

**Cathedral Energy Services**

6622 Willowbrook Park Drive  
Houston, Tx 77066  
281-440-1010 (Office)  
281-440-1025 (Fax)

**Cosslett 1J-22H-B168****Scale 5":100' - MD****12/9/2018 6:02 AM****Oper. Company:** Crestone Peak Resources**Well:** Cosslett 1J-22H-B168**Field:** DJ Basin**Rig:** Ensign 140**Well ID:** 05-123-47672-00**Job Number:** 185276

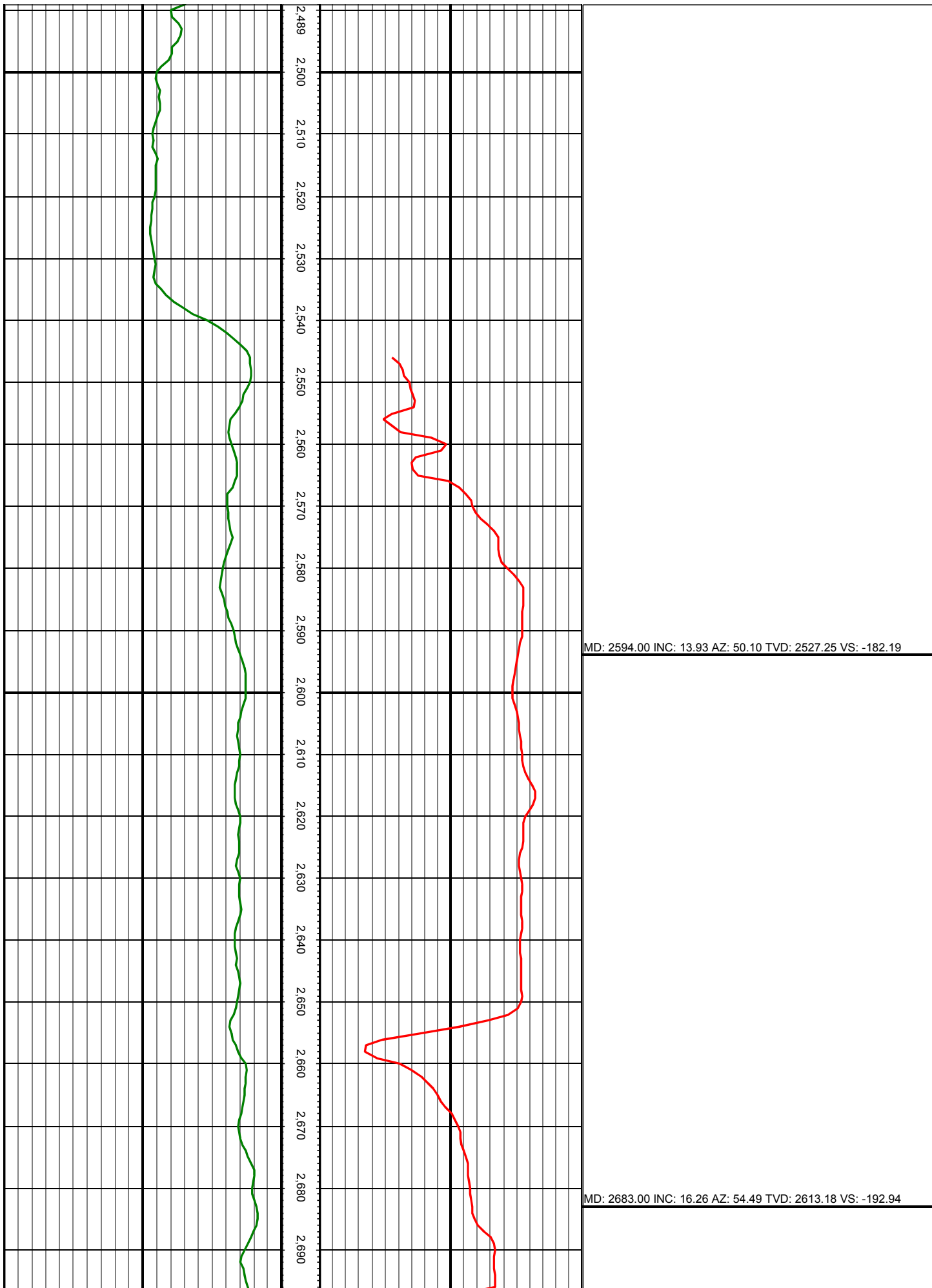
**Notes:** Gamma Ray Log  
Section Plan: 170.13°  
Datum: NAD 1983  
Magnetic North: 8.35°  
Grid Convergence: 0.33°  
Gamma Averaging: 7% Smoothing

**State:** CO**County:** Weld**Country:** USA**Location:** S22-T1N-R68W**Start Date:** 12/03/2018 15:15:00**End Date:** 12/08/2018 22:15:00**Latitude:** 40.041390**Longitude:** -104.987762**Elev GL:** 5,173.00**Elev DF:** 5,196.00**Elev KB:** 5,196.00**Notes:** Log & Survey Depths Relative to Kelly Bushing (KB) Depth**Operator 1:** Robert Stahlecker**Operator 2:** Daniel Stevens**Notes:** Maximun Temperature: 273.00°F

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	DIA-07411	BTDM-1893			
Bit Size	8.75	8.50			
Cal Factor	5.36	5.08			
Survey Offset	62.00	48.00			
Gamma Offset	56.36	31.74			
Resisitivity Offset	0.00	0.00			
Start Depth	2545.00	15161.00			
StartDate	12/3/2018	12/7/2018			
StartTime	15:15	23:00			
EndDepth	15161.00	17665.00			
EndDate	12/7/2018	12/9/2018			
EndTime	21:15	12:00			
Mud Type	OBM	OBM			
Mud Weight	10.20 PPG	10.20 PPG			
Funnel Viscosity	47.00 SEC/QT	57.00 SEC/QT			
Plastic Viscosity	23.00 CP	22.00 CP			
Yield Point	10.00 LBS/100FT2	12.00 LBS/100FT2			
Gel Strength	7.00/19.00/21.00 LBS/100FT2	7.00/19.00/20.00 LBS/100FT2			
Solids Content	8.10 %	7.90 %			
Sand Content	0.00 %	0.00 %			
Mud Alkalinity	3.50 PPG	3.50 PPG			
Filtrate Alkalinity	0.00 API	0.00 API			
Chlorides	28,500.00 MG/L	28,500.00 MG/L			
Temperature	248.00° F	273.00° F			

Hole Data			Casing Data		
Size	From	To	Size	From	To
12.25	0.00	2545.00	13.375	0.00	525.00
8.75	2545.00	15161.00	9.875	0.00	2545.00
8.50	15161.00	17665.00	4.500	0.00	17665.00

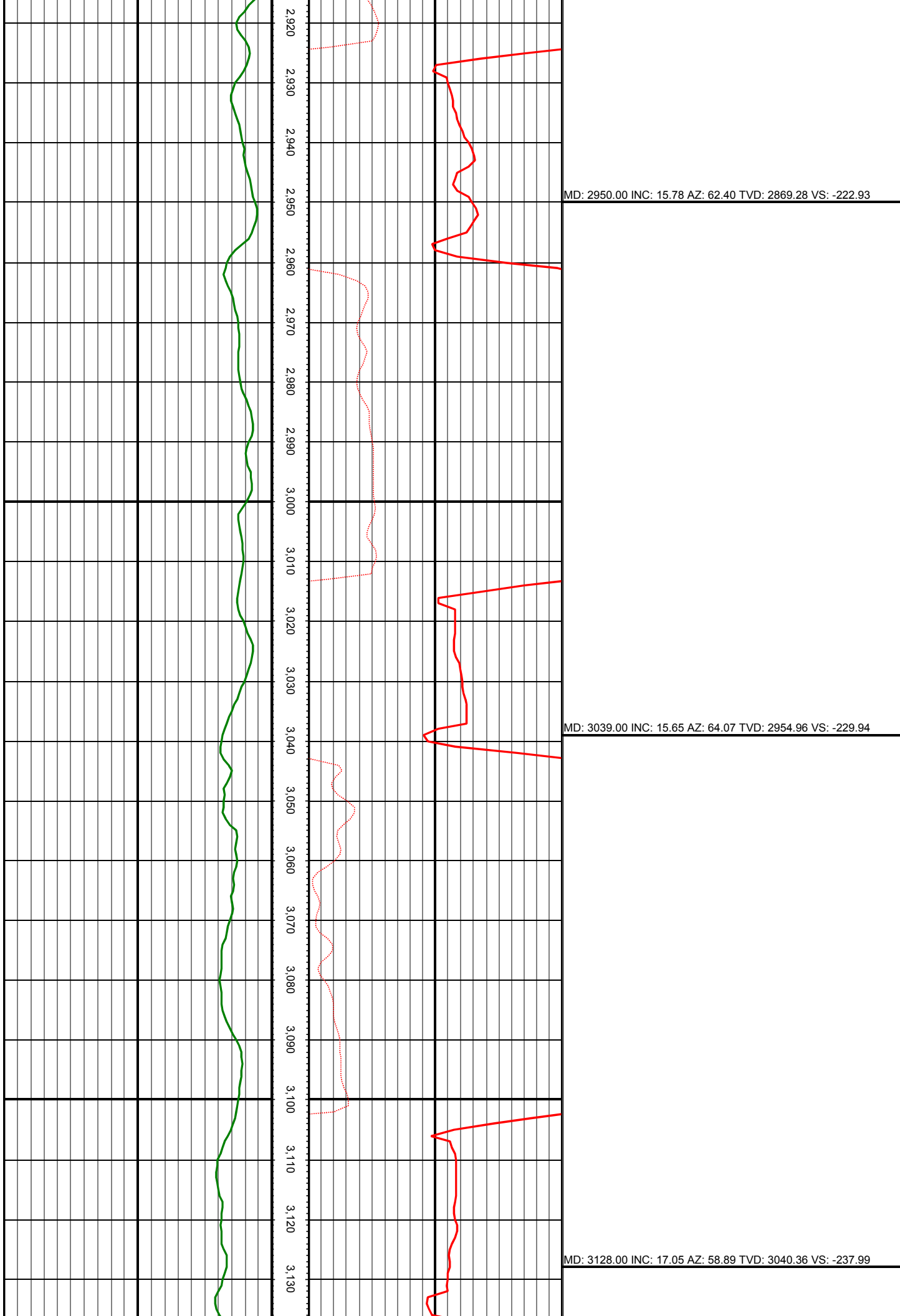
*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

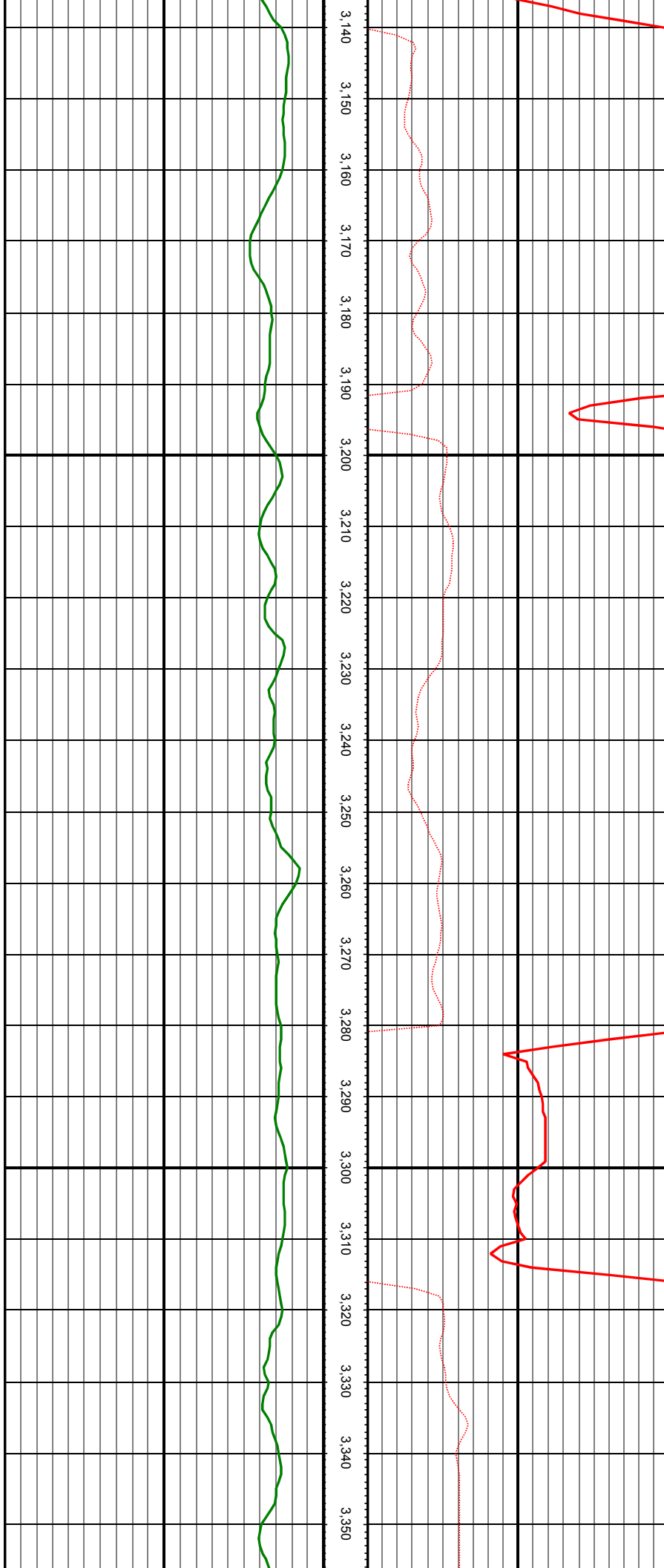




MD: 2772.00 INC: 17.80 AZ: 57.13 TVD: 2698.28 VS: -203.65

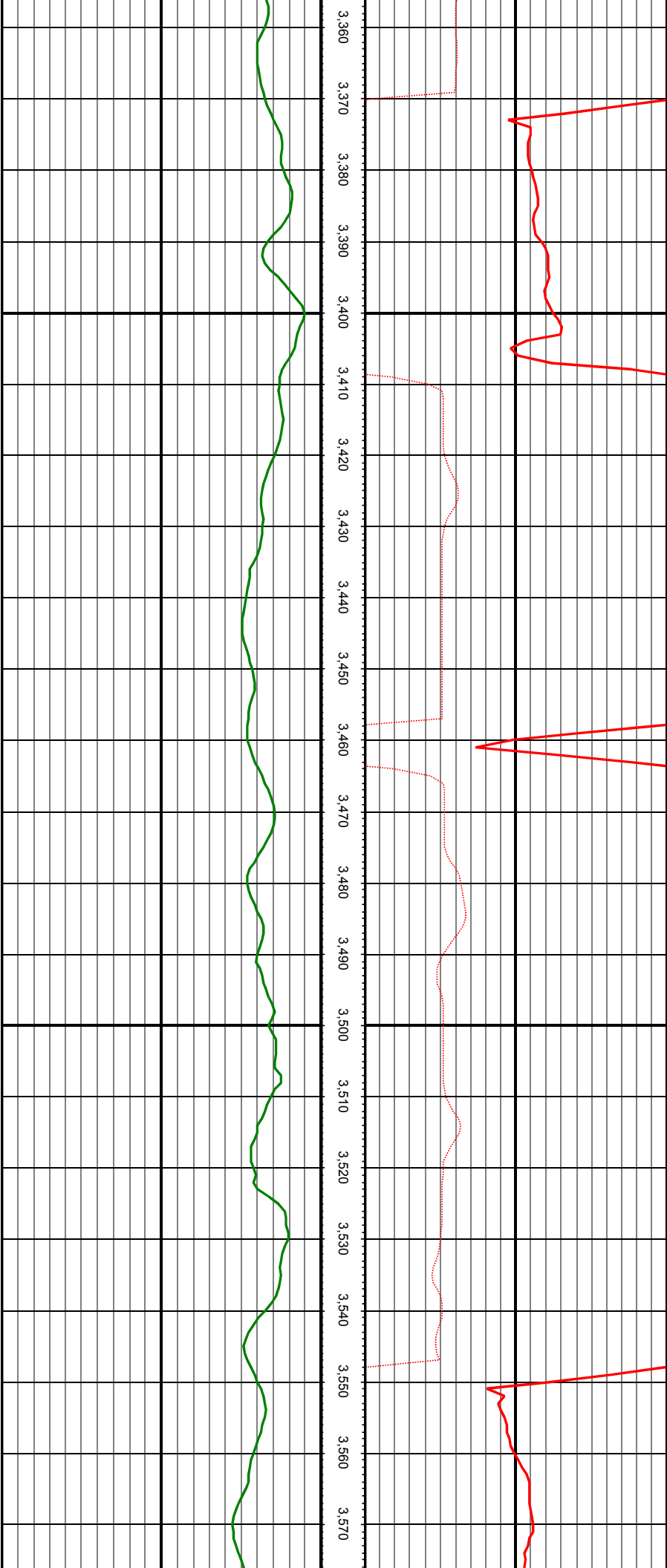
MD: 2861.00 INC: 15.43 AZ: 54.41 TVD: 2783.55 VS: -214.11





MD: 3218.00 INC: 14.99 AZ: 55.72 TVD: 3126.86 VS: -247.58

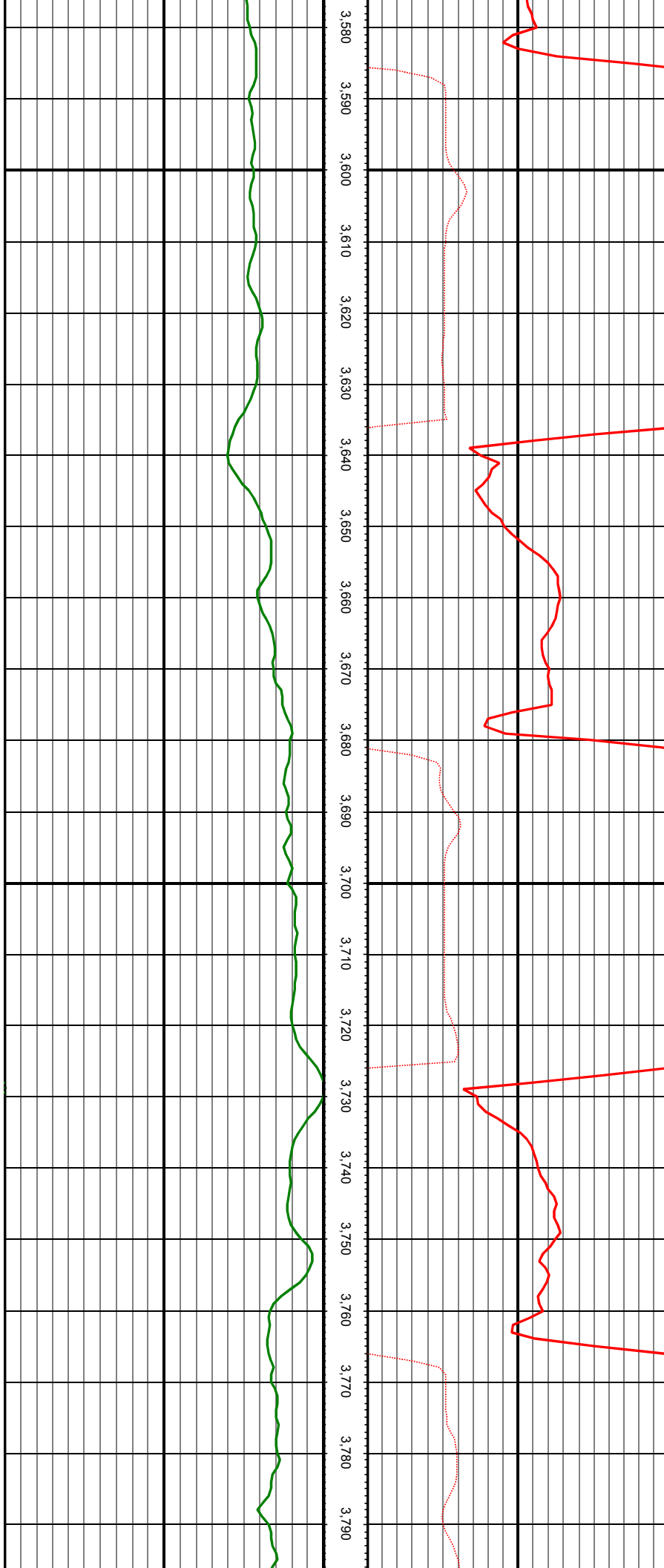
MD: 3307.00 INC: 15.82 AZ: 56.08 TVD: 3212.66 VS: -257.28



MD: 3396.00 INC: 16.04 AZ: 64.25 TVD: 3298.26 VS: -265.59

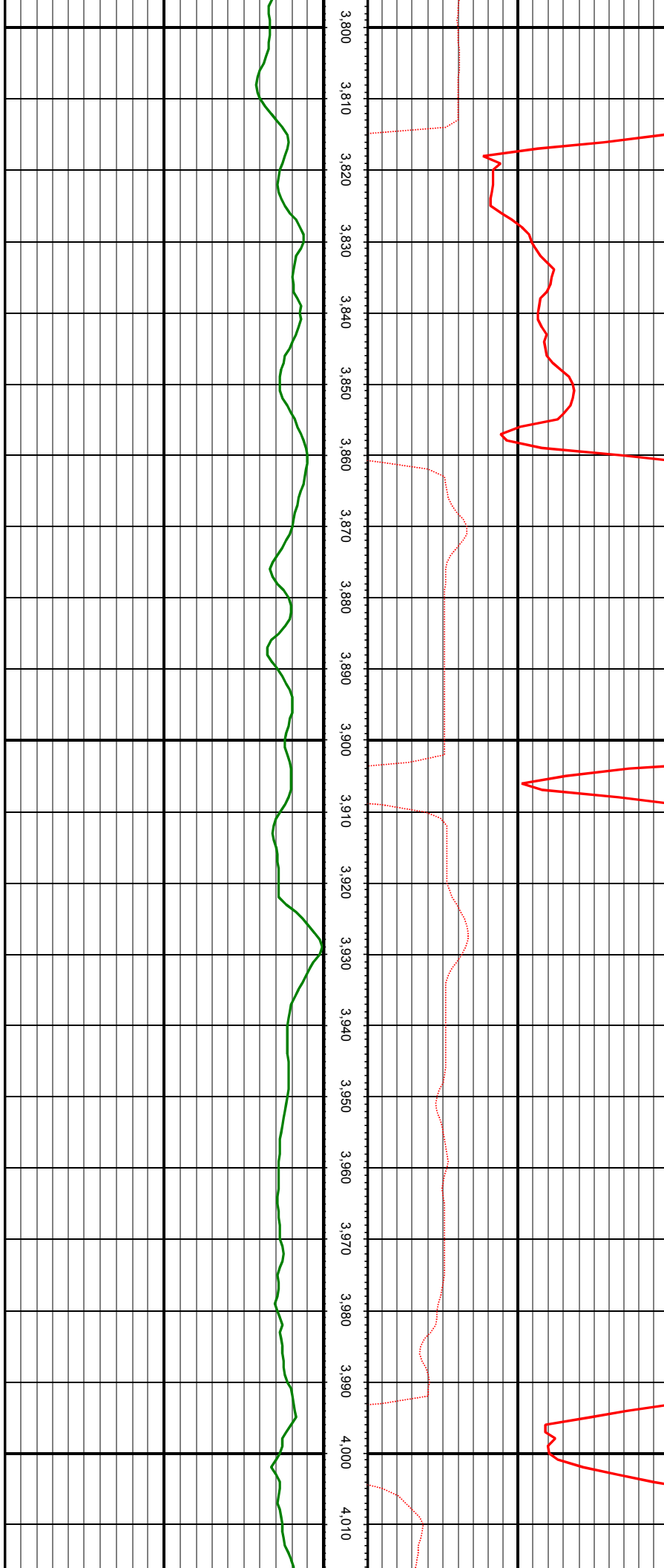
MD: 3485.00 INC: 13.45 AZ: 63.02 TVD: 3384.32 VS: -272.00

MD: 3574.00 INC: 14.72 AZ: 56.95 TVD: 3470.65 VS: -279.49



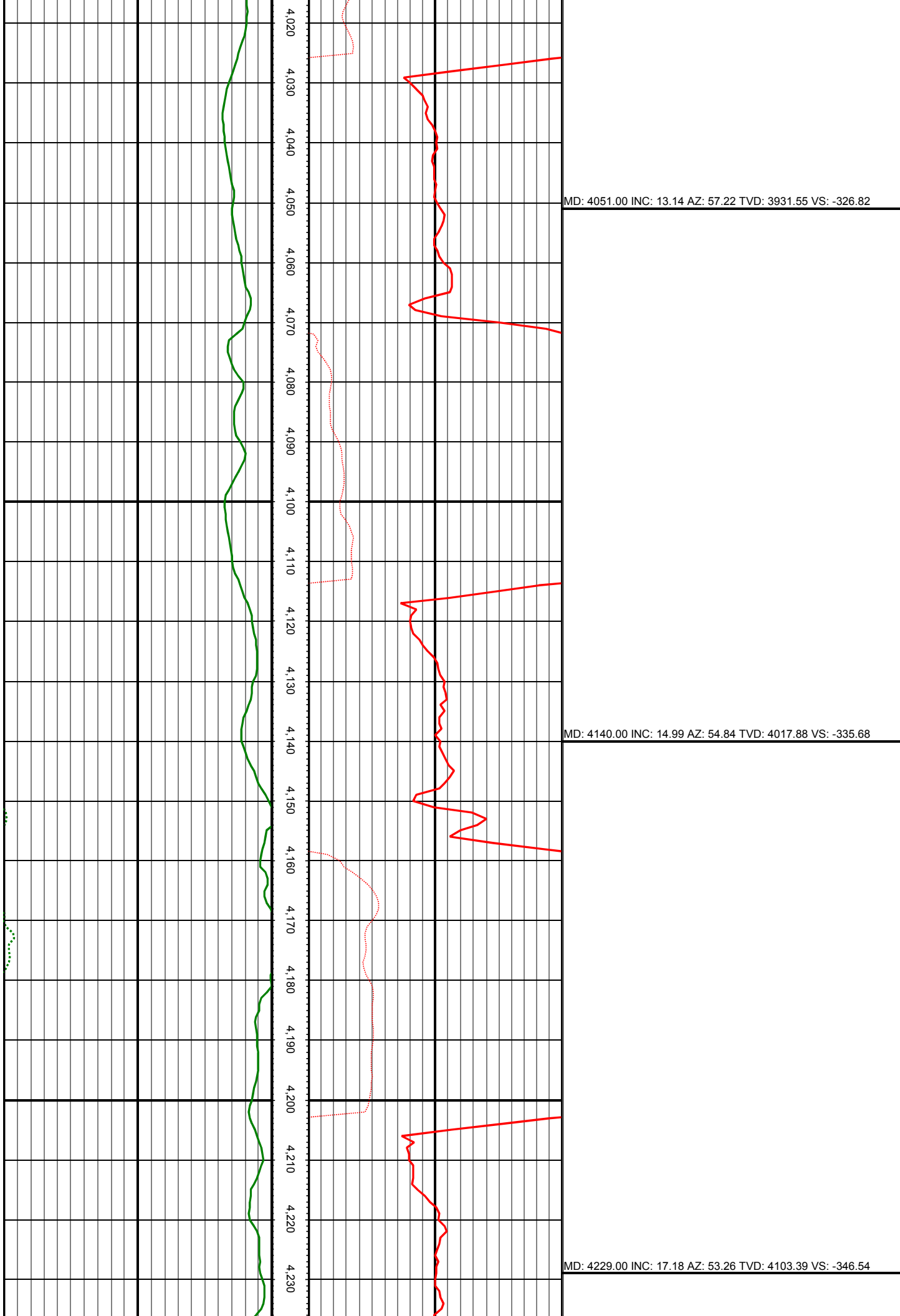
MD: 3663.00 INC: 16.22 AZ: 55.02 TVD: 3556.42 VS: -289.22

