



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

1:240

Well: Vollmar 28N-11HZ

Measured Depth

Field: Weld County (Kerr McGee)

County: Weld County State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 8' 31.103" N

API Number:

Longitude: 104° 51' 37.411" W

Other Services:

SEC: 14

TWP: 2N

RNG: 67W

Directional VSS

Elevations:

Permanent Datum (P.D.): Ground Level Elevation: 4945.00 ft.

Elevations: N/A

Log Measured From: Rig Floor Elevation: 4961.00 ft. Above P.D.

KB: N/A
DF: 4961.00 ft.
GL: 4945.00 ft.

Depth Reference: Driller's Depth

Interval Logged

Dates

Magnetic Field Reference

Top: 6860.0 ft. Date From: 07/Feb/15 Date To: 12/Feb/15 Dip Angle: 66.90° Azi Reference North: True

Bottom: 12881.0 ft. Date To: 12/Feb/15 Total Mag to Reference

Spud Date: 07/Feb/15 Field Strength: 52711.6 nT North Correction: 8.57°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1210.0 ft.	9.625 in.	36.00 lb/ft	Surface	1198.0 ft.
8.750 in.	1198.0 ft.	7814.0 ft.	7.000 in.	26.00 lb/ft	Surface	7804.0 ft.
6.125 in.	7804.0 ft.	12881.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	1204.0 ft.	4500.0 ft.	13.500 in.	1194.0 ft.	0.0° / 179.4°	0.6° / 96.1°
Water Based Mud	4500.0 ft.	12881.0 ft.	8.750 in.	6616.0 ft.	0.5° / 91.6°	90.7° / 3.4°
			6.125 in.	5067.0 ft.	89.8° / 3.7°	92.0° / 356.2°
					/	/
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig:	Xtreme 6	/ Xtreme Coil Drilling Corp
PAIS	6.4.1.34	Job No:	7046433	
		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	3.000	Steerable	6860.0	7814.0	1210.0	7814.0	07/Feb/2015 03:15	09/Feb/2015 08:45	37.7
2	2	3	6.125	PDC	4.800	Steerable	7764.0	12881.0	7814.0	12881.0	10/Feb/2015 07:30	12/Feb/2015 14:00	32.6

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	05/Feb/2015	12/Feb/2015	Chad Hough	05/Feb/2015	12/Feb/2015			
Donald Delay	05/Feb/2015	12/Feb/2015	Courtney Koerner	05/Feb/2015	11/Feb/2015			
			Ryan Kielian	11/Feb/2015	12/Feb/2015			

Witness

Name	LWD Run Number
Joe Wallem	1, 2
David Cornett	1, 2
Sam Taylor	2
Andy Boshard	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+ (%)
06/Feb/2015 19:00	1	1204.0	Fresh Water	8.4	28	8.5	N/A	0 / 100	Active Mud Pit	2800	N/A
07/Feb/2015 07:00	1	1315.0	Fresh Water	8.6	28	9.0	N/A	0 / 99	Active Mud Pit	2900	N/A
07/Feb/2015 21:00	1	4814.0	Water Based Mud	9.1	39	9.5	4.4	0 / 96	Active Mud Pit	3100	N/A
08/Feb/2015 07:00	1	6437.0	Water Based Mud	10.1	41	9.5	4.5	0 / 92	Active Mud Pit	3000	N/A
08/Feb/2015 19:00	1	7219.0	Water Based Mud	10.0	42	9.4	4.5	0 / 92	Active Mud Pit	3100	N/A
09/Feb/2015 07:00	1	7814.0	Water Based Mud	10.1	40	9.3	4.5	0 / 91	Active Mud Pit	2800	N/A
10/Feb/2015 09:00	2	7814.0	Water Based Mud	9.2	40	9.2	4.6	1 / 95	Active Mud Pit	2600	N/A
10/Feb/2015 19:15	2	8016.0	Water Based Mud	9.4	40	9.9	4.5	1 / 95	Active Mud Pit	2800	N/A
11/Feb/2015 07:00	2	10364.0	Water Based Mud	9.4	42	9.3	4.6	1/93	Active Mud Pit	3000	N/A
11/Feb/2015 20:00	2	12149.0	Water Based Mud	9.5	40	9.5	4.6	1/93	Active Mud Pit	2900	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	12497612	Directional	44.90	6.750	3.250
1	SRIG	12131373	Gamma	41.53	6.750	3.250
2	DIR	13099217	Directional	49.16	4.750	2.680
2	SRIG	11714036	Gamma	45.78	4.750	2.680

Service and Tool Mnemonics

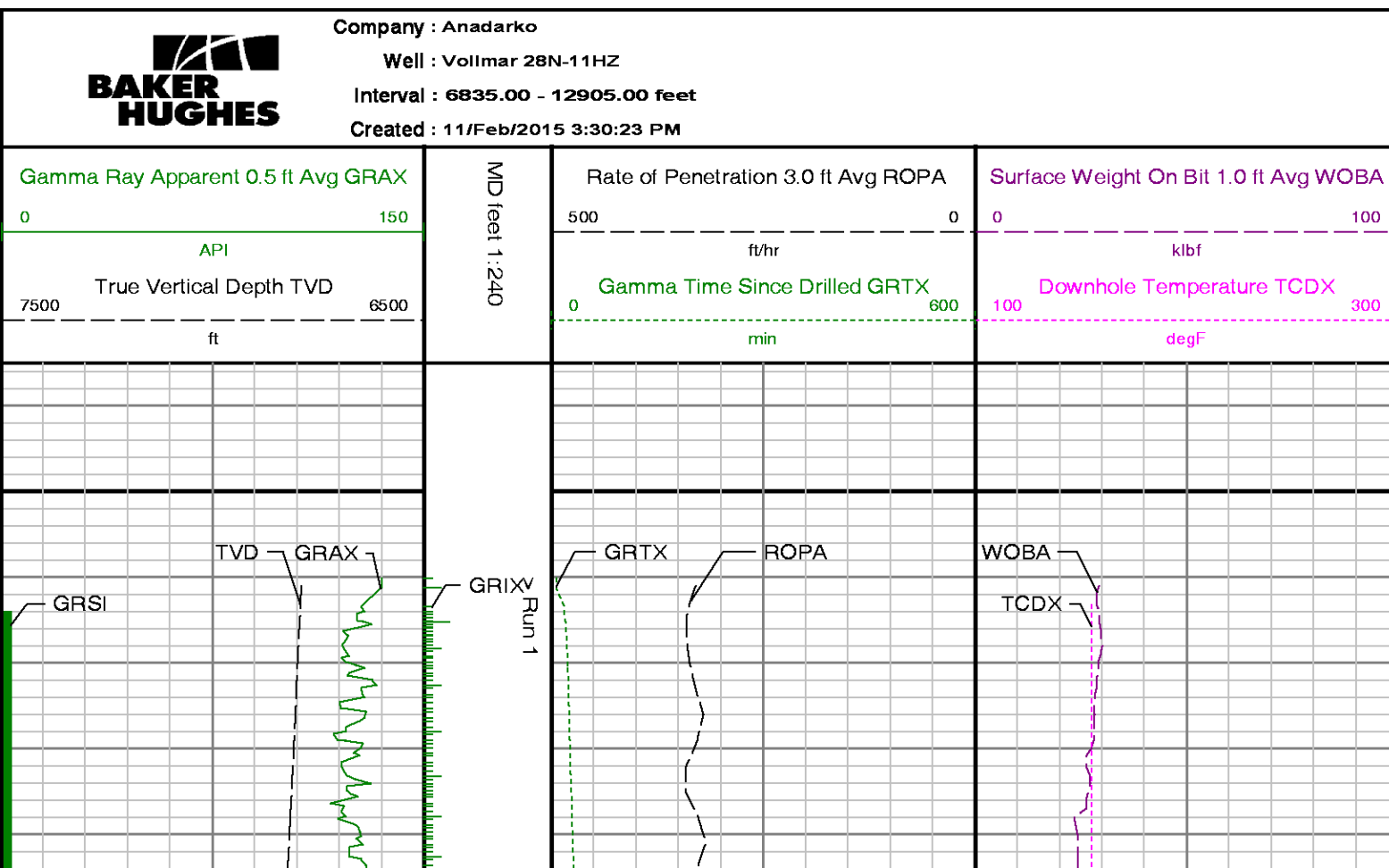
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

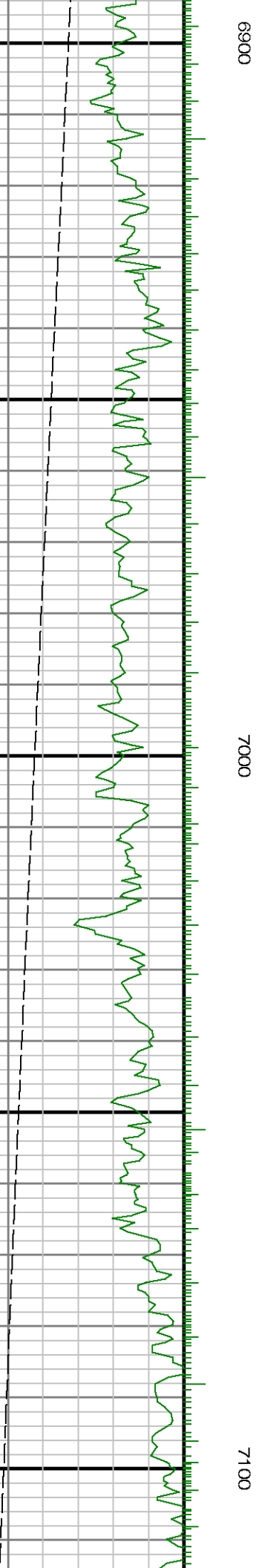
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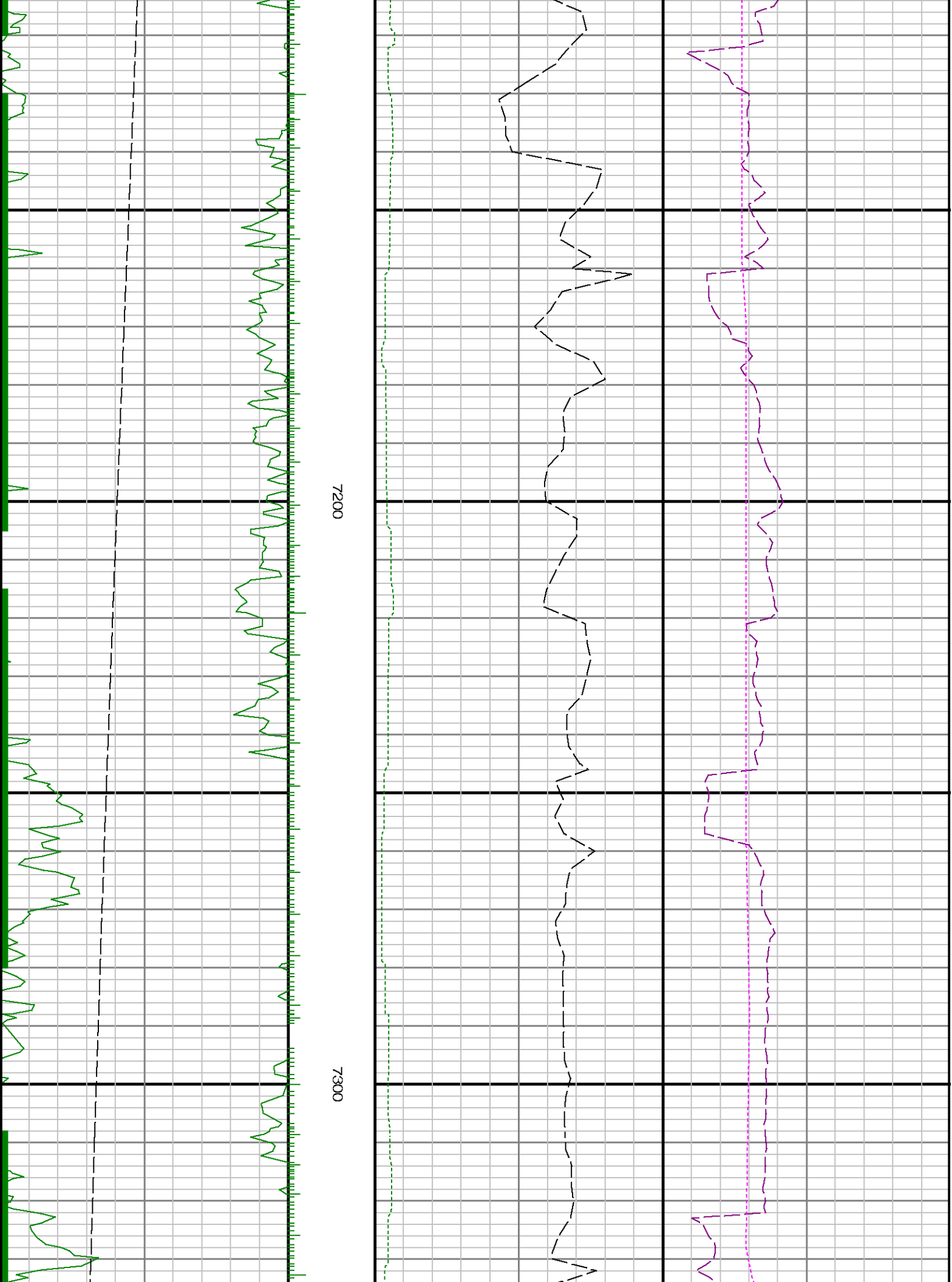
- 1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1210 to 6860 ft. MD (1209.93 to 6788.94 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6860 to 7814 ft. MD (6788.94 to 7334.79 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.
- 2.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7814 to 12881 ft. MD (7334.79 to 7307.26 ft. 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.

