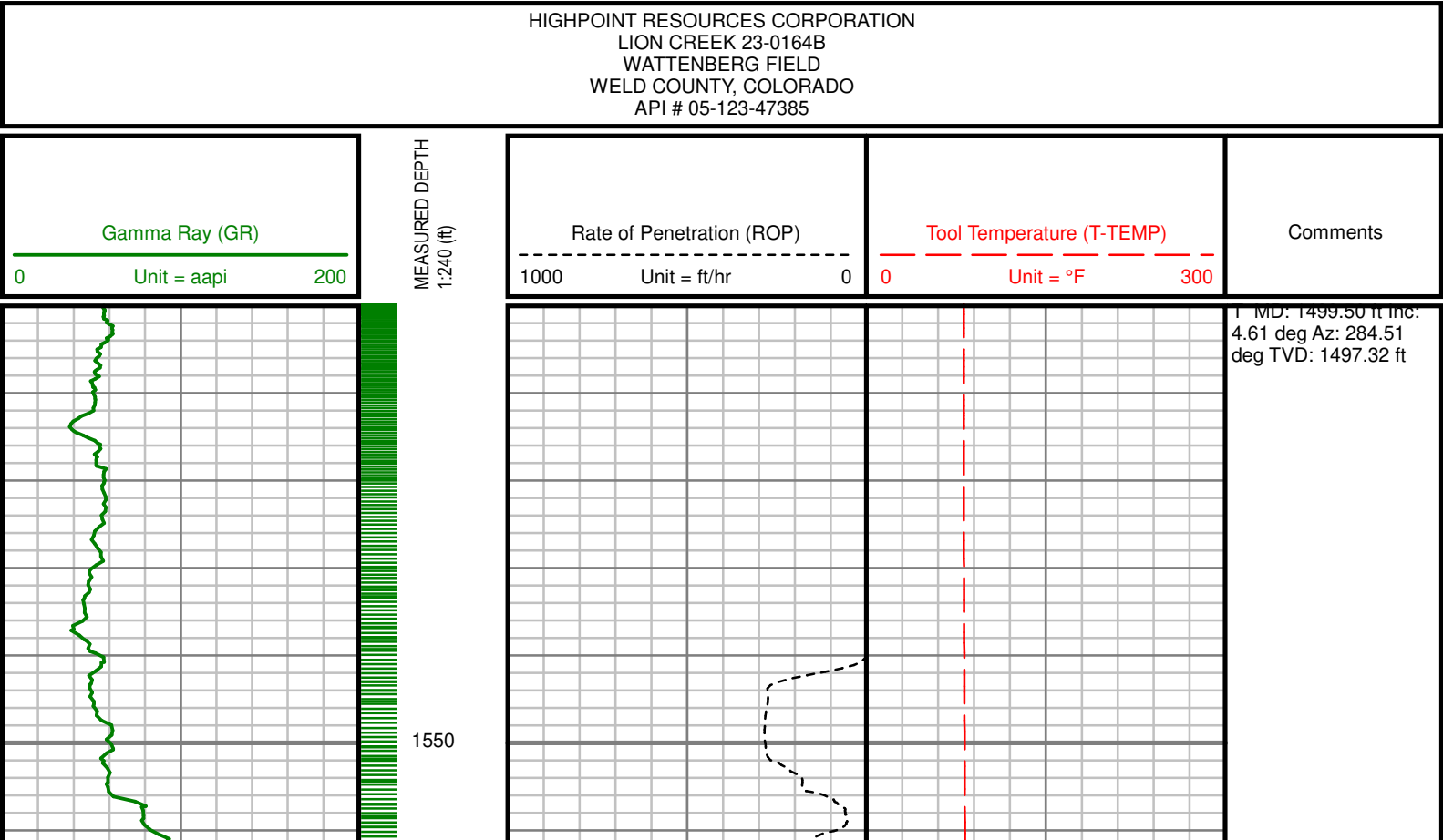
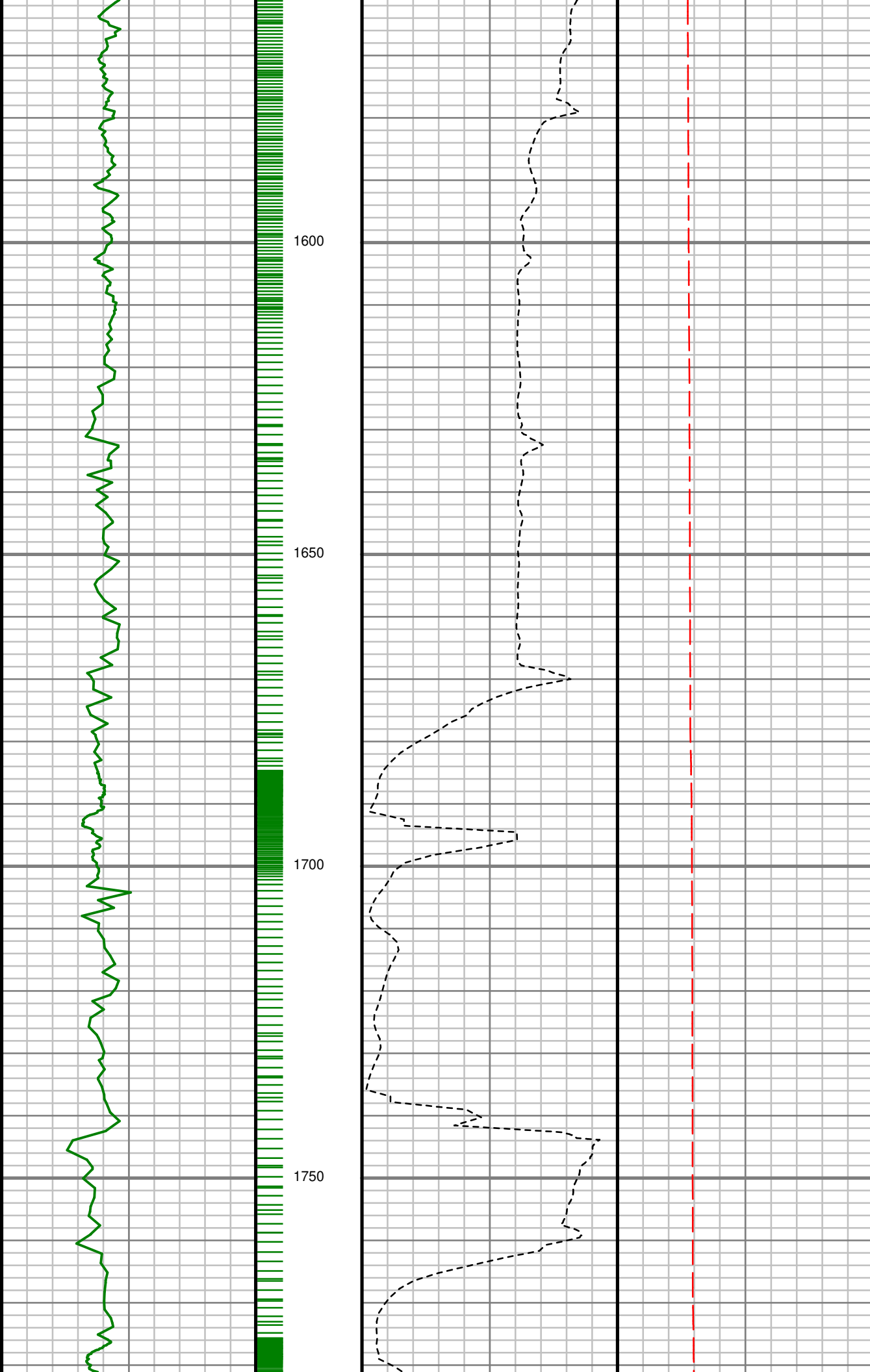


Remarks
HIGHPOINT RESOURCES AFE# 20240D
SCIENTIFIC DRILLING INTERNATIONAL JOB# OP.012784
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN #1: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER=128-100 / CONTROLLER=316 / MWD EYE=1850 / GAMMA RAY=1039
BIT TO SENSOR OFFSETS: MWD EYE=61.81 FT. / GAMMA RAY=57.81 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER=78-320 / CONTROLLER=106 / MWD EYE=1559 / GAMMA RAY=1537
BIT TO SENSOR OFFSETS: MWD EYE=67.55 FT. / GAMMA RAY=53.55 FT.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

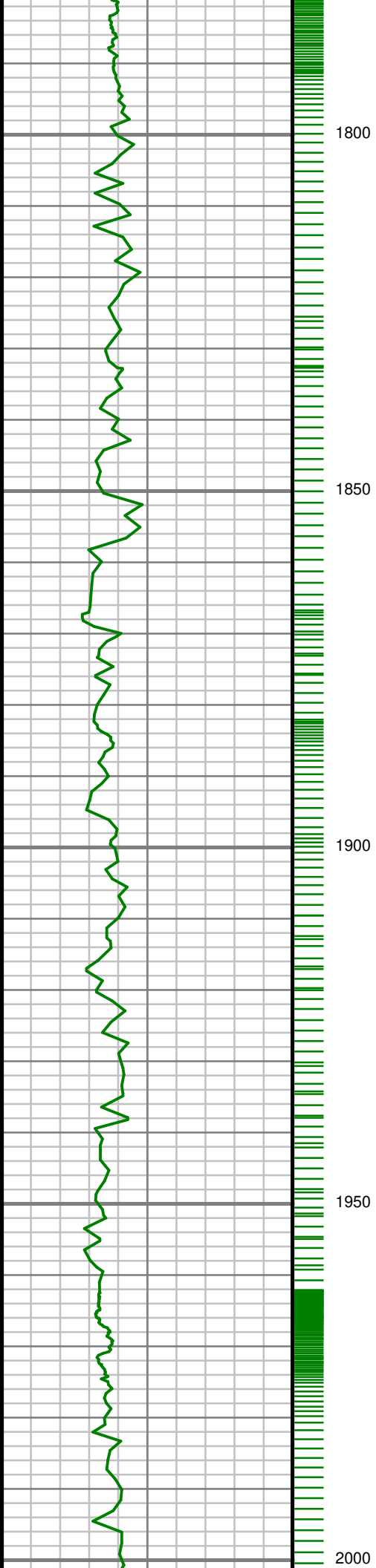
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.





S: 1 MD: 1607.00 ft
Inc: 5.14 deg Az:
296.52 deg TVD:
1604.43 ft

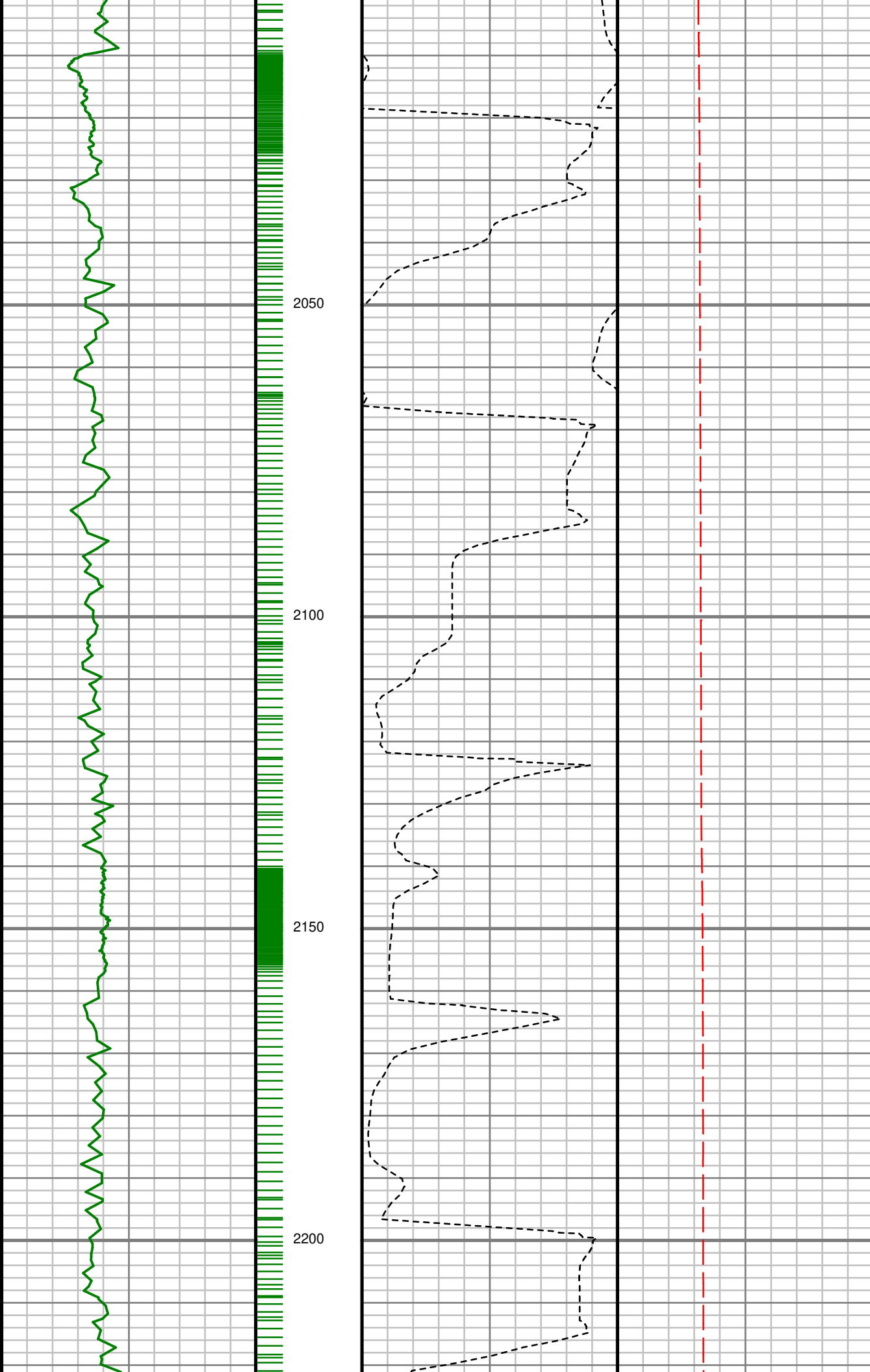
S: 2 MD: 1698.00 ft
Inc: 5.54 deg Az:
293.85 deg TVD:
1695.04 ft



S: 3 MD: 1789.00 ft
Inc: 7.28 deg Az:
287.24 deg TVD:
1785.47 ft

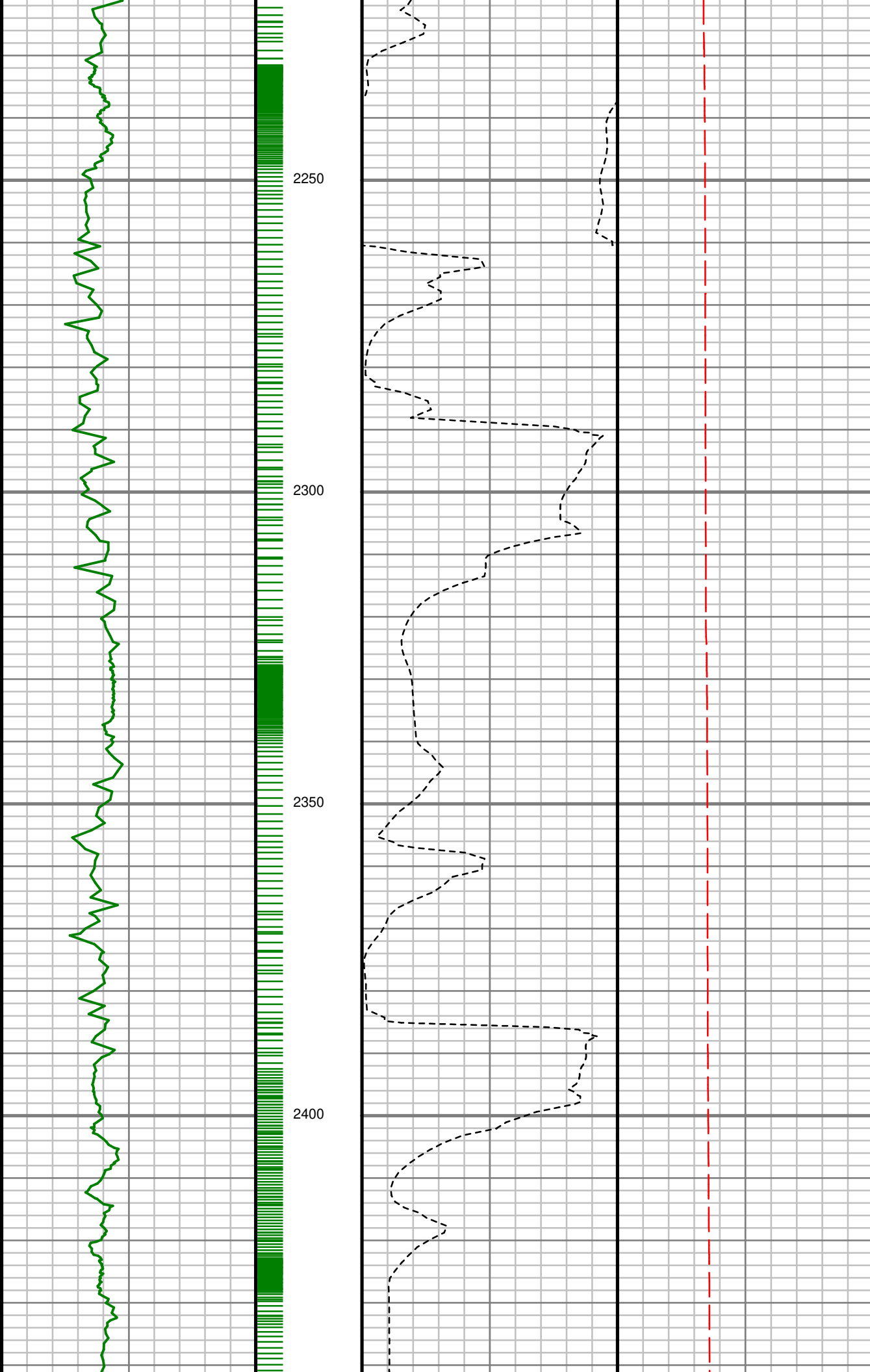
S: 4 MD: 1879.00 ft
Inc: 9.42 deg Az:
287.19 deg TVD:
1874.51 ft

S: 5 MD: 1970.00 ft
Inc: 9.30 deg Az:
286.16 deg TVD:
1964.30 ft



S: 6 MD: 2061.00 ft
Inc: 11.26 deg Az:
282.15 deg TVD:
2053.83 ft

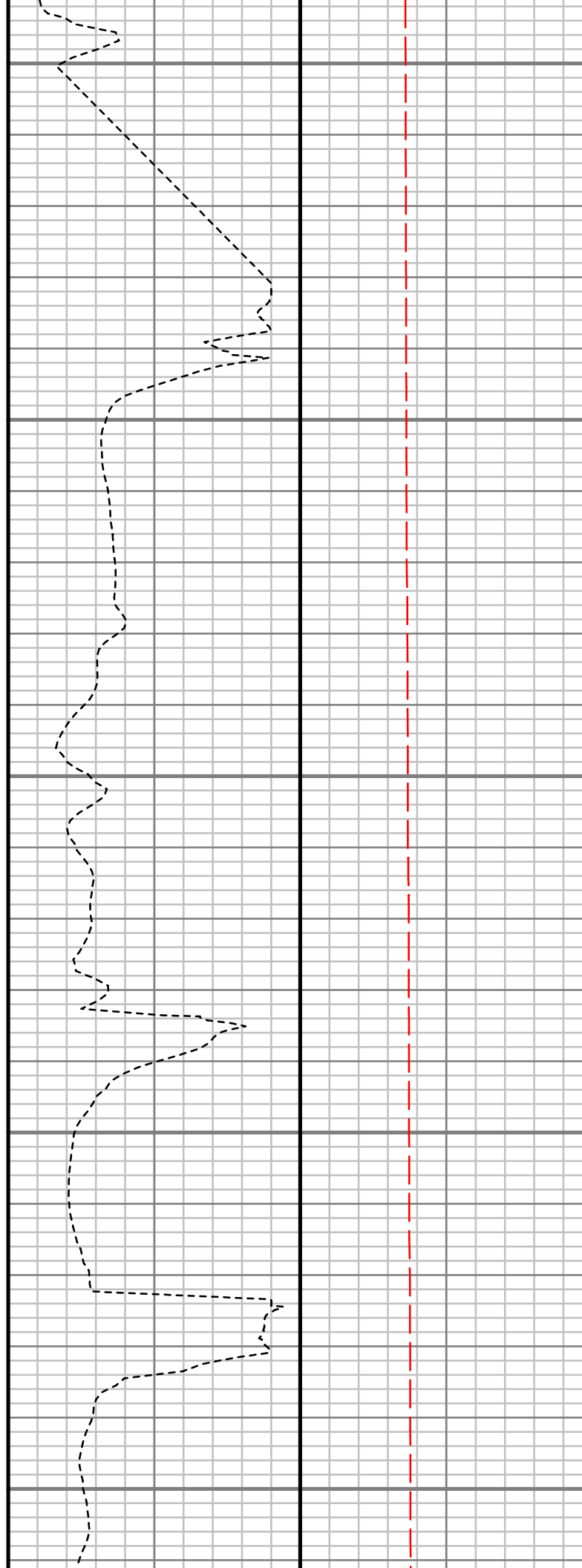
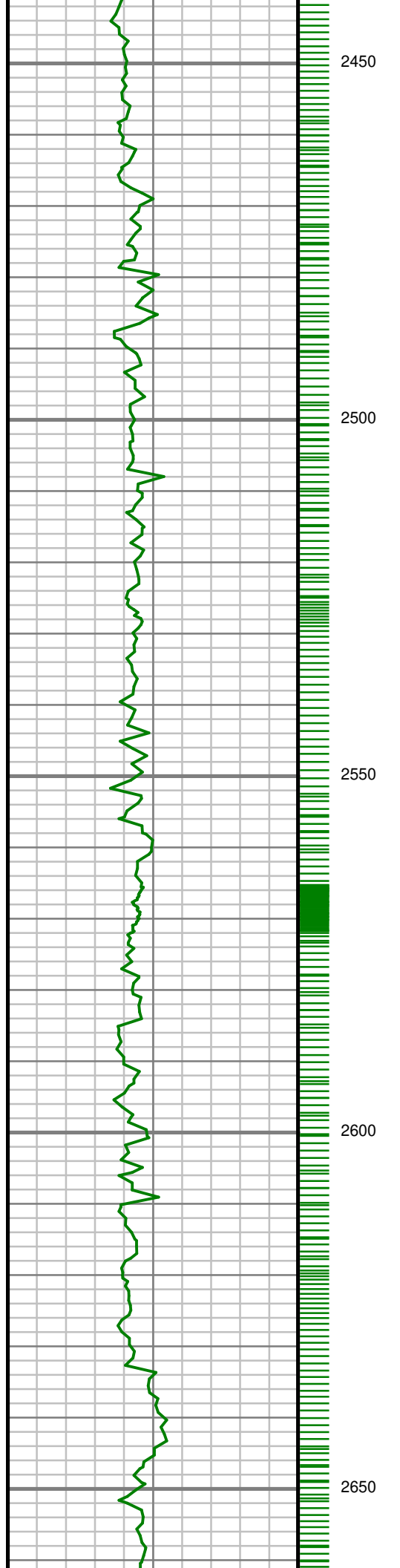
S: 7 MD: 2152.00 ft
Inc: 12.31 deg Az:
275.82 deg TVD:
2142.92 ft



S: 8 MD: 2244.00 ft
Inc: 14.71 deg Az:
269.58 deg TVD:
2232.37 ft

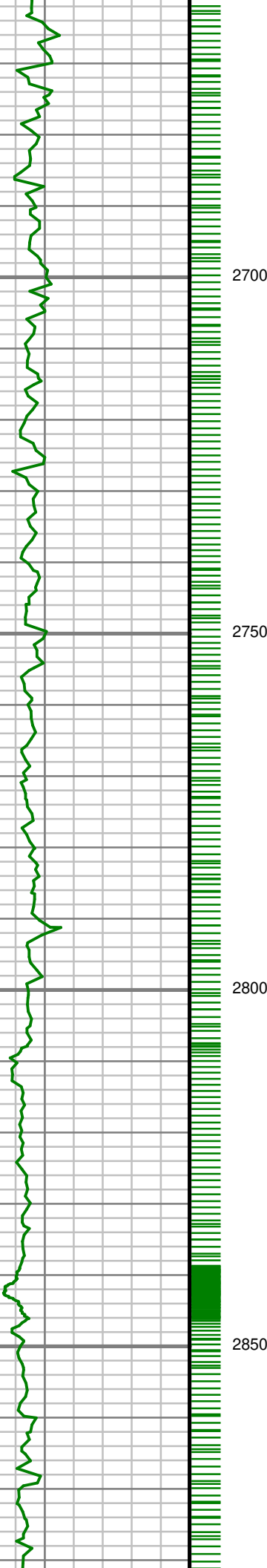
S: 9 MD: 2335.00 ft
Inc: 17.11 deg Az:
267.43 deg TVD:
2319.88 ft

S: 10 MD: 2429.00 ft
Inc: 18.58 deg Az:
270.04 deg TVD:
2409.35 ft



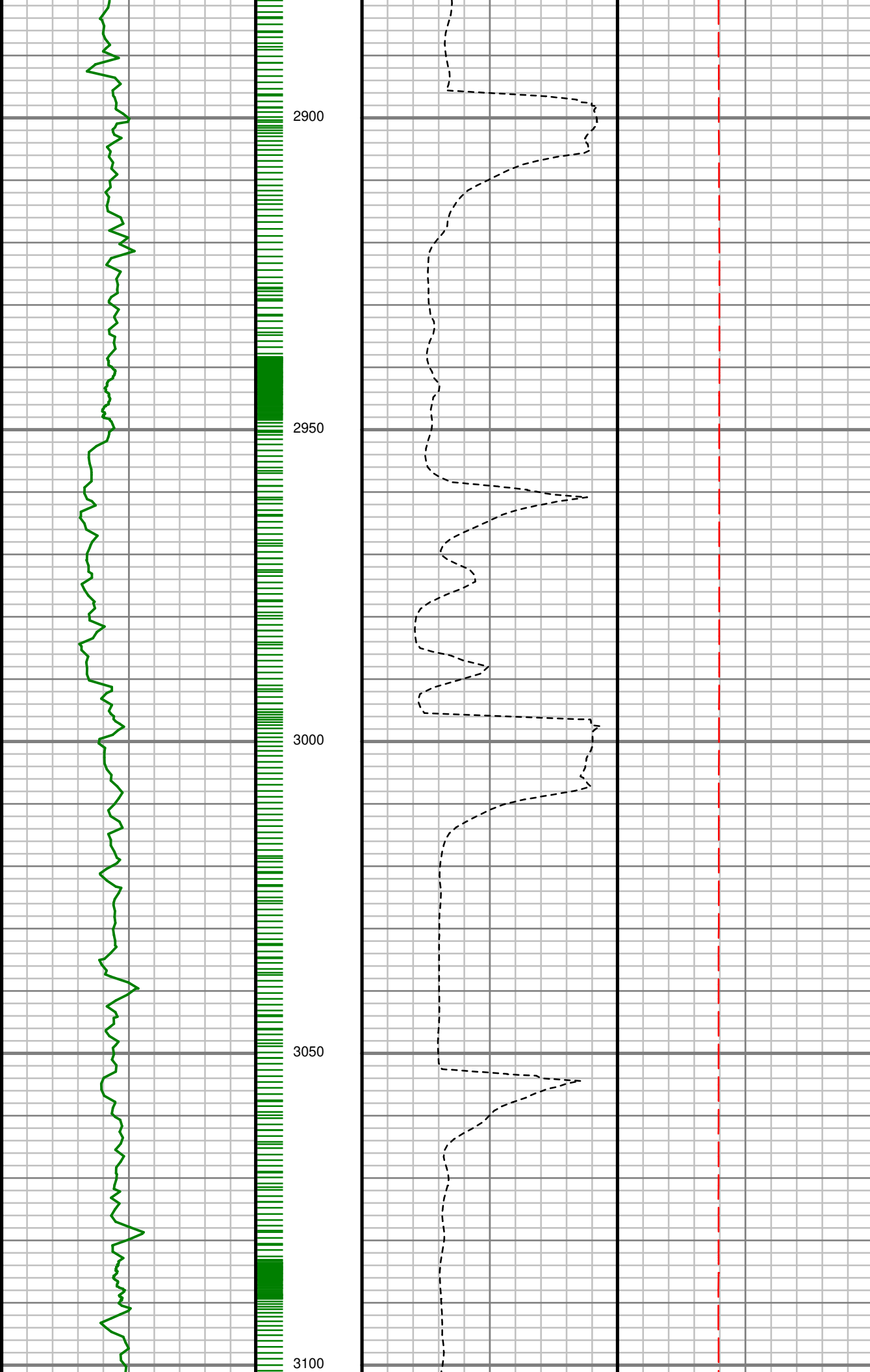
S: 11 MD: 2522.00 ft
Inc: 20.16 deg Az:
271.12 deg TVD:
2497.08 ft

S: 12 MD: 2616.00 ft
Inc: 20.57 deg Az:
268.40 deg TVD:
2585.21 ft



S: 13 MD: 2710.00 ft
Inc: 21.01 deg Az:
264.75 deg TVD:
2673.09 ft

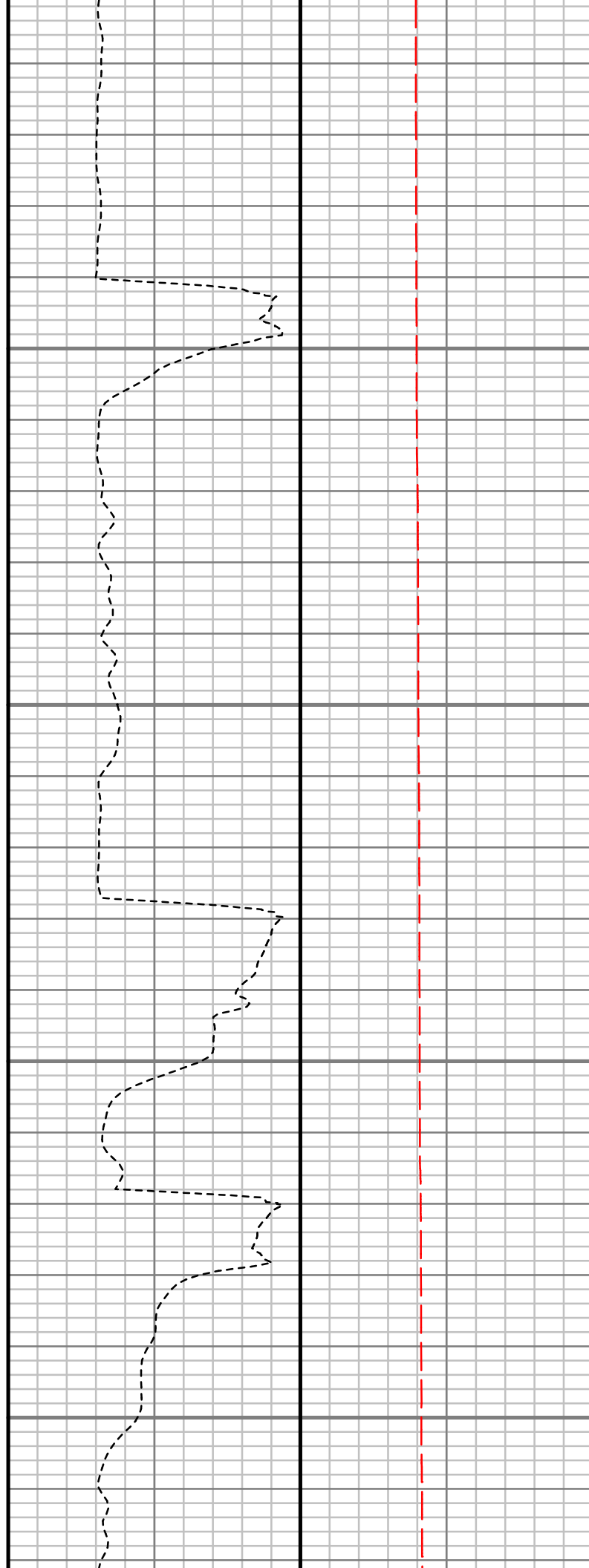
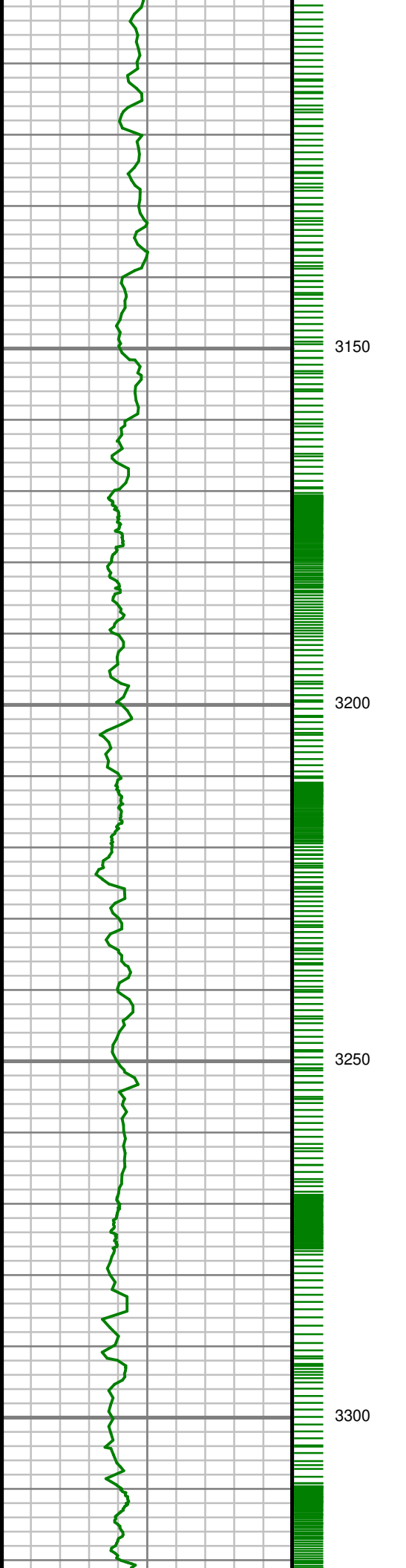
S: 14 MD: 2804.00 ft
Inc: 20.91 deg Az:
262.64 deg TVD:
2760.88 ft



S: 15 MD: 2898.00 ft
Inc: 20.50 deg Az:
262.53 deg TVD:
2848.80 ft

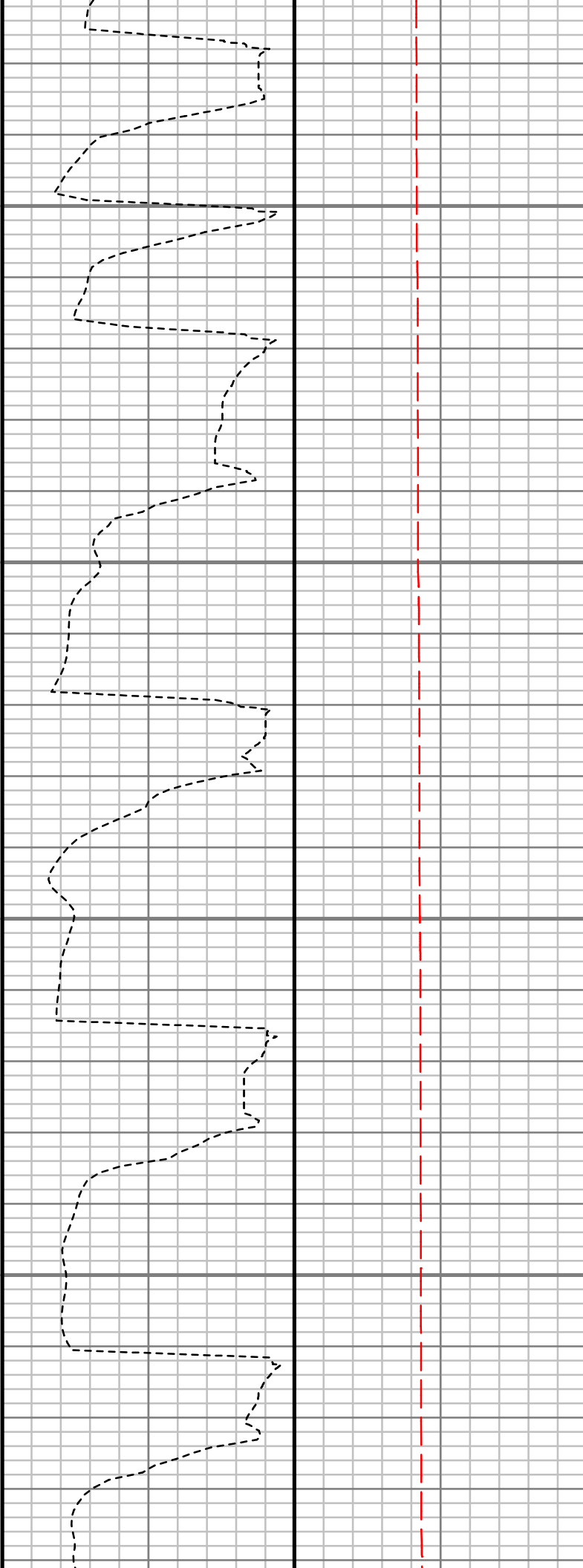
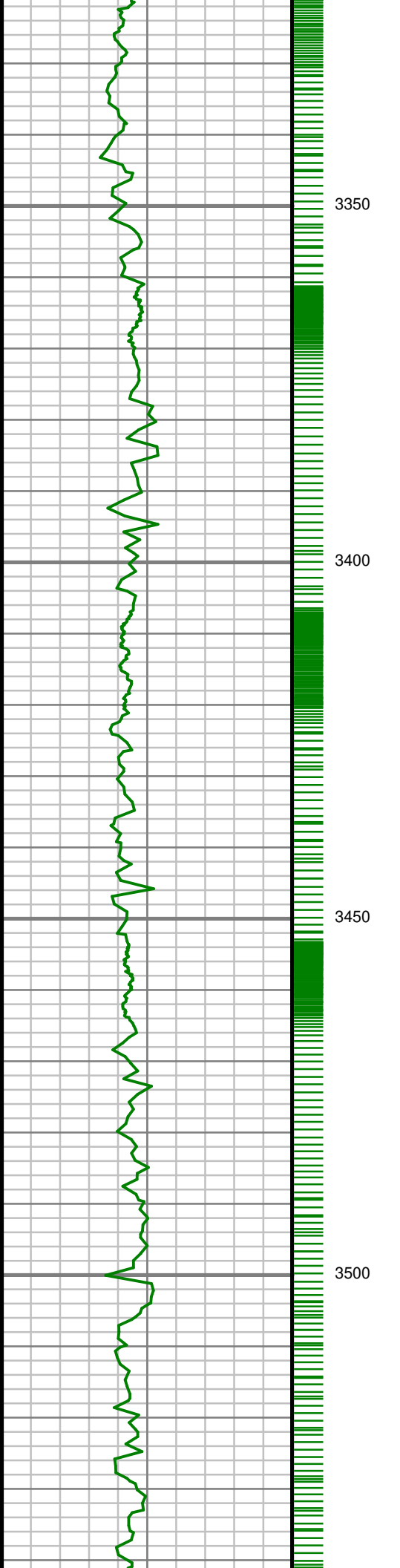
S: 16 MD: 2991.00 ft
Inc: 20.25 deg Az:
266.18 deg TVD:
2935.99 ft

S: 17 MD: 3085.00 ft
Inc: 19.20 deg Az:
269.40 deg TVD:
3024.47 ft



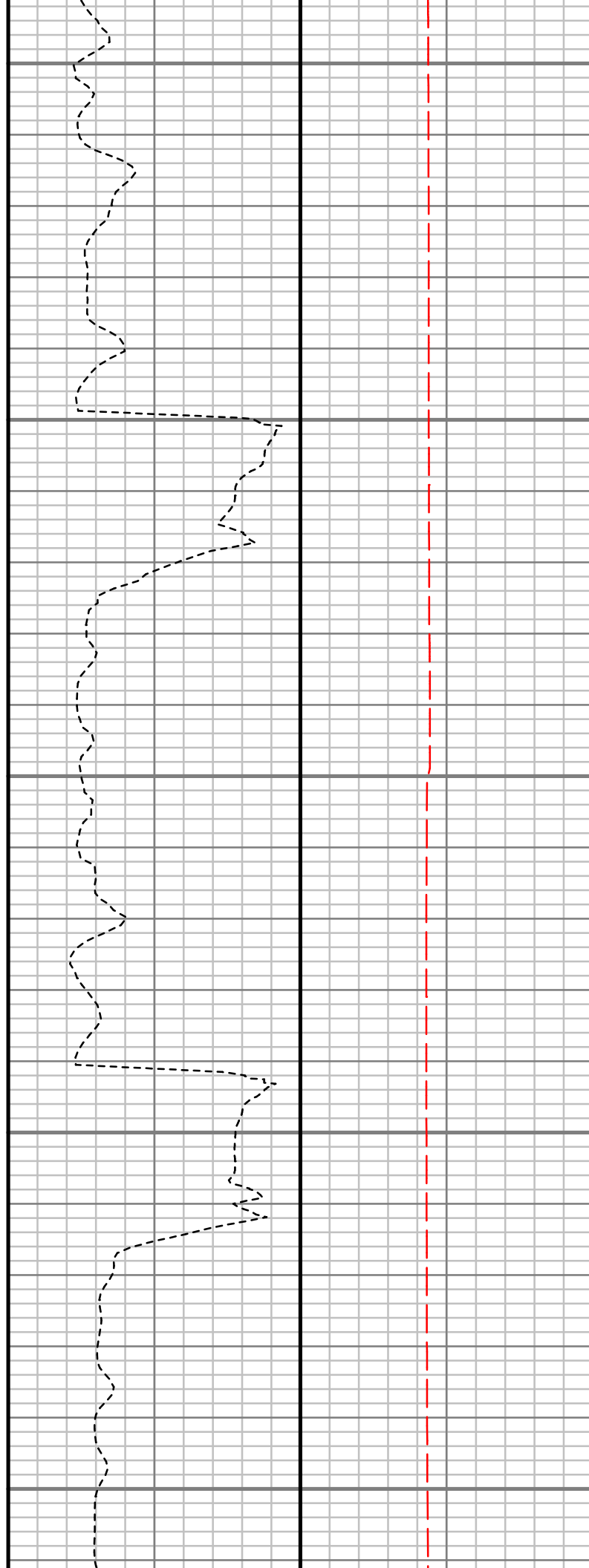
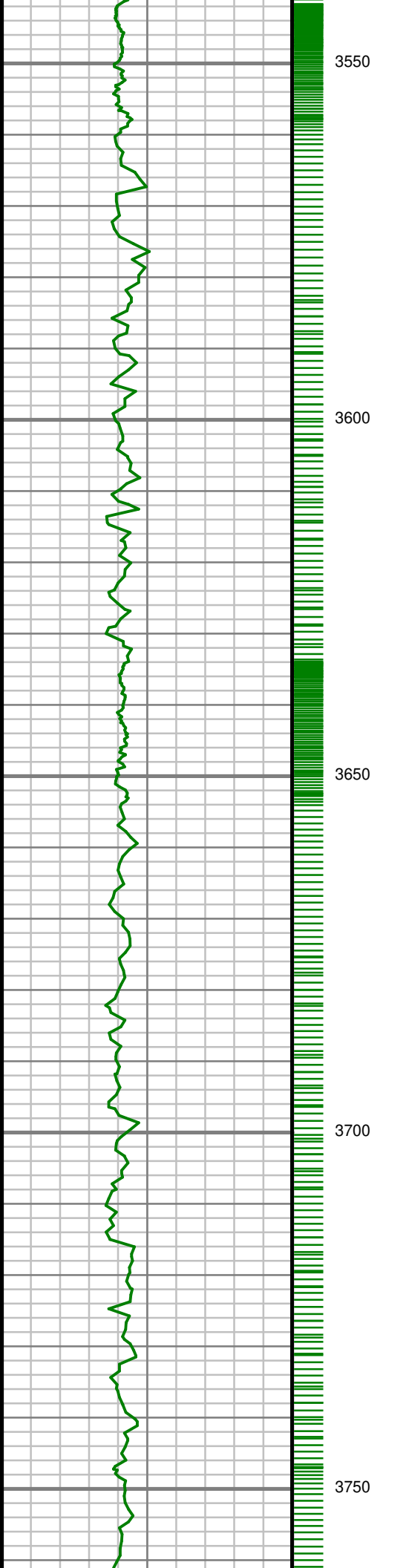
S: 18 MD: 3178.00 ft
Inc: 18.85 deg Az:
270.88 deg TVD:
3112.39 ft

