

Crew								
Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Ramnik Singh	28 Dec 14	08 Jan 15				Bryan Severson	28 Dec 14	08 Jan 15

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+ (%)
29 Dec 14	23:00	1	1506.0	Water Based	8.4	28	8.1	N/A	0/98.5	Active Mud Pit	2200	N/A
30 Dec 14	23:00	1	3520.0	Water Based	9.2	35	9.4	N/A	0/97.0	Active Mud Pit	1800	N/A
31 Dec 14	23:30	1	7910.0	Water Based	10.2	45	9.0	N/A	1.5/88.7	Active Mud Pit	2000	N/A
01 Jan 15	22:30	1	8038.0	Water Based	10.4	50	9.0	N/A	1.5/88.1	Active Mud Pit	2000	N/A
02 Jan 15	23:00	2	8038.0	Water Based	9.8	42	9.0	N/A	1.5/90.5	Active Mud Pit	2800	N/A
03 Jan 15	23:30	3	8358.0	Water Based	9.8	42	9.6	N/A	1.5/90.5	Active Mud Pit	2600	N/A
04 Jan 15	N/A	3	11650.0	Water Based	9.8	42	9.2	N/A	1.8/90.1	Active Mud Pit	2300	N/A
05 Jan 15	23:00	3	14129.0	Water Based	10.0	51	9.0	N/A	2.0/89.0	Active Mud Pit	1800	N/A

Mnemonics

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

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12456778	Directional	46.56	6.750	3.313
1	SRIG	10473320	Gamma	43.19	6.750	3.313
2	DIR	12497612	Directional	54.48	4.813	2.750
2	SRIG	11703934	Gamma	51.10	4.813	2.750
3	DIR	12373454	Directional	52.42	4.750	2.750
3	SRIG	12041109	Gamma	49.04	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

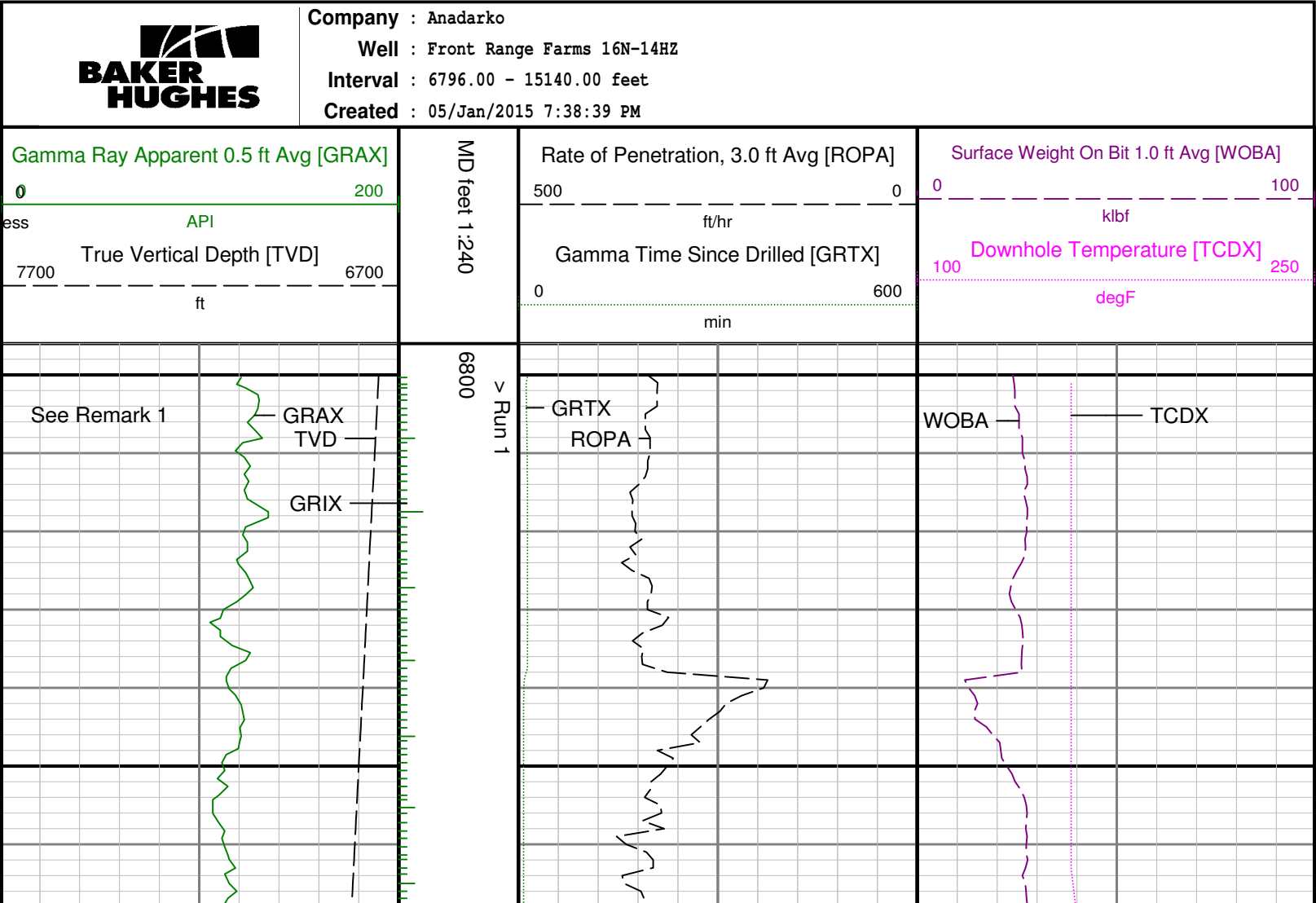
1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.

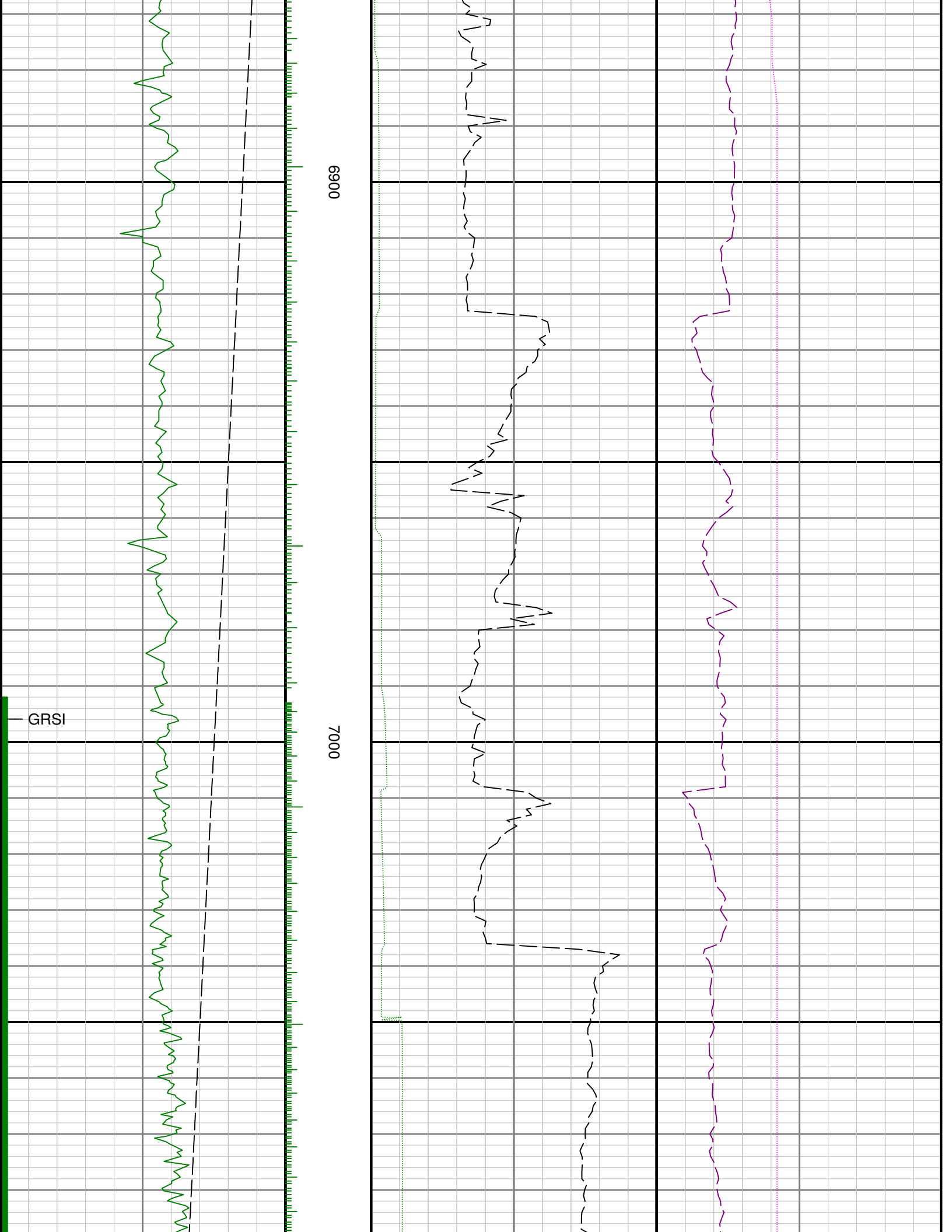
2.) Baker Hughes LWD run 1 utilized 6 1/2 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and conventional motor assembly from 1349 to 8038 ft MD (1349 to 7605 ft TVD).

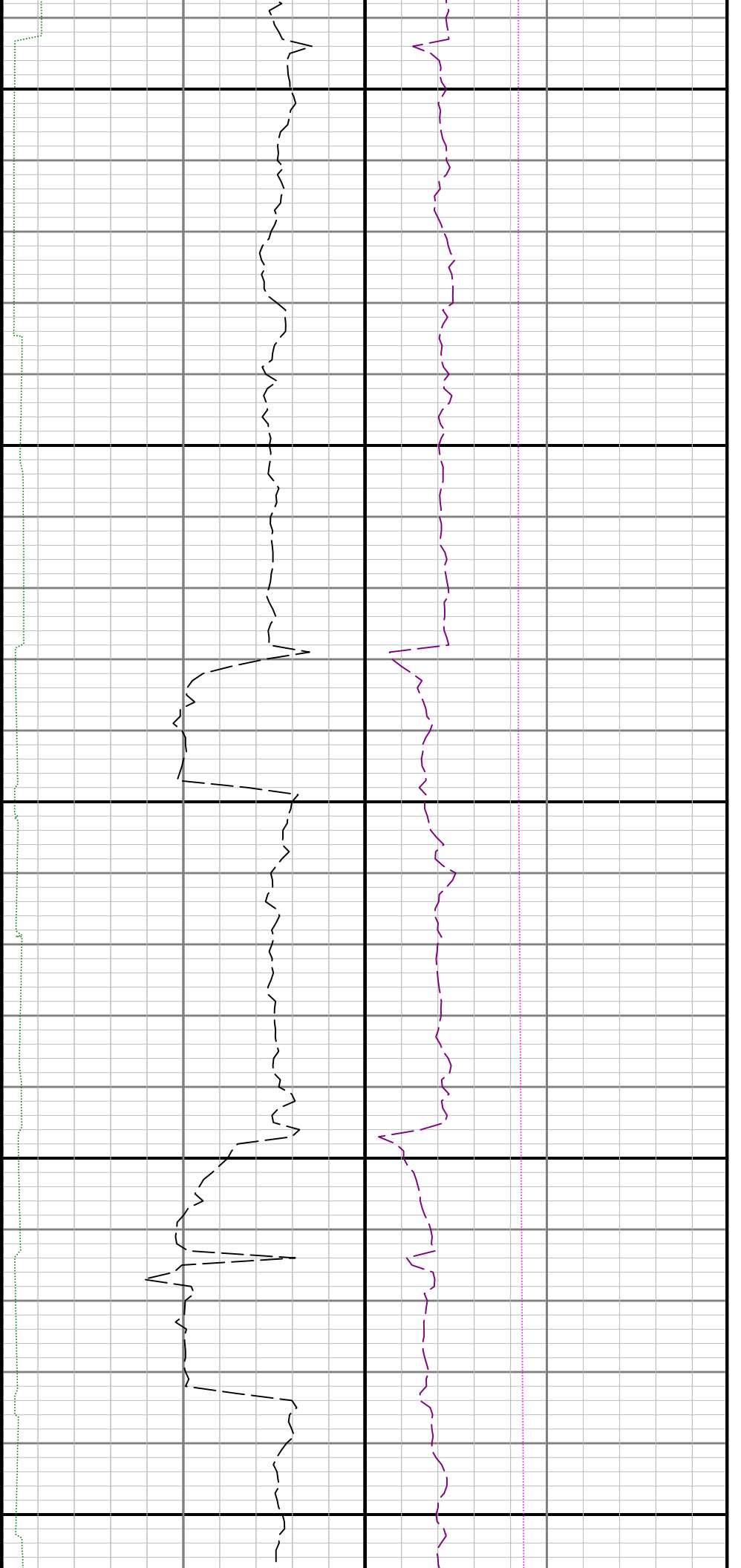
- 3.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and conventional motor assembly from 8038 to 8137ft MD (7605 to 7605 ft TVD).
- 4.) Baker Hughes LWD run 3 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and conventional motor assembly from 8137 to 15137ft MD (7605 to 7601 ft TVD).
- 5.) A sliding indicator shown on the left side of track 1 as a heavy line. This indicator has been shifted to the Gamma Ray sensor offset to correspond to Gamma Ray data acquired while sliding.

Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6800	8.750	1	Gamma Ray logging operations began at 6800 ft MD (6750 ft TVD) as per company's request.
2	7995	6.125	2	Gamma ray was logged inside casing from 7995 to 8028 ft MD (7606 to 7605 ft TVD) due to sensor offset.
3	8137	6.125	2	Gamma ray was logged 67.5 hours after being drilled from 7995 to 8137 ft MD (7606 to 7605 ft TVD) due to casing operations and due to MWD failure during Run #2.
4	15083	6.125	3	There is no gamma ray data from 15083 to 15137 ft MD (7603 to 7601 ft TVD) due to sensor offset.



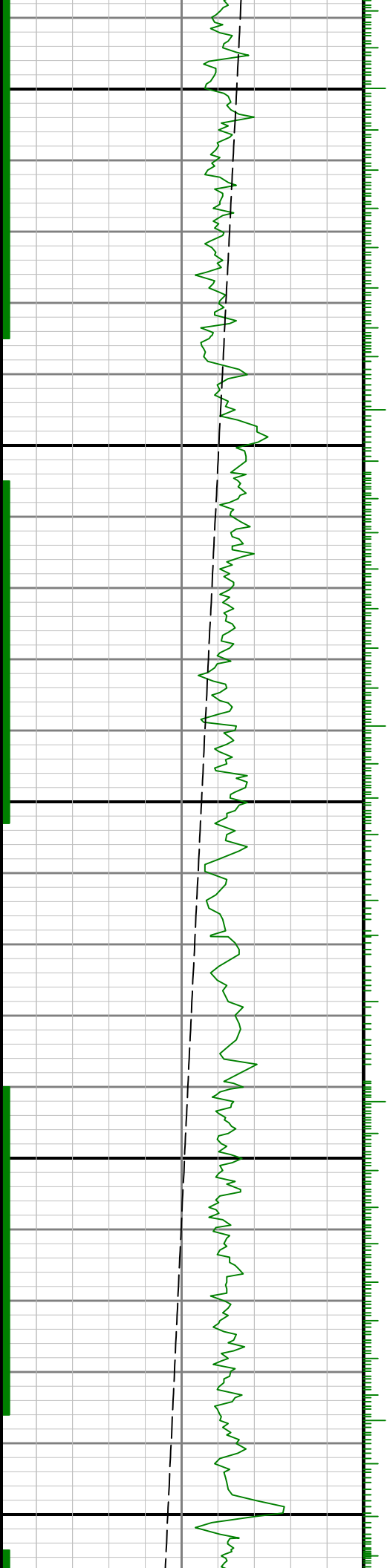


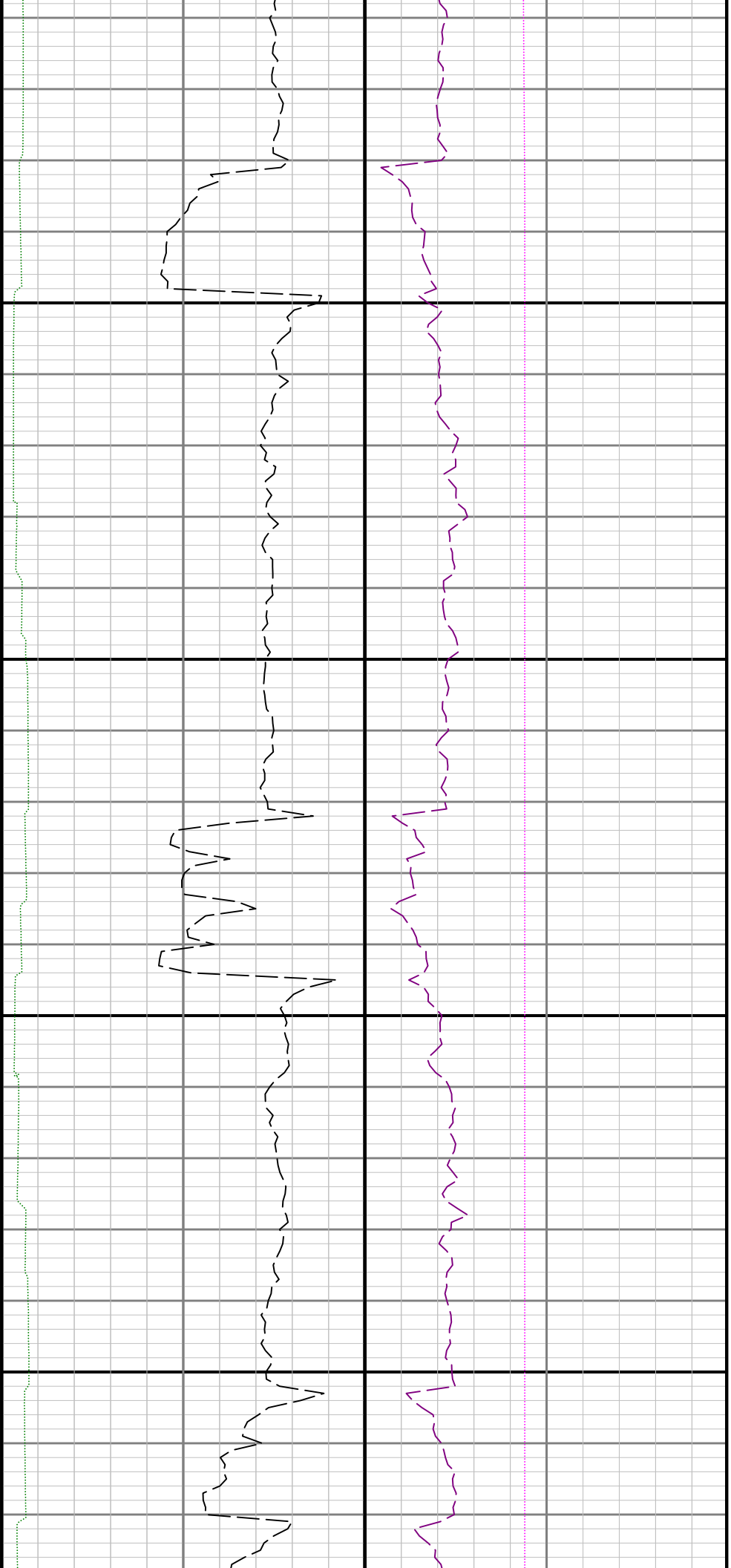


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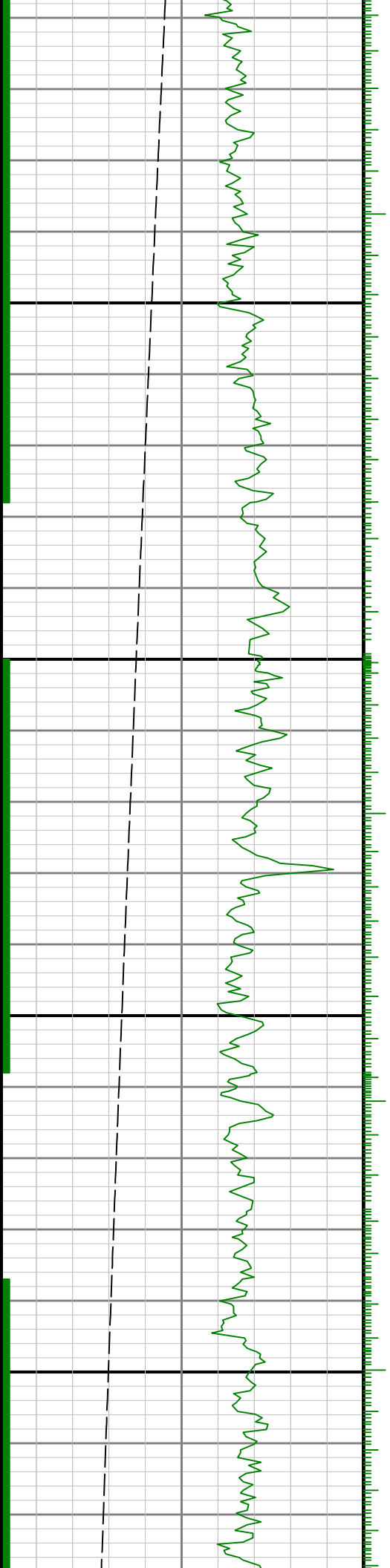
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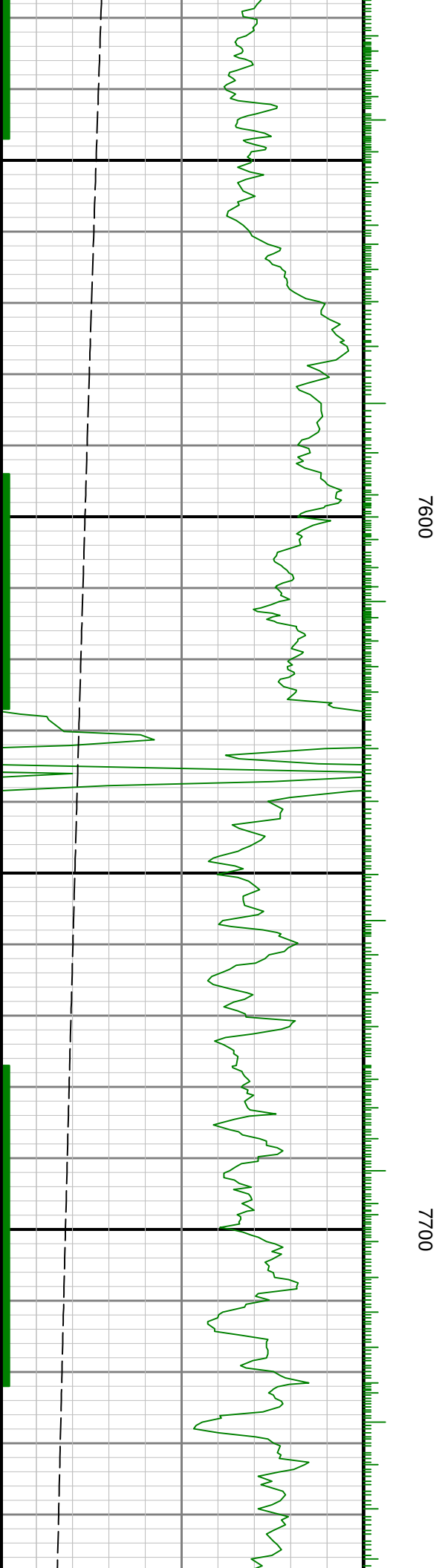
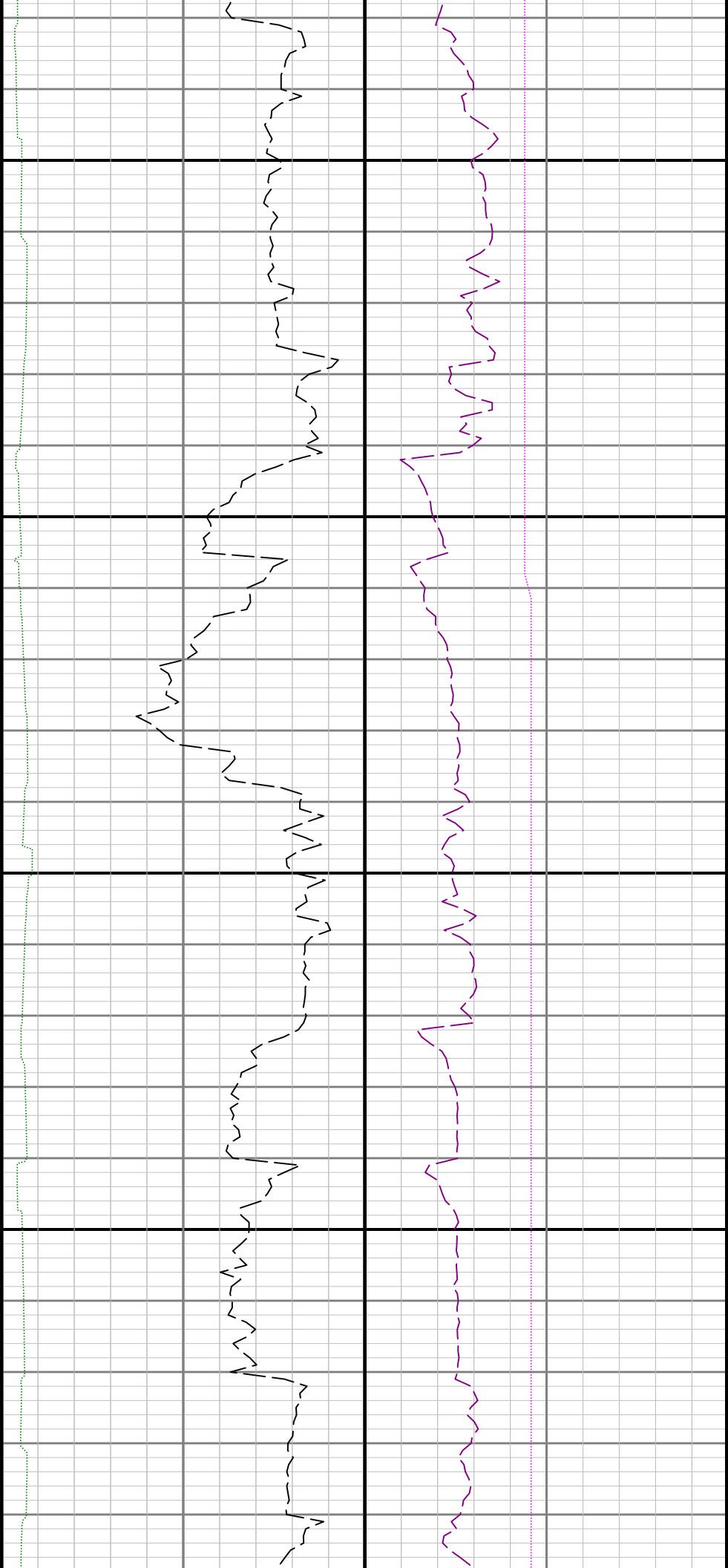


