

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+
22 May 15 18:00	1	1237.0	Invermul	9.2	18	N/A	N/A	62/29	Flow Line	52000	N/A
24 May 15 18:00	2	8620.0	Invermul	9.7	21	N/A	N/A	61/27	Active Pits	60000	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	12617354	Directional	48.04	6.750	3.250
1	SRIG	10266573	Gamma	44.62	6.750	3.250
2	DIR	11924683	Directional	50.26	6.750	3.250
2	SRIG	12041110	Gamma	46.88	6.750	3.250

Service and Tool Mnemonics

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

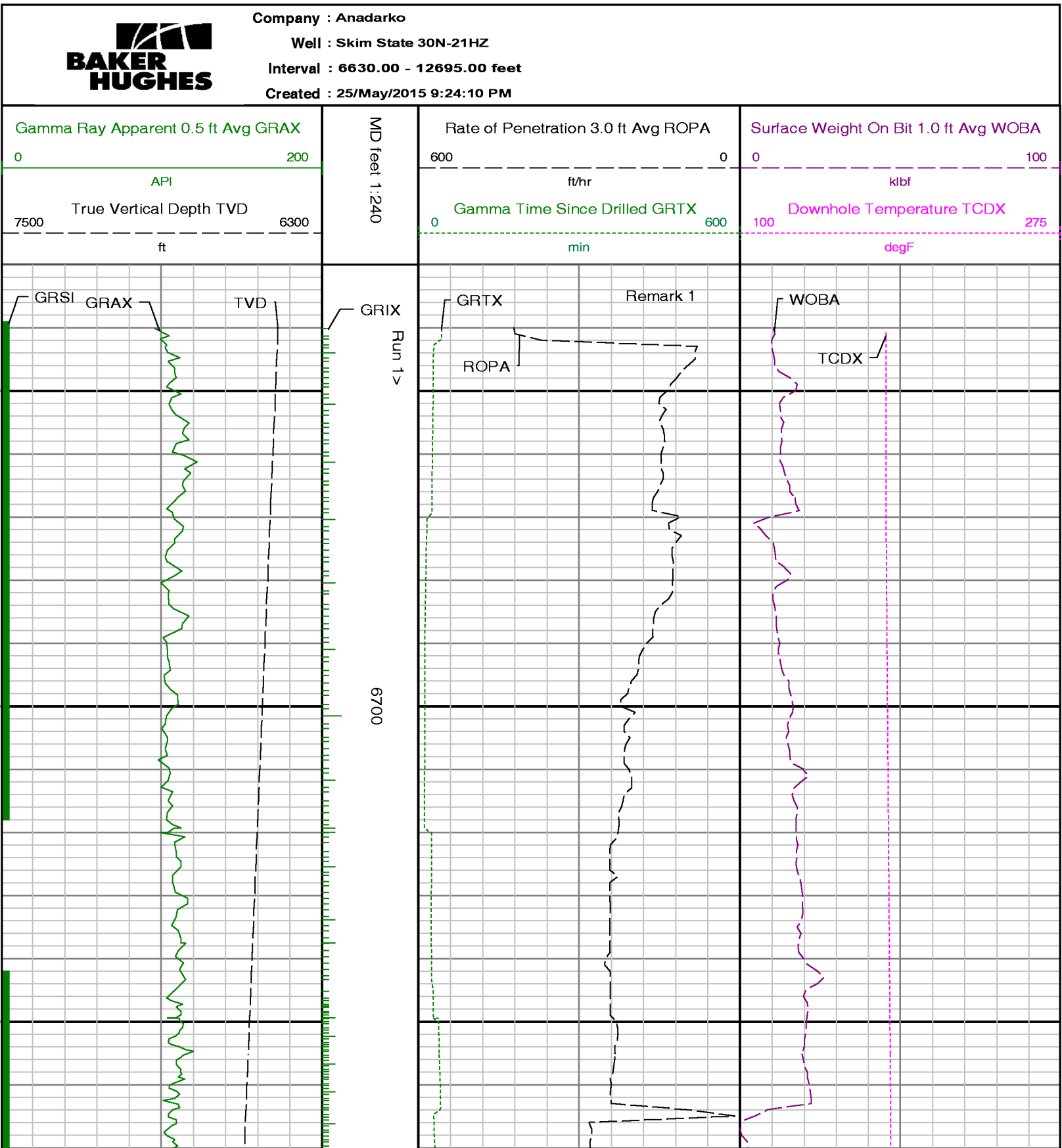
Comments

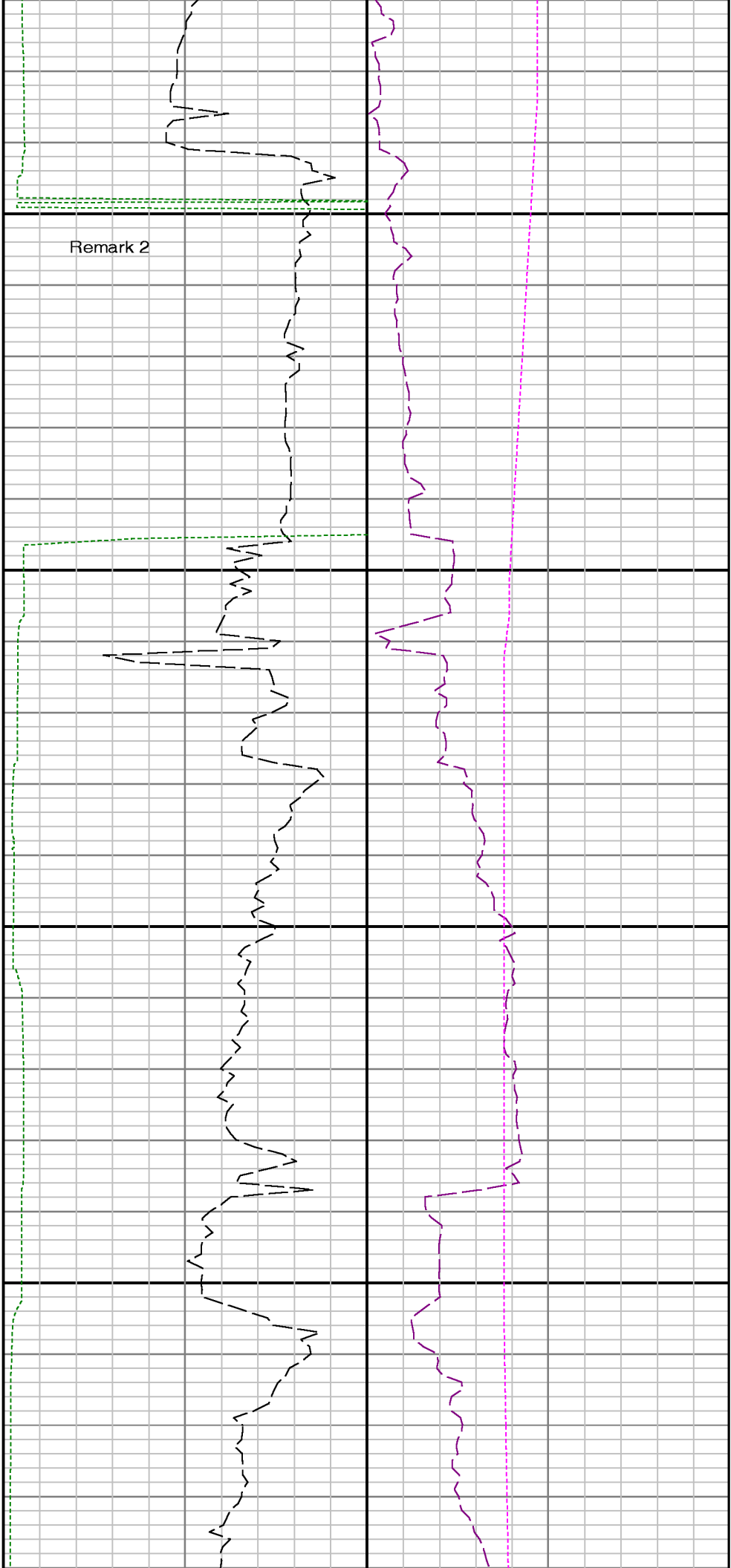
<p>1.) Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to represent logging data.</p> <p>2.) Baker Hughes Runs 1 and 2 utilized a 6 1/2 inch NaviGamma (Directional and Gamma Ray) tool behind an 7 7/8 inch bit and steerable assembly from 1244 to 12685 feet MD (1227.85 to 7073.40 feet TVD).</p> <p>3.) A sliding indicator is shown on the left side 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 acquired while sliding.</p>

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	6640	7.875	1	Logging services began at 6600. No logging data prior to 6600 feet MD (6406.57 feet TVD) as per client's request.

1	6640	7.875	1	Logging services began at 6600. No logging data prior to 6600 feet MD (6466.57 feet TVD) as per client's request.
2	6799	7.875	2	GRTX values were logged up to 10 hours from 6799 to 6845 feet MD (6629.43 to 6659.48 feet TVD) in order to change out the MWD and motor.
3	12635	7.875	2	The interval from 12635 to 12685 feet MD (7073.75 to 7073.40 feet TVD) was not logged due to gamma sensor offset to bit at TD.



