


<div></div> <div>PHOENIX TECHNOLOGY SERVICES</div>		TVD 1:240 Feet
MWD Gamma / ROP (5")		
Client:	Whiting Petroleum Corporation	
Well Name:	Razor Federal #12F-1302B	
API/UWID:	05-123-38718	
County:	Weld	Field: Wildcat
Permit #:		
State:	Colorado	Country: USA
Longitude:	103° 49' 5.79163 W	Personnel
Latitude:	40° 51' 16.04828 N	
Rig Name:	Unit 409	
Job Number:	1524098	
Ground Level:	4936.80 ft	
Kelly Bushing:	4957.80 ft	Geologist
Permanent Datum:	Mean Sea Level	Directional Driller(s)
Drilling Measured From:	Kelly Bushing	John Barnett
Spud Date:	September 24, 2015	Mark Gentry
Bottom Hole Temp:	138.9 °F	MWD Operator(s)
Log Start Depth:	0.00 ft	Robert Davis
Log End Depth:	6050.00 ft	Jason Dubose
Comments:		Main Leg
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Operational Run Summary

1524098

	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Run Start Depth (ft)	0.00	465.83	1890.00	5684.22	5839.14	5964.50
Run End Depth (ft)	465.83	1890.00	5684.22	5839.14	5964.50	6505.09
Run Start Date	9/23/2015	9/24/2015	9/25/2015	9/26/2015	9/26/2015	9/27/2015
Run Start Time	6:18 PM	11:37 AM	11:10 AM	5:39 AM	7:14 PM	5:16 PM
Run End Date	9/24/2015	9/25/2015	9/26/2015	9/26/2015	9/27/2015	9/28/2015
Run End Time	10:59 AM	10:42 AM	4:38 AM	5:03 PM	2:42 PM	5:07 AM

Tool Information Summary

1524098

	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Gamma Probe Serial No		-	EGNF0094	EGNF0103	-EGNF0094	EGNF0103
Probe Cal Ratio	1	1	1	1	1	1
Gamma Scale Factor	1	1	2.85	2.85	2.85	2.85
Tool Carrier ID (in)	3.500	3.500	4.490	4.490	4.490	4.490
Tool Carrier OD (in)	8.000	8.000	6.625	6.625	6.625	6.625
Survey-to-Bit (PTB) (ft)	51.01	50.93	54.99	55.57	52.06	55.97
Gamma-to-Bit (GTB) (ft)	0.00	0.00	53.80	54.38	50.87	54.38
Annular Pressure-to-Bit (APTB) (ft)	0.00	0.00	0.00	0.00	0.00	0.00

Borehole Fluids and Measurements Summary

1524098

	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Hole Size (in)	13.50	13.50	8.00	8.00	8.75	8.75
Casing Start Depth (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Casing End Depth (ft)	0.00	0.00	1890.00	1890.00	1890.00	1890.00
Casing ID Size (in)	0.000	0.000	0.625	0.625	0.625	0.625

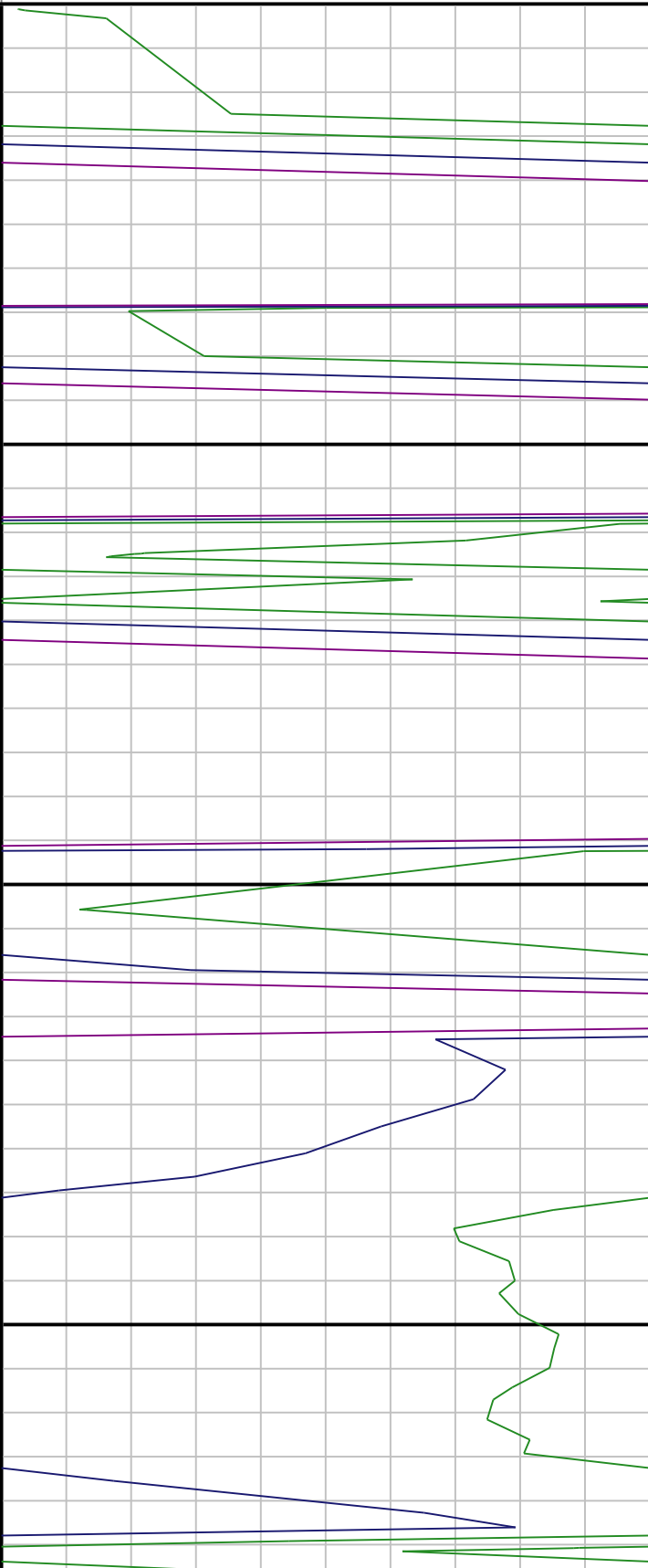
Casing Size (in)	0.000	0.000	9.625	9.625	9.625	9.625
Mud Type	Fresh Water	Fresh Water	Water-Based Mud (WBM)	Water-Based Mud (WBM)	Water-Based Mud (WBM)	Water-Based Mud (WBM)
Mud Weight (lb/gal)	8.3	8.3	9.7	9.7	9.7	9.7
Mud Viscosity (s)	28	28	39	39	39	39
Weighting Agent	Light Mud	Light Mud	Barite	Barite	Barite	Barite
Mud KCL Content (%)	0.000	0.000	0.000	0.000	0.000	0.000

Log

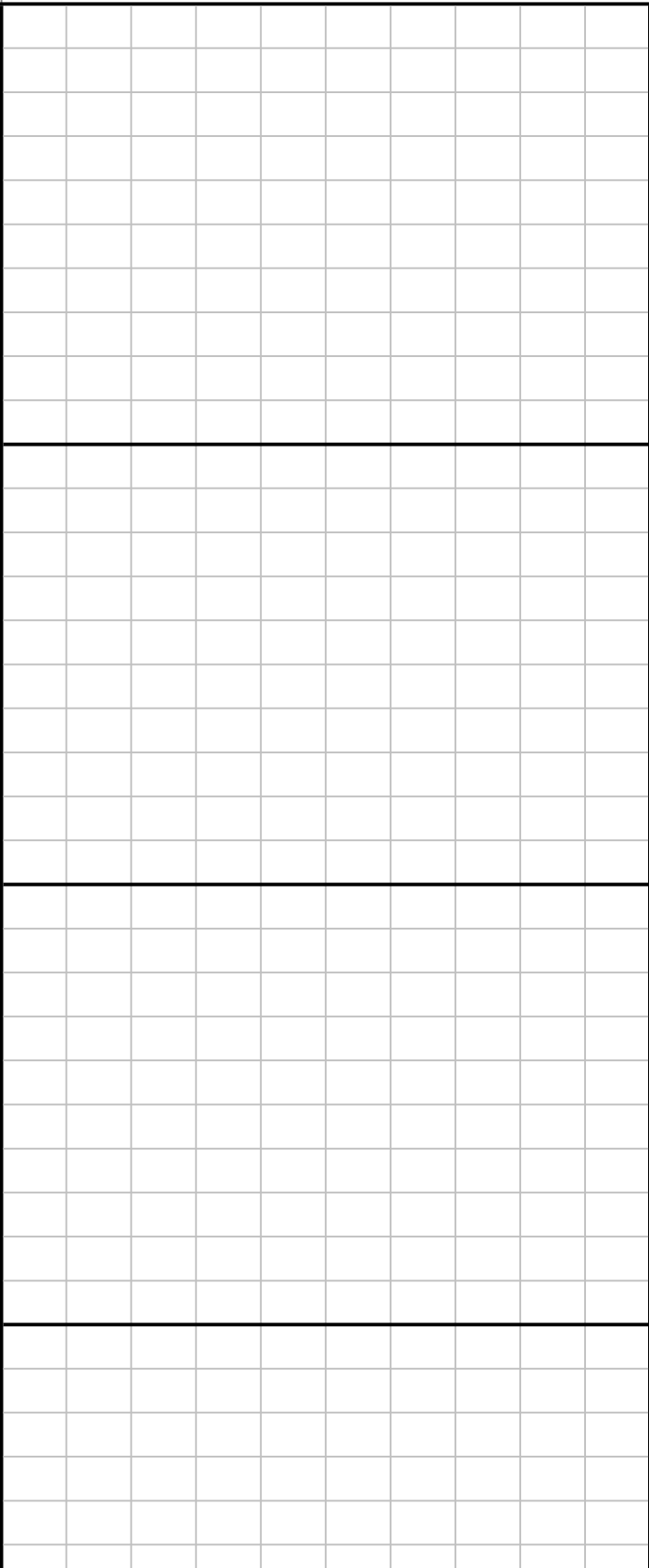
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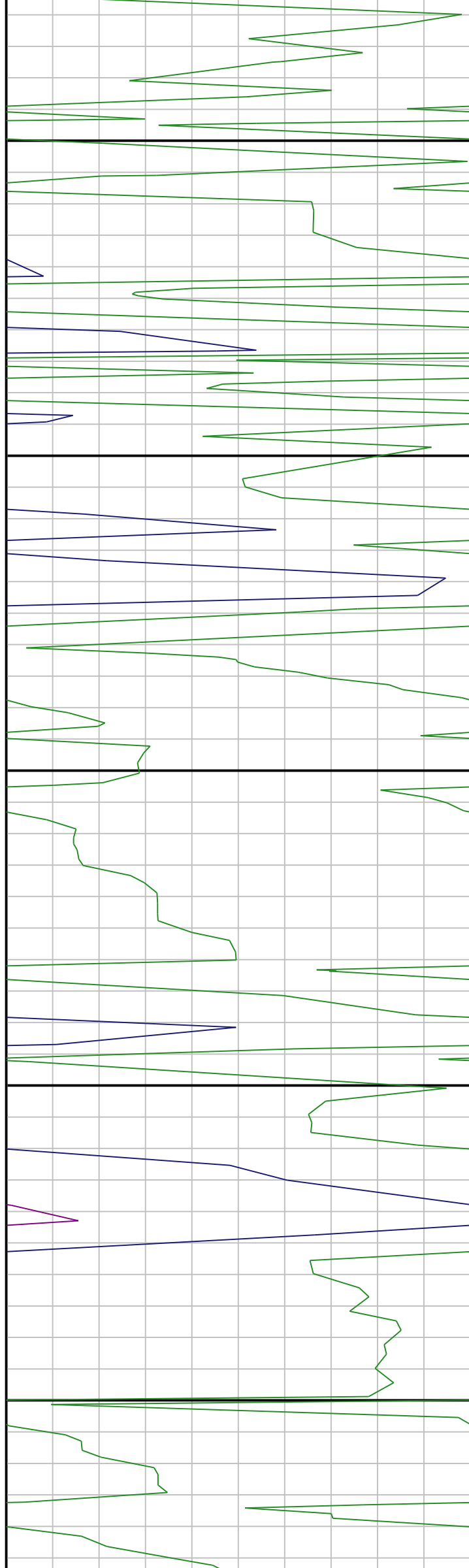
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0	ft/hr	300
	ROP	ROP
300	ft/hr	600
	ROP	ROP
600	ft/hr	900
	ROP	ROP
900	ft/hr	1200



