



REALTIME LOG

Gamma Ray

Scale: Company: Anadarko

1:240 MD Well: Leinweber 36N-11HZ

Depth Reference: Field: Wattenburg

Driller's Depth County: Weld Country: United States

State: Colorado

Status: Final Print Surface Location: Other Services:

API No: 051234420300 Latitude: Longitude: Directional

Job ID: 8948788 SEC: 11 TWN: 1N RGE: 67W

Permanent Datum (P.D.): Mean Sea Level Elevation: 0.00 ft Elev. KB: N/A

Log Measured From: Rig Floor Above P.D. 4982.00 ft Elev. DF: 4982.00 ft

Interval Logged

Magnetic Field Reference

Date From:	2018-02-27	Top: (ft)	1523.00	Azi Reference North:	True	Dip Angle: (deg)	66.44
Date To:	2018-03-03	Bottom: (ft)	13262.00	Total Magnetic Field Strength: (nT)			52422
Spud Date:	2018-02-27			Mag to Reference North Correction: (deg)			8.13 E

Borehole Record

Casing Record

Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
13.500	17.00	1523.00	9.625	25.00	17.00	1516.00
8.500	1523.00	6133.00	7.000	17.00	1516.00	6123.00
6.125	6133.00	13304.00				

Mud Record

Deviation Record

Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc Az (Start)	Inc Az (End)
Diesel-Oil Based Mud	1523.00	13304.00	8.500	4610.00	20.13 294.22	6.88 294.71
			6.125	7171.00	6.88 294.71	86.61 175.74

Acquisition System Software Version Other

Baker Hughes Cadence RT4.1 Rig: Xtreme 22
PlotStudio 4.1.7763.3 Contractor: Xtreme District: RMA Unit: D & E

©"4239"Dcmgt"JwiJgu."c"IG"eqorcp{."NNE"ô"Cnn"tkijvu"tgugtxgf0"Dcmgt"JwiJgu."c"IG"eqorcp{."NNE"cpf"kvu"chhknkcvgu"~ôDJIGö+~rtqkxfgu"vjku"kphqtocvkqp"qp"cp"ôcu"kuô"dcuku"hqt"igpgtcn"kphqtocvkqp" purposes and believes it to be accurate as of the date of publication. BHGE does not make any representation as to the accuracy or completeness of the information and makes no warranties of any kind, specific, implied or oral, to the fullest extent permissible by law, including those of merchantability and fitness for a particular purpose or use. BHGE hereby disclaims any and all liability for any direct, indirect, consequential or special damages, claims for lost profits, or third party claims arising from the use of the information, whether a claim is asserted in contract, tort, or otherwise. The BHGE logo is a trademark of Baker Hughes, a GE company, LLC. GE and the GE monogram are trademarks of General Electric Company used under trademark license.

Log Run Summary

Run No	Bit Run	Bit Size	Bit Type	Bit Gauge	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours
						Top	Bottom	From	To	Start Logging	End Logging	

No.		(in)		Length (in)		(ft)	(ft)	(ft)	(ft)			(h)
1	1	8.500	PDC	3.00	Steerable	1523.00	6091.00	1523.00	6133.00	2018-02-27 21:59	2018-02-28 18:05	17.40
2	2	6.125	PDC	4.00	Steerable	6091.00	13262.00	6133.00	13304.00	2018-03-01 19:55	2018-03-03 10:25	38.51

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Teni Onafowokan	2018-02-27	2018-03-03	Will Roth	2018-02-27	2018-03-03			

Mud Properties Record

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2018-02-27 19:33	1	1523.00	Diesel-Oil Based Mud	9.1	58	N/A	N/A	66/34	Active Pit	41000	0.00
2018-02-28 01:07	1	6133.00	Diesel-Oil Based Mud	8.8	14	N/A	N/A	70.7/29.3	Active Pit	43000	0.00
2018-03-01 13:30	2	6133.00	Diesel-Oil Based Mud	8.8	14	N/A	N/A	70.7/29.3	Active Pit	41000	0.00
2018-03-02 19:03	2	9691.00	Diesel-Oil Based Mud	8.9	14	N/A	N/A	64/36	Active Pit	42000	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviGamma	12122000	Gamma (single)	11.02	41.46	6.500	3.250
1	NaviGamma	10481462	VSS	14.44	44.88	6.500	3.250
1	NaviGamma	10481462	Directional (mag)	14.44	44.88	6.500	3.250
2	NaviGamma	13519812	Gamma (single)	11.88	42.03	5.000	2.687
2	NaviGamma	10481466	Directional (mag)	15.30	45.45	5.000	2.687
2	NaviGamma	10481466	VSS	15.30	45.45	5.000	2.687

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	NaviGamma	Probe Based Gamma Module, NaviTrak Platform

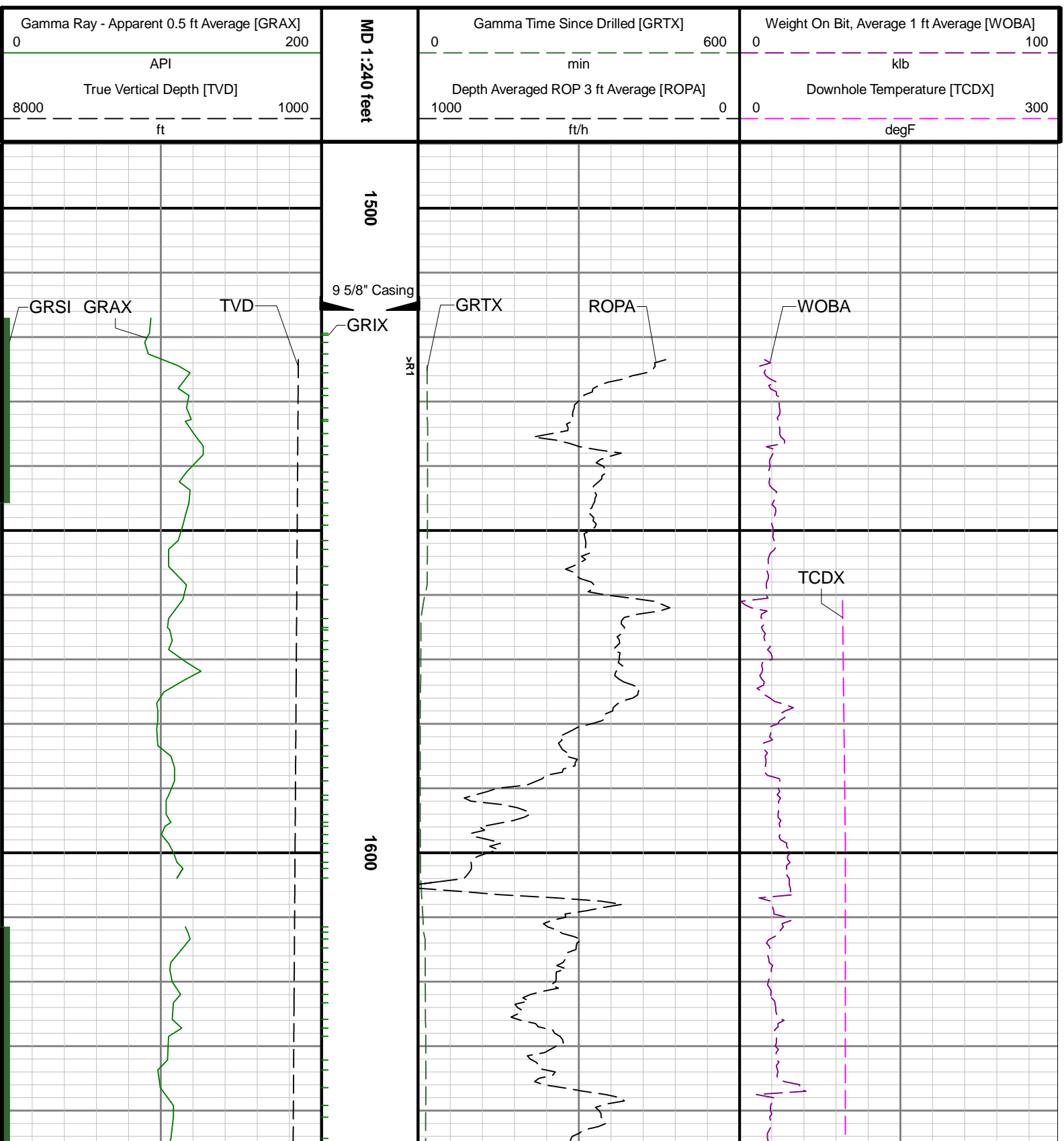
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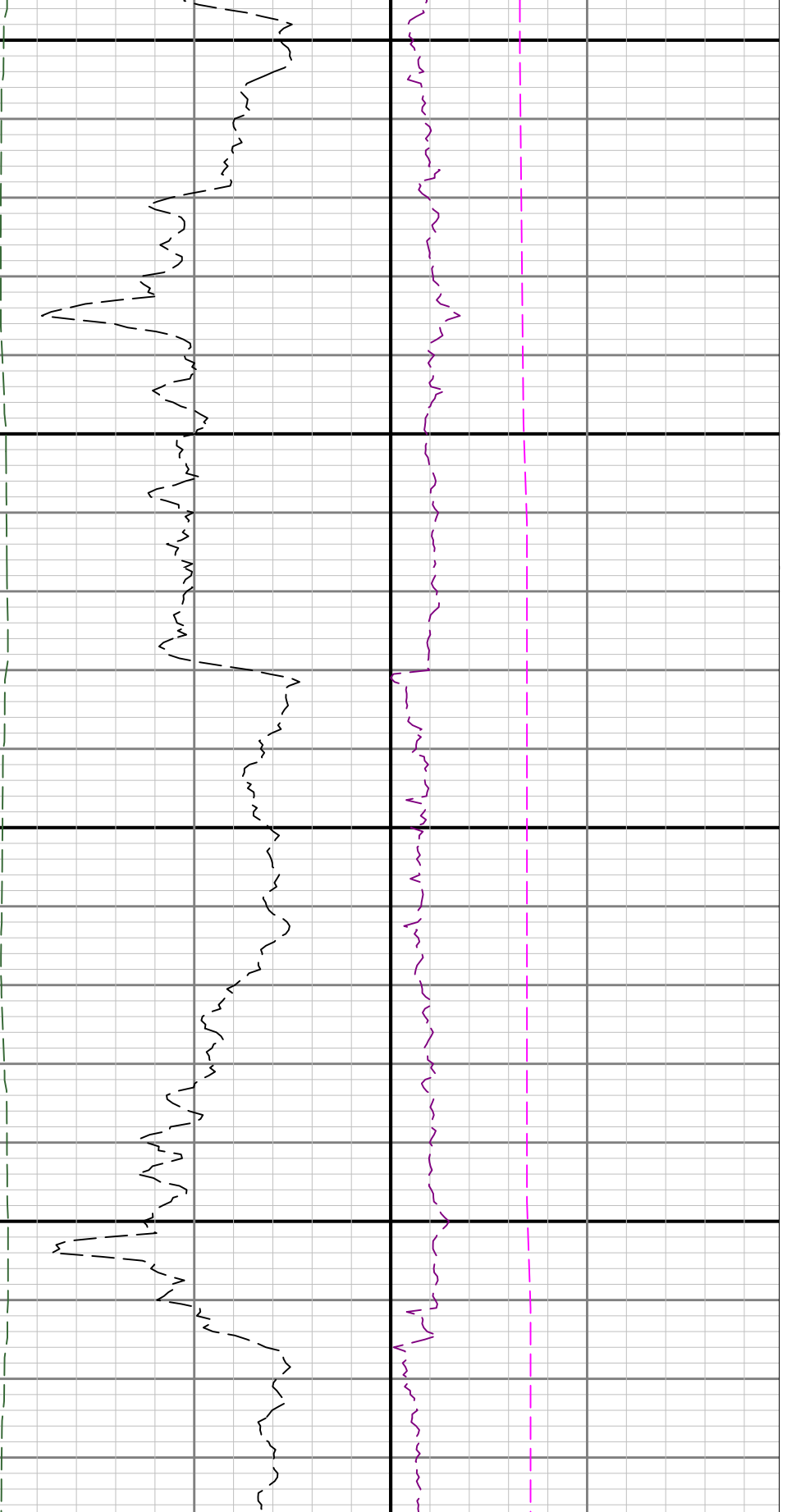
1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	A sliding indicator is shown to the left edge of track 1 as a heavy line. The indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.
3	Baker Hughes run 1 utilized 6.50 inch NaviGamma services (Gamma Ray and Directional) behind a 8 1/2 inch bit and steerable assembly from 1523 to 6133 feet MD (1505 to 5695 feet TVD).
4	Baker Hughes run 2 utilized 4.75 inch NaviGamma services (Gamma Ray and Directional) behind a 6.125 inch bit and steerable assembly from 6133 to 13304 feet MD (5695 to 7429 feet TVD).
5	Numerous gaps are present throughout the log due to surveying while on bottom drilling ahead.
6	Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.

Remarks

Number	Measured Depth	Hole Section	Run No.	Remark
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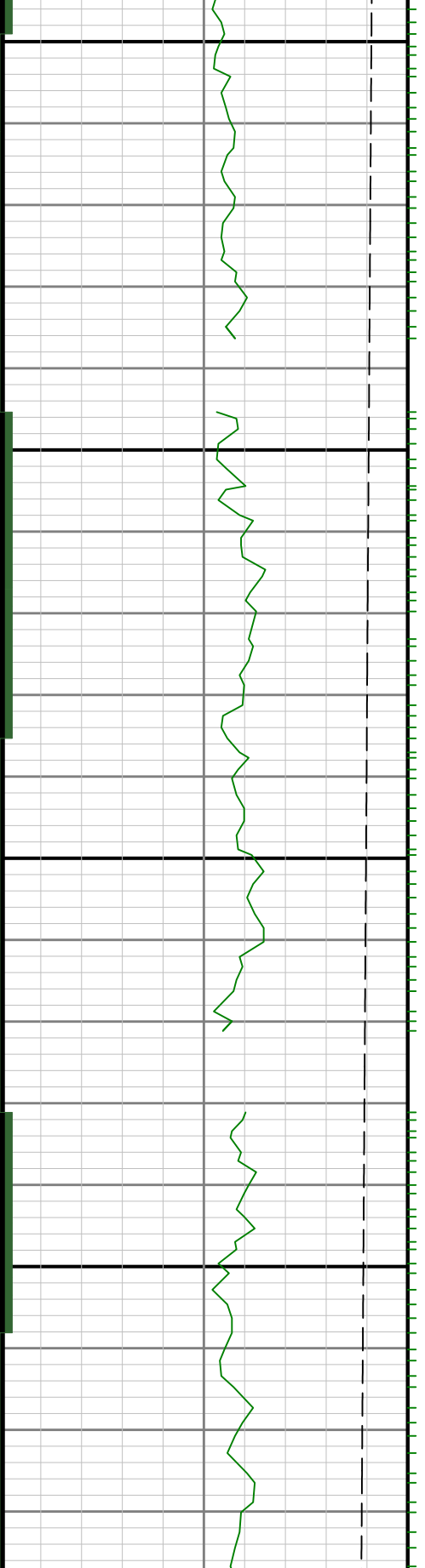
	(ft)	(in)		
1	6110.00	6.125	2	The interval from 6092 to 6133 feet MD (5654 to 5695 feet TVD) was logged up to 21 hours after being drilled due to a trip out of the hole to run intermediate casing.
2	13300.00	6.125	2	The interval from 13262 to 13304 feet MD (7429 feet TVD) was not logged due to sensor to bit offset at the end of Run 2.

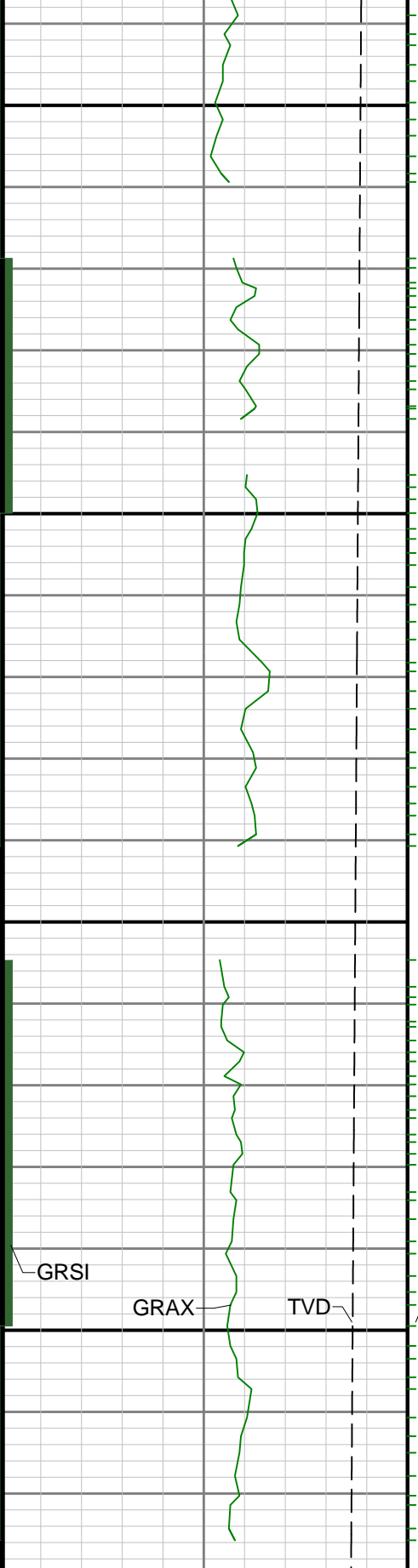




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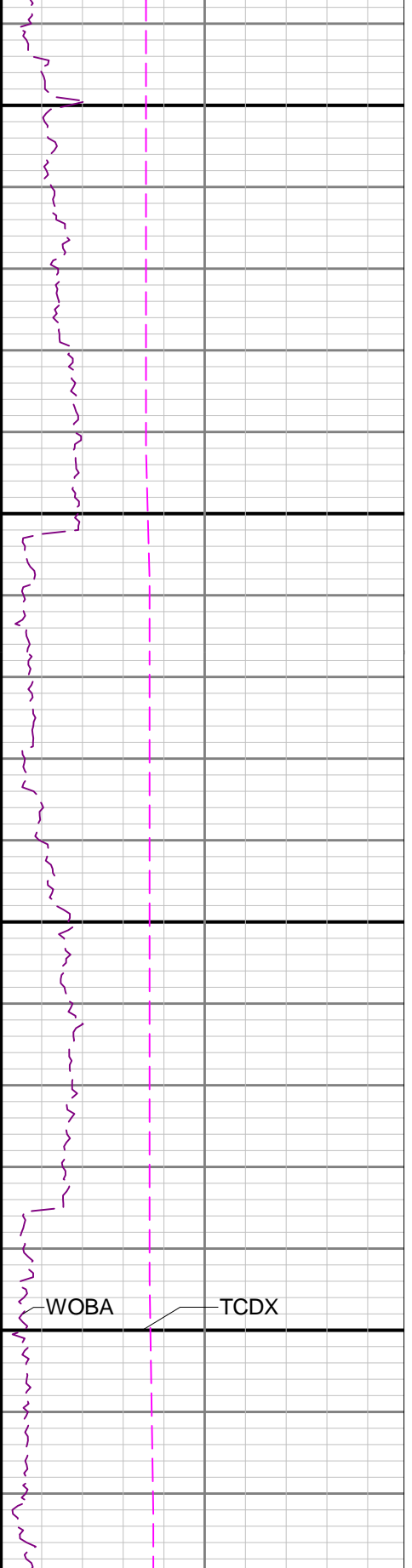
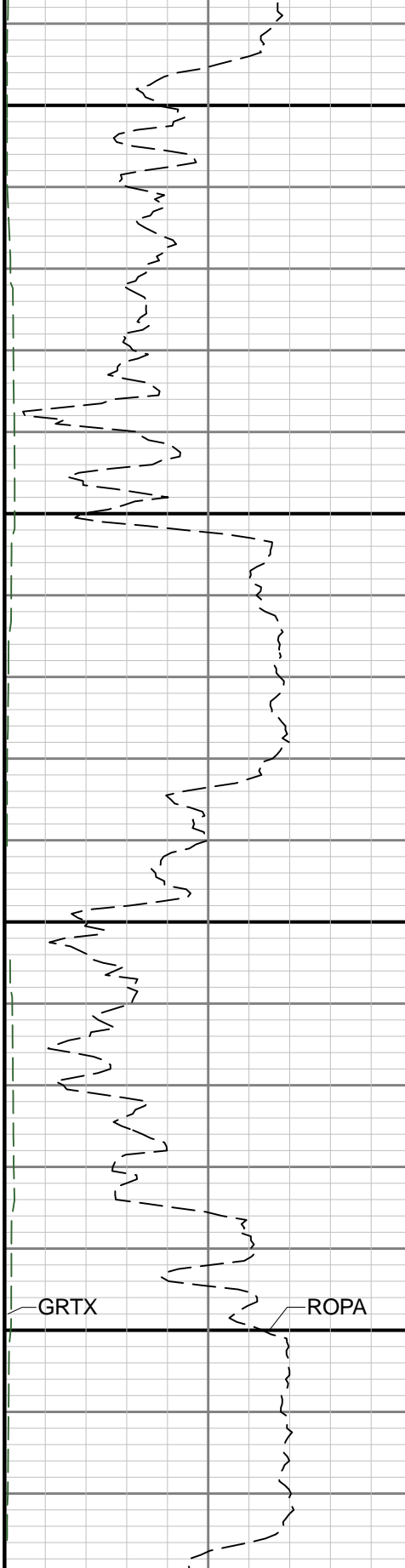
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1900

2000



GRSI

GRAX

TVD

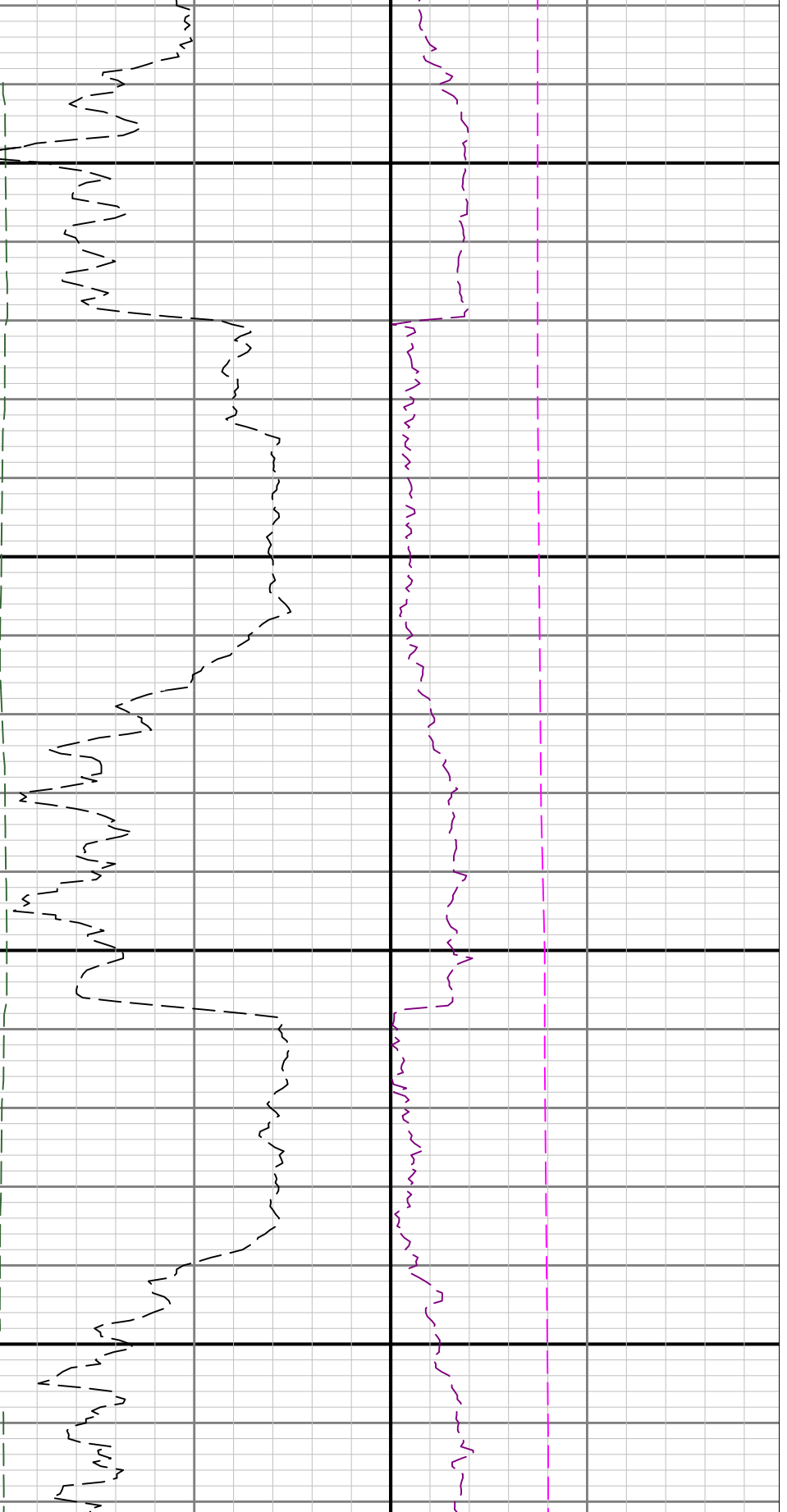
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GRTX

ROPA

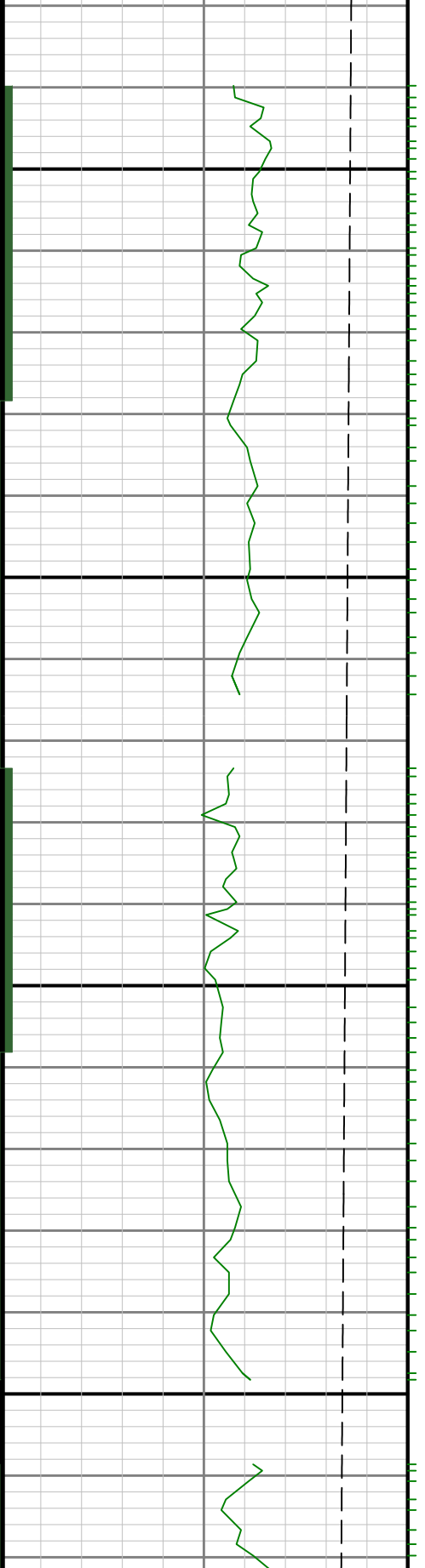
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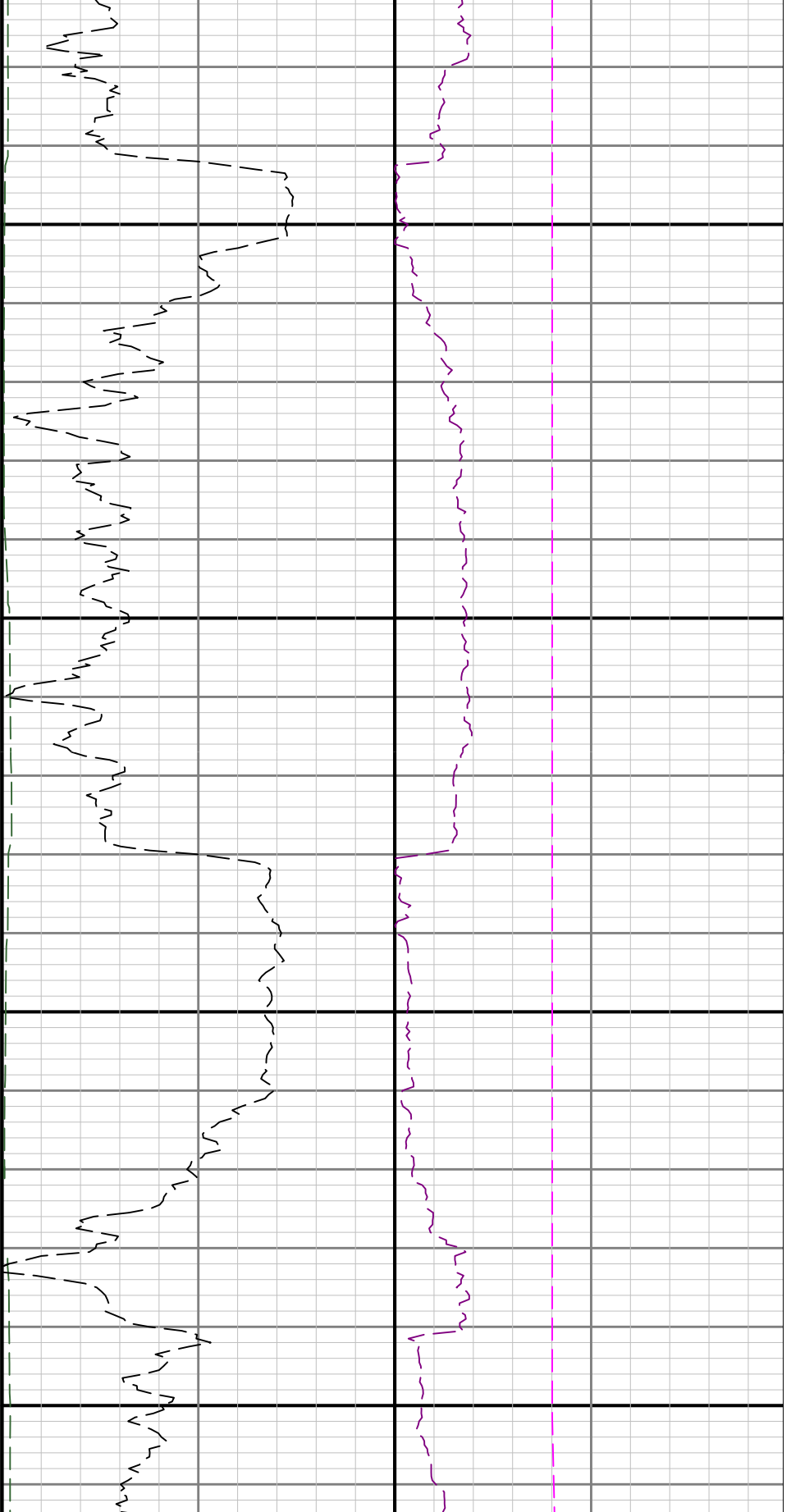
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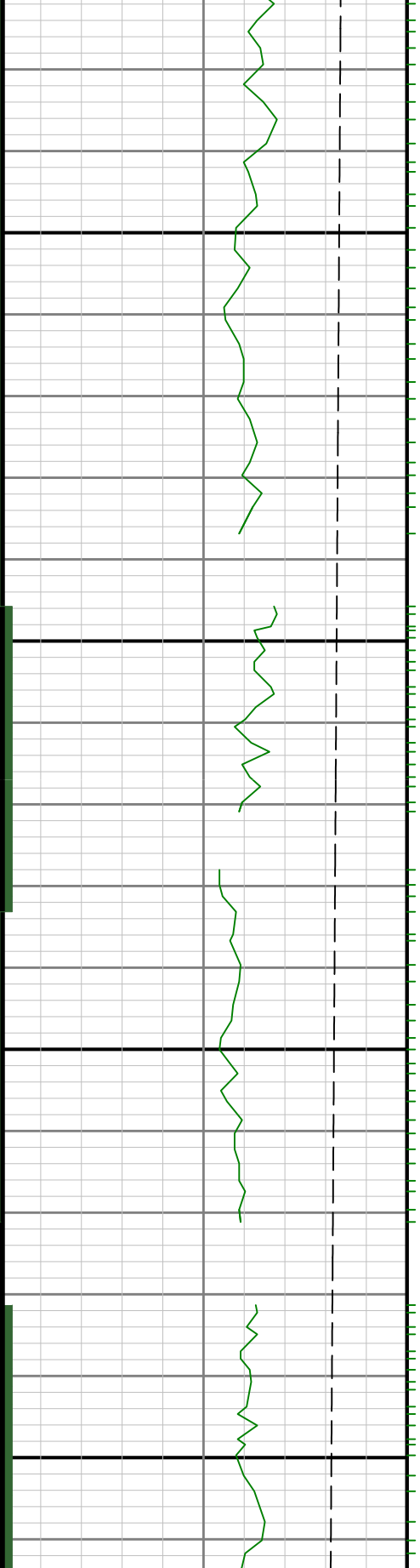
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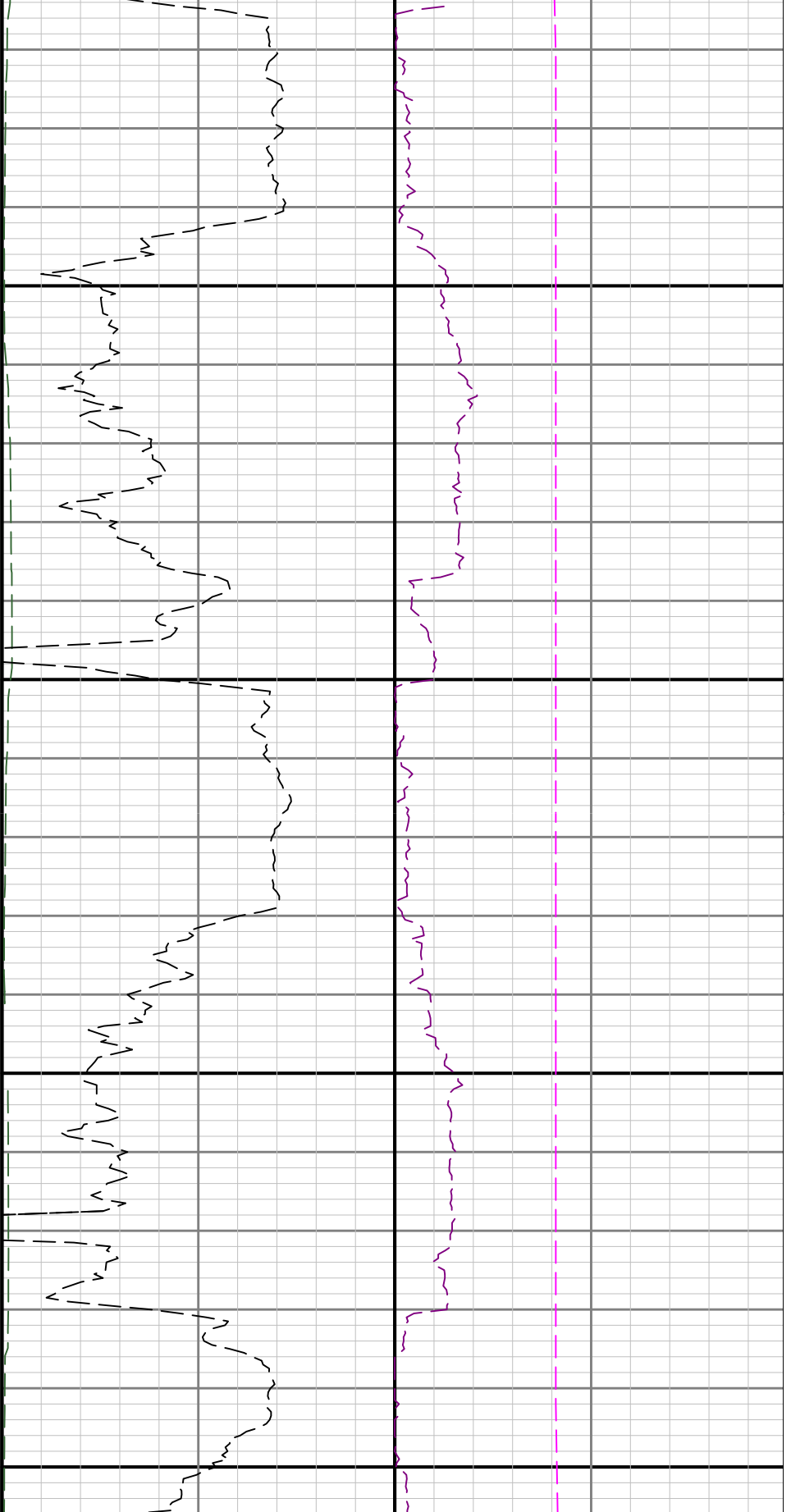