S: 19 MD: 3272.00 ft
Inc: 17.84 deg Az:
279.34 deg TVD:
3201.63 ft



S: 20 MD: 3366.00 ft
Inc: 17.30 deg Az:
289.63 deg TVD:
3291.27 ft

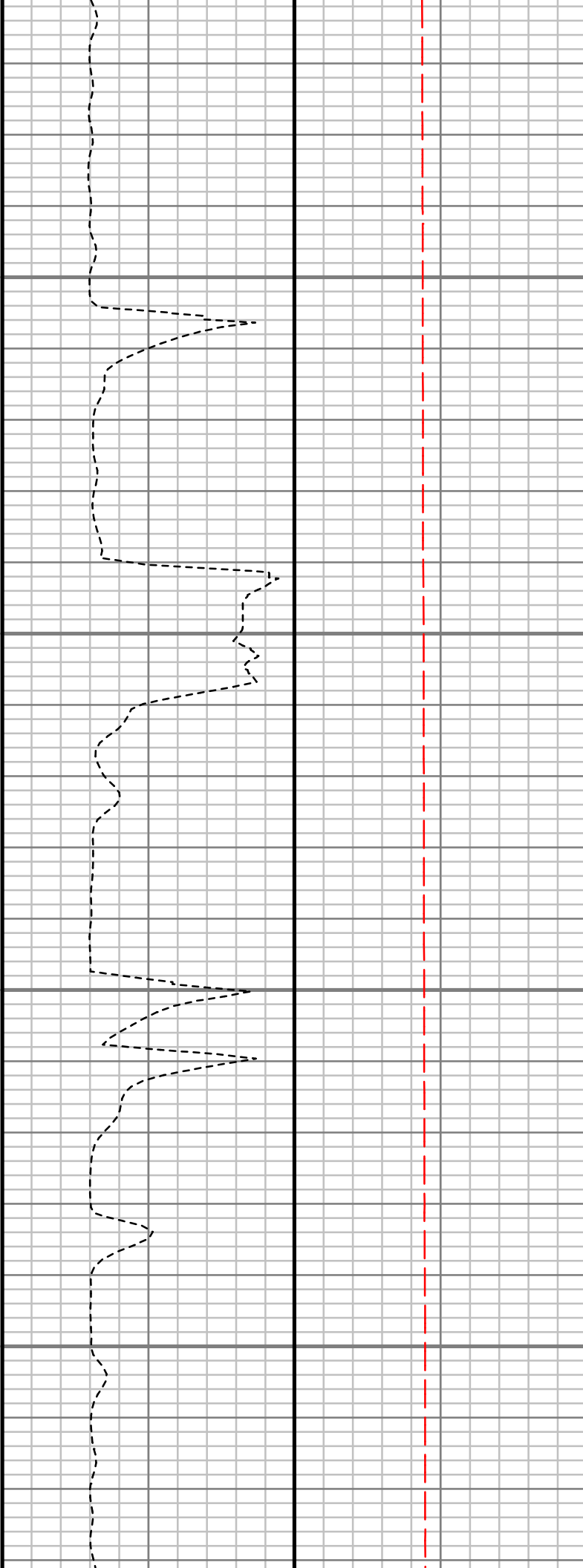
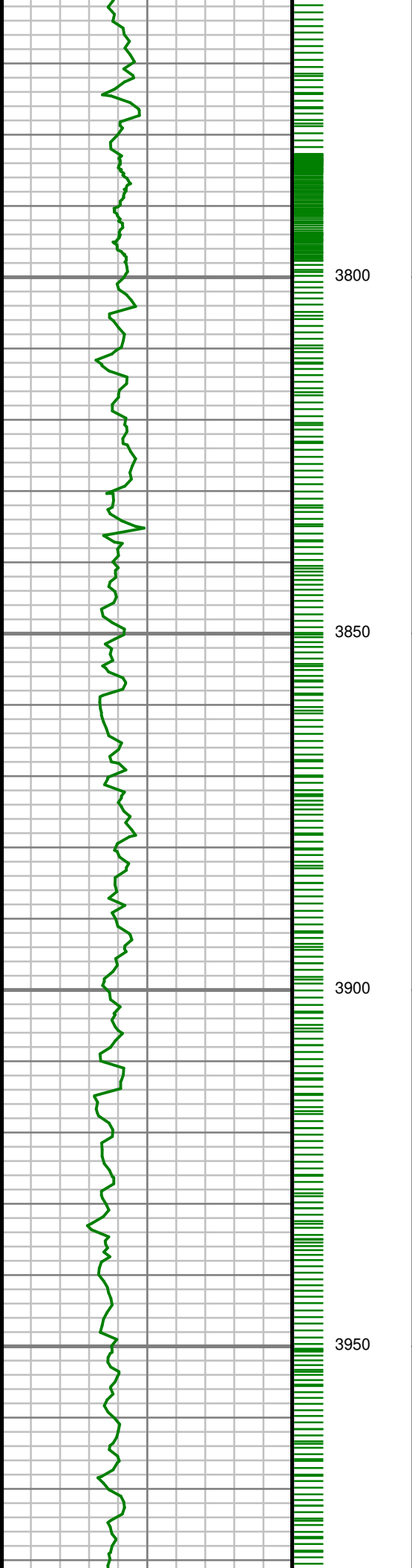
S: 21 MD: 3459.00 ft
Inc: 16.47 deg Az:
305.94 deg TVD:
3380.31 ft



S: 22 MD: 3553.00 ft
Inc: 17.37 deg Az:
311.78 deg TVD:
3470.25 ft

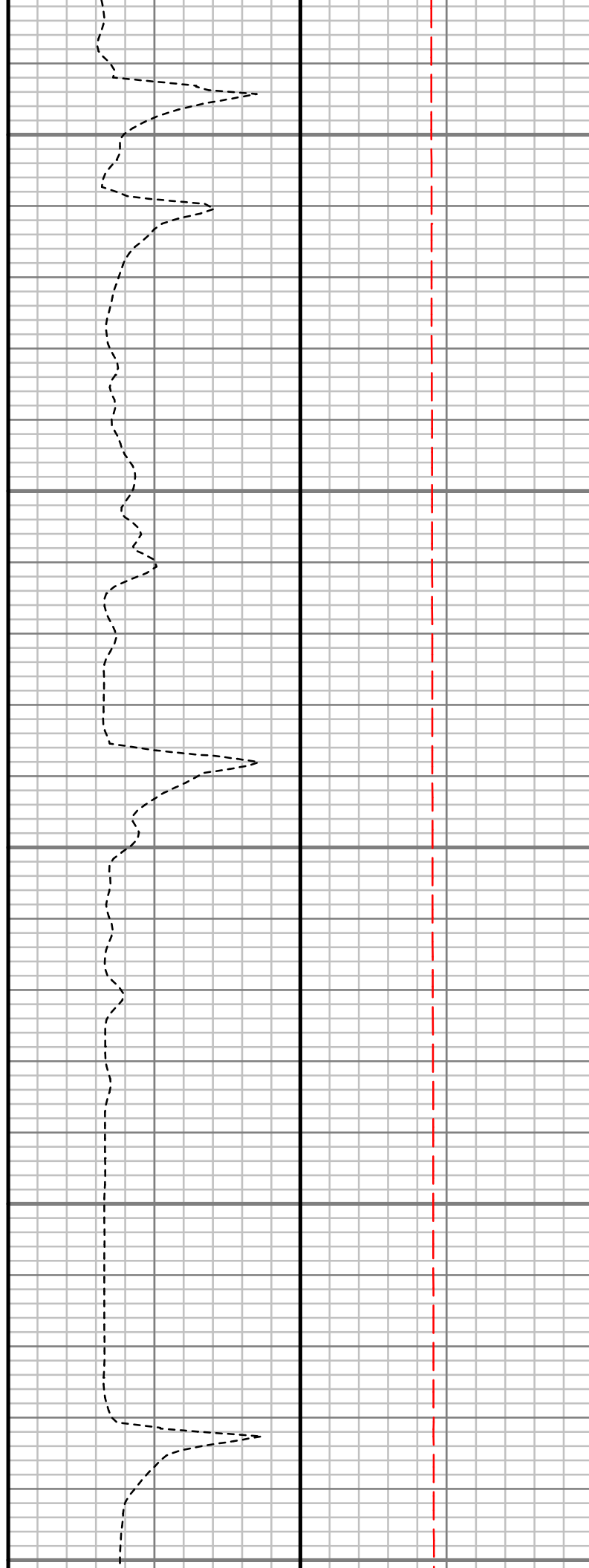
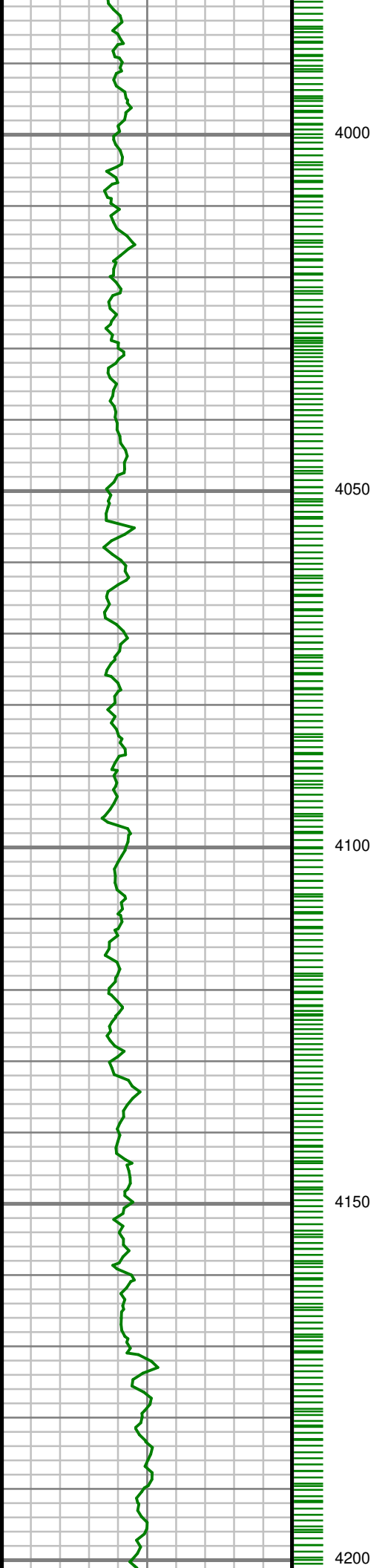
S: 23 MD: 3648.00 ft
Inc: 19.18 deg Az:
314.36 deg TVD:
3560.45 ft

S: 24 MD: 3742.00 ft
Inc: 20.18 deg Az:
319.84 deg TVD:
3648.97 ft



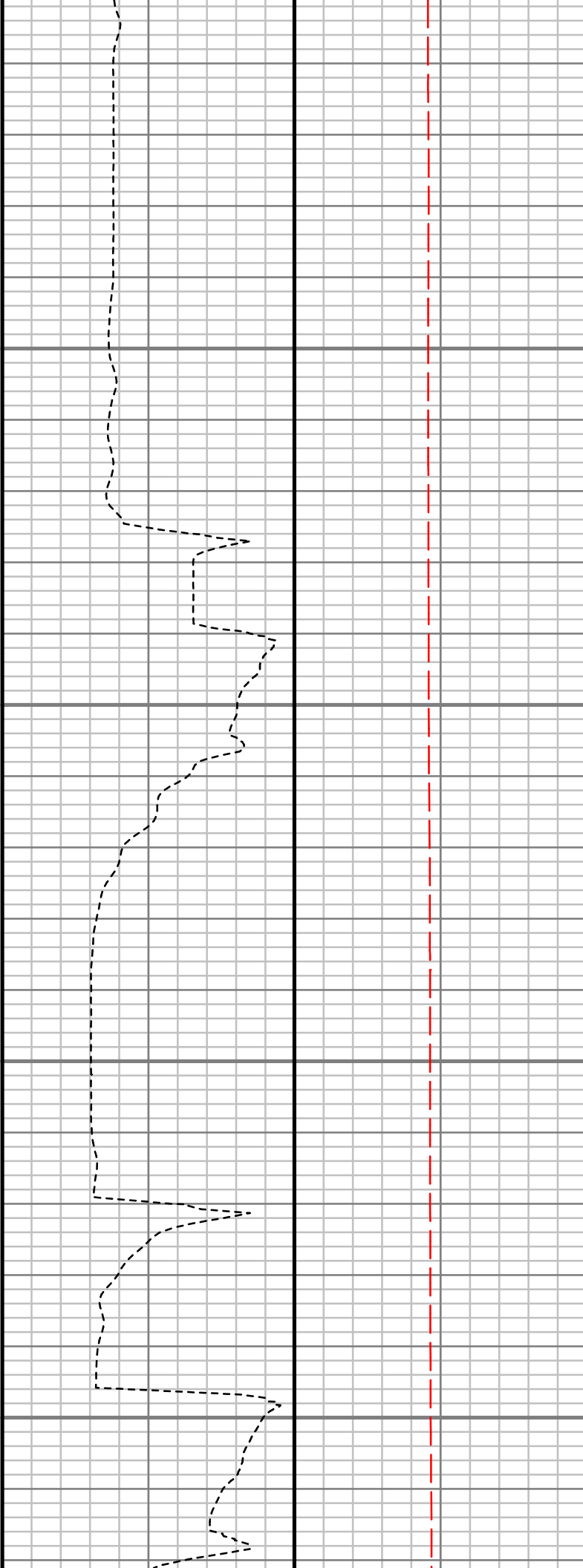
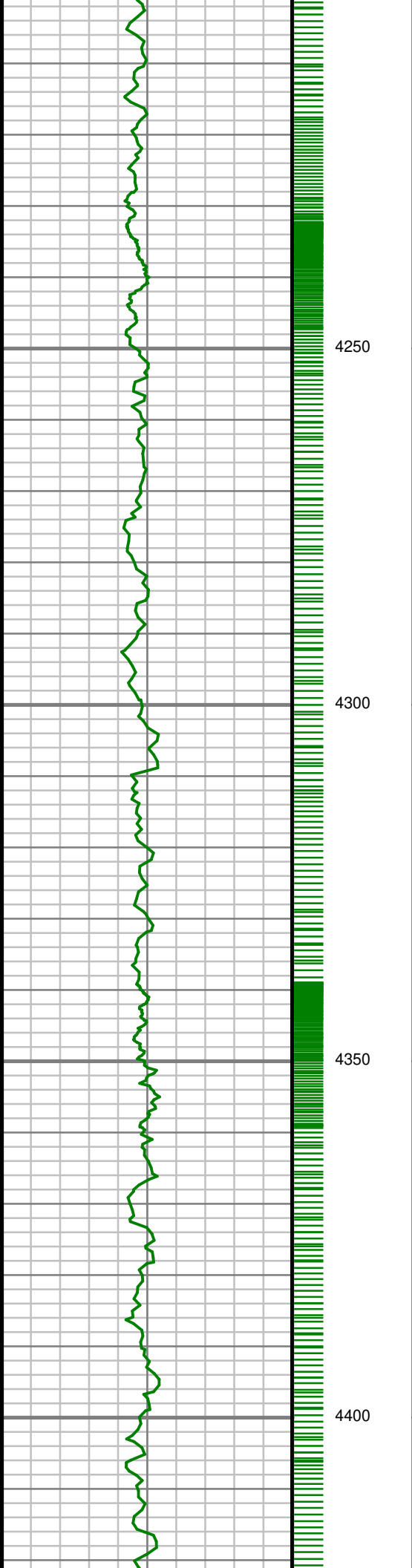
S: 25 MD: 3836.00 ft
Inc: 20.68 deg Az:
320.30 deg TVD:
3737.05 ft

S: 26 MD: 3931.00 ft
Inc: 21.47 deg Az:
324.39 deg TVD:
3825.70 ft



S: 27 MD: 4025.00 ft
Inc: 22.31 deg Az:
323.06 deg TVD:
3912.93 ft

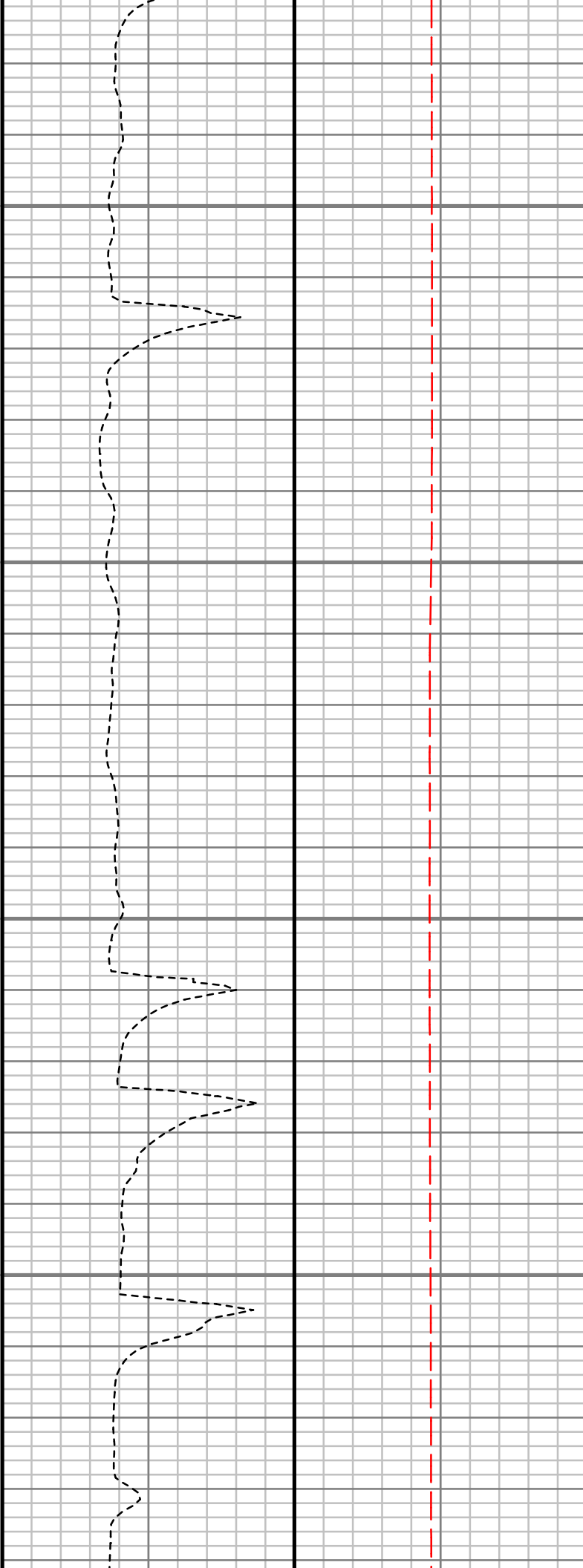
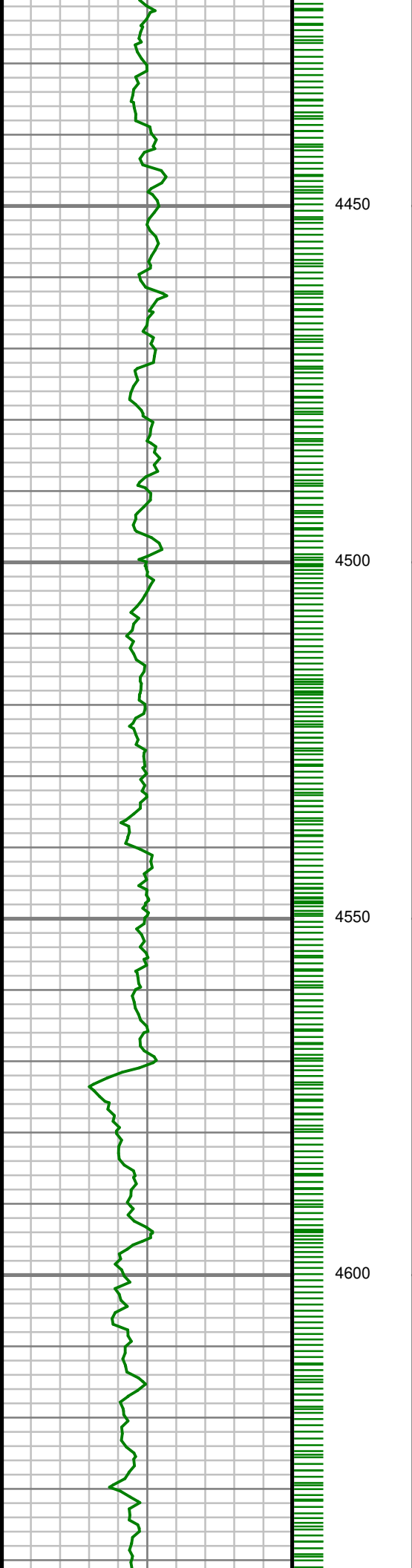
S: 28 MD: 4119.00 ft
Inc: 23.33 deg Az:
322.32 deg TVD:
3999.57 ft



S: 29 MD: 4213.00 ft
Inc: 23.16 deg Az:
321.72 deg TVD:
4085.94 ft

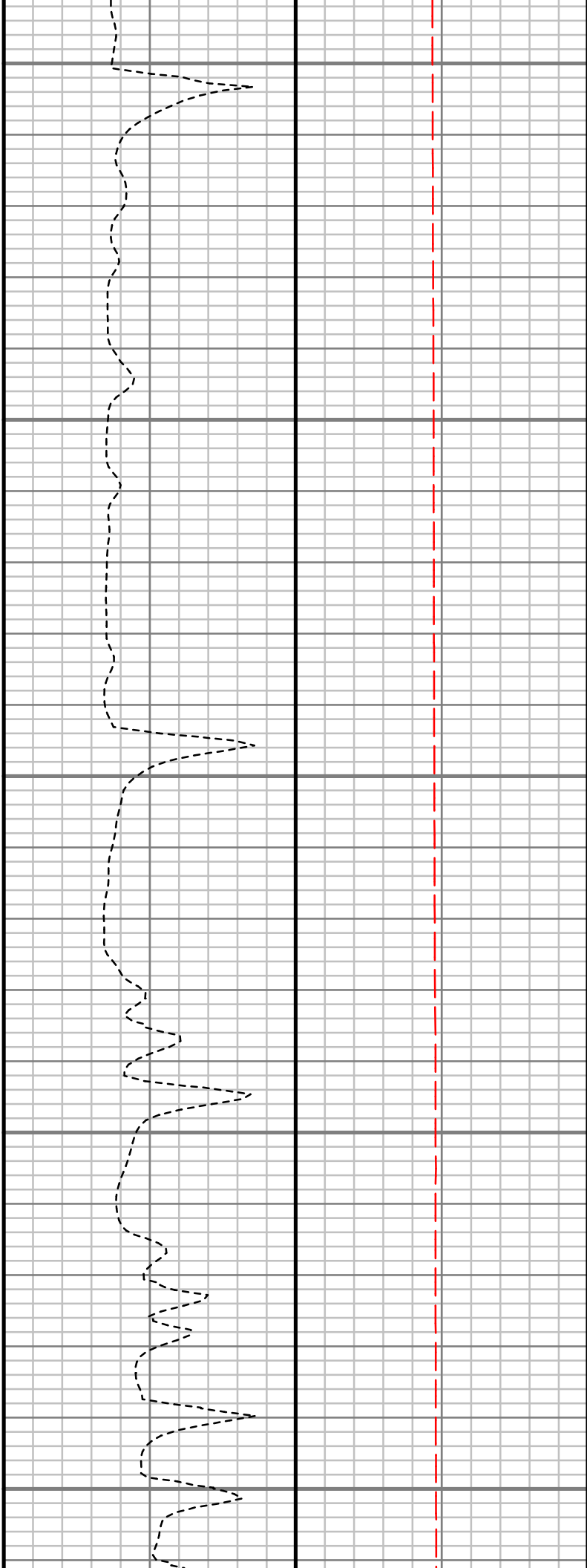
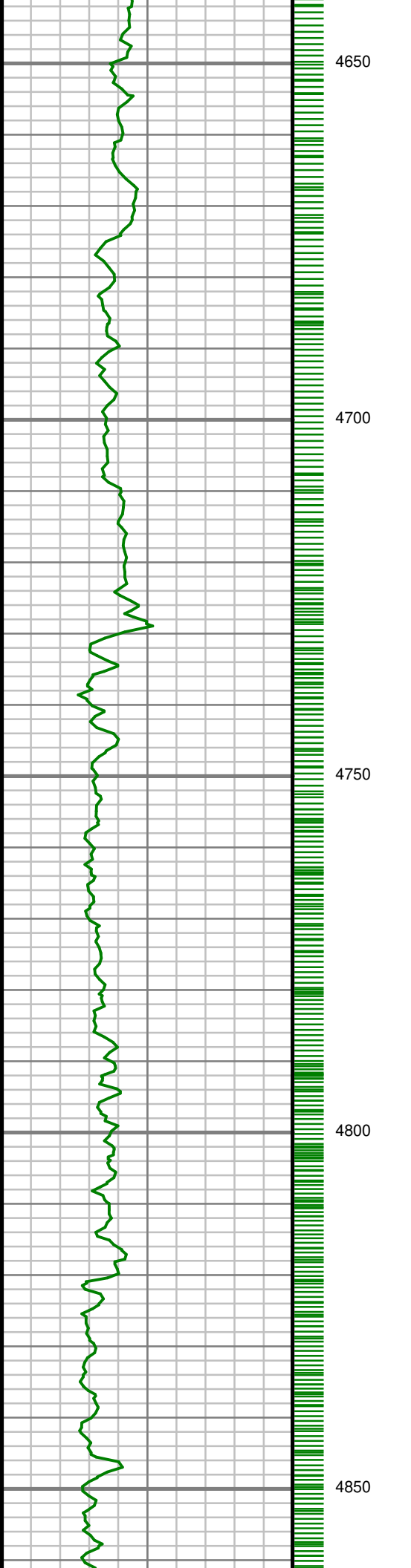
S: 30 MD: 4307.00 ft
Inc: 19.70 deg Az:
320.52 deg TVD:
4173.42 ft

S: 31 MD: 4401.00 ft
Inc: 17.08 deg Az:
324.32 deg TVD:
4262.62 ft



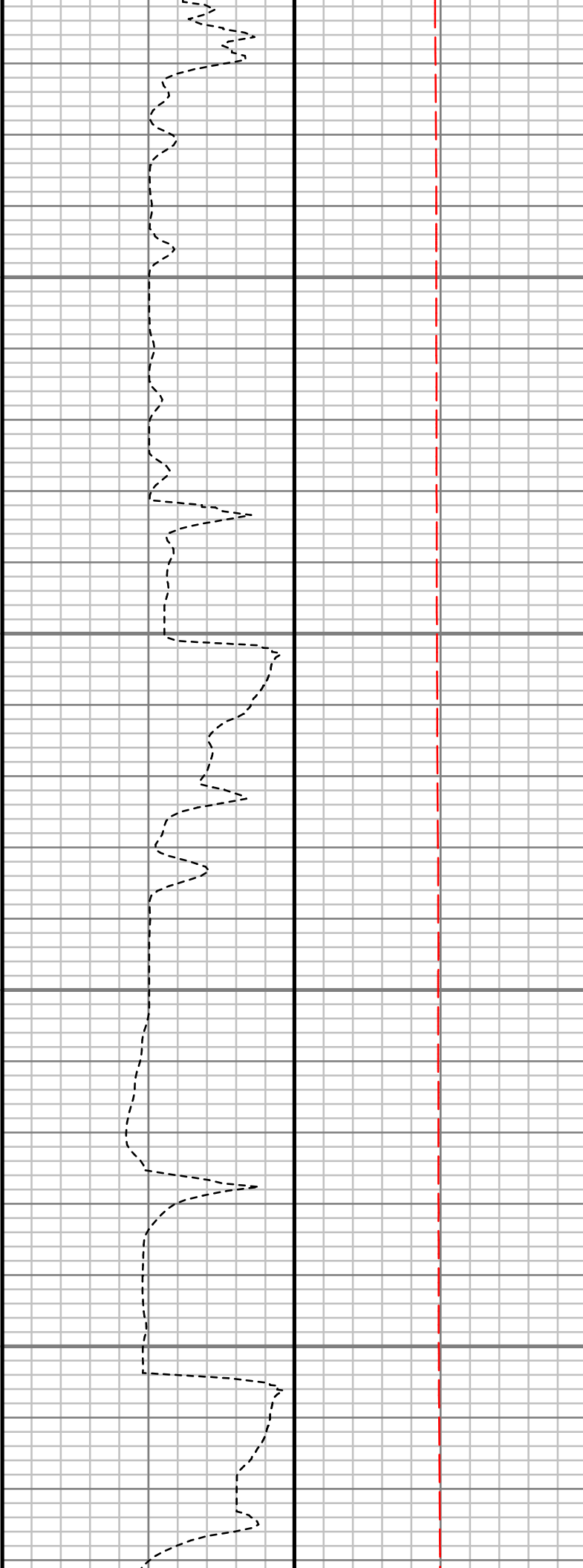
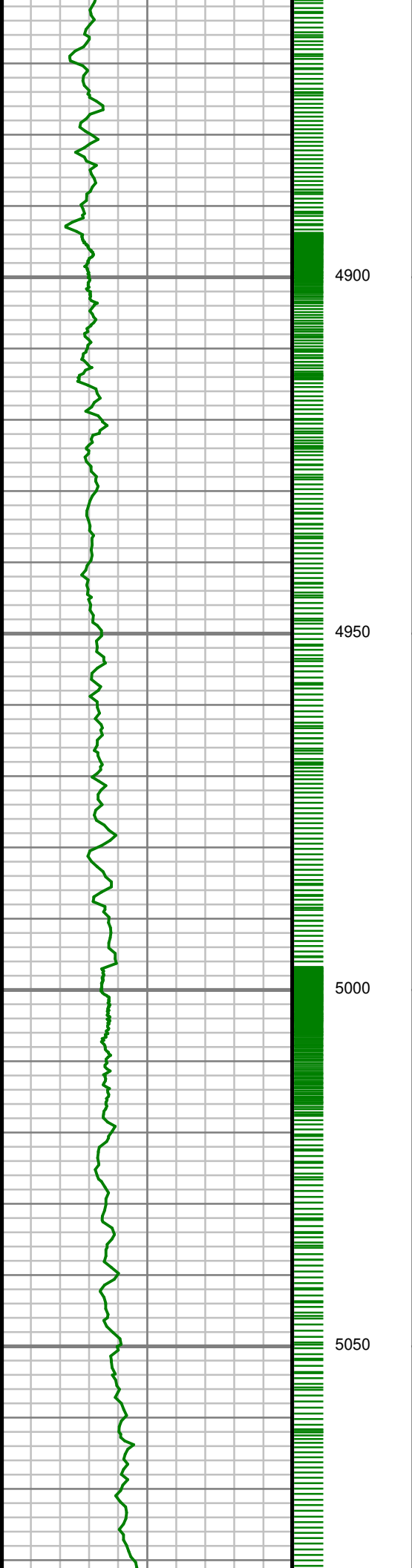
S: 32 MD: 4495.00 ft
Inc: 15.18 deg Az:
327.75 deg TVD:
4352.92 ft

S: 33 MD: 4589.00 ft
Inc: 14.36 deg Az:
326.11 deg TVD:
4443.81 ft



S: 34 MD: 4682.00 ft
Inc: 15.39 deg Az:
324.72 deg TVD:
4533.69 ft

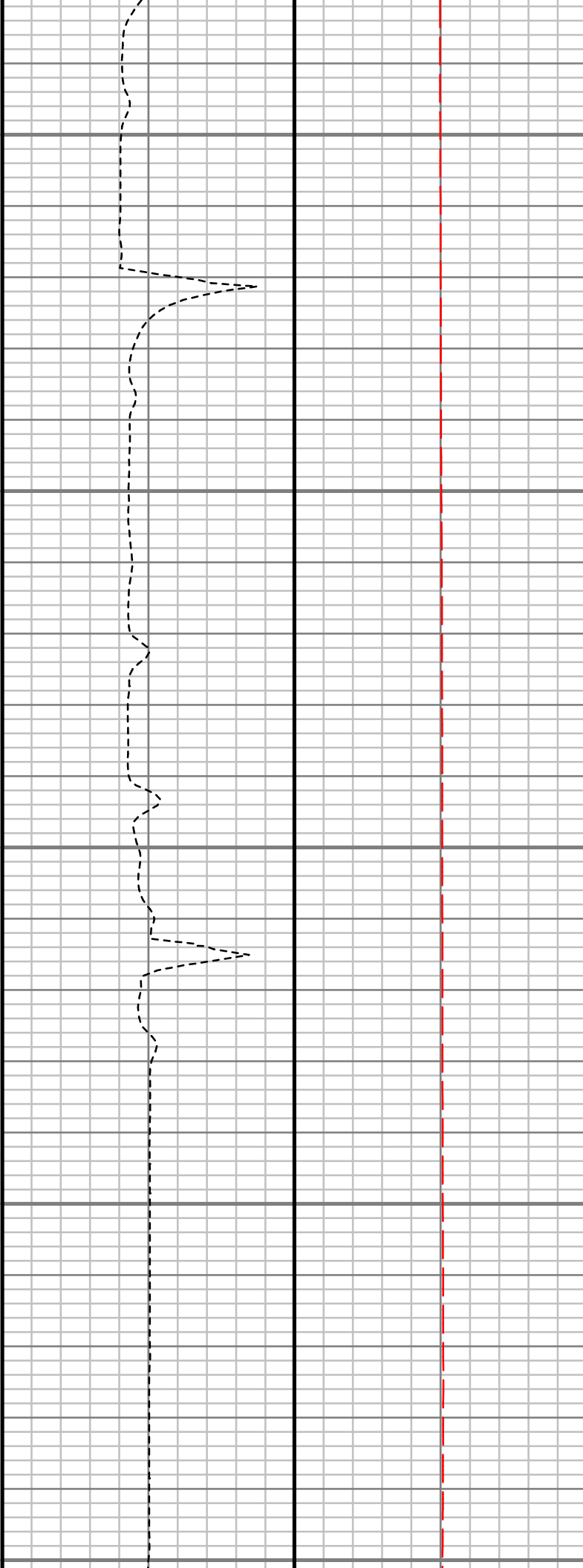
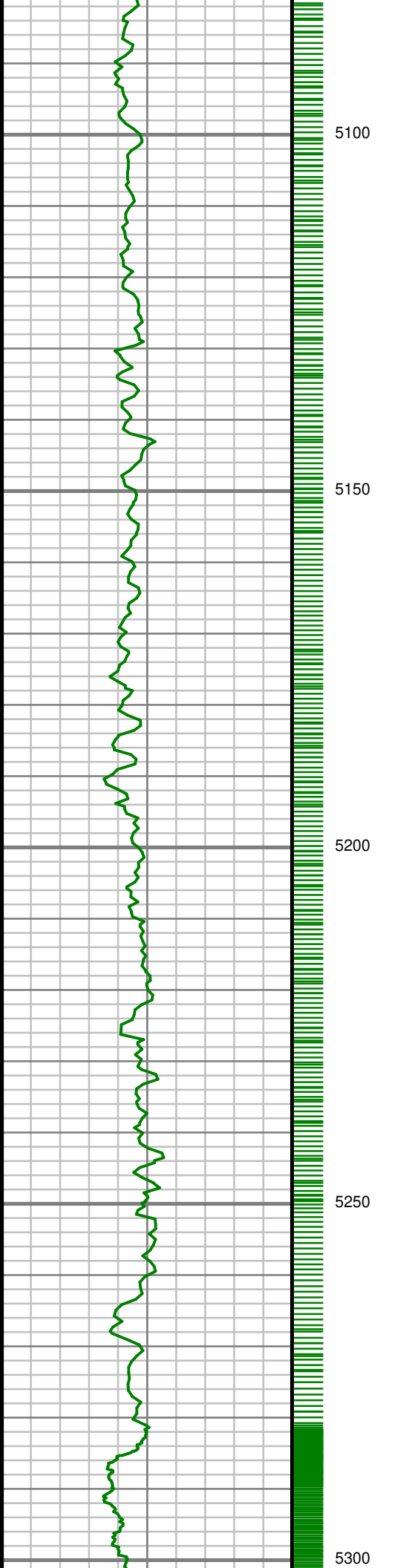
S: 35 MD: 4776.00 ft
Inc: 16.71 deg Az:
324.59 deg TVD:
4624.03 ft



S: 36 MD: 4869.00 ft
Inc: 18.05 deg Az:
325.32 deg TVD:
4712.78 ft

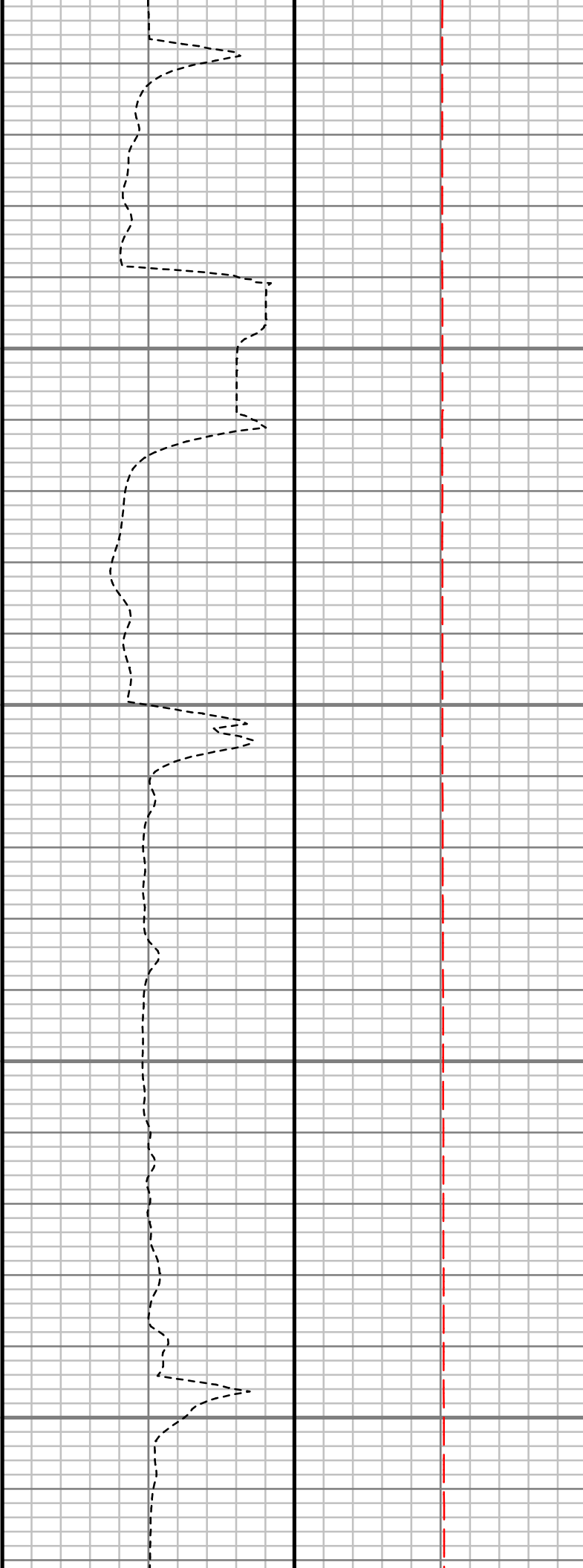
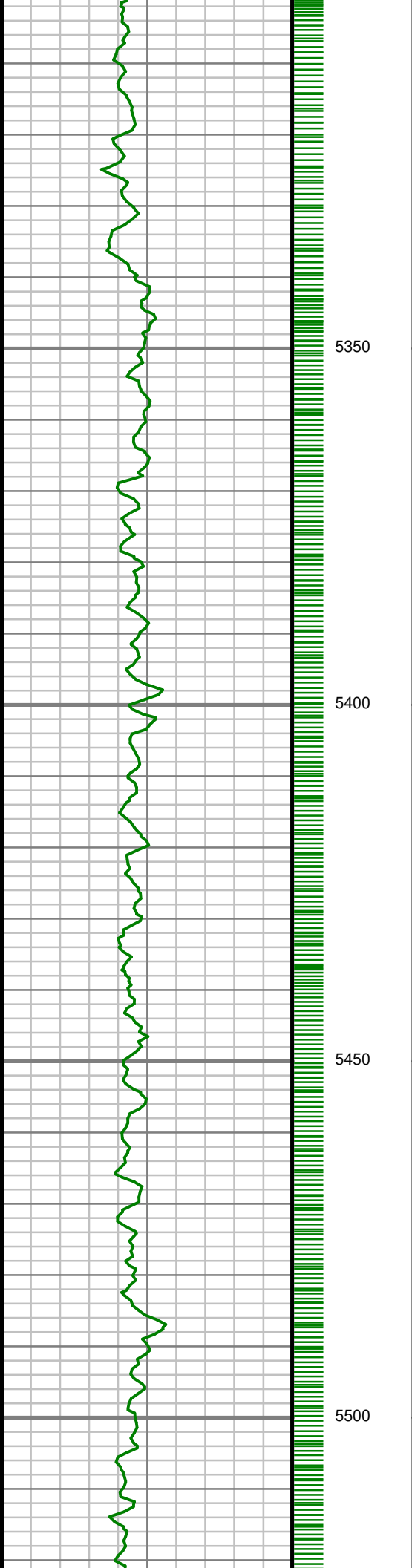
S: 37 MD: 4963.00 ft
Inc: 17.16 deg Az:
322.69 deg TVD:
4802.38 ft

S: 38 MD: 5057.00 ft
Inc: 15.45 deg Az:
322.05 deg TVD:
4892.59 ft



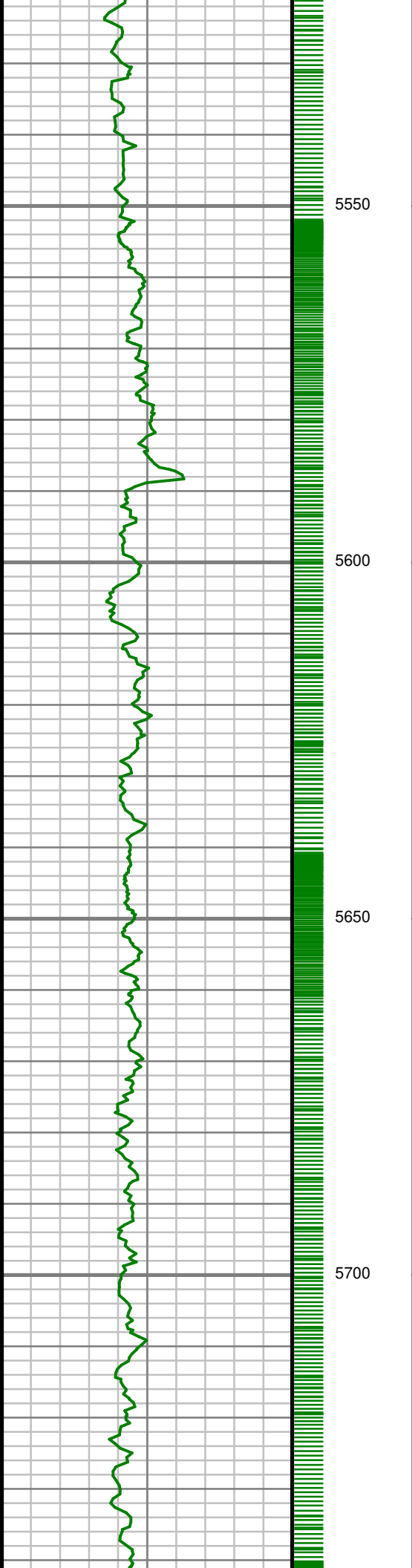
S: 39 MD: 5150.00 ft
Inc: 14.69 deg Az:
324.07 deg TVD:
4982.39 ft

S: 40 MD: 5244.00 ft
Inc: 15.23 deg Az:
324.20 deg TVD:
5073.21 ft



S: 41 MD: 5338.00 ft
Inc: 14.19 deg Az:
323.28 deg TVD:
5164.13 ft

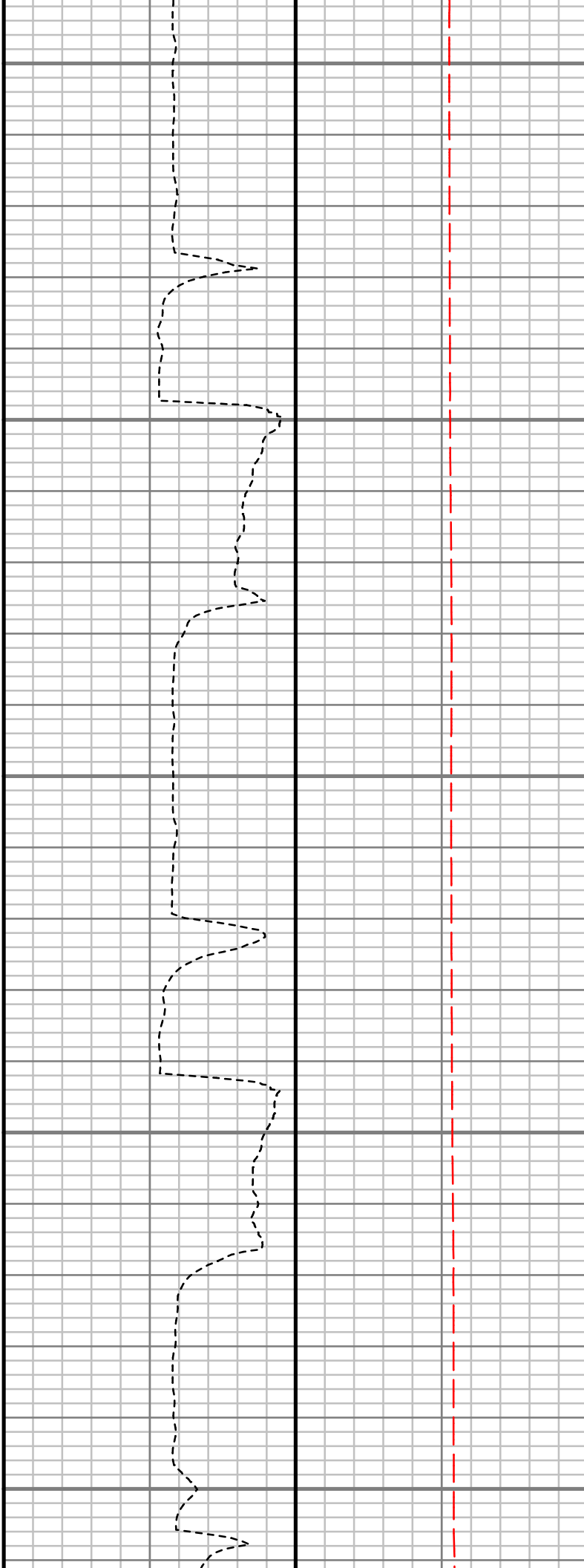
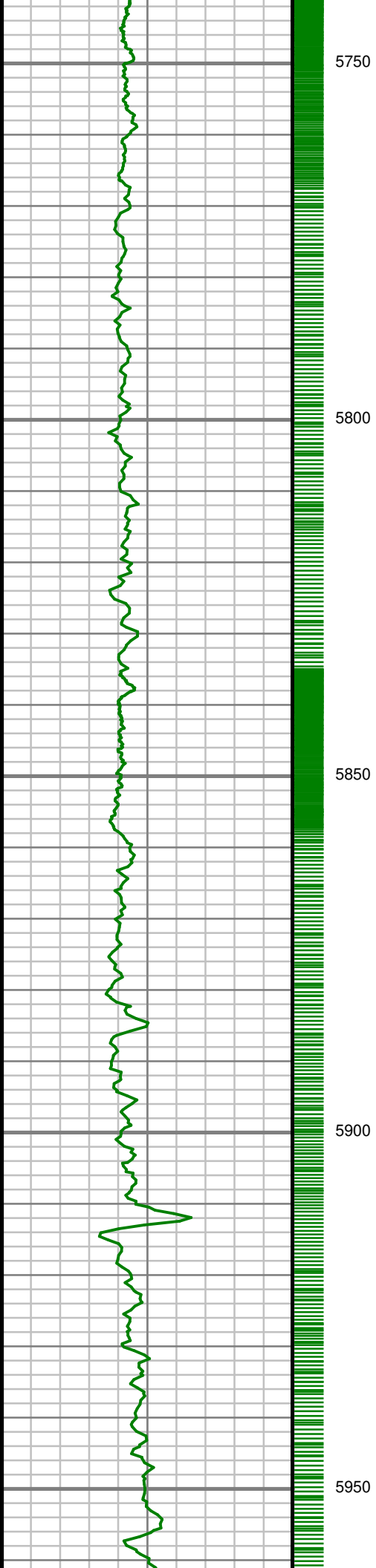
S: 42 MD: 5431.00 ft
Inc: 10.97 deg Az:
325.64 deg TVD:
5254.88 ft



