

5" = 100' MD

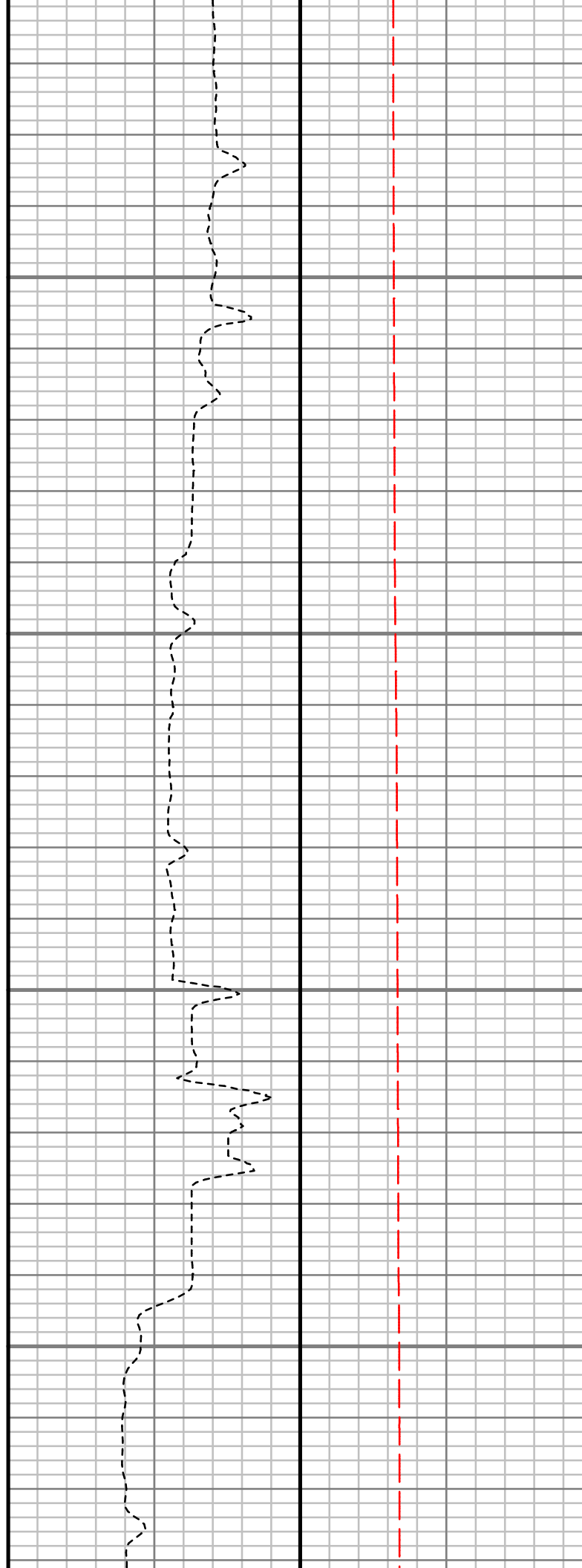
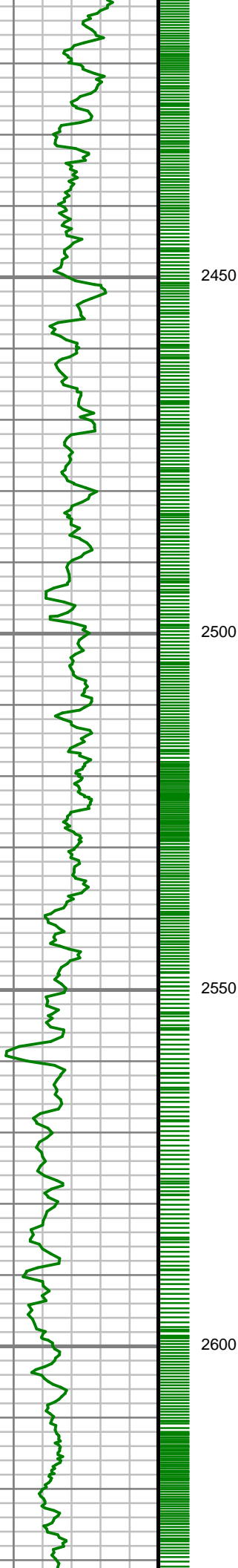
COMPANY : ANADARKO PETROLEUM CORPORATION									
WELL : CHICA 4N2-23HZ									
FIELD : WATTENEERG									
COUNTY : WELD									
STATE : COLORADO									
COUNTRY : U.S.A.									
UWI : 05123441210000									
WELL LOCATION					NAD83				
LAT:40.1882220°N LONG:104.8661480°W					OTHER SERVICES				
N:14595302.00 ft E:1677798.92 ft					DIRECTIONAL				
SEC:35 TWP:3N RANGE:67W					ROP				
DEPTH REF. : KB									
REF. HEIGHT : 20.000 ft KB to Ground Level									
GROUND LEVEL : 4844.000 ft G.L. to MEAN SEA LEVEL									
BOREHOLE RECORD					DEVIATION RECORD				
HOLE SIZE in	FROM ft	TO ft	INCLINATION deg	FROM ft	TO ft				
13.5	0	2390	0 - 12	0	2135				
8.5	2390	17856	12 - 0	2135	6582				
			0 - 87	6582	7603				
			87 - 91	7603	17856				
CASING RECORD									
CASING SIZE in	FROM ft	TO ft							
9.625	0	2380							
DRILLING CO. : PRECISION DRILLING									
RIG : 461									
LWD UNIT NO. : MWD-00282-DISTRICT : CASPER									
SPUD DATE : 03/10/2017									
LWD START DATE : 04/18/2017									
LWD END DATE : 04/25/2017									
DEPTH : 2390 ft									
DEPTH : 17856 ft									
TOTAL DEPTH : 17856 ft									

Run Data						
RUN NUMBER	1	2	3			
START DATE	04/18/2017	04/19/2017	04/20/2017			
START TIME	04:45	21:00	19:30			
END DATE	04/19/2017	04/20/2017	04/25/2017			
END TIME	20:00	17:30	00:15			
DEPTH IN (ft)	2390	7002	7231			
DEPTH OUT (ft)	7002	7231	17856			
LOG TOP (ft)	2390	7002	7231			
LOG BOTTOM (ft)	7002	7231	17856			
HOLE SIZE (in)	8.5	8.5	8.5			
MUD DATA @ (ft)	7002	7231	17856			
MUD TYPE	OIL-BASED	OIL-BASED	OIL-BASED			
DENSITY (lb / gal)	9	9.5	9.25			
VISCOSITY (s / qt)	54	54	46			
pH	-	-	-			
FLUID LOSS (cm3 / 30)	-	-	-			
SALINITY (ppm)	-	-	-			
Rm (ohmm @ deg F)	-	-	-			
Rmf (ohmm @ deg F)	-	-	-			
MAX TEMP (deg F)	165	175	262			
Rm @ MAX TEMP (ohmm)	-	-	-			
LWD ENGINEER #1	M. SMITH	M. SMITH	M. SMITH			
LWD ENGINEER #2	L. SHAFFER	L. SHAFFER	L. SHAFFER			
LWD ENGINEER #3	-	-	-			
LOG WITNESS #1	-	-	-			
LOG WITNESS #2	-	-	-			

Remarks
ANADARKO PETROLEUM CORPORATION AFE# 2127022
SCIENTIFIC DRILLING INTERNATIONAL JOB# OP.000697
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 = 128-172 / CONT = 174 / MWD EYE = 485 / GAMMA RAY = 1264
BIT TO SENSOR OFFSETS: SURVEY = 53.77 FT. / GAMMA RAY = 45.08 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-172 / CONT = 174 / MWD EYE = 485 / GAMMA RAY = 1264
BIT TO SENSOR OFFSETS: SURVEY = 54.72 FT. / GAMMA RAY = 46.03 FT.
RUN #3: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-180 / CONT = 582 / MWD EYE = 1006 / GAMMA RAY = 1199
BIT TO SENSOR OFFSETS: SURVEY = 52.23 FT. / GAMMA RAY = 43.23 FT.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
TEMP = TOOL TEMPERATURE

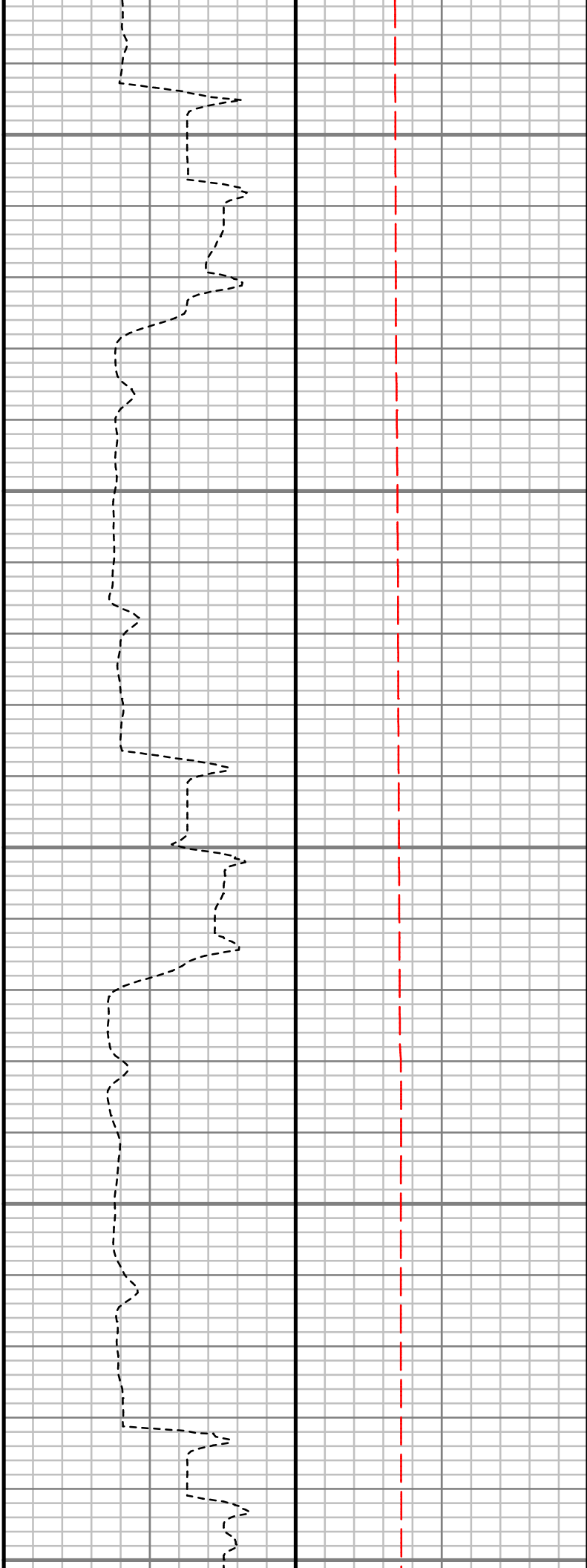
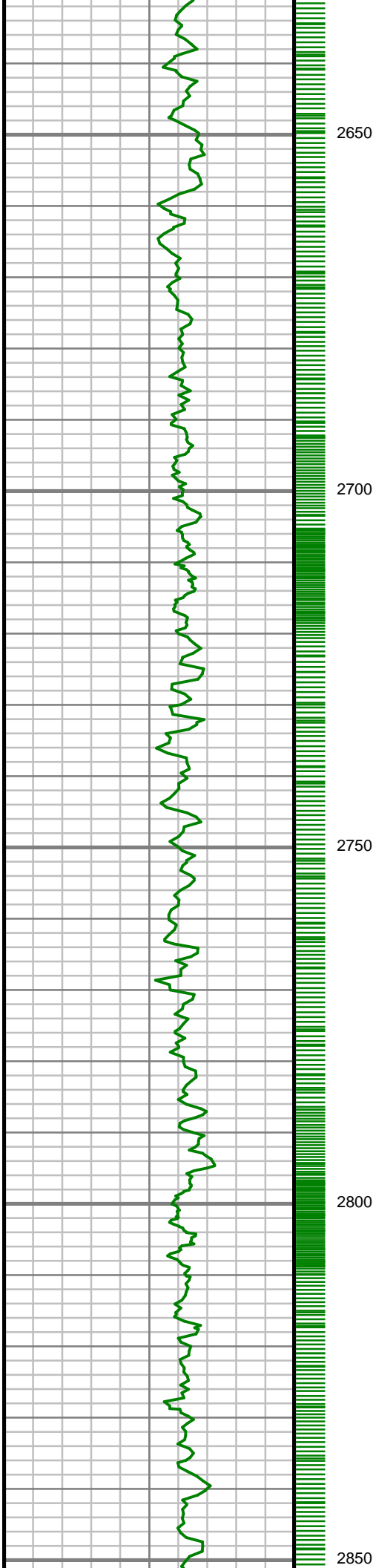
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

ANADARKO PETROLEUM CORPORATION CHICA 4N2-23HZ WATTENBERG FIELD WELD COUNTY, COLORADO API # 05123441210000			
Gamma Ray (GR) 0 Unit = aapi 150	MEASURED DEPTH 1:240 (ft)	Rate of Penetration (ROP) 800 Unit = ft/hr 0	Tool Temperature (TEMP) 0 Unit = °F 300
			S: 28 MD: 2401.00 ft Inc: 10.20 deg Az: 115.49 deg TVD: 2369.70 ft



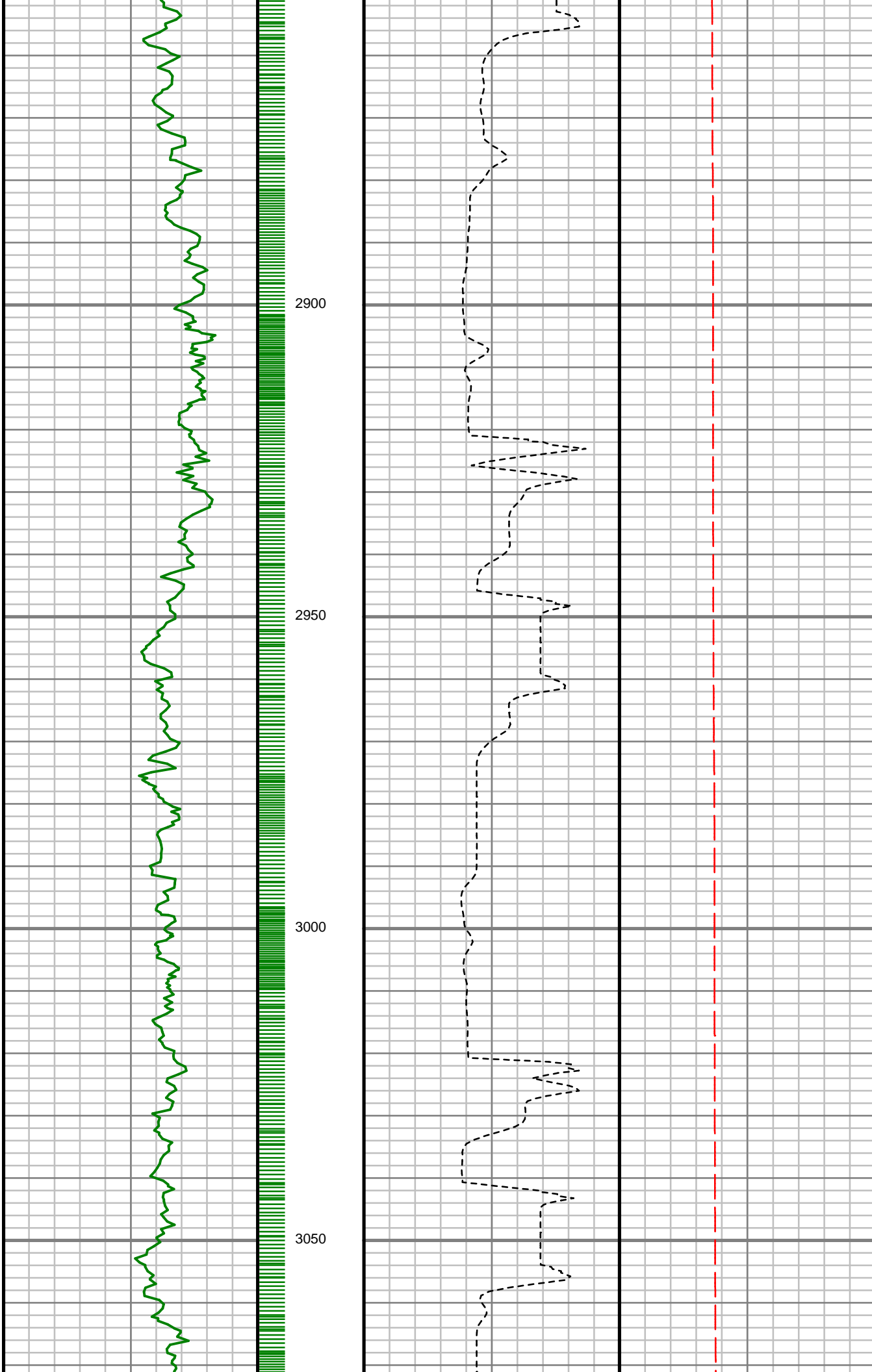
S: 29 MD: 2495.00 ft
Inc: 8.48 deg Az:
113.67 deg TVD:
2462.45 ft

S: 30 MD: 2589.00 ft
Inc: 7.70 deg Az:
114.47 deg TVD:
2555.51 ft



S: 31 MD: 2684.00 ft
Inc: 8.11 deg Az: 113.89
deg TVD: 2649.61 ft

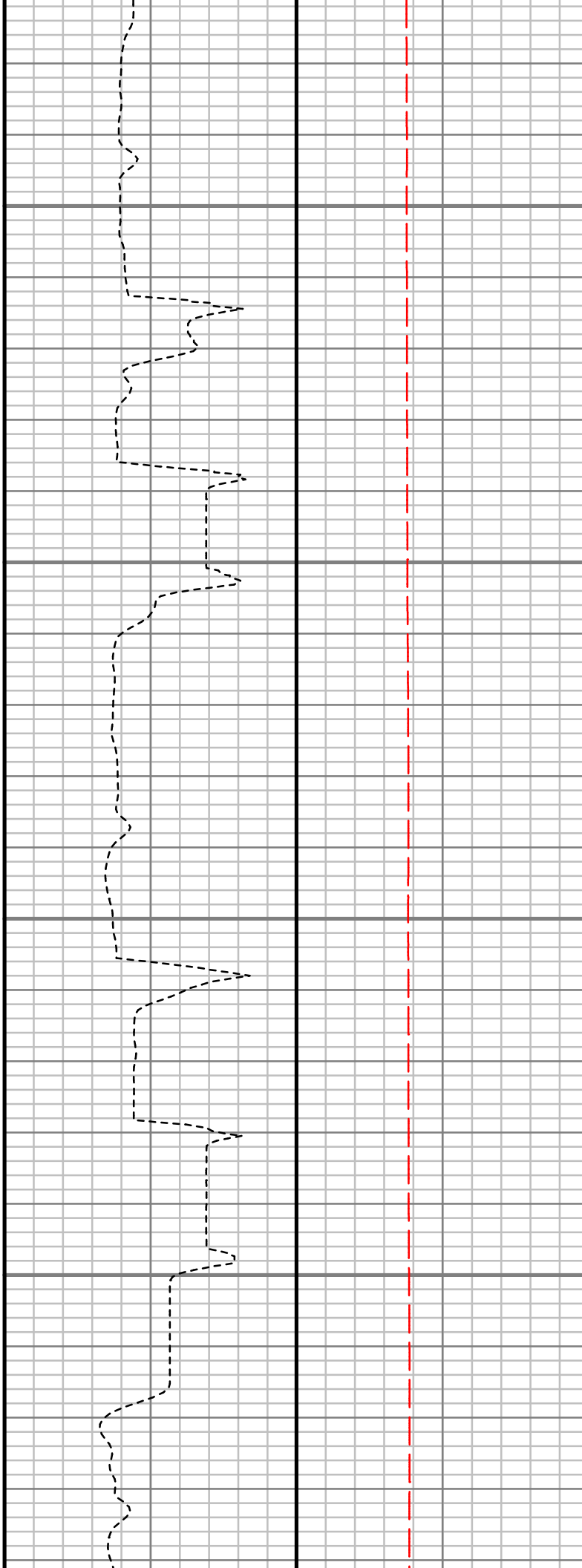
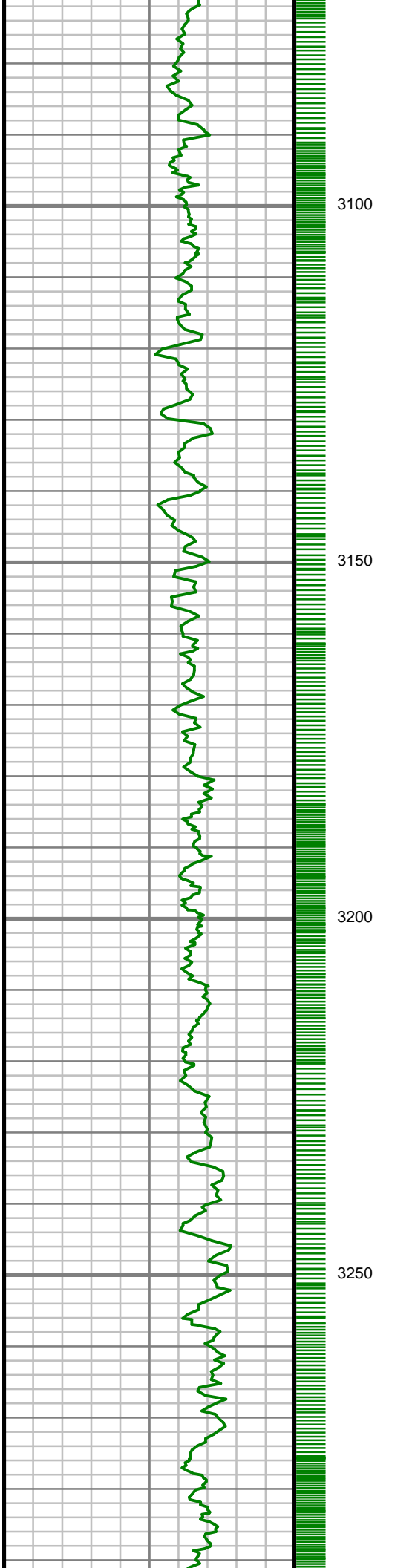
S: 32 MD: 2778.00 ft
Inc: 7.96 deg Az:
106.56 deg TVD:
2742.69 ft



S: 33 MD: 2871.00 ft
Inc: 7.19 deg Az:
101.62 deg TVD:
2834.88 ft

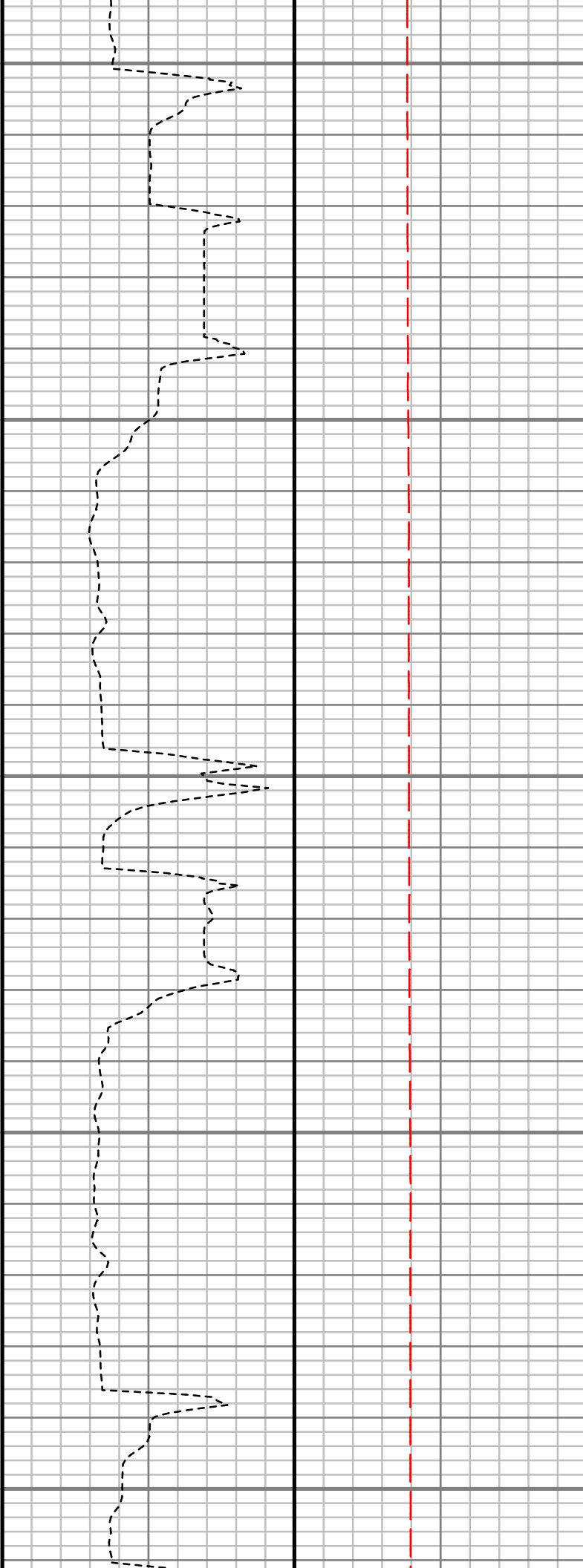
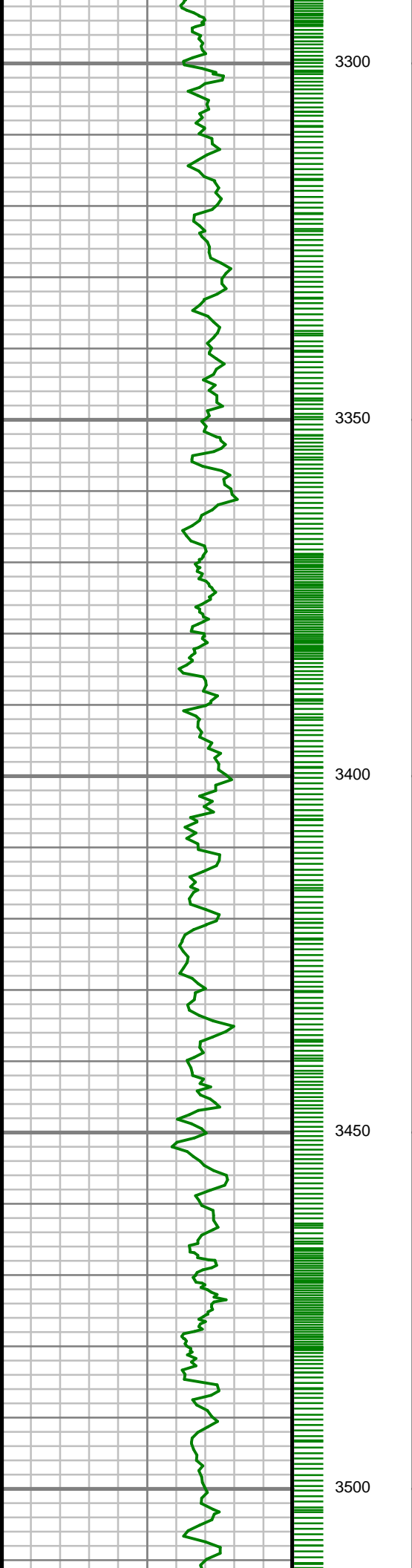
S: 34 MD: 2965.00 ft
Inc: 5.41 deg Az: 90.92
deg TVD: 2928.31 ft

S: 35 MD: 3058.00 ft
Inc: 4.90 deg Az: 77.53
deg TVD: 3020.93 ft



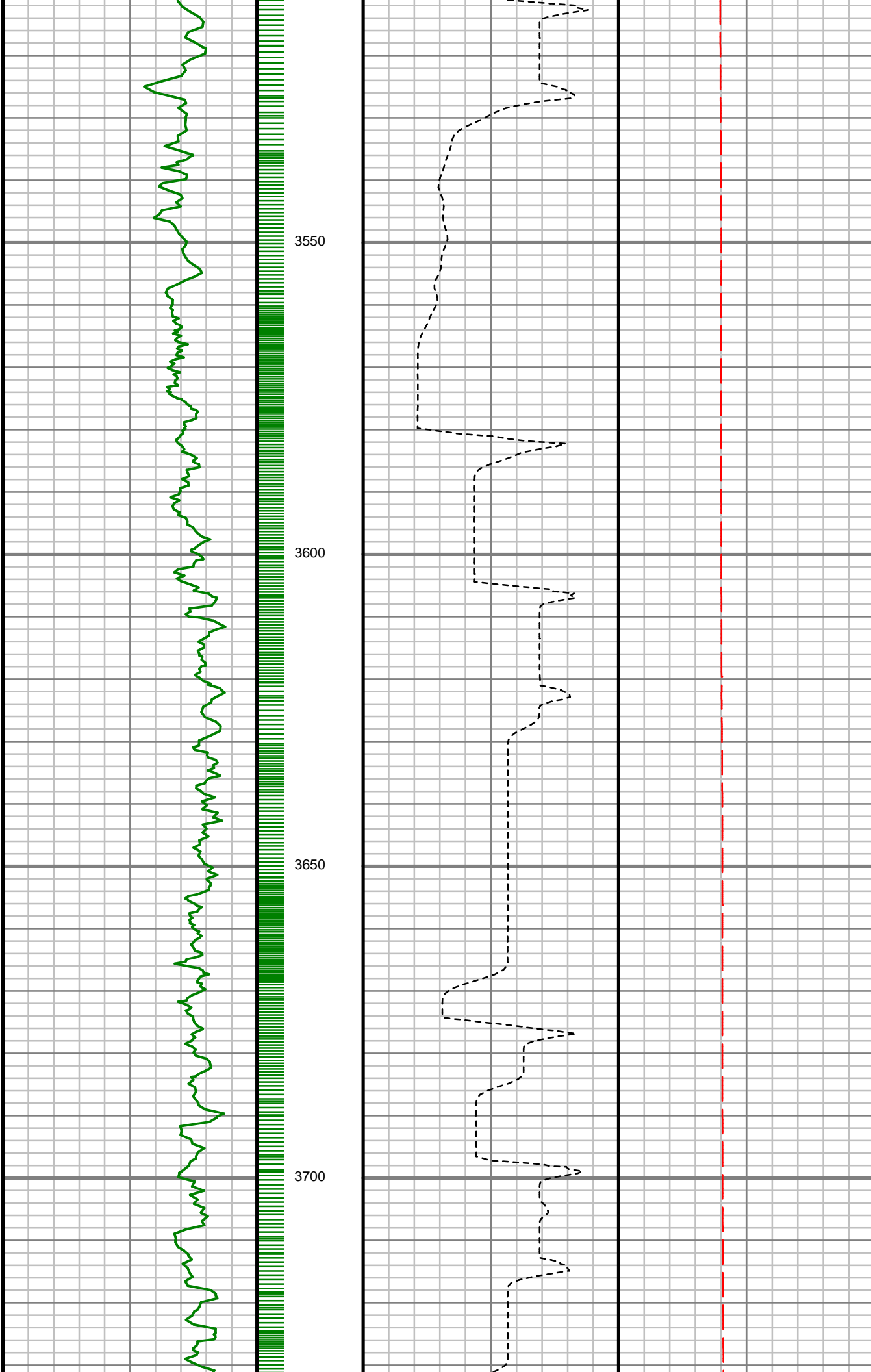
S: 36 MD: 3153.00 ft
Inc: 3.74 deg Az: 61.17
deg TVD: 3115.67 ft

S: 37 MD: 3246.00 ft
Inc: 2.95 deg Az: 24.73
deg TVD: 3208.52 ft



S: 38 MD: 3340.00 ft
Inc: 3.16 deg Az:
349.96 deg TVD:
3302.39 ft

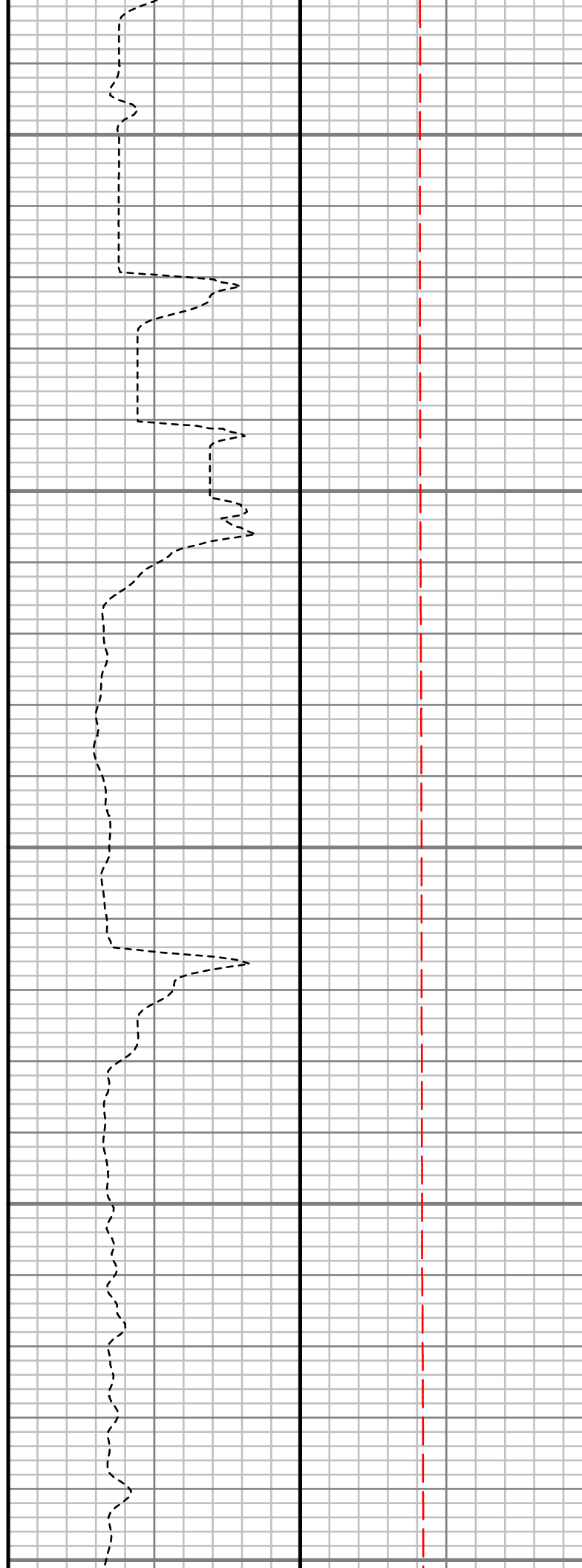
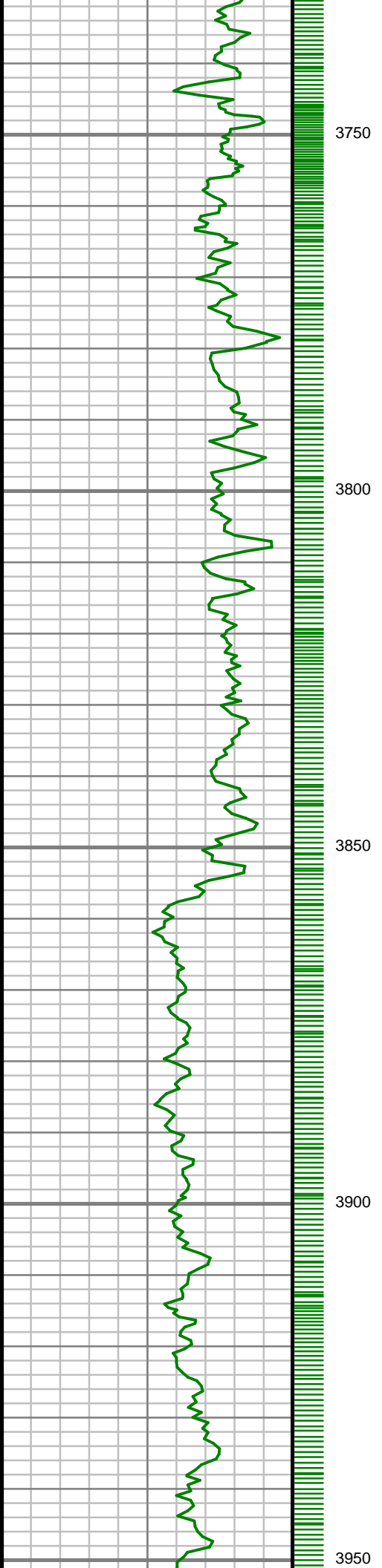
S: 39 MD: 3433.00 ft
Inc: 3.03 deg Az:
333.20 deg TVD:
3395.26 ft



S: 40 MD: 3527.00 ft
Inc: 2.74 deg Az:
331.70 deg TVD:
3489.14 ft

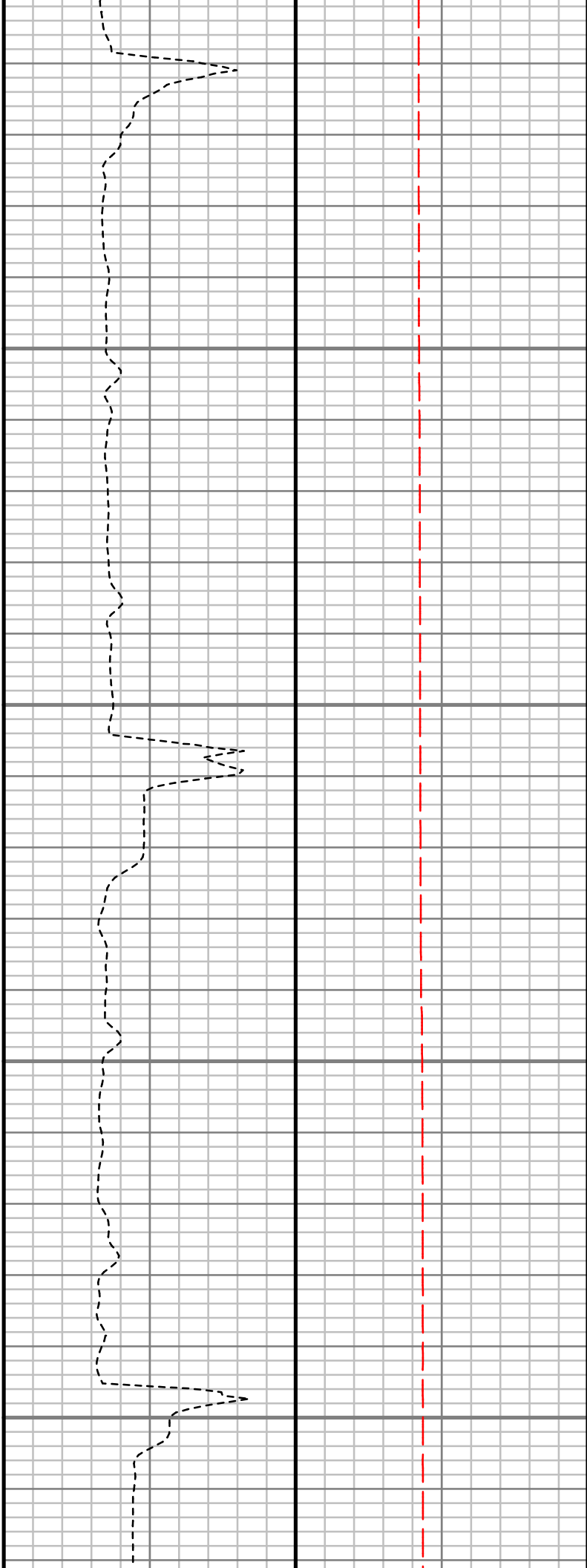
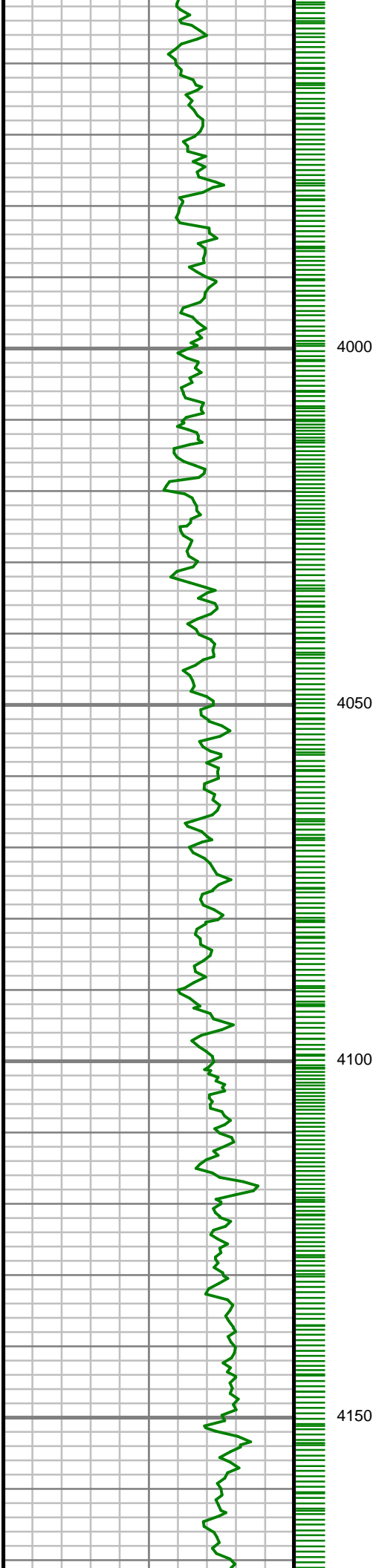
S: 41 MD: 3622.00 ft
Inc: 3.05 deg Az:
330.87 deg TVD:
3584.02 ft