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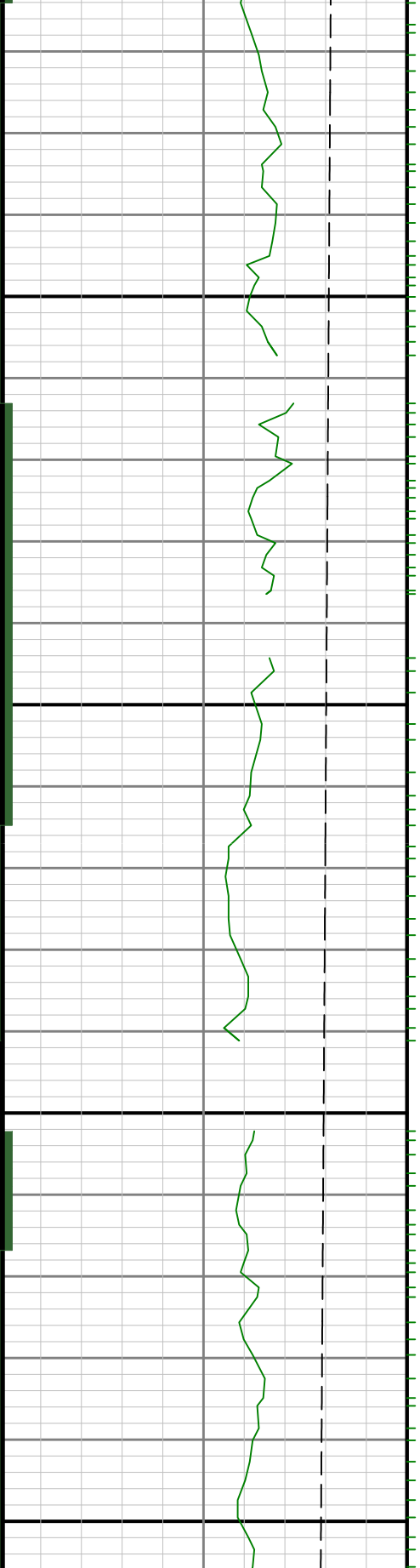
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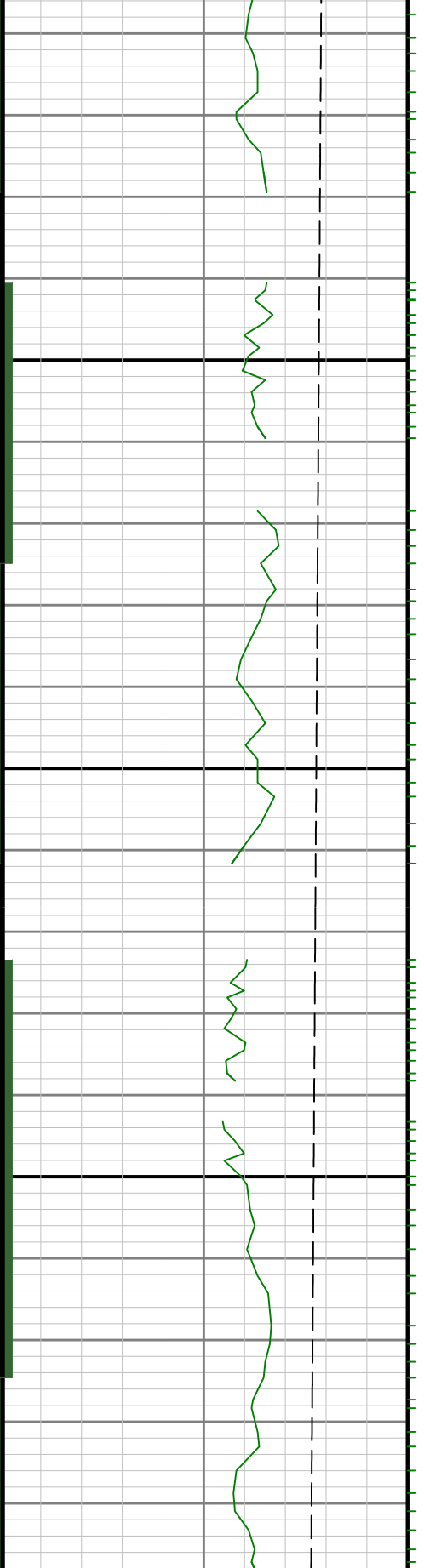
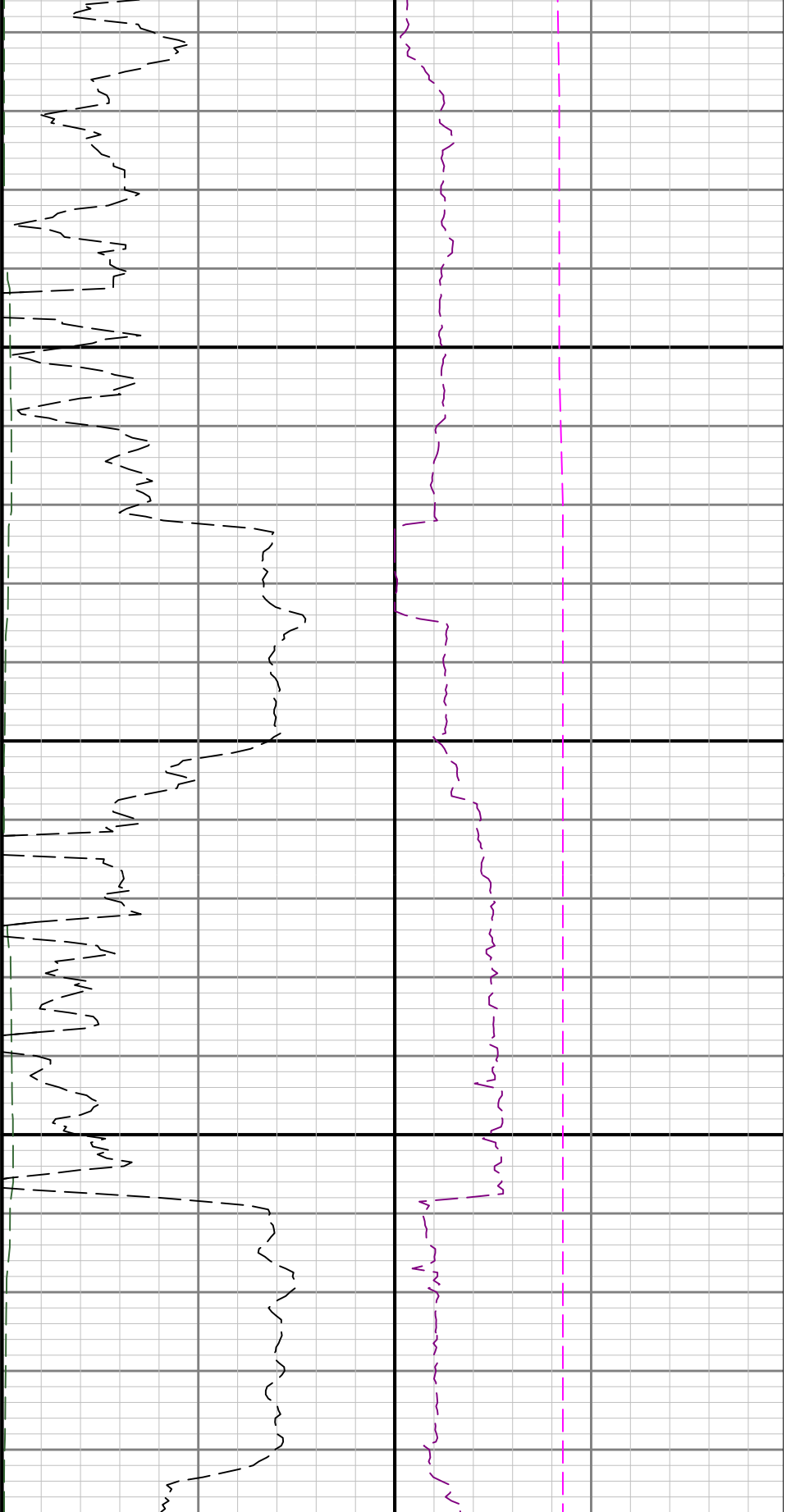


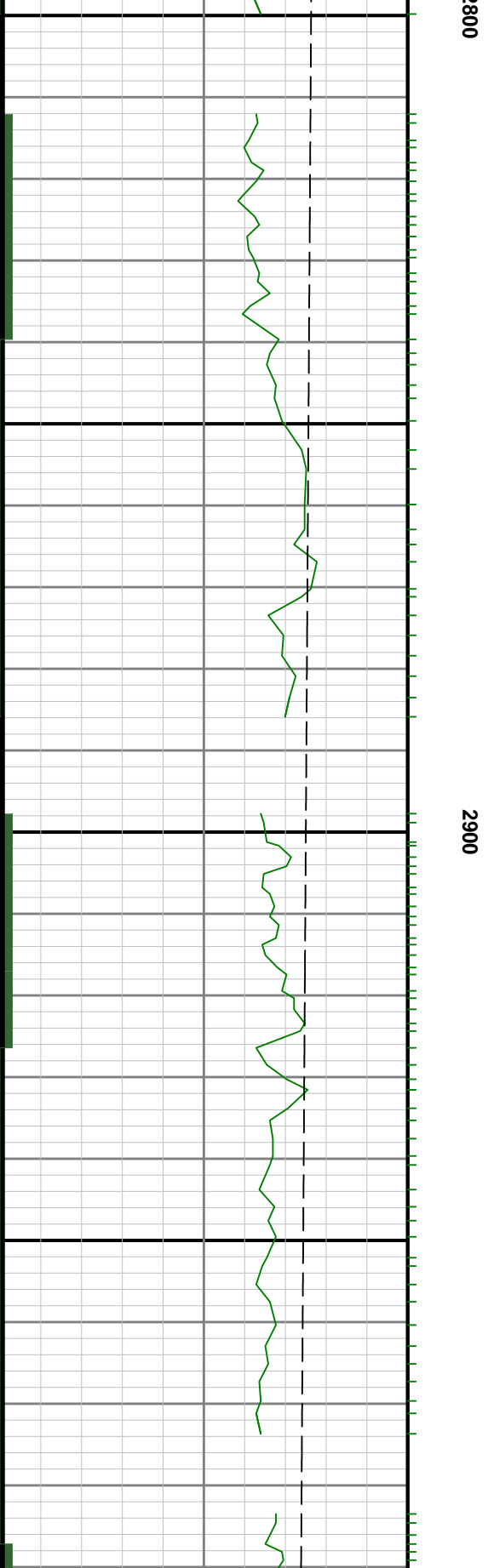
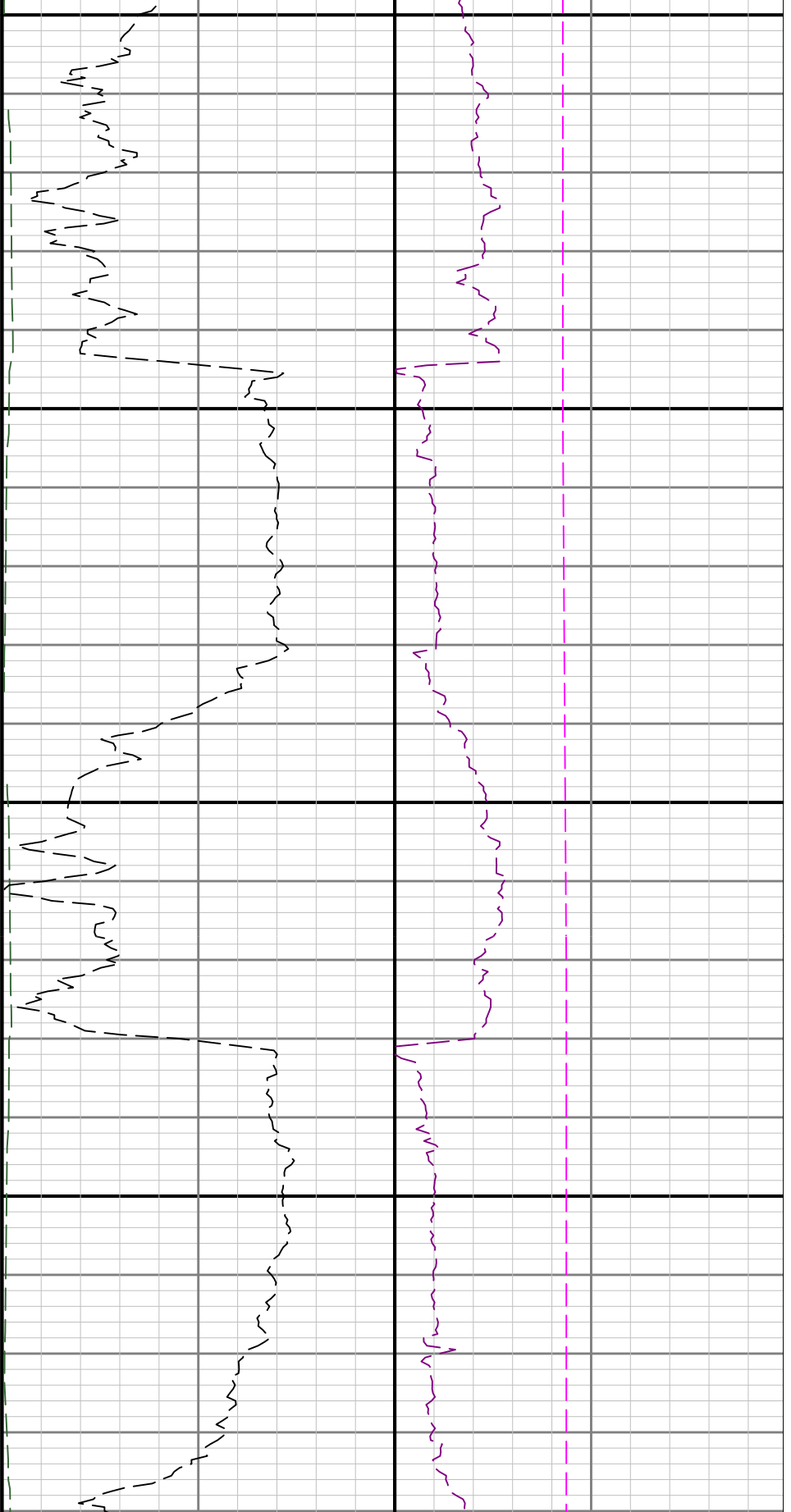


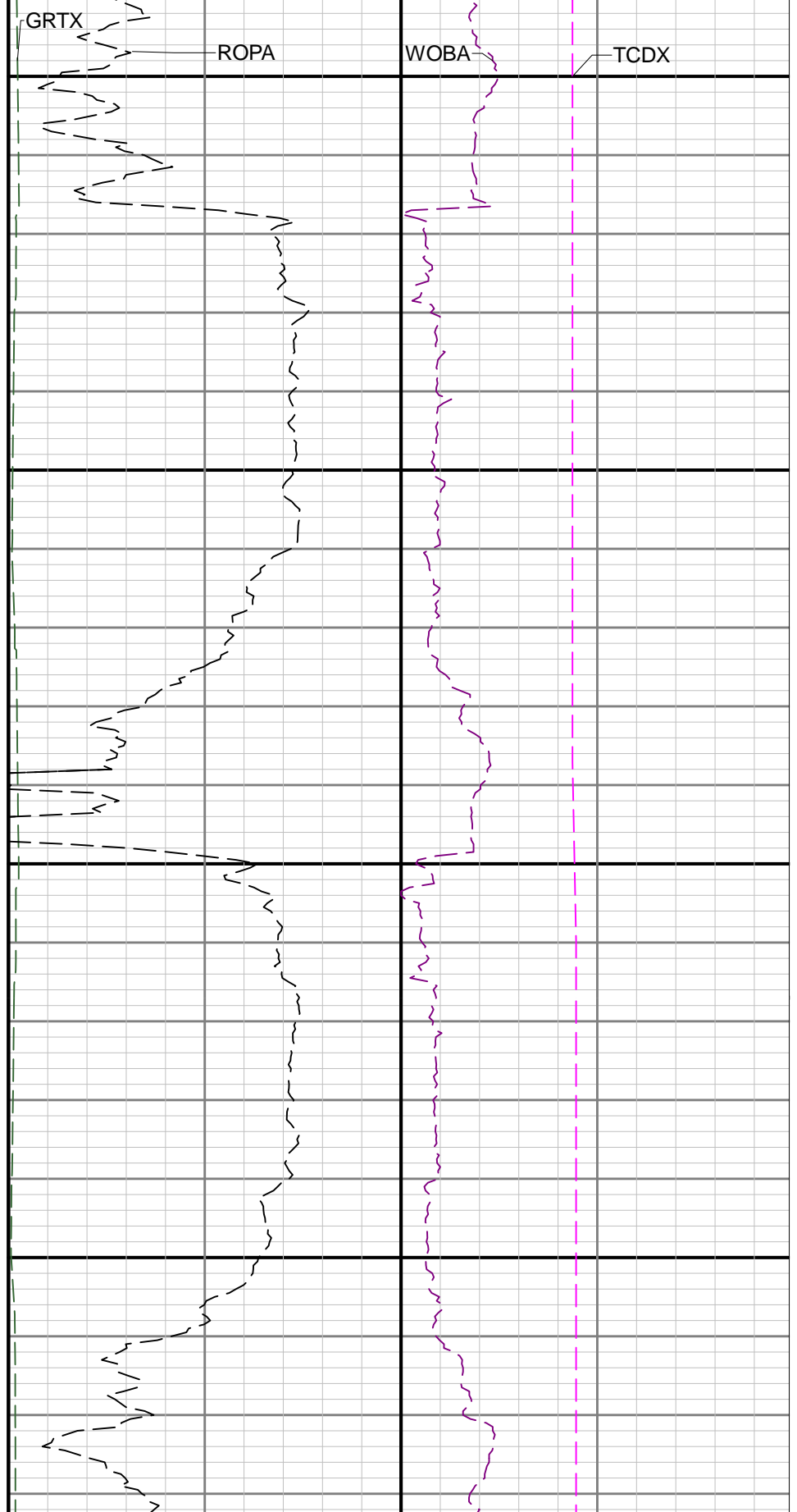
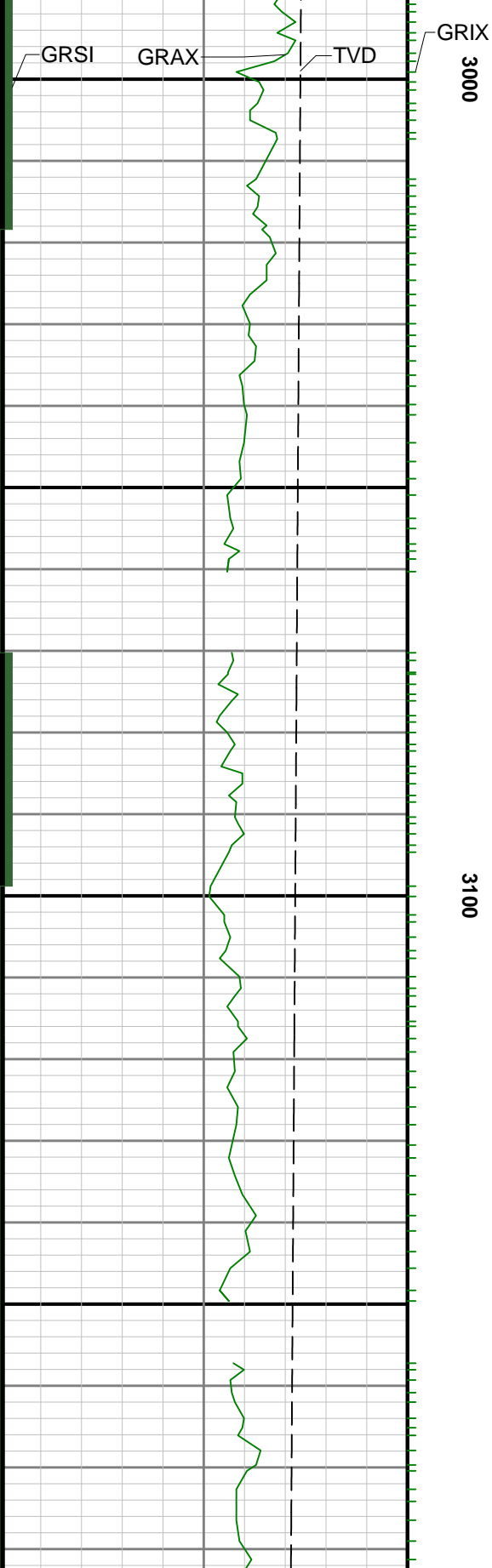
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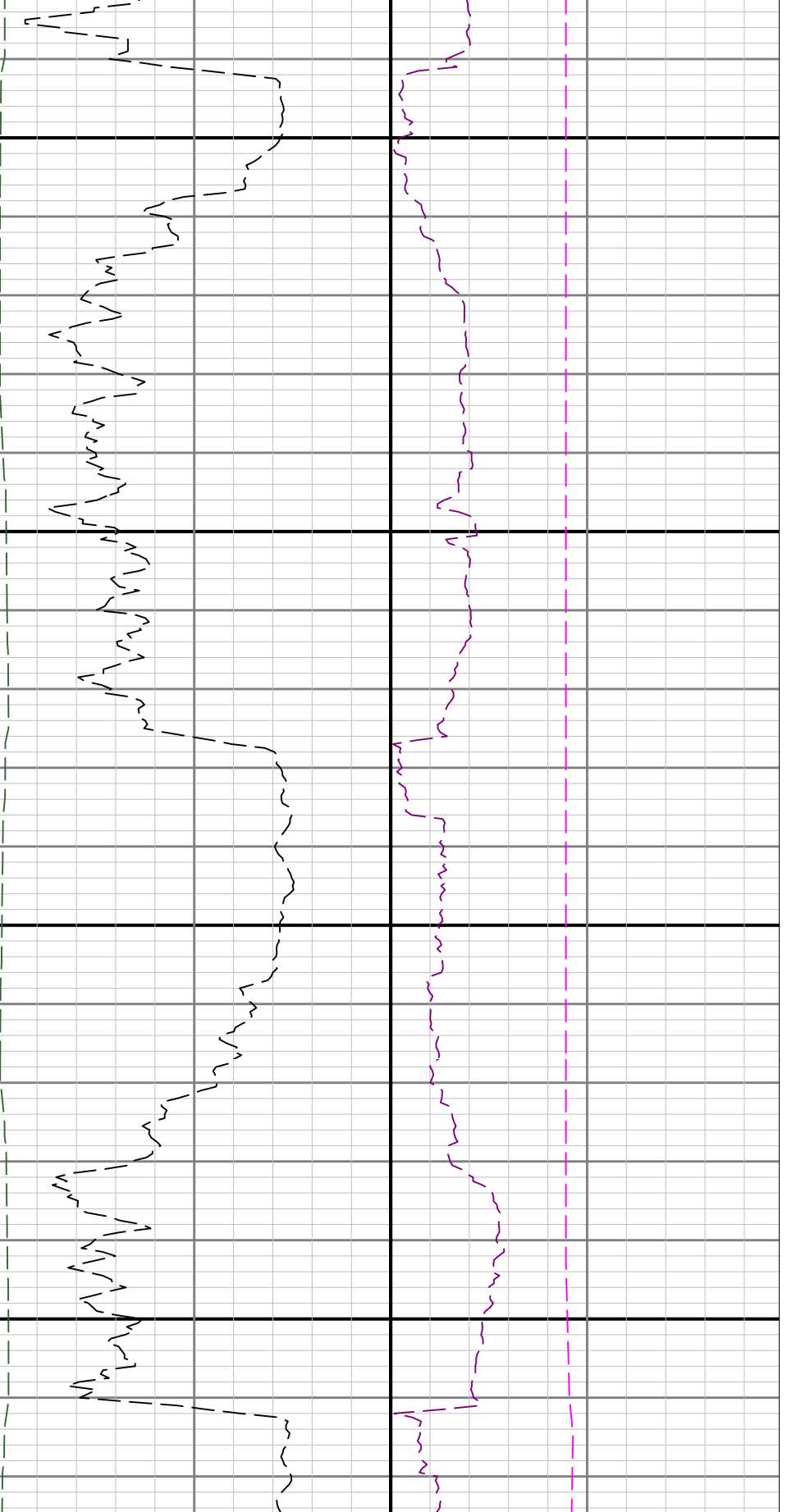
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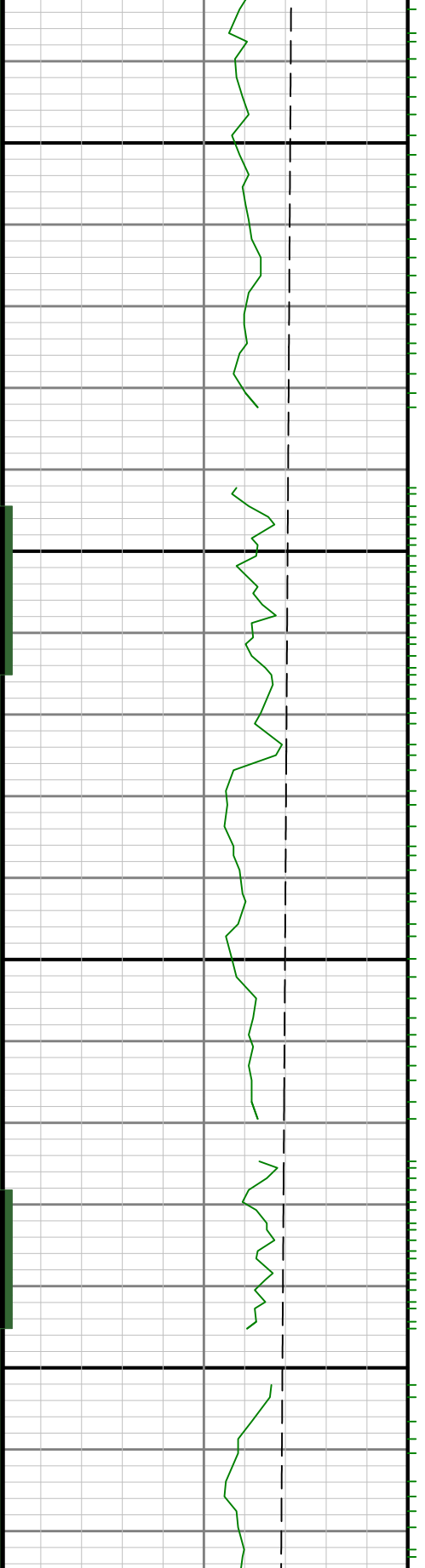


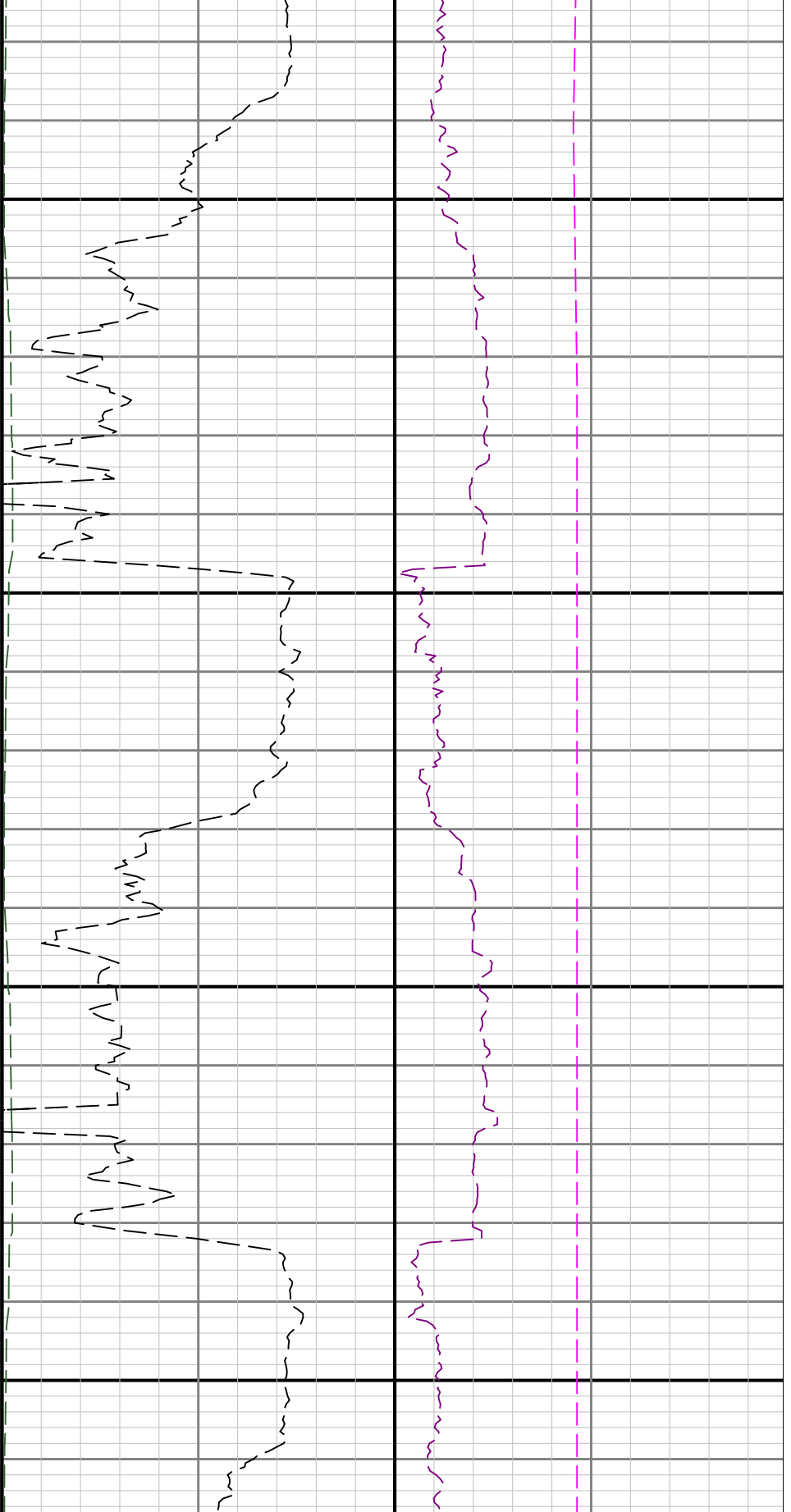




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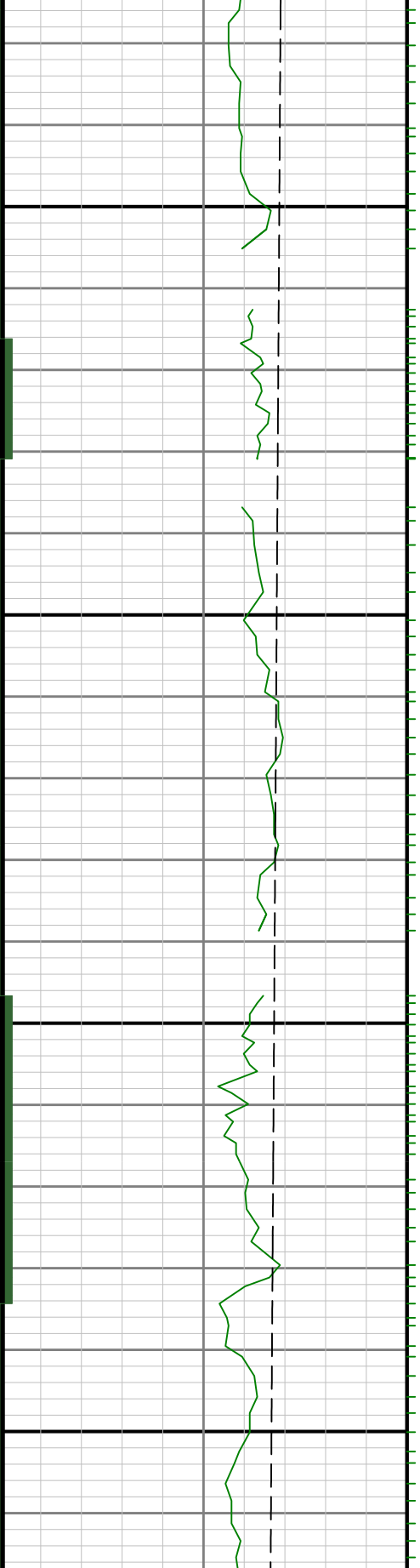
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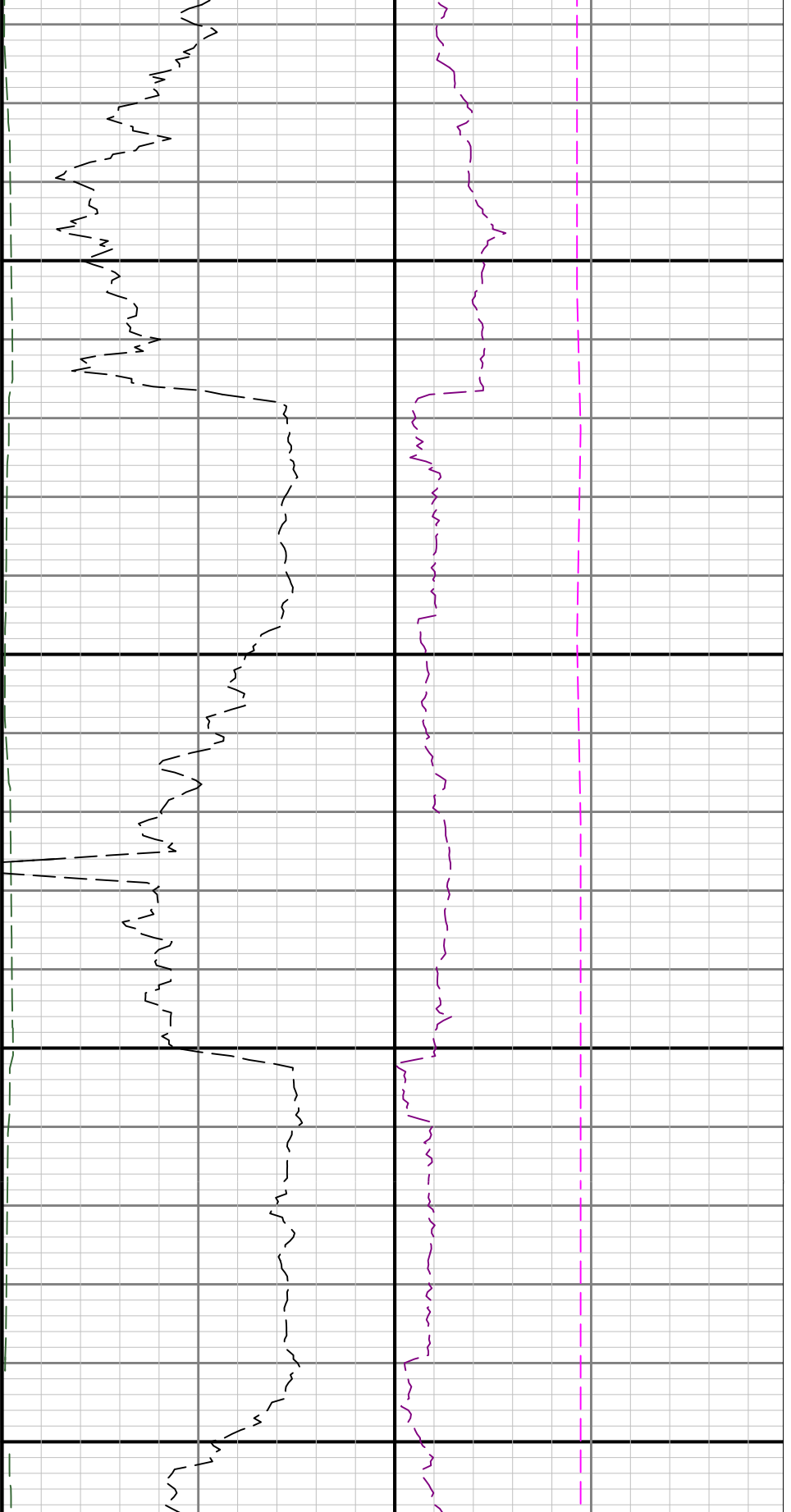




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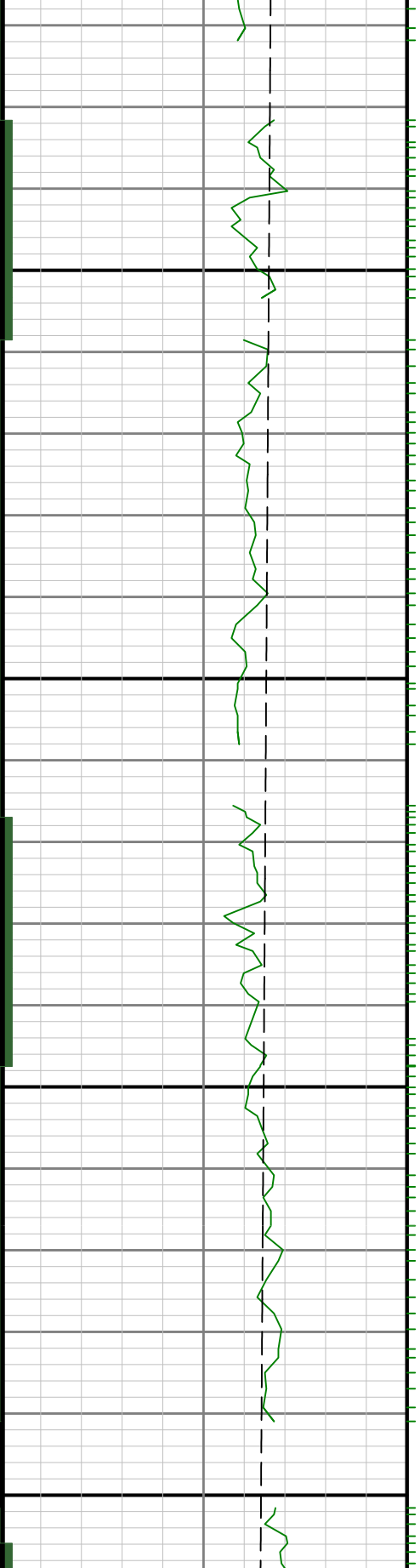
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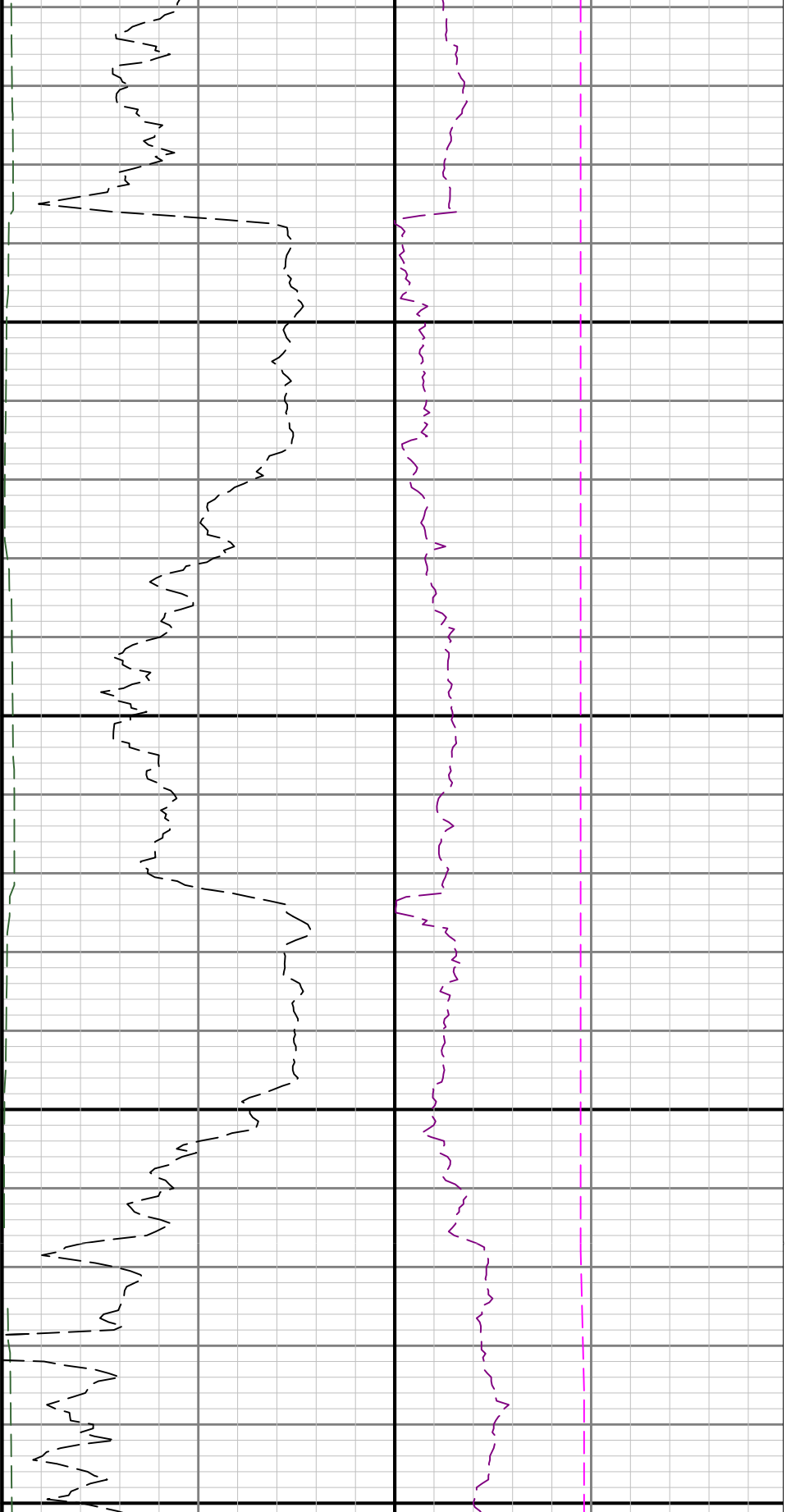




