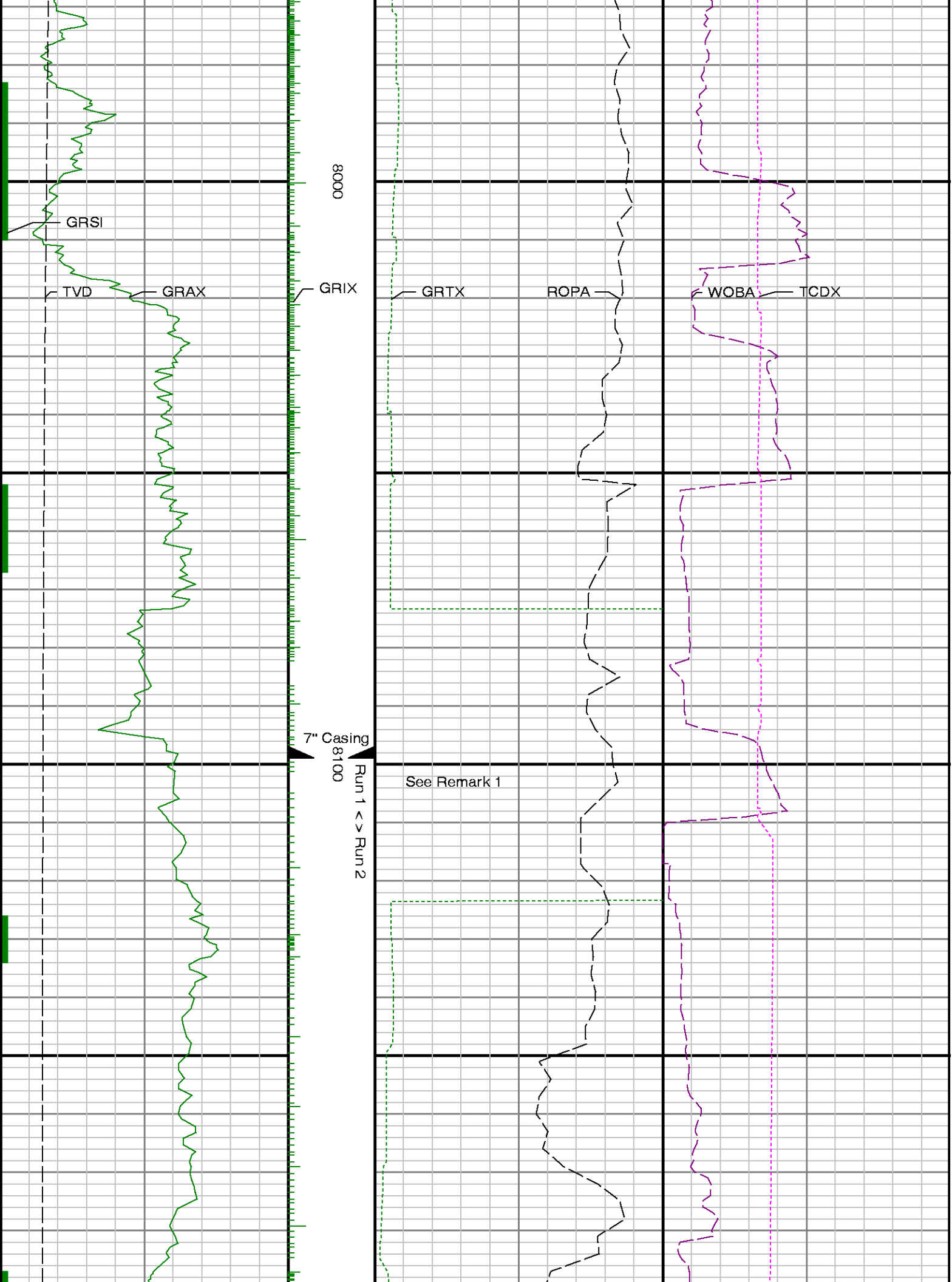


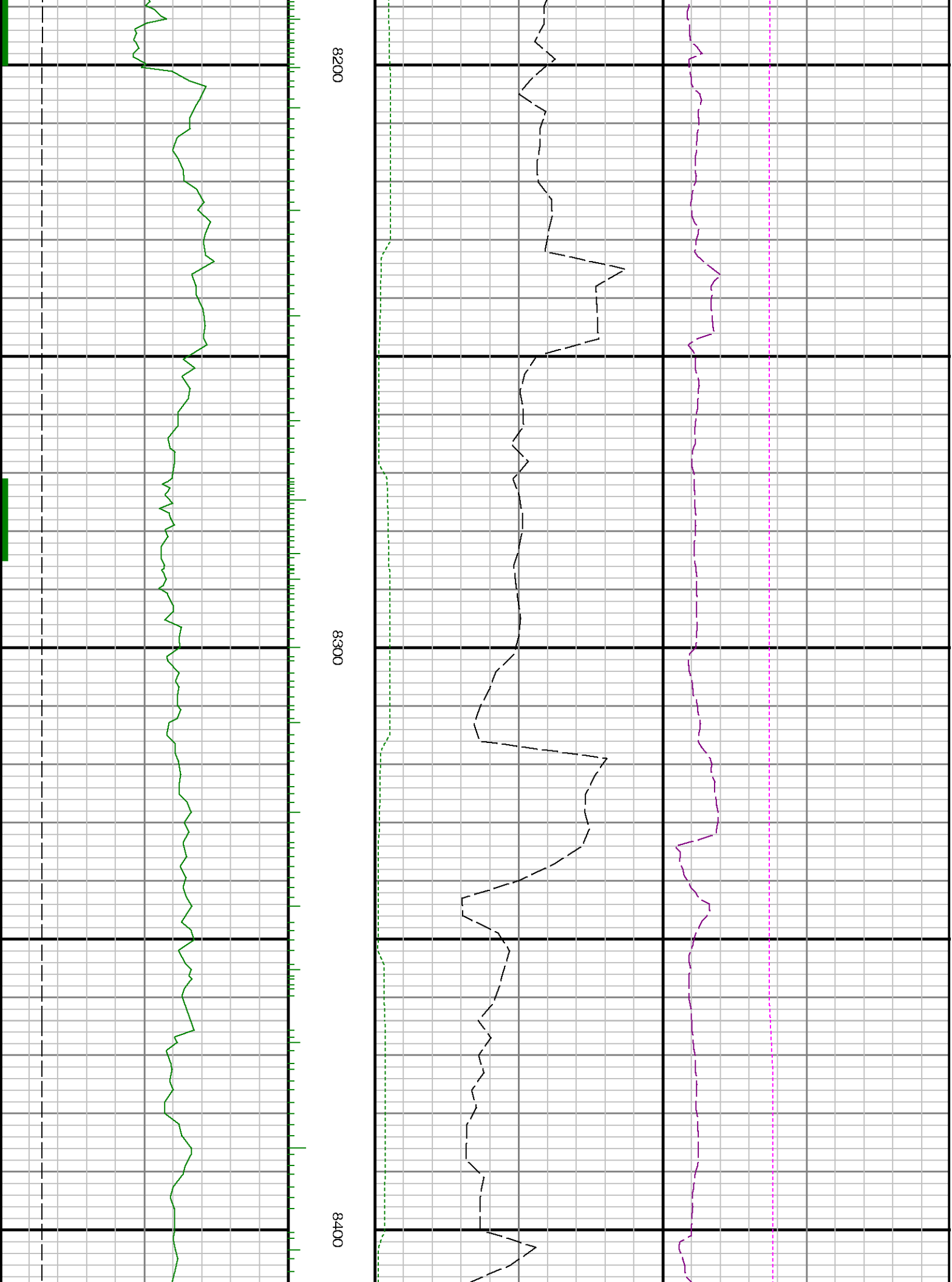


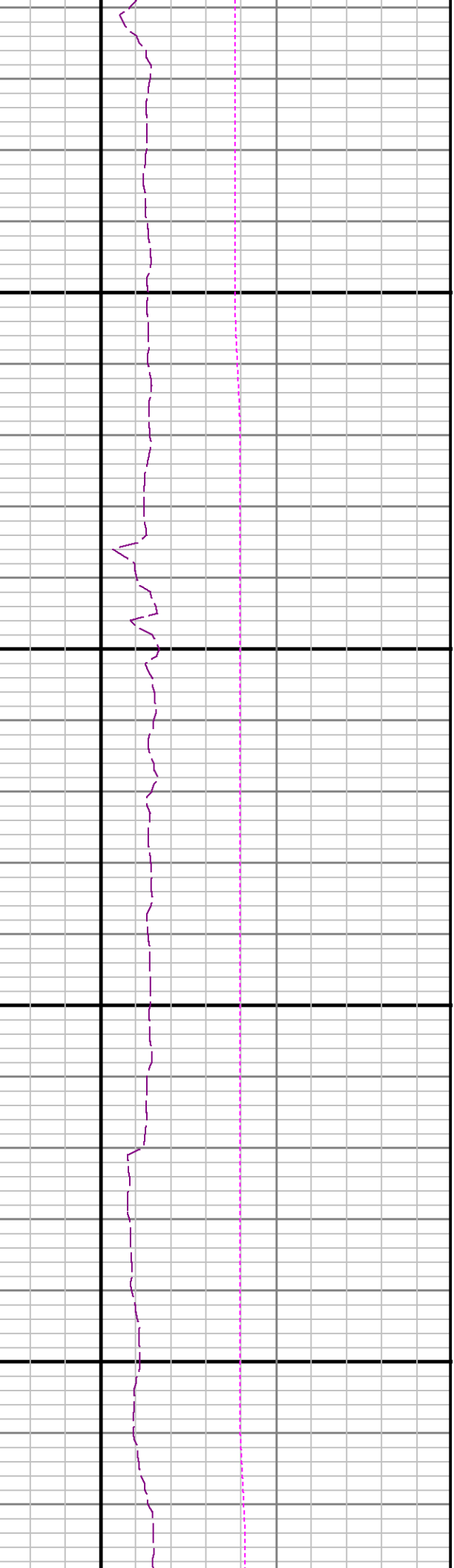
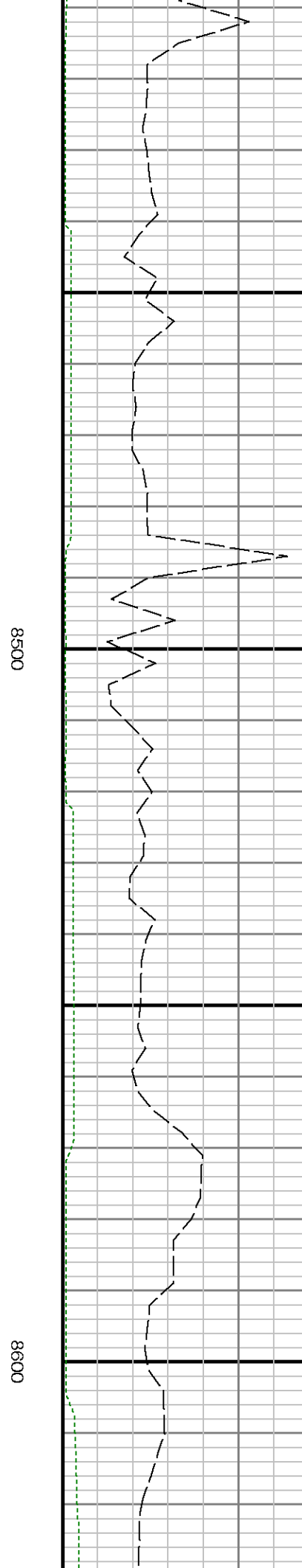
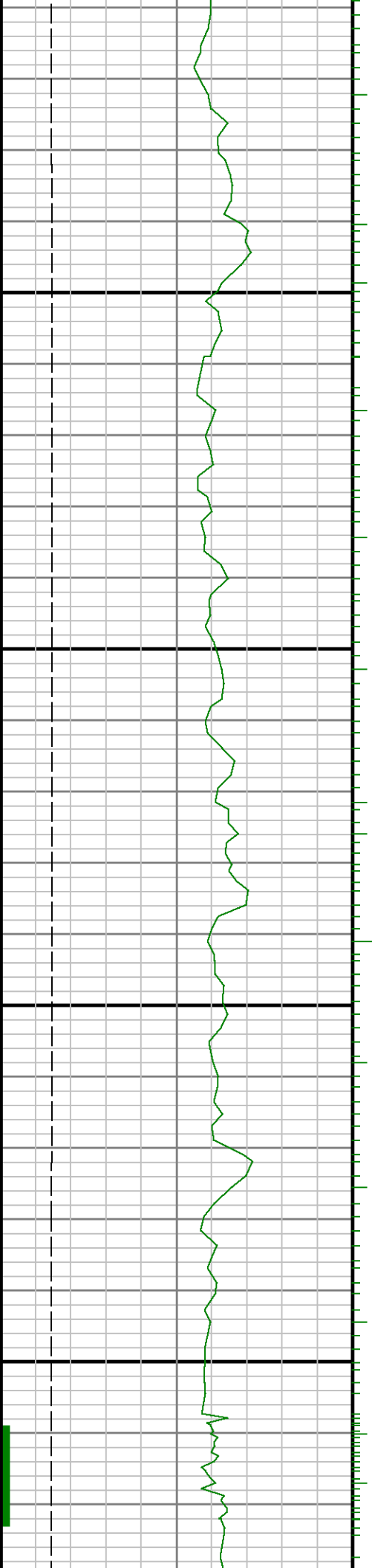
