



GAMMA RAY

5" = 100' MD

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : MARRS 29N-10HZ
FIELD : WATTENBERG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05123432710000

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : MARRS 29N-10HZ
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WELL LOCATION NAD83
LAT:40.0379870° LONG:-104.8790290°
N:14540589.11 ft E:1674275.93 ft

SEC:22 TWP:1N RANGE:67W

OTHER SERVICES

DIRECTIONAL
ROP

DEPTH REF. : KB

REF. HEIGHT : 17.000 ft KB to Ground Level

GROUND LEVEL : 4981.000 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 | | 1886 | | | | | | | |
|------|--|---|--|------|--|--|--|--|--|--|--|

| | | | | | | | | | | | |
|-----|--|------|--|------|--|--|--|--|--|--|--|
| 8.5 | | 1886 | | XXXX | | | | | | | |
|-----|--|------|--|------|--|--|--|--|--|--|--|

CASING RECORD

| CASING SIZE | in | FROM | ft | TO | ft |
|-------------|----|------|----|----|----|
|-------------|----|------|----|----|----|

| | | | | | |
|-------|--|---|--|------|--|
| 9.625 | | 0 | | 1883 | |
|-------|--|---|--|------|--|

DRILLING CO. : XTREME

RIG : 24

LWD UNIT NO. : KIT MUD PUDISTRICT : CASPER

SPUD DATE : 02/23/2018

LWD START DATE : 03/08/2018 DEPTH : 1886 ft

LWD END DATE : XXXX DEPTH : XXXX ft

TOTAL DEPTH : XXXX ft

Run Data

| | | | | |
|-----------------------------------|------------|------------|--|--|
| RUN NUMBER | 1 | 2 | | |
| START DATE | 03/08/2018 | 03/09/2018 | | |
| START TIME | 08:30 | 01:00 | | |
| END DATE | 03/09/2018 | XX | | |
| END TIME | 01:00 | XX | | |
| DEPTH IN (ft) | 1886 | 3818 | | |
| DEPTH OUT (ft) | 3818 | XX | | |
| LOG TOP (ft) | 1886 | 3755 | | |
| LOG BOTTOM (ft) | 3755 | XX | | |
| HOLE SIZE (in) | 8.5 | 8.5 | | |
| MUD DATA @ (ft) | 1886 | XX | | |
| MUD TYPE | OIL-BASED | OIL-BASED | | |
| DENSITY (lb / gal) | 8.8 | XX | | |
| VISCOSITY (s / qt) | 62 | XX | | |
| pH | - | - | | |
| FLUID LOSS (cm ³ / 30) | - | - | | |
| SALINITY (mg/L) | 39000 | XX | | |
| Rm (ohmm @ deg F) | - | - | | |
| Rmf (ohmm @ deg F) | - | - | | |
| MAX TEMP (deg F) | 124 | XX | | |
| Rm @ MAX TEMP (ohmm) | - | - | | |
| LWD ENGINEER #1 | MBAILY | M. BAILY | | |
| LWD ENGINEER #2 | J.MEYERS | J. MEYERS | | |
| LWD ENGINEER #3 | - | - | | |
| LOG WITNESS #1 | - | - | | |
| LOG WITNESS #2 | - | - | | |

[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
MARRS 29N-10HZ
WATTENBERG FIELD
WELD COUNTY, COLORADO
API # 05123432710000

Gamma Ray (GR)

0 Unit = aapi 150

MEASURED DEPTH
1-240 (ft)

1900

Rate of Penetration (ROP)

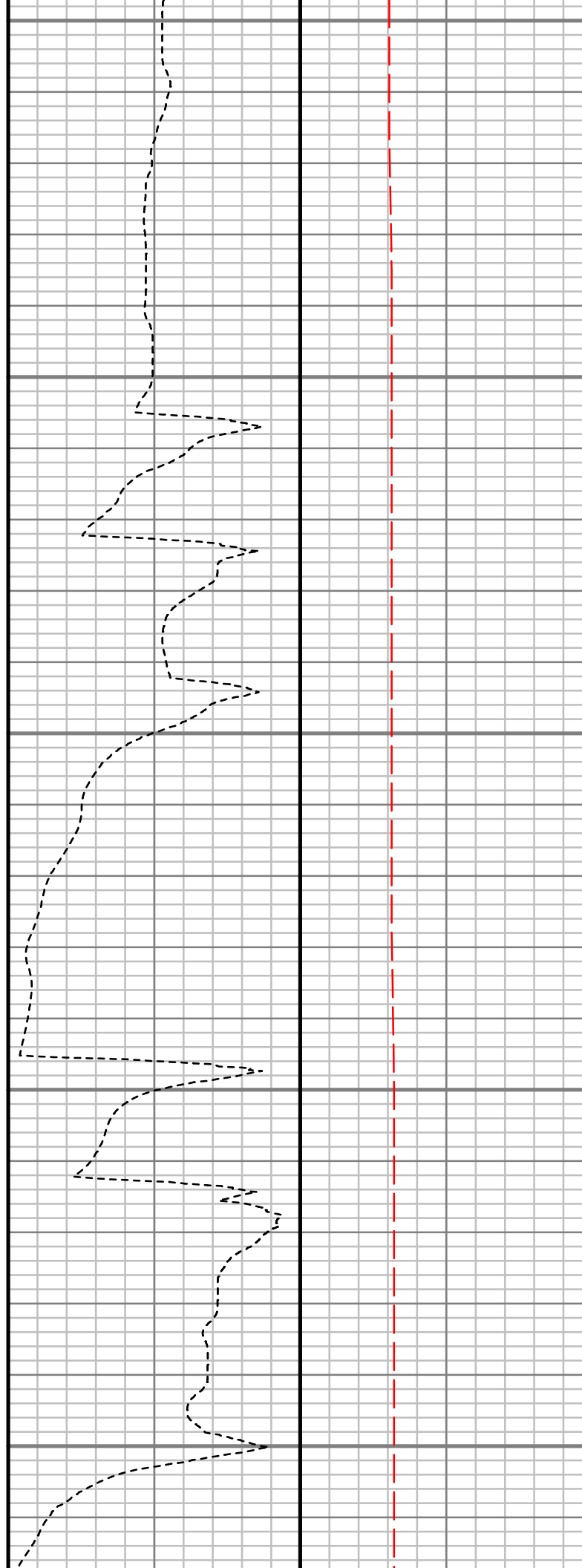
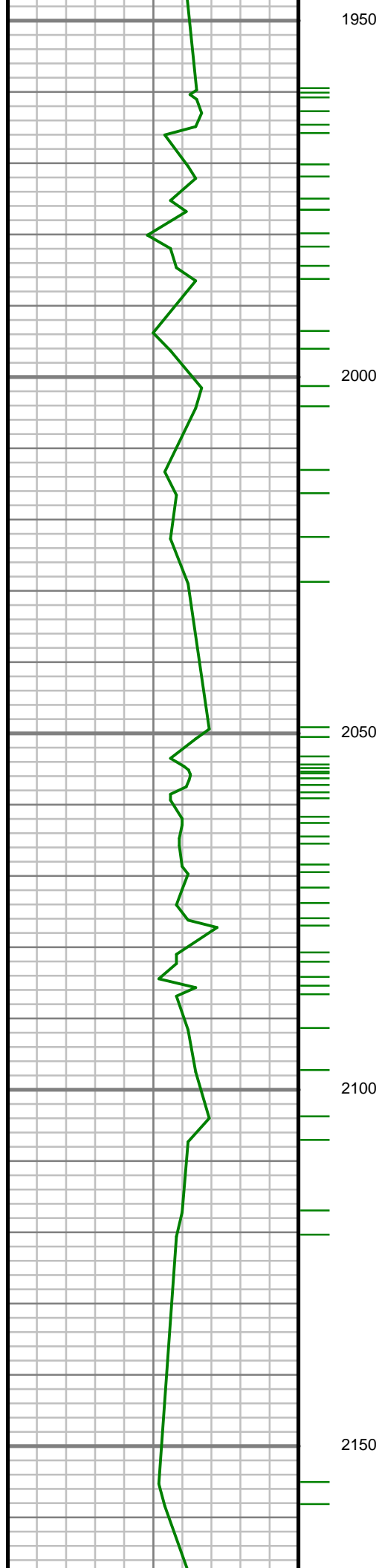
1000 Unit = ft/hr 0

Tool Temperature (TEMP)

0 Unit = °F 300

Comments

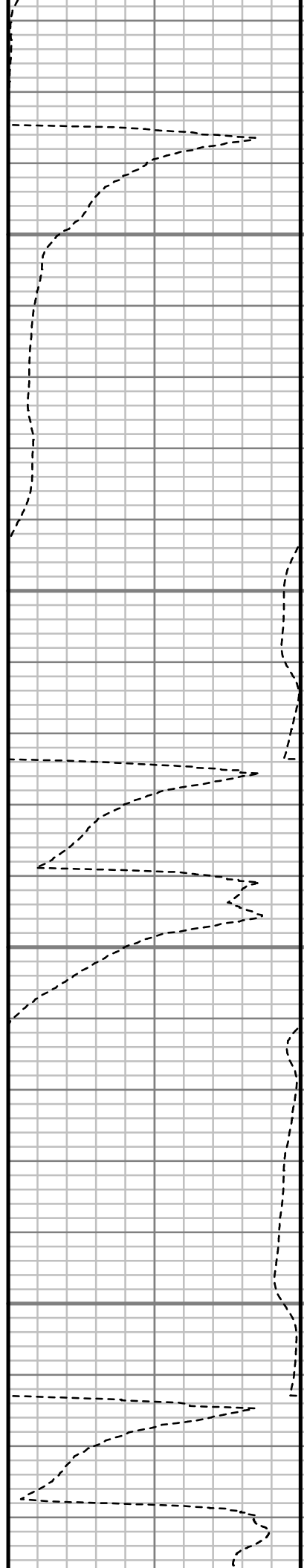
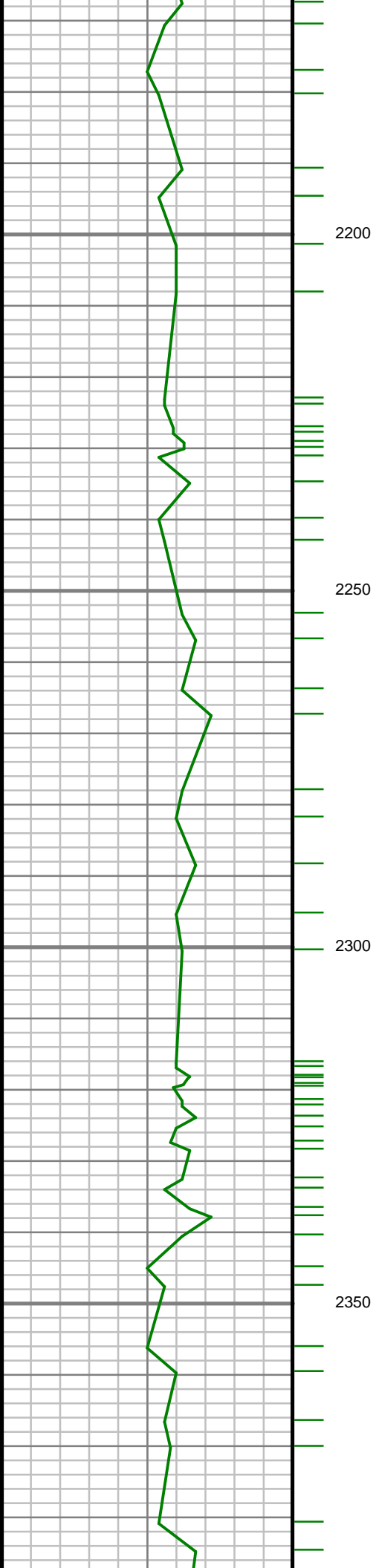
S: 56 MD: 1046.00 ft



S: 56 MD: 1946.00 ft
Inc: 16.10 deg Az:
238.10 deg TVD:
1899.66 ft

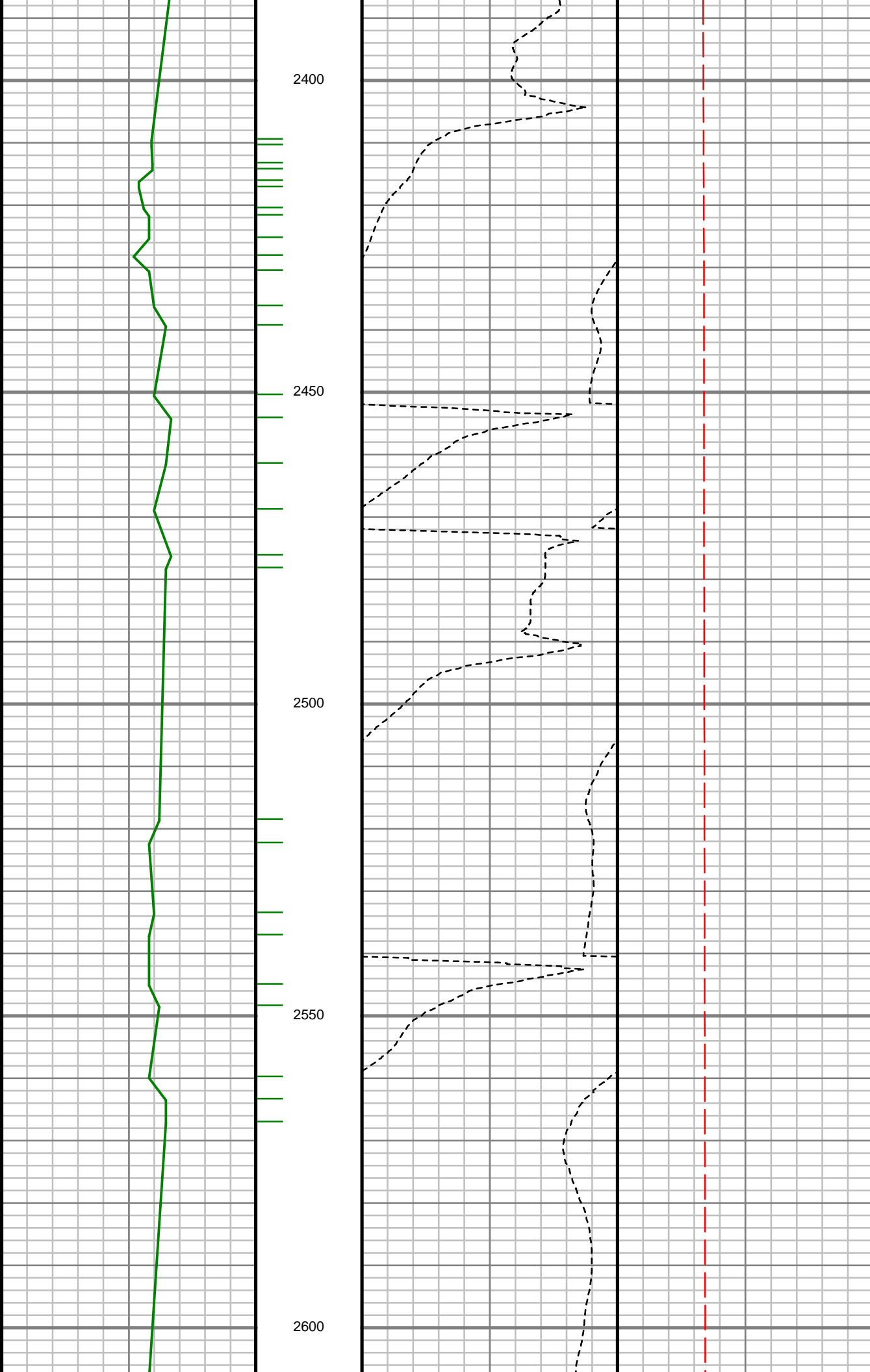
S: 57 MD: 2036.00 ft
Inc: 15.99 deg Az:
230.60 deg TVD:
1986.17 ft

S: 58 MD: 2124.00 ft
Inc: 16.70 deg Az:
223.45 deg TVD:
2070.62 ft



S: 59 MD: 2213.00 ft
Inc: 19.44 deg Az:
216.06 deg TVD:
2155.23 ft

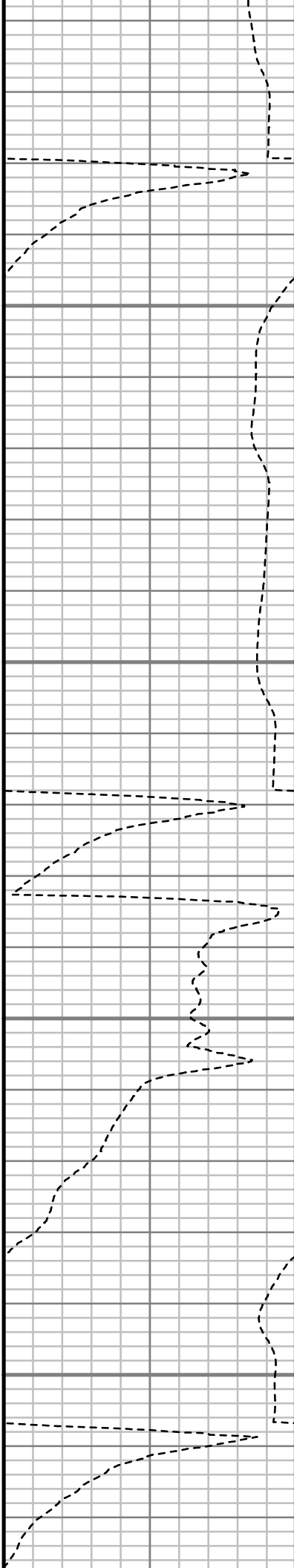
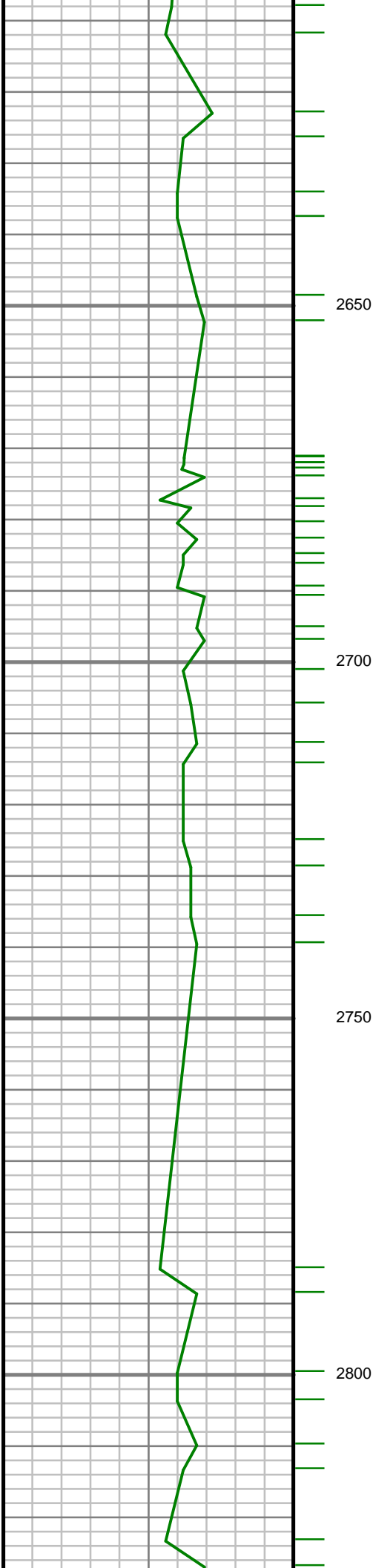
S: 60 MD: 2302.00 ft
Inc: 18.20 deg Az:
213.53 deg TVD:
2239.47 ft



S: 61 MD: 2391.00 ft
Inc: 17.82 deg Az:
206.08 deg TVD:
2324.12 ft

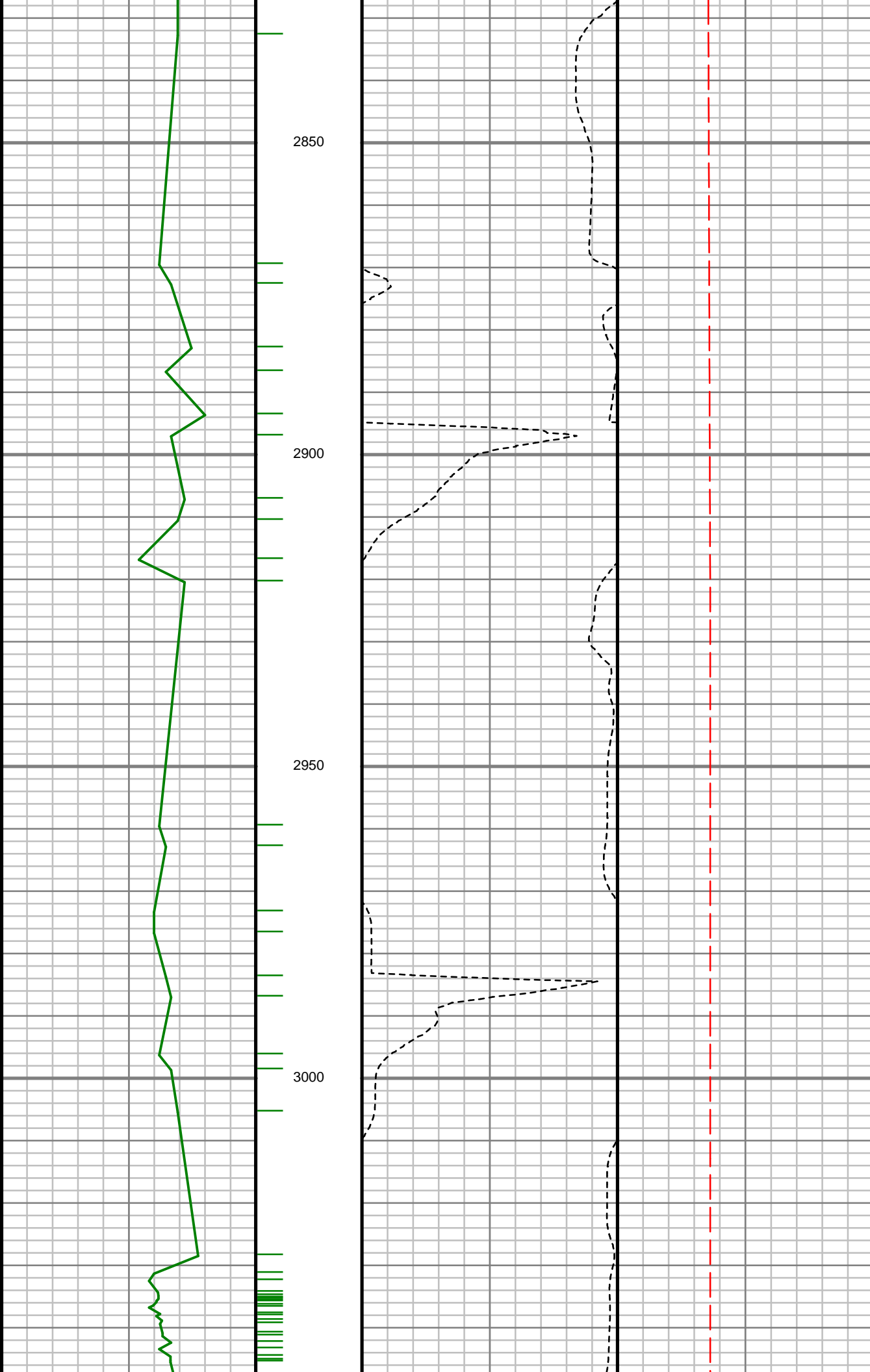
S: 62 MD: 2479.00 ft
Inc: 17.14 deg Az:
197.77 deg TVD:
2408.07 ft

S: 63 MD: 2568.00 ft
Inc: 16.53 deg Az:
194.63 deg TVD:
2493.26 ft



S: 64 MD: 2656.00 ft
Inc: 15.09 deg Az:
193.81 deg TVD:
2577.93 ft

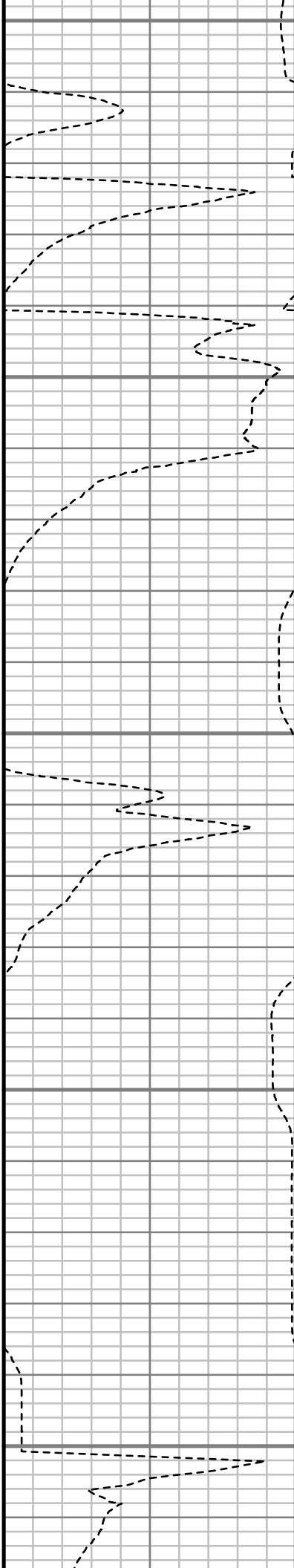
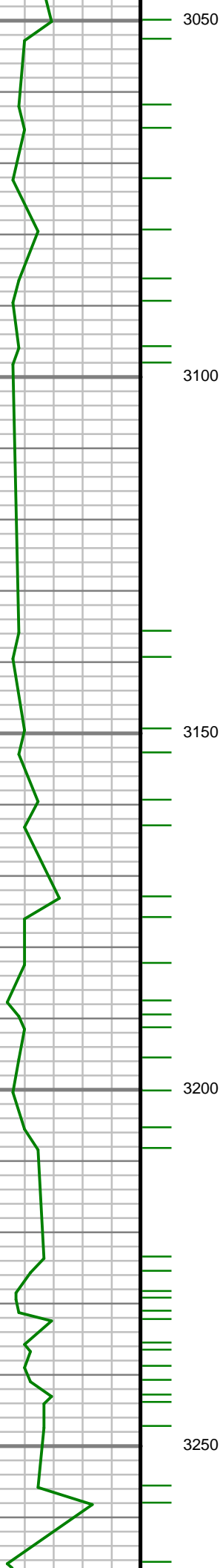
S: 65 MD: 2745.00 ft
Inc: 14.40 deg Az:
201.26 deg TVD:
2664.01 ft



S: 66 MD: 2834.00 ft
Inc: 13.03 deg Az:
203.65 deg TVD:
2750.47 ft

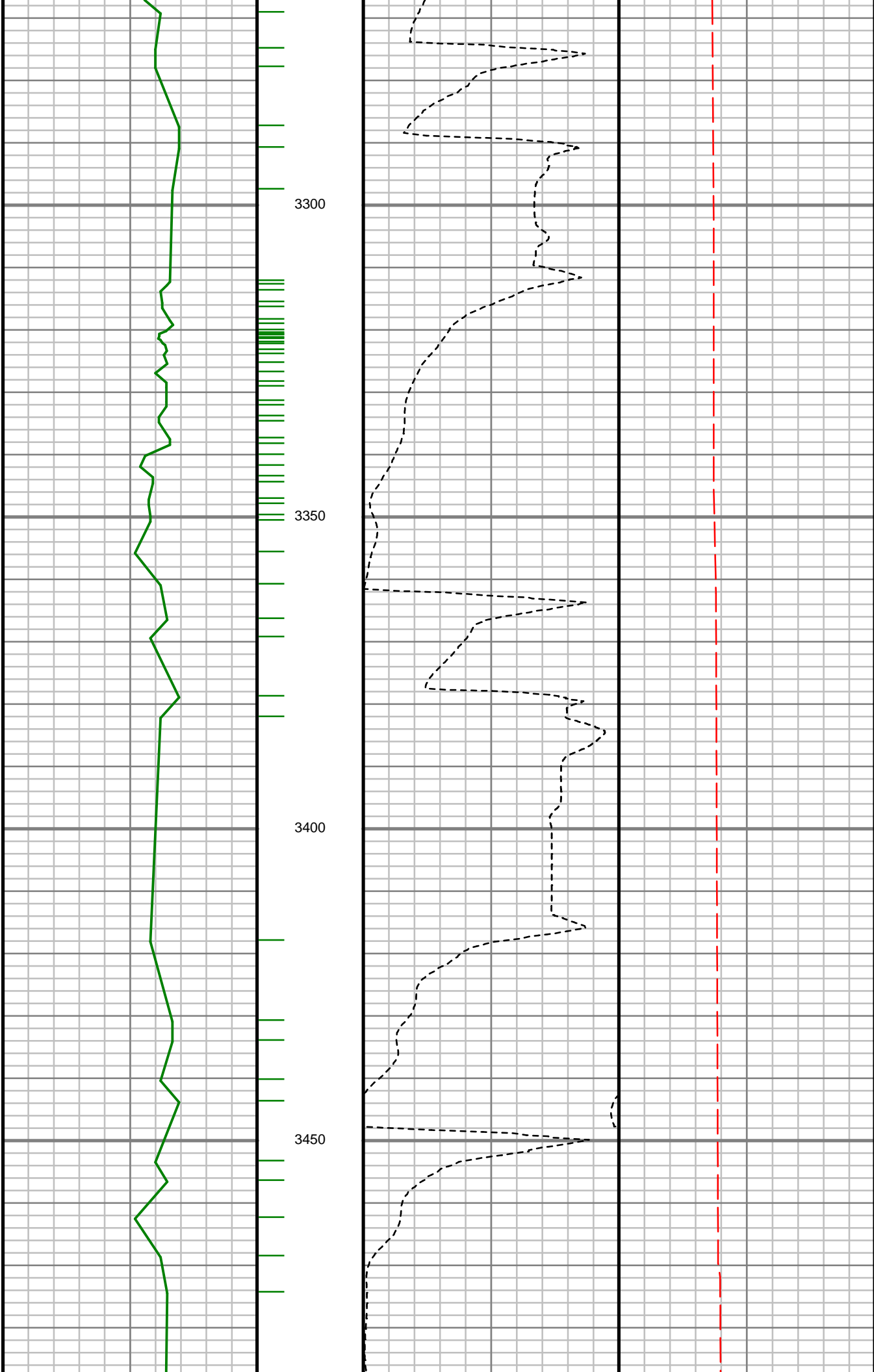
S: 67 MD: 2923.00 ft
Inc: 11.69 deg Az:
201.74 deg TVD:
2837.40 ft

S: 68 MD: 3012.00 ft
Inc: 10.60 deg Az:
199.89 deg TVD:
2924.72 ft



S: 69 MD: 3100.00 ft
Inc: 9.70 deg Az:
205.45 deg TVD:
3011.35 ft

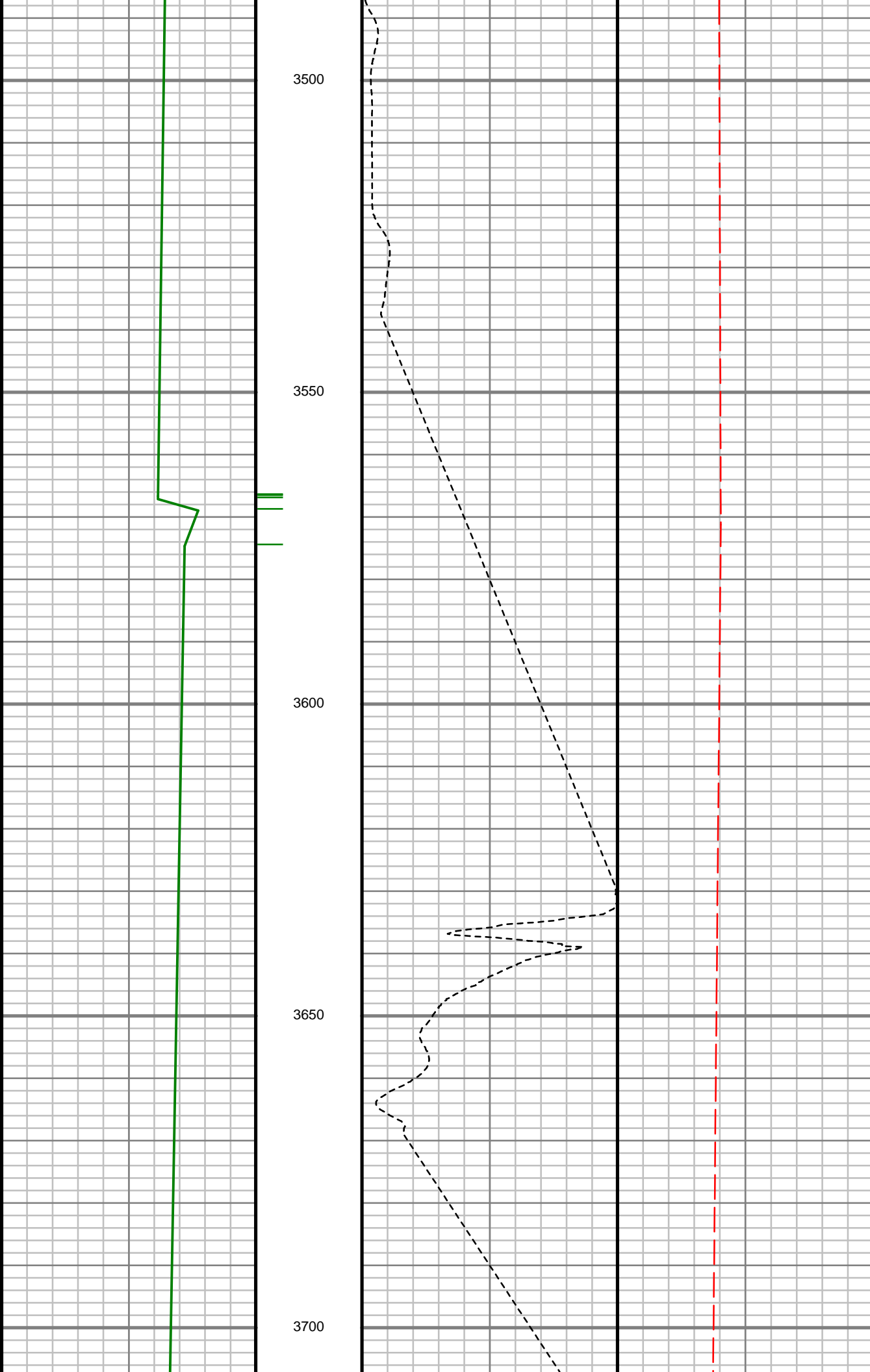
S: 70 MD: 3213.00 ft
Inc: 7.77 deg Az:
210.74 deg TVD:
3123.03 ft



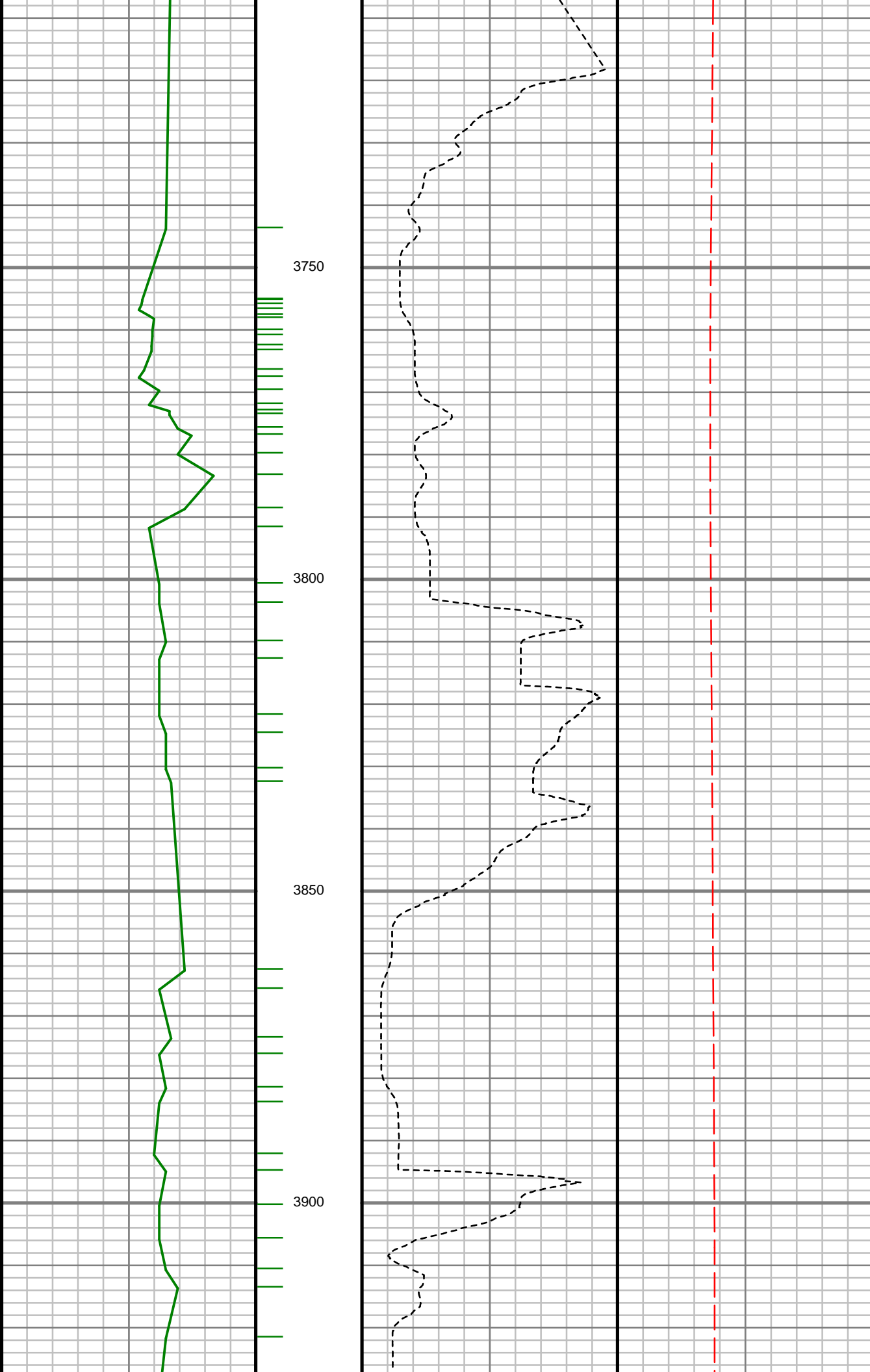
S: 71 MD: 3302.00 ft
Inc: 5.18 deg Az:
201.88 deg TVD:
3211.46 ft

S: 72 MD: 3390.00 ft
Inc: 3.29 deg Az:
195.44 deg TVD:
3299.22 ft

S: 73 MD: 3479.00 ft
Inc: 0.90 deg Az:
348.33 deg TVD:



