



GAMMA RAY

5" = 100' MD

COMPANY : ANADARKO PETROLEUM CORPORATION
WELL : CHICA 31C-23HZ
FIELD : WHATTENBERG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05123441200000

COMPANY : ANADARKO PETROLEUM CORPORATION

WELL : CHICA 31C-23HZ

FIELD : WHATTENBERG

COUNTY : WELD

STATE : COLORADO

COUNTRY : U.S.A.

UWI : 05123441200000

WELL LOCATION NAD83

LAT:40.1883460°N LONG:104.8661470°W

N:14595347.16 ft E:1677799.14 ft

SEC:35 TWP:3N RANGE:67W

OTHER SERVICES

DIRECTIONAL

ROP

DEPTH REF. : RKB

REF. HEIGHT : 20.000 ft

RKB 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	2339	0 - 11	0	2339
8.5	2339	17219	11 - 0	2339	6600
			0 - 88	6600	7856
			88 - 92	7856	17219

CASING RECORD

CASING SIZE in	FROM ft	TO ft
9.625	0	2339

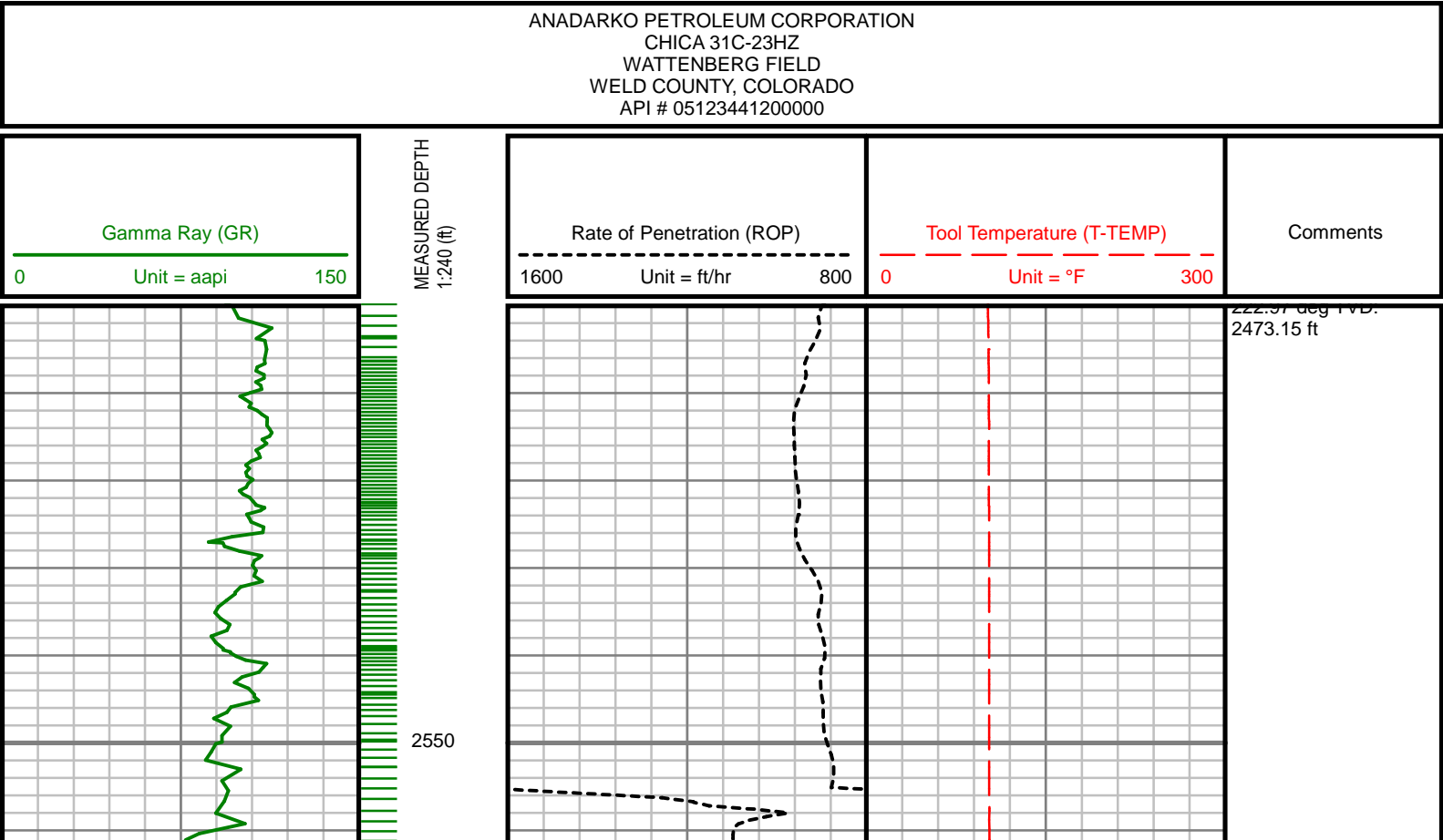
DRILLING CO. : PRECISION DRILLING
RIG : 461
LWD UNIT NO. : MWD-00282-DISTRICT : CASPER
SPUD DATE : 03/08/2017
LWD START DATE : 05/02/2017 DEPTH : 2339 ft
LWD END DATE : 05/08/2017 DEPTH : 17219 ft
TOTAL DEPTH : 17219 ft

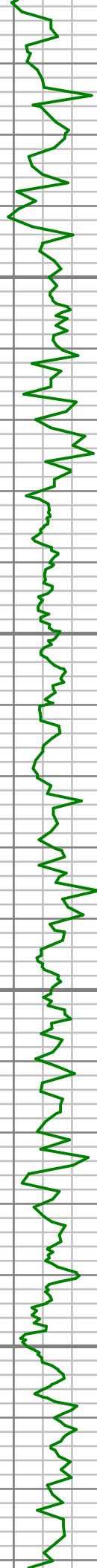
Run Data

RUN NUMBER	1	2
START DATE	05/02/2017	05/04/2017
START TIME	15:45	02:30
END DATE	05/05/2017	05/08/2017
END TIME	02:00	00:15
DEPTH IN (ft)	2339	10306
DEPTH OUT (ft)	10306	17219
LOG TOP (ft)	2339	10306
LOG BOTTOM (ft)	10306	17219
HOLE SIZE (in)	8.5	8.5
MUD DATA @ (ft)	9958	16060
MUD TYPE	OIL-BASED	OIL-BASED
DENSITY (lb / gal)	9.35	9.35
VISCOSITY (s / qt)	50	49
pH	-	-
FLUID LOSS (cm ³ / 30)	-	-
SALINITY (ppm)	-	-
Rm (ohmm @ deg F)	-	-
Rmf (ohmm @ deg F)	-	-
MAX TEMP (deg F)	220	255
Rm @ MAX TEMP (ohmm)	-	-
LWD ENGINEER #1	L. SHAFER	L. SHAFER
LWD ENGINEER #2	S. NEJAD	S. NEJAD
LWD ENGINEER #3	-	-
LOG WITNESS #1	-	-
LOG WITNESS #2	-	-

Remarks
ANADARKO PETROLEUM CORPORATION AFE# 2127020
SCIENTIFIC DRILLING INTERNATIONAL JOB# OP.001041
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 = 128-294 / CONT = 174 / MWD EYE = 485 / GAMMA RAY = 1264
BIT TO SENSOR OFFSETS: SURVEY = 58.86 FT. / GAMMA RAY = 50.17 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-241 / CONT = 582 / MWD EYE = 833 / GAMMA RAY = 1199
BIT TO SENSOR OFFSETS: SURVEY = 51.18 FT. / GAMMA RAY = 42.49 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.



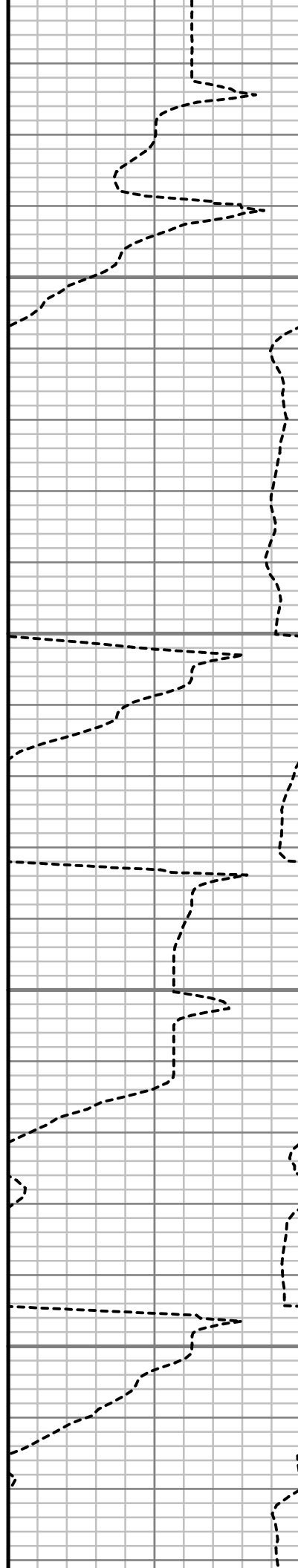


2600

2650

2700

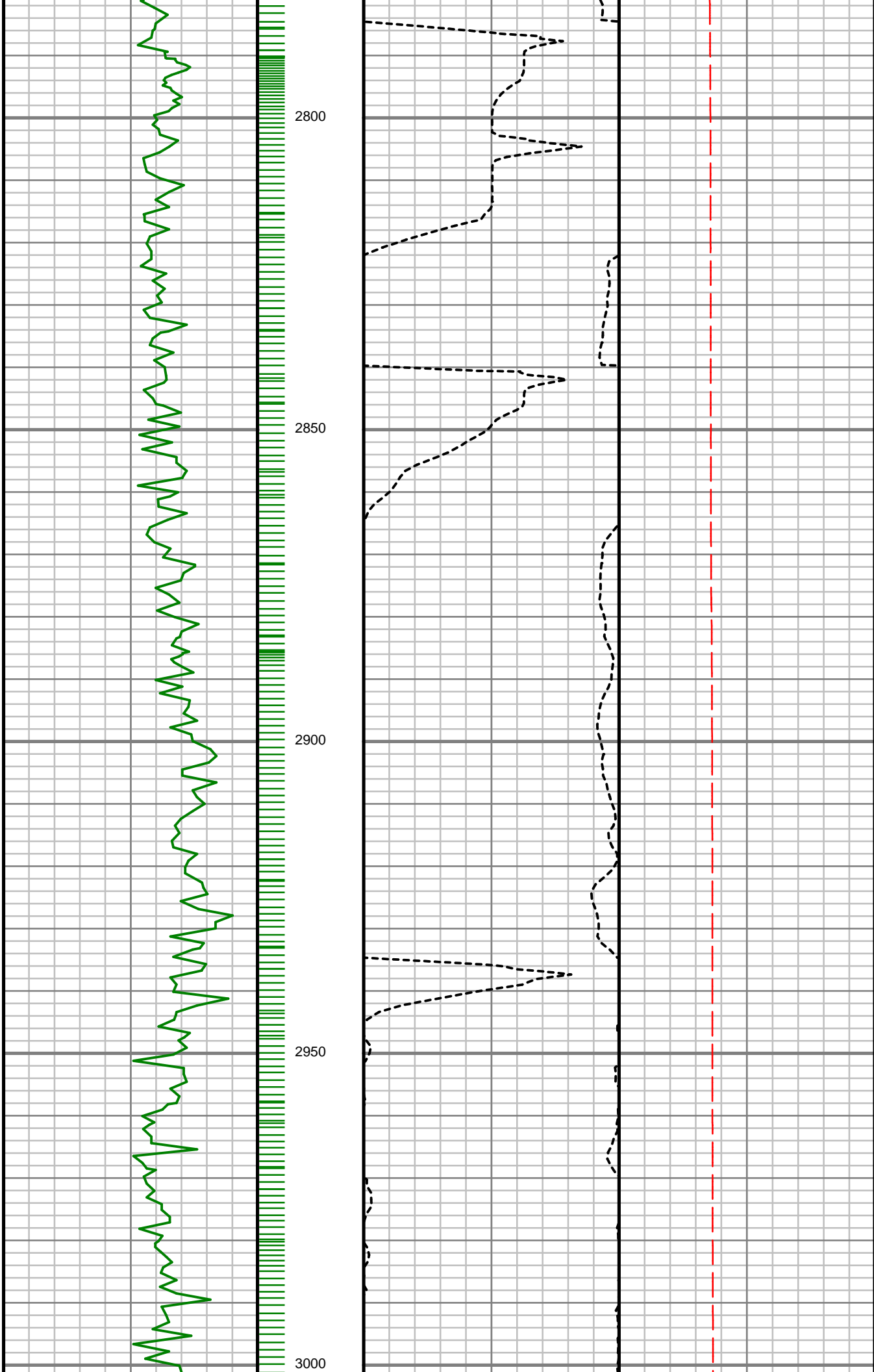
2750



S: 28 MD: 2588.00 ft
Inc: 8.49 deg Az:
208.99 deg TVD:
2566.12 ft

S: 29 MD: 2682.00 ft
Inc: 7.21 deg Az:
201.45 deg TVD:
2659.24 ft

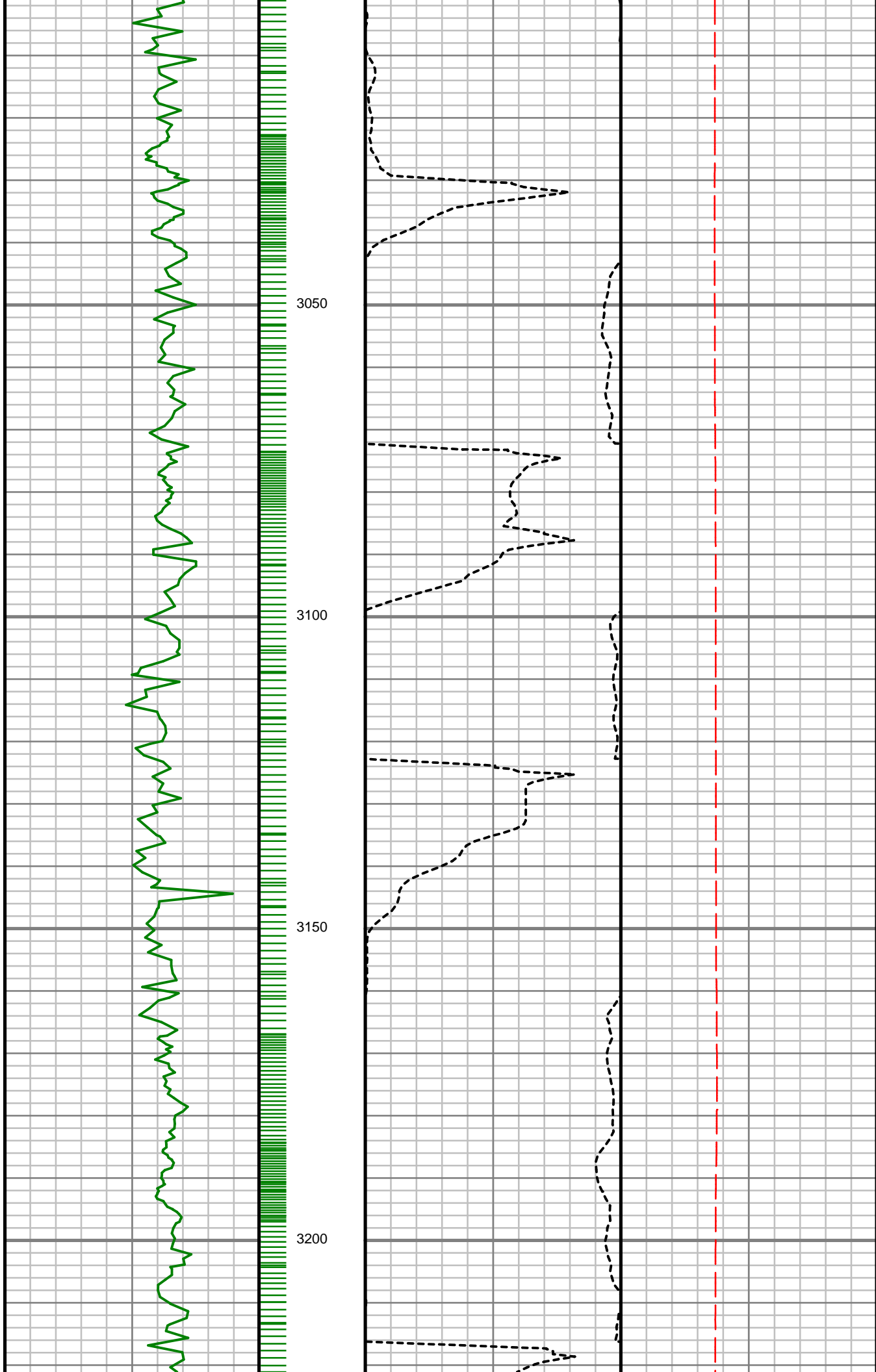
S: 30 MD: 2777.00 ft
Inc: 5.47 deg Az:



187.95 deg TVD:
2753.66 ft

S: 31 MD: 2870.00 ft
Inc: 4.41 deg Az:
171.55 deg TVD:
2846.32 ft

S: 32 MD: 2964.00 ft
Inc: 4.08 deg Az:
171.28 deg TVD:
2940.06 ft



S: 33 MD: 3057.00 ft
Inc: 3.44 deg Az:
169.30 deg TVD:
3032.86 ft

S: 34 MD: 3151.00 ft
Inc: 2.05 deg Az:
165.03 deg TVD:
3126.75 ft

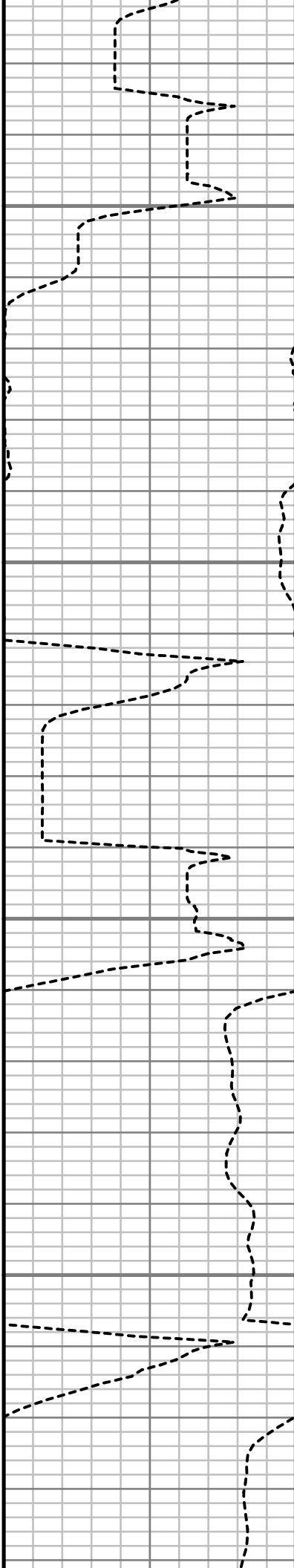


3250

3300

3350

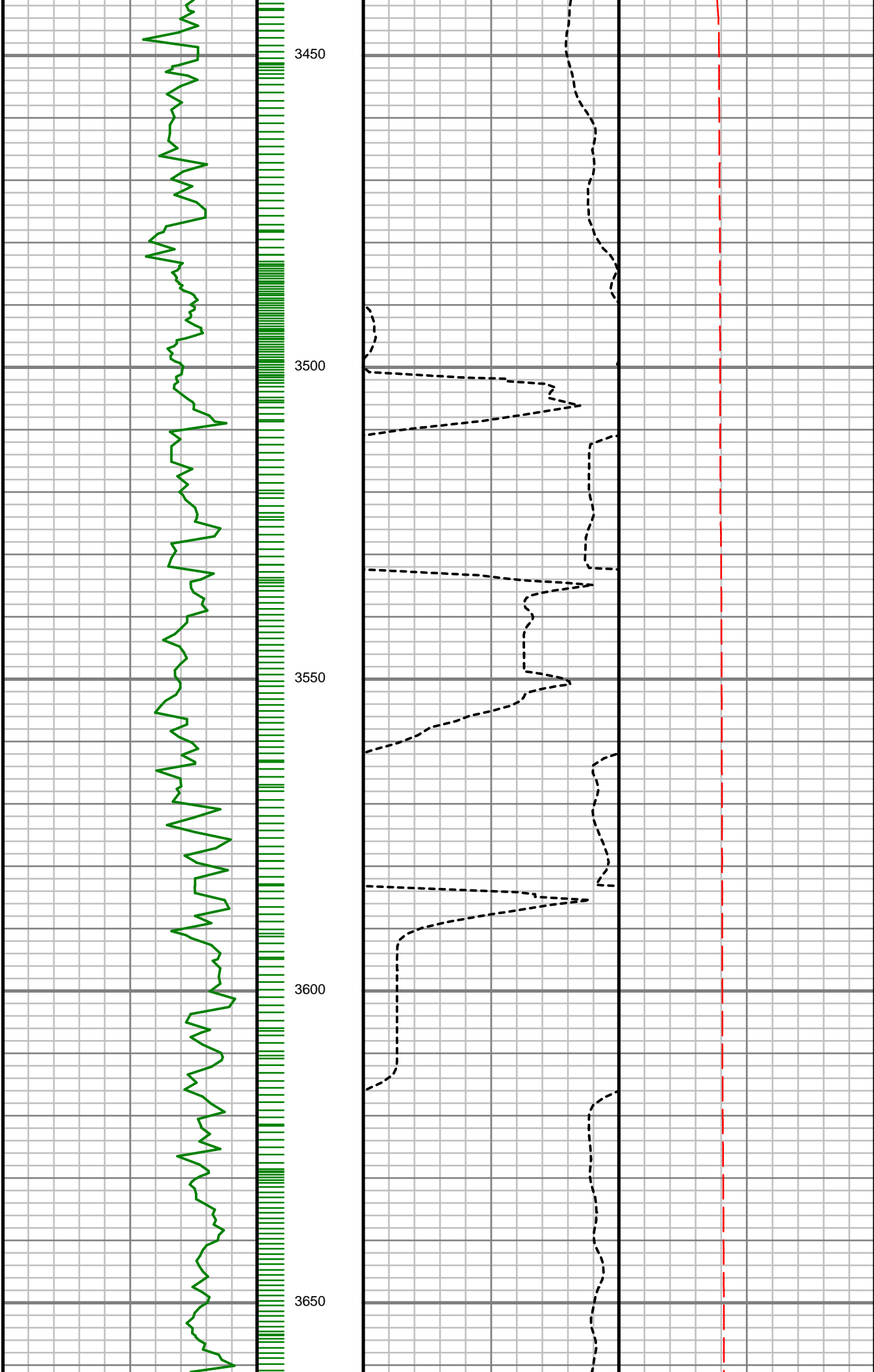
3400



S: 35 MD: 3245.00 ft
Inc: 2.34 deg Az:
212.11 deg TVD:
3220.69 ft

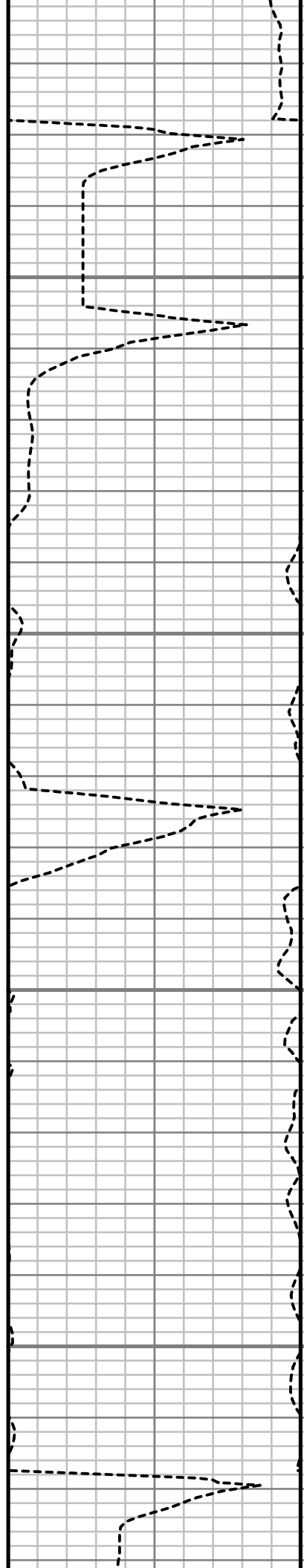
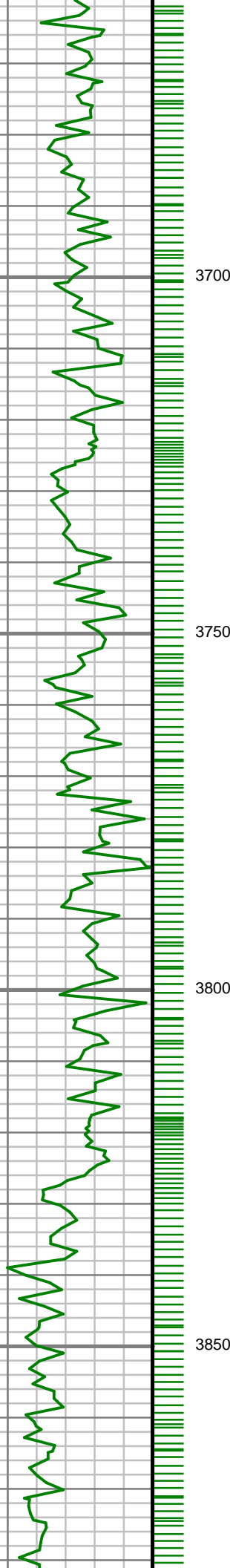
S: 36 MD: 3339.00 ft
Inc: 2.48 deg Az:
248.14 deg TVD:
3314.61 ft

S: 37 MD: 3432.00 ft
Inc: 2.72 deg Az:
264.22 deg TVD:
3407.52 ft



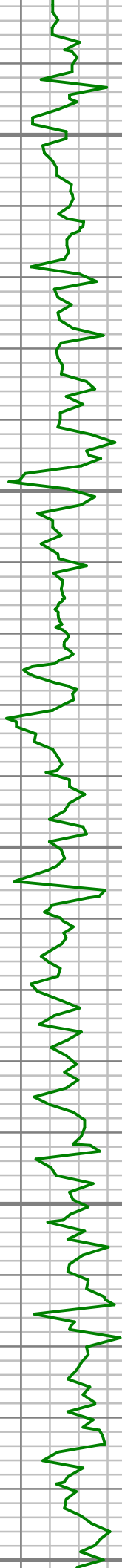
S: 38 MD: 3526.00 ft
Inc: 2.50 deg Az:
261.16 deg TVD:
3501.42 ft

S: 39 MD: 3621.00 ft
Inc: 1.35 deg Az:
209.22 deg TVD:
3596.37 ft



S: 40 MD: 3715.00 ft
Inc: 1.48 deg Az:
218.91 deg TVD:
3690.34 ft

S: 41 MD: 3810.00 ft
Inc: 1.38 deg Az:
229.13 deg TVD:
3785.31 ft



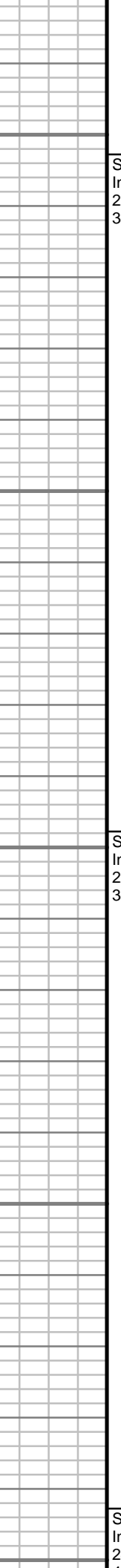
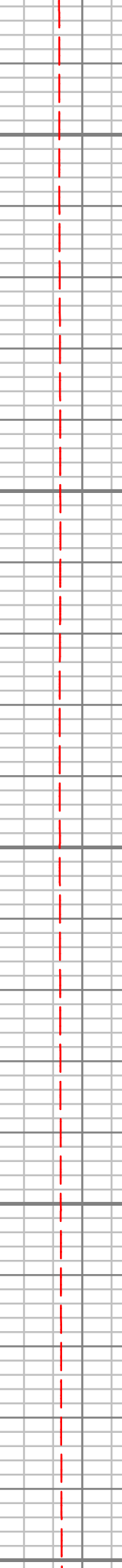
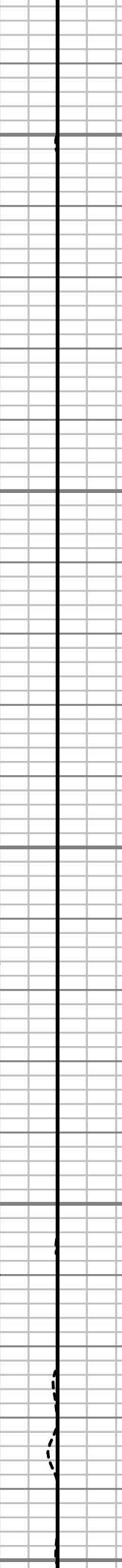
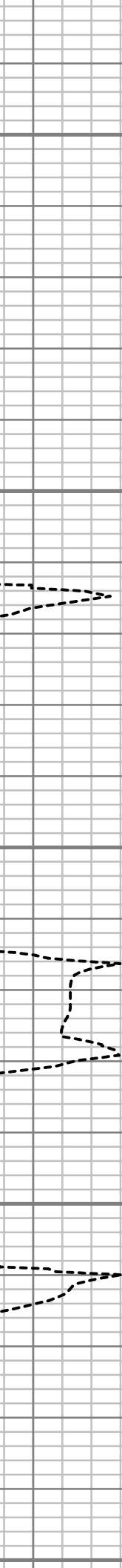
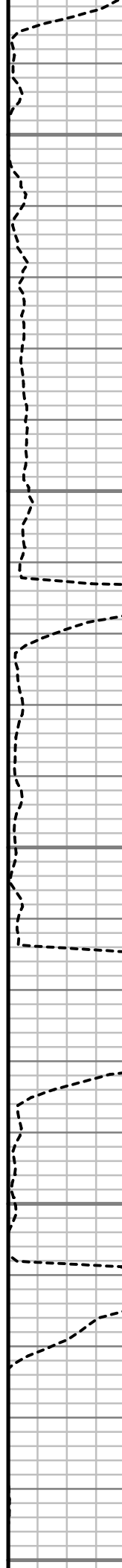
3900

3950

4000

4050

4100



S: 42 MD: 3903.00 ft
Inc: 1.75 deg Az:
227.62 deg TVD:
3878.28 ft

S: 43 MD: 3998.00 ft
Inc: 1.67 deg Az:
229.54 deg TVD:
3973.24 ft

S: 44 MD: 4093.00 ft
Inc: 0.67 deg Az:
243.28 deg TVD:

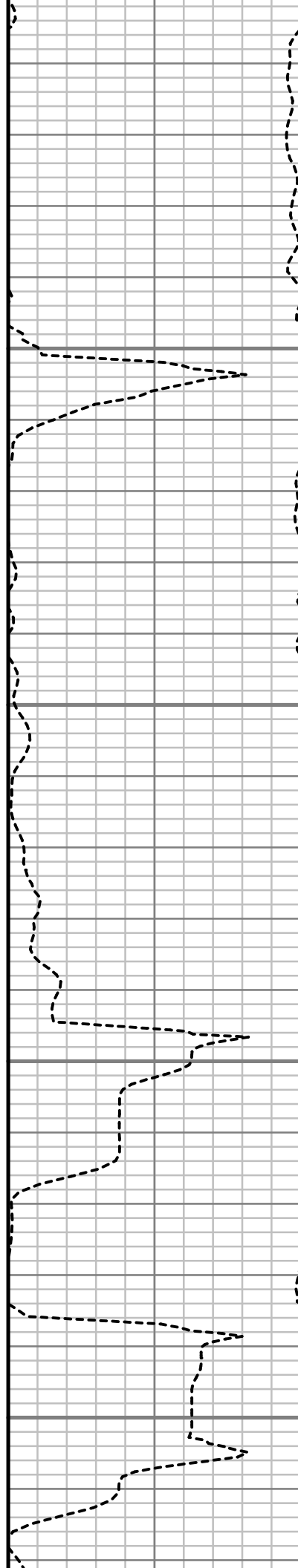


4150

4200

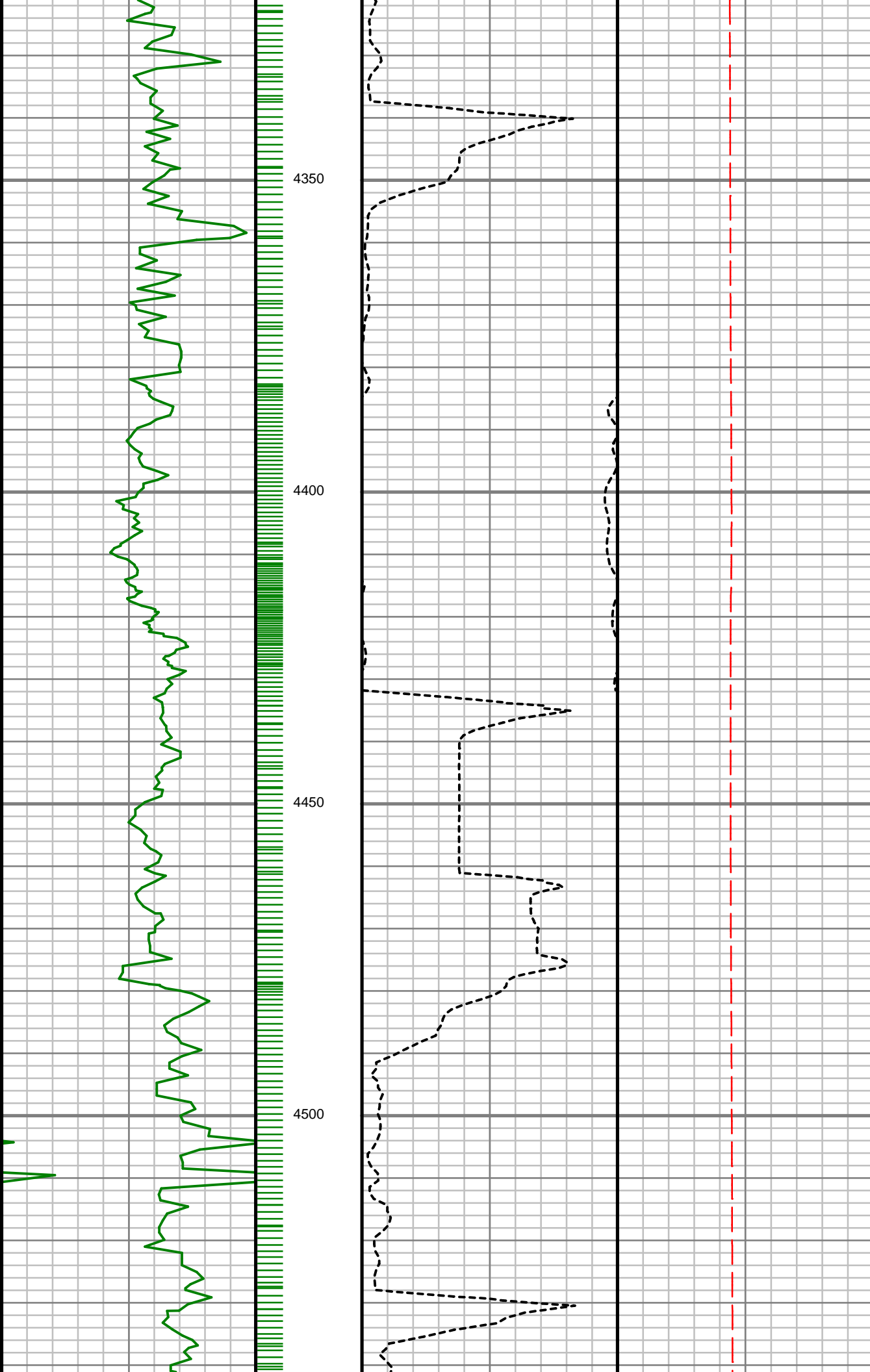
4250

4300



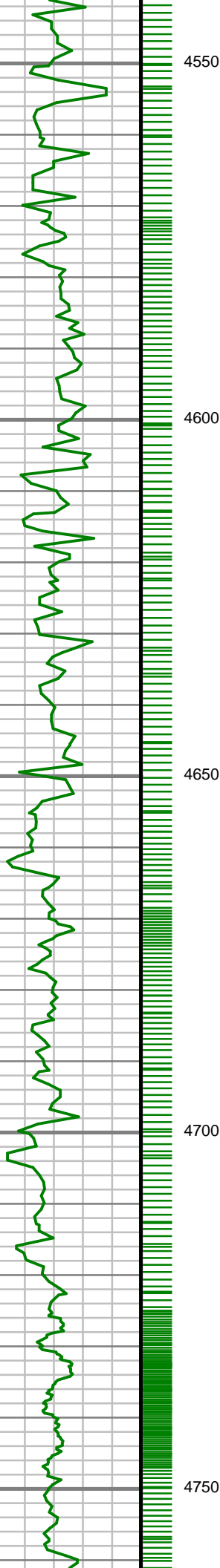
S: 45 MD: 4186.00 ft
Inc: 1.35 deg Az:
249.18 deg TVD:
4161.20 ft

