


<div></div> <div>PHOENIX TECHNOLOGY SERVICES</div>		TVD 1:240 Feet	
MWD Gamma / ROP (5")			
Client: Whiting Oil & Gas			
Well Name: Razor FEDERAL #12F-1305A			
API/UWID: 05-123-38719-00			
County: Weld		Field: Wildcat	
Permit #: 15-1248			
State: Colorado		Country: USA	
Longitude: 103° 49' 3.23731 W Latitude: 40° 51' 16.04828 N		Personnel	
Rig Name: Unit 409 Job Number: 1524099 Ground Level: 4936.80 ft Kelly Bushing: 4957.80 ft Permanent Datum: Mean Sea Level Drilling Measured From: Kelly Bushing Spud Date: November 12, 2015 Bottom Hole Temp: 453.2 °F Log Start Depth: 0.00 ft Log End Depth: 6000.00 ft		Company Representative Kenny Wilkerson Geologist Todd Directional Driller(s) Brandon Davis Mark Gentry Mark Weldon MWD Operator(s) Larry Seebeck Jason Dubose Clayton Carter	
Comments:		Main Leg	
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Operational Run Summary

1524099

	Run 1	Run 2	Run 3	Run 4	Run 5	
Run Start Depth (ft)	0.00	1861.33	5325.44	5325.44	6236.96	
Run End Depth (ft)	1861.33	5325.44	5325.44	6236.96	13909.98	
Run Start Date	11/12/2015	11/13/2015	11/14/2015	11/14/2015	11/15/2015	
Run Start Time	7:23 AM	8:02 AM	1:02 AM	12:57 PM	4:12 PM	
Run End Date	11/12/2015	11/13/2015	11/14/2015	11/15/2015	11/17/2015	
Run End Time	7:17 PM	11:31 PM	1:02 AM	3:32 AM	9:07 PM	

Tool Information Summary

1524099

	Run 1	Run 2	Run 3	Run 4	Run 5	
Gamma Probe Serial No		ELP0173	G0275	G0109	G0151	
Probe Cal Ratio	1	1	1.51	1.52	1.58	
Gamma Scale Factor	1	2.85	9.651	6	4.211	
Tool Carrier ID (in)	3.500	2.875	2.750	2.750	2.688	
Tool Carrier OD (in)	8.000	6.625	6.500	6.500	4.630	
Survey-to-Bit (PTB) (ft)	50.36	50.64	54.18	54.18	55.30	
Gamma-to-Bit (GTB) (ft)	0.00	49.45	41.45	41.45	42.73	
Annular Pressure-to-Bit (APTB) (ft)	0.00	0.00	0.00	0.00	0.00	

Borehole Fluids and Measurements Summary

1524099

	Run 1	Run 2	Run 3	Run 4	Run 5	
Hole Size (in)	13.50	8.75	8.75	8.75	6.00	
Casing Start Depth (ft)	0.00	0.00	0.00	0.00	0.00	
Casing End Depth (ft)	0.00	1842.00	1846.00	1846.00	6222.00	
Casing ID Size (in)	0.000	0.625	0.625	0.625	7.000	

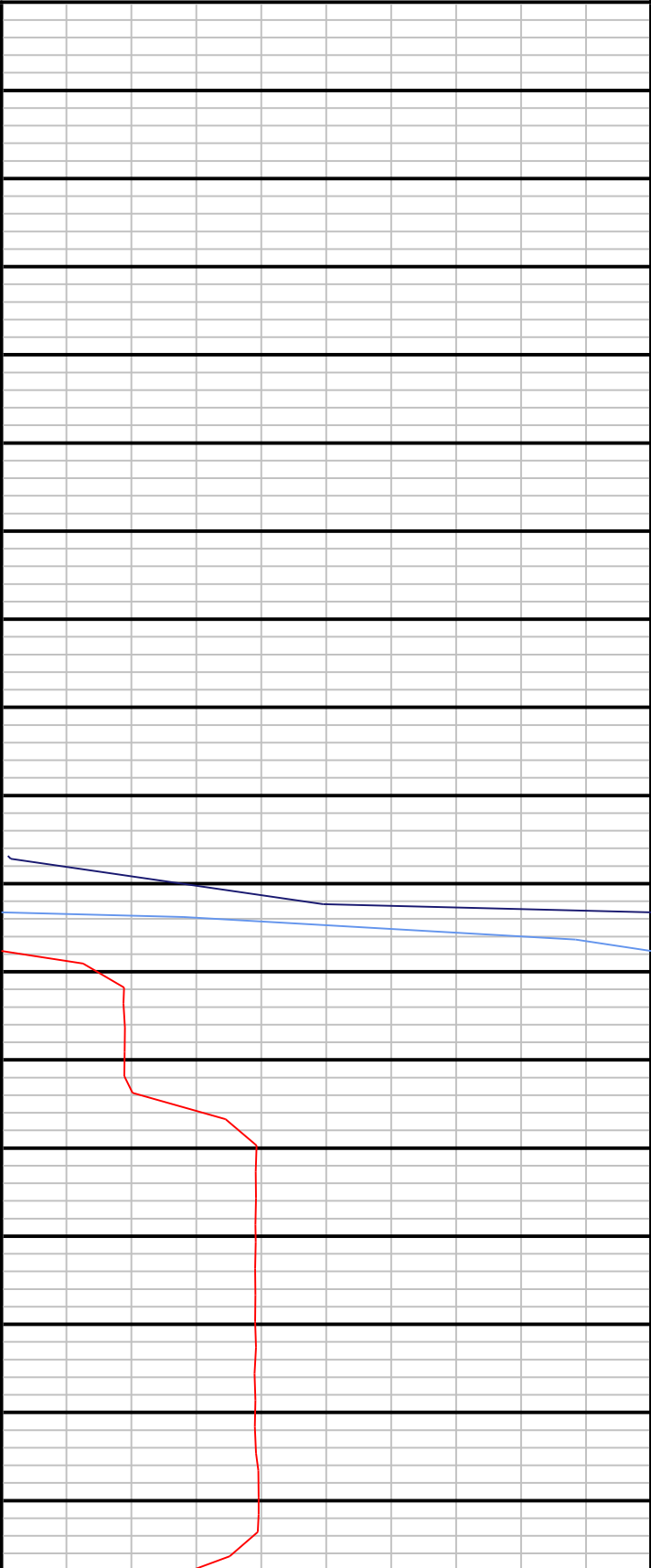
Casing Size (in)	0.000	9.625	9.625	9.625	7.000	
Mud Type	Fresh Water	Water-Based Mud (WBM)	Water-Based Mud (WBM)	Water-Based Mud (WBM)	Water-Based Mud (WBM)	
Mud Weight (lb/gal)	8.4	9.5	10.5	10.5	10.5	
Mud Viscosity (s)	40	39	40	40	40	
Weighting Agent	Barite	Barite	Barite	Barite	Barite	
Mud KCL Content (%)	0.000	0.000	0.000	0.000	0.000	

Log

1:240

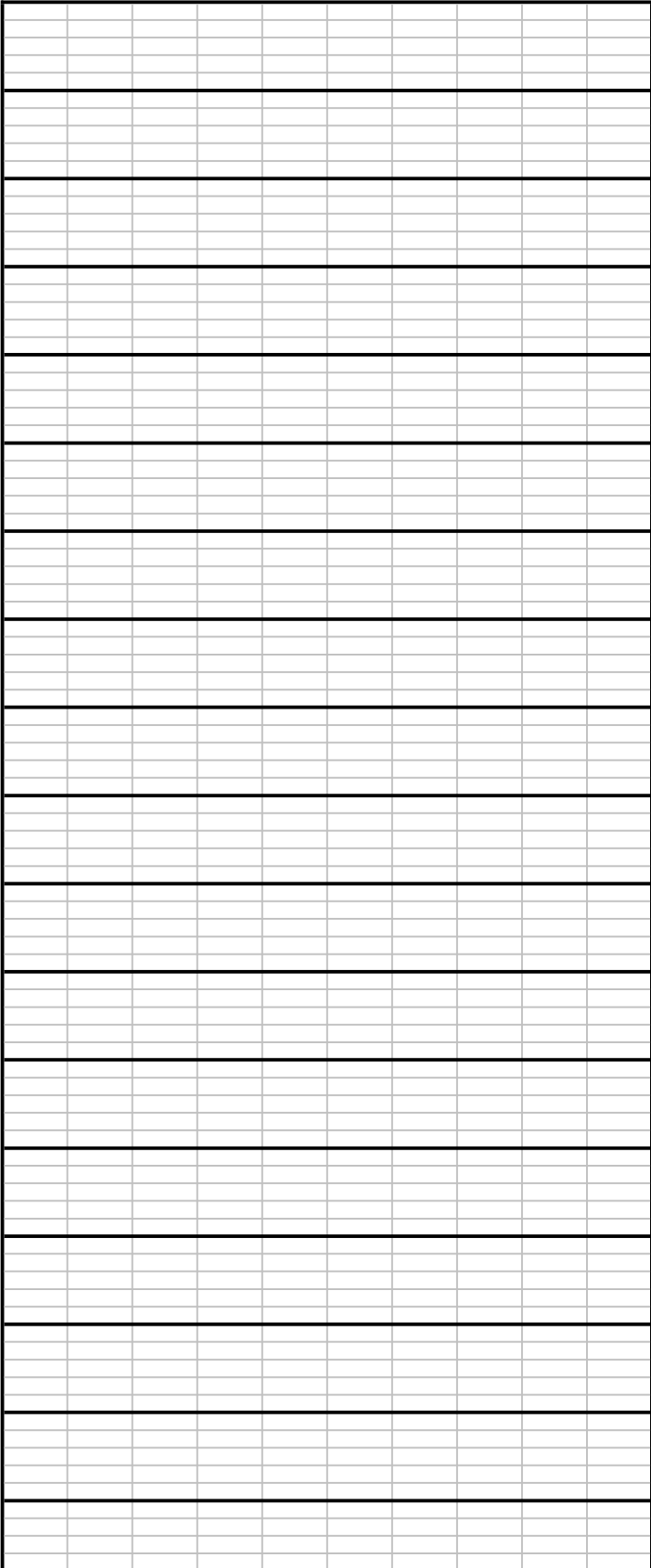
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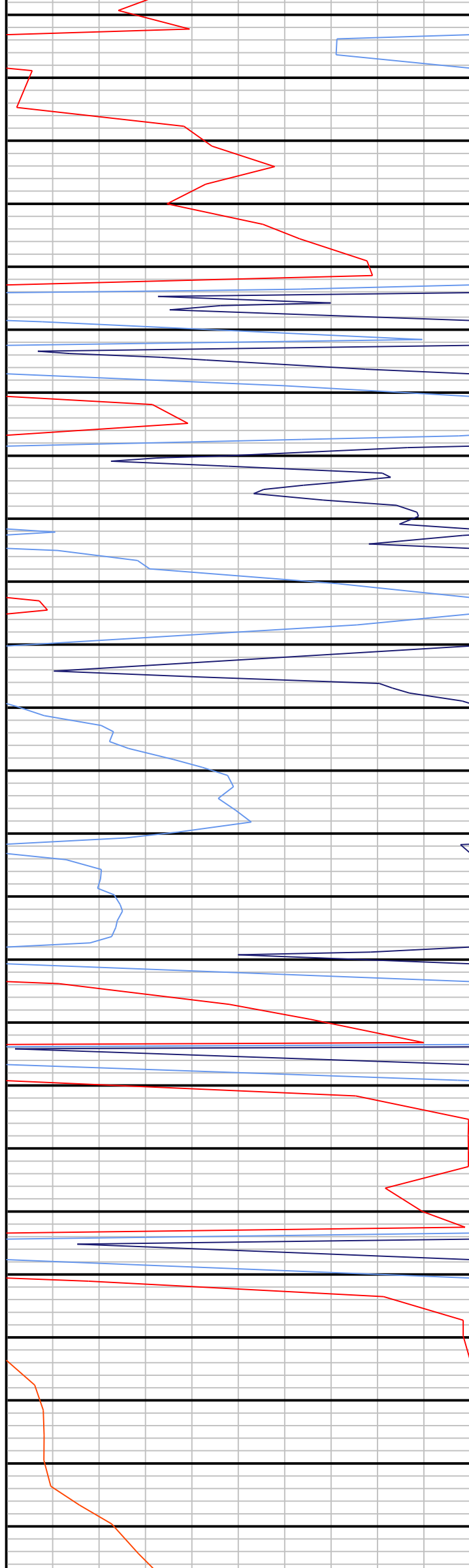
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	ROP	ROP
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	ROP	ROP
600	ft/hr	900
	ROP	ROP
900	ft/hr	1600