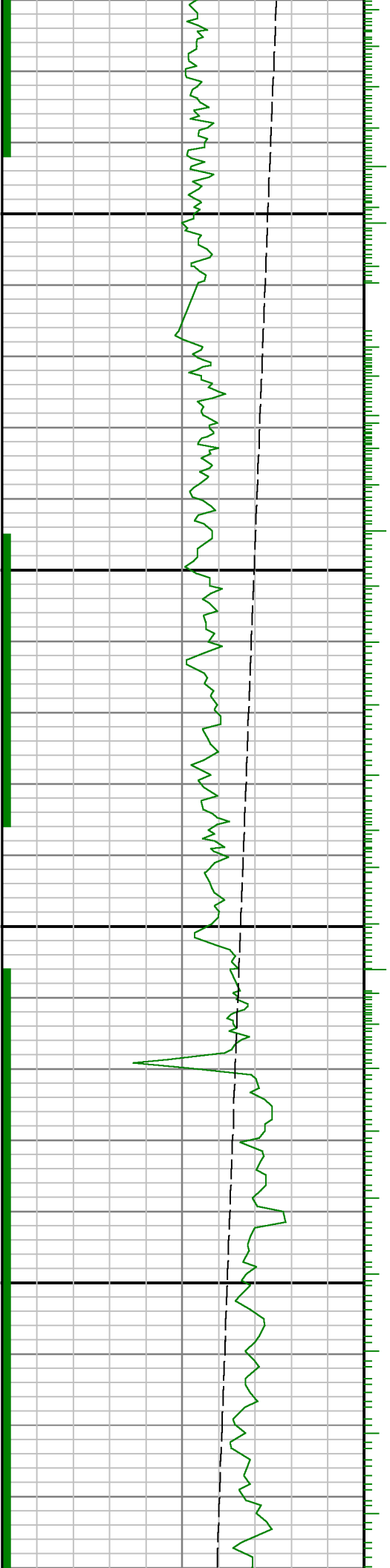


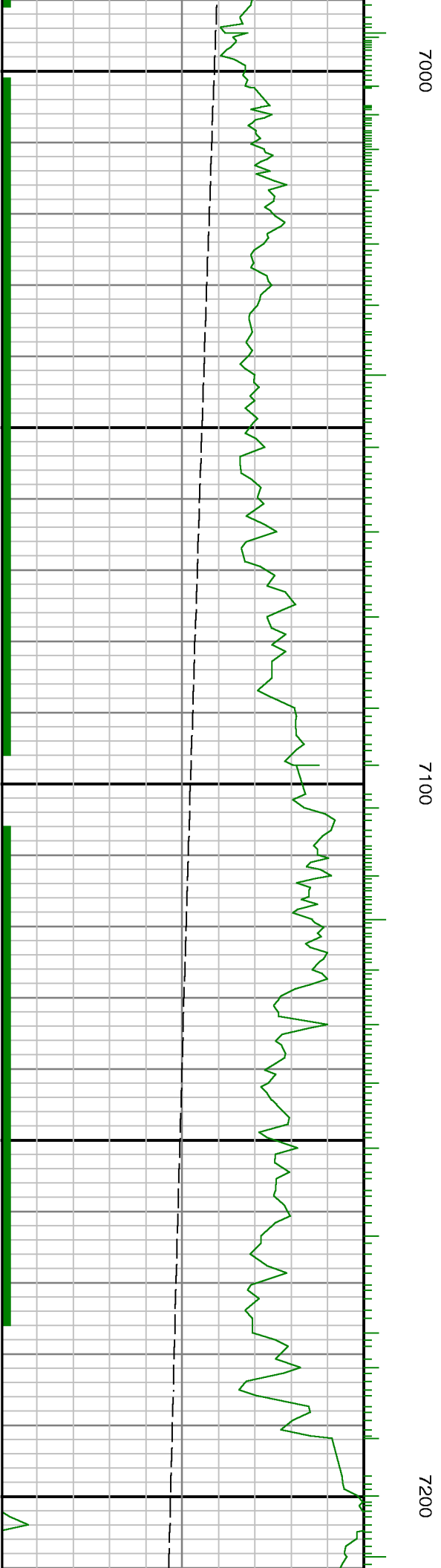
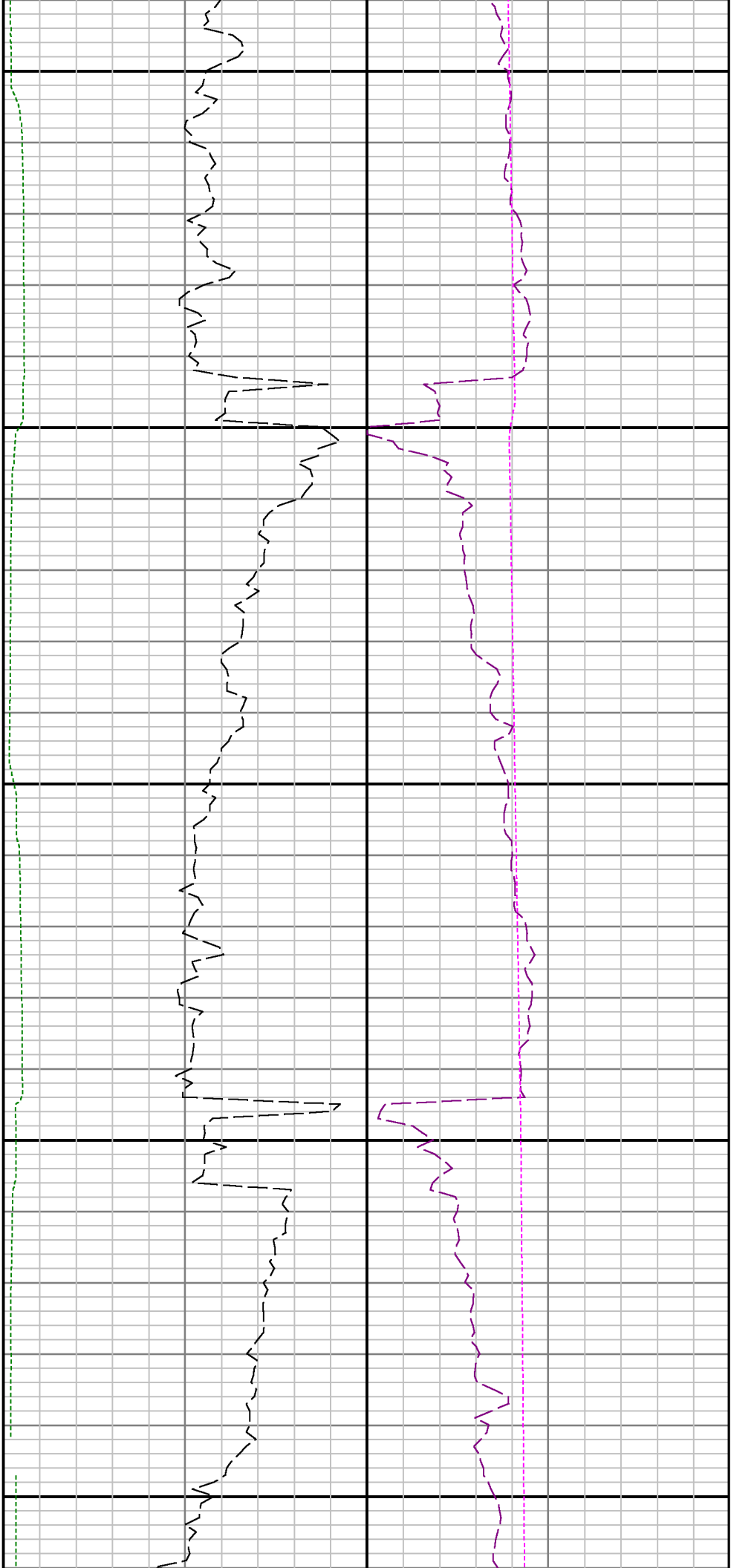
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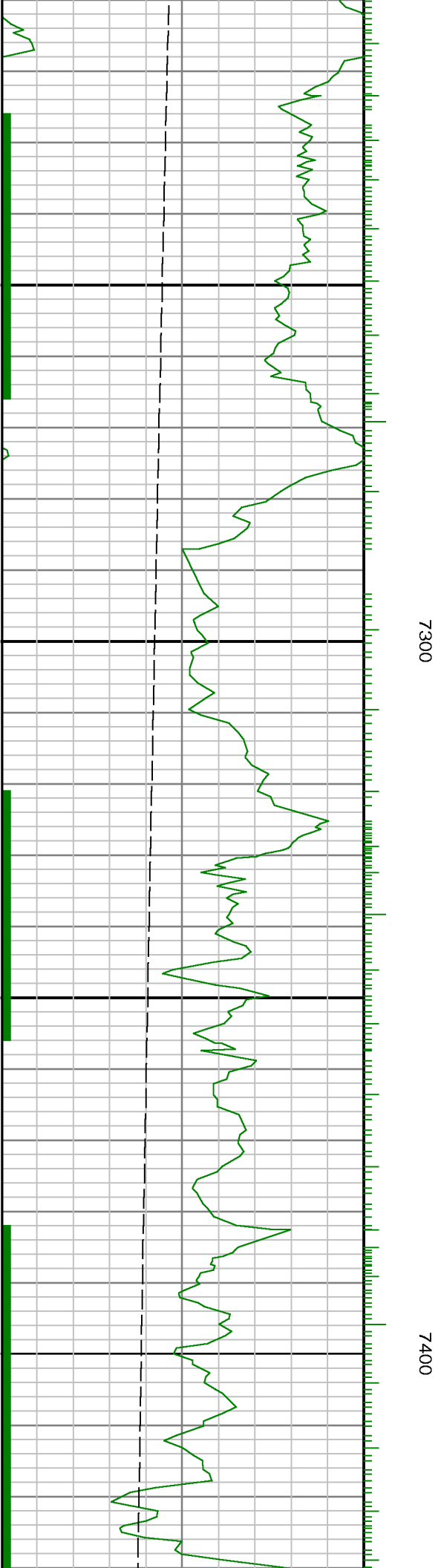
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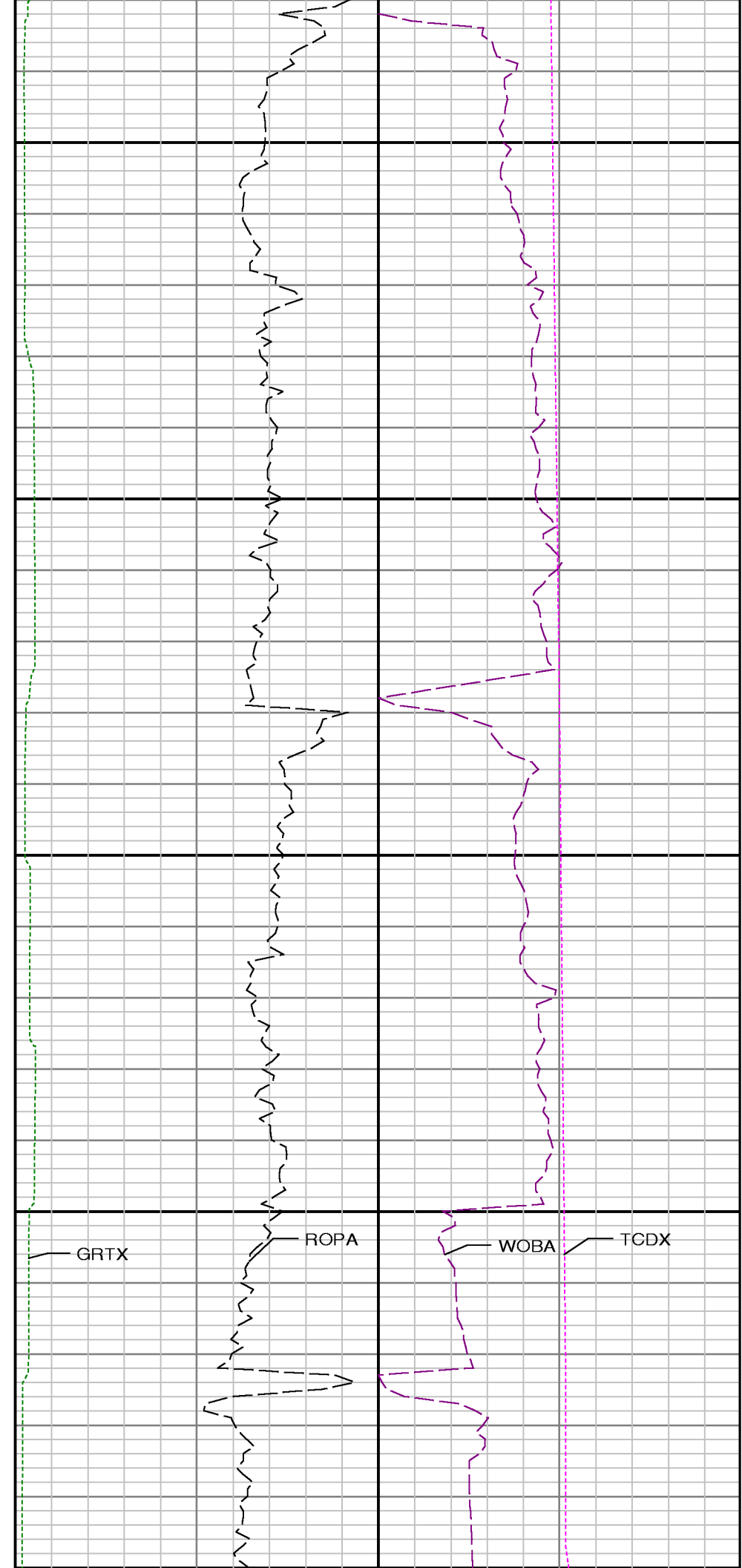
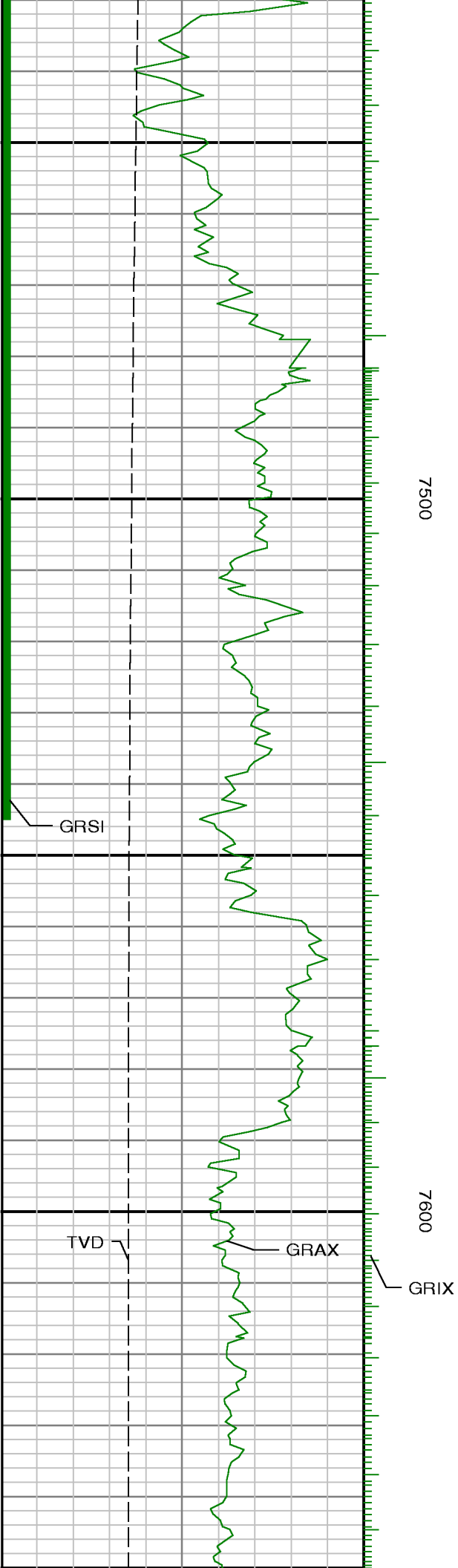
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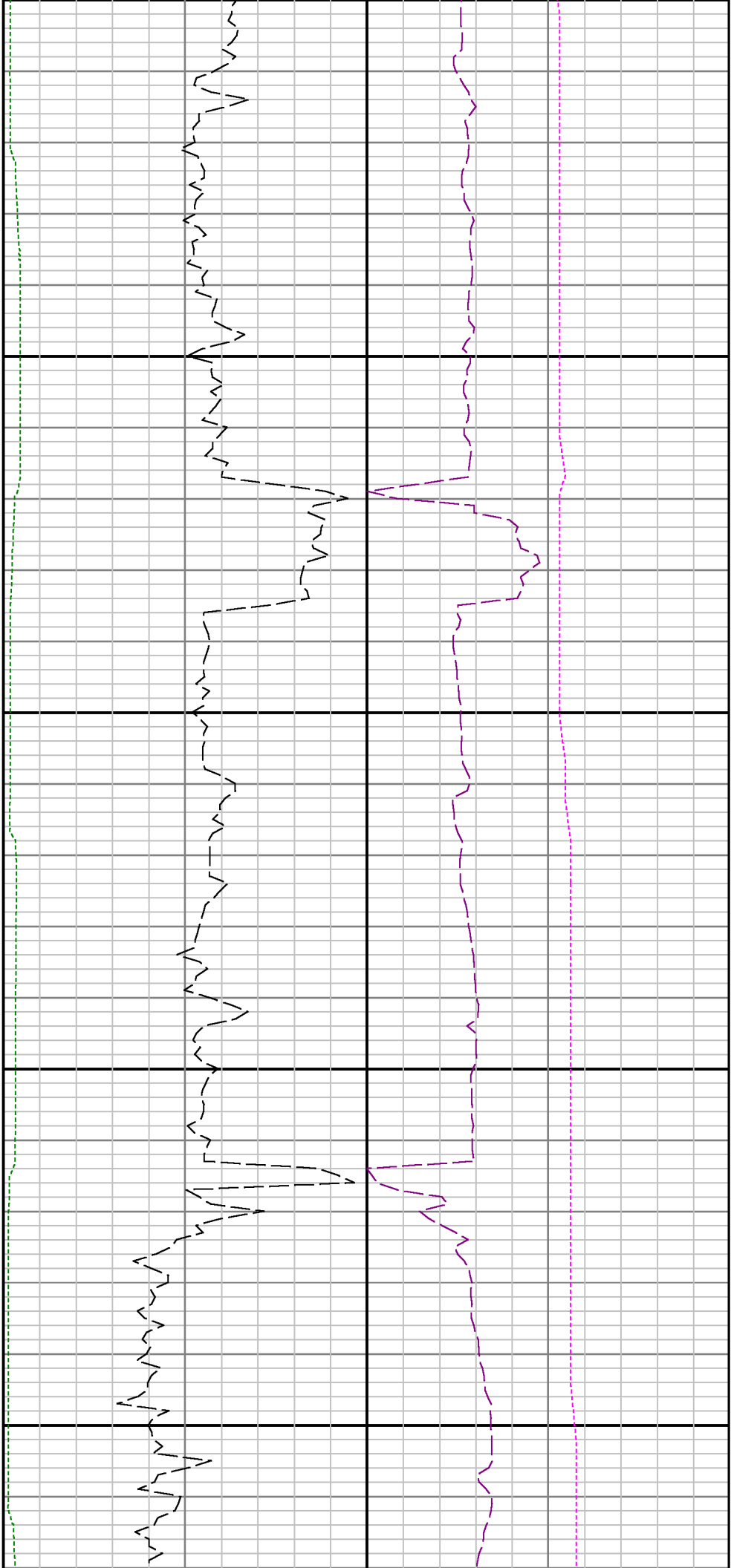
Run 1 <> Run 2





