

**Premier Directional Drilling**

12941 North Freeway  
# 400  
Houston, TX 77060  
281-673-4000

**Powers 1C-27HZ****Scale 5":100' - MD****10/21/2015 8:03 AM****Oper. Company:** Anadarko Petroleum**State:** Colorado**Well:** Powers 1C-27HZ**County:** Weld**Field:** Wattenberg**Country:** USA**Rig:** H & P 307**Location:** NENE Sec 22-T2N-R65W**Well ID:** 05123419520000**Start Date:** 10/17/2015 11:45:00**Job Number:** R15384**End Date:** 10/21/2015 02:30:00

**Notes:** Recorded Mode Log  
Gamma Correction Determined by Pipe ID & OD, Mud Weight & Bit Size

**Latitude:** 40.130530**Elev KB:** 4919'**Longitude:** -104.645080**Elev DF:** 4919'**Elev GL:** 4894'**Notes:** Datum: NAD 1983Map Zone 13N(108 W to 102 W)Total Correction: 8.22° (Mean MagVar)Grid Convergence: 0.23°**Operator 1:** Robert Grosssman**Operator 2:** Mike Gunther**Notes:** Smoothing : 7Gap Fill : 10Tool Type : Mud PulseCalculation Method: Minimum CurvatureMethod : Minimum Curvature

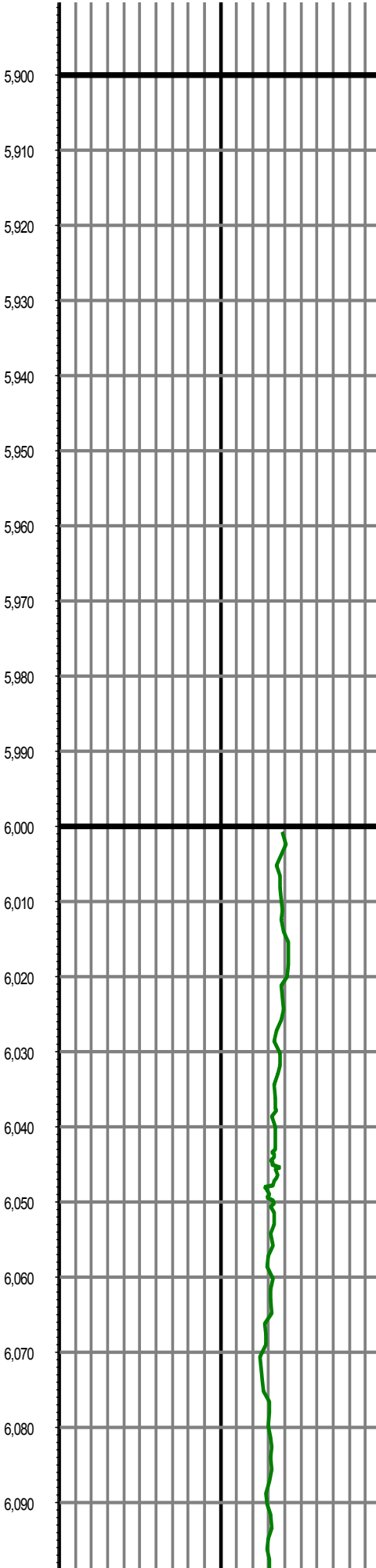
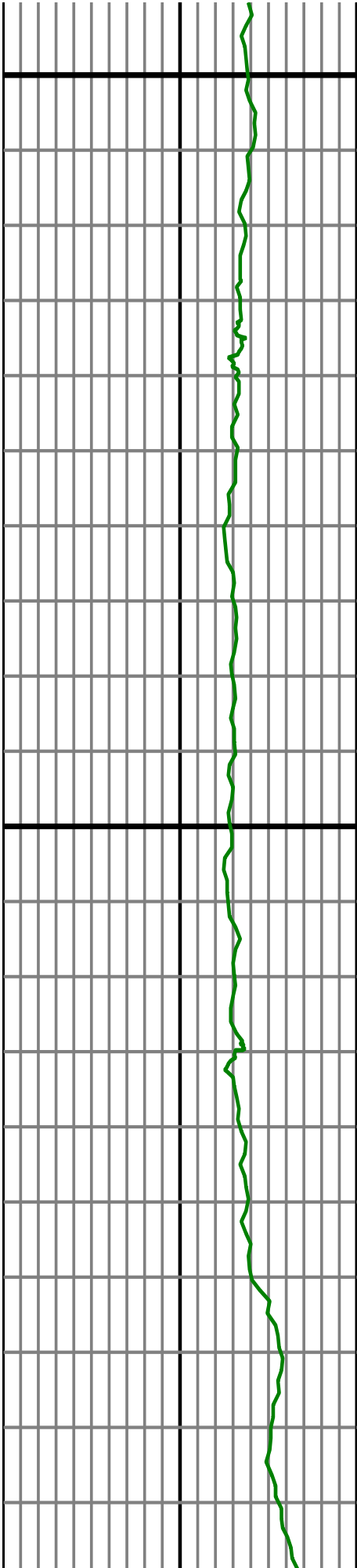
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	286	286			
Bit Size	8.5	8.5			
Cal Factor	6.43	6.43			
Survey Offset:	73.00	73.00			
Gamma Offset	68.00	68.00			
Resistivity Offset	0.00	0.00			
Start Depth	1866.00	11233.00			
StartDate	10/17/2015	10/20/2015			
StartTime	11:45	01:35			
EndDepth	11233.00	13219.00			
EndDate	10/19/2015	10/21/2015			
EndTime	18:00	02:30			
Mud Type	OBM	OBM			
Mud Weight	9.4	9.5			
Funnel Viscosity	56	64			
Plastic Viscosity	20	19			
Yield Point	11	14			
Gel Strength	NA	NA			
Solids Content	5.1	6.4			
Sand Content	NA	NA			
Mud Alkalinity	NA	NA			
Filtrate Alkalinity	NA				
Chlorides	53500	55000			
Mud RM	NA	NA			
Mud RMF	NA	NA			
Mud RMC	NA	NA			
Mud RM at BHT	NA	NA			
Temperature	NA	NA			
Hole Data			Casing Data		
Size	From	To	Size	From	To
13.5	0.00	1866.00	9 5/8	0.00	1866.00
8.5	1866.00	13219.00	5 1/2	0.00	13219.00

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.

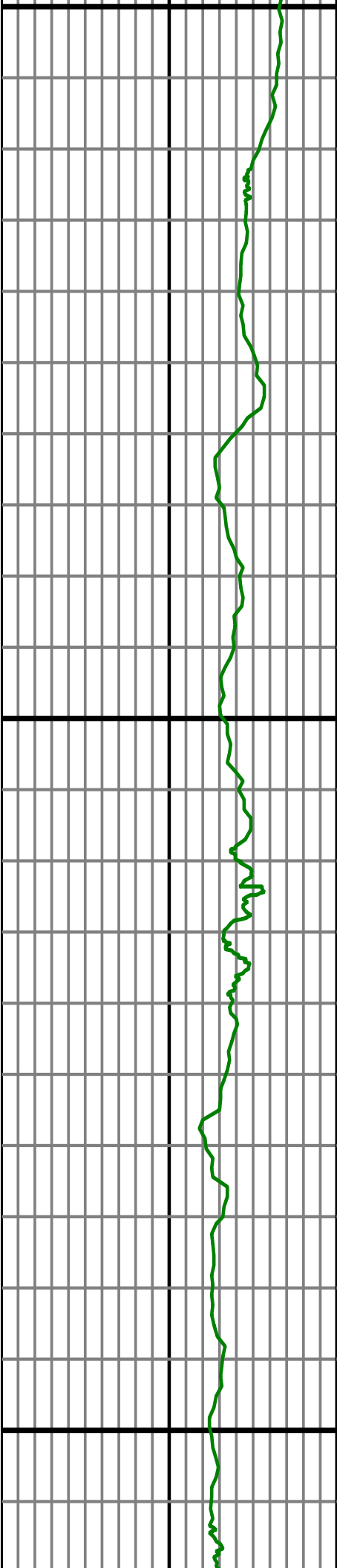
0.00 GR RM(API) on TVD 200.00  
200.00 2 400.00

MD 0.00 GR RM(API) on MD 200.00  
FT 200.00 2 400.00

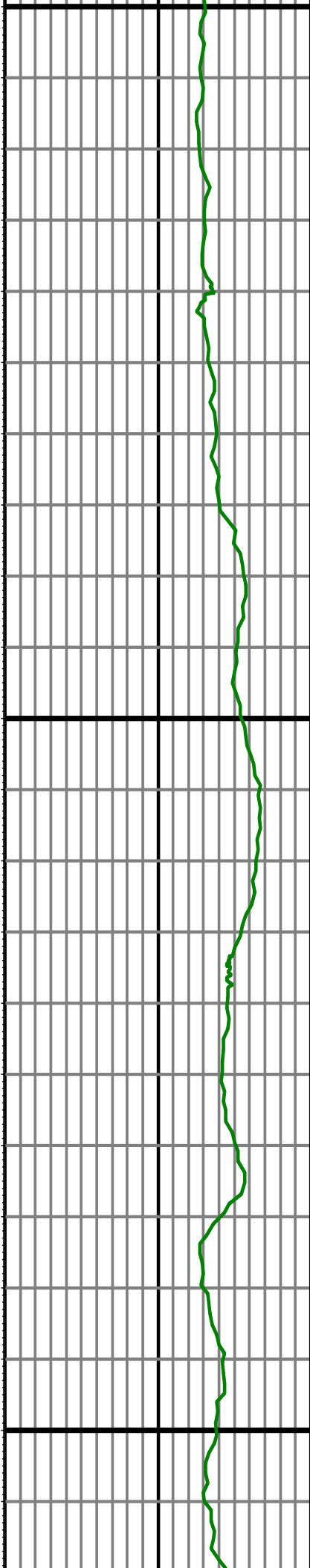
Surveys (MD/INC/AZ/TVD/VS)



MD: 6042.00 INC: 1.70 AZ: 185.10 TVD: 5931.60 VS: -893.67

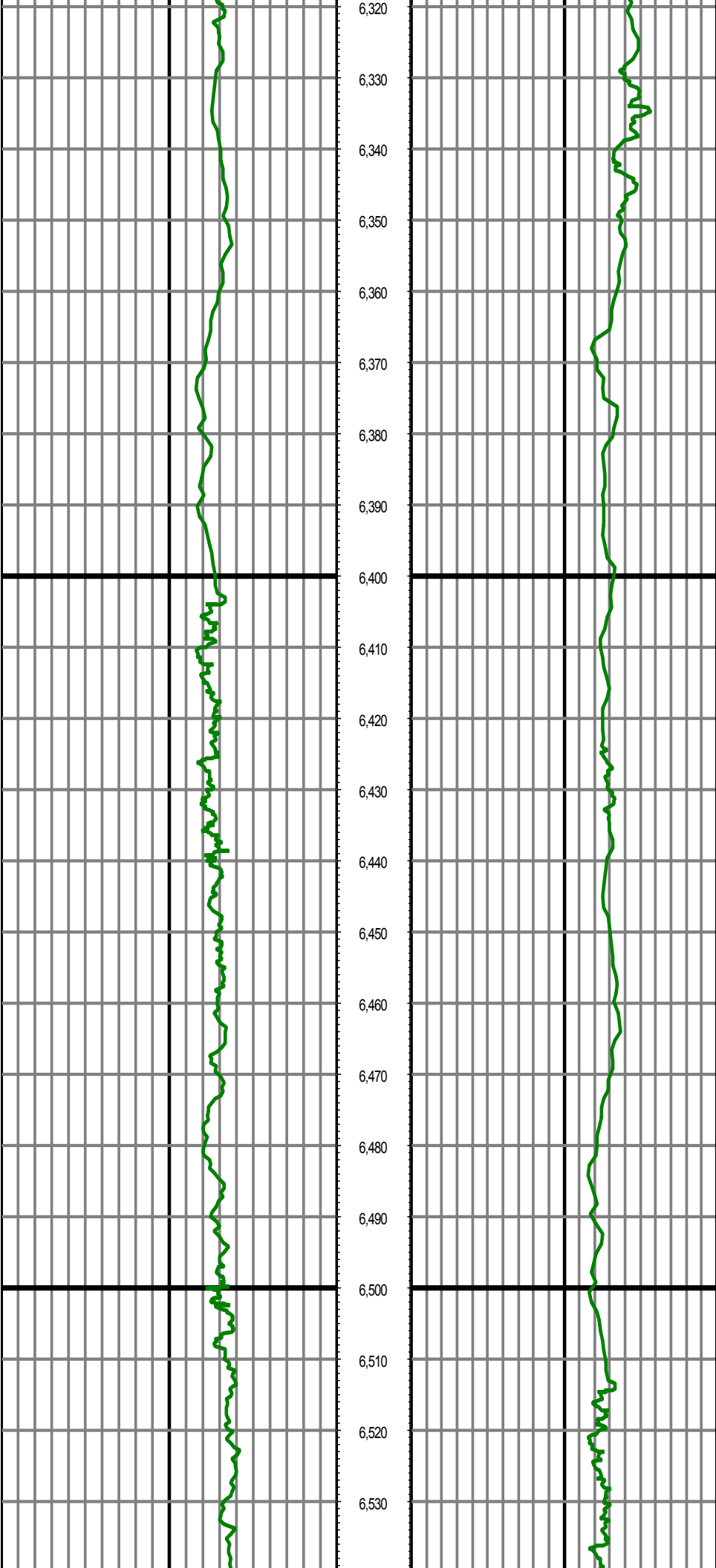


6,100  
6,110  
6,120  
6,130  
6,140  
6,150  
6,160  
6,170  
6,180  
6,190  
6,200  
6,210  
6,220  
6,230  
6,240  
6,250  
6,260  
6,270  
6,280  
6,290  
6,300  
6,310



MD: 6136.00 INC: 1.40 AZ: 178.00 TVD: 6025.56 VS: -891.13

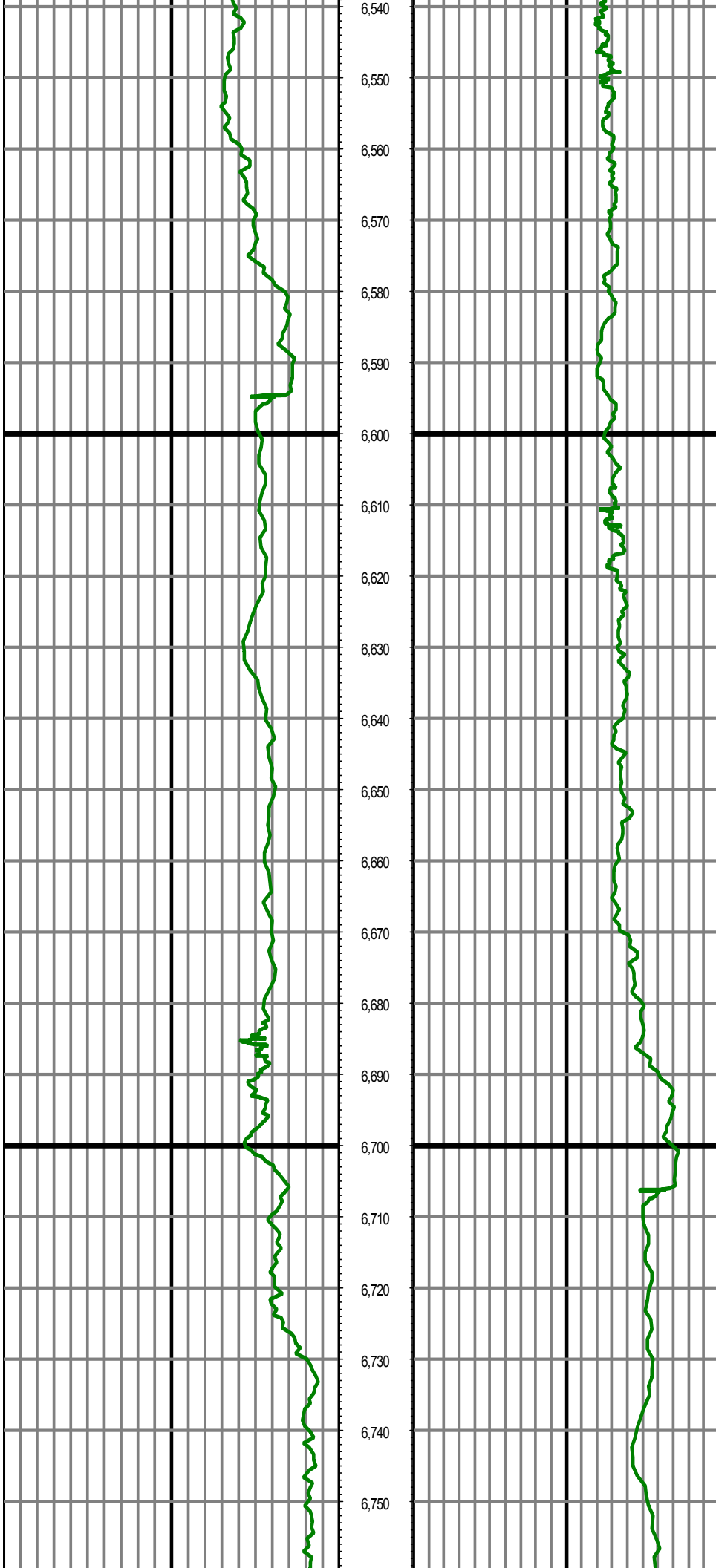
MD: 6231.00 INC: 1.00 AZ: 176.60 TVD: 6120.54 VS: -889.14