S: 43 MD: 5526.00 ft
Inc: 11.28 deg Az:
325.63 deg TVD:
5348.10 ft

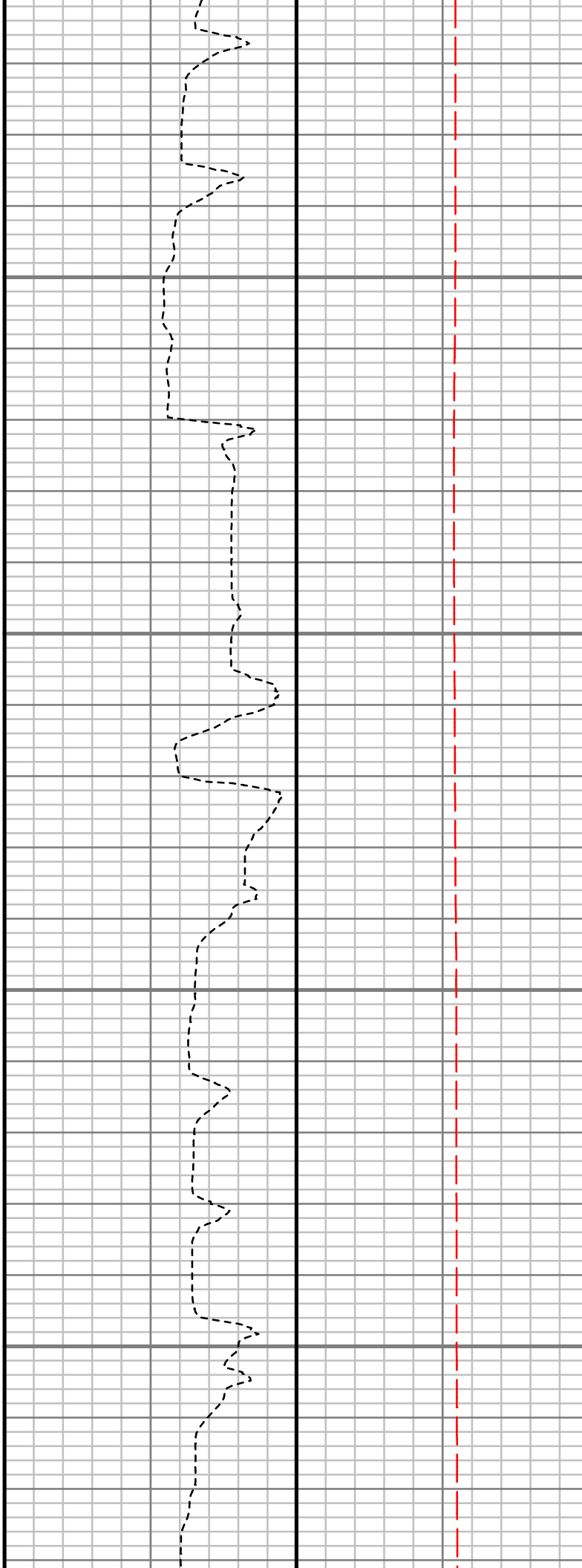
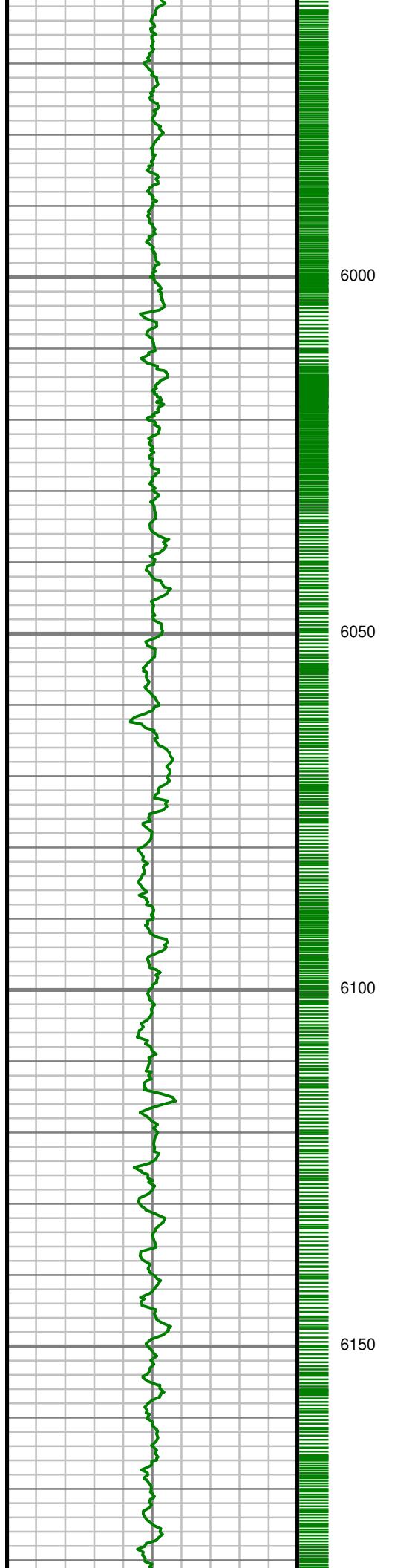
S: 44 MD: 5620.00 ft
Inc: 10.35 deg Az:
319.20 deg TVD:
5440.43 ft

S: 45 MD: 5714.00 ft
Inc: 7.87 deg Az:
314.24 deg TVD:
5533.24 ft



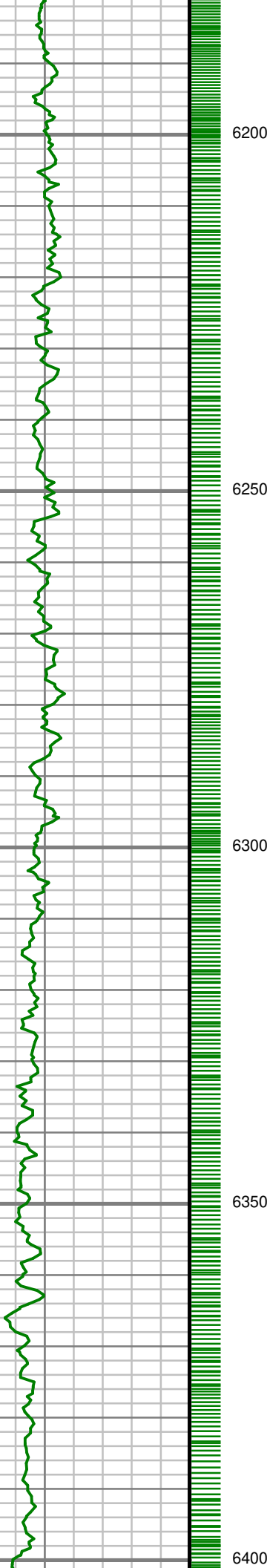
S: 46 MD: 5808.00 ft
Inc: 5.19 deg Az:
315.11 deg TVD:
5626.62 ft

S: 47 MD: 5902.00 ft
Inc: 2.62 deg Az: 2.52
deg TVD: 5720.42 ft



S: 48 MD: 5996.00 ft
Inc: 2.75 deg Az: 37.06
deg TVD: 5814.32 ft

S: 49 MD: 6090.00 ft
Inc: 2.06 deg Az:
352.80 deg TVD:
5908.24 ft



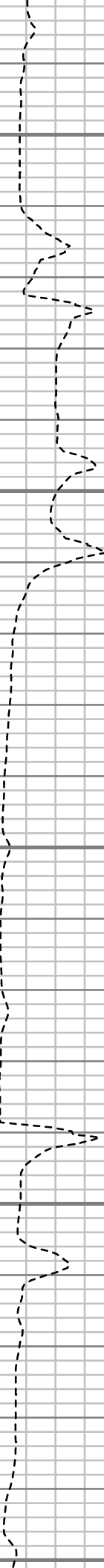
6200

6250

6300

6350

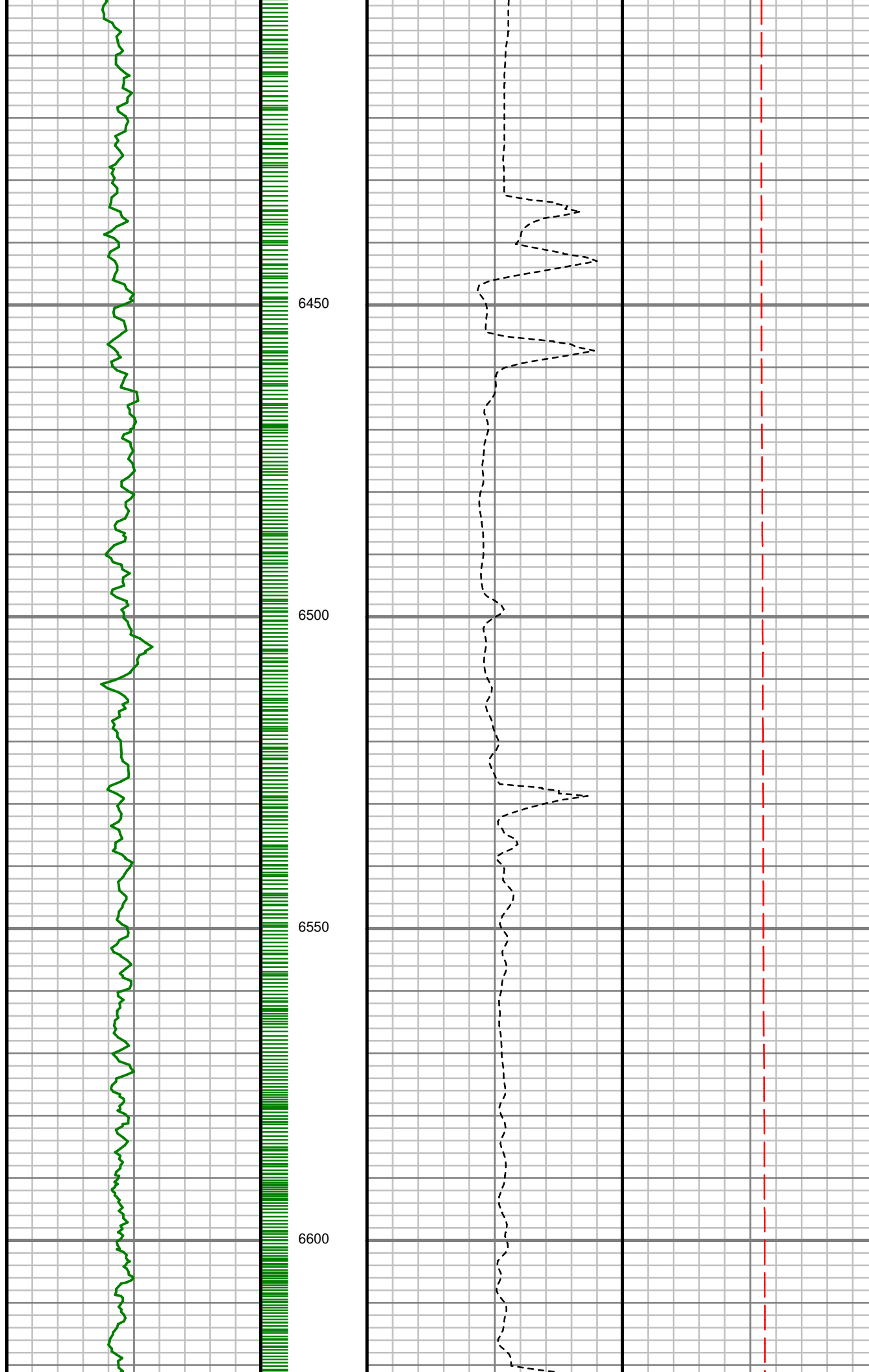
6400



S: 50 MD: 6184.00 ft
Inc: 1.99 deg Az:
331.47 deg TVD:
6002.19 ft

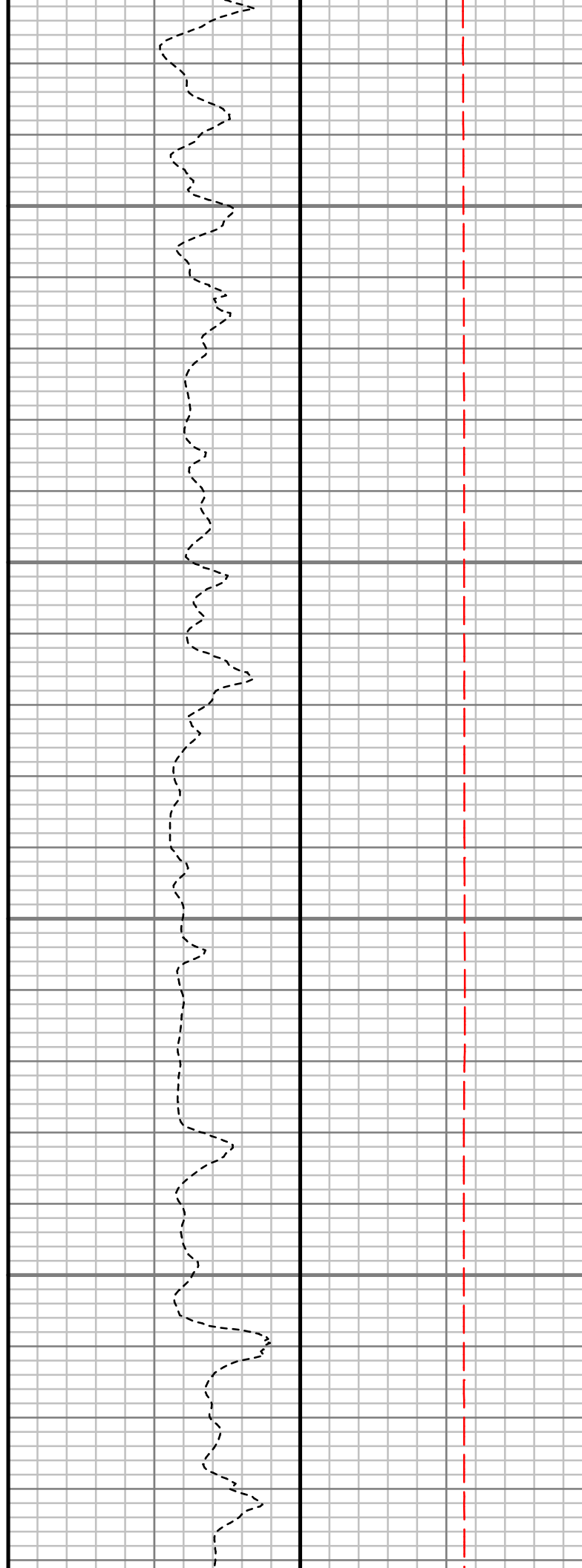
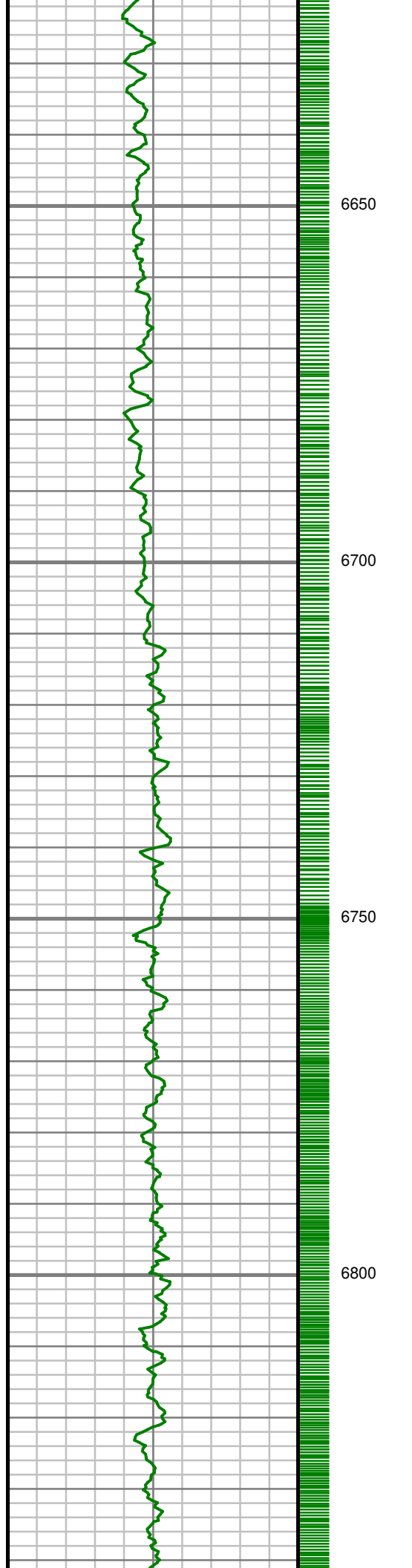
S: 51 MD: 6278.00 ft
Inc: 1.98 deg Az:
339.45 deg TVD:
6096.13 ft

S: 52 MD: 6371.00 ft
Inc: 1.26 deg Az:
347.69 deg TVD:
6189.09 ft



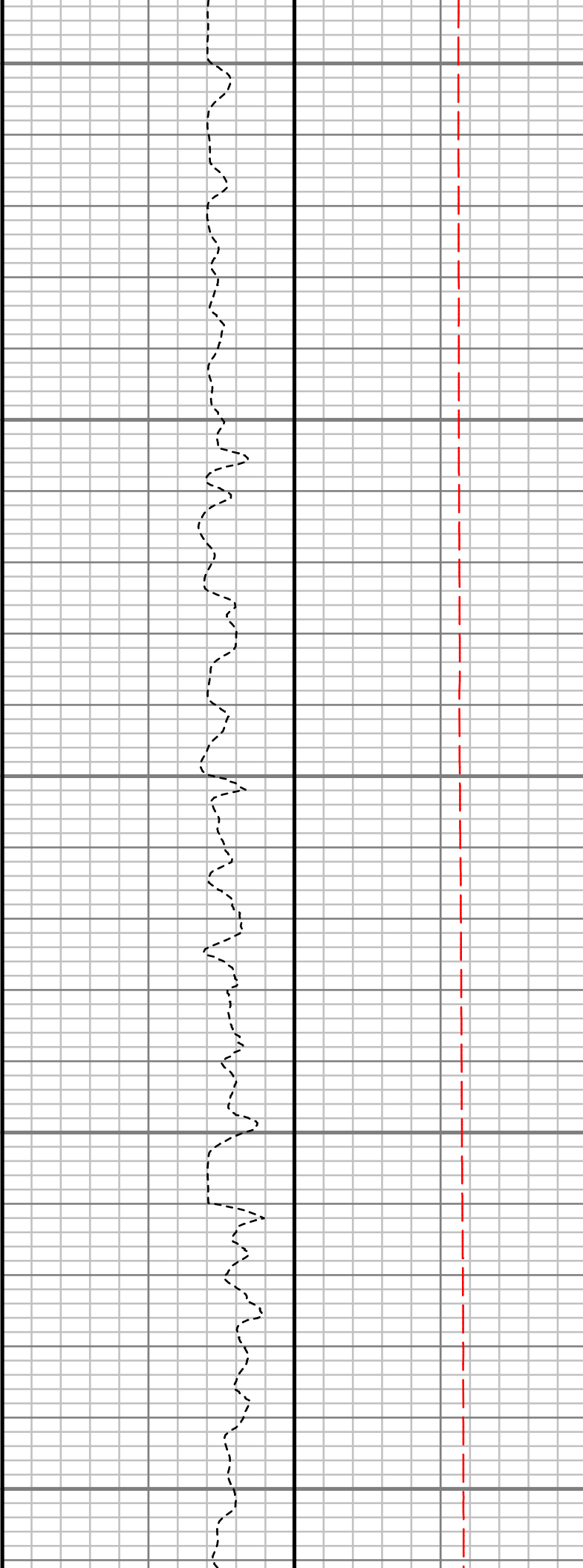
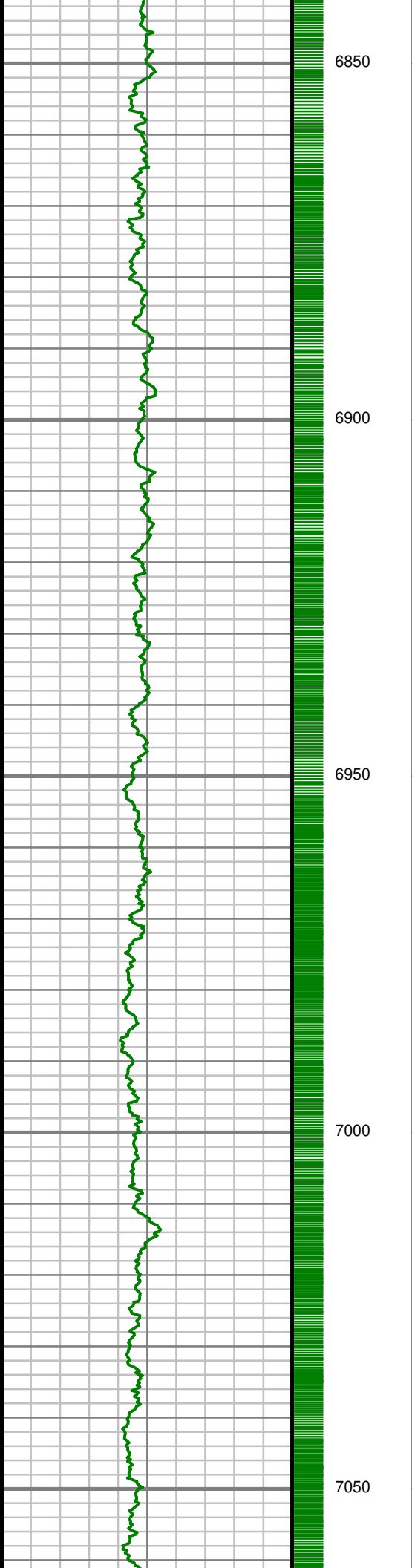
S: 53 MD: 6465.00 ft
Inc: 1.35 deg Az:
354.45 deg TVD:
6283.07 ft

S: 54 MD: 6559.00 ft
Inc: 1.33 deg Az:
335.61 deg TVD:
6377.04 ft



S: 55 MD: 6654.00 ft
Inc: 0.82 deg Az:
330.65 deg TVD:
6472.03 ft

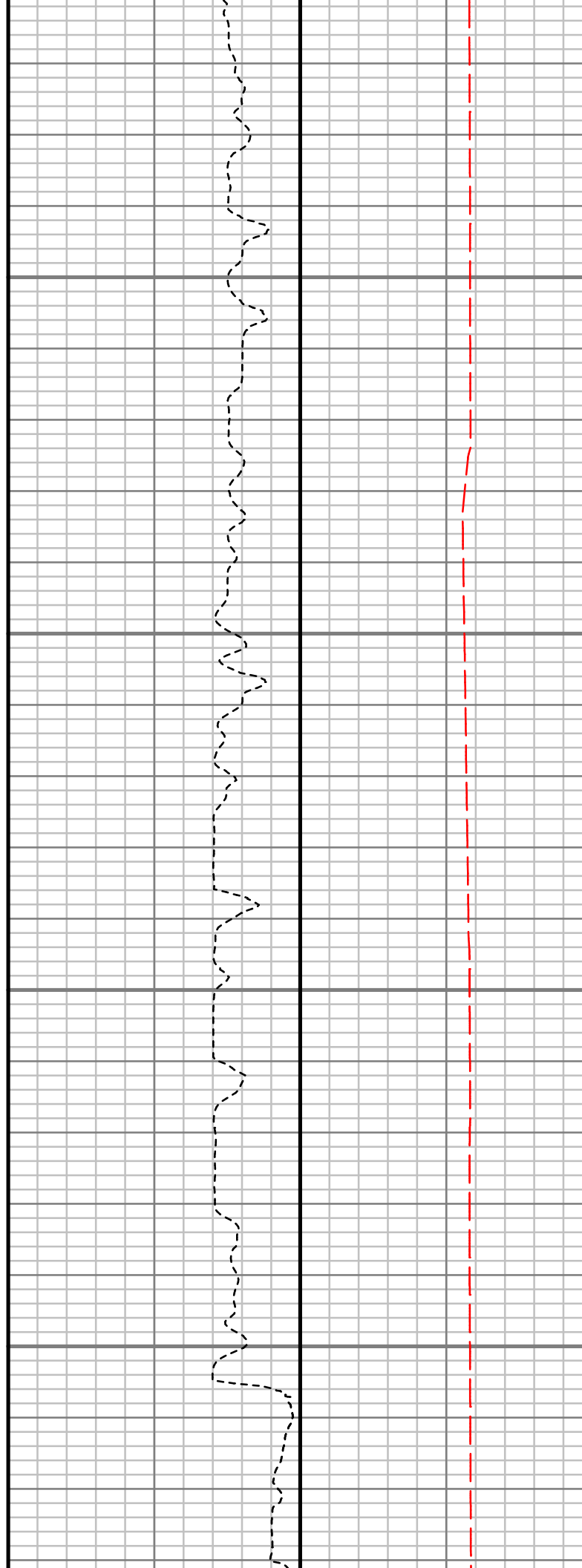
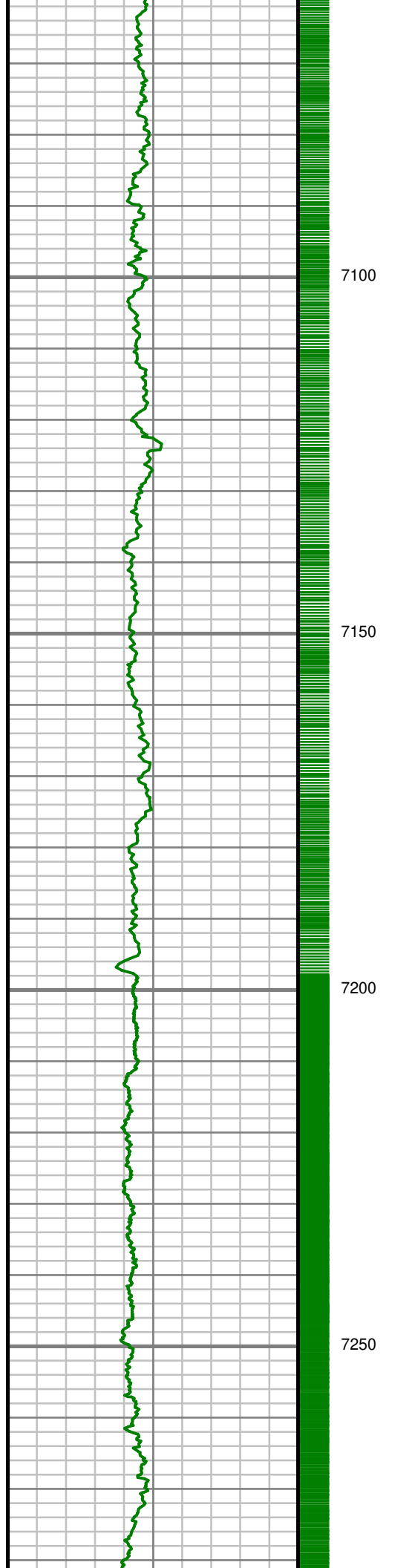
S: 56 MD: 6748.00 ft
Inc: 0.83 deg Az: 5.05
deg TVD: 6566.02 ft



S: 57 MD: 6842.00 ft
Inc: 0.45 deg Az:
314.61 deg TVD:
6660.01 ft

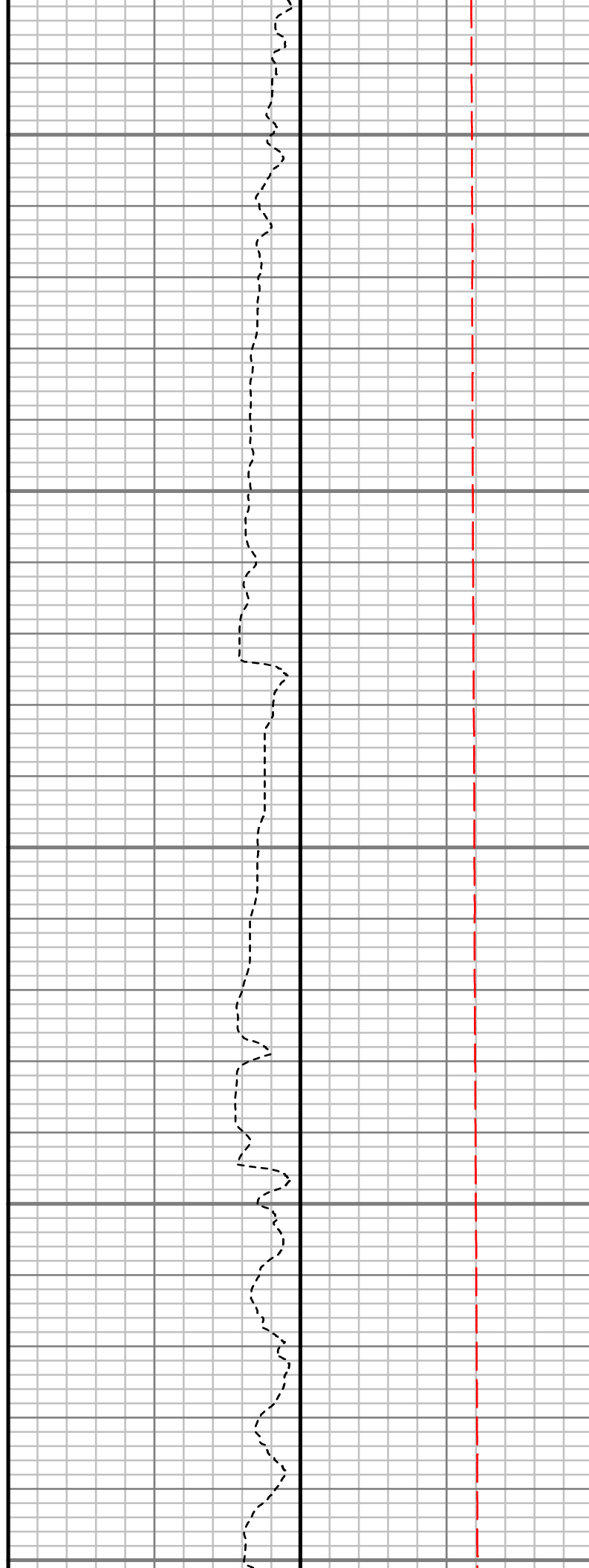
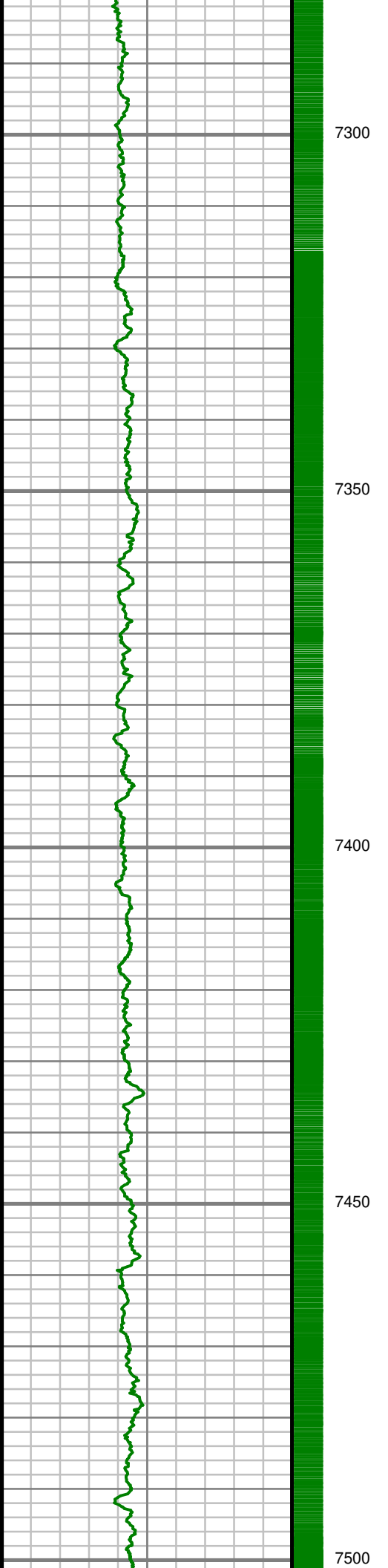
S: 58 MD: 6937.00 ft
Inc: 0.56 deg Az:
288.16 deg TVD:
6755.01 ft

S: 59 MD: 7031.00 ft
Inc: 0.50 deg Az:
308.86 deg TVD:
6849.00 ft



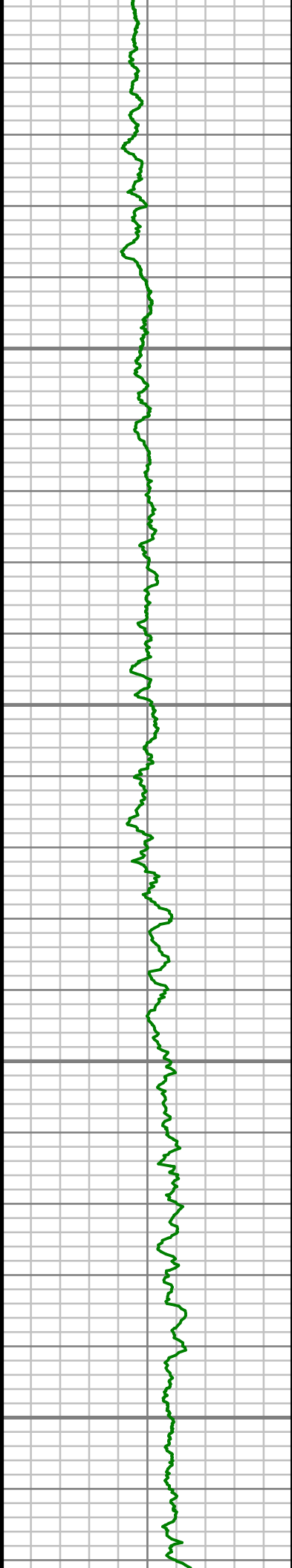
S: 60 MD: 7125.00 ft
Inc: 0.31 deg Az:
269.59 deg TVD:
6943.00 ft

S: 61 MD: 7220.00 ft
Inc: 0.70 deg Az:
234.31 deg TVD:
7038.00 ft



S: 62 MD: 7313.00 ft
Inc: 6.53 deg Az:
186.90 deg TVD:
7130.78 ft

S: 63 MD: 7407.00 ft
Inc: 14.39 deg Az:
171.83 deg TVD:
7223.16 ft

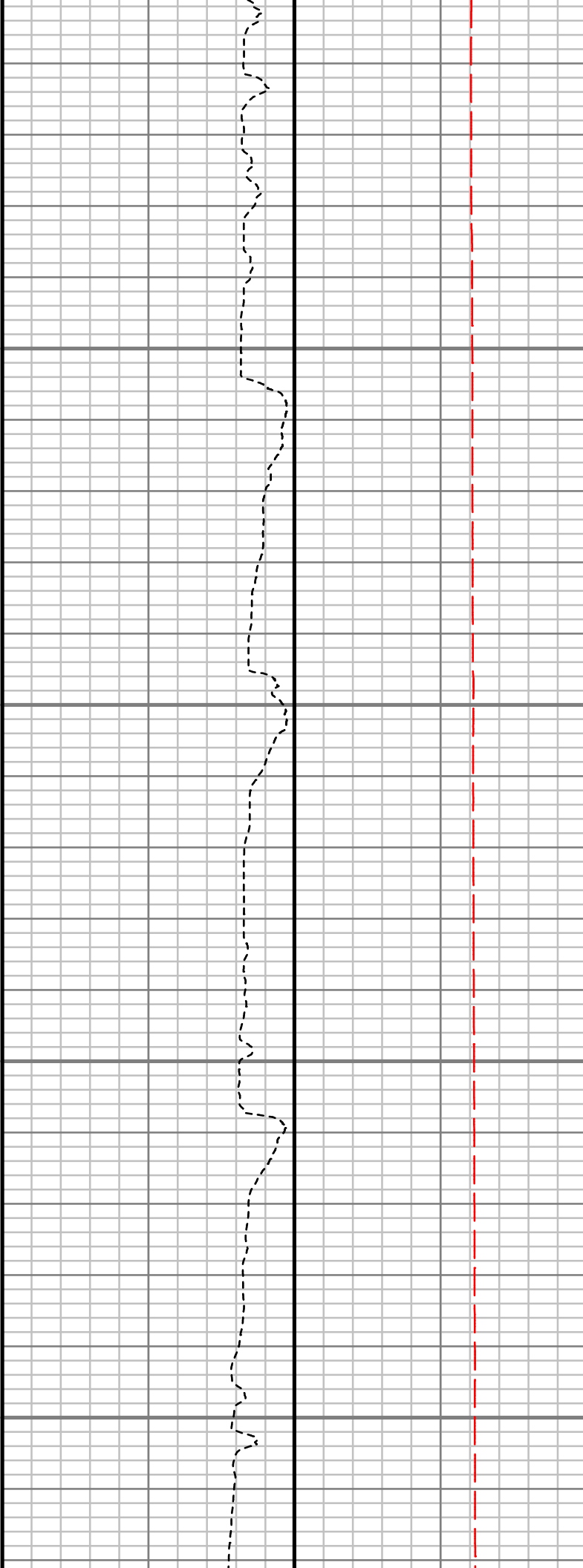


7550

7600

7650

7700

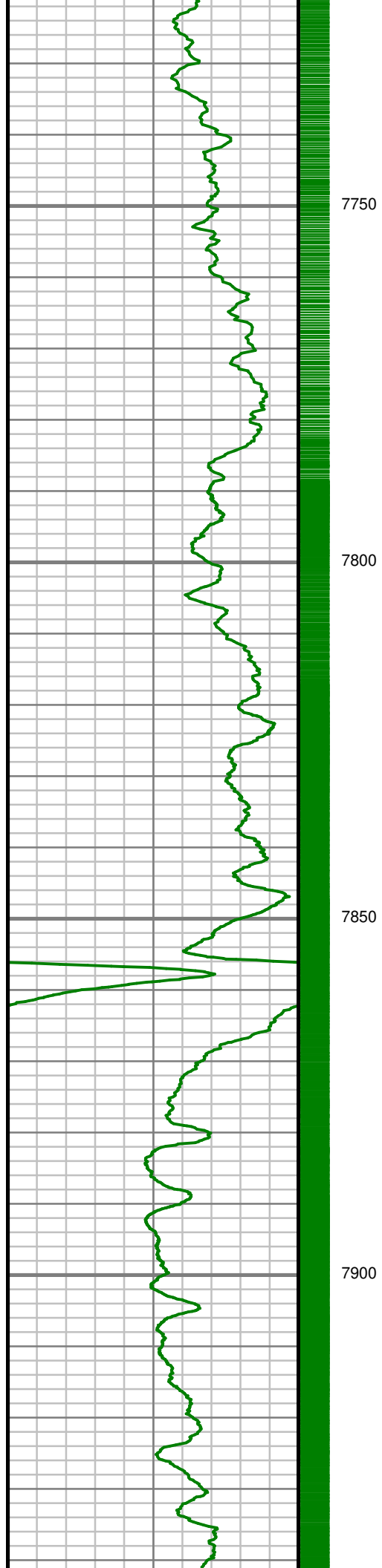


S: 64 MD: 7501.00 ft
Inc: 18.19 deg Az:
183.63 deg TVD:
7313.40 ft

S: 65 MD: 7533.00 ft
Inc: 21.44 deg Az:
187.12 deg TVD:
7343.50 ft

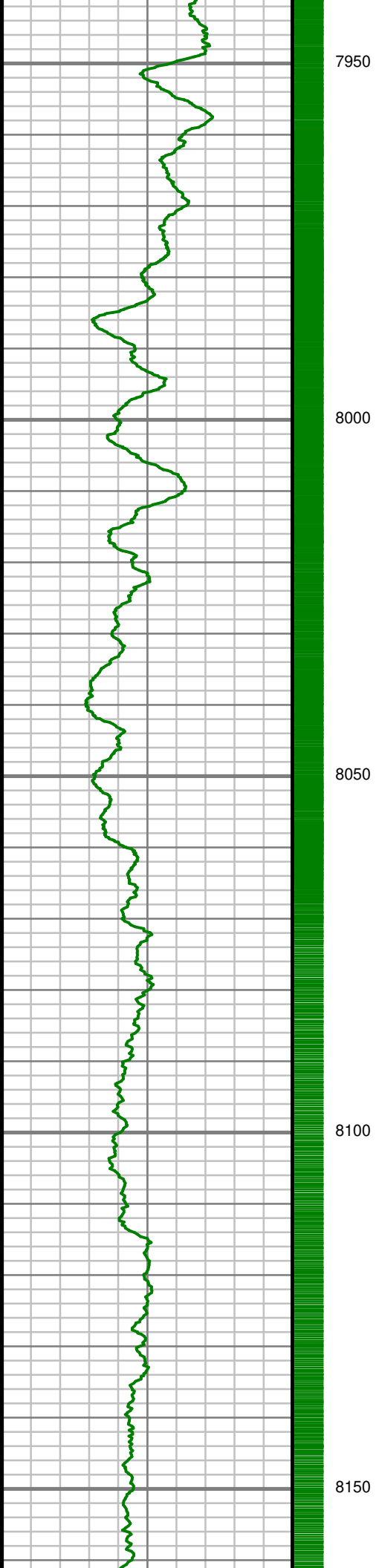
S: 66 MD: 7596.00 ft
Inc: 26.75 deg Az:
191.04 deg TVD:
7400.99 ft

S: 67 MD: 7691.00 ft
Inc: 37.14 deg Az:
188.26 deg TVD:
7481.50 ft



S: 68 MD: 7785.00 ft
Inc: 48.26 deg Az:
186.89 deg TVD:
7550.48 ft

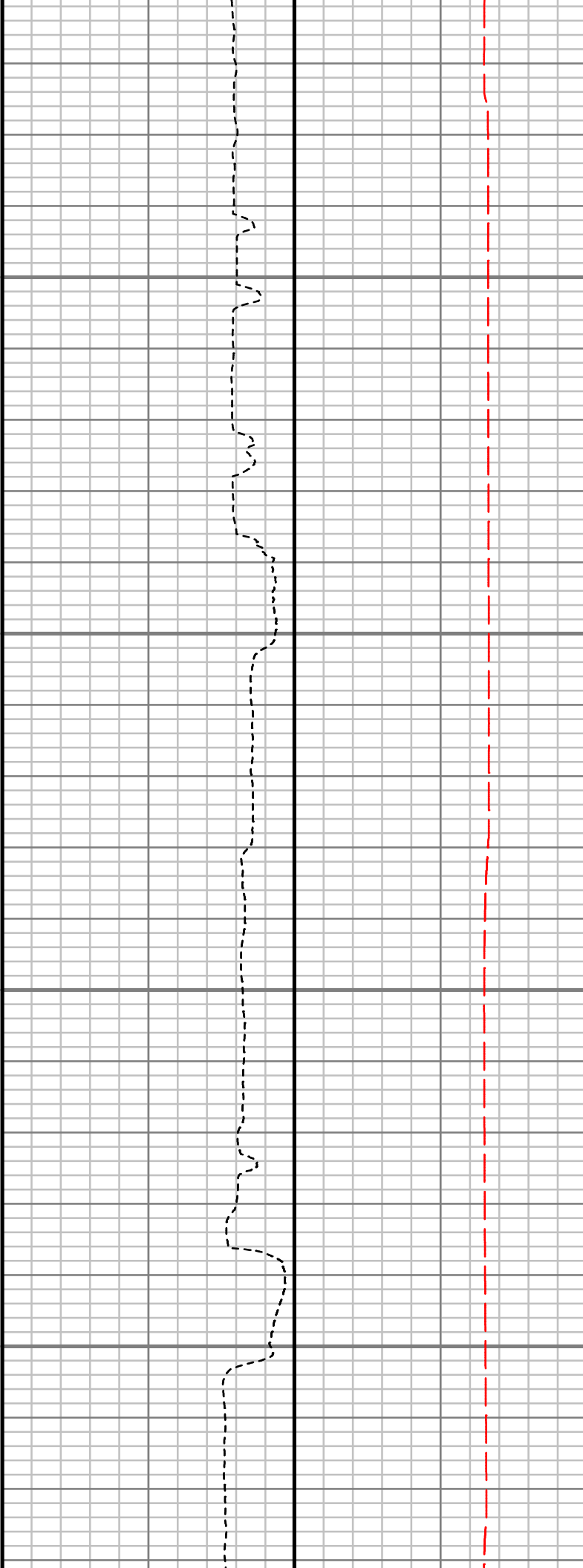
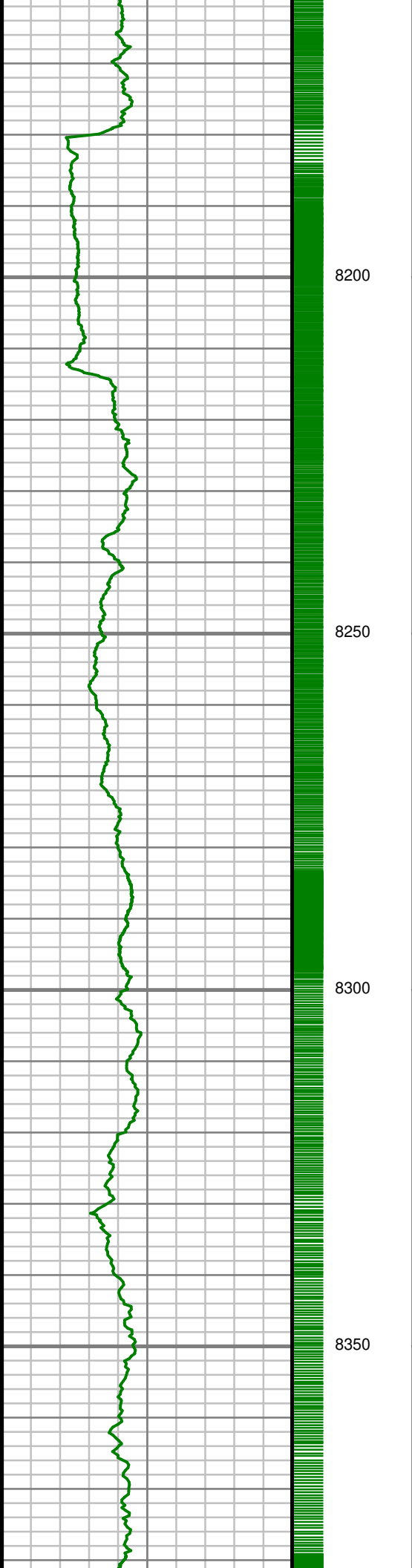
S: 69 MD: 7879.00 ft
Inc: 58.71 deg Az:
178.21 deg TVD:
7606.41 ft



