


<div><div>PHOENIX TECHNOLOGY SERVICES</div></div> <div>MD 1:240 Feet</div>		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 Latitude: 40° 51' 16.04828 N		Personnel	
Rig Name: Unit 409		Company Representative Kenny Wilkerson	
Job Number: 1524098			
Ground Level: 4936.80 ft		Geologist	
Kelly Bushing: 4957.80 ft			
Permanent Datum: Mean Sea Level		Directional Driller(s) John Barnett	
Drilling Measured From: Kelly Bushing		Mark Gentry	
Spud Date: September 24, 2015			
Bottom Hole Temp: 243.1 °F		MWD Operator(s) Robert Davis	
Log Start Depth: 0.00 ft		Jason Dubose	
Log End Depth: 14100.00 ft			
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

	Run 7	Run 8				
Run Start Depth (ft)	6505.09	7999.49				
Run End Depth (ft)	7999.49	14063.95				
Run Start Date	9/28/2015	9/29/2015				
Run Start Time	9:10 PM	5:15 PM				
Run End Date	9/29/2015	10/1/2015				
Run End Time	4:18 PM	7:11 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
API-to-Bit (APB) (ft)	0.00	0.00	0.00	0.00	0.00	0.00

Annular Pressure-to-Bit (APTB) (ft)	0.00	0.00	0.00	0.00	0.00	0.00
	Run 7	Run 8				
Gamma Probe Serial No	-EGNF0094	EGNF0088				
Probe Cal Ratio	1	1				
Gamma Scale Factor	2.85	2.85				
Tool Carrier ID (in)	2.625	2.625				
Tool Carrier OD (in)	5.120	5.120				
Survey-to-Bit (PTB) (ft)	51.36	51.39				
Gamma-to-Bit (GTB) (ft)	50.17	50.20				
Annular Pressure-to-Bit (APTB) (ft)	0.00	0.00				

Borehole Fluids and Measurements Summary

1524098

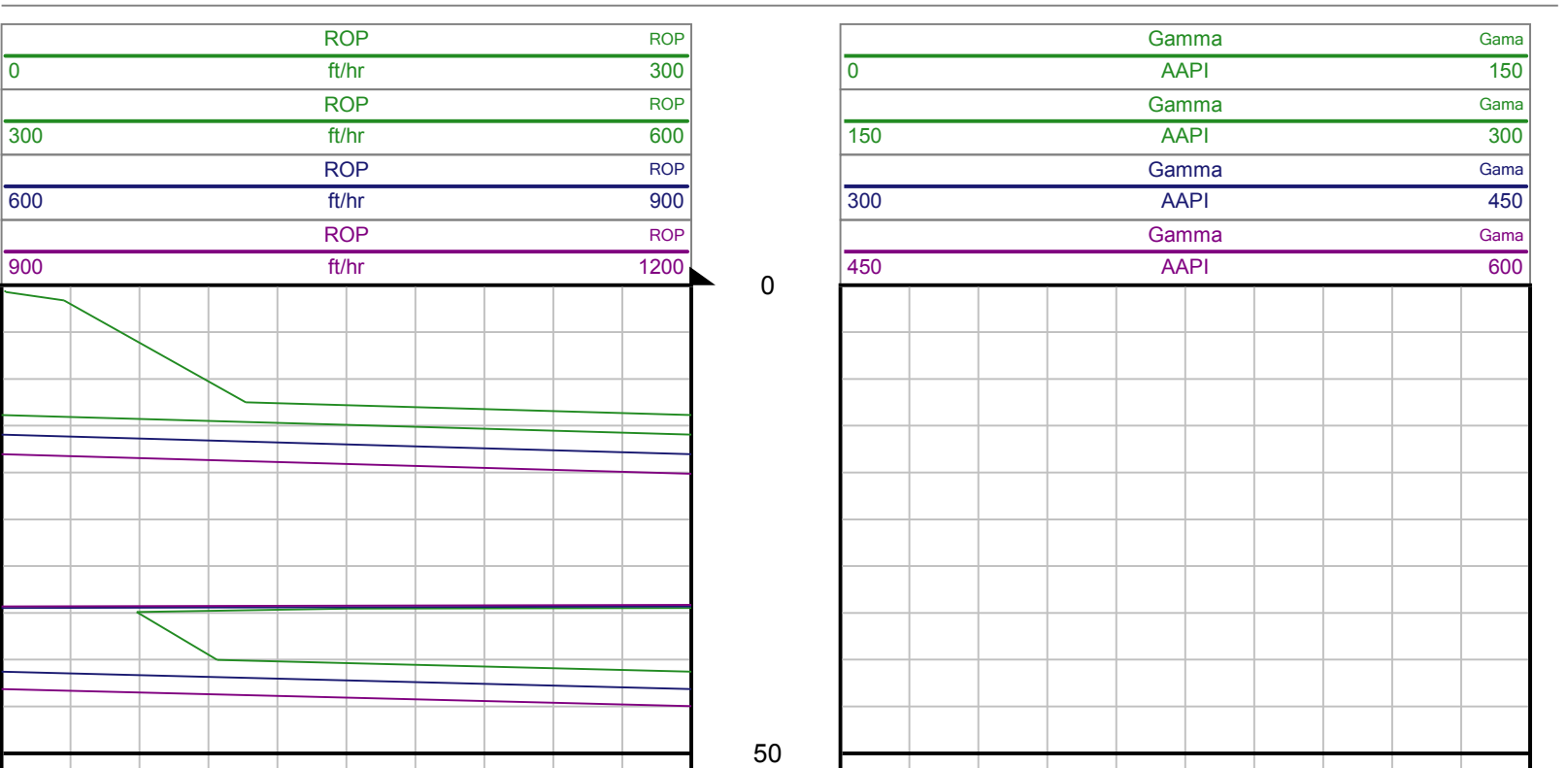
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
Hole Size (in)	13.50	13.50	8.00	8.00	8.75	8.75
Casing Start Depth (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Casing End Depth (ft)	0.00	0.00	1831.00	1831.00	1831.00	1831.00
Casing Size (in)	0.000	0.000	9.625	9.625	9.625	9.625
Mud Type	Fresh Water	Fresh Water	Water-Based Mud (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

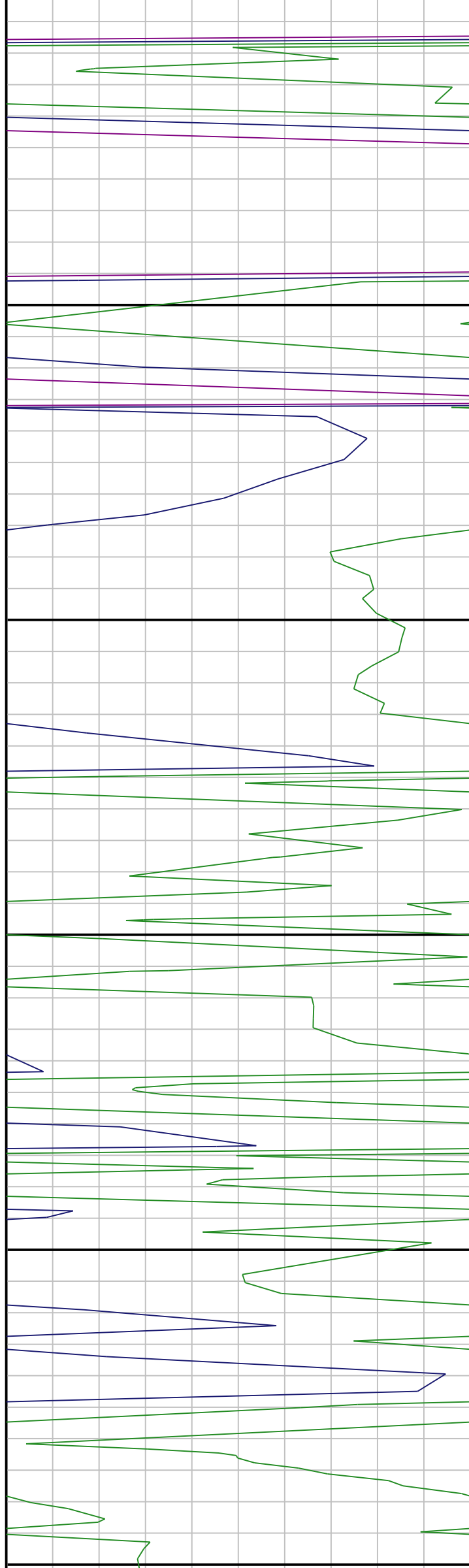
	Run 7	Run 8				
Hole Size (in)	6.00	6.00				
Casing Start Depth (ft)	0.00	0.00				
Casing End Depth (ft)	6471.00	6471.00				
Casing Size (in)	7.000	7.000				
Mud Type	Water-Based Mud (WBM)	Water-Based Mud (WBM)				
Mud Weight (lb/gal)	10.4	9.7				
Mud Viscosity (s)	39	35				
Weighting Agent	Barite	Barite				
Mud KCL Content (%)	0.000	0.000				

Log

1:240

Index Scale: 1:240   Index Unit: Feet   Index Type: MD   Creation Date: October 01, 2015 08:23





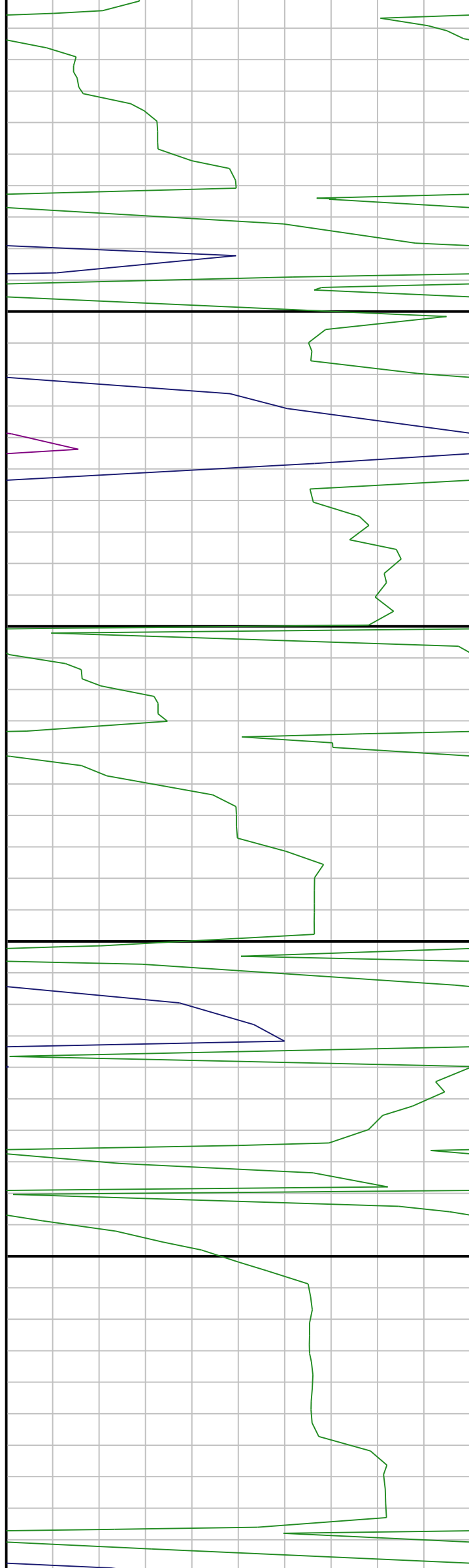
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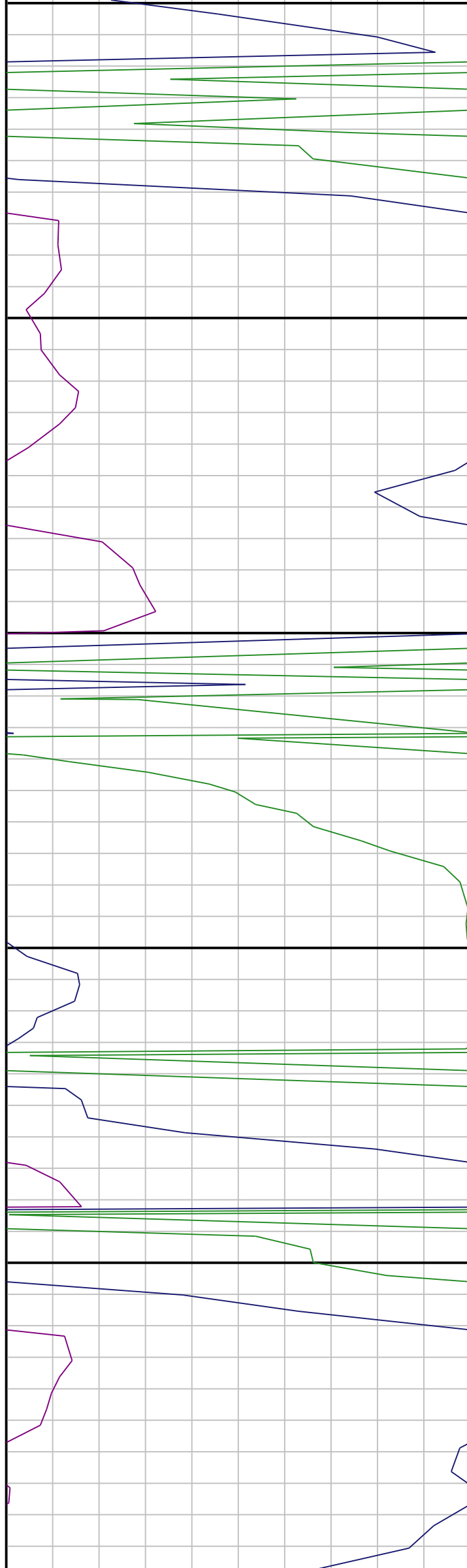