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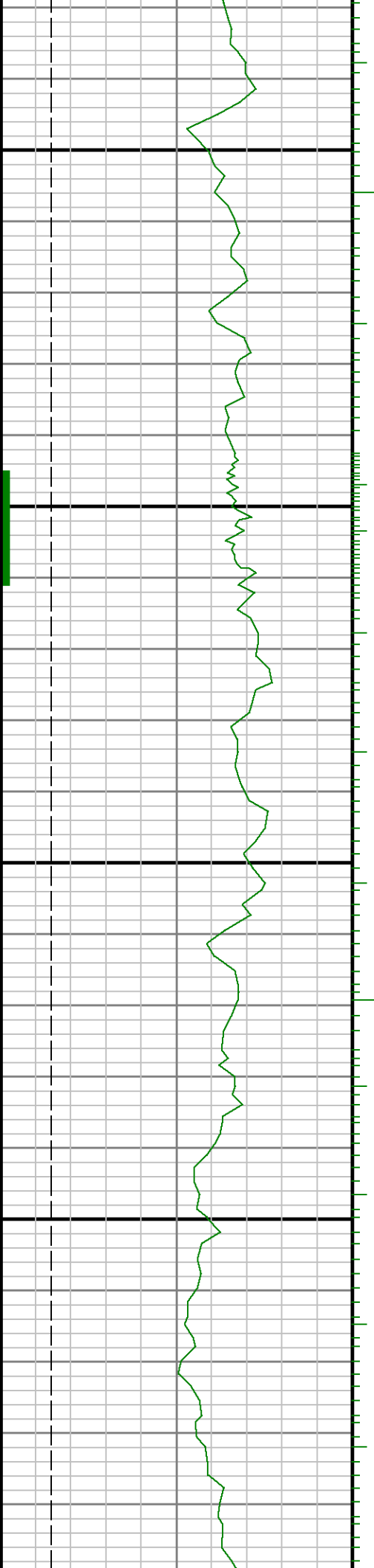
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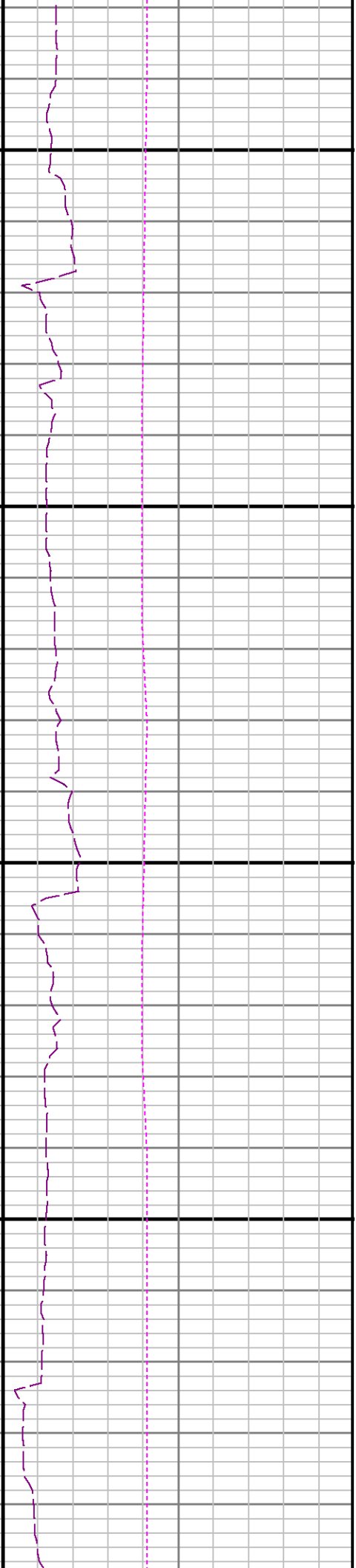