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	Gamma	Gama
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	Gamma	Gama
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	Gamma	Gama
600	AAP	800





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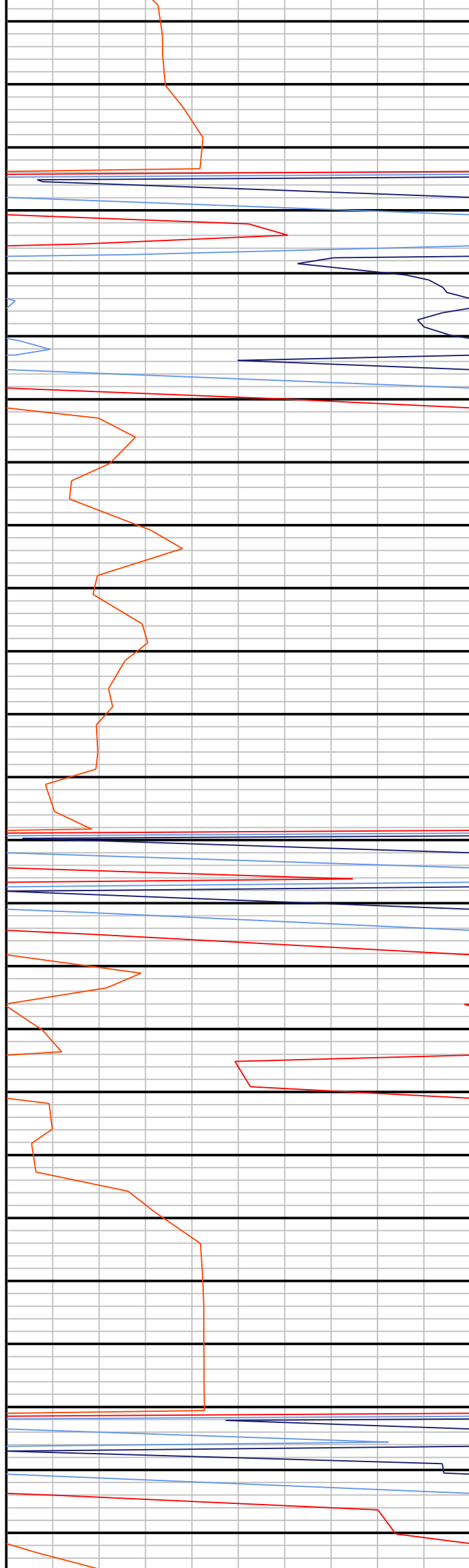
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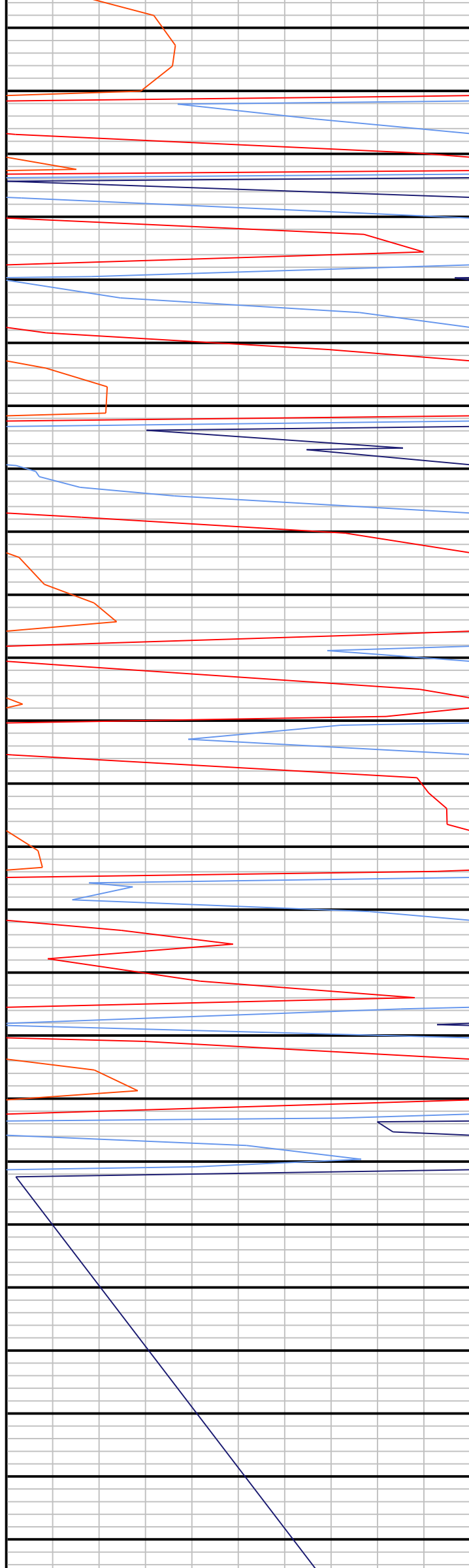
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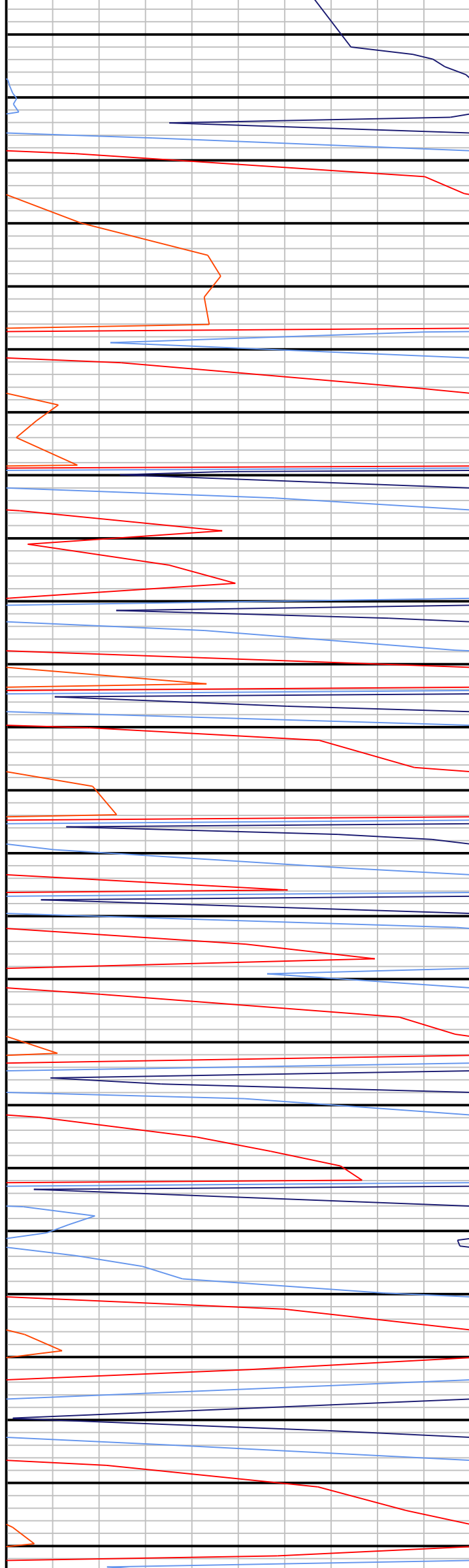