	Gamma	Gama
0	AAP	150
	Gamma	Gama
150	AAP	300
	Gamma	Gama
300	AAP	450
	Gamma	Gama
450	AAP	600





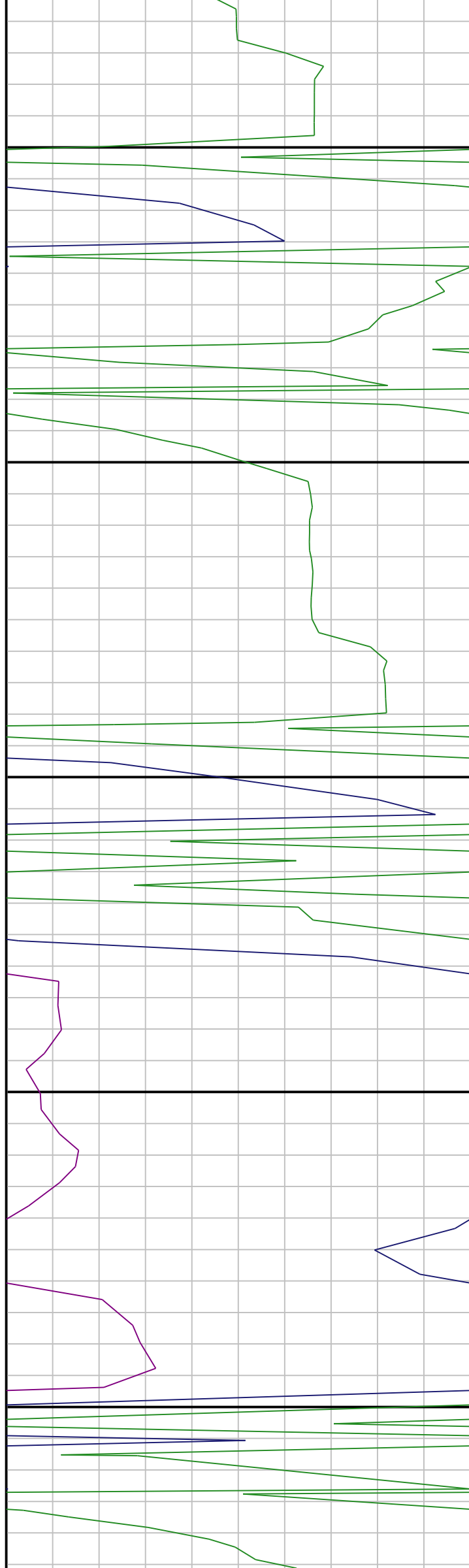
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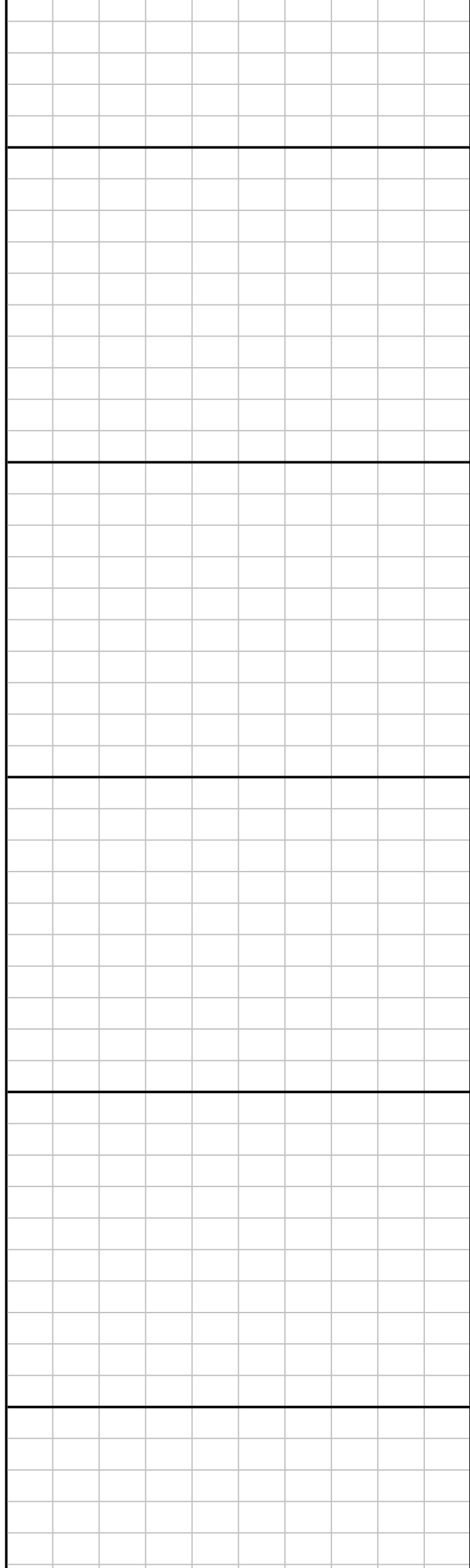
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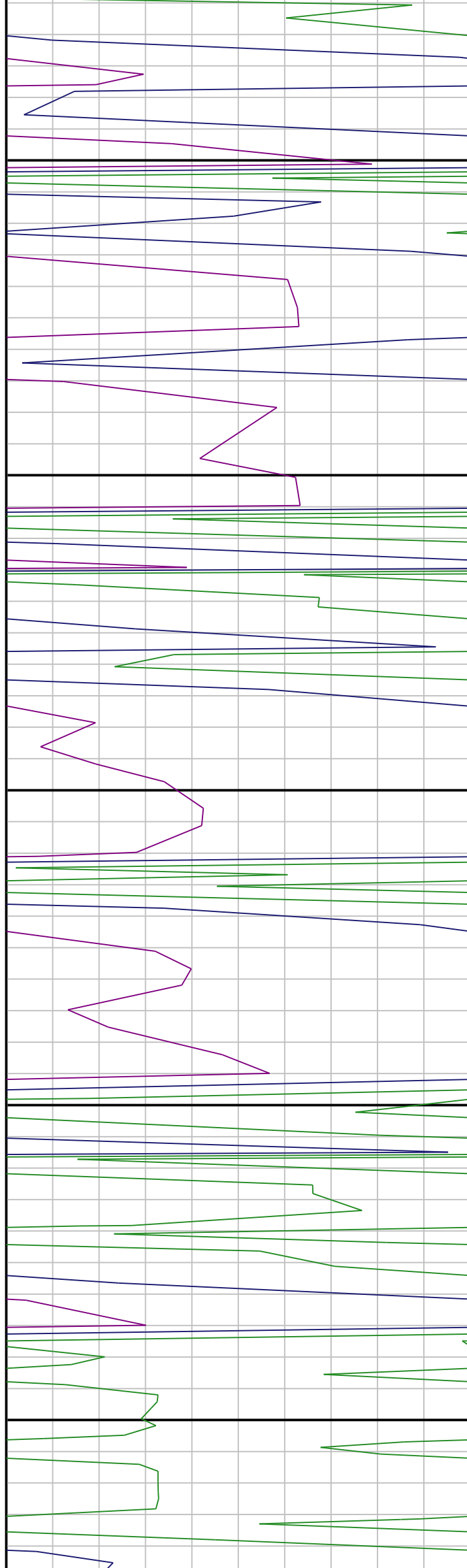
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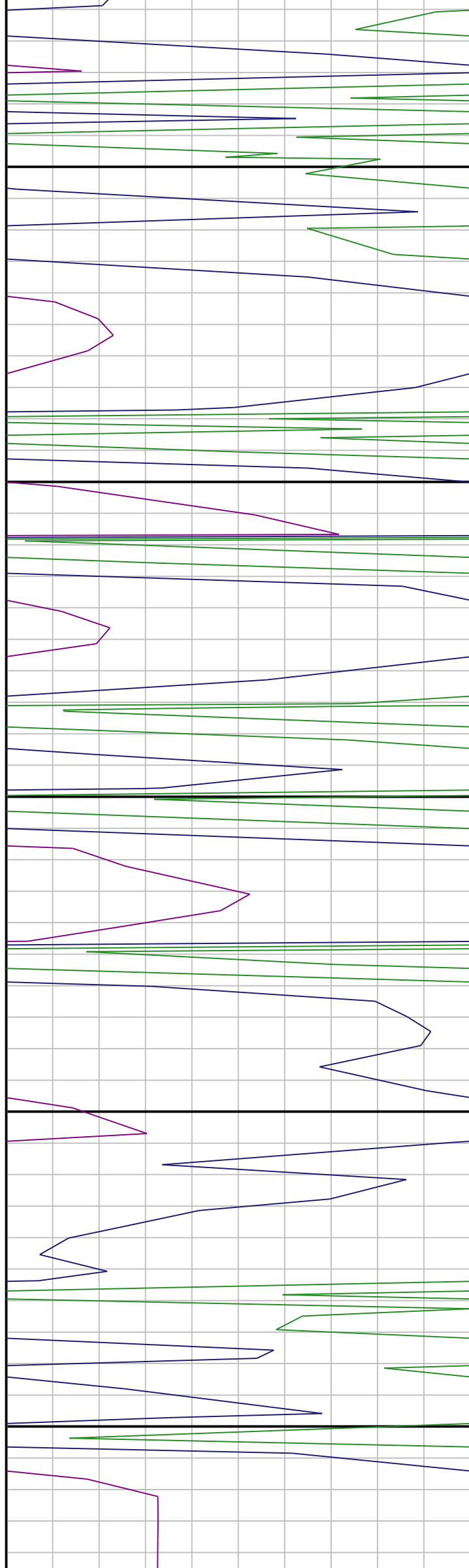
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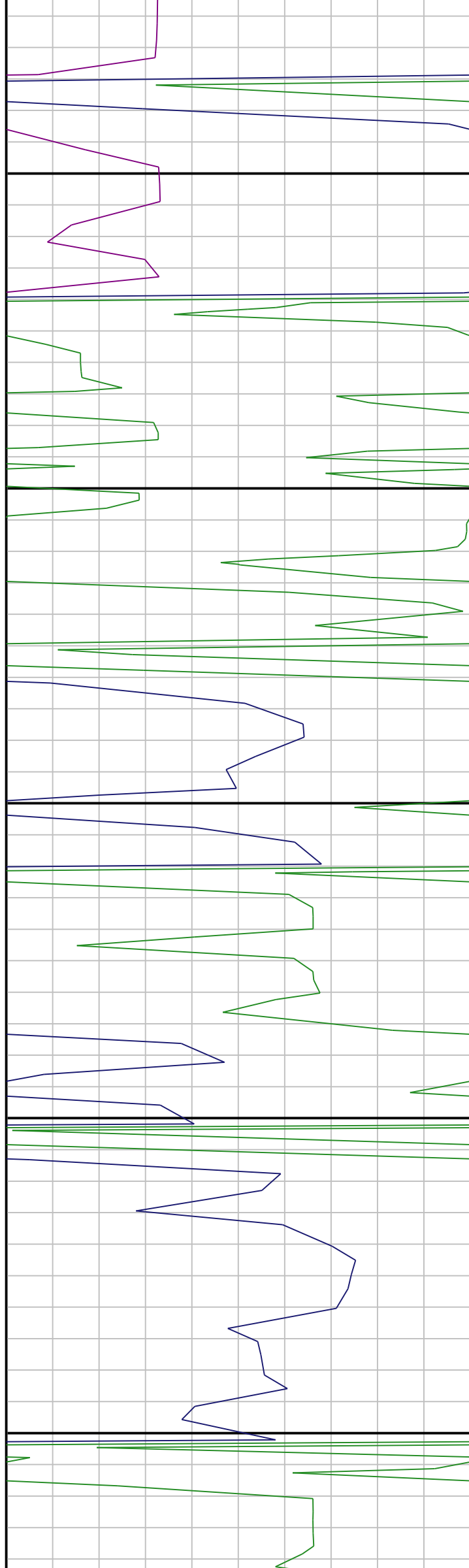