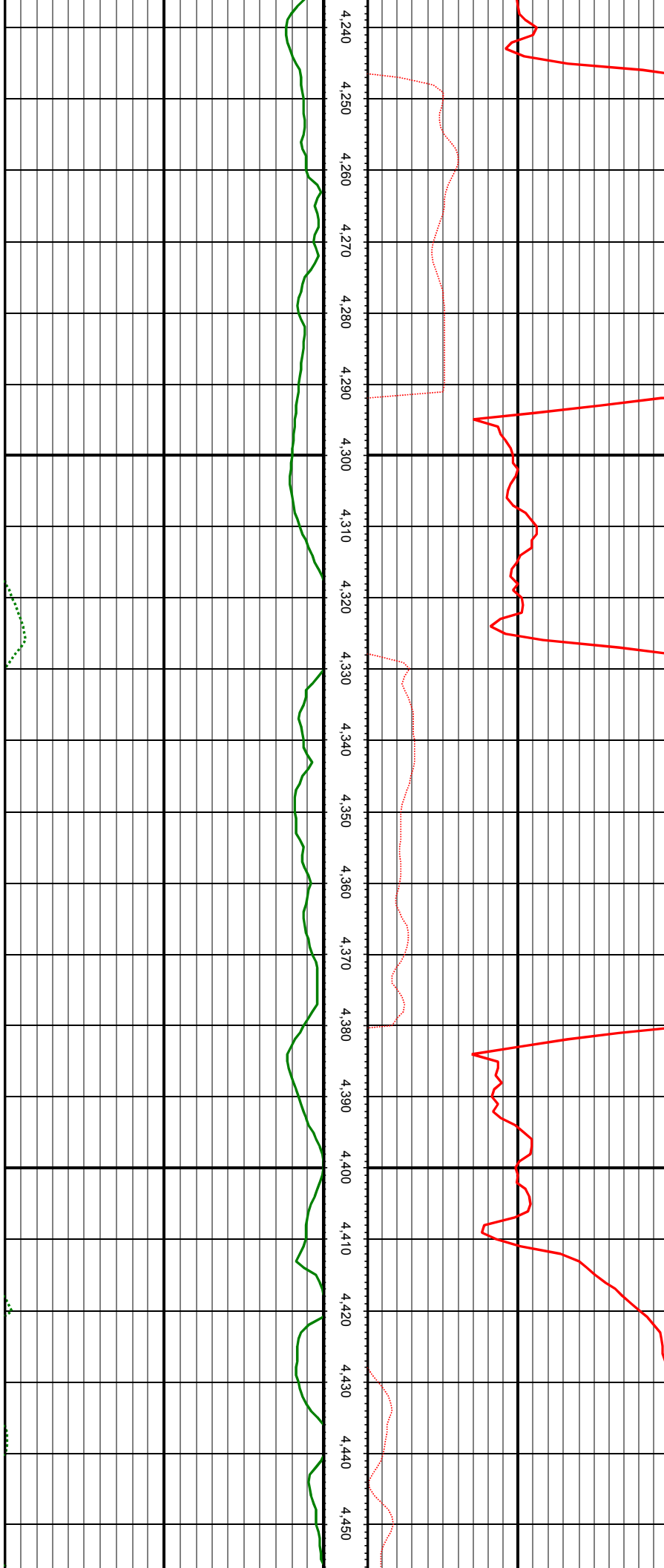
MD: 3752.00 INC: 16.08 AZ: 57.13 TVD: 3641.91 VS: -299.31



MD: 3841.00 INC: 16.66 AZ: 59.15 TVD: 3727.30 VS: -308.70

MD: 3962.00 INC: 11.56 AZ: 57.87 TVD: 3844.61 VS: -319.51





MD: 4318.00 INC: 18.37 AZ: 56.87 TVD: 4188.14 VS: -358.02

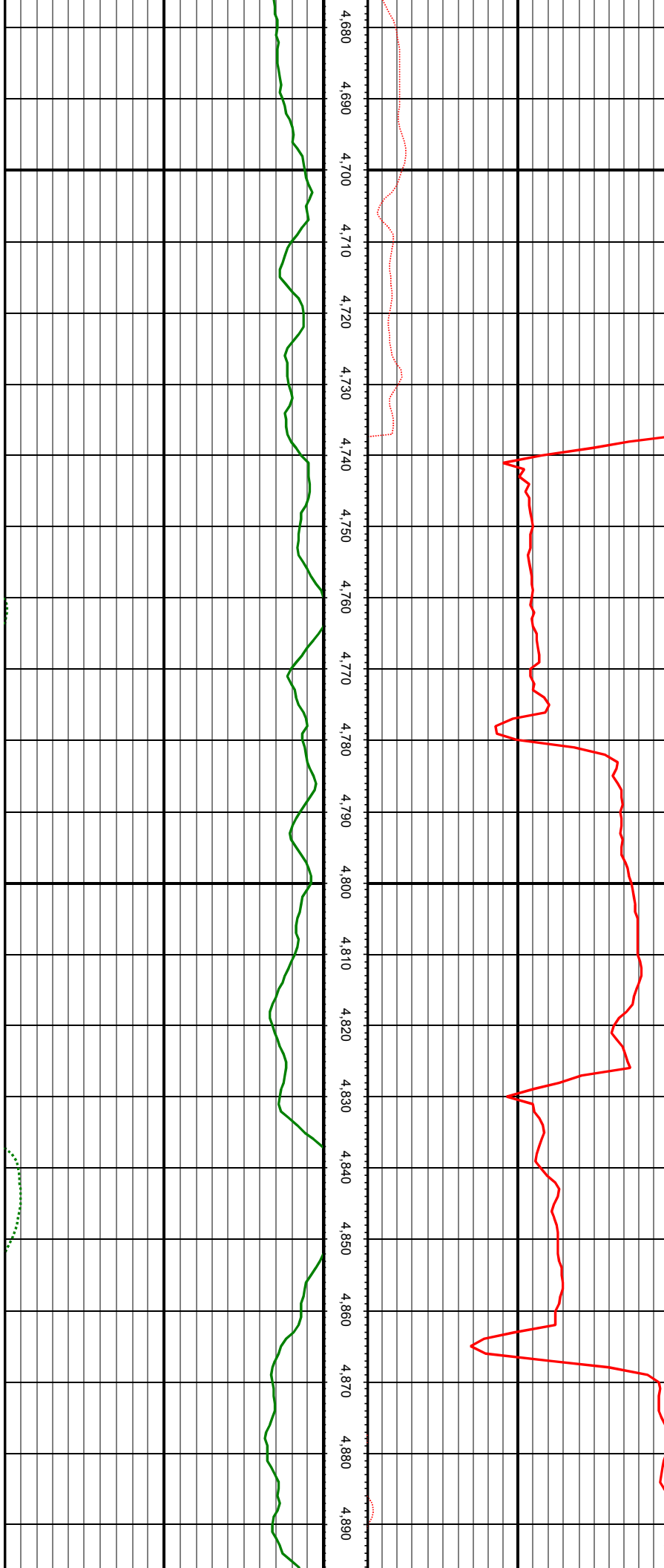
MD: 4407.00 INC: 16.26 AZ: 60.38 TVD: 4273.11 VS: -367.77



MD: 4496.00 INC: 16.88 AZ: 59.68 TVD: 4358.41 VS: -376.49

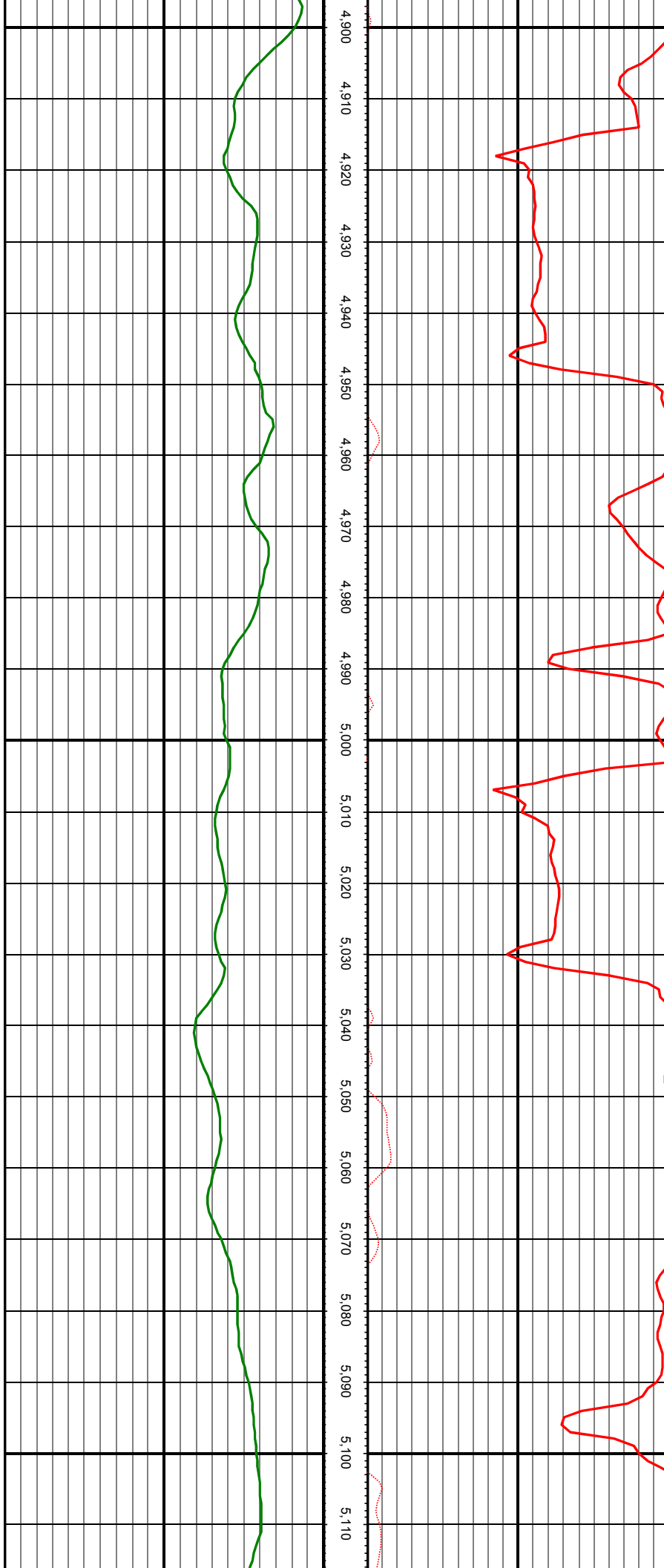
MD: 4585.00 INC: 17.23 AZ: 56.60 TVD: 4443.50 VS: -386.27

MD: 4675.00 INC: 14.77 AZ: 53.00 TVD: 4530.01 VS: -396.82



MD: 4764.00 INC: 14.02 AZ: 50.80 TVD: 4616.21 VS: -407.28

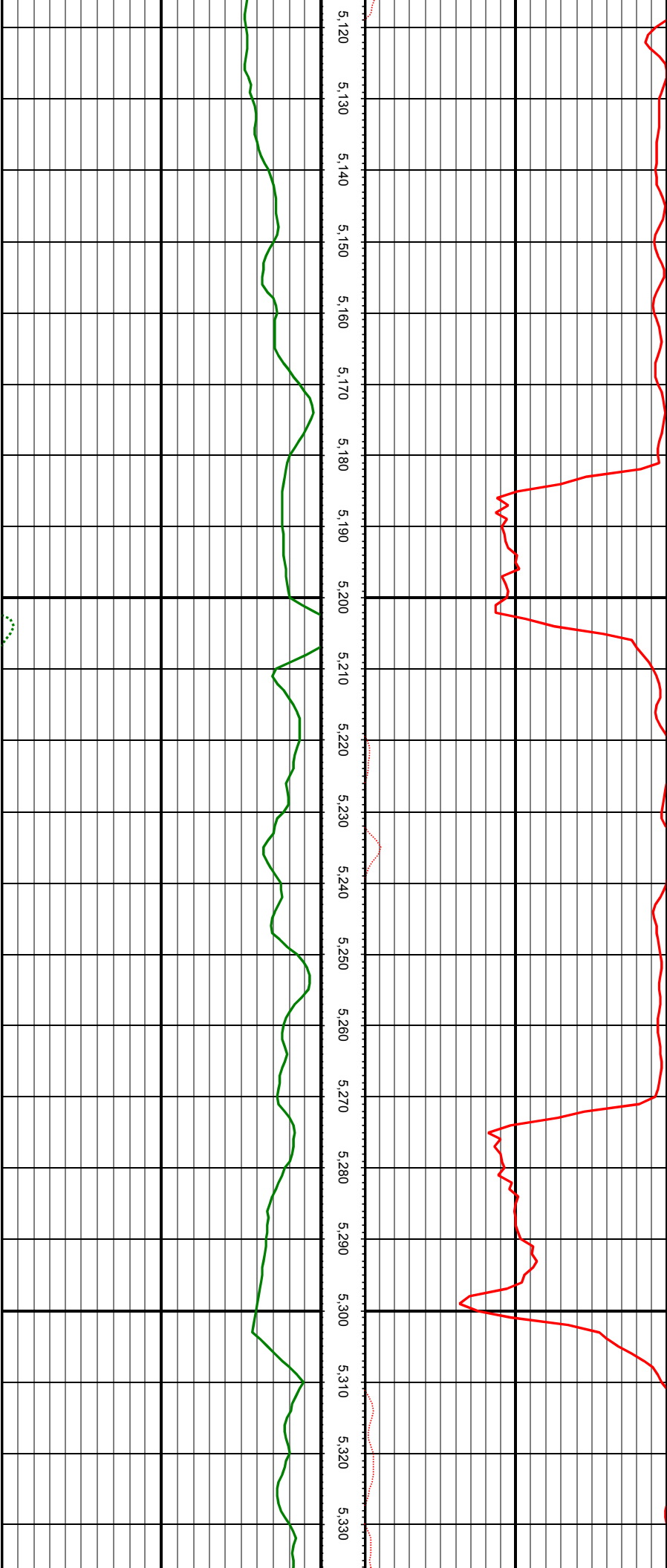
MD: 4853.00 INC: 14.50 AZ: 61.08 TVD: 4702.48 VS: -416.20



MD: 4942.00 INC: 15.56 AZ: 67.15 TVD: 4788.44 VS: -422.52

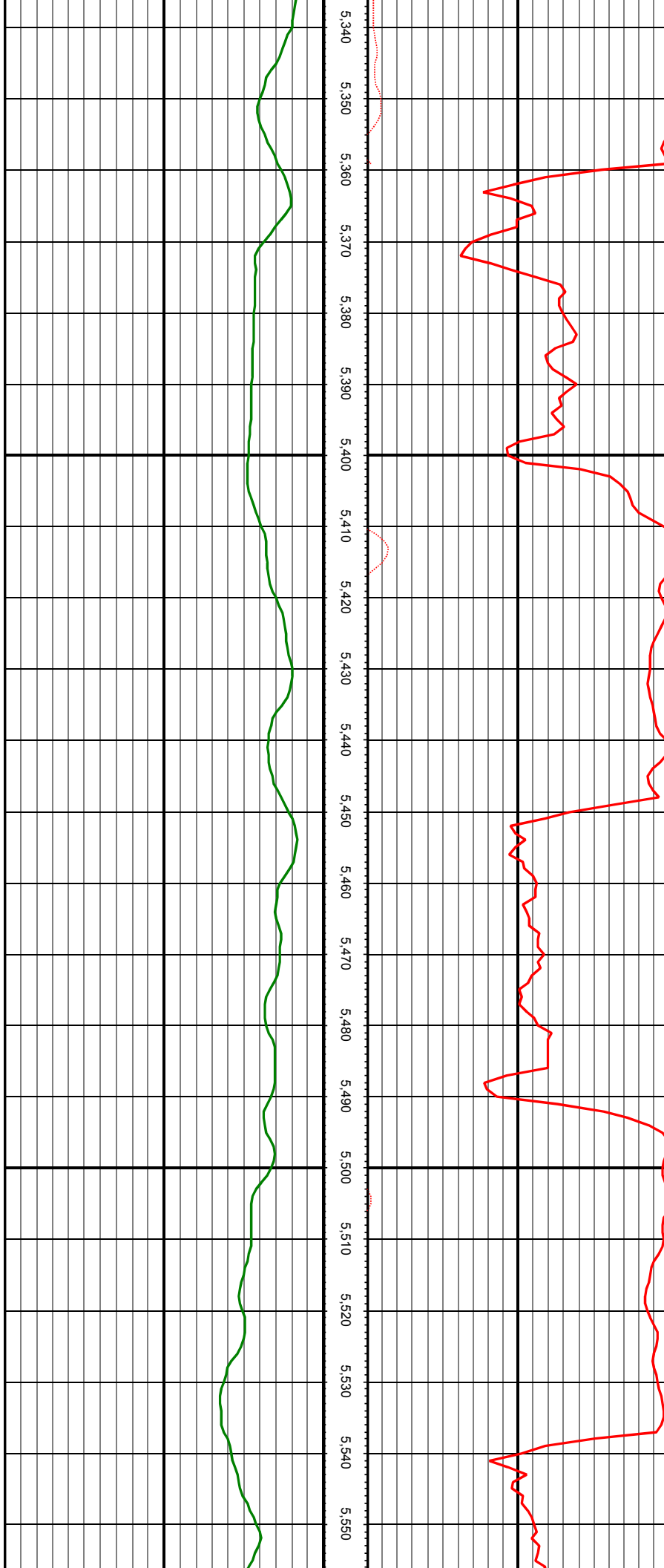
MD: 5031.00 INC: 16.57 AZ: 66.18 TVD: 4873.97 VS: -428.26

MD: 5120.00 INC: 15.47 AZ: 64.25 TVD: 4959.51 VS: -434.56



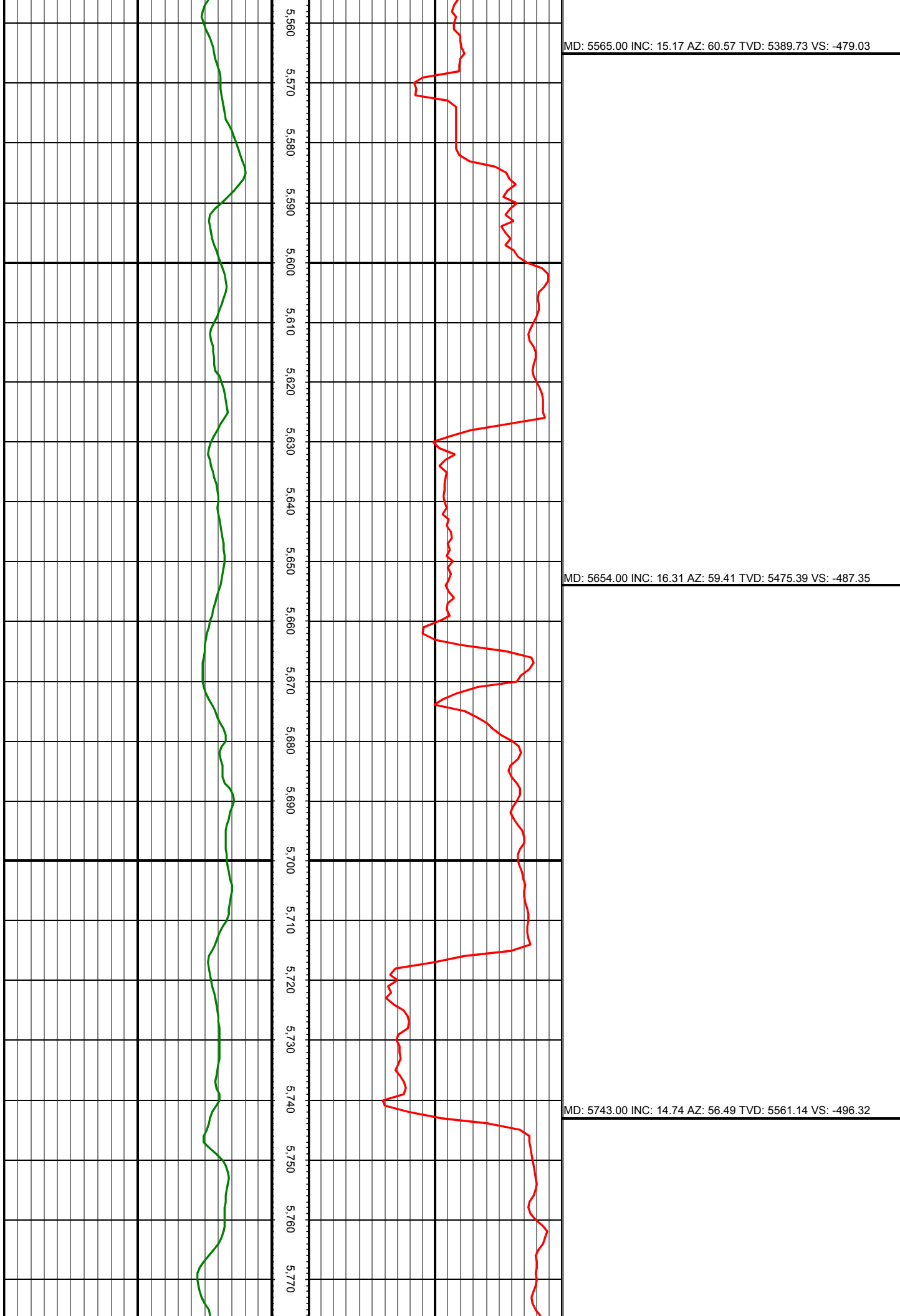
MD: 5209.00 INC: 14.81 AZ: 59.33 TVD: 5045.42 VS: -441.85

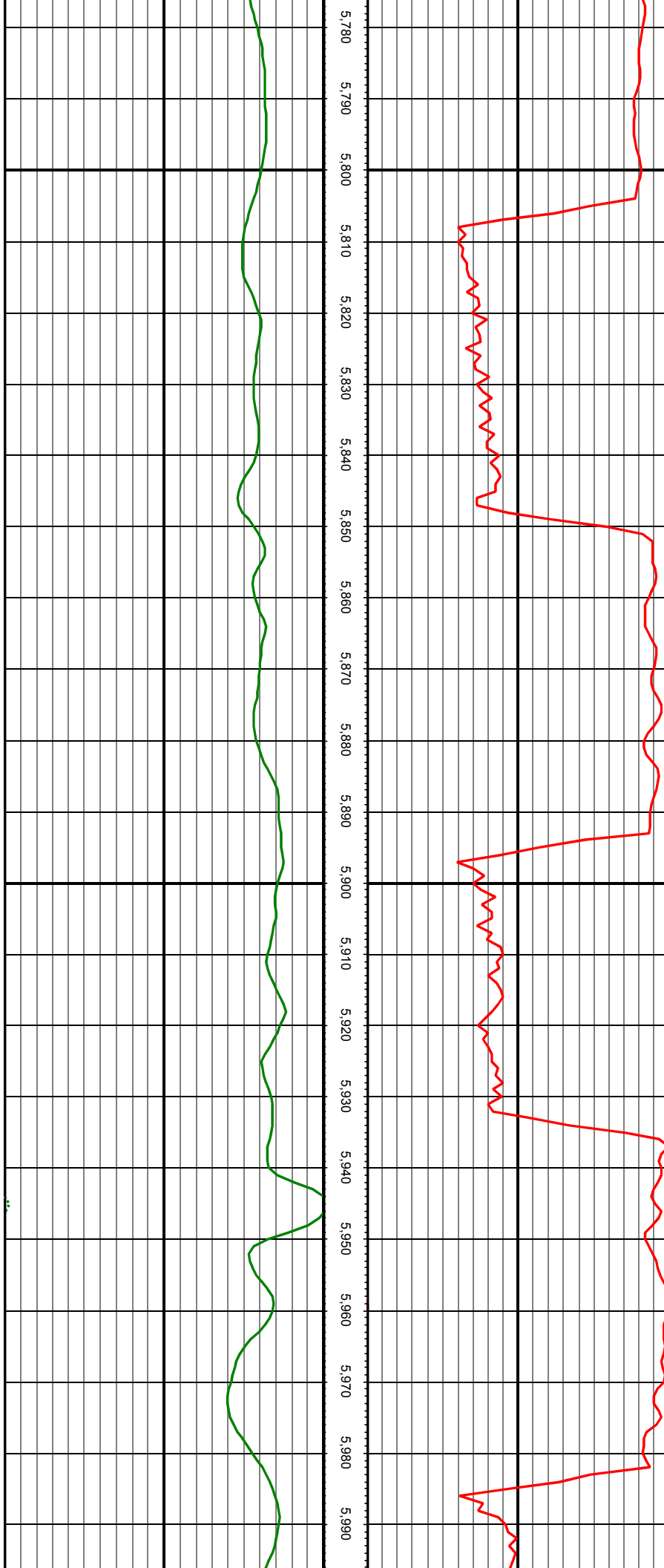
MD: 5298.00 INC: 13.80 AZ: 54.58 TVD: 5131.67 VS: -450.47