S: 46 MD: 4281.00 ft
Inc: 1.23 deg Az:
238.66 deg TVD:
4256.18 ft



S: 47 MD: 4376.00 ft
Inc: 0.71 deg Az: 158.76 deg TVD: 4351.17 ft

S: 48 MD: 4471.00 ft
Inc: 0.17 deg Az: 38.59 deg TVD: 4446.16 ft



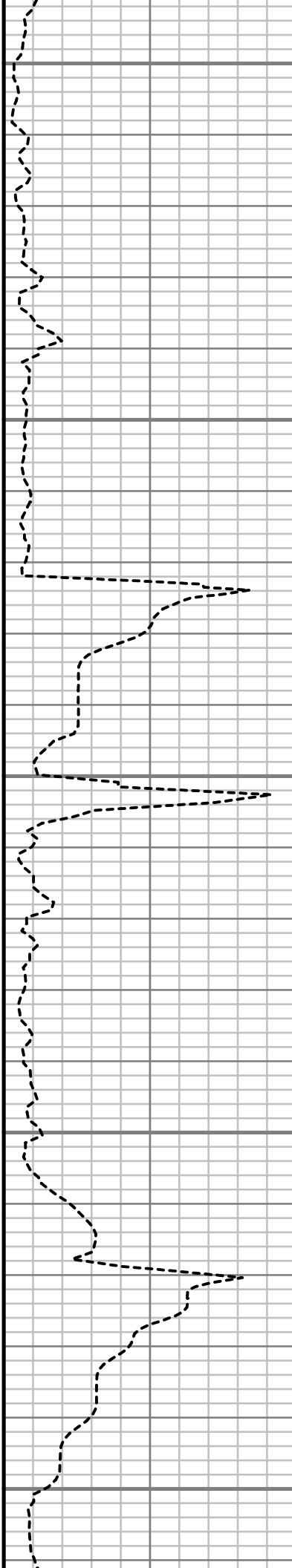
4550

4600

4650

4700

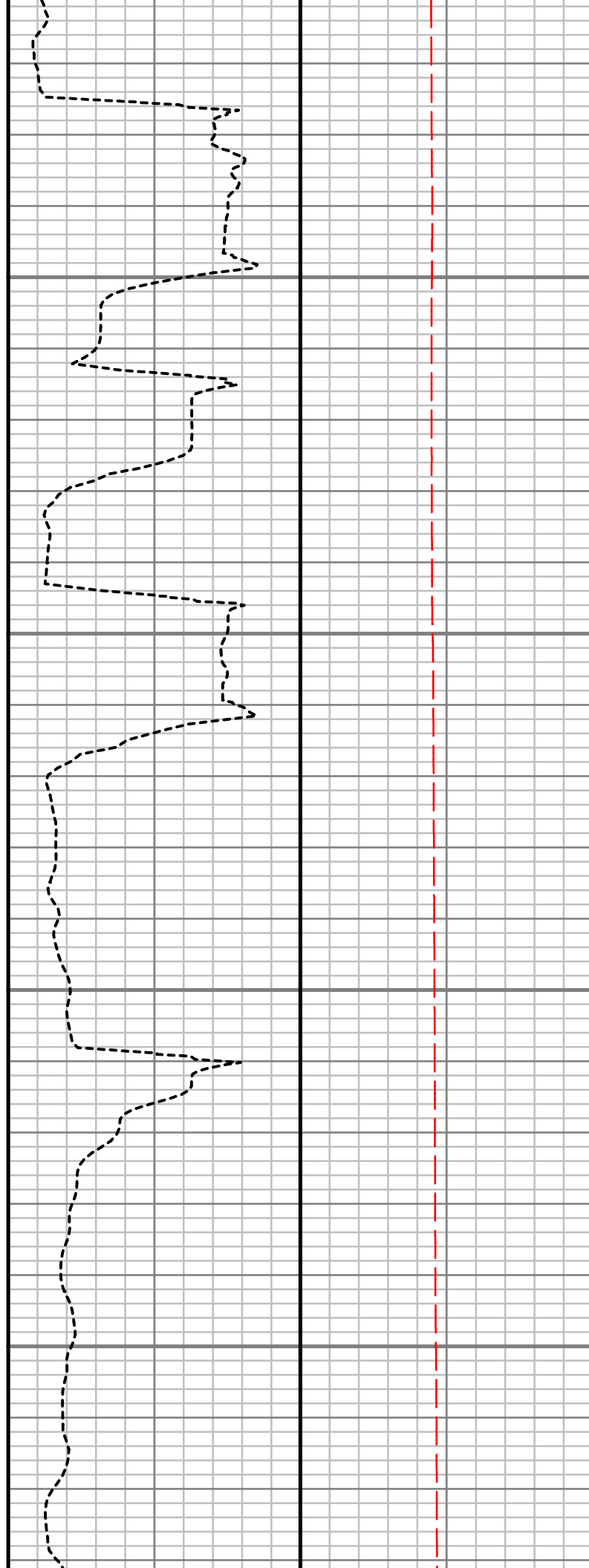
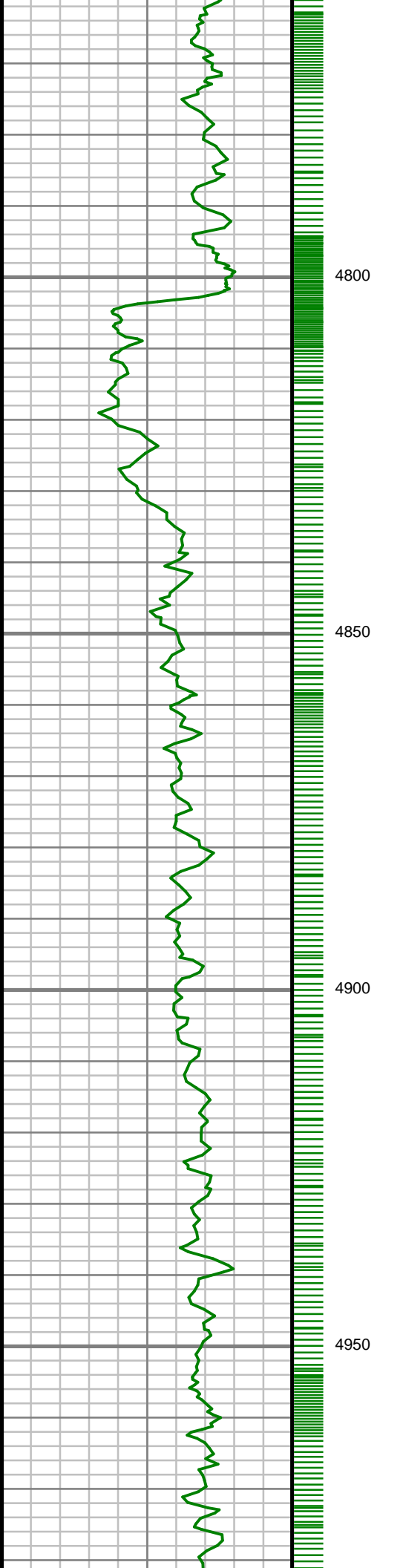
4750



S: 49 MD: 4566.00 ft
Inc: 0.61 deg Az:
359.73 deg TVD:
4541.16 ft

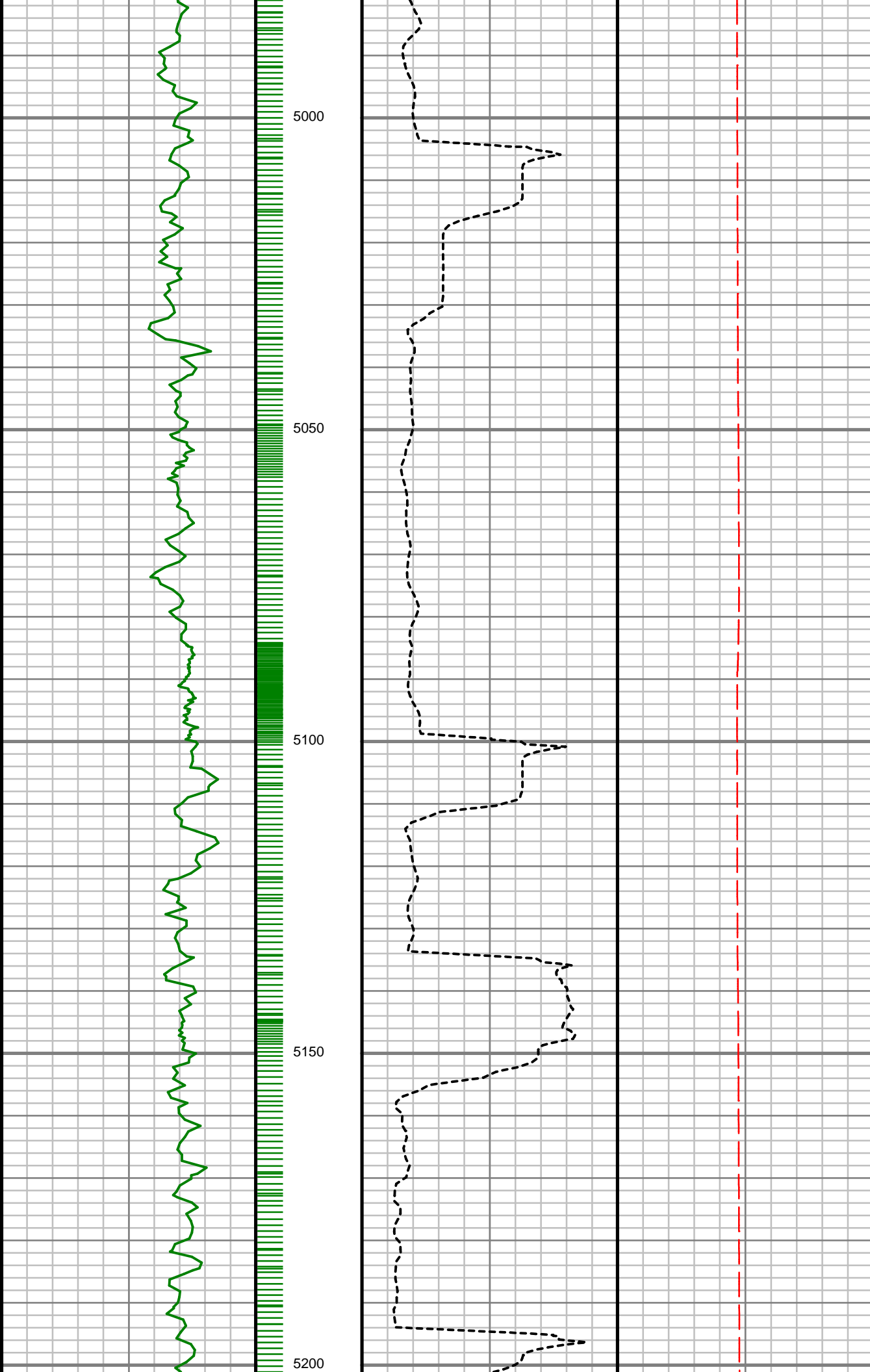
S: 50 MD: 4659.00 ft
Inc: 0.48 deg Az:
259.77 deg TVD:
4634.16 ft

S: 51 MD: 4753.00 ft
Inc: 0.63 deg Az:
221.53 deg TVD:



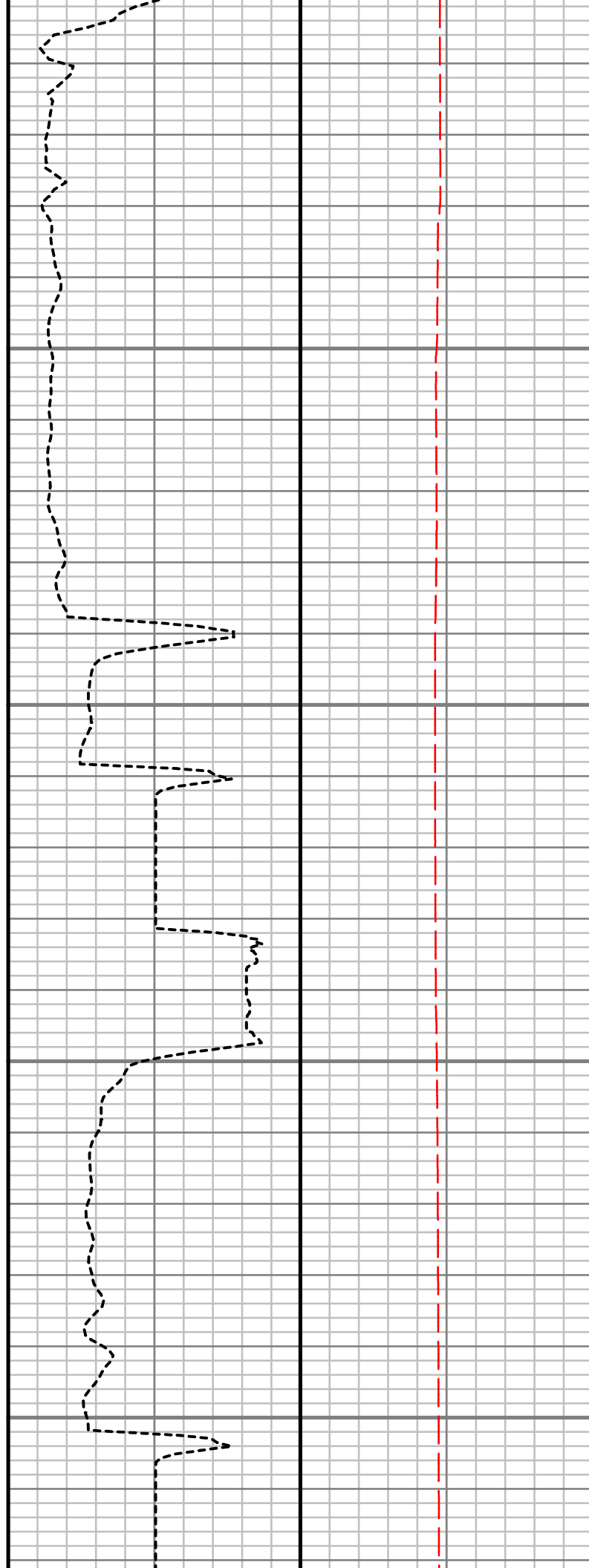
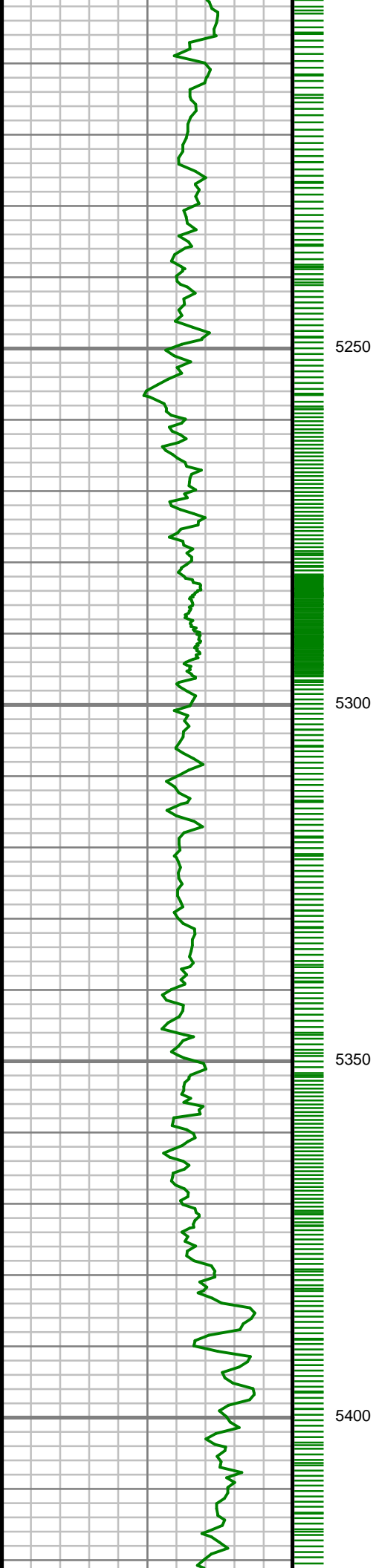
S: 52 MD: 4847.00 ft
Inc: 2.25 deg Az: 90.11
deg TVD: 4822.13 ft

S: 53 MD: 4942.00 ft
Inc: 2.42 deg Az: 78.72
deg TVD: 4917.05 ft



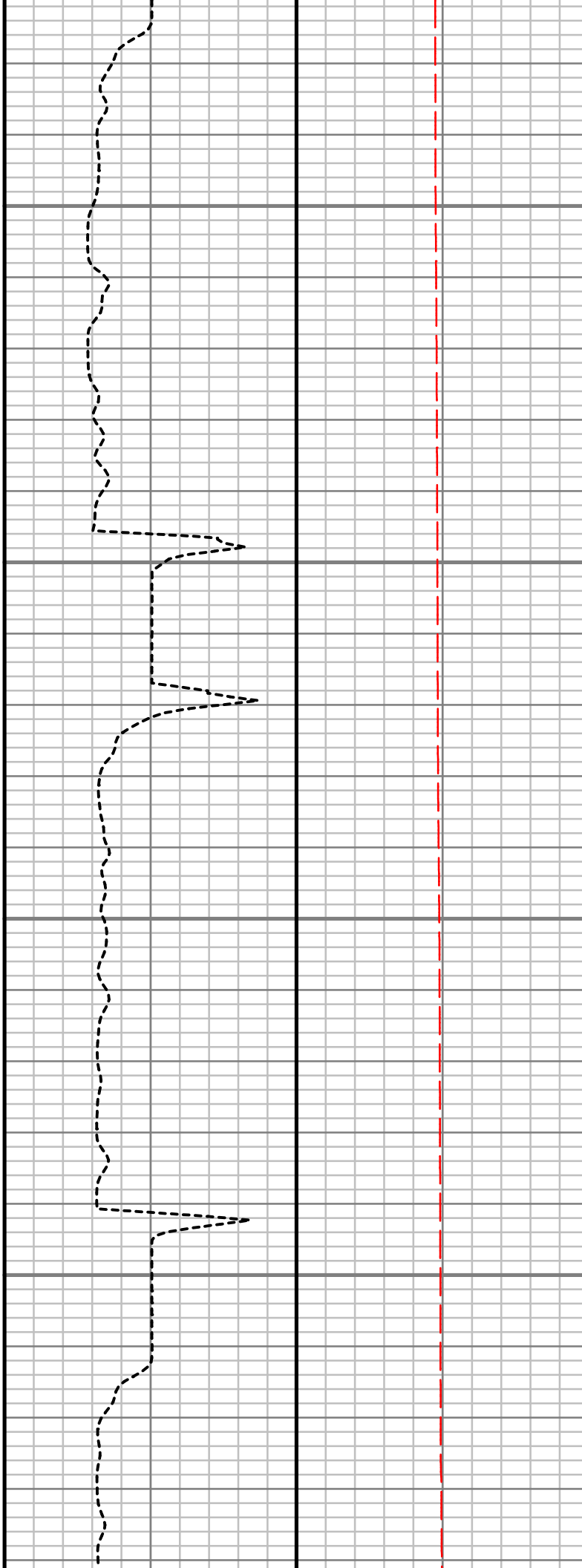
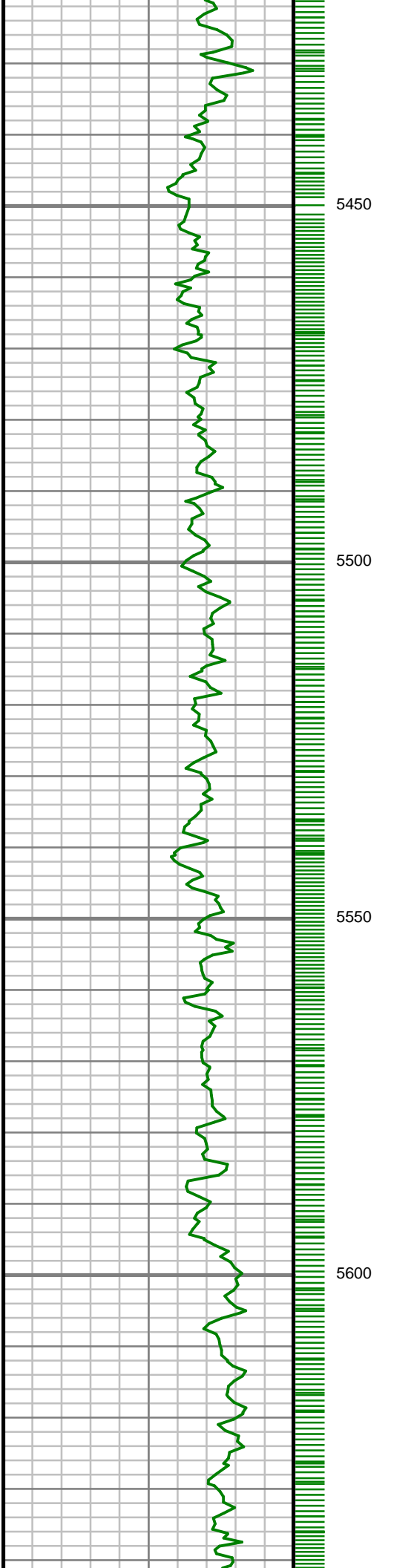
S: 54 MD: 5037.00 ft
Inc: 1.90 deg Az: 78.71
deg TVD: 5011.99 ft

S: 55 MD: 5131.00 ft
Inc: 1.28 deg Az: 69.80
deg TVD: 5105.95 ft



S: 56 MD: 5253.00 ft
Inc: 0.93 deg Az: 53.03
deg TVD: 5227.93 ft

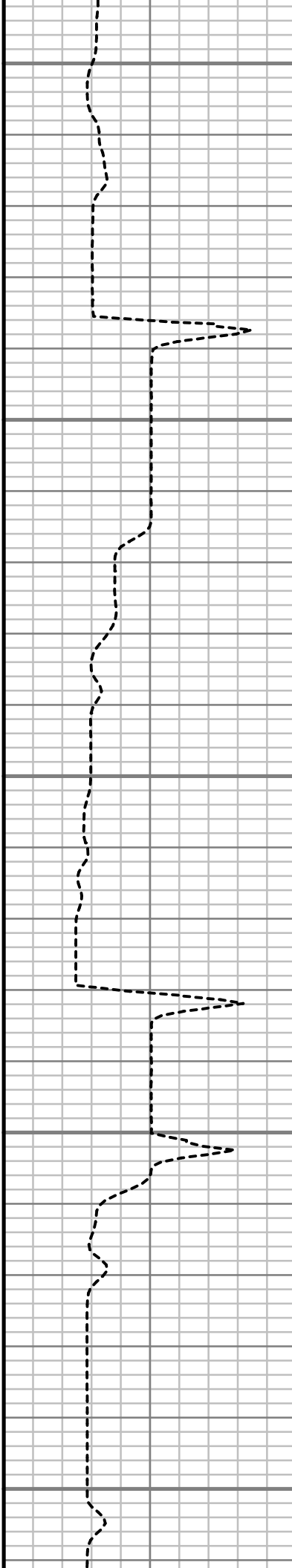
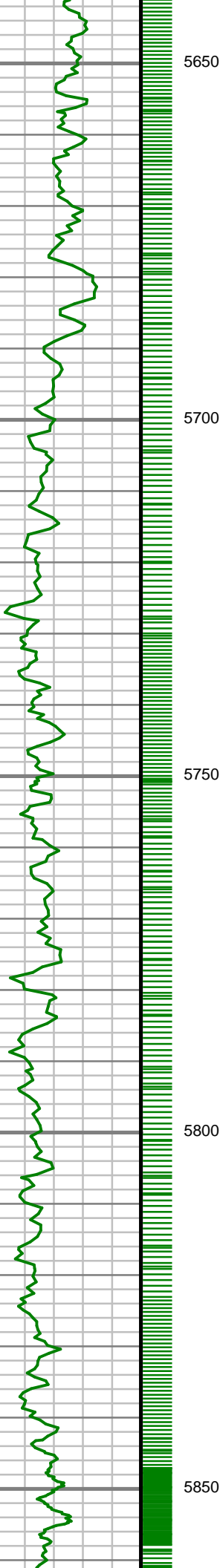
S: 57 MD: 5347.00 ft
Inc: 0.24 deg Az: 23.83
deg TVD: 5321.92 ft



S: 58 MD: 5440.00 ft
Inc: 0.34 deg Az:
282.00 deg TVD:
5414.92 ft

S: 59 MD: 5533.00 ft
Inc: 0.48 deg Az:
247.50 deg TVD:
5507.92 ft

S: 60 MD: 5628.00 ft
Inc: 0.72 deg Az:
239.99 deg TVD:
5602.91 ft



S: 61 MD: 5722.00 ft
Inc: 0.98 deg Az:
243.14 deg TVD:
5696.90 ft

S: 62 MD: 5816.00 ft
Inc: 1.44 deg Az:
226.12 deg TVD:
5790.88 ft

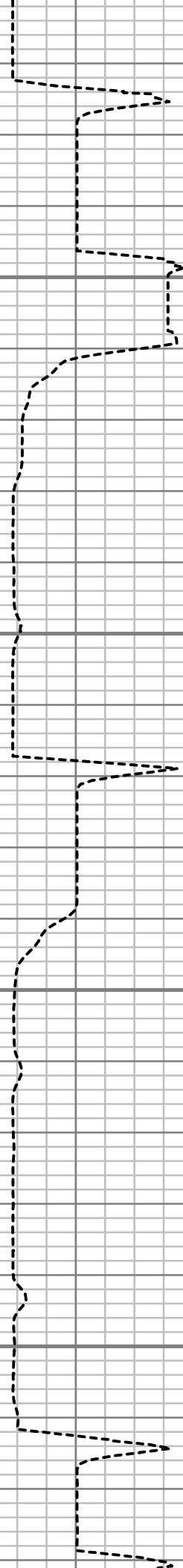


5900

5950

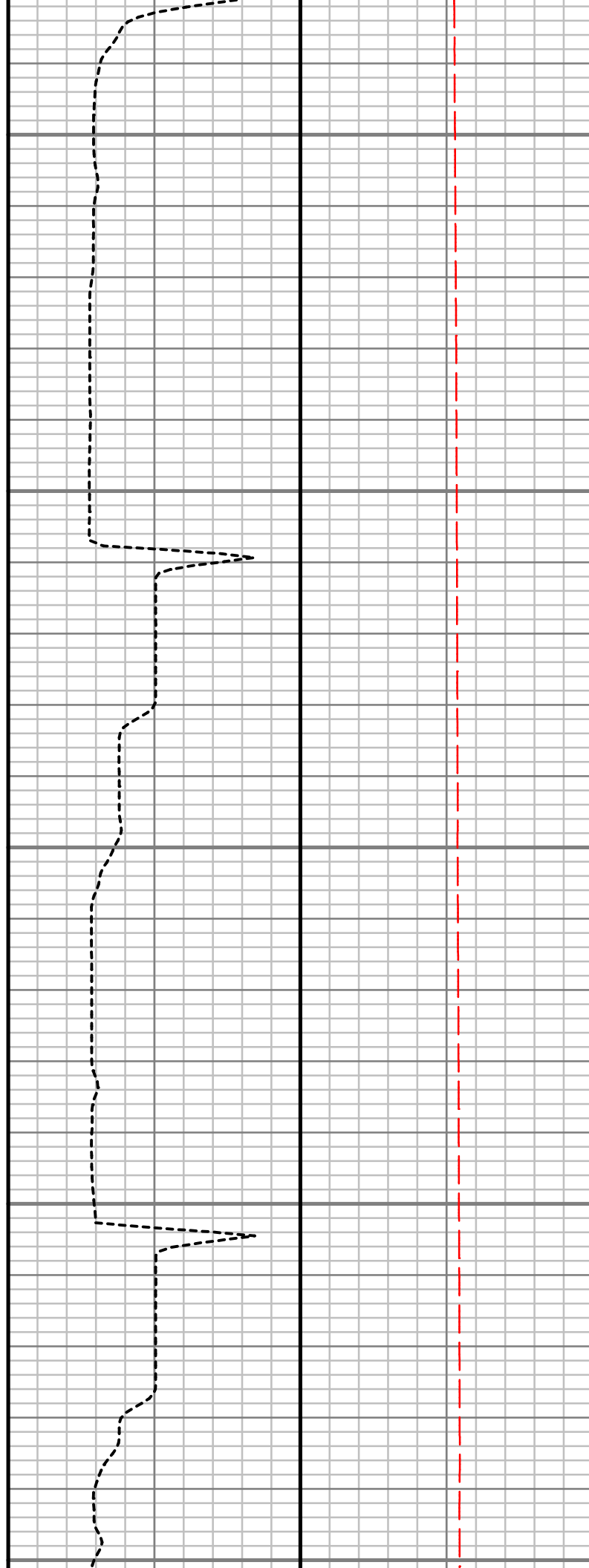
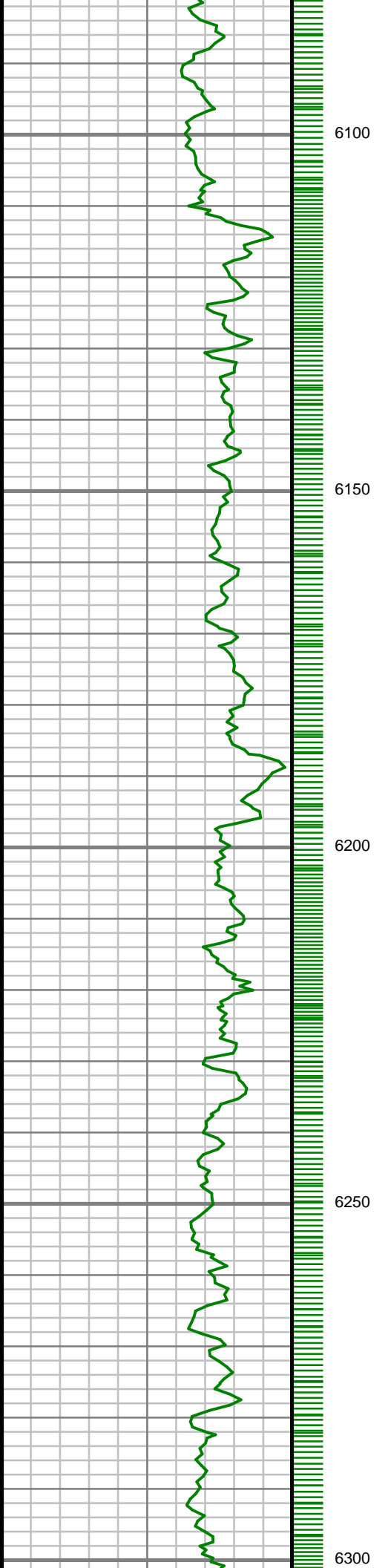
6000

6050



S: 63 MD: 5911.00 ft
Inc: 0.80 deg Az:
207.77 deg TVD:
5885.86 ft

S: 64 MD: 6005.00 ft
Inc: 0.37 deg Az:
218.52 deg TVD:
5979.86 ft



S: 65 MD: 6100.00 ft
Inc: 0.36 deg Az:
266.64 deg TVD:
6074.86 ft

S: 66 MD: 6195.00 ft
Inc: 0.50 deg Az:
282.46 deg TVD:
6169.86 ft

S: 67 MD: 6290.00 ft
Inc: 0.64 deg Az:
274.69 deg TVD:
6264.85 ft

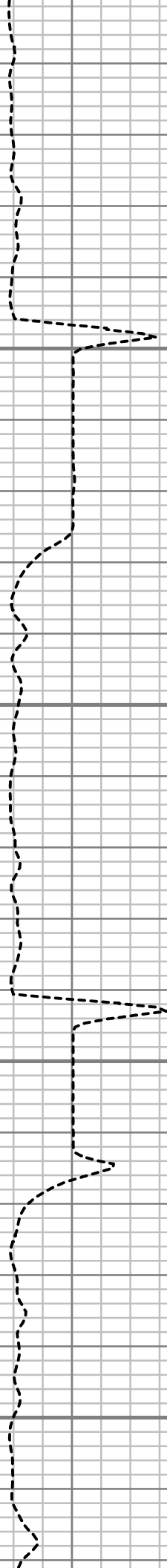


6350

6400

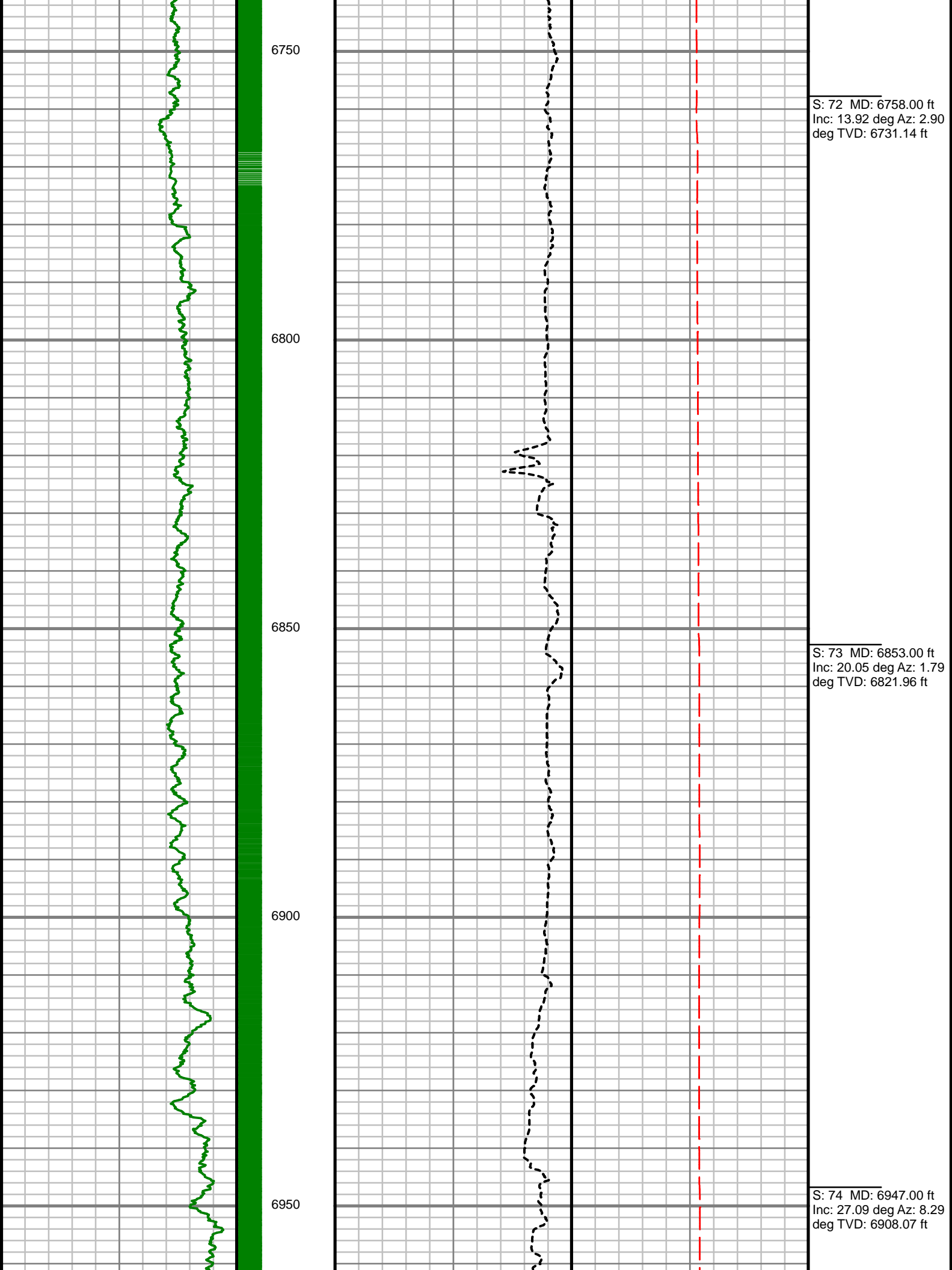
6450

6500



S: 68 MD: 6384.00 ft
Inc: 0.78 deg Az:
279.48 deg TVD:
6358.84 ft

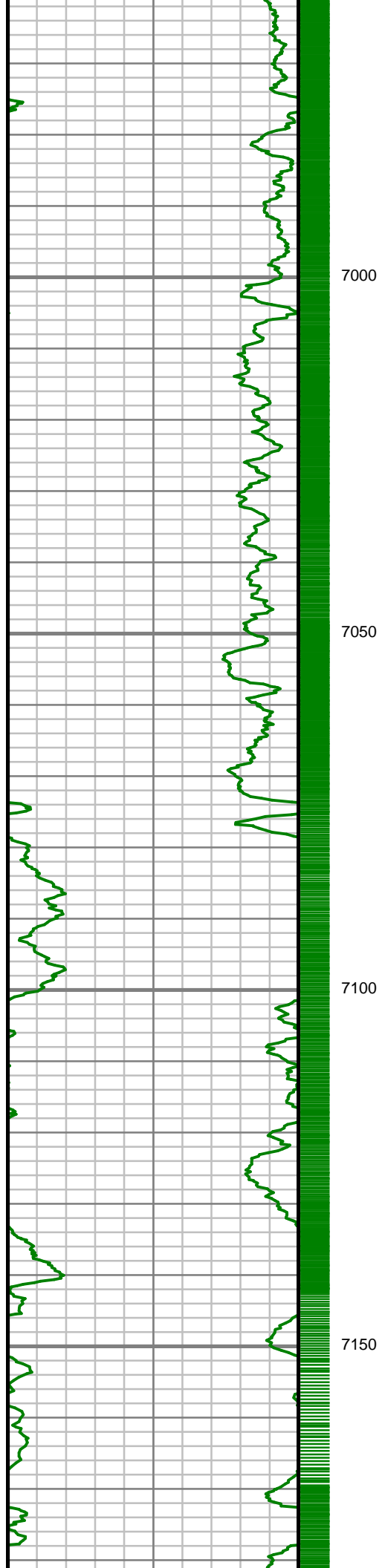
S: 69 MD: 6478.00 ft
Inc: 1.06 deg Az:
290.37 deg TVD:
6452.83 ft



