



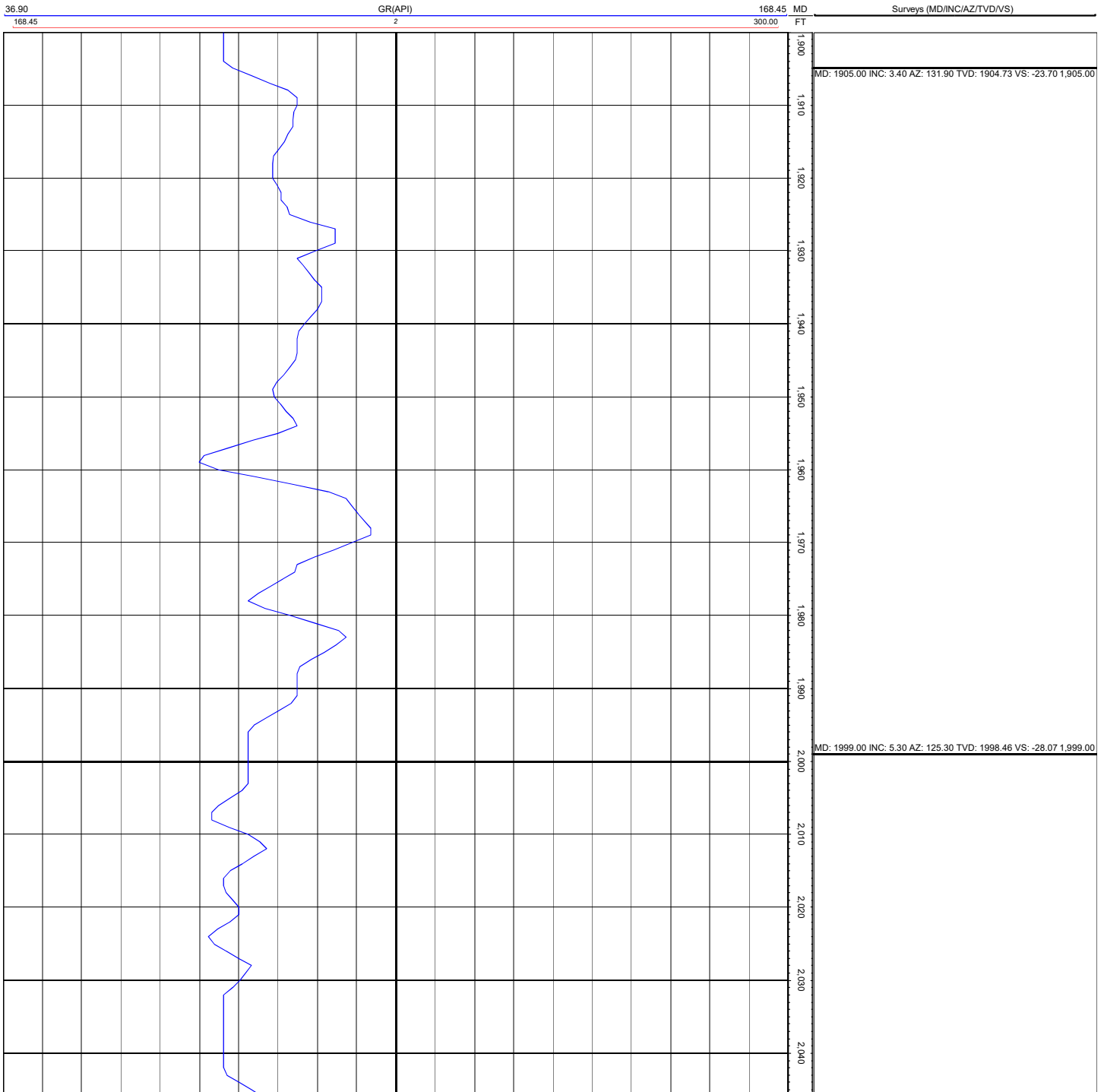
MS Guidance

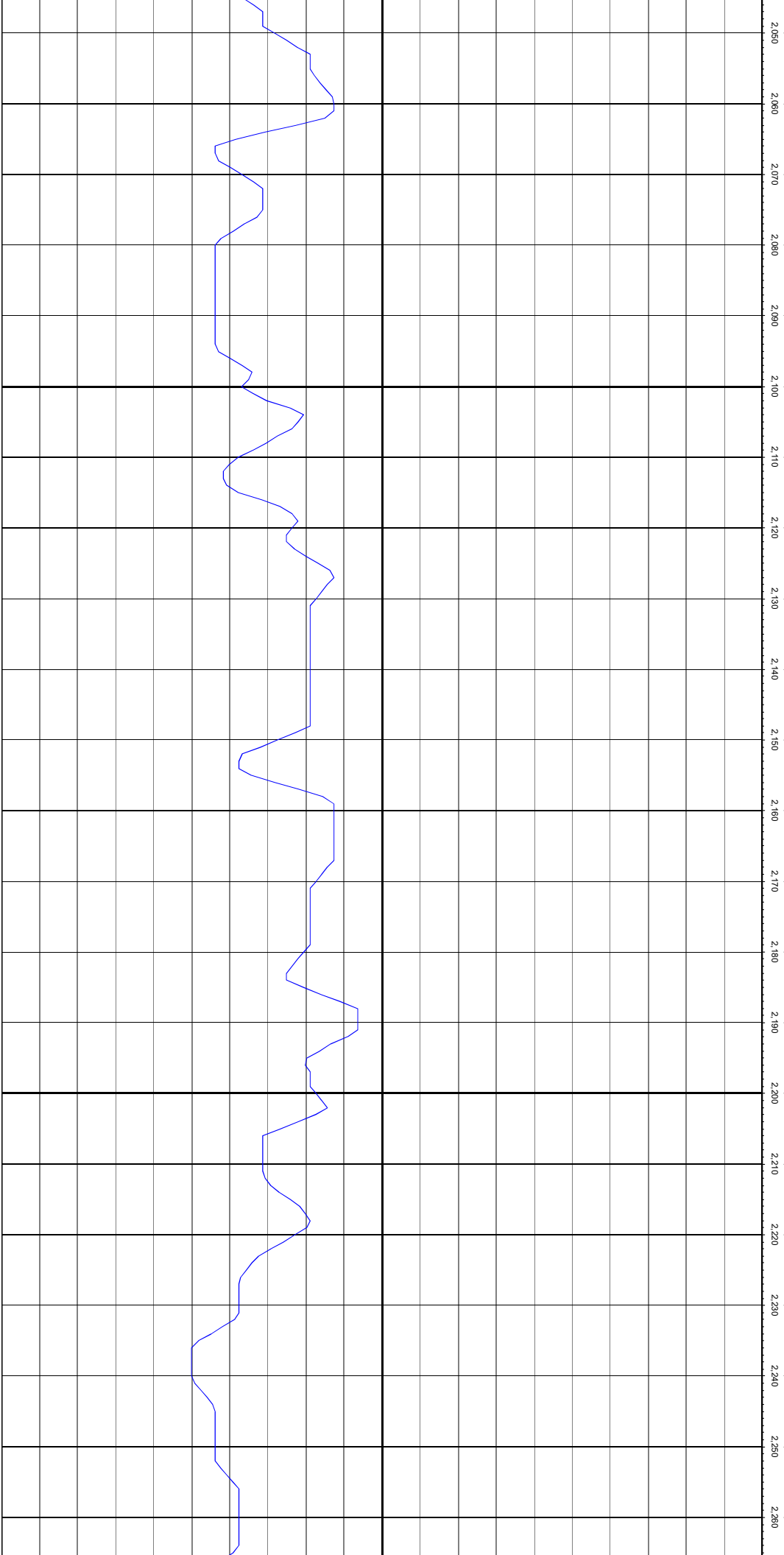
Wolf 12L-10103
Scale 5":100' - MD
5/19/2018 4:10 PM

Oper. Company: Whiting Oil & Gas
Well: Wolf 12L-10103
Field: Pawnee Grass Lands
Rig:
Well ID: 05-123-3942
Job Number:

State: Colorado
County: Weld
Country: USA
Location: Weld County
Start Date:
End Date:

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.

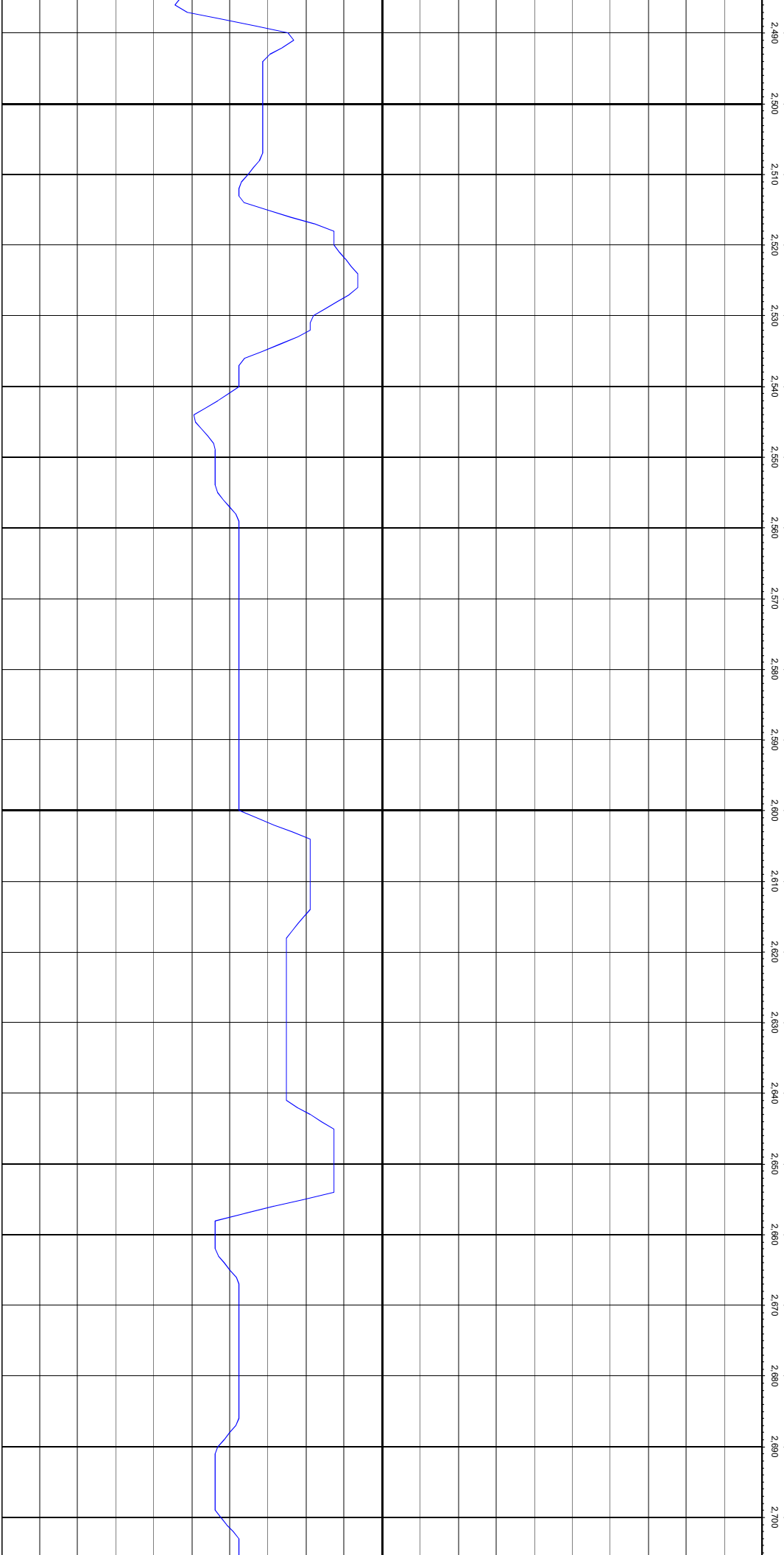




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MD: 2093.00 INC: 8.40 AZ: 132.30 TVD: 2091.77 VS: -35.20 2,093.00

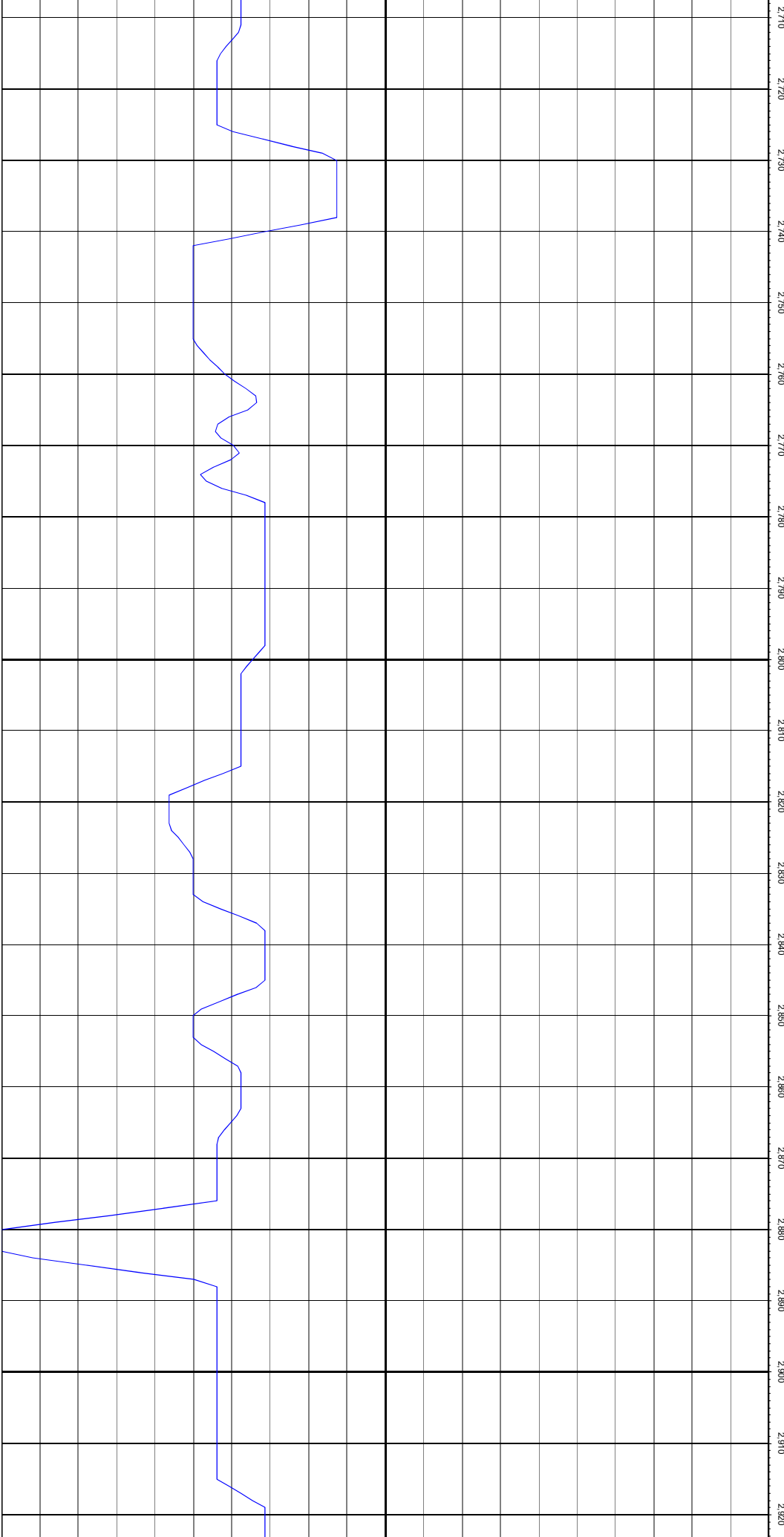
MD: 2187.00 INC: 10.90 AZ: 123.80 TVD: 2184.44 VS: -44.72 2,187.00



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MD: 2563.00 INC: 14.50 AZ: 119.30 TVD: 2550.70 VS: -84.82,563.00

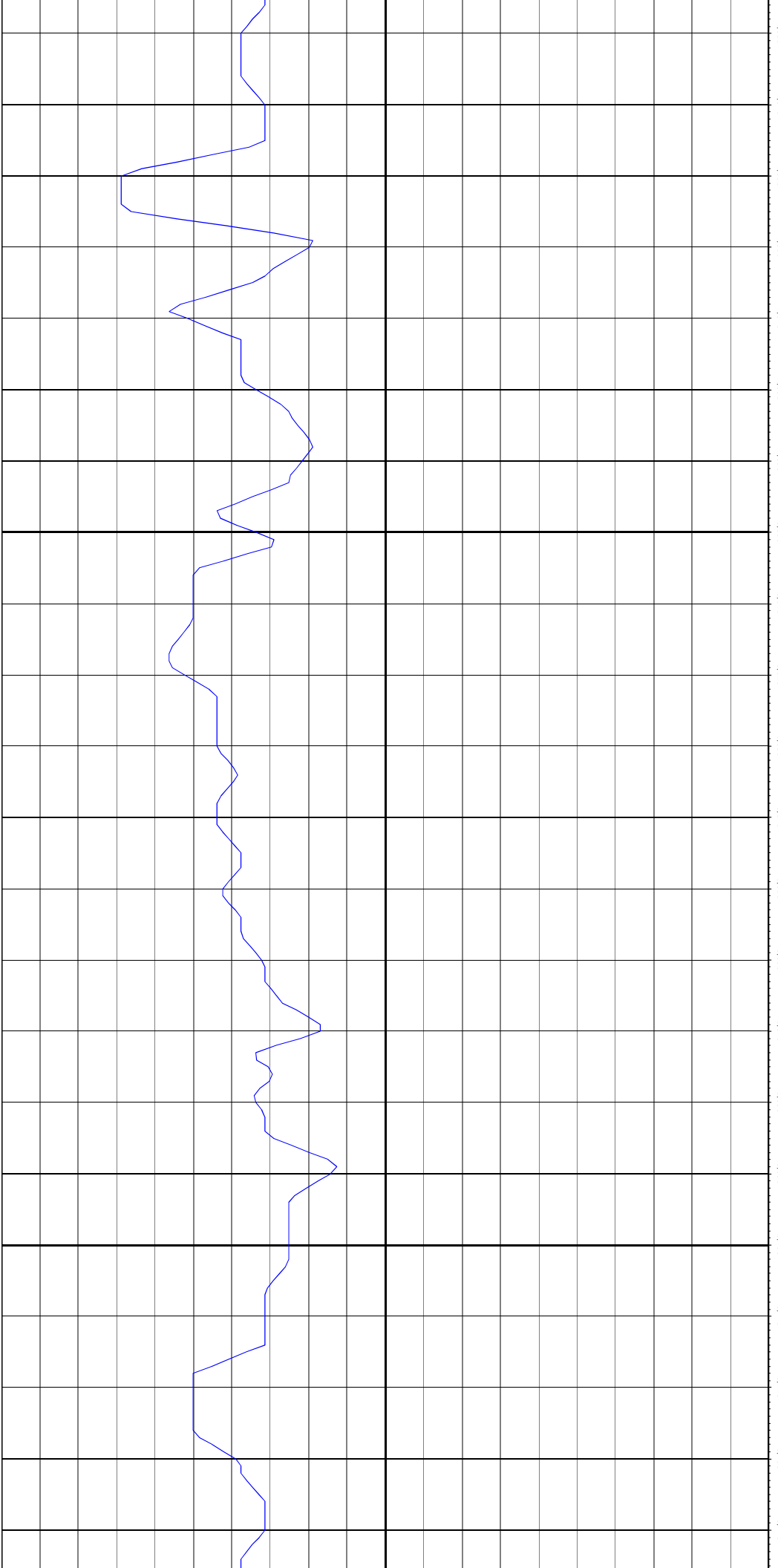
MD: 2658.00 INC: 13.90 AZ: 118.60 TVD: 2642.80 VS: -96.12,658.00



2.710
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2.770
2.780
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2.800
2.810
2.820
2.830
2.840
2.850
2.860
2.870
2.880
2.890
2.900
2.910
2.920

MD: 2753.00 INC: 13.50 AZ: 117.30 TVD: 2735.10 VS: -106.02/53.00

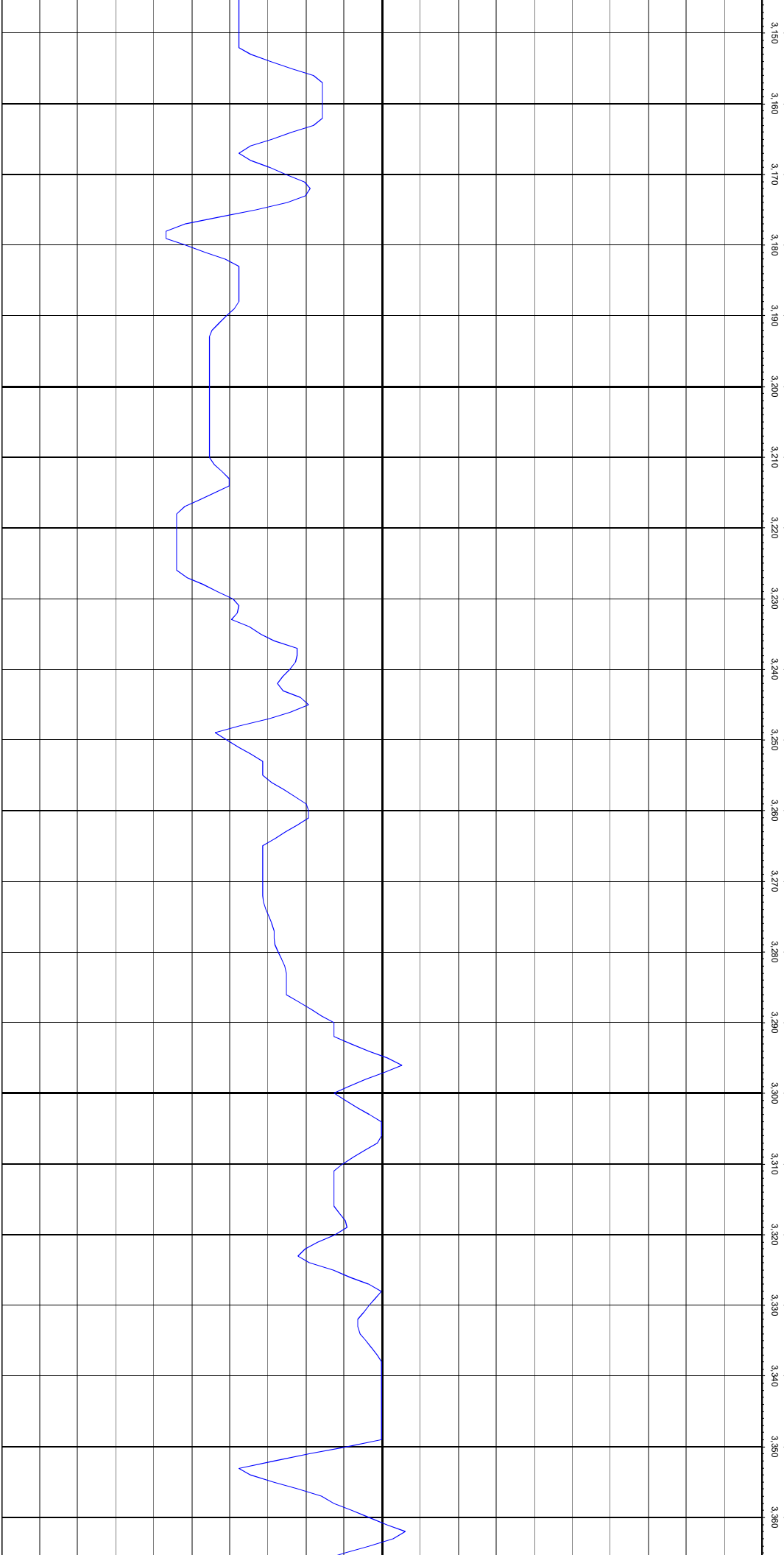
MD: 2847.00 INC: 14.30 AZ: 123.80 TVD: 2826.35 VS: -118.02/47.00