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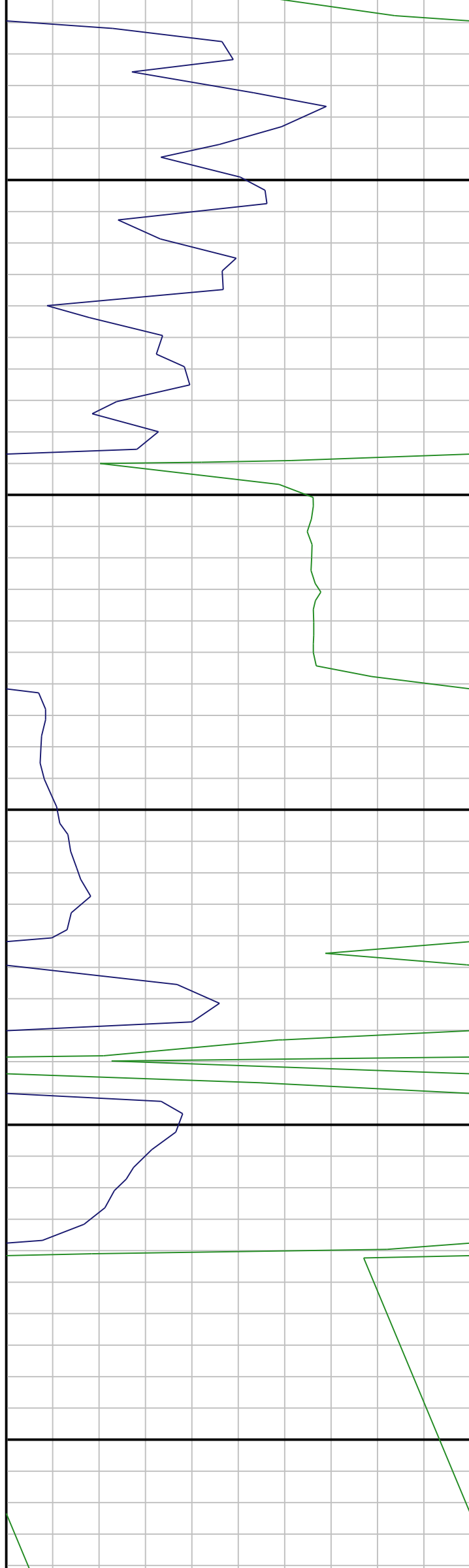
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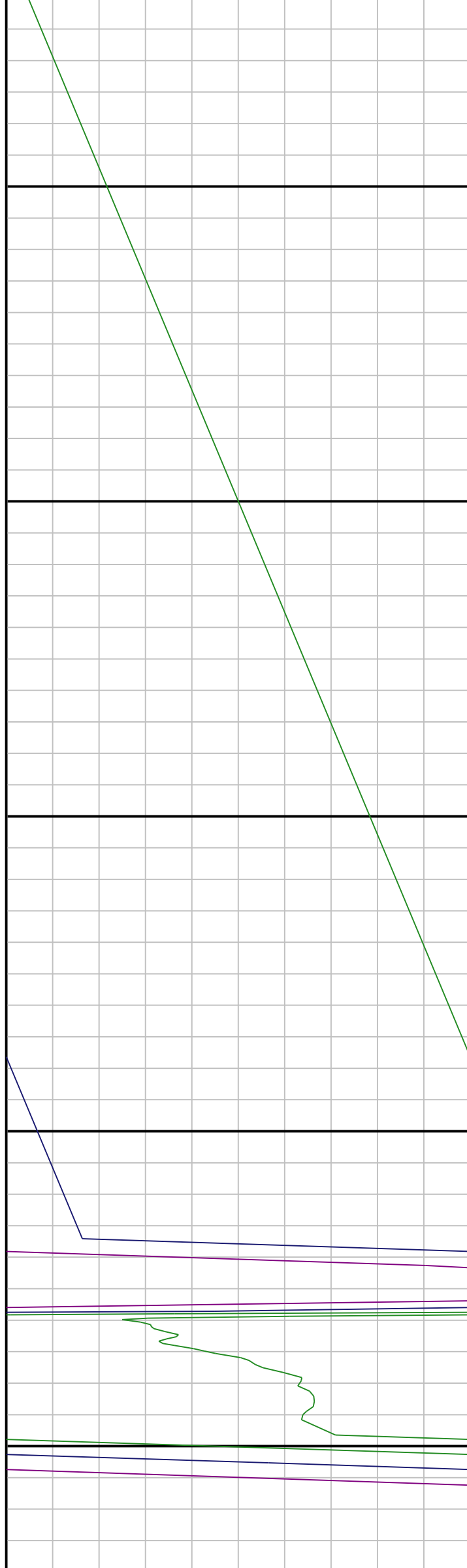
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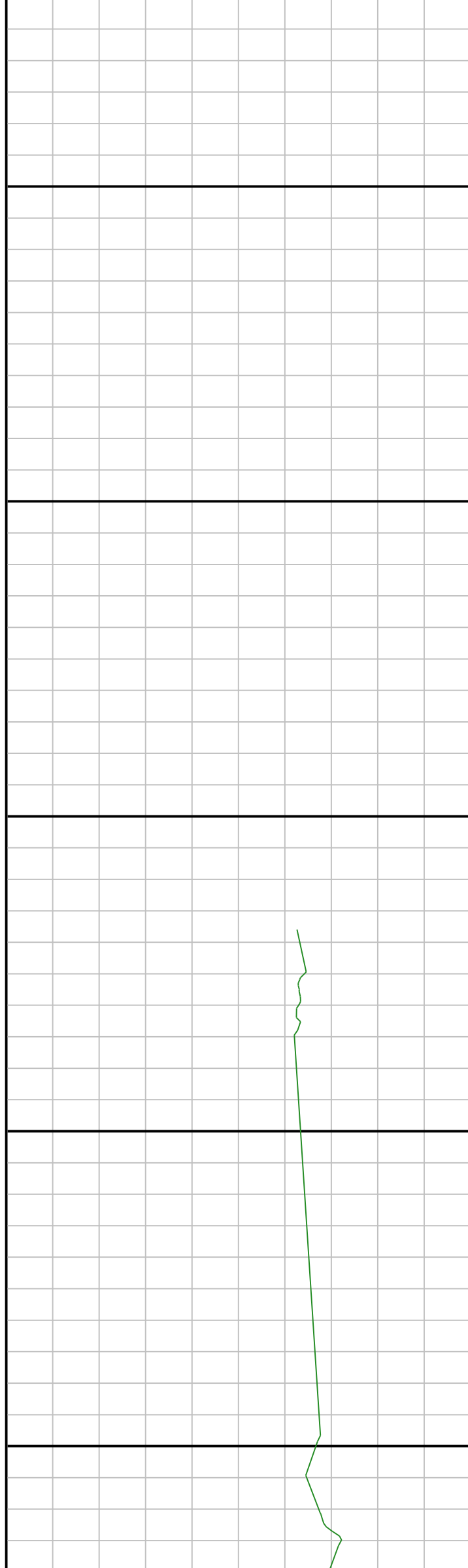
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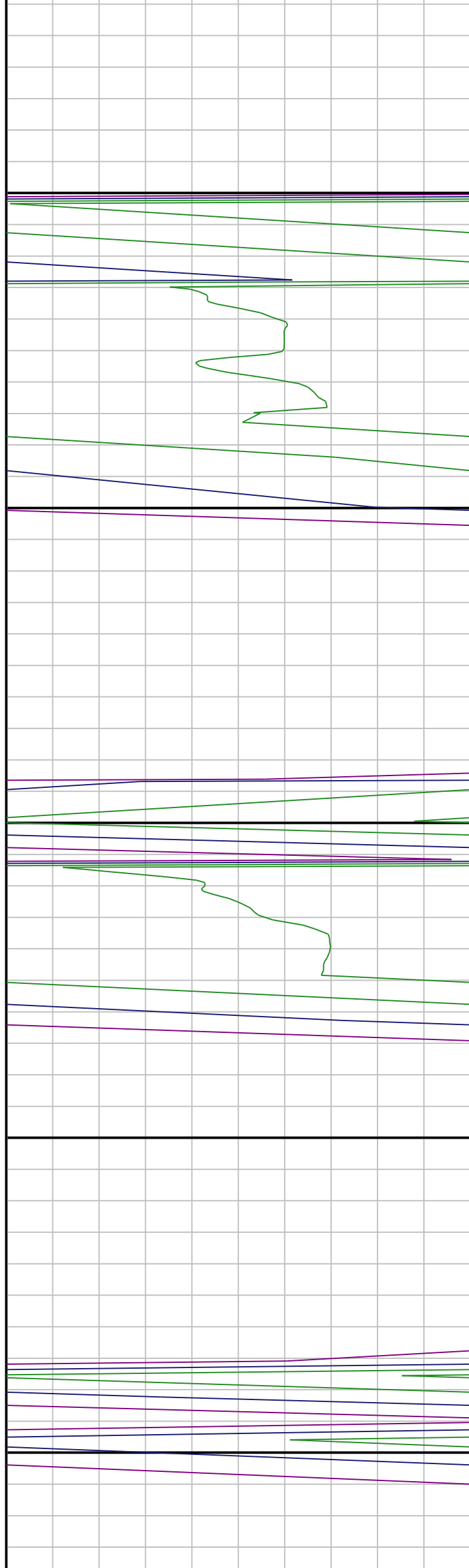
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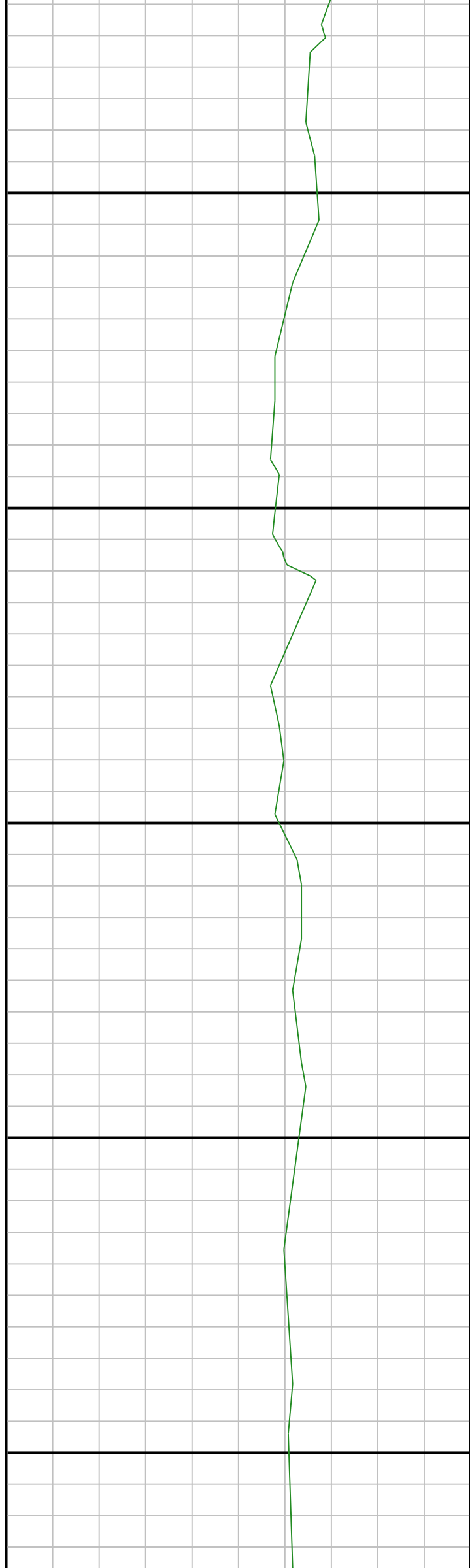
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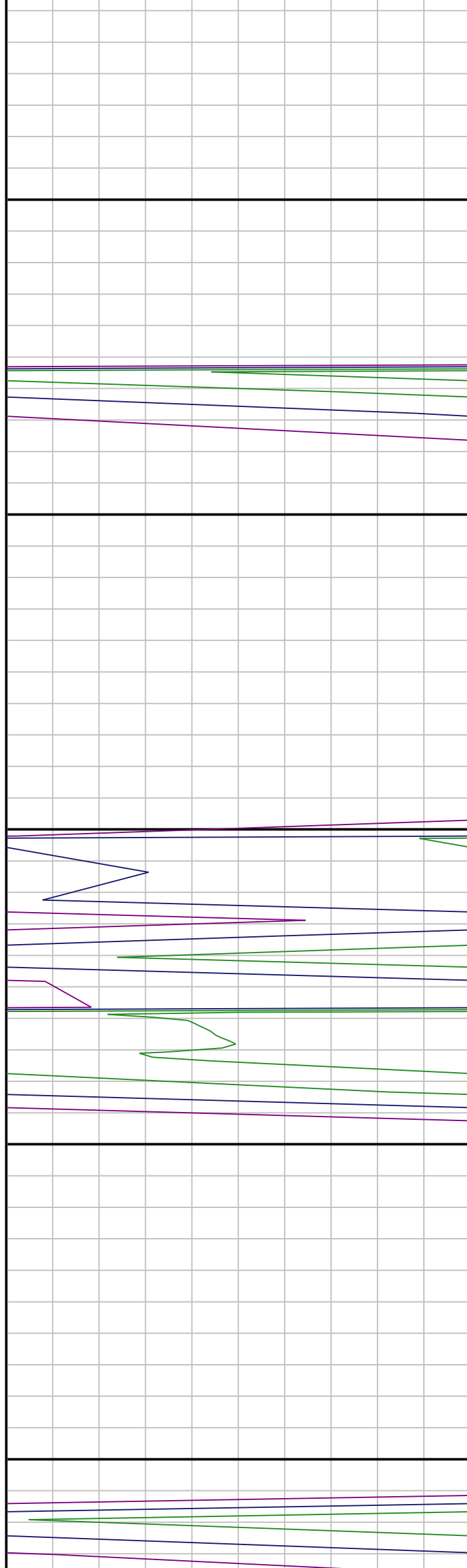