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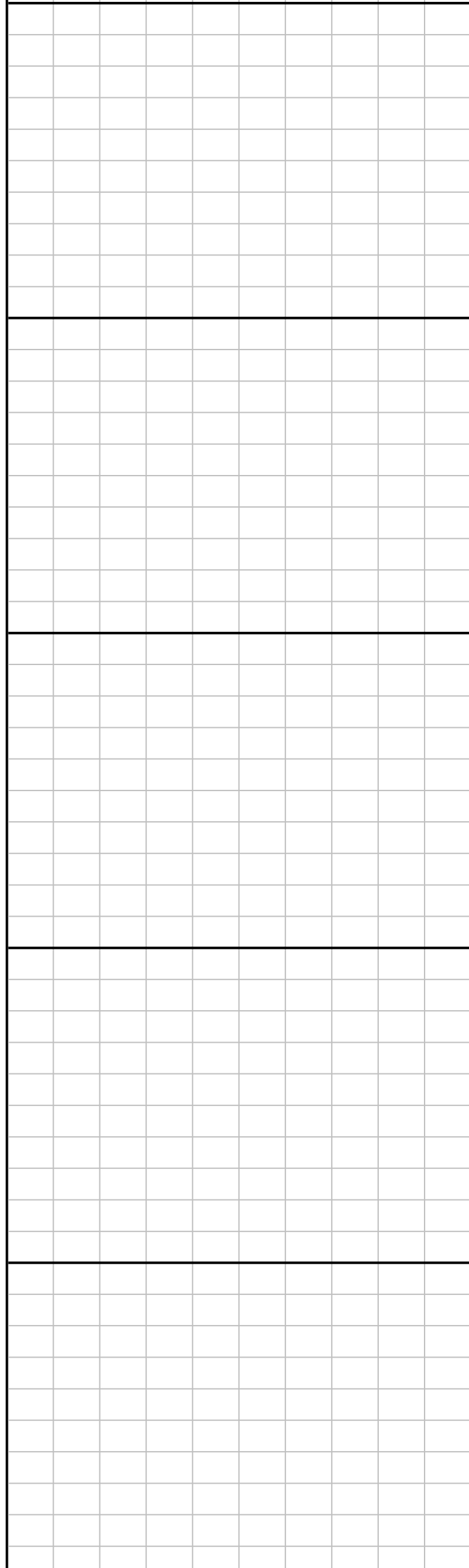
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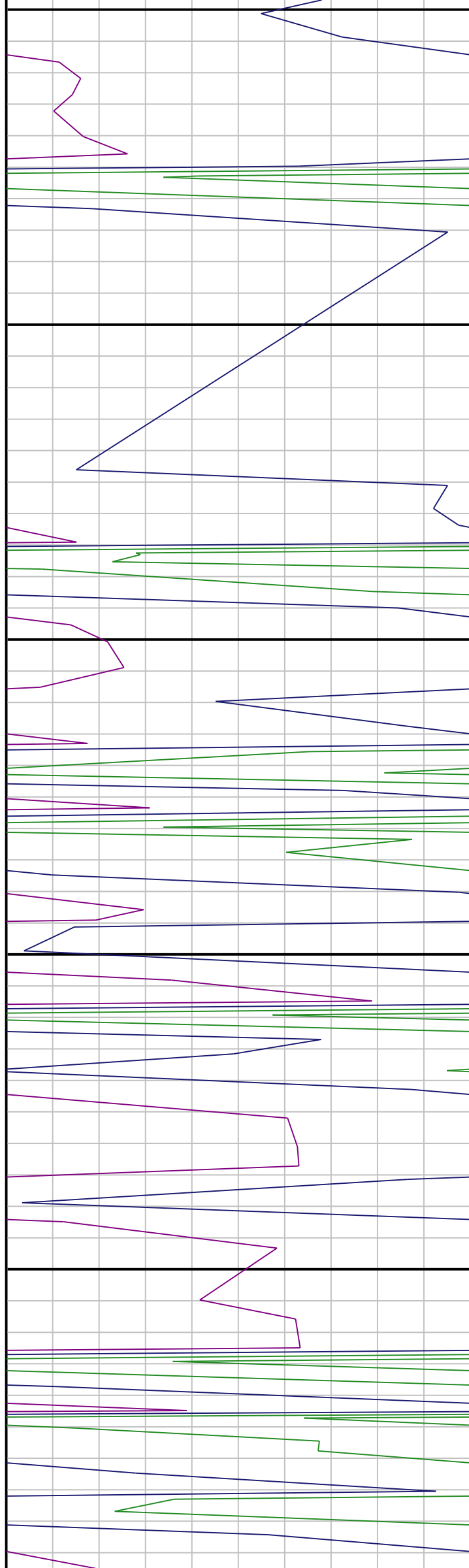
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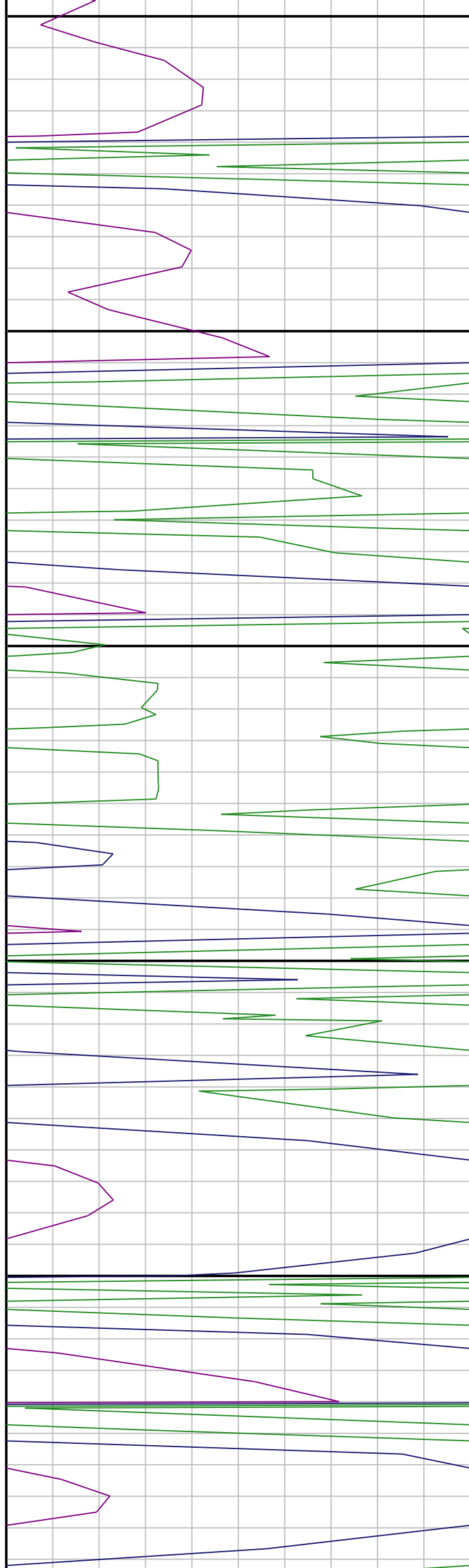
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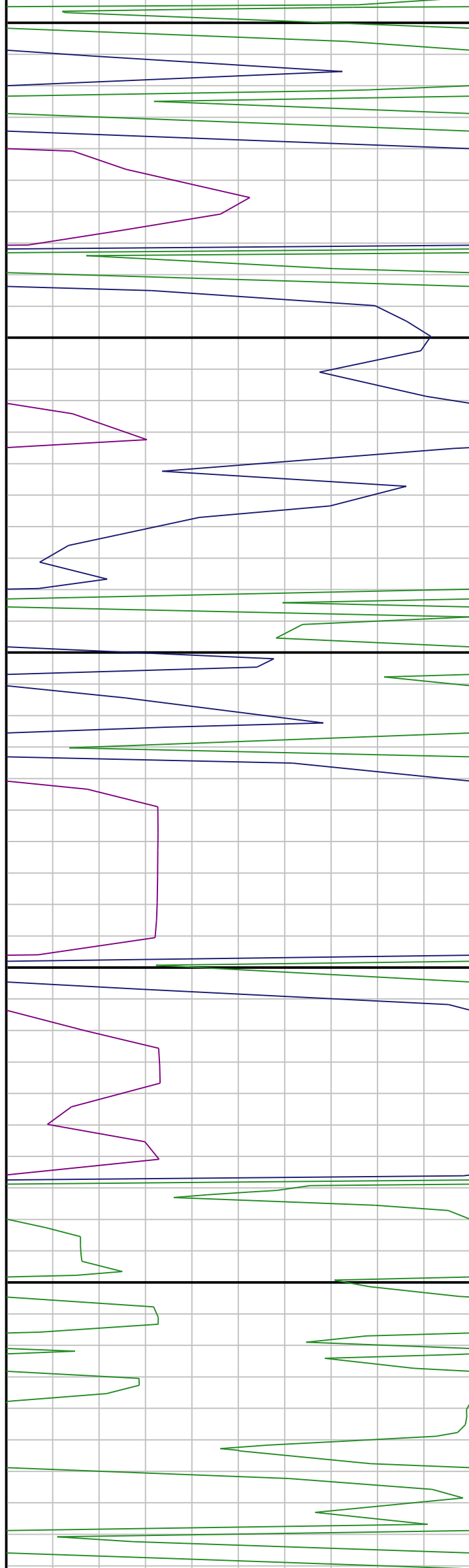
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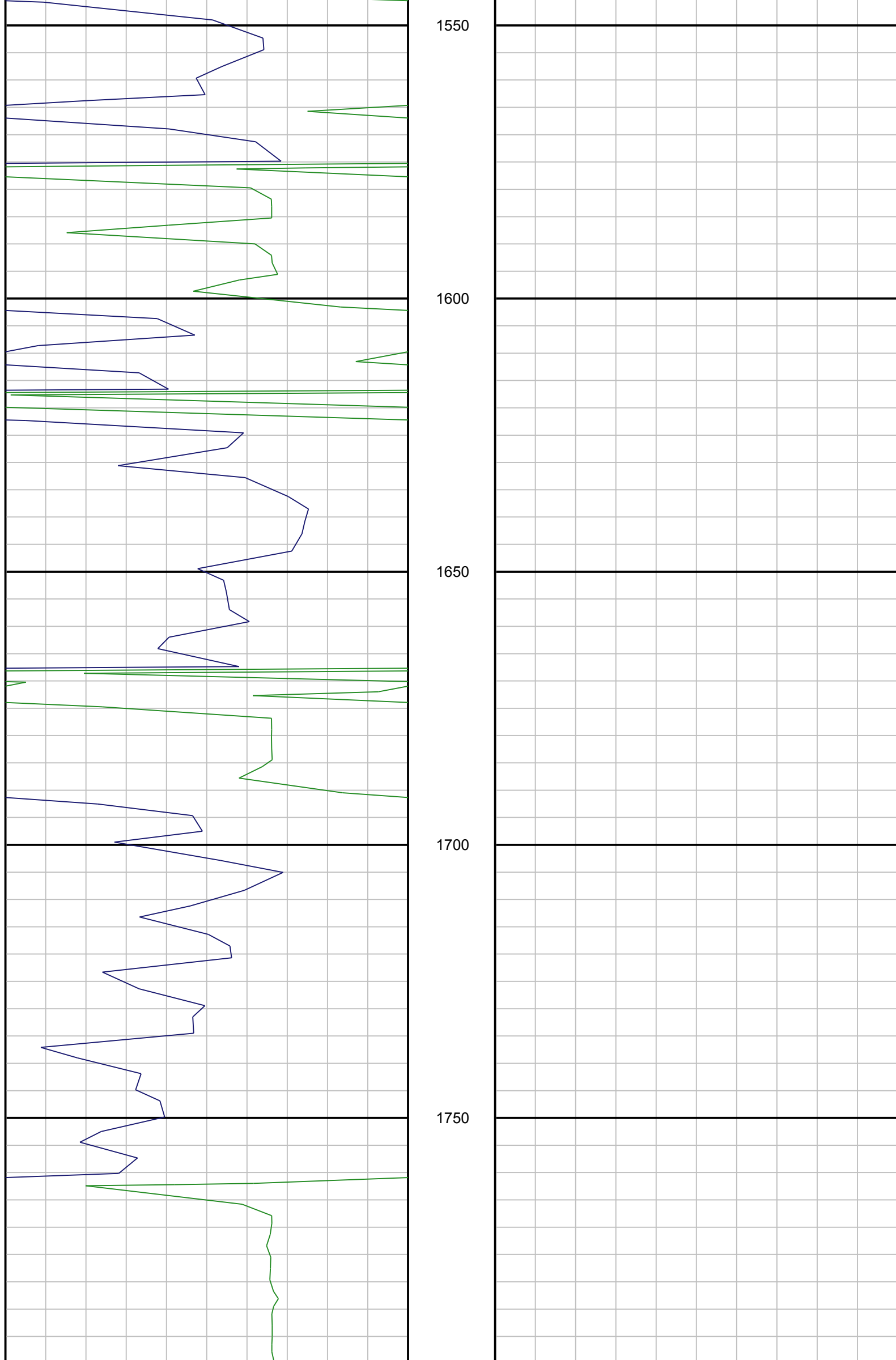
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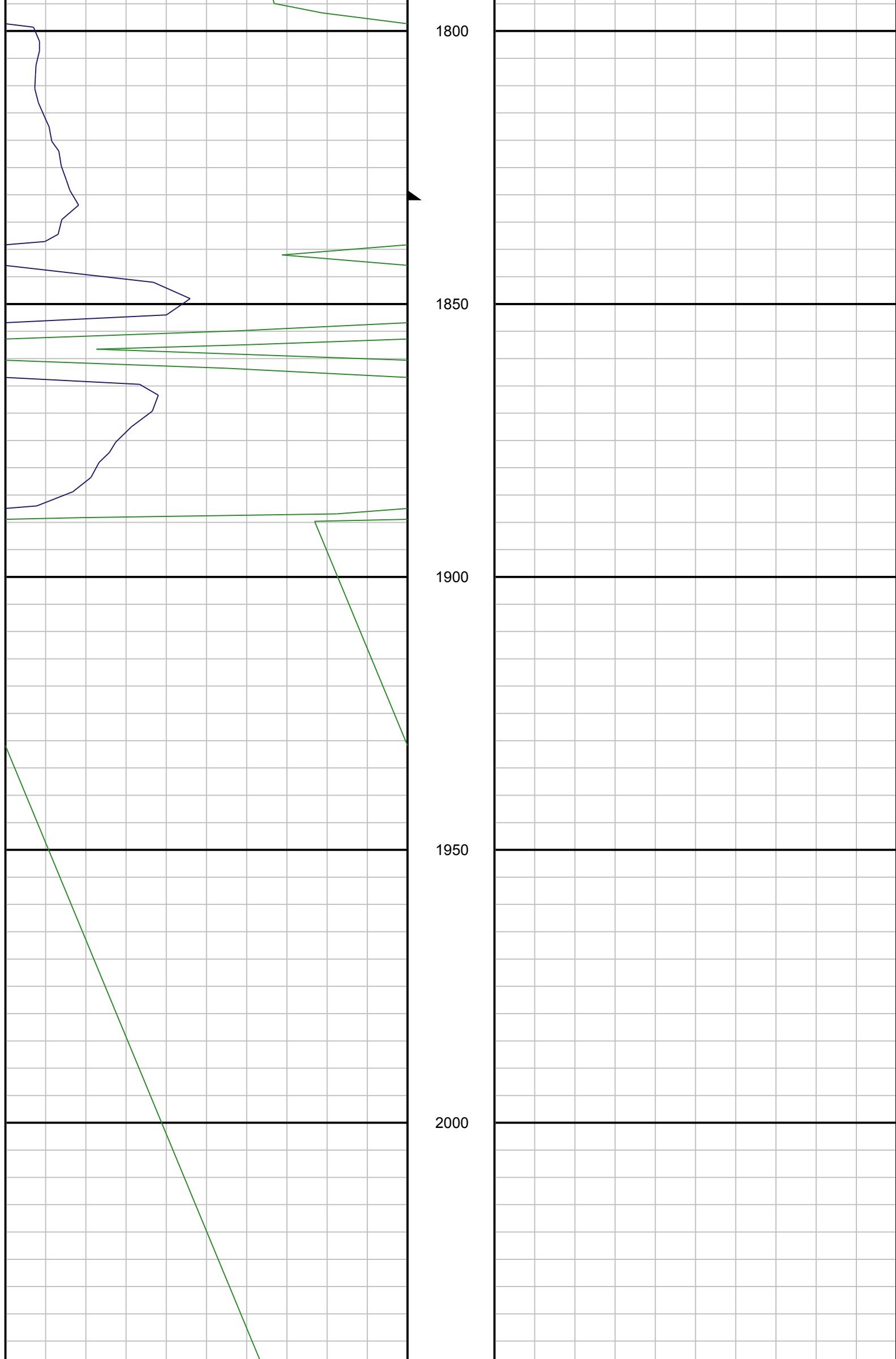
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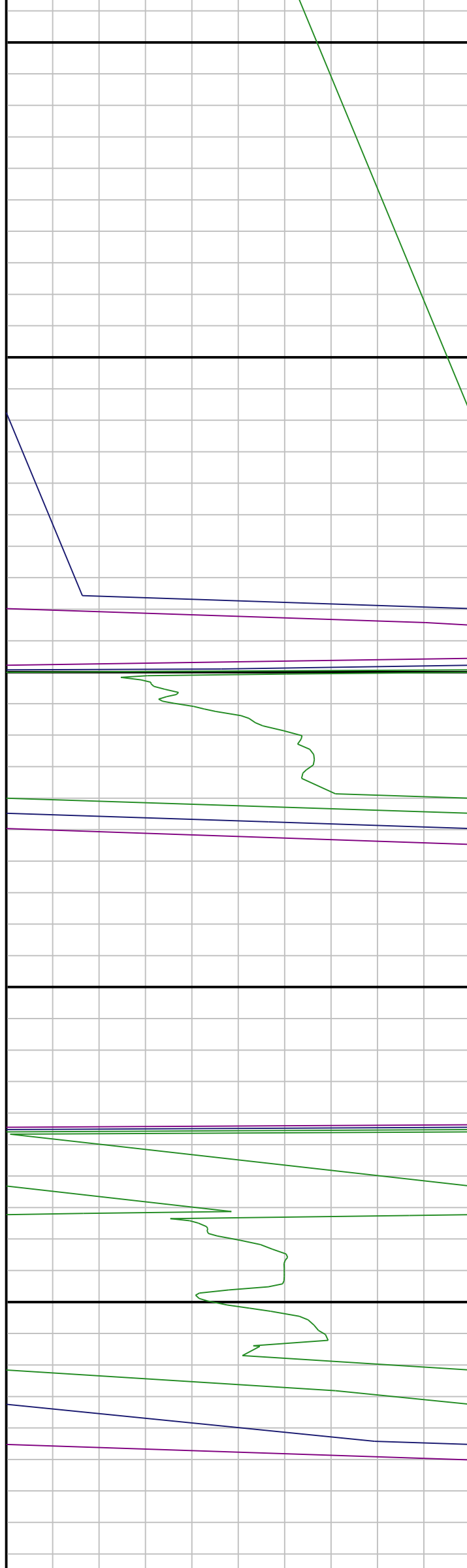
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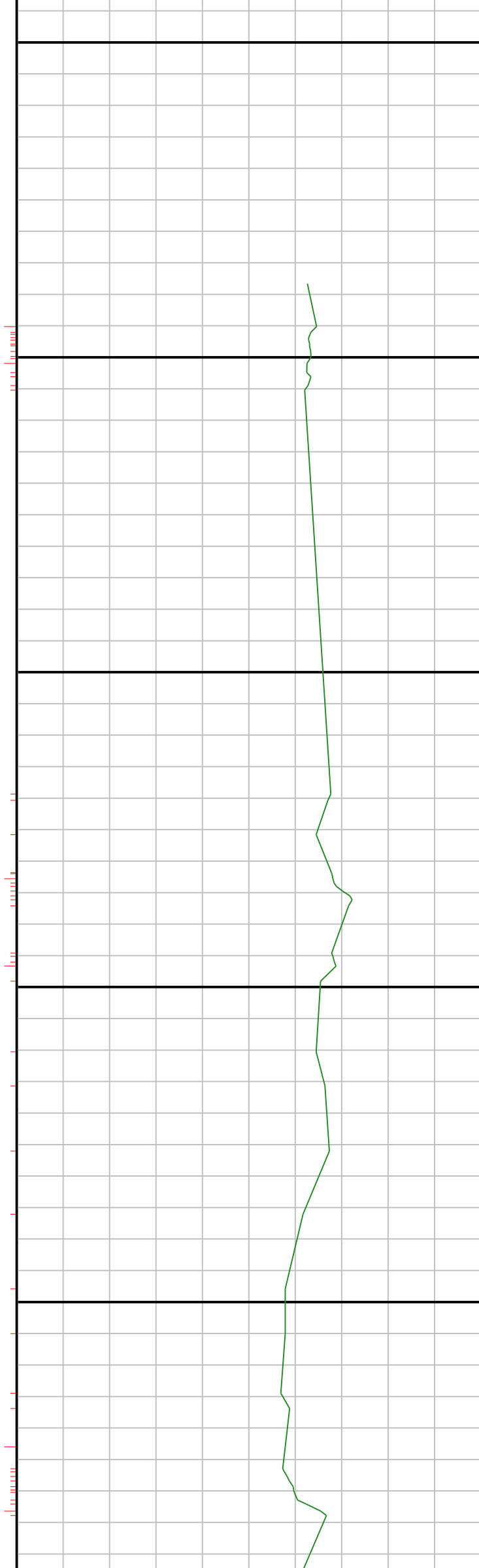
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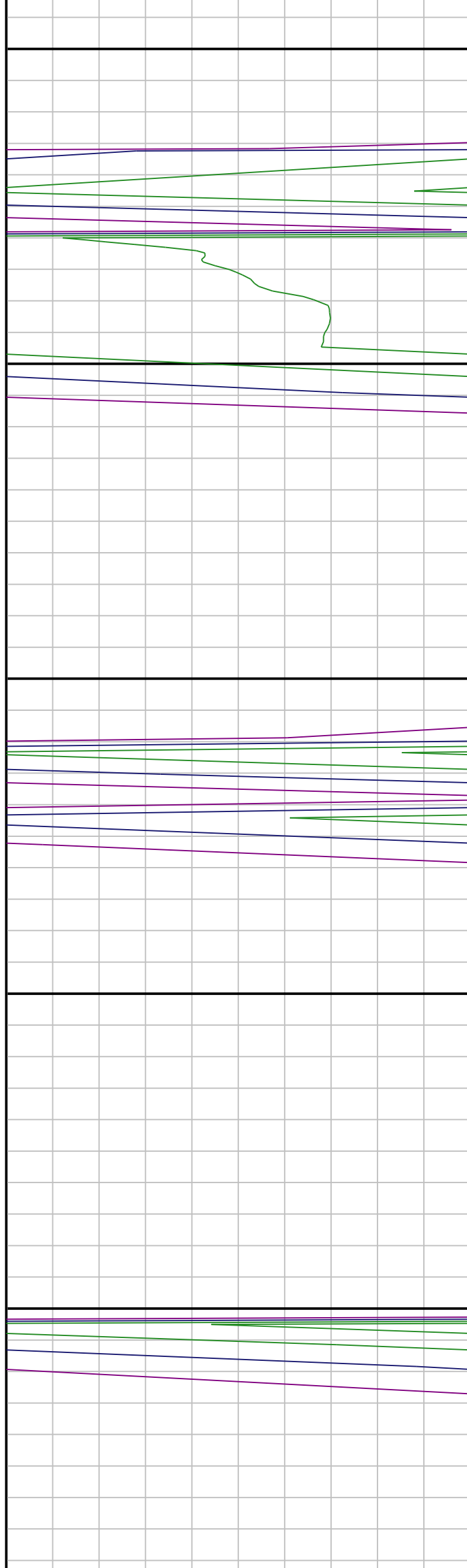
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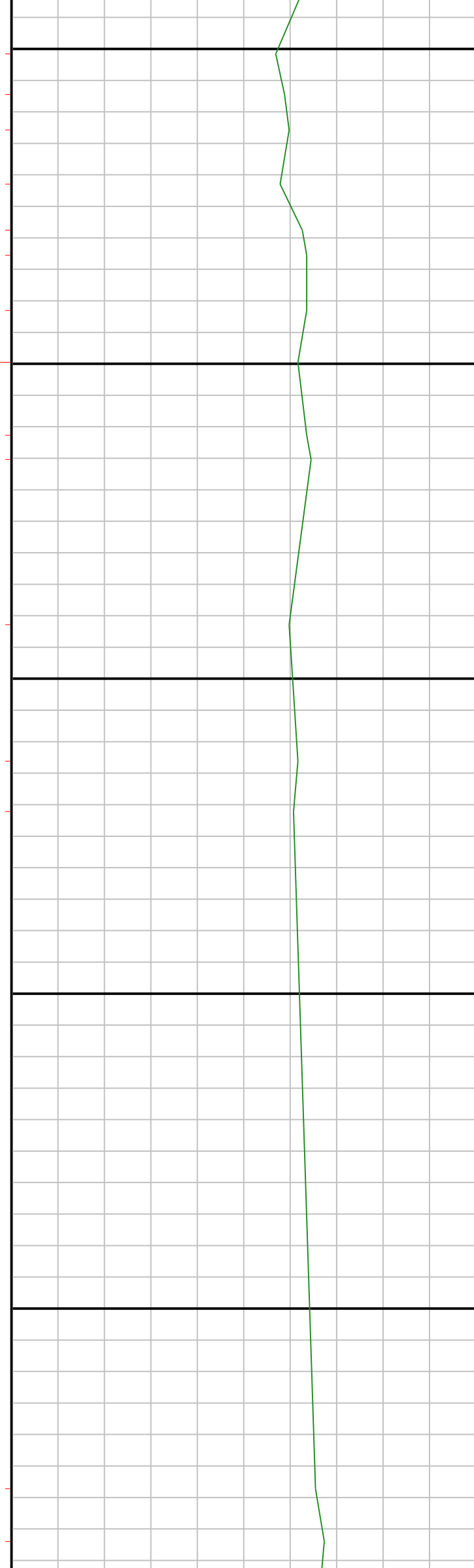
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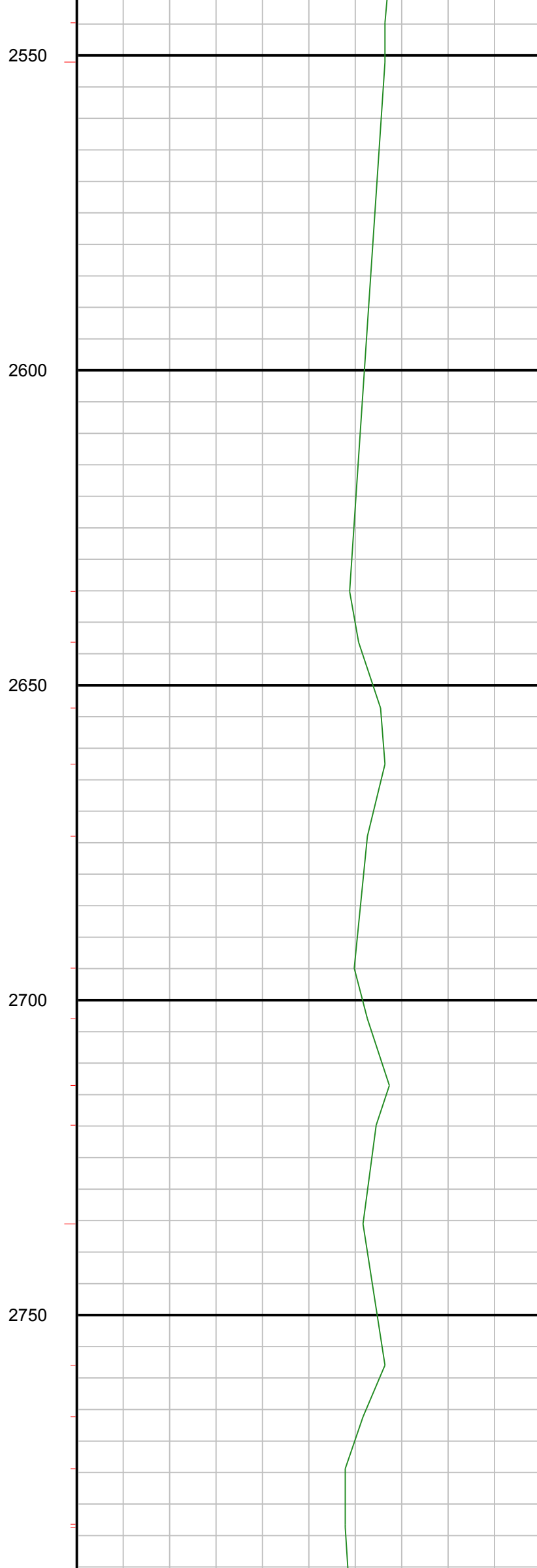
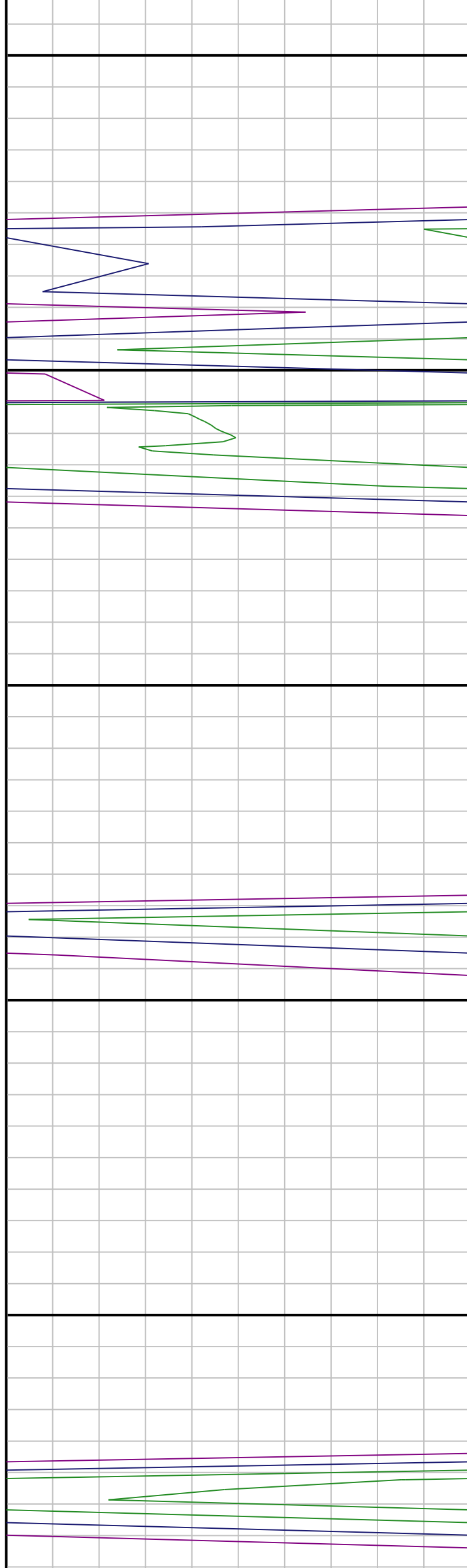
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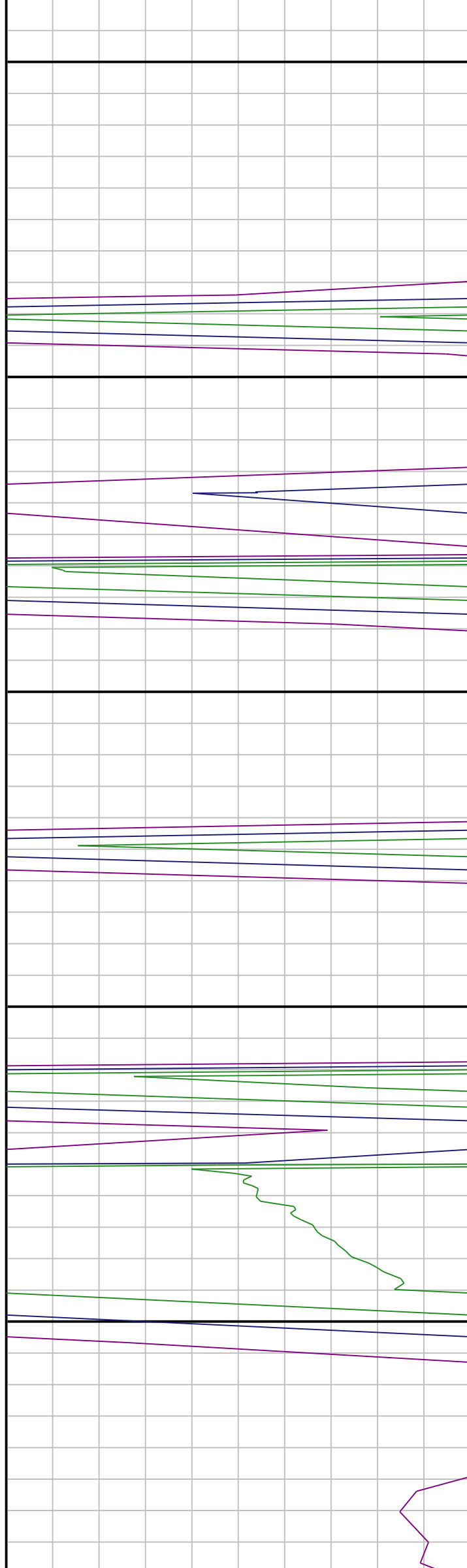
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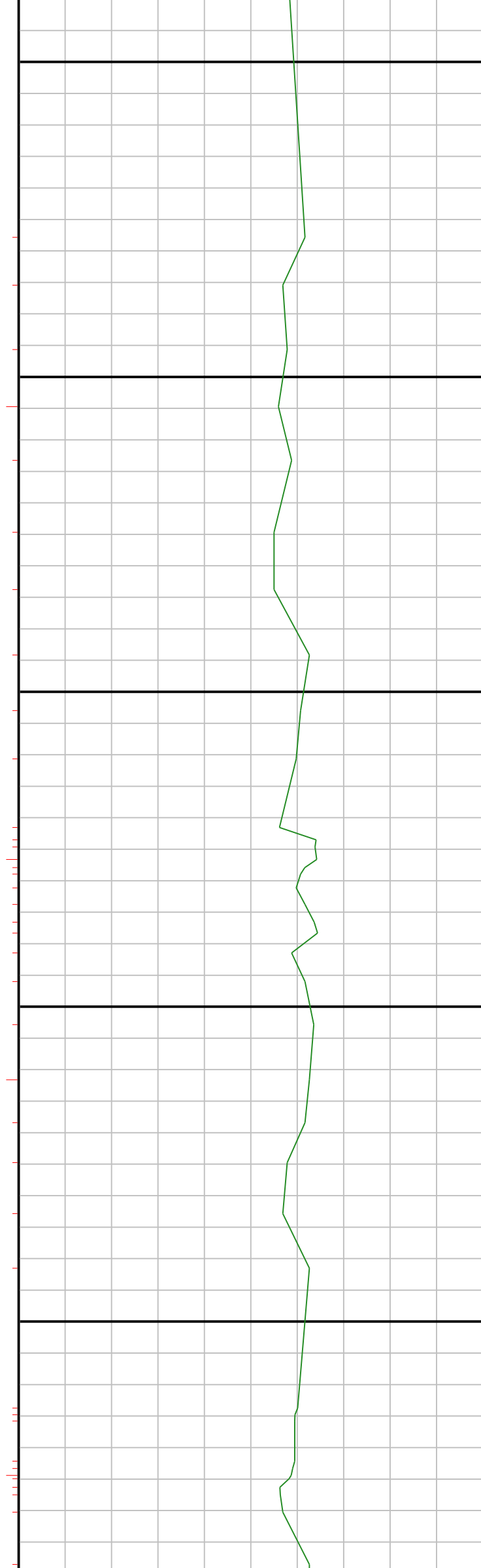
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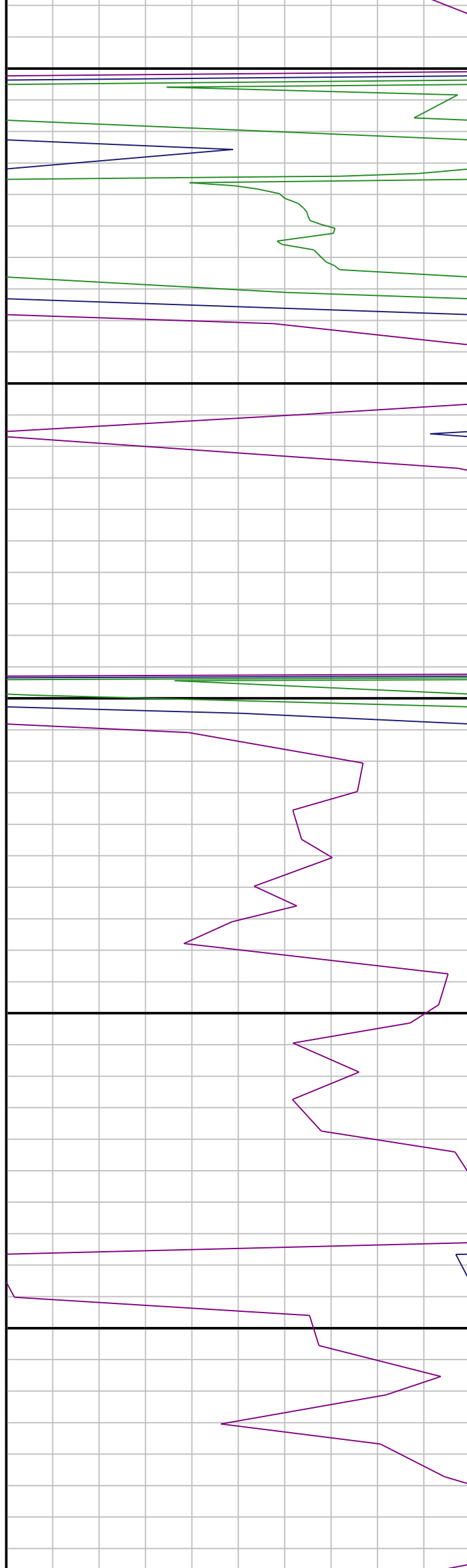
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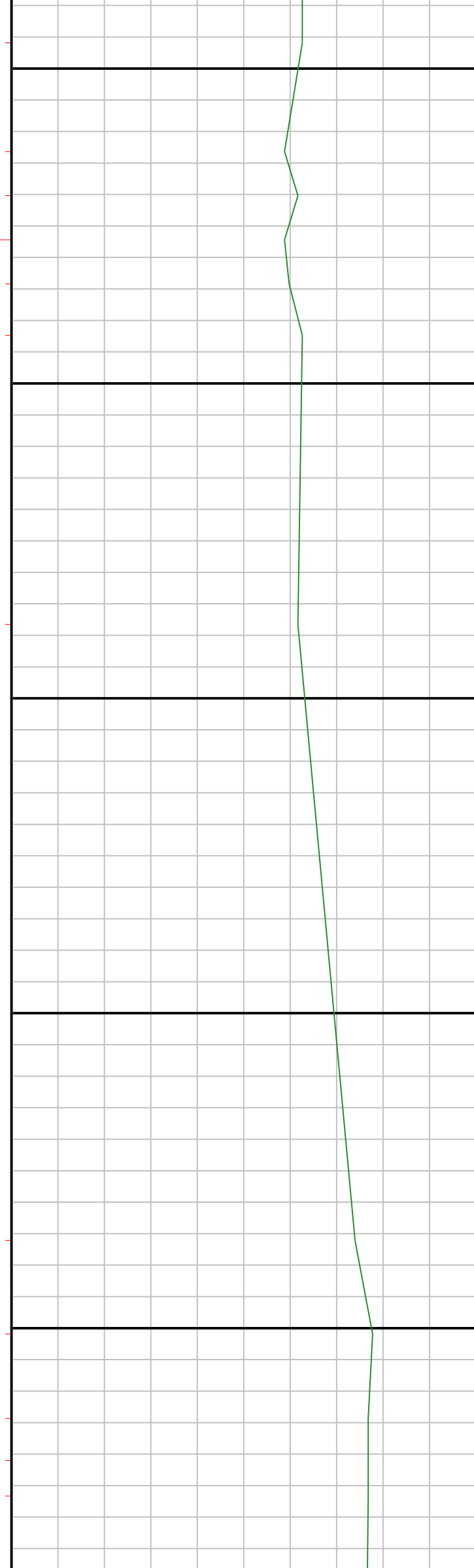
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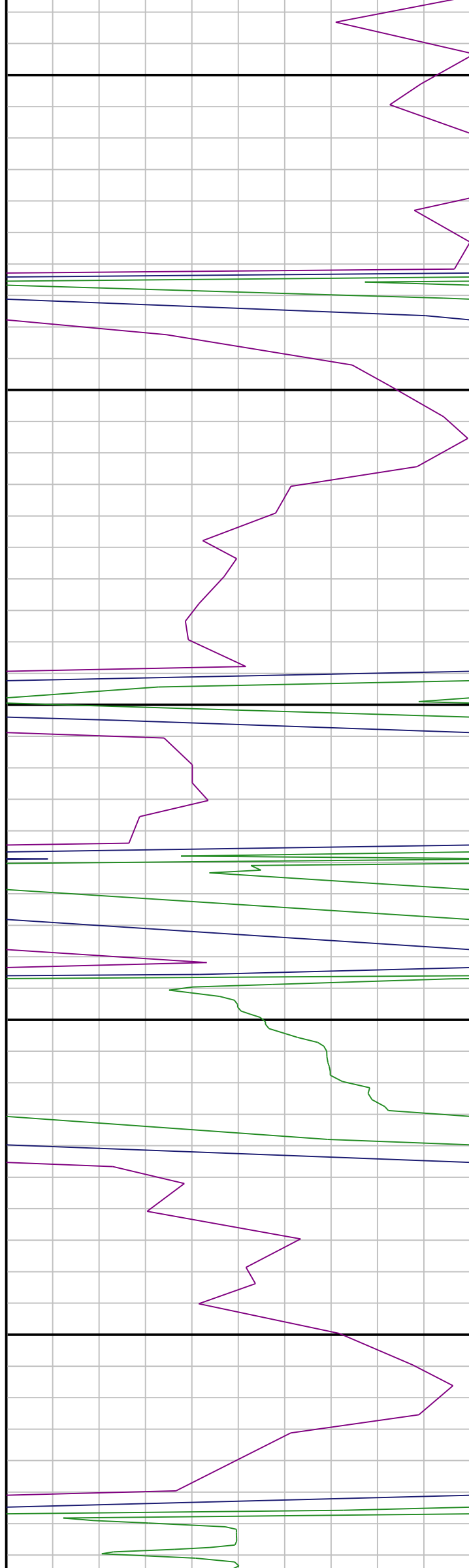
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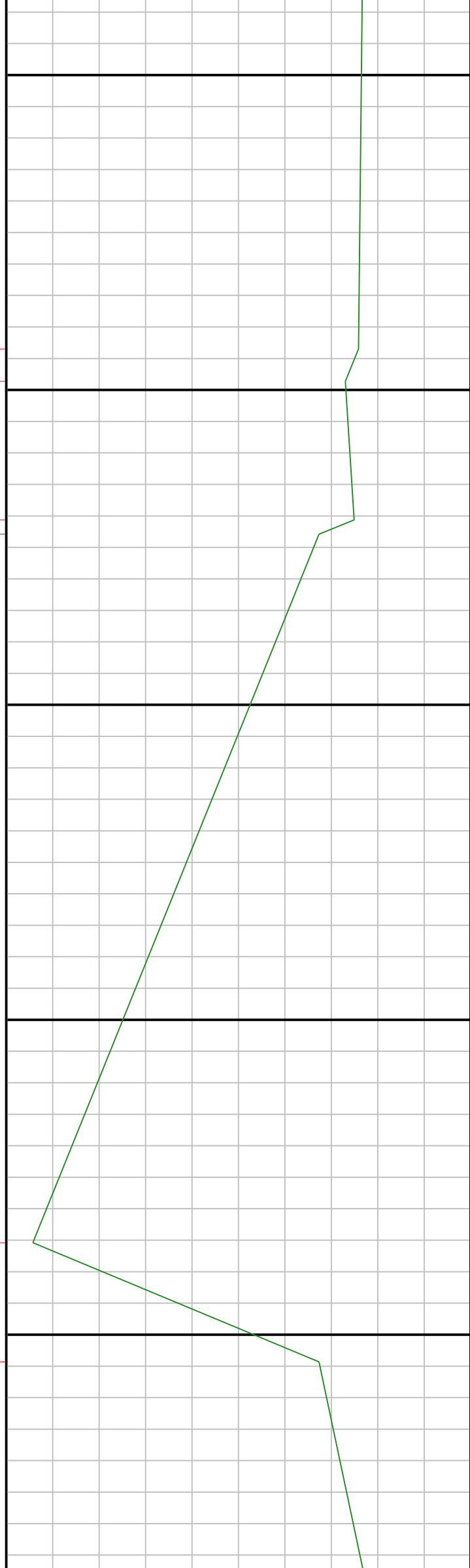
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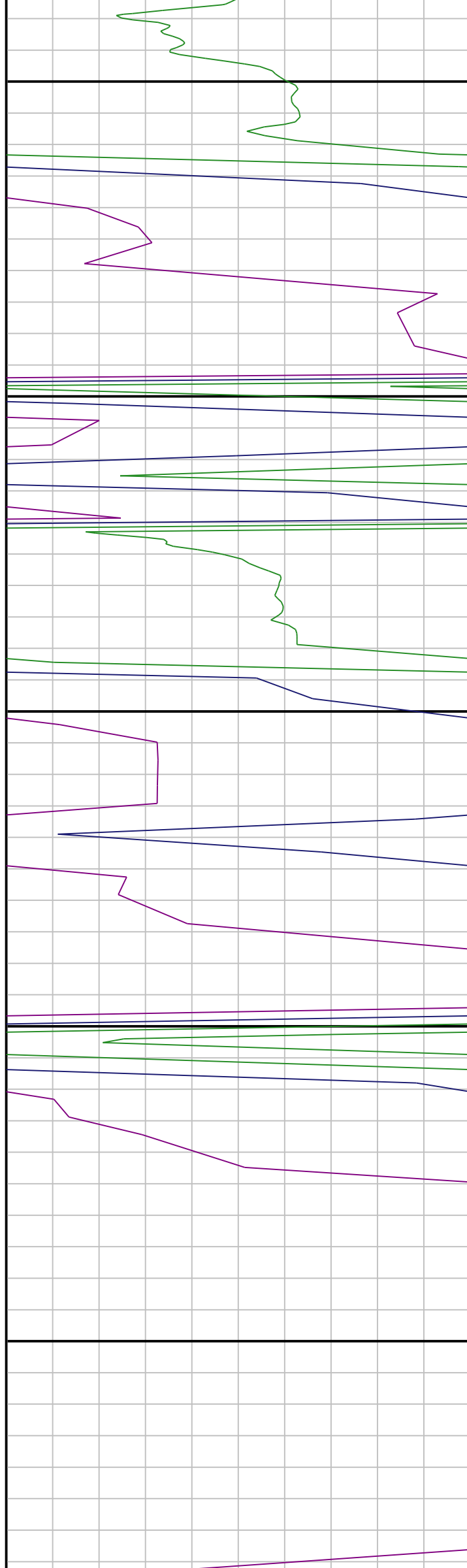
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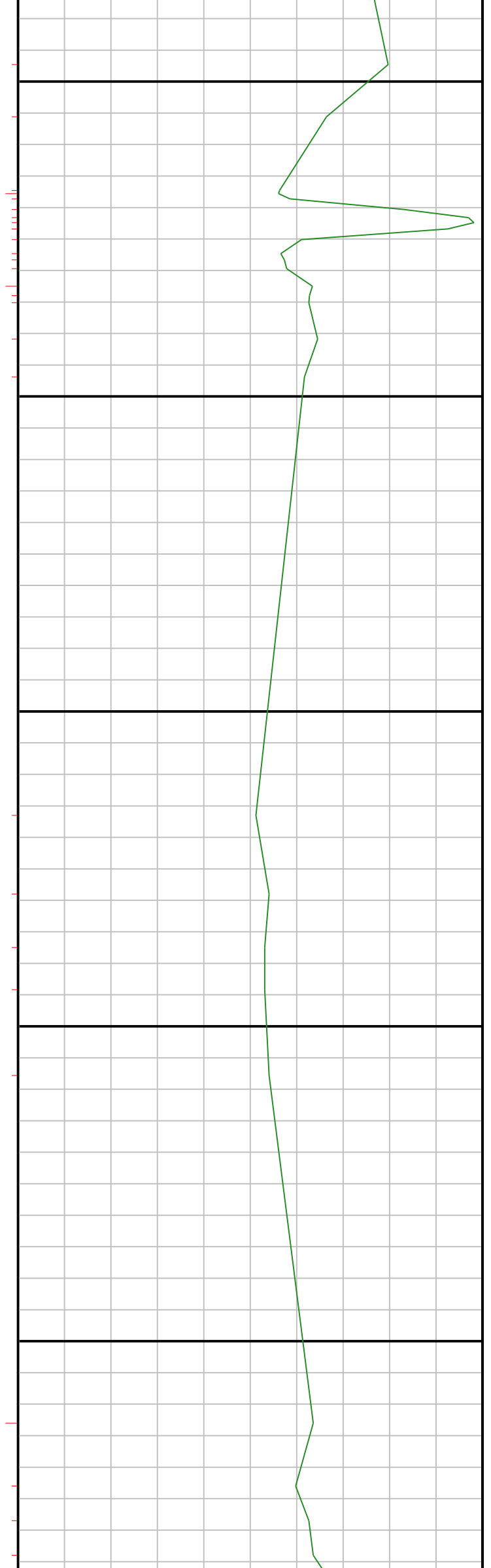
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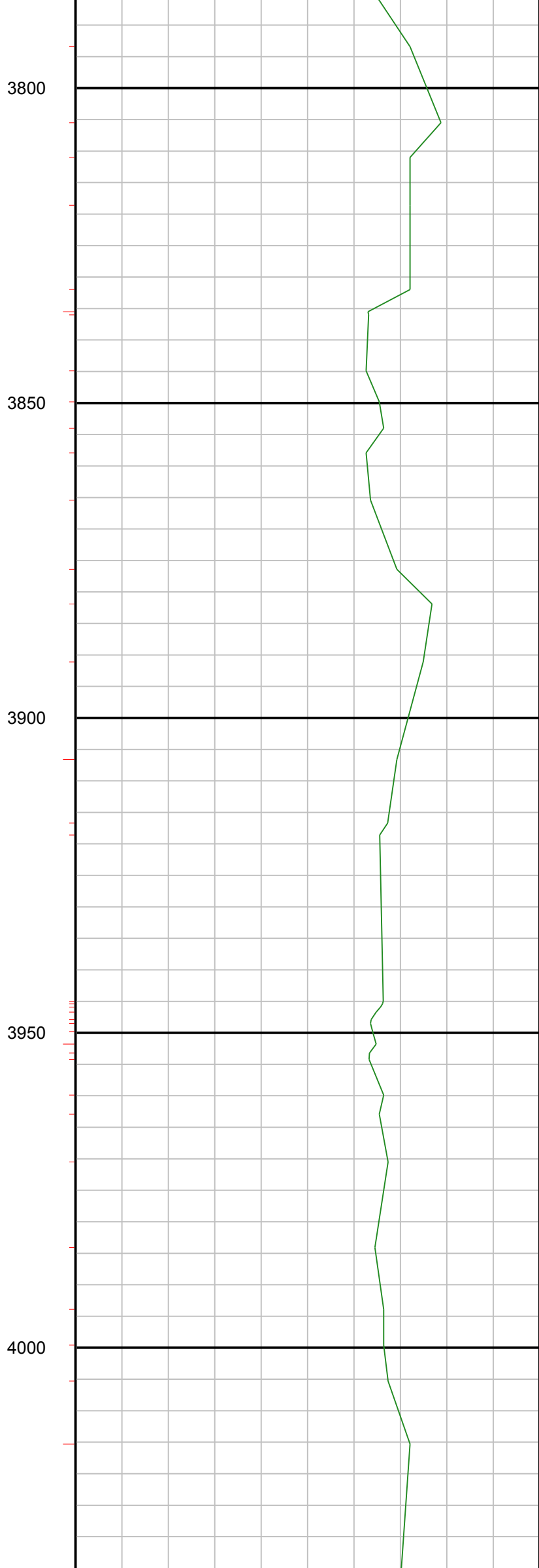
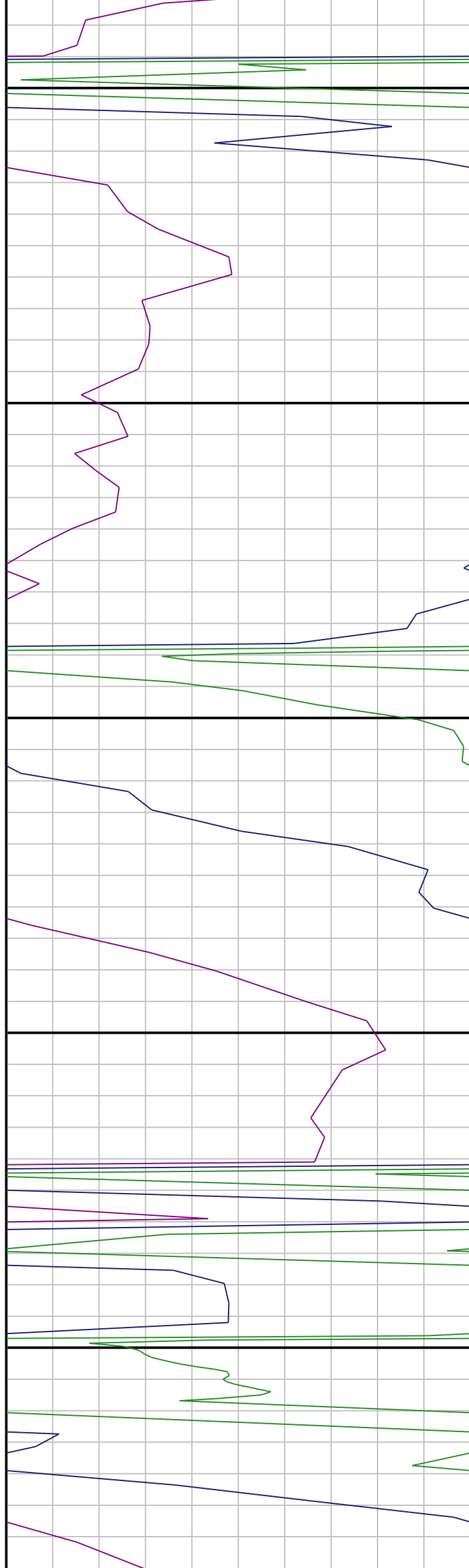