S: 72 MD: 6758.00 ft
Inc: 13.92 deg Az: 2.90
deg TVD: 6731.14 ft

S: 73 MD: 6853.00 ft
Inc: 20.05 deg Az: 1.79
deg TVD: 6821.96 ft

S: 74 MD: 6947.00 ft
Inc: 27.09 deg Az: 8.29
deg TVD: 6908.07 ft



7000

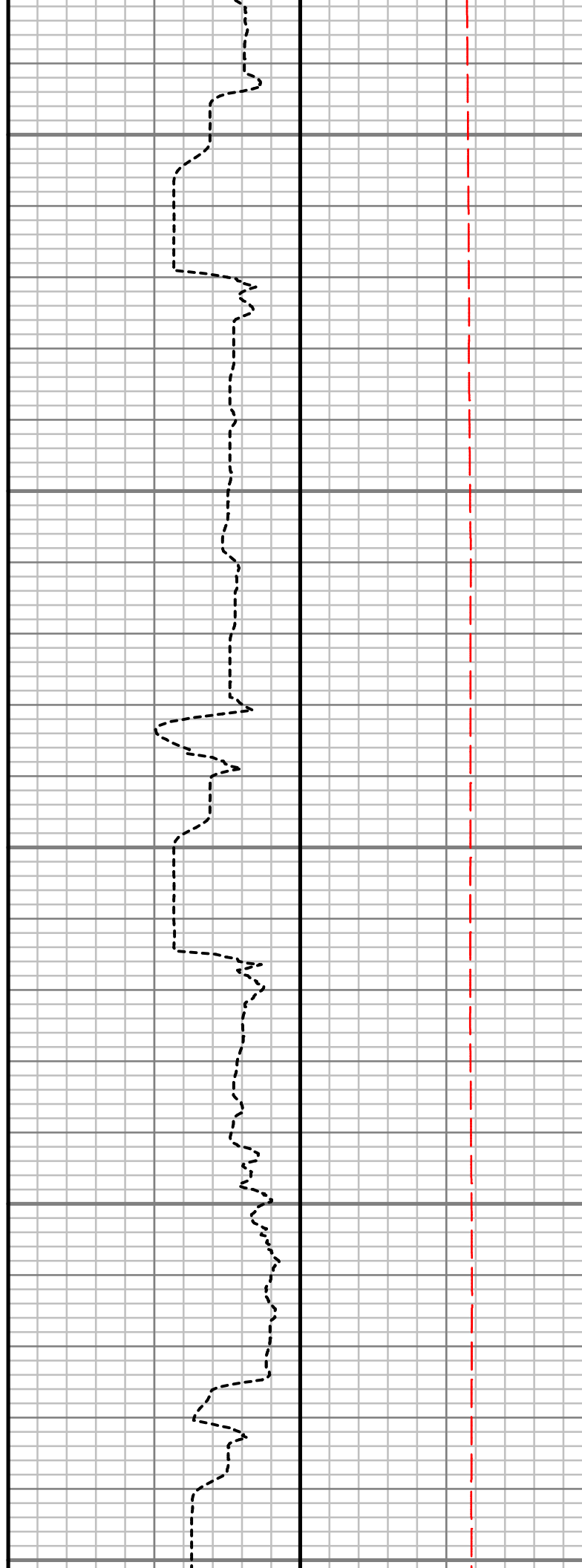
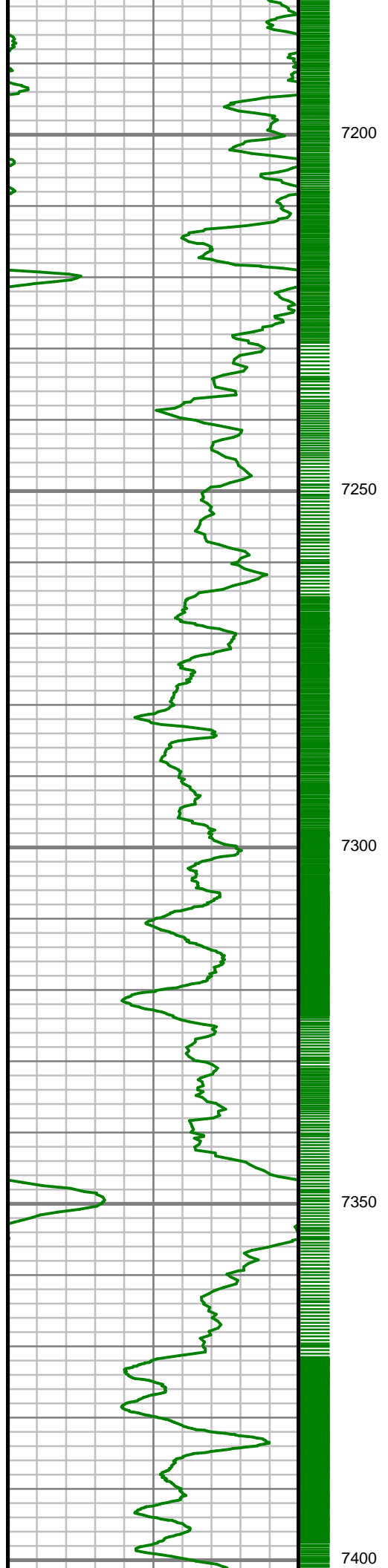
7050

7100

7150

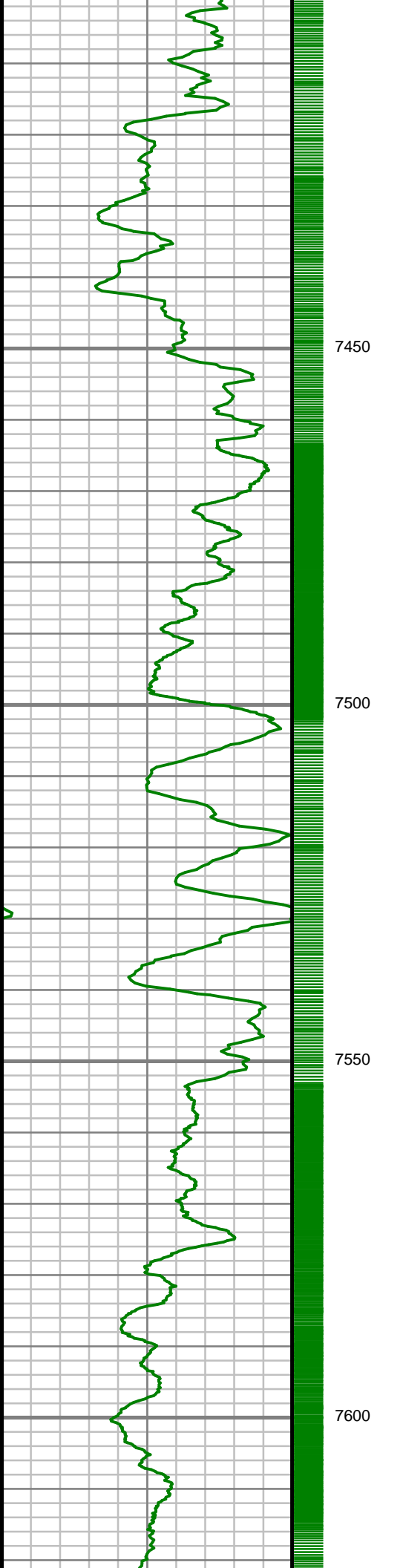
S: 75 MD: 7040.00 ft
Inc: 35.55 deg Az: 6.15
deg TVD: 6987.45 ft

S: 76 MD: 7134.00 ft
Inc: 44.87 deg Az: 3.92
deg TVD: 7059.16 ft



S: 77 MD: 7229.00 ft
Inc: 50.49 deg Az:
357.00 deg TVD:
7123.14 ft

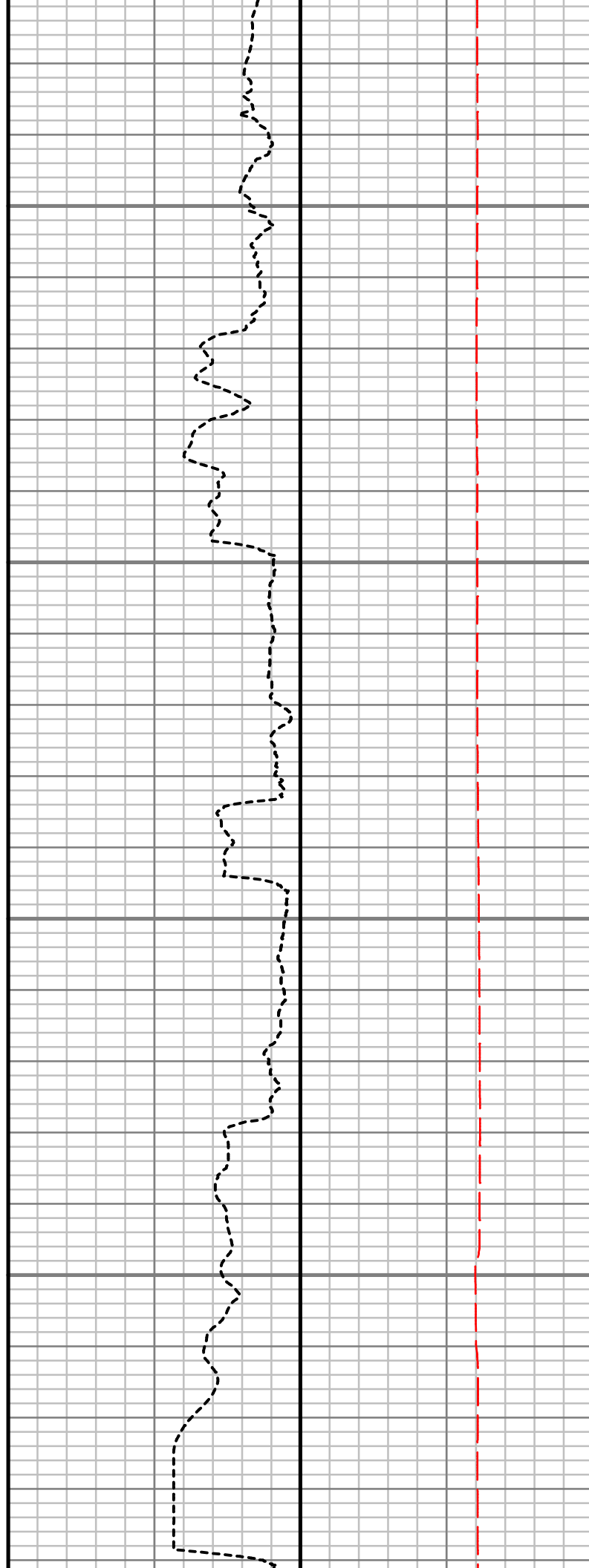
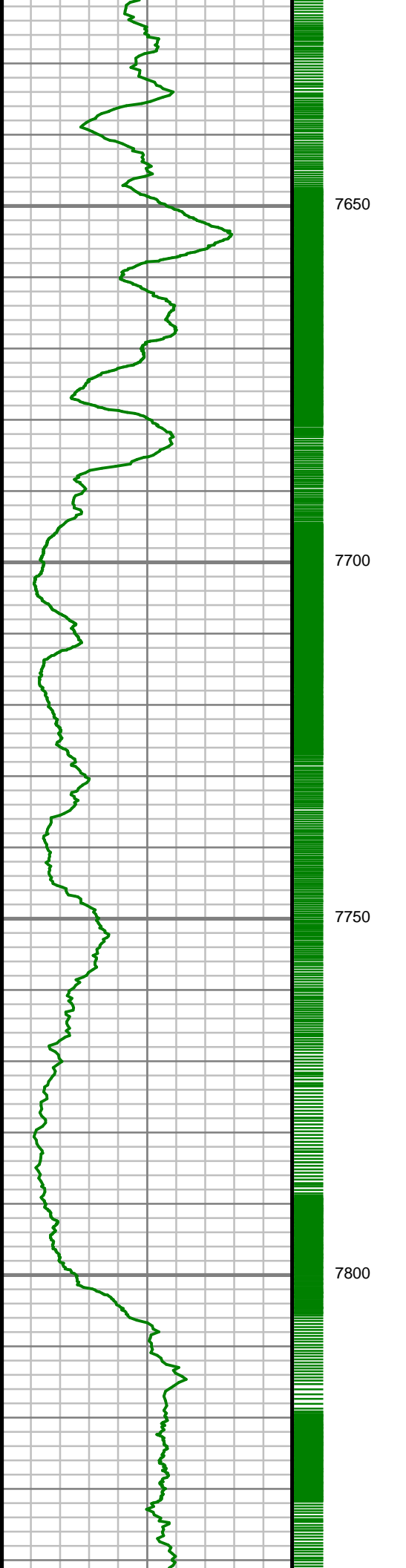
S: 78 MD: 7323.00 ft
Inc: 57.37 deg Az:
356.32 deg TVD:
7178.45 ft



S: 79 MD: 7418.00 ft
Inc: 61.99 deg Az:
359.79 deg TVD:
7226.41 ft

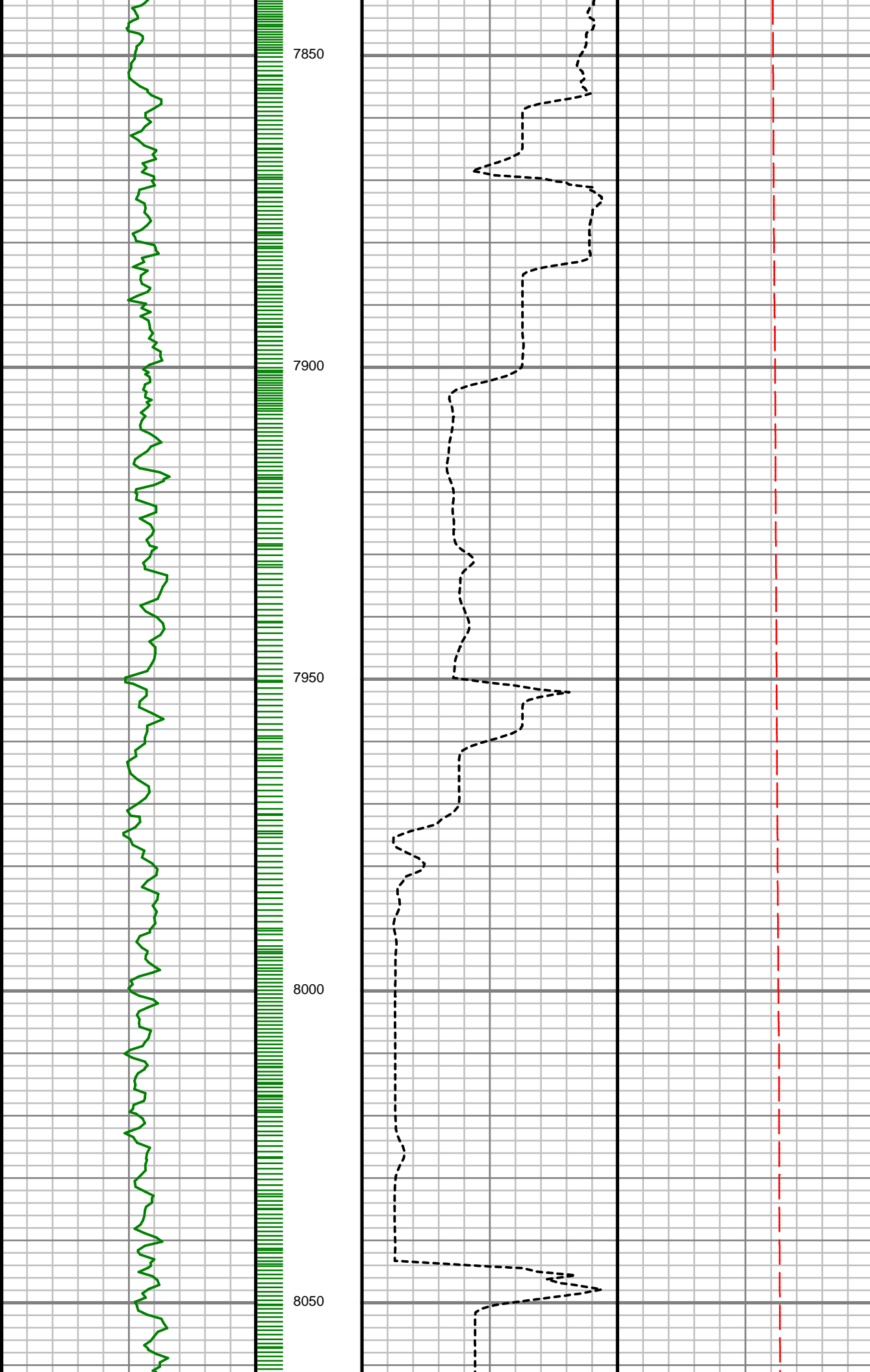
S: 80 MD: 7512.00 ft
Inc: 64.88 deg Az:
359.15 deg TVD:
7268.44 ft

S: 81 MD: 7606.00 ft
Inc: 70.00 deg Az:
358.90 deg TVD:
7304.49 ft



S: 82 MD: 7701.00 ft
Inc: 76.64 deg Az: 0.04
deg TVD: 7331.75 ft

S: 83 MD: 7795.00 ft
Inc: 84.93 deg Az: 1.09
deg TVD: 7346.79 ft



S: 84 MD: 7889.00 ft
Inc: 88.56 deg Az: 0.25
deg TVD: 7352.12 ft

S: 85 MD: 7983.00 ft
Inc: 90.27 deg Az:
359.82 deg TVD:
7353.08 ft

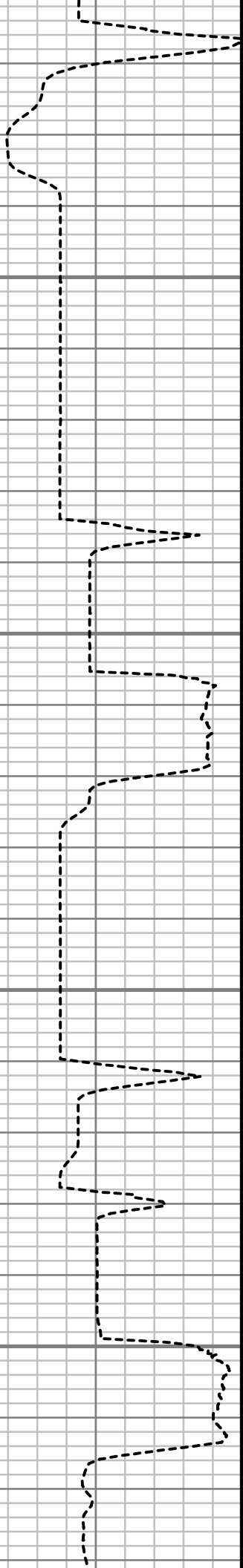


8100

8150

8200

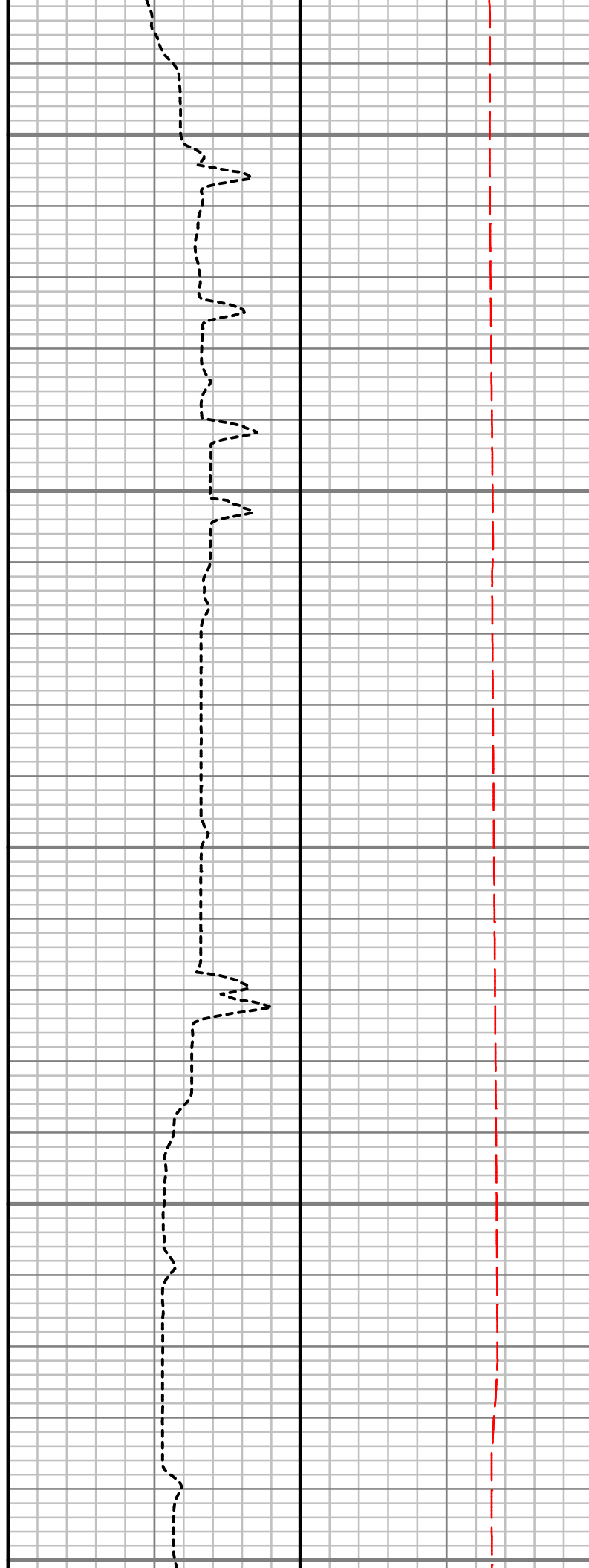
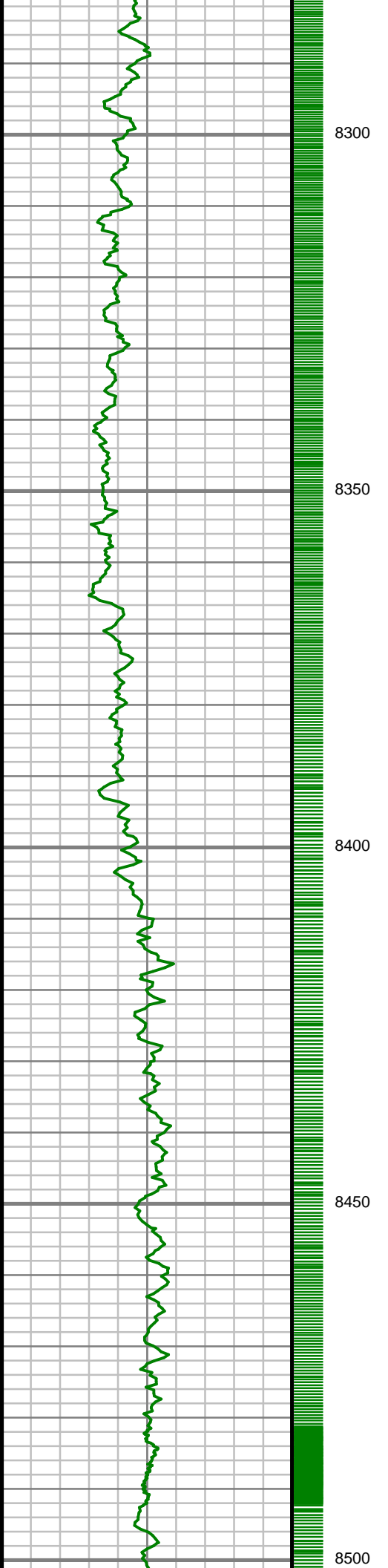
8250



S: 86 MD: 8077.00 ft
Inc: 91.84 deg Az: 0.44
deg TVD: 7351.35 ft

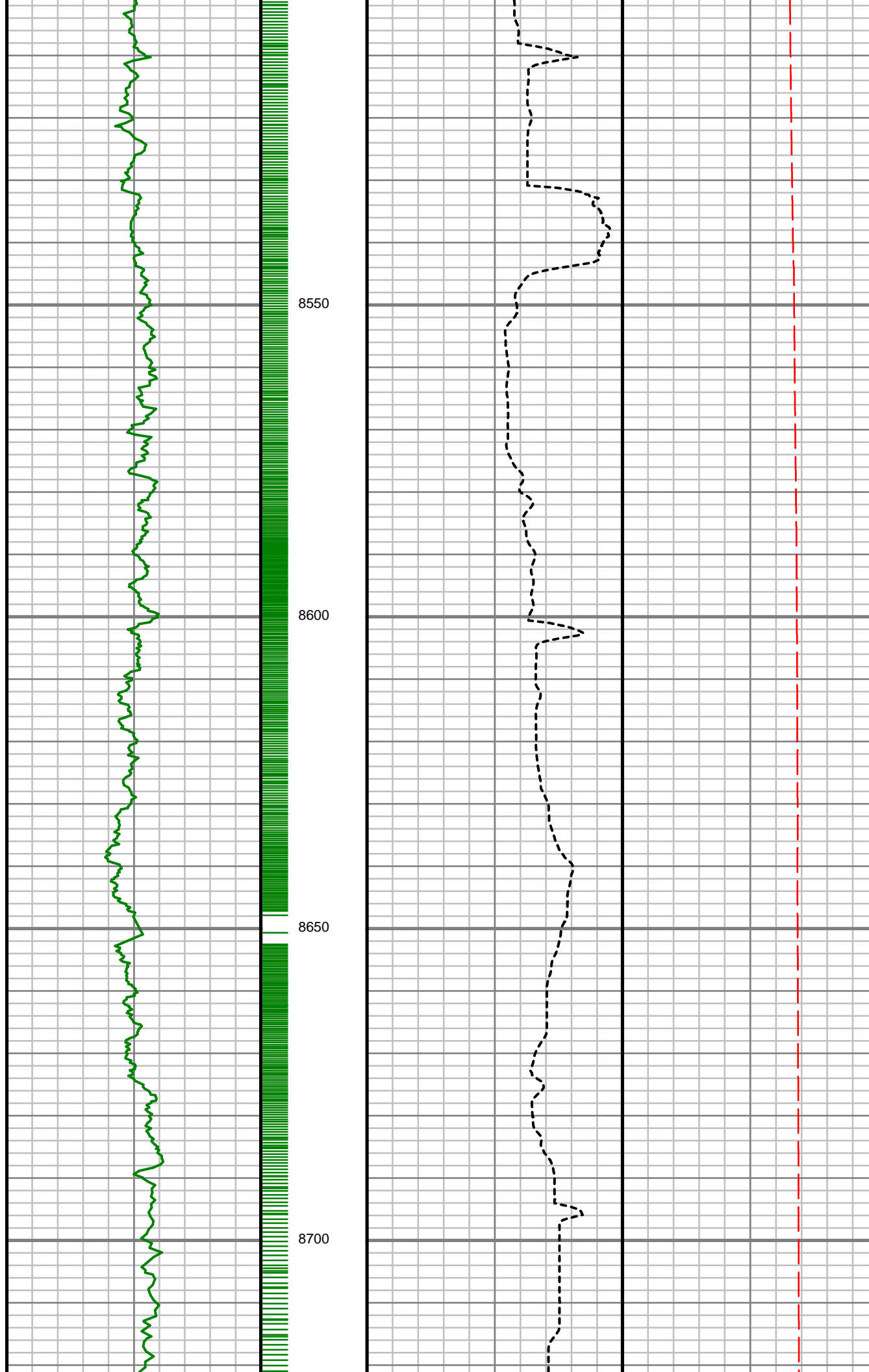
S: 87 MD: 8171.00 ft
Inc: 91.88 deg Az:
359.65 deg TVD:
7348.30 ft

S: 88 MD: 8265.00 ft
Inc: 91.07 deg Az:
359.07 deg TVD:
7345.88 ft



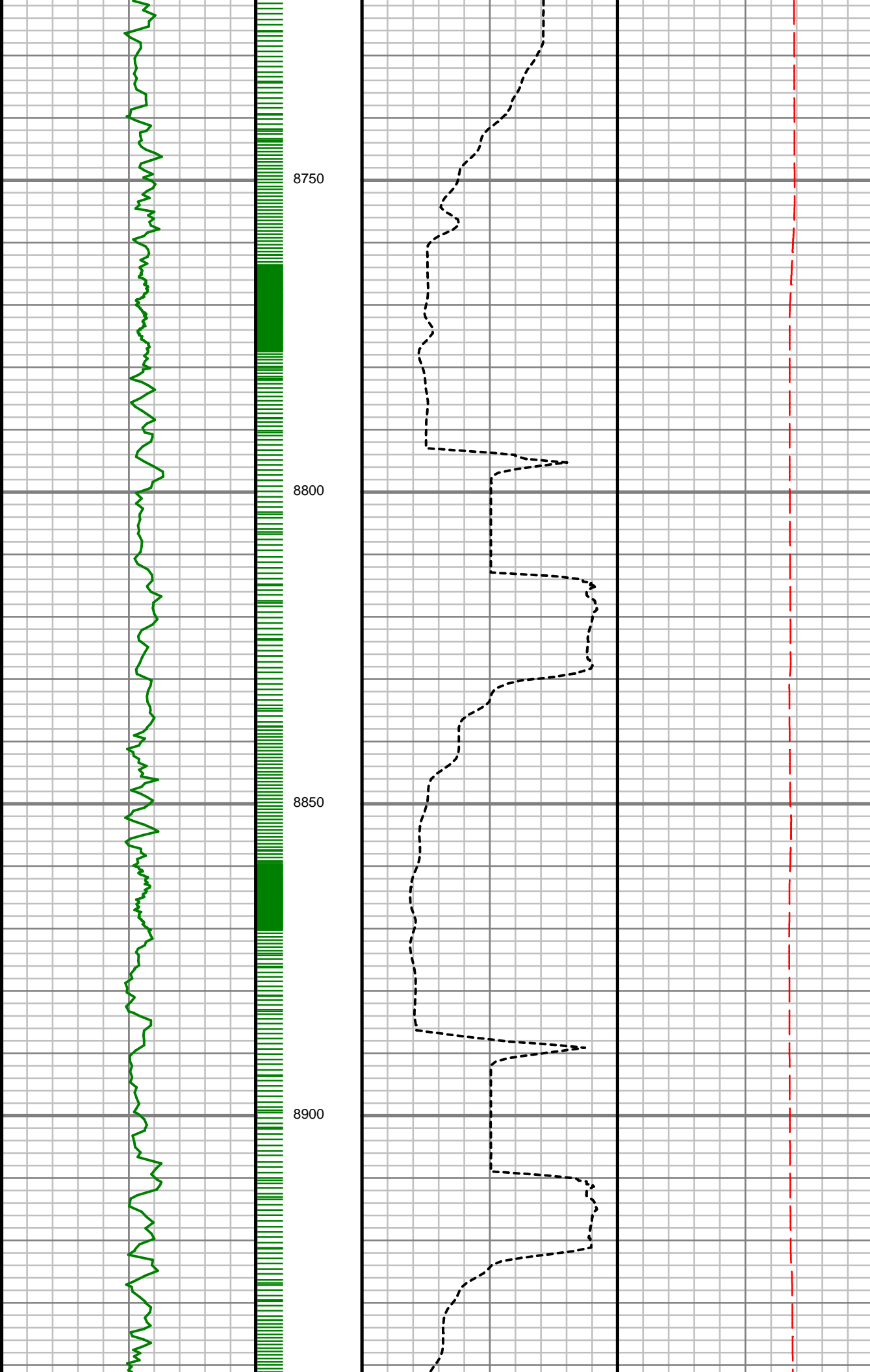
S: 89 MD: 8357.00 ft
Inc: 89.50 deg Az:
358.44 deg TVD:
7345.43 ft