MD: 6325.00 INC: 0.40 AZ: 165.50 TVD: 6214.54 VS: -888.01

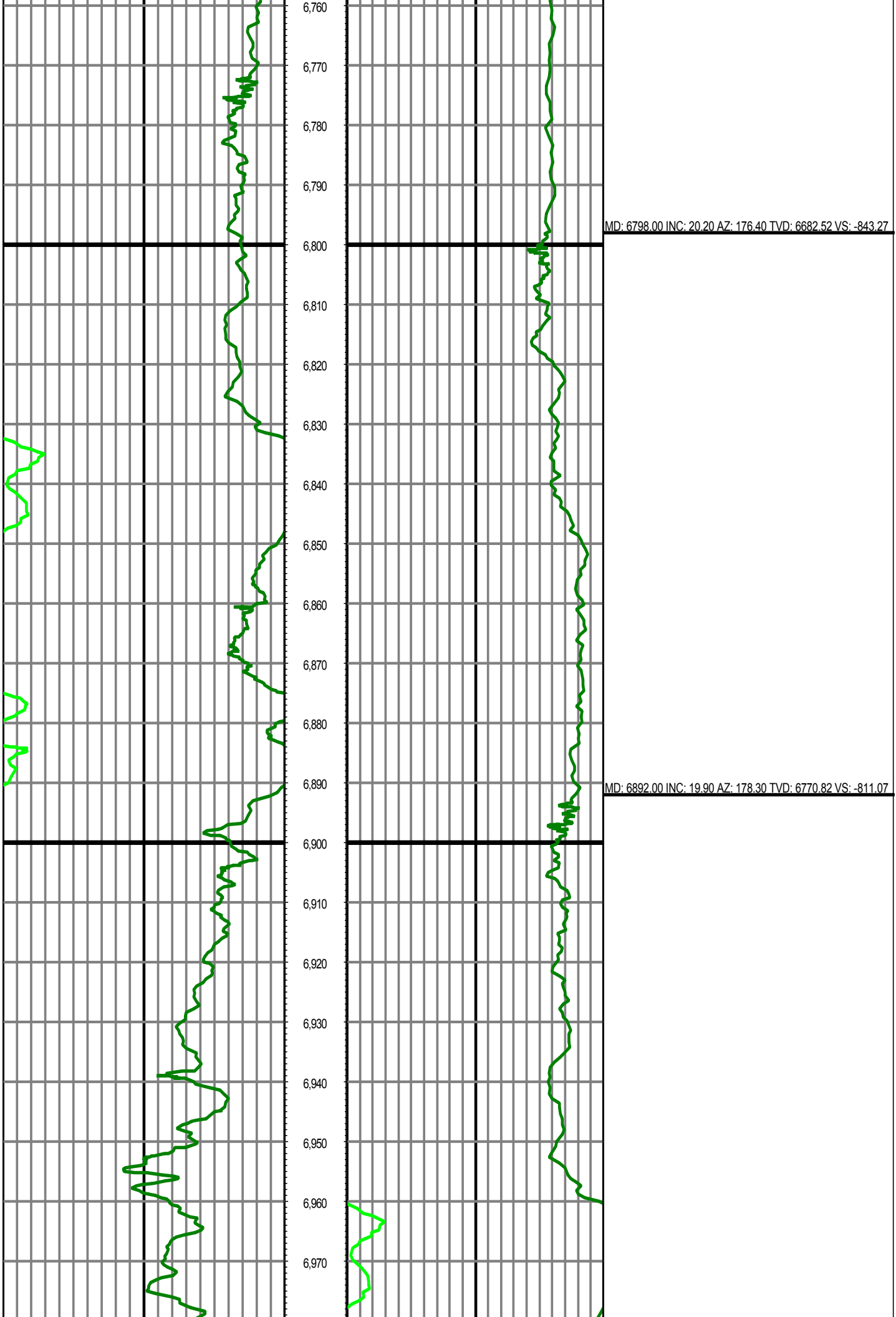
MD: 6420.00 INC: 1.80 AZ: 149.70 TVD: 6309.52 VS: -886.39

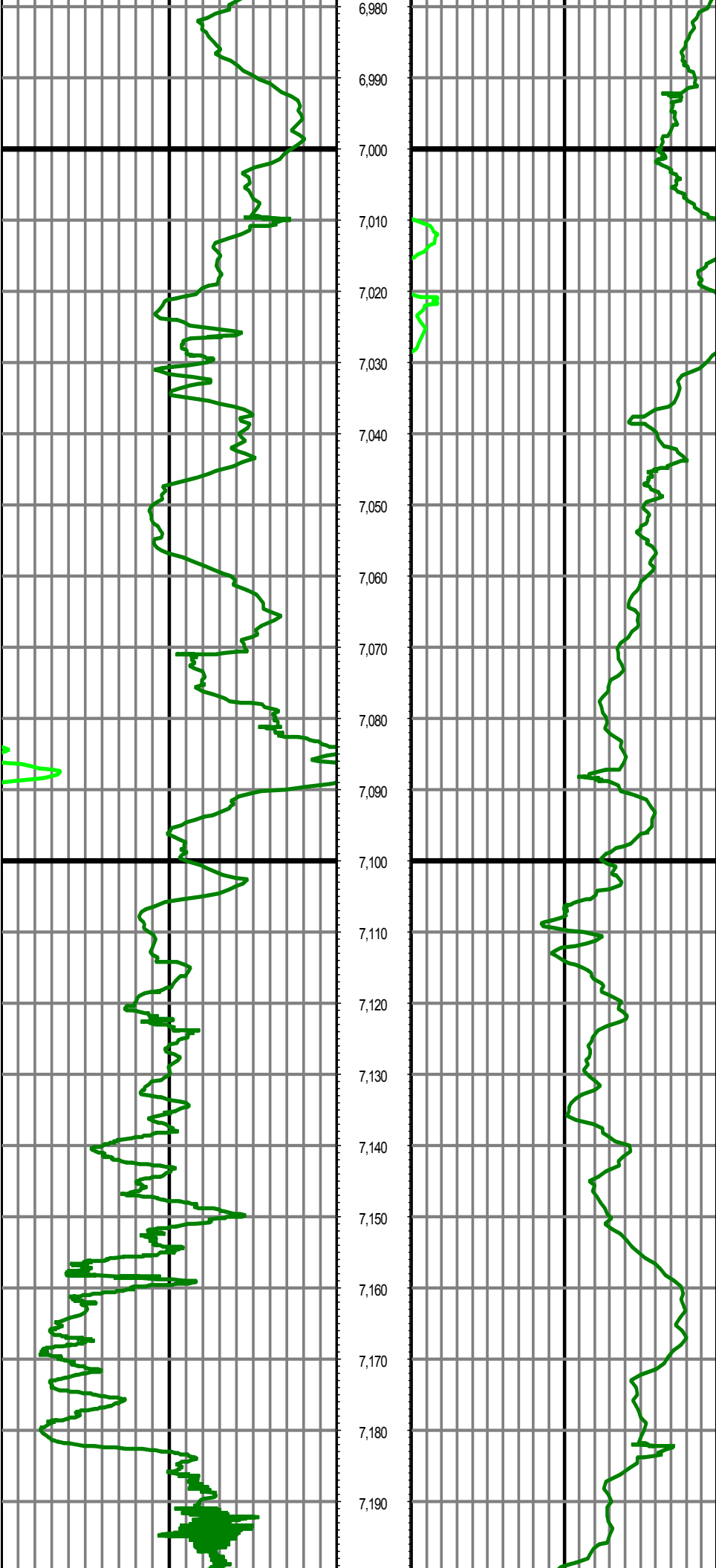
MD: 6514.00 INC: 1.50 AZ: 151.20 TVD: 6403.48 VS: -884.03



MD: 6609.00 INC: 1.30 AZ: 146.60 TVD: 6498.45 VS: -882.03

MD: 6703.00 INC: 13.10 AZ: 181.60 TVD: 6591.56 VS: -870.45

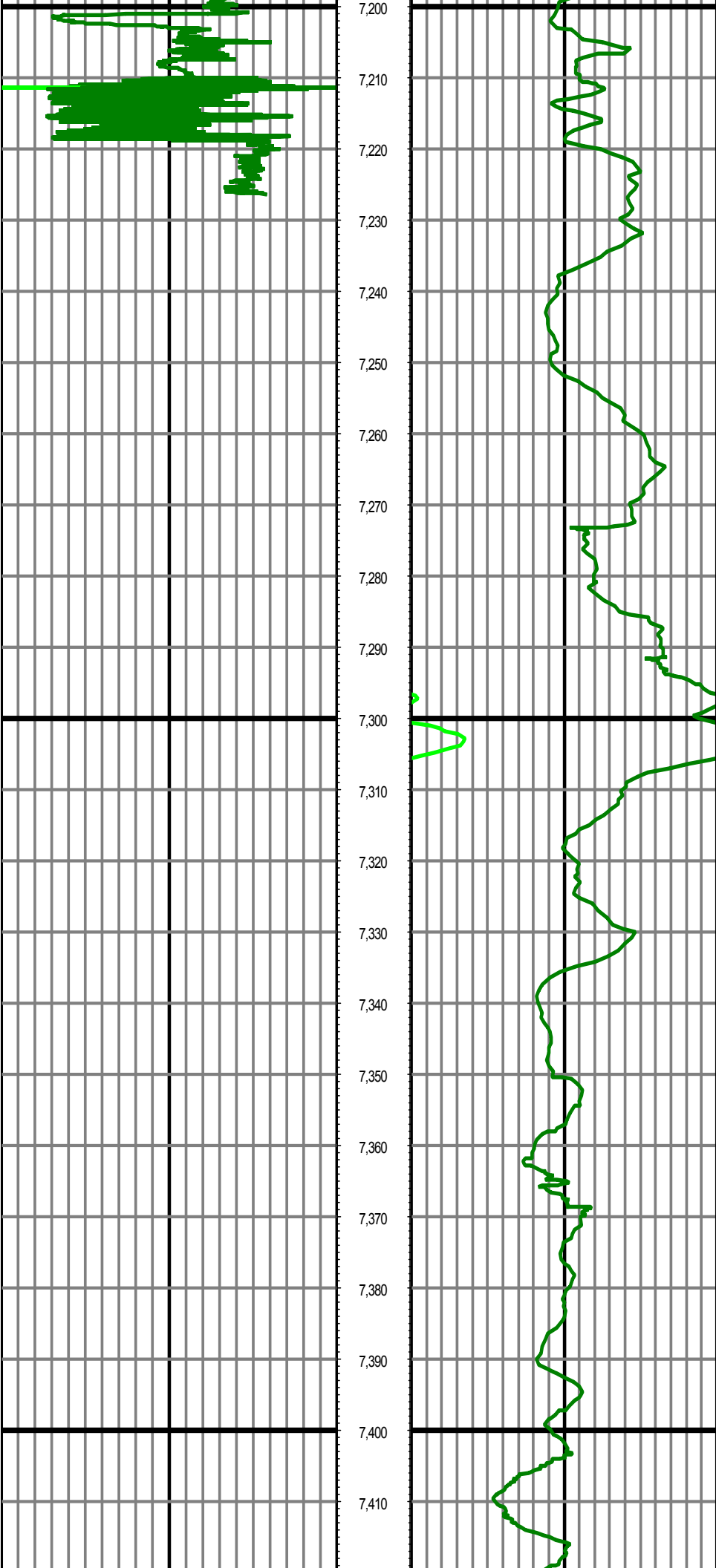




MD: 6987.00 INC: 31.50 AZ: 185.50 TVD: 6856.30 VS: -770.08

MD: 7081.00 INC: 38.00 AZ: 180.10 TVD: 6933.51 VS: -716.65

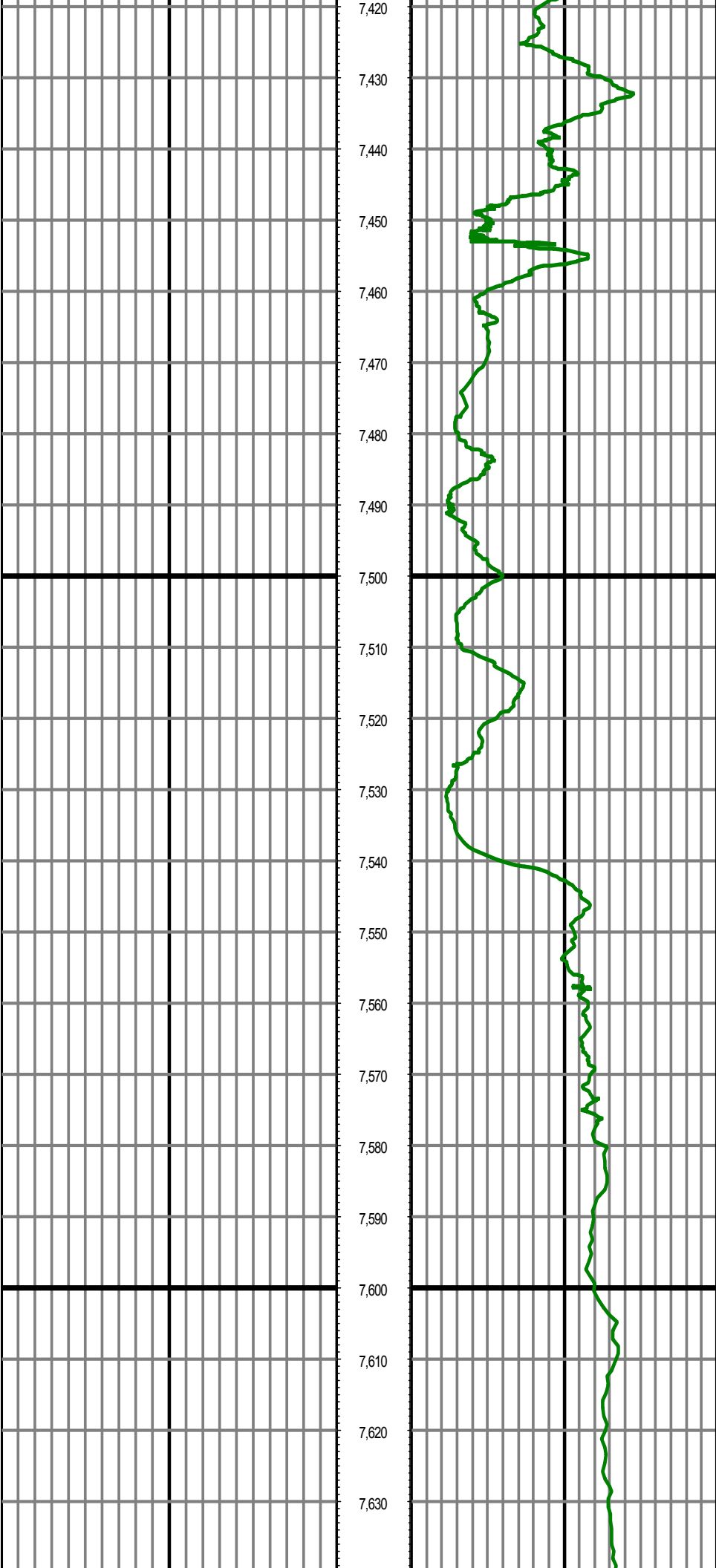
MD: 7176.00 INC: 43.40 AZ: 177.40 TVD: 7005.51 VS: -654.74