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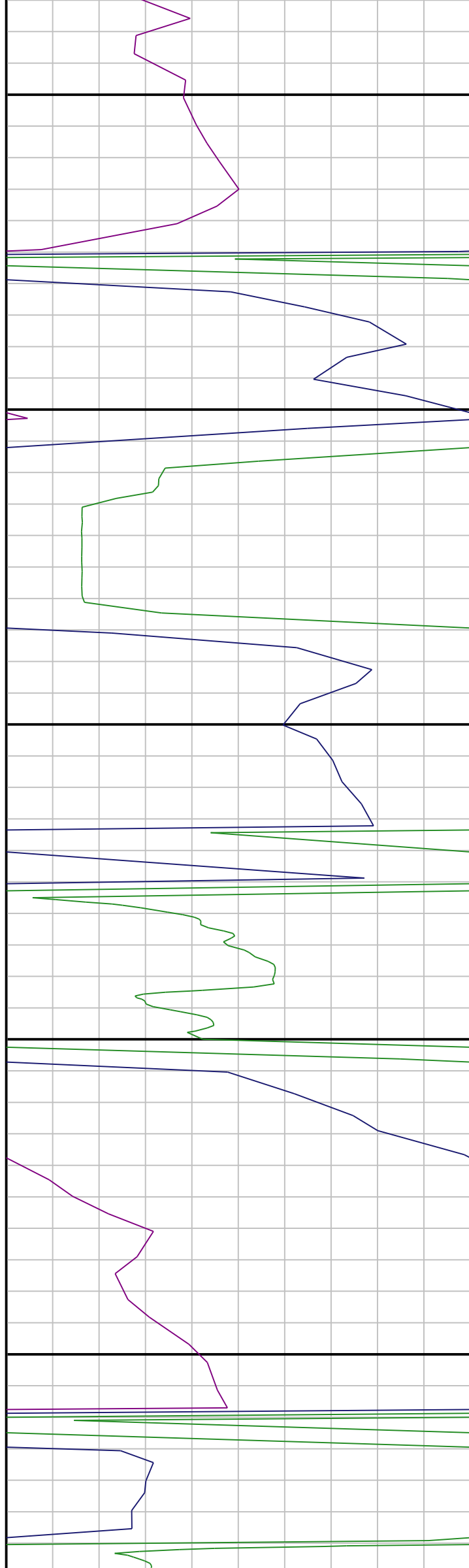
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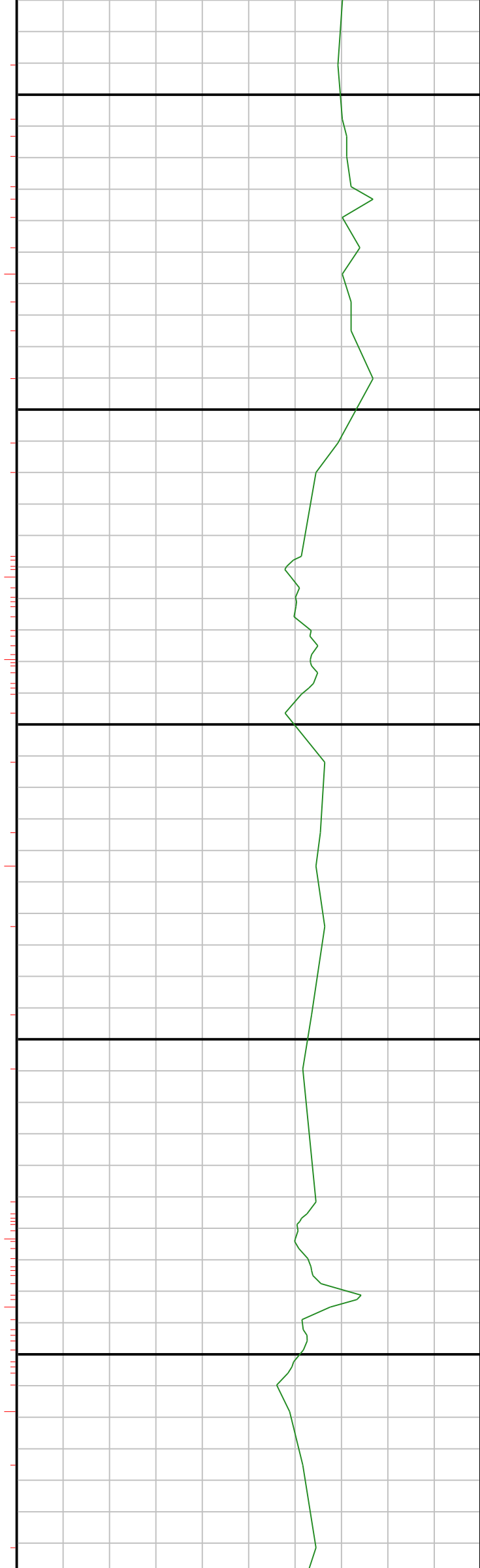
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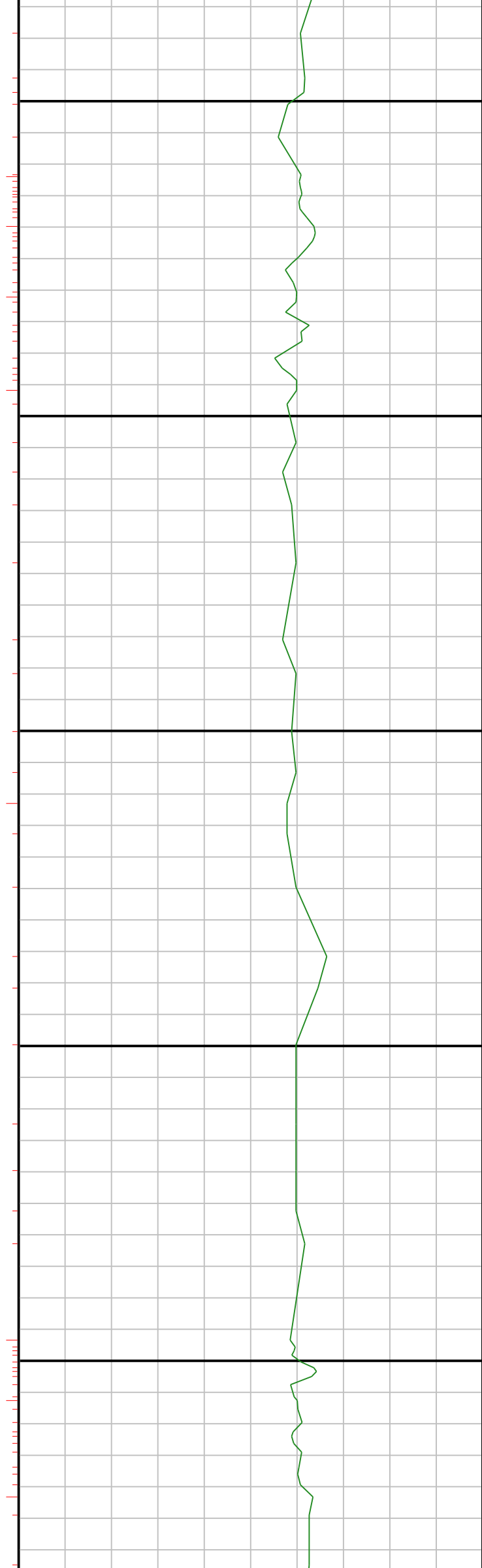
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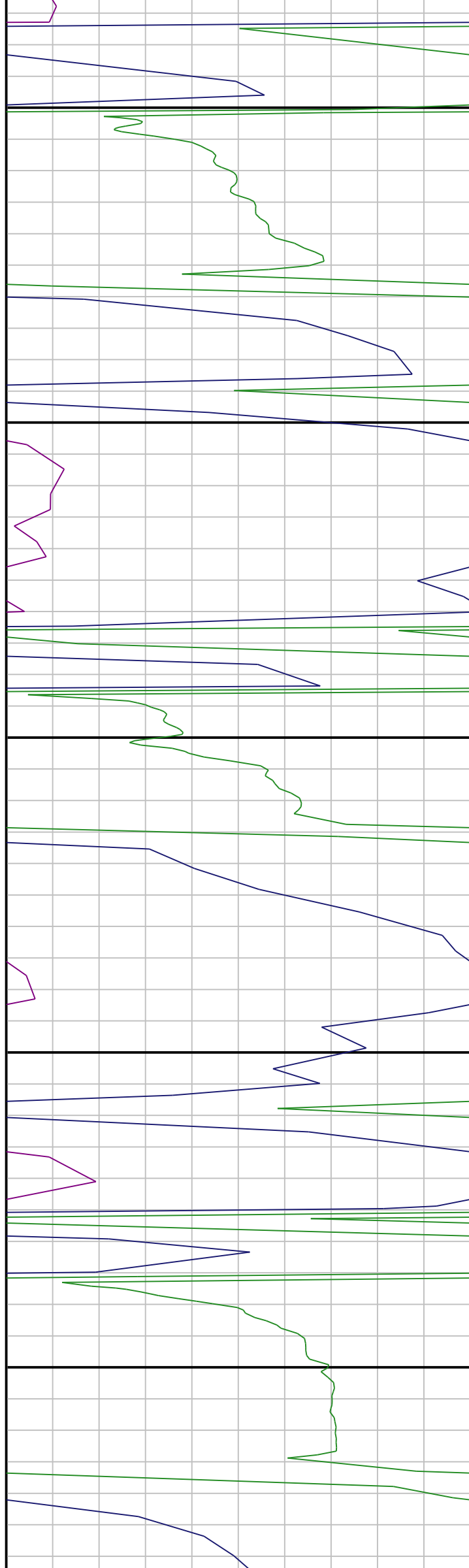
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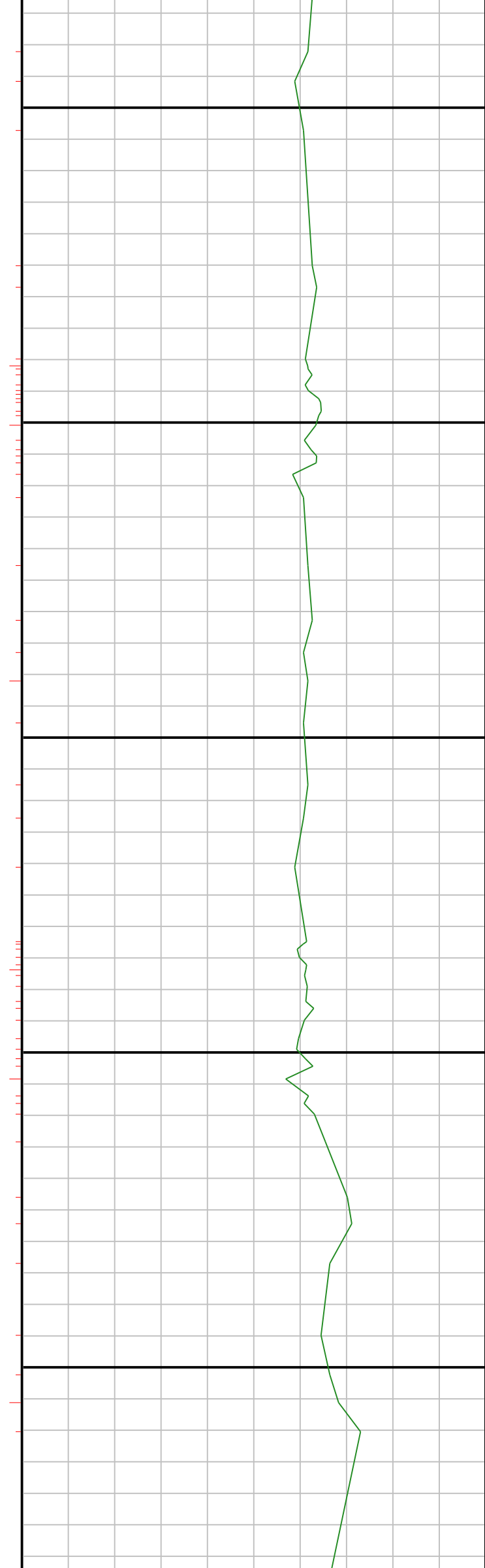
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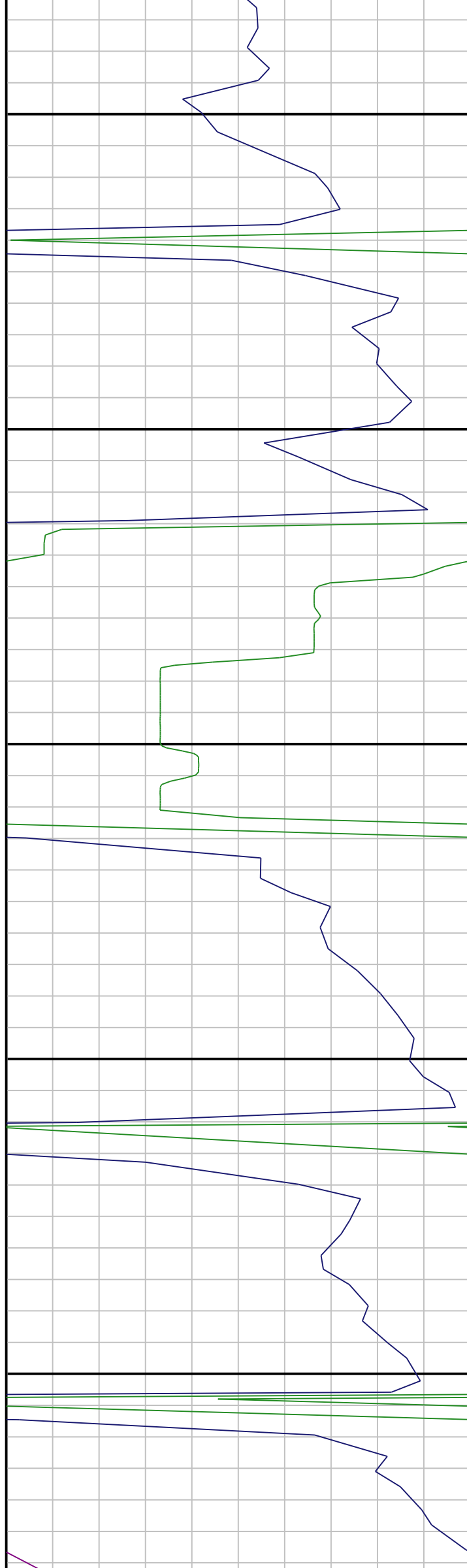
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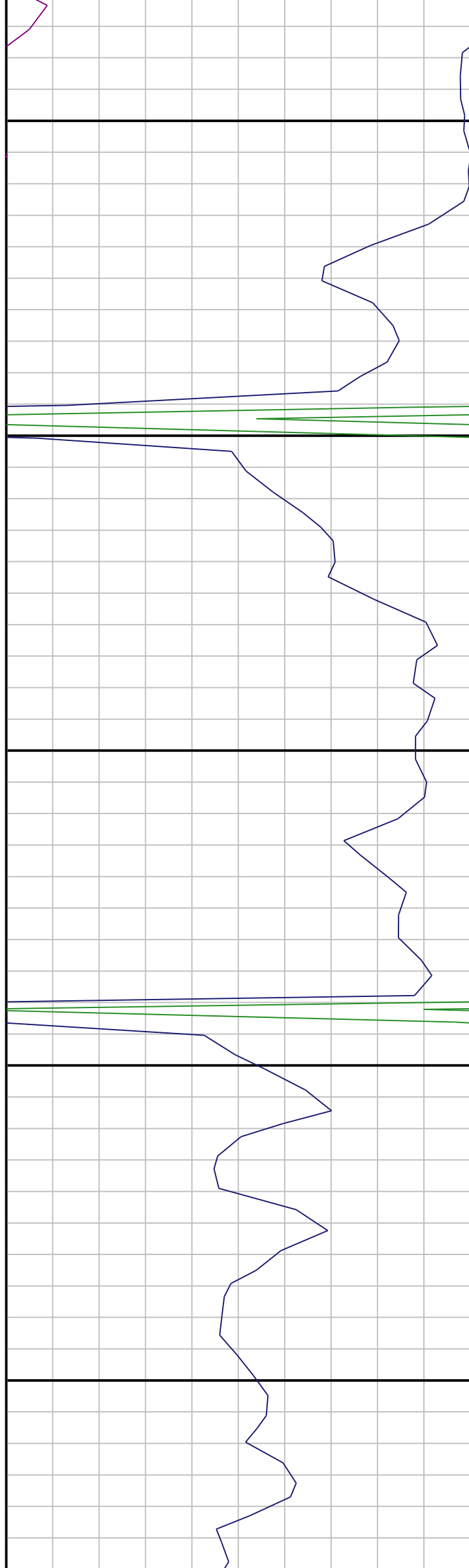
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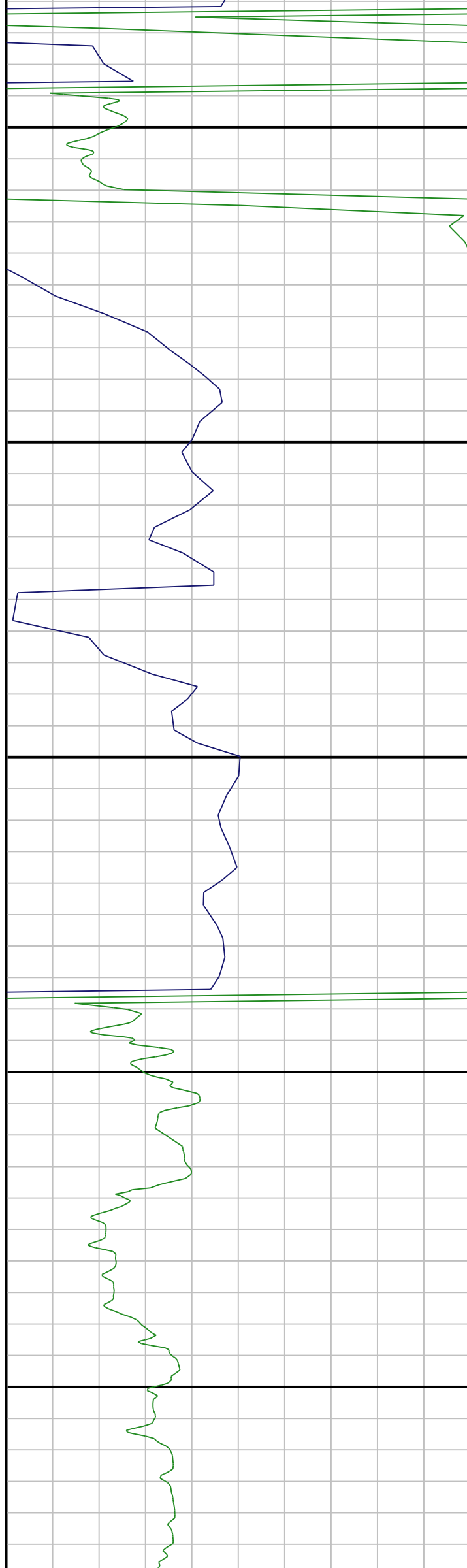
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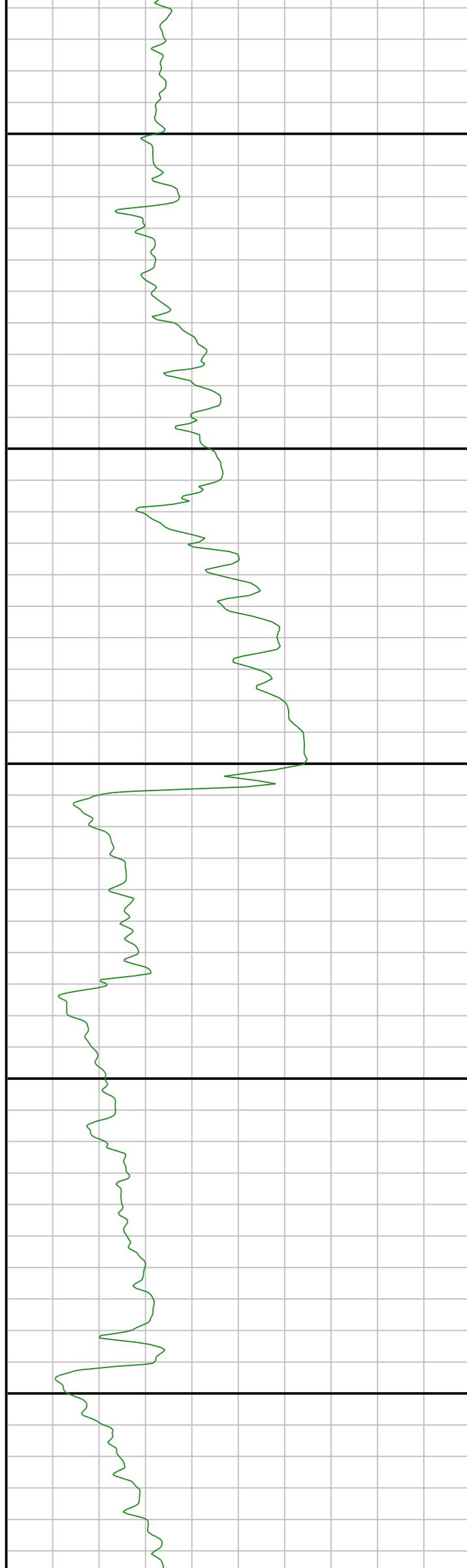
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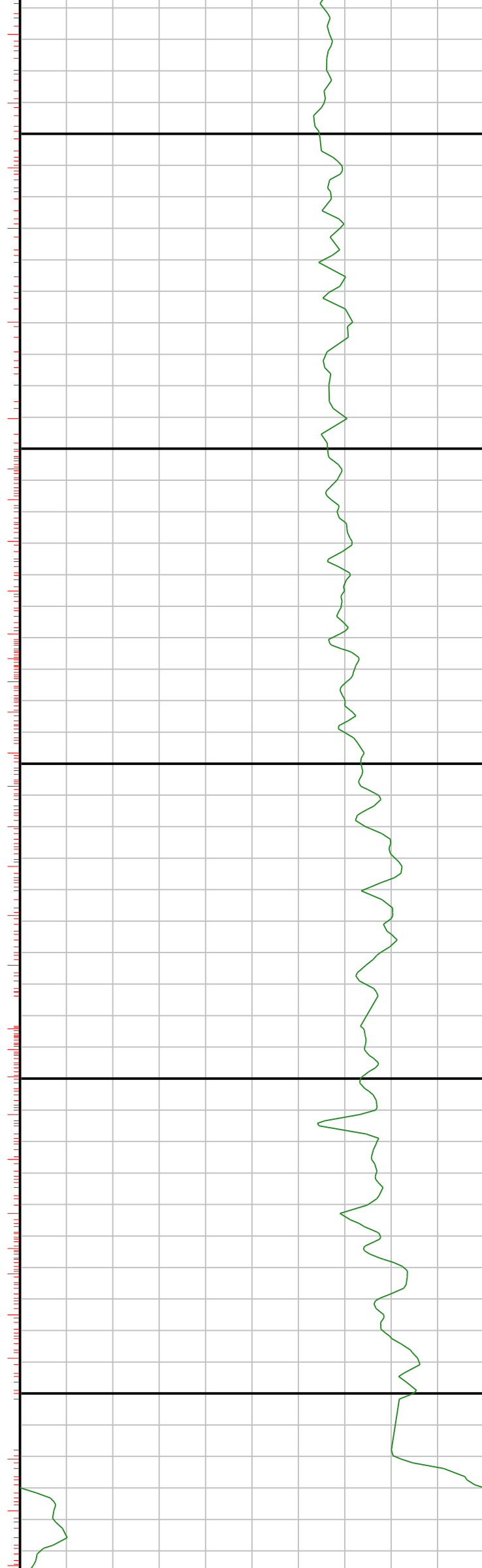
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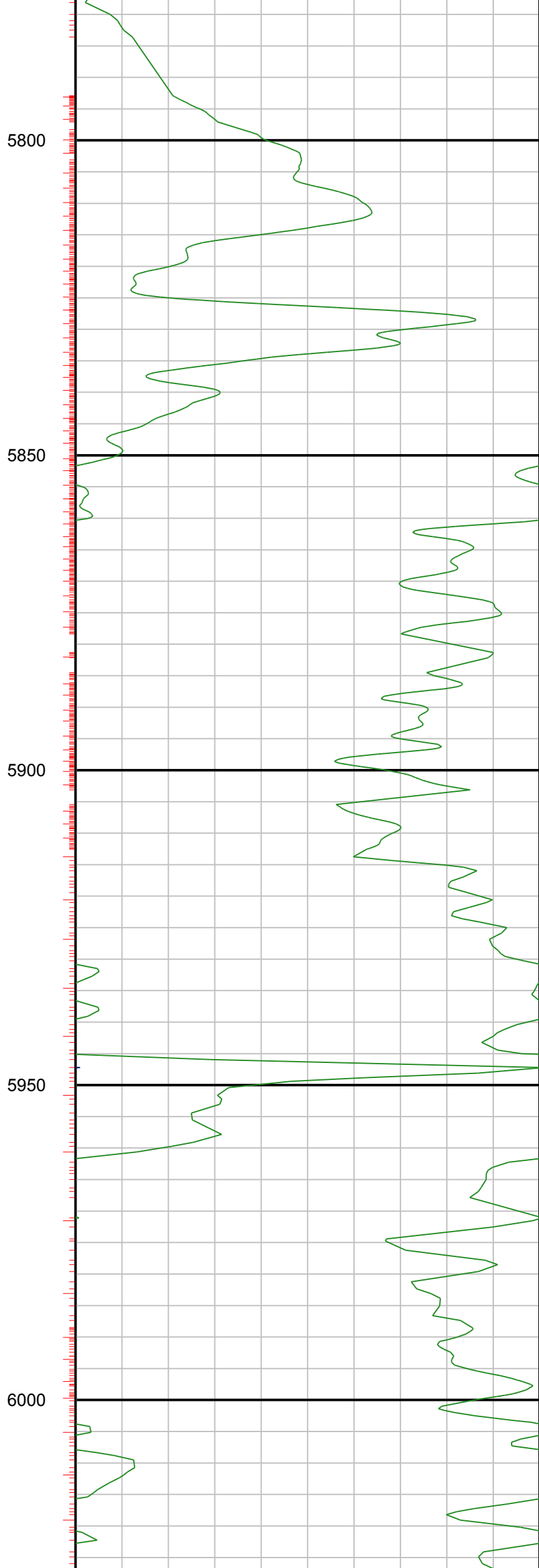
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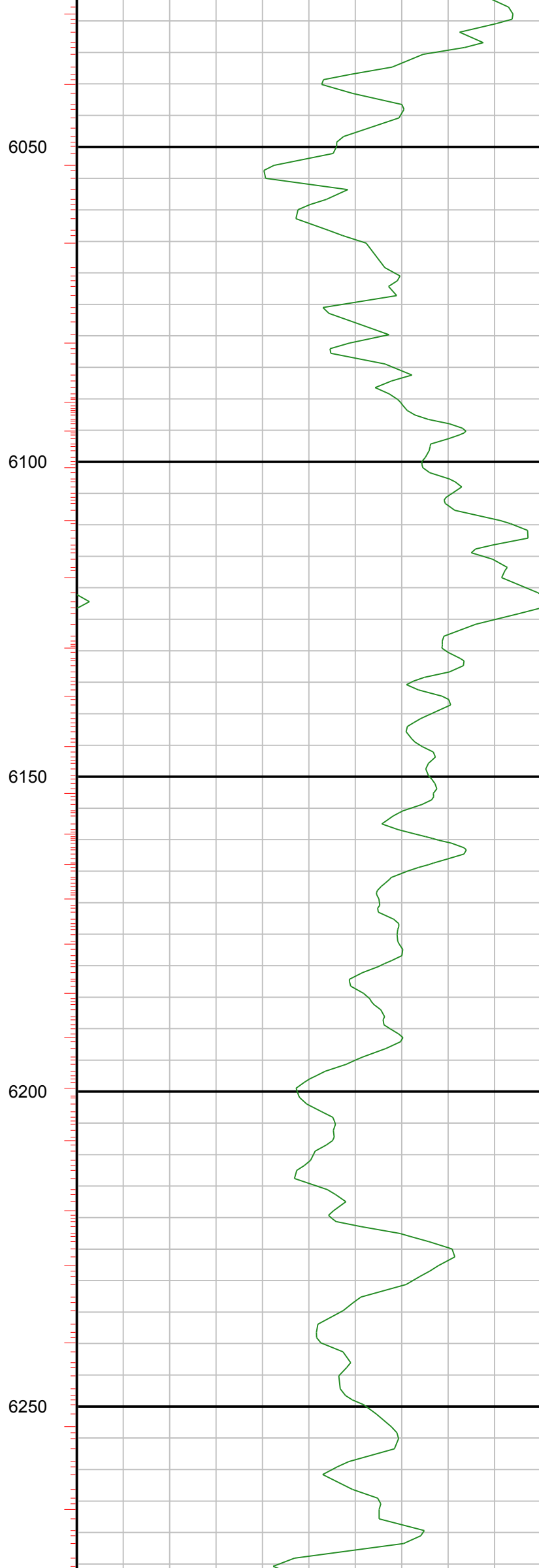
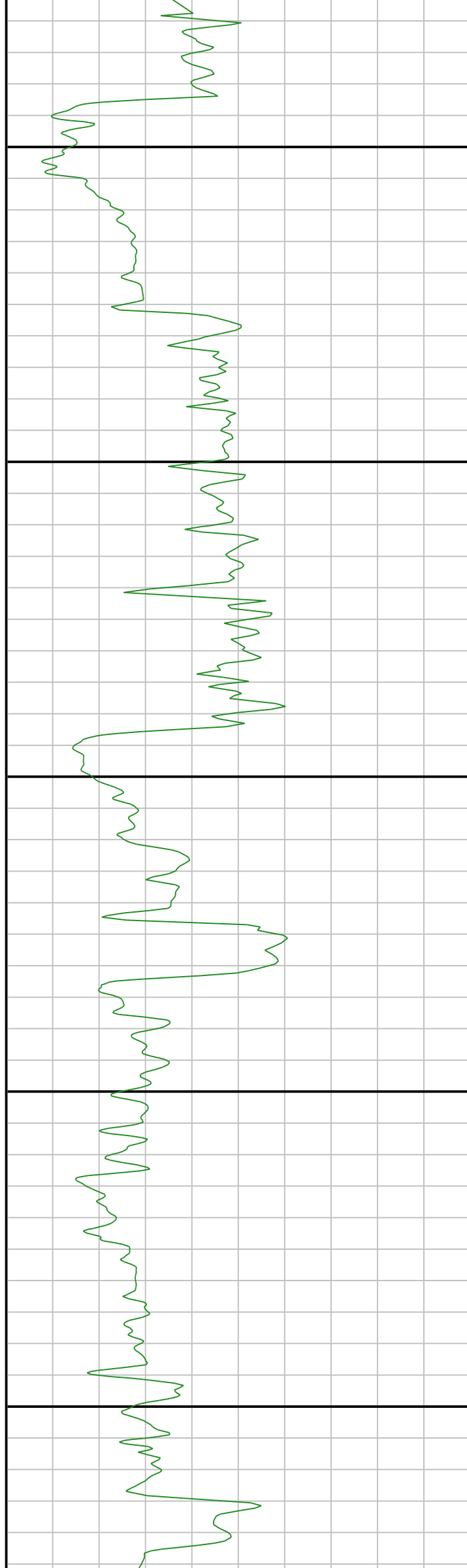
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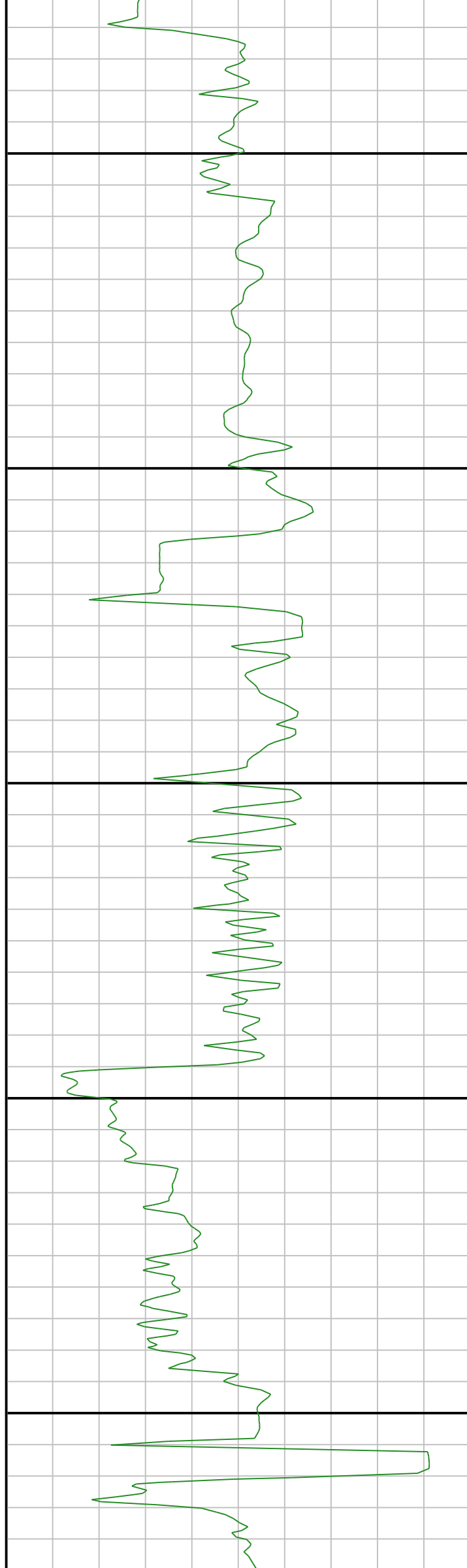
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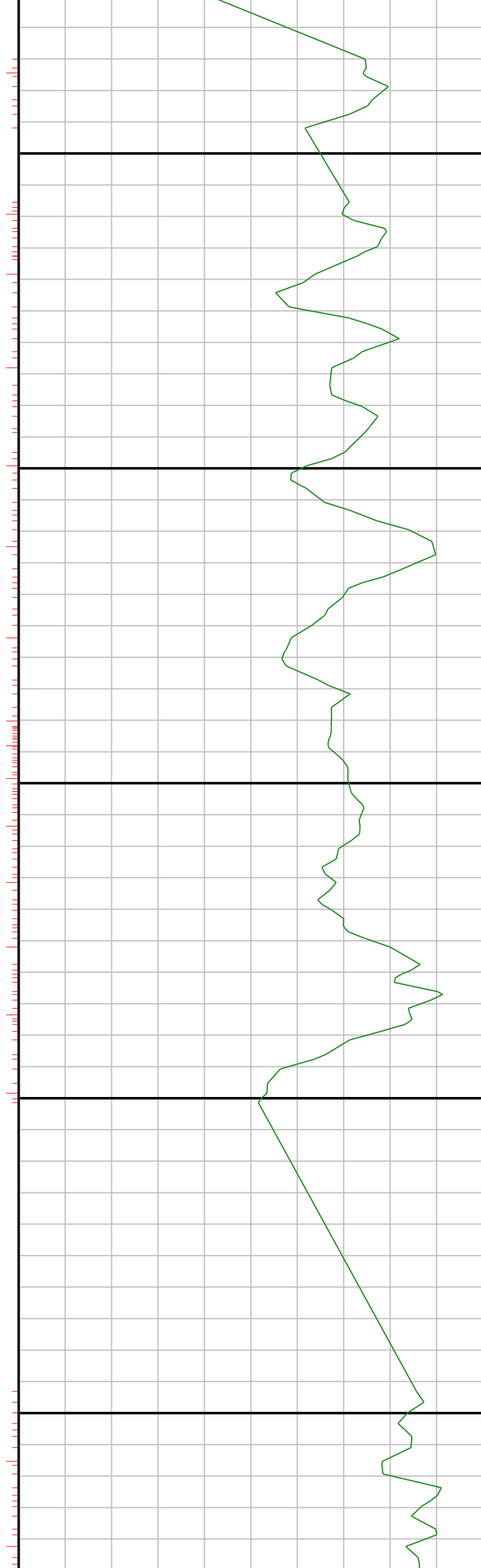
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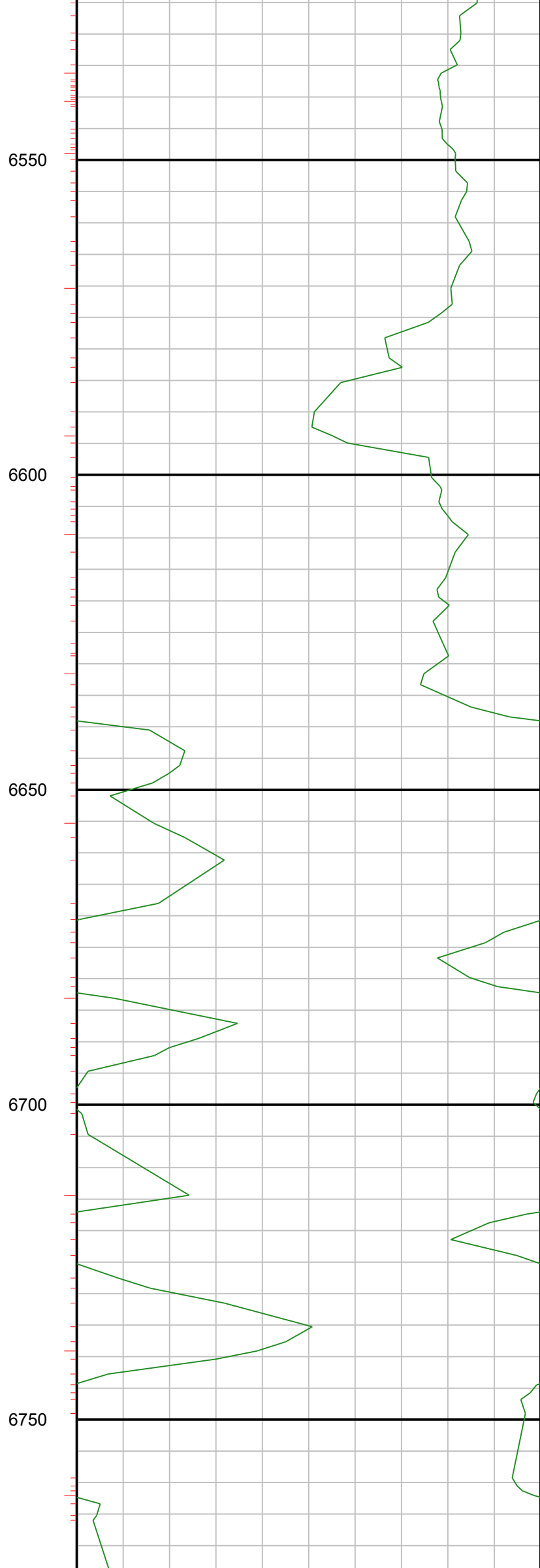
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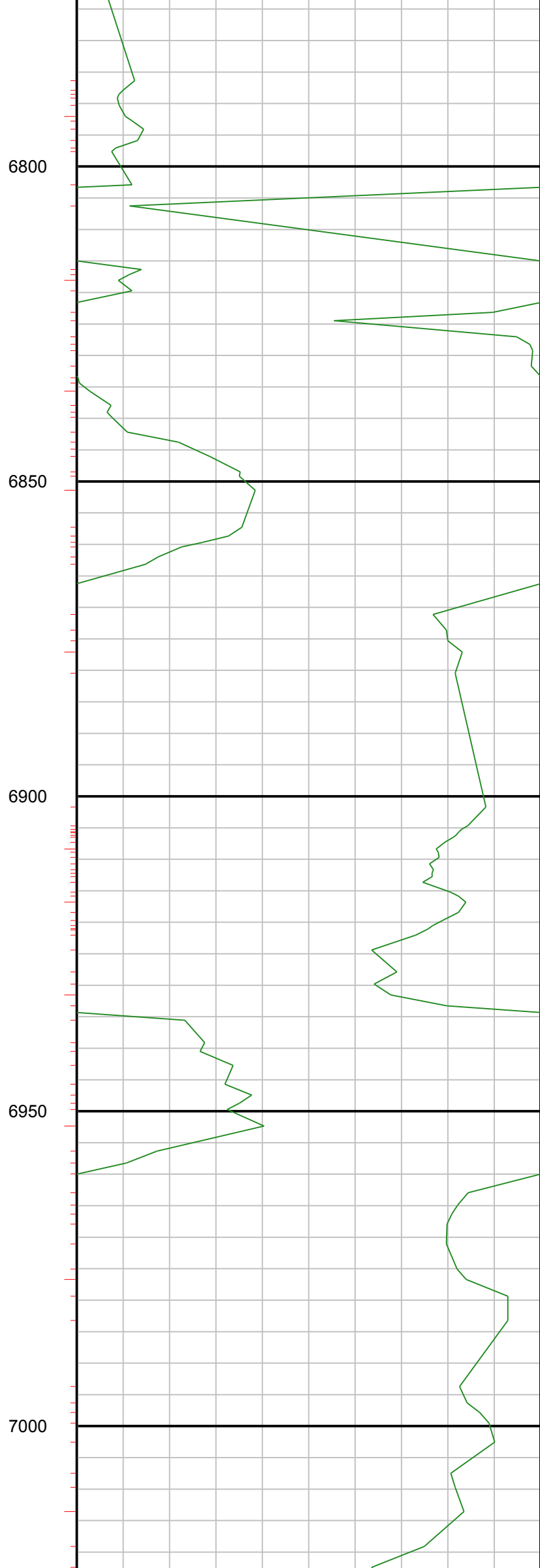
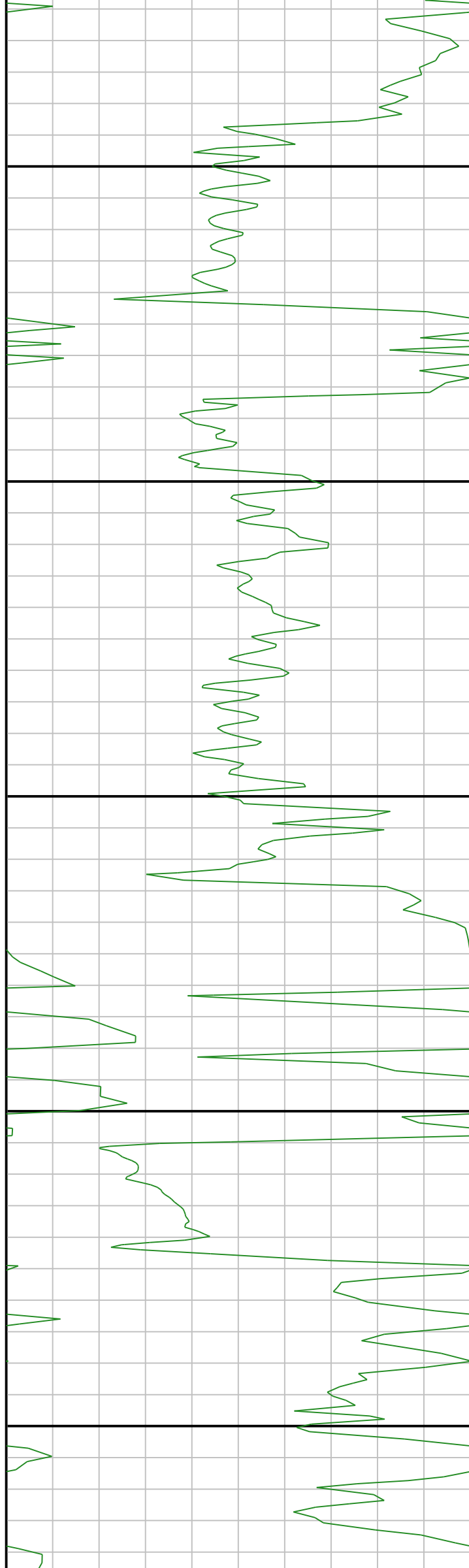
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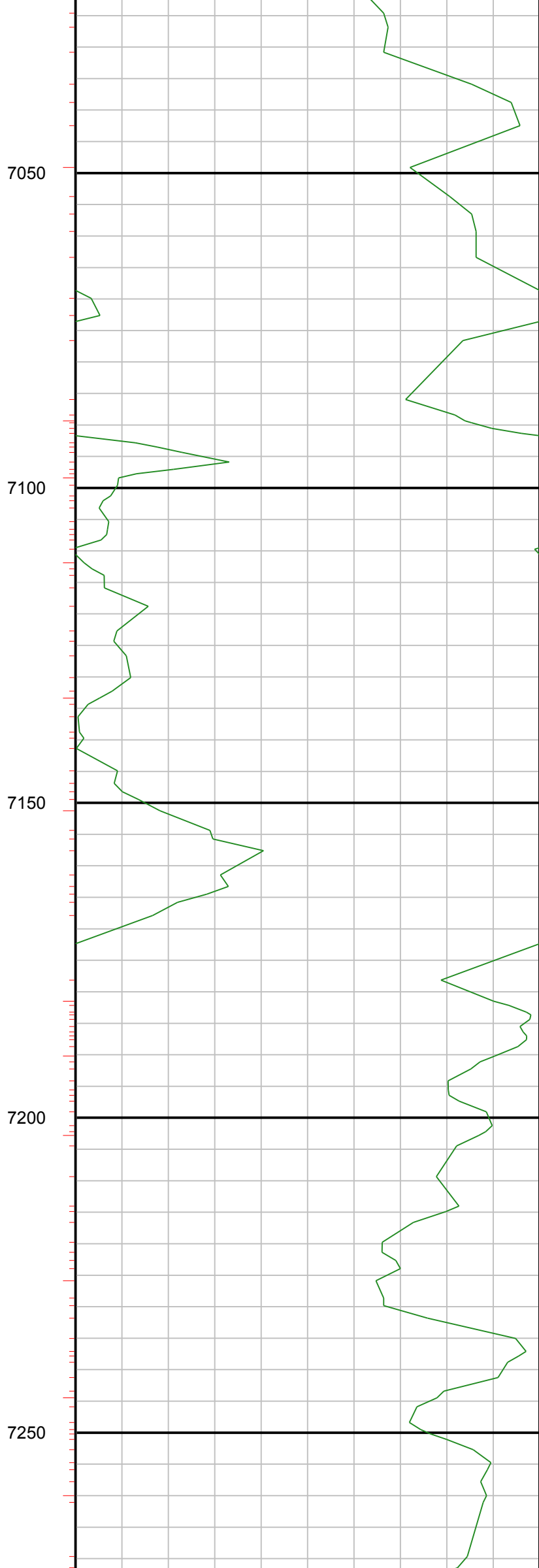
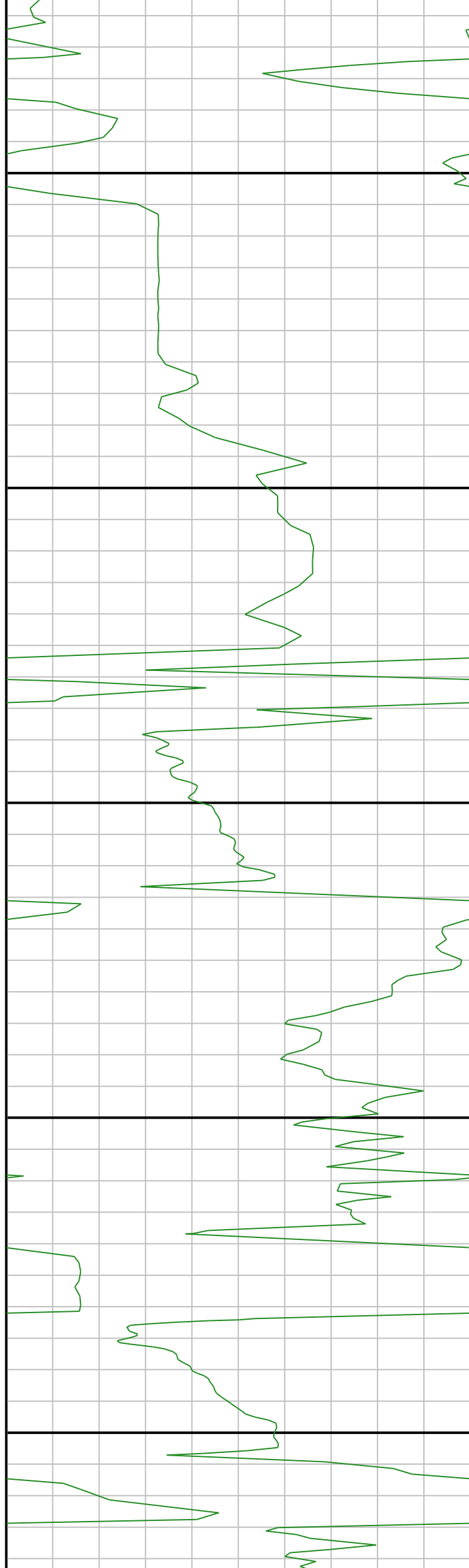
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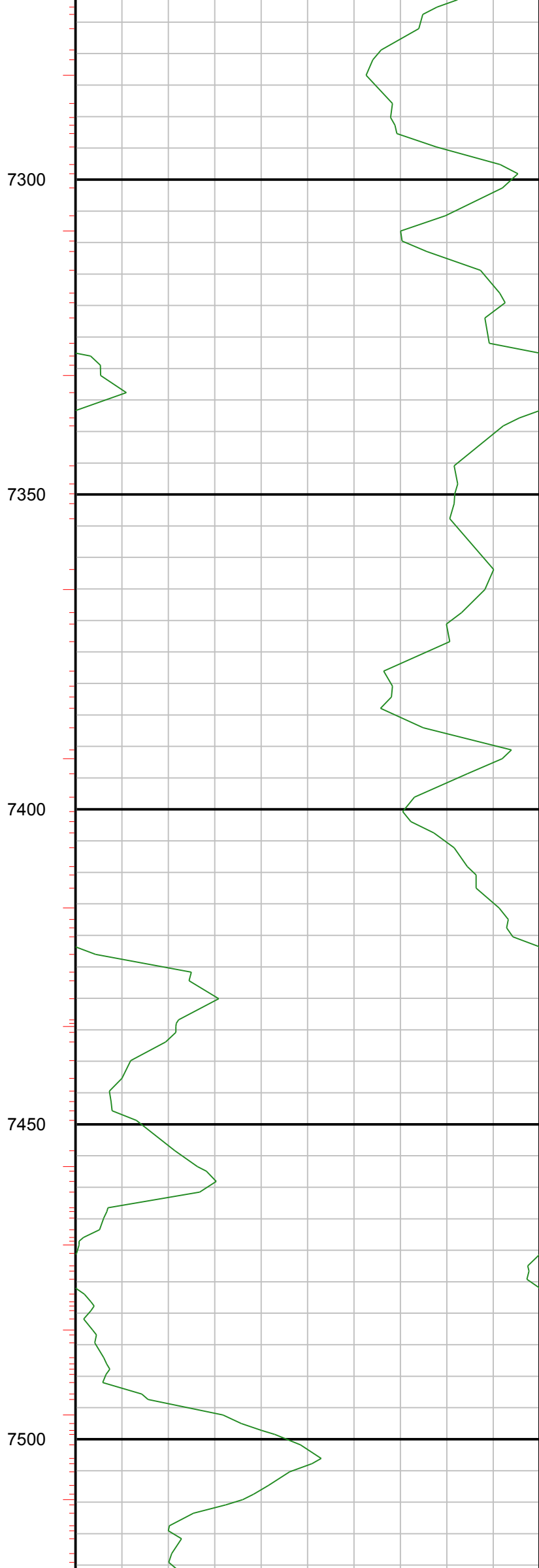
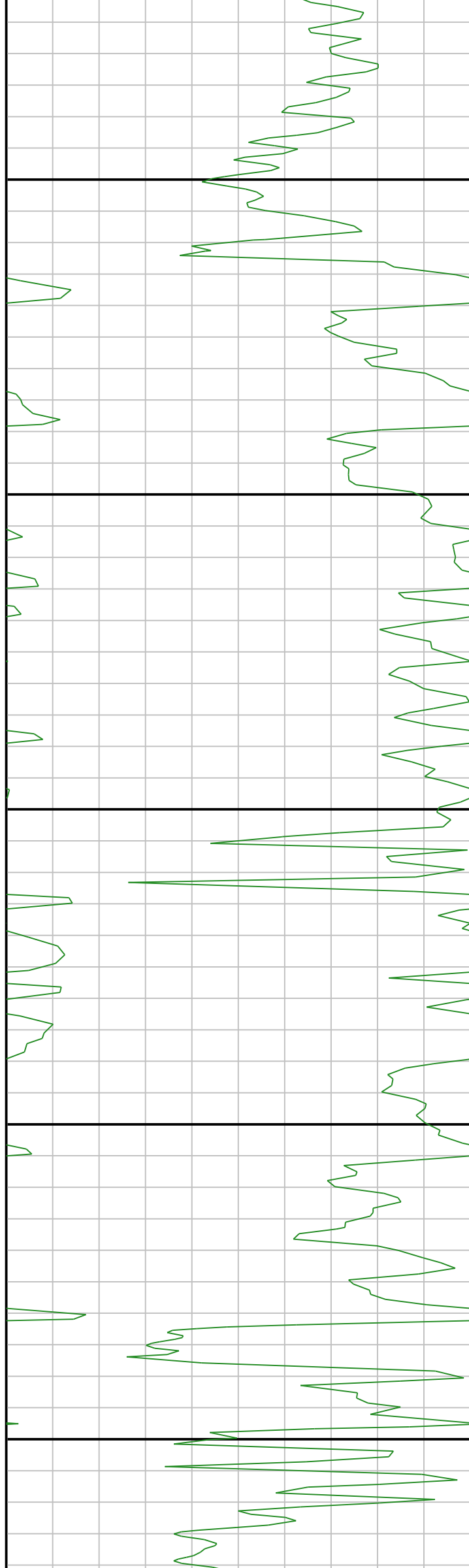
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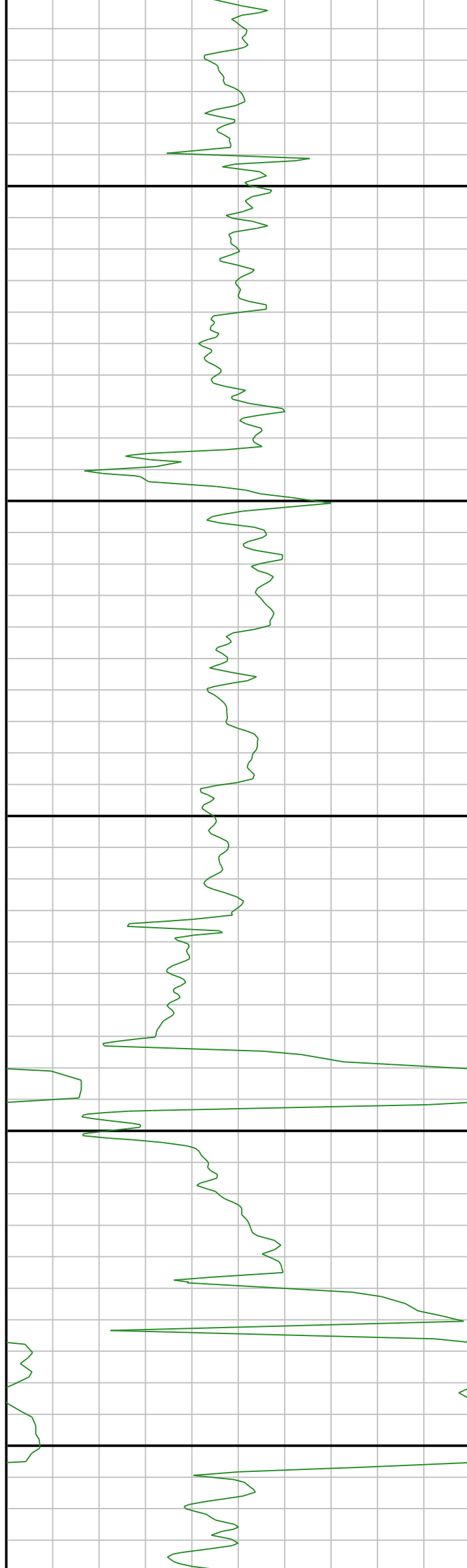