S: 42 MD: 3717.00 ft
Inc: 3.82 deg Az:
332.17 deg TVD:
3678.85 ft



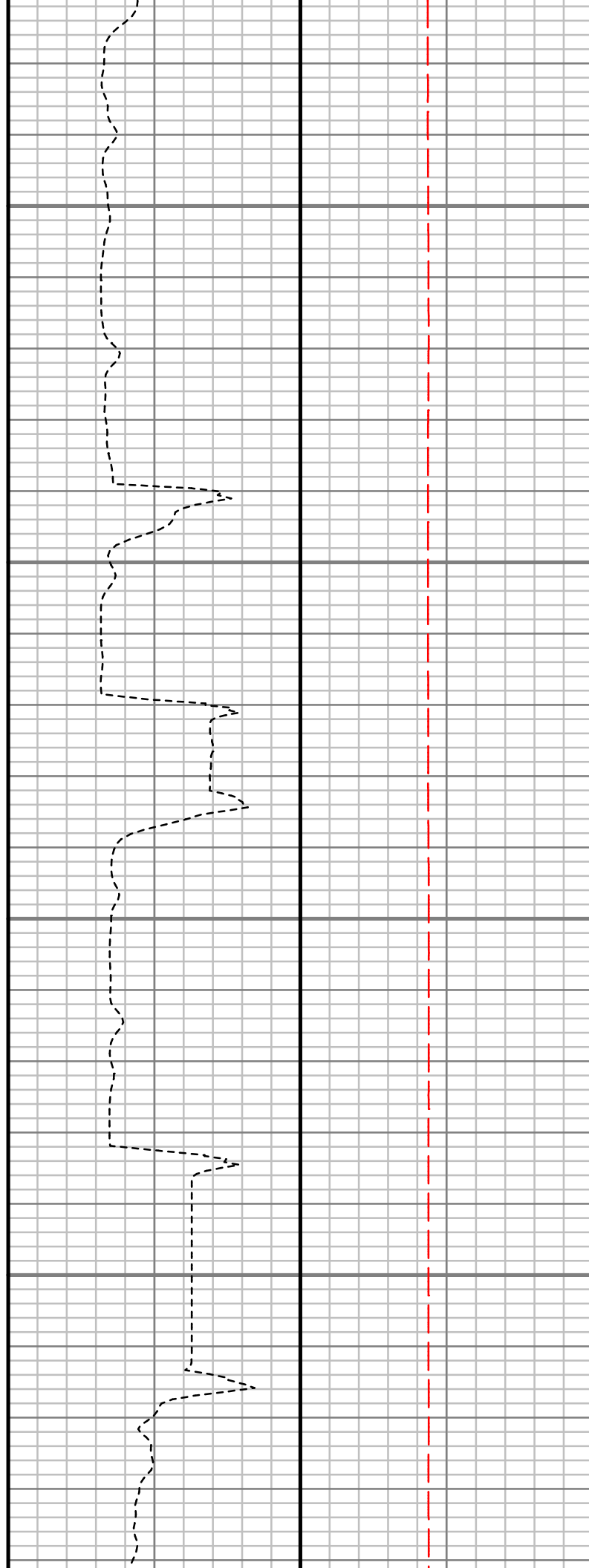
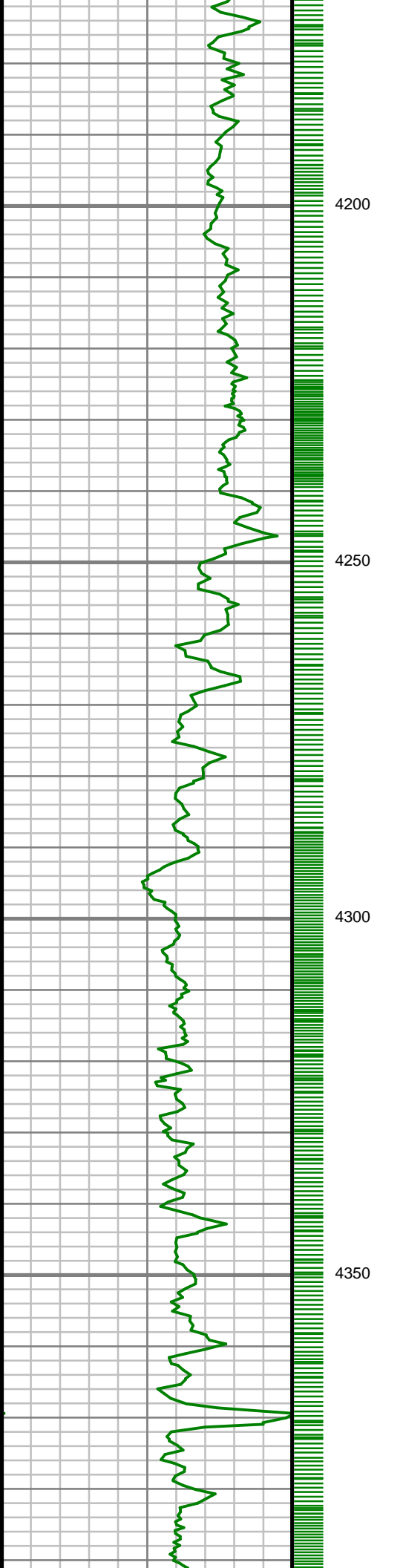
S: 43 MD: 3811.00 ft
Inc: 3.68 deg Az:
335.05 deg TVD:
3772.64 ft

S: 44 MD: 3904.00 ft
Inc: 3.48 deg Az:
329.86 deg TVD:
3865.46 ft



S: 45 MD: 3999.00 ft
Inc: 3.19 deg Az:
318.75 deg TVD:
3960.30 ft

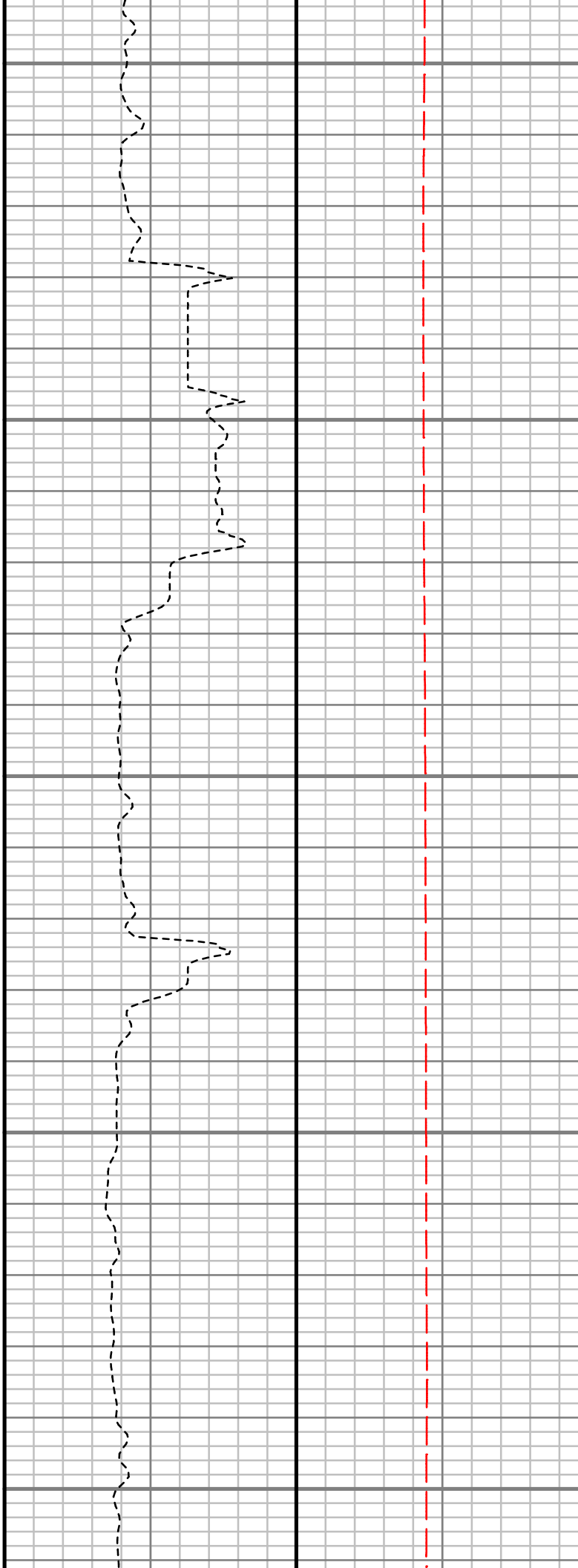
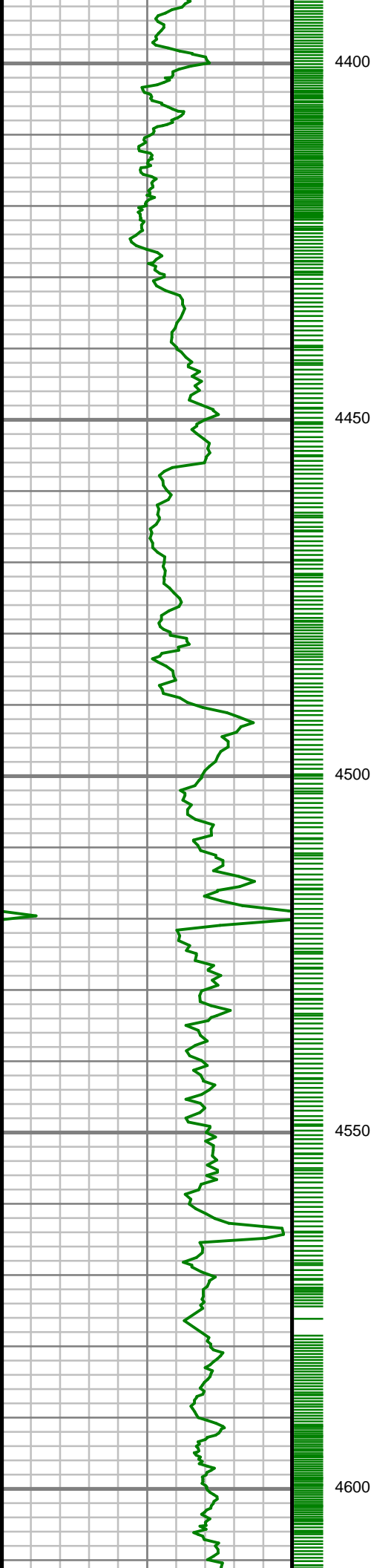
S: 46 MD: 4094.00 ft
Inc: 2.45 deg Az:
302.44 deg TVD:
4055.19 ft



S: 47 MD: 4187.00 ft
Inc: 2.06 deg Az:
274.12 deg TVD:
4148.12 ft

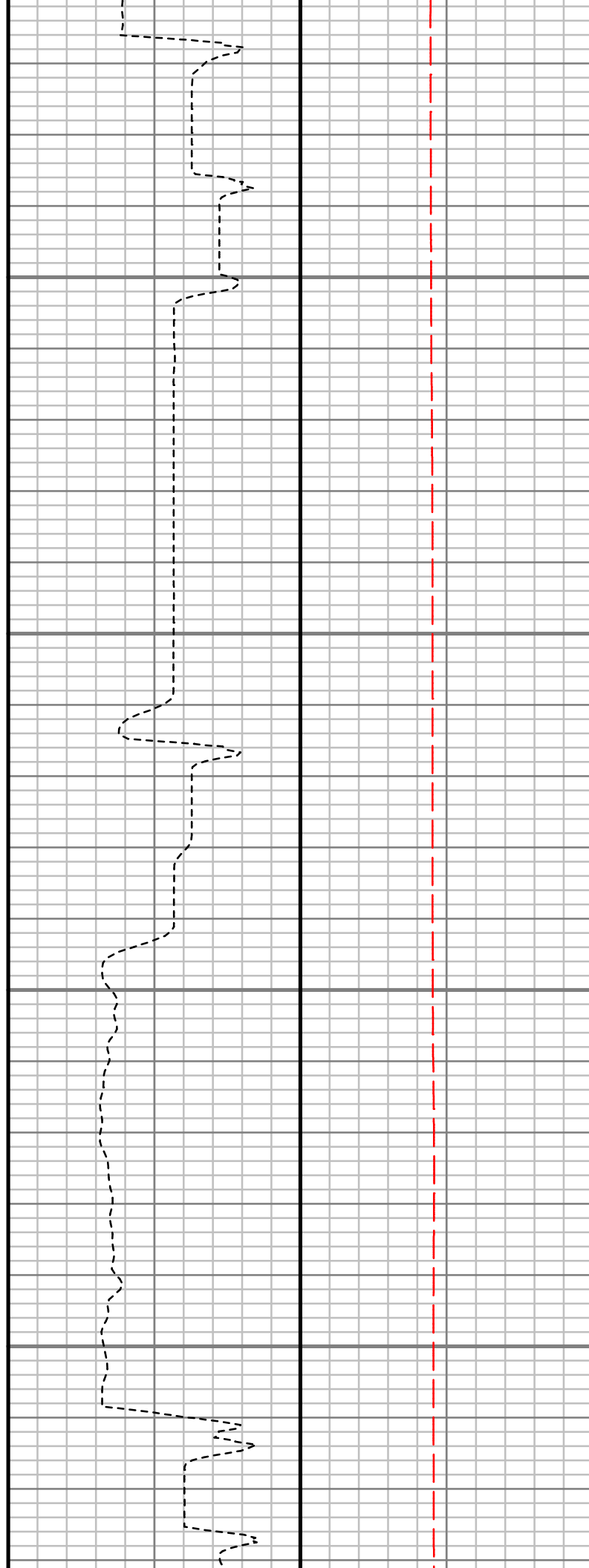
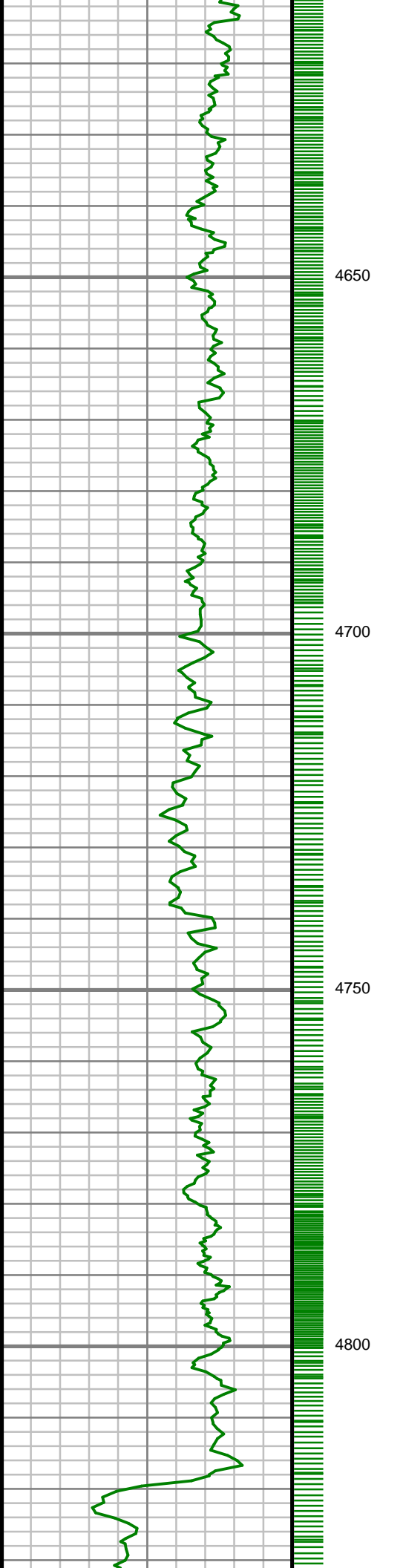
S: 48 MD: 4283.00 ft
Inc: 1.52 deg Az:
233.92 deg TVD:
4244.08 ft

S: 49 MD: 4377.00 ft
Inc: 1.43 deg Az:
226.30 deg TVD:
4338.05 ft



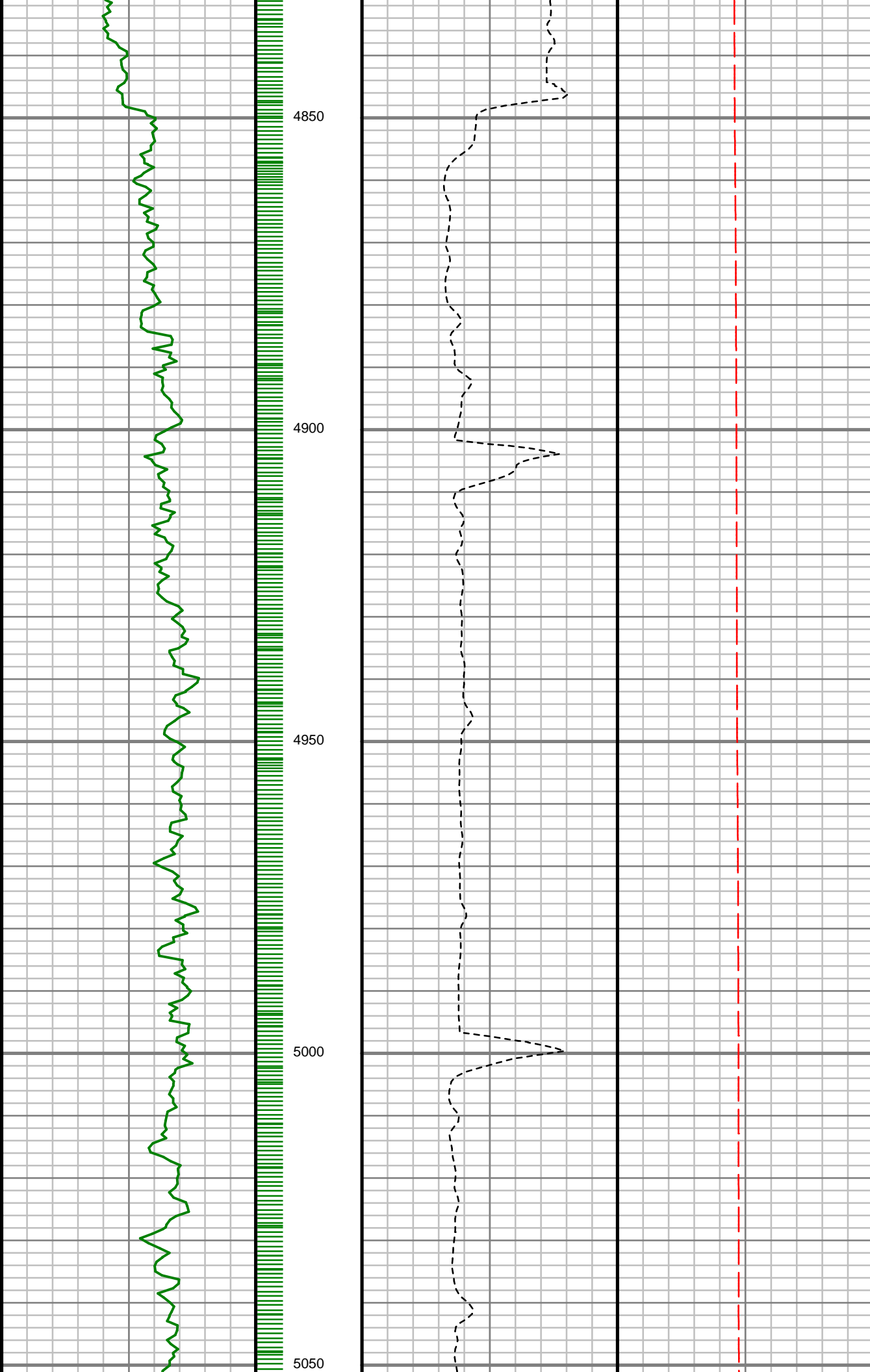
S: 50 MD: 4472.00 ft
Inc: 1.14 deg Az:
294.36 deg TVD:
4433.03 ft

S: 51 MD: 4567.00 ft
Inc: 1.21 deg Az:
286.52 deg TVD:
4528.01 ft



S: 52 MD: 4660.00 ft
Inc: 0.45 deg Az:
281.74 deg TVD:
4621.00 ft

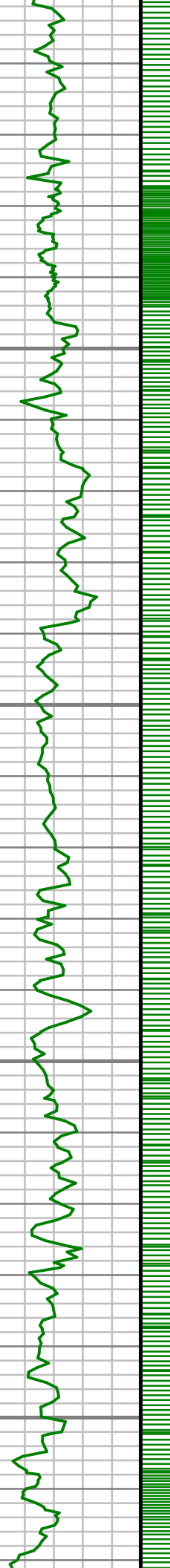
S: 53 MD: 4754.00 ft
Inc: 0.86 deg Az:
243.86 deg TVD:
4714.99 ft



S: 54 MD: 4849.00 ft
Inc: 0.57 deg Az:
348.05 deg TVD:
4809.99 ft

S: 55 MD: 4943.00 ft
Inc: 0.91 deg Az:
351.58 deg TVD:
4903.98 ft

S: 56 MD: 5038.00 ft
Inc: 0.64 deg Az:
340.97 deg TVD:
4998.97 ft

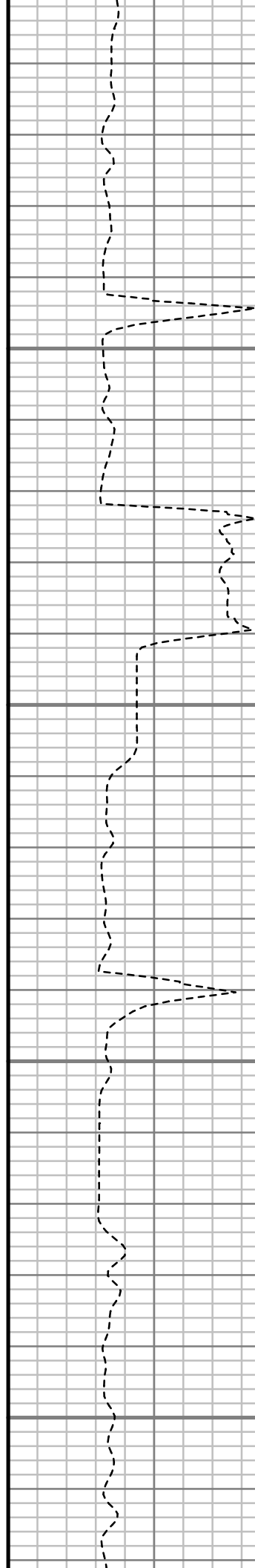


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5150

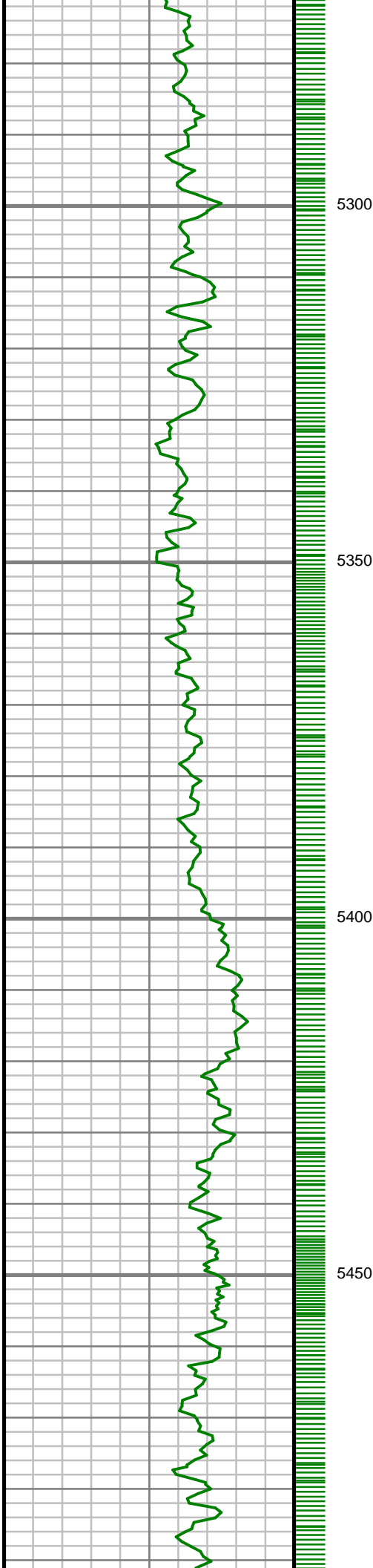
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5250



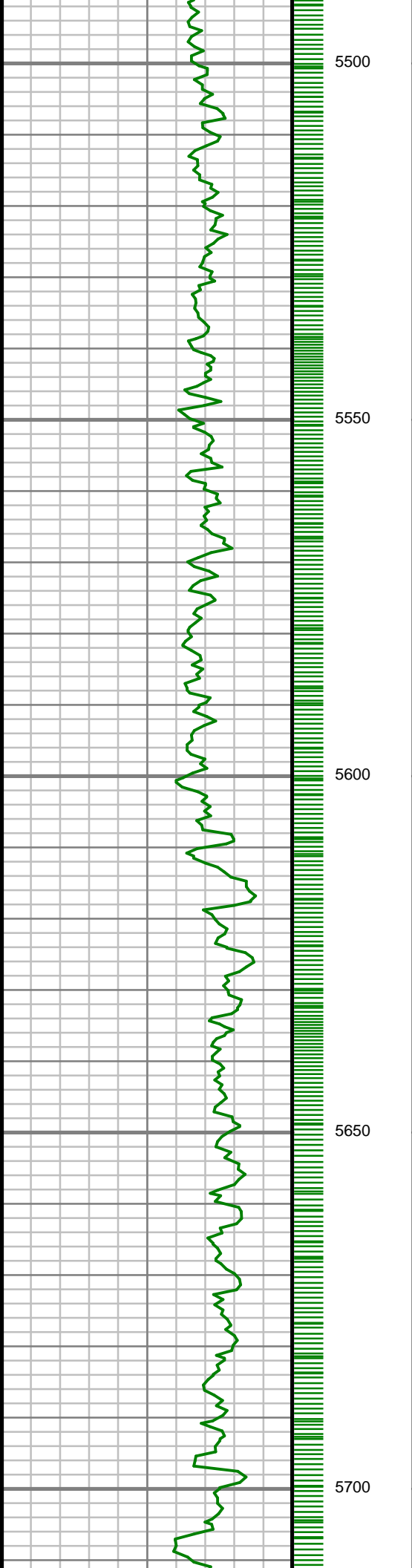
S: 57 MD: 5133.00 ft
Inc: 0.81 deg Az: 40.25
deg TVD: 5093.96 ft

S: 58 MD: 5252.00 ft
Inc: 0.78 deg Az: 29.46
deg TVD: 5212.95 ft



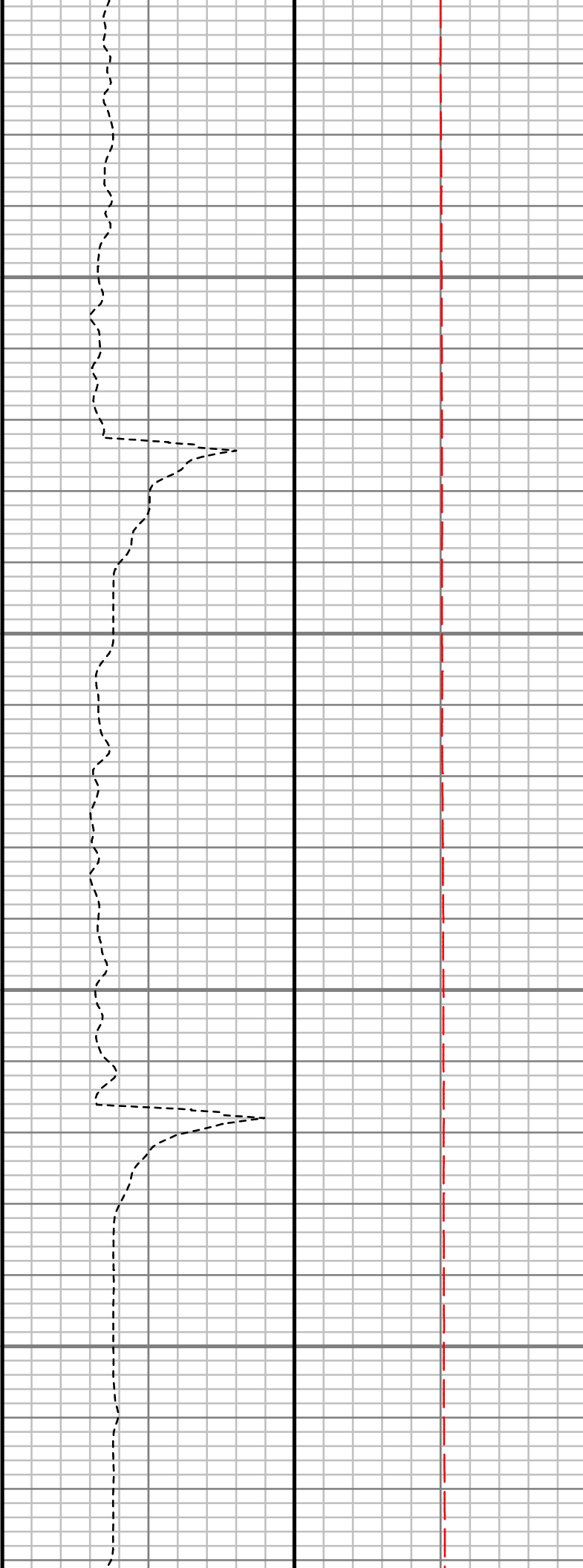
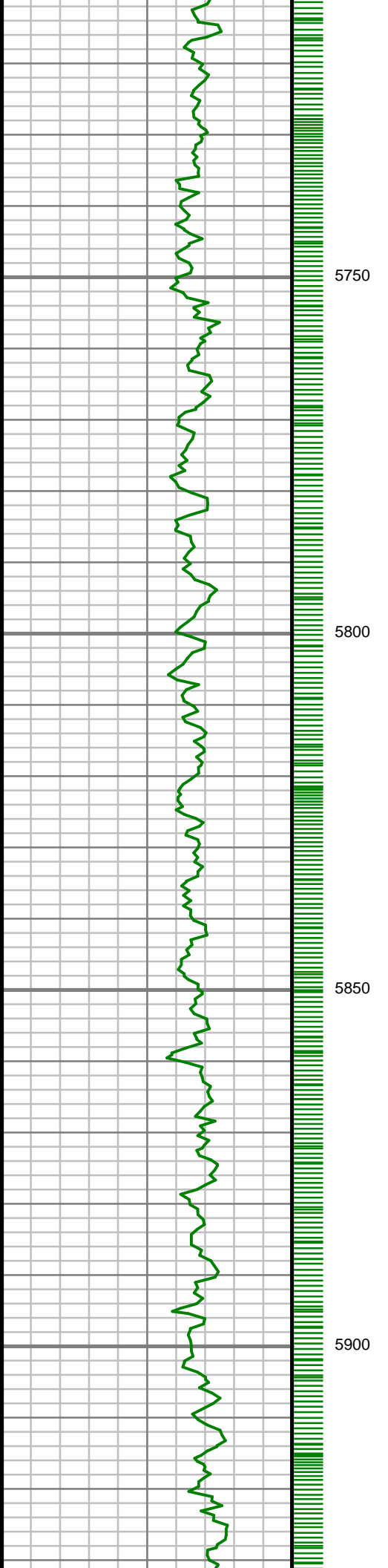
S: 59 MD: 5346.00 ft
Inc: 0.69 deg Az: 11.36
deg TVD: 5306.94 ft

S: 60 MD: 5439.00 ft
Inc: 0.55 deg Az:
355.52 deg TVD:
5399.94 ft



S: 61 MD: 5532.00 ft
Inc: 0.63 deg Az: 6.53
deg TVD: 5492.93 ft

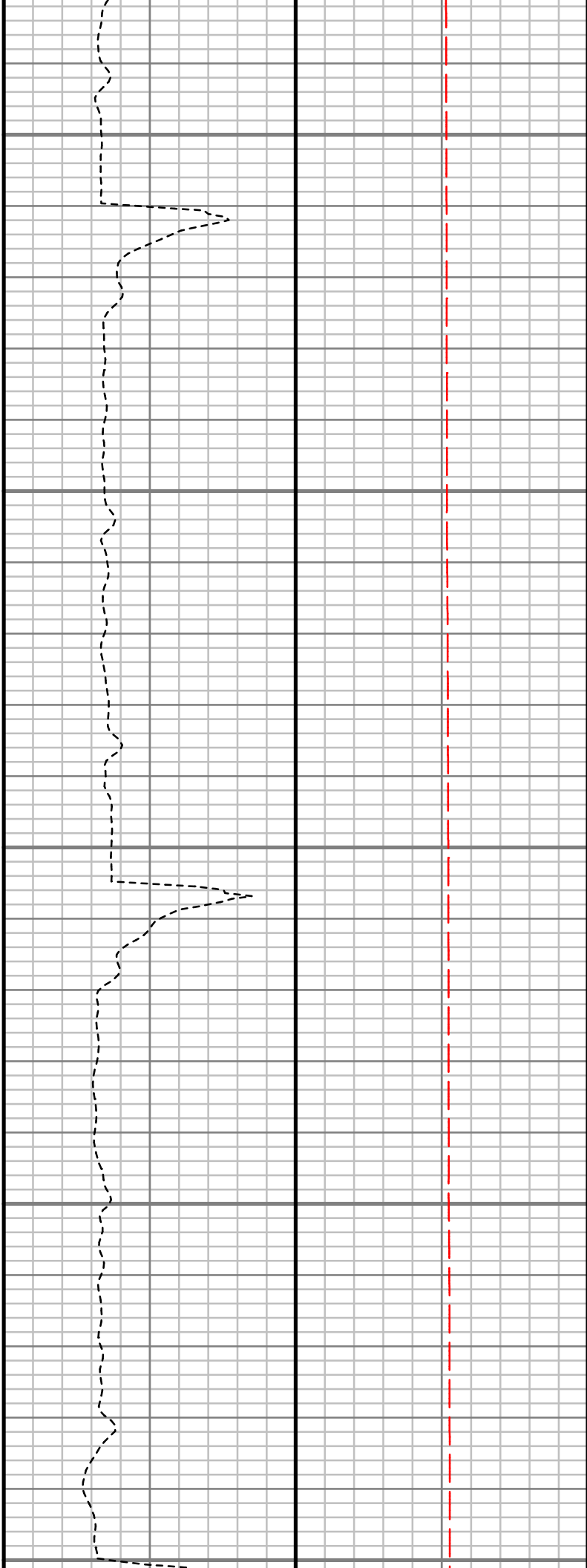
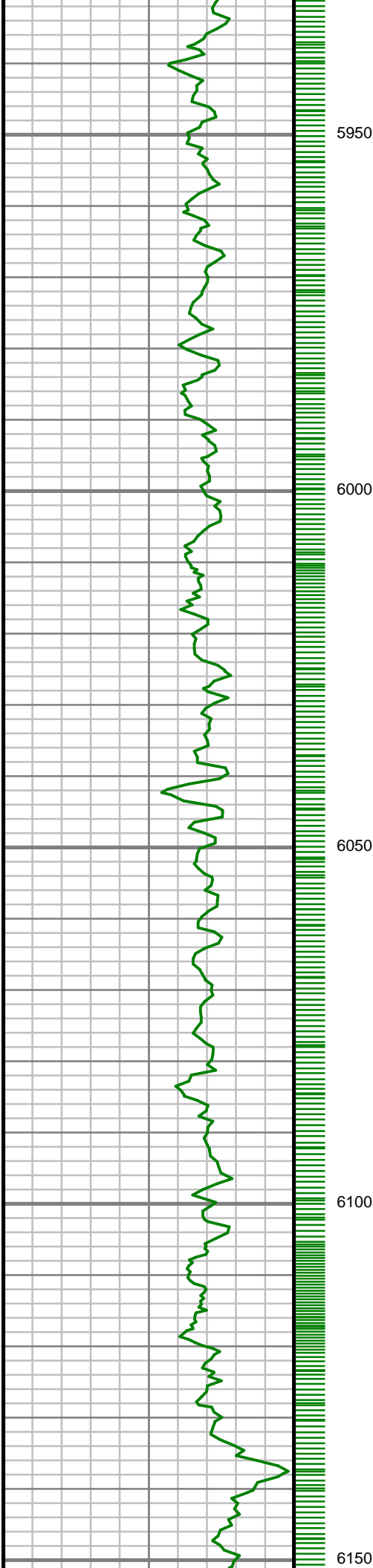
S: 62 MD: 5627.00 ft
Inc: 0.84 deg Az: 13.54
deg TVD: 5587.92 ft



S: 63 MD: 5721.00 ft
Inc: 1.11 deg Az: 6.67
deg TVD: 5681.91 ft

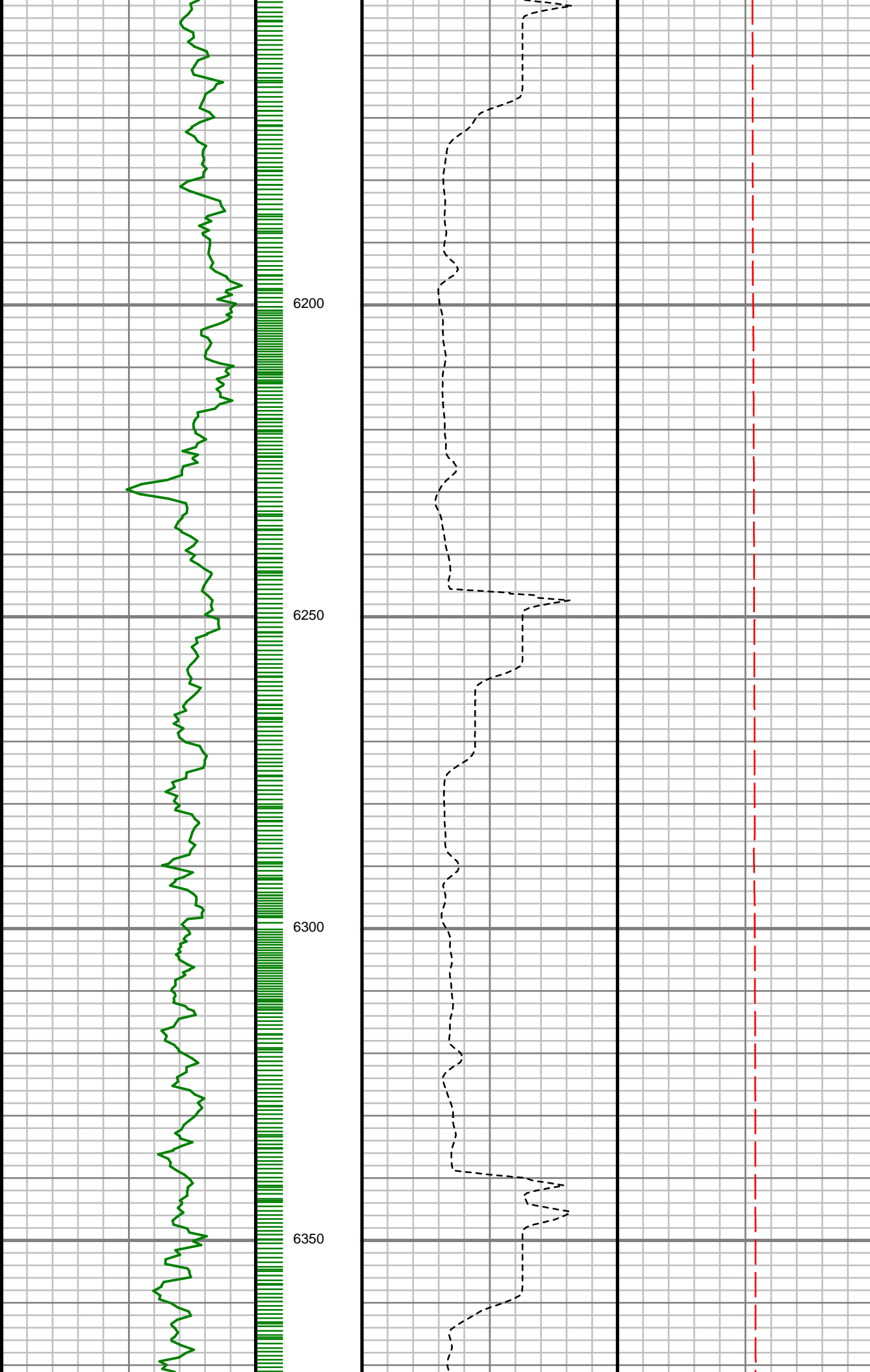
S: 64 MD: 5815.00 ft
Inc: 1.57 deg Az:
352.30 deg TVD:
5775.89 ft