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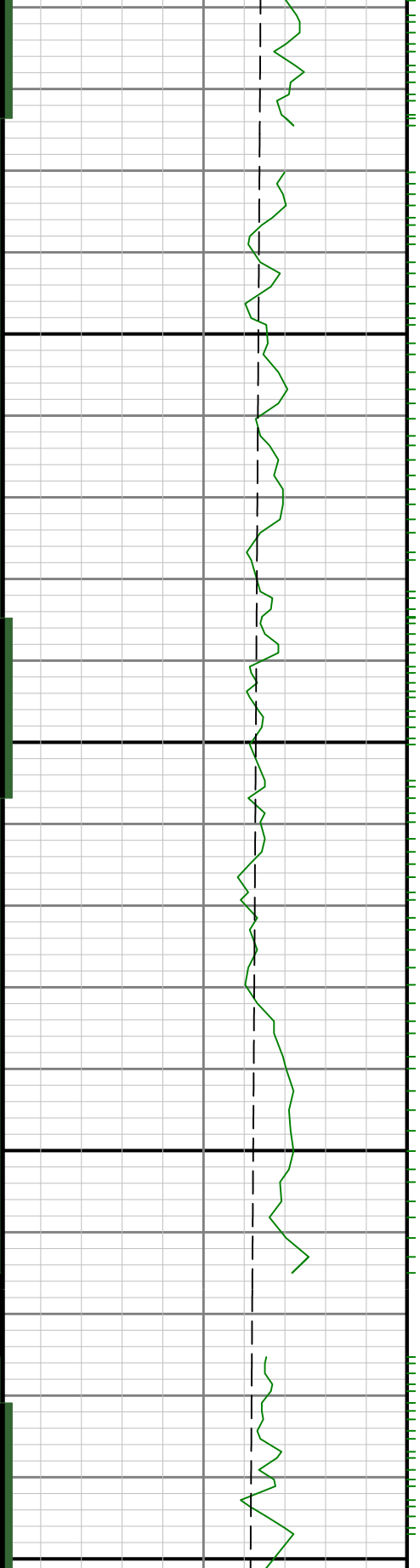
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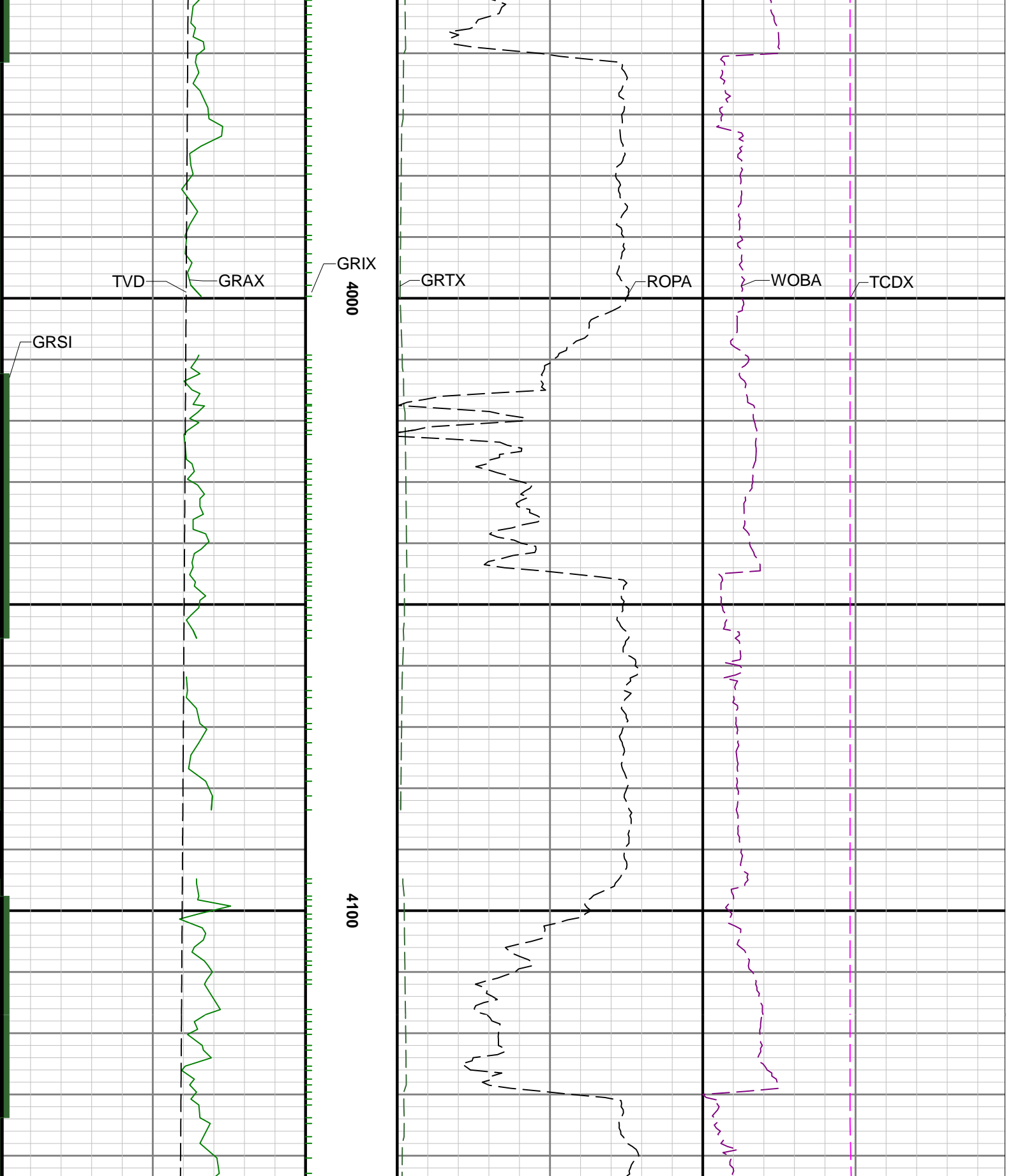


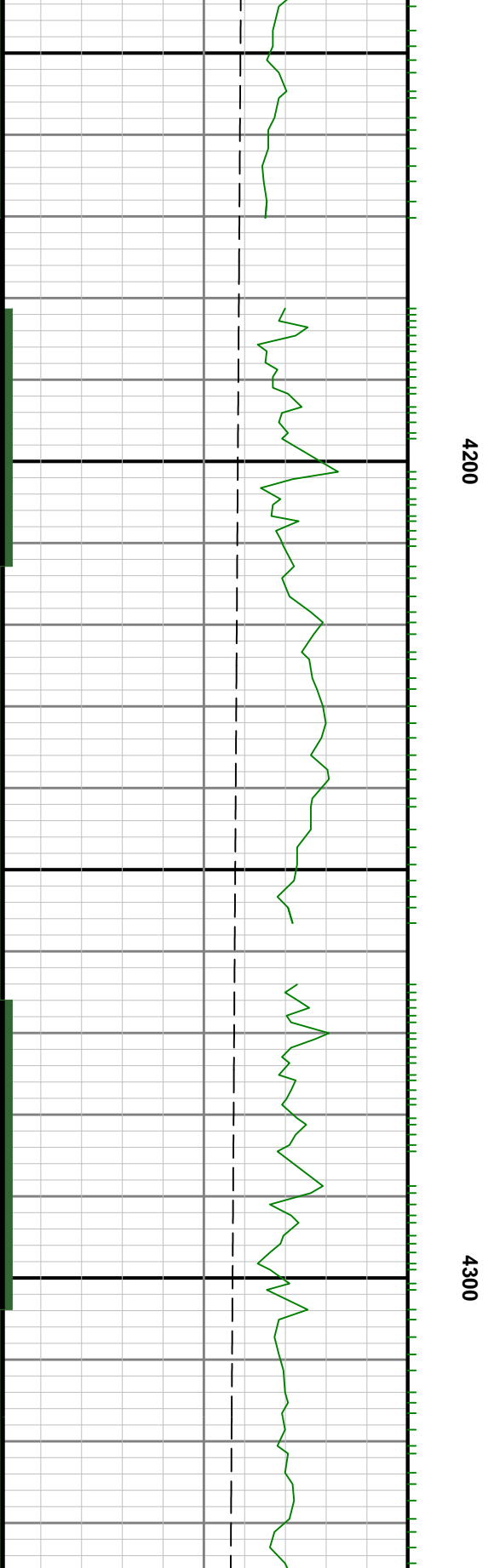
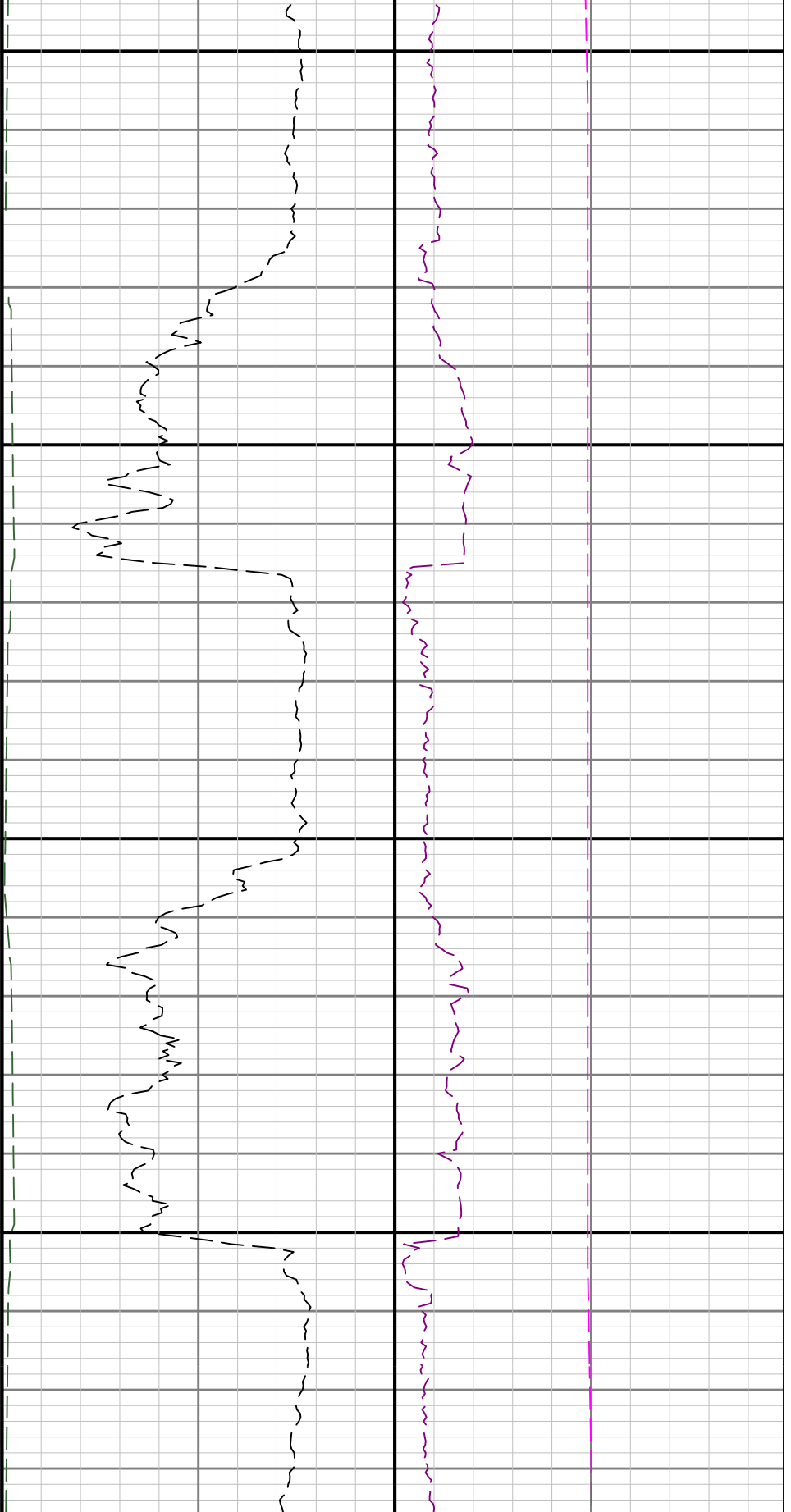


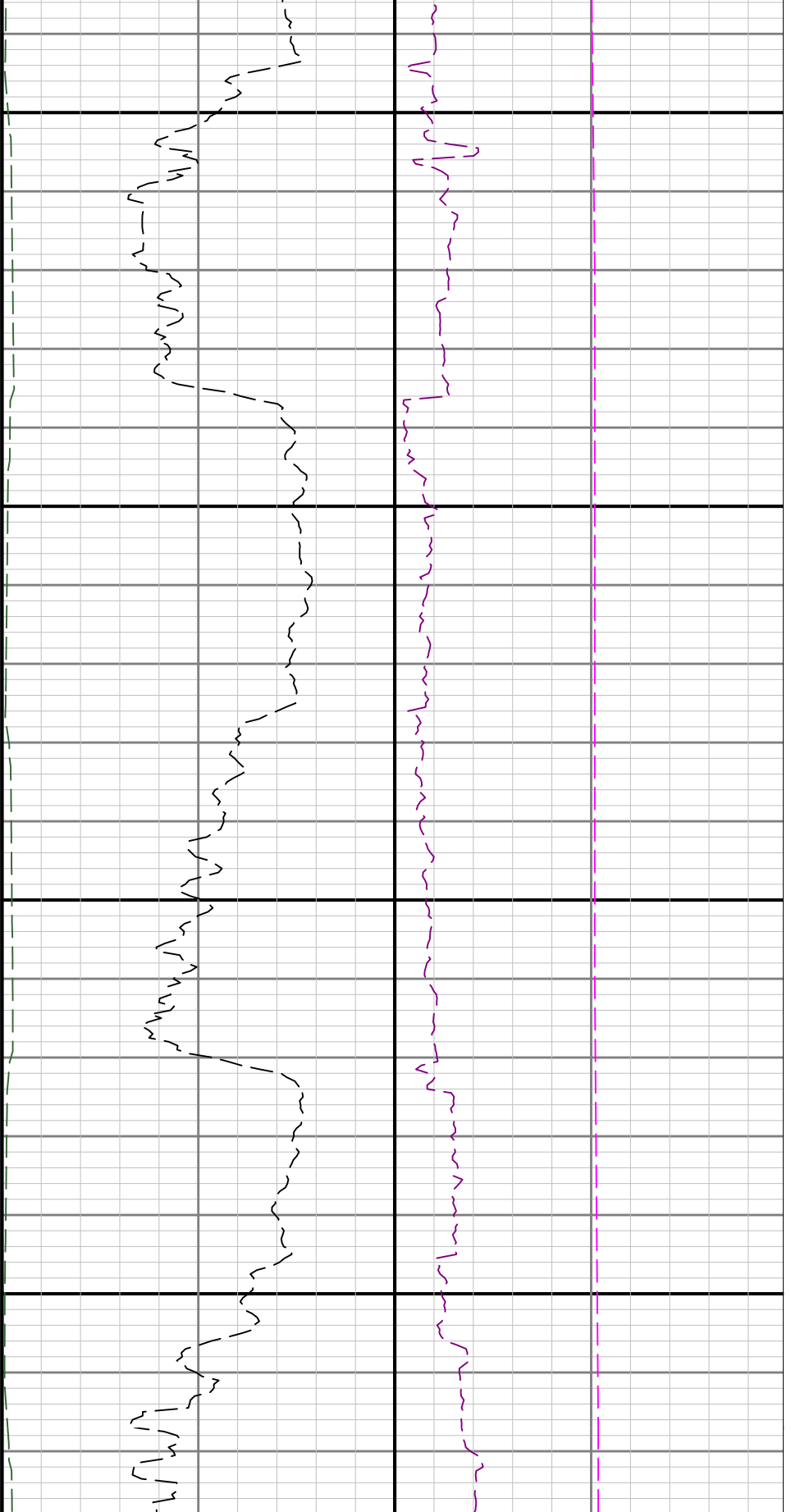
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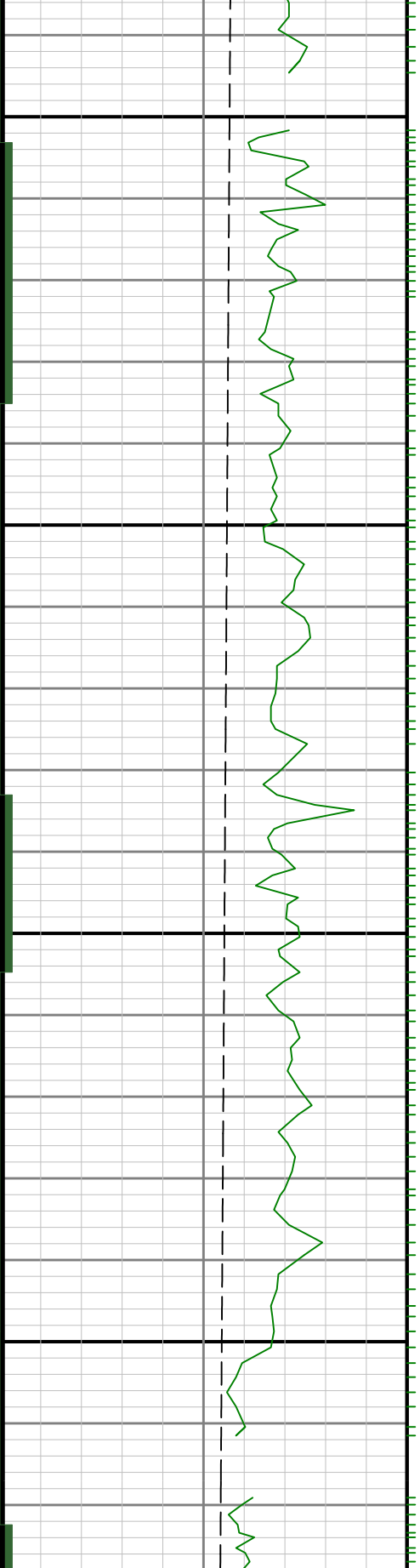


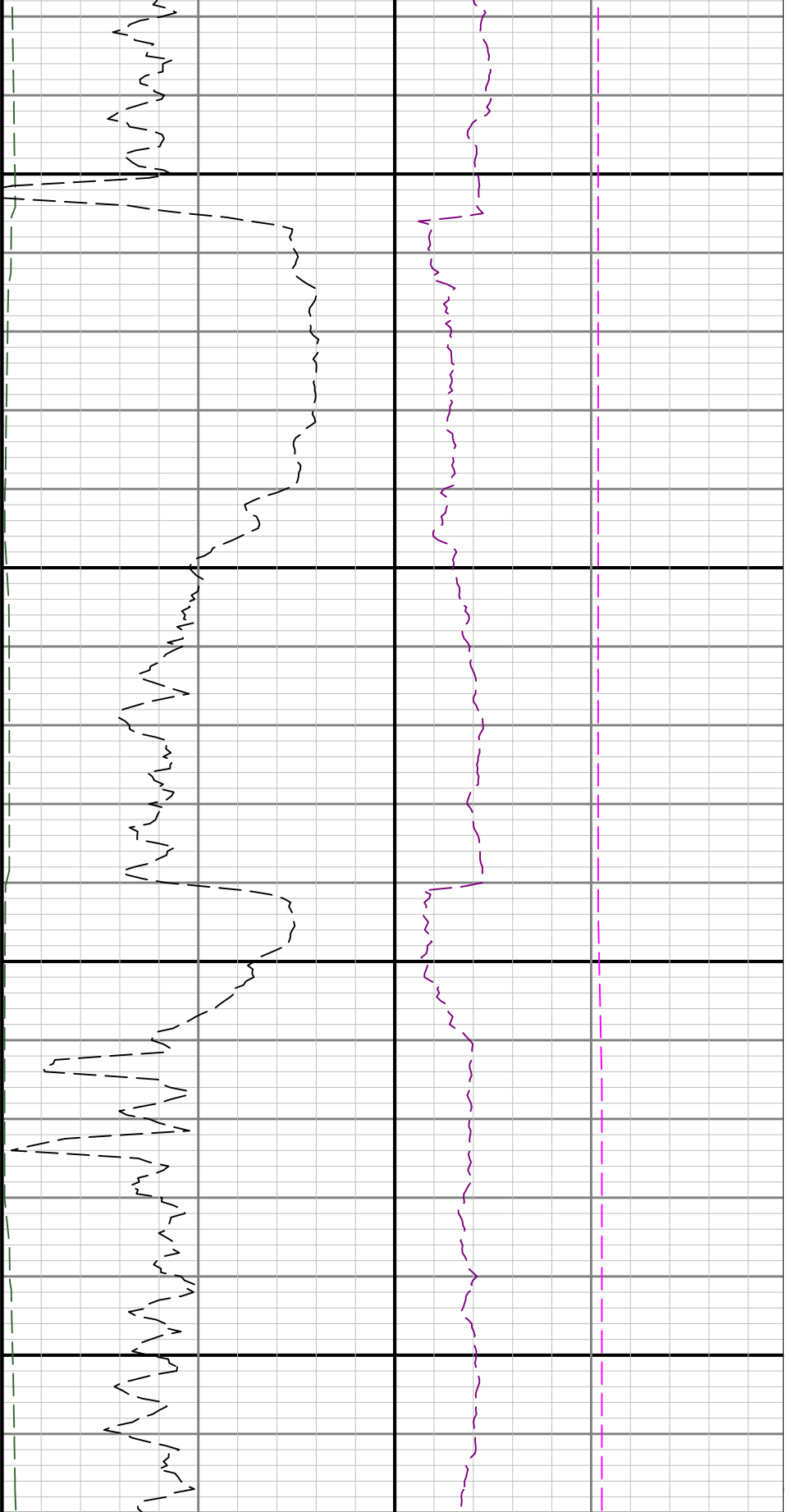




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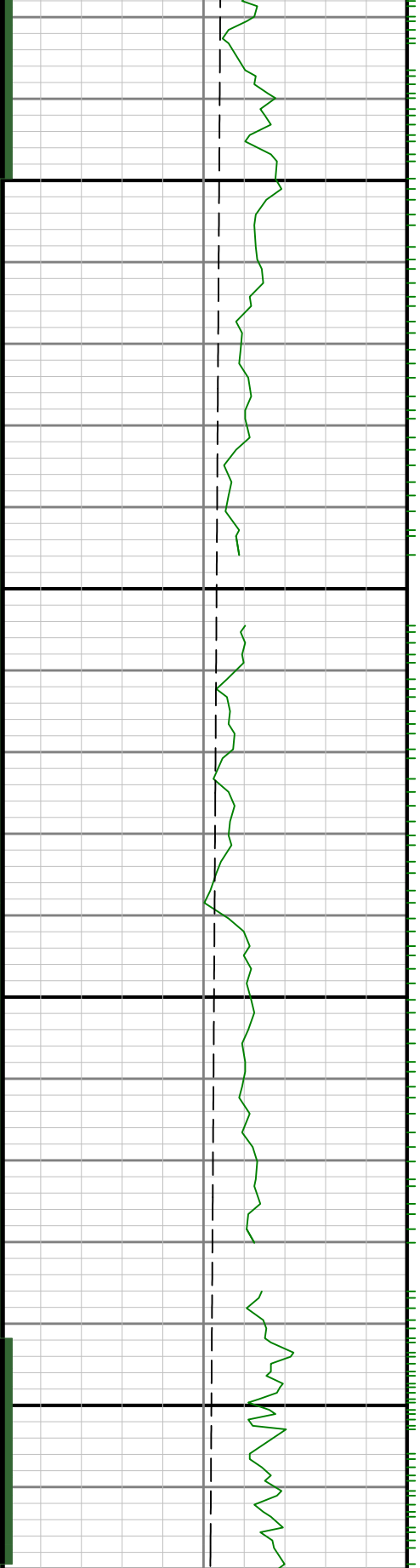
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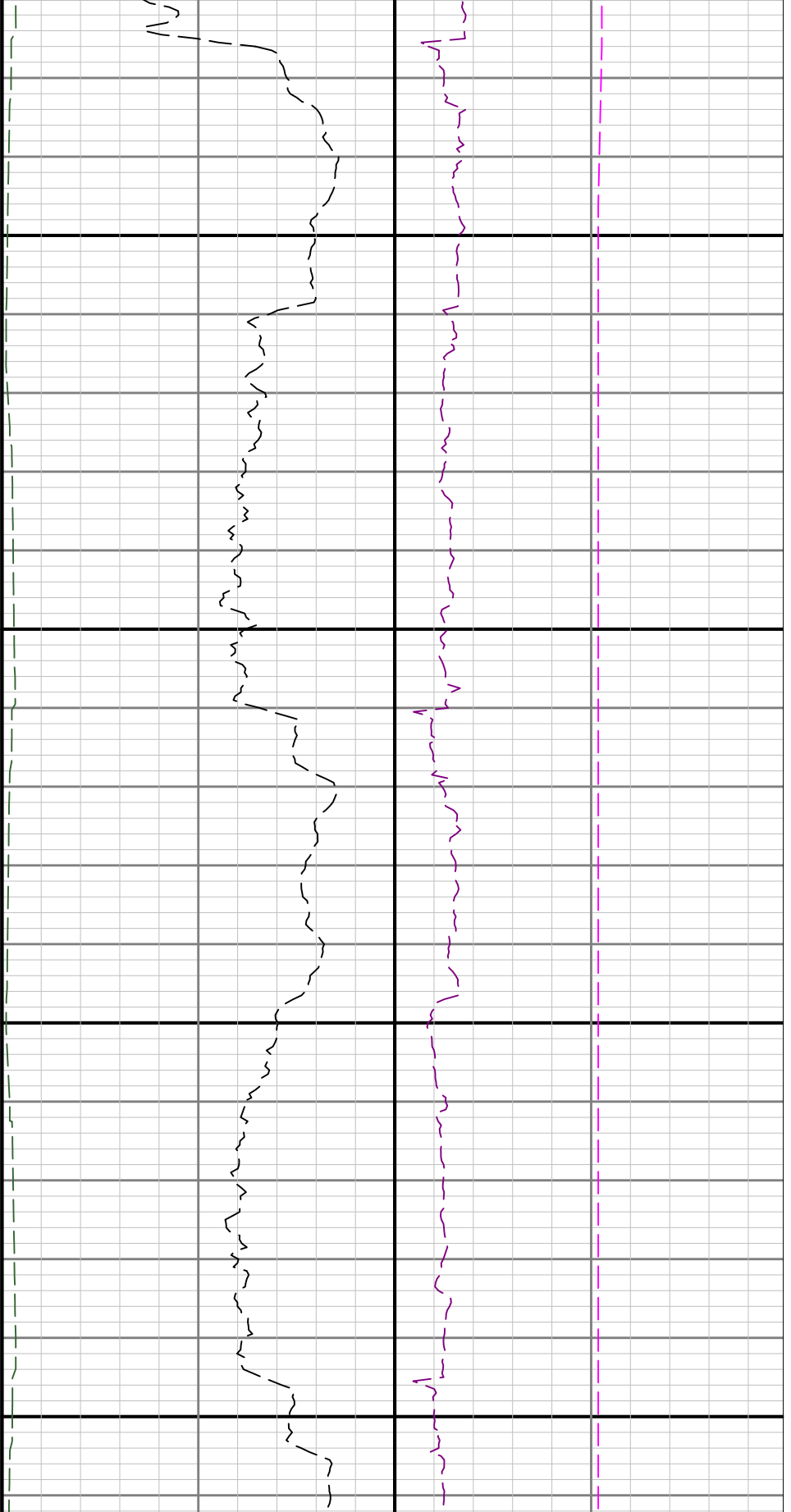




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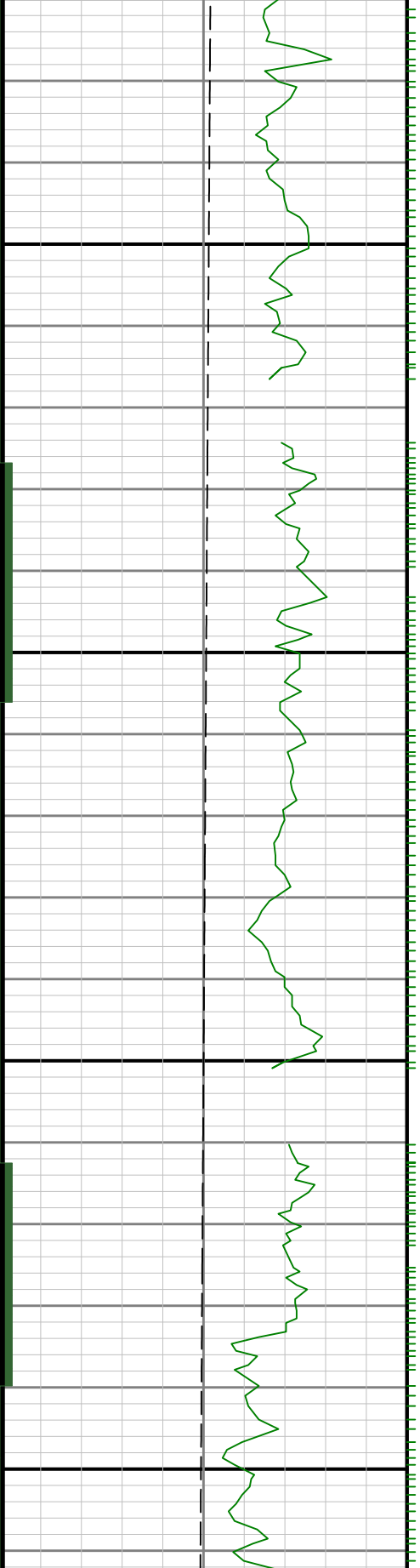
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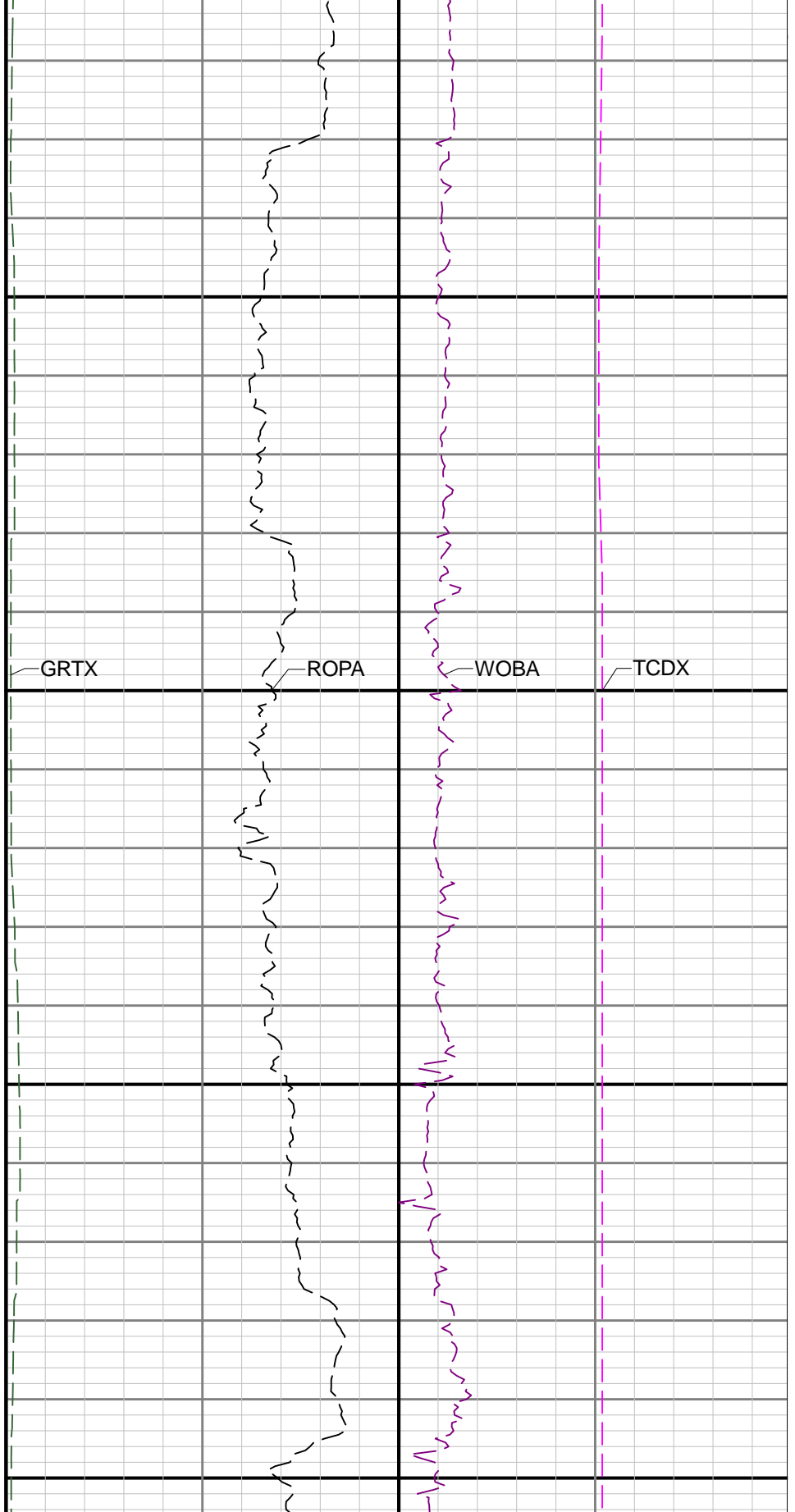
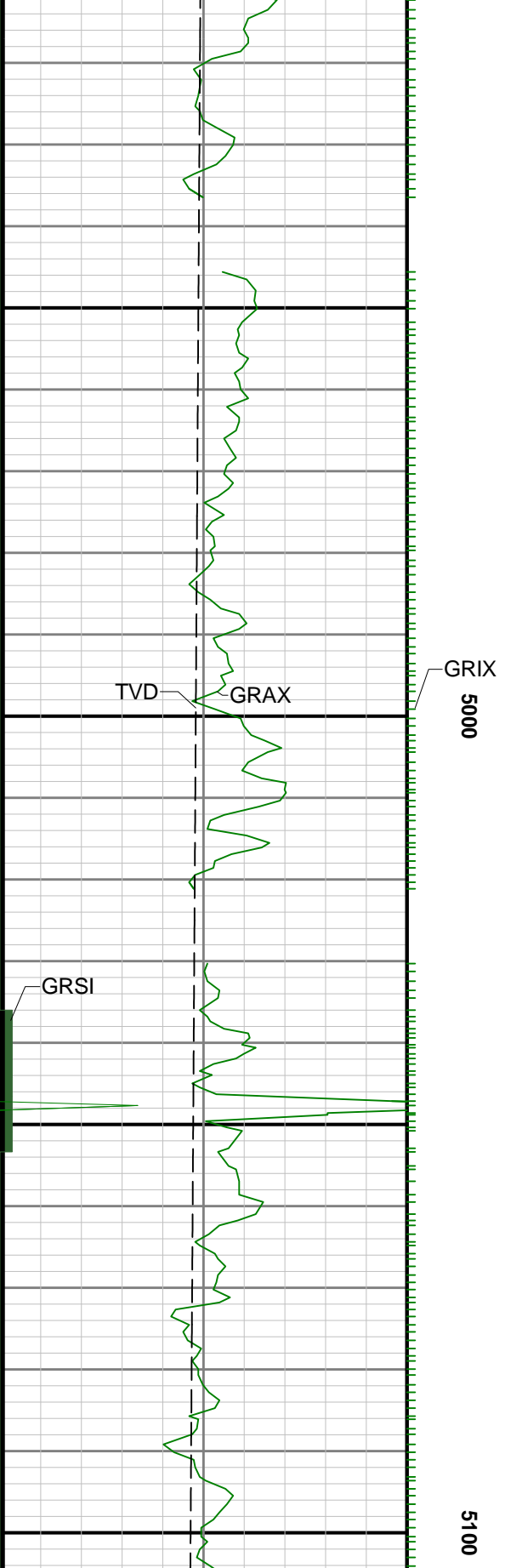


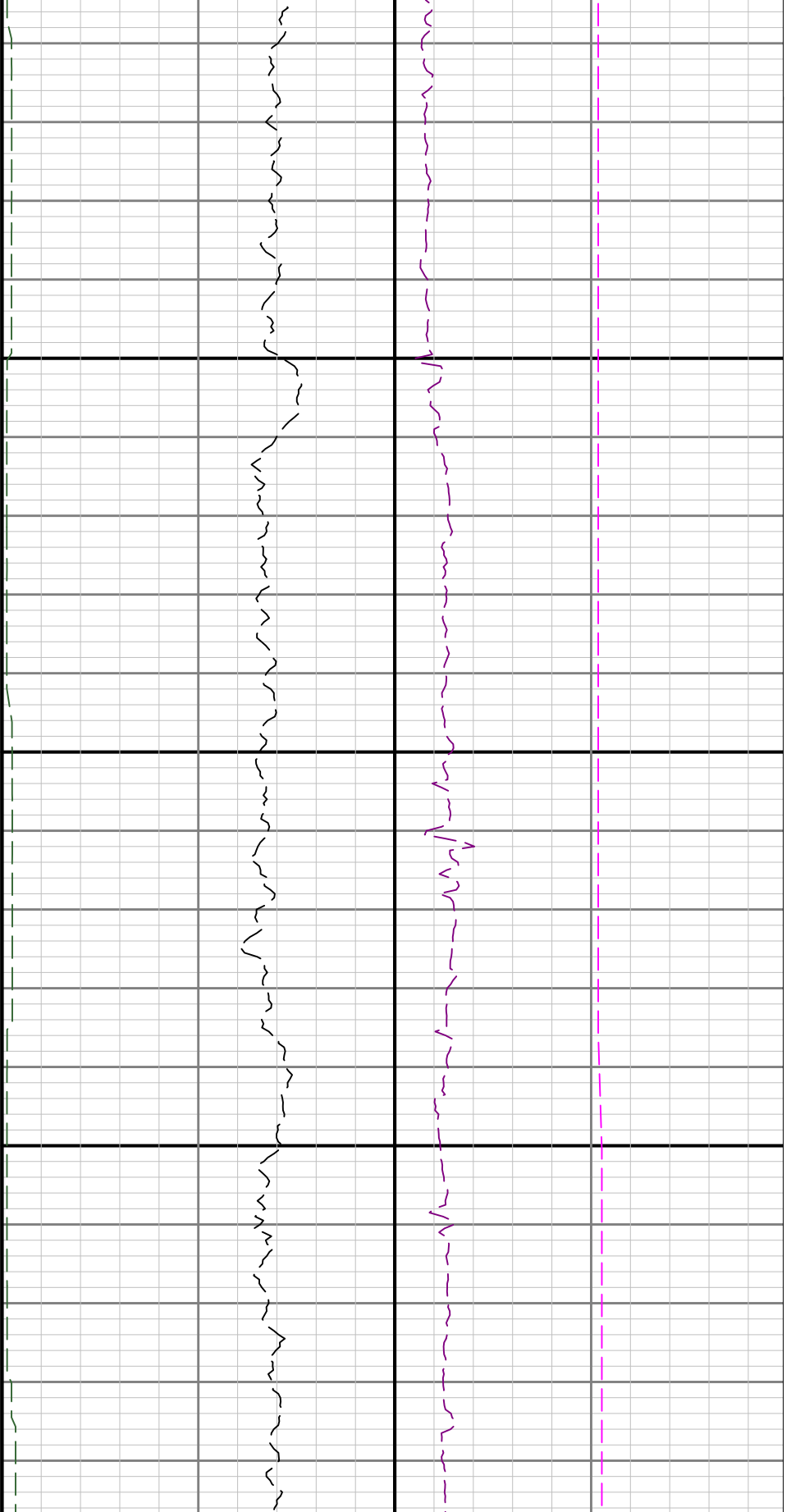


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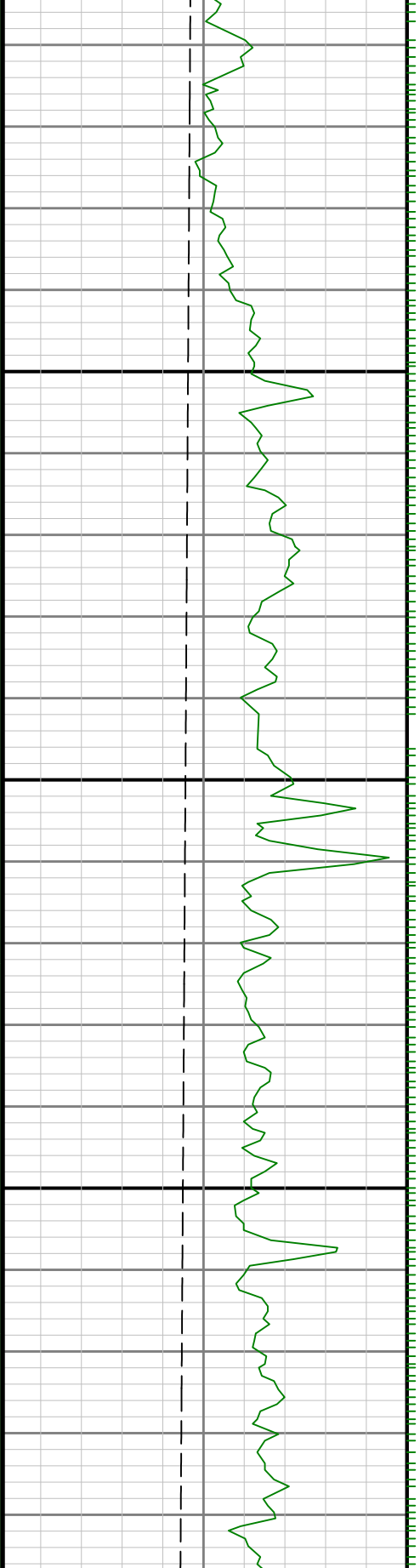
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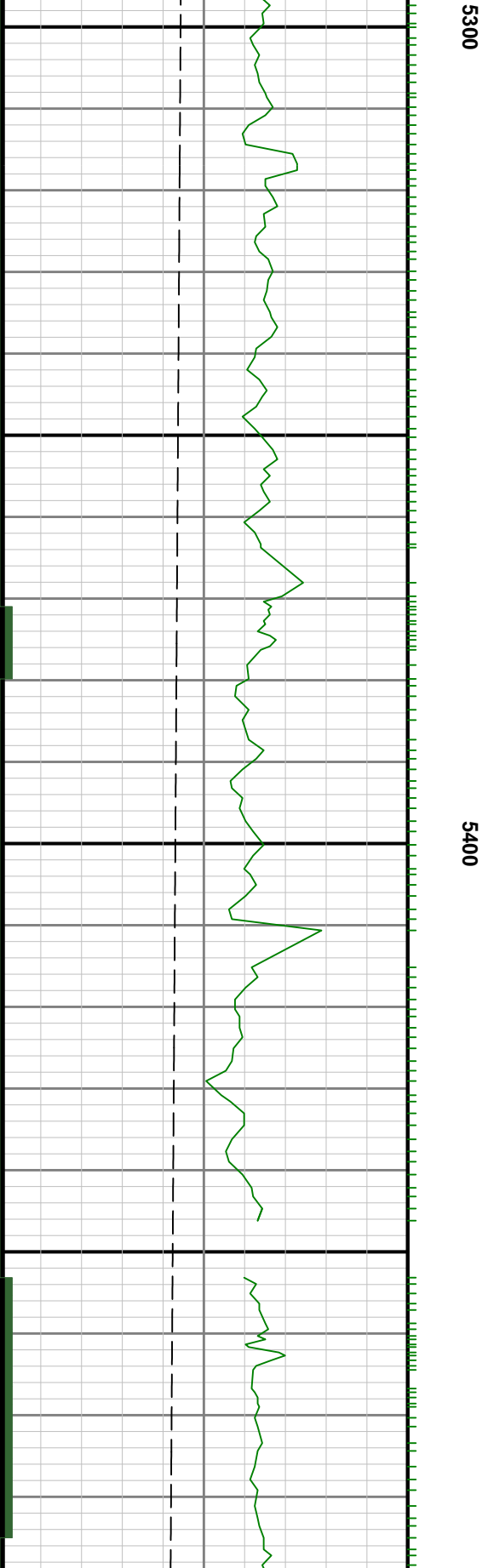
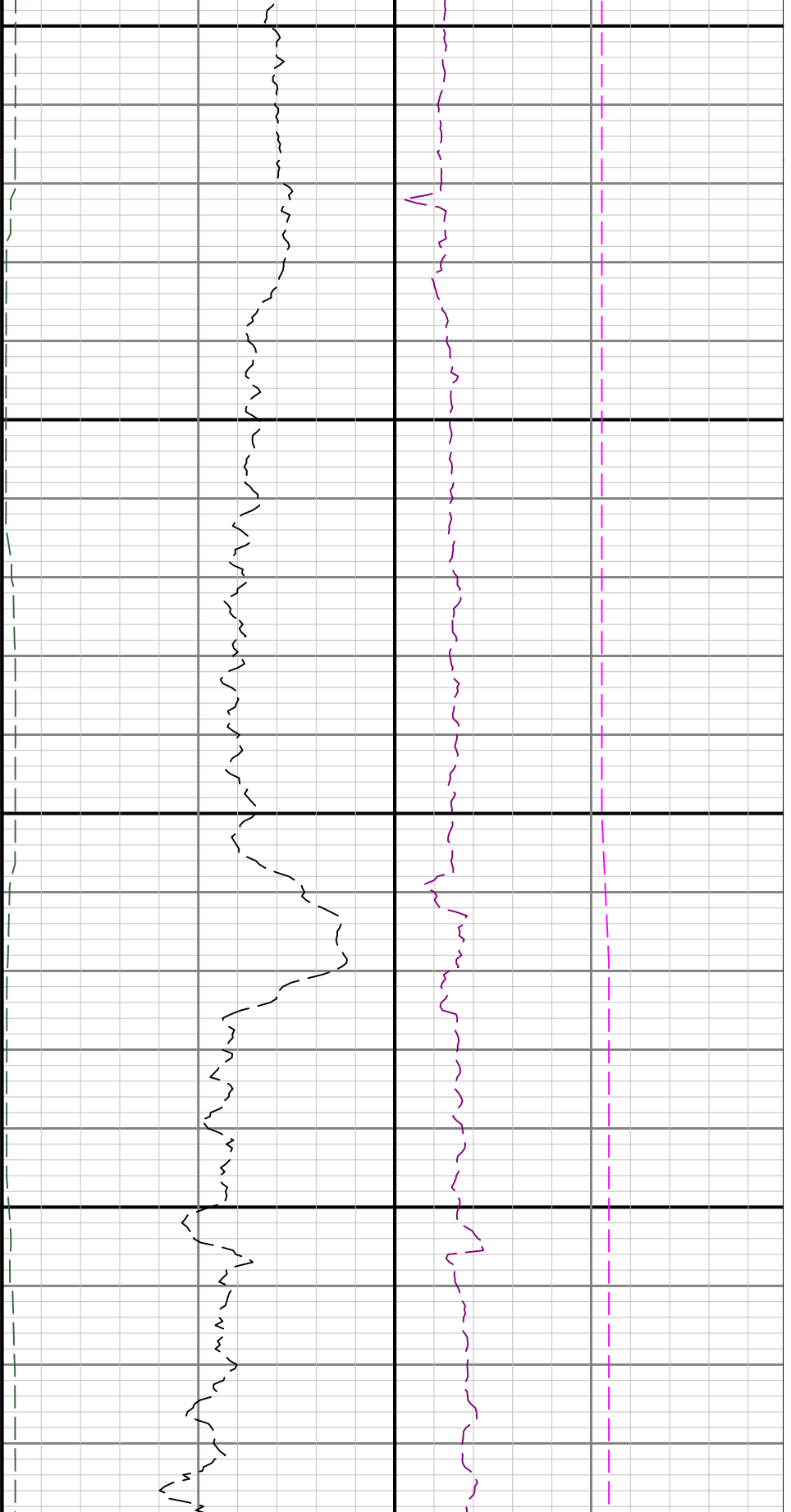