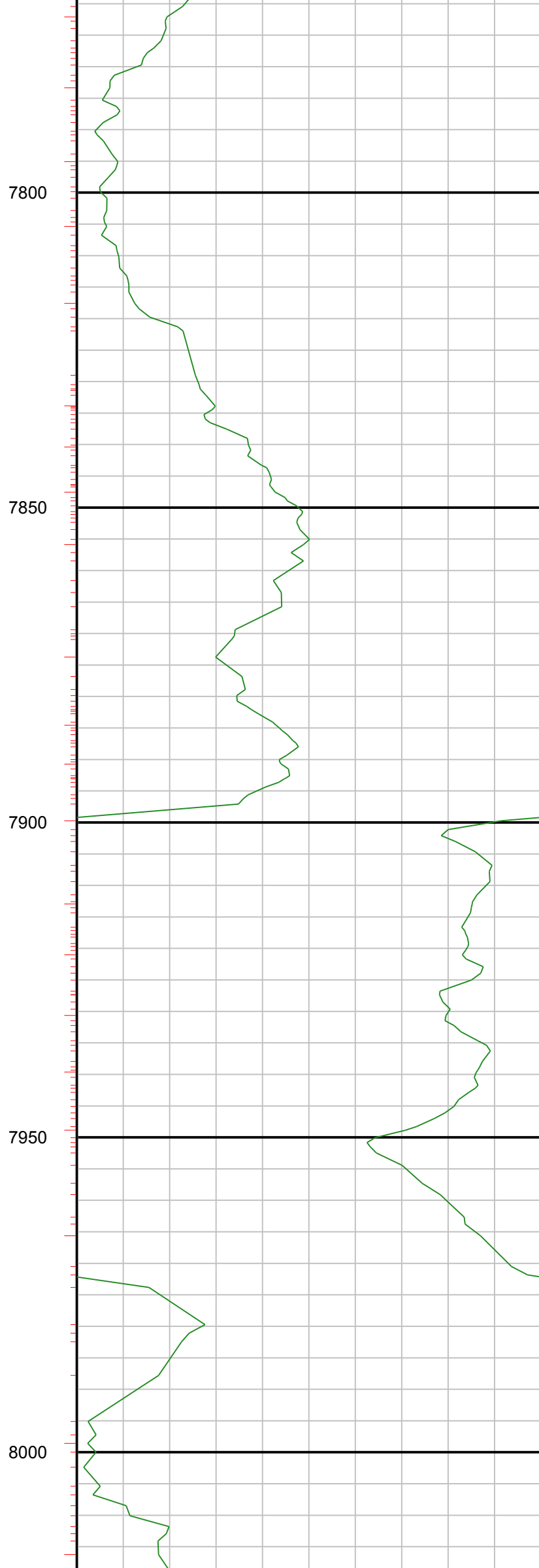
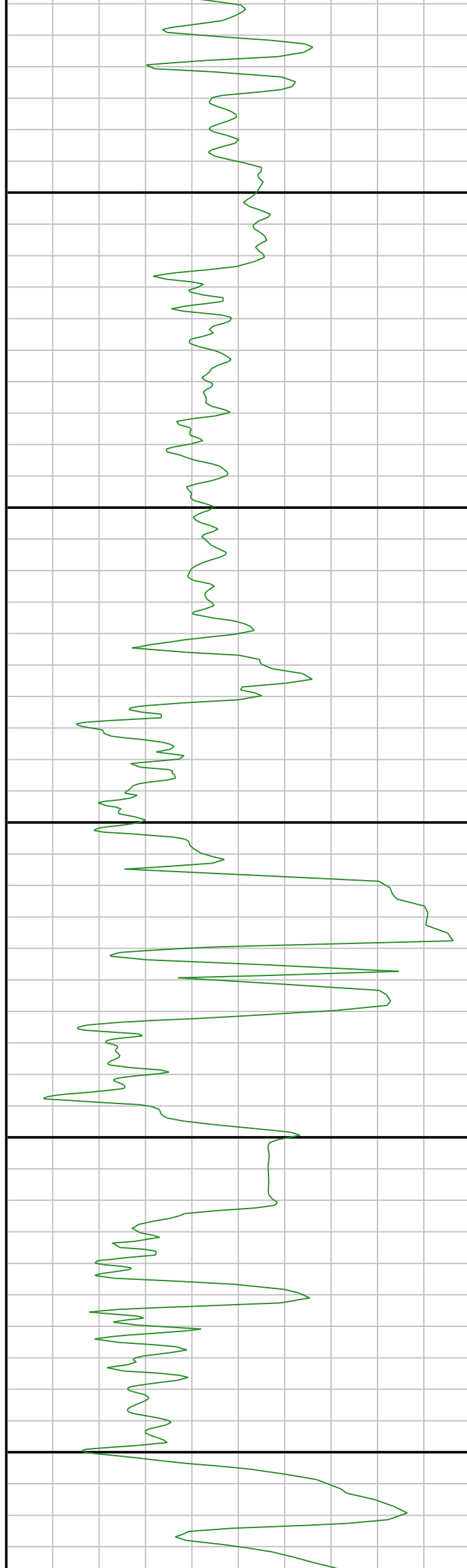