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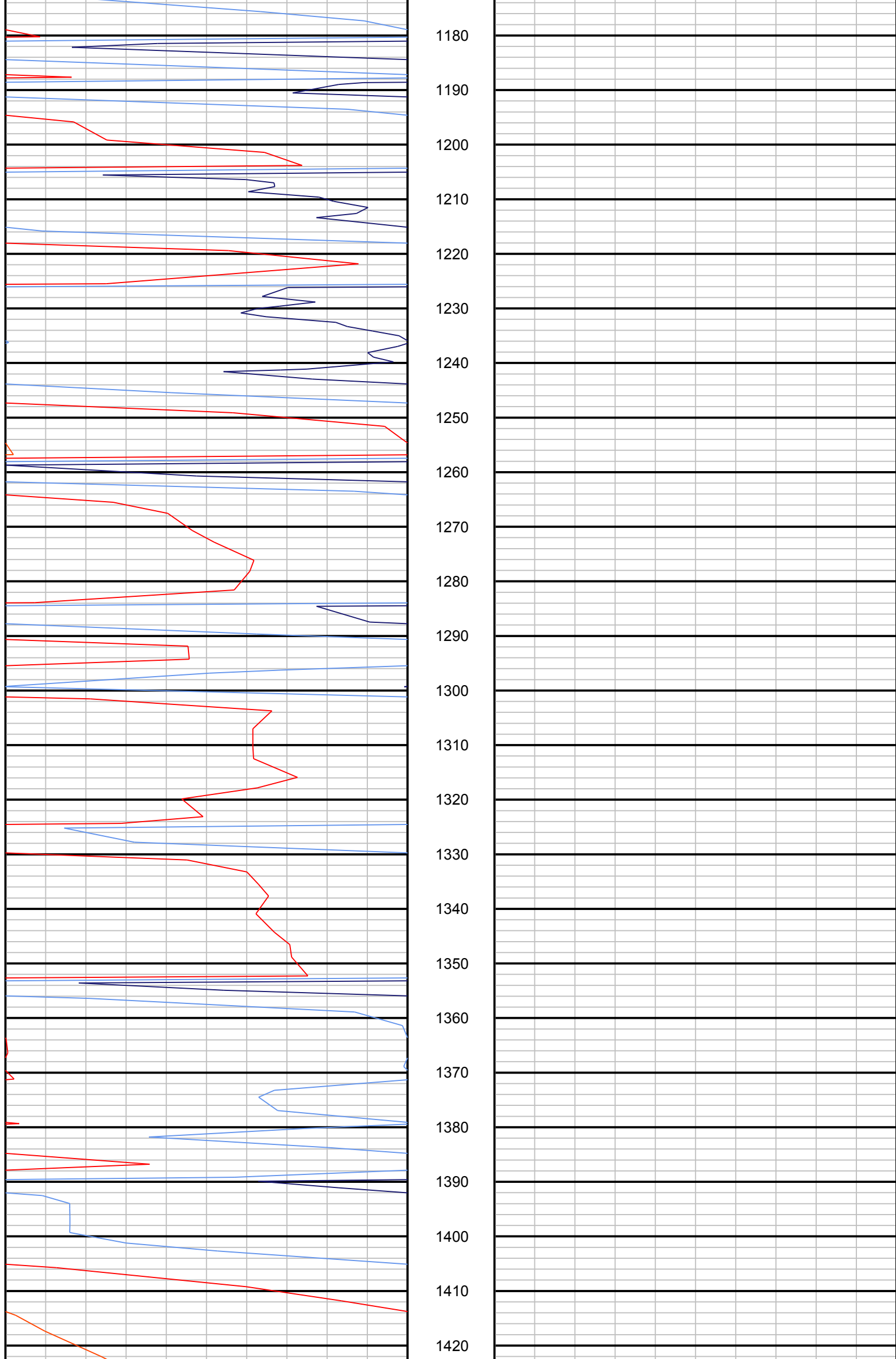
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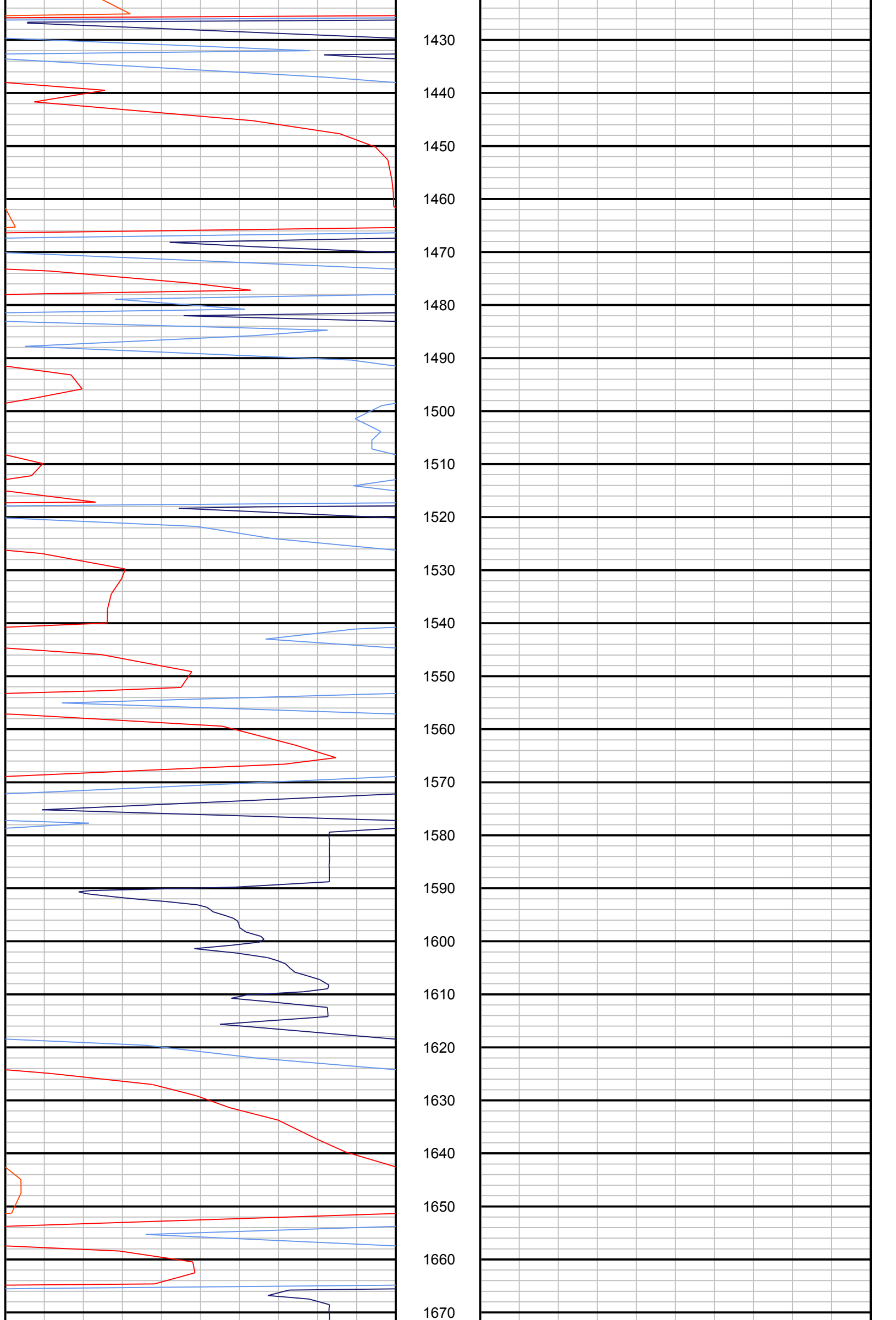
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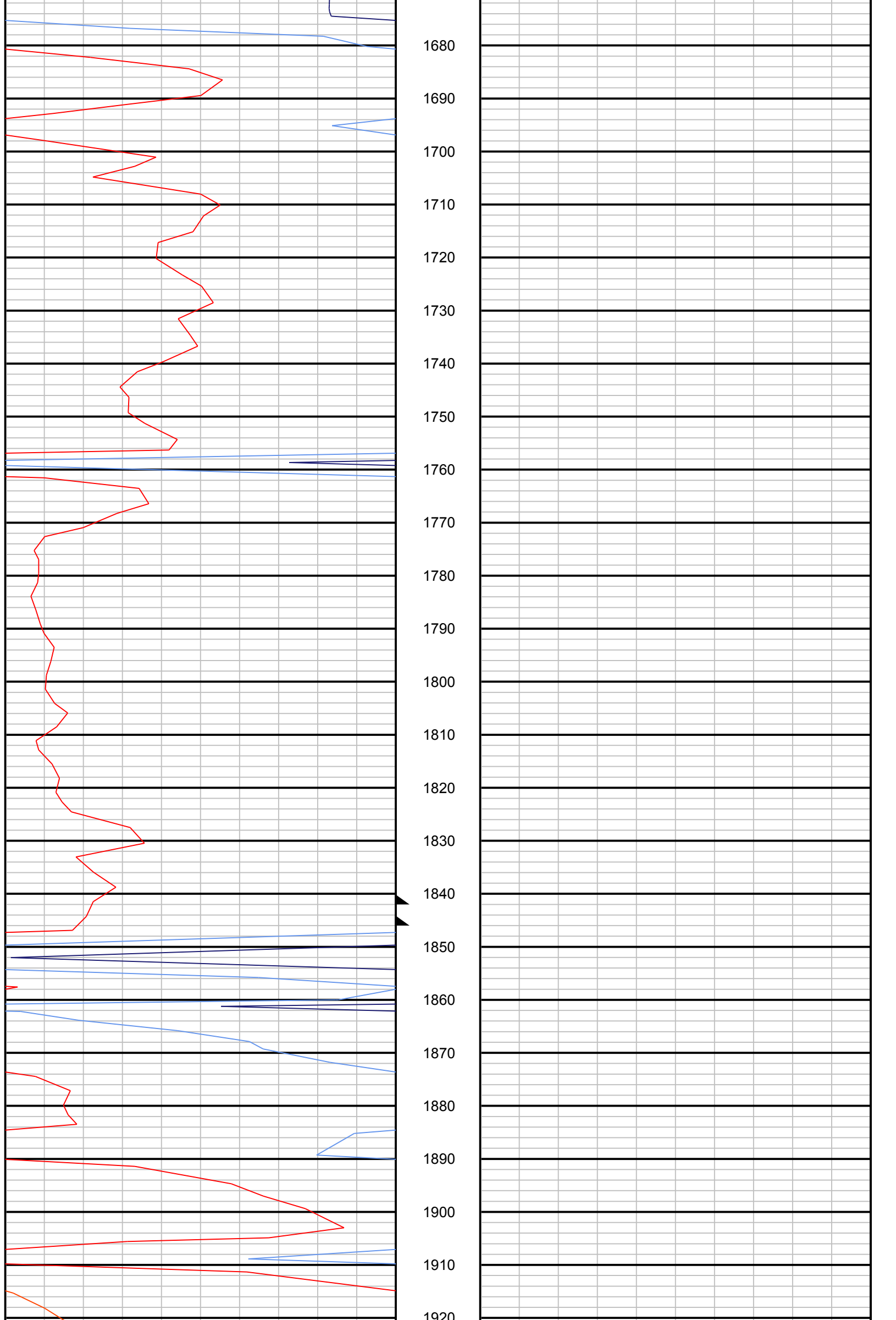
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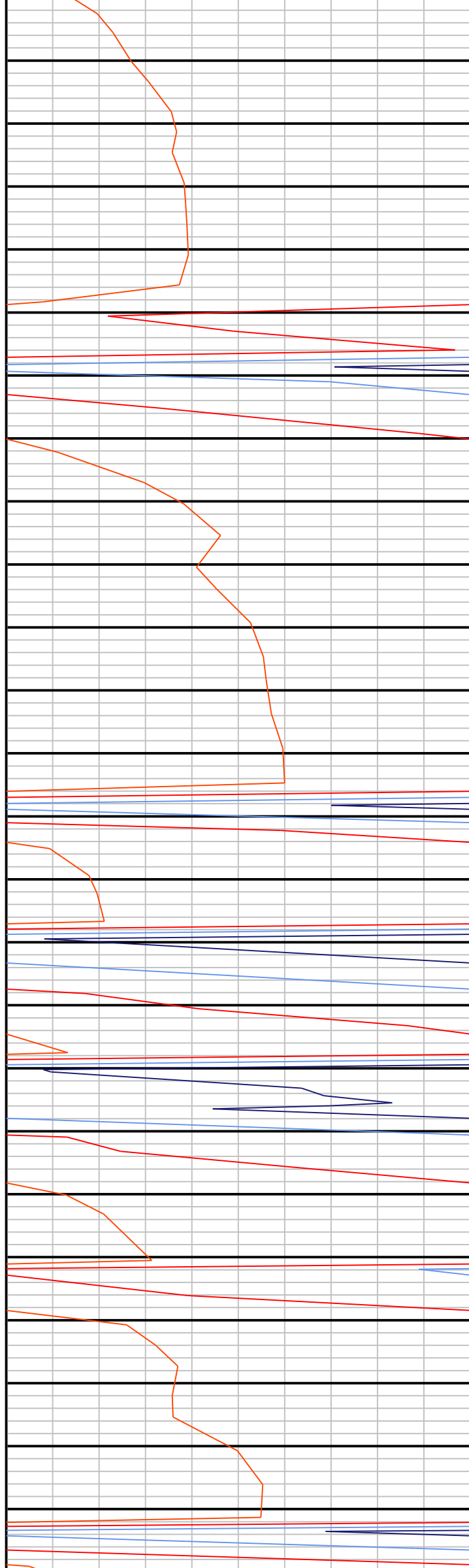
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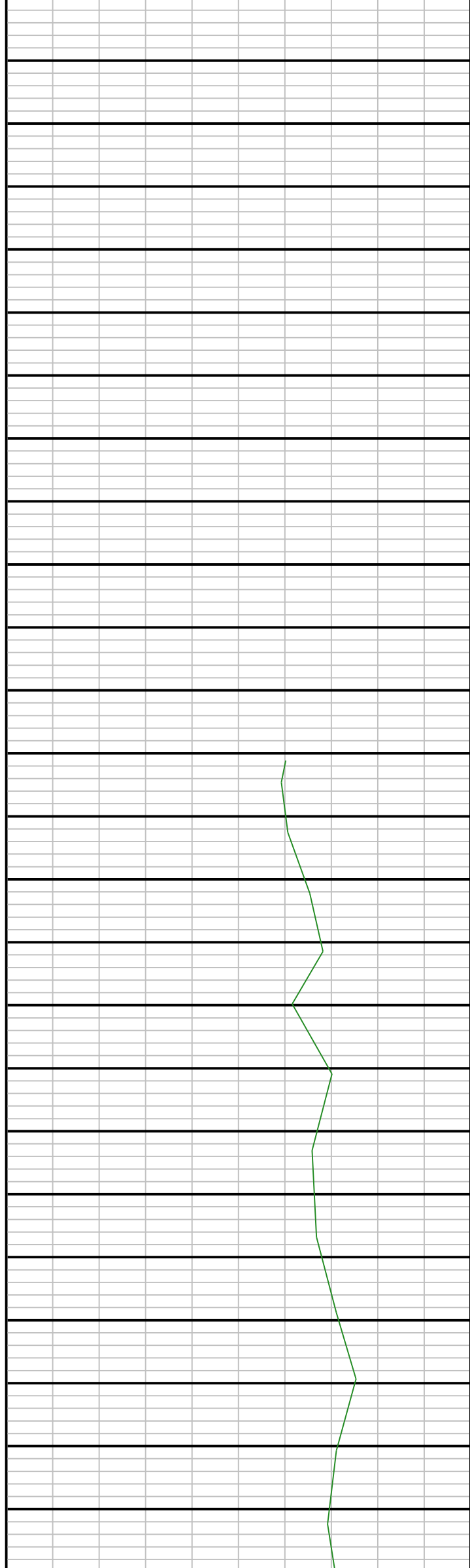