S: 90 MD: 8452.00 ft
Inc: 89.46 deg Az:
357.78 deg TVD:
7346.29 ft



S: 91 MD: 8546.00 ft
Inc: 89.30 deg Az:
358.54 deg TVD:
7347.30 ft

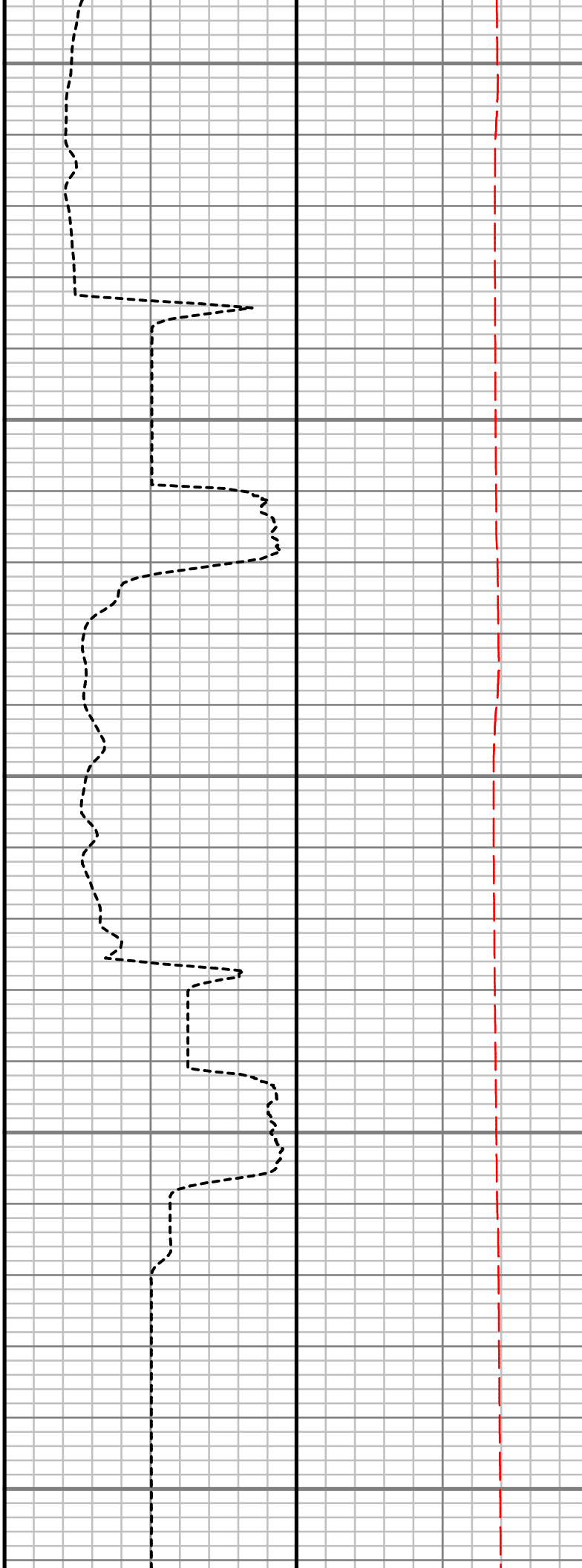
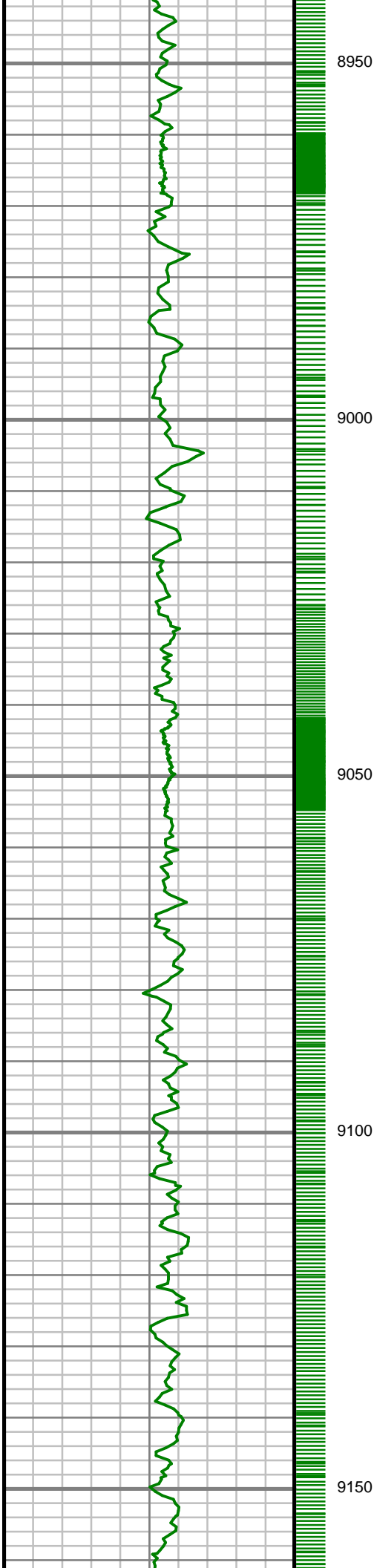
S: 92 MD: 8641.00 ft
Inc: 89.80 deg Az:
358.92 deg TVD:
7348.05 ft



S: 93 MD: 8735.00 ft
Inc: 88.22 deg Az:
357.31 deg TVD:
7349.68 ft

S: 94 MD: 8830.00 ft
Inc: 88.96 deg Az:
358.71 deg TVD:
7352.01 ft

S: 95 MD: 8924.00 ft
Inc: 90.07 deg Az:
359.69 deg TVD:
7352.81 ft



S: 96 MD: 9018.00 ft
Inc: 90.94 deg Az: 0.17
deg TVD: 7351.98 ft

S: 97 MD: 9114.00 ft
Inc: 89.77 deg Az: 0.04
deg TVD: 7351.39 ft

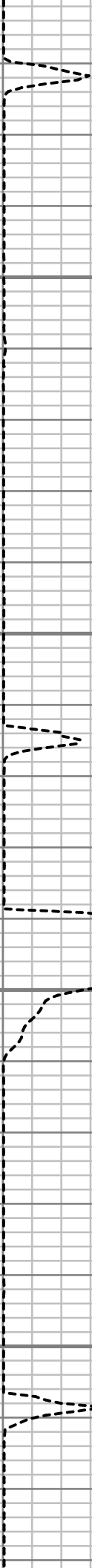


9200

9250

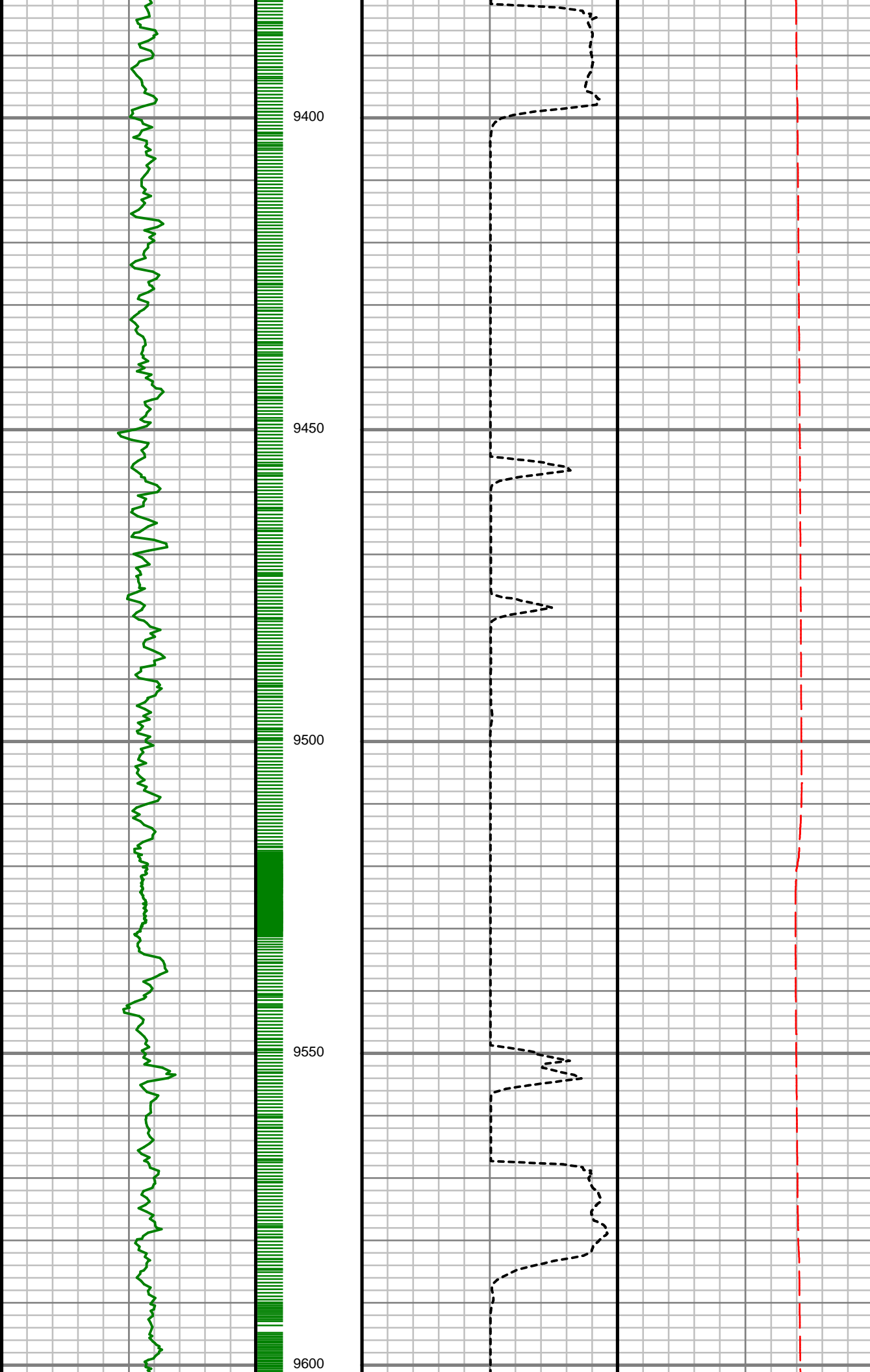
9300

9350



S: 98 MD: 9207.00 ft
Inc: 90.13 deg Az:
359.01 deg TVD:
7351.47 ft

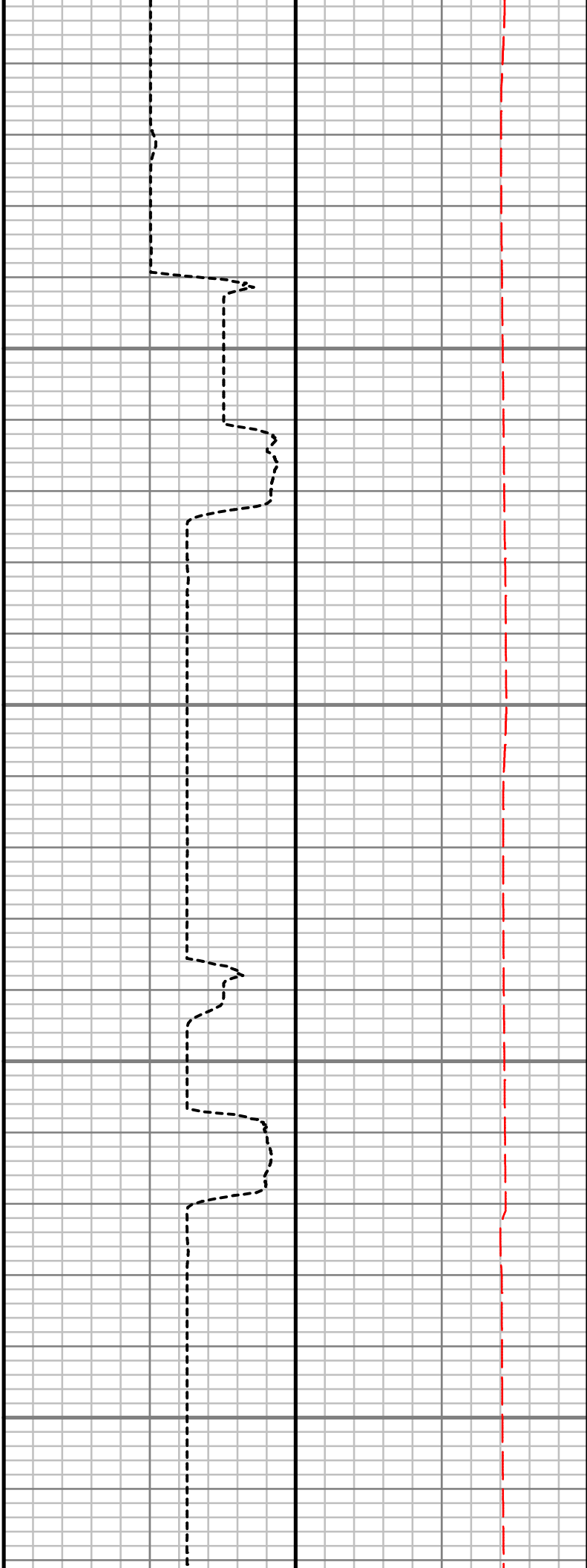
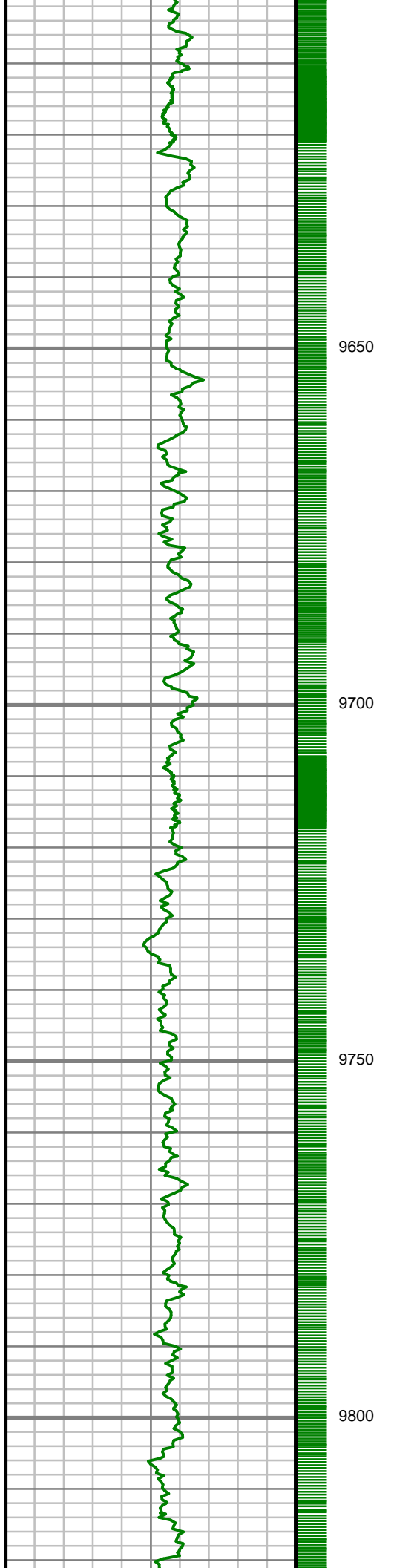
S: 99 MD: 9302.00 ft
Inc: 88.86 deg Az:
358.03 deg TVD:
7352.30 ft



S: 100 MD: 9395.00 ft
Inc: 89.13 deg Az:
359.21 deg TVD:
7353.94 ft

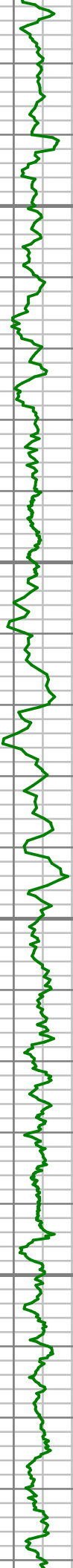
S: 101 MD: 9489.00 ft
Inc: 91.04 deg Az:
359.87 deg TVD:
7353.80 ft

S: 102 MD: 9583.00 ft
Inc: 91.01 deg Az:
359.73 deg TVD:
7352.11 ft



S: 103 MD: 9678.00 ft
Inc: 88.46 deg Az:
358.75 deg TVD:
7352.55 ft

S: 104 MD: 9772.00 ft
Inc: 89.23 deg Az:
359.14 deg TVD:
7354.45 ft

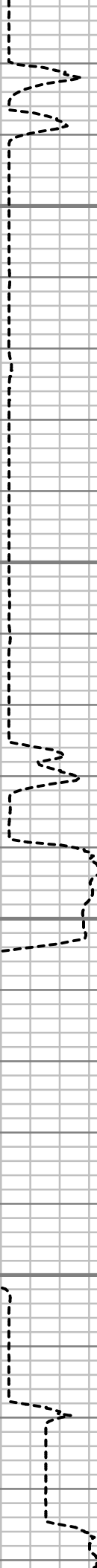


9850

9900

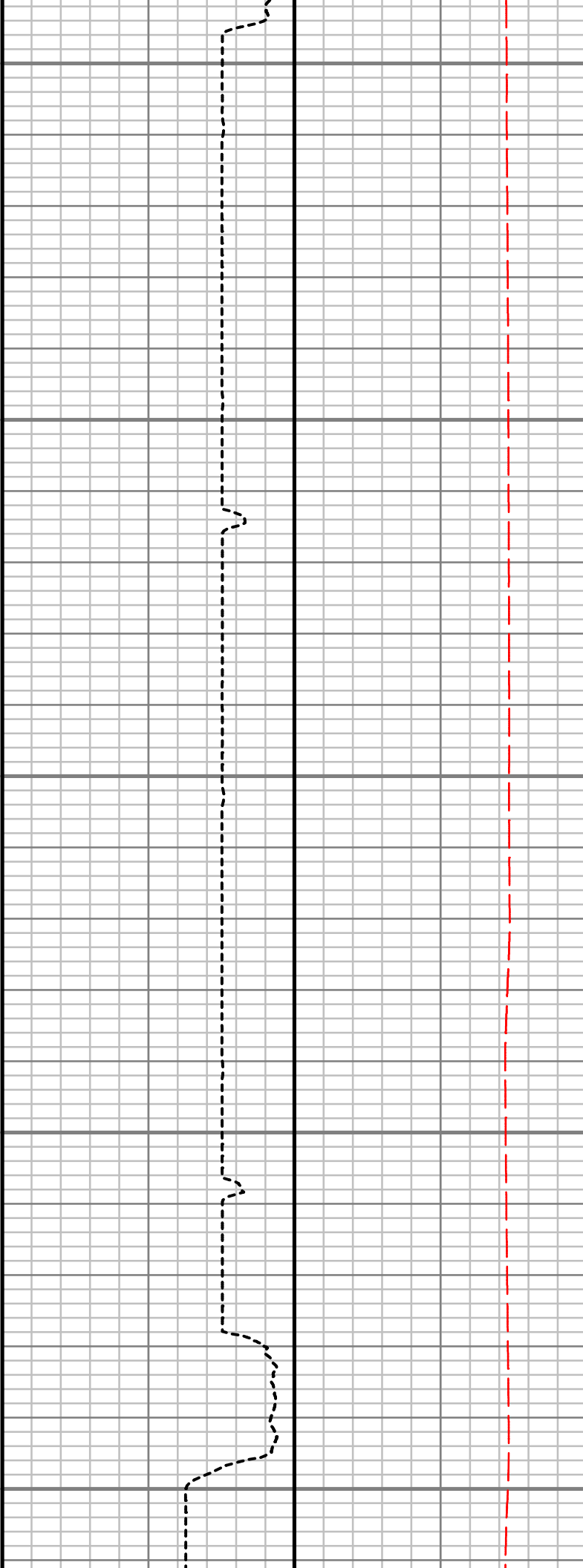
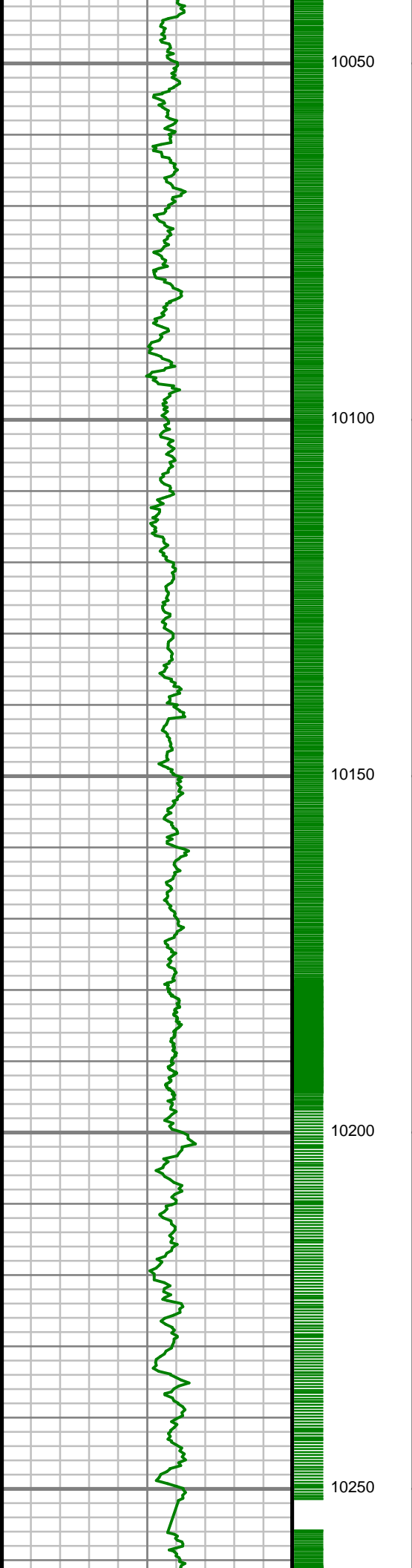
9950

10000



S: 105 MD: 9866.00 ft
Inc: 90.84 deg Az:
359.35 deg TVD:
7354.39 ft

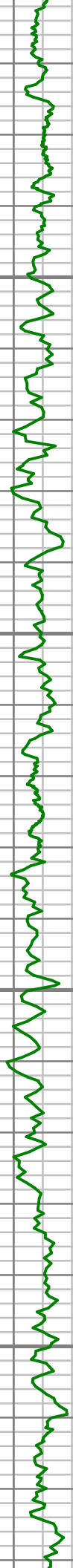
S: 106 MD: 9961.00 ft
Inc: 89.90 deg Az:
359.38 deg TVD:
7353.78 ft



S: 107 MD: 10055.00 ft
Inc: 89.03 deg Az:
358.95 deg TVD:
7354.66 ft

S: 108 MD: 10150.00 ft
Inc: 90.91 deg Az:
359.15 deg TVD:
7354.70 ft

S: 109 MD: 10245.00 ft
Inc: 88.96 deg Az:
358.07 deg TVD:
7354.81 ft

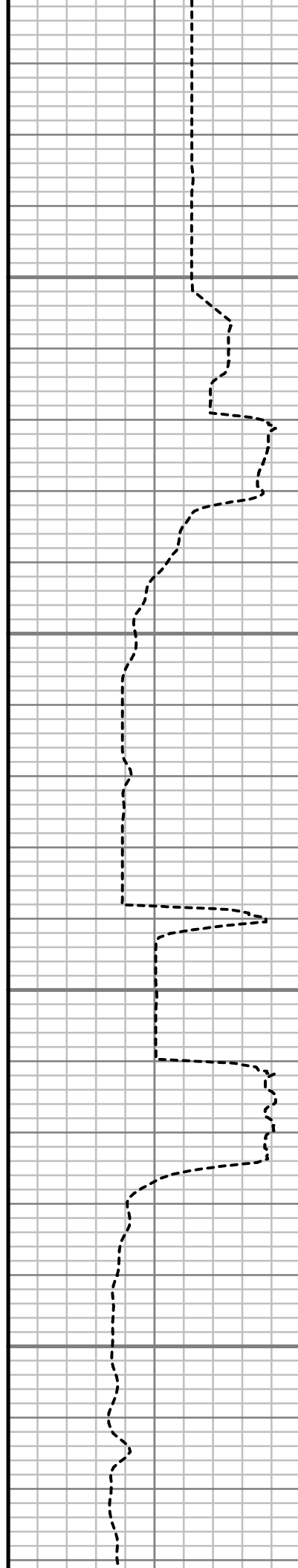


10300

10350

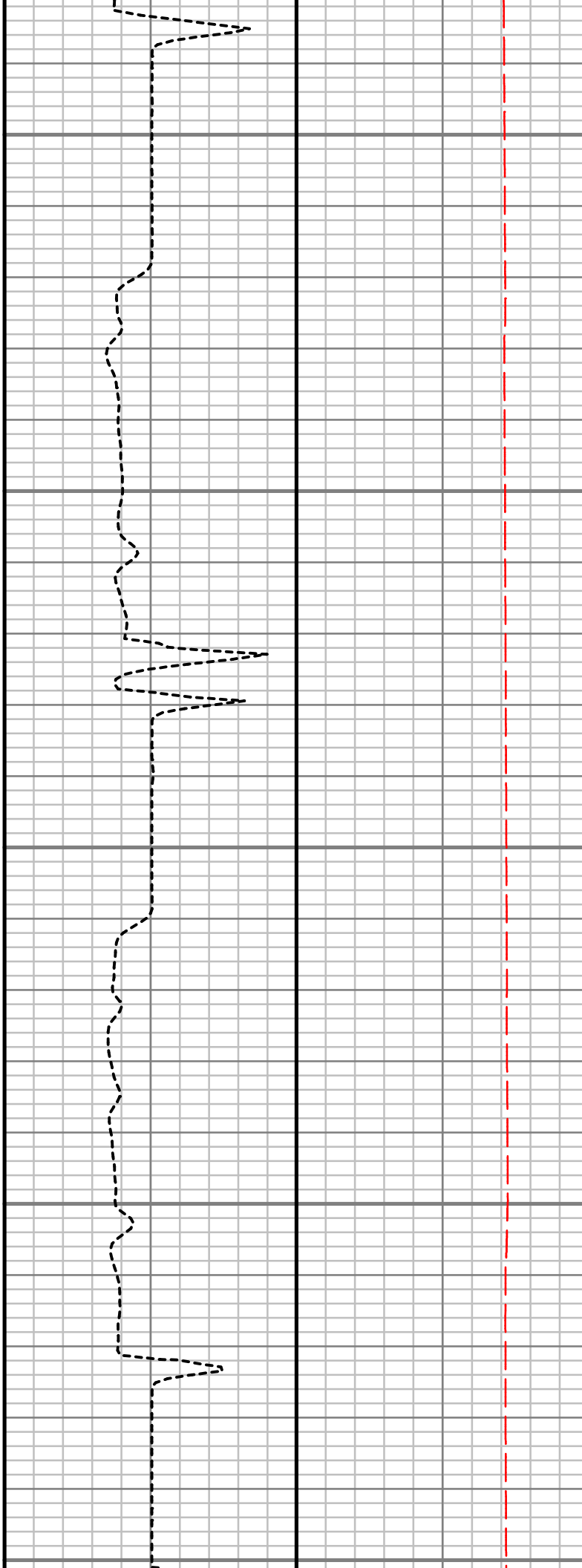
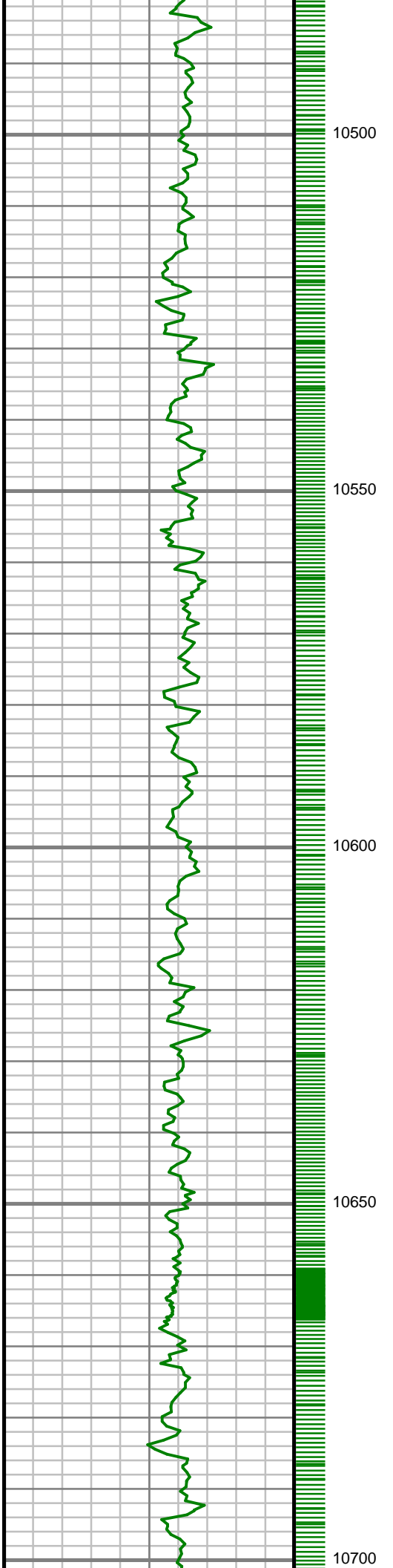
10400

10450



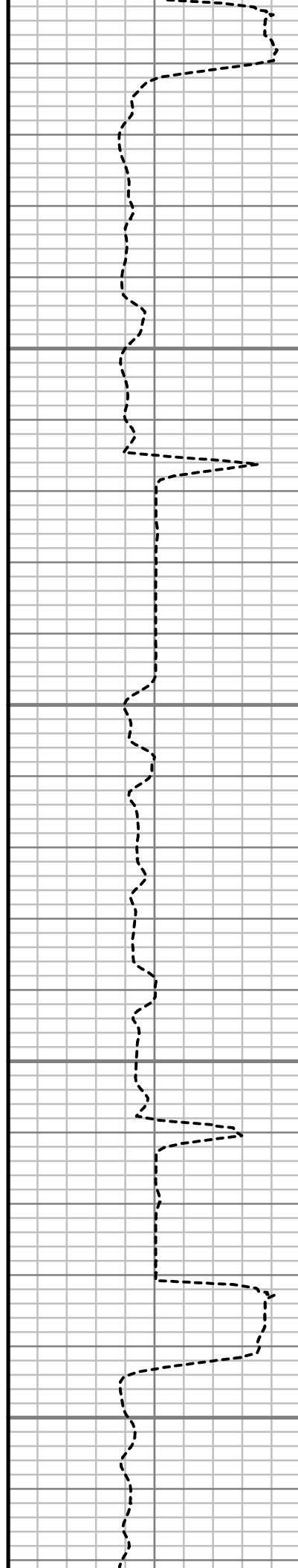
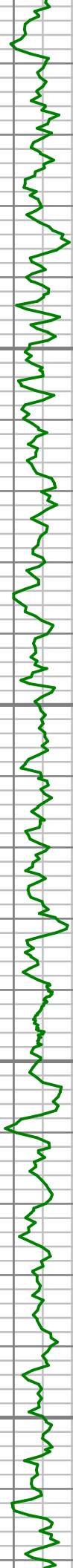
S: 110 MD: 10340.00 ft
Inc: 87.98 deg Az:
357.67 deg TVD:
7357.35 ft

S: 111 MD: 10434.00 ft
Inc: 89.09 deg Az:
358.81 deg TVD:
7359.75 ft



S: 112 MD: 10528.00 ft
Inc: 90.07 deg Az:
359.12 deg TVD:
7360.44 ft

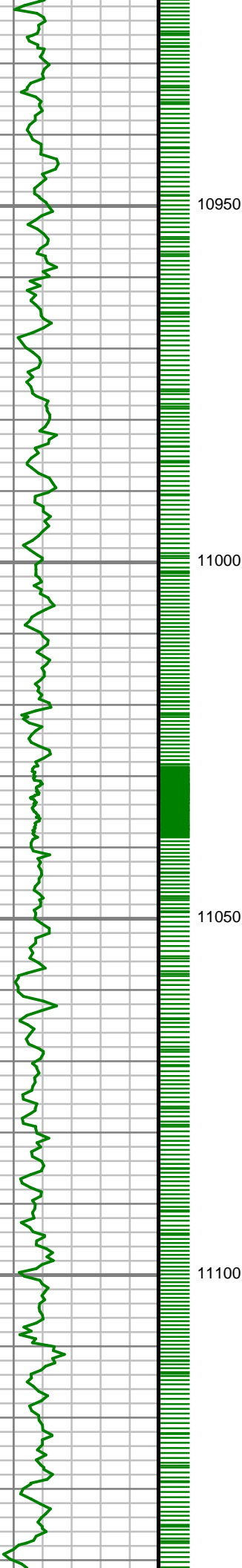
S: 113 MD: 10621.00 ft
Inc: 90.84 deg Az:
359.87 deg TVD:
7359.70 ft



S: 114 MD: 10715.00 ft
Inc: 90.23 deg Az:
359.50 deg TVD:
7358.83 ft

S: 115 MD: 10808.00 ft
Inc: 90.94 deg Az:
359.54 deg TVD:
7357.88 ft

S: 116 MD: 10900.00 ft
Inc: 89.80 deg Az:
359.77 deg TVD:
7357.28 ft

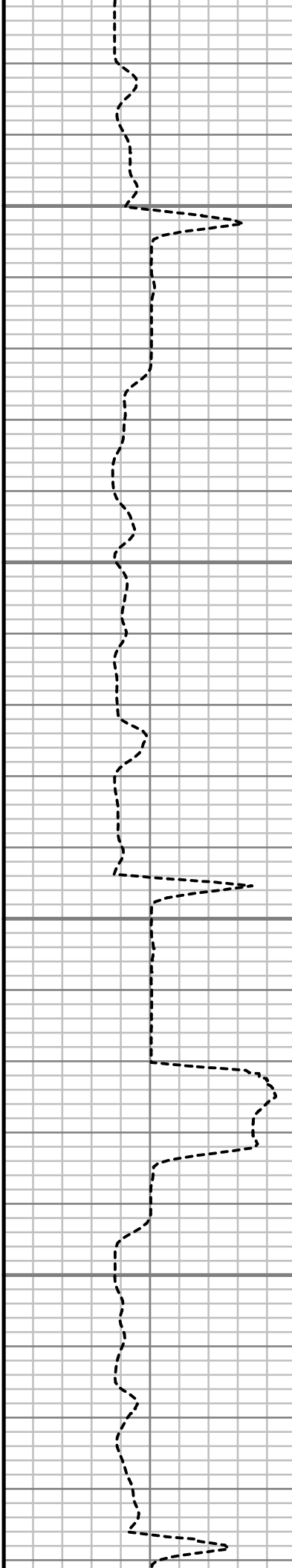


10950

11000

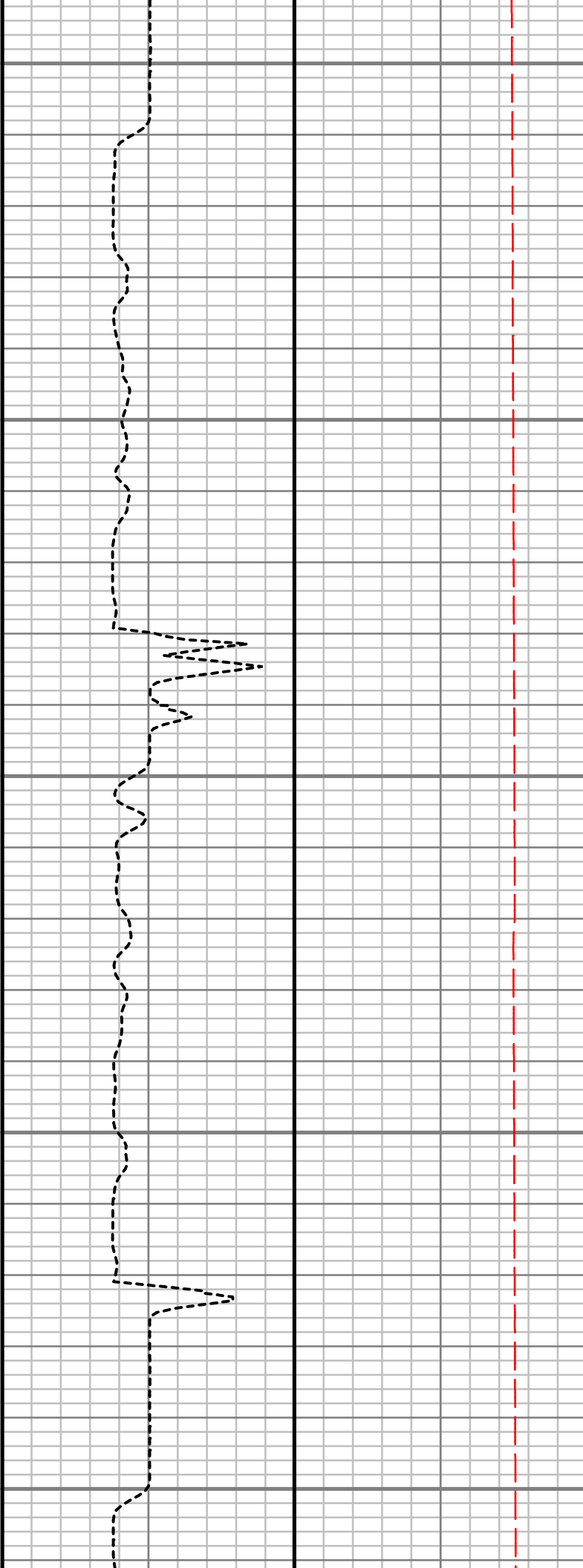
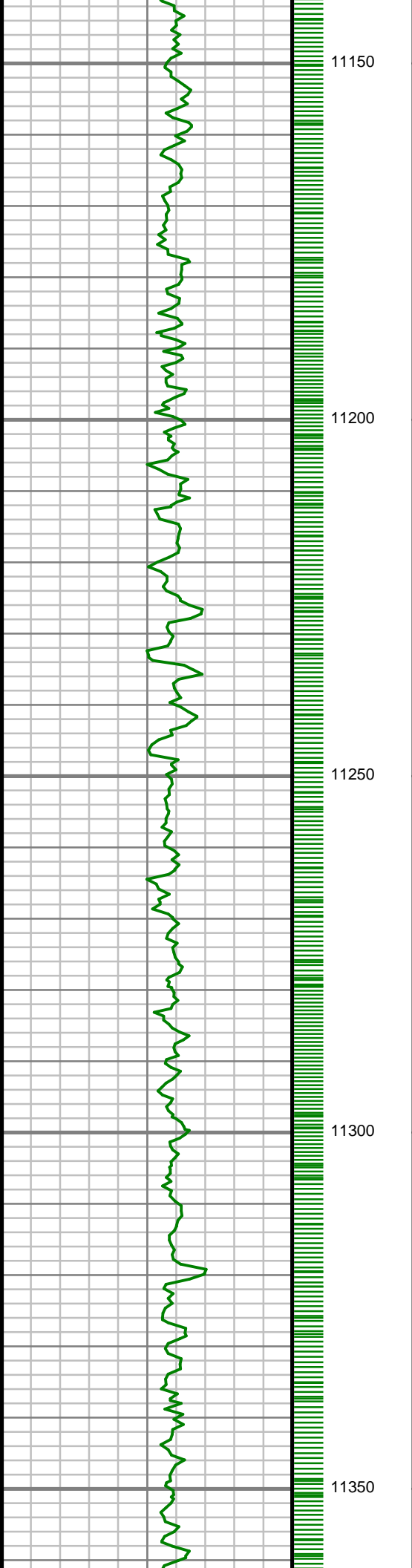
11050