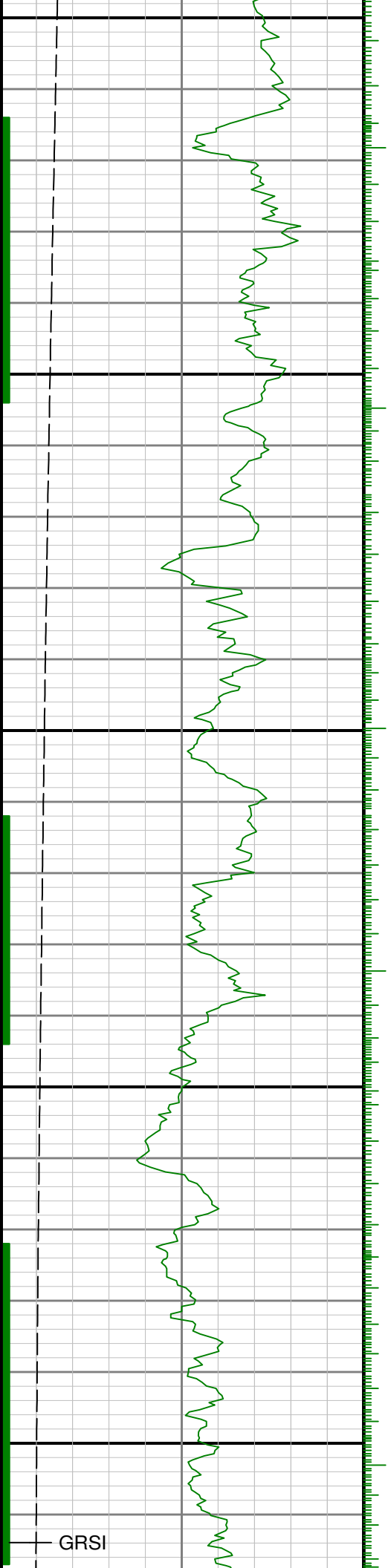


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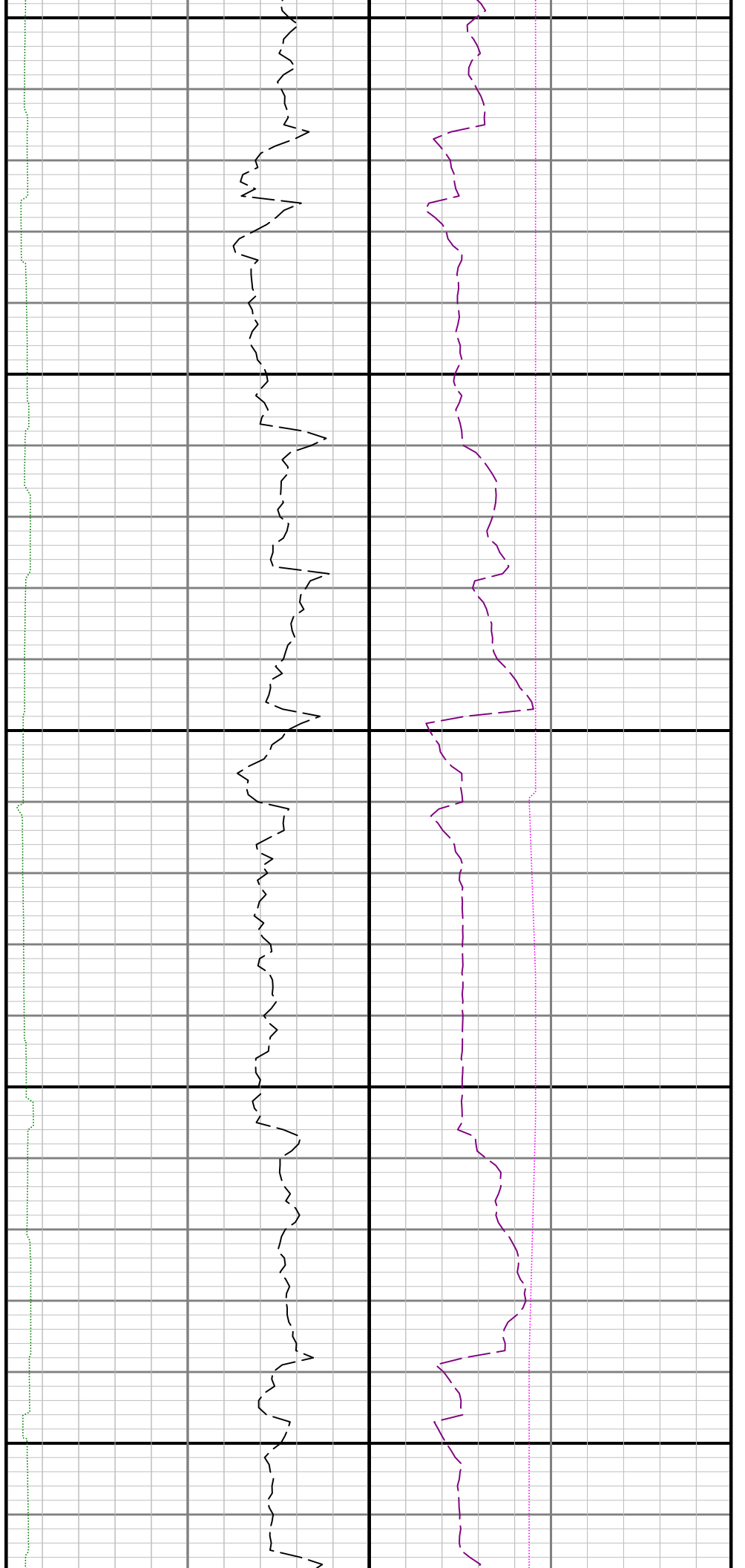


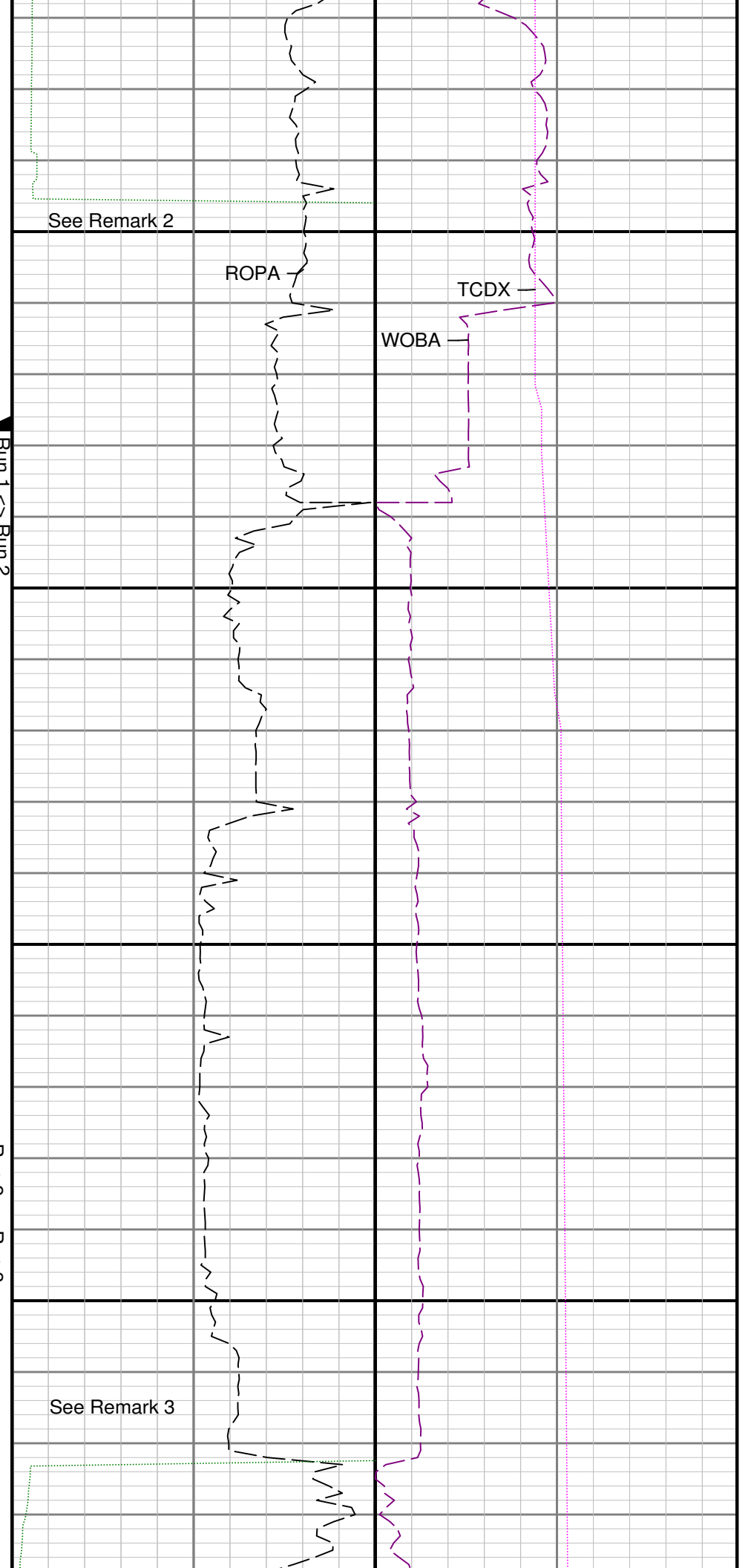
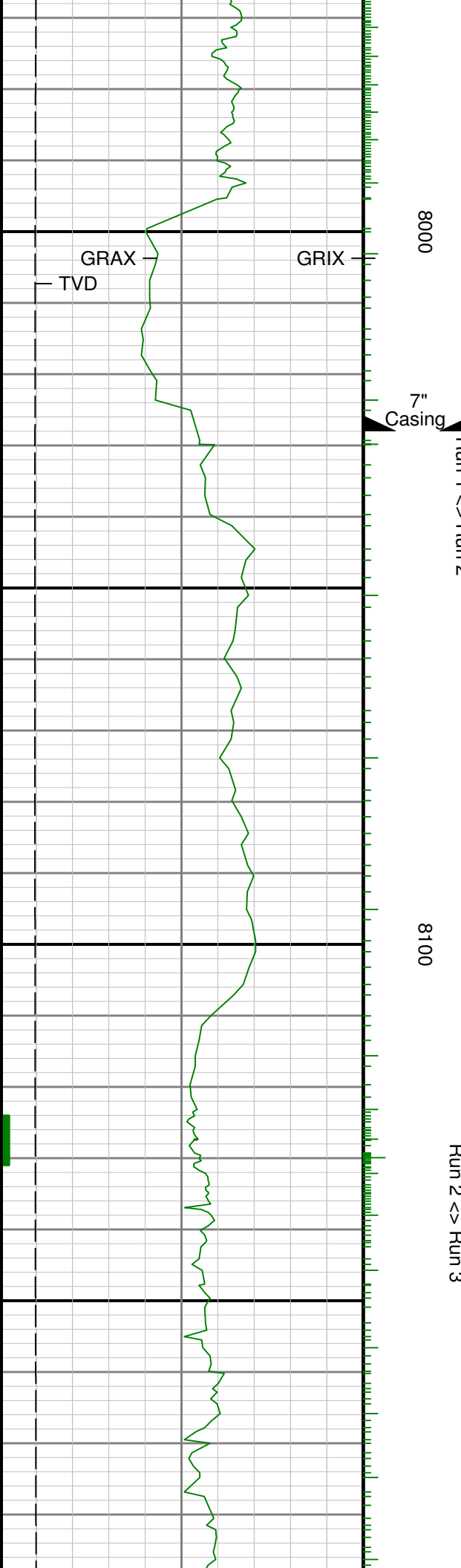


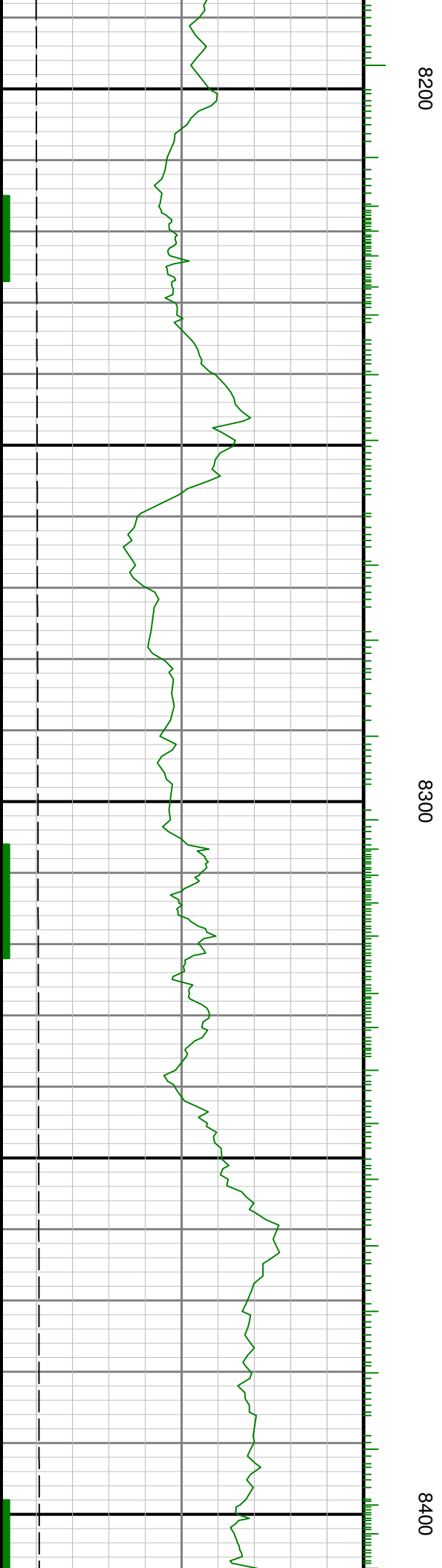
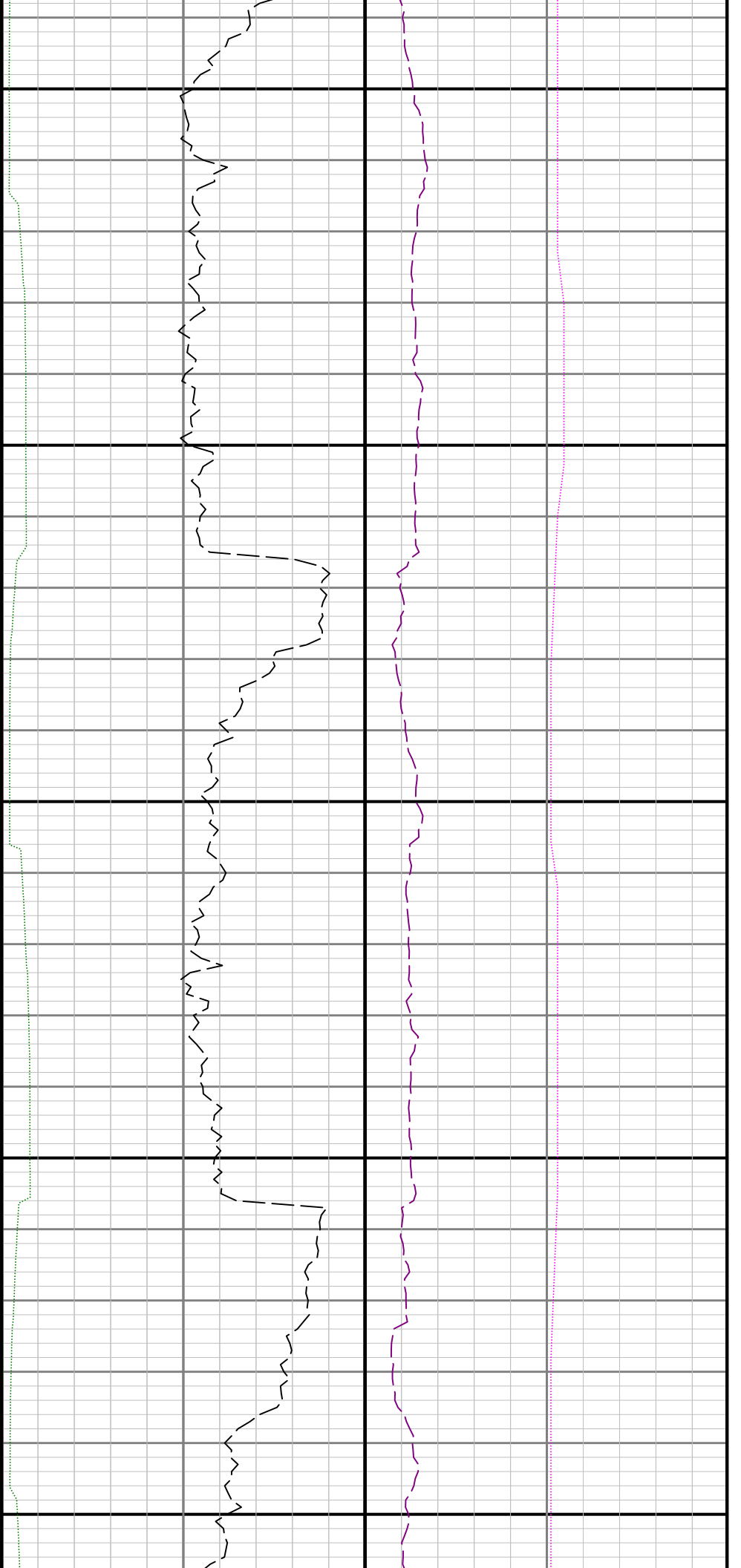