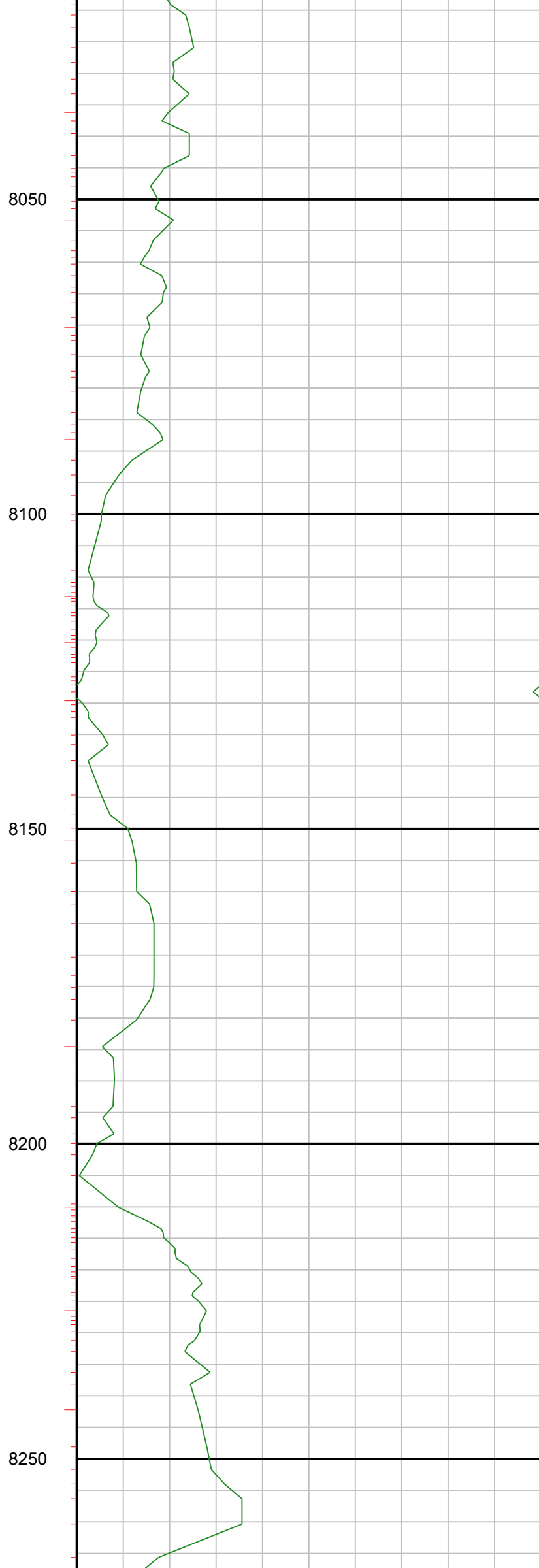


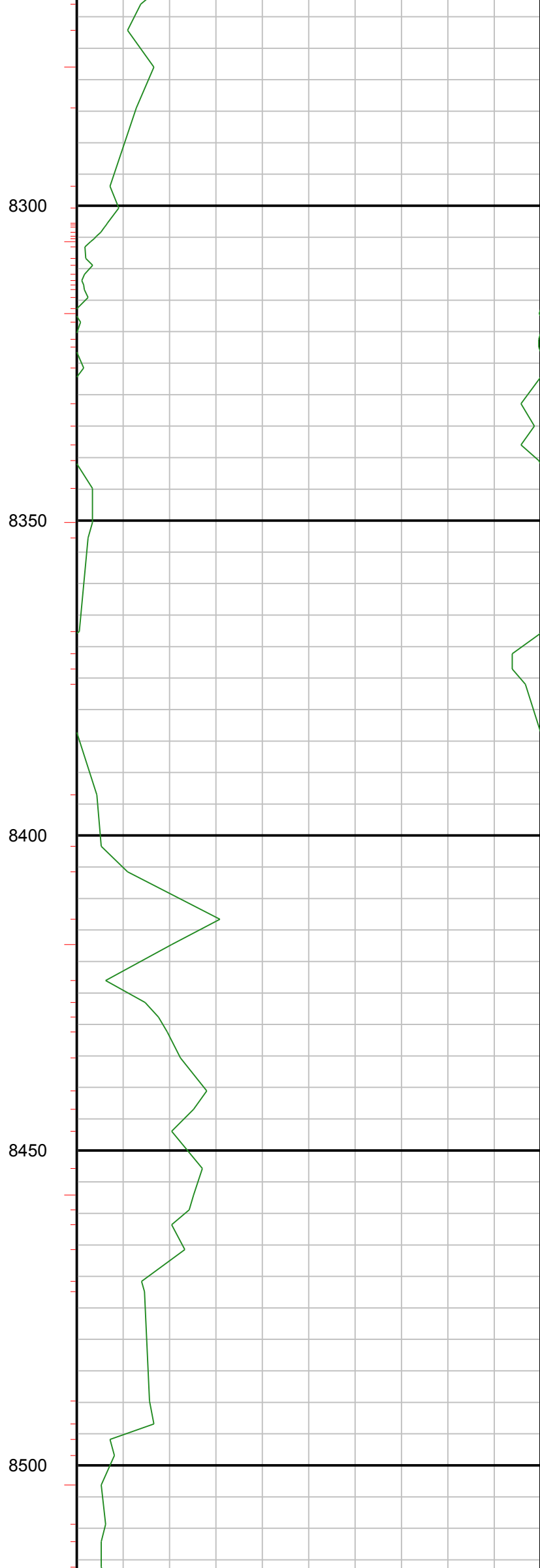
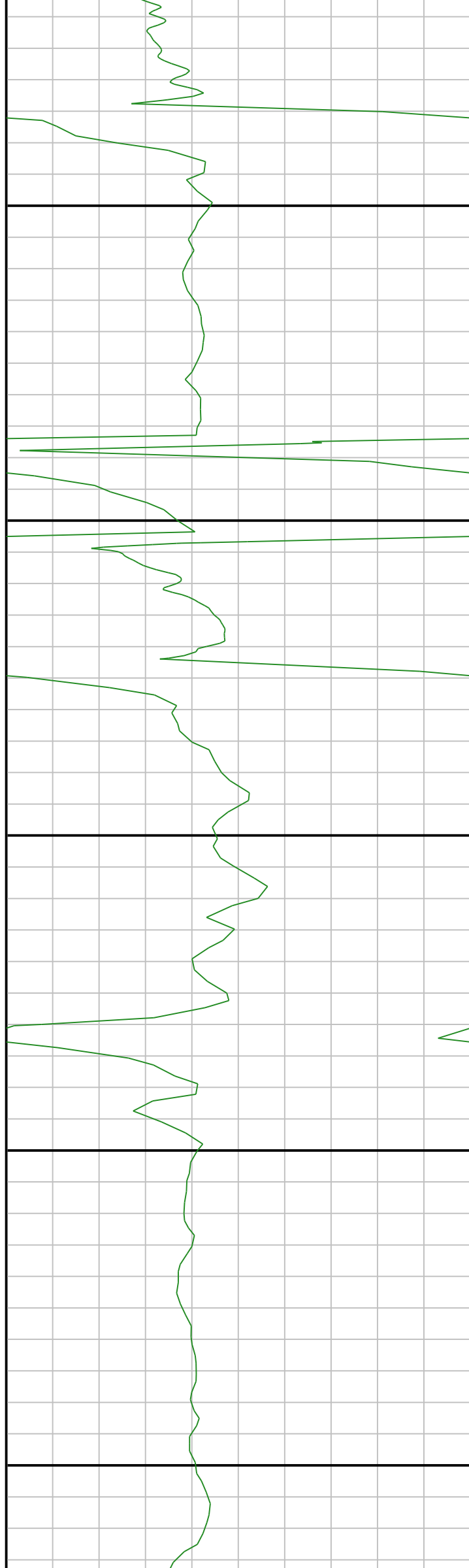