MD: 2942.00 INC: 14.00 AZ: 125.30 TVD: 2918.47 VS: -131.2942.00

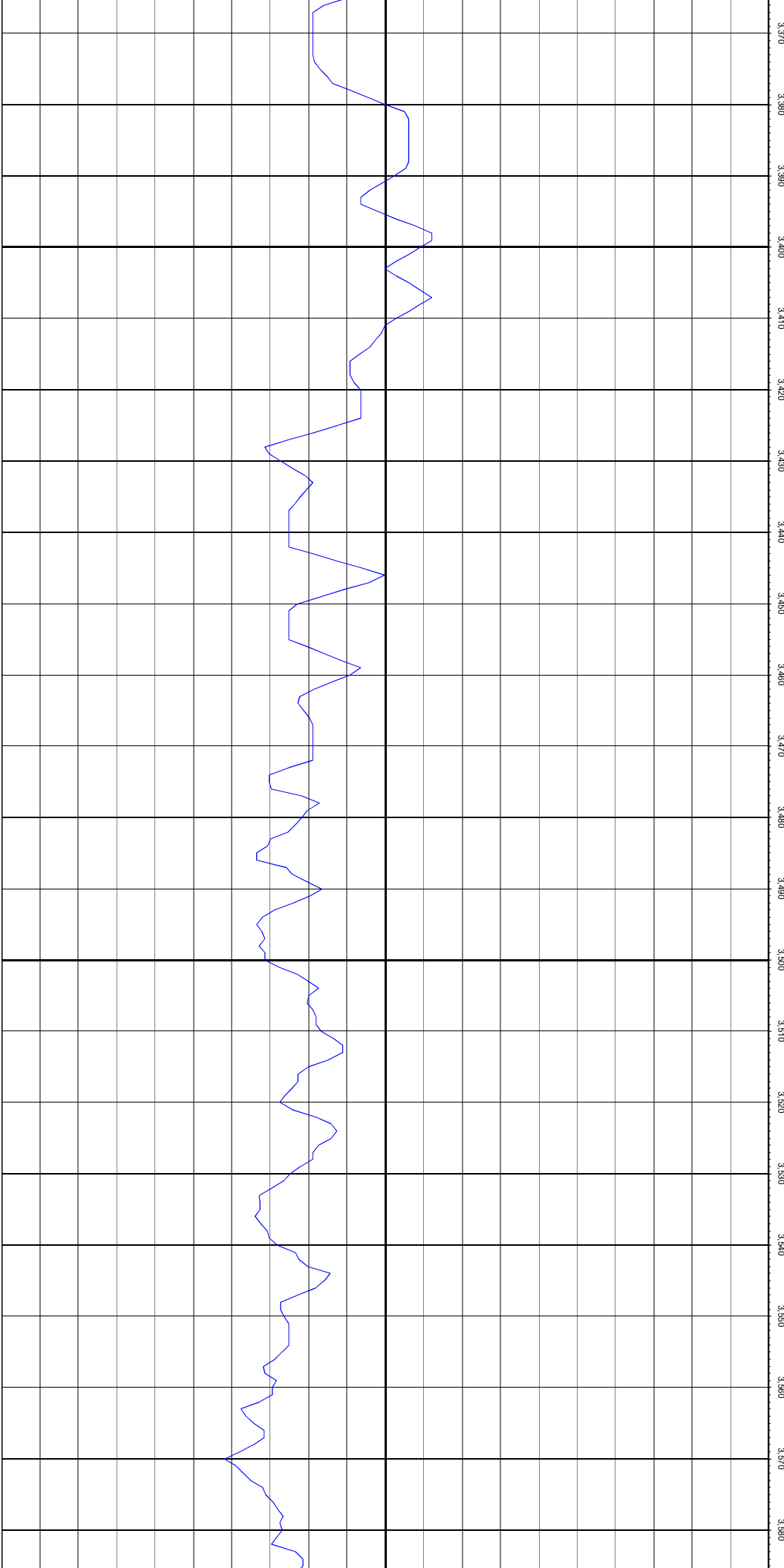
MD: 3035.00 INC: 14.10 AZ: 124.40 TVD: 3008.69 VS: -144.2035.00

MD: 3130.00 INC: 14.10 AZ: 122.60 TVD: 3100.82 VS: -157.03130.00



MD: 3223.00 INC: 13.70 AZ: 120.60 TVD: 3191.10 VS: -168.24 323.00

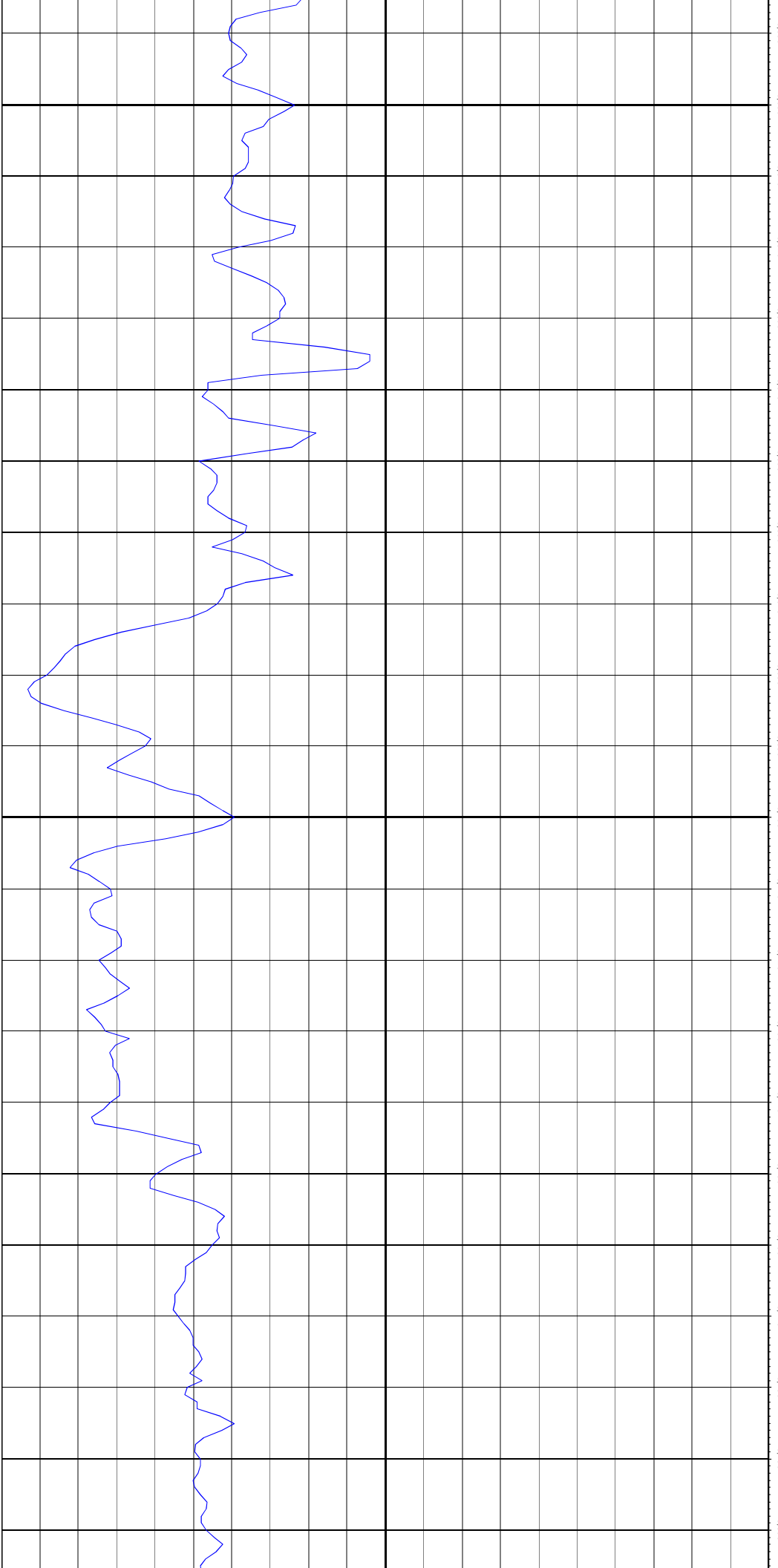
MD: 3317.00 INC: 14.70 AZ: 131.10 TVD: 3282.24 VS: -182.24 3317.00



MD: 3410.00 INC: 14.30 AZ: 130.60 TVD: 3372.28 VS: -197.48410.00

MD: 3503.00 INC: 14.10 AZ: 131.10 TVD: 3462.44 VS: -212.40503.00

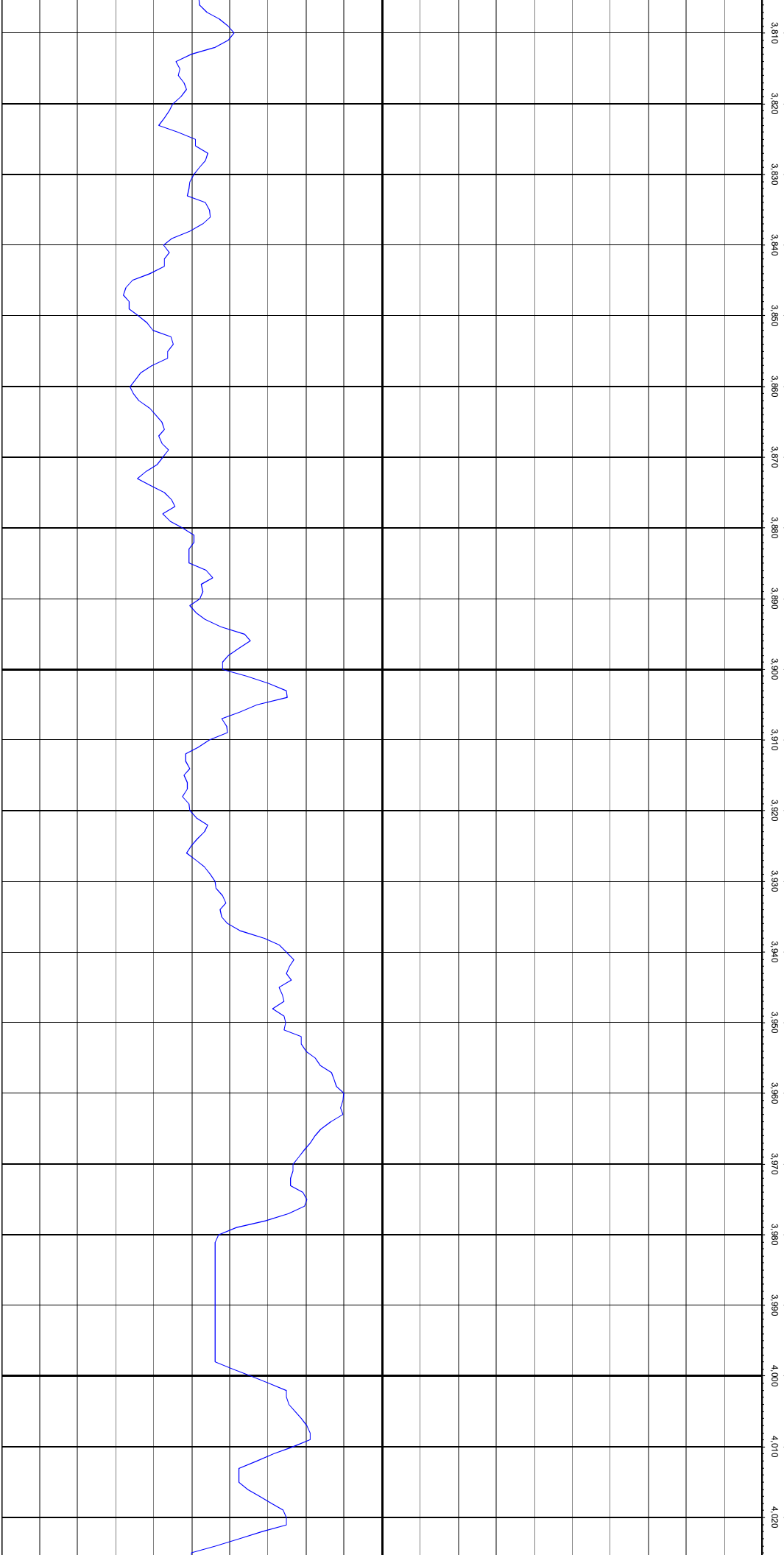
MD: 3596.00 INC: 14.10 AZ: 128.70 TVD: 3552.64 VS: -226.93596.00



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3.670
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3.690
3.700
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3.720
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3.740
3.750
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MD: 3690.00 INC: 14.90 AZ: 126.60 TVD: 3643.64 VS: -241.26690.00

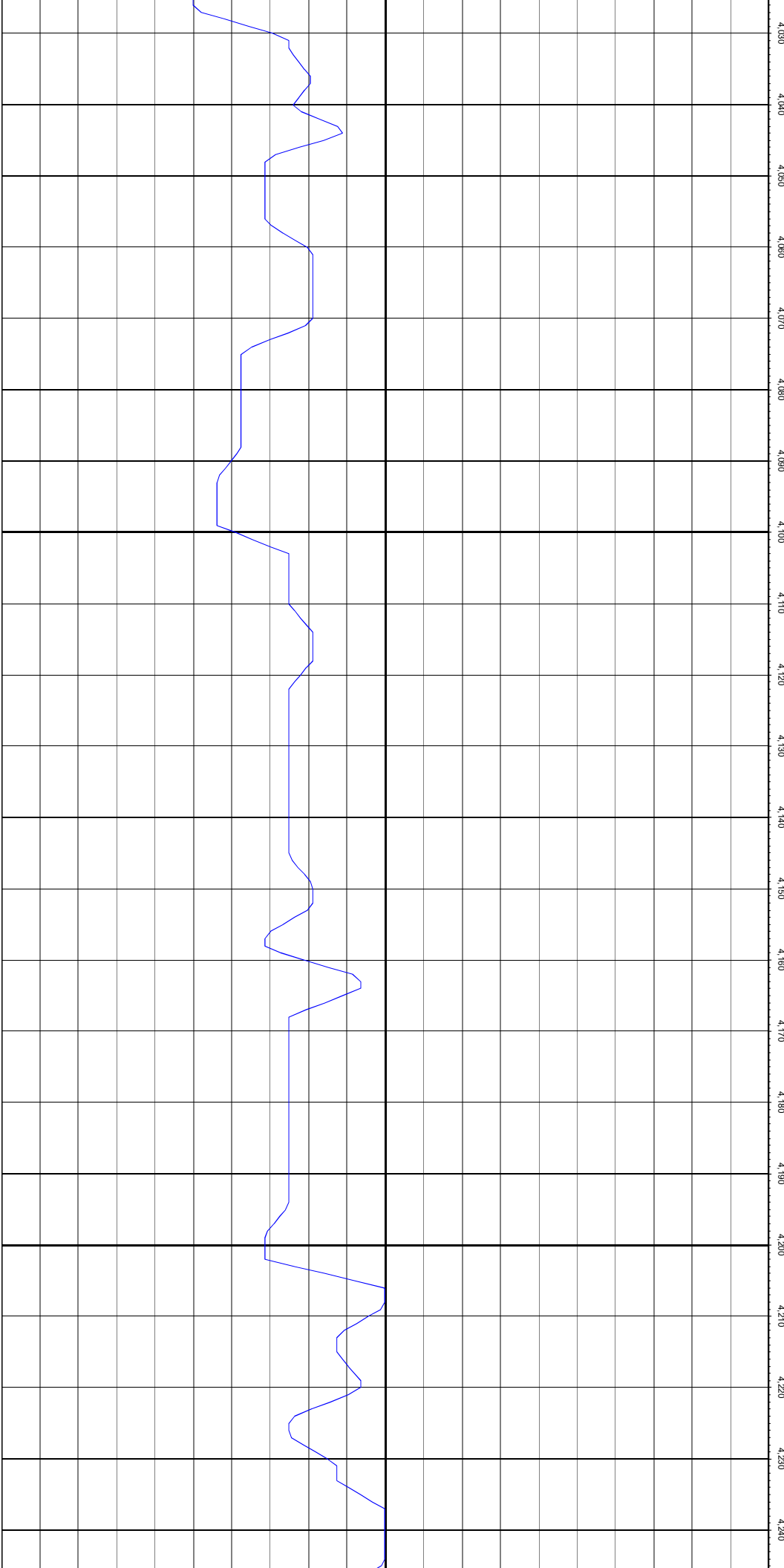
MD: 3783.00 INC: 15.60 AZ: 125.20 TVD: 3733.37 VS: -255.63783.00



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3.880
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3.900
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3.930
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4.000
4.010
4.020

MD: 3875.00 INC: 16.60 AZ: 125.00 TVD: 3821.76 VS: -270.30875.00

MD: 3968.00 INC: 17.40 AZ: 123.80 TVD: 3910.70 VS: -285.6968.00



4.030
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MD: 4062.00 INC: 17.50 AZ: 123.00 TVD: 4000.37 VS: -301.4062.00

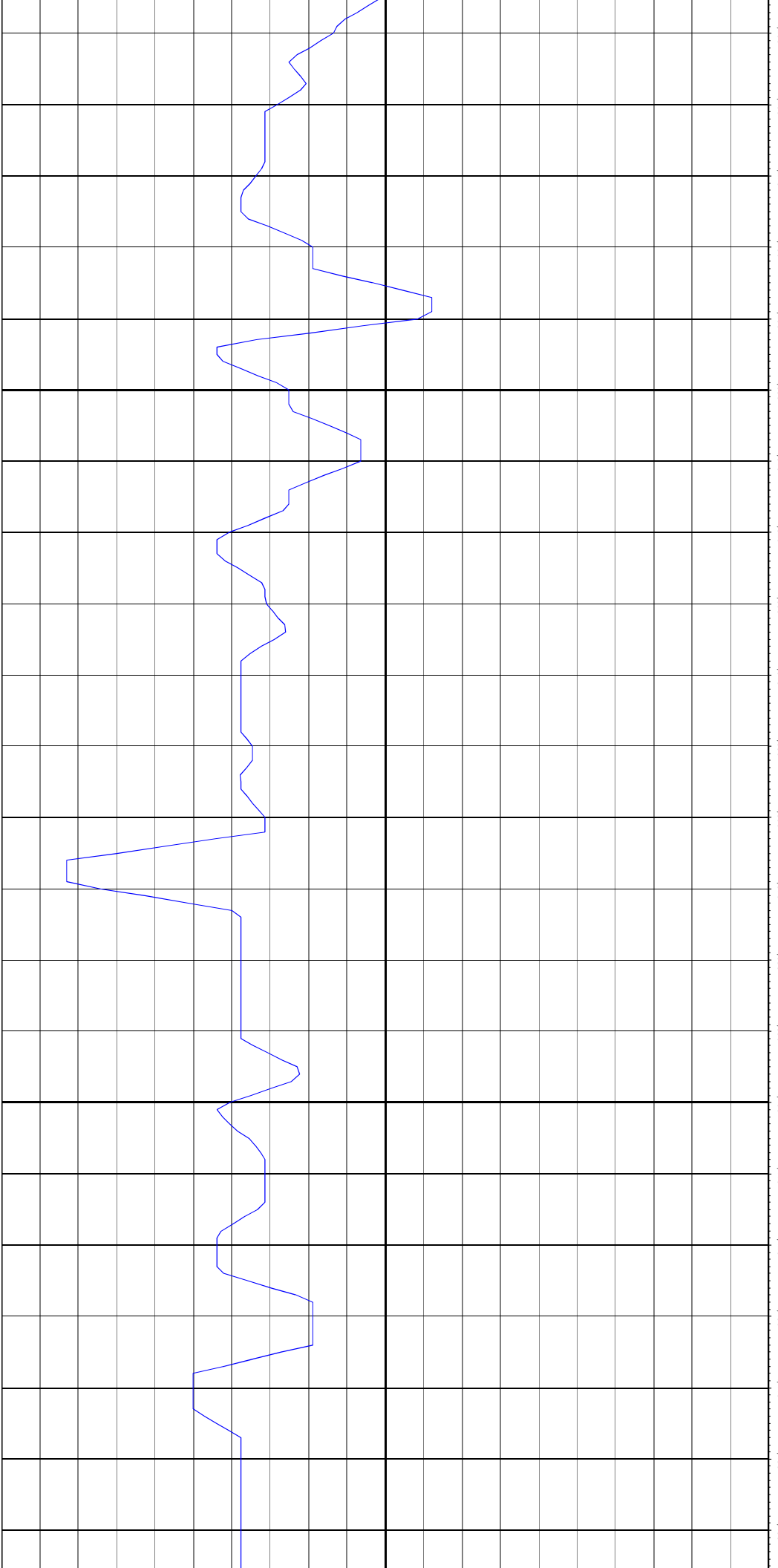
MD: 4155.00 INC: 16.30 AZ: 122.30 TVD: 4089.35 VS: -315.76155.00