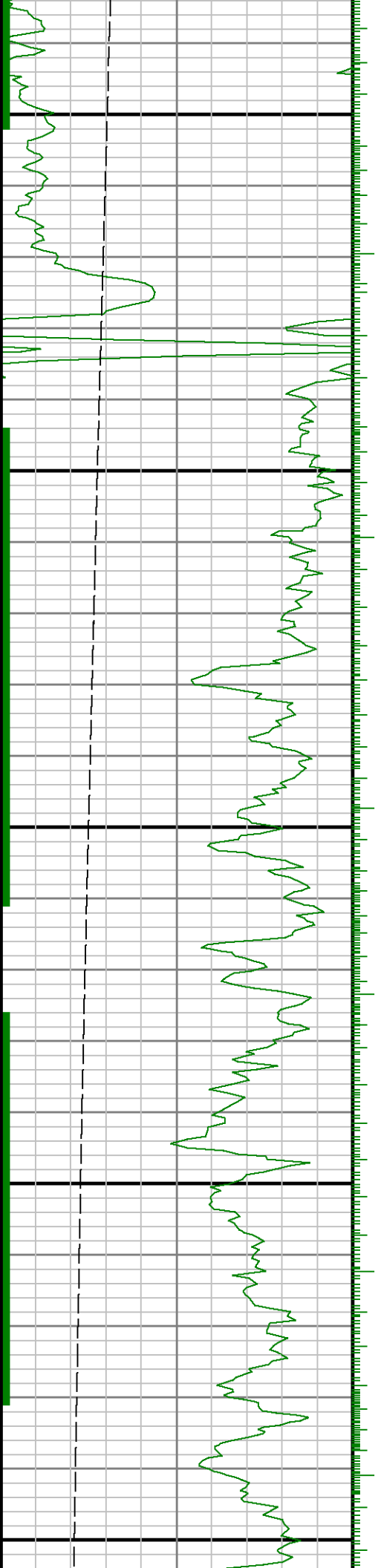
Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	7792	6.125	2	The interval from 7771 to 7814 ft. MD (7333.82 to 7334.79 ft. TVD) was logged up to 39.7 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	12865	6.125	2	The interval from 12831 to 12881 ft. MD (7308.95 to 7307.26 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.