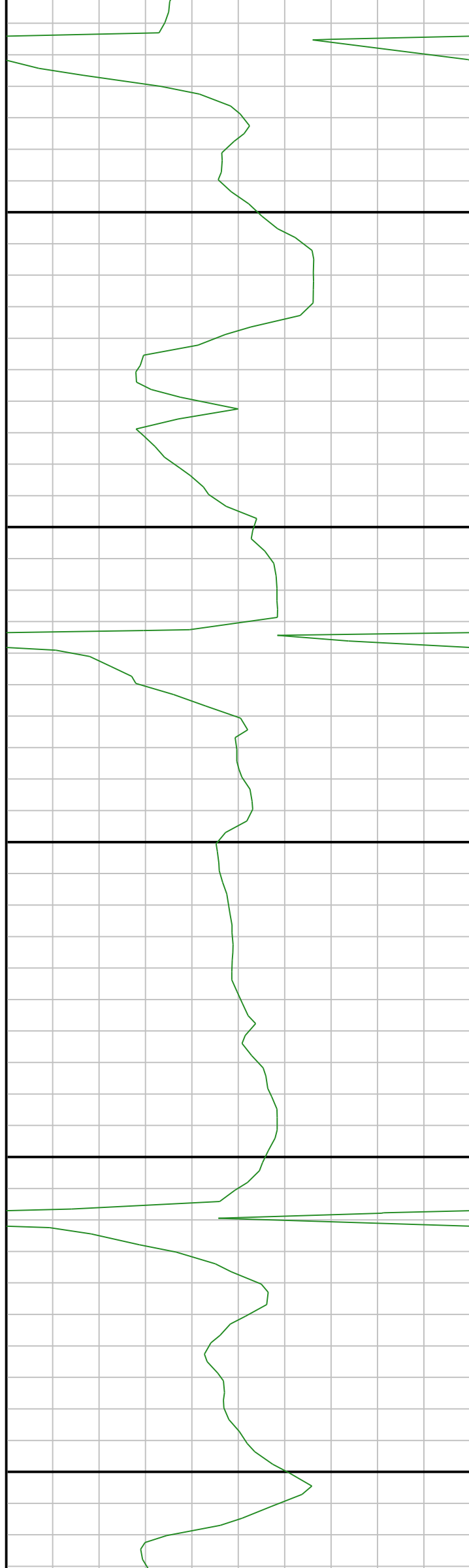












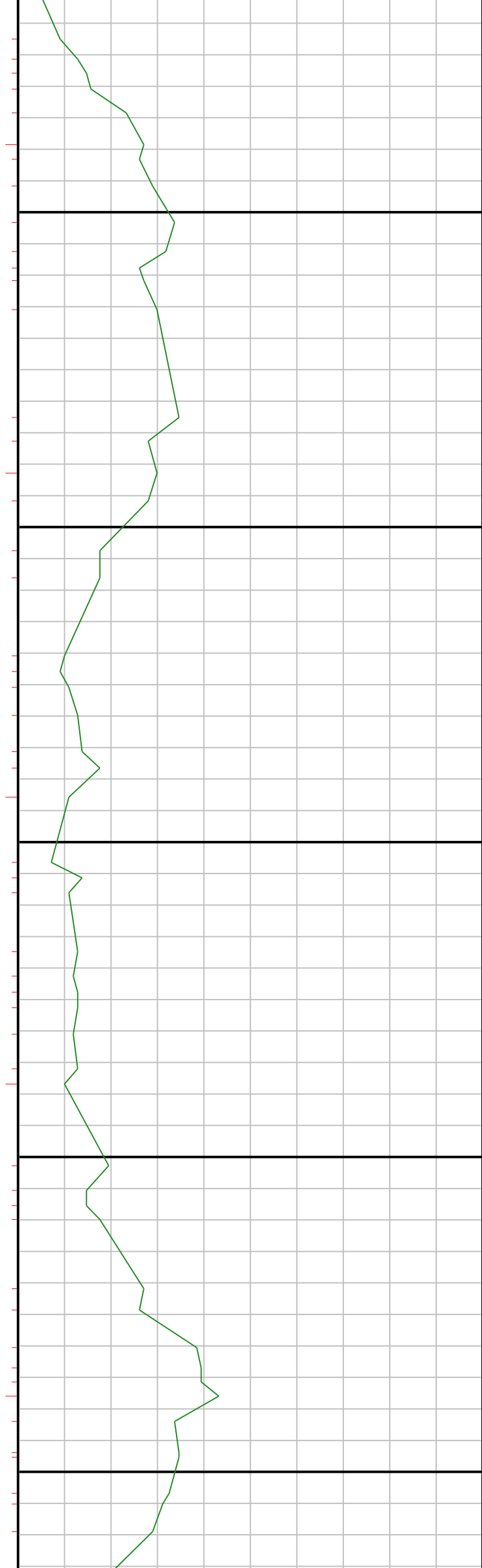
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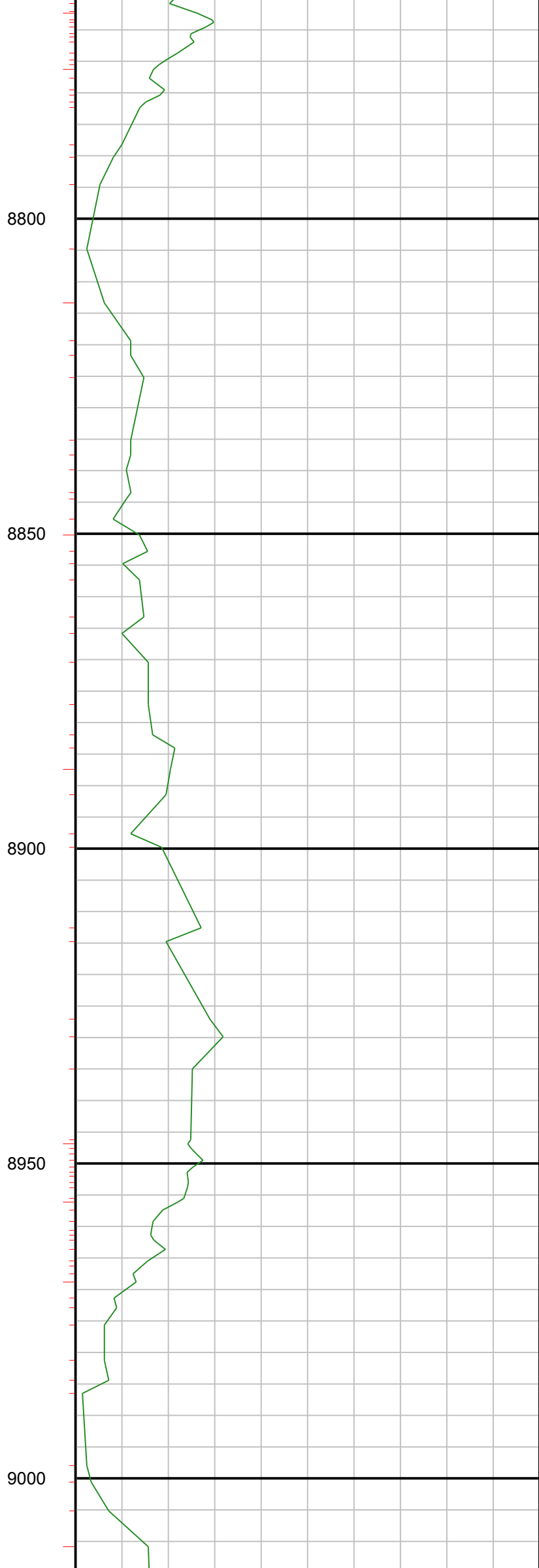
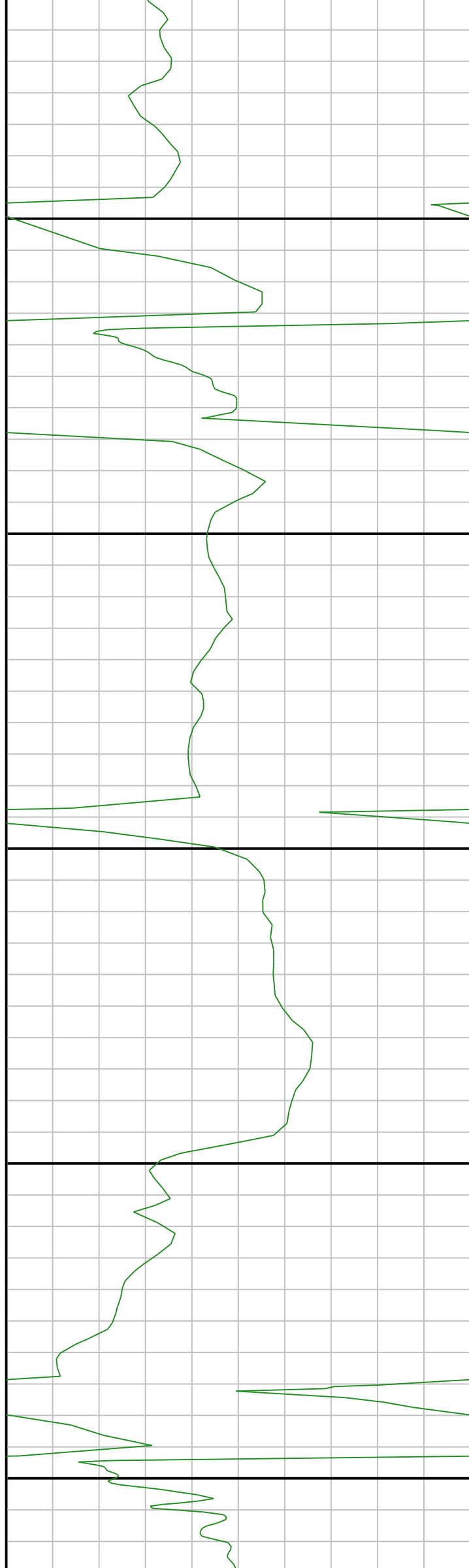
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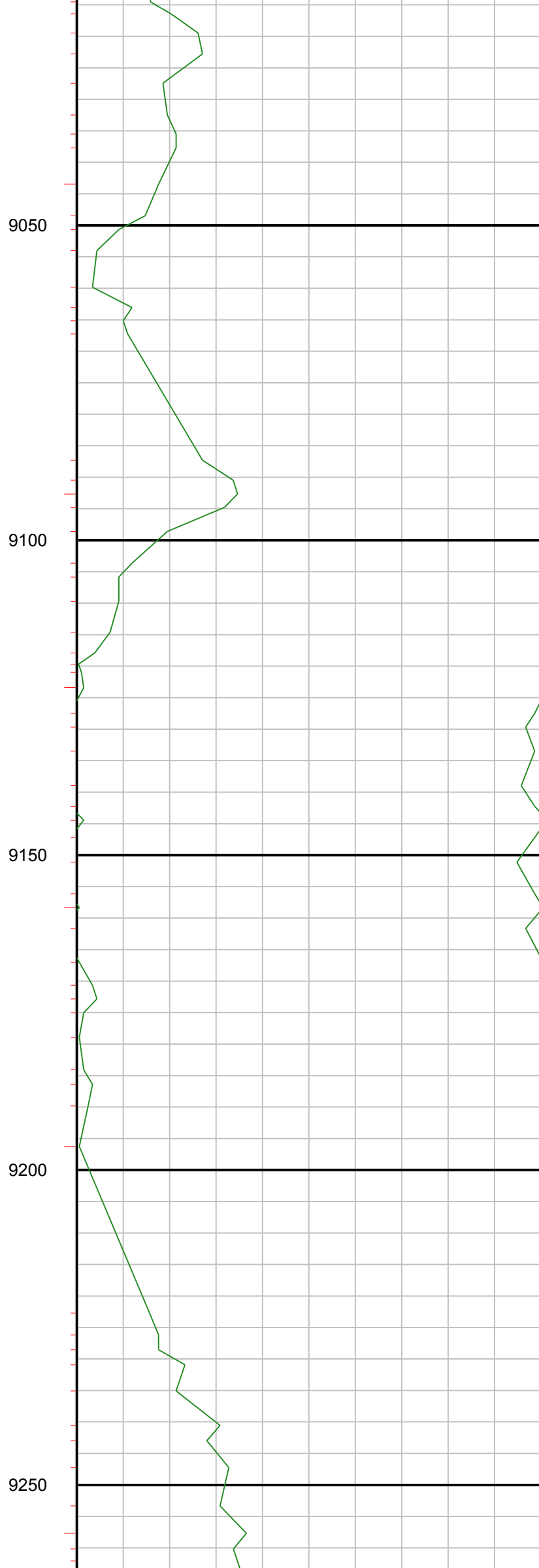
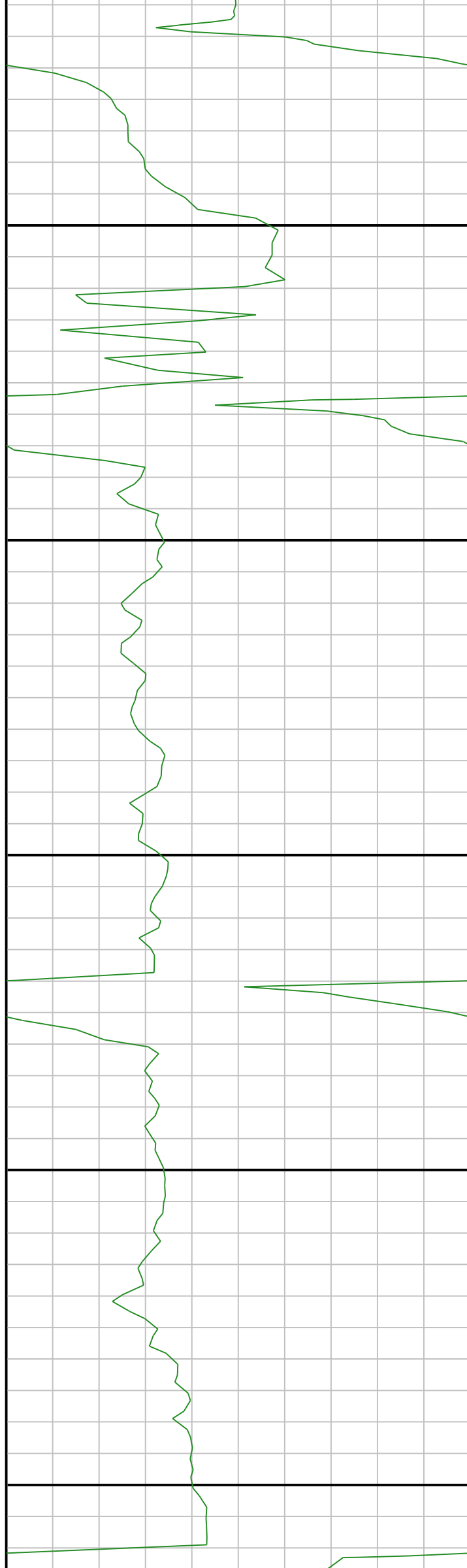
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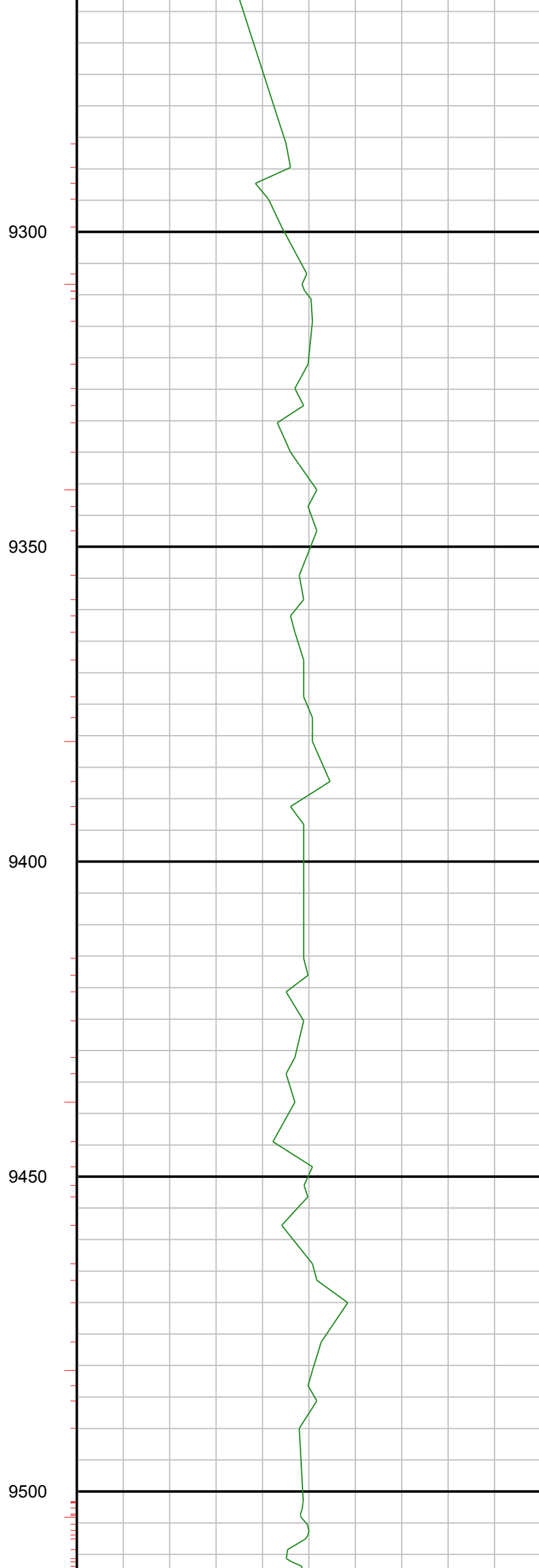
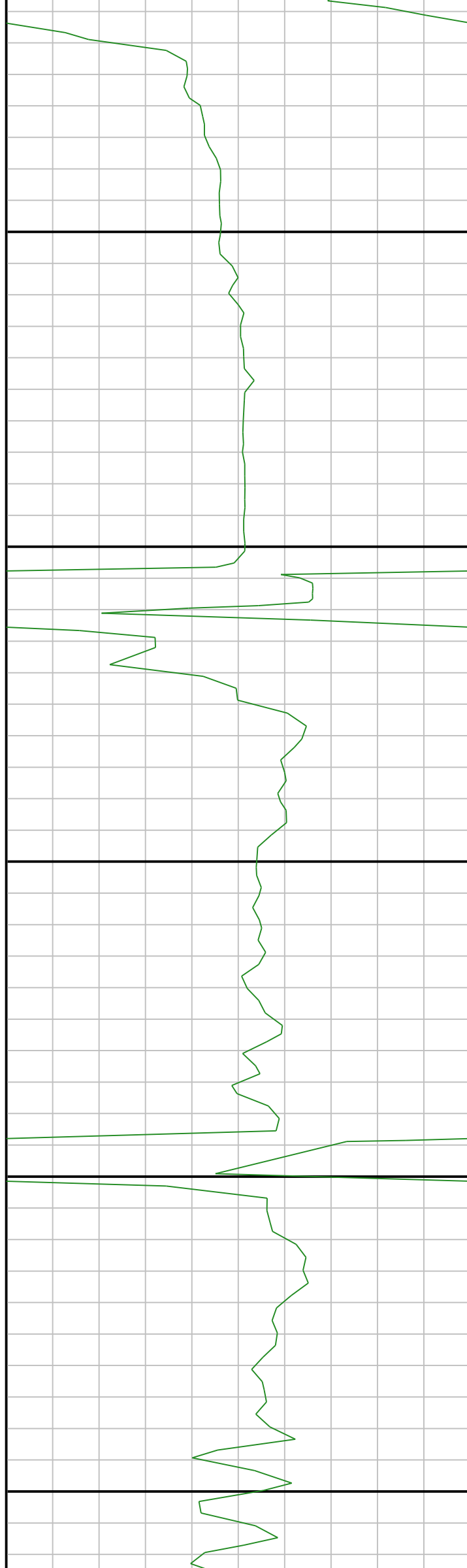
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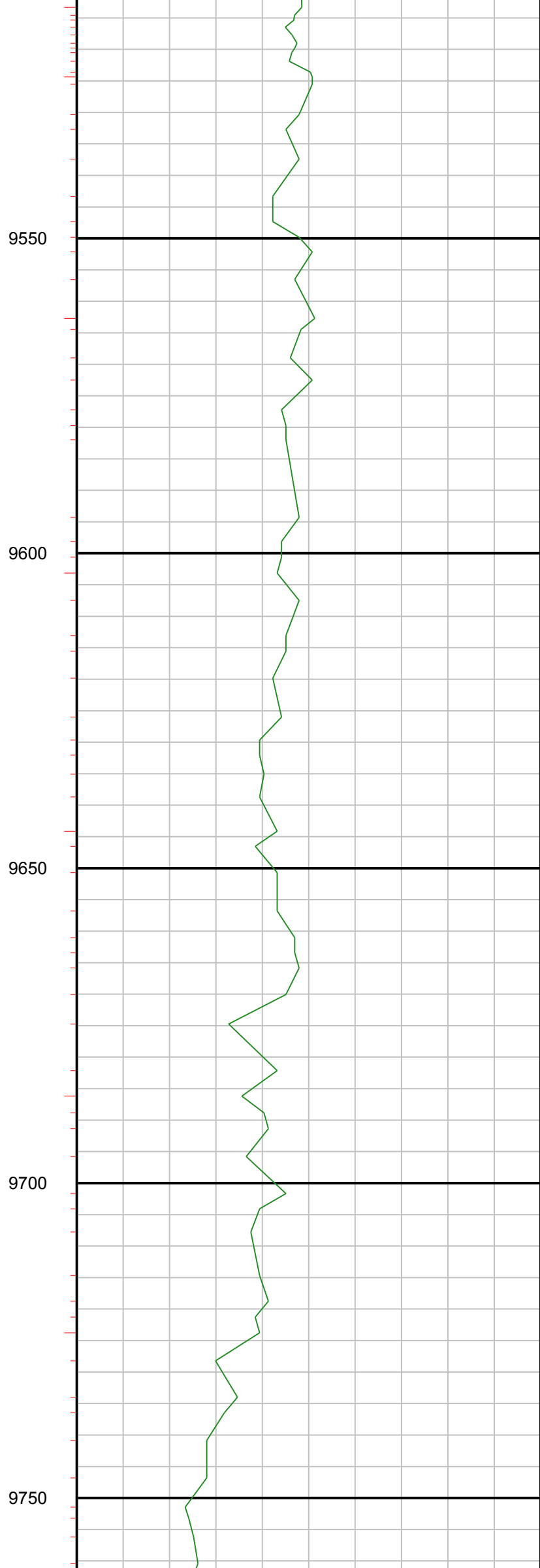
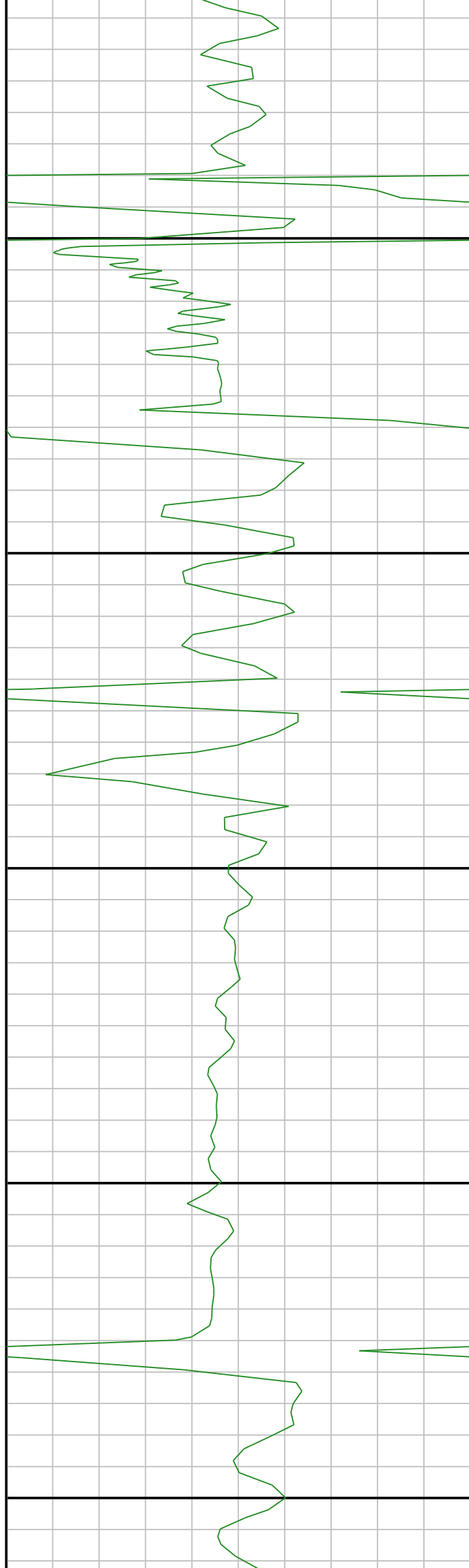


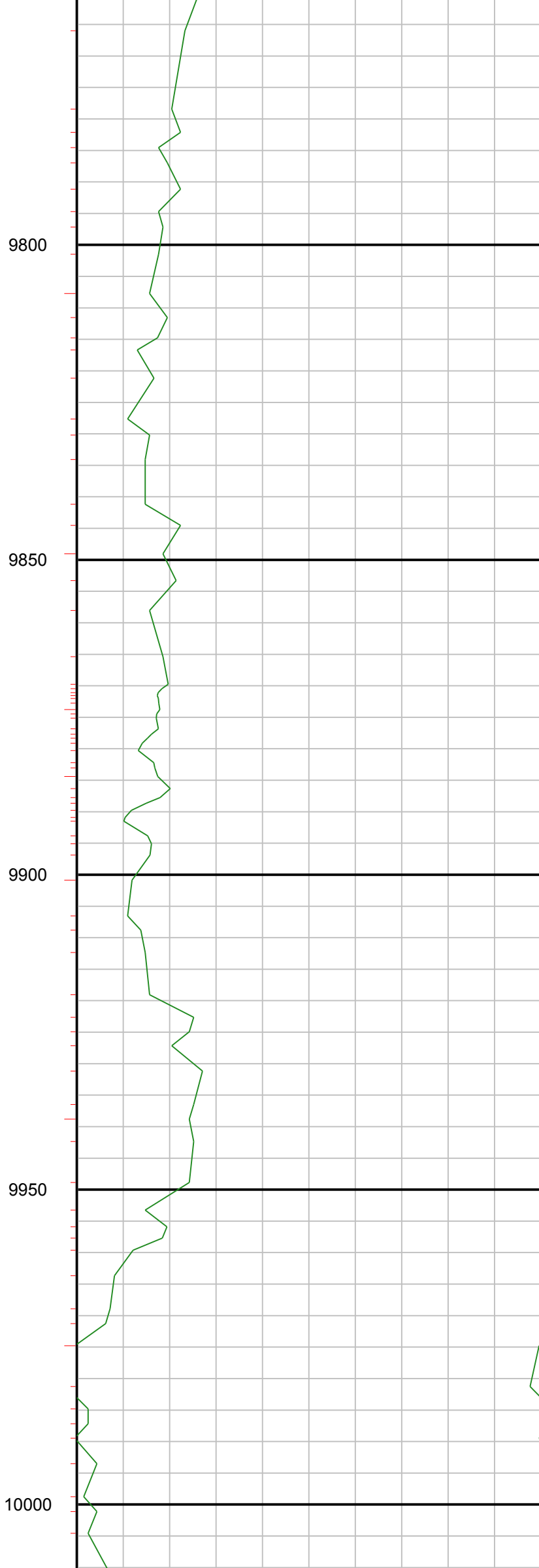


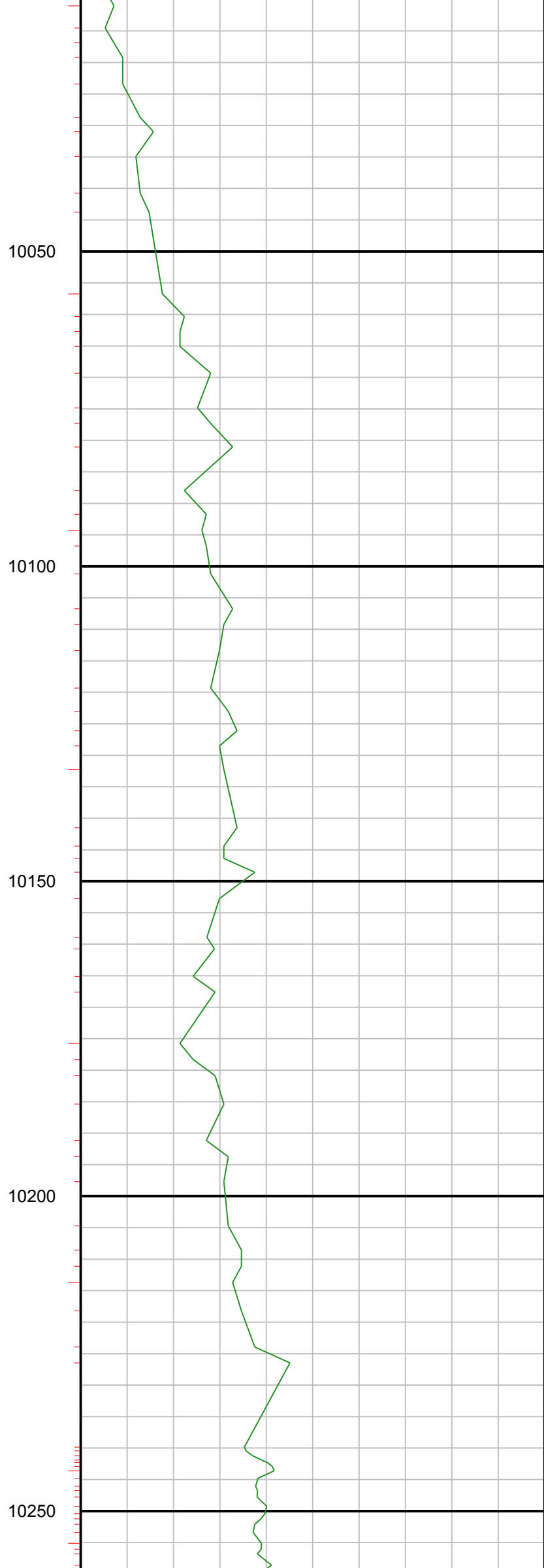
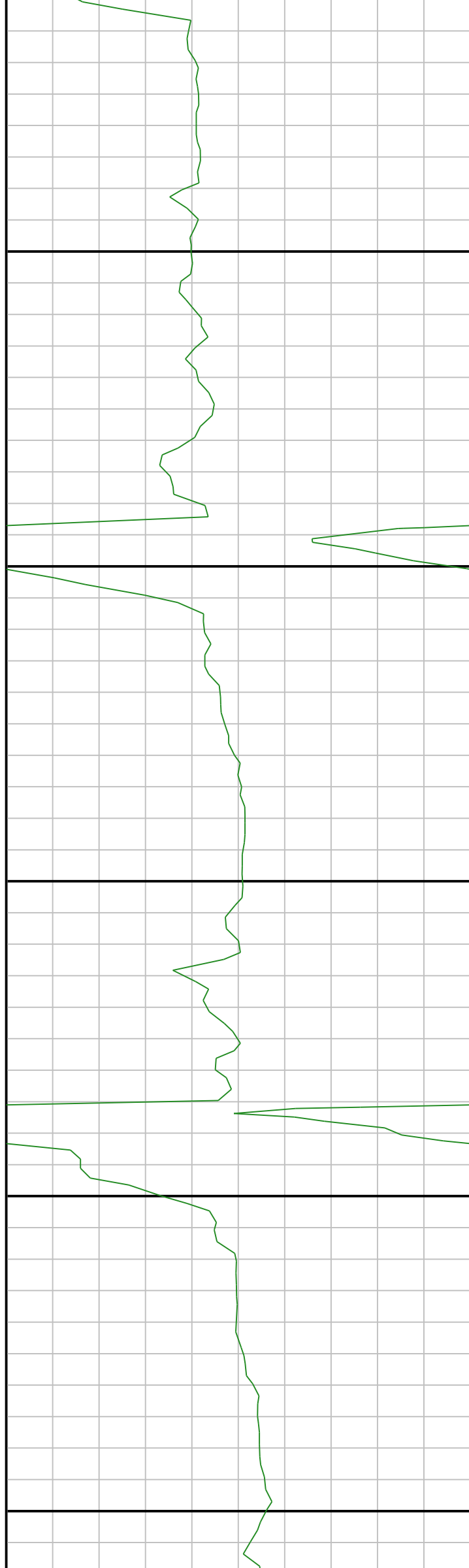