S: 70 MD: 7973.00 ft
Inc: 68.83 deg Az:
173.10 deg TVD:
7647.92 ft

S: 71 MD: 8066.00 ft
Inc: 81.14 deg Az:
176.73 deg TVD:
7671.98 ft

S: 72 MD: 8129.00 ft
Inc: 88.73 deg Az:
179.74 deg TVD:
7677.54 ft

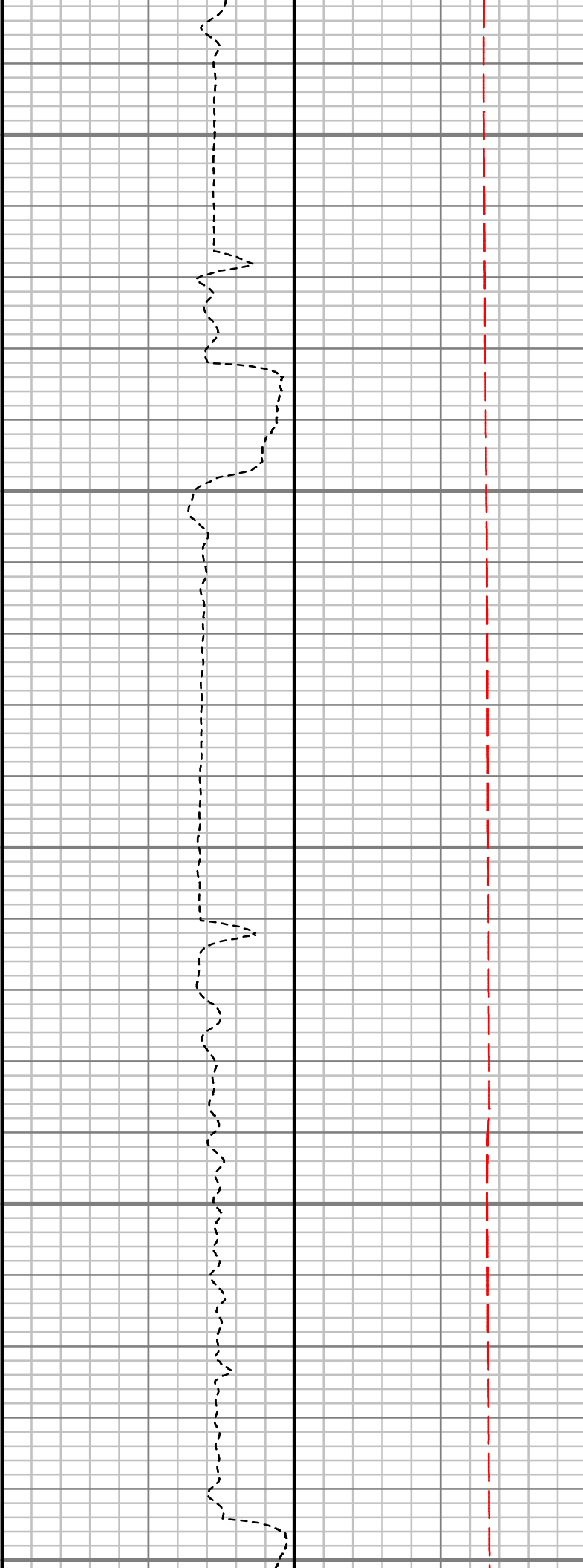
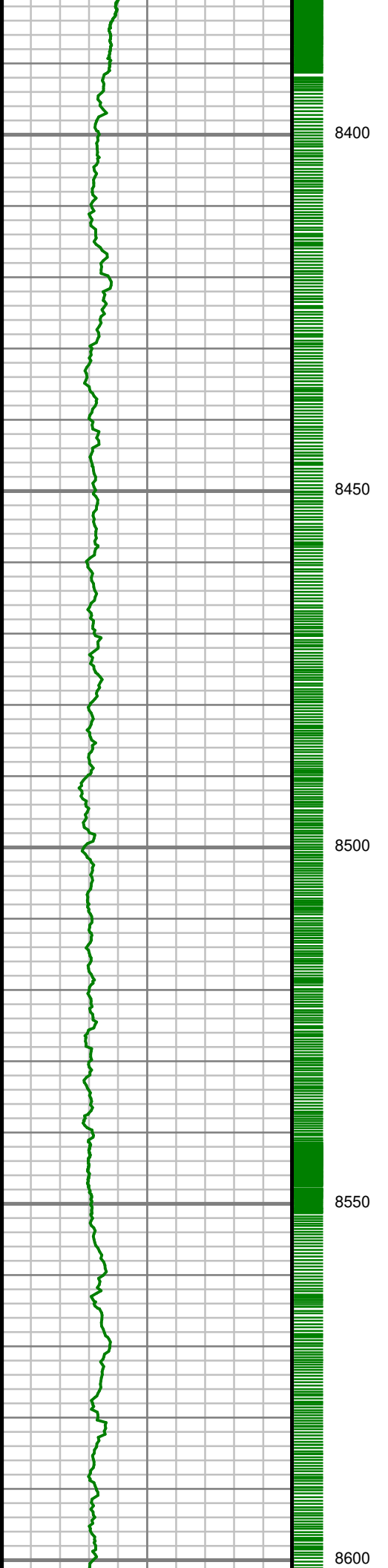


S: 73 MD: 8161.00 ft
Inc: 89.87 deg Az:
180.38 deg TVD:
7677.93 ft

S: 74 MD: 8174.00 ft
Inc: 90.36 deg Az:
180.36 deg TVD:
7677.91 ft

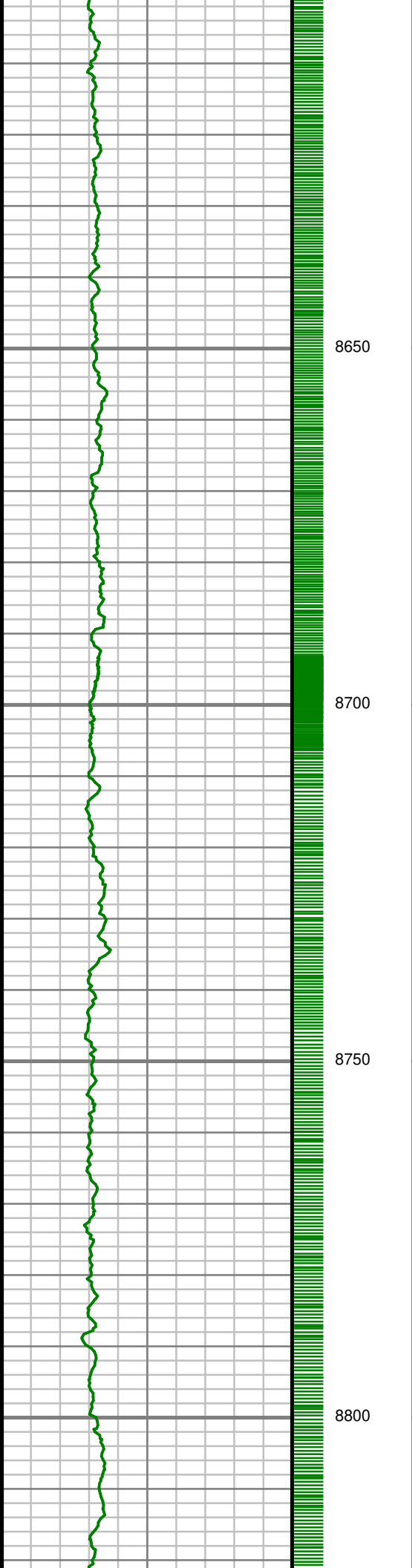
S: 75 MD: 8266.00 ft
Inc: 92.69 deg Az:
181.30 deg TVD:
7675.47 ft

S: 76 MD: 8359.00 ft
Inc: 91.38 deg Az:
180.02 deg TVD:
7672.17 ft



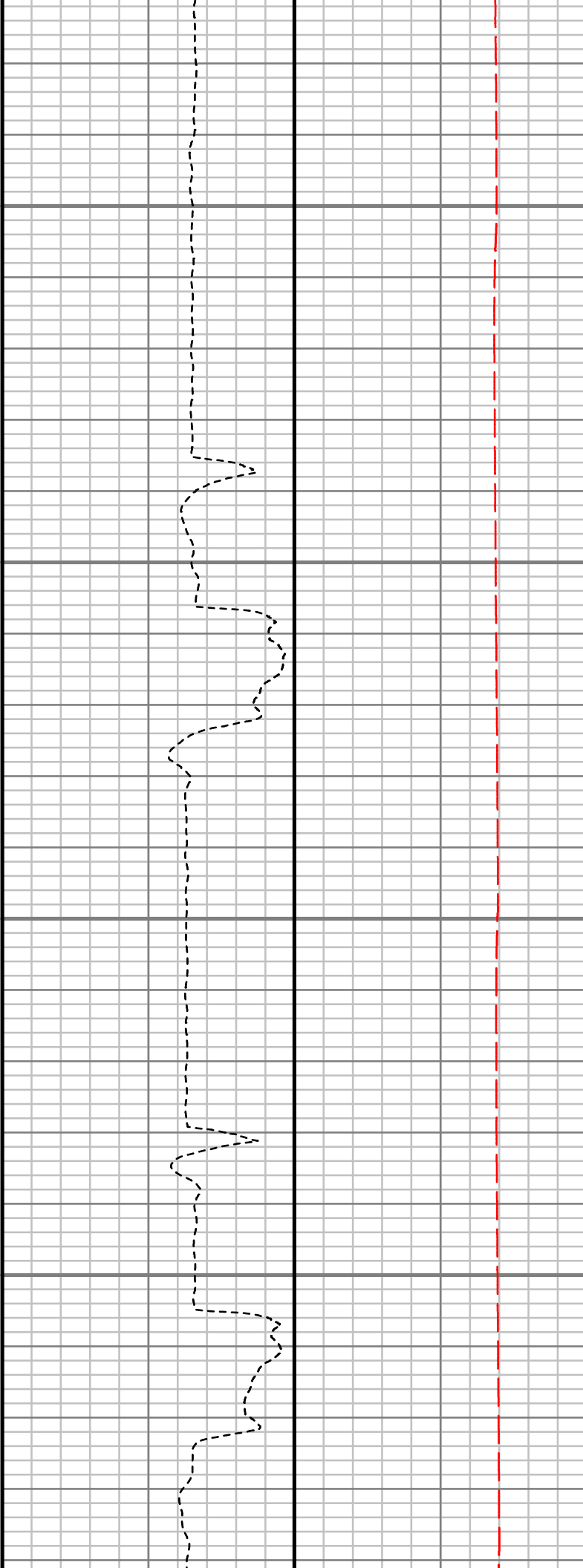
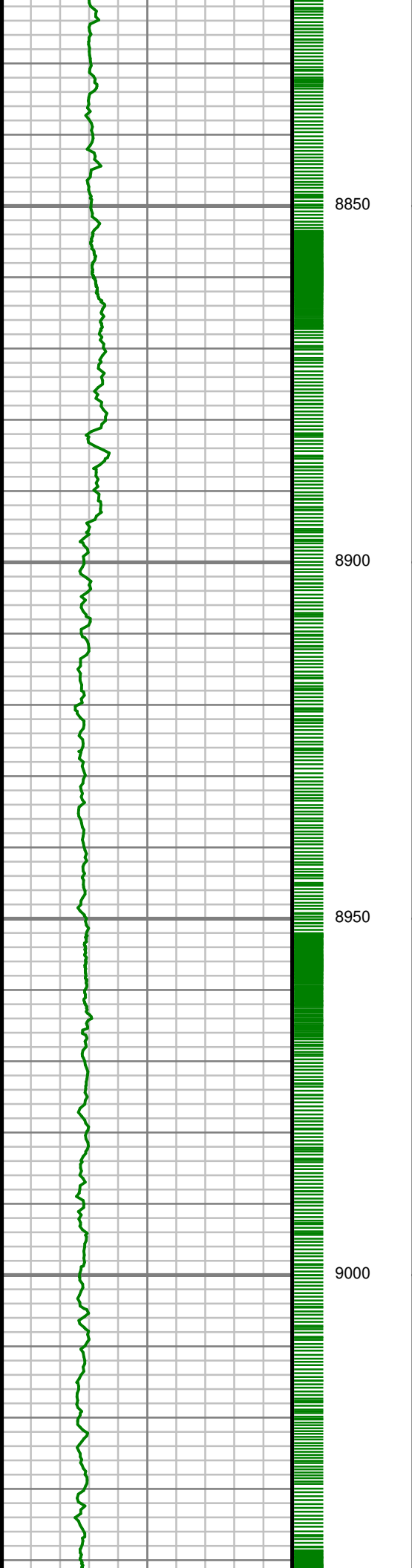
S: 77 MD: 8453.00 ft
Inc: 89.66 deg Az:
179.51 deg TVD:
7671.32 ft

S: 78 MD: 8547.00 ft
Inc: 90.13 deg Az:
178.79 deg TVD:
7671.48 ft



S: 79 MD: 8641.00 ft
Inc: 89.63 deg Az:
179.25 deg TVD:
7671.67 ft

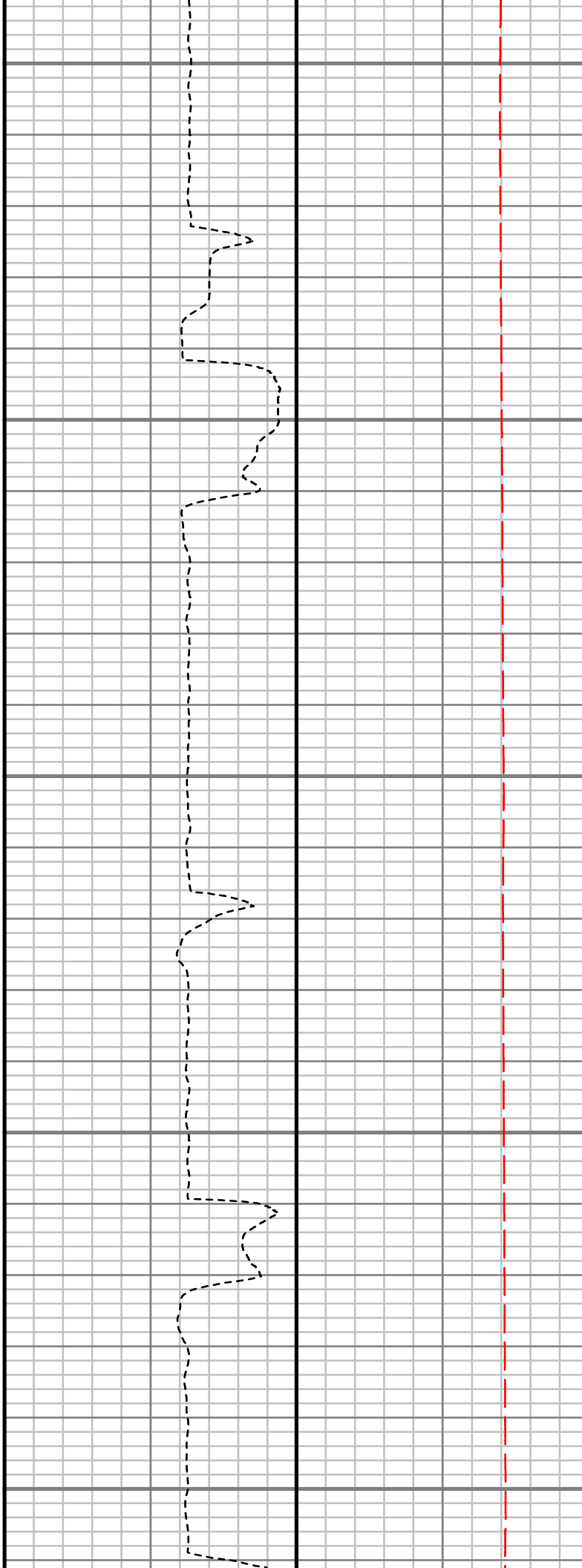
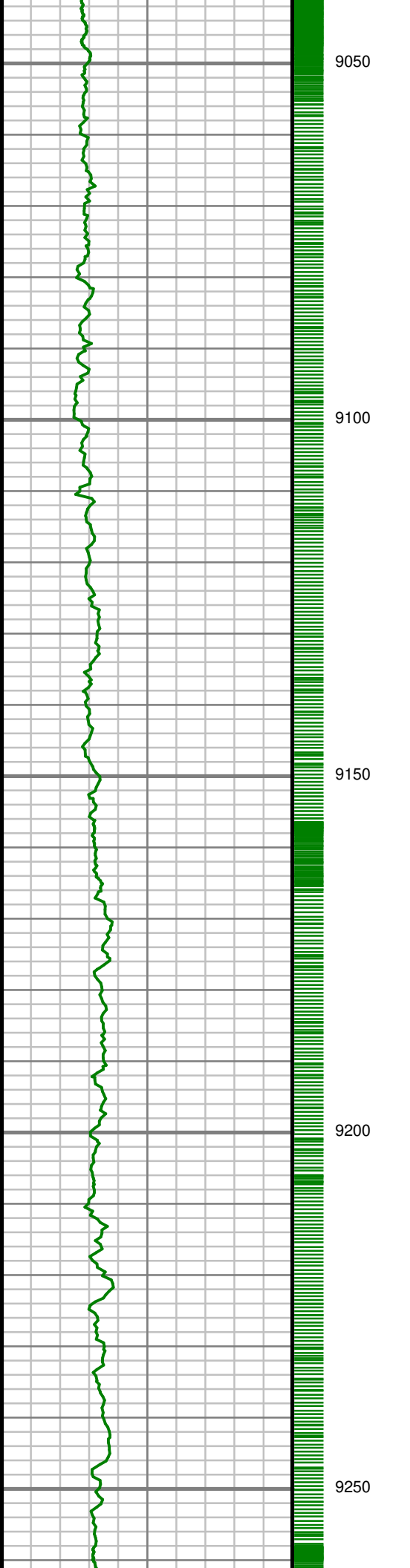
S: 80 MD: 8735.00 ft
Inc: 91.17 deg Az:
179.15 deg TVD:
7671.01 ft



S: 81 MD: 8829.00 ft
Inc: 90.74 deg Az:
180.07 deg TVD:
7669.45 ft

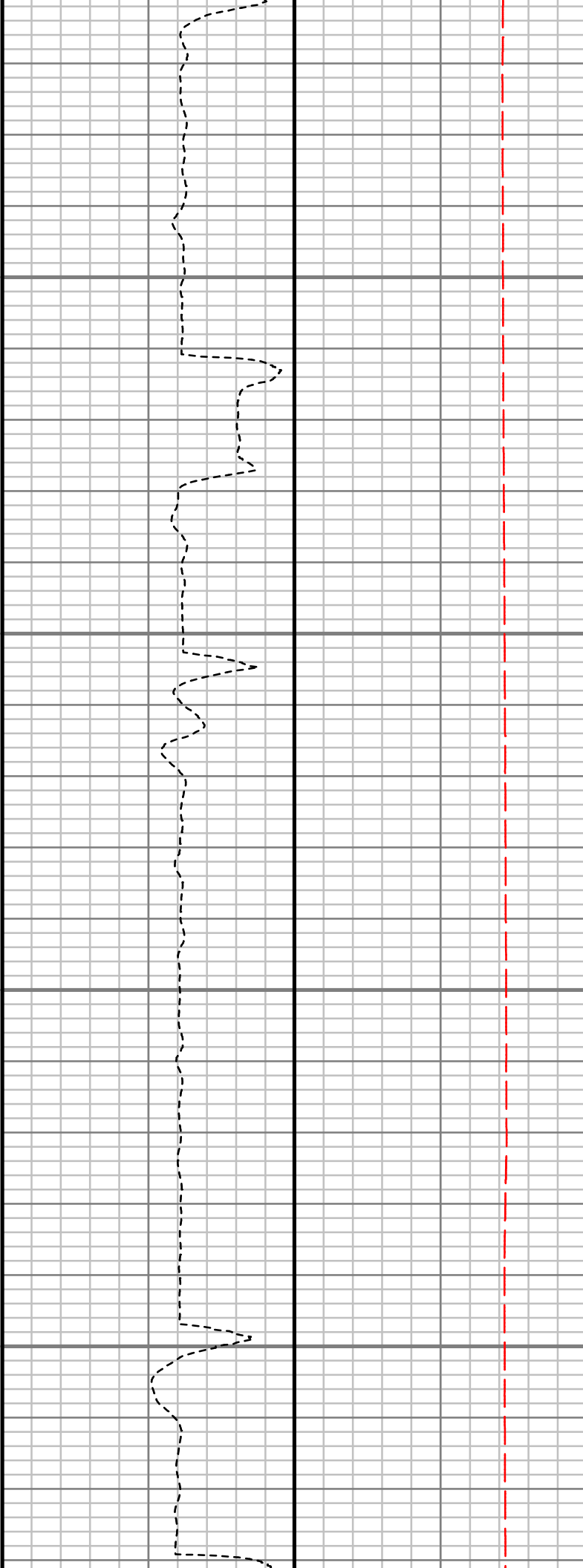
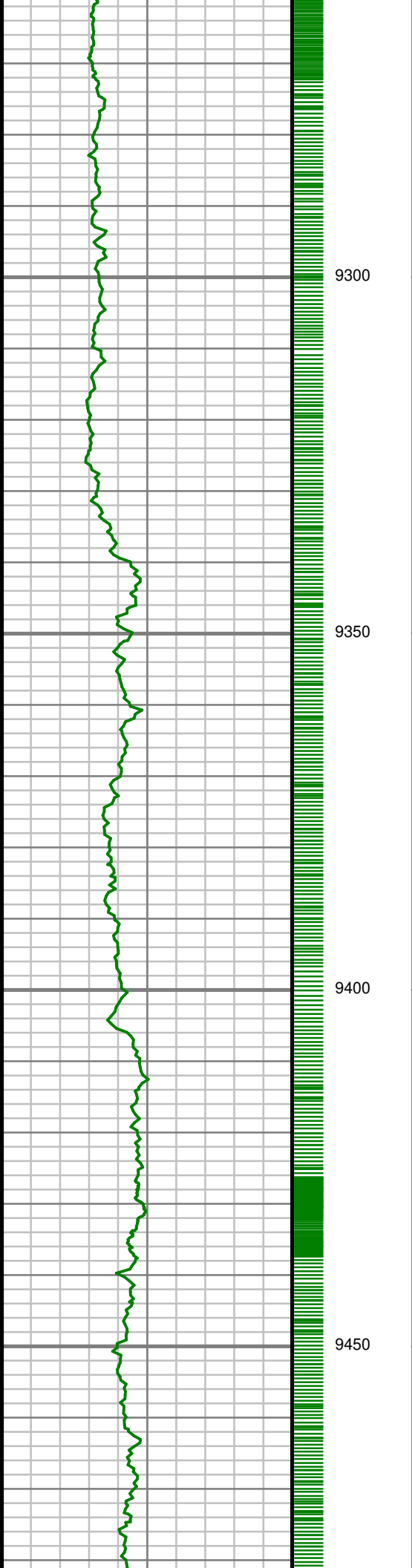
S: 82 MD: 8923.00 ft
Inc: 90.07 deg Az:
179.58 deg TVD:
7668.78 ft

S: 83 MD: 9017.00 ft
Inc: 89.70 deg Az:
180.48 deg TVD:
7668.98 ft



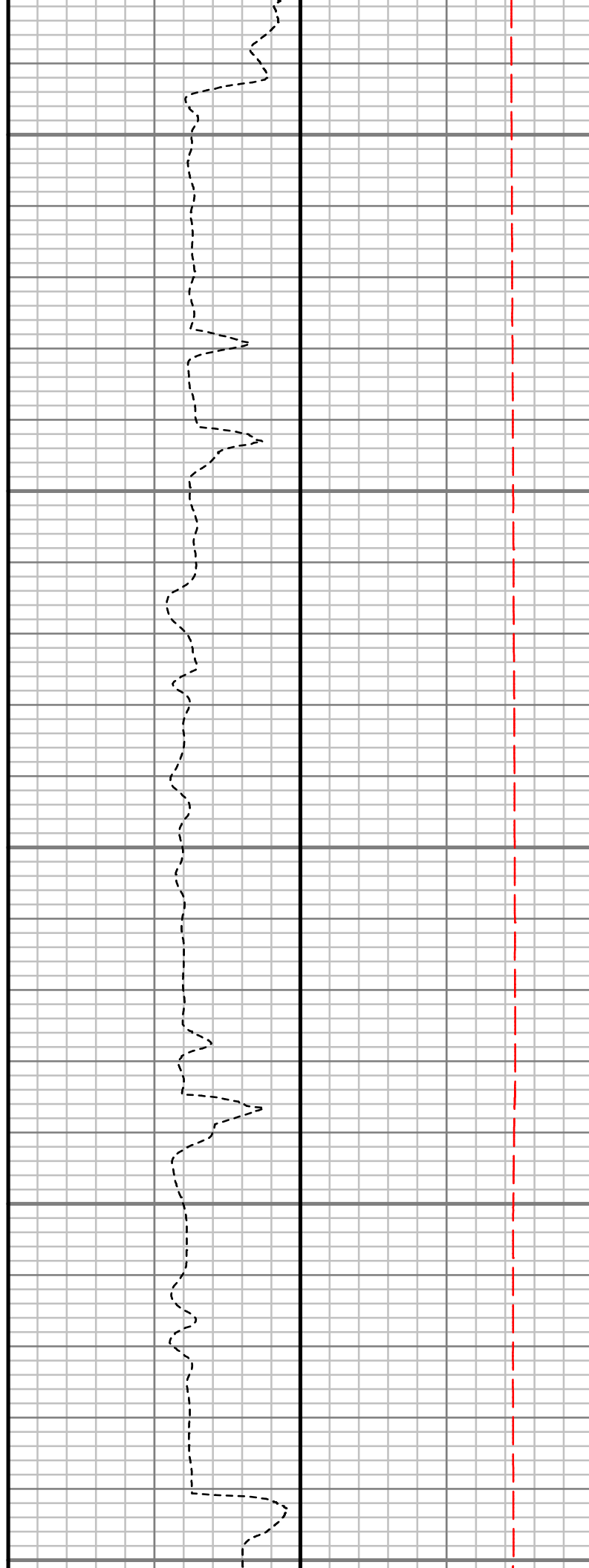
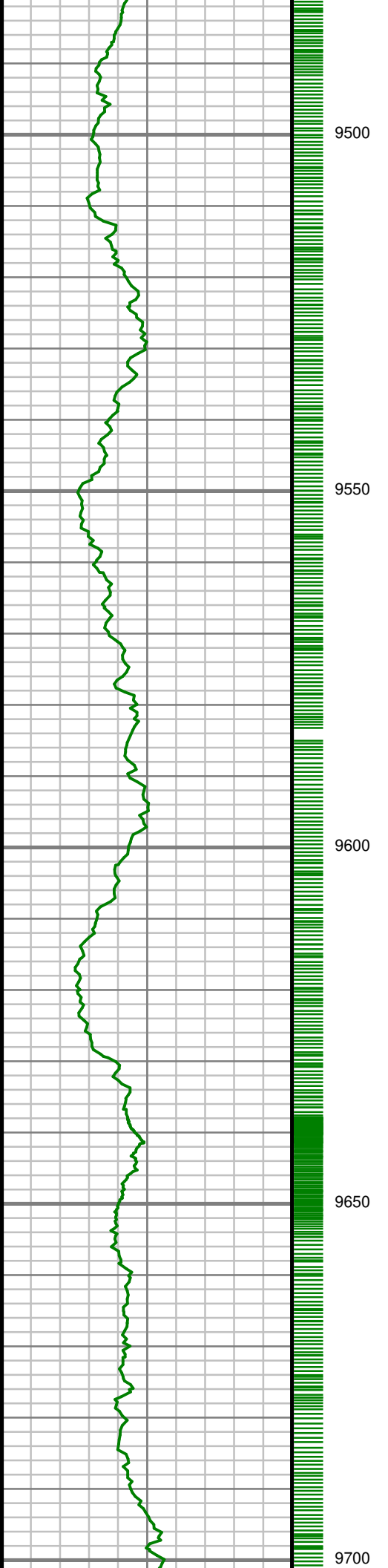
S: 84 MD: 9110.00 ft
Inc: 89.60 deg Az:
182.43 deg TVD:
7669.55 ft

S: 85 MD: 9204.00 ft
Inc: 89.56 deg Az:
182.00 deg TVD:
7670.24 ft



S: 86 MD: 9297.00 ft
Inc: 90.70 deg Az:
181.28 deg TVD:
7670.02 ft

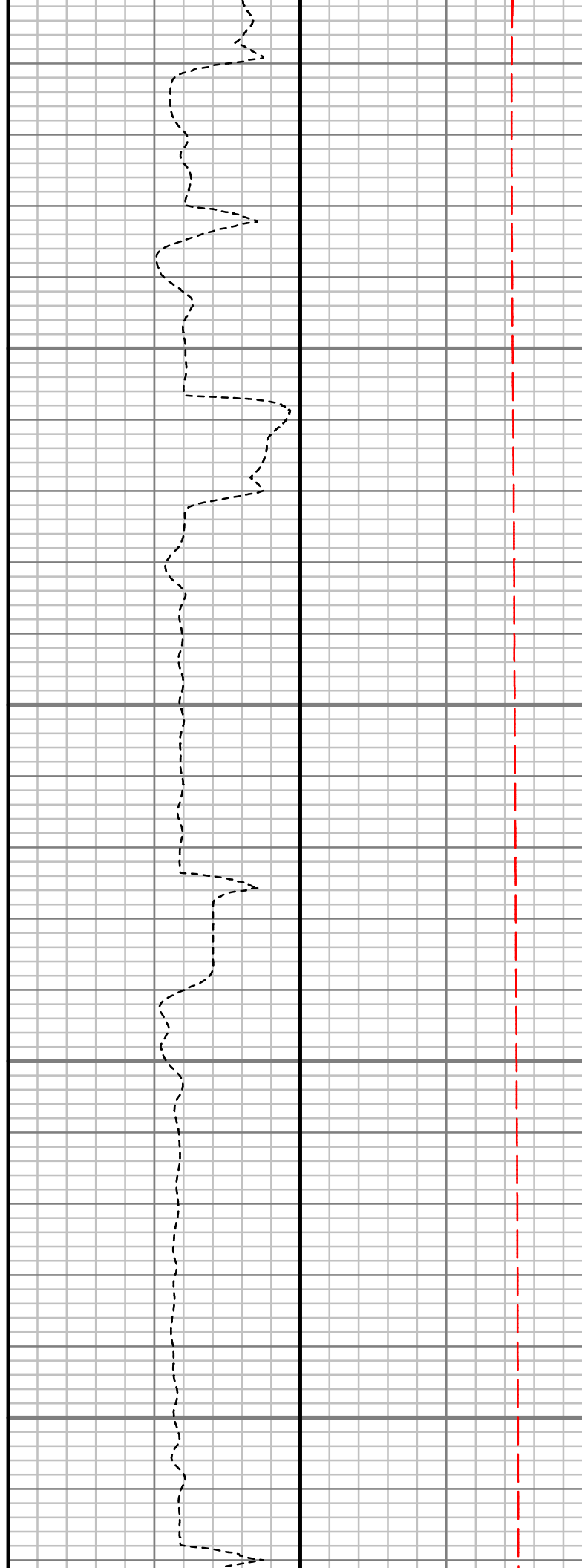
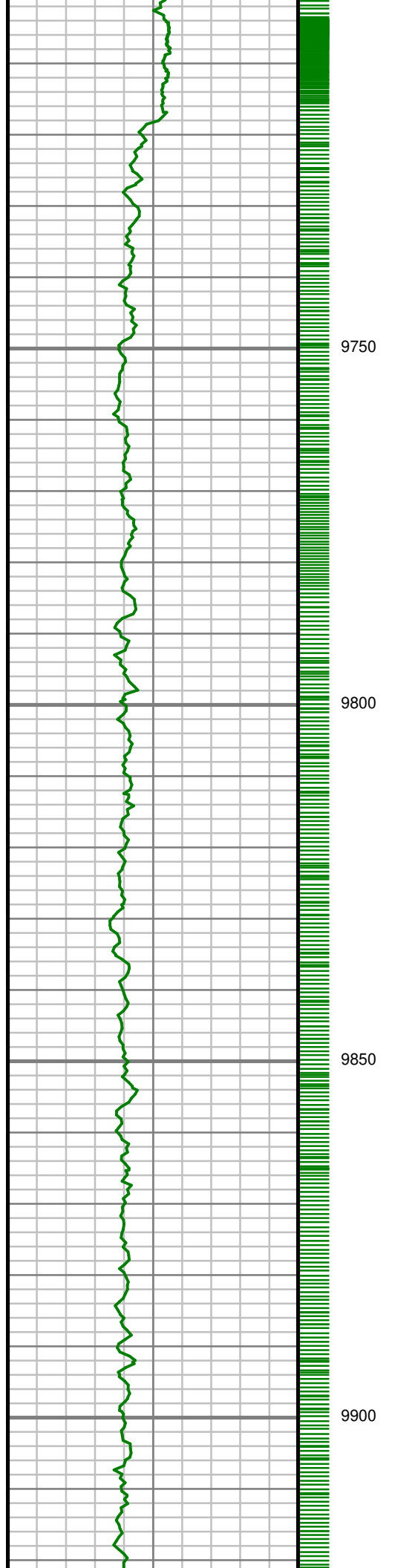
S: 87 MD: 9391.00 ft
Inc: 88.99 deg Az:
181.74 deg TVD:
7670.27 ft



S: 88 MD: 9485.00 ft
Inc: 87.89 deg Az:
181.46 deg TVD:
7672.83 ft

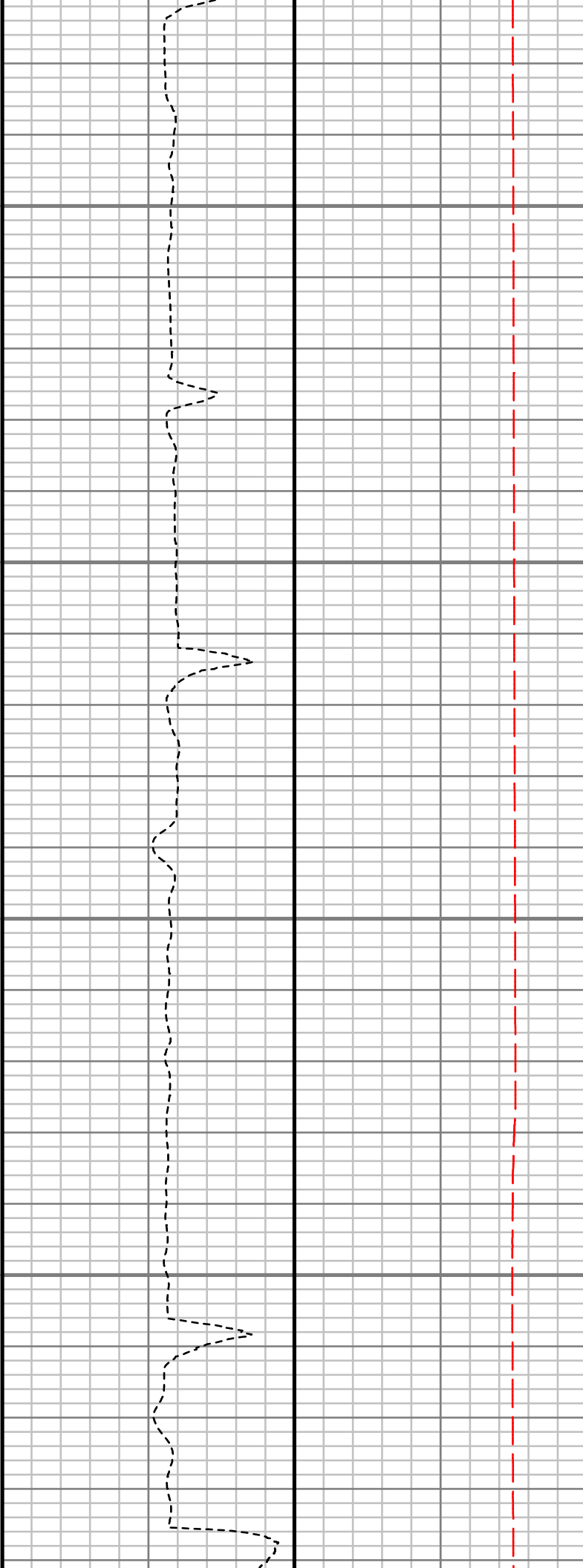
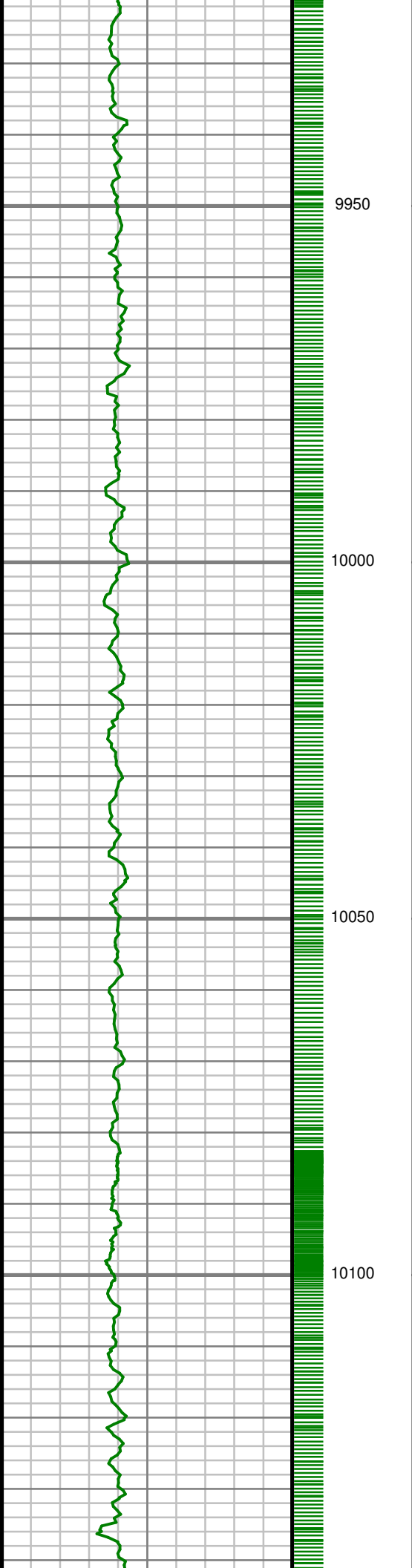
S: 89 MD: 9579.00 ft
Inc: 87.25 deg Az:
181.70 deg TVD:
7676.82 ft

S: 90 MD: 9673.00 ft
Inc: 86.78 deg Az:
181.27 deg TVD:
7681.71 ft



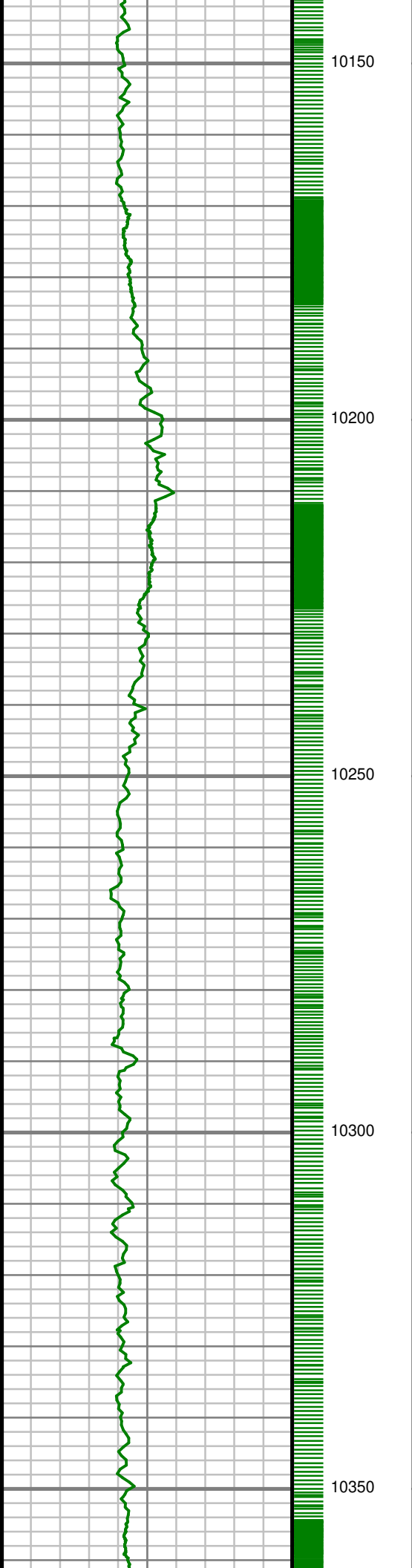
S: 91 MD: 9767.00 ft
Inc: 90.20 deg Az:
182.01 deg TVD:
7684.19 ft

S: 92 MD: 9861.00 ft
Inc: 90.17 deg Az:
182.83 deg TVD:
7683.89 ft



S: 93 MD: 9955.00 ft
Inc: 89.93 deg Az:
181.02 deg TVD:
7683.80 ft

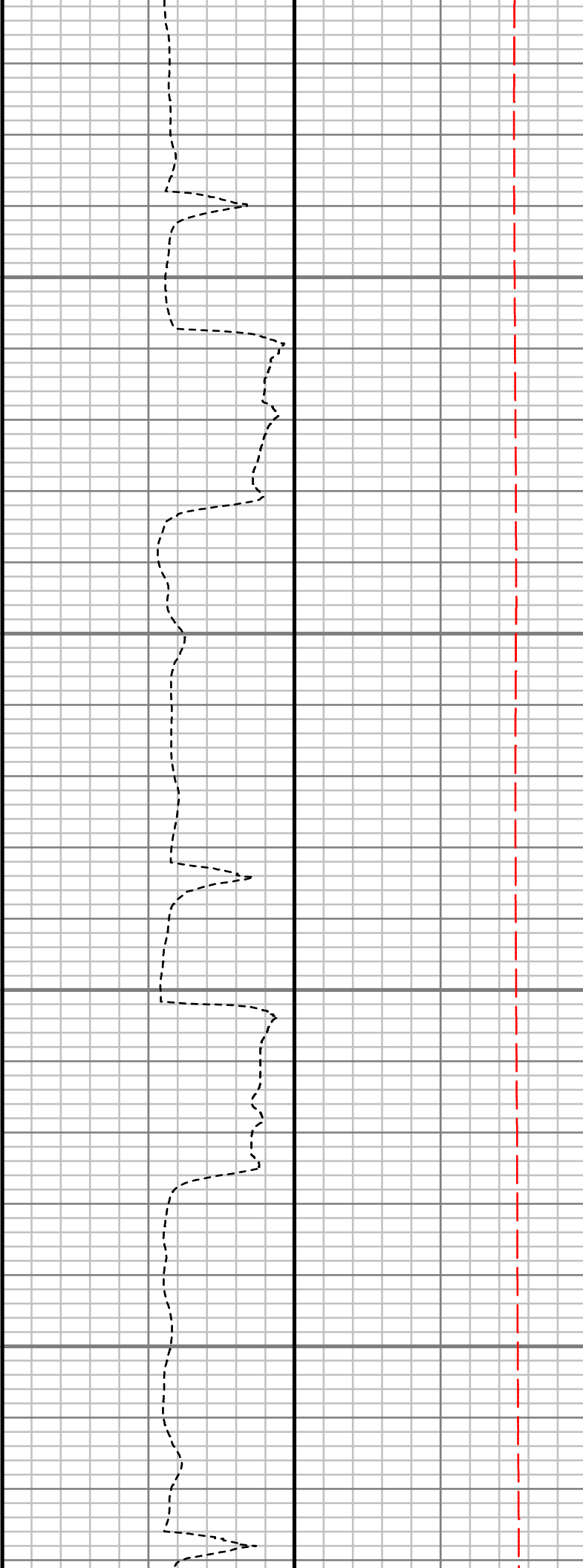
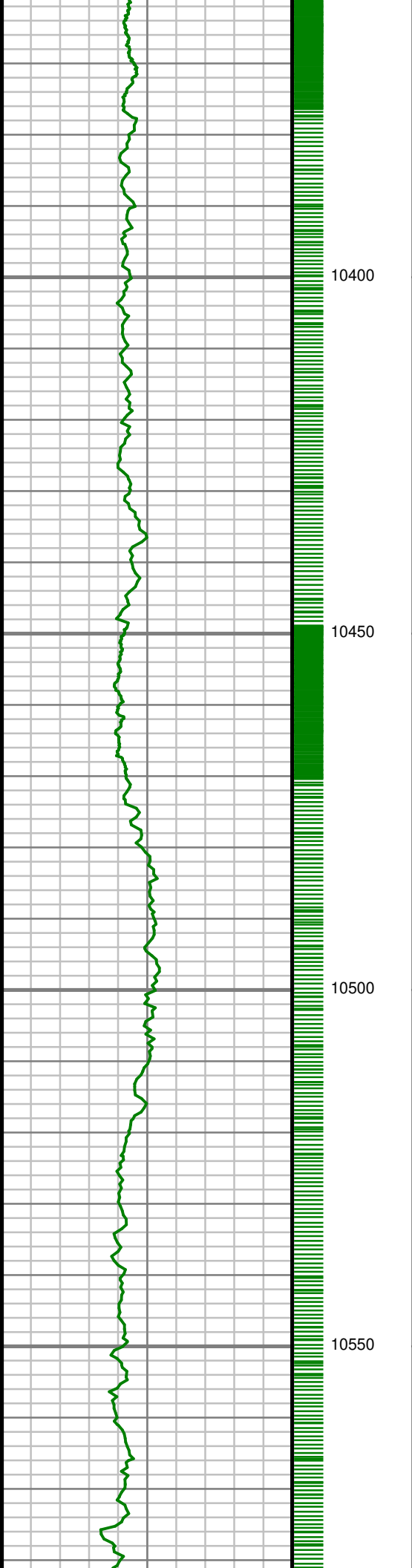
S: 94 MD: 10050.00 ft
Inc: 89.83 deg Az:
178.62 deg TVD:
7684.00 ft



