



TVD
1:240
Feet

MWD Gamma / ROP (5")

Client: *Whiting Petroleum Corp.*

Well Name: RAZOR FEDERAL #12F-0104B

API/UWID: 1

County: Weld

Permit #:

State: Colorado

Country: USA

Longitude: 103° 49' 4.94 W

Latitude: 40° 51' 16.779 N

Personnel

Company Representative

Kenny Wilkerson

Geologist

Ground Level:	4936.80 ft
Kelly Bushing:	4957.80 ft

Drill Floor: 21.00 ft

Permanent Datum: Mean Sea Level

Drilling Measured From: Kelly Bushing

Spud Date: August 18, 2015

Bottom Hole Temp: 199.4 °F

Log Start Depth: 0.00 ft

Log End Depth: 6000.00 ft

Reference Data

North Reference: True North

Magnetic Declination: 7.44

Grid Convergence: 0.00

Total Mag Correction: 7.44

Comments:

Main Leg

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1:240

Log

Creation Date: August 23, 2015 10:55

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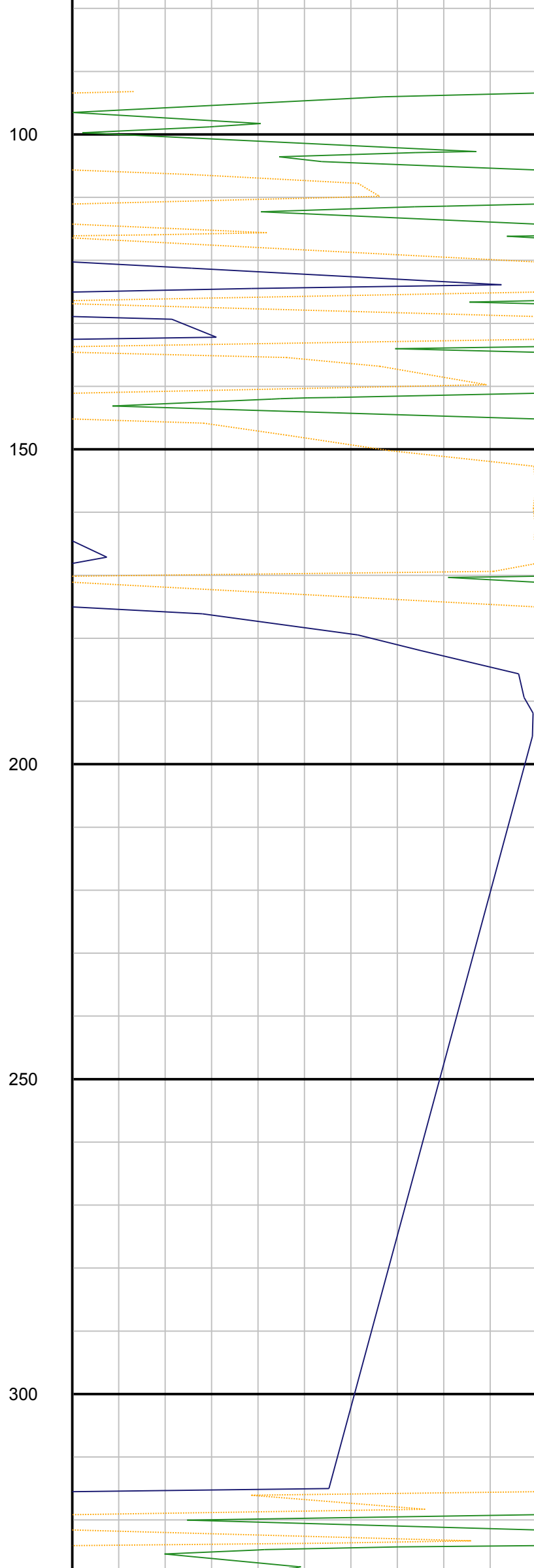
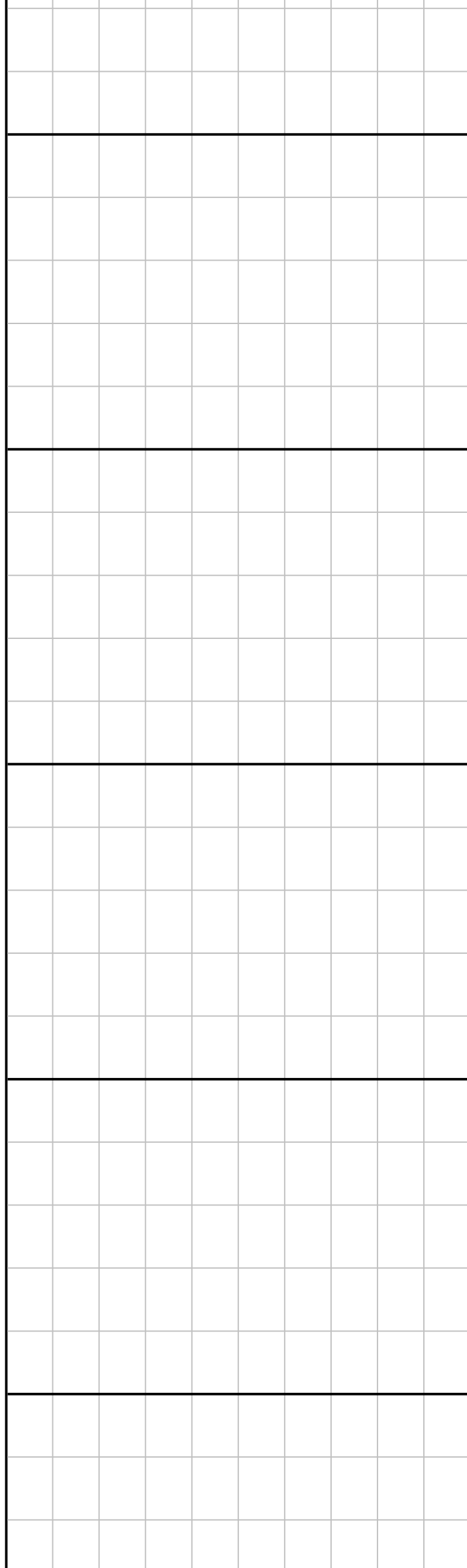
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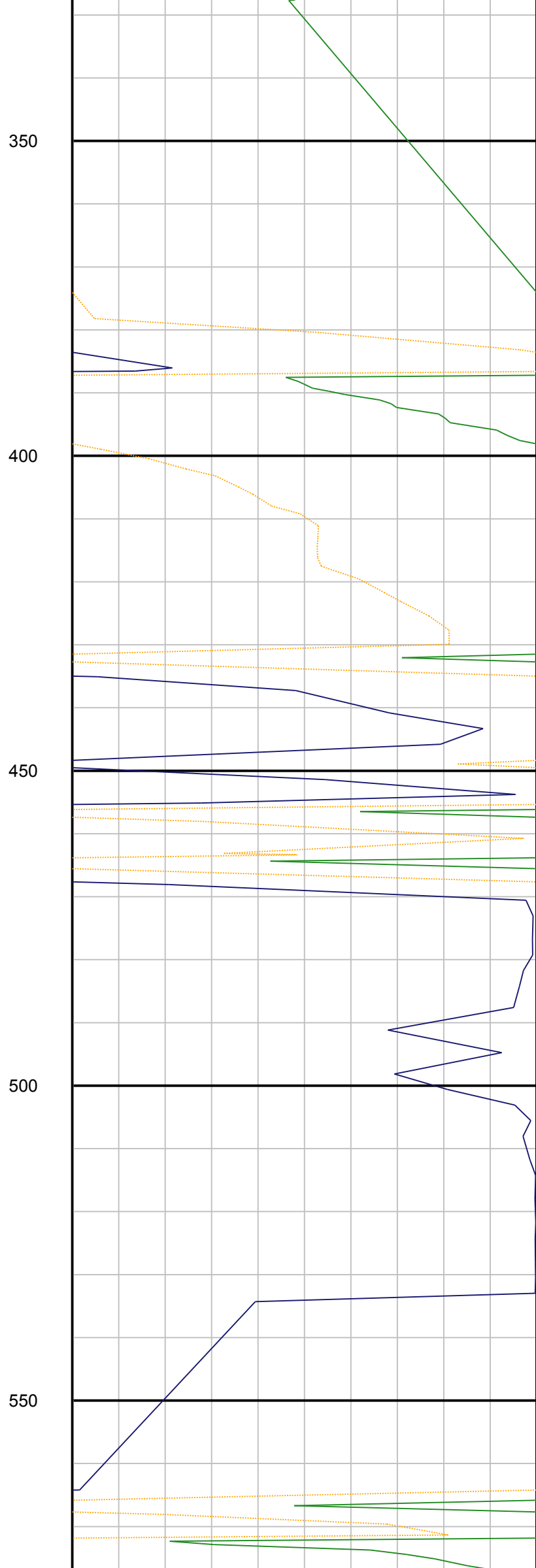
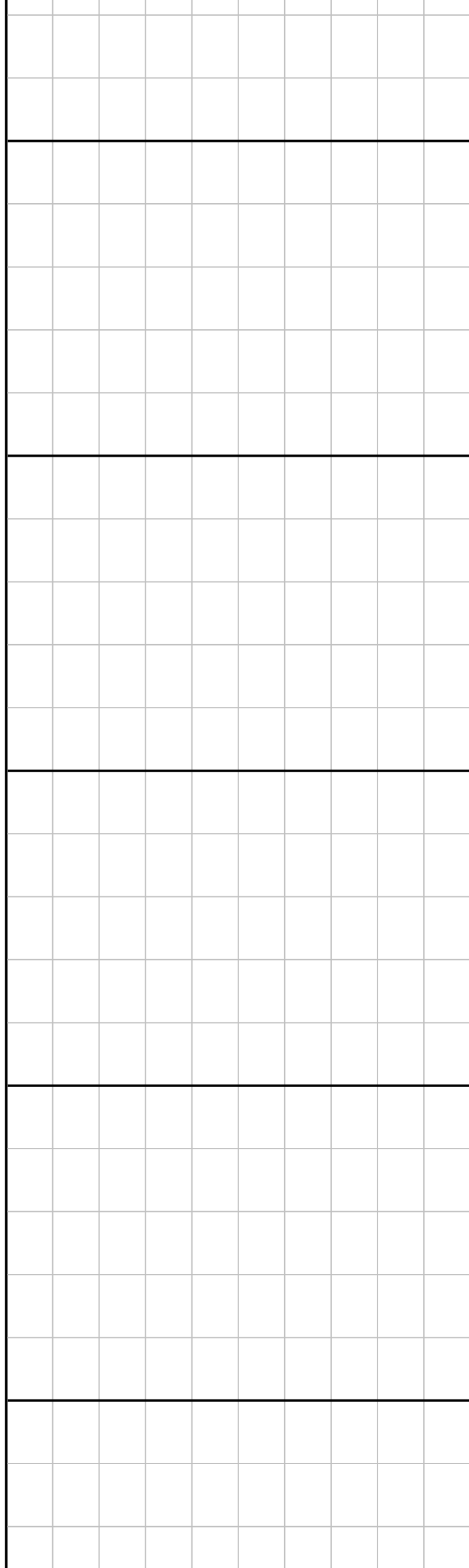
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	ROP	ROP
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	ROP	ROP
900	ft/hr	1200