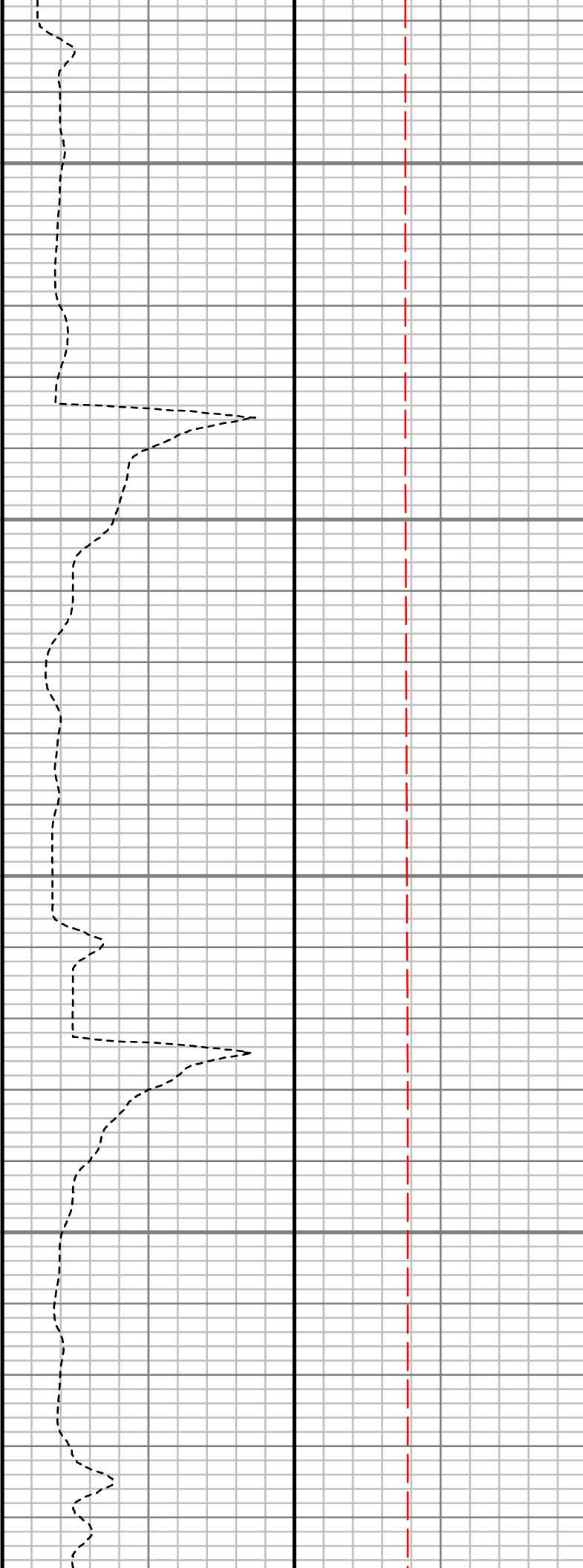
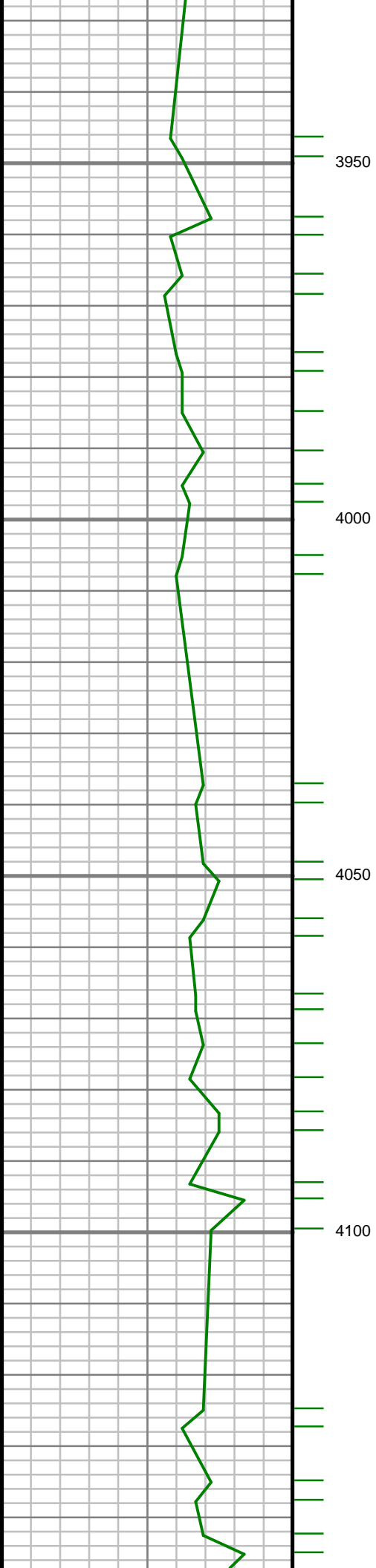
S: 74 MD: 3568.00 ft
Inc: 1.14 deg Az:
304.98 deg TVD:
3477.16 ft



S: 75 MD: 3745.00 ft
Inc: 1.25 deg Az:
300.63 deg TVD:
3654.12 ft

S: 76 MD: 3835.00 ft
Inc: 0.98 deg Az: 99.64
deg TVD: 3744.12 ft

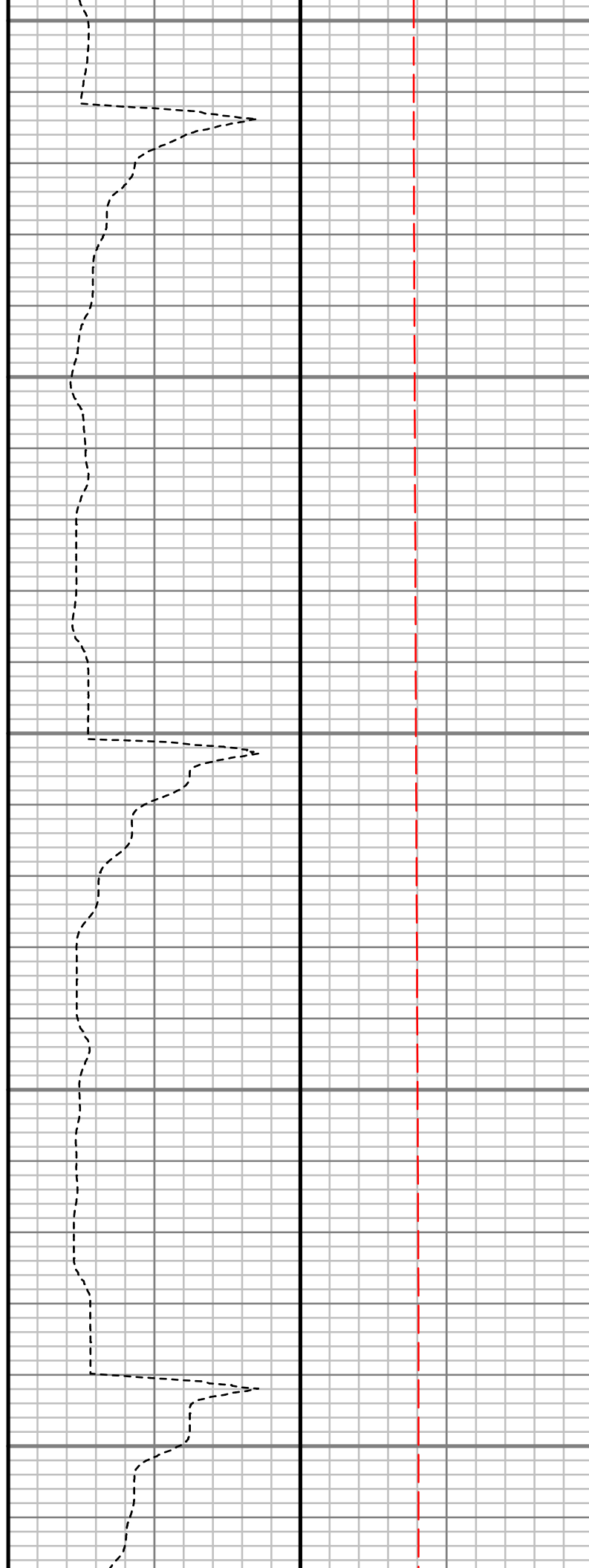
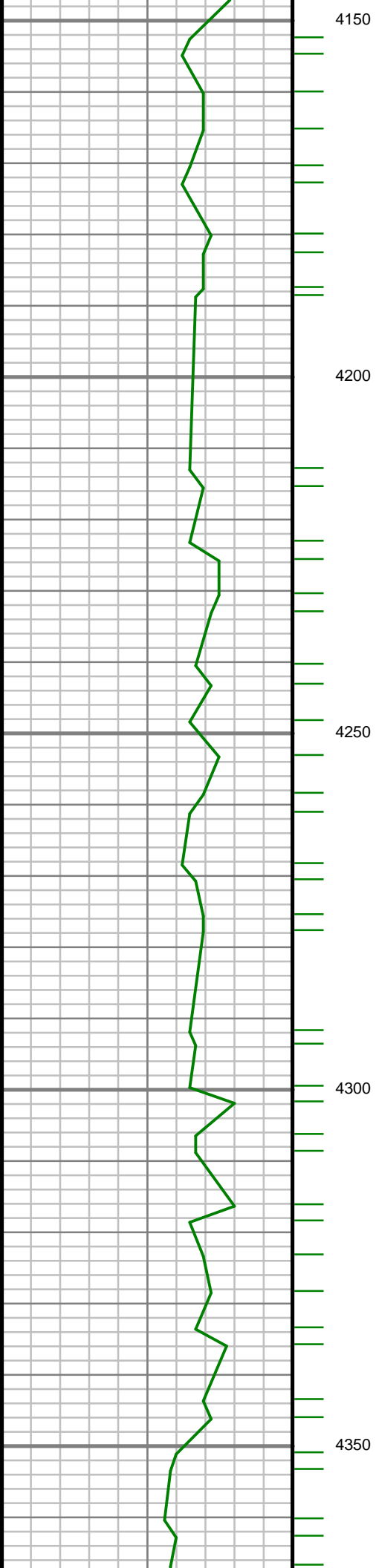
S: 77 MD: 3924.00 ft



Inc: 1.16 deg Az: 92.23
deg TVD: 3833.10 ft

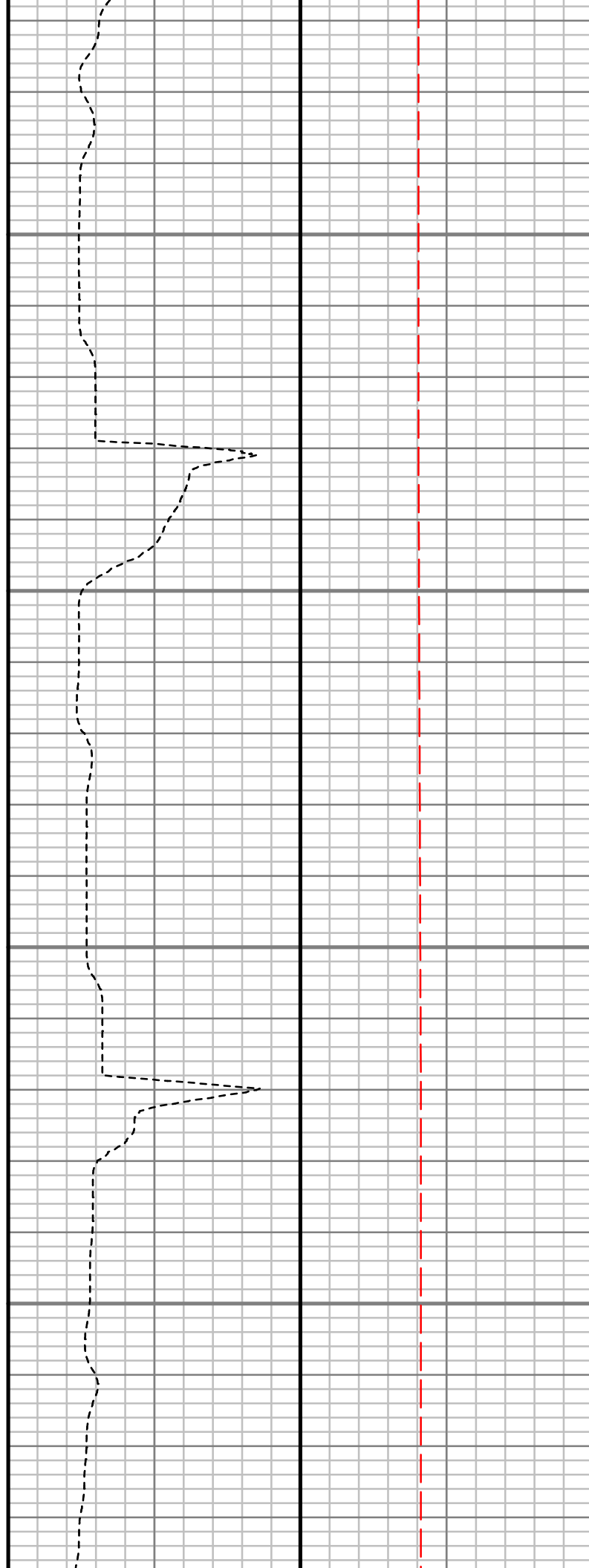
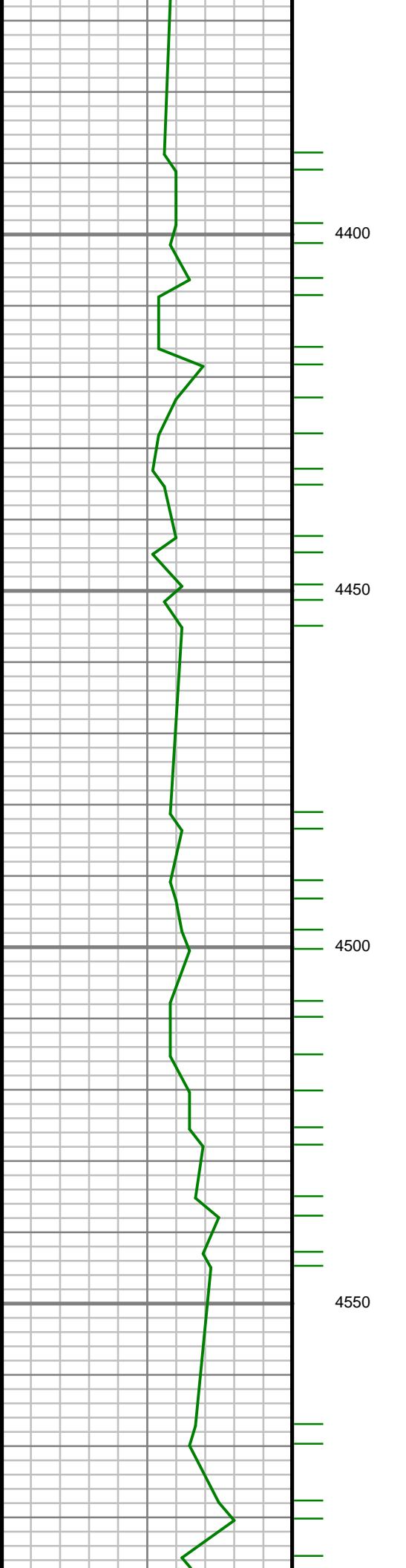
S: 78 MD: 4013.00 ft
Inc: 0.98 deg Az: 73.57
deg TVD: 3922.09 ft

S: 79 MD: 4102.00 ft
Inc: 0.80 deg Az: 58.76
deg TVD: 4011.08 ft



S: 80 MD: 4190.00 ft
Inc: 0.69 deg Az: 48.80
deg TVD: 4099.07 ft

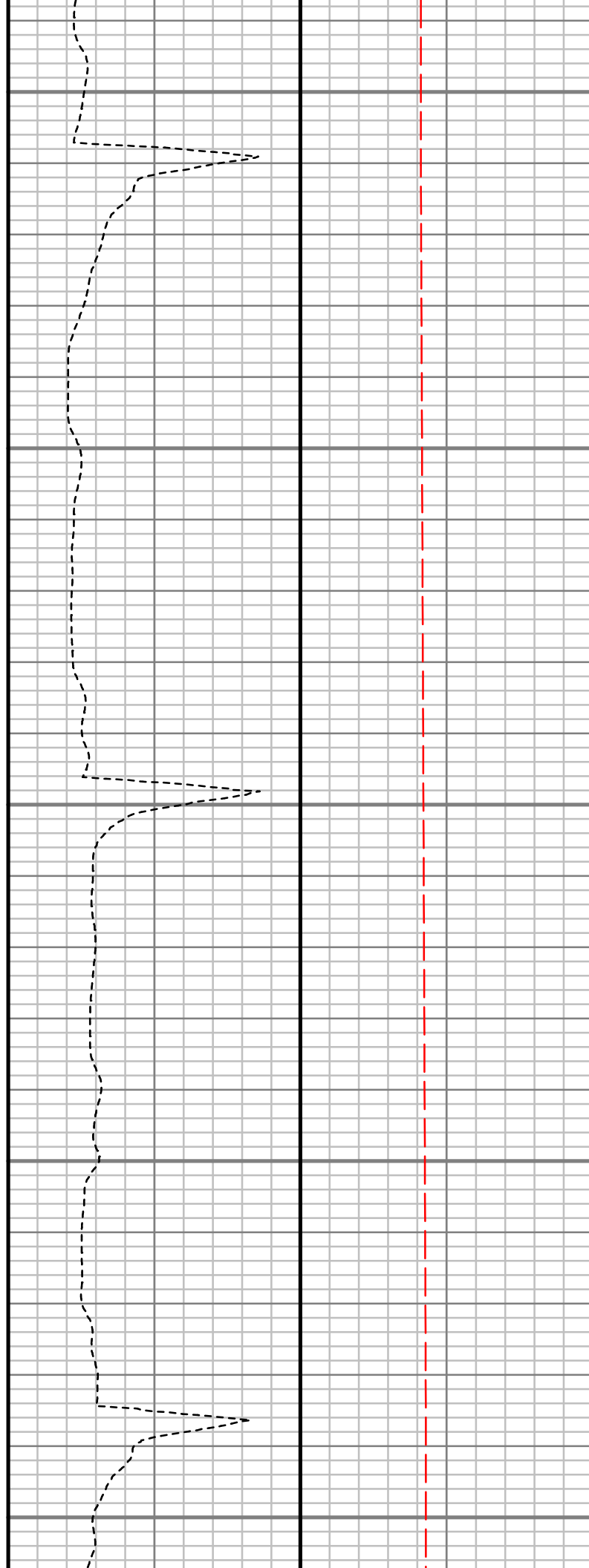
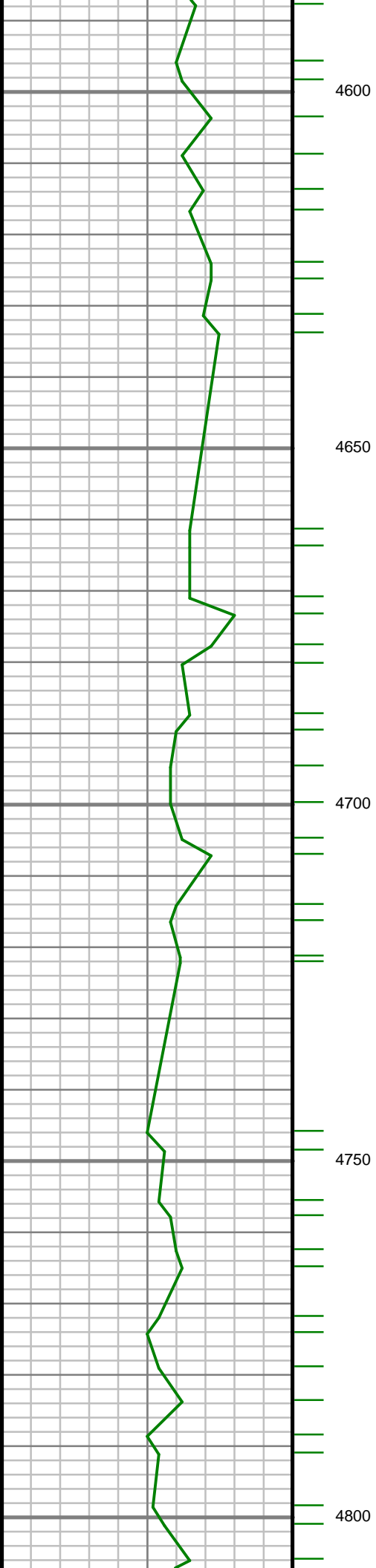
S: 81 MD: 4279.00 ft
Inc: 0.51 deg Az: 39.93
deg TVD: 4188.06 ft



S: 82 MD: 4368.00 ft
Inc: 0.34 deg Az: 344.86 deg TVD: 4277.06 ft

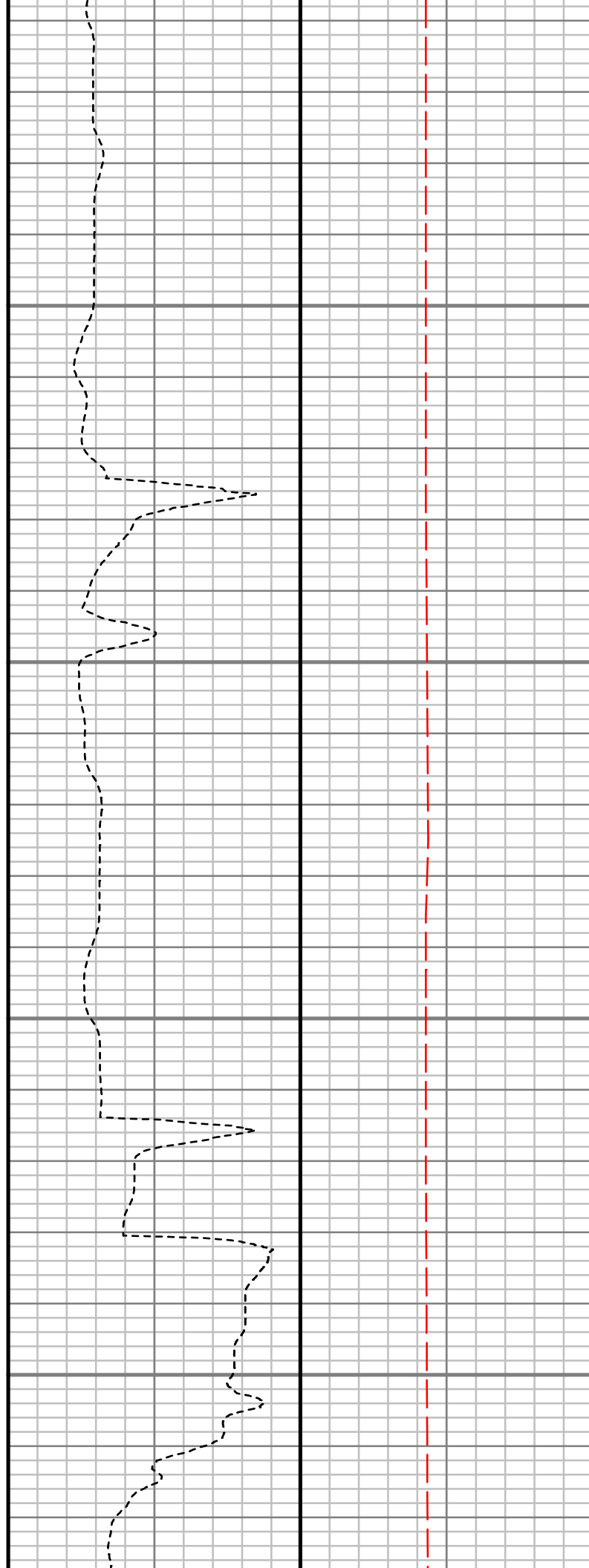
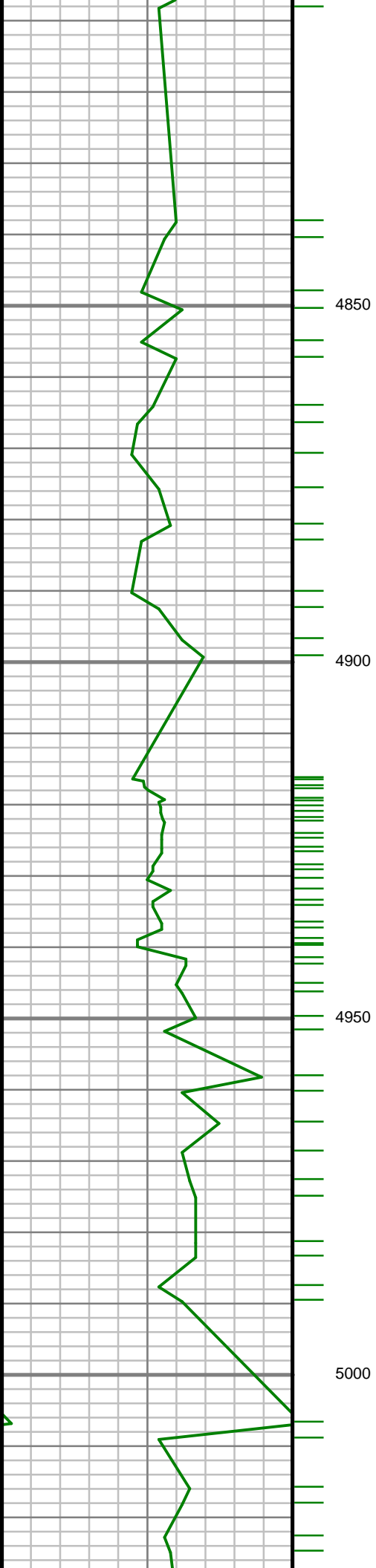
S: 83 MD: 4457.00 ft
Inc: 0.00 deg Az: 8.11 deg TVD: 4366.06 ft

S: 84 MD: 4546.00 ft
Inc: 0.05 deg Az: 353.89 deg TVD: 4455.06 ft



S: 85 MD: 4635.00 ft
Inc: 0.12 deg Az:
248.91 deg TVD:
4544.06 ft

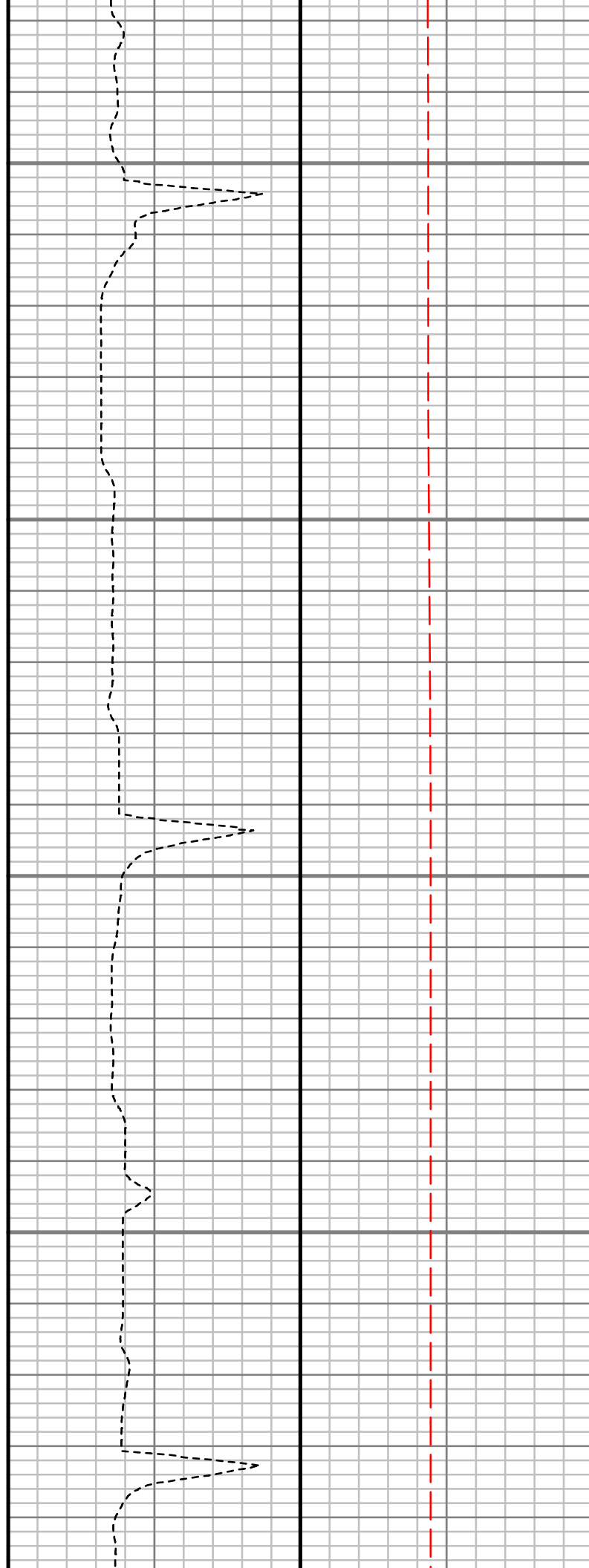
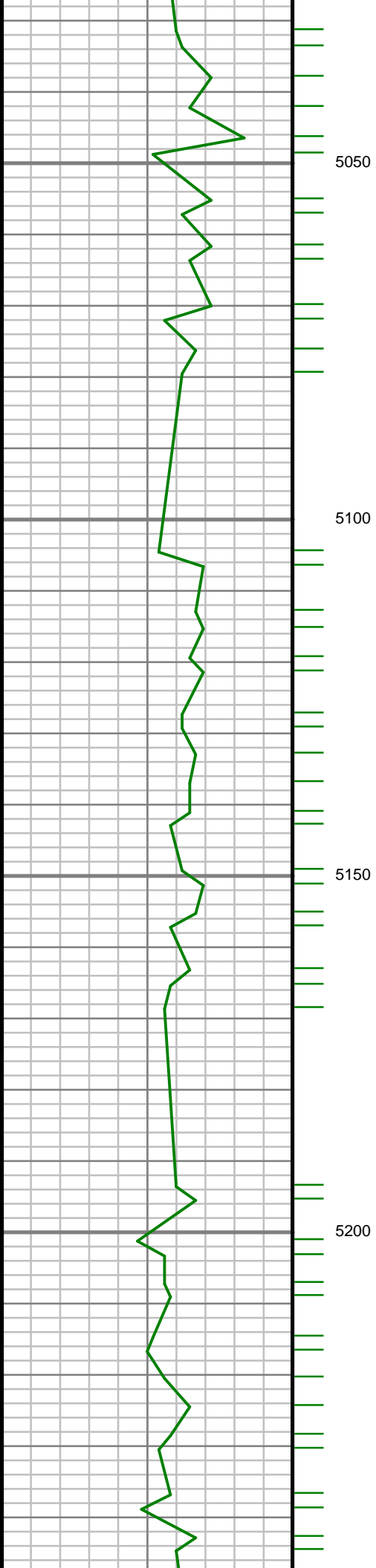
S: 86 MD: 4723.00 ft
Inc: 0.55 deg Az:
198.45 deg TVD:
4632.06 ft



S: 87 MD: 4812.00 ft
Inc: 0.73 deg Az:
221.27 deg TVD:
4721.05 ft

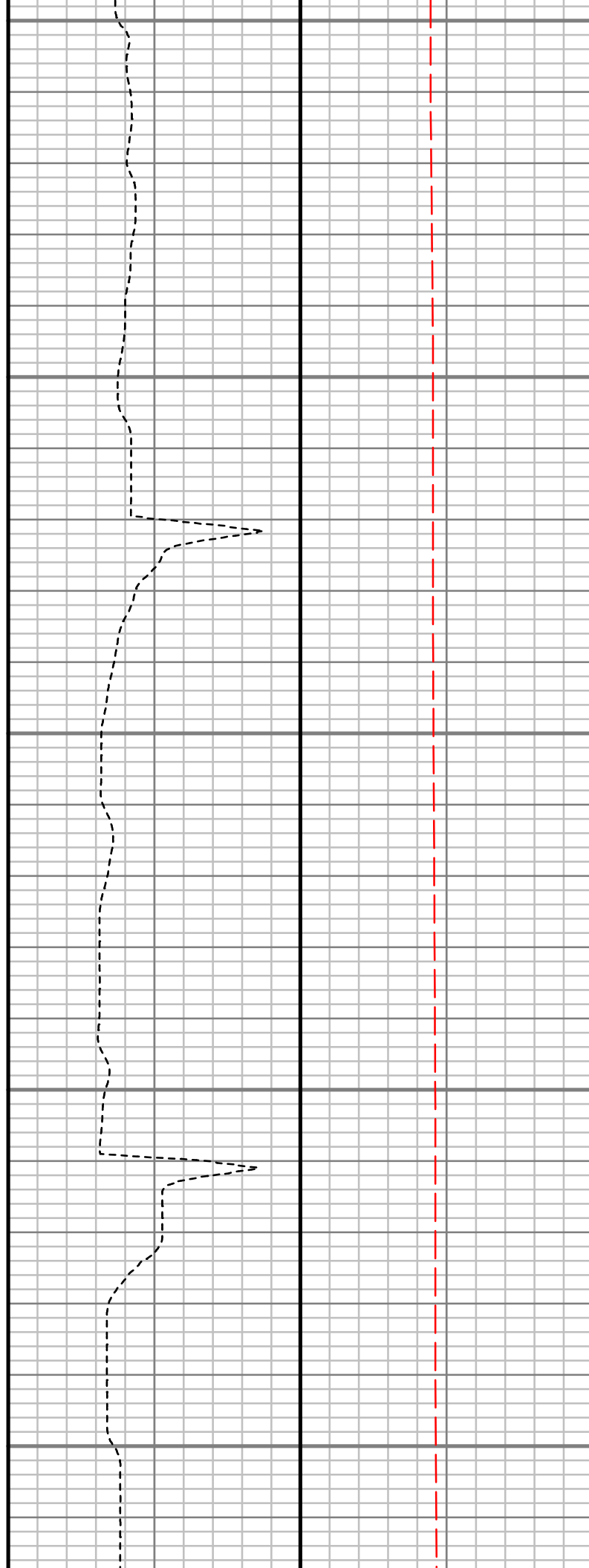
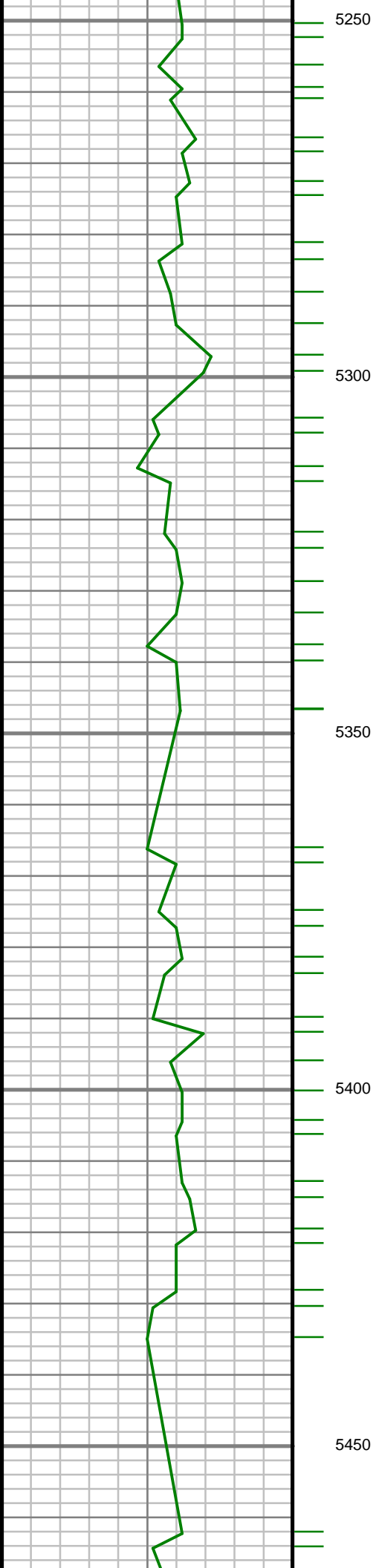
S: 88 MD: 4901.00 ft
Inc: 0.86 deg Az:
221.21 deg TVD:
4810.04 ft

S: 89 MD: 4990.00 ft
Inc: 0.55 deg Az: 70.61
deg TVD: 4899.04 ft



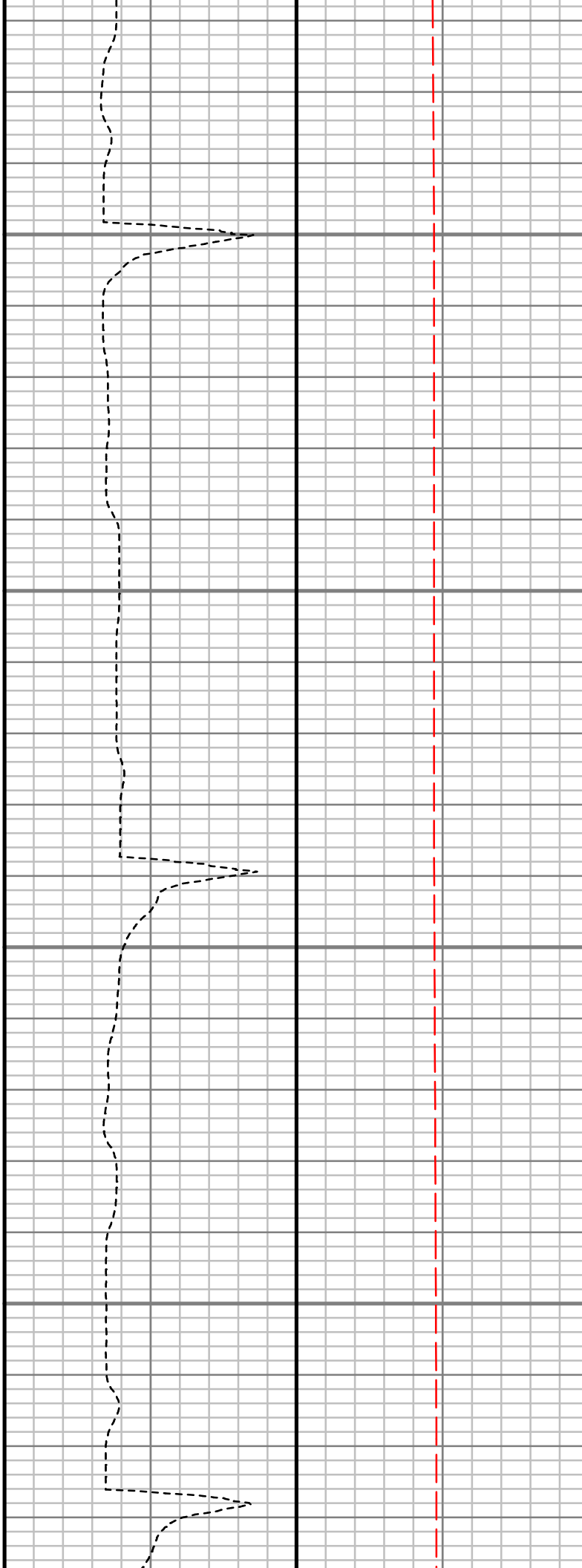
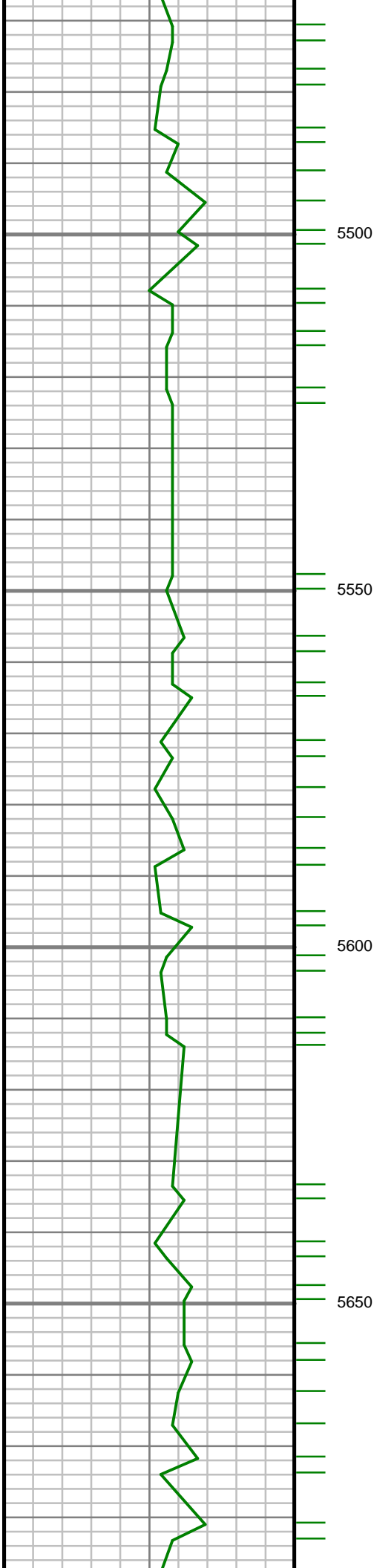
S: 90 MD: 5079.00 ft
Inc: 1.50 deg Az: 67.91
deg TVD: 4988.03 ft

