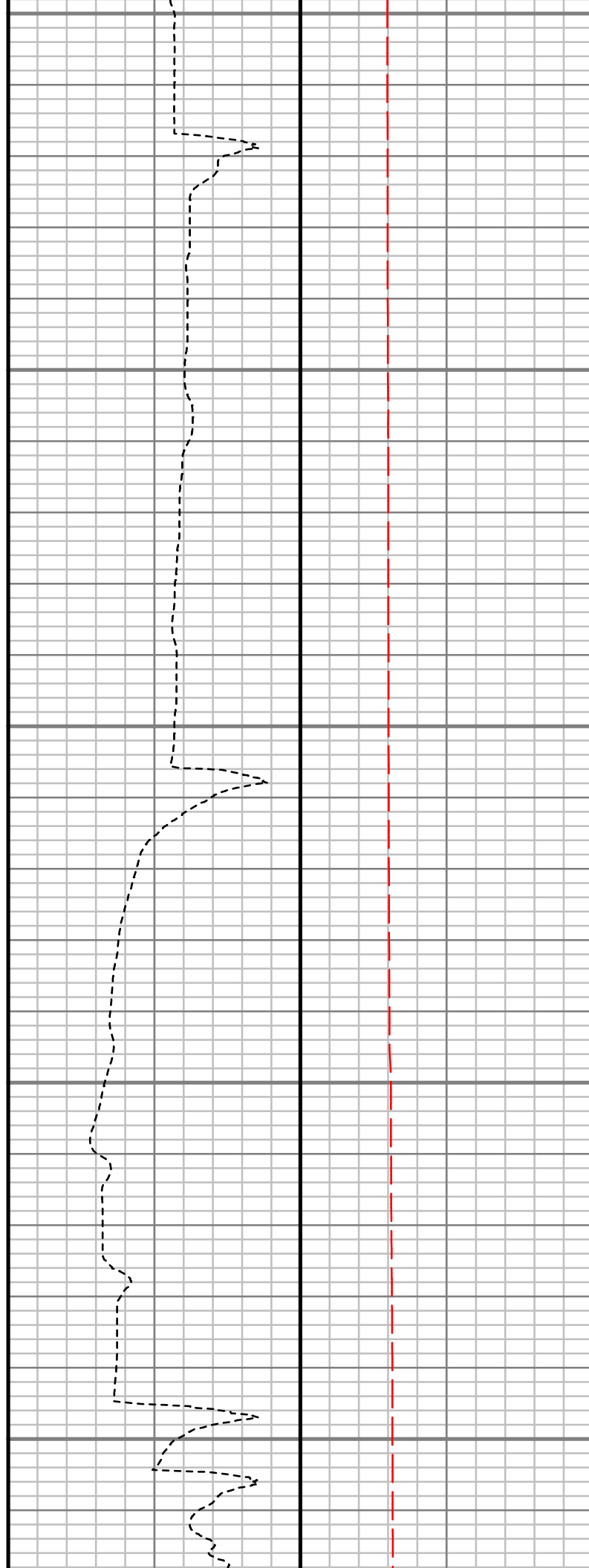
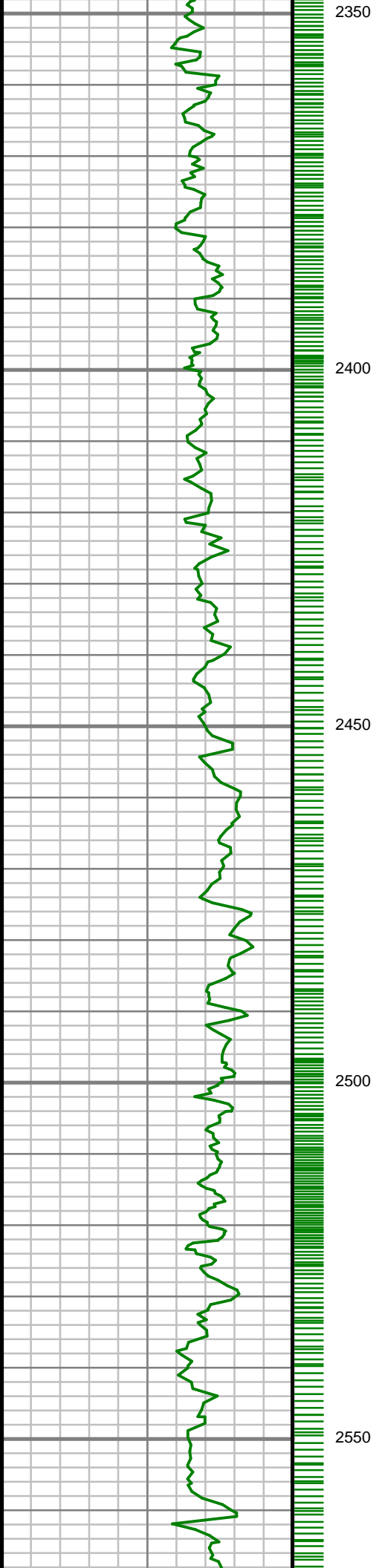


[illegible]

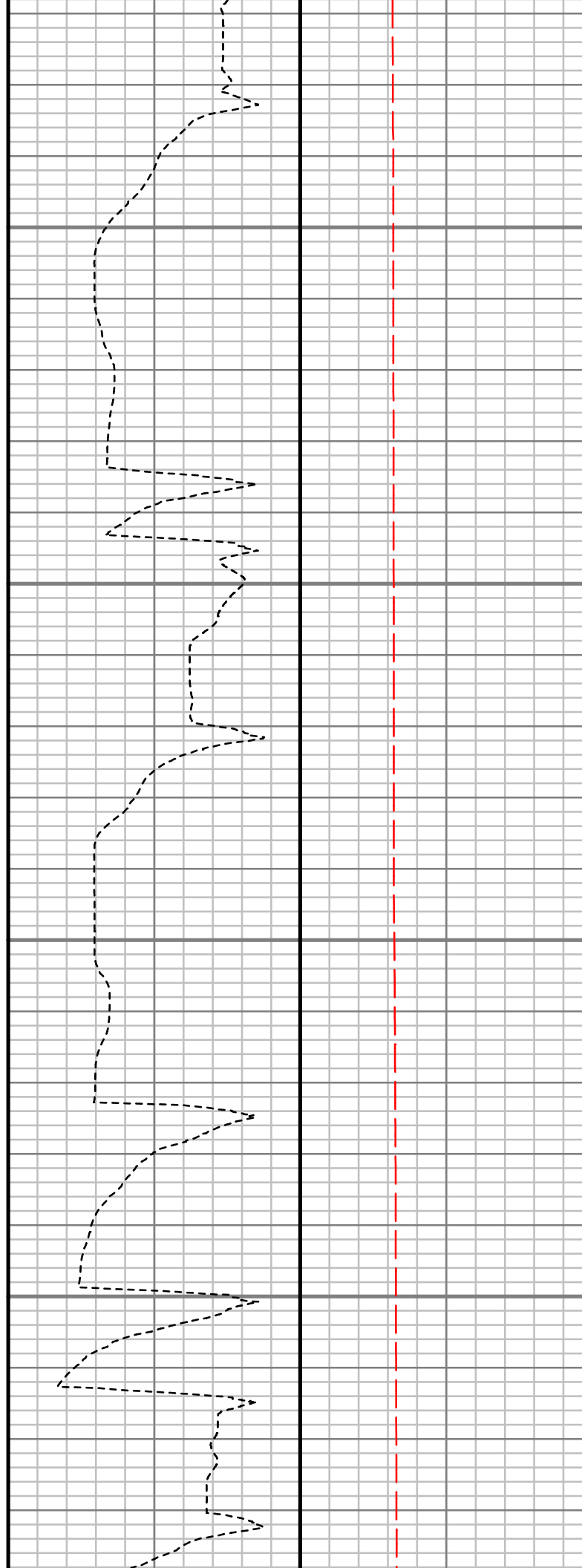
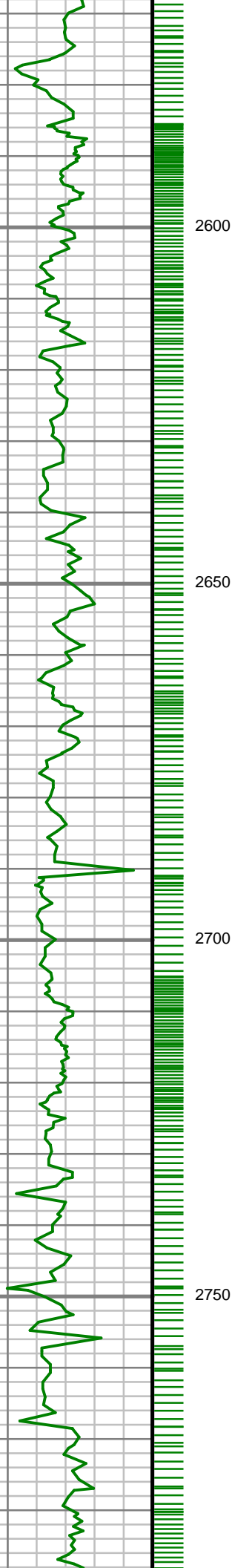
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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 E&P ONSHORE LLC HERGENREDER 6N-4HZ WATTENBERG FIELD WELD COUNTY, COLORADO API # 05123458630000			
Gamma Ray (GR) 0 Unit = aapi 150	MEASURED DEPTH 1:240 (ft)	Rate of Penetration (ROP) 1000 Unit = ft/hr 0	Tool Temperature (TEMP) 0 Unit = °F 300
S: 68 MD: 2311.00 ft Inc: 19.26 deg Az: 73.19 deg TVD: 2247.57 ft			



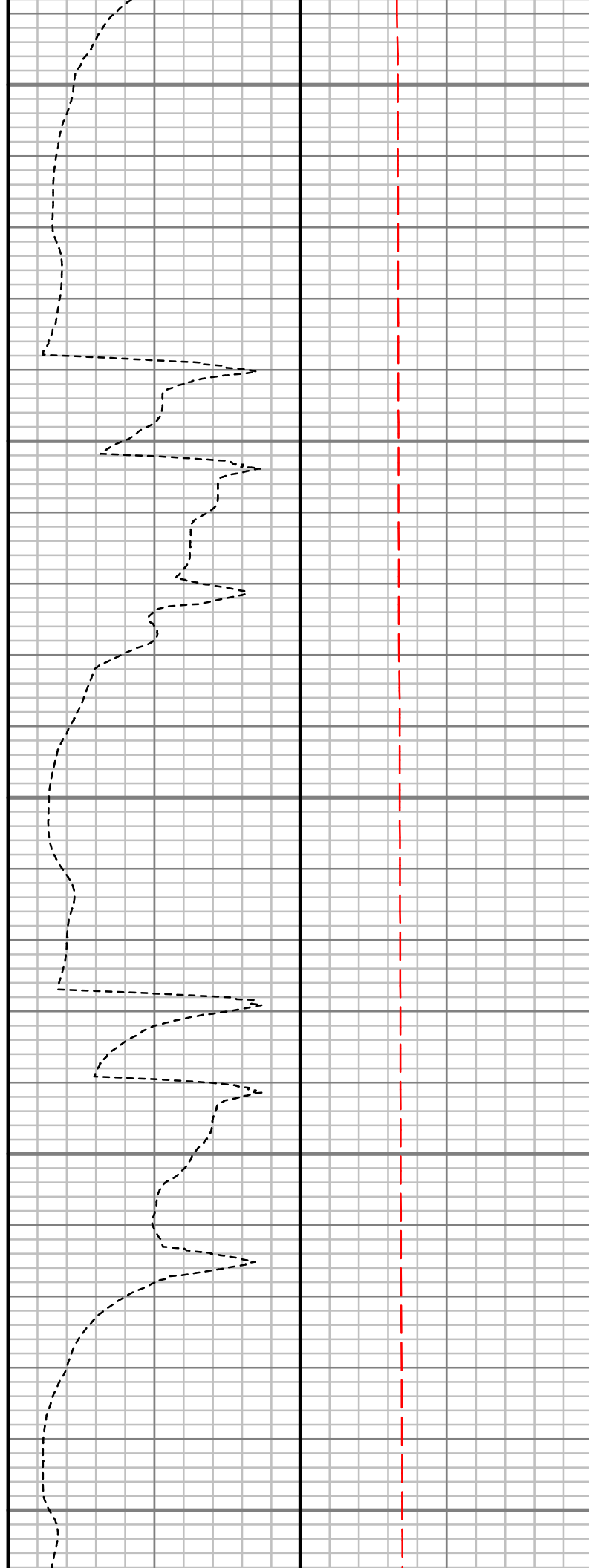
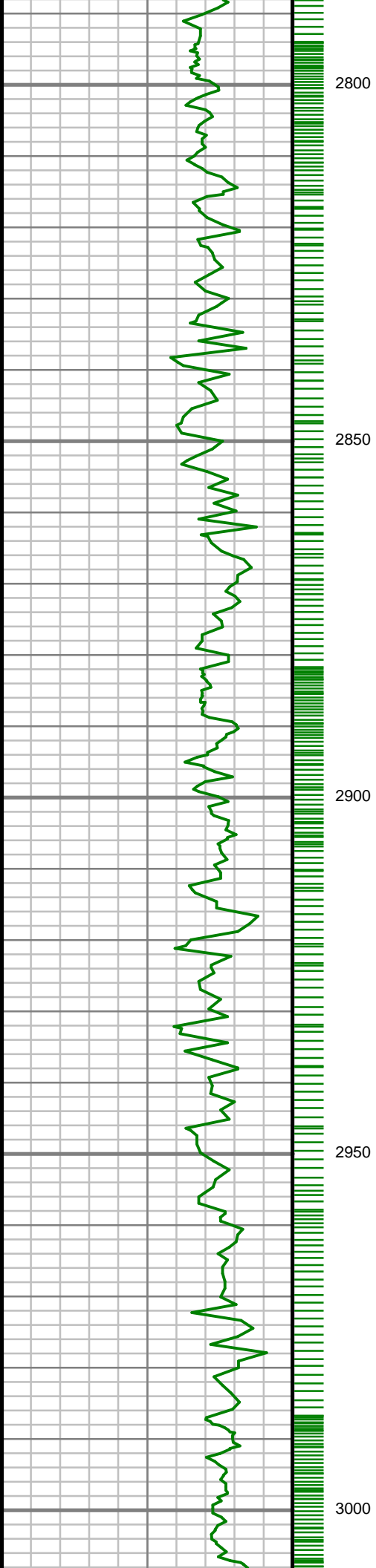
S: 69 MD: 2400.00 ft
Inc: 17.92 deg Az:
69.73 deg TVD:
2331.93 ft

S: 70 MD: 2489.00 ft
Inc: 16.38 deg Az:
66.85 deg TVD:
2416.97 ft



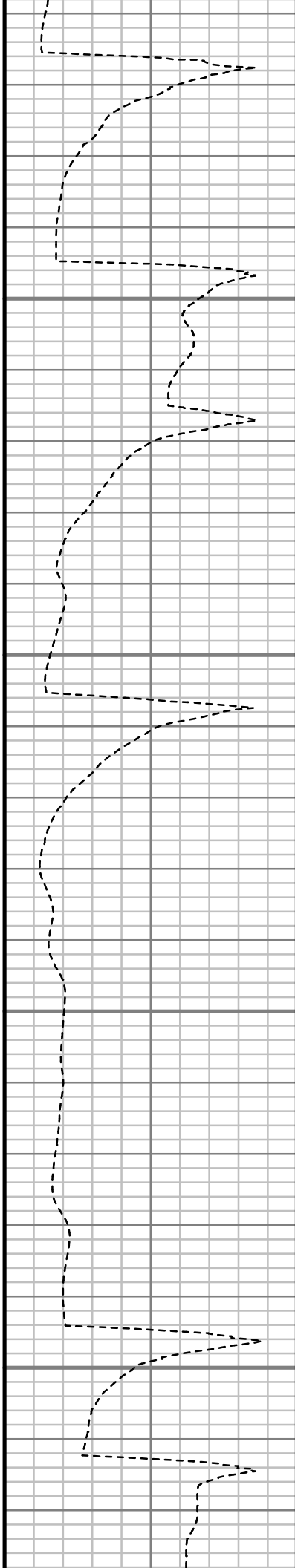
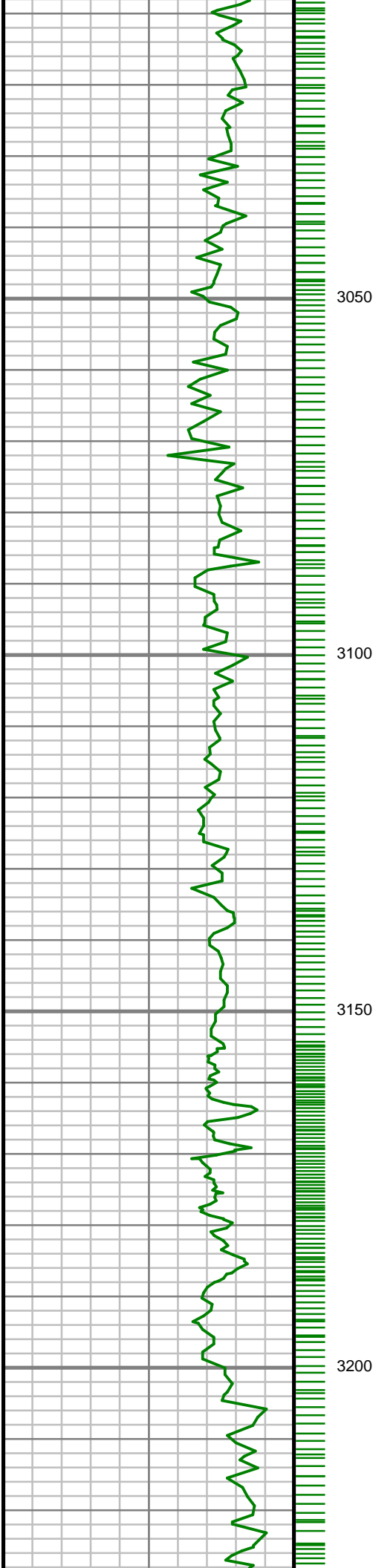
S: 71 MD: 2578.00 ft
Inc: 17.36 deg Az:
63.14 deg TVD:
2502.14 ft

S: 72 MD: 2778.00 ft
Inc: 18.03 deg Az:
70.35 deg TVD:
2692.71 ft



S: 73 MD: 2867.00 ft
Inc: 17.92 deg Az:
73.41 deg TVD:
2777.36 ft

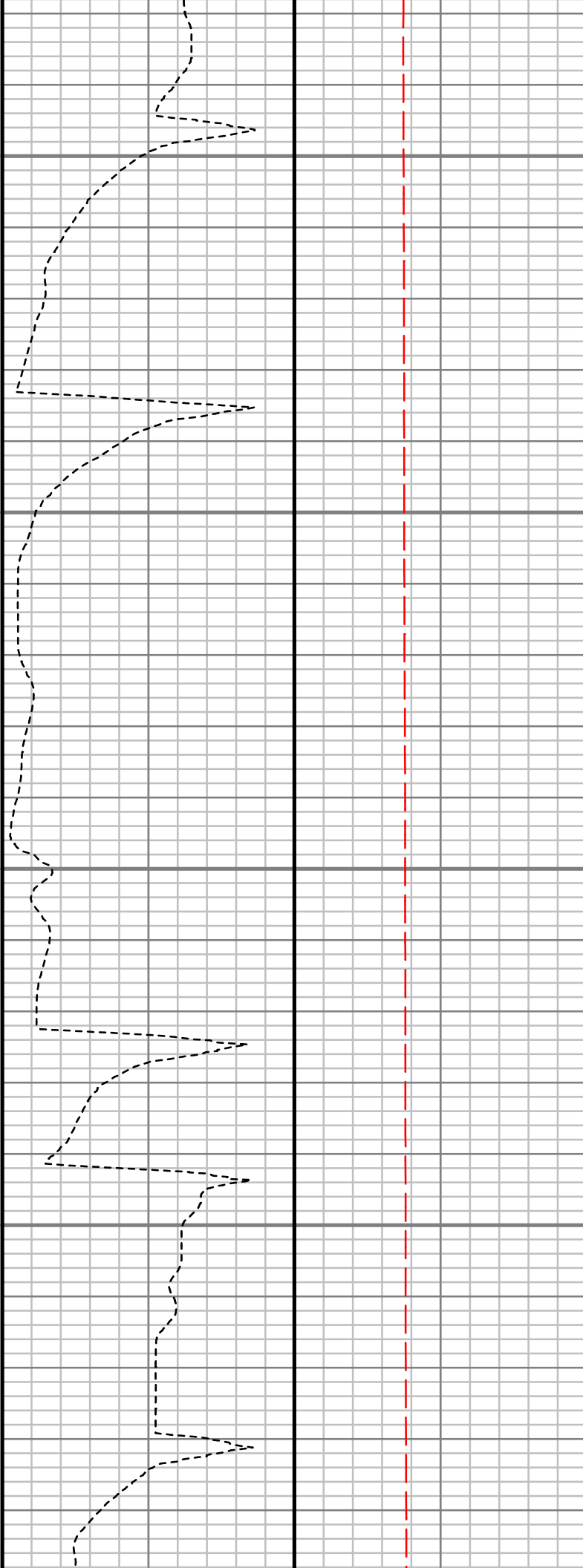
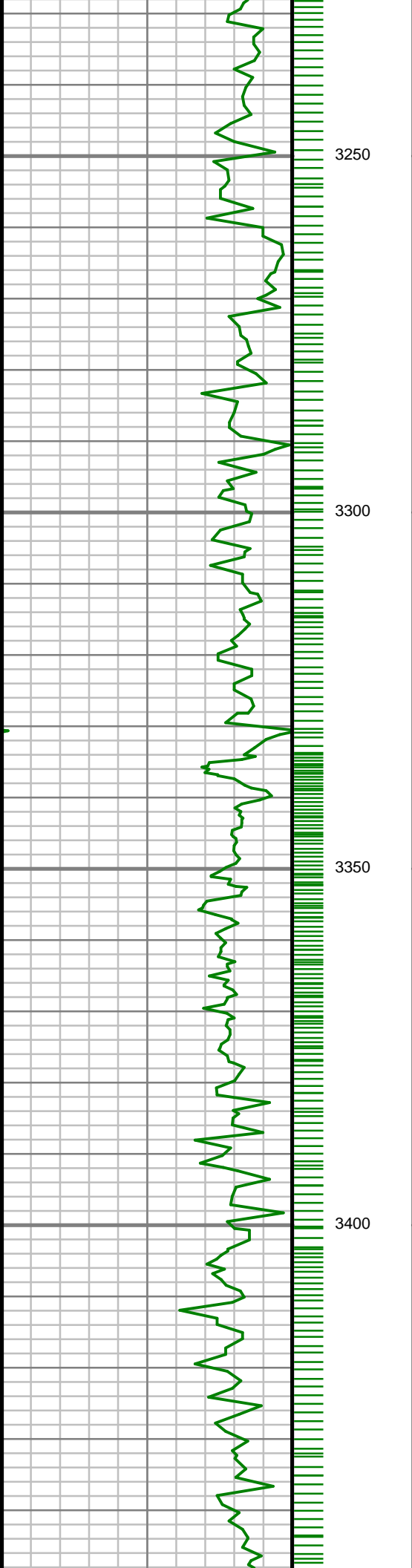
S: 74 MD: 2956.00 ft
Inc: 18.44 deg Az:
78.43 deg TVD:
2861.92 ft



S: 75 MD: 3045.00 ft
Inc: 18.22 deg Az:
79.11 deg TVD:
2946.41 ft

S: 76 MD: 3134.00 ft
Inc: 17.11 deg Az:
77.84 deg TVD:
3031.21 ft

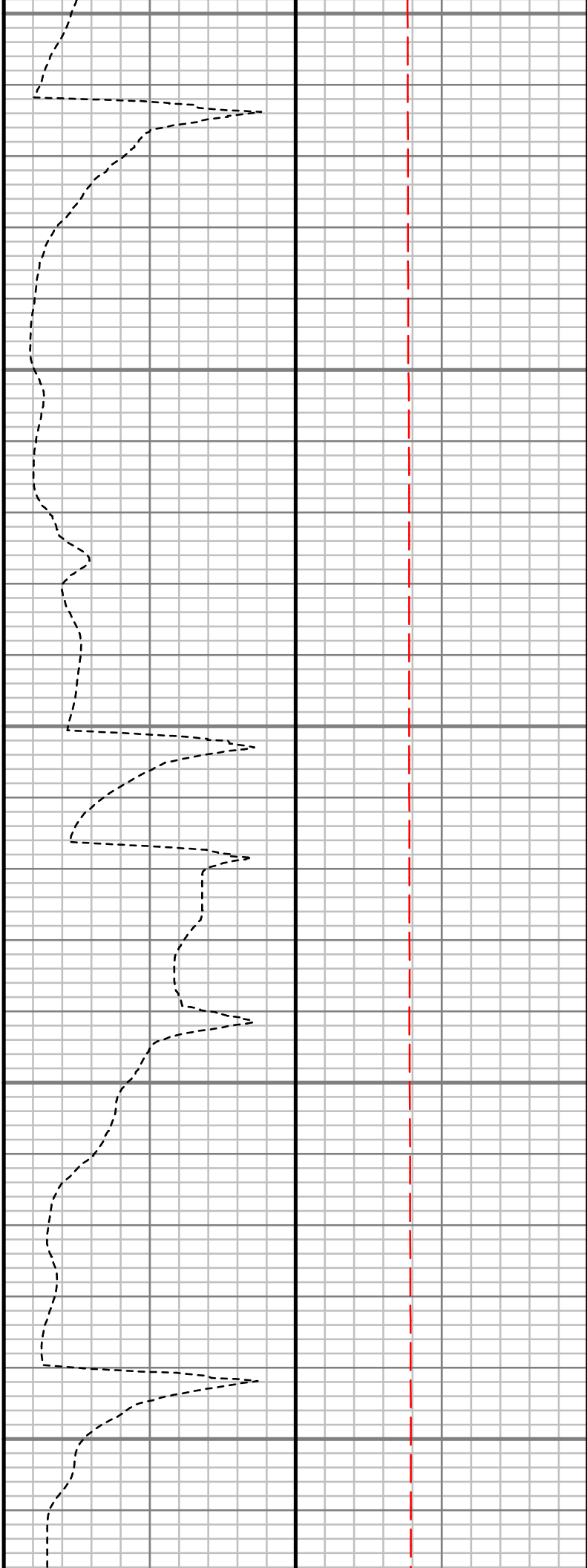
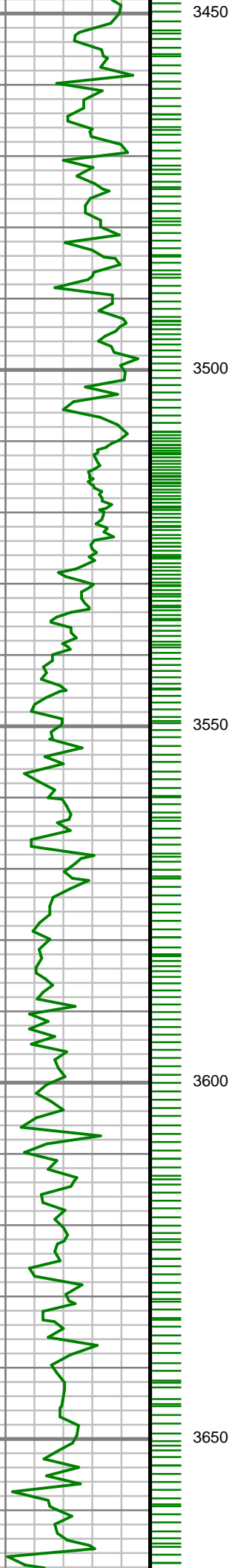
S: 77 MD: 3223.00 ft
Inc: 16.49 deg Az:



74.70 deg TVD:
3116.41 ft

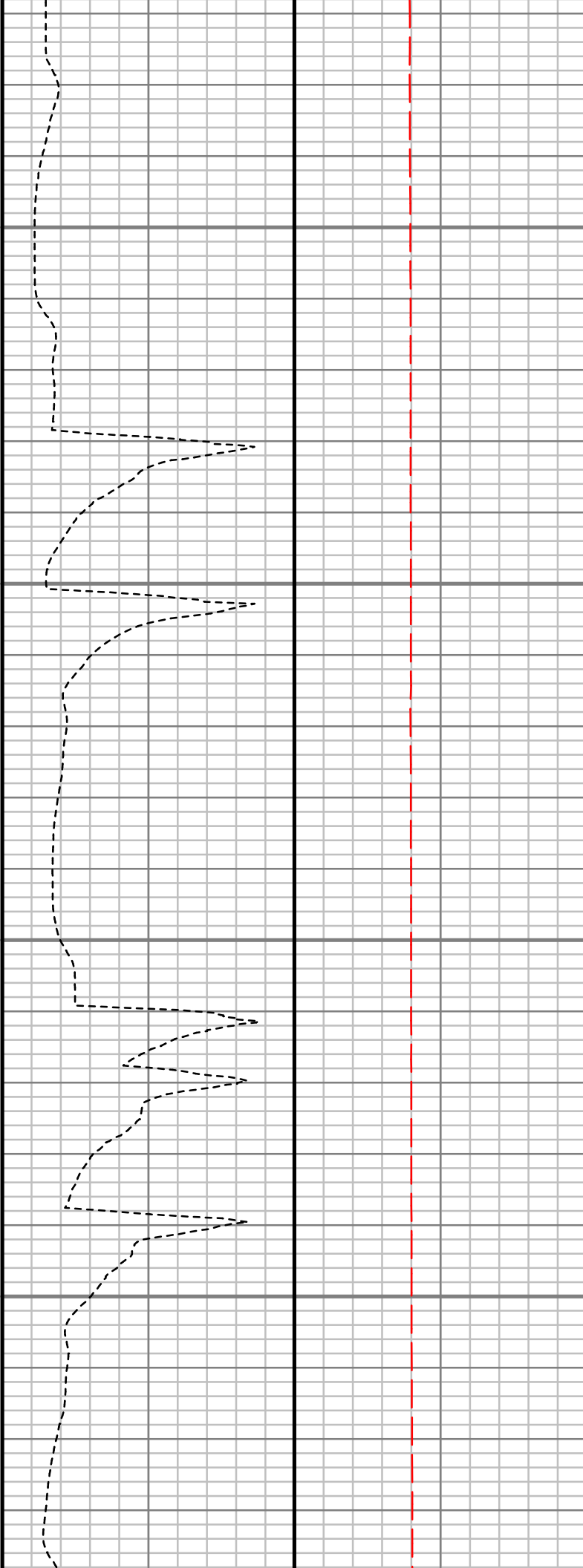
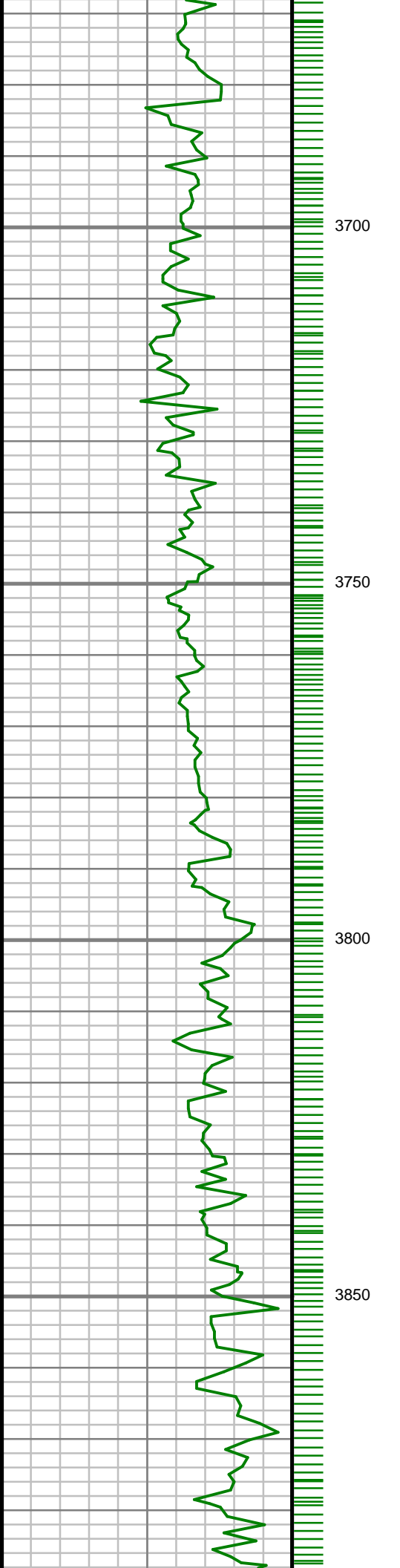
S: 78 MD: 3312.00 ft
Inc: 16.29 deg Az:
75.07 deg TVD:
3201.80 ft