MD: 5387.00 INC: 14.28 AZ: 56.34 TVD: 5218.01 VS: -459.48

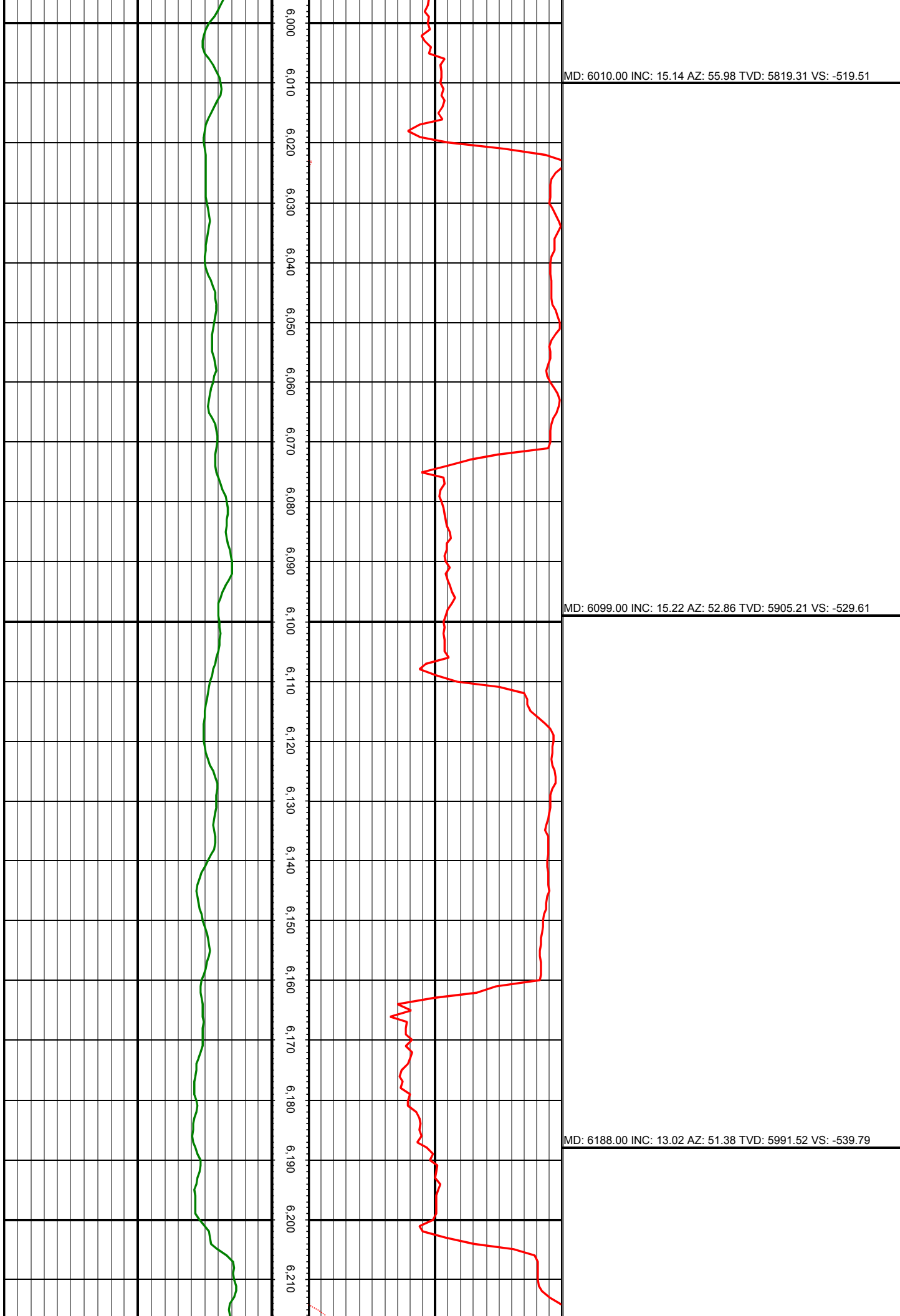
MD: 5476.00 INC: 15.82 AZ: 52.56 TVD: 5303.95 VS: -469.52

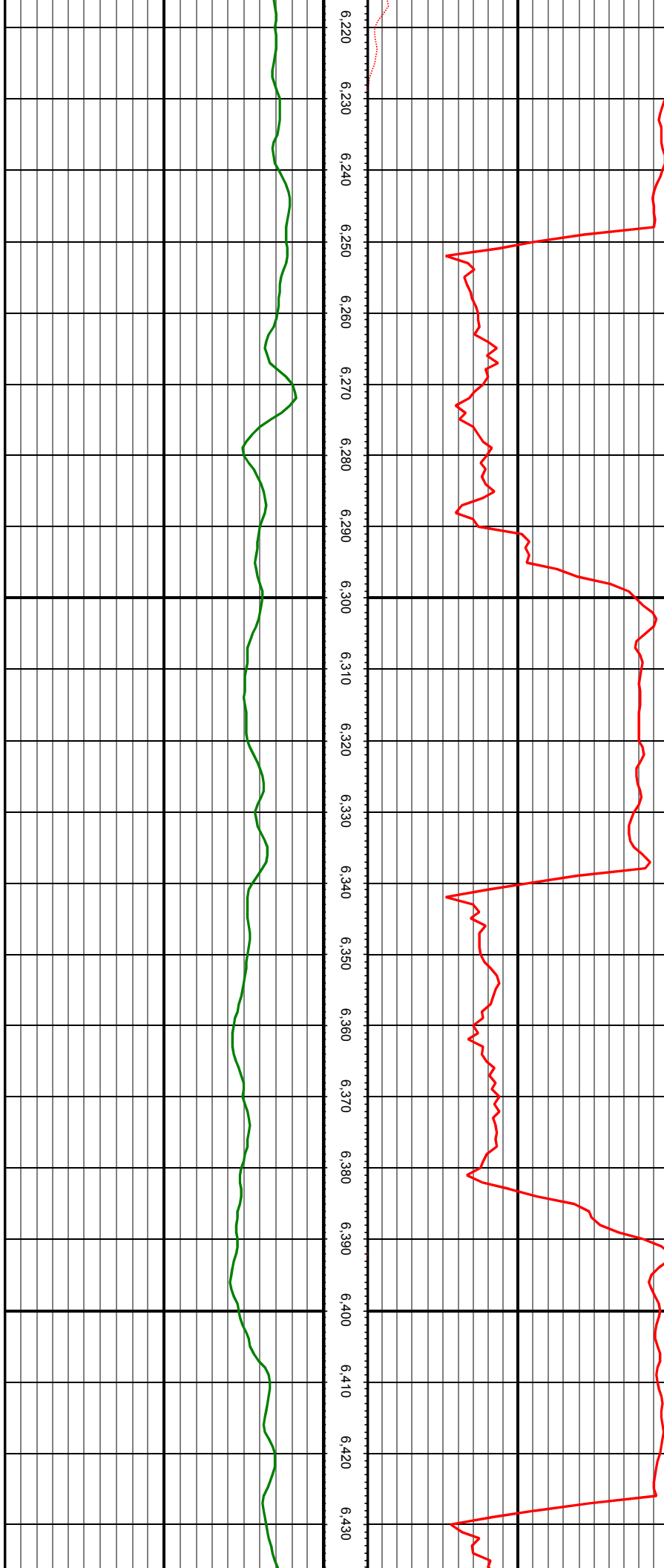




MD: 5832.00 INC: 13.94 AZ: 61.06 TVD: 5647.37 VS: -504.36

MD: 5921.00 INC: 15.45 AZ: 63.24 TVD: 5733.46 VS: -511.31

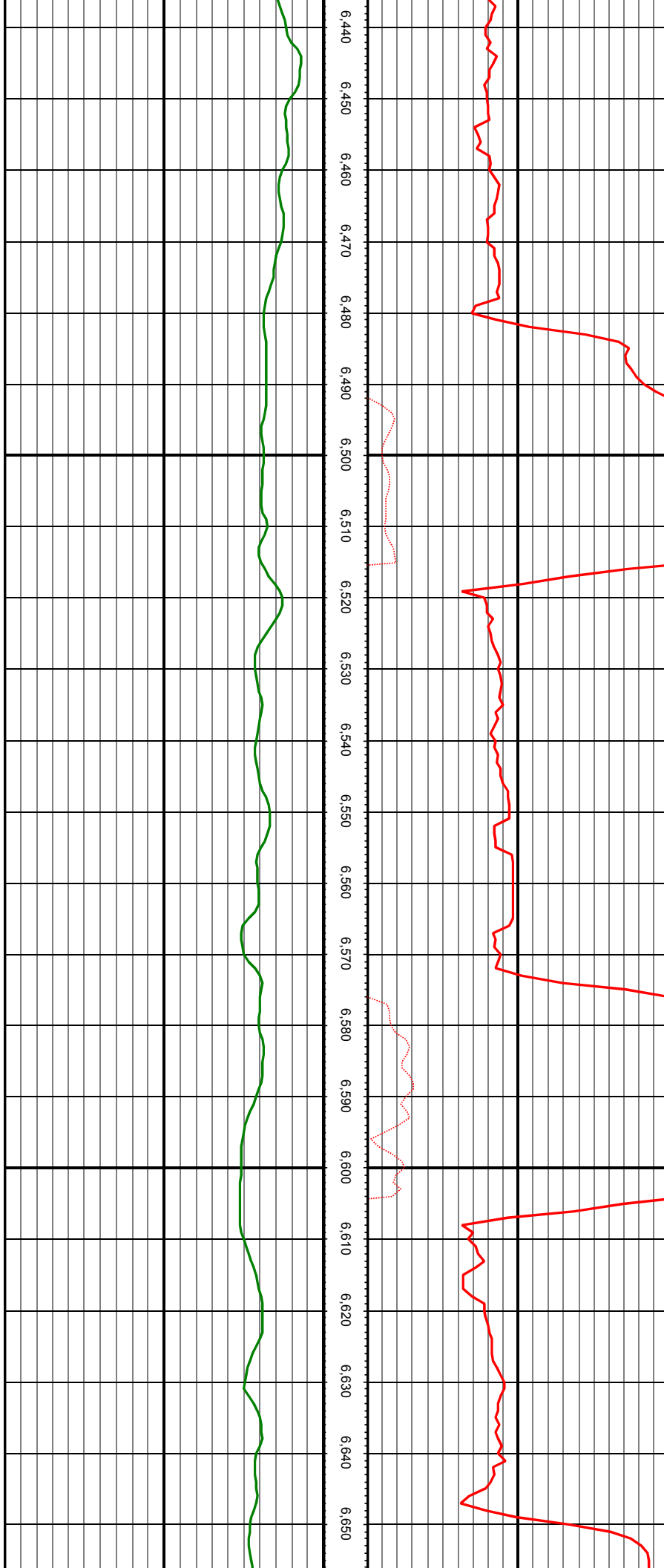




6.220 6.230 6.240 6.250 6.260 6.270 6.280 6.290 6.300 6.310 6.320 6.330 6.340 6.350 6.360 6.370 6.380 6.390 6.400 6.410 6.420 6.430

MD: 6277.00 INC: 12.51 AZ: 67.93 TVD: 6078.35 VS: -546.65

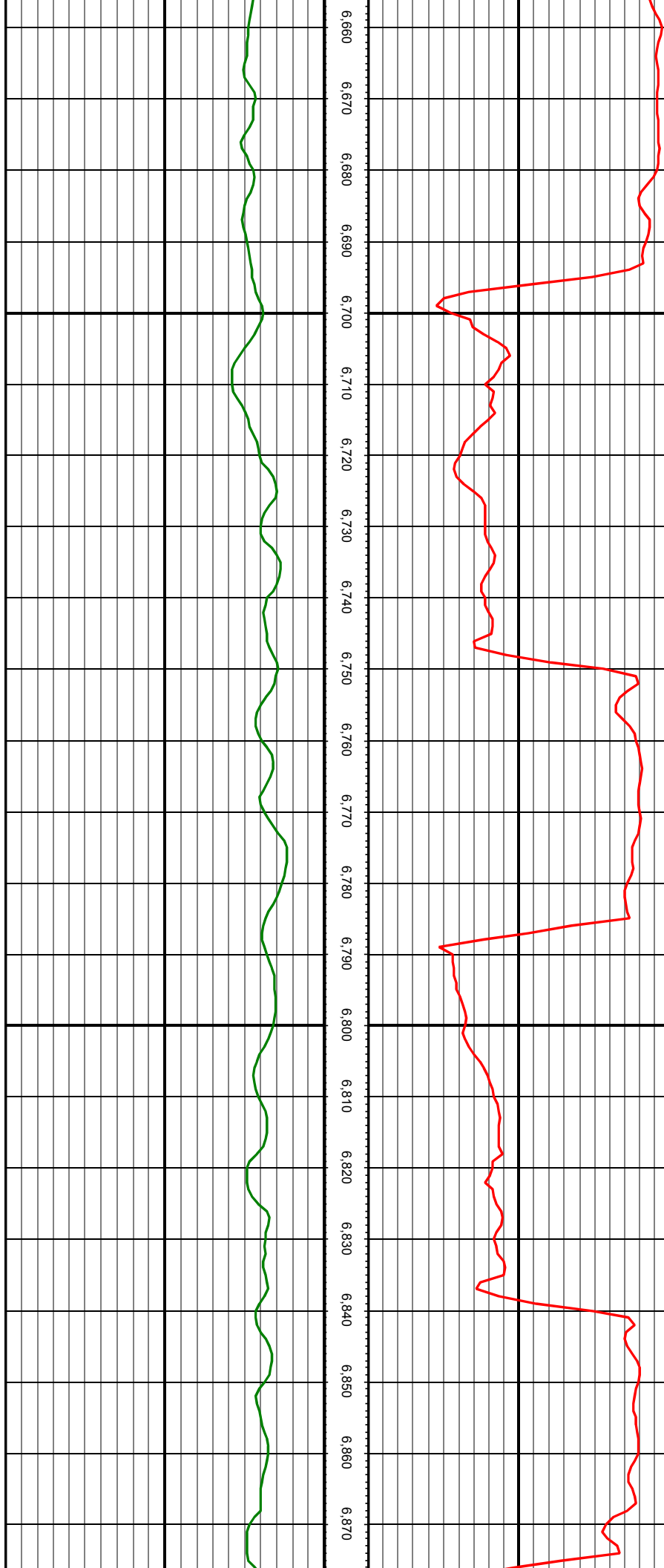
MD: 6366.00 INC: 12.14 AZ: 73.59 TVD: 6165.30 VS: -549.76



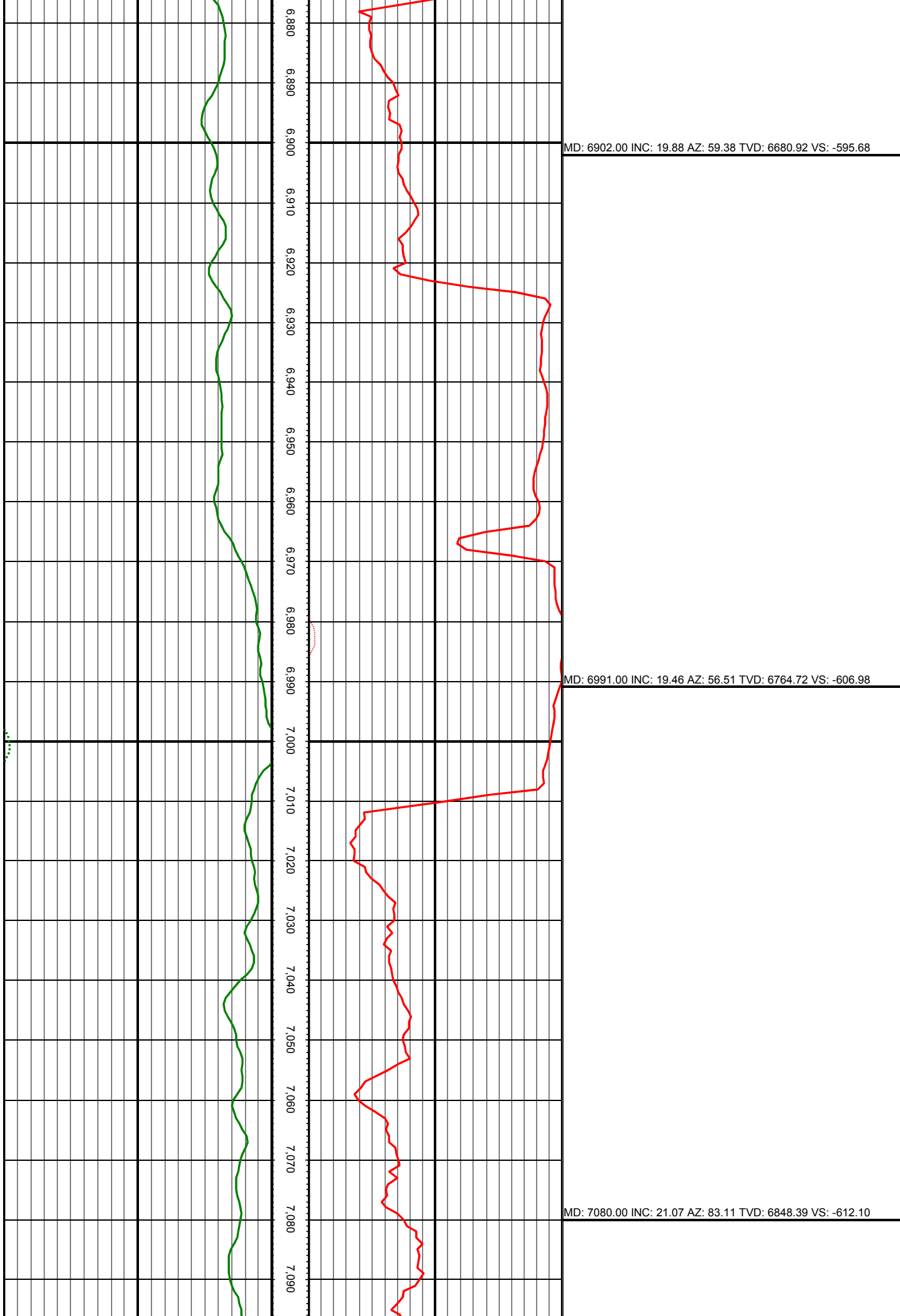
MD: 6456.00 INC: 13.15 AZ: 74.81 TVD: 6253.11 VS: -551.78

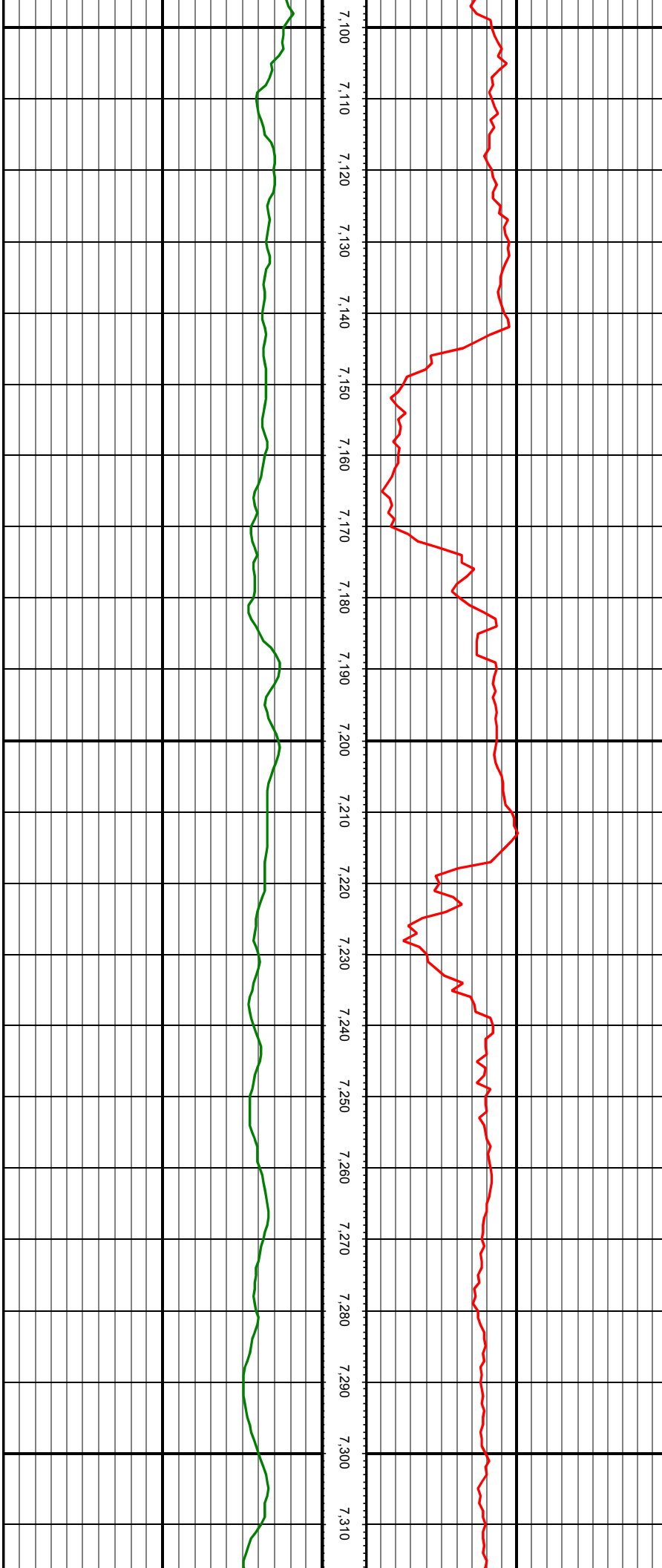
MD: 6545.00 INC: 15.32 AZ: 70.90 TVD: 6339.38 VS: -554.61

MD: 6634.00 INC: 16.76 AZ: 58.57 TVD: 6424.94 VS: -561.21



MD: 6812.00 INC: 18.16 AZ: 50.38 TVD: 6595.81 VS: -583.29





MD: 7169.00 INC: 22.55 AZ: 94.40 TVD: 6931.05 VS: -607.06

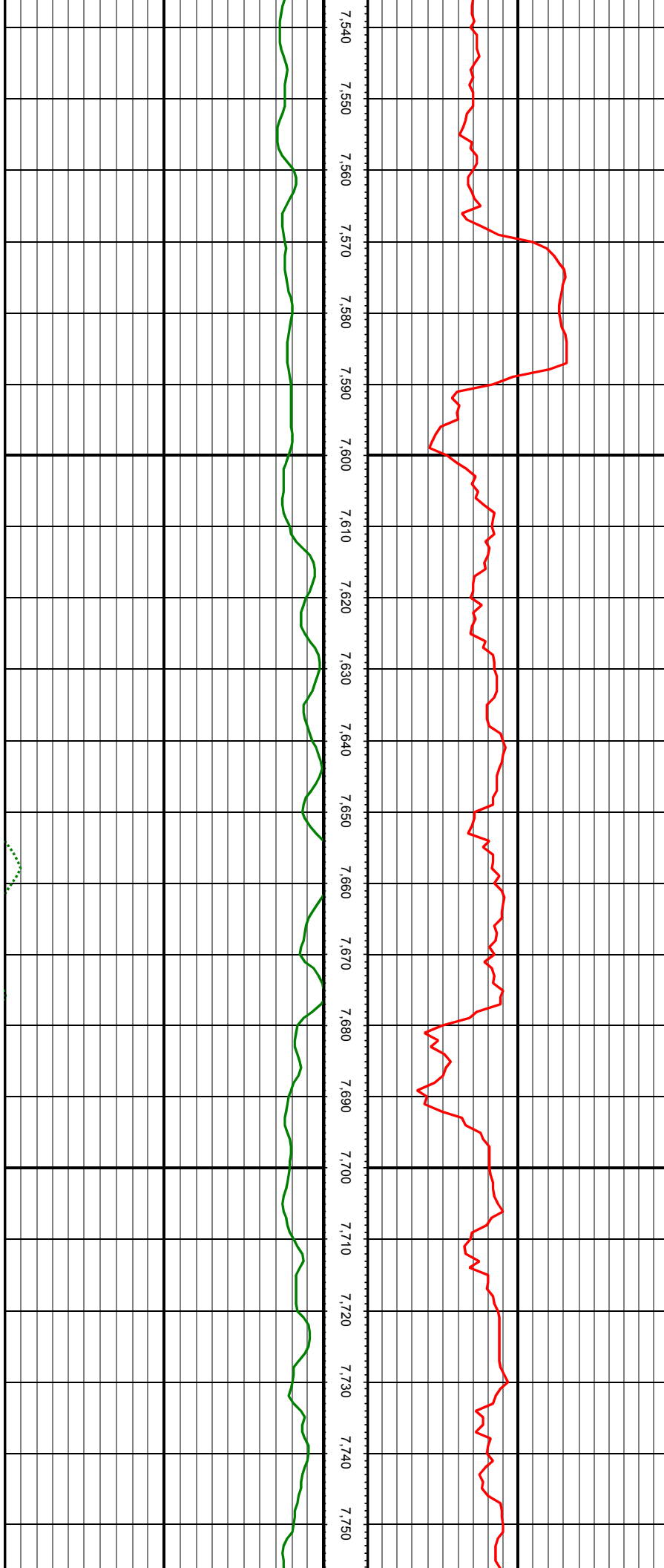
MD: 7258.00 INC: 21.23 AZ: 117.11 TVD: 7013.78 VS: -593.13



