



GAMMA RAY

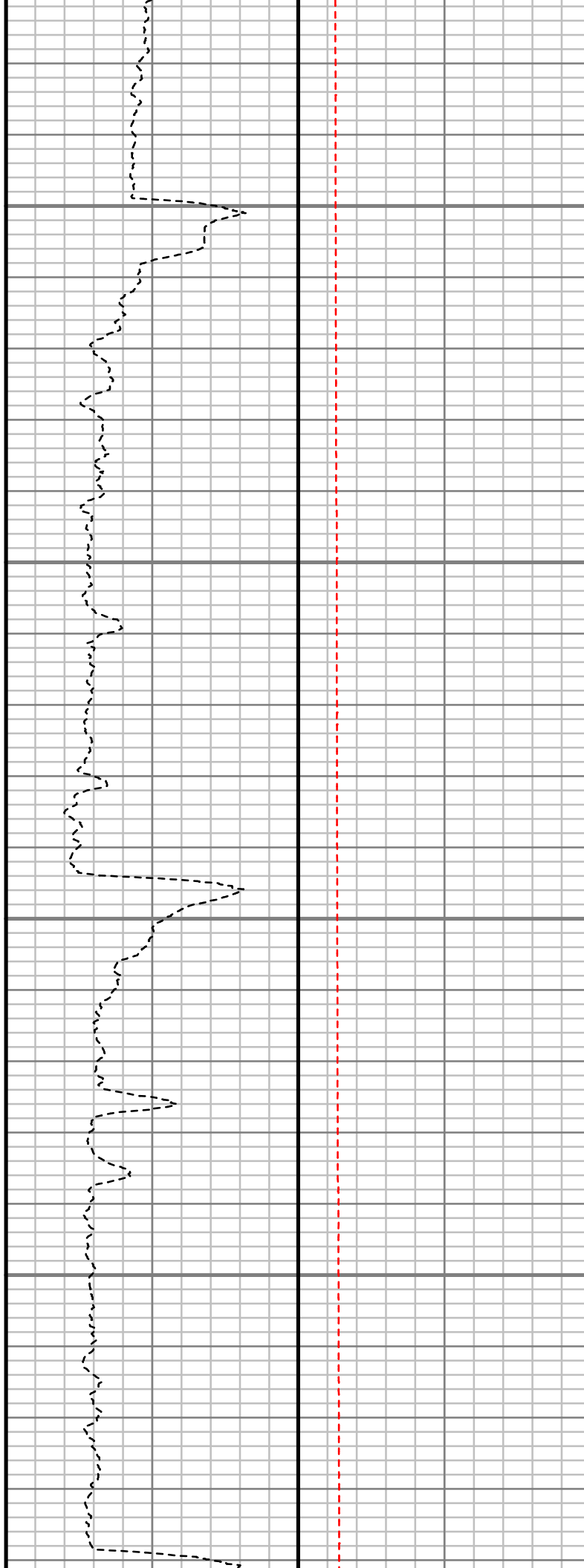
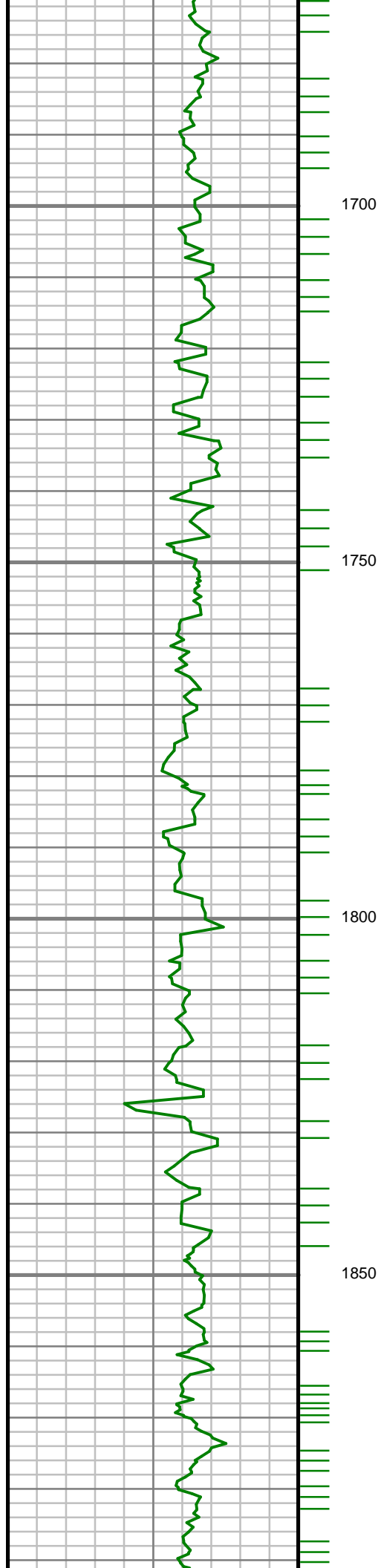
5" = 100' FEET MD

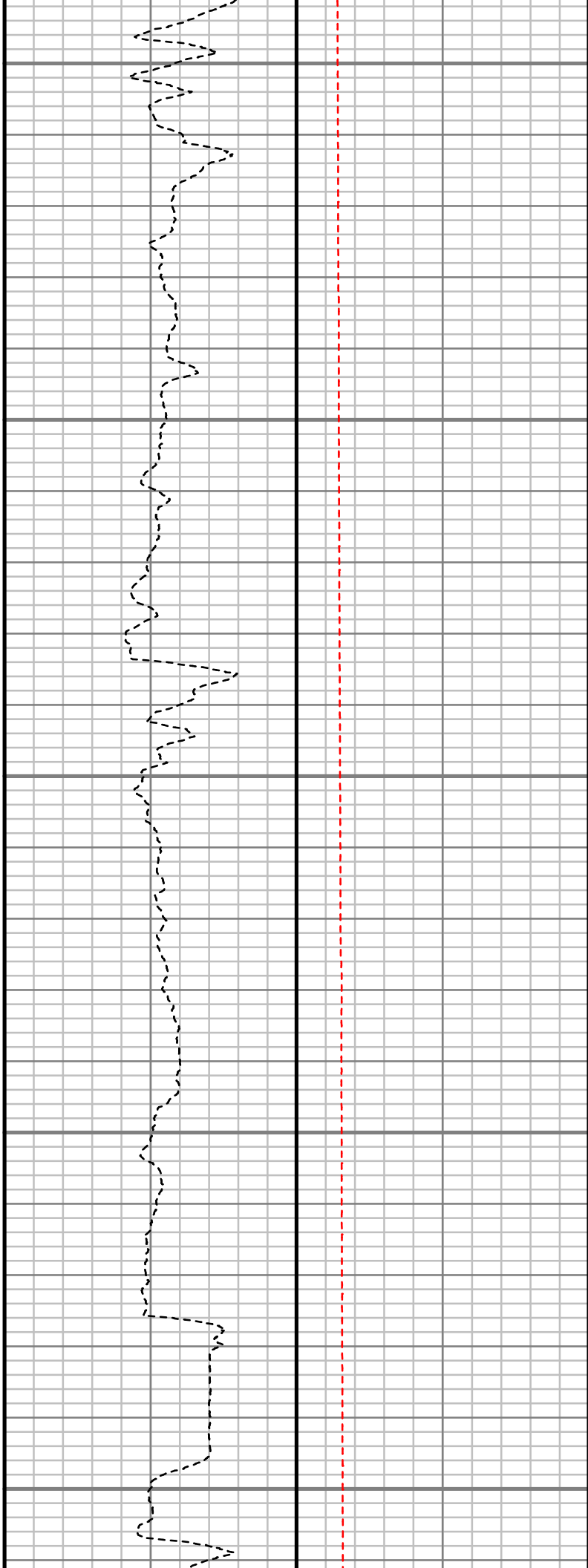
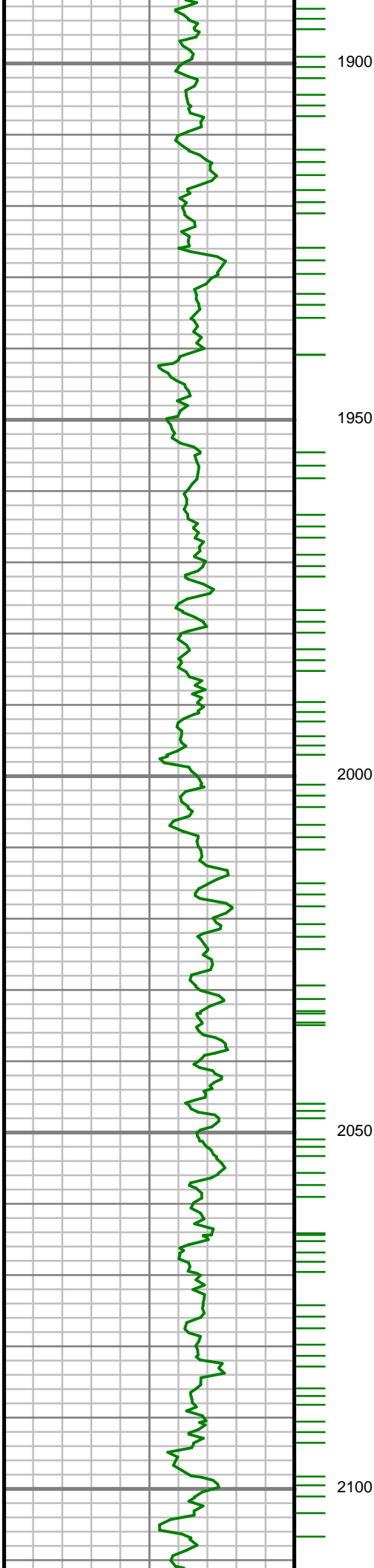
COMPANY : ANADARKO E&P ONSHORE LLC					
WELL : GOODIN 15N-B6HZ					
FIELD : WATTENBERG					
COUNTY : WELD					
STATE : COLORADO					
COUNTRY : U.S.A.					
UWI : 05-123-40745					
DEPTH REF. : RKB			DIRECTIONAL ROP		
REF. HEIGHT : 25.000 ft			RKB to Ground Level		
GROUND LEVEL : 4979.000 ft			G.L. to MEAN SEA LEVEL		
BOREHOLE RECORD			DEVATION RECORD		