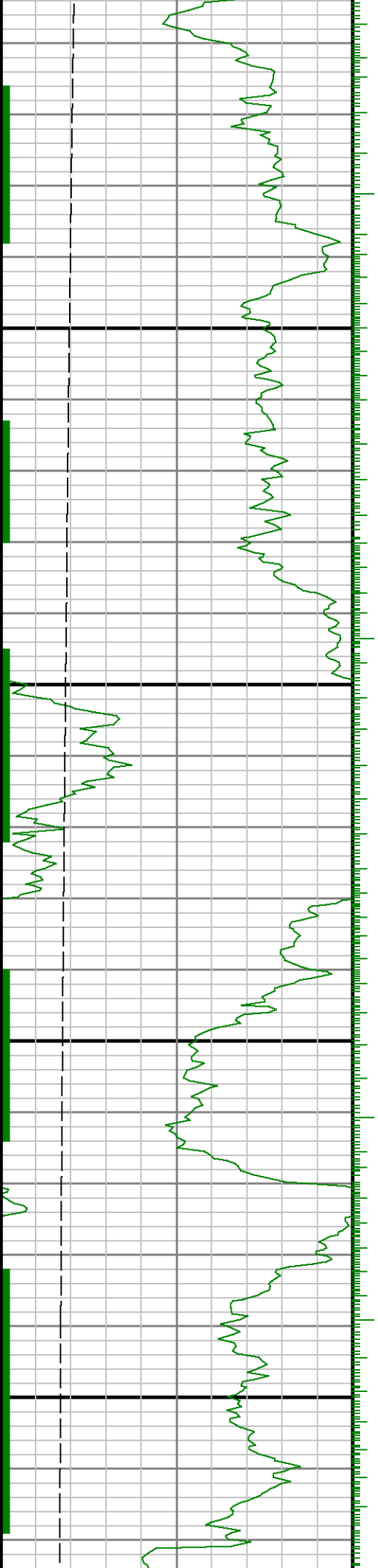


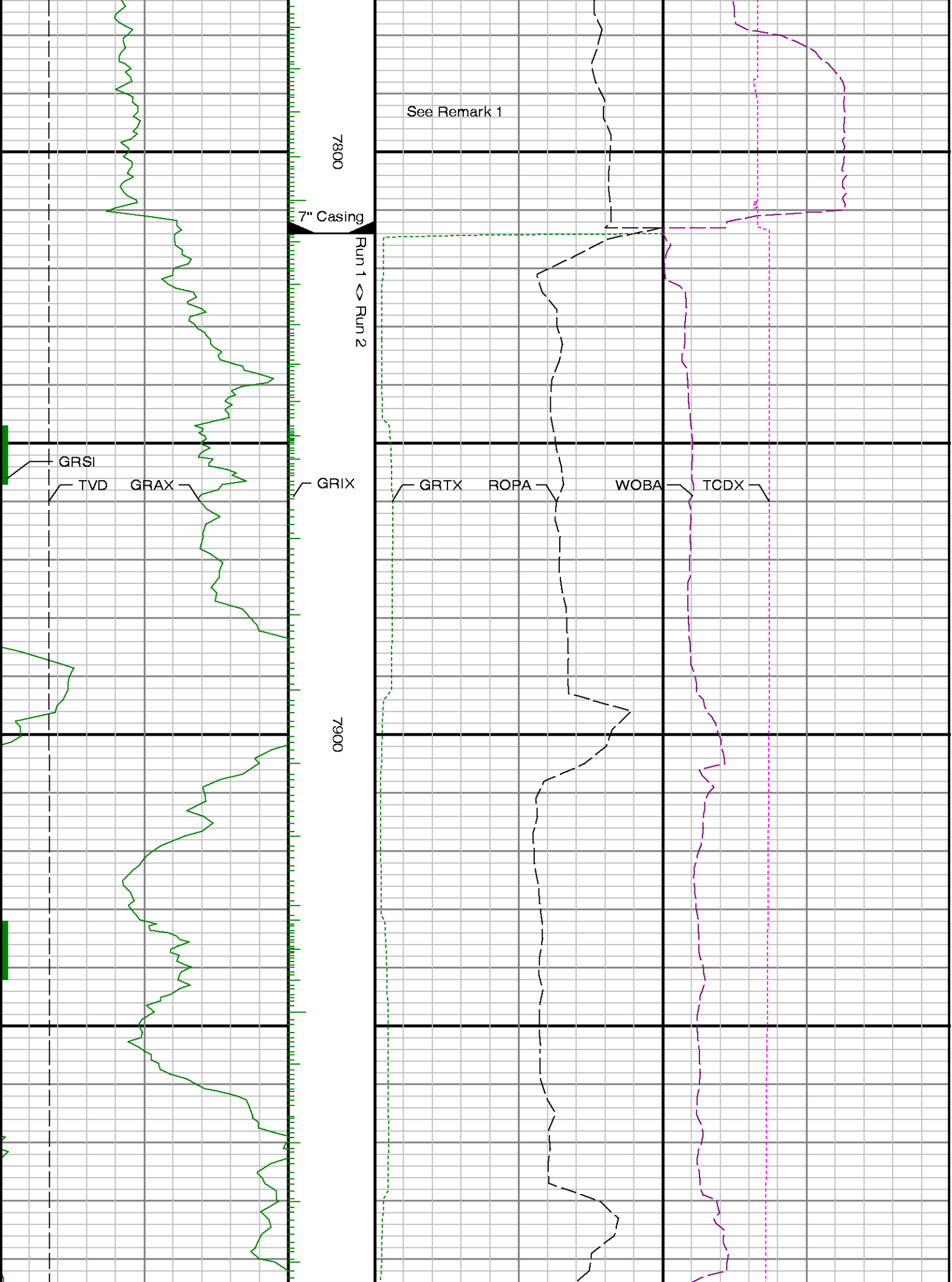


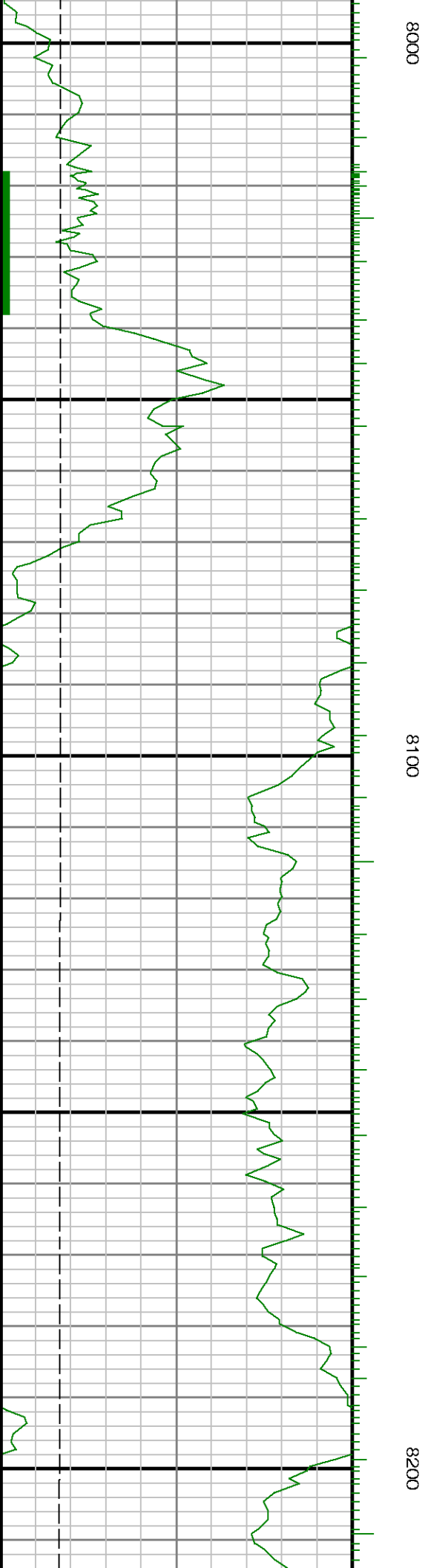
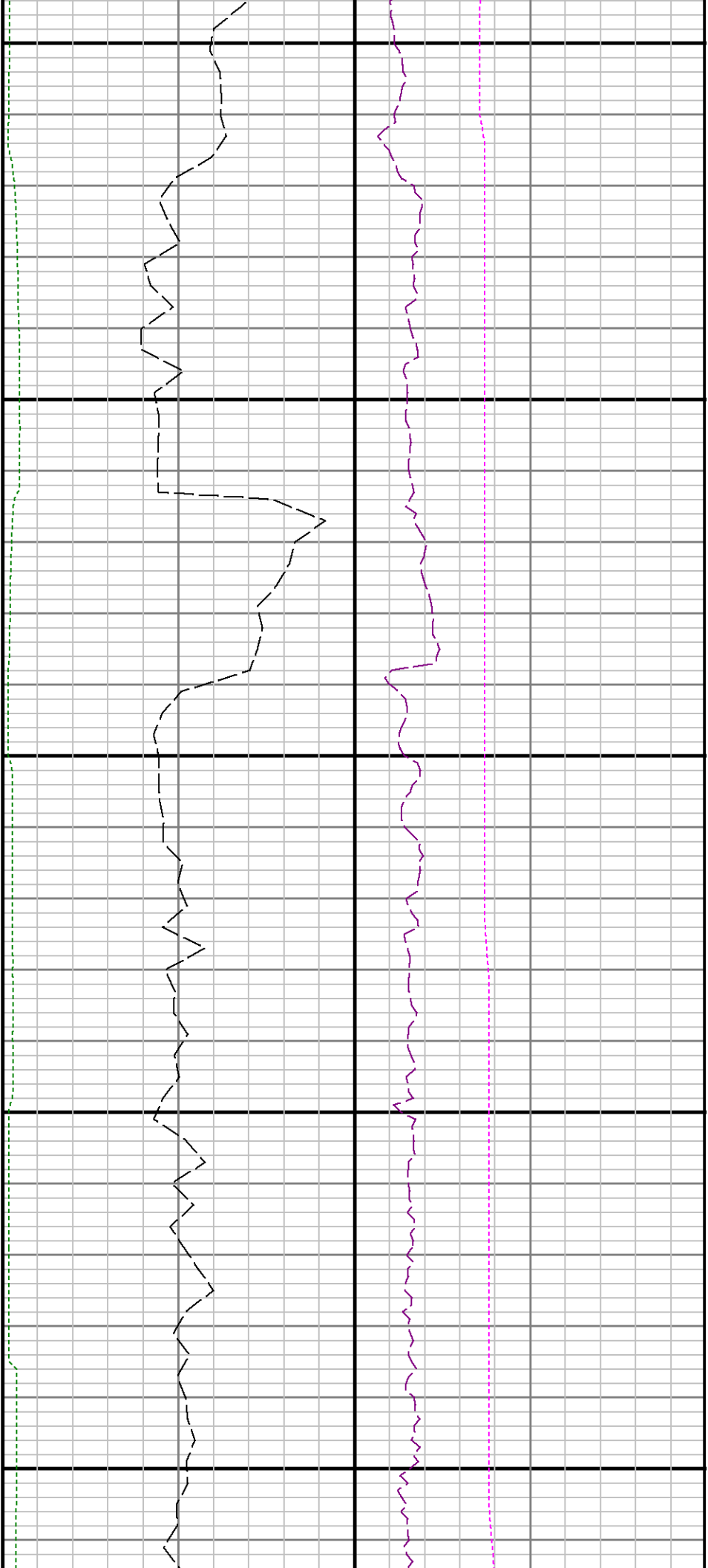


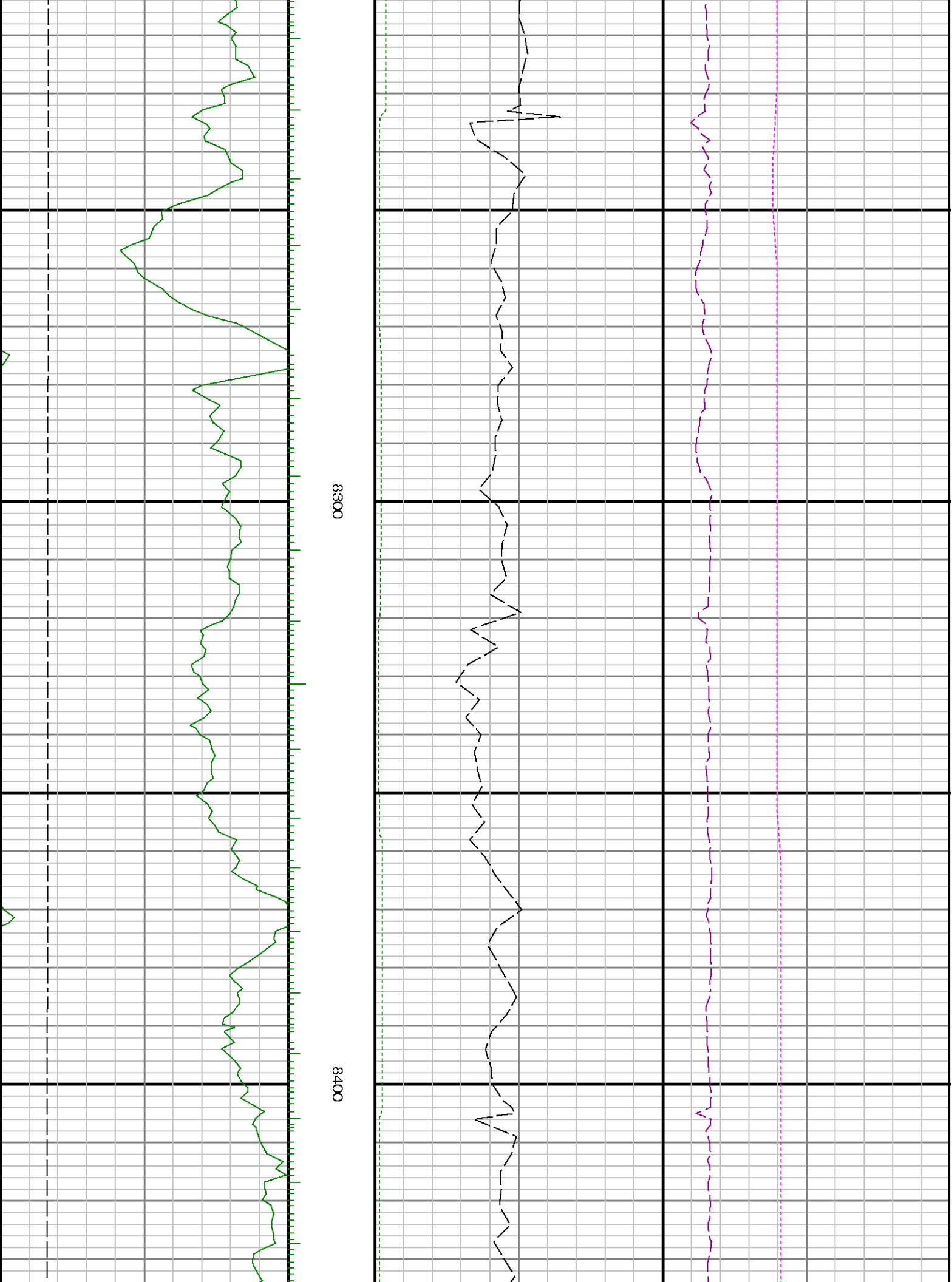
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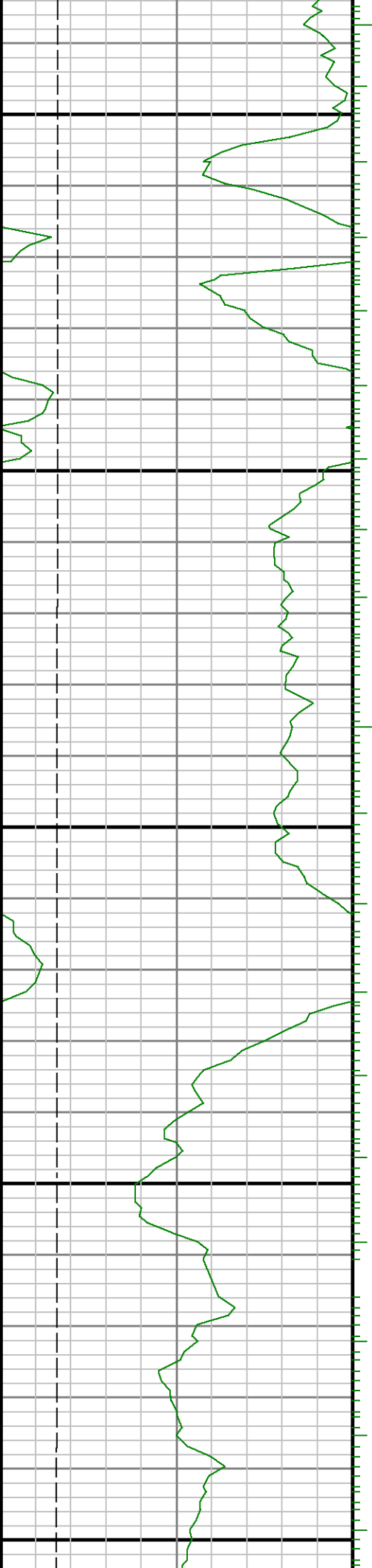
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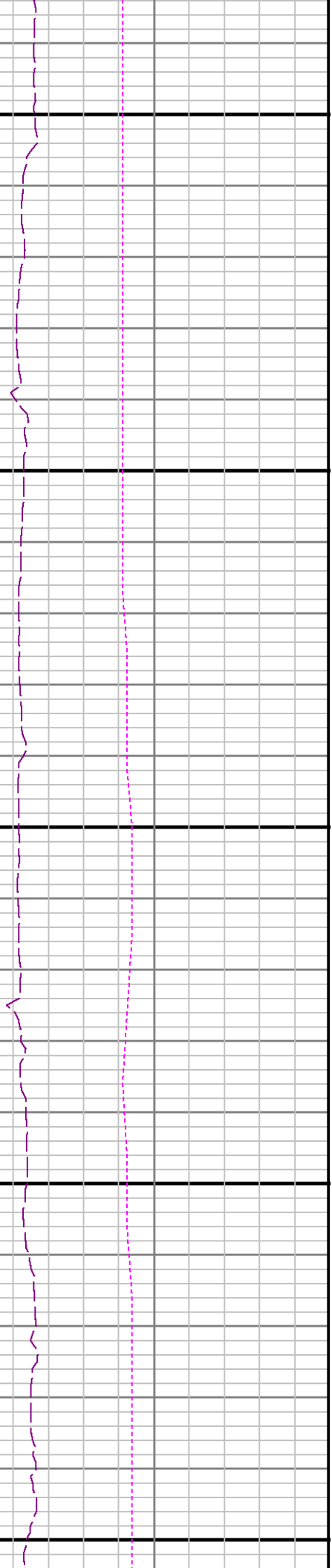