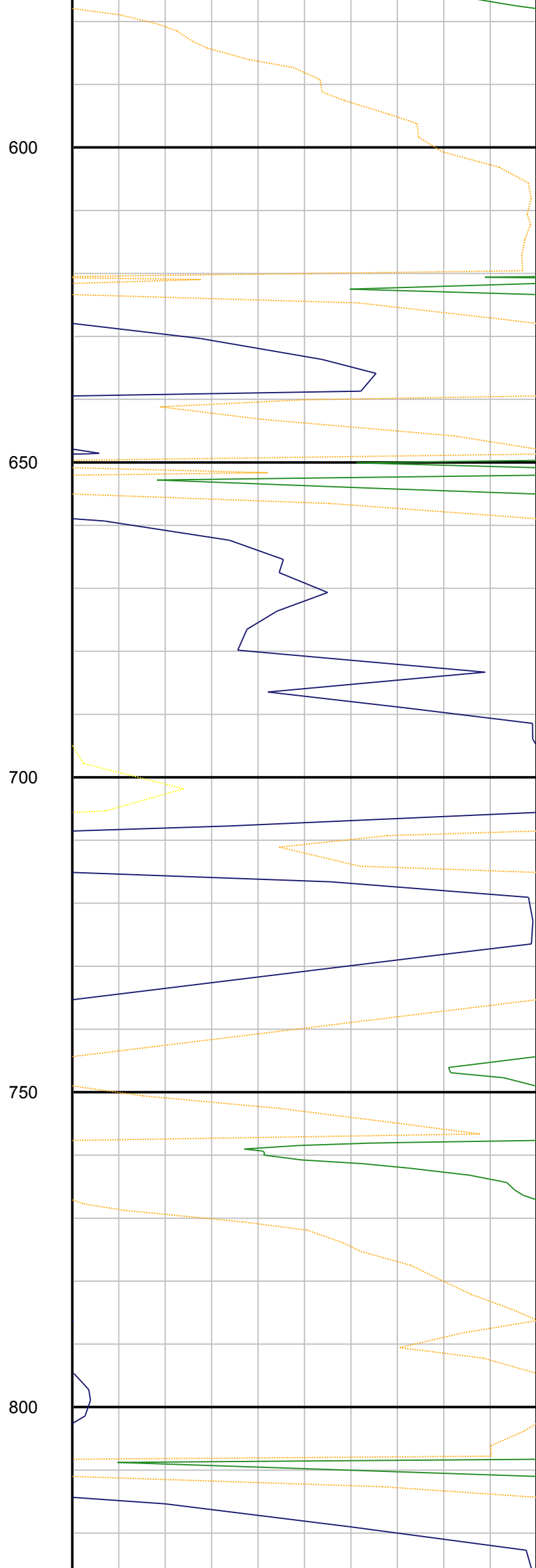
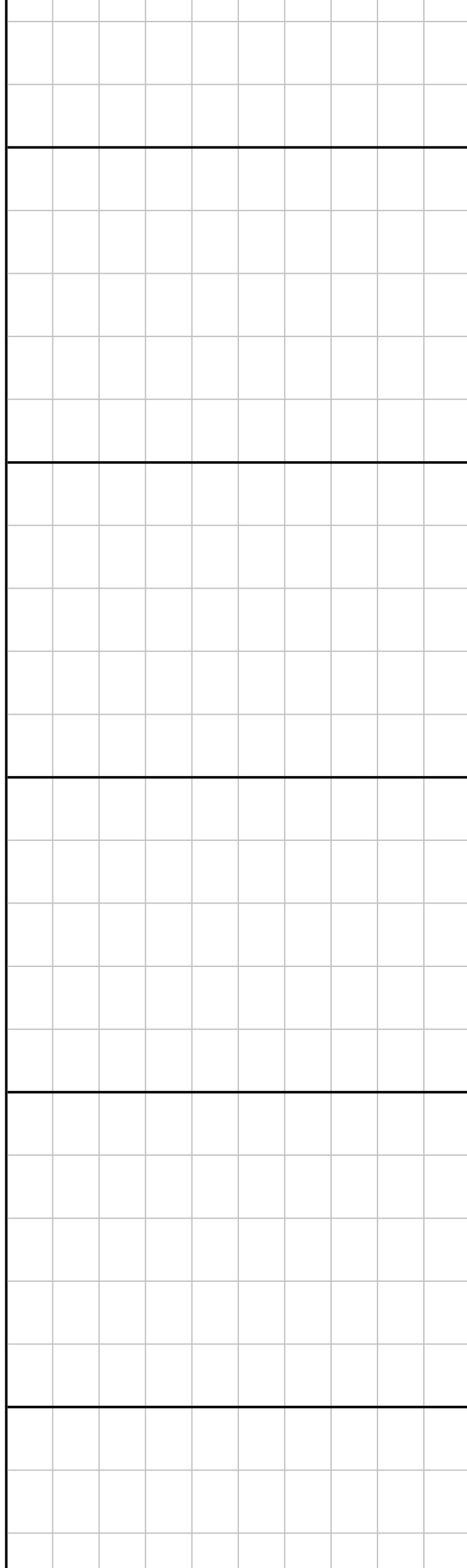
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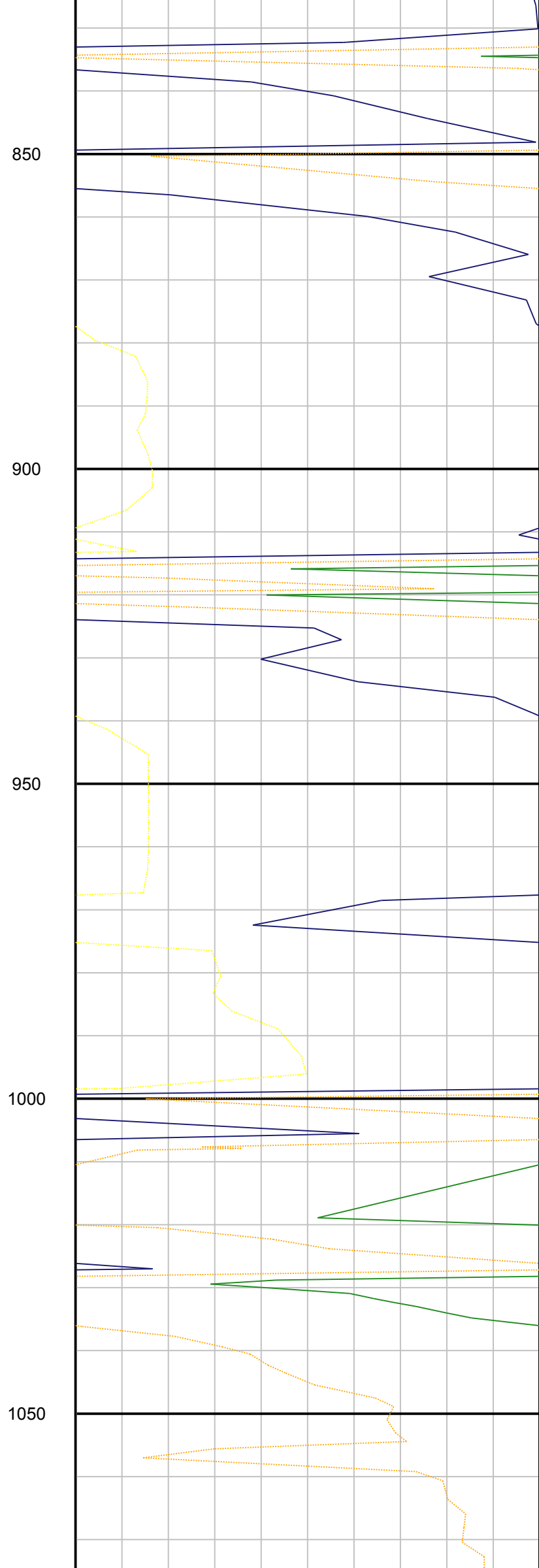
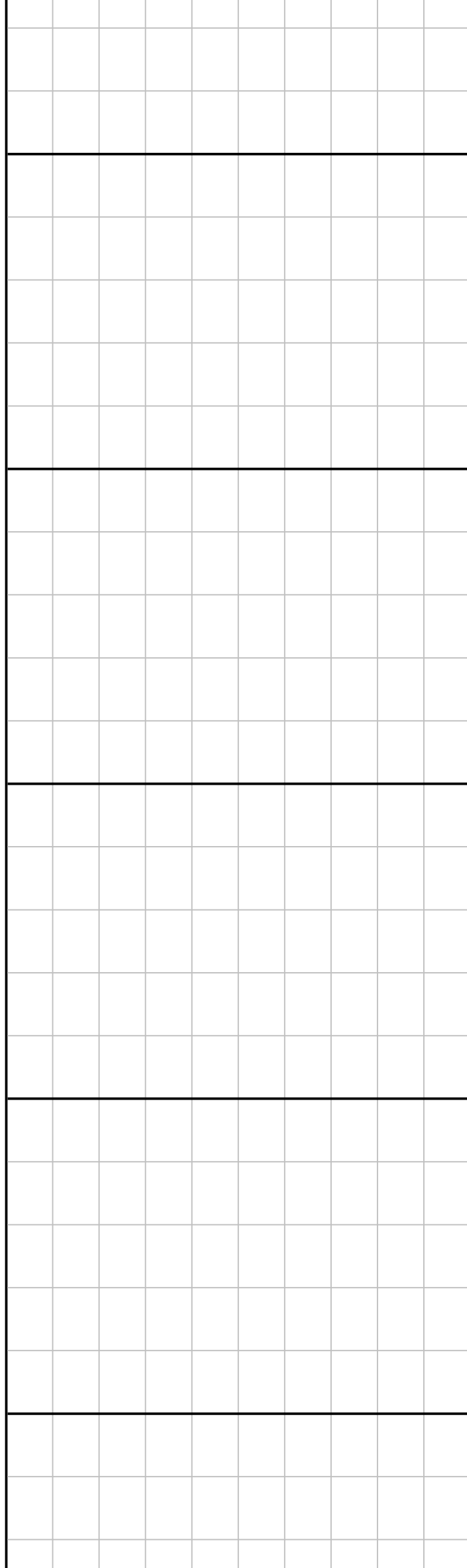
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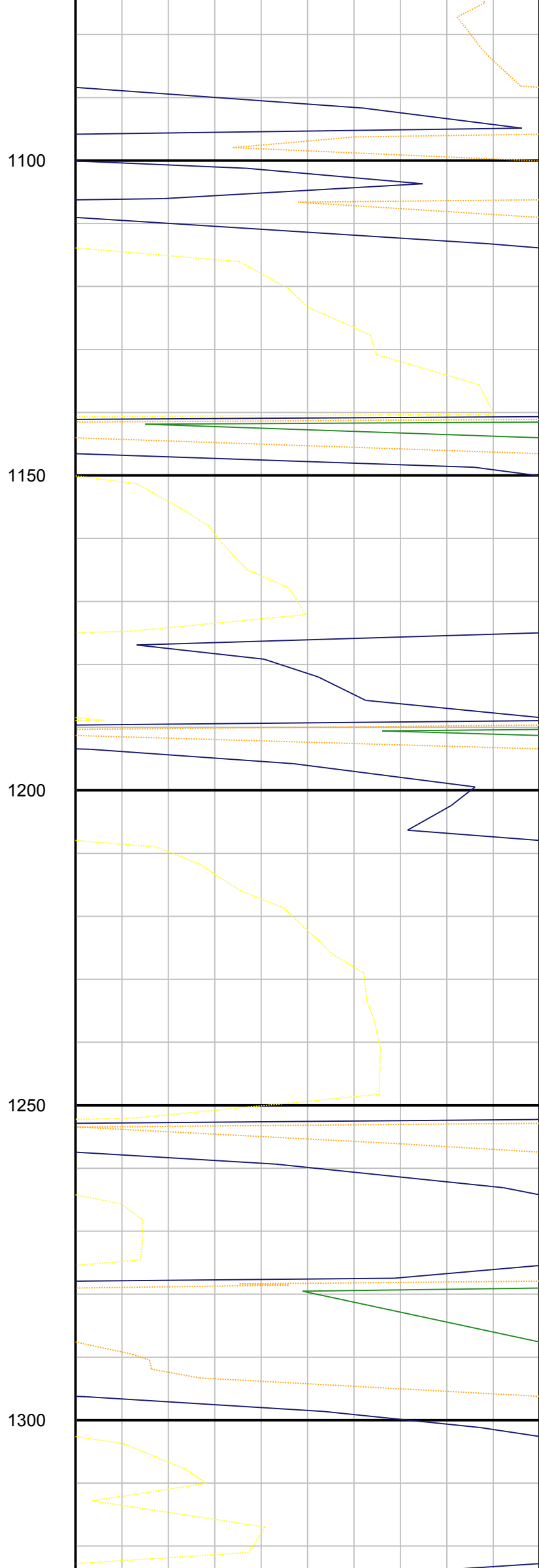
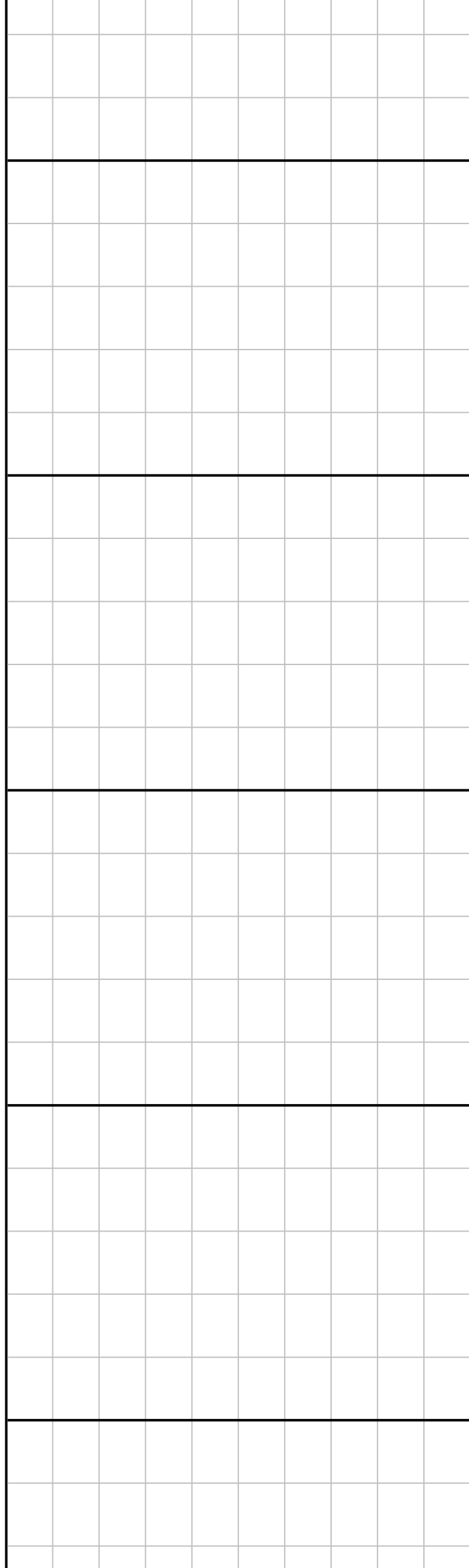
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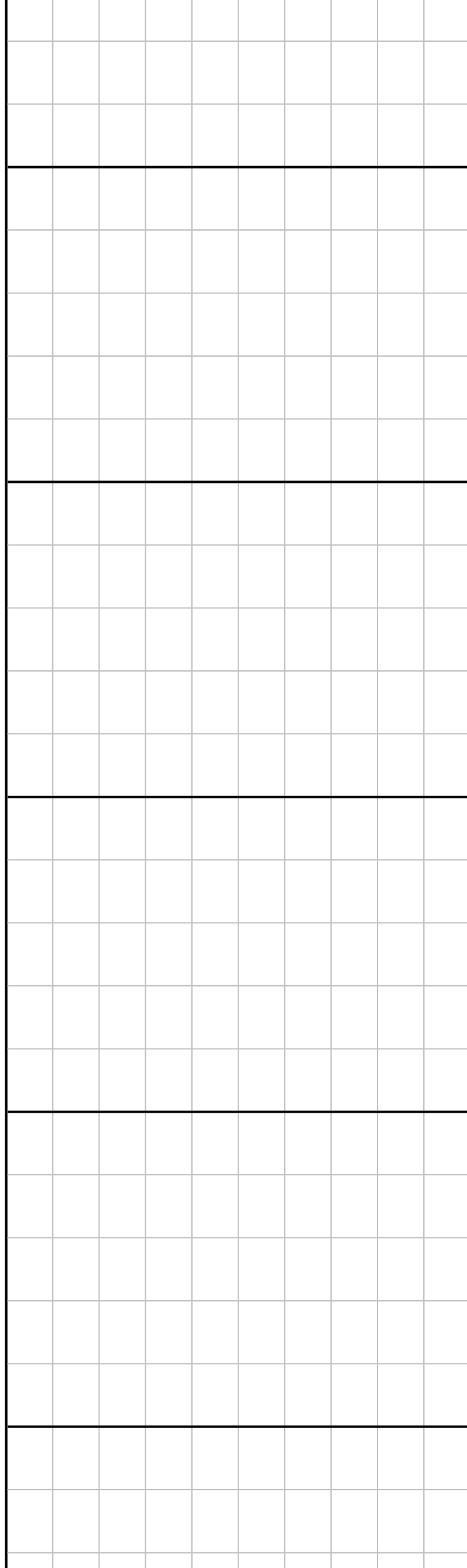