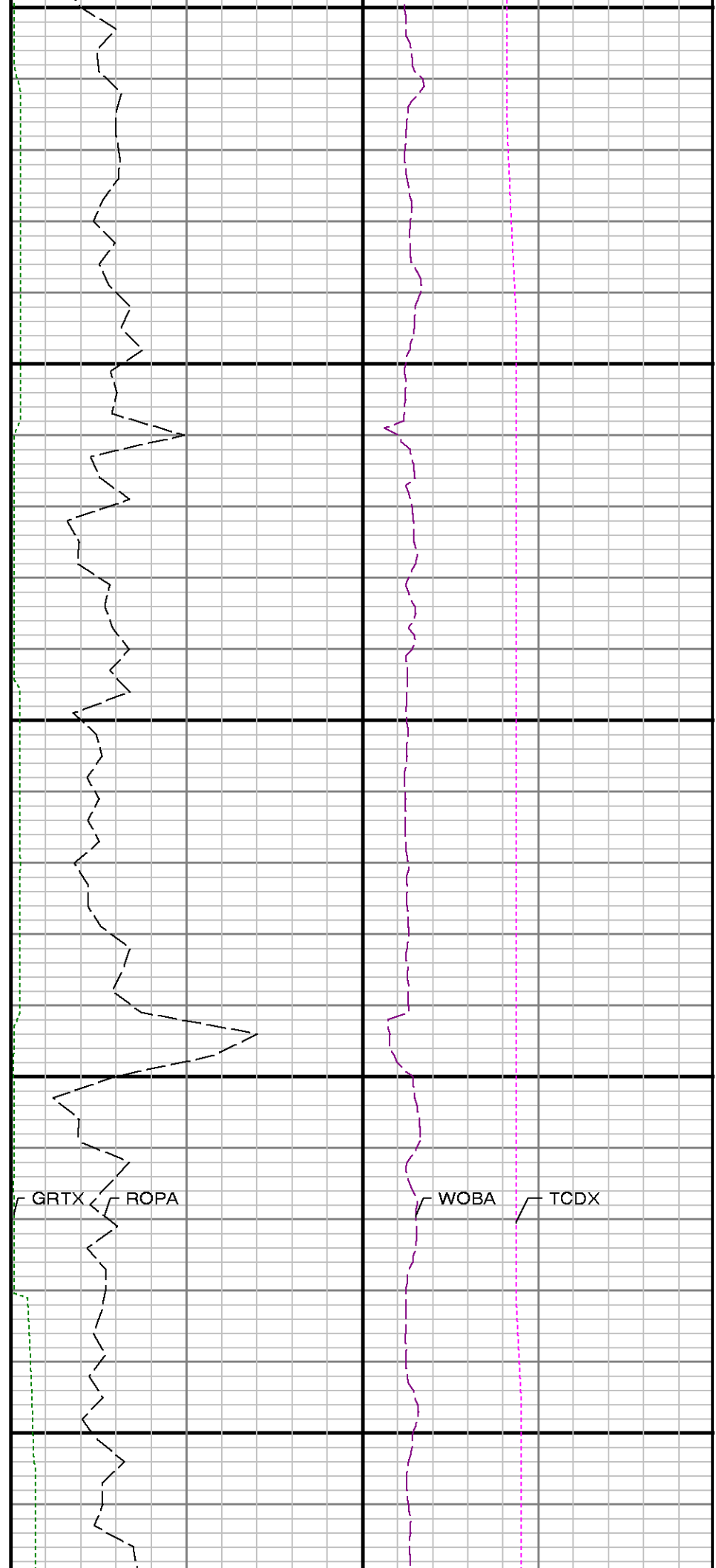
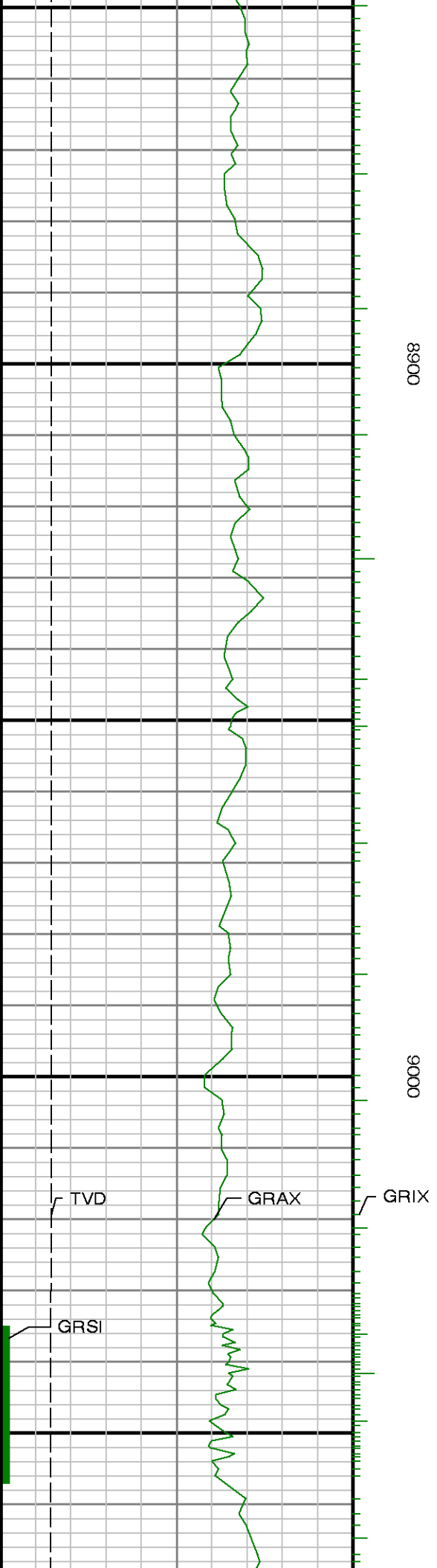