S: 95 MD: 10144.00 ft
Inc: 90.91 deg Az:
177.44 deg TVD:
7683.39 ft

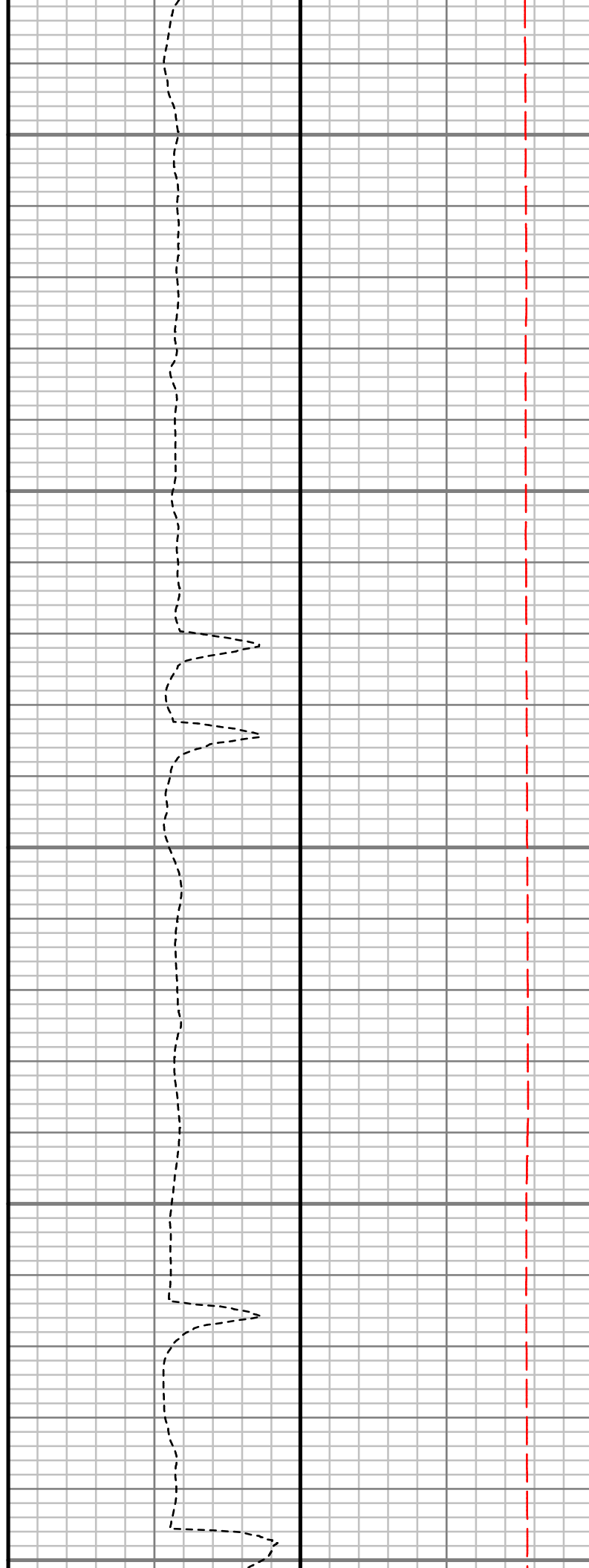
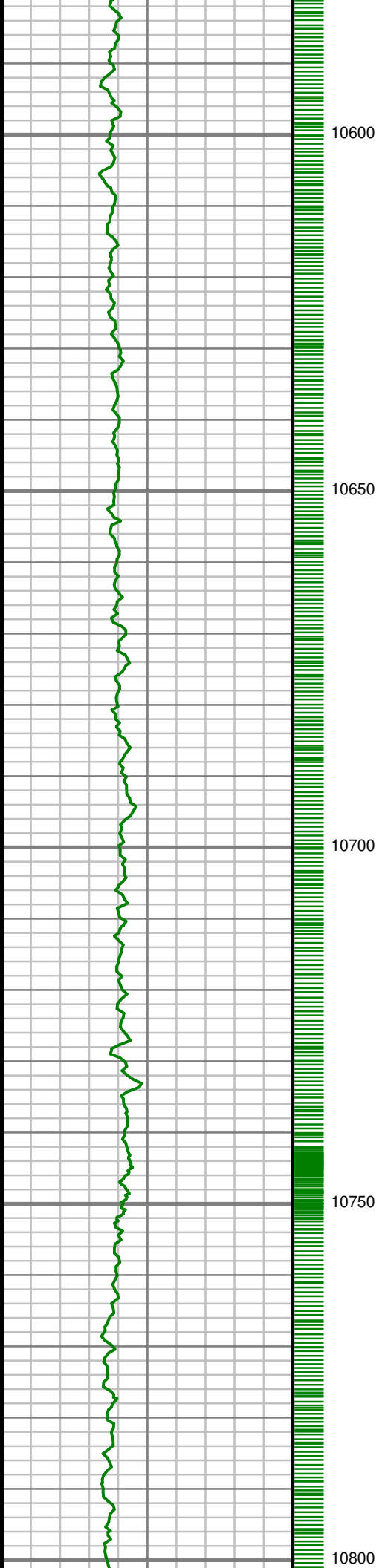
S: 96 MD: 10238.00 ft
Inc: 90.94 deg Az:
177.44 deg TVD:
7681.88 ft

S: 97 MD: 10332.00 ft
Inc: 90.97 deg Az:
178.91 deg TVD:
7680.31 ft



S: 98 MD: 10426.00 ft
Inc: 88.59 deg Az:
179.54 deg TVD:
7680.67 ft

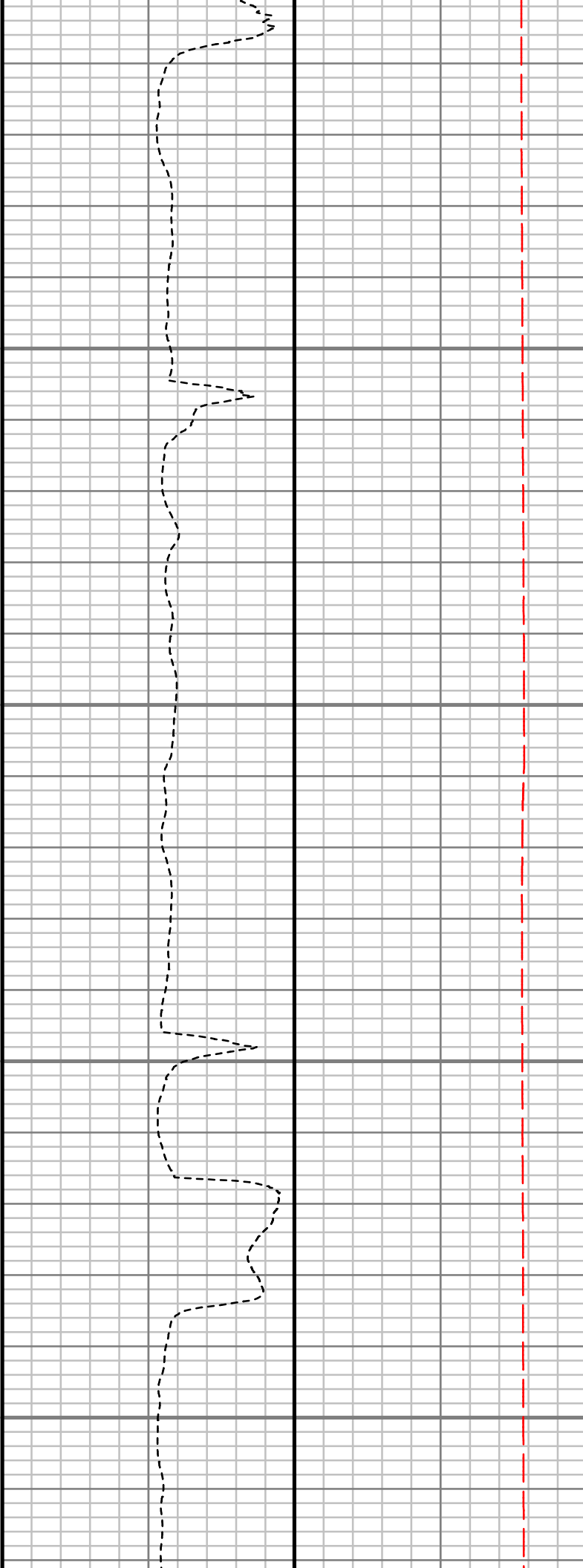
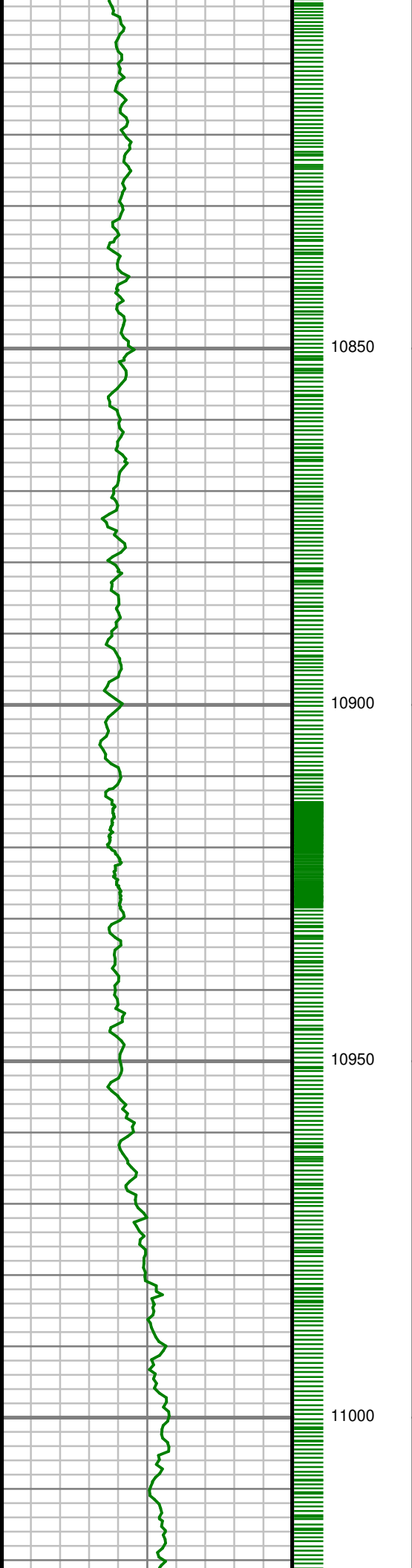
S: 99 MD: 10519.00 ft
Inc: 88.69 deg Az:
181.76 deg TVD:
7682.87 ft



S: 100 MD: 10613.00 ft
Inc: 89.30 deg Az:
181.48 deg TVD:
7684.52 ft

S: 101 MD: 10707.00 ft
Inc: 89.53 deg Az:
181.45 deg TVD:
7685.48 ft

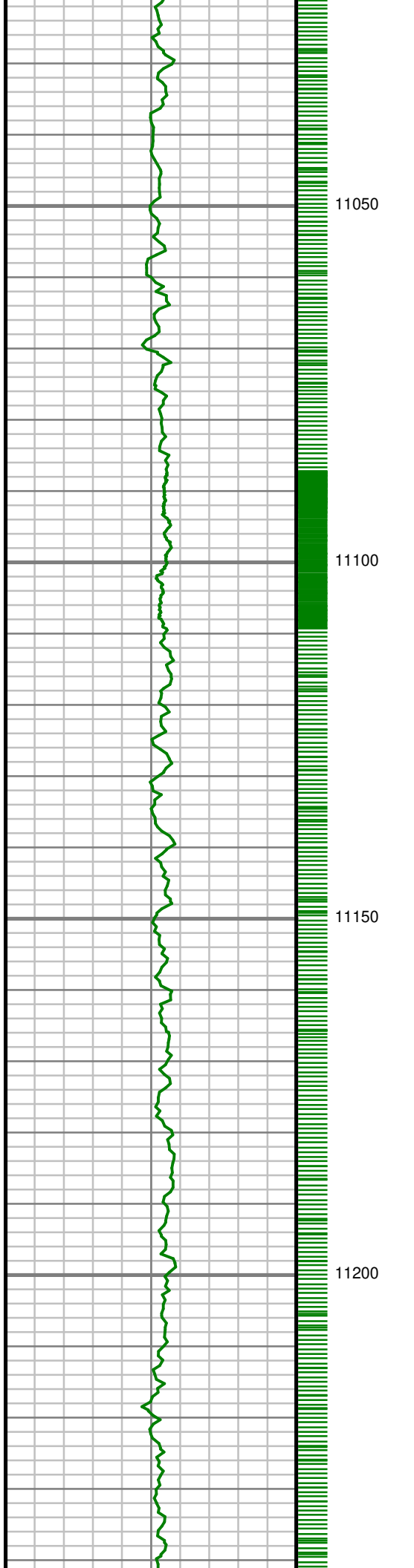
S: 102 MD: 10798.00 ft



Inc: 91.11 deg Az:
180.88 deg TVD:
7684.98 ft

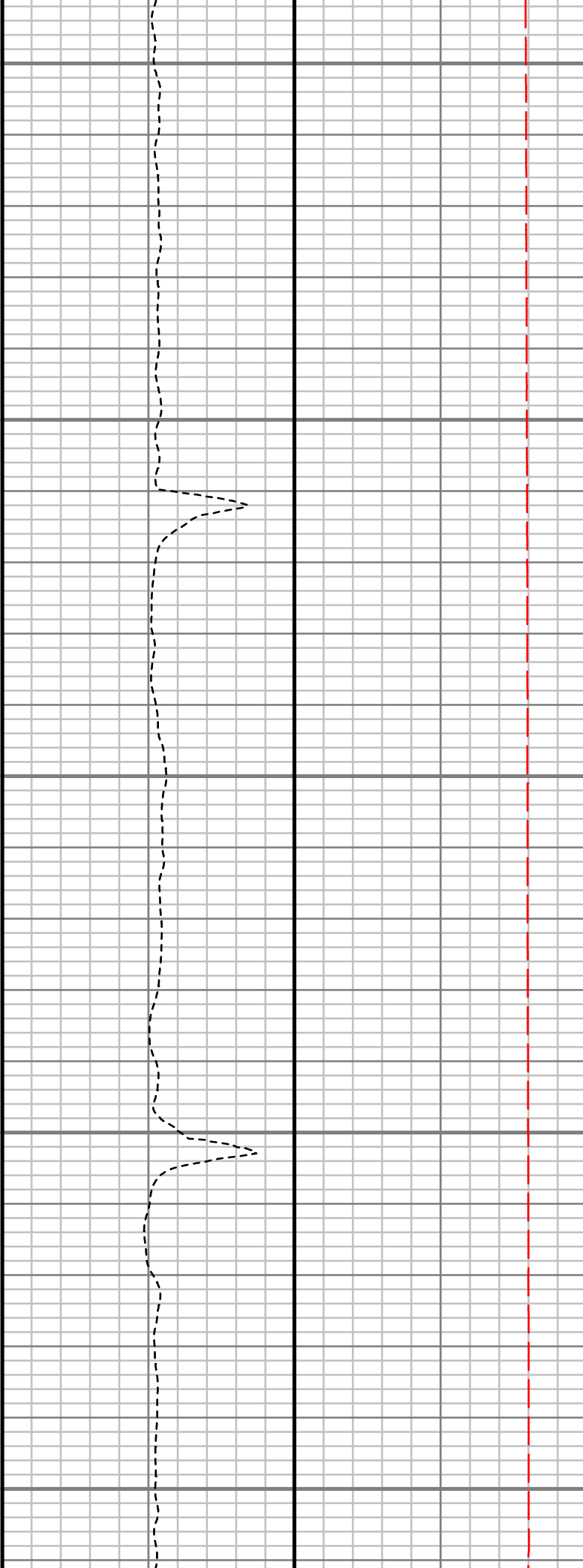
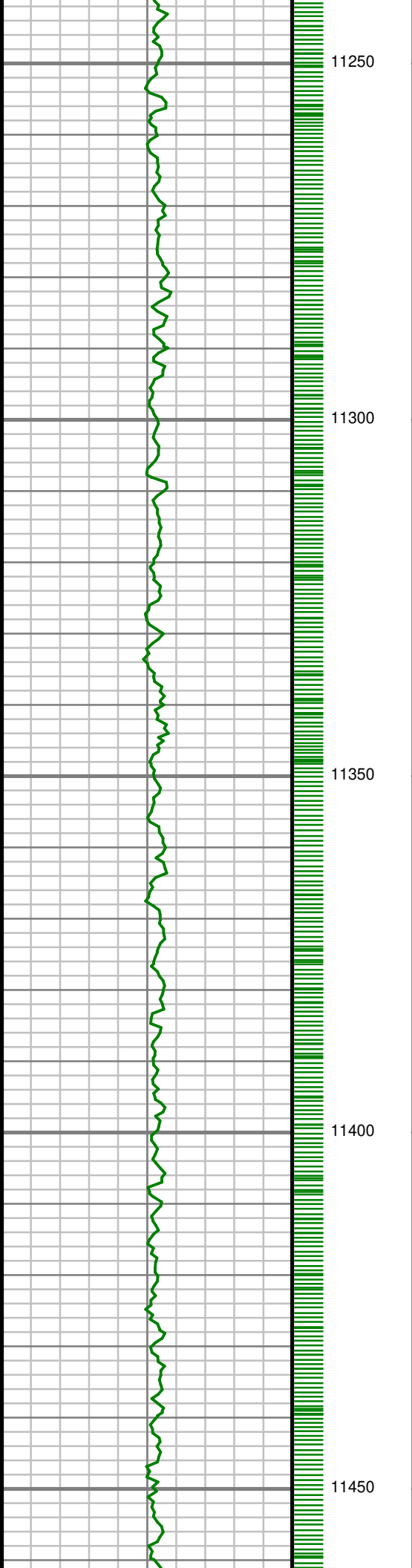
S: 103 MD: 10889.00 ft
Inc: 91.75 deg Az:
180.86 deg TVD:
7682.71 ft

S: 104 MD: 10980.00 ft
Inc: 90.77 deg Az:
181.31 deg TVD:
7680.71 ft



S: 105 MD: 11071.00 ft
Inc: 89.66 deg Az:
179.96 deg TVD:
7680.37 ft

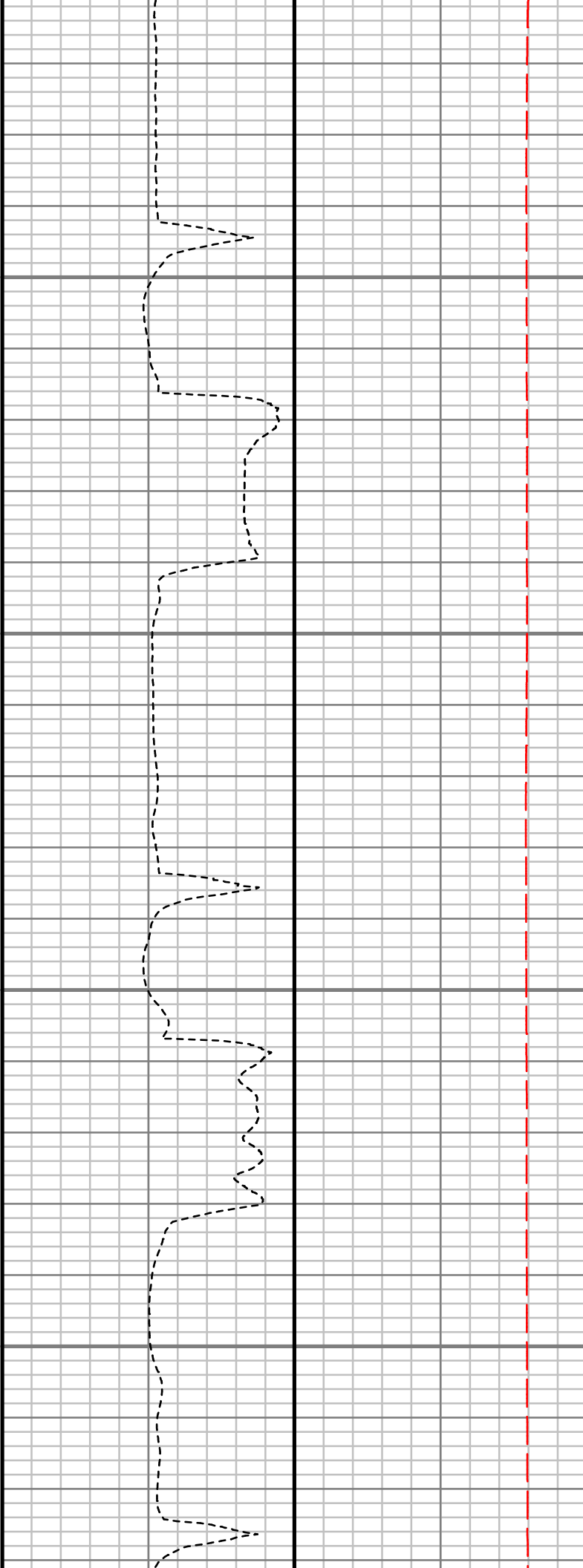
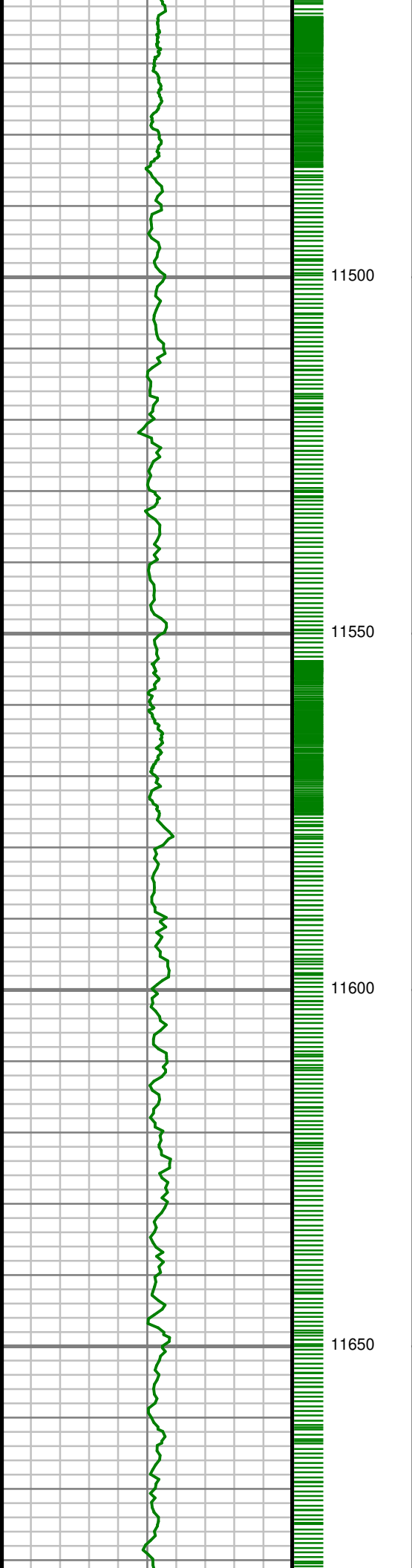
S: 106 MD: 11162.00 ft
Inc: 90.23 deg Az:
181.78 deg TVD:
7680.45 ft



S: 107 MD: 11253.00 ft
Inc: 90.07 deg Az:
182.45 deg TVD:
7680.21 ft

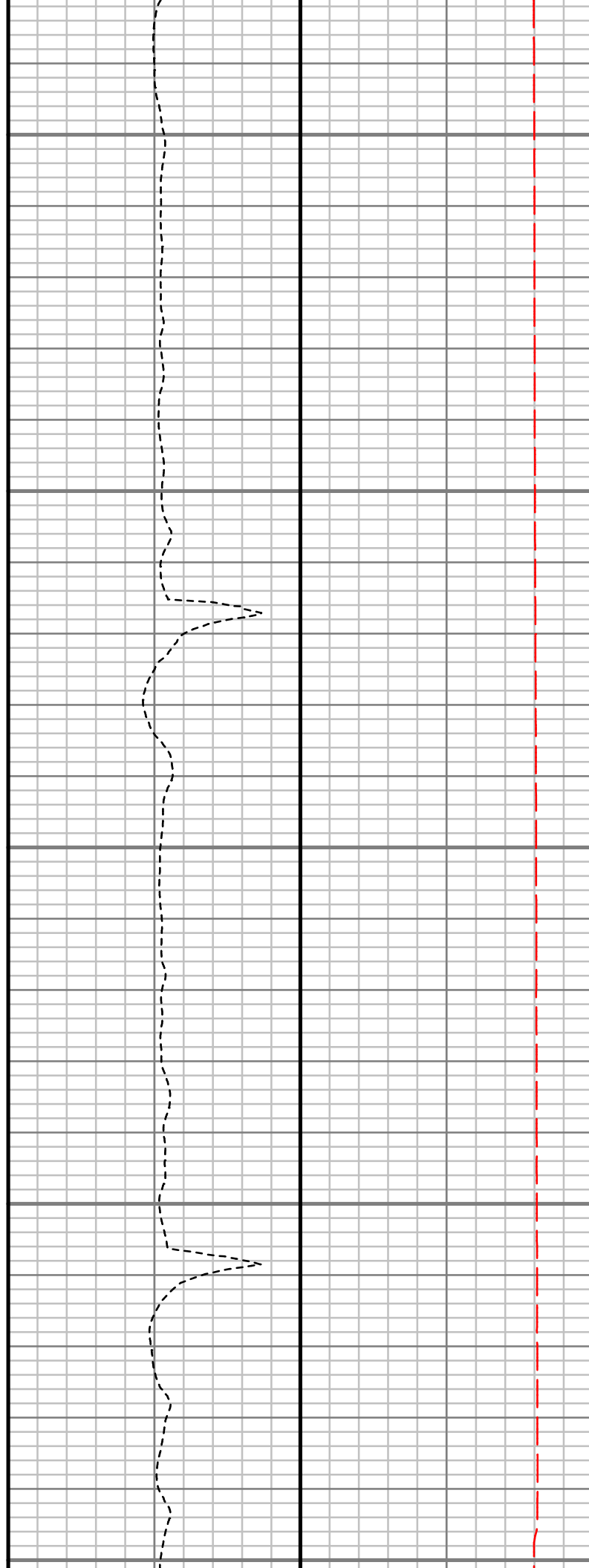
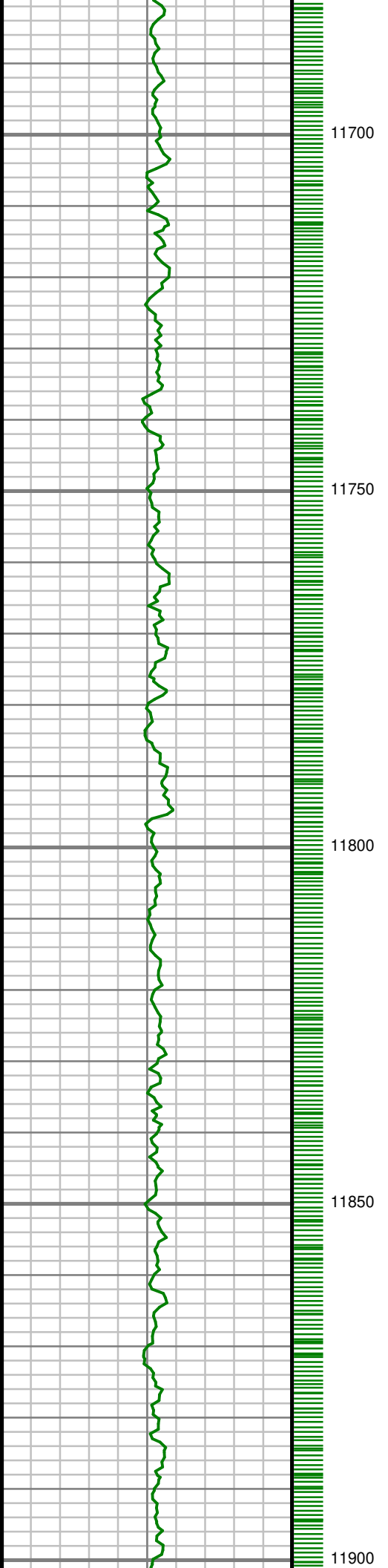
S: 108 MD: 11344.00 ft
Inc: 90.30 deg Az:
183.17 deg TVD:
7679.91 ft

S: 109 MD: 11436.00 ft
Inc: 90.34 deg Az:
184.18 deg TVD:
7679.40 ft



S: 110 MD: 11527.00 ft
Inc: 90.84 deg Az:
184.30 deg TVD:
7678.47 ft

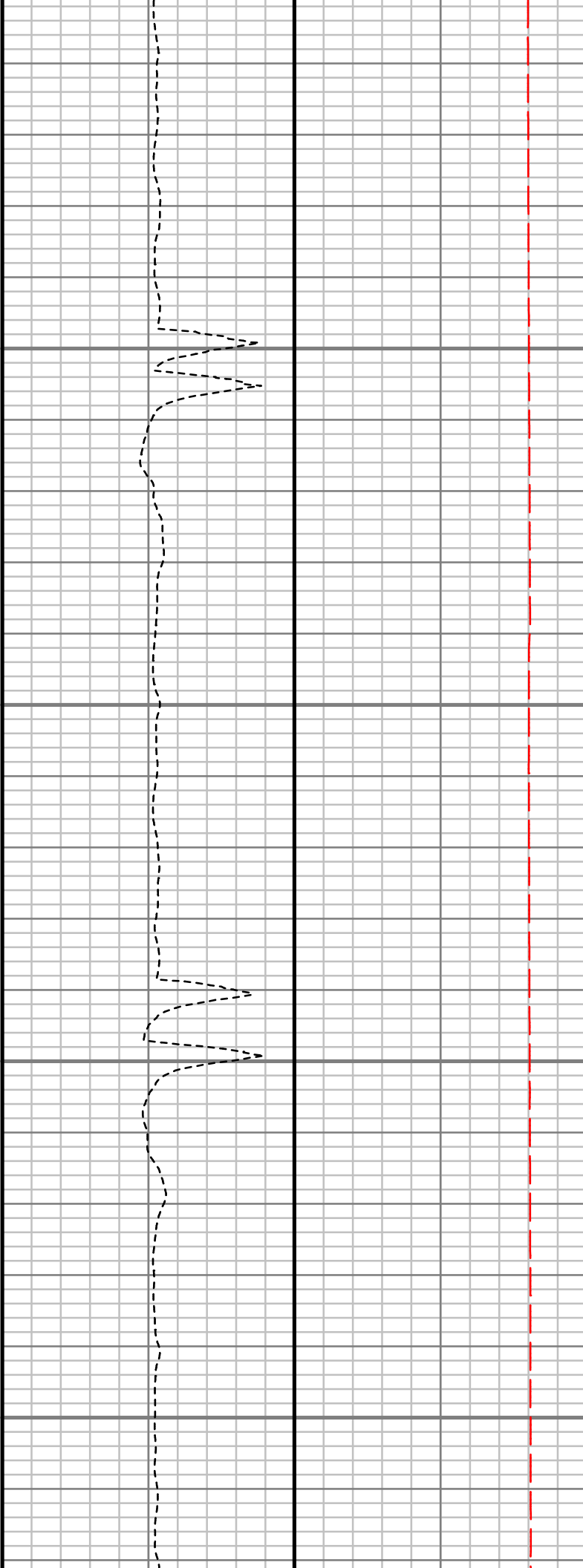
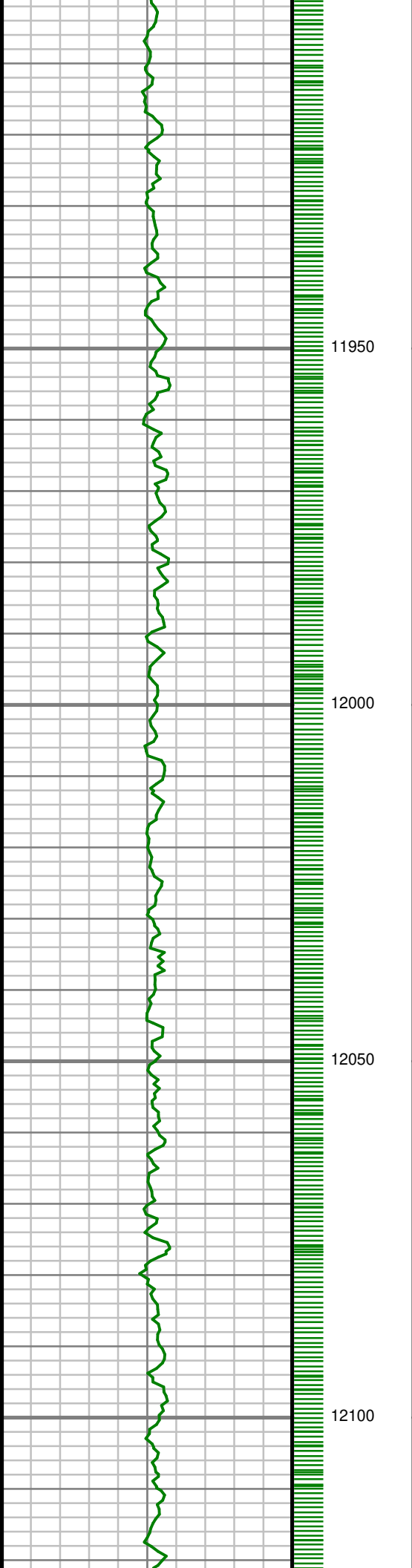
S: 111 MD: 11618.00 ft
Inc: 90.64 deg Az:
181.67 deg TVD:
7677.30 ft



S: 112 MD: 11709.00 ft
Inc: 90.50 deg Az:
179.31 deg TVD:
7676.39 ft

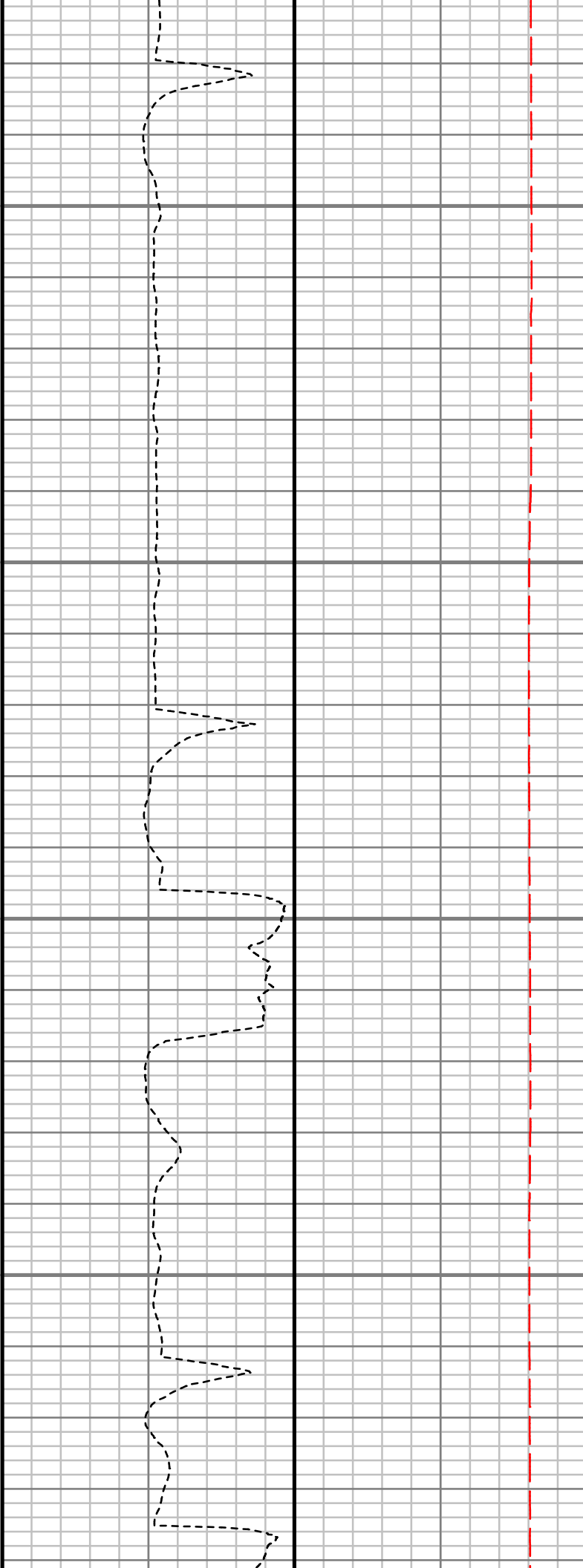
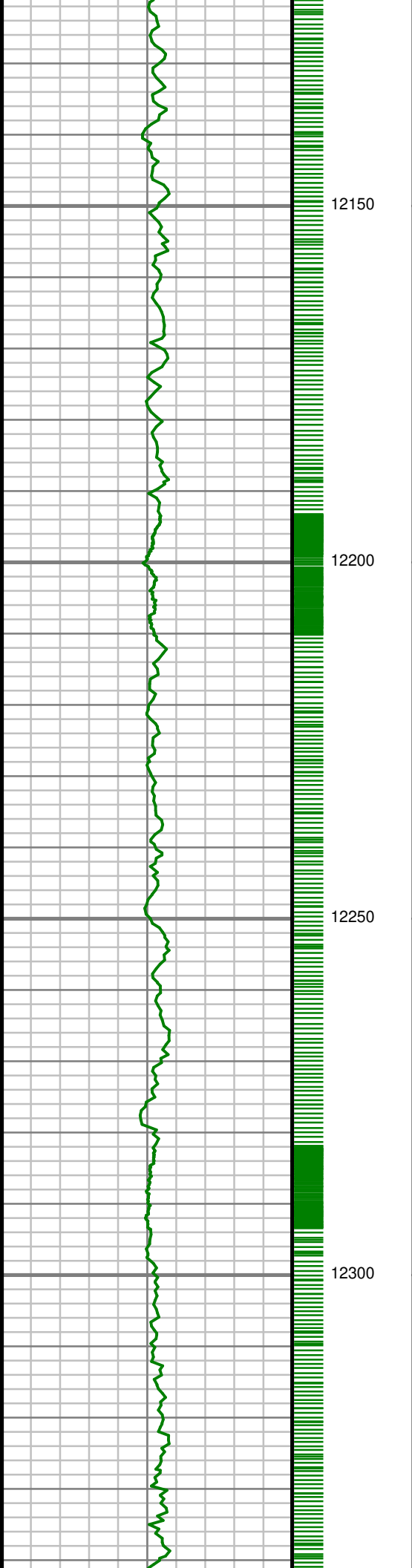
S: 113 MD: 11800.00 ft
Inc: 90.47 deg Az:
179.89 deg TVD:
7675.62 ft

S: 114 MD: 11890.00 ft
Inc: 90.37 deg Az:
180.25 deg TVD:
7674.96 ft



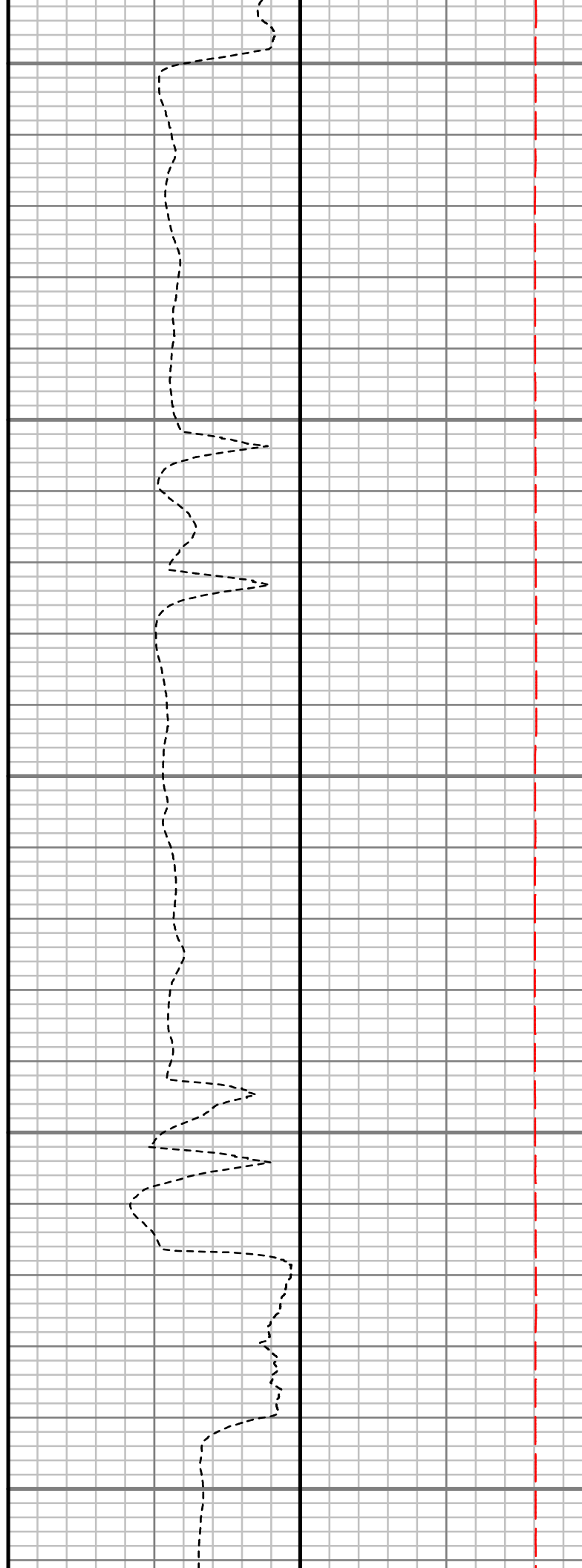
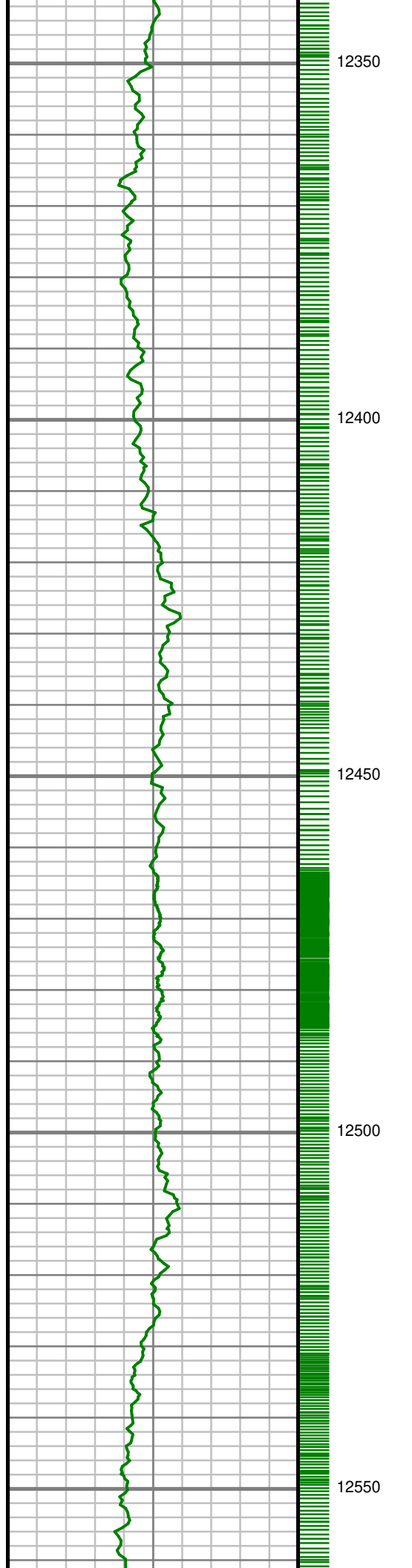
S: 115 MD: 11982.00 ft
Inc: 90.37 deg Az:
181.38 deg TVD:
7674.37 ft

S: 116 MD: 12073.00 ft
Inc: 90.44 deg Az:
181.74 deg TVD:
7673.73 ft



S: 117 MD: 12164.00 ft
Inc: 90.40 deg Az:
183.06 deg TVD:
7673.07 ft

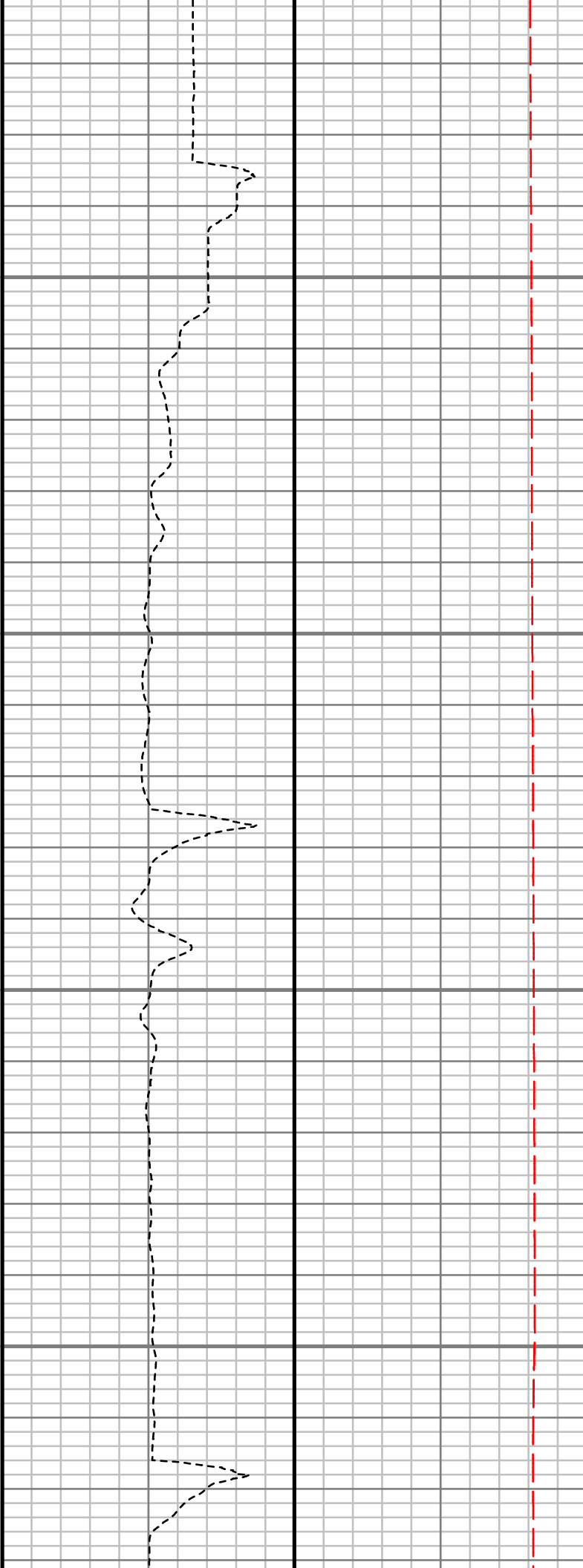
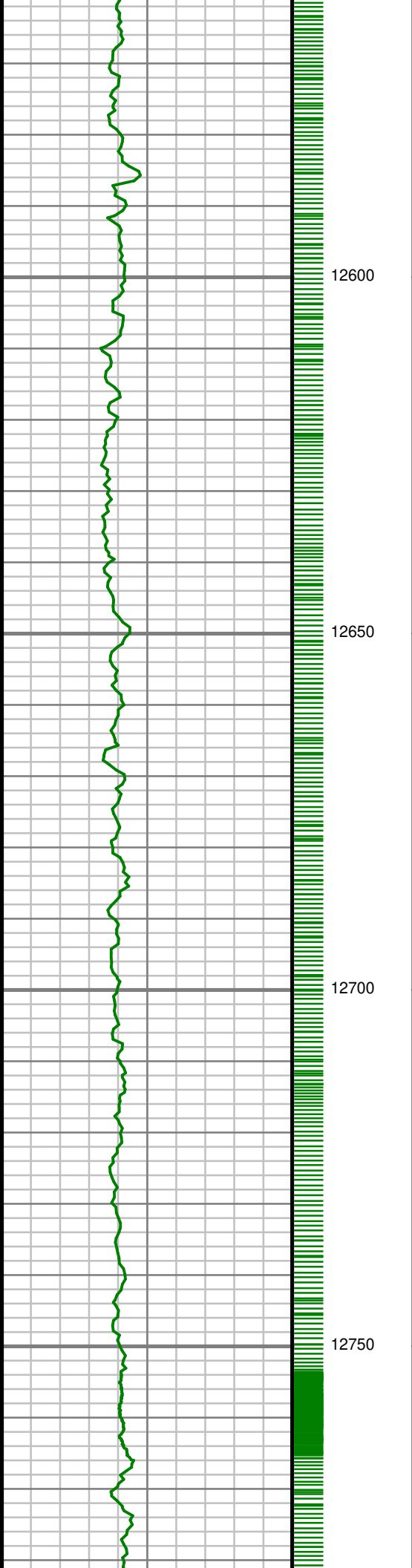
S: 118 MD: 12255.00 ft
Inc: 90.91 deg Az:
182.79 deg TVD:
7672.03 ft