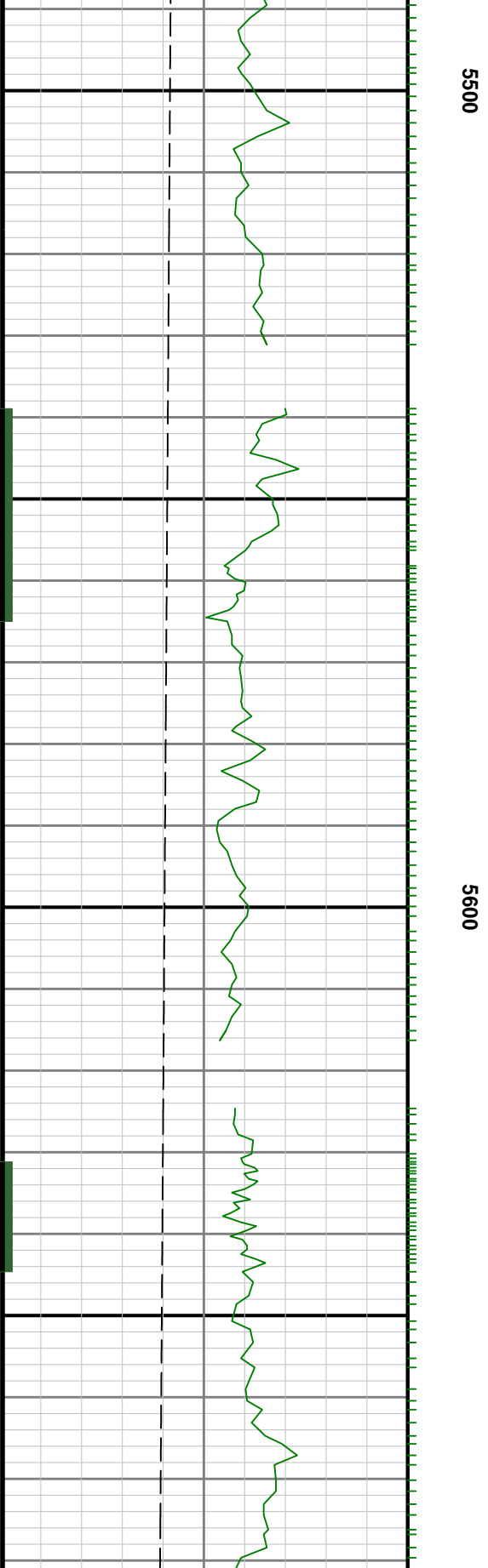
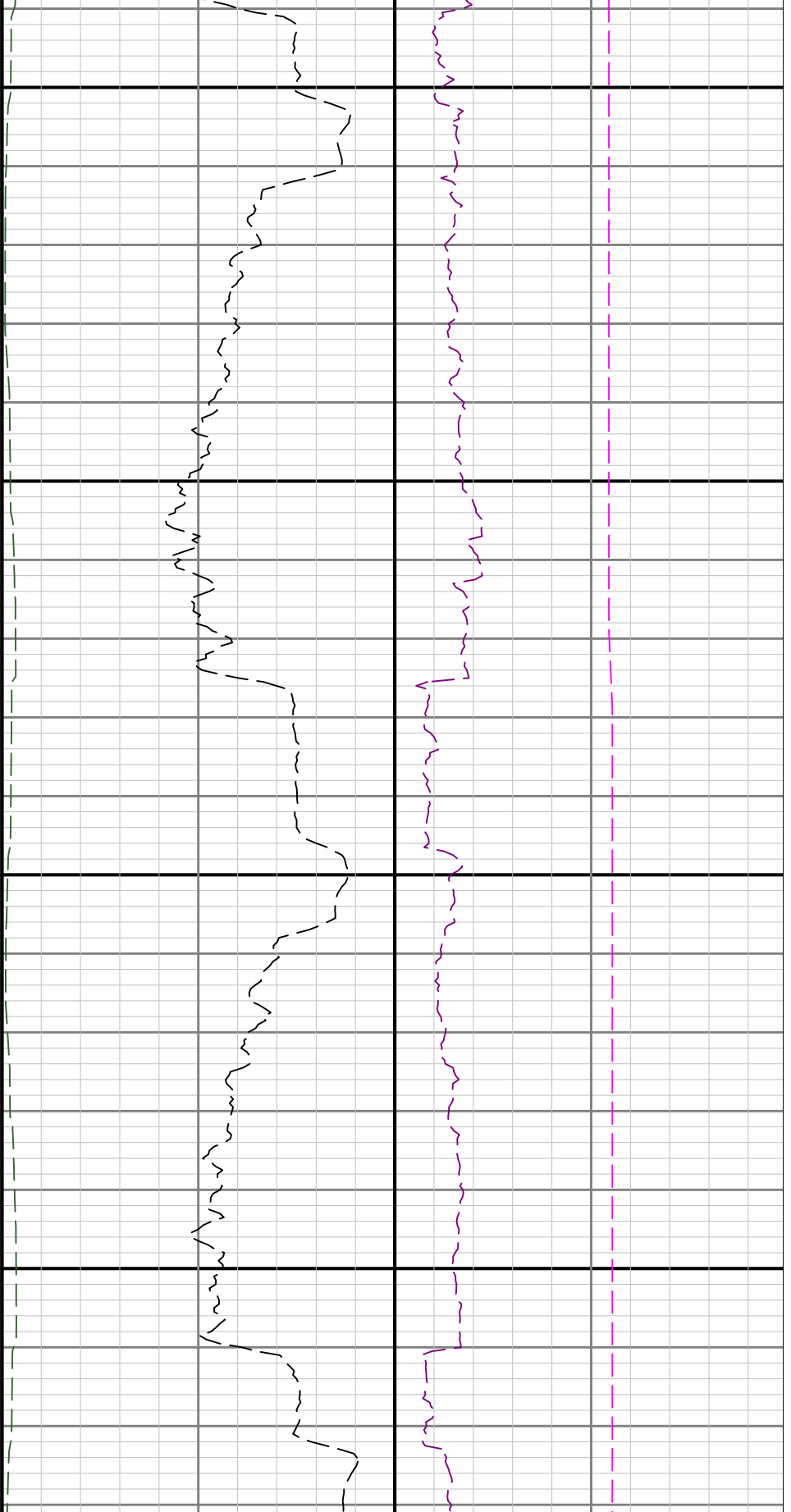


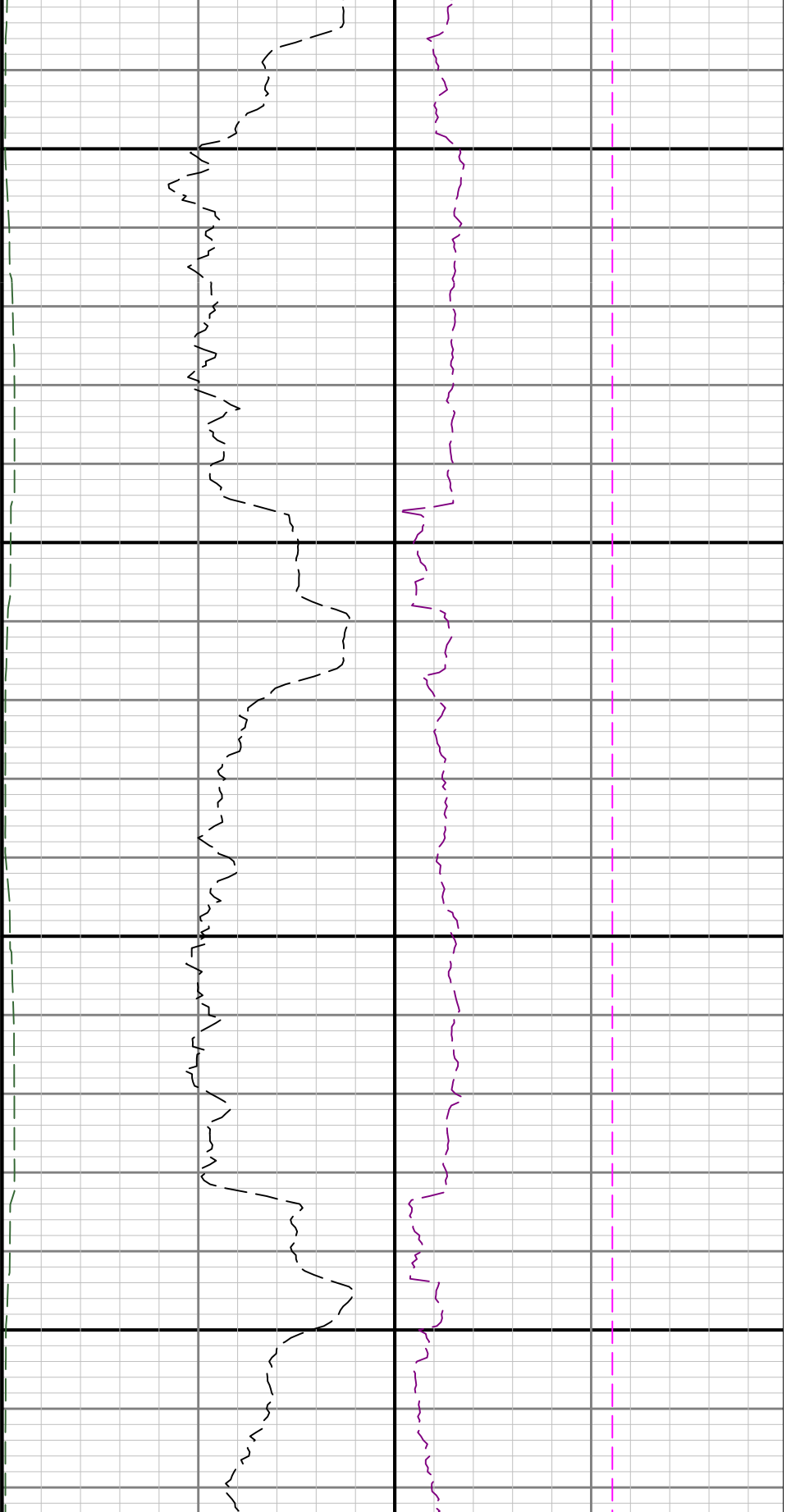


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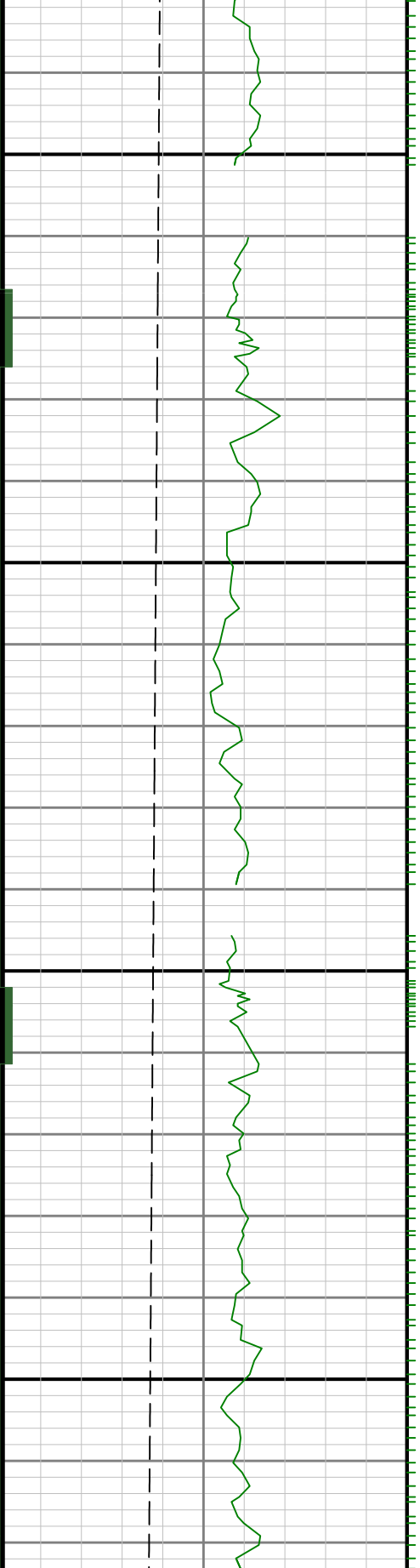


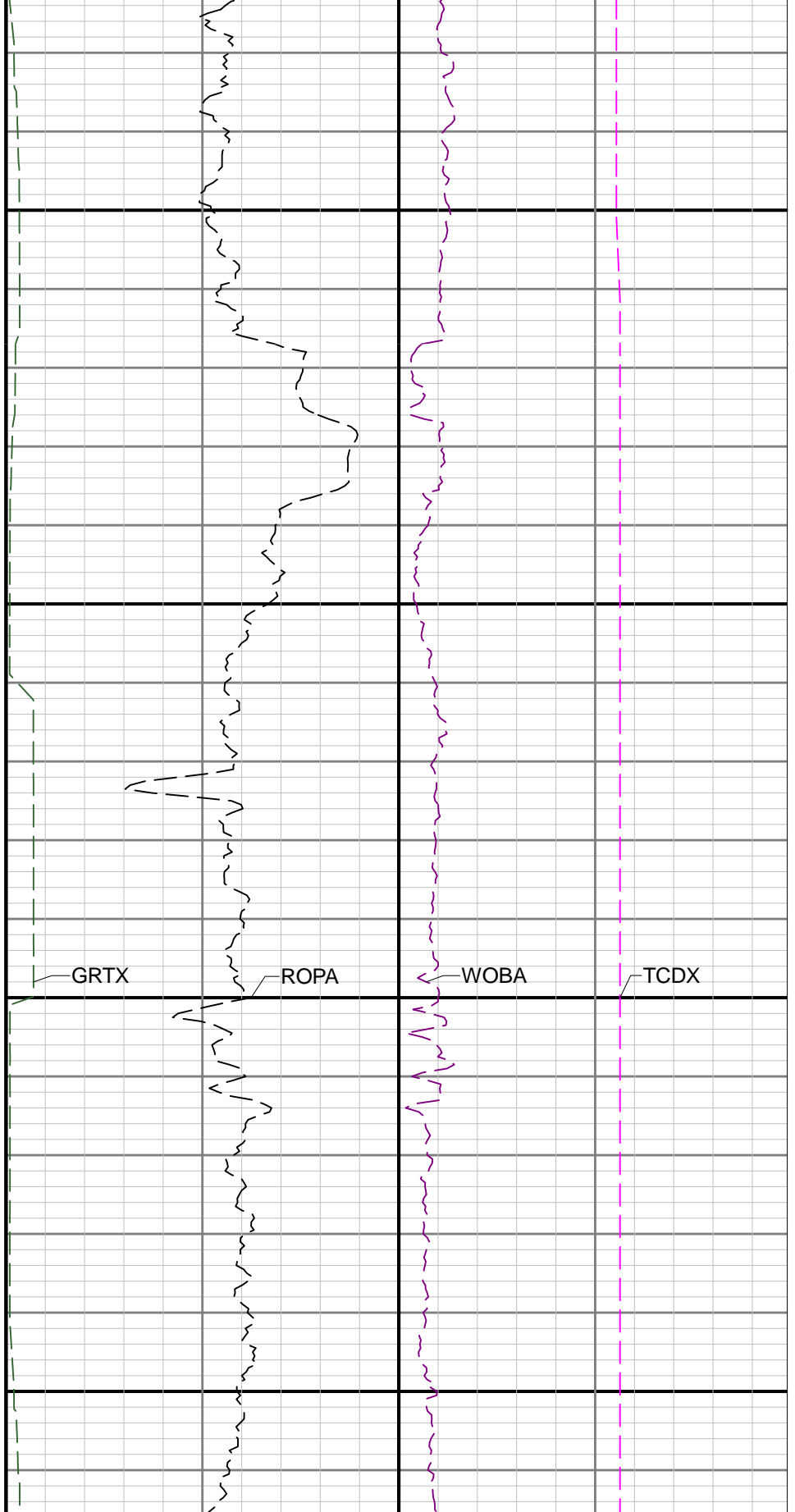
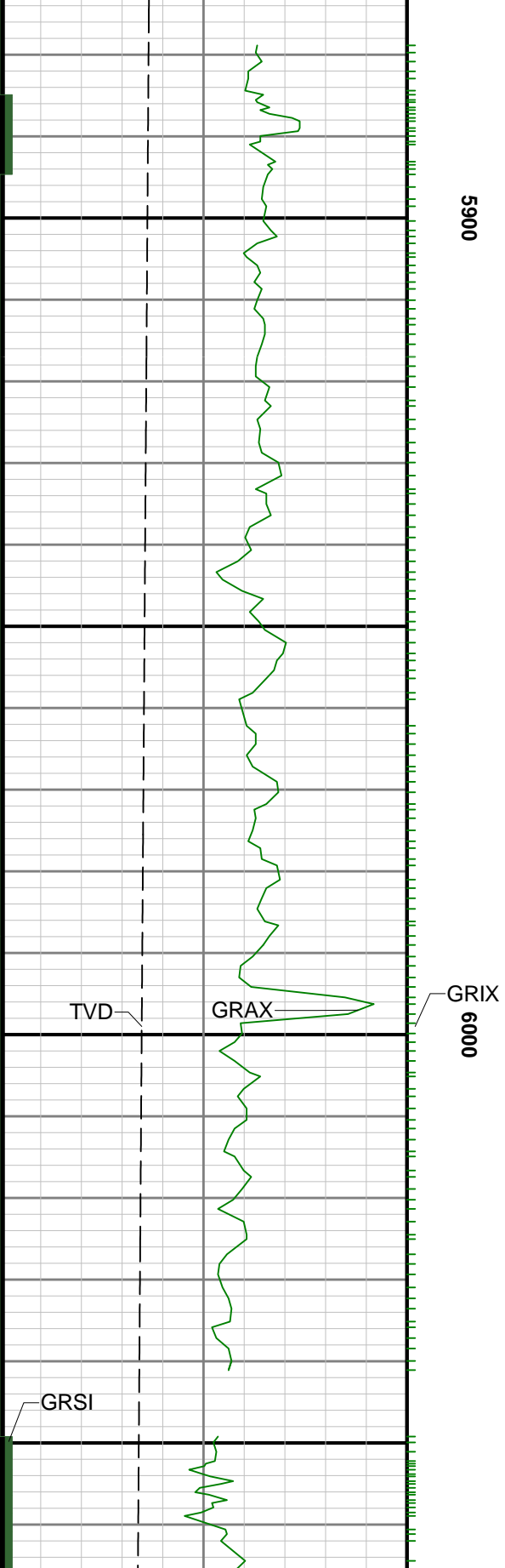


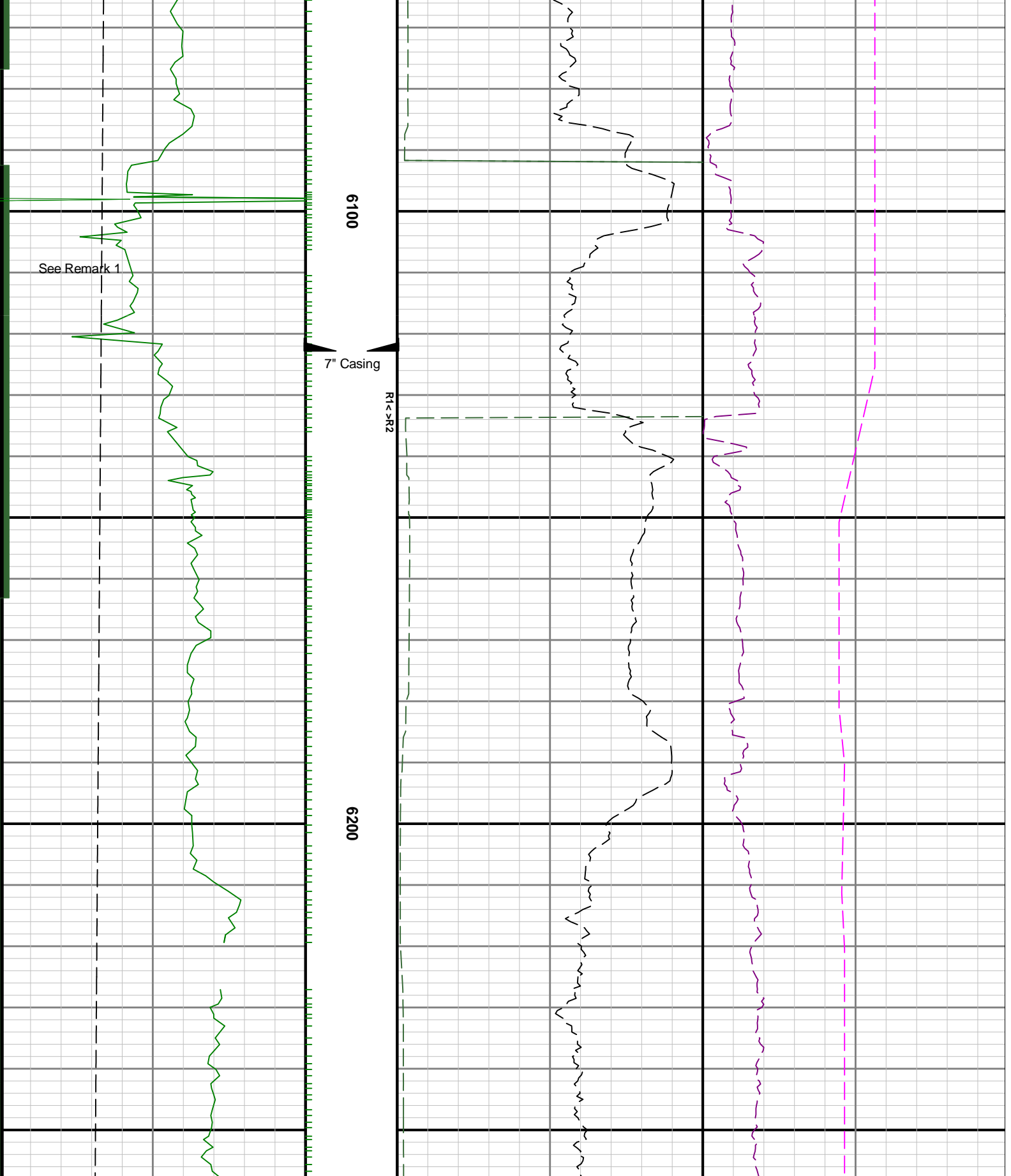


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5800







6100

6200

7" Casing

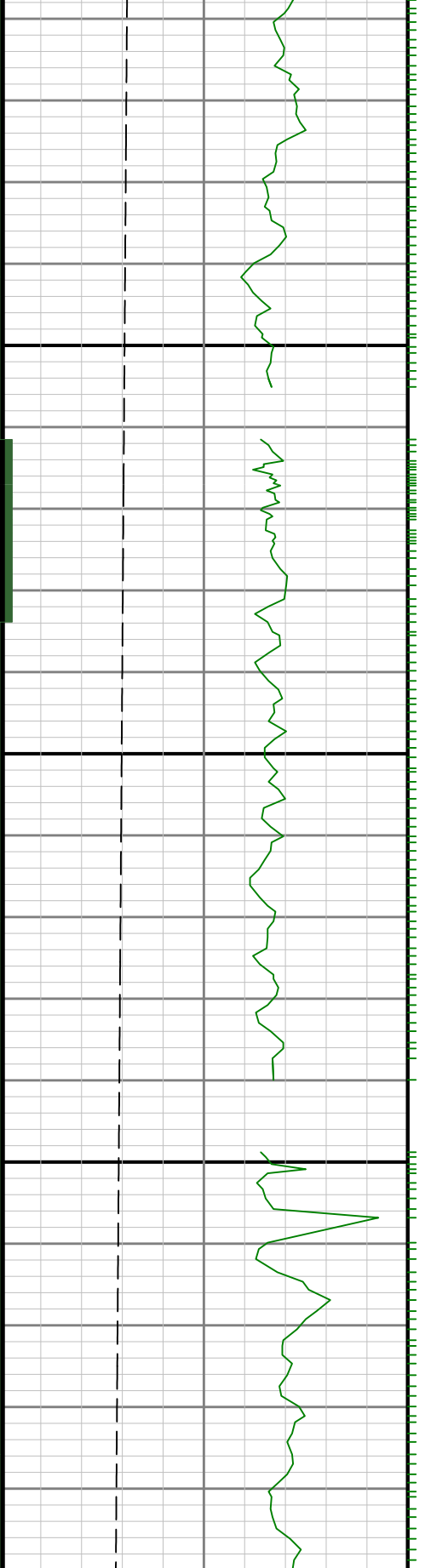
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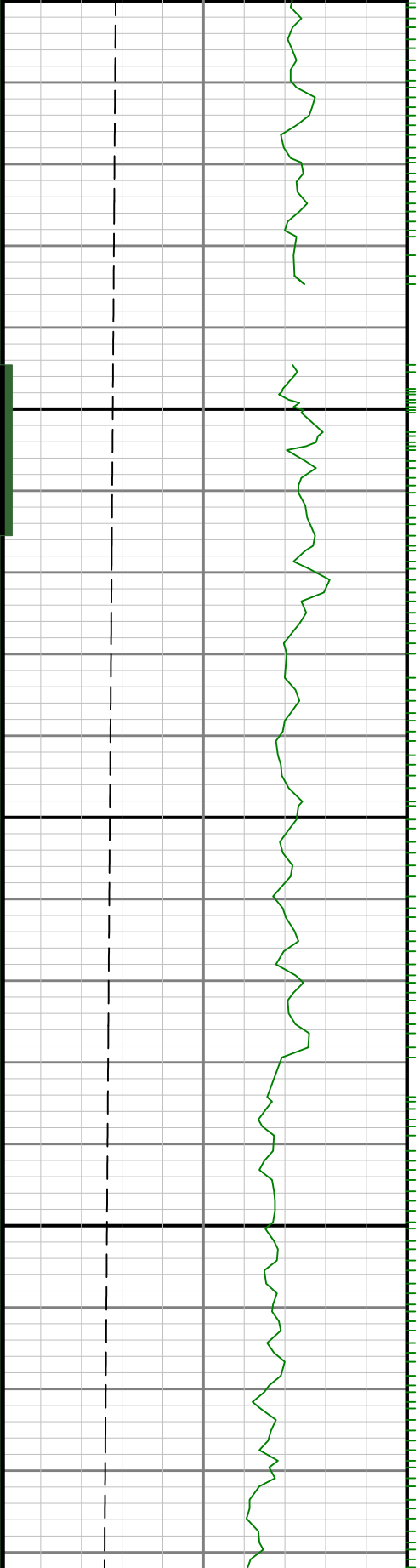
See Remark 1



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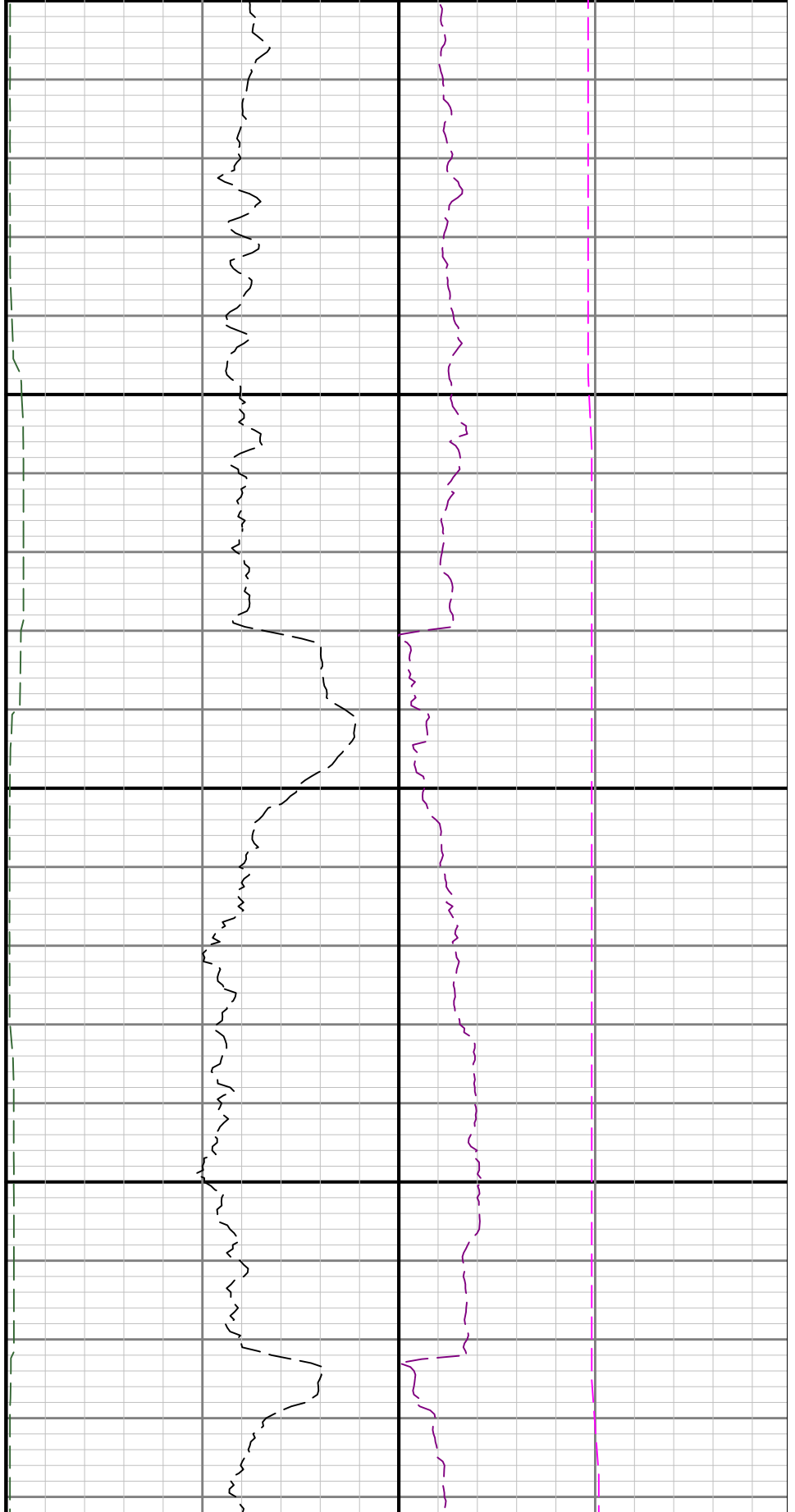
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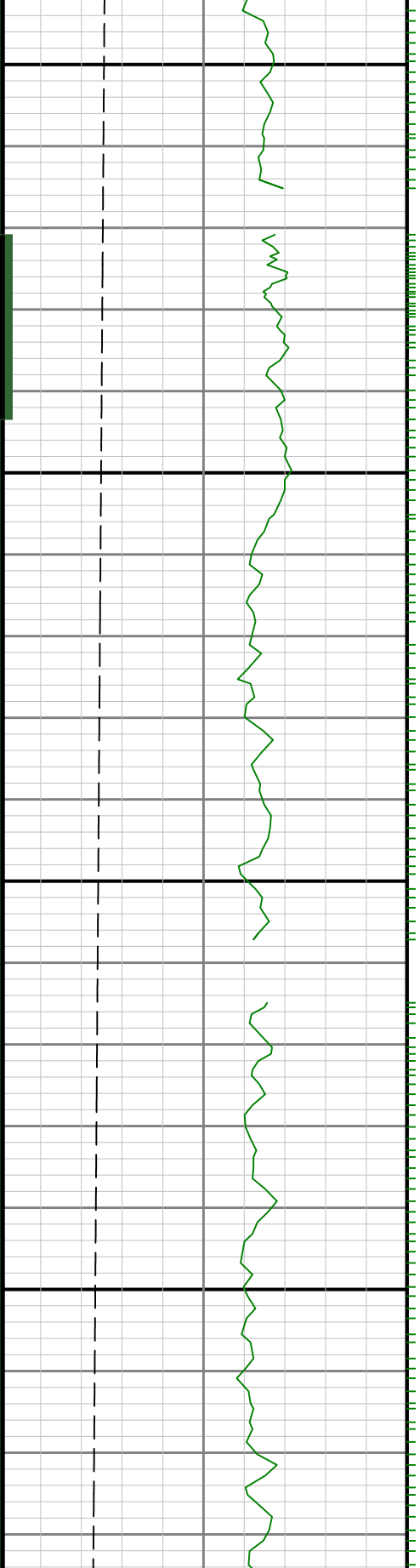