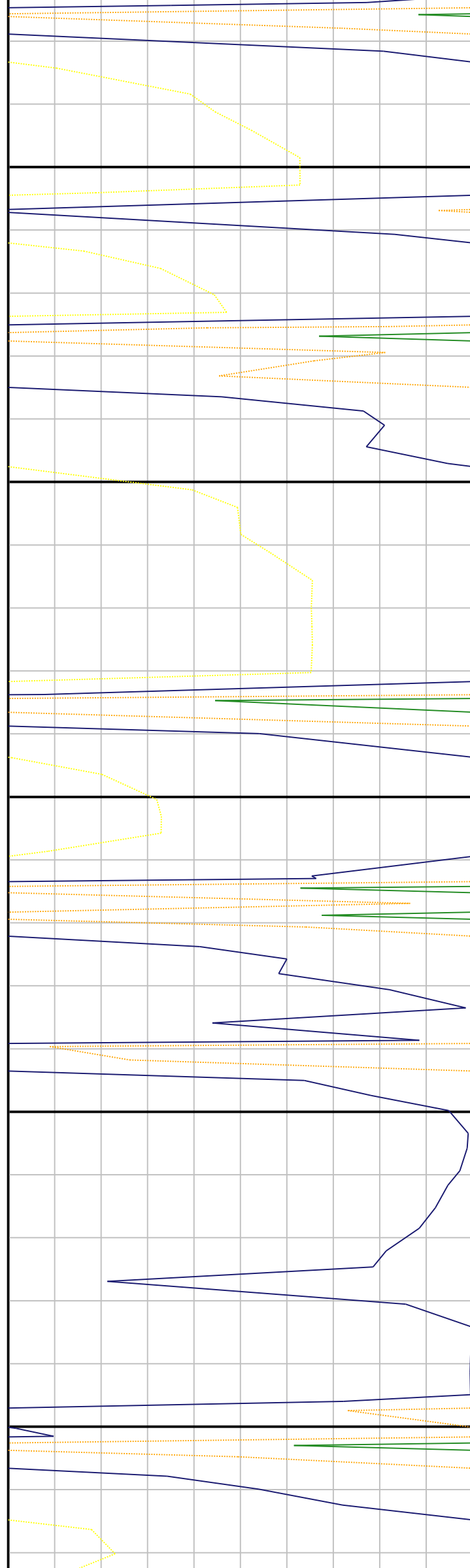
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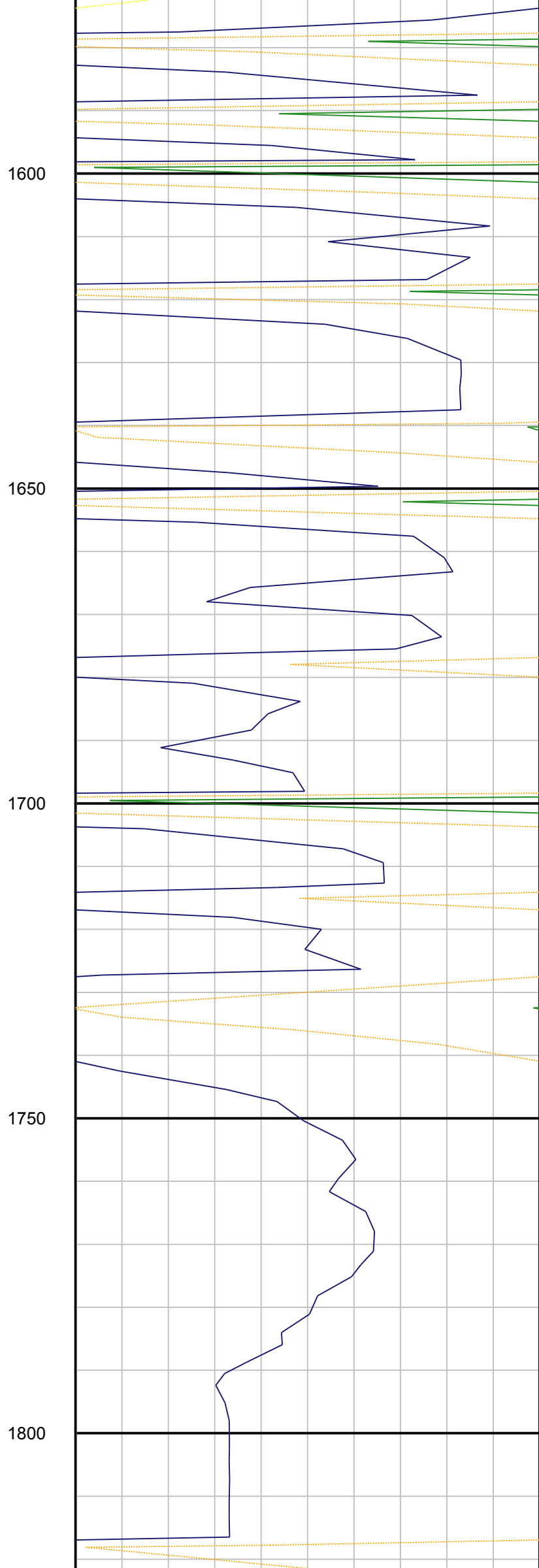
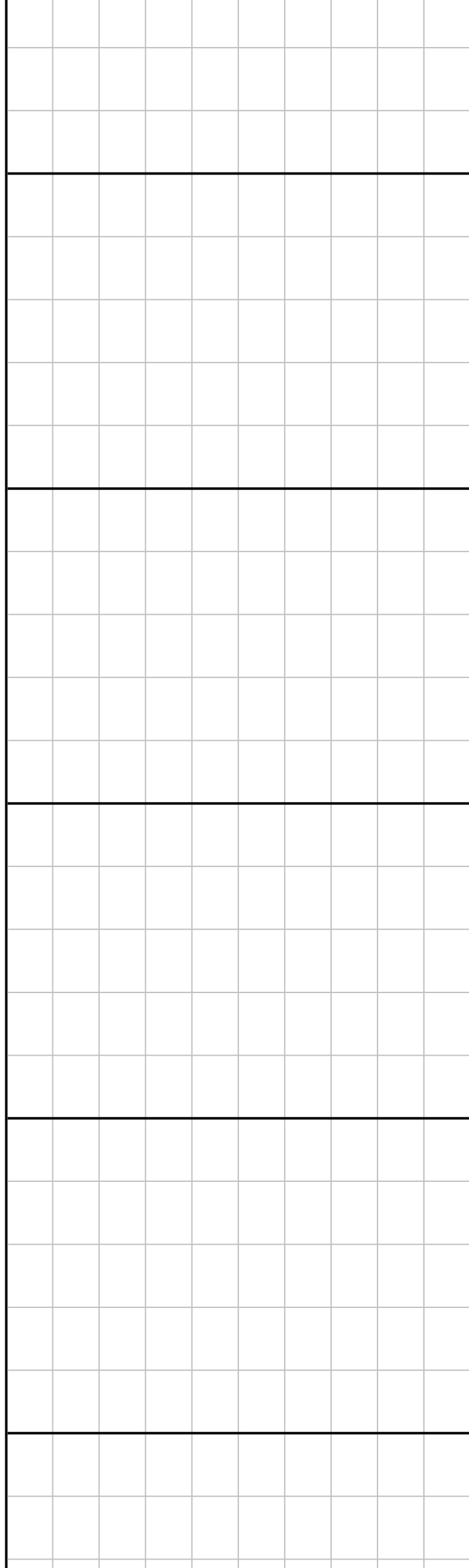
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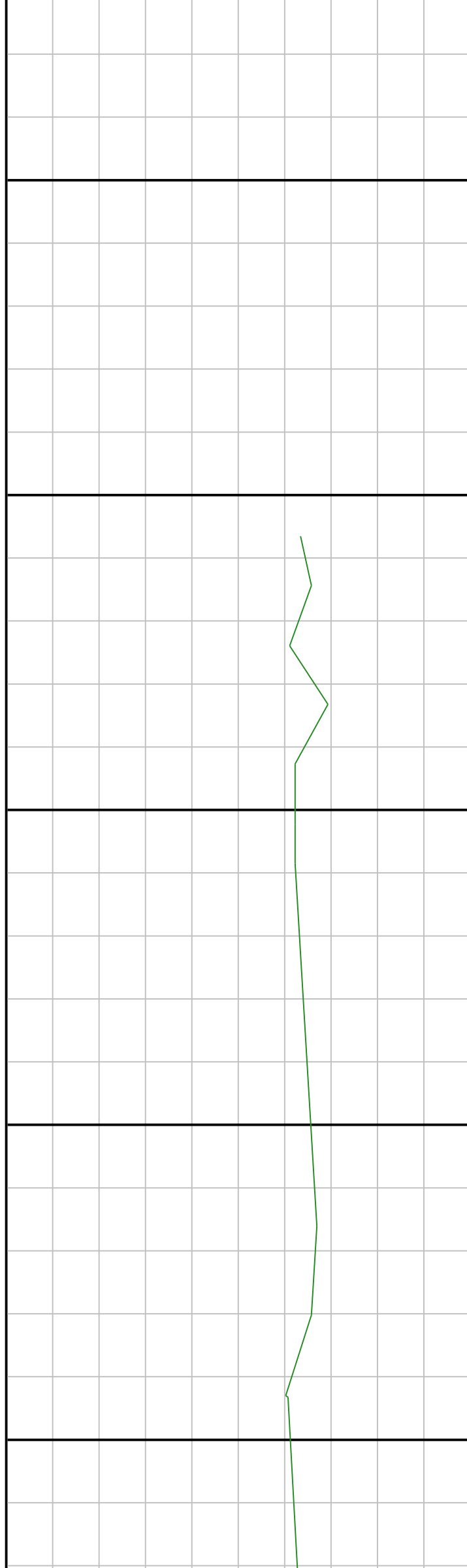
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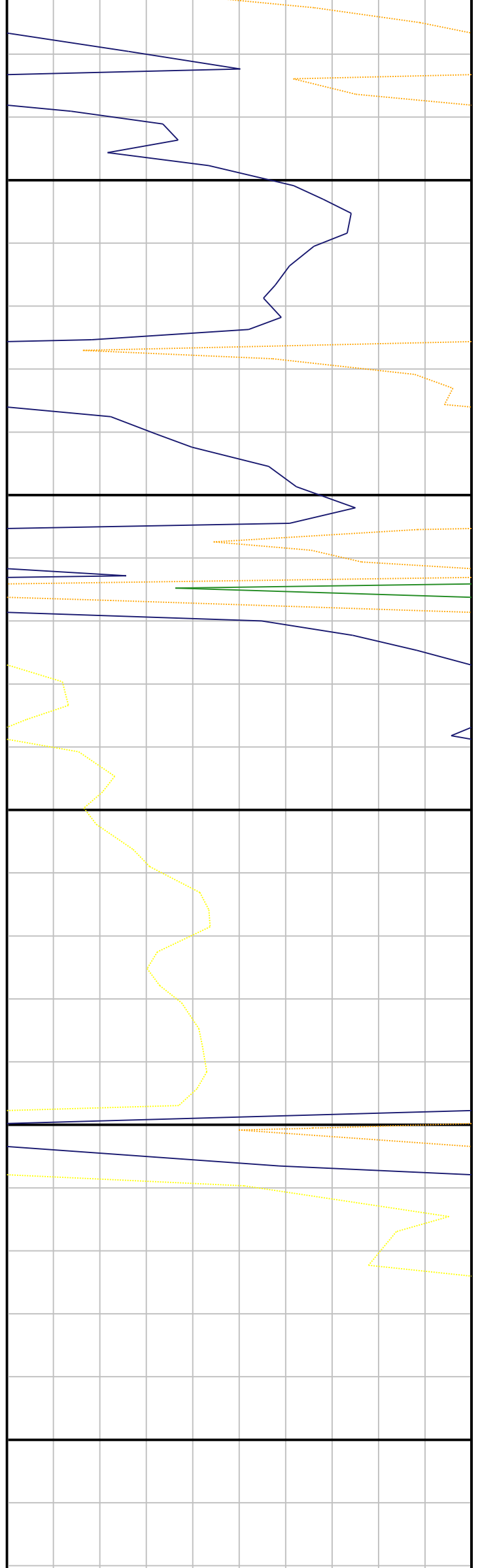
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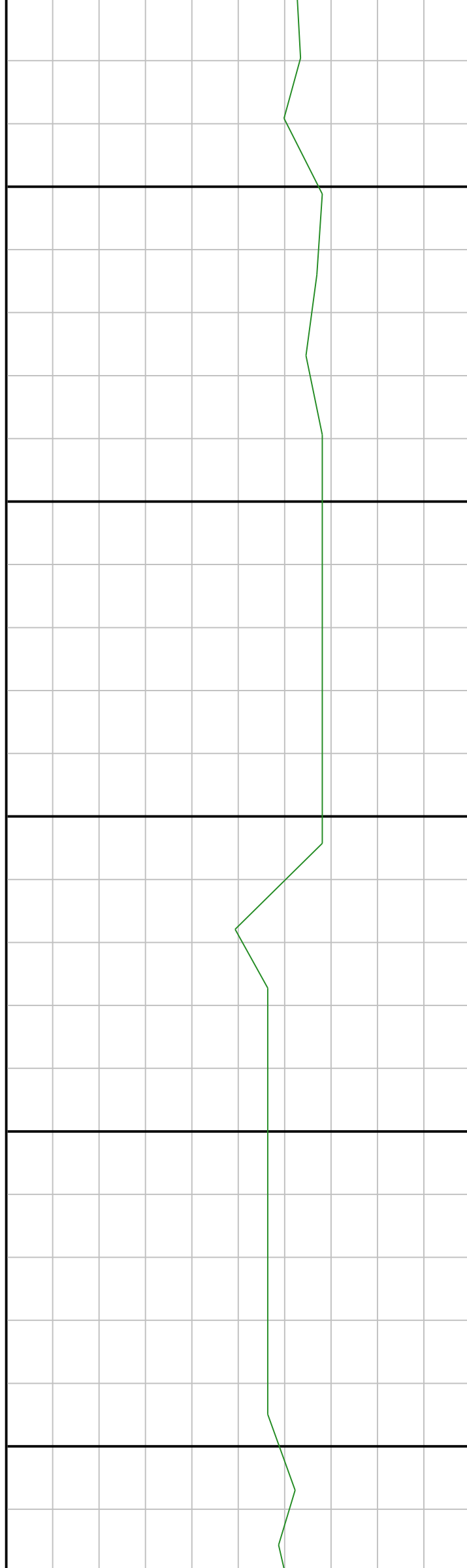
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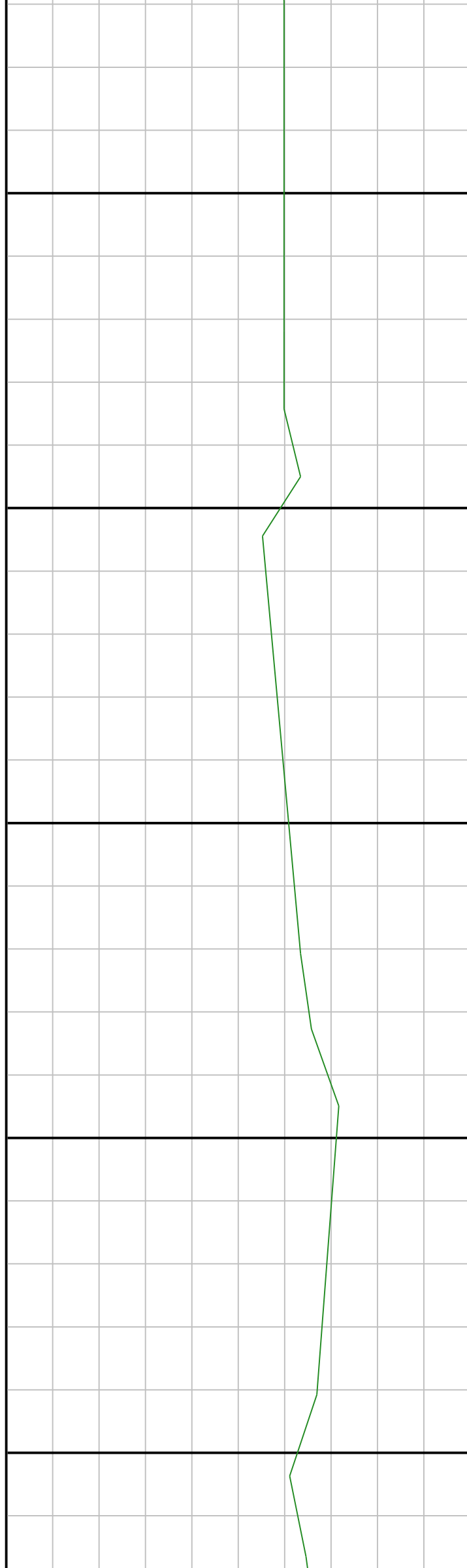