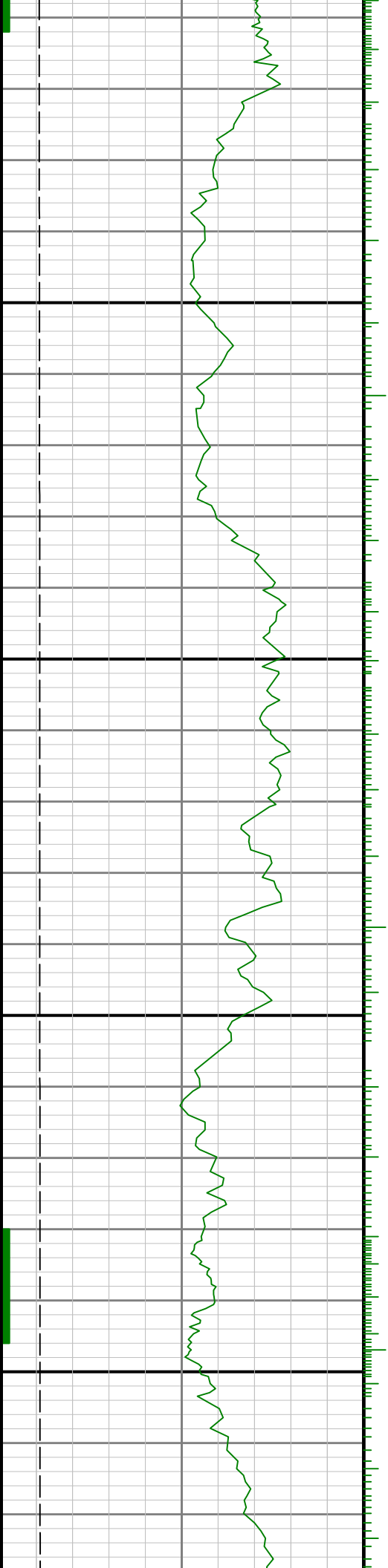
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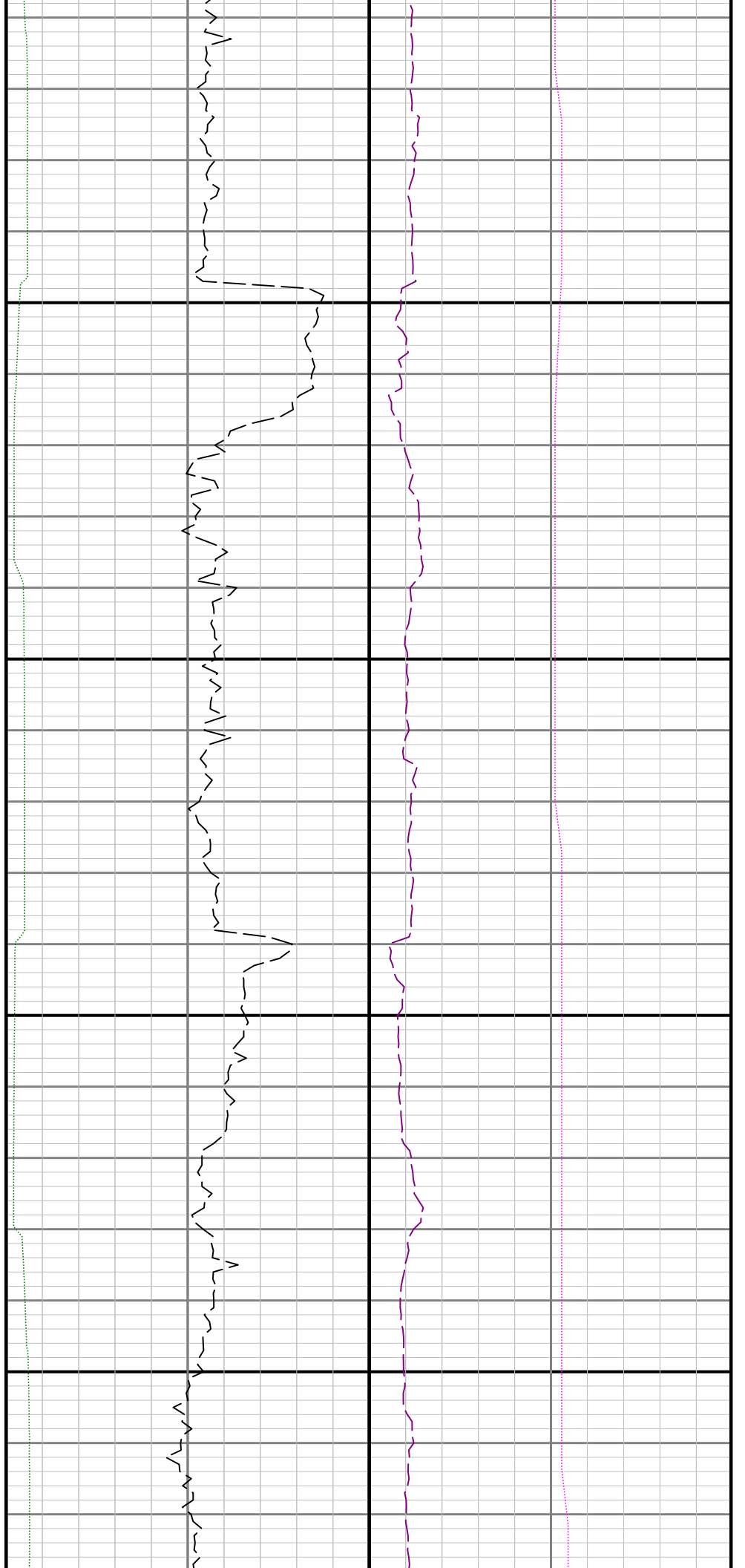


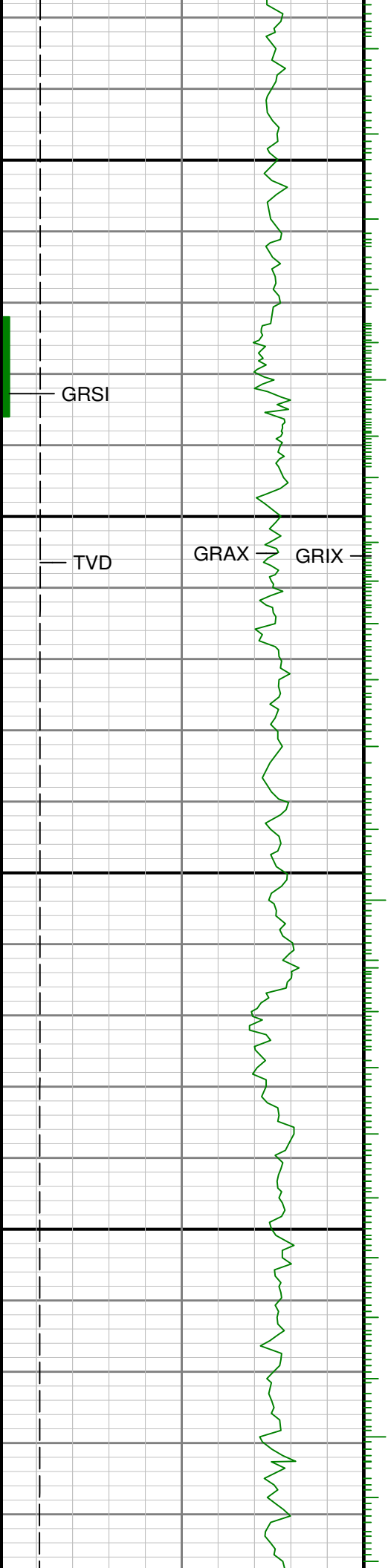




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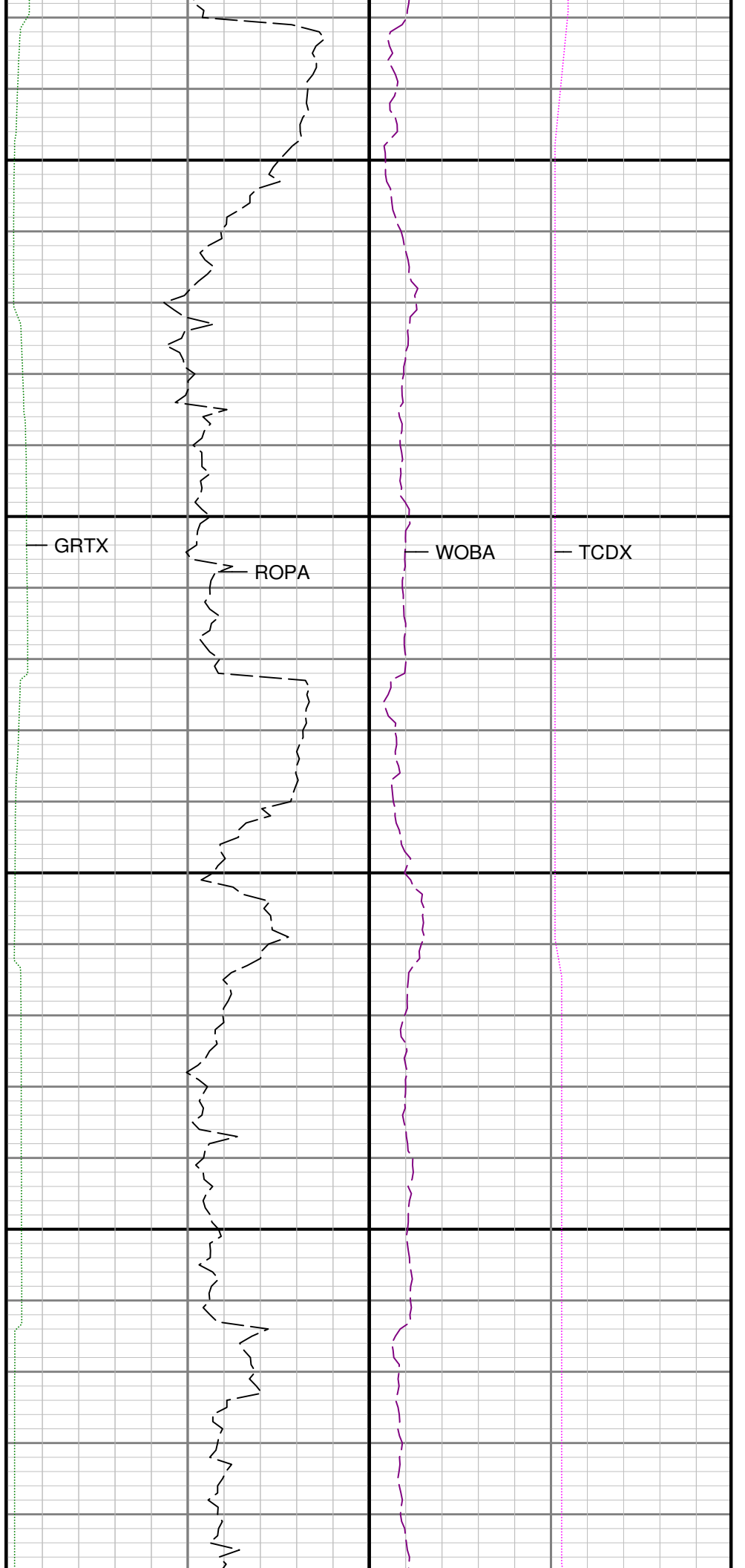
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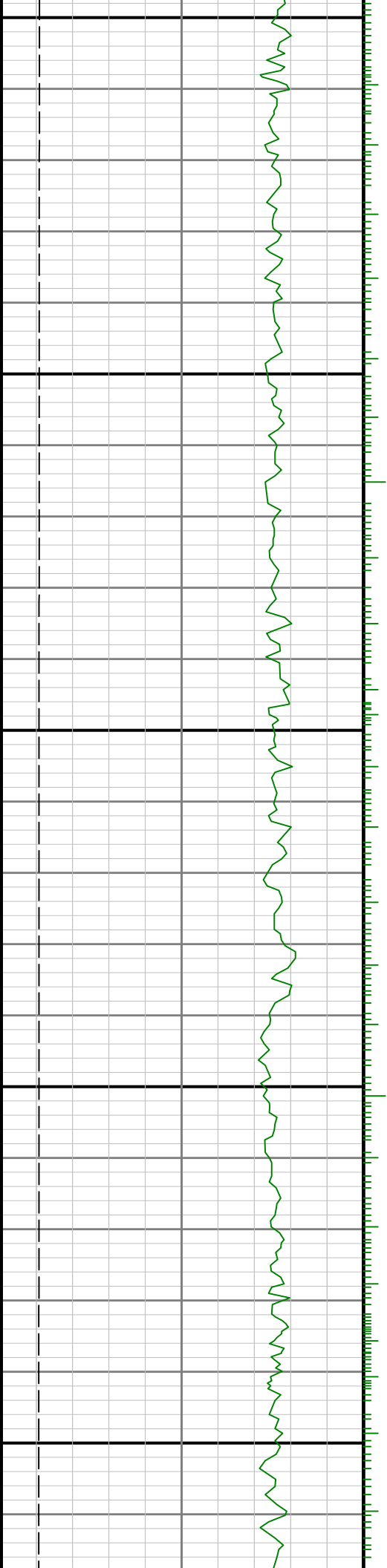




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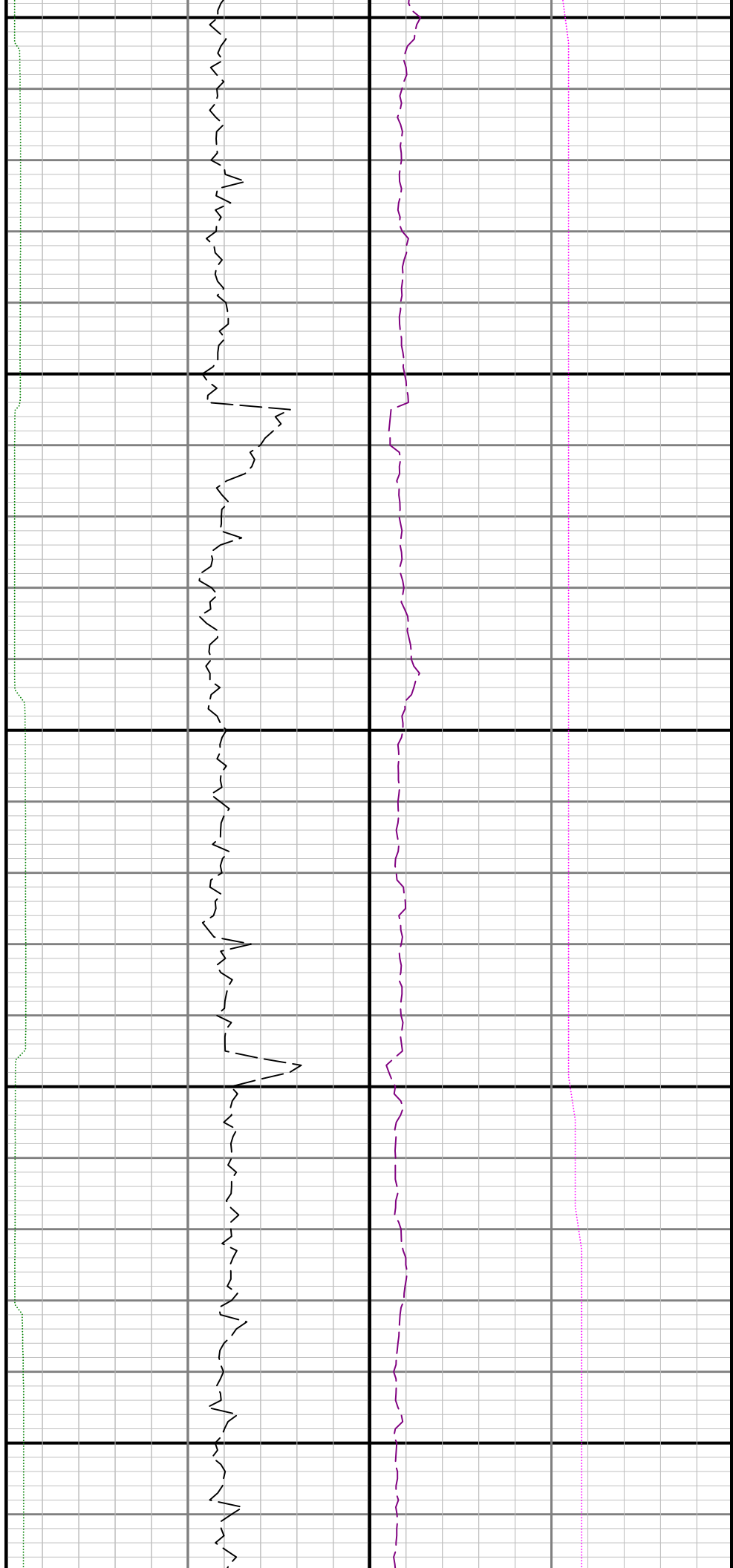
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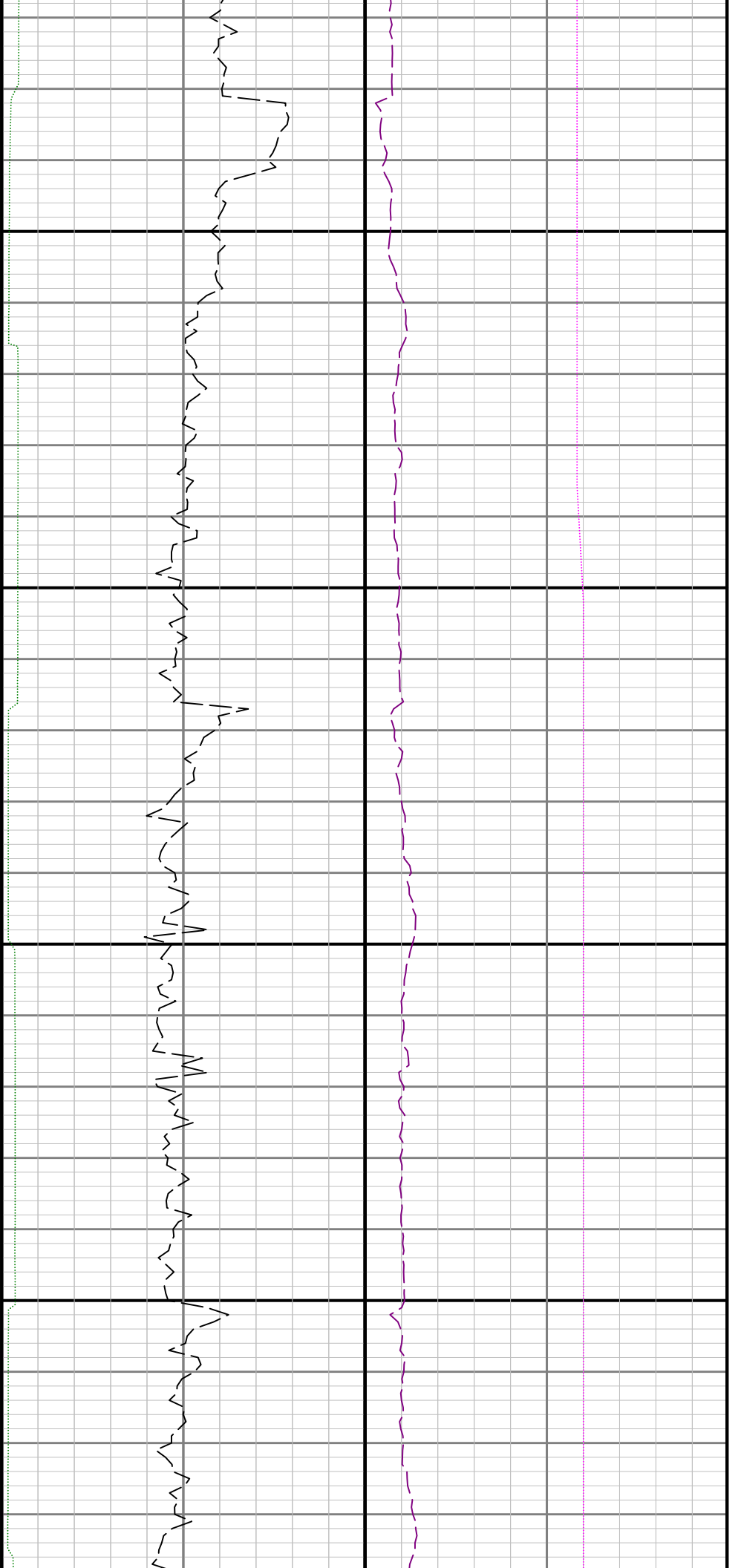




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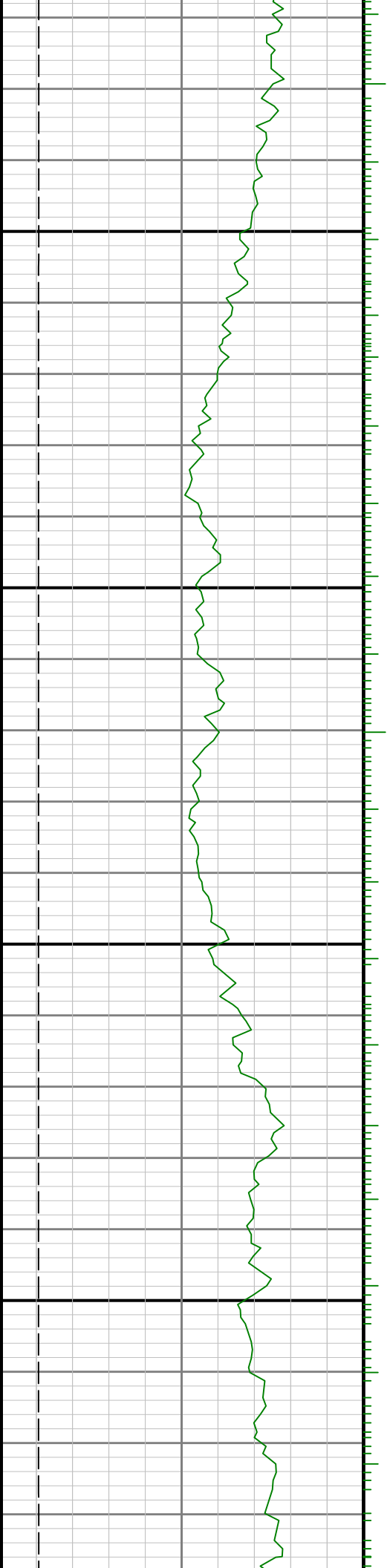
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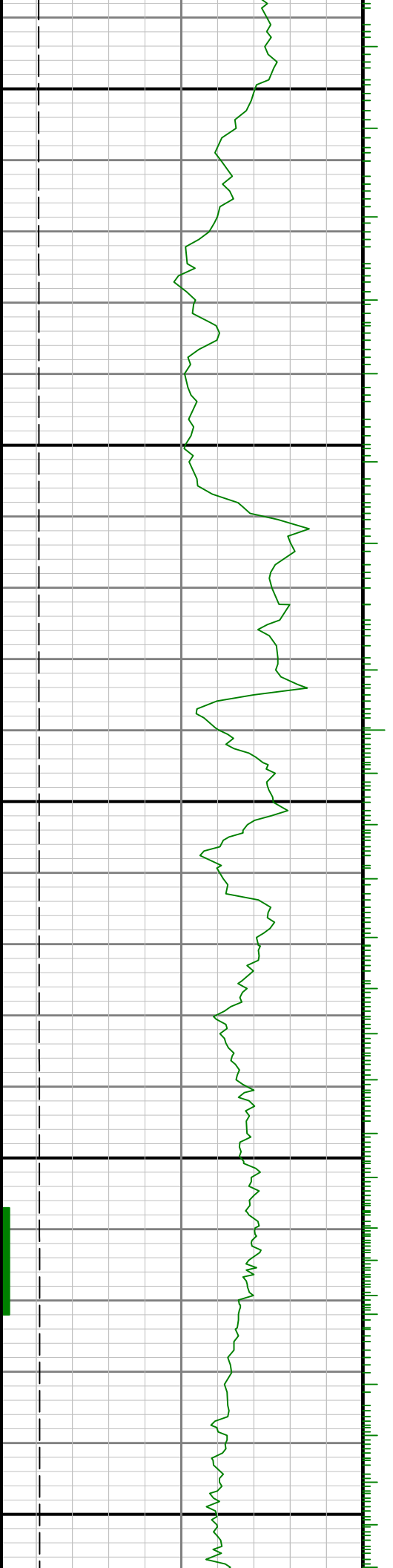