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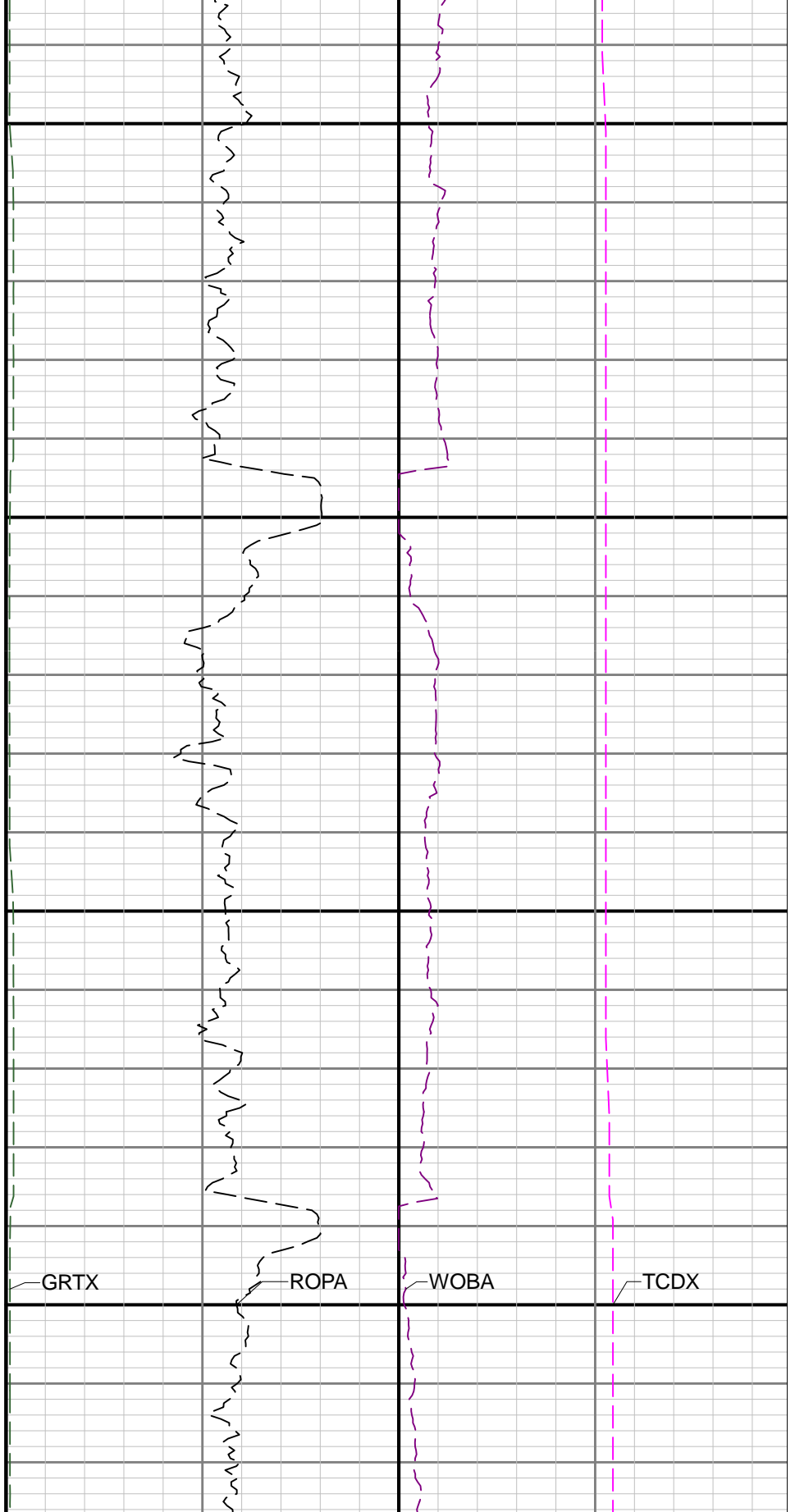
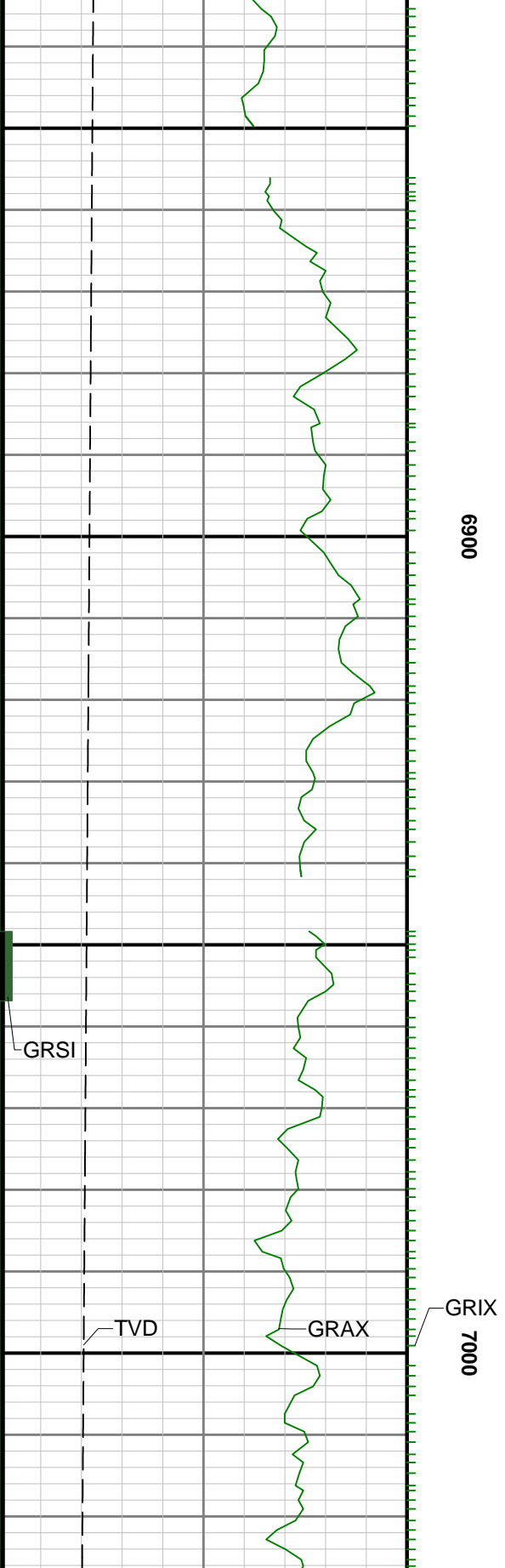




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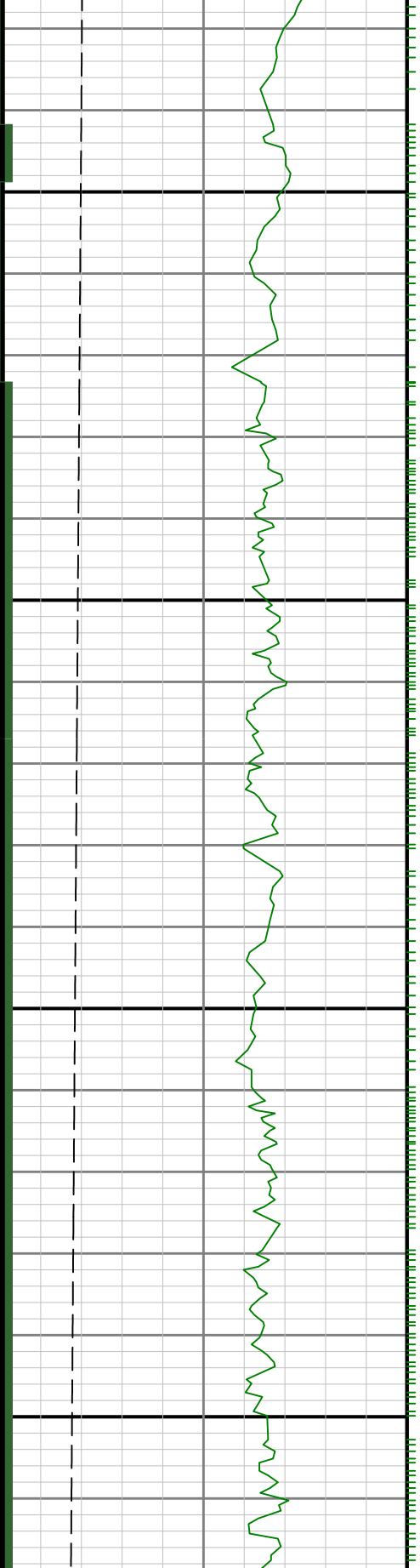


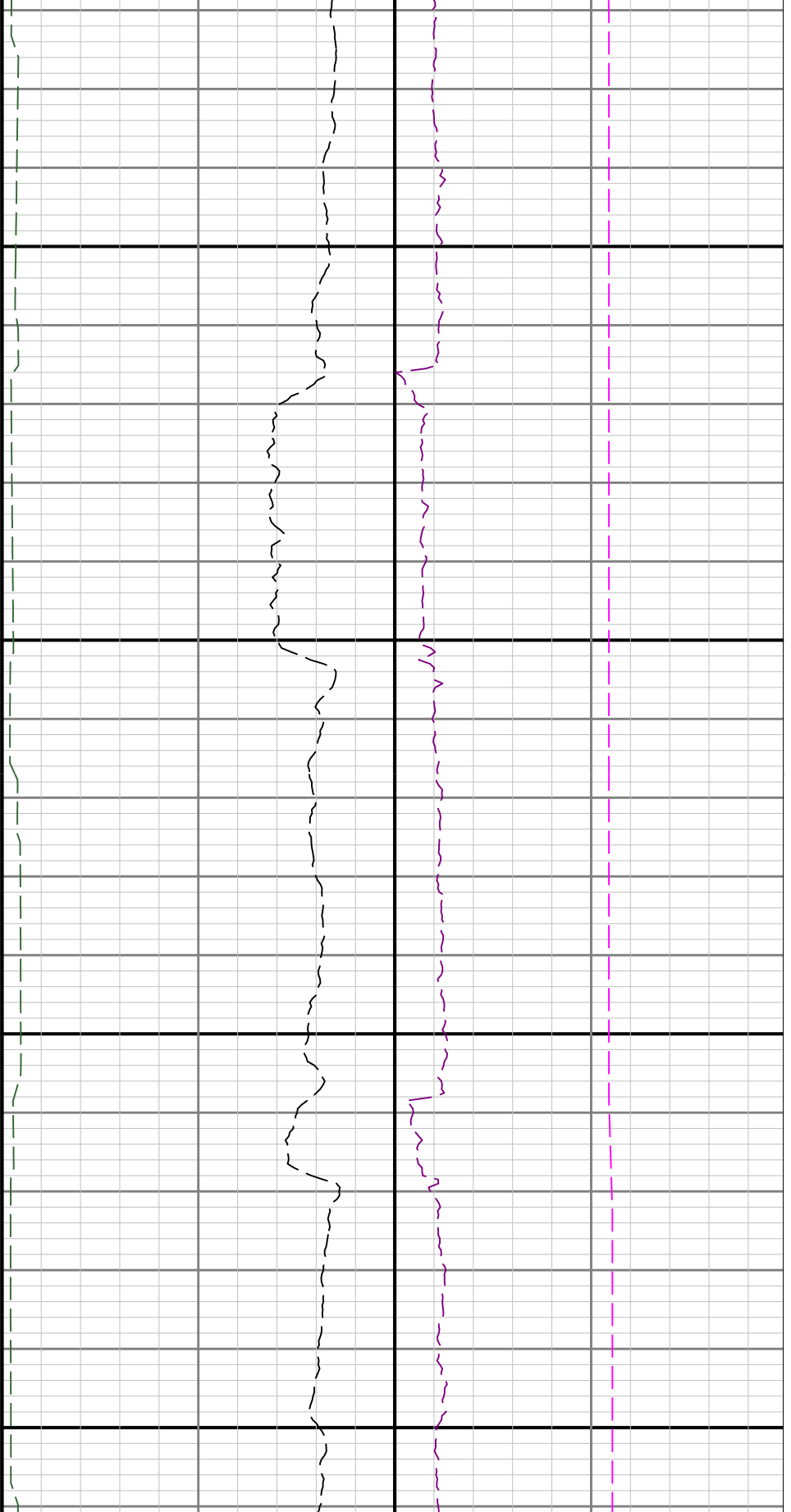




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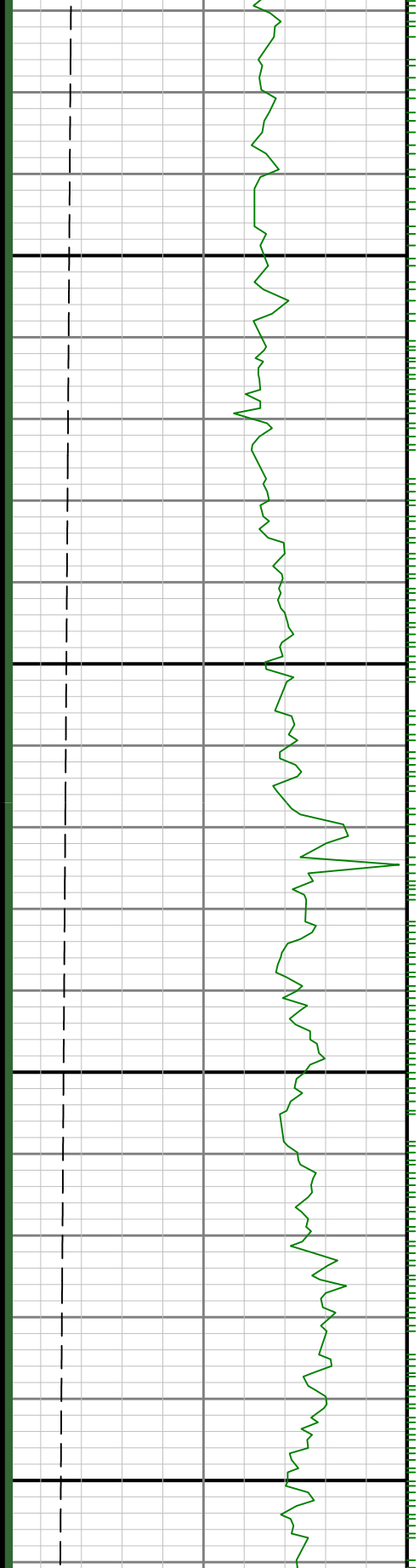
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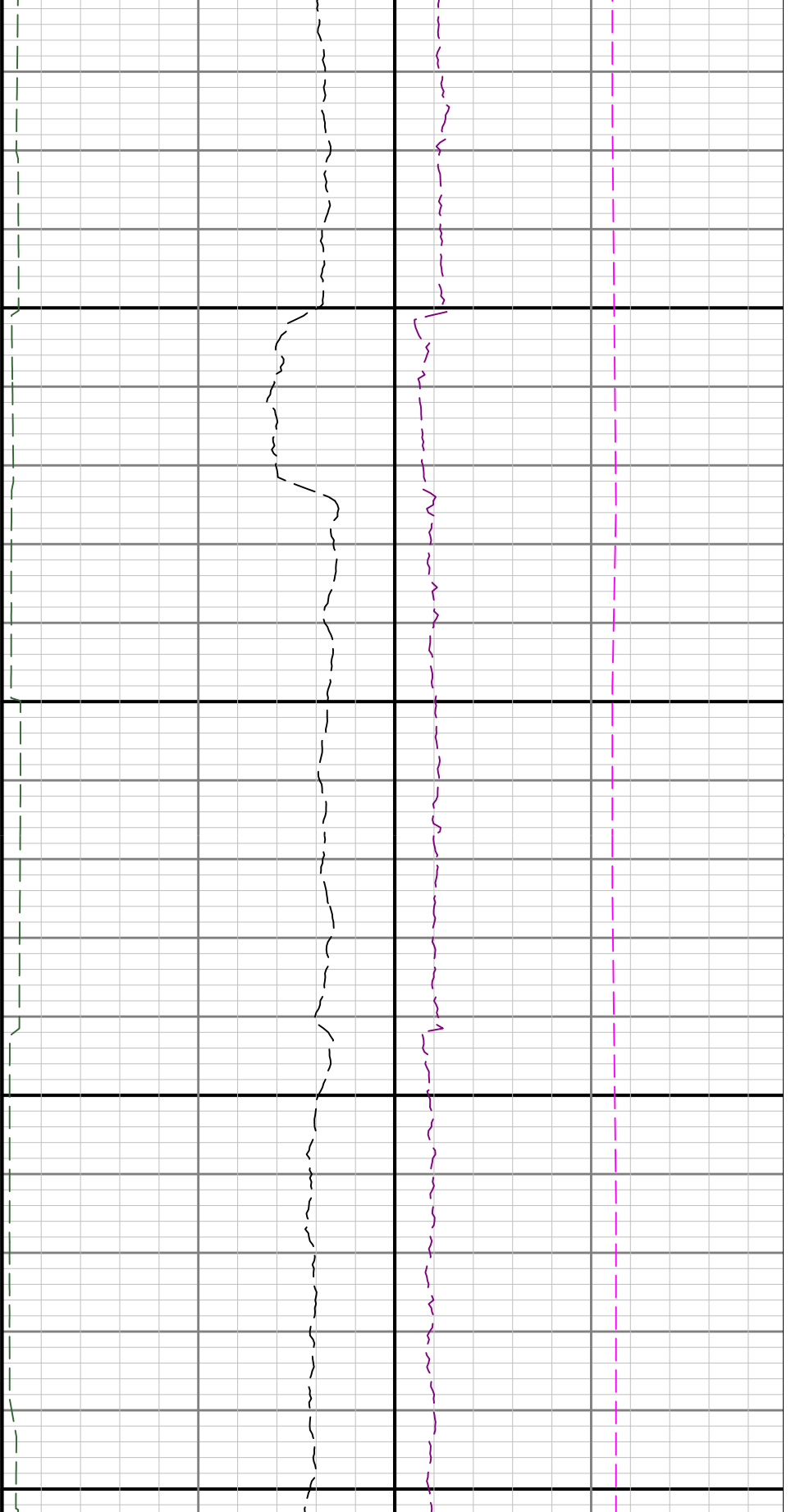




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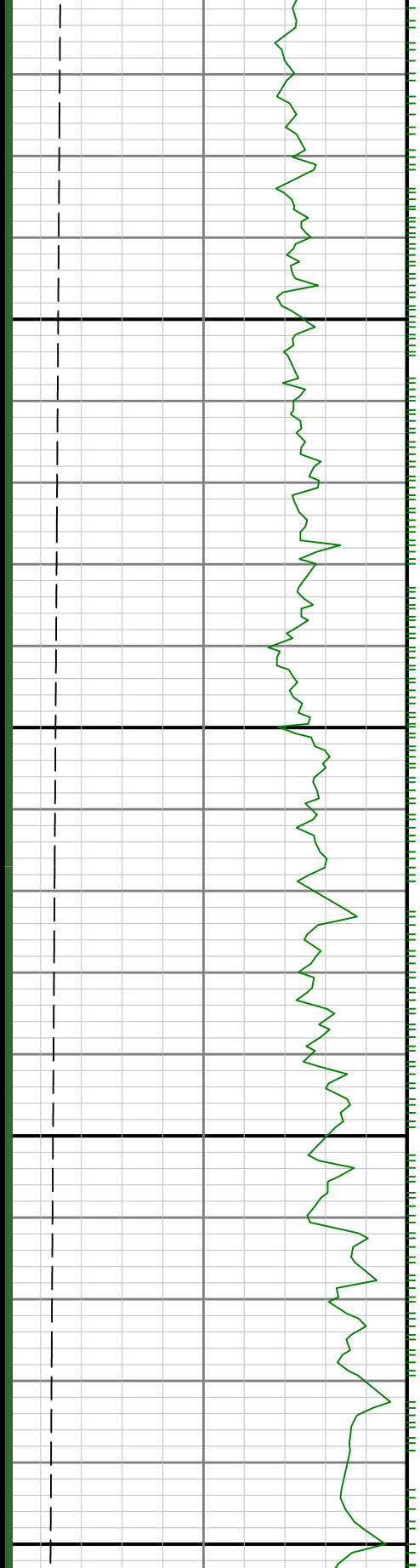
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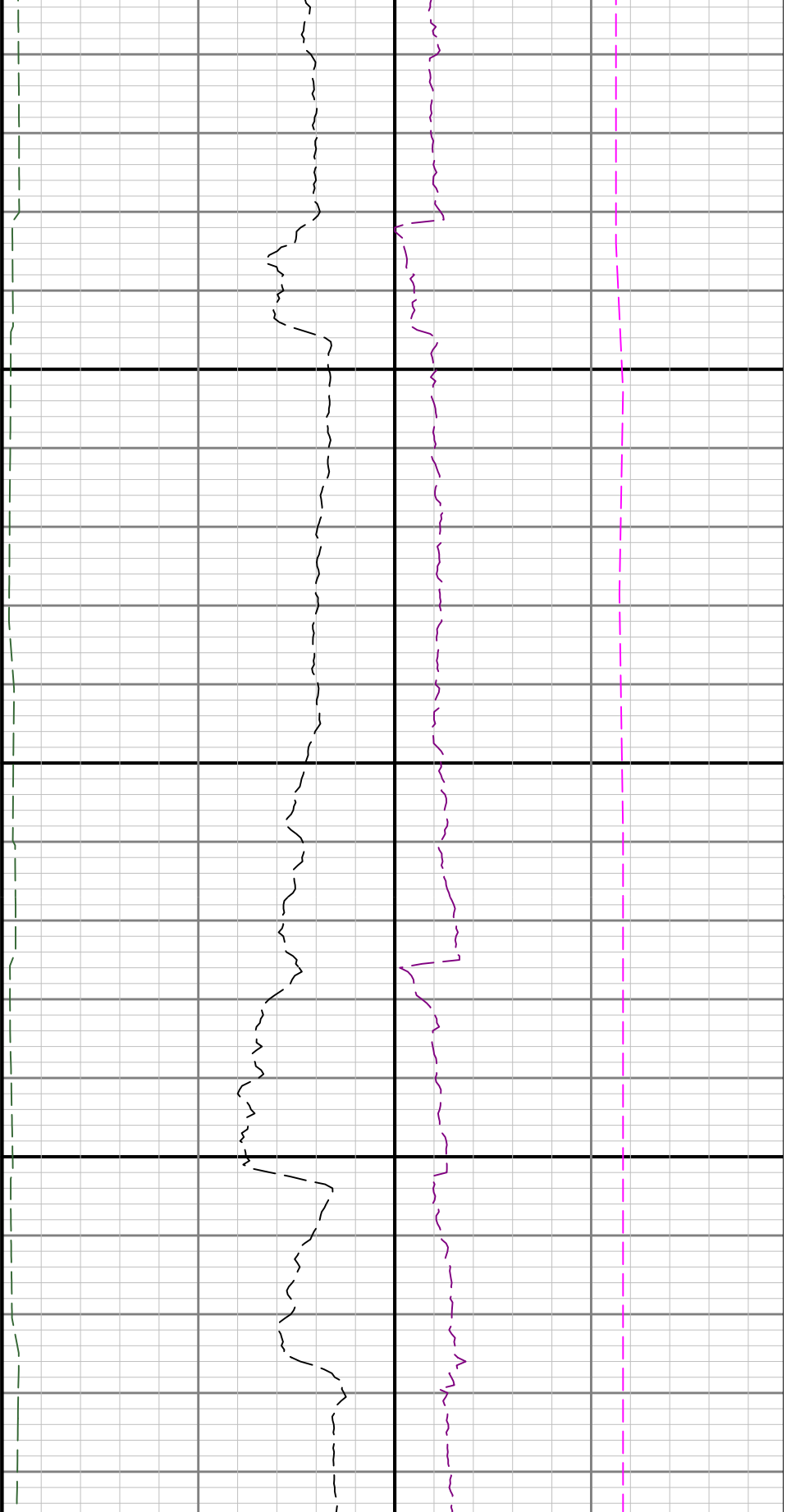




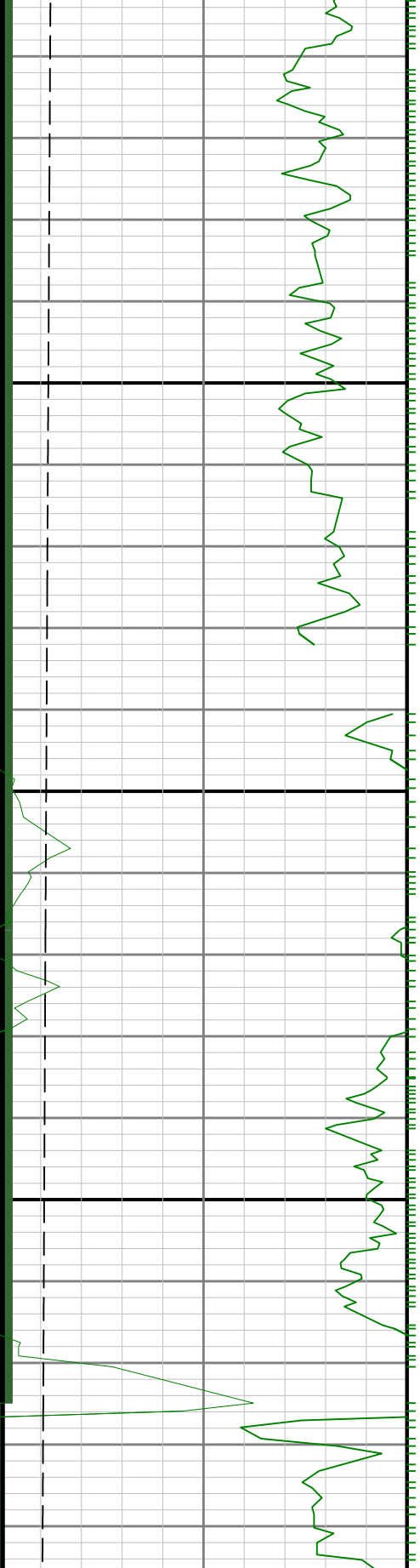
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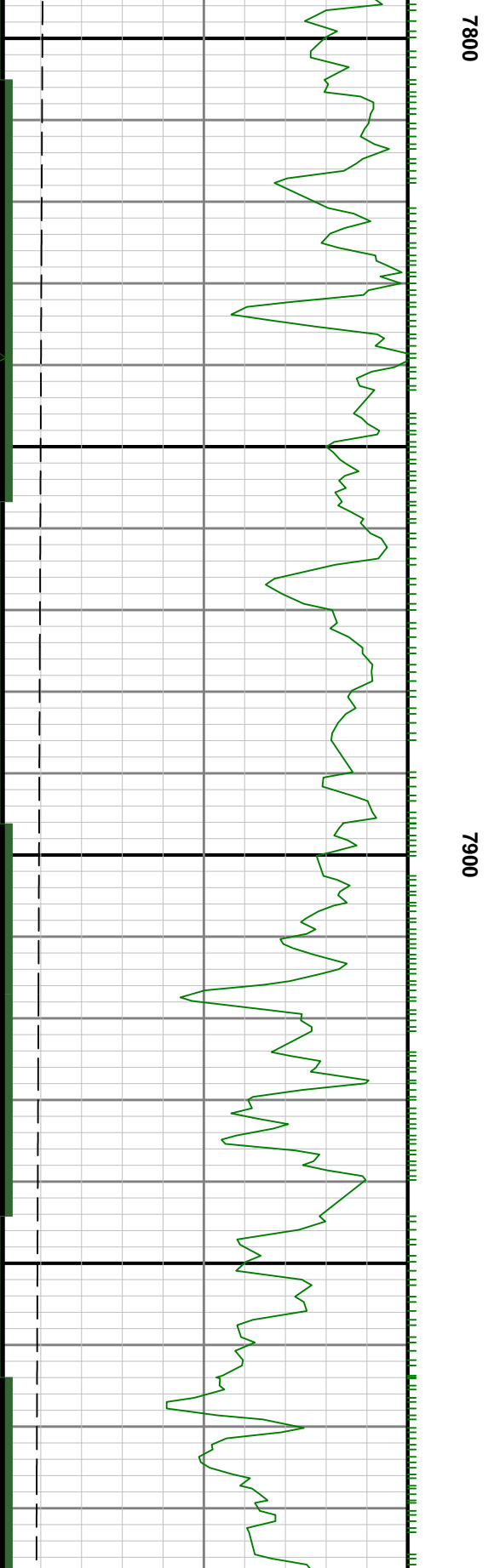
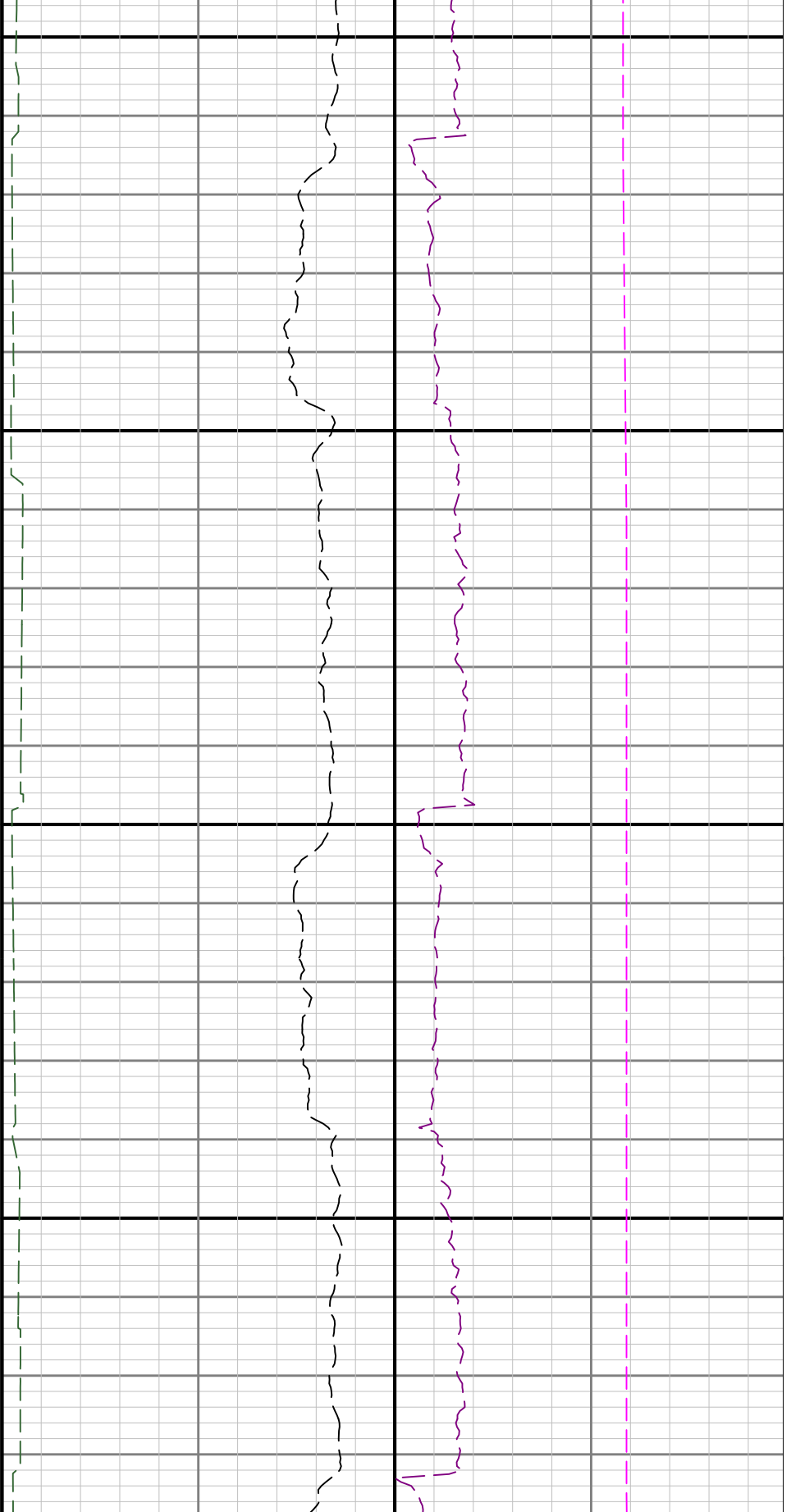
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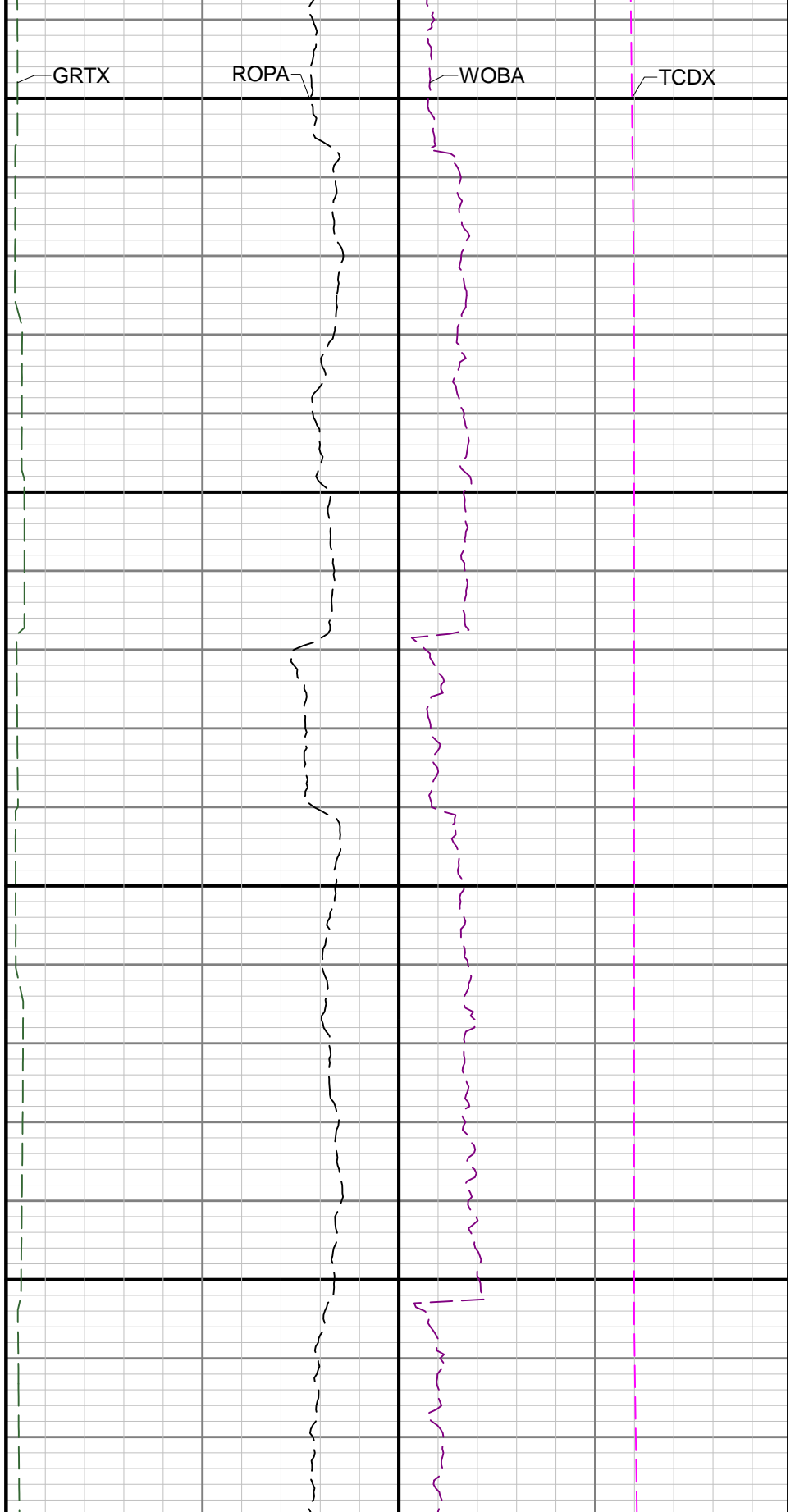
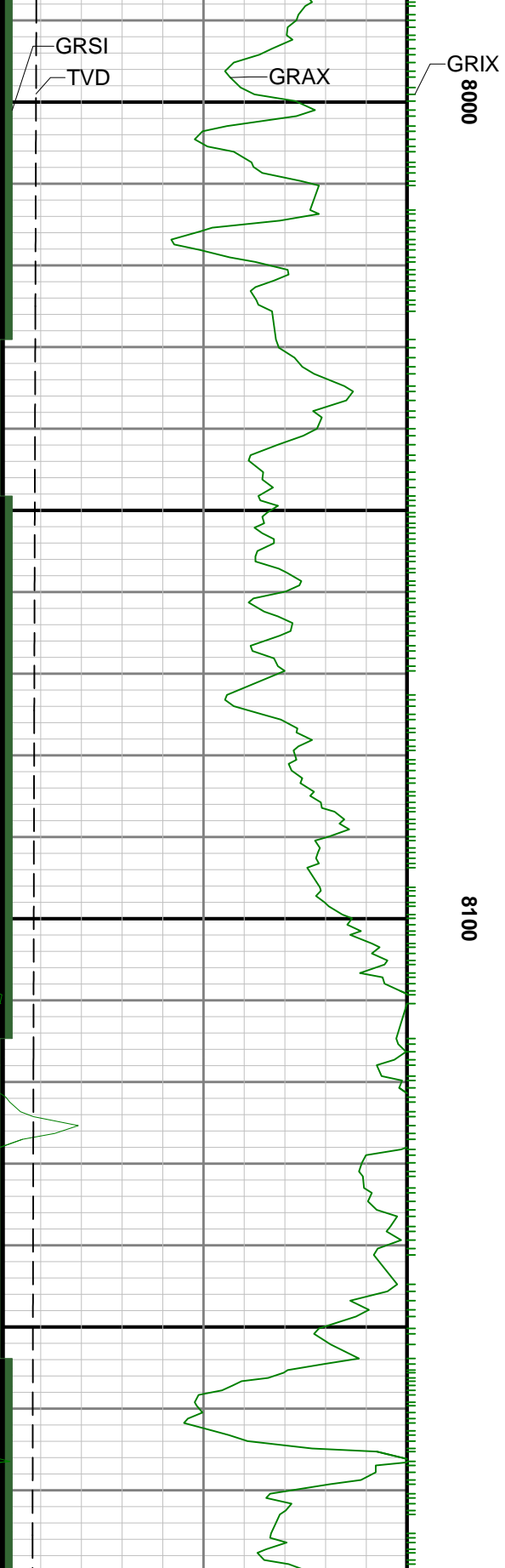


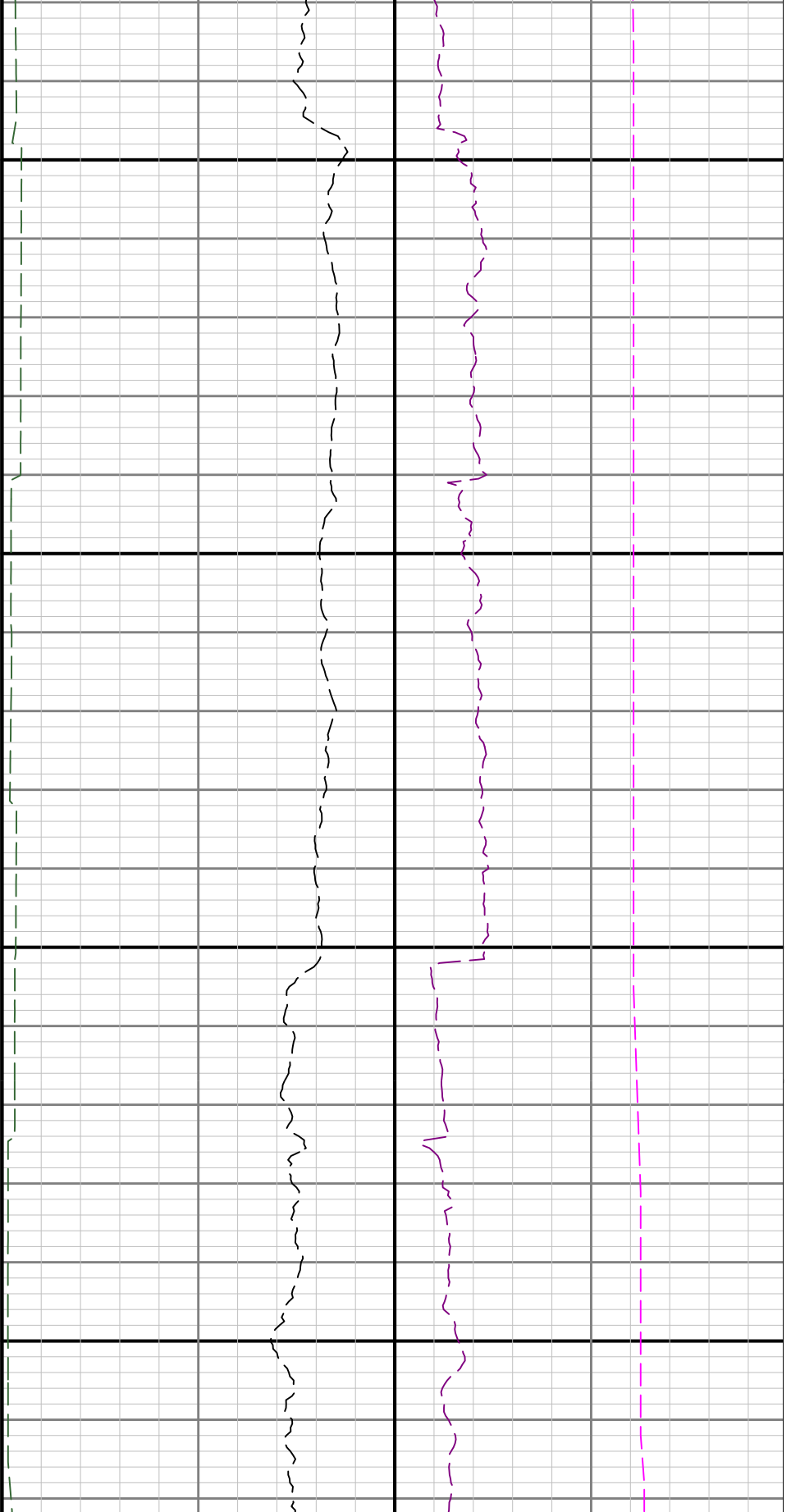


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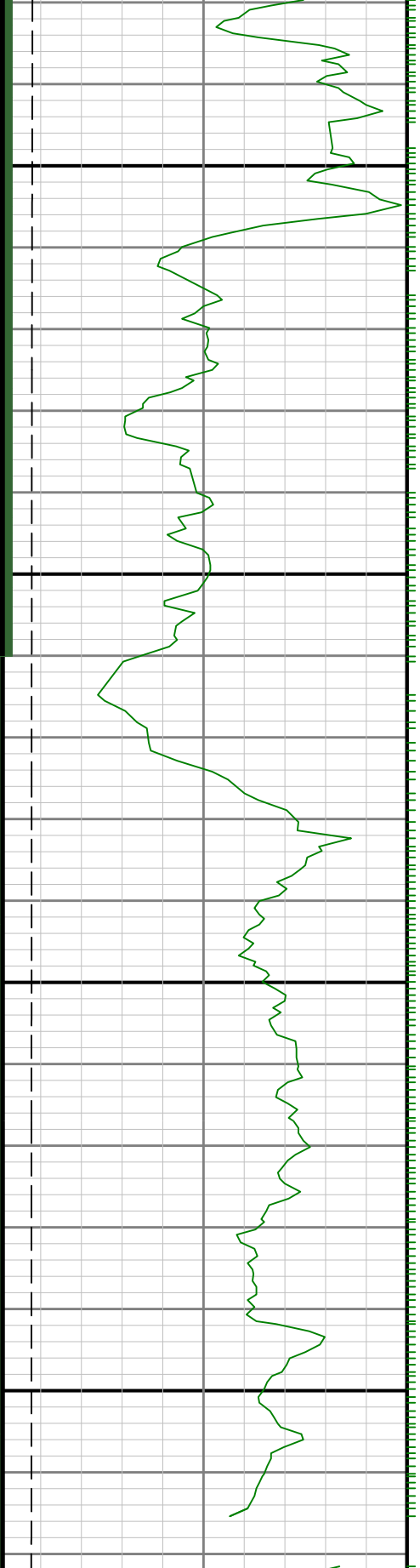