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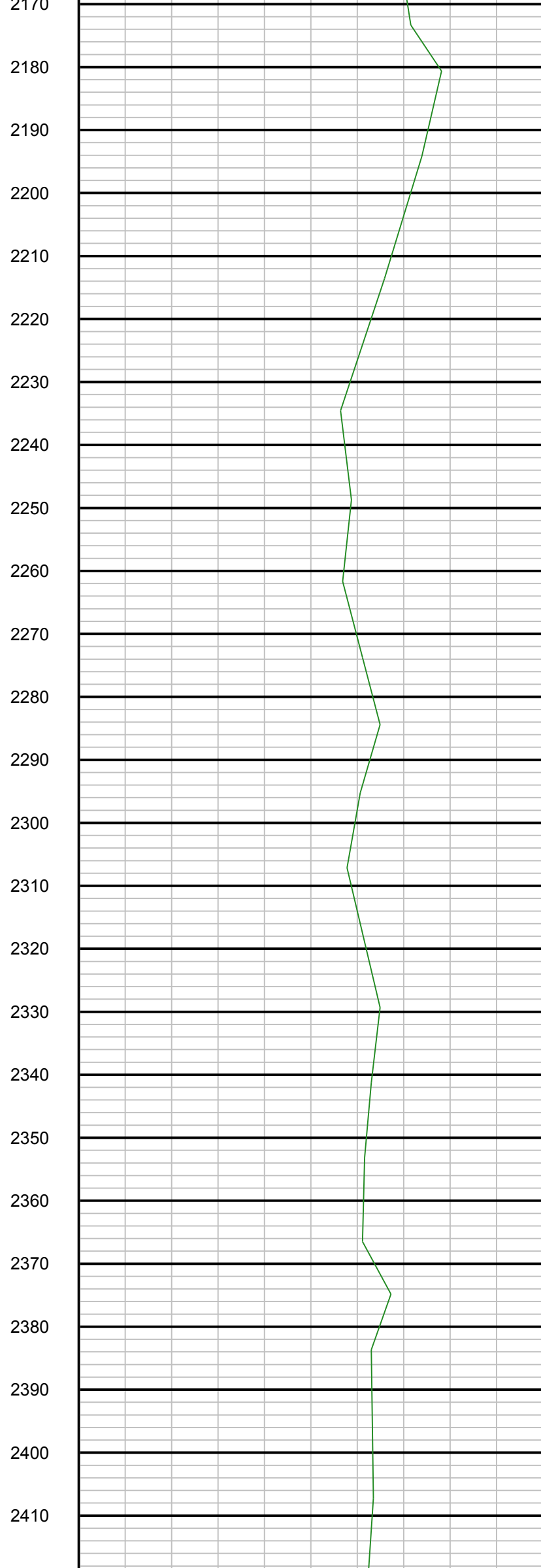
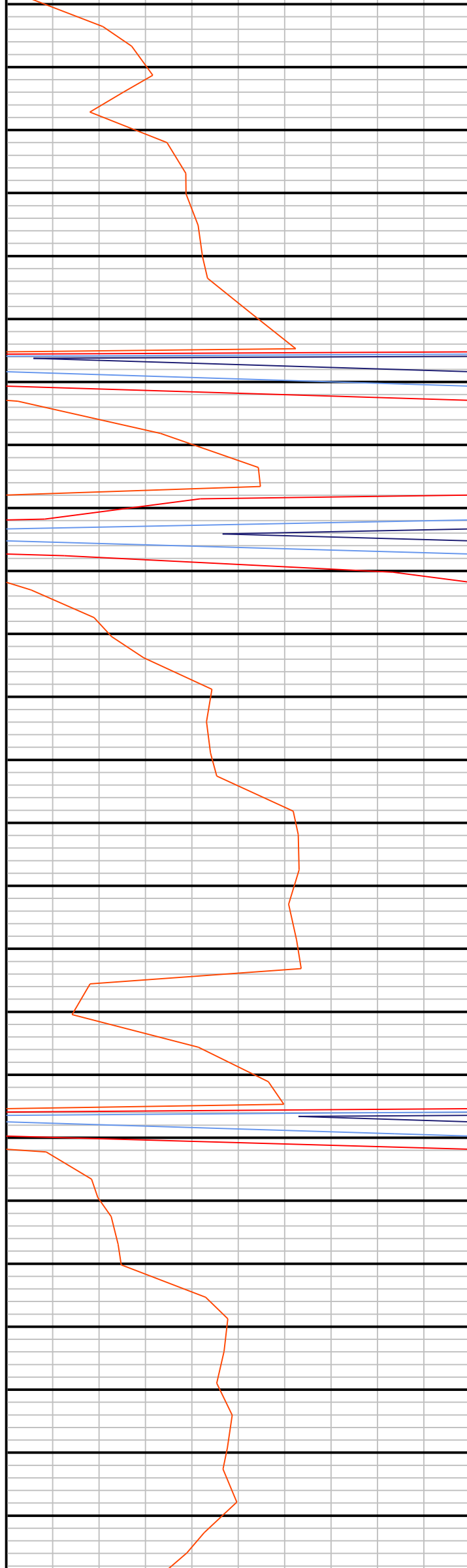
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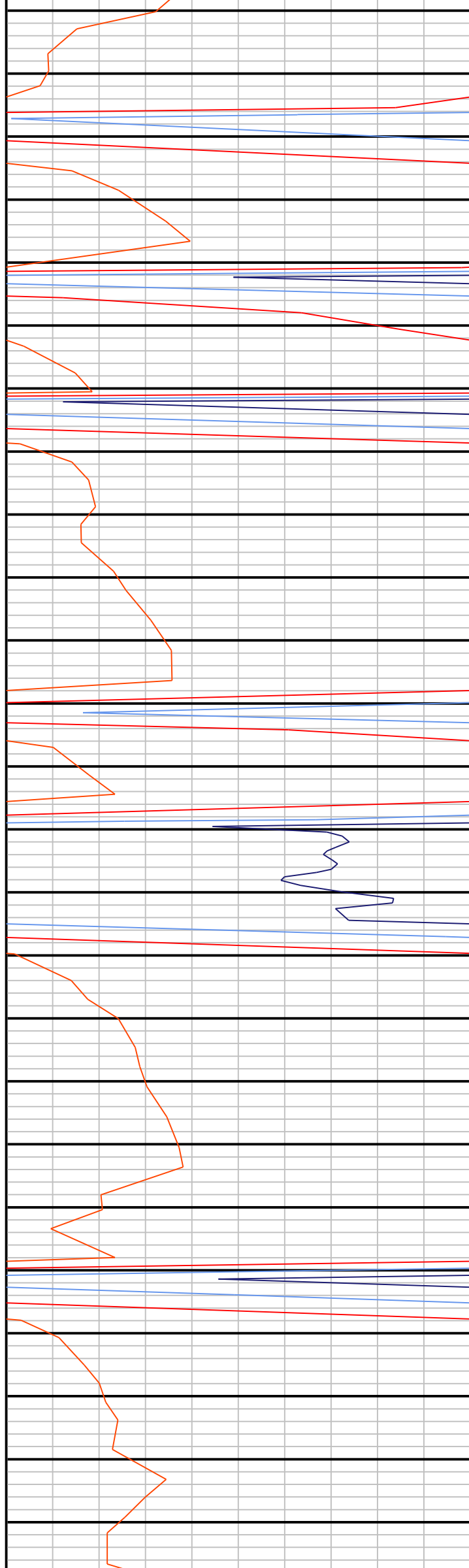
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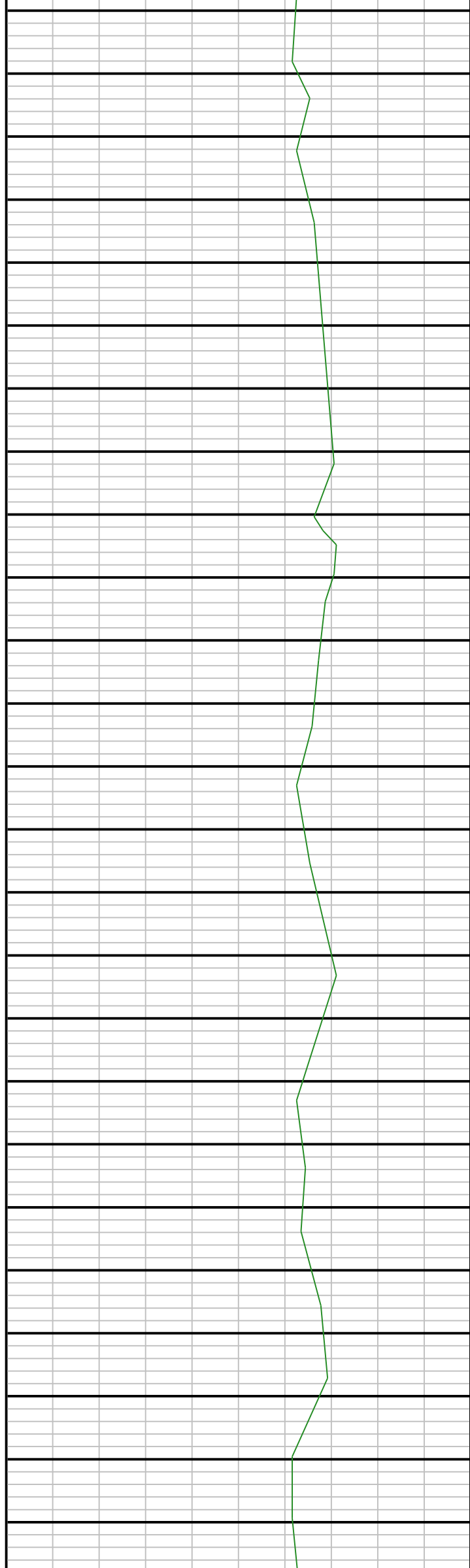
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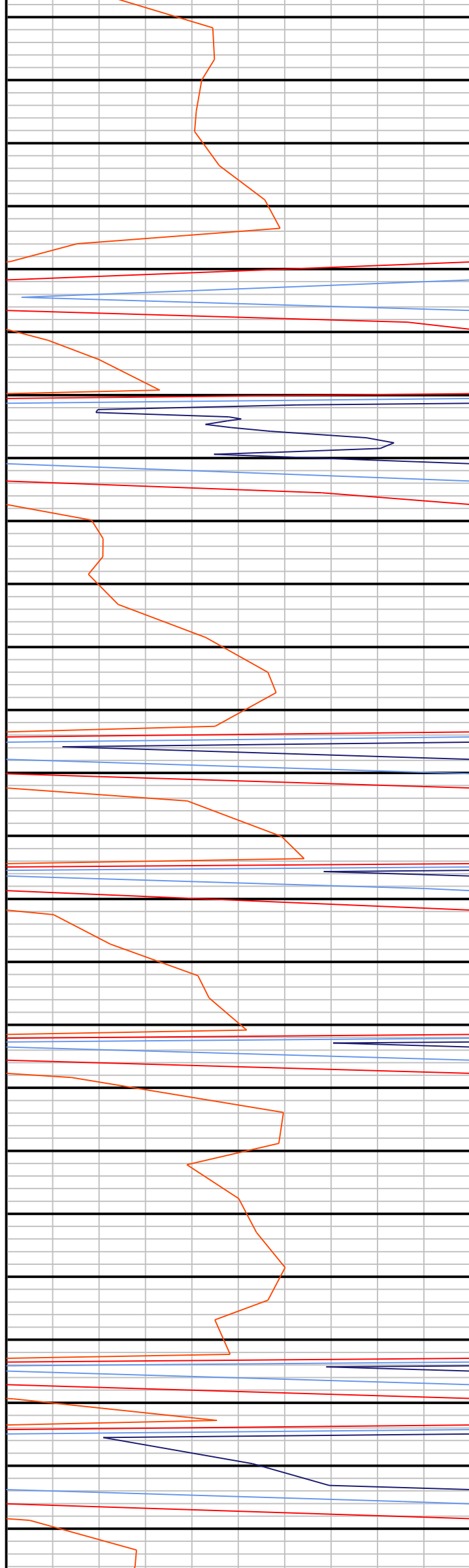