MD: 7270.00 INC: 51.30 AZ: 178.50 TVD: 7069.15 VS: -585.68

MD: 7365.00 INC: 60.70 AZ: 179.10 TVD: 7122.22 VS: -507.02

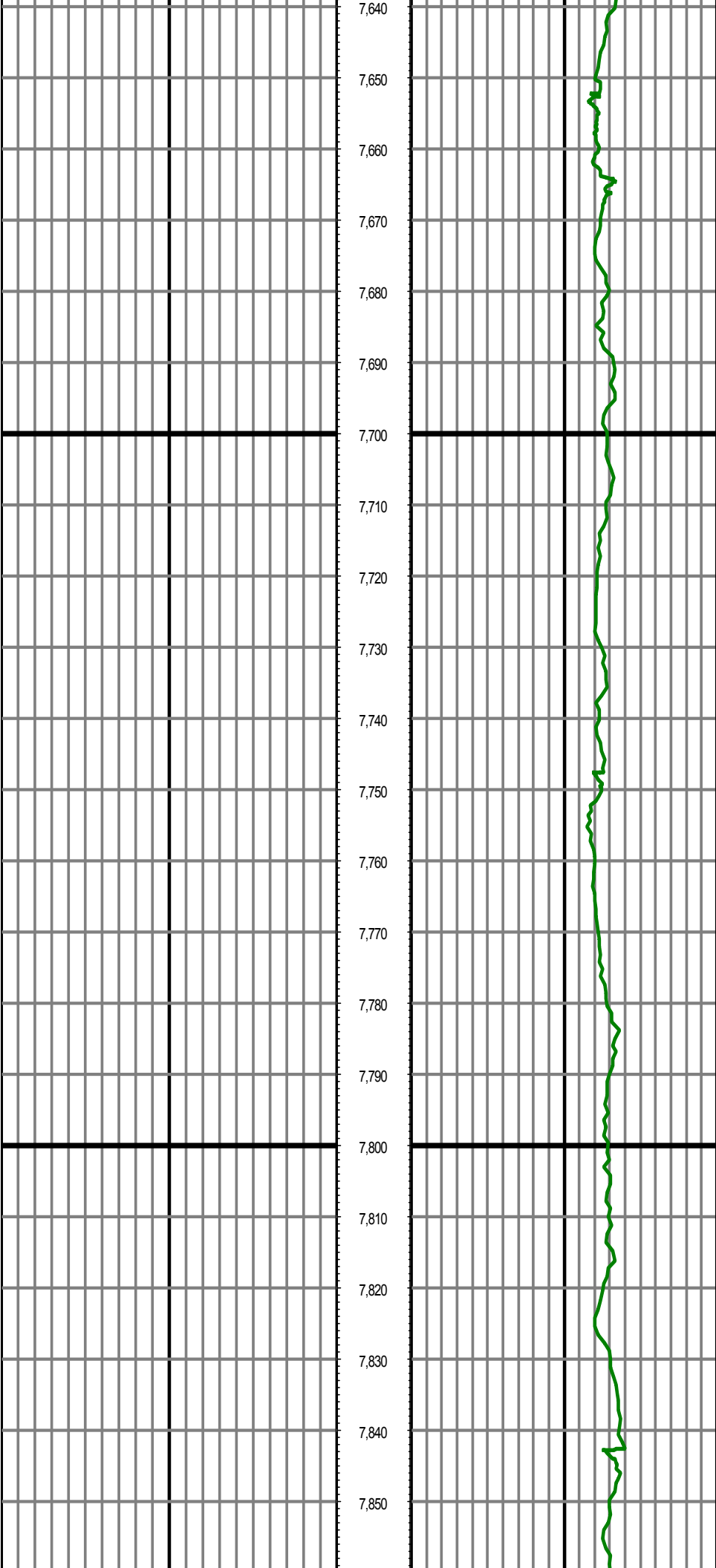




7,420  
7,430  
7,440  
7,450  
7,460  
7,470  
7,480  
7,490  
7,500  
7,510  
7,520  
7,530  
7,540  
7,550  
7,560  
7,570  
7,580  
7,590  
7,600  
7,610  
7,620  
7,630

MD: 7459.00 INC: 70.90 AZ: 180.90 TVD: 7160.70 VS: -421.40

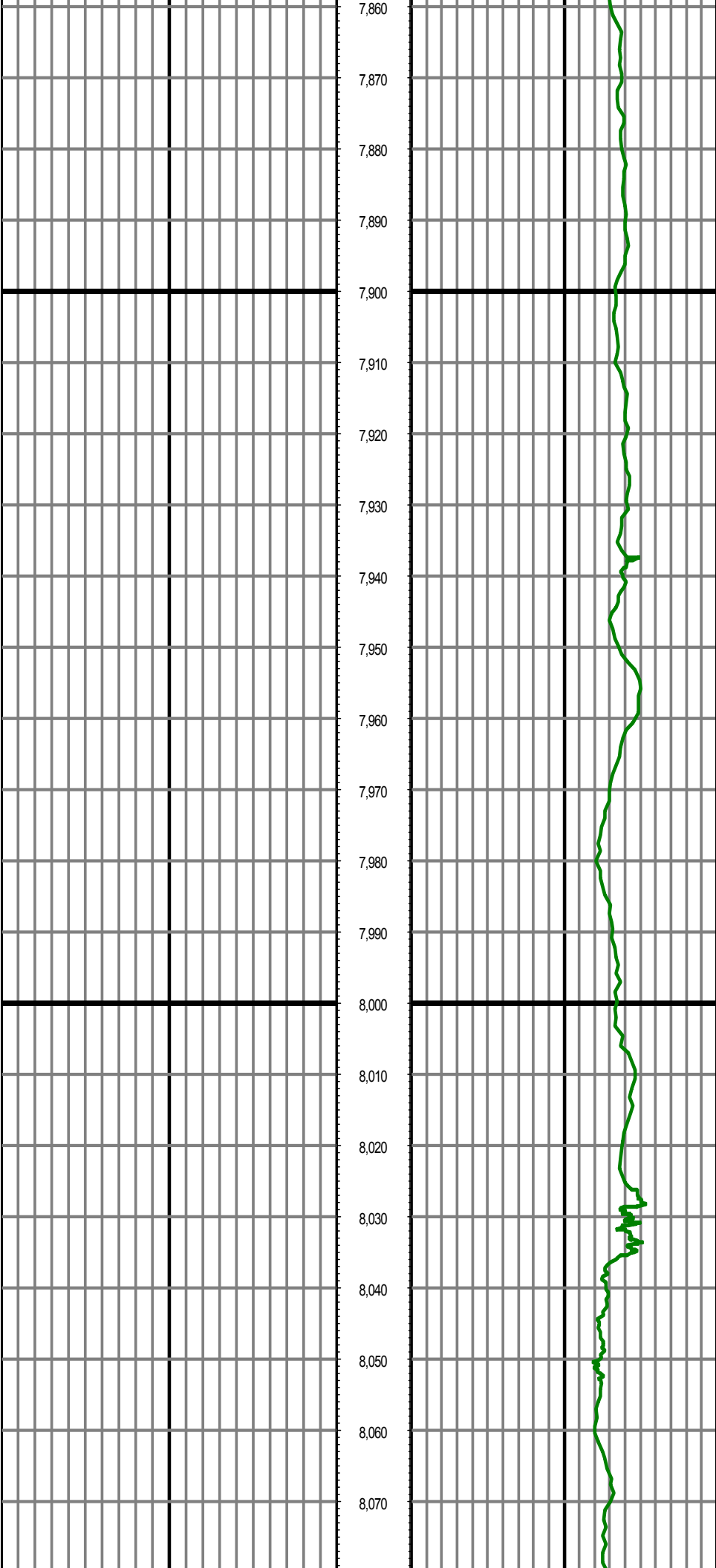
MD: 7553.00 INC: 78.20 AZ: 181.60 TVD: 7185.73 VS: -330.90



MD: 7648.00 INC: 89.10 AZ: 178.90 TVD: 7196.22 VS: -236.64

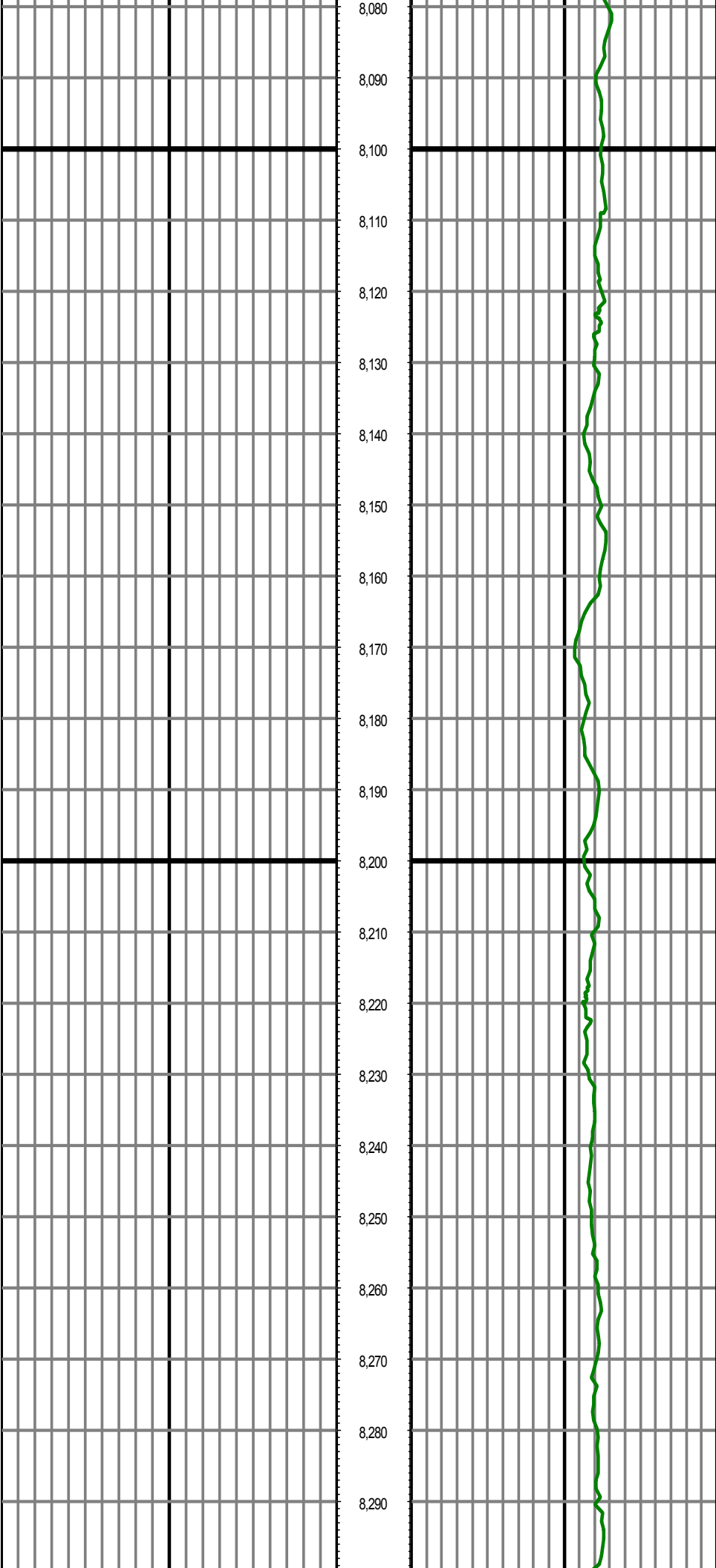
MD: 7743.00 INC: 90.60 AZ: 179.10 TVD: 7196.47 VS: -141.65

MD: 7837.00 INC: 90.90 AZ: 178.30 TVD: 7195.24 VS: -47.67



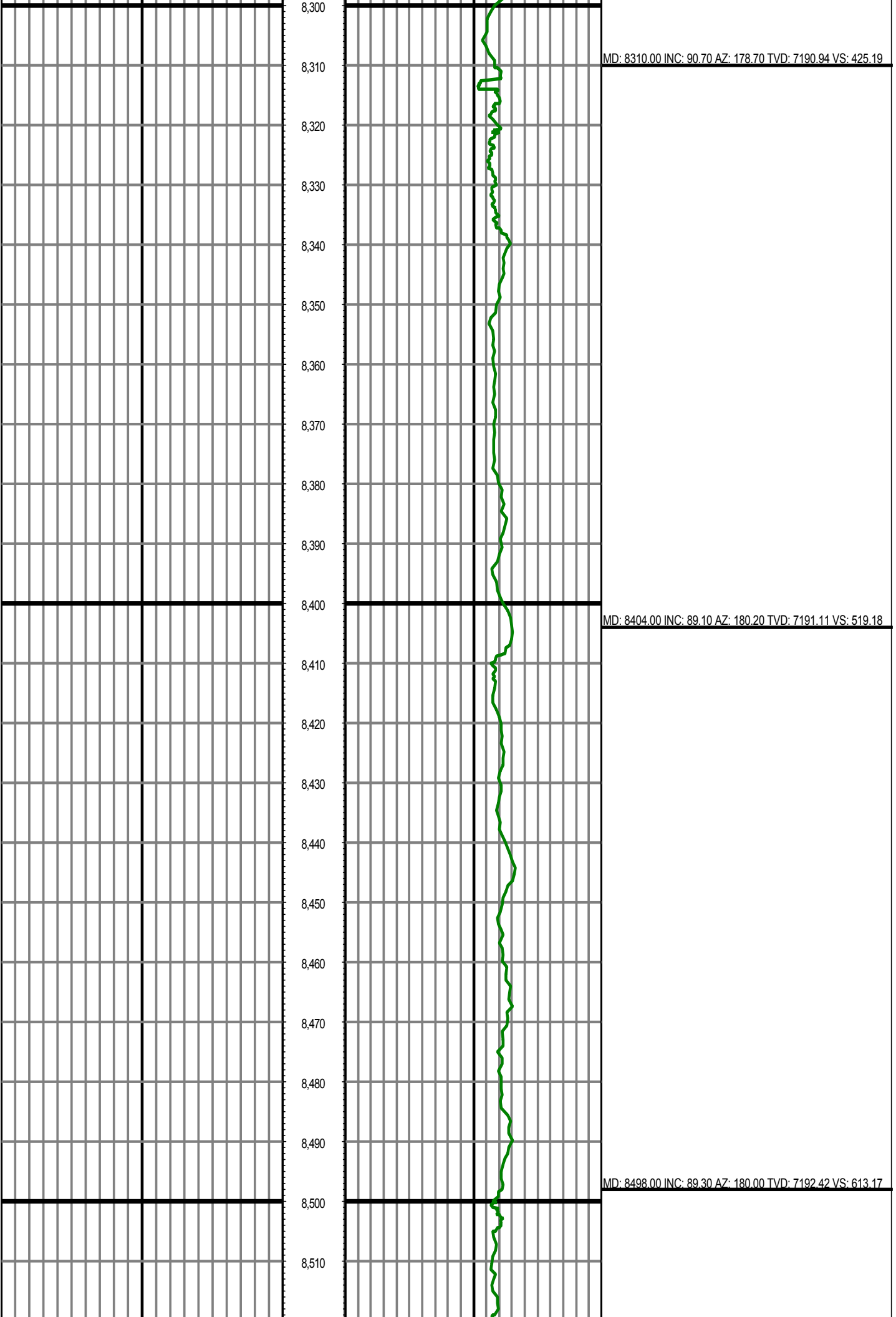
MD: 7932.00 INC: 90.80 AZ: 178.00 TVD: 7193.83 VS: 47.29