S: 91 MD: 5168.00 ft
Inc: 1.21 deg Az: 85.21
deg TVD: 5077.00 ft



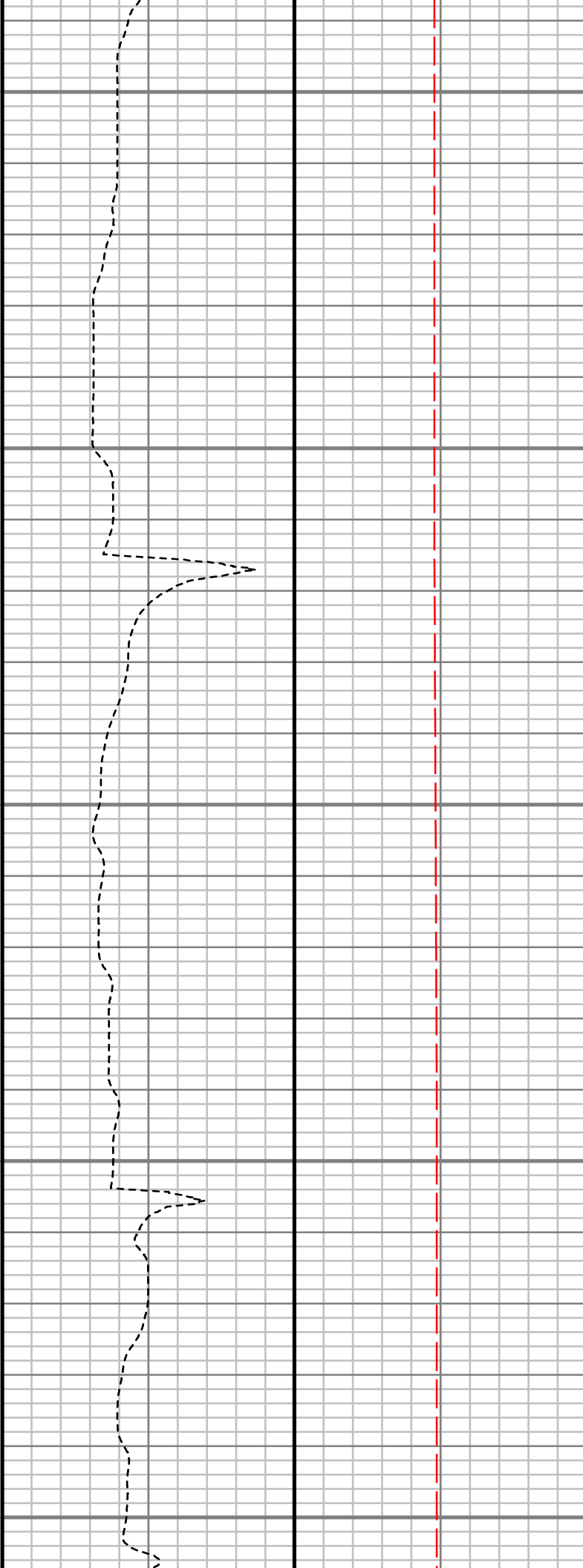
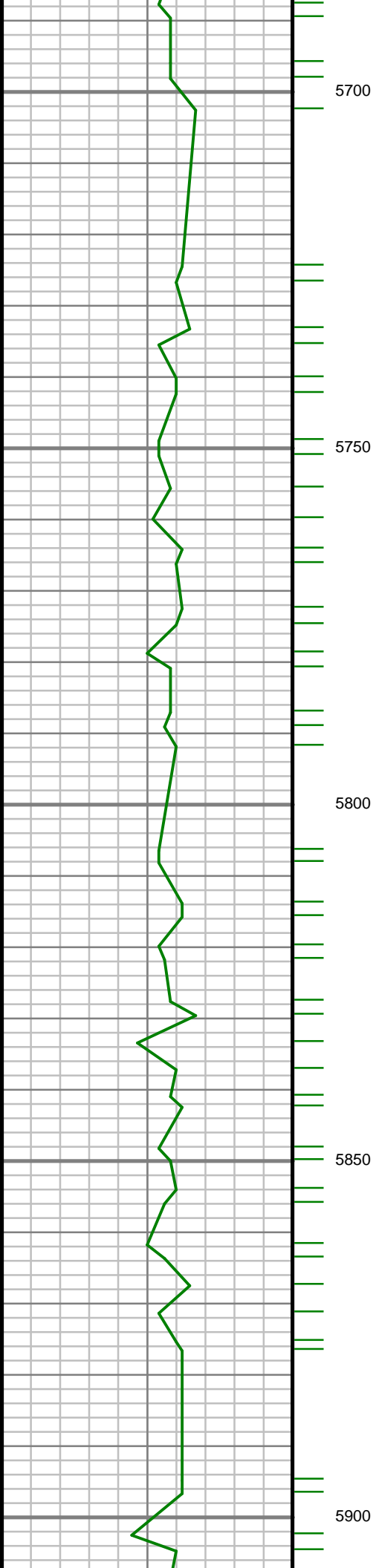
S: 92 MD: 5256.00 ft
Inc: 0.74 deg Az:
113.50 deg TVD:
5164.99 ft

S: 93 MD: 5434.00 ft
Inc: 0.72 deg Az:
101.32 deg TVD:
5342.98 ft



S: 94 MD: 5523.00 ft
Inc: 0.36 deg Az: 98.11
deg TVD: 5431.97 ft

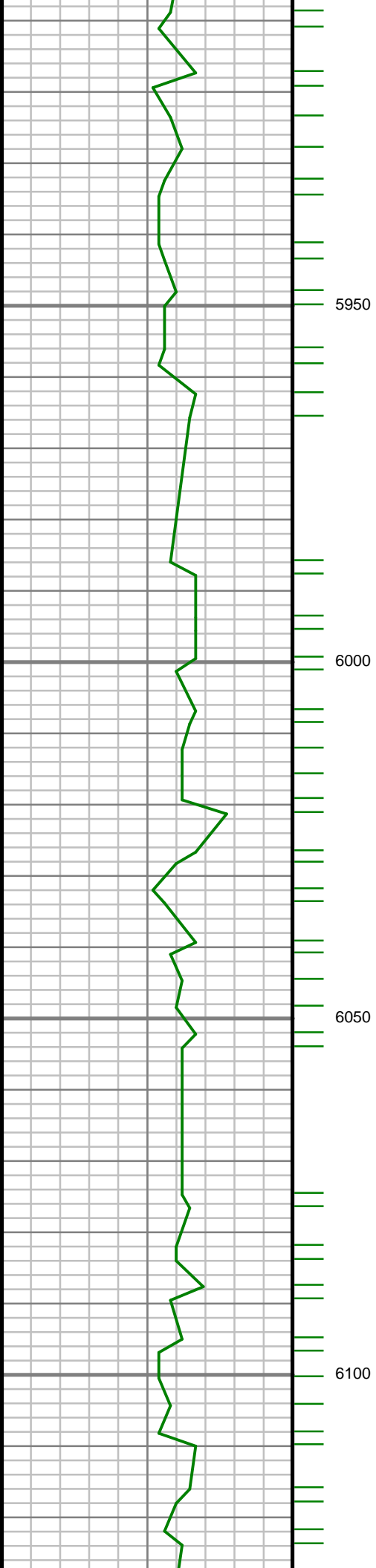
S: 95 MD: 5612.00 ft
Inc: 0.24 deg Az:
114.50 deg TVD:
5520.97 ft



S: 96 MD: 5701.00 ft
Inc: 0.05 deg Az:
319.07 deg TVD:
5609.97 ft

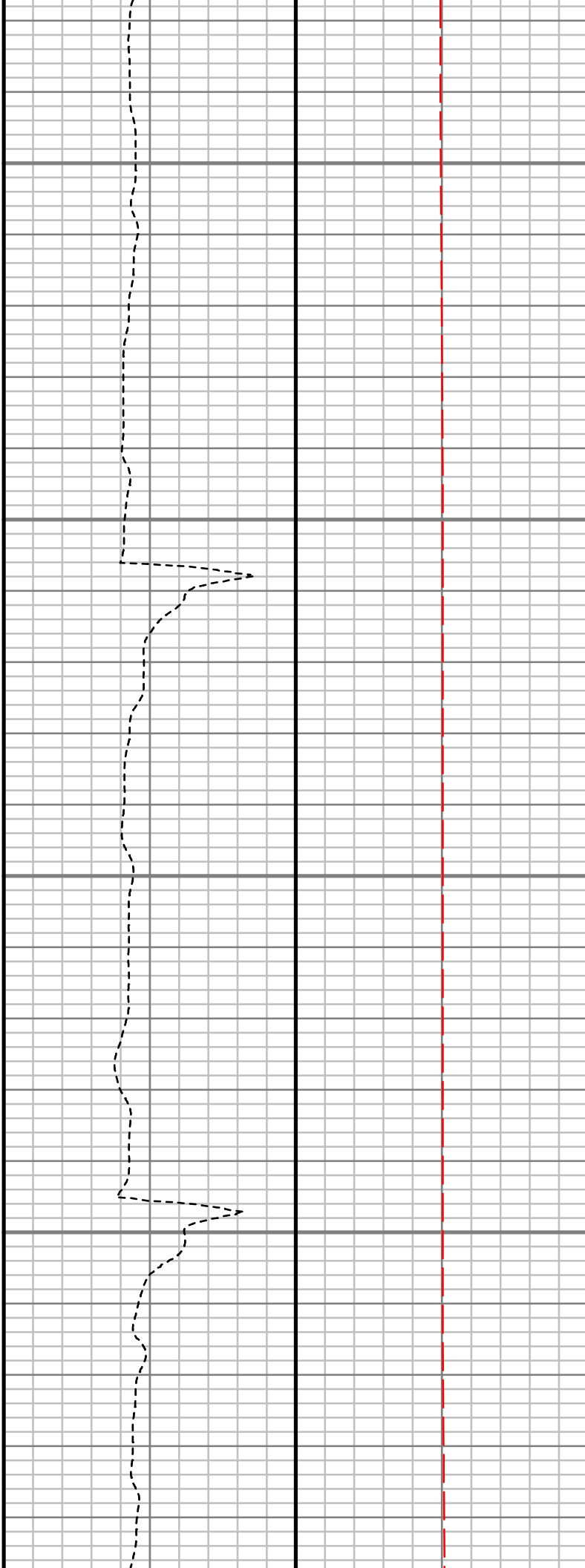
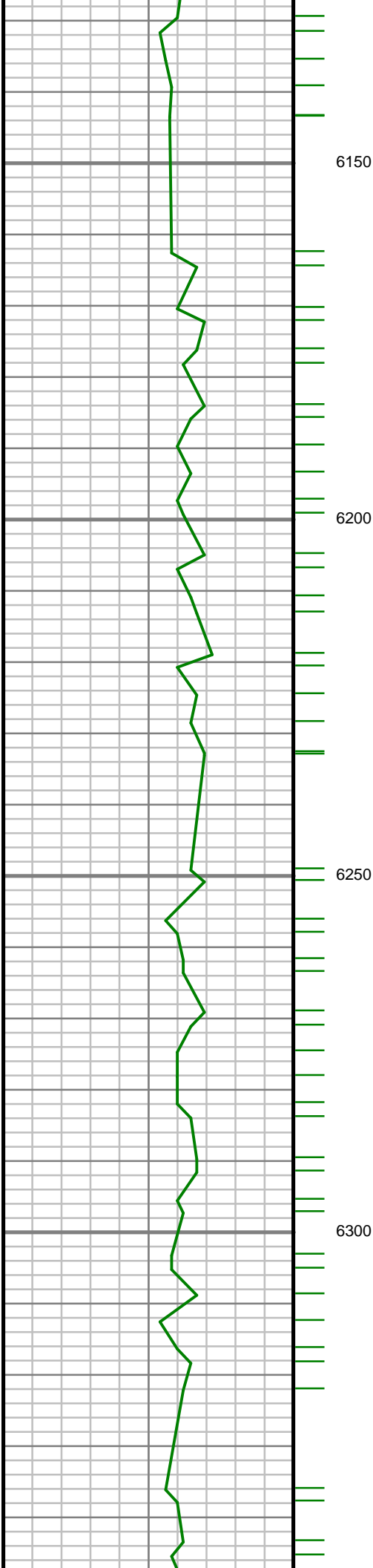
S: 97 MD: 5789.00 ft
Inc: 0.15 deg Az:
238.86 deg TVD:
5697.97 ft

S: 98 MD: 5878.00 ft
Inc: 0.39 deg Az:
232.64 deg TVD:
5786.97 ft



S: 99 MD: 5967.00 ft
Inc: 0.55 deg Az:
242.21 deg TVD:
5875.97 ft

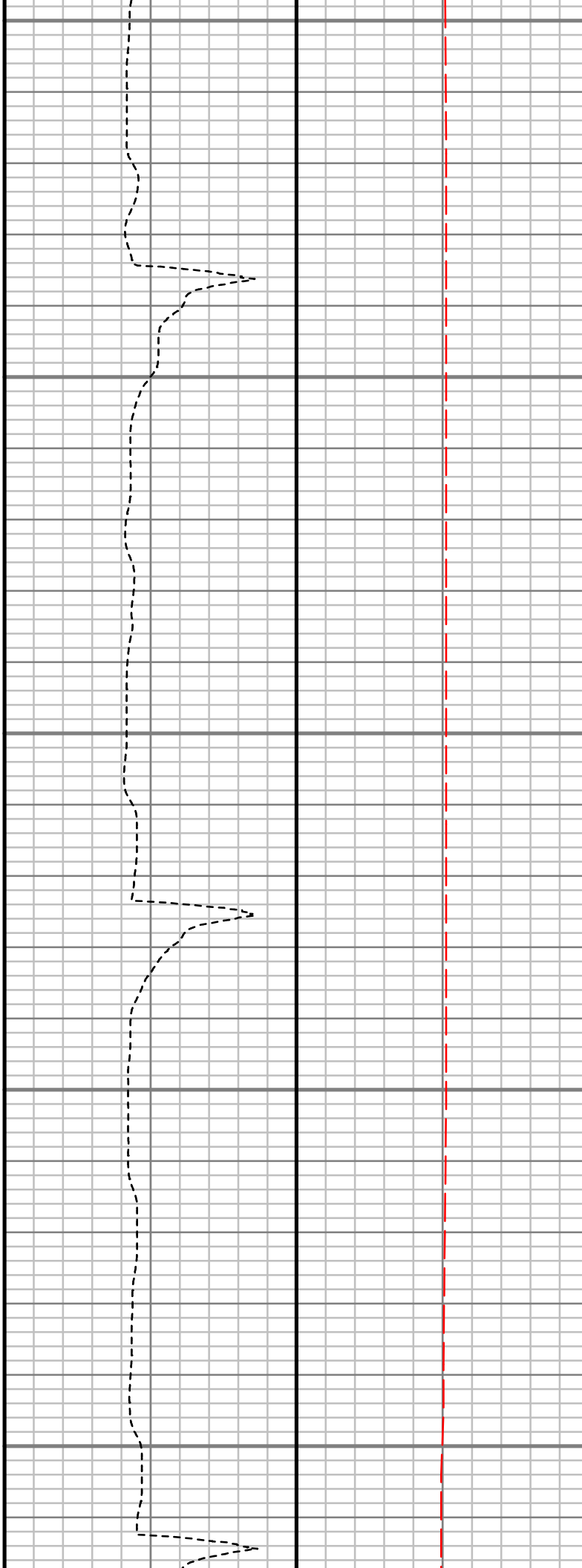
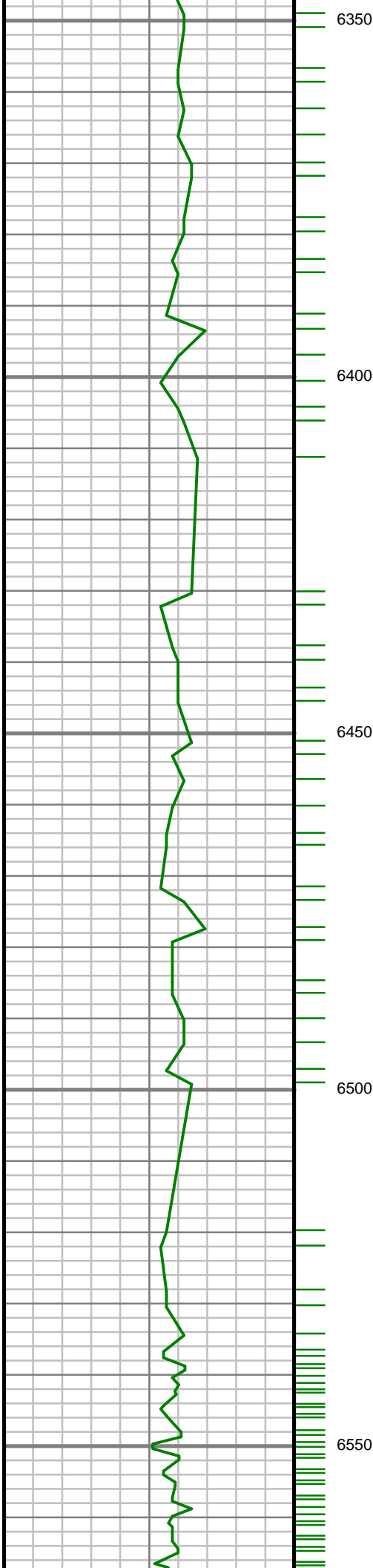
S: 100 MD: 6056.00 ft
Inc: 0.20 deg Az:
255.45 deg TVD:
5964.96 ft



S: 101 MD: 6145.00 ft
Inc: 0.05 deg Az:
199.19 deg TVD:
6053.96 ft

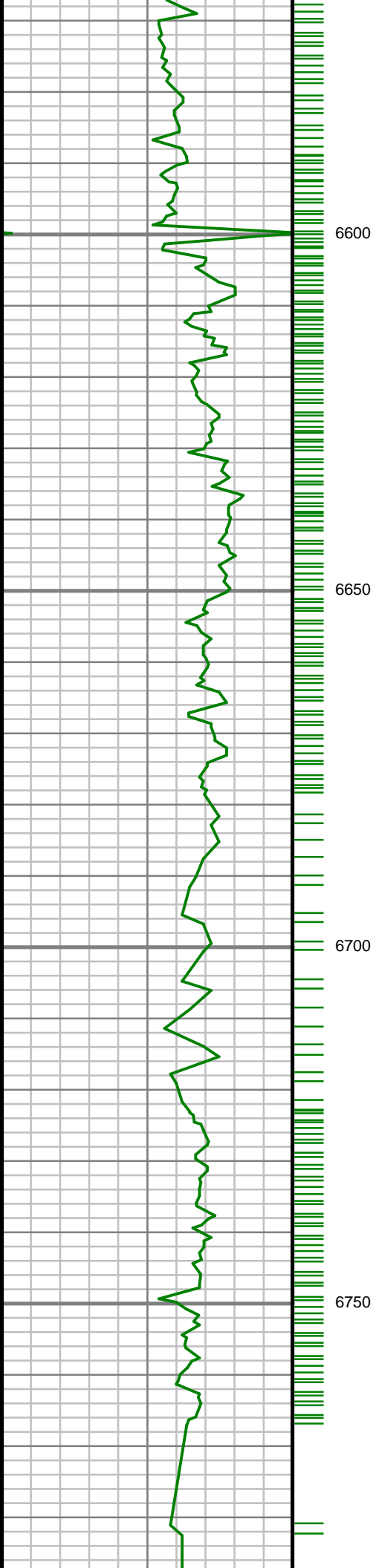
S: 102 MD: 6233.00 ft
Inc: 0.24 deg Az:
290.81 deg TVD:
6141.96 ft

S: 103 MD: 6322.00 ft
Inc: 0.30 deg Az:
352.77 deg TVD:
6230.96 ft



S: 104 MD: 6411.00 ft
Inc: 0.43 deg Az:
359.36 deg TVD:
6319.96 ft

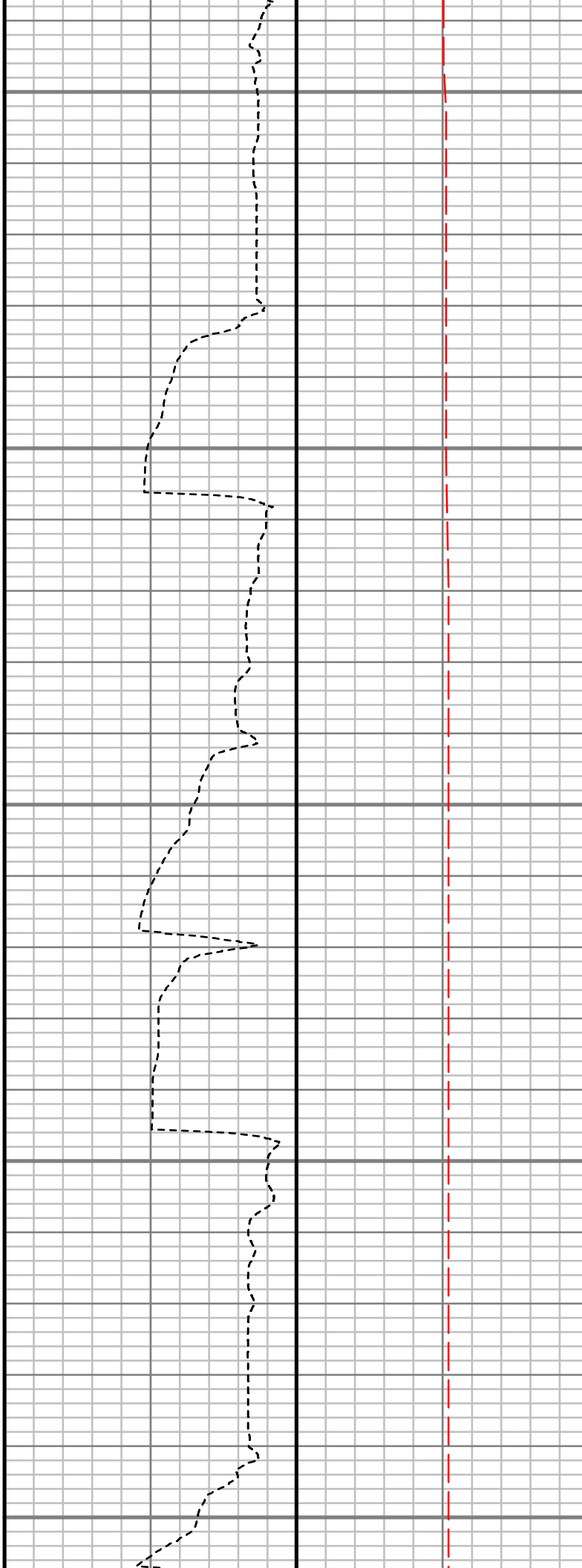
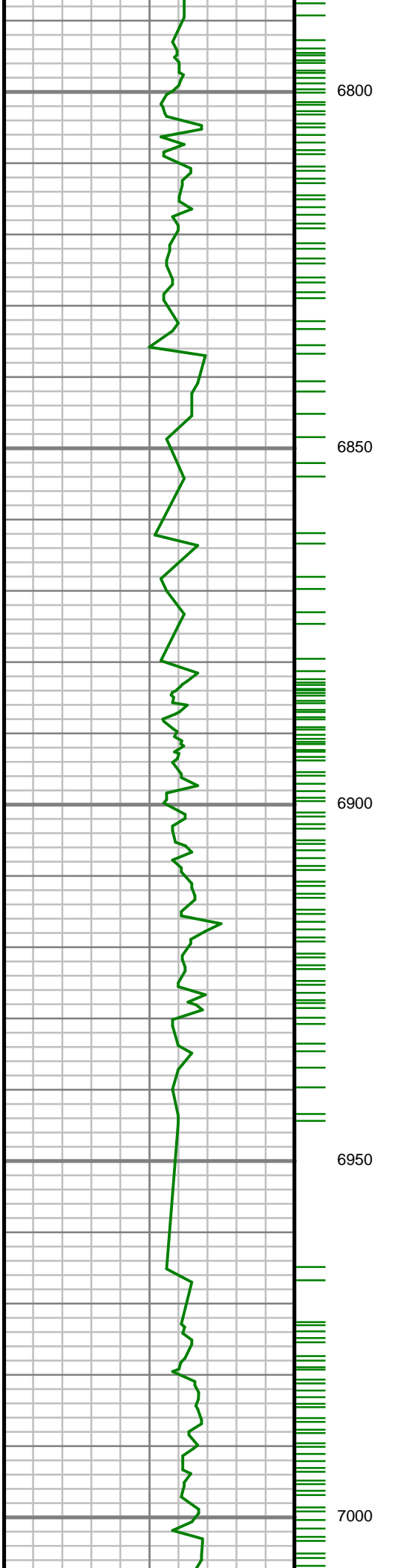
S: 105 MD: 6500.00 ft
Inc: 0.69 deg Az:
347.09 deg TVD:
6408.96 ft



S: 106 MD: 6589.00 ft
Inc: 0.94 deg Az:
331.90 deg TVD:
6497.95 ft

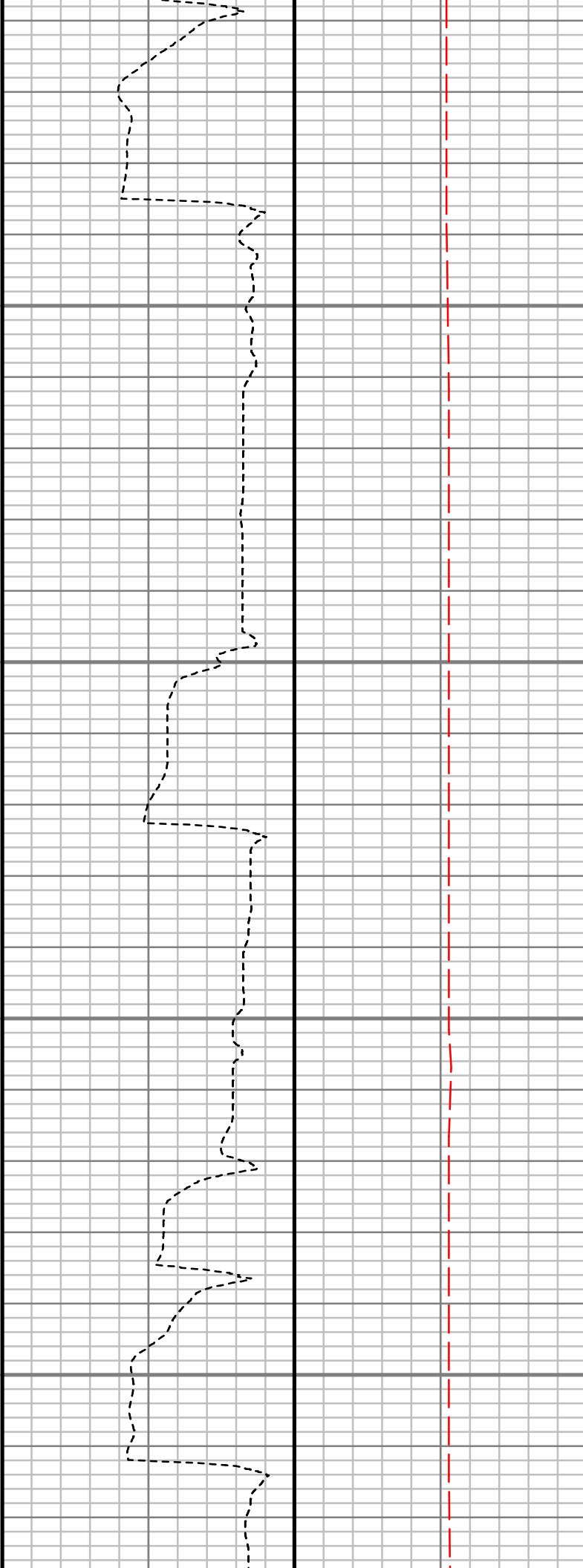
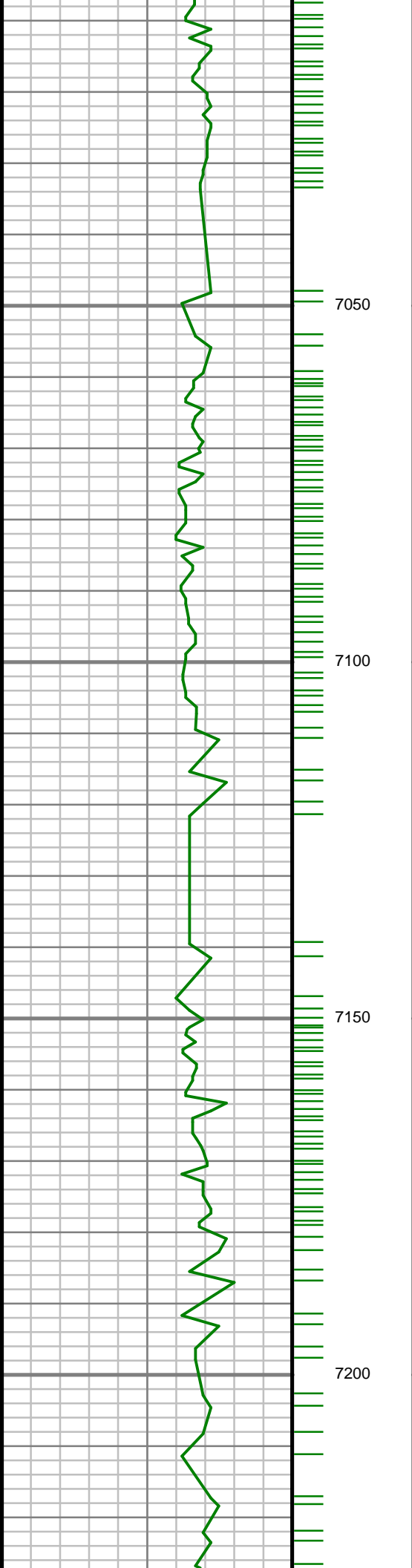
S: 107 MD: 6678.00 ft
Inc: 10.27 deg Az: 1.34
deg TVD: 6586.43 ft

S: 108 MD: 6766.00 ft
Inc: 18.57 deg Az: 0.83
deg TVD: 6671.58 ft



S: 109 MD: 6855.00 ft
Inc: 23.65 deg Az: 0.43
deg TVD: 6754.58 ft

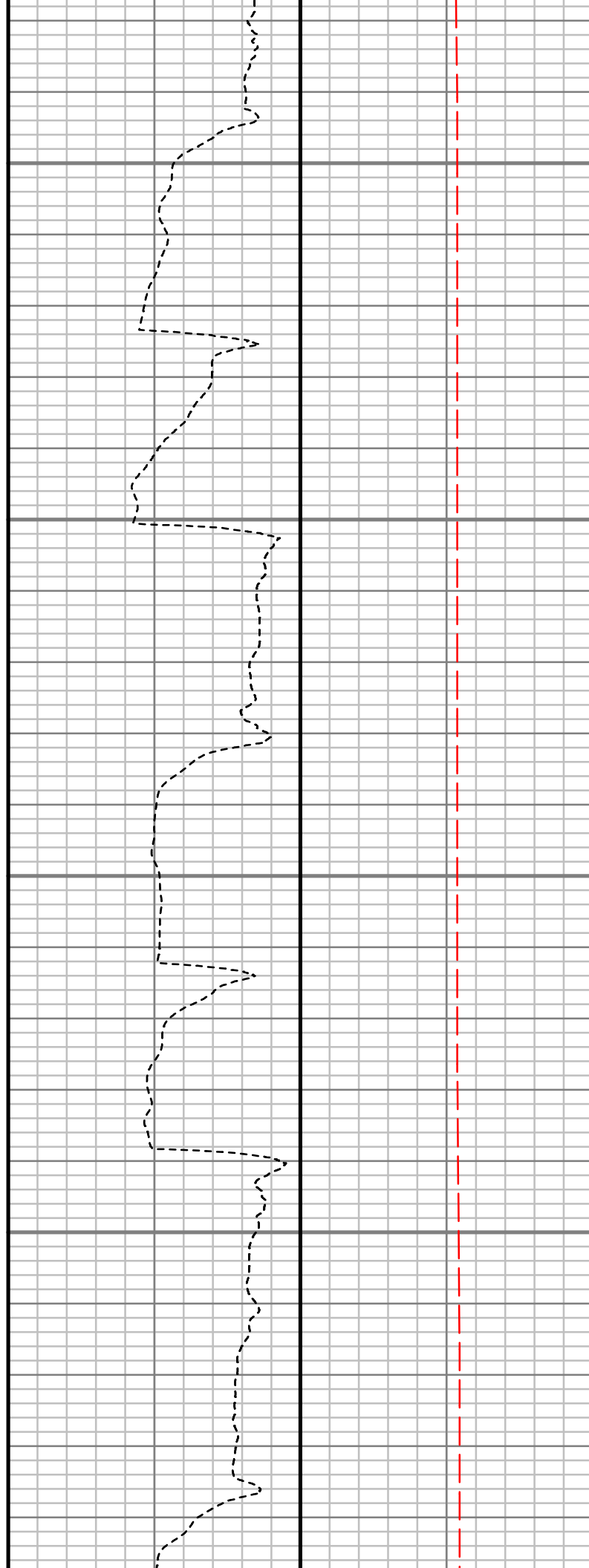
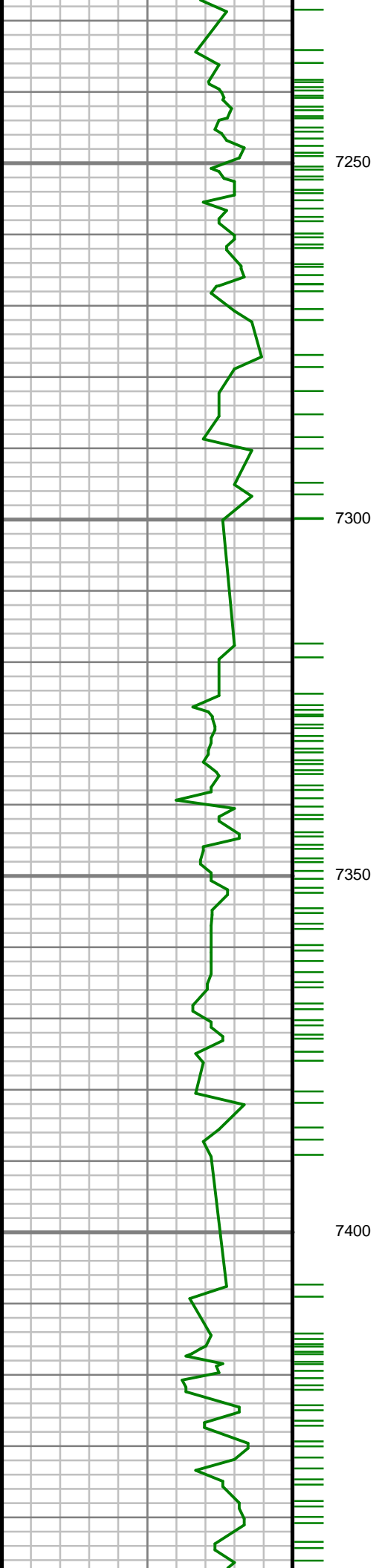
S: 110 MD: 6944.00 ft
Inc: 25.78 deg Az:
359.13 deg TVD:
6835.43 ft



S: 111 MD: 7032.00 ft
Inc: 30.17 deg Az:
358.77 deg TVD:
6913.12 ft

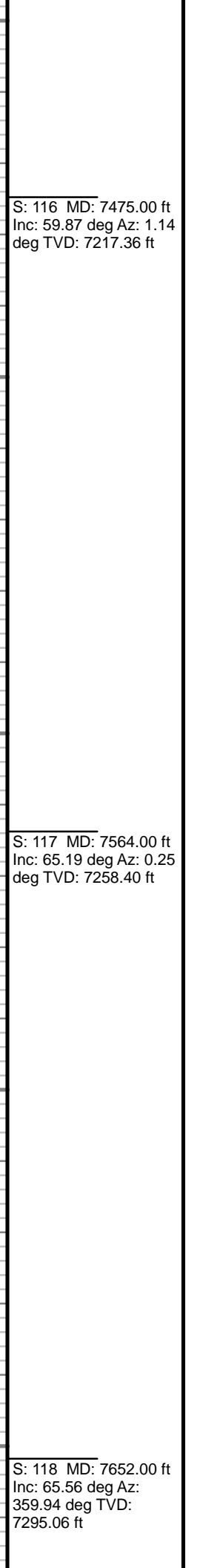
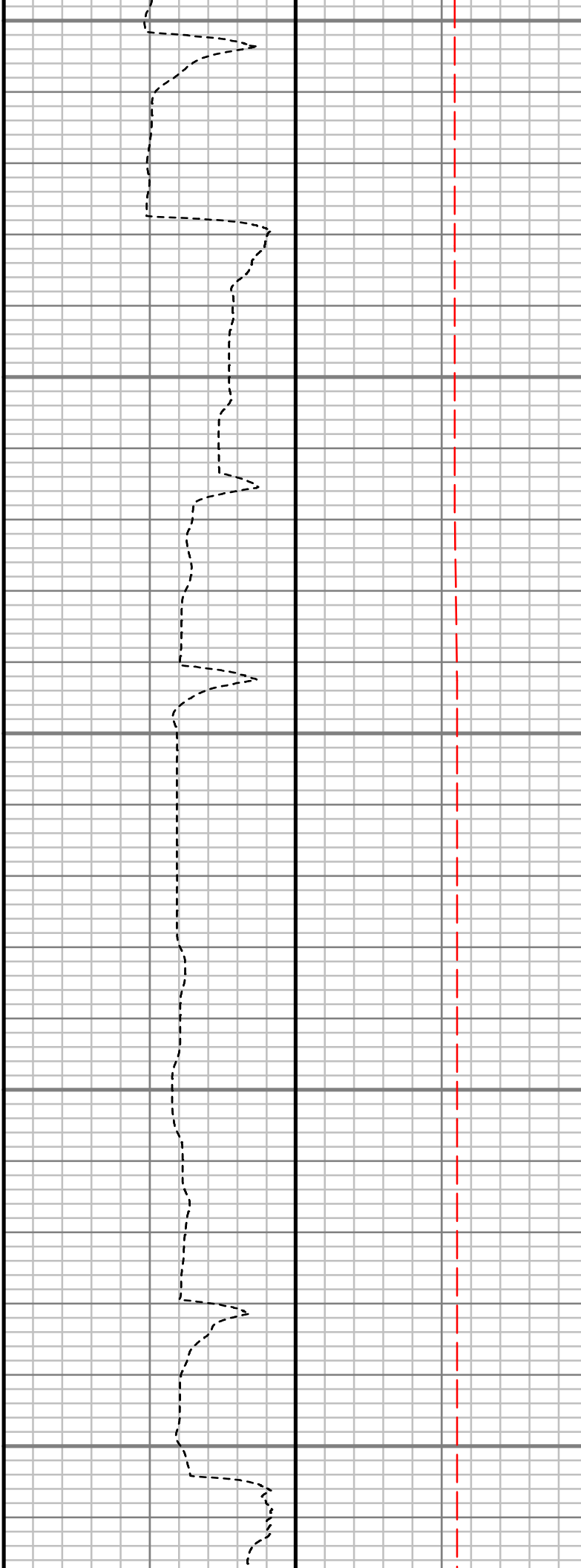
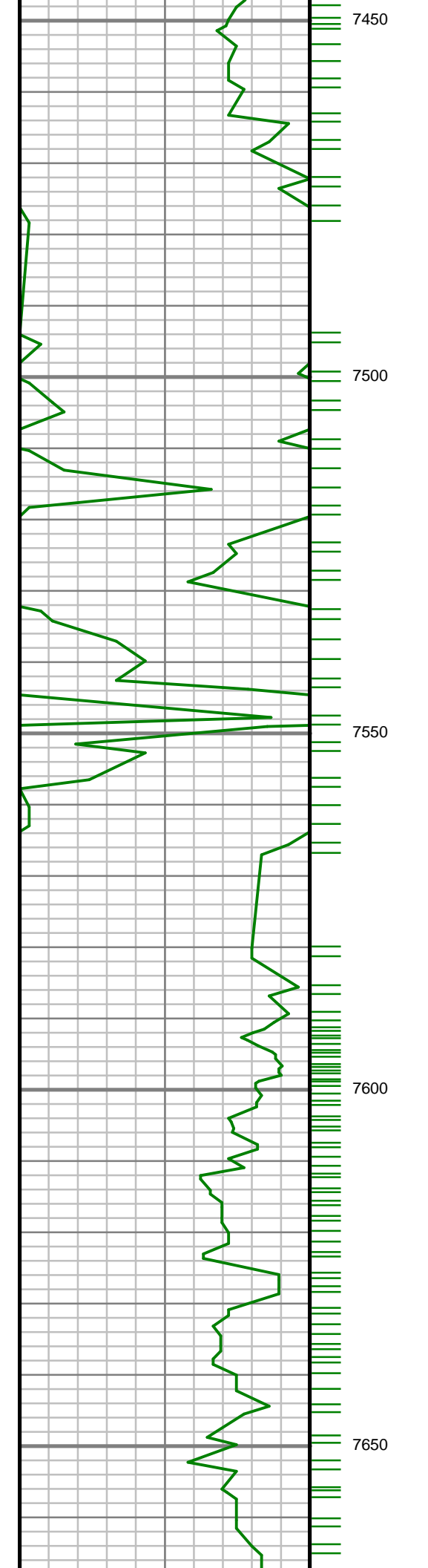
S: 112 MD: 7121.00 ft
Inc: 38.25 deg Az:
359.41 deg TVD:
6986.67 ft