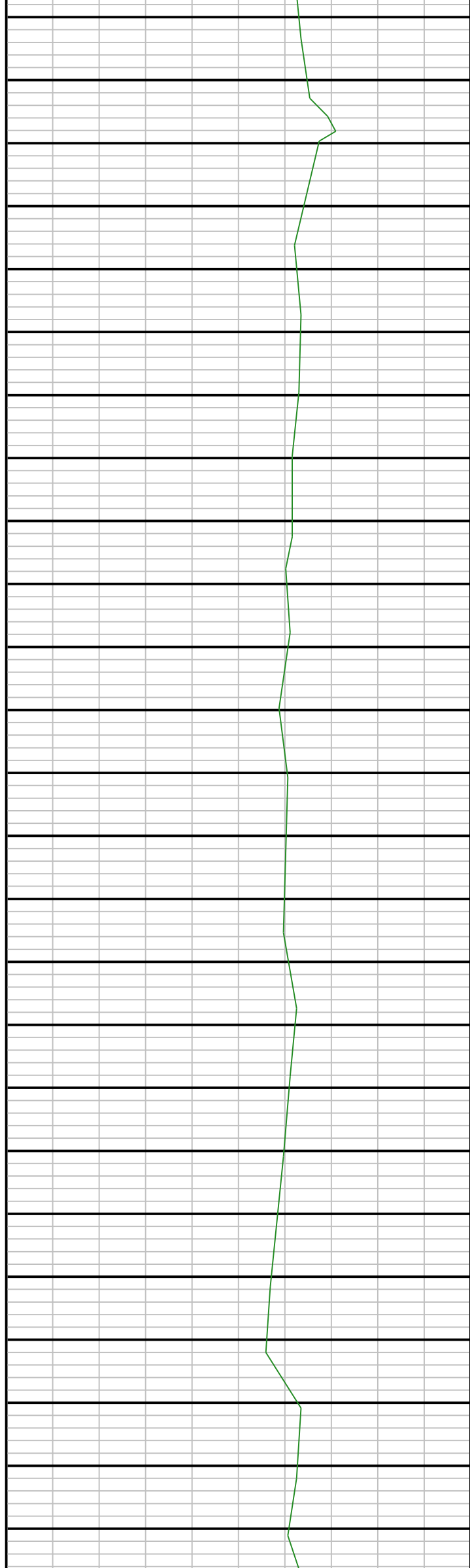


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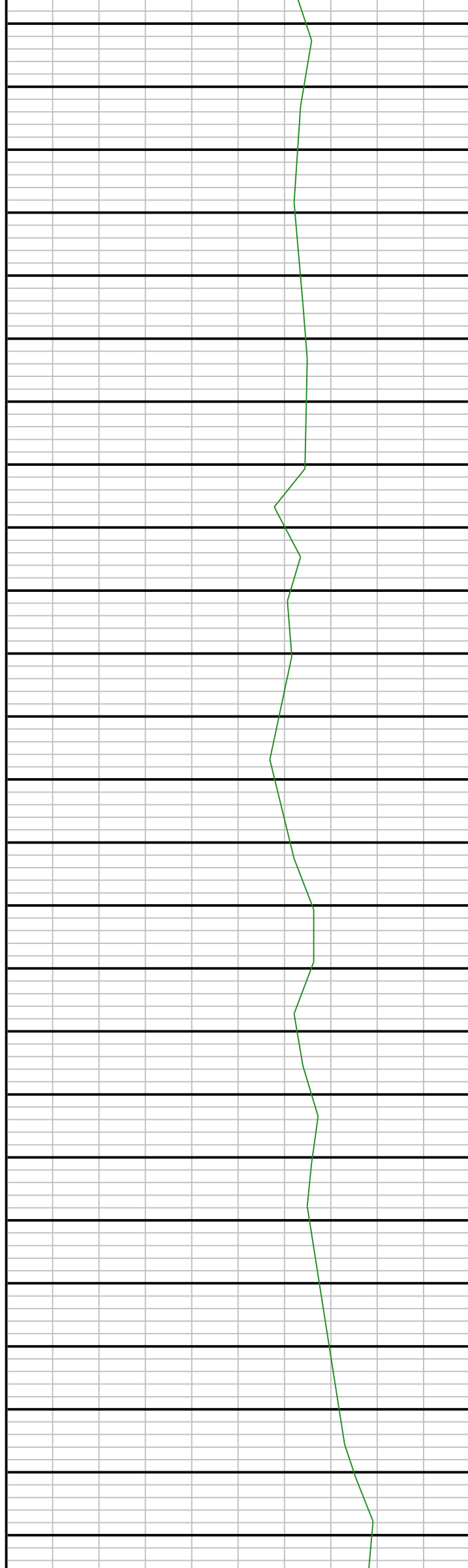


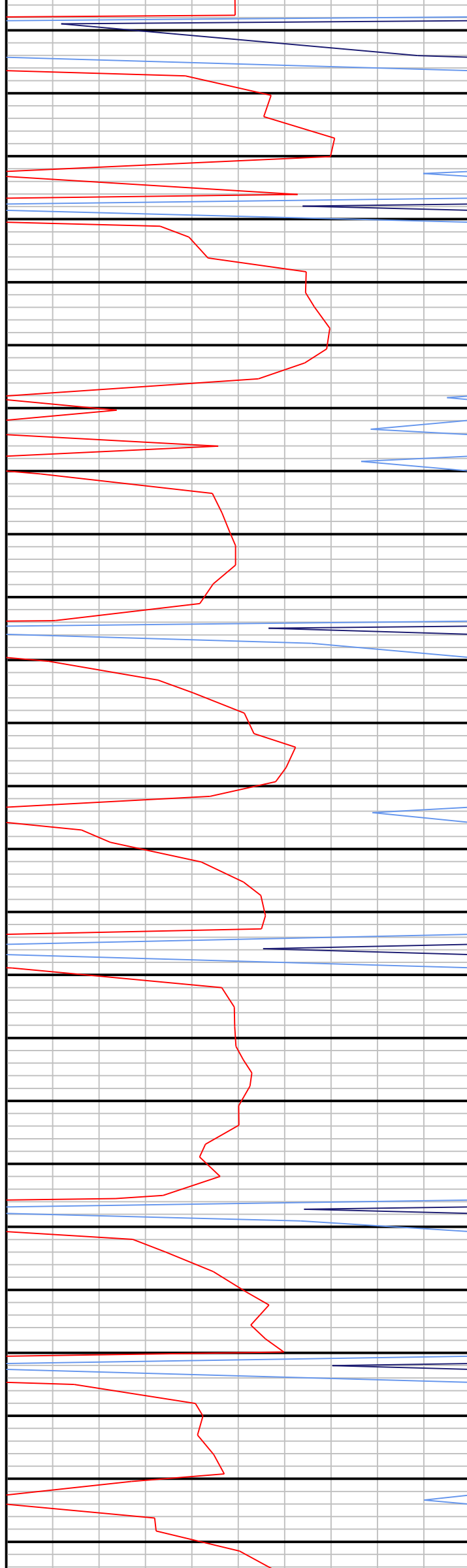
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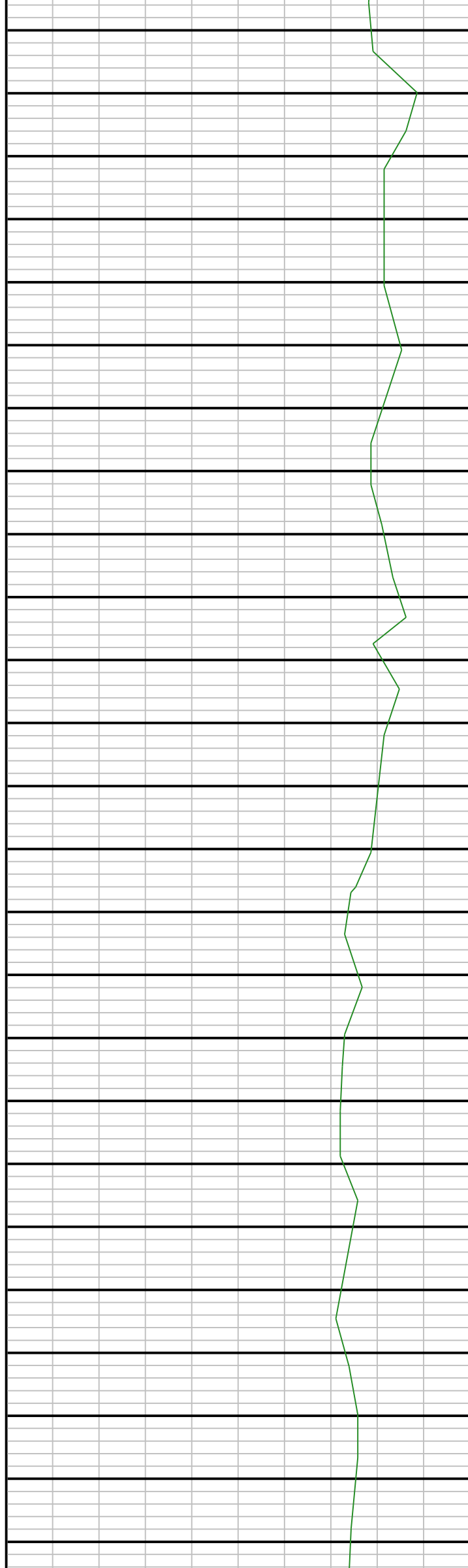


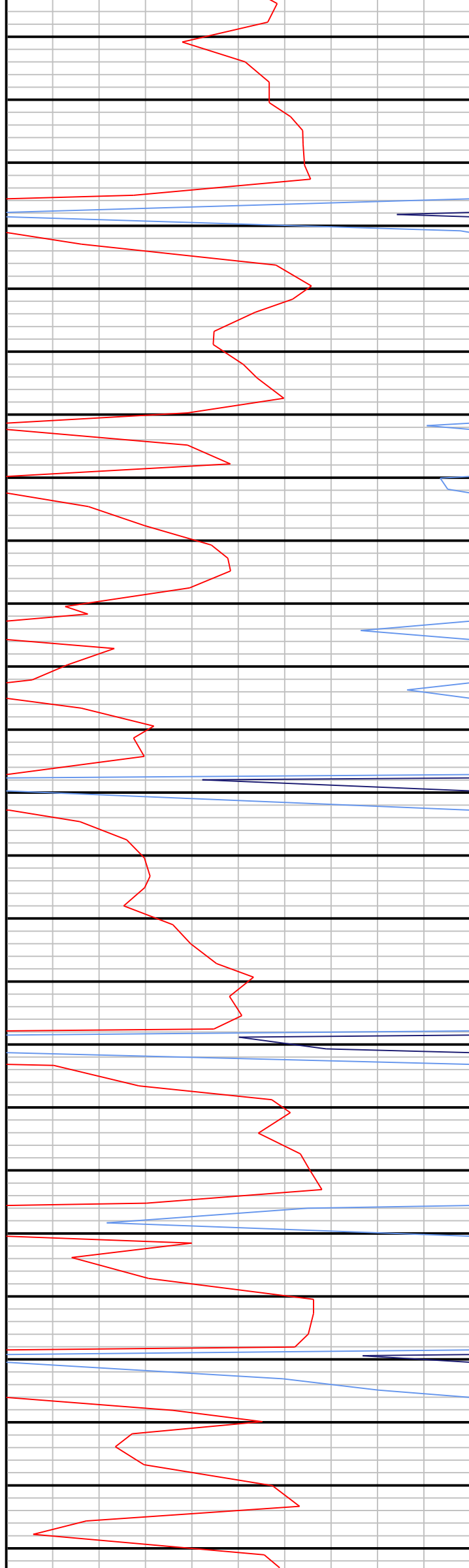
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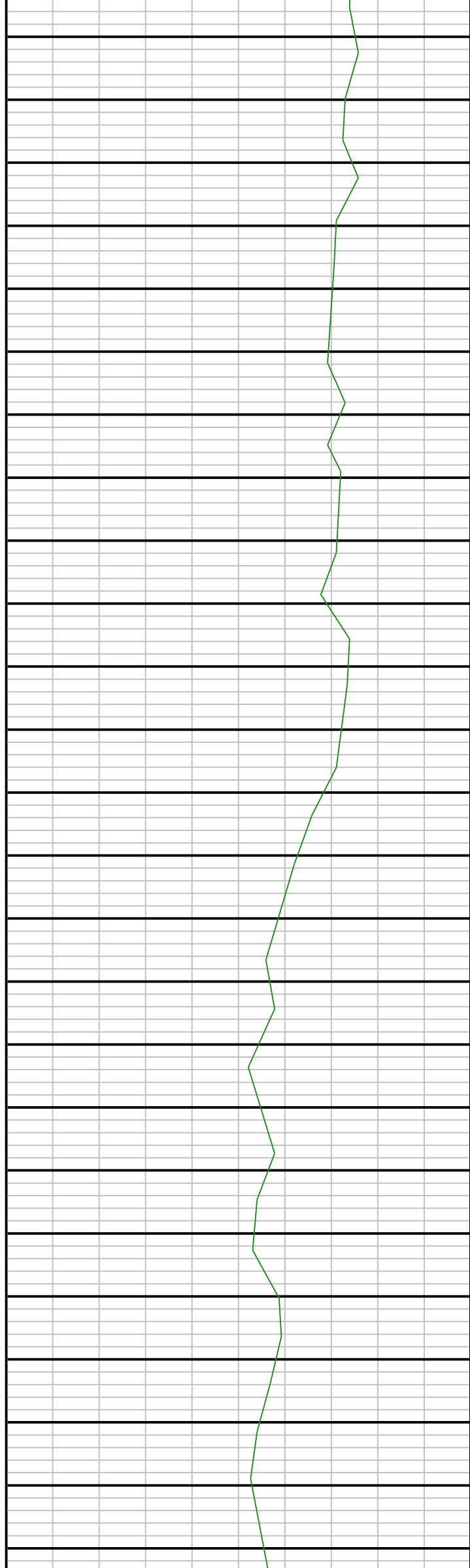