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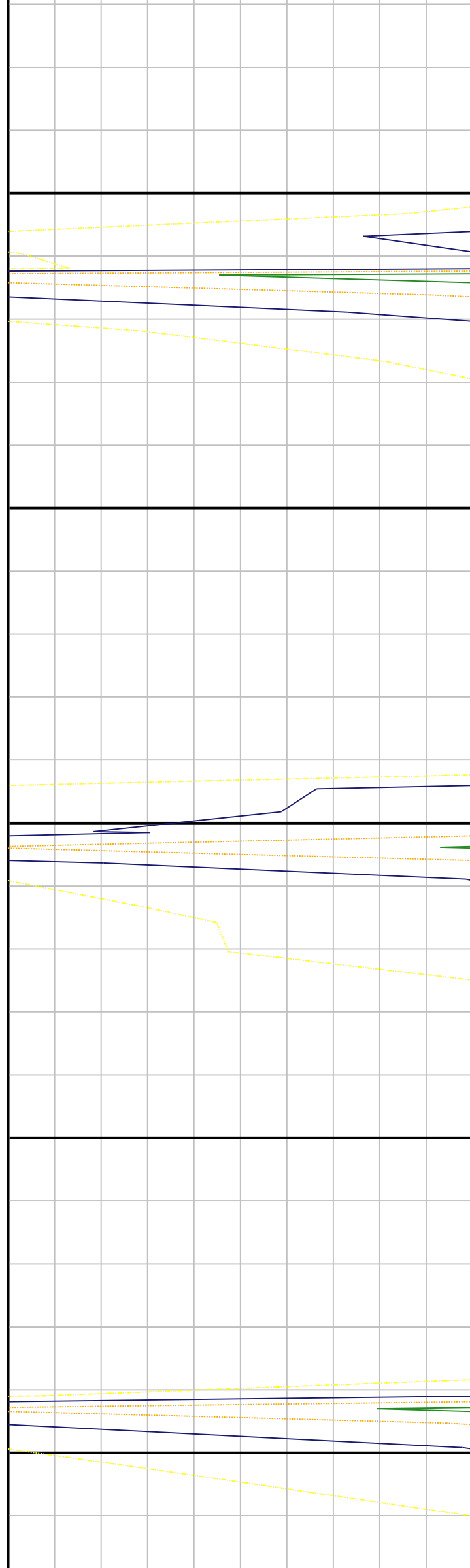
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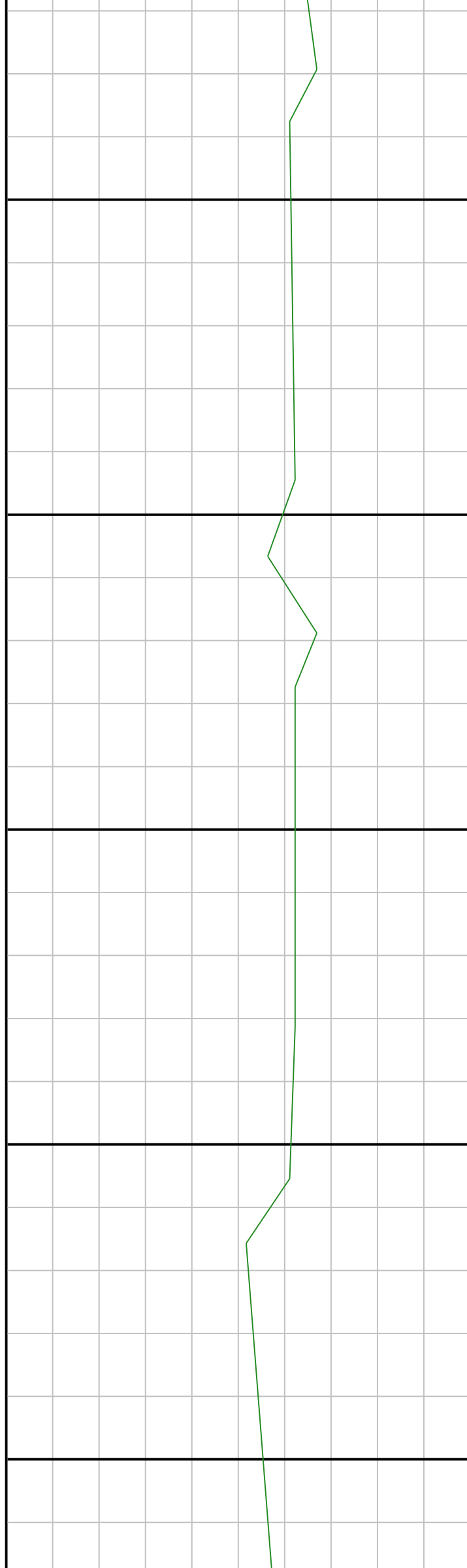
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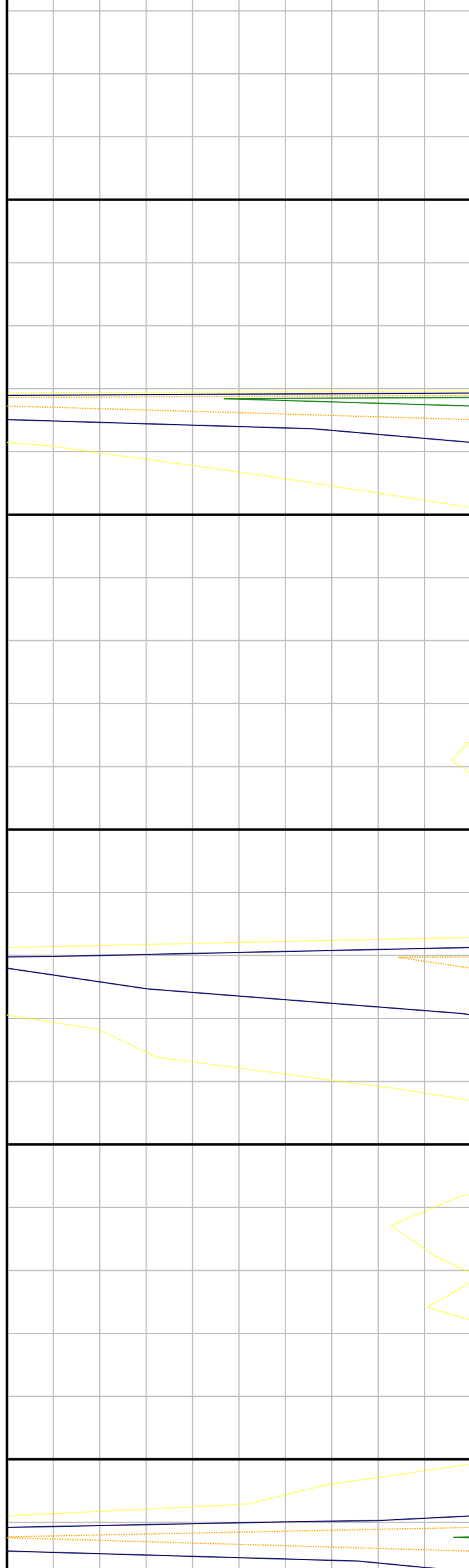
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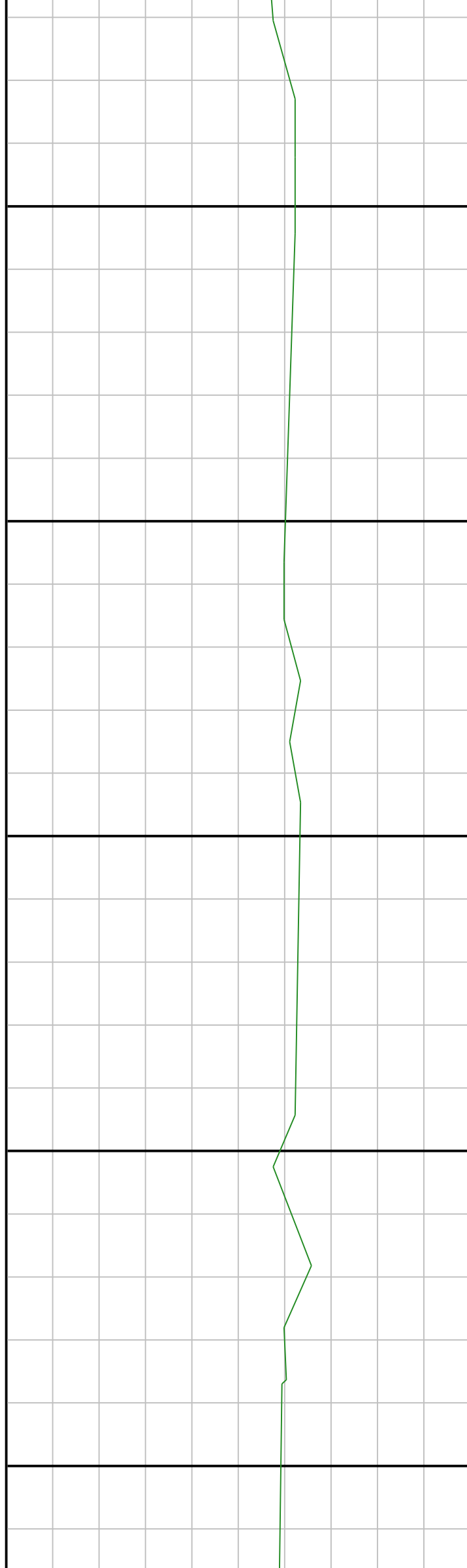
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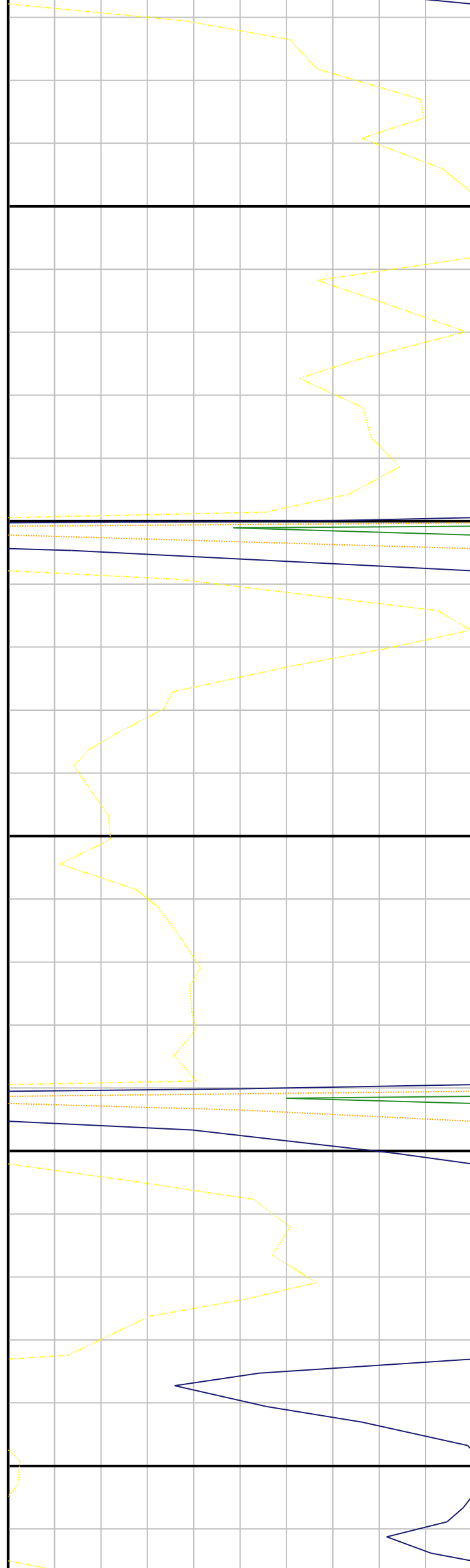
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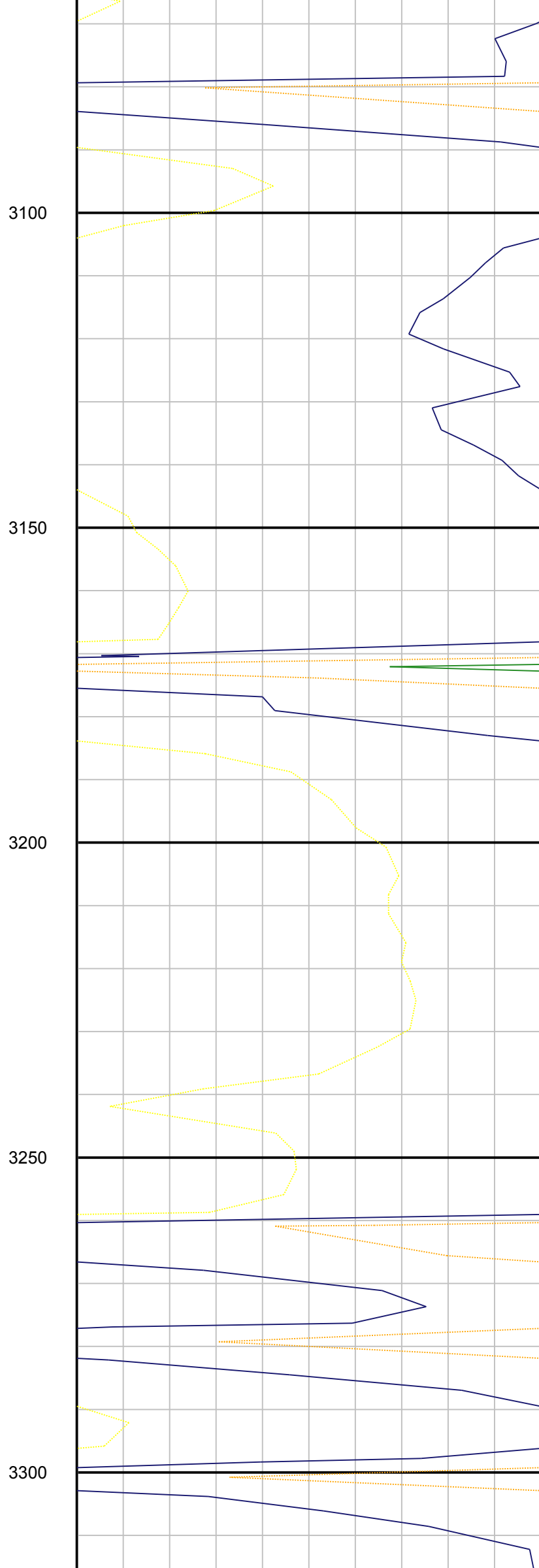