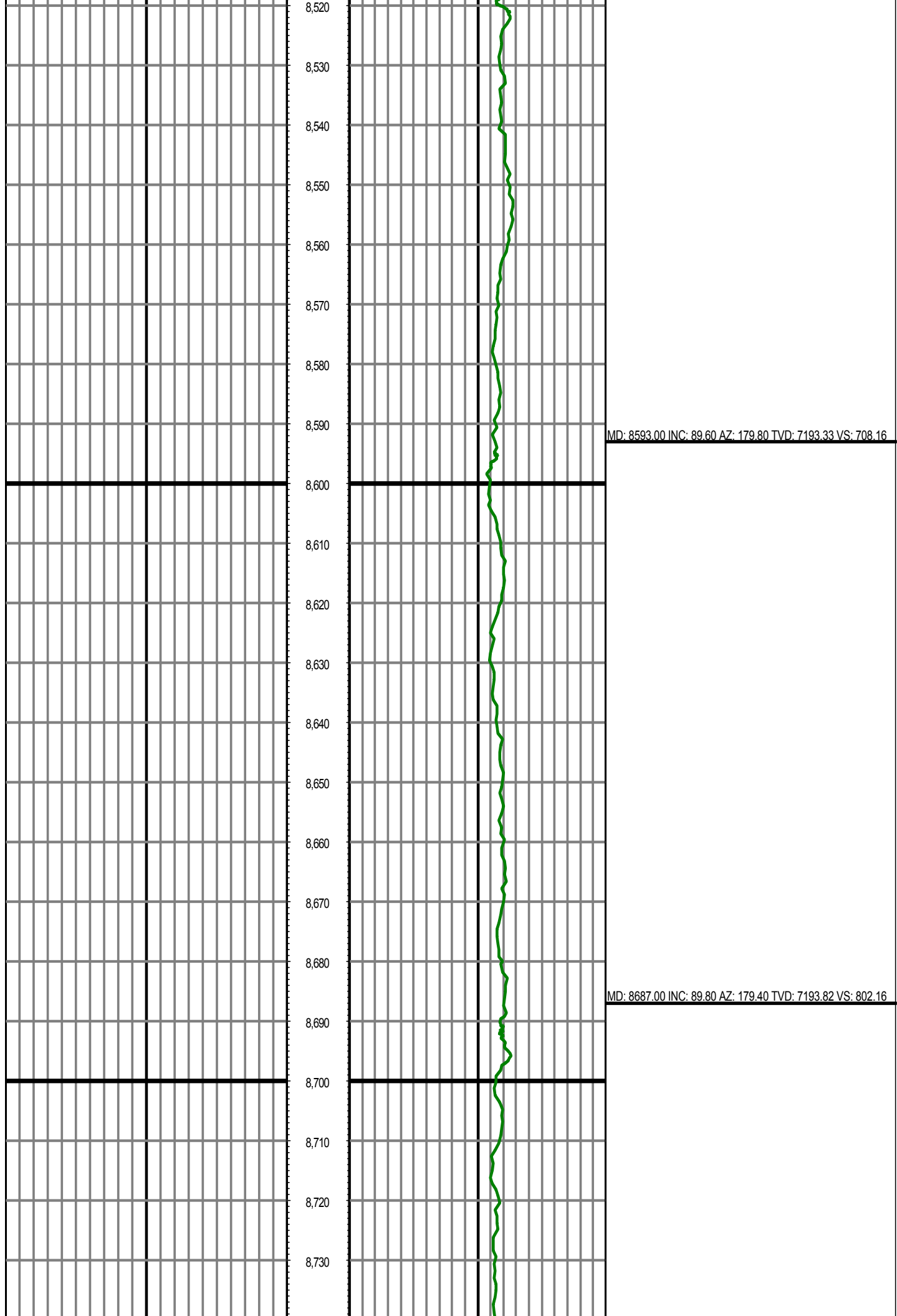
MD: 8026.00 INC: 91.30 AZ: 177.50 TVD: 7192.11 VS: 141.23