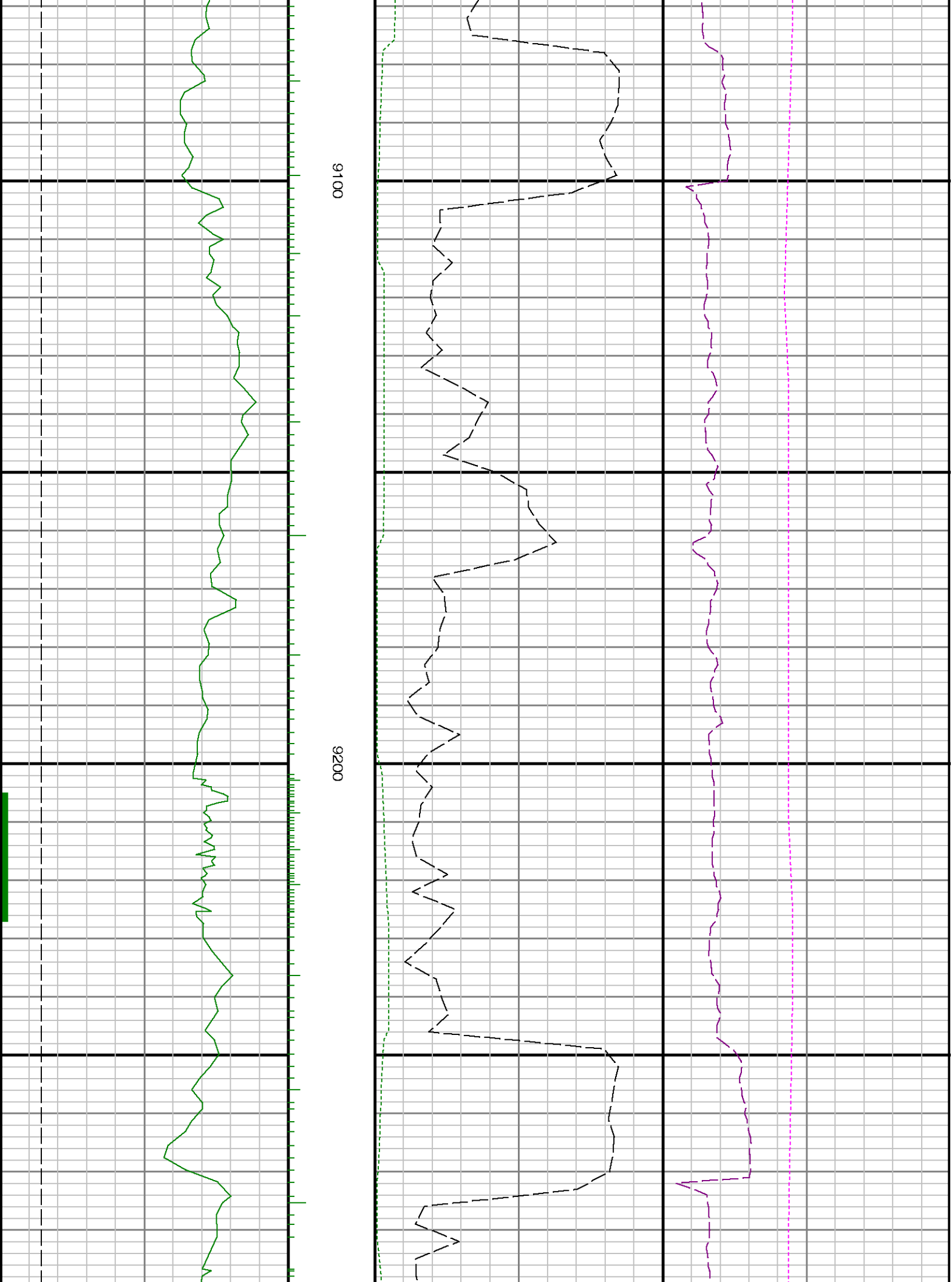


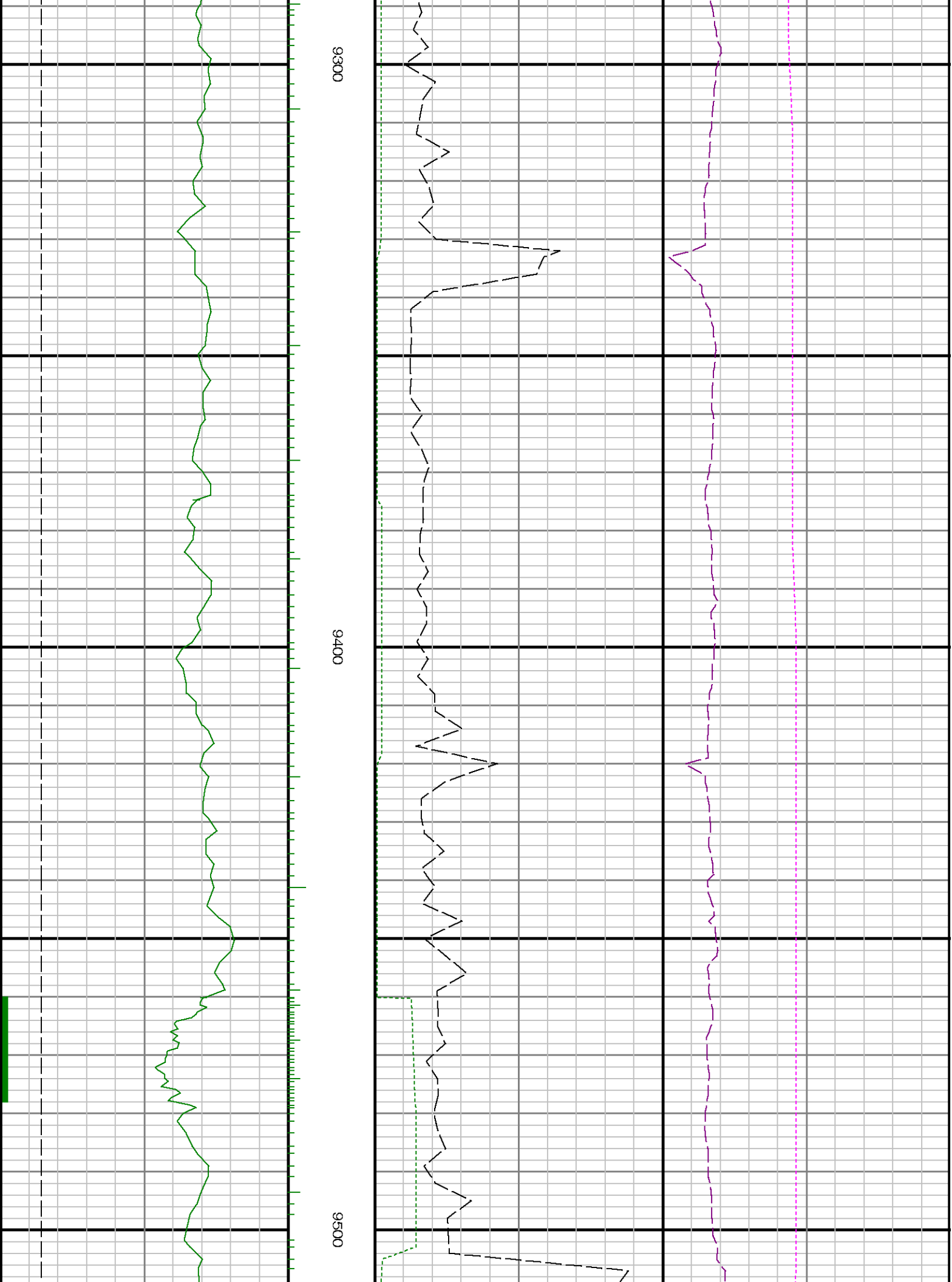
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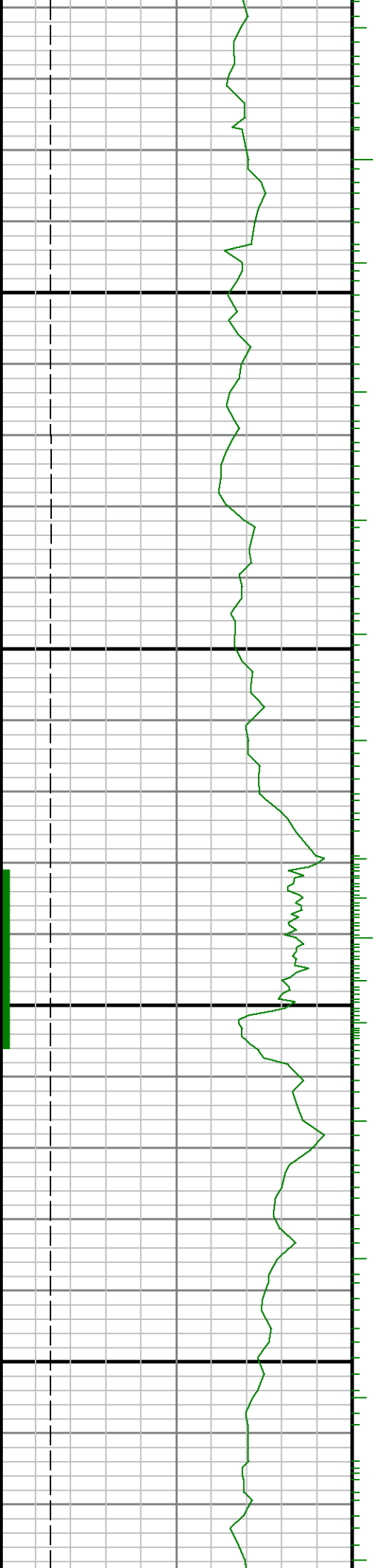
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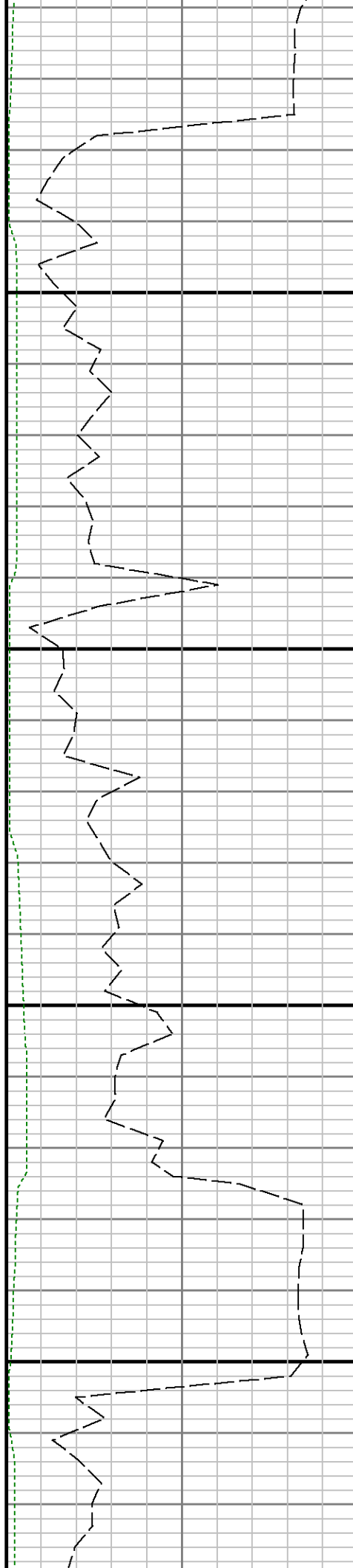