11100



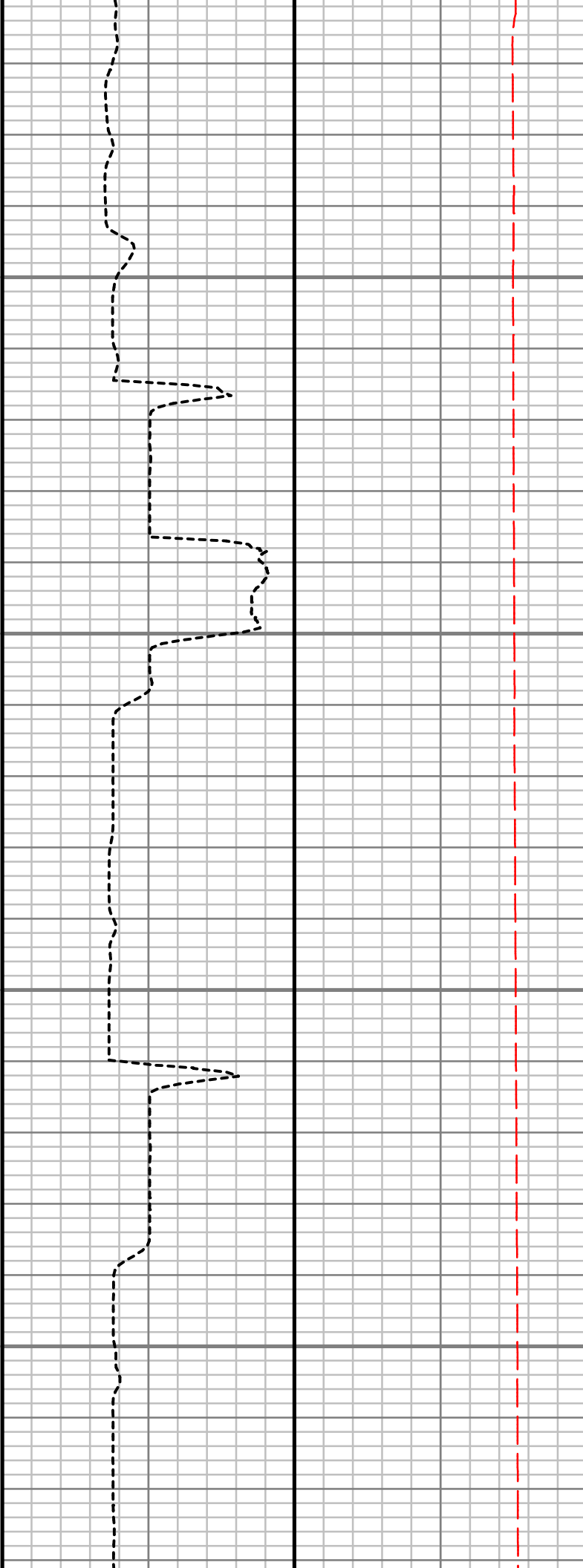
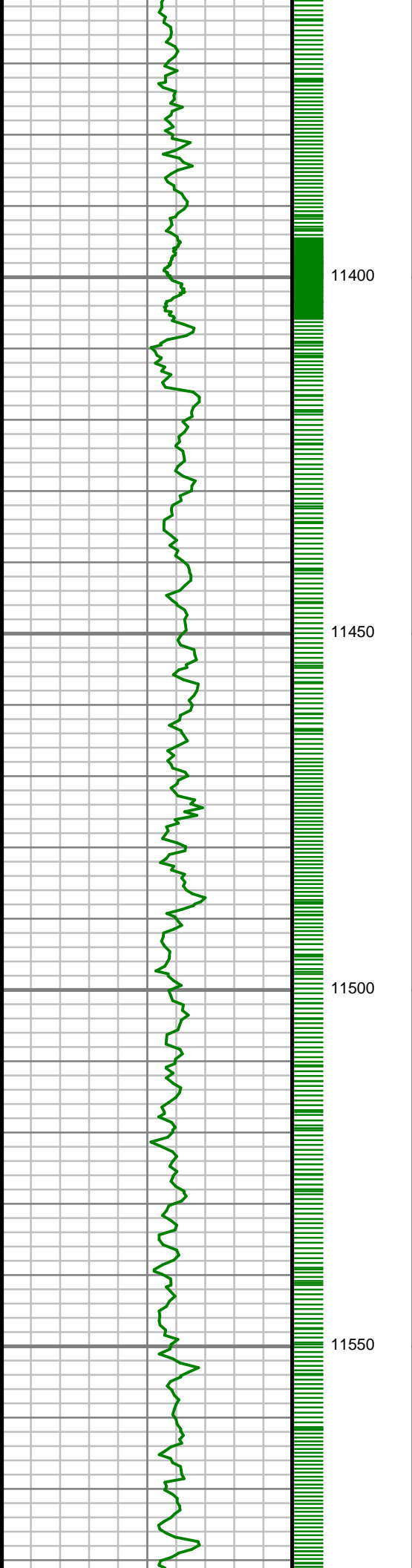
S: 117 MD: 10993.00 ft
Inc: 90.64 deg Az:
359.15 deg TVD:
7356.92 ft

S: 118 MD: 11085.00 ft
Inc: 89.90 deg Az:
359.92 deg TVD:
7356.49 ft



S: 119 MD: 11178.00 ft
Inc: 90.03 deg Az: 0.01
deg TVD: 7356.55 ft

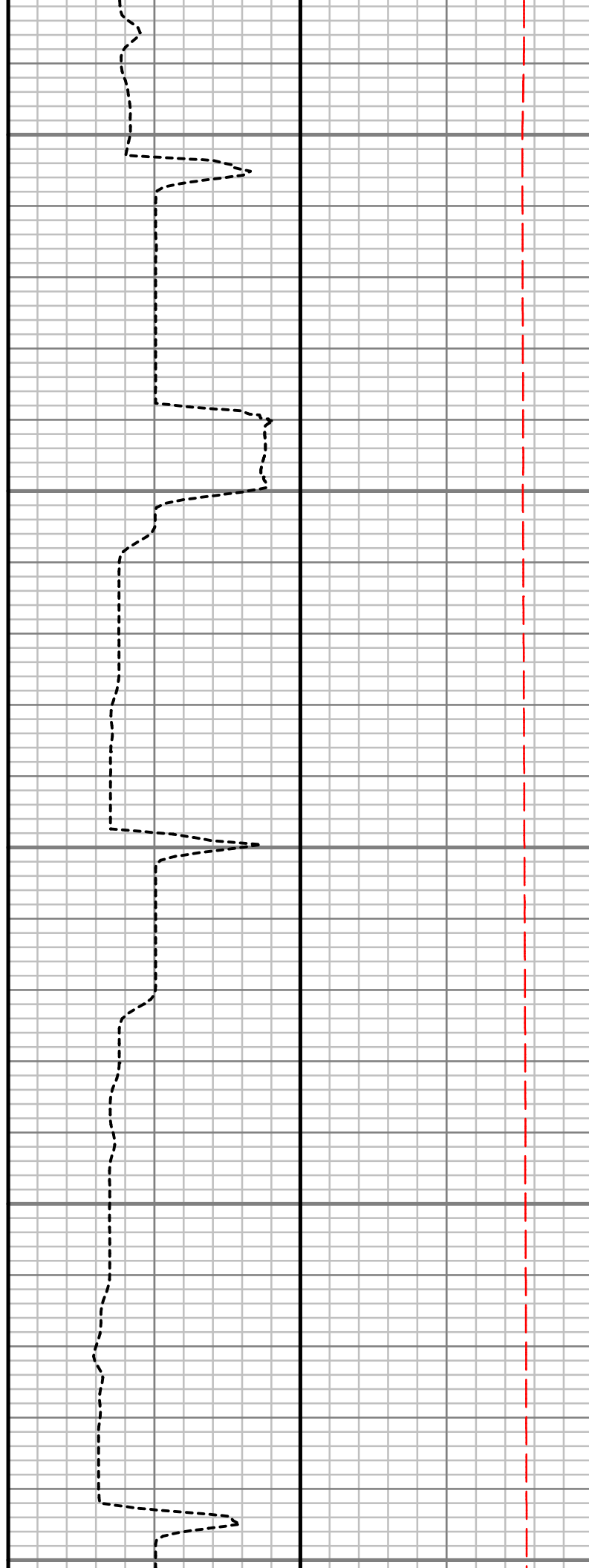
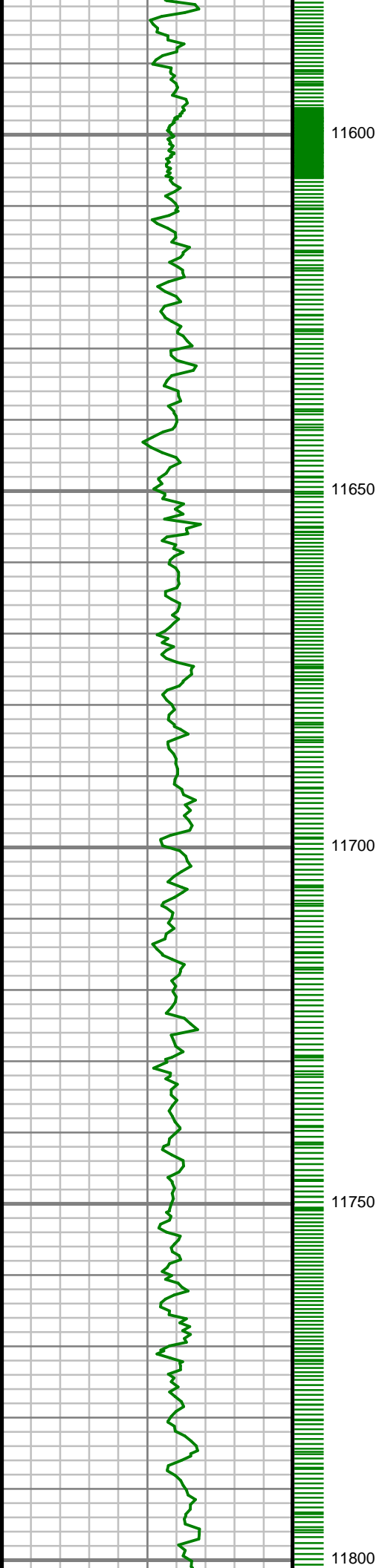
S: 120 MD: 11272.00 ft
Inc: 90.47 deg Az:
359.82 deg TVD:
7356.14 ft



S: 121 MD: 11365.00 ft
Inc: 91.11 deg Az: 0.17
deg TVD: 7354.86 ft

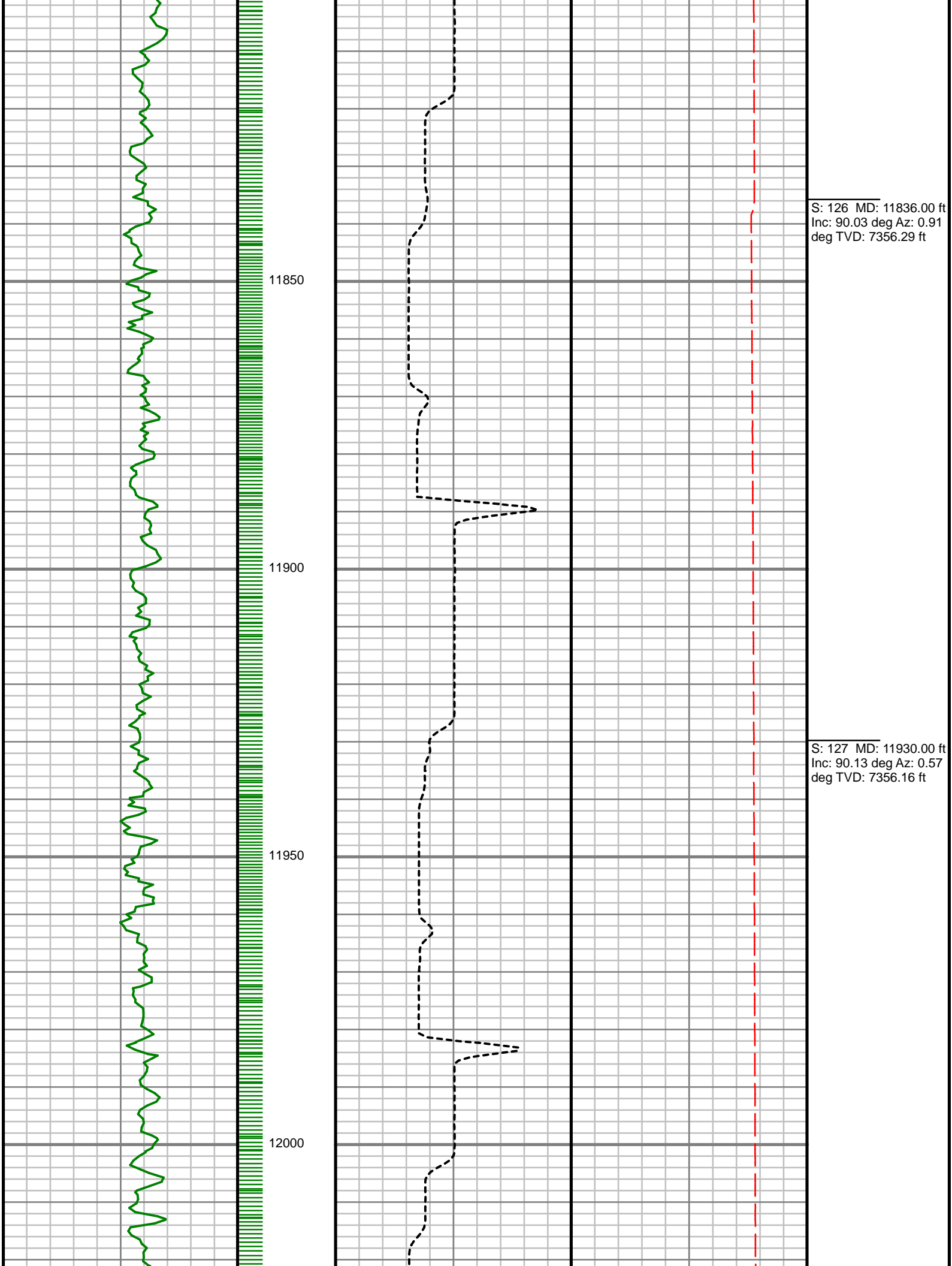
S: 122 MD: 11460.00 ft
Inc: 89.73 deg Az:
359.76 deg TVD:
7354.16 ft

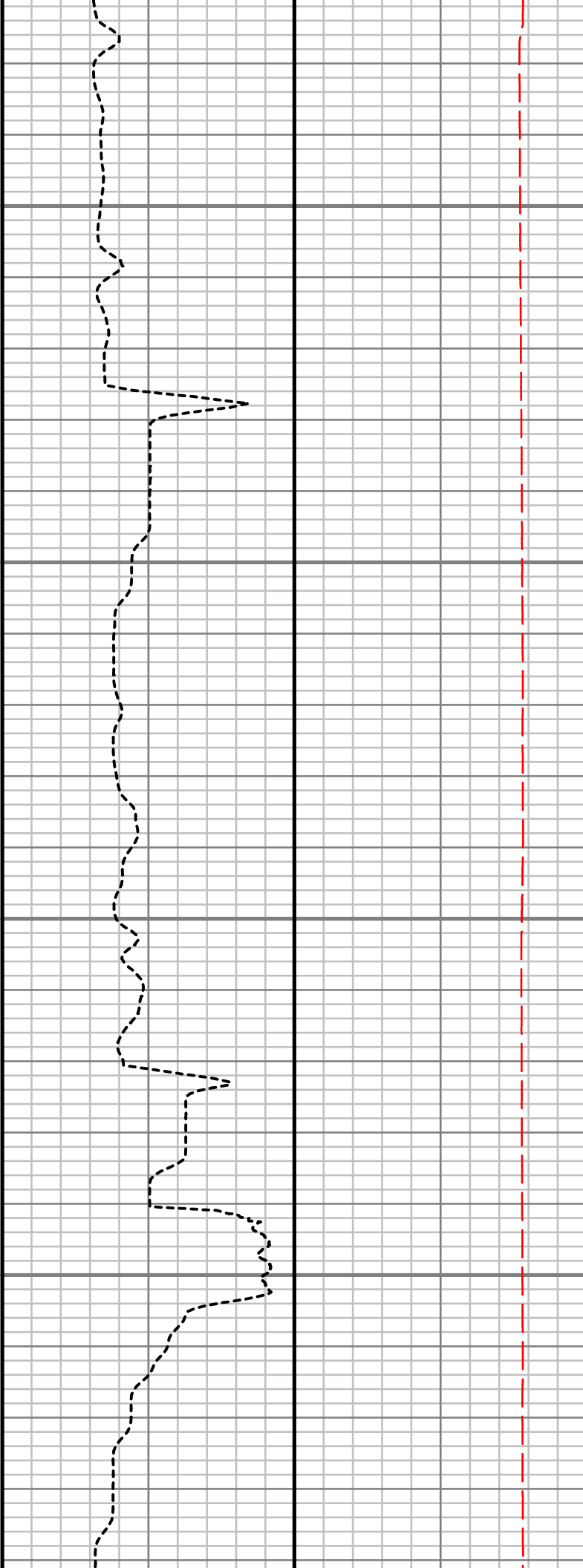
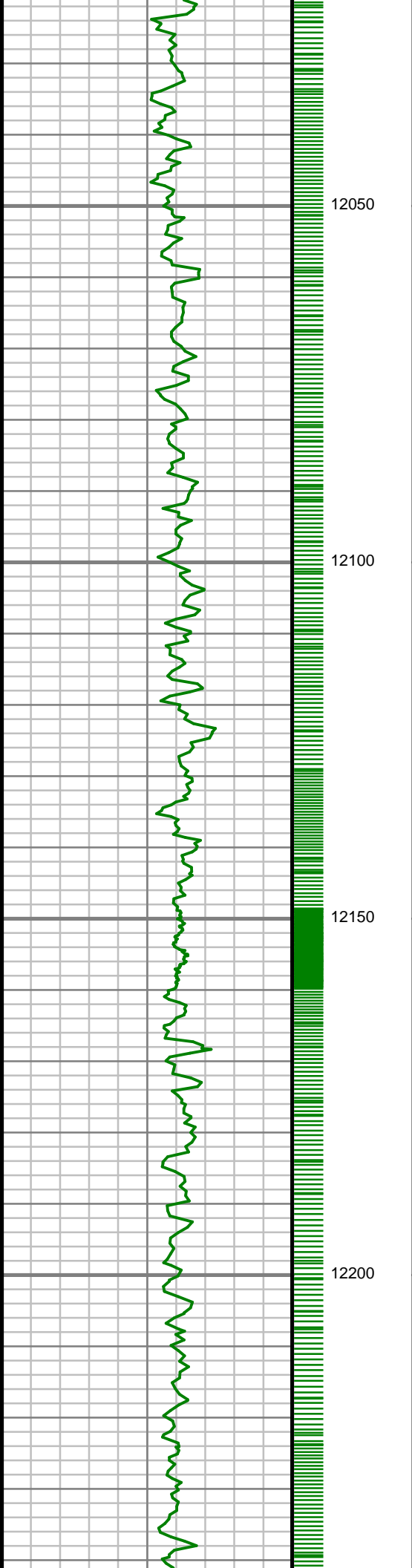
S: 123 MD: 11553.00 ft
Inc: 90.13 deg Az:
359.39 deg TVD:
7354.27 ft



S: 124 MD: 11647.00 ft
Inc: 89.19 deg Az: 0.24
deg TVD: 7354.83 ft

S: 125 MD: 11741.00 ft
Inc: 89.50 deg Az: 0.56
deg TVD: 7355.90 ft

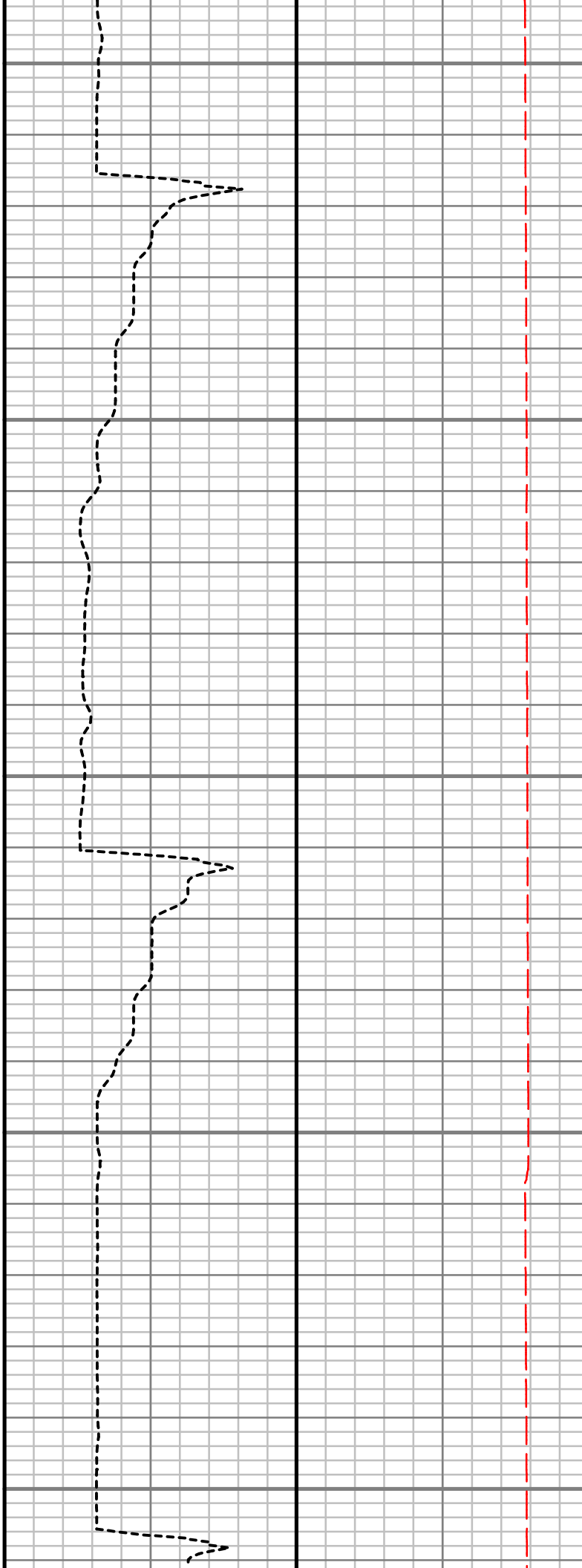
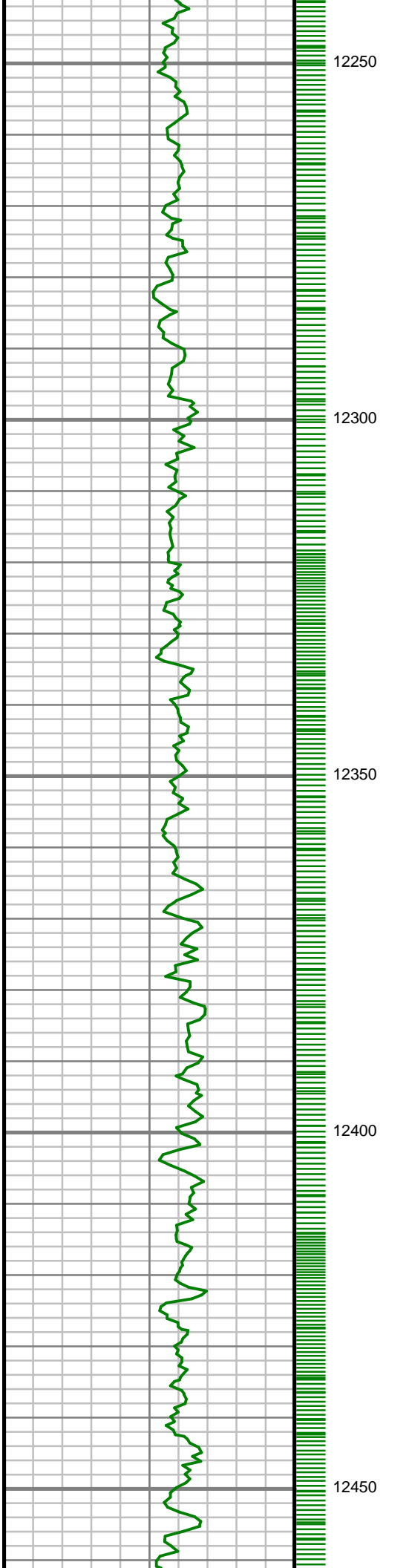




S: 128 MD: 12024.00 ft
Inc: 90.40 deg Az: 0.76
deg TVD: 7355.73 ft

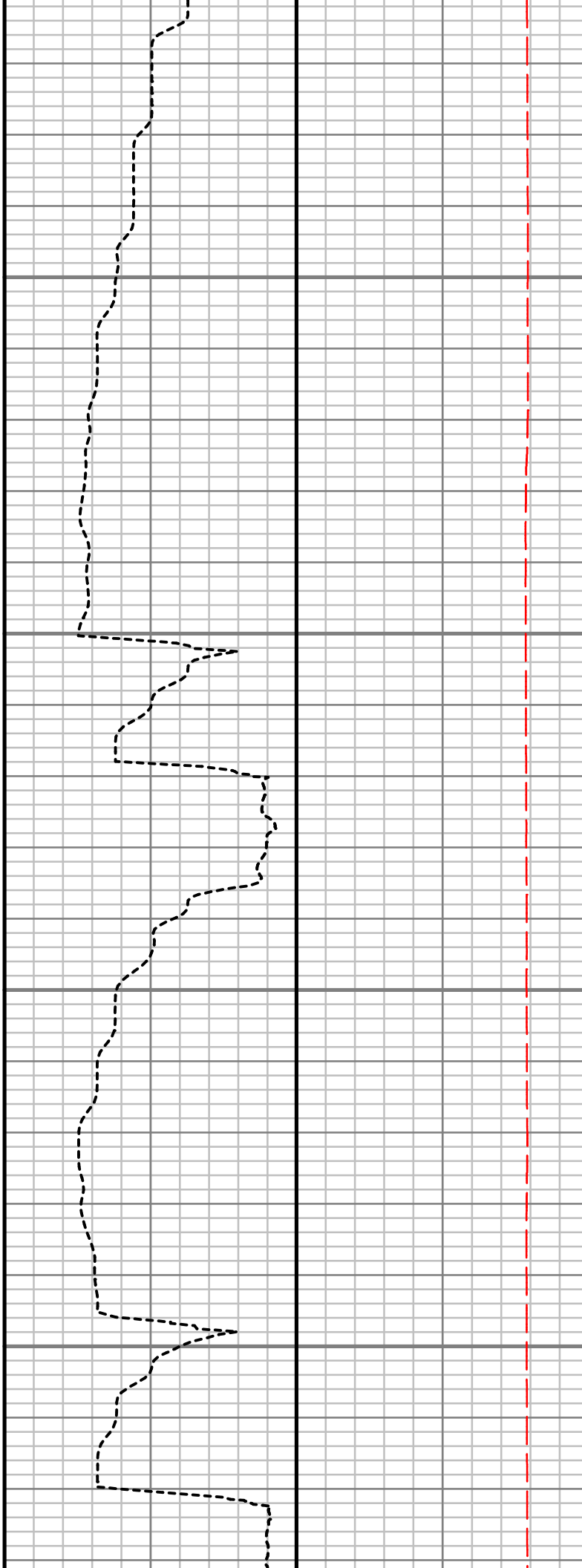
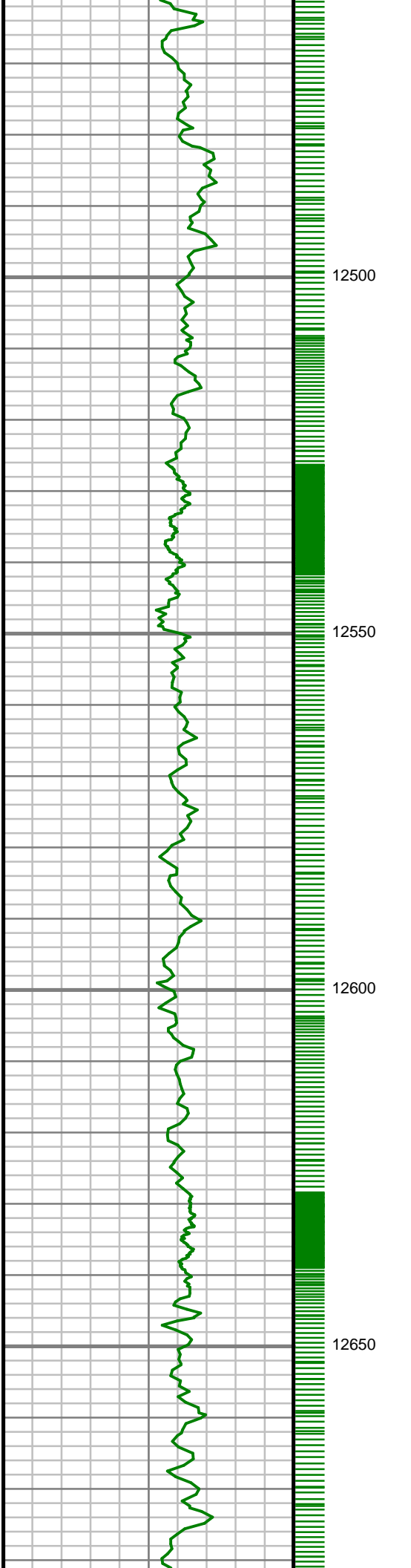
S: 129 MD: 12118.00 ft
Inc: 90.67 deg Az: 1.09
deg TVD: 7354.85 ft

S: 130 MD: 12212.00 ft
Inc: 88.86 deg Az: 0.20
deg TVD: 7355.24 ft



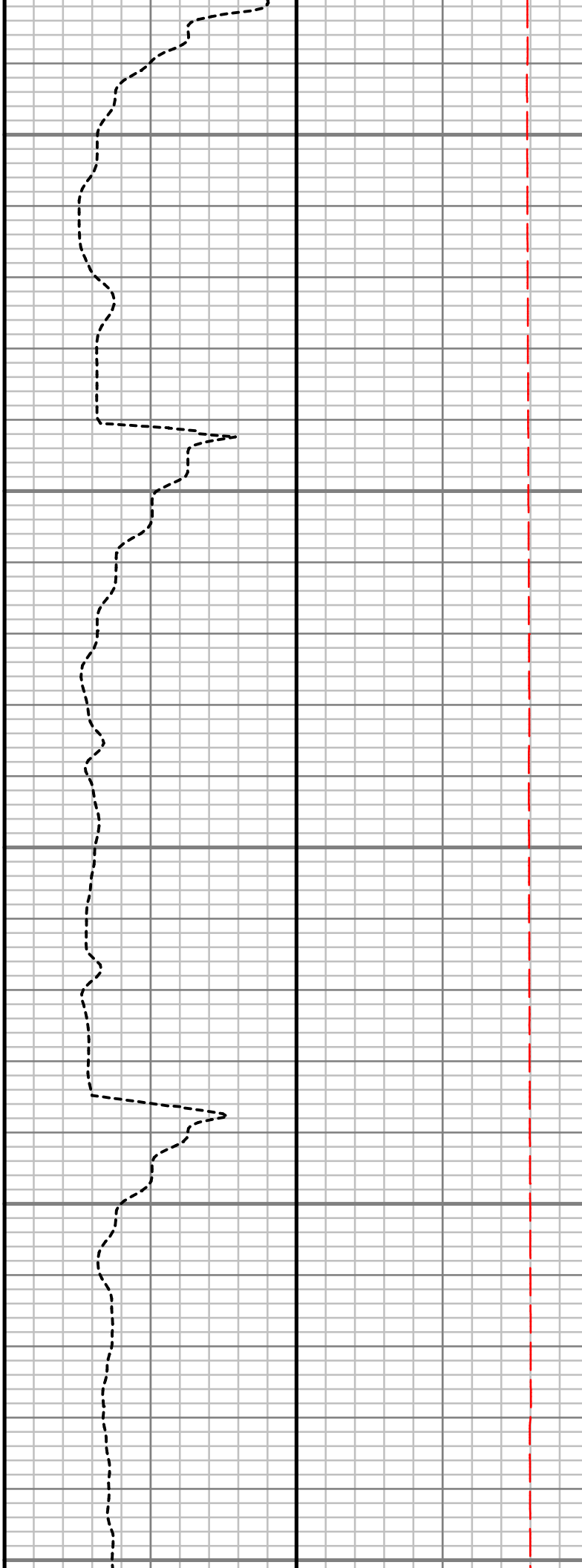
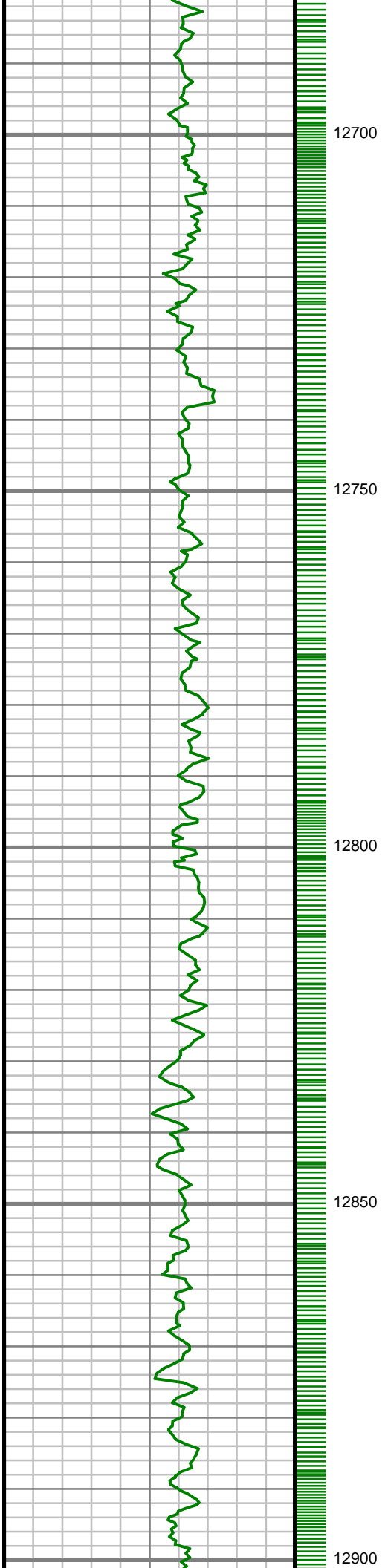
S: 131 MD: 12307.00 ft
Inc: 89.26 deg Az: 0.15
deg TVD: 7356.79 ft