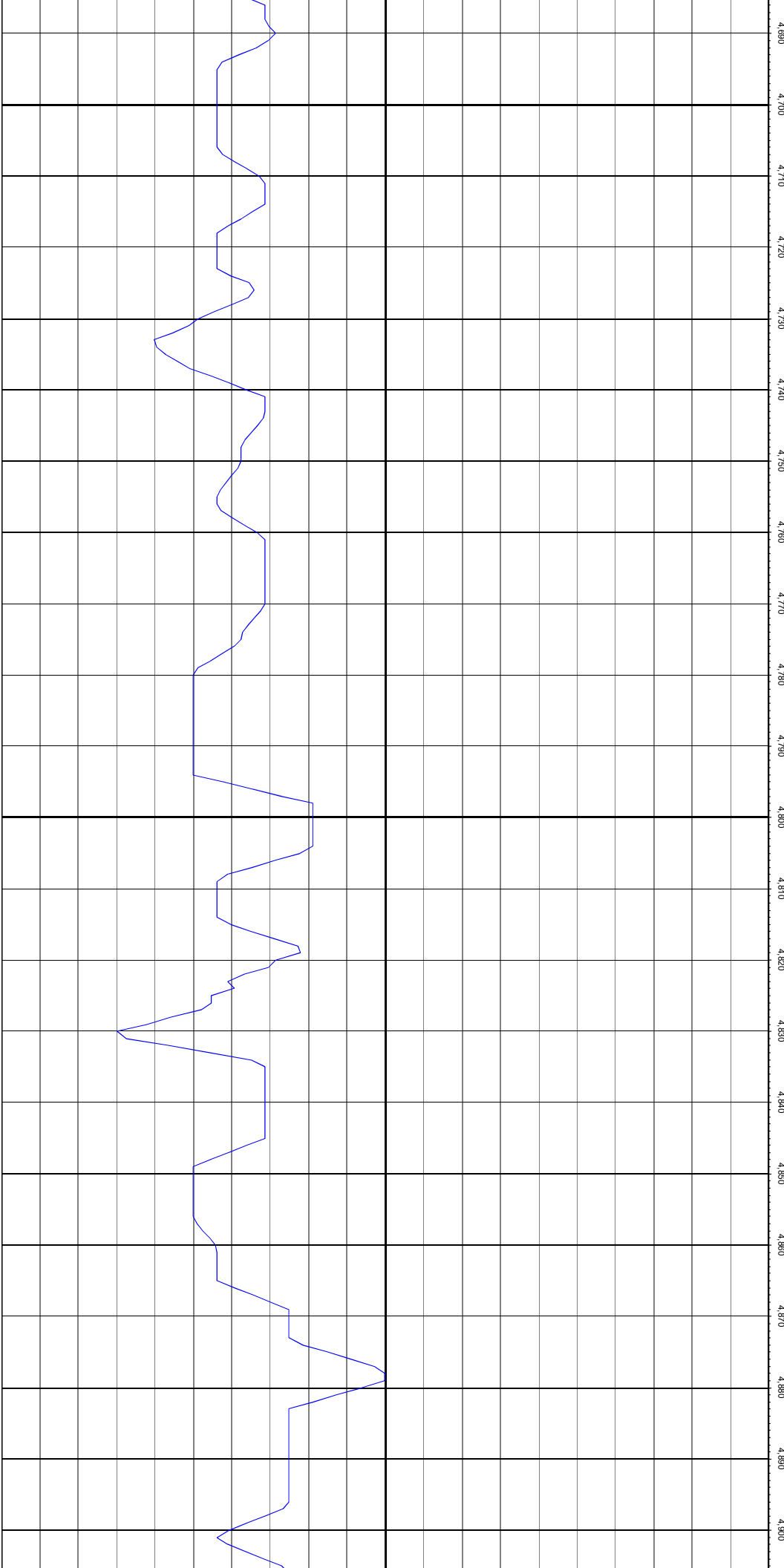
MD: 4250.00 INC: 16.10 AZ: 121.70 TVD: 4180.58 VS: -329.00250.00

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4.370
4.380
4.390
4.400
4.410
4.420
4.430
4.440
4.450
4.460

MD: 4343.00 INC: 16.10 AZ: 120.90 TVD: 4269.93 VS: -343.00343.00

MD: 4437.00 INC: 16.00 AZ: 120.20 TVD: 4360.27 VS: -356.00437.00



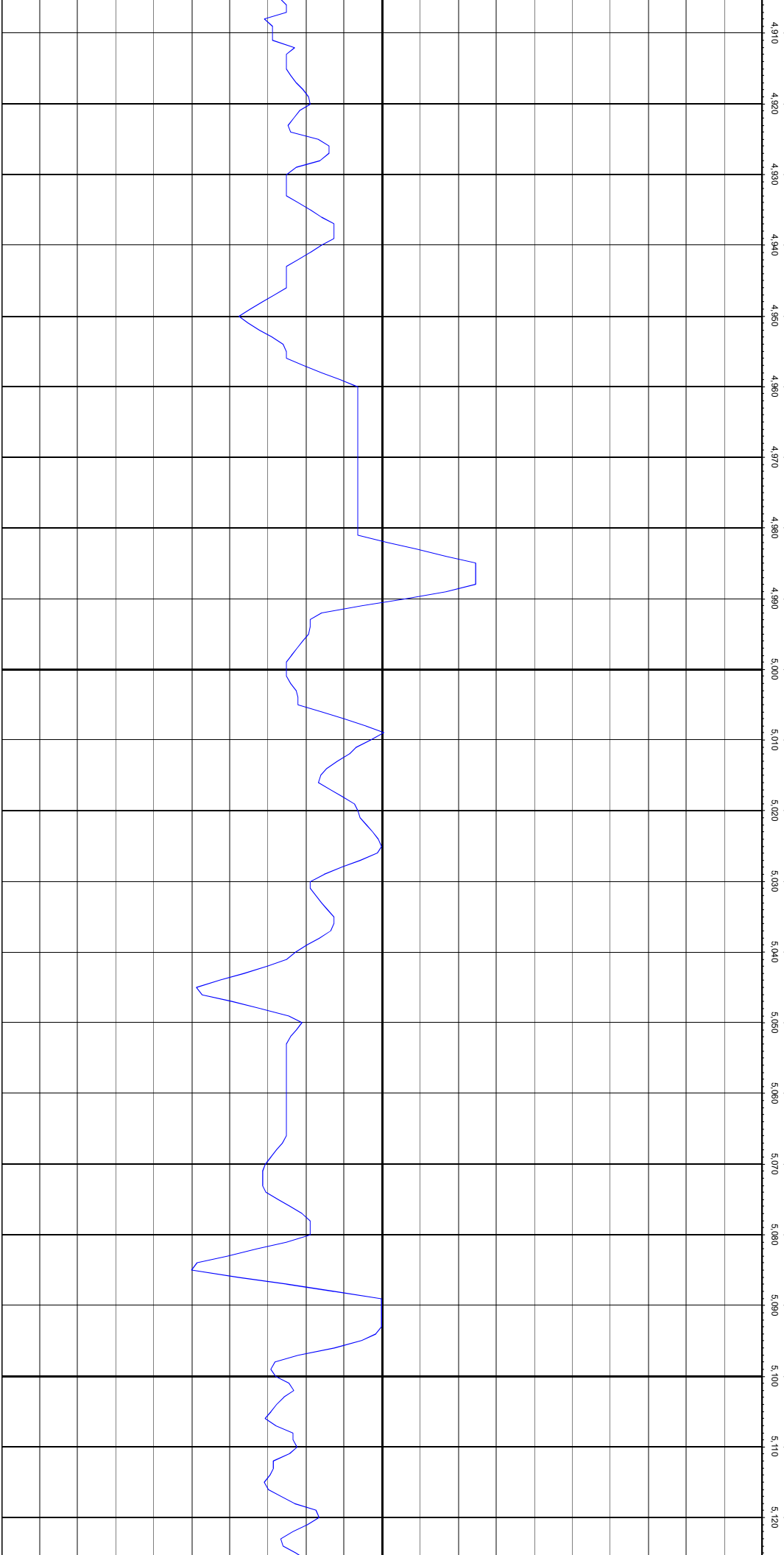


4.690
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4.810
4.820
4.830
4.840
4.850
4.860
4.870
4.880
4.890
4.900

MD: 4716.00 INC: 13.40 AZ: 110.40 TVD: 4629.02 VS: -388.90716.00

MD: 4809.00 INC: 12.20 AZ: 112.80 TVD: 4719.70 VS: -396.00809.00

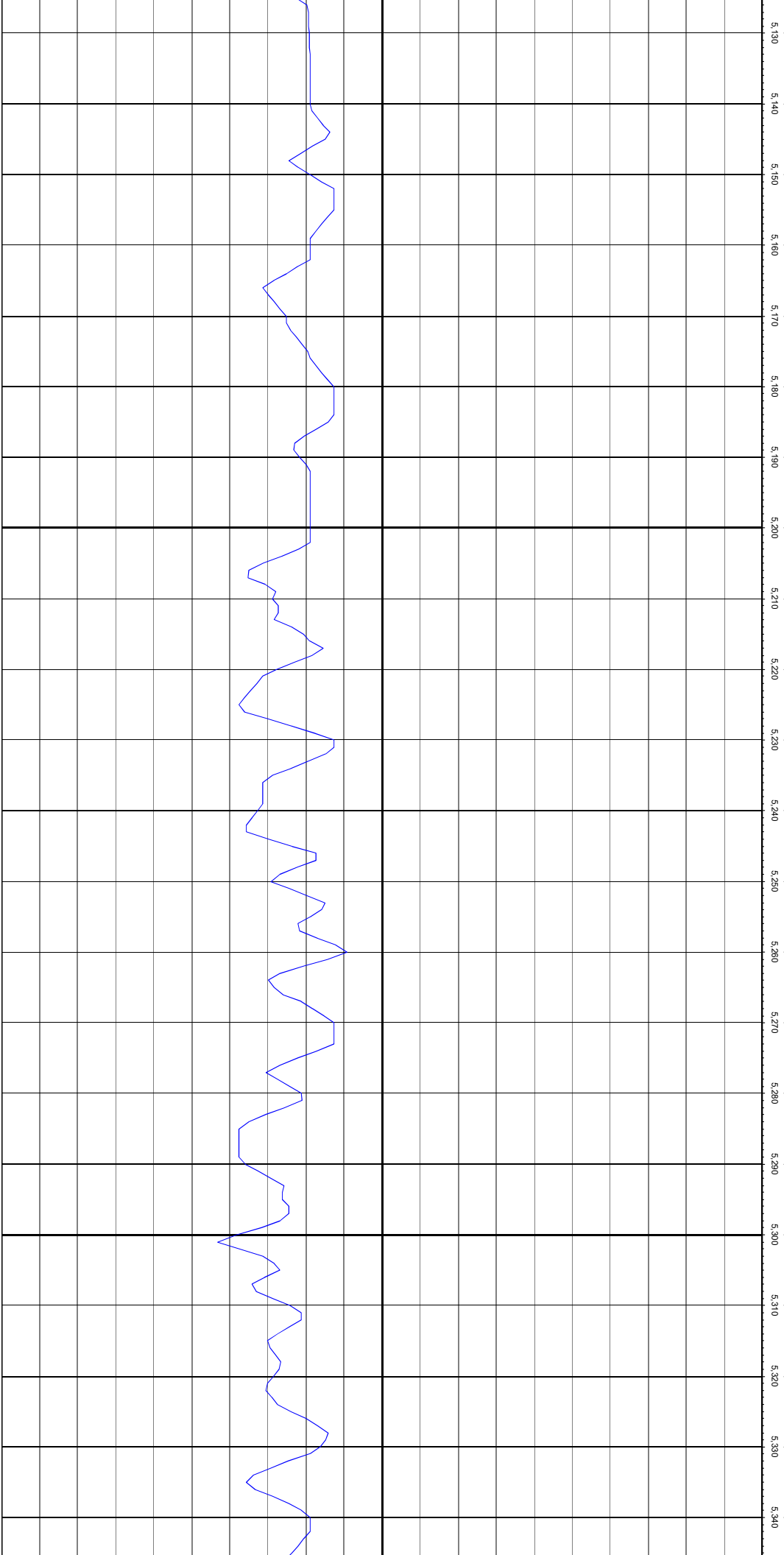
MD: 4902.00 INC: 10.70 AZ: 111.70 TVD: 4810.85 VS: -403.00902.00



4.910
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4.970
4.980
4.990
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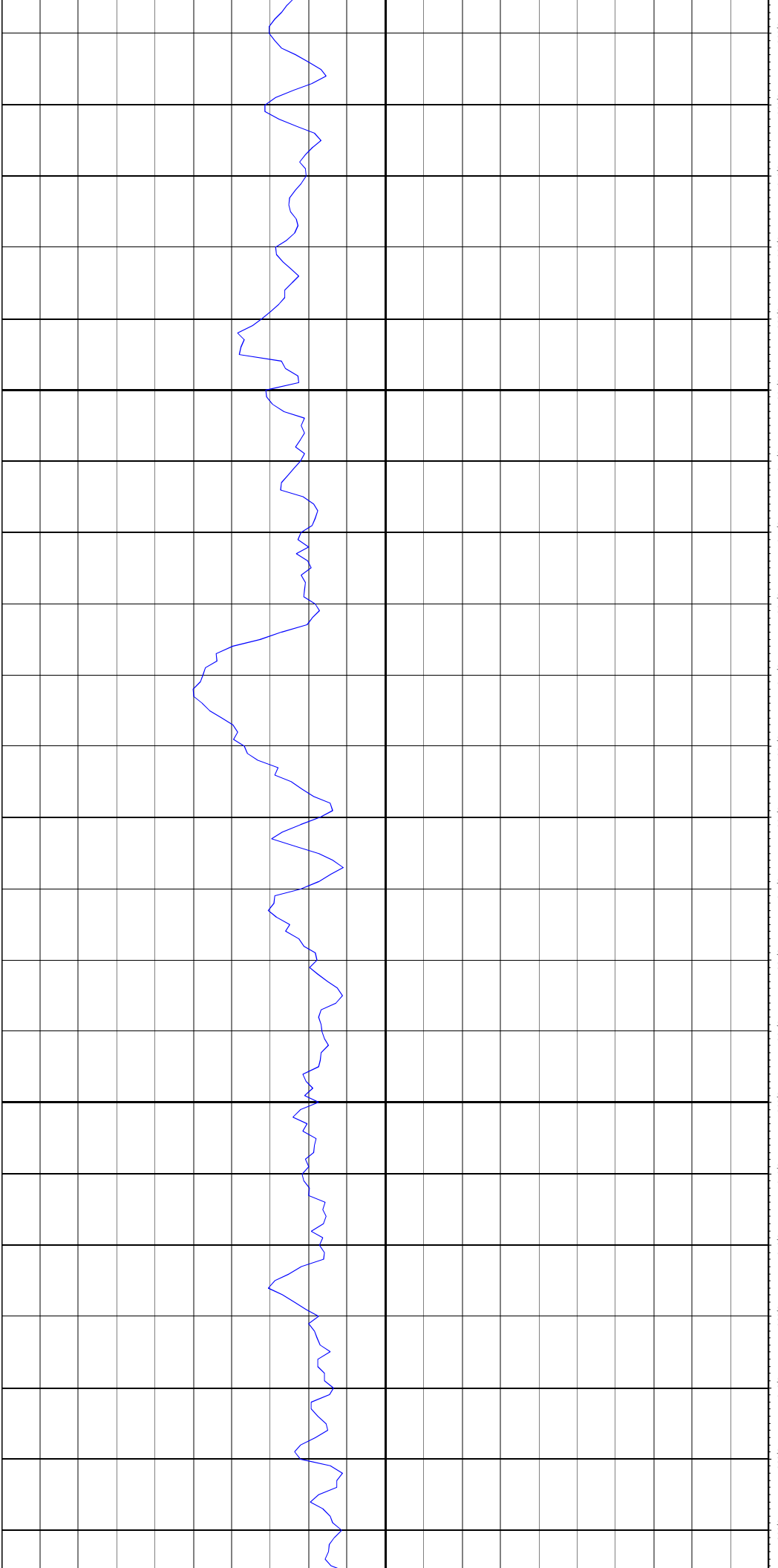
MD: 4996.00 INC: 10.40 AZ: 112.00 TVD: 4903.26 VS: -409.47996.00

MD: 5089.00 INC: 7.80 AZ: 111.70 TVD: 4995.08 VS: -414.95,089.00



MD: 5182.00 INC: 7.40 AZ: 91.40 TVD: 5087.28 VS: -417.43 5.182.00

MD: 5276.00 INC: 5.50 AZ: 75.10 TVD: 5180.69 VS: -416.42 5.276.00



5.350
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5.370
5.380
5.390
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5.560

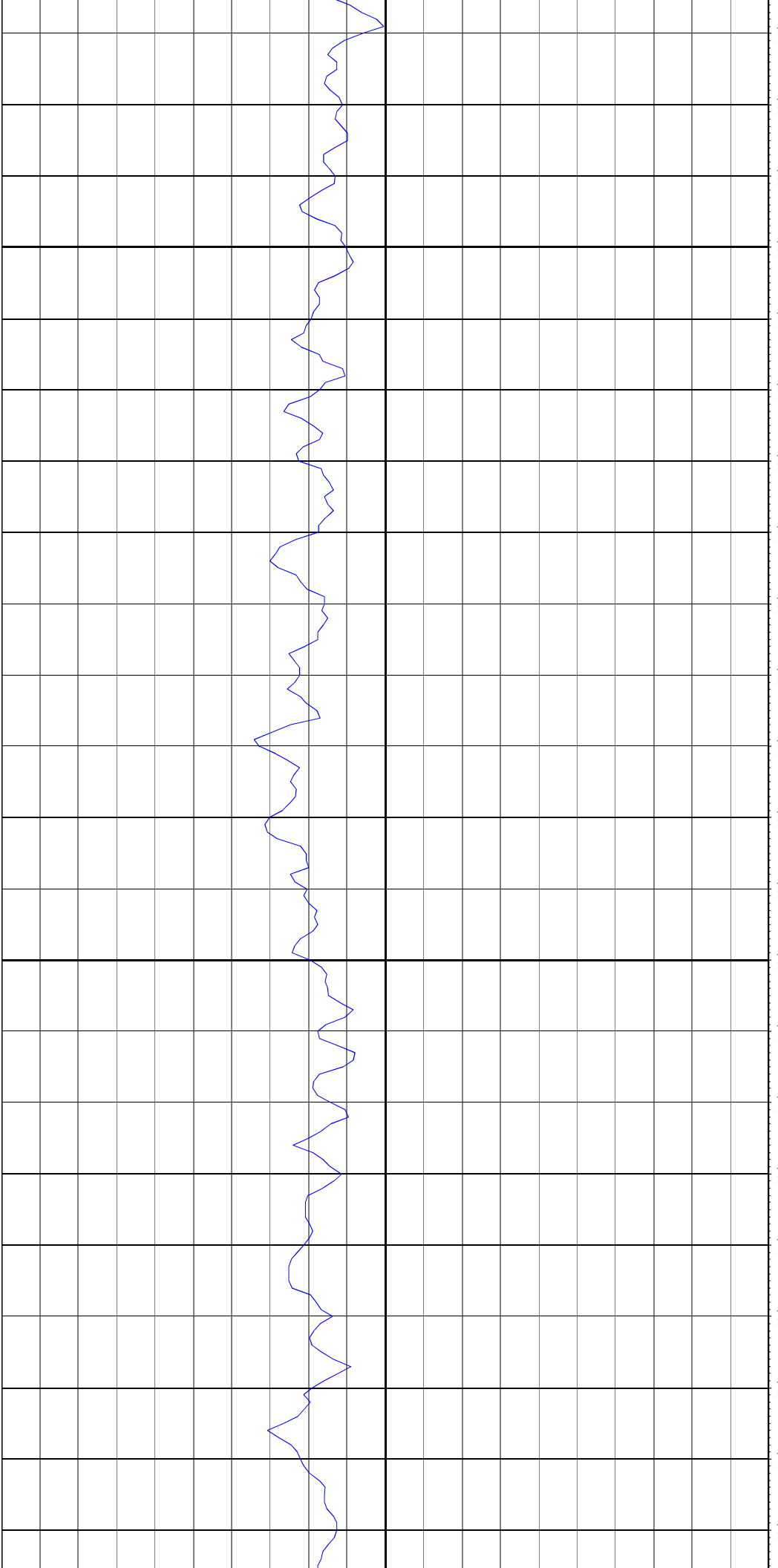
MD: 5369.00 INC: 4.10 AZ: 59.50 TVD: 5273.37 VS: -413.58 5,369.00

MD: 5462.00 INC: 1.20 AZ: 45.10 TVD: 5366.26 VS: -411.21 5,462.00

MD: 5494.00 INC: 6.90 AZ: 13.10 TVD: 5398.17 VS: -409.10 5,494.00

MD: 5517.00 INC: 6.70 AZ: 12.90 TVD: 5421.00 VS: -406.45 5,517.00

MD: 5557.00 INC: 7.10 AZ: 11.10 TVD: 5460.71 VS: -401.74 5,557.00



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1.45
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2.0
2.05
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2.5
2.55
2.6
2.65
2.7
2.75
2.8
2.85
2.9
2.95
3.0

MD: 5588.00 INC: 9.30 AZ: 13.30 TVD: 5491.40 VS: -397.43 5,588.00

MD: 5619.00 INC: 13.00 AZ: 10.30 TVD: 5521.81 VS: -391.56 5,619.00

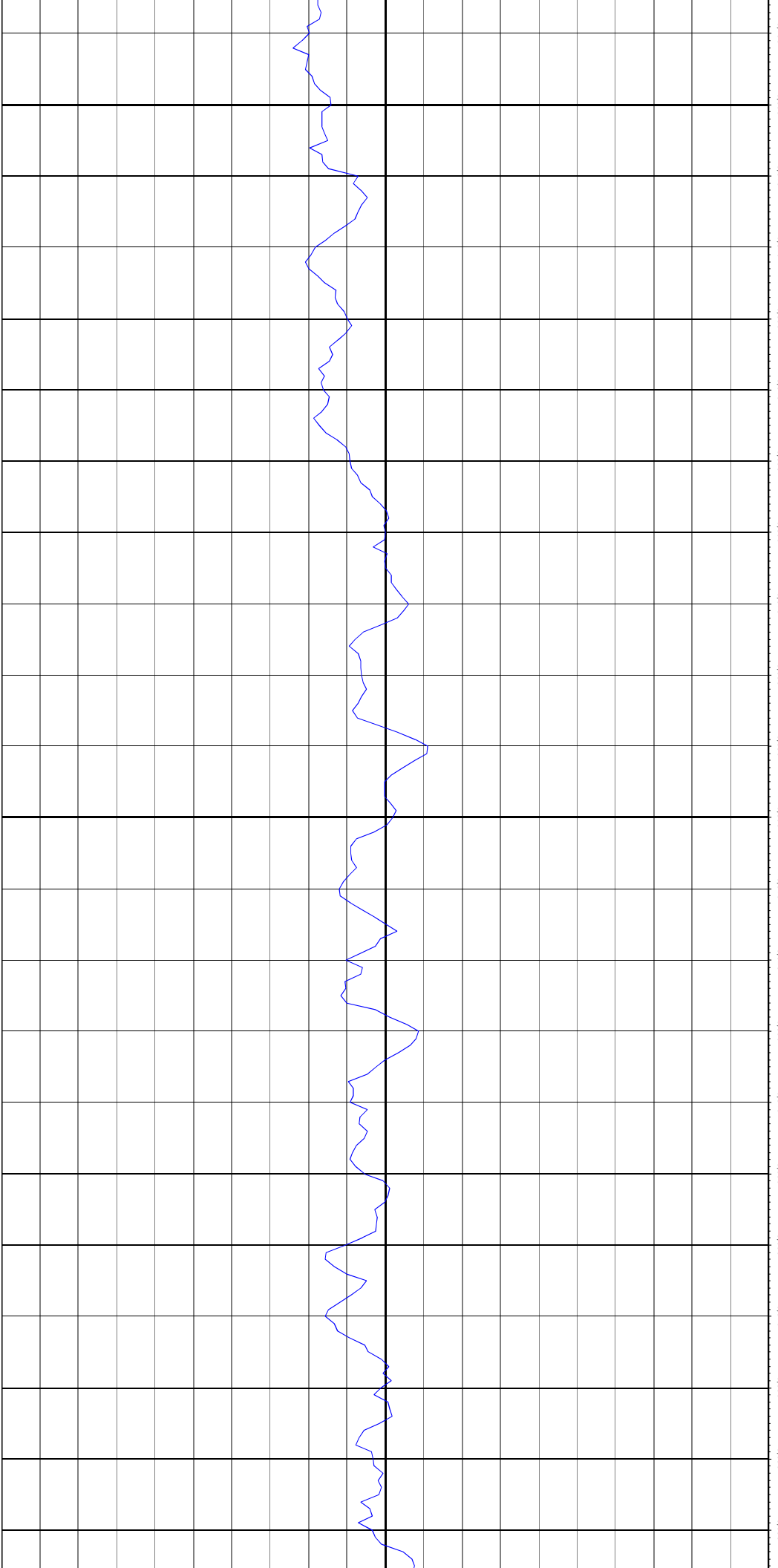
MD: 5650.00 INC: 16.10 AZ: 7.00 TVD: 5551.81 VS: -383.86 5,650.00