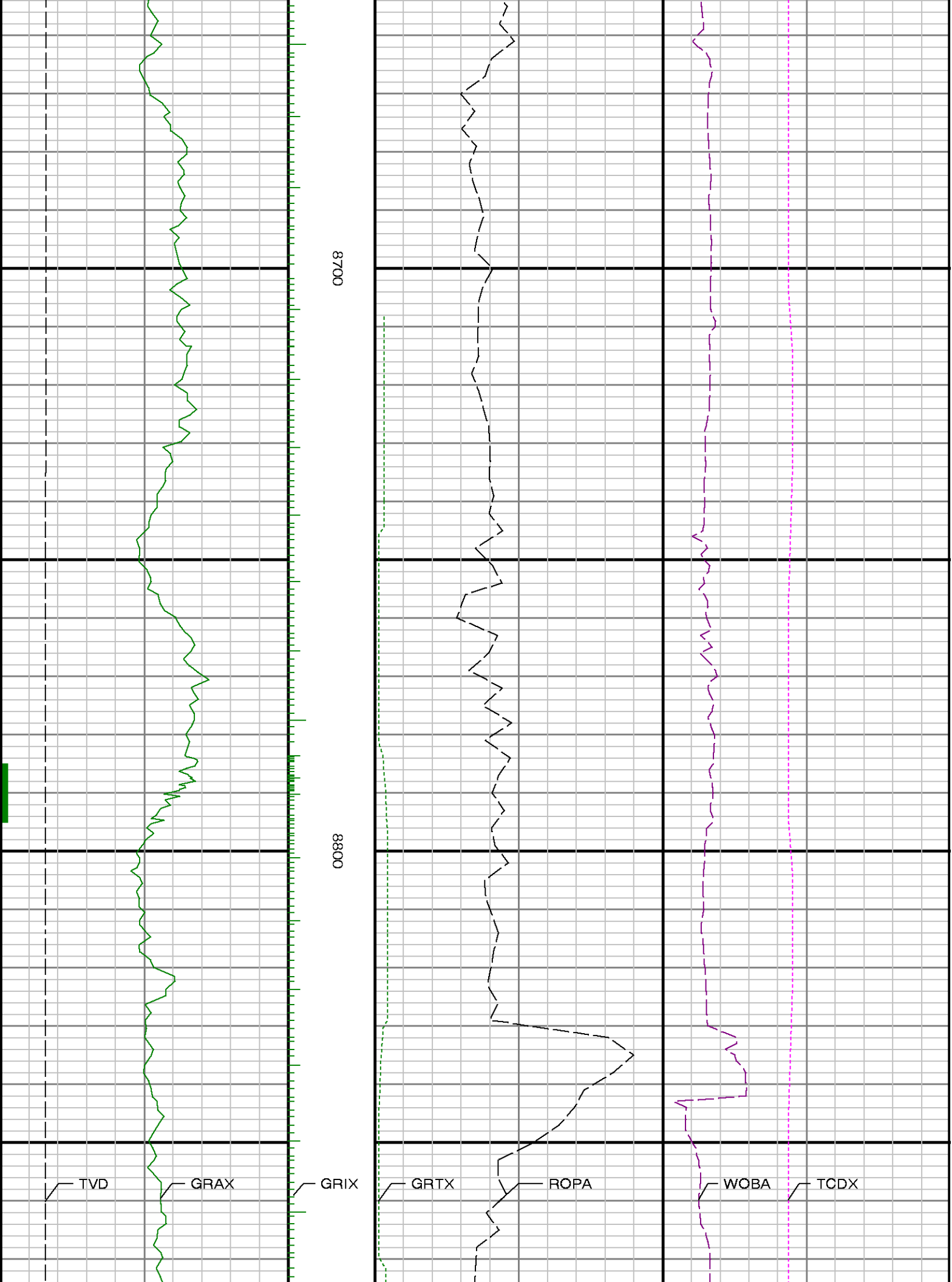


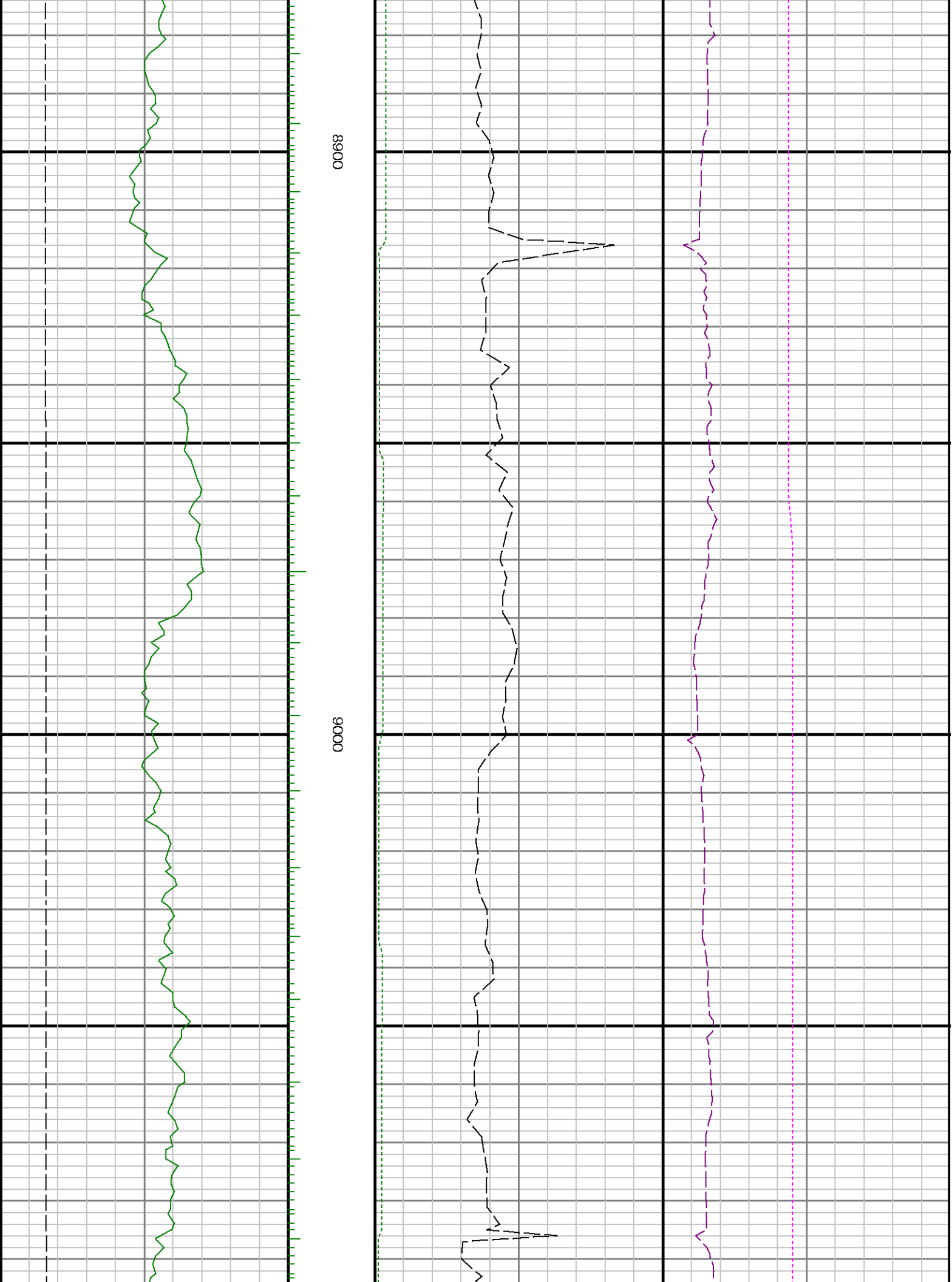


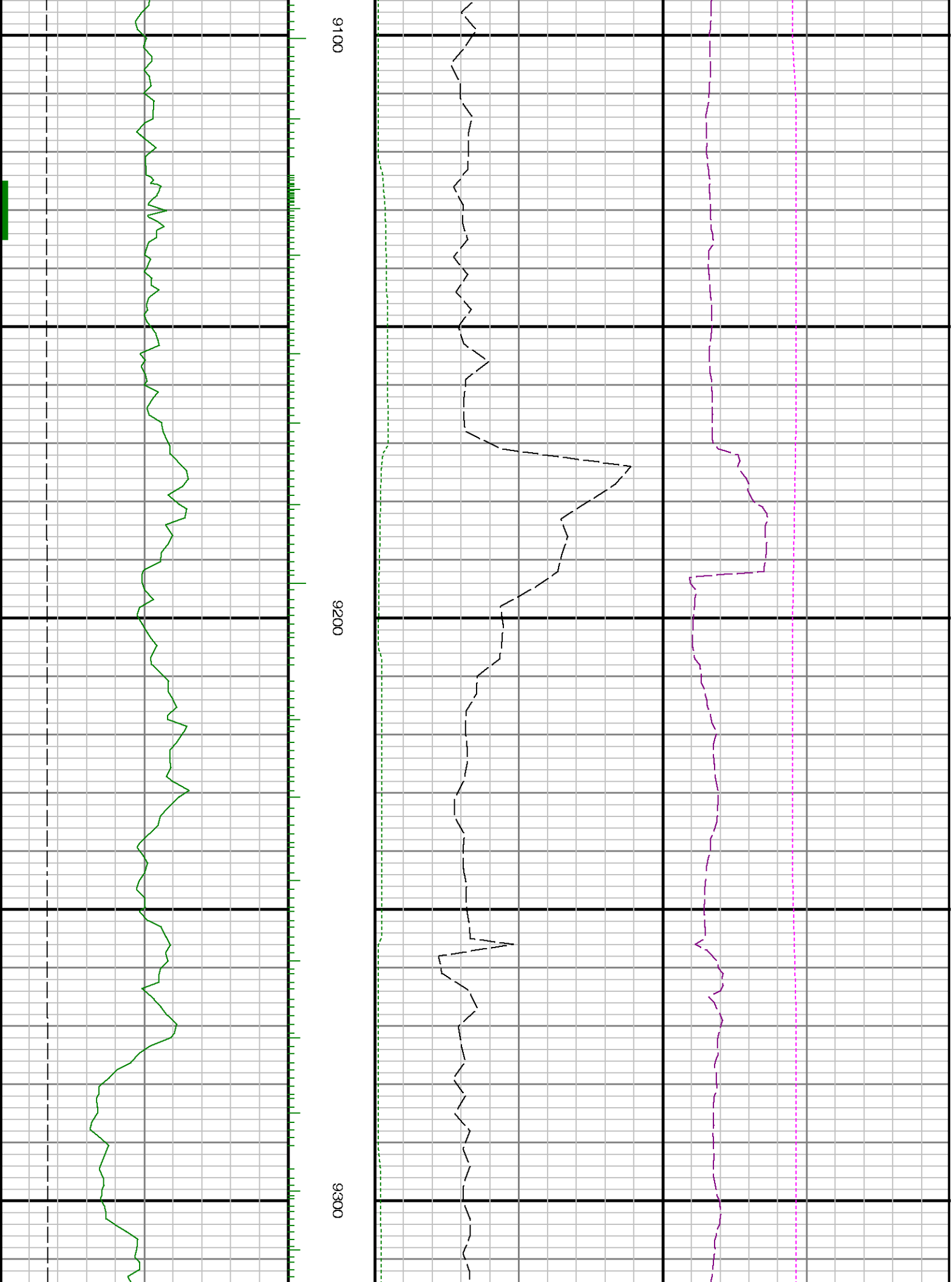
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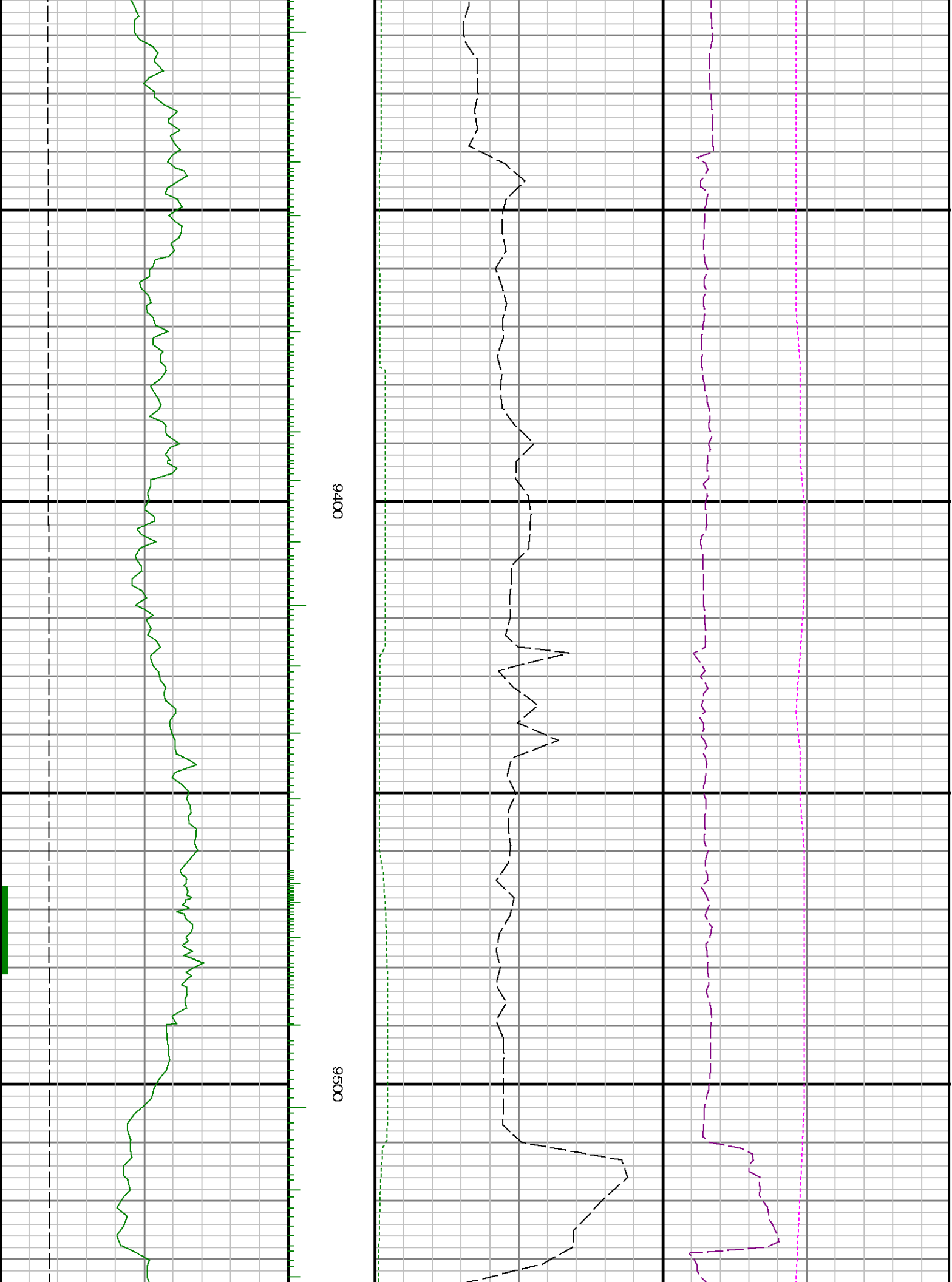