S: 65 MD: 5910.00 ft
Inc: 1.21 deg Az:
345.16 deg TVD:
5870.86 ft



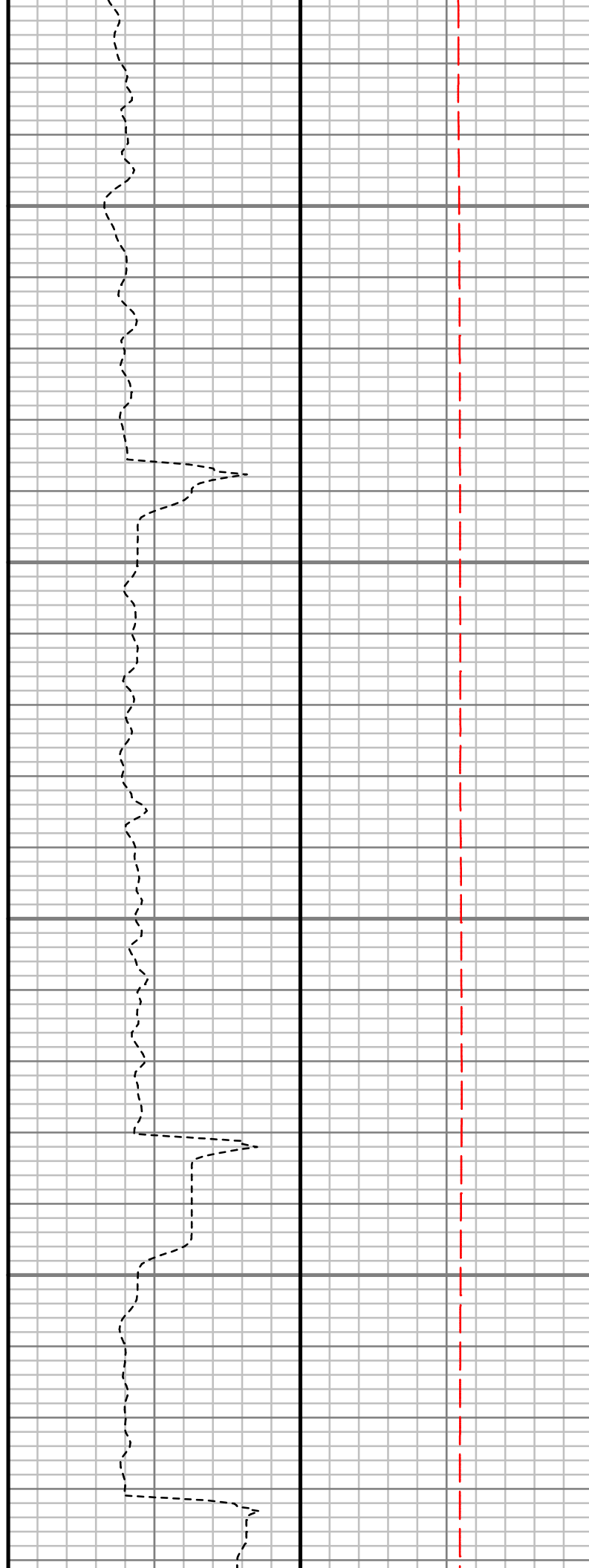
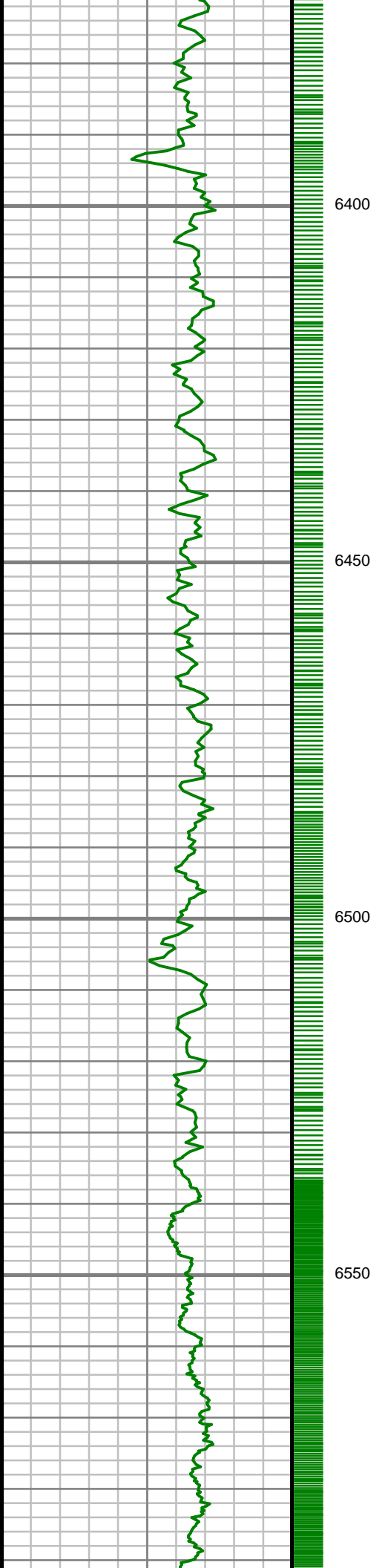
S: 66 MD: 6004.00 ft
Inc: 0.95 deg Az:
322.34 deg TVD:
5964.84 ft

S: 67 MD: 6099.00 ft
Inc: 1.03 deg Az:
307.15 deg TVD:
6059.83 ft



S: 68 MD: 6194.00 ft
Inc: 1.02 deg Az:
290.21 deg TVD:
6154.81 ft

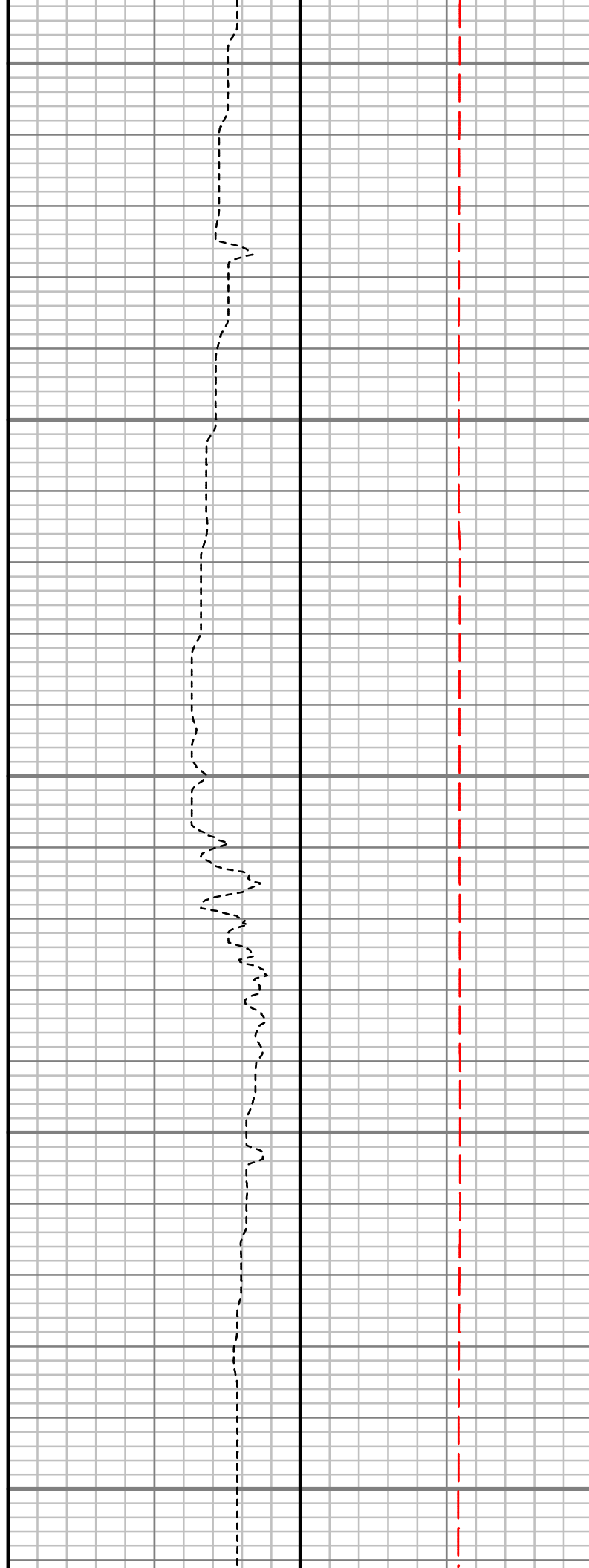
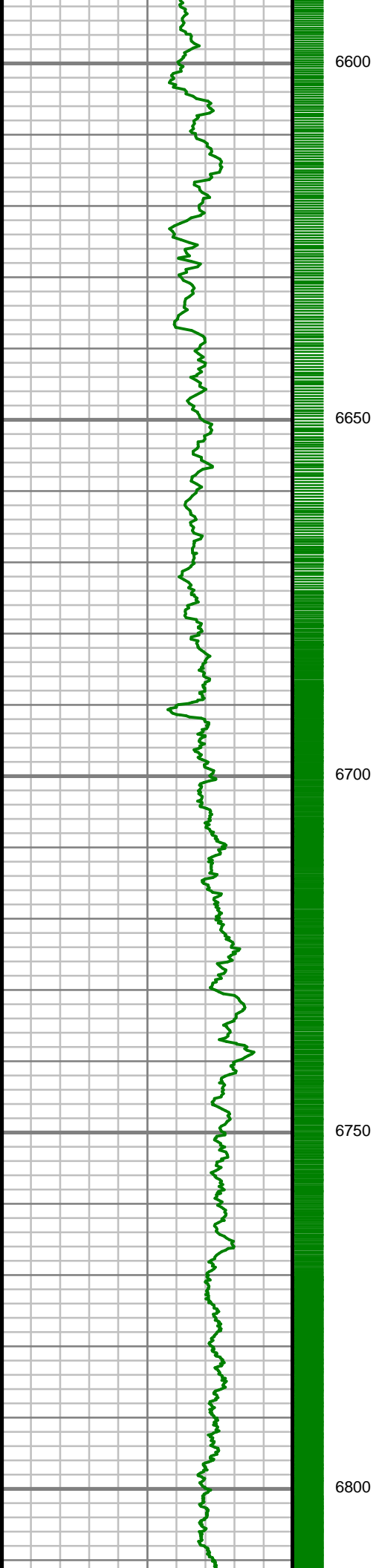
S: 69 MD: 6289.00 ft
Inc: 1.05 deg Az:
289.33 deg TVD:
6249.80 ft



S: 70 MD: 6383.00 ft
Inc: 1.08 deg Az:
287.61 deg TVD:
6343.78 ft

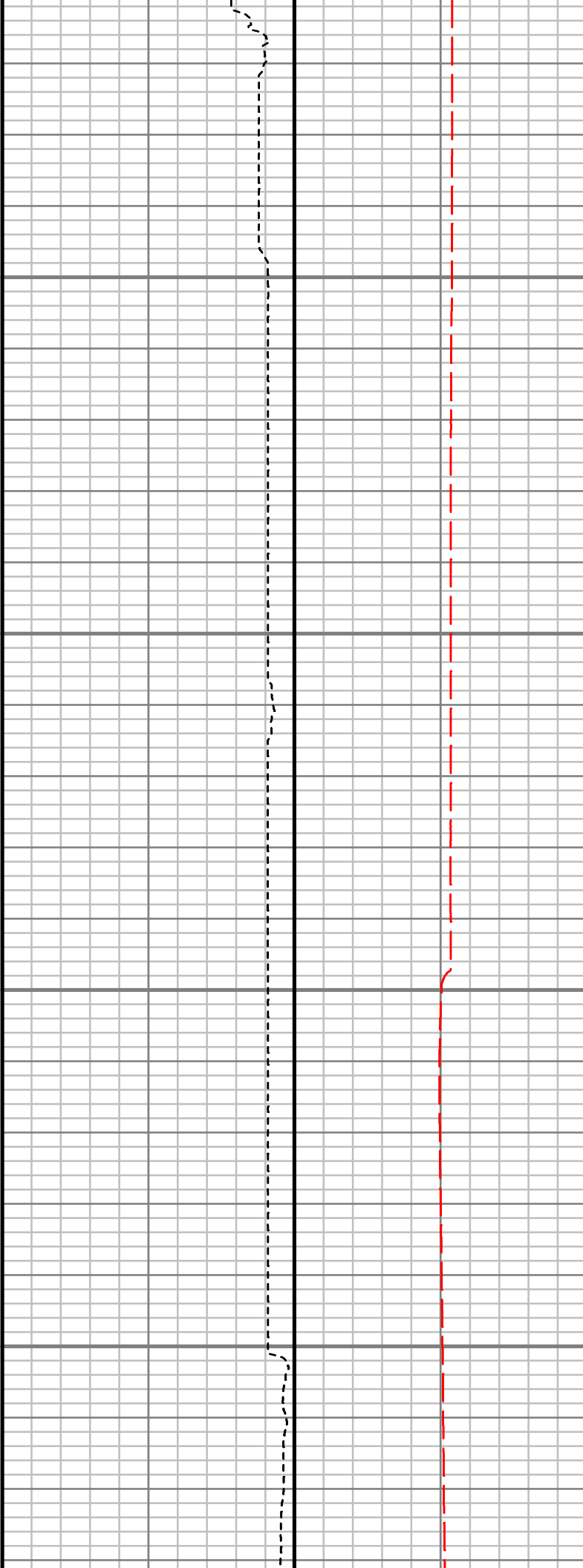
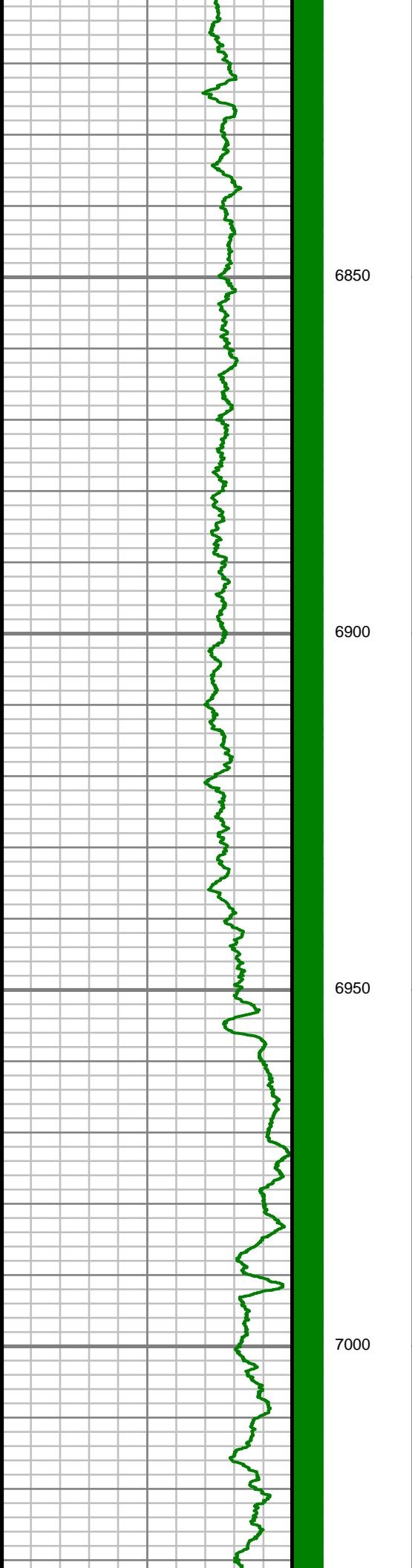
S: 71 MD: 6477.00 ft
Inc: 1.10 deg Az:
300.46 deg TVD:
6437.76 ft

S: 72 MD: 6570.00 ft
Inc: 1.28 deg Az:
316.20 deg TVD:
6530.74 ft



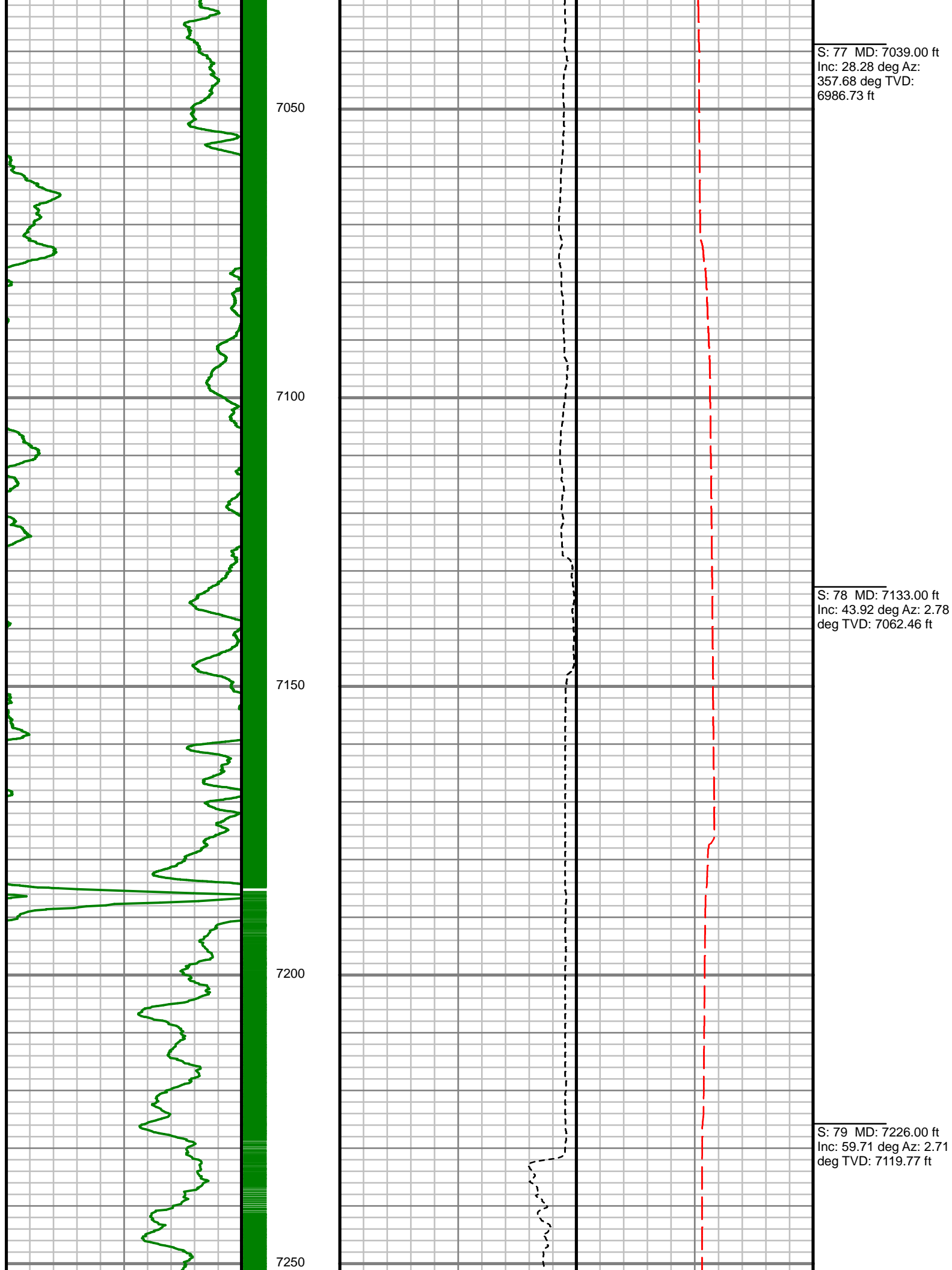
S: 73 MD: 6664.00 ft
Inc: 6.27 deg Az:
354.09 deg TVD:
6624.52 ft

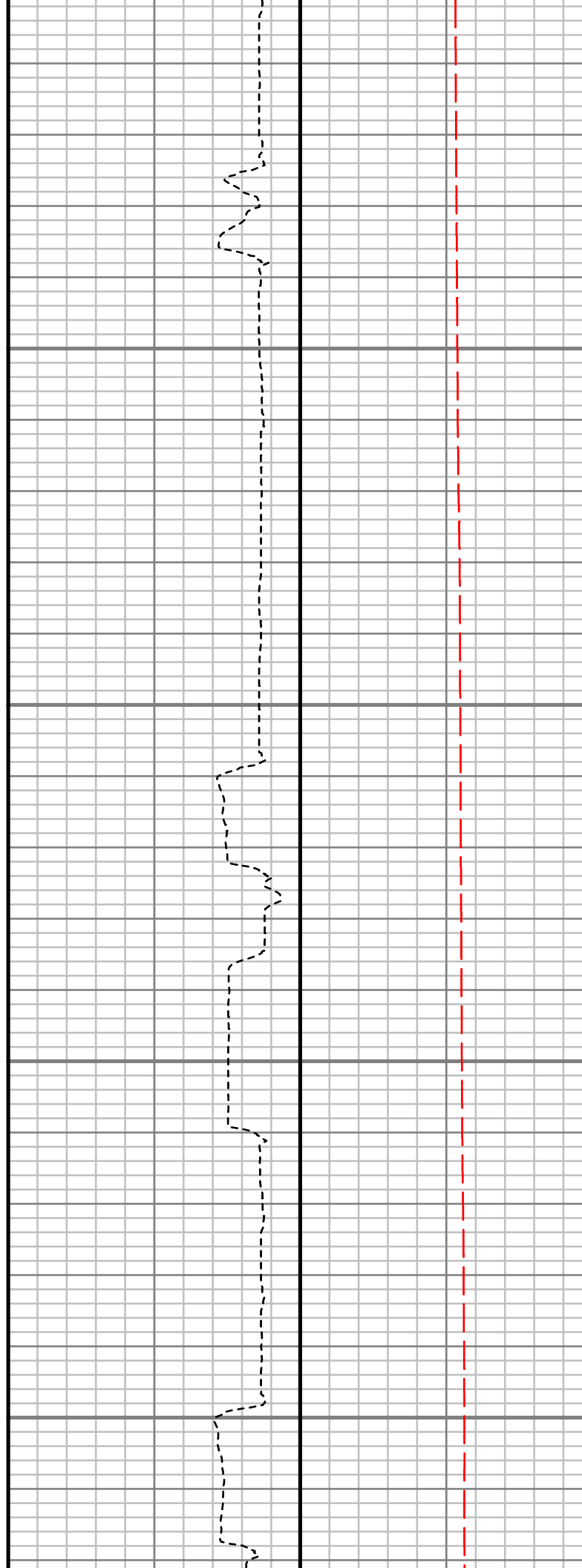
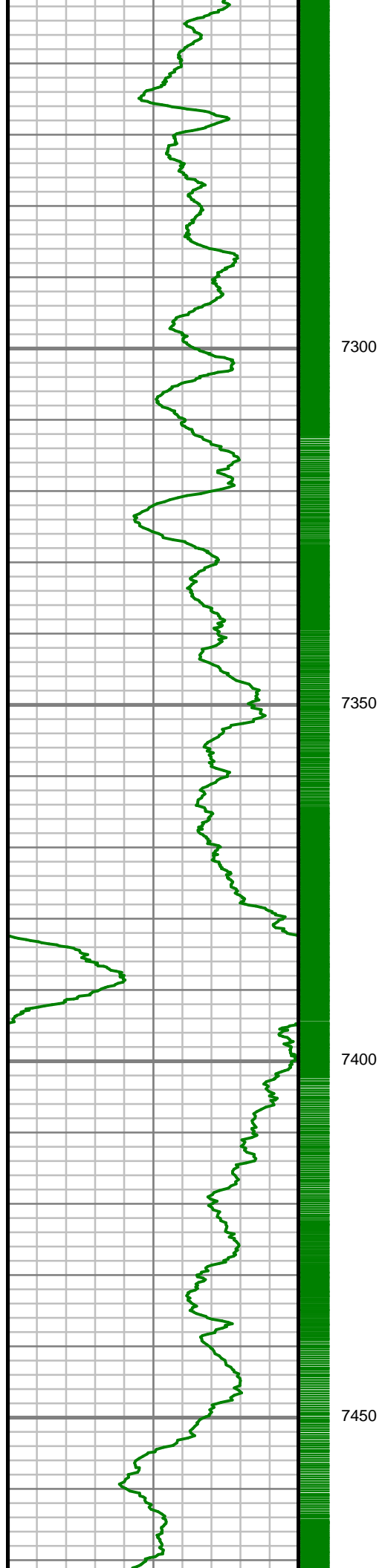
S: 74 MD: 6757.00 ft
Inc: 7.91 deg Az:
347.23 deg TVD:
6716.81 ft



S: 75 MD: 6852.00 ft
Inc: 12.51 deg Az:
346.72 deg TVD:
6810.28 ft

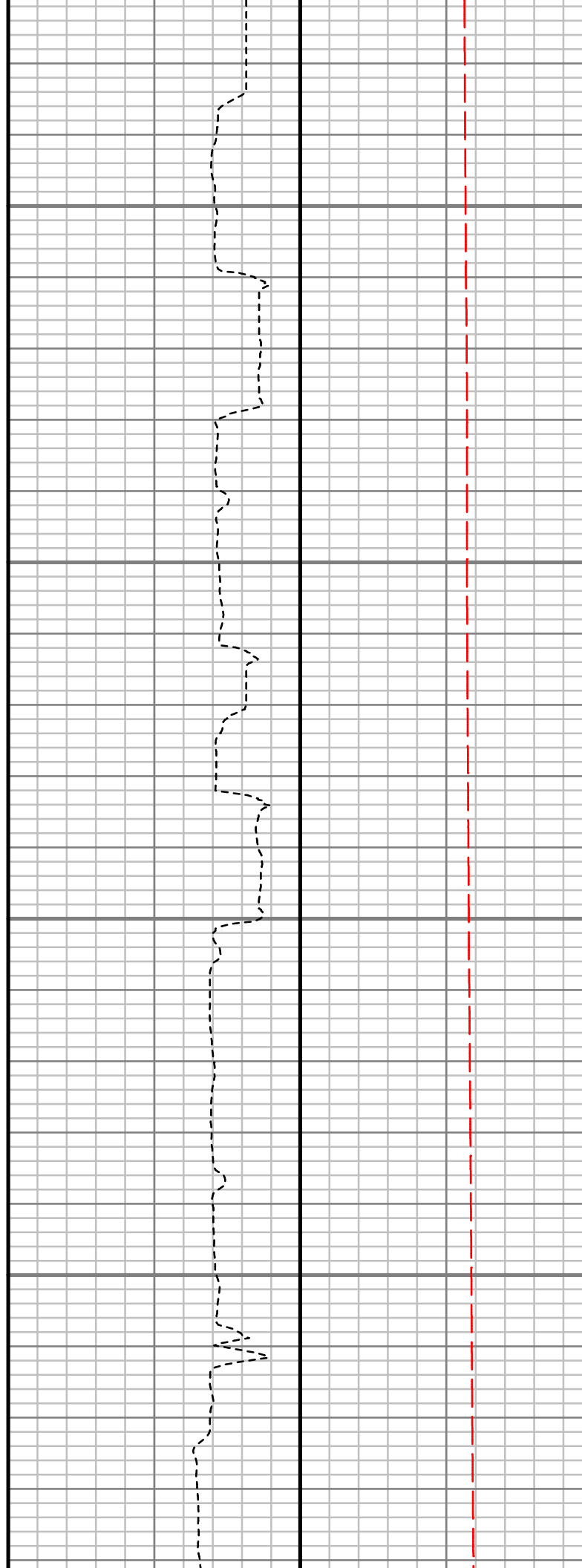
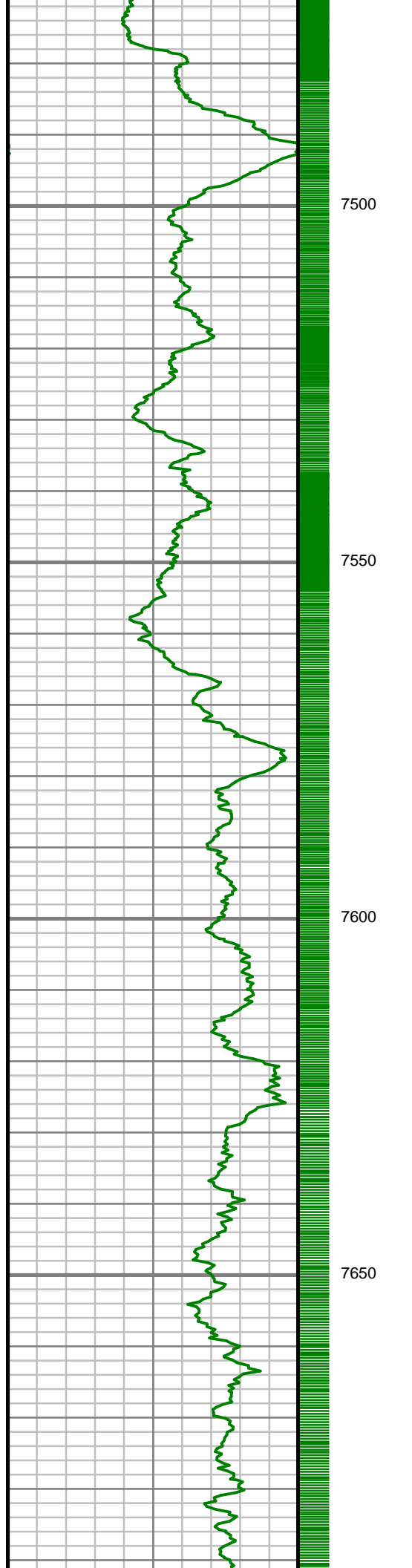
S: 76 MD: 6946.00 ft
Inc: 17.27 deg Az:
350.79 deg TVD:
6901.10 ft





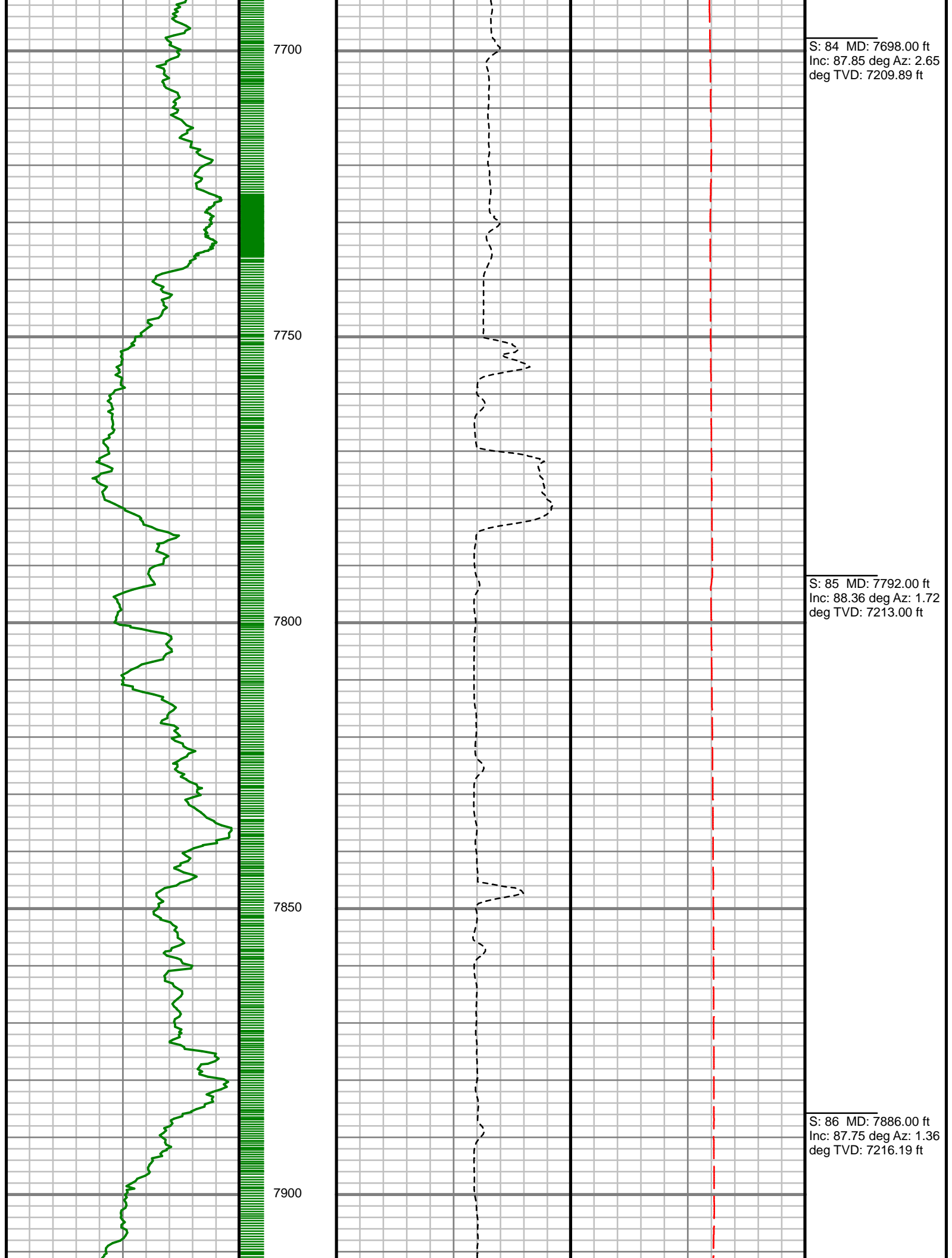
S: 80 MD: 7321.00 ft
Inc: 71.16 deg Az: 1.28
deg TVD: 7159.20 ft

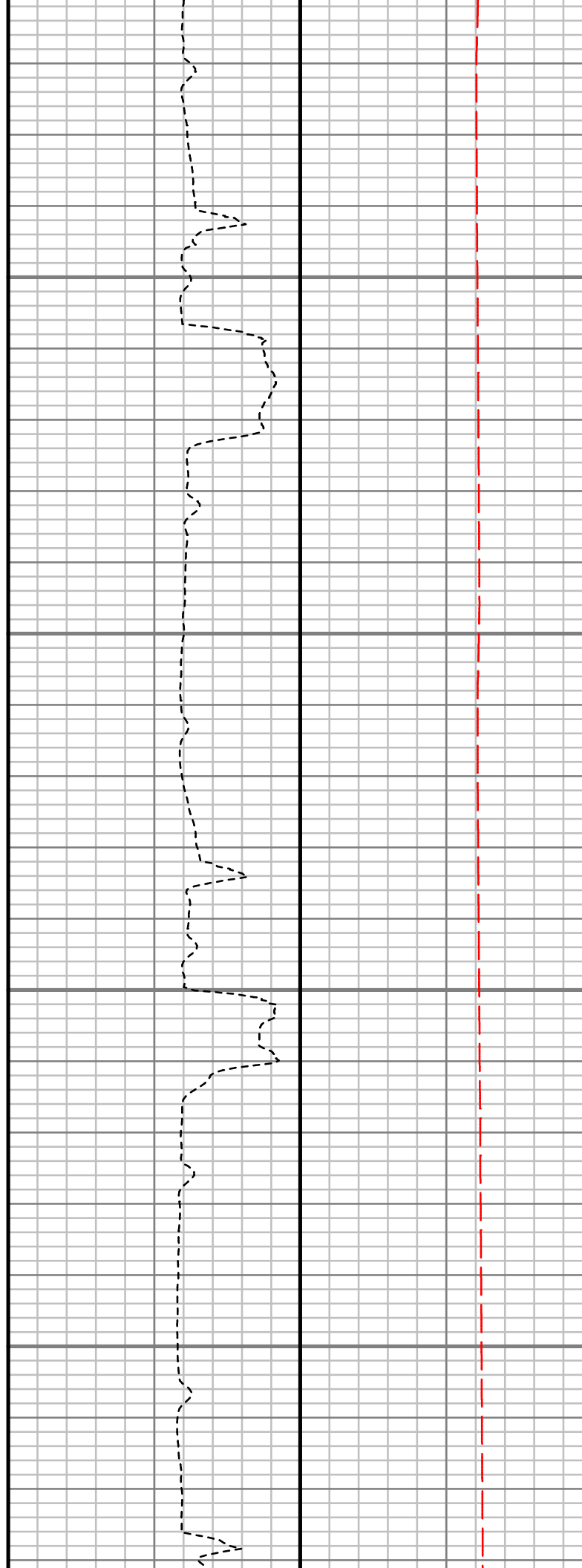
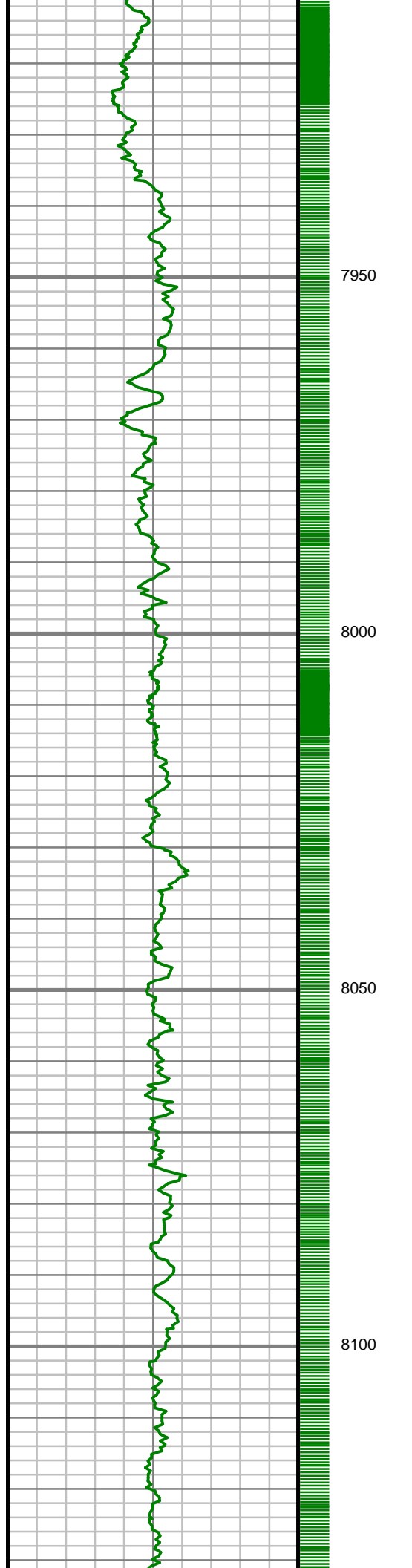
S: 81 MD: 7415.00 ft
Inc: 78.82 deg Az: 2.75
deg TVD: 7183.53 ft