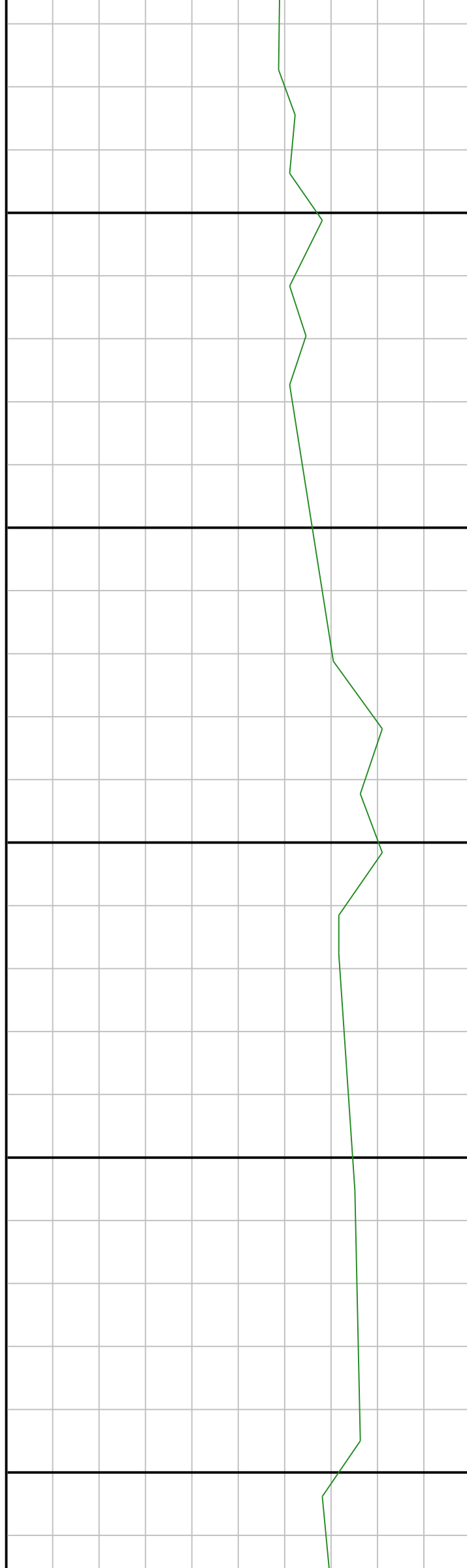
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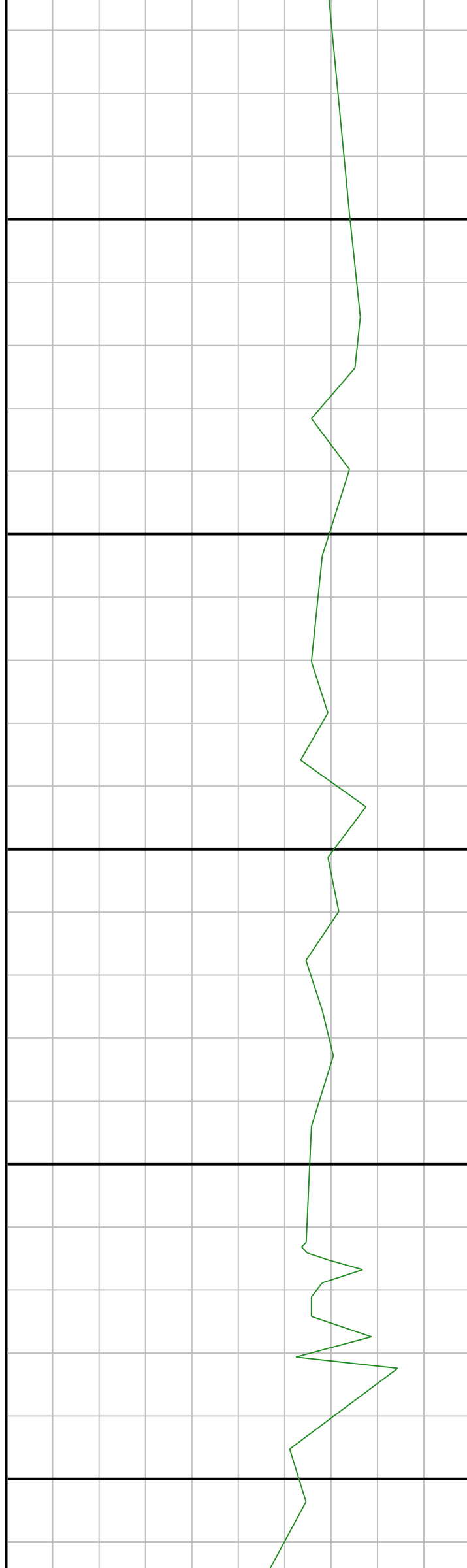
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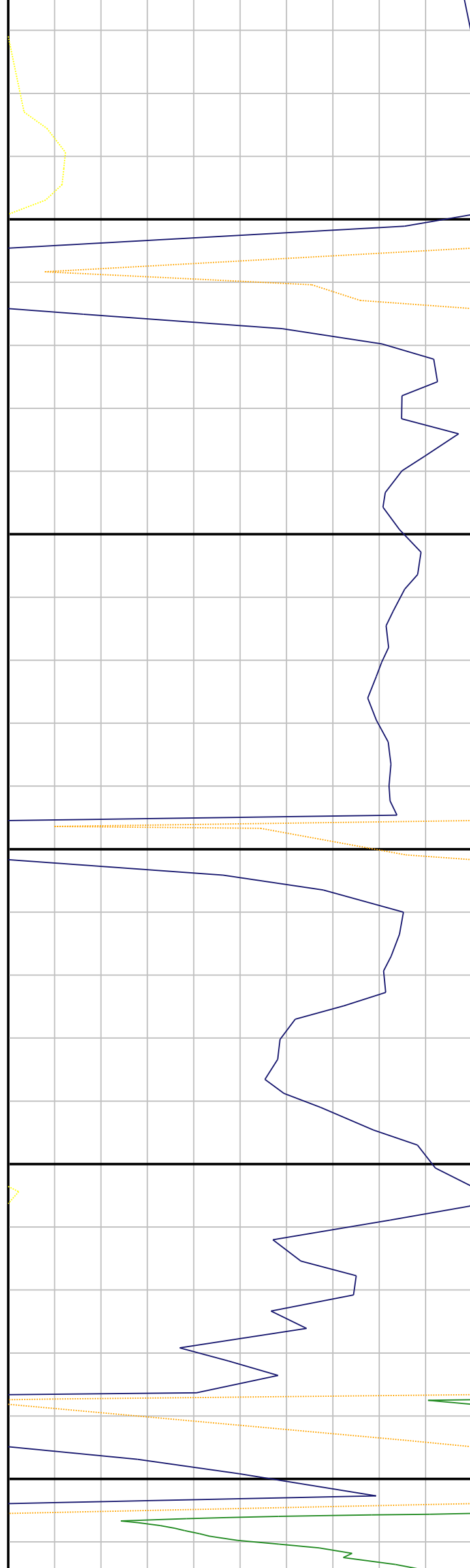
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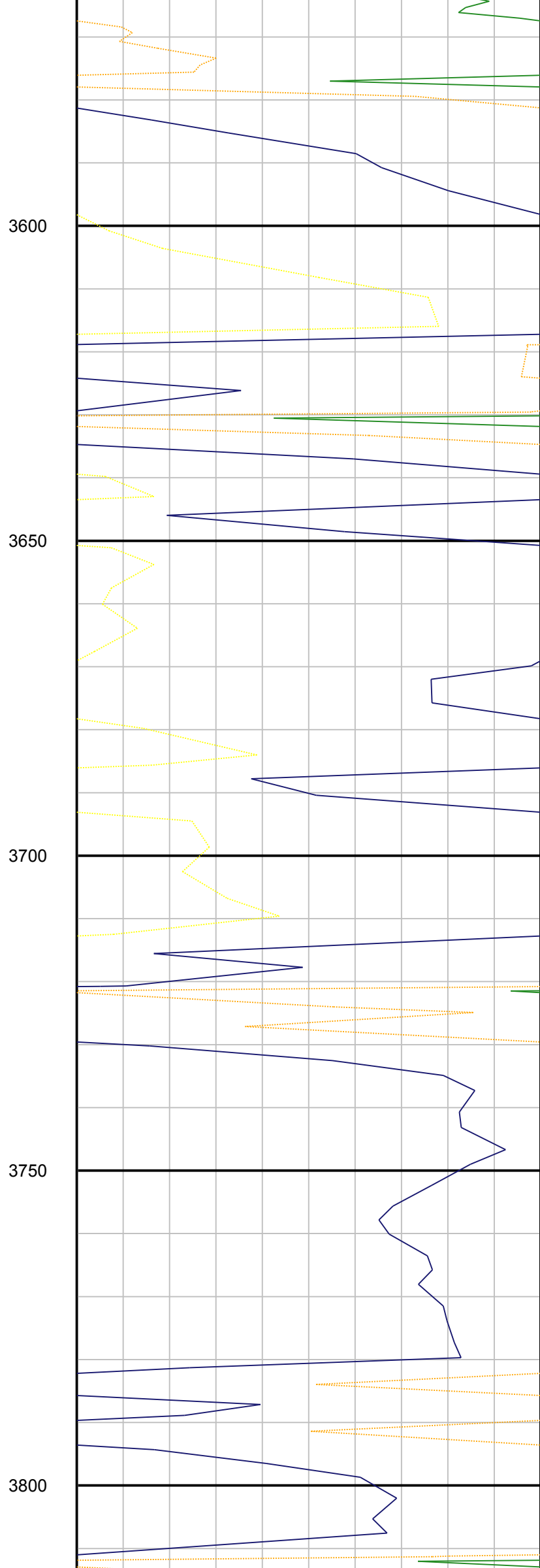
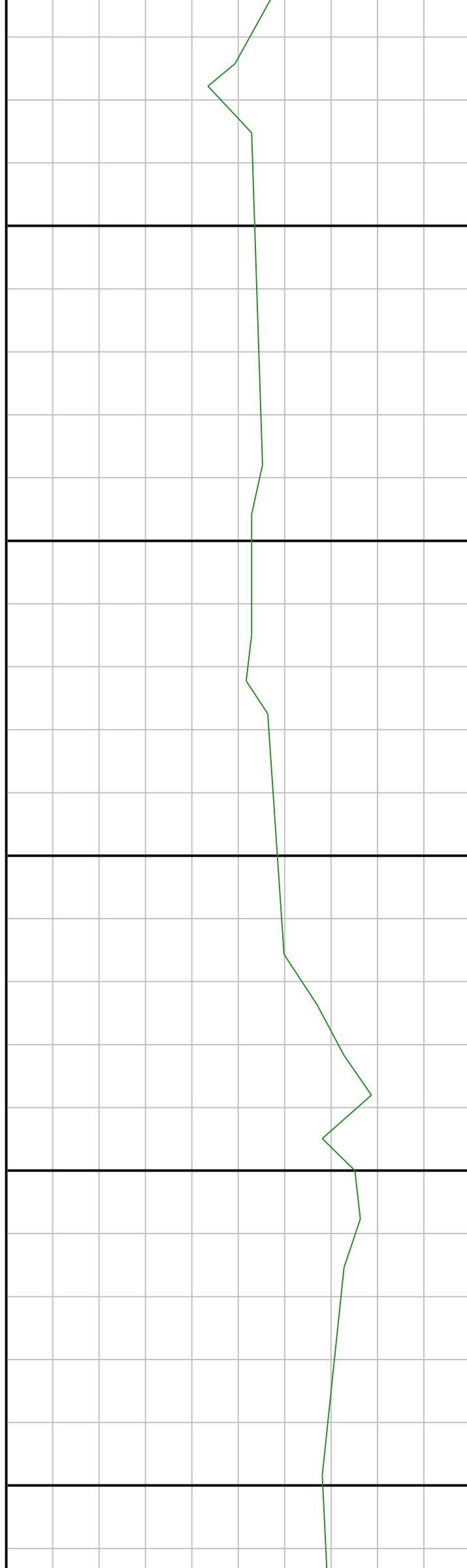
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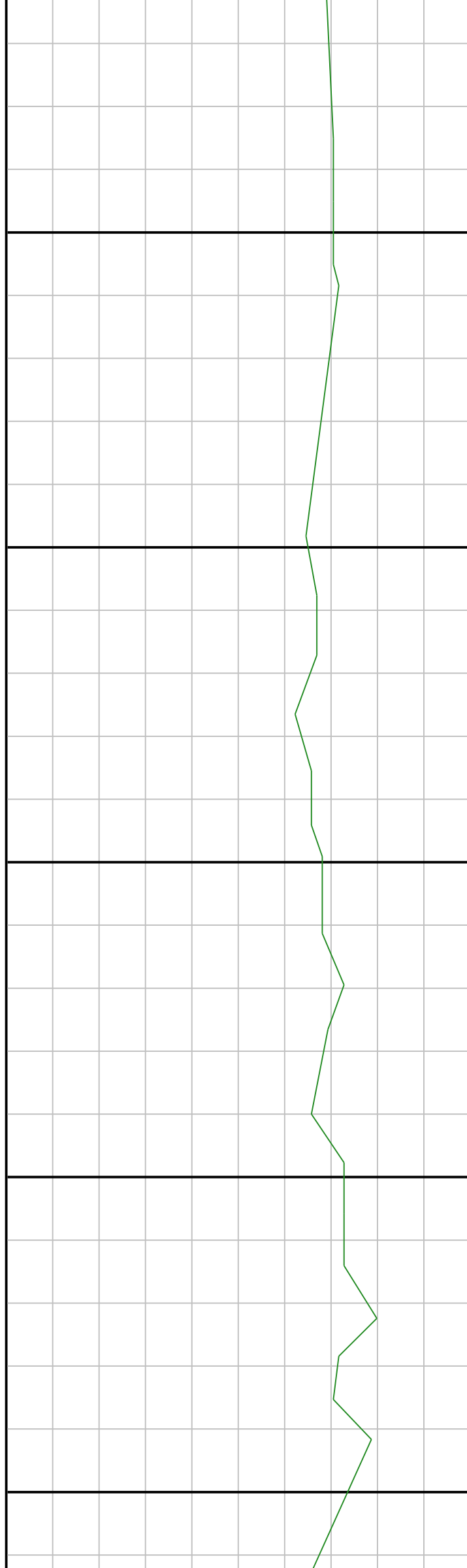
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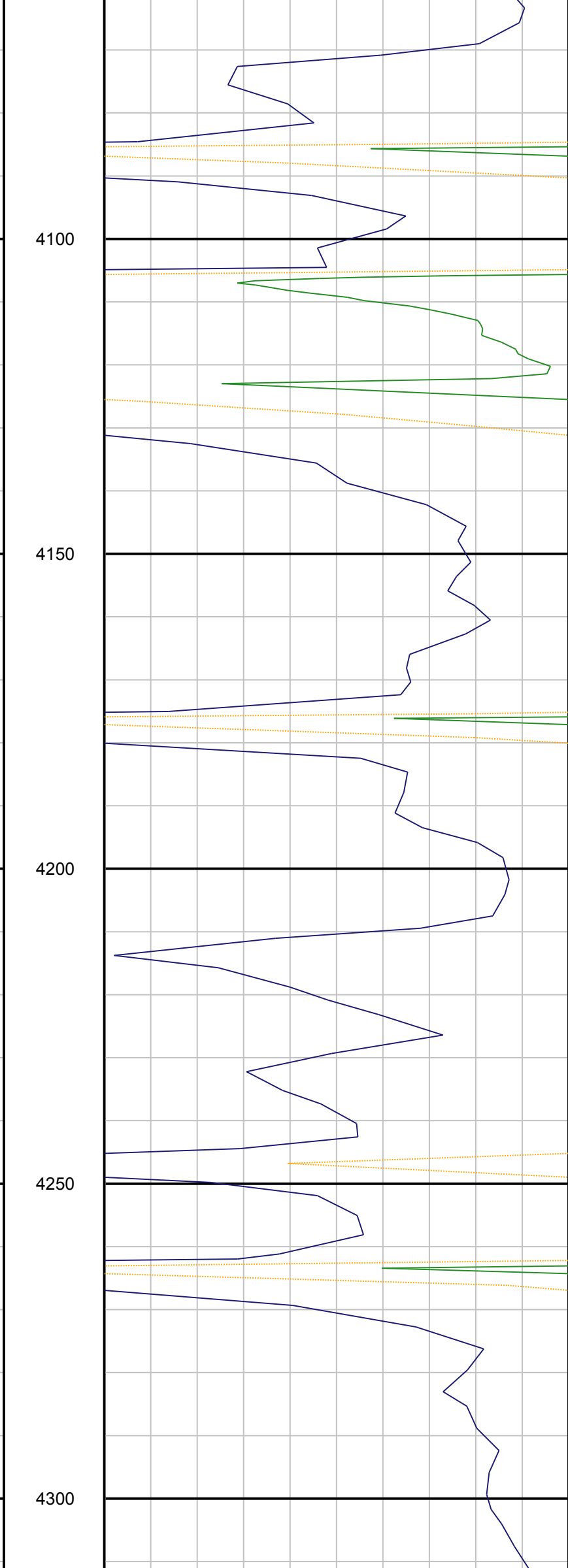