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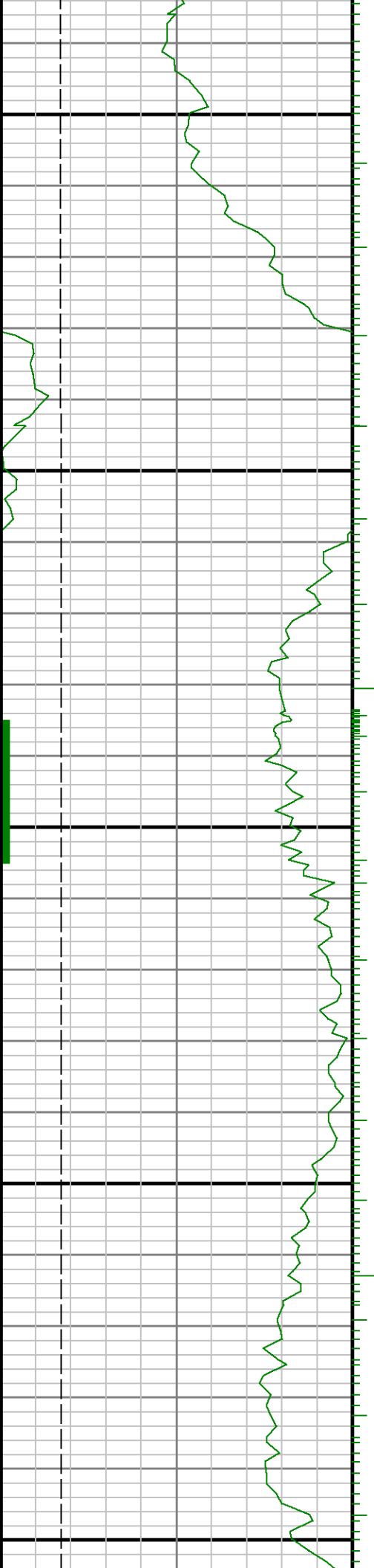






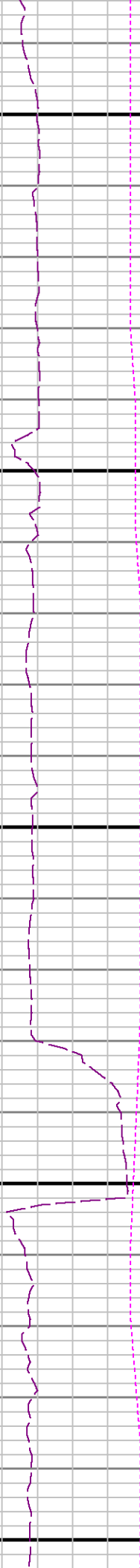
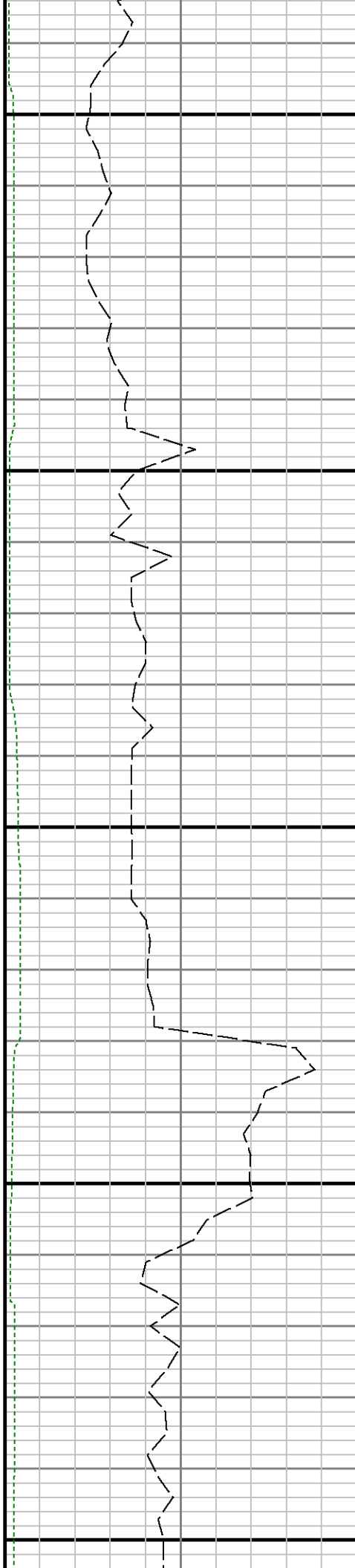