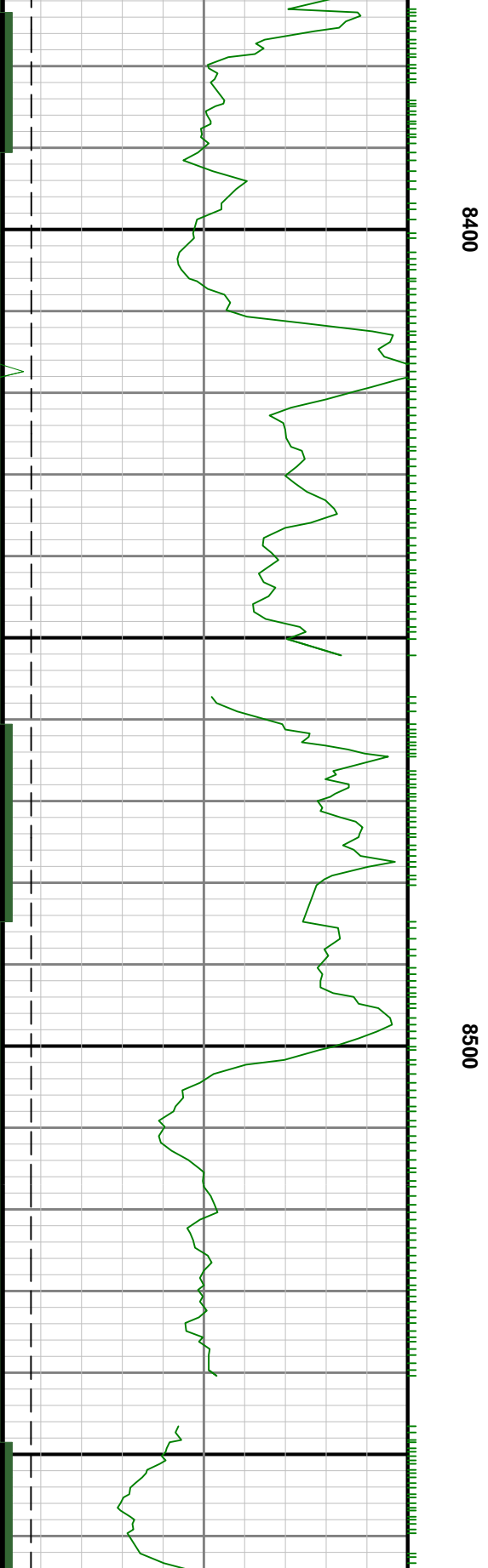
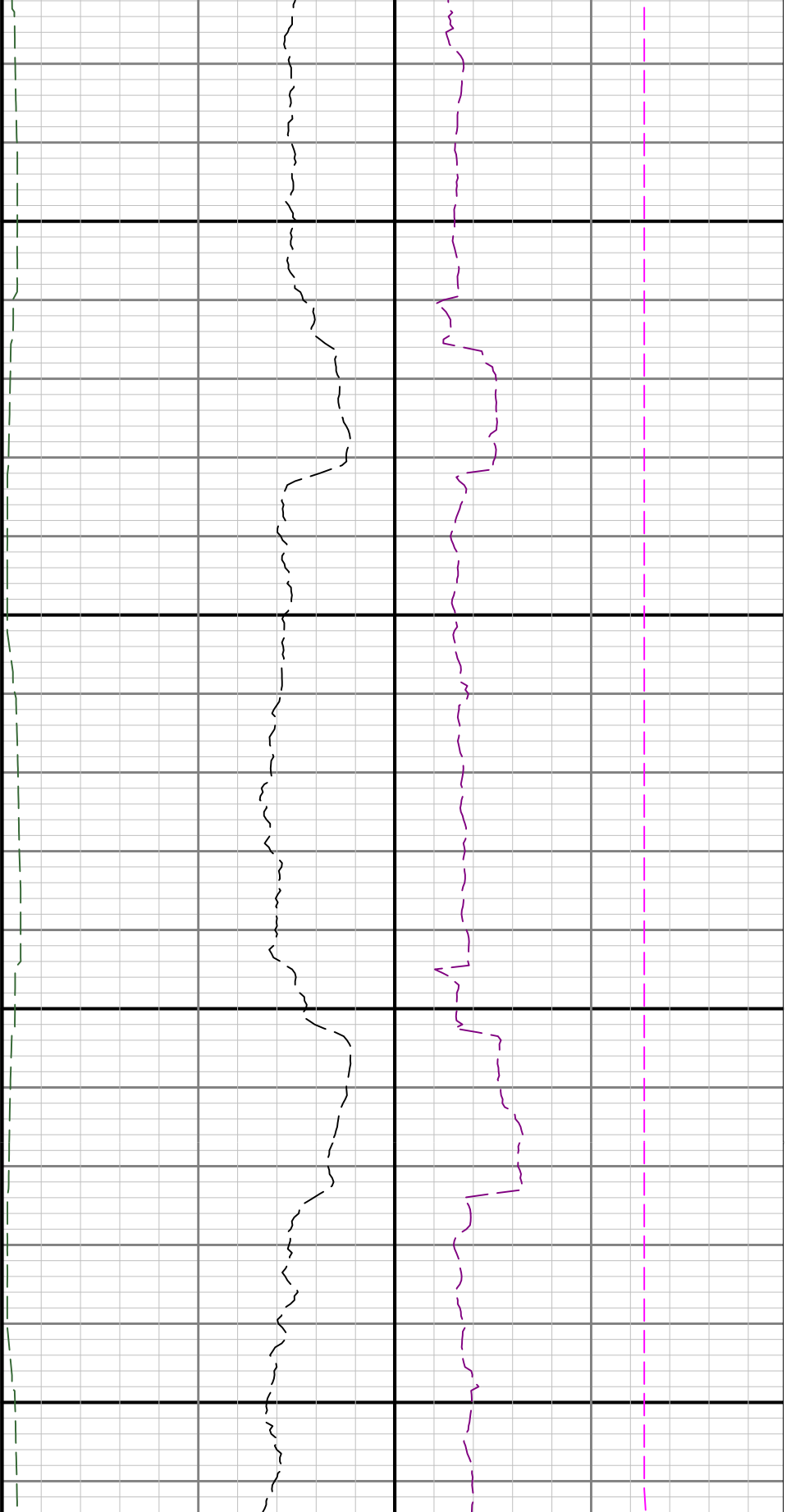


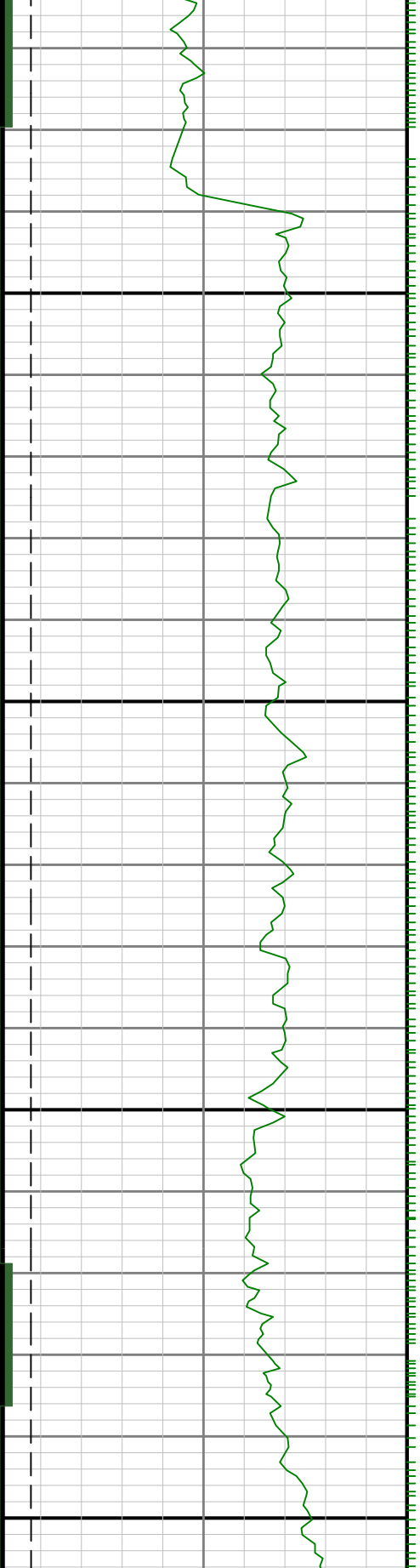


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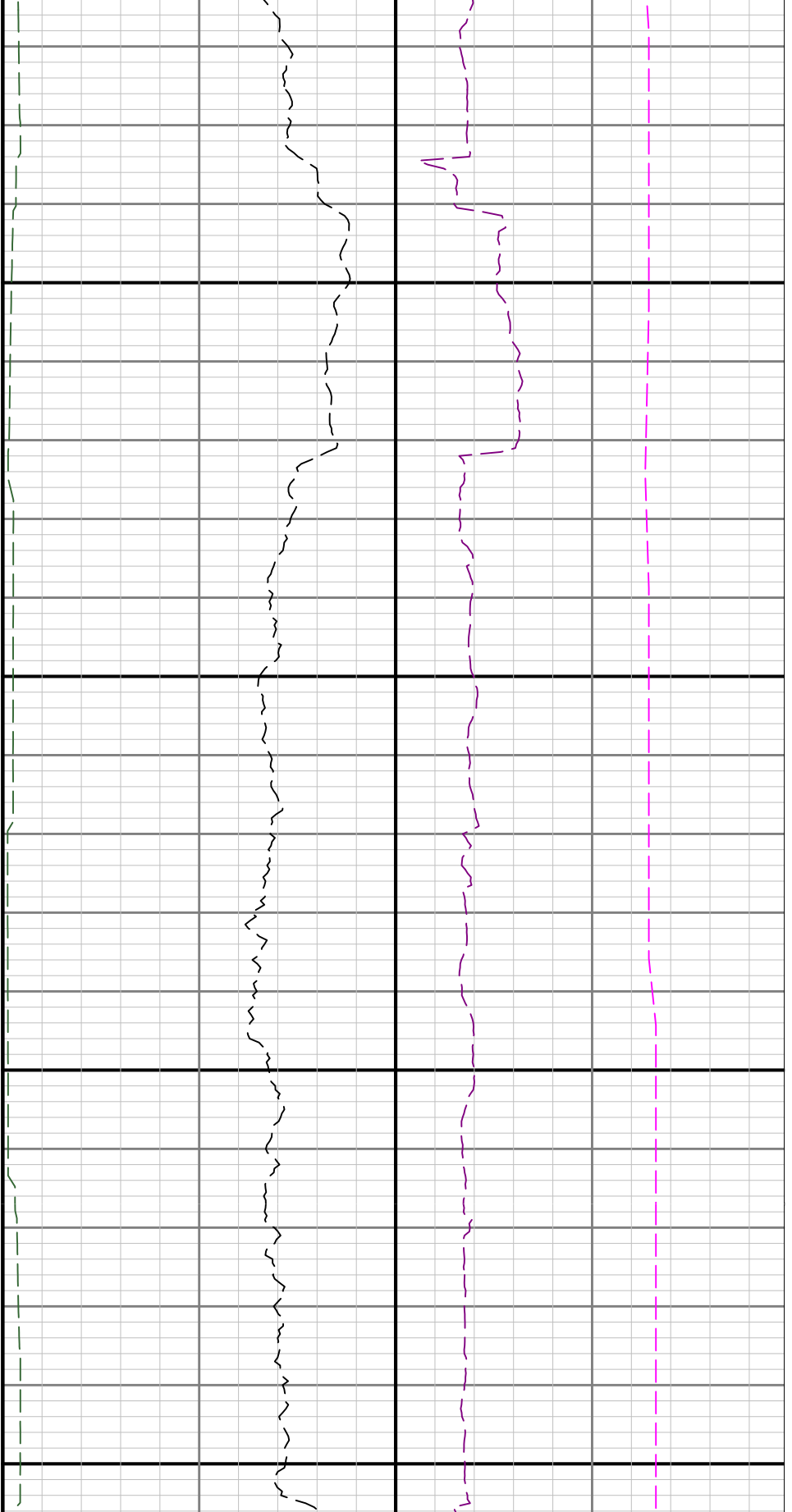


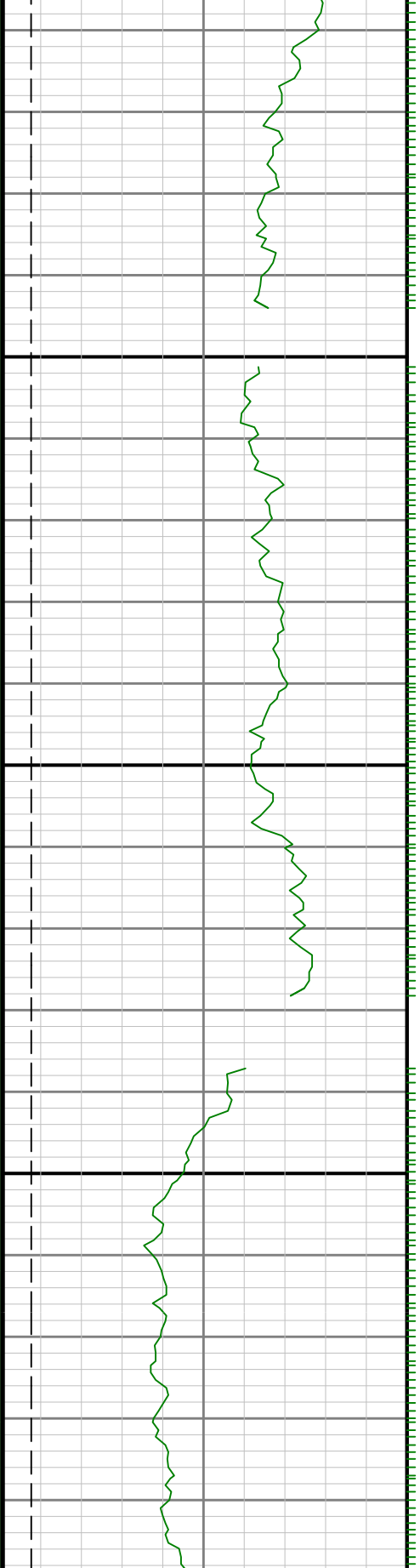




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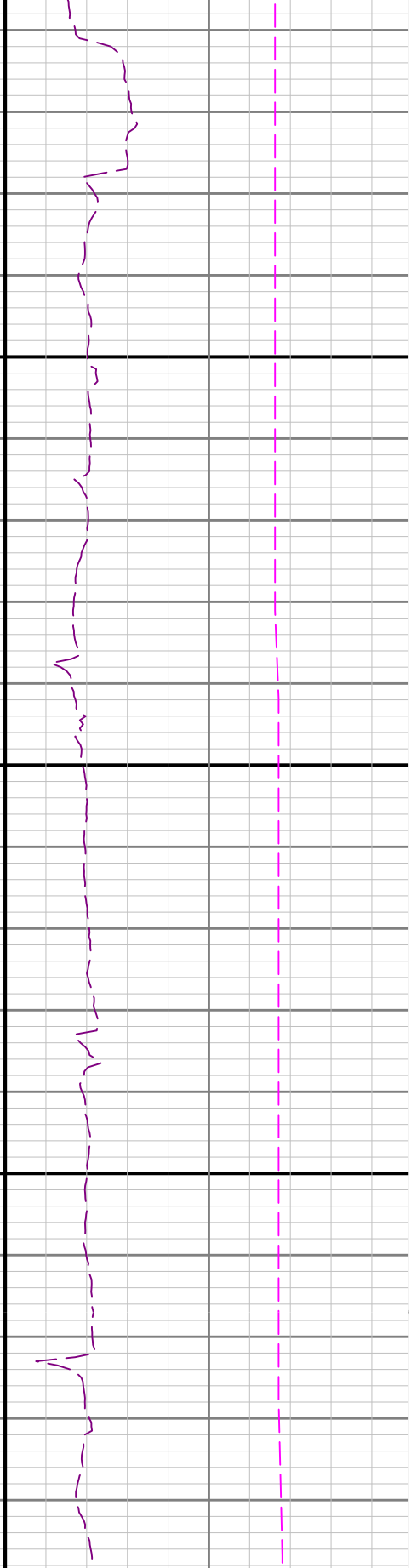
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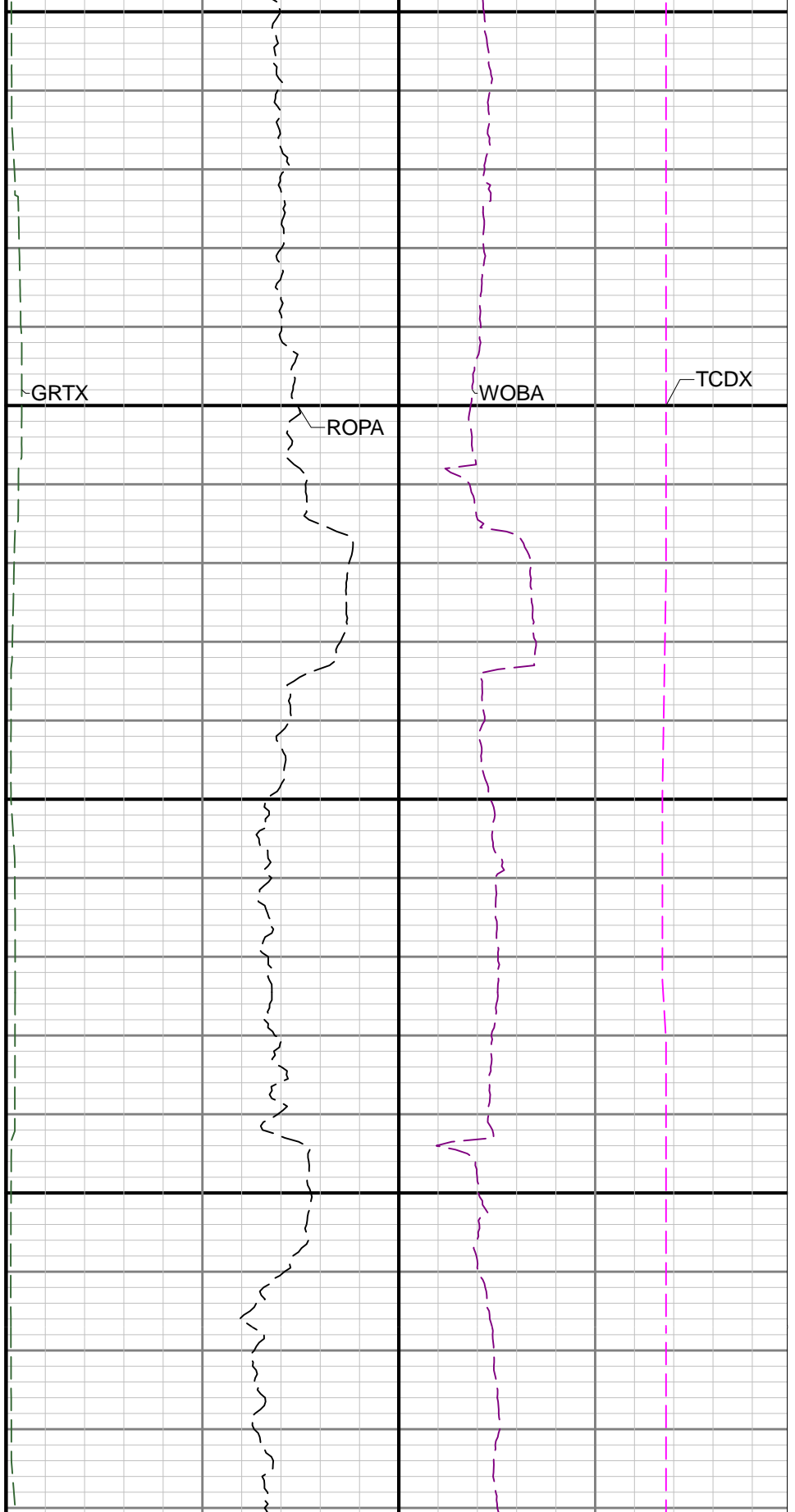
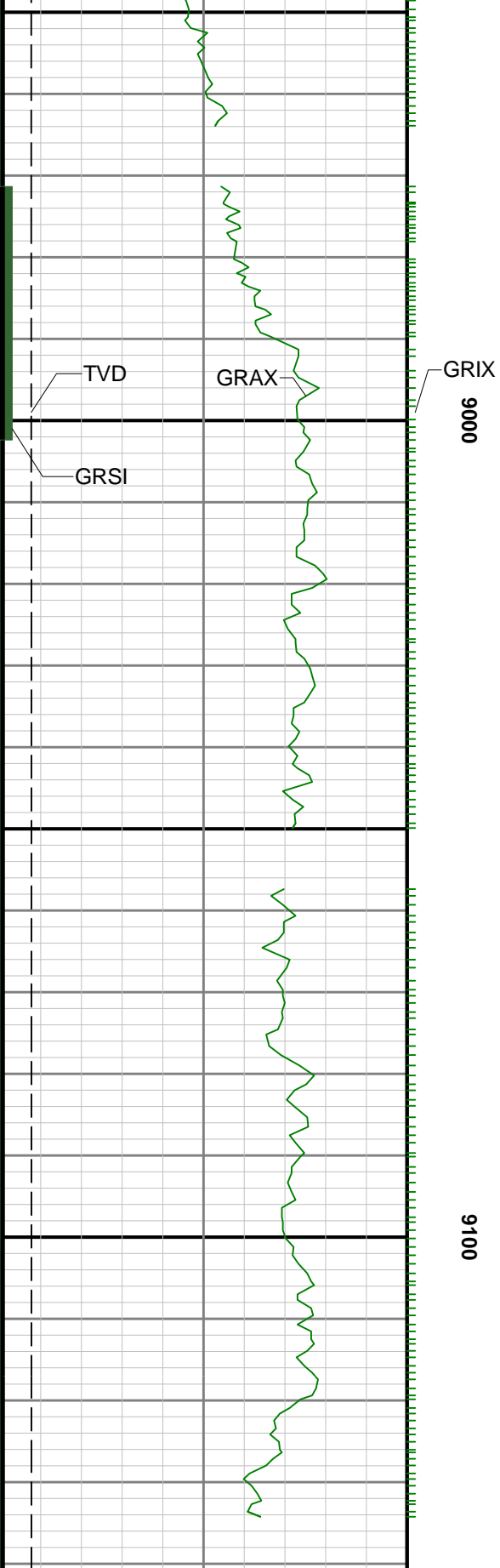


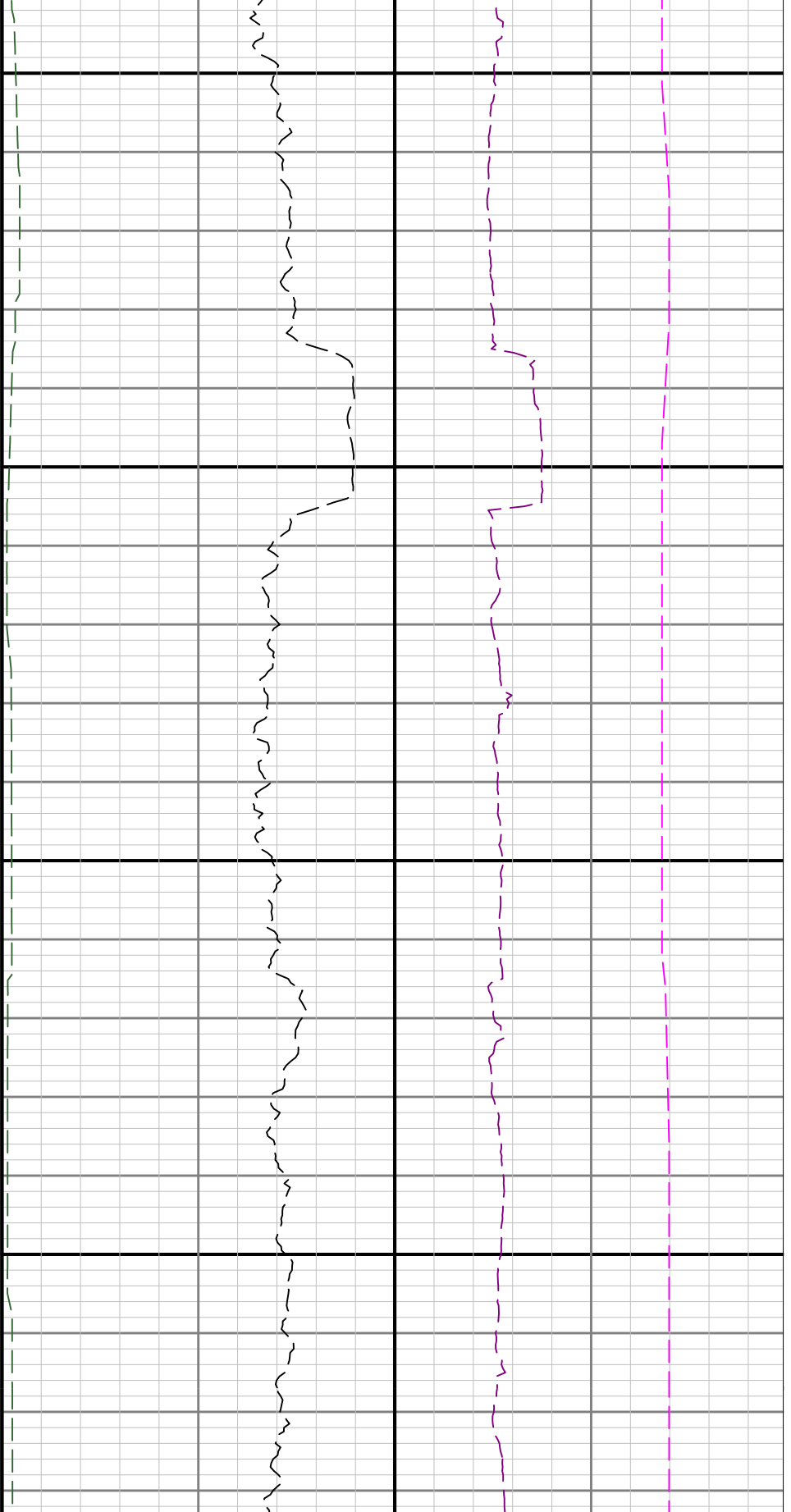


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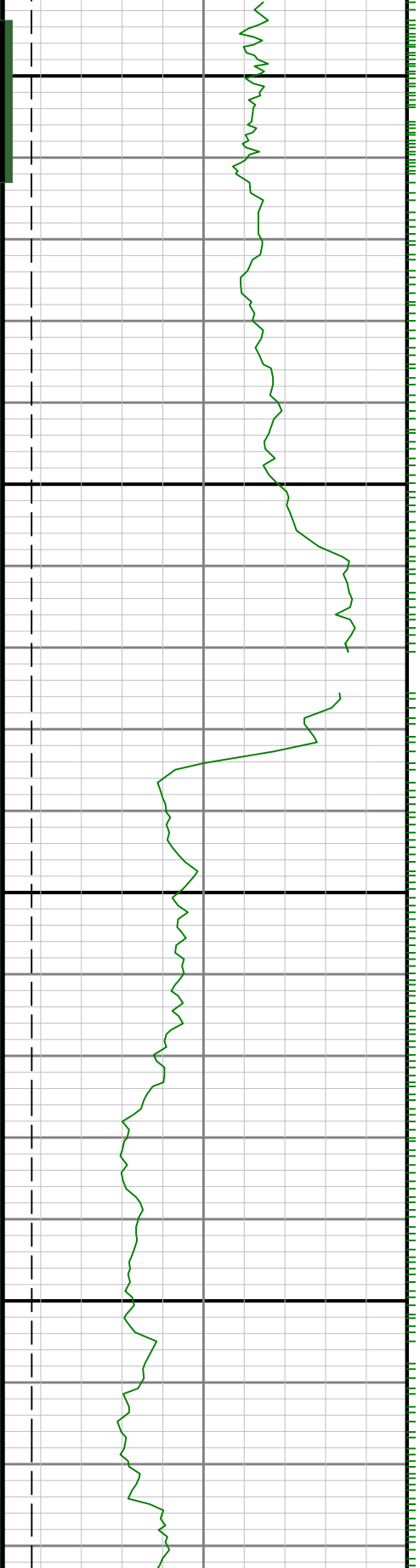


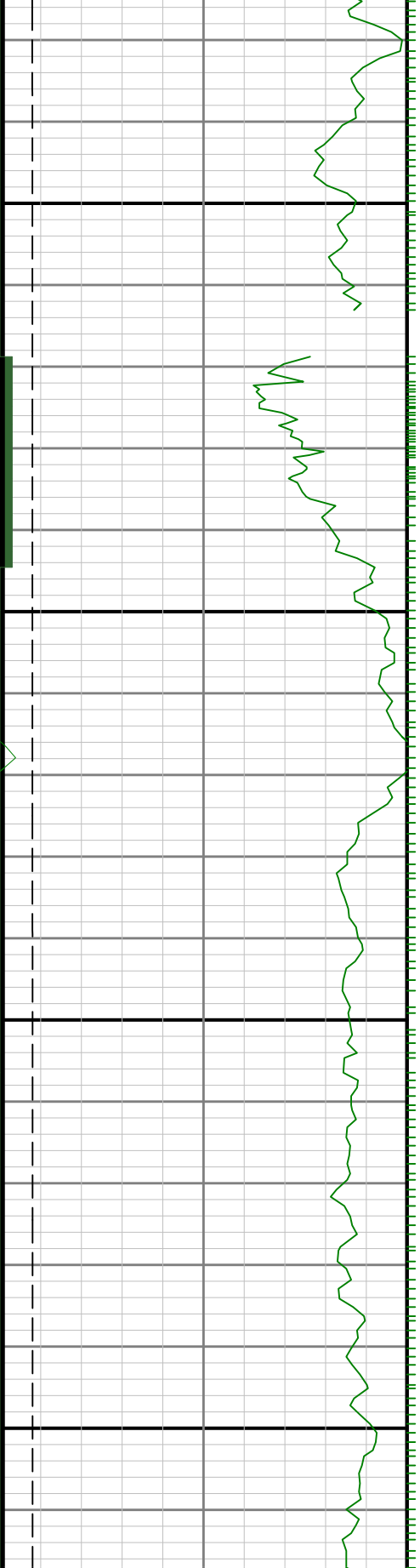




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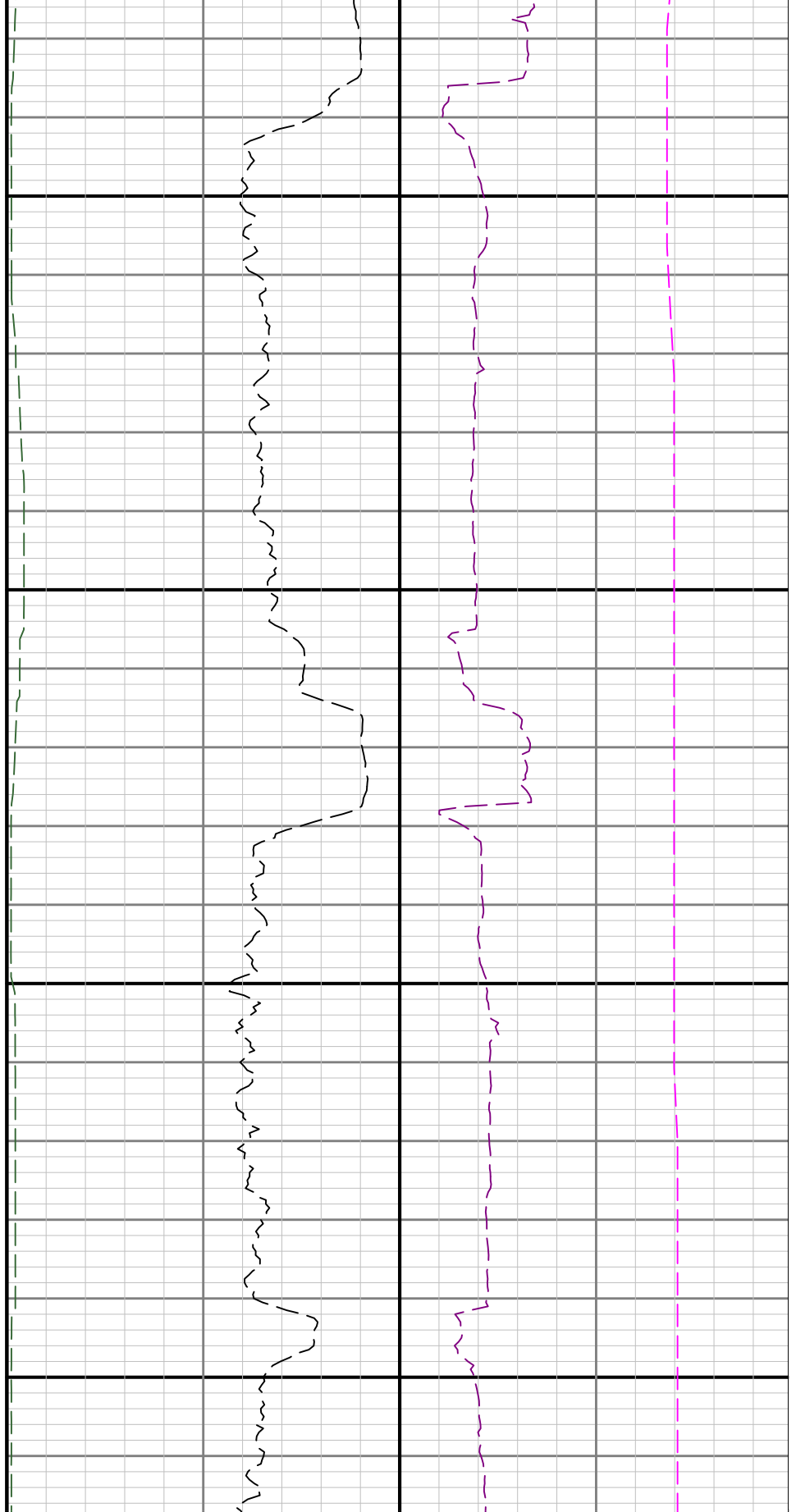
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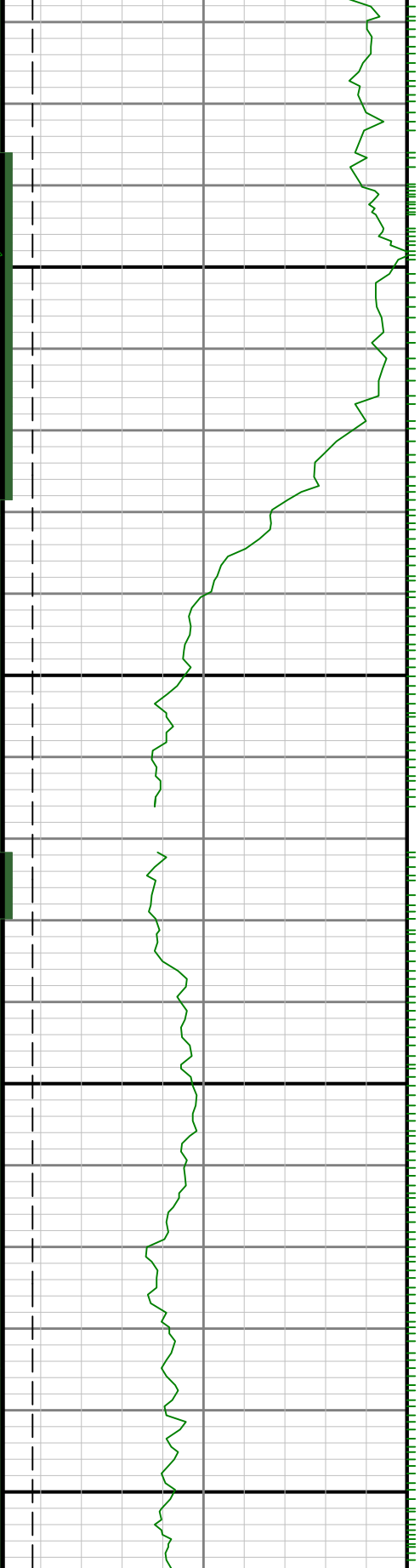