MD: 5681.00 INC: 19.60 AZ: 4.20 TVD: 5581.31 VS: -374.40 5,681.00

MD: 5712.00 INC: 23.00 AZ: 3.00 TVD: 5610.19 VS: -363.17 5,712.00

MD: 5743.00 INC: 26.10 AZ: 2.00 TVD: 5638.38 VS: -350.30 5,743.00

MD: 5774.00 INC: 28.90 AZ: 1.50 TVD: 5665.88 VS: -335.99 5,774.00



5.700
0.085
0.185
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0.165
0.265
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0.465
0.565
0.665
0.765
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0.965
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MD: 5805.00 INC: 32.10 AZ: 1.50 TVD: 5692.59 VS: -320.27 5.805.00

MD: 5836.00 INC: 35.20 AZ: 1.20 TVD: 5718.39 VS: -303.10 5.836.00

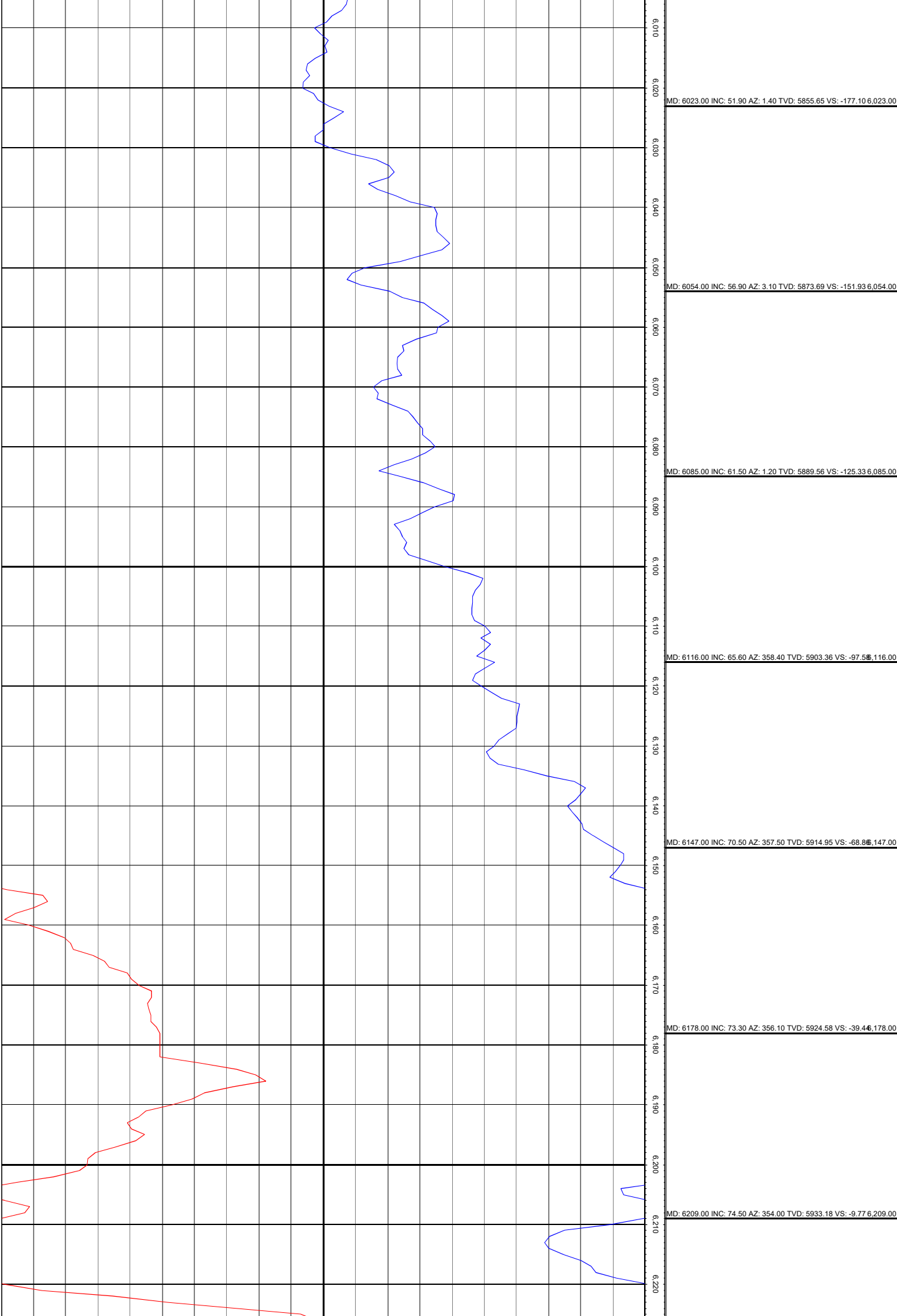
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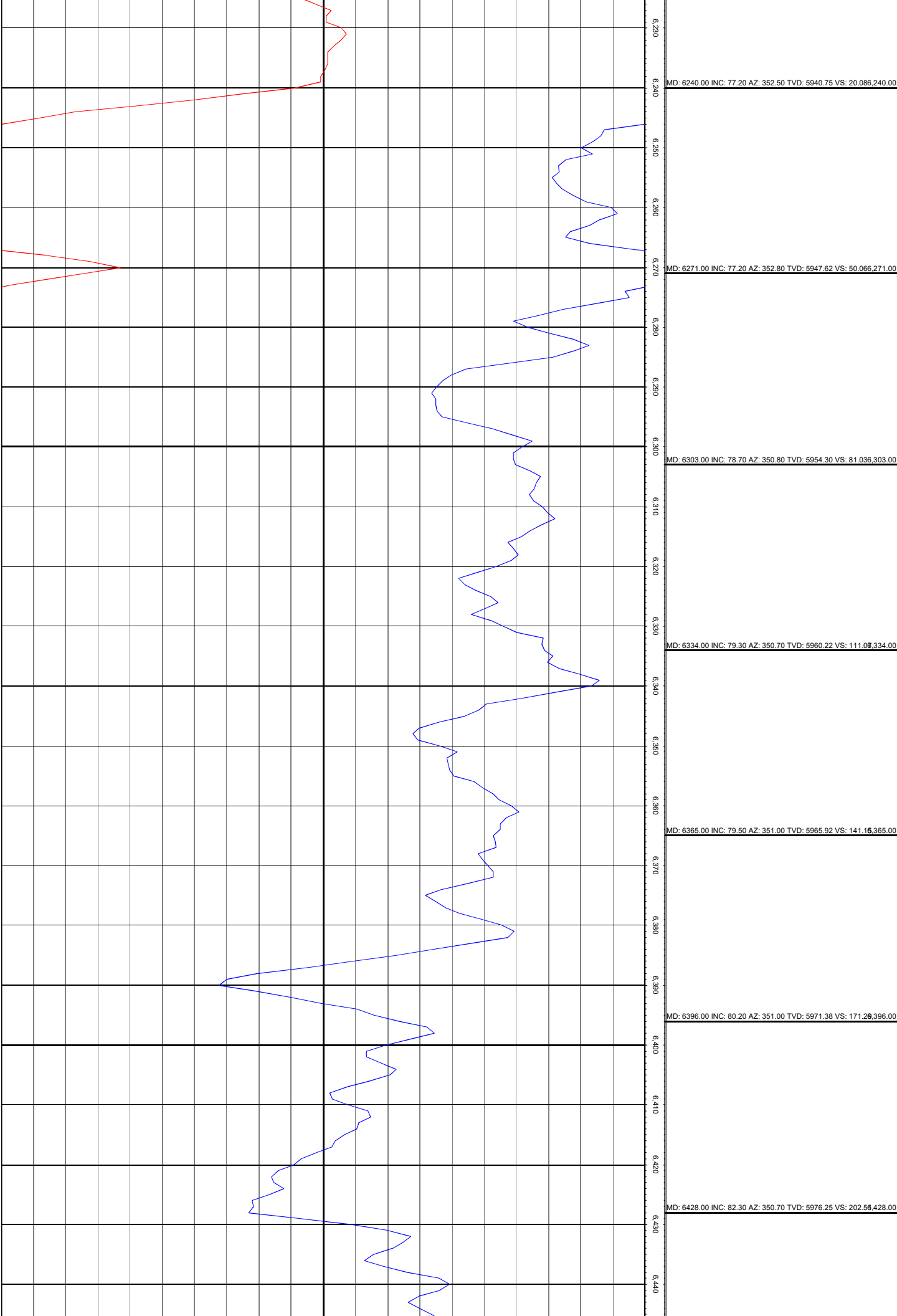
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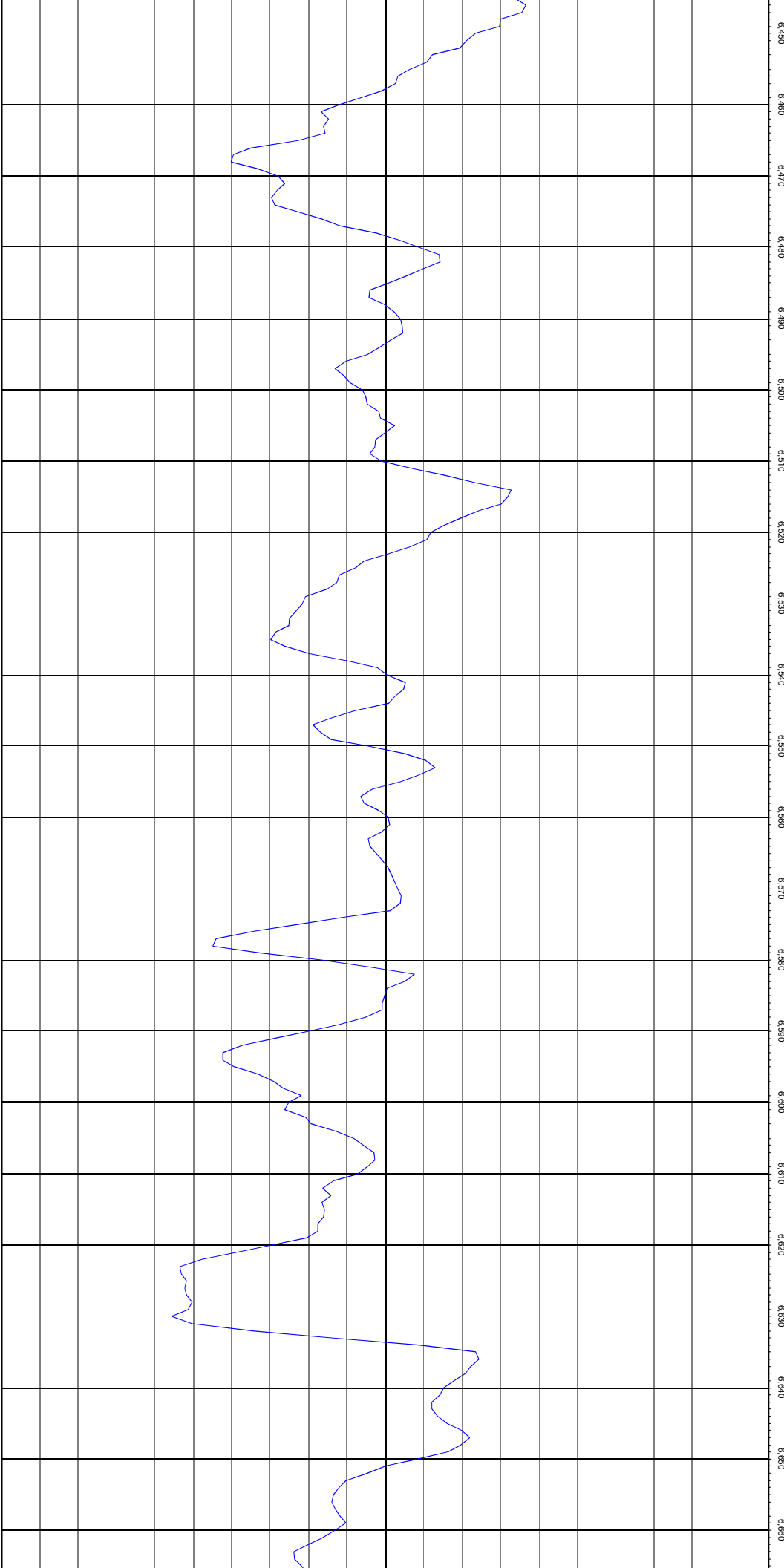
MD: 5929.00 INC: 41.80 AZ: 1.40 TVD: 5791.21 VS: -245.32 5.929.00

MD: 5961.00 INC: 44.90 AZ: 2.60 TVD: 5814.47 VS: -223.37 5.961.00

MD: 5991.00 INC: 48.20 AZ: 2.20 TVD: 5835.10 VS: -201.62 5.991.00







MD: 6459.00 INC: 84.20 AZ: 350.30 TVD: 5979.90 VS: 232.86,459.00

MD: 6490.00 INC: 85.10 AZ: 349.90 TVD: 5982.79 VS: 263.26,490.00

MD: 6521.00 INC: 85.90 AZ: 350.40 TVD: 5985.22 VS: 293.76,521.00

MD: 6552.00 INC: 86.30 AZ: 350.50 TVD: 5987.33 VS: 324.26,552.00

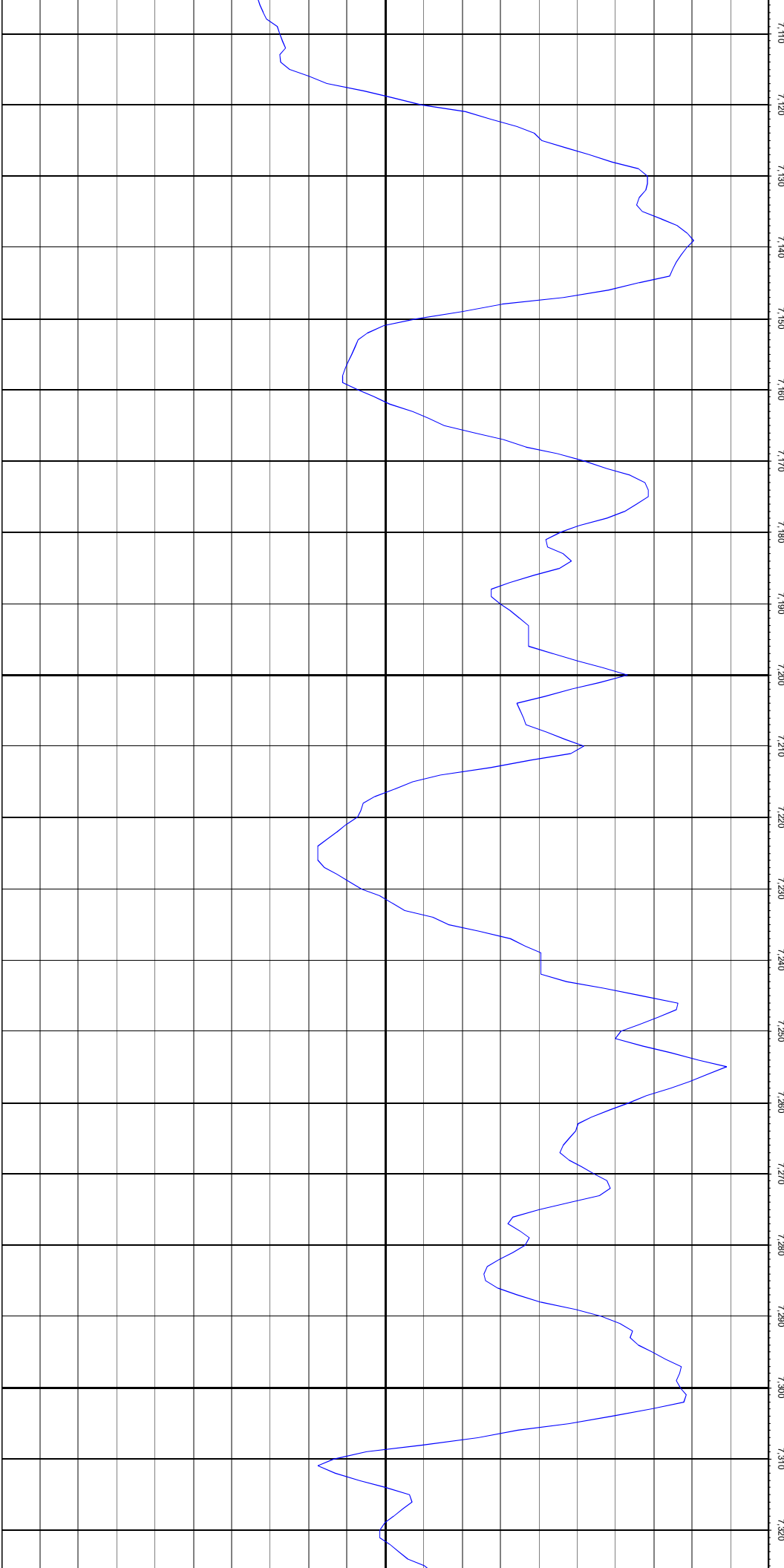
MD: 6583.00 INC: 87.30 AZ: 350.40 TVD: 5989.06 VS: 354.76,583.00

MD: 6602.00 INC: 88.00 AZ: 350.70 TVD: 5989.84 VS: 373.46,602.00



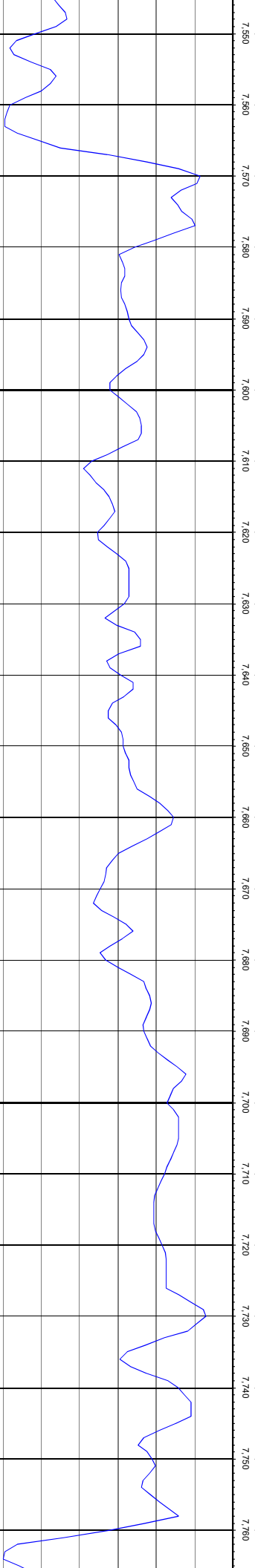
MD: 6727.00 INC: 89.70 AZ: 351.70 TVD: 5992.34 VS: 496.98,727.00

MD: 6820.00 INC: 88.70 AZ: 352.20 TVD: 5993.64 VS: 589.06,820.00



MD: 7192.00 INC: 92.90 AZ: 359.70 TVD: 5995.75 VS: 959.88,192.00

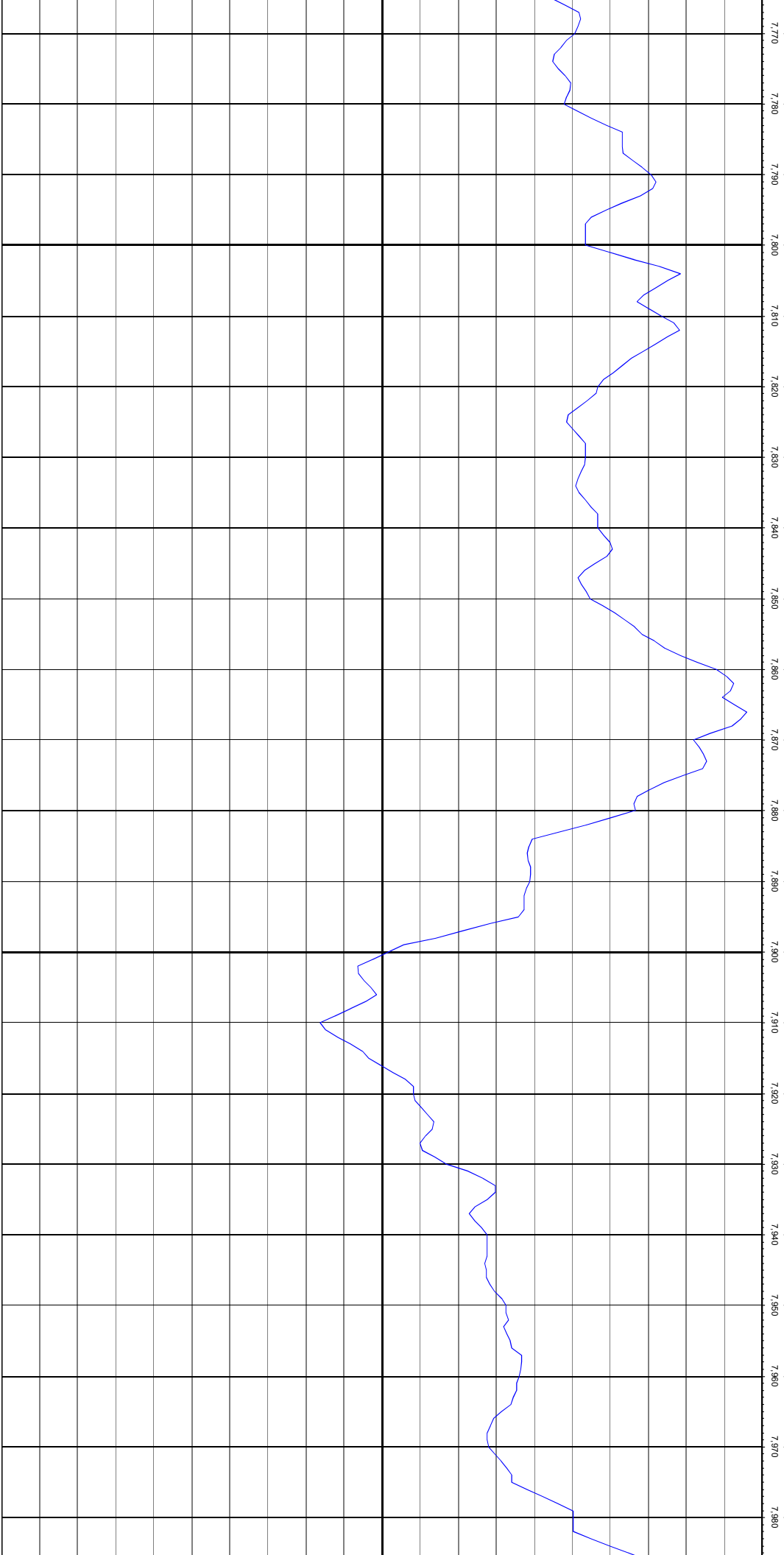
MD: 7285.00 INC: 93.00 AZ: 3.30 TVD: 5990.97 VS: 1052.727,285.00