S: 79 MD: 3401.00 ft
Inc: 15.60 deg Az:
74.49 deg TVD:
3287.37 ft



S: 80 MD: 3490.00 ft
Inc: 16.74 deg Az:
77.38 deg TVD:
3372.85 ft

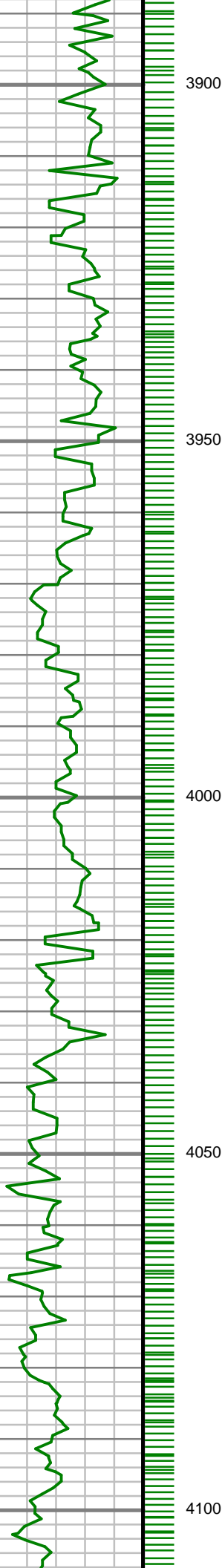
S: 81 MD: 3579.00 ft
Inc: 17.05 deg Az:
78.71 deg TVD:
3458.01 ft



S: 82 MD: 3670.00 ft
Inc: 16.68 deg Az:
79.44 deg TVD:
3545.10 ft

S: 83 MD: 3756.00 ft
Inc: 15.75 deg Az:
78.32 deg TVD:
3627.67 ft

S: 84 MD: 3845.00 ft
Inc: 13.77 deg Az:
78.85 deg TVD:
3713.73 ft



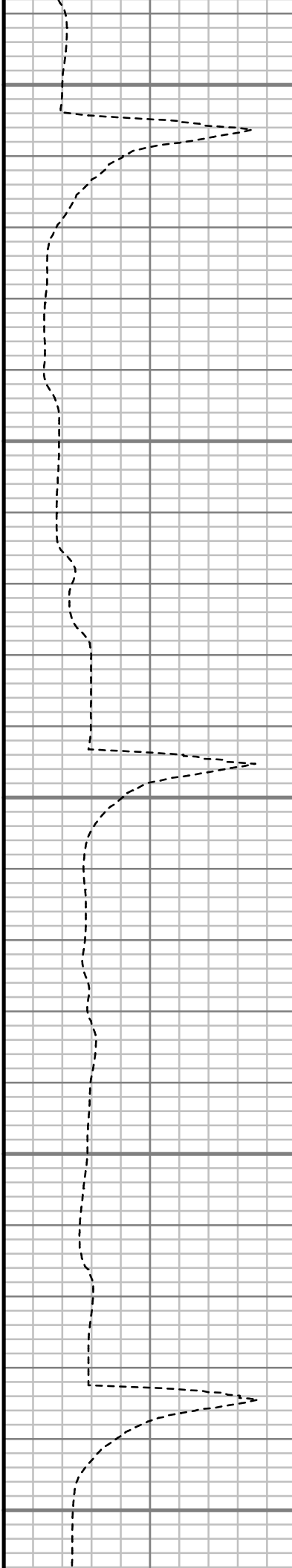
3900

3950

4000

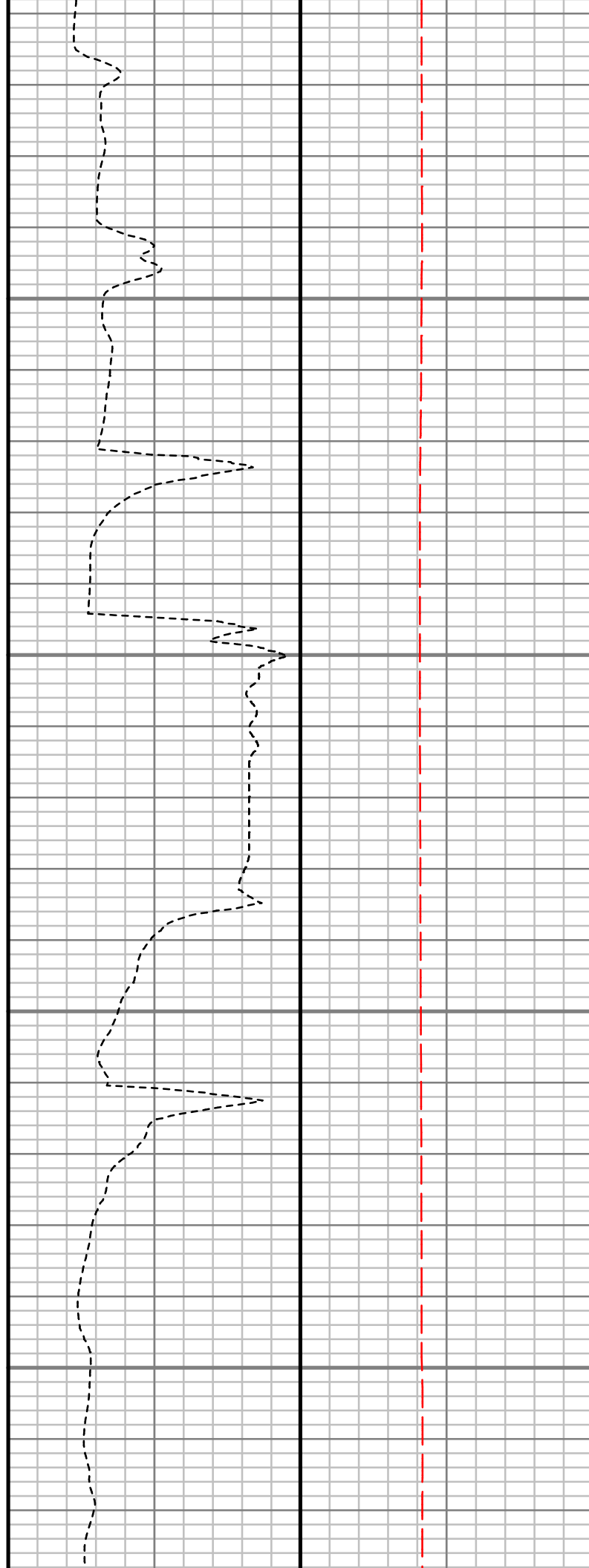
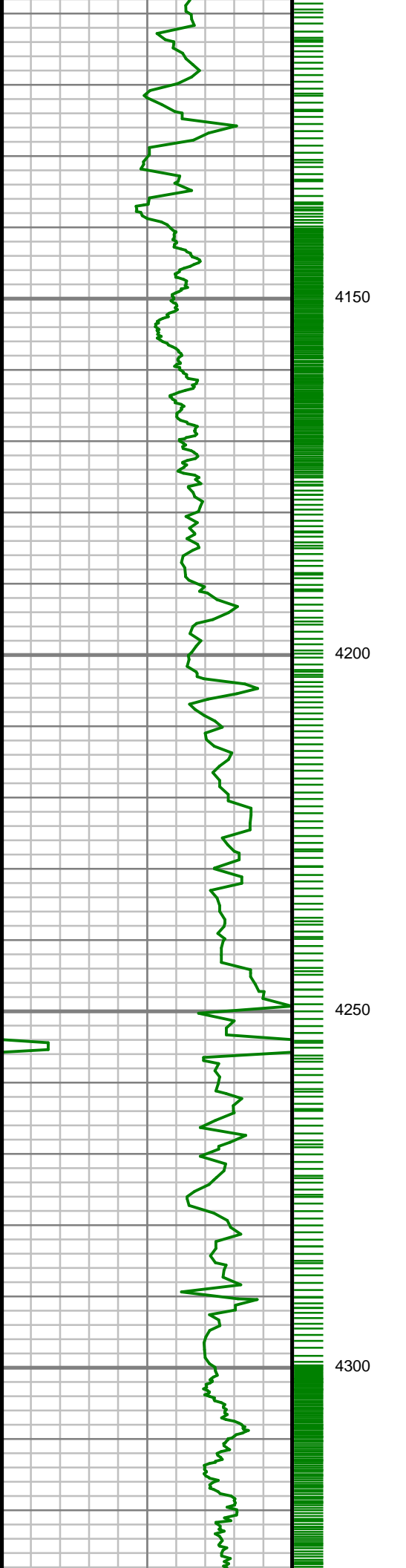
4050

4100



S: 85 MD: 3934.00 ft
Inc: 11.62 deg Az:
74.79 deg TVD:
3800.55 ft

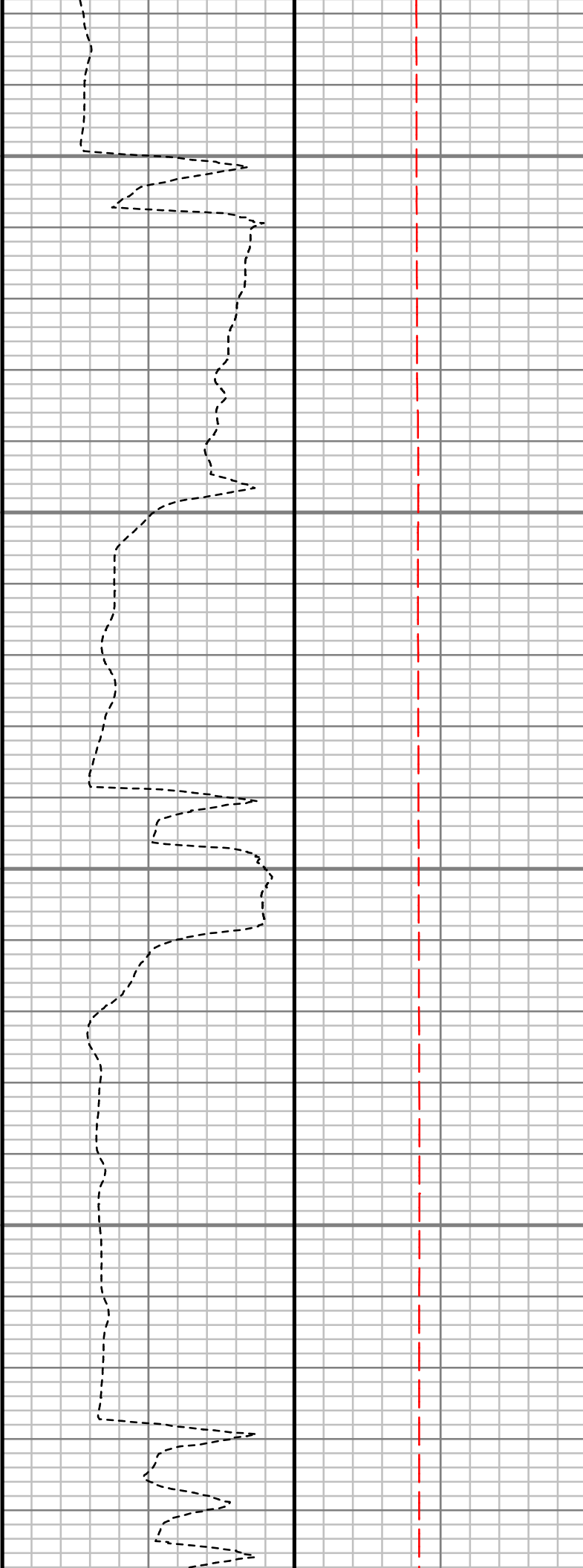
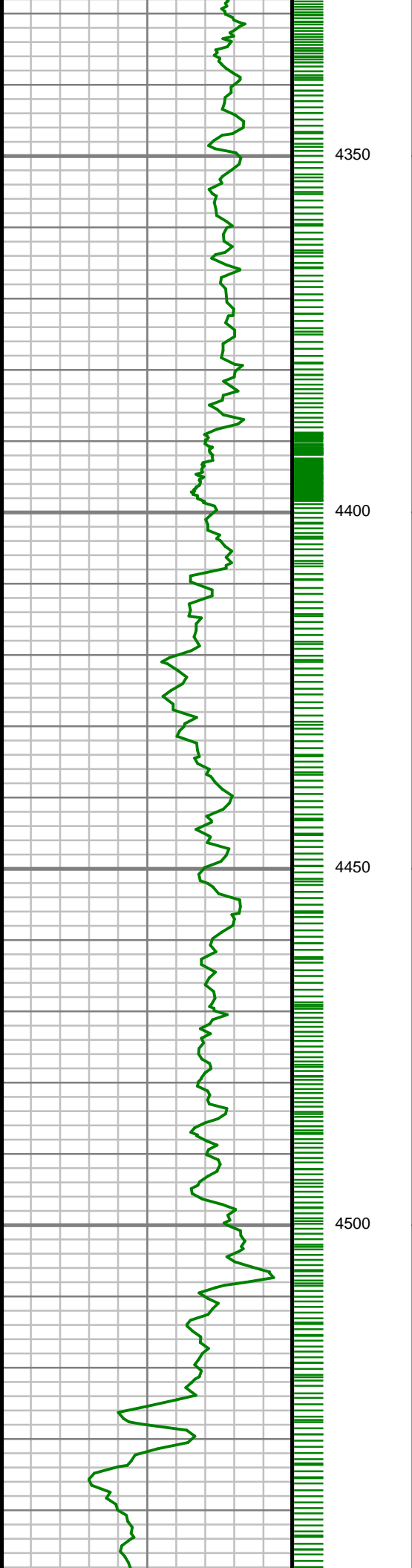
S: 86 MD: 4023.00 ft
Inc: 9.60 deg Az: 72.88
deg TVD: 3888.02 ft



S: 87 MD: 4112.00 ft
Inc: 8.33 deg Az: 71.88
deg TVD: 3975.94 ft

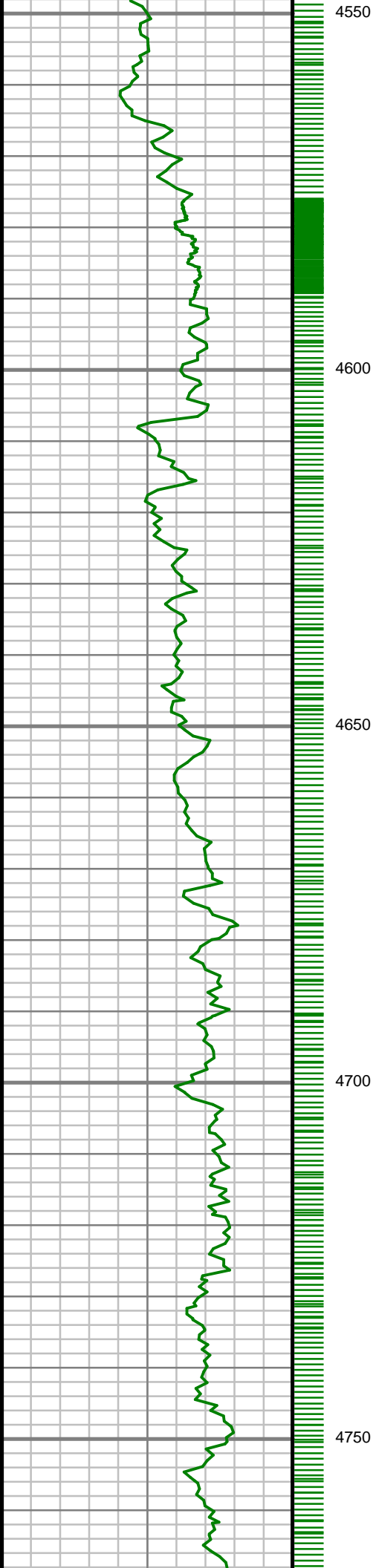
S: 88 MD: 4201.00 ft
Inc: 7.25 deg Az: 76.64
deg TVD: 4064.12 ft

S: 89 MD: 4289.00 ft
Inc: 6.81 deg Az:
109.11 deg TVD:
4151.49 ft



S: 90 MD: 4378.00 ft
Inc: 2.23 deg Az:
118.09 deg TVD:
4240.19 ft

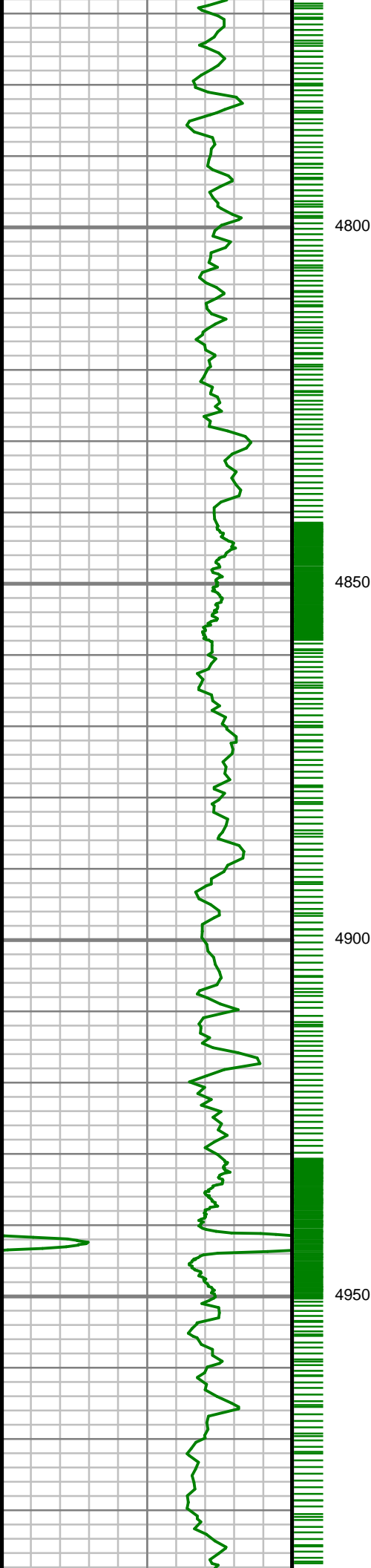
S: 91 MD: 4467.00 ft
Inc: 0.74 deg Az:
248.61 deg TVD:
4329.17 ft



S: 92 MD: 4556.00 ft
Inc: 1.09 deg Az:
270.52 deg TVD:
4418.16 ft

S: 93 MD: 4644.00 ft
Inc: 1.50 deg Az:
241.25 deg TVD:
4506.13 ft

S: 94 MD: 4733.00 ft
Inc: 1.78 deg Az:
246.52 deg TVD:
4595.10 ft



4800

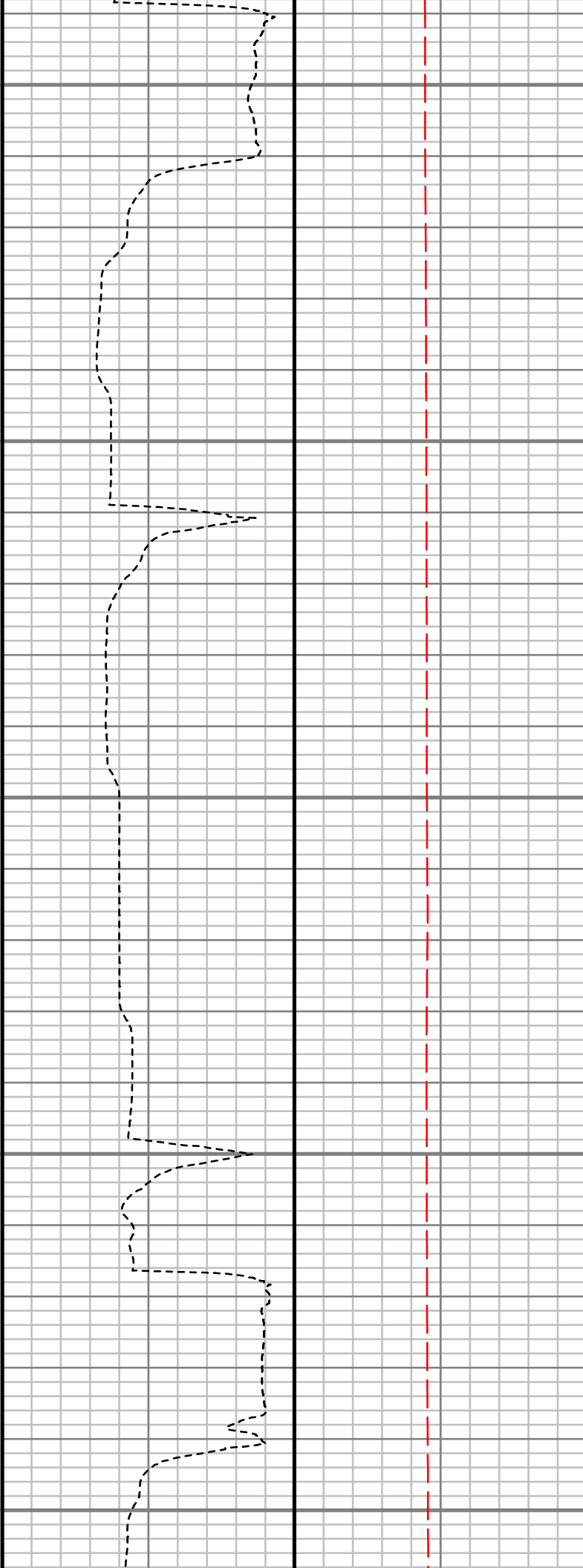
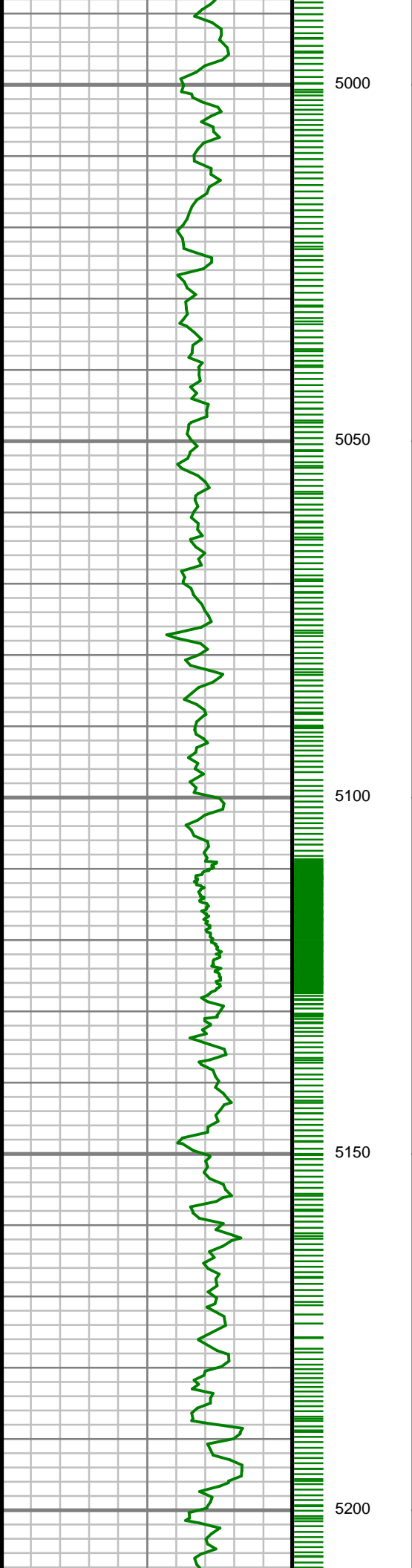
4850

4900

4950

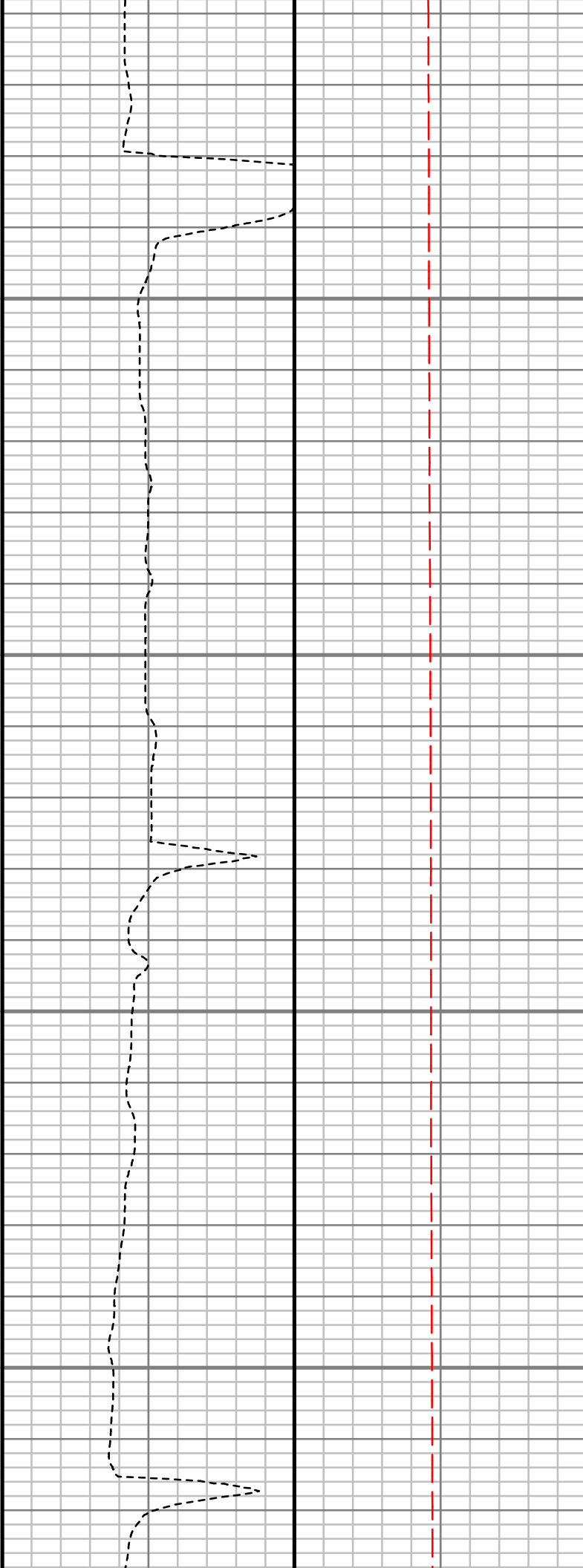
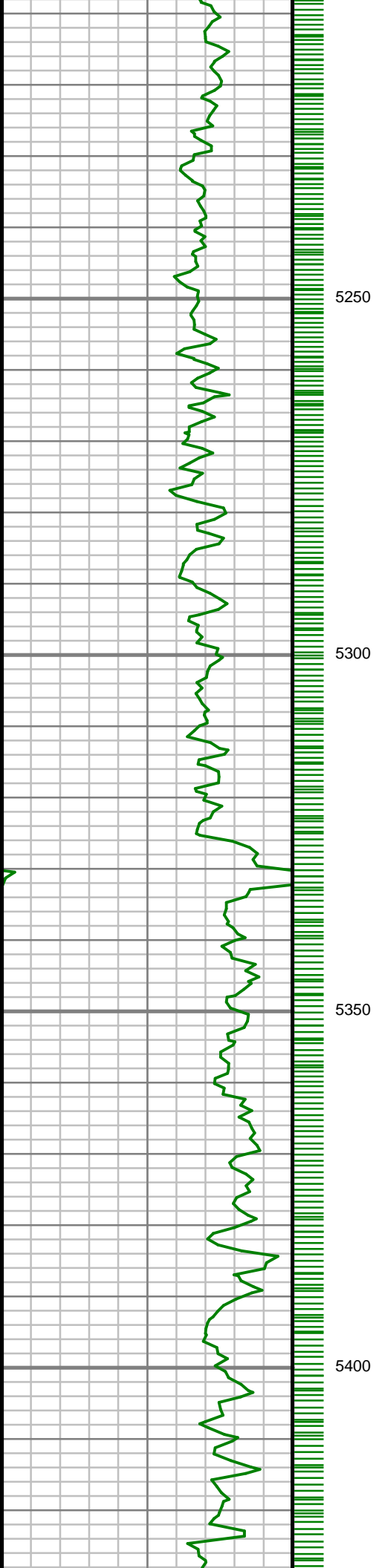
S: 95 MD: 4822.00 ft
Inc: 1.81 deg Az:
266.62 deg TVD:
4684.06 ft

S: 96 MD: 4910.00 ft
Inc: 1.44 deg Az:
243.61 deg TVD:
4772.02 ft



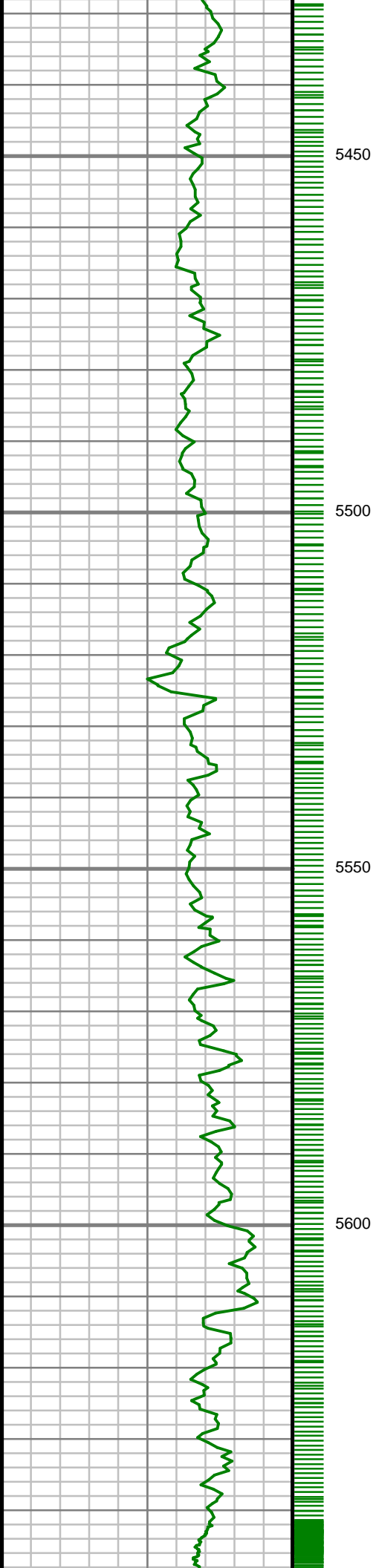
S: 97 MD: 4999.00 ft
Inc: 1.87 deg Az:
190.52 deg TVD:
4860.99 ft