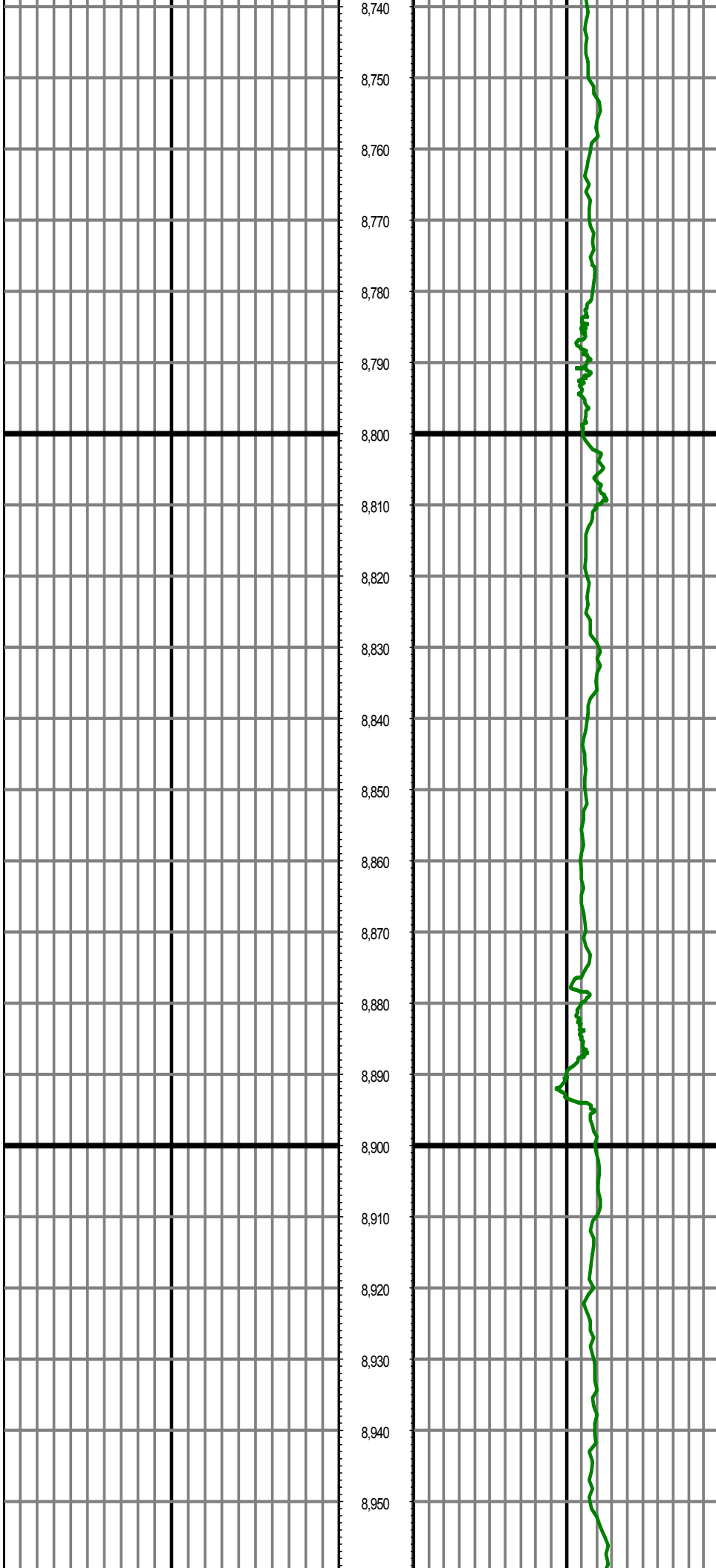


MD: 8121.00 INC: 89.50 AZ: 179.20 TVD: 7191.44 VS: 236.20

MD: 8215.00 INC: 90.20 AZ: 179.20 TVD: 7191.69 VS: 330.20

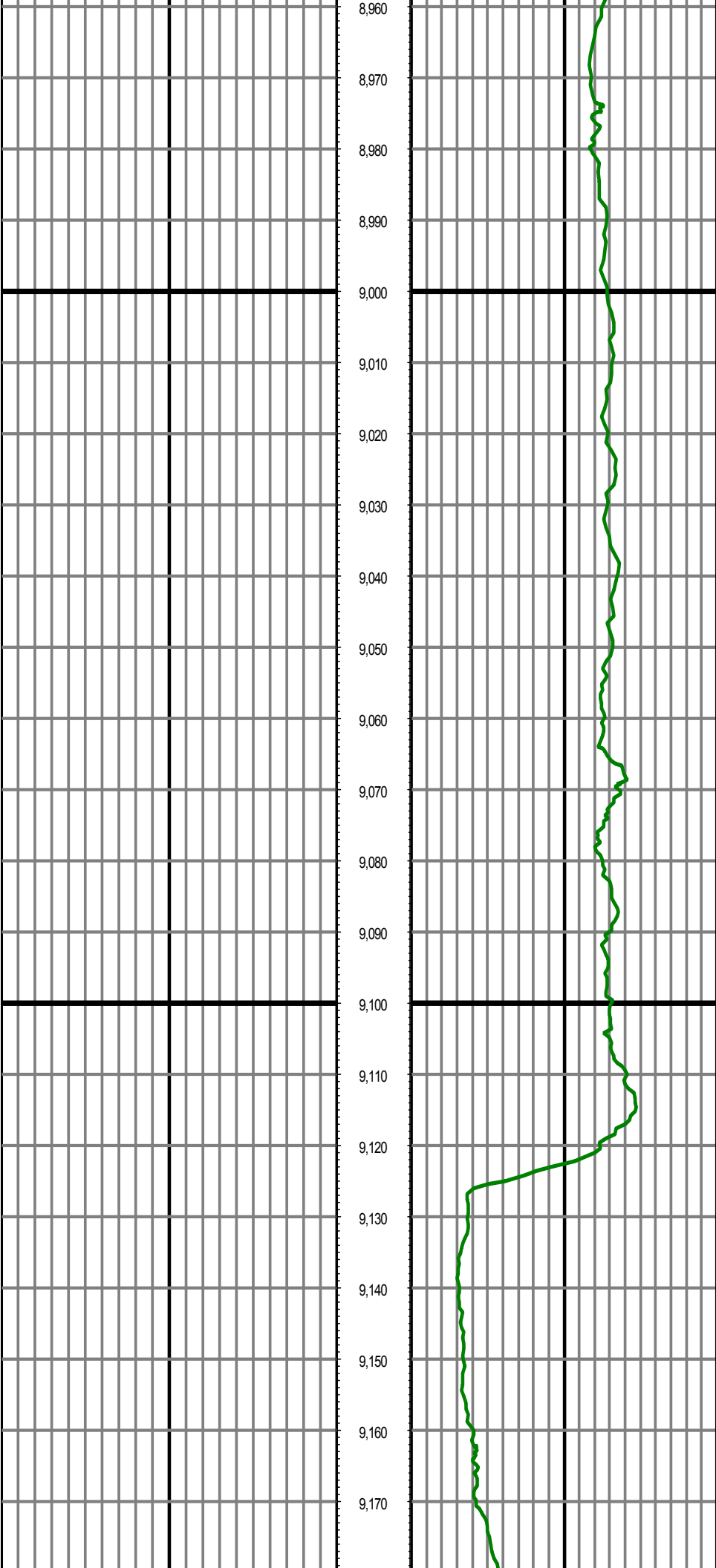






MD: 8782.00 INC: 90.30 AZ: 178.50 TVD: 7193.74 VS: 897.15

MD: 8876.00 INC: 89.10 AZ: 180.50 TVD: 7194.23 VS: 991.15

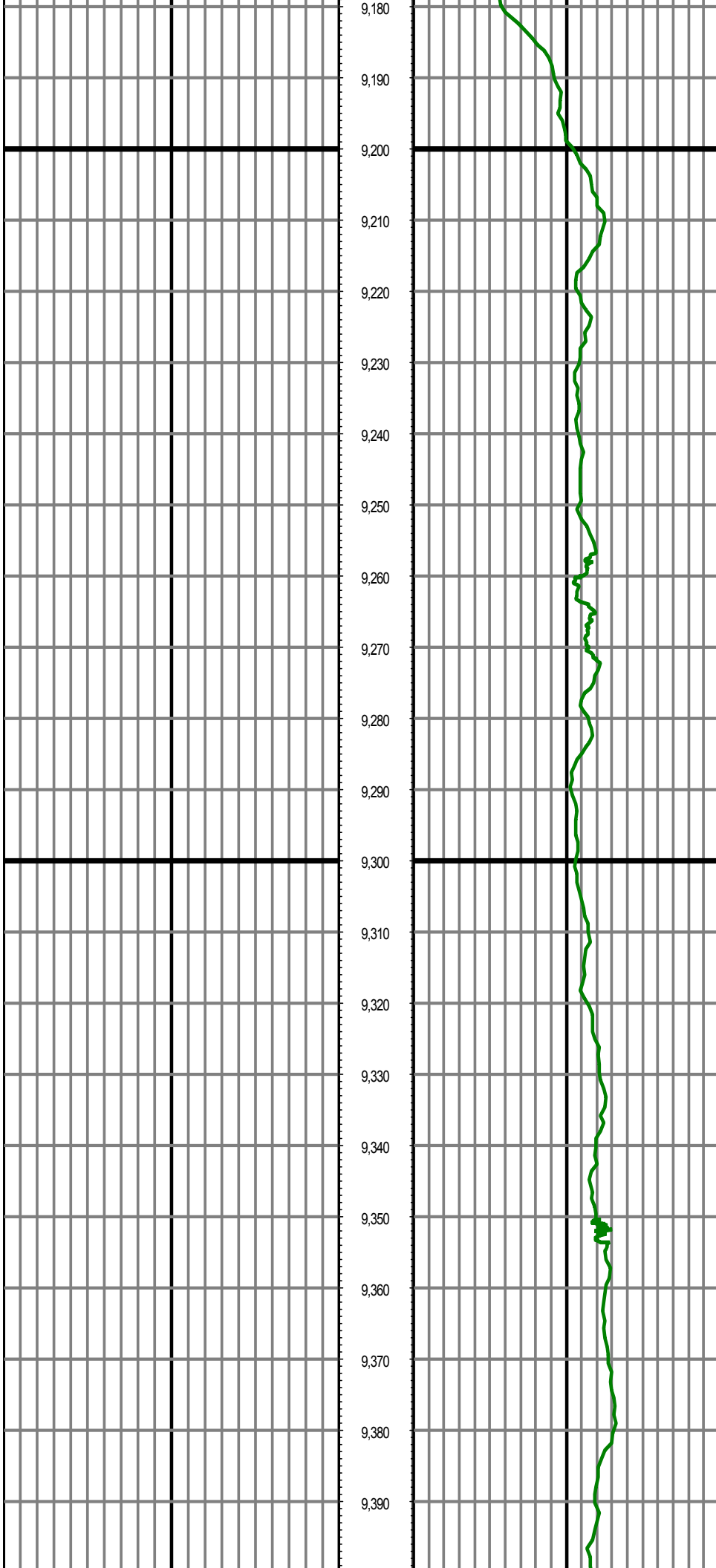


MD: 8971.00 INC: 88.00 AZ: 181.50 TVD: 7196.64 VS: 1086.08

MD: 9065.00 INC: 88.40 AZ: 181.10 TVD: 7199.59 VS: 1179.99

MD: 9160.00 INC: 88.80 AZ: 180.90 TVD: 7201.91 VS: 1274.93

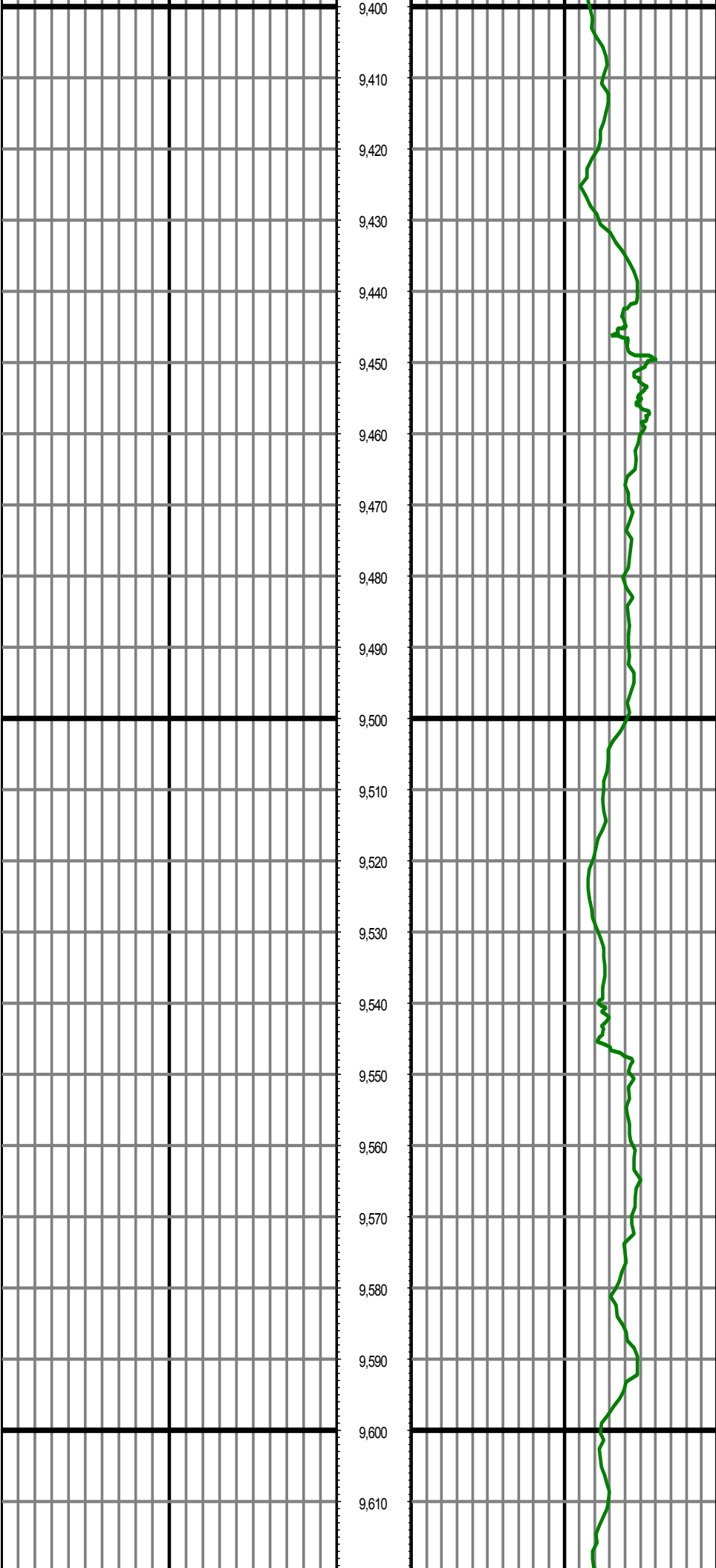




9,180  
9,190  
9,200  
9,210  
9,220  
9,230  
9,240  
9,250  
9,260  
9,270  
9,280  
9,290  
9,300  
9,310  
9,320  
9,330  
9,340  
9,350  
9,360  
9,370  
9,380  
9,390

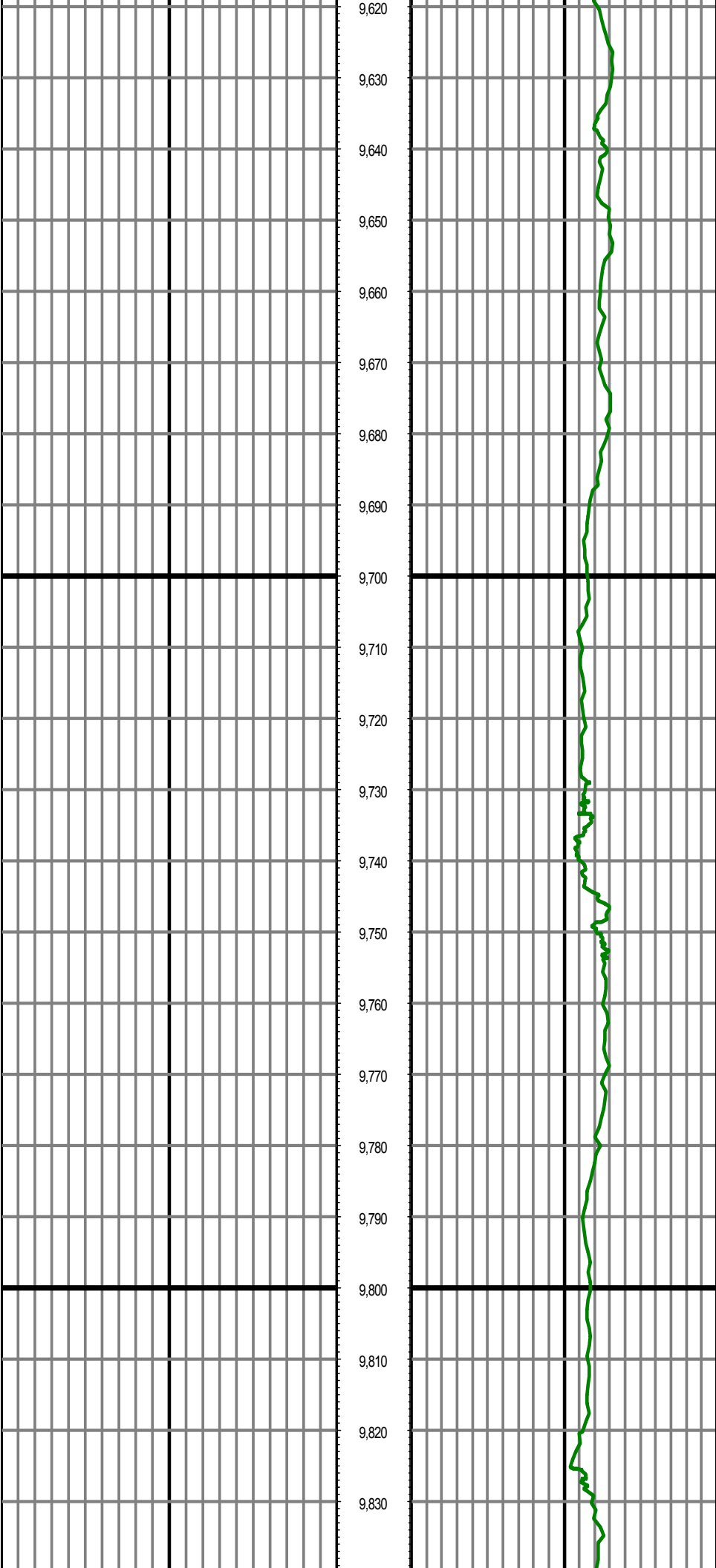
MD: 9254.00 INC: 88.40 AZ: 180.70 TVD: 7204.21 VS: 1368.88

MD: 9348.00 INC: 90.00 AZ: 180.90 TVD: 7205.52 VS: 1462.85



MD: 9443.00 INC: 90.70 AZ: 180.50 TVD: 7204.94 VS: 1557.83

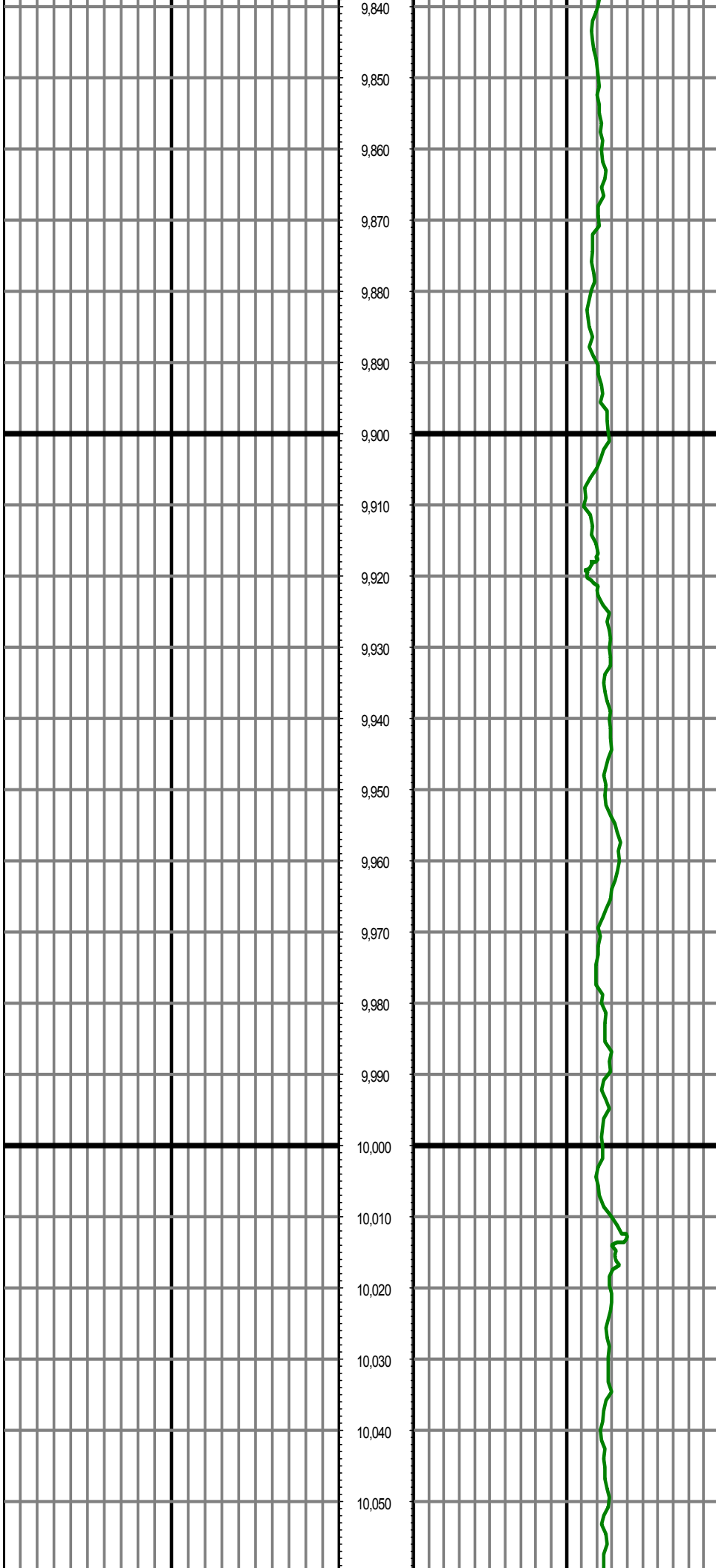
MD: 9538.00 INC: 89.50 AZ: 179.50 TVD: 7204.77 VS: 1652.82



MD: 9632.00 INC: 90.20 AZ: 179.20 TVD: 7205.02 VS: 1746.82

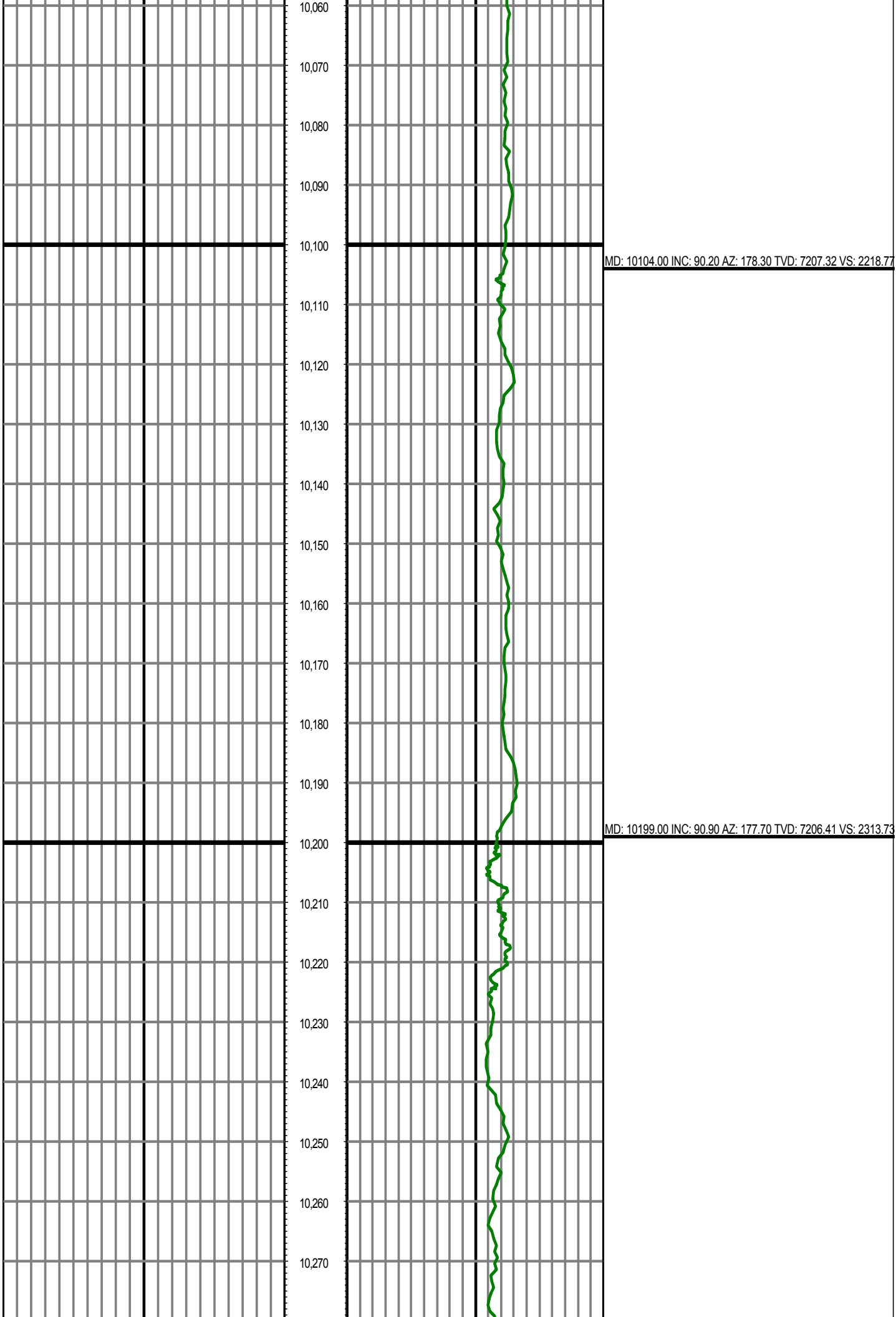
MD: 9727.00 INC: 90.50 AZ: 178.70 TVD: 7204.44 VS: 1841.81