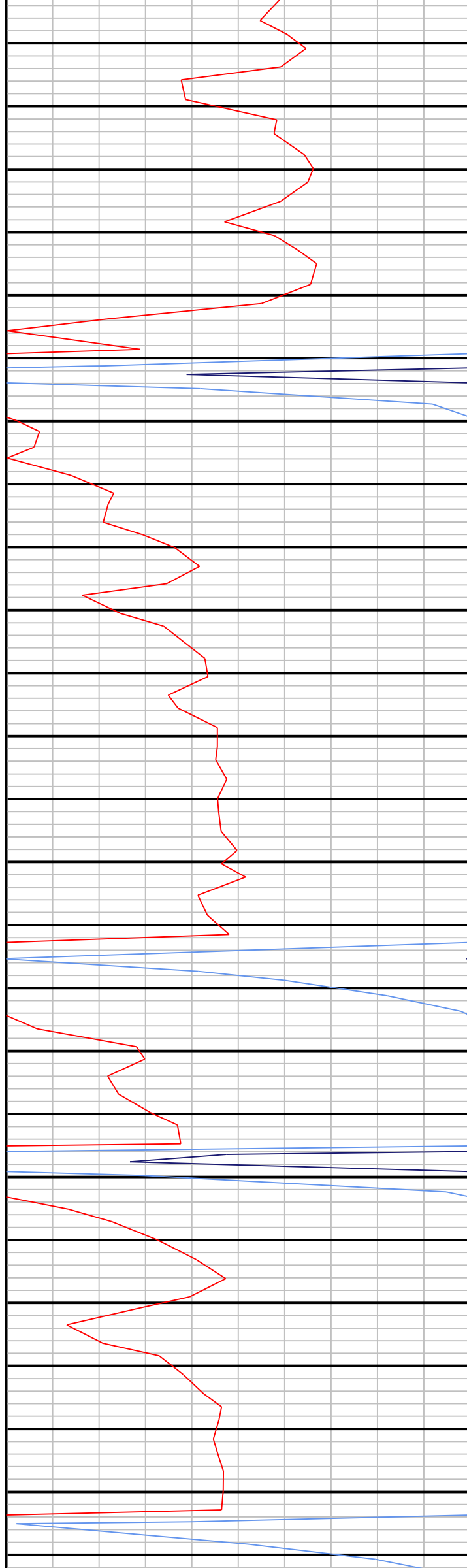
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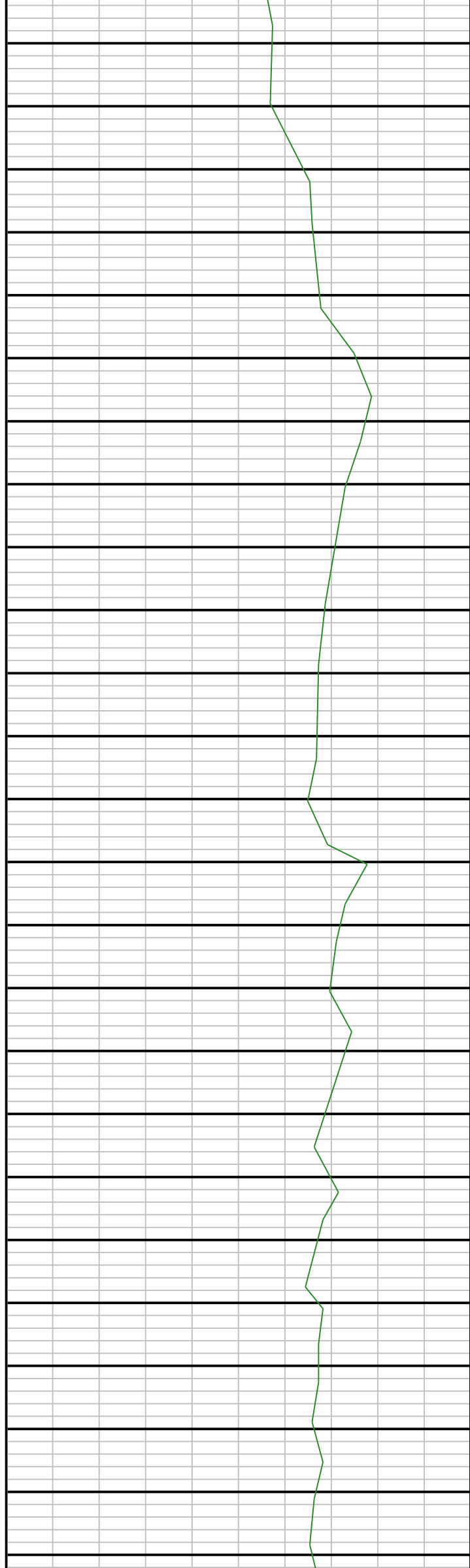
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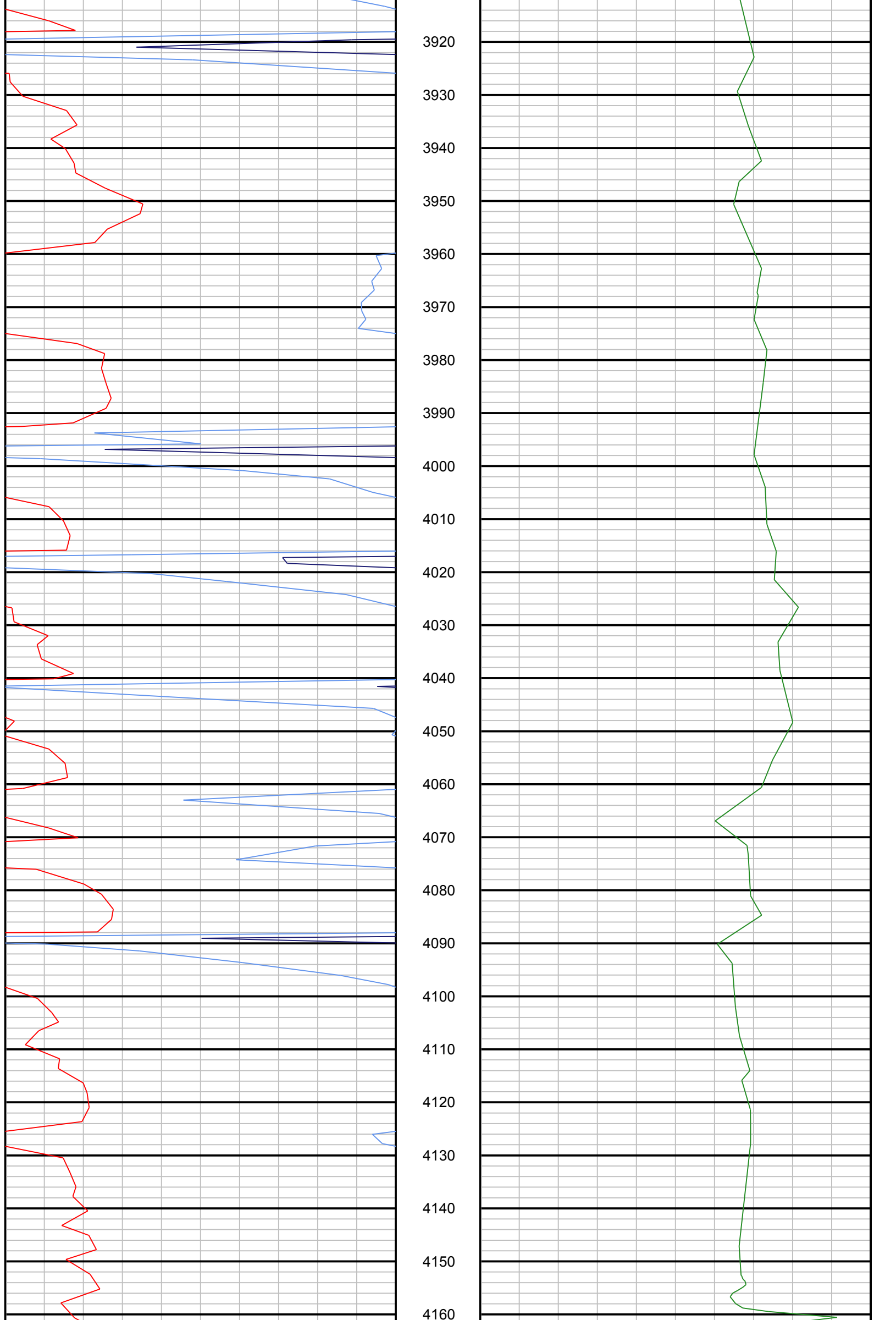
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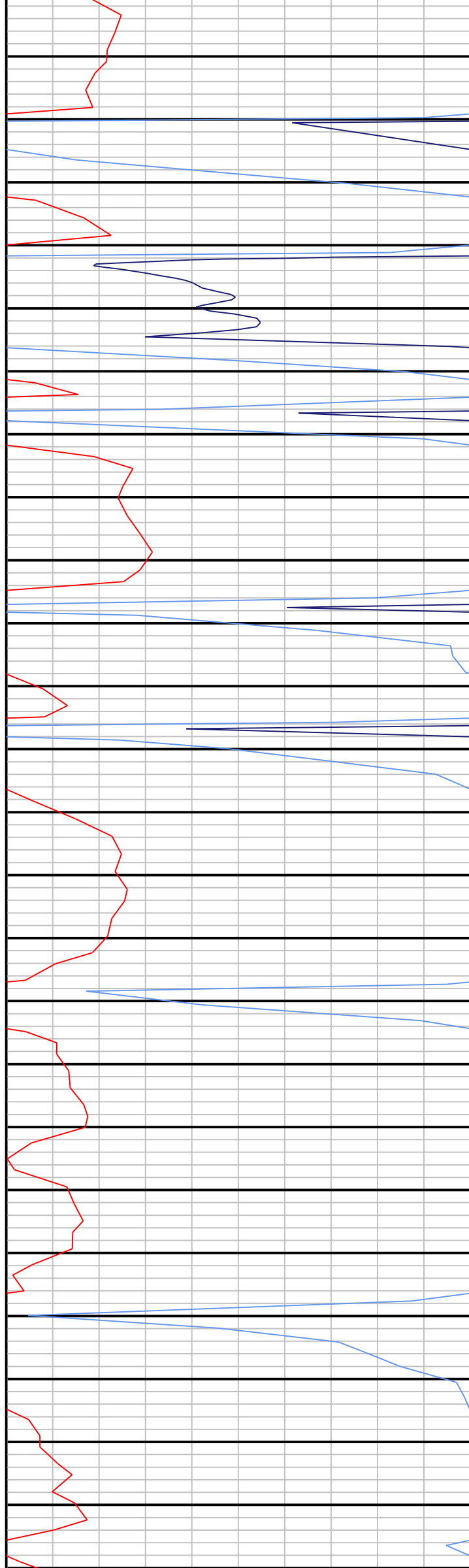
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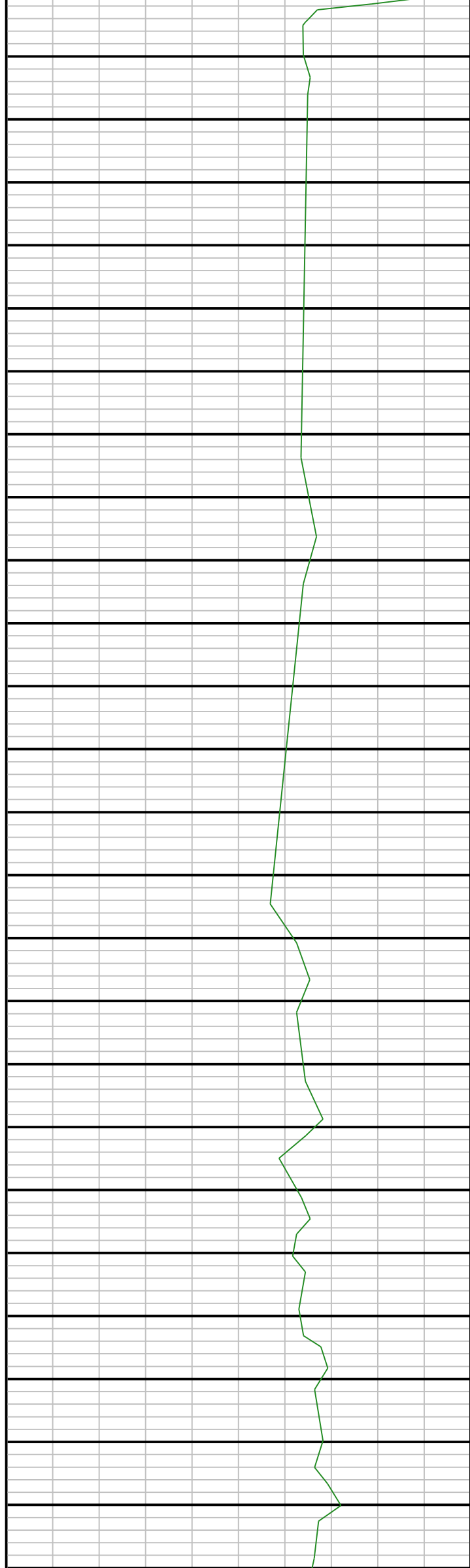
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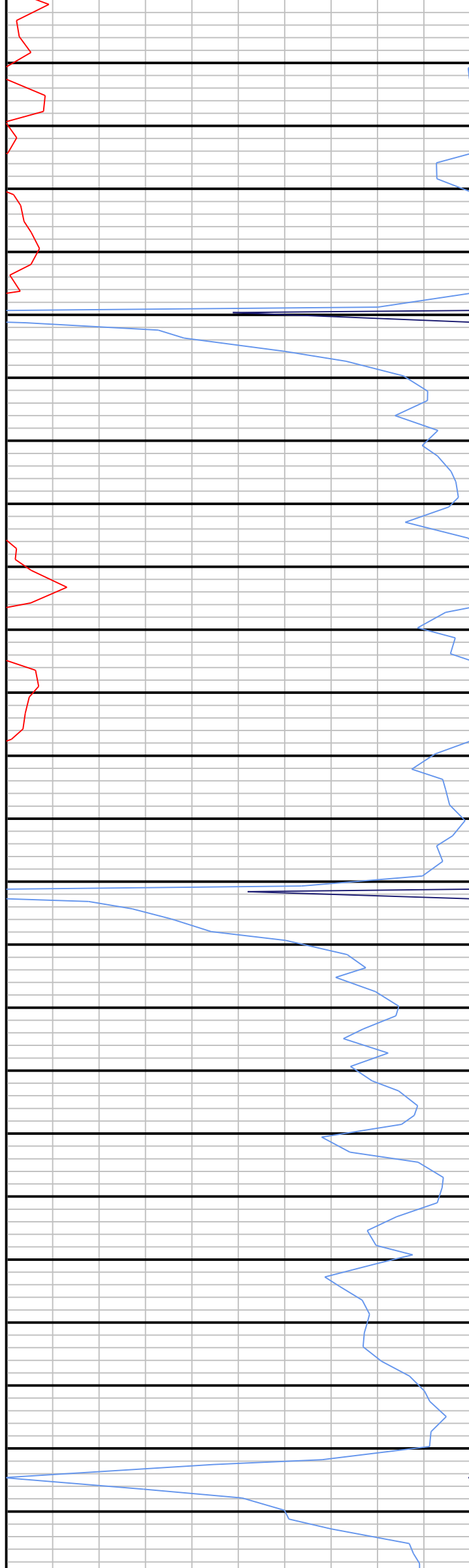
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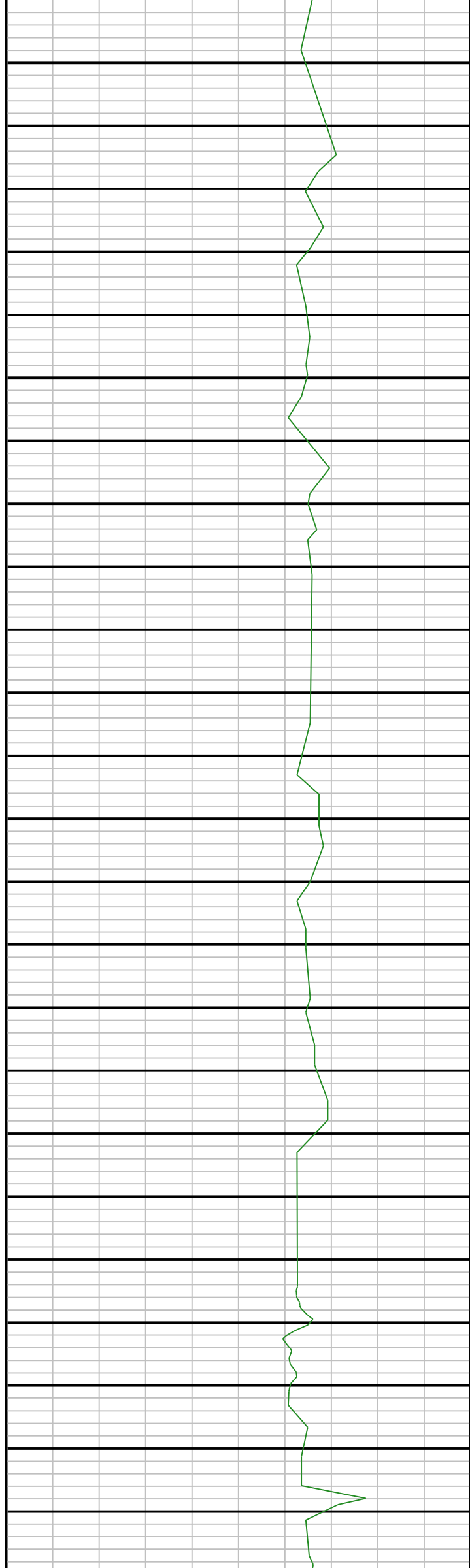
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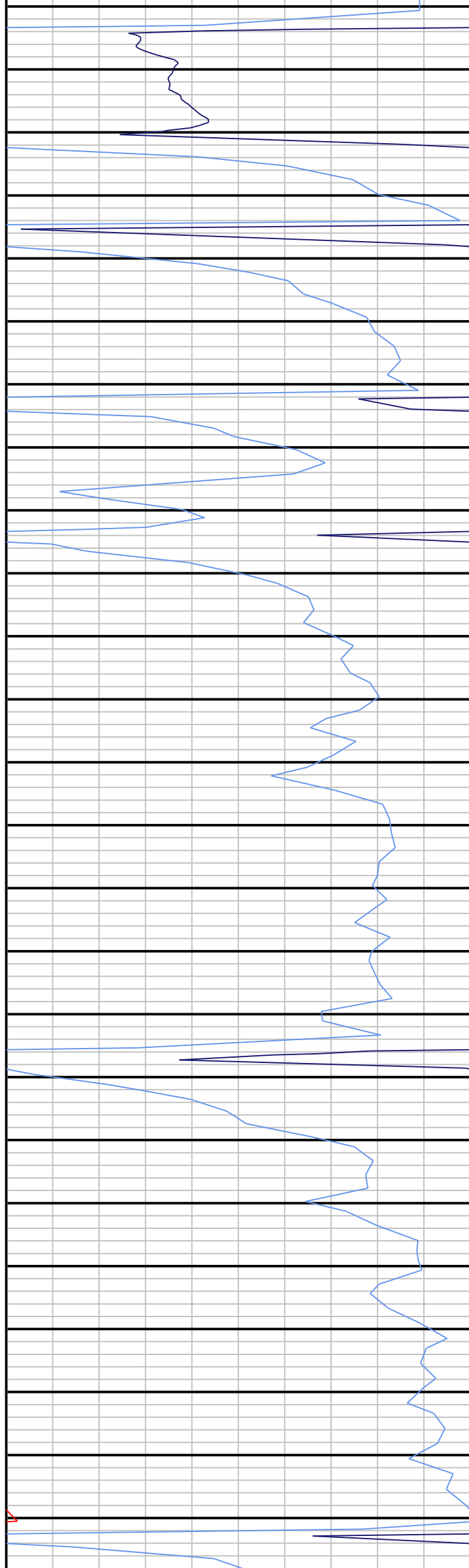
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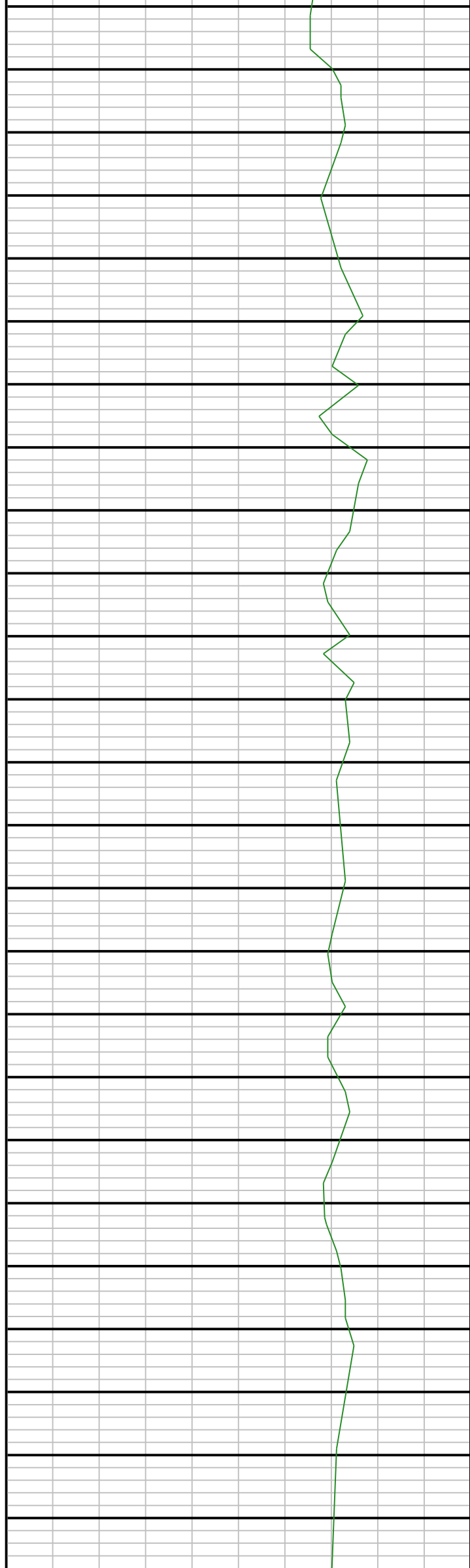