S: 98 MD: 5177.00 ft
Inc: 0.87 deg Az:
232.05 deg TVD:
5038.94 ft



S: 99 MD: 5266.00 ft
Inc: 0.89 deg Az:
303.04 deg TVD:
5127.93 ft

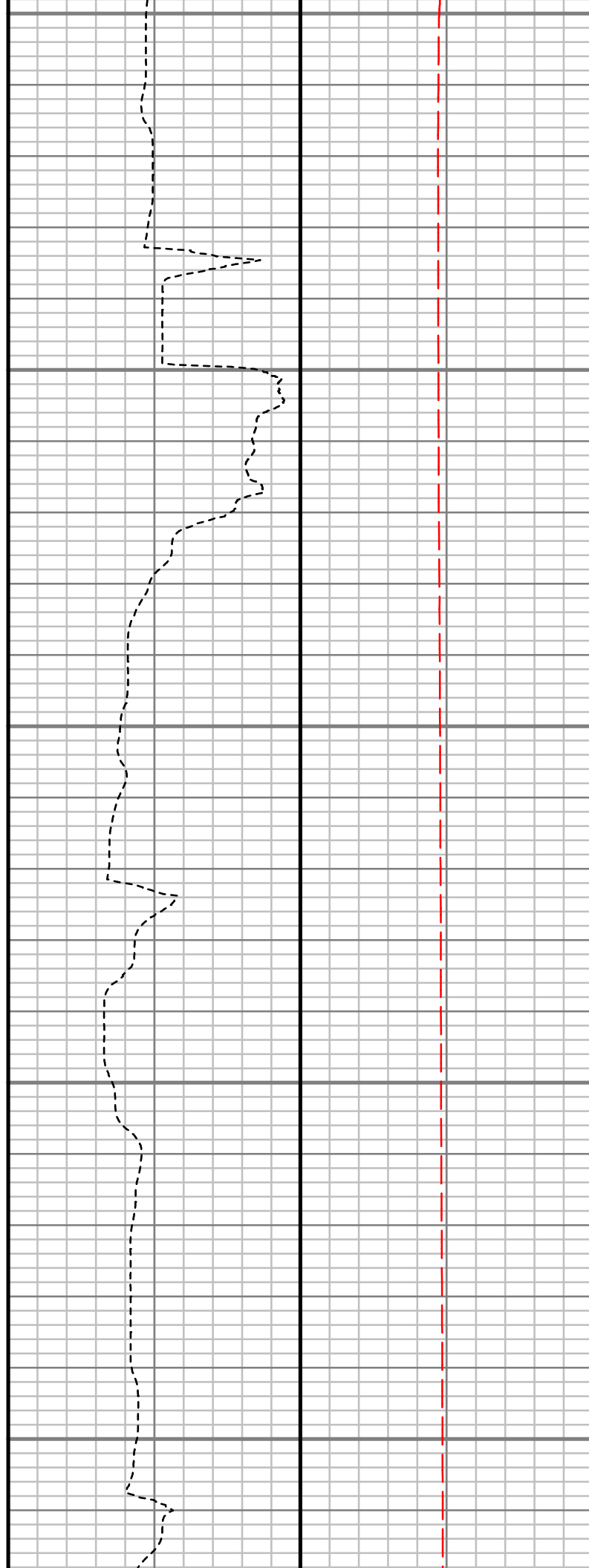
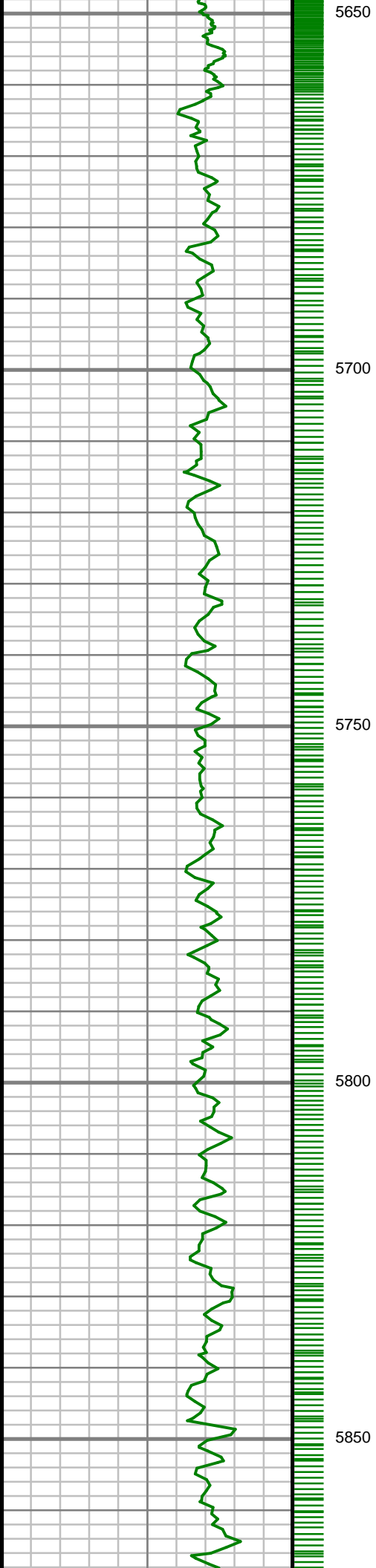
S: 100 MD: 5355.00 ft
Inc: 0.99 deg Az:
304.08 deg TVD:
5216.92 ft



S: 101 MD: 5443.00 ft
Inc: 1.48 deg Az:
300.49 deg TVD:
5304.90 ft

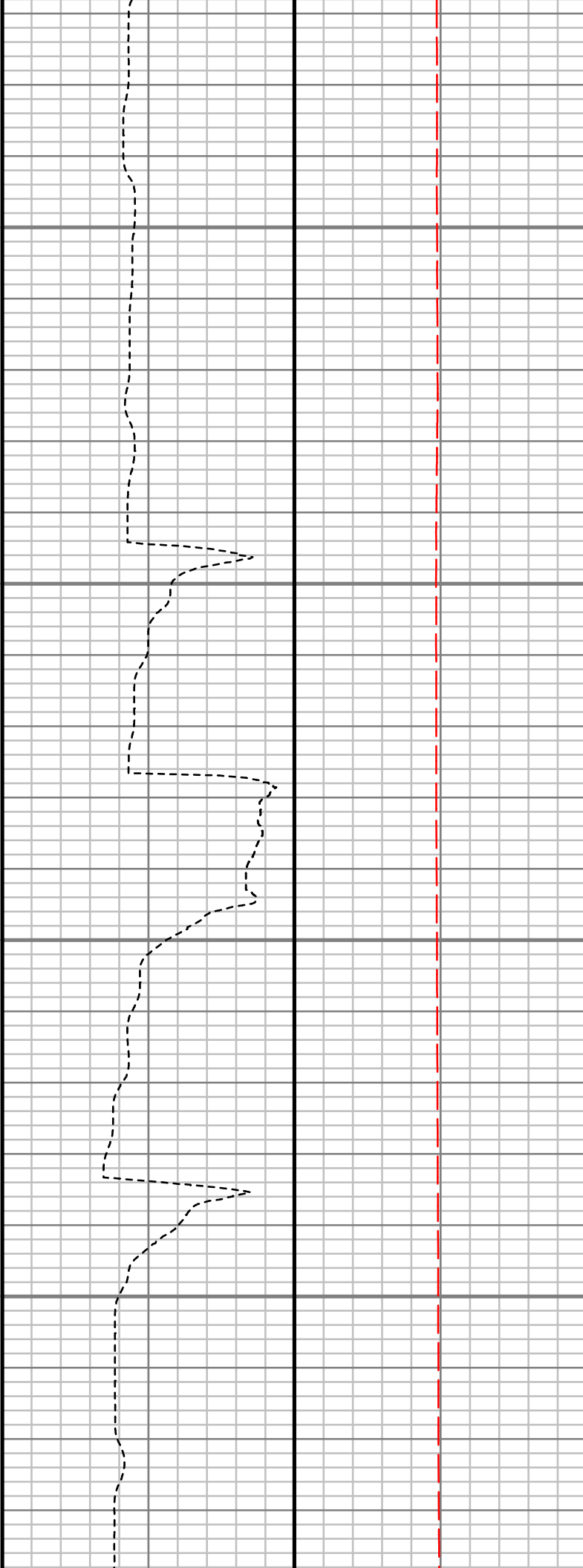
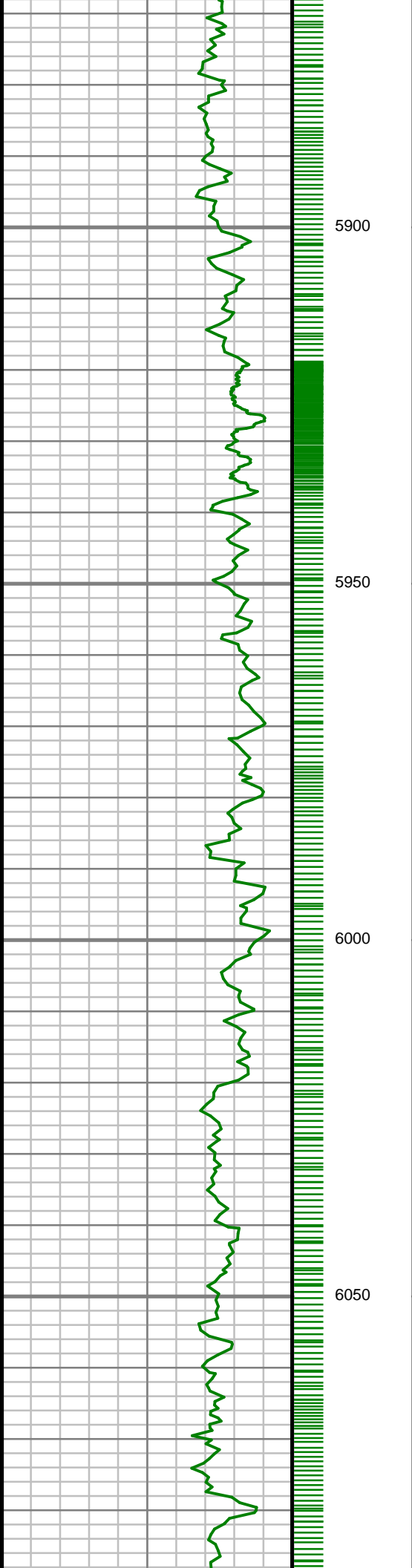
S: 102 MD: 5532.00 ft
Inc: 1.82 deg Az:
276.99 deg TVD:
5393.86 ft

S: 103 MD: 5621.00 ft
Inc: 1.71 deg Az:
267.79 deg TVD:
5482.82 ft



S: 104 MD: 5710.00 ft
Inc: 0.93 deg Az:
264.16 deg TVD:
5571.80 ft

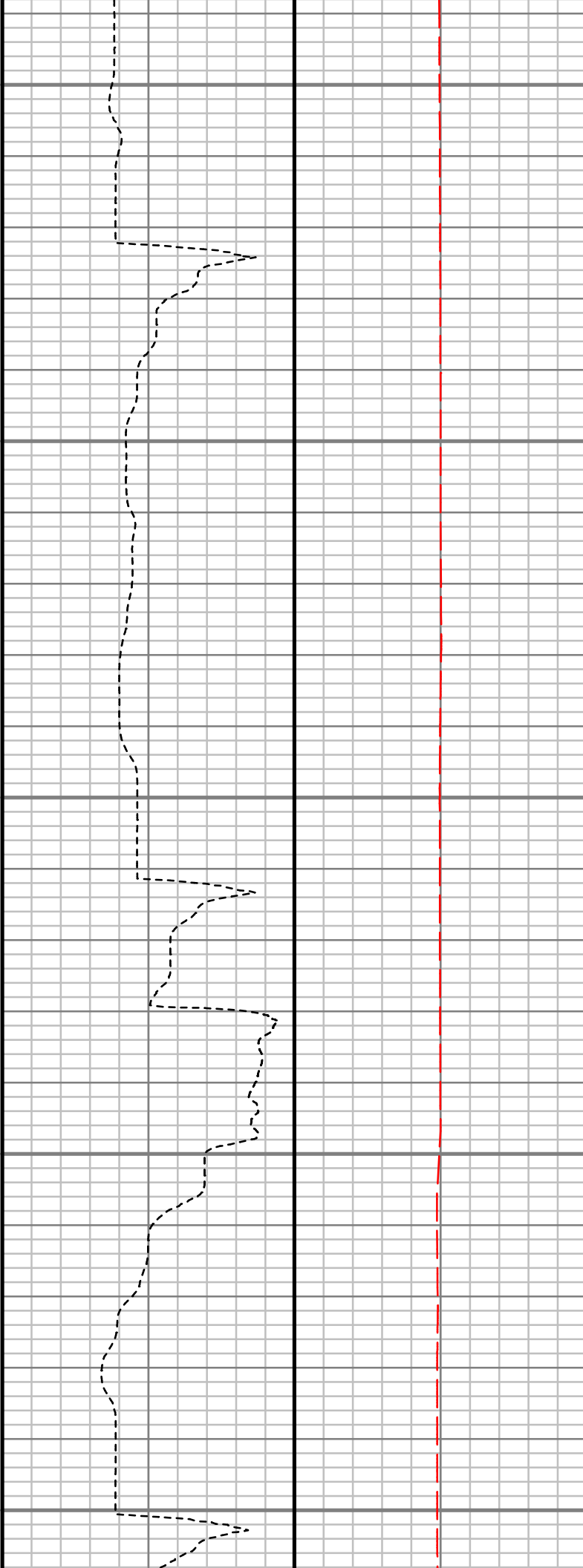
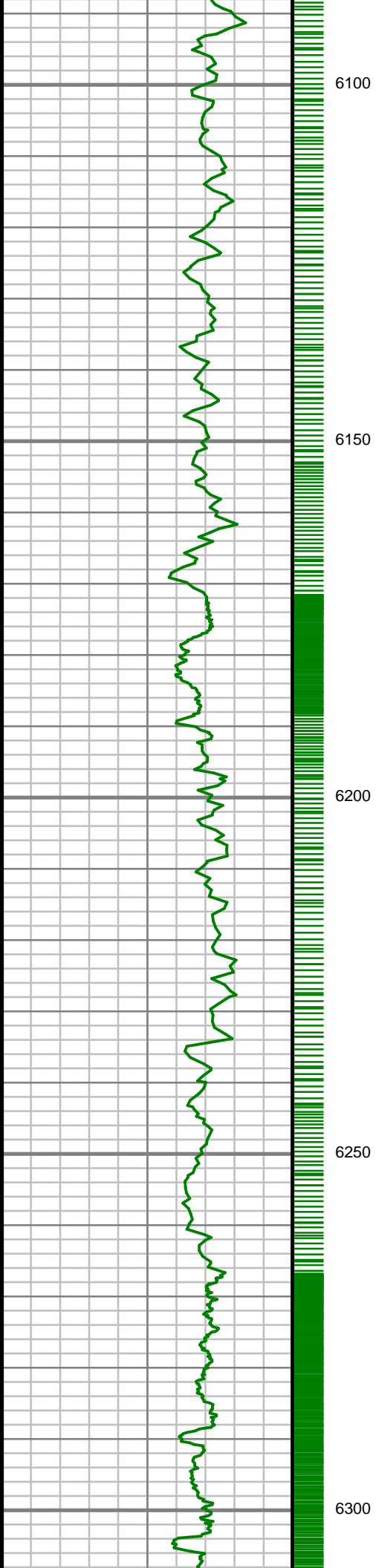
S: 105 MD: 5799.00 ft
Inc: 0.87 deg Az:
252.47 deg TVD:
5660.78 ft



S: 106 MD: 5888.00 ft
Inc: 1.27 deg Az:
268.61 deg TVD:
5749.77 ft

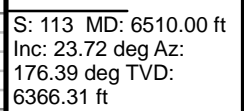
S: 107 MD: 5977.00 ft
Inc: 1.09 deg Az:
269.80 deg TVD:
5838.75 ft

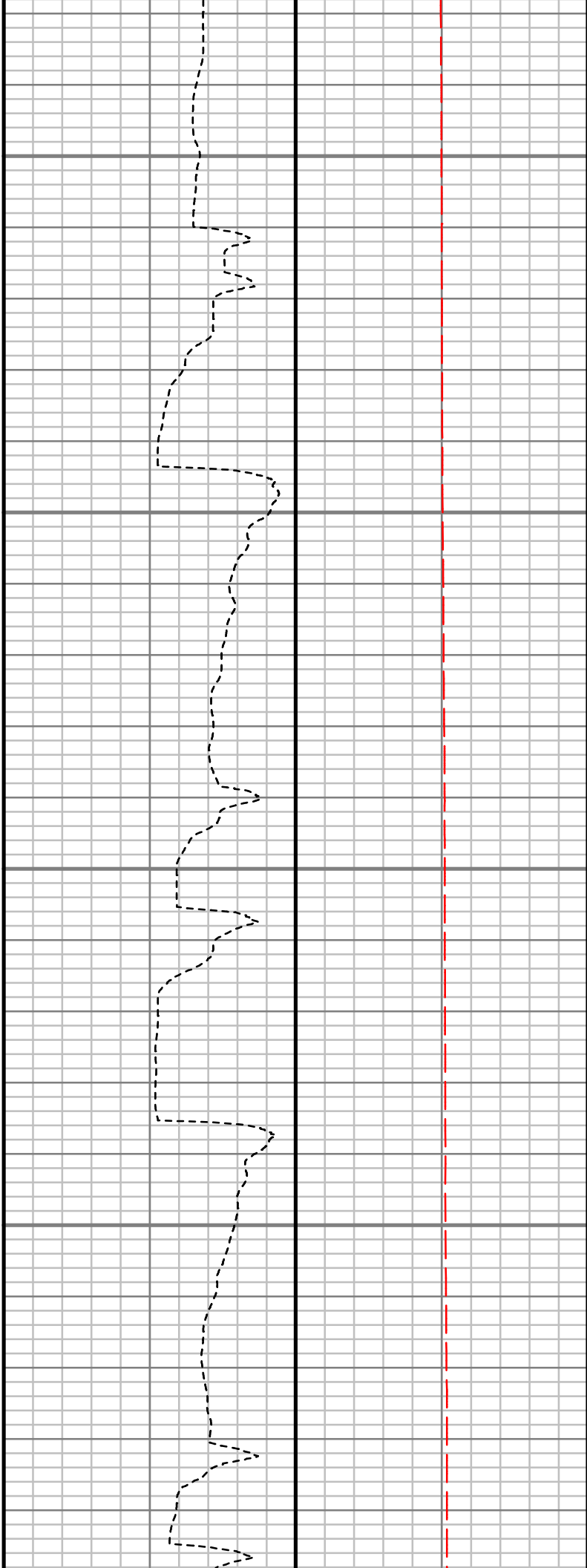
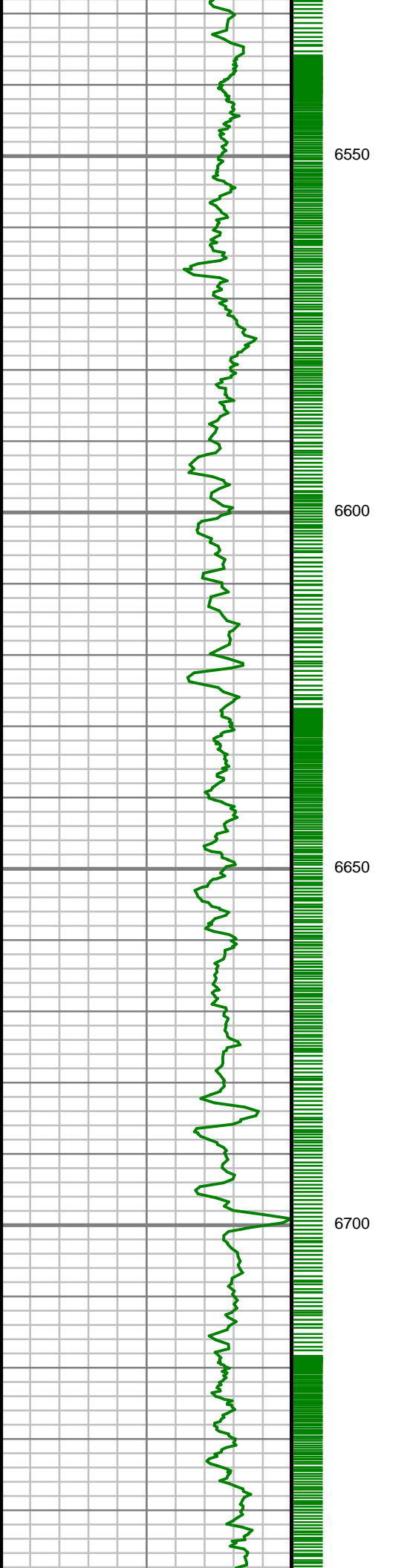
S: 108 MD: 6065.00 ft
Inc: 0.89 deg Az:
301.77 deg TVD:
5926.74 ft



S: 109 MD: 6154.00 ft
Inc: 1.81 deg Az:
273.49 deg TVD:
6015.71 ft

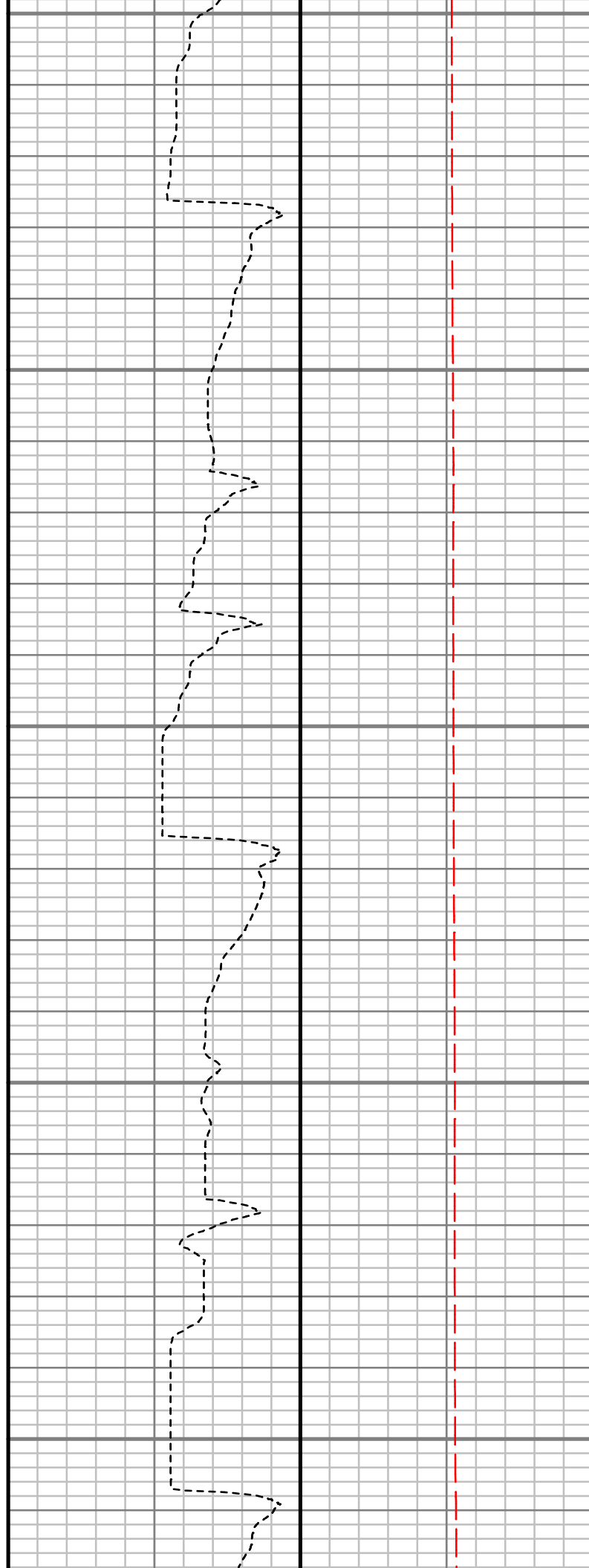
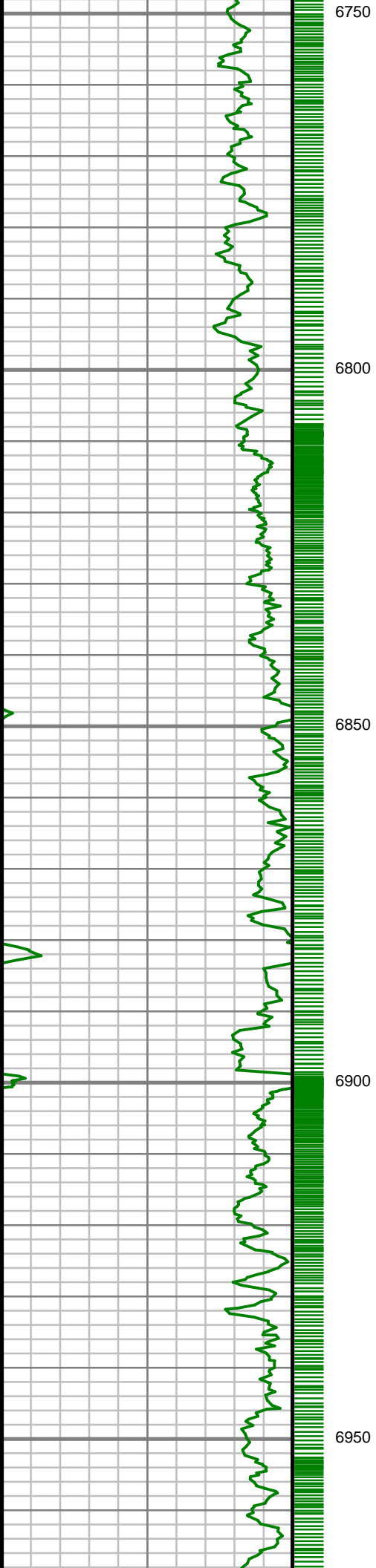
S: 110 MD: 6243.00 ft
Inc: 1.40 deg Az:
280.16 deg TVD:
6104.68 ft





S: 114 MD: 6599.00 ft
Inc: 32.27 deg Az:
174.37 deg TVD:
6444.82 ft

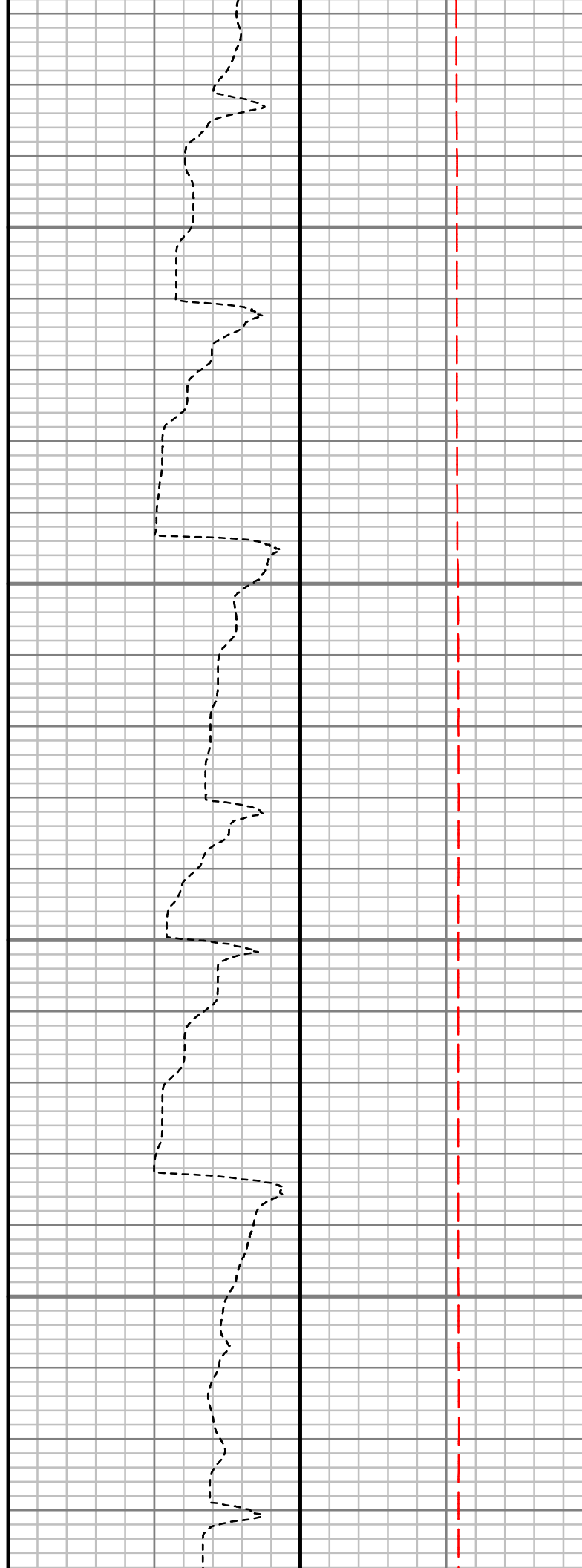
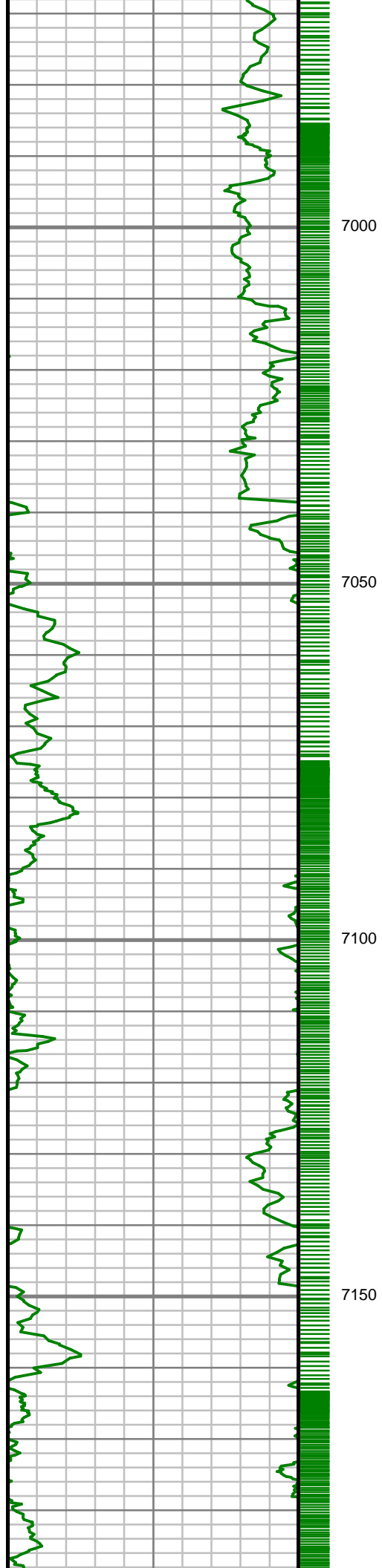
S: 115 MD: 6687.00 ft
Inc: 36.25 deg Az:
178.69 deg TVD:
6517.55 ft