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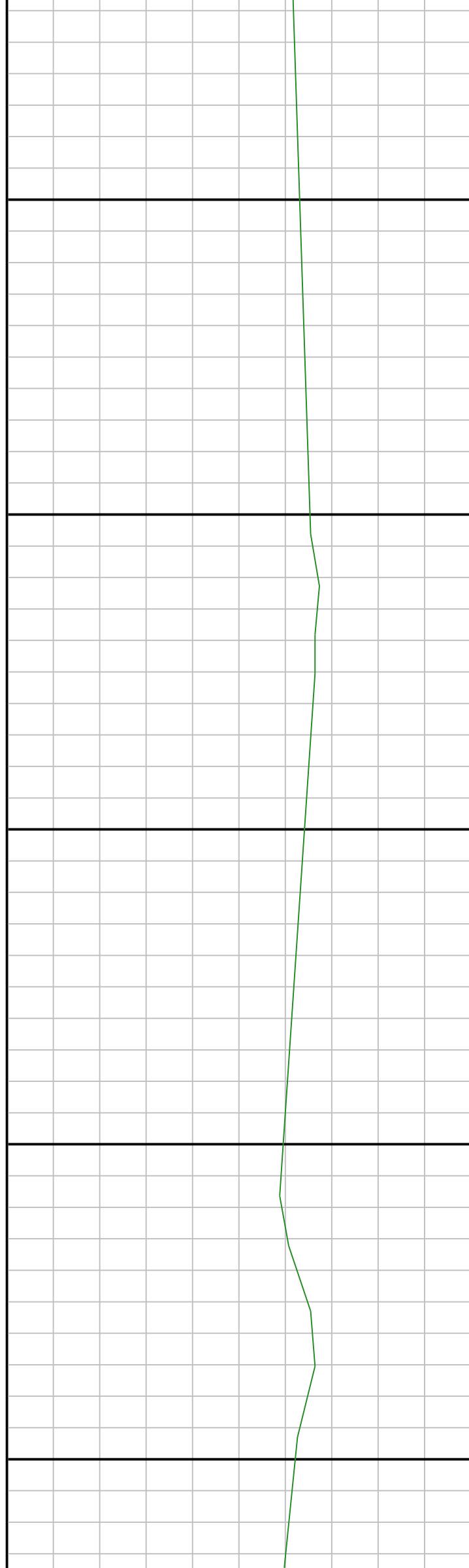
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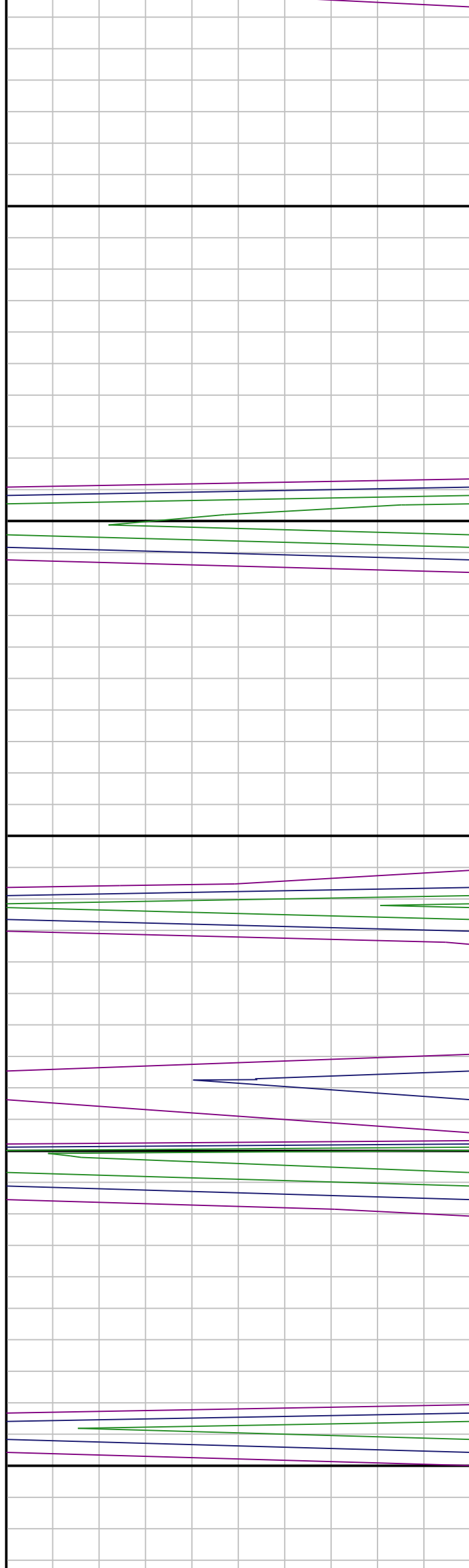
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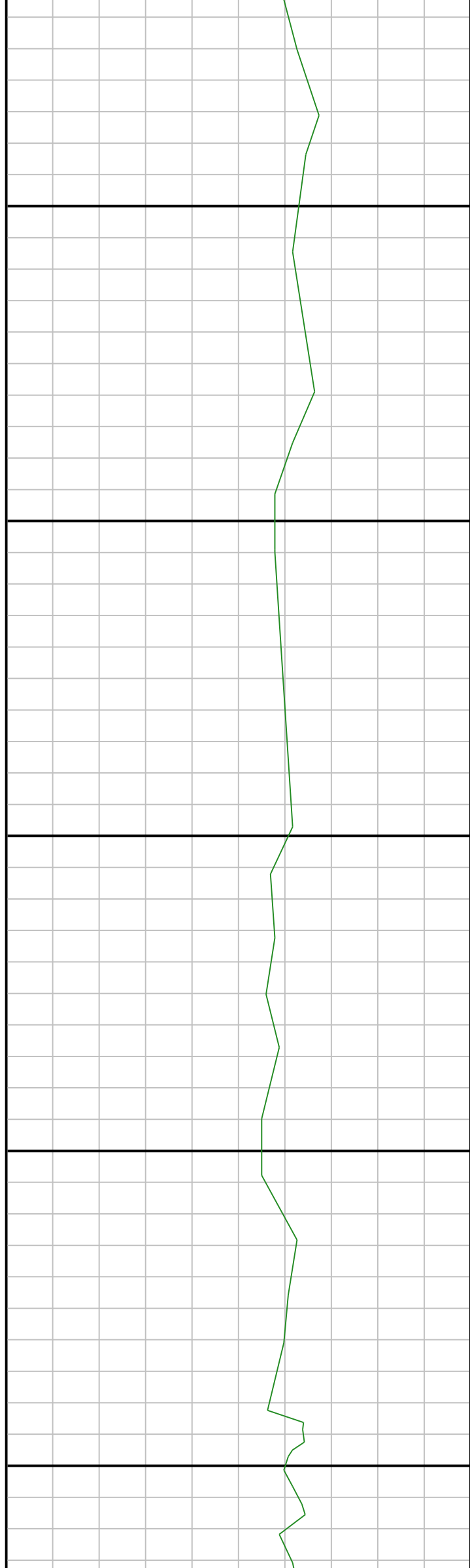
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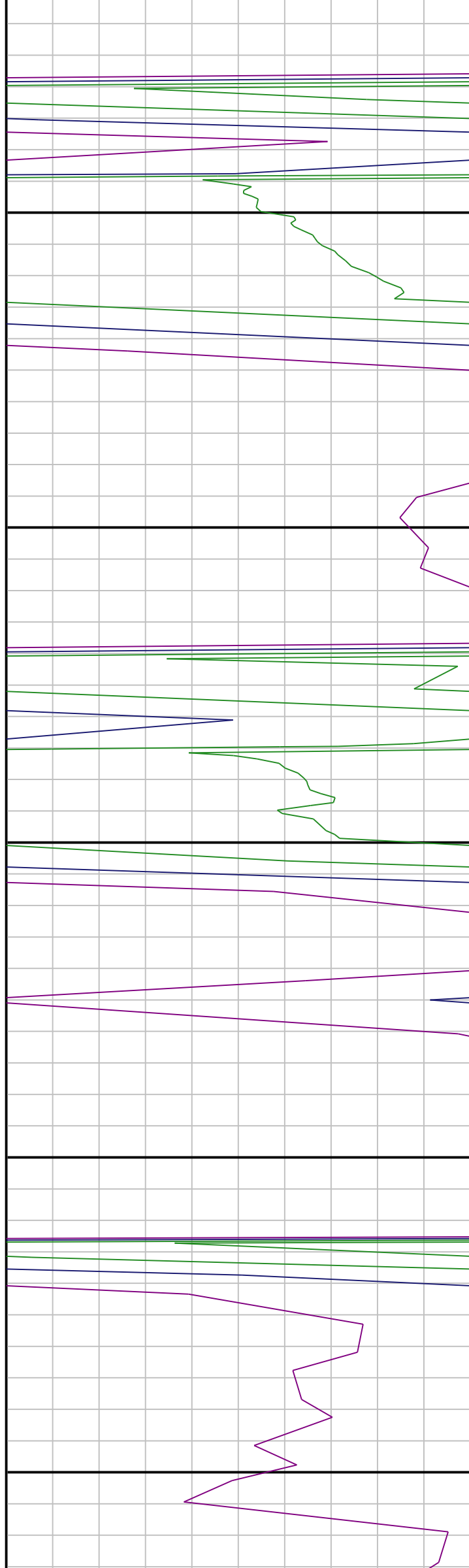
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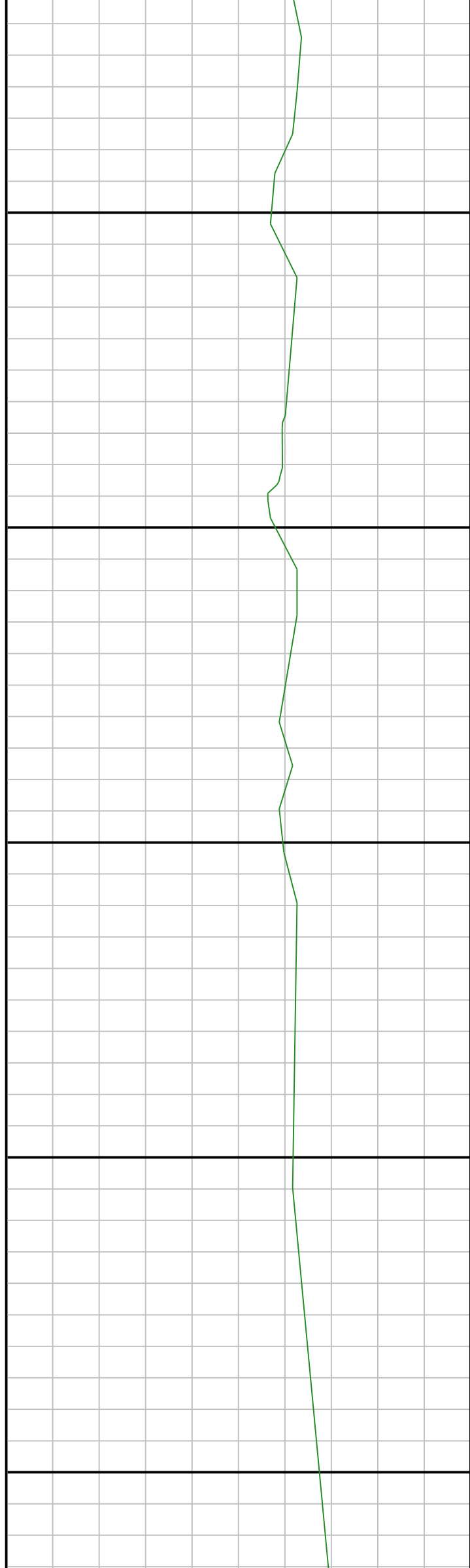