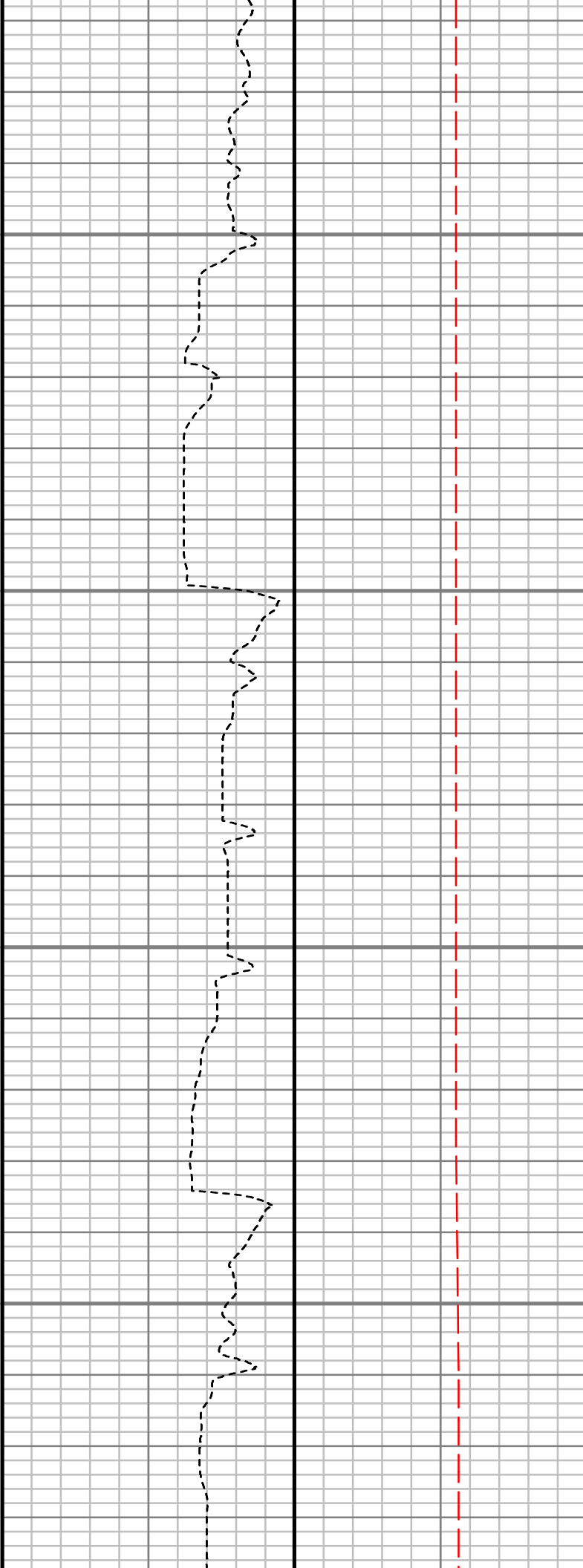
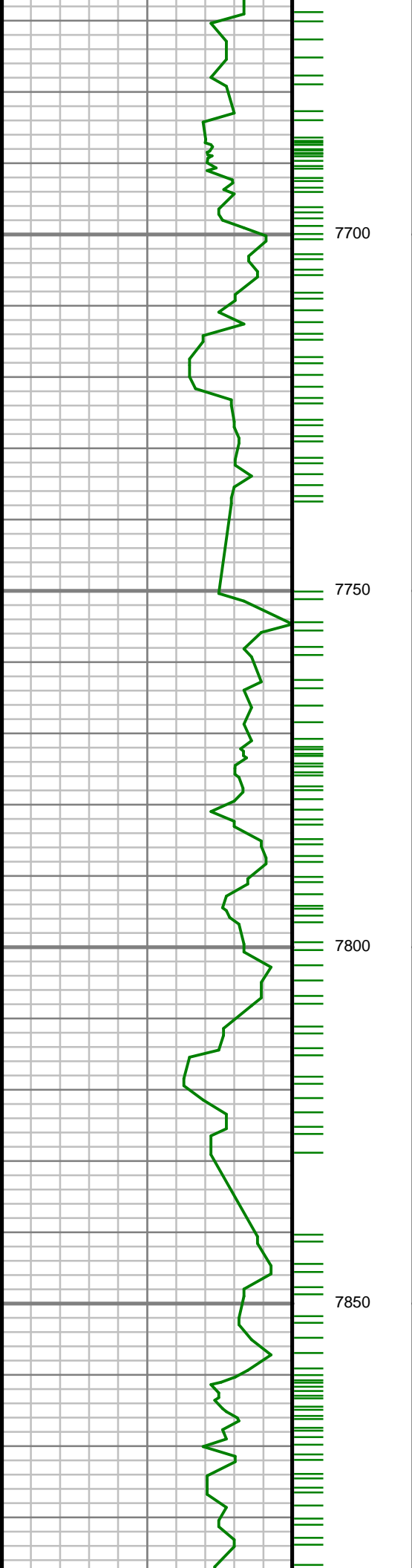
S: 113 MD: 7209.00 ft
Inc: 45.53 deg Az:
358.27 deg TVD:
7052.13 ft



S: 114 MD: 7298.00 ft
Inc: 49.31 deg Az:
357.17 deg TVD:
7112.34 ft

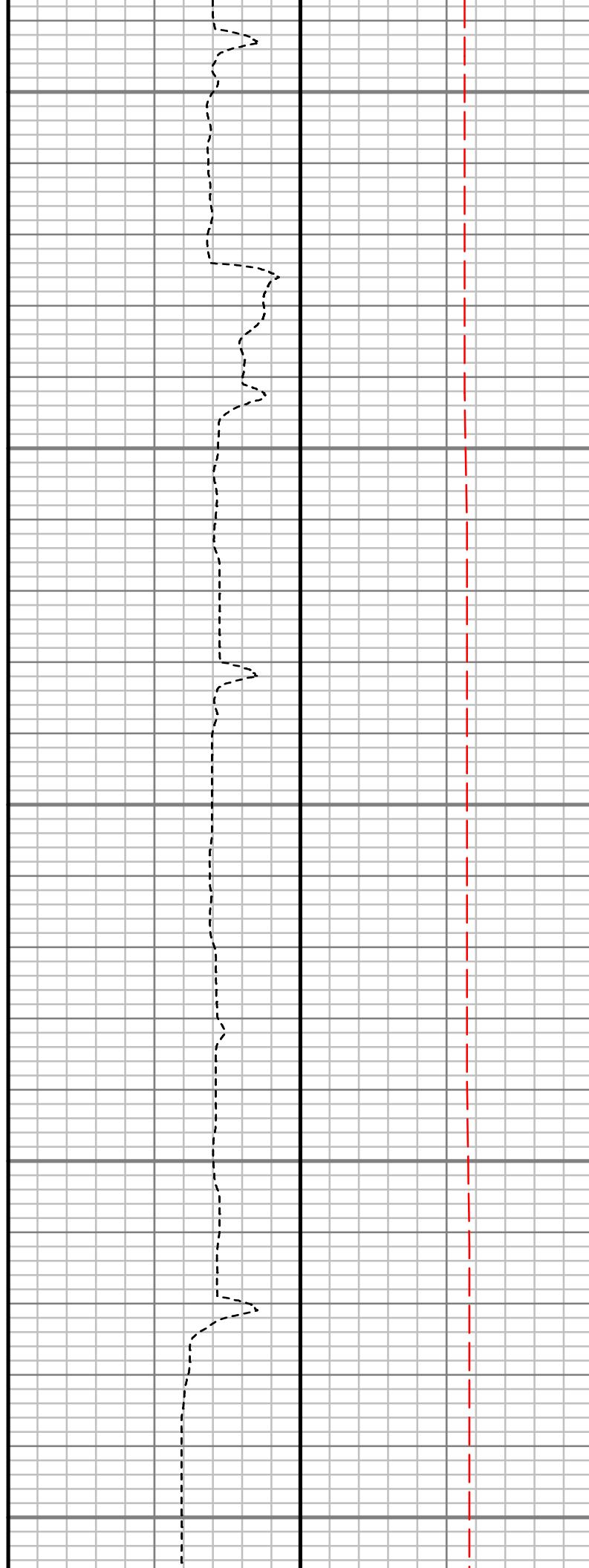
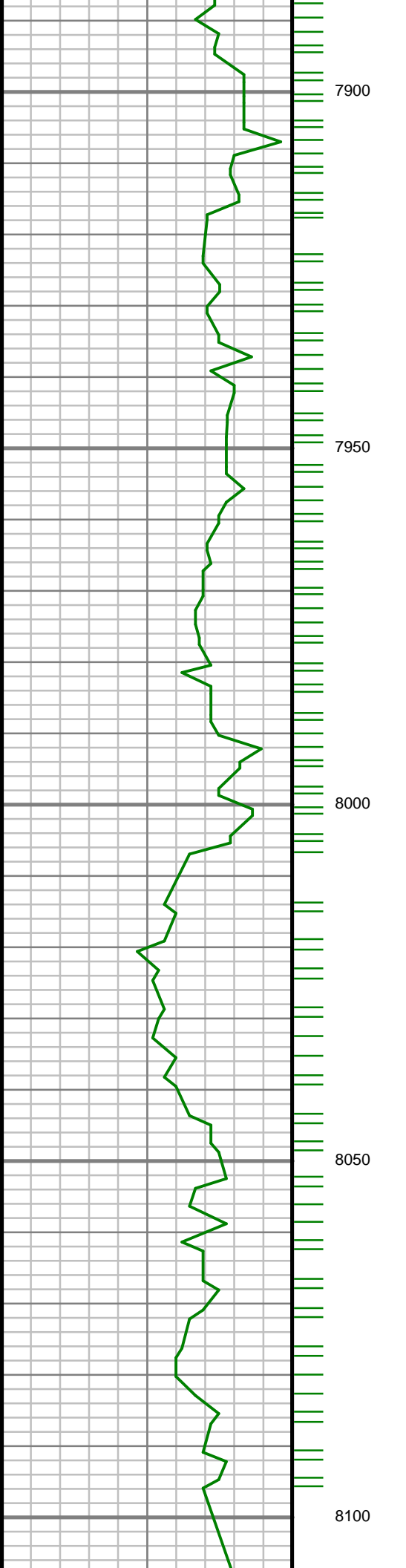
S: 115 MD: 7387.00 ft
Inc: 52.54 deg Az:
358.46 deg TVD:
7168.44 ft





S: 119 MD: 7741.00 ft
Inc: 72.68 deg Az:
357.52 deg TVD:
7326.77 ft

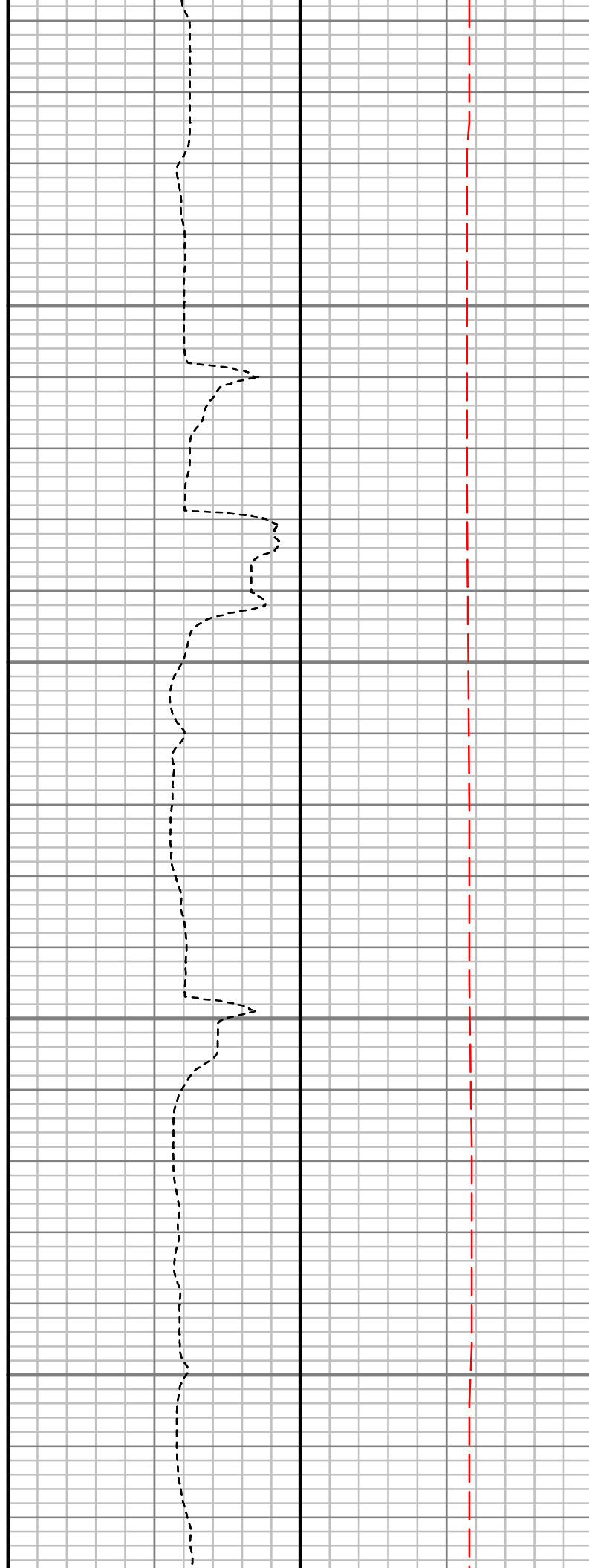
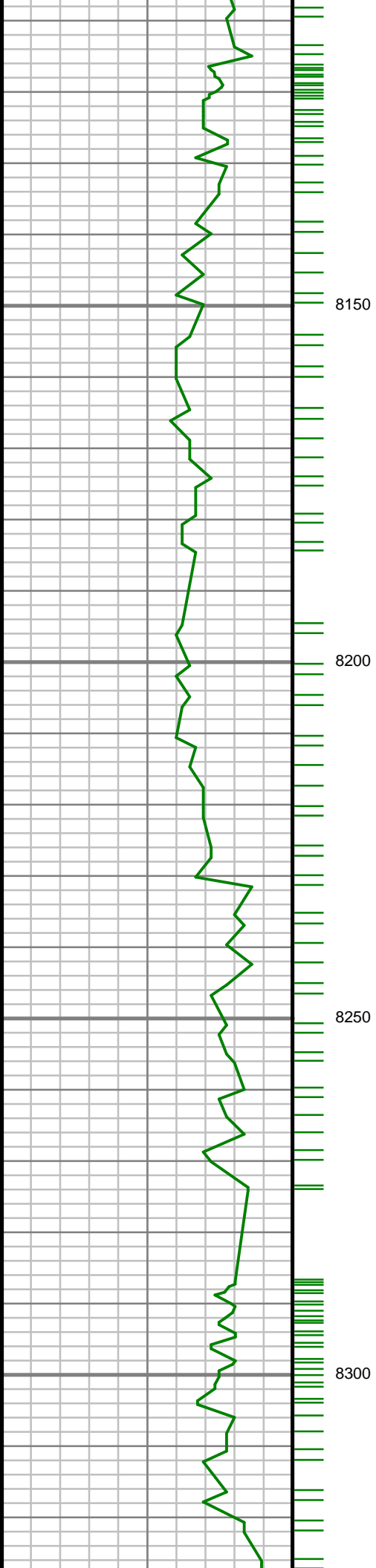
S: 120 MD: 7830.00 ft
Inc: 80.05 deg Az: 0.26
deg TVD: 7347.74 ft



S: 121 MD: 7919.00 ft
Inc: 85.11 deg Az: 0.86
deg TVD: 7359.23 ft

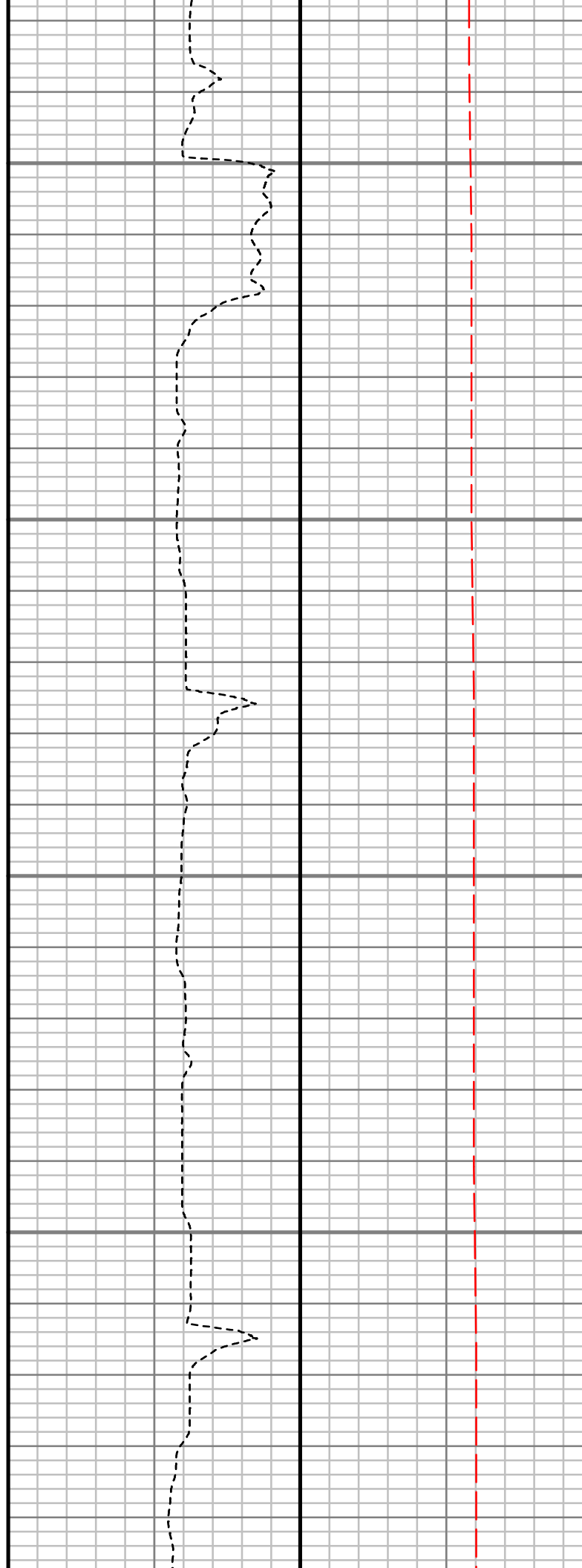
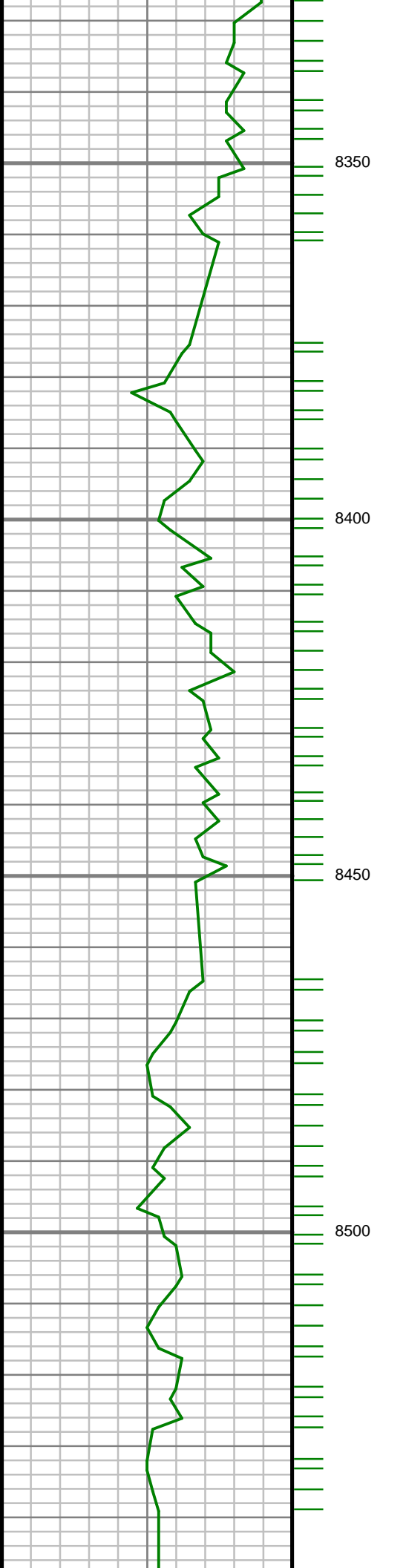
S: 122 MD: 8008.00 ft
Inc: 87.96 deg Az: 0.57
deg TVD: 7364.61 ft

S: 123 MD: 8096.00 ft
Inc: 88.80 deg Az: 0.63
deg TVD: 7367.09 ft



S: 124 MD: 8185.00 ft
Inc: 88.63 deg Az: 1.46
deg TVD: 7369.09 ft

S: 125 MD: 8274.00 ft
Inc: 89.10 deg Az: 1.72
deg TVD: 7370.85 ft



S: 126 MD: 8363.00 ft
Inc: 87.83 deg Az: 1.64
deg TVD: 7373.24 ft

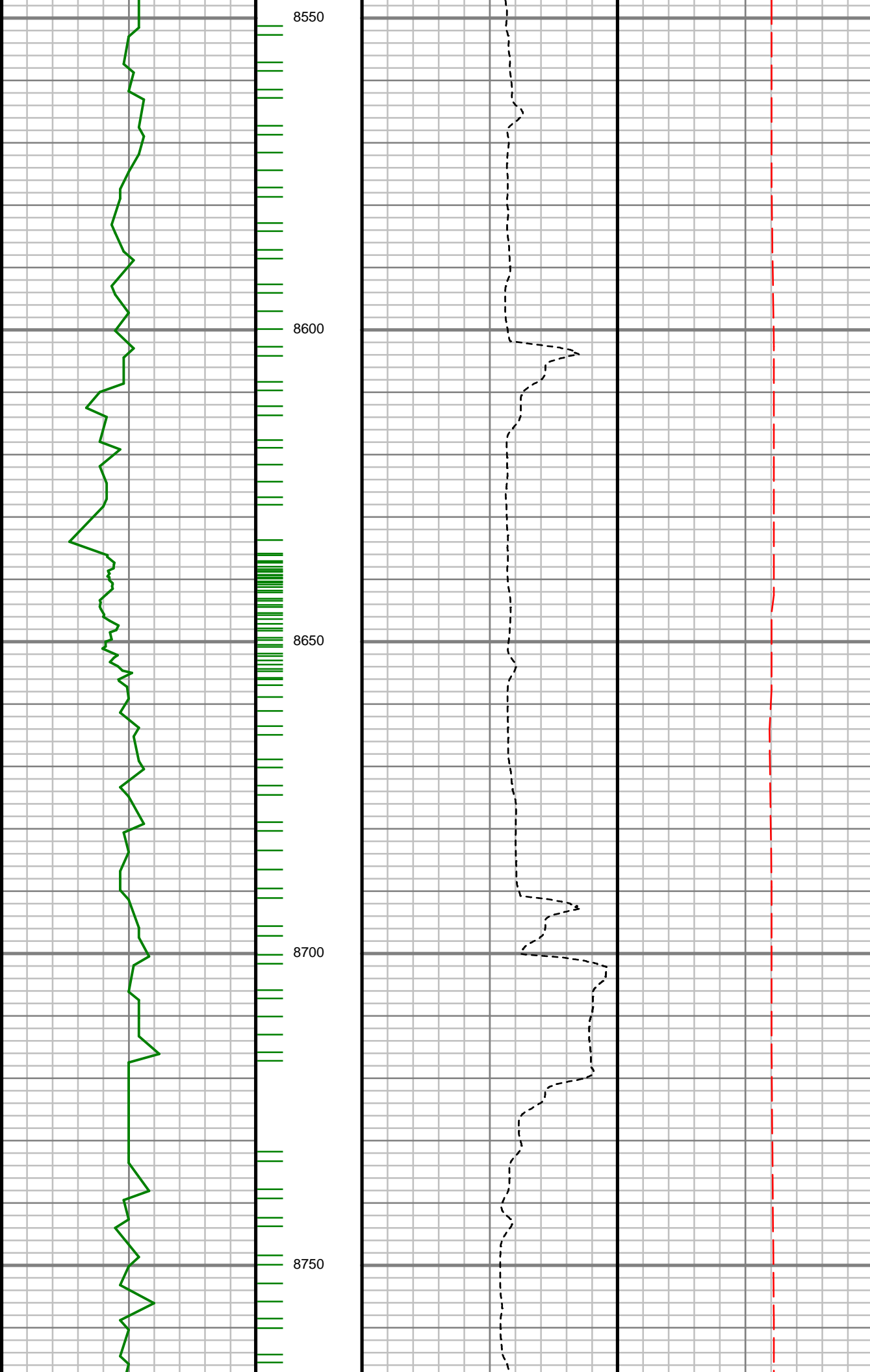
S: 127 MD: 8452.00 ft
Inc: 87.99 deg Az: 1.55
deg TVD: 7376.48 ft

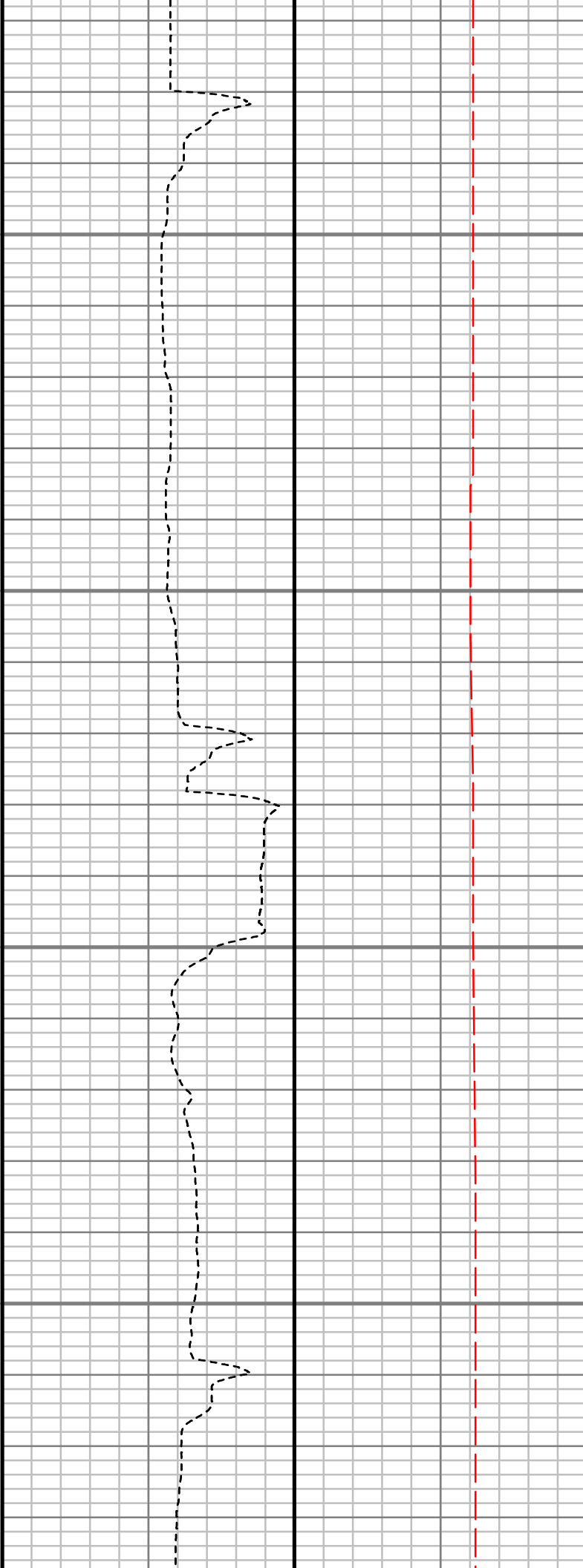
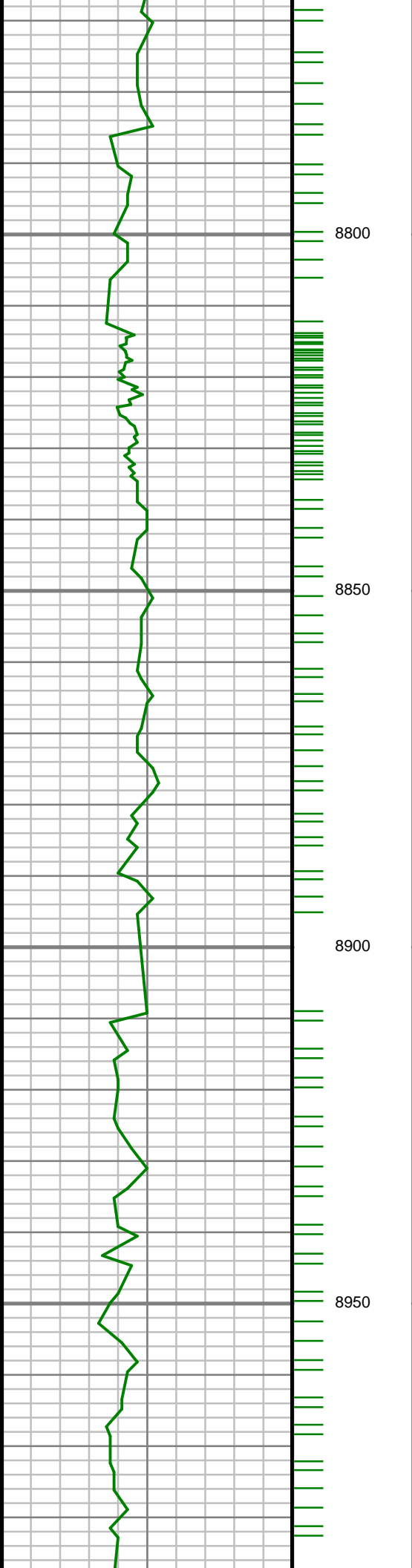
S: 128 MD: 8541.00 ft
Inc: 88.76 deg Az: 0.58
deg TVD: 7379.01 ft

deg TVD: 7379.01 ft

S: 129 MD: 8630.00 ft
Inc: 90.30 deg Az: 1.74
deg TVD: 7379.74 ft

S: 130 MD: 8718.00 ft
Inc: 89.10 deg Az: 1.63
deg TVD: 7380.20 ft

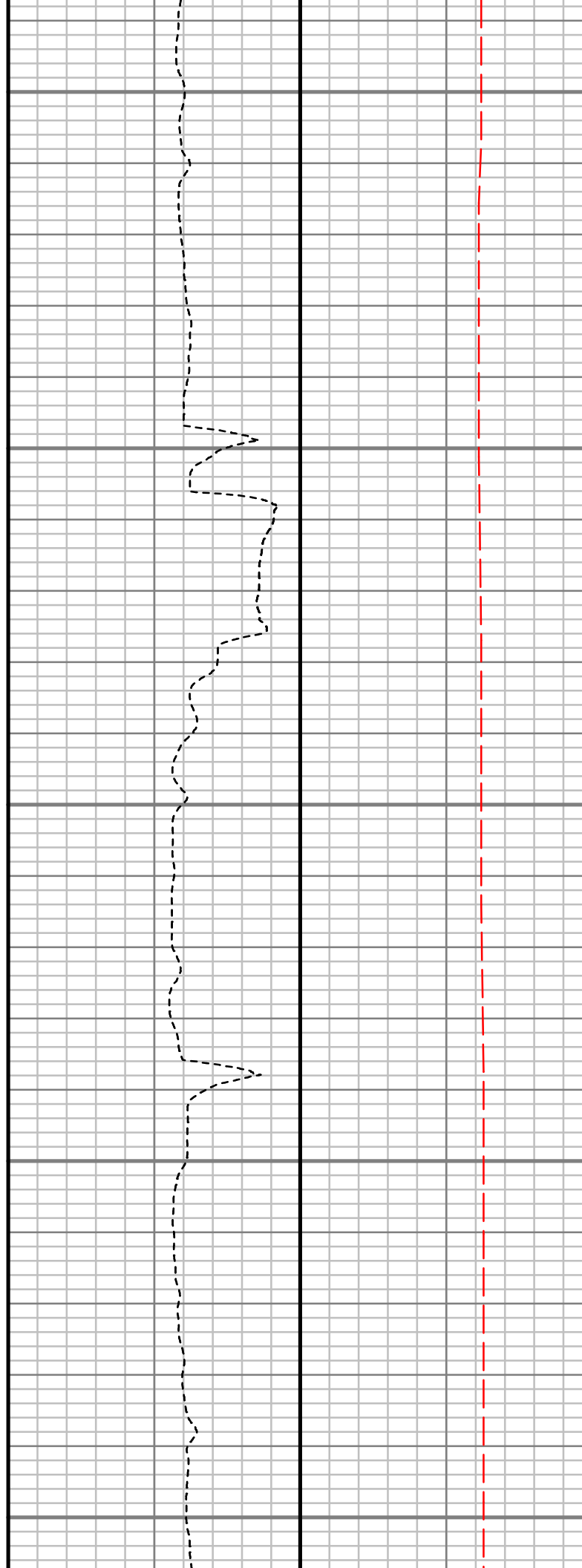
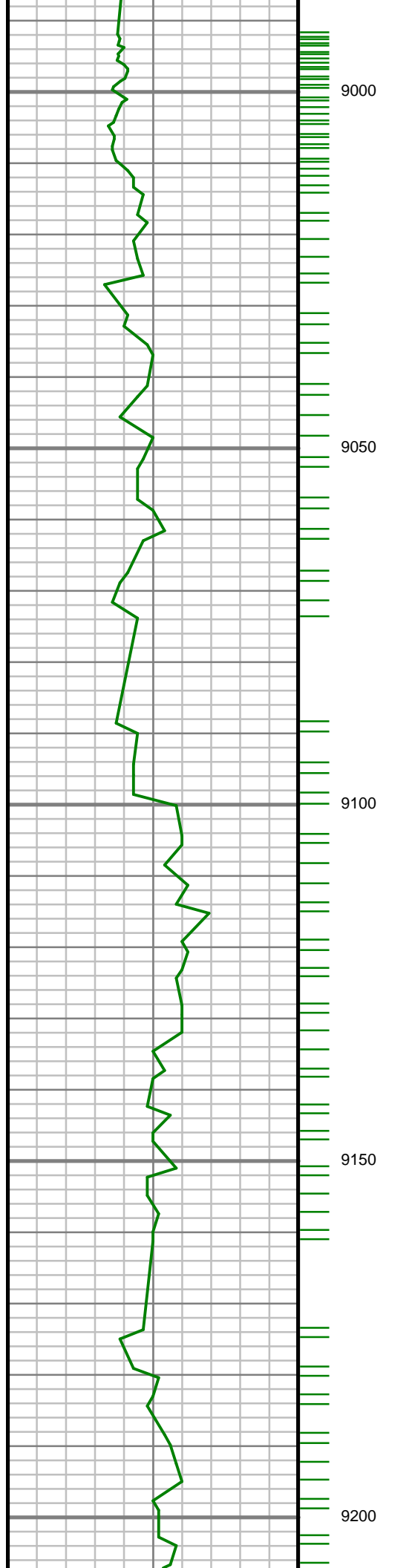




S: 131 MD: 8807.00 ft
Inc: 90.03 deg Az: 0.62
deg TVD: 7380.87 ft

S: 132 MD: 8896.00 ft
Inc: 88.13 deg Az: 0.77
deg TVD: 7382.30 ft

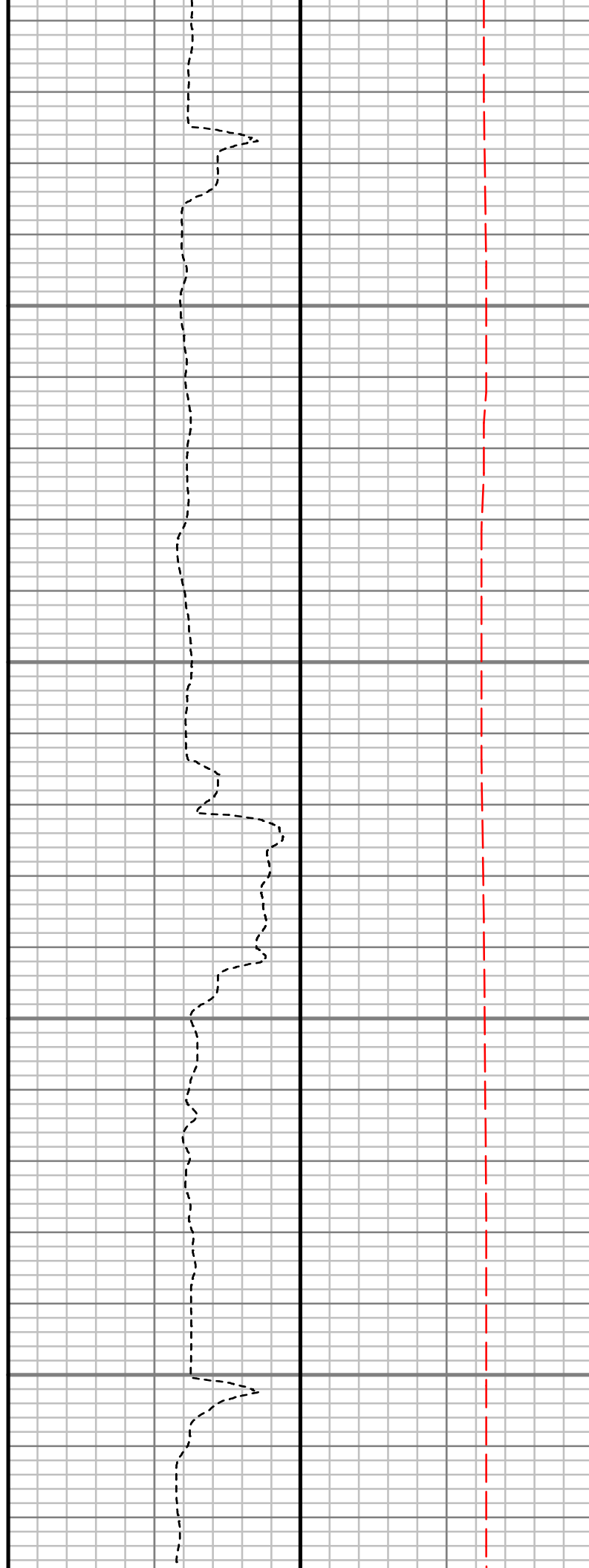
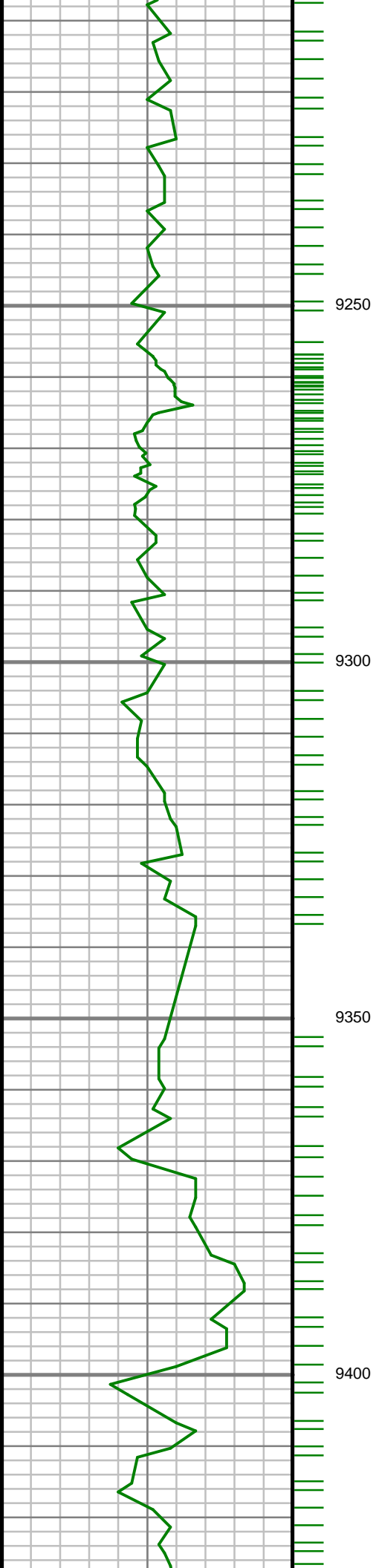
S: 133 MD: 8985.00 ft