S: 116 MD: 6776.00 ft
Inc: 41.26 deg Az:
177.90 deg TVD:
6586.93 ft

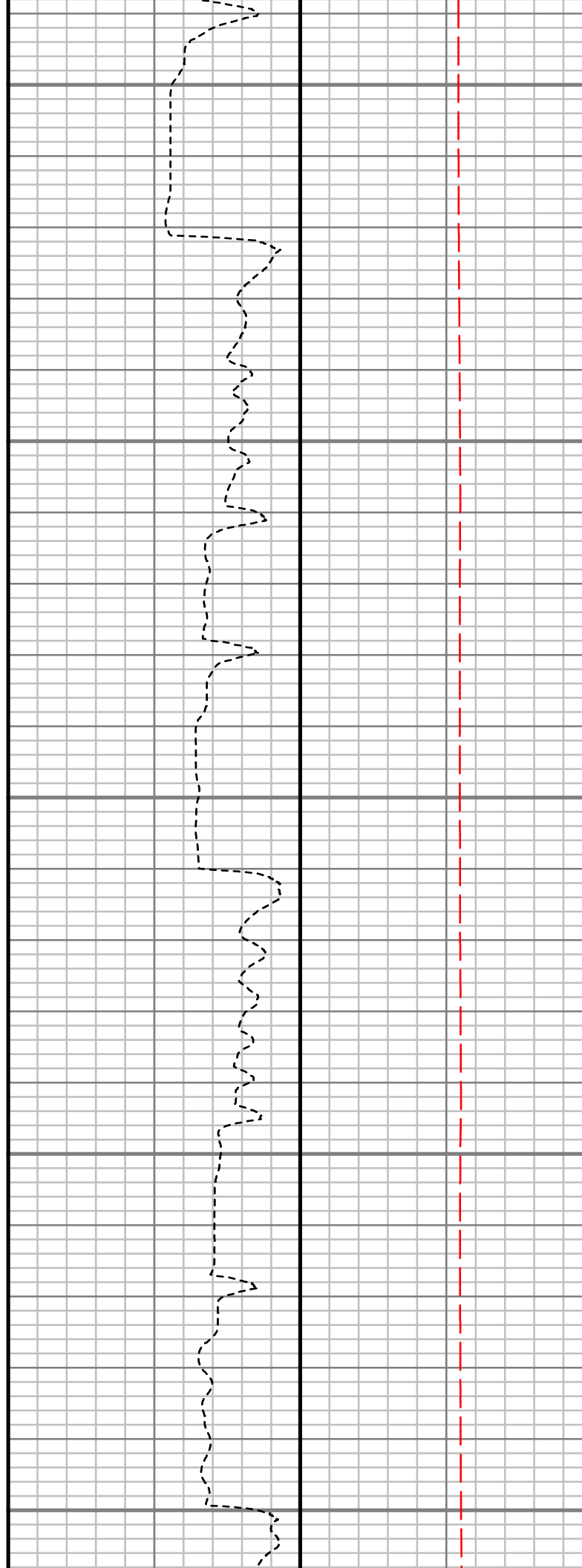
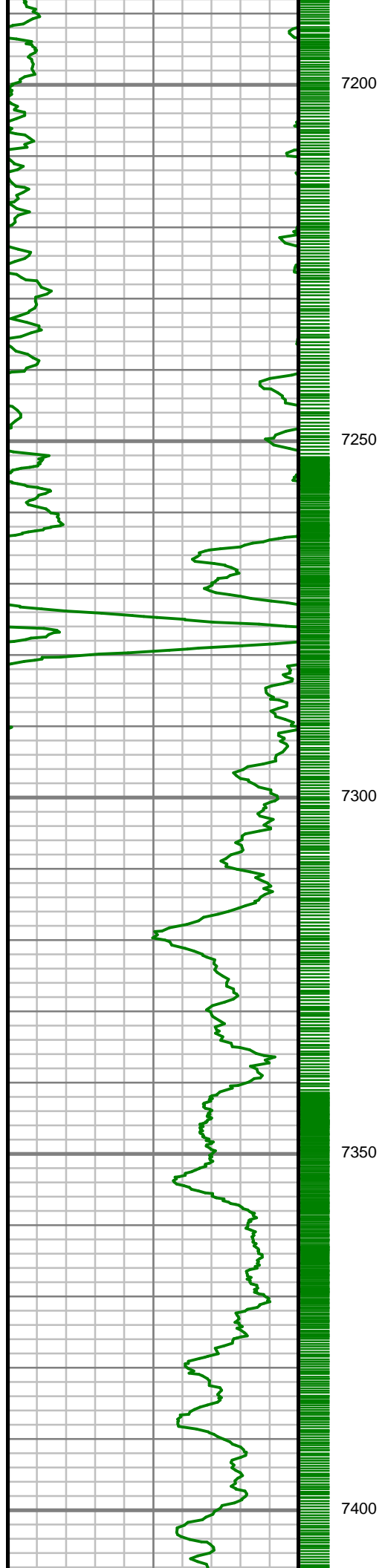
S: 117 MD: 6865.00 ft
Inc: 45.13 deg Az:
174.94 deg TVD:
6651.80 ft

S: 118 MD: 6954.00 ft
Inc: 51.03 deg Az:
176.80 deg TVD:
6711.24 ft



S: 119 MD: 7043.00 ft
Inc: 53.51 deg Az:
175.38 deg TVD:
6765.71 ft

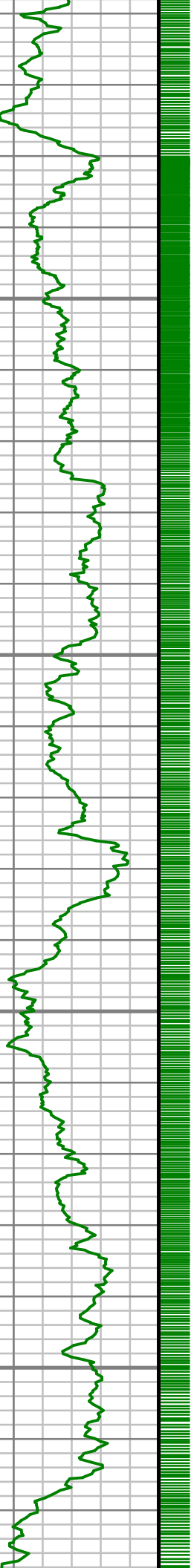
S: 120 MD: 7132.00 ft
Inc: 58.47 deg Az:
176.73 deg TVD:
6815.47 ft



S: 121 MD: 7221.00 ft
Inc: 63.22 deg Az:
179.54 deg TVD:
6858.82 ft

S: 122 MD: 7310.00 ft
Inc: 69.29 deg Az:
180.31 deg TVD:
6894.64 ft

S: 123 MD: 7399.00 ft
Inc: 74.57 deg Az:
179.11 deg TVD:
6922 24 ft

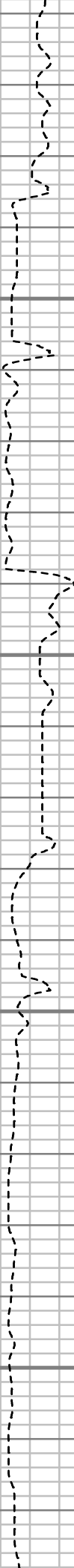


7450

7500

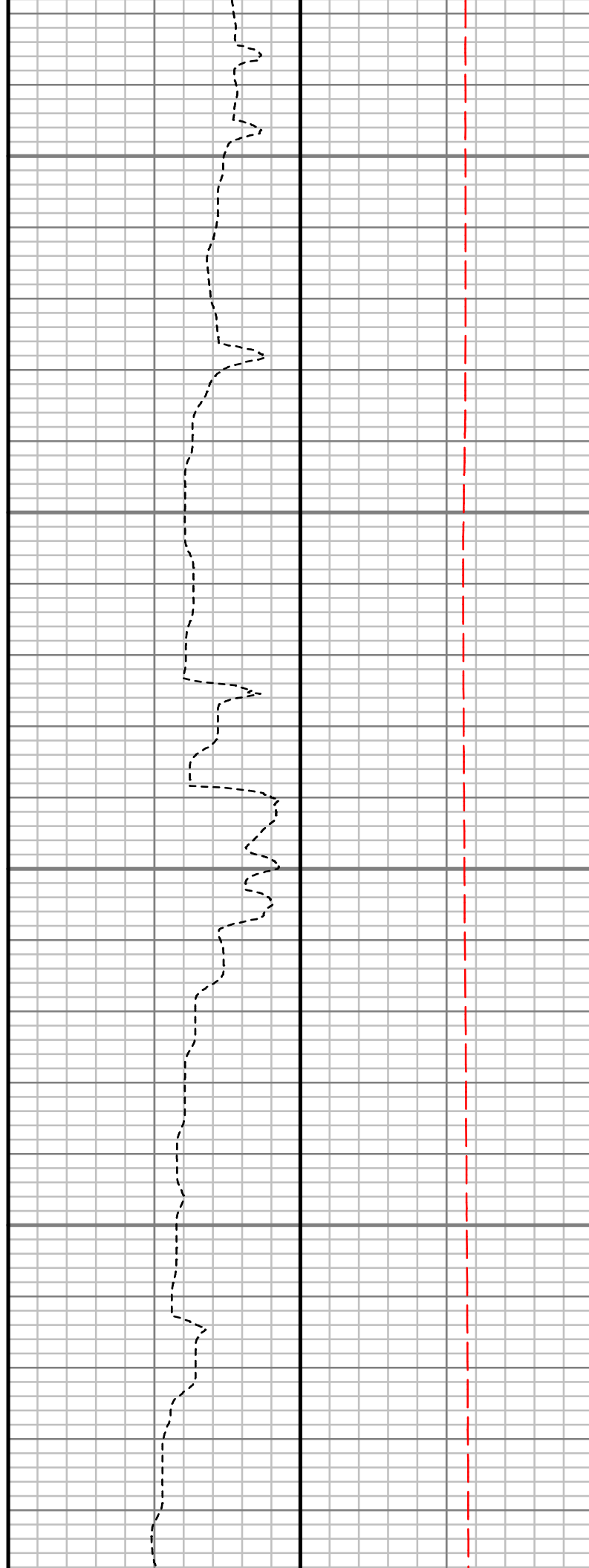
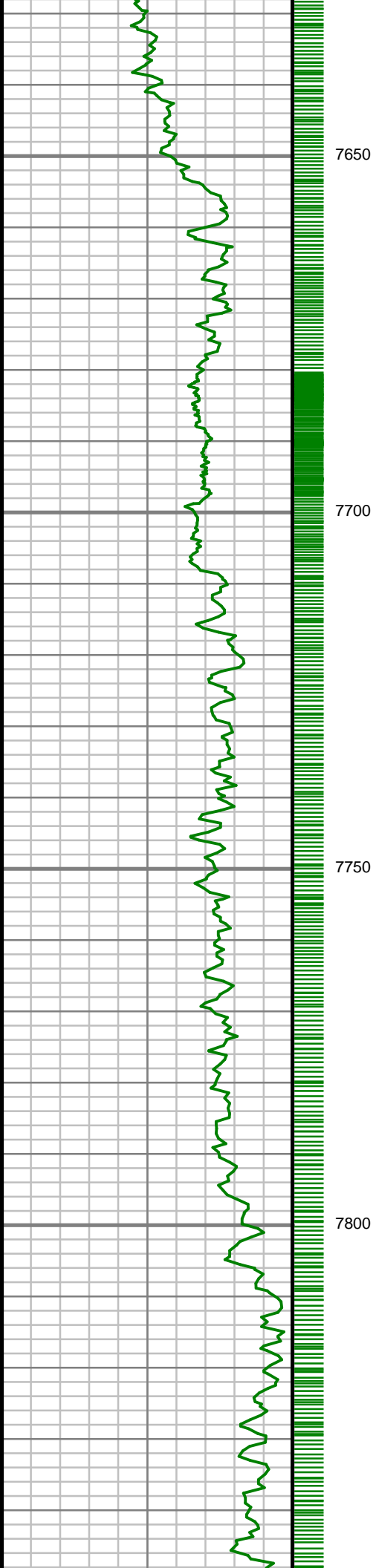
7550

7600



S: 124 MD: 7488.00 ft
Inc: 79.97 deg Az:
178.35 deg TVD:
6941.84 ft

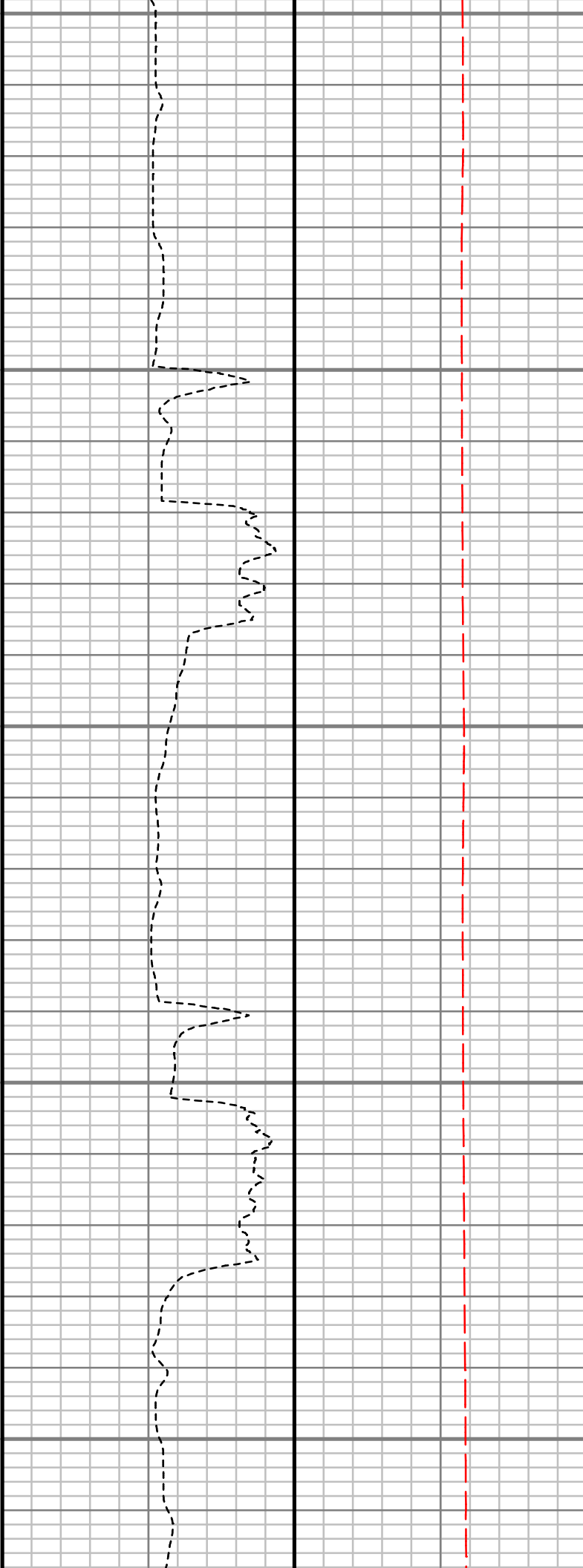
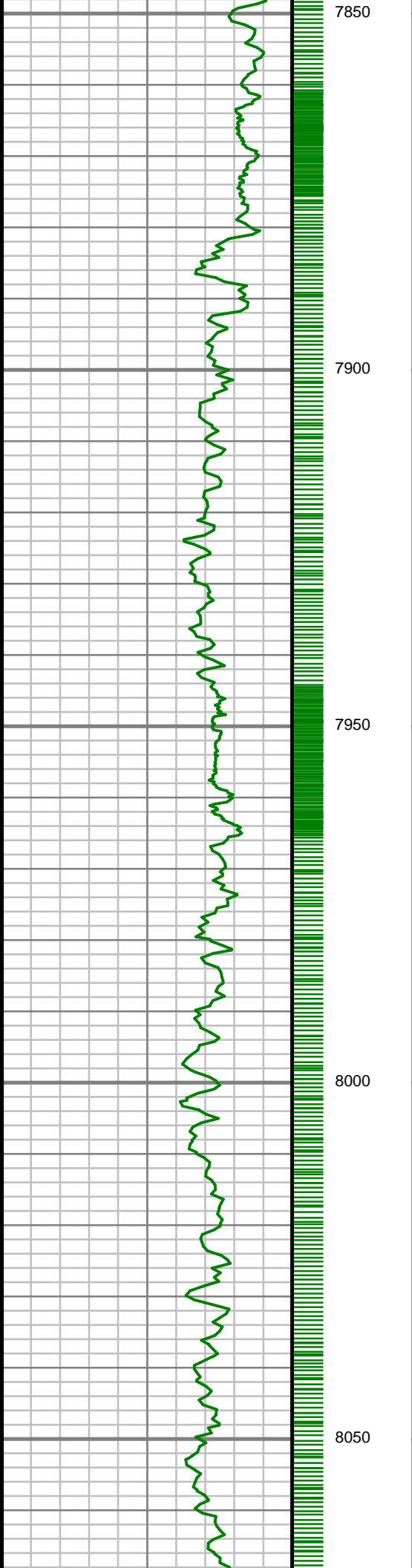
S: 125 MD: 7577.00 ft
Inc: 85.09 deg Az:
179.99 deg TVD:
6953.41 ft



S: 126 MD: 7666.00 ft
Inc: 86.44 deg Az:
179.31 deg TVD:
6959.98 ft

S: 127 MD: 7754.00 ft
Inc: 87.38 deg Az:
180.91 deg TVD:
6964.73 ft

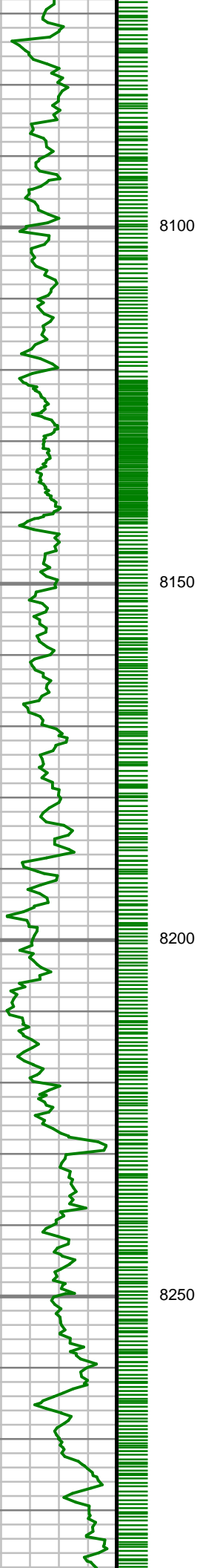
S: 128 MD: 7843.00 ft
Inc: 88.19 deg Az:



181.03 deg TVD:
6968.17 ft

S: 129 MD: 7932.00 ft
Inc: 88.66 deg Az:
181.53 deg TVD:
6970.62 ft

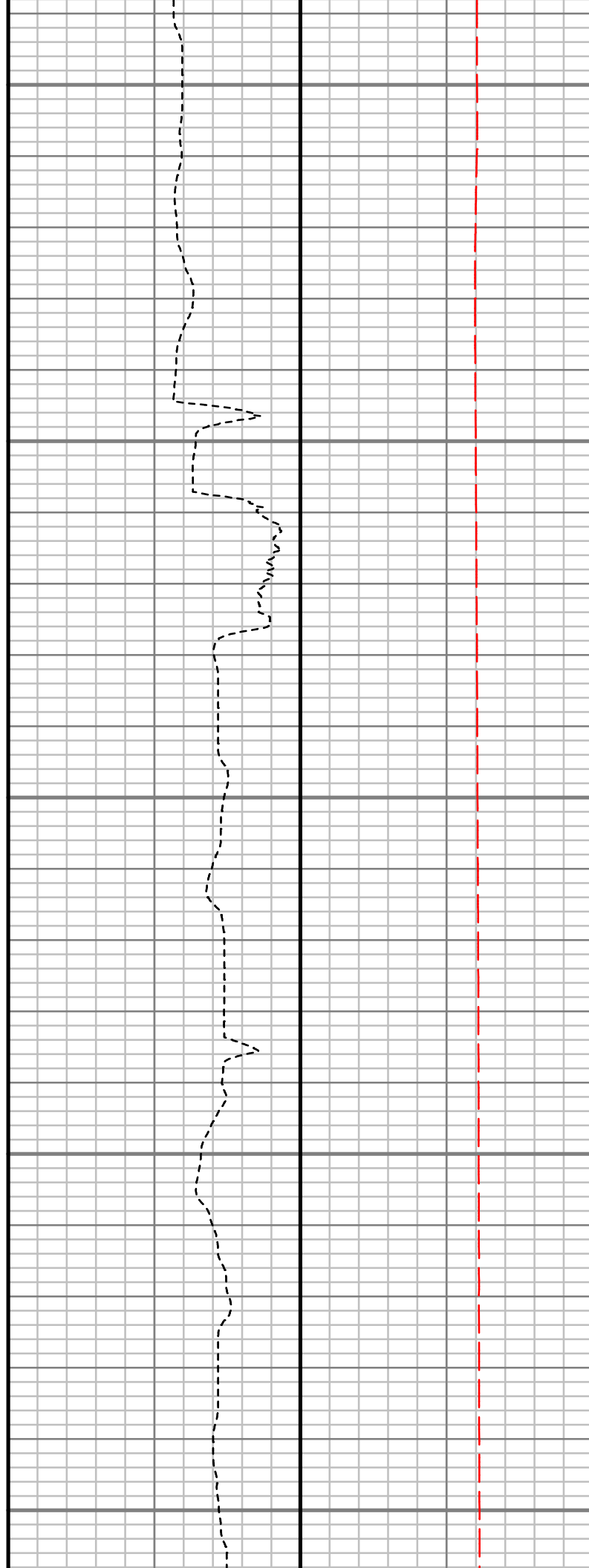
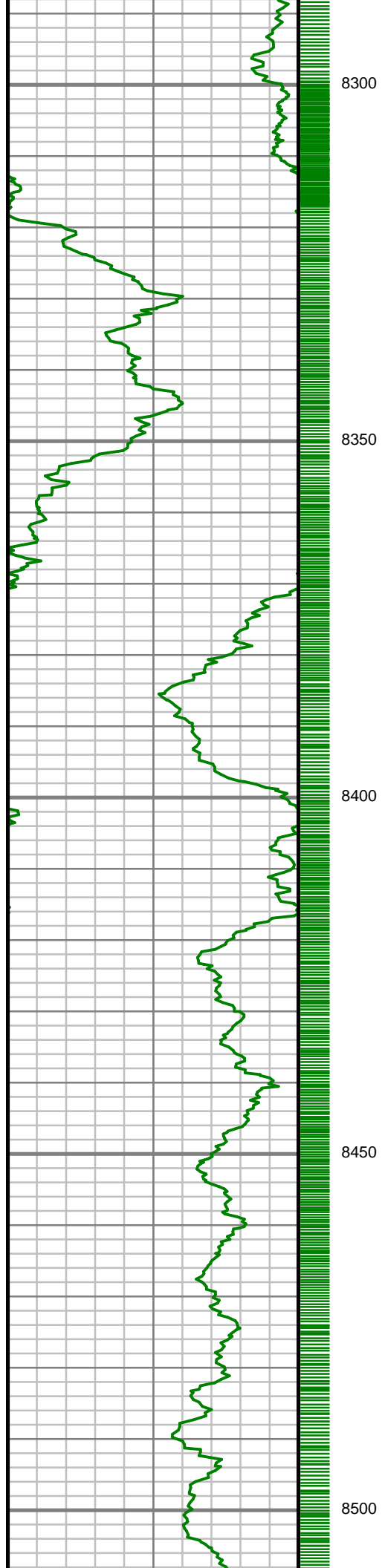
S: 130 MD: 8020.00 ft
Inc: 87.15 deg Az:
182.12 deg TVD:
6973.84 ft



S: 131 MD: 8109.00 ft
Inc: 87.41 deg Az:
181.74 deg TVD:
6978.07 ft

S: 132 MD: 8198.00 ft
Inc: 86.64 deg Az:
181.47 deg TVD:
6982.68 ft

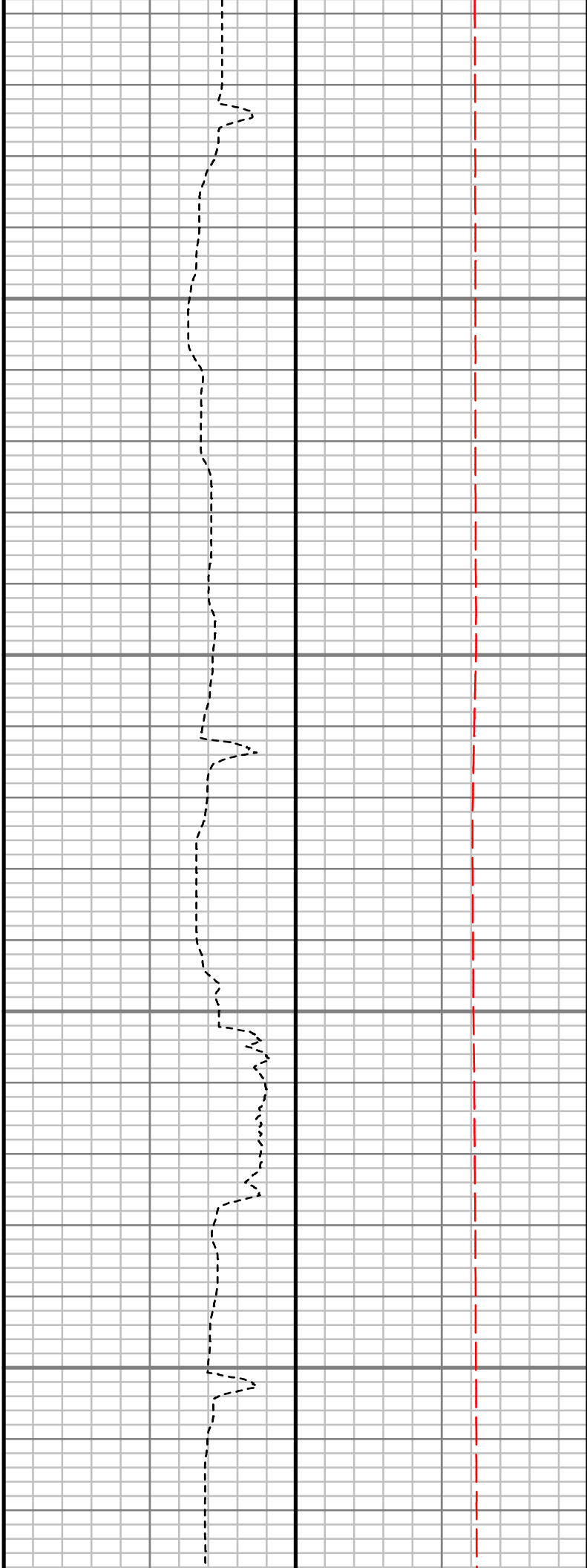
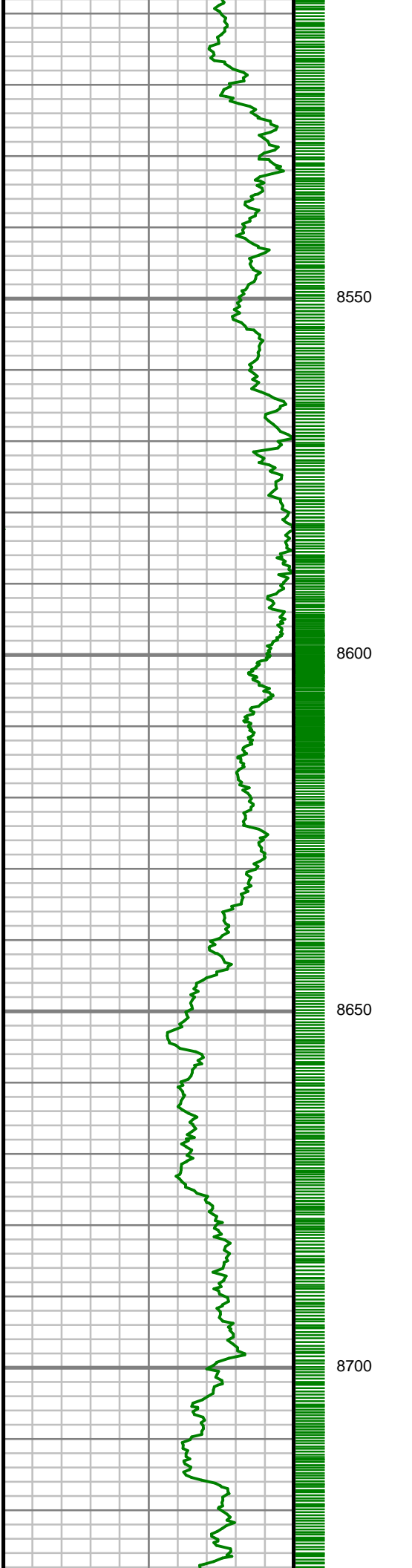
S: 133 MD: 8287.00 ft



S: 133 MD: 8287.00 ft
Inc: 86.91 deg Az:
181.51 deg TVD:
6987.69 ft

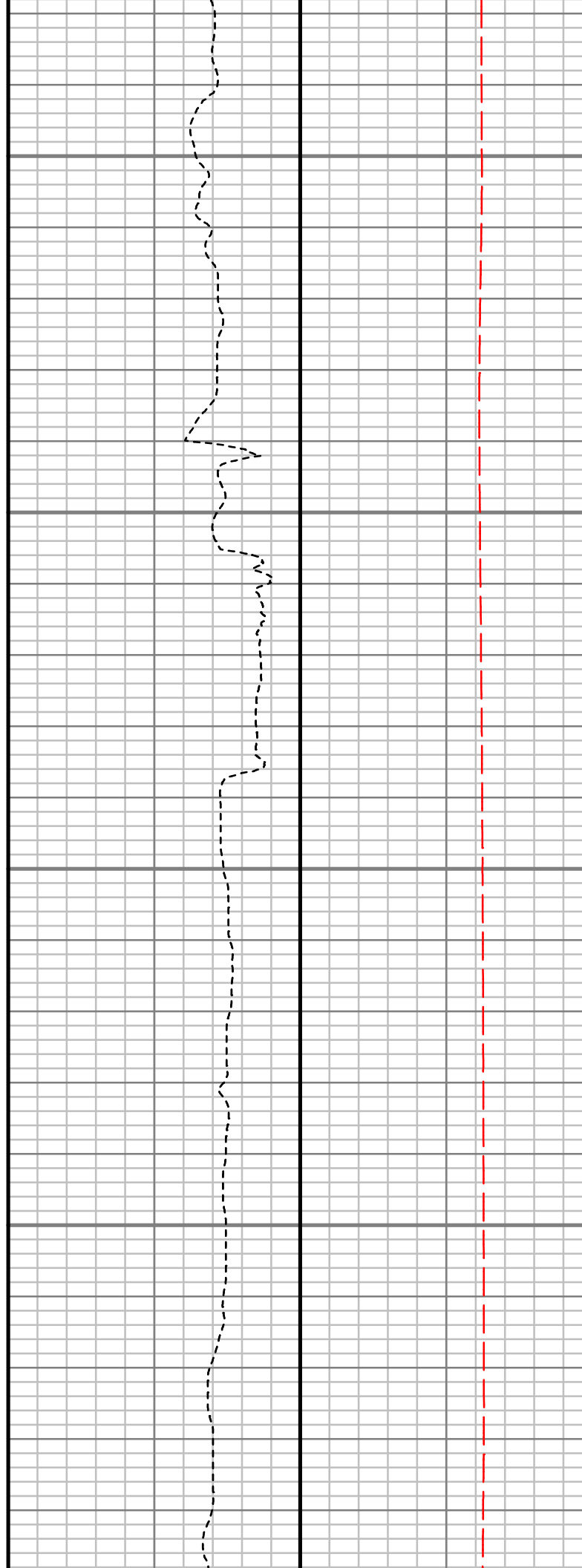
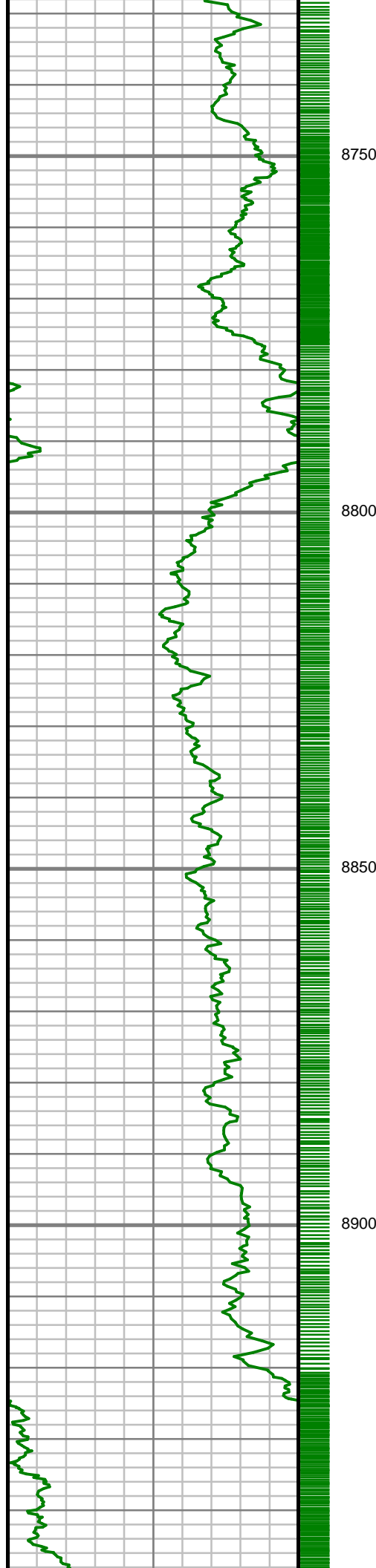
S: 134 MD: 8375.00 ft
Inc: 86.17 deg Az:
181.75 deg TVD:
6993.00 ft