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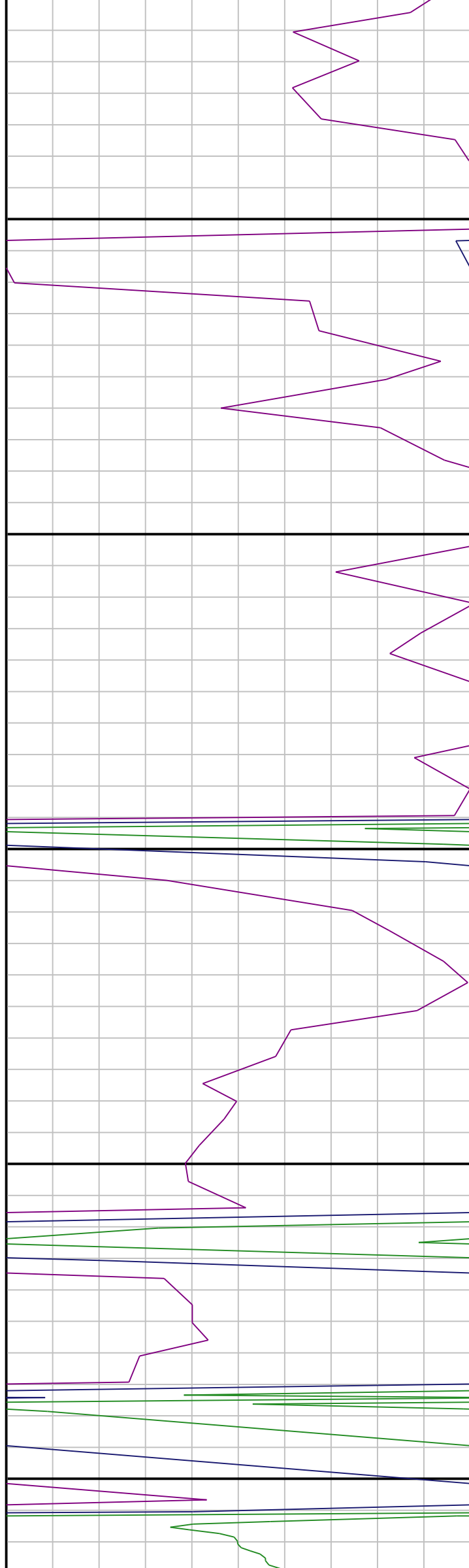
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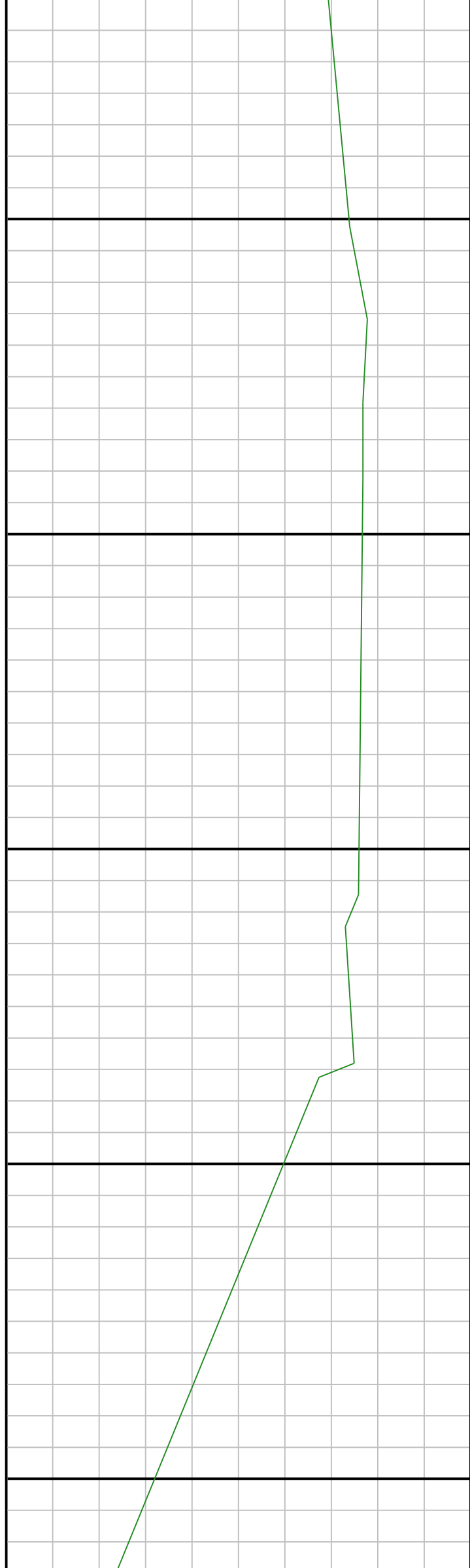
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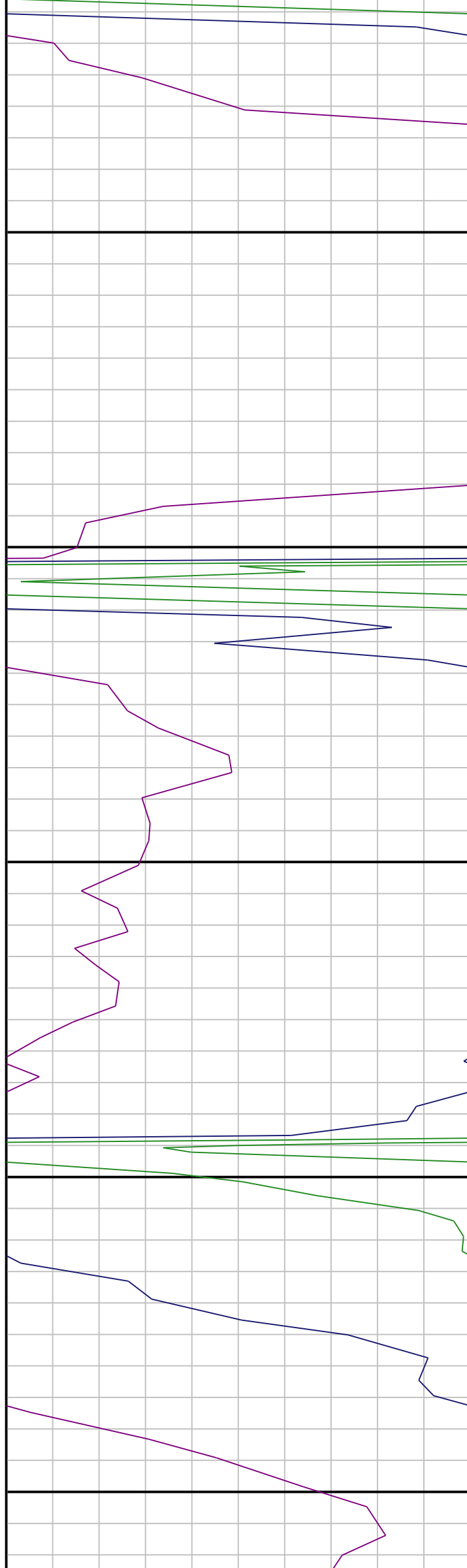
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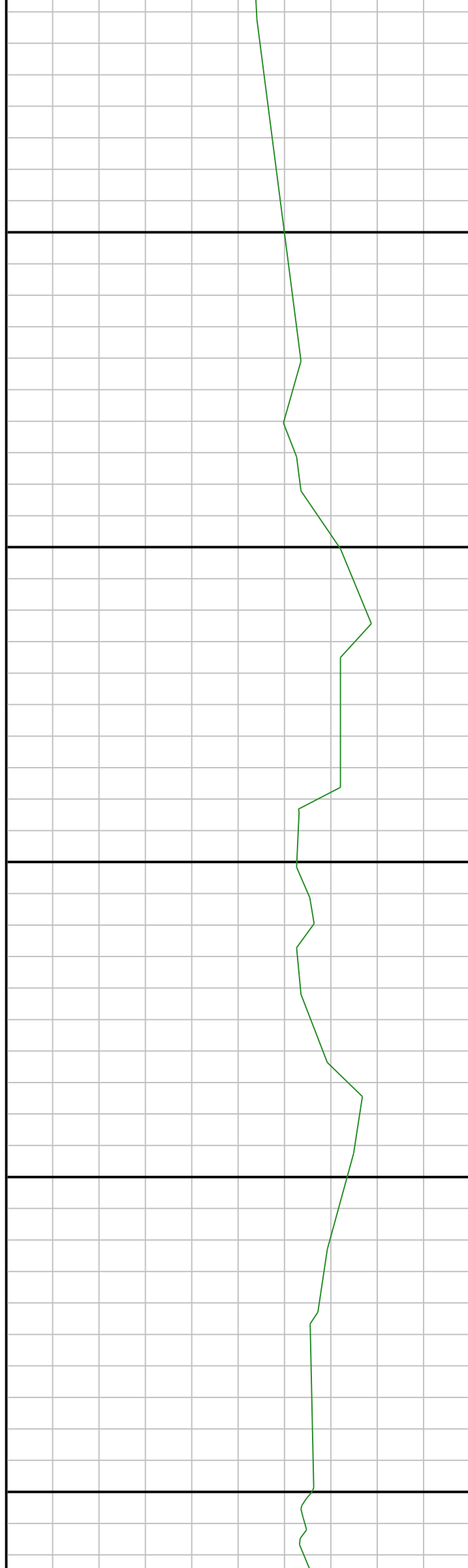
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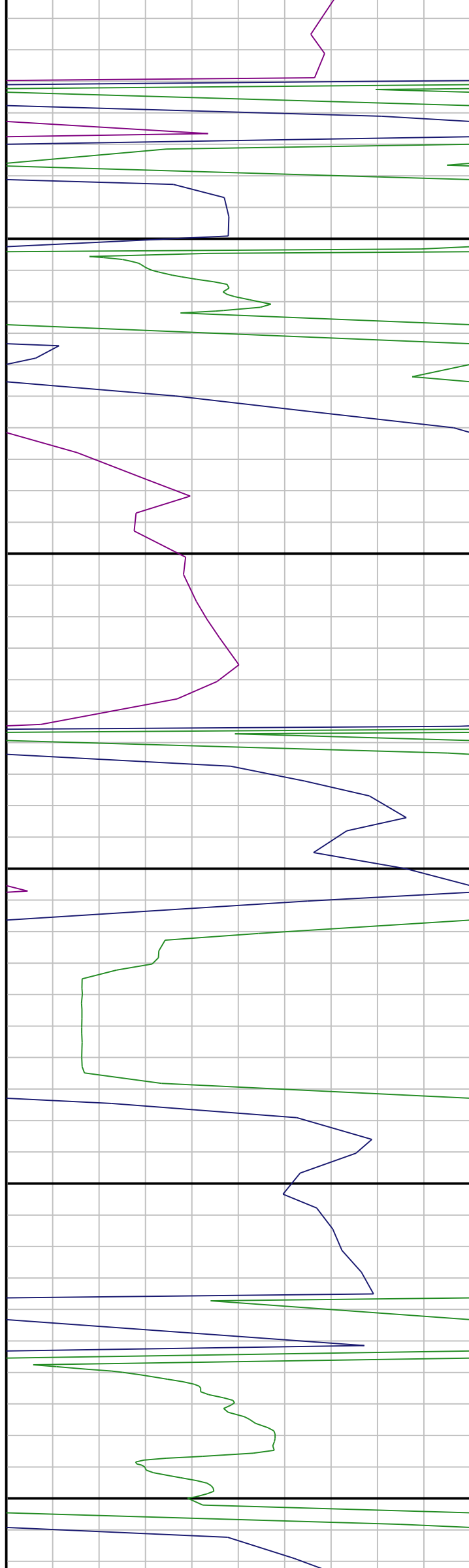
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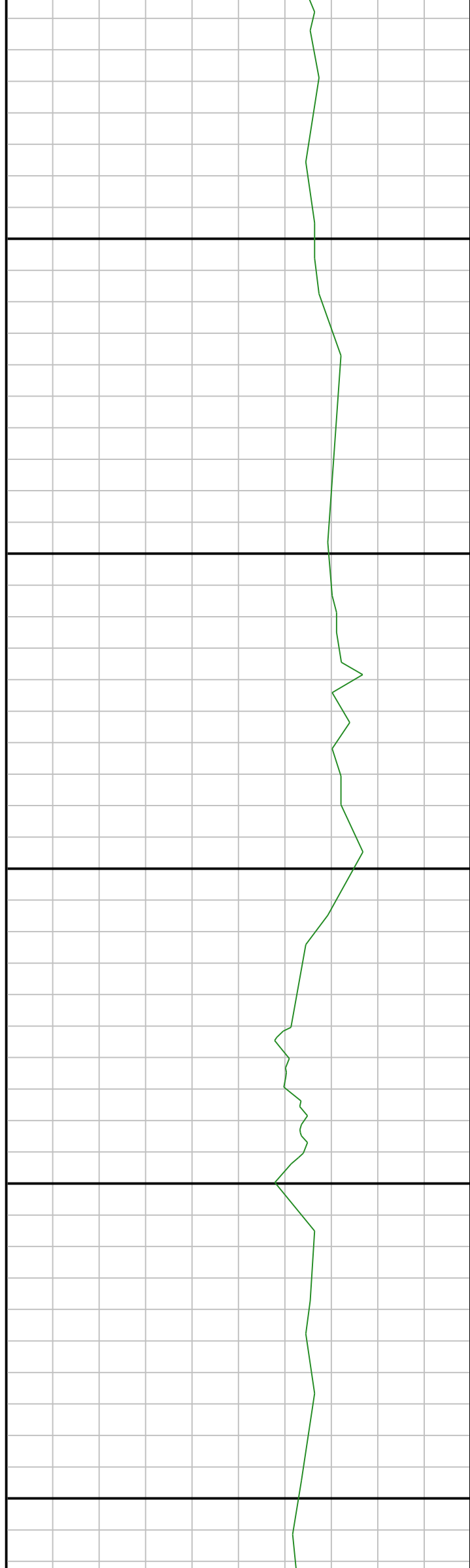