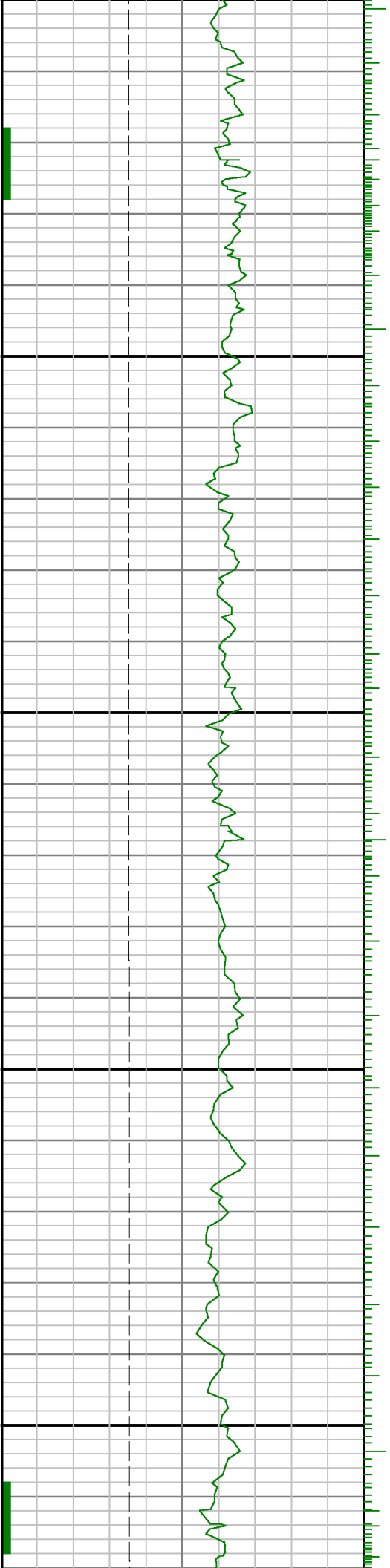


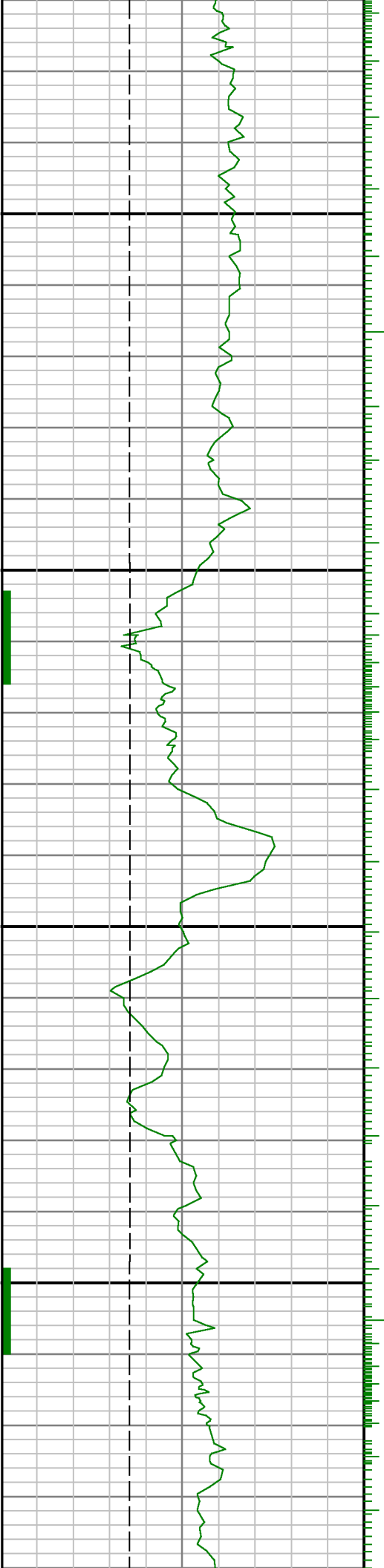




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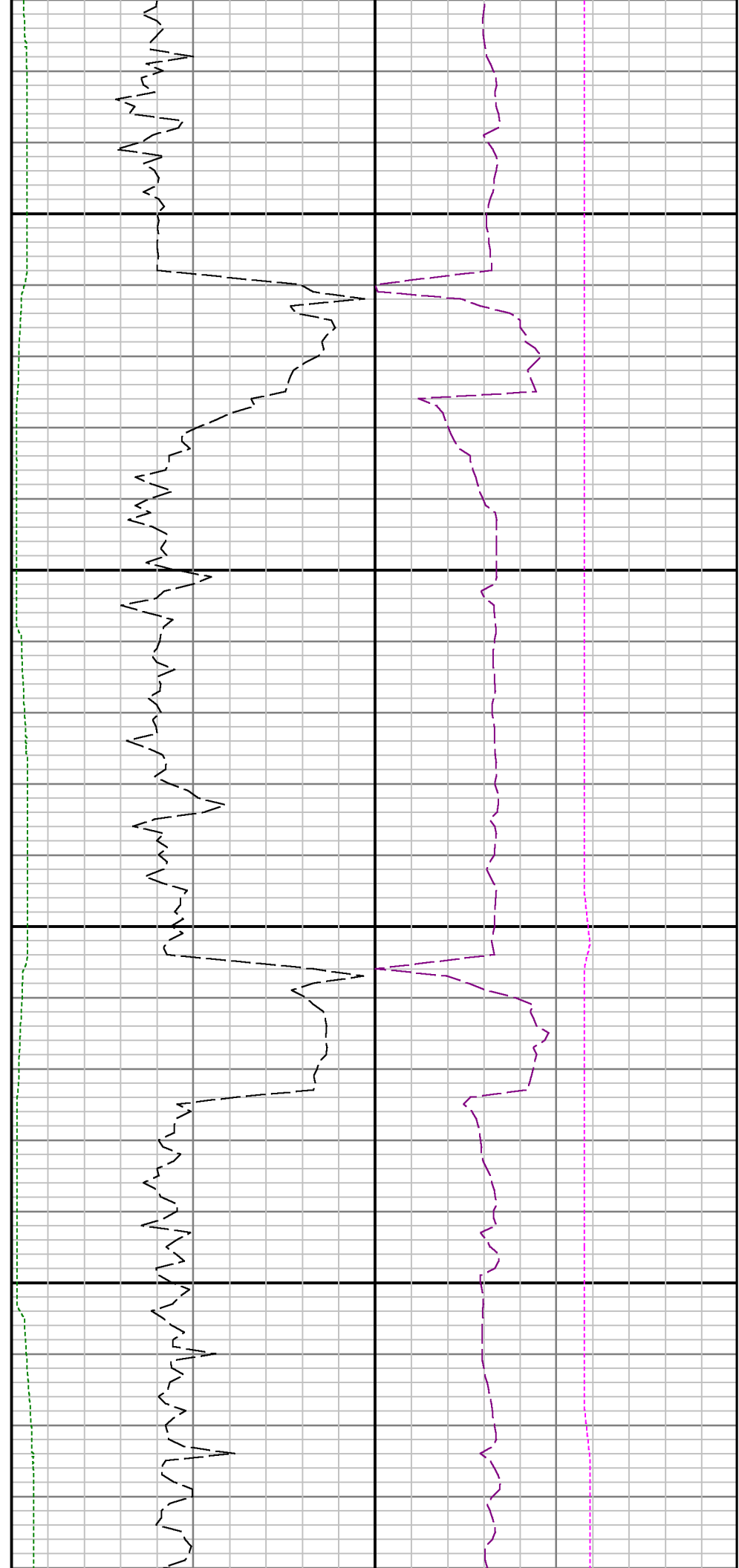
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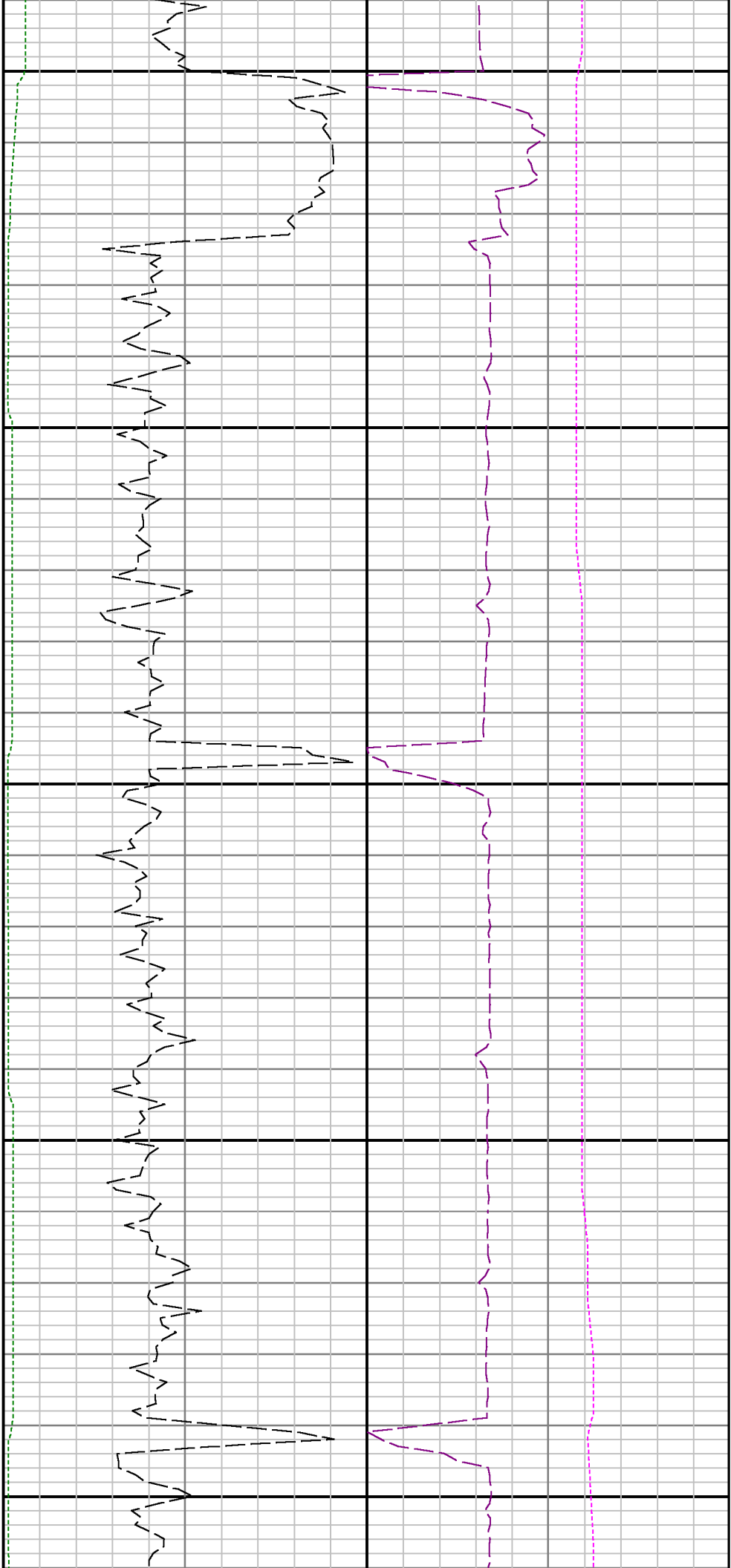




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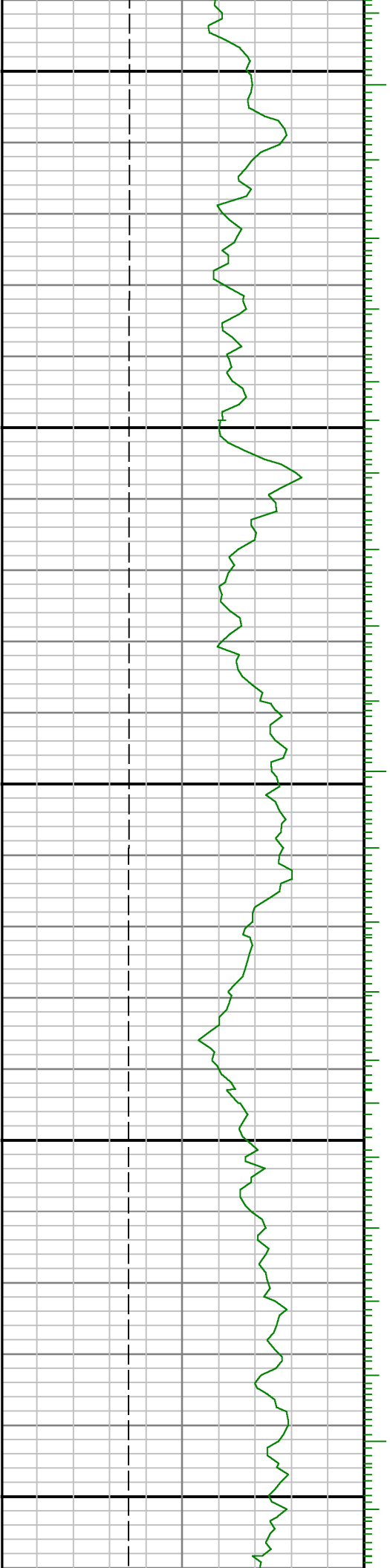