S: 135 MD: 8464.00 ft
Inc: 86.50 deg Az:
181.26 deg TVD:
6998.69 ft



S: 136 MD: 8553.00 ft
Inc: 87.45 deg Az:
180.61 deg TVD:
7003.38 ft

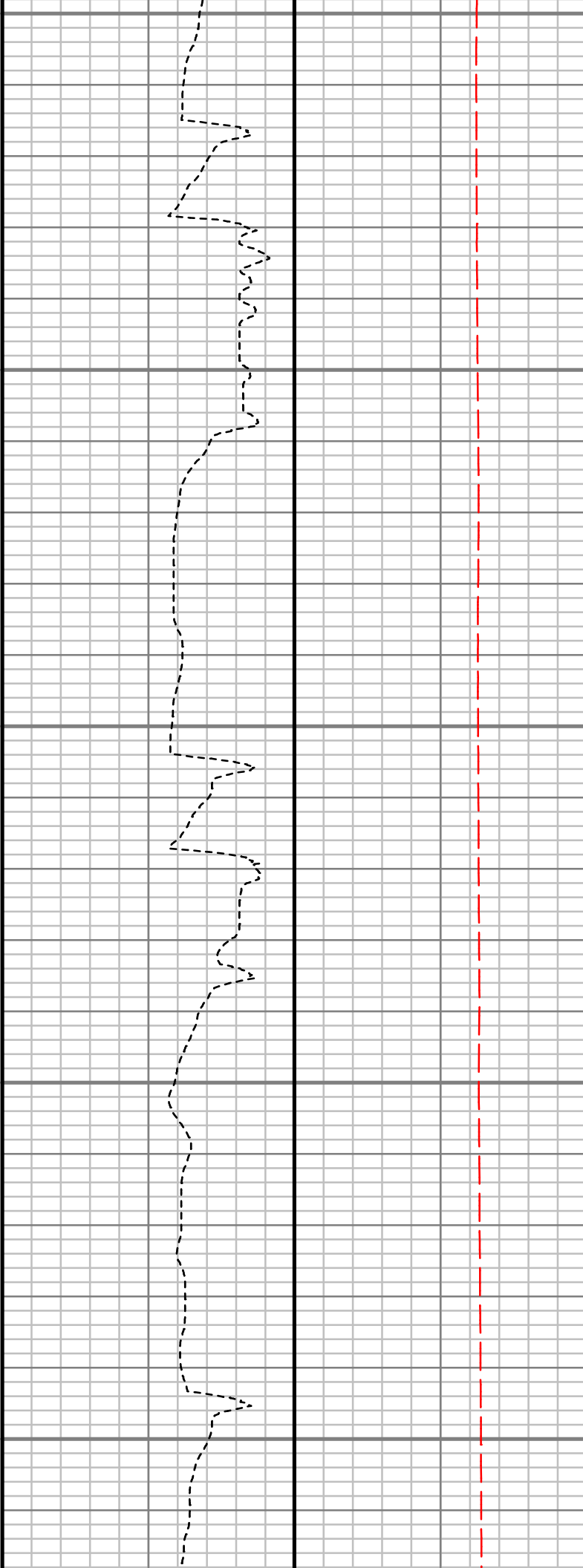
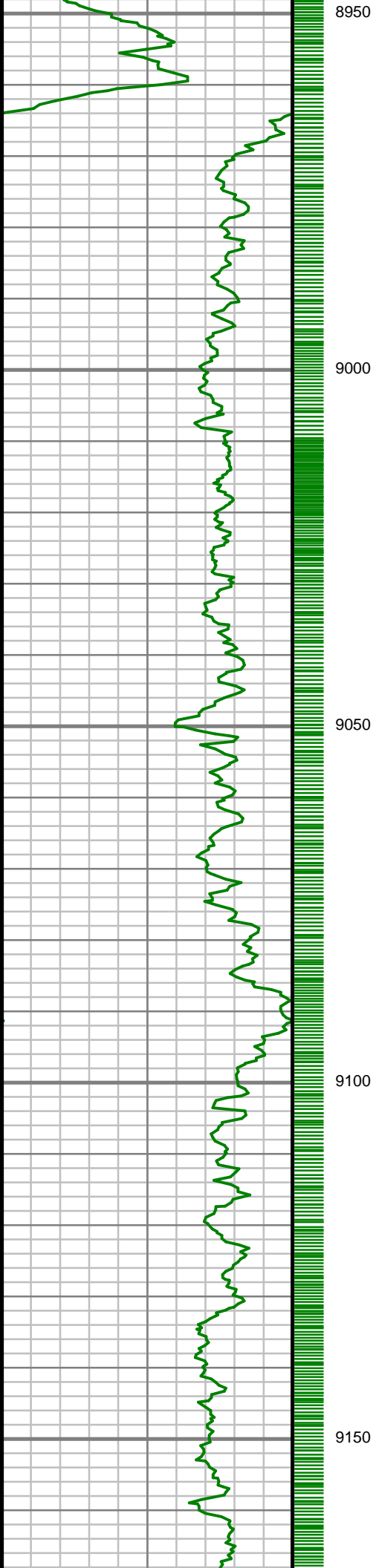
S: 137 MD: 8642.00 ft
Inc: 89.87 deg Az:
180.41 deg TVD:
7005.47 ft



S: 138 MD: 8731.00 ft
Inc: 88.96 deg Az:
180.34 deg TVD:
7006.38 ft

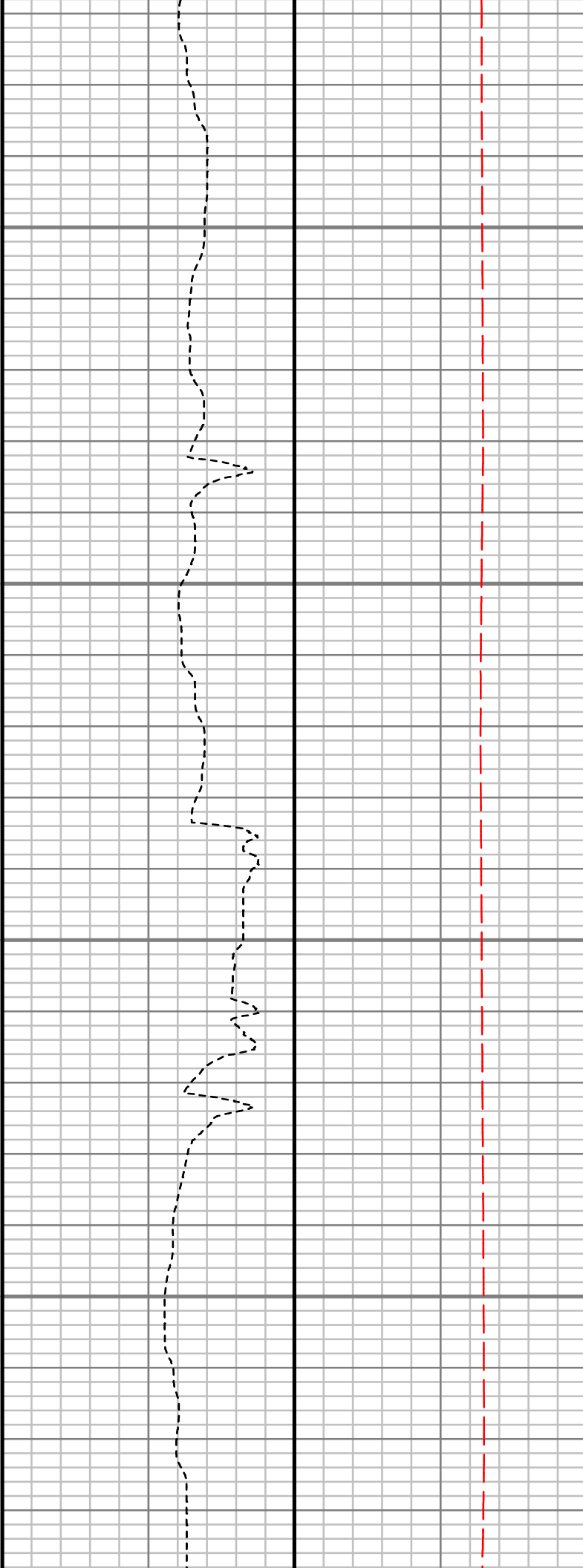
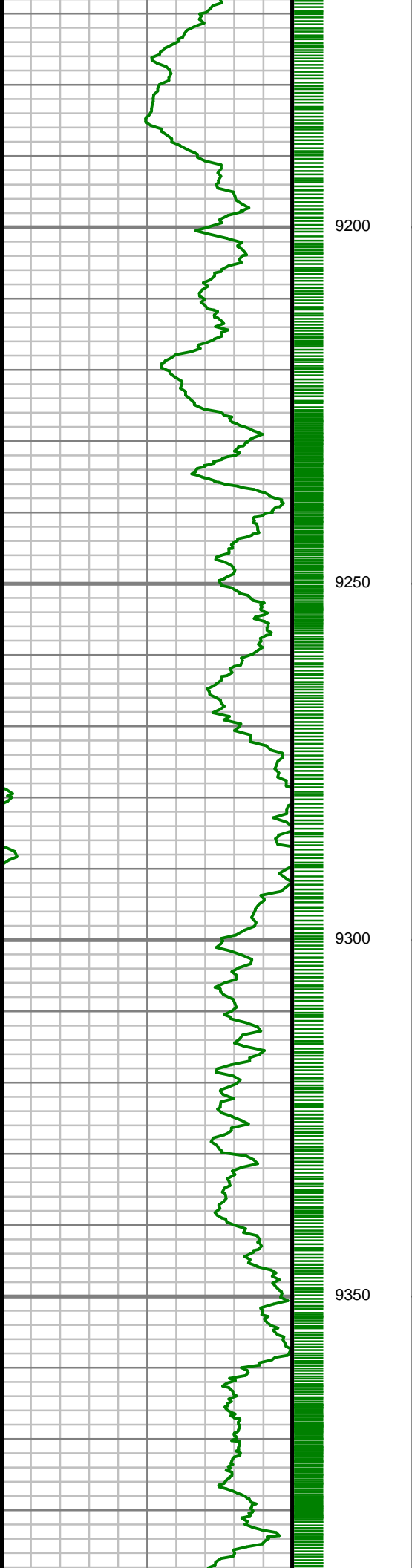
S: 139 MD: 8819.00 ft
Inc: 87.28 deg Az:
180.20 deg TVD:
7009.26 ft

S: 140 MD: 8908.00 ft
Inc: 86.68 deg Az:
179.61 deg TVD:
7013.96 ft



S: 141 MD: 8997.00 ft
Inc: 86.57 deg Az:
180.35 deg TVD:
7019.20 ft

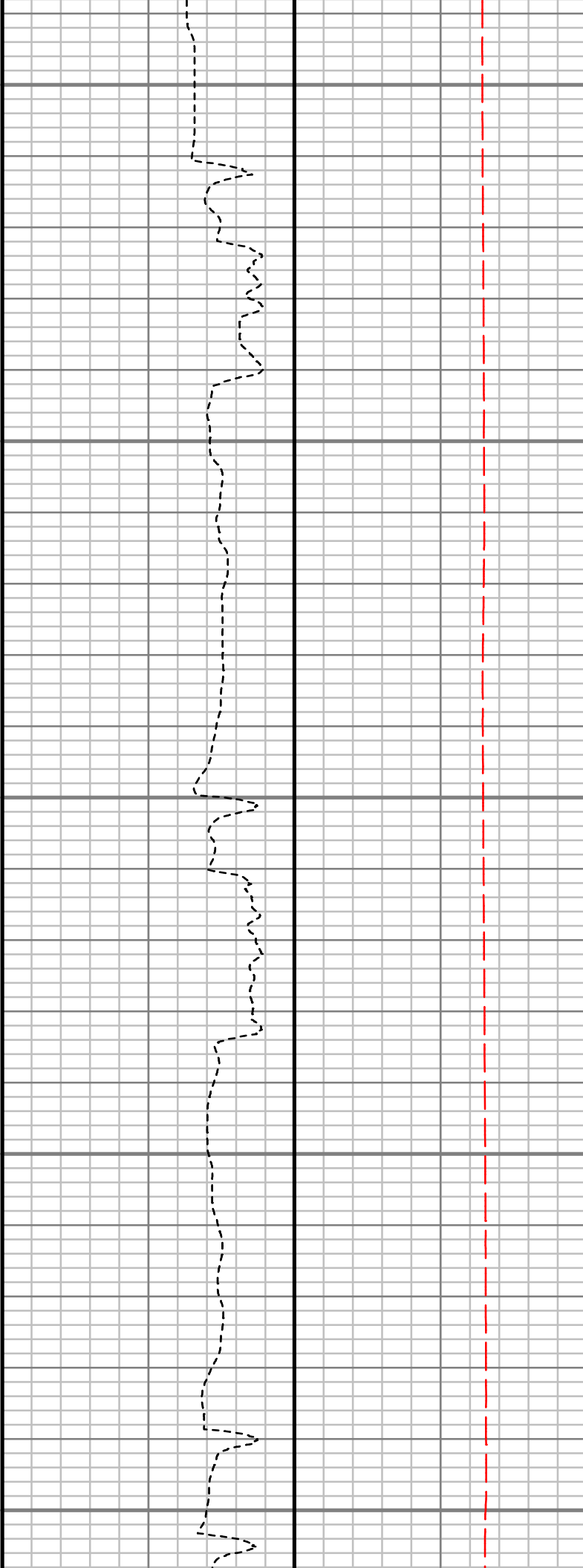
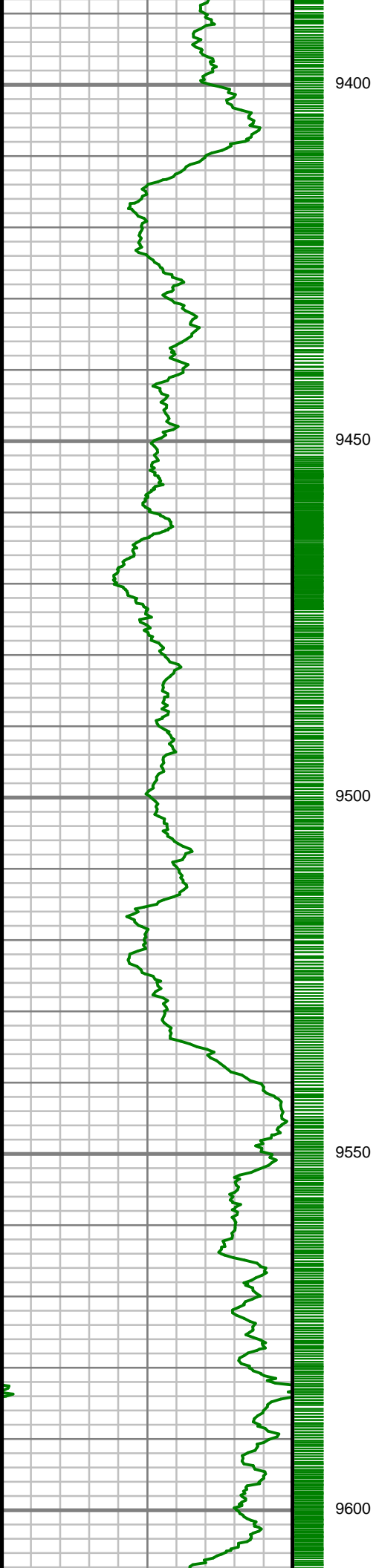
S: 142 MD: 9086.00 ft
Inc: 85.20 deg Az:
180.99 deg TVD:
7025.58 ft



S: 143 MD: 9175.00 ft
Inc: 86.31 deg Az:
180.54 deg TVD:
7032.18 ft

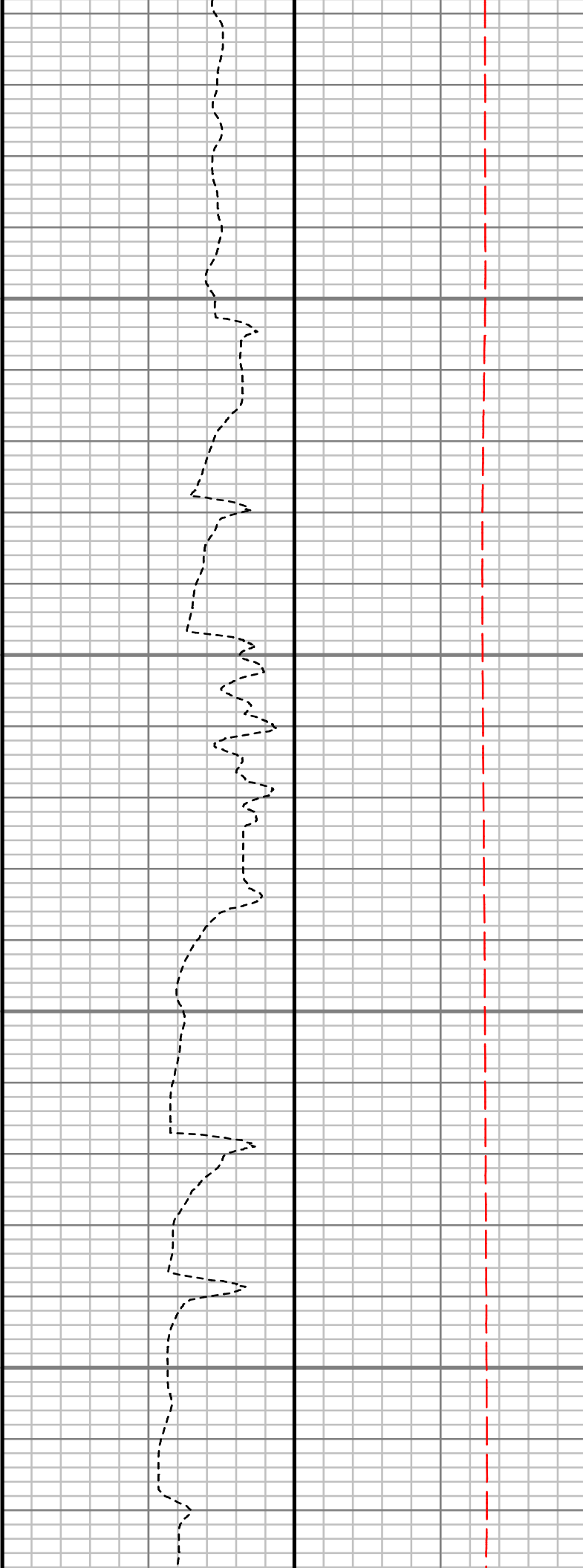
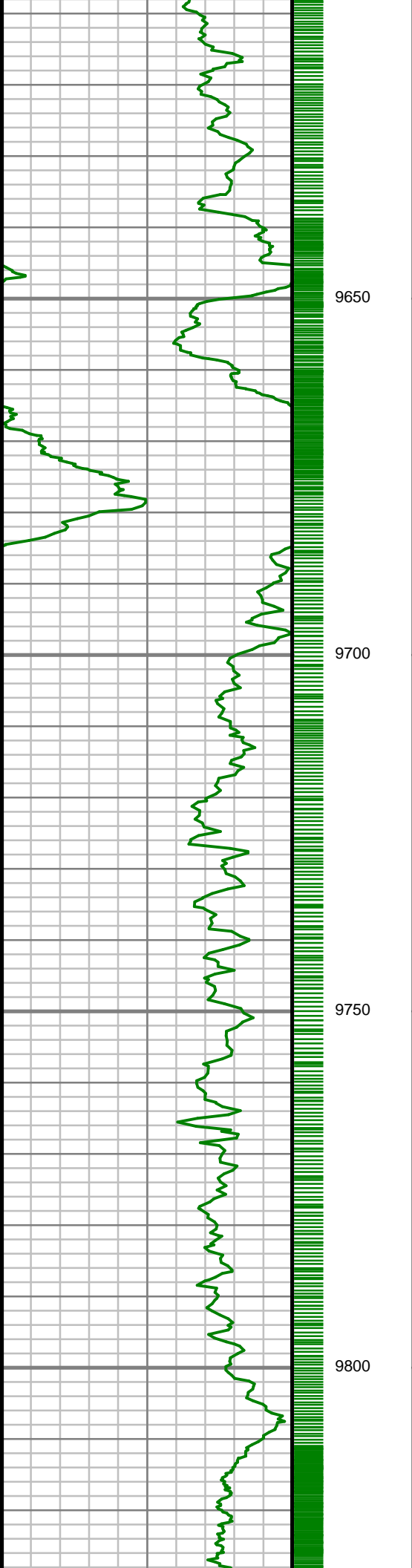
S: 144 MD: 9264.00 ft
Inc: 88.25 deg Az:
179.66 deg TVD:
7036.40 ft

S: 145 MD: 9352.00 ft
Inc: 85.77 deg Az:
180.47 deg TVD:
7040.99 ft



S: 146 MD: 9441.00 ft
Inc: 85.97 deg Az:
180.36 deg TVD:
7047.41 ft

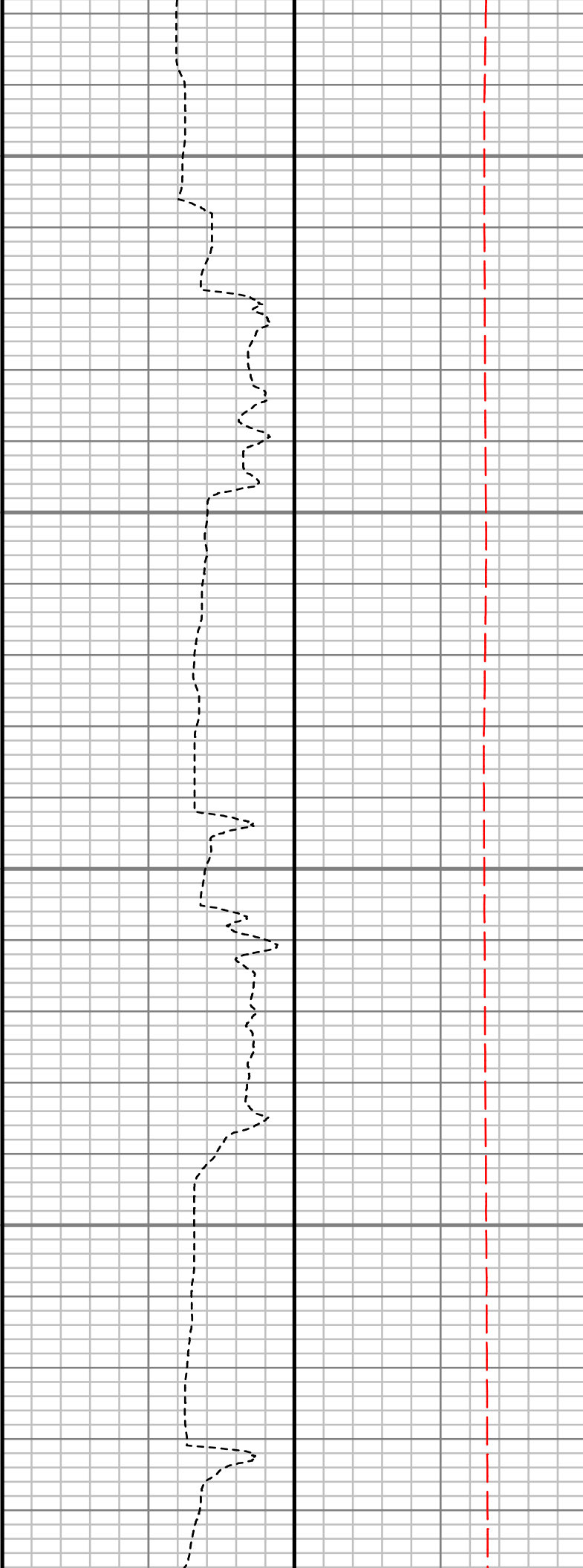
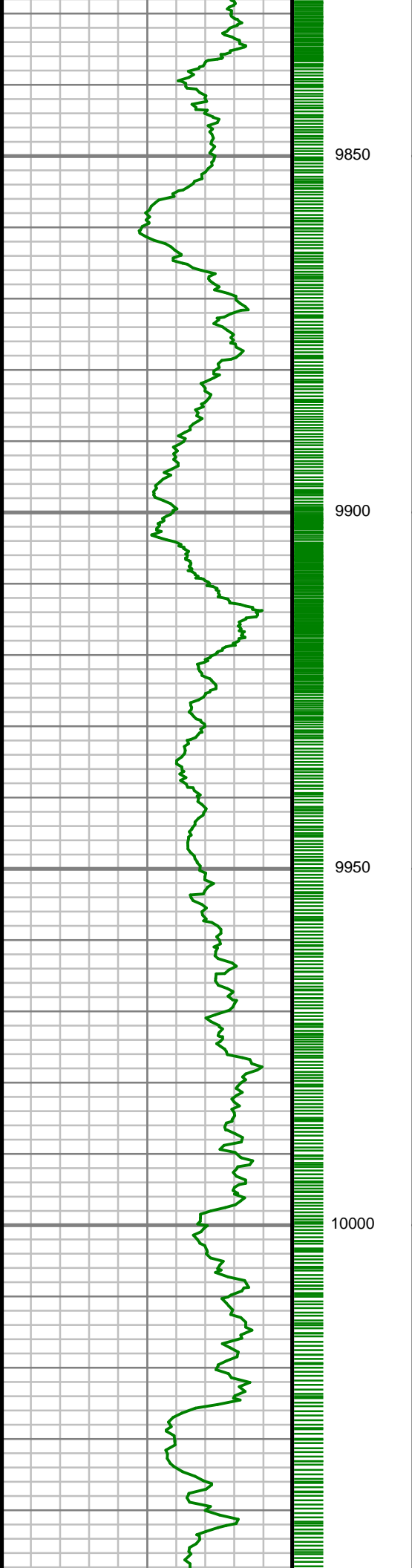
S: 147 MD: 9530.00 ft
Inc: 85.36 deg Az:
179.85 deg TVD:
7054.13 ft



S: 148 MD: 9619.00 ft
Inc: 86.44 deg Az:
179.14 deg TVD:
7060.49 ft

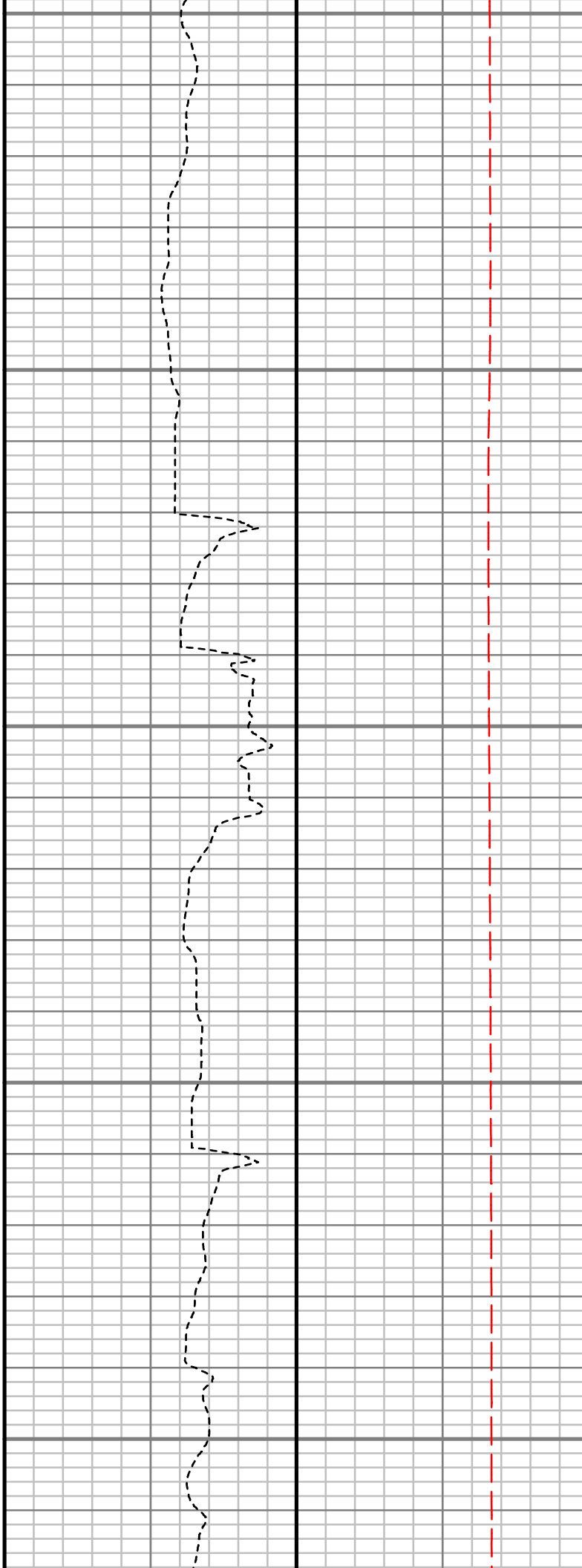
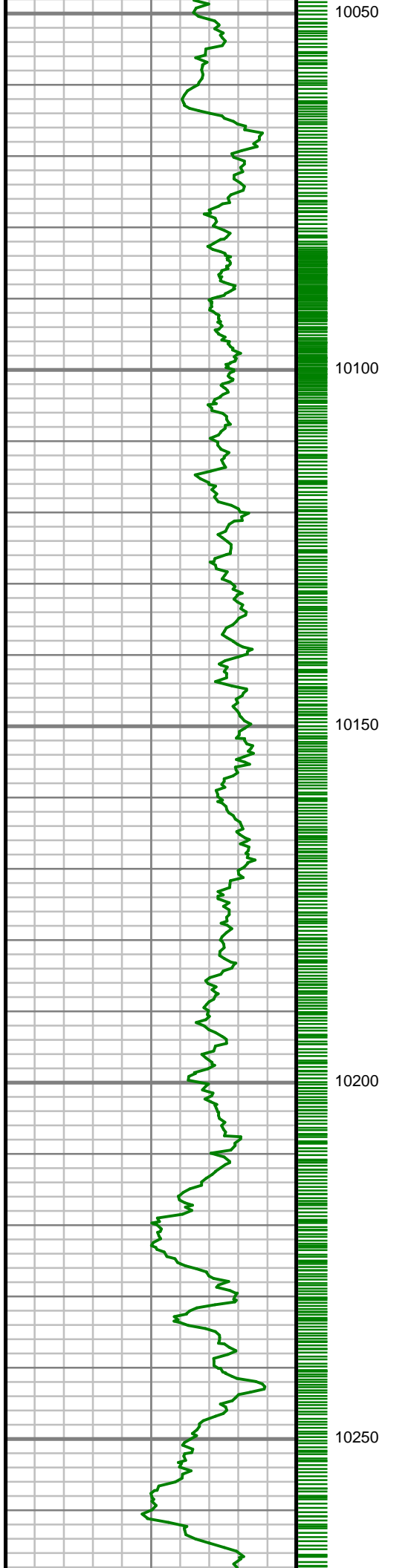
S: 149 MD: 9708.00 ft
Inc: 87.68 deg Az:
179.62 deg TVD:
7065.05 ft