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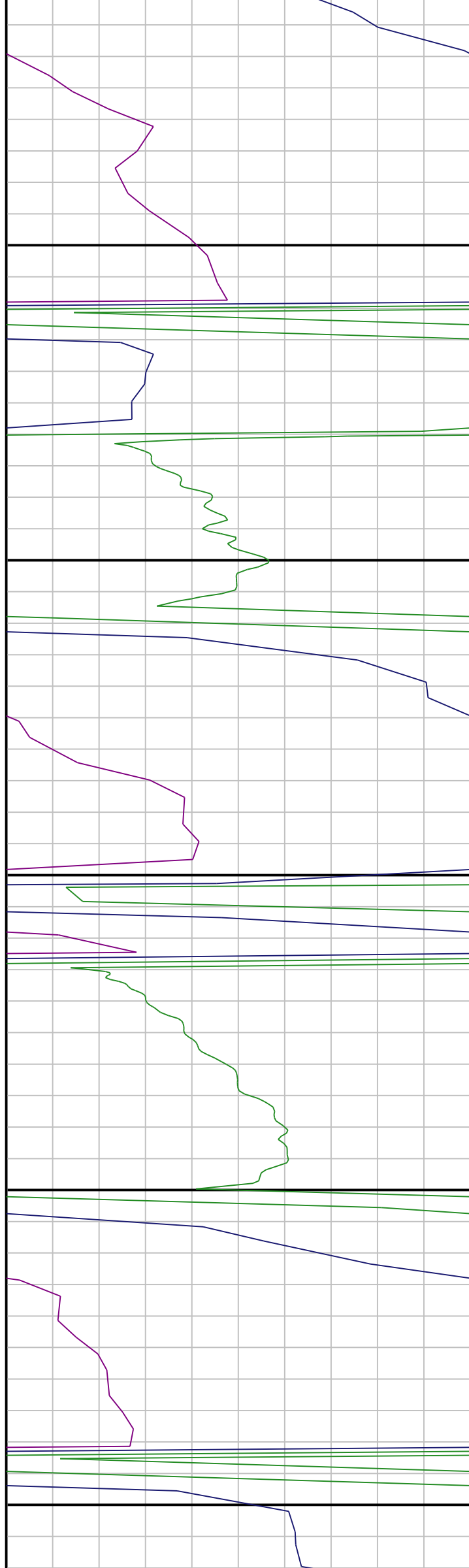
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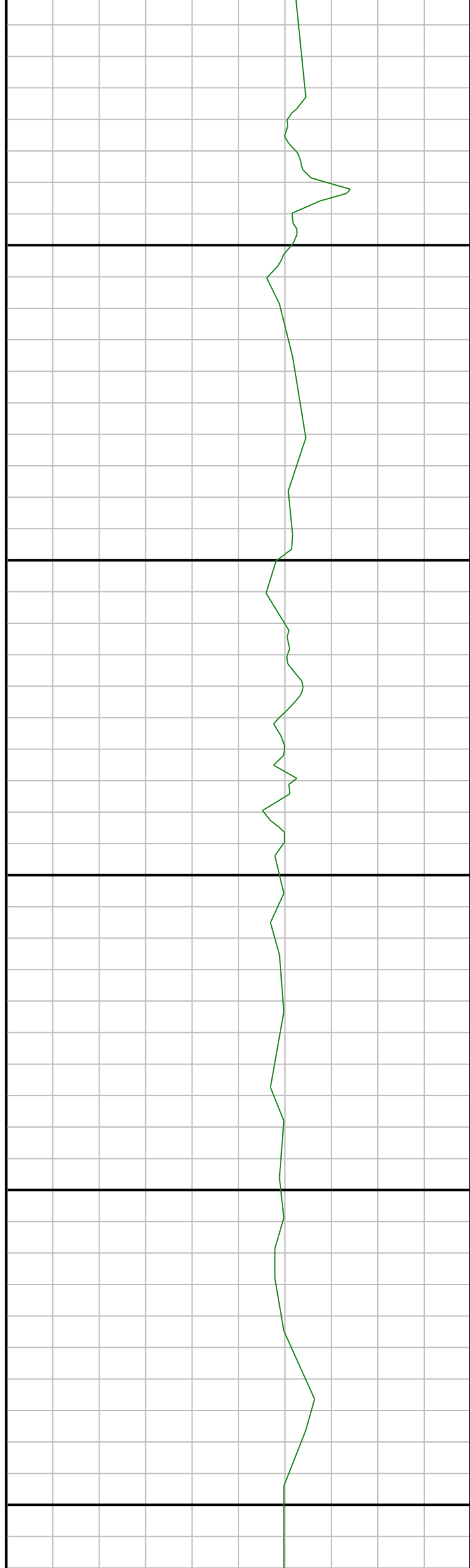
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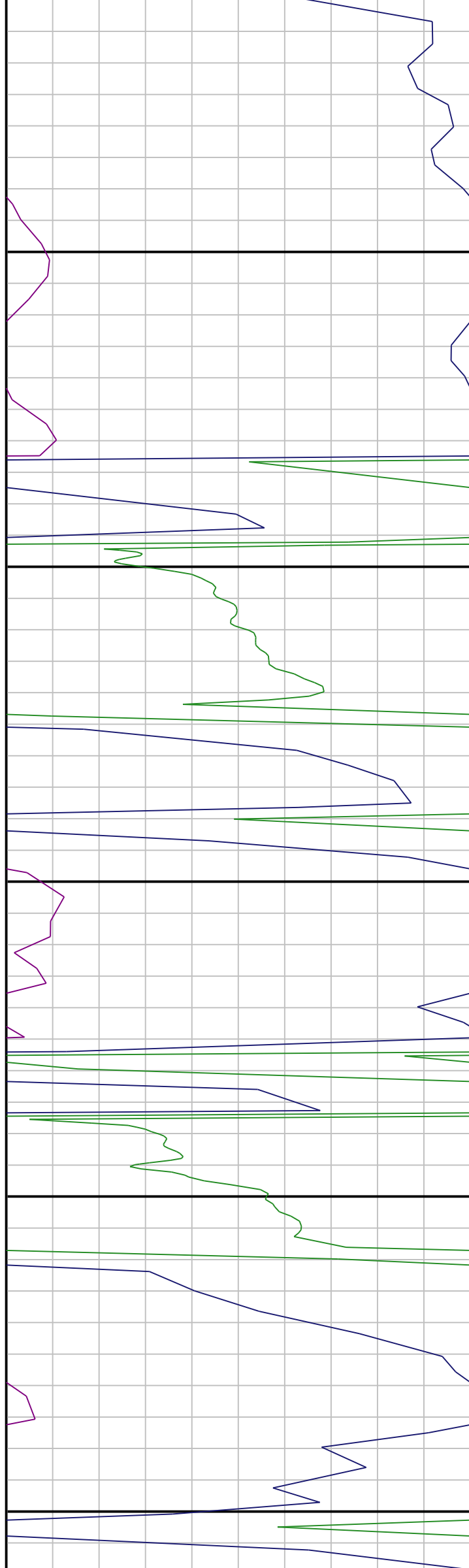
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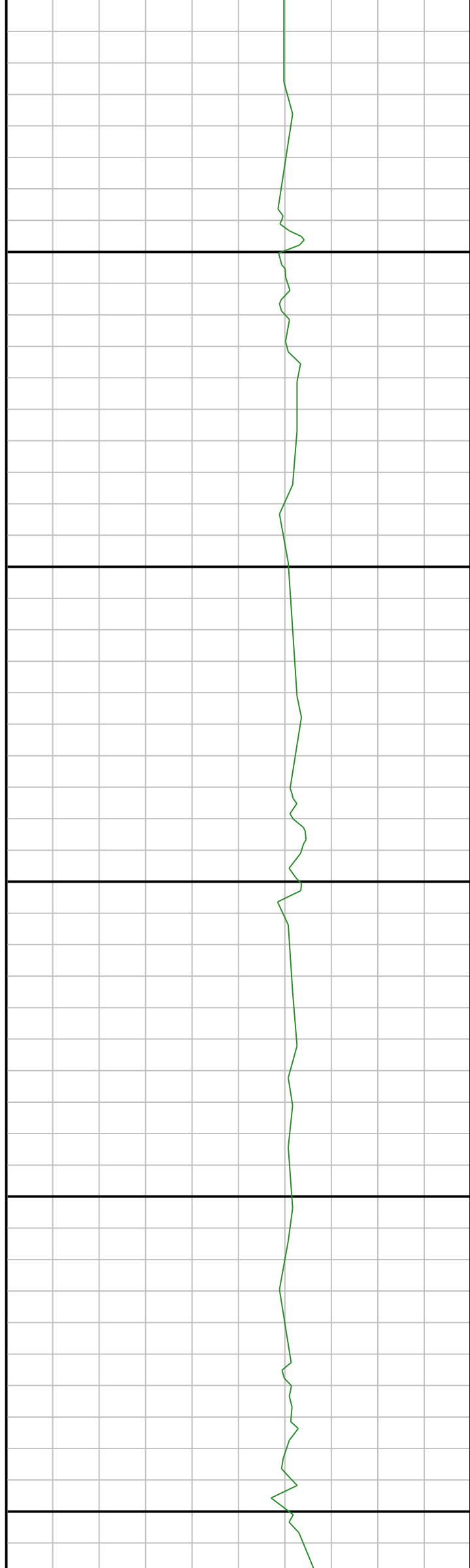
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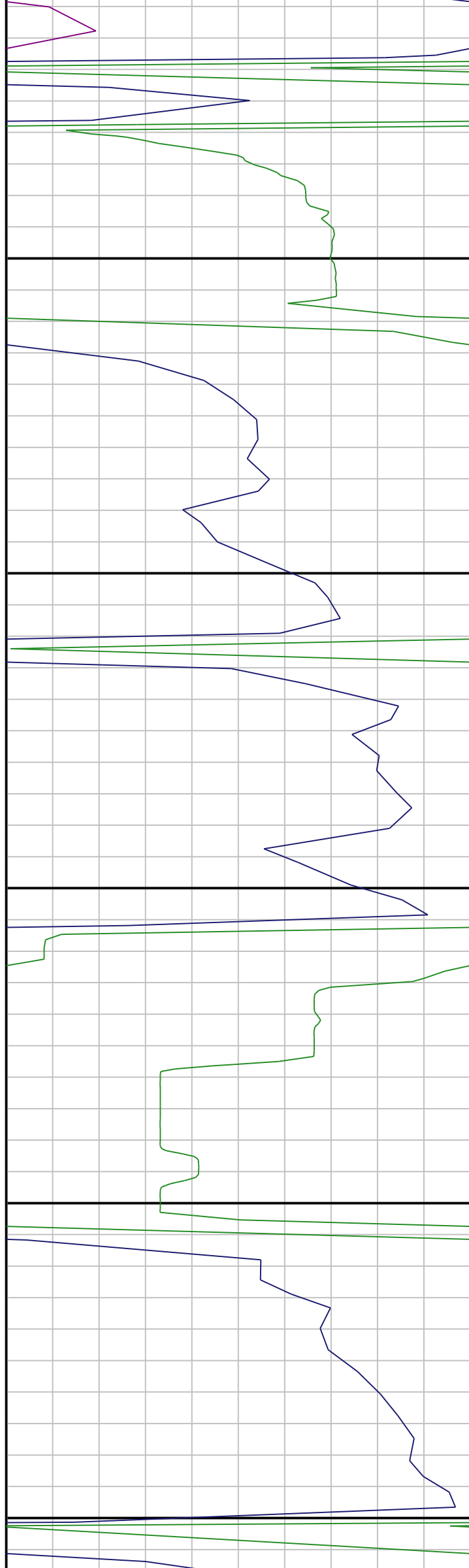