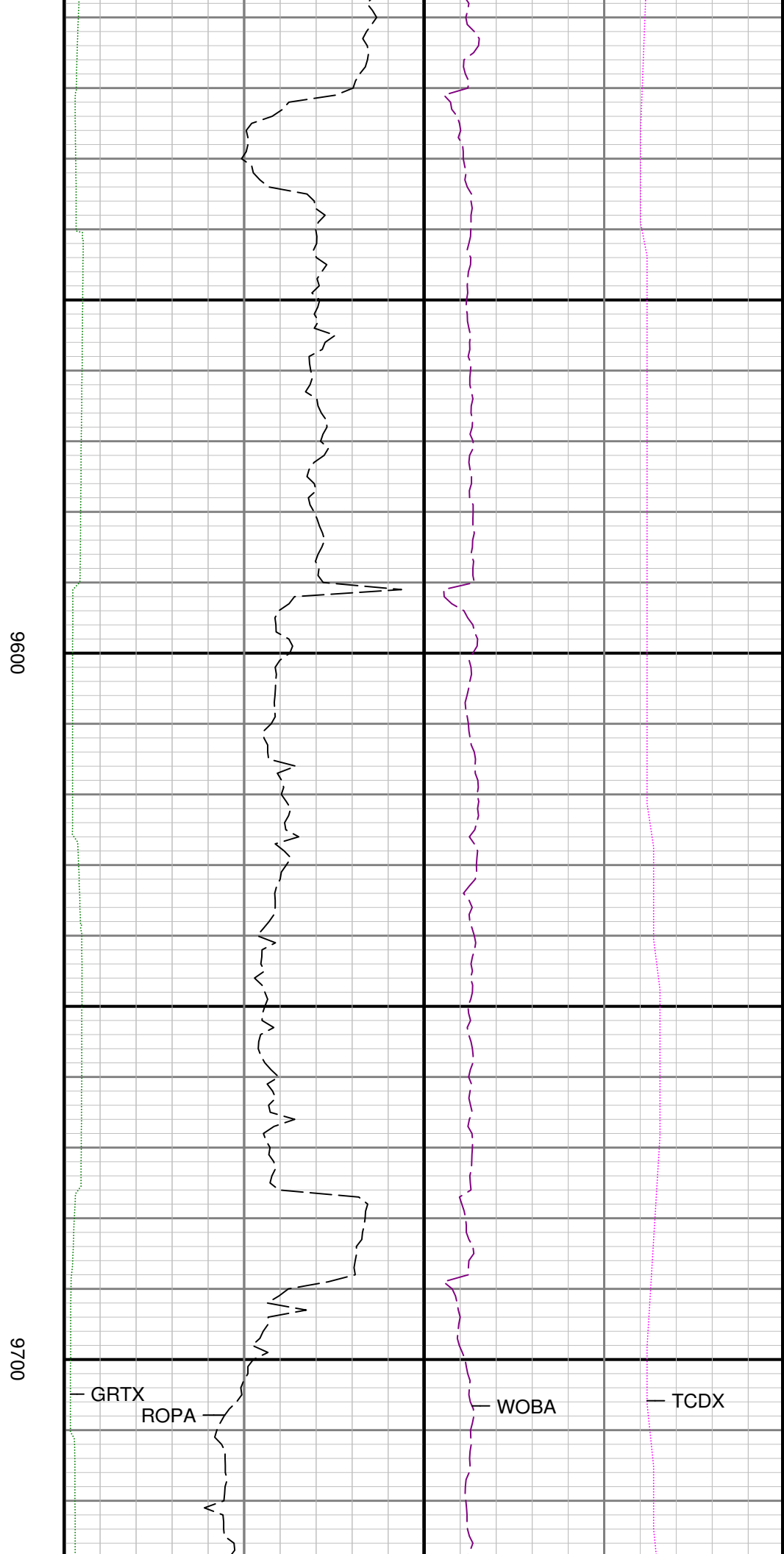
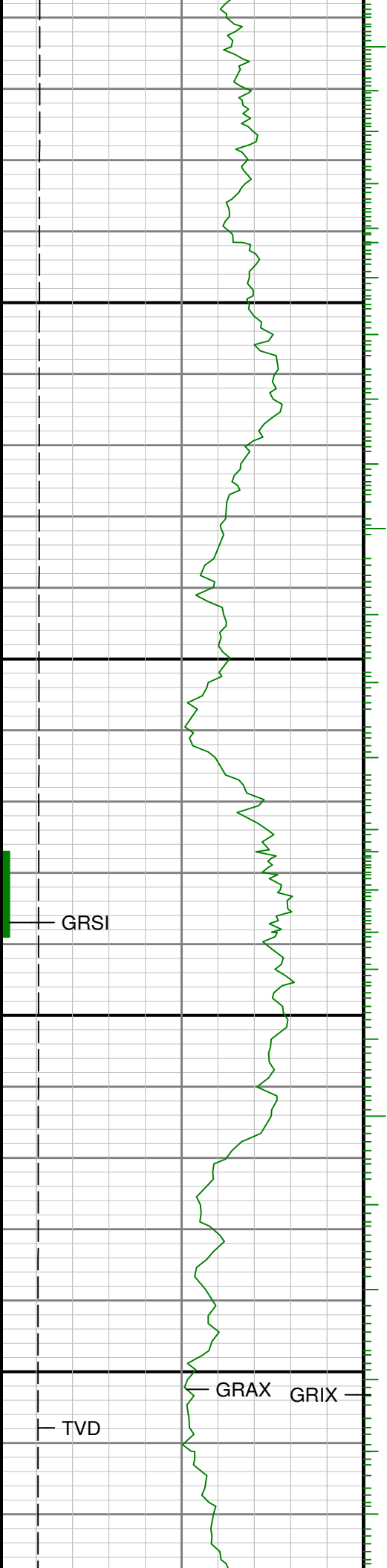


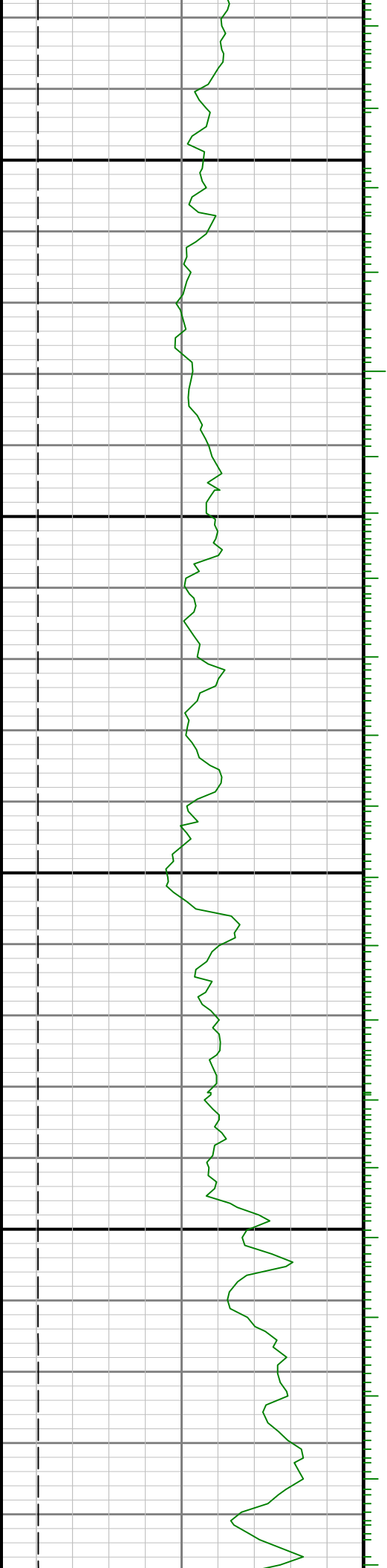
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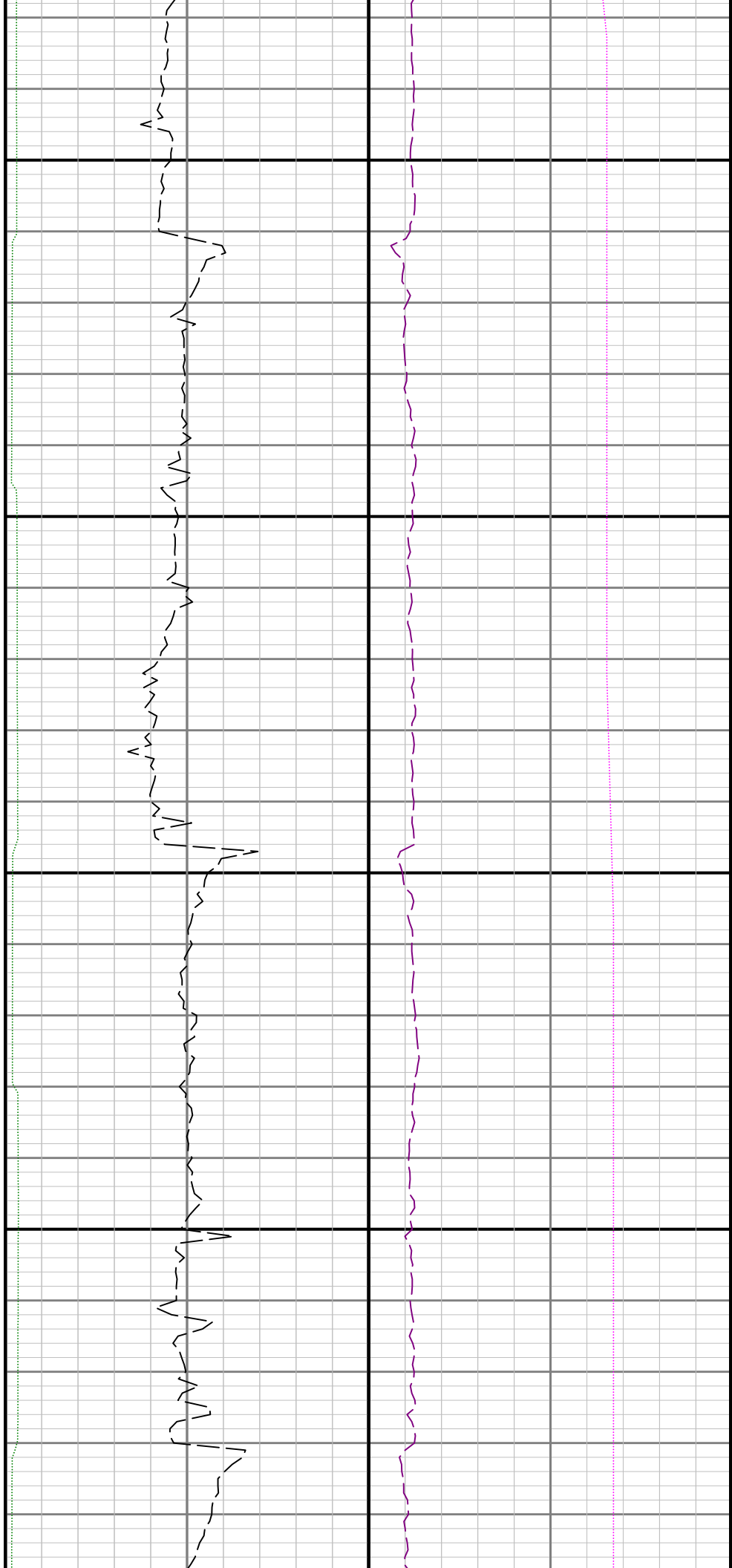


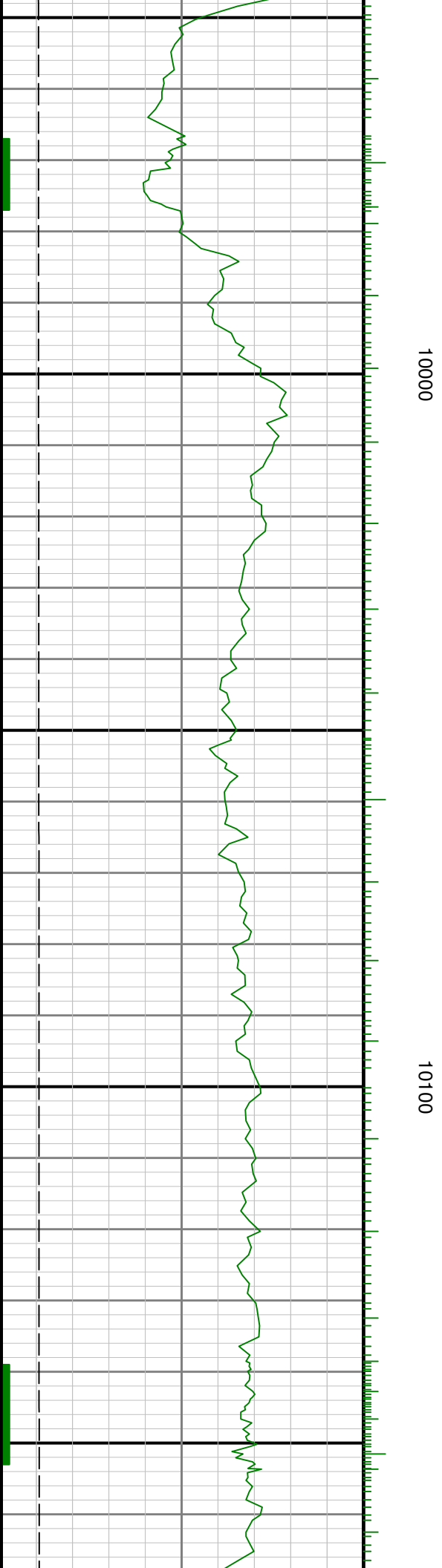
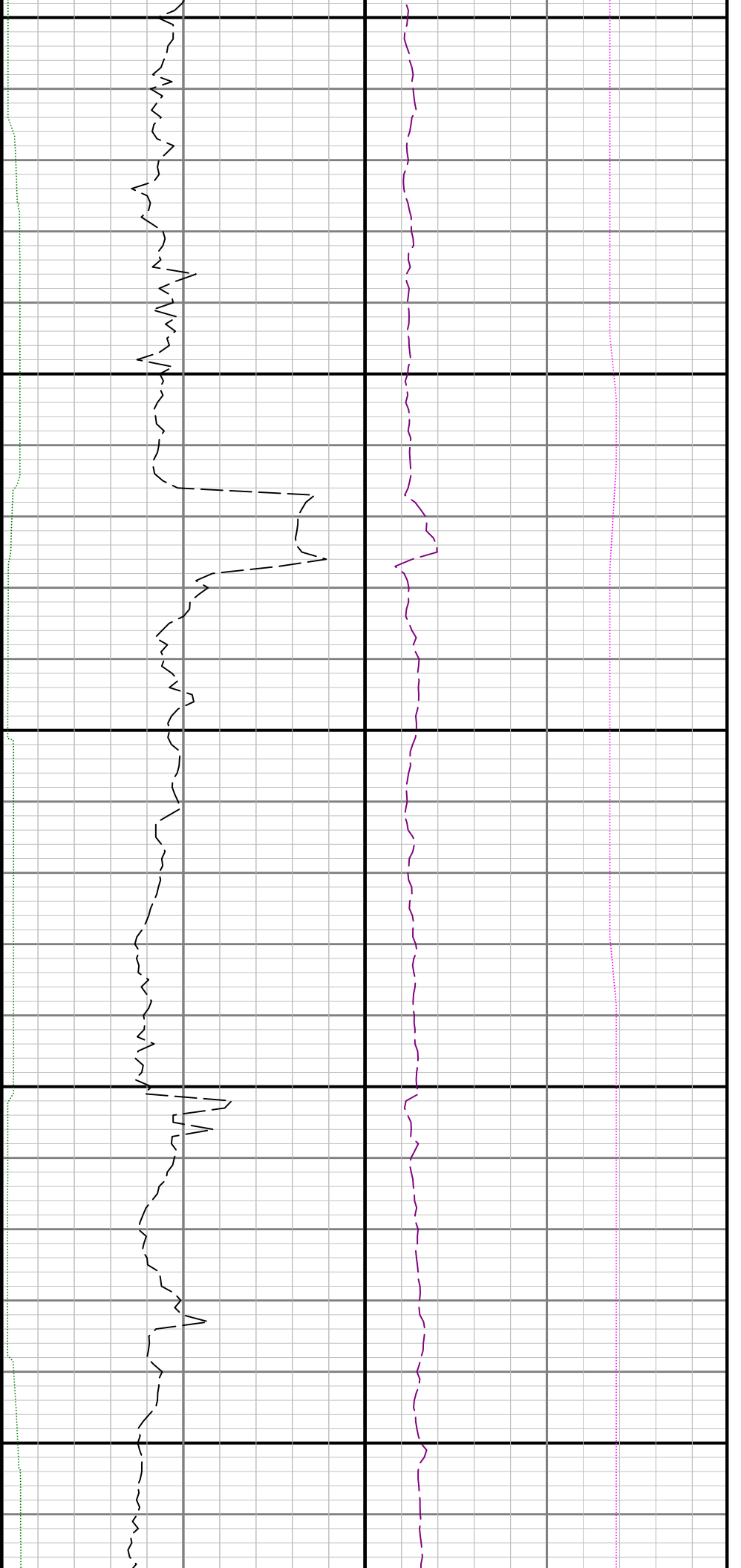


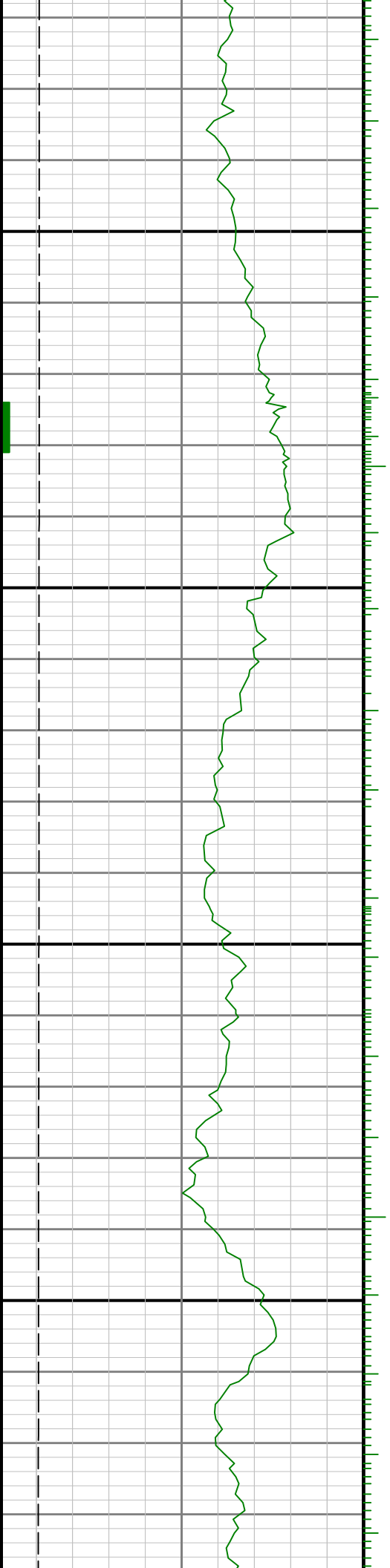
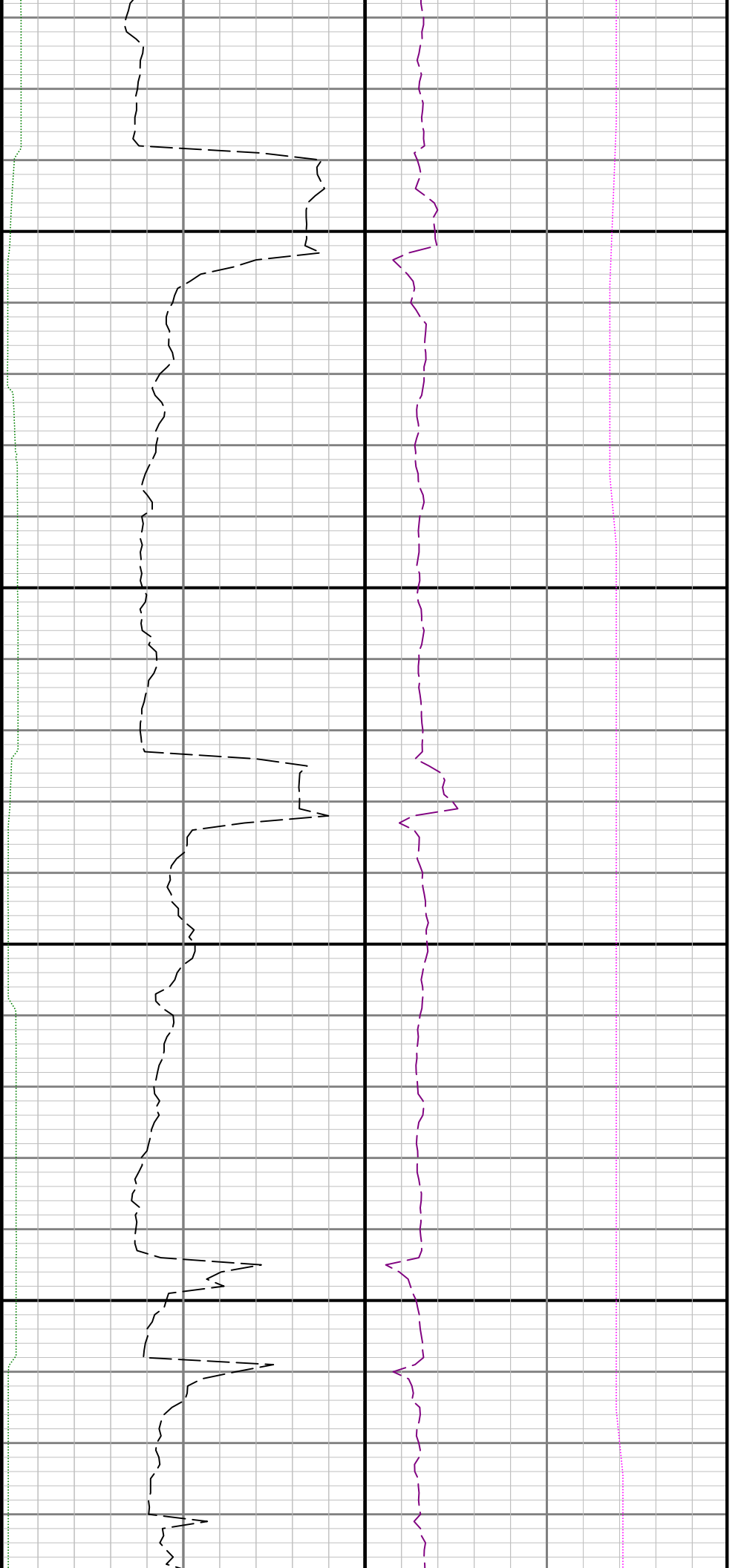