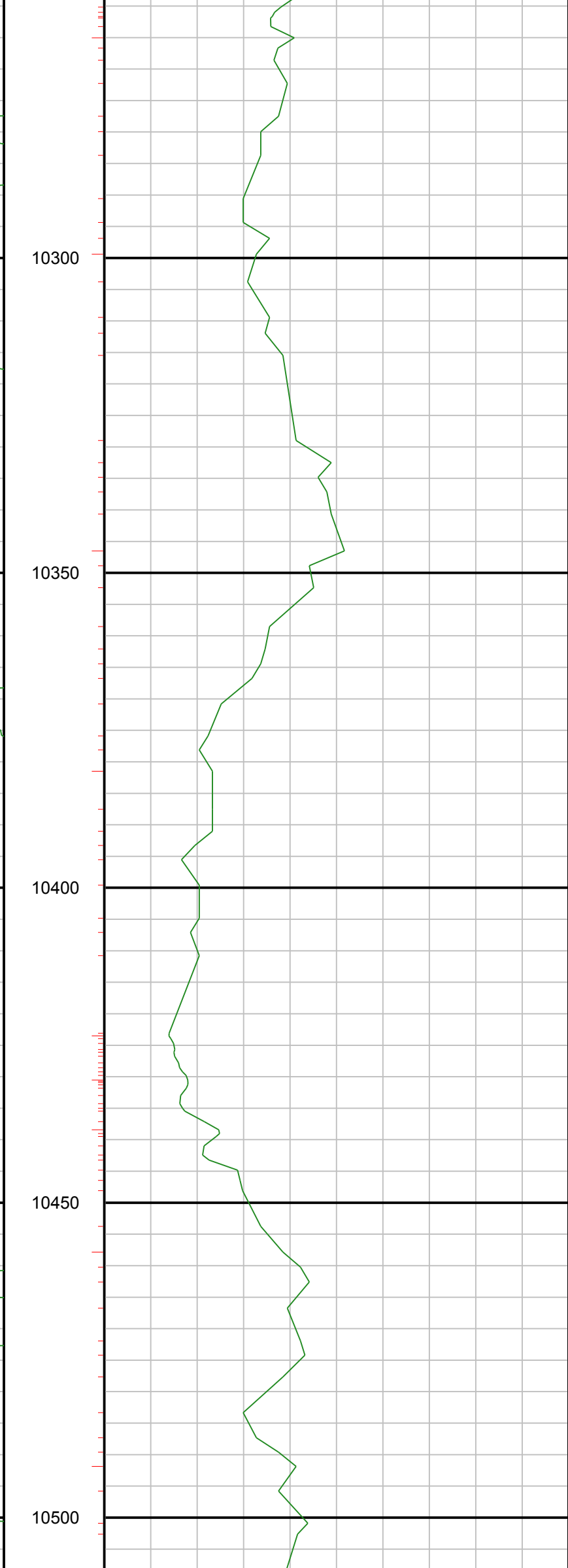


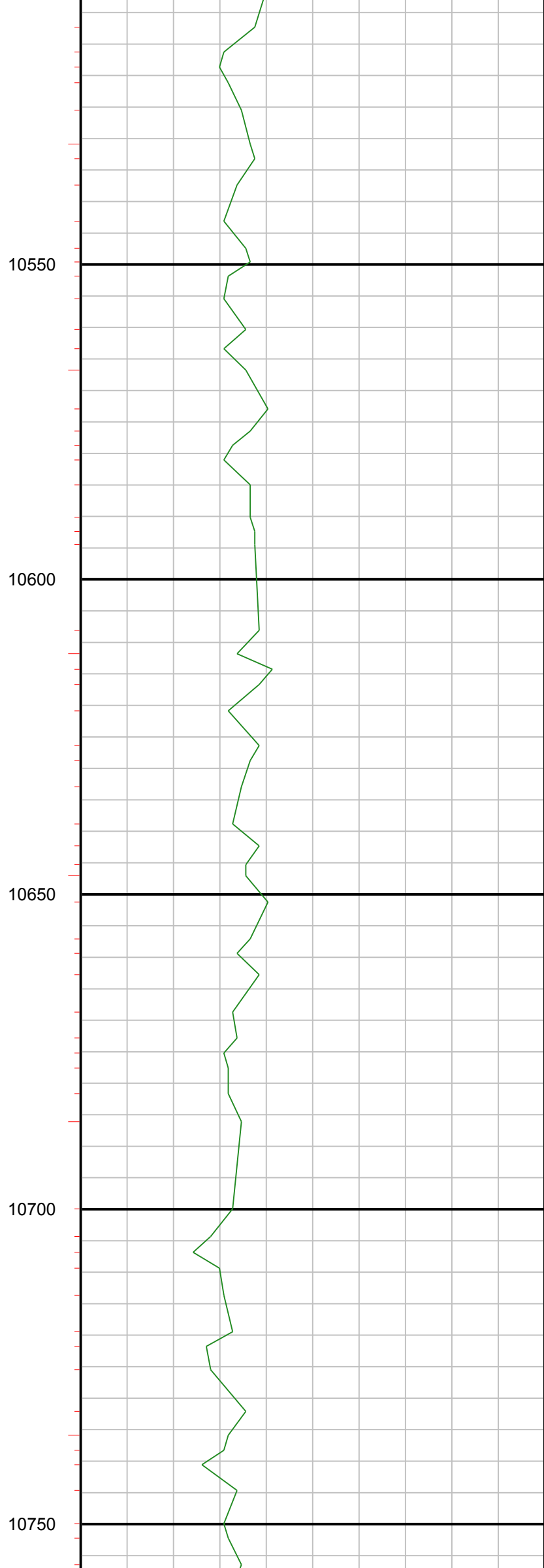
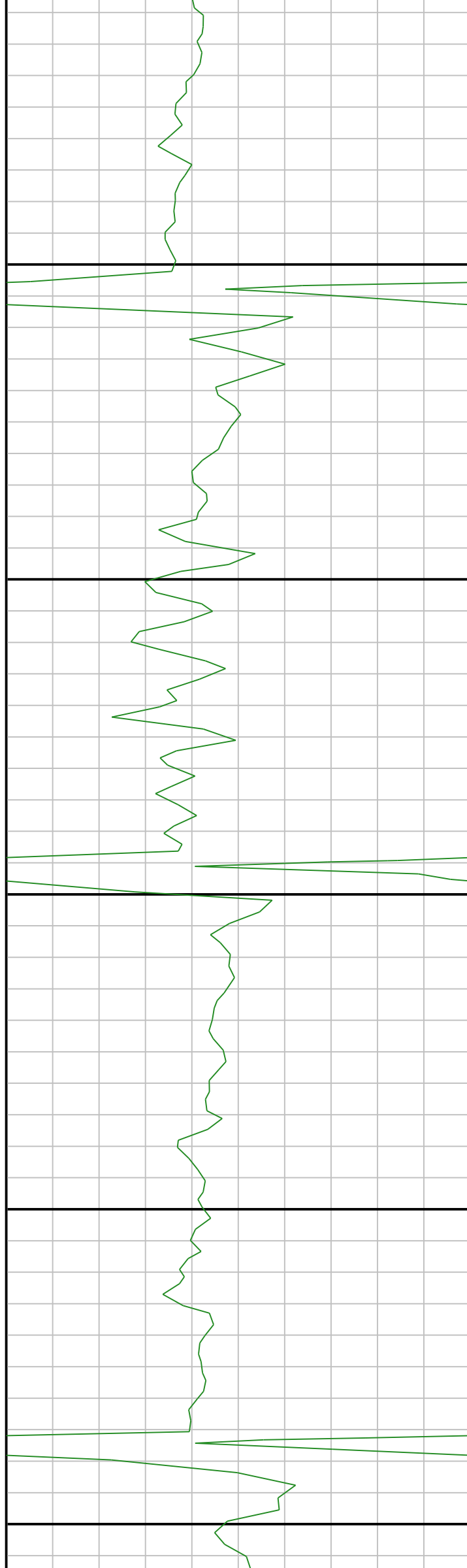


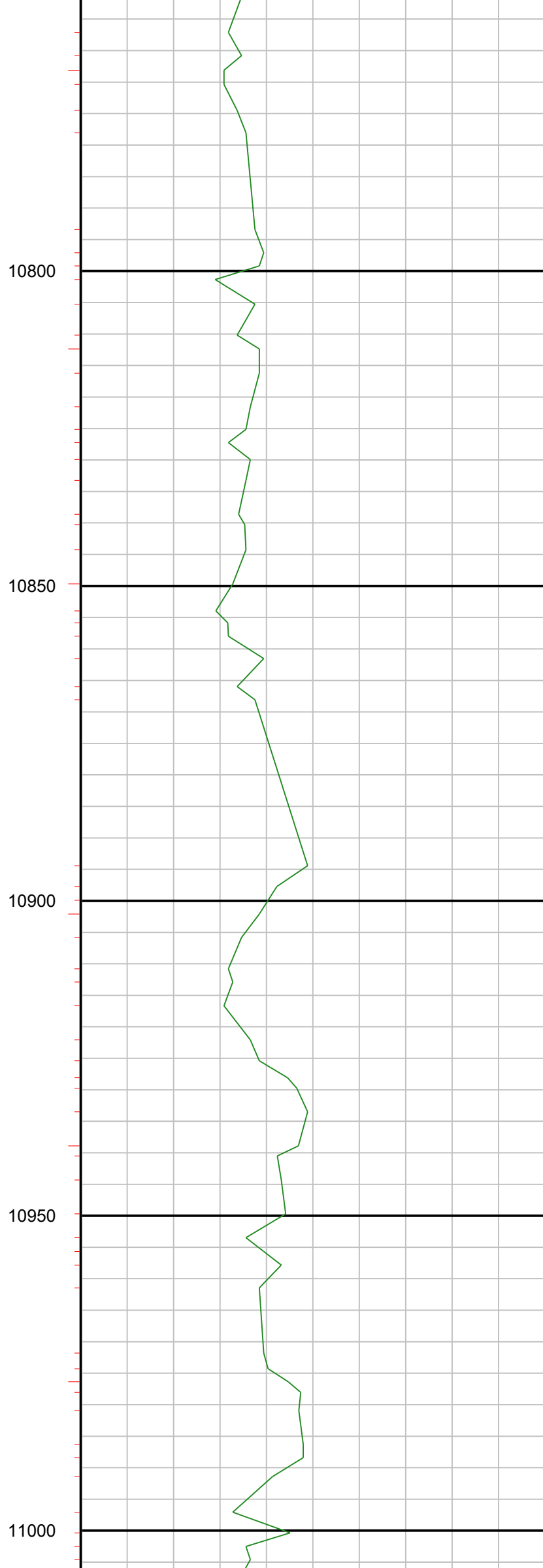
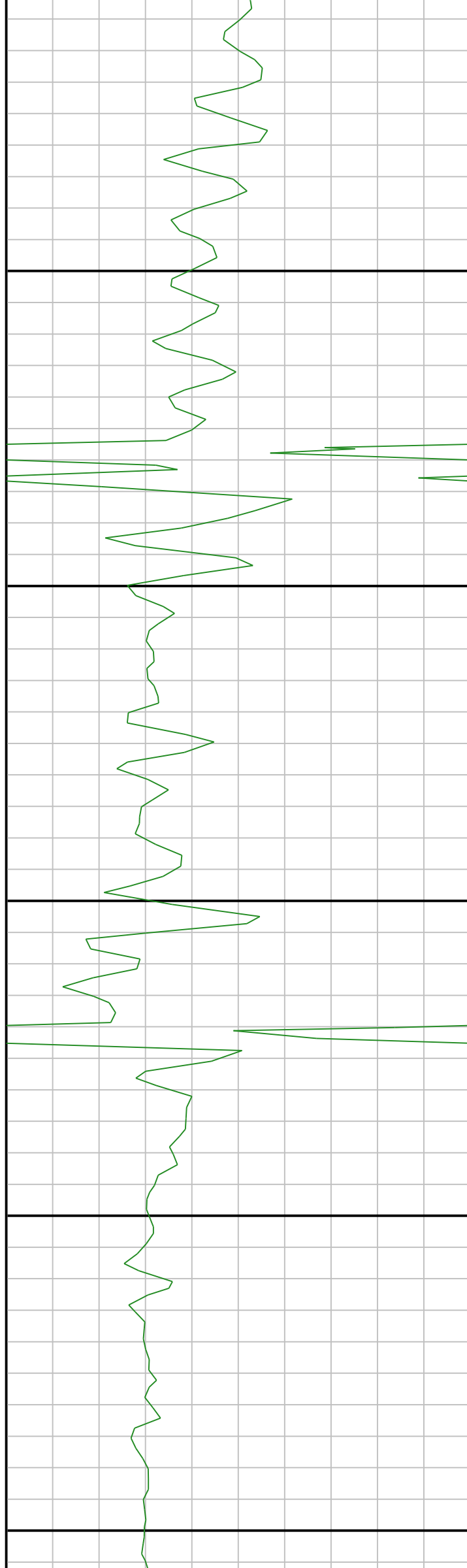


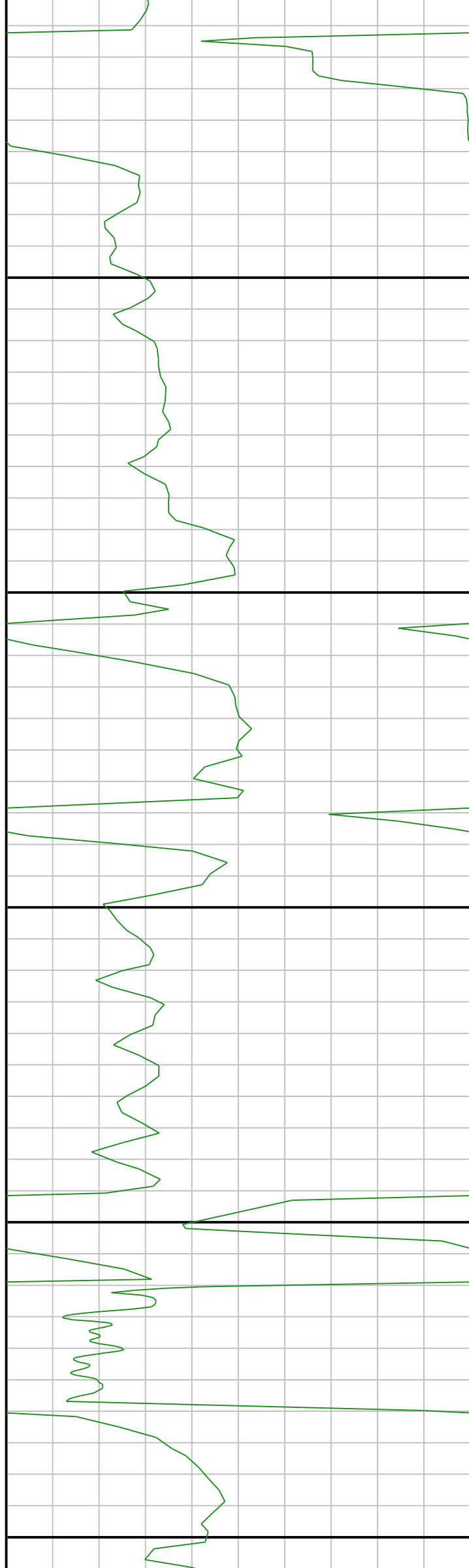












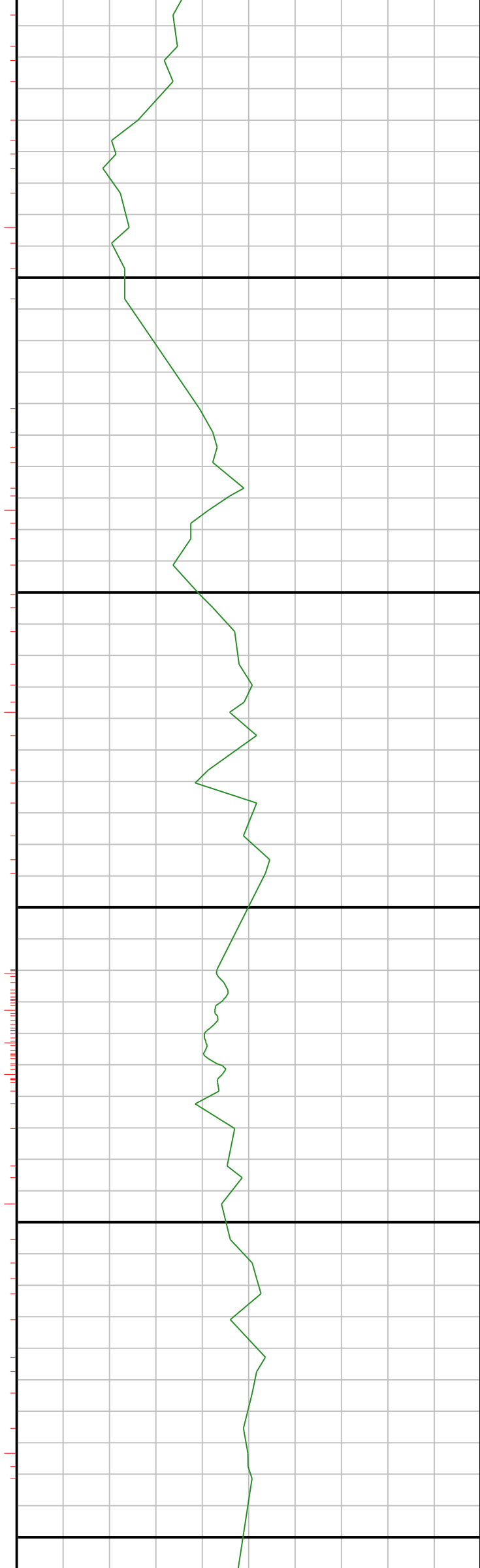
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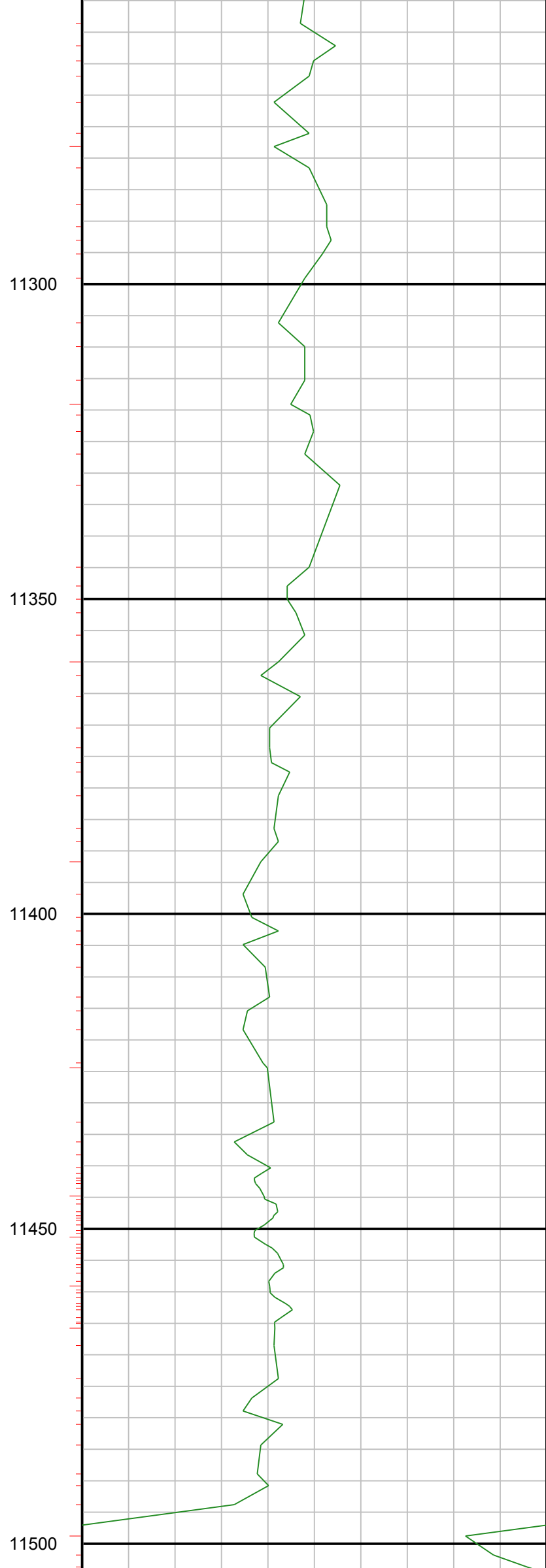
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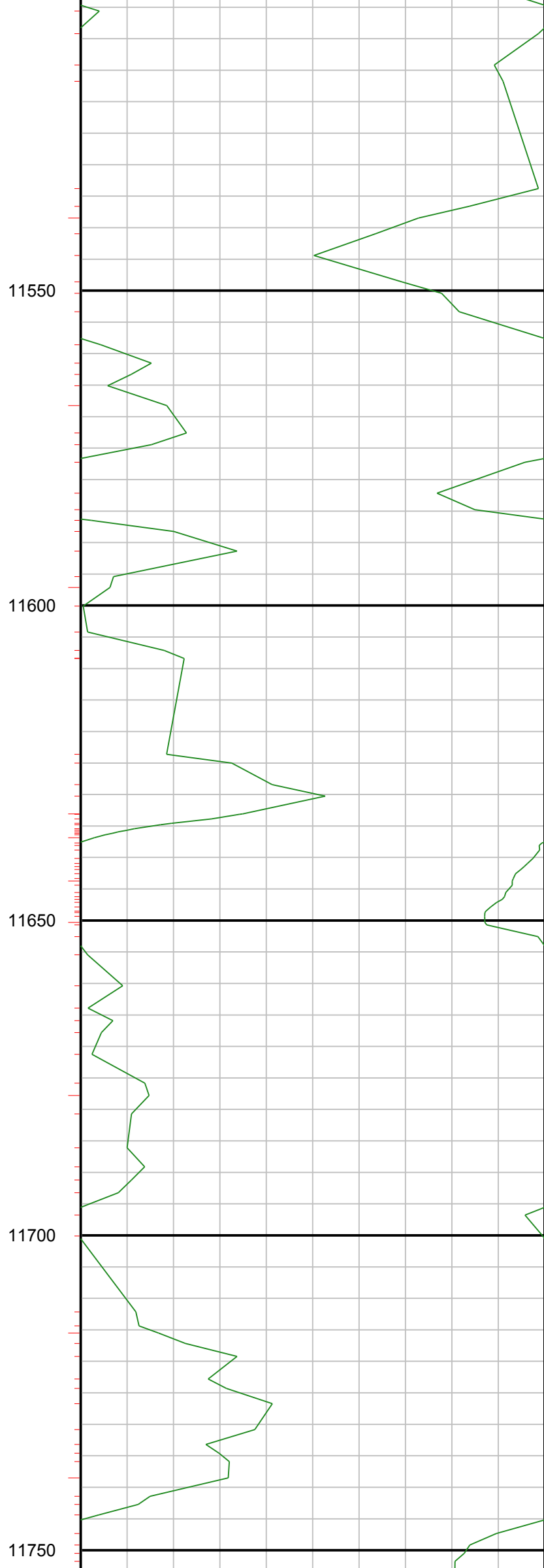
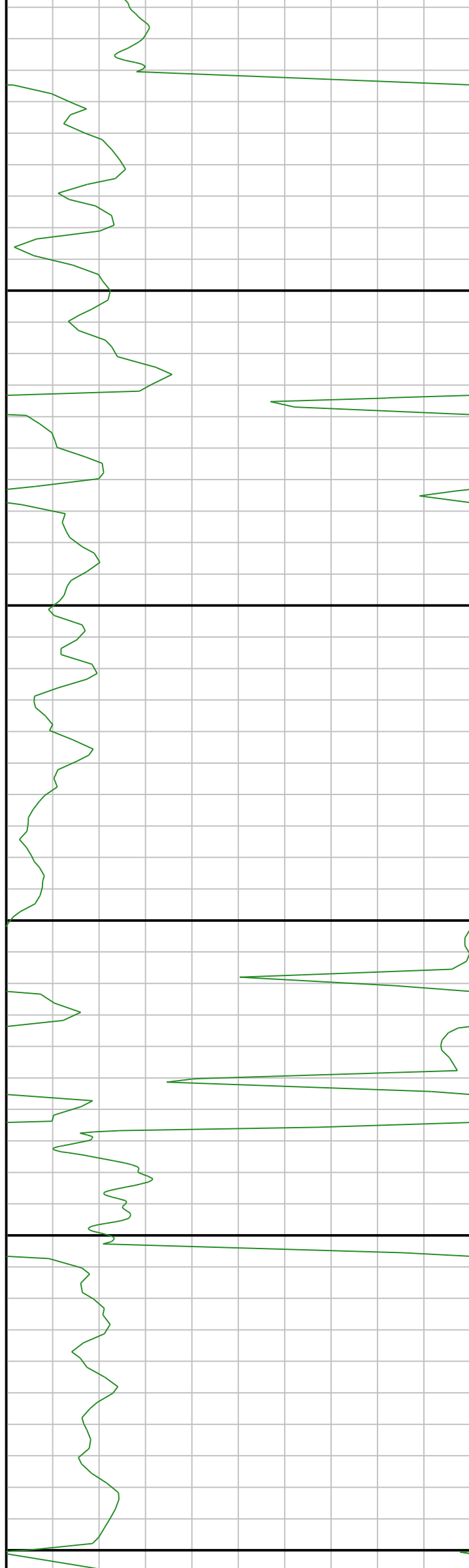
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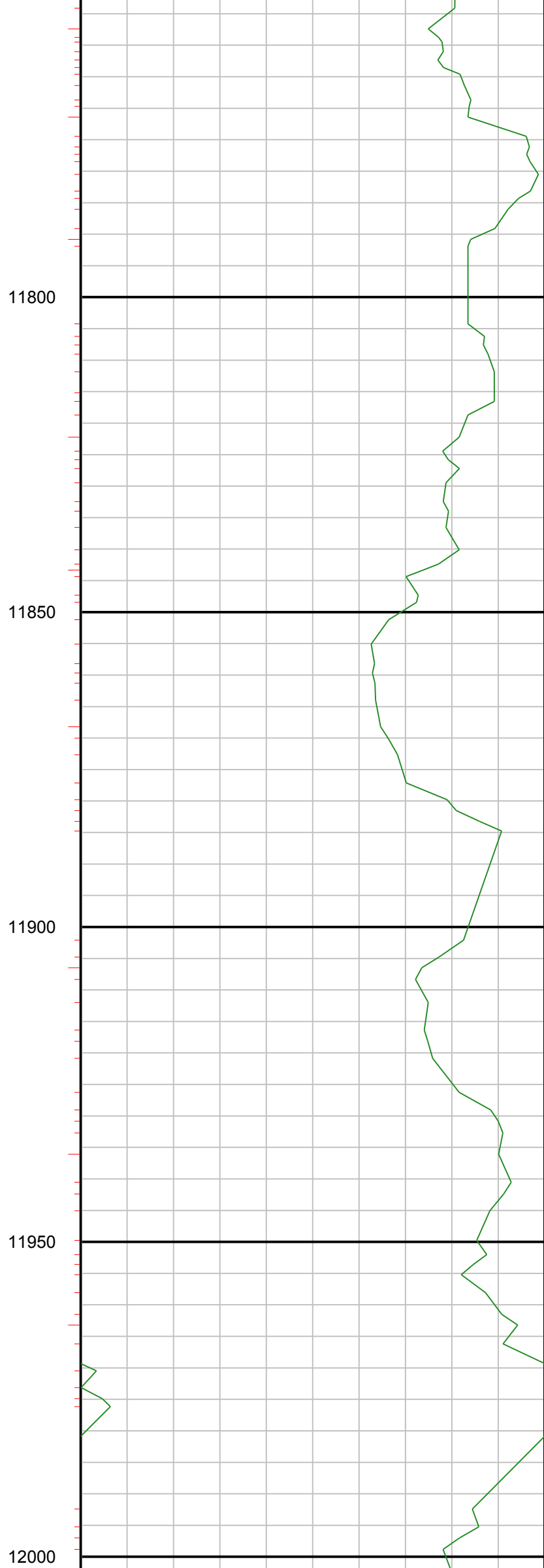
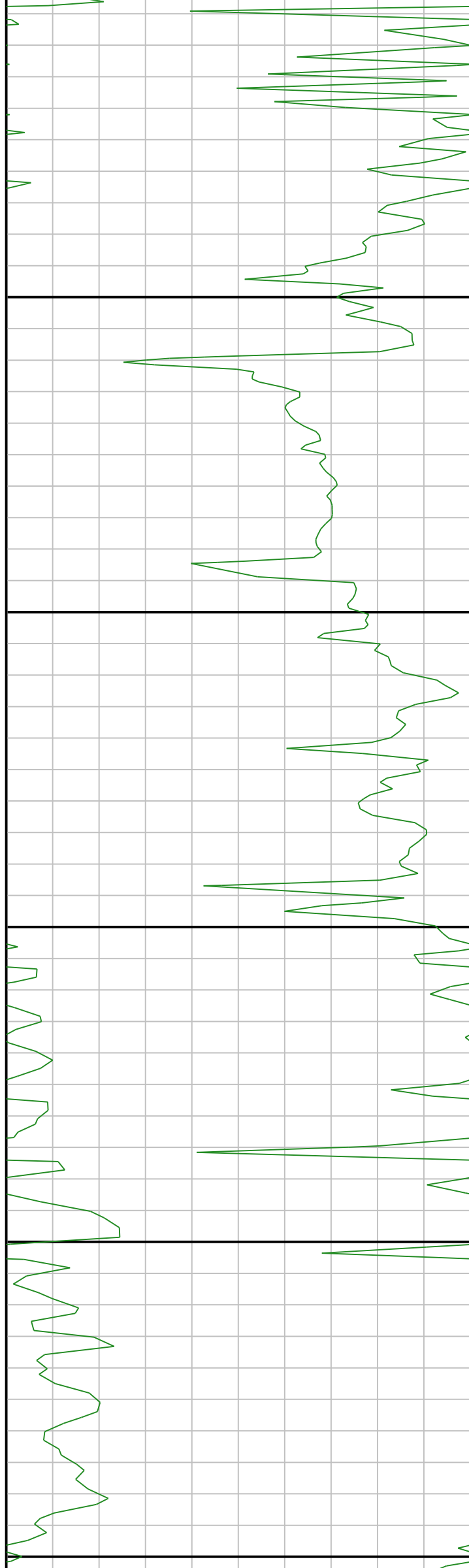
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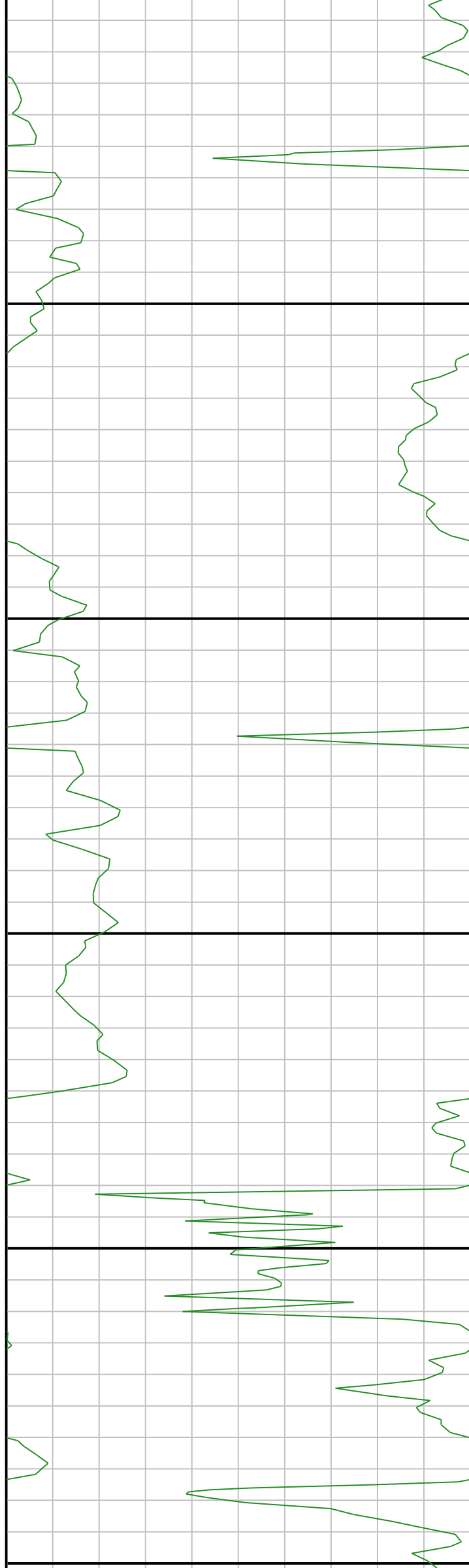