S: 119 MD: 12346.00 ft
Inc: 90.13 deg Az:
181.15 deg TVD:
7671.20 ft

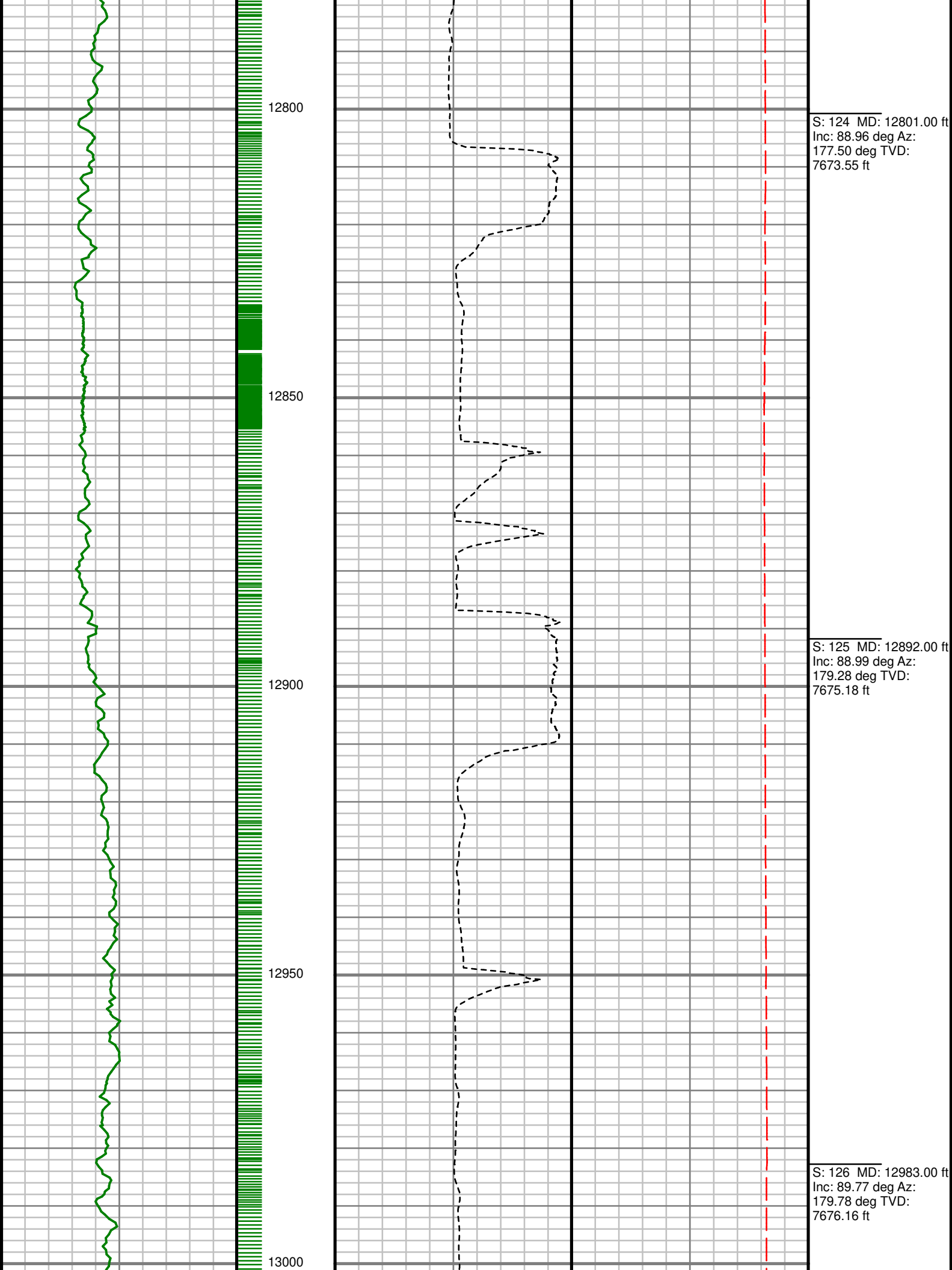
S: 120 MD: 12436.00 ft
Inc: 91.74 deg Az:
182.52 deg TVD:
7669.73 ft

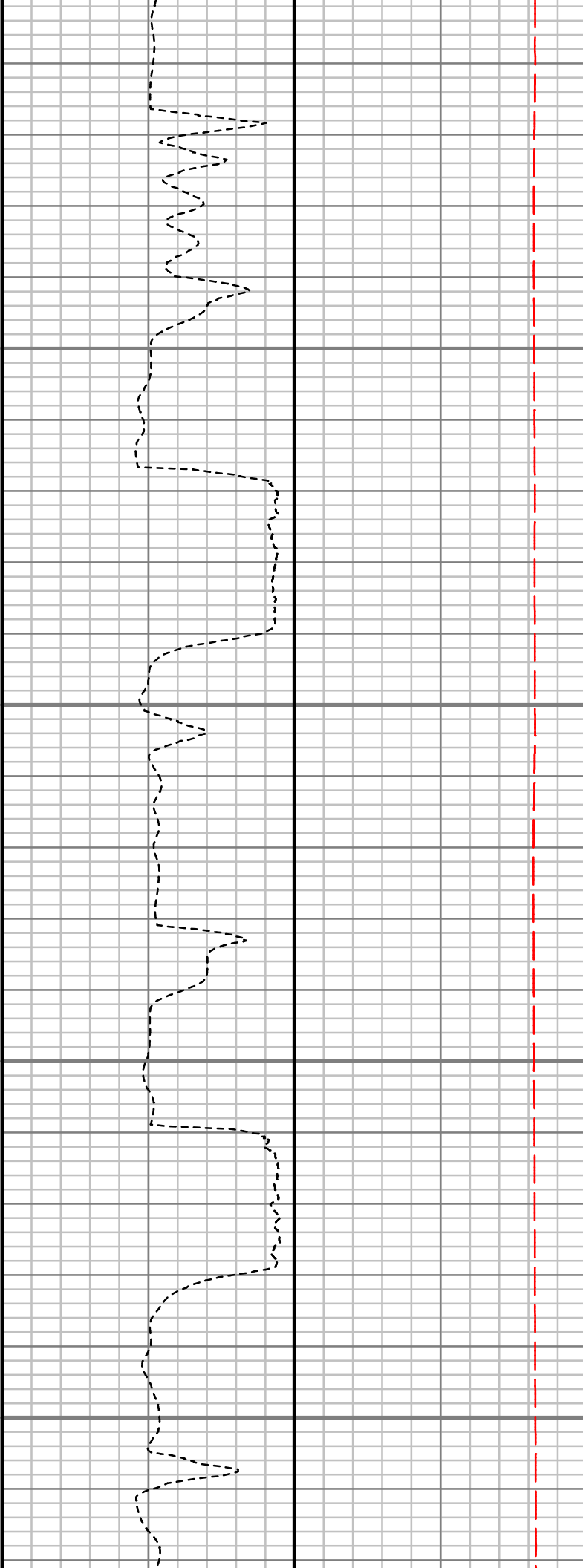
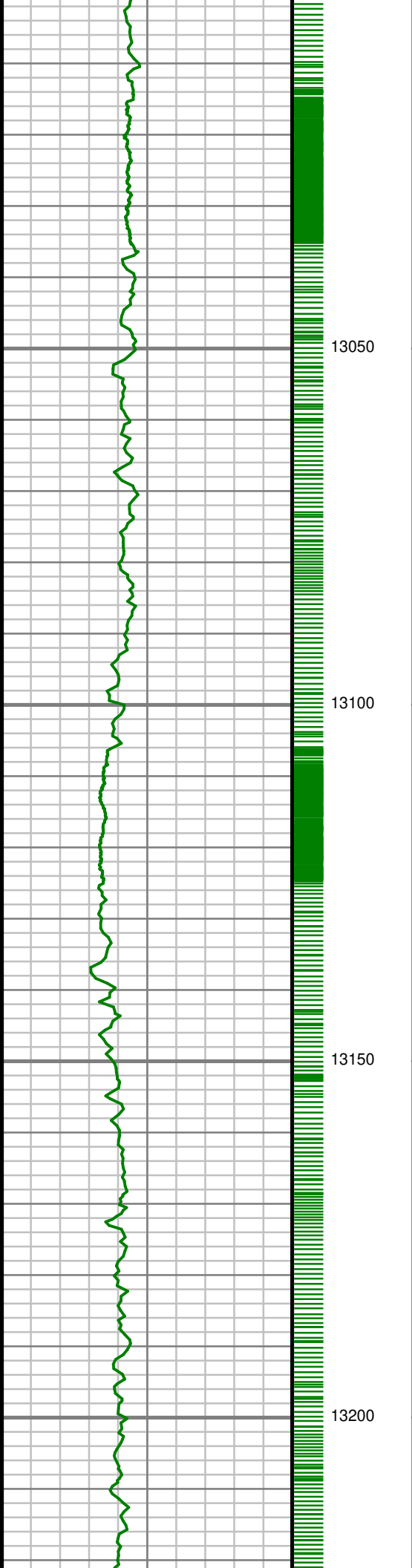
S: 121 MD: 12527.00 ft
Inc: 88.86 deg Az:
178.31 deg TVD:
7669.25 ft



S: 122 MD: 12618.00 ft
Inc: 89.16 deg Az:
177.58 deg TVD:
7670.82 ft

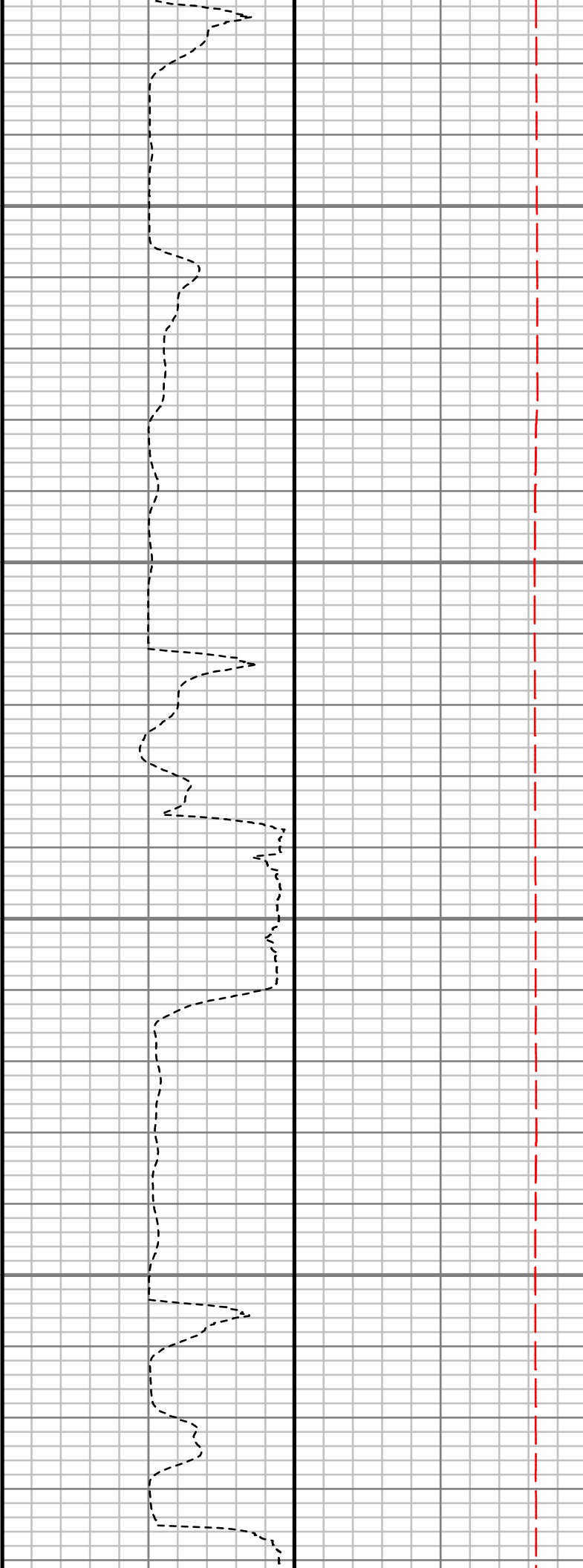
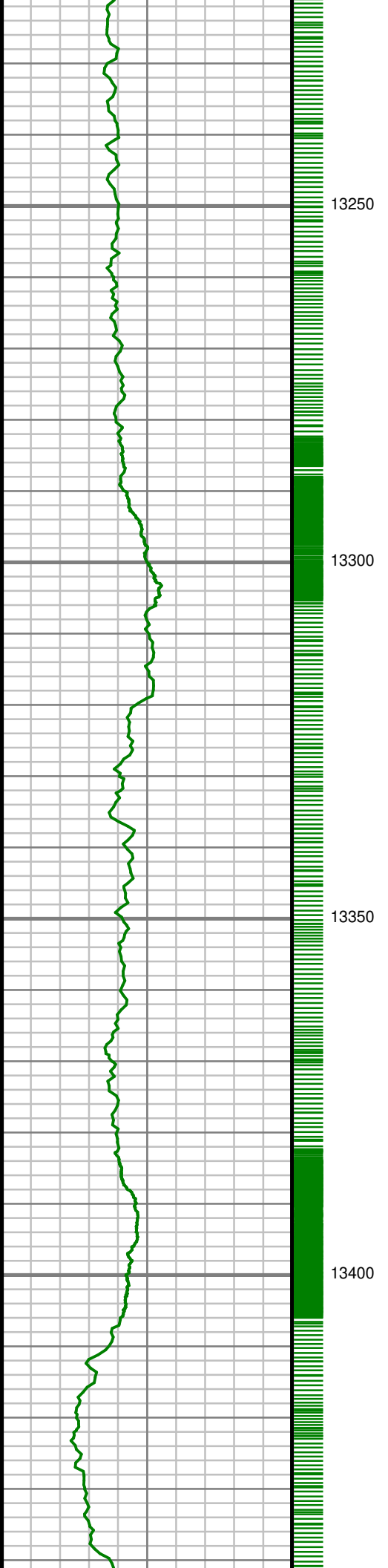
S: 123 MD: 12709.00 ft
Inc: 89.23 deg Az:
177.64 deg TVD:
7672.10 ft





S: 127 MD: 13074.00 ft
Inc: 90.13 deg Az:
179.50 deg TVD:
7676.24 ft

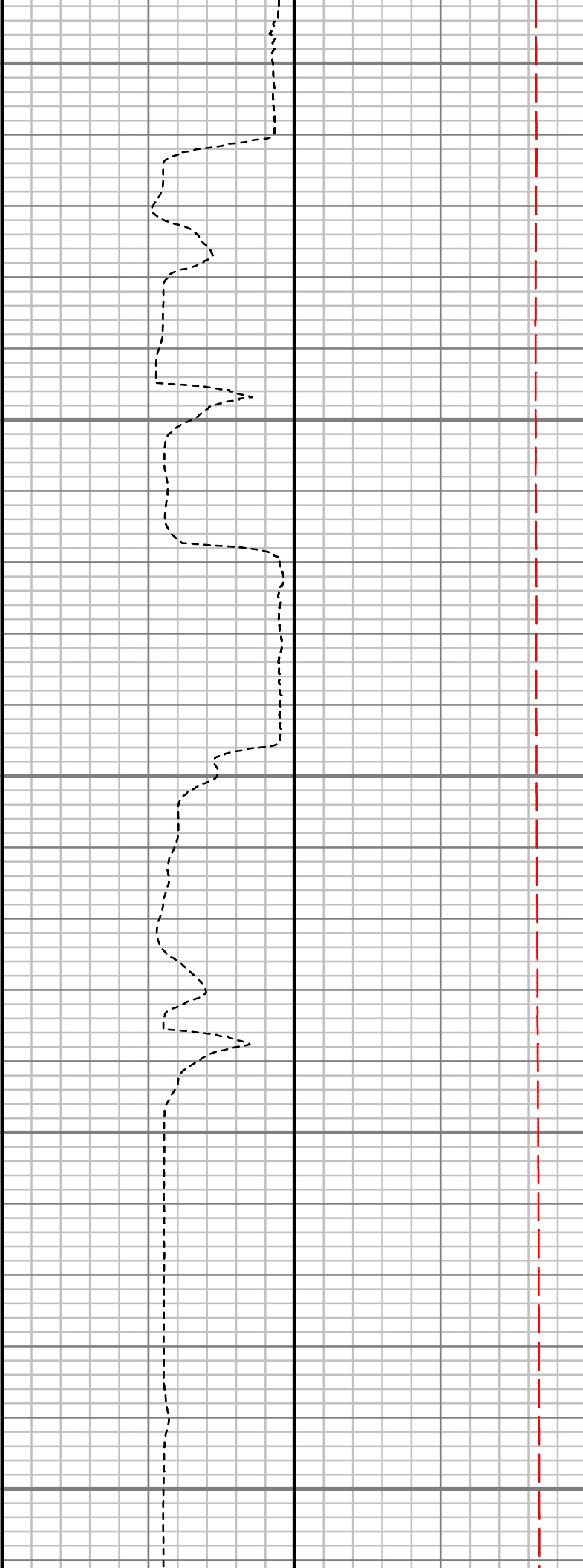
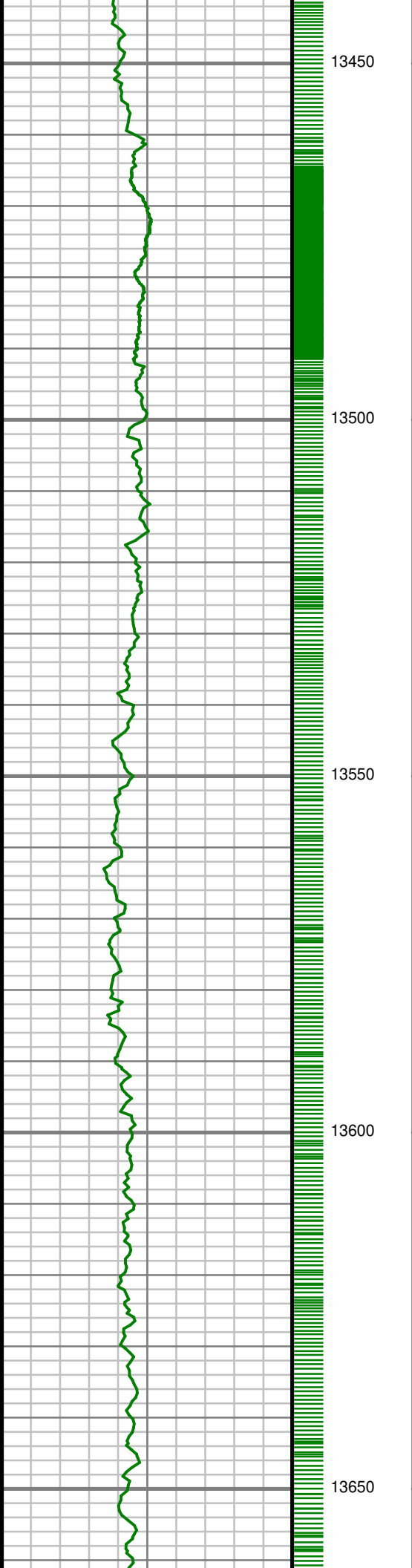
S: 128 MD: 13165.00 ft
Inc: 91.01 deg Az:
180.30 deg TVD:
7675.33 ft



S: 129 MD: 13255.00 ft
Inc: 91.64 deg Az:
180.18 deg TVD:
7673.25 ft

S: 130 MD: 13346.00 ft
Inc: 92.11 deg Az:
181.26 deg TVD:
7670.27 ft

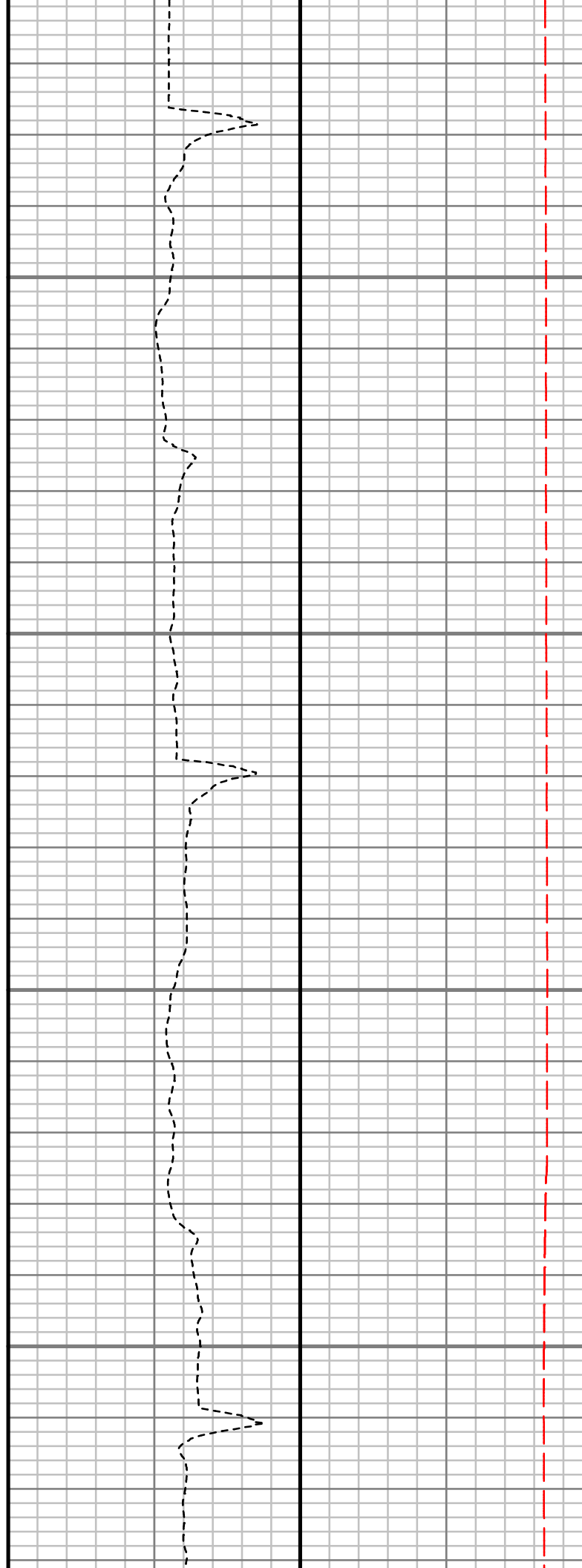
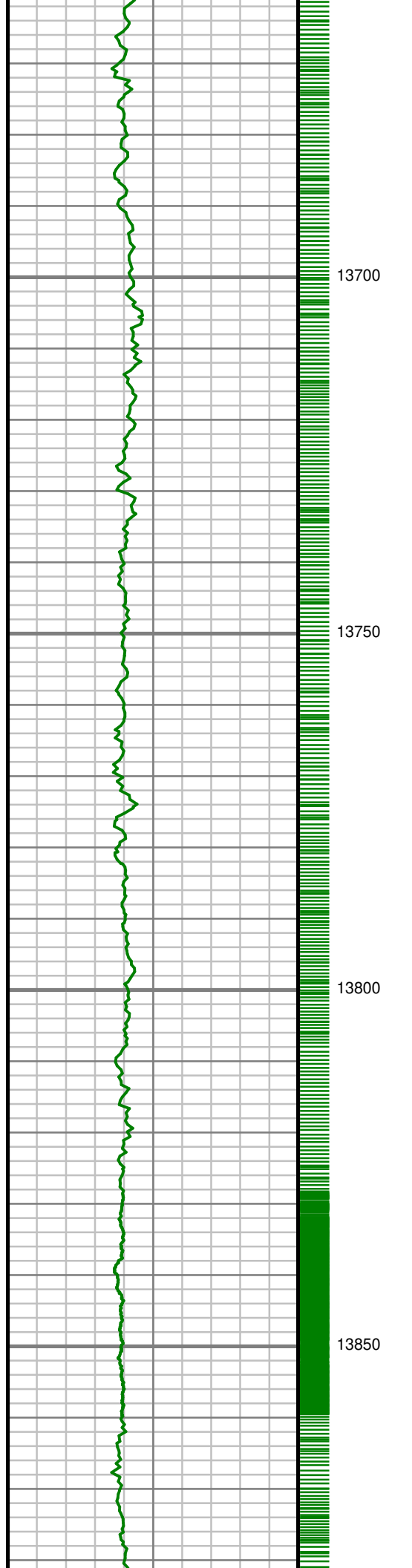
S: 131 MD: 13437.00 ft
Inc: 91.51 deg Az:



181.16 deg TVD:
7667.40 ft

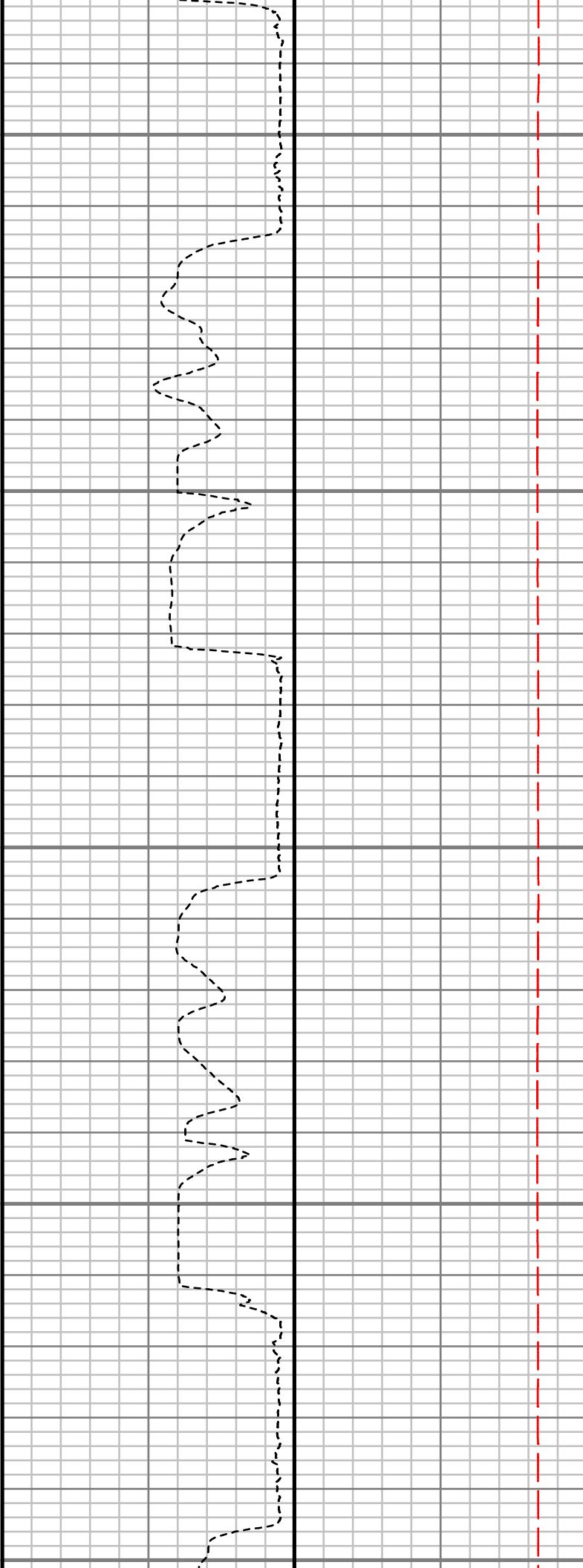
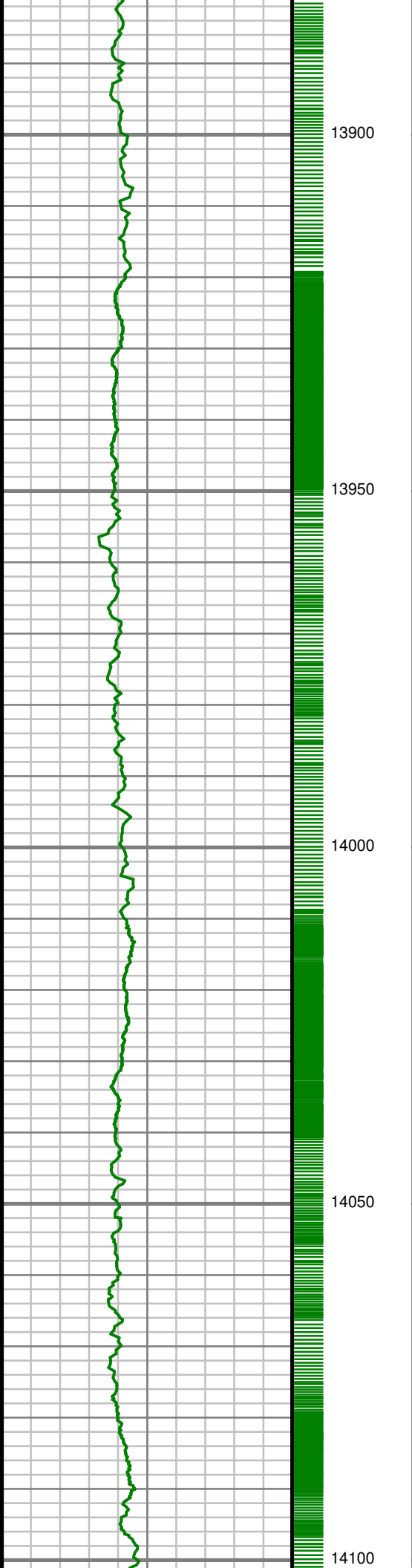
S: 132 MD: 13528.00 ft
Inc: 90.47 deg Az:
184.58 deg TVD:
7665.83 ft

S: 133 MD: 13619.00 ft
Inc: 90.07 deg Az:
184.41 deg TVD:
7665.40 ft



S: 134 MD: 13710.00 ft
Inc: 90.60 deg Az:
183.70 deg TVD:
7664.87 ft

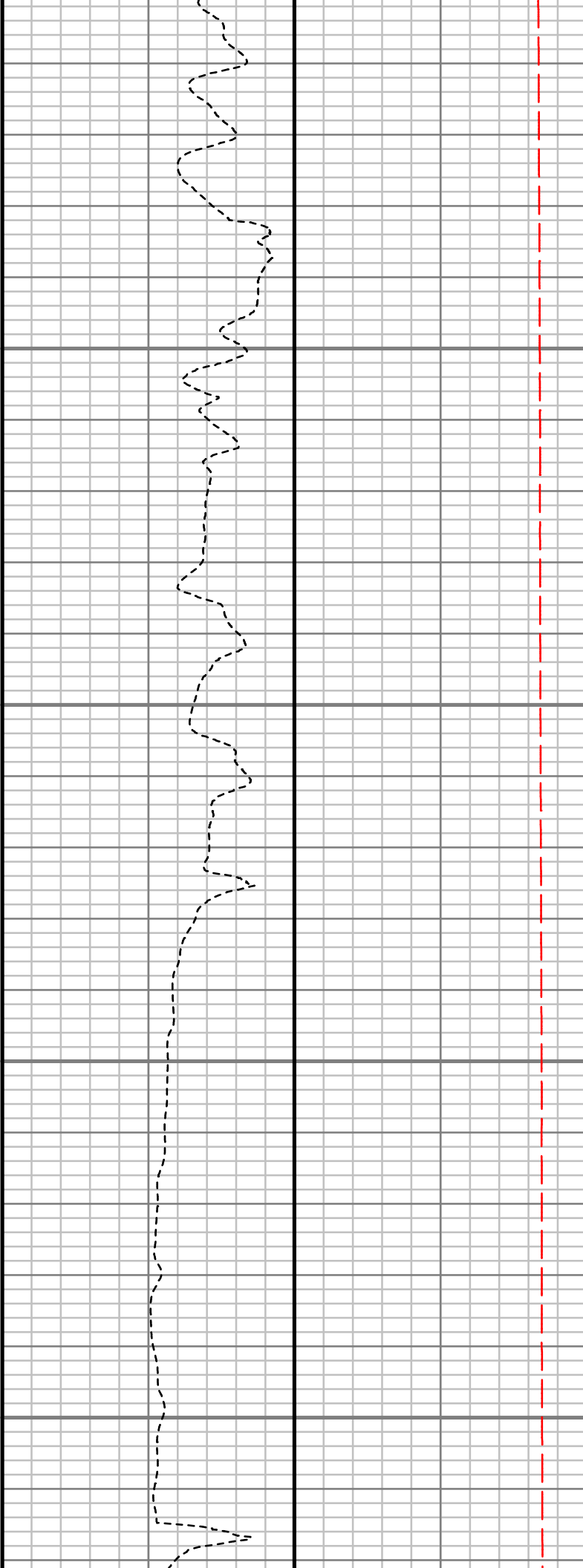
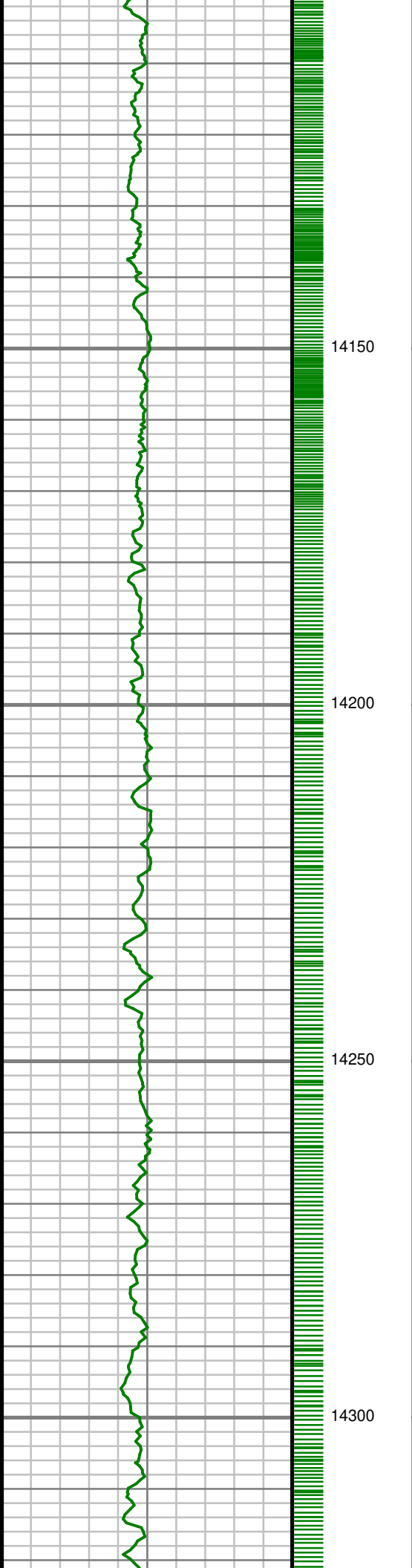
S: 135 MD: 13801.00 ft
Inc: 90.80 deg Az:
180.80 deg TVD:
7663.75 ft



S: 136 MD: 13893.00 ft
Inc: 90.20 deg Az:
180.30 deg TVD:
7662.94 ft

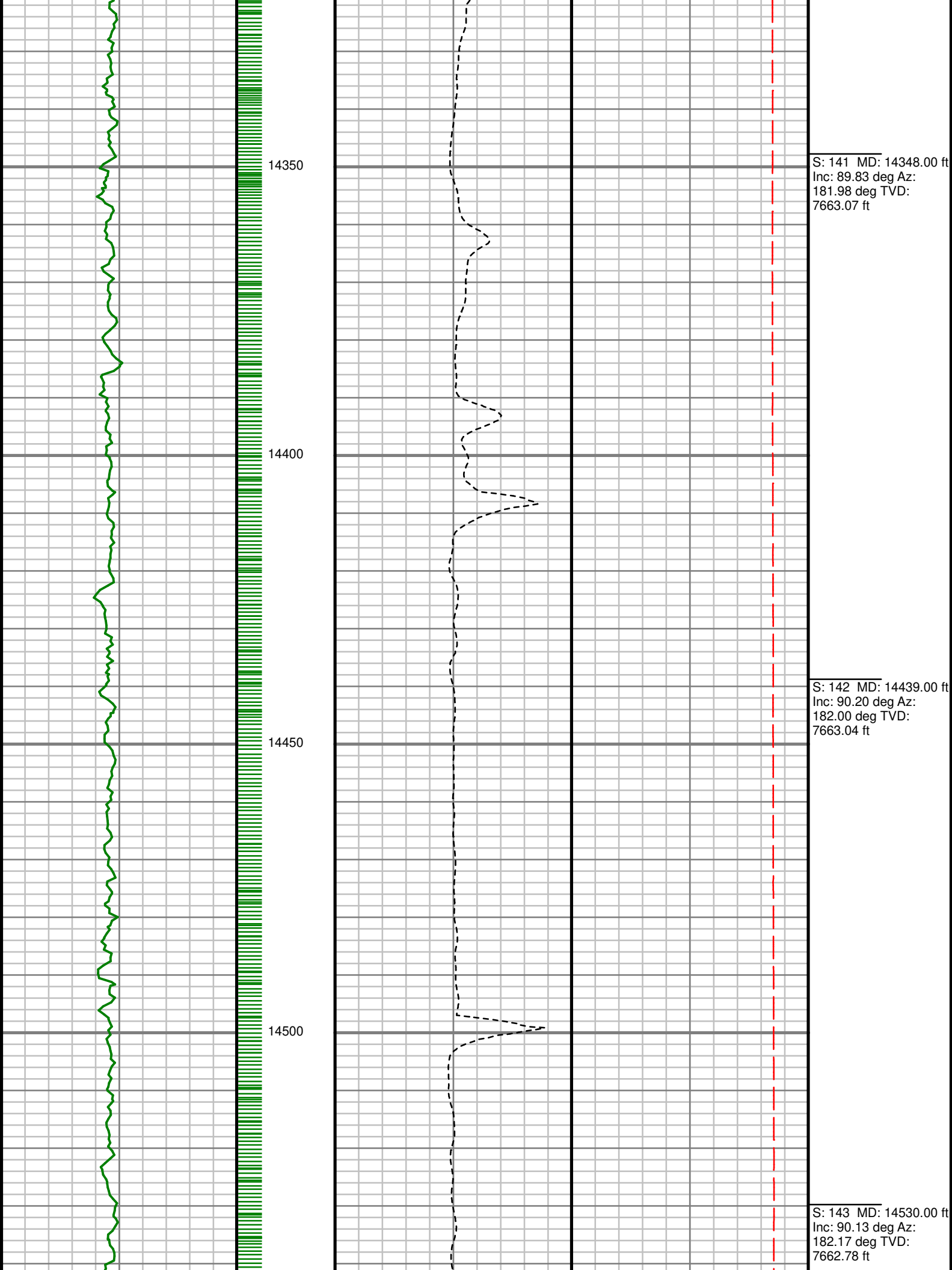
S: 137 MD: 13984.00 ft
Inc: 89.97 deg Az:
181.12 deg TVD:
7662.81 ft

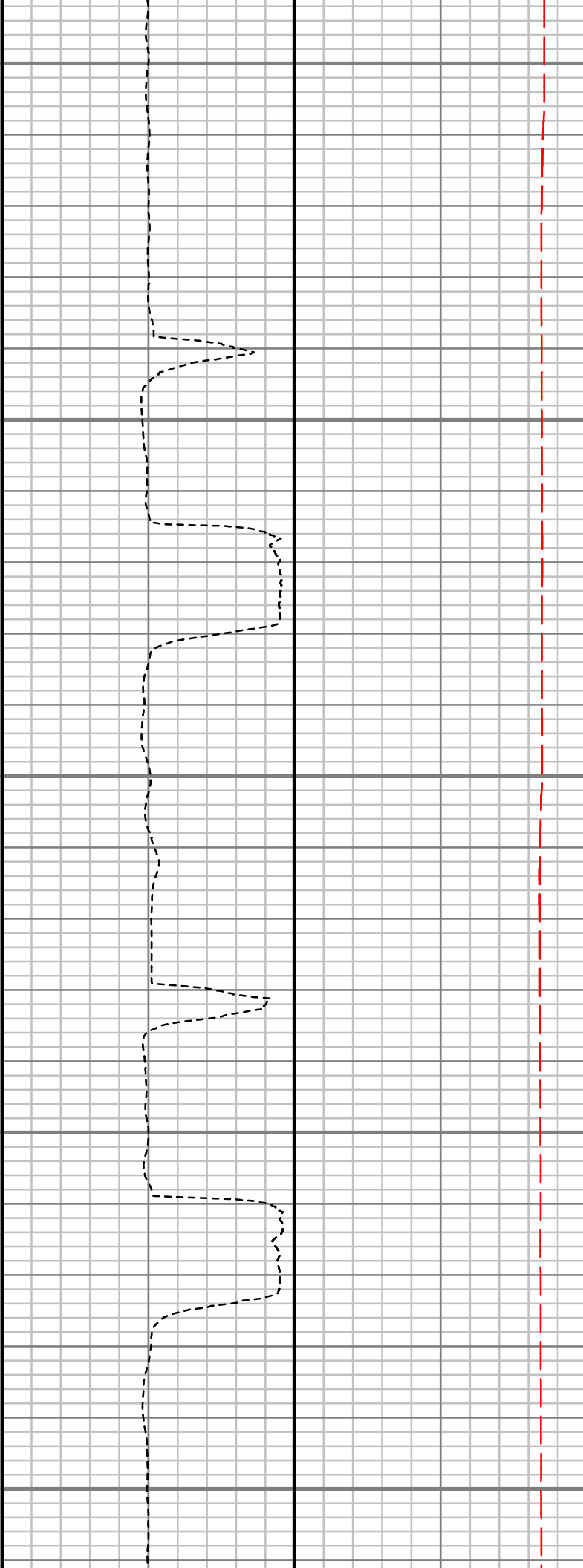
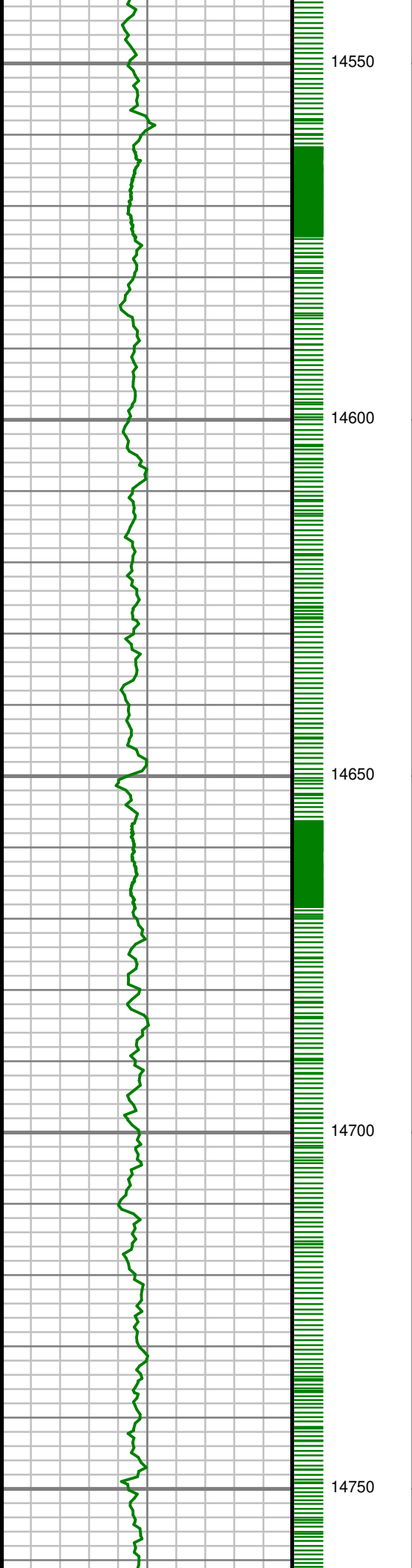
S: 138 MD: 14074.00 ft
Inc: 89.56 deg Az:
183.41 deg TVD:
7663.18 ft