S: 132 MD: 12401.00 ft
Inc: 89.93 deg Az: 1.41
deg TVD: 7357.46 ft



S: 133 MD: 12496.00 ft
Inc: 90.54 deg Az: 2.01
deg TVD: 7357.07 ft

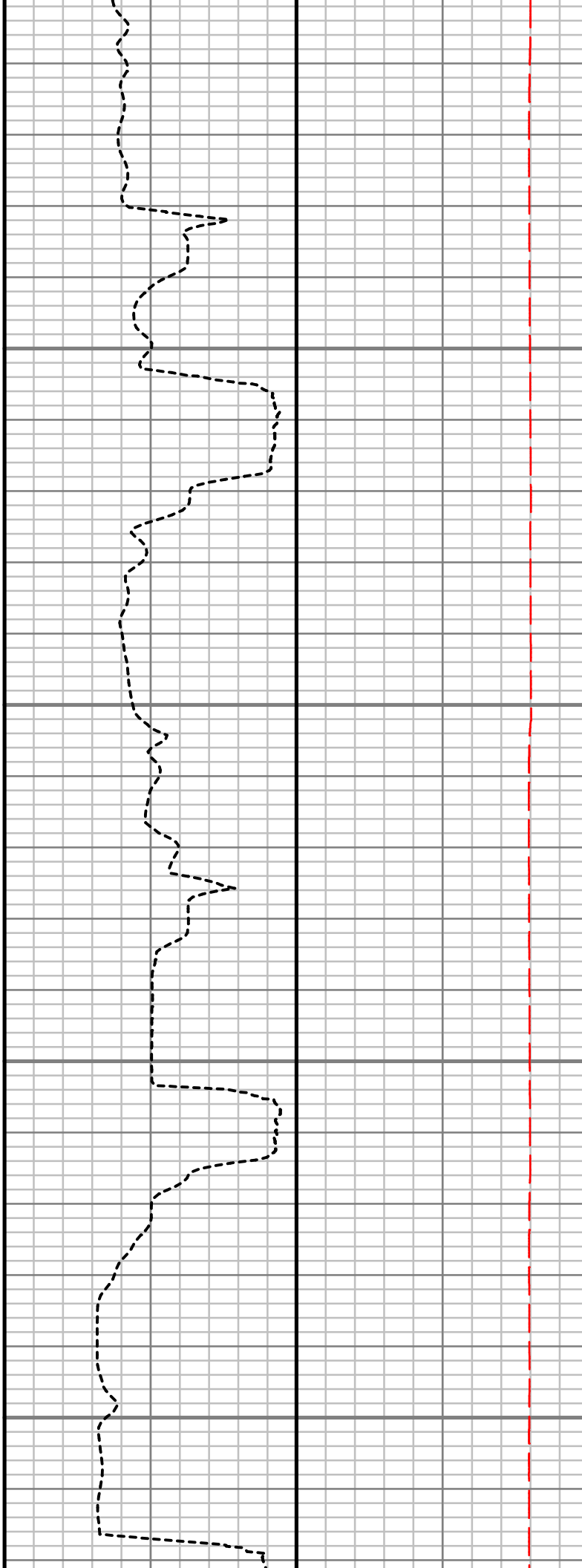
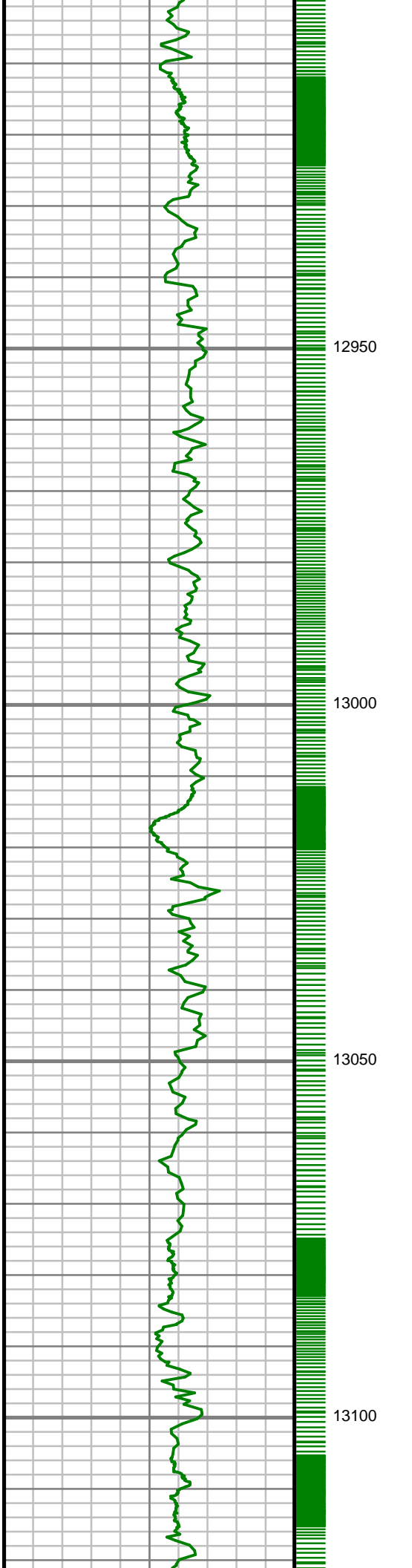
S: 134 MD: 12590.00 ft
Inc: 89.93 deg Az: 1.39
deg TVD: 7356.68 ft



S: 135 MD: 12685.00 ft
Inc: 90.10 deg Az: 0.16
deg TVD: 7356.66 ft

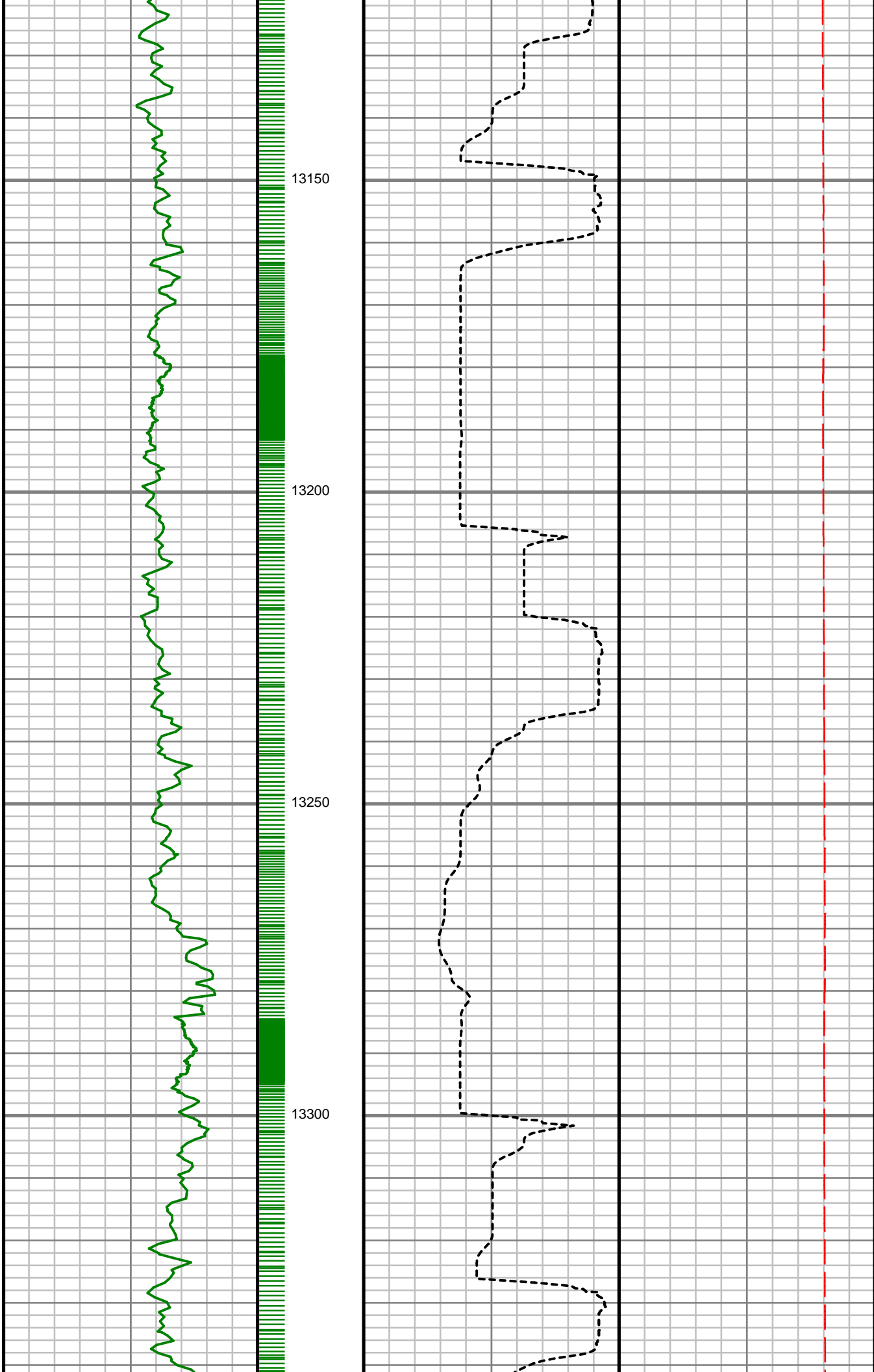
S: 136 MD: 12779.00 ft
Inc: 90.57 deg Az: 0.12
deg TVD: 7356.11 ft

S: 137 MD: 12874.00 ft
Inc: 90.94 deg Az: 0.38
deg TVD: 7354.86 ft



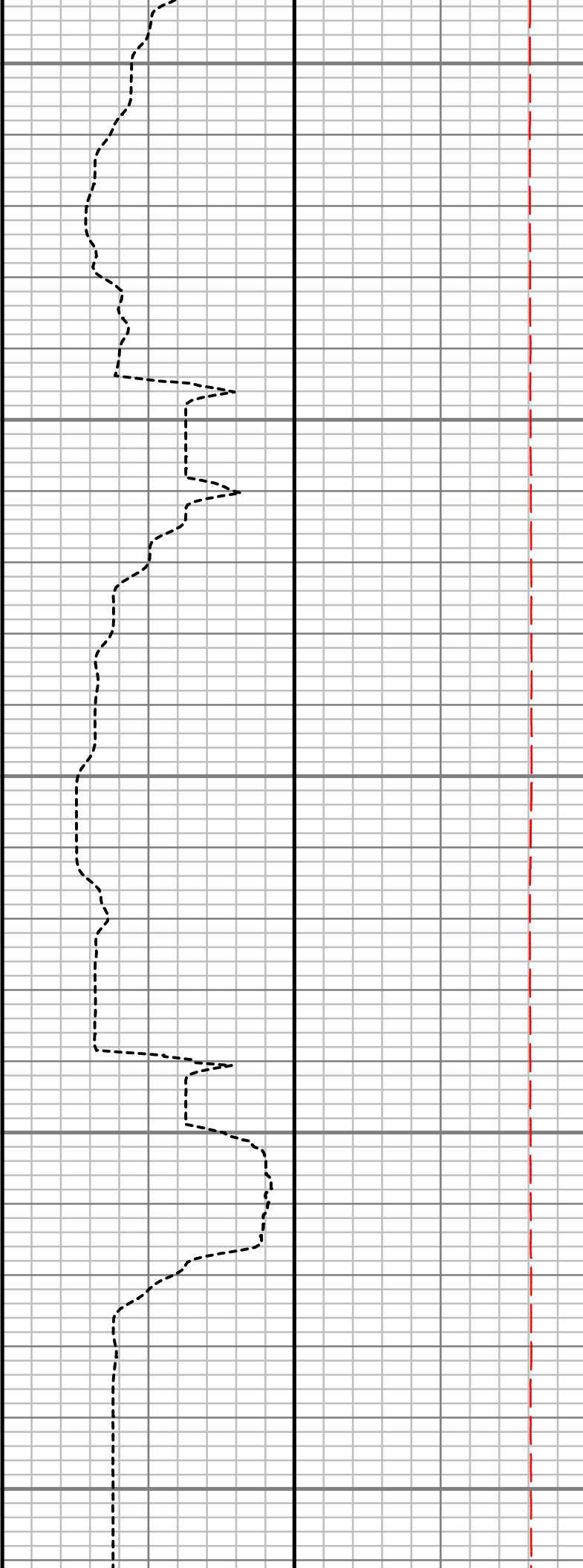
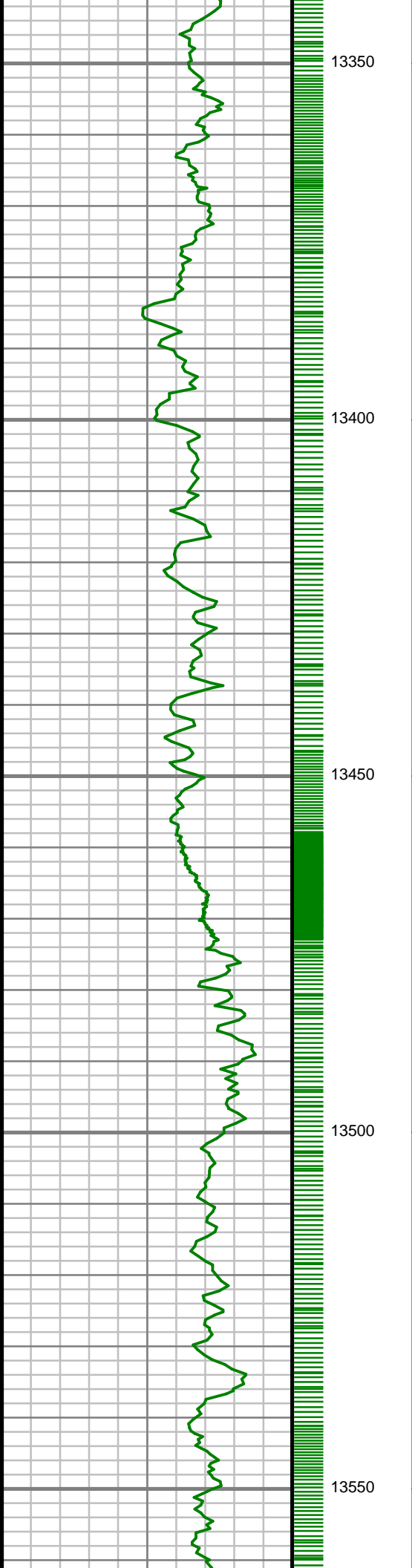
S: 138 MD: 12967.00 ft
Inc: 88.39 deg Az:
358.64 deg TVD:
7355.40 ft

S: 139 MD: 13061.00 ft
Inc: 86.78 deg Az:
356.47 deg TVD:
7359.36 ft



S: 140 MD: 13154.00 ft
Inc: 87.92 deg Az:
358.03 deg TVD:
7363.66 ft

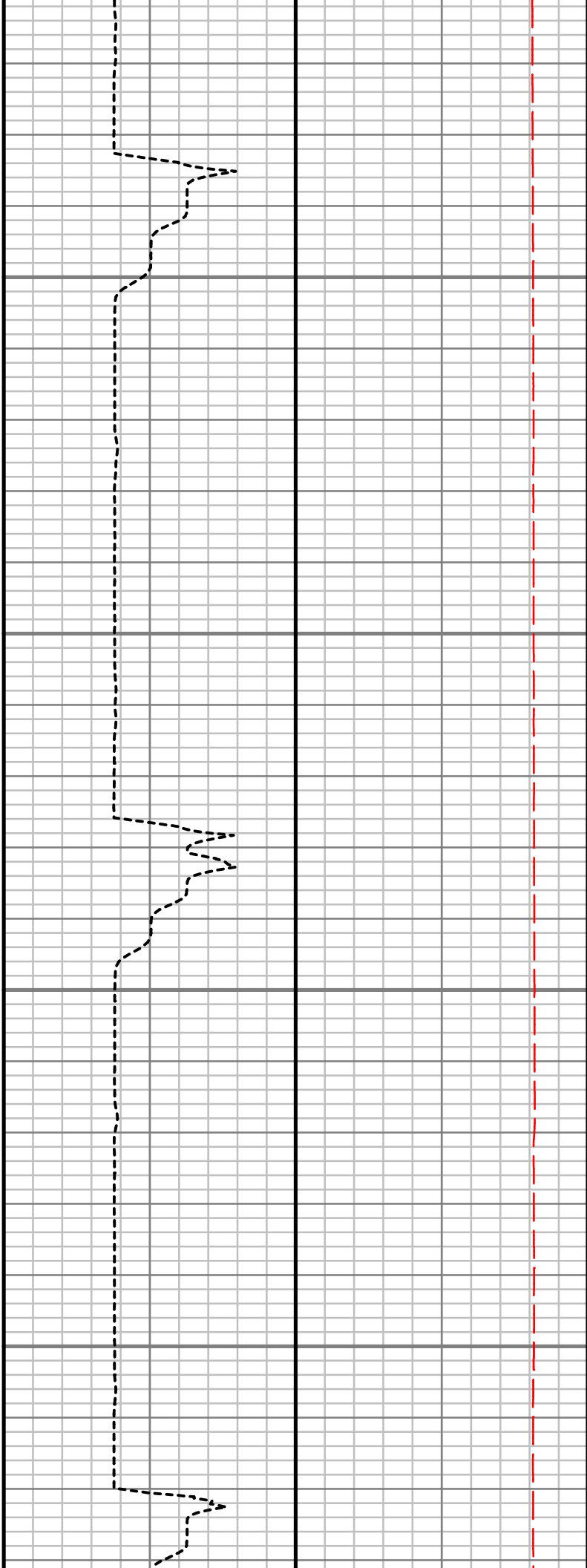
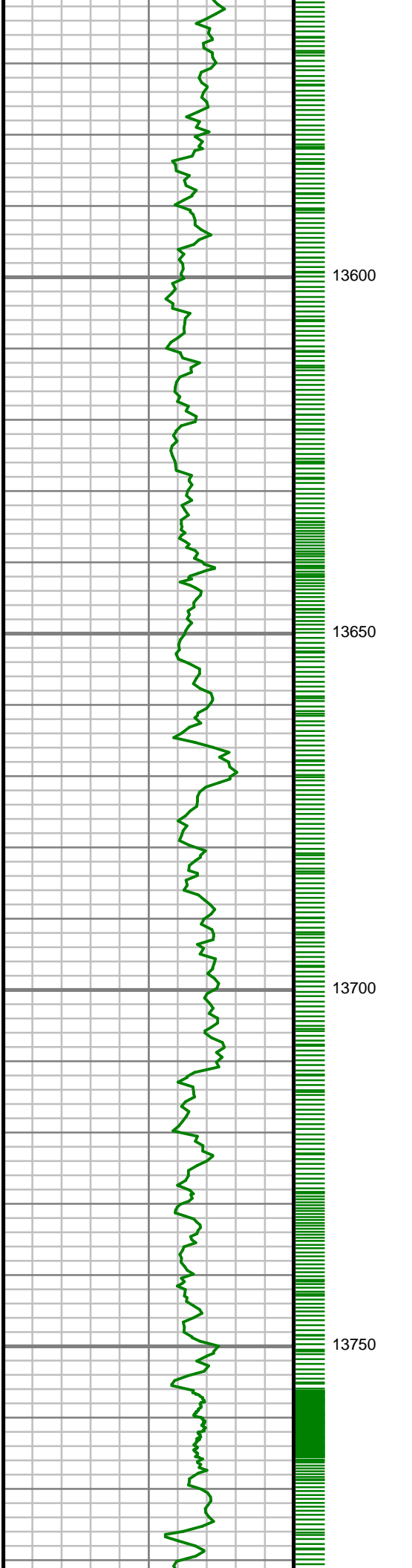
S: 141 MD: 13248.00 ft
Inc: 88.89 deg Az:
358.86 deg TVD:
7366.28 ft



S: 142 MD: 13342.00 ft
Inc: 89.83 deg Az:
359.86 deg TVD:
7367.33 ft

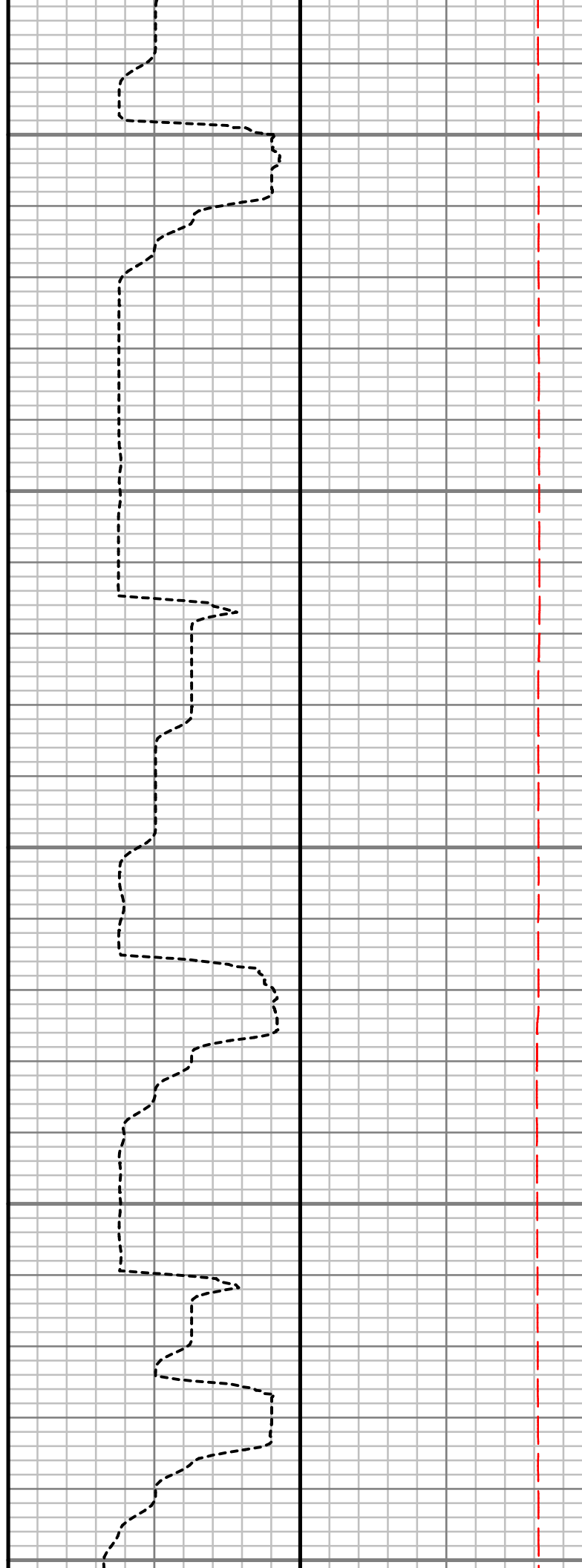
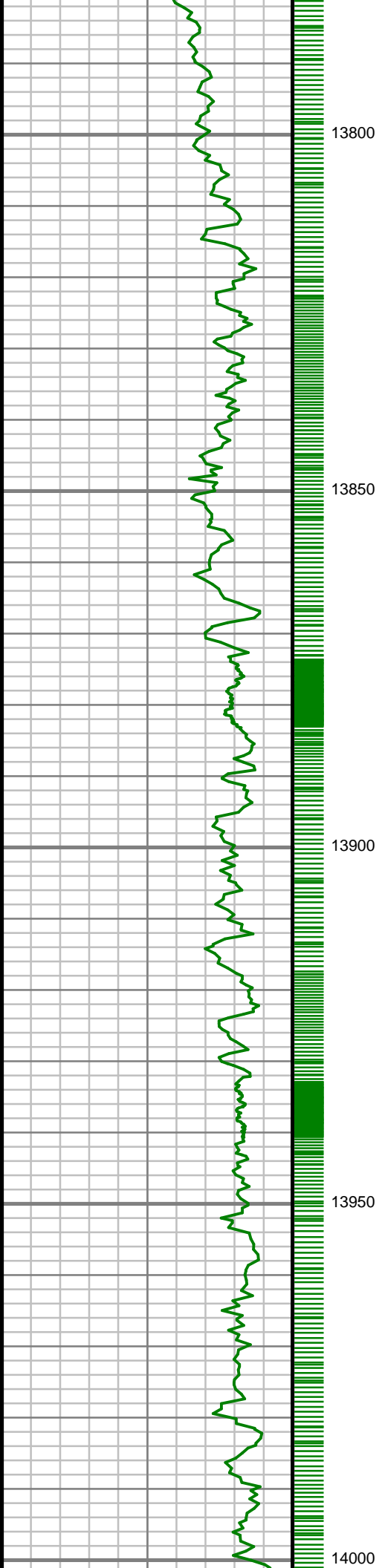
S: 143 MD: 13436.00 ft
Inc: 91.61 deg Az: 1.49
deg TVD: 7366.15 ft

S: 144 MD: 13530.00 ft
Inc: 89.97 deg Az:
359.57 deg TVD:
7364.85 ft



S: 145 MD: 13624.00 ft
Inc: 89.80 deg Az:
358.57 deg TVD:
7365.04 ft

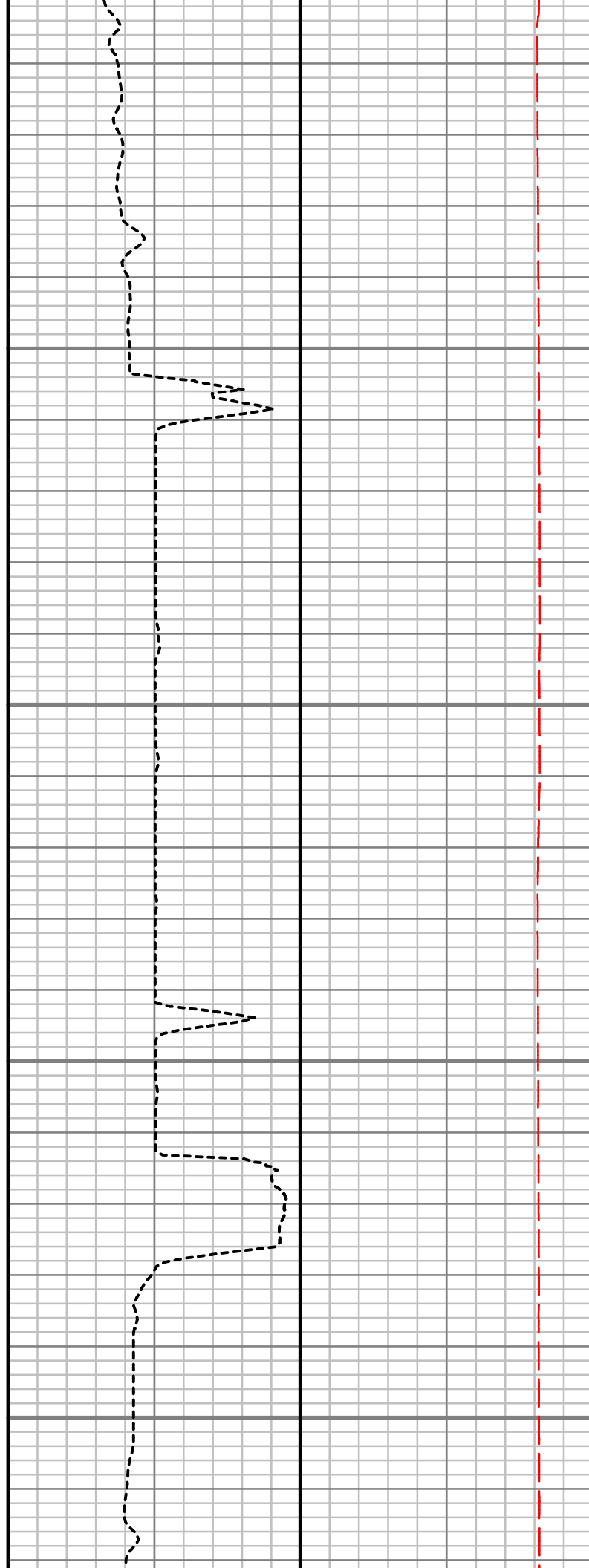
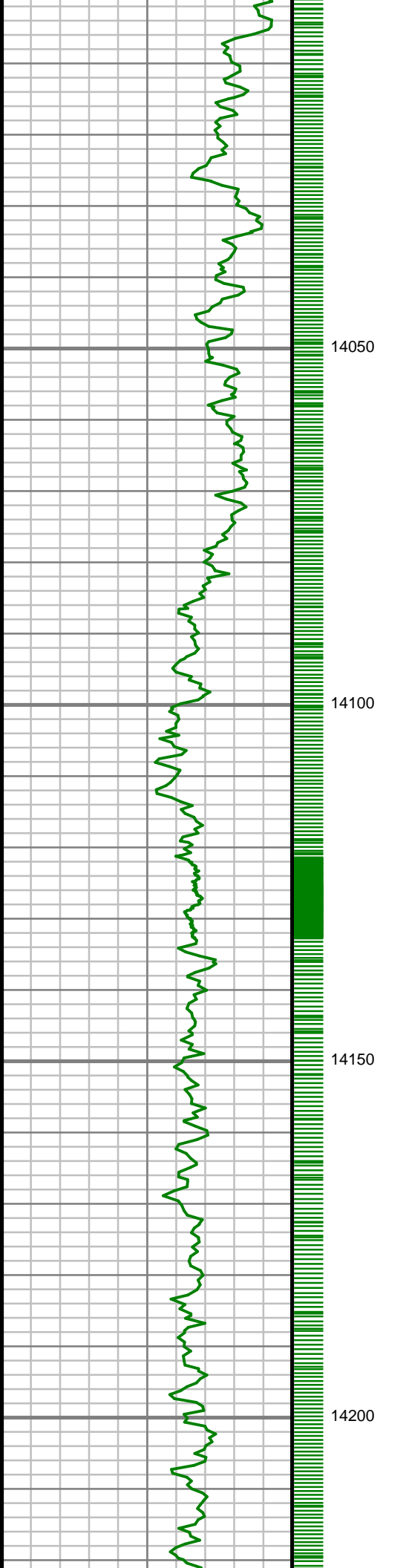
S: 146 MD: 13719.00 ft
Inc: 90.24 deg Az:
358.72 deg TVD:
7365.01 ft



S: 147 MD: 13813.00 ft
Inc: 88.79 deg Az:
358.94 deg TVD:
7365.80 ft

S: 148 MD: 13906.00 ft
Inc: 89.30 deg Az:
359.58 deg TVD:
7367.35 ft

S: 149 MD: 13999.00 ft



Inc: 90.00 deg Az: 0.26
deg TVD: 7367.92 ft

S: 150 MD: 14092.00 ft
Inc: 91.38 deg Az: 1.09
deg TVD: 7366.80 ft

S: 151 MD: 14186.00 ft
Inc: 89.56 deg Az: 0.88
deg TVD: 7366.03 ft

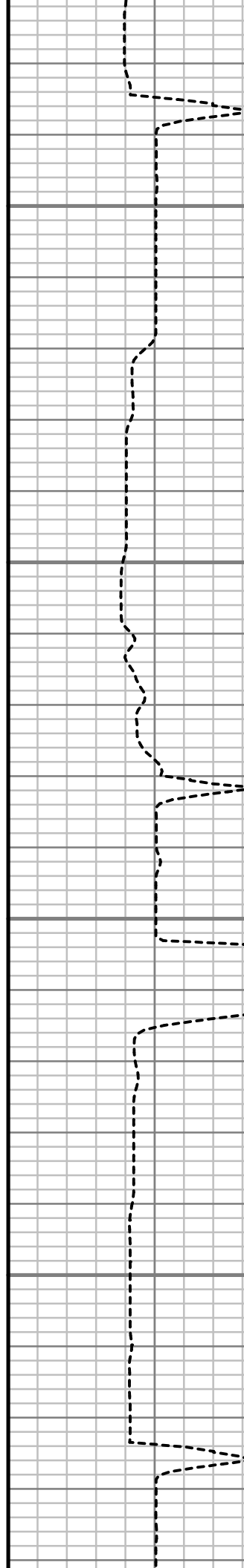


14250

14300

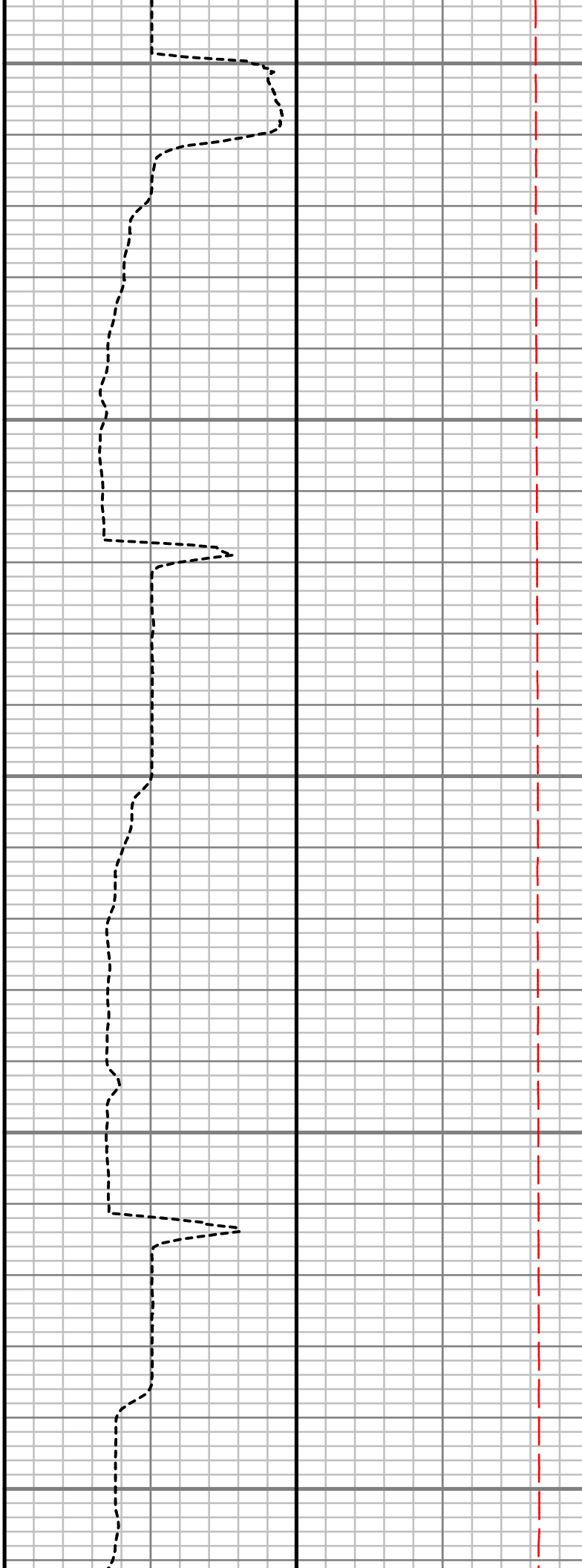
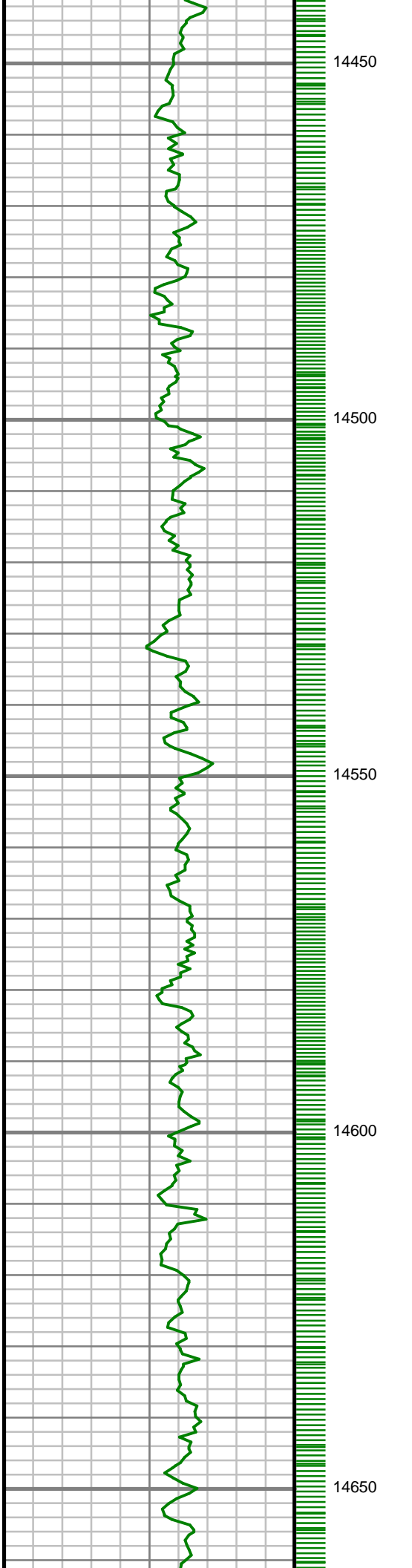
14350