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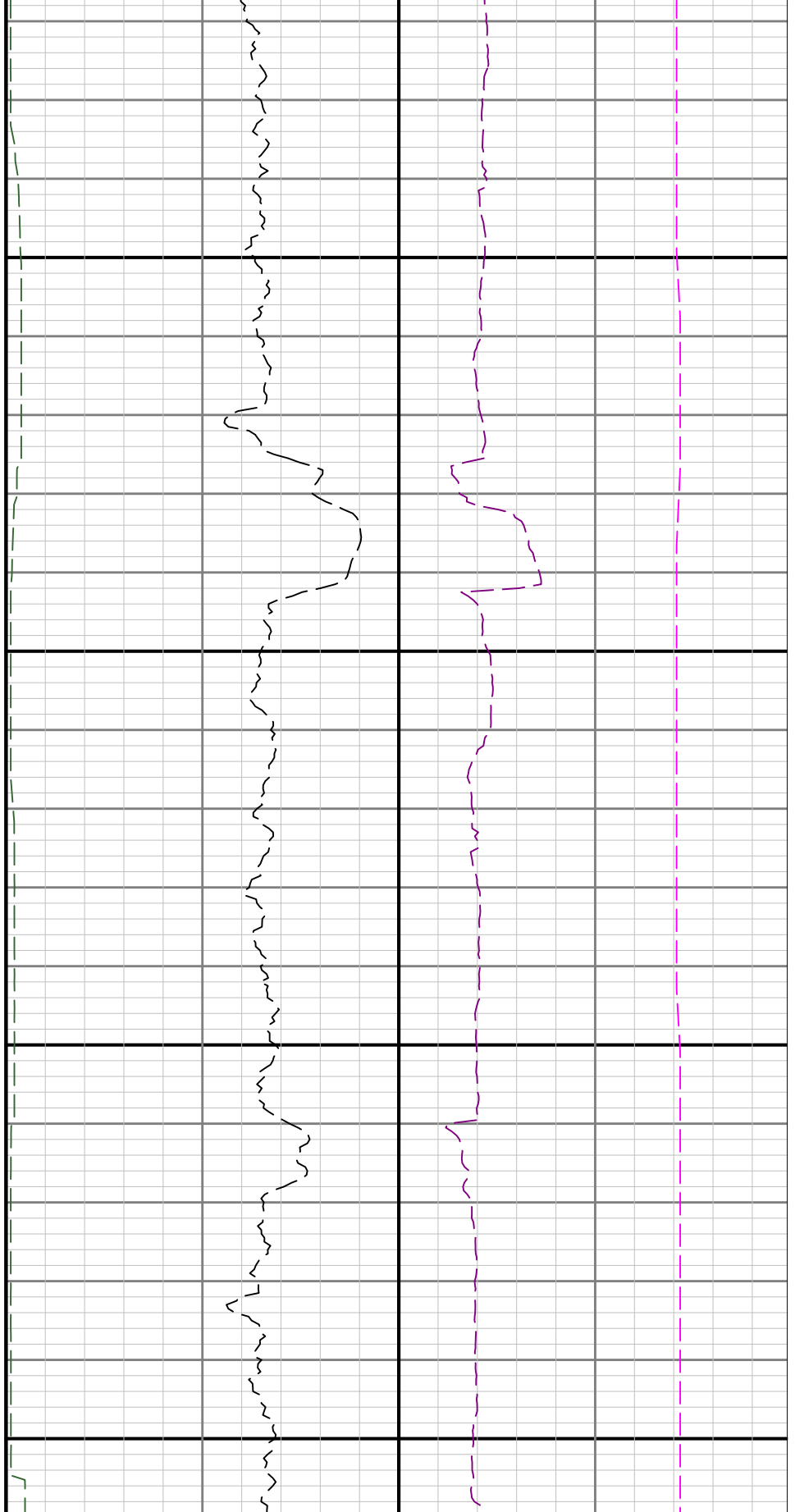
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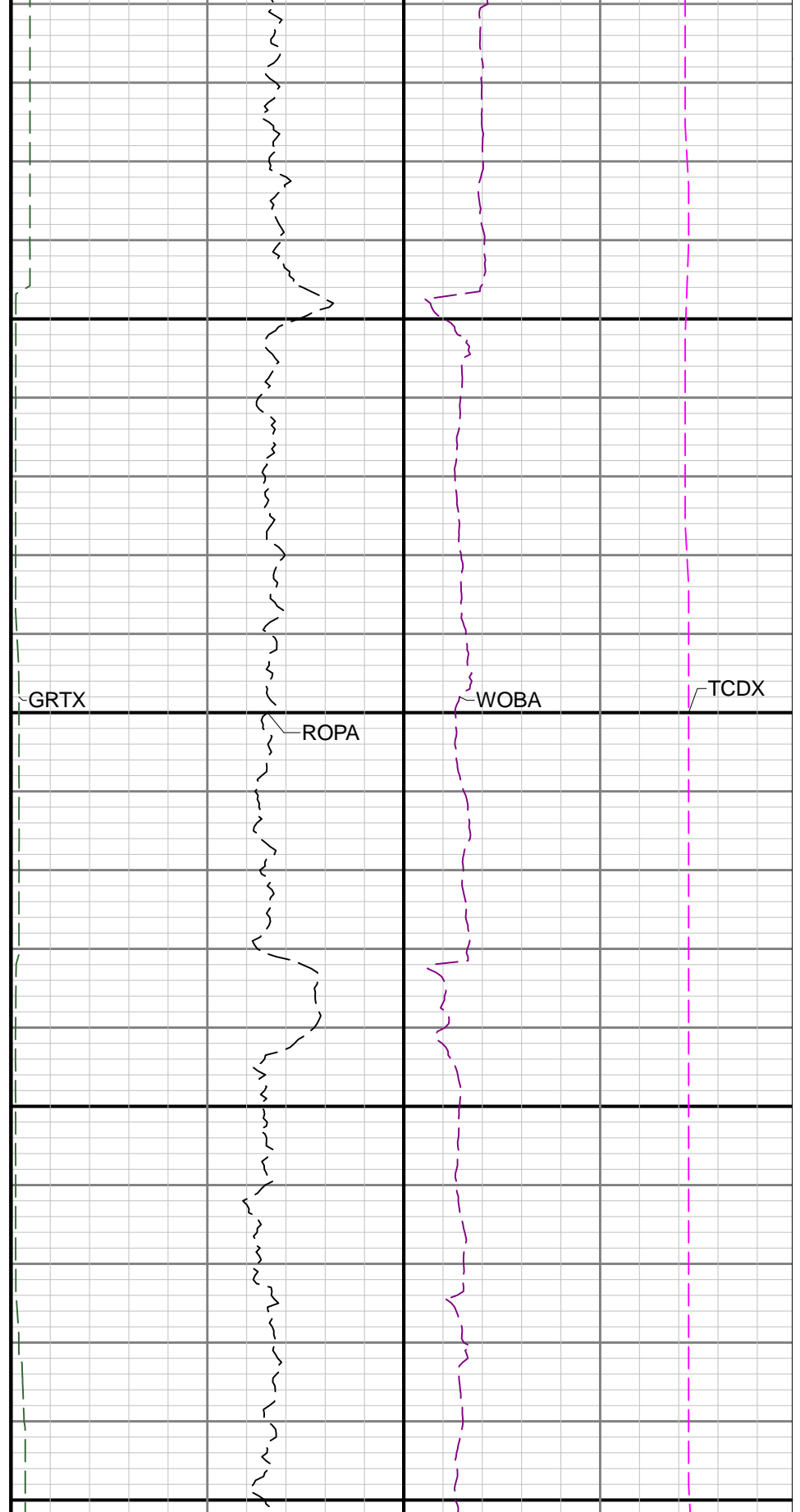
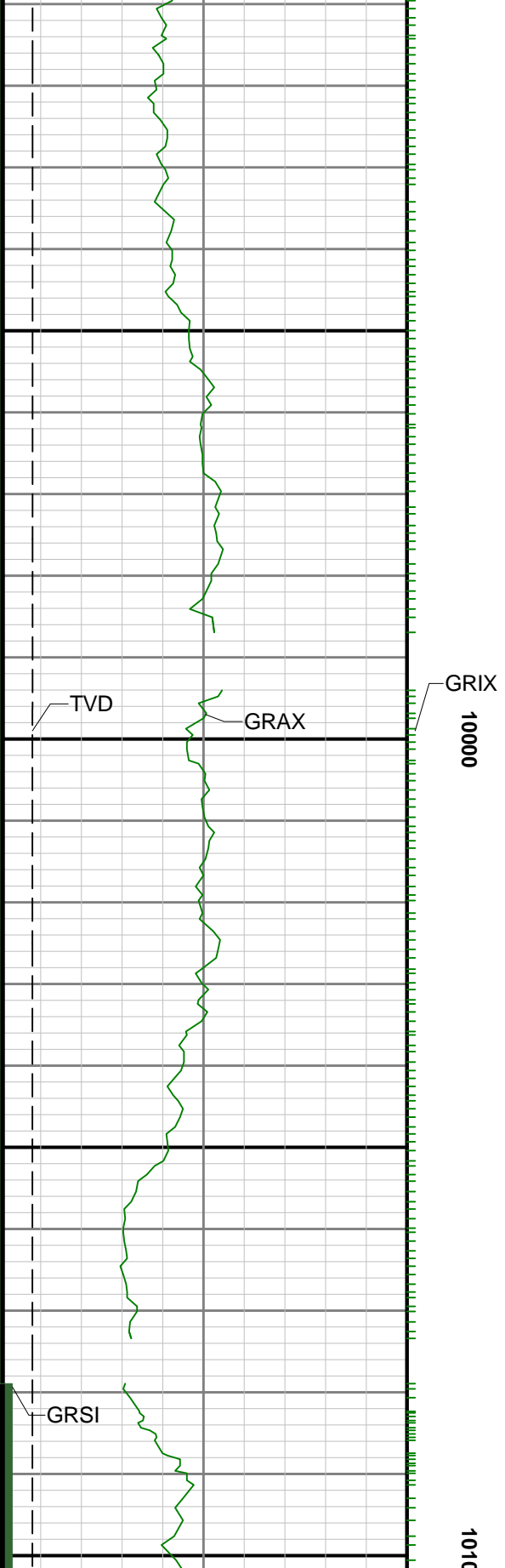


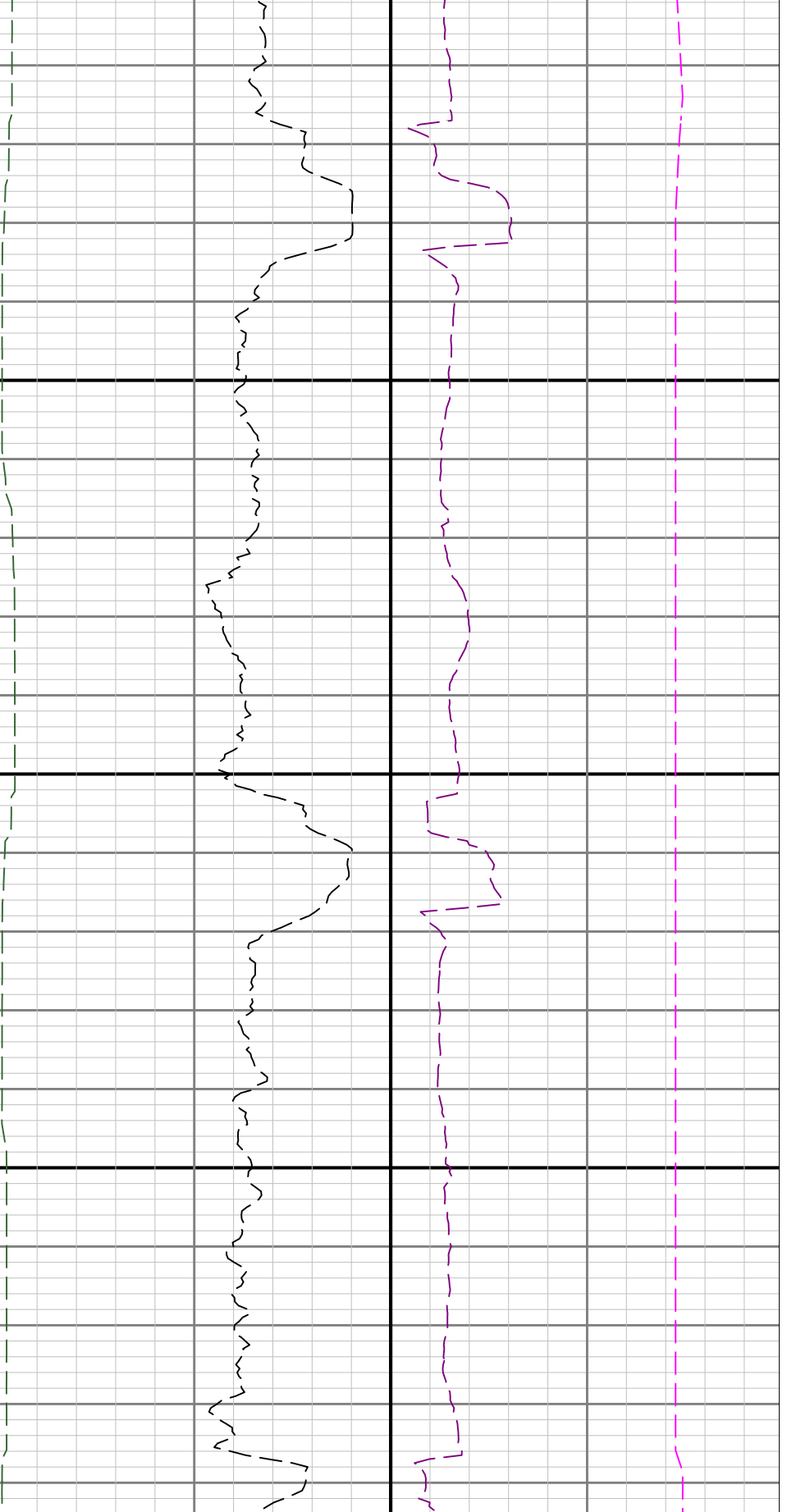


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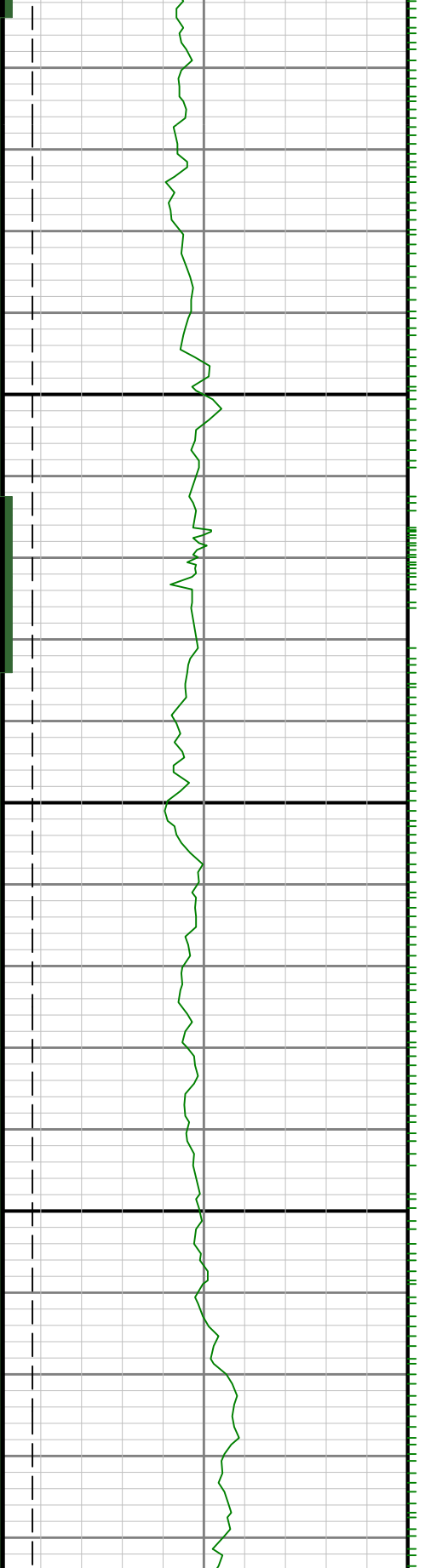
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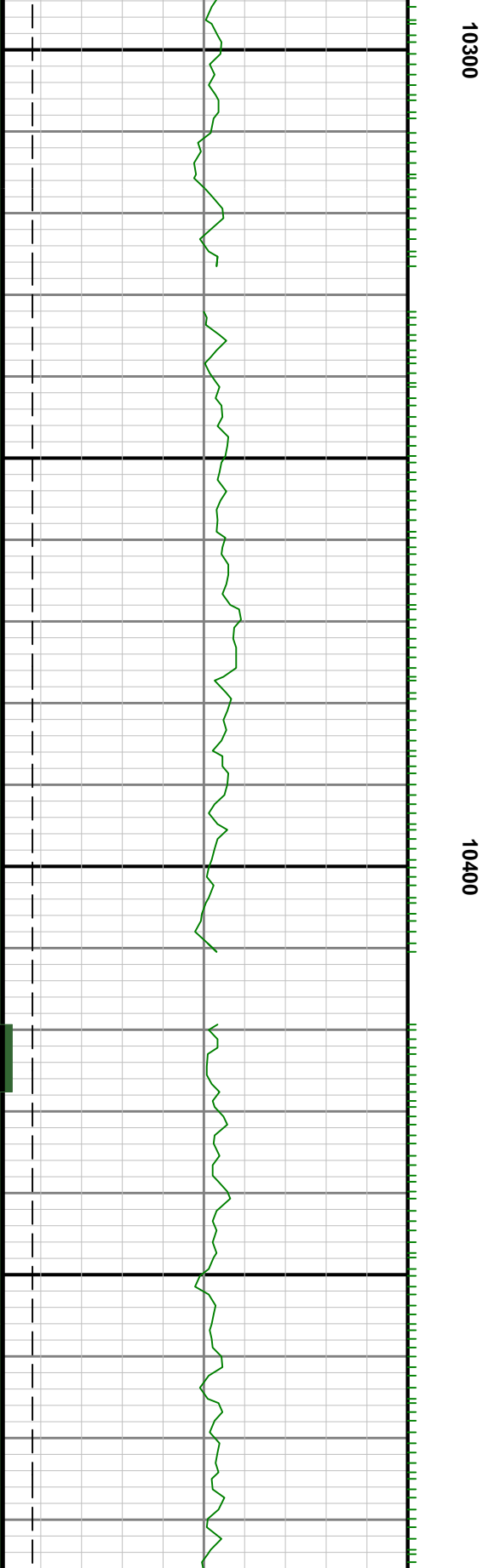
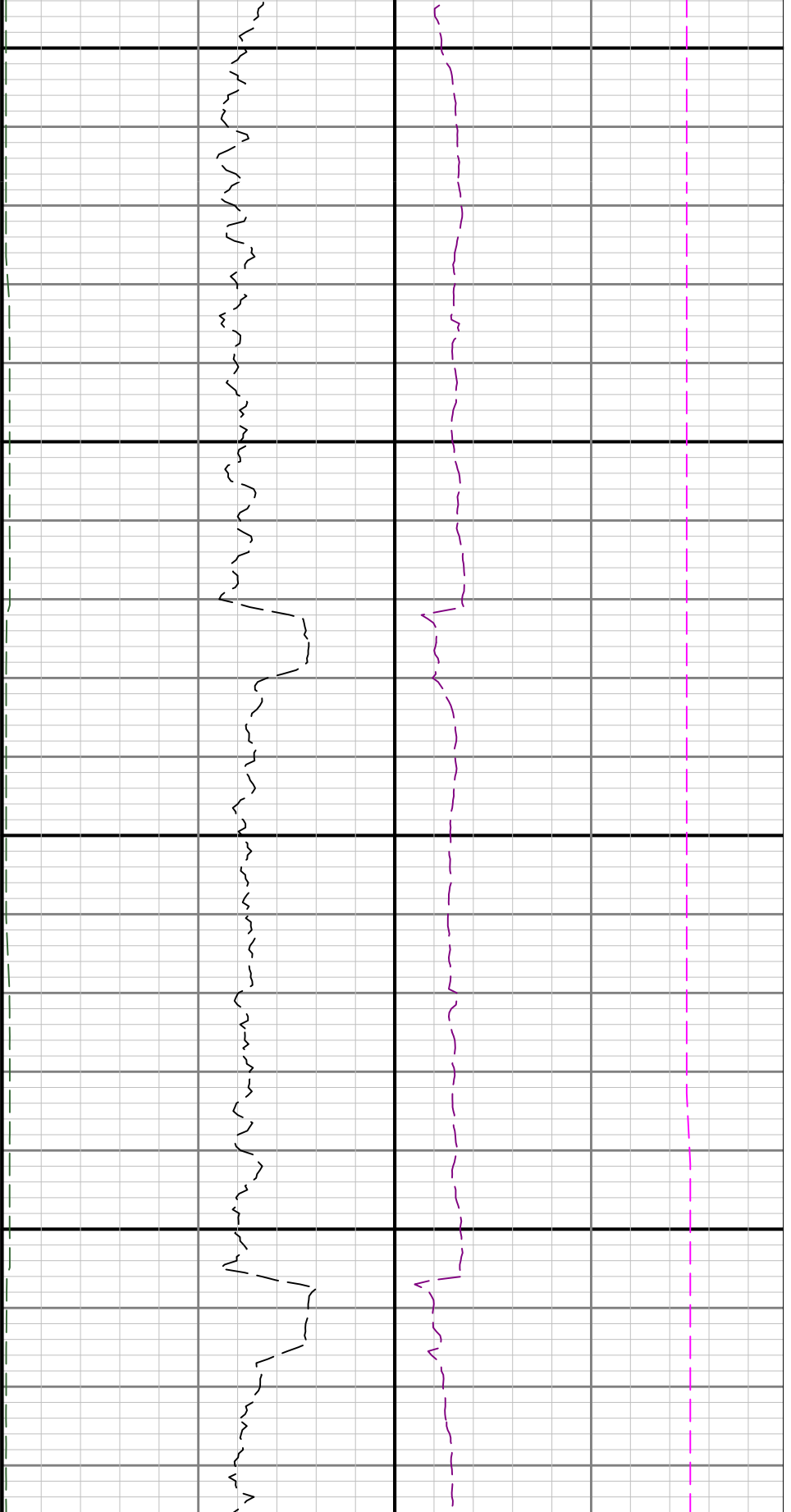


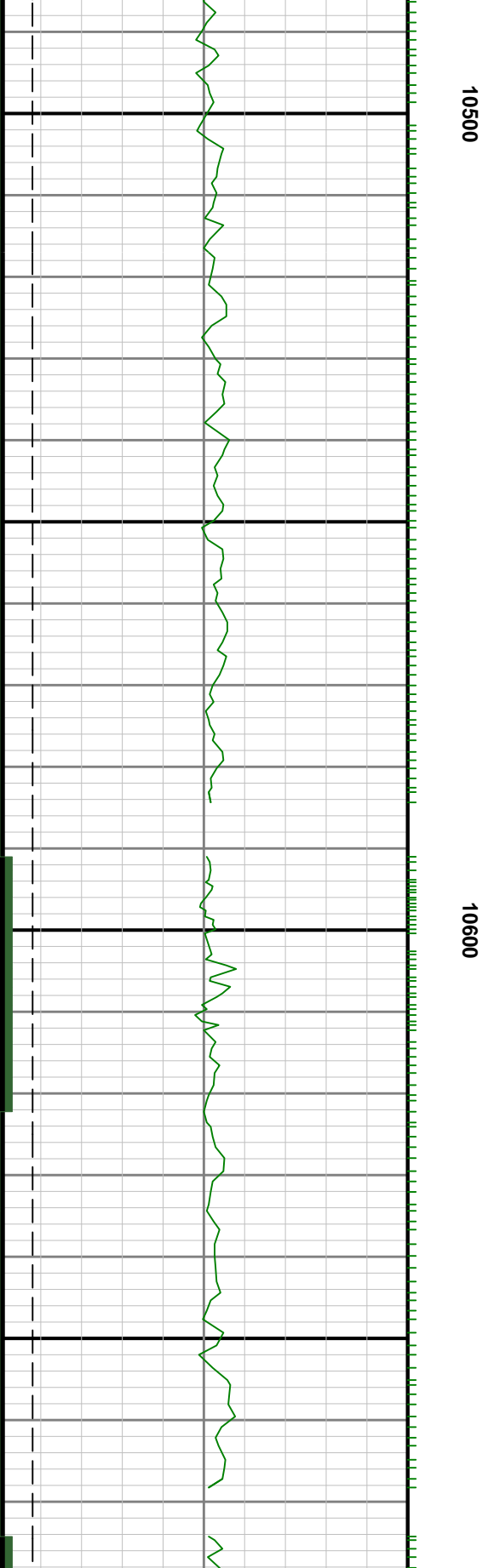
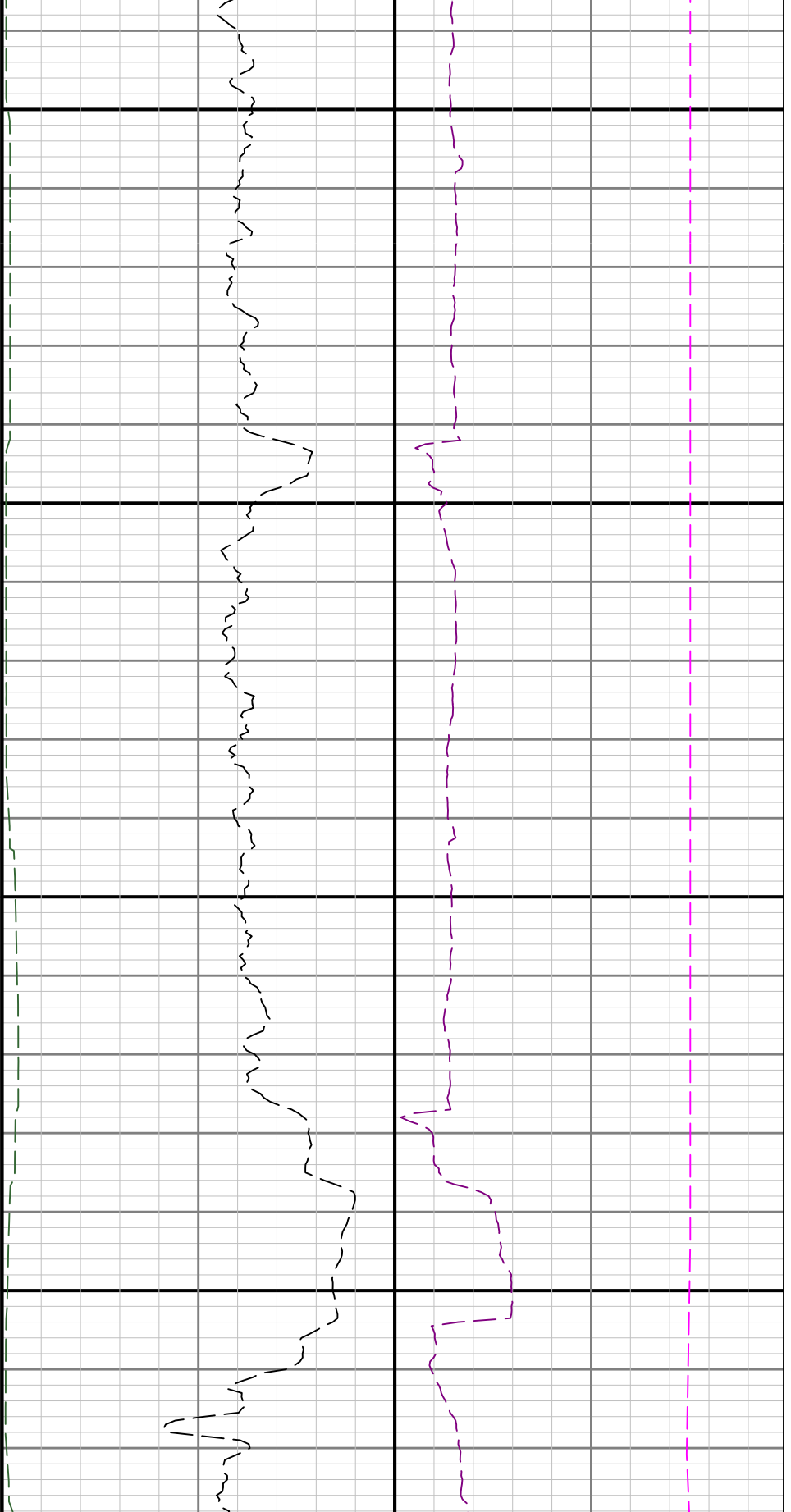


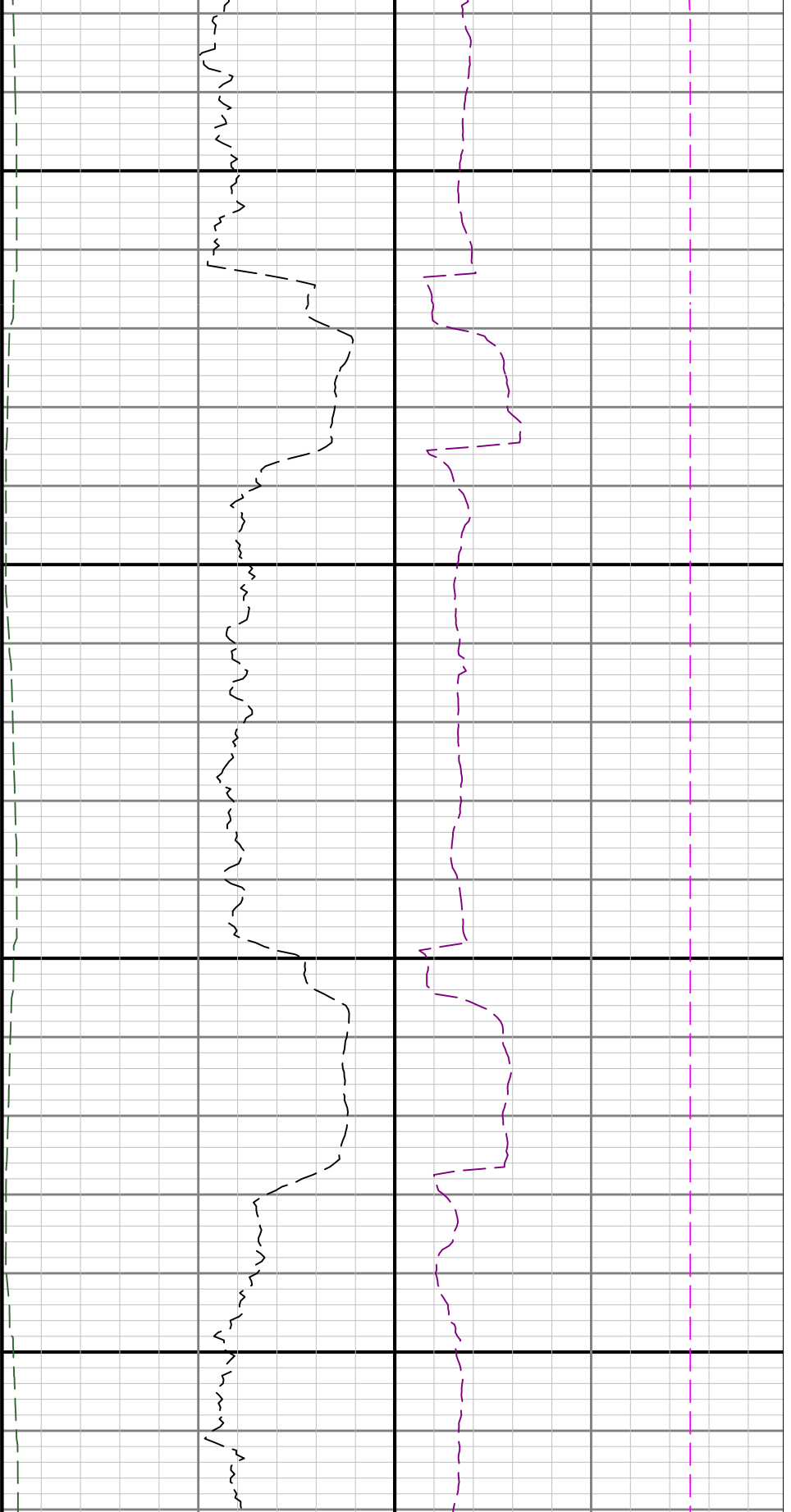


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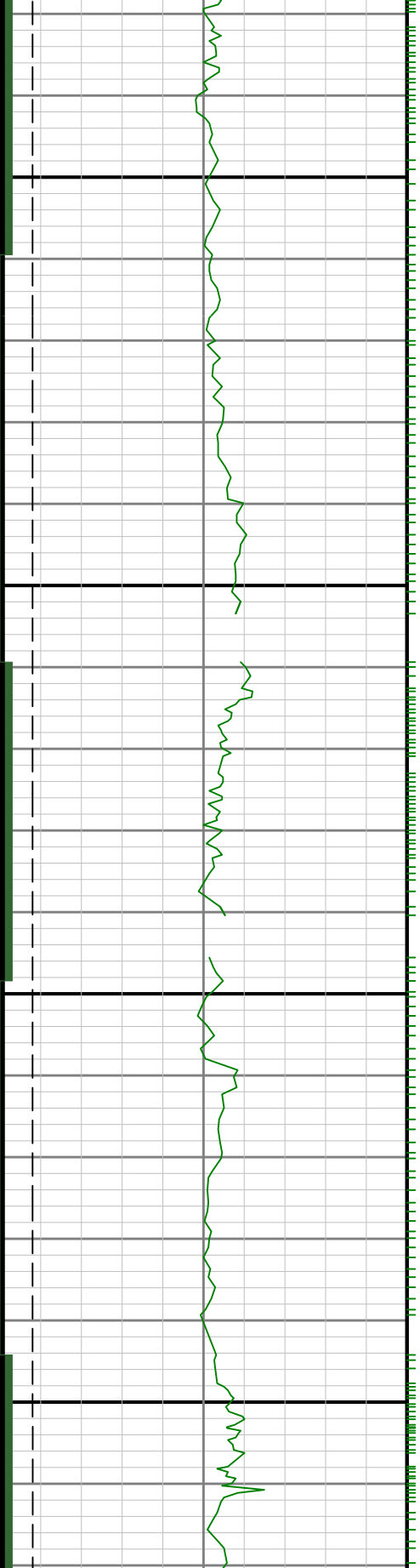


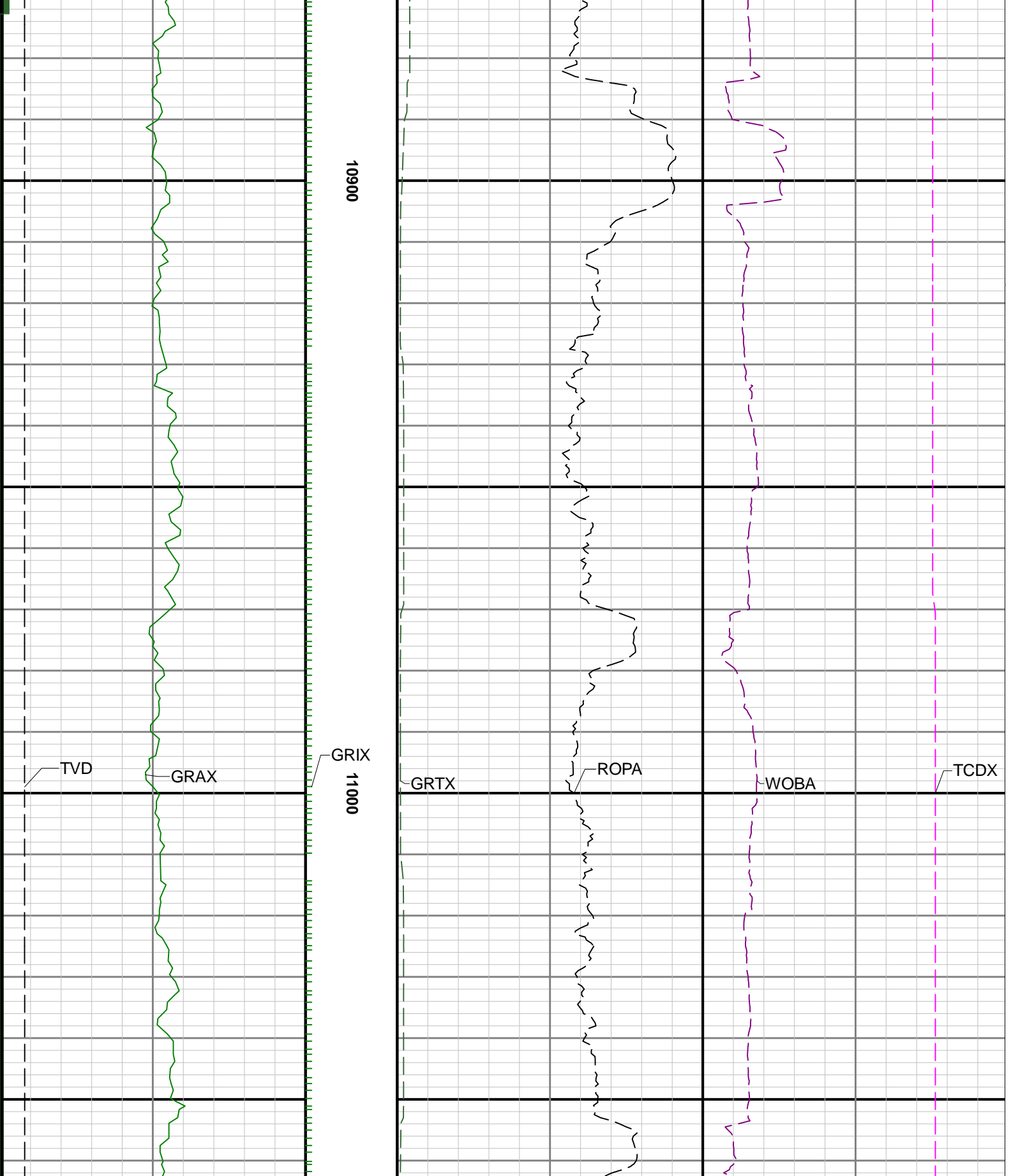


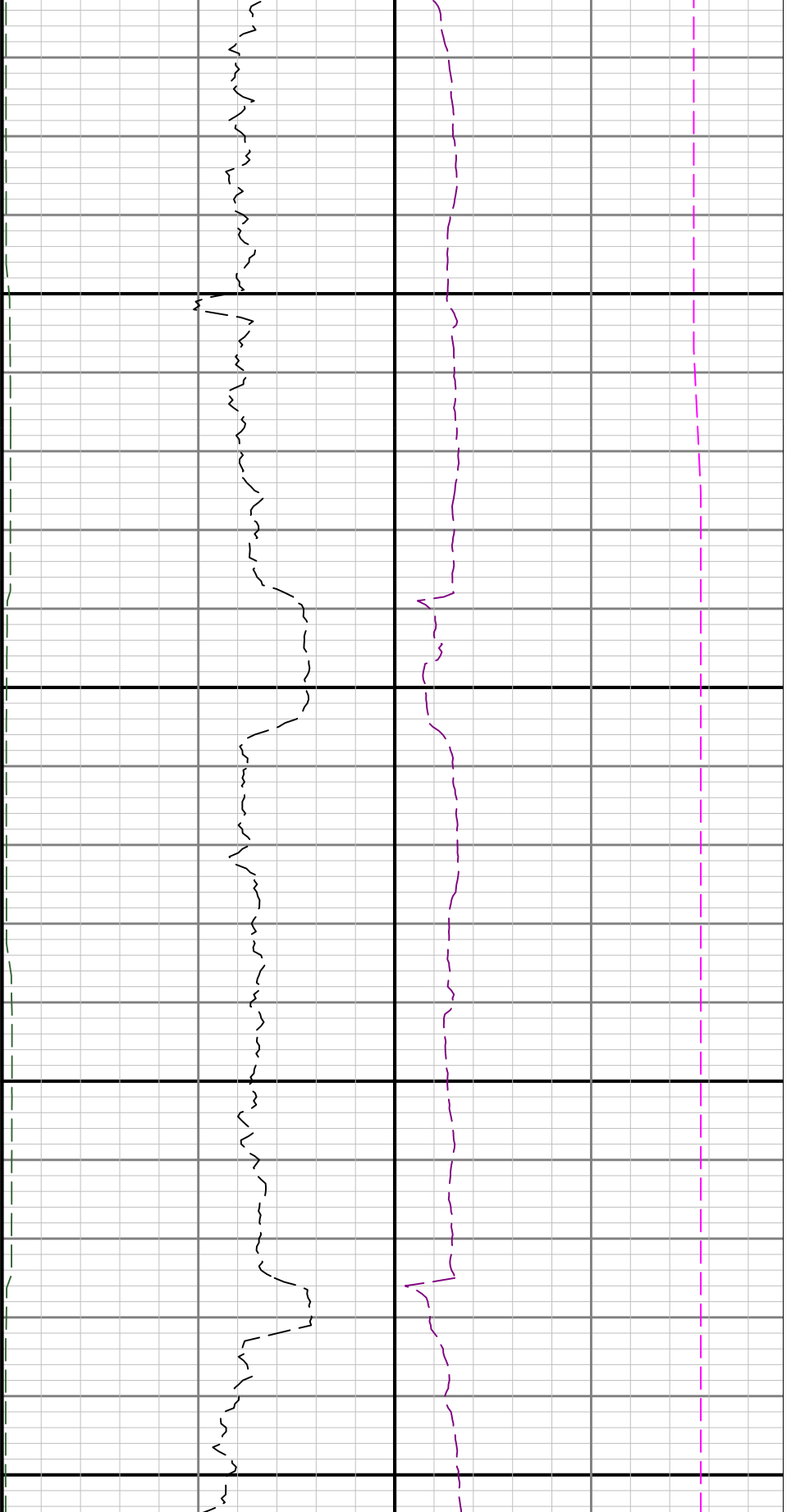


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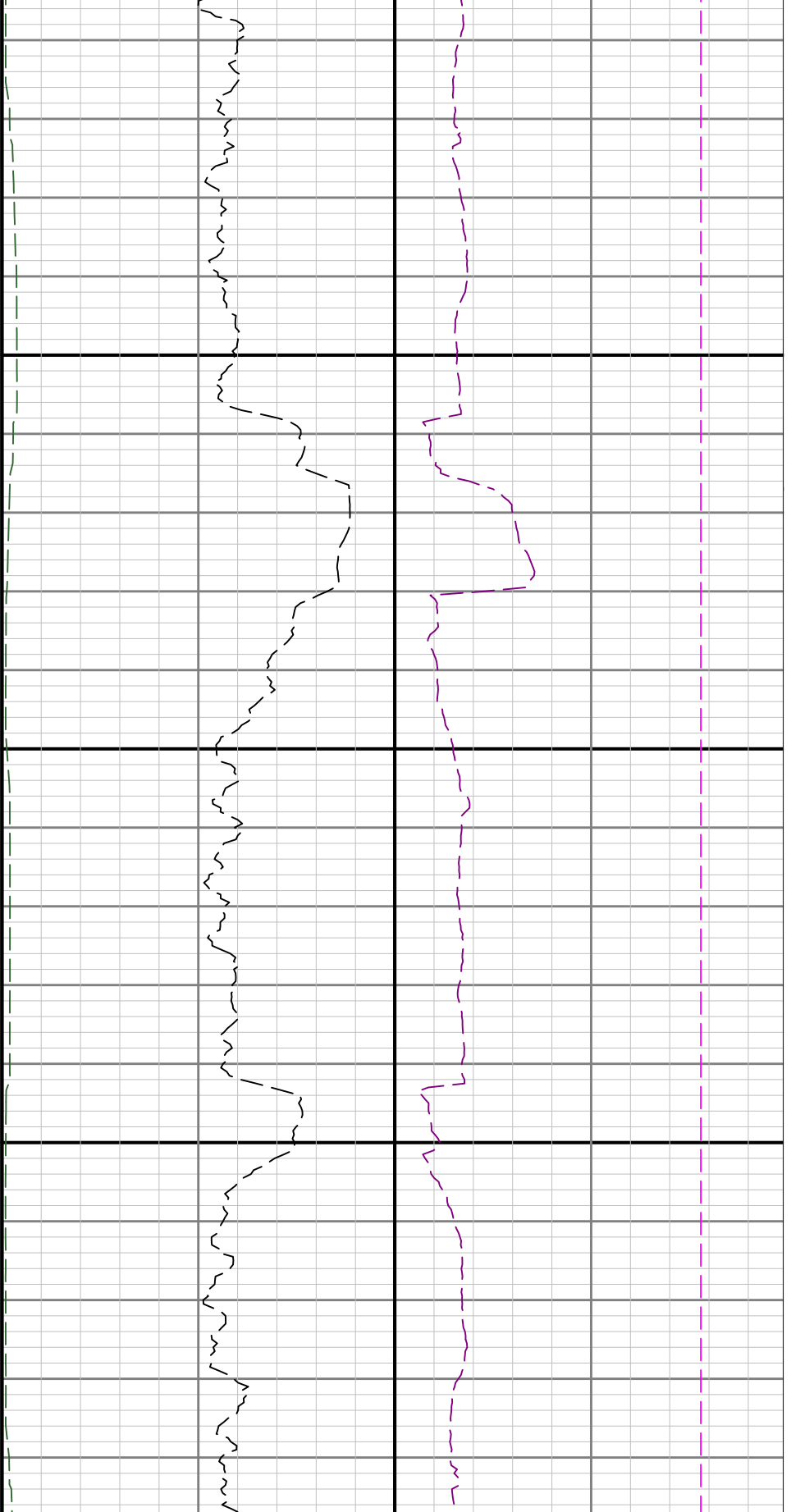