S: 82 MD: 7509.00 ft
Inc: 83.54 deg Az: 2.56
deg TVD: 7197.94 ft

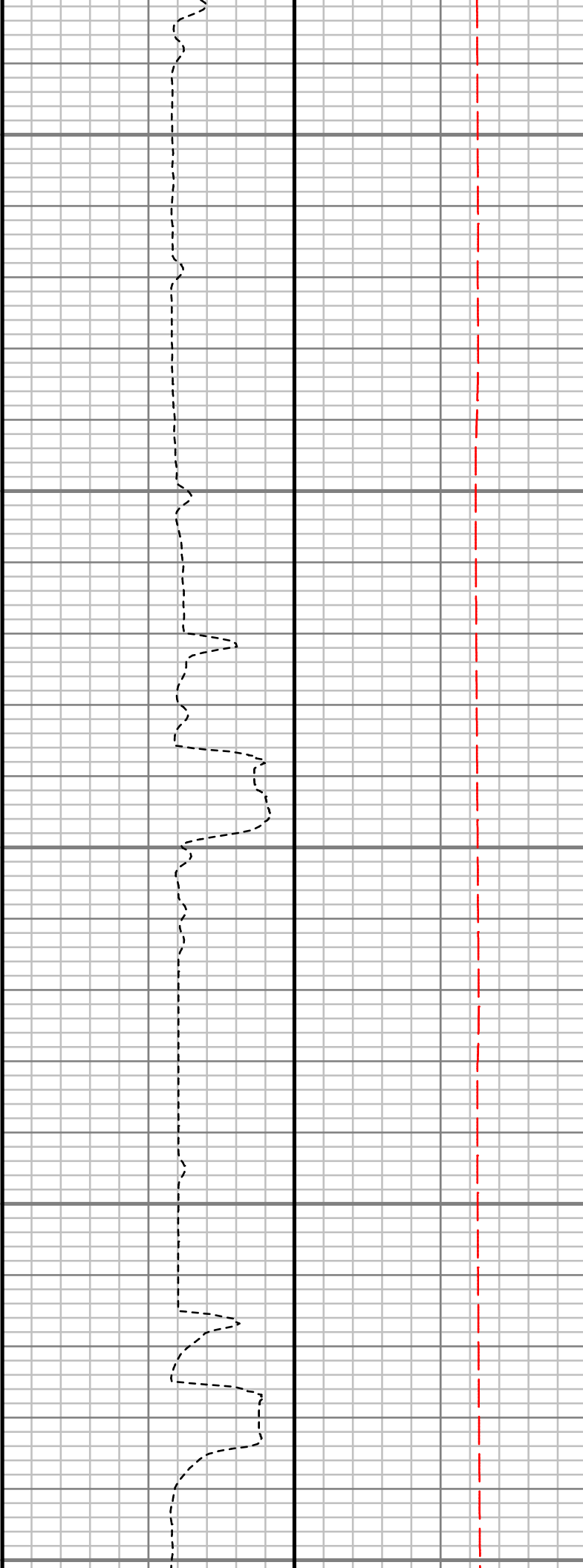
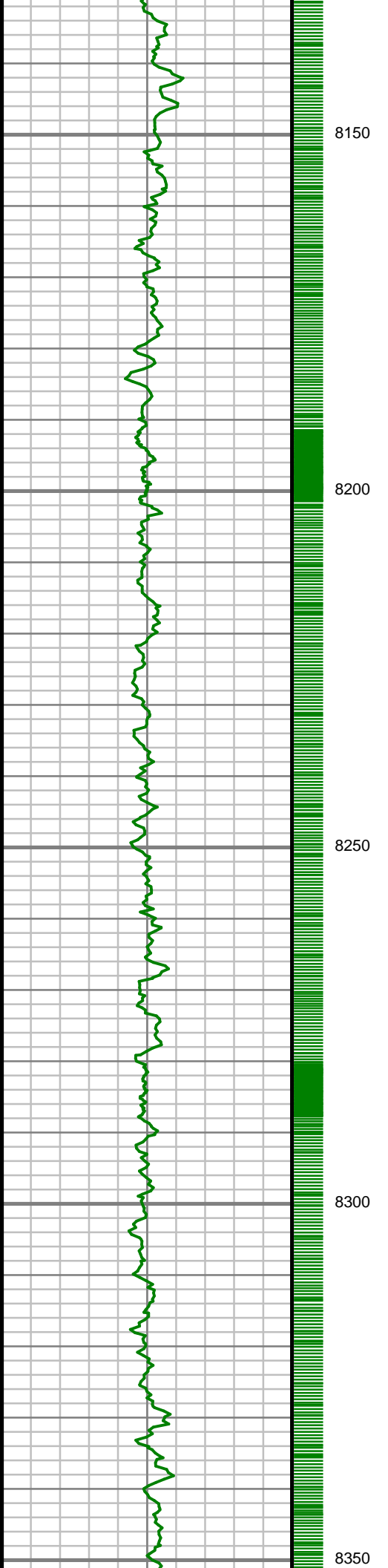
S: 83 MD: 7603.00 ft
Inc: 87.04 deg Az: 2.33
deg TVD: 7205.66 ft





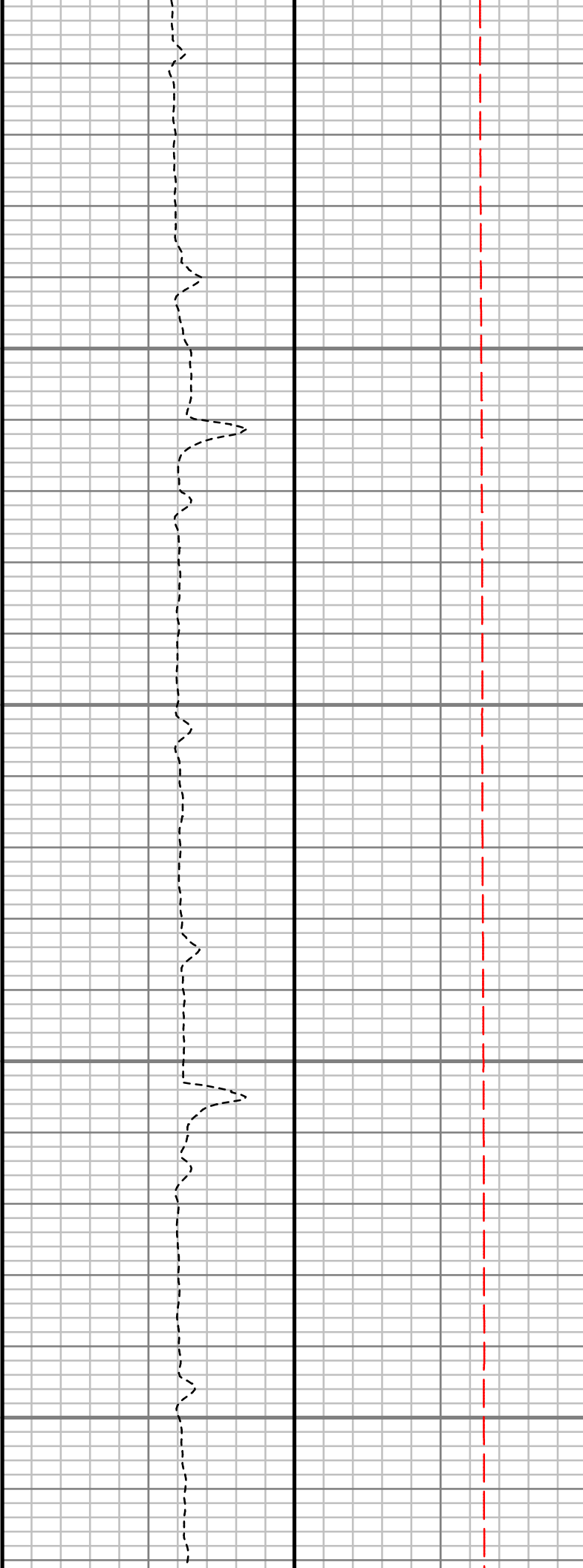
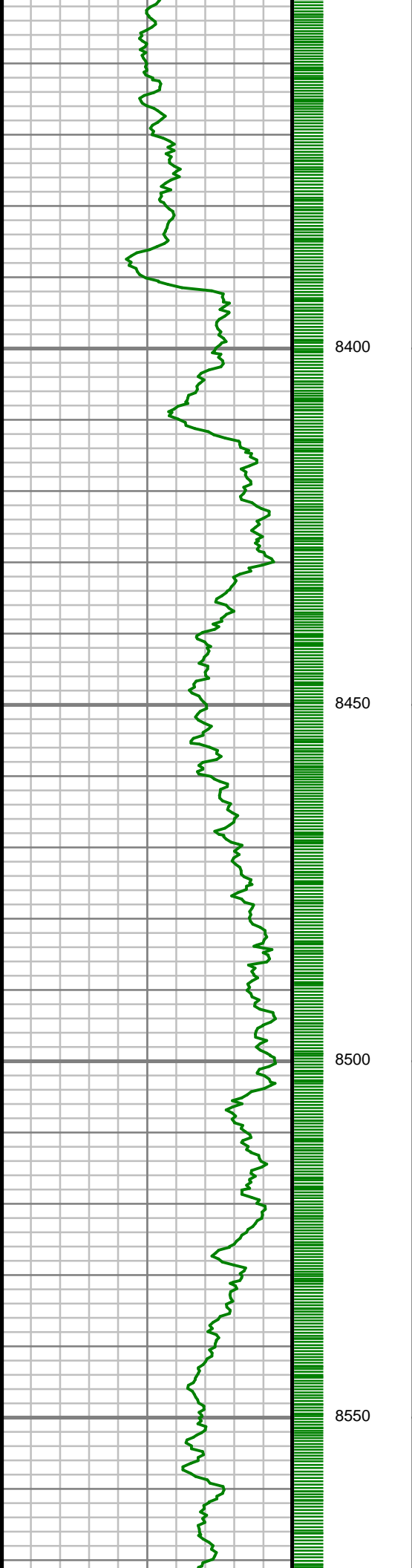
S: 87 MD: 7980.00 ft
Inc: 89.16 deg Az: 1.25
deg TVD: 7218.72 ft

S: 88 MD: 8074.00 ft
Inc: 90.60 deg Az: 0.95
deg TVD: 7218.92 ft



S: 89 MD: 8169.00 ft
Inc: 91.58 deg Az: 1.11
deg TVD: 7217.11 ft

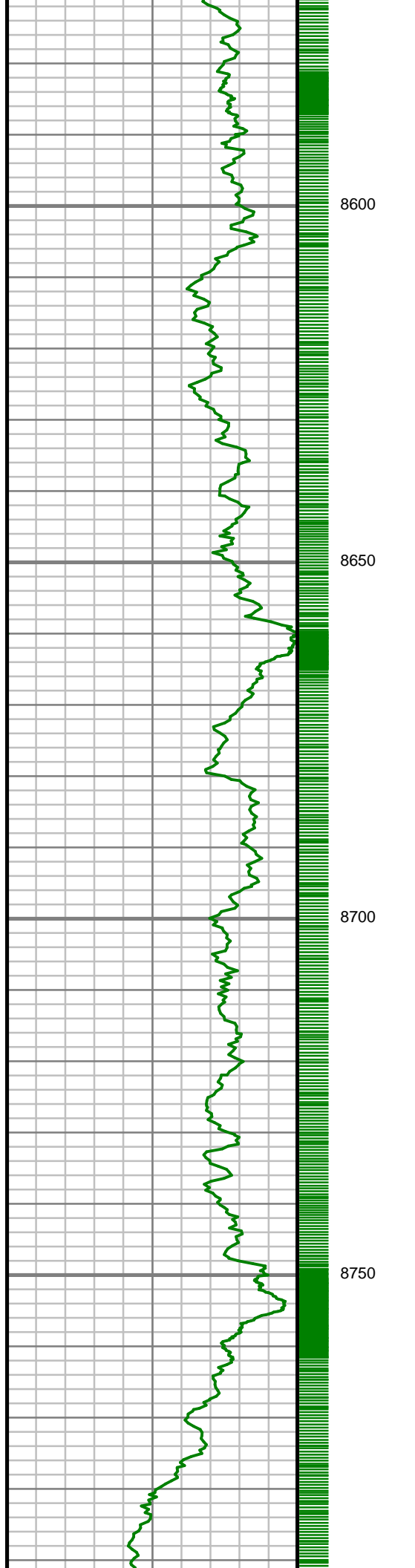
S: 90 MD: 8262.00 ft
Inc: 89.33 deg Az: 0.16
deg TVD: 7216.37 ft



S: 91 MD: 8354.00 ft
Inc: 90.30 deg Az: 0.71
deg TVD: 7216.67 ft

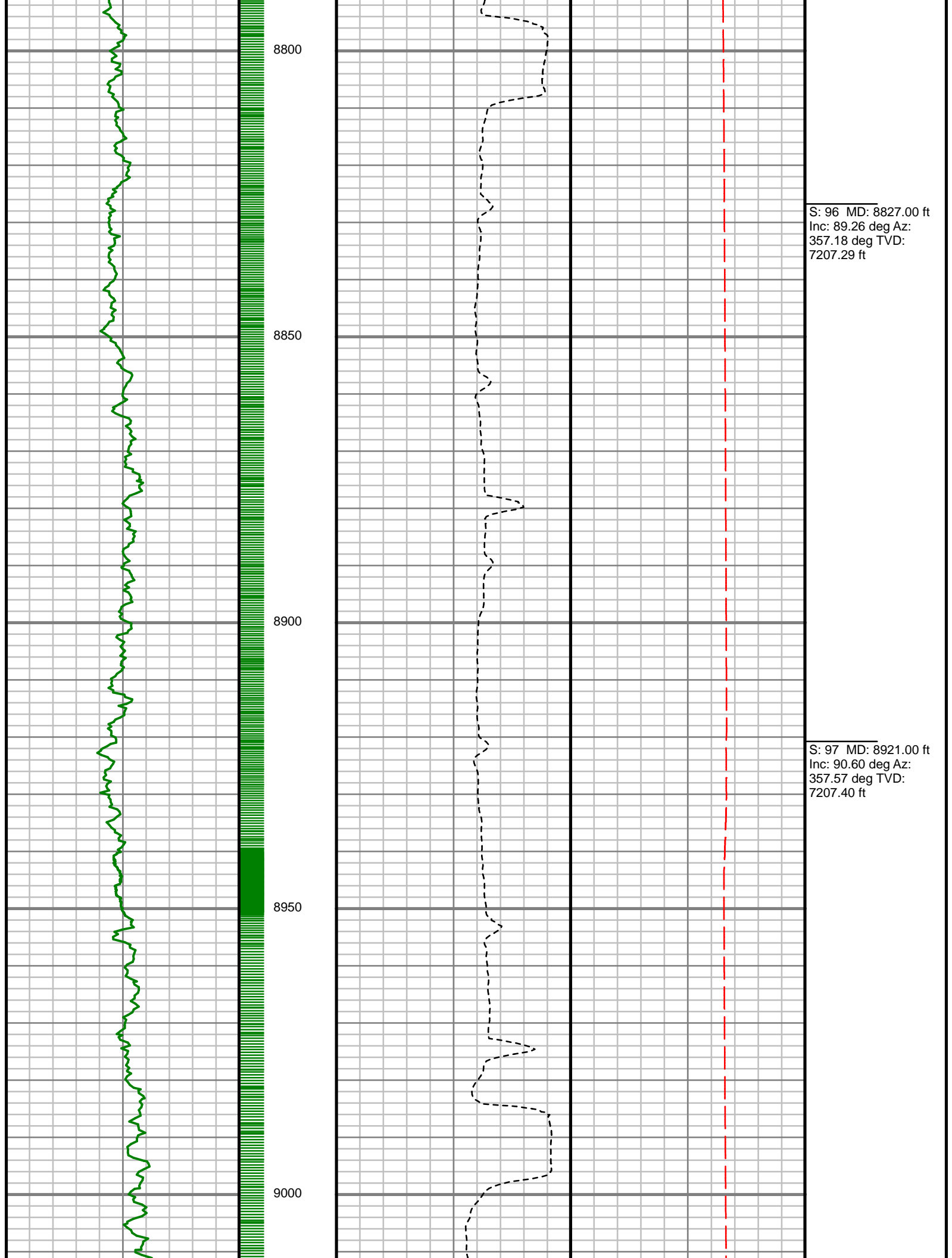
S: 92 MD: 8449.00 ft
Inc: 90.94 deg Az: 1.21
deg TVD: 7215.64 ft

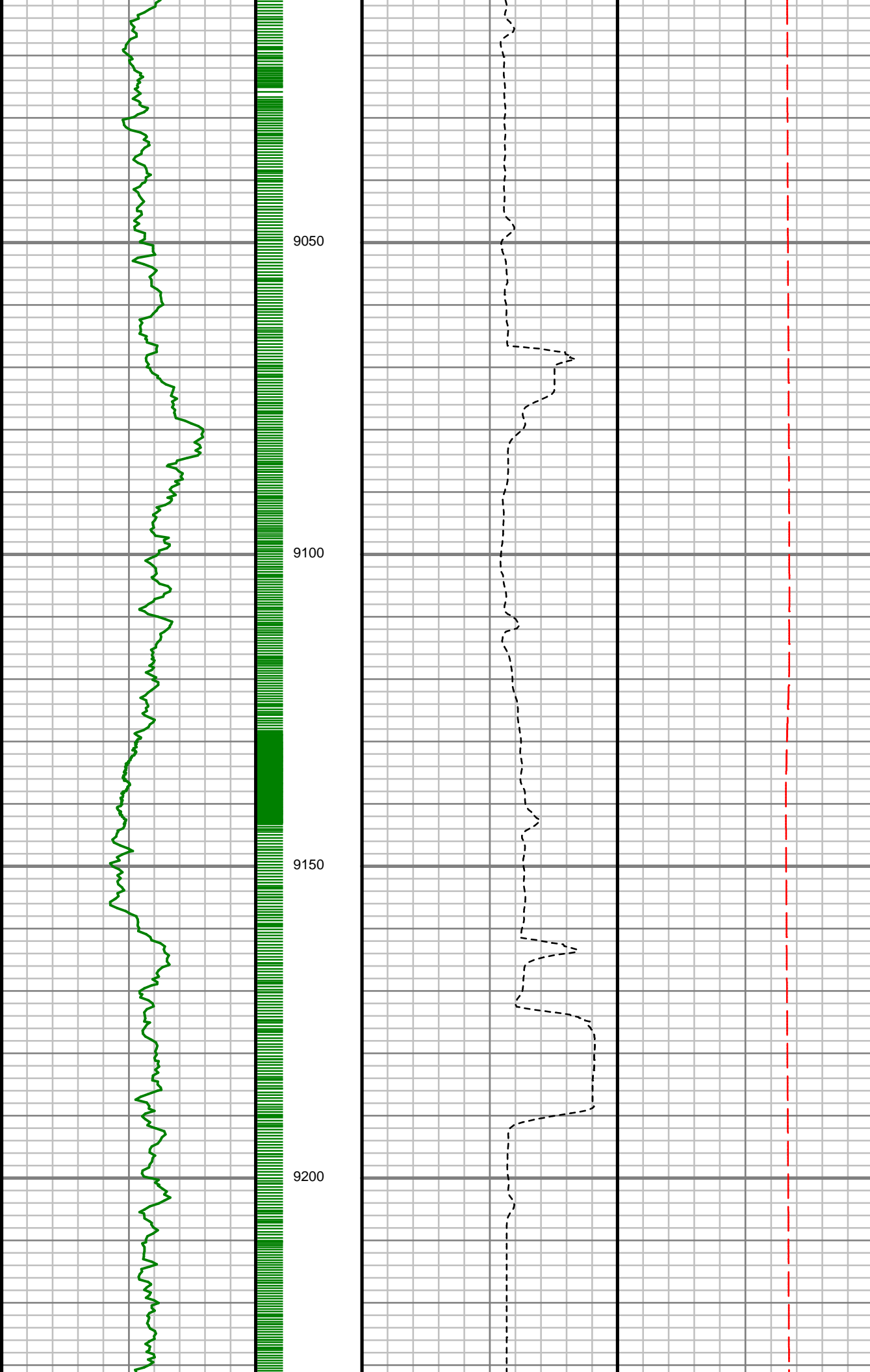
S: 93 MD: 8543.00 ft
Inc: 91.41 deg Az: 0.56
deg TVD: 7213.72 ft



S: 94 MD: 8638.00 ft
Inc: 91.71 deg Az: 0.27
deg TVD: 7211.13 ft

S: 95 MD: 8732.00 ft
Inc: 91.85 deg Az:
359.11 deg TVD:
7208.21 ft

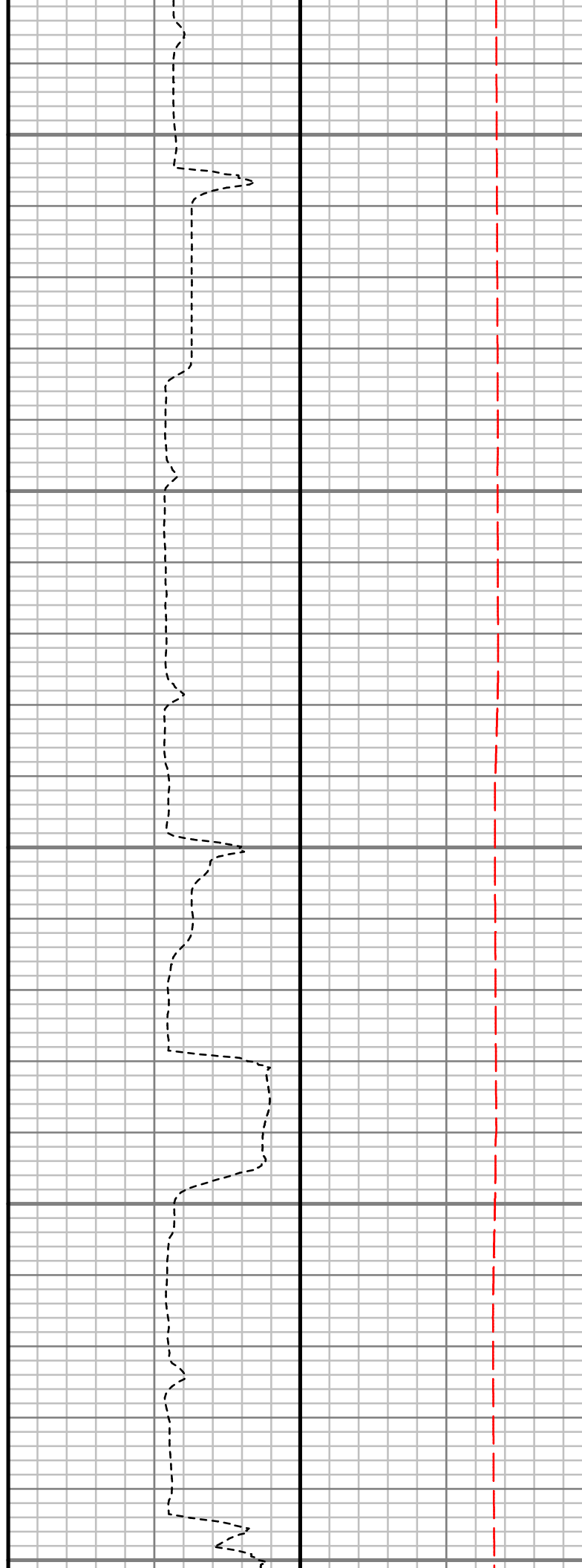
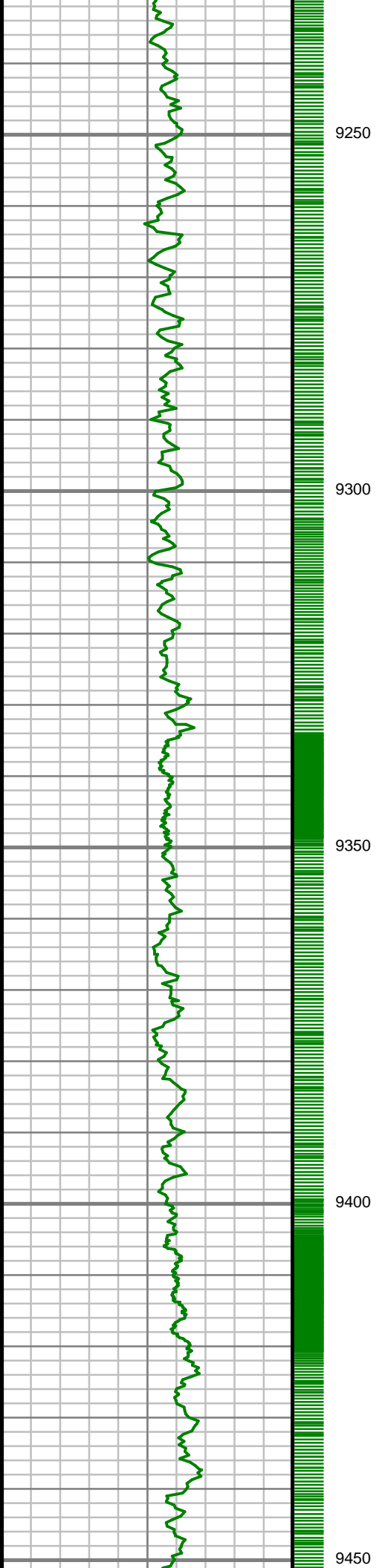




S: 98 MD: 9016.00 ft
Inc: 89.90 deg Az:
358.14 deg TVD:
7206.99 ft

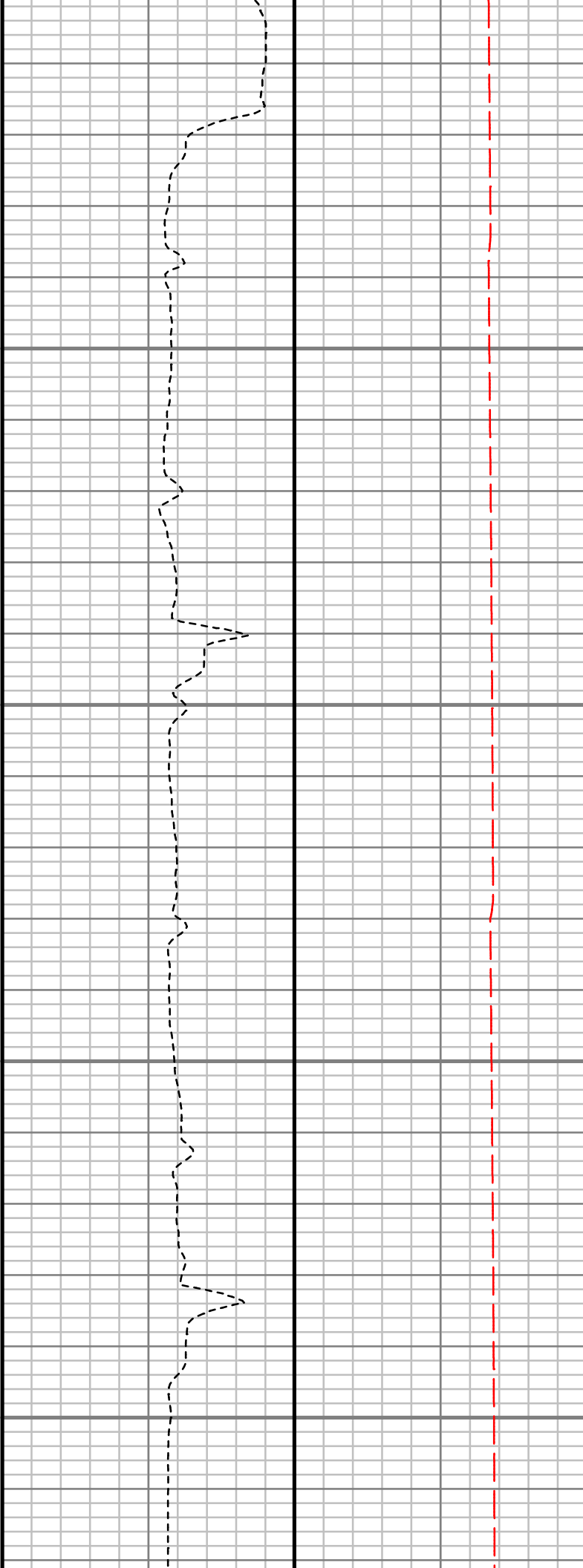
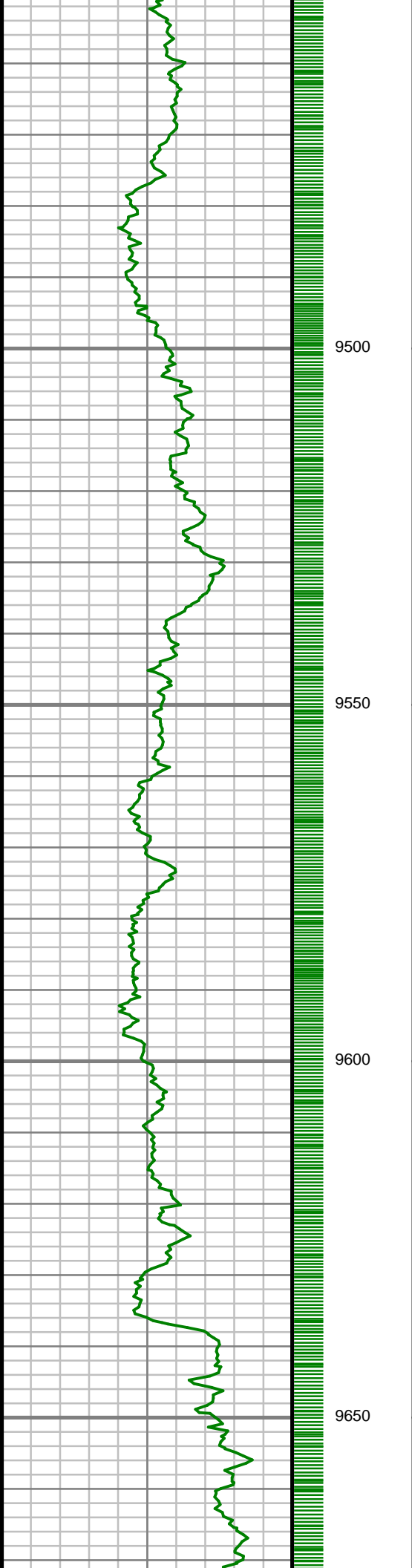
S: 99 MD: 9111.00 ft
Inc: 91.21 deg Az:
357.98 deg TVD:
7206.07 ft

S: 100 MD: 9204.00 ft
Inc: 89.90 deg Az:
358.40 deg TVD:
7205.17 ft



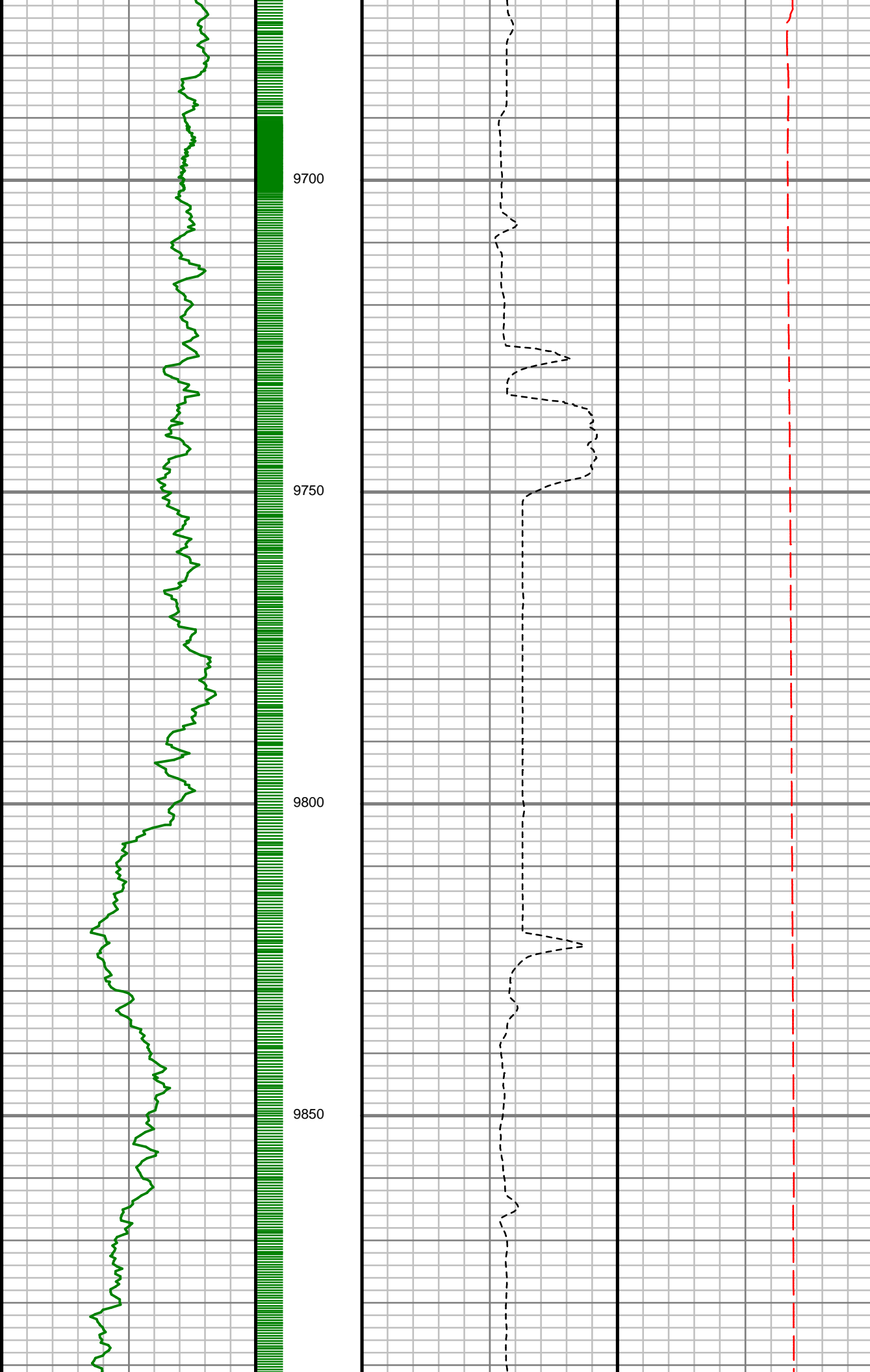
S: 101 MD: 9299.00 ft
Inc: 90.57 deg Az: 2.28
deg TVD: 7204.78 ft

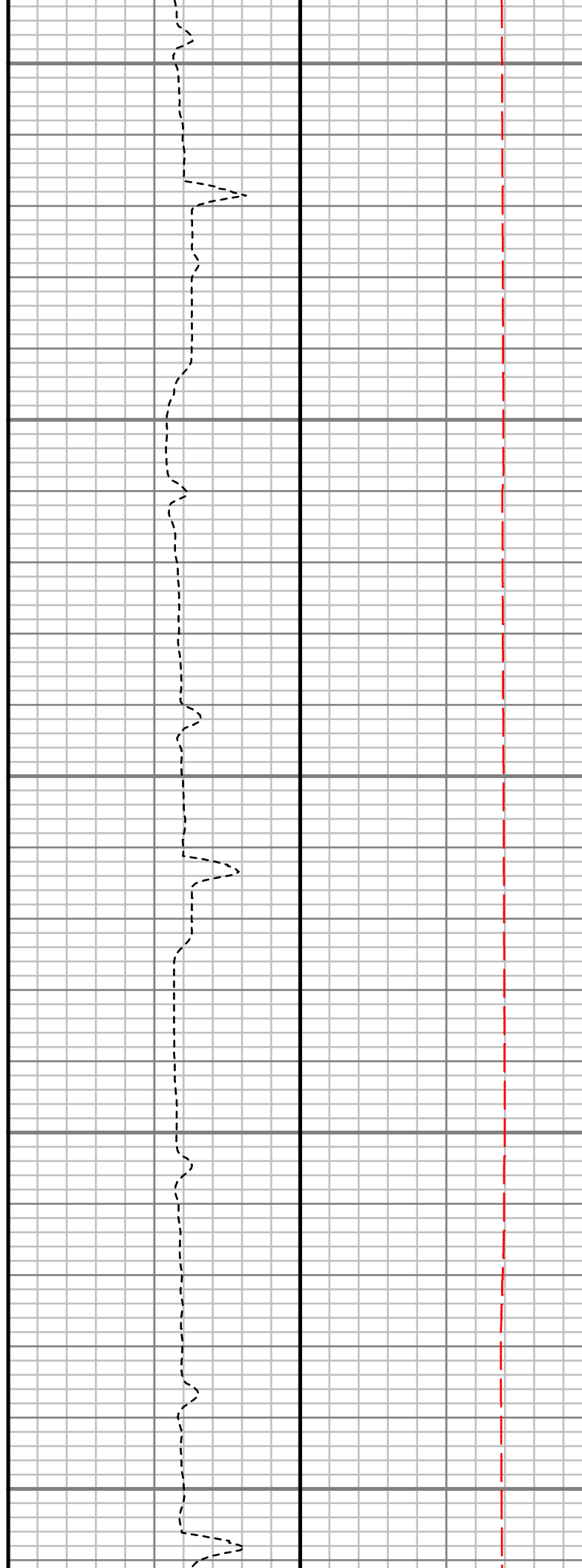
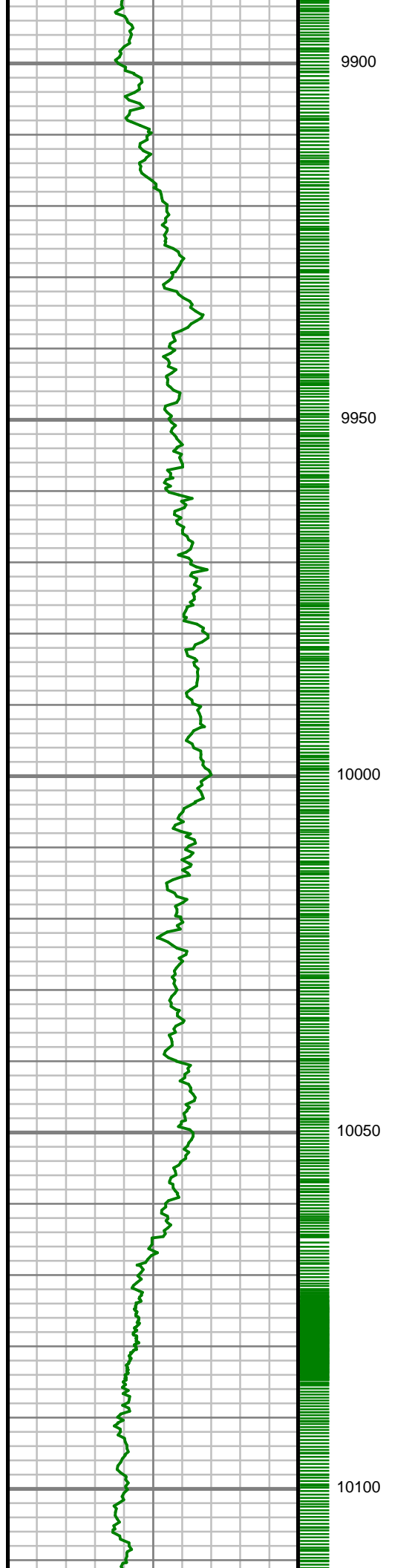
S: 102 MD: 9392.00 ft
Inc: 91.48 deg Az: 2.81
deg TVD: 7203.12 ft



S: 103 MD: 9486.00 ft
Inc: 90.20 deg Az:
359.05 deg TVD:
7201.74 ft

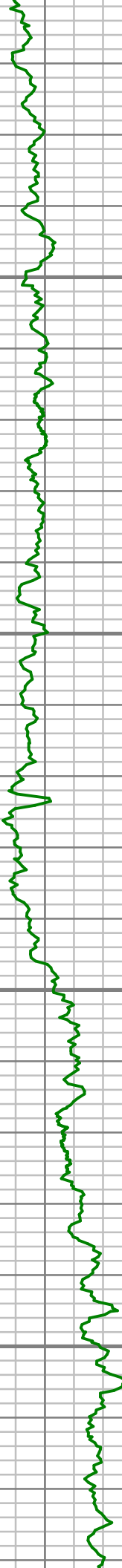
S: 104 MD: 9580.00 ft
Inc: 90.27 deg Az:
358.76 deg TVD:
7201.35 ft





S: 108 MD: 9958.00 ft
Inc: 89.53 deg Az: 0.29
deg TVD: 7202.22 ft

S: 109 MD: 10052.00 ft
Inc: 91.21 deg Az: 2.17
deg TVD: 7201.61 ft

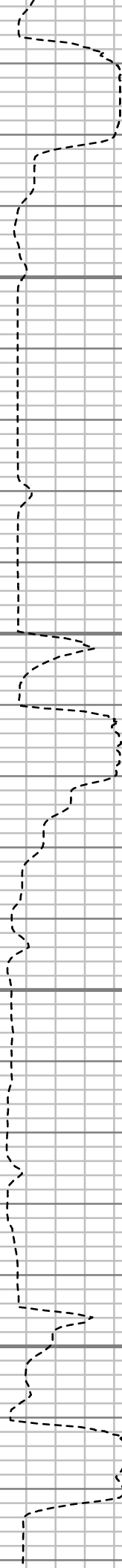


10150

10200

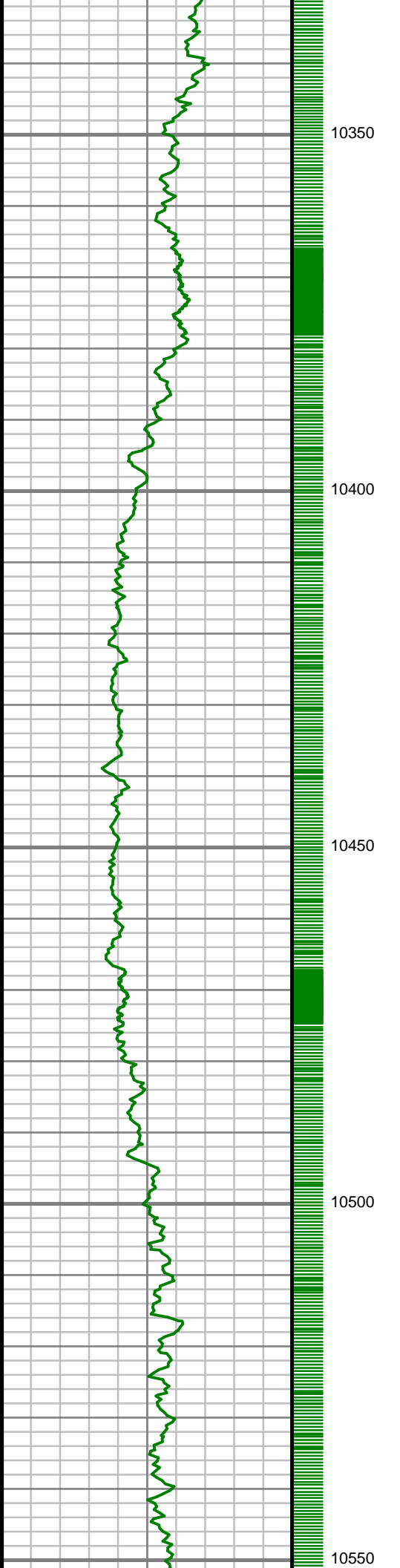
10250

10300



S: 110 MD: 10147.00 ft
Inc: 90.27 deg Az: 1.36
deg TVD: 7200.39 ft

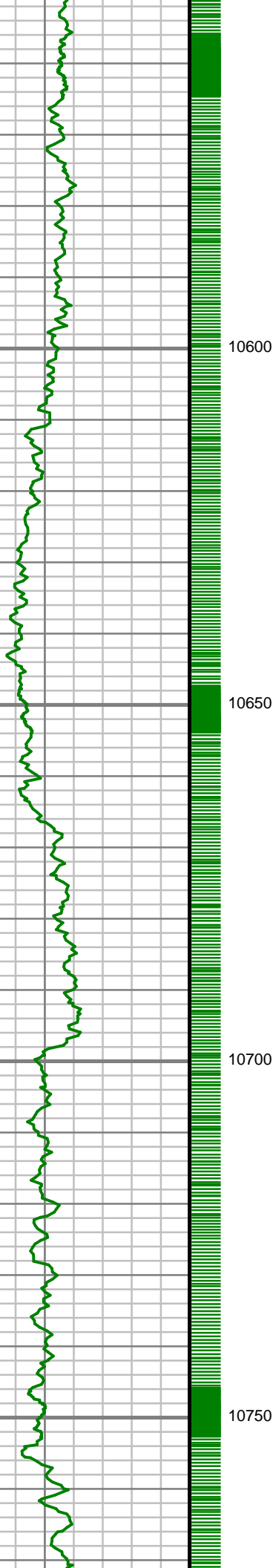
S: 111 MD: 10242.00 ft
Inc: 88.89 deg Az: 1.16
deg TVD: 7201.08 ft