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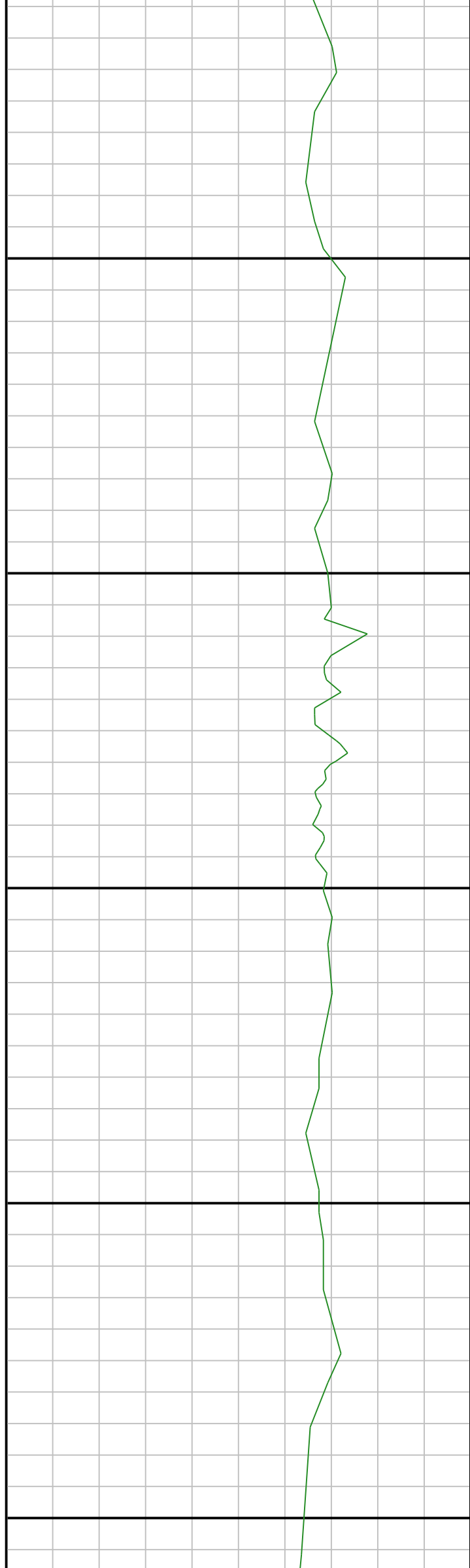
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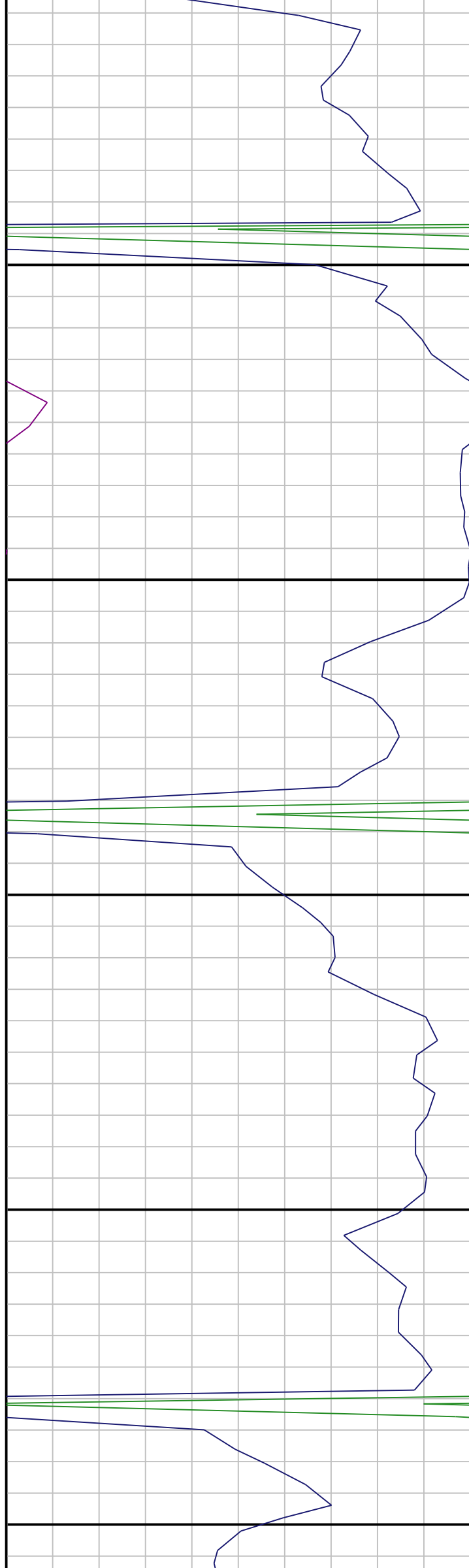
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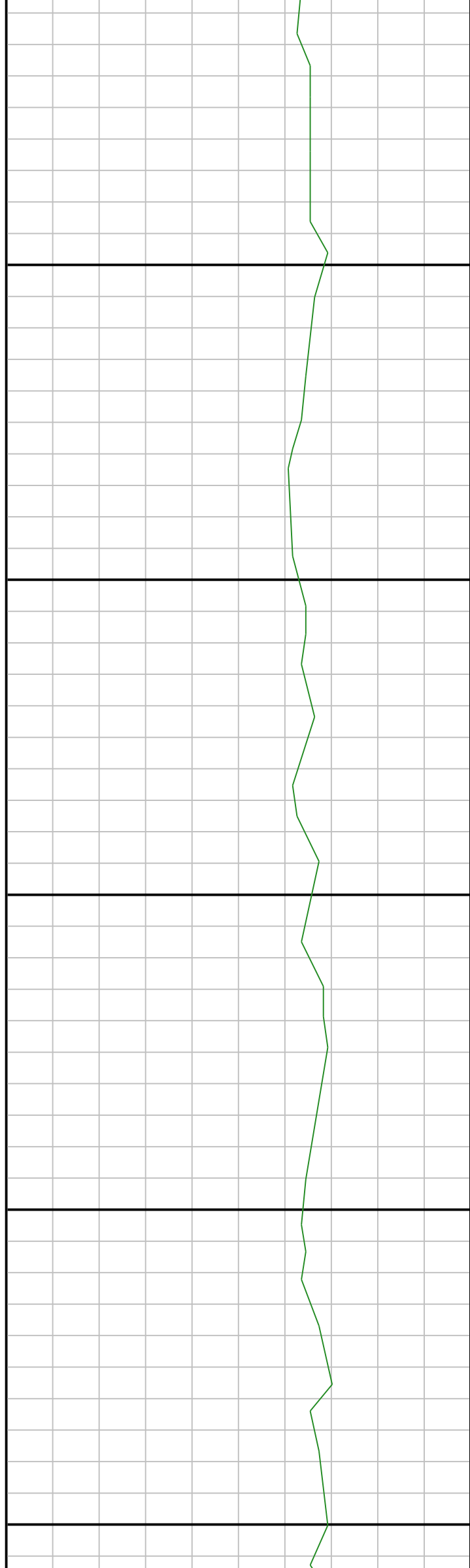
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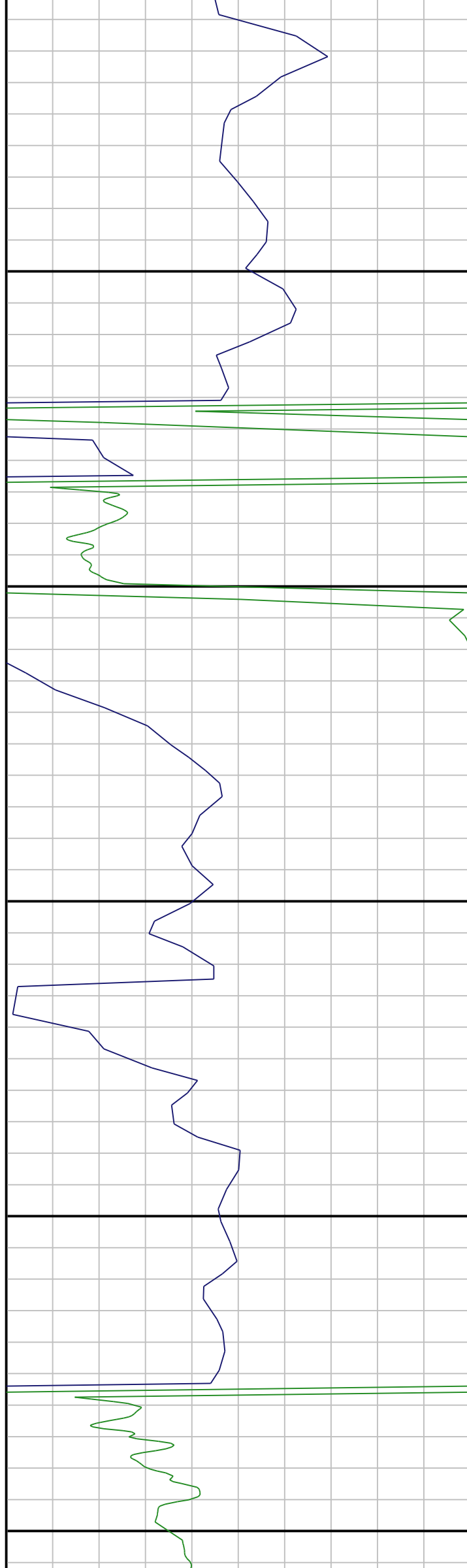
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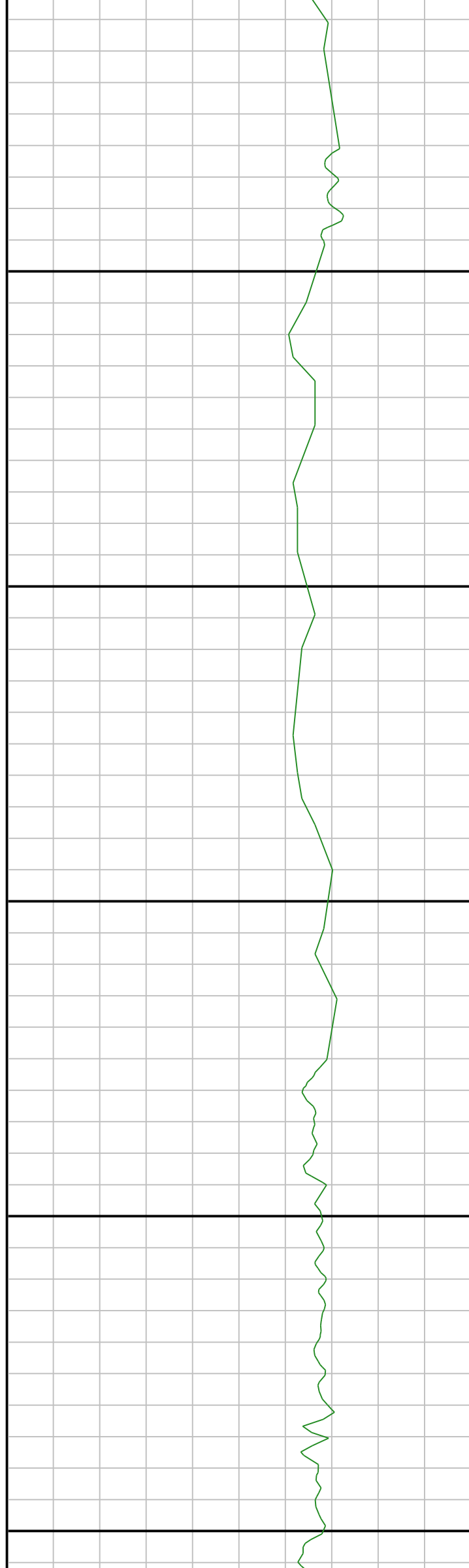
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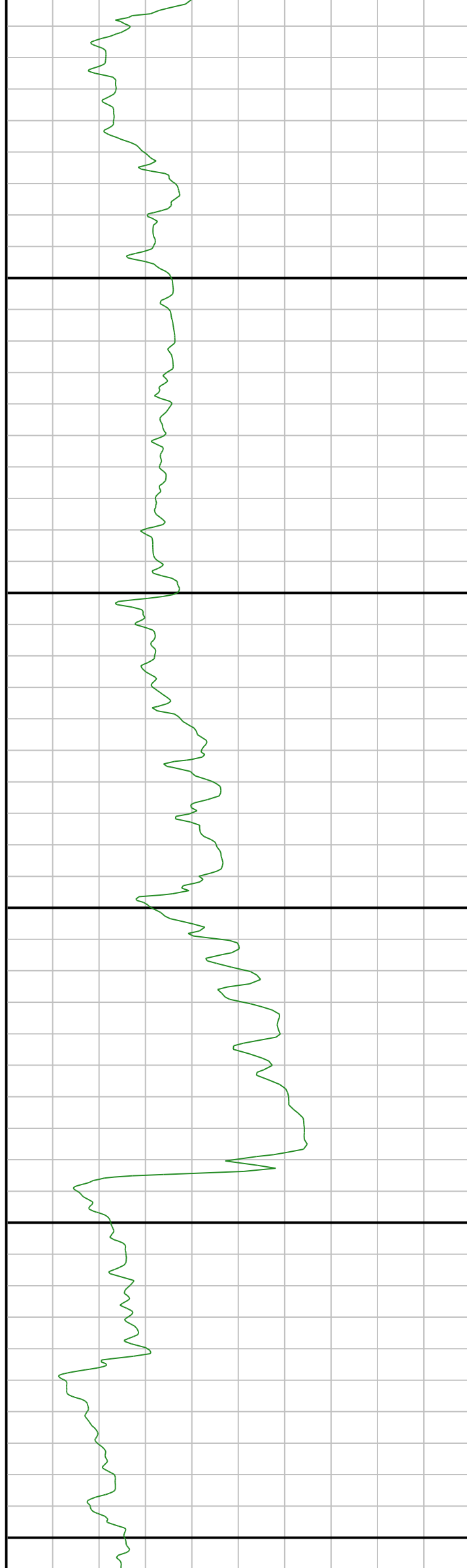