Inc: 89.50 deg Az: 0.29
deg TVD: 7384.14 ft

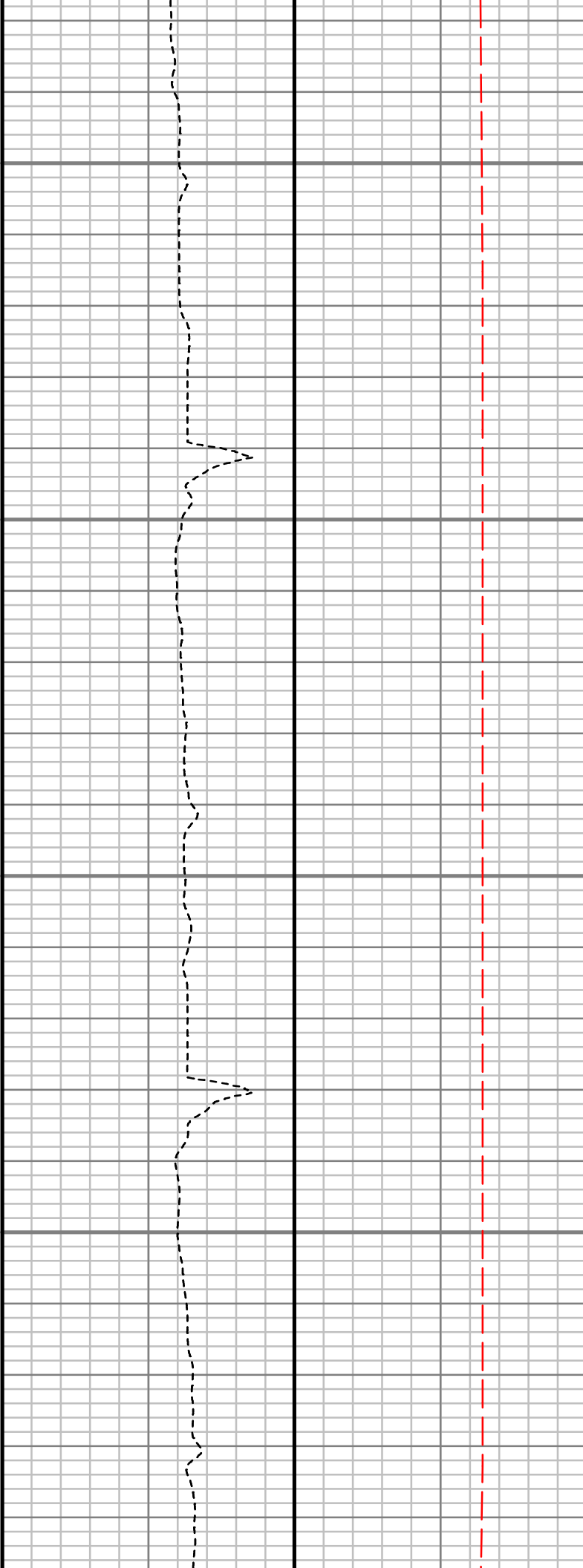
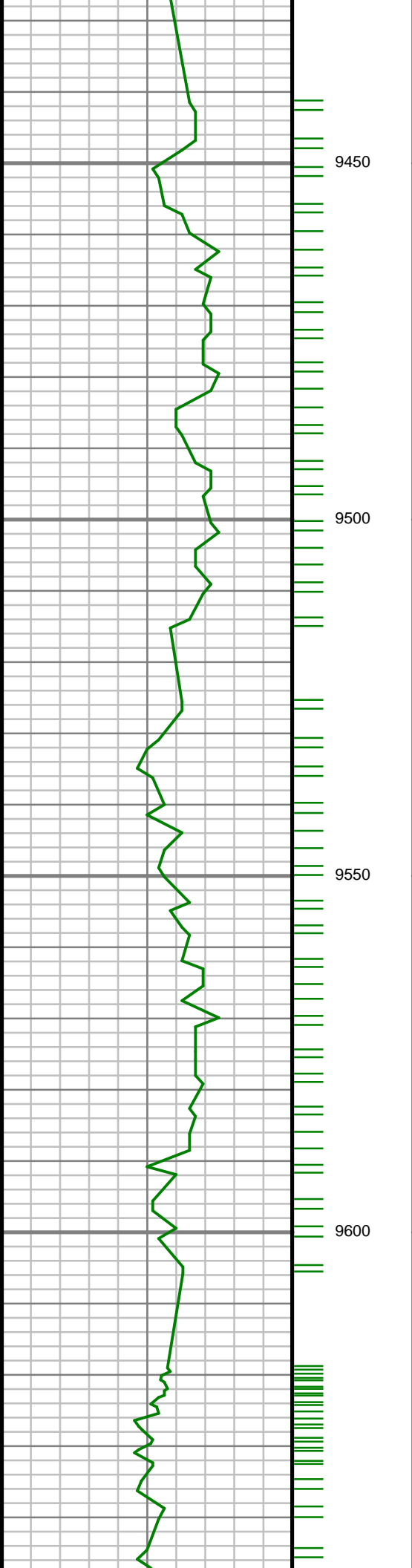
S: 134 MD: 9074.00 ft
Inc: 88.30 deg Az:
359.79 deg TVD:
7385.85 ft

S: 135 MD: 9163.00 ft
Inc: 89.10 deg Az:
359.85 deg TVD:
7387.87 ft



S: 136 MD: 9251.00 ft
Inc: 90.63 deg Az:
359.50 deg TVD:
7388.08 ft

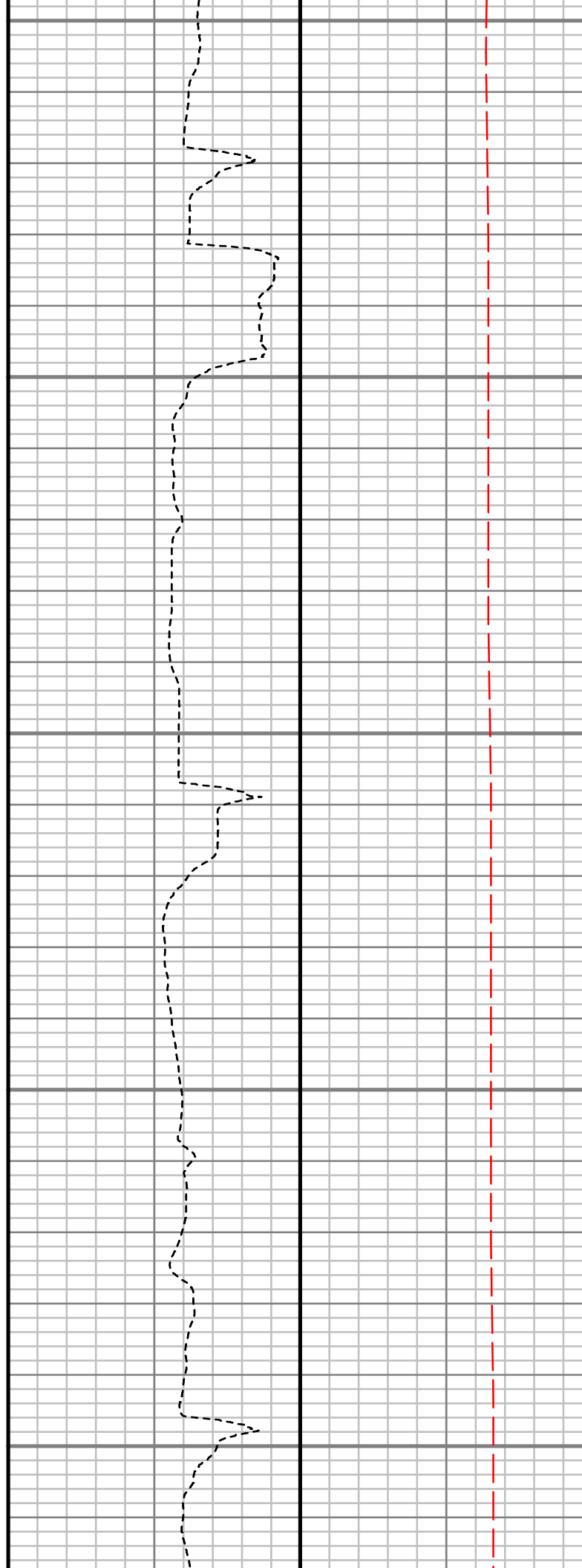
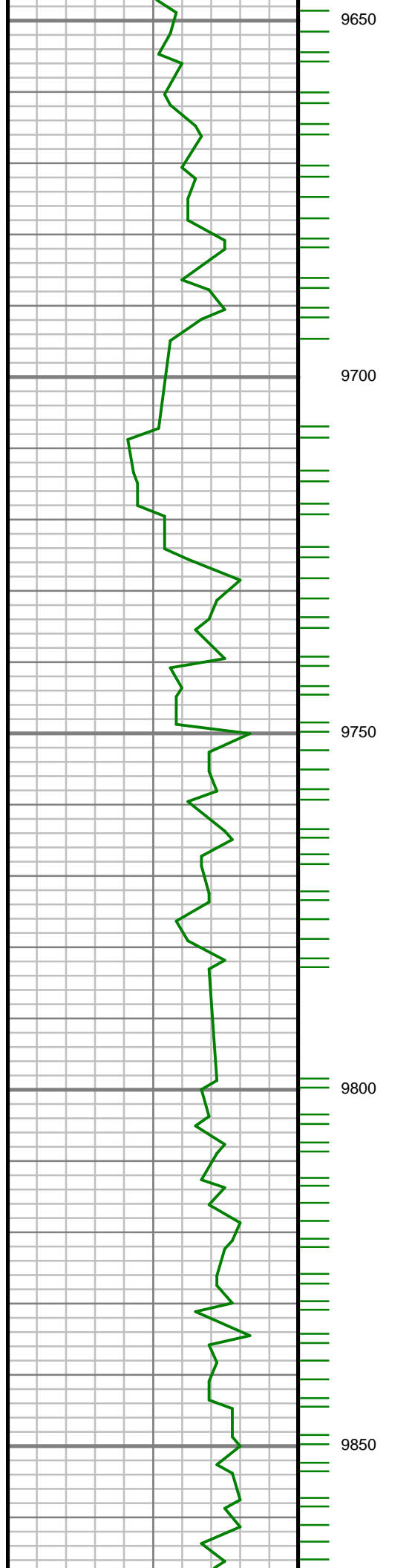
S: 137 MD: 9340.00 ft
Inc: 89.06 deg Az: 0.28
deg TVD: 7388.32 ft



S: 138 MD: 9428.00 ft
Inc: 88.63 deg Az: 0.12
deg TVD: 7390.09 ft

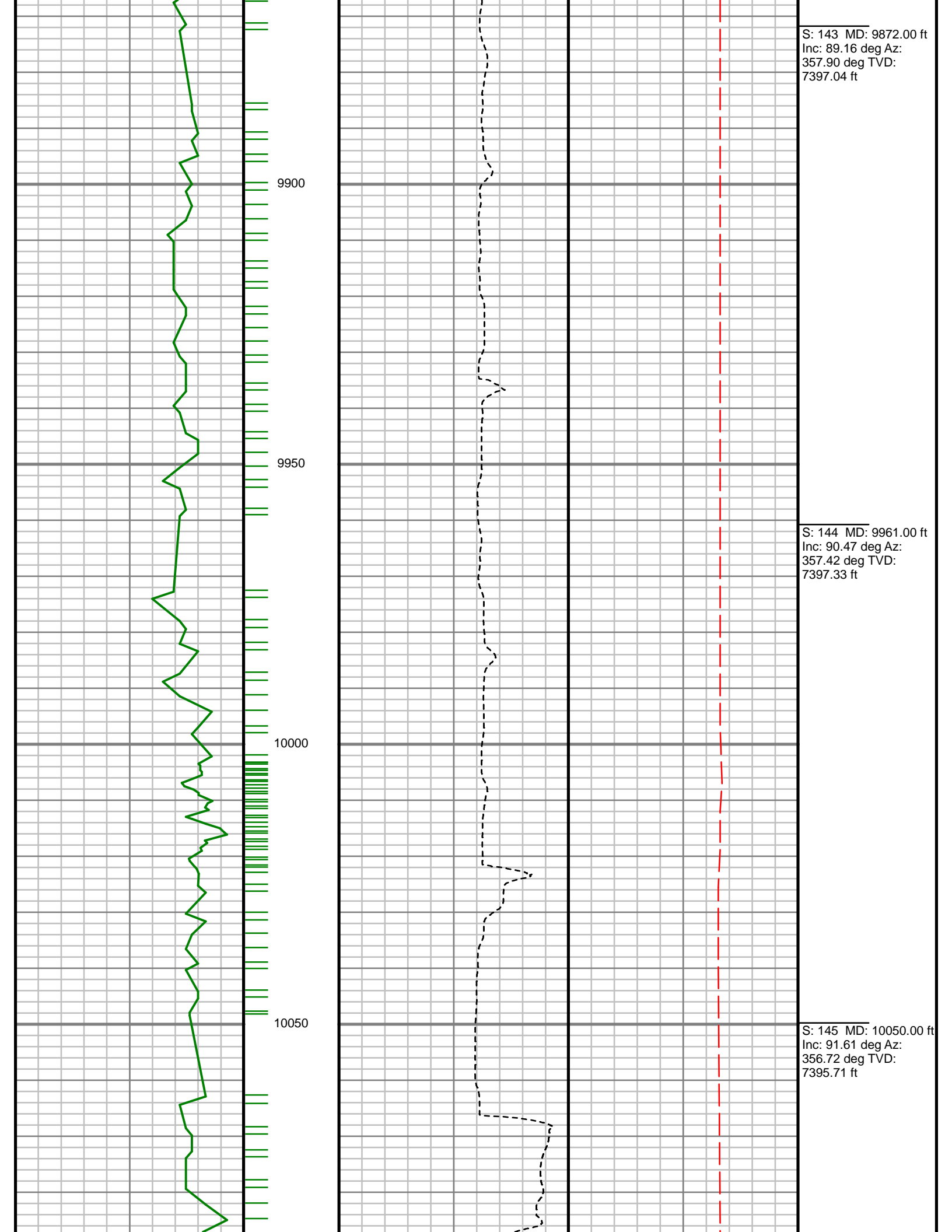
S: 139 MD: 9517.00 ft
Inc: 89.20 deg Az: 0.06
deg TVD: 7391.78 ft

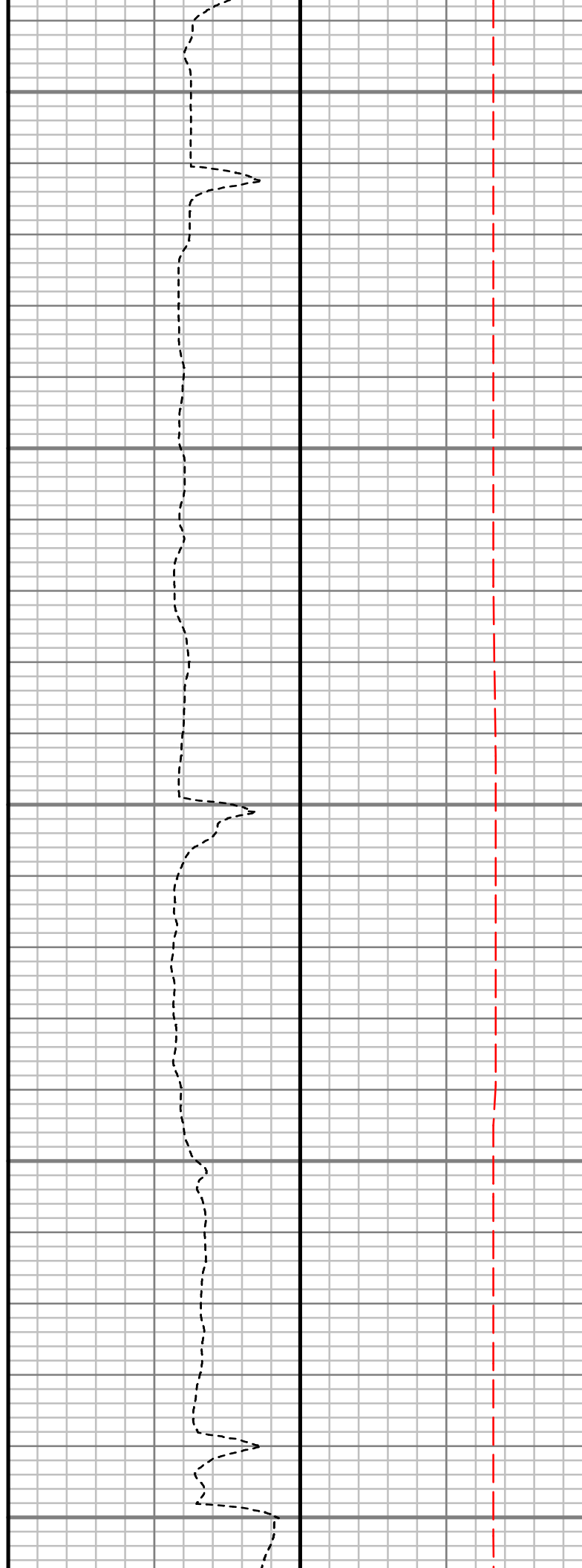
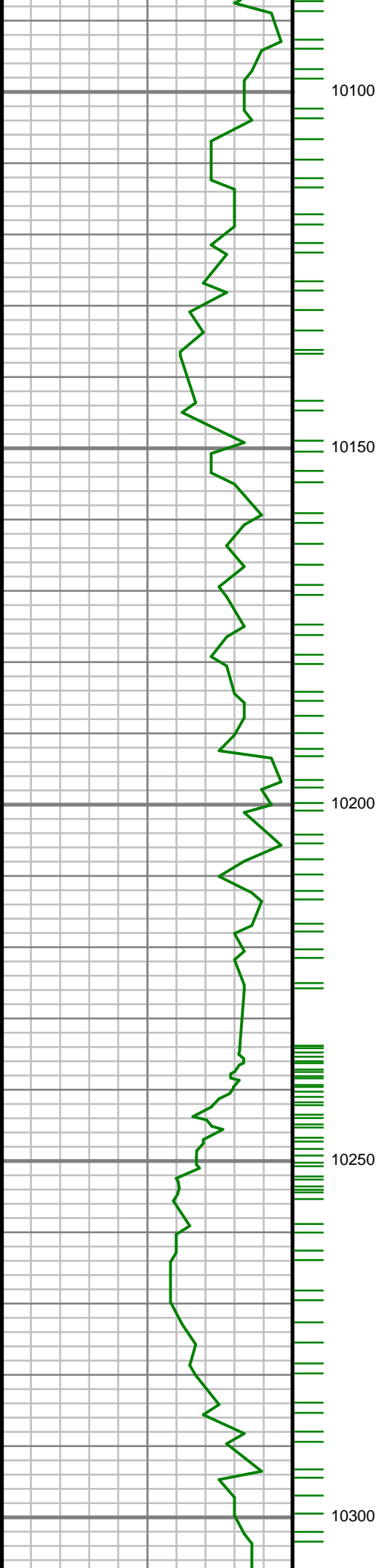
S: 140 MD: 9606.00 ft
Inc: 90.03 deg Az:
359.89 deg TVD:
7392.38 ft



S: 141 MD: 9695.00 ft
Inc: 88.69 deg Az:
359.30 deg TVD:
7393.37 ft

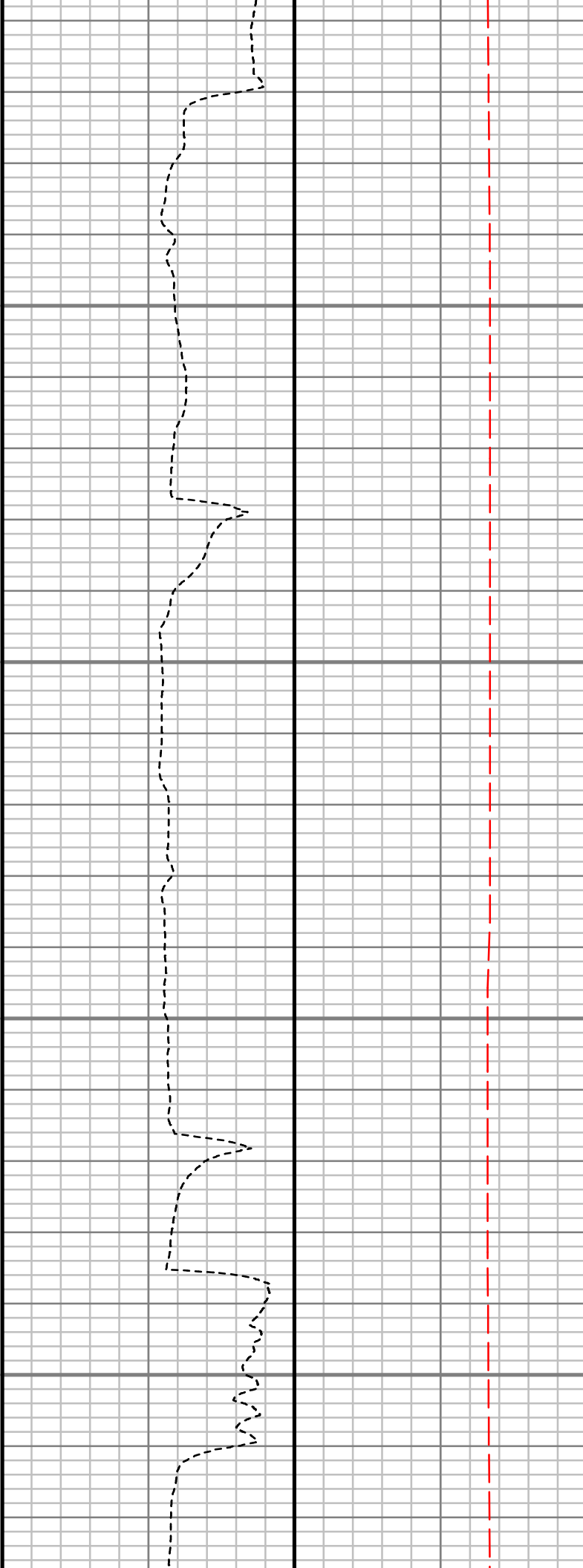
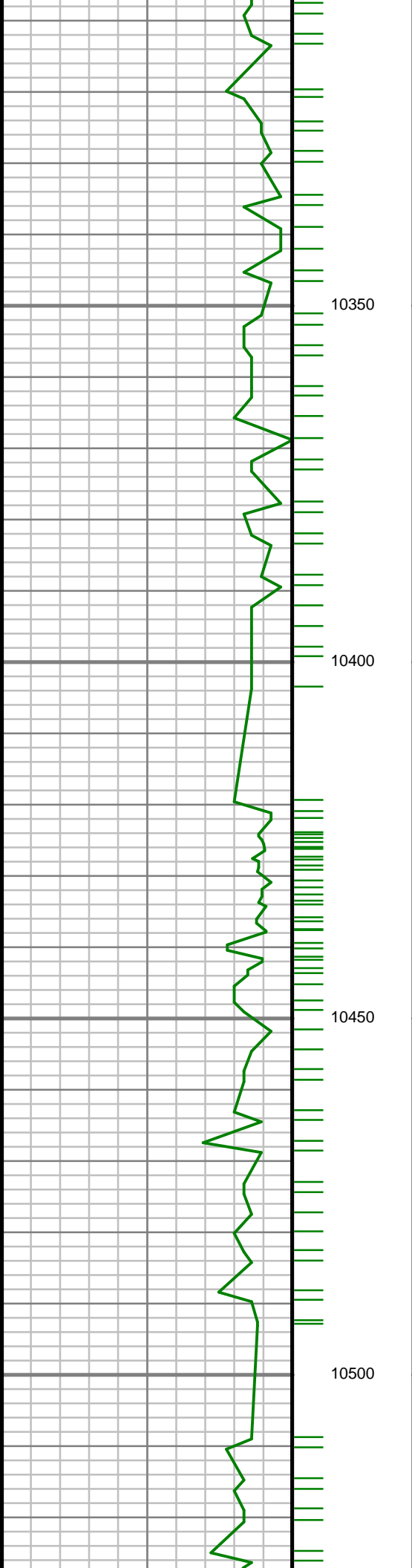
S: 142 MD: 9784.00 ft
Inc: 88.70 deg Az:
359.01 deg TVD:
7395.40 ft





S: 146 MD: 10138.00 ft
Inc: 90.20 deg Az:
359.92 deg TVD:
7394.32 ft

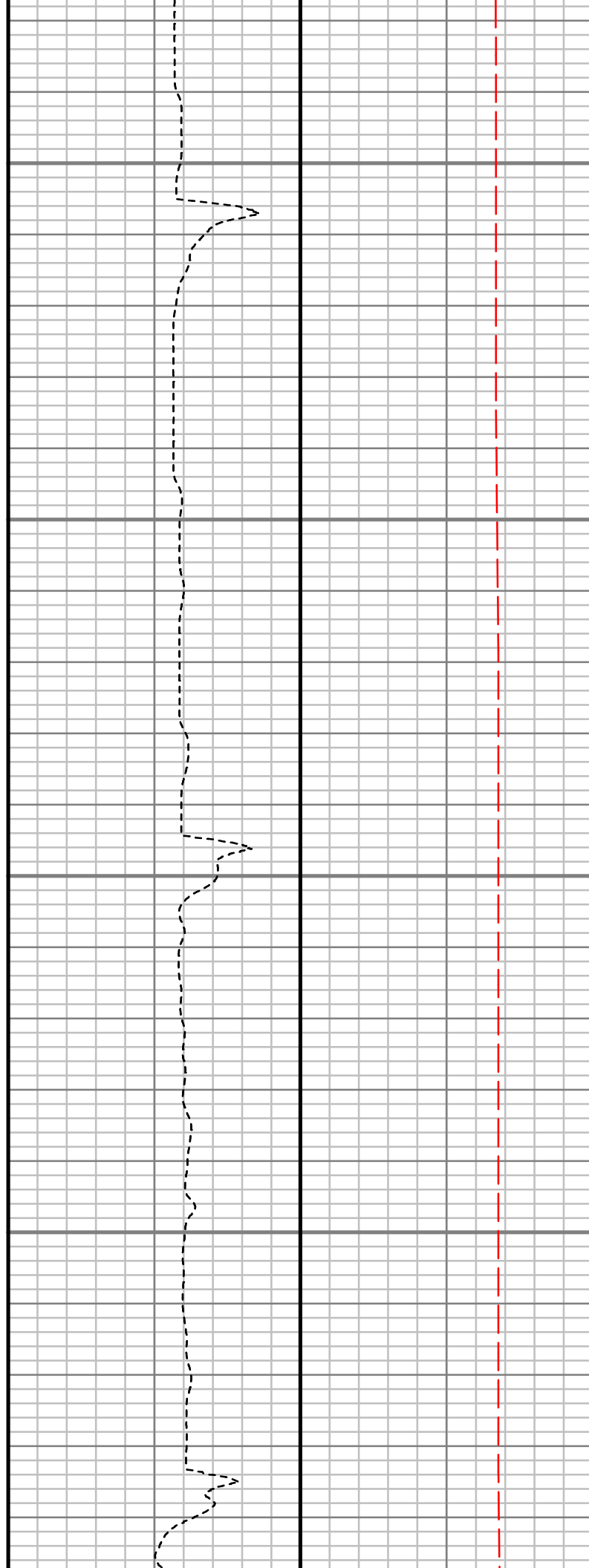
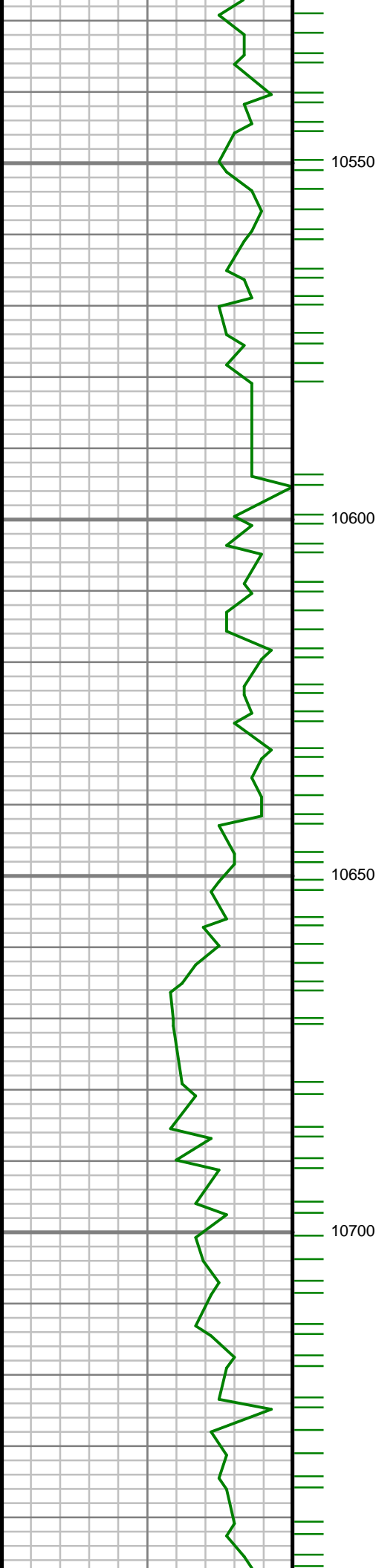
S: 147 MD: 10227.00 ft
Inc: 91.20 deg Az:
359.88 deg TVD:
7393.23 ft



S: 148 MD: 10316.00 ft
Inc: 89.37 deg Az: 1.12
deg TVD: 7392.79 ft

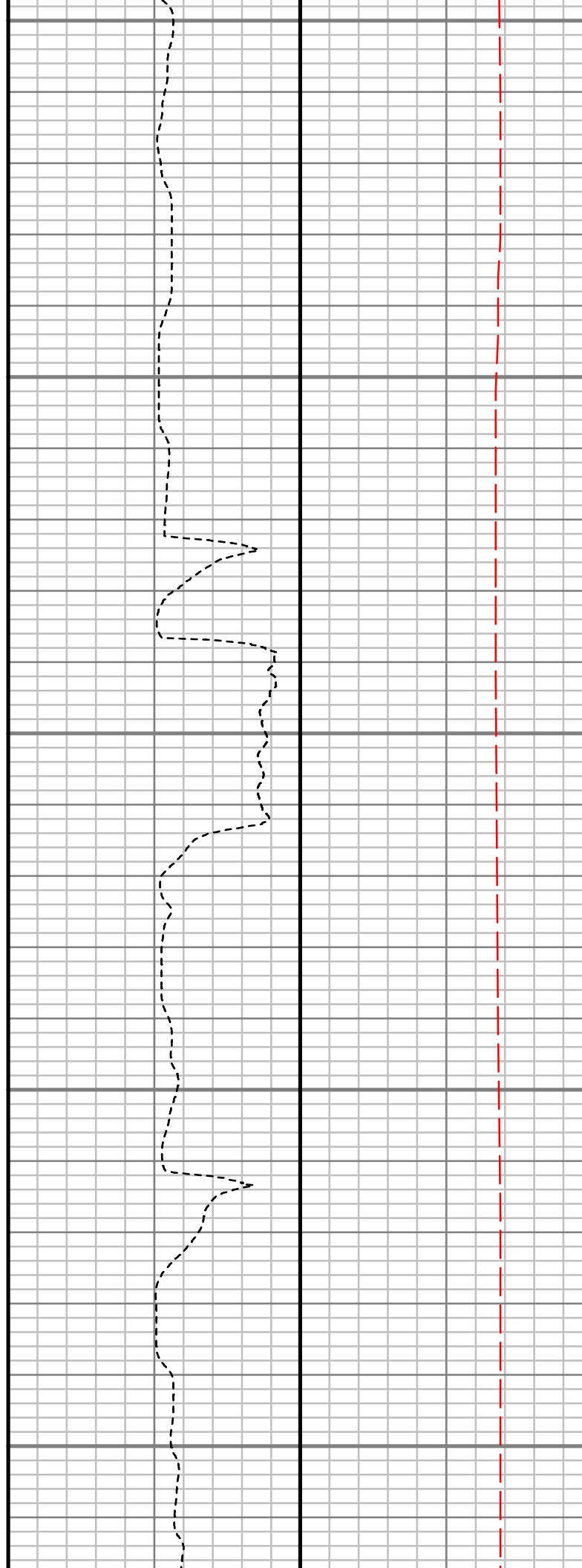
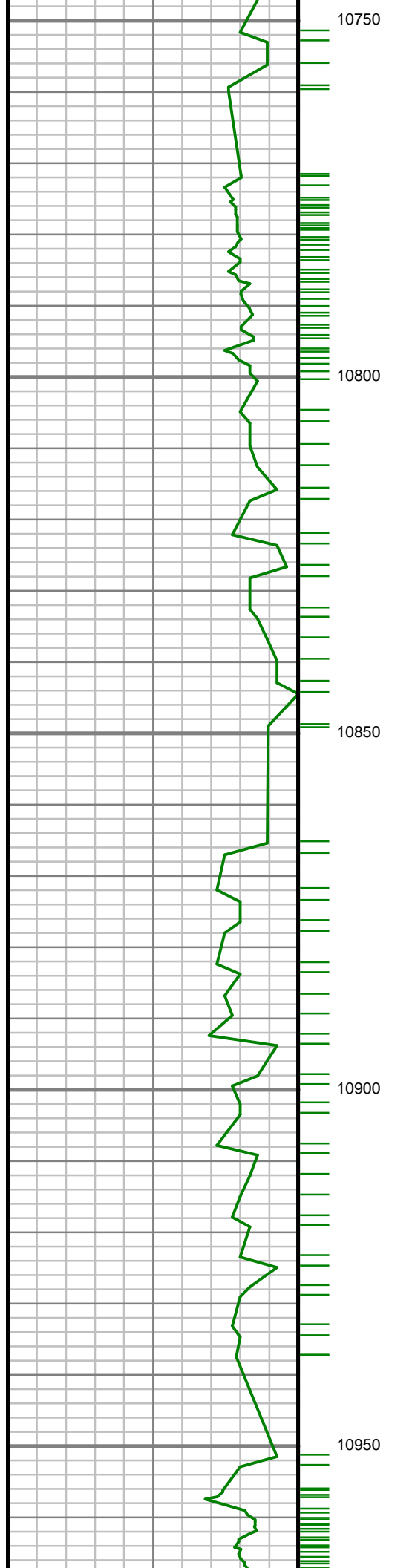
S: 149 MD: 10405.00 ft
Inc: 89.87 deg Az: 0.94
deg TVD: 7393.38 ft

S: 150 MD: 10493.00 ft
Inc: 89.43 deg Az: 2.44
deg TVD: 7393.92 ft



S: 151 MD: 10582.00 ft
Inc: 88.36 deg Az: 3.13
deg TVD: 7395.64 ft

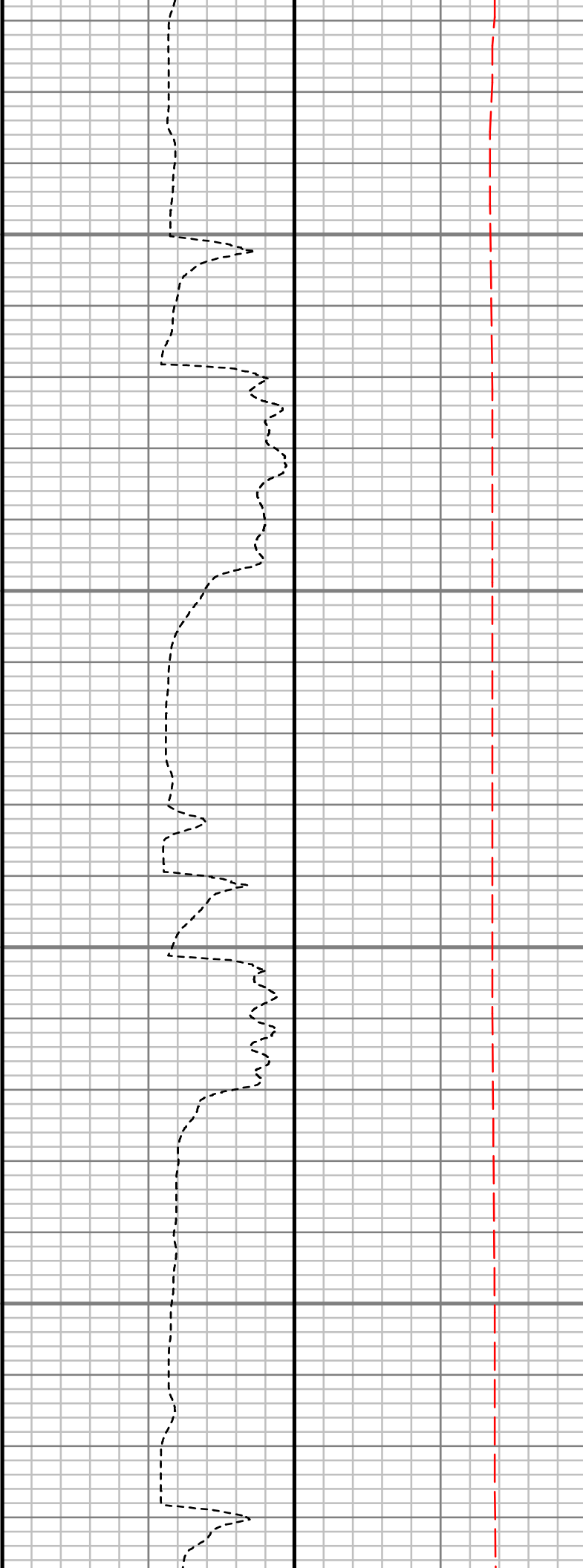
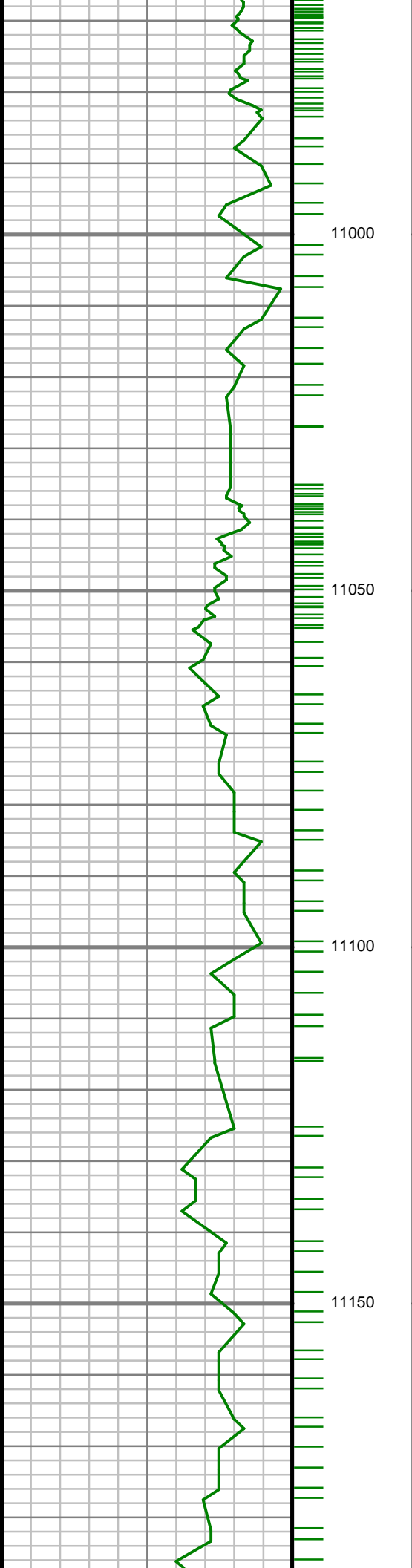
S: 152 MD: 10671.00 ft
Inc: 89.67 deg Az: 3.51
deg TVD: 7397.17 ft