S: 112 MD: 10336.00 ft
Inc: 90.20 deg Az: 0.90
deg TVD: 7201.83 ft

S: 113 MD: 10431.00 ft
Inc: 89.87 deg Az:
359.70 deg TVD:
7201.77 ft

S: 114 MD: 10525.00 ft
Inc: 90.57 deg Az:
358.82 deg TVD:
7201.41 ft

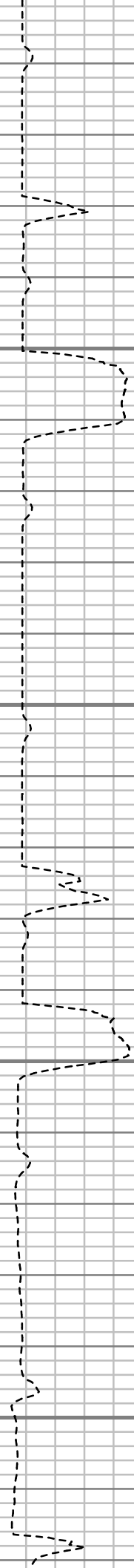


10600

10650

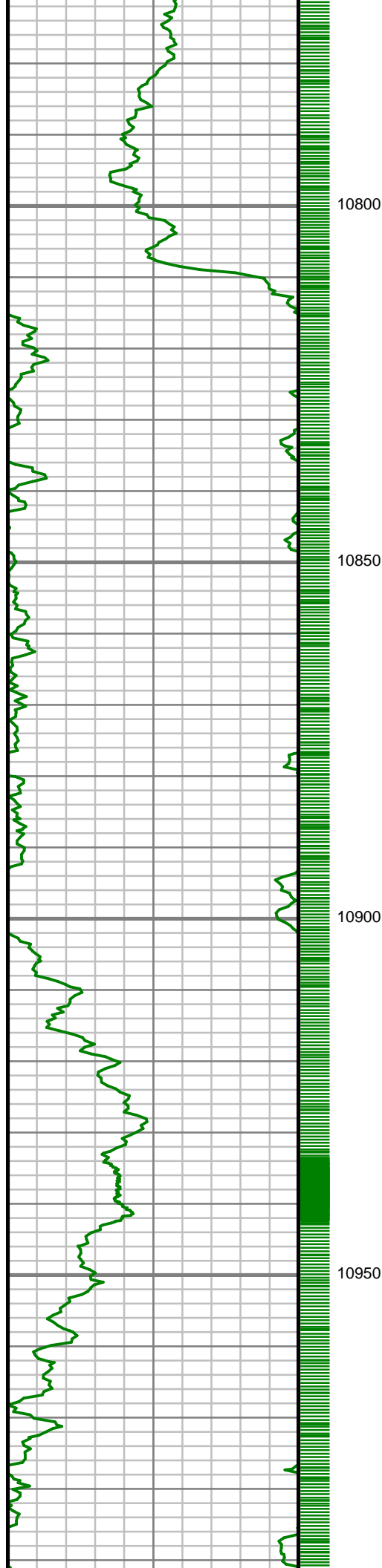
10700

10750



S: 115 MD: 10618.00 ft
Inc: 89.97 deg Az:
359.13 deg TVD:
7200.97 ft

S: 116 MD: 10713.00 ft
Inc: 90.07 deg Az:
357.76 deg TVD:
7200.94 ft

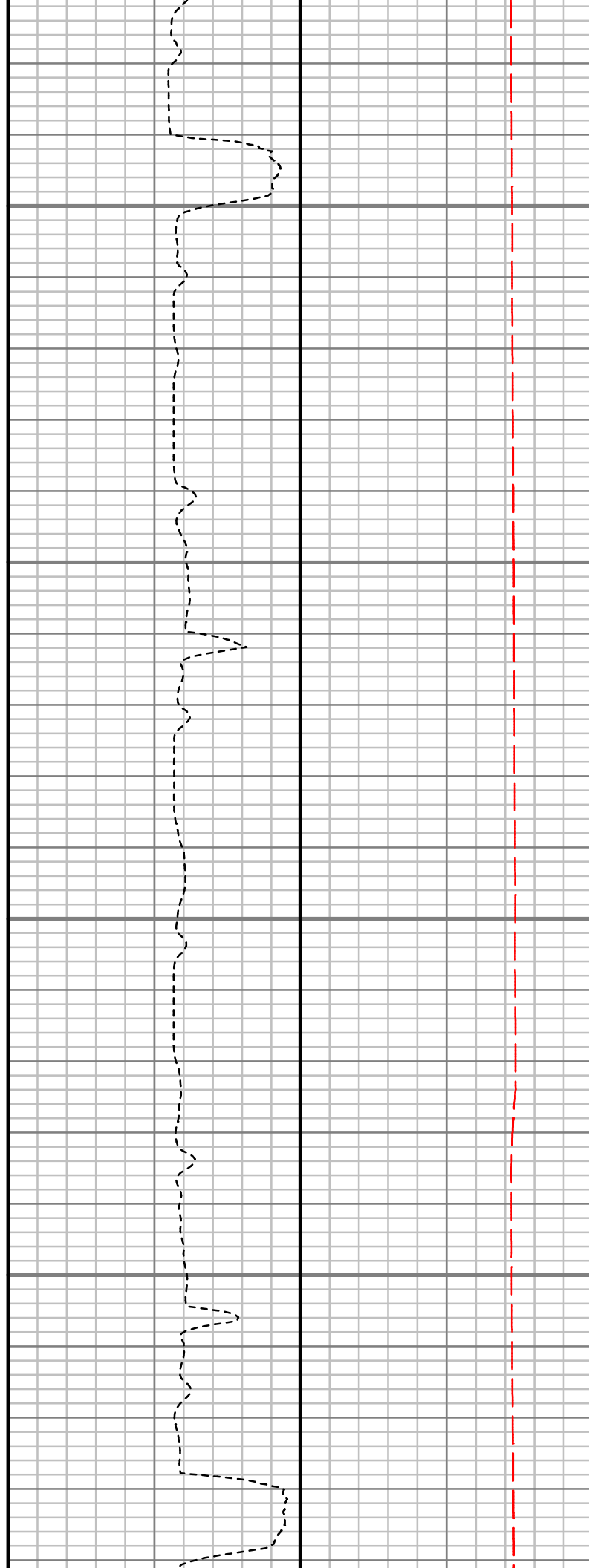


10800

10850

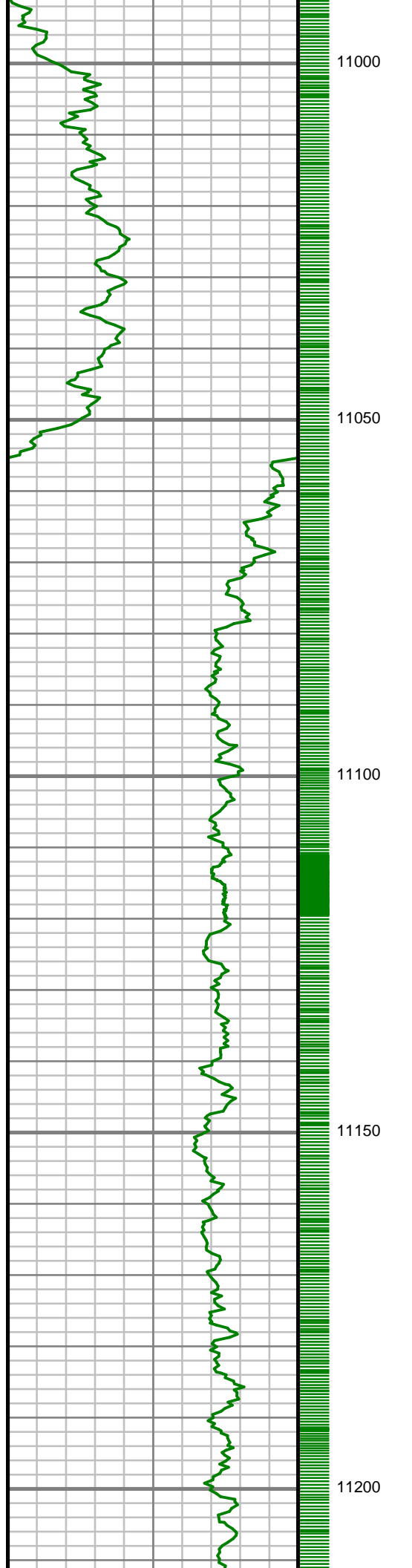
10900

10950



S: 117 MD: 10807.00 ft
Inc: 89.23 deg Az:
357.33 deg TVD:
7201.51 ft

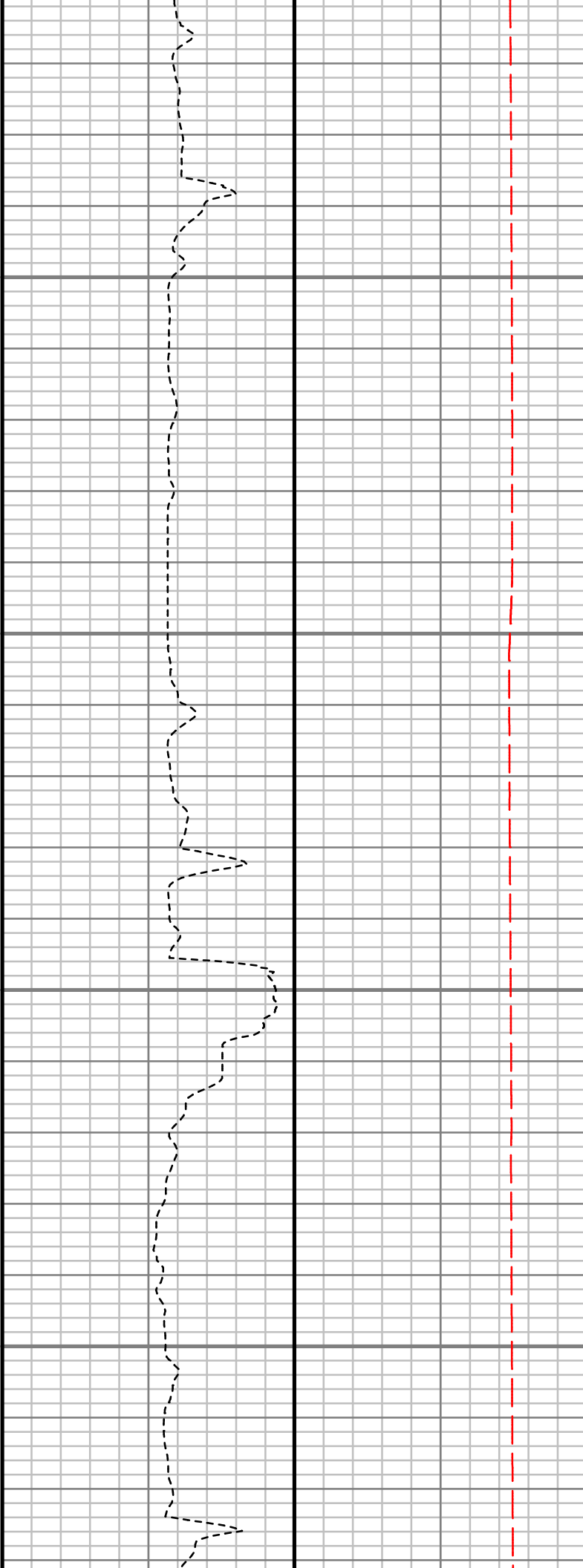
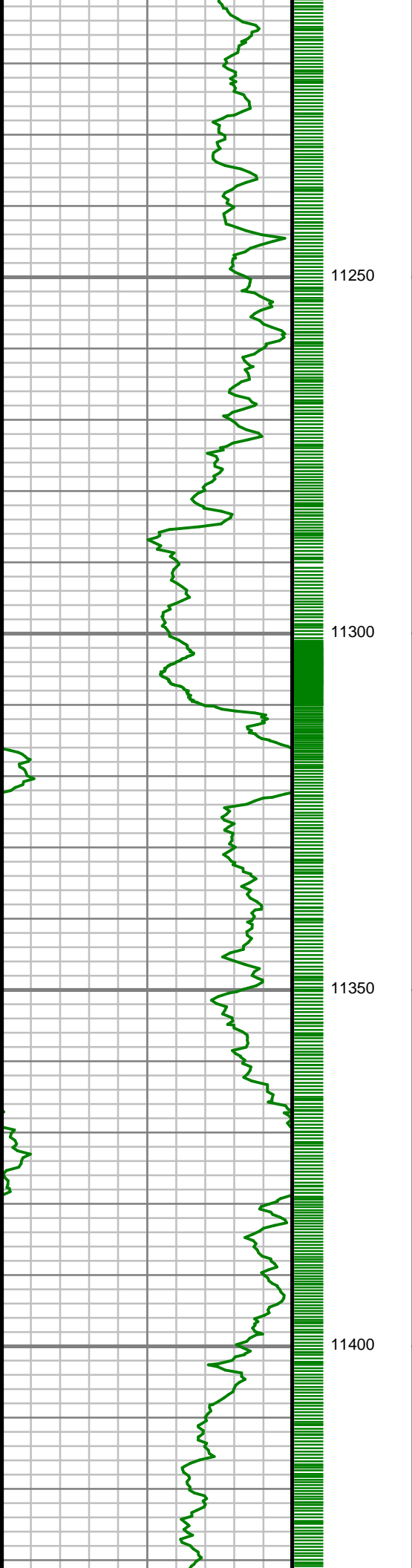
S: 118 MD: 10901.00 ft
Inc: 90.00 deg Az:
358.06 deg TVD:
7202.15 ft



S: 119 MD: 10995.00 ft
Inc: 89.43 deg Az:
358.29 deg TVD:
7202.61 ft

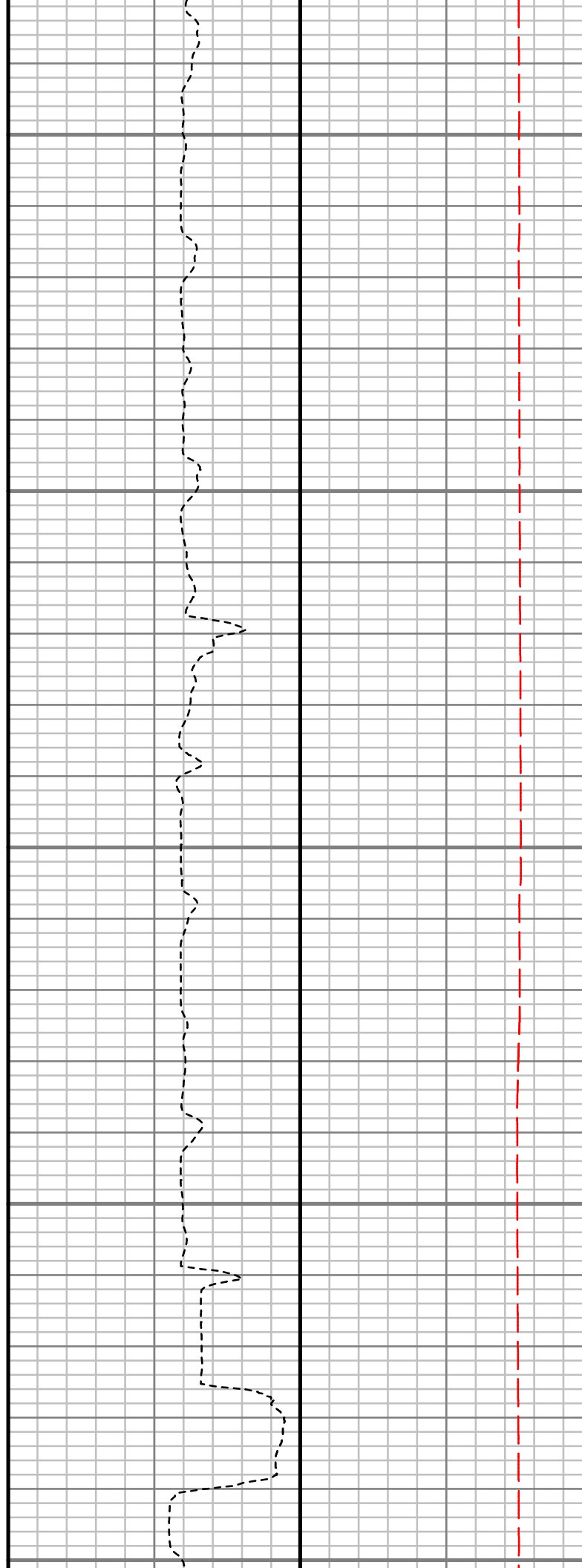
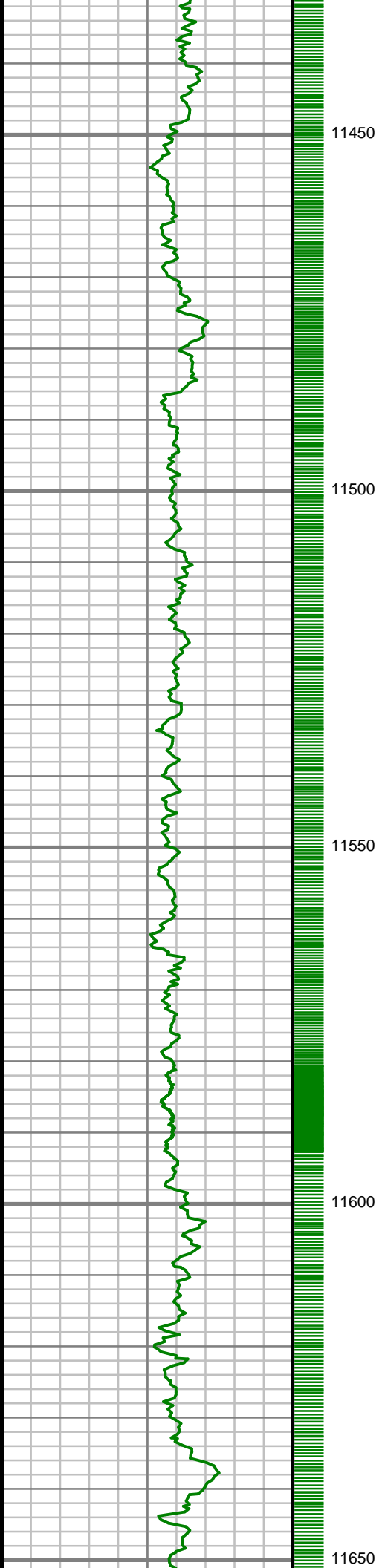
S: 120 MD: 11089.00 ft
Inc: 90.10 deg Az:
358.70 deg TVD:
7203.00 ft

S: 121 MD: 11183.00 ft
Inc: 89.50 deg Az:
358.29 deg TVD:
7203.33 ft



S: 122 MD: 11277.00 ft
Inc: 90.13 deg Az:
358.05 deg TVD:
7203.63 ft

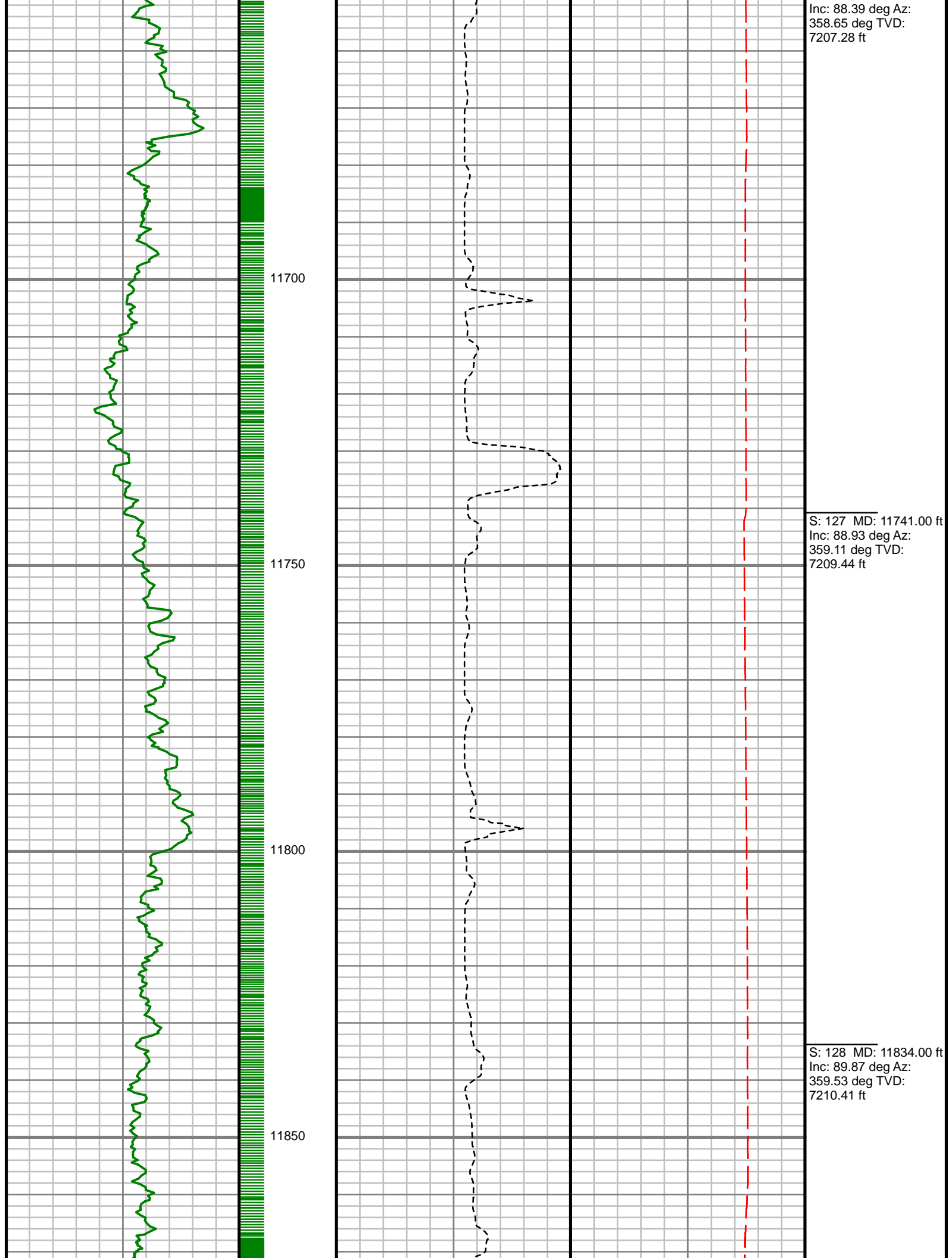
S: 123 MD: 11370.00 ft
Inc: 89.43 deg Az:
357.50 deg TVD:
7203.99 ft



S: 124 MD: 11464.00 ft
Inc: 89.43 deg Az:
357.55 deg TVD:
7204.92 ft

S: 125 MD: 11556.00 ft
Inc: 89.63 deg Az:
357.84 deg TVD:
7205.68 ft

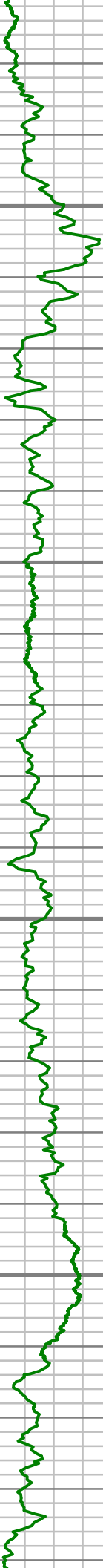
S: 126 MD: 11649.00 ft



Inc: 88.39 deg Az:
358.65 deg TVD:
7207.28 ft

S: 127 MD: 11741.00 ft
Inc: 88.93 deg Az:
359.11 deg TVD:
7209.44 ft

S: 128 MD: 11834.00 ft
Inc: 89.87 deg Az:
359.53 deg TVD:
7210.41 ft

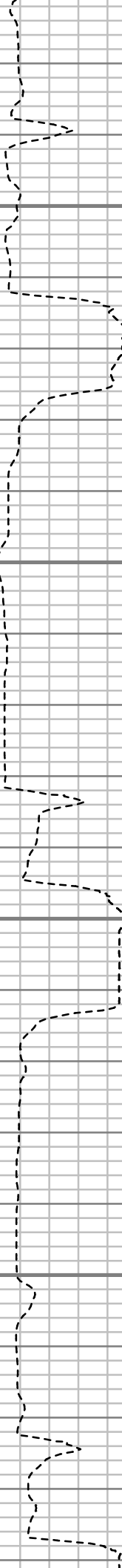


11900

11950

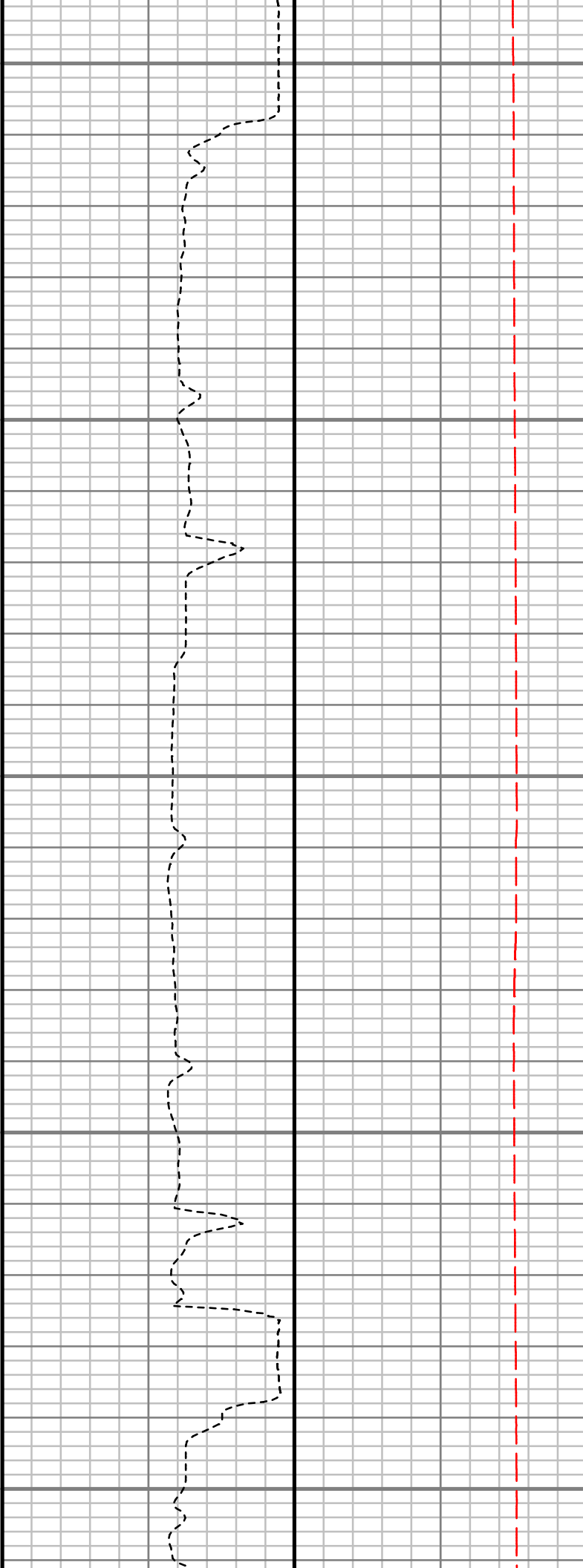
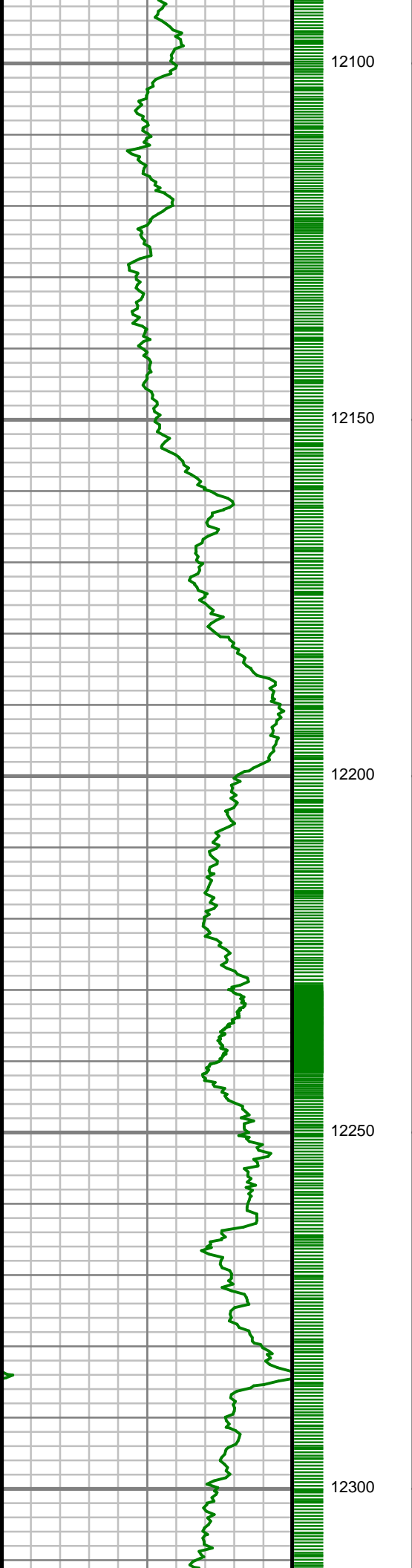
12000

12050



S: 129 MD: 11928.00 ft
Inc: 90.17 deg Az:
359.82 deg TVD:
7210.38 ft

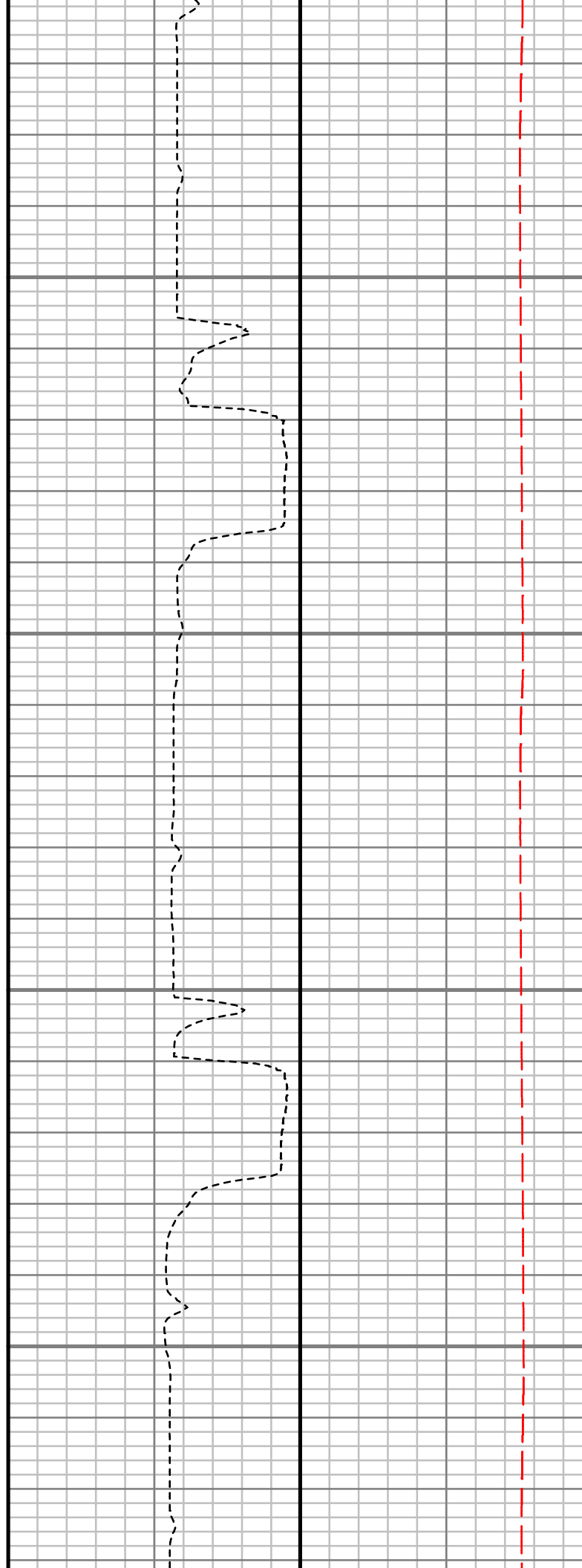
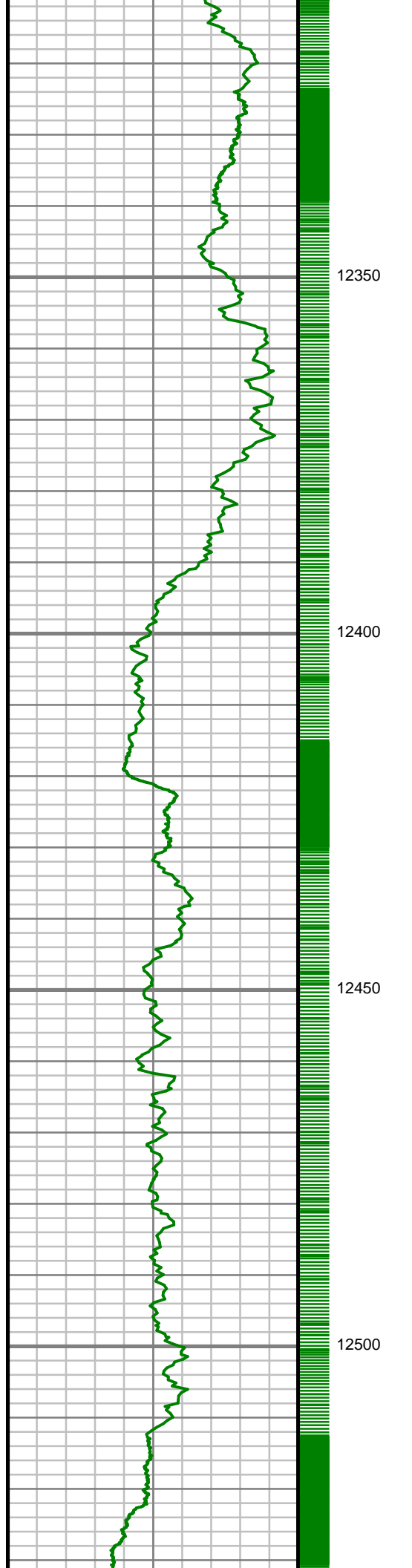
S: 130 MD: 12021.00 ft
Inc: 89.06 deg Az:
359.87 deg TVD:
7211.00 ft



S: 131 MD: 12114.00 ft
Inc: 88.59 deg Az: 1.81
deg TVD: 7212.91 ft

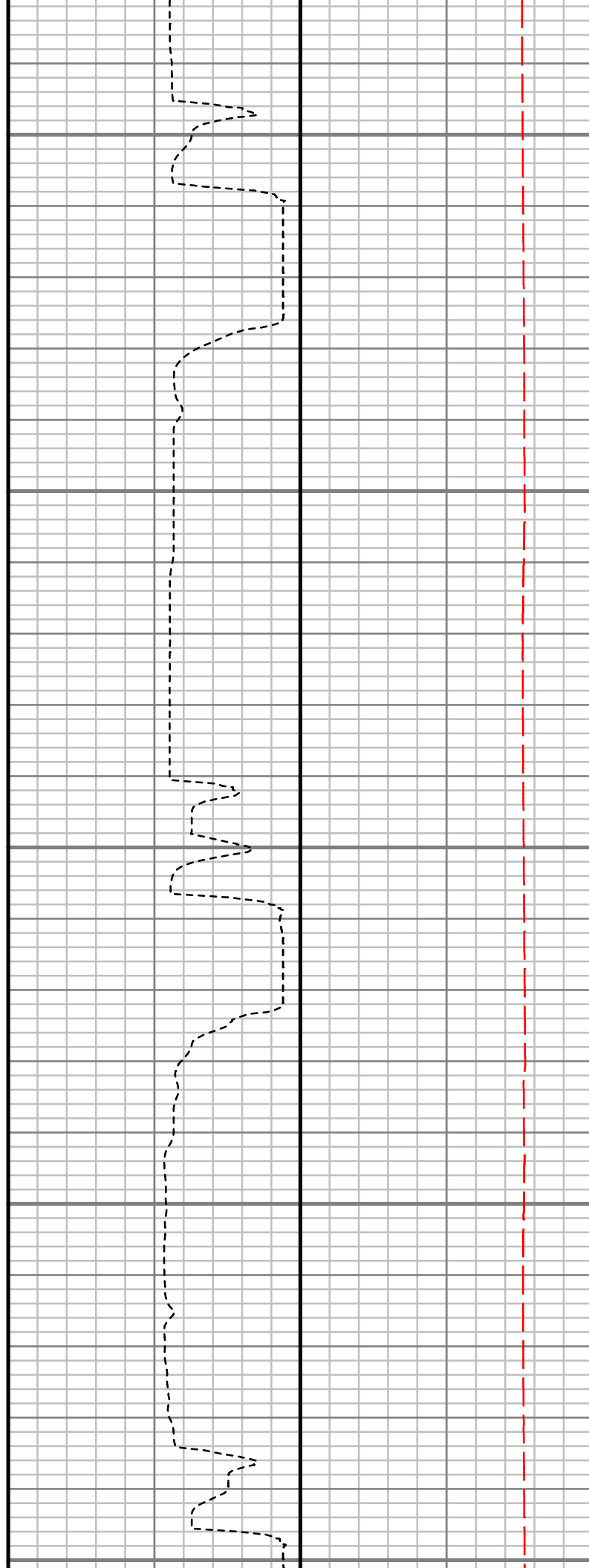
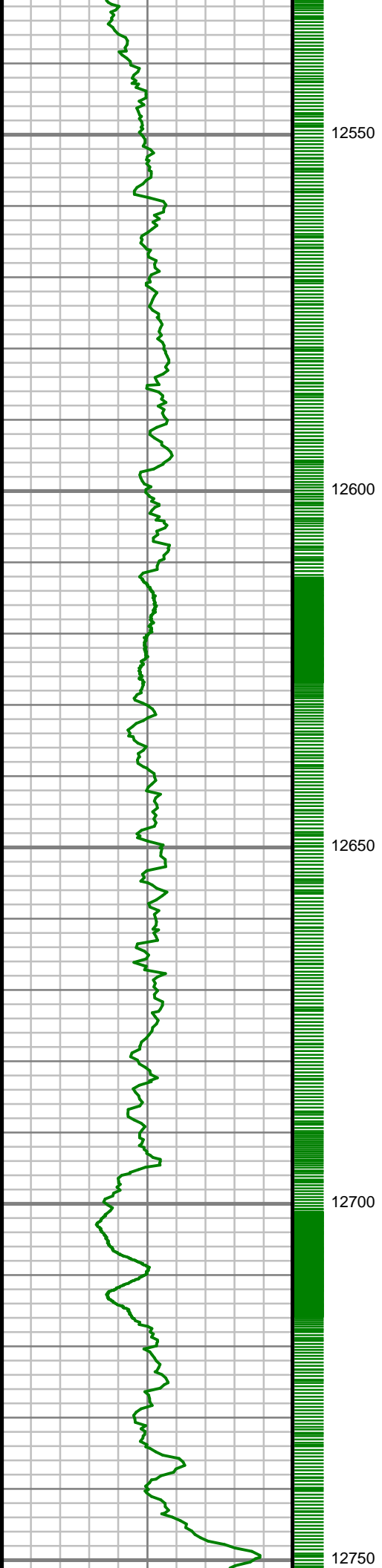
S: 132 MD: 12209.00 ft
Inc: 88.69 deg Az: 1.08
deg TVD: 7215.16 ft