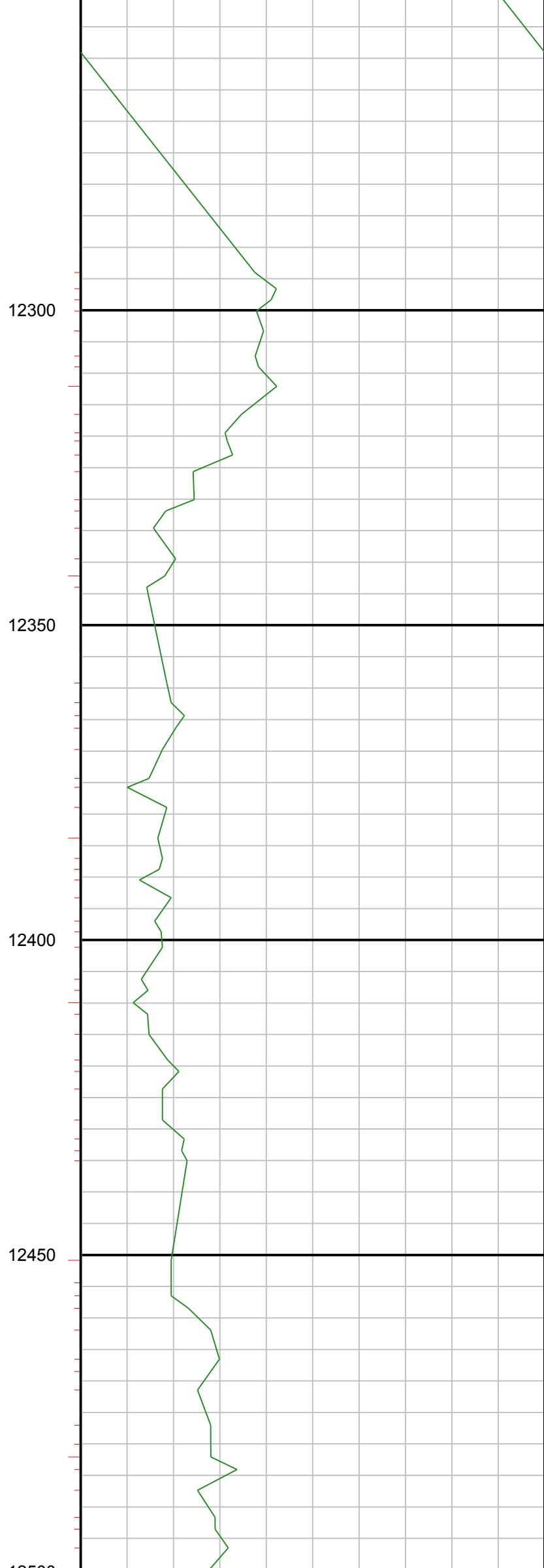
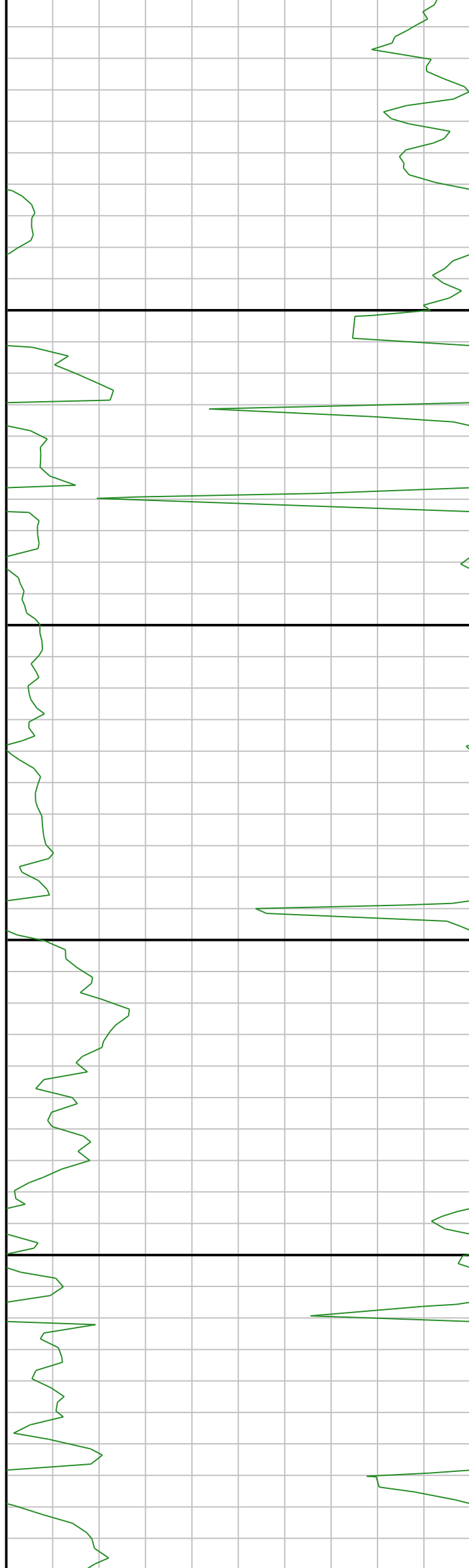


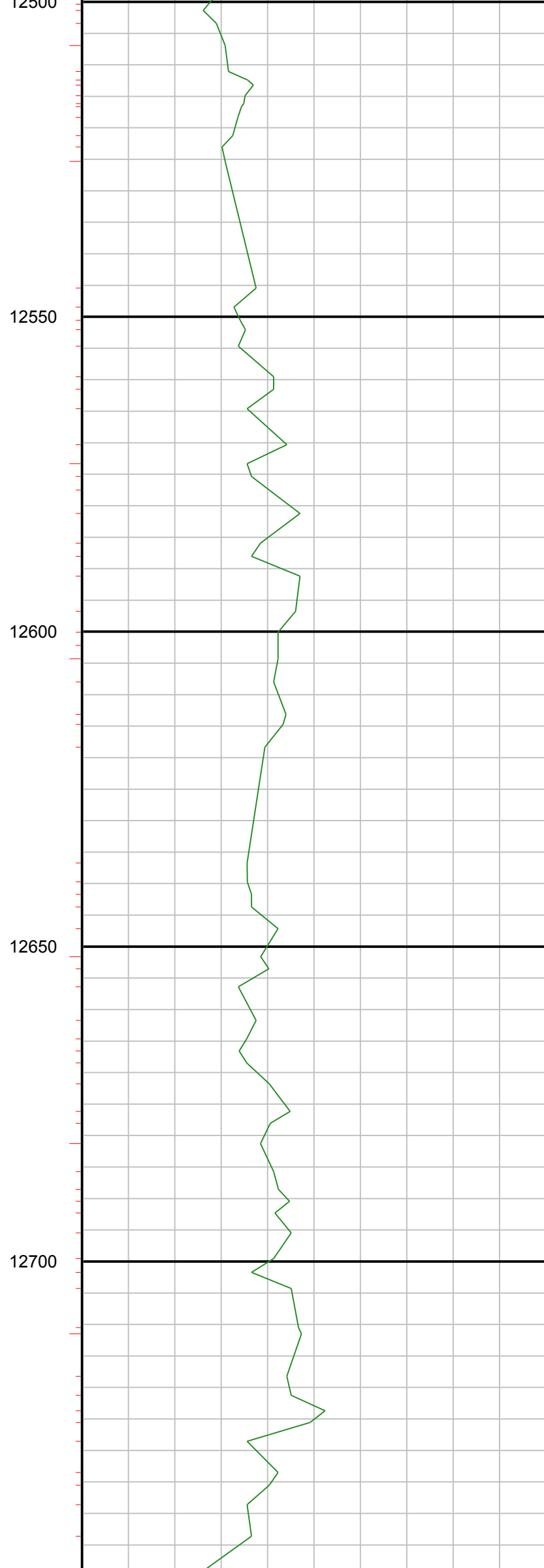
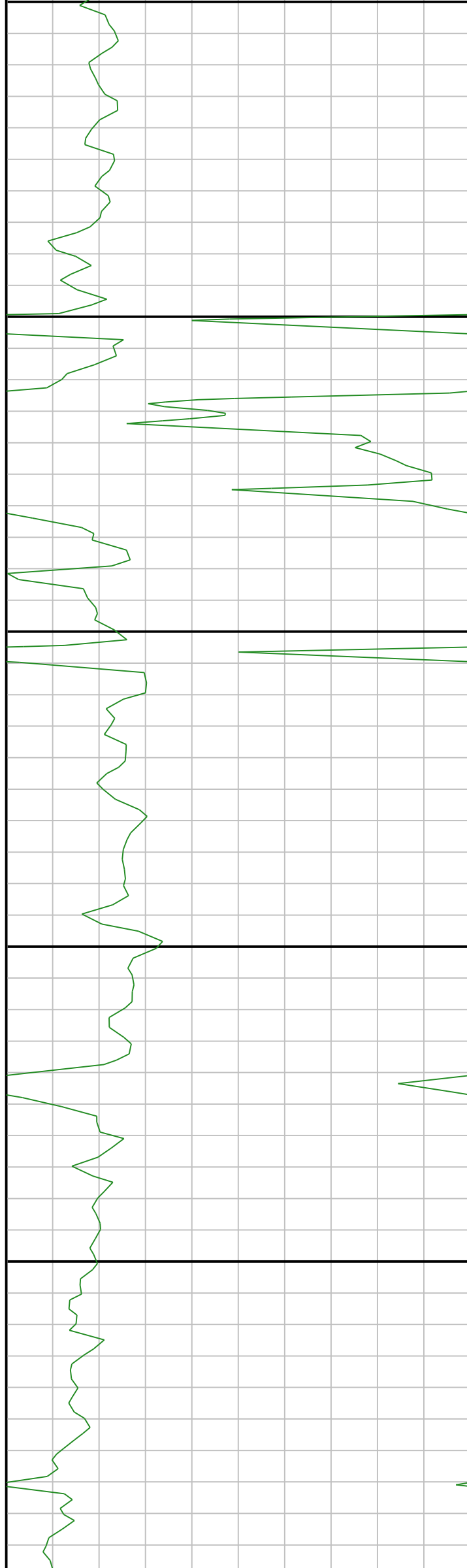


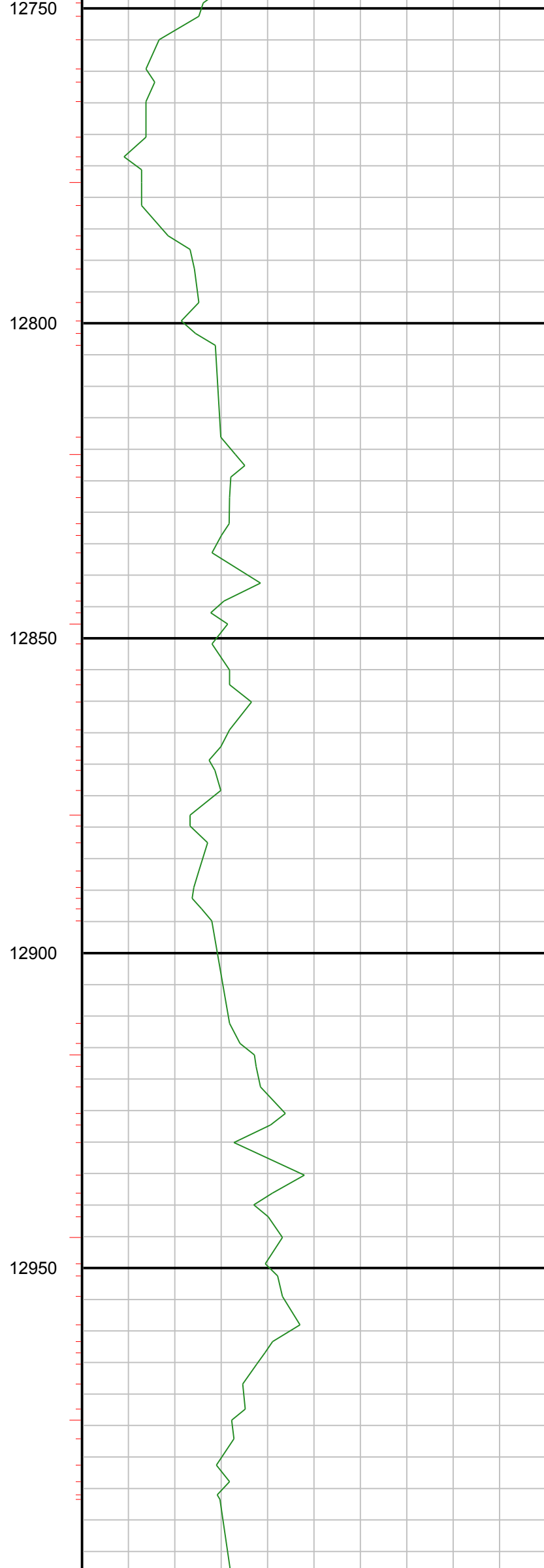
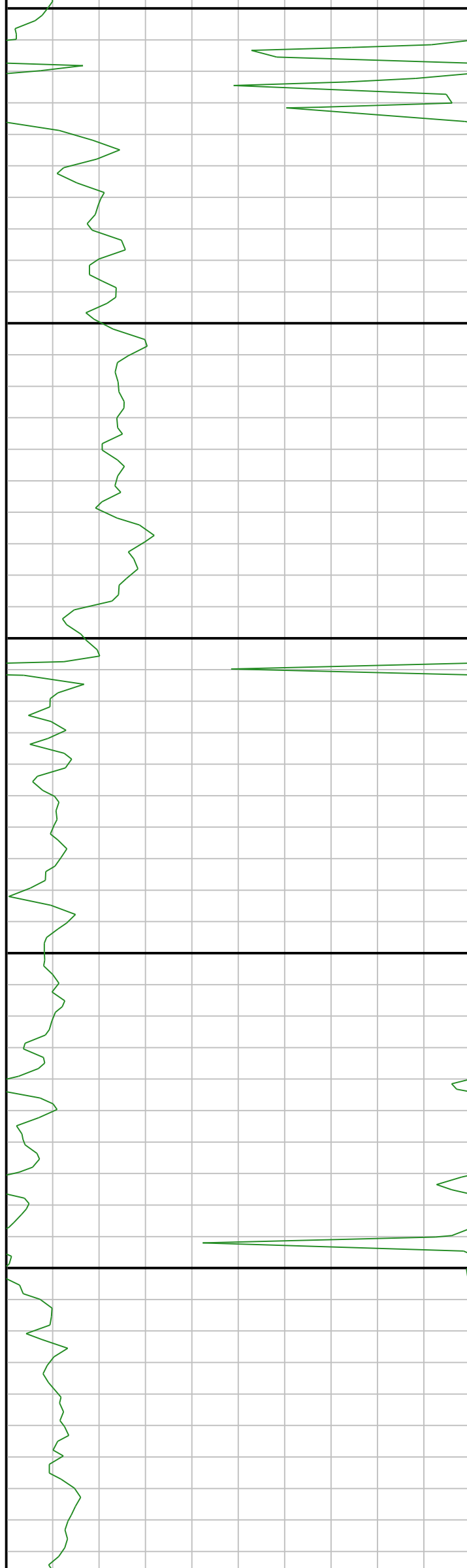


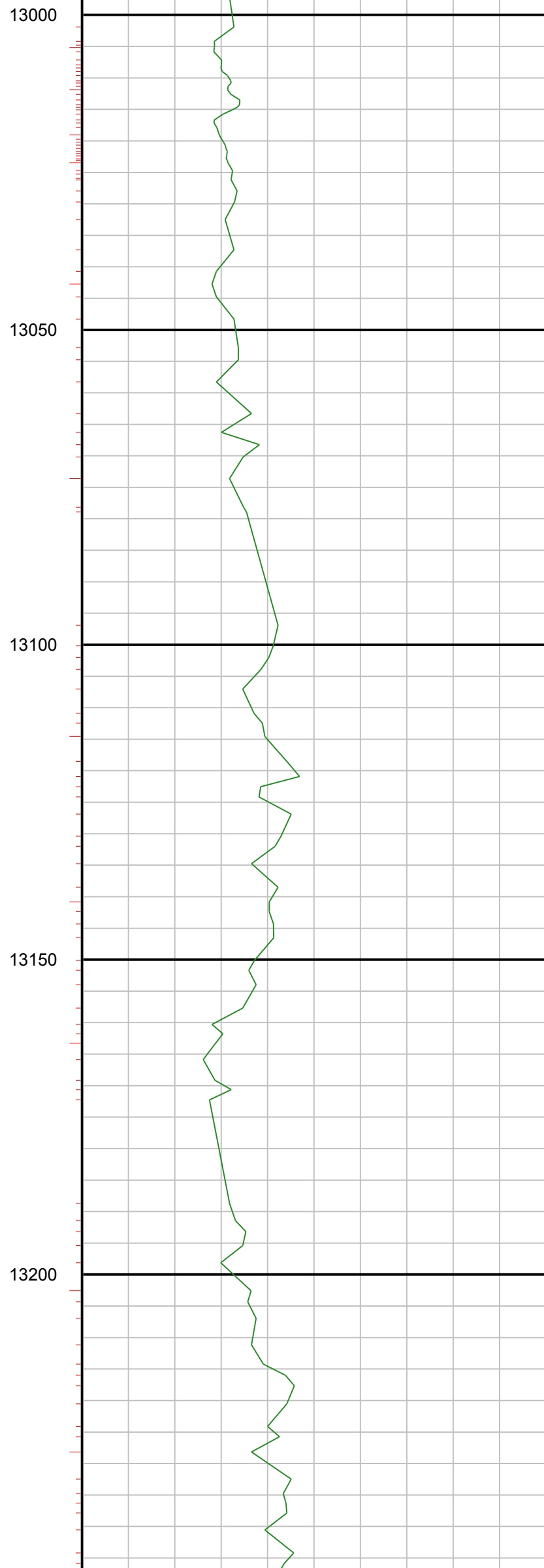
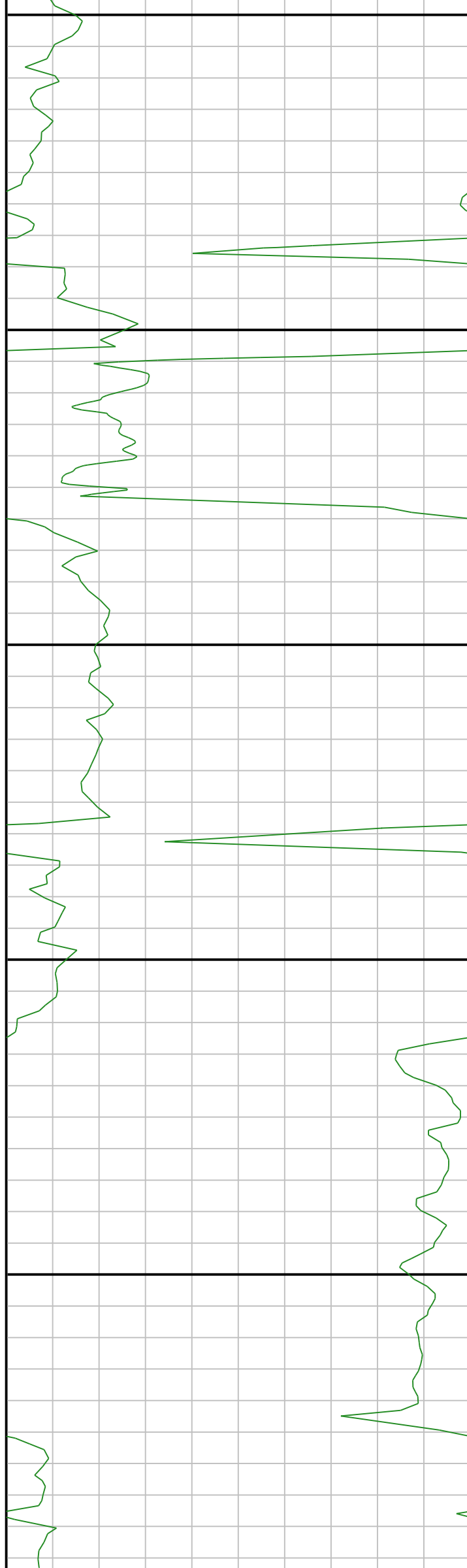


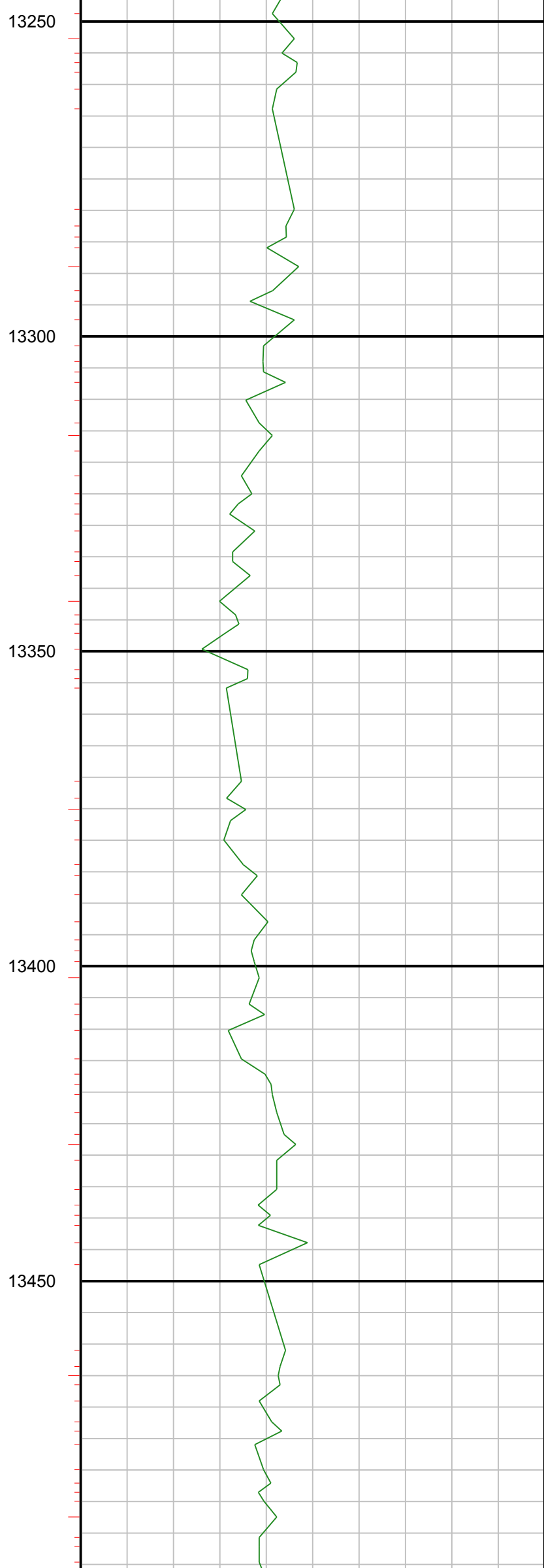
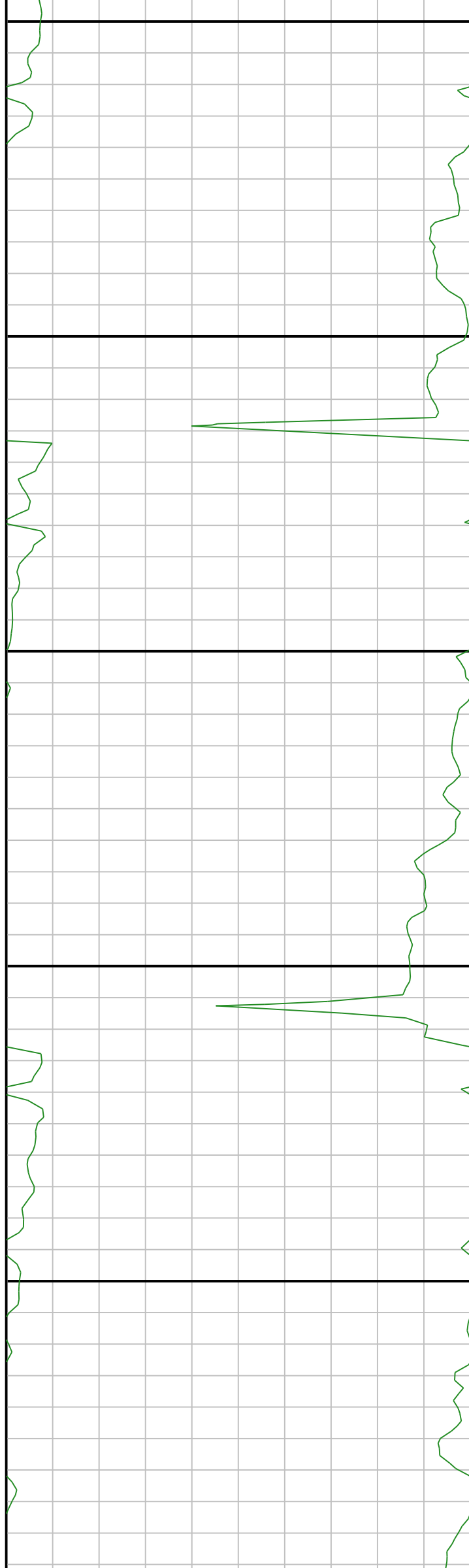




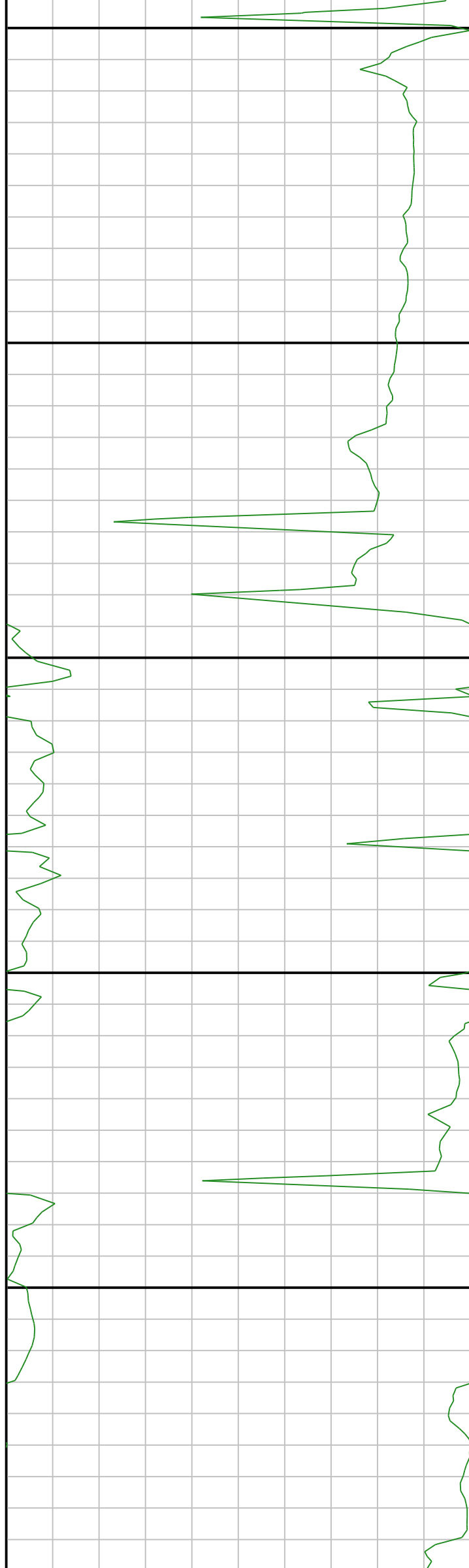












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