MD: 7348.00 INC: 21.26 AZ: 147.32 TVD: 7097.92 VS: -568.22

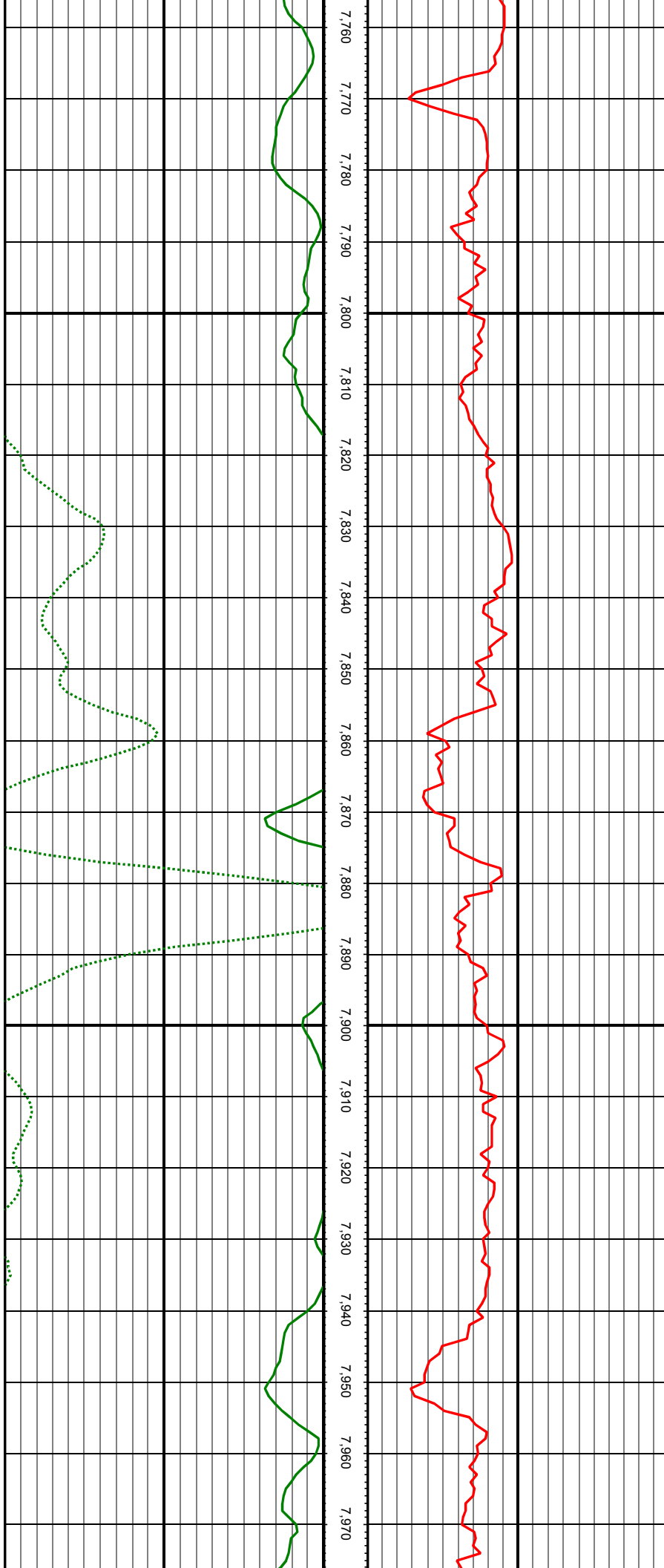
MD: 7437.00 INC: 25.09 AZ: 168.16 TVD: 7179.86 VS: -534.41

MD: 7526.00 INC: 27.86 AZ: 177.19 TVD: 7259.55 VS: -494.89



MD: 7615.00 INC: 31.50 AZ: 169.95 TVD: 7336.89 VS: -450.98

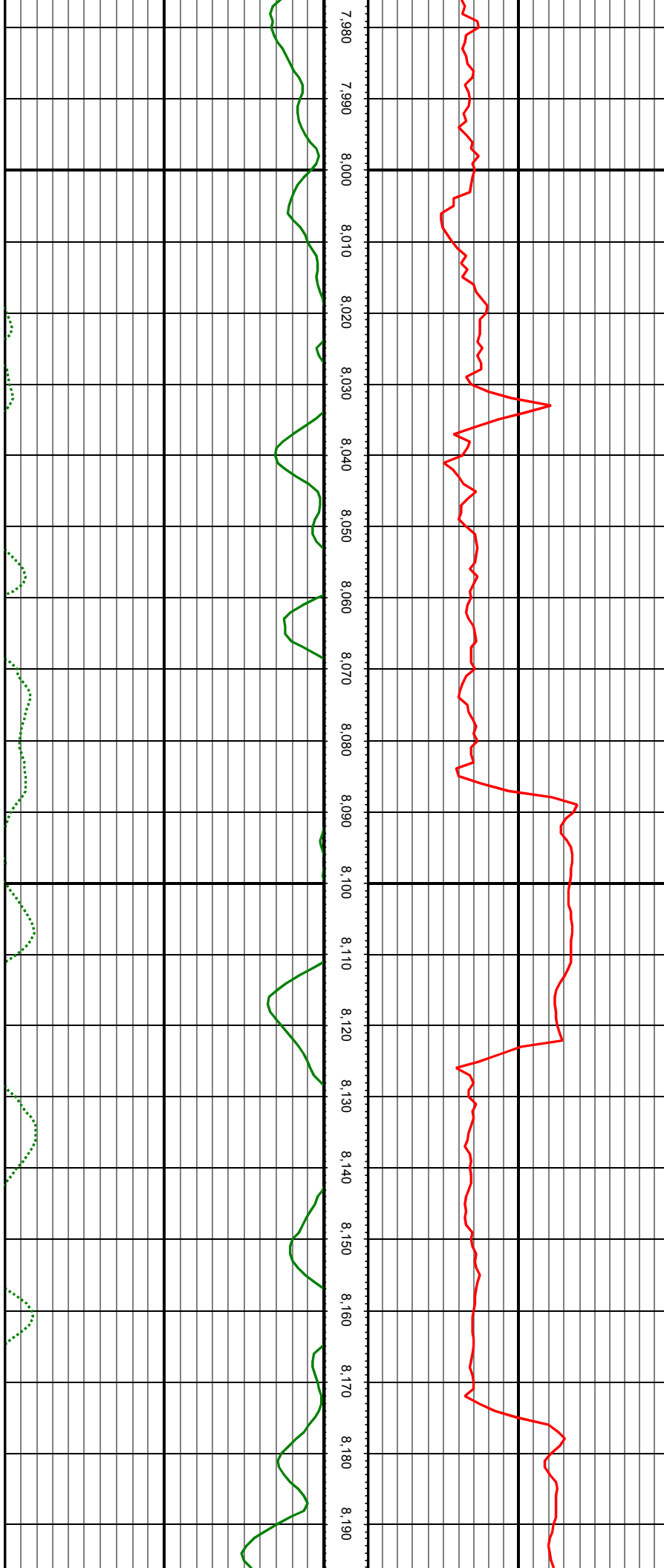
MD: 7704.00 INC: 35.33 AZ: 170.83 TVD: 7411.16 VS: -401.98



MD: 7793.00 INC: 42.47 AZ: 172.42 TVD: 7480.38 VS: -346.15

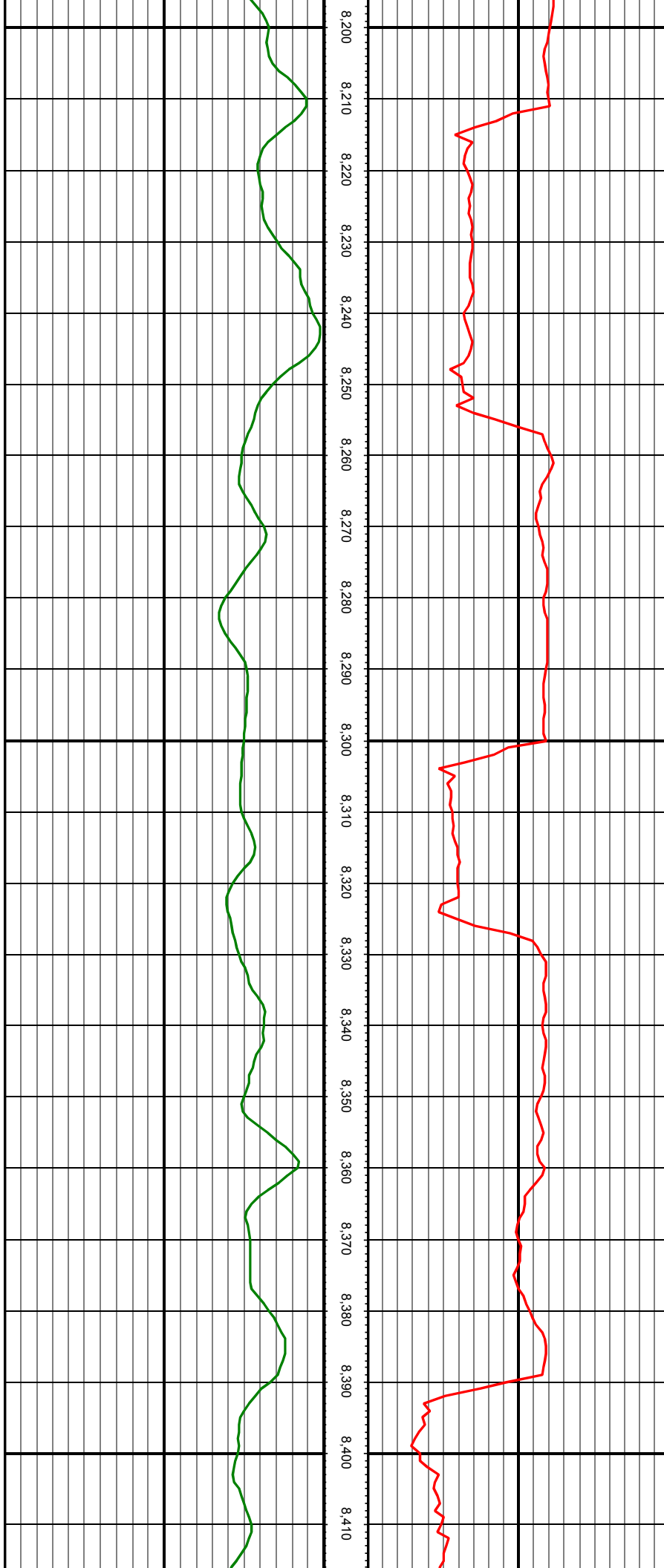
MD: 7882.00 INC: 51.71 AZ: 171.18 TVD: 7540.91 VS: -281.06

MD: 7971.00 INC: 61.82 AZ: 168.54 TVD: 7589.63 VS: -206.73



MD: 8060.00 INC: 71.07 AZ: 167.63 TVD: 7625.16 VS: -125.29

MD: 8149.00 INC: 76.38 AZ: 170.96 TVD: 7650.10 VS: -39.90

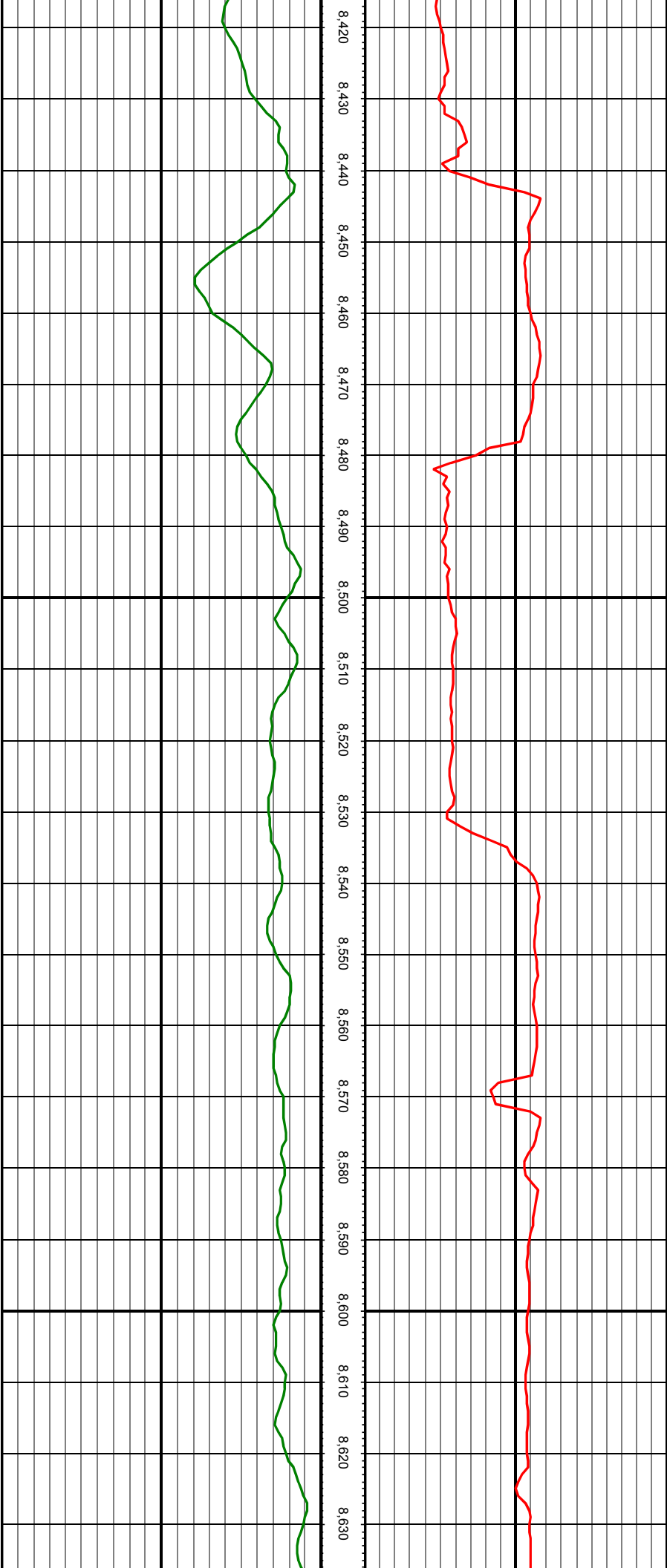


MD: 8238.00 INC: 80.54 AZ: 175.14 TVD: 7667.91 VS: 47.14

MD: 8327.00 INC: 81.50 AZ: 176.20 TVD: 7681.80 VS: 134.64

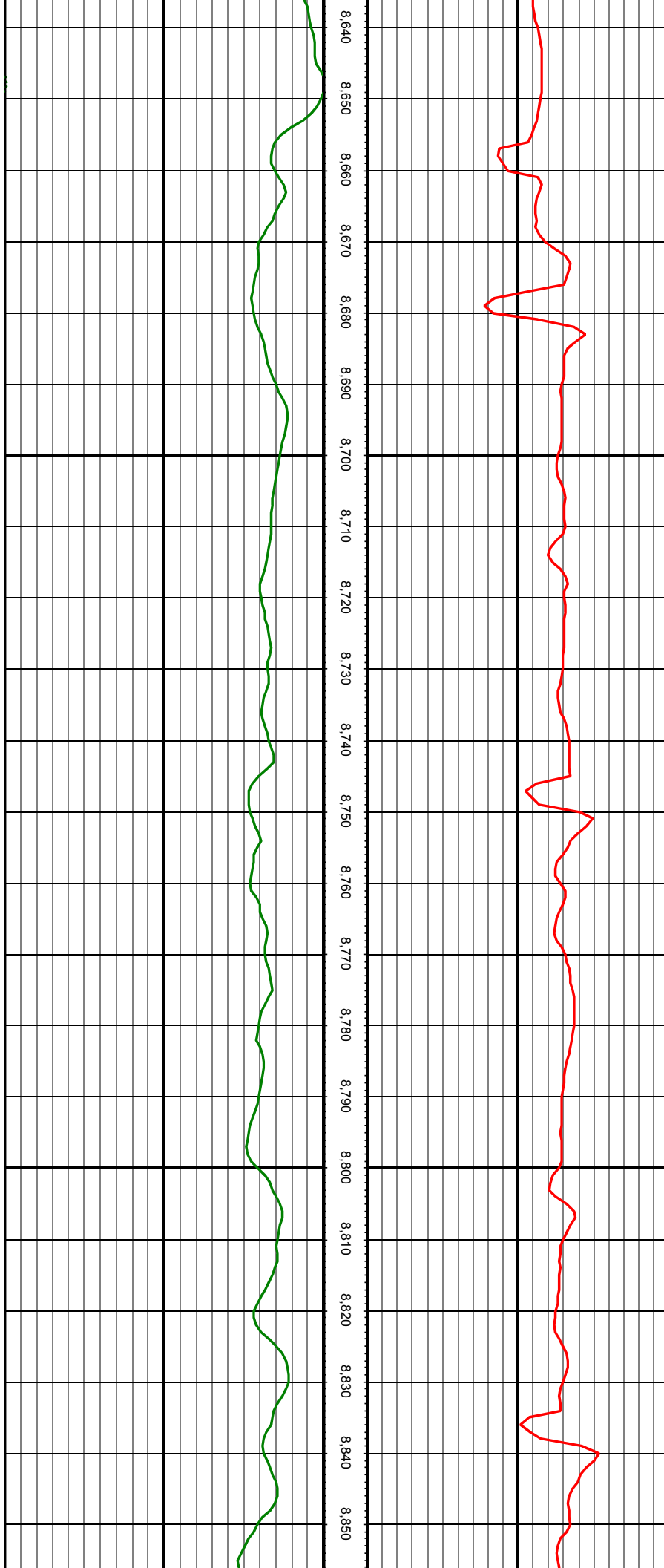
MD: 8417.00 INC: 83.34 AZ: 177.00 TVD: 7693.67 VS: 223.28

MD: 8477.00 INC: 88.37 AZ: 177.93 TVD: 7699.37 VS: 229.25



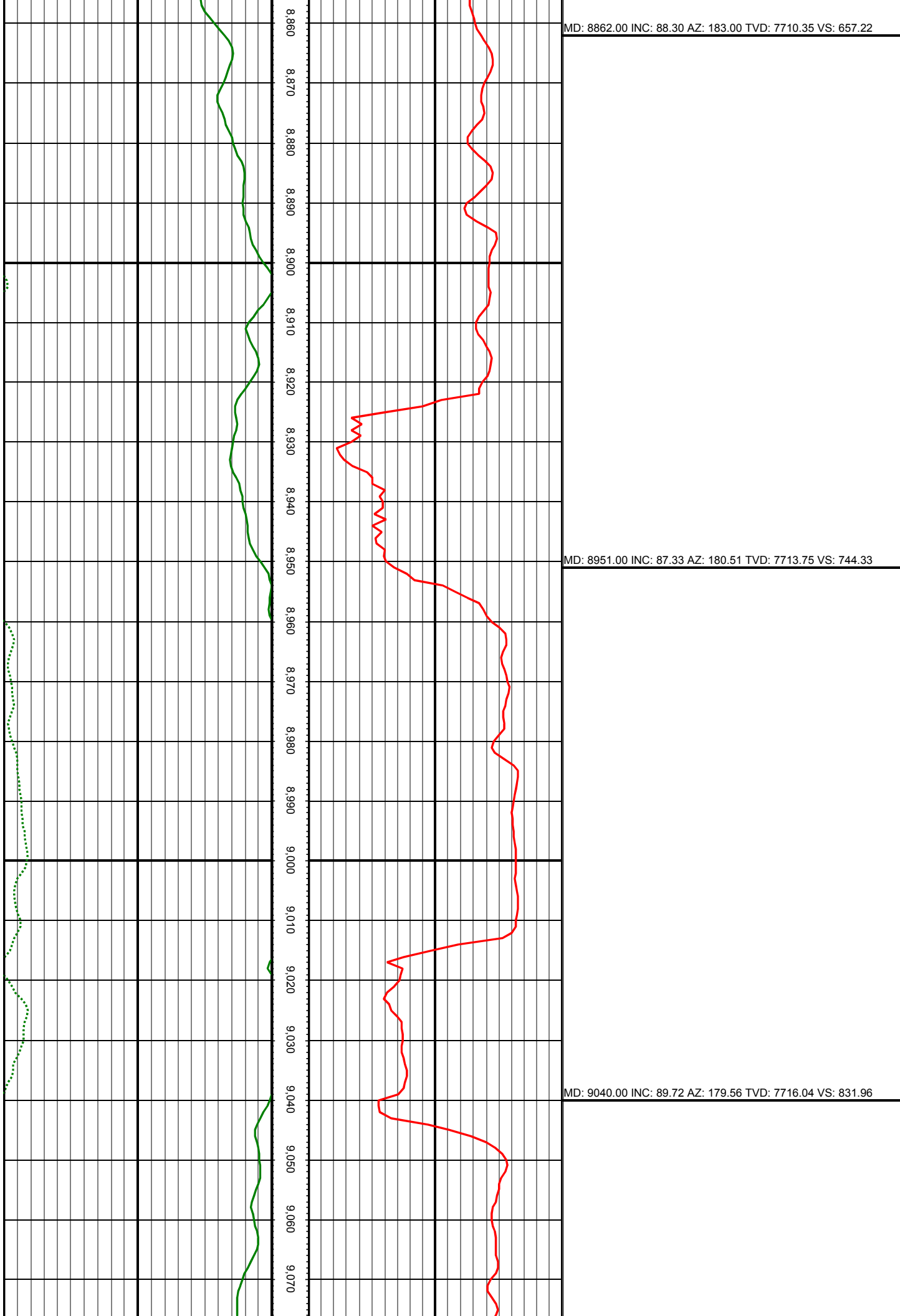
MD: 8506.00 INC: 87.45 AZ: 181.67 TVD: 7700.82 VS: 310.80

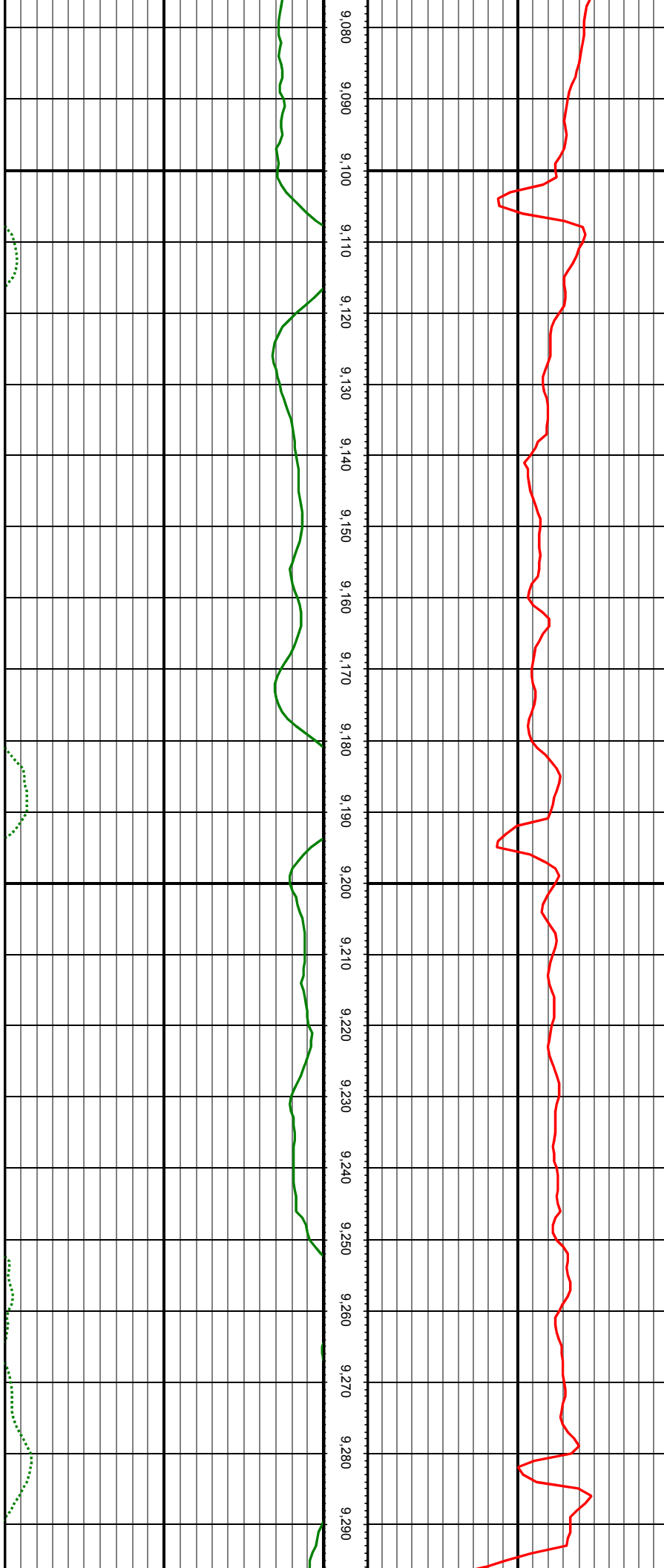
MD: 8595.00 INC: 88.82 AZ: 184.29 TVD: 7703.72 VS: 397.52