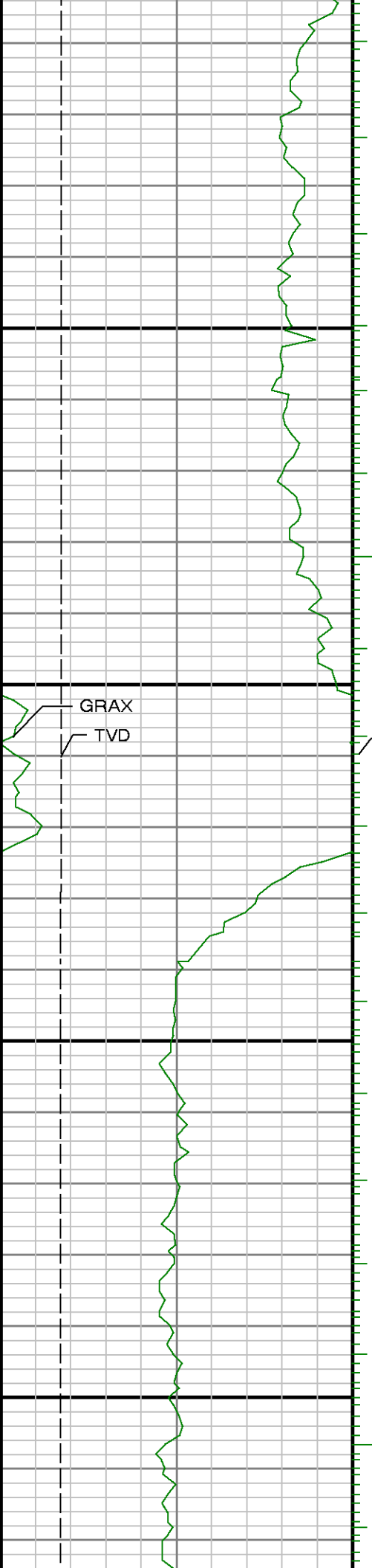




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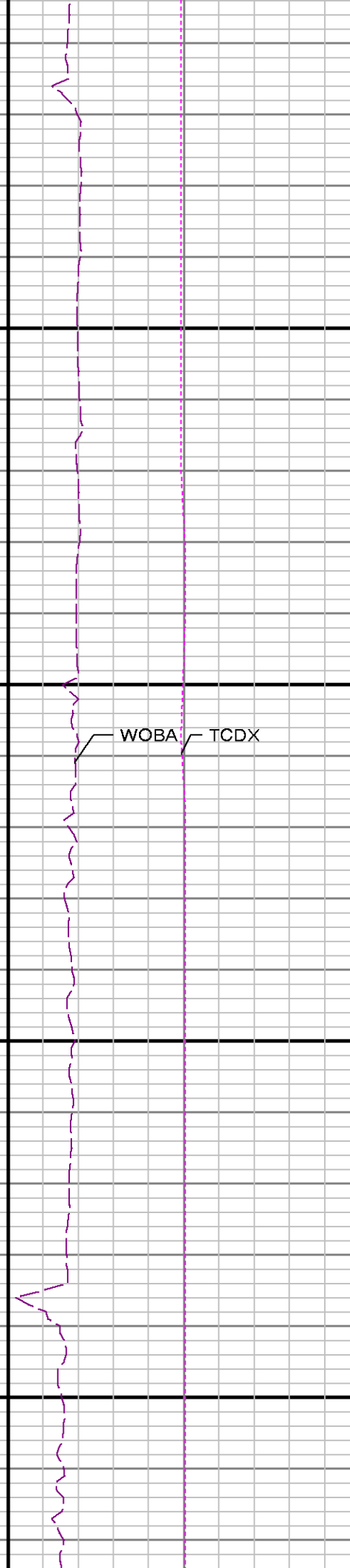
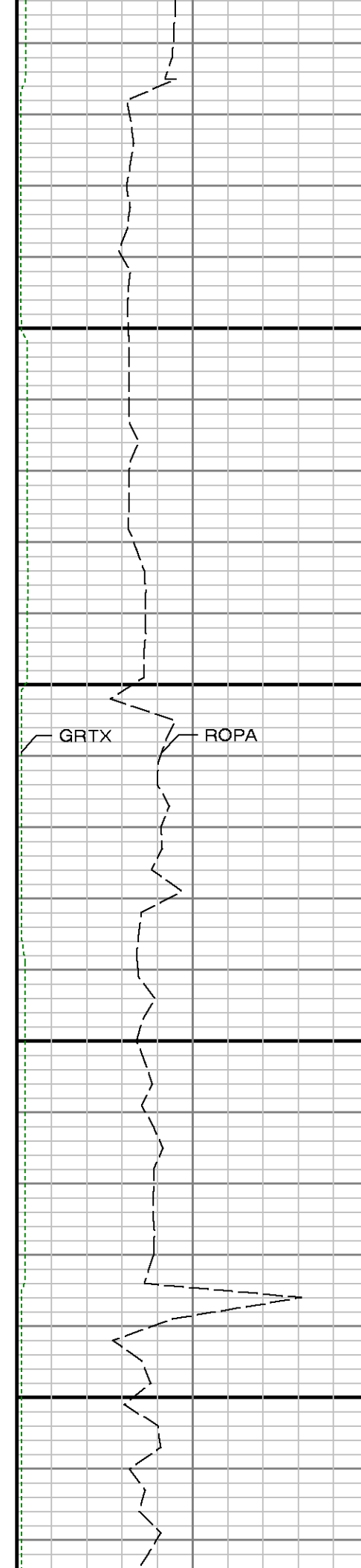
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GRIX



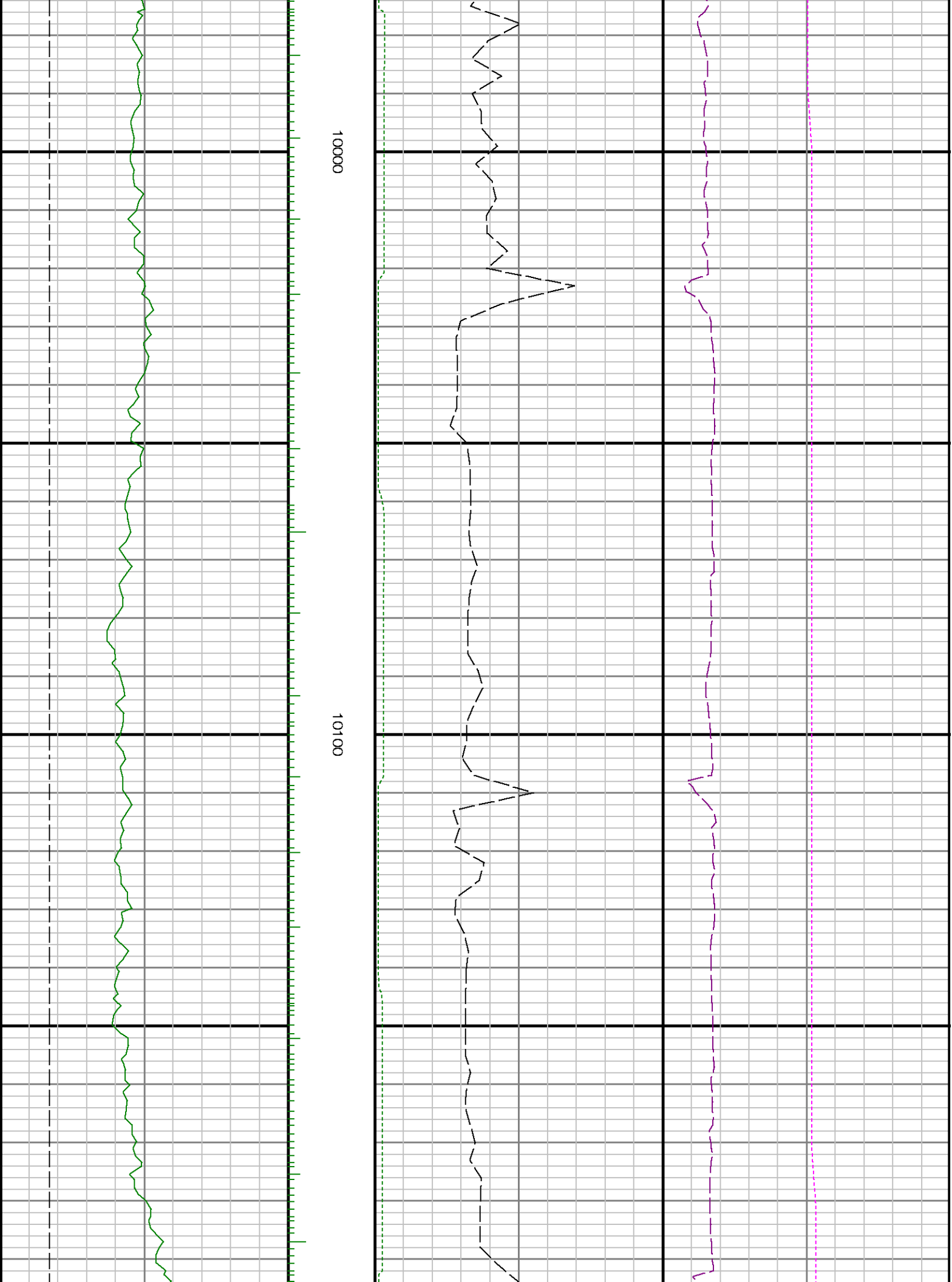
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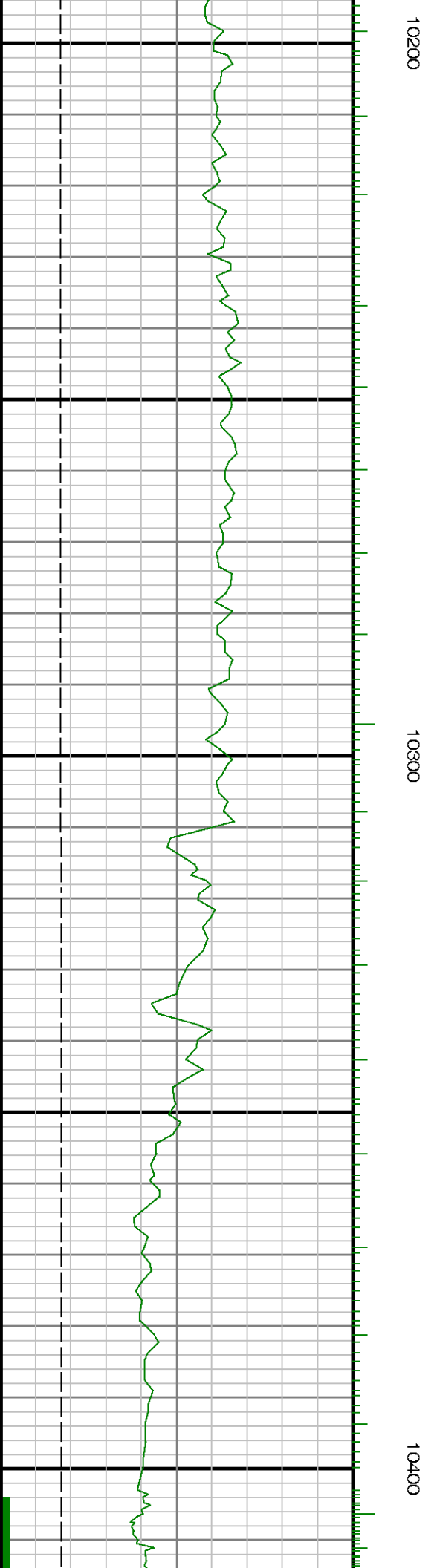
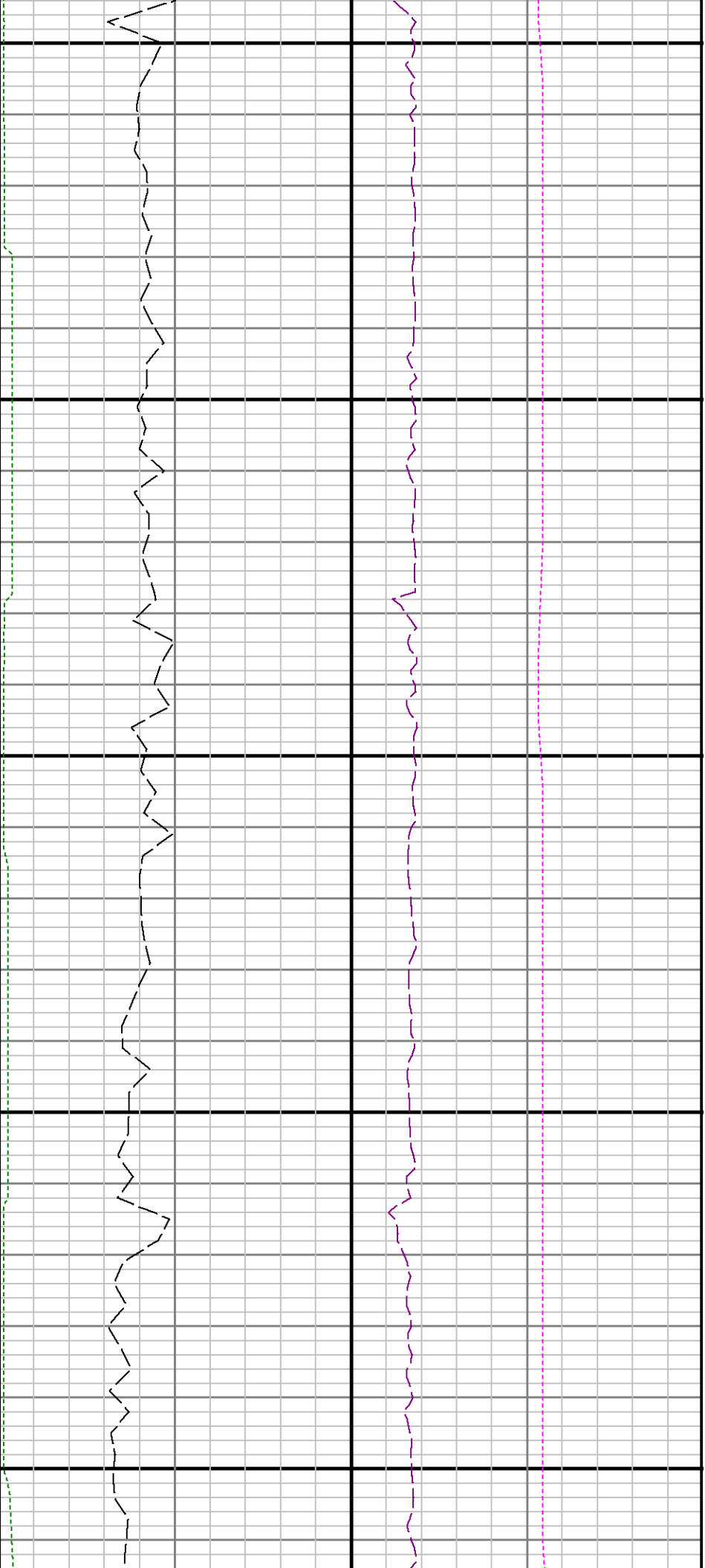
GRTX