S: 150 MD: 9797.00 ft
Inc: 88.15 deg Az:
181.38 deg TVD:
7068.28 ft



S: 151 MD: 9885.00 ft
Inc: 87.88 deg Az:
181.08 deg TVD:
7071.33 ft

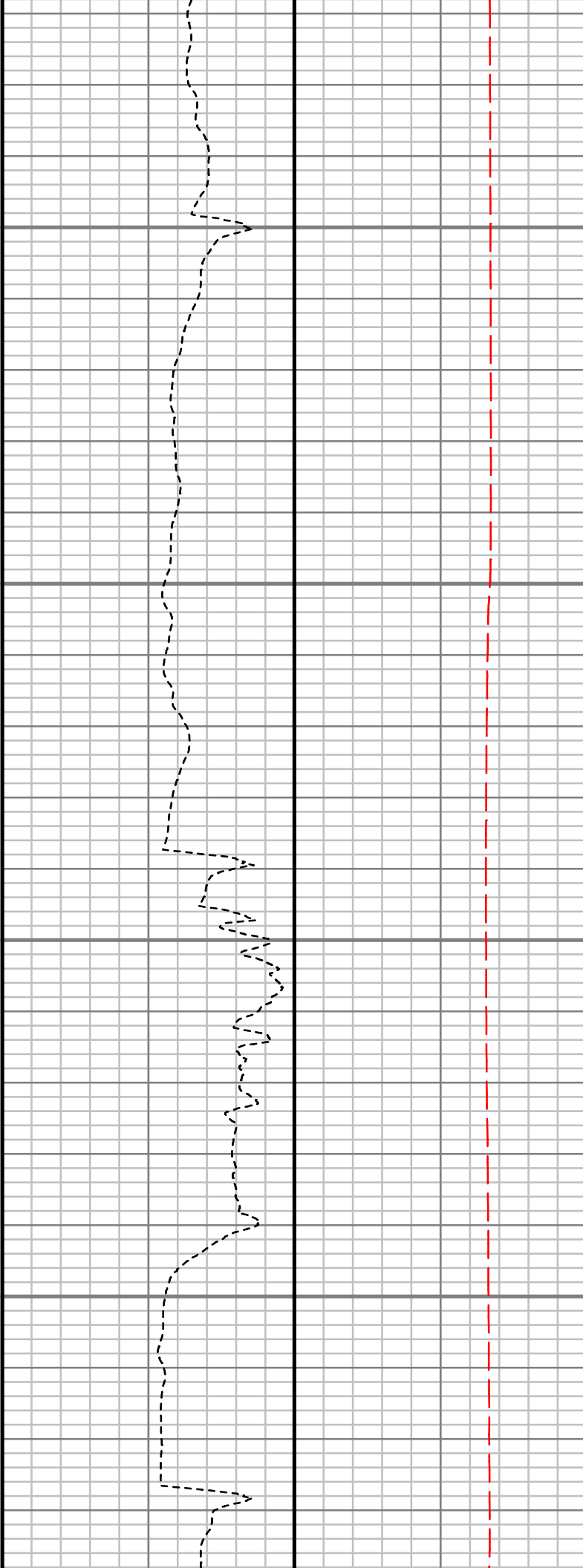
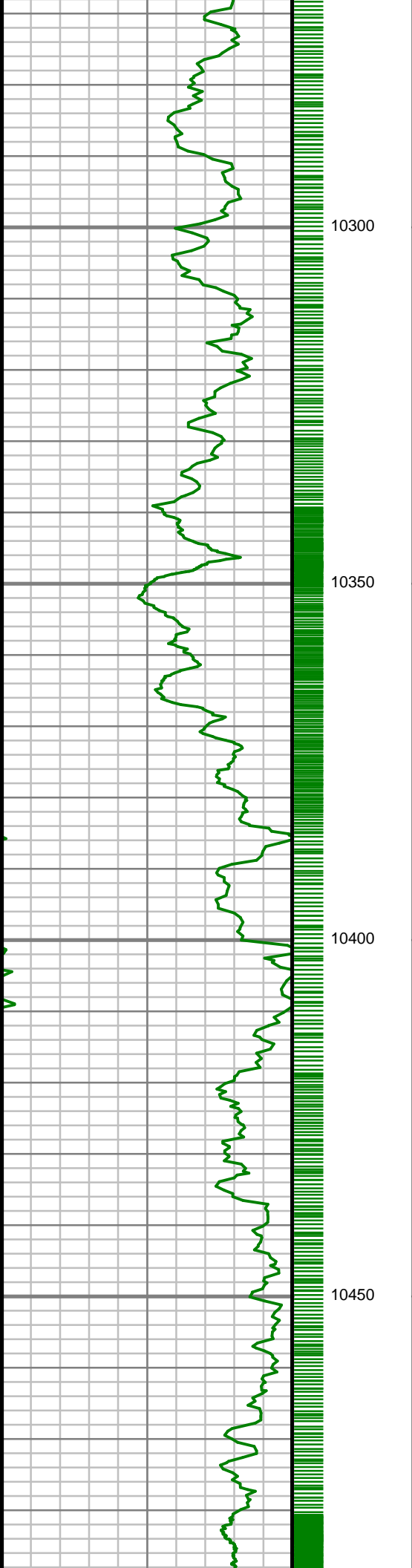
S: 152 MD: 9974.00 ft
Inc: 86.50 deg Az:
182.48 deg TVD:
7075.68 ft



S: 153 MD: 10063.00 ft
Inc: 86.68 deg Az:
181.93 deg TVD:
7080.98 ft

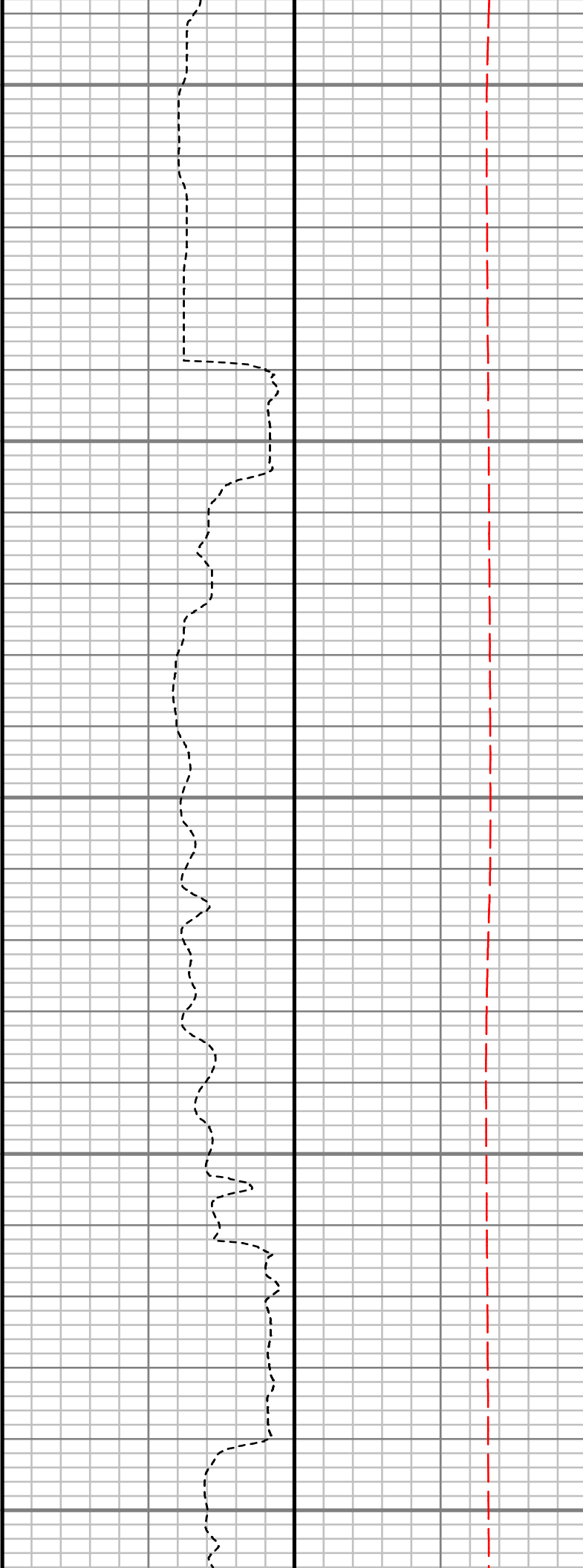
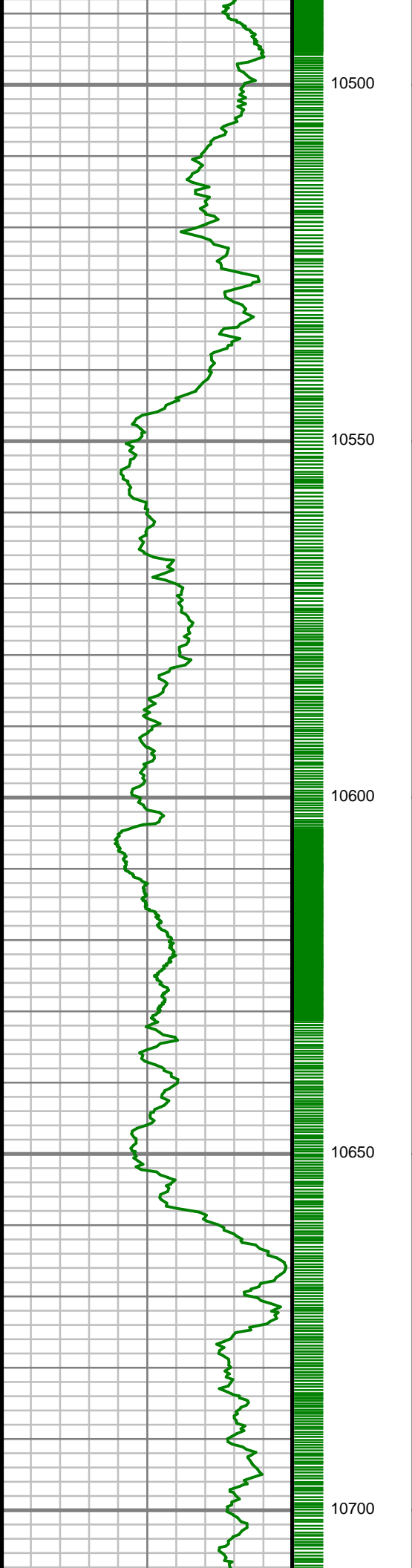
S: 154 MD: 10152.00 ft
Inc: 86.21 deg Az:
181.23 deg TVD:
7086.50 ft

S: 155 MD: 10241.00 ft
Inc: 86.58 deg Az:
180.43 deg TVD:
7092.10 ft



S: 156 MD: 10330.00 ft
Inc: 89.09 deg Az:
180.07 deg TVD:
7095.46 ft

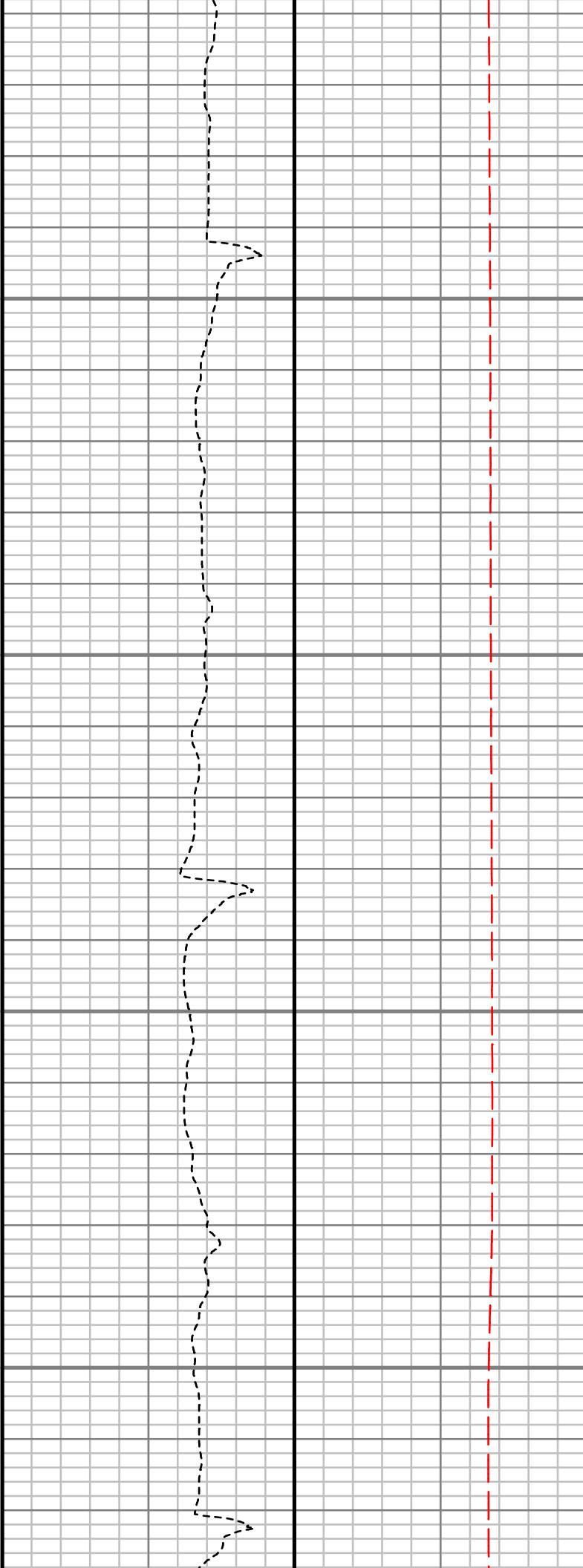
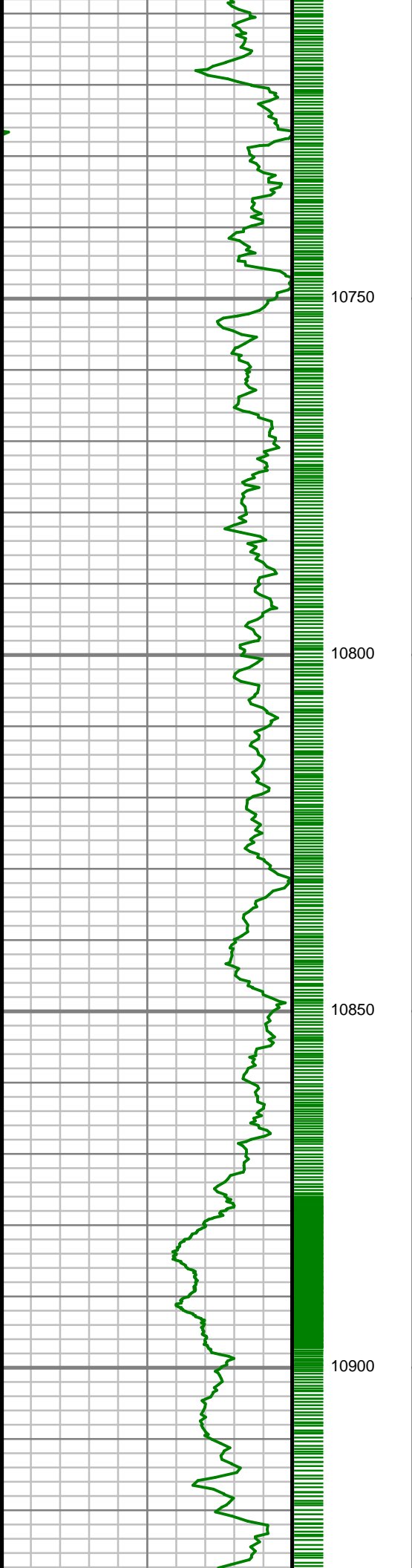
S: 157 MD: 10419.00 ft
Inc: 88.79 deg Az:
179.88 deg TVD:
7097.11 ft



S: 158 MD: 10508.00 ft
Inc: 87.89 deg Az:
179.93 deg TVD:
7099.69 ft

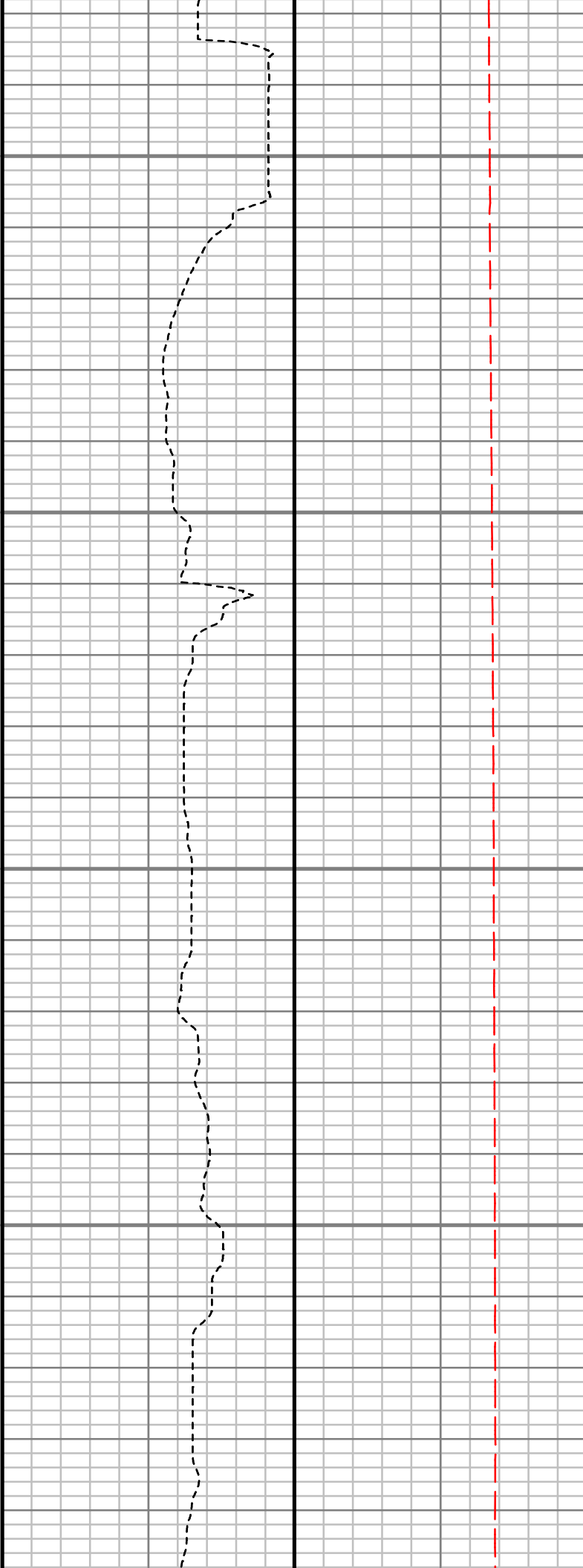
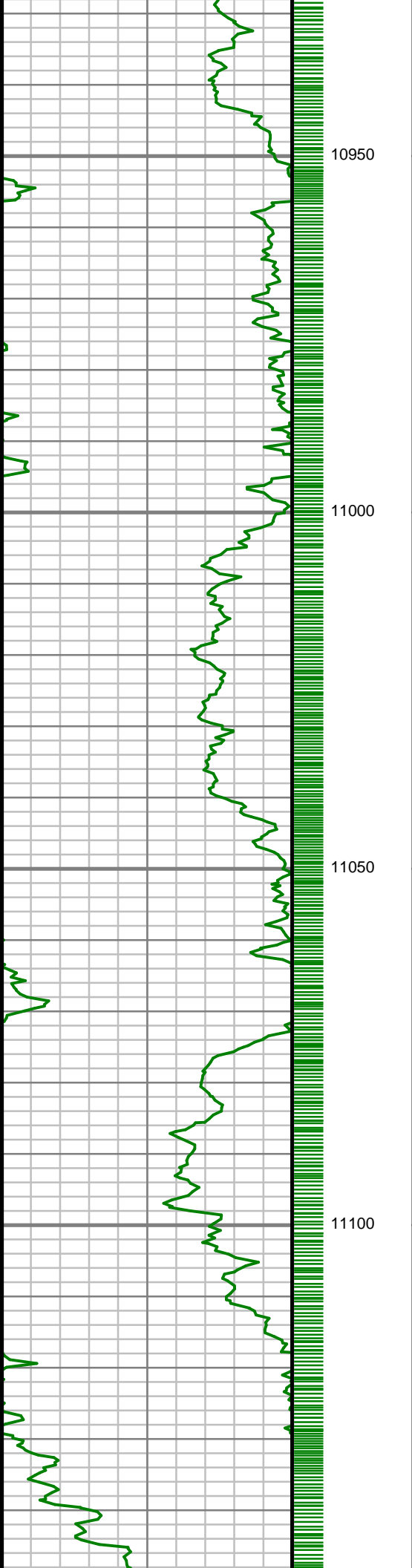
S: 159 MD: 10596.00 ft
Inc: 87.18 deg Az:
180.56 deg TVD:
7103.48 ft

S: 160 MD: 10685.00 ft
Inc: 85.67 deg Az:
181.05 deg TVD:
7109.03 ft



S: 161 MD: 10774.00 ft
Inc: 85.67 deg Az:
180.60 deg TVD:
7115.75 ft

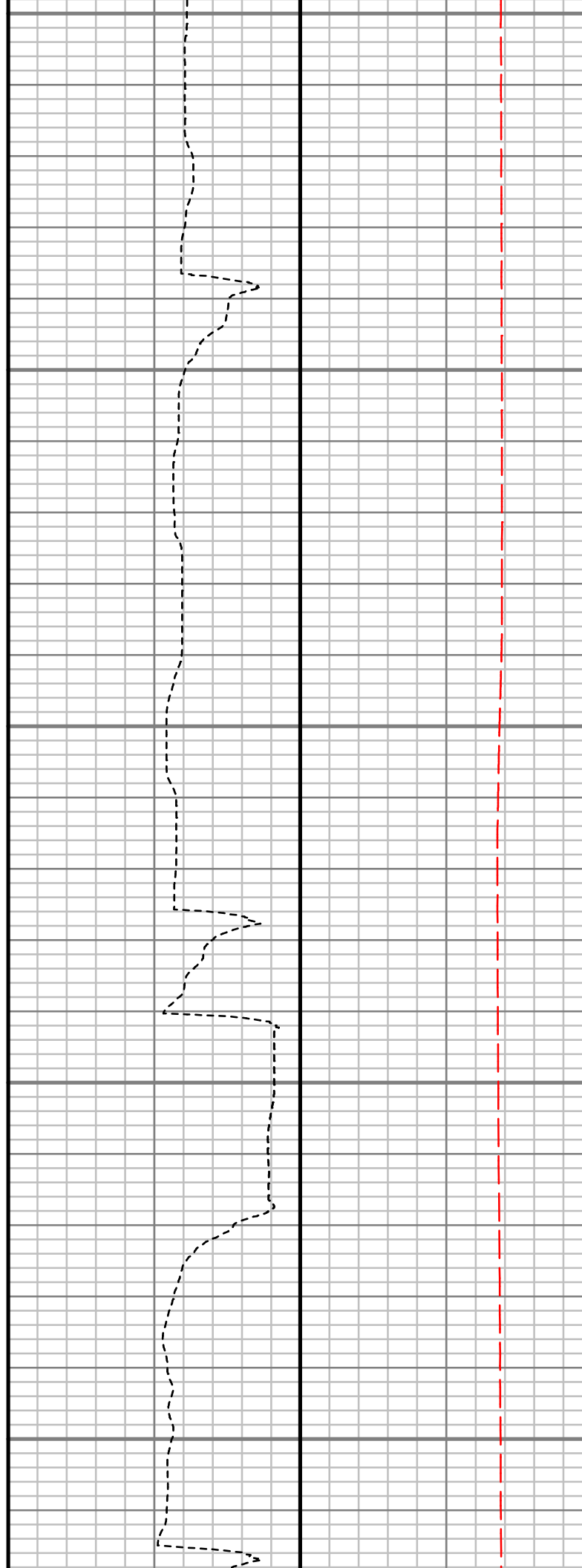
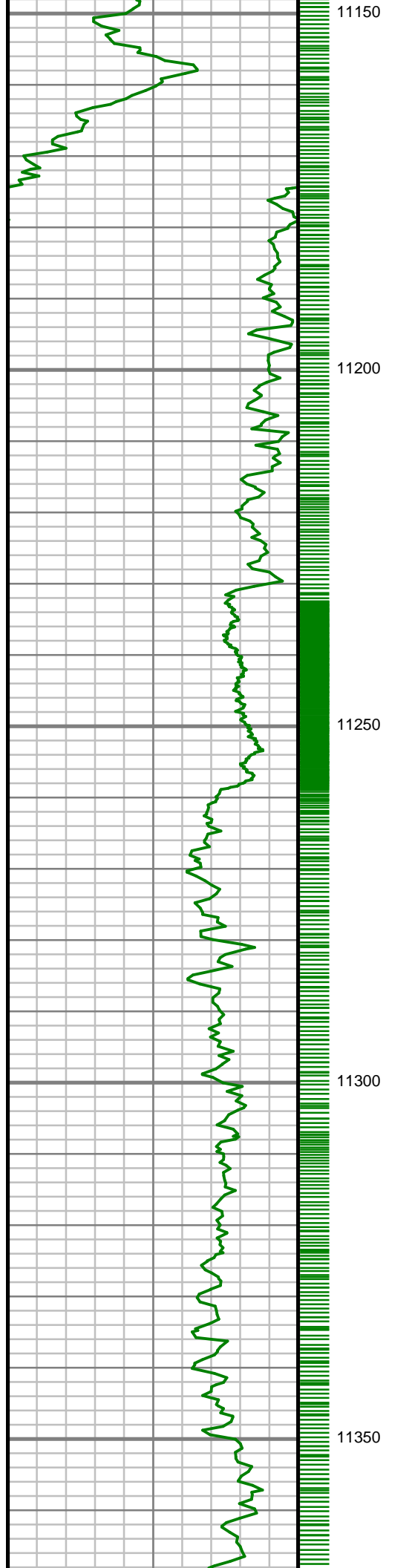
S: 162 MD: 10863.00 ft
Inc: 86.98 deg Az:
180.71 deg TVD:
7121.46 ft



S: 163 MD: 10952.00 ft
Inc: 85.74 deg Az:
180.28 deg TVD:
7127.11 ft

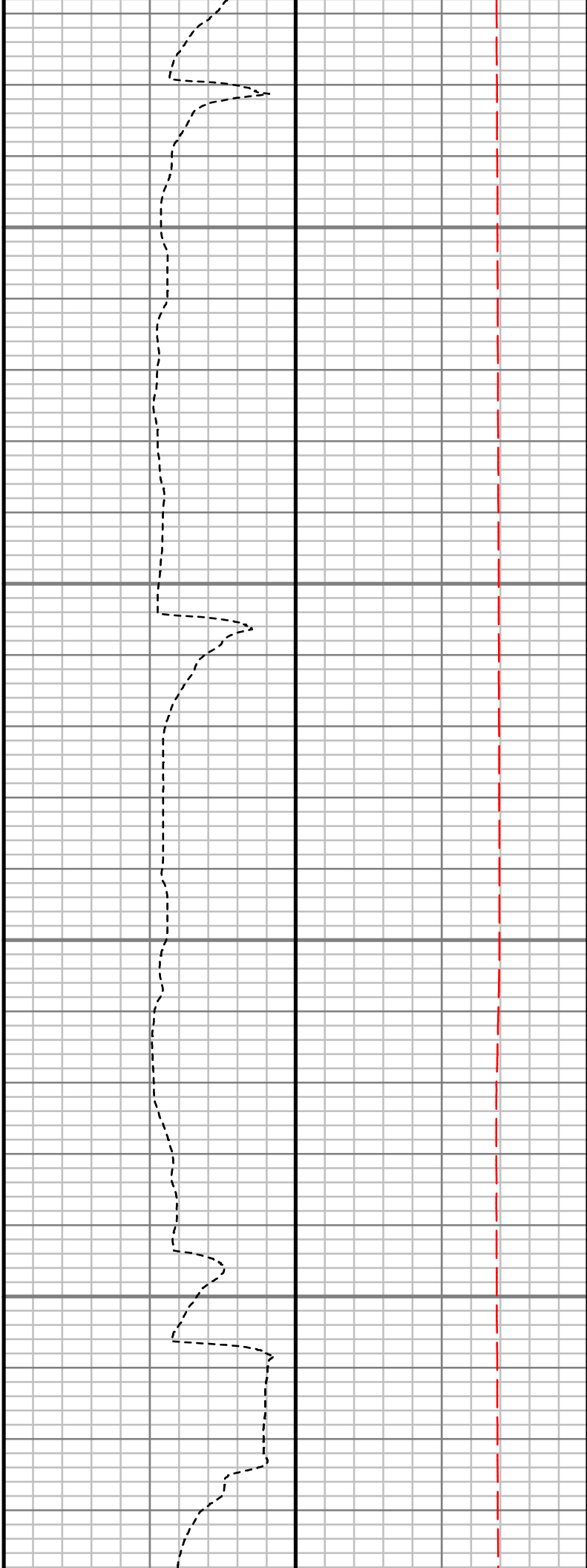
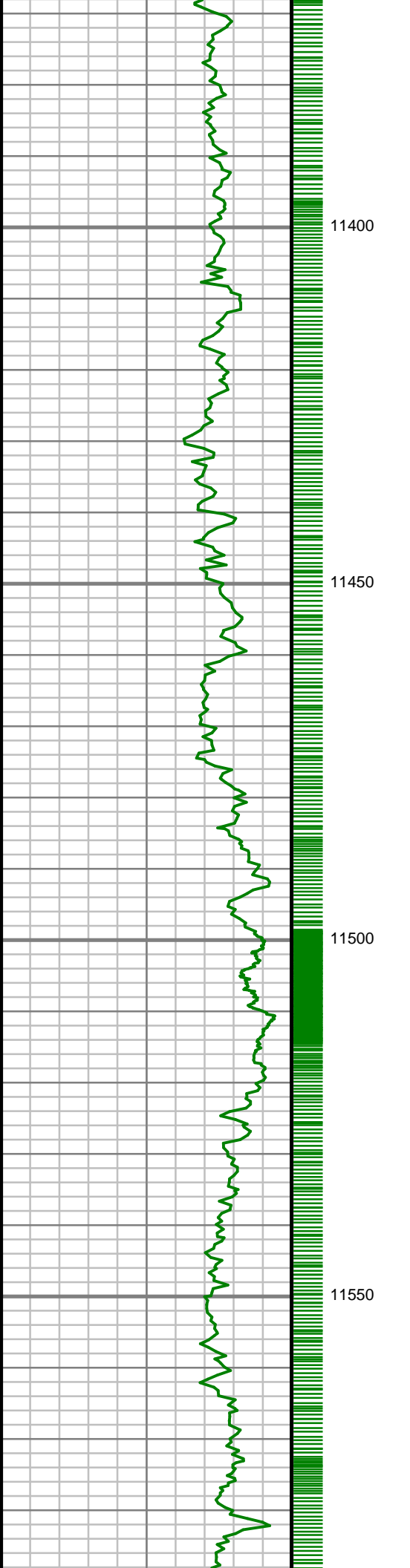
S: 164 MD: 11041.00 ft
Inc: 86.14 deg Az:
179.12 deg TVD:
7133.42 ft