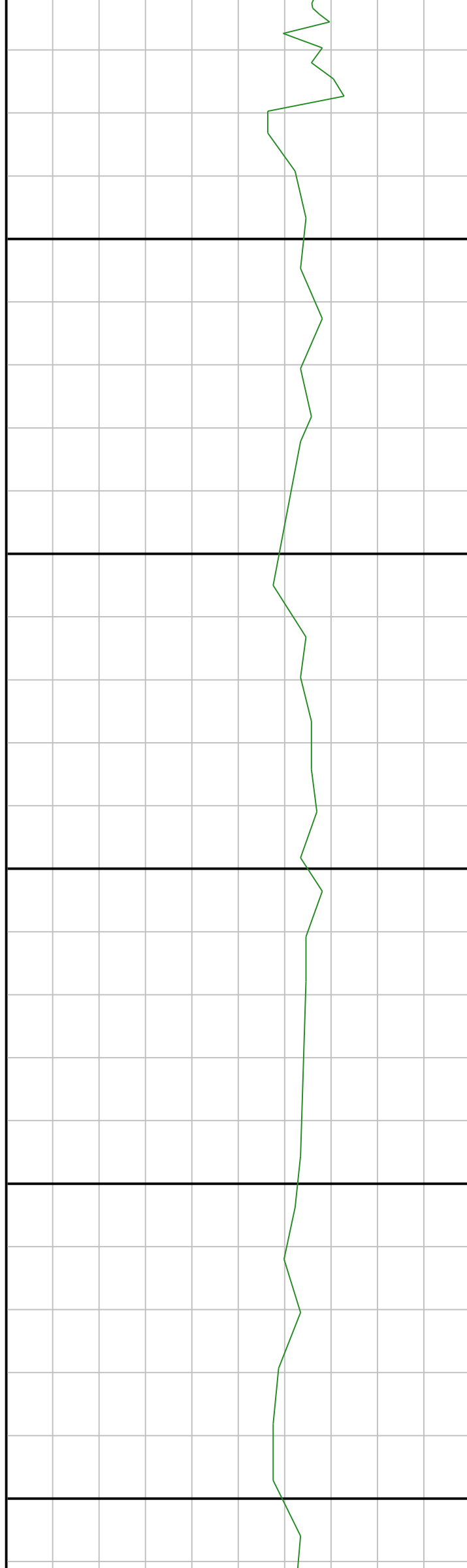
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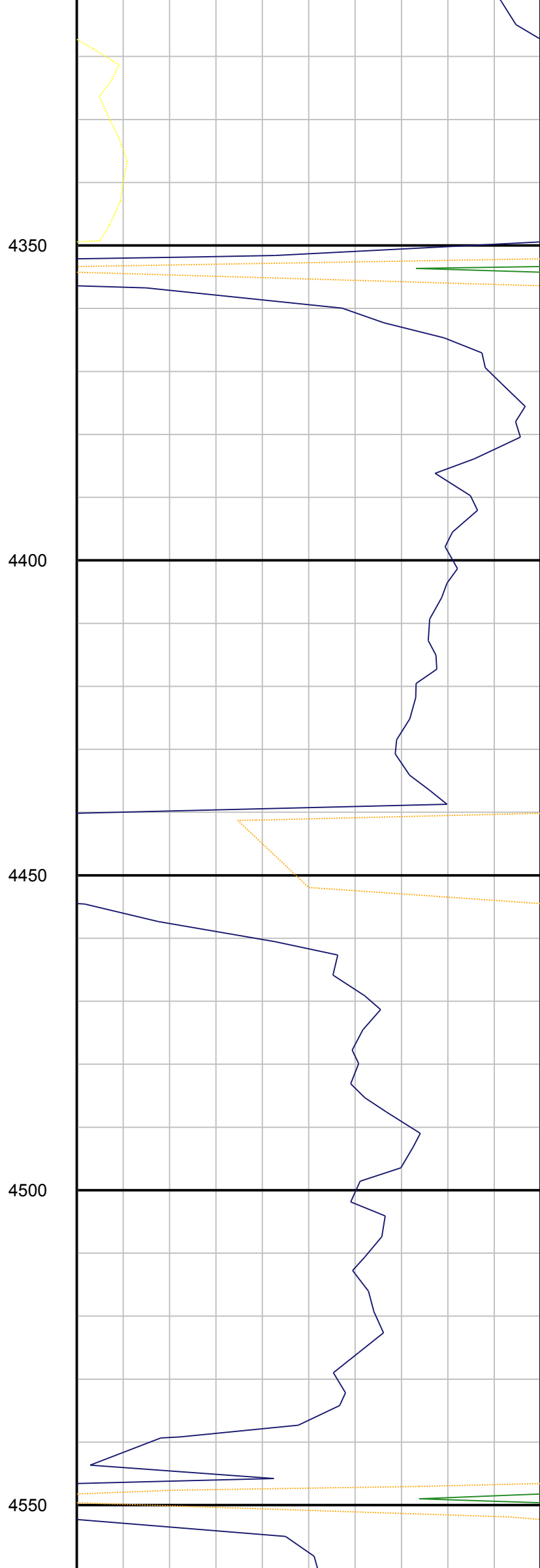
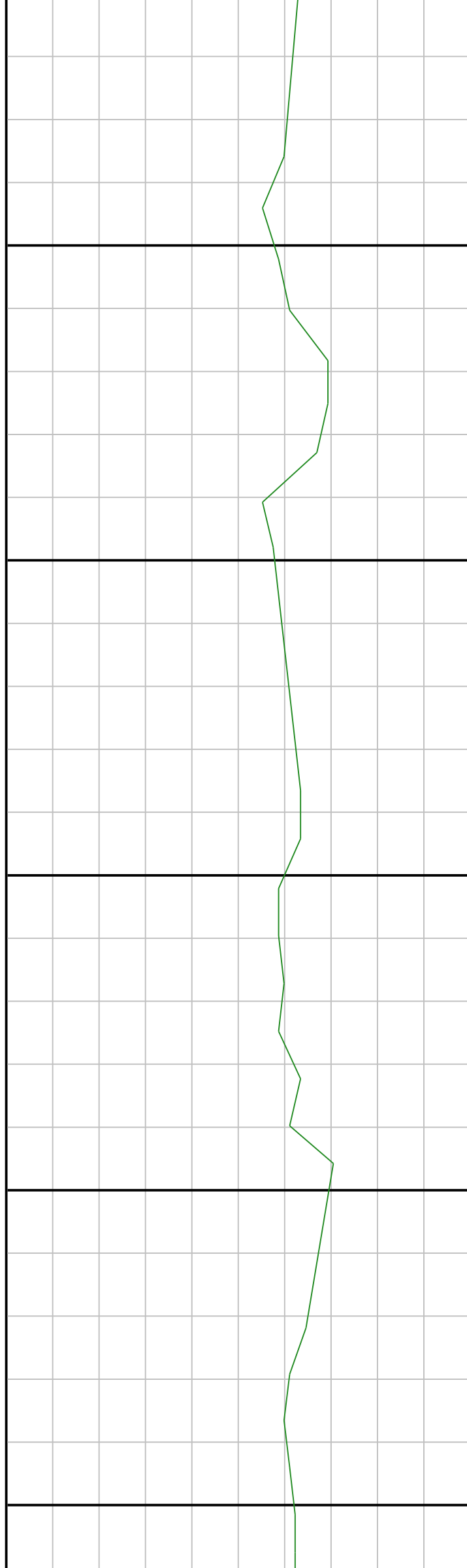
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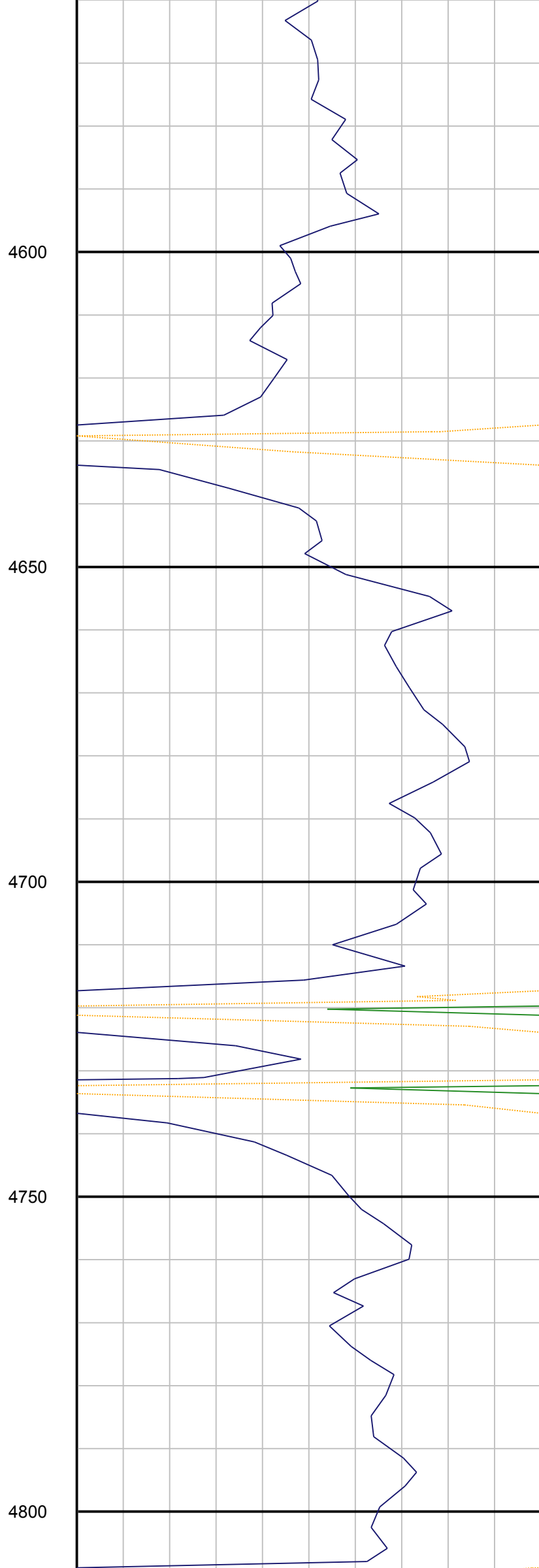
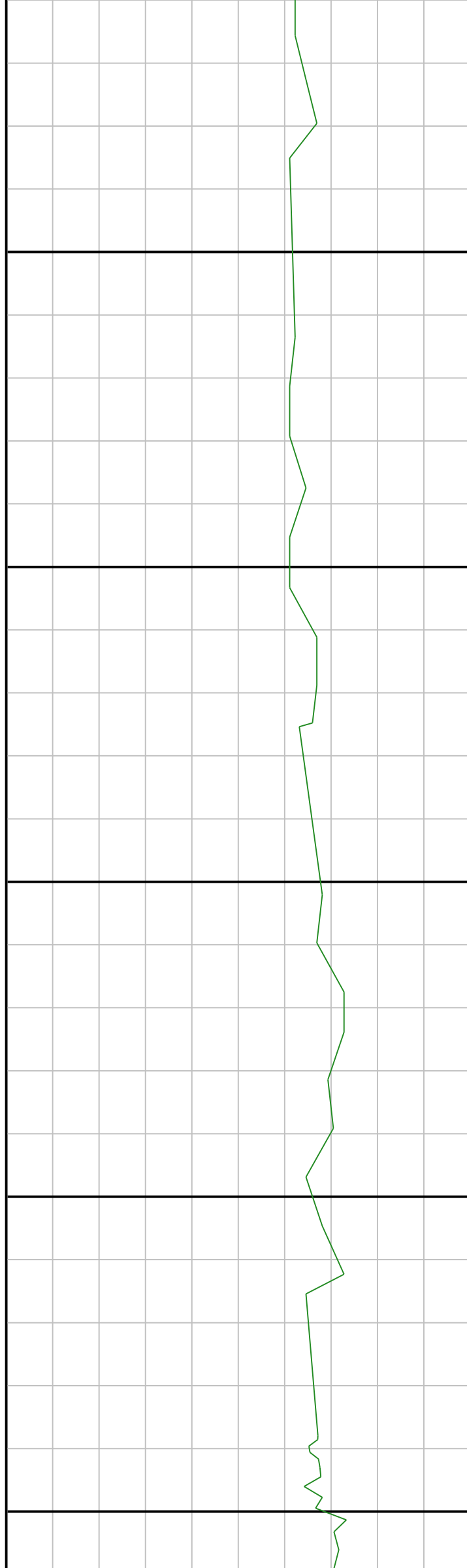
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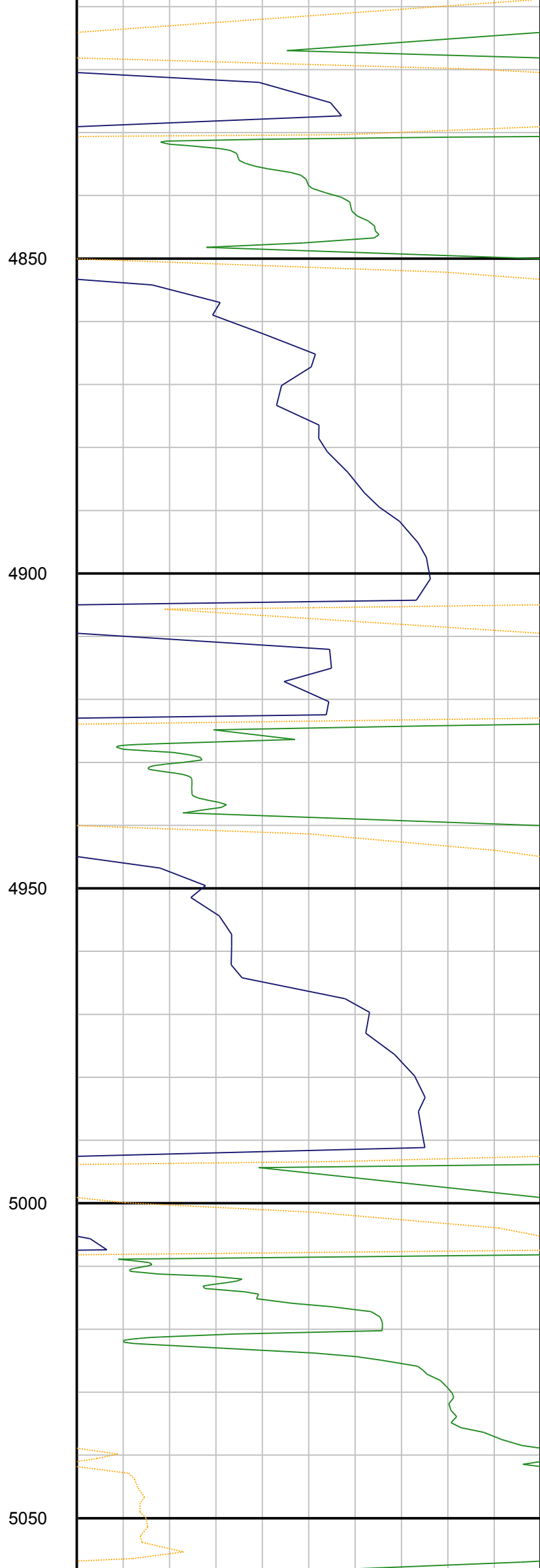
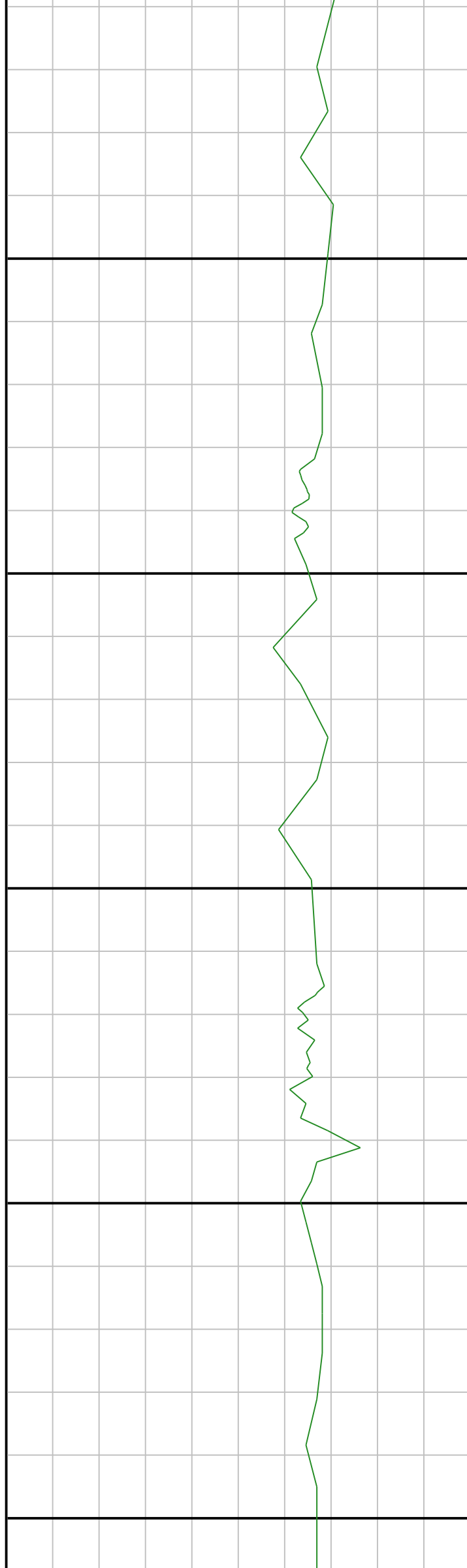
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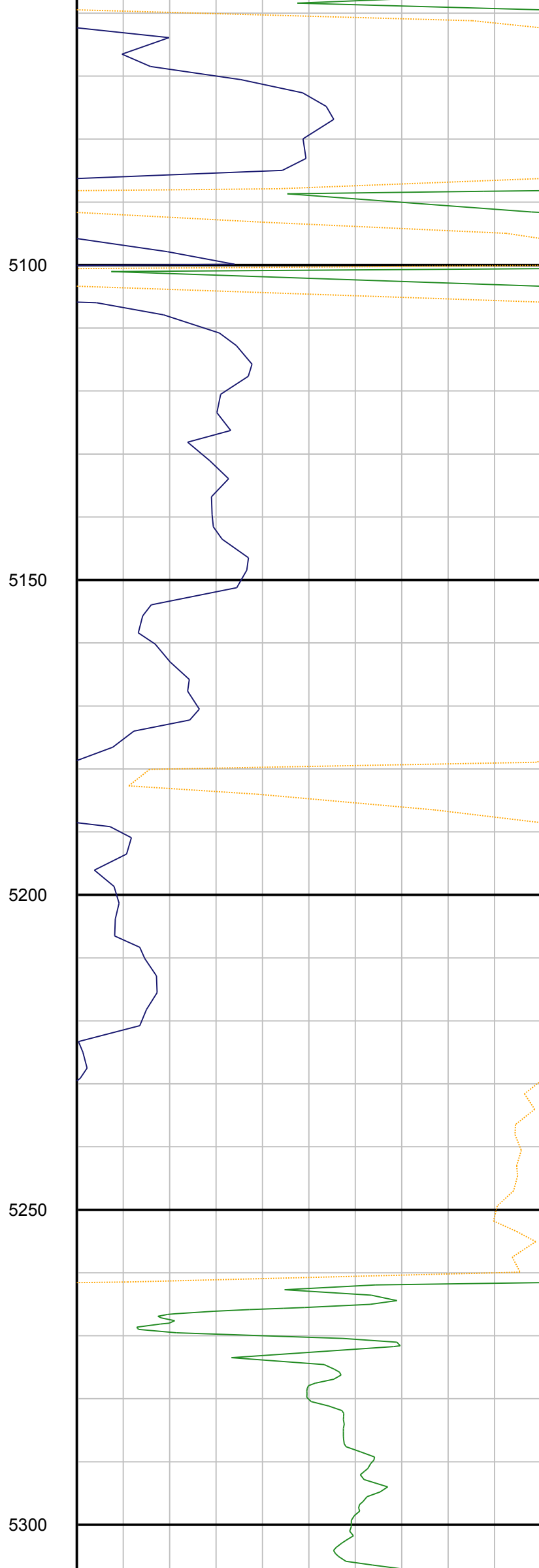
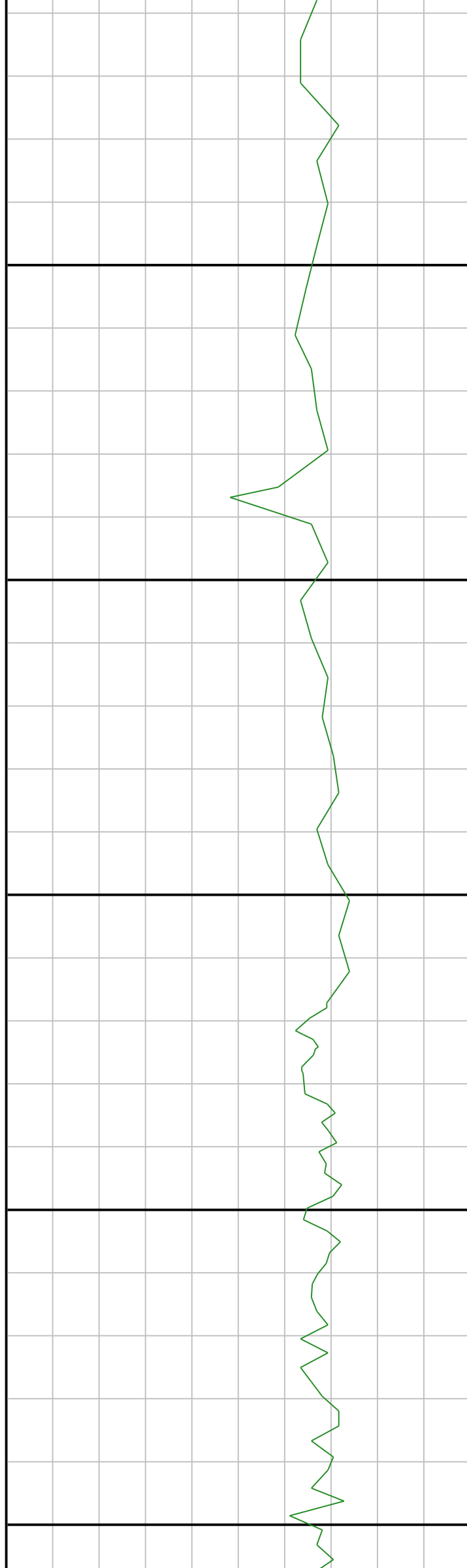