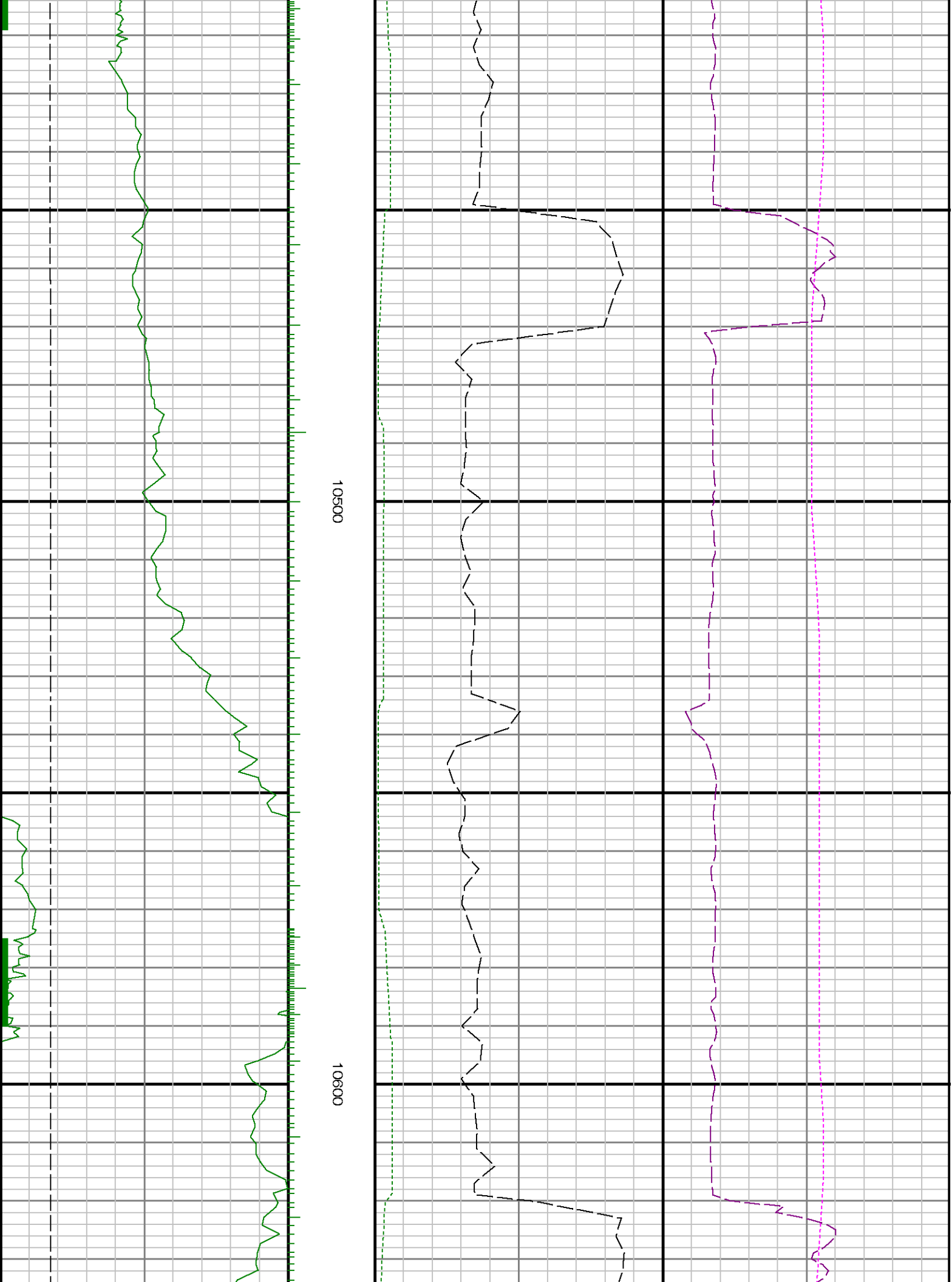
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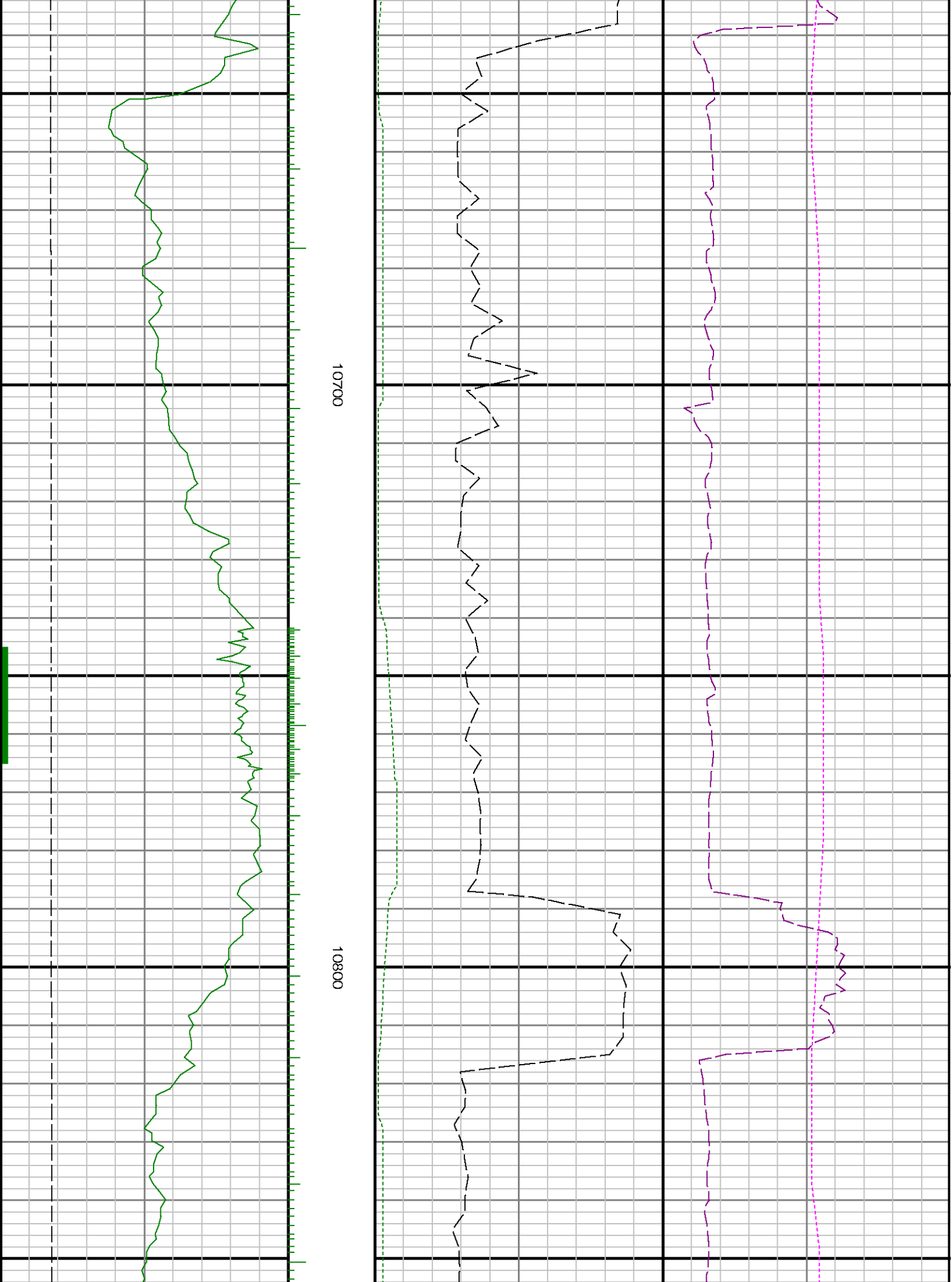
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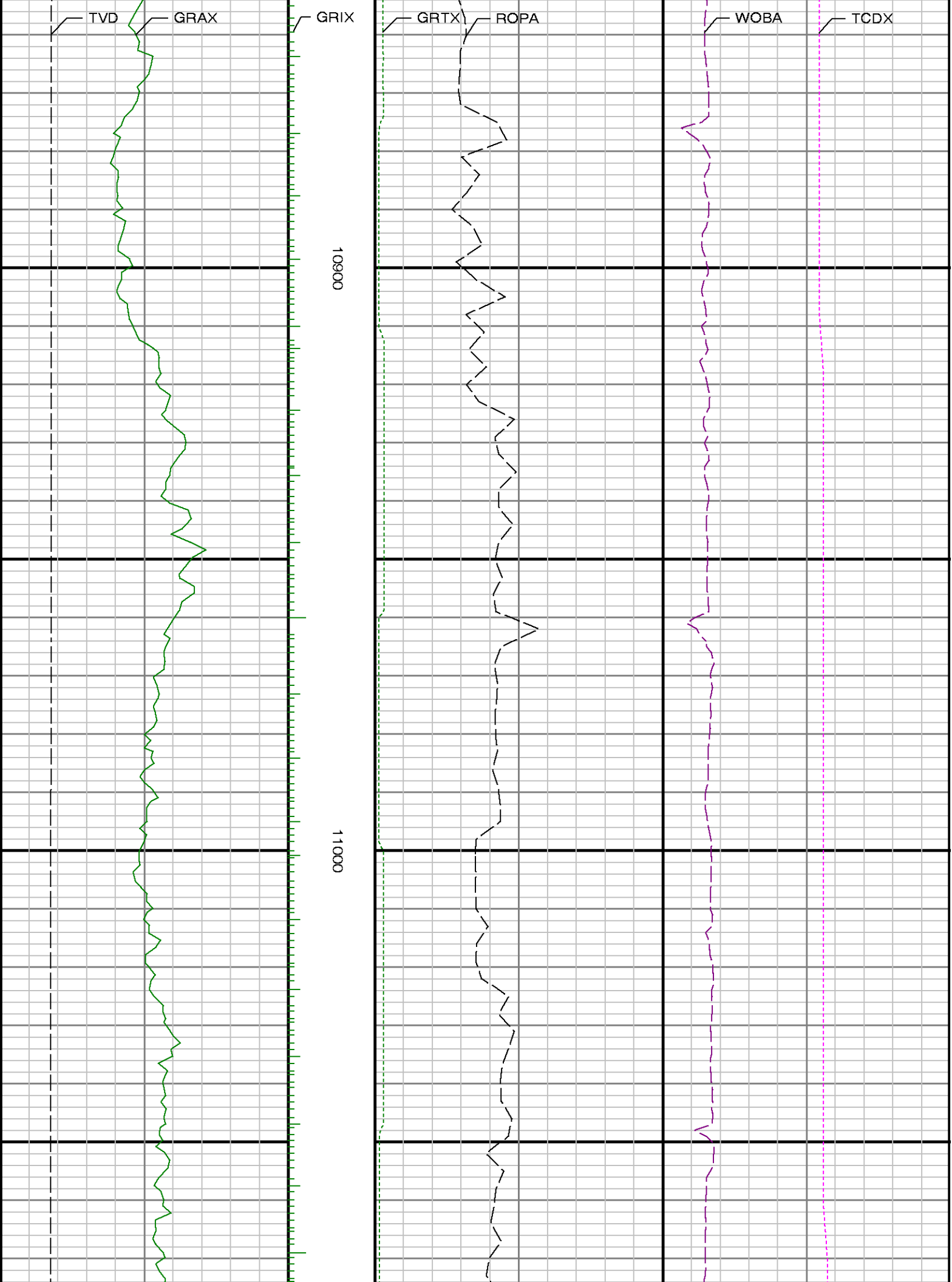
TCDX