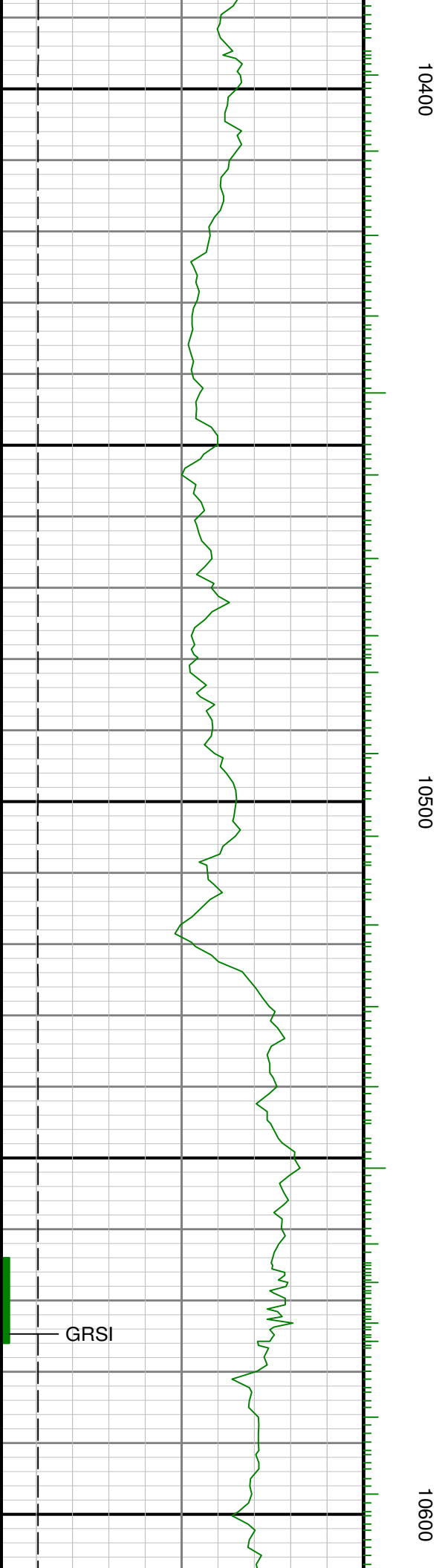
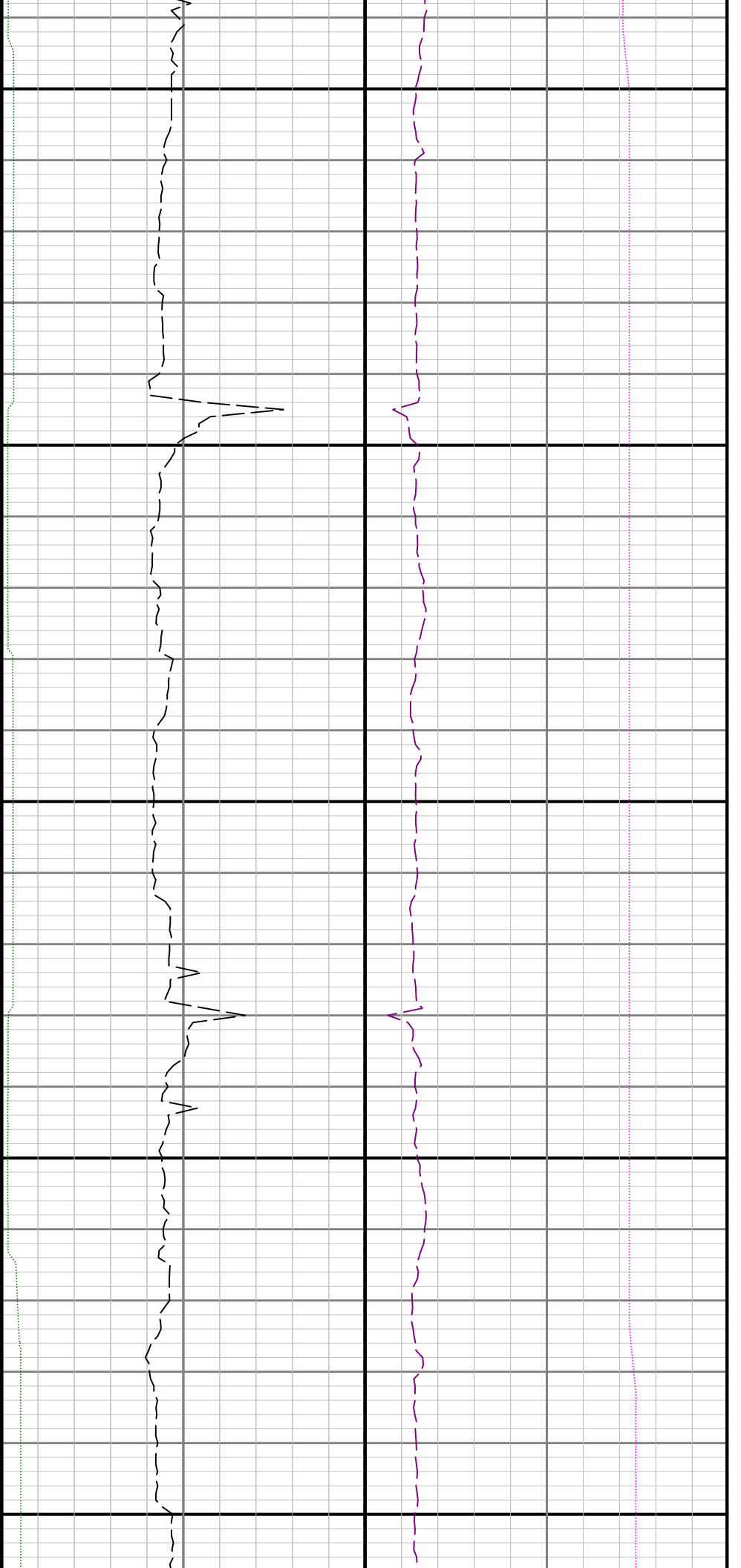
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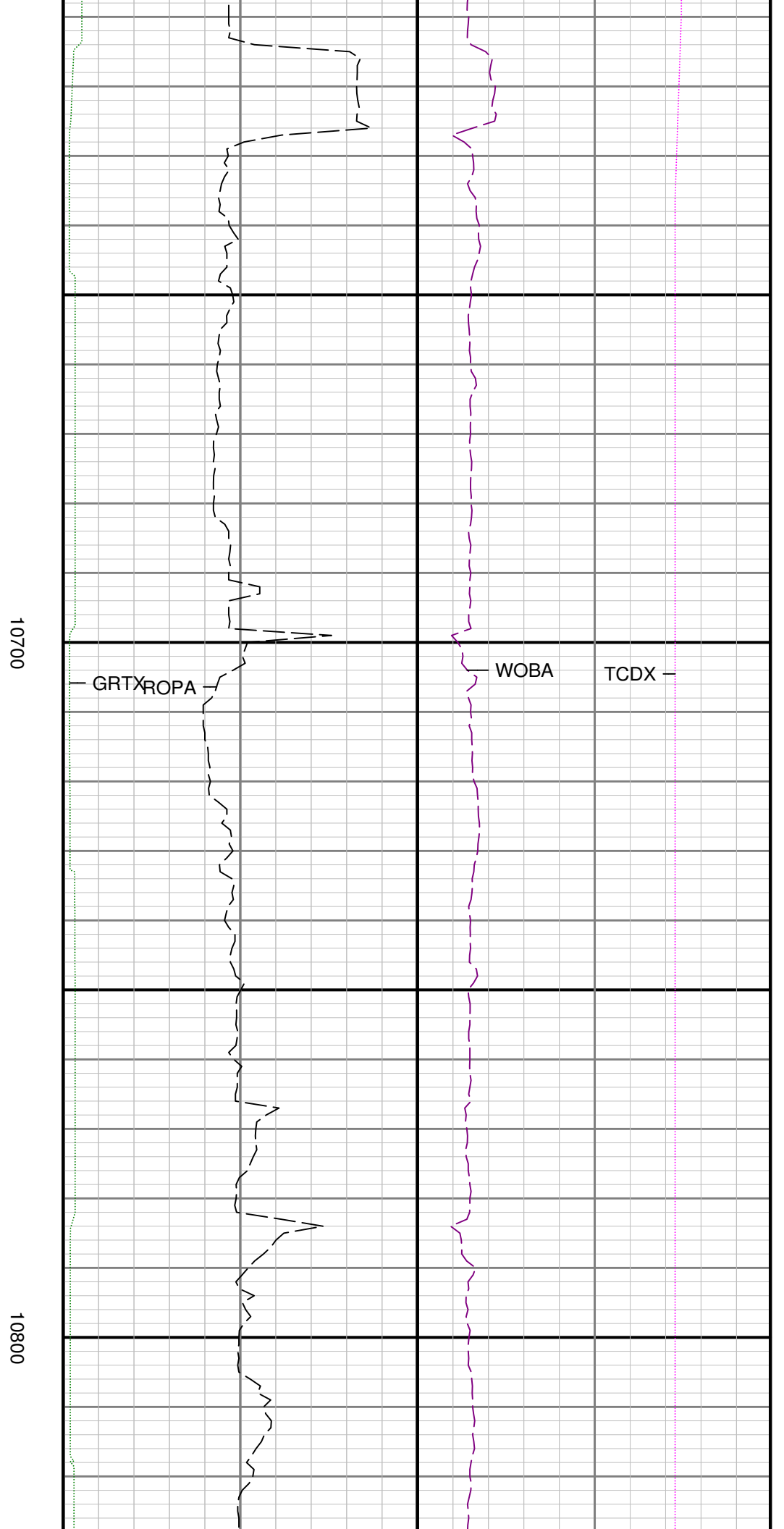
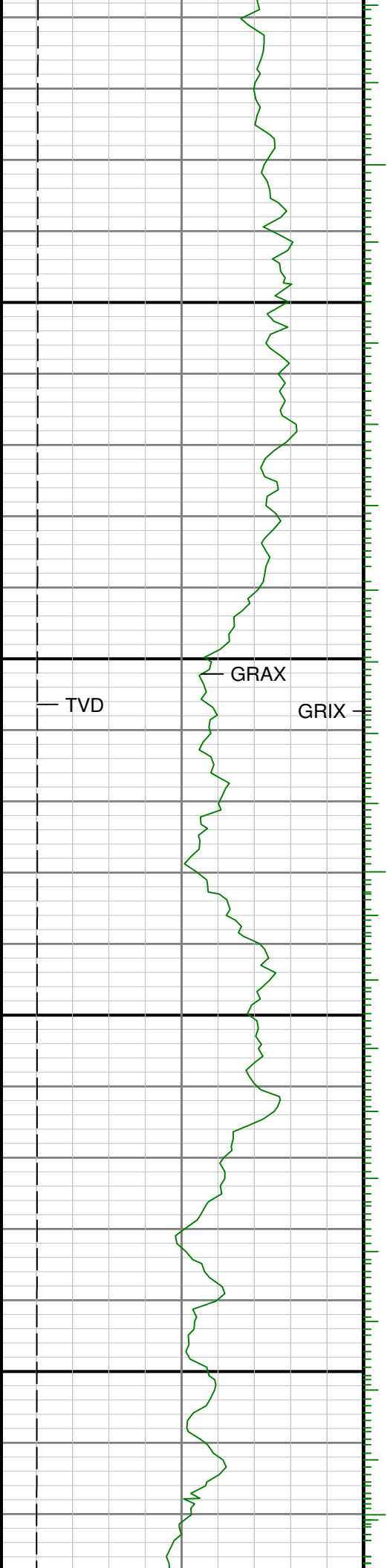


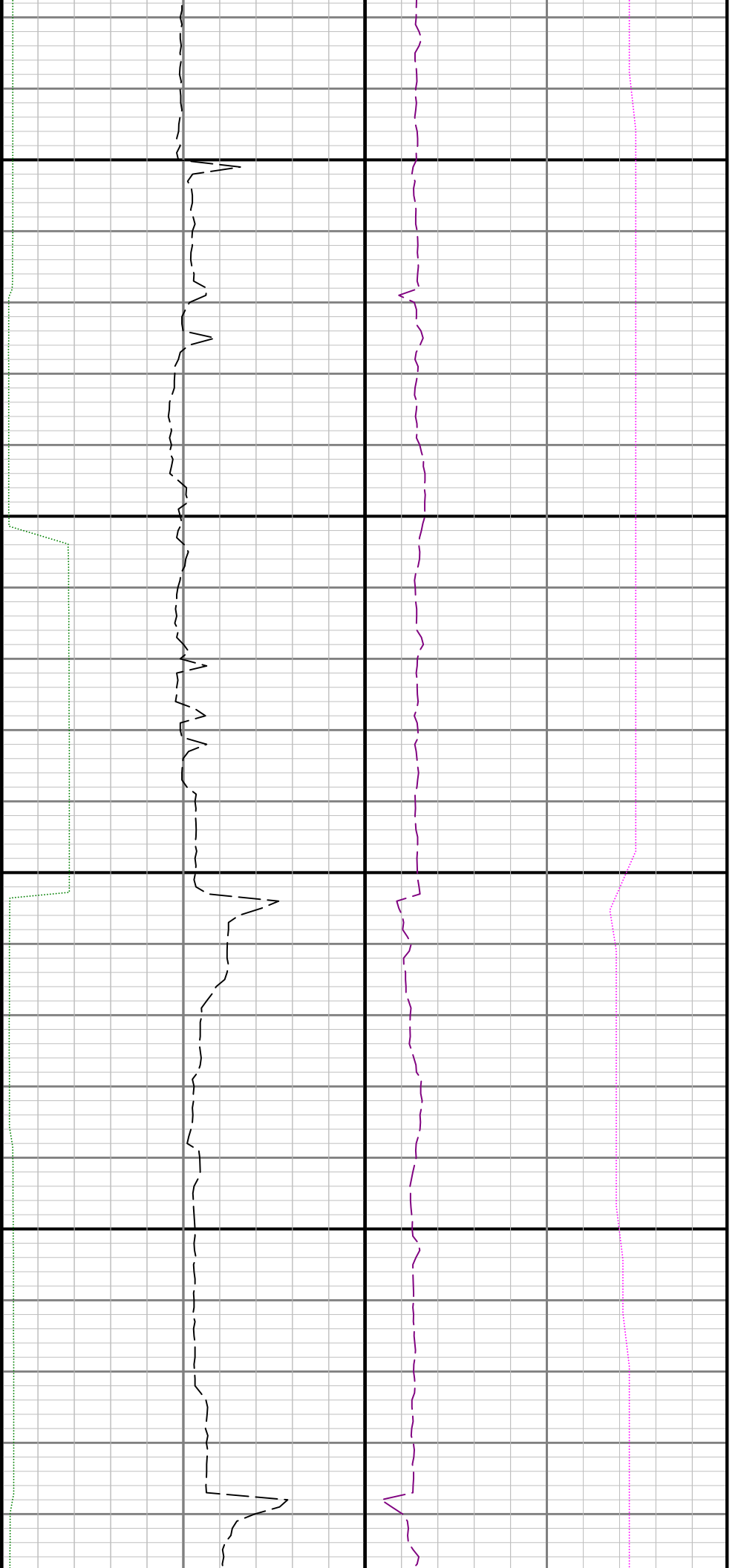






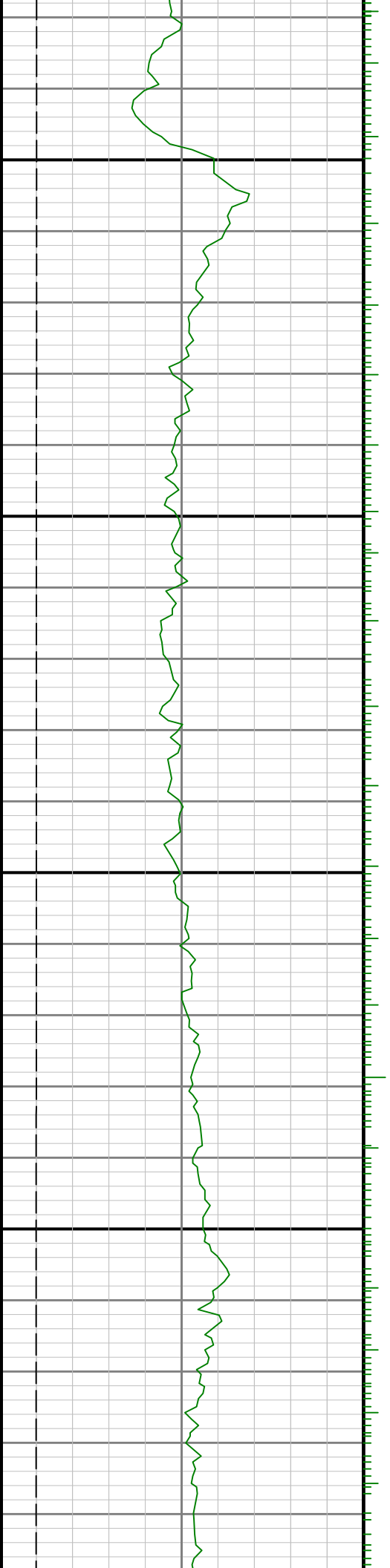
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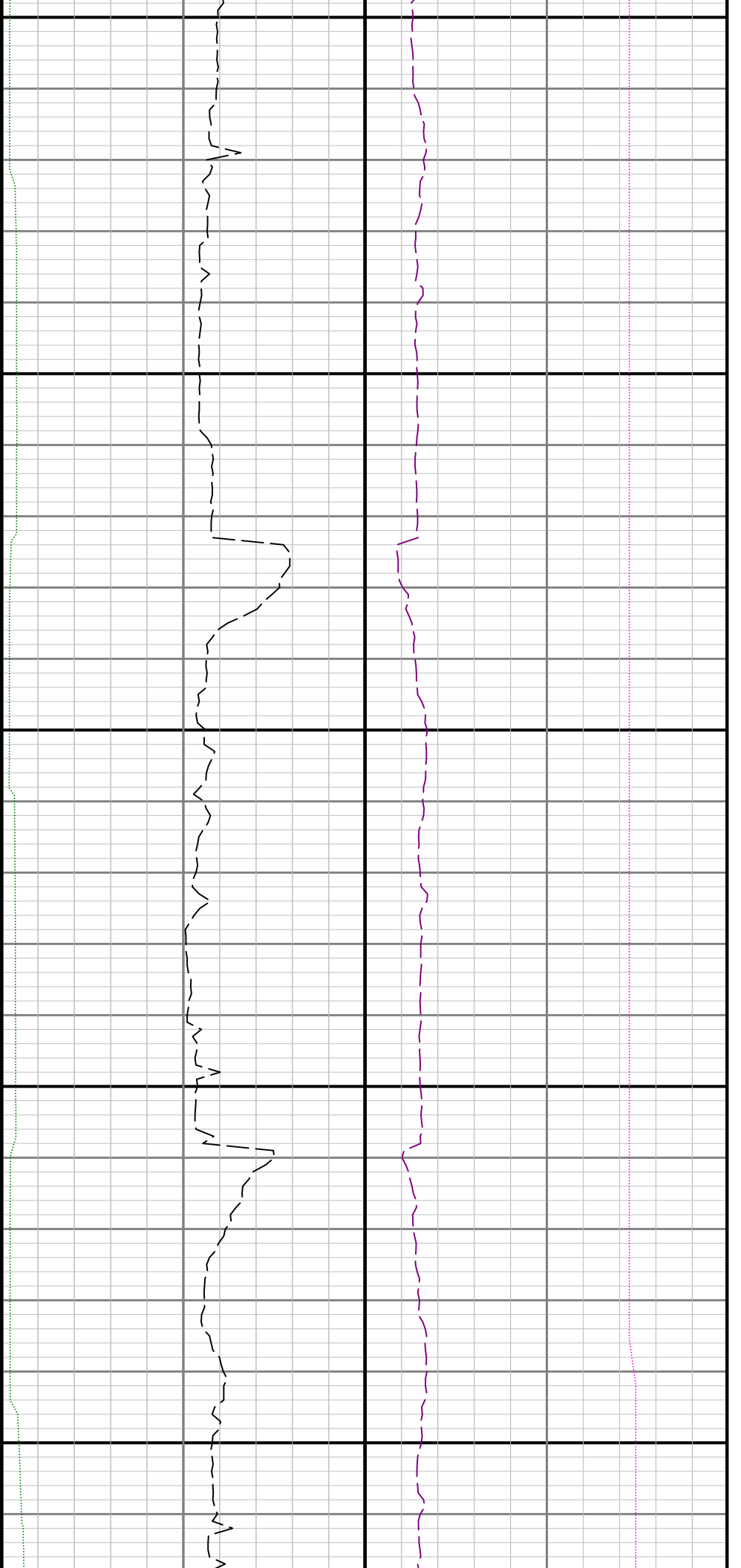




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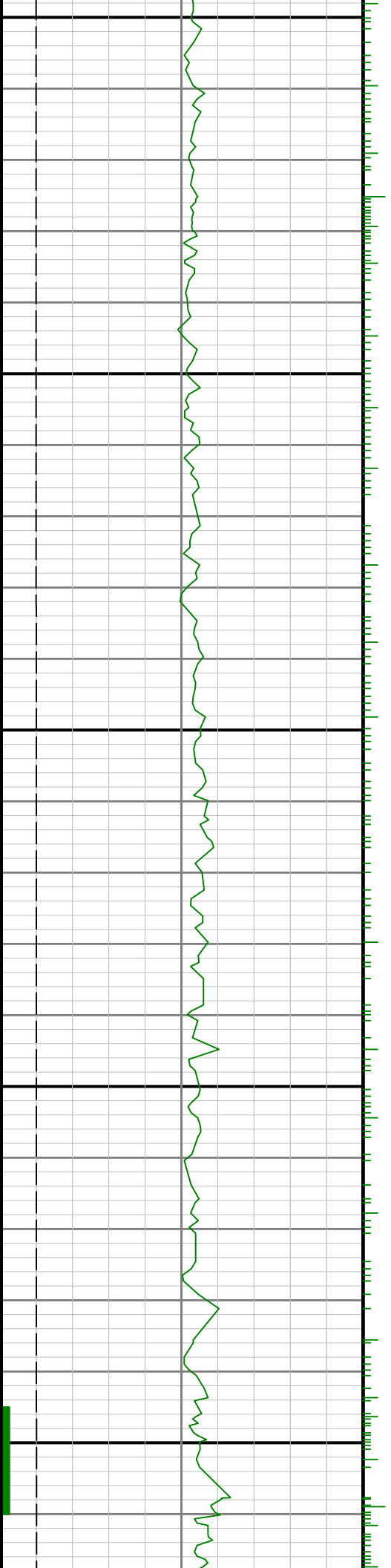
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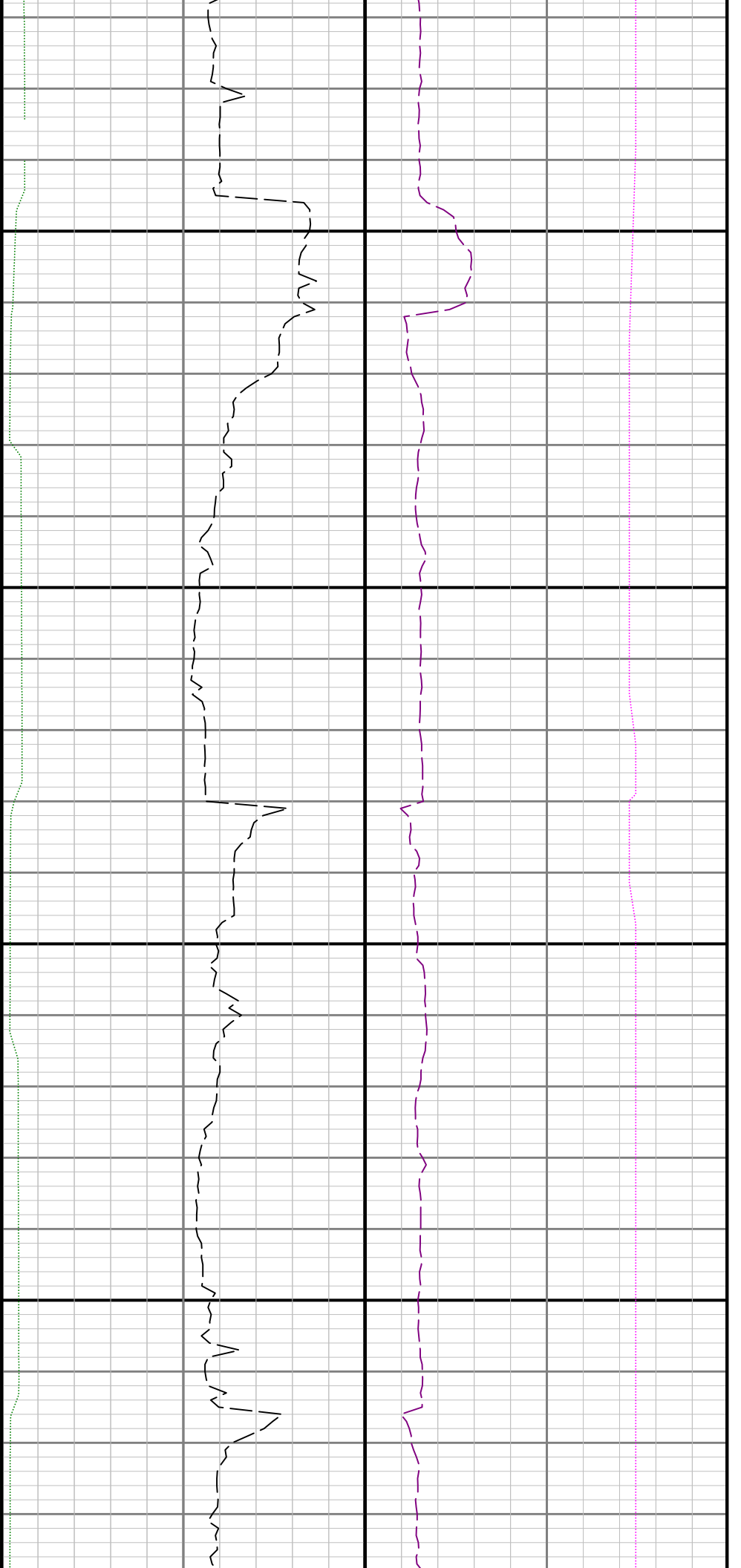