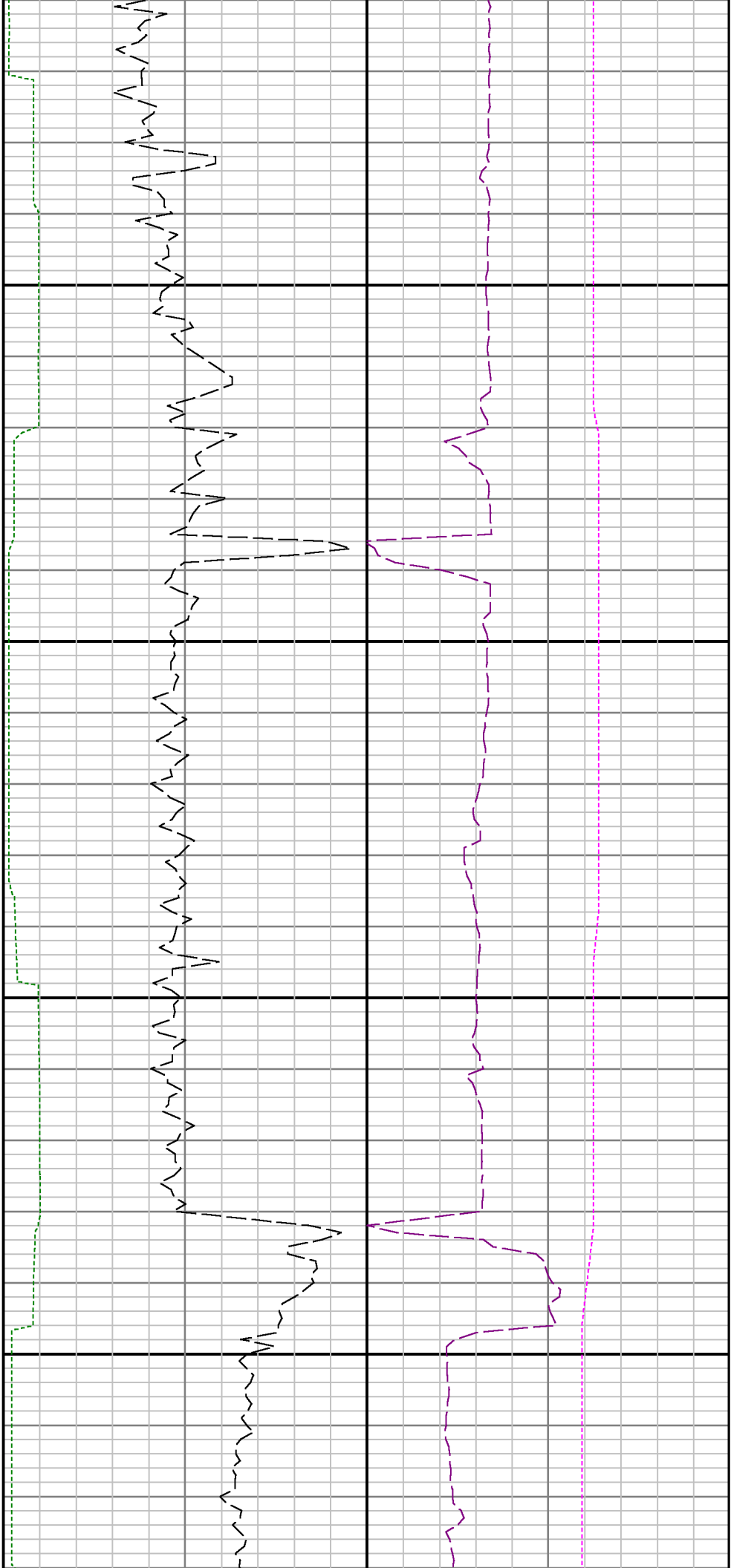


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8200

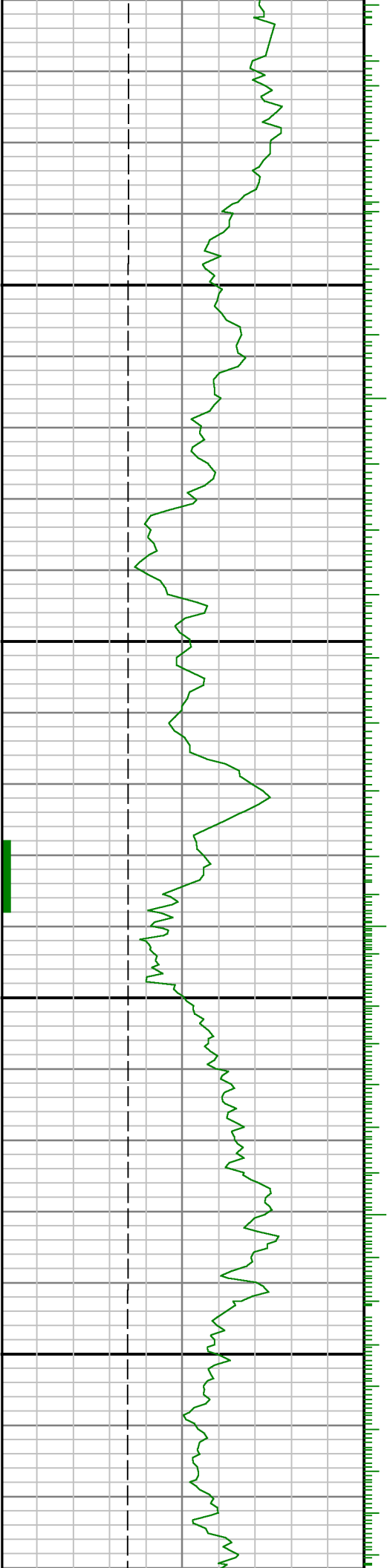
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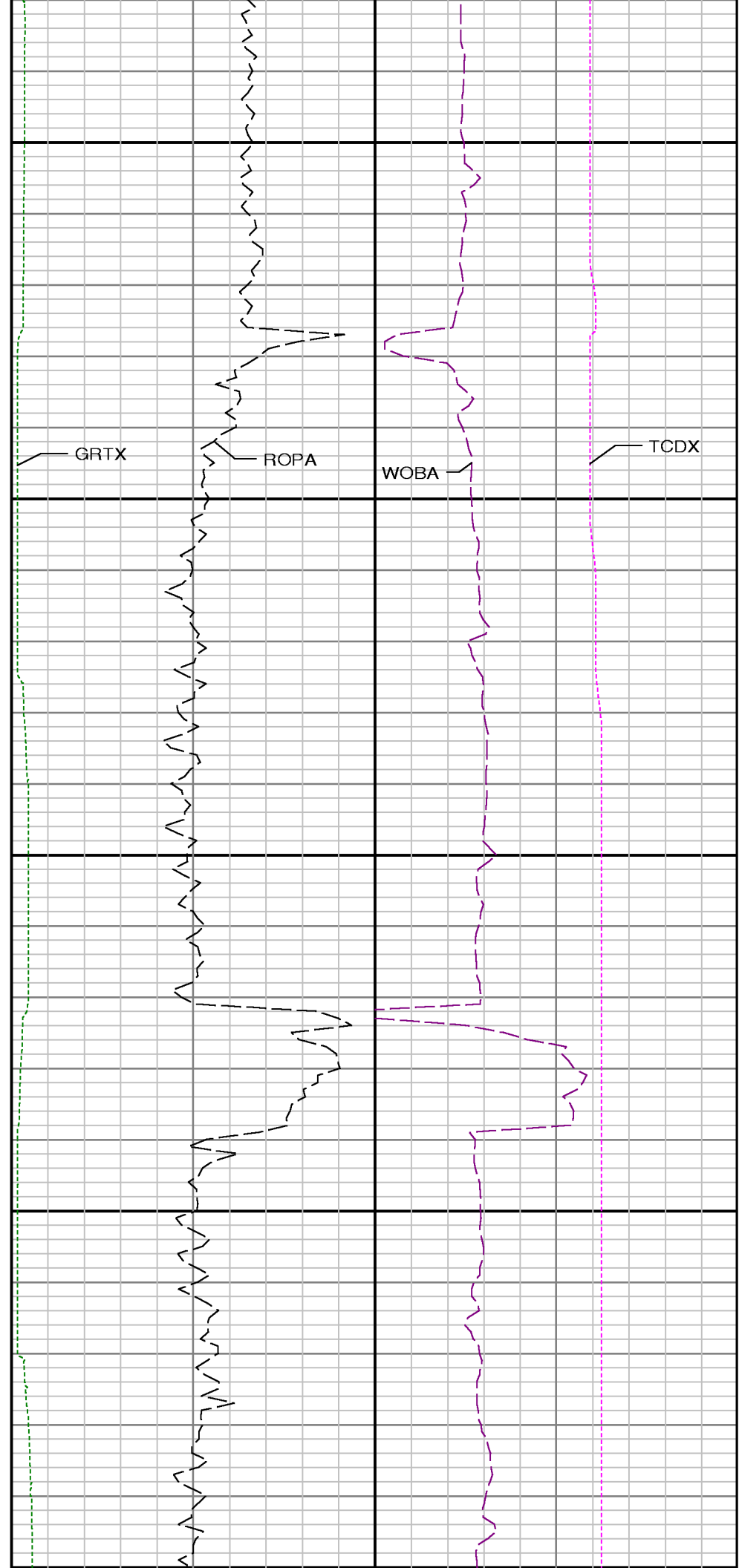
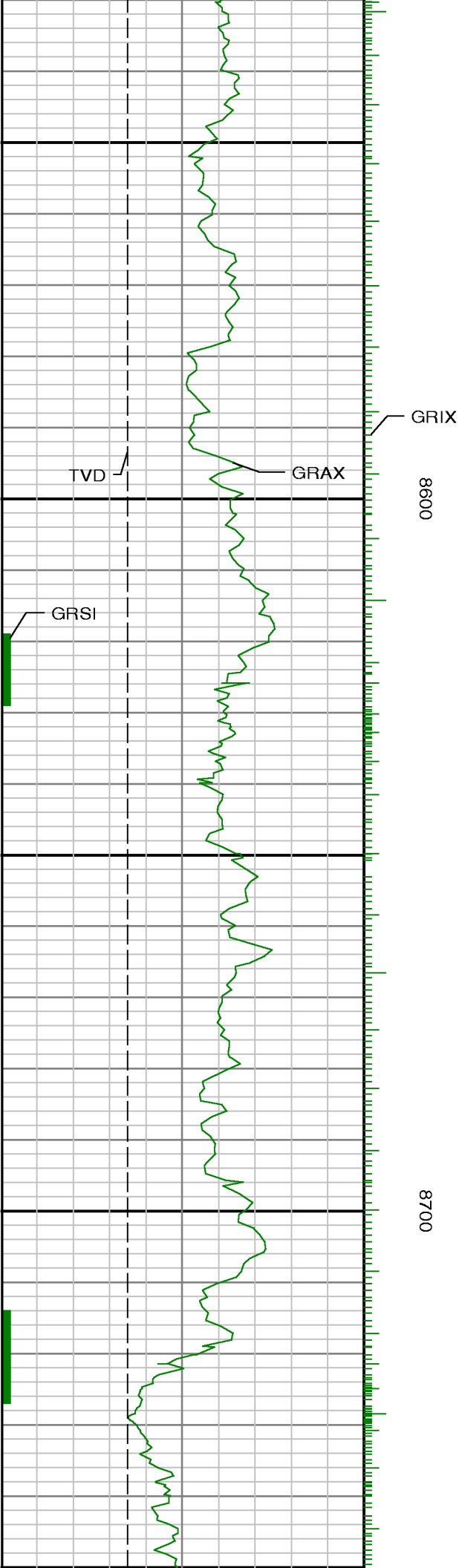


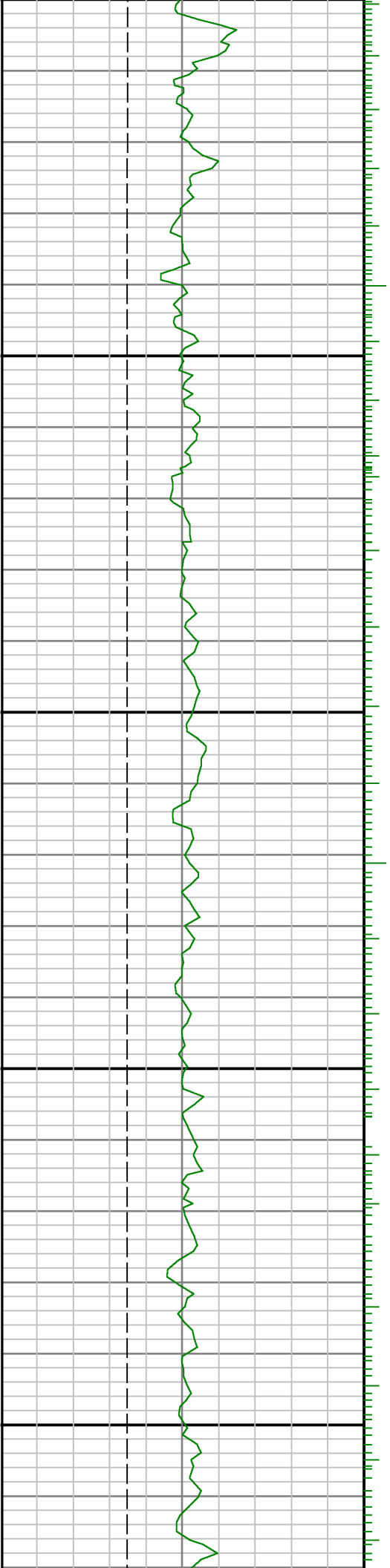


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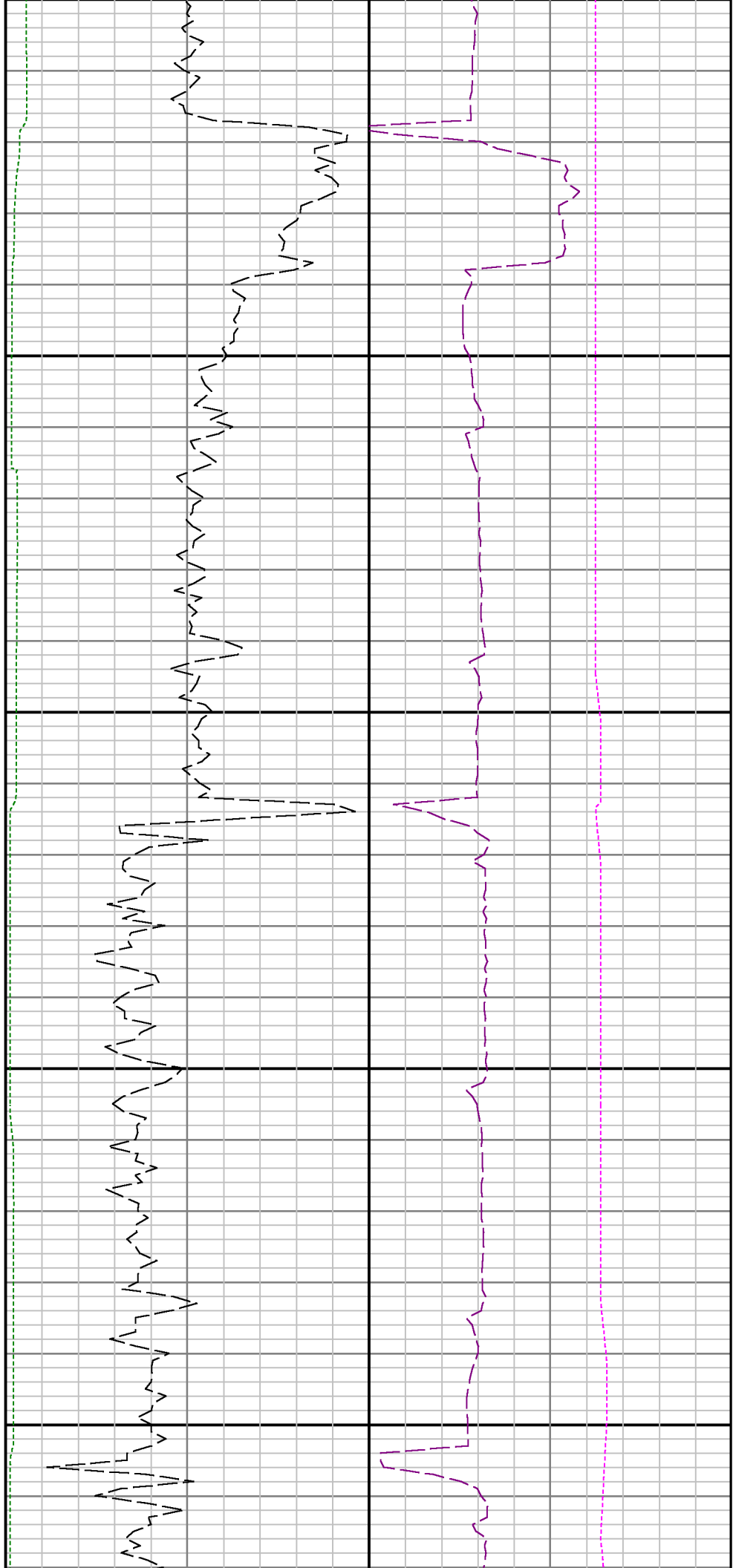