MD: 7564.00 INC: 89.90 AZ: 1.70 TVD: 5984.74 VS: 1331.357,564.00

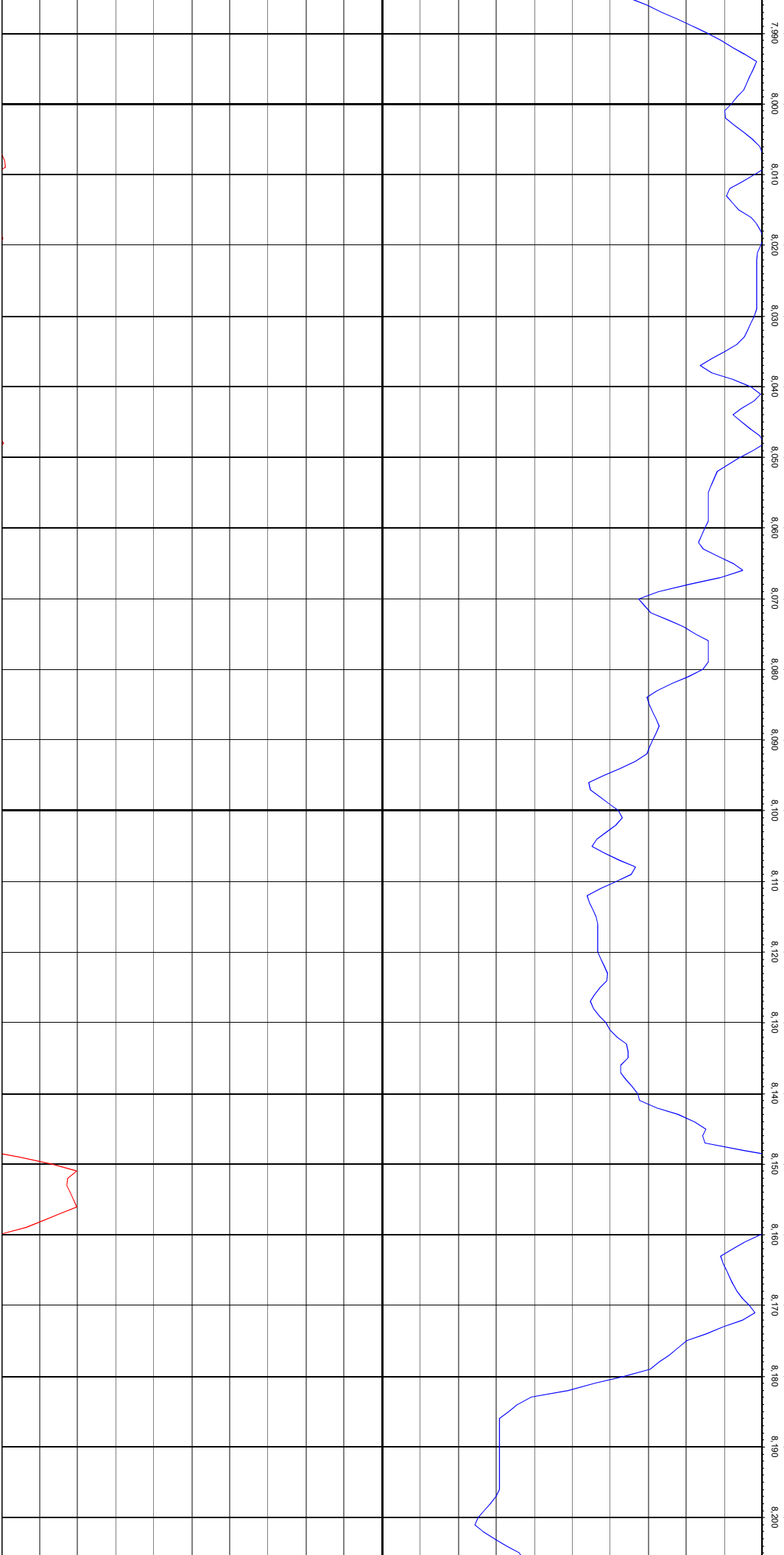
MD: 7657.00 INC: 89.70 AZ: 1.10 TVD: 5985.07 VS: 1424.327,657.00

MD: 7751.00 INC: 89.80 AZ: 2.60 TVD: 5985.48 VS: 1518.277,751.00



MD: 7844.00 INC: 88.60 AZ: 1.20 TVD: 5986.78 VS: 1611.217,844.00

MD: 7936.00 INC: 88.90 AZ: 3.40 TVD: 5988.78 VS: 1703.117,936.00

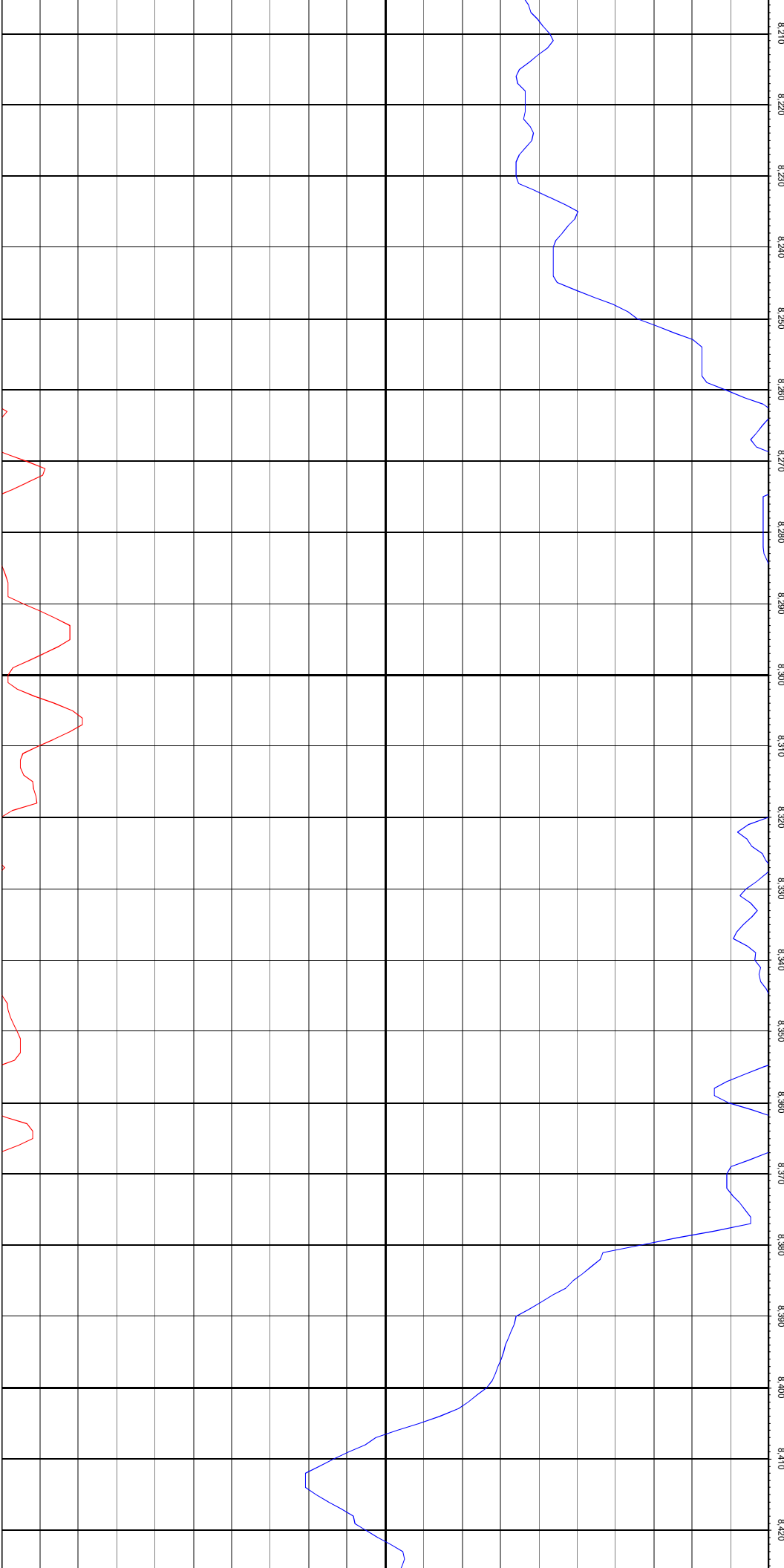


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MD: 8029.00 INC: 89.70 AZ: 3.40 TVD: 5989.92 VS: 1795.938,029.00

MD: 8122.00 INC: 89.50 AZ: 4.20 TVD: 5990.57 VS: 1888.738,122.00

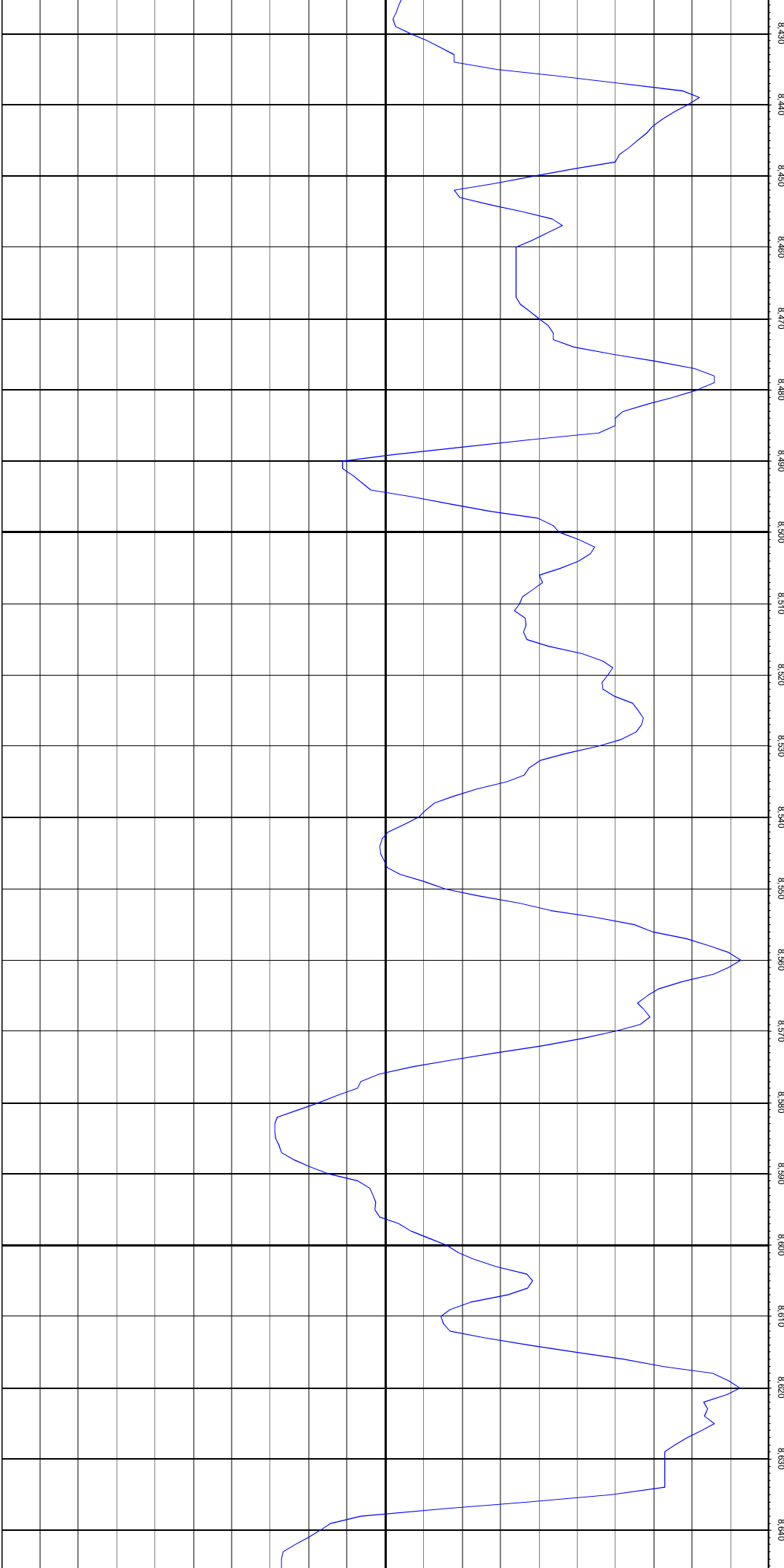
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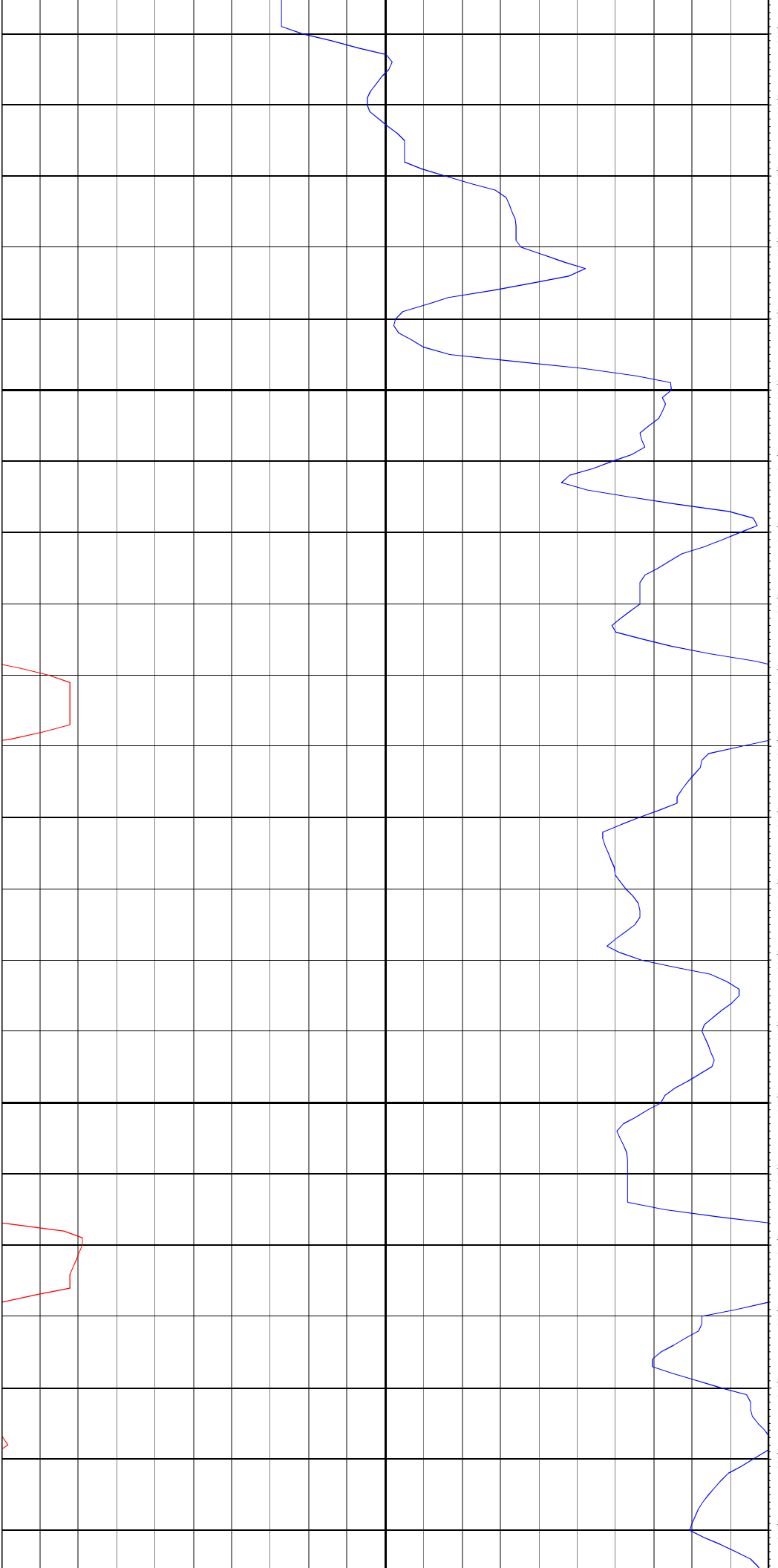
MD: 8307.00 INC: 91.60 AZ: 7.10 TVD: 5988.07 VS: 2072.798,307.00

MD: 8400.00 INC: 88.90 AZ: 5.50 TVD: 5987.67 VS: 2165.228,400.00



MD: 8492.00 INC: 87.40 AZ: 5.00 TVD: 5990.64 VS: 2256.788,492.00

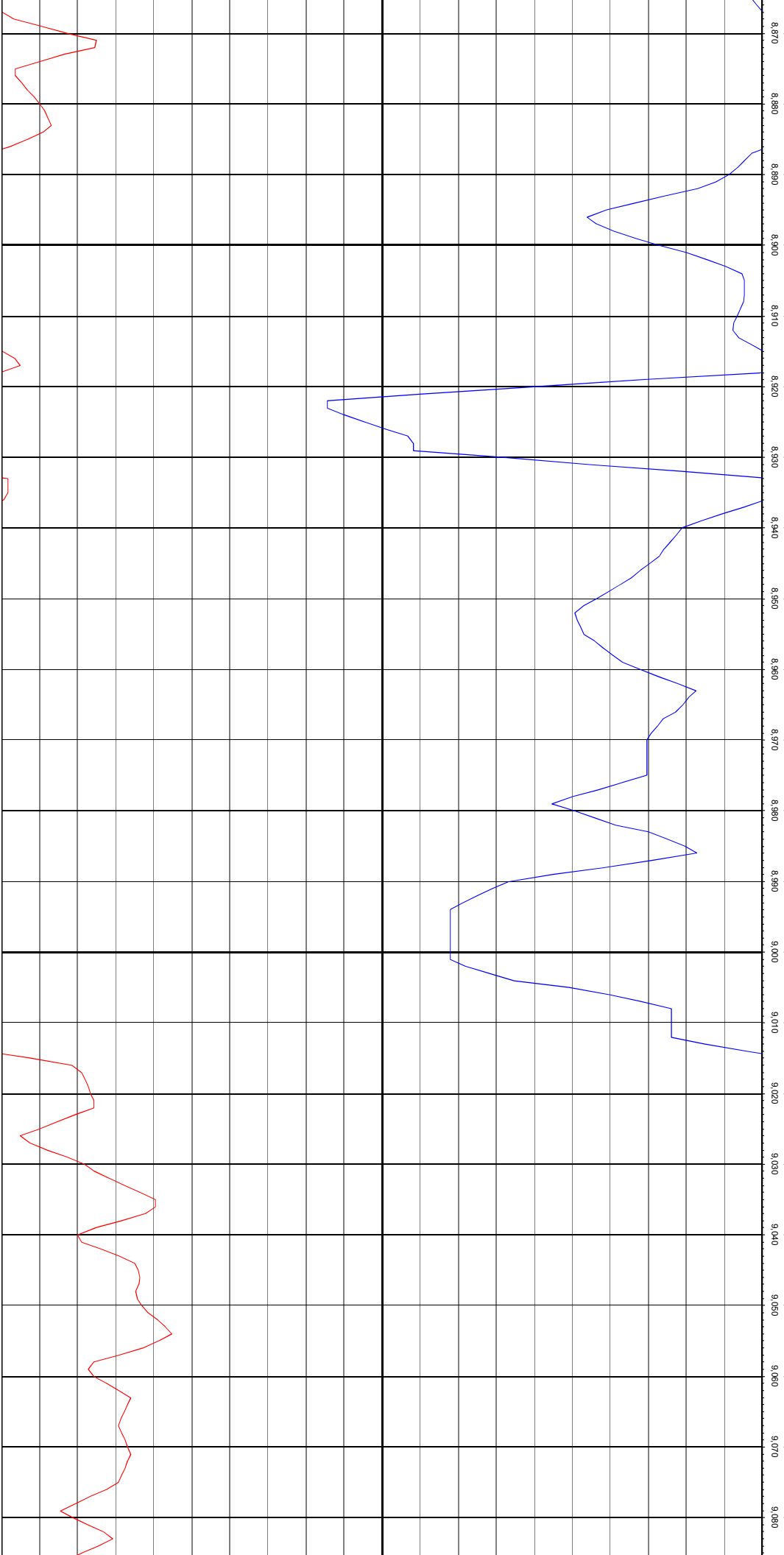
MD: 8585.00 INC: 87.40 AZ: 2.90 TVD: 5994.86 VS: 2349.468,585.00