MD: 8684.00 INC: 88.57 AZ: 183.67 TVD: 7705.75 VS: 483.91

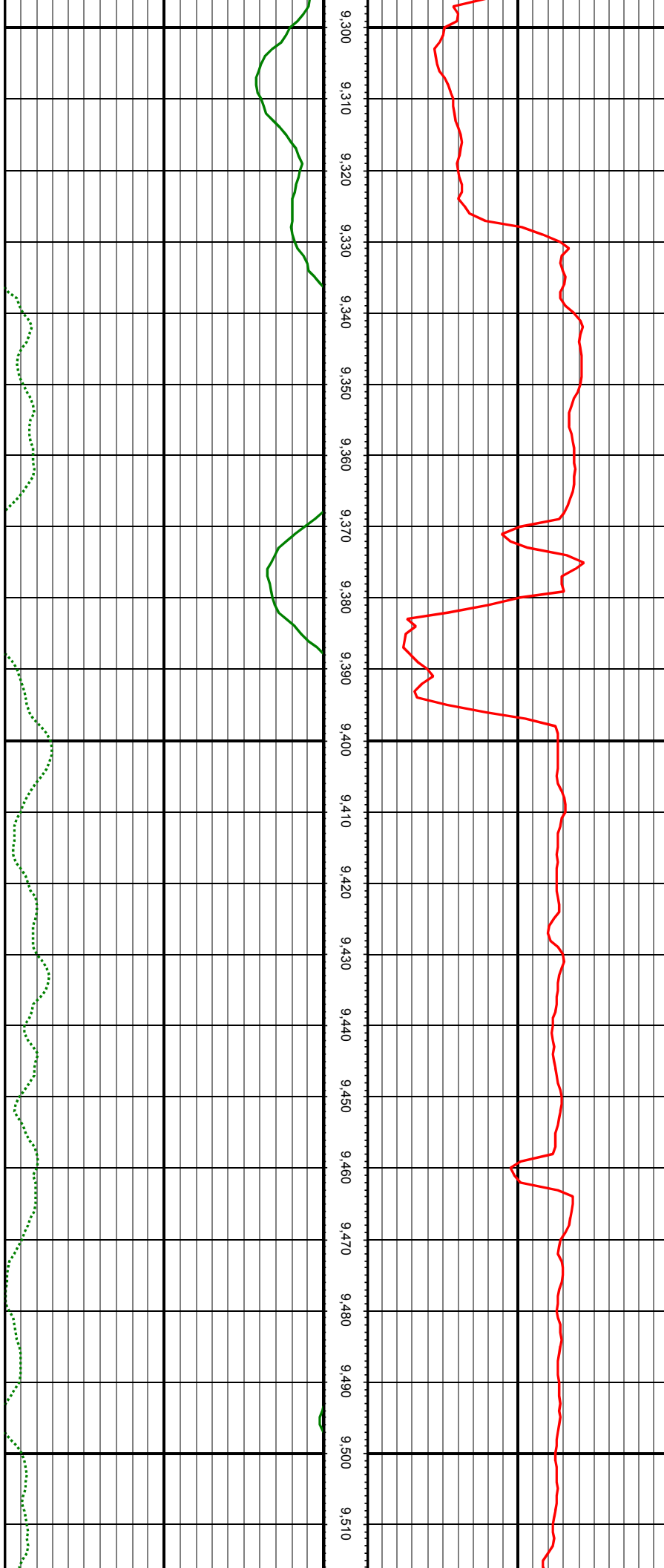
MD: 8773.00 INC: 88.60 AZ: 183.11 TVD: 7707.94 VS: 570.51





MD: 9129.00 INC: 89.63 AZ: 180.11 TVD: 7716.54 VS: 919.69

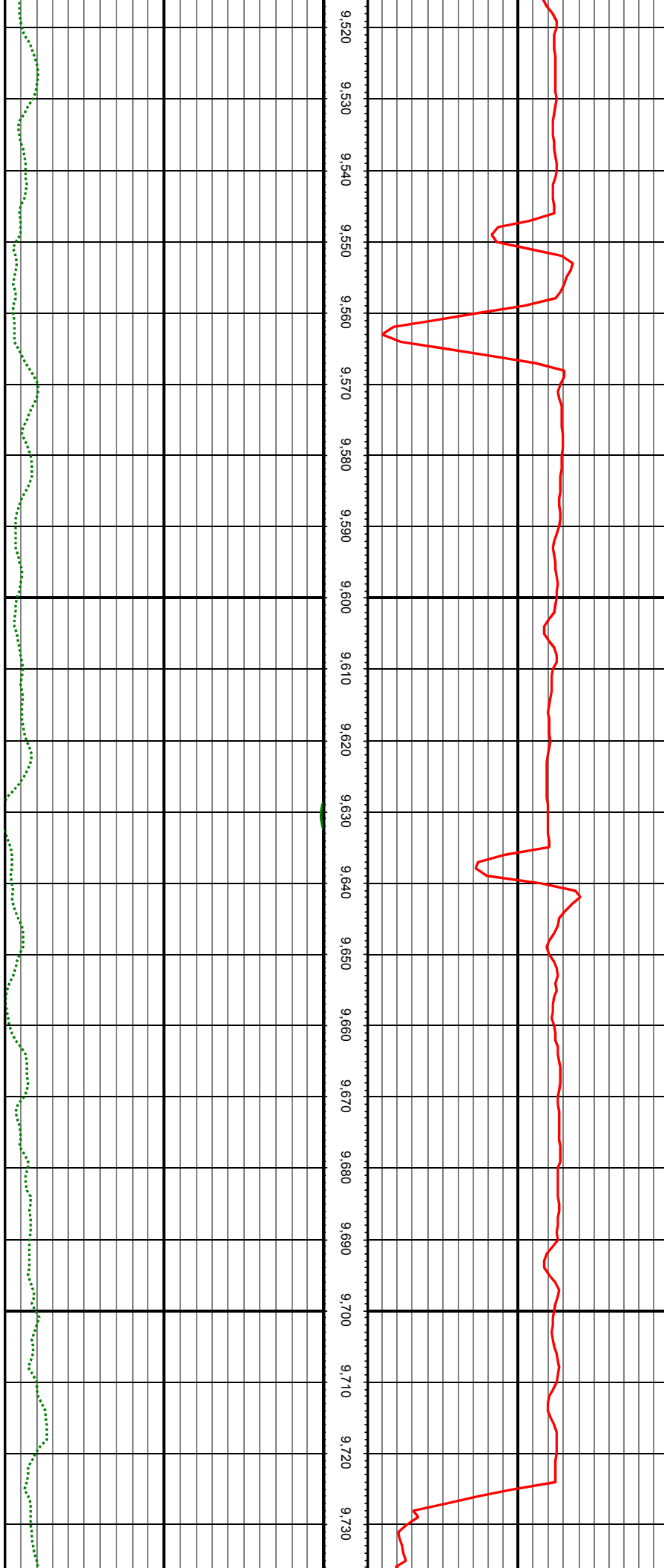
MD: 9218.00 INC: 89.34 AZ: 180.84 TVD: 7717.34 VS: 1007.24



MD: 9307.00 INC: 88.93 AZ: 179.86 TVD: 7718.68 VS: 1094.81

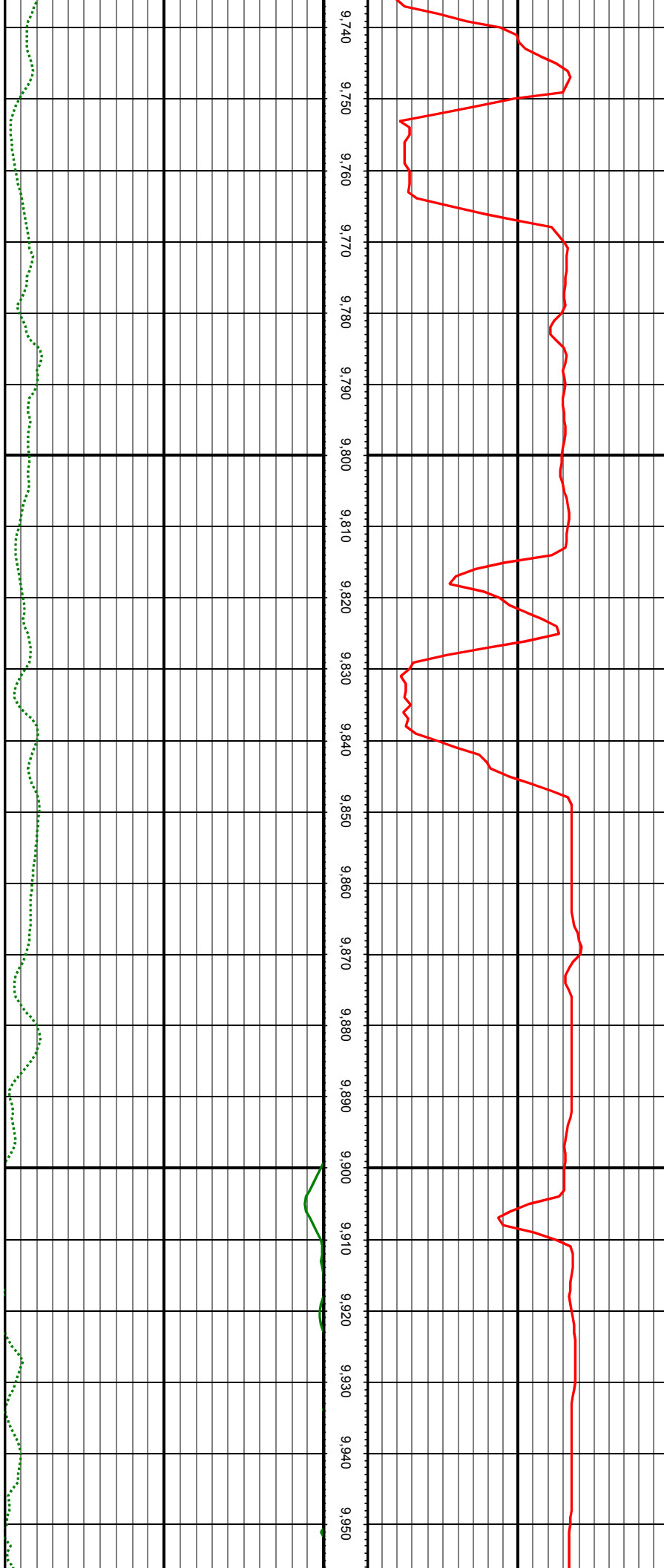
MD: 9396.00 INC: 90.24 AZ: 178.04 TVD: 7719.33 VS: 1182.75

MD: 9486.00 INC: 90.05 AZ: 178.03 TVD: 7719.10 VS: 1271.90



MD: 9574.00 INC: 90.97 AZ: 177.42 TVD: 7718.32 VS: 1359.12

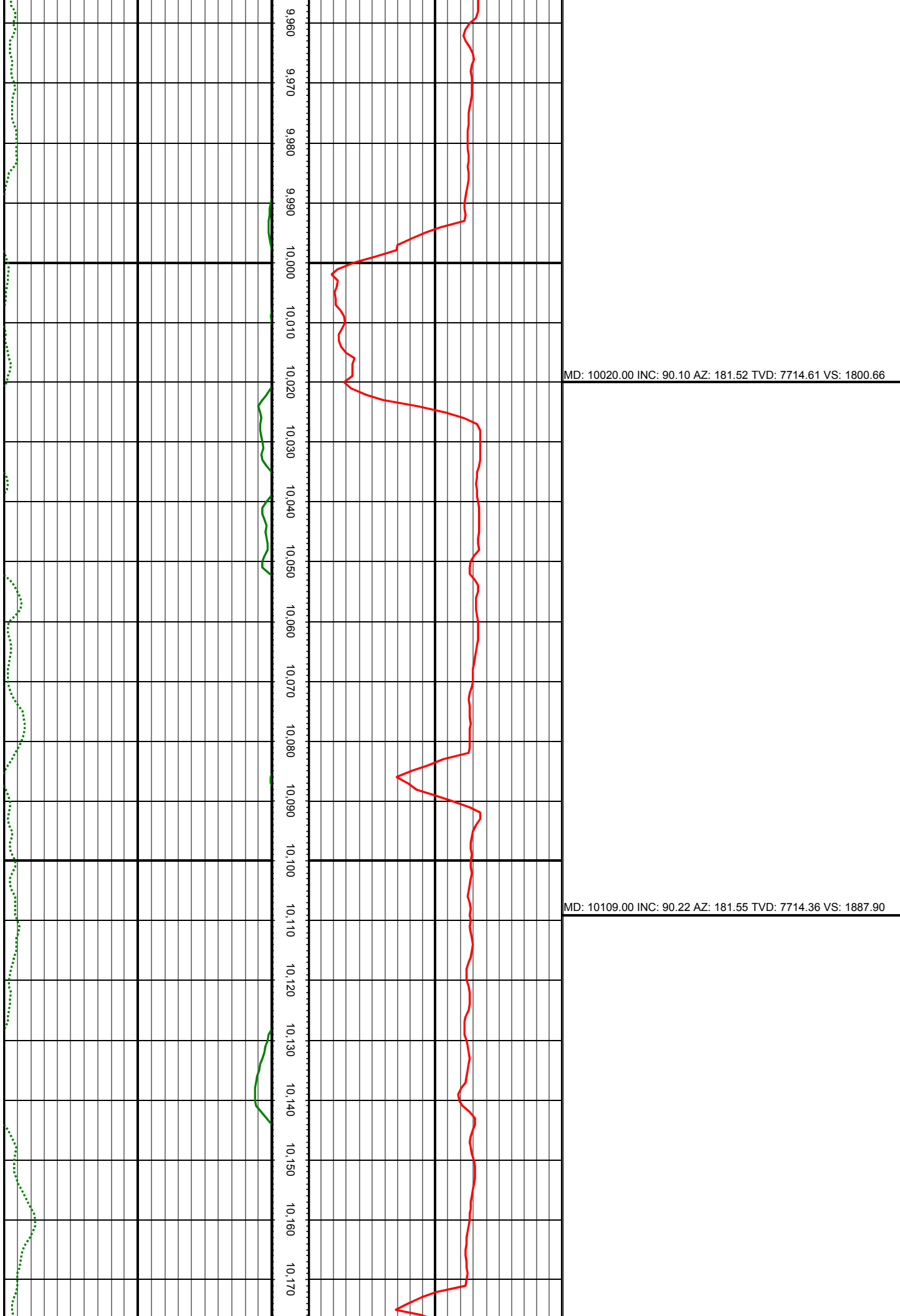
MD: 9664.00 INC: 90.85 AZ: 177.12 TVD: 7716.89 VS: 1448.41

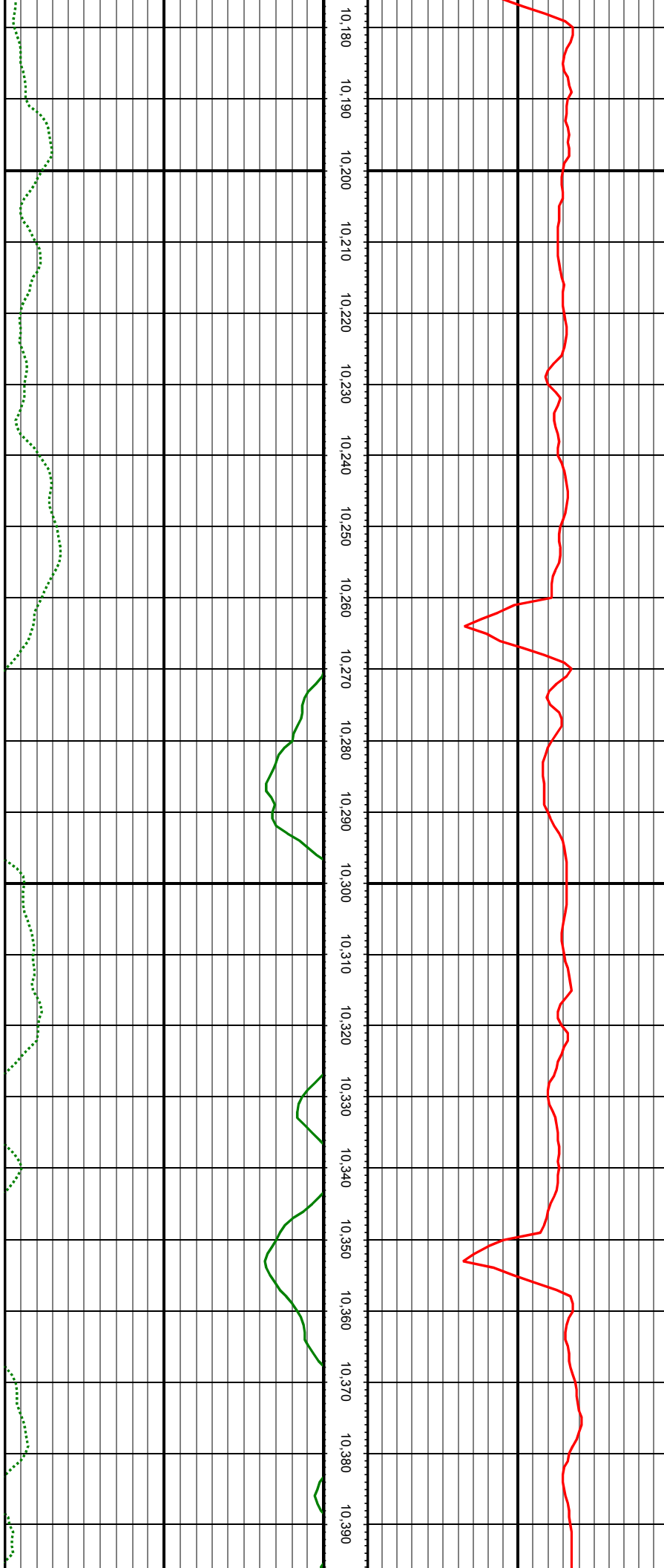


MD: 9753.00 INC: 91.24 AZ: 177.16 TVD: 7715.27 VS: 1536.73

MD: 9842.00 INC: 89.82 AZ: 178.62 TVD: 7714.44 VS: 1624.91

MD: 9931.00 INC: 89.93 AZ: 178.33 TVD: 7714.64 VS: 1712.96

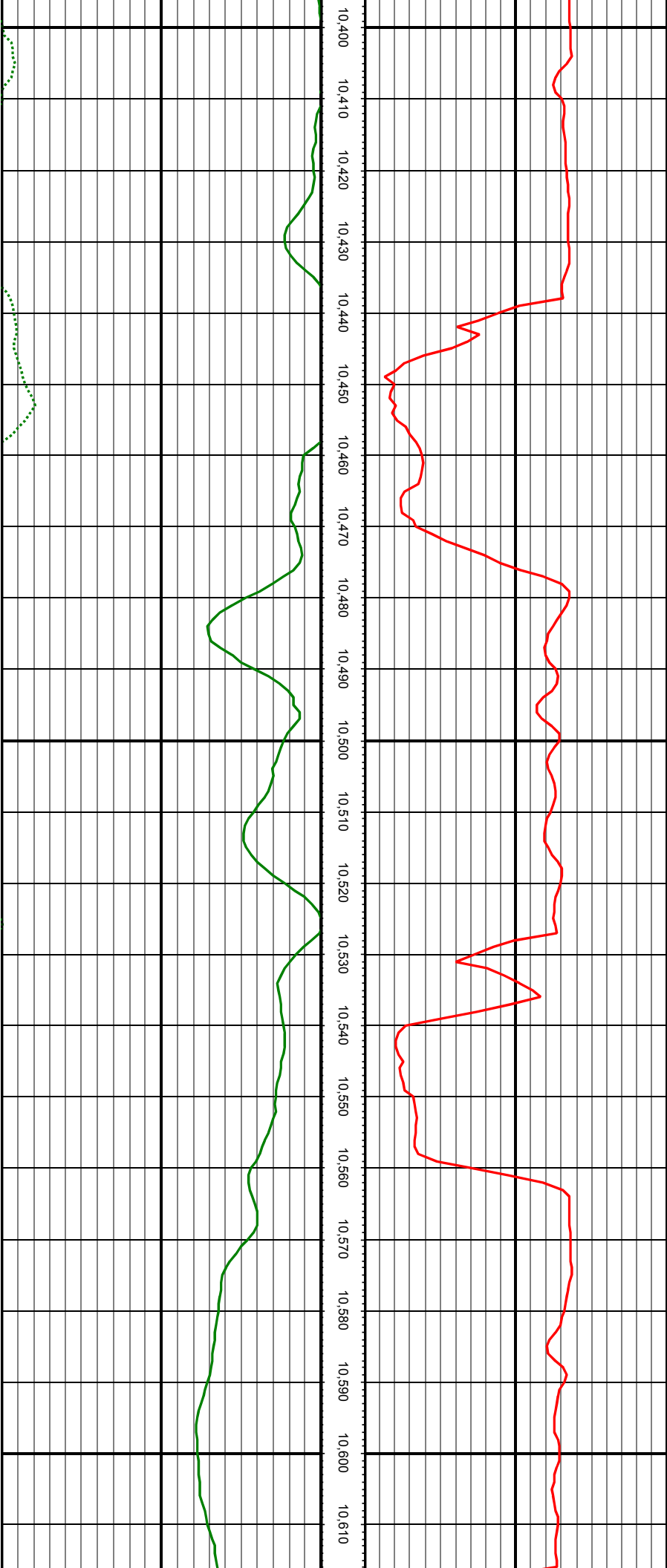




MD: 10198.00 INC: 90.54 AZ: 181.71 TVD: 7713.77 VS: 1975.11

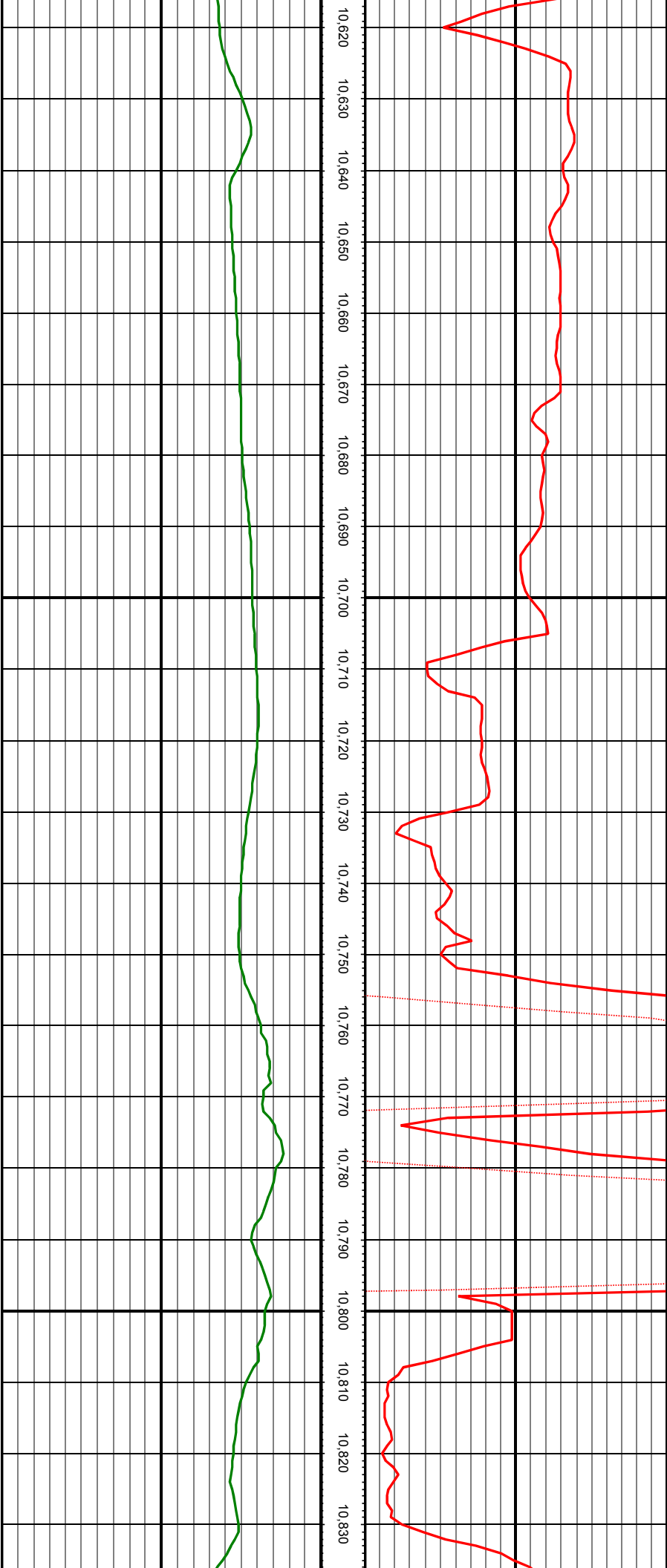
MD: 10287.00 INC: 90.85 AZ: 181.41 TVD: 7712.70 VS: 2062.34

MD: 10376.00 INC: 91.14 AZ: 180.73 TVD: 7711.15 VS: 2149.71



MD: 10465.00 INC: 90.56 AZ: 179.94 TVD: 7709.83 VS: 2237.29

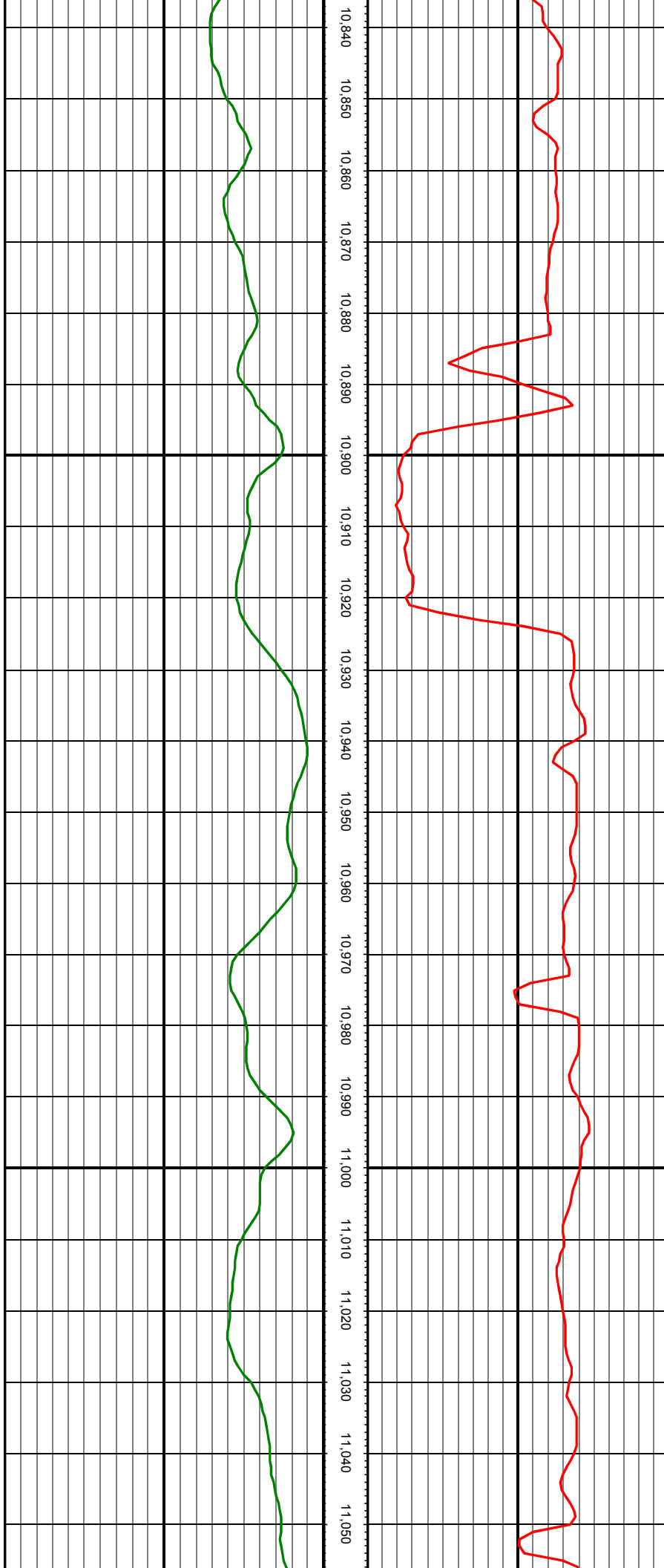
MD: 10555.00 INC: 90.45 AZ: 181.10 TVD: 7709.04 VS: 2325.81