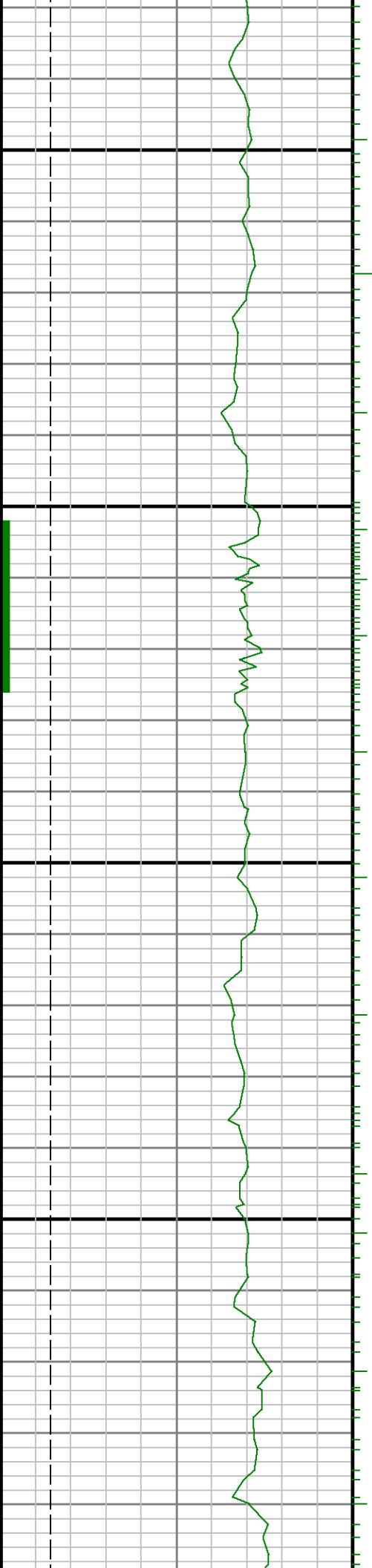




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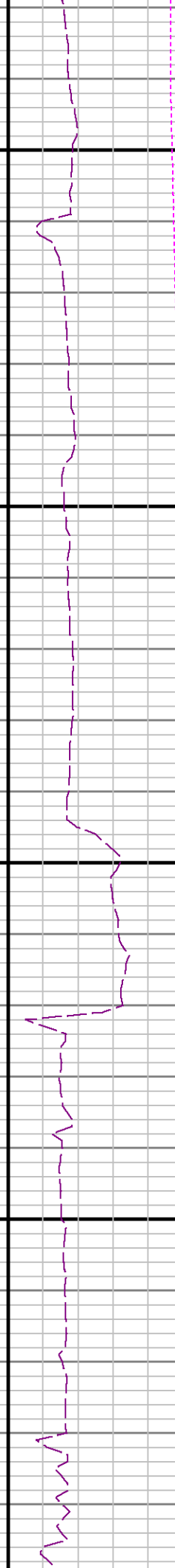
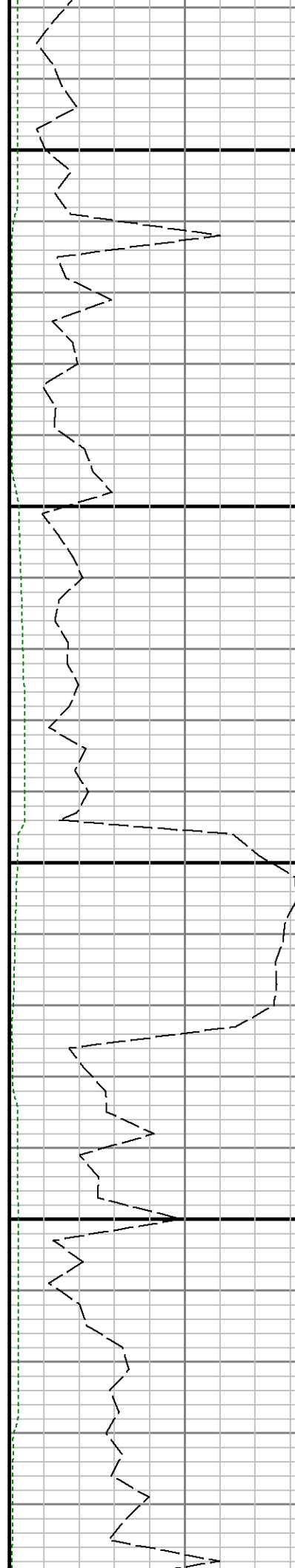
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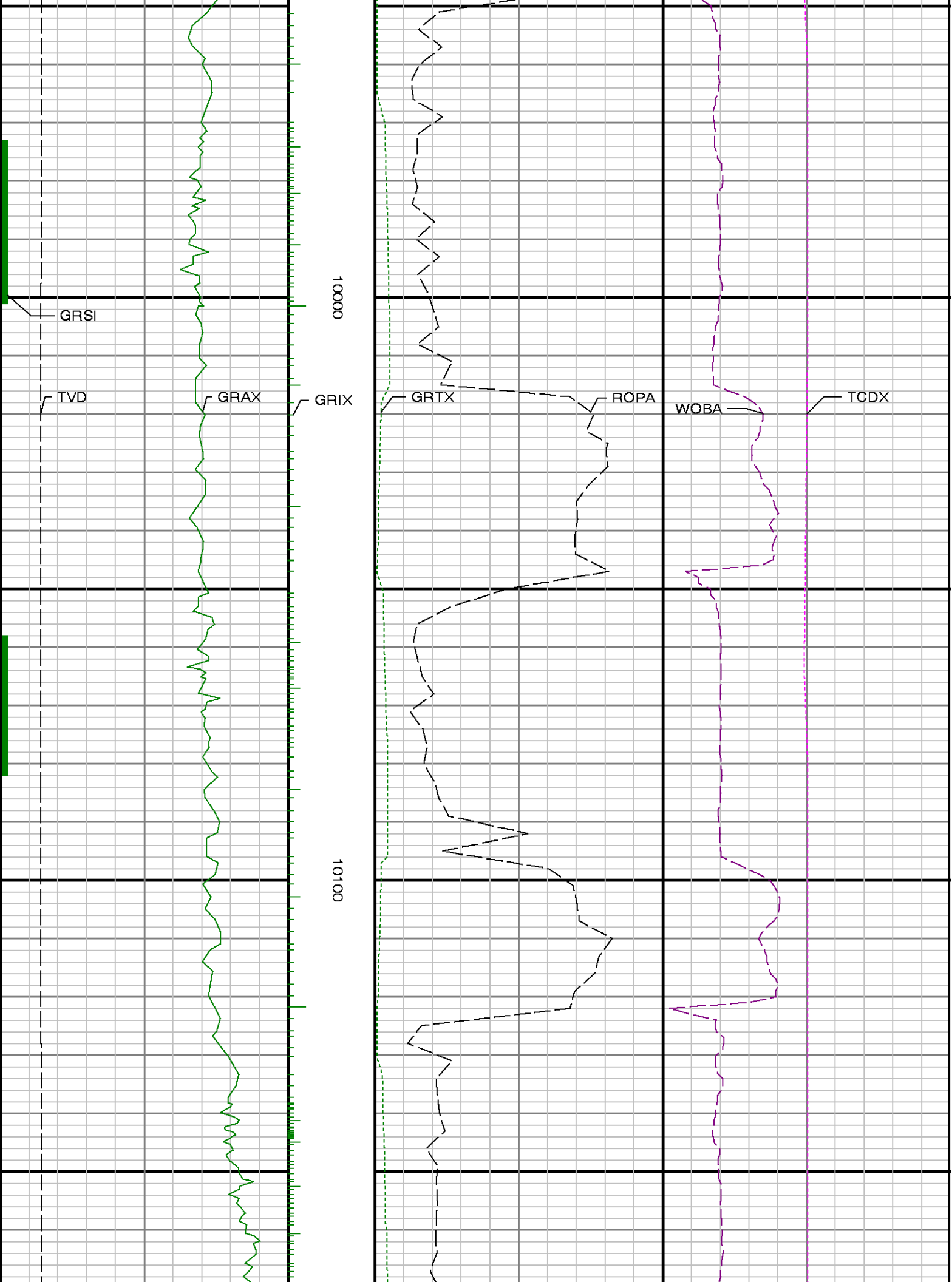




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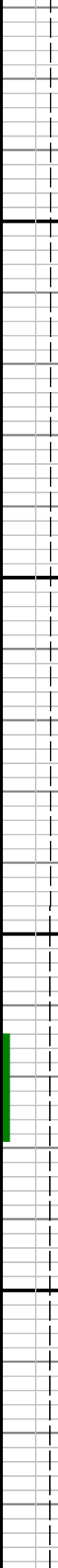
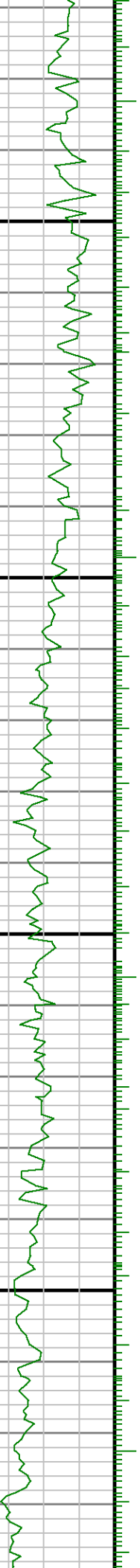