MD: 8677.00 INC: 87.00 AZ: 2.00 TVD: 5999.35 VS: 2441.268,677.00

MD: 8770.00 INC: 89.00 AZ: 2.30 TVD: 6002.60 VS: 2534.148,770.00

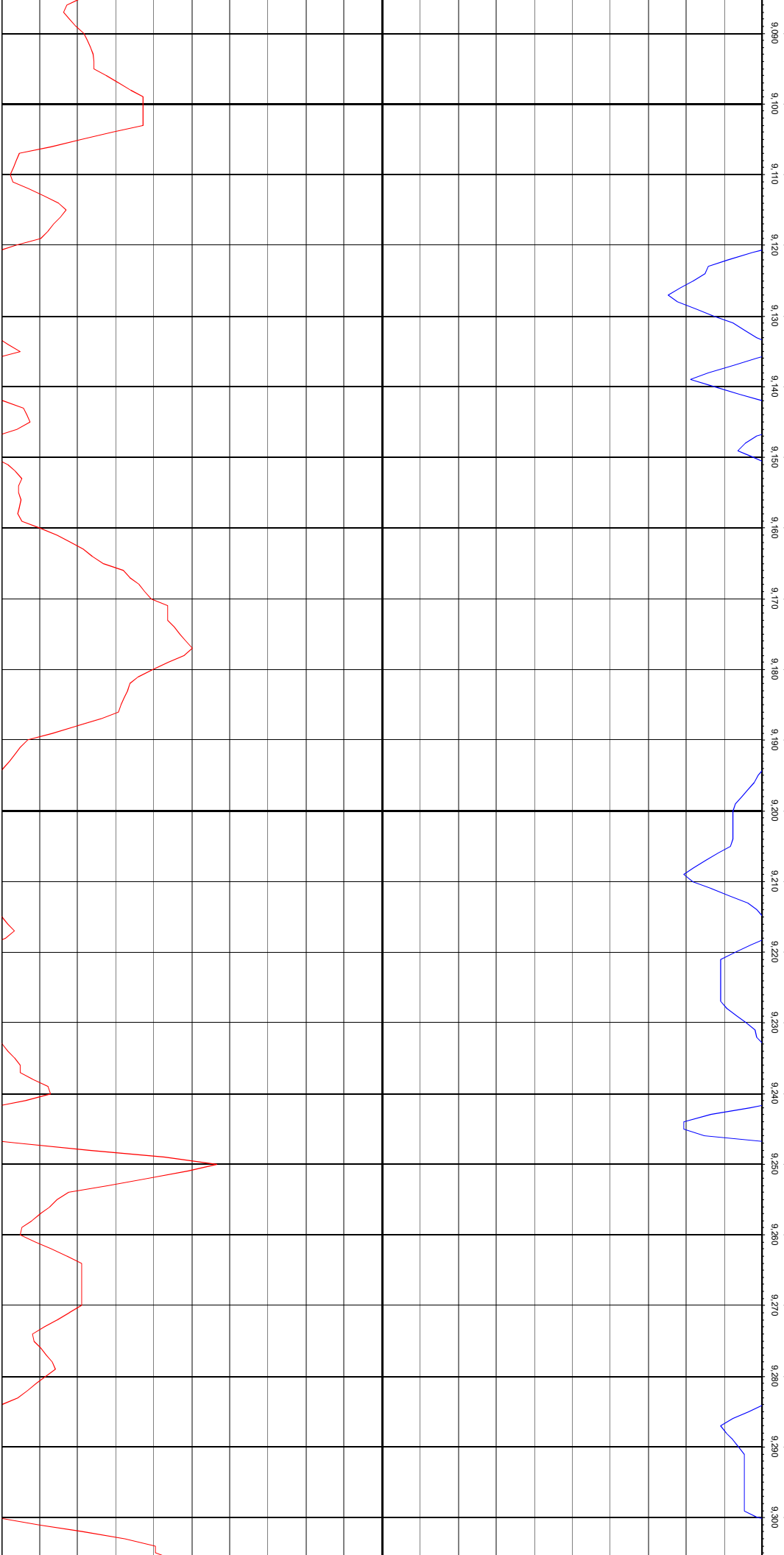
MD: 8863.00 INC: 88.10 AZ: 1.90 TVD: 6004.95 VS: 2627.048,863.00



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MD: 8955.00 INC: 90.80 AZ: 1.20 TVD: 6005.83 VS: 2719.008,955.00

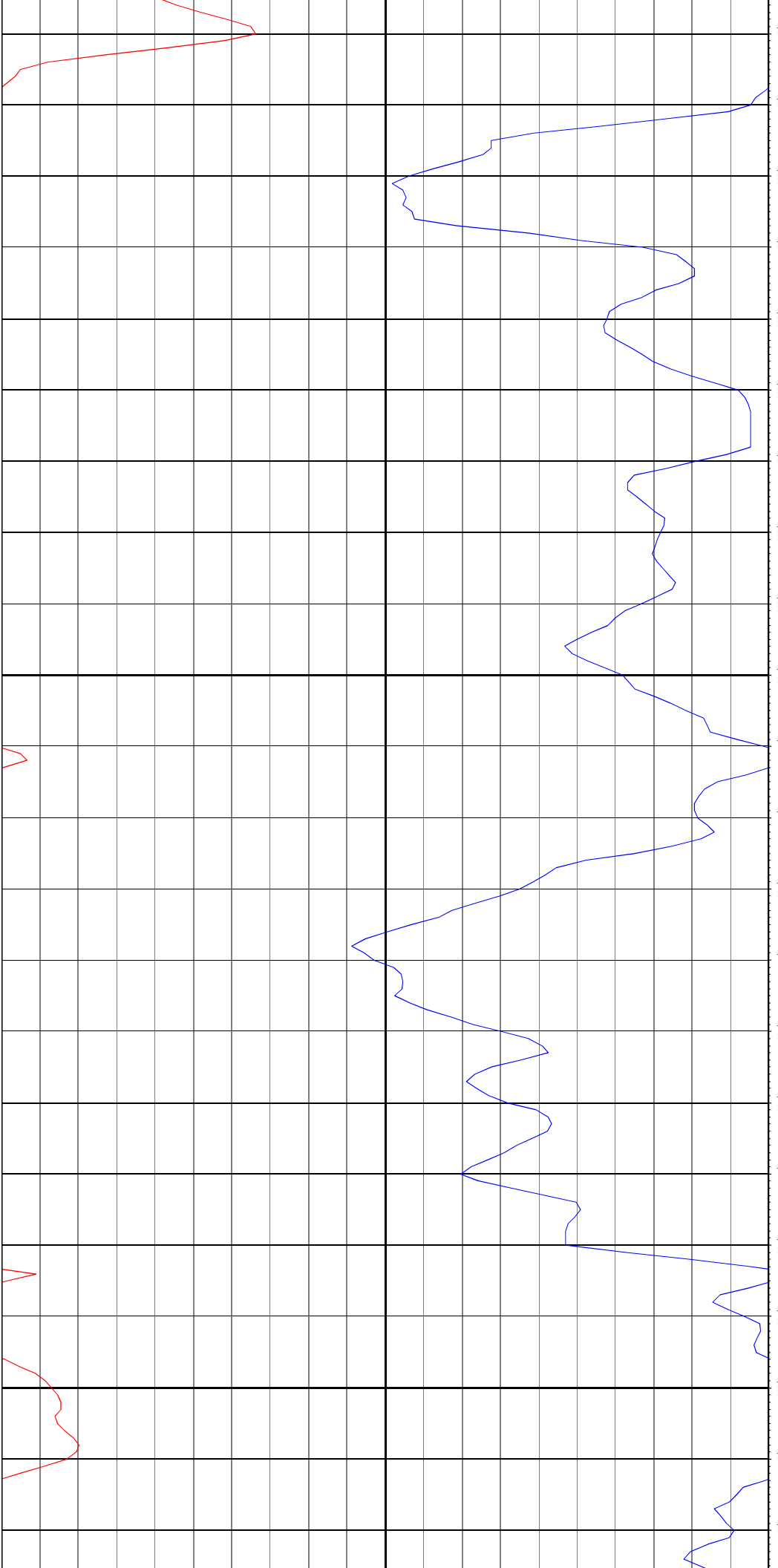
MD: 9047.00 INC: 90.30 AZ: 0.70 TVD: 6004.95 VS: 2810.989,047.00



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9.290
9.300

MD: 9139.00 INC: 89.30 AZ: 359.70 TVD: 6005.27 VS: 2902.98 39.00

MD: 9232.00 INC: 90.20 AZ: 359.70 TVD: 6005.68 VS: 2995.92 32.00

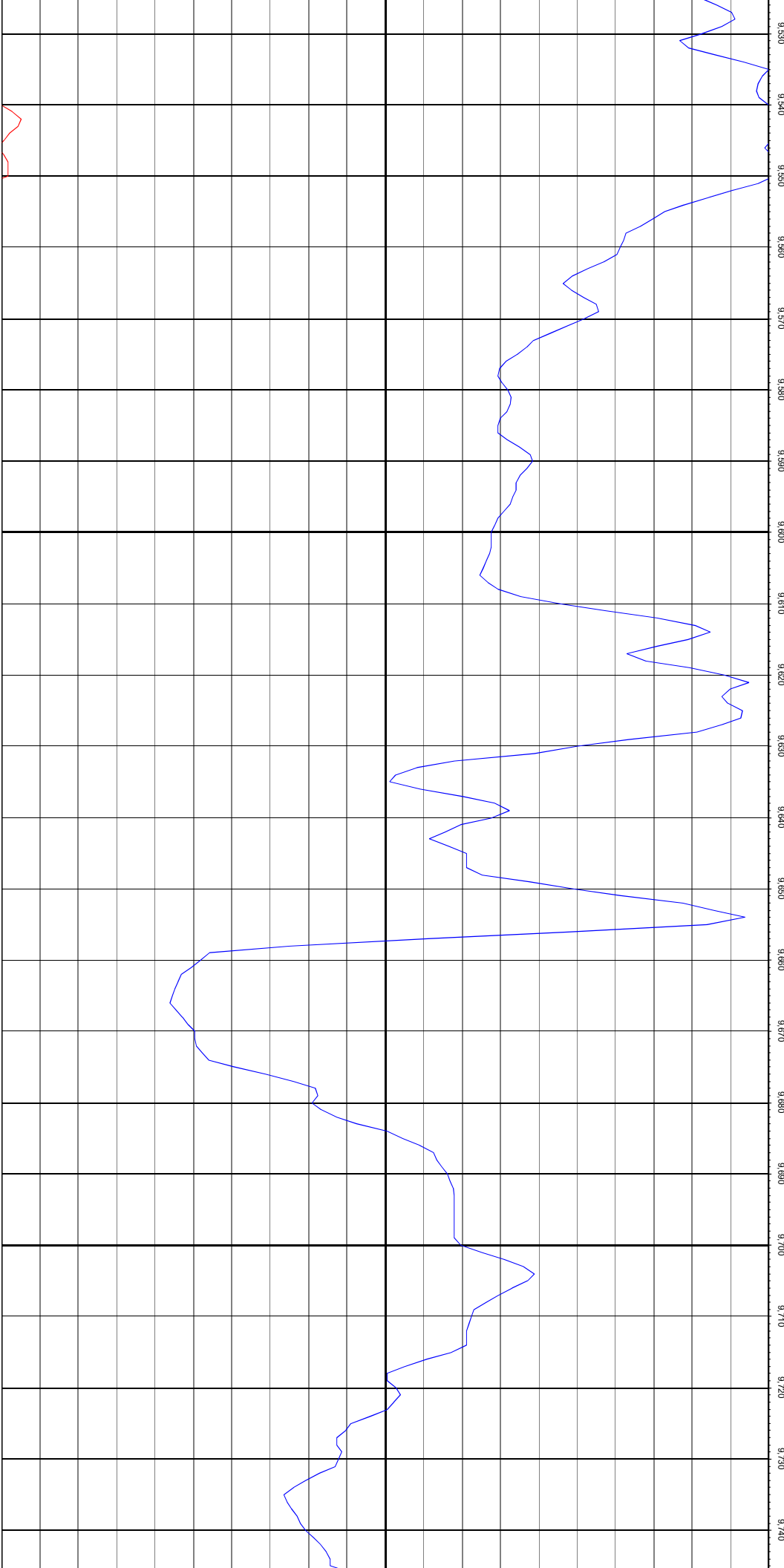


9.310
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9.480
9.490
9.500
9.510
9.520

MD: 9324.00 INC: 89.70 AZ: 359.90 TVD: 6005.76 VS: 3087.9 9324.00

MD: 9417.00 INC: 89.40 AZ: 359.20 TVD: 6006.49 VS: 3180.9 9417.00

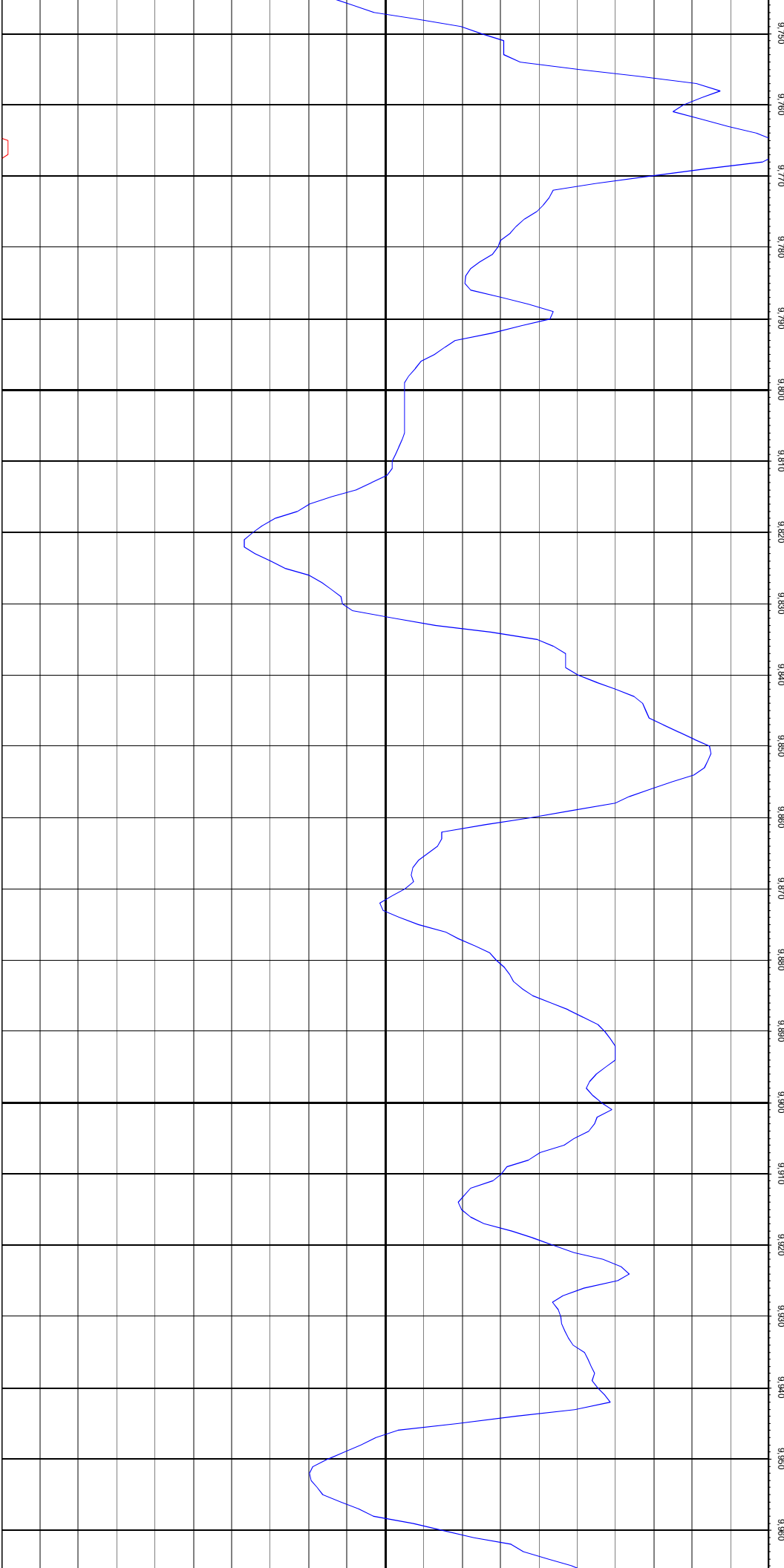
MD: 9510.00 INC: 92.00 AZ: 0.50 TVD: 6005.35 VS: 3273.959,510.00



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9.680
9.690
9.700
9.710
9.720
9.730
9.740

MD: 9602.00 INC: 91.60 AZ: 359.00 TVD: 6002.46 VS: 3365.9#02.00

MD: 9695.00 INC: 91.80 AZ: 358.30 TVD: 5999.70 VS: 3458.8#95.00

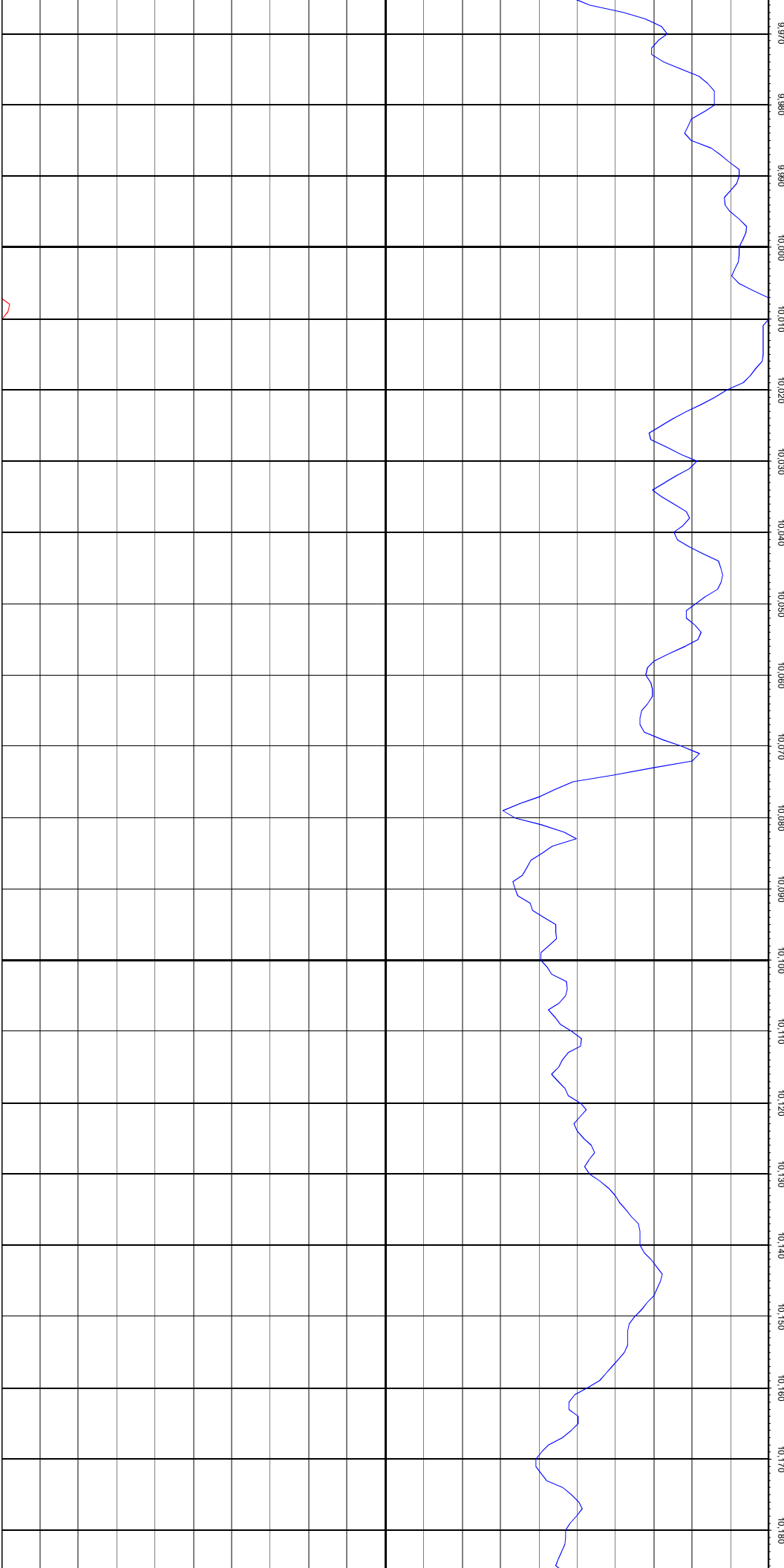


9.750
9.760
9.770
9.780
9.790
9.800
9.810
9.820
9.830
9.840
9.850
9.860
9.870
9.880
9.890
9.900
9.910
9.920
9.930
9.940
9.950
9.960

MD: 9787.00 INC: 92.70 AZ: 357.00 TVD: 5996.09 VS: 3550.0787.00

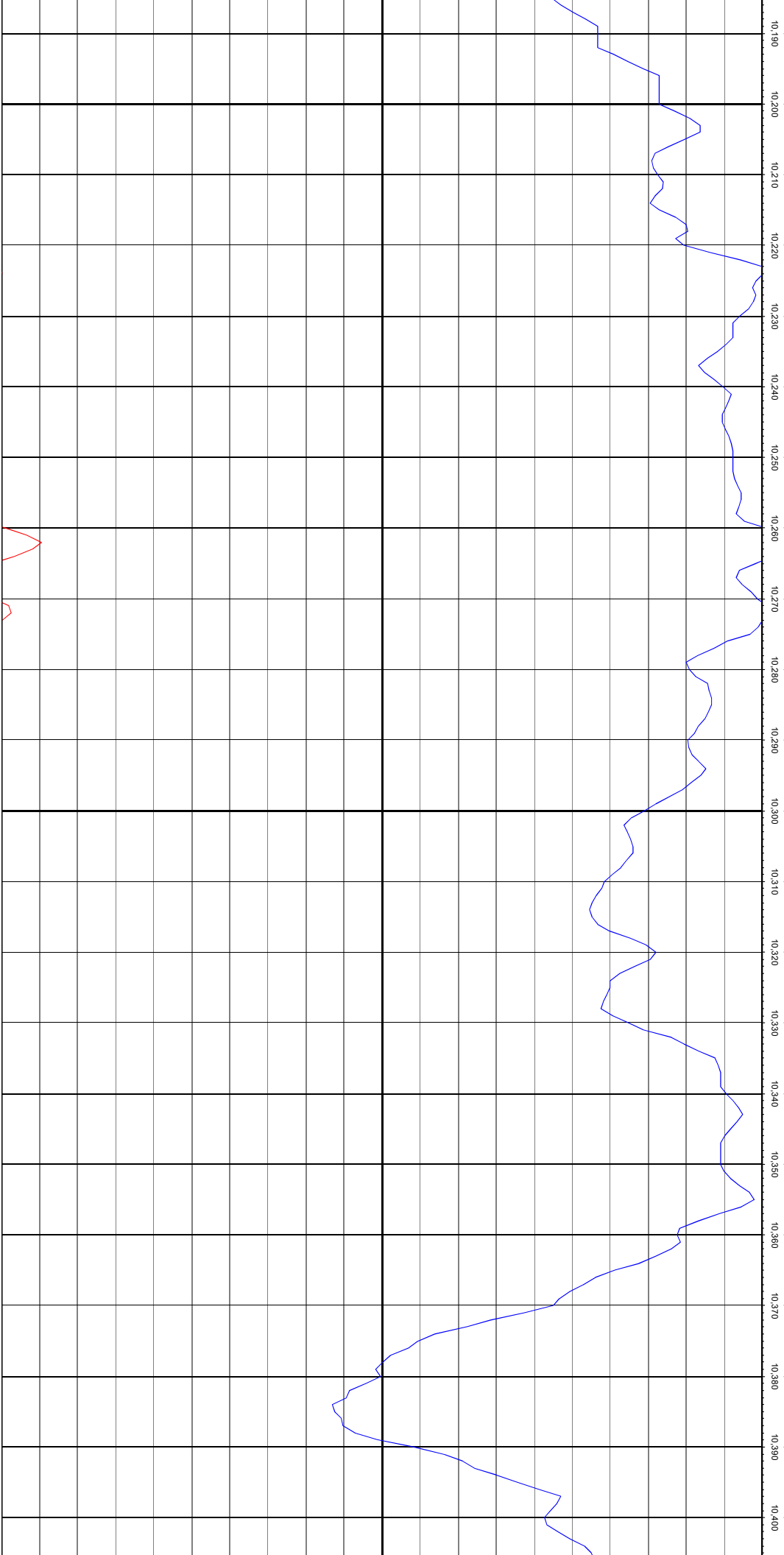
MD: 9880.00 INC: 92.90 AZ: 355.90 TVD: 5991.55 VS: 3643.8880.00