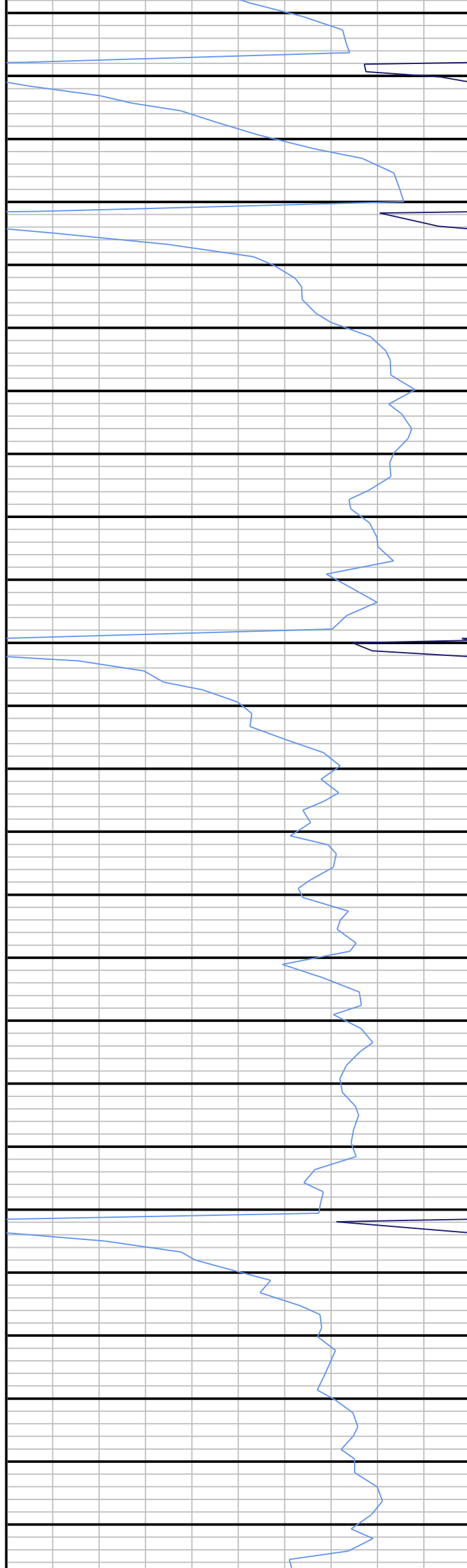
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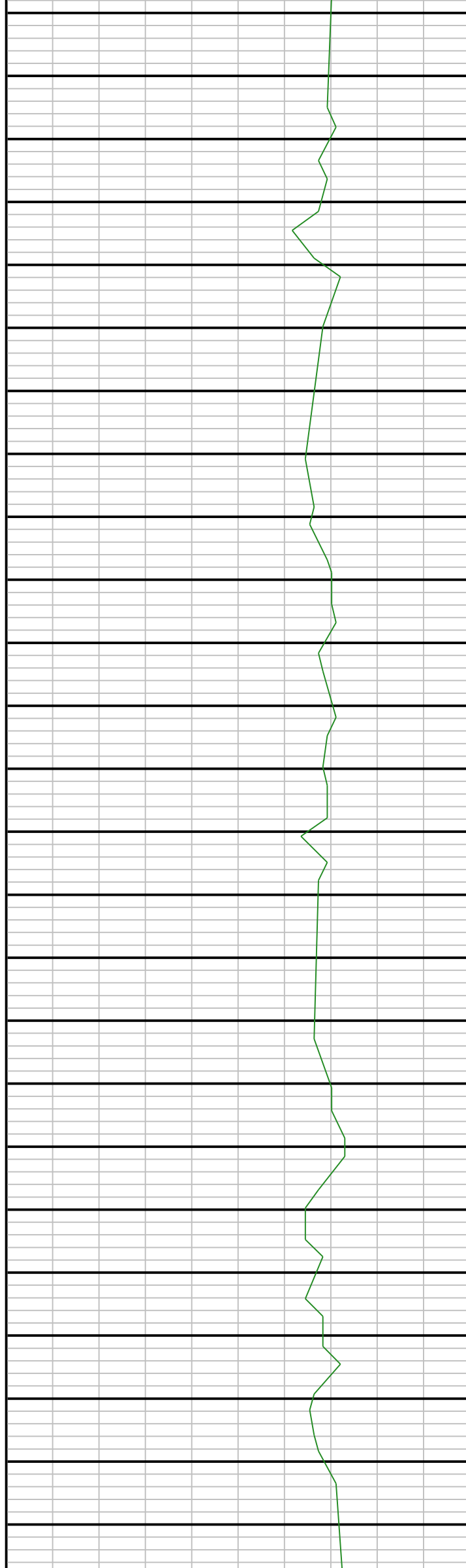