MD: 10644.00 INC: 90.80 AZ: 180.40 TVD: 7708.07 VS: 2413.28

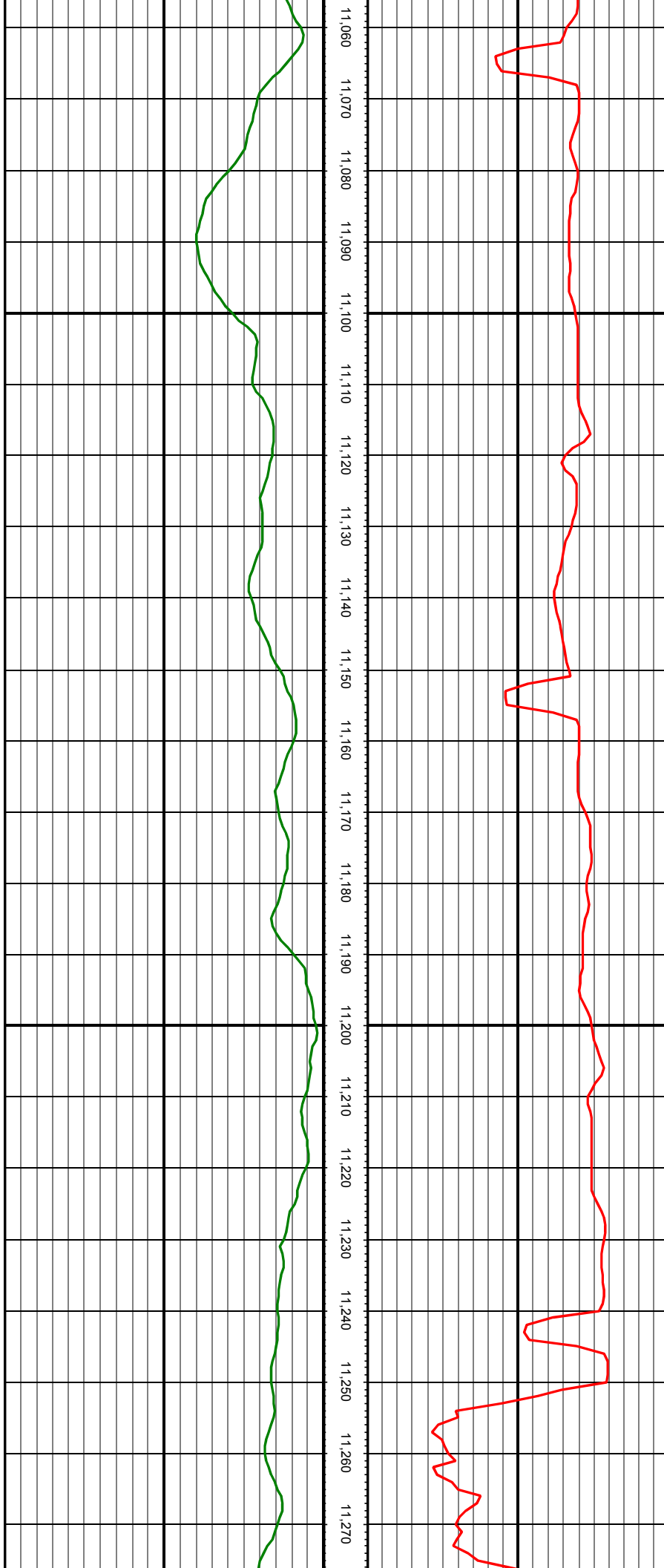
MD: 10733.00 INC: 91.87 AZ: 179.97 TVD: 7705.99 VS: 2500.88

MD: 10822.00 INC: 91.89 AZ: 180.31 TVD: 7703.07 VS: 2588.48



MD: 10911.00 INC: 89.27 AZ: 181.55 TVD: 7702.17 VS: 2675.89

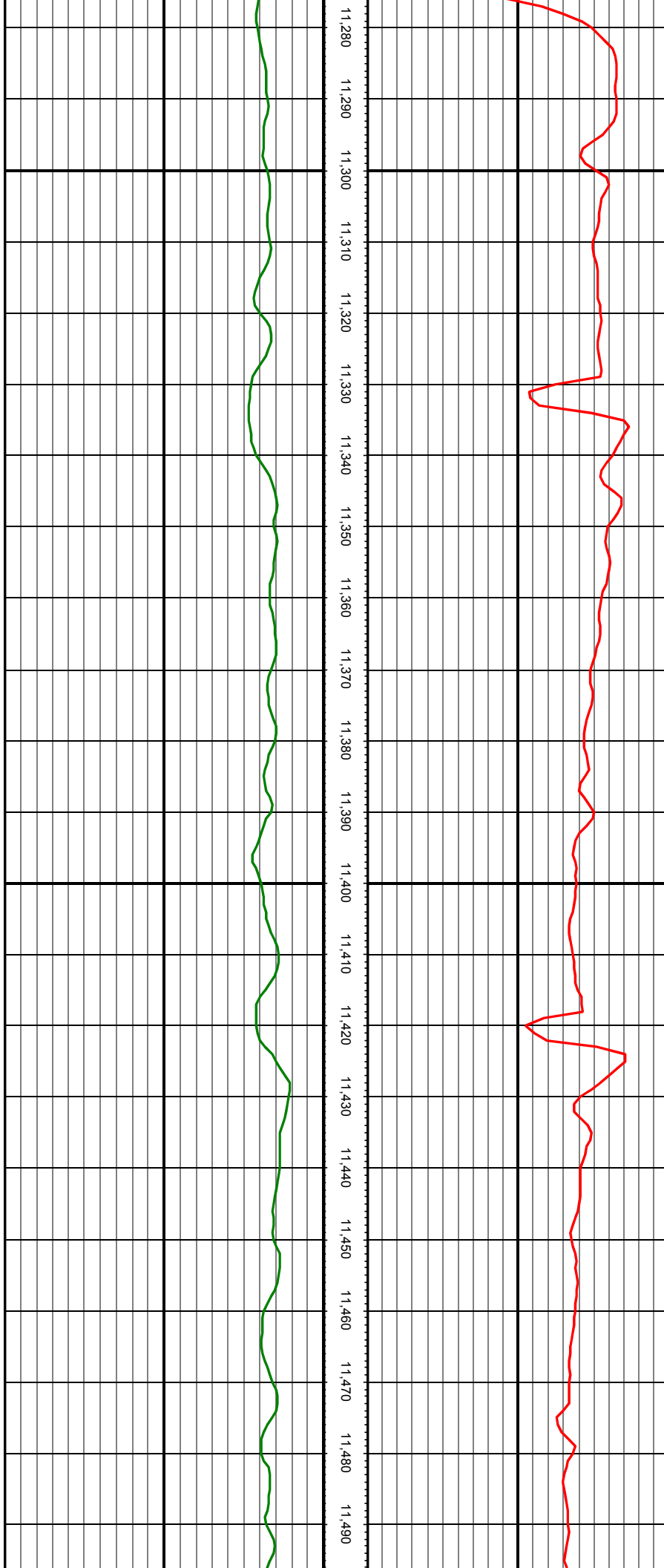
MD: 11000.00 INC: 88.47 AZ: 182.11 TVD: 7703.93 VS: 2763.02



MD: 11089.00 INC: 87.90 AZ: 181.72 TVD: 7706.74 VS: 2850.10

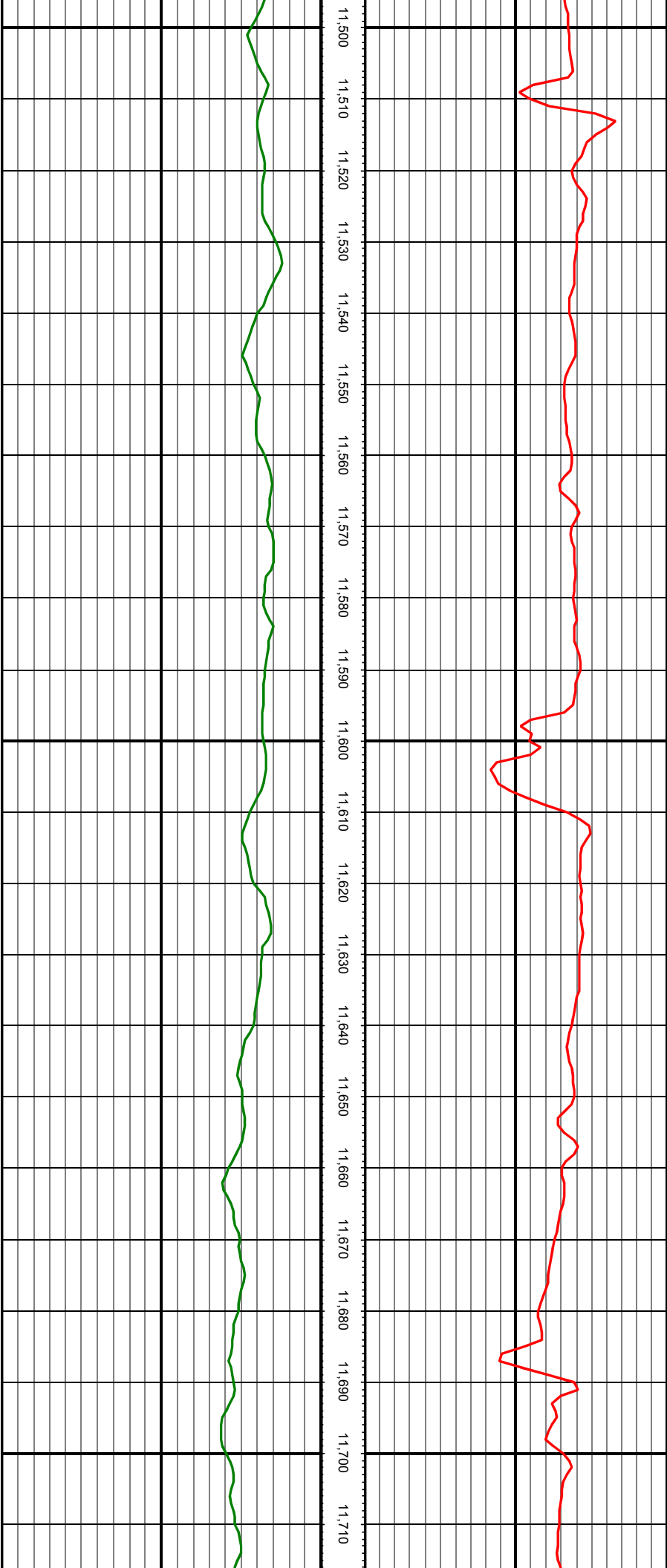
MD: 11178.00 INC: 87.56 AZ: 181.66 TVD: 7710.27 VS: 2937.23

MD: 11267.00 INC: 88.58 AZ: 179.58 TVD: 7713.27 VS: 3024.69



MD: 11357.00 INC: 88.92 AZ: 179.59 TVD: 7715.23 VS: 3113.44

MD: 11446.00 INC: 89.20 AZ: 179.77 TVD: 7716.69 VS: 3201.20



MD: 11535.00 INC: 89.32 AZ: 179.64 TVD: 7717.84 VS: 3288.95

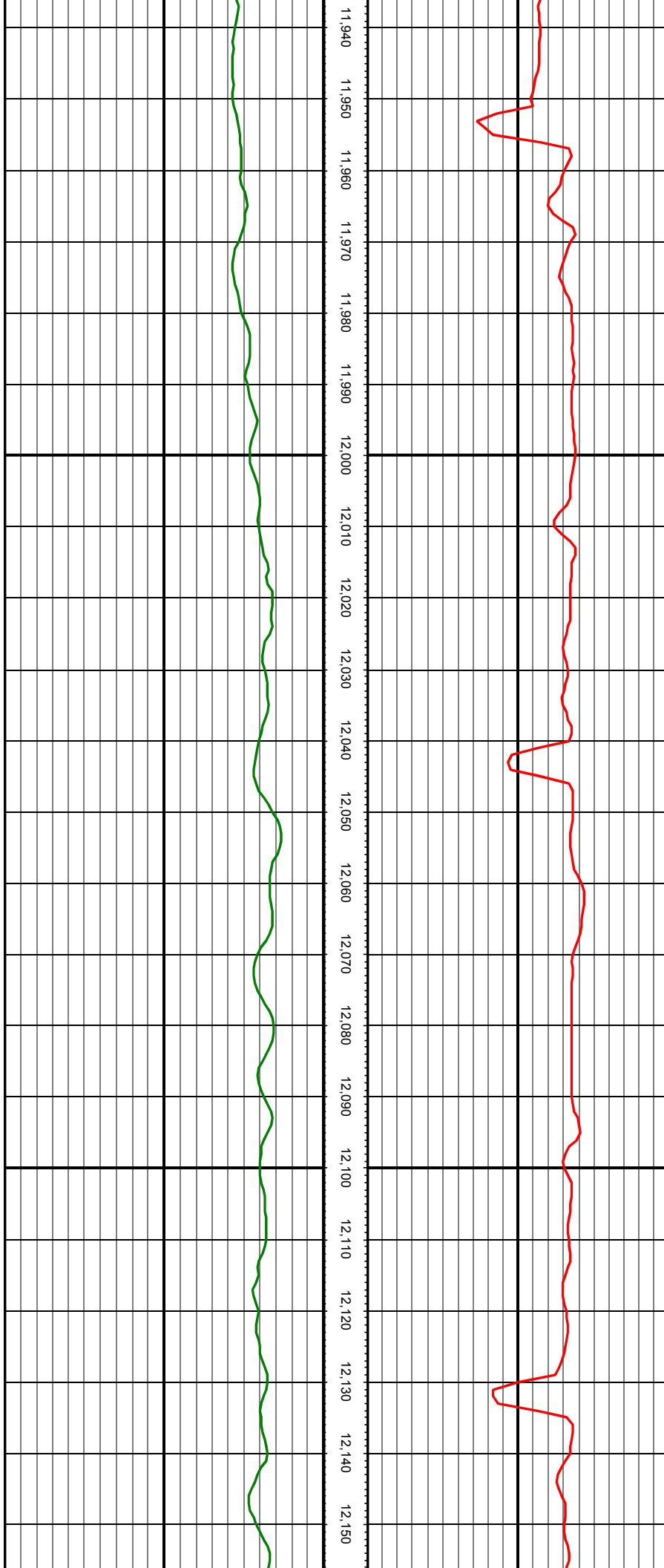
MD: 11624.00 INC: 89.56 AZ: 179.57 TVD: 7718.71 VS: 3376.73

MD: 11713.00 INC: 90.03 AZ: 179.98 TVD: 7719.03 VS: 3464.47



MD: 11802.00 INC: 90.25 AZ: 180.54 TVD: 7718.81 VS: 3552.09

MD: 11891.00 INC: 90.53 AZ: 179.77 TVD: 7718.21 VS: 3639.72



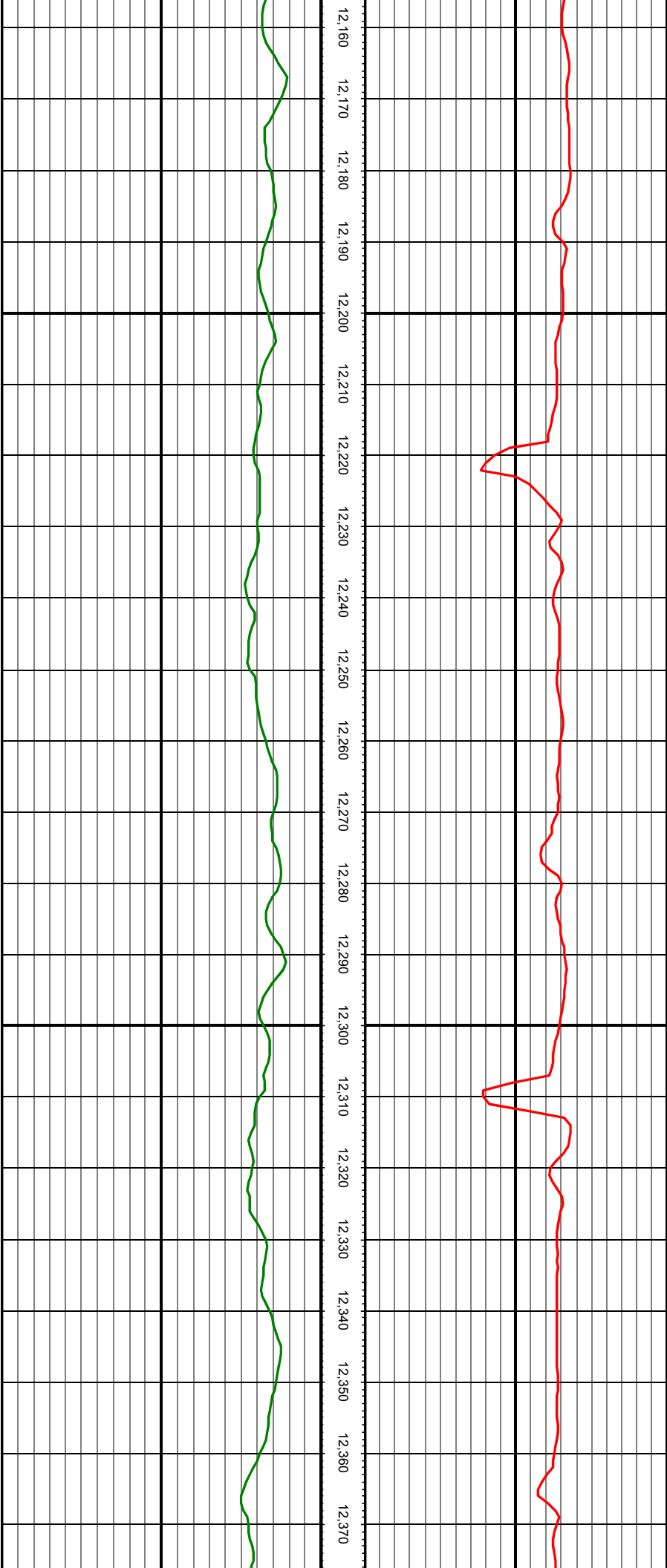
MD: 11980.00 INC: 90.91 AZ: 180.04 TVD: 7717.09 VS: 3727.42

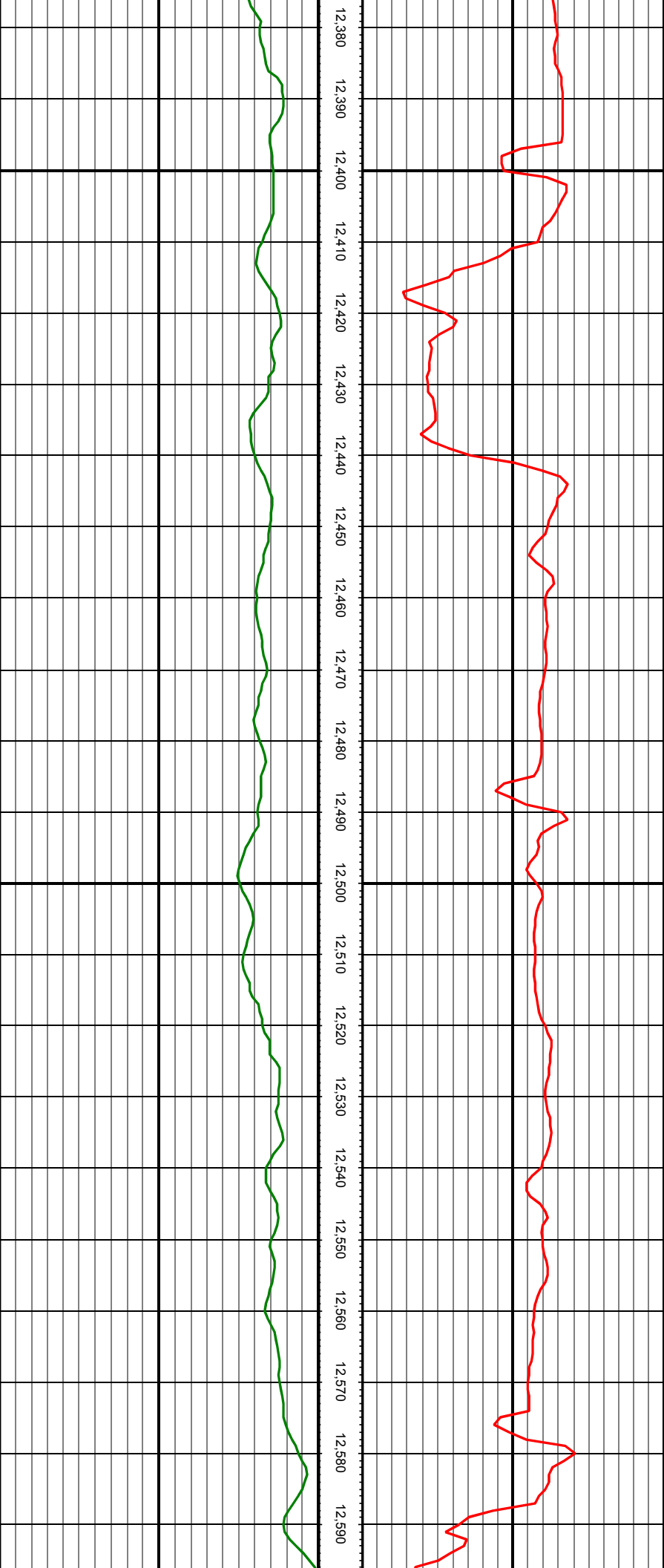
MD: 12069.00 INC: 91.04 AZ: 180.18 TVD: 7715.57 VS: 3815.06

MD: 12158.00 INC: 91.05 AZ: 179.53 TVD: 7713.95 VS: 3902.77

MD: 12247.00 INC: 91.08 AZ: 179.48 TVD: 7712.30 VS: 3990.57

MD: 12337.00 INC: 91.62 AZ: 179.67 TVD: 7710.18 VS: 4079.32





MD: 12426.00 INC: 91.07 AZ: 180.93 TVD: 7708.09 VS: 4166.90

MD: 12515.00 INC: 90.45 AZ: 181.45 TVD: 7706.91 VS: 4254.24

MD: 12604.00 INC: 88.96 AZ: 181.07 TVD: 7707.36 VS: 4341.56

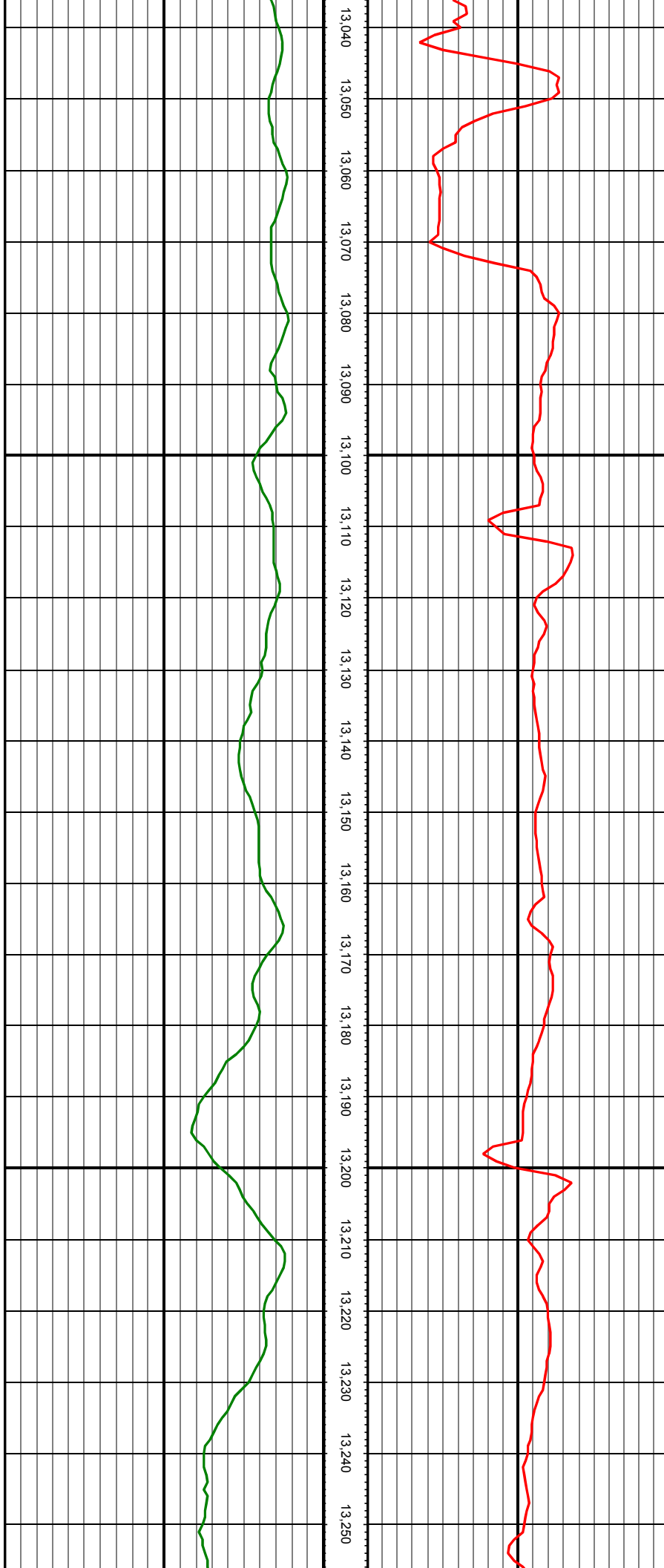
MD: 12693.00 INC: 89.47 AZ: 180.16 TVD: 7708.58 VS: 4429.06