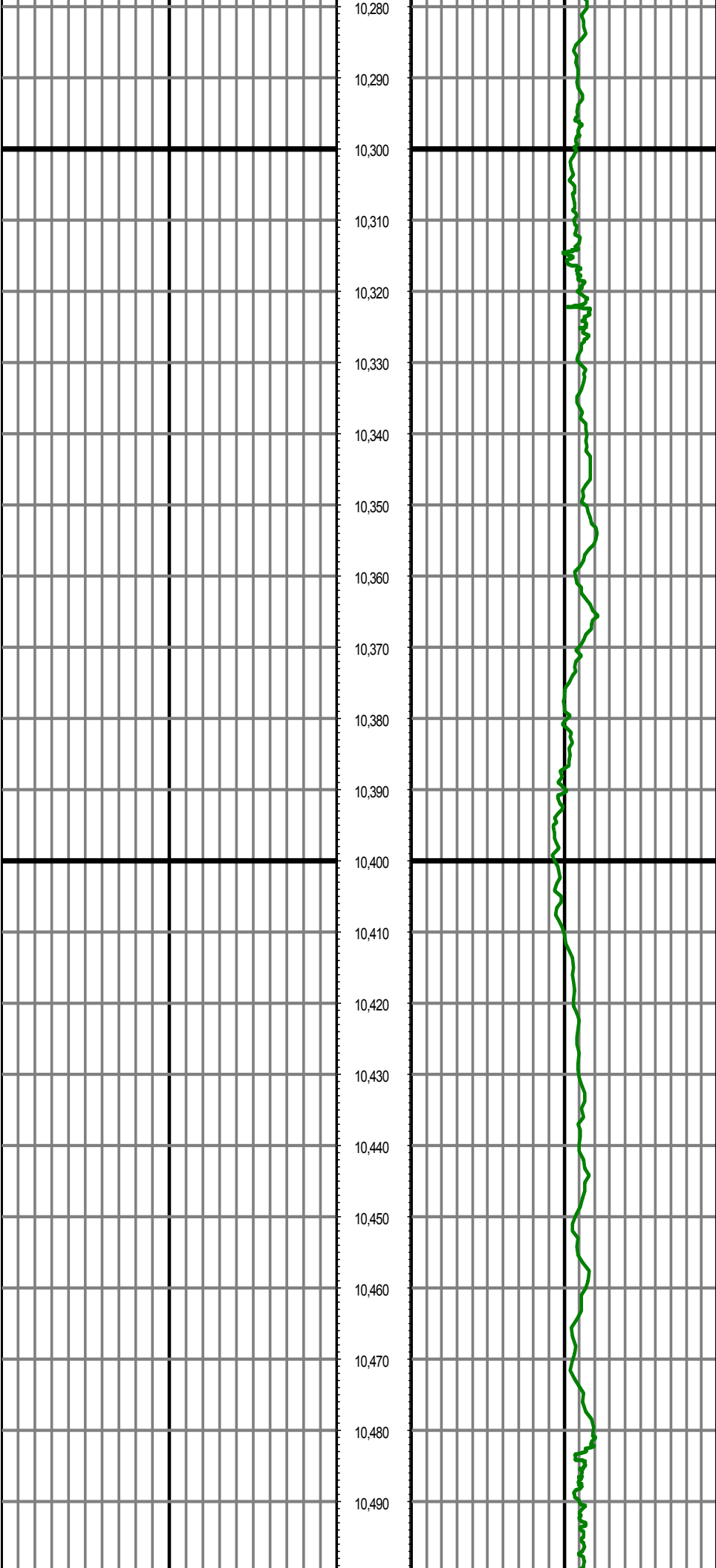
MD: 9821.00 INC: 89.00 AZ: 179.60 TVD: 7204.85 VS: 1935.80



MD: 9915.00 INC: 89.20 AZ: 179.20 TVD: 7206.32 VS: 2029.79

MD: 10010.00 INC: 89.70 AZ: 179.00 TVD: 7207.24 VS: 2124.78

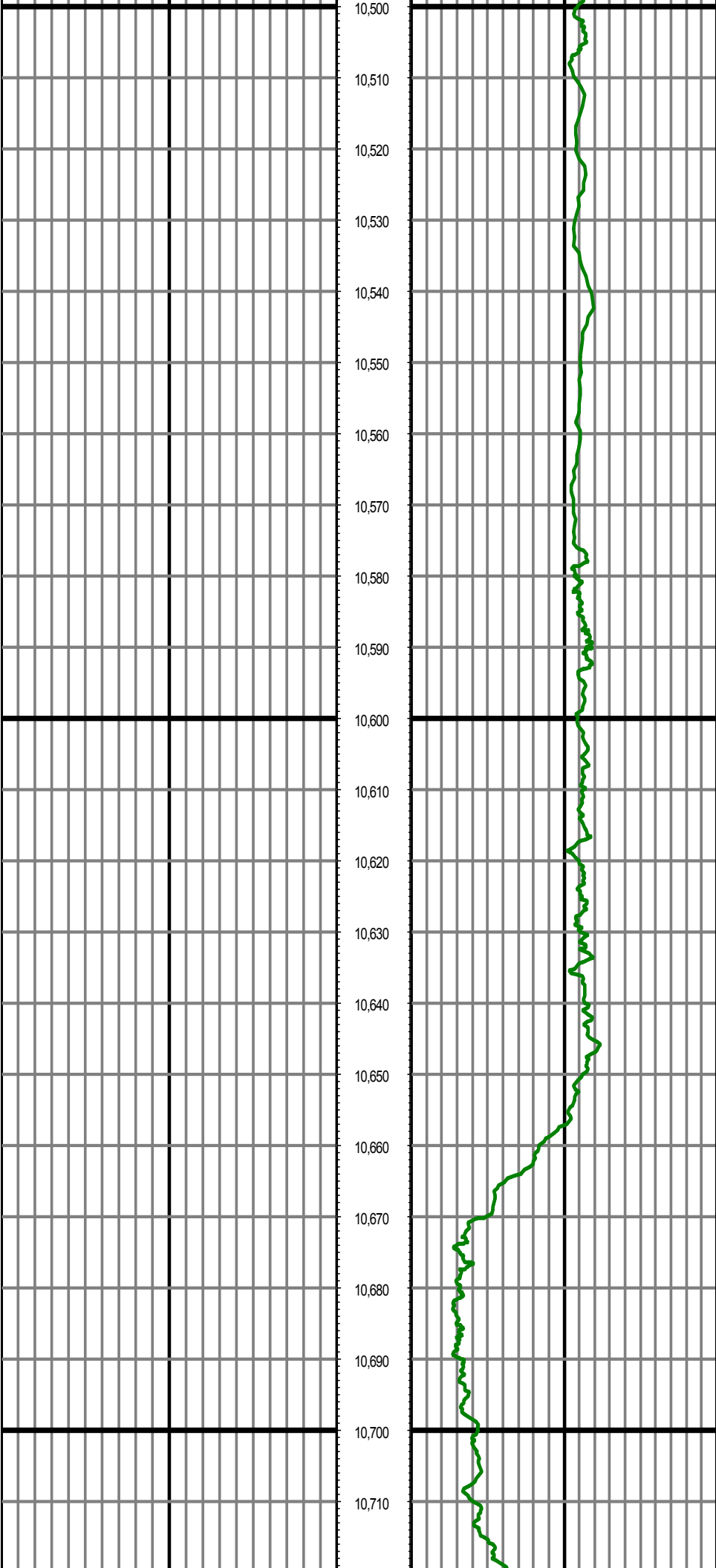




MD: 10293.00 INC: 89.80 AZ: 179.80 TVD: 7205.83 VS: 2407.71

MD: 10388.00 INC: 88.10 AZ: 179.40 TVD: 7207.57 VS: 2502.69

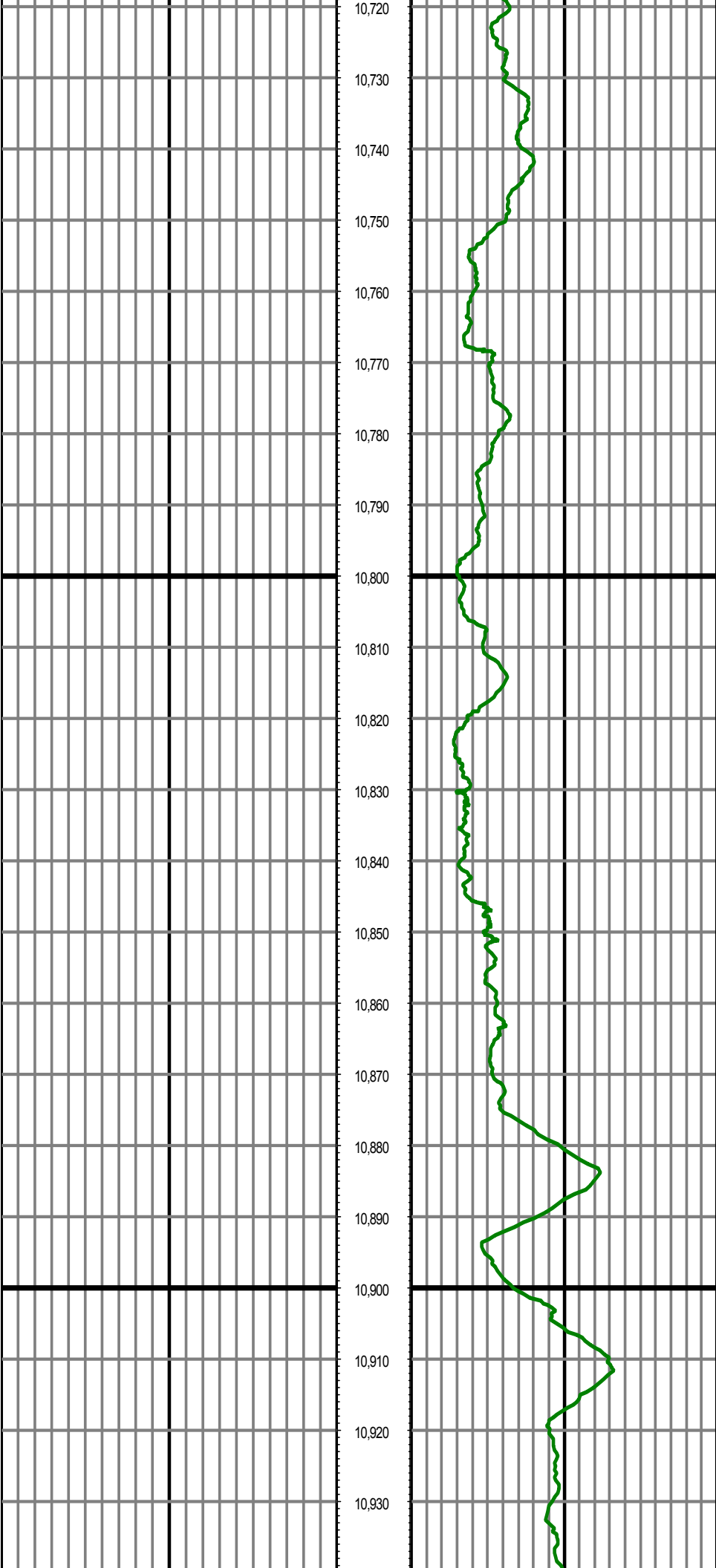
MD: 10482.00 INC: 87.20 AZ: 179.30 TVD: 7211.43 VS: 2596.61



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  
10,630  
10,640  
10,650  
10,660  
10,670  
10,680  
10,690  
10,700  
10,710

MD: 10577.00 INC: 89.10 AZ: 180.10 TVD: 7214.49 VS: 2691.56

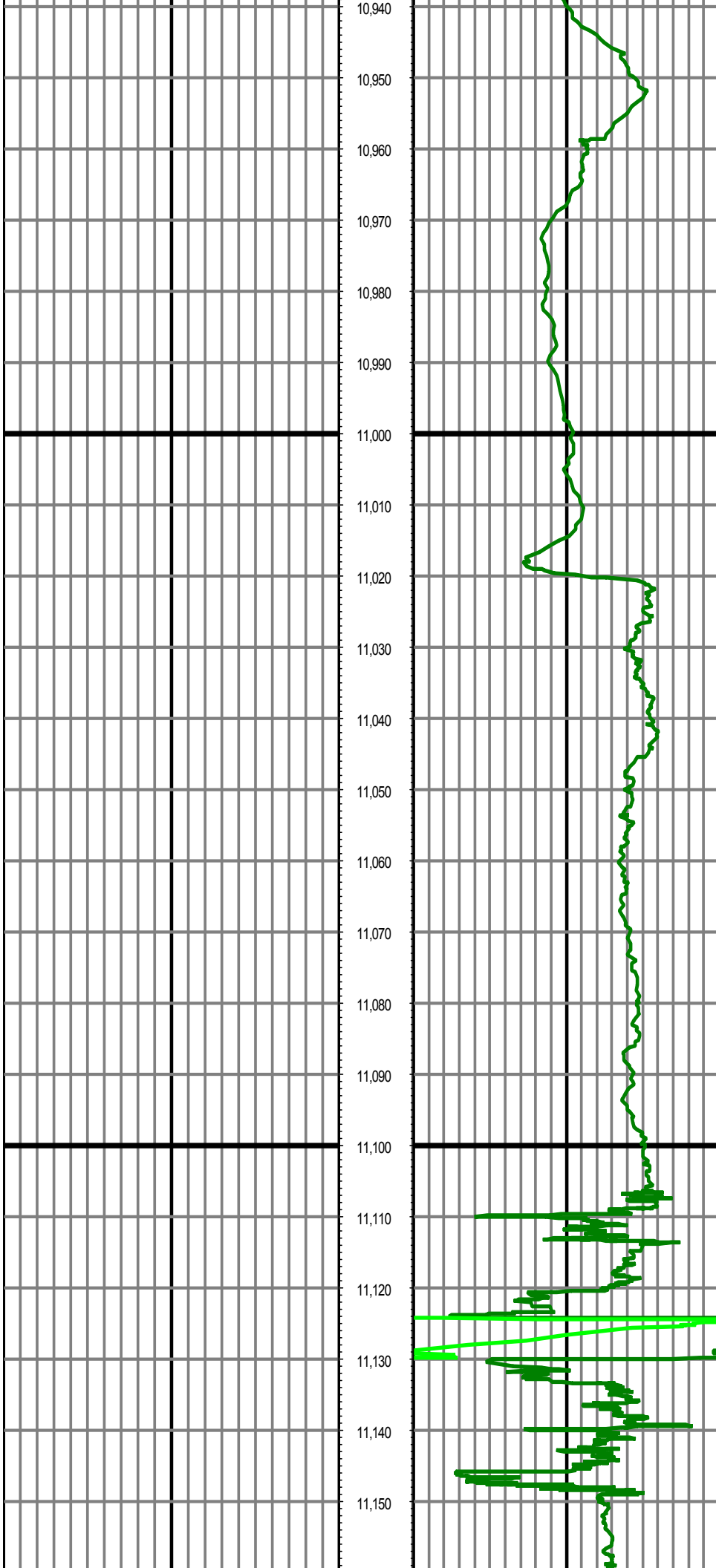
MD: 10671.00 INC: 89.70 AZ: 179.70 TVD: 7215.48 VS: 2785.55