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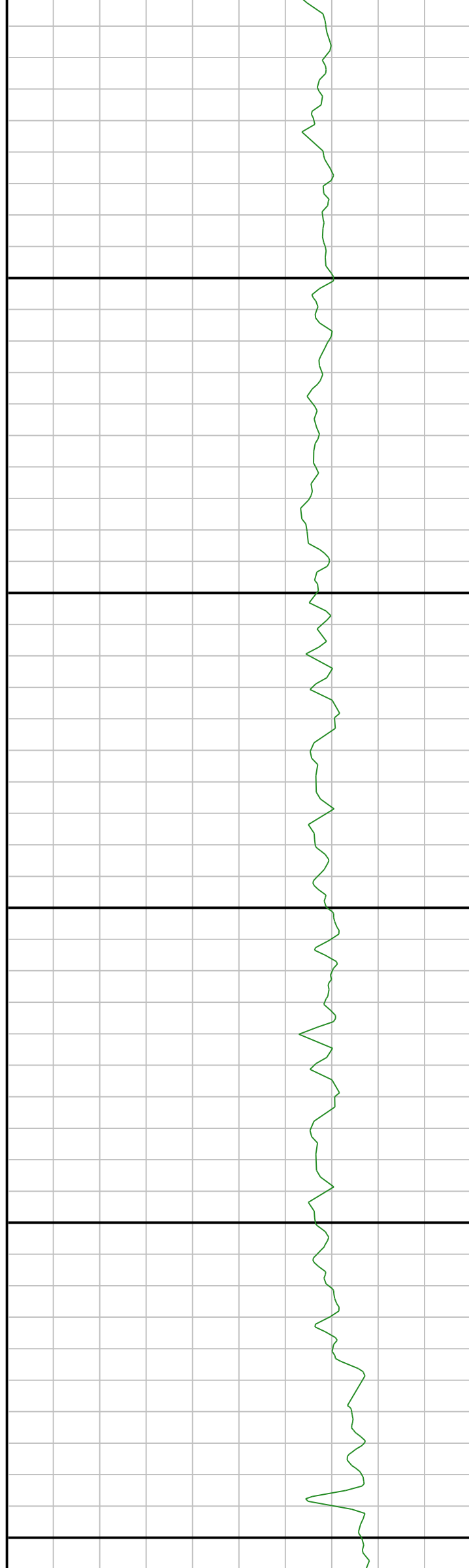
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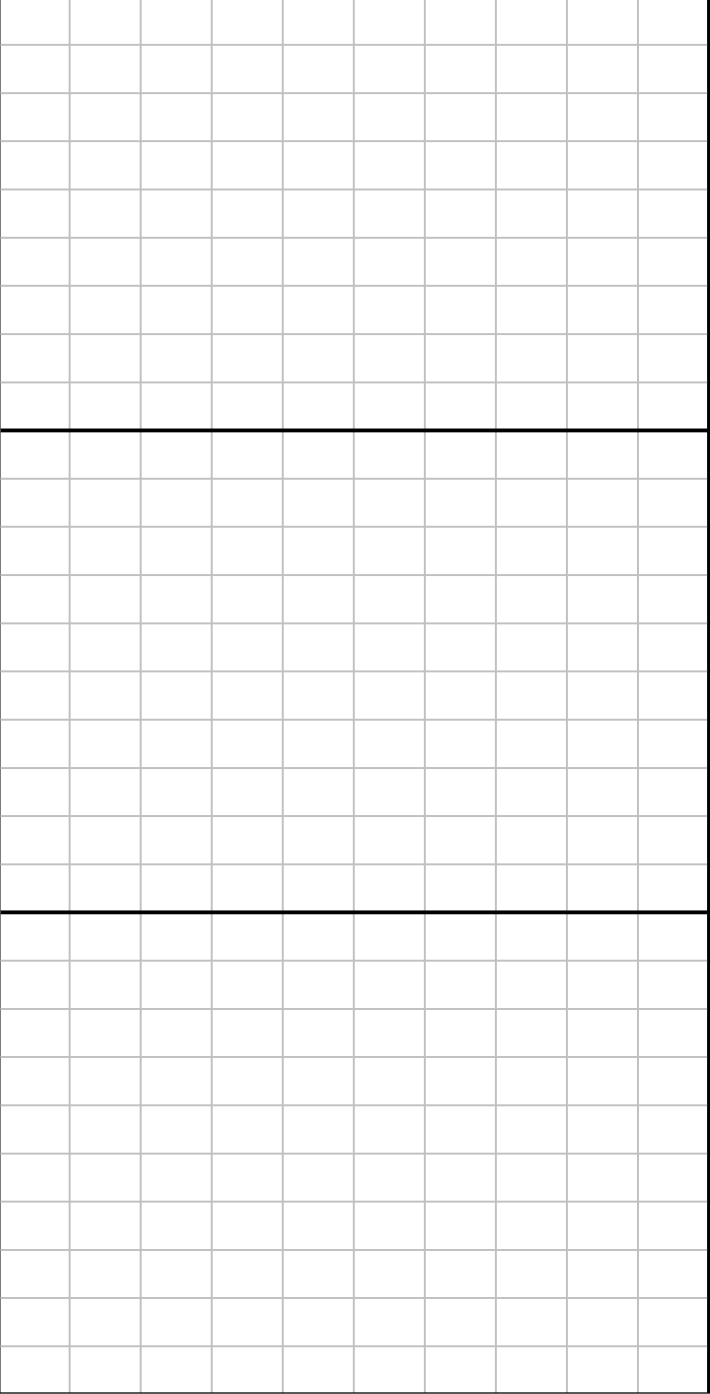
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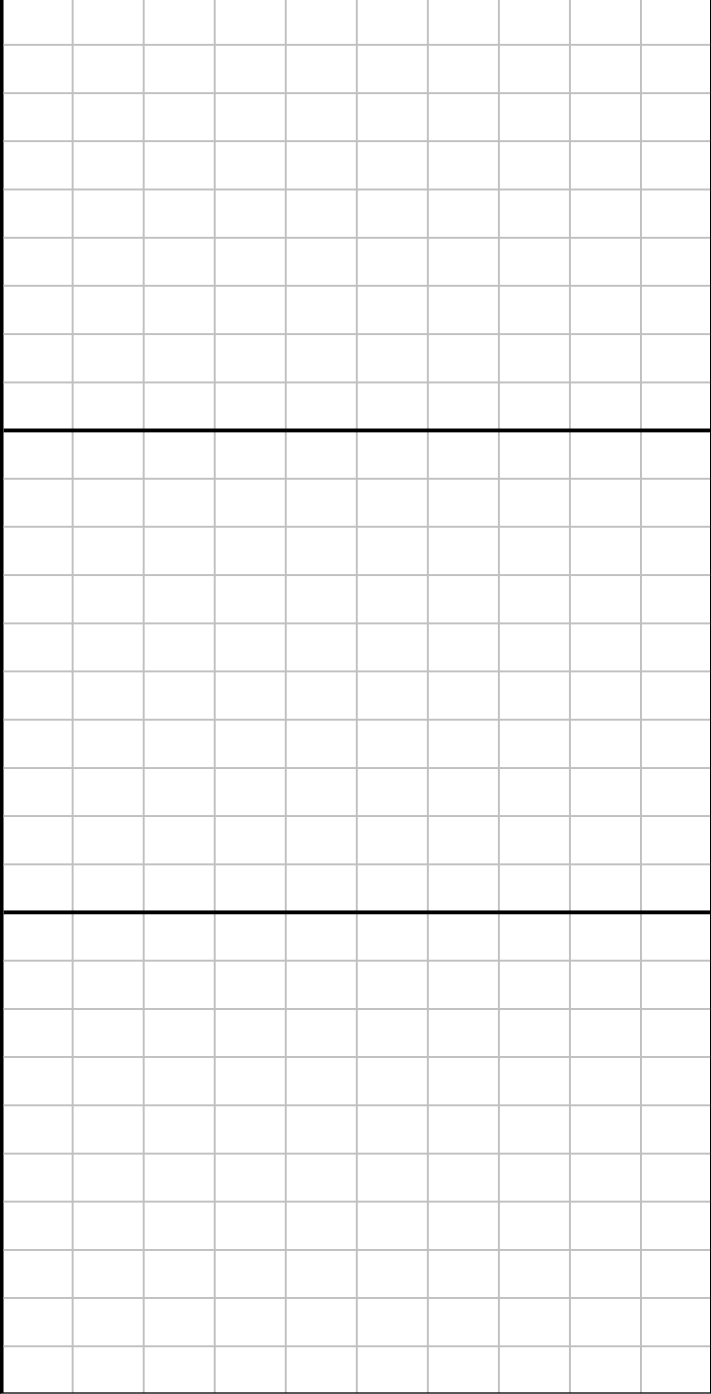


	ROP	ROP
0	ft/hr	300
	ROP	ROP
300	ft/hr	600
	ROP	ROP
600	ft/hr	900
	ROP	ROP
900	ft/hr	1200

5950

6000

6050



	Gamma	Gama
0	AAPI	150
	Gamma	Gama
150	AAPI	300
	Gamma	Gama
300	AAPI	450
	Gamma	Gama
450	AAPI	600