14400



S: 152 MD: 14279.00 ft
Inc: 90.67 deg Az: 1.76
deg TVD: 7365.84 ft

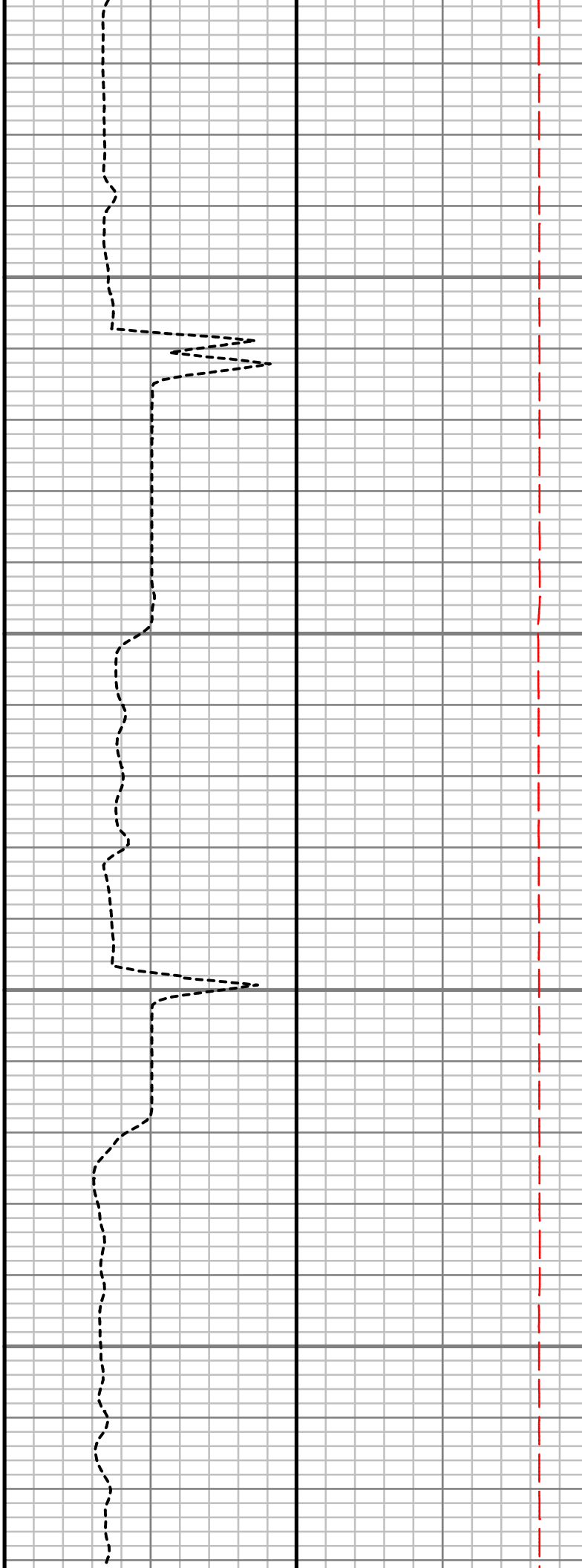
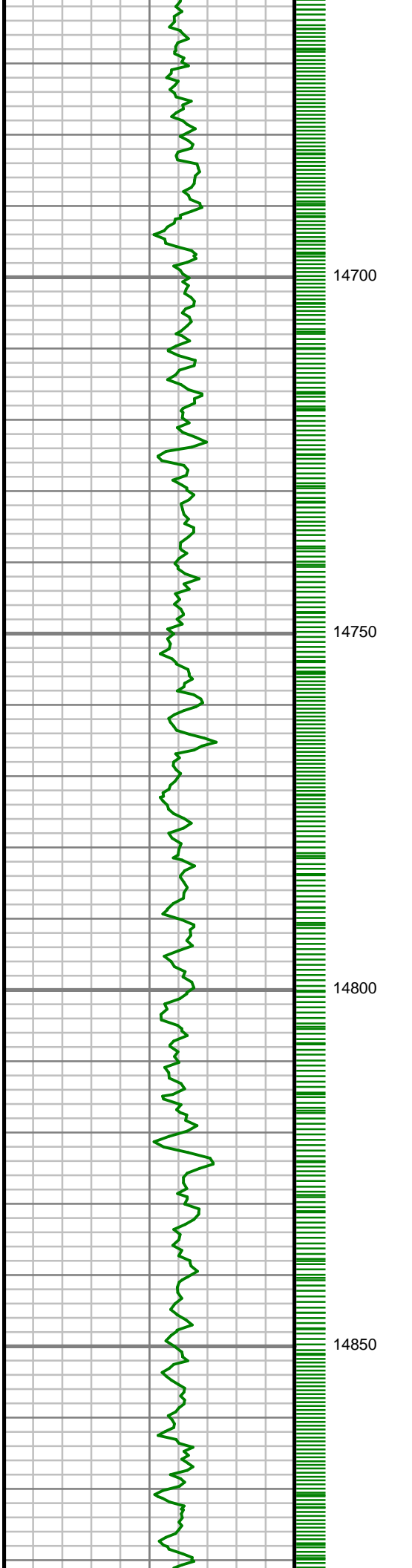
S: 153 MD: 14373.00 ft
Inc: 90.47 deg Az: 1.42
deg TVD: 7364.91 ft



S: 154 MD: 14467.00 ft
Inc: 90.03 deg Az: 0.79
deg TVD: 7364.50 ft

S: 155 MD: 14560.00 ft
Inc: 89.90 deg Az: 0.15
deg TVD: 7364.56 ft

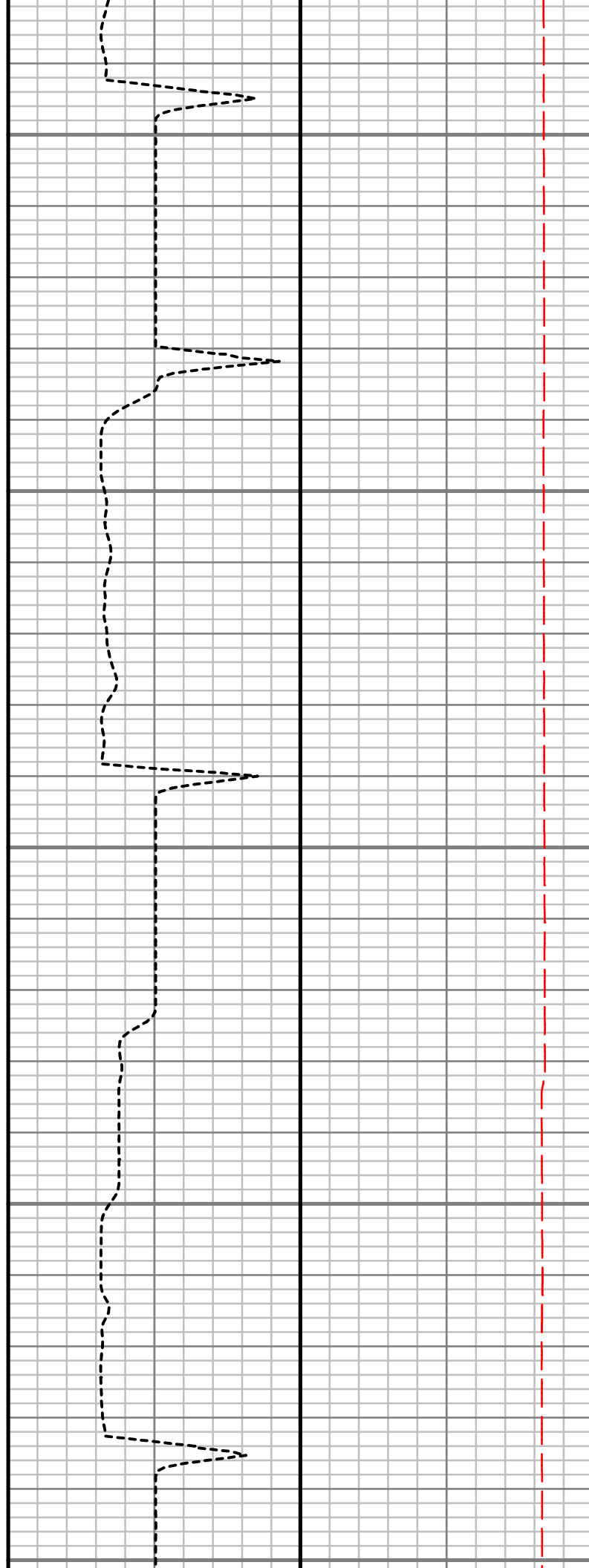
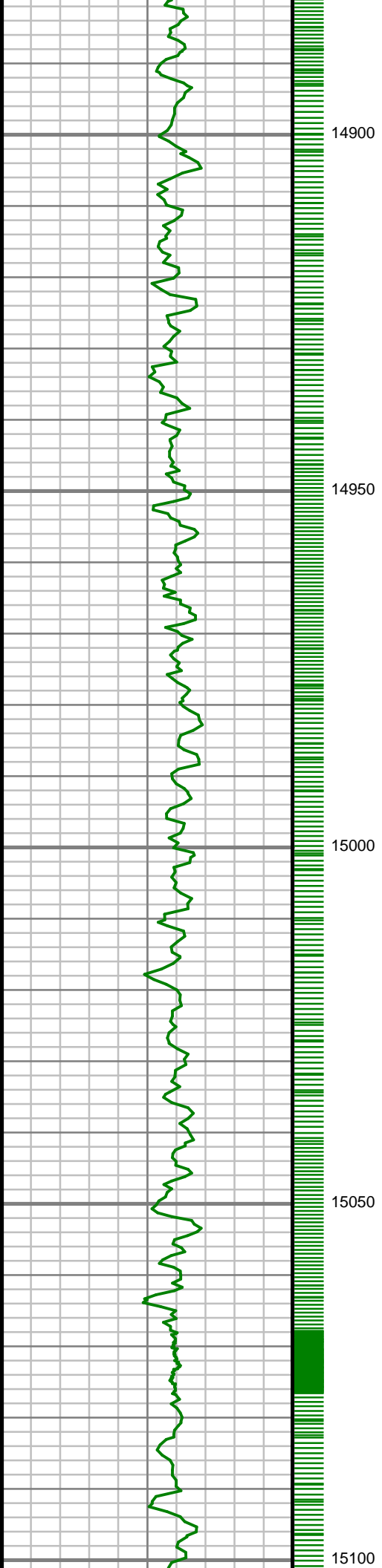
S: 156 MD: 14655.00 ft
Inc: 89.60 deg Az:
deg TVD:



S: 157 MD: 14750.00 ft
Inc: 90.03 deg Az:
359.38 deg TVD:
7364.97 ft

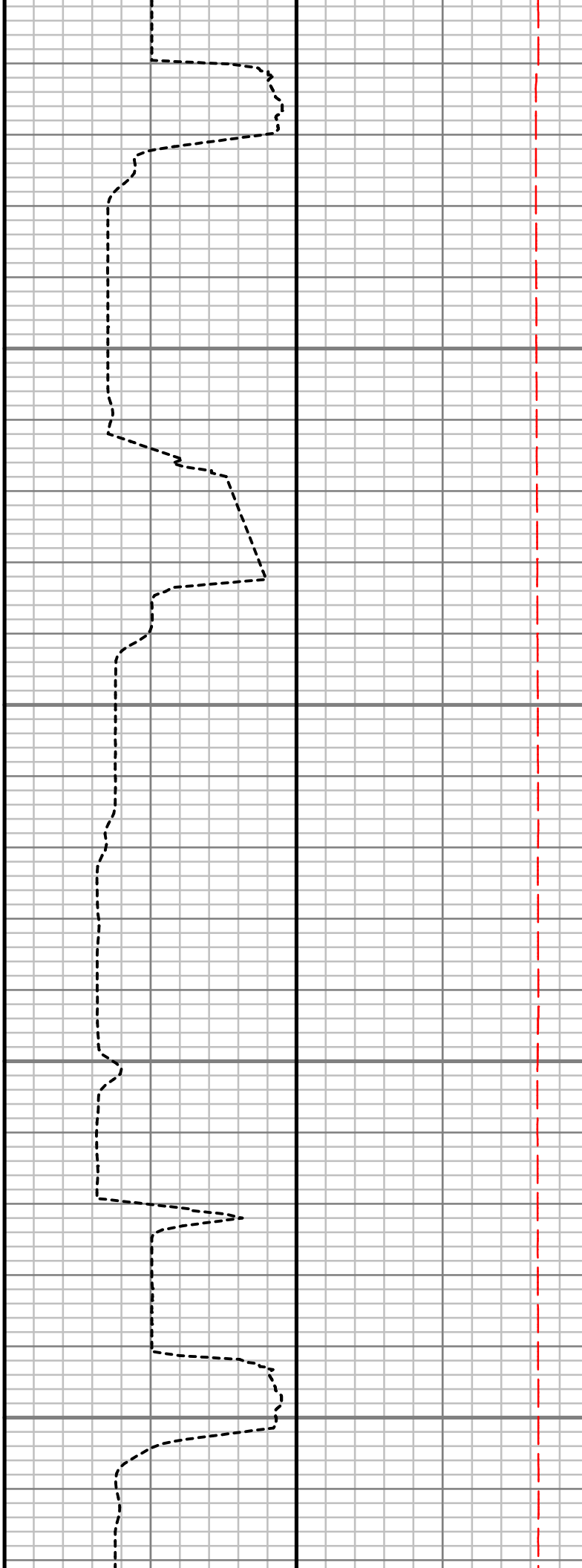
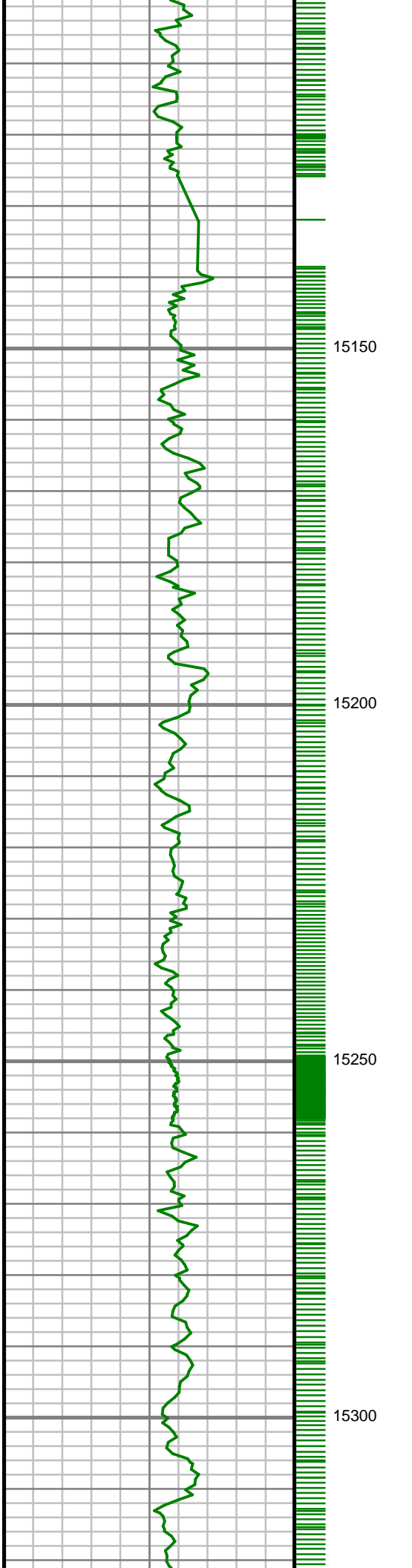
S: 157 MD: 14750.00 ft
Inc: 90.03 deg Az:
359.38 deg TVD:
7365.28 ft

S: 158 MD: 14843.00 ft
Inc: 90.67 deg Az:
359.63 deg TVD:
7364.71 ft



S: 159 MD: 14938.00 ft
Inc: 90.27 deg Az:
358.68 deg TVD:
7363.93 ft

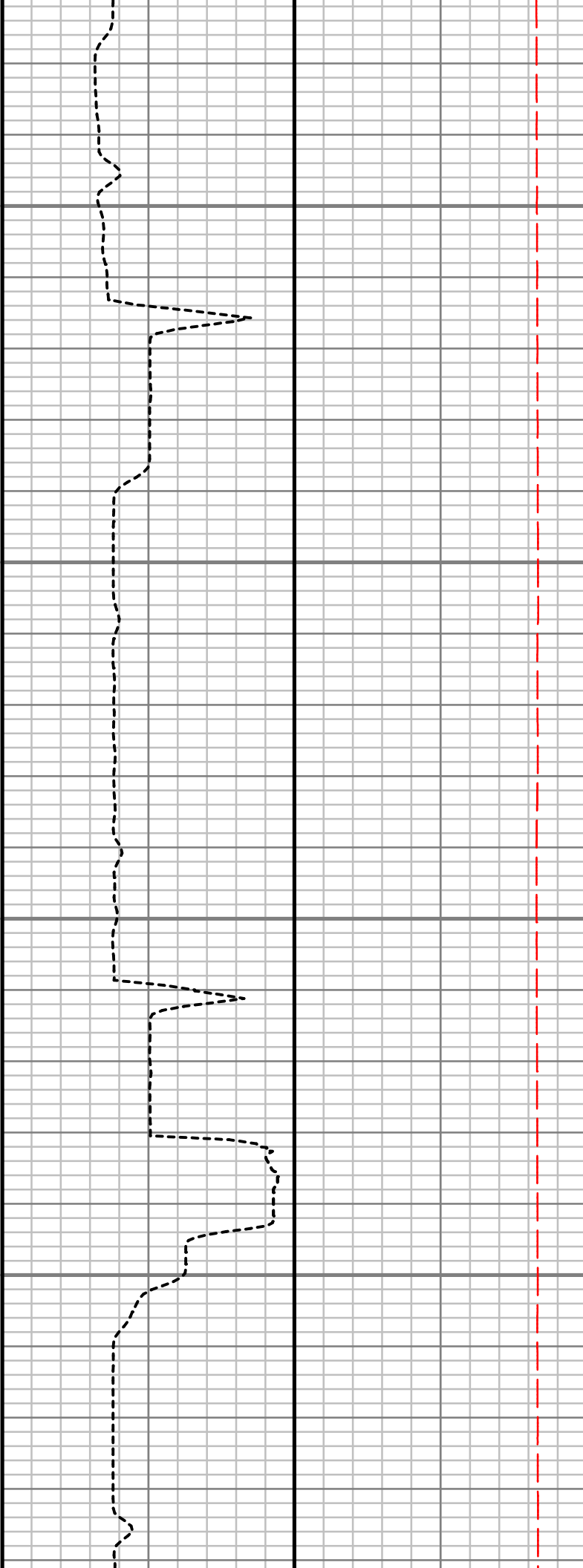
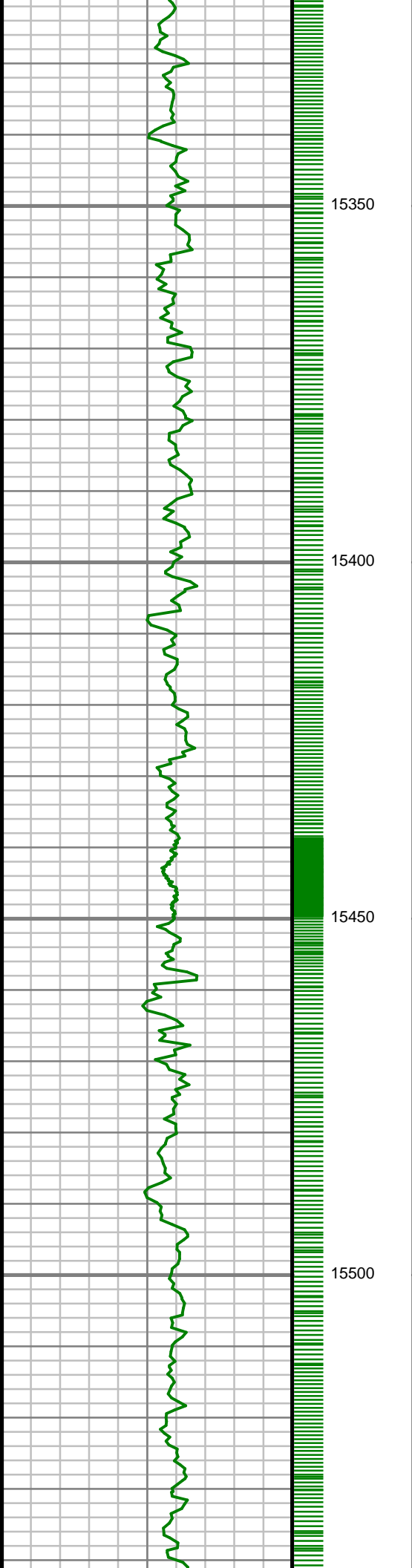
S: 160 MD: 15033.00 ft
Inc: 90.84 deg Az:
358.57 deg TVD:
7363.01 ft



S: 161 MD: 15128.00 ft
Inc: 90.20 deg Az:
358.94 deg TVD:
7362.15 ft

S: 162 MD: 15222.00 ft
Inc: 90.27 deg Az:
358.43 deg TVD:
7361.76 ft

S: 163 MD: 15316.00 ft
Inc: 89.73 deg Az:



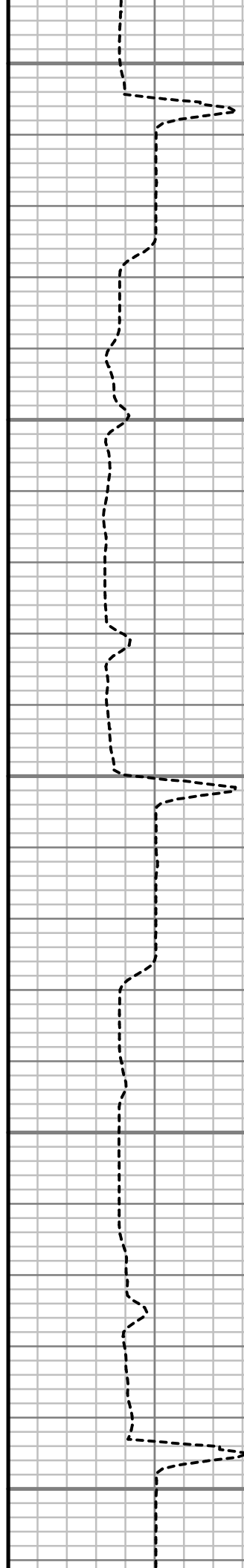
359.01 deg TVD:
7361.76 ft

S: 164 MD: 15410.00 ft
Inc: 90.44 deg Az:
359.48 deg TVD:
7361.62 ft

S: 165 MD: 15505.00 ft
Inc: 89.40 deg Az:
359.29 deg TVD:
7361.75 ft

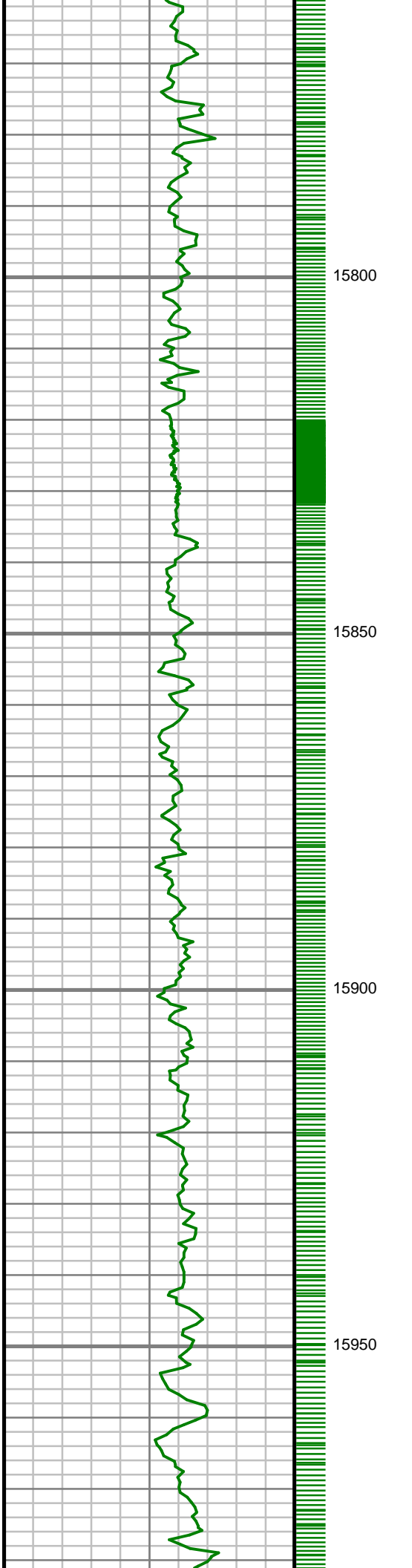


15550
15600
15650
15700
15750



S: 166 MD: 15600.00 ft
Inc: 89.56 deg Az:
359.42 deg TVD:
7362.62 ft

S: 167 MD: 15694.00 ft
Inc: 89.93 deg Az: 0.18
deg TVD: 7363.03 ft

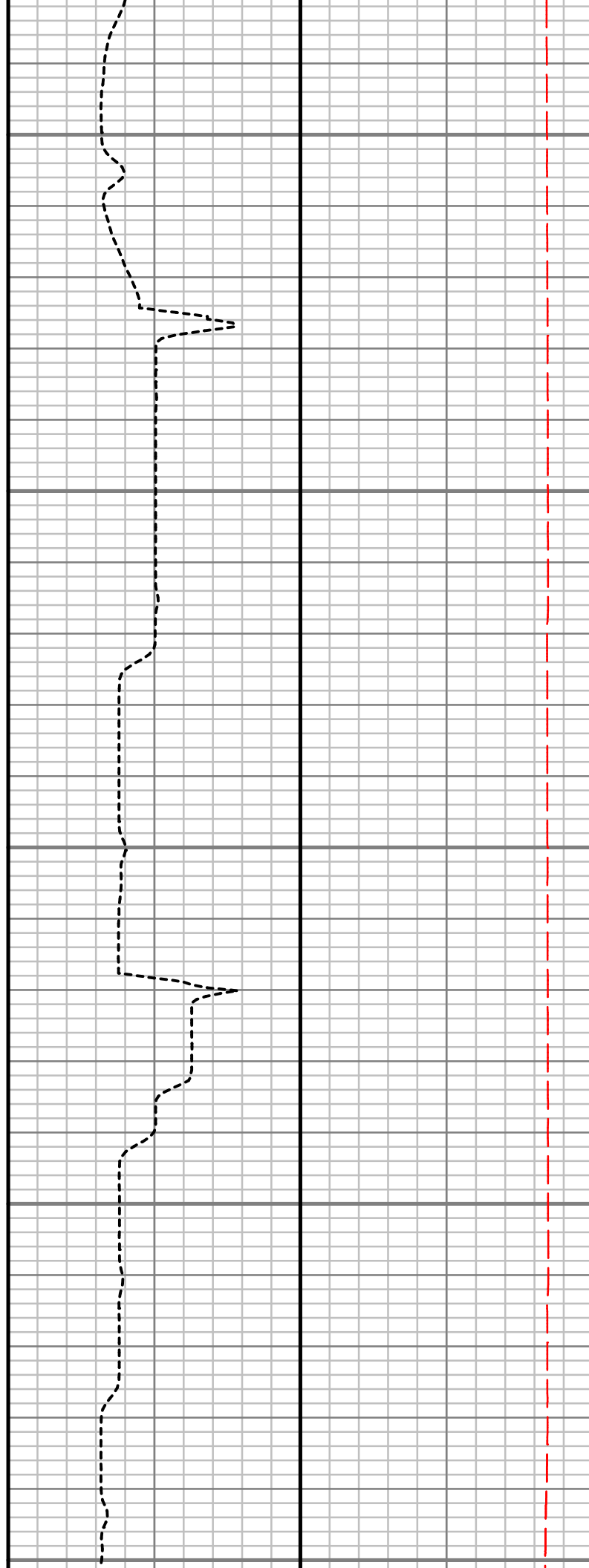
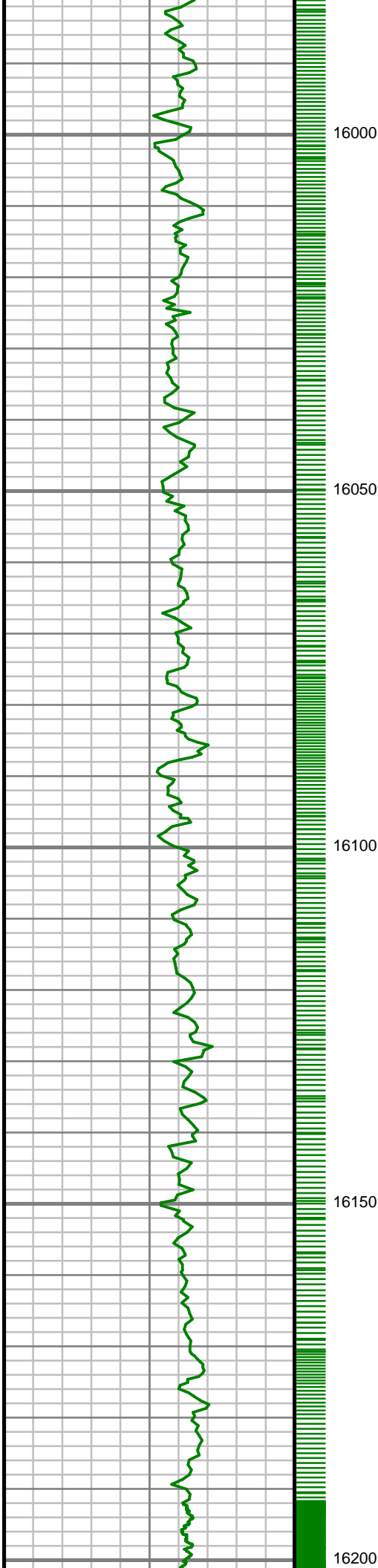


S: 168 MD: 15789.00 ft
Inc: 90.44 deg Az: 0.34
deg TVD: 7362.73 ft

S: 169 MD: 15883.00 ft
Inc: 88.89 deg Az: 0.38
deg TVD: 7363.28 ft

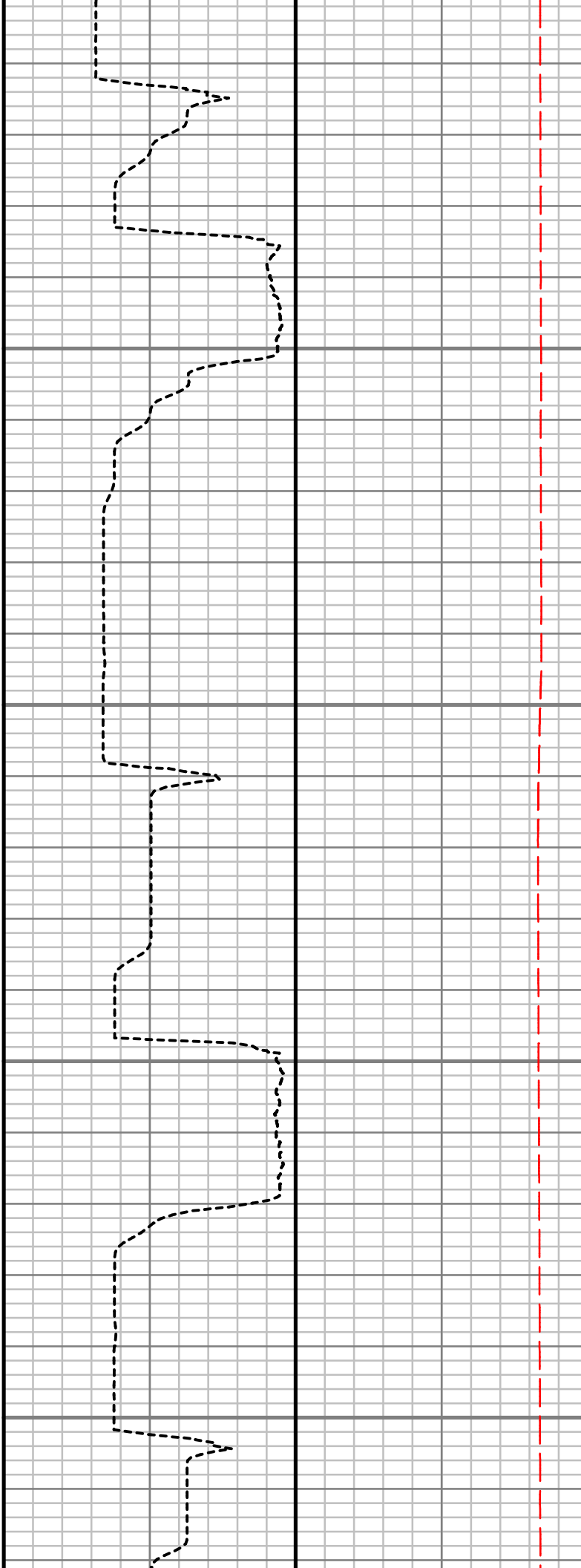
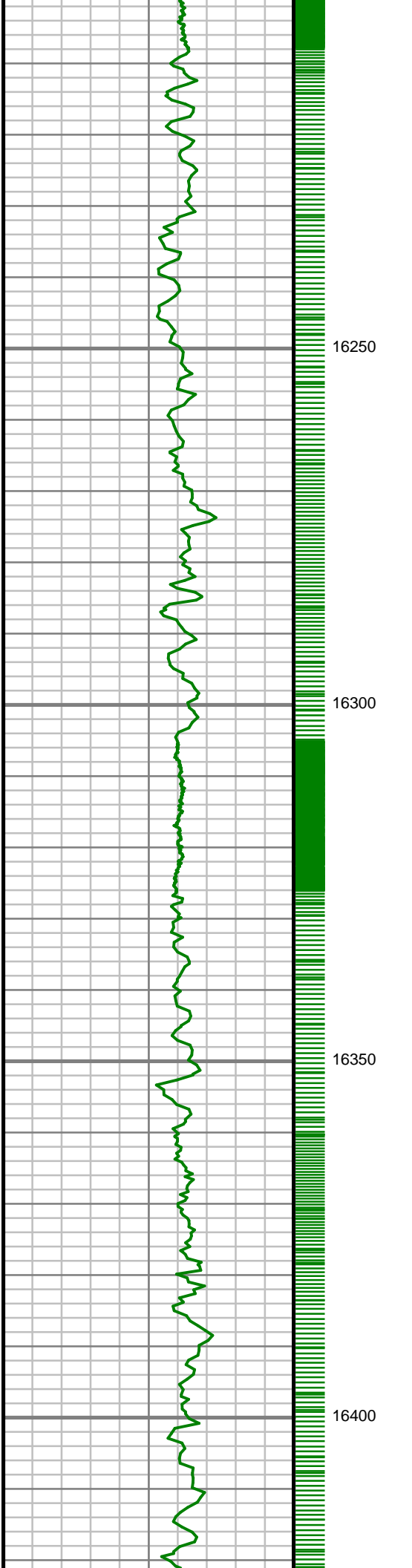
S: 170 MD: 15976.00 ft
Inc: 89.13 deg Az: 0.58

deg TVD: 7364.88 ft



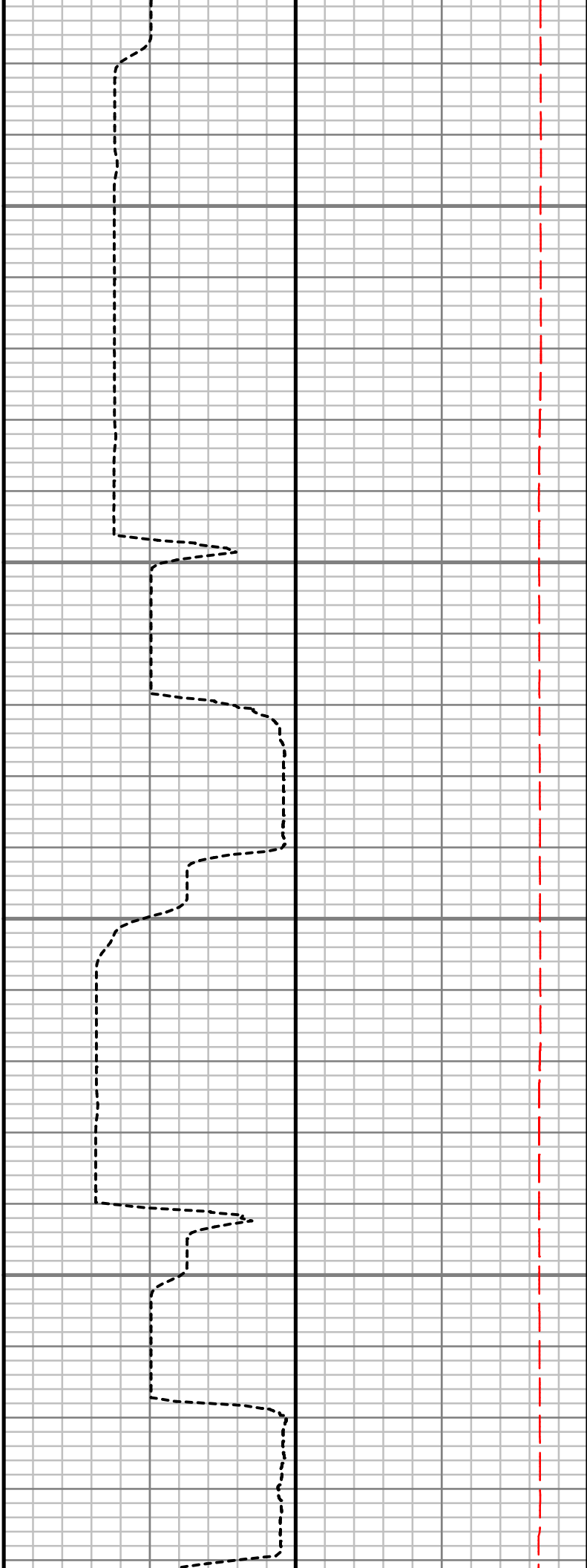
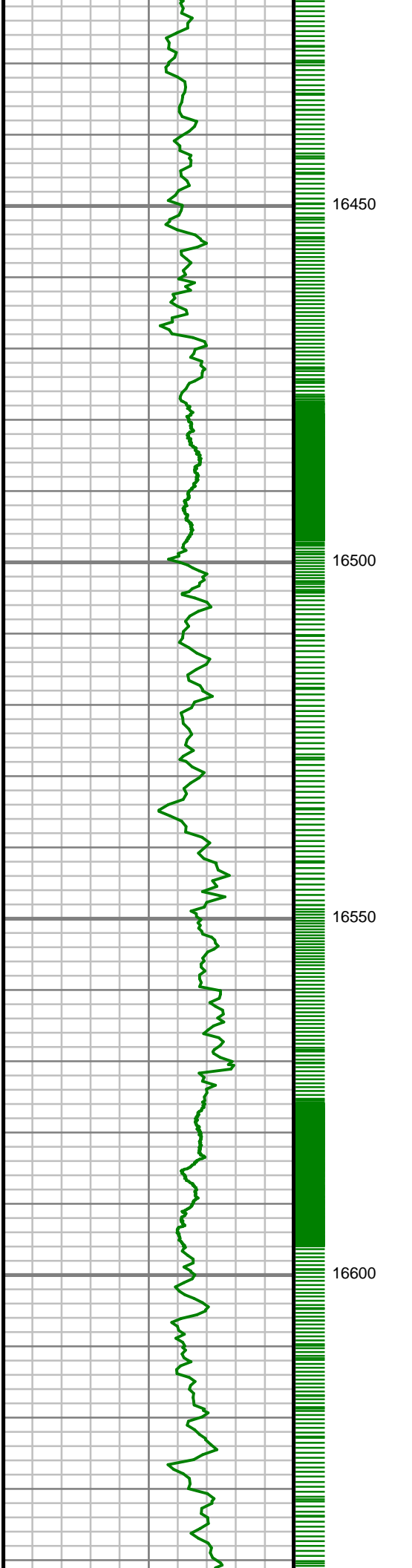
S: 171 MD: 16069.00 ft
Inc: 89.66 deg Az: 1.07
deg TVD: 7365.87 ft