MD: 10766.00 INC: 91.50 AZ: 180.20 TVD: 7214.48 VS: 2880.54

MD: 10860.00 INC: 92.10 AZ: 180.10 TVD: 7211.53 VS: 2974.49

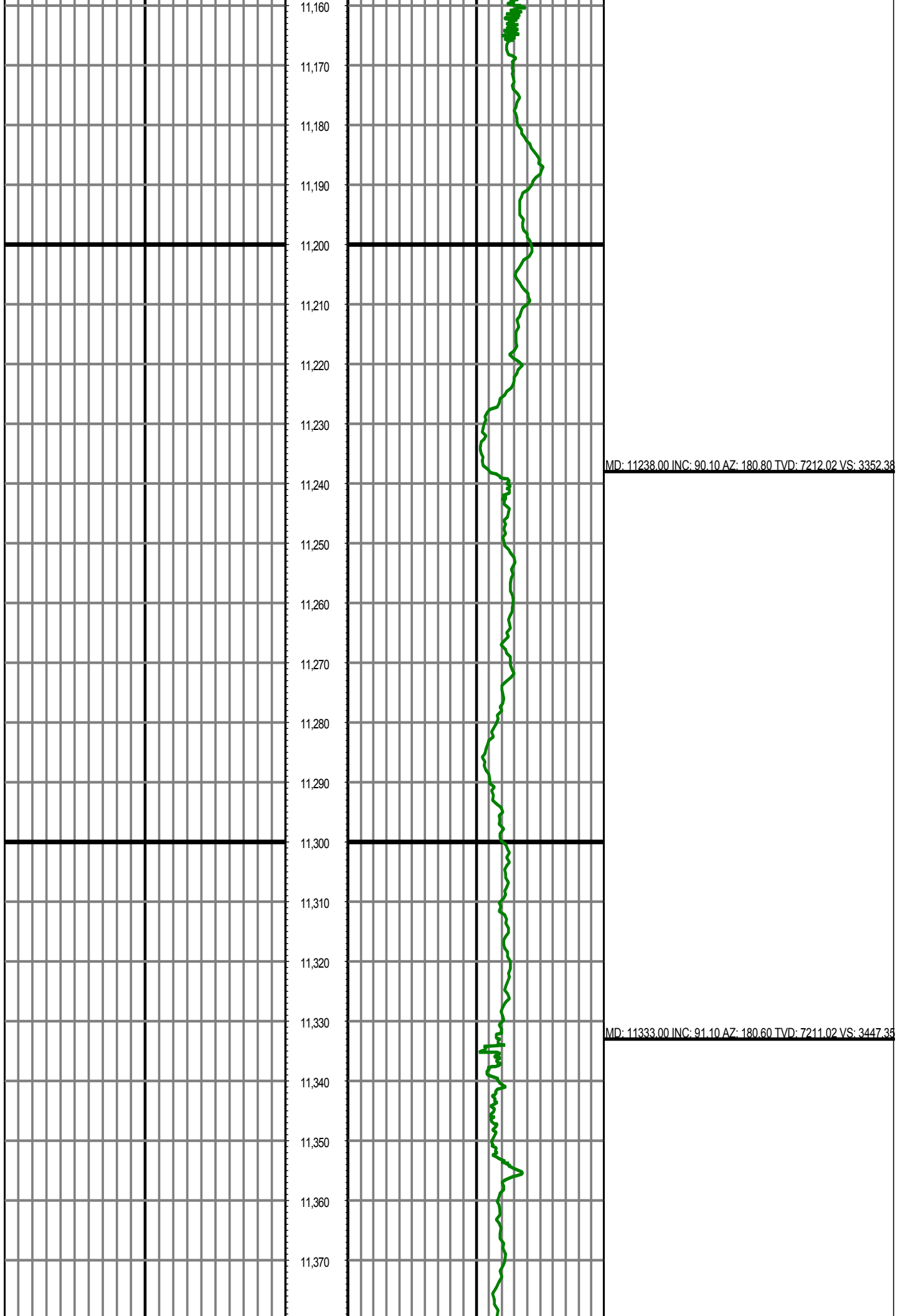


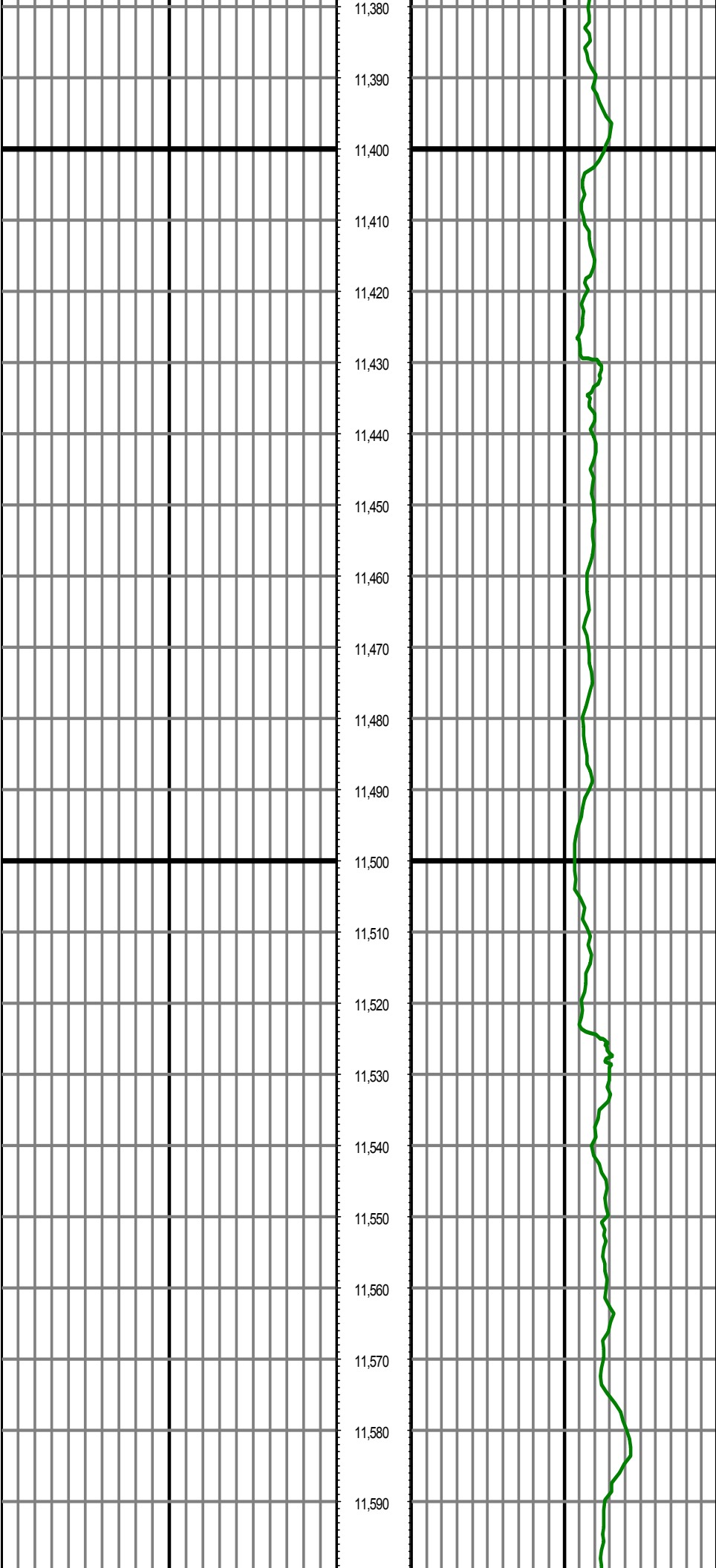


MD: 10955.00 INC: 89.80 AZ: 180.40 TVD: 7209.96 VS: 3069.46

MD: 11049.00 INC: 89.50 AZ: 180.90 TVD: 7210.53 VS: 3163.44

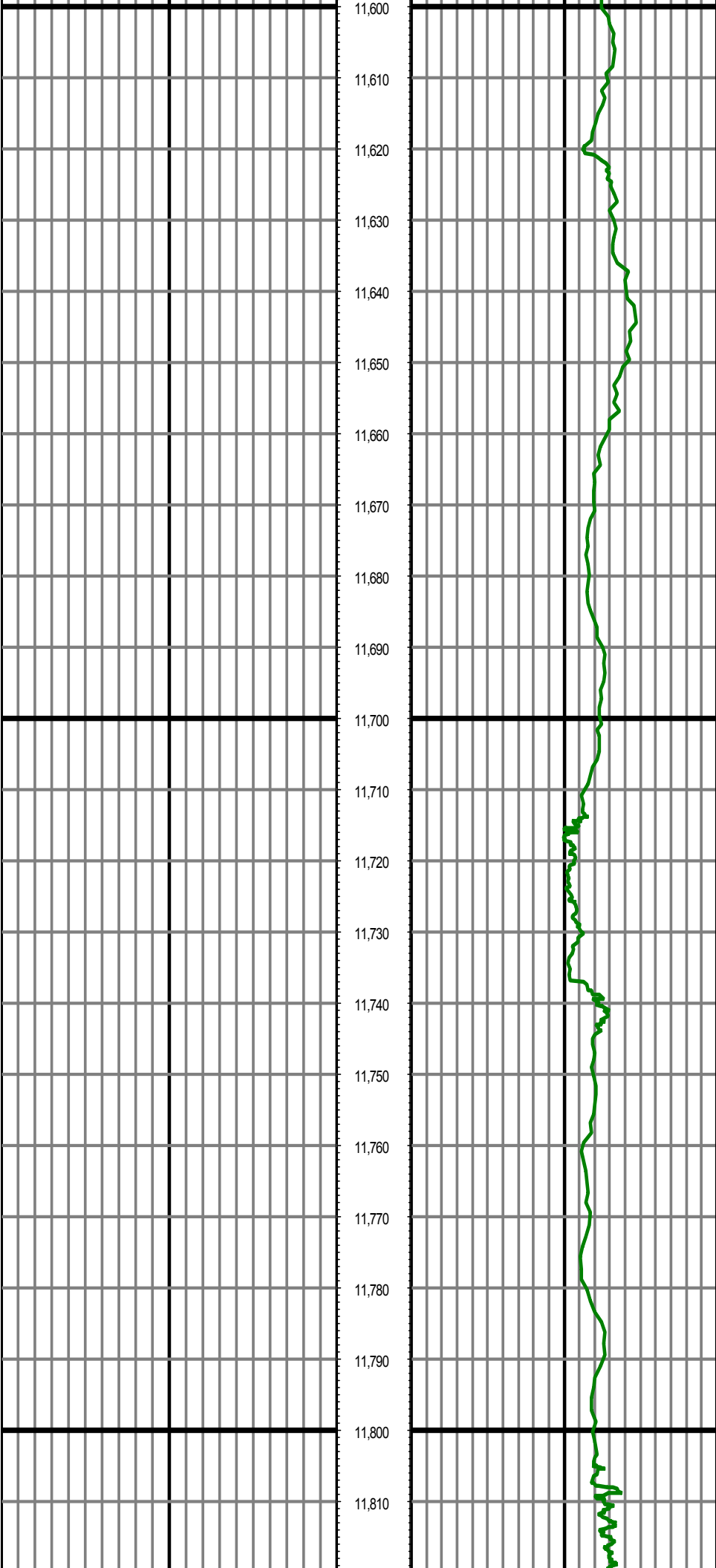
MD: 11144.00 INC: 89.30 AZ: 181.00 TVD: 7211.53 VS: 3258.41





MD: 11427.00 INC: 88.80 AZ: 180.70 TVD: 7211.10 VS: 3541.33

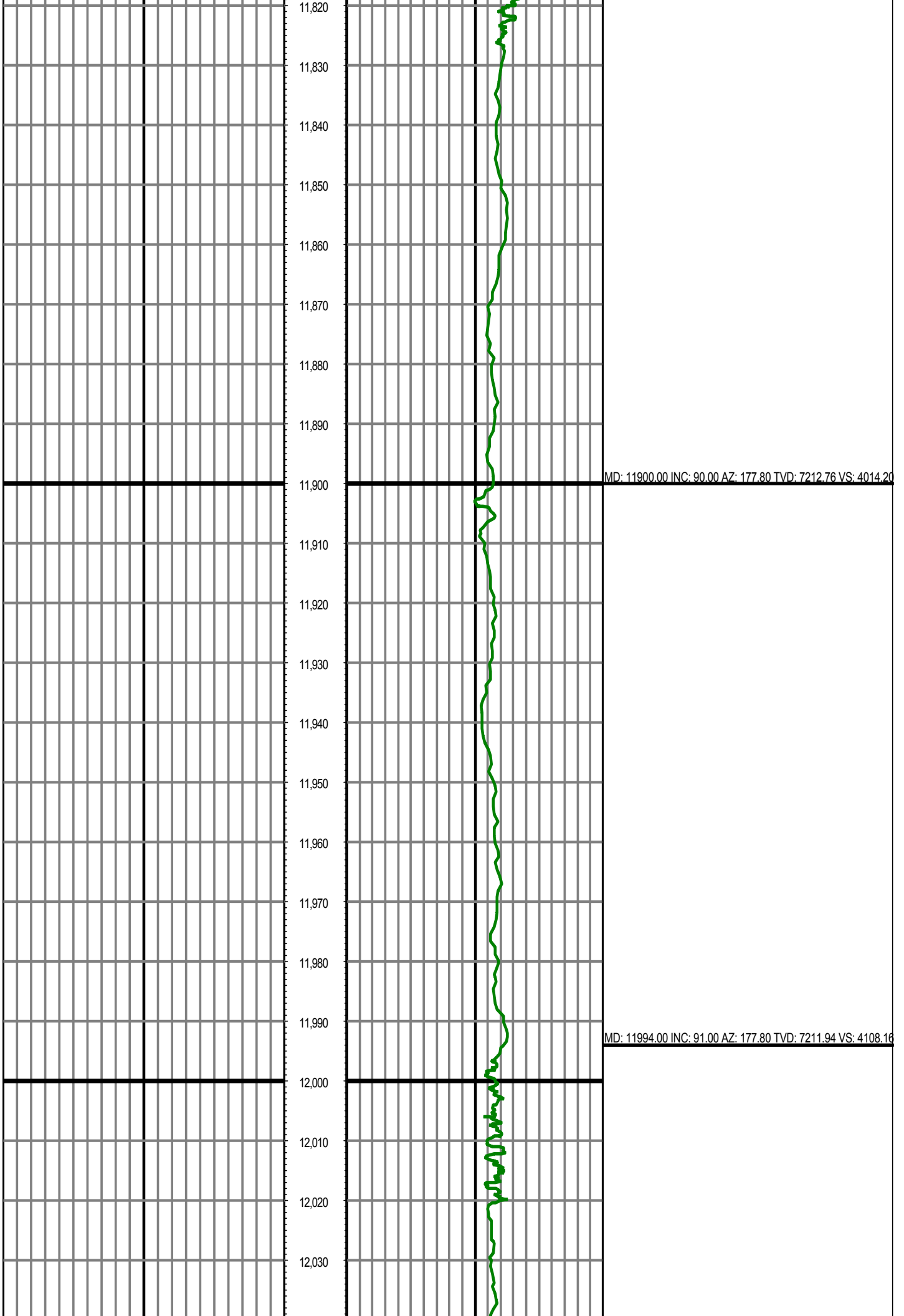
MD: 11522.00 INC: 89.00 AZ: 180.70 TVD: 7212.93 VS: 3636.29