MD: 12782.00 INC: 89.60 AZ: 180.69 TVD: 7709.31 VS: 4516.63



MD: 12871.00 INC: 89.63 AZ: 178.71 TVD: 7709.90 VS: 4604.38

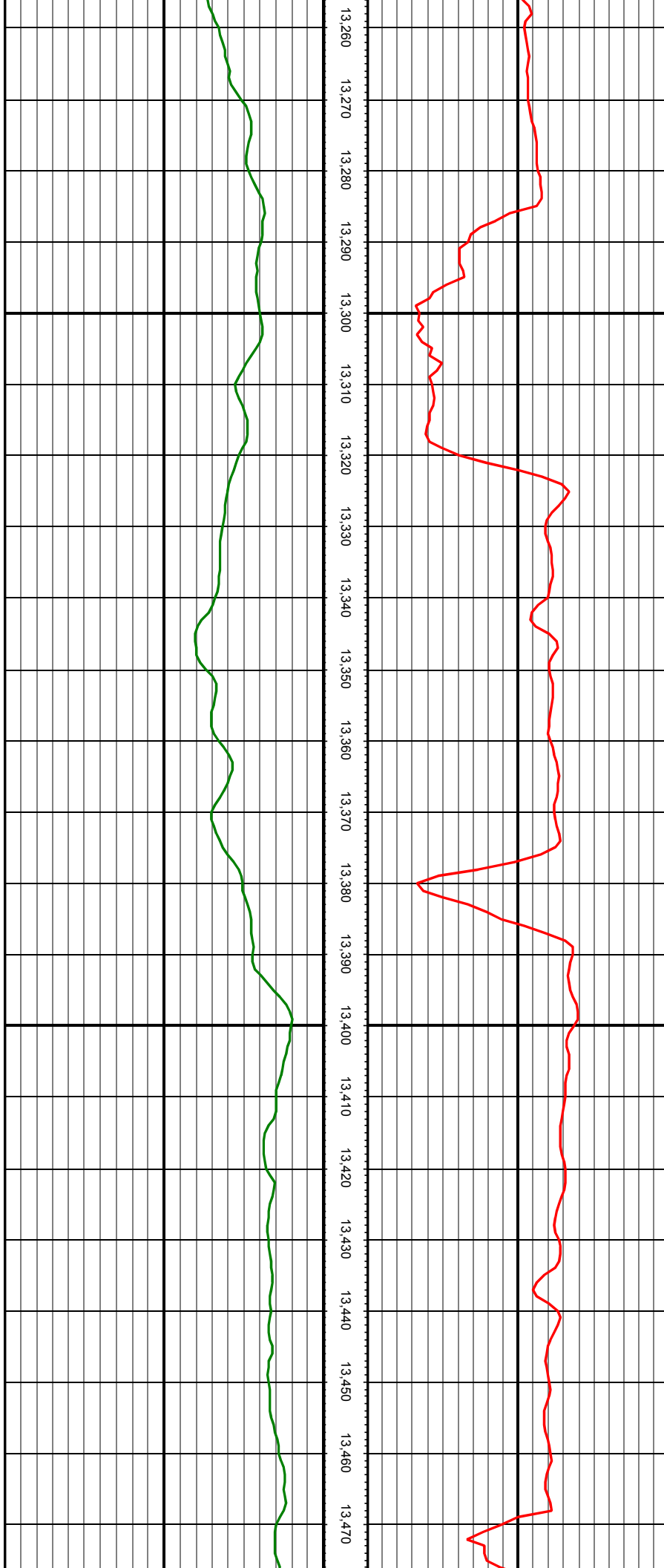
MD: 12960.00 INC: 89.69 AZ: 177.77 TVD: 7710.43 VS: 4692.49



MD: 13049.00 INC: 90.11 AZ: 179.07 TVD: 7710.59 VS: 4780.56

MD: 13139.00 INC: 89.93 AZ: 179.98 TVD: 7710.56 VS: 4869.35

MD: 13228.00 INC: 90.23 AZ: 179.27 TVD: 7710.43 VS: 4957.13



MD: 13317.00 INC: 88.38 AZ: 180.85 TVD: 7711.51 VS: 5044.78

MD: 13406.00 INC: 88.10 AZ: 180.84 TVD: 7714.24 VS: 5132.19



MD: 13495.00 INC: 88.23 AZ: 180.60 TVD: 7717.09 VS: 5219.63

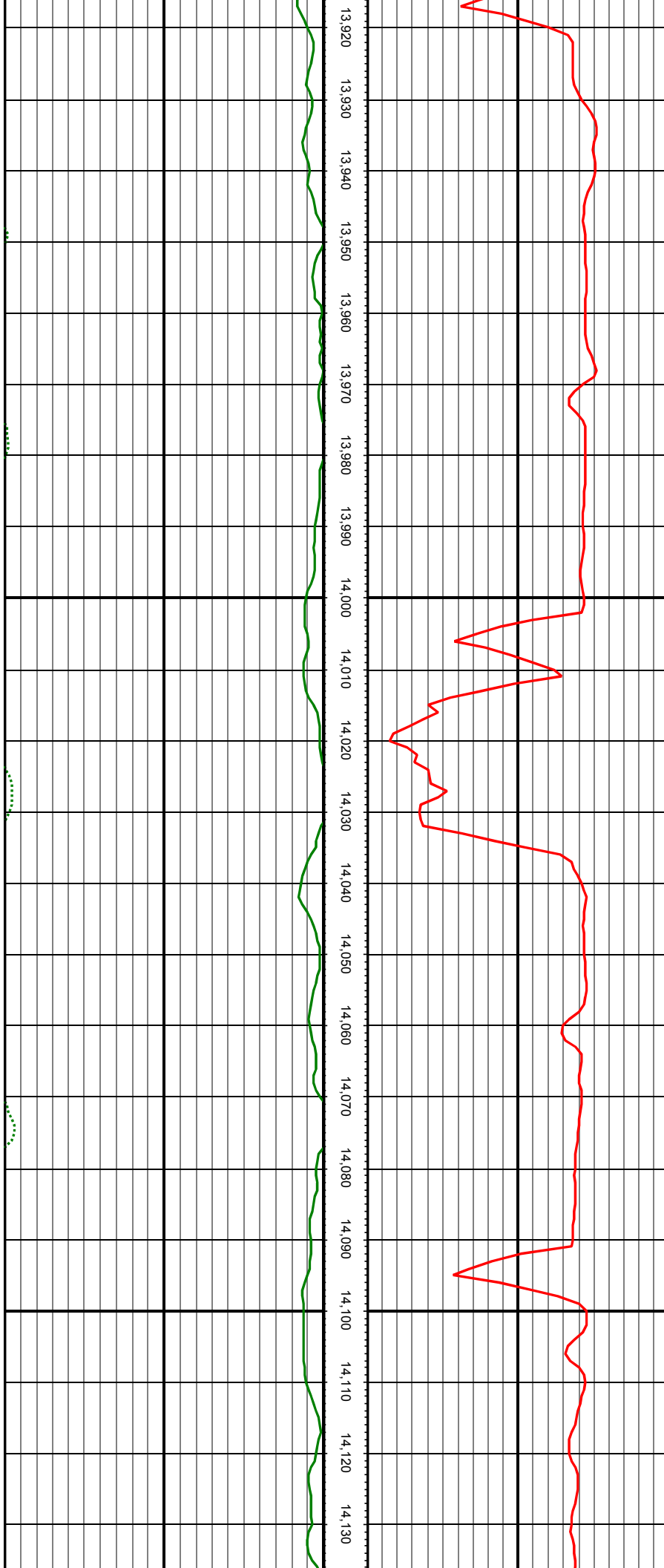
MD: 13584.00 INC: 88.60 AZ: 180.45 TVD: 7719.56 VS: 5307.13

MD: 13673.00 INC: 88.54 AZ: 179.55 TVD: 7721.78 VS: 5394.79



MD: 13762.00 INC: 88.52 AZ: 178.88 TVD: 7724.06 VS: 5482.64

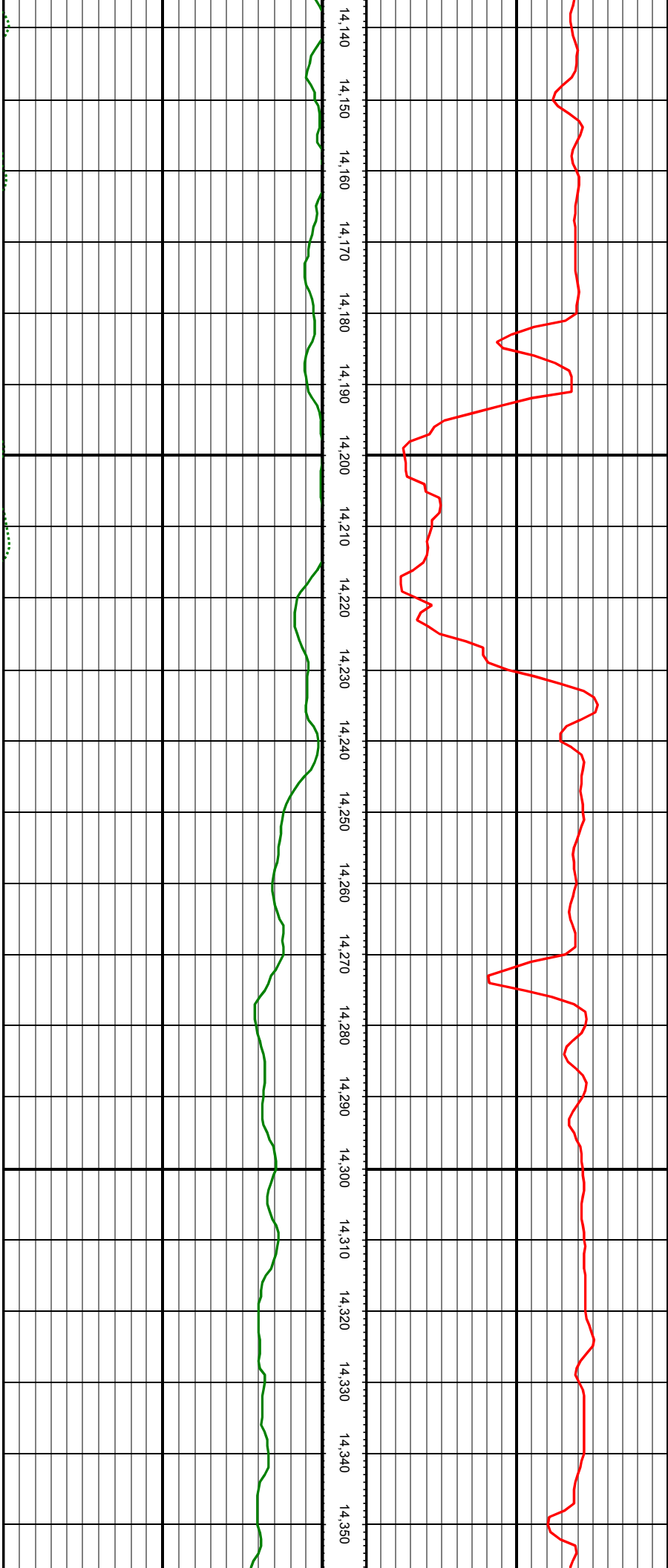
MD: 13851.00 INC: 88.93 AZ: 178.71 TVD: 7726.04 VS: 5570.60



MD: 13940.00 INC: 89.28 AZ: 178.42 TVD: 7727.43 VS: 5658.63

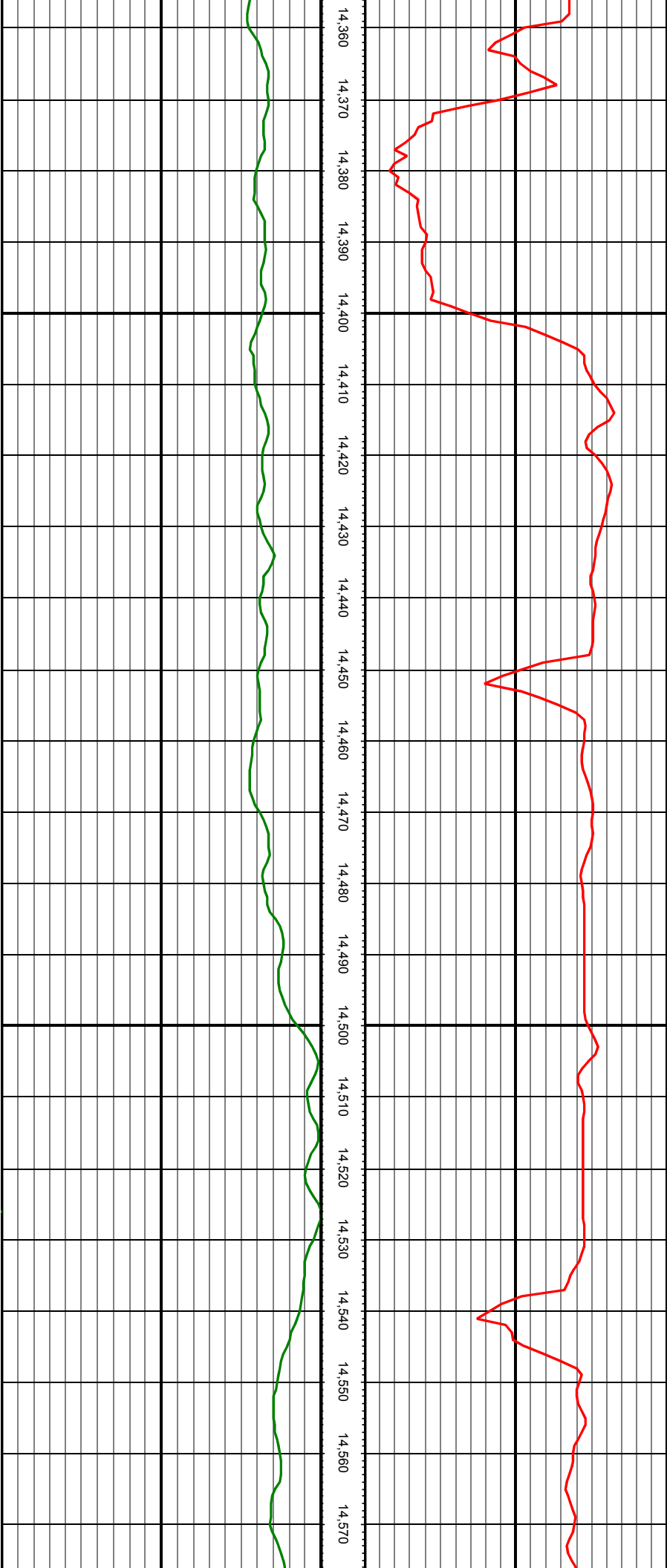
MD: 14029.00 INC: 89.54 AZ: 180.63 TVD: 7728.35 VS: 5746.43

MD: 14119.00 INC: 89.33 AZ: 178.13 TVD: 7729.23 VS: 5835.25



MD: 14208.00 INC: 89.56 AZ: 179.09 TVD: 7730.10 VS: 5923.27

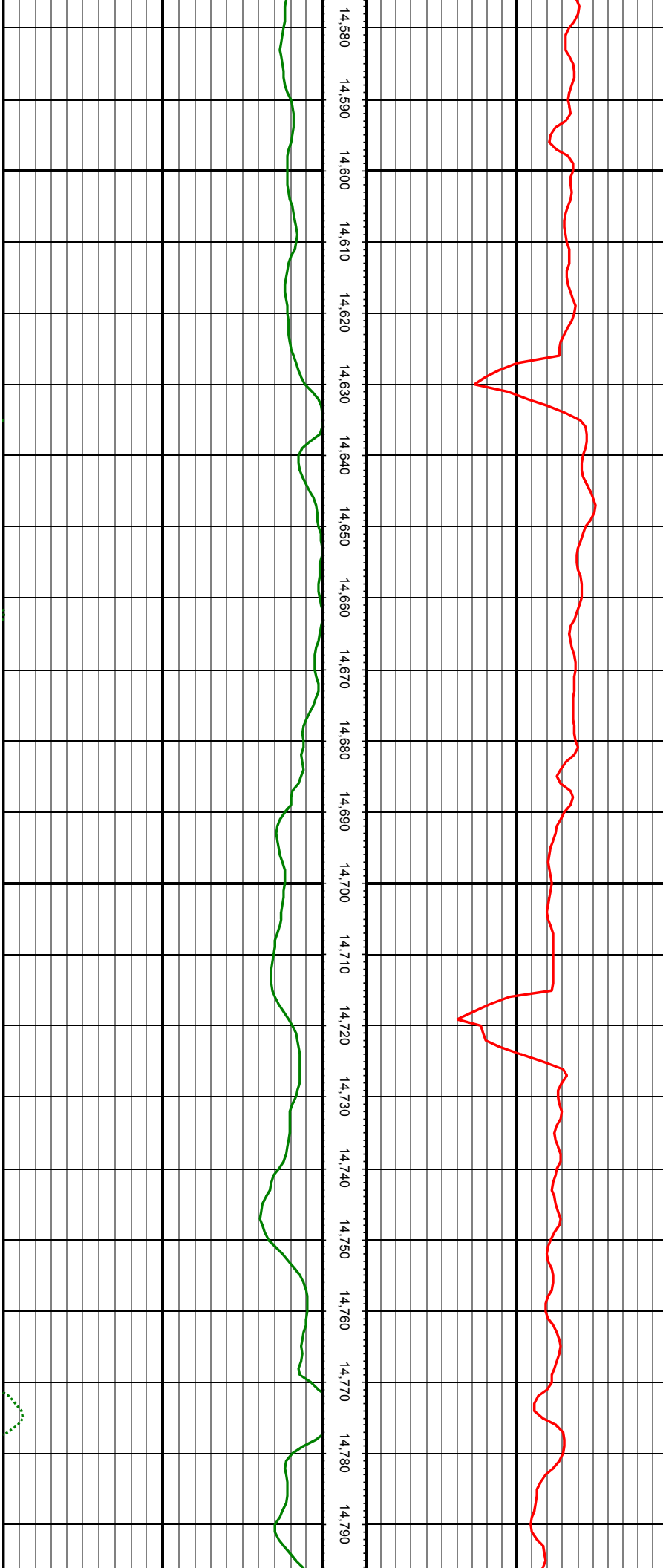
MD: 14297.00 INC: 89.70 AZ: 179.93 TVD: 7730.67 VS: 6011.07



MD: 14386.00 INC: 90.10 AZ: 181.93 TVD: 7730.83 VS: 6098.49

MD: 14475.00 INC: 90.06 AZ: 182.08 TVD: 7730.70 VS: 6185.59

MD: 14564.00 INC: 90.07 AZ: 181.29 TVD: 7730.60 VS: 6272.78



MD: 14653.00 INC: 89.99 AZ: 180.44 TVD: 7730.56 VS: 6360.23

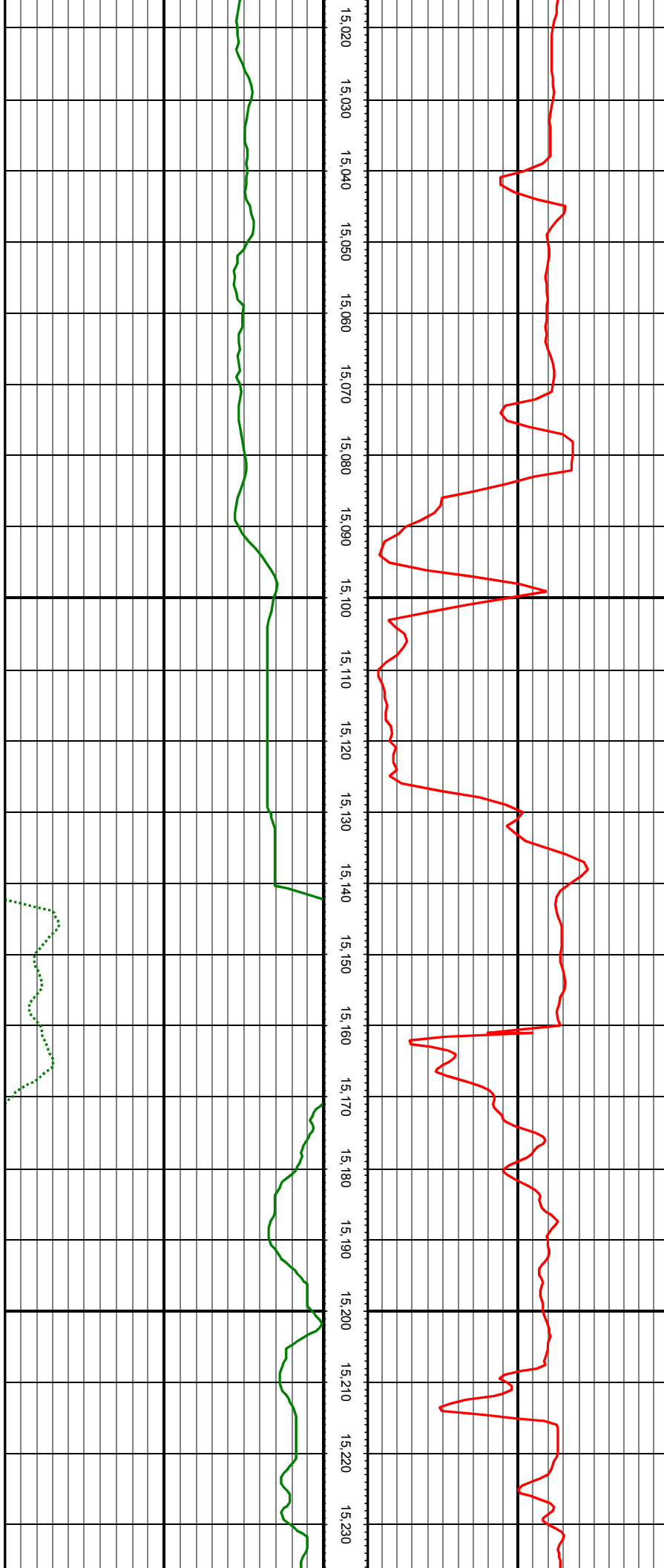
MD: 14742.00 INC: 90.22 AZ: 180.18 TVD: 7730.39 VS: 6447.82



MD: 14832.00 INC: 90.08 AZ: 179.88 TVD: 7730.16 VS: 6536.48

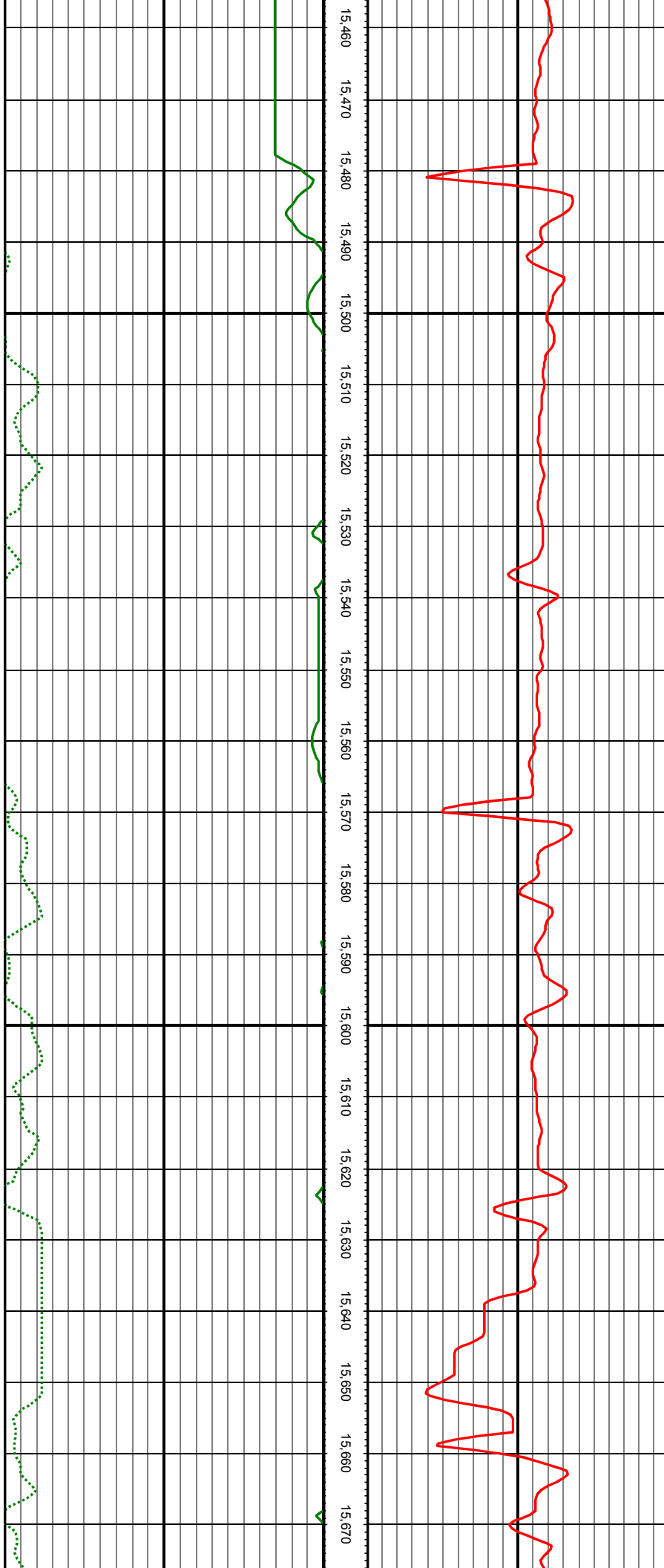
MD: 14921.00 INC: 90.46 AZ: 179.25 TVD: 7729.74 VS: 6624.28