S: 153 MD: 10760.00 ft
Inc: 90.97 deg Az: 3.53
deg TVD: 7396.67 ft

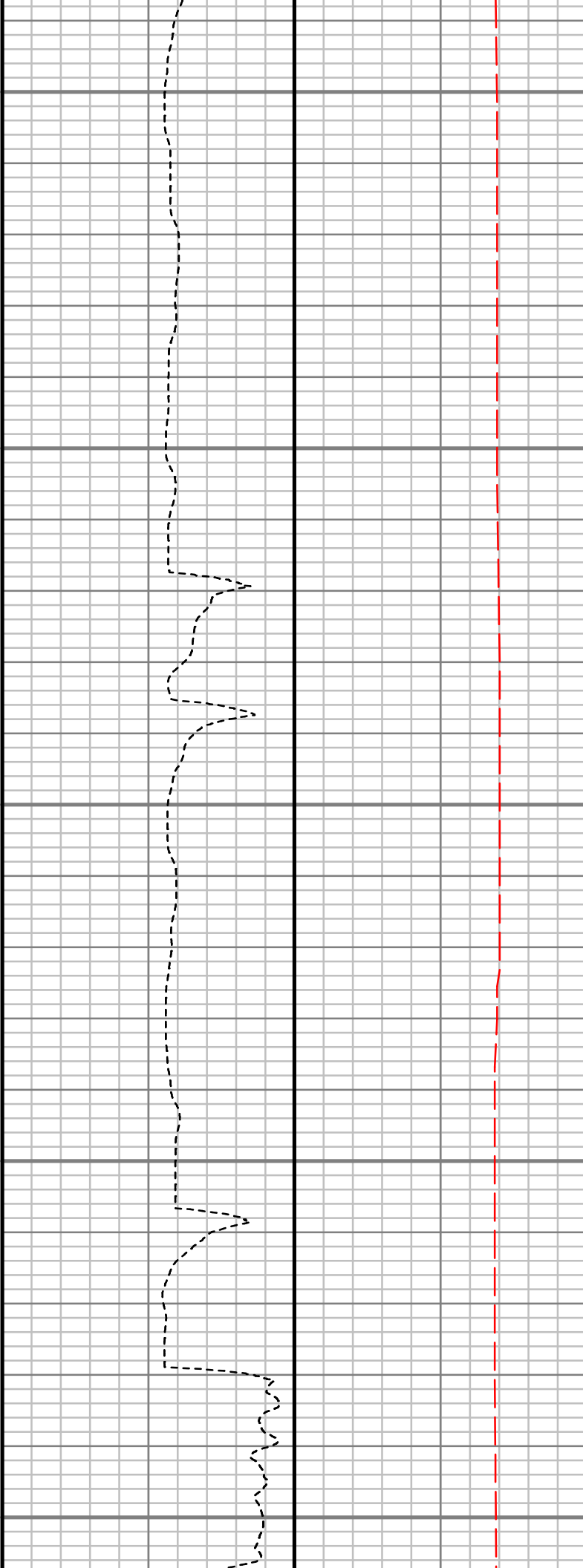
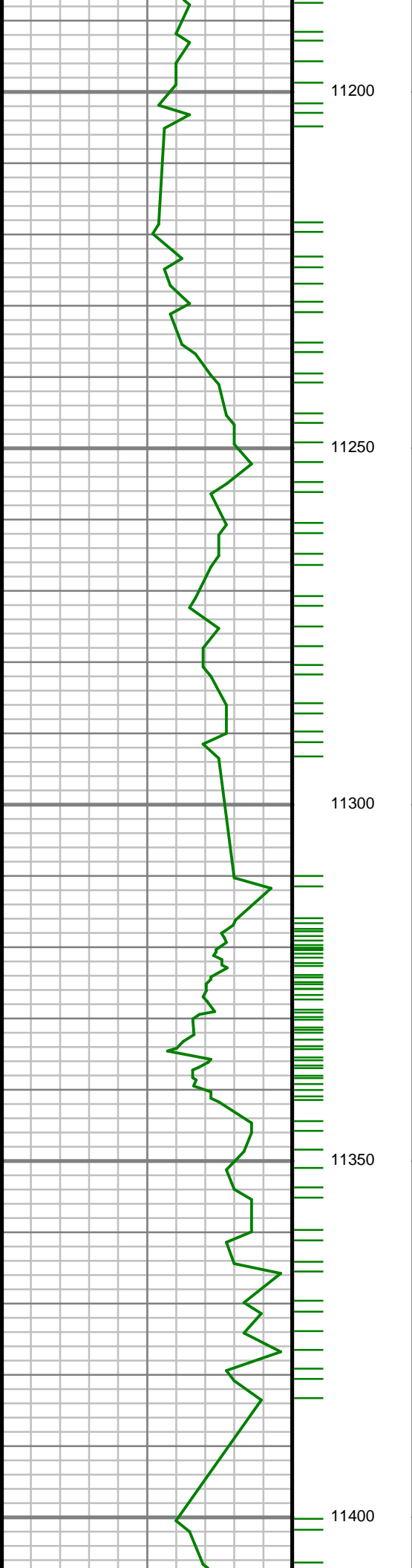
S: 154 MD: 10849.00 ft
Inc: 89.40 deg Az: 2.12
deg TVD: 7396.38 ft

S: 155 MD: 10938.00 ft
Inc: 89.47 deg Az: 1.25
deg TVD: 7397.26 ft



S: 156 MD: 11026.00 ft
Inc: 90.03 deg Az: 1.49
deg TVD: 7397.64 ft

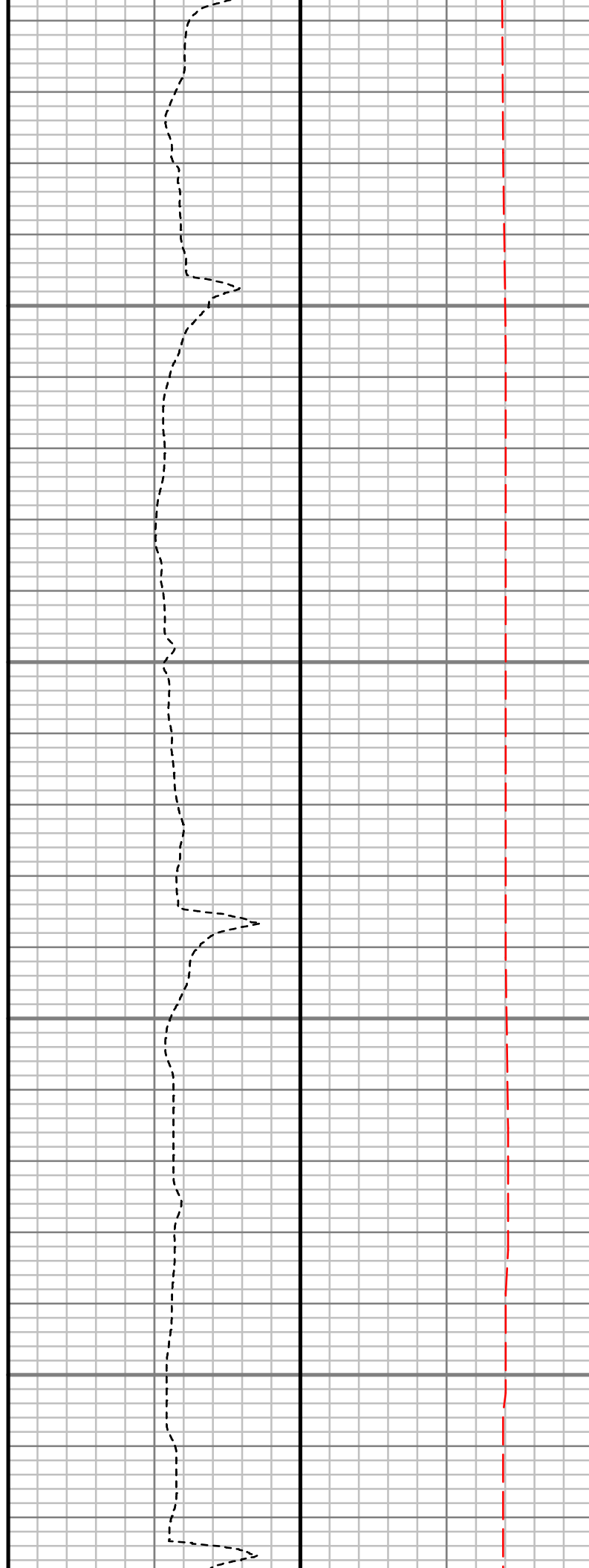
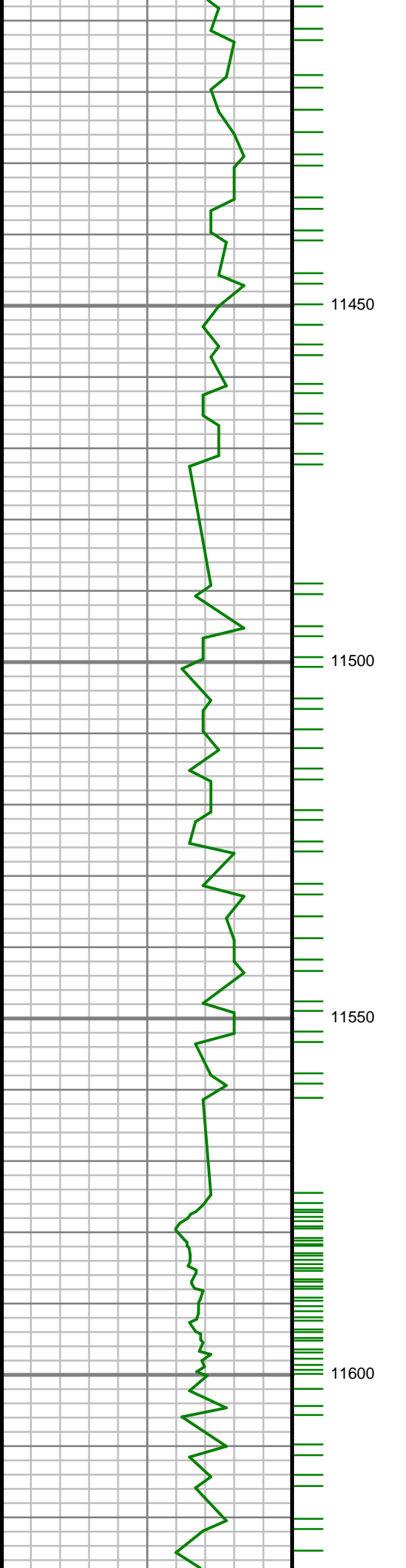
S: 157 MD: 11115.00 ft
Inc: 87.12 deg Az:
359.44 deg TVD:
7399.86 ft



S: 158 MD: 11204.00 ft
Inc: 88.20 deg Az:
359.14 deg TVD:
7403.49 ft

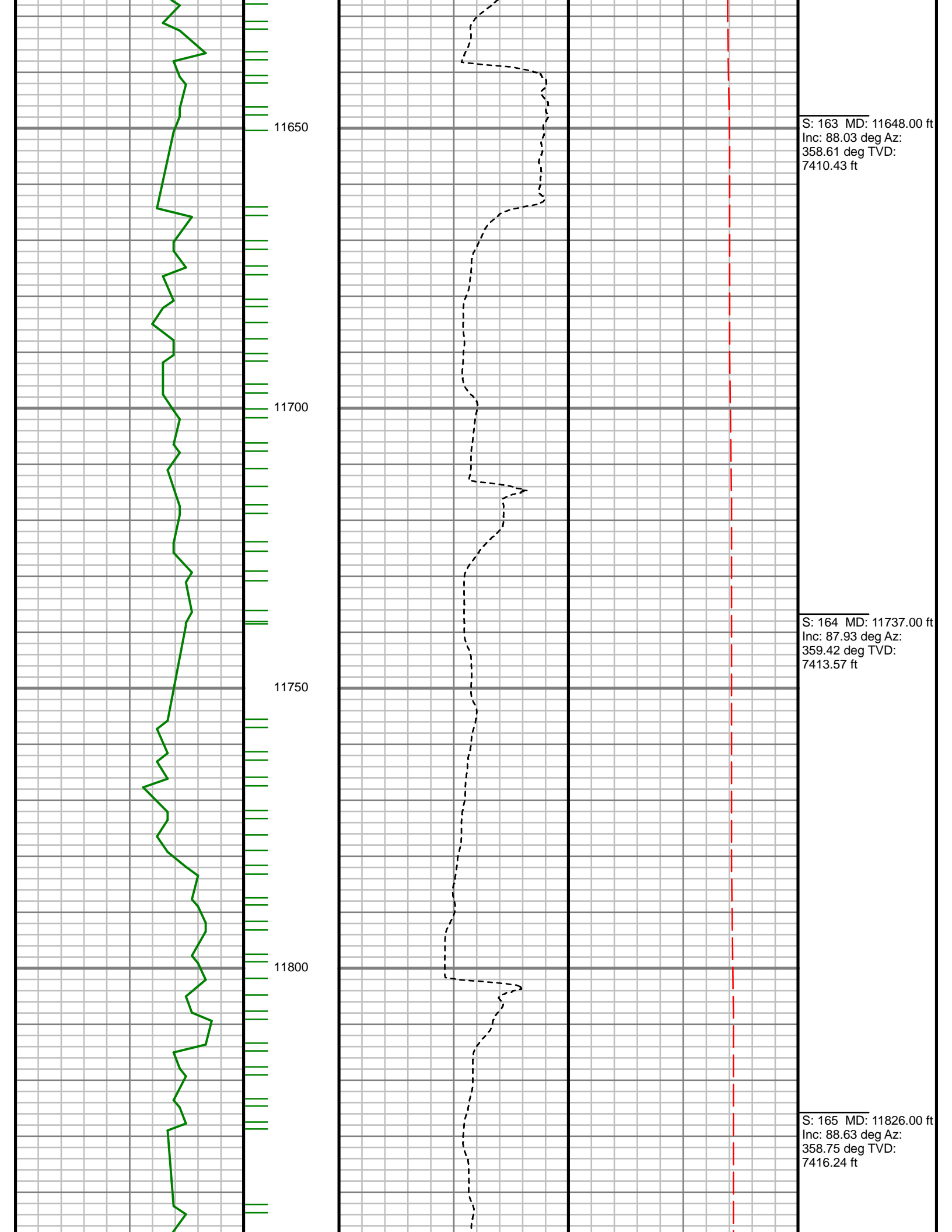
S: 159 MD: 11293.00 ft
Inc: 90.27 deg Az:
359.03 deg TVD:
7404.68 ft

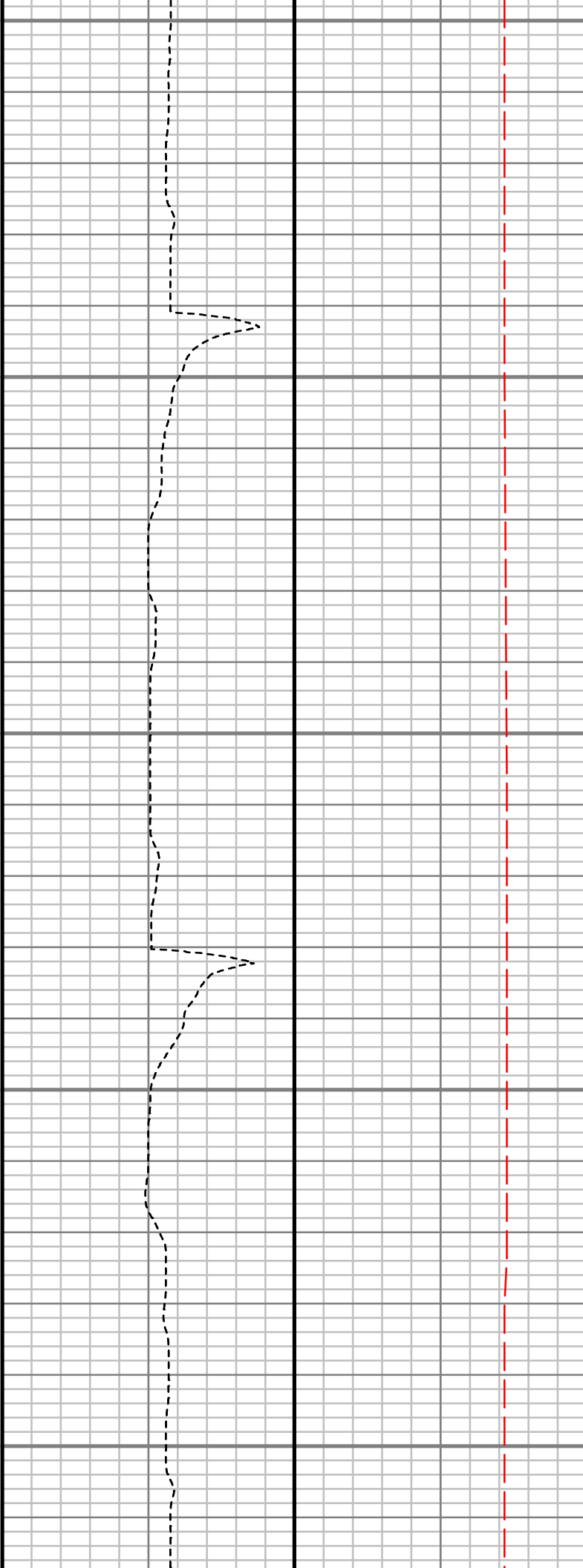
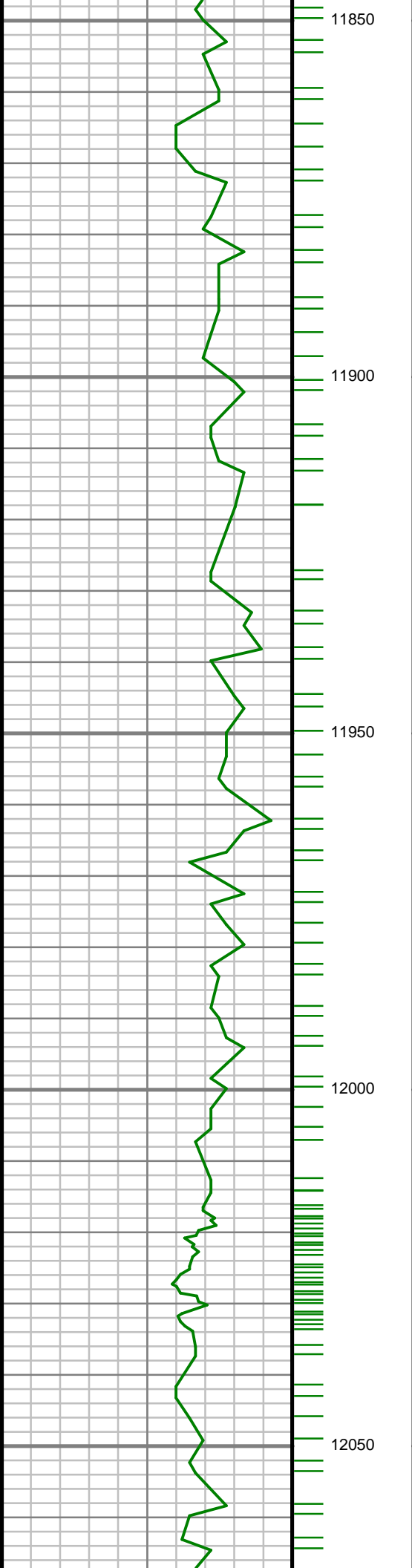
S: 160 MD: 11382.00 ft
Inc: 90.17 deg Az:
359.19 deg TVD:
7404.34 ft



S: 161 MD: 11471.00 ft
Inc: 87.46 deg Az:
358.00 deg TVD:
7406.18 ft

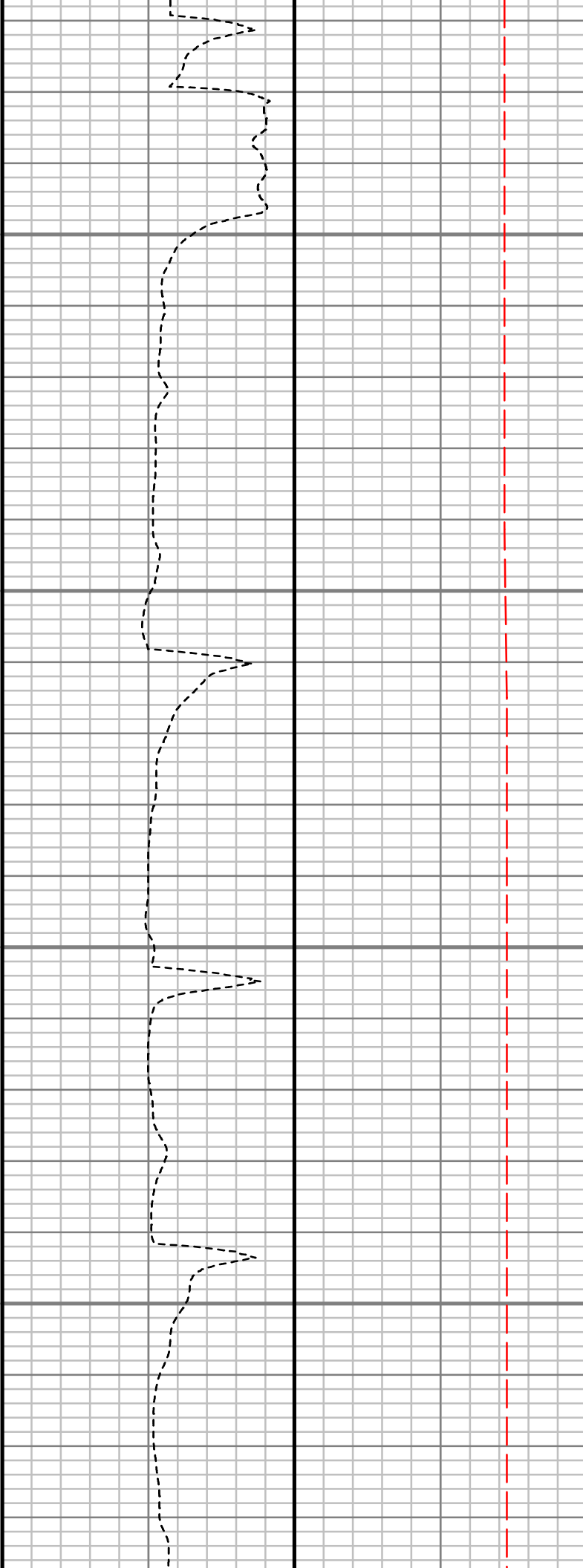
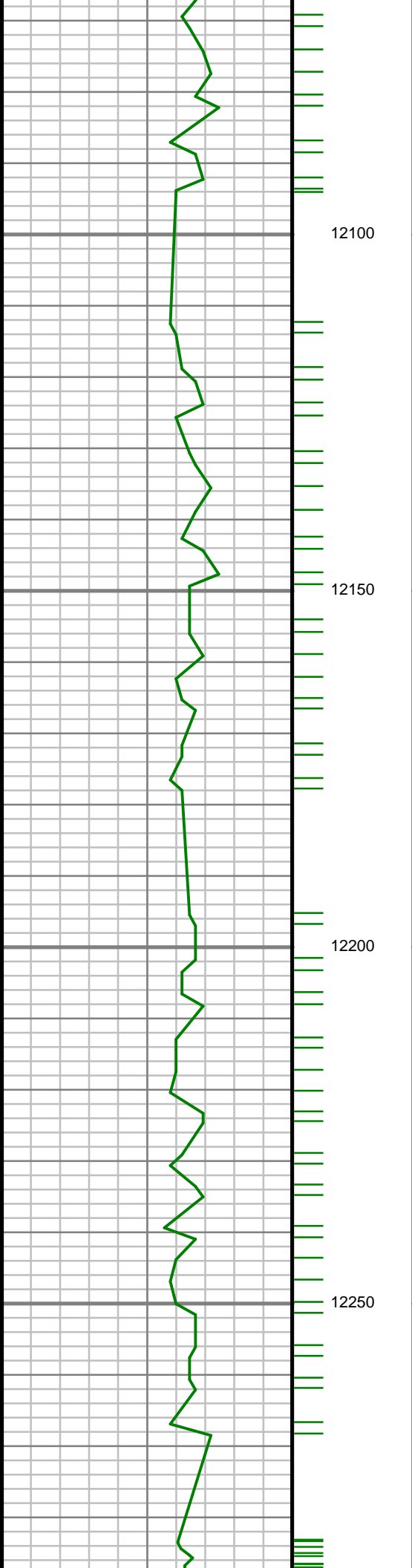
S: 162 MD: 11559.00 ft
Inc: 89.50 deg Az:
358.93 deg TVD:
7408.51 ft





S: 166 MD: 11915.00 ft
Inc: 89.30 deg Az:
358.62 deg TVD:
7417.85 ft

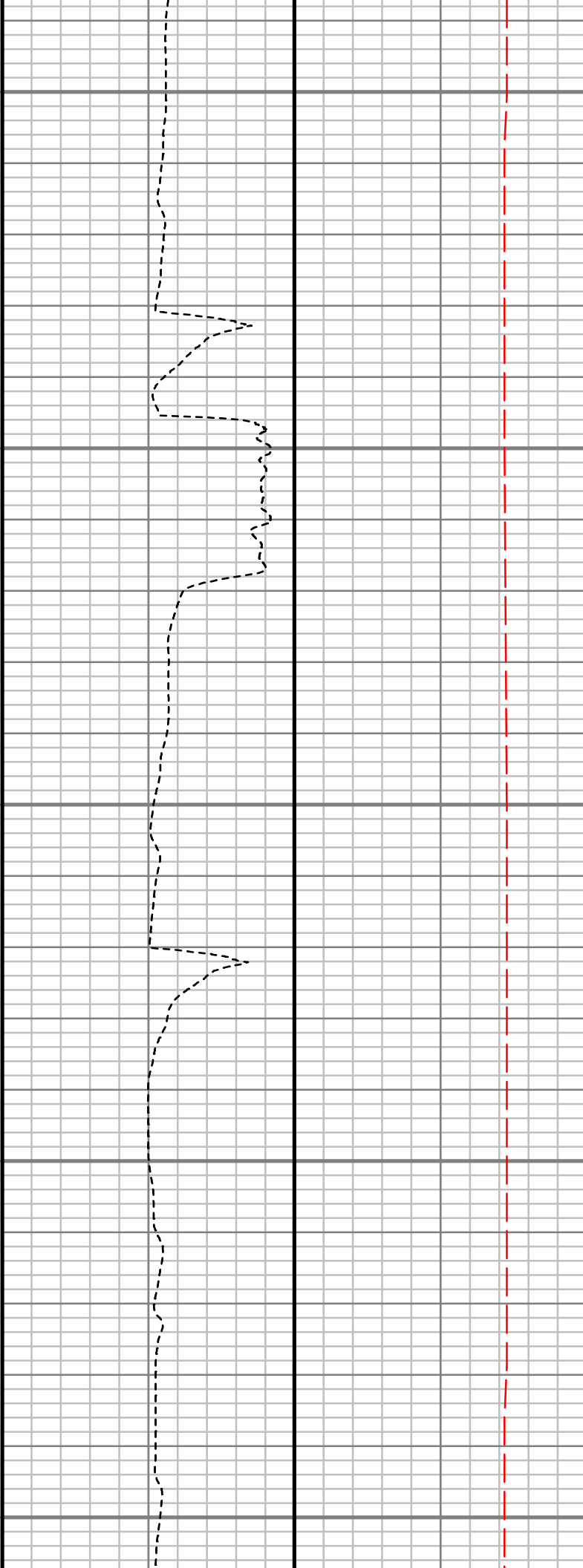
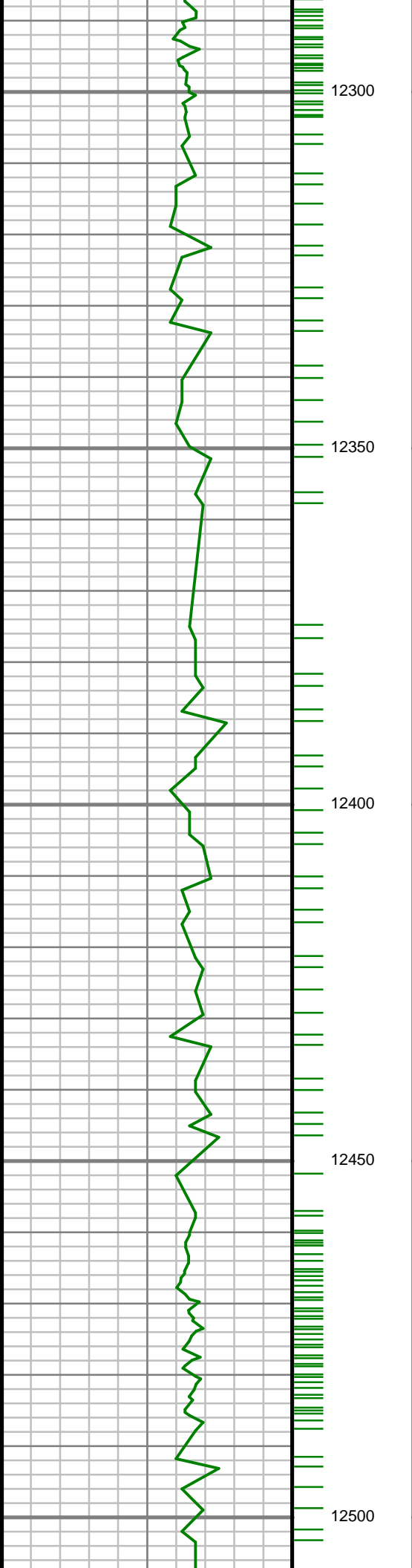
S: 167 MD: 12004.00 ft
Inc: 90.17 deg Az:
358.95 deg TVD:
7418.26 ft



S: 168 MD: 12092.00 ft
Inc: 89.40 deg Az: 0.35
deg TVD: 7418.59 ft

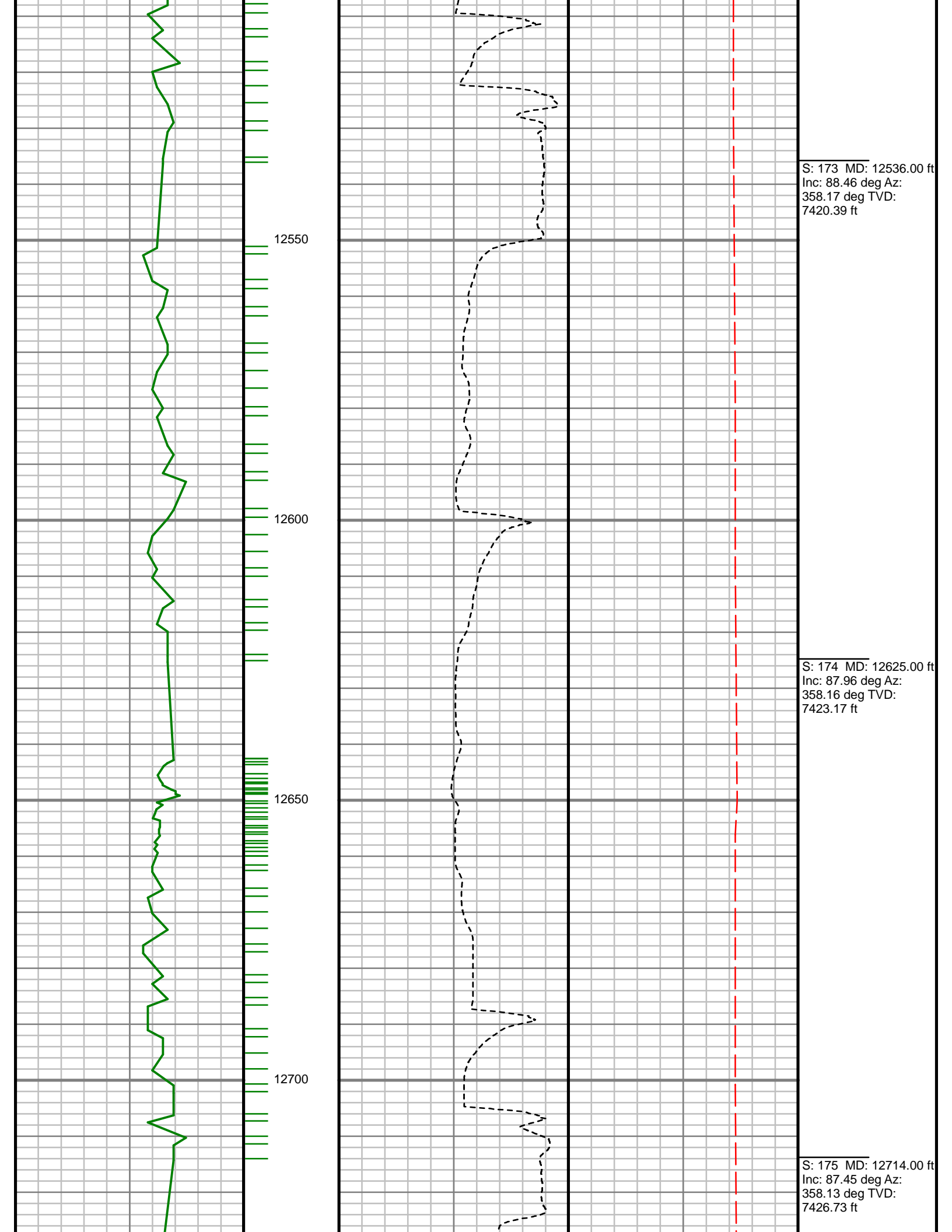
S: 169 MD: 12181.00 ft
Inc: 89.63 deg Az: 0.21
deg TVD: 7419.34 ft

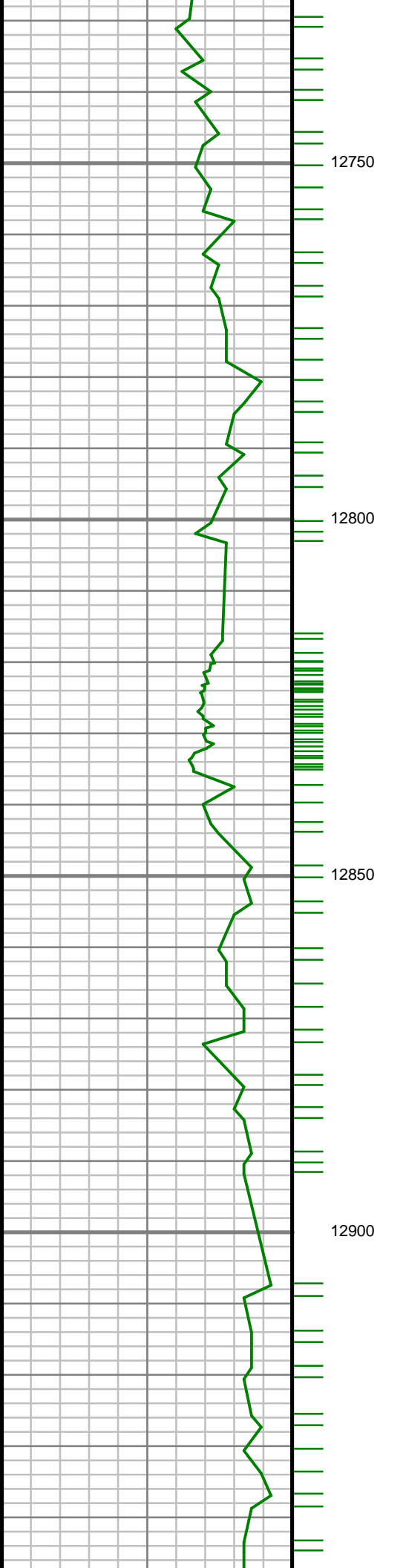
S: 170 MD: 12270.00 ft
Inc: 90.44 deg Az: 0.29
deg TVD: 7419.29 ft



S: 171 MD: 12359.00 ft
Inc: 89.57 deg Az:
358.98 deg TVD:
7419.28 ft

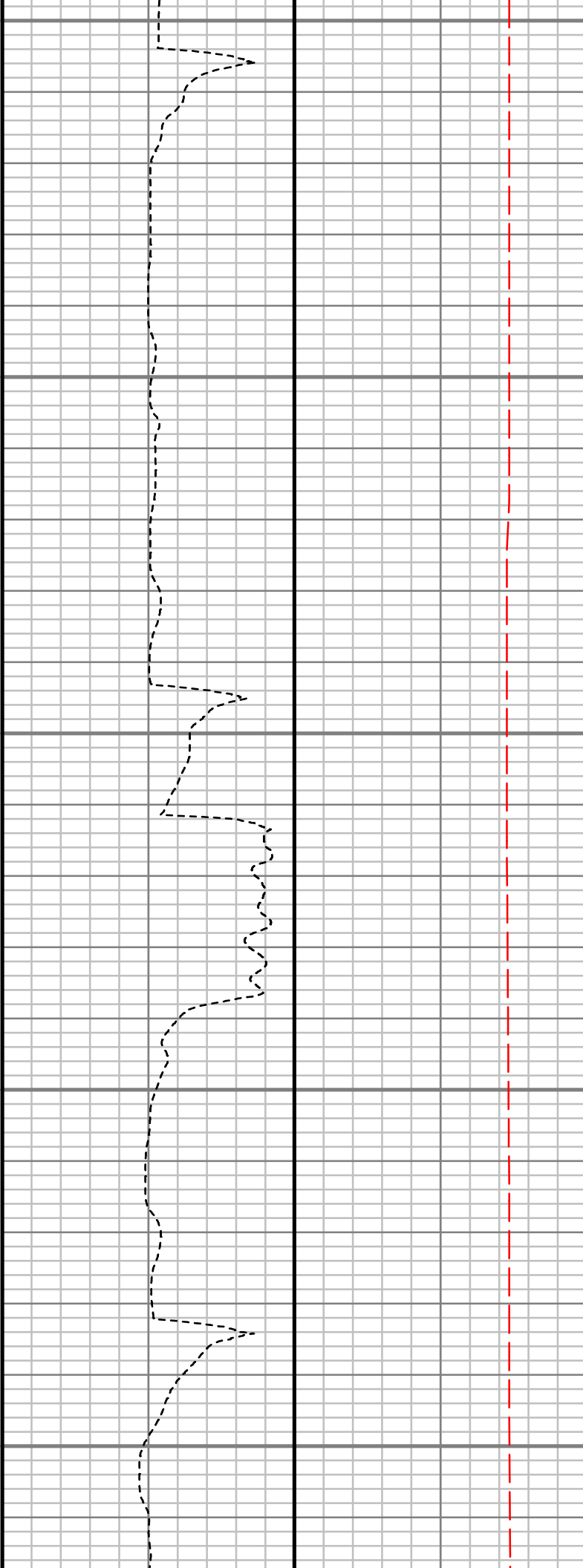
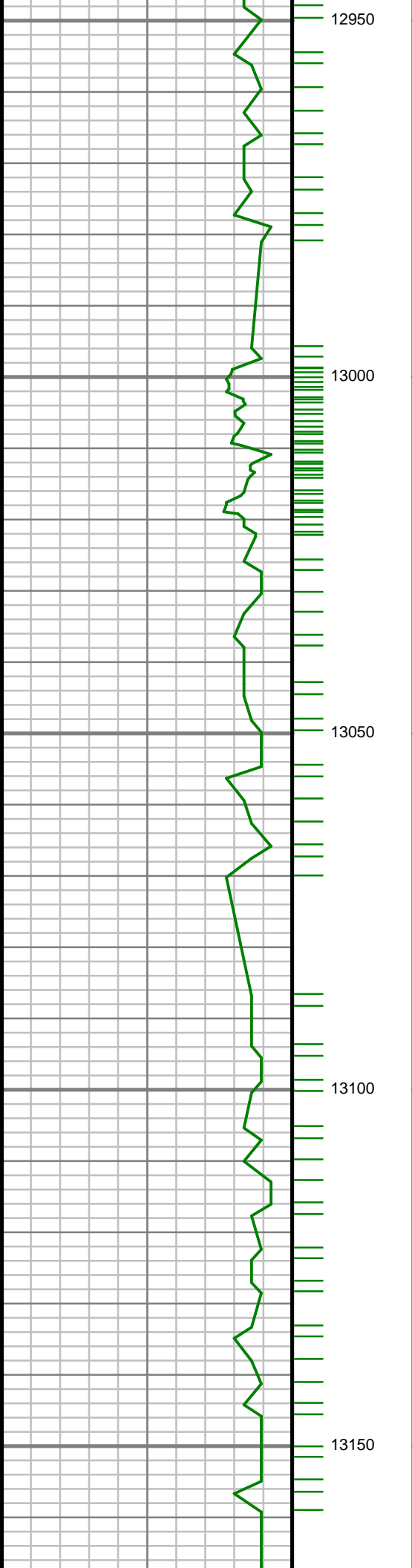
S: 172 MD: 12447.00 ft
Inc: 90.27 deg Az:
359.33 deg TVD:
7419.40 ft