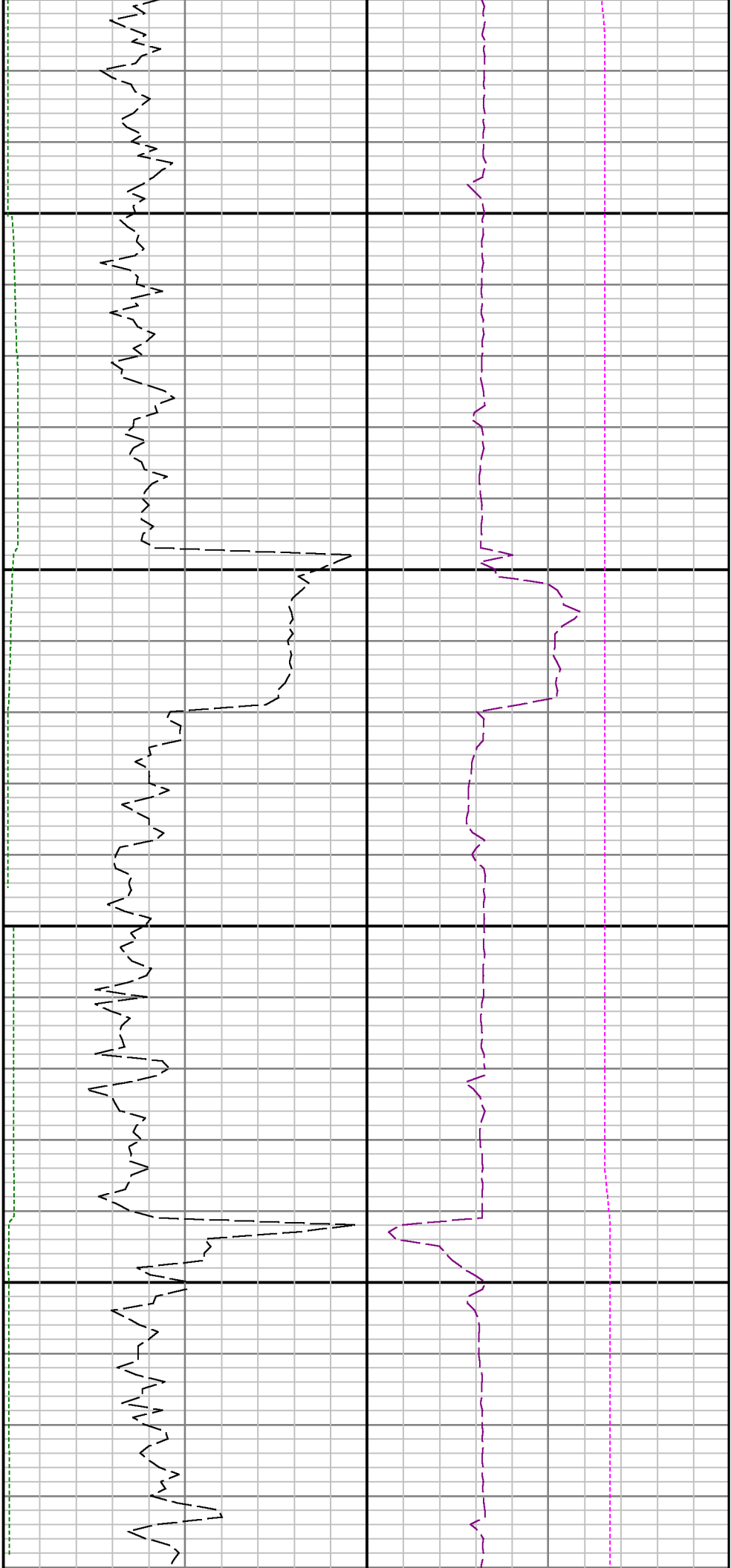




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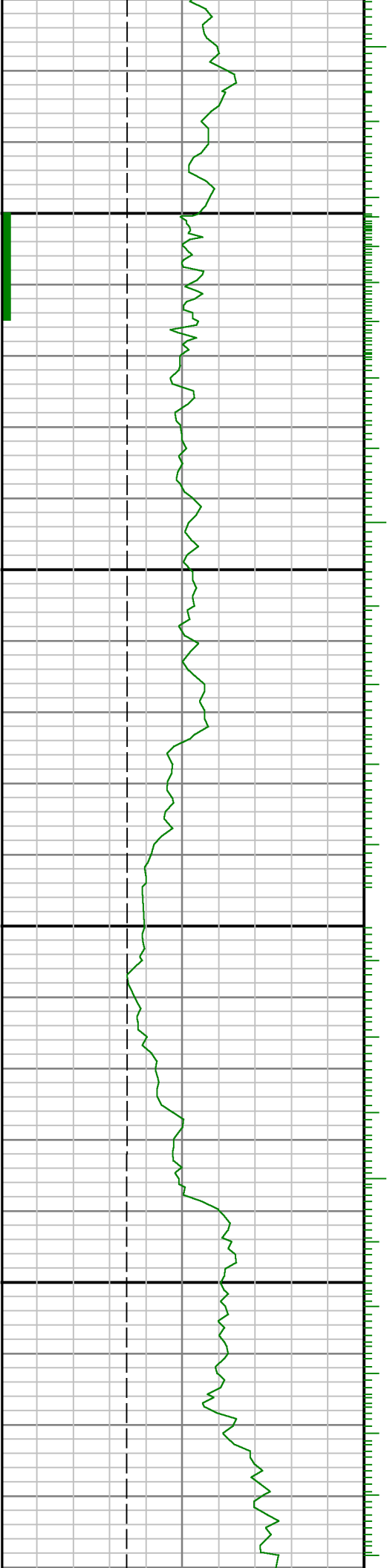
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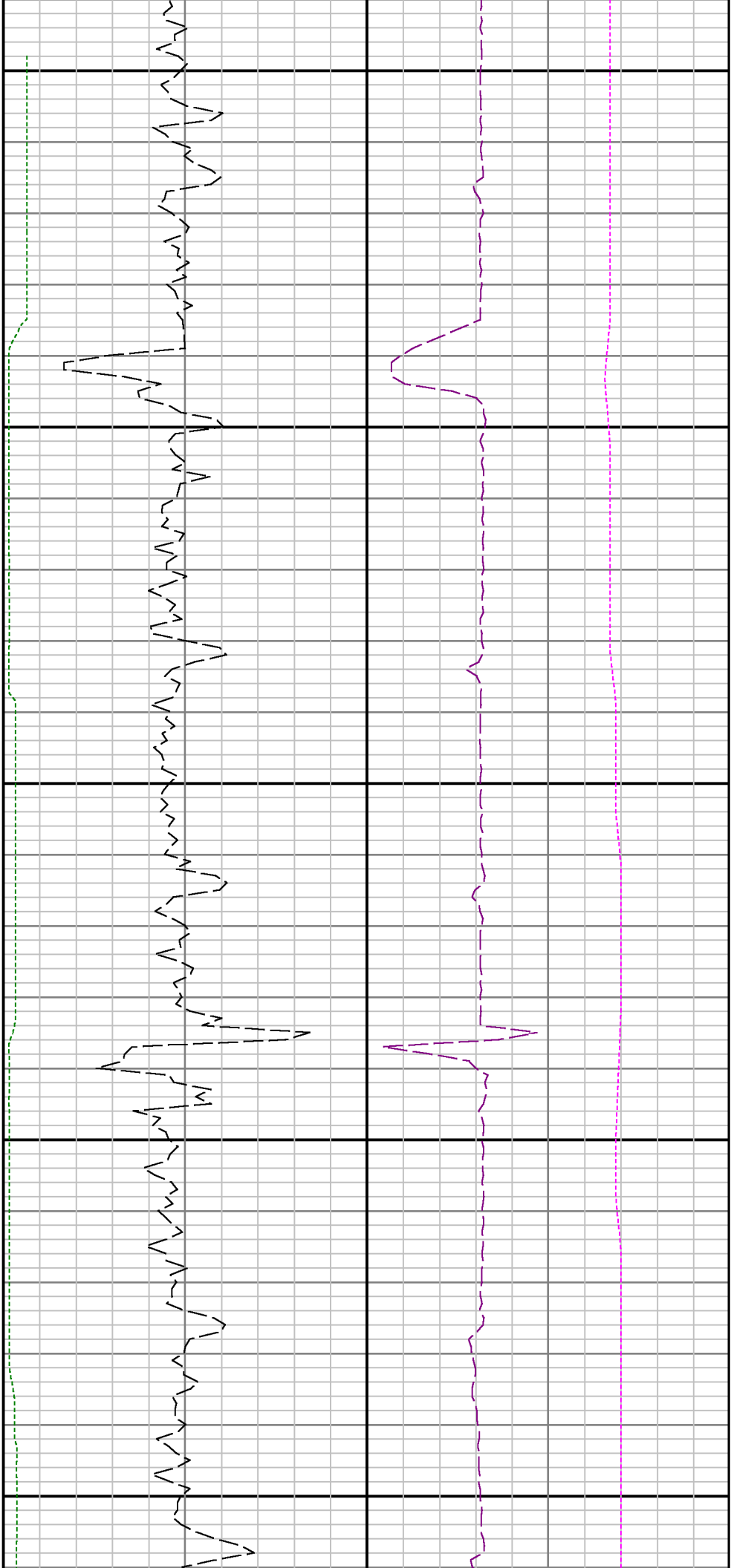




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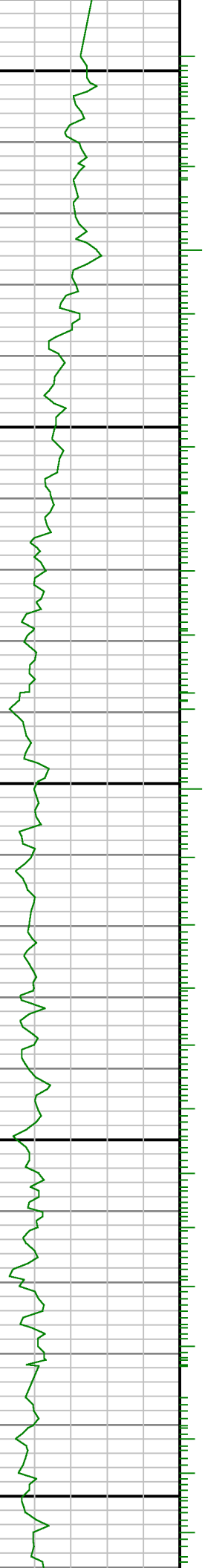


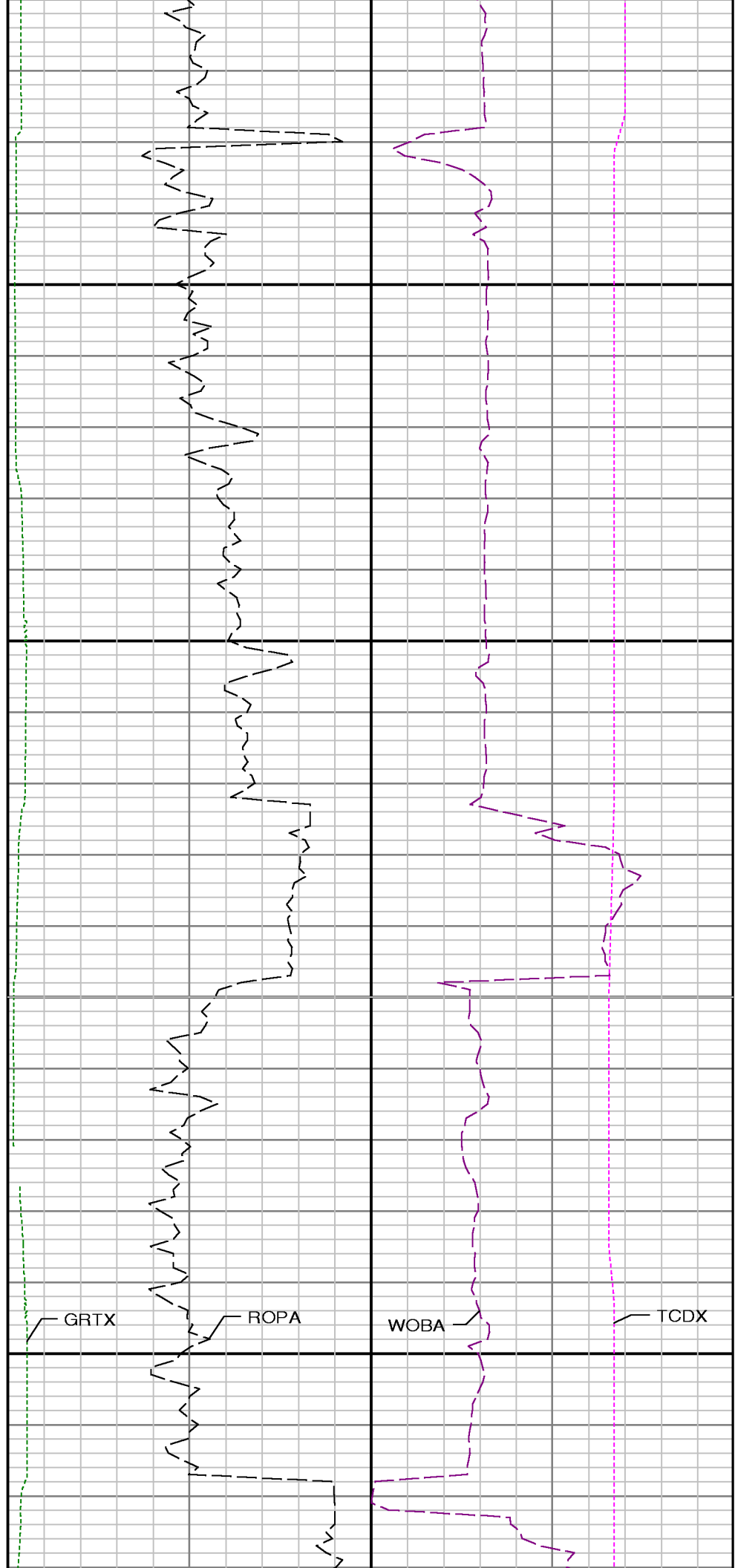
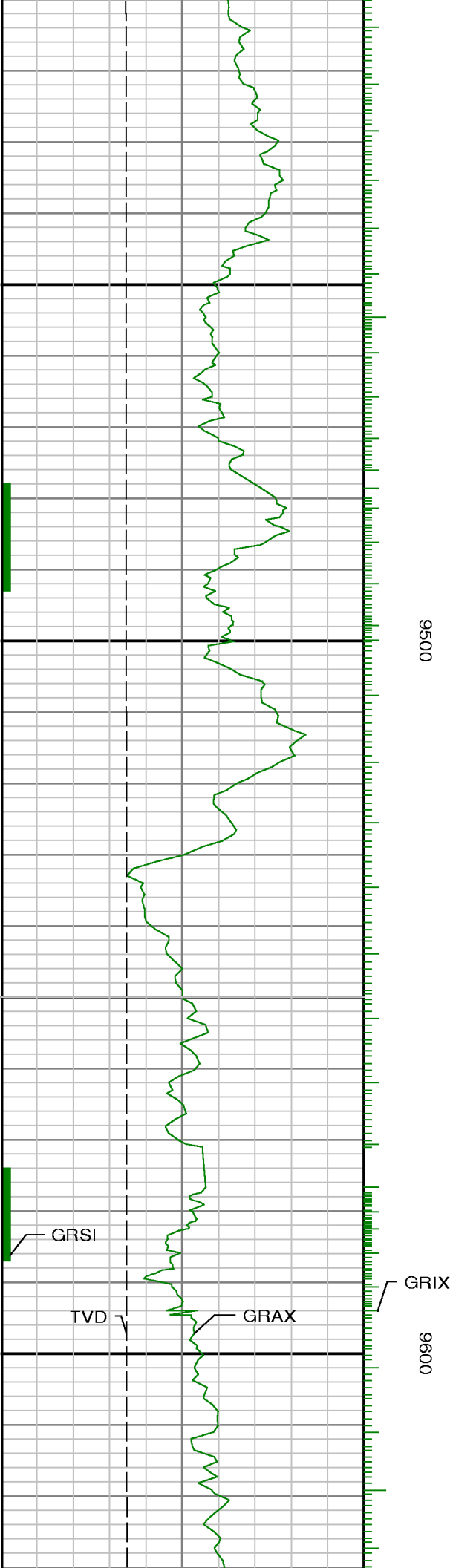


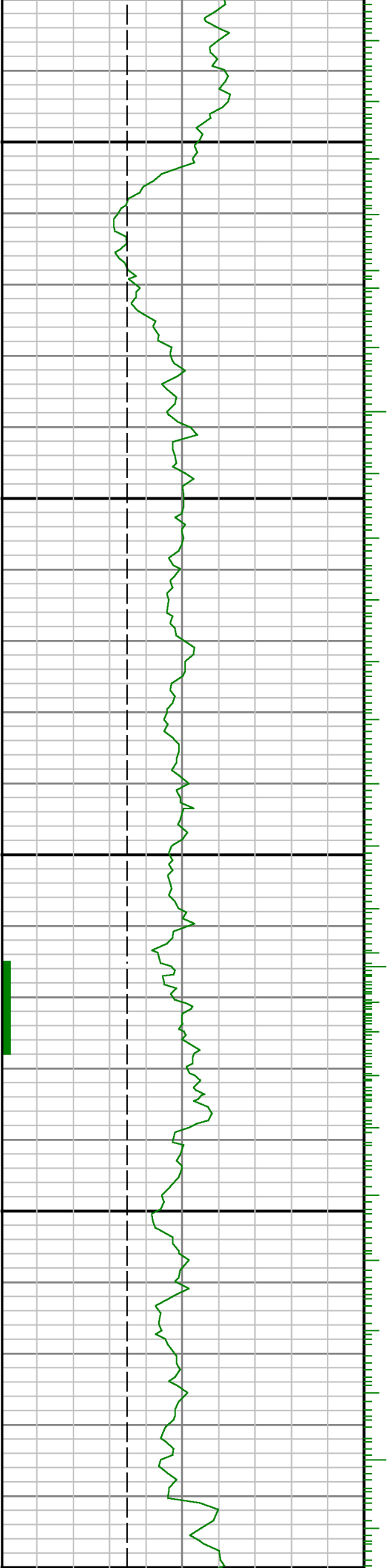
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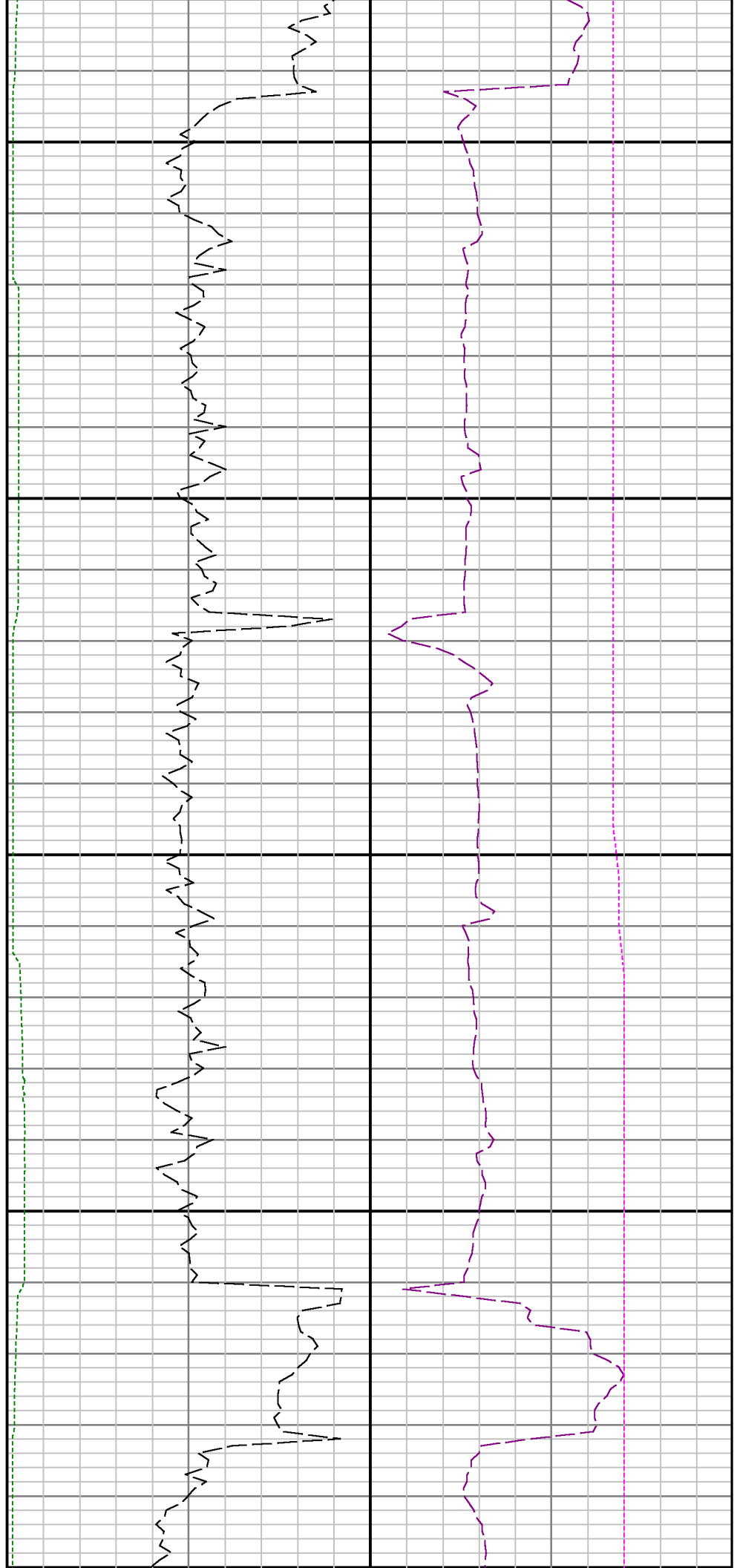