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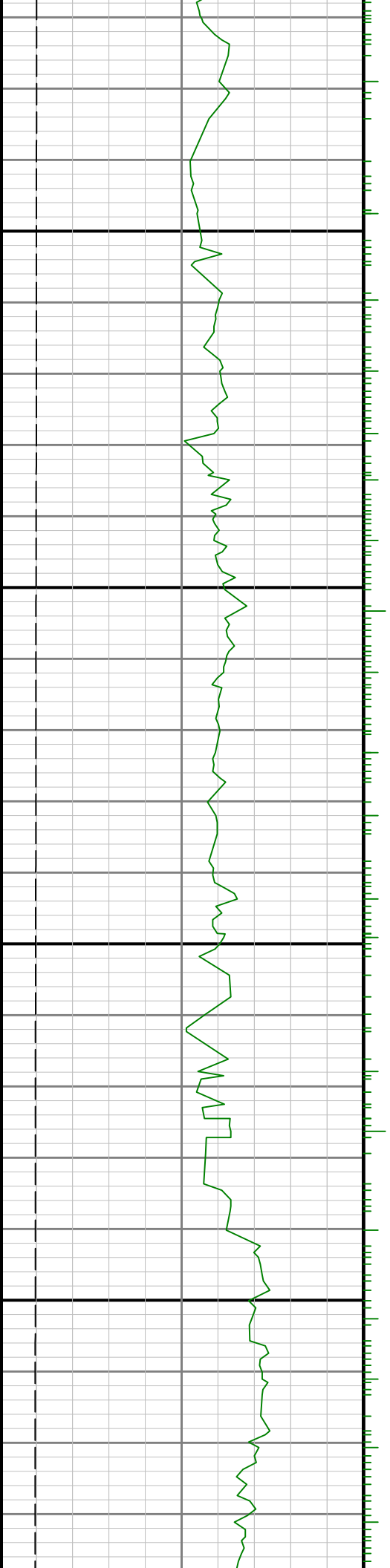
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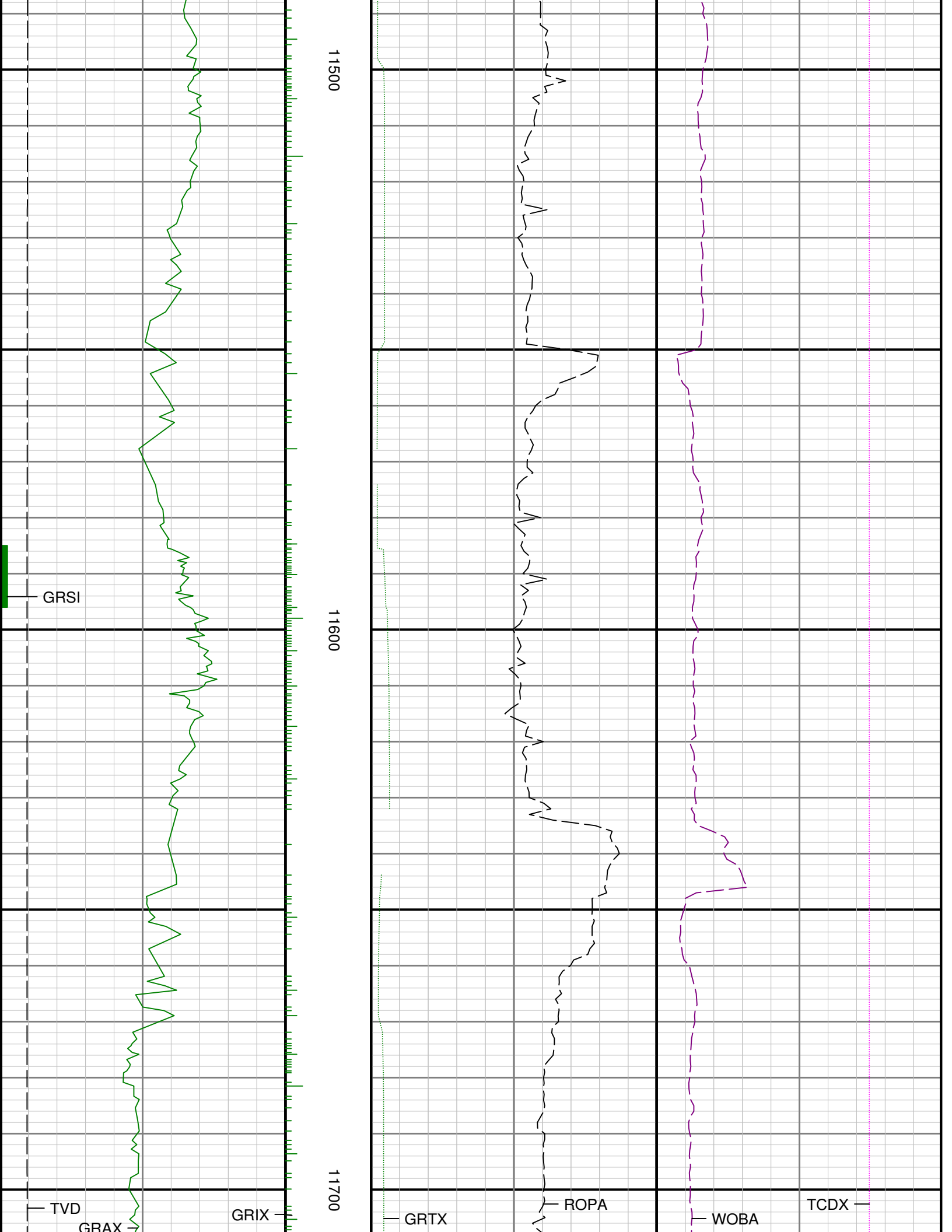


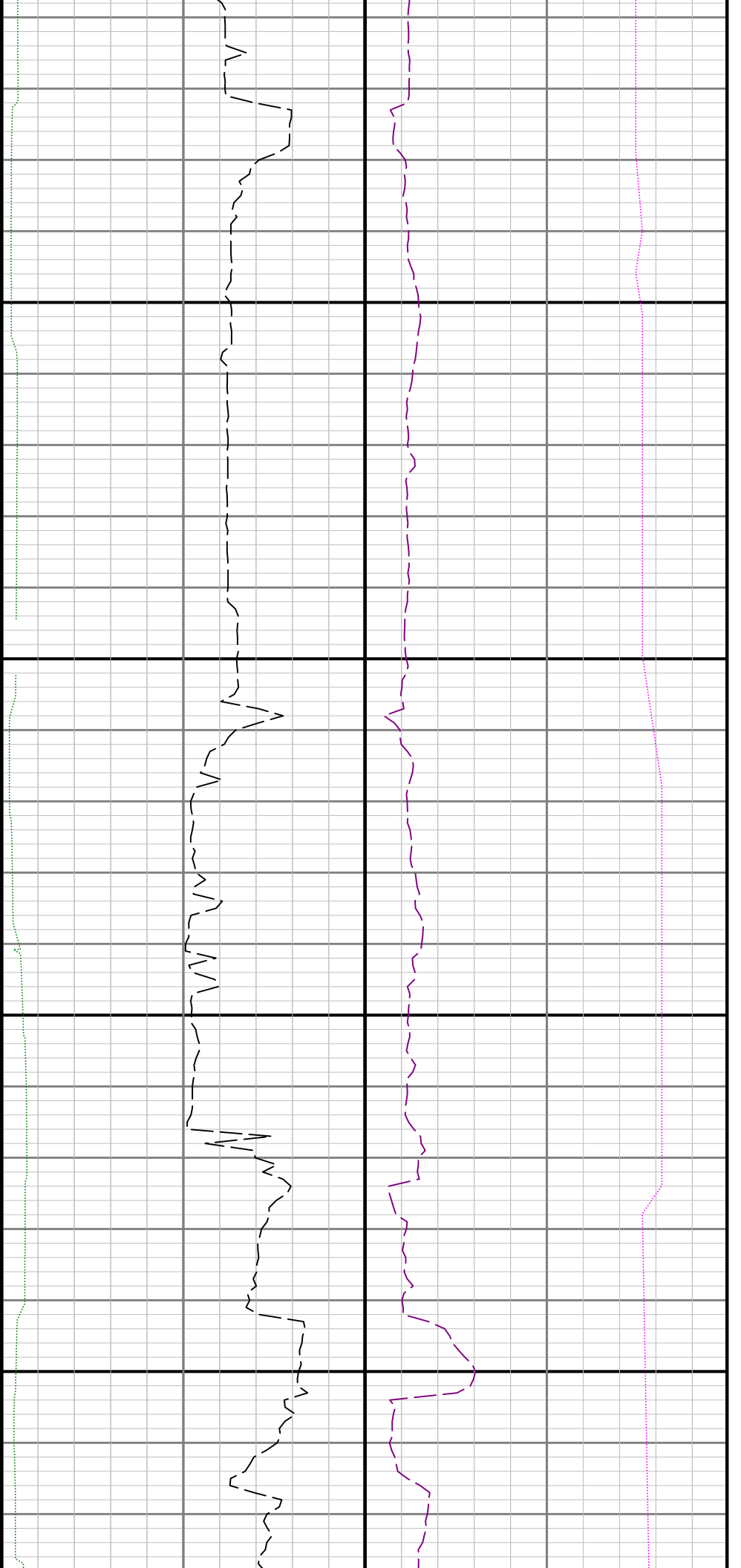


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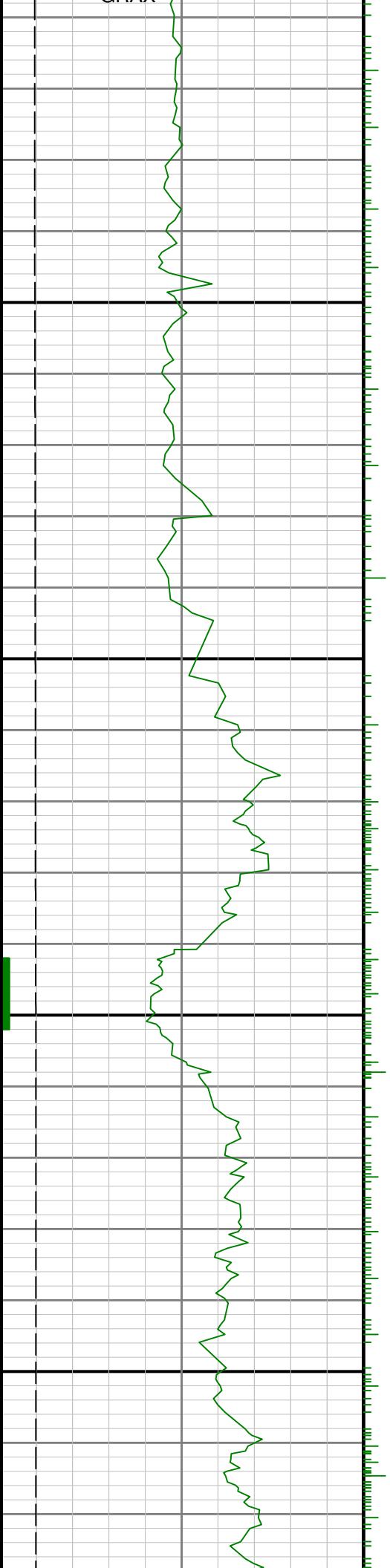


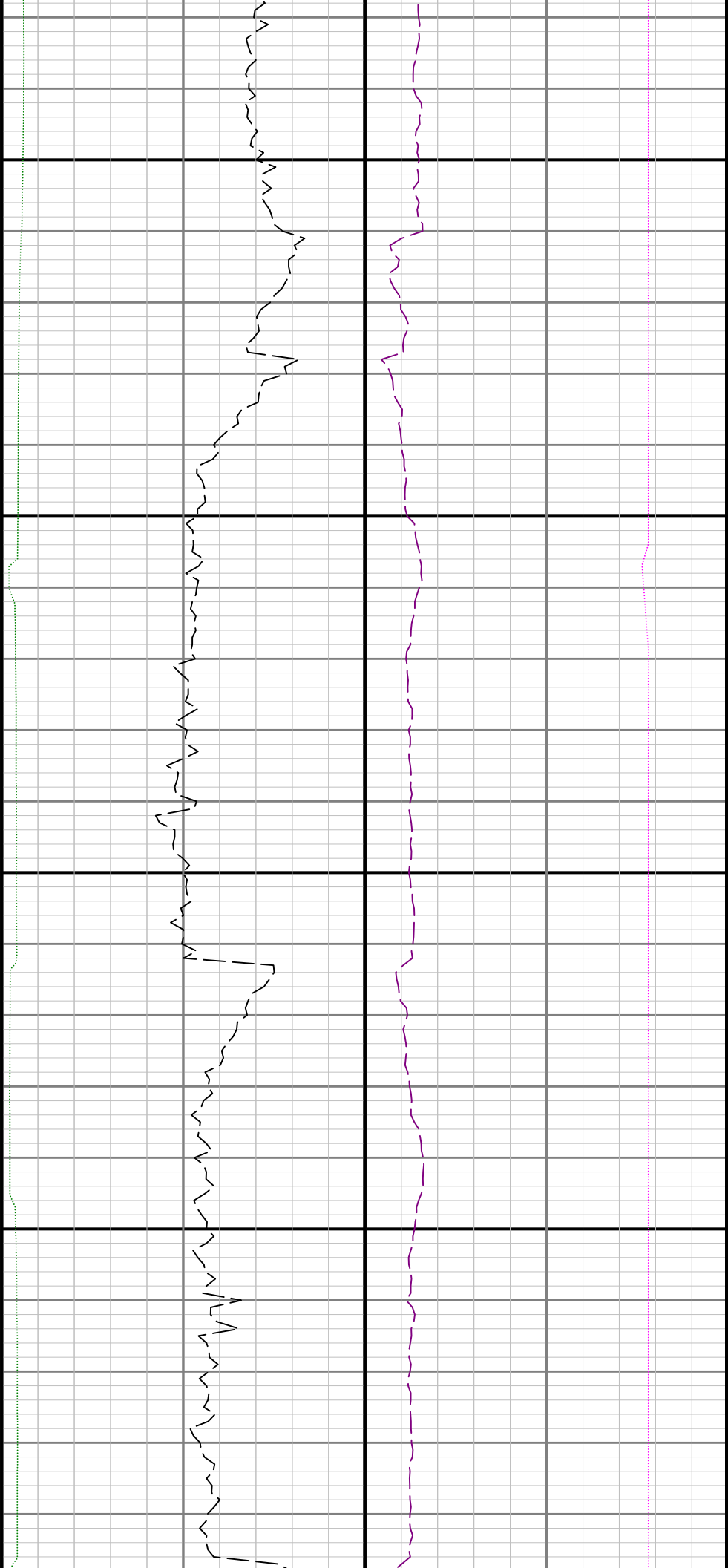




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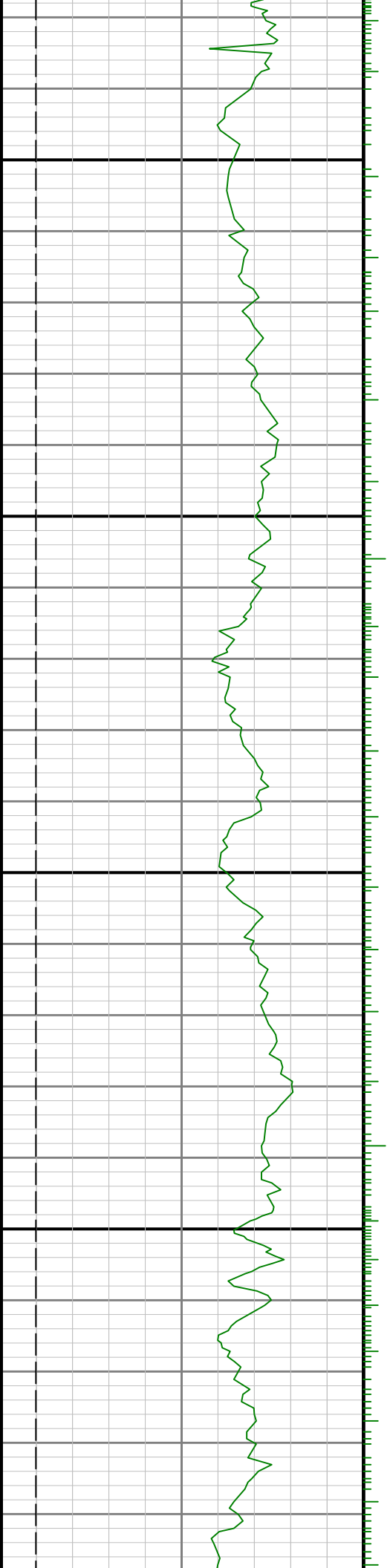
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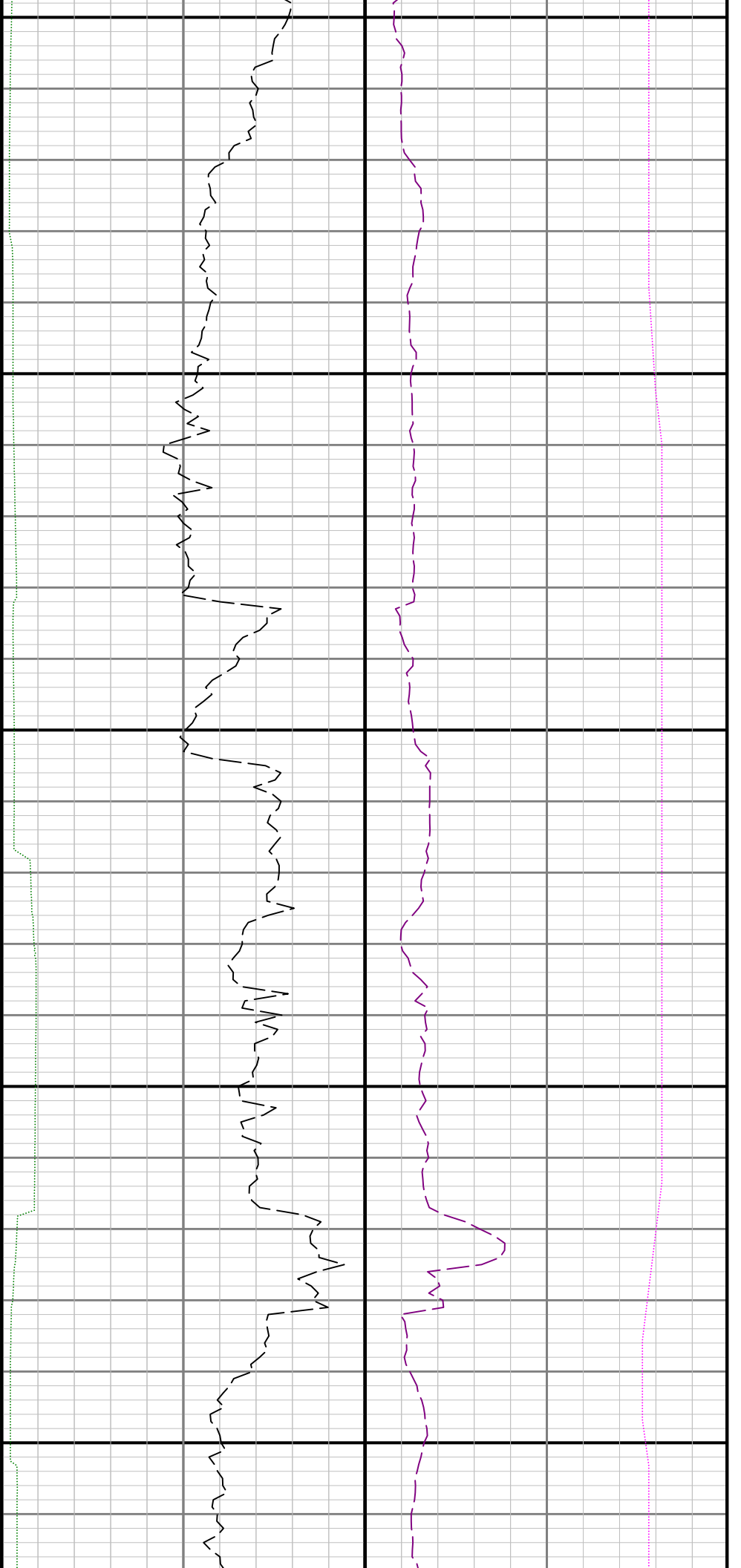




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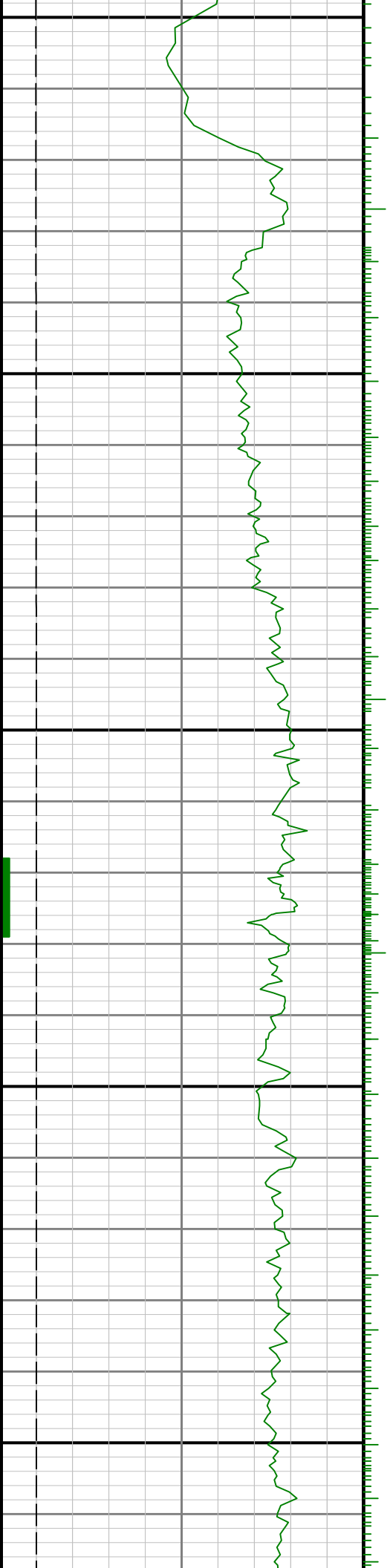
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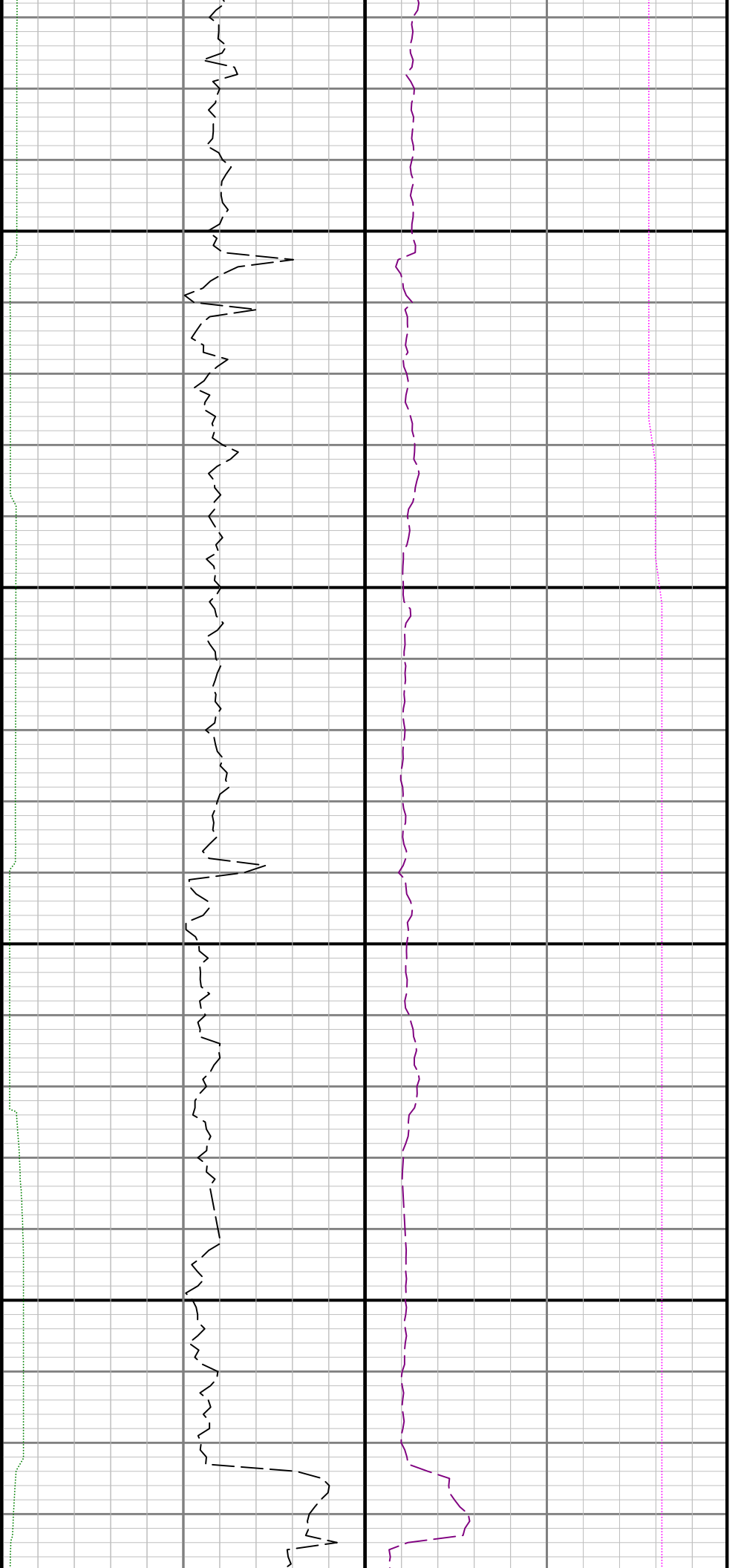