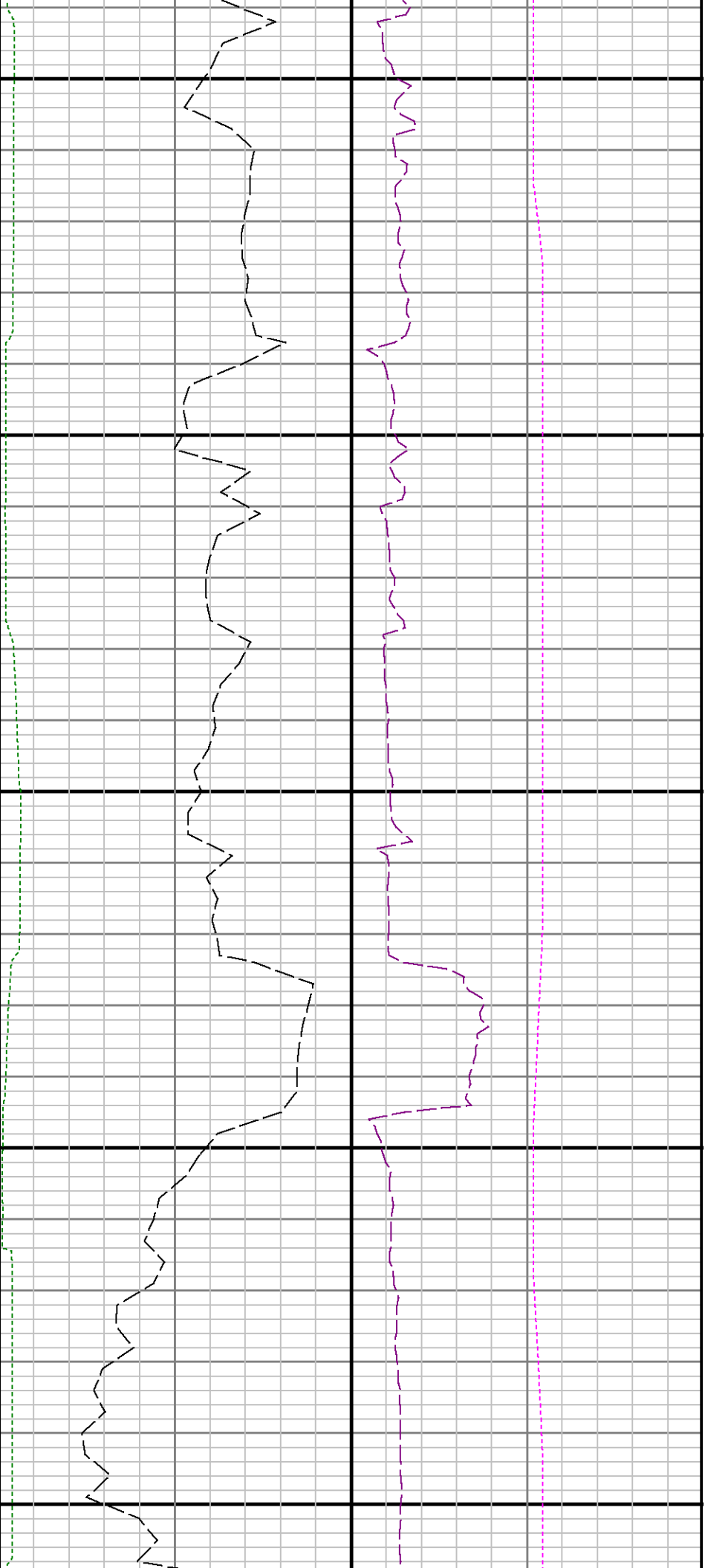




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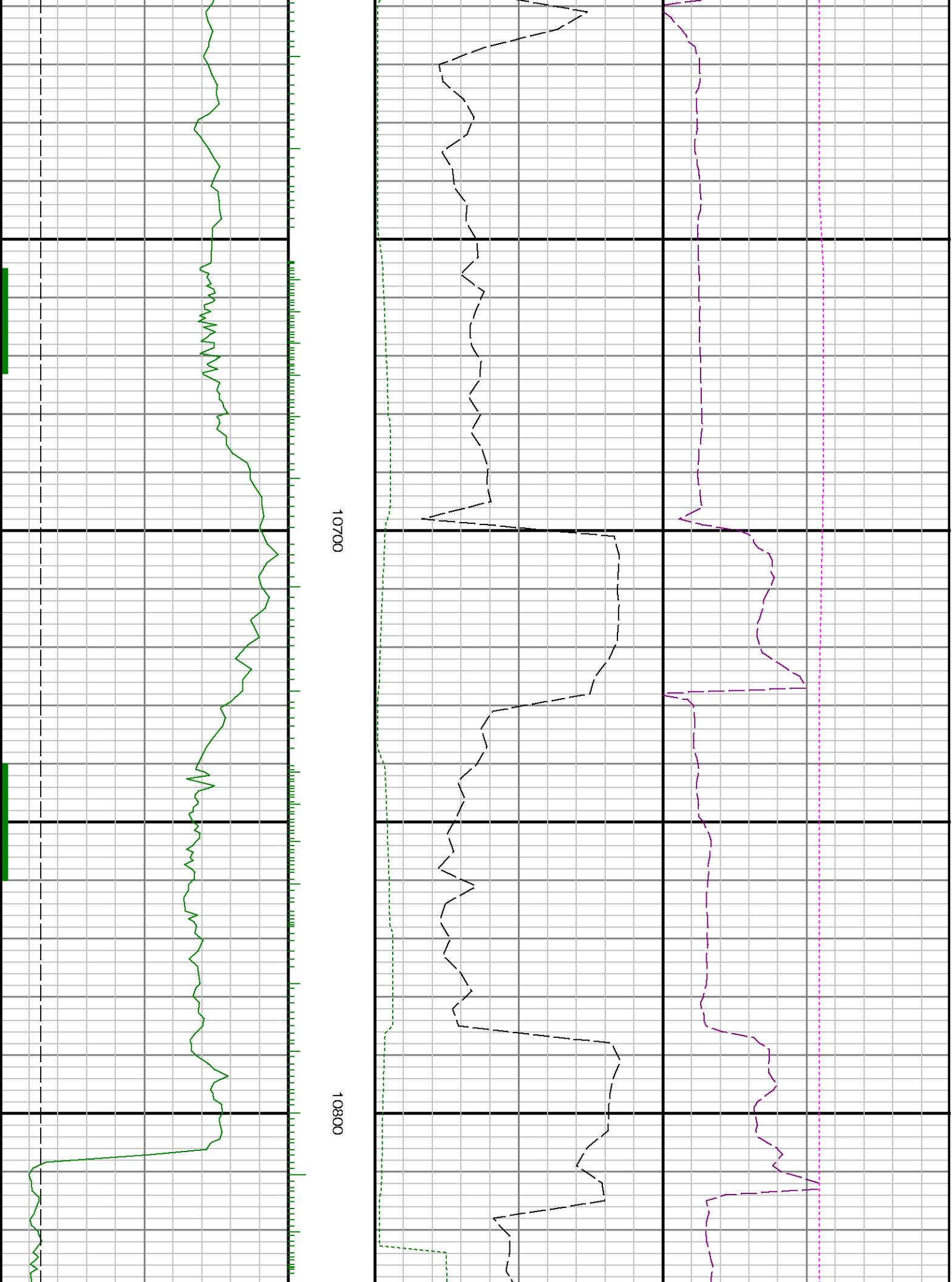