S: 176 MD: 12803.00 ft
Inc: 86.84 deg Az:
358.51 deg TVD:
7431.16 ft

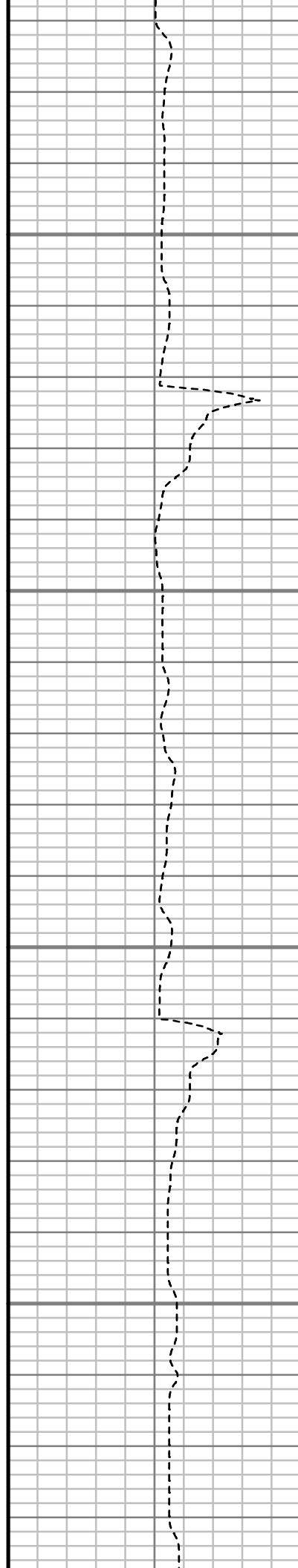
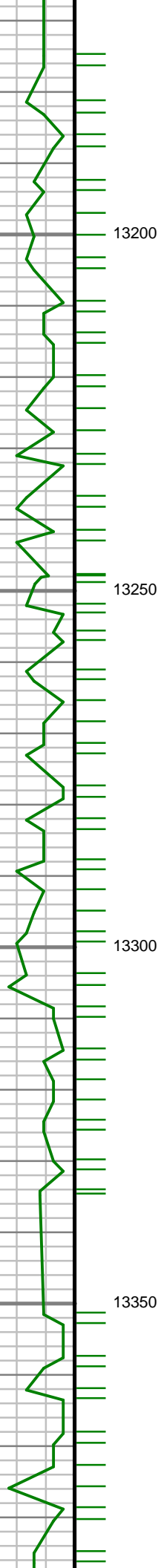
S: 177 MD: 12892.00 ft
Inc: 88.13 deg Az:
359.29 deg TVD:
7435.07 ft



S: 178 MD: 12981.00 ft
Inc: 89.77 deg Az: 0.44
deg TVD: 7436.70 ft

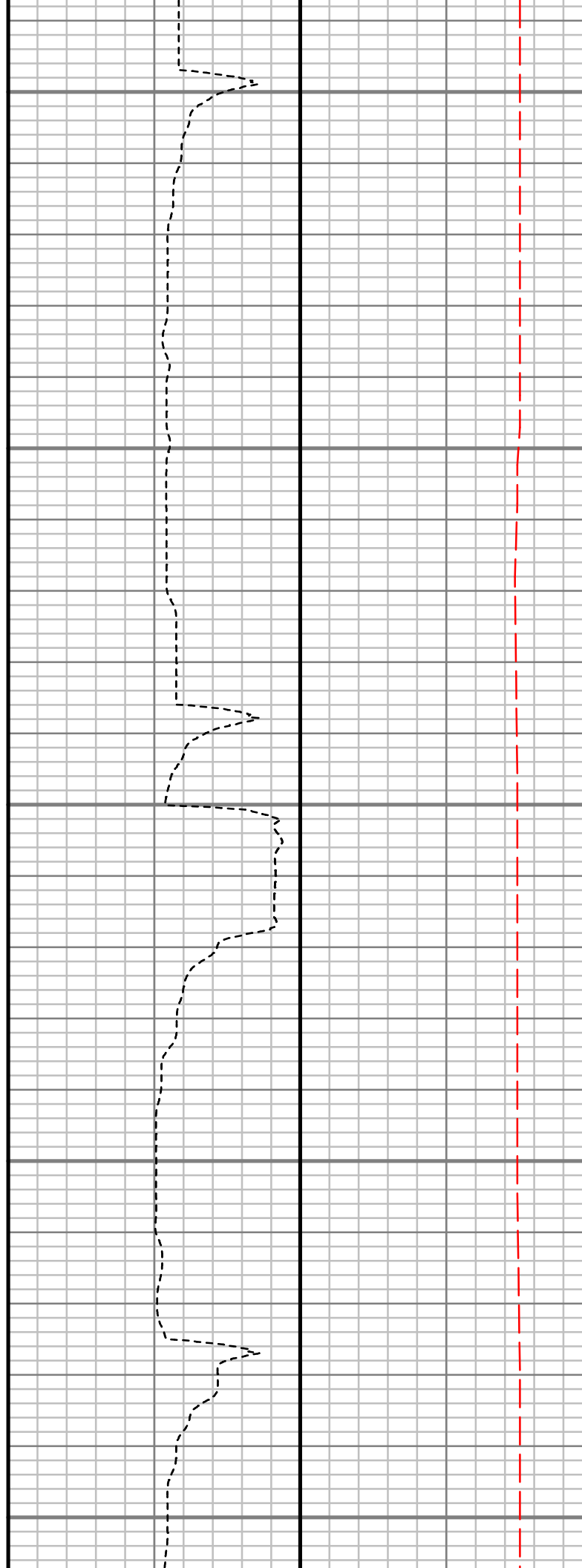
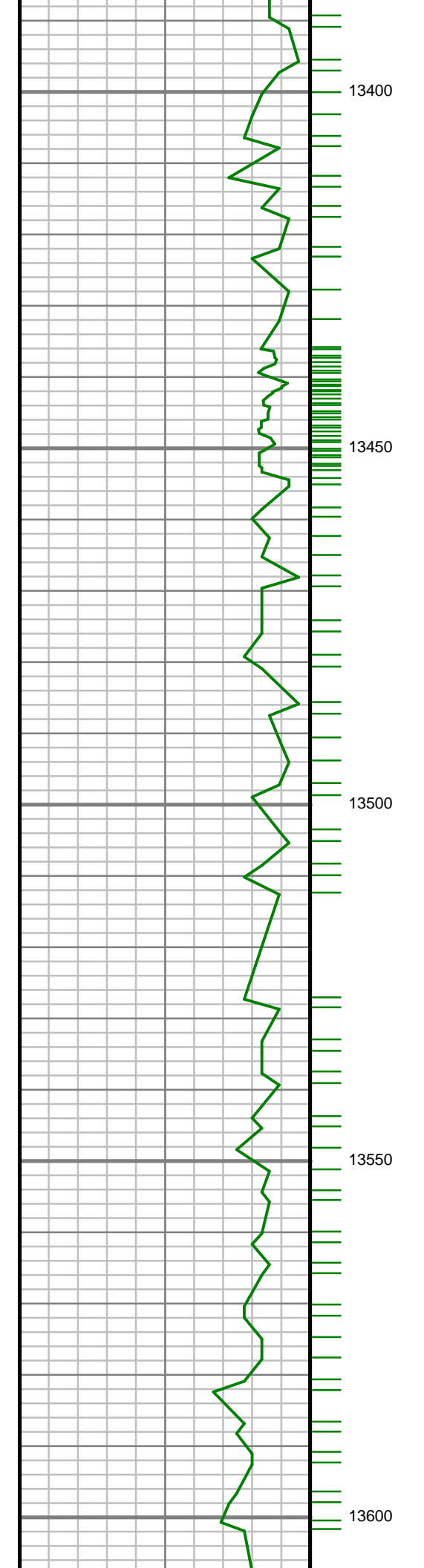
S: 179 MD: 13069.00 ft
Inc: 88.53 deg Az:
359.17 deg TVD:
7438.01 ft

S: 180 MD: 13158.00 ft
Inc: 87.96 deg Az:
359.73 deg TVD:
7440 73 ft



S: 181 MD: 13247.00 ft
Inc: 88.99 deg Az: 0.11
deg TVD: 7443.10 ft

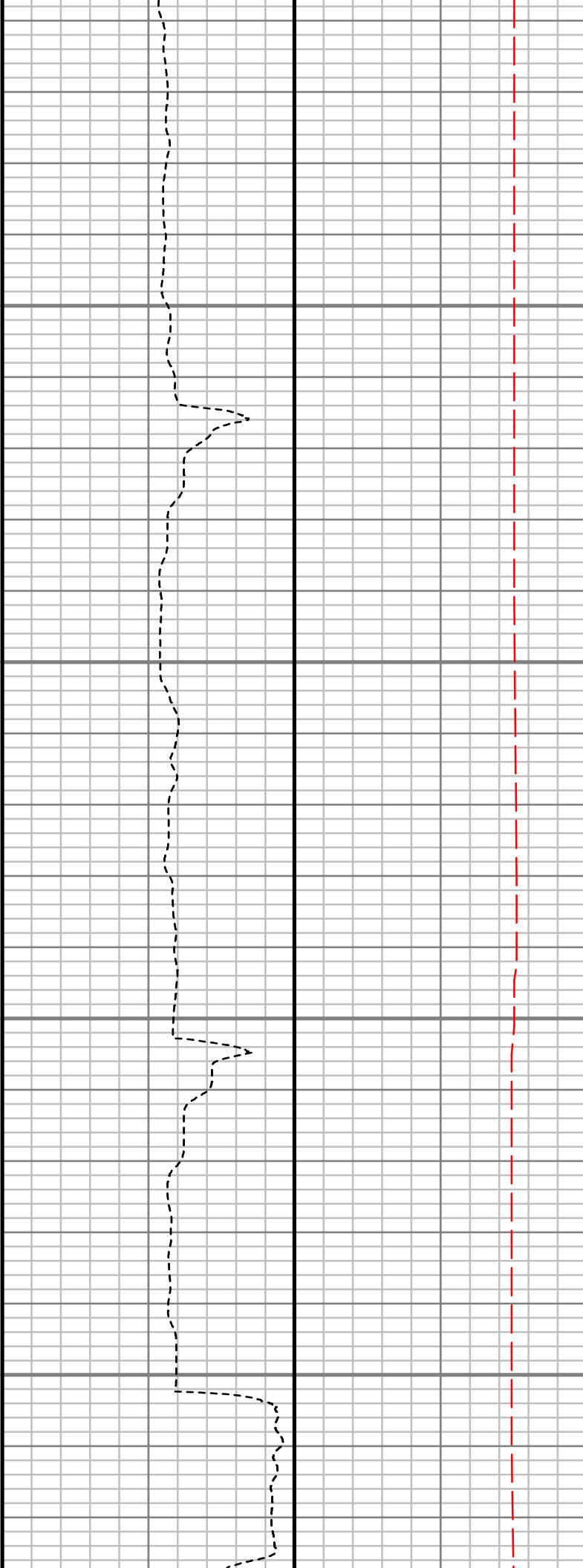
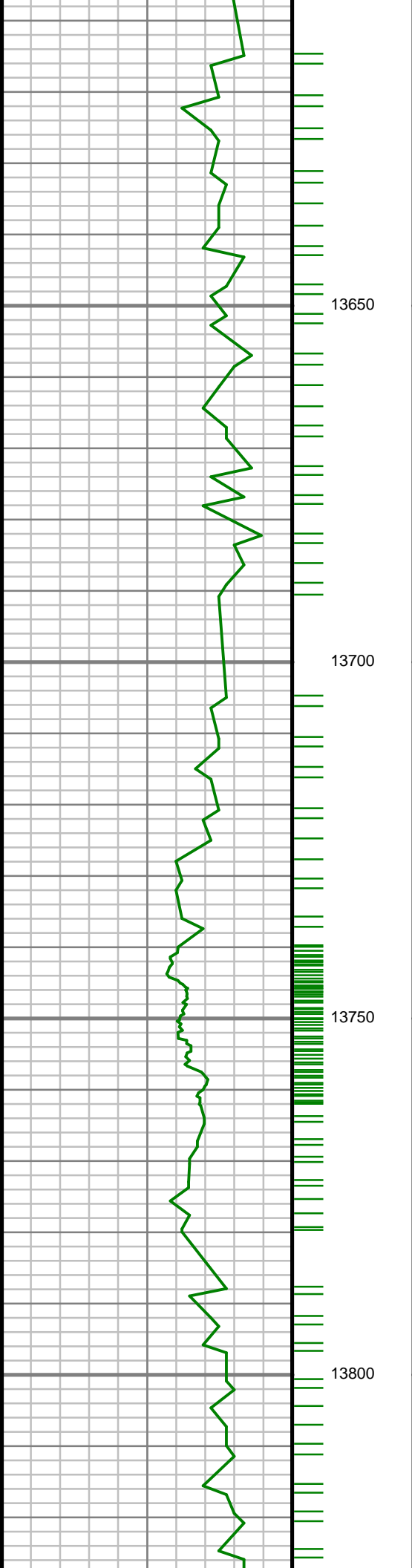
S: 182 MD: 13336.00 ft
Inc: 89.83 deg Az: 0.06
deg TVD: 7444.02 ft



S: 183 MD: 13425.00 ft
Inc: 90.87 deg Az: 0.10
deg TVD: 7443.47 ft

S: 184 MD: 13514.00 ft
Inc: 89.87 deg Az:
359.81 deg TVD:
7442.90 ft

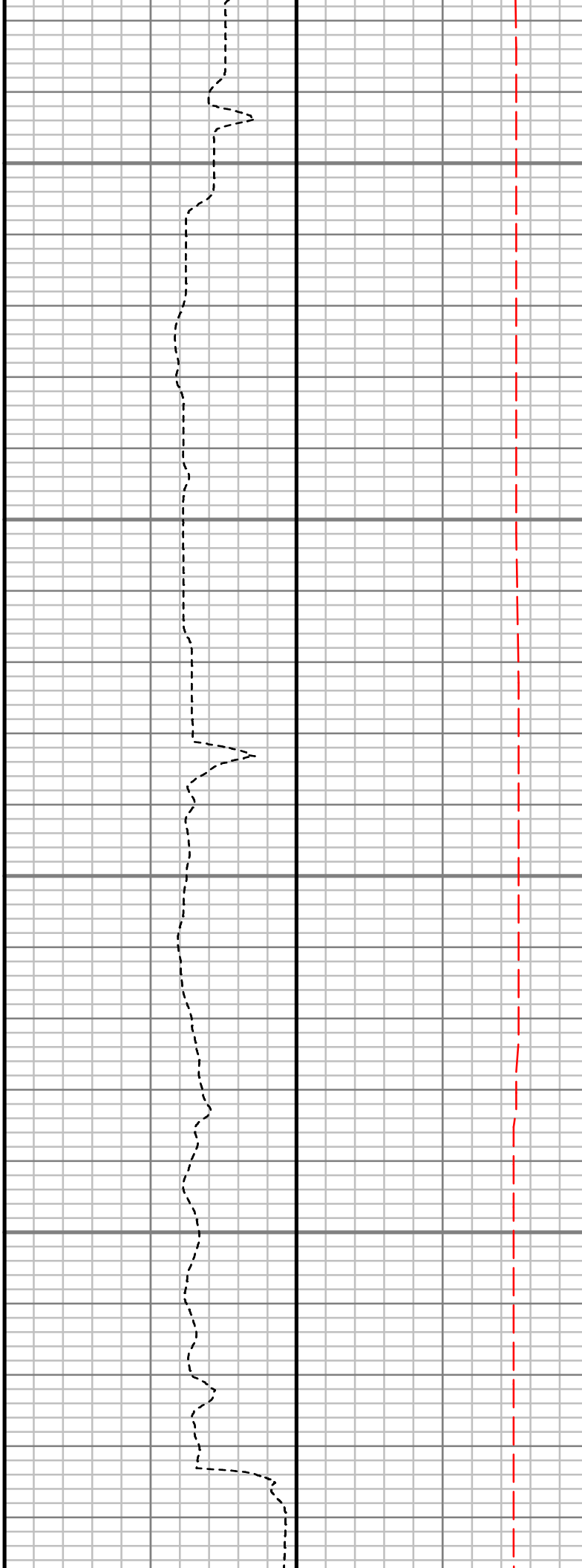
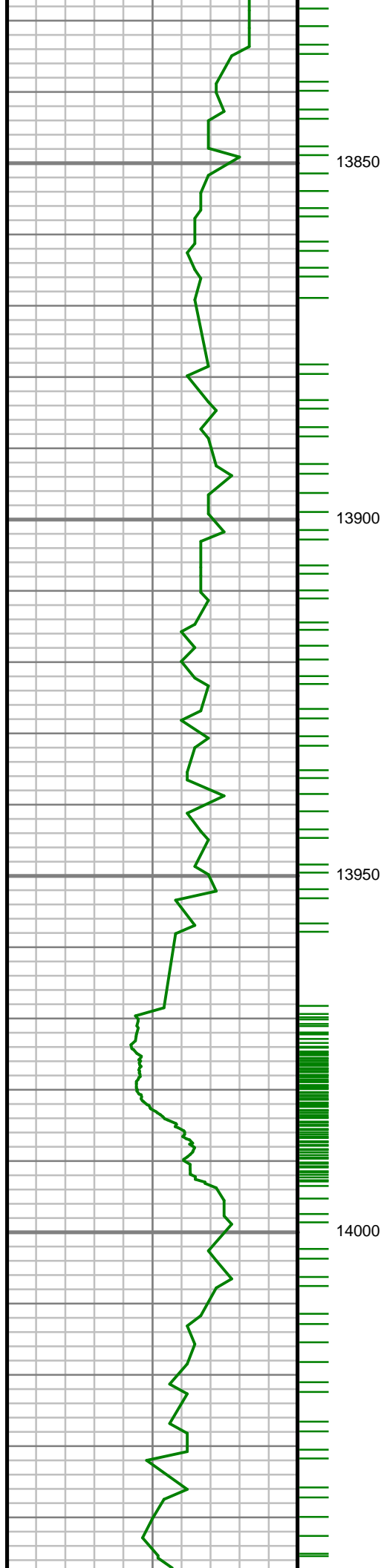
S: 185 MD: 13603.00 ft
Inc: 90.34 deg Az:



358.89 deg Az:
7442.74 ft

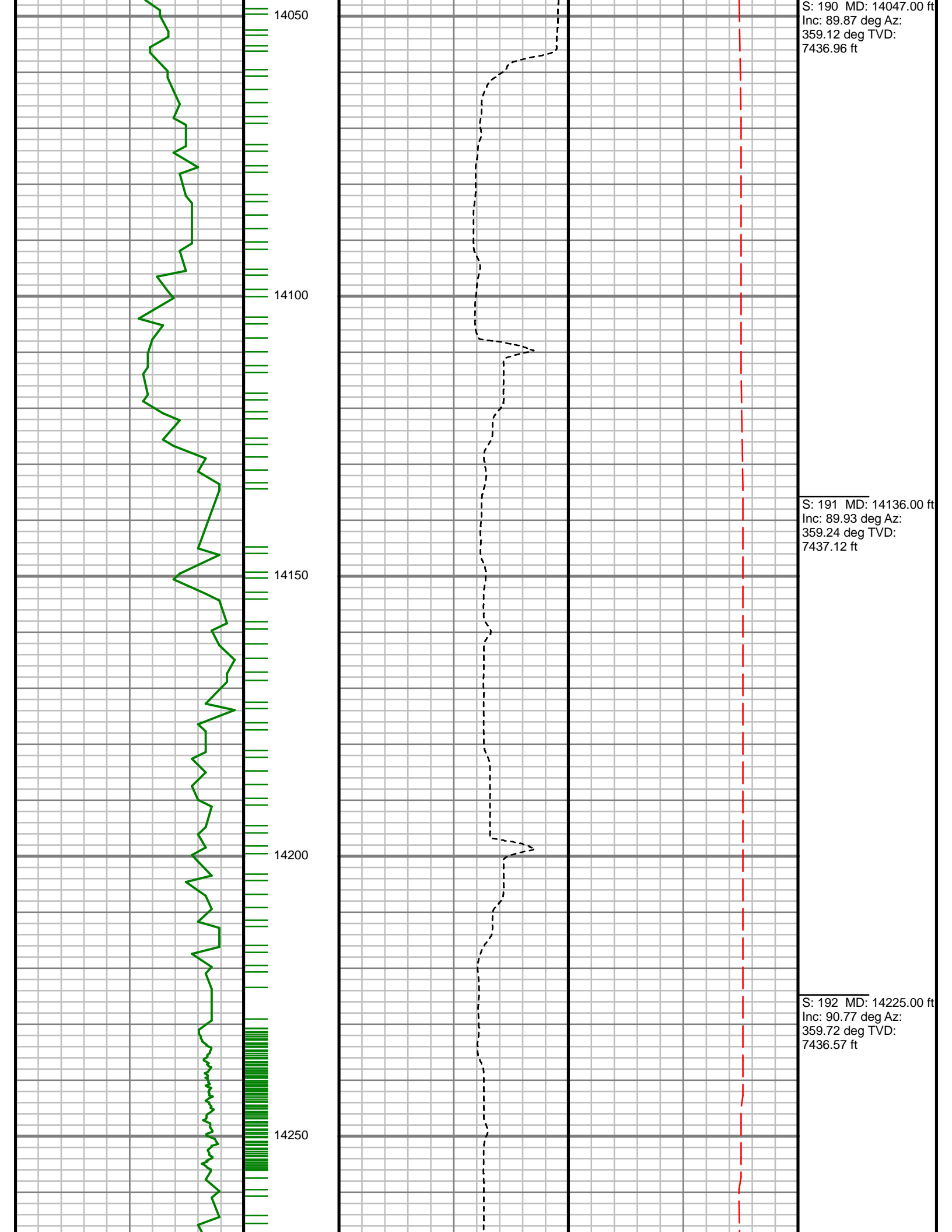
S: 186 MD: 13692.00 ft
Inc: 90.94 deg Az:
357.97 deg TVD:
7441.74 ft

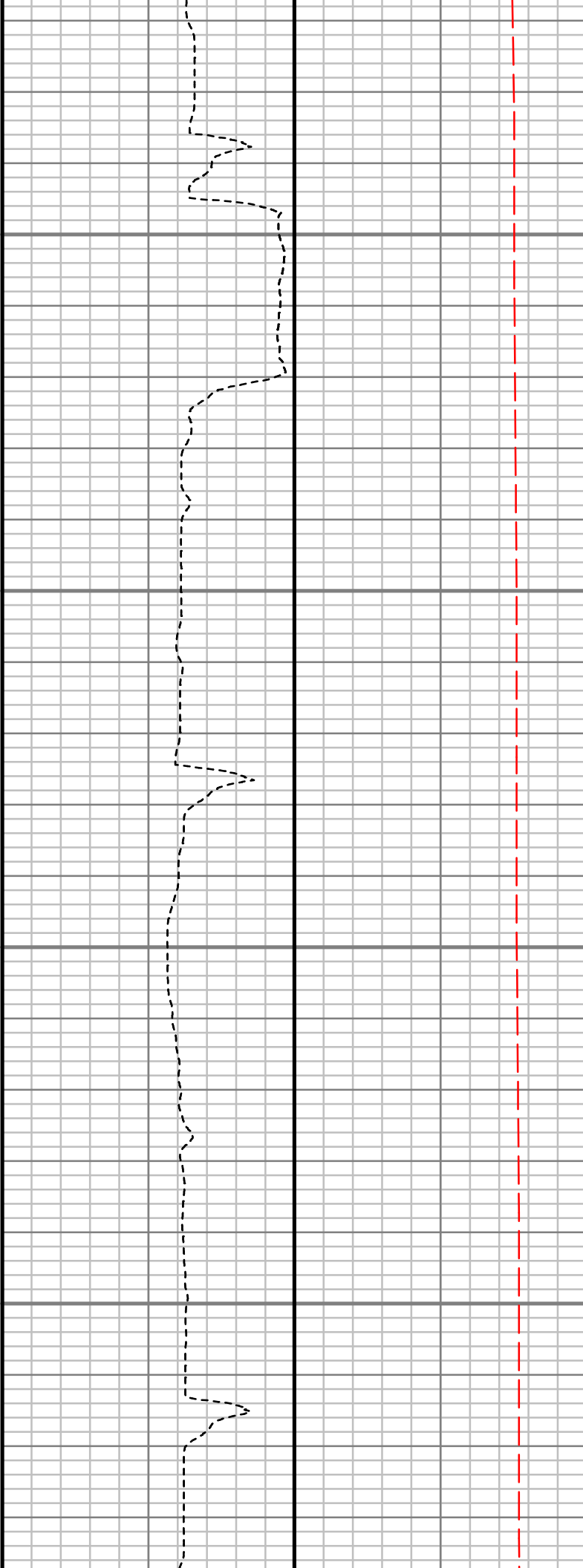
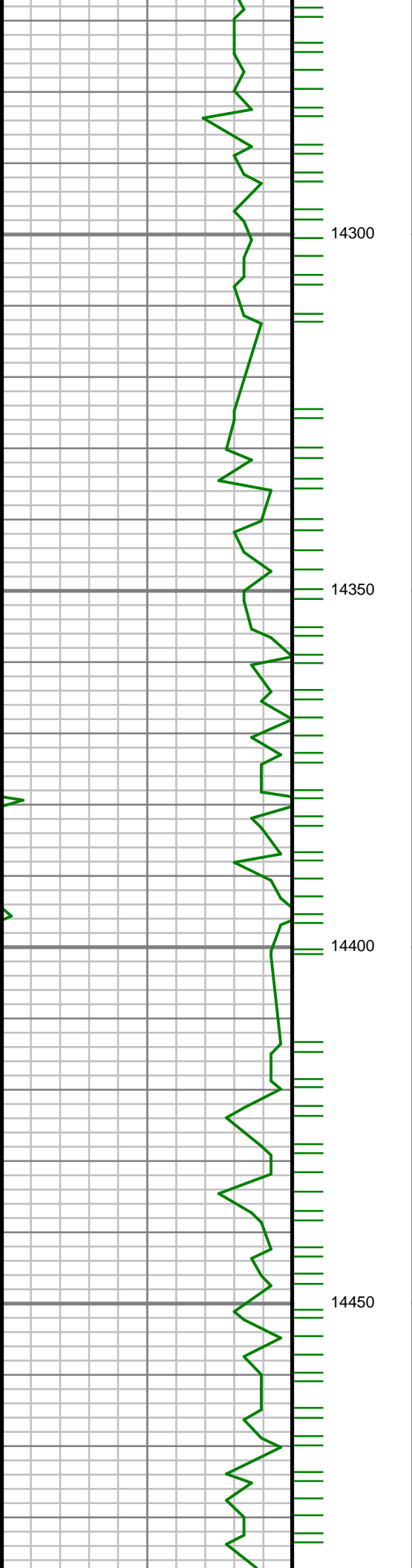
S: 187 MD: 13780.00 ft
Inc: 92.08 deg Az:
358.23 deg TVD:
7439.42 ft



S: 188 MD: 13869.00 ft
Inc: 89.97 deg Az:
359.80 deg TVD:
7437.83 ft

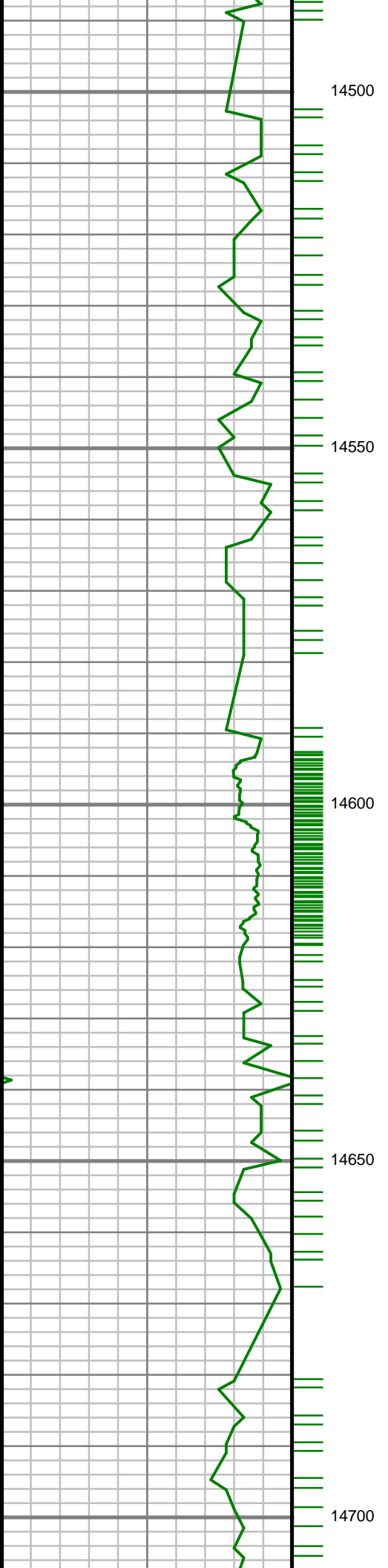
S: 189 MD: 13958.00 ft
Inc: 90.64 deg Az:
359.58 deg TVD:
7437.36 ft





S: 193 MD: 14314.00 ft
Inc: 88.76 deg Az:
358.55 deg TVD:
7436.94 ft

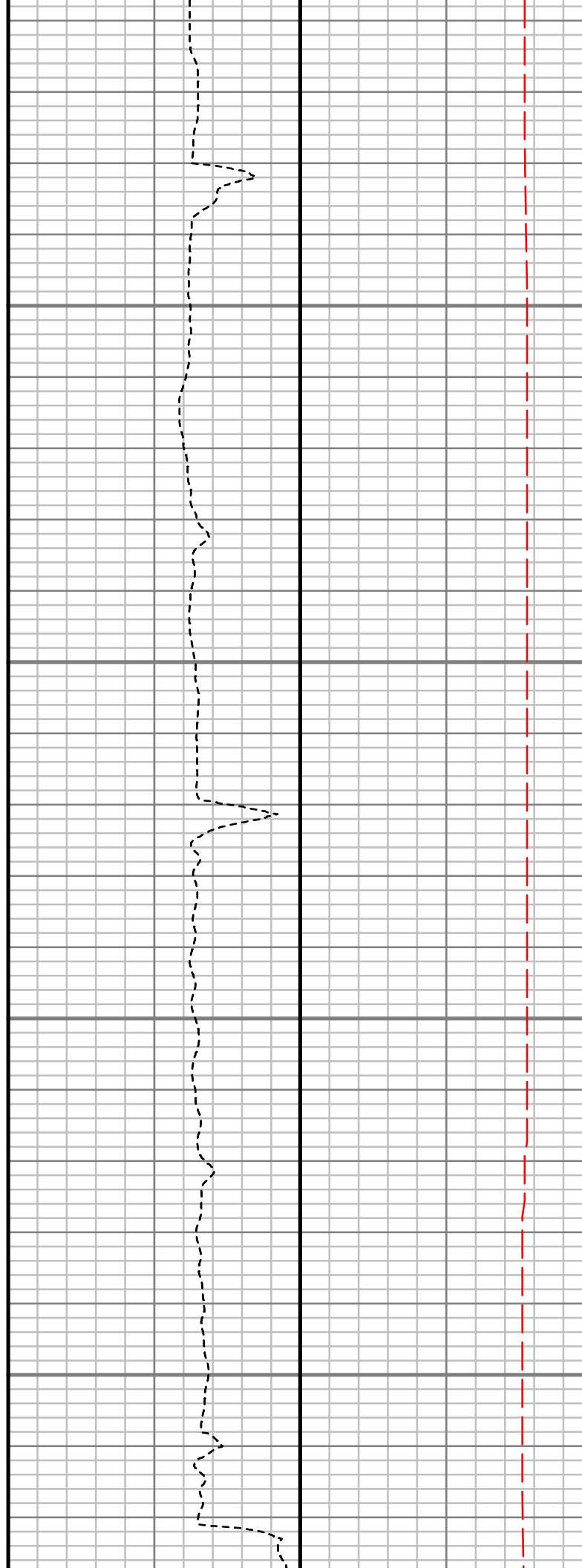
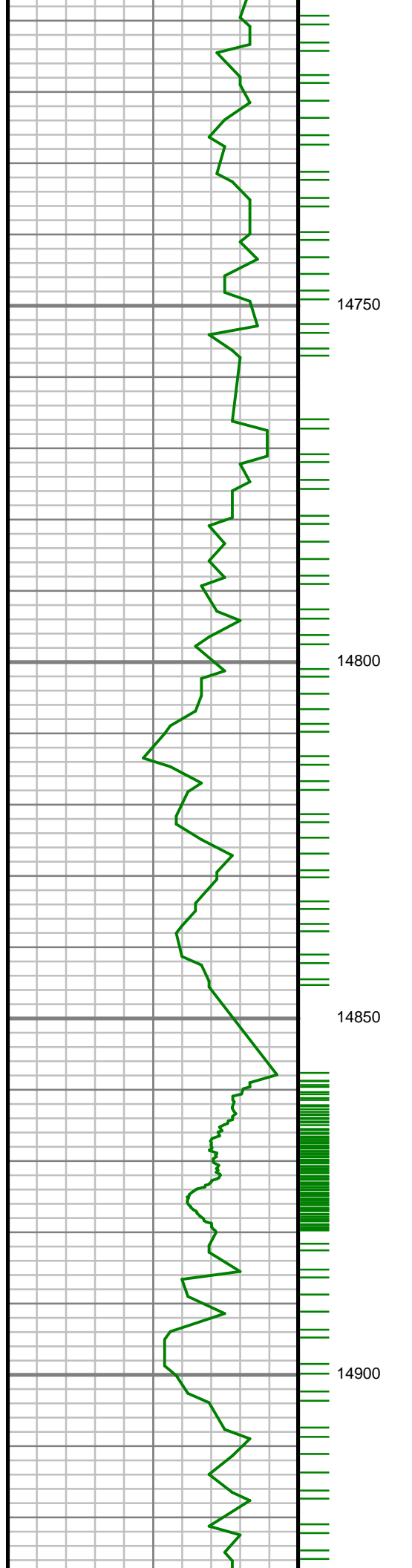
S: 194 MD: 14403.00 ft
Inc: 88.63 deg Az:
358.63 deg TVD:
7438.96 ft



S: 195 MD: 14491.00 ft
Inc: 89.73 deg Az:
358.04 deg TVD:
7440.22 ft

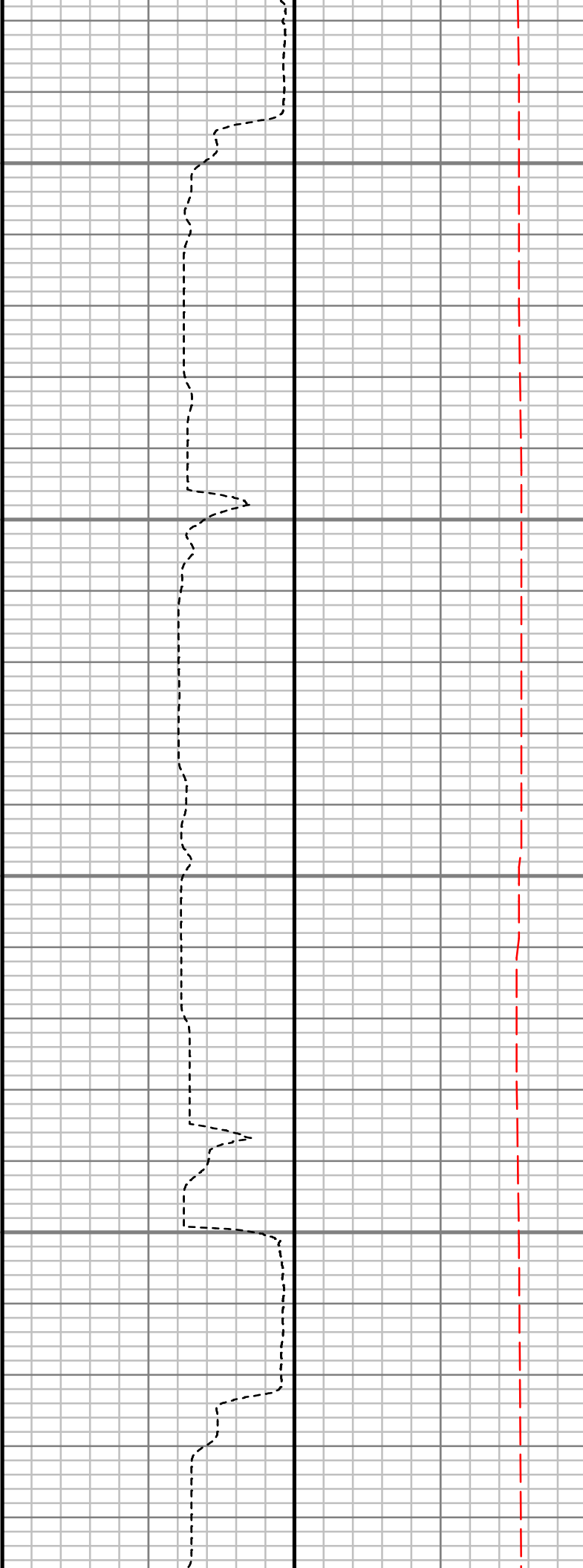
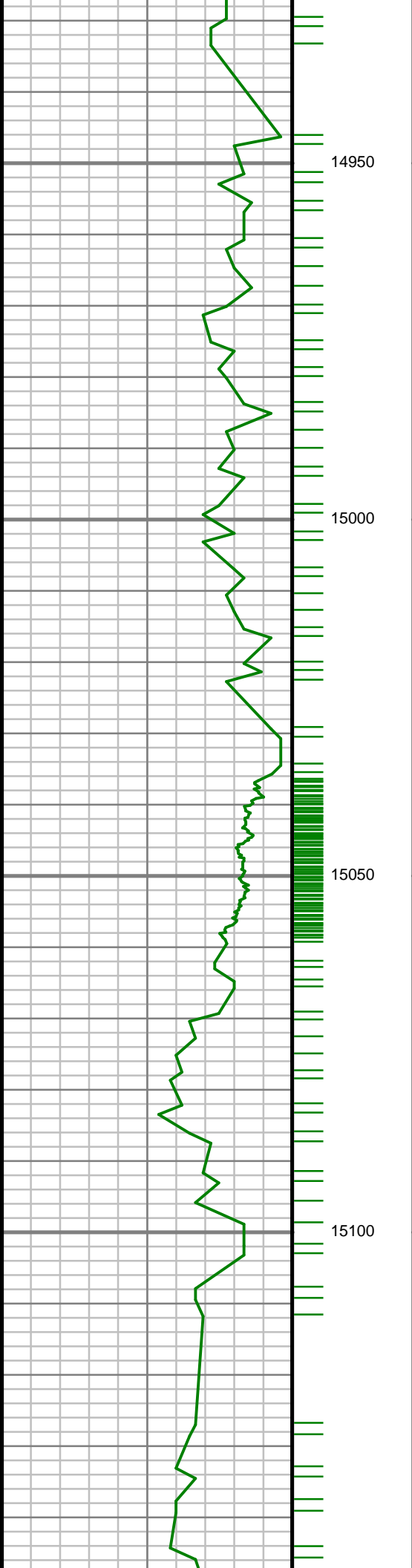
S: 196 MD: 14580.00 ft
Inc: 90.80 deg Az:
357.58 deg TVD:
7439.81 ft