S: 133 MD: 12303.00 ft
Inc: 87.85 deg Az: 1.84
deg TVD: 7218.00 ft



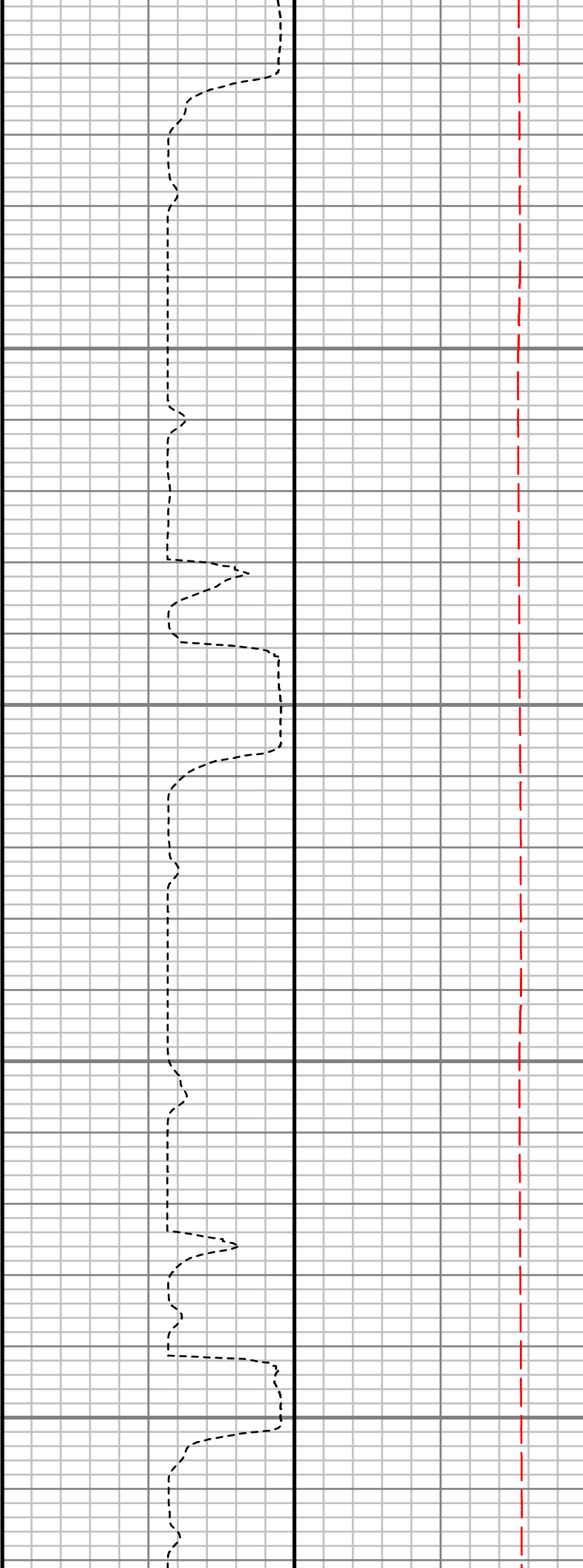
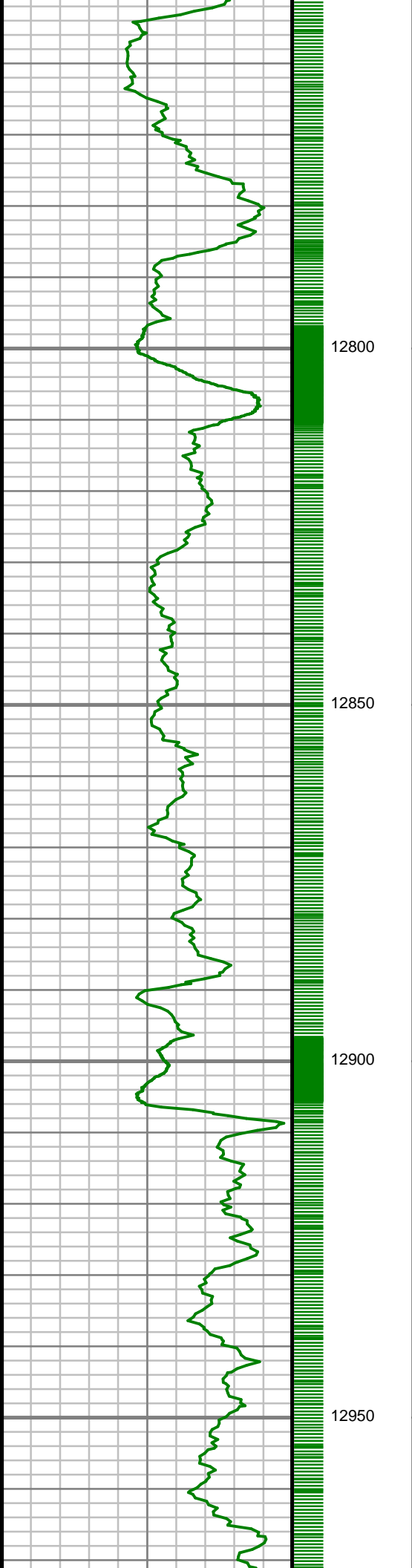
S: 134 MD: 12398.00 ft
Inc: 87.89 deg Az: 2.65
deg TVD: 7221.53 ft

S: 135 MD: 12492.00 ft
Inc: 88.72 deg Az: 2.55
deg TVD: 7224.31 ft



S: 136 MD: 12587.00 ft
Inc: 89.93 deg Az: 1.67
deg TVD: 7225.43 ft

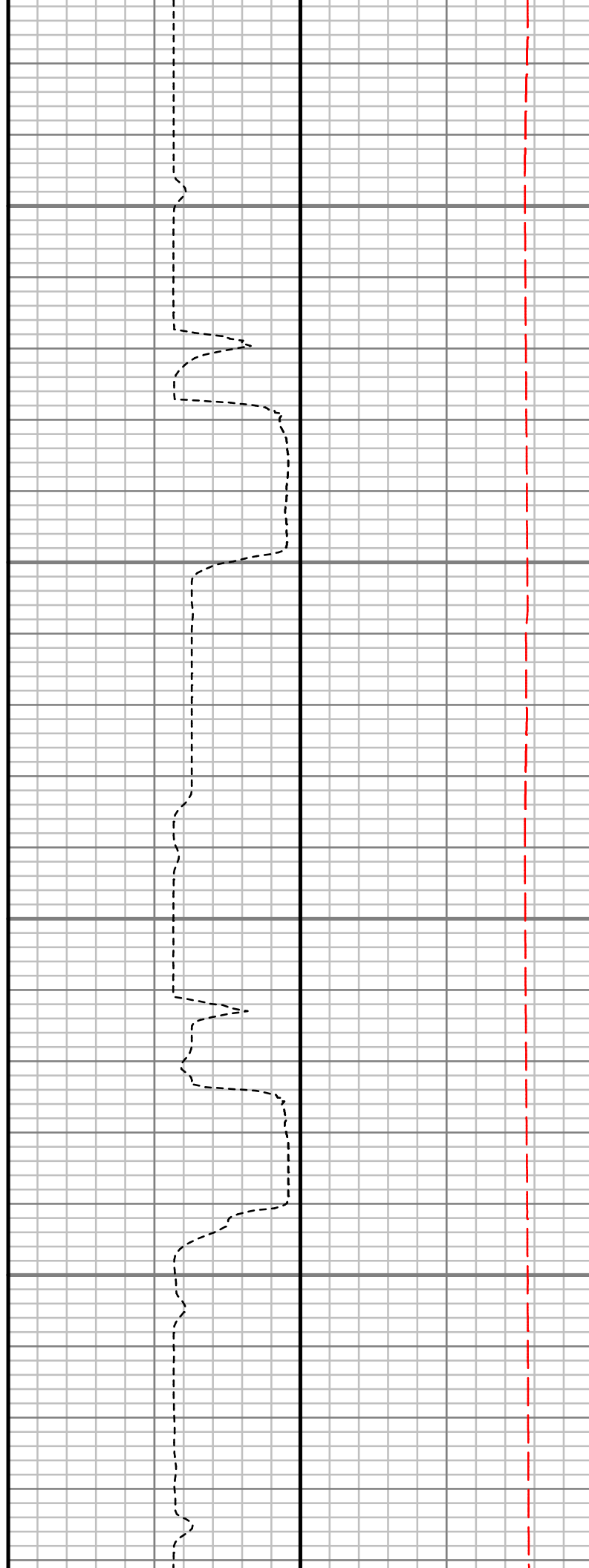
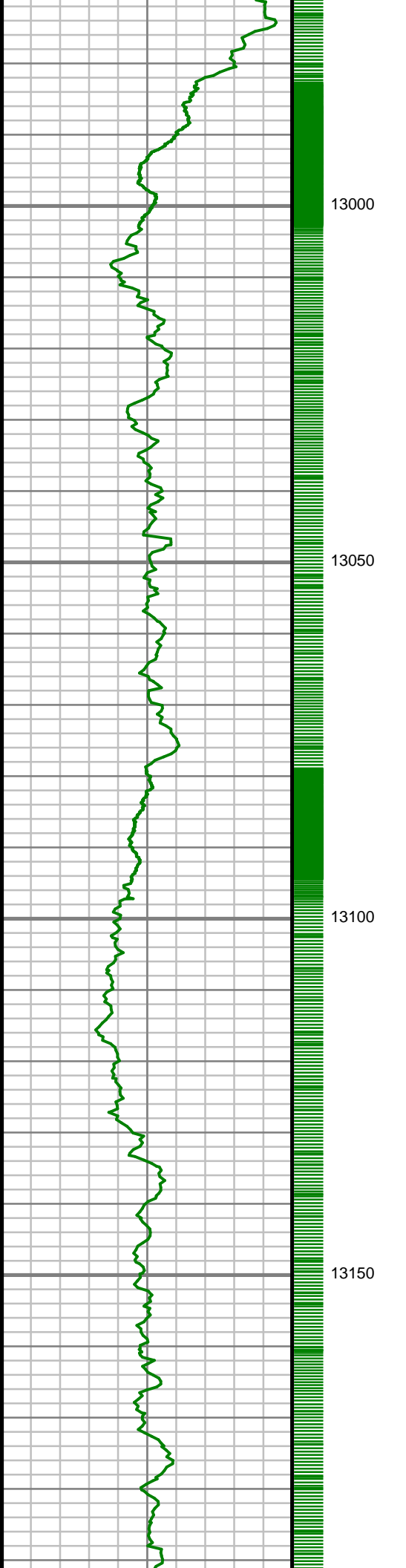
S: 137 MD: 12682.00 ft
Inc: 92.35 deg Az: 2.61
deg TVD: 7223.54 ft



S: 138 MD: 12776.00 ft
Inc: 91.78 deg Az: 1.45
deg TVD: 7220.15 ft

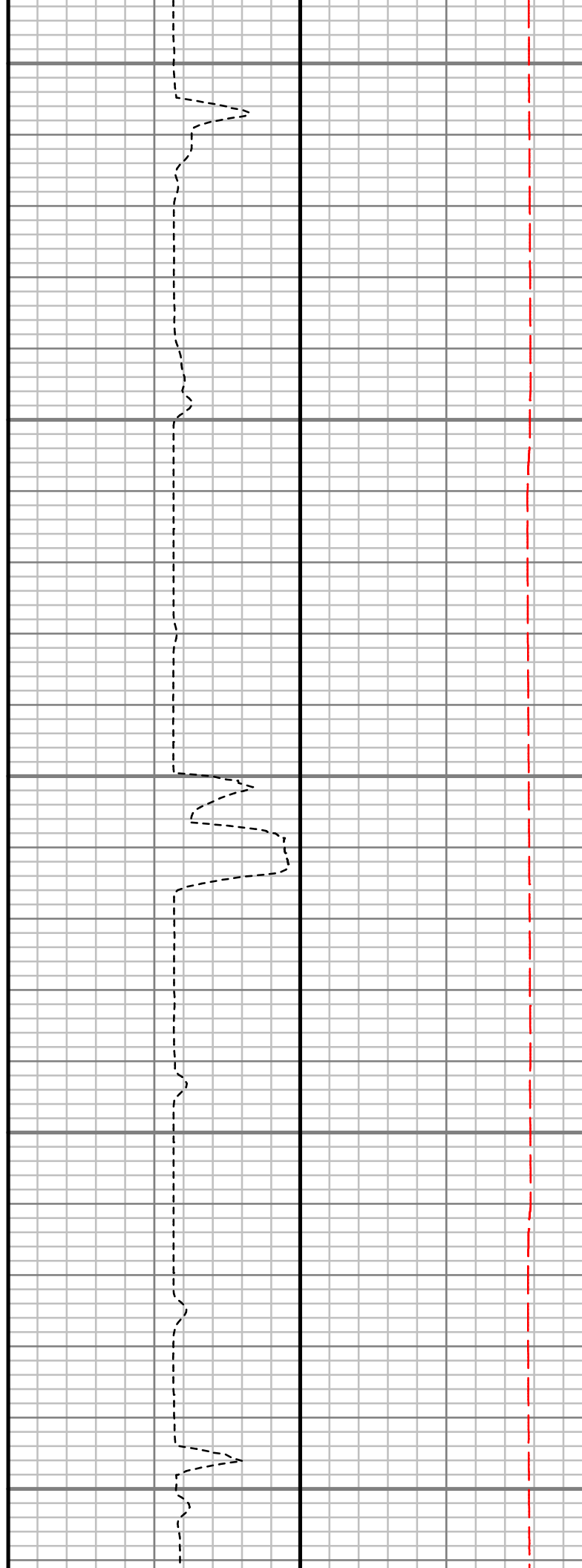
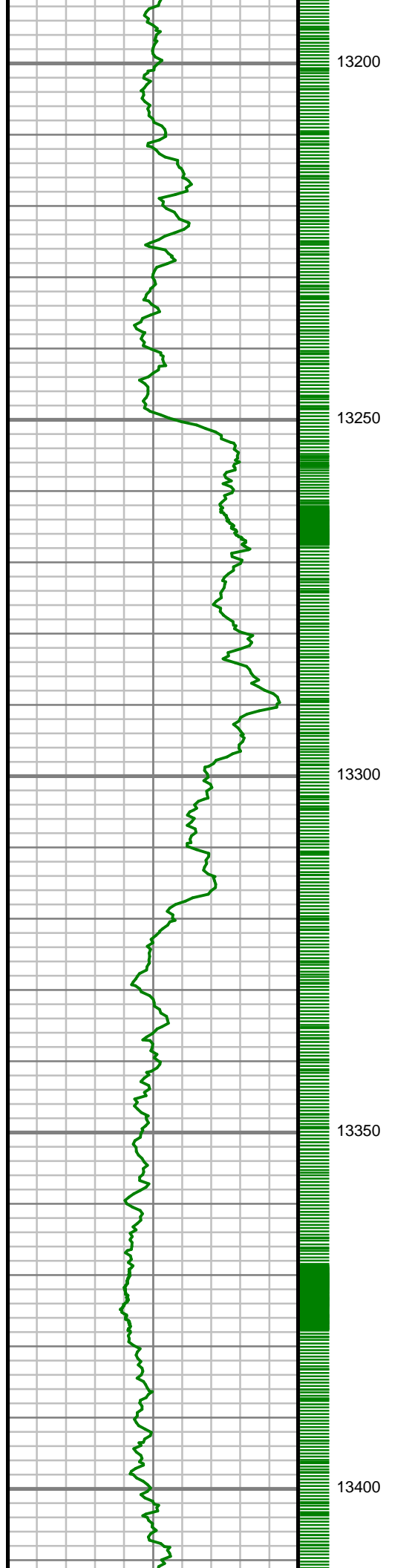
S: 139 MD: 12871.00 ft
Inc: 90.74 deg Az: 1.49
deg TVD: 7218.07 ft

S: 140 MD: 12963.00 ft
Inc: 87.18 deg Az: 1.60
deg TVD: 7219.73 ft



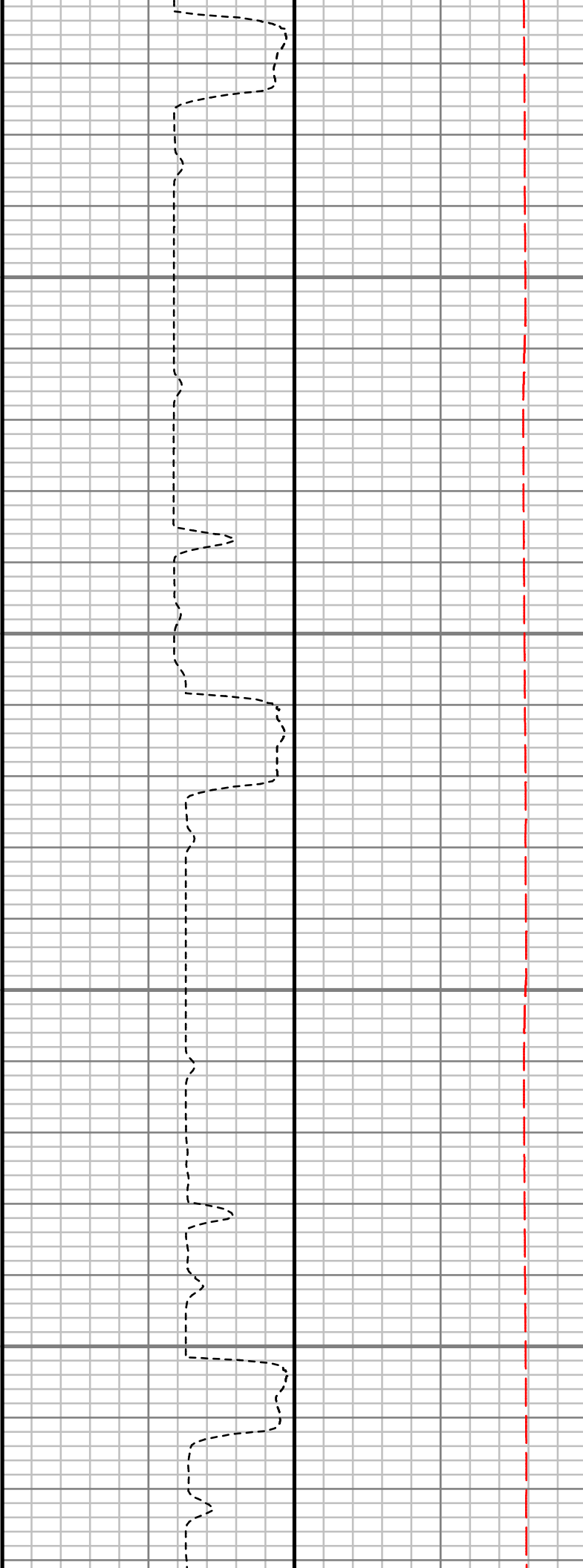
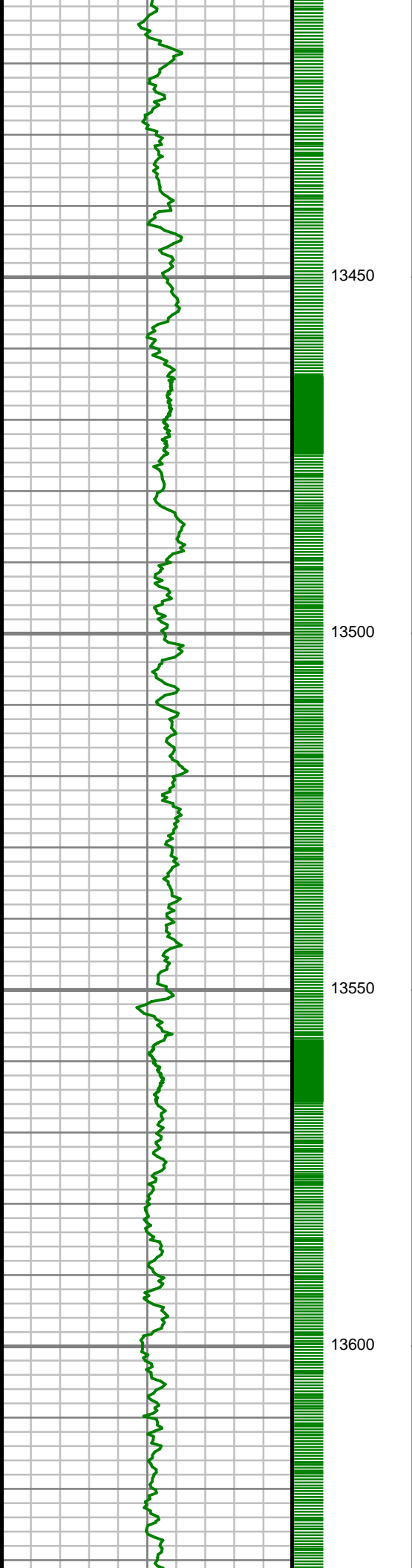
S: 141 MD: 13058.00 ft
Inc: 87.55 deg Az: 1.79
deg TVD: 7224.10 ft

S: 142 MD: 13151.00 ft
Inc: 89.40 deg Az: 1.53
deg TVD: 7226.58 ft



S: 143 MD: 13245.00 ft
Inc: 89.09 deg Az: 0.50
deg TVD: 7227.82 ft

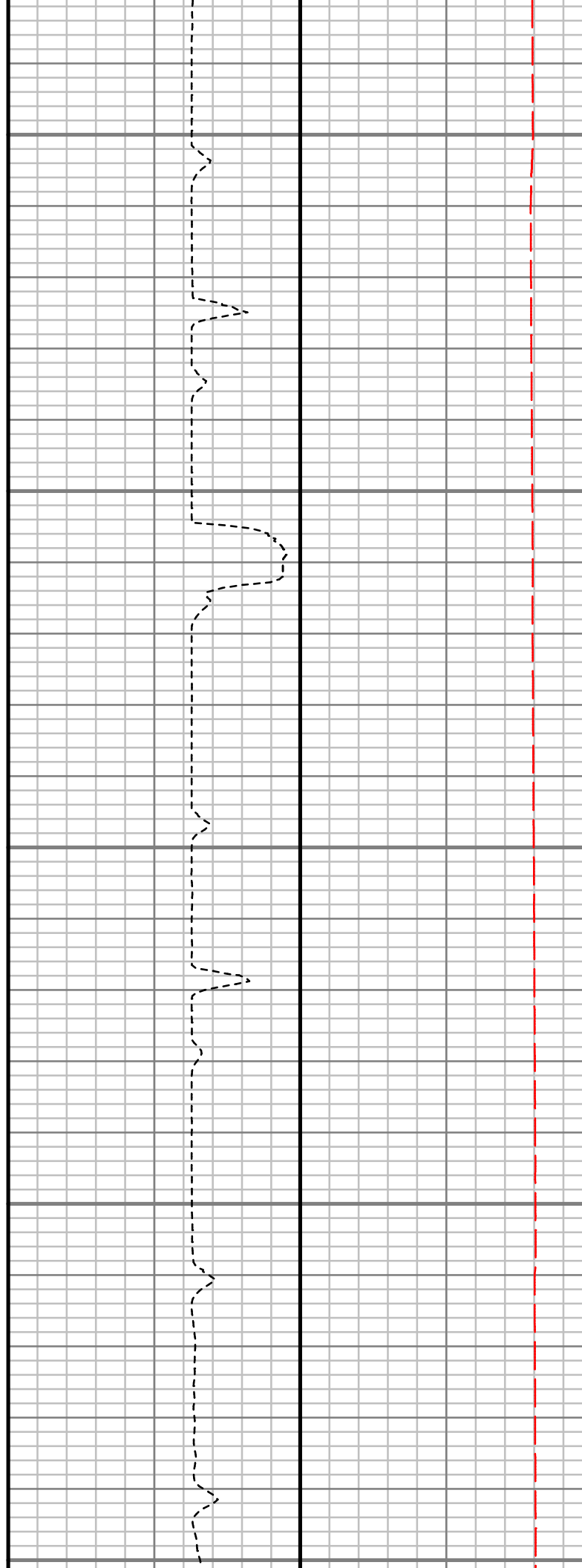
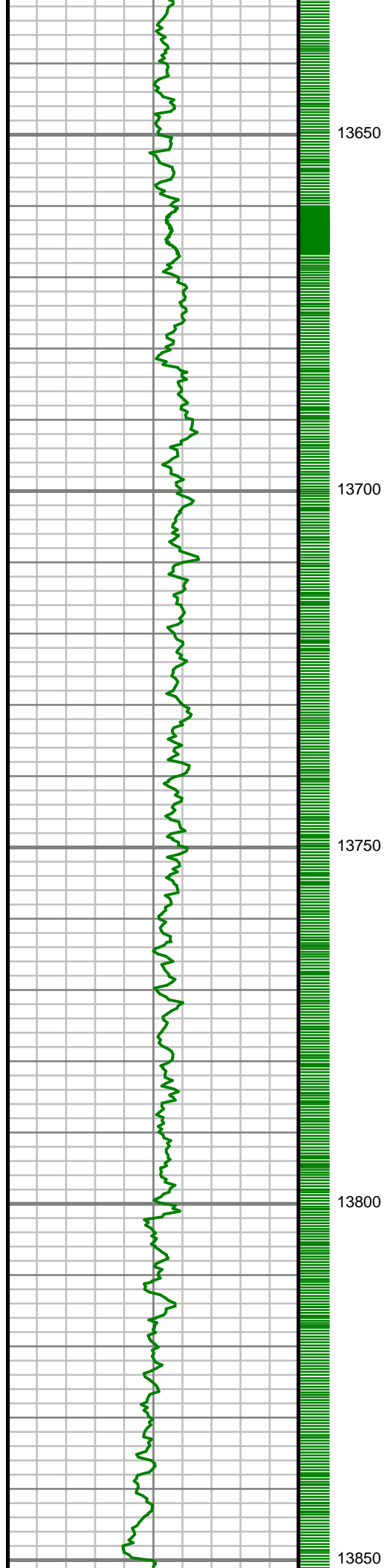
S: 144 MD: 13339.00 ft
Inc: 88.93 deg Az: 1.06
deg TVD: 7229.44 ft



S: 145 MD: 13433.00 ft
Inc: 89.23 deg Az: 0.85
deg TVD: 7230.95 ft

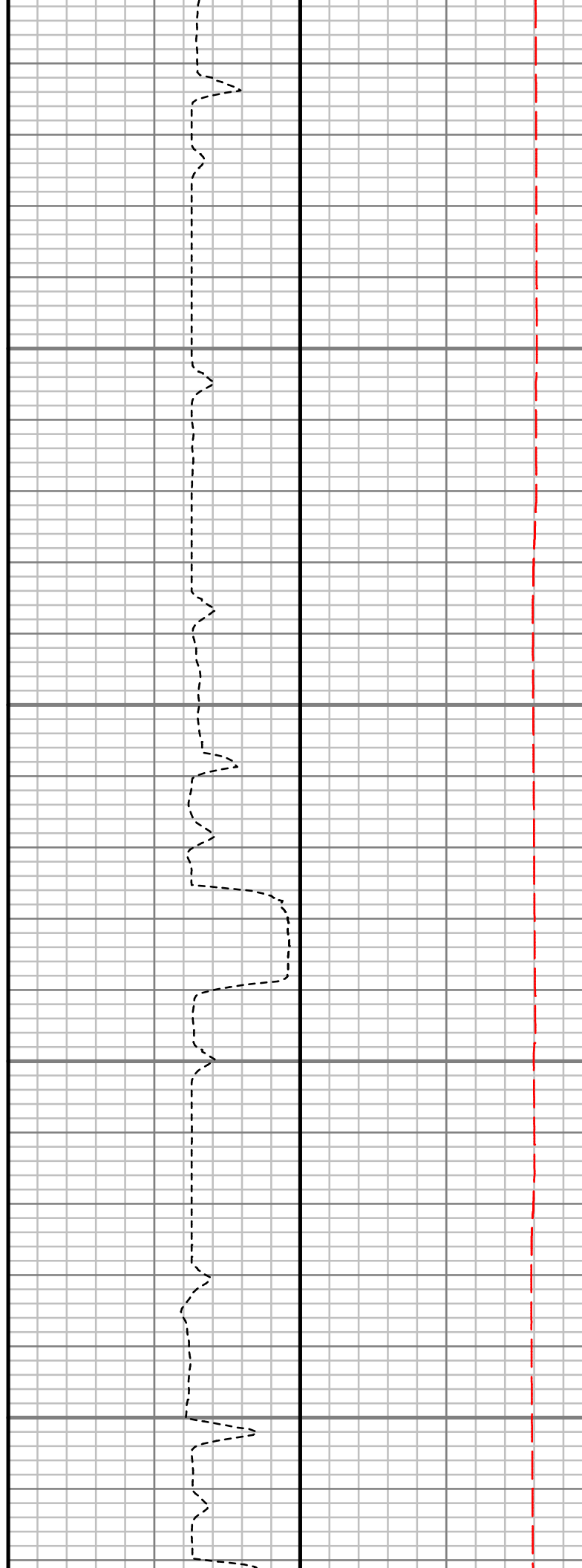
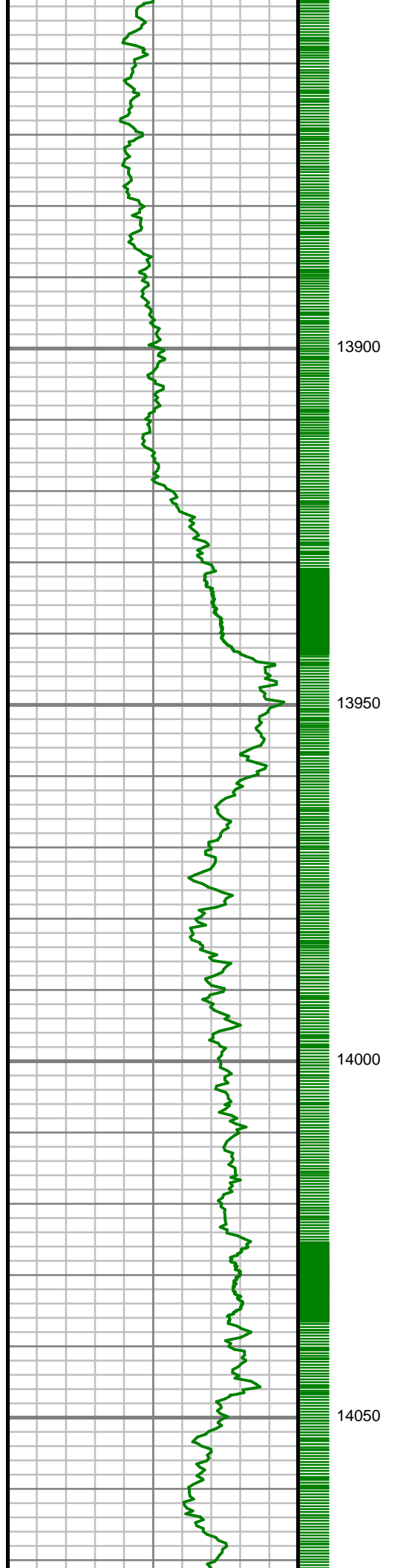
S: 146 MD: 13527.00 ft
Inc: 90.84 deg Az: 1.31
deg TVD: 7230.89 ft

S: 147 MD: 13621.00 ft
Inc: 89.73 deg Az:
359.07 deg TVD:
7230.42 ft



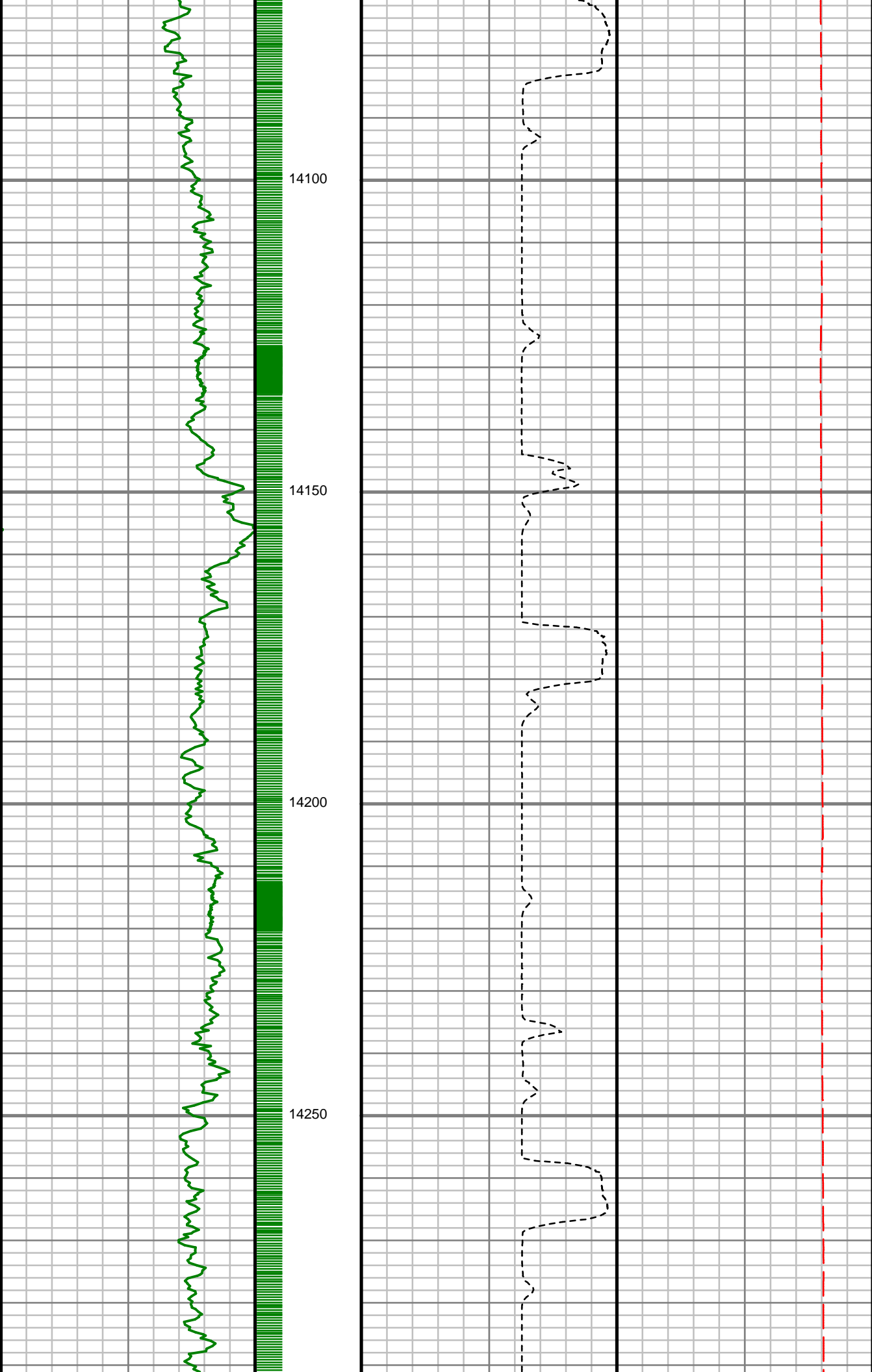
S: 148 MD: 13715.00 ft
Inc: 90.20 deg Az:
359.40 deg TVD:
7230.48 ft

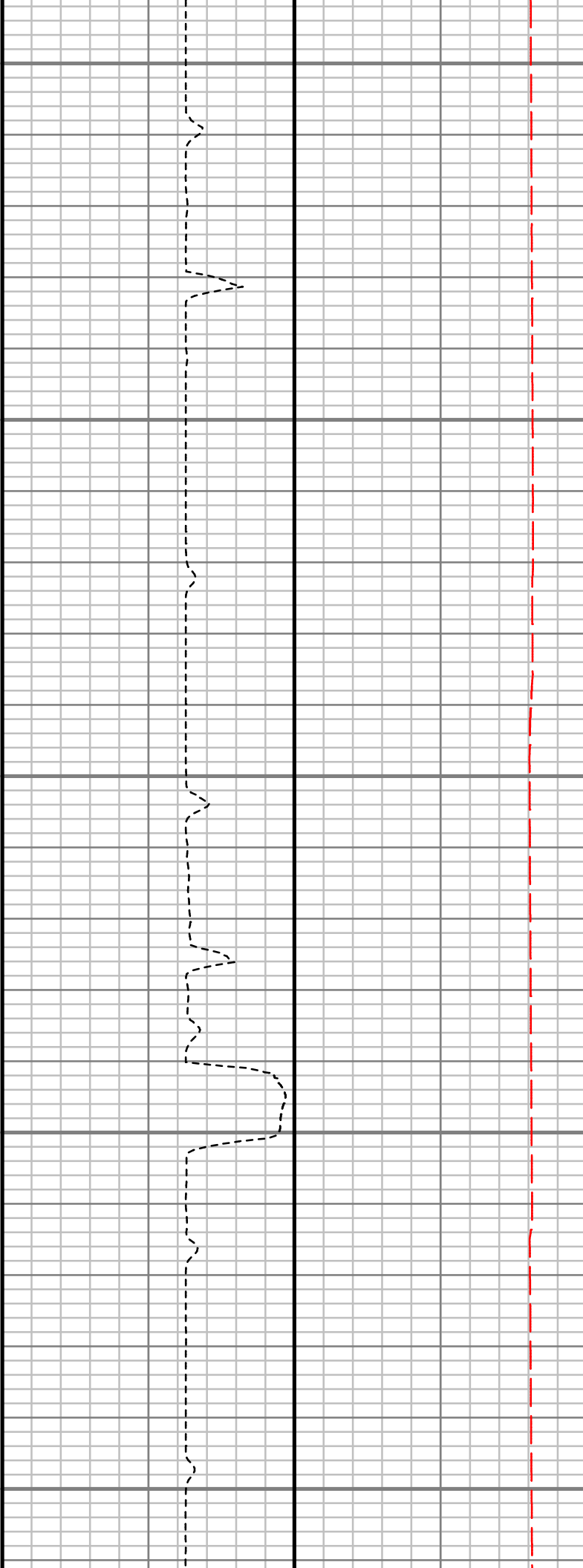
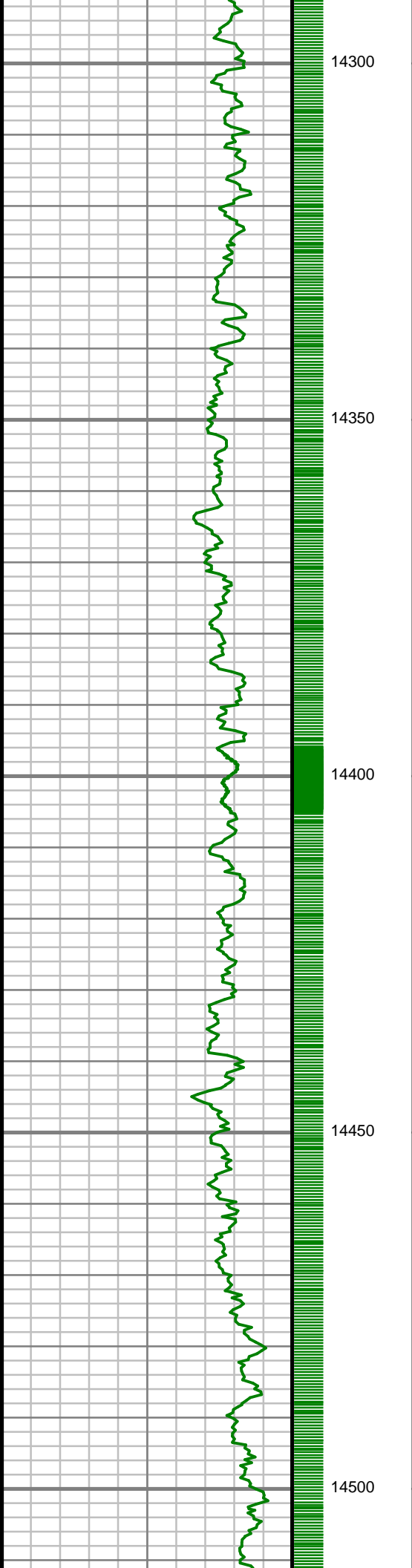
S: 149 MD: 13810.00 ft
Inc: 90.60 deg Az:
359.84 deg TVD:
7229.82 ft



S: 150 MD: 13902.00 ft
Inc: 91.85 deg Az: 0.40
deg TVD: 7227.85 ft

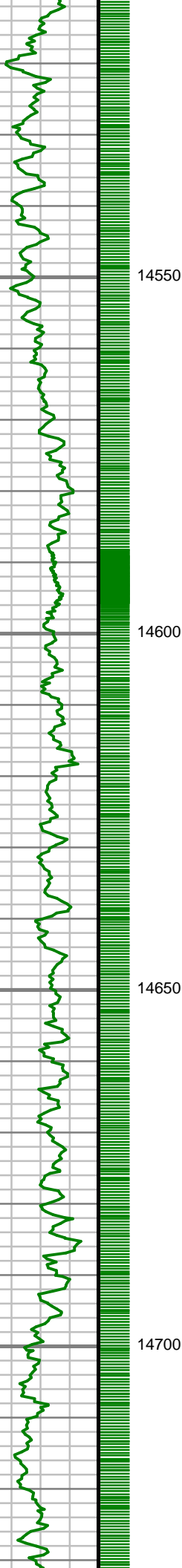
S: 151 MD: 13996.00 ft
Inc: 91.31 deg Az: 359.53 deg
TVD: 7225.26 ft