MD: 9972.00 INC: 91.50 AZ: 355.90 TVD: 5988.02 VS: 3735.02 72.00



MD: 10065.00 INC: 89.70 AZ: 354.20 TVD: 5987.04 VS: 3820.75 65.00

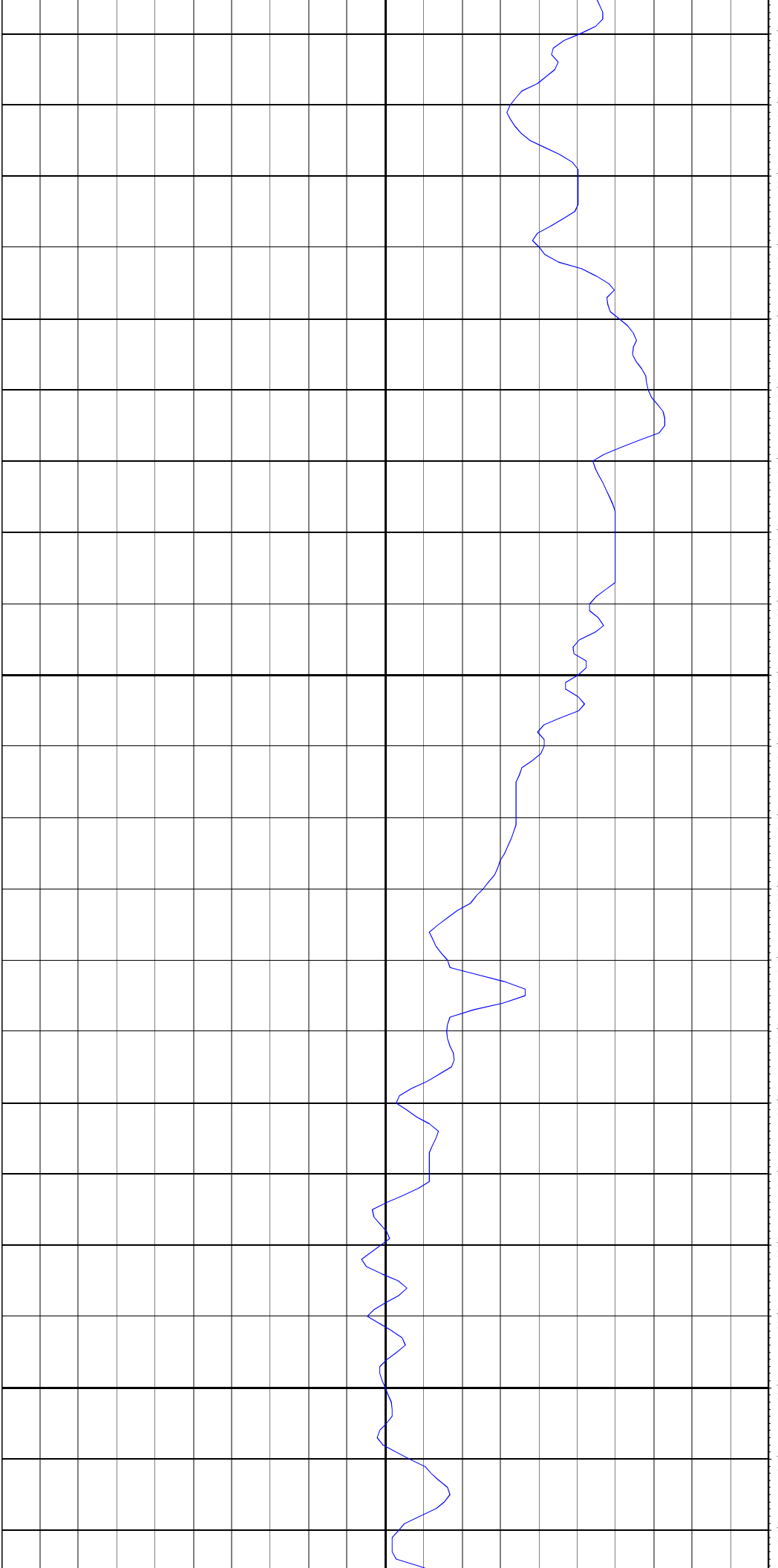
MD: 10158.00 INC: 90.30 AZ: 359.70 TVD: 5987.04 VS: 3920.55 68.00



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10,240
10,250
10,260
10,270
10,280
10,290
10,300
10,310
10,320
10,330
10,340
10,350
10,360
10,370
10,380
10,390
10,400

MD: 10250.00 INC: 90.00 AZ: 358.60 TVD: 5986.80 VS: 40120.560.00

MD: 10342.00 INC: 87.70 AZ: 0.80 TVD: 5988.65 VS: 4104.50.342.00

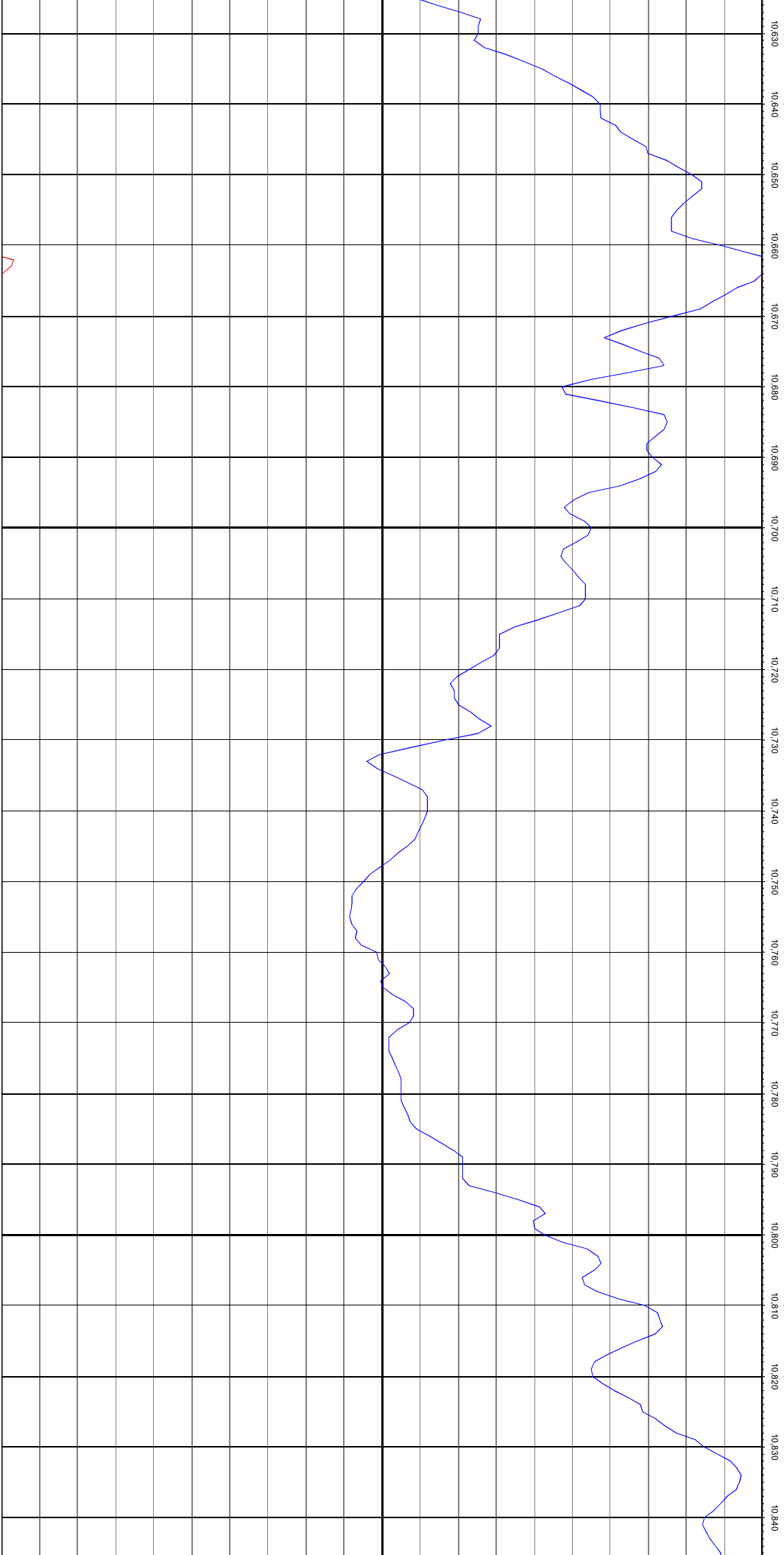


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10,460
10,470
10,480
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10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620

MD: 10435.00 INC: 90.00 AZ: 0.40 TVD: 5990.51 VS: 4197.48 435.00

MD: 10527.00 INC: 90.20 AZ: 359.90 TVD: 5990.35 VS: 4280.42 7.00

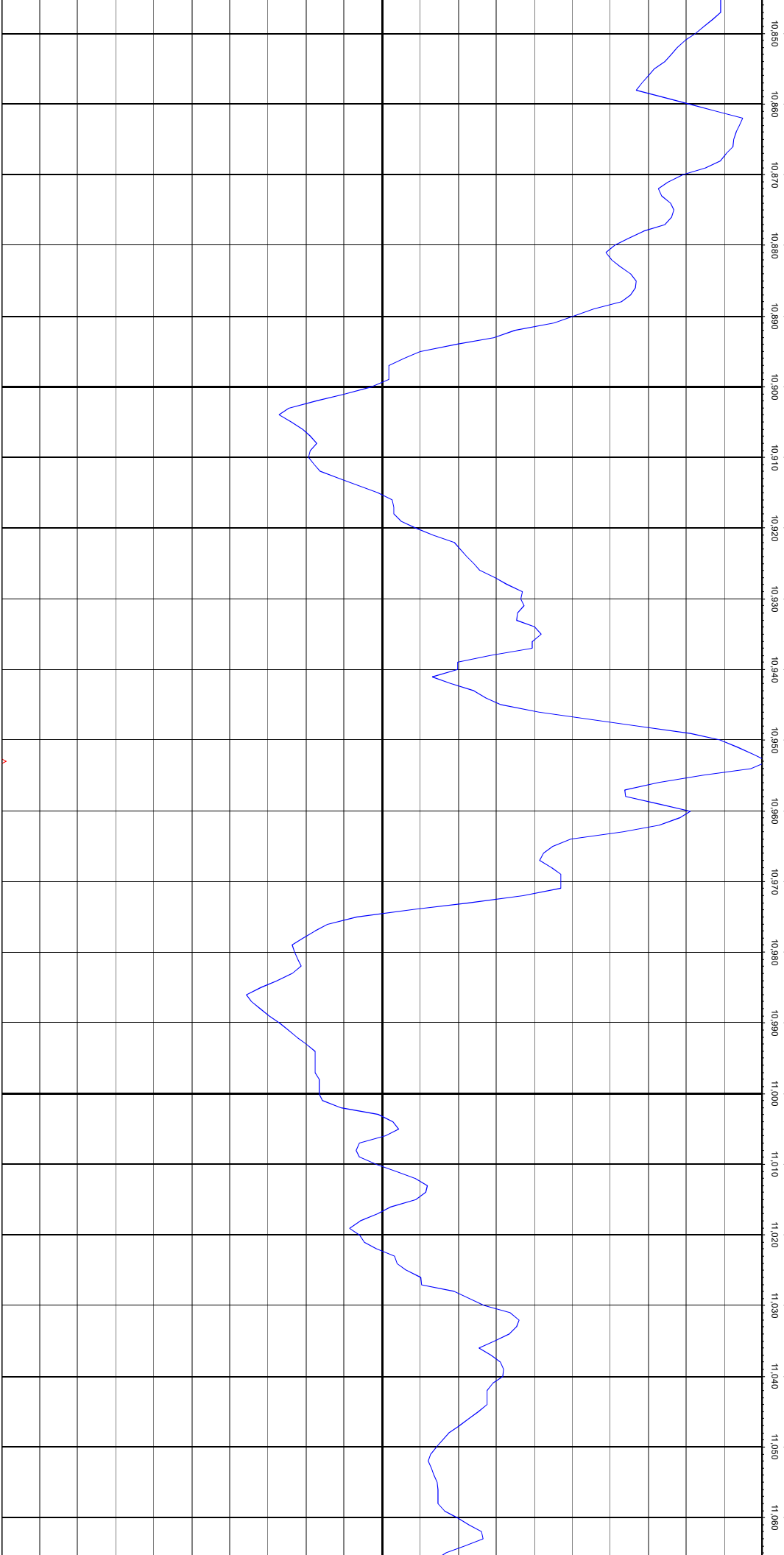
MD: 10618.00 INC: 90.70 AZ: 359.80 TVD: 5989.64 VS: 4380.42 8.00



10.630
10.640
10.650
10.660
10.670
10.680
10.690
10.700
10.710
10.720
10.730
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10.750
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10.770
10.780
10.790
10.800
10.810
10.820
10.830
10.840

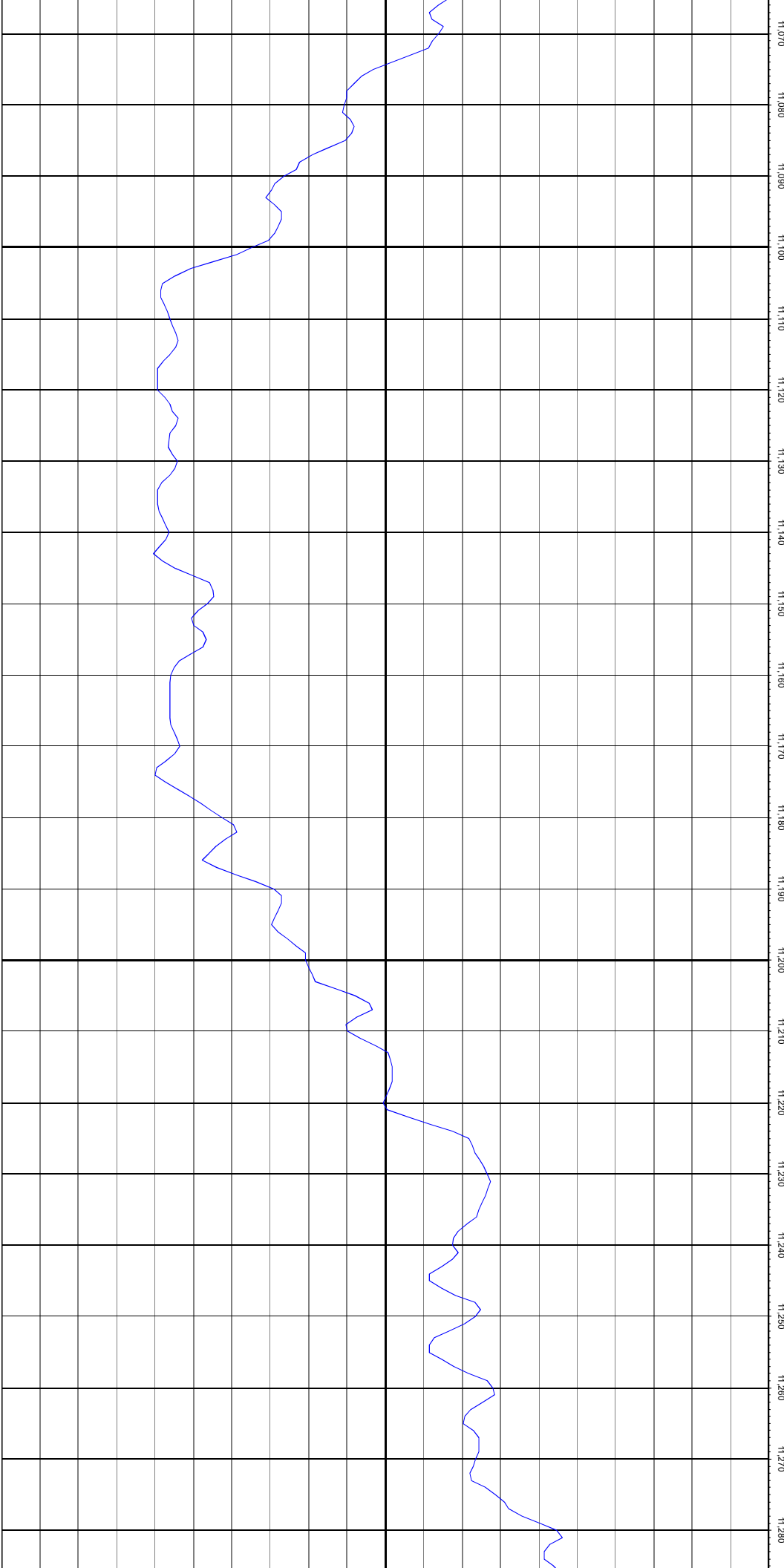
MD: 10711.00 INC: 89.70 AZ: 358.40 TVD: 5989.31 VS: 4470.43 1.00

MD: 10804.00 INC: 89.80 AZ: 358.60 TVD: 5989.72 VS: 4500.44 1.00



MD: 10896.00 INC: 87.90 AZ: 356.60 TVD: 5991.57 VS: 4630.226.00

MD: 10989.00 INC: 87.50 AZ: 356.30 TVD: 5995.30 VS: 4730.589.00

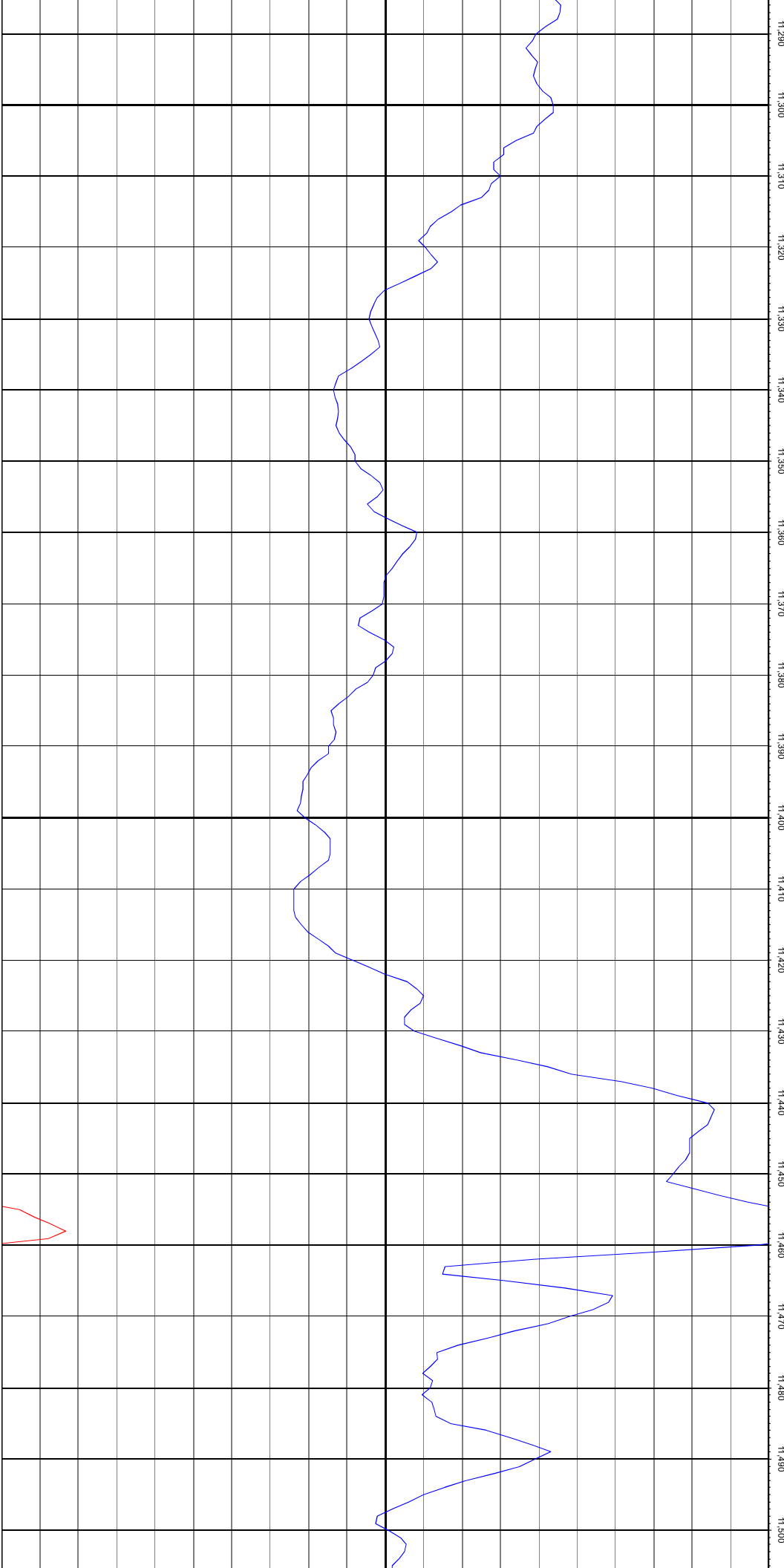


11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140
11,150
11,160
11,170
11,180
11,190
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280