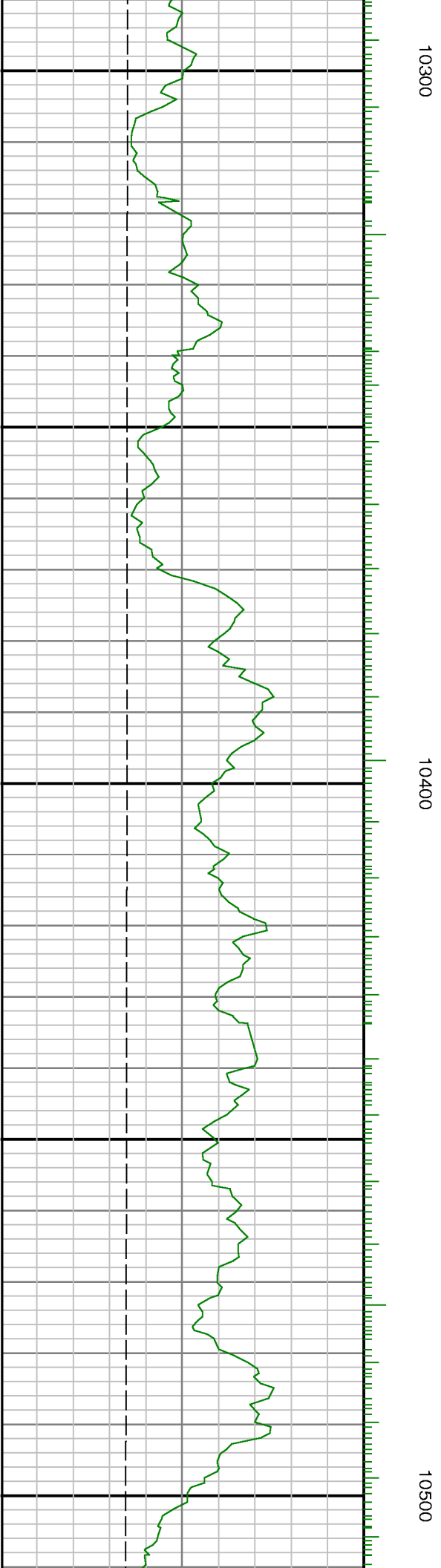
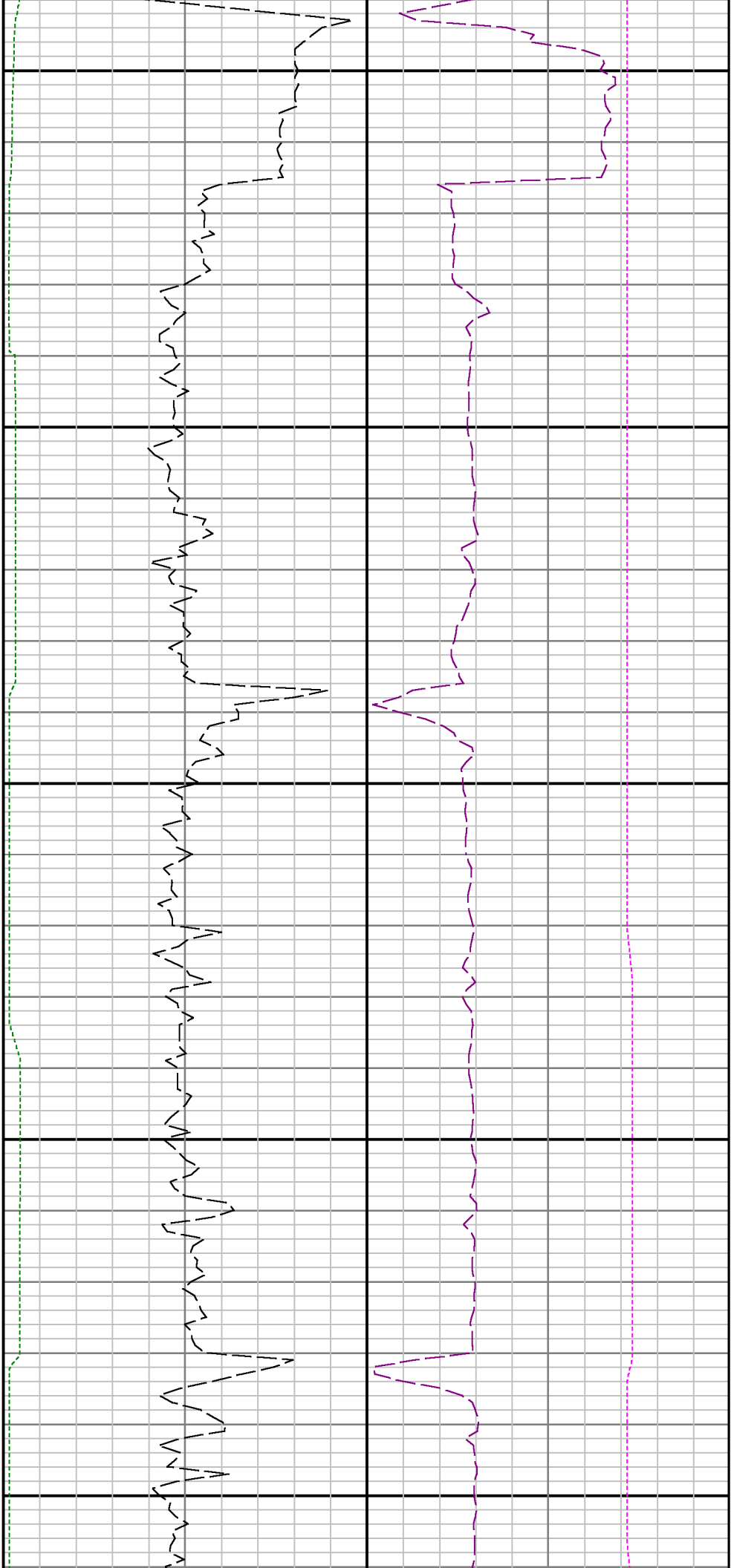


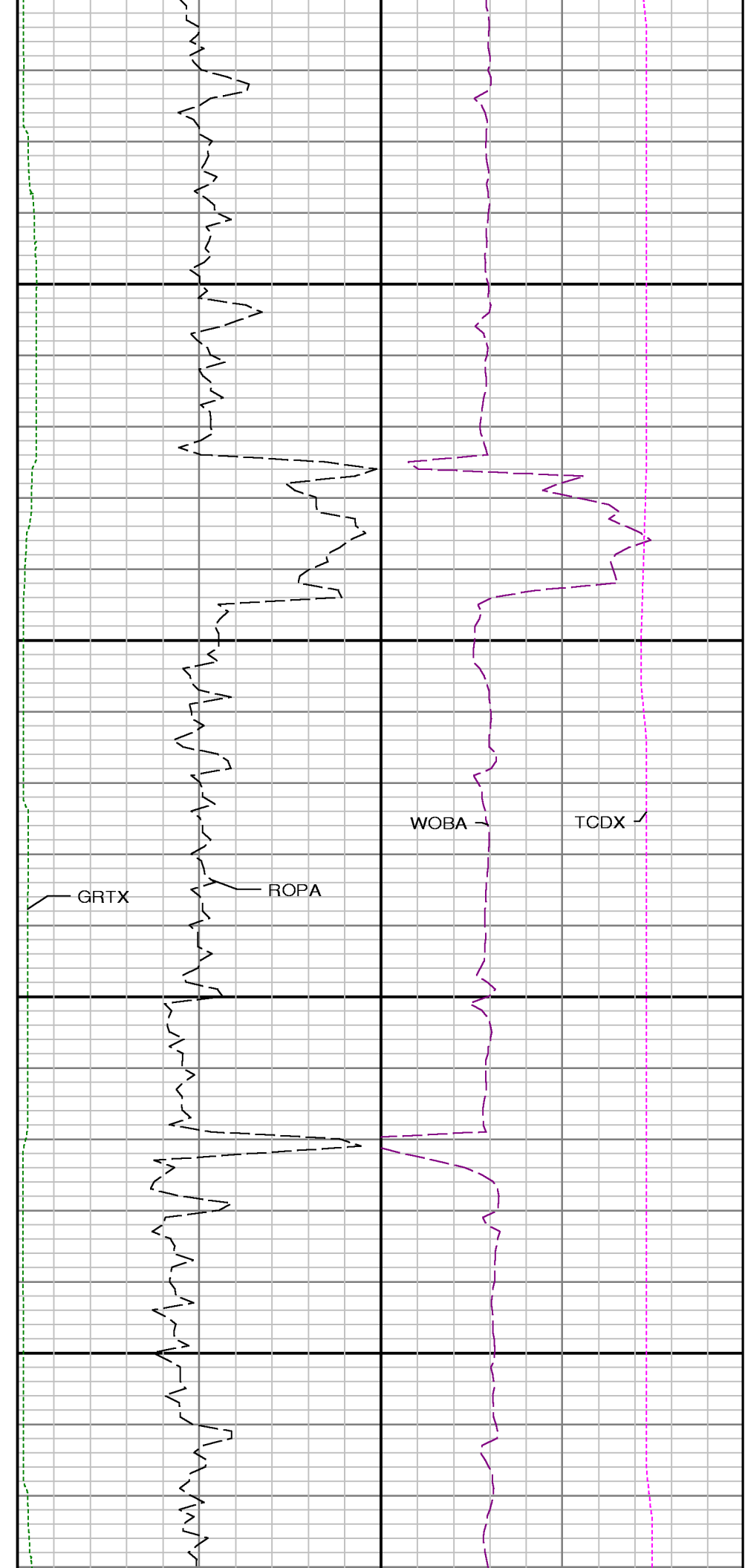
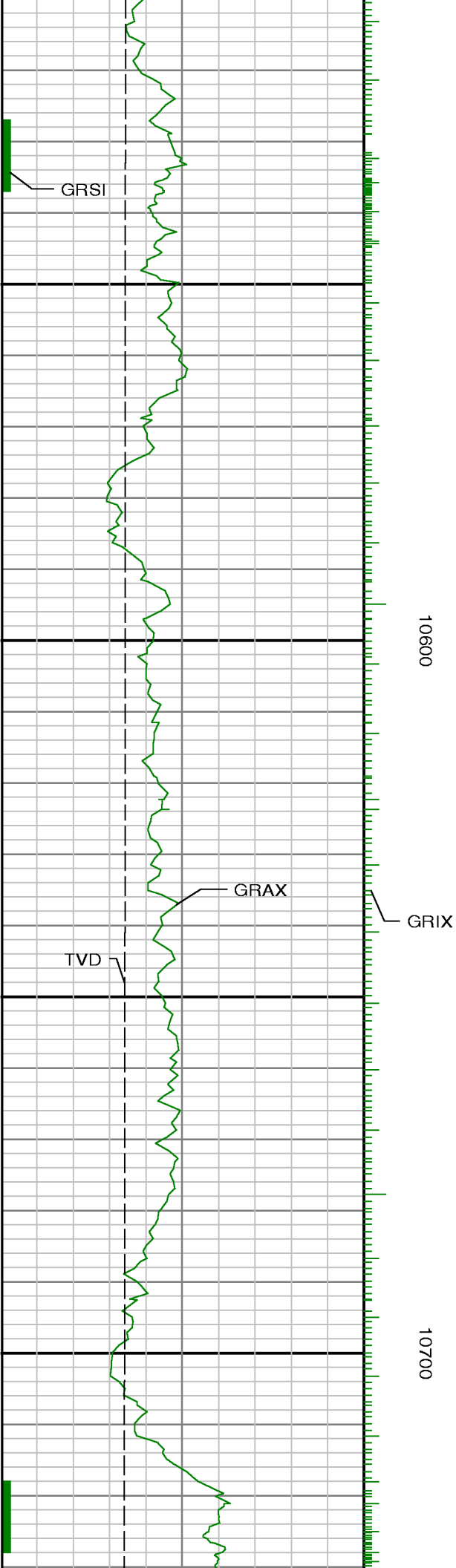
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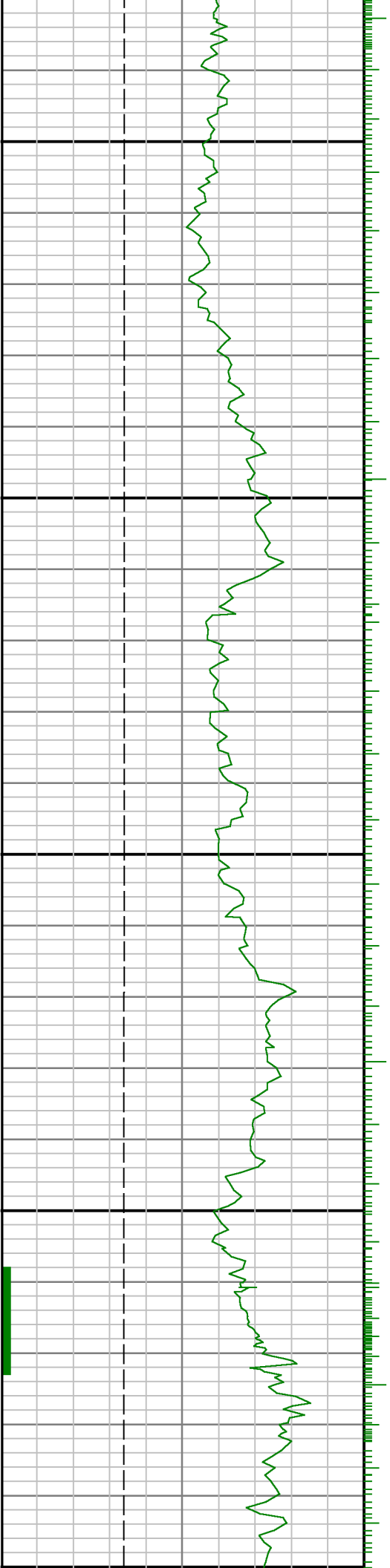






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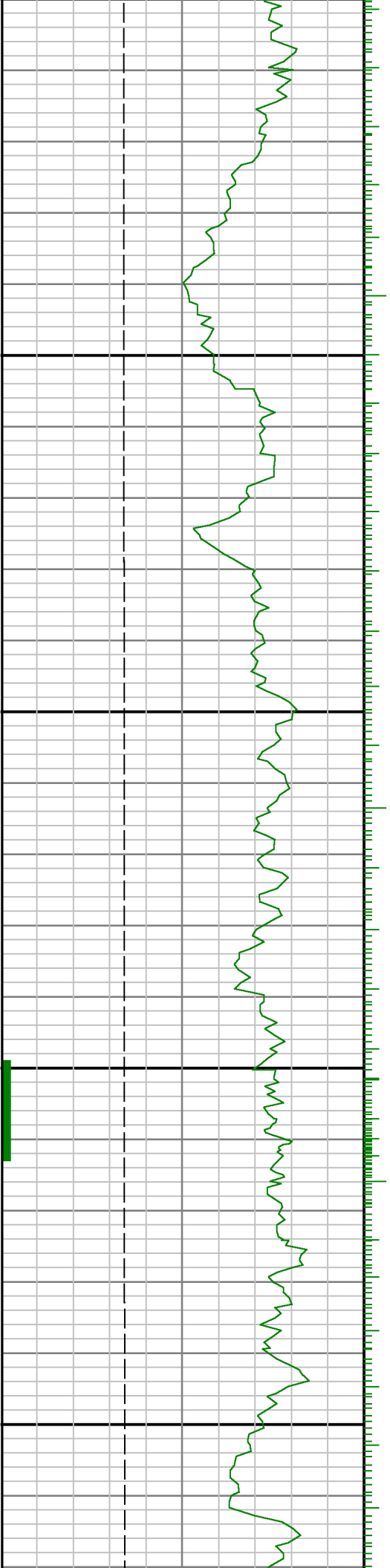
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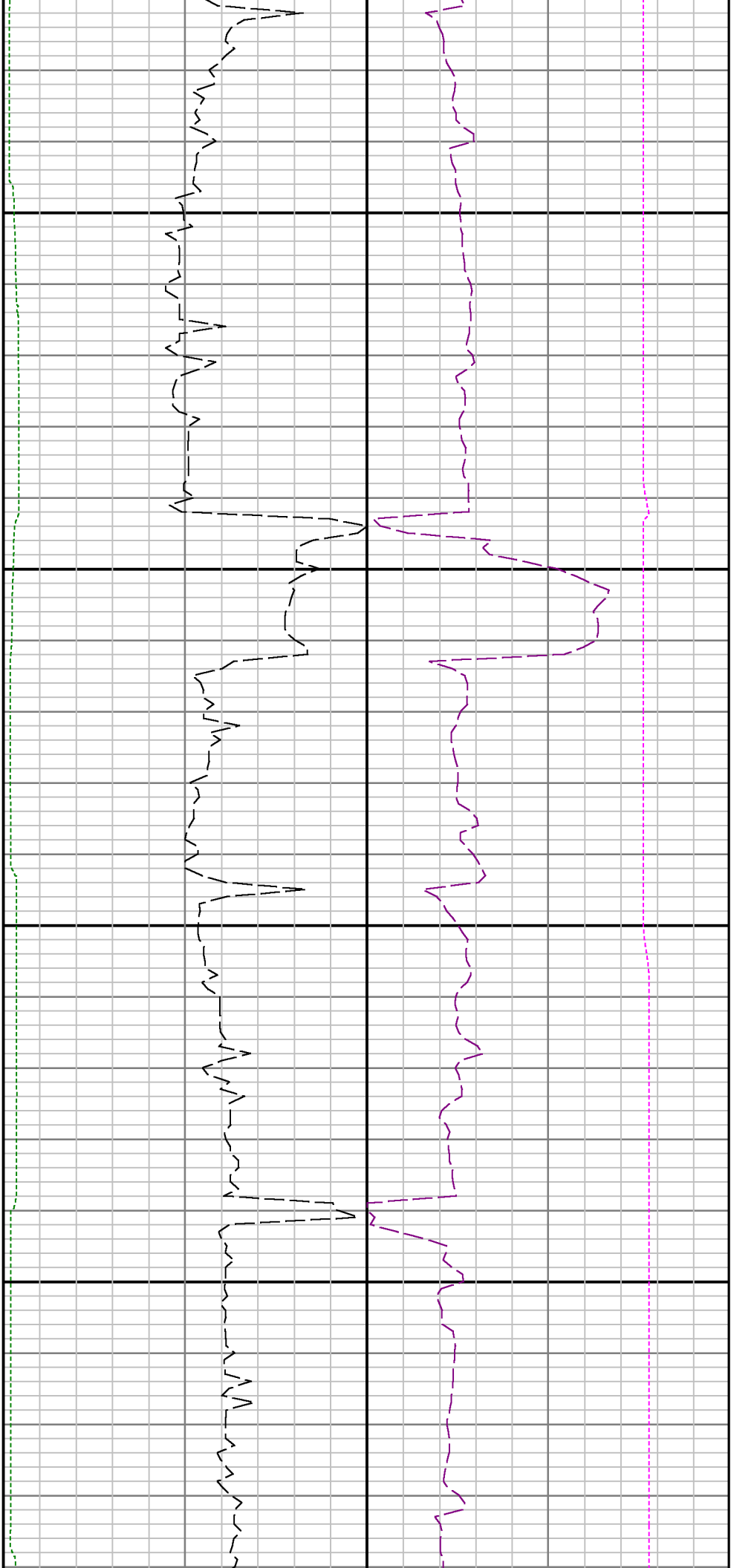