S: 139 MD: 14166.00 ft
Inc: 90.77 deg Az:
185.54 deg TVD:
7662.91 ft

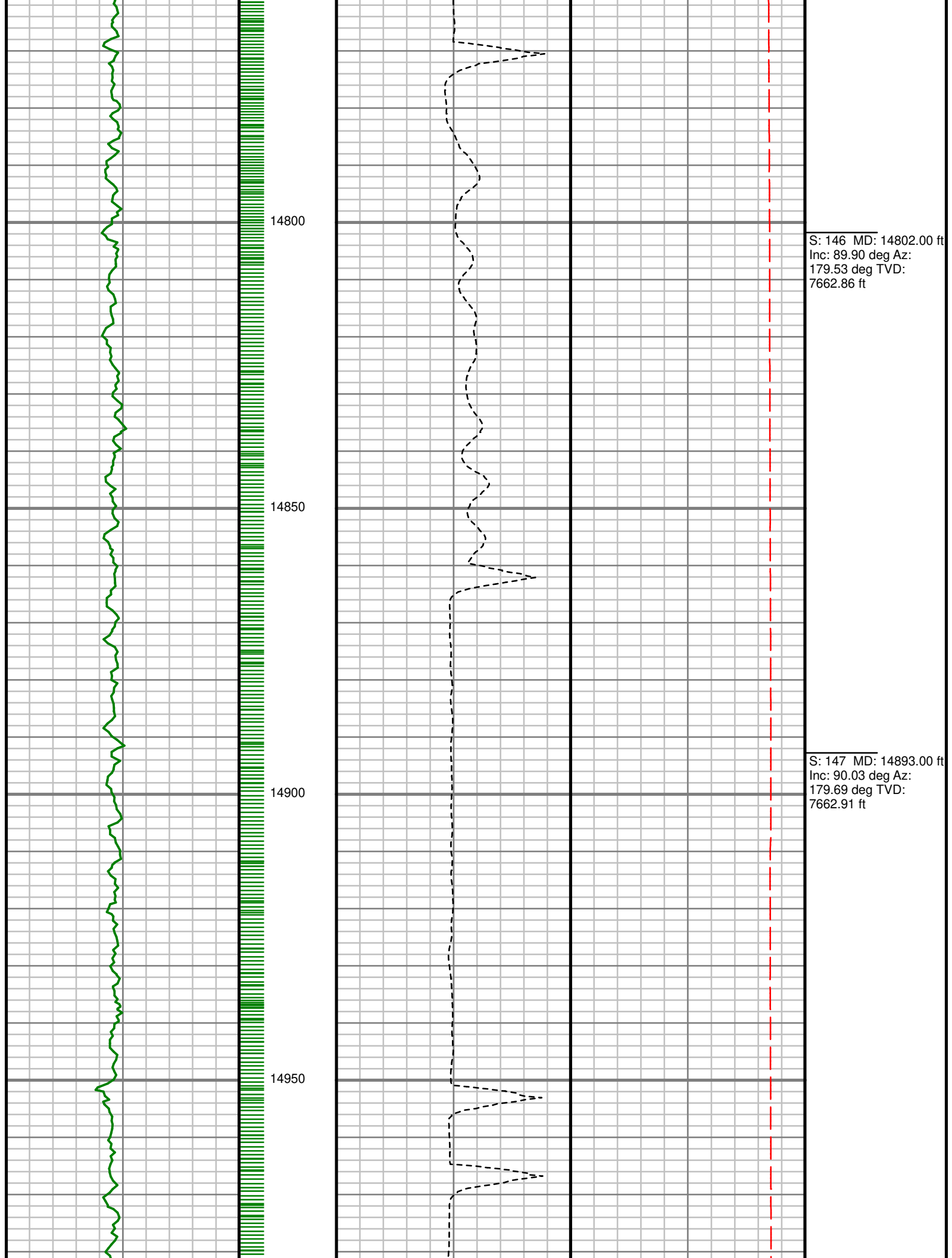
S: 140 MD: 14257.00 ft
Inc: 89.60 deg Az:
182.60 deg TVD:
7662.62 ft

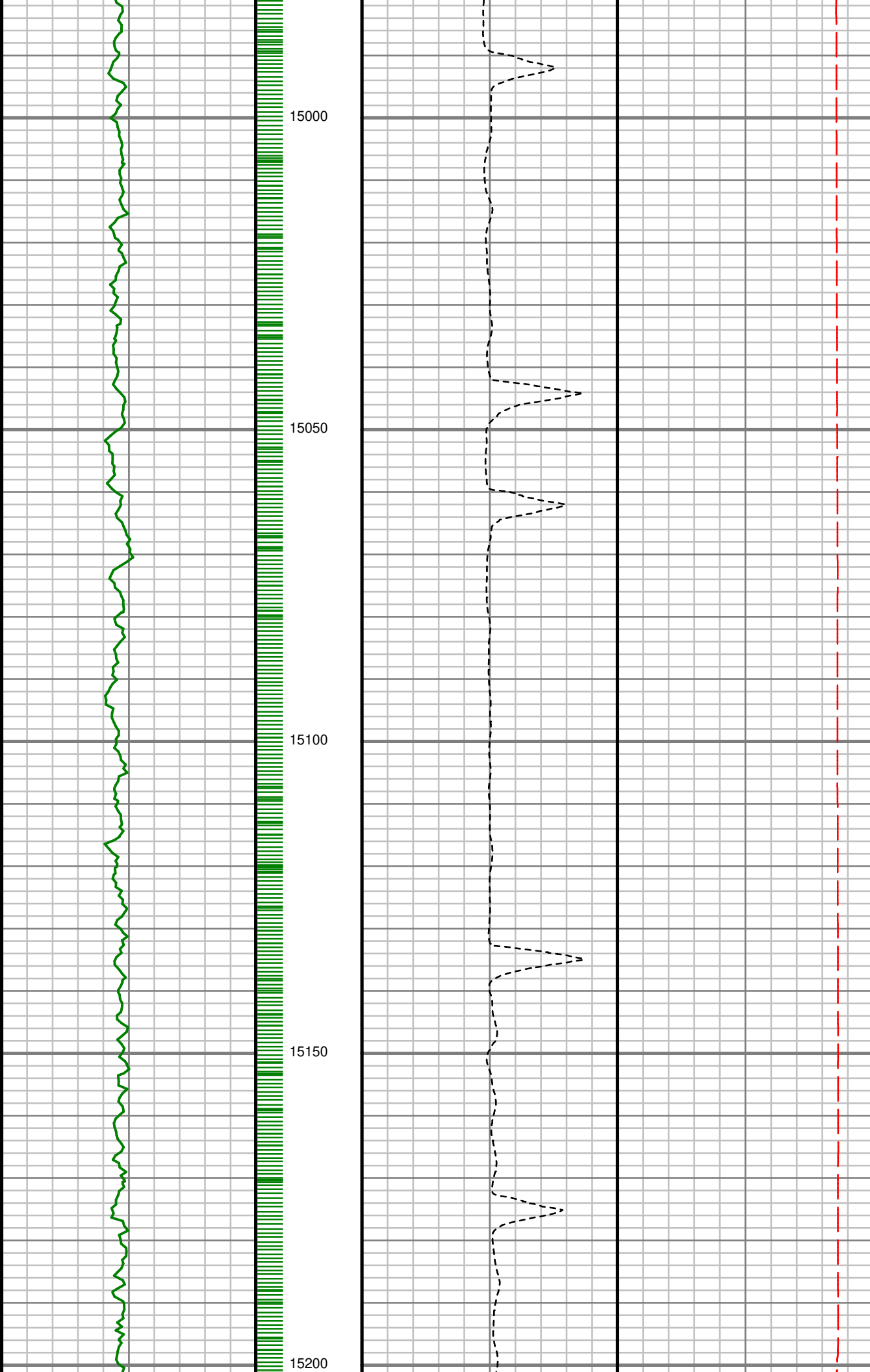




S: 144 MD: 14620.00 ft
Inc: 89.97 deg Az:
181.50 deg TVD:
7662.70 ft

S: 145 MD: 14711.00 ft
Inc: 89.97 deg Az:
180.16 deg TVD:
7662.75 ft

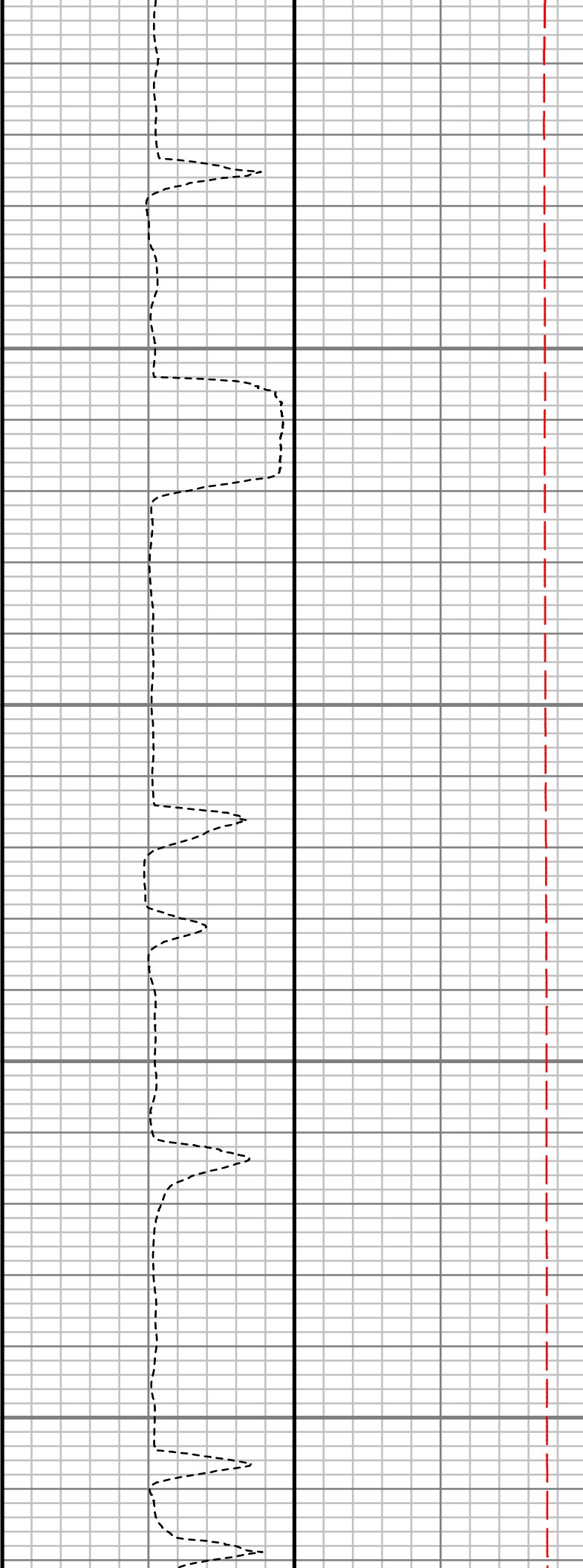
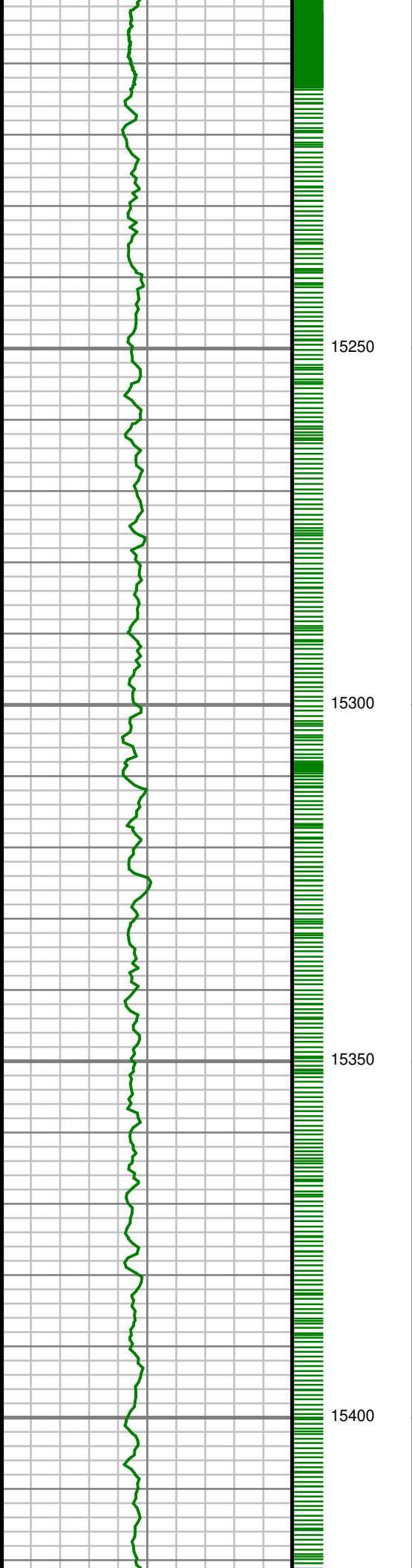




S: 148 MD: 14984.00 ft
Inc: 89.93 deg Az:
179.22 deg TVD:
7662.94 ft

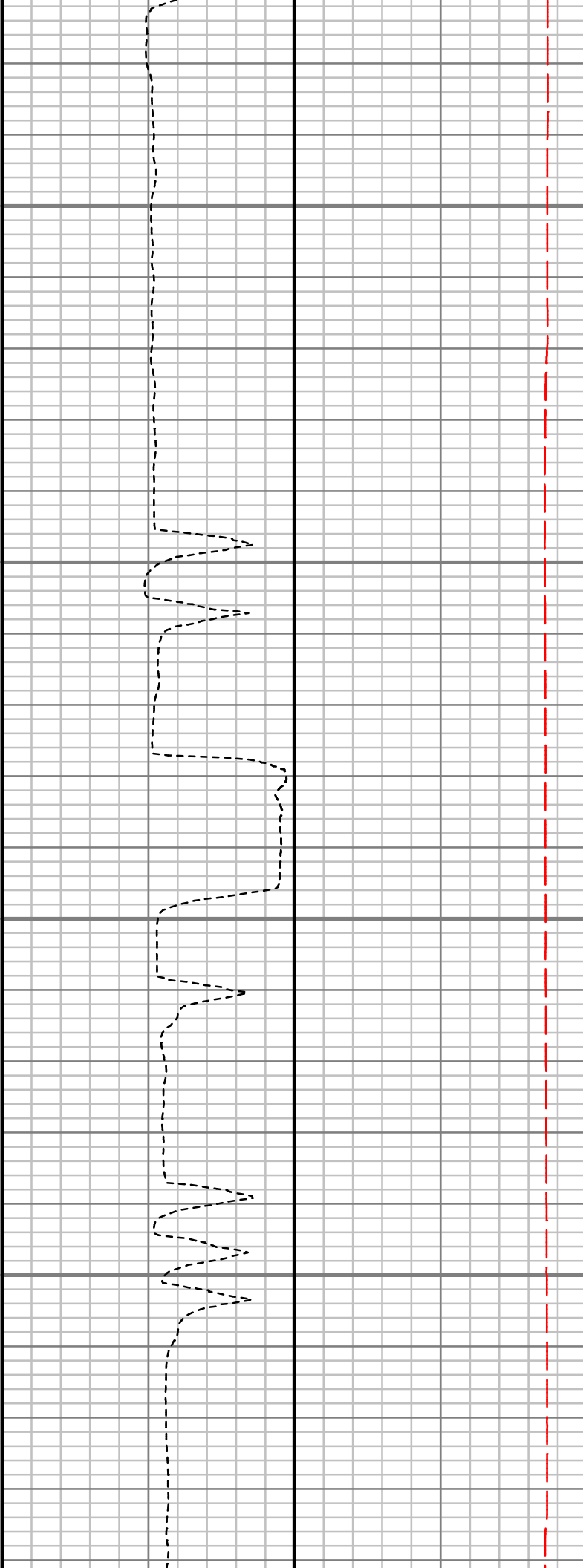
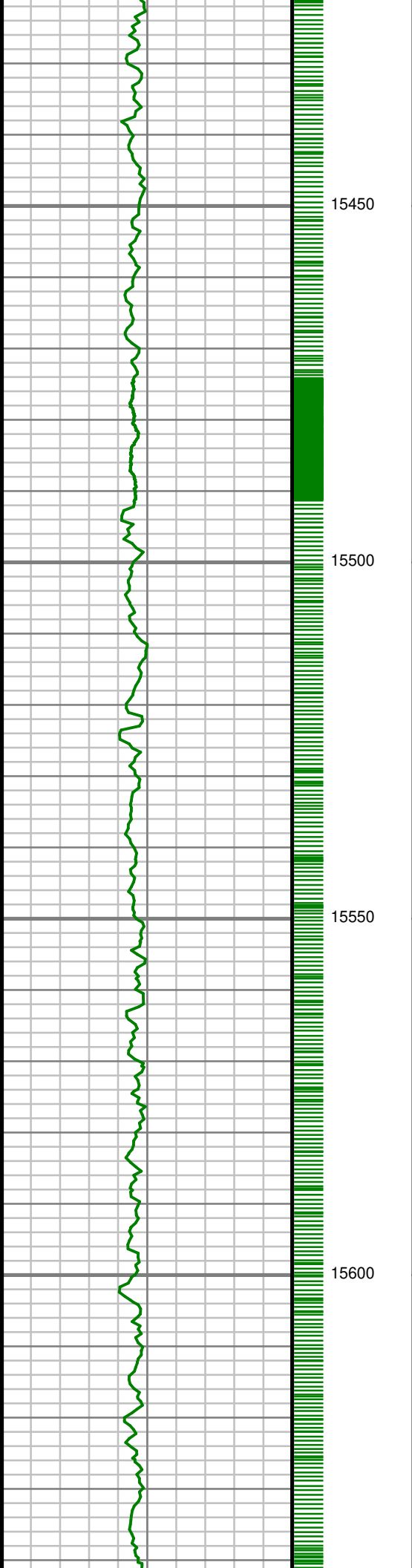
S: 149 MD: 15074.00 ft
Inc: 90.07 deg Az:
179.74 deg TVD:
7662.94 ft

S: 150 MD: 15164.00 ft
Inc: 90.03 deg Az:
179.50 deg TVD:
7662.86 ft



S: 151 MD: 15255.00 ft
Inc: 90.00 deg Az:
179.48 deg TVD:
7662.83 ft

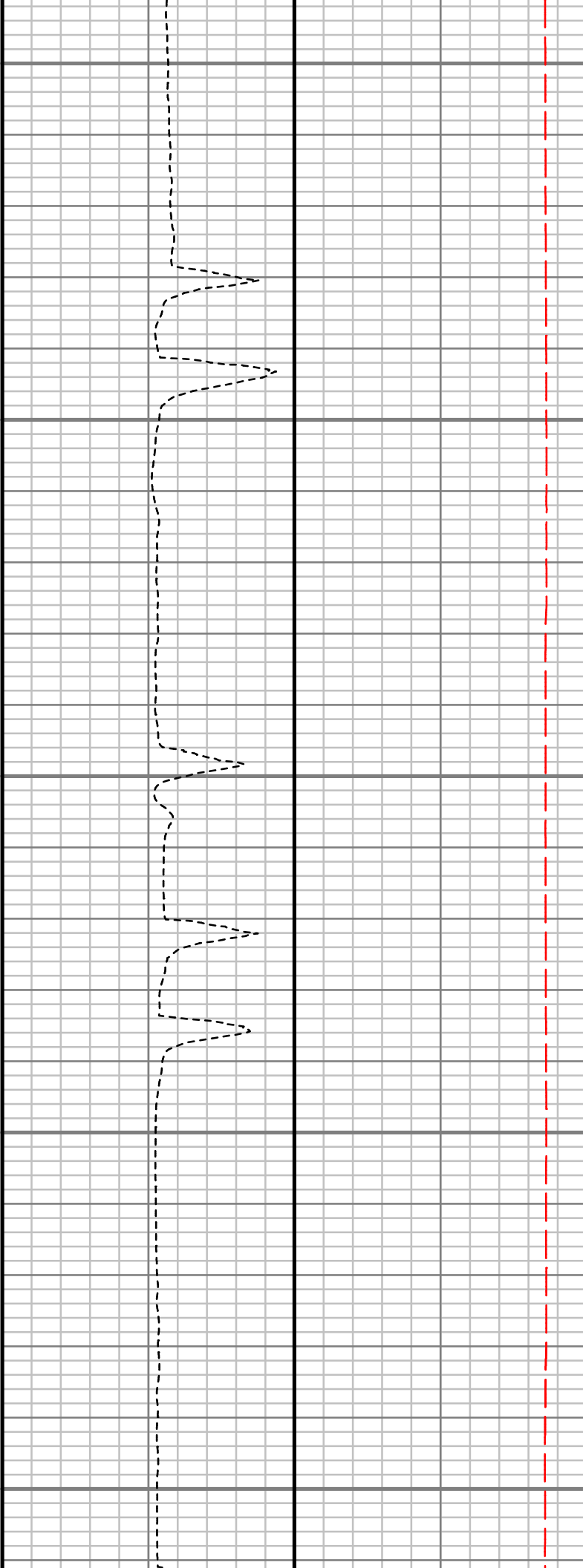
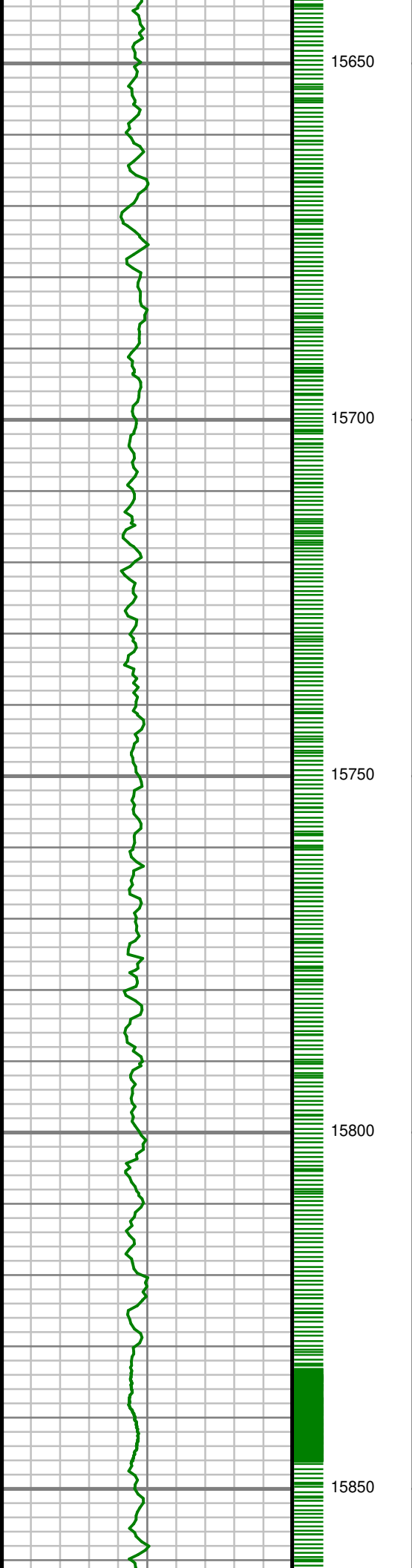
S: 152 MD: 15345.00 ft
Inc: 90.10 deg Az:
181.00 deg TVD:
7662.75 ft



S: 153 MD: 15435.00 ft
Inc: 89.66 deg Az:
179.95 deg TVD:
7662.94 ft

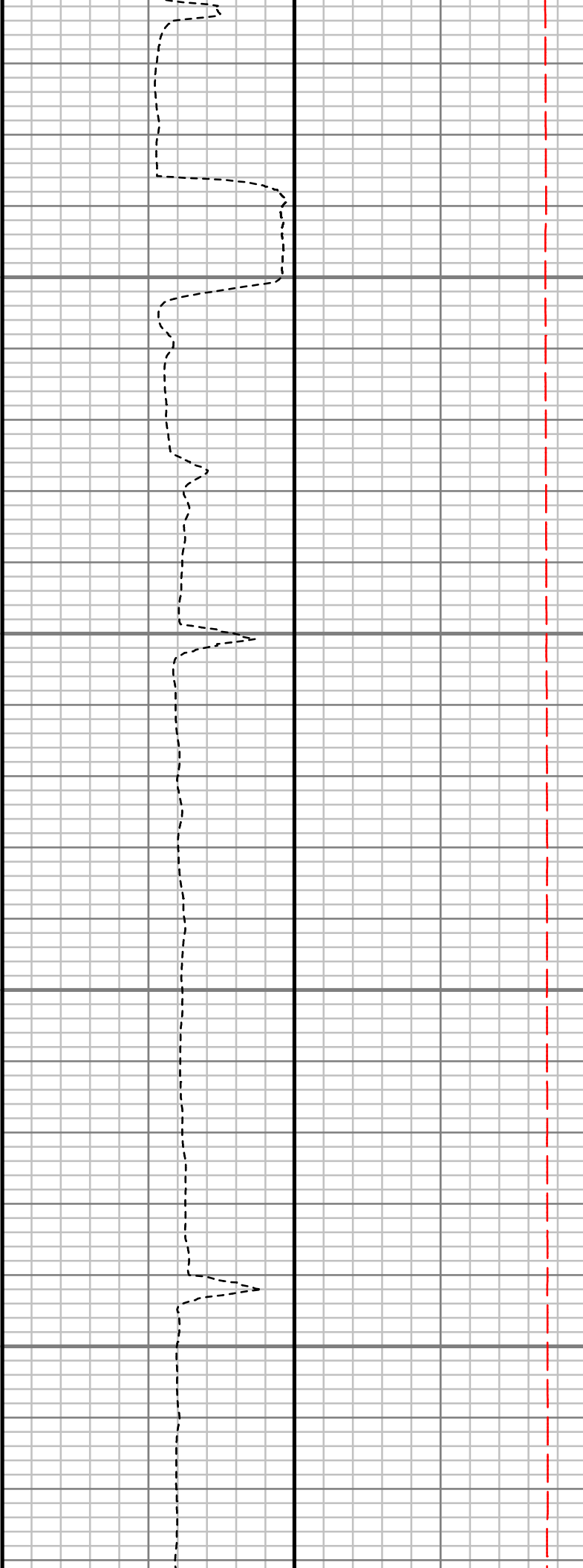
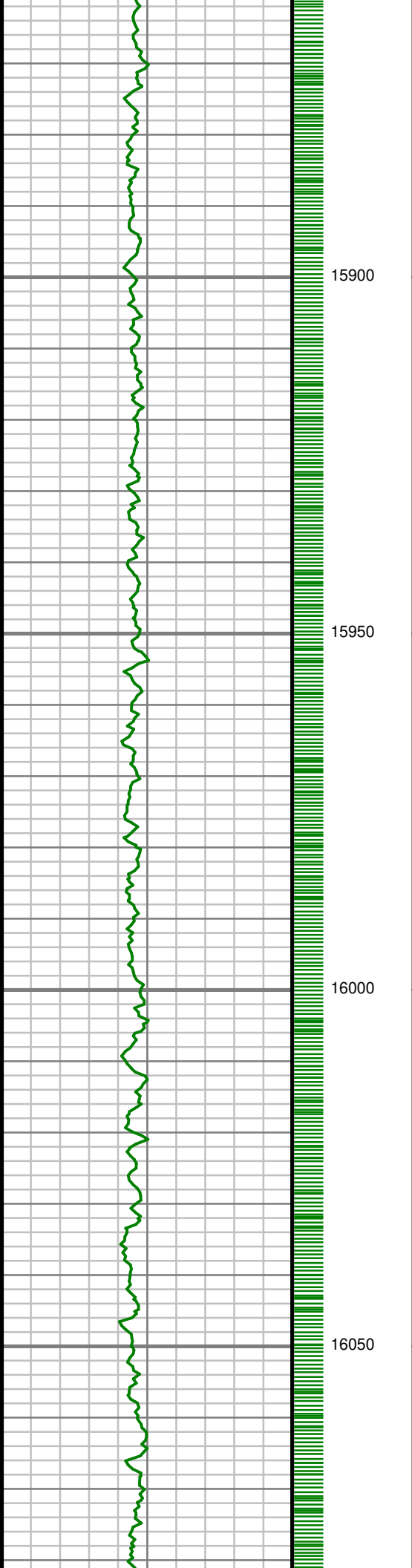
S: 154 MD: 15526.00 ft
Inc: 89.90 deg Az:
180.86 deg TVD:
7663.28 ft

S: 155 MD: 15618.00 ft
Inc: 90.07 deg Az:
182.40 deg TVD:
7663.31 ft



S: 156 MD: 15709.00 ft
Inc: 89.93 deg Az:
181.90 deg TVD:
7663.31 ft

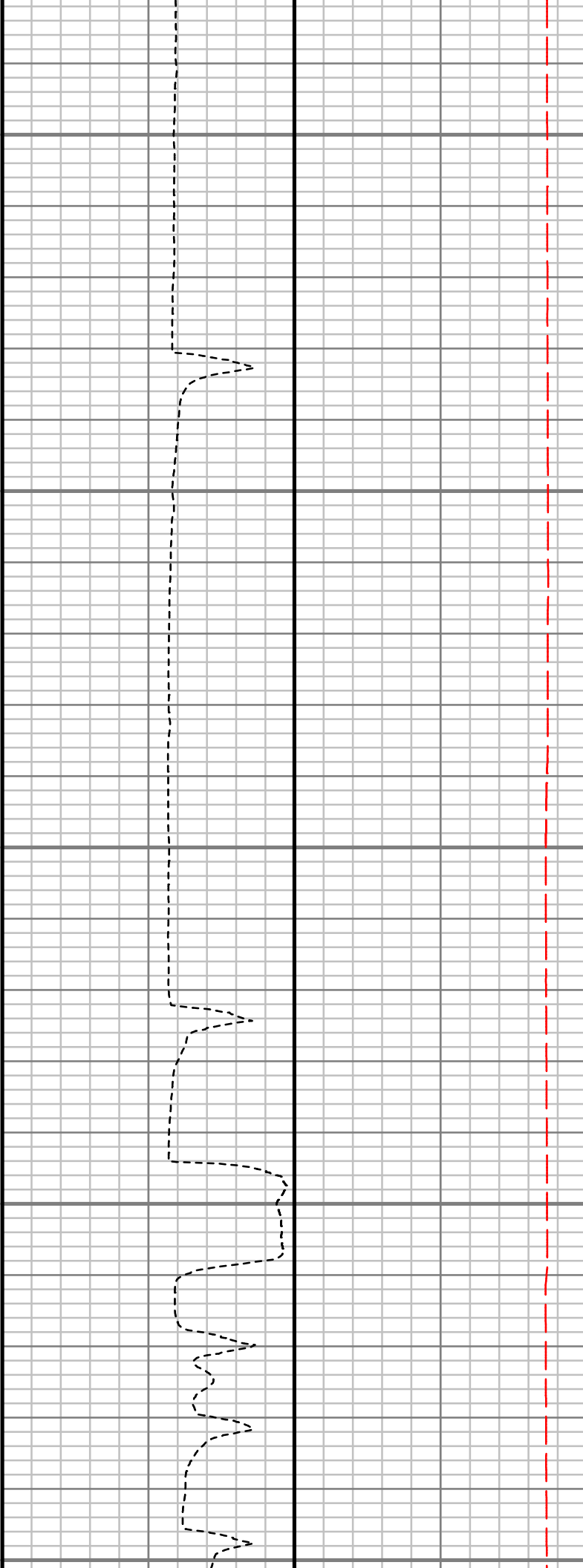
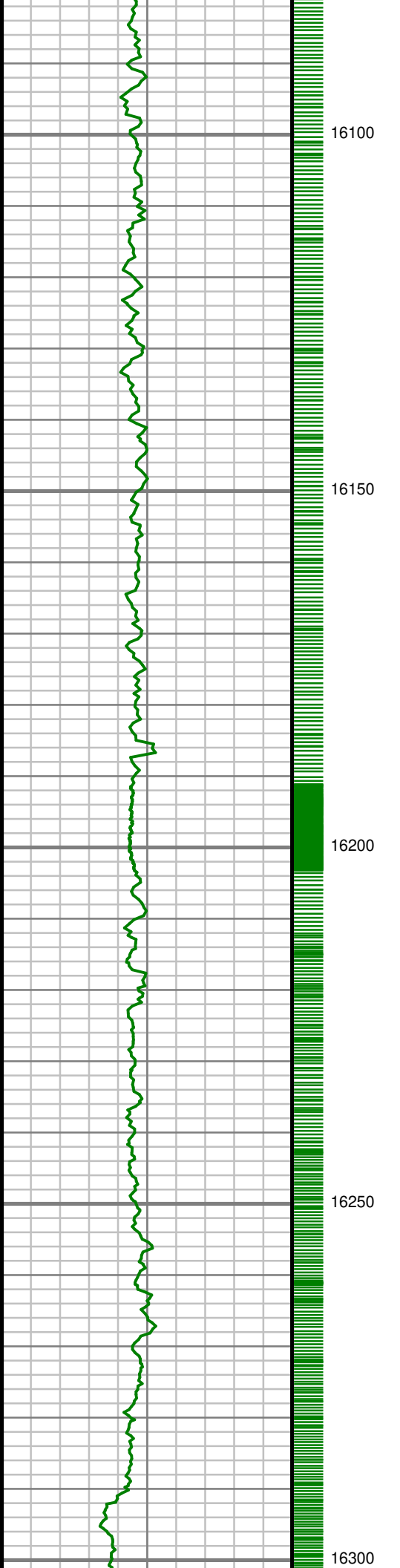
S: 157 MD: 15800.00 ft
Inc: 89.77 deg Az:
181.13 deg TVD:
7663.55 ft



S: 158 MD: 15891.00 ft
Inc: 89.70 deg Az:
181.95 deg TVD:
7663.98 ft

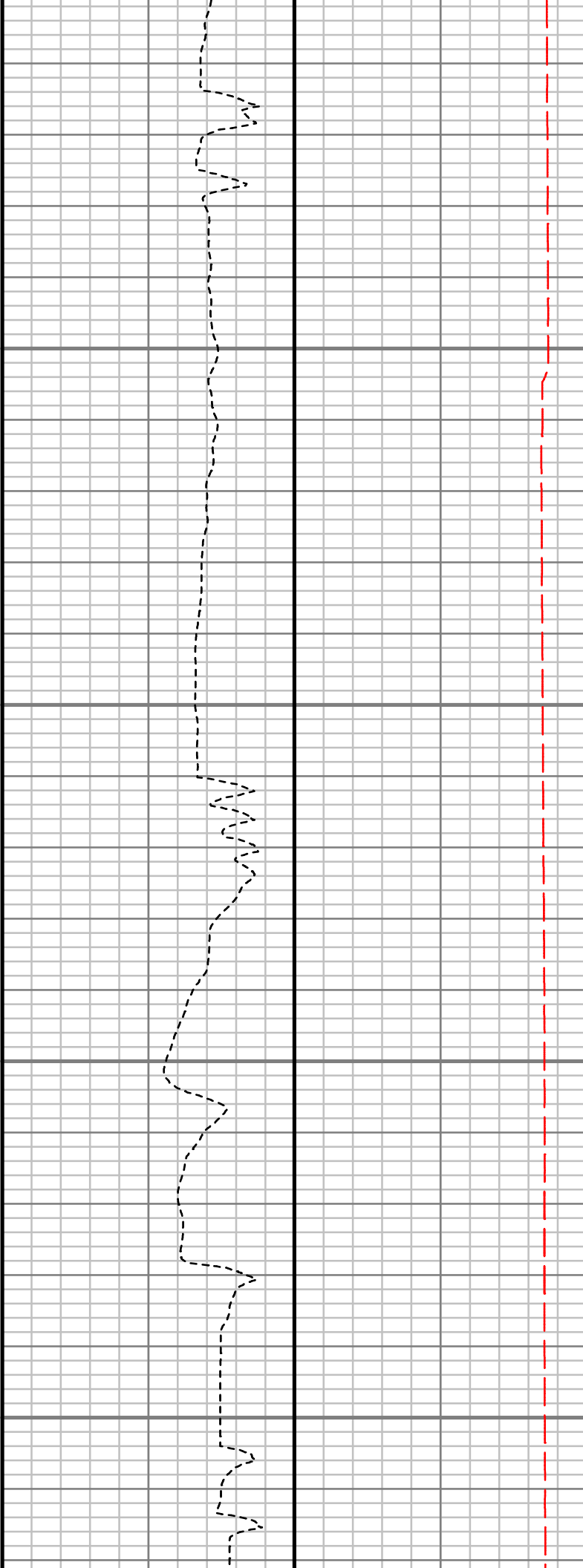
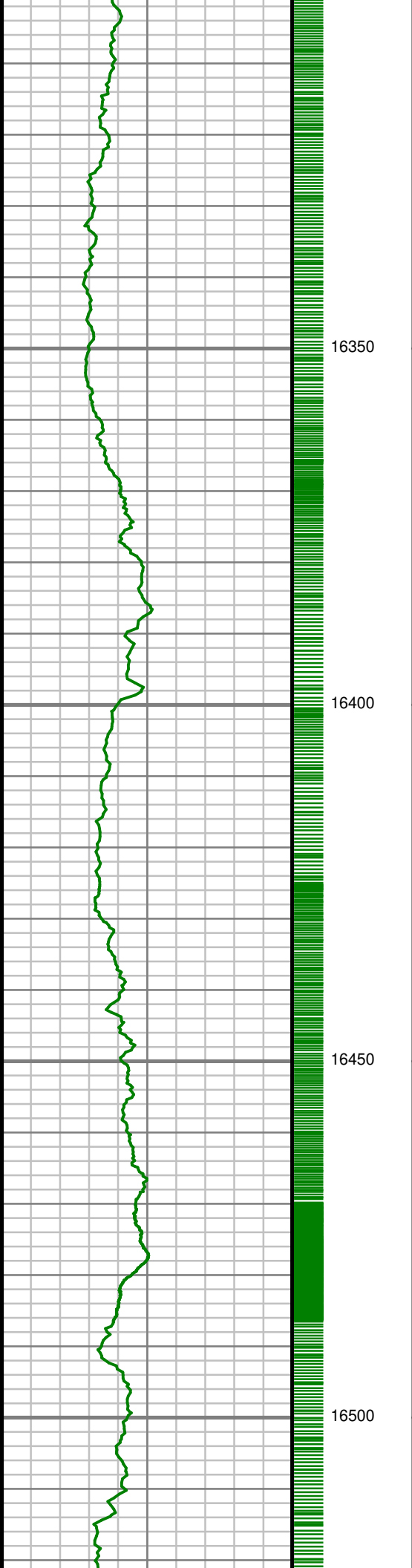
S: 159 MD: 15982.00 ft
Inc: 89.93 deg Az:
183.48 deg TVD:
7664.27 ft

S: 160 MD: 16073.00 ft
Inc: 89.70 deg Az:
182.72 deg TVD:



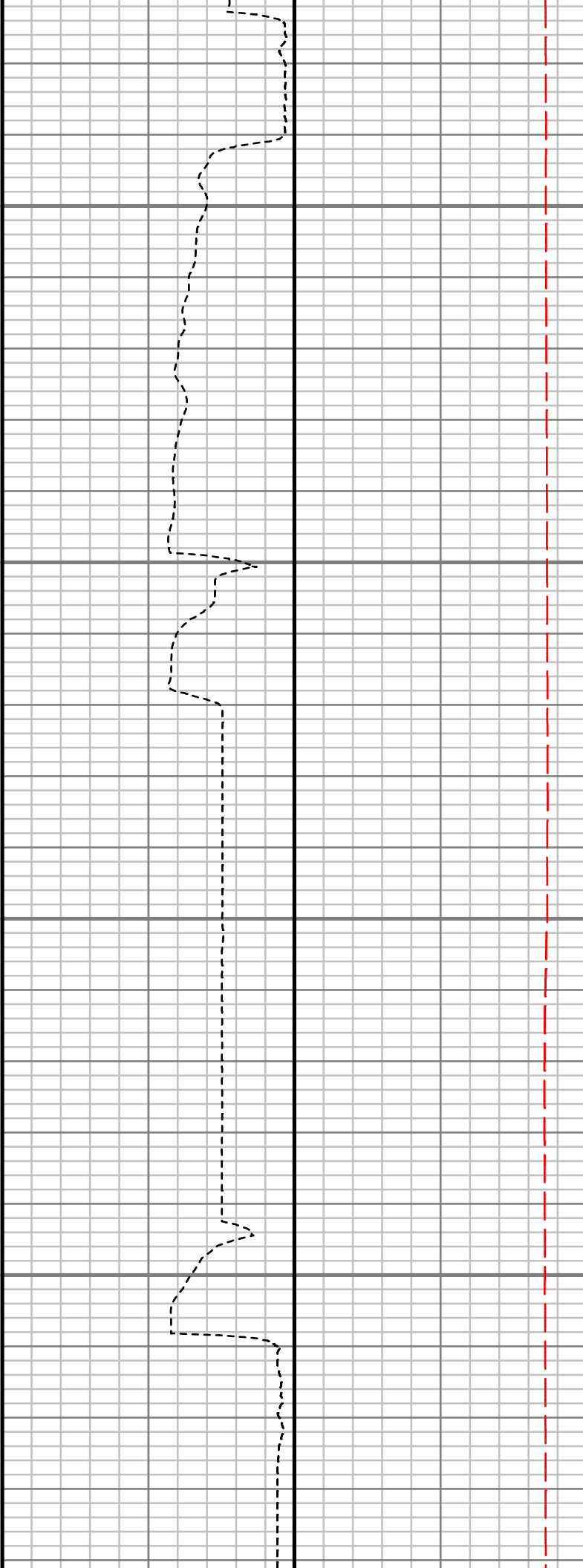
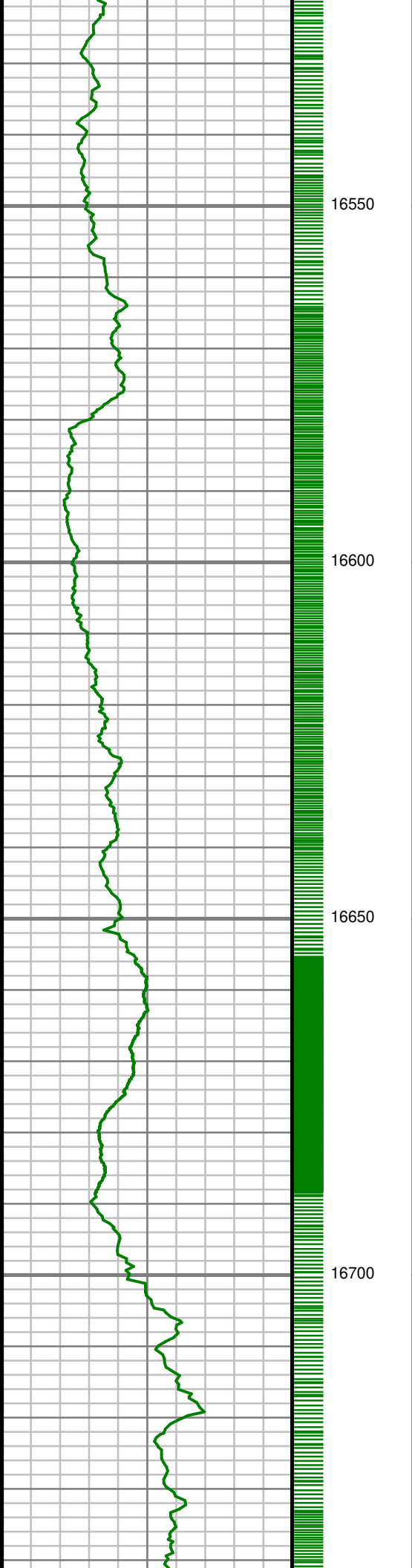
S: 161 MD: 16164.00 ft
Inc: 89.66 deg Az:
182.89 deg TVD:
7665.07 ft

S: 162 MD: 16258.00 ft
Inc: 90.37 deg Az:
183.40 deg TVD:
7665.04 ft



S: 163 MD: 16352.00 ft
Inc: 90.64 deg Az:
182.04 deg TVD:
7664.21 ft

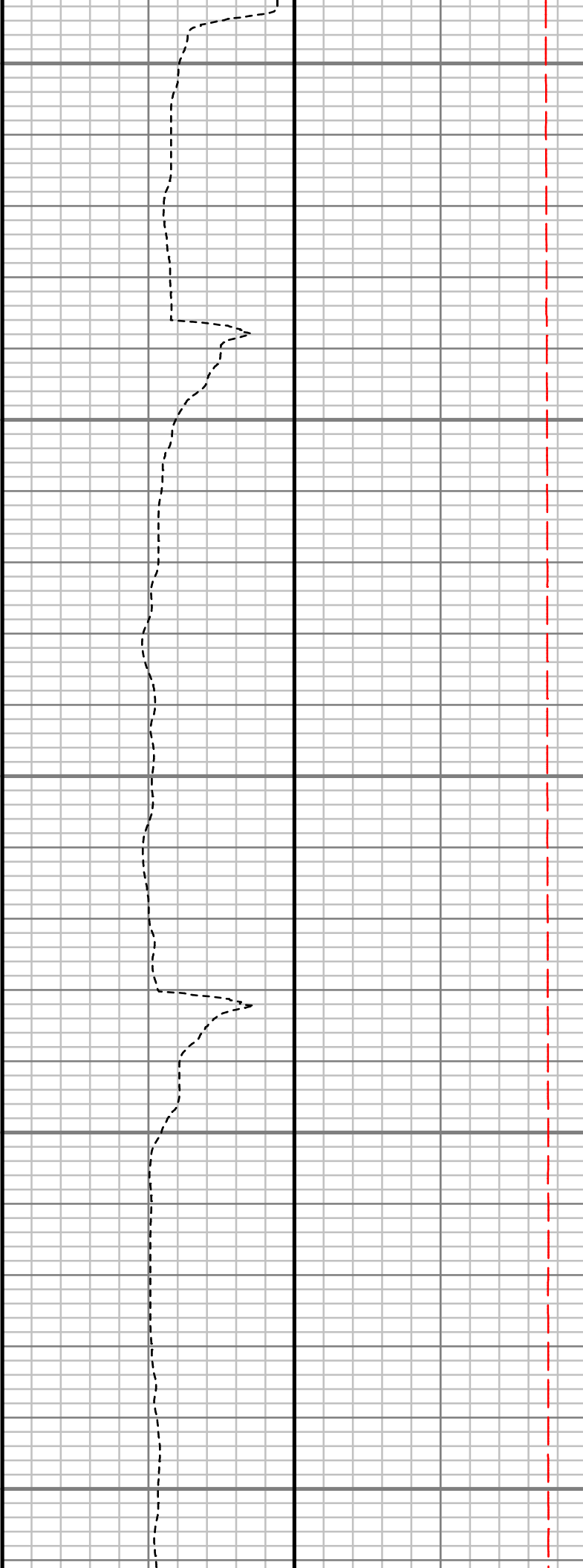
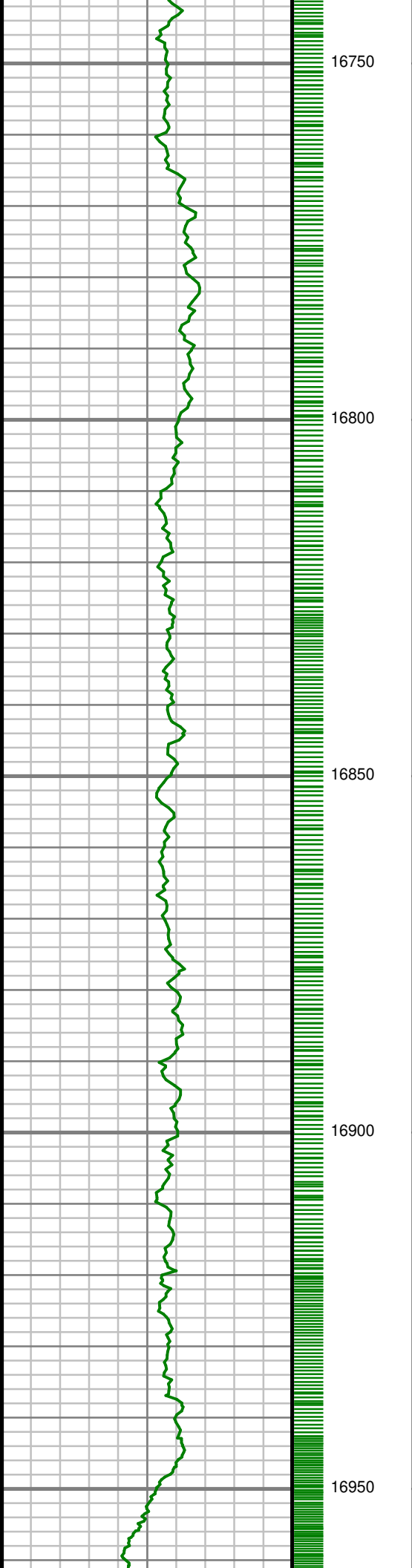
S: 164 MD: 16446.00 ft
Inc: 92.25 deg Az:
182.24 deg TVD:
7661.85 ft