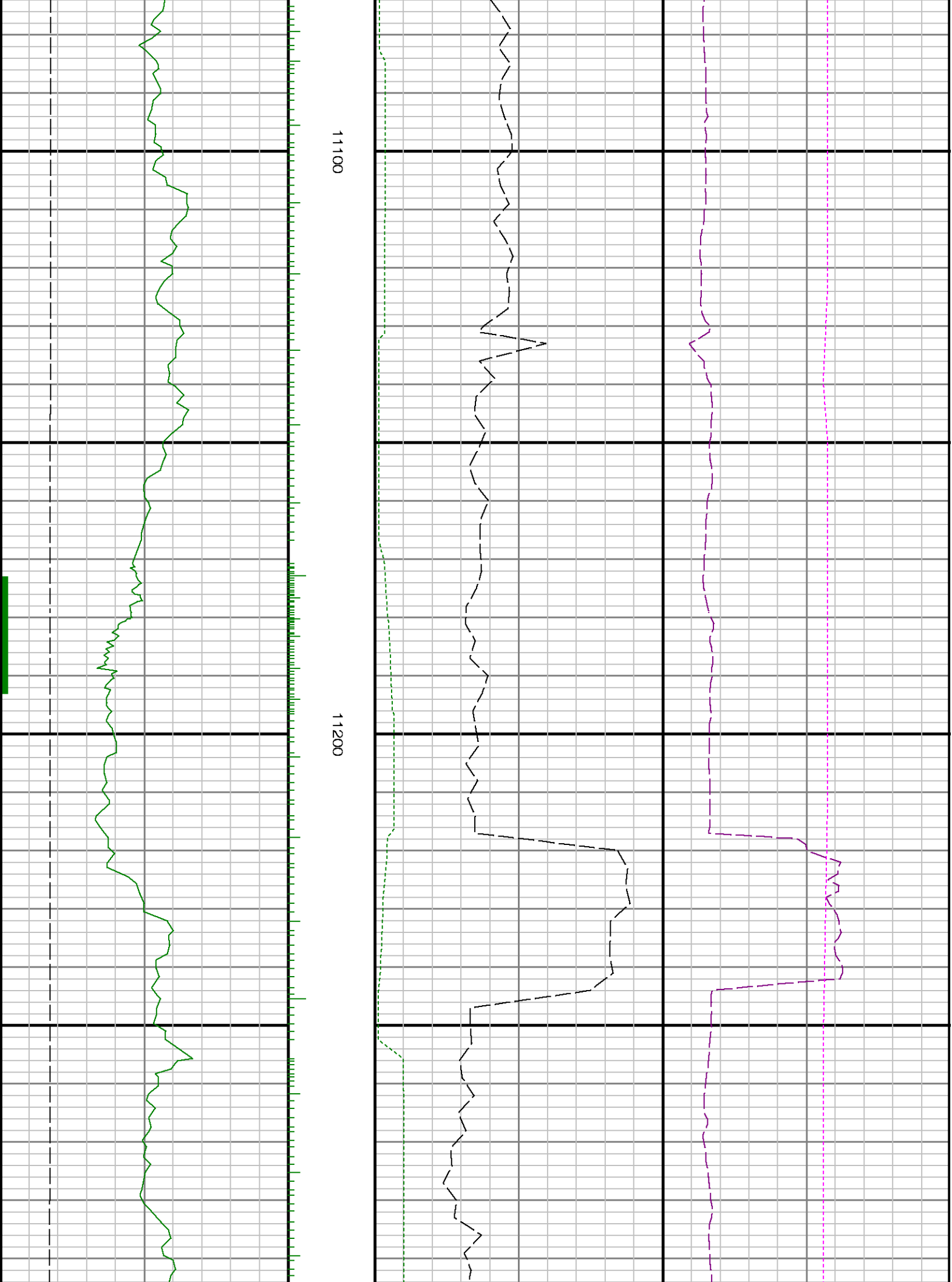


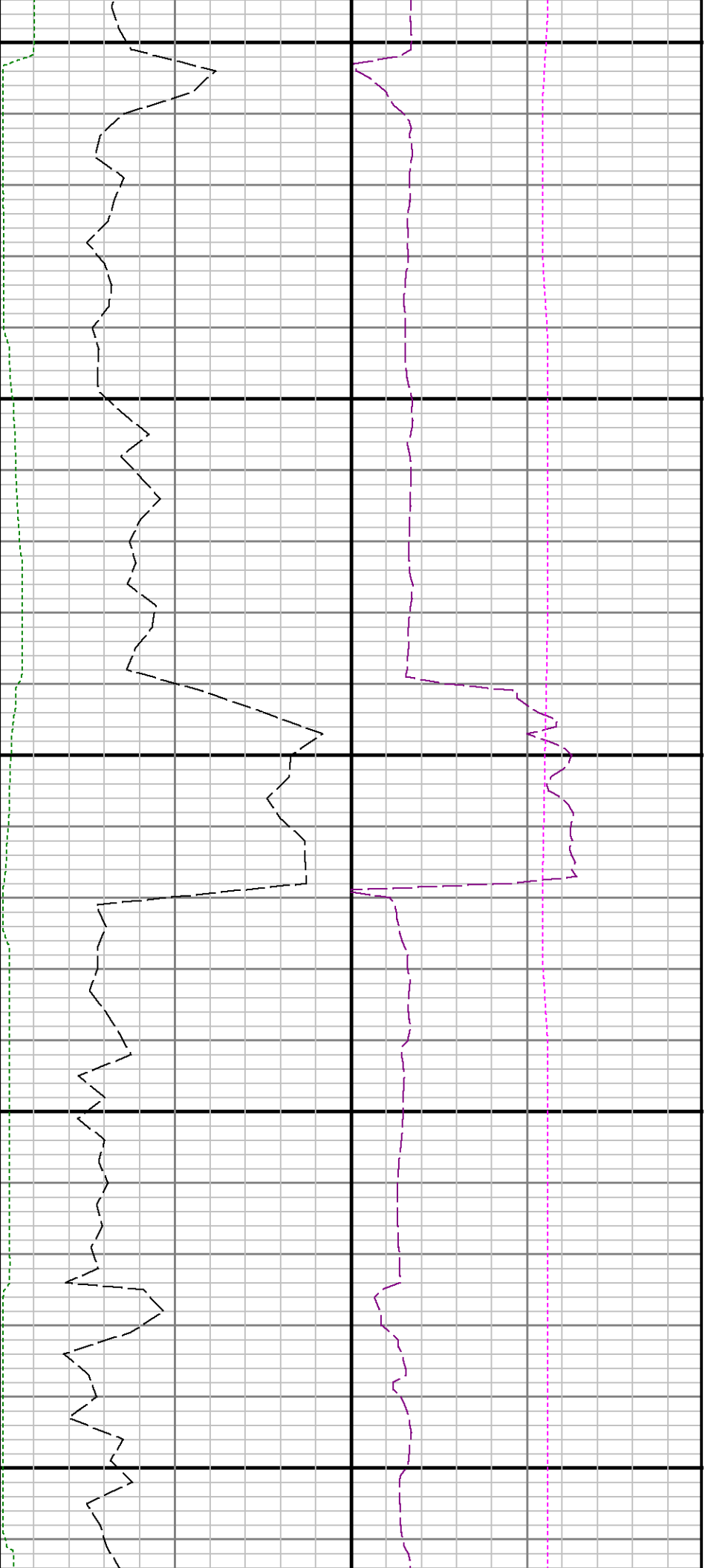








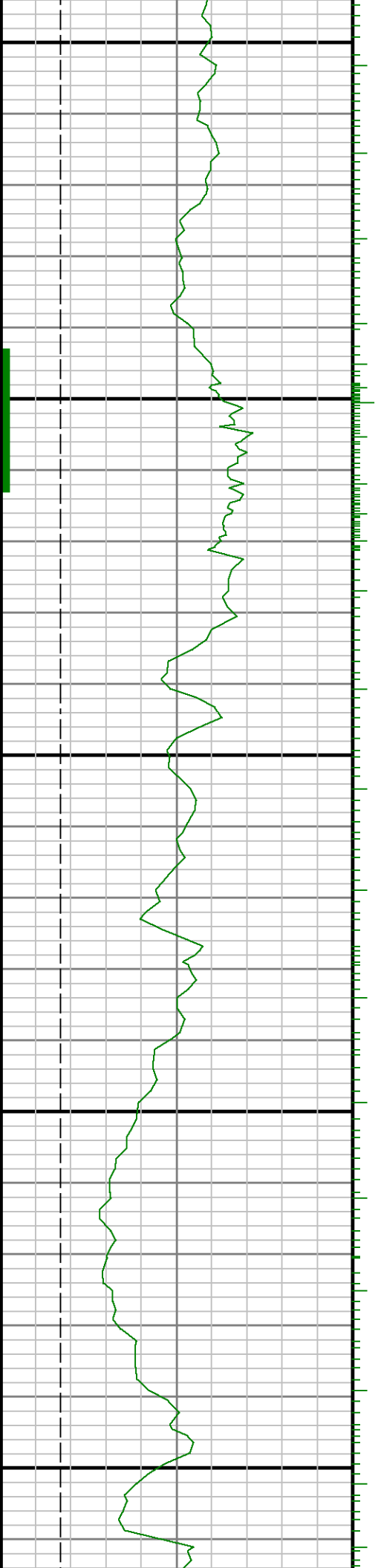




11300

11400

11500





11600

11700