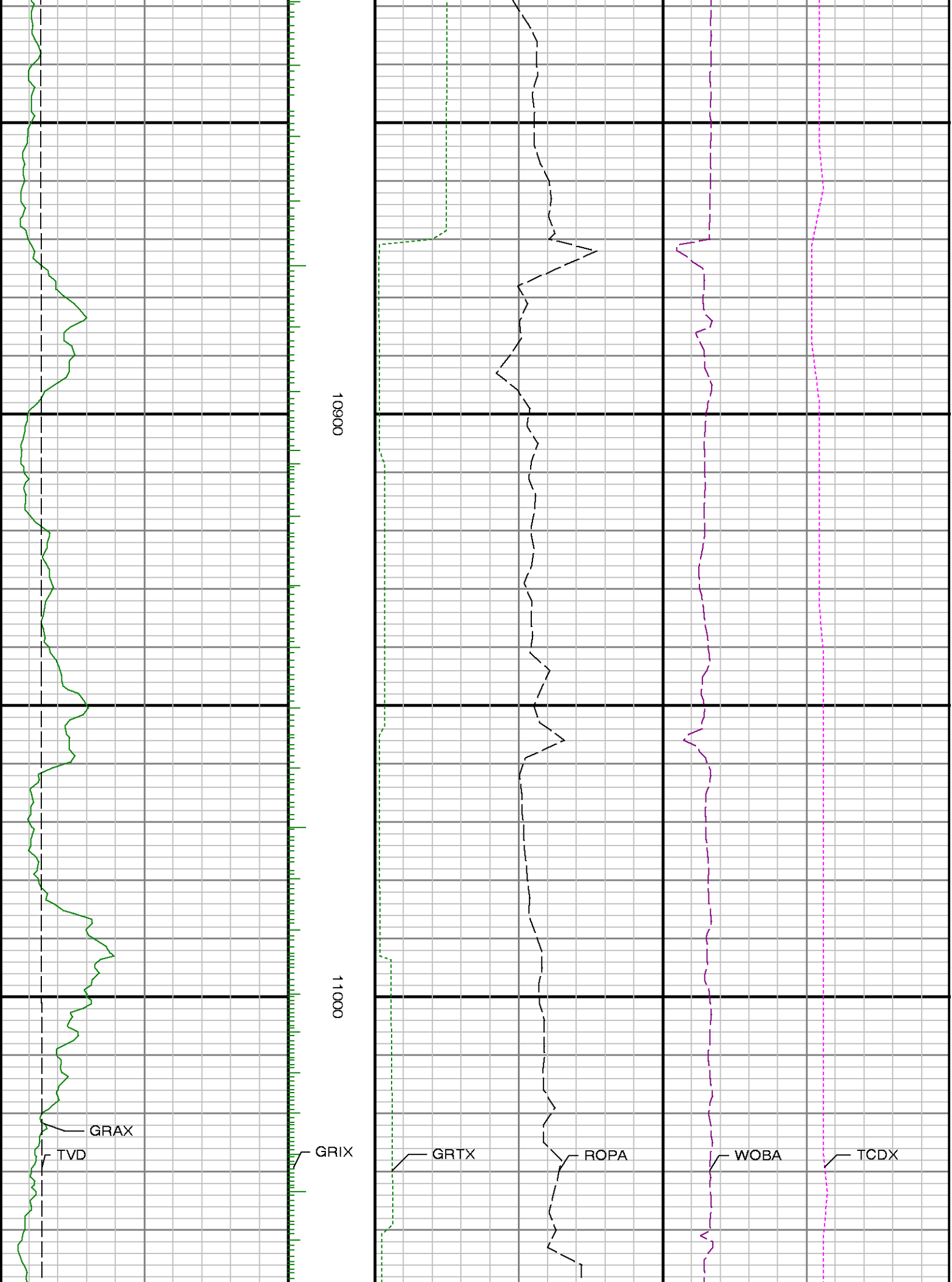


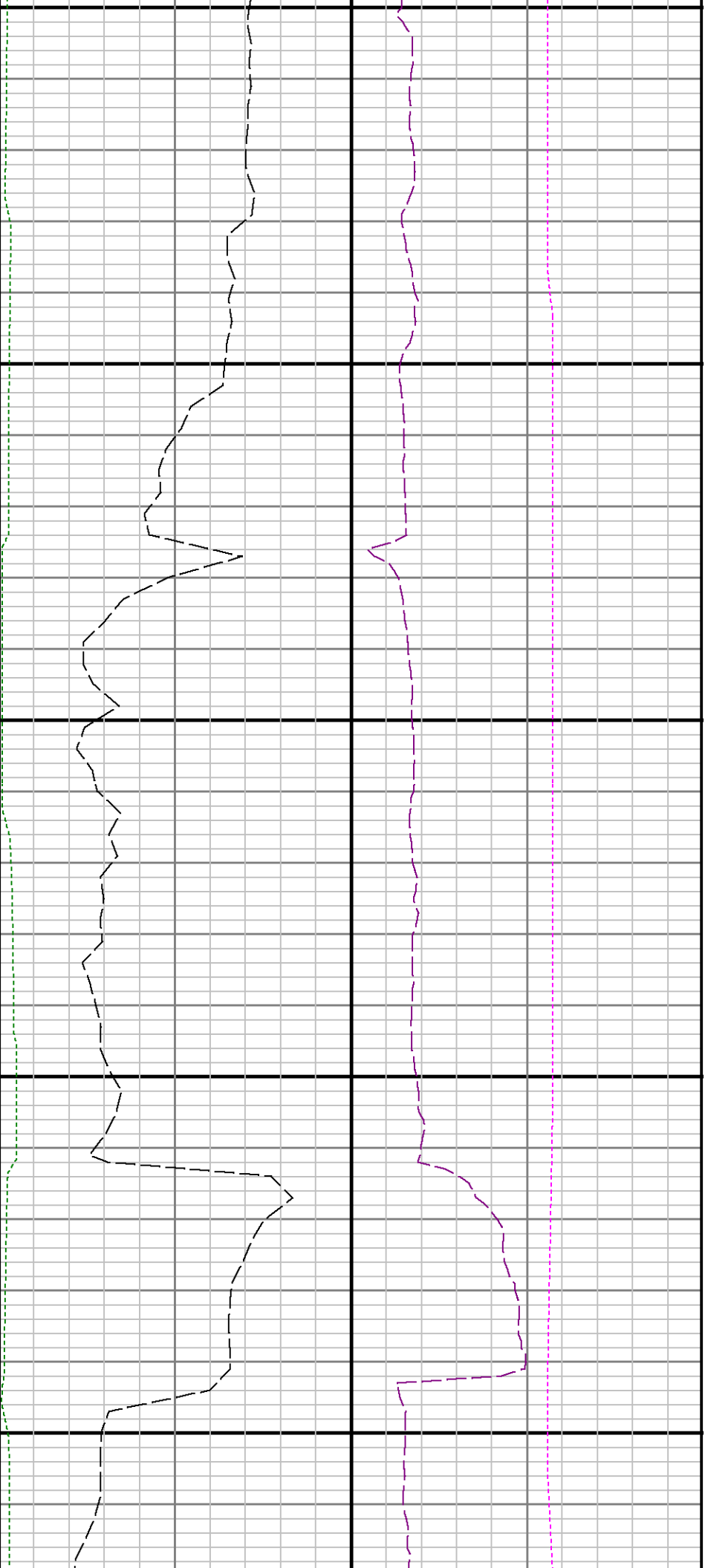
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10500

10600

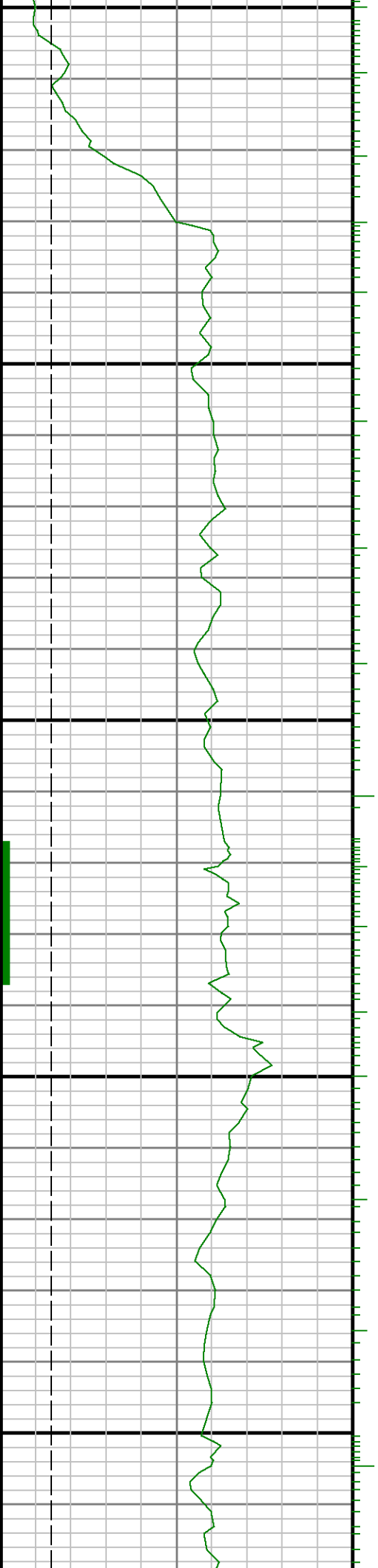


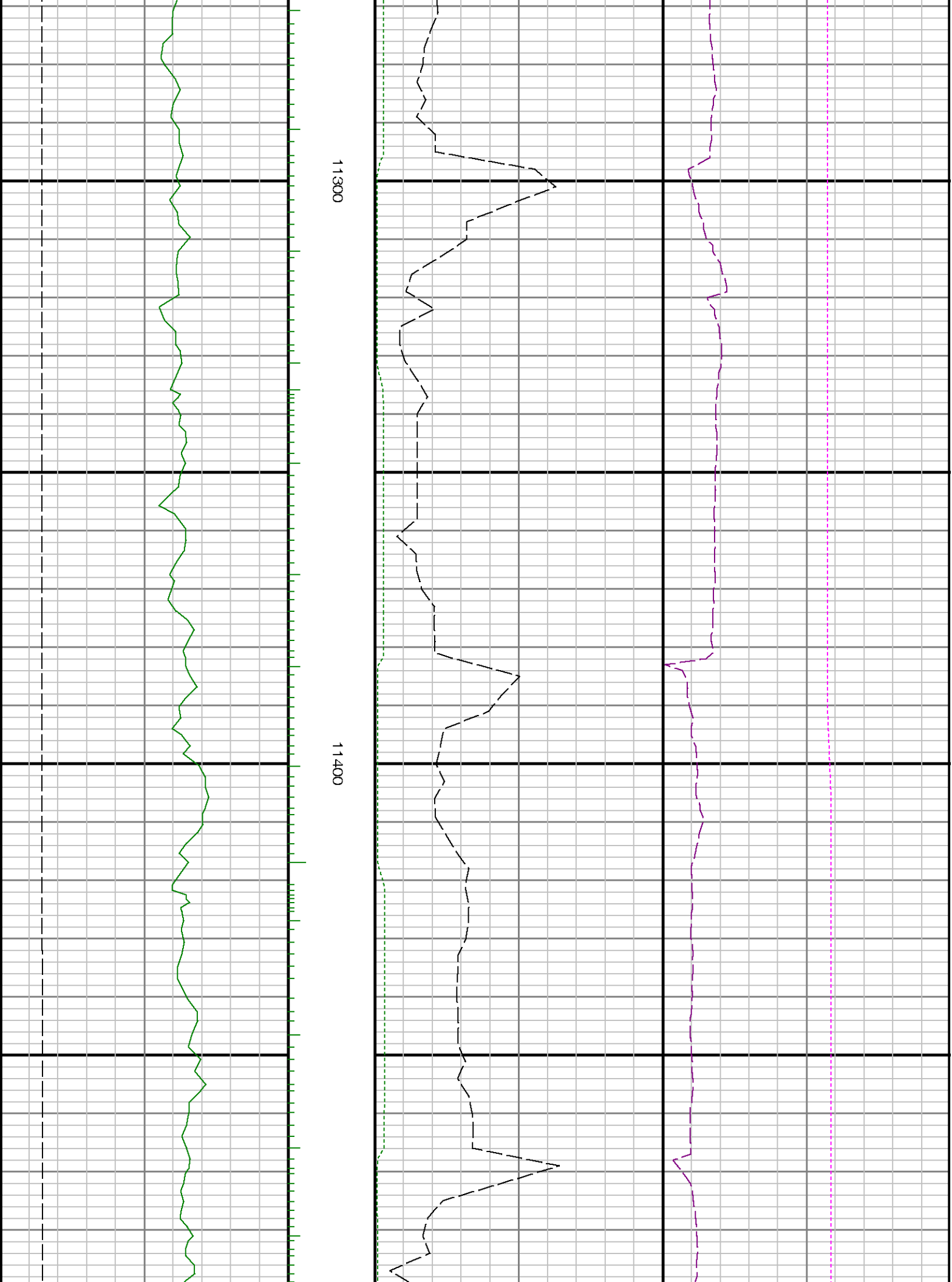




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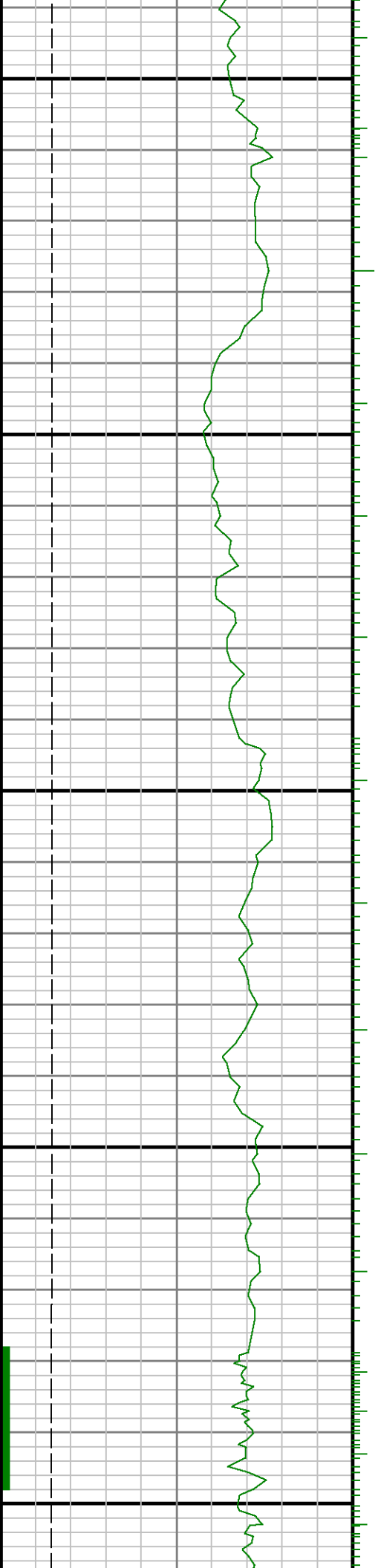