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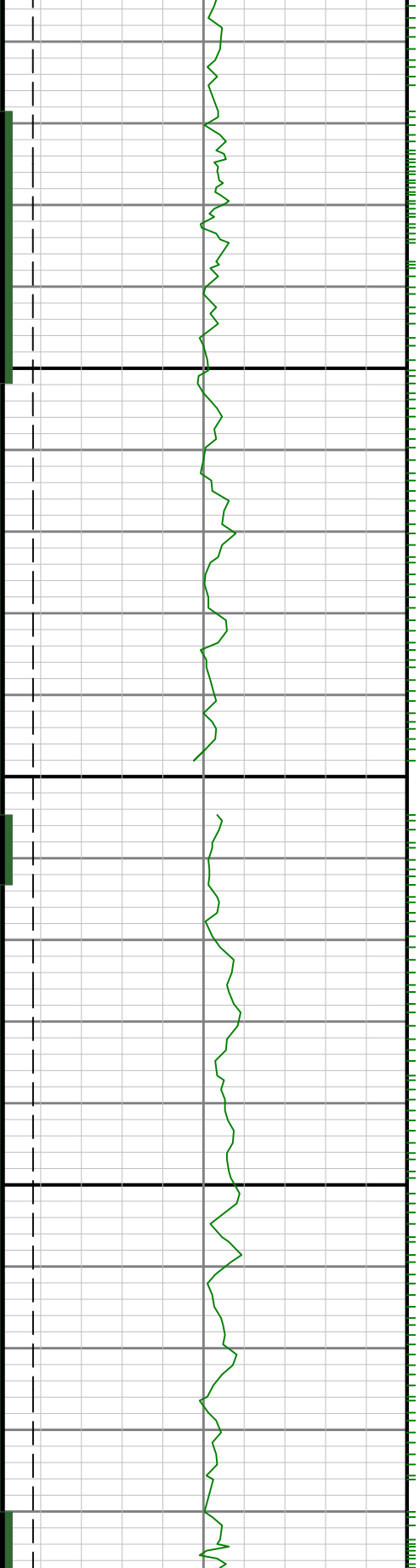
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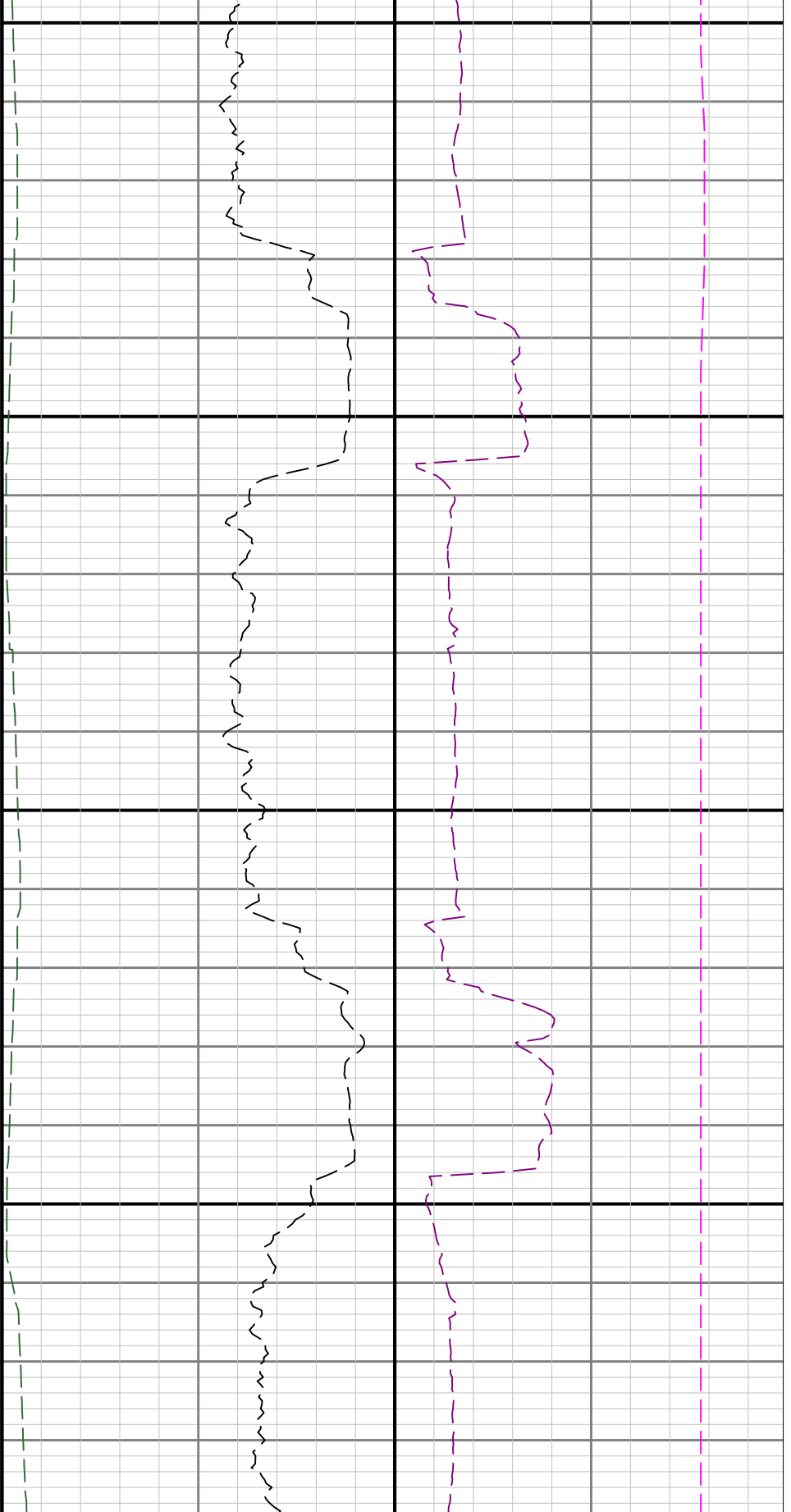
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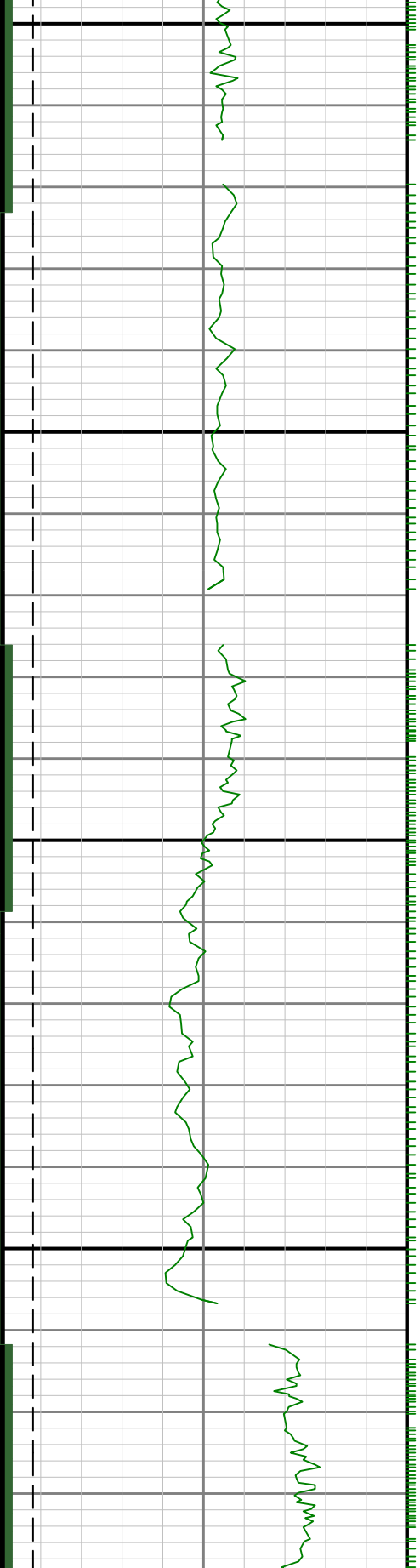
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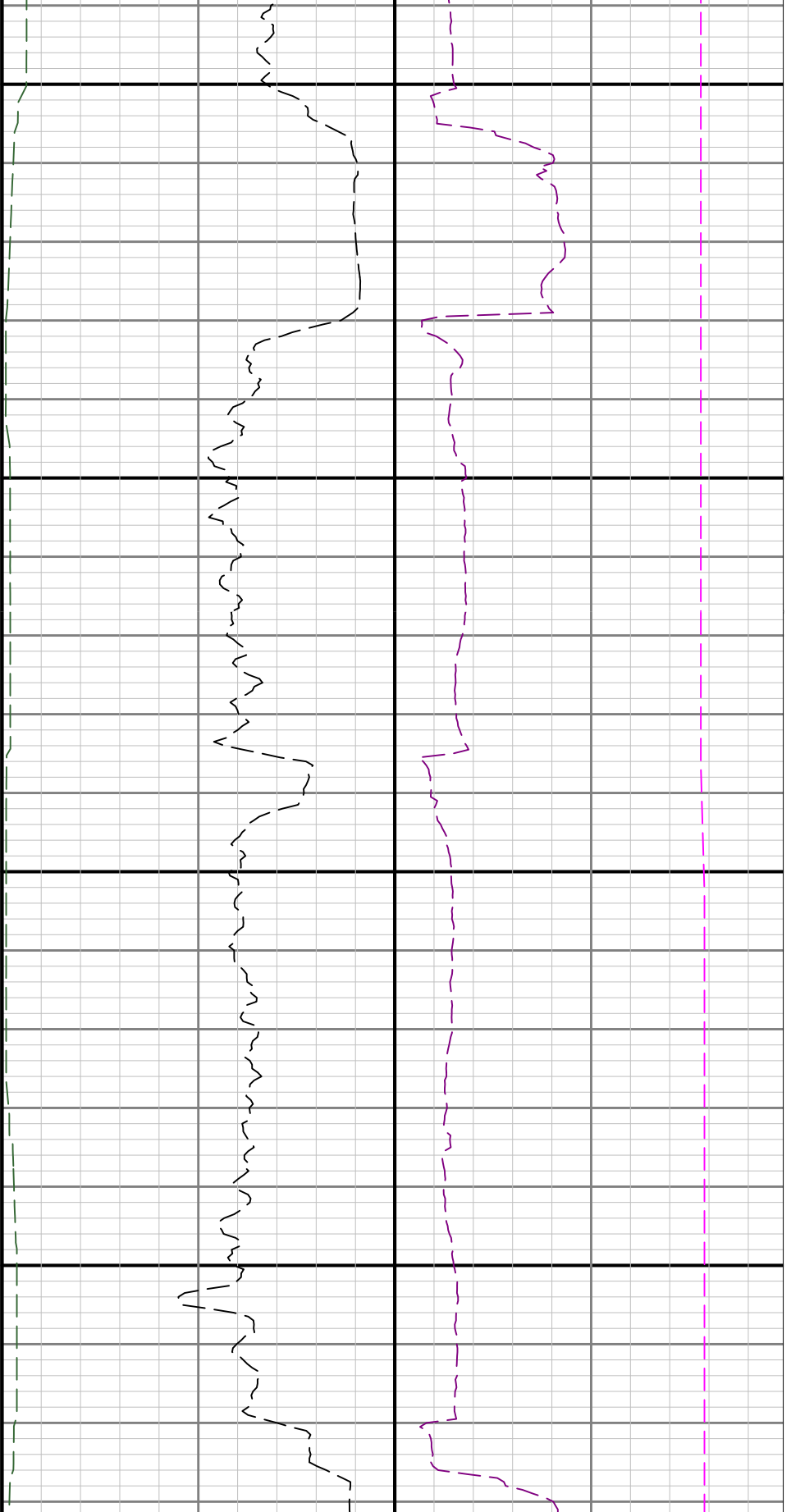




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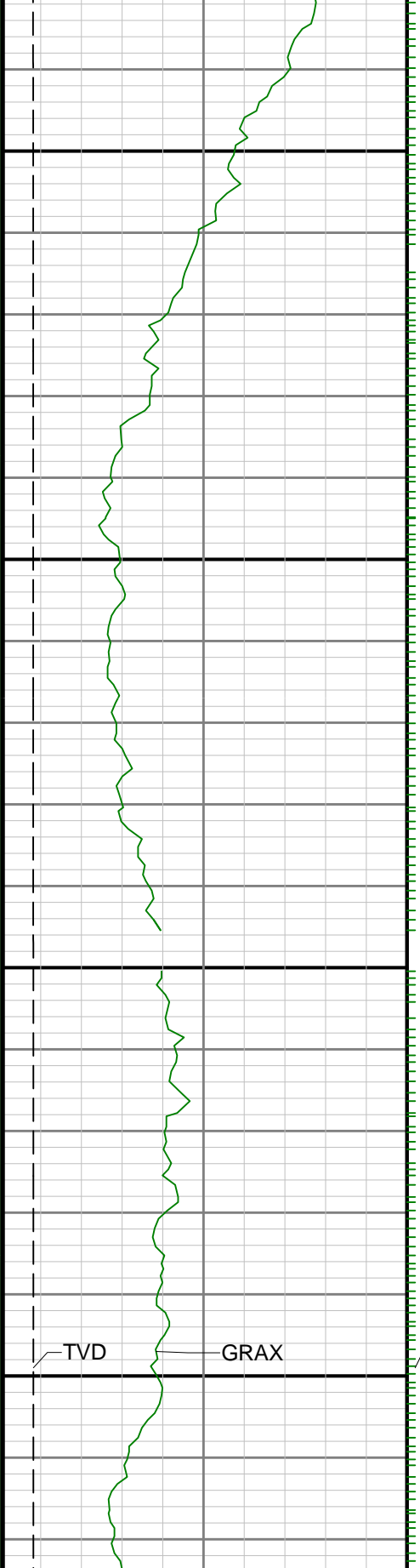
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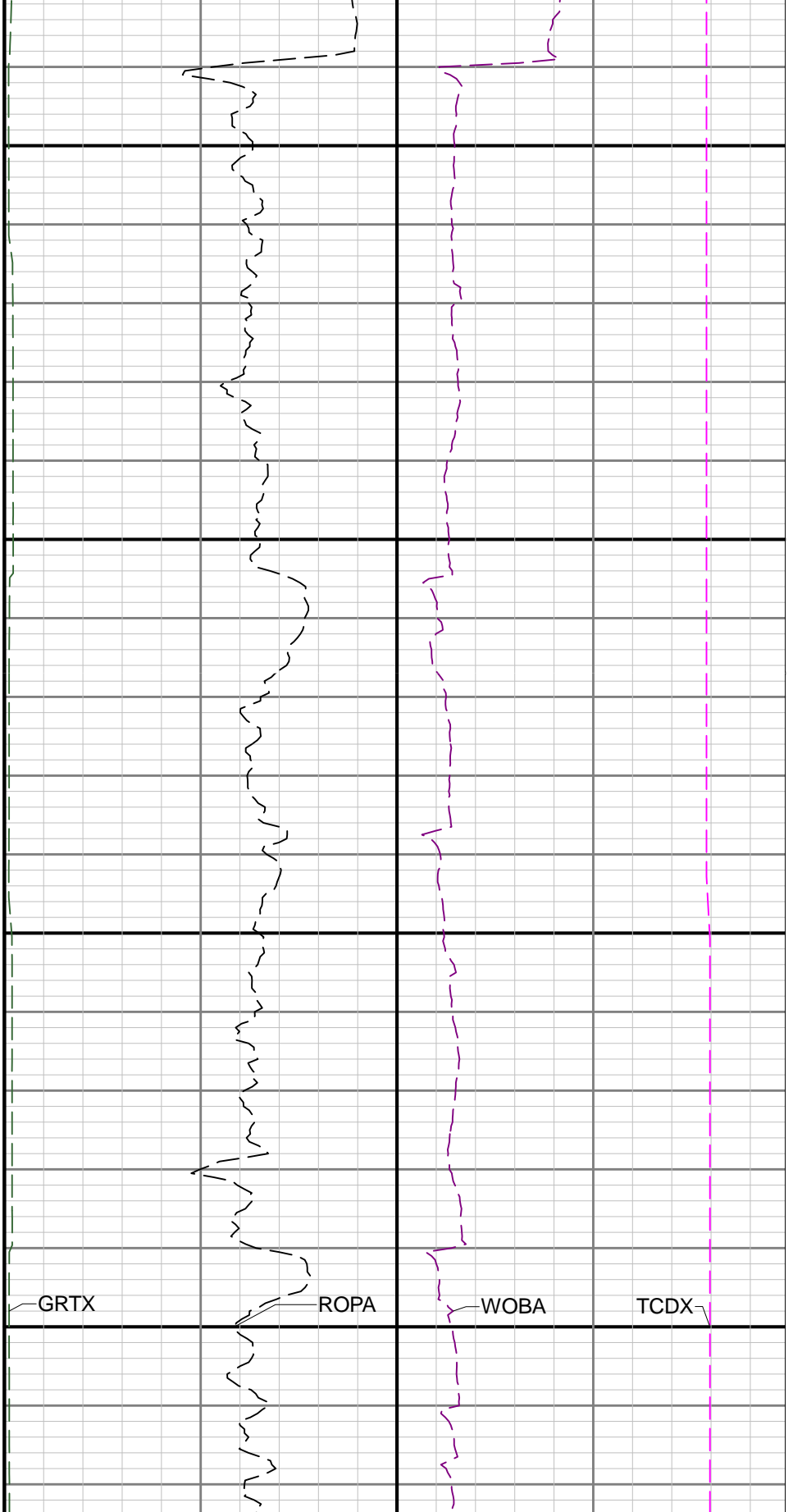
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11900

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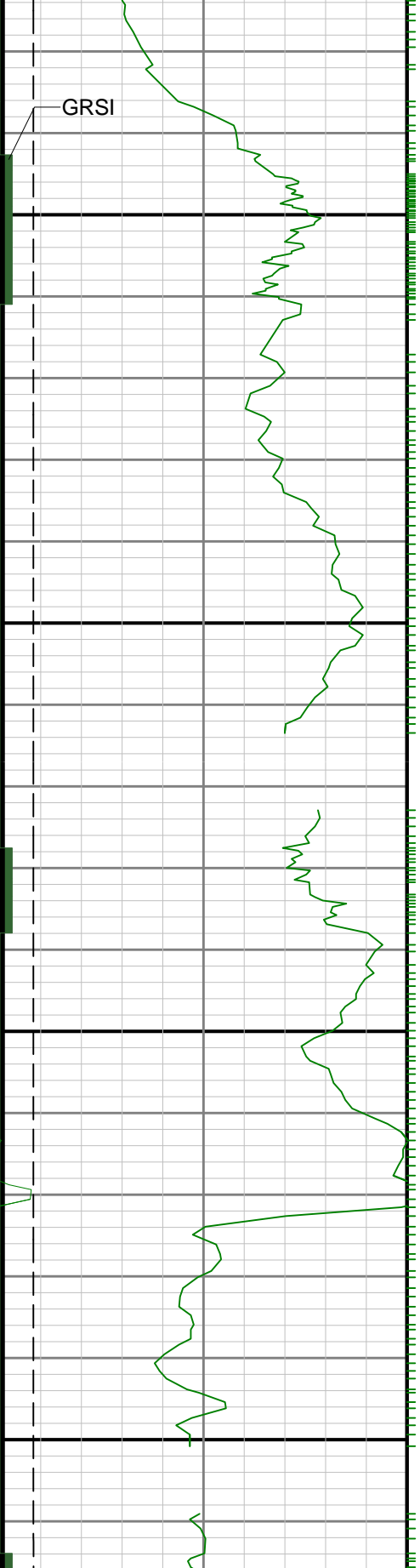


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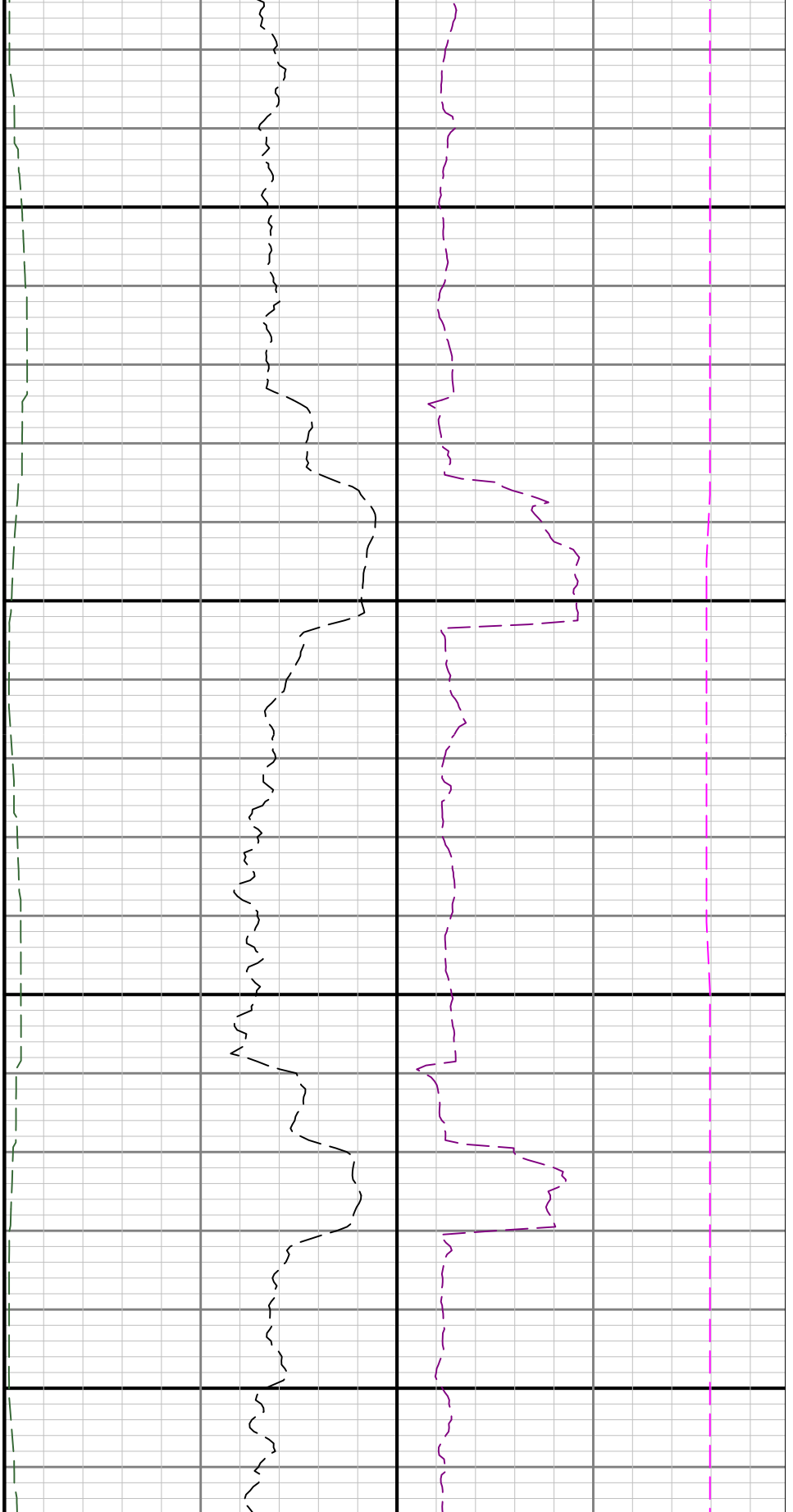
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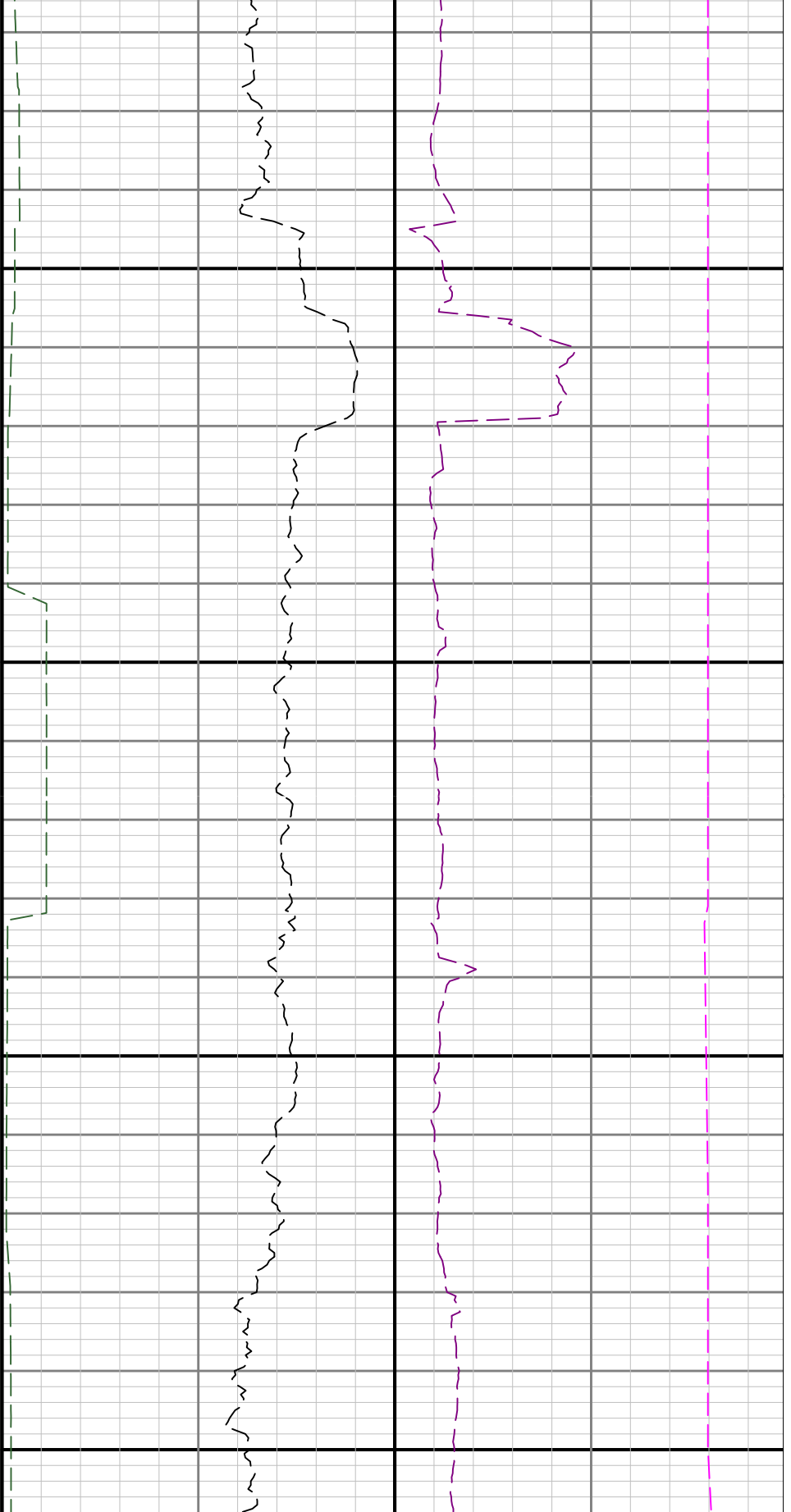
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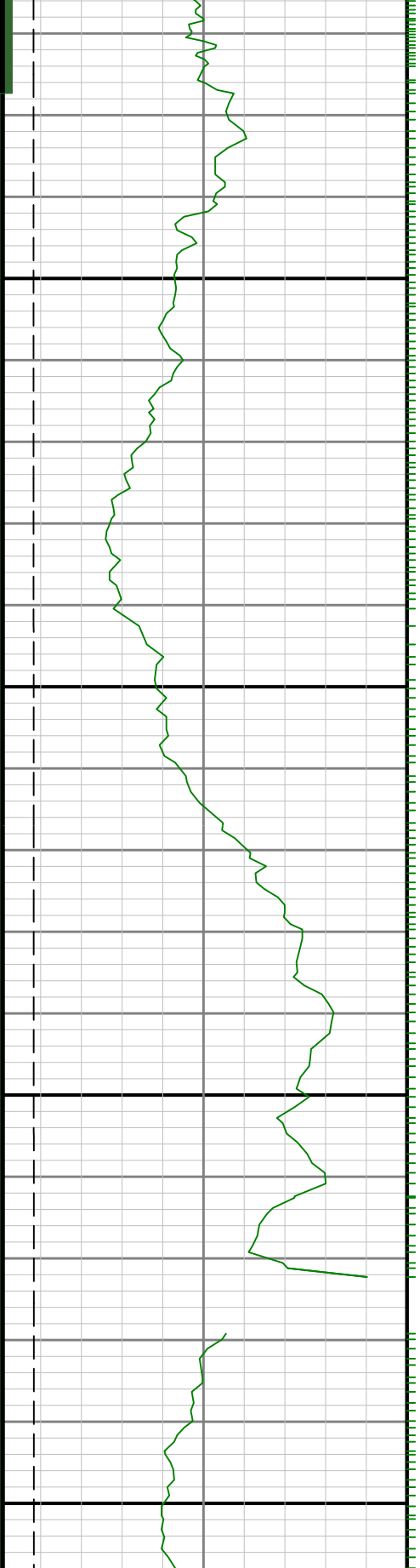
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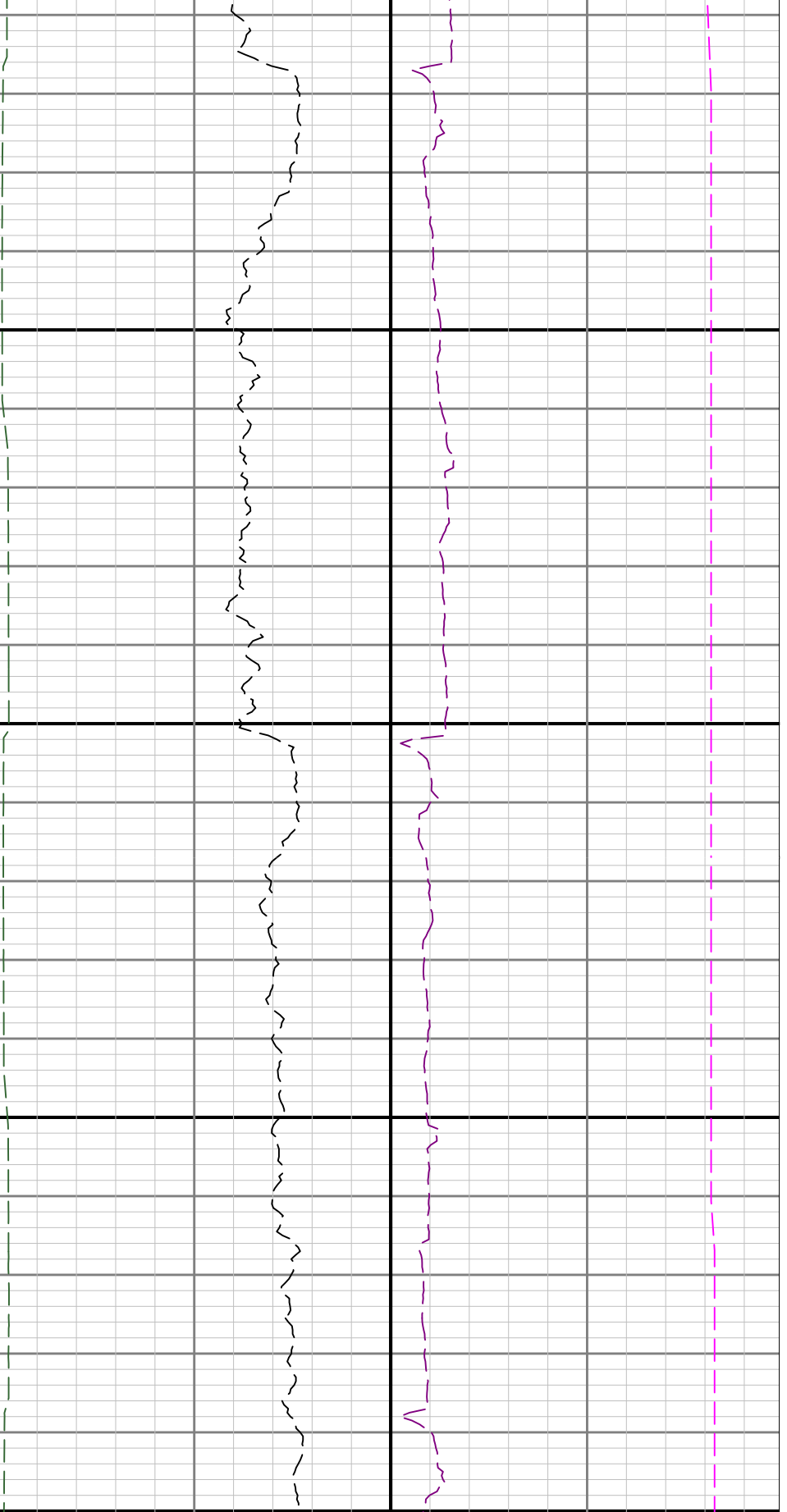




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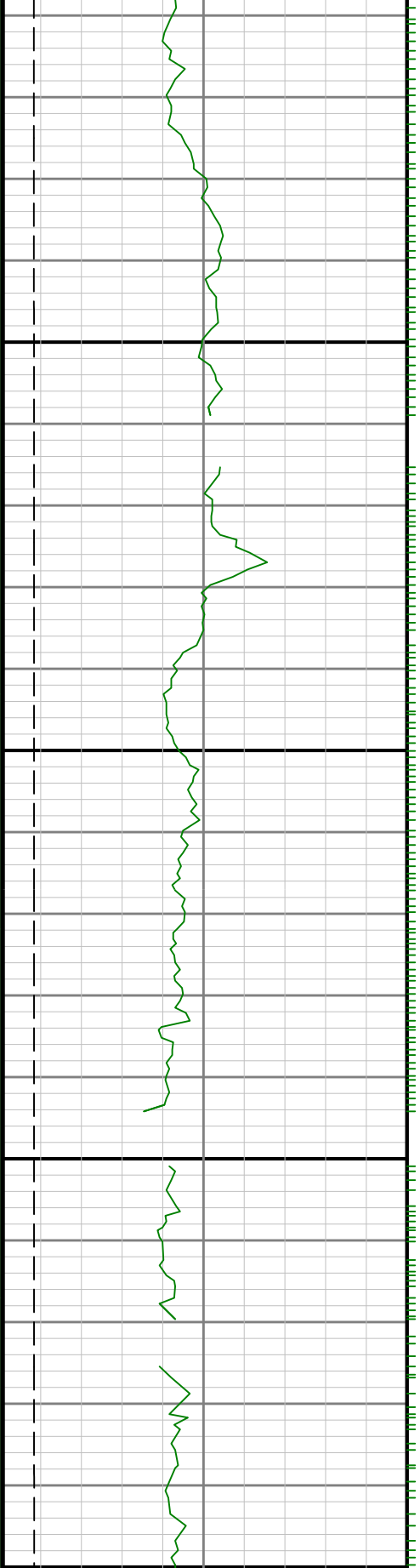
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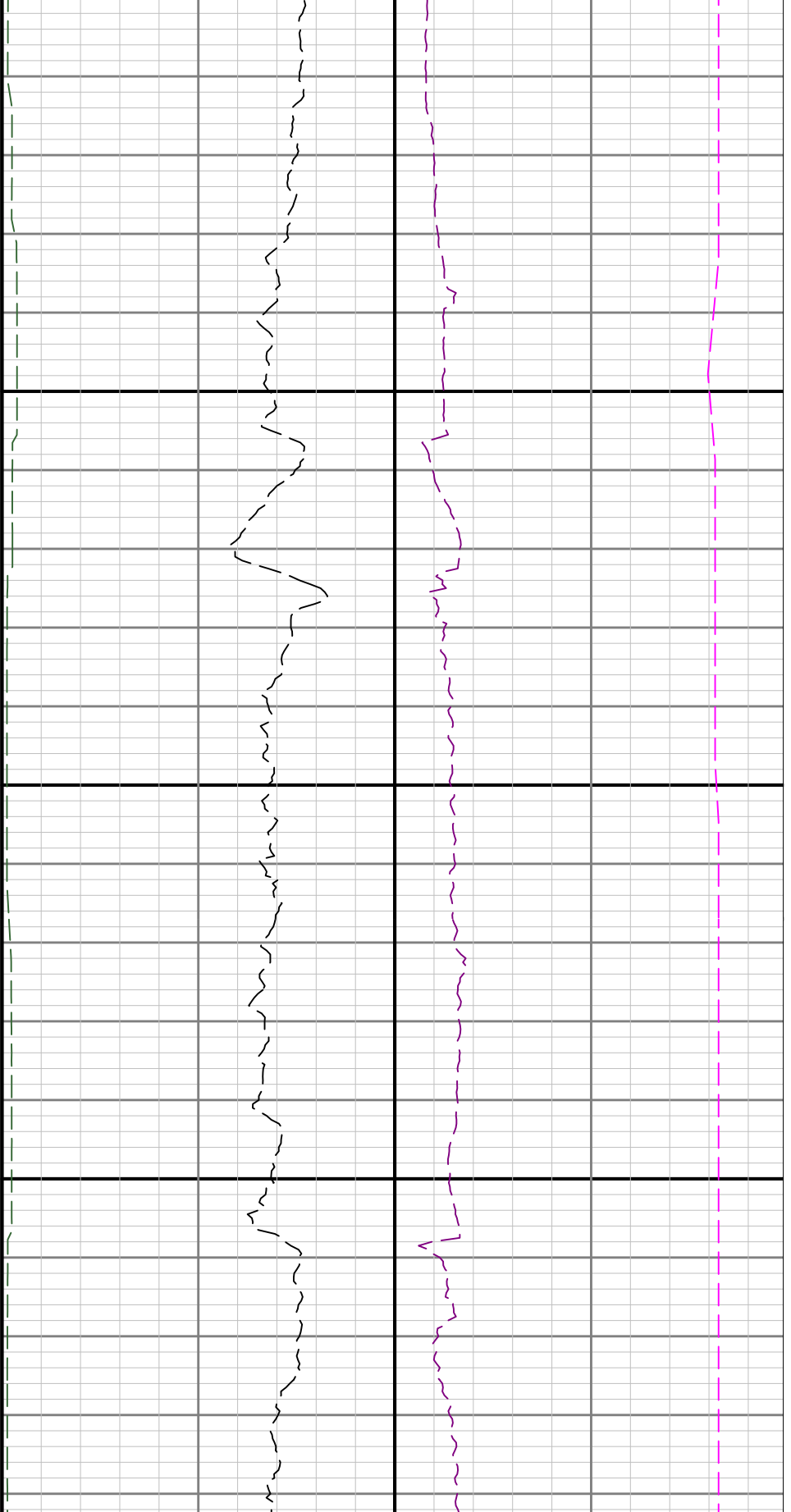




12500

126





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12700