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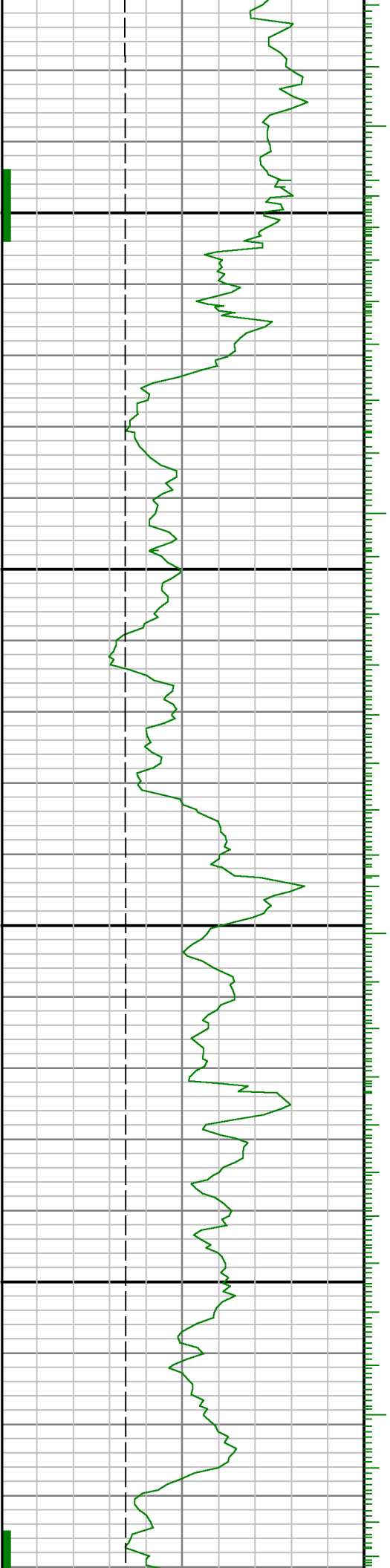
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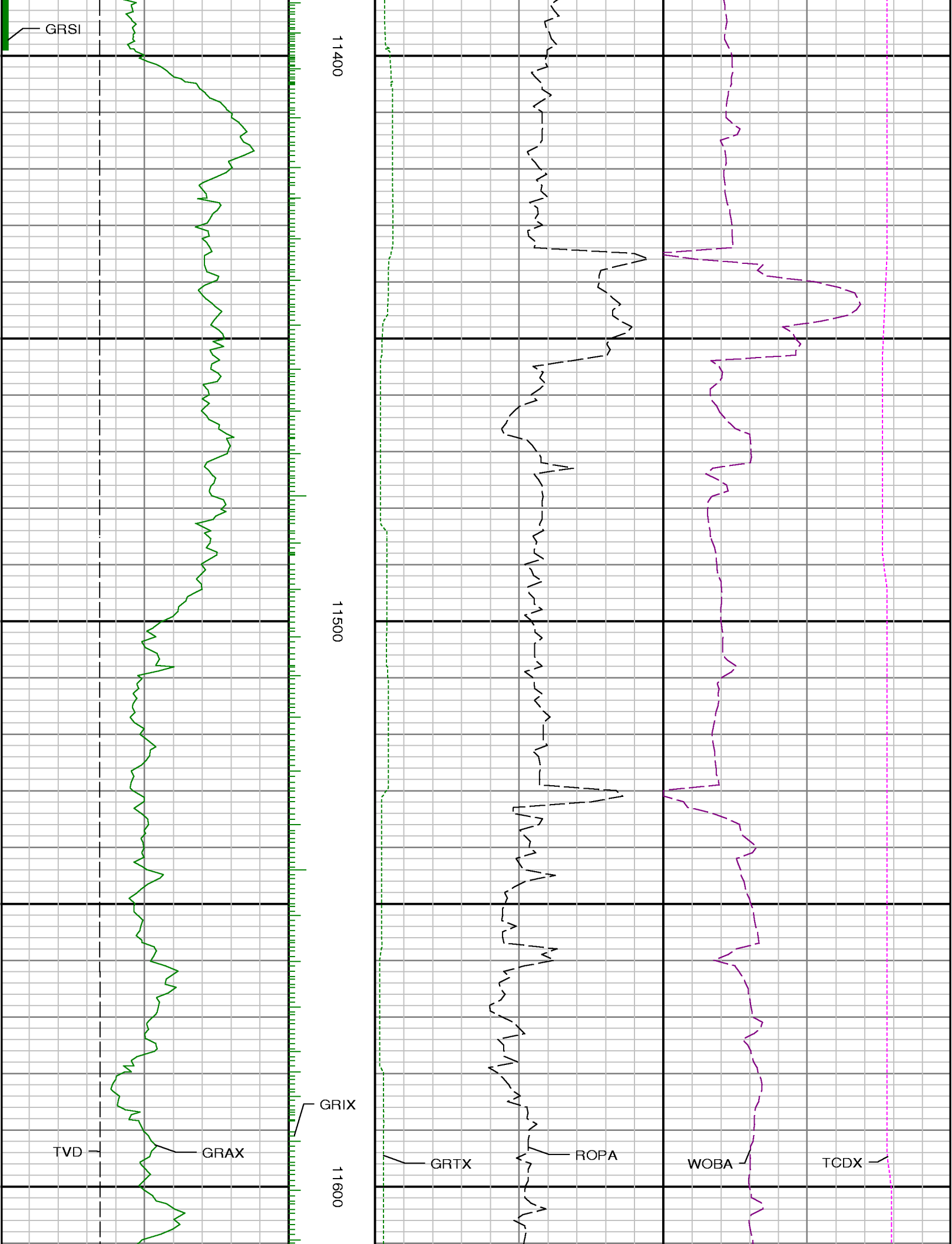


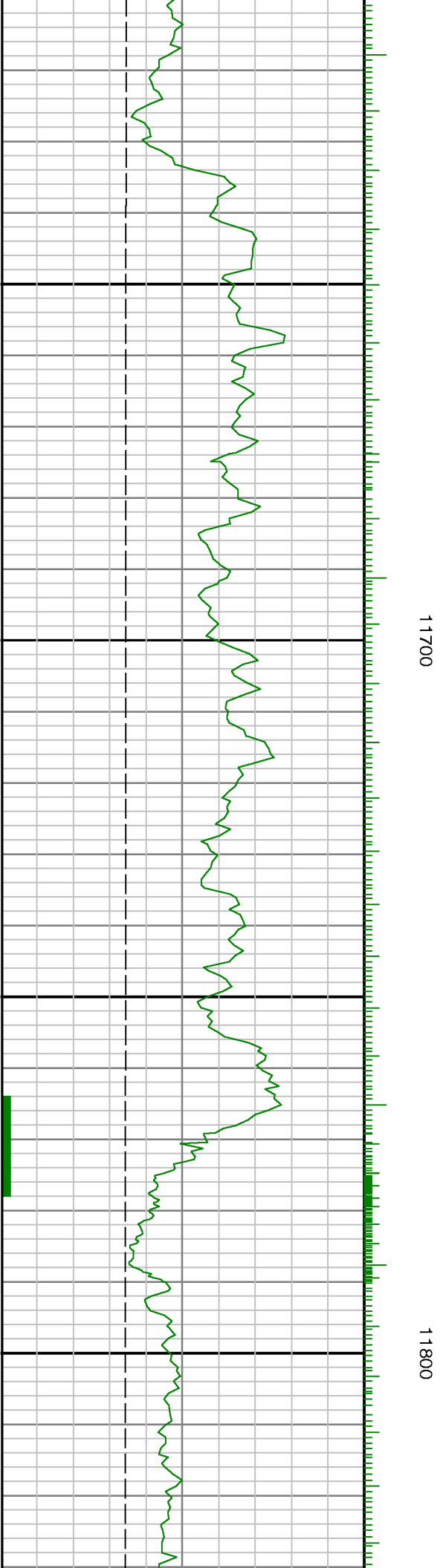
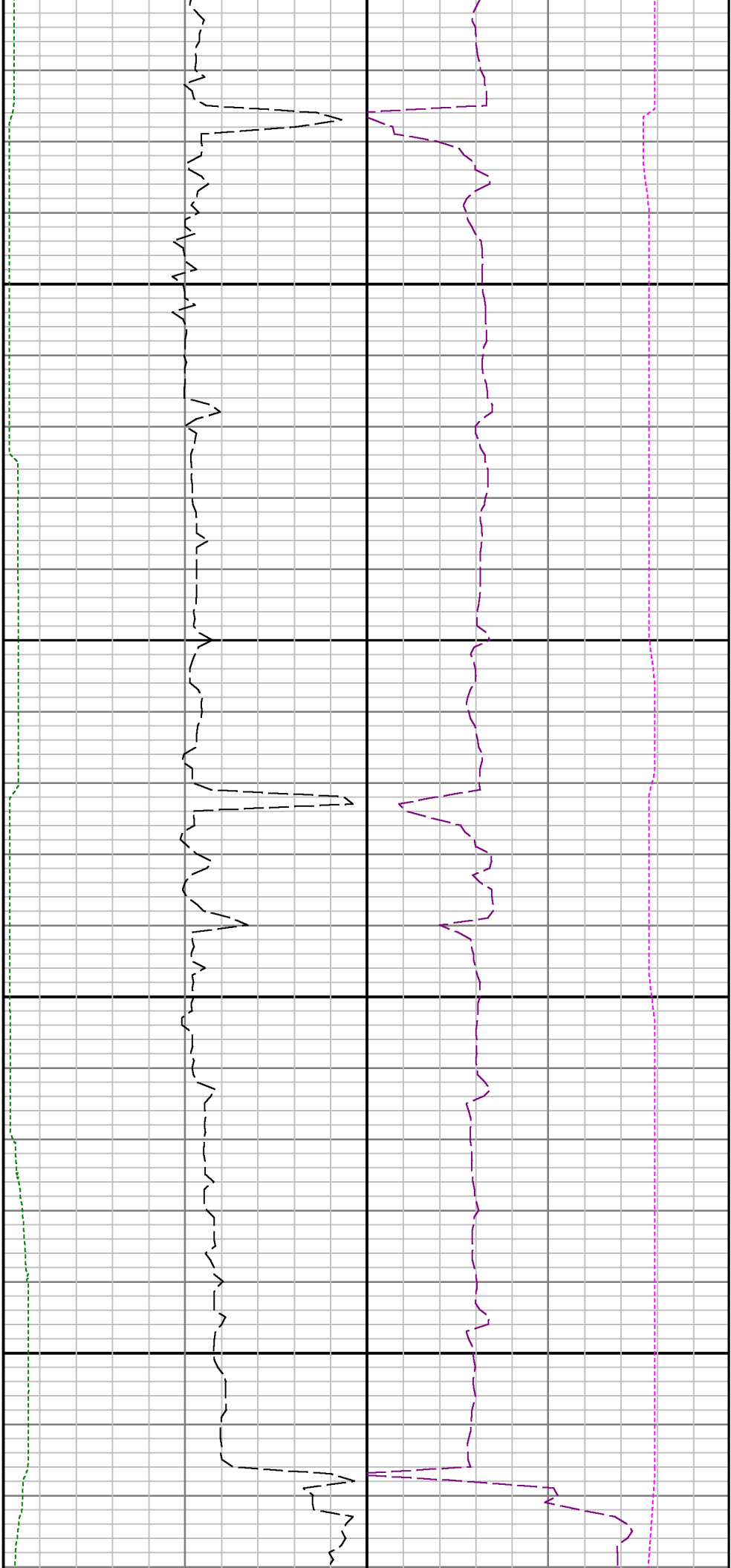