S: 155 MD: 14370.00 ft
Inc: 90.57 deg Az: 1.70
deg TVD: 7221.75 ft

S: 156 MD: 14464.00 ft
Inc: 89.43 deg Az:
359.84 deg TVD:
7221.75 ft



14550

14600

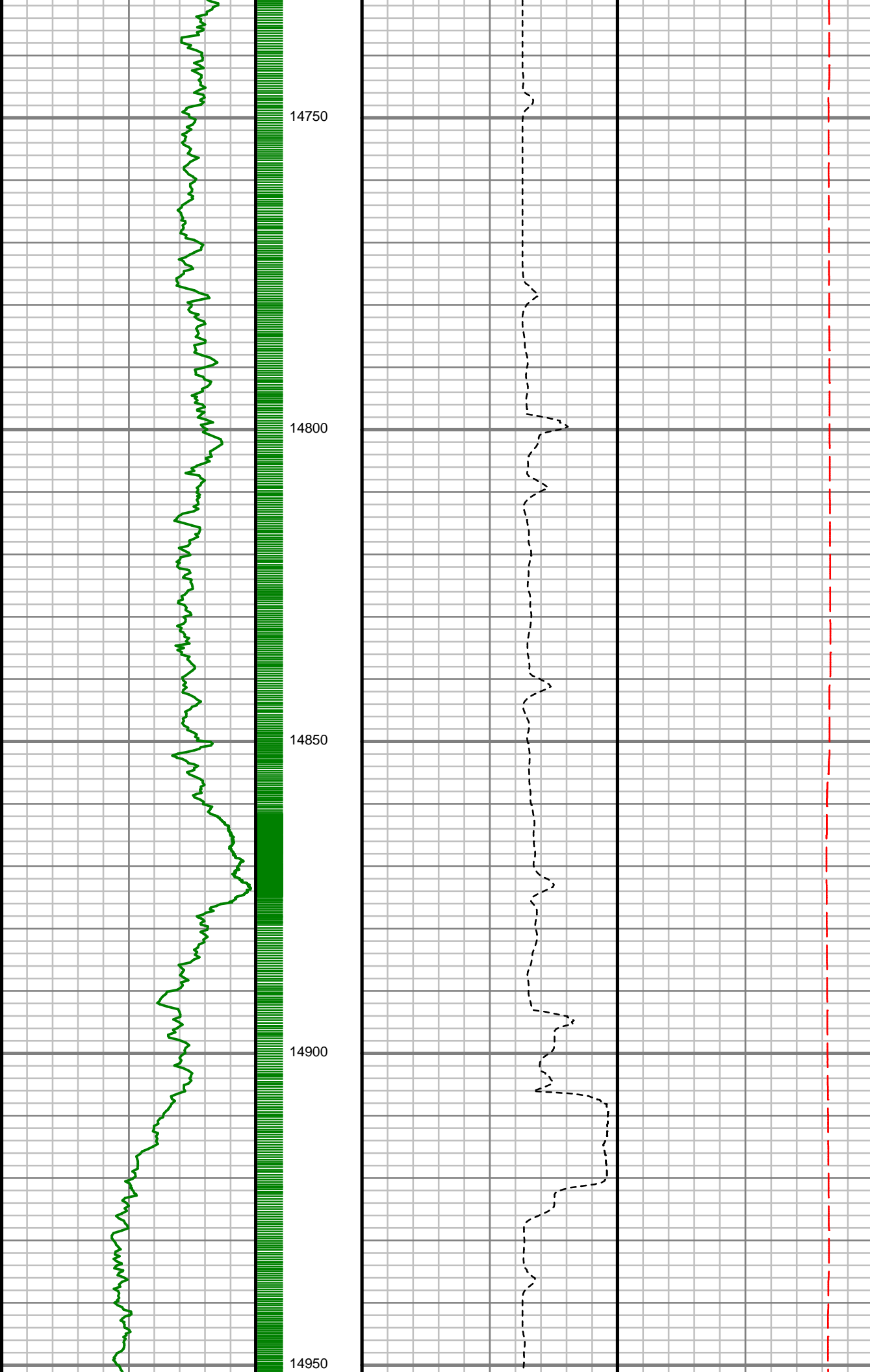
14650

14700



S: 157 MD: 14557.00 ft
Inc: 90.84 deg Az: 0.83
deg TVD: 7221.54 ft

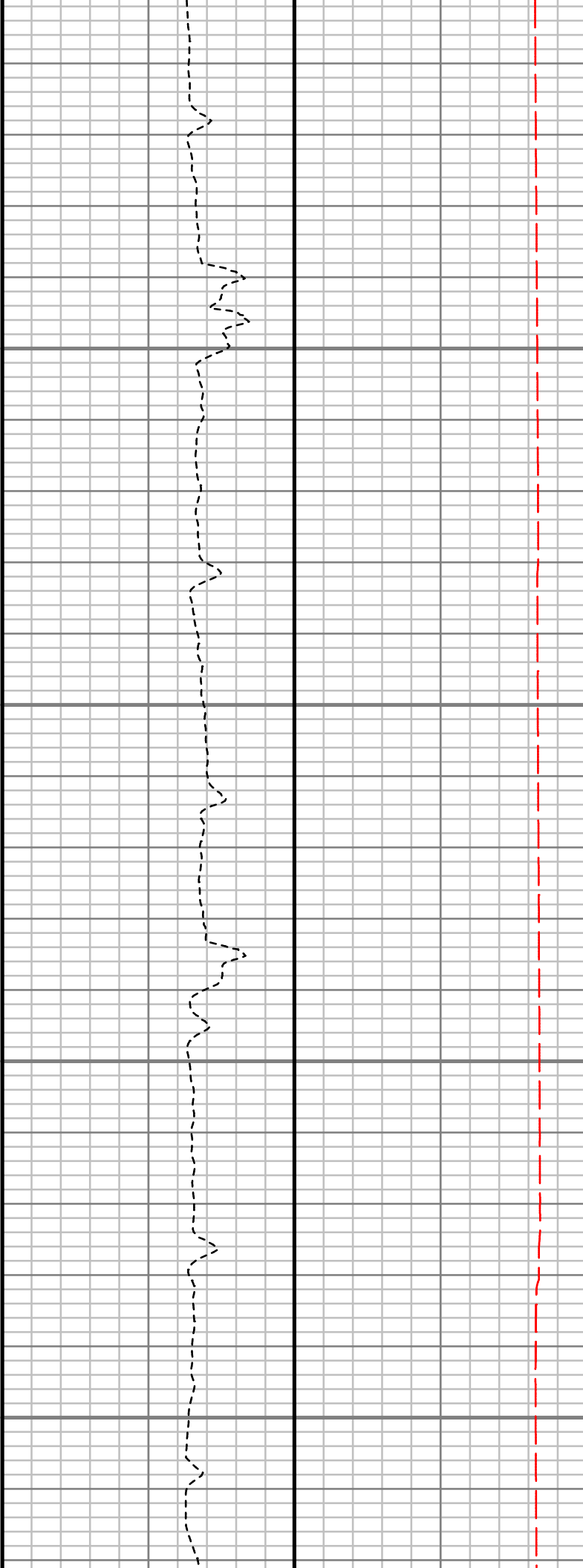
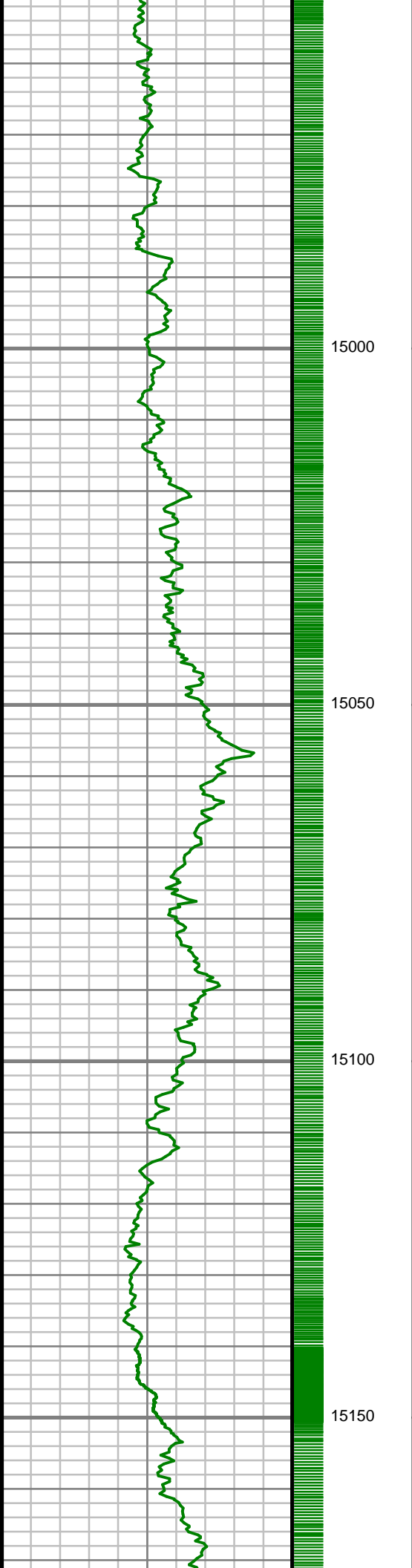
S: 158 MD: 14652.00 ft
Inc: 90.40 deg Az:
359.75 deg TVD:
7220.51 ft



S: 159 MD: 14747.00 ft
Inc: 90.50 deg Az:
358.72 deg TVD:
7219.76 ft

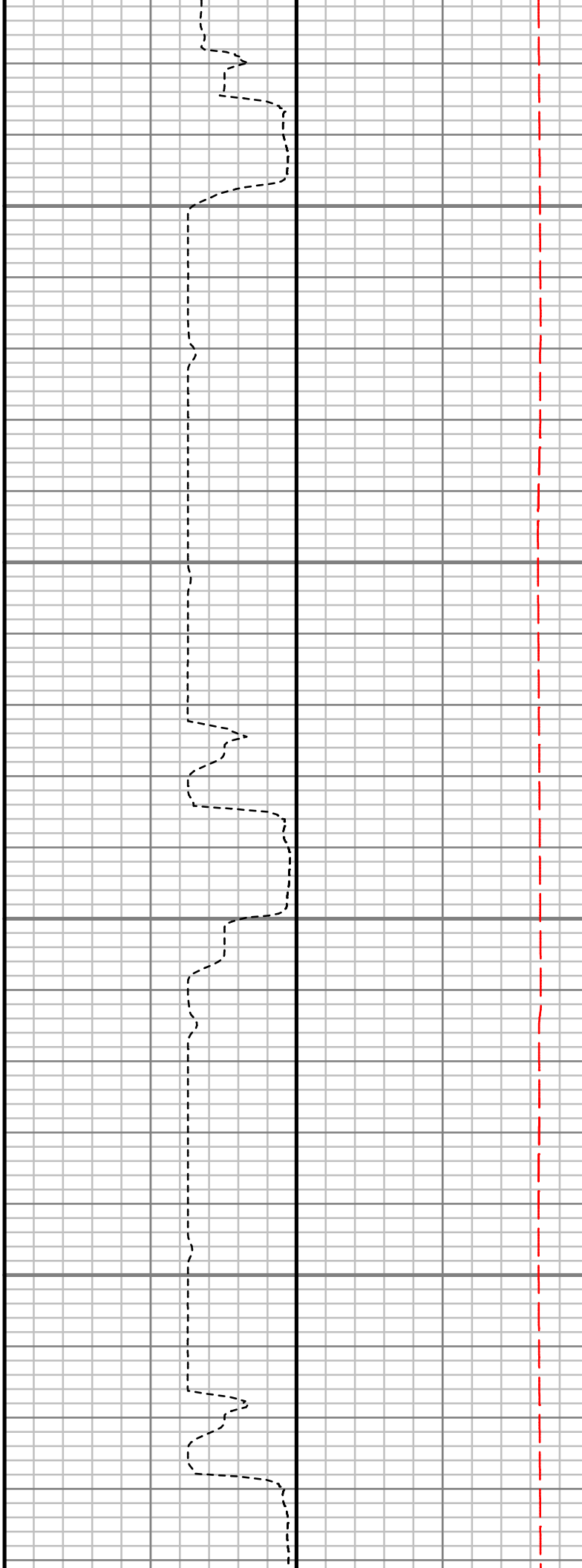
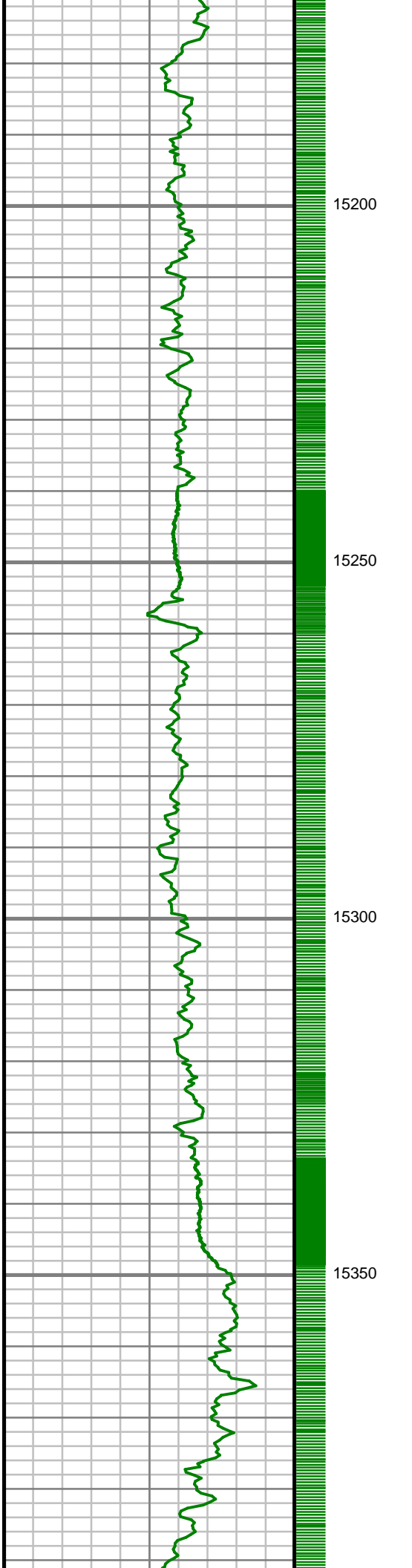
S: 160 MD: 14840.00 ft
Inc: 90.64 deg Az:
357.63 deg TVD:
7218.84 ft

S: 161 MD: 14935.00 ft
Inc: 90.67 deg Az:
358.77 deg TVD:
7217.75 ft



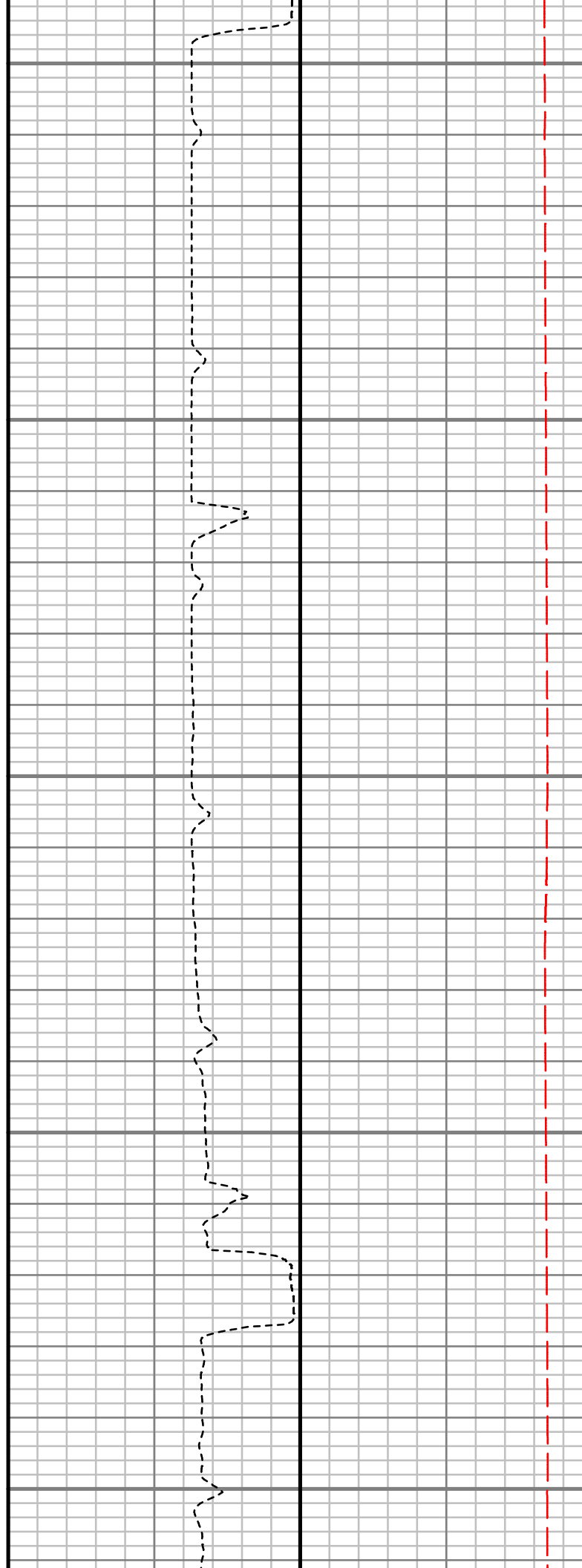
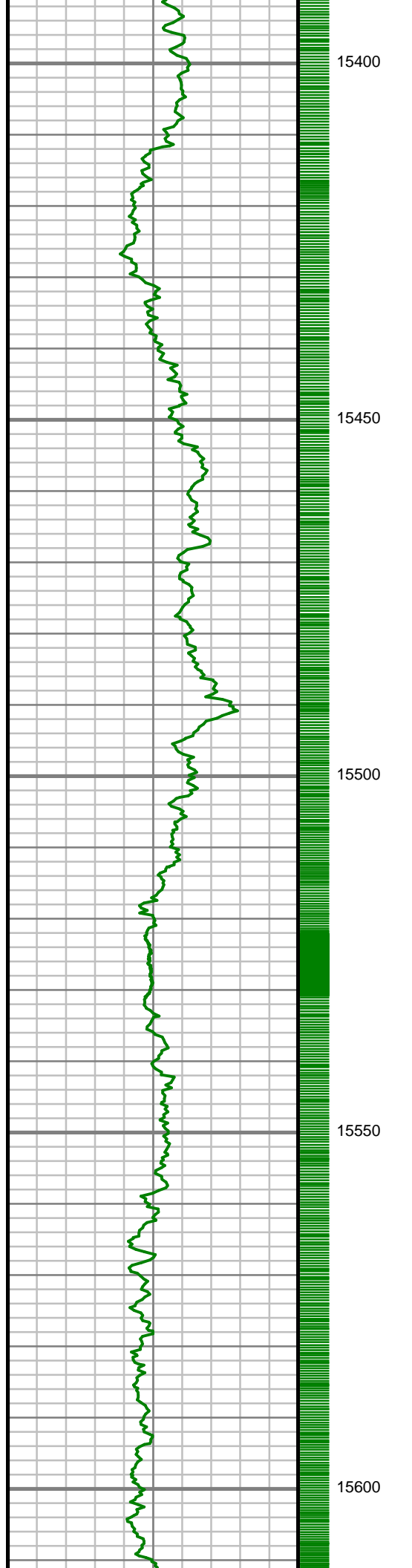
S: 162 MD: 15030.00 ft
Inc: 90.60 deg Az:
358.29 deg TVD:
7216.70 ft

S: 163 MD: 15124.00 ft
Inc: 91.11 deg Az:
358.23 deg TVD:
7215.29 ft



S: 164 MD: 15219.00 ft
Inc: 89.56 deg Az:
358.22 deg TVD:
7214.74 ft

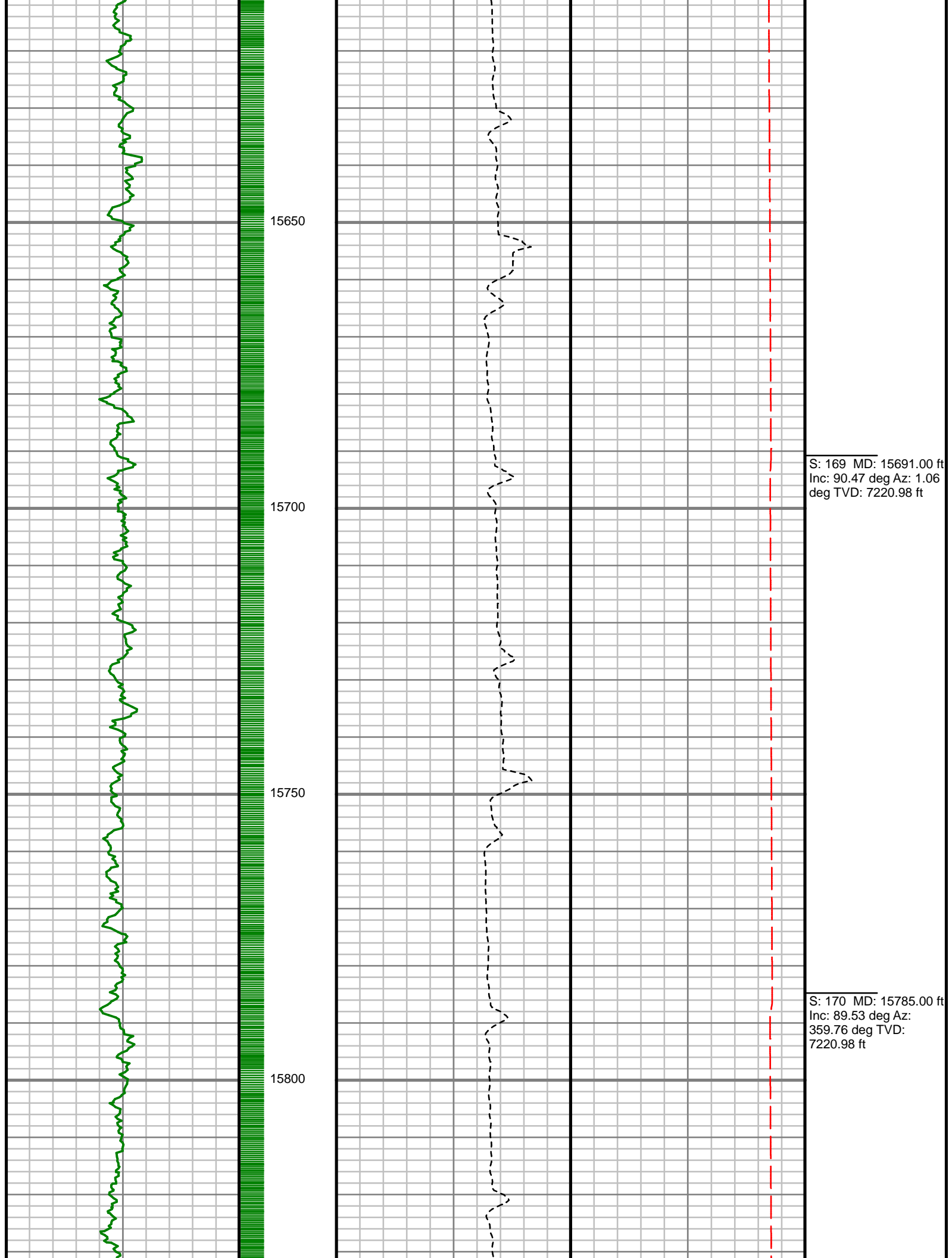
S: 165 MD: 15312.00 ft
Inc: 89.36 deg Az:
359.33 deg TVD:
7215.62 ft

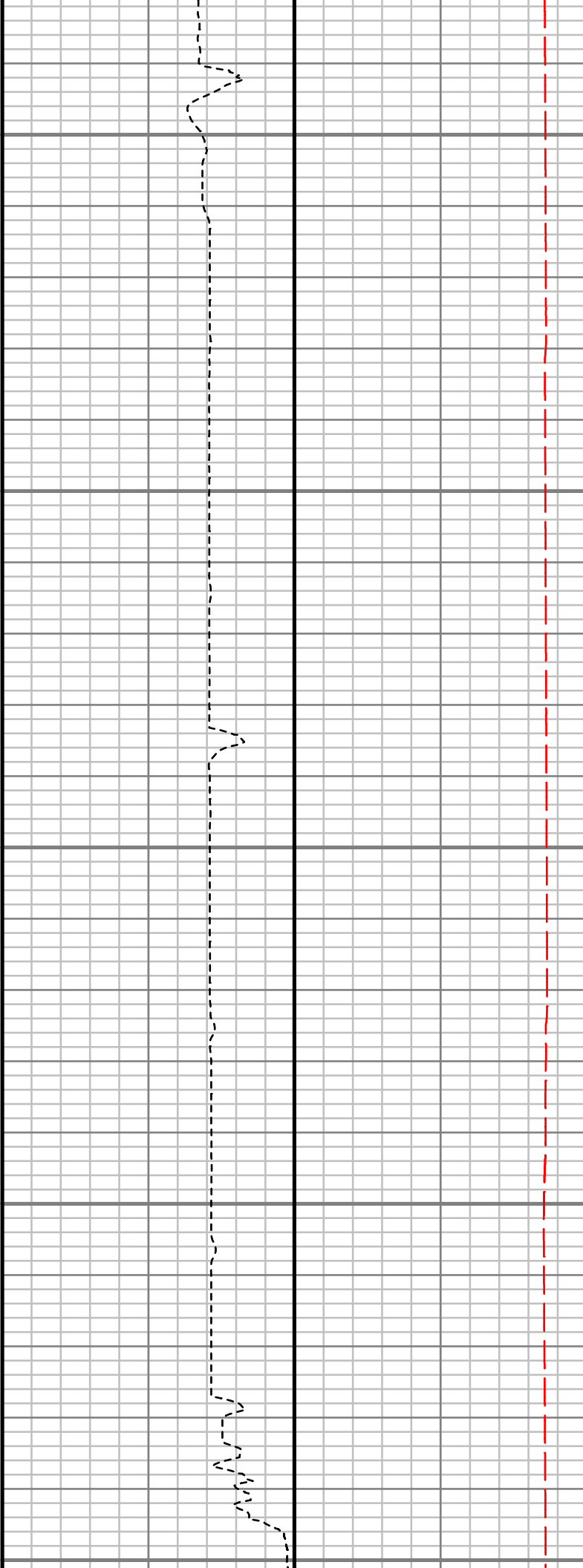
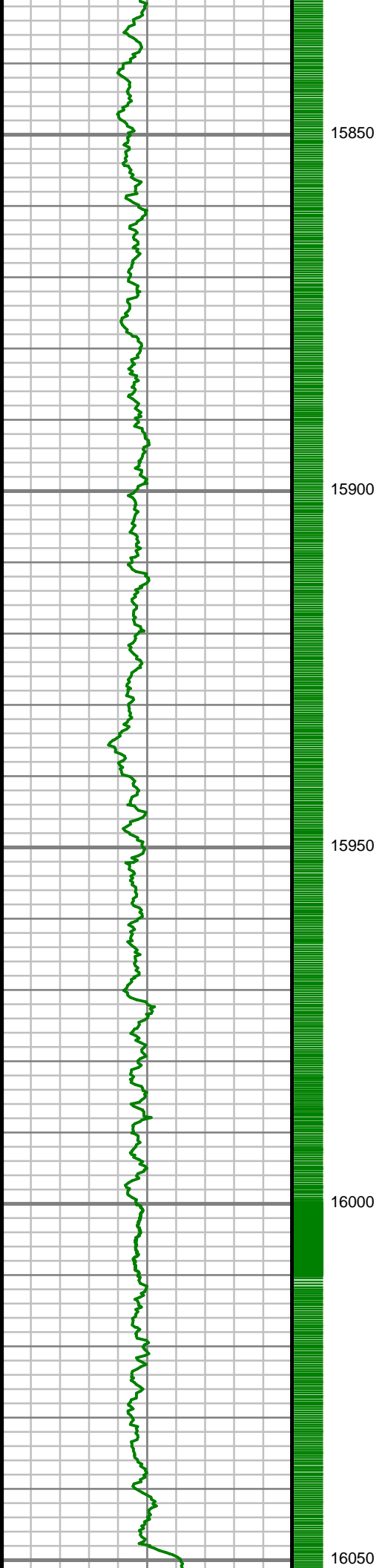


S: 166 MD: 15407.00 ft
Inc: 88.56 deg Az: 0.96
deg TVD: 7217.34 ft

S: 167 MD: 15502.00 ft
Inc: 88.66 deg Az: 0.96
deg TVD: 7219.64 ft

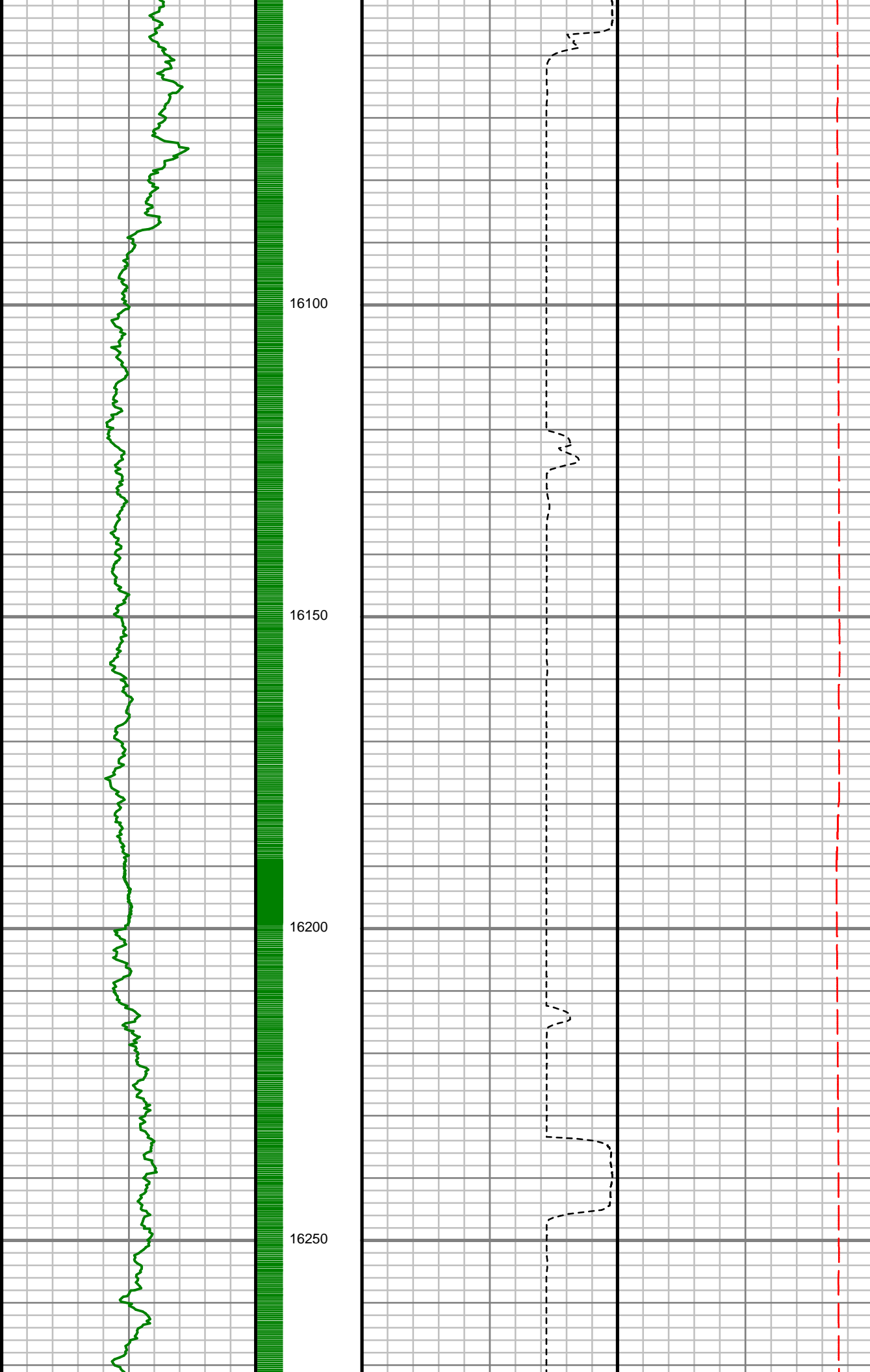
S: 168 MD: 15597.00 ft
Inc: 89.63 deg Az: 0.85
deg TVD: 7221.06 ft





S: 171 MD: 15880.00 ft
Inc: 89.90 deg Az:
359.25 deg TVD:
7221.45 ft

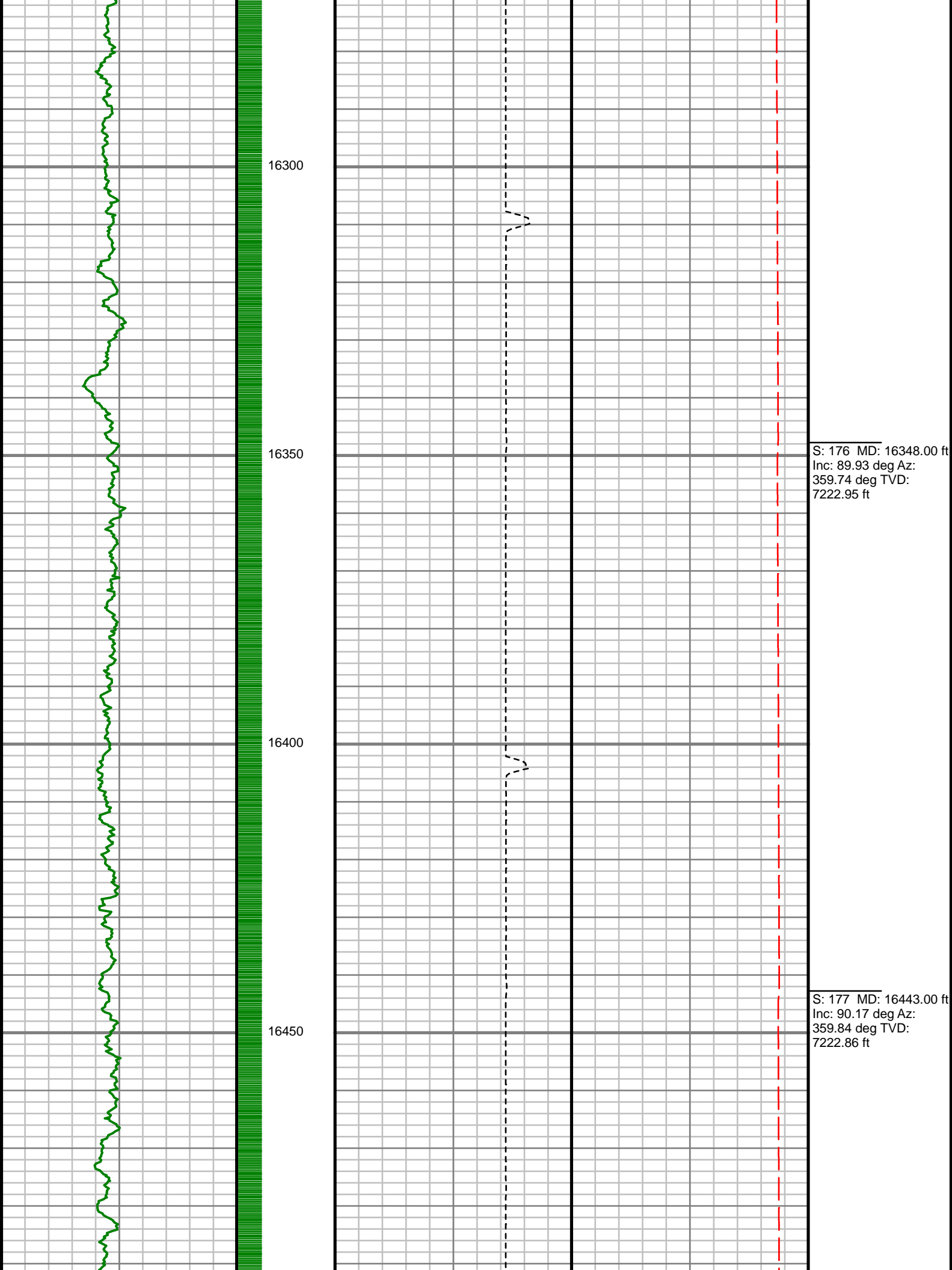
S: 172 MD: 15973.00 ft
Inc: 89.66 deg Az:
357.50 deg TVD:
7221.81 ft

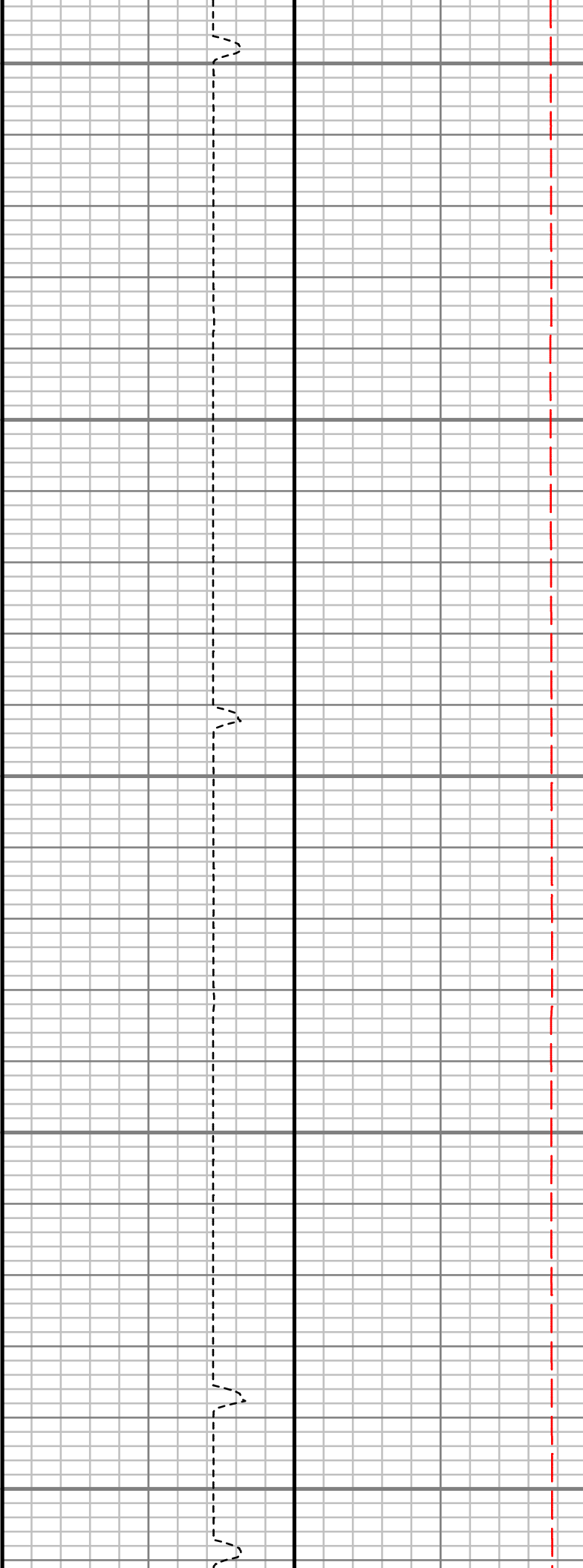
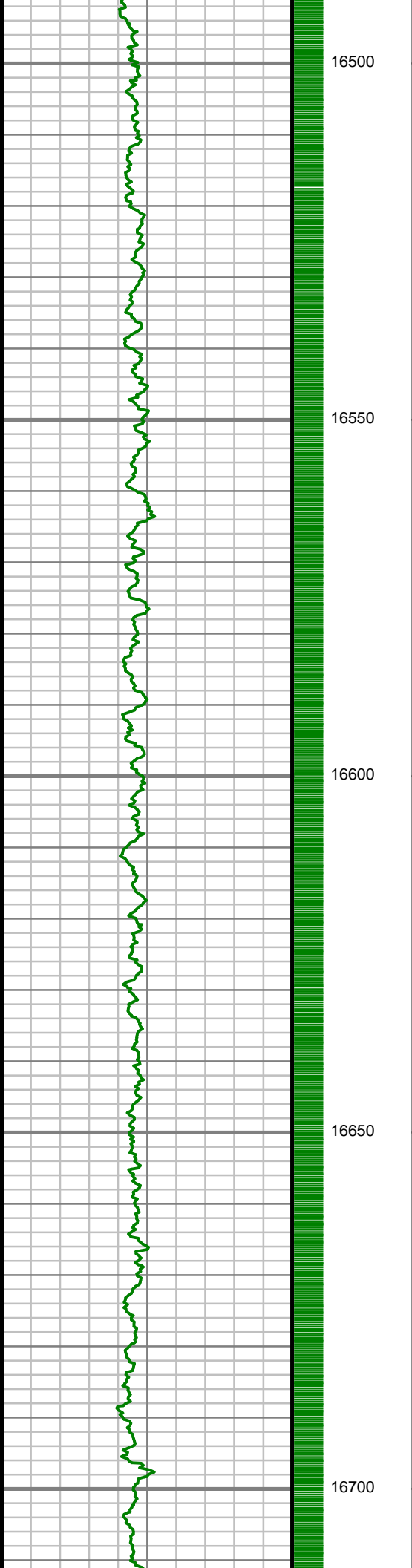