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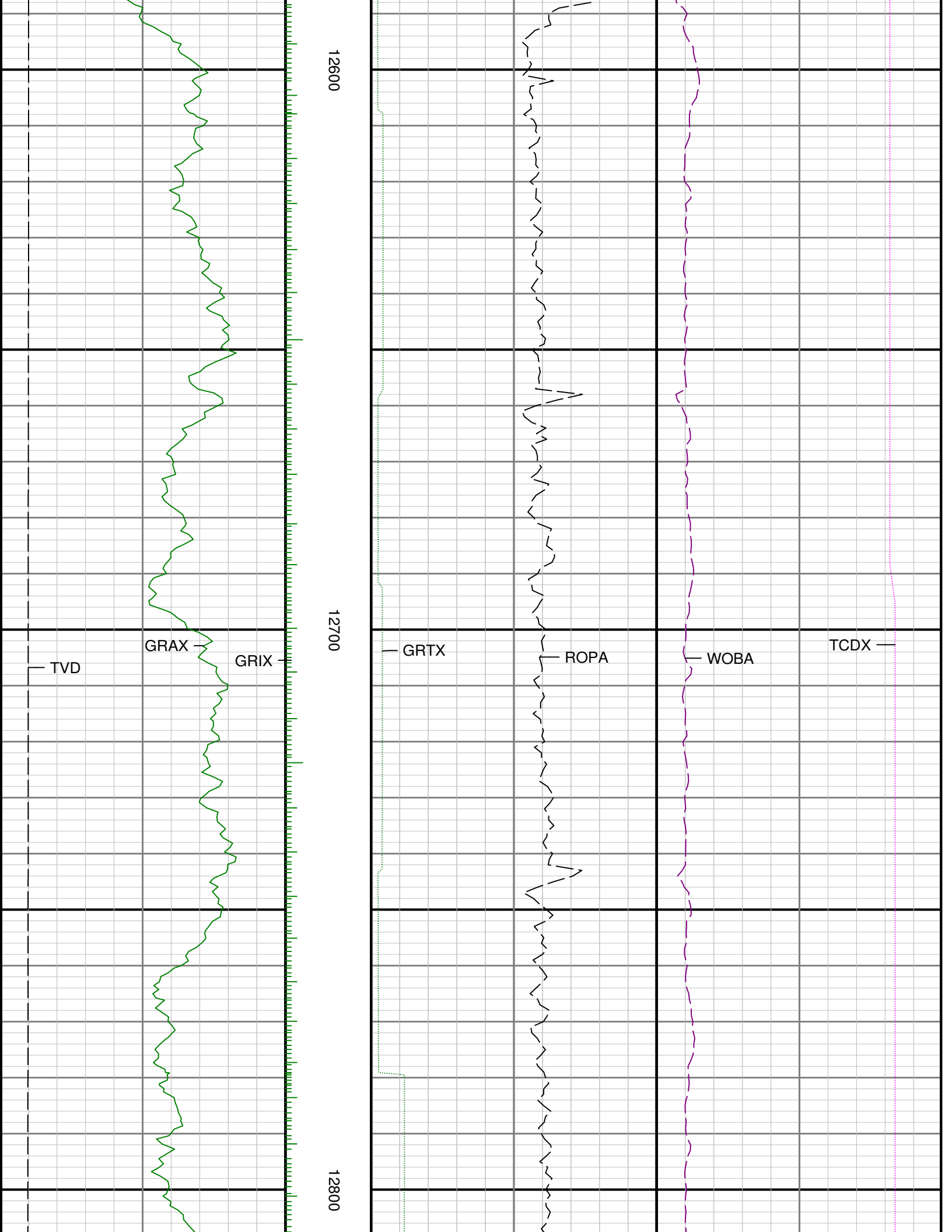


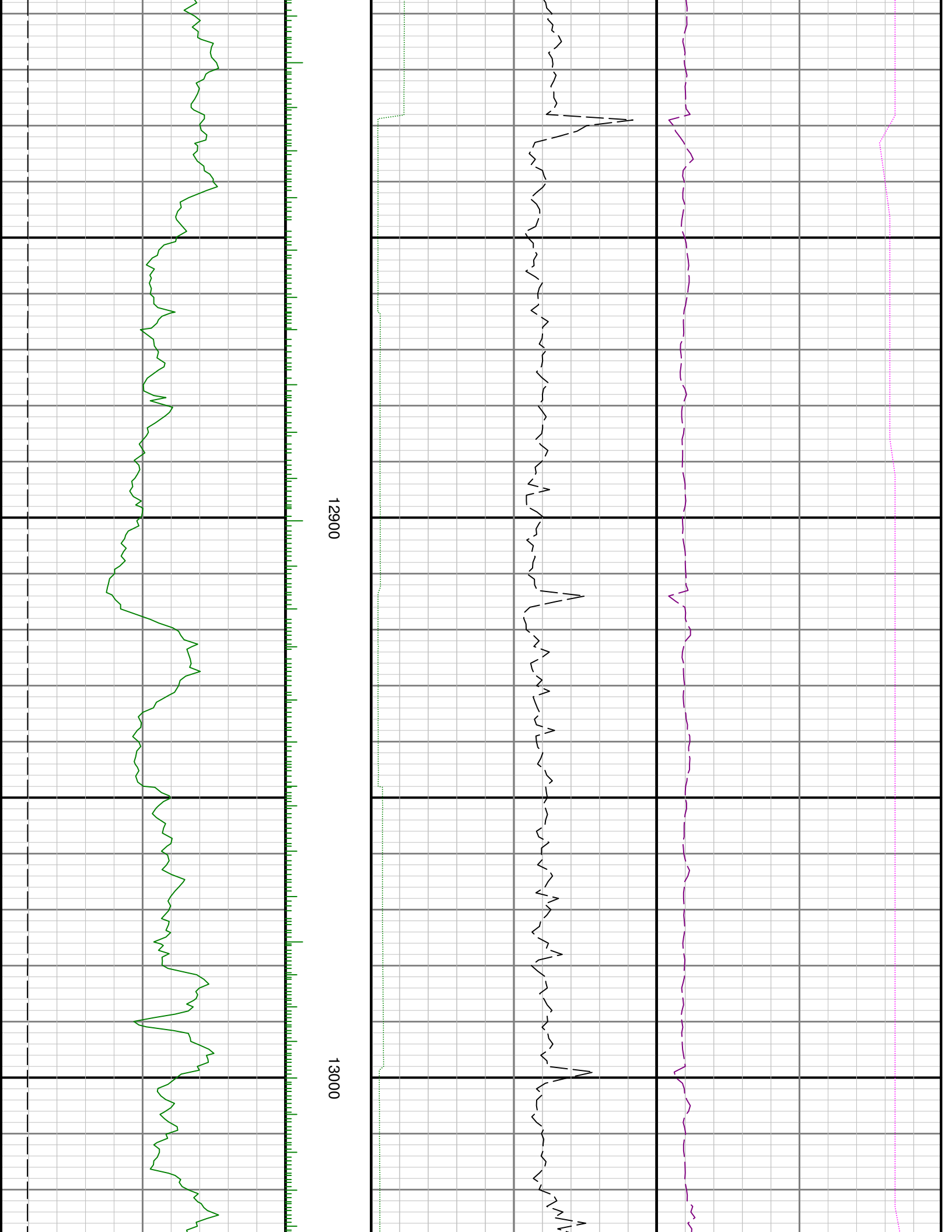


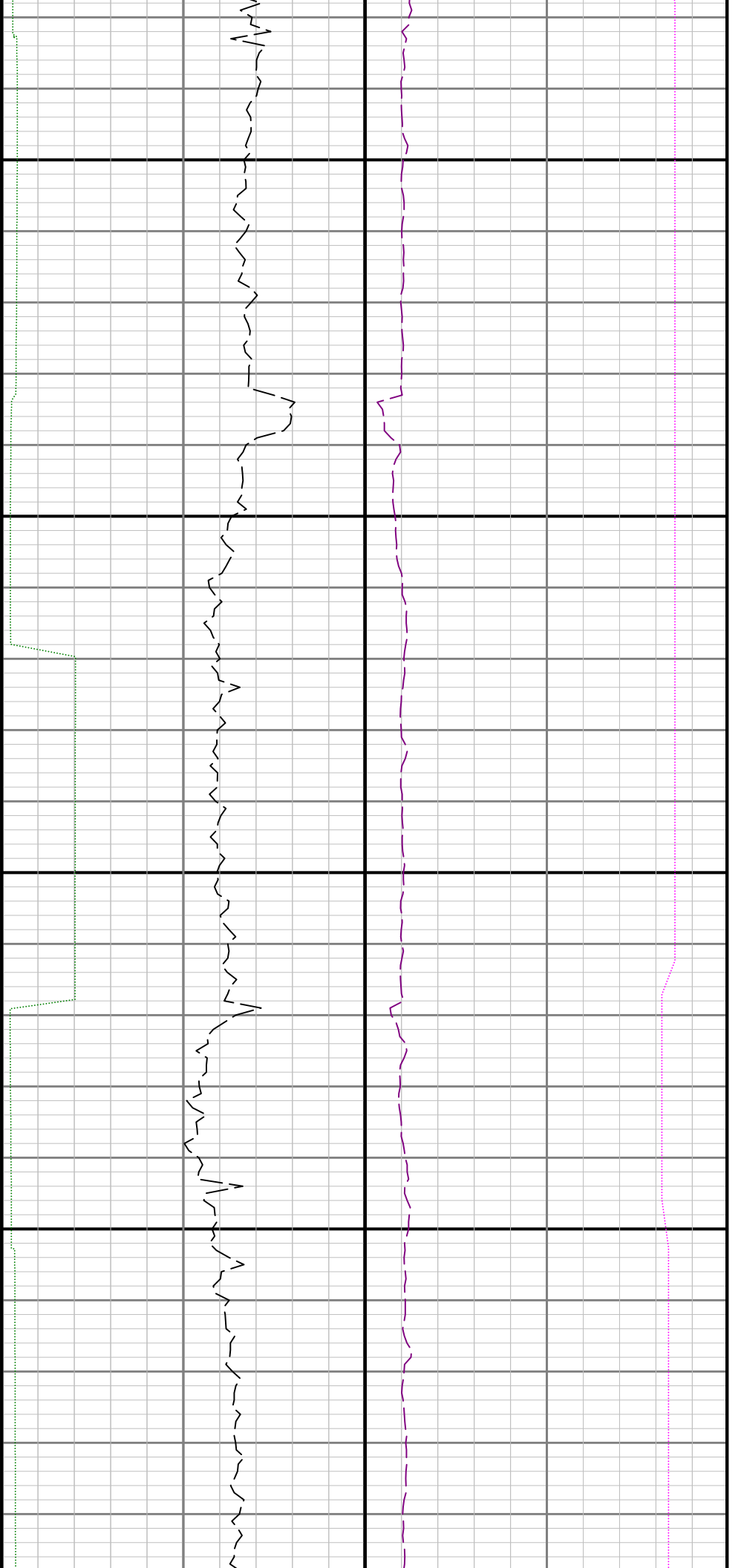
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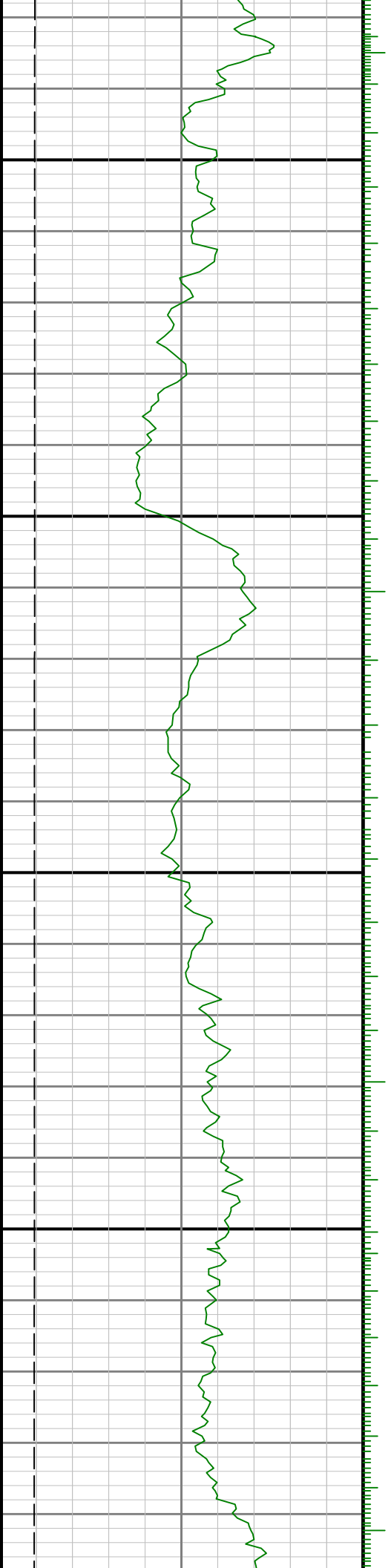


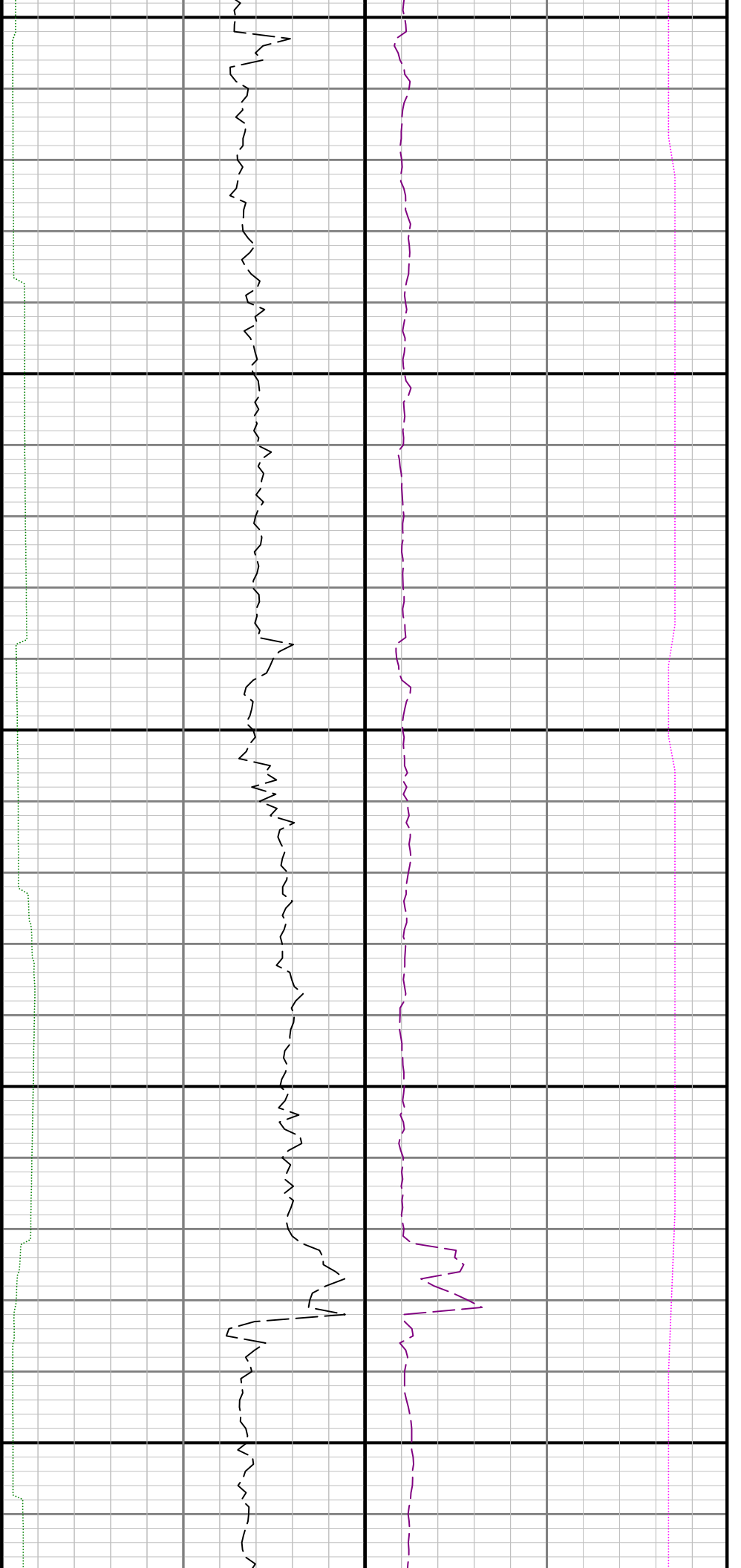




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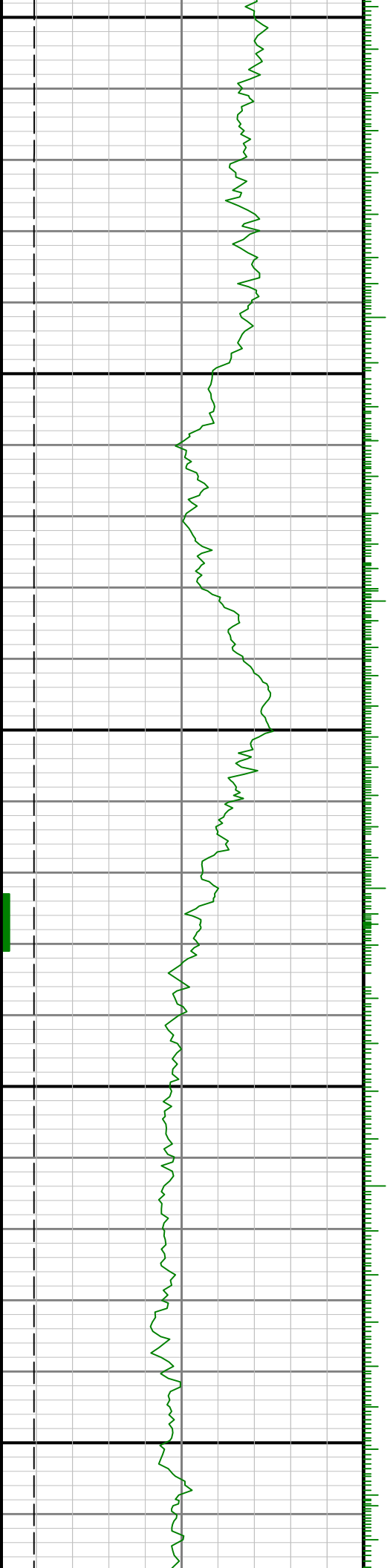
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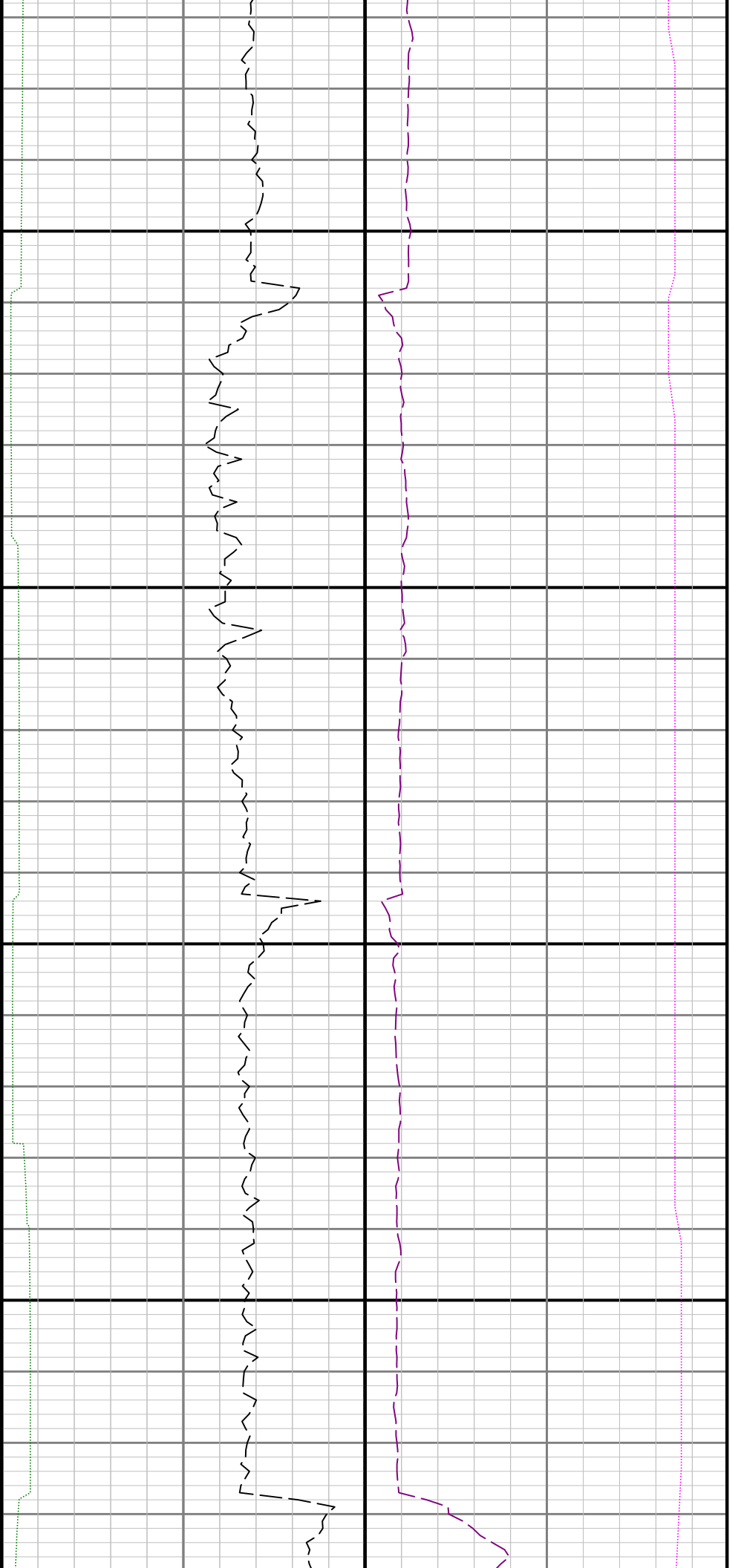