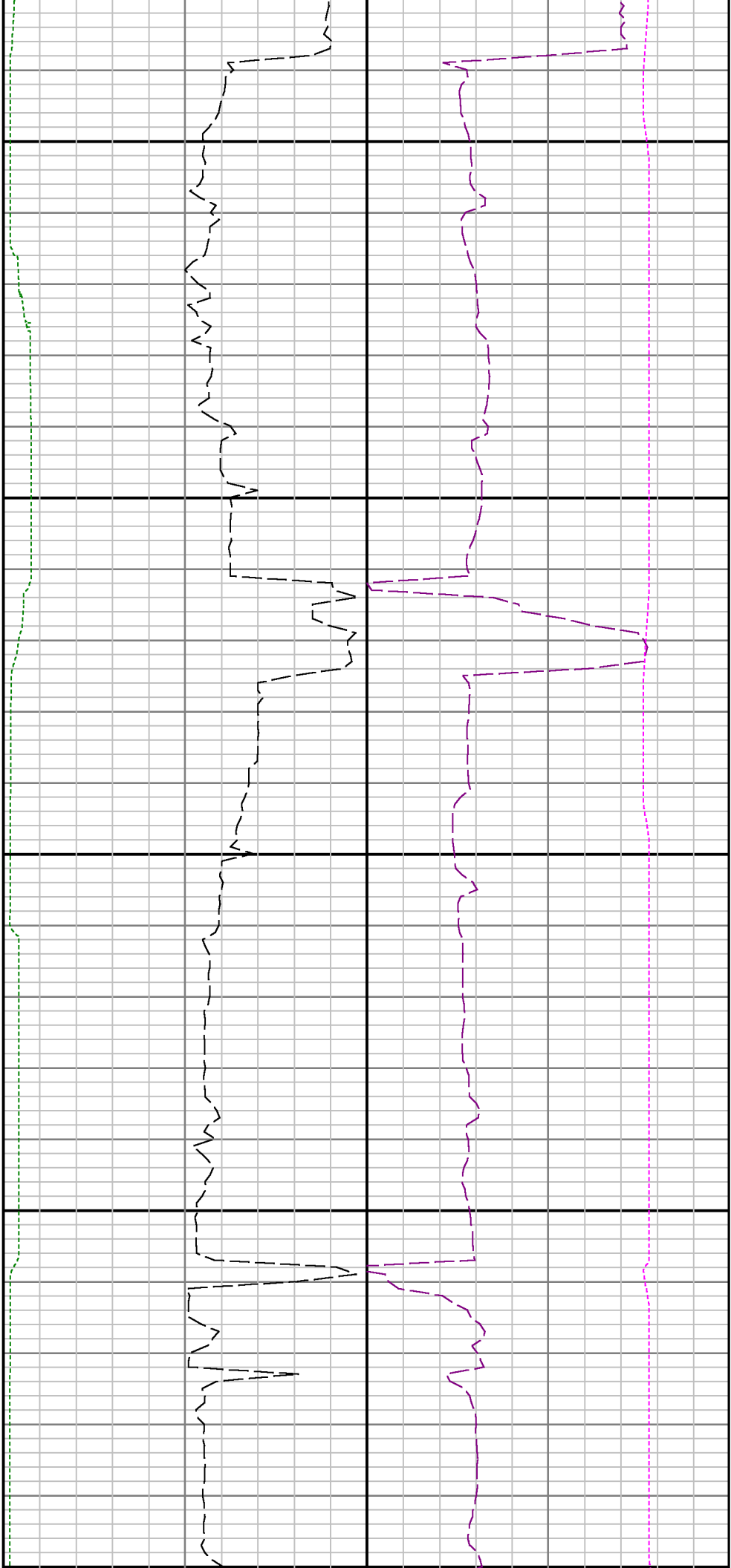
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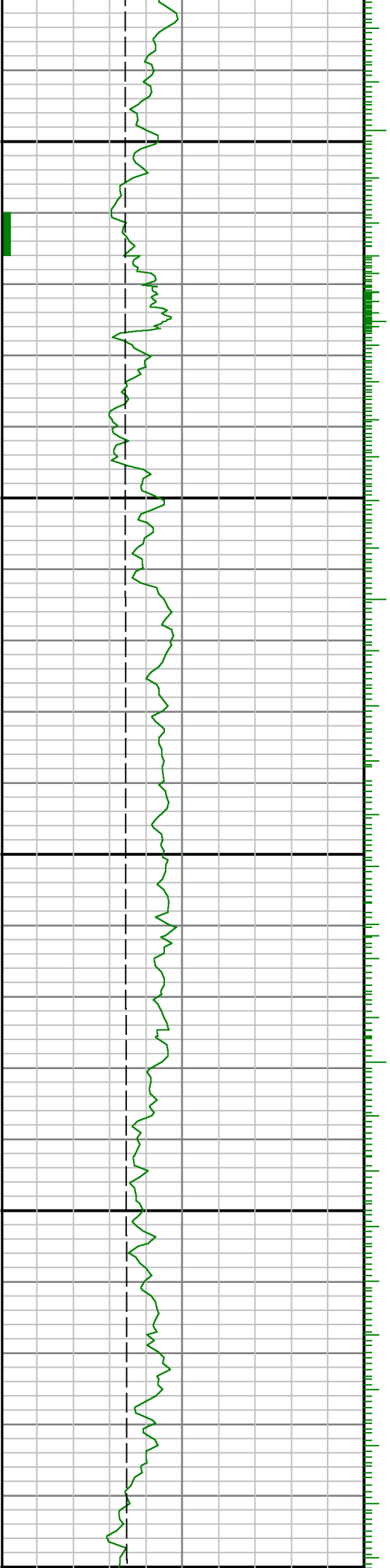


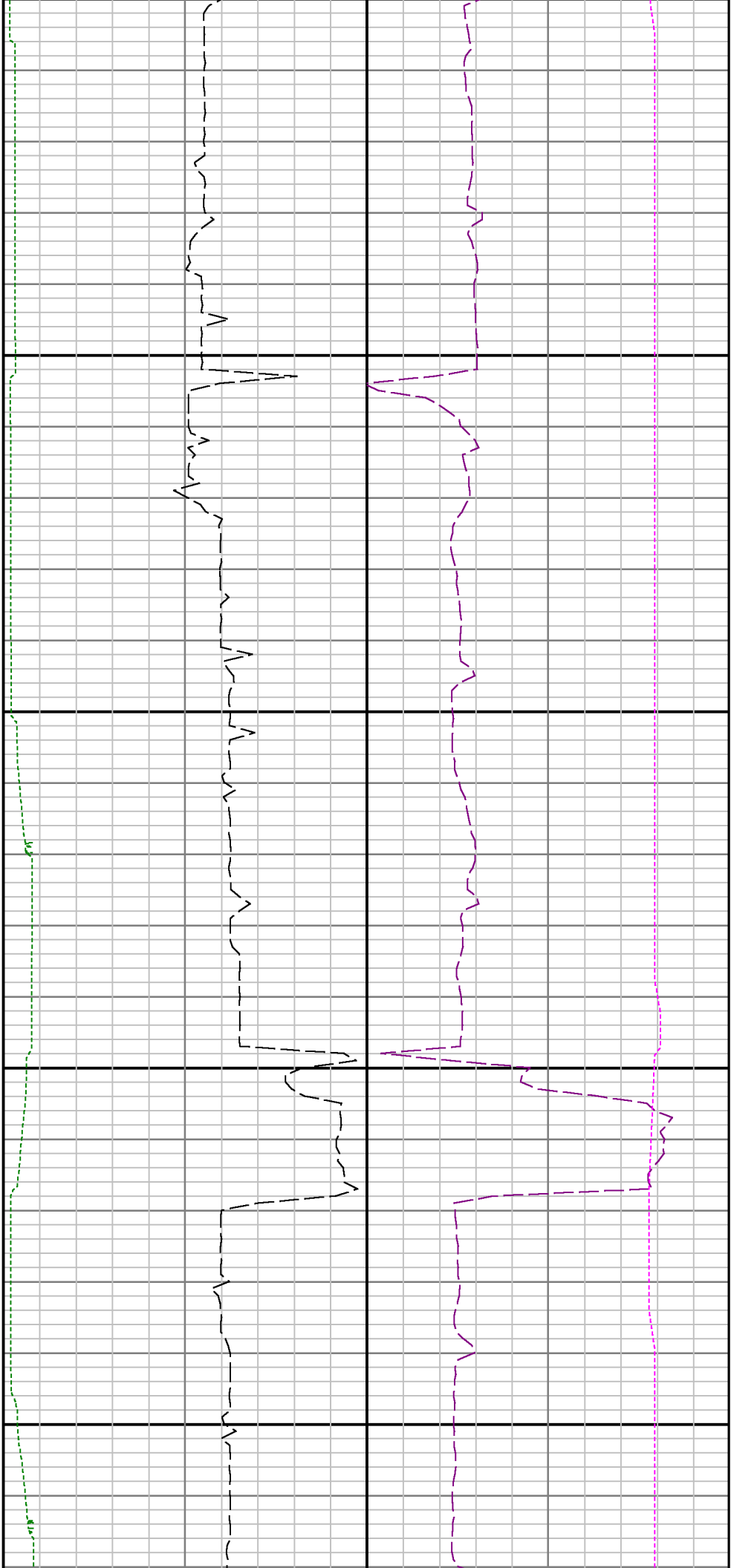




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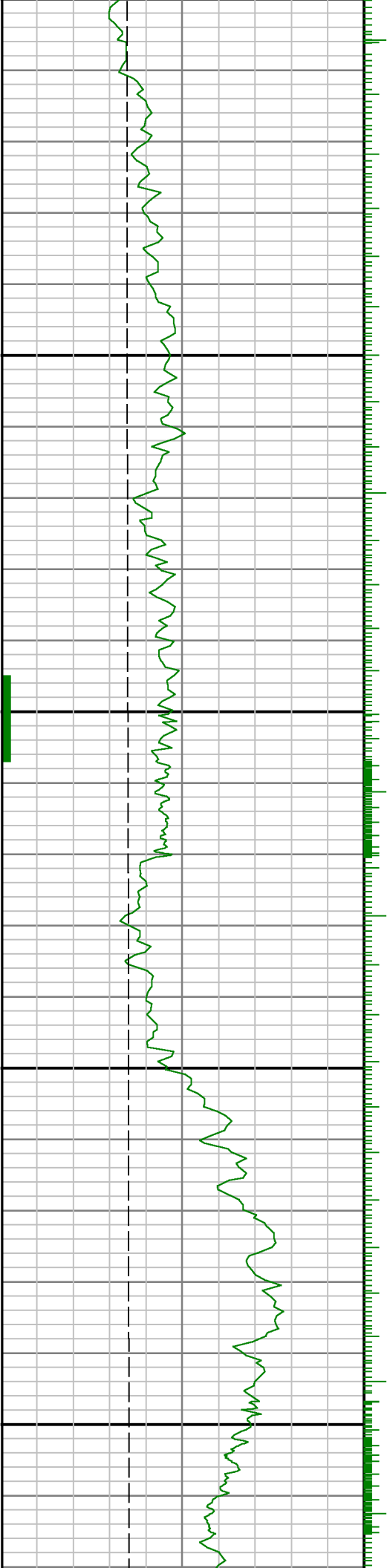
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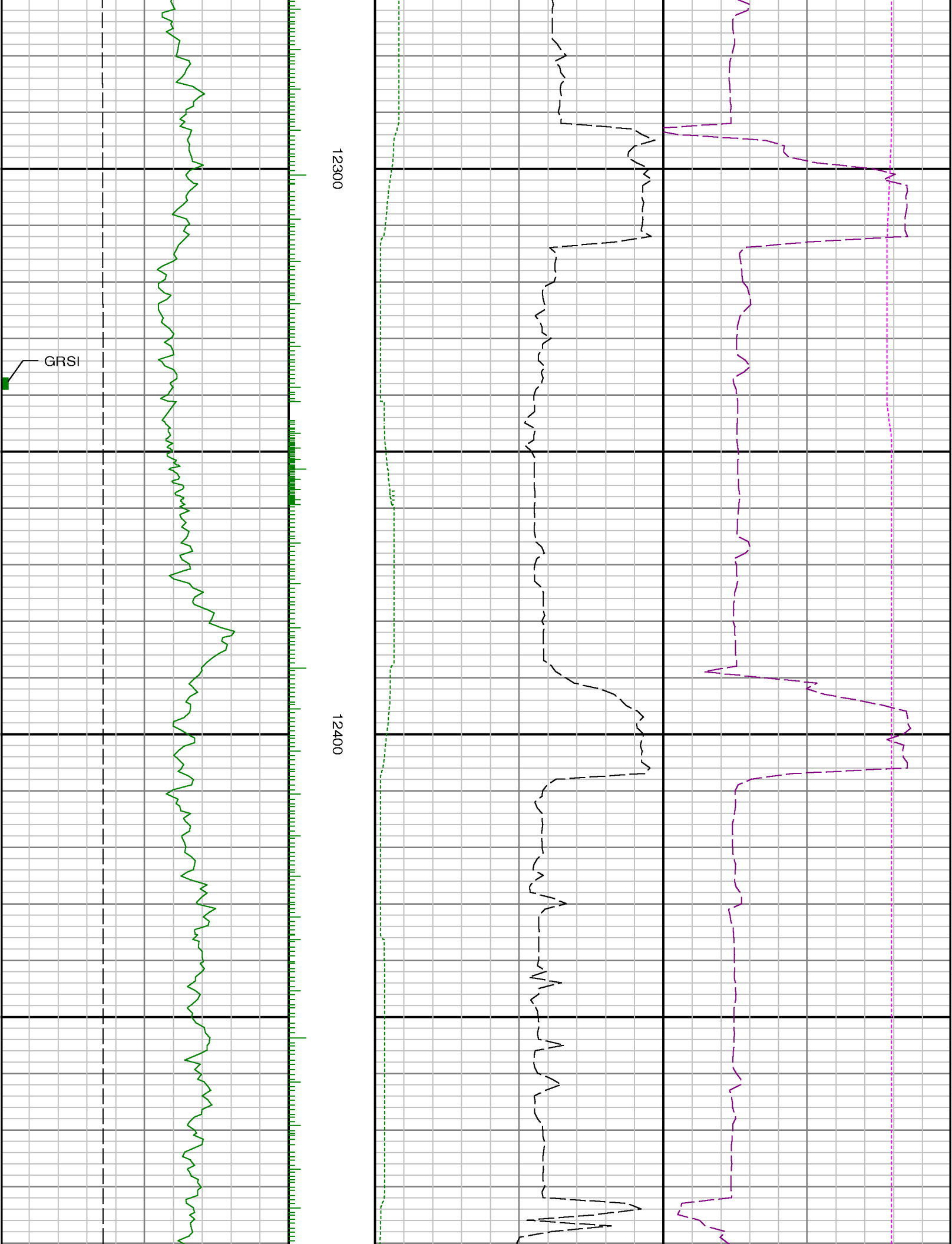


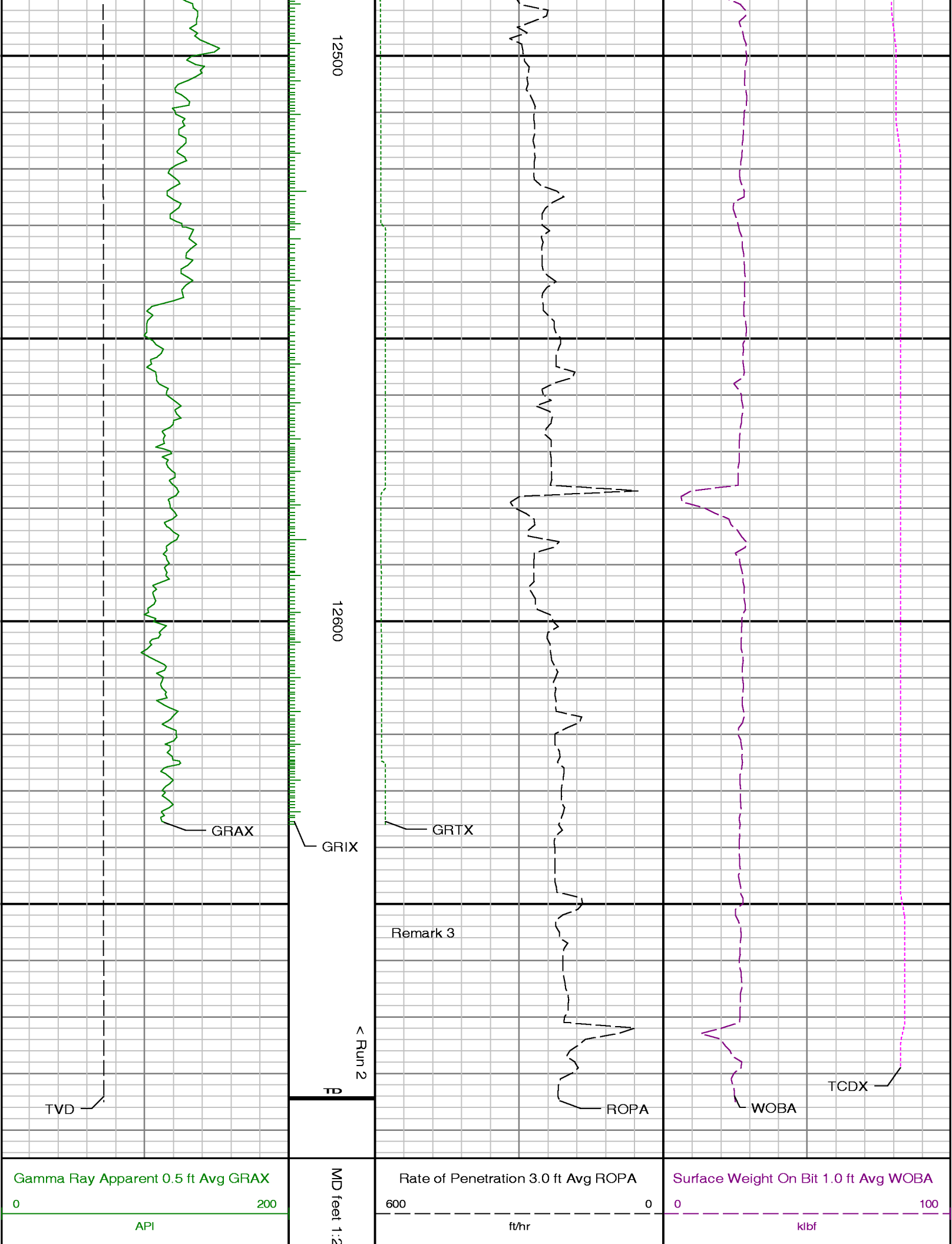


12100

12200







<div>7500</div> <div>True Vertical Depth TVD</div> <div>6300</div> <div>ft</div>	<div>240</div>	<div>0</div> <div>Gamma Time Since Drilled GRTX</div> <div>600</div> <div>min</div>	<div>100</div> <div>Downhole Temperature TCDX</div> <div>275</div> <div>degF</div>
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