S: 165 MD: 11130.00 ft
Inc: 87.32 deg Az:
178.67 deg TVD:
7138.50 ft



S: 166 MD: 11219.00 ft
Inc: 88.39 deg Az:
178.75 deg TVD:
7141.84 ft

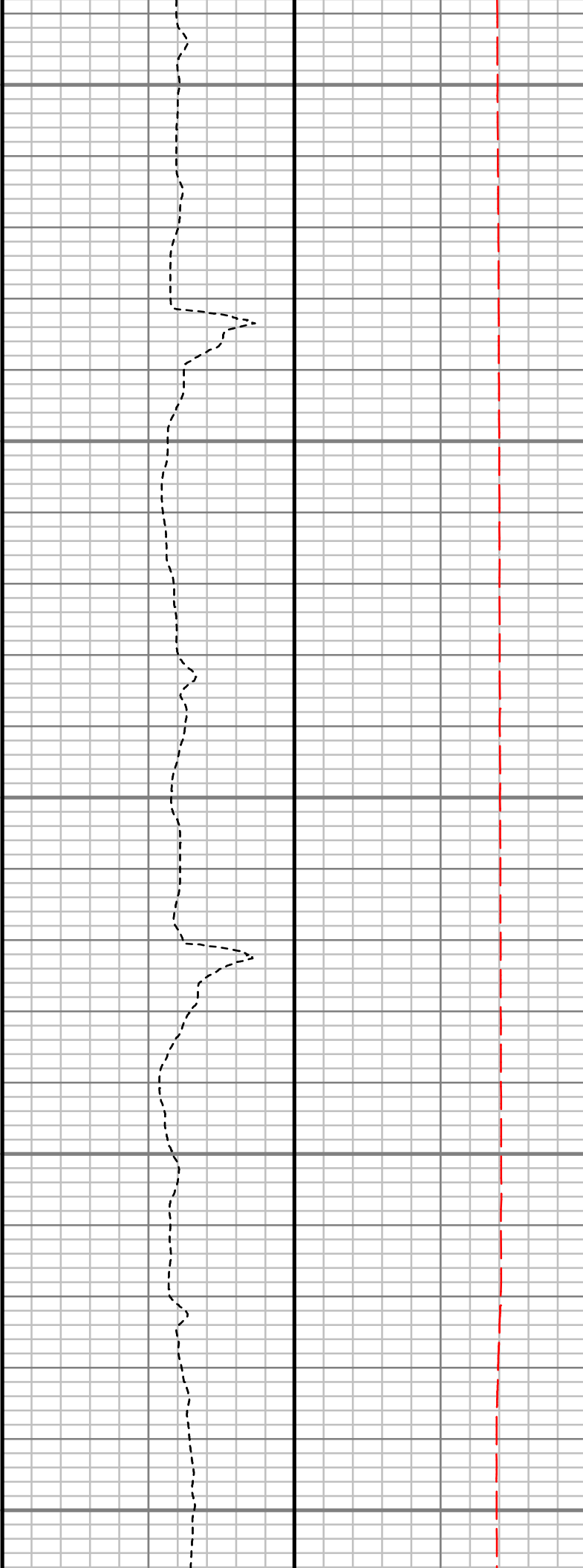
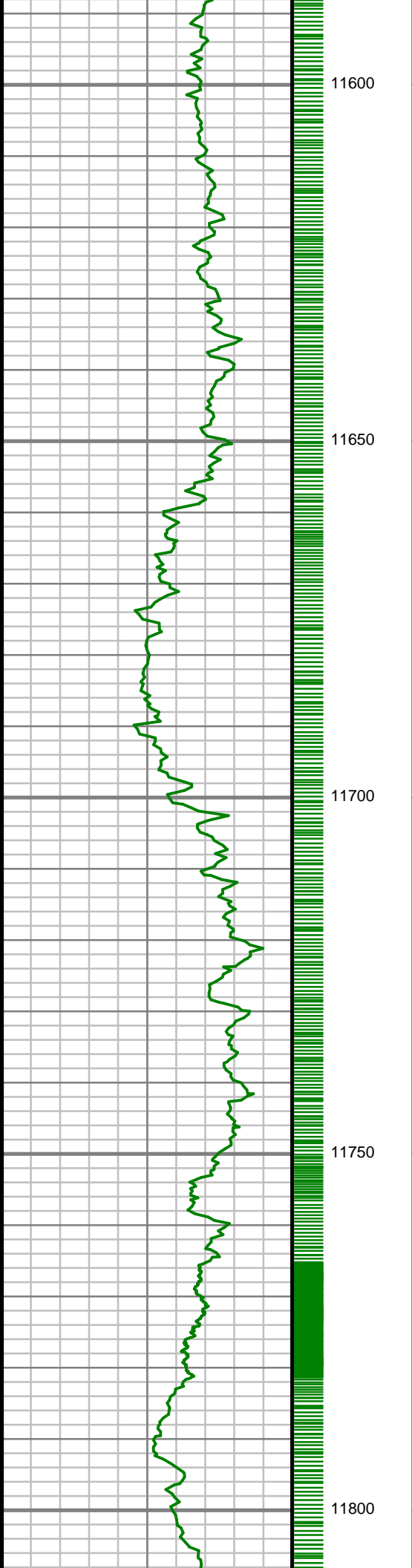
S: 167 MD: 11308.00 ft
Inc: 87.08 deg Az:
180.20 deg TVD:
7145.36 ft



S: 168 MD: 11397.00 ft
Inc: 87.08 deg Az:
180.85 deg TVD:
7149.89 ft

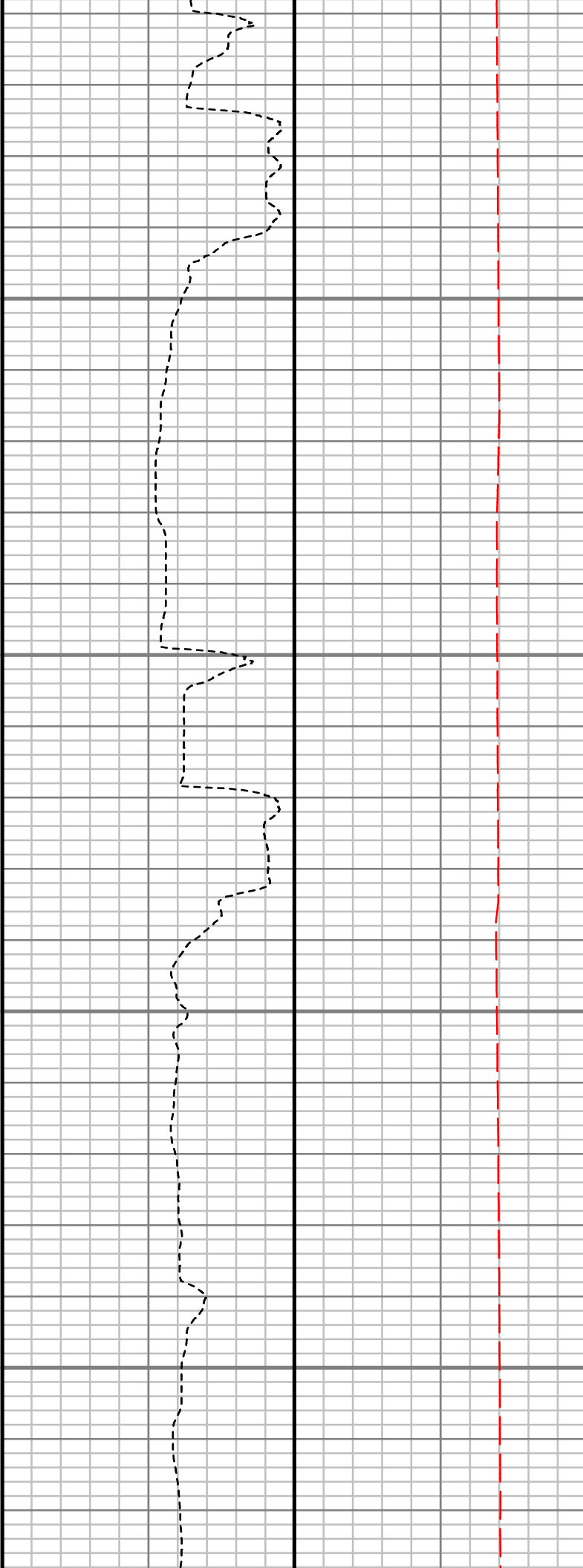
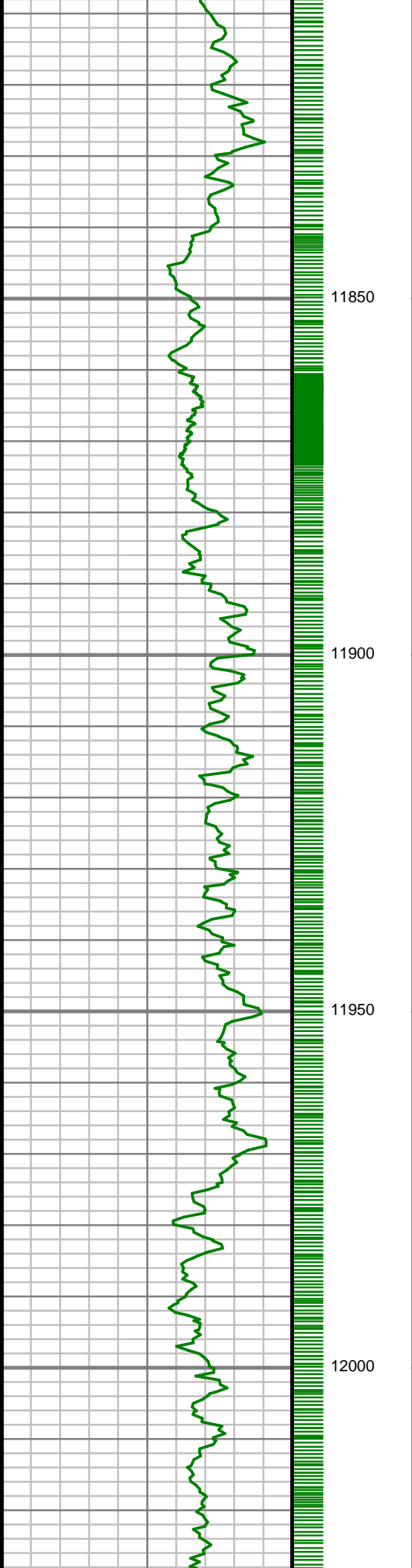
S: 169 MD: 11486.00 ft
Inc: 88.29 deg Az:
180.71 deg TVD:
7153.49 ft

S: 170 MD: 11575.00 ft
Inc: 86.88 deg Az:
180.69 deg TVD:
7157.24 ft



S: 171 MD: 11664.00 ft
Inc: 87.15 deg Az:
180.38 deg TVD:
7161.88 ft

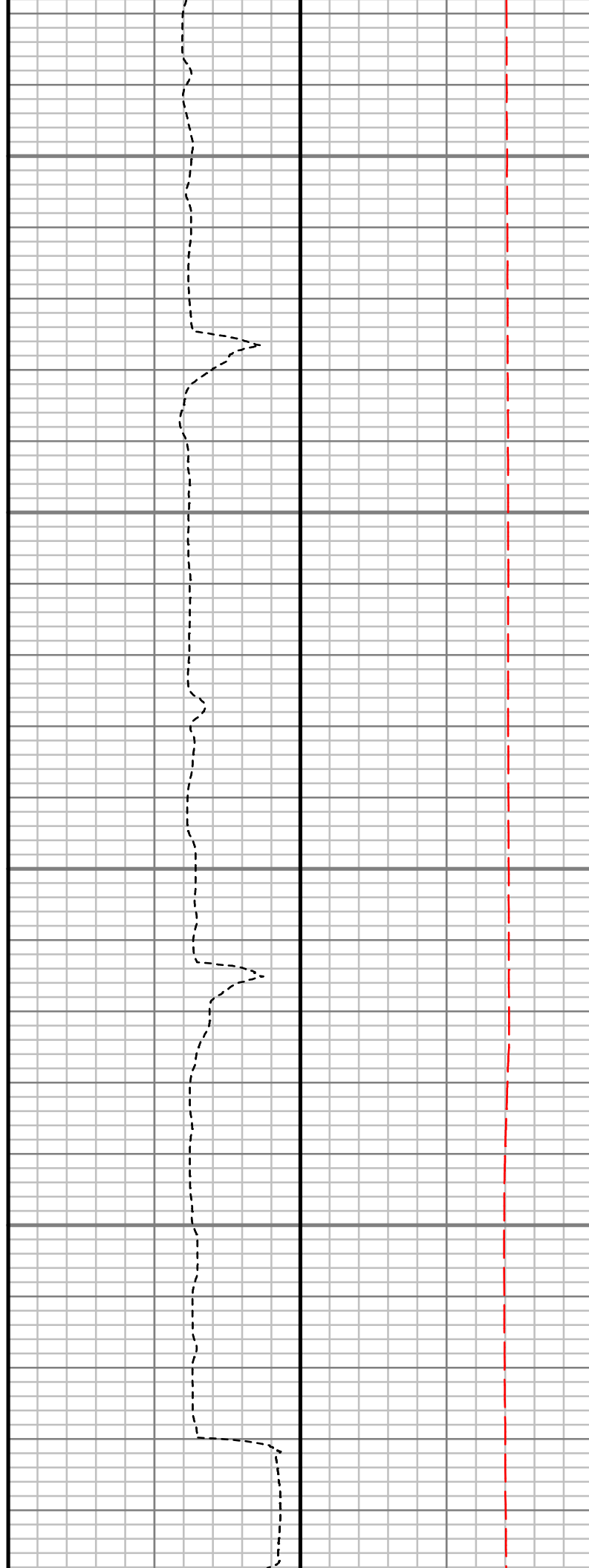
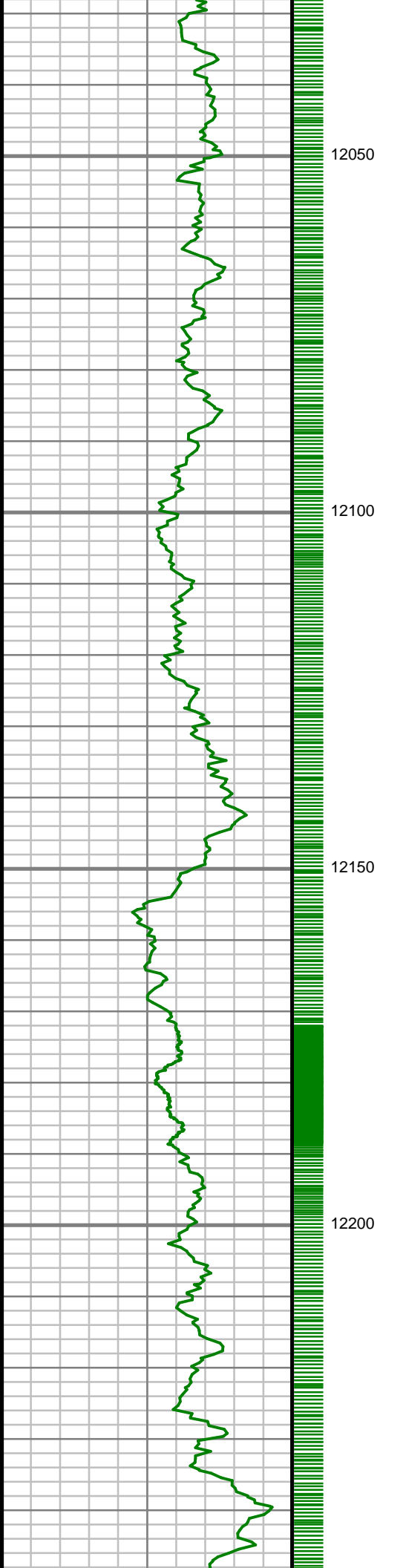
S: 172 MD: 11753.00 ft
Inc: 88.12 deg Az:
180.10 deg TVD:
7165.56 ft



S: 173 MD: 11842.00 ft
Inc: 88.12 deg Az:
181.09 deg TVD:
7168.48 ft

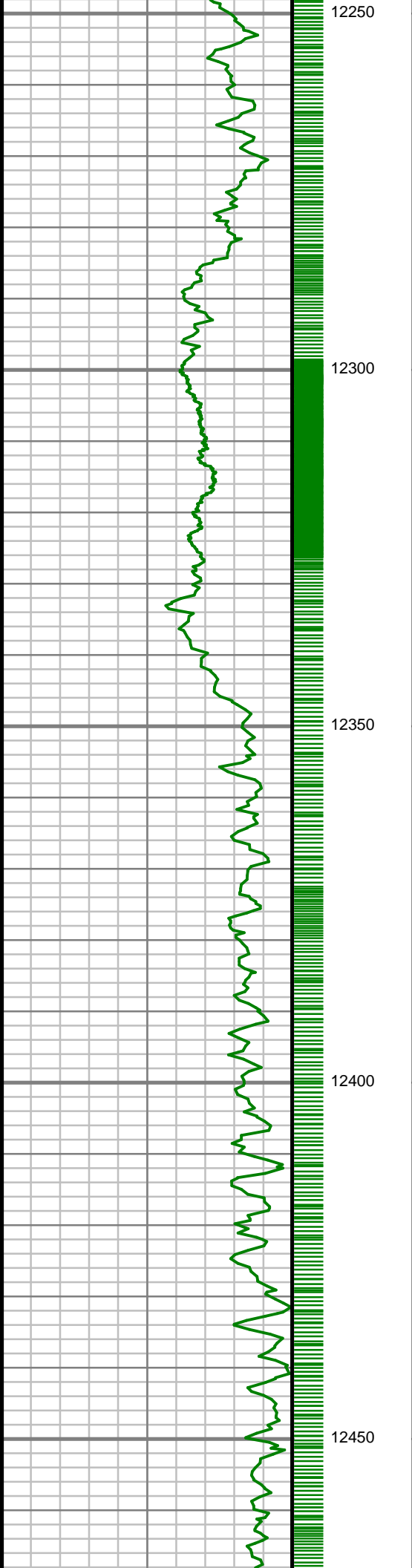
S: 174 MD: 11930.00 ft
Inc: 87.72 deg Az:
181.15 deg TVD:
7171.67 ft

S: 175 MD: 12019.00 ft
Inc: 88.56 deg Az:
180.61 deg TVD:
7174.56 ft



S: 176 MD: 12108.00 ft
Inc: 89.66 deg Az:
180.14 deg TVD:
7175.94 ft

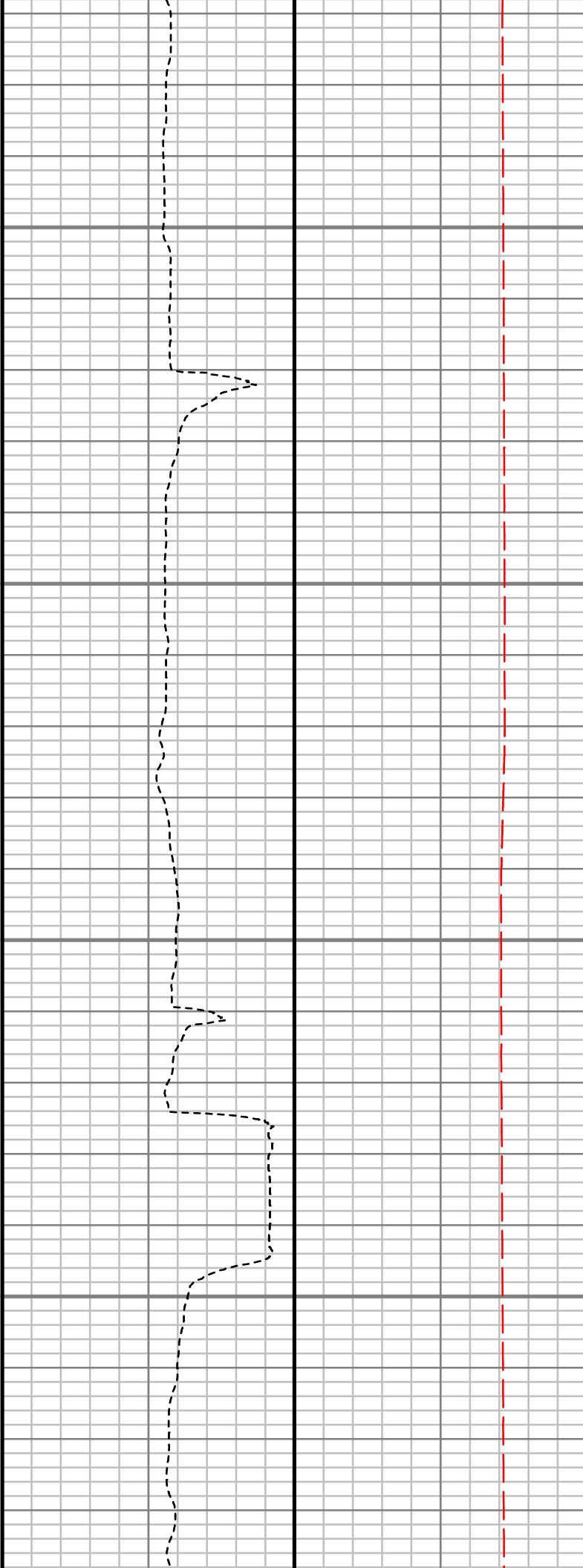
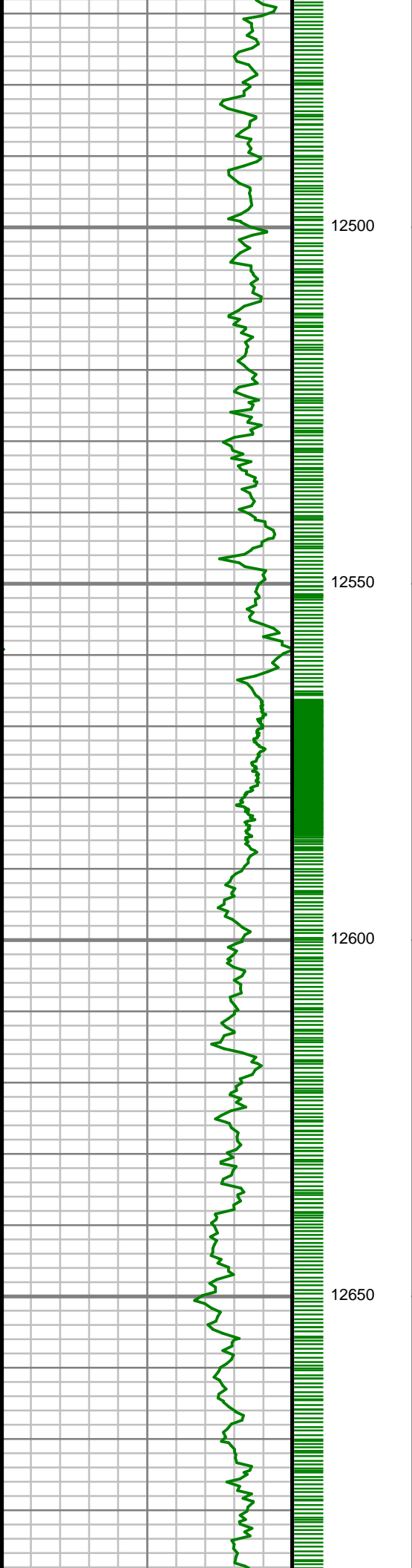
S: 177 MD: 12197.00 ft
Inc: 91.38 deg Az:
179.97 deg TVD:
7175.14 ft



S: 178 MD: 12286.00 ft
Inc: 89.87 deg Az:
179.42 deg TVD:
7174.17 ft

S: 179 MD: 12374.00 ft
Inc: 88.39 deg Az:
180.64 deg TVD:
7175.51 ft

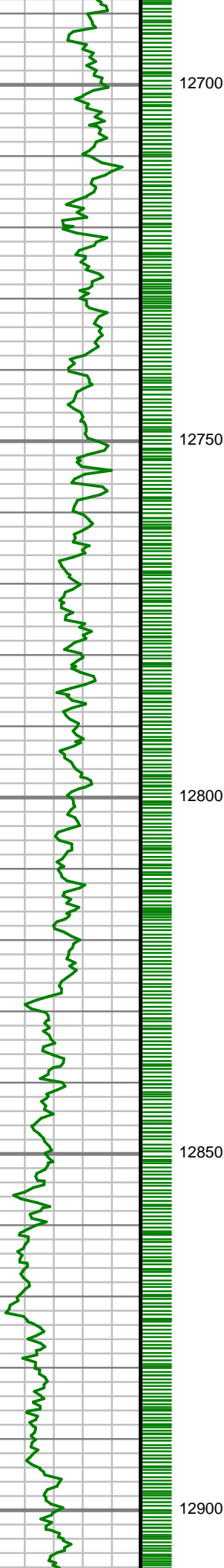
S: 180 MD: 12463.00 ft
Inc: 88.19 deg Az:



180.66 deg TVD:
7178.17 ft

S: 181 MD: 12552.00 ft
Inc: 89.33 deg Az:
180.44 deg TVD:
7180.10 ft

S: 182 MD: 12641.00 ft
Inc: 88.16 deg Az:
180.35 deg TVD:
7182.05 ft



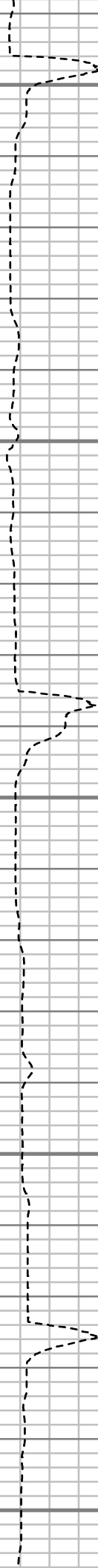
12700

12750

12800

12850

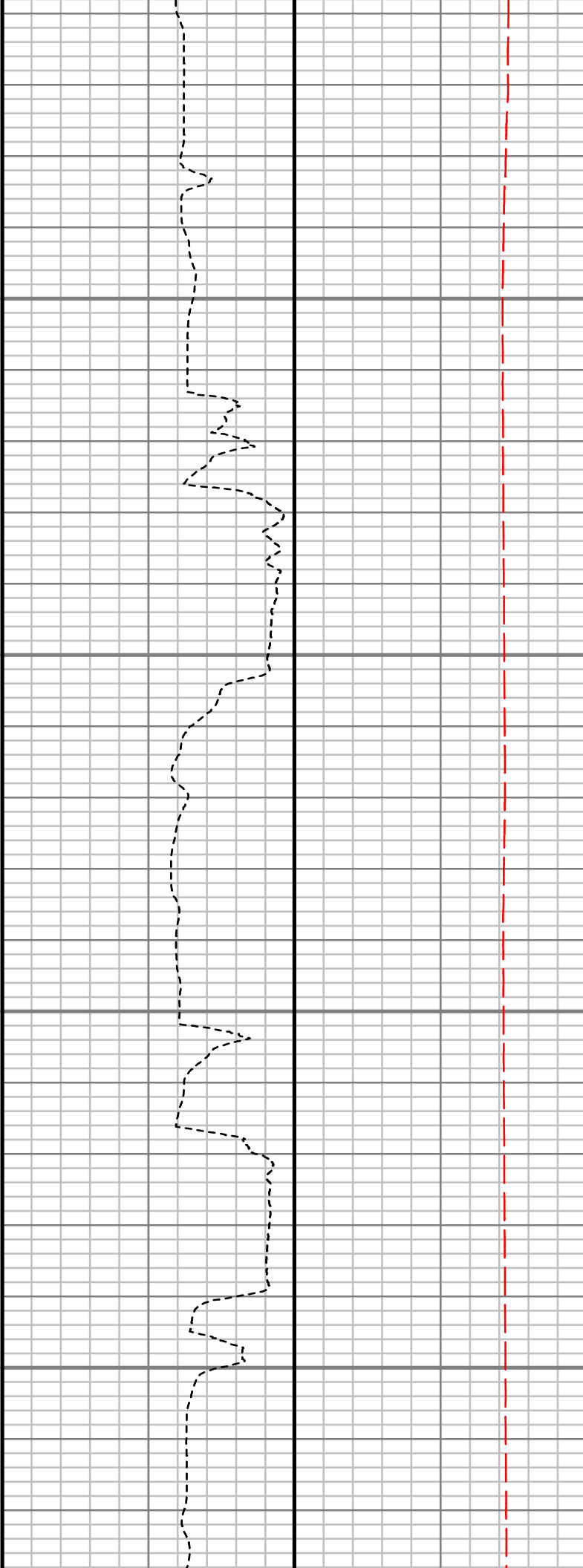
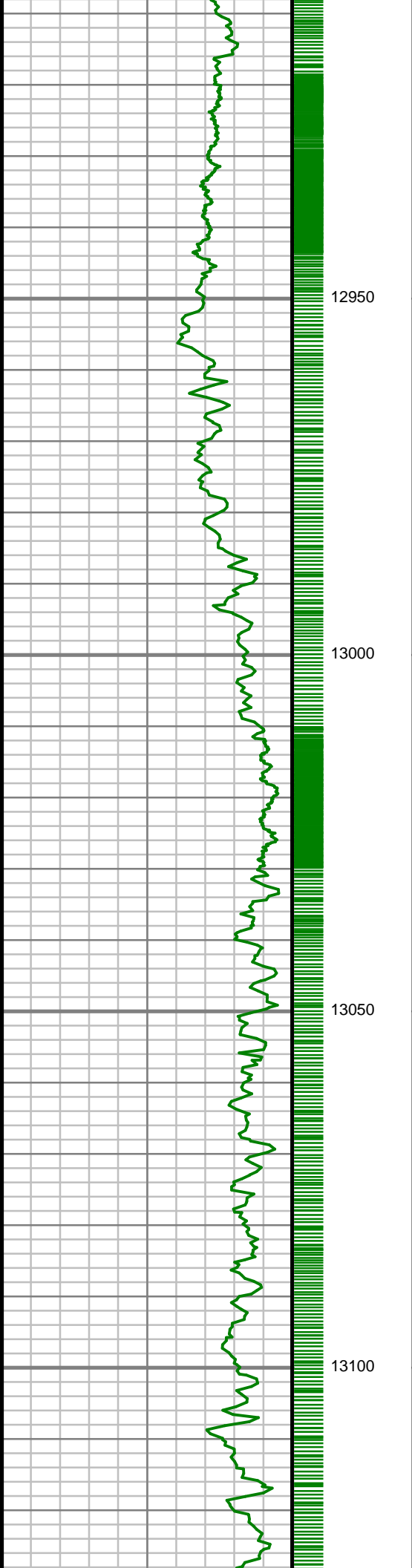
12900



S: 183 MD: 12730.00 ft
Inc: 88.22 deg Az:
180.13 deg TVD:
7184.87 ft

S: 184 MD: 12818.00 ft
Inc: 88.76 deg Az:
179.98 deg TVD:
7187.19 ft

S: 185 MD: 12907.00 ft



S: 185 MD: 12907.00 ft
Inc: 90.07 deg Az:
179.75 deg TVD:
7188.10 ft

S: 186 MD: 12995.00 ft
Inc: 90.00 deg Az:
179.86 deg TVD:
7188.05 ft

S: 187 MD: 13084.00 ft
Inc: 88.29 deg Az:
180.36 deg TVD:
7189.37 ft

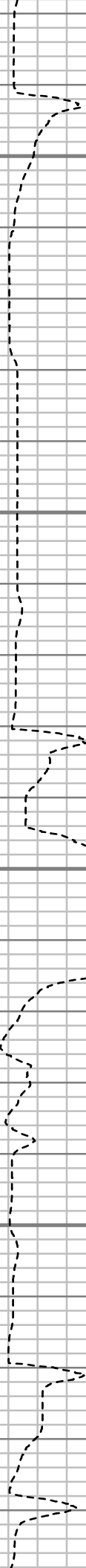


13150

13200

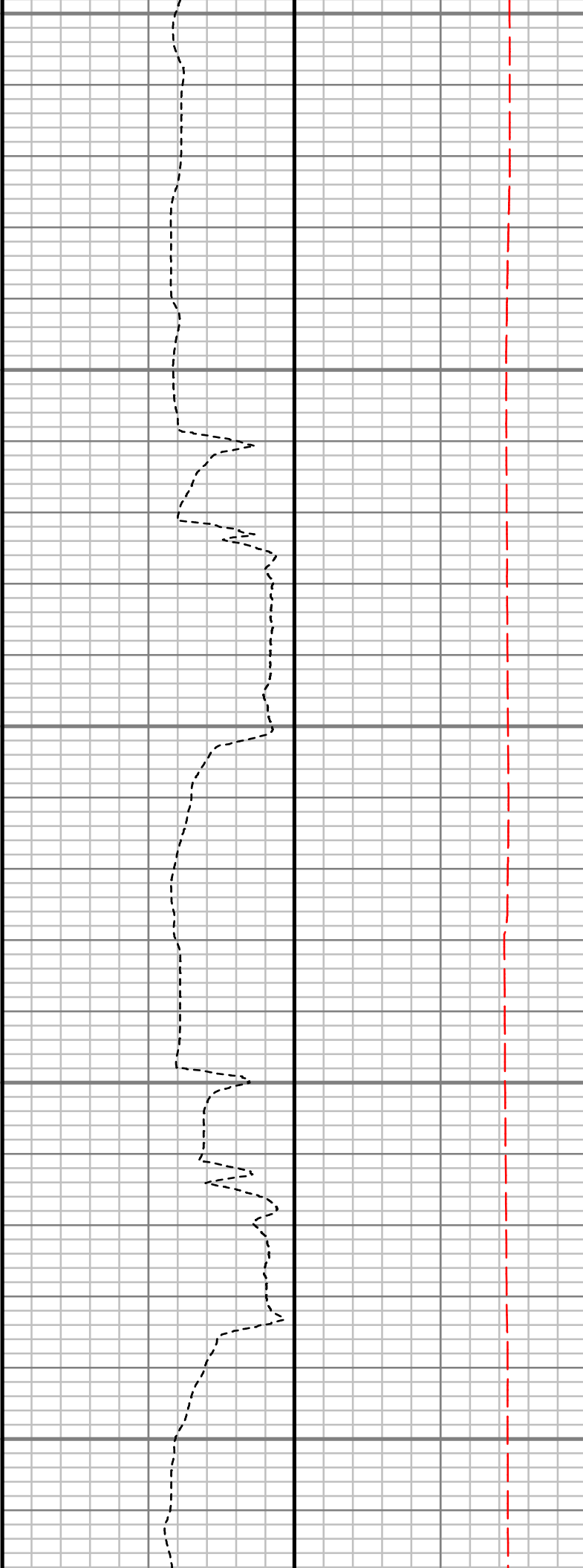
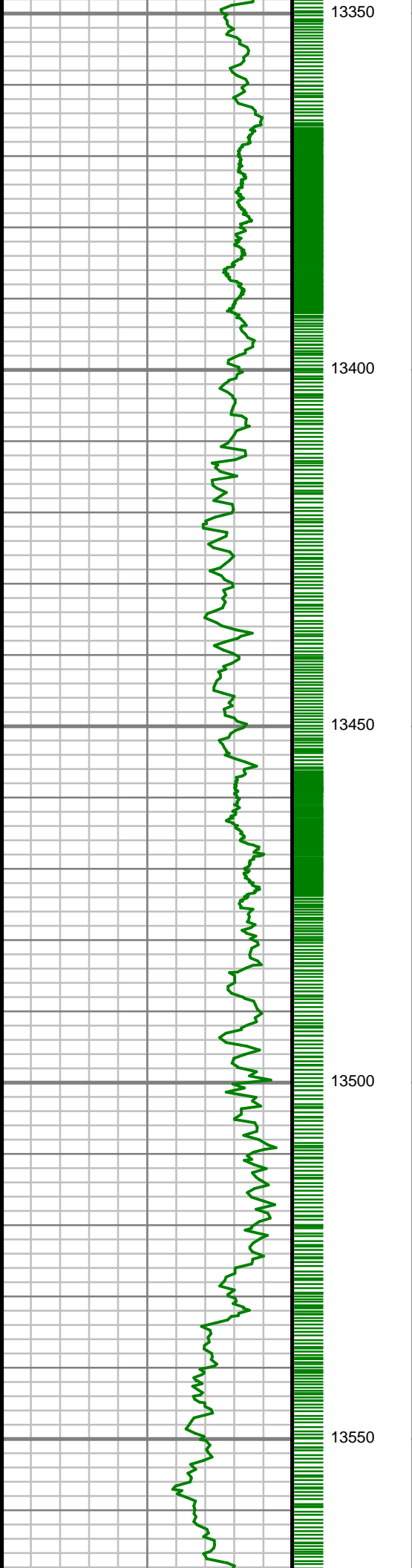
13250