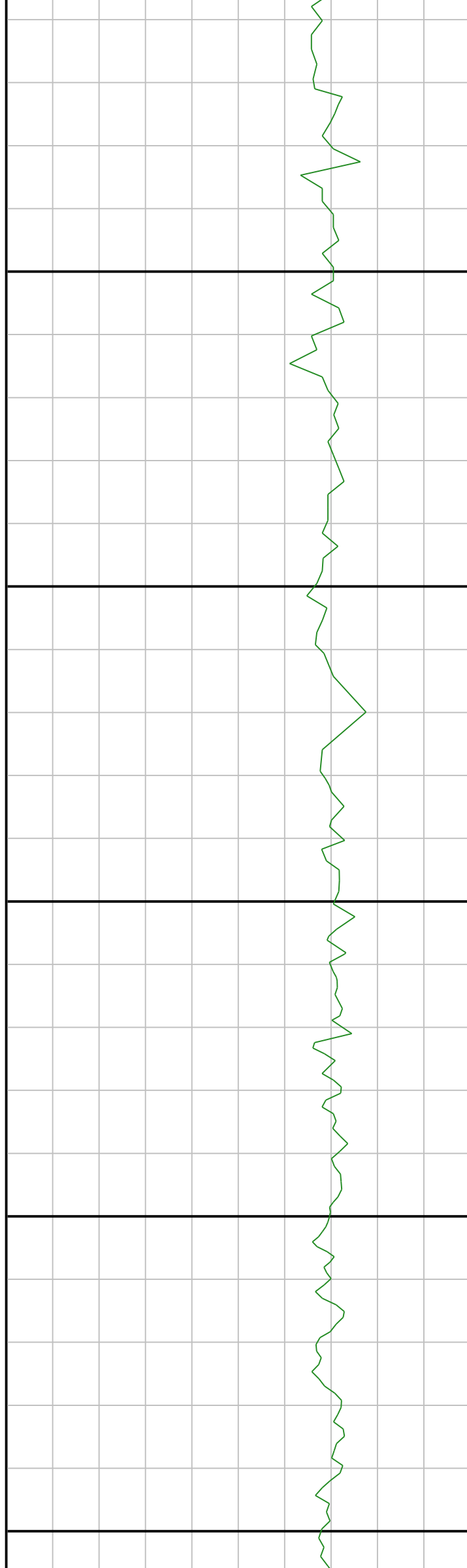












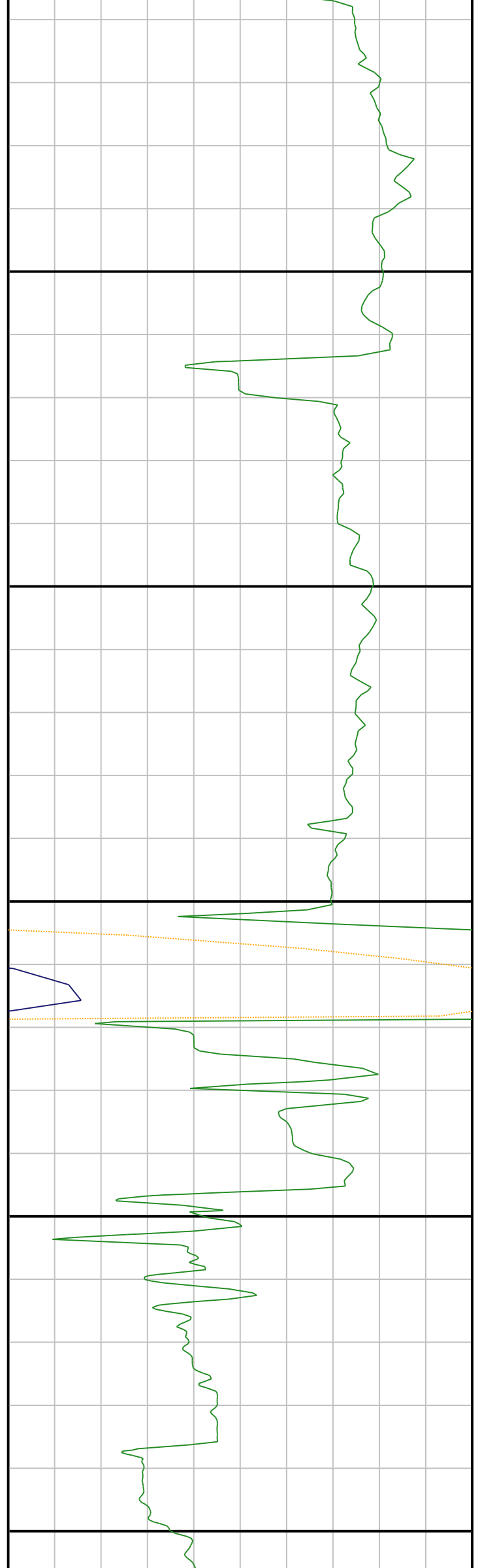
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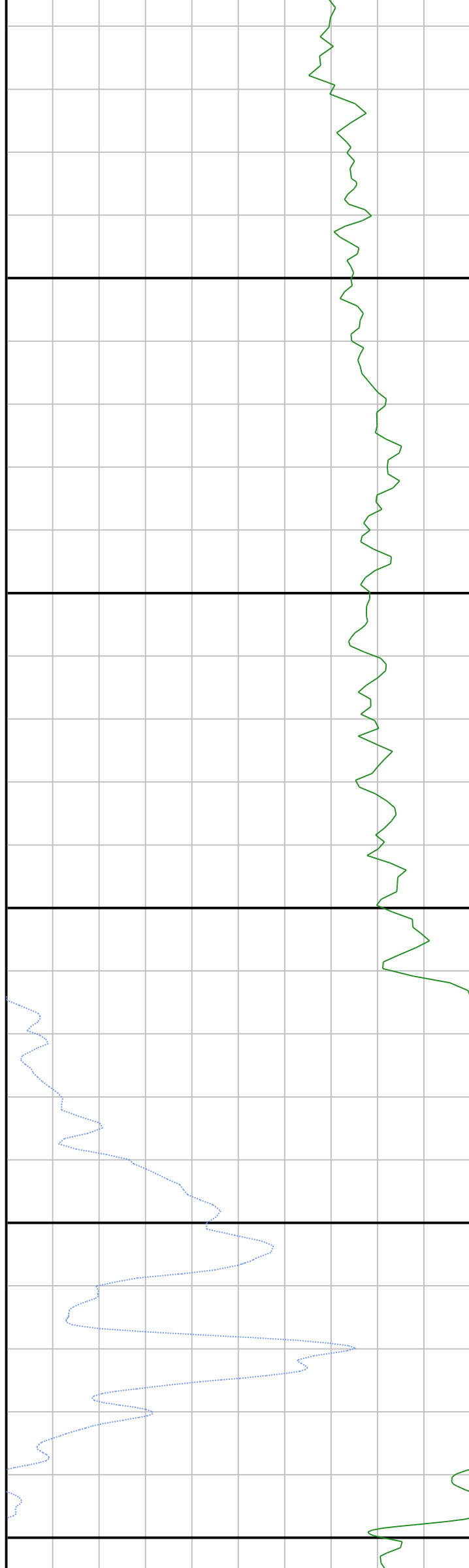
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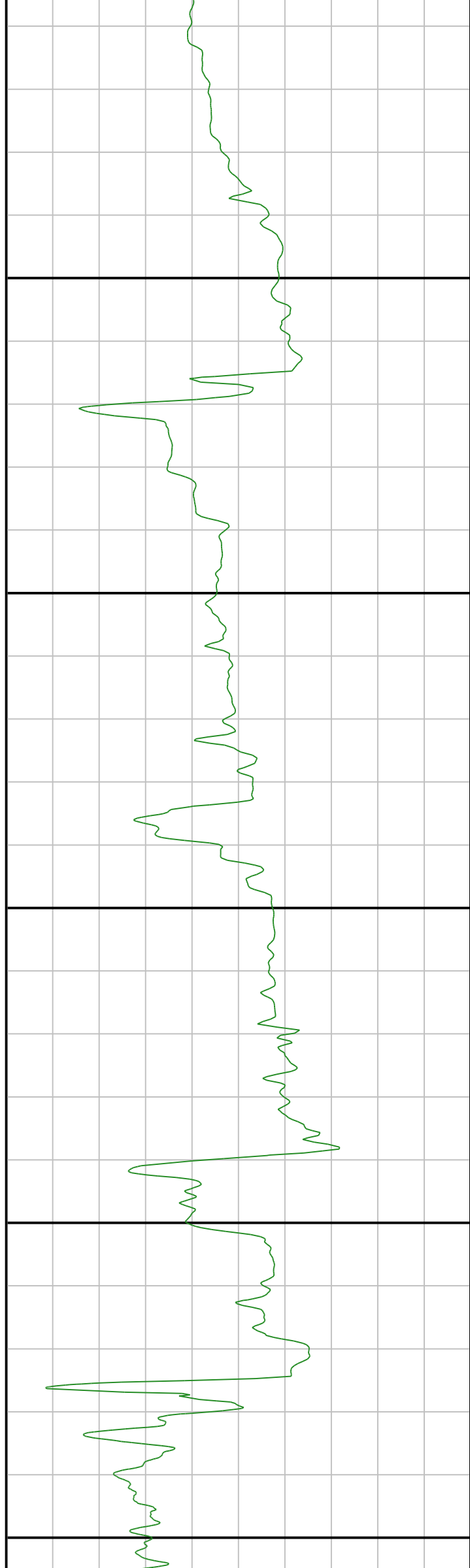
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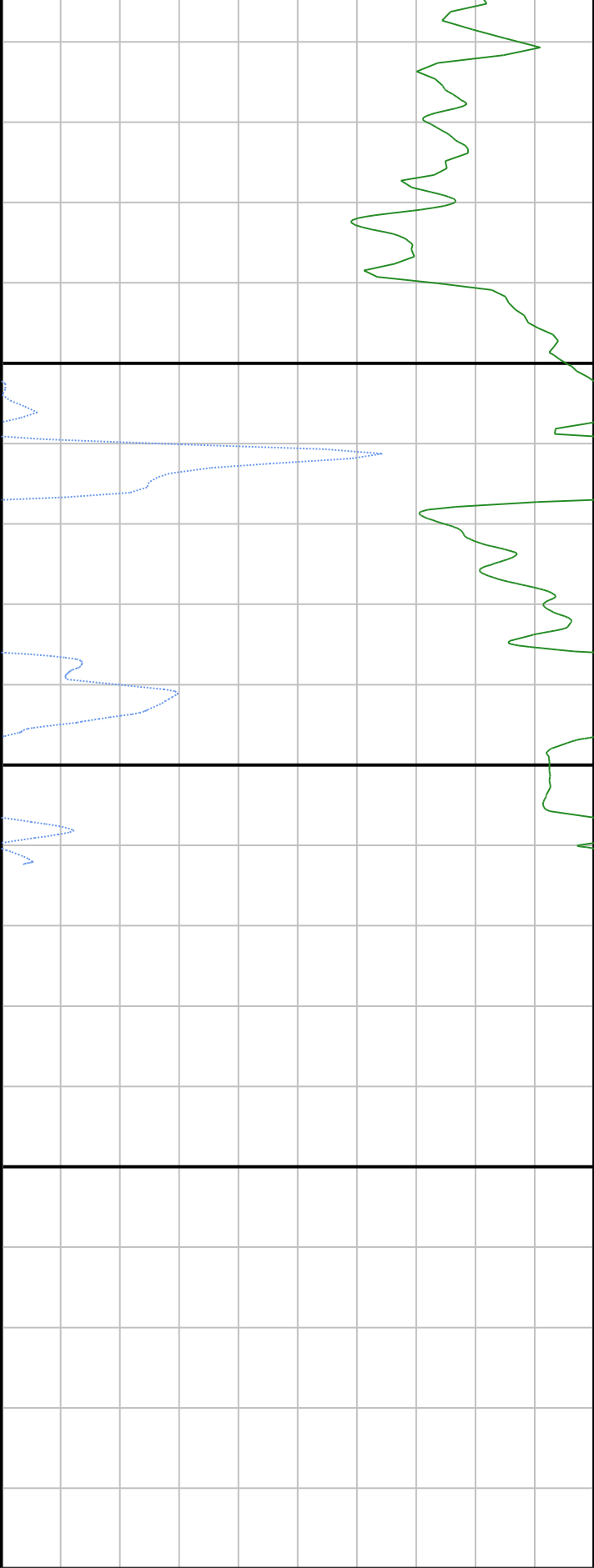
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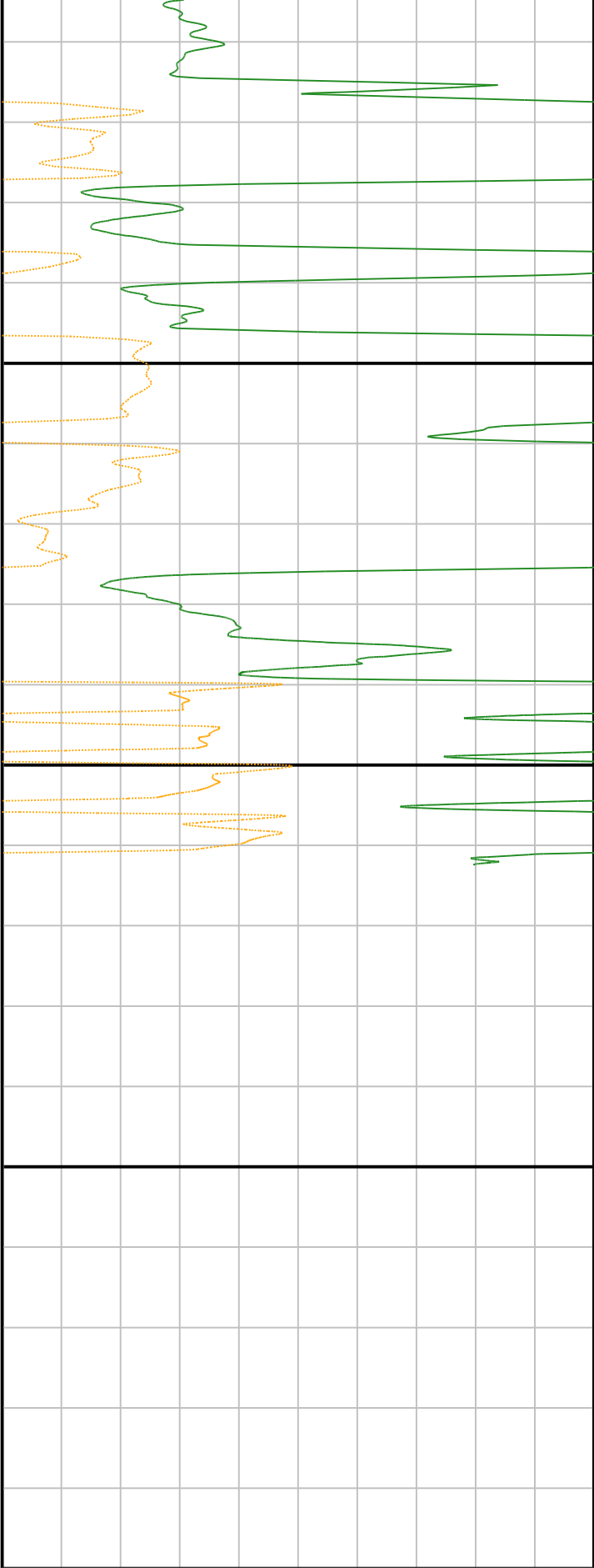
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Gamma		Gama
200	AAP	400
Gamma		Gama
400	AAP	600
Gamma		Gama
600	AAP	800