MD: 11081.00 INC: 88.10 AZ: 356.10 TVD: 5998.83 VS: 4842.81 1.00

MD: 11174.00 INC: 91.40 AZ: 358.00 TVD: 5999.24 VS: 4933.67 1.00

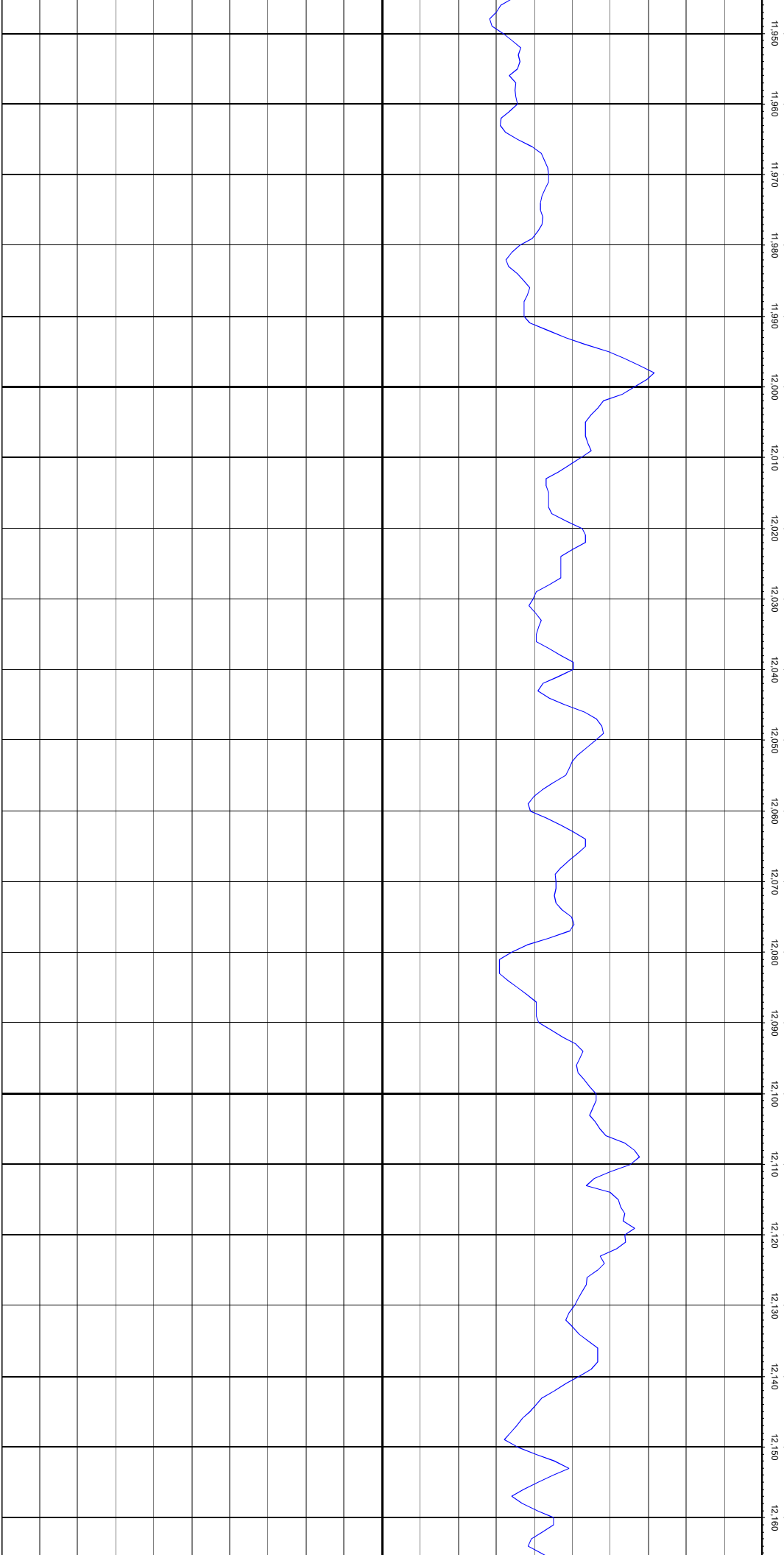
MD: 11267.00 INC: 92.10 AZ: 357.90 TVD: 5996.40 VS: 5028.26 1.00



11,290
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11,310
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11,340
11,350
11,360
11,370
11,380
11,390
11,400
11,410
11,420
11,430
11,440
11,450
11,460
11,470
11,480
11,490
11,500

MD: 11359.00 INC: 92.20 AZ: 357.80 TVD: 5992.95 VS: 5120.659.00

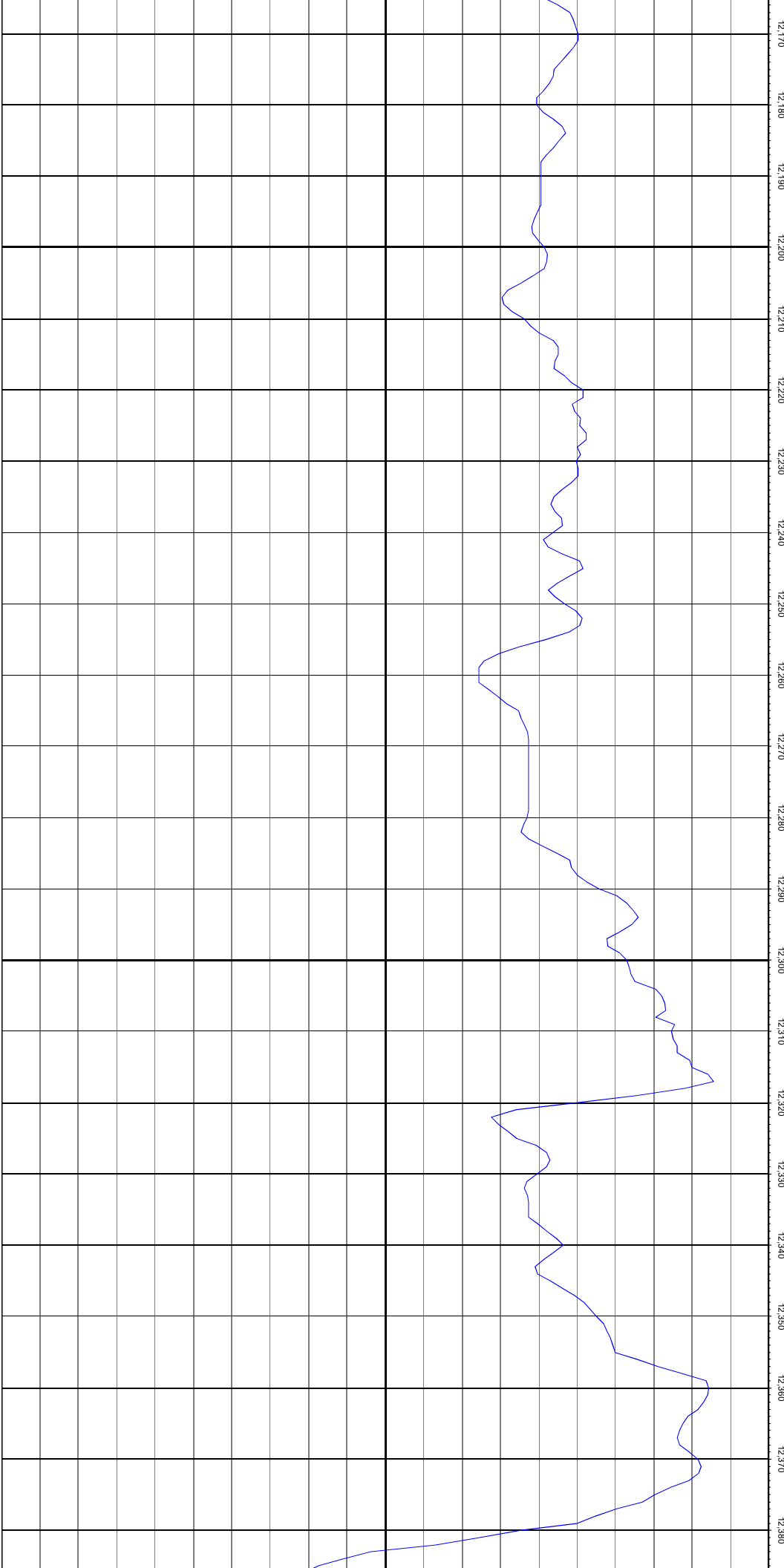
MD: 11452.00 INC: 92.20 AZ: 358.20 TVD: 5989.38 VS: 5213.252.00



11,950
11,960
11,970
11,980
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12,010
12,020
12,030
12,040
12,050
12,060
12,070
12,080
12,090
12,100
12,110
12,120
12,130
12,140
12,150
12,160

MD: 12003.00 INC: 90.10 AZ: 3.10 TVD: 5982.05 VS: 5764.00,003.00

MD: 12096.00 INC: 89.10 AZ: 1.10 TVD: 5982.69 VS: 5856.00,096.00

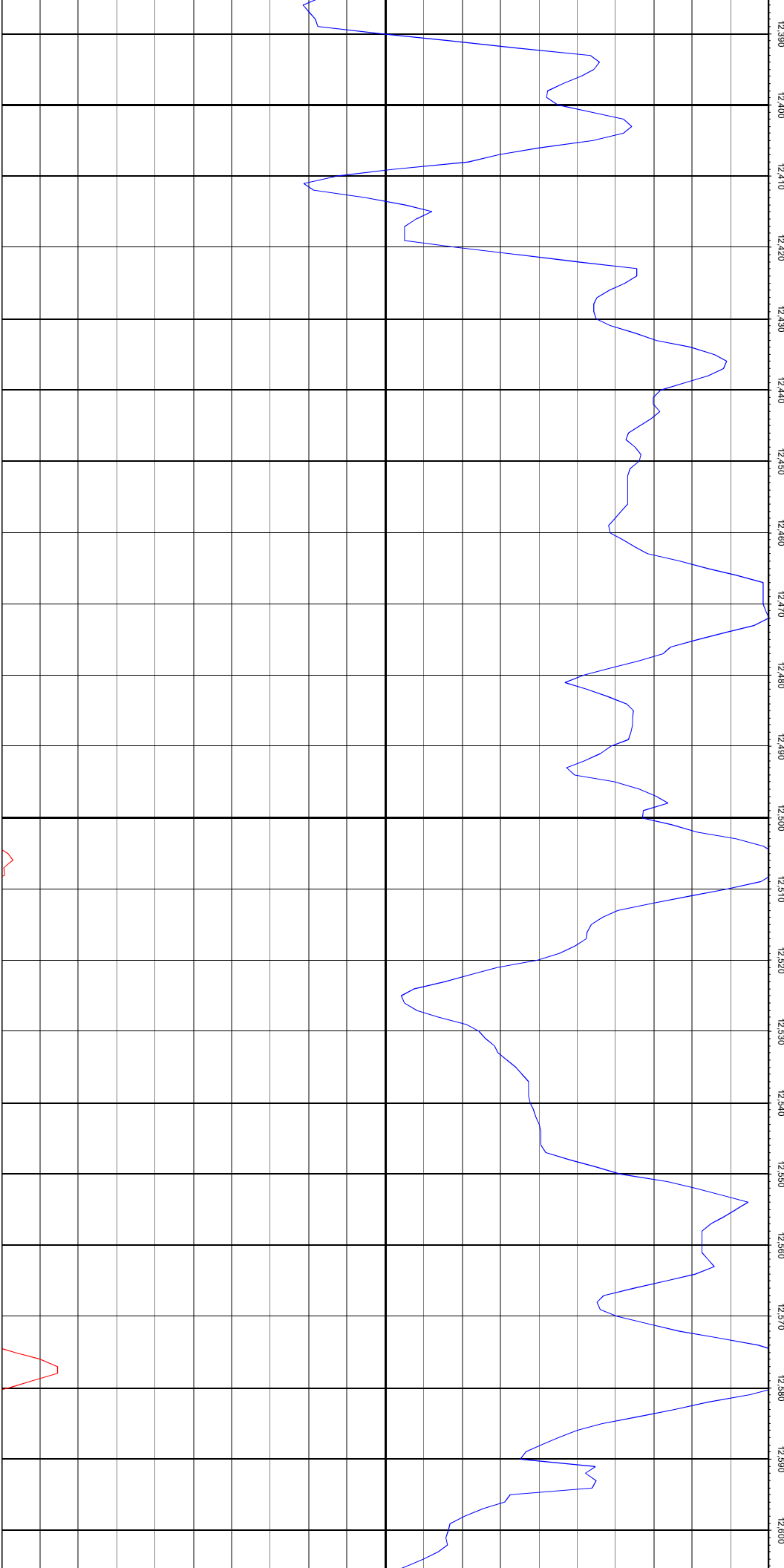


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12,260
12,270
12,280
12,290
12,300
12,310
12,320
12,330
12,340
12,350
12,360
12,370
12,380

MD: 12189.00 INC: 90.20 AZ: 0.80 TVD: 5983.26 VS: 5949.92, 189.00

MD: 12282.00 INC: 89.40 AZ: 0.60 TVD: 5983.59 VS: 6042.90, 282.00

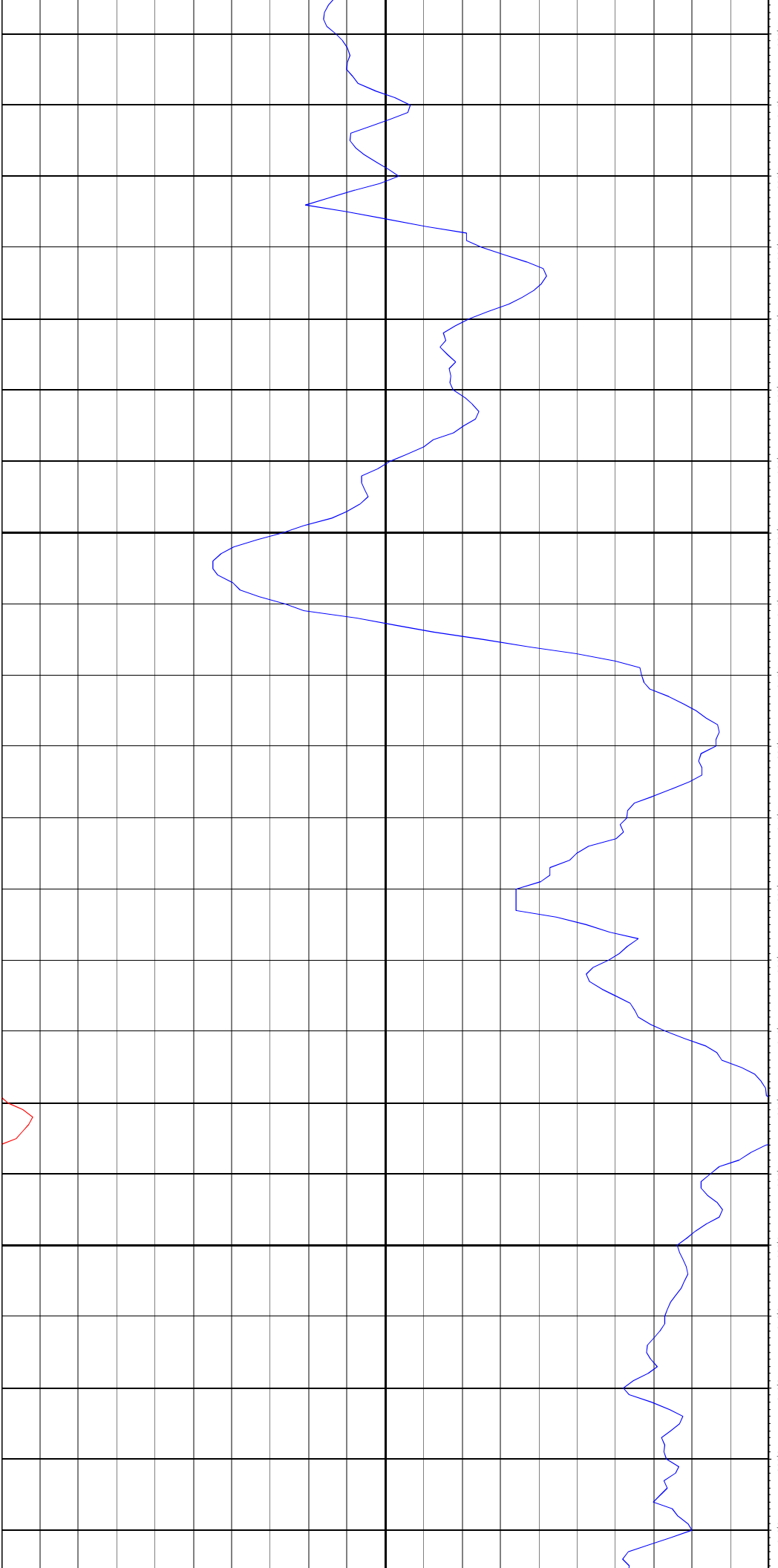
MD: 12375.00 INC: 90.00 AZ: 0.60 TVD: 5984.07 VS: 6135.89, 375.00



12,390
12,400
12,410
12,420
12,430
12,440
12,450
12,460
12,470
12,480
12,490
12,500
12,510
12,520
12,530
12,540
12,550
12,560
12,570
12,580
12,590
12,600

MD: 12469.00 INC: 89.70 AZ: 0.20 TVD: 5984.32 VS: 6229.89,469.00

MD: 12562.00 INC: 89.20 AZ: 1.50 TVD: 5985.21 VS: 6322.88,562.00

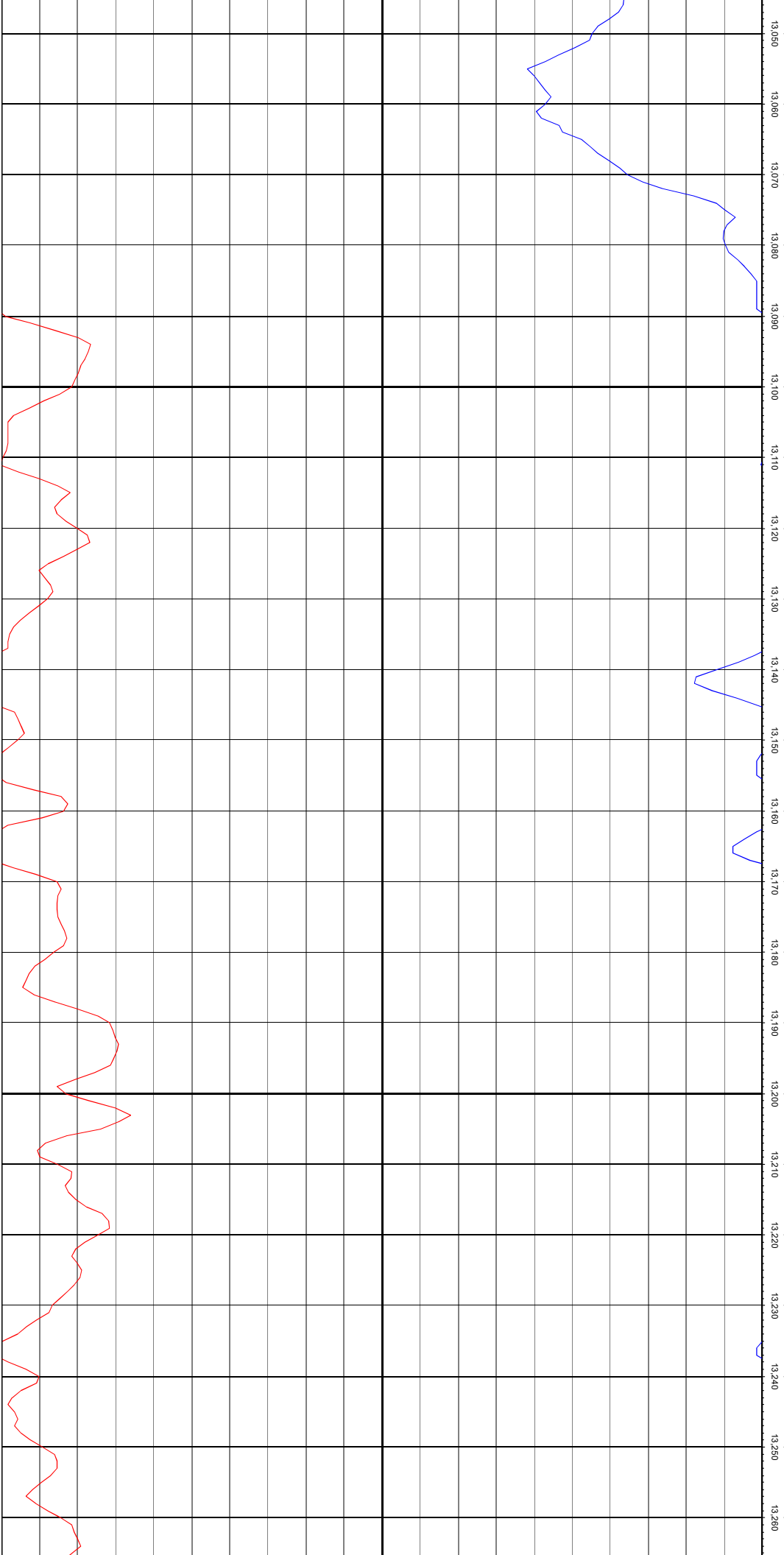


12,830
12,840
12,850
12,860
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12,920
12,930
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12,950
12,960
12,970
12,980
12,990
13,000
13,010
13,020
13,030
13,040

MD: 12842.00 INC: 88.60 AZ: 0.50 TVD: 5990.92 VS: 6602.78,842.00

MD: 12935.00 INC: 89.20 AZ: 0.90 TVD: 5992.71 VS: 6695.72,935.00

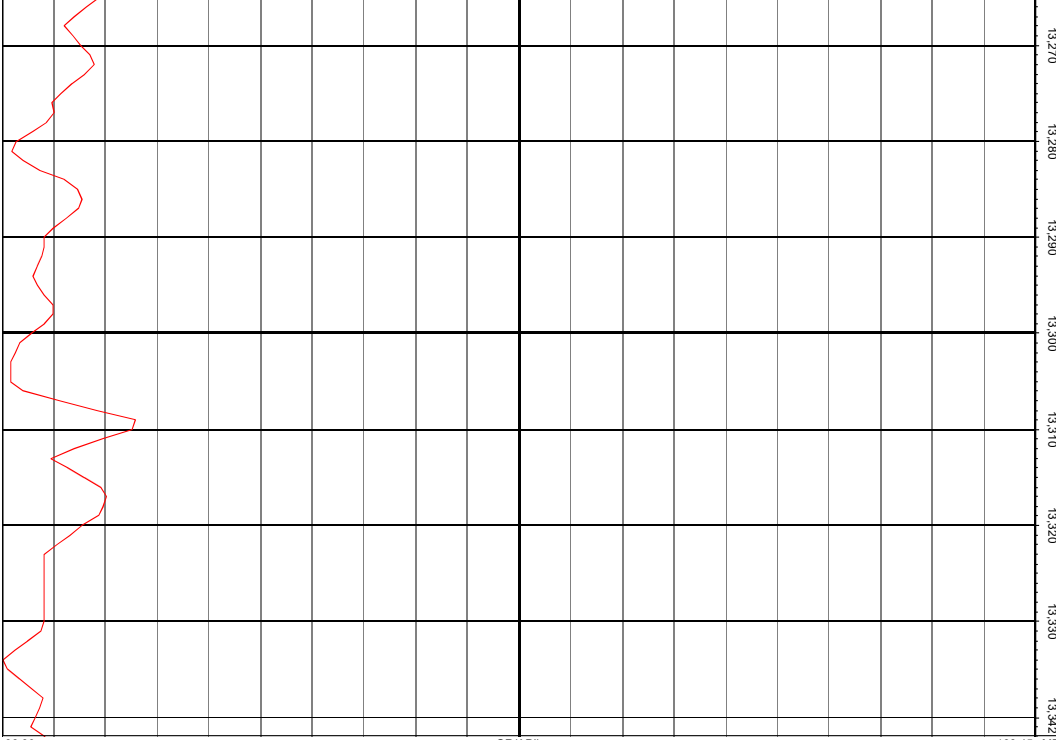
MD: 13028.00 INC: 89.80 AZ: 0.40 TVD: 5993.52 VS: 6788.72,028.00



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13,060
13,070
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13,110
13,120
13,130
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230
13,240
13,250
13,260

MD: 13124.00 INC: 90.60 AZ: 0.10 TVD: 5993.18 VS: 6884.73 124.00

MD: 13217.00 INC: 90.30 AZ: 356.80 TVD: 5992.45 VS: 6978.27 7.00



13.270
13.280
13.290
13.300
13.310
13.320
13.330
13.342

MD: 13310.00 INC: 90.20 AZ: 355.00 TVD: 5992.05 VS: 7073.430.00

MD: 13342.00 INC: 90.40 AZ: 353.20 TVD: 5991.88 VS: 7103.282.00

36.90 GR(API) 168.45 MD 168.45
168.45 2 300.00 FT

Surveys (MD/INC/AZ/TVD/VS)