13300



S: 188 MD: 13174.00 ft
Inc: 88.79 deg Az:
179.92 deg TVD:
7191.67 ft

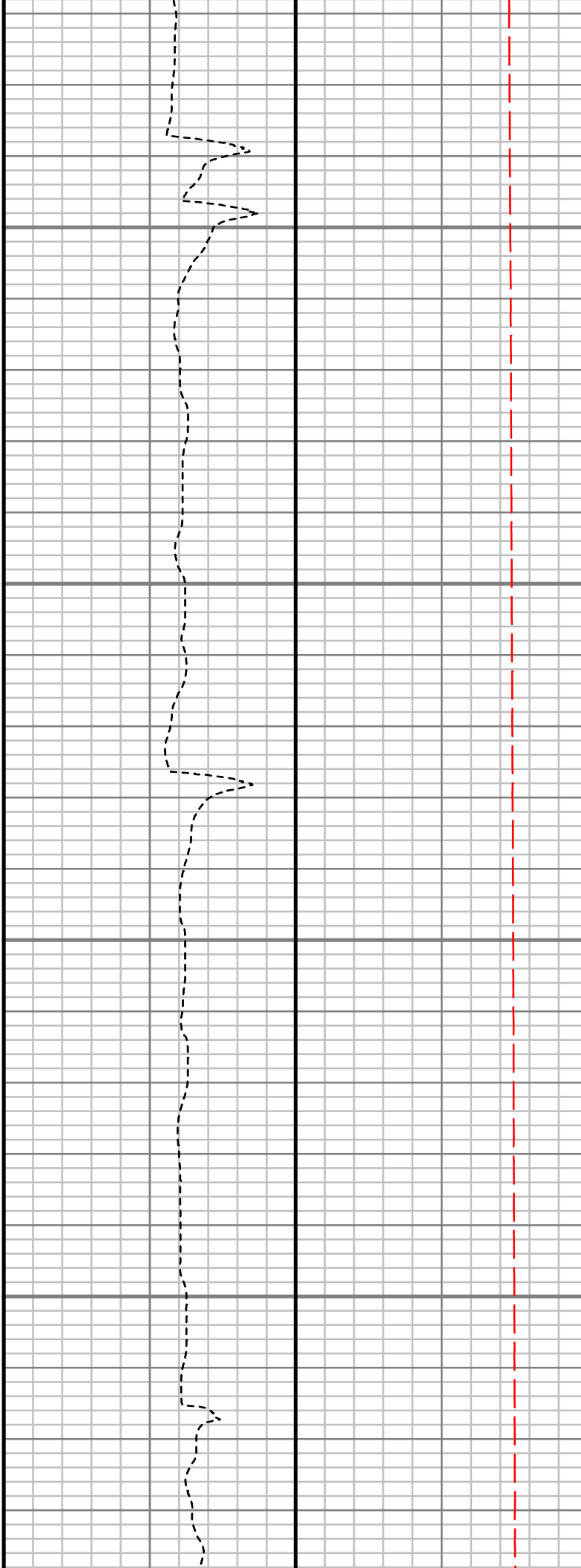
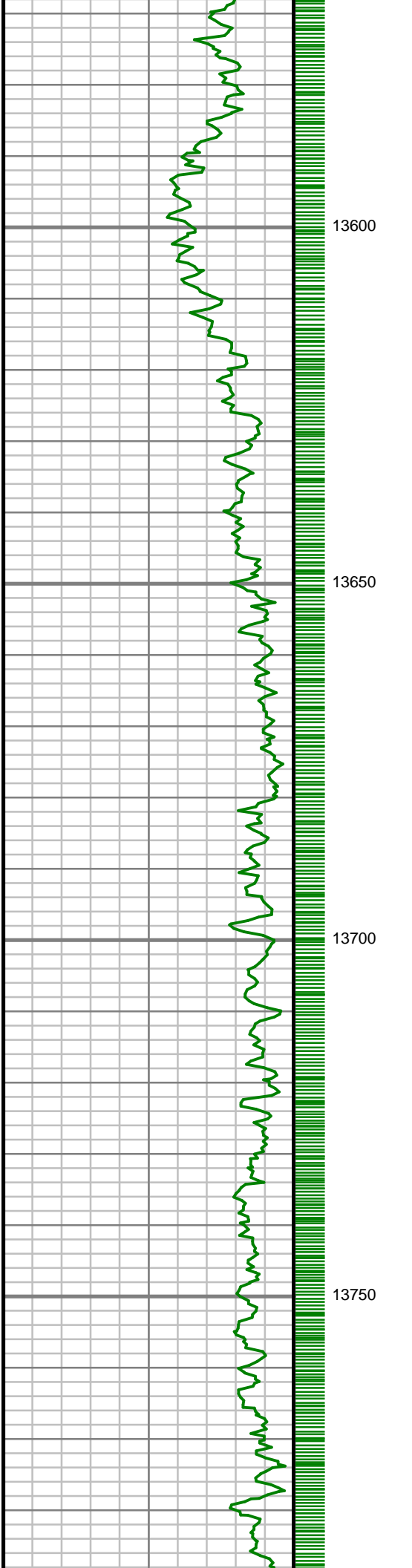
S: 189 MD: 13262.00 ft
Inc: 88.59 deg Az:
180.64 deg TVD:
7193.67 ft



S: 190 MD: 13351.00 ft
Inc: 89.43 deg Az:
180.95 deg TVD:
7195.21 ft

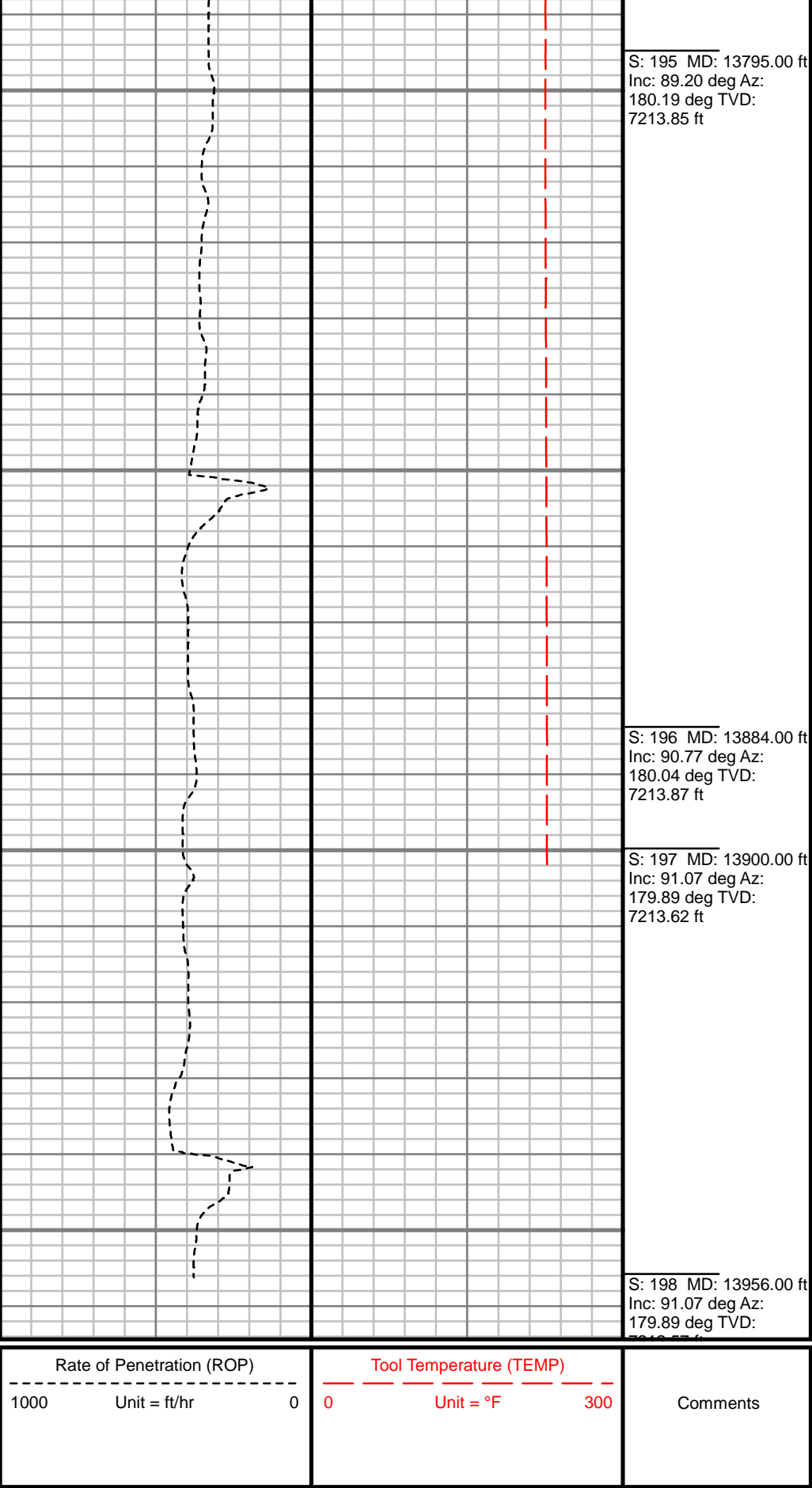
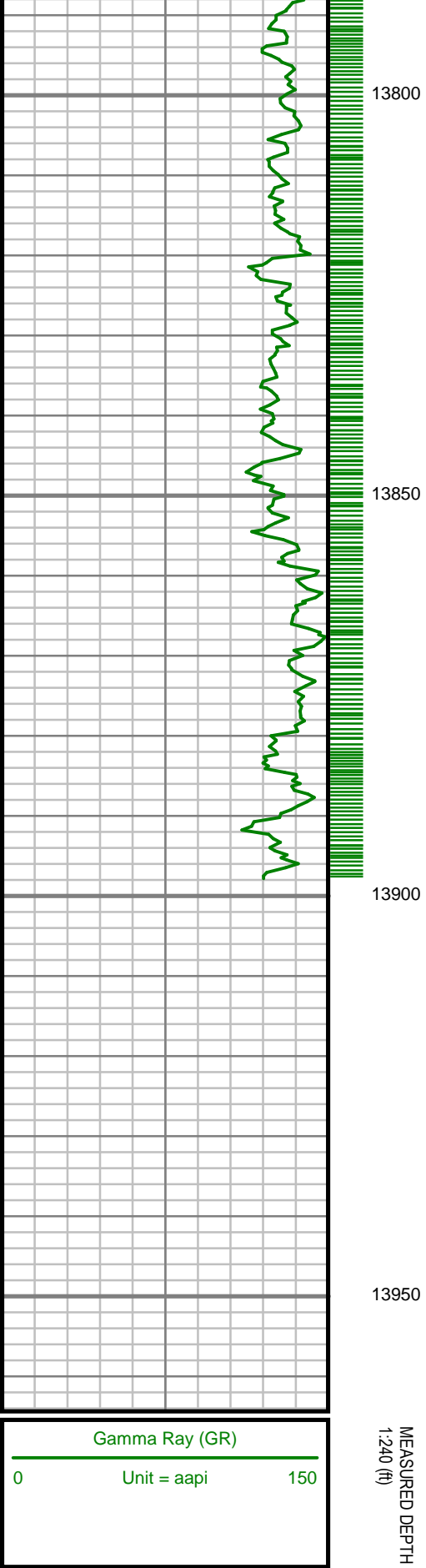
S: 191 MD: 13440.00 ft
Inc: 88.05 deg Az:
181.67 deg TVD:
7197.17 ft

S: 192 MD: 13529.00 ft
Inc: 86.24 deg Az:
181.10 deg TVD:
7201.60 ft



S: 193 MD: 13618.00 ft
Inc: 86.64 deg Az:
180.82 deg TVD:
7207.12 ft

S: 194 MD: 13706.00 ft
Inc: 87.72 deg Az:
180.41 deg TVD:
7211.45 ft



CUSTOMER
PROJECT
FIELD

ANADARKO E&P ONSHORE LLC
HERGENREDER 6N-4HZ
WATTENBERG

WELL INFORMATION

Lat/Long
Northing
Easting
UWI

40.188559° N, 105.013734° W
14,595,396.84 ft
1,636,581.04 ft
05123458630000

MAP INFORMATION

North Reference
Grid Correction
System

Datum
Map Zone

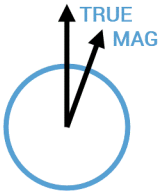
True North

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
180.35°
Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.050 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-5176 ft	MagVAR	05 Feb 2018	8.36°	add 8.36°
5176-13956 ft	MagVAR	05 Feb 2018	8.37°	add 8.37°

WELL NOTES

OPERATORS

J. MEYERS, J. WALSH

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
125.00	0.92	201.37	124.99	0.94	-0.93	-0.37	0.74
157.00	1.45	200.66	156.99	1.56	-1.55	-0.60	1.66
188.00	1.27	201.98	187.98	2.24	-2.24	-0.87	0.59
220.00	1.14	192.66	219.97	2.88	-2.88	-1.07	0.73
251.00	1.05	185.28	250.97	3.47	-3.46	-1.17	0.54
283.00	0.83	157.51	282.96	3.97	-3.97	-1.10	1.56
314.00	1.32	176.76	313.96	4.54	-4.53	-1.00	1.94
346.00	1.23	182.82	345.95	5.25	-5.24	-0.99	0.51
377.00	0.75	130.00	376.94	5.71	-5.71	-0.85	3.16
409.00	0.88	116.90	408.94	5.95	-5.95	-0.48	0.71
441.00	0.70	92.38	440.94	6.07	-6.07	-0.06	1.18
472.00	0.92	93.17	471.94	6.09	-6.09	0.38	0.71
504.00	1.19	85.44	503.93	6.07	-6.08	0.96	0.95
535.00	1.63	63.55	534.92	5.85	-5.86	1.68	2.22
567.00	1.85	57.84	566.91	5.36	-5.38	2.53	0.87
599.00	1.98	57.40	598.89	4.79	-4.81	3.43	0.41
631.00	2.29	58.10	630.87	4.14	-4.17	4.44	0.97
663.00	3.03	59.60	662.83	3.37	-3.41	5.71	2.32
694.00	3.74	63.64	693.78	2.50	-2.54	7.32	2.41

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
726.00	5.10	66.01	725.68	1.44	-1.50	9.56	4.29
758.00	5.98	66.19	757.53	0.17	-0.25	12.38	2.75
790.00	6.86	66.63	789.33	-1.28	1.18	15.66	2.75
822.00	7.21	68.56	821.09	-2.79	2.67	19.28	1.32
853.00	7.65	67.86	851.83	-4.30	4.16	23.01	1.45
885.00	8.44	66.98	883.51	-6.05	5.88	27.14	2.50
917.00	9.23	68.39	915.13	-7.94	7.75	31.69	2.56
948.00	10.15	68.83	945.69	-9.87	9.65	36.55	2.98
1012.00	11.03	68.30	1008.60	-14.24	13.95	47.49	1.38
1044.00	11.25	68.91	1040.00	-16.53	16.20	53.25	0.78
1075.00	11.56	70.23	1070.39	-18.70	18.34	58.99	1.31
1107.00	12.13	70.41	1101.70	-20.95	20.56	65.18	1.78
1139.00	12.26	69.79	1132.98	-23.29	22.86	71.54	0.58
1170.00	12.35	70.41	1163.27	-25.58	25.10	77.75	0.52
1202.00	13.14	73.31	1194.48	-27.81	27.30	84.46	3.18
1234.00	13.54	74.28	1225.62	-29.92	29.36	91.55	1.43
1266.00	14.37	74.28	1256.67	-32.05	31.45	98.97	2.59
1298.00	15.47	74.63	1287.59	-34.31	33.65	106.91	3.45
1329.00	16.30	75.07	1317.41	-36.57	35.87	115.10	2.71
1361.00	17.14	74.98	1348.06	-39.01	38.25	124.00	2.63

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
1393.00	17.67	74.80	1378.59	-41.56	40.75	133.24	1.66
1425.00	17.71	76.47	1409.08	-44.03	43.16	142.66	1.59
1456.00	16.83	77.88	1438.68	-46.13	45.20	151.63	3.14
1488.00	16.17	78.23	1469.36	-48.06	47.08	160.52	2.09
1519.00	16.70	77.00	1499.10	-50.00	48.97	169.08	2.05
1551.00	17.23	75.24	1529.70	-52.30	51.21	178.15	2.31
1583.00	17.84	73.92	1560.22	-54.92	53.77	187.44	2.28
1615.00	18.81	72.69	1590.59	-57.87	56.67	197.08	3.26
1646.00	20.08	72.87	1619.82	-60.98	59.72	206.93	4.10
1678.00	20.92	72.96	1649.80	-64.34	63.01	217.65	2.63
1710.00	21.18	72.78	1679.66	-67.79	66.40	228.63	0.84
1742.00	20.08	74.28	1709.61	-71.06	69.60	239.44	3.81
1773.00	19.82	74.45	1738.75	-73.97	72.45	249.62	0.86
1805.00	20.13	74.98	1768.82	-76.92	75.33	260.17	1.12
1837.00	20.43	75.33	1798.84	-79.83	78.17	270.89	1.01
1869.00	19.95	73.22	1828.88	-82.88	81.16	281.52	2.73
1900.00	19.69	72.87	1858.04	-86.01	84.23	291.58	0.92
1932.00	18.81	73.48	1888.25	-89.12	87.28	301.67	2.82
1964.00	18.98	72.61	1918.53	-92.21	90.30	311.58	1.03
1995.00	18.98	74.54	1947.84	-95.12	93.16	321.25	2.02

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
2027.00	18.33	74.80	1978.16	-97.88	95.86	331.13	2.05
2059.00	18.06	75.33	2008.56	-100.52	98.44	340.78	0.99
2091.00	18.33	76.30	2038.96	-103.02	100.89	350.47	1.27
2122.00	18.19	76.56	2068.40	-105.36	103.16	359.91	0.52
2154.00	18.33	77.00	2098.79	-107.71	105.46	369.67	0.61
2185.00	18.11	75.59	2128.23	-110.07	107.75	379.09	1.59
2217.00	18.46	73.92	2158.62	-112.77	110.39	388.77	1.97
2237.00	18.63	73.84	2177.58	-114.57	112.16	394.88	0.86
2311.00	19.26	73.19	2247.57	-121.53	118.98	417.92	0.89
2400.00	17.92	69.73	2331.93	-130.68	127.97	444.82	1.94
2489.00	16.38	66.85	2416.97	-140.51	137.64	469.20	1.98
2578.00	17.36	63.14	2502.14	-151.58	148.58	492.58	1.63
2778.00	18.03	70.35	2692.71	-175.81	172.46	548.34	1.14
2867.00	17.92	73.41	2777.36	-184.51	181.00	574.44	1.07
2956.00	18.44	78.43	2861.92	-191.41	187.74	601.36	1.85
3045.00	18.22	79.11	2946.41	-197.03	193.19	628.81	0.35
3134.00	17.11	77.84	3031.21	-202.57	198.58	655.27	1.32
3223.00	16.49	74.70	3116.41	-208.82	204.67	680.25	1.23
3312.00	16.29	75.07	3201.80	-215.52	211.22	704.50	0.25
3401.00	15.60	74.49	3287.37	-222.08	217.63	728.09	0.80

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3490.00	16.74	77.38	3372.85	-228.23	223.64	752.13	1.57
3579.00	17.05	78.71	3458.01	-233.74	228.99	777.44	0.55
3670.00	16.68	79.44	3545.10	-238.90	234.00	803.36	0.47
3756.00	15.75	78.32	3627.67	-243.67	238.62	826.92	1.13
3845.00	13.77	78.85	3713.73	-248.30	243.12	849.15	2.23
3934.00	11.62	74.79	3800.55	-252.82	247.52	868.20	2.61
4023.00	9.60	72.88	3888.02	-257.45	252.05	883.94	2.31
4112.00	8.33	71.88	3975.94	-261.72	256.24	897.16	1.44
4201.00	7.25	76.64	4064.12	-265.09	259.54	908.75	1.41
4289.00	6.81	109.11	4151.49	-264.73	259.12	919.09	4.48
4378.00	2.23	118.09	4240.19	-262.22	256.57	925.60	5.20
4467.00	0.74	248.61	4329.17	-261.21	255.55	926.60	3.10
4556.00	1.09	270.52	4418.16	-261.00	255.35	925.22	0.56
4644.00	1.50	241.25	4506.13	-260.44	254.80	923.36	0.87
4733.00	1.78	246.52	4595.10	-259.31	253.69	921.08	0.36
4822.00	1.81	266.62	4684.06	-258.66	253.06	918.40	0.70
4910.00	1.44	243.61	4772.02	-258.08	252.49	916.03	0.84
4999.00	1.87	190.52	4860.99	-256.14	250.56	914.76	1.72
5177.00	0.87	232.05	5038.94	-252.43	246.86	913.16	0.76
5266.00	0.89	303.04	5127.93	-252.39	246.82	912.04	1.15

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5355.00	0.99	304.08	5216.92	-253.19	247.63	910.82	0.11
5443.00	1.48	300.49	5304.90	-254.18	248.63	909.21	0.57
5532.00	1.82	276.99	5393.86	-254.92	249.39	906.82	0.84
5621.00	1.71	267.79	5482.82	-255.03	249.51	904.09	0.34
5710.00	0.93	264.16	5571.80	-254.89	249.38	902.05	0.88
5799.00	0.87	252.47	5660.78	-254.60	249.11	900.68	0.22
5888.00	1.27	268.61	5749.77	-254.37	248.88	899.05	0.56
5977.00	1.09	269.80	5838.75	-254.33	248.85	897.22	0.21
6065.00	0.89	301.77	5926.74	-254.68	249.21	895.80	0.66
6154.00	1.81	273.49	6015.71	-255.11	249.66	893.81	1.25
6243.00	1.40	280.16	6104.68	-255.38	249.93	891.33	0.51
6332.00	1.77	231.15	6193.65	-254.69	249.26	889.19	1.53
6421.00	12.57	184.42	6281.85	-244.13	238.71	887.37	12.84
6510.00	23.72	176.39	6366.31	-216.52	211.10	887.75	12.81
6599.00	32.27	174.37	6444.82	-174.95	169.51	891.21	9.67
6687.00	36.25	178.69	6517.55	-125.55	120.09	894.12	5.30
6776.00	41.26	177.90	6586.93	-69.89	64.42	895.80	5.65
6865.00	45.13	174.94	6651.80	-9.15	3.65	899.65	4.91
6954.00	51.03	176.80	6711.24	56.84	-62.37	904.37	6.80
7043.00	53.51	175.38	6765.71	127.03	-132.58	909.18	3.06

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7132.00	58.47	176.73	6815.47	200.57	-206.16	914.23	5.72
7221.00	63.22	179.54	6858.82	278.21	-283.81	916.71	6.01
7310.00	69.29	180.31	6894.64	359.63	-365.24	916.80	6.86
7399.00	74.57	179.11	6922.24	444.21	-449.82	917.24	6.07
7488.00	79.97	178.35	6941.84	530.95	-536.58	919.17	6.12
7577.00	85.09	179.99	6953.41	619.14	-624.78	920.44	6.04
7666.00	86.44	179.31	6959.98	707.89	-713.53	920.98	1.69
7754.00	87.38	180.91	6964.73	795.76	-801.40	920.81	2.10
7843.00	88.19	181.03	6968.17	884.69	-890.32	919.31	0.92
7932.00	88.66	181.53	6970.62	973.64	-979.26	917.32	0.77
8020.00	87.15	182.12	6973.84	1061.55	-1067.16	914.52	1.84
8109.00	87.41	181.74	6978.07	1150.42	-1156.01	911.53	0.52
8198.00	86.64	181.47	6982.68	1239.27	-1244.85	909.03	0.92
8287.00	86.91	181.51	6987.69	1328.11	-1333.68	906.72	0.30
8375.00	86.17	181.75	6993.00	1415.93	-1421.48	904.22	0.89
8464.00	86.50	181.26	6998.69	1504.73	-1510.27	901.88	0.66
8553.00	87.45	180.61	7003.38	1593.60	-1599.13	900.43	1.29
8642.00	89.87	180.41	7005.47	1682.57	-1688.10	899.64	2.72
8731.00	88.96	180.34	7006.38	1771.56	-1777.09	899.06	1.02
8819.00	87.28	180.20	7009.26	1859.51	-1865.04	898.65	1.92

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
8908.00	86.68	179.61	7013.96	1948.39	-1953.91	898.80	0.94
8997.00	86.57	180.35	7019.20	2037.23	-2042.76	898.83	0.84
9086.00	85.20	180.99	7025.58	2126.00	-2131.52	897.79	1.70
9175.00	86.31	180.54	7032.18	2214.75	-2220.27	896.61	1.34
9264.00	88.25	179.66	7036.40	2303.64	-2309.16	896.45	2.40
9352.00	85.77	180.47	7040.99	2391.51	-2397.03	896.35	2.97
9441.00	85.97	180.36	7047.41	2480.28	-2485.80	895.71	0.26
9530.00	85.36	179.85	7054.13	2569.03	-2574.54	895.55	0.89
9619.00	86.44	179.14	7060.49	2657.79	-2663.31	896.33	1.45
9708.00	87.68	179.62	7065.05	2746.65	-2752.19	897.30	1.50
9797.00	88.15	181.38	7068.28	2835.59	-2841.12	896.52	2.05
9885.00	87.88	181.08	7071.33	2923.53	-2929.05	894.62	0.46
9974.00	86.50	182.48	7075.68	3012.39	-3017.89	891.86	2.21
10063.00	86.68	181.93	7080.98	3101.18	-3106.67	888.44	0.65
10152.00	86.21	181.23	7086.50	3189.99	-3195.46	886.00	0.95
10241.00	86.58	180.43	7092.10	3278.81	-3284.28	884.72	0.99
10330.00	89.09	180.07	7095.46	3367.74	-3373.21	884.33	2.86
10419.00	88.79	179.88	7097.11	3456.72	-3462.19	884.36	0.40
10508.00	87.89	179.93	7099.69	3545.68	-3551.15	884.51	1.02
10596.00	87.18	180.56	7103.48	3633.60	-3639.07	884.13	1.08

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
10685.00	85.67	181.05	7109.03	3722.42	-3727.88	882.88	1.79
10774.00	85.67	180.60	7115.75	3811.16	-3816.62	881.60	0.50
10863.00	86.98	180.71	7121.46	3899.98	-3905.43	880.59	1.48
10952.00	85.74	180.28	7127.11	3988.79	-3994.24	879.83	1.48
11041.00	86.14	179.12	7133.42	4077.56	-4083.02	880.30	1.37
11130.00	87.32	178.67	7138.50	4166.39	-4171.85	882.01	1.42
11219.00	88.39	178.75	7141.84	4255.29	-4260.77	884.02	1.21
11308.00	87.08	180.20	7145.36	4344.20	-4349.69	884.83	2.19
11397.00	87.08	180.85	7149.89	4433.09	-4438.57	884.02	0.74
11486.00	88.29	180.71	7153.49	4522.01	-4527.49	882.80	1.37
11575.00	86.88	180.69	7157.24	4610.93	-4616.40	881.71	1.59
11664.00	87.15	180.38	7161.88	4699.81	-4705.27	880.88	0.46
11753.00	88.12	180.10	7165.56	4788.73	-4794.20	880.52	1.14
11842.00	88.12	181.09	7168.48	4877.68	-4883.14	879.59	1.12
11930.00	87.72	181.15	7171.67	4965.61	-4971.07	877.87	0.46
12019.00	88.56	180.61	7174.56	5054.56	-5060.01	876.51	1.12
12108.00	89.66	180.14	7175.94	5143.55	-5148.99	875.92	1.35
12197.00	91.38	179.97	7175.14	5232.54	-5237.99	875.84	1.93
12286.00	89.87	179.42	7174.17	5321.53	-5326.98	876.31	1.80
12374.00	88.39	180.64	7175.51	5409.51	-5414.96	876.26	2.17

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
12463.00	88.19	180.66	7178.17	5498.47	-5503.92	875.25	0.23
12552.00	89.33	180.44	7180.10	5587.45	-5592.89	874.40	1.31
12641.00	88.16	180.35	7182.05	5676.42	-5681.87	873.78	1.32
12730.00	88.22	180.13	7184.87	5765.38	-5770.82	873.41	0.26
12818.00	88.76	179.98	7187.19	5853.35	-5858.79	873.33	0.63
12907.00	90.07	179.75	7188.10	5942.34	-5947.78	873.54	1.49
12995.00	90.00	179.86	7188.05	6030.33	-6035.78	873.84	0.15
13084.00	88.29	180.36	7189.37	6119.32	-6124.77	873.67	2.00
13174.00	88.79	179.92	7191.67	6209.29	-6214.74	873.45	0.74
13262.00	88.59	180.64	7193.67	6297.26	-6302.71	873.01	0.85
13351.00	89.43	180.95	7195.21	6386.25	-6391.69	871.78	1.00
13440.00	88.05	181.67	7197.17	6475.21	-6480.64	869.75	1.75
13529.00	86.24	181.10	7201.60	6564.08	-6569.50	867.60	2.14
13618.00	86.64	180.82	7207.12	6652.90	-6658.32	866.11	0.55
13706.00	87.72	180.41	7211.45	6740.80	-6746.21	865.17	1.31
13795.00	89.20	180.19	7213.85	6829.76	-6835.17	864.70	1.68
13884.00	90.77	180.04	7213.87	6918.76	-6924.17	864.53	1.78
13900.00	91.07	179.89	7213.62	6934.75	-6940.17	864.54	2.10
13956.00	91.07	179.89	7212.57	6990.74	-6996.16	864.65	0.00

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

5" = 100' MD