S: 172 MD: 16162.00 ft
Inc: 90.24 deg Az: 2.12
deg TVD: 7365.95 ft



S: 173 MD: 16257.00 ft
Inc: 89.70 deg Az: 2.35
deg TVD: 7366.00 ft

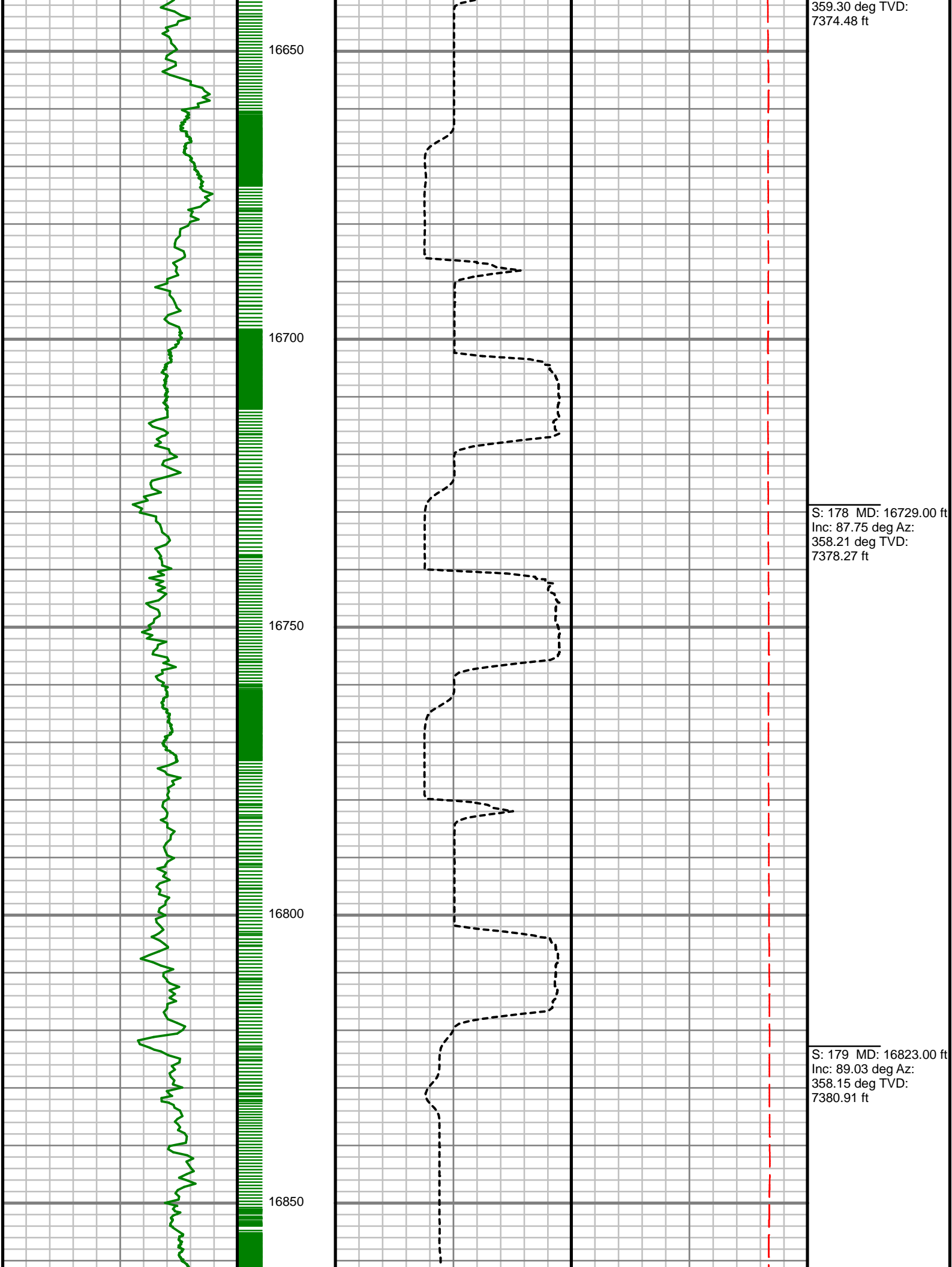
S: 174 MD: 16351.00 ft
Inc: 89.33 deg Az: 2.01
deg TVD: 7366.79 ft

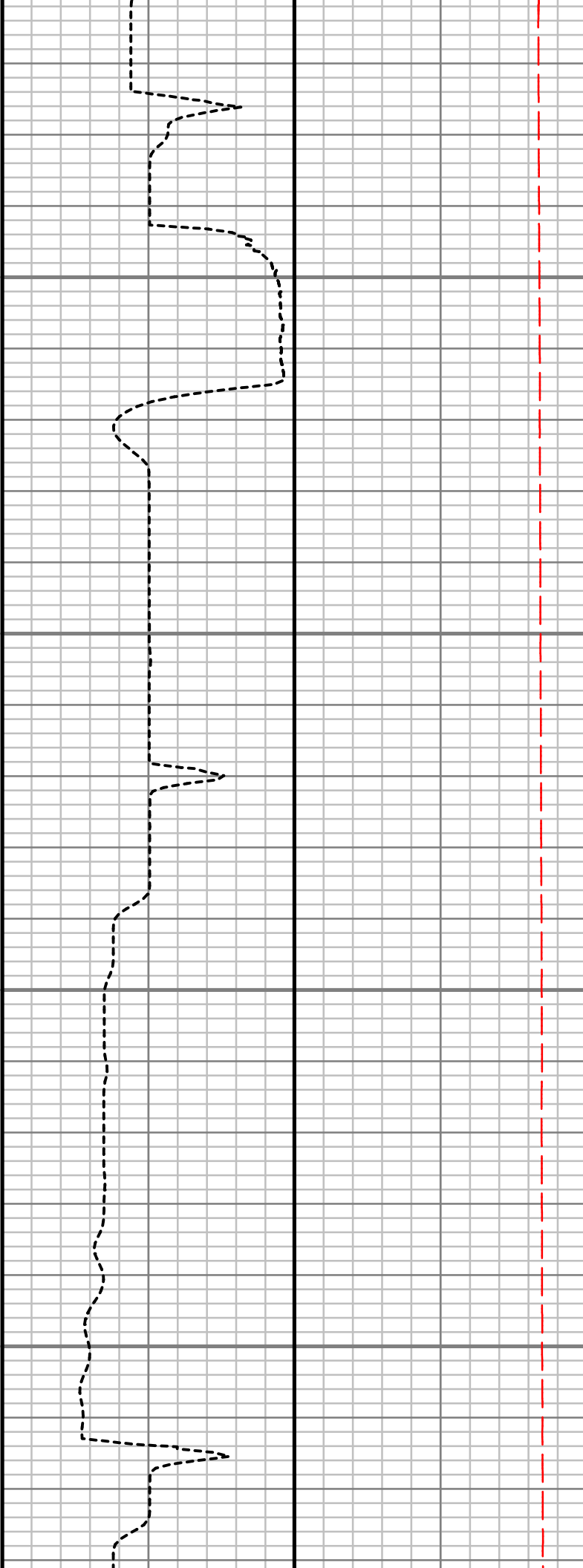
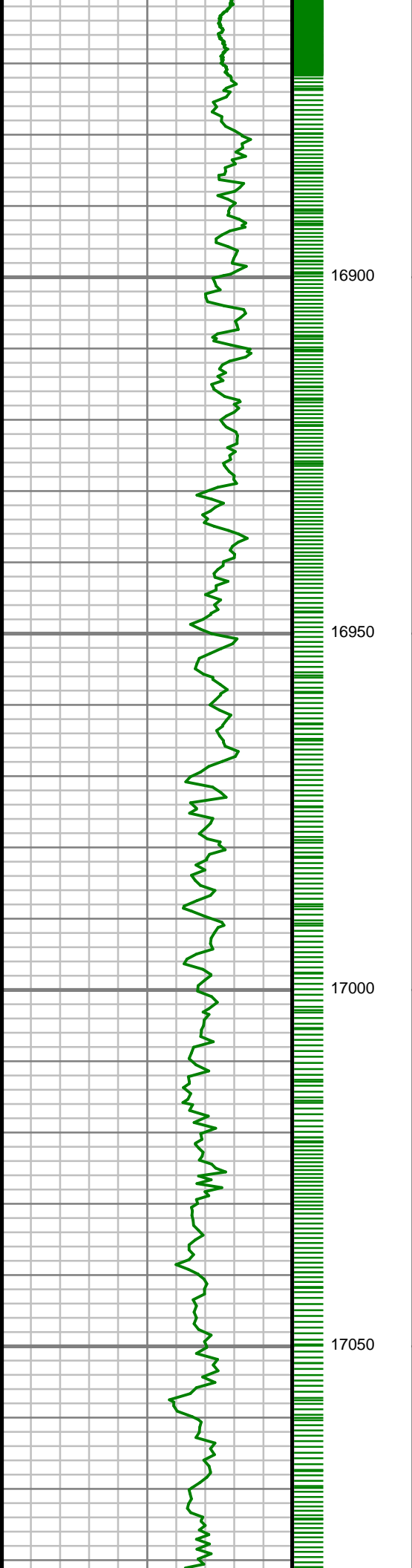


S: 175 MD: 16446.00 ft
Inc: 88.93 deg Az: 1.04
deg TVD: 7368.24 ft

S: 176 MD: 16541.00 ft
Inc: 87.98 deg Az: 0.34
deg TVD: 7370.80 ft

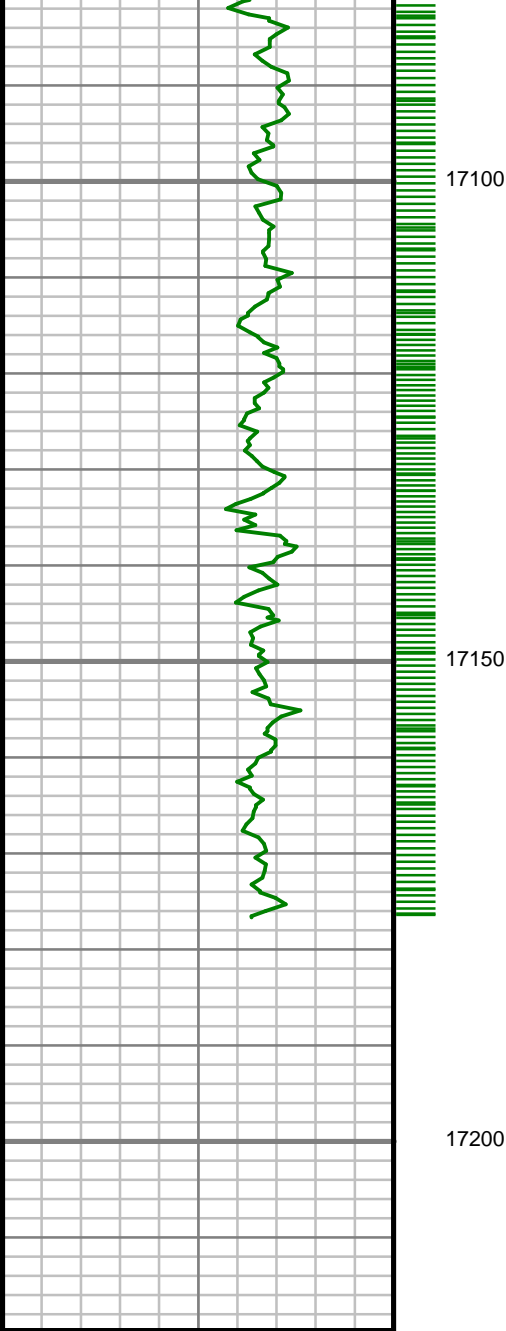
S: 177 MD: 16636.00 ft
Inc: 87.58 deg Az:





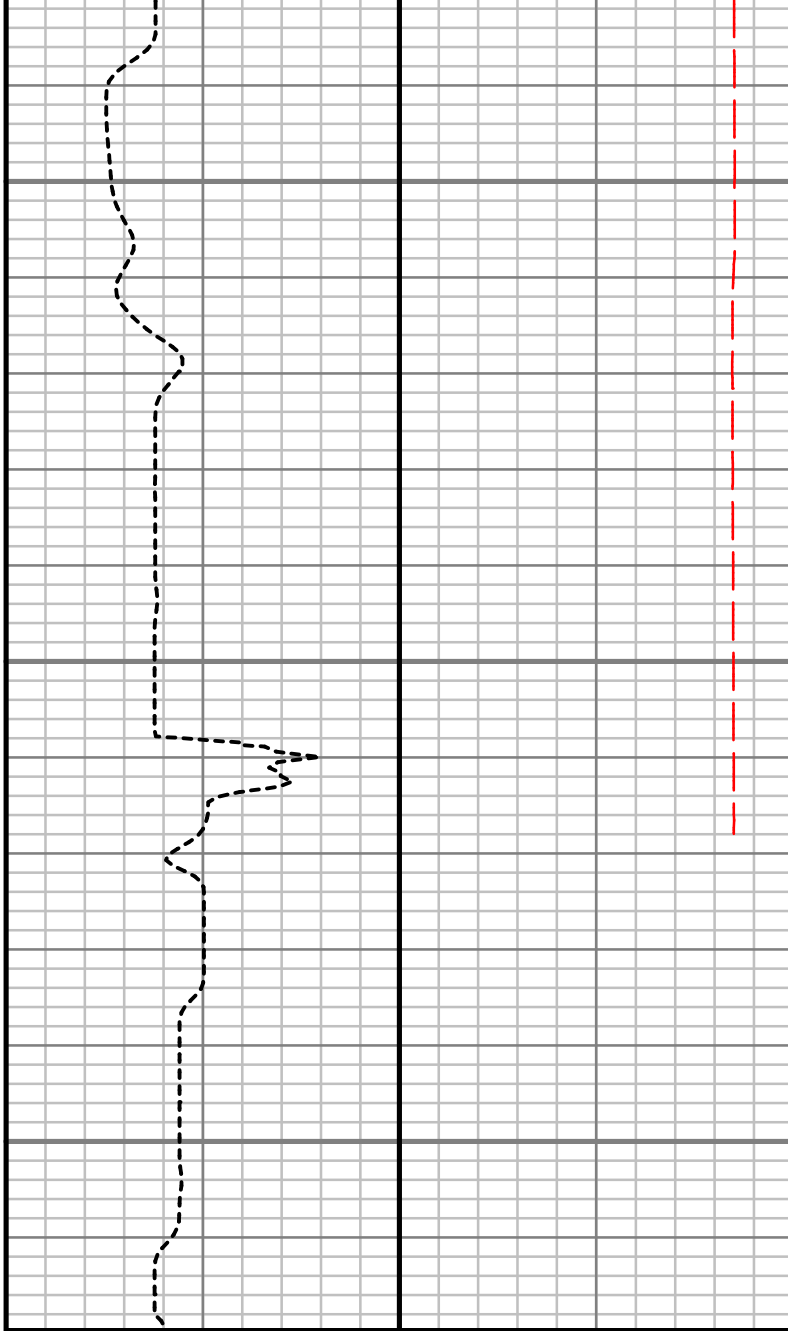
S: 180 MD: 16917.00 ft
Inc: 90.74 deg Az:
358.83 deg TVD:
7381.10 ft

S: 181 MD: 17010.00 ft
Inc: 91.18 deg Az:
359.32 deg TVD:
7379.54 ft



Gamma Ray (GR)		
0	Unit = aapi	150

MEASURED DEPTH
1:240 (ft)



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

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

Comments

S: 182 MD: 17105.00 ft
Inc: 91.78 deg Az: 0.55
deg TVD: 7377.08 ft

S: 183 MD: 17166.00 ft
Inc: 92.45 deg Az: 1.75
deg TVD: 7374.83 ft

CUSTOMER

PROJECT

FIELD

ANADARKO PETROLEUM CORPORATION

US ROCKIES WATTENBERG PLANING

UTM83

WHATTENBERG

WELL INFORMATION

Lat/Long

Northing

Easting

UWI

40.188346° N, 104.866147° W

14,595,347.16 ft

1,677,799.14 ft

05123441200000

MAP INFORMATION

North Reference

Grid Correction

System

Datum

Map Zone

True North

Universal Transverse Mercator (US Survey Feet)

North American Datum 1983 (GRS 1980)

Zone 13N (108 W to 102 W)

VERTICAL SECTION REFERENCE

+N/-S

+E/-W

Proposal Direction

Calculation Method

0 ft

0 ft

359.69°

Minimum Curvature

GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.059 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-17166 ft			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
205.00	0.37	252.63	205.00	-0.19	-0.20	-0.63	0.18
293.00	0.55	251.83	293.00	-0.41	-0.41	-1.30	0.20
382.00	0.98	235.15	381.99	-0.97	-0.98	-2.33	0.54
469.00	1.43	233.59	468.97	-2.03	-2.05	-3.82	0.52
555.00	2.05	230.92	554.93	-3.63	-3.66	-5.88	0.73
644.00	3.06	235.77	643.84	-5.95	-6.00	-9.08	1.16
733.00	4.30	232.97	732.65	-9.27	-9.34	-13.70	1.41
821.00	5.10	228.98	820.36	-13.79	-13.90	-19.29	0.98
910.00	6.35	231.06	908.91	-19.45	-19.59	-26.10	1.42
999.00	7.12	233.12	997.30	-25.81	-25.99	-34.34	0.91
1083.00	7.97	233.67	1080.57	-32.33	-32.57	-43.20	1.02
1170.00	8.74	230.66	1166.65	-40.04	-40.33	-53.17	1.02
1257.00	9.62	229.89	1252.53	-48.86	-49.20	-63.84	1.02
1345.00	9.35	229.05	1339.33	-58.22	-58.63	-74.86	0.34
1432.00	8.79	230.95	1425.24	-66.98	-67.45	-85.36	0.73
1519.00	8.31	230.33	1511.27	-75.13	-75.65	-95.37	0.56
1605.00	8.27	233.80	1596.37	-82.70	-83.27	-105.14	0.58
1694.00	9.10	232.75	1684.35	-90.68	-91.31	-115.91	0.95
1781.00	9.57	230.90	1770.20	-99.34	-100.03	-127.00	0.64

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1870.00	8.69	228.39	1858.07	-108.42	-109.16	-137.77	1.09
1958.00	9.06	232.57	1945.02	-116.99	-117.79	-148.24	0.84
2045.00	9.75	236.60	2030.85	-125.14	-126.01	-159.83	1.10
2134.00	10.18	234.77	2118.51	-133.76	-134.69	-172.54	0.60
2223.00	10.49	233.65	2206.06	-143.03	-144.03	-185.49	0.42
2281.00	10.91	232.33	2263.06	-149.46	-150.52	-194.09	0.84
2400.00	9.08	223.63	2380.25	-163.06	-164.20	-209.49	1.99
2494.00	8.51	222.97	2473.15	-173.47	-174.65	-219.35	0.62
2588.00	8.49	208.99	2566.12	-184.58	-185.81	-227.45	2.19
2682.00	7.21	201.45	2659.24	-196.11	-197.38	-232.97	1.74
2777.00	5.47	187.95	2753.66	-206.13	-207.41	-235.78	2.40
2870.00	4.41	171.55	2846.32	-214.06	-215.34	-235.86	1.89
2964.00	4.08	171.28	2940.06	-220.94	-222.22	-234.83	0.35
3057.00	3.44	169.30	3032.86	-226.96	-228.23	-233.81	0.70
3151.00	2.05	165.03	3126.75	-231.36	-232.62	-232.85	1.49
3245.00	2.34	212.11	3220.69	-234.61	-235.87	-233.43	1.89
3339.00	2.48	248.14	3314.61	-236.98	-238.26	-236.34	1.59
3432.00	2.72	264.22	3407.52	-237.92	-239.23	-240.41	0.82
3526.00	2.50	261.16	3501.42	-238.44	-239.77	-244.65	0.28
3621.00	1.35	209.22	3596.37	-239.72	-241.06	-247.24	2.08

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3715.00	1.48	218.91	3690.34	-241.63	-242.97	-248.55	0.29
3810.00	1.38	229.13	3785.31	-243.32	-244.68	-250.18	0.29
3903.00	1.75	227.62	3878.28	-245.00	-246.37	-252.08	0.40
3998.00	1.67	229.54	3973.24	-246.86	-248.24	-254.20	0.10
4093.00	0.67	243.28	4068.22	-248.00	-249.39	-255.75	1.09
4186.00	1.35	249.18	4161.20	-248.63	-250.03	-257.26	0.74
4281.00	1.23	238.66	4256.18	-249.55	-250.95	-259.18	0.28
4376.00	0.71	158.76	4351.17	-250.62	-252.03	-259.84	1.38
4471.00	0.17	38.59	4446.16	-251.06	-252.47	-259.54	0.85
4566.00	0.61	359.73	4541.16	-250.45	-251.86	-259.45	0.52
4659.00	0.48	259.77	4634.16	-250.02	-251.43	-259.84	0.90
4753.00	0.63	221.53	4728.15	-250.47	-251.89	-260.57	0.42
4847.00	2.25	90.11	4822.13	-250.87	-252.28	-259.06	2.88
4942.00	2.42	78.72	4917.05	-250.50	-251.89	-255.23	0.52
5037.00	1.90	78.71	5011.99	-249.82	-251.19	-251.72	0.55
5131.00	1.28	69.80	5105.95	-249.17	-250.52	-249.21	0.71
5253.00	0.93	53.03	5227.93	-248.11	-249.45	-247.14	0.39
5347.00	0.24	23.83	5321.92	-247.48	-248.81	-246.45	0.78
5440.00	0.34	282.00	5414.92	-247.24	-248.58	-246.64	0.49
5533.00	0.48	247.50	5507.92	-247.33	-248.67	-247.27	0.30

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5628.00	0.72	239.99	5602.91	-247.78	-249.12	-248.15	0.27
5722.00	0.98	243.14	5696.90	-248.43	-249.78	-249.38	0.28
5816.00	1.44	226.12	5790.88	-249.60	-250.96	-250.95	0.62
5911.00	0.80	207.77	5885.86	-251.01	-252.38	-252.12	0.76
6005.00	0.37	218.52	5979.86	-251.82	-253.19	-252.61	0.47
6100.00	0.36	266.64	6074.86	-252.08	-253.45	-253.10	0.31
6195.00	0.50	282.46	6169.86	-252.00	-253.38	-253.81	0.19
6290.00	0.64	274.69	6264.85	-251.87	-253.25	-254.74	0.17
6384.00	0.78	279.48	6358.84	-251.71	-253.10	-255.89	0.16
6478.00	1.06	290.37	6452.83	-251.30	-252.69	-257.34	0.35
6571.00	1.31	291.77	6545.81	-250.59	-252.00	-259.13	0.27
6665.00	6.00	1.21	6639.62	-245.27	-246.68	-260.03	6.04
6758.00	13.92	2.90	6731.14	-229.22	-230.63	-259.36	8.52
6853.00	20.05	1.79	6821.96	-201.51	-202.91	-258.27	6.46
6947.00	27.09	8.29	6908.07	-164.19	-165.57	-254.68	7.97
7040.00	35.55	6.15	6987.45	-116.30	-117.65	-248.72	9.17
7134.00	44.87	3.92	7059.16	-55.94	-57.26	-243.51	10.03
7229.00	50.49	357.00	7123.14	14.19	12.87	-243.14	7.99
7323.00	57.37	356.32	7178.45	90.01	88.67	-247.58	7.34
7418.00	61.99	359.79	7226.41	171.95	170.59	-250.30	5.79

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7512.00	64.88	359.15	7268.44	256.01	254.66	-251.09	3.13
7606.00	70.00	358.90	7304.49	342.78	341.42	-252.57	5.45
7701.00	76.64	0.04	7331.75	433.73	432.37	-253.39	7.08
7795.00	84.93	1.09	7346.79	526.43	525.07	-252.47	8.89
7889.00	88.56	0.25	7352.12	620.24	618.89	-251.37	3.96
7983.00	90.27	359.82	7353.08	714.23	712.88	-251.32	1.88
8077.00	91.84	0.44	7351.35	808.21	806.87	-251.10	1.80
8171.00	91.88	359.65	7348.30	902.16	900.81	-251.03	0.84
8265.00	91.07	359.07	7345.88	996.13	994.78	-252.08	1.06
8357.00	89.50	358.44	7345.43	1088.11	1086.75	-254.08	1.84
8452.00	89.46	357.78	7346.29	1183.07	1181.69	-257.21	0.70
8546.00	89.30	358.54	7347.30	1277.03	1275.64	-260.23	0.83
8641.00	89.80	358.92	7348.05	1372.01	1370.61	-262.33	0.66
8735.00	88.22	357.31	7349.68	1465.96	1464.54	-265.42	2.40
8830.00	88.96	358.71	7352.01	1560.88	1559.45	-268.72	1.67
8924.00	90.07	359.69	7352.81	1654.87	1653.44	-270.03	1.58
9018.00	90.94	0.17	7351.98	1748.87	1747.43	-270.15	1.06
9114.00	89.77	0.04	7351.39	1844.86	1843.43	-269.97	1.23
9207.00	90.13	359.01	7351.47	1937.86	1936.42	-270.74	1.17
9302.00	88.86	358.03	7352.30	2032.83	2031.39	-273.20	1.69

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9395.00	89.13	359.21	7353.94	2125.80	2124.34	-275.44	1.30
9489.00	91.04	359.87	7353.80	2219.80	2218.34	-276.19	2.15
9583.00	91.01	359.73	7352.11	2313.78	2312.32	-276.52	0.15
9678.00	88.46	358.75	7352.55	2408.77	2407.30	-277.78	2.88
9772.00	89.23	359.14	7354.45	2502.74	2501.27	-279.51	0.92
9866.00	90.84	359.35	7354.39	2596.73	2595.25	-280.75	1.73
9961.00	89.90	359.38	7353.78	2691.73	2690.24	-281.80	0.99
10055.00	89.03	358.95	7354.66	2785.72	2784.23	-283.17	1.03
10150.00	90.91	359.15	7354.70	2880.71	2879.21	-284.75	1.99
10245.00	88.96	358.07	7354.81	2975.69	2974.18	-287.05	2.35
10340.00	87.98	357.67	7357.35	3070.60	3069.08	-290.58	1.11
10434.00	89.09	358.81	7359.75	3164.54	3163.00	-293.47	1.69
10528.00	90.07	359.12	7360.44	3258.53	3256.98	-295.16	1.09
10621.00	90.84	359.87	7359.70	3351.52	3349.97	-295.98	1.16
10715.00	90.23	359.50	7358.83	3445.52	3443.97	-296.50	0.76
10808.00	90.94	359.54	7357.88	3538.51	3536.96	-297.28	0.76
10900.00	89.80	359.77	7357.28	3630.51	3628.95	-297.83	1.26
10993.00	90.64	359.15	7356.92	3723.51	3721.95	-298.71	1.12
11085.00	89.90	359.92	7356.49	3815.51	3813.94	-299.46	1.16
11178.00	90.03	0.01	7356.55	3908.50	3906.94	-299.51	0.17

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11272.00	90.47	359.82	7356.14	4002.50	4000.94	-299.65	0.51
11365.00	91.11	0.17	7354.86	4095.49	4093.93	-299.66	0.78
11460.00	89.73	359.76	7354.16	4190.49	4188.93	-299.72	1.52
11553.00	90.13	359.39	7354.27	4283.48	4281.92	-300.41	0.59
11647.00	89.19	0.24	7354.83	4377.48	4375.92	-300.71	1.35
11741.00	89.50	0.56	7355.90	4471.47	4469.91	-300.06	0.47
11836.00	90.03	0.91	7356.29	4566.45	4564.90	-298.84	0.67
11930.00	90.13	0.57	7356.16	4660.43	4658.89	-297.62	0.38
12024.00	90.40	0.76	7355.73	4754.42	4752.88	-296.53	0.35
12118.00	90.67	1.09	7354.85	4848.39	4846.87	-295.01	0.45
12212.00	88.86	0.20	7355.24	4942.37	4940.86	-293.96	2.15
12307.00	89.26	0.15	7356.79	5037.36	5035.84	-293.67	0.42
12401.00	89.93	1.41	7357.46	5131.34	5129.83	-292.39	1.52
12496.00	90.54	2.01	7357.07	5226.28	5224.79	-289.55	0.90
12590.00	89.93	1.39	7356.68	5320.22	5318.74	-286.76	0.93
12685.00	90.10	0.16	7356.66	5415.20	5413.73	-285.48	1.31
12779.00	90.57	0.12	7356.11	5509.19	5507.73	-285.25	0.50
12874.00	90.94	0.38	7354.86	5604.18	5602.72	-284.83	0.48
12967.00	88.39	358.64	7355.40	5697.17	5695.70	-285.63	3.32
13061.00	86.78	356.47	7359.36	5791.01	5789.53	-289.63	2.87

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
13154.00	87.92	358.03	7363.66	5883.82	5882.32	-294.09	2.08
13248.00	88.89	358.86	7366.28	5977.76	5976.24	-296.64	1.36
13342.00	89.83	359.86	7367.33	6071.75	6070.23	-297.69	1.46
13436.00	91.61	1.49	7366.15	6165.72	6164.21	-296.58	2.57
13530.00	89.97	359.57	7364.85	6259.70	6258.19	-295.71	2.69
13624.00	89.80	358.57	7365.04	6353.69	6352.17	-297.24	1.08
13719.00	90.24	358.72	7365.01	6448.67	6447.15	-299.49	0.49
13813.00	88.79	358.94	7365.80	6542.66	6541.12	-301.41	1.56
13906.00	89.30	359.58	7367.35	6635.64	6634.10	-302.61	0.88
13999.00	90.00	0.26	7367.92	6728.64	6727.10	-302.74	1.05
14092.00	91.38	1.09	7366.80	6821.61	6820.08	-301.64	1.73
14186.00	89.56	0.88	7366.03	6915.58	6914.06	-300.03	1.95
14279.00	90.67	1.76	7365.84	7008.54	7007.03	-297.88	1.52
14373.00	90.47	1.42	7364.91	7102.48	7100.99	-295.27	0.42
14467.00	90.03	0.79	7364.50	7196.45	7194.97	-293.46	0.82
14560.00	89.90	0.15	7364.56	7289.45	7287.97	-292.70	0.70
14655.00	89.60	359.51	7364.97	7384.44	7382.97	-292.98	0.74
14750.00	90.03	359.38	7365.28	7479.44	7477.96	-293.90	0.47
14843.00	90.67	359.63	7364.71	7572.44	7570.96	-294.70	0.74
14938.00	90.27	358.68	7363.93	7667.43	7665.94	-296.11	1.08

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
15033.00	90.84	358.57	7363.01	7762.41	7760.91	-298.39	0.61
15128.00	90.20	358.94	7362.15	7857.39	7855.88	-300.45	0.78
15222.00	90.27	358.43	7361.76	7951.38	7949.86	-302.61	0.55
15316.00	89.73	359.01	7361.76	8045.36	8043.83	-304.71	0.84
15410.00	90.44	359.48	7361.62	8139.36	8137.82	-305.94	0.91
15505.00	89.40	359.29	7361.75	8234.36	8232.82	-306.96	1.11
15600.00	89.56	359.42	7362.62	8329.35	8327.81	-308.03	0.22
15694.00	89.93	0.18	7363.03	8423.35	8421.80	-308.36	0.90
15789.00	90.44	0.34	7362.73	8518.34	8516.80	-307.93	0.56
15883.00	88.89	0.38	7363.28	8612.33	8610.79	-307.34	1.65
15976.00	89.13	0.58	7364.88	8705.31	8703.78	-306.56	0.34
16069.00	89.66	1.07	7365.87	8798.28	8796.76	-305.22	0.78
16162.00	90.24	2.12	7365.95	8891.23	8889.72	-302.63	1.29
16257.00	89.70	2.35	7366.00	8986.14	8984.65	-298.93	0.62
16351.00	89.33	2.01	7366.79	9080.05	9078.58	-295.35	0.53
16446.00	88.93	1.04	7368.24	9174.98	9173.53	-292.83	1.10
16541.00	87.98	0.34	7370.80	9269.93	9268.49	-291.68	1.24
16636.00	87.58	359.30	7374.48	9364.86	9363.42	-291.98	1.17
16729.00	87.75	358.21	7378.27	9457.77	9456.32	-294.00	1.19
16823.00	89.03	358.15	7380.91	9551.70	9550.23	-296.98	1.36

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
16917.00	90.74	358.83	7381.10	9645.67	9644.19	-299.46	1.96
17010.00	91.18	359.32	7379.54	9738.65	9737.17	-300.96	0.71
17105.00	91.78	0.55	7377.08	9833.62	9832.13	-301.07	1.44
17166.00	92.45	1.75	7374.83	9894.56	9893.08	-299.85	2.25

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

5" = 100' MD