S: 165 MD: 16540.00 ft
Inc: 91.88 deg Az:
180.93 deg TVD:
7658.47 ft

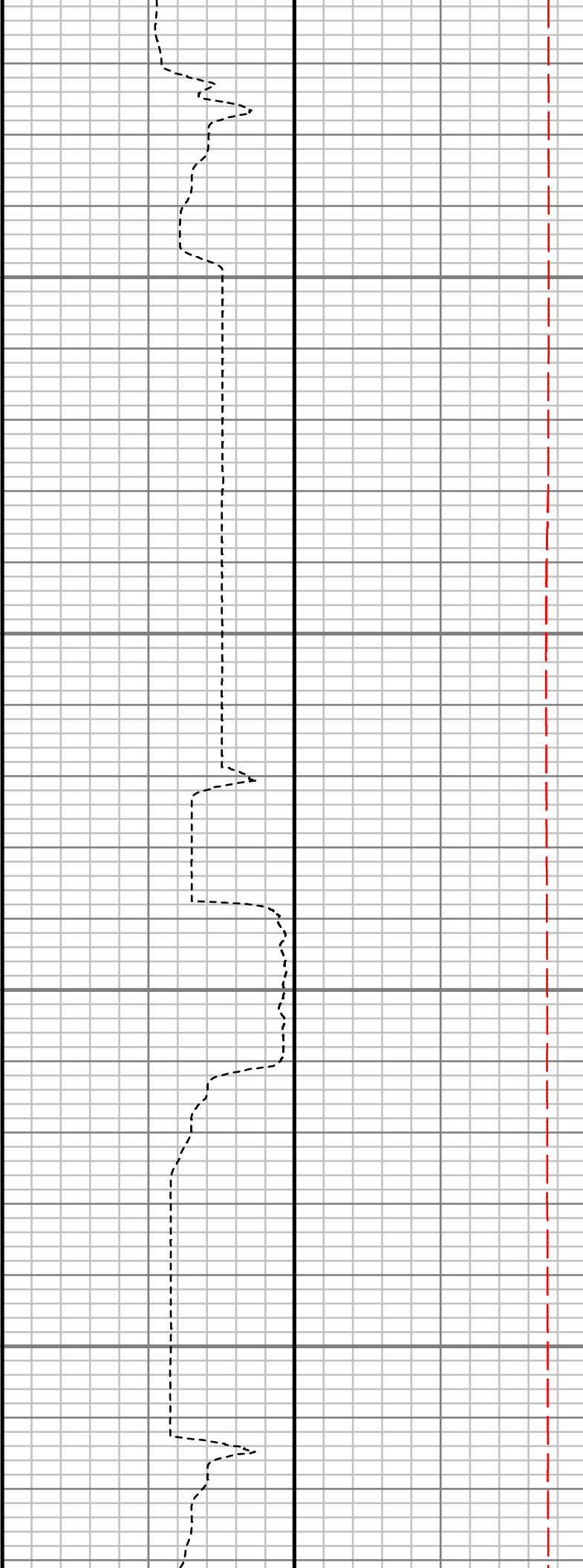
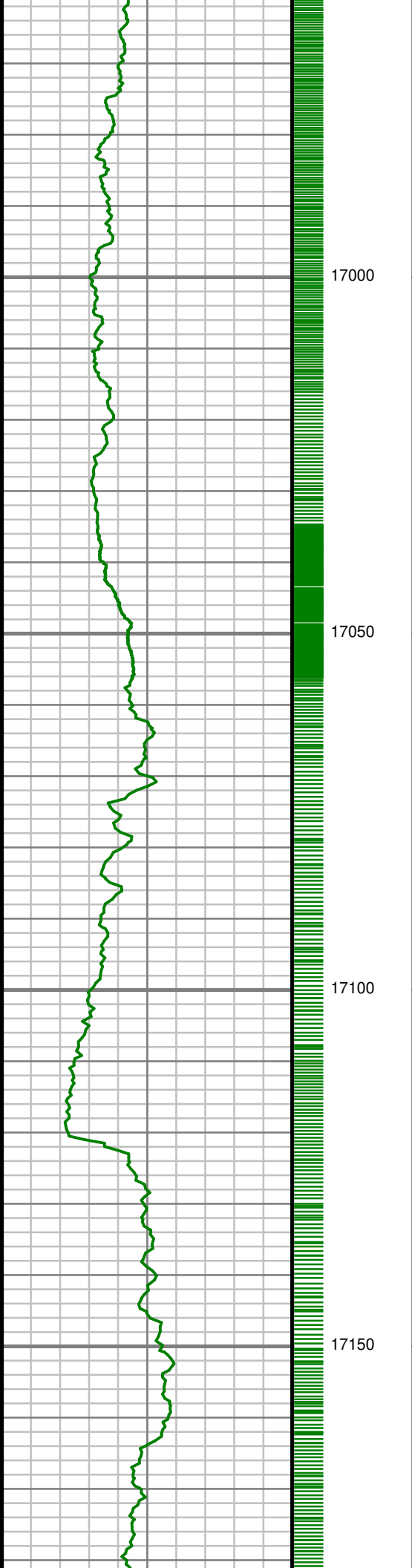
S: 166 MD: 16634.00 ft
Inc: 93.05 deg Az:
181.82 deg TVD:
7654.43 ft

S: 167 MD: 16728.00 ft
Inc: 90.64 deg Az:
179.67 deg TVD:
7651.40 ft



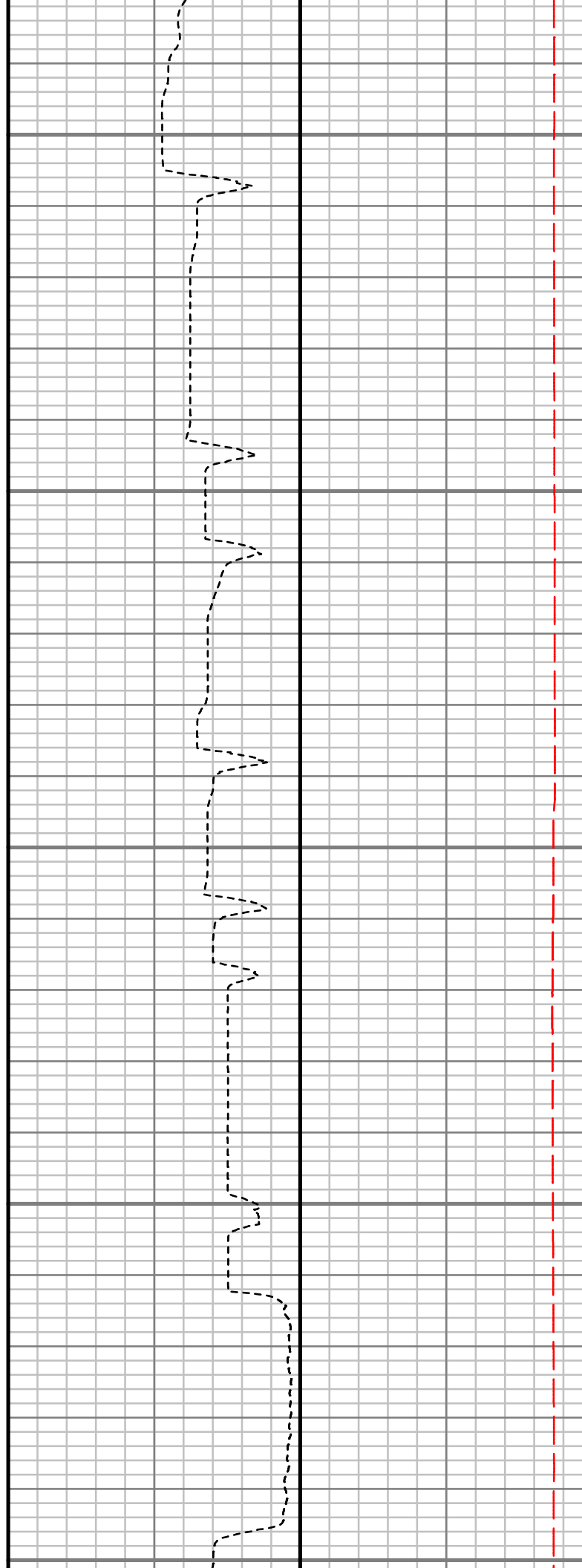
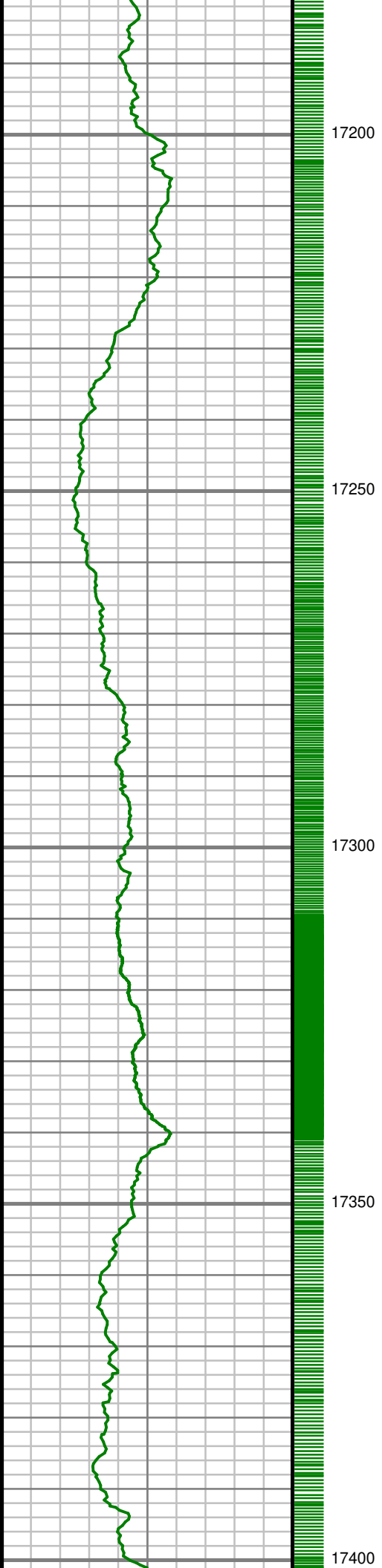
S: 168 MD: 16821.00 ft
Inc: 90.57 deg Az:
179.47 deg TVD:
7650.42 ft

S: 169 MD: 16915.00 ft
Inc: 90.64 deg Az:
178.87 deg TVD:
7649.43 ft



S: 170 MD: 17010.00 ft
Inc: 90.40 deg Az:
177.83 deg TVD:
7648.57 ft

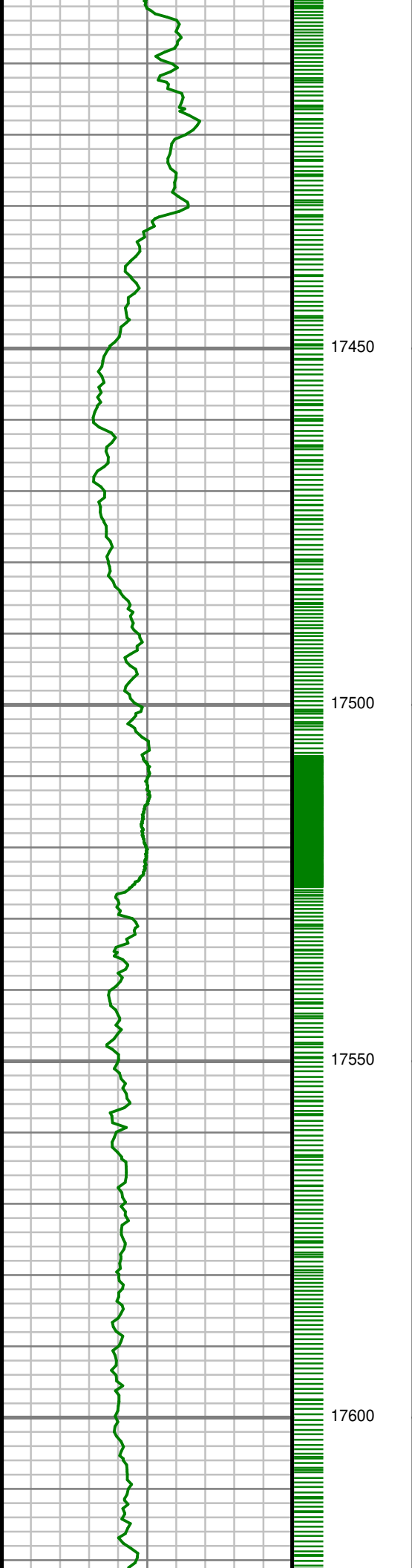
S: 171 MD: 17104.00 ft
Inc: 89.60 deg Az:
178.94 deg TVD:
7648.57 ft



S: 172 MD: 17198.00 ft
Inc: 90.10 deg Az:
179.95 deg TVD:
7648.82 ft

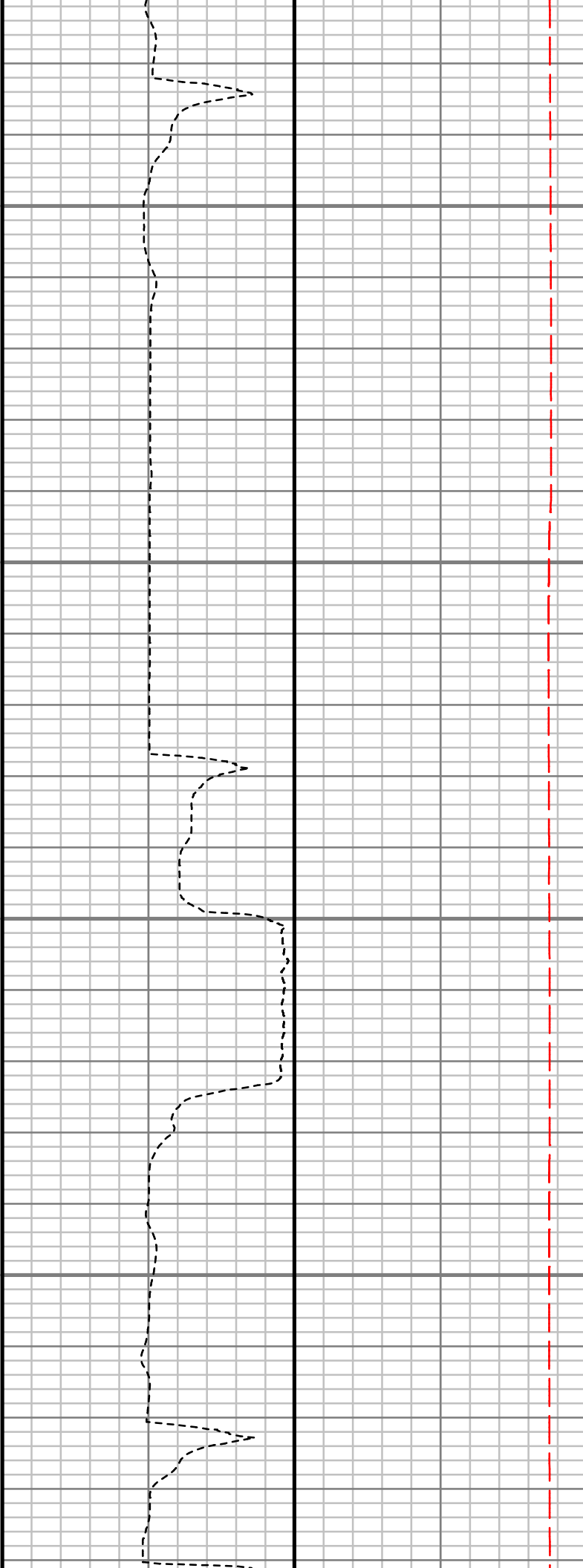
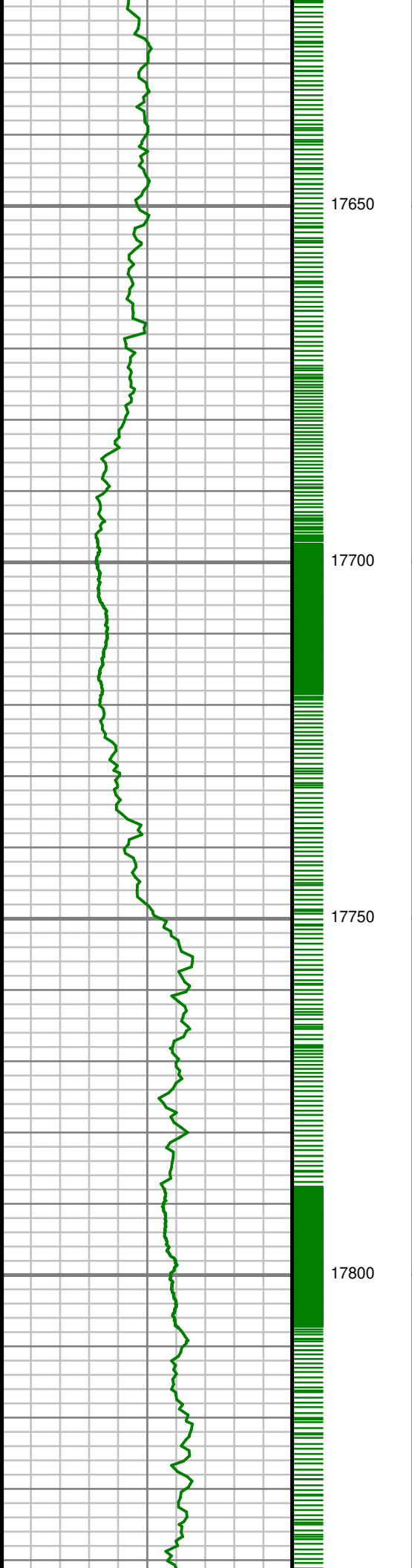
S: 173 MD: 17292.00 ft
Inc: 90.03 deg Az:
178.74 deg TVD:
7648.71 ft

S: 174 MD: 17386.00 ft
Inc: 89.80 deg Az:
182.50 deg TVD:
7648.85 ft



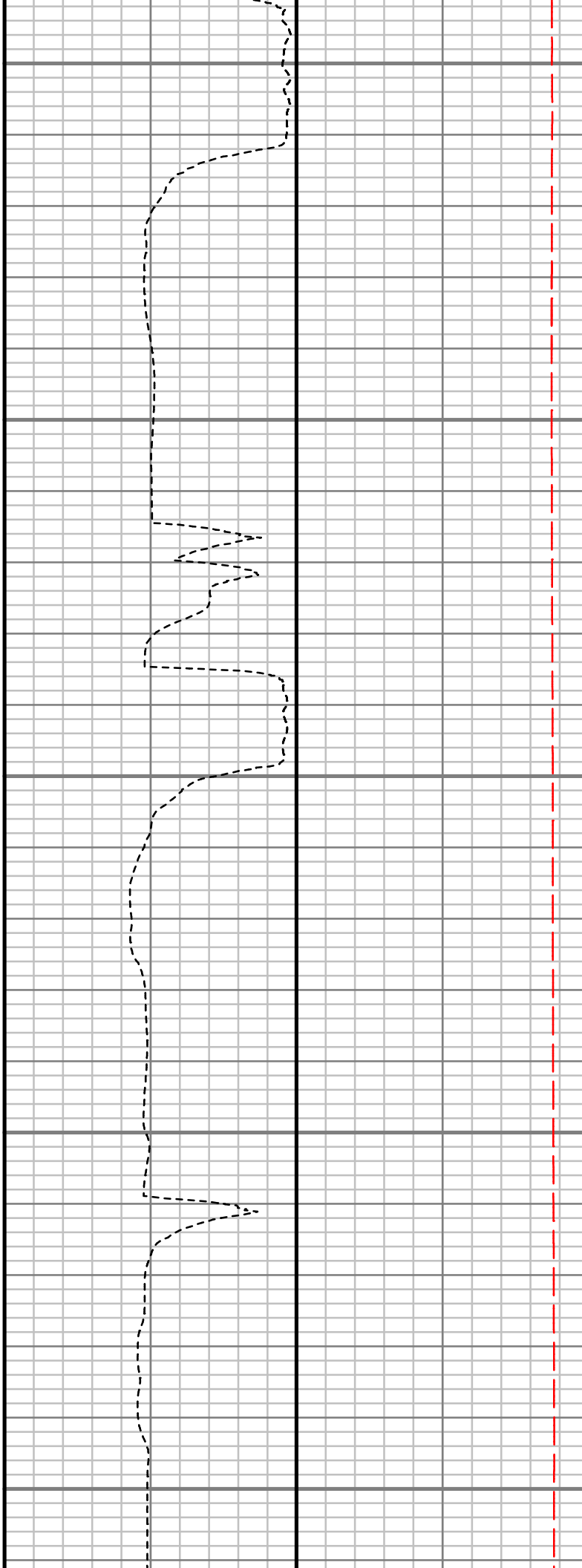
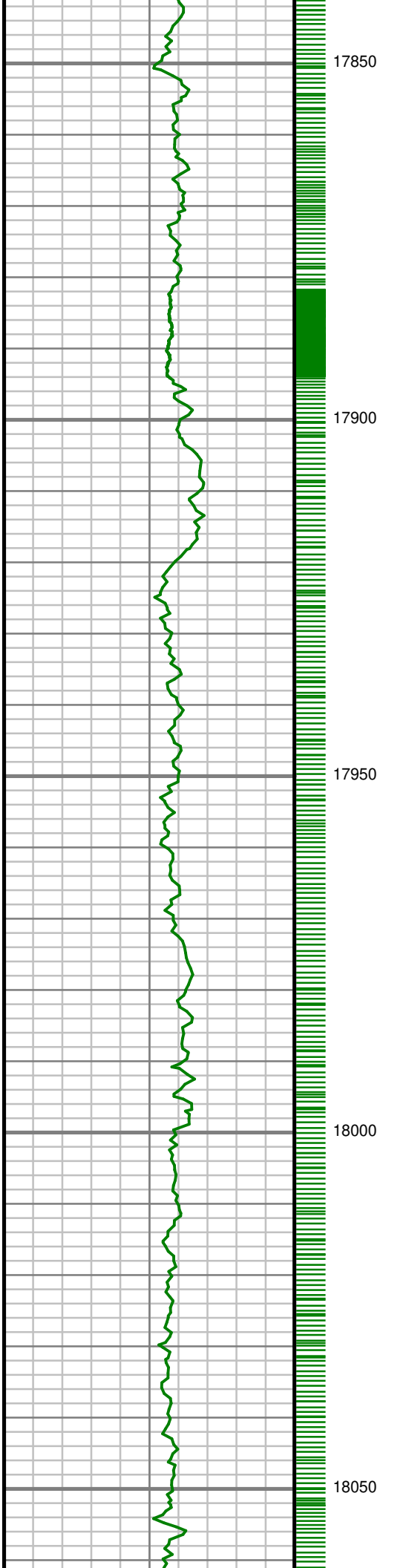
S: 175 MD: 17480.00 ft
Inc: 89.70 deg Az:
181.99 deg TVD:
7649.26 ft

S: 176 MD: 17573.00 ft
Inc: 90.74 deg Az:
183.82 deg TVD:
7648.91 ft



S: 177 MD: 17668.00 ft
Inc: 91.78 deg Az:
185.35 deg TVD:
7646.82 ft

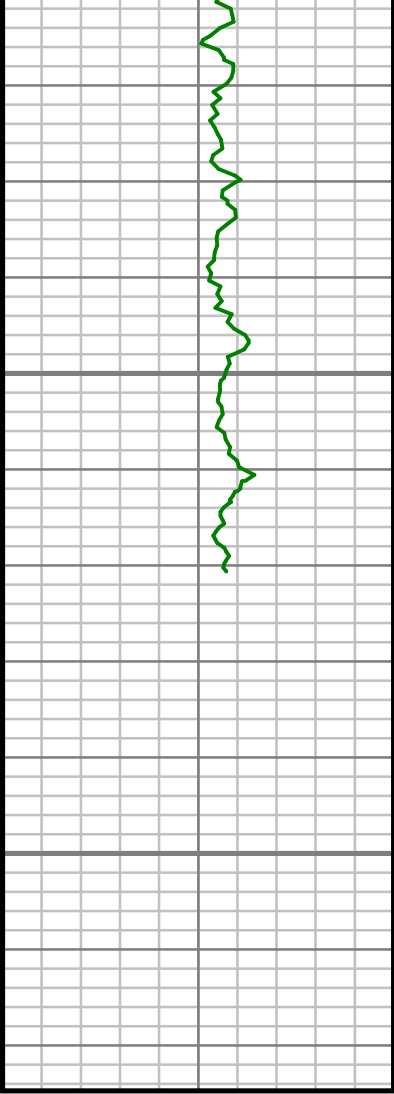
S: 178 MD: 17762.00 ft
Inc: 90.47 deg Az:
185.18 deg TVD:
7644.98 ft



S: 179 MD: 17856.00 ft
Inc: 90.07 deg Az:
183.02 deg TVD:
7644.54 ft

S: 180 MD: 17950.00 ft
Inc: 89.73 deg Az:
181.28 deg TVD:
7644.70 ft

S: 181 MD: 18045.00 ft
Inc: 90.37 deg Az:
183.48 deg TVD:
7644.62 ft

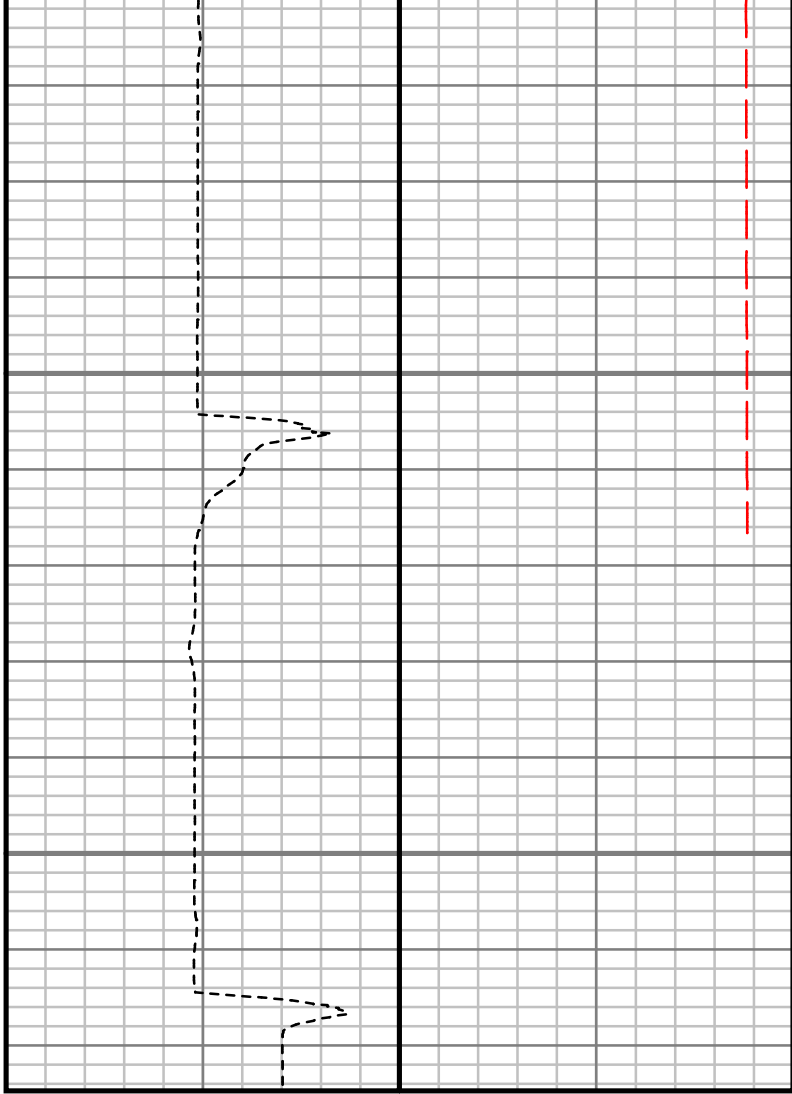


18100

18150

MEASURED DEPTH
1:240 (ft)

Gamma Ray (GR)		
0	Unit = aapi	200



S: 182 MD: 18115.00 ft
Inc: 90.23 deg Az:
182.98 deg TVD:
7644.25 ft

Rate of Penetration (ROP)		
1000	Unit = ft/hr	0

Tool Temperature (T-TEMP)		
0	Unit = °F	300

Comments

SURVEY REPORT

LION CREEK 23-0164B

LION CREEK 23-0164B

CUSTOMER HIGHPOINT RESOURCES
PROJECT WELD COUNTY, CO NAD 83
FIELD WATTENBERG

WELL INFORMATION

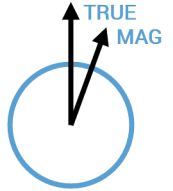
Lat/Long 40° 54' 45.919" N, 104° 31' 2.35" W
Northing 1,576,873.55 ft
Easting 3,271,610.98 ft
UWI 05-123-47385

MAP INFORMATION

North Reference True North
Grid Correction
System US State Plane 1983
Datum North American Datum 1983 (GRS 1980)
Map Zone Colorado North: 0501

VERTICAL SECTION REFERENCE

+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 180.94°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.073 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
1500-18115 ft	HDGM2018	02 Sep 2018	8.35°	add 8.35°

WELL NOTES

OPERATORS

M. OGLESBY, M. POTTER

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1499.50	4.61	284.51	1497.32	-27.30	28.16	-52.25	Invalid
1607.00	5.14	296.52	1604.43	-30.39	31.39	-60.74	1.07
1698.00	5.54	293.85	1695.04	-33.86	34.99	-68.40	0.52
1789.00	7.28	287.24	1785.47	-37.19	38.47	-77.93	2.07
1879.00	9.42	287.19	1874.51	-40.85	42.34	-90.41	2.38
1970.00	9.30	286.16	1964.30	-44.86	46.59	-104.59	0.23
2061.00	11.26	282.15	2053.83	-48.52	50.50	-120.34	2.30
2152.00	12.31	275.82	2142.92	-51.07	53.36	-138.68	1.83
2244.00	14.71	269.58	2232.37	-51.63	54.27	-160.13	3.05
2335.00	17.11	267.43	2319.88	-50.54	53.58	-185.06	2.71
2429.00	18.58	270.04	2409.35	-49.46	52.98	-213.85	1.78
2522.00	20.16	271.12	2497.08	-49.27	53.30	-244.69	1.73
2616.00	20.57	268.40	2585.21	-48.59	53.16	-277.40	1.10
2710.00	21.01	264.75	2673.09	-46.04	51.15	-310.69	1.45
2804.00	20.91	262.64	2760.88	-41.80	47.46	-344.10	0.81
2898.00	20.50	262.53	2848.80	-36.97	43.17	-377.06	0.44
2991.00	20.25	266.18	2935.99	-33.26	39.98	-409.27	1.39
3085.00	19.20	269.40	3024.47	-31.49	38.74	-440.96	1.61
3178.00	18.85	270.88	3112.39	-31.06	38.80	-471.27	0.64
3272.00	17.84	279.34	3201.63	-33.15	41.38	-500.67	3.03

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3366.00	17.30	289.63	3291.27	-39.73	48.41	-528.05	3.35
3459.00	16.47	305.94	3380.31	-51.73	60.80	-551.76	5.16
3553.00	17.37	311.78	3470.25	-68.55	77.97	-573.01	2.04
3648.00	19.18	314.36	3560.45	-88.55	98.33	-594.75	2.09
3742.00	20.18	319.84	3648.97	-111.38	121.52	-616.25	2.23
3836.00	20.68	320.30	3737.05	-136.19	146.68	-637.31	0.55
3931.00	21.47	324.39	3825.70	-162.89	173.72	-658.15	1.76
4025.00	22.31	323.06	3912.93	-190.79	201.96	-678.89	1.04
4119.00	23.33	322.32	3999.57	-219.41	230.96	-700.99	1.12
4213.00	23.16	321.72	4085.94	-248.28	260.20	-723.82	0.31
4307.00	19.70	320.52	4173.42	-274.67	286.95	-745.35	3.71
4401.00	17.08	324.32	4262.62	-297.82	310.40	-763.48	3.07
4495.00	15.18	327.75	4352.92	-319.20	332.02	-778.11	2.26
4589.00	14.36	326.11	4443.81	-339.07	352.11	-791.18	0.98
4682.00	15.39	324.72	4533.69	-358.50	371.76	-804.74	1.17
4776.00	16.71	324.59	4624.03	-379.44	392.96	-819.77	1.40
4869.00	18.05	325.32	4712.78	-401.92	415.70	-835.72	1.47
4963.00	17.16	322.69	4802.38	-424.65	438.71	-852.41	1.27
5057.00	15.45	322.05	4892.59	-445.28	459.61	-868.51	1.83
5150.00	14.69	324.07	4982.39	-464.36	478.93	-883.05	0.99

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5244.00	15.23	324.20	5073.21	-483.79	498.59	-897.26	0.57
5338.00	14.19	323.28	5164.13	-502.80	517.84	-911.37	1.13
5431.00	10.97	325.64	5254.88	-519.05	534.28	-923.18	3.51
5526.00	11.28	325.63	5348.10	-534.00	549.41	-933.53	0.33
5620.00	10.35	319.20	5440.43	-547.80	563.39	-944.24	1.62
5714.00	7.87	314.24	5533.24	-558.52	574.27	-954.37	2.76
5808.00	5.19	315.11	5626.62	-565.90	581.77	-961.98	2.86
5902.00	2.62	2.52	5720.42	-571.01	586.93	-964.89	4.17
5996.00	2.75	37.06	5814.32	-574.98	590.88	-963.43	1.70
6090.00	2.06	352.80	5908.24	-578.48	594.36	-962.28	2.04
6184.00	1.99	331.47	6002.19	-581.58	597.48	-963.28	0.80
6278.00	1.98	339.45	6096.13	-584.51	600.43	-964.63	0.29
6371.00	1.26	347.69	6189.09	-587.00	602.93	-965.41	0.81
6465.00	1.35	354.45	6283.07	-589.10	605.04	-965.74	0.19
6559.00	1.33	335.61	6377.04	-591.18	607.14	-966.29	0.47
6654.00	0.82	330.65	6472.03	-592.77	608.73	-967.08	0.54
6748.00	0.83	5.05	6566.02	-594.03	610.00	-967.35	0.52
6842.00	0.45	314.61	6660.01	-594.96	610.93	-967.55	0.69
6937.00	0.56	288.16	6755.01	-595.35	611.34	-968.26	0.27
7031.00	0.50	308.86	6849.00	-595.74	611.74	-969.02	0.21

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7125.00	0.31	269.59	6943.00	-595.99	611.99	-969.59	0.35
7220.00	0.70	234.31	7038.00	-595.63	611.65	-970.31	0.51
7313.00	6.53	186.90	7130.78	-590.03	606.06	-971.41	6.54
7407.00	14.39	171.83	7223.16	-573.14	589.16	-970.39	8.78
7501.00	18.19	183.63	7313.40	-546.94	562.94	-969.66	5.34
7533.00	21.44	187.12	7343.50	-536.14	552.15	-970.70	10.82
7596.00	26.75	191.04	7400.99	-510.71	526.79	-974.85	8.79
7691.00	37.14	188.26	7481.50	-461.08	477.29	-983.08	11.05
7785.00	48.26	186.89	7550.48	-397.86	414.20	-991.39	11.87
7879.00	58.71	178.21	7606.41	-322.56	338.94	-994.36	13.35
7973.00	68.83	173.10	7647.92	-238.76	255.02	-987.82	11.81
8066.00	81.14	176.73	7671.98	-149.62	165.73	-979.96	13.76
8129.00	88.73	179.74	7677.54	-86.98	103.06	-978.03	12.94
8161.00	89.87	180.38	7677.93	-54.99	71.06	-978.07	4.09
8174.00	90.36	180.36	7677.91	-41.99	58.06	-978.15	3.77
8266.00	92.69	181.30	7675.47	49.97	-33.89	-979.48	2.73
8359.00	91.38	180.02	7672.17	142.90	-126.82	-980.55	1.96
8453.00	89.66	179.51	7671.32	236.88	-220.81	-980.16	1.90
8547.00	90.13	178.79	7671.48	330.83	-314.80	-978.77	0.92
8641.00	89.63	179.25	7671.67	424.78	-408.78	-977.16	0.73

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
8735.00	91.17	179.15	7671.01	518.73	-502.77	-975.85	1.64
8829.00	90.74	180.07	7669.45	612.69	-596.75	-975.21	1.07
8923.00	90.07	179.58	7668.78	706.67	-690.75	-974.92	0.88
9017.00	89.70	180.48	7668.98	800.65	-784.75	-974.97	1.04
9110.00	89.60	182.43	7669.55	893.64	-877.71	-977.34	2.10
9204.00	89.56	182.00	7670.24	987.62	-971.64	-980.97	0.46
9297.00	90.70	181.28	7670.02	1080.61	-1064.60	-983.63	1.45
9391.00	88.99	181.74	7670.27	1174.60	-1158.56	-986.10	1.88
9485.00	87.89	181.46	7672.83	1268.56	-1252.49	-988.73	1.21
9579.00	87.25	181.70	7676.82	1362.47	-1346.37	-991.32	0.72
9673.00	86.78	181.27	7681.71	1456.33	-1440.21	-993.75	0.67
9767.00	90.20	182.01	7684.19	1550.28	-1534.12	-996.44	3.72
9861.00	90.17	182.83	7683.89	1644.25	-1628.04	-1000.41	0.88
9955.00	89.93	181.02	7683.80	1738.23	-1721.98	-1003.57	1.95
10050.00	89.83	178.62	7684.00	1833.20	-1816.97	-1003.27	2.53
10144.00	90.91	177.44	7683.39	1927.08	-1910.91	-1000.04	1.70
10238.00	90.94	177.44	7681.88	2020.89	-2004.81	-995.84	0.04
10332.00	90.97	178.91	7680.31	2114.76	-2098.74	-992.85	1.57
10426.00	88.59	179.54	7680.67	2208.71	-2192.73	-991.58	2.62
10519.00	88.69	181.76	7682.87	2301.68	-2285.69	-992.63	2.39

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
10613.00	89.30	181.48	7684.52	2395.66	-2379.64	-995.28	0.71
10707.00	89.53	181.45	7685.48	2489.65	-2473.60	-997.69	0.25
10798.00	91.11	180.88	7684.98	2580.65	-2564.58	-999.53	1.84
10889.00	91.75	180.86	7682.71	2671.62	-2655.54	-1000.92	0.70
10980.00	90.77	181.31	7680.71	2762.59	-2746.50	-1002.65	1.18
11071.00	89.66	179.96	7680.37	2853.59	-2837.49	-1003.66	1.92
11162.00	90.23	181.78	7680.45	2944.58	-2928.47	-1005.04	2.10
11253.00	90.07	182.45	7680.21	3035.56	-3019.41	-1008.40	0.76
11344.00	90.30	183.17	7679.91	3126.51	-3110.30	-1012.86	0.83
11436.00	90.34	184.18	7679.40	3218.41	-3202.11	-1018.75	1.10
11527.00	90.84	184.30	7678.47	3309.25	-3292.85	-1025.48	0.57
11618.00	90.64	181.67	7677.30	3400.18	-3383.71	-1030.22	2.90
11709.00	90.50	179.31	7676.39	3491.16	-3474.70	-1031.00	2.60
11800.00	90.47	179.89	7675.62	3582.14	-3565.69	-1030.36	0.64
11890.00	90.37	180.25	7674.96	3672.12	-3655.69	-1030.48	0.41
11982.00	90.37	181.38	7674.37	3764.12	-3747.68	-1031.78	1.22
12073.00	90.44	181.74	7673.73	3855.11	-3838.64	-1034.26	0.41
12164.00	90.40	183.06	7673.07	3946.08	-3929.56	-1038.07	1.44
12255.00	90.91	182.79	7672.03	4037.02	-4020.43	-1042.71	0.62
12346.00	90.13	181.15	7671.20	4127.99	-4111.37	-1045.84	1.99

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
12436.00	91.74	182.52	7669.73	4217.97	-4201.31	-1048.72	2.35
12527.00	88.86	178.31	7669.25	4308.93	-4292.28	-1049.38	5.61
12618.00	89.16	177.58	7670.82	4399.79	-4383.20	-1046.11	0.87
12709.00	89.23	177.64	7672.10	4490.63	-4474.11	-1042.31	0.10
12801.00	88.96	177.50	7673.55	4582.46	-4566.02	-1038.40	0.33
12892.00	88.99	179.28	7675.18	4673.35	-4656.97	-1035.84	1.96
12983.00	89.77	179.78	7676.16	4764.32	-4747.96	-1035.10	1.01
13074.00	90.13	179.50	7676.24	4855.29	-4838.95	-1034.52	0.50
13165.00	91.01	180.30	7675.33	4946.27	-4929.95	-1034.37	1.30
13255.00	91.64	180.18	7673.25	5036.24	-5019.92	-1034.75	0.72
13346.00	92.11	181.26	7670.27	5127.19	-5110.86	-1035.90	1.30
13437.00	91.51	181.16	7667.40	5218.14	-5201.80	-1037.82	0.67
13528.00	90.47	184.58	7665.83	5309.06	-5292.66	-1042.37	3.93
13619.00	90.07	184.41	7665.40	5399.89	-5383.38	-1049.50	0.48
13710.00	90.60	183.70	7664.87	5490.75	-5474.15	-1055.93	0.97
13801.00	90.80	180.80	7663.75	5581.71	-5565.06	-1059.50	3.20
13893.00	90.20	180.30	7662.94	5673.70	-5657.05	-1060.38	0.85
13984.00	89.97	181.12	7662.81	5764.70	-5748.04	-1061.51	0.94
14074.00	89.56	183.41	7663.18	5854.67	-5837.97	-1065.07	2.58
14166.00	90.77	185.54	7662.91	5946.49	-5929.68	-1072.24	2.66

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
14257.00	89.60	182.60	7662.62	6037.34	-6020.44	-1078.70	3.48
14348.00	89.83	181.98	7663.07	6128.31	-6111.36	-1082.33	0.73
14439.00	90.20	182.00	7663.04	6219.30	-6202.31	-1085.49	0.41
14530.00	90.13	182.17	7662.78	6310.28	-6293.25	-1088.80	0.20
14620.00	89.97	181.50	7662.70	6400.27	-6383.20	-1091.67	0.77
14711.00	89.97	180.16	7662.75	6491.26	-6474.19	-1092.99	1.47
14802.00	89.90	179.53	7662.86	6582.25	-6565.19	-1092.75	0.69
14893.00	90.03	179.69	7662.91	6673.22	-6656.19	-1092.12	0.22
14984.00	89.93	179.22	7662.94	6764.19	-6747.18	-1091.26	0.52
15074.00	90.07	179.74	7662.94	6854.16	-6837.18	-1090.44	0.59
15164.00	90.03	179.50	7662.86	6944.14	-6927.17	-1089.85	0.26
15255.00	90.00	179.48	7662.83	7035.11	-7018.17	-1089.04	0.04
15345.00	90.10	181.00	7662.75	7125.10	-7108.17	-1089.42	1.69
15435.00	89.66	179.95	7662.94	7215.10	-7198.16	-1090.16	1.26
15526.00	89.90	180.86	7663.28	7306.09	-7289.16	-1090.80	1.03
15618.00	90.07	182.40	7663.31	7398.08	-7381.12	-1093.41	1.69
15709.00	89.93	181.90	7663.31	7489.06	-7472.05	-1096.82	0.57
15800.00	89.77	181.13	7663.55	7580.05	-7563.02	-1099.23	0.86
15891.00	89.70	181.95	7663.98	7671.05	-7653.99	-1101.67	0.91
15982.00	89.93	183.48	7664.27	7762.00	-7744.88	-1105.98	1.69

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
16073.00	89.70	182.72	7664.56	7852.94	-7835.75	-1110.90	0.87
16164.00	89.66	182.89	7665.07	7943.89	-7926.64	-1115.35	0.18
16258.00	90.37	183.40	7665.04	8037.82	-8020.49	-1120.51	0.93
16352.00	90.64	182.04	7664.21	8131.76	-8114.38	-1124.97	1.48
16446.00	92.25	182.24	7661.85	8225.71	-8208.28	-1128.49	1.73
16540.00	91.88	180.93	7658.47	8319.64	-8302.19	-1131.09	1.45
16634.00	93.05	181.82	7654.43	8413.55	-8396.07	-1133.34	1.57
16728.00	90.64	179.67	7651.40	8507.49	-8490.00	-1134.56	3.44
16821.00	90.57	179.47	7650.42	8600.46	-8582.99	-1133.87	0.22
16915.00	90.64	178.87	7649.43	8694.40	-8676.98	-1132.51	0.65
17010.00	90.40	177.83	7648.57	8789.30	-8771.93	-1129.77	1.11
17104.00	89.60	178.94	7648.57	8883.21	-8865.89	-1127.13	1.46
17198.00	90.10	179.95	7648.82	8977.17	-8959.89	-1126.22	1.20
17292.00	90.03	178.74	7648.71	9071.14	-9053.88	-1125.15	1.29
17386.00	89.80	182.50	7648.85	9165.12	-9147.86	-1126.17	4.00
17480.00	89.70	181.99	7649.26	9259.09	-9241.78	-1129.85	0.55
17573.00	90.74	183.82	7648.91	9352.03	-9334.66	-1134.57	2.27
17668.00	91.78	185.35	7646.82	9446.81	-9429.33	-1142.17	1.94
17762.00	90.47	185.18	7644.98	9540.52	-9522.91	-1150.79	1.40
17856.00	90.07	183.02	7644.54	9634.37	-9616.66	-1157.51	2.34

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
17950.00	89.73	181.28	7644.70	9728.35	-9710.59	-1161.03	1.88
18045.00	90.37	183.48	7644.62	9823.31	-9805.50	-1164.98	2.41
18115.00	90.23	182.98	7644.25	9893.26	-9875.39	-1168.92	0.75

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft

5" = 100' MD