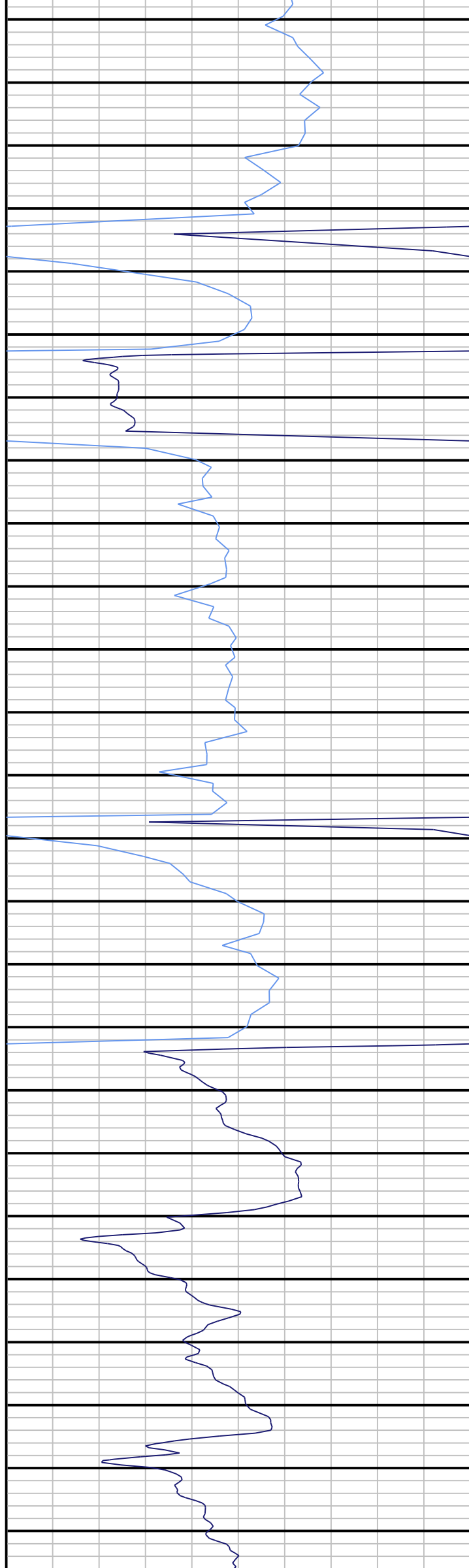
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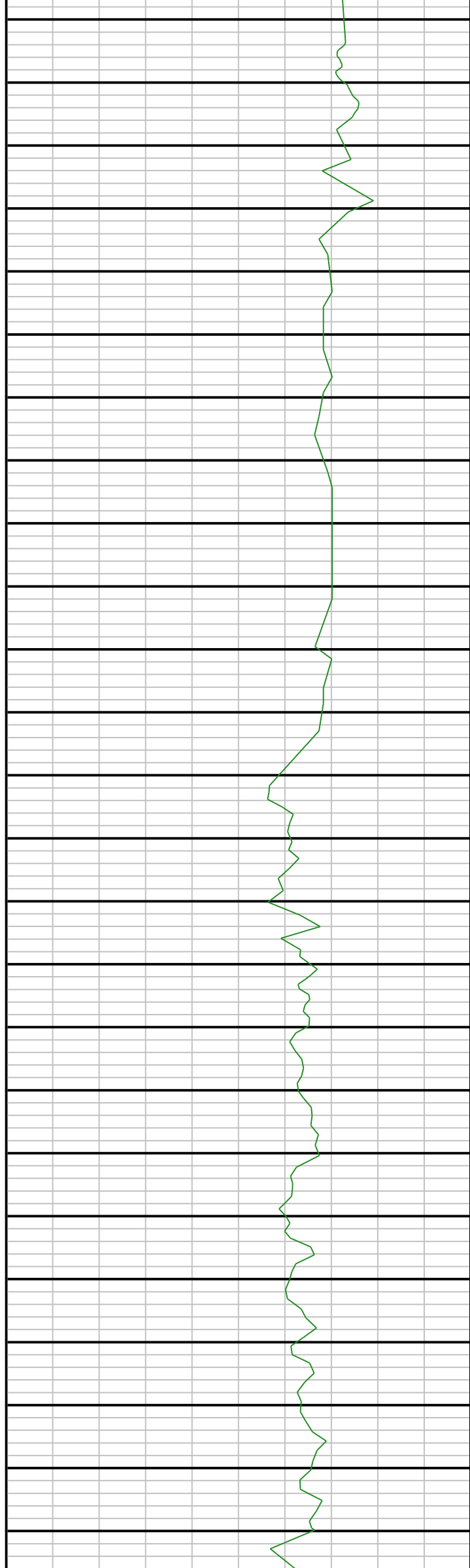


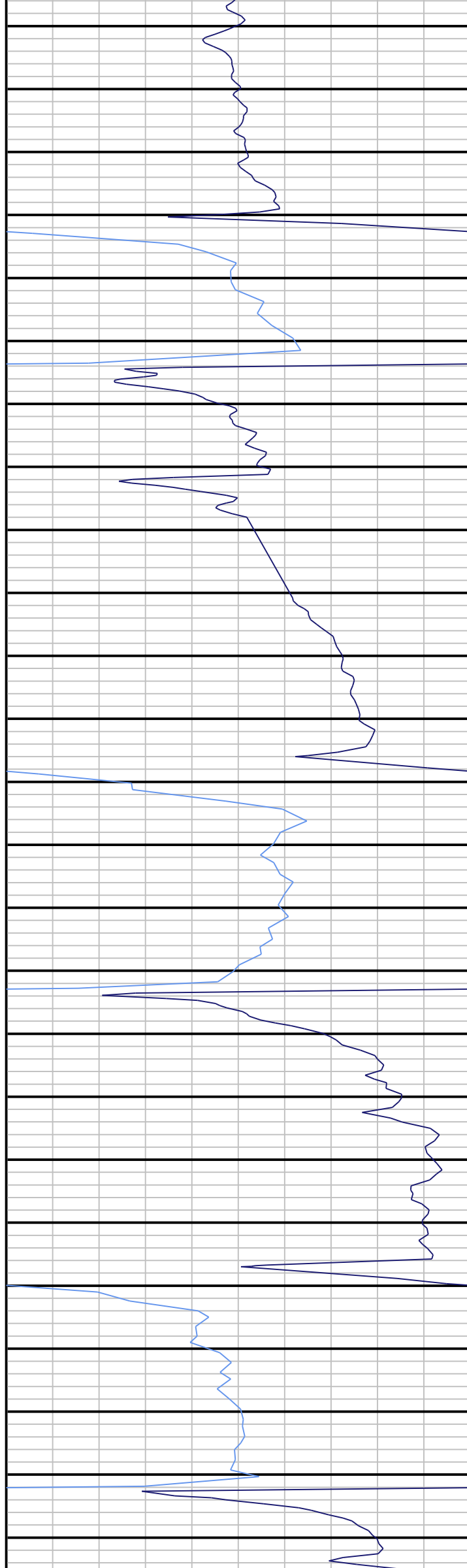
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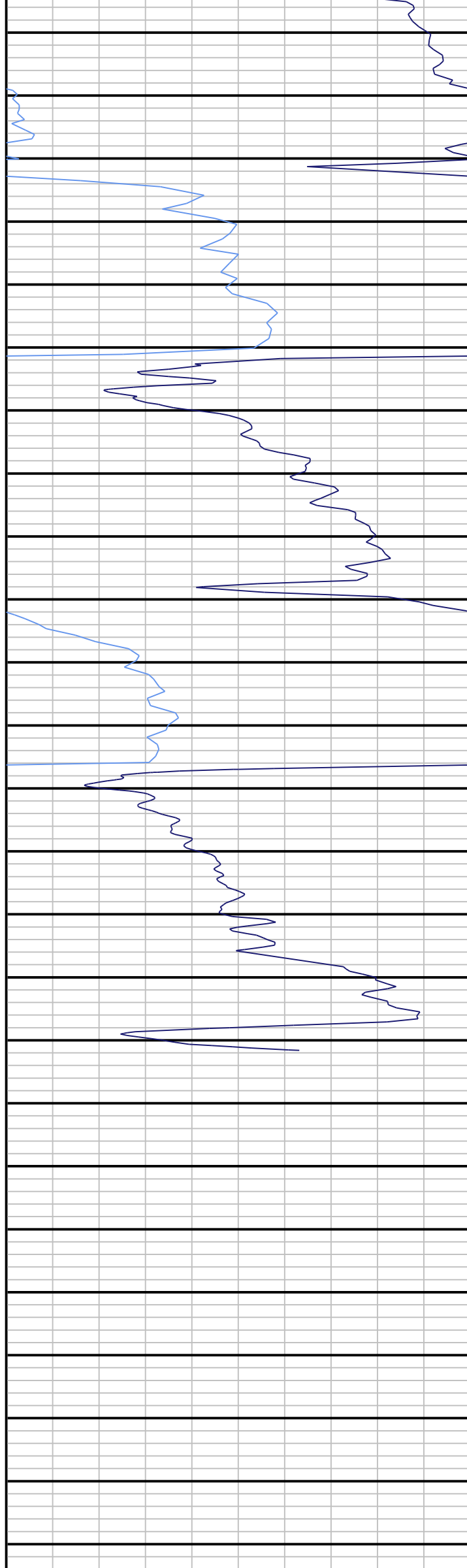




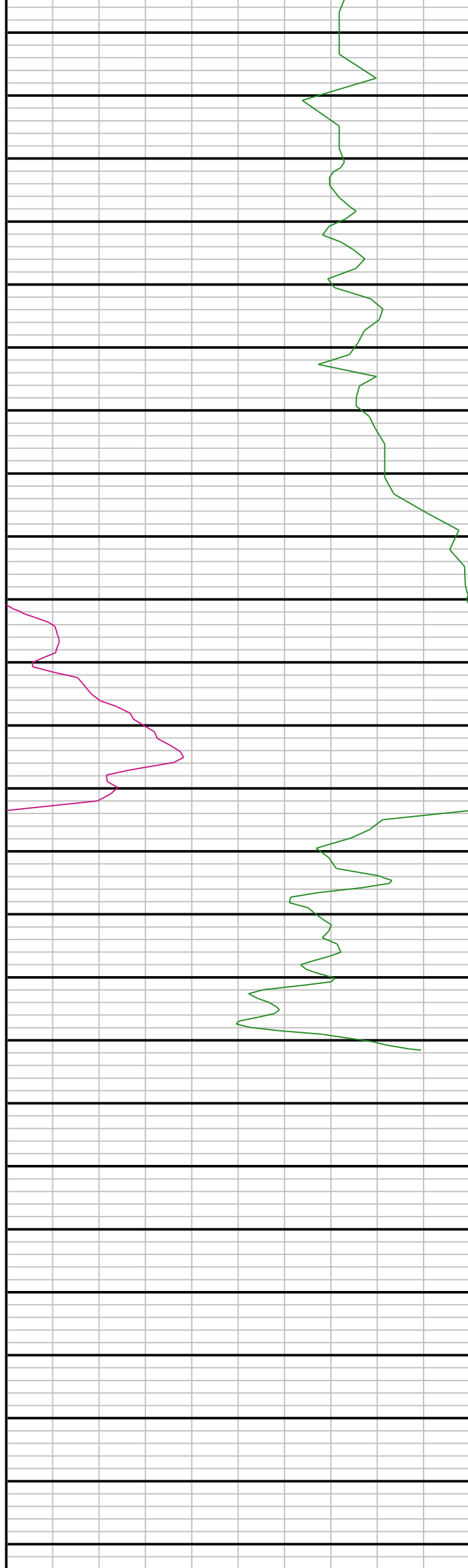
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	ROP	ROP
0	ft/hr	300
	ROP	ROP
300	ft/hr	600
	ROP	ROP
600	ft/hr	900
	ROP	ROP
900	ft/hr	1600

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150	AAPI	300
	Gamma	Gama
300	AAPI	600
	Gamma	Gama
600	AAPI	800