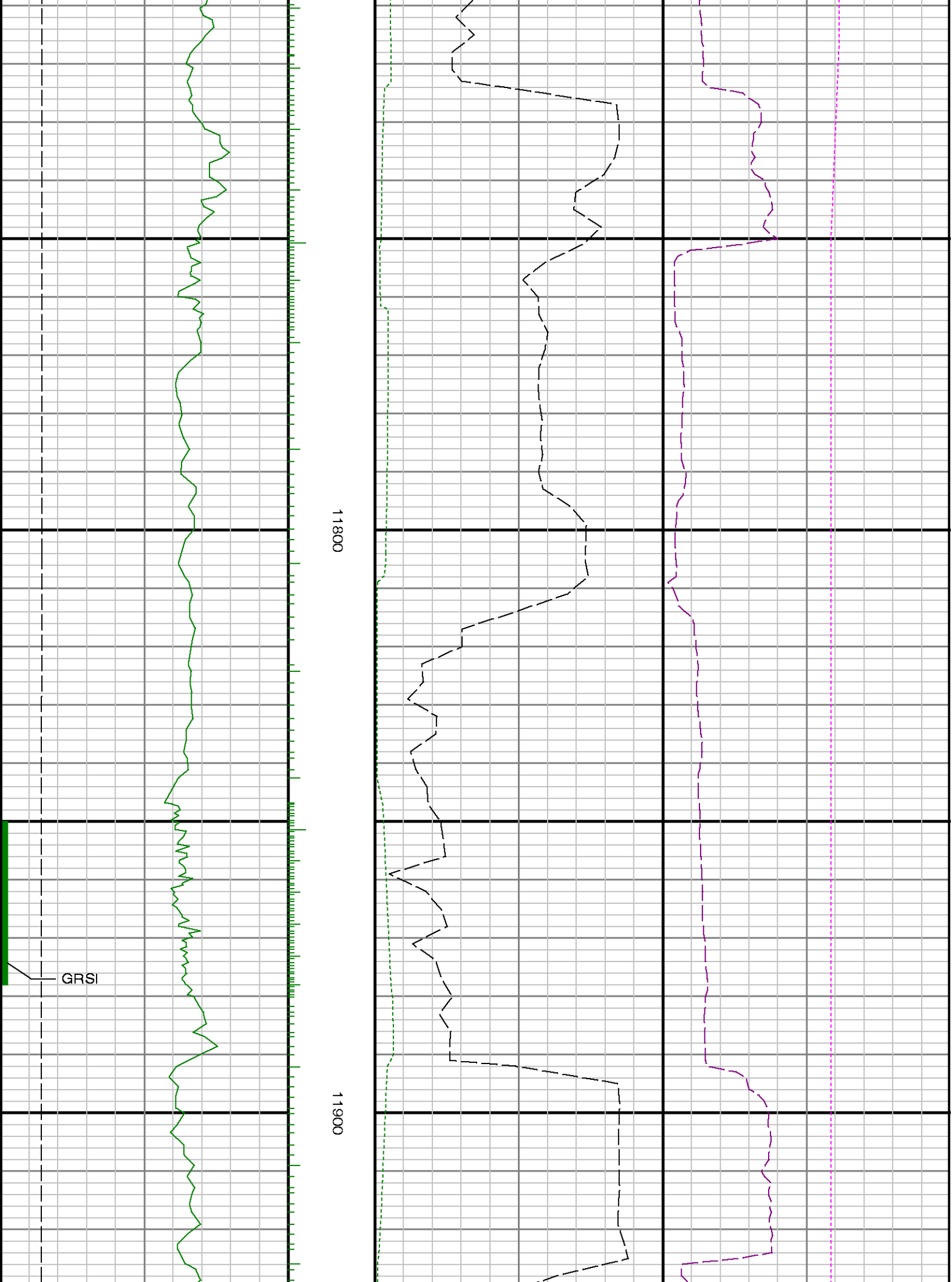


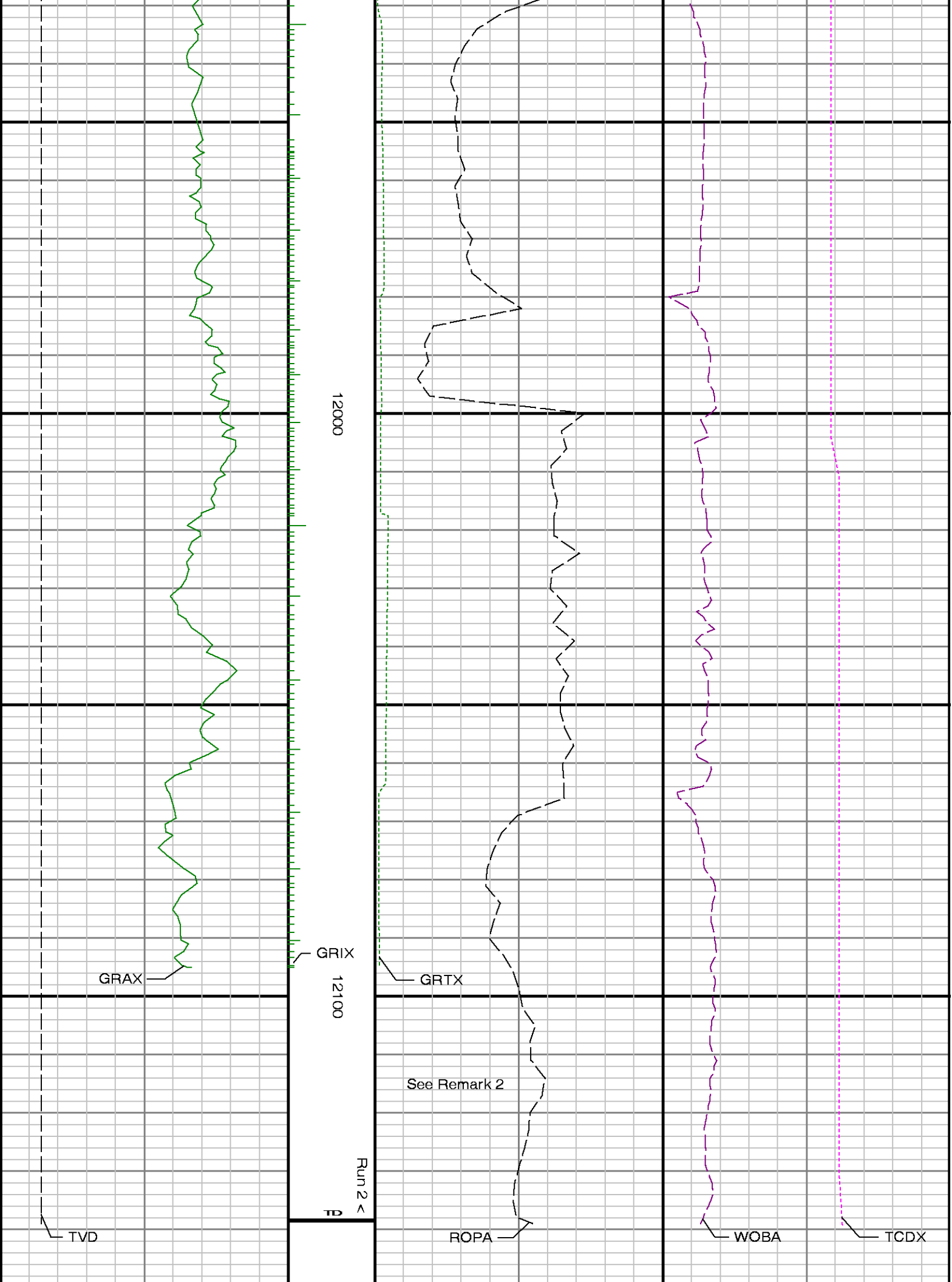
11500

11600

11700







<div> <div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0150</div> <div>API</div> <div>True Vertical Depth TVD</div> <div>78006800</div> <div>ft</div> </div>	MD feet 1:240	<div> <div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>6000</div> <div>ft/hr</div> <div>Gamma 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>100300</div> <div>degF</div> </div>