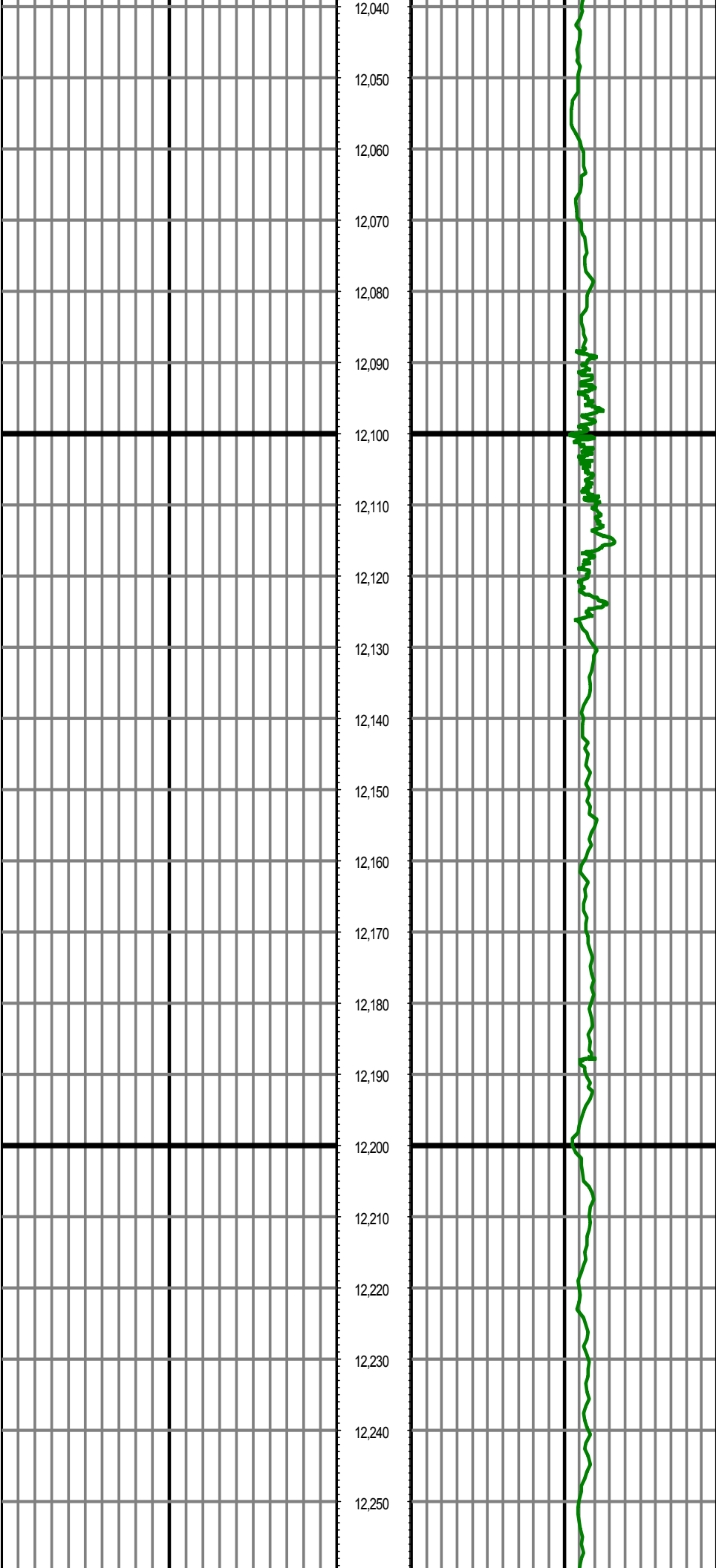


MD: 11616.00 INC: 89.90 AZ: 180.80 TVD: 7213.83 VS: 3730.27

MD: 11711.00 INC: 90.90 AZ: 181.10 TVD: 7213.17 VS: 3825.24

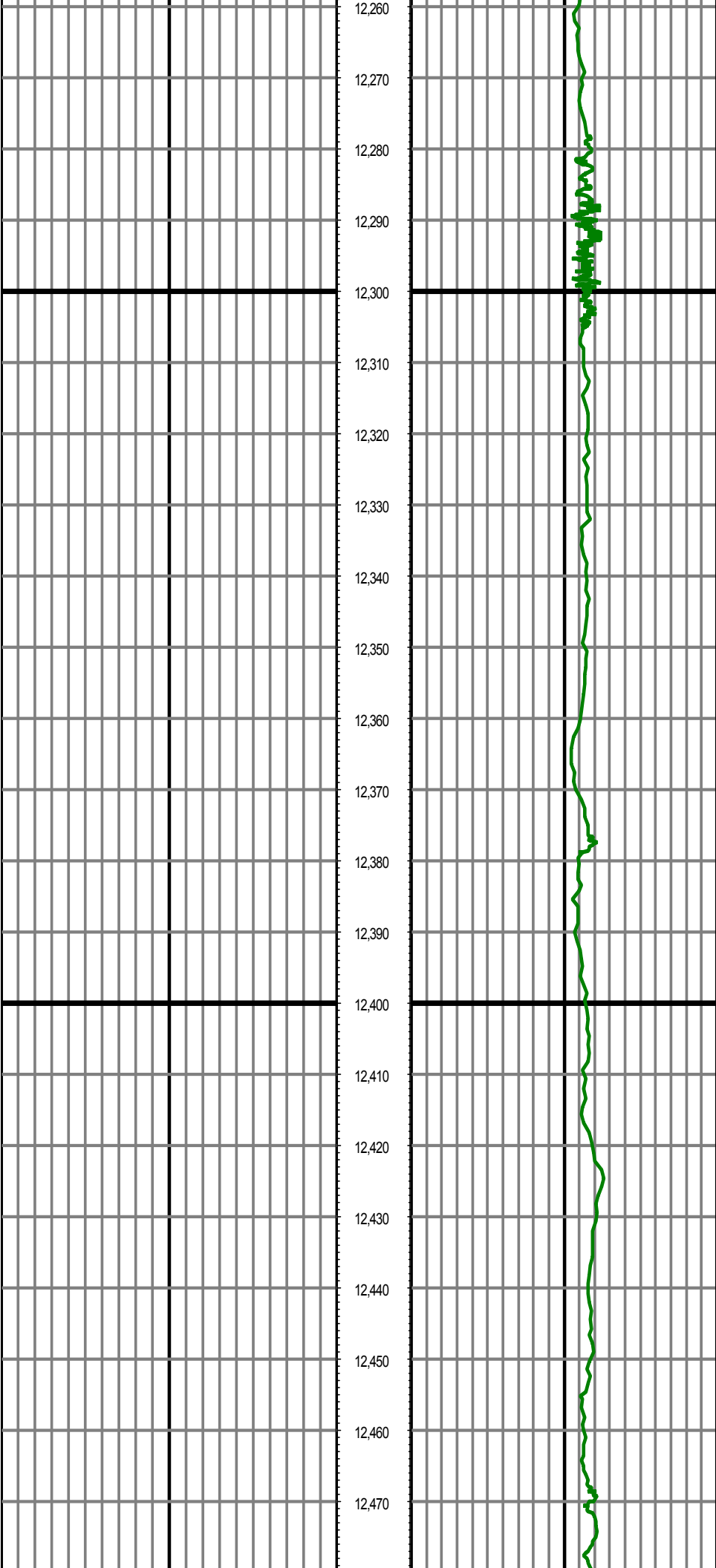
MD: 11805.00 INC: 89.80 AZ: 180.00 TVD: 7212.59 VS: 3919.22





MD: 12089.00 INC: 89.60 AZ: 176.10 TVD: 7211.44 VS: 4203.05

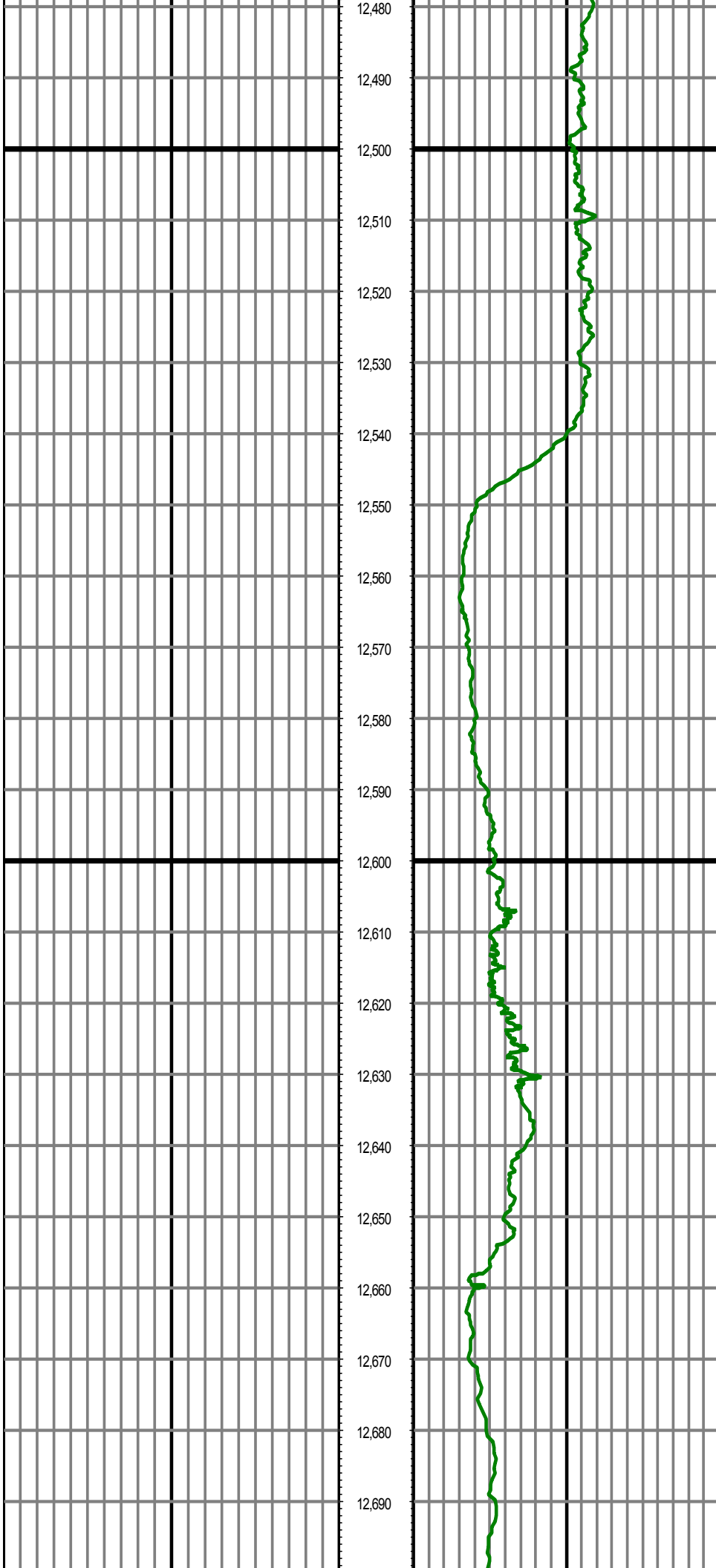
MD: 12183.00 INC: 88.80 AZ: 178.70 TVD: 7212.75 VS: 4296.97



MD: 12278.00 INC: 88.40 AZ: 178.00 TVD: 7215.08 VS: 4391.92

MD: 12372.00 INC: 88.80 AZ: 179.50 TVD: 7217.37 VS: 4485.88

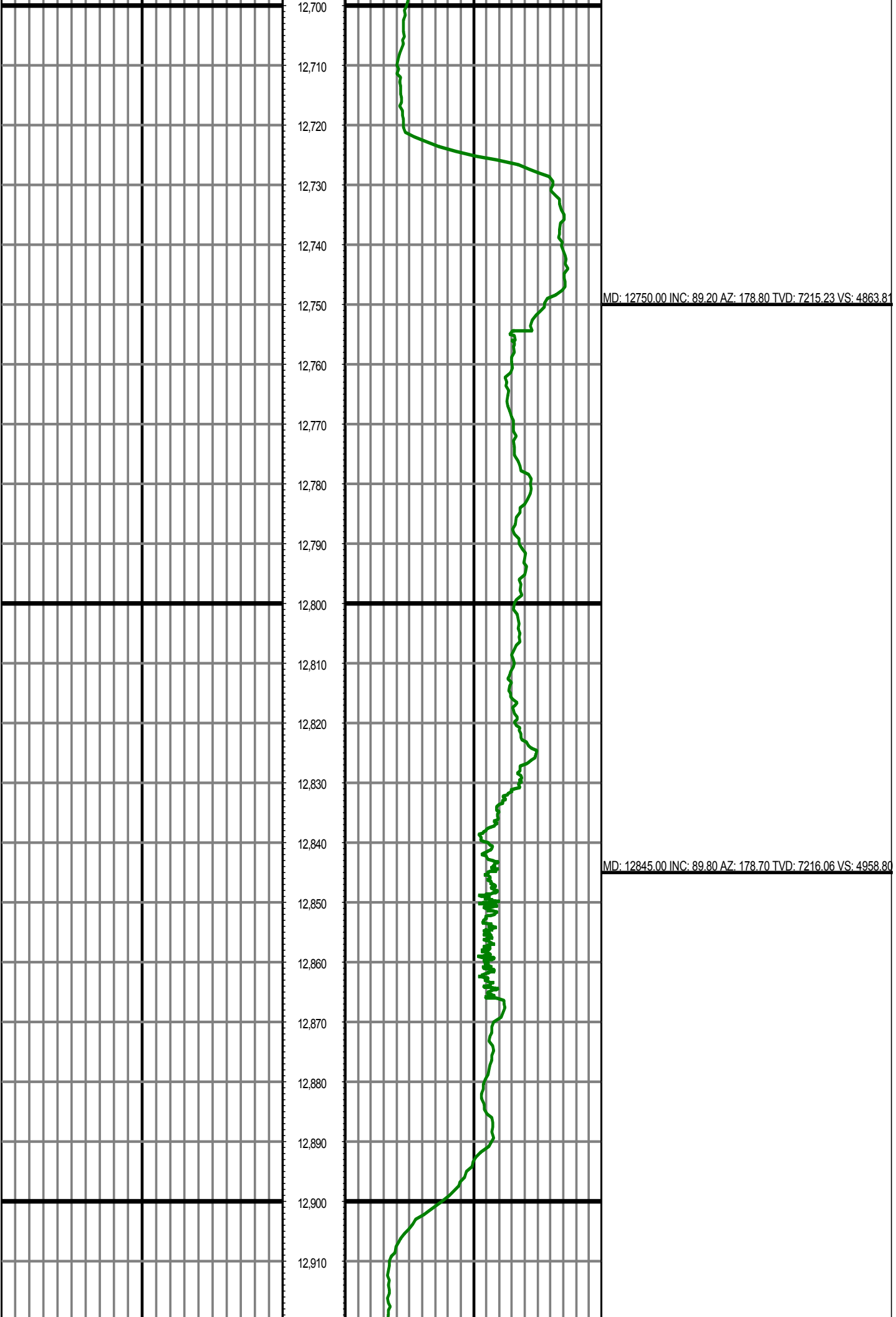
MD: 12467.00 INC: 89.50 AZ: 179.80 TVD: 7218.78 VS: 4580.87

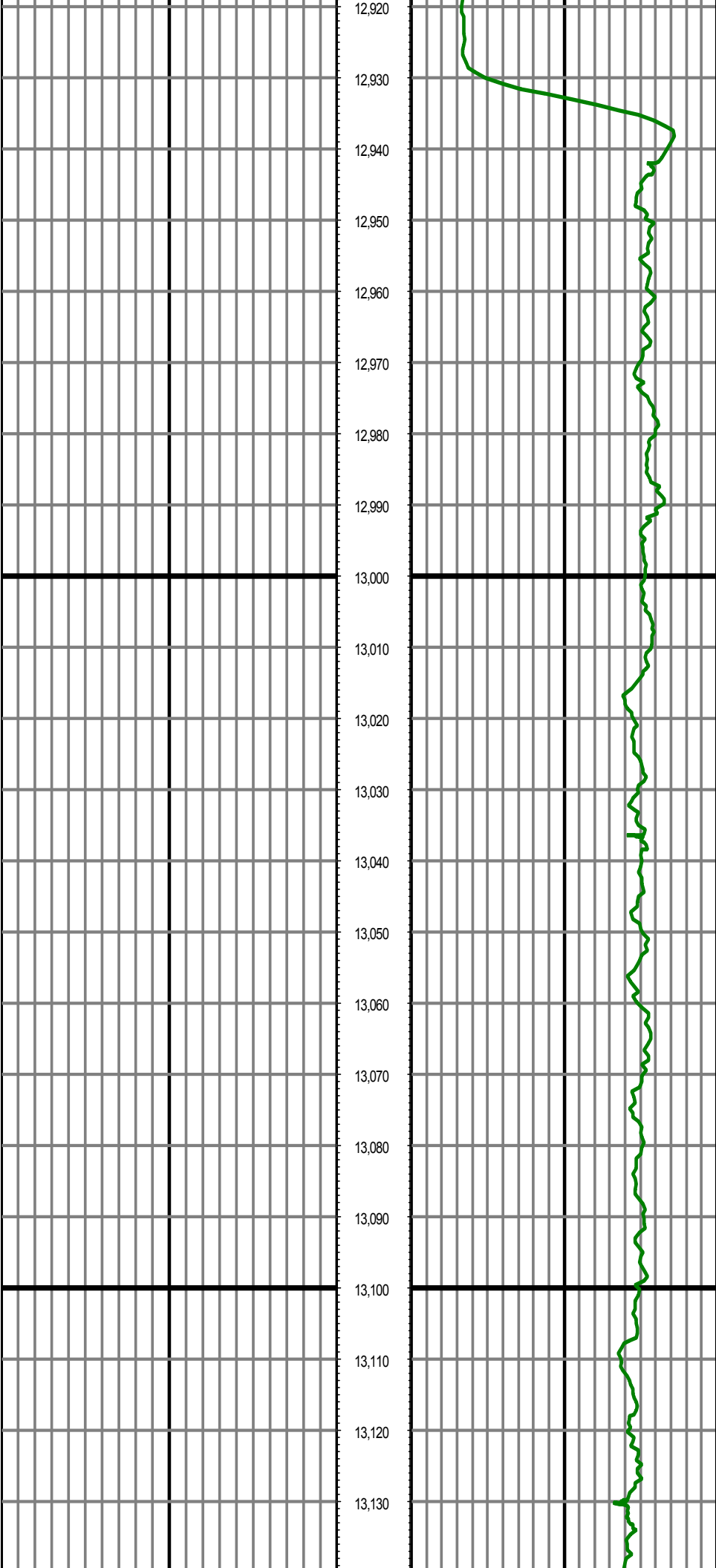


MD: 12561.00 INC: 90.90 AZ: 179.50 TVD: 7218.45 VS: 4674.86

MD: 12656.00 INC: 91.90 AZ: 179.20 TVD: 7216.13 VS: 4769.83







MD: 12939.00 INC: 87.70 AZ: 178.40 TVD: 7218.11 VS: 5052.76

MD: 13033.00 INC: 88.10 AZ: 178.70 TVD: 7221.55 VS: 5146.68

MD: 13127.00 INC: 87.50 AZ: 179.10 TVD: 7225.16 VS: 5240.61