S: 173 MD: 16065.00 ft
Inc: 89.97 deg Az:
358.90 deg TVD:
7222.11 ft

S: 174 MD: 16159.00 ft
Inc: 89.77 deg Az:
358.77 deg TVD:
7222.32 ft

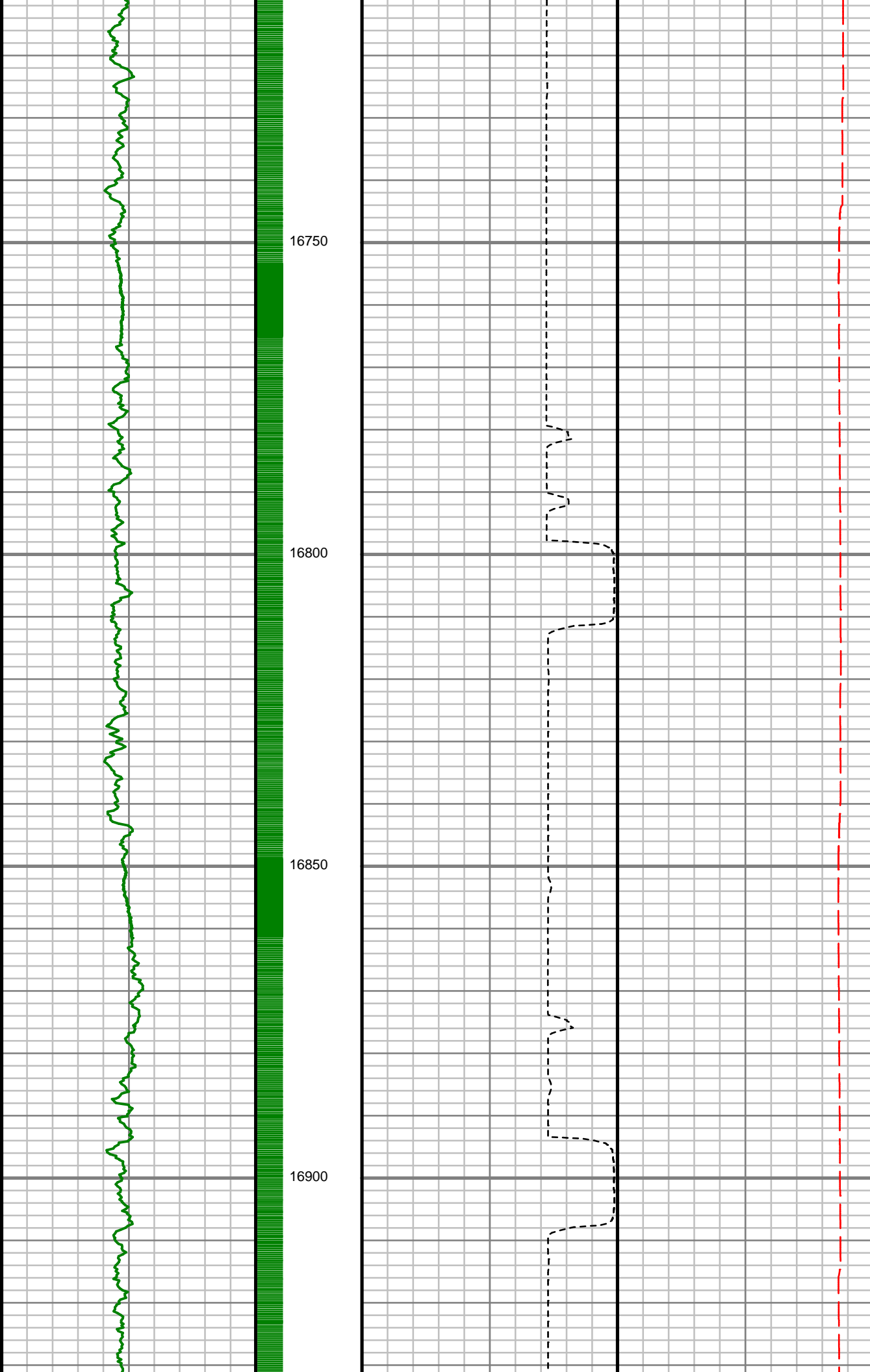
S: 175 MD: 16254.00 ft
Inc: 89.77 deg Az:
359.44 deg TVD:
7222.70 ft





S: 178 MD: 16538.00 ft
Inc: 89.87 deg Az:
358.54 deg TVD:
7222.83 ft

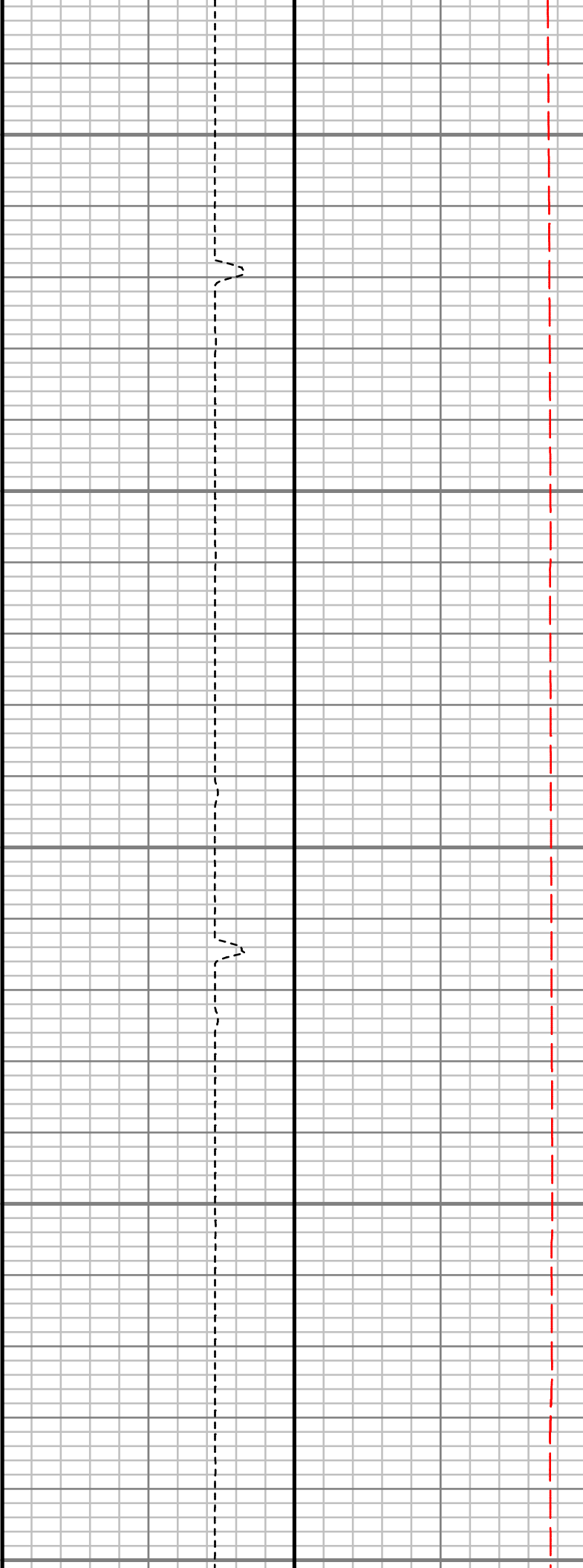
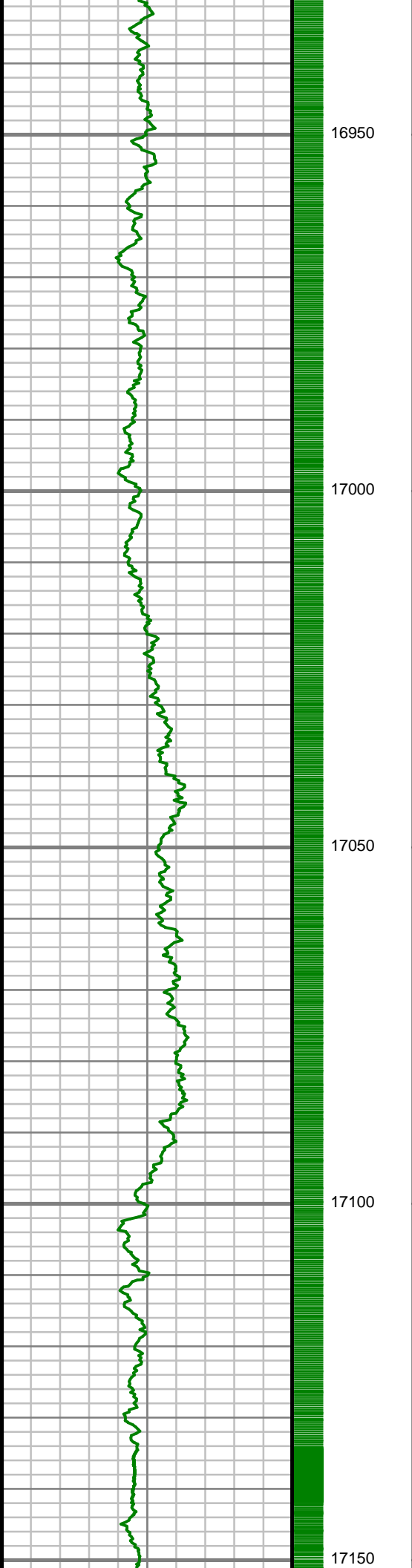
S: 179 MD: 16633.00 ft
Inc: 90.20 deg Az:
358.89 deg TVD:
7222.77 ft



S: 180 MD: 16726.00 ft
Inc: 89.90 deg Az:
357.88 deg TVD:
7222.69 ft

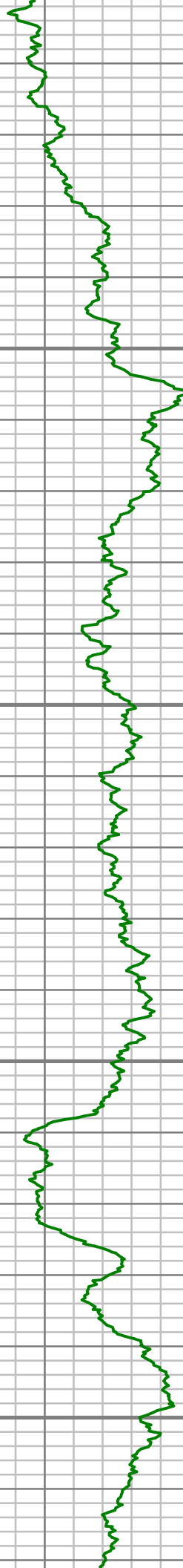
S: 181 MD: 16819.00 ft
Inc: 89.80 deg Az:
358.84 deg TVD:
7222.94 ft

S: 182 MD: 16914.00 ft
Inc: 89.90 deg Az: 0.84
deg TVD: 7223.18 ft



S: 183 MD: 17007.00 ft
Inc: 89.77 deg Az: 1.01
deg TVD: 7223.45 ft

S: 184 MD: 17102.00 ft
Inc: 90.94 deg Az: 1.64
deg TVD: 7222.86 ft



17200

17250

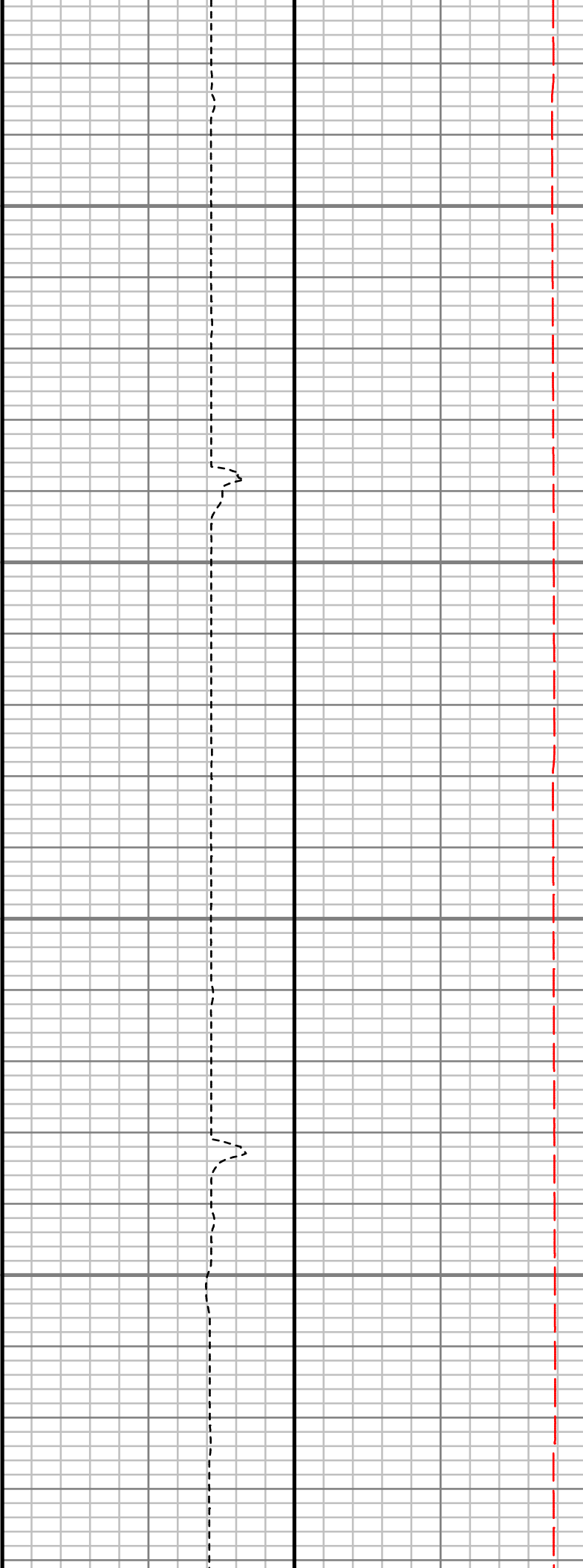
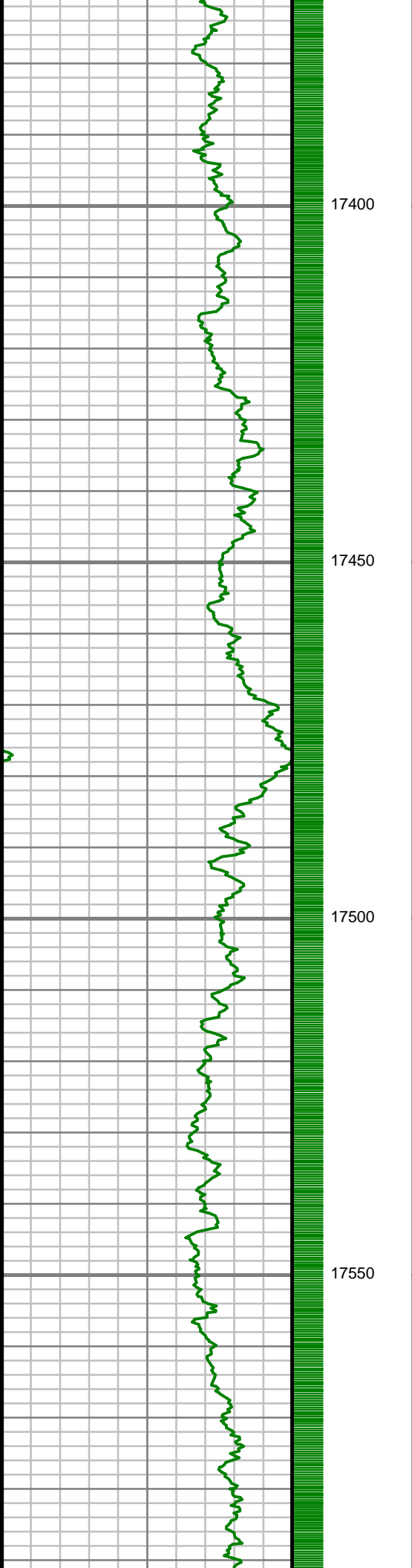
17300

17350



S: 185 MD: 17195.00 ft
Inc: 89.83 deg Az: 1.62
deg TVD: 7222.24 ft

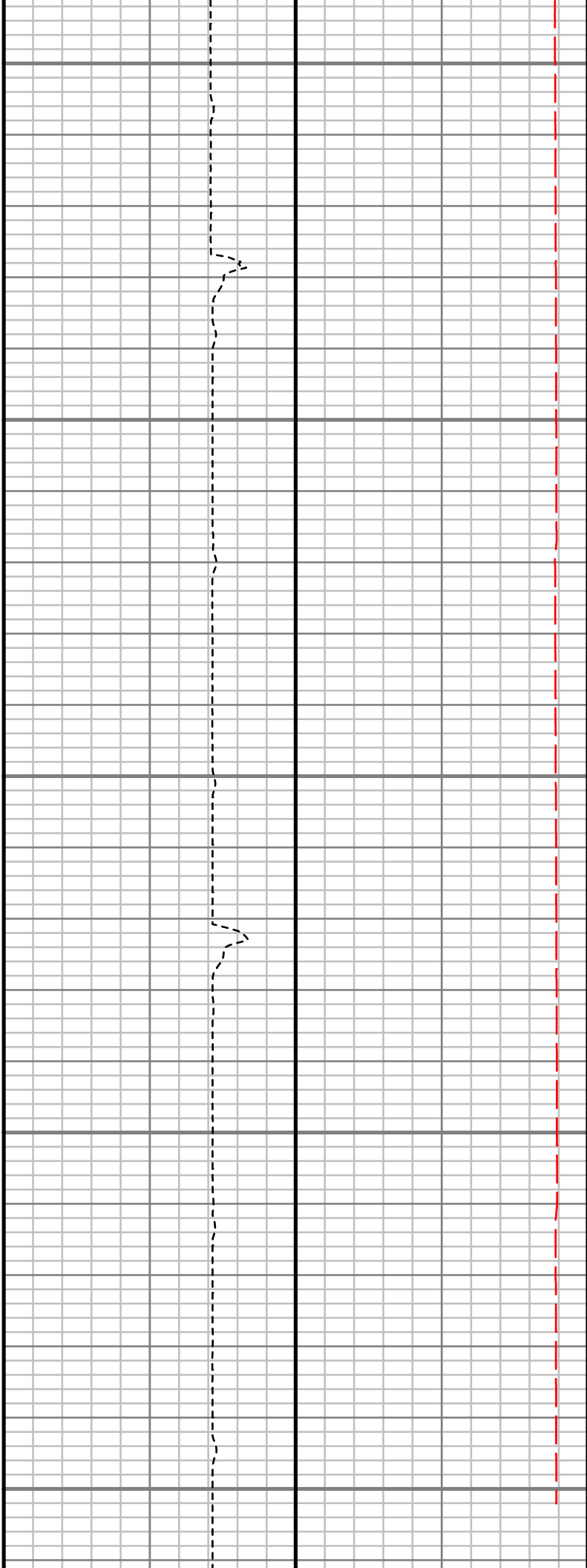
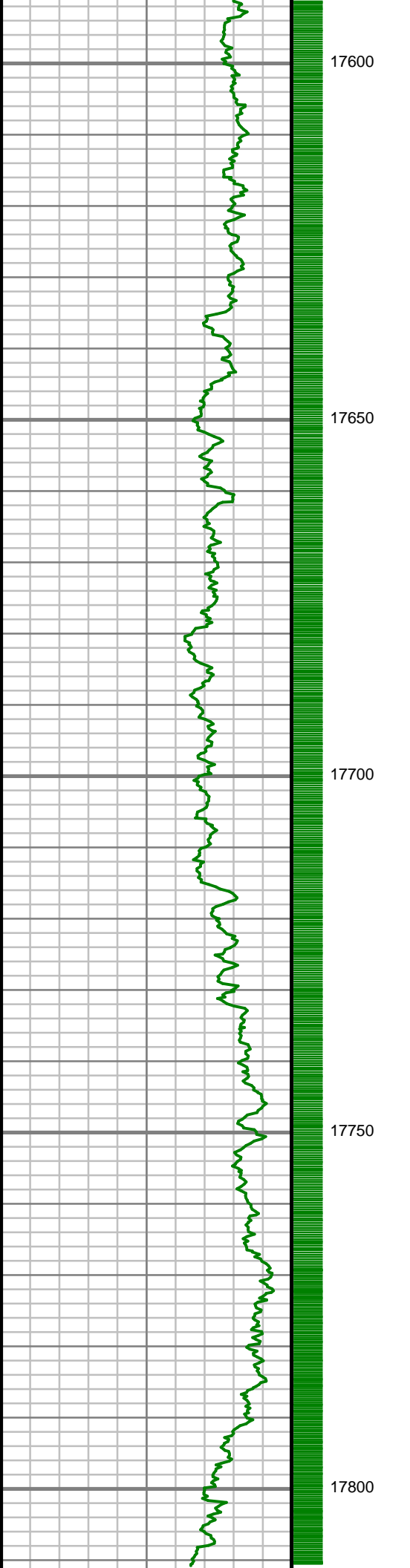
S: 186 MD: 17291.00 ft
Inc: 89.77 deg Az: 1.50
deg TVD: 7222.57 ft



S: 187 MD: 17384.00 ft
Inc: 89.87 deg Az: 1.95
deg TVD: 7222.87 ft

S: 188 MD: 17477.00 ft
Inc: 90.07 deg Az: 2.29
deg TVD: 7222.91 ft

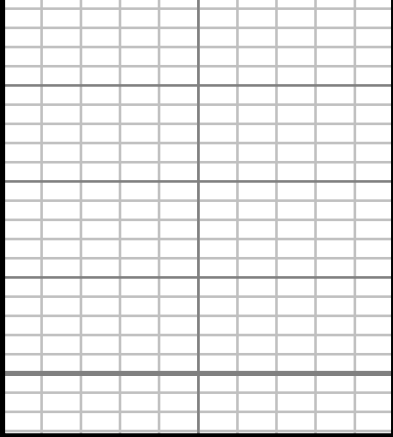
S: 189 MD: 17572.00 ft
Inc: 90.40 deg Az: 2.77
deg TVD: 7222.53 ft



S: 190 MD: 17667.00 ft
Inc: 91.01 deg Az: 3.64
deg TVD: 7221.36 ft

S: 191 MD: 17760.00 ft
Inc: 91.28 deg Az: 4.05
deg TVD: 7219.50 ft

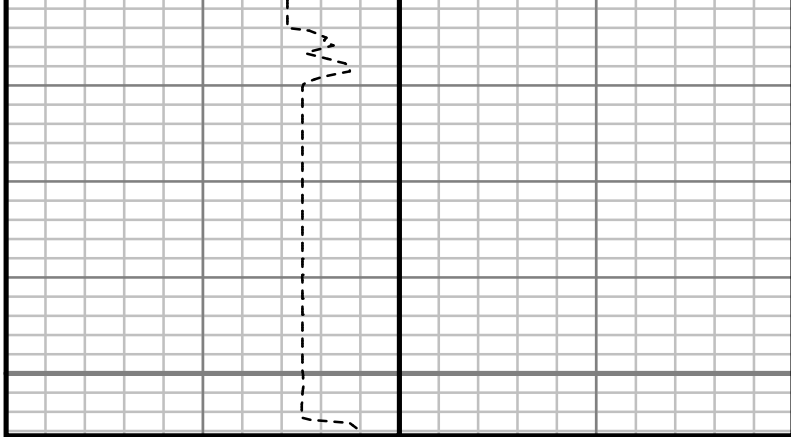
S: 192 MD: 17800.00 ft
Inc: 91.34 deg Az: 3.98
deg TVD: 7218.58 ft



Gamma Ray (GR)		
0	Unit = aapi	150

17850

MEASURED DEPTH
1:240 (ft)



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

Tool Temperature (TEMP)		
0	Unit = °F	300

Comments

SURVEY REPORT

CHICA 4N2-23HZ

MSA CORRECTED SURVEYS

CUSTOMER ANADARKO PETROLEUM CORPORATION
PROJECT CHICA PAD
FIELD WATTENEHRG

WELL INFORMATION

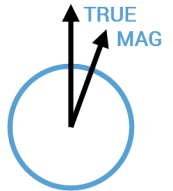
Lat/Long 40.188222° N, 104.866148° W
Northing 14,595,302 ft
Easting 1,677,798.92 ft
UWI 05123441210000

MAP INFORMATION

North Reference True North
Grid Correction
System Universal Transverse Mercator (US Survey Feet)
Datum North American Datum 1983 (GRS 1980)
Map Zone Zone 13N (108 W to 102 W)

VERTICAL SECTION REFERENCE

+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 359.69°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.059 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-17800 ft	ANADARKO MAGVAR	14 Apr 2017	8.30°	add 8.3°

WELL NOTES

OPERATORS

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
174.00	0.30	302.55	174.00	0.25	0.25	-0.38	0.17
205.00	0.31	314.57	205.00	0.35	0.35	-0.51	0.21
294.00	0.36	128.13	294.00	0.35	0.34	-0.46	0.75
383.00	0.87	88.48	382.99	0.19	0.19	0.43	0.71
469.00	1.74	90.50	468.97	0.18	0.20	2.39	1.01
556.00	2.44	88.27	555.91	0.21	0.24	5.56	0.81
645.00	3.11	89.52	644.81	0.26	0.32	9.87	0.76
733.00	3.93	99.95	732.64	-0.27	-0.18	15.23	1.18
822.00	5.02	104.99	821.37	-1.84	-1.72	21.99	1.30
911.00	6.14	107.53	909.95	-4.32	-4.16	30.29	1.29
999.00	7.89	109.85	997.28	-7.85	-7.63	40.46	2.01
1084.00	8.64	114.04	1081.40	-12.49	-12.21	51.78	1.13
1171.00	9.90	115.05	1167.26	-18.39	-18.04	64.53	1.46
1257.00	11.12	114.92	1251.82	-25.09	-24.66	78.74	1.42
1346.00	12.25	114.93	1338.97	-32.77	-32.26	95.09	1.27
1433.00	13.08	113.87	1423.86	-40.74	-40.13	112.46	0.99
1519.00	12.11	114.94	1507.78	-48.58	-47.88	129.54	1.16
1606.00	11.67	114.07	1592.92	-56.10	-55.31	145.85	0.55
1695.00	12.66	113.09	1679.92	-63.69	-62.81	163.04	1.14

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1781.00	13.31	112.55	1763.72	-71.28	-70.30	180.85	0.77
1870.00	13.58	112.09	1850.28	-79.24	-78.16	200.00	0.33
1959.00	12.31	111.37	1937.02	-86.73	-85.55	218.51	1.44
2046.00	12.73	113.66	2021.95	-94.05	-92.77	235.93	0.75
2135.00	12.85	117.47	2108.74	-102.64	-101.27	253.69	0.96
2223.00	11.06	120.12	2194.83	-111.48	-110.02	269.68	2.13
2312.00	10.88	117.44	2282.20	-119.72	-118.18	284.52	0.61
2332.00	10.77	115.82	2301.85	-121.42	-119.86	287.87	1.62
2401.00	10.20	115.49	2369.70	-126.92	-125.30	299.19	0.83
2495.00	8.48	113.67	2462.45	-133.36	-131.66	313.05	1.86
2589.00	7.70	114.47	2555.51	-138.81	-137.06	325.13	0.84
2684.00	8.11	113.89	2649.61	-144.23	-142.41	337.05	0.44
2778.00	7.96	106.56	2742.69	-148.83	-146.95	349.36	1.10
2871.00	7.19	101.62	2834.88	-151.91	-149.95	361.23	1.08
2965.00	5.41	90.92	2928.31	-153.22	-151.21	371.42	2.26
3058.00	4.90	77.53	3020.93	-152.47	-150.42	379.68	1.40
3153.00	3.74	61.17	3115.67	-150.14	-148.05	386.36	1.77
3246.00	2.95	24.73	3208.52	-146.52	-144.42	390.02	2.39
3340.00	3.16	349.96	3302.39	-141.78	-139.67	390.58	1.95
3433.00	3.03	333.20	3395.26	-137.05	-134.95	389.02	0.98

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3527.00	2.74	331.70	3489.14	-132.84	-130.75	386.84	0.32
3622.00	3.05	330.87	3584.02	-128.62	-126.55	384.53	0.33
3717.00	3.82	332.17	3678.85	-123.60	-121.54	381.82	0.81
3811.00	3.68	335.05	3772.64	-118.08	-116.04	379.09	0.25
3904.00	3.48	329.86	3865.46	-112.92	-110.89	376.41	0.41
3999.00	3.19	318.75	3960.30	-108.43	-106.41	373.22	0.74
4094.00	2.45	302.44	4055.19	-105.33	-103.33	369.77	1.14
4187.00	2.06	274.12	4148.12	-104.13	-102.14	366.42	1.25
4283.00	1.52	233.92	4244.08	-104.74	-102.77	363.67	1.39
4377.00	1.43	226.30	4338.05	-106.27	-104.32	361.82	0.23
4472.00	1.14	294.36	4433.03	-106.69	-104.74	360.10	1.53
4567.00	1.21	286.52	4528.01	-106.01	-104.07	358.28	0.18
4660.00	0.45	281.74	4621.00	-105.65	-103.72	356.98	0.82
4754.00	0.86	243.86	4714.99	-105.88	-103.95	355.98	0.61
4849.00	0.57	348.05	4809.99	-105.72	-103.80	355.24	1.20
4943.00	0.91	351.58	4903.98	-104.53	-102.61	355.04	0.36
5038.00	0.64	340.97	4998.97	-103.28	-101.36	354.75	0.32
5133.00	0.81	40.25	5093.96	-102.26	-100.35	355.02	0.77
5252.00	0.78	29.46	5212.95	-100.92	-99.00	355.96	0.13
5346.00	0.69	11.36	5306.94	-99.81	-97.89	356.38	0.26

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5439.00	0.55	355.52	5399.94	-98.82	-96.89	356.46	0.24
5532.00	0.63	6.53	5492.93	-97.87	-95.94	356.48	0.15
5627.00	0.84	13.54	5587.92	-96.67	-94.74	356.70	0.24
5721.00	1.11	6.67	5681.91	-95.10	-93.17	356.97	0.31
5815.00	1.57	352.30	5775.89	-92.92	-90.99	356.91	0.60
5910.00	1.21	345.16	5870.86	-90.66	-88.73	356.47	0.42
6004.00	0.95	322.34	5964.84	-89.08	-87.15	355.74	0.53
6099.00	1.03	307.15	6059.83	-87.93	-86.01	354.58	0.29
6194.00	1.02	290.21	6154.81	-87.12	-85.21	353.11	0.32
6289.00	1.05	289.33	6249.80	-86.53	-84.63	351.49	0.04
6383.00	1.08	287.61	6343.78	-85.96	-84.07	349.84	0.05
6477.00	1.10	300.46	6437.76	-85.23	-83.35	348.21	0.26
6570.00	1.28	316.20	6530.74	-84.02	-82.15	346.73	0.40
6664.00	6.27	354.09	6624.52	-78.15	-76.28	345.47	5.66
6757.00	7.91	347.23	6716.81	-66.84	-64.98	343.53	1.98
6852.00	12.51	346.72	6810.28	-50.42	-48.59	339.72	4.84
6946.00	17.27	350.79	6901.10	-26.70	-24.89	335.15	5.18
7039.00	28.28	357.68	6986.73	9.07	10.87	332.04	12.16
7133.00	43.92	2.78	7062.46	64.23	66.03	332.72	16.93
7226.00	59.71	2.71	7119.77	137.00	138.82	336.20	16.98

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7321.00	71.16	1.28	7159.20	223.18	225.02	339.16	12.13
7415.00	78.82	2.75	7183.53	313.83	315.69	342.37	8.29
7509.00	83.54	2.56	7197.94	406.57	408.45	346.67	5.03
7603.00	87.04	2.33	7205.66	500.13	502.03	350.66	3.73
7698.00	87.85	2.65	7209.89	594.92	596.85	354.79	0.92
7792.00	88.36	1.72	7213.00	688.78	690.73	358.37	1.13
7886.00	87.75	1.36	7216.19	782.67	784.64	360.89	0.75
7980.00	89.16	1.25	7218.72	876.60	878.58	363.03	1.50
8074.00	90.60	0.95	7218.92	970.57	972.56	364.84	1.56
8169.00	91.58	1.11	7217.11	1065.53	1067.52	366.55	1.05
8262.00	89.33	0.16	7216.37	1158.50	1160.51	367.58	2.63
8354.00	90.30	0.71	7216.67	1250.49	1252.50	368.27	1.21
8449.00	90.94	1.21	7215.64	1345.46	1347.48	369.87	0.85
8543.00	91.41	0.56	7213.72	1439.42	1441.45	371.32	0.85
8638.00	91.71	0.27	7211.13	1534.38	1536.41	372.01	0.44
8732.00	91.85	359.11	7208.21	1628.33	1630.37	371.50	1.24
8827.00	89.26	357.18	7207.29	1723.28	1725.30	368.42	3.40
8921.00	90.60	357.57	7207.40	1817.20	1819.20	364.12	1.48
9016.00	89.90	358.14	7206.99	1912.15	1914.13	360.56	0.95
9111.00	91.21	357.98	7206.07	2007.11	2009.07	357.35	1.39

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9204.00	89.90	358.40	7205.17	2100.07	2102.02	354.41	1.48
9299.00	90.57	2.28	7204.78	2195.04	2196.99	354.97	4.14
9392.00	91.48	2.81	7203.12	2287.91	2289.89	359.10	1.13
9486.00	90.20	359.05	7201.74	2381.86	2383.85	360.63	4.22
9580.00	90.27	358.76	7201.35	2475.85	2477.83	358.83	0.32
9675.00	90.91	358.35	7200.37	2570.83	2572.79	356.43	0.80
9769.00	89.36	359.41	7200.15	2664.81	2666.77	354.60	2.00
9863.00	89.30	359.91	7201.25	2758.80	2760.76	354.04	0.54
9958.00	89.53	0.29	7202.22	2853.80	2855.76	354.21	0.47
10052.00	91.21	2.17	7201.61	2947.75	2949.72	356.22	2.68
10147.00	90.27	1.36	7200.39	3042.68	3044.67	359.15	1.31
10242.00	88.89	1.16	7201.08	3137.64	3139.64	361.24	1.47
10336.00	90.20	0.90	7201.83	3231.61	3233.62	362.93	1.42
10431.00	89.87	359.70	7201.77	3326.60	3328.62	363.42	1.31
10525.00	90.57	358.82	7201.41	3420.60	3422.61	362.21	1.20
10618.00	89.97	359.13	7200.97	3513.59	3515.59	360.55	0.73
10713.00	90.07	357.76	7200.94	3608.56	3610.55	357.97	1.45
10807.00	89.23	357.33	7201.51	3702.50	3704.46	353.94	1.00
10901.00	90.00	358.06	7202.15	3796.44	3798.39	350.16	1.13
10995.00	89.43	358.29	7202.61	3890.40	3892.34	347.17	0.65

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11089.00	90.10	358.70	7203.00	3984.38	3986.30	344.70	0.84
11183.00	89.50	358.29	7203.33	4078.36	4080.27	342.23	0.77
11277.00	90.13	358.05	7203.63	4172.32	4174.22	339.23	0.72
11370.00	89.43	357.50	7203.99	4265.27	4267.15	335.62	0.96
11464.00	89.43	357.55	7204.92	4359.20	4361.06	331.56	0.05
11556.00	89.63	357.84	7205.68	4451.14	4452.98	327.86	0.38
11649.00	88.39	358.65	7207.28	4544.09	4545.92	325.01	1.59
11741.00	88.93	359.11	7209.44	4636.06	4637.87	323.21	0.77
11834.00	89.87	359.53	7210.41	4729.05	4730.86	322.11	1.11
11928.00	90.17	359.82	7210.38	4823.05	4824.86	321.58	0.44
12021.00	89.06	359.87	7211.00	4916.05	4917.86	321.33	1.19
12114.00	88.59	1.81	7212.91	5009.00	5010.82	322.69	2.15
12209.00	88.69	1.08	7215.16	5103.93	5105.76	325.08	0.78
12303.00	87.85	1.84	7218.00	5197.84	5199.69	327.48	1.20
12398.00	87.89	2.65	7221.53	5292.68	5294.55	331.20	0.85
12492.00	88.72	2.55	7224.31	5386.52	5388.41	335.46	0.89
12587.00	89.93	1.67	7225.43	5481.42	5483.34	338.96	1.57
12682.00	92.35	2.61	7223.54	5576.31	5578.24	342.50	2.73
12776.00	91.78	1.45	7220.15	5670.17	5672.12	345.83	1.37
12871.00	90.74	1.49	7218.07	5765.10	5767.07	348.27	1.10

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
12963.00	87.18	1.60	7219.73	5857.02	5859.00	350.74	3.87
13058.00	87.55	1.79	7224.10	5951.86	5953.86	353.55	0.44
13151.00	89.40	1.53	7226.58	6044.77	6046.79	356.24	2.01
13245.00	89.09	0.50	7227.82	6138.73	6140.76	357.91	1.14
13339.00	88.93	1.06	7229.44	6232.70	6234.74	359.19	0.62
13433.00	89.23	0.85	7230.95	6326.67	6328.71	360.76	0.39
13527.00	90.84	1.31	7230.89	6420.64	6422.69	362.53	1.78
13621.00	89.73	359.07	7230.42	6514.62	6516.68	362.84	2.66
13715.00	90.20	359.40	7230.48	6608.62	6610.67	361.58	0.61
13810.00	90.60	359.84	7229.82	6703.62	6705.67	360.95	0.63
13902.00	91.85	0.40	7227.85	6795.59	6797.65	361.15	1.49
13996.00	91.31	359.53	7225.26	6889.55	6891.61	361.09	1.09
14089.00	90.77	359.05	7223.57	6982.54	6984.59	359.94	0.78
14183.00	90.71	359.28	7222.36	7076.52	7078.57	358.57	0.25
14276.00	89.73	0.08	7222.00	7169.52	7171.56	358.05	1.36
14370.00	90.57	1.70	7221.75	7263.50	7265.55	359.51	1.94
14464.00	89.43	359.84	7221.75	7357.47	7359.53	360.77	2.32
14557.00	90.84	0.83	7221.54	7450.47	7452.53	361.31	1.85
14652.00	90.40	359.75	7220.51	7545.45	7547.52	361.80	1.23
14747.00	90.50	358.72	7219.76	7640.45	7642.51	360.53	1.09

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
14840.00	90.64	357.63	7218.84	7733.41	7735.45	357.57	1.18
14935.00	90.67	358.77	7217.75	7828.37	7830.40	354.58	1.20
15030.00	90.60	358.29	7216.70	7923.34	7925.36	352.14	0.51
15124.00	91.11	358.23	7215.29	8017.30	8019.31	349.29	0.55
15219.00	89.56	358.22	7214.74	8112.27	8114.26	346.35	1.63
15312.00	89.36	359.33	7215.62	8205.25	8207.23	344.36	1.21
15407.00	88.56	0.96	7217.34	8300.23	8302.21	344.60	1.91
15502.00	88.66	0.96	7219.64	8395.17	8397.17	346.19	0.11
15597.00	89.63	0.85	7221.06	8490.14	8492.15	347.69	1.03
15691.00	90.47	1.06	7220.98	8584.12	8586.13	349.26	0.92
15785.00	89.53	359.76	7220.98	8678.11	8680.13	349.93	1.71
15880.00	89.90	359.25	7221.45	8773.10	8775.12	349.11	0.66
15973.00	89.66	357.50	7221.81	8866.08	8868.08	346.47	1.90
16065.00	89.97	358.90	7222.11	8958.04	8960.03	343.58	1.56
16159.00	89.77	358.77	7222.32	9052.03	9054.01	341.67	0.25
16254.00	89.77	359.44	7222.70	9147.02	9149.00	340.19	0.71
16348.00	89.93	359.74	7222.95	9241.02	9243.00	339.52	0.36
16443.00	90.17	359.84	7222.86	9336.02	9338.00	339.17	0.27
16538.00	89.87	358.54	7222.83	9431.02	9432.98	337.82	1.40
16633.00	90.20	358.89	7222.77	9526.00	9527.96	335.69	0.51

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
16726.00	89.90	357.88	7222.69	9618.98	9620.92	333.07	1.13
16819.00	89.80	358.84	7222.94	9711.95	9713.88	330.41	1.04
16914.00	89.90	0.84	7223.18	9806.95	9808.88	330.15	2.11
17007.00	89.77	1.01	7223.45	9899.92	9901.86	331.65	0.23
17102.00	90.94	1.64	7222.86	9994.88	9996.83	333.84	1.40
17195.00	89.83	1.62	7222.24	10087.83	10089.79	336.49	1.19
17291.00	89.77	1.50	7222.57	10183.77	10185.76	339.10	0.14
17384.00	89.87	1.95	7222.87	10276.71	10278.71	341.90	0.50
17477.00	90.07	2.29	7222.91	10369.63	10371.65	345.34	0.42
17572.00	90.40	2.77	7222.53	10464.51	10466.56	349.54	0.61
17667.00	91.01	3.64	7221.36	10559.33	10561.40	354.85	1.12
17760.00	91.28	4.05	7219.50	10652.06	10654.17	361.08	0.53
17800.00	91.34	3.98	7218.58	10691.94	10694.06	363.88	0.23

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

5" = 100' MD