5850

5900

5950

6000



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

Survey Information

Seq	MD (ft)	Inc (°)	Azm (°)	TVD (ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	DLS (°/100ft)	Bld Rate (°/ft)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	324.00	1.33	167.40	323.97	-3.67	-3.67	0.82	0.41	0.00
3	693.00	5.57	203.99	692.25	-24.22	-24.22	-5.53	1.24	0.01

• Tie-in Point

4	970.00	9.29	204.83	966.87	-56.81	-56.81	-20.39	1.34	0.01
5	1247.00	13.83	206.72	1238.18	-106.70	-106.70	-44.68	1.64	0.02
6	1339.00	14.37	208.63	1327.41	-126.54	-126.54	-55.09	0.77	0.01
7	1708.00	17.75	216.50	1682.00	-211.98	-211.98	-110.51	1.09	0.01
8	1895.00	17.18	216.93	1860.38	-256.97	-256.97	-144.06	0.31	0.00
9	1988.00	16.71	215.52	1949.34	-278.83	-278.83	-160.08	0.67	-0.01
10	2083.00	15.37	211.20	2040.64	-300.72	-300.72	-174.54	1.89	-0.01
11	2267.00	14.34	203.03	2218.51	-342.55	-342.55	-196.09	1.27	-0.01
12	2360.00	14.31	201.32	2308.62	-363.86	-363.86	-204.77	0.46	0.00
13	2544.00	13.05	199.07	2487.40	-404.68	-404.68	-219.83	0.74	-0.01
14	2636.00	12.47	198.00	2577.13	-423.94	-423.94	-226.29	0.68	-0.01
15	2821.00	11.74	195.30	2758.01	-461.09	-461.09	-237.43	0.50	0.00
16	2913.00	11.71	195.03	2848.09	-479.14	-479.14	-242.32	0.07	0.00
17	3005.00	11.34	193.97	2938.24	-496.93	-496.93	-246.93	0.46	0.00
18	3098.00	11.07	192.04	3029.47	-514.53	-514.53	-251.00	0.50	0.00
19	3465.00	8.10	185.15	3391.31	-574.76	-574.76	-260.67	0.87	-0.01
20	3741.00	8.75	194.39	3664.35	-614.46	-614.46	-267.63	0.54	0.00
21	4017.00	8.02	192.77	3937.40	-653.57	-653.57	-277.10	0.28	0.00
22	4109.00	7.77	191.73	4028.52	-665.92	-665.92	-279.79	0.31	0.00
23	4201.00	9.21	189.14	4119.51	-679.28	-679.28	-282.22	1.62	0.02
24	4293.00	8.96	187.71	4210.36	-693.65	-693.65	-284.35	0.37	0.00
25	4385.00	8.46	188.15	4301.30	-707.45	-707.45	-286.27	0.55	-0.01
26	4477.00	7.92	185.94	4392.36	-720.45	-720.45	-287.89	0.68	-0.01
27	4569.00	7.54	181.27	4483.52	-732.79	-732.79	-288.68	0.80	0.00
28	4845.00	5.96	176.79	4757.60	-765.20	-765.20	-288.28	0.60	-0.01
29	4937.00	5.85	190.33	4849.12	-774.59	-774.59	-288.85	1.52	0.00
30	5029.00	4.59	200.09	4940.74	-782.66	-782.66	-290.96	1.67	-0.01
31	5213.00	2.78	240.81	5124.38	-791.75	-791.75	-297.38	1.67	-0.01
32	5304.00	2.36	238.33	5215.29	-793.81	-793.81	-300.90	0.48	0.00
33	5396.00	3.06	298.28	5307.20	-793.64	-793.64	-304.68	3.02	0.01
34	5442.00	8.32	325.78	5352.96	-790.30	-790.30	-307.63	12.56	0.11
35	5448.00	13.38	329.39	5358.86	-789.35	-789.35	-308.23	85.05	0.84
36	5534.00	19.07	338.16	5441.41	-767.72	-767.72	-318.53	7.19	0.07
37	5580.00	20.34	336.97	5484.71	-753.39	-753.39	-324.46	2.90	0.03
38	5626.00	23.88	334.04	5527.33	-737.65	-737.65	-331.66	8.06	0.08
39	5672.00	28.73	333.76	5568.55	-719.35	-719.35	-340.63	10.55	0.11
40	5718.00	35.40	335.01	5607.51	-697.34	-697.34	-351.16	14.57	0.15
41	5764.00	39.86	337.82	5643.94	-671.59	-671.59	-362.36	10.39	0.10
42	5810.00	46.81	340.98	5677.38	-642.05	-642.05	-373.41	15.82	0.15
43	5856.00	51.57	345.24	5707.44	-608.75	-608.75	-383.47	12.49	0.10
44	5902.00	57.01	350.89	5734.29	-572.23	-572.23	-391.12	15.46	0.12
45	5948.00	61.47	355.48	5757.82	-533.00	-533.00	-395.78	12.94	0.10
46	5994.00	66.02	0.56	5778.18	-491.80	-491.80	-397.16	13.99	0.10
47	6040.00	69.11	5.25	5795.74	-449.36	-449.36	-394.99	11.57	0.07
48	6086.00	72.22	11.06	5810.98	-406.42	-406.42	-388.82	13.70	0.07
49	6132.00	72.84	12.03	5824.79	-363.43	-363.43	-380.04	2.42	0.01
50	6178.00	75.84	10.68	5837.20	-320.01	-320.01	-371.32	7.11	0.07
51	6224.00	78.12	9.57	5847.57	-275.90	-275.90	-363.44	5.49	0.05
52	6270.00	78.55	9.32	5856.87	-231.46	-231.46	-356.05	1.08	0.01
53	6316.00	78.89	9.24	5865.87	-186.94	-186.94	-348.78	0.76	0.01
54	6362.00	79.29	8.97	5874.57	-142.34	-142.34	-341.63	1.04	0.01
55	6408.00	83.17	6.85	5881.59	-97.32	-97.32	-335.38	9.59	0.08
56	6519.00	90.42	4.79	5887.79	12.86	12.86	-324.16	6.79	0.07
57	6612.00	88.10	4.23	5888.99	105.56	105.56	-316.84	2.57	-0.02
58	6704.00	87.87	3.74	5892.22	197.28	197.28	-310.45	0.59	0.00
59	6797.00	89.27	3.31	5894.54	290.07	290.07	-304.74	1.57	0.02
60	6890.00	89.13	2.23	5895.84	382.95	382.95	-300.24	1.17	0.00
61	6983.00	89.38	2.03	5897.05	475.88	475.88	-296.79	0.34	0.00
62	7075.00	88.04	1.91	5899.12	567.80	567.80	-293.63	1.46	-0.01
63	7169.00	87.90	1.53	5902.45	661.70	661.70	-290.81	0.43	0.00
64	7262.00	88.55	1.06	5905.33	754.63	754.63	-288.71	0.86	0.01
65	7355.00	87.34	359.90	5908.67	847.56	847.56	-287.93	1.80	-0.01
66	7448.00	88.60	359.31	5911.96	940.50	940.50	-288.57	1.50	0.01
67	7540.00	91.12	358.83	5912.19	1032.48	1032.48	-290.06	2.79	0.03
68	7632.00	91.65	358.77	5909.96	1124.43	1124.43	-291.99	0.58	0.01
69	7725.00	92.15	358.70	5906.88	1217.36	1217.36	-294.04	0.54	0.01
70	7819.00	91.48	358.90	5903.90	1311.29	1311.29	-296.01	0.74	-0.01
71	7912.00	92.68	359.47	5900.53	1404.22	1404.22	-297.33	1.43	0.01
72	8005.00	91.15	359.39	5897.42	1497.16	1497.16	-298.25	1.65	-0.02
73	8098.00	89.81	359.32	5894.28	1590.10	1590.10	-299.20	1.87	-0.02

73	8098.00	89.61	0.20	5896.80	1590.15	1590.15	-298.59	1.87	-0.02
74	8191.00	90.61	0.28	5896.63	1683.15	1683.15	-298.20	1.08	0.01
75	8283.00	89.50	1.14	5896.54	1775.14	1775.14	-297.06	1.53	-0.01
76	8376.00	88.01	2.62	5898.56	1868.06	1868.06	-294.01	2.26	-0.02
77	8469.00	87.60	2.42	5902.12	1960.90	1960.90	-289.92	0.49	0.00
78	8562.00	87.57	2.23	5906.04	2053.74	2053.74	-286.15	0.21	0.00
79	8655.00	88.43	2.44	5909.28	2146.61	2146.61	-282.36	0.95	0.01
80	8747.00	89.52	3.75	5910.93	2238.46	2238.46	-277.40	1.85	0.01
81	8840.00	89.83	1.84	5911.46	2331.34	2331.34	-272.86	2.08	0.00
82	8932.00	90.06	1.89	5911.55	2423.29	2423.29	-269.87	0.26	0.00
83	9024.00	90.11	1.72	5911.41	2515.25	2515.25	-266.97	0.19	0.00
84	9116.00	90.75	0.91	5910.72	2607.22	2607.22	-264.86	1.12	0.01
85	9209.00	91.34	0.37	5909.02	2700.20	2700.20	-263.82	0.86	0.01
86	9301.00	90.78	359.60	5907.32	2792.18	2792.18	-263.85	1.03	-0.01
87	9394.00	89.83	359.11	5906.83	2885.17	2885.17	-264.89	1.15	-0.01
88	9486.00	89.92	359.21	5907.03	2977.16	2977.16	-266.24	0.15	0.00
89	9579.00	89.78	358.05	5907.27	3070.13	3070.13	-268.46	1.26	0.00
90	9671.00	89.55	357.21	5907.81	3162.05	3162.05	-272.27	0.95	0.00
91	9764.00	89.08	356.85	5908.92	3254.92	3254.92	-277.09	0.64	-0.01
92	9855.00	90.06	357.30	5909.60	3345.80	3345.80	-281.73	1.19	0.01
93	9948.00	90.56	357.57	5909.10	3438.70	3438.70	-285.89	0.61	0.01
94	10040.00	89.86	357.57	5908.76	3530.62	3530.62	-289.79	0.76	-0.01
95	10132.00	91.09	356.95	5908.00	3622.51	3622.51	-294.19	1.50	0.01
96	10224.00	92.01	356.81	5905.51	3714.34	3714.34	-299.20	1.01	0.01
97	10317.00	91.26	355.98	5902.86	3807.11	3807.11	-305.04	1.20	-0.01
98	10409.00	91.23	355.67	5900.86	3898.85	3898.85	-311.74	0.34	0.00
99	10501.00	91.12	357.67	5898.97	3990.67	3990.67	-317.08	2.18	0.00
100	10594.00	90.81	358.66	5897.41	4083.61	4083.61	-320.06	1.12	0.00
101	10686.00	89.75	359.80	5896.96	4175.59	4175.59	-321.29	1.69	-0.01
102	10778.00	90.36	1.44	5896.87	4267.58	4267.58	-320.30	1.90	0.01
103	10870.00	87.15	0.48	5898.87	4359.54	4359.54	-318.76	3.64	-0.03
104	10962.00	86.22	0.06	5904.19	4451.38	4451.38	-318.32	1.11	-0.01
105	11054.00	87.20	0.74	5909.47	4543.22	4543.22	-317.68	1.30	0.01
106	11146.00	88.24	0.98	5913.13	4635.14	4635.14	-316.30	1.16	0.01
107	11238.00	89.11	0.91	5915.25	4727.10	4727.10	-314.79	0.95	0.01
108	11422.00	89.94	2.47	5916.78	4911.01	4911.01	-309.36	0.96	0.00
109	11514.00	89.86	3.36	5916.94	5002.89	5002.89	-304.68	0.97	0.00
110	11605.00	90.36	1.61	5916.76	5093.80	5093.80	-300.74	2.00	0.01
111	11697.00	90.89	1.73	5915.76	5185.75	5185.75	-298.05	0.59	0.01
112	11789.00	91.29	1.10	5914.01	5277.71	5277.71	-295.78	0.81	0.00
113	11881.00	91.26	0.42	5911.96	5369.68	5369.68	-294.56	0.74	0.00
114	11973.00	91.76	0.44	5909.54	5461.64	5461.64	-293.87	0.54	0.01
115	12065.00	92.32	0.42	5906.26	5553.58	5553.58	-293.18	0.61	0.01
116	12157.00	91.57	359.78	5903.14	5645.53	5645.53	-293.02	1.07	-0.01
117	12249.00	91.59	359.83	5900.61	5737.49	5737.49	-293.34	0.06	0.00
118	12341.00	92.32	0.35	5897.47	5829.44	5829.44	-293.19	0.97	0.01
119	12433.00	90.42	359.97	5895.27	5921.41	5921.41	-292.93	2.11	-0.02
120	12525.00	89.44	1.04	5895.38	6013.40	6013.40	-292.12	1.58	-0.01
121	12617.00	89.02	1.16	5896.62	6105.37	6105.37	-290.36	0.47	0.00
122	12709.00	88.43	0.90	5898.66	6197.34	6197.34	-288.70	0.70	-0.01
123	12801.00	88.41	0.23	5901.20	6289.30	6289.30	-287.80	0.73	0.00
124	12893.00	87.96	359.83	5904.11	6381.25	6381.25	-287.75	0.65	0.00
125	12985.00	88.80	359.85	5906.71	6473.21	6473.21	-288.01	0.91	0.01
126	13077.00	88.69	359.76	5908.73	6565.19	6565.19	-288.32	0.15	0.00
127	13169.00	88.83	359.74	5910.72	6657.17	6657.17	-288.72	0.15	0.00
128	13261.00	89.50	0.13	5912.06	6749.16	6749.16	-288.83	0.84	0.01
129	13344.00	90.03	359.88	5912.40	6832.15	6832.15	-288.82	0.71	0.01