S: 197 MD: 14668.00 ft
Inc: 89.90 deg Az:
359.03 deg TVD:
7439.27 ft



S: 198 MD: 14758.00 ft
Inc: 90.10 deg Az: 0.74
deg TVD: 7439.27 ft

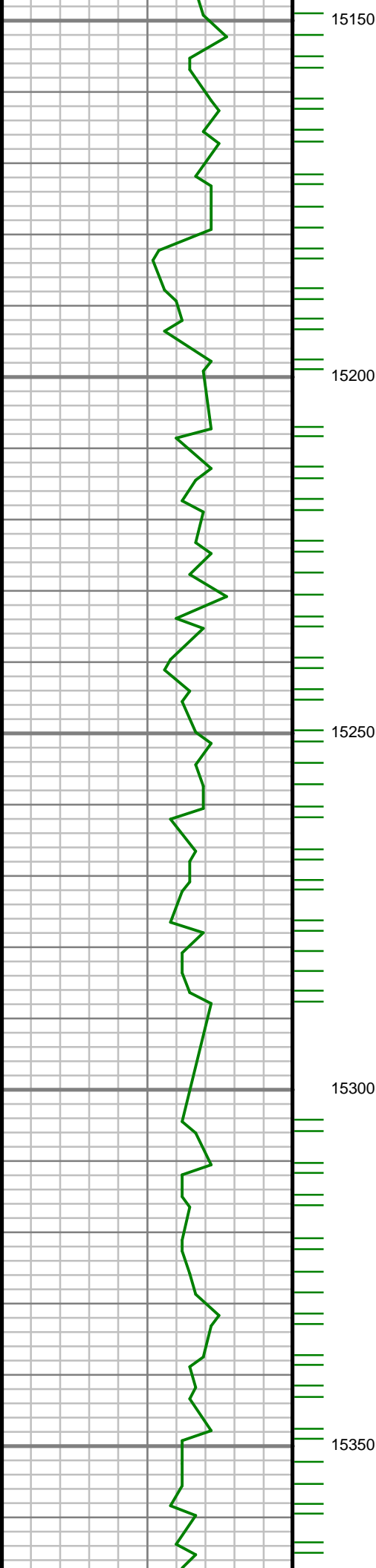
S: 199 MD: 14846.00 ft
Inc: 91.28 deg Az: 0.26
deg TVD: 7438.21 ft



S: 200 MD: 14935.00 ft
Inc: 90.77 deg Az: 1.58
deg TVD: 7436.62 ft

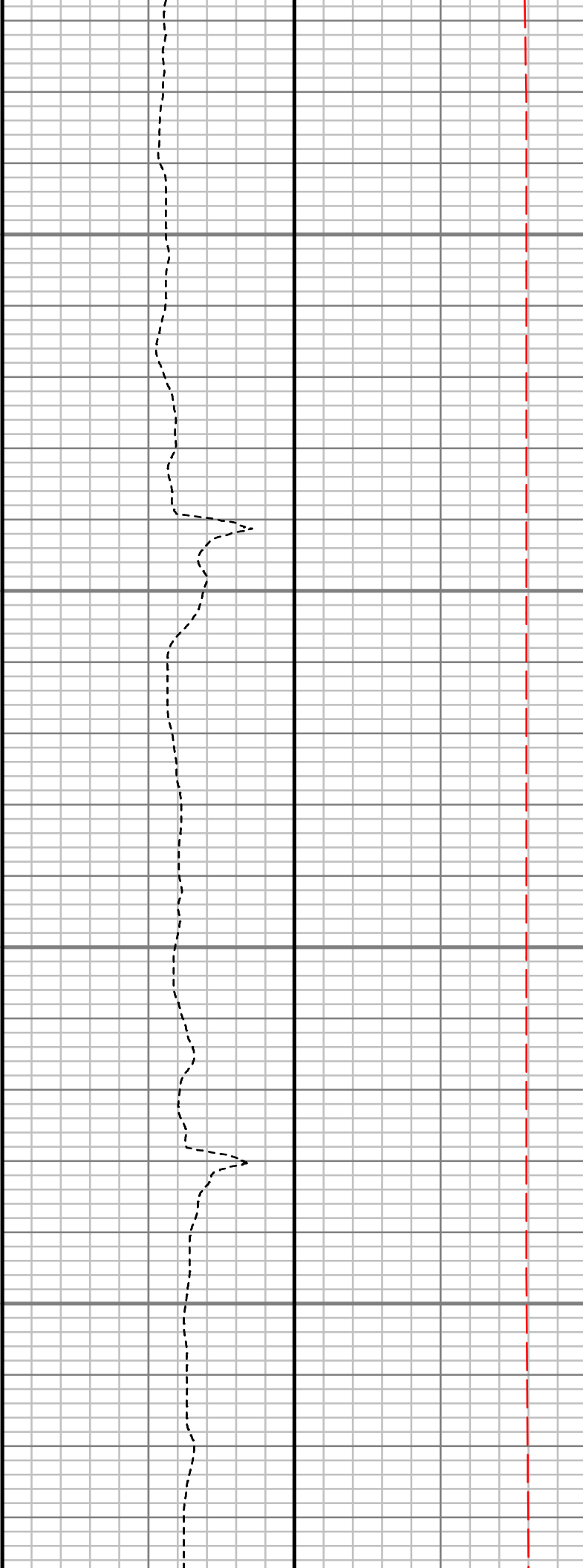
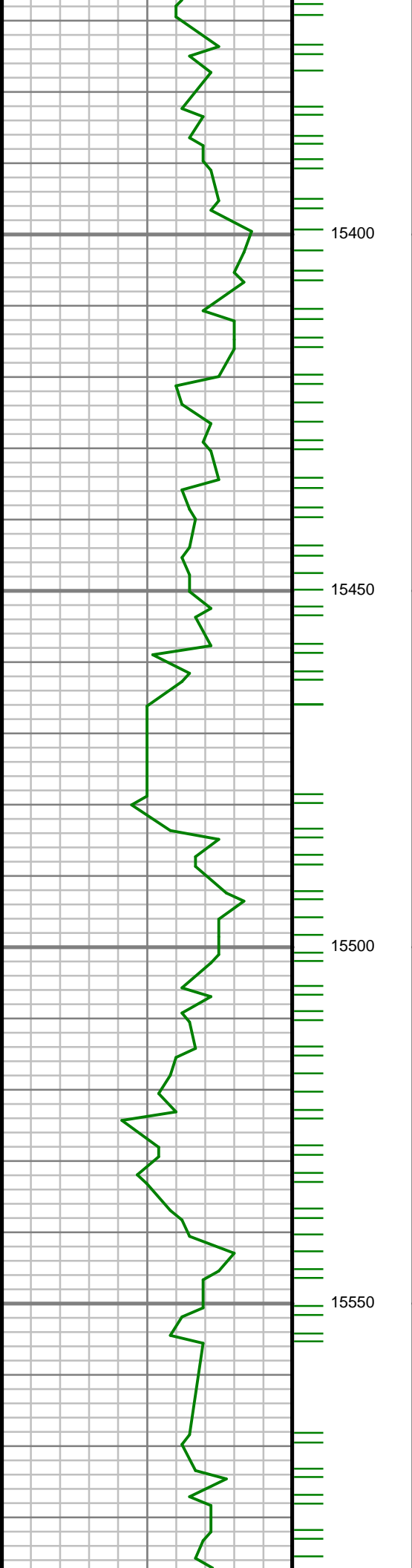
S: 201 MD: 15024.00 ft
Inc: 91.24 deg Az: 1.15
deg TVD: 7435.06 ft

S: 202 MD: 15113.00 ft
Inc: 89.83 deg Az: 0.27
deg TVD: 7434.23 ft



S: 203 MD: 15202.00 ft
Inc: 90.03 deg Az: 0.45
deg TVD: 7434.34 ft

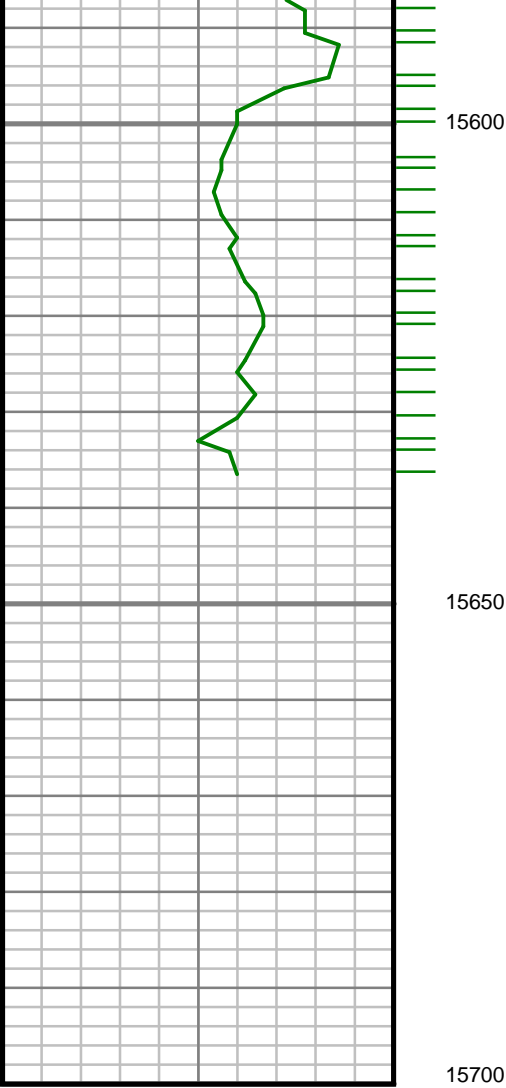
S: 204 MD: 15291.00 ft
Inc: 91.17 deg Az: 0.71
deg TVD: 7433.41 ft



S: 205 MD: 15380.00 ft
Inc: 91.88 deg Az: 0.78
deg TVD: 7431.04 ft

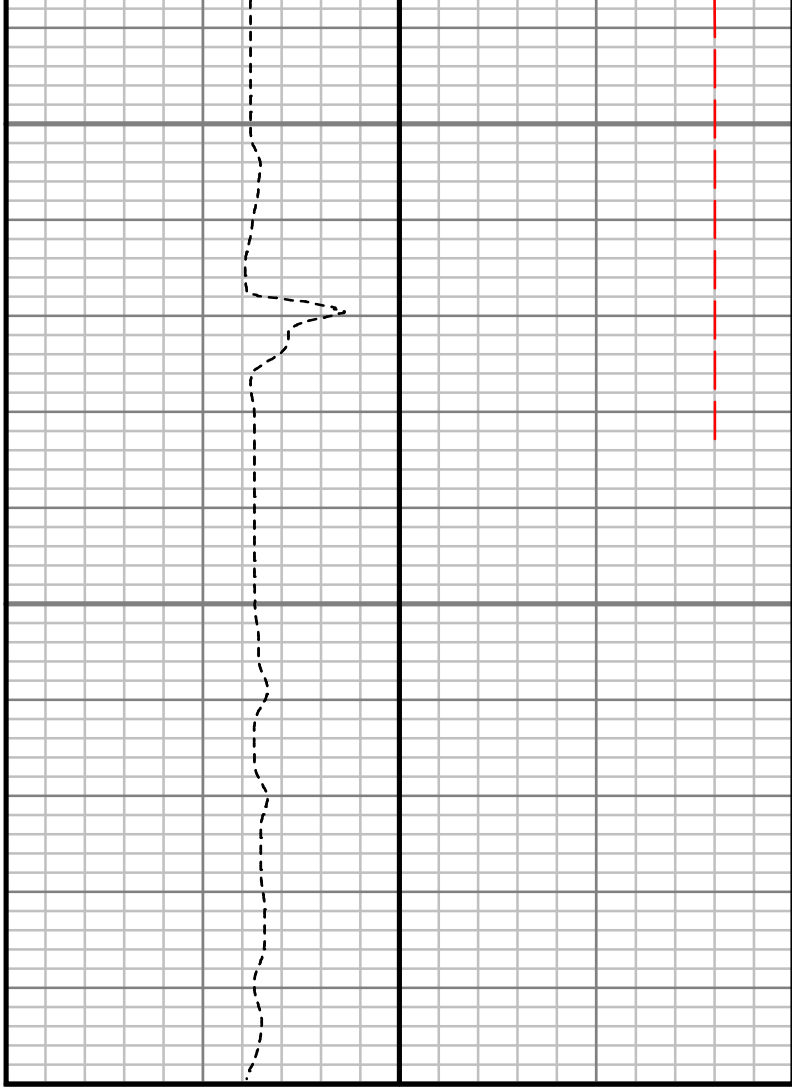
S: 206 MD: 15469.00 ft
Inc: 92.99 deg Az: 0.19
deg TVD: 7427.26 ft

S: 207 MD: 15557.00 ft
Inc: 94.53 deg Az:
359.82 deg TVD:
7421.49 ft



| 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: 208 MD: 15638.00 ft
Inc: 96.36 deg Az: 0.07
deg TVD: 7413.80 ft

| Comments |
|----------|
|----------|

SURVEY REPORT

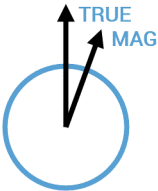
MARRS 29N-10HZ MSA COMPUTED SURVEY

CUSTOMER ANADARKO E&P ONSHORE LLC
PROJECT MARRS 29N-10HZ
FIELD WATTENBERG

WELL INFORMATION
Lat/Long 40.037987° N, 104.879029° W
Northing 14,540,589.11 ft
Easting 1,674,275.93 ft
UWI 05123432710000

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

VERTICAL SECTION REFERENCE
+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 359.90°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION Local Gravity: 999.033 mG [computed]

| MD | MODEL | DATE | DECLINATION | MAG TO TRUE |
|------------|--------|-------------|-------------|-------------|
| 0-15638 ft | MagVAR | 06 Mar 2018 | 8.10° | add 8.1° |

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 |
| 126.00 | 1.01 | 334.96 | 125.99 | 1.01 | 1.01 | -0.47 | 0.80 |
| 158.00 | 0.92 | 295.06 | 157.99 | 1.37 | 1.37 | -0.82 | 2.07 |
| 190.00 | 0.48 | 293.74 | 189.99 | 1.54 | 1.53 | -1.18 | 1.38 |
| 222.00 | 0.83 | 256.38 | 221.99 | 1.54 | 1.53 | -1.53 | 1.67 |
| 253.00 | 0.57 | 228.17 | 252.98 | 1.38 | 1.38 | -1.86 | 1.37 |
| 285.00 | 0.79 | 241.44 | 284.98 | 1.17 | 1.17 | -2.17 | 0.84 |
| 316.00 | 0.92 | 256.65 | 315.98 | 1.01 | 1.01 | -2.60 | 0.84 |
| 348.00 | 1.01 | 267.11 | 347.97 | 0.94 | 0.93 | -3.13 | 0.62 |
| 379.00 | 1.05 | 242.23 | 378.97 | 0.79 | 0.79 | -3.66 | 1.44 |
| 411.00 | 1.54 | 247.24 | 410.96 | 0.49 | 0.48 | -4.31 | 1.57 |
| 442.00 | 2.15 | 244.34 | 441.94 | 0.08 | 0.07 | -5.22 | 1.99 |
| 474.00 | 2.59 | 249.79 | 473.92 | -0.43 | -0.44 | -6.44 | 1.54 |
| 505.00 | 2.94 | 248.74 | 504.88 | -0.96 | -0.97 | -7.84 | 1.14 |
| 537.00 | 3.82 | 244.78 | 536.82 | -1.70 | -1.72 | -9.57 | 2.84 |
| 569.00 | 4.09 | 245.40 | 568.75 | -2.63 | -2.65 | -11.57 | 0.85 |
| 601.00 | 4.79 | 250.76 | 600.65 | -3.54 | -3.57 | -13.87 | 2.54 |
| 633.00 | 4.70 | 246.89 | 632.54 | -4.49 | -4.52 | -16.34 | 1.04 |
| 664.00 | 6.11 | 241.71 | 663.40 | -5.77 | -5.80 | -18.96 | 4.81 |
| 696.00 | 6.28 | 242.06 | 695.22 | -7.39 | -7.43 | -22.00 | 0.54 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 728.00 | 7.38 | 237.31 | 726.99 | -9.31 | -9.36 | -25.28 | 3.86 |
| 760.00 | 8.31 | 234.59 | 758.69 | -11.76 | -11.81 | -28.89 | 3.13 |
| 791.00 | 9.18 | 236.52 | 789.33 | -14.41 | -14.47 | -32.78 | 2.96 |
| 823.00 | 10.11 | 236.34 | 820.88 | -17.37 | -17.44 | -37.25 | 2.91 |
| 855.00 | 10.81 | 235.99 | 852.35 | -20.60 | -20.67 | -42.07 | 2.20 |
| 887.00 | 11.29 | 235.73 | 883.75 | -24.03 | -24.11 | -47.15 | 1.51 |
| 918.00 | 11.87 | 234.76 | 914.12 | -27.57 | -27.66 | -52.26 | 1.97 |
| 950.00 | 12.74 | 236.43 | 945.39 | -31.41 | -31.51 | -57.89 | 2.94 |
| 982.00 | 13.40 | 236.61 | 976.56 | -35.39 | -35.50 | -63.93 | 2.07 |
| 1014.00 | 13.80 | 237.40 | 1007.66 | -39.48 | -39.60 | -70.24 | 1.38 |
| 1045.00 | 14.33 | 237.75 | 1037.73 | -43.51 | -43.64 | -76.60 | 1.73 |
| 1077.00 | 14.55 | 238.19 | 1068.72 | -47.73 | -47.87 | -83.36 | 0.77 |
| 1109.00 | 15.12 | 238.19 | 1099.65 | -52.03 | -52.19 | -90.32 | 1.78 |
| 1140.00 | 15.34 | 236.08 | 1129.56 | -56.44 | -56.61 | -97.16 | 1.92 |
| 1172.00 | 16.26 | 238.63 | 1160.36 | -61.12 | -61.30 | -104.50 | 3.60 |
| 1204.00 | 16.57 | 238.28 | 1191.05 | -65.84 | -66.04 | -112.21 | 1.02 |
| 1236.00 | 16.88 | 238.45 | 1221.70 | -70.66 | -70.87 | -120.05 | 0.98 |
| 1268.00 | 17.18 | 236.78 | 1252.29 | -75.66 | -75.89 | -127.96 | 1.79 |
| 1299.00 | 17.62 | 236.70 | 1281.88 | -80.73 | -80.97 | -135.71 | 1.42 |
| 1331.00 | 17.80 | 236.52 | 1312.36 | -86.08 | -86.33 | -143.84 | 0.59 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 1363.00 | 17.09 | 239.33 | 1342.89 | -91.16 | -91.42 | -151.96 | 3.44 |
| 1394.00 | 16.88 | 242.06 | 1372.54 | -95.58 | -95.86 | -159.86 | 2.66 |
| 1426.00 | 17.23 | 241.79 | 1403.13 | -99.98 | -100.27 | -168.14 | 1.12 |
| 1458.00 | 17.75 | 242.76 | 1433.65 | -104.44 | -104.75 | -176.65 | 1.86 |
| 1490.00 | 18.46 | 242.94 | 1464.07 | -108.96 | -109.28 | -185.50 | 2.23 |
| 1521.00 | 17.62 | 241.53 | 1493.54 | -113.41 | -113.75 | -194.00 | 3.05 |
| 1553.00 | 17.09 | 241.97 | 1524.08 | -117.92 | -118.27 | -202.40 | 1.71 |
| 1584.00 | 17.45 | 240.74 | 1553.69 | -122.32 | -122.68 | -210.48 | 1.65 |
| 1616.00 | 18.19 | 242.06 | 1584.15 | -126.99 | -127.37 | -219.08 | 2.63 |
| 1648.00 | 17.97 | 240.83 | 1614.57 | -131.72 | -132.12 | -227.80 | 1.38 |
| 1680.00 | 18.06 | 241.09 | 1645.00 | -136.51 | -136.92 | -236.45 | 0.38 |
| 1711.00 | 17.80 | 240.39 | 1674.50 | -141.16 | -141.58 | -244.78 | 1.09 |
| 1743.00 | 17.67 | 239.68 | 1704.98 | -146.01 | -146.45 | -253.22 | 0.79 |
| 1775.00 | 16.92 | 238.01 | 1735.53 | -150.91 | -151.37 | -261.37 | 2.81 |
| 1807.00 | 15.95 | 236.87 | 1766.22 | -155.77 | -156.24 | -269.00 | 3.19 |
| 1836.00 | 16.44 | 236.26 | 1794.07 | -160.22 | -160.70 | -275.75 | 1.79 |
| 1946.00 | 16.10 | 238.10 | 1899.66 | -176.88 | -177.40 | -301.64 | 0.56 |
| 2036.00 | 15.99 | 230.60 | 1986.17 | -191.31 | -191.87 | -321.81 | 2.30 |
| 2124.00 | 16.70 | 223.45 | 2070.62 | -208.15 | -208.74 | -339.88 | 2.42 |
| 2213.00 | 19.44 | 216.06 | 2155.23 | -229.38 | -230.00 | -357.40 | 4.01 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 2302.00 | 18.20 | 213.53 | 2239.47 | -252.91 | -253.57 | -373.79 | 1.67 |
| 2391.00 | 17.82 | 206.08 | 2324.12 | -276.71 | -277.39 | -387.46 | 2.62 |
| 2479.00 | 17.14 | 197.77 | 2408.07 | -301.14 | -301.83 | -397.34 | 2.94 |
| 2568.00 | 16.53 | 194.63 | 2493.26 | -325.87 | -326.57 | -404.54 | 1.23 |
| 2656.00 | 15.09 | 193.81 | 2577.93 | -349.09 | -349.81 | -410.43 | 1.66 |
| 2745.00 | 14.40 | 201.26 | 2664.01 | -370.65 | -371.38 | -417.21 | 2.27 |
| 2834.00 | 13.03 | 203.65 | 2750.47 | -390.14 | -390.88 | -425.25 | 1.67 |
| 2923.00 | 11.69 | 201.74 | 2837.40 | -407.69 | -408.45 | -432.62 | 1.57 |
| 3012.00 | 10.60 | 199.89 | 2924.72 | -423.75 | -424.52 | -438.74 | 1.29 |
| 3100.00 | 9.70 | 205.45 | 3011.35 | -438.05 | -438.83 | -444.68 | 1.51 |
| 3213.00 | 7.77 | 210.74 | 3123.03 | -453.20 | -453.99 | -452.68 | 1.85 |
| 3302.00 | 5.18 | 201.88 | 3211.46 | -462.09 | -462.89 | -457.25 | 3.11 |
| 3390.00 | 3.29 | 195.44 | 3299.22 | -468.21 | -469.01 | -459.40 | 2.21 |
| 3479.00 | 0.90 | 348.33 | 3388.17 | -469.99 | -470.79 | -460.22 | 4.62 |
| 3568.00 | 1.14 | 304.98 | 3477.16 | -468.79 | -469.60 | -461.09 | 0.88 |
| 3745.00 | 1.25 | 300.63 | 3654.12 | -466.79 | -467.60 | -464.20 | 0.08 |
| 3835.00 | 0.98 | 99.64 | 3744.12 | -466.42 | -467.23 | -464.28 | 2.44 |
| 3924.00 | 1.16 | 92.23 | 3833.10 | -466.59 | -467.40 | -462.63 | 0.25 |
| 4013.00 | 0.98 | 73.57 | 3922.09 | -466.41 | -467.22 | -461.00 | 0.44 |
| 4102.00 | 0.80 | 58.76 | 4011.08 | -465.87 | -466.68 | -459.74 | 0.33 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 4190.00 | 0.69 | 48.80 | 4099.07 | -465.21 | -466.01 | -458.82 | 0.19 |
| 4279.00 | 0.51 | 39.93 | 4188.06 | -464.55 | -465.35 | -458.16 | 0.23 |
| 4368.00 | 0.34 | 344.86 | 4277.06 | -463.99 | -464.80 | -457.97 | 0.47 |
| 4457.00 | 0.00 | 8.11 | 4366.06 | -463.74 | -464.54 | -458.04 | 0.38 |
| 4546.00 | 0.05 | 353.89 | 4455.06 | -463.70 | -464.50 | -458.05 | 0.06 |
| 4635.00 | 0.12 | 248.91 | 4544.06 | -463.70 | -464.50 | -458.14 | 0.16 |
| 4723.00 | 0.55 | 198.45 | 4632.06 | -464.13 | -464.93 | -458.36 | 0.55 |
| 4812.00 | 0.73 | 221.27 | 4721.05 | -464.96 | -465.76 | -458.87 | 0.35 |
| 4901.00 | 0.86 | 221.21 | 4810.04 | -465.89 | -466.69 | -459.68 | 0.15 |
| 4990.00 | 0.55 | 70.61 | 4899.04 | -466.25 | -467.05 | -459.72 | 1.53 |
| 5079.00 | 1.50 | 67.91 | 4988.03 | -465.67 | -466.47 | -458.23 | 1.07 |
| 5168.00 | 1.21 | 85.21 | 5077.00 | -465.16 | -465.95 | -456.22 | 0.56 |
| 5256.00 | 0.74 | 113.50 | 5164.99 | -465.31 | -466.10 | -454.77 | 0.75 |
| 5434.00 | 0.72 | 101.32 | 5342.98 | -465.99 | -466.78 | -452.62 | 0.09 |
| 5523.00 | 0.36 | 98.11 | 5431.97 | -466.14 | -466.93 | -451.80 | 0.41 |
| 5612.00 | 0.24 | 114.50 | 5520.97 | -466.26 | -467.05 | -451.35 | 0.16 |
| 5701.00 | 0.05 | 319.07 | 5609.97 | -466.31 | -467.10 | -451.20 | 0.32 |
| 5789.00 | 0.15 | 238.86 | 5697.97 | -466.34 | -467.13 | -451.33 | 0.17 |
| 5878.00 | 0.39 | 232.64 | 5786.97 | -466.58 | -467.37 | -451.67 | 0.27 |
| 5967.00 | 0.55 | 242.21 | 5875.97 | -466.96 | -467.75 | -452.29 | 0.20 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 6056.00 | 0.20 | 255.45 | 5964.96 | -467.20 | -467.99 | -452.82 | 0.40 |
| 6145.00 | 0.05 | 199.19 | 6053.96 | -467.28 | -468.07 | -452.98 | 0.20 |
| 6233.00 | 0.24 | 290.81 | 6141.96 | -467.25 | -468.04 | -453.16 | 0.28 |
| 6322.00 | 0.30 | 352.77 | 6230.96 | -466.95 | -467.74 | -453.37 | 0.32 |
| 6411.00 | 0.43 | 359.36 | 6319.96 | -466.38 | -467.17 | -453.40 | 0.15 |
| 6500.00 | 0.69 | 347.09 | 6408.96 | -465.53 | -466.32 | -453.52 | 0.32 |
| 6589.00 | 0.94 | 331.90 | 6497.95 | -464.36 | -465.15 | -453.99 | 0.37 |
| 6678.00 | 10.27 | 1.34 | 6586.43 | -455.76 | -456.56 | -454.15 | 10.63 |
| 6766.00 | 18.57 | 0.83 | 6671.58 | -433.87 | -434.67 | -453.76 | 9.43 |
| 6855.00 | 23.65 | 0.43 | 6754.58 | -401.83 | -402.62 | -453.42 | 5.71 |
| 6944.00 | 25.78 | 359.13 | 6835.43 | -364.62 | -365.42 | -453.58 | 2.47 |
| 7032.00 | 30.17 | 358.77 | 6913.12 | -323.36 | -324.15 | -454.35 | 4.99 |
| 7121.00 | 38.25 | 359.41 | 6986.67 | -273.37 | -274.16 | -455.11 | 9.09 |
| 7209.00 | 45.53 | 358.27 | 7052.13 | -214.66 | -215.46 | -456.34 | 8.32 |
| 7298.00 | 49.31 | 357.17 | 7112.34 | -149.19 | -149.99 | -458.97 | 4.34 |
| 7387.00 | 52.54 | 358.46 | 7168.44 | -80.16 | -80.96 | -461.58 | 3.80 |
| 7475.00 | 59.87 | 1.14 | 7217.36 | -7.09 | -7.89 | -461.76 | 8.70 |
| 7564.00 | 65.19 | 0.25 | 7258.40 | 71.84 | 71.04 | -460.82 | 6.04 |
| 7652.00 | 65.56 | 359.94 | 7295.06 | 151.84 | 151.03 | -460.69 | 0.53 |
| 7741.00 | 72.68 | 357.52 | 7326.77 | 234.91 | 234.11 | -462.57 | 8.39 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 7830.00 | 80.05 | 0.26 | 7347.74 | 321.32 | 320.51 | -464.21 | 8.80 |
| 7919.00 | 85.11 | 0.86 | 7359.23 | 409.54 | 408.74 | -463.35 | 5.72 |
| 8008.00 | 87.96 | 0.57 | 7364.61 | 498.36 | 497.56 | -462.24 | 3.22 |
| 8096.00 | 88.80 | 0.63 | 7367.09 | 586.32 | 585.52 | -461.32 | 0.96 |
| 8185.00 | 88.63 | 1.46 | 7369.09 | 675.28 | 674.48 | -459.70 | 0.95 |
| 8274.00 | 89.10 | 1.72 | 7370.85 | 764.22 | 763.43 | -457.23 | 0.60 |
| 8363.00 | 87.83 | 1.64 | 7373.24 | 853.15 | 852.35 | -454.62 | 1.43 |
| 8452.00 | 87.99 | 1.55 | 7376.48 | 942.05 | 941.26 | -452.14 | 0.21 |
| 8541.00 | 88.76 | 0.58 | 7379.01 | 1030.99 | 1030.21 | -450.49 | 1.39 |
| 8630.00 | 90.30 | 1.74 | 7379.74 | 1119.96 | 1119.18 | -448.69 | 2.17 |
| 8718.00 | 89.10 | 1.63 | 7380.20 | 1207.92 | 1207.14 | -446.10 | 1.37 |
| 8807.00 | 90.03 | 0.62 | 7380.87 | 1296.89 | 1296.12 | -444.35 | 1.54 |
| 8896.00 | 88.13 | 0.77 | 7382.30 | 1385.87 | 1385.10 | -443.28 | 2.14 |
| 8985.00 | 89.50 | 0.29 | 7384.14 | 1474.84 | 1474.07 | -442.45 | 1.63 |
| 9074.00 | 88.30 | 359.79 | 7385.85 | 1563.82 | 1563.05 | -442.39 | 1.46 |
| 9163.00 | 89.10 | 359.85 | 7387.87 | 1652.80 | 1652.03 | -442.67 | 0.90 |
| 9251.00 | 90.63 | 359.50 | 7388.08 | 1740.80 | 1740.03 | -443.17 | 1.78 |
| 9340.00 | 89.06 | 0.28 | 7388.32 | 1829.79 | 1829.02 | -443.34 | 1.97 |
| 9428.00 | 88.63 | 0.12 | 7390.09 | 1917.77 | 1917.00 | -443.03 | 0.52 |
| 9517.00 | 89.20 | 0.06 | 7391.78 | 2006.76 | 2005.99 | -442.89 | 0.64 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 9606.00 | 90.03 | 359.89 | 7392.38 | 2095.75 | 2094.98 | -442.93 | 0.95 |
| 9695.00 | 88.69 | 359.30 | 7393.37 | 2184.74 | 2183.97 | -443.56 | 1.65 |
| 9784.00 | 88.70 | 359.01 | 7395.40 | 2273.71 | 2272.94 | -444.87 | 0.33 |
| 9872.00 | 89.16 | 357.90 | 7397.04 | 2361.67 | 2360.89 | -447.24 | 1.37 |
| 9961.00 | 90.47 | 357.42 | 7397.33 | 2450.60 | 2449.81 | -450.88 | 1.57 |
| 10050.00 | 91.61 | 356.72 | 7395.71 | 2539.47 | 2538.68 | -455.43 | 1.50 |
| 10138.00 | 90.20 | 359.92 | 7394.32 | 2627.41 | 2626.62 | -458.01 | 3.97 |
| 10227.00 | 91.20 | 359.88 | 7393.23 | 2716.41 | 2715.61 | -458.16 | 1.12 |
| 10316.00 | 89.37 | 1.12 | 7392.79 | 2805.40 | 2804.60 | -457.38 | 2.48 |
| 10405.00 | 89.87 | 0.94 | 7393.38 | 2894.38 | 2893.58 | -455.78 | 0.60 |
| 10493.00 | 89.43 | 2.44 | 7393.92 | 2982.33 | 2981.54 | -453.19 | 1.78 |
| 10582.00 | 88.36 | 3.13 | 7395.64 | 3071.20 | 3070.42 | -448.87 | 1.43 |
| 10671.00 | 89.67 | 3.51 | 7397.17 | 3160.02 | 3159.25 | -443.71 | 1.53 |
| 10760.00 | 90.97 | 3.53 | 7396.67 | 3248.84 | 3248.08 | -438.25 | 1.46 |
| 10849.00 | 89.40 | 2.12 | 7396.38 | 3337.72 | 3336.97 | -433.86 | 2.37 |
| 10938.00 | 89.47 | 1.25 | 7397.26 | 3426.67 | 3425.93 | -431.25 | 0.98 |
| 11026.00 | 90.03 | 1.49 | 7397.64 | 3514.64 | 3513.90 | -429.14 | 0.69 |
| 11115.00 | 87.12 | 359.44 | 7399.86 | 3603.60 | 3602.85 | -428.42 | 4.00 |
| 11204.00 | 88.20 | 359.14 | 7403.49 | 3692.52 | 3691.77 | -429.52 | 1.26 |
| 11293.00 | 90.27 | 359.03 | 7404.68 | 3781.49 | 3780.75 | -430.94 | 2.33 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 11382.00 | 90.17 | 359.19 | 7404.34 | 3870.48 | 3869.74 | -432.32 | 0.21 |
| 11471.00 | 87.46 | 358.00 | 7406.18 | 3959.43 | 3958.68 | -434.51 | 3.33 |
| 11559.00 | 89.50 | 358.93 | 7408.51 | 4047.37 | 4046.61 | -436.86 | 2.55 |
| 11648.00 | 88.03 | 358.61 | 7410.43 | 4136.33 | 4135.57 | -438.77 | 1.69 |
| 11737.00 | 87.93 | 359.42 | 7413.57 | 4225.26 | 4224.50 | -440.30 | 0.92 |
| 11826.00 | 88.63 | 358.75 | 7416.24 | 4314.21 | 4313.45 | -441.72 | 1.09 |
| 11915.00 | 89.30 | 358.62 | 7417.85 | 4403.18 | 4402.41 | -443.76 | 0.77 |
| 12004.00 | 90.17 | 358.95 | 7418.26 | 4492.16 | 4491.39 | -445.65 | 1.05 |
| 12092.00 | 89.40 | 0.35 | 7418.59 | 4580.15 | 4579.38 | -446.19 | 1.82 |
| 12181.00 | 89.63 | 0.21 | 7419.34 | 4669.15 | 4668.38 | -445.75 | 0.30 |
| 12270.00 | 90.44 | 0.29 | 7419.29 | 4758.15 | 4757.38 | -445.36 | 0.91 |
| 12359.00 | 89.57 | 358.98 | 7419.28 | 4847.14 | 4846.37 | -445.93 | 1.77 |
| 12447.00 | 90.27 | 359.33 | 7419.40 | 4935.13 | 4934.36 | -447.23 | 0.89 |
| 12536.00 | 88.46 | 358.17 | 7420.39 | 5024.10 | 5023.33 | -449.17 | 2.42 |
| 12625.00 | 87.96 | 358.16 | 7423.17 | 5113.02 | 5112.24 | -452.02 | 0.56 |
| 12714.00 | 87.45 | 358.13 | 7426.73 | 5201.91 | 5201.12 | -454.90 | 0.57 |
| 12803.00 | 86.84 | 358.51 | 7431.16 | 5290.76 | 5289.97 | -457.50 | 0.81 |
| 12892.00 | 88.13 | 359.29 | 7435.07 | 5379.66 | 5378.87 | -459.21 | 1.69 |
| 12981.00 | 89.77 | 0.44 | 7436.70 | 5468.64 | 5467.85 | -459.42 | 2.25 |
| 13069.00 | 88.53 | 359.17 | 7438.01 | 5556.63 | 5555.83 | -459.72 | 2.02 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 13158.00 | 87.96 | 359.73 | 7440.73 | 5645.58 | 5644.79 | -460.57 | 0.90 |
| 13247.00 | 88.99 | 0.11 | 7443.10 | 5734.55 | 5733.75 | -460.70 | 1.23 |
| 13336.00 | 89.83 | 0.06 | 7444.02 | 5823.54 | 5822.75 | -460.56 | 0.95 |
| 13425.00 | 90.87 | 0.10 | 7443.47 | 5912.54 | 5911.75 | -460.44 | 1.17 |
| 13514.00 | 89.87 | 359.81 | 7442.90 | 6001.54 | 6000.74 | -460.51 | 1.17 |
| 13603.00 | 90.34 | 358.89 | 7442.74 | 6090.53 | 6089.74 | -461.52 | 1.16 |
| 13692.00 | 90.94 | 357.97 | 7441.74 | 6179.50 | 6178.69 | -463.96 | 1.23 |
| 13780.00 | 92.08 | 358.23 | 7439.42 | 6267.42 | 6266.61 | -466.87 | 1.33 |
| 13869.00 | 89.97 | 359.80 | 7437.83 | 6356.39 | 6355.58 | -468.40 | 2.95 |
| 13958.00 | 90.64 | 359.58 | 7437.36 | 6445.38 | 6444.58 | -468.89 | 0.79 |
| 14047.00 | 89.87 | 359.12 | 7436.96 | 6534.38 | 6533.57 | -469.90 | 1.01 |
| 14136.00 | 89.93 | 359.24 | 7437.12 | 6623.37 | 6622.56 | -471.17 | 0.15 |
| 14225.00 | 90.77 | 359.72 | 7436.57 | 6712.37 | 6711.55 | -471.98 | 1.09 |
| 14314.00 | 88.76 | 358.55 | 7436.94 | 6801.35 | 6800.54 | -473.32 | 2.61 |
| 14403.00 | 88.63 | 358.63 | 7438.96 | 6890.31 | 6889.49 | -475.51 | 0.17 |
| 14491.00 | 89.73 | 358.04 | 7440.22 | 6978.26 | 6977.44 | -478.07 | 1.42 |
| 14580.00 | 90.80 | 357.58 | 7439.81 | 7067.20 | 7066.37 | -481.47 | 1.31 |
| 14668.00 | 89.90 | 359.03 | 7439.27 | 7155.16 | 7154.33 | -484.07 | 1.94 |
| 14758.00 | 90.10 | 0.74 | 7439.27 | 7245.16 | 7244.32 | -484.25 | 1.91 |
| 14846.00 | 91.28 | 0.26 | 7438.21 | 7333.14 | 7332.31 | -483.48 | 1.45 |

| MD ft | Inc deg | Azim deg | TVD ft | VS ft | +N/-S ft | +E/-W ft | DLS °/100ft |
|----------|------------|-------------|-----------|----------|-------------|-------------|----------------|
| 14935.00 | 90.77 | 1.58 | 7436.62 | 7422.11 | 7421.28 | -482.05 | 1.59 |
| 15024.00 | 91.24 | 1.15 | 7435.06 | 7511.07 | 7510.24 | -479.93 | 0.72 |
| 15113.00 | 89.83 | 0.27 | 7434.23 | 7600.05 | 7599.23 | -478.83 | 1.87 |
| 15202.00 | 90.03 | 0.45 | 7434.34 | 7689.05 | 7688.23 | -478.27 | 0.30 |
| 15291.00 | 91.17 | 0.71 | 7433.41 | 7778.04 | 7777.22 | -477.37 | 1.31 |
| 15380.00 | 91.88 | 0.78 | 7431.04 | 7867.00 | 7866.18 | -476.21 | 0.80 |
| 15469.00 | 92.99 | 0.19 | 7427.26 | 7955.91 | 7955.09 | -475.46 | 1.41 |
| 15557.00 | 94.53 | 359.82 | 7421.49 | 8043.72 | 8042.90 | -475.45 | 1.80 |
| 15638.00 | 96.36 | 0.07 | 7413.80 | 8124.35 | 8123.53 | -475.53 | 2.28 |

5" = 100' MD