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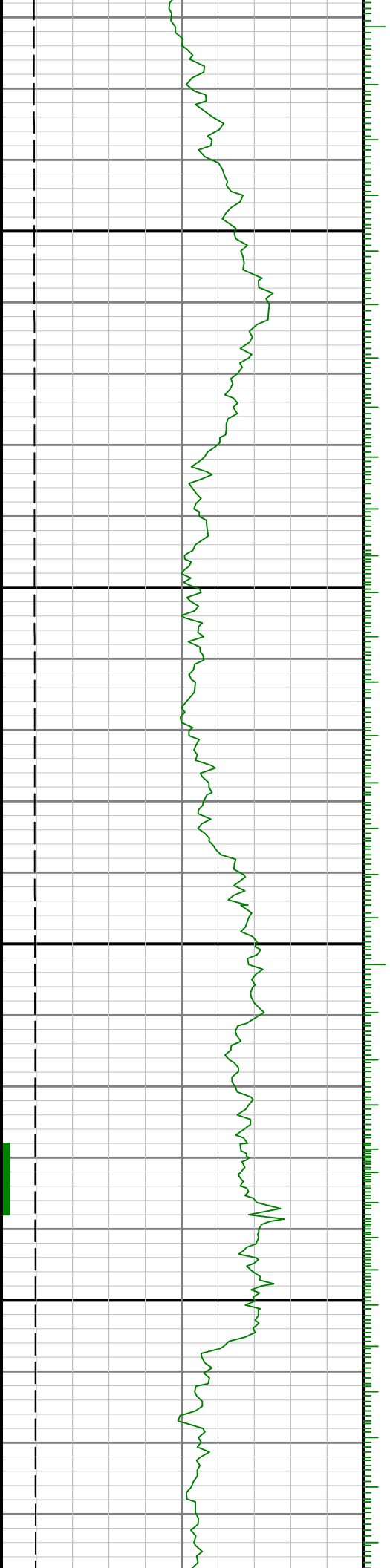
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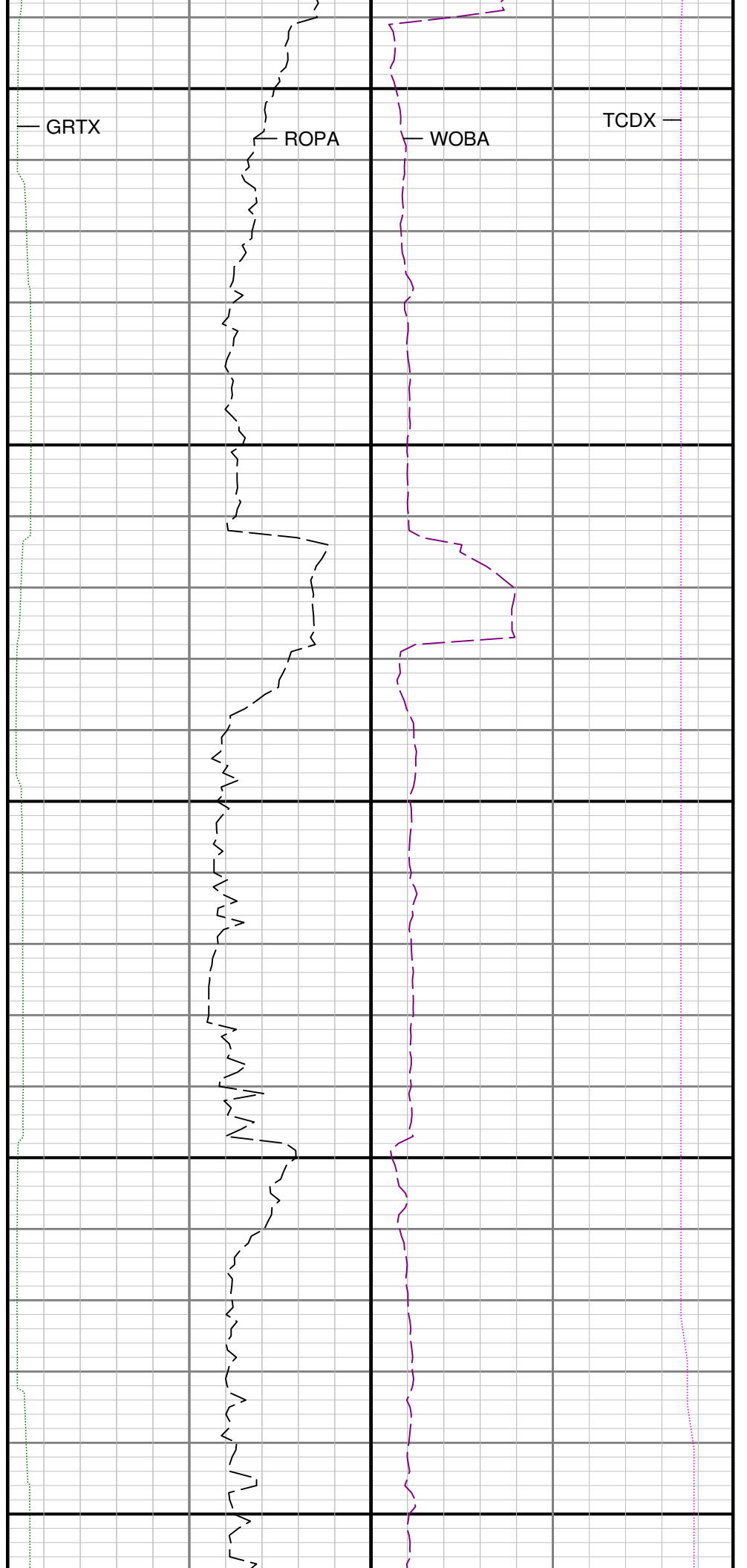
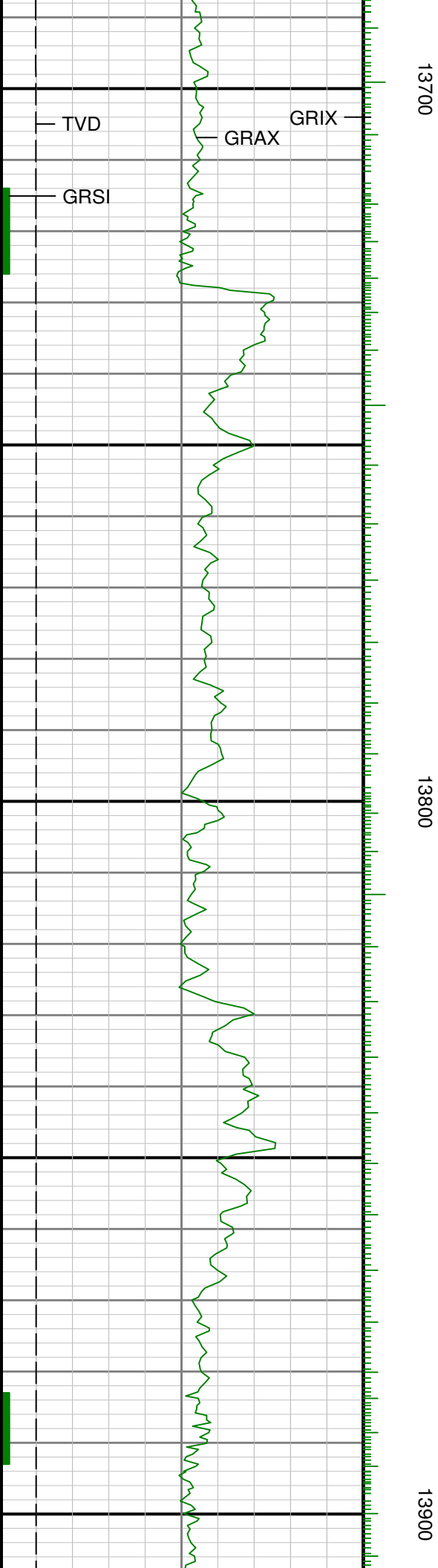


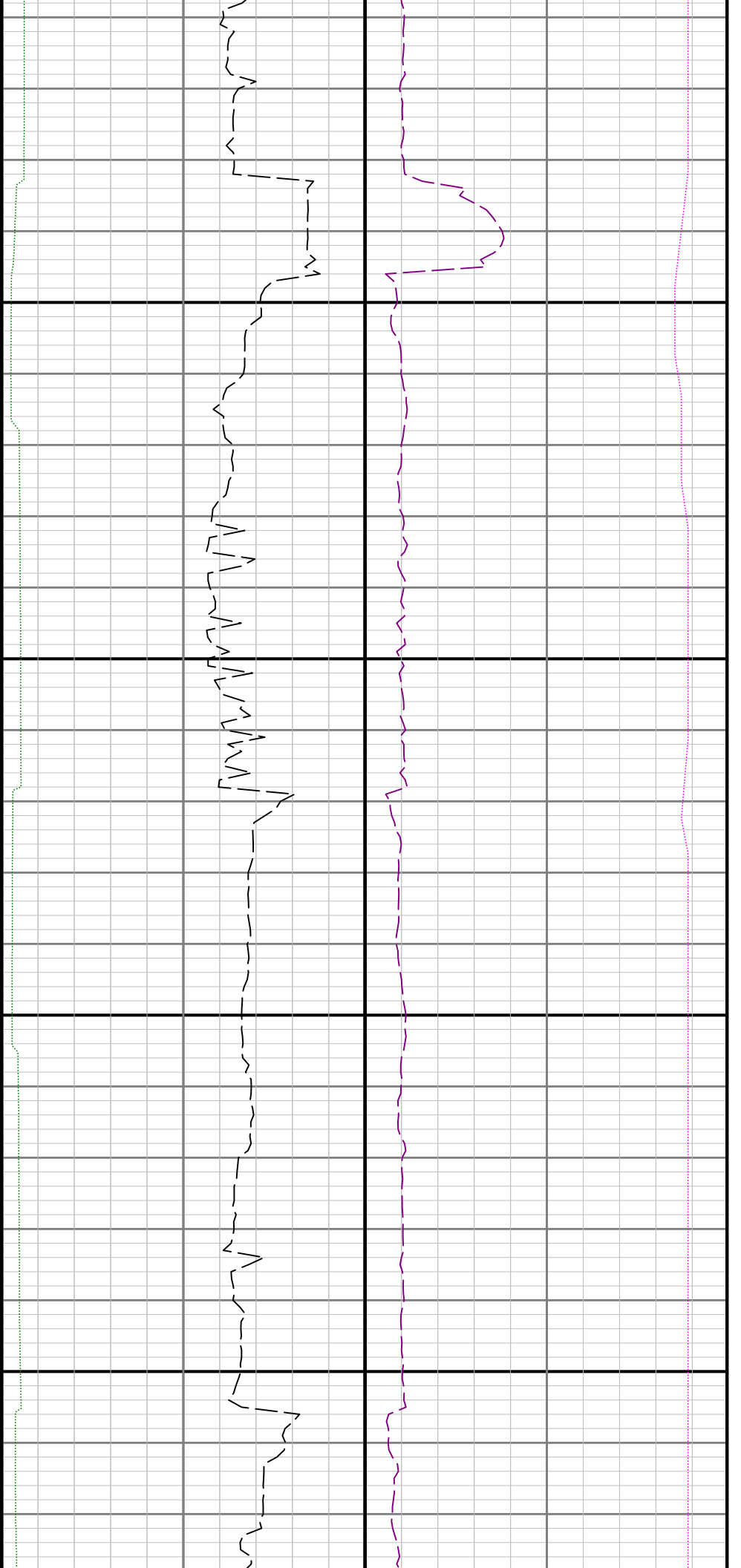


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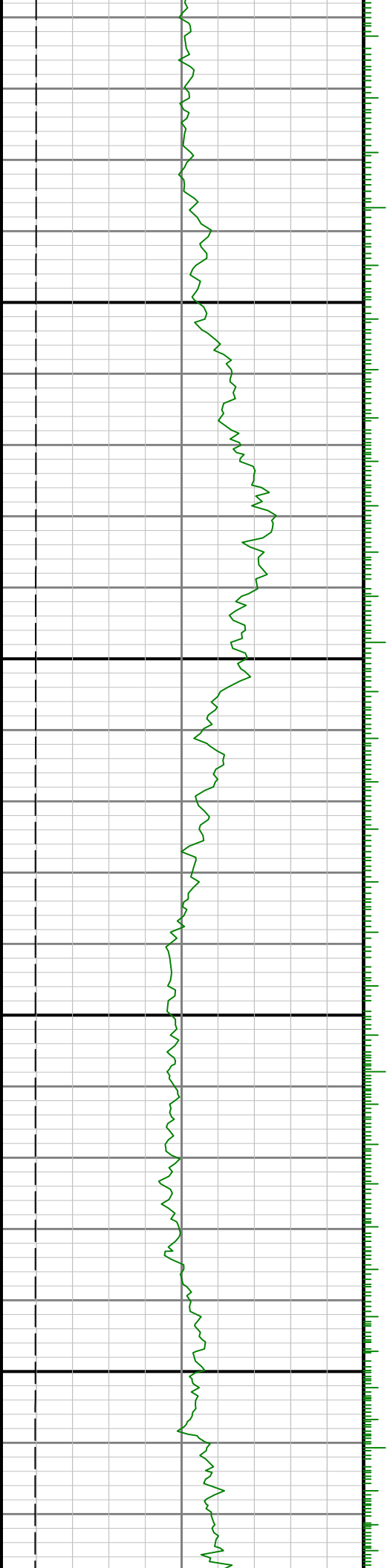


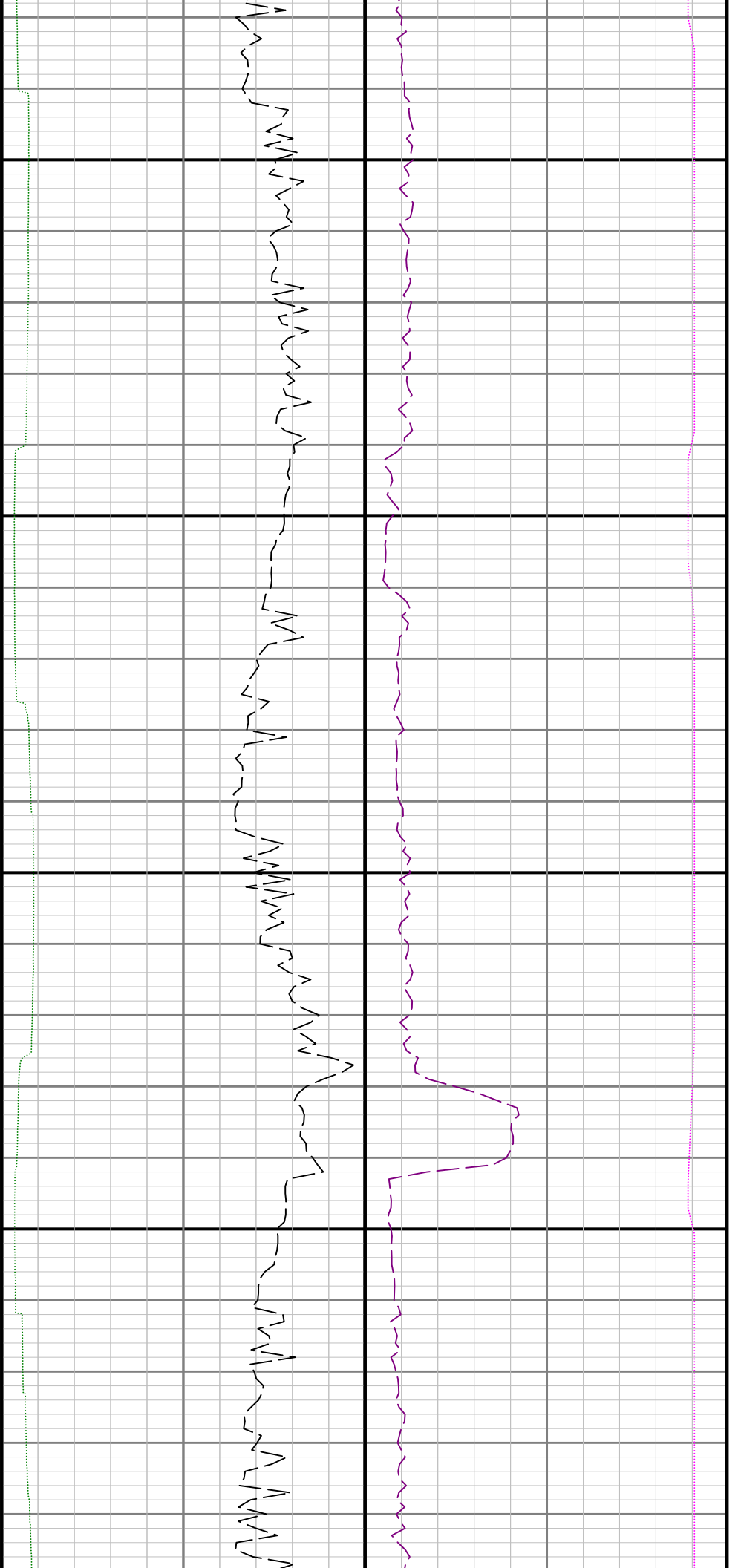




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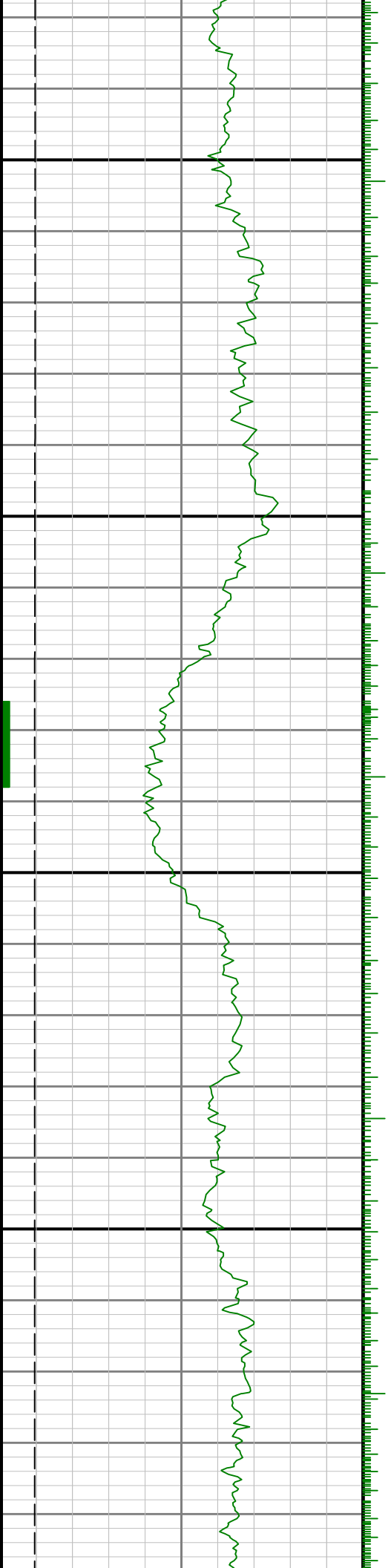
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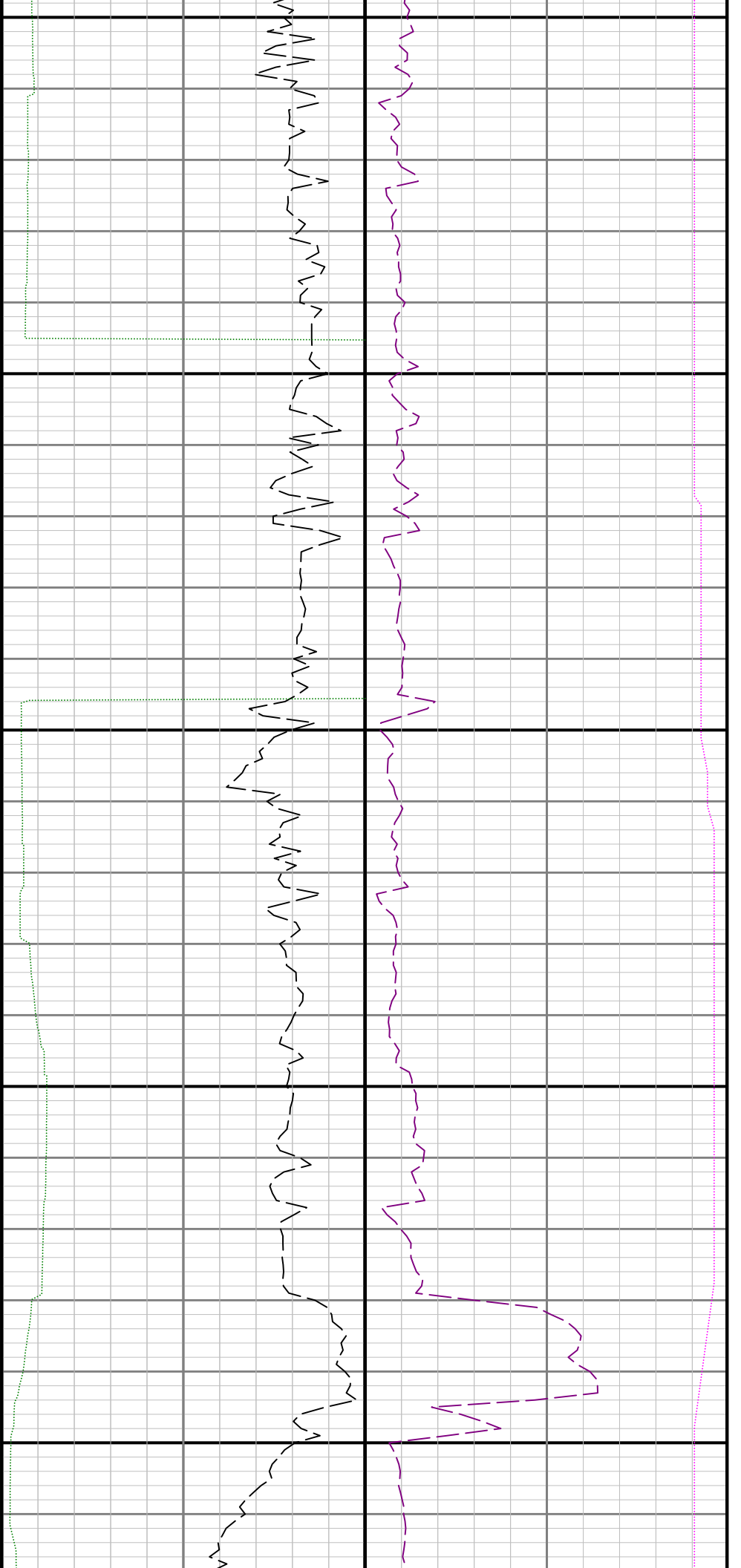




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