MD: 15010.00 INC: 90.17 AZ: 178.51 TVD: 7729.25 VS: 6712.24



MD: 15163.00 INC: 90.52 AZ: 180.39 TVD: 7728.33 VS: 6863.21





MD: 15519.00 INC: 88.92 AZ: 178.66 TVD: 7734.37 VS: 7214.96

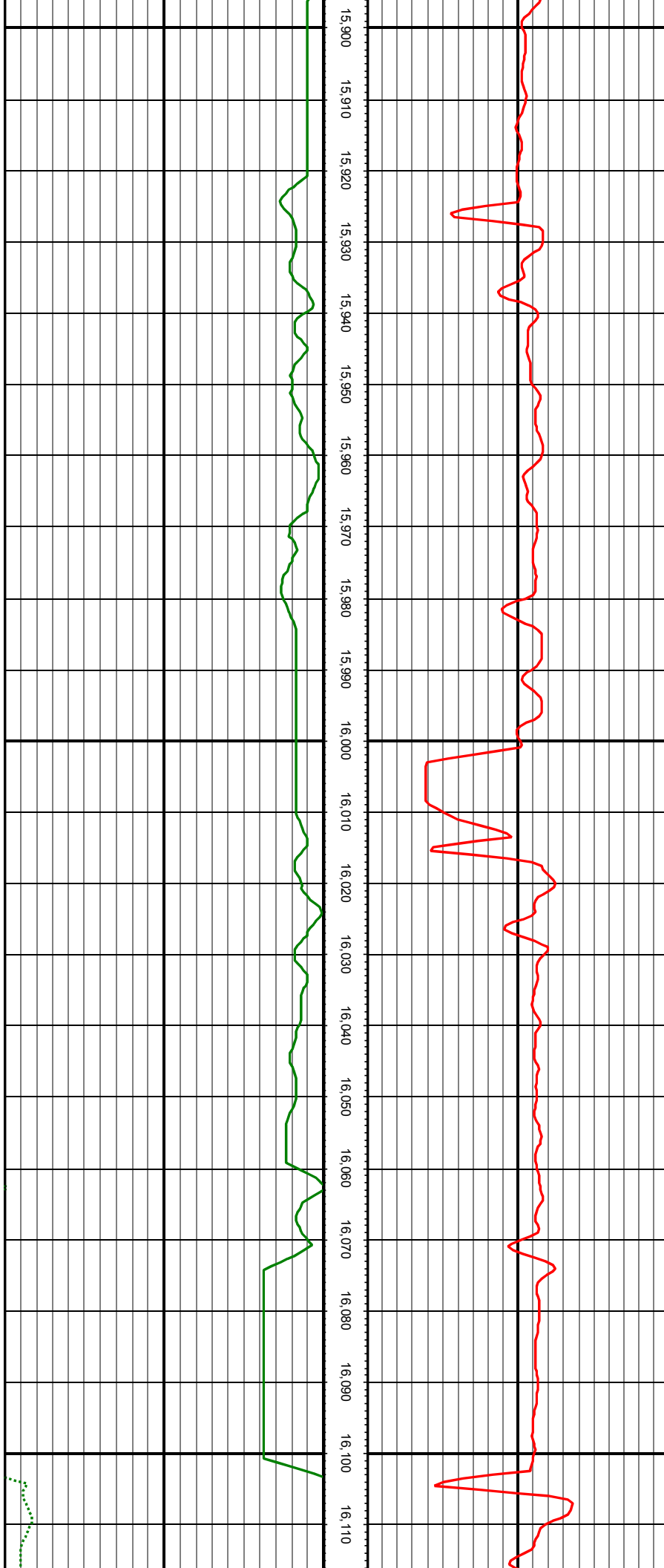
MD: 15608.00 INC: 88.79 AZ: 178.44 TVD: 7736.15 VS: 7302.99



MD: 15697.00 INC: 88.82 AZ: 179.13 TVD: 7738.00 VS: 7390.95

MD: 15786.00 INC: 88.82 AZ: 179.95 TVD: 7739.84 VS: 7478.74

MD: 15875.00 INC: 88.92 AZ: 181.22 TVD: 7741.59 VS: 7566.24



MD: 15964.00 INC: 88.90 AZ: 182.72 TVD: 7743.28 VS: 7653.33

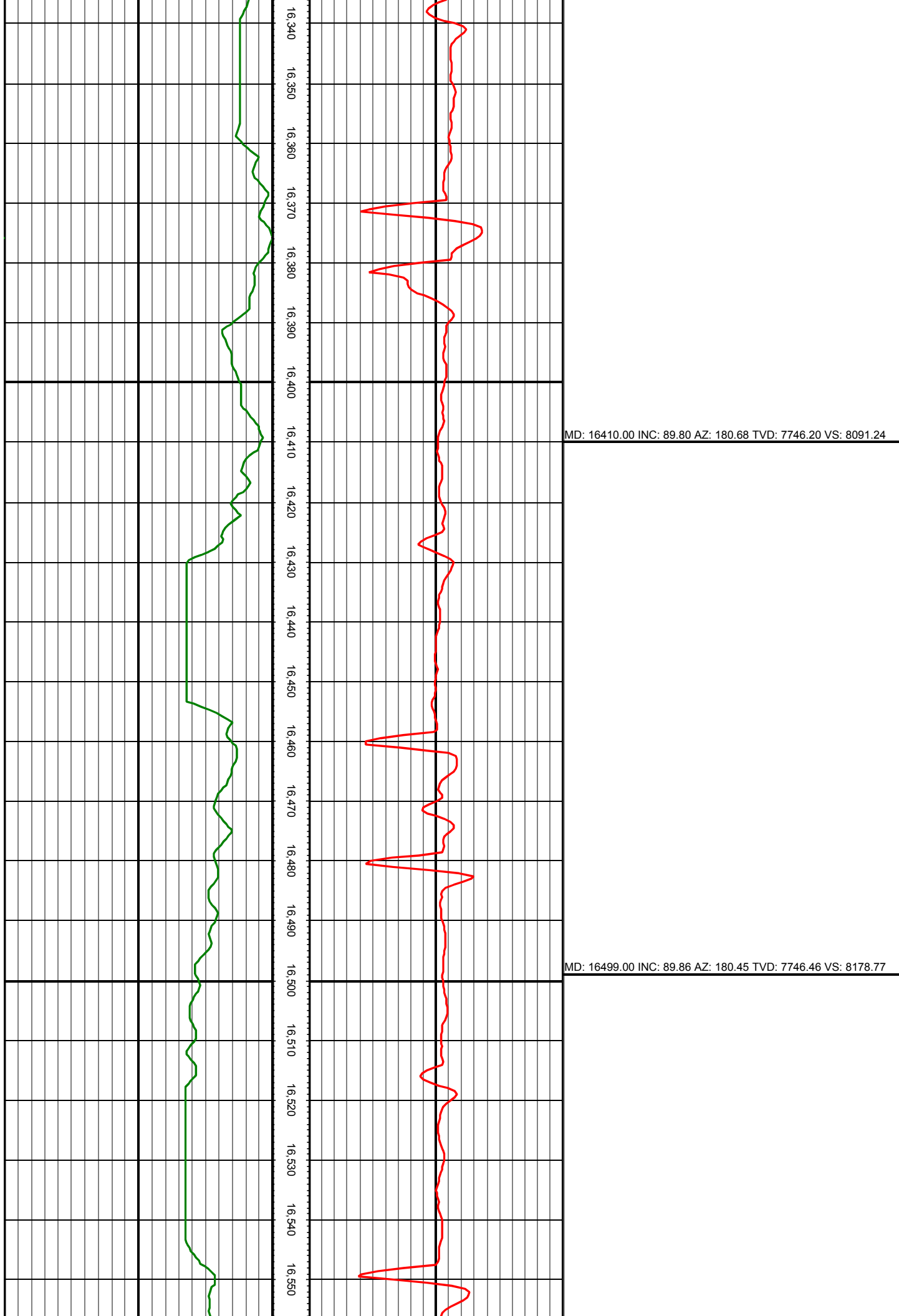
MD: 16053.00 INC: 89.45 AZ: 181.81 TVD: 7744.57 VS: 7740.33

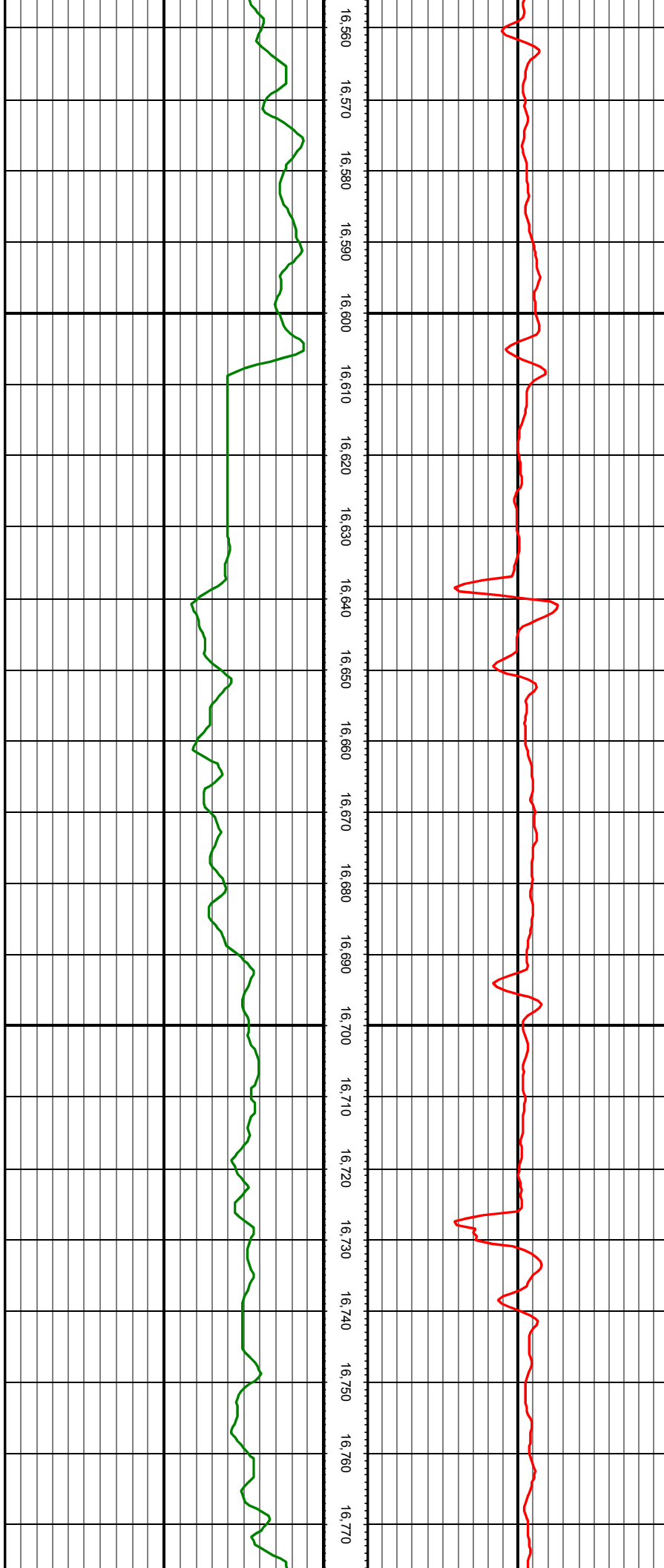


MD: 16143.00 INC: 89.79 AZ: 181.17 TVD: 7745.16 VS: 7828.56

MD: 16232.00 INC: 89.66 AZ: 180.15 TVD: 7745.59 VS: 7916.06

MD: 16321.00 INC: 89.88 AZ: 180.27 TVD: 7745.95 VS: 8003.69

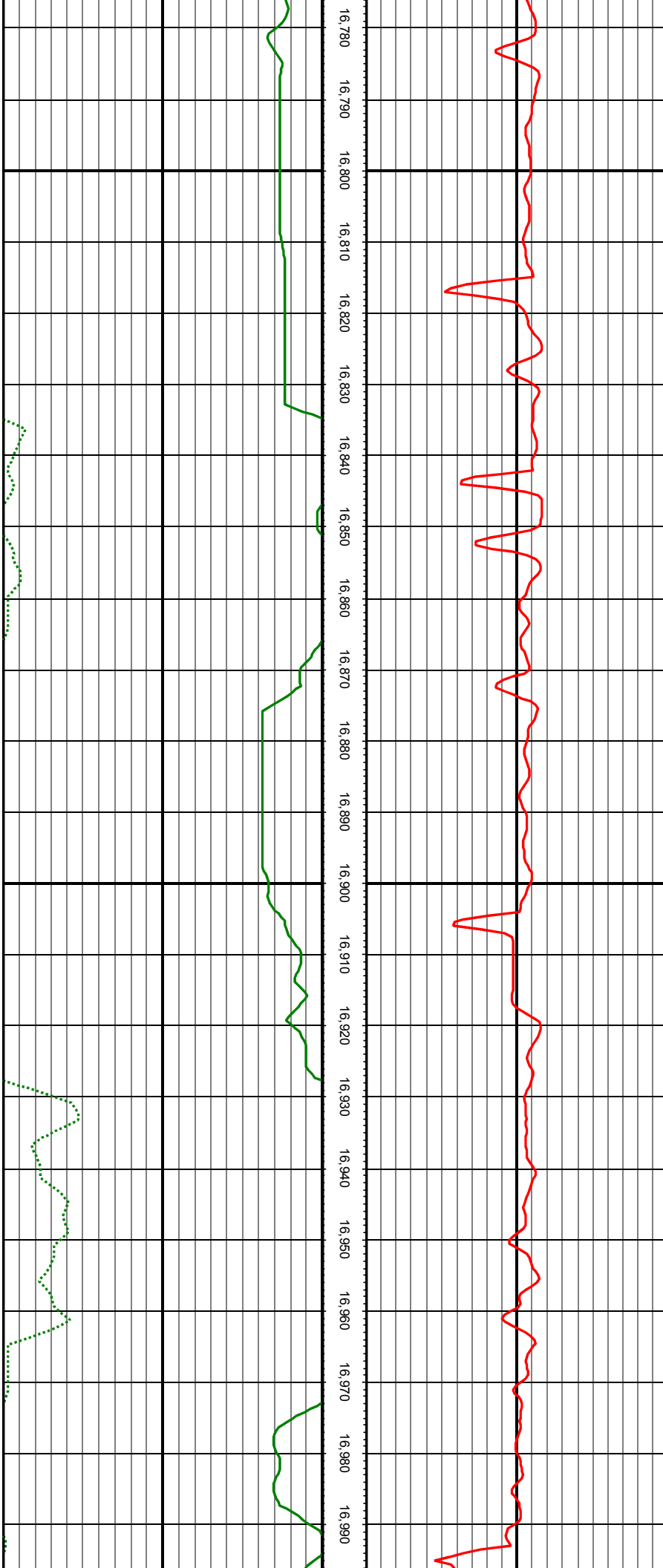




MD: 16588.00 INC: 89.98 AZ: 180.53 TVD: 7746.58 VS: 8266.32

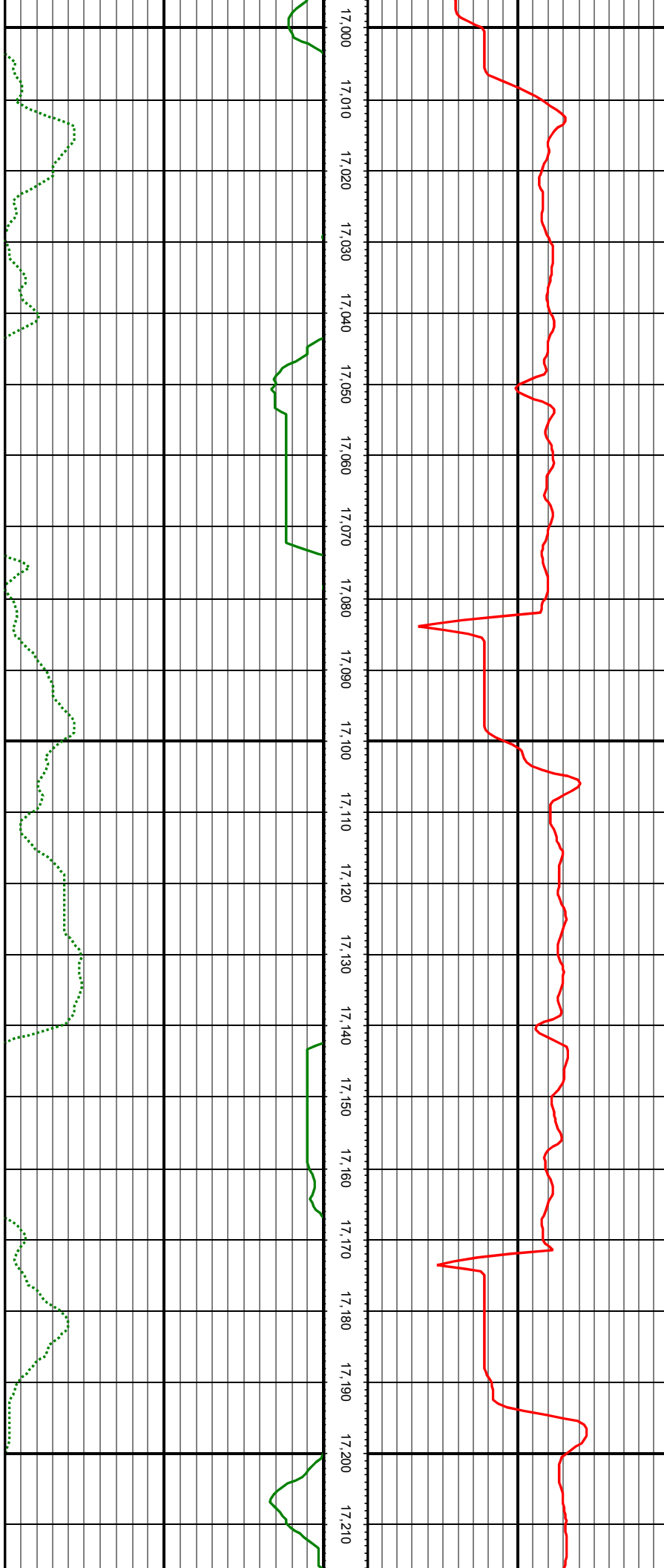
MD: 16677.00 INC: 89.80 AZ: 180.25 TVD: 7746.76 VS: 8353.89

MD: 16767.00 INC: 89.83 AZ: 180.18 TVD: 7747.05 VS: 8442.50



MD: 16856.00 INC: 89.83 AZ: 180.53 TVD: 7747.31 VS: 8530.09

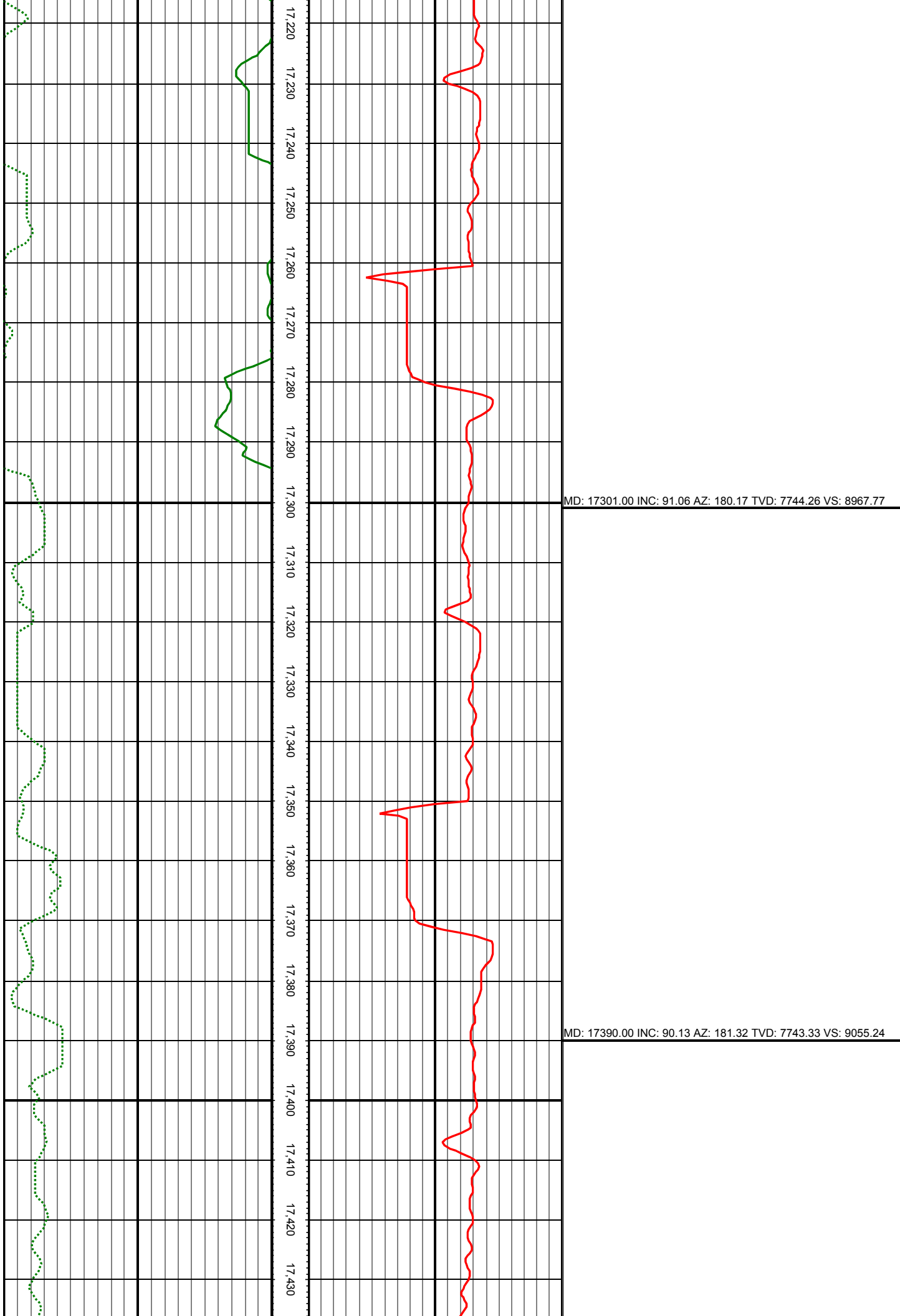
MD: 16945.00 INC: 89.96 AZ: 180.56 TVD: 7747.47 VS: 8617.62

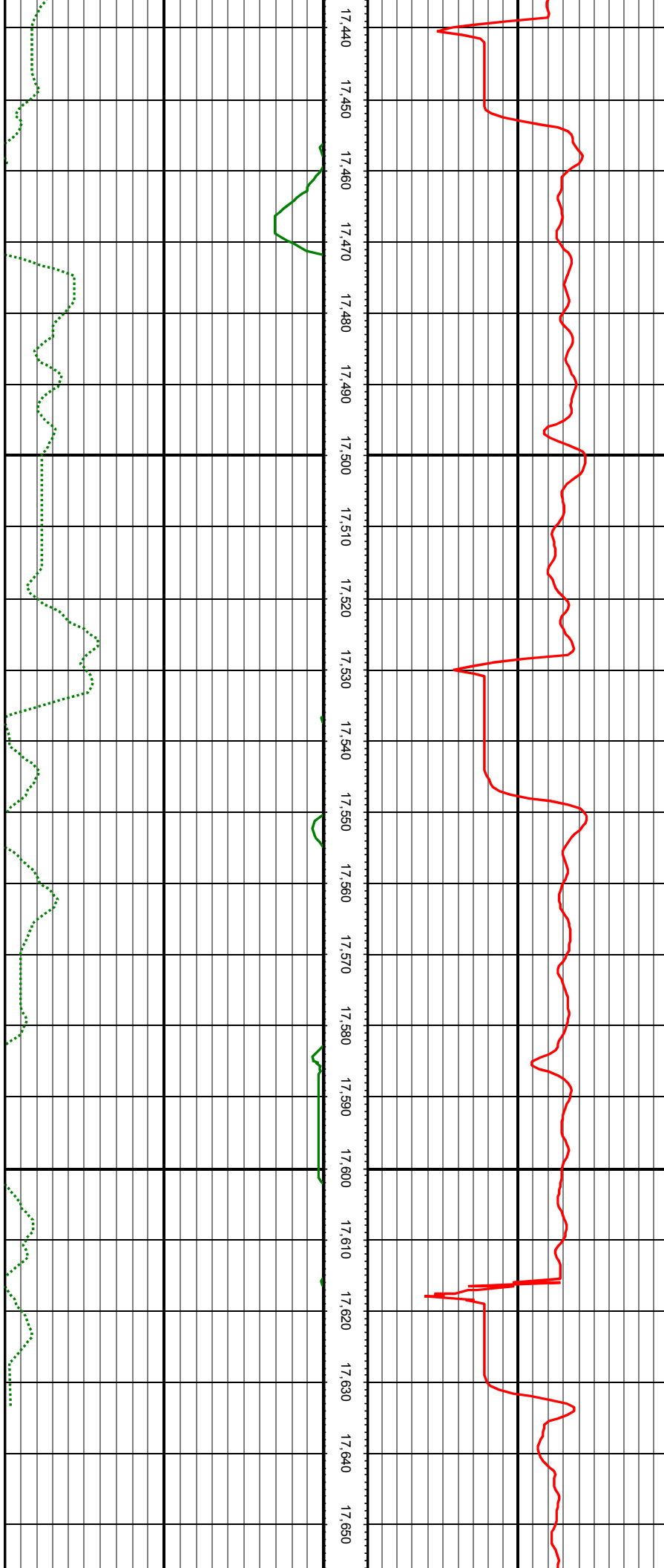


MD: 17034.00 INC: 90.23 AZ: 180.57 TVD: 7747.33 VS: 8705.15

MD: 17123.00 INC: 90.46 AZ: 180.53 TVD: 7746.79 VS: 8792.68

MD: 17212.00 INC: 90.87 AZ: 180.58 TVD: 7745.76 VS: 8880.20





MD: 17479.00 INC: 89.92 AZ: 180.66 TVD: 7743.29 VS: 9142.65

MD: 17568.00 INC: 89.80 AZ: 181.15 TVD: 7743.51 VS: 9230.08

MD: 17617.00 INC: 89.91 AZ: 181.14 TVD: 7743.64 VS: 9278.18