HOLE SIZE in	FROM ft	TO ft	INCLINATION deg	FROM ft	TO ft
12.25	0	1587	0-20	0	6695
8.75	1587	7440	20-90	6695	7440
6.125	7440	13286	90-92	7440	13286
CASING RECORD					
CASING SIZE in	FROM ft	TO ft			
9.625	0	1587			
7	0	7430			
DRILLING CO.: H&P			DISTRICT: CASPER		
RLG: 307					
LMD UNIT NO.:			SPUD DATE: 04/12/2015		
			LMD START DATE: 04/13/2015		
			LMD END DATE: 04/20/2015		
			DEPTH: 1544 ft		
			DEPTH: 13286 ft		
			TOTAL DEPTH: 13286 ft		

Run Data						
RUN NUMBER	1	2	3	4		
START DATE	04/13/2015	04/15/2015	04/17/2015	04/19/2015		
START TIME	0500	0300	0030	0730		
END DATE	04/15/2015	04/16/2015	04/19/2015	04/20		
END TIME	0250	0150	0600	1300		
DEPTH IN (ft)	1587	7213	7440	11433		
DEPTH OUT (ft)	7213	7440	11433	13286		
LOG TOP (ft)	1544	7149	7401	11394		
LOG BOTTOM (ft)	7149	7401	11394	13237		
HOLE SIZE (in)	8.75	8.75	6.125	6.125		
MUD DATA @ (ft)	6317	7213	10931	12286		
MUD TYPE	WATER-BASED	WATER-BASED	WATER-BASED	WATER-BASED		
DENSITY (lb / gal)	9.2	10.2	9.6	9.7		
VISCOSITY (s / qt)	38	41	49	46		
pH	9.8	9.7	9.9	9.5		
FLUID LOSS (cm3 / 30)	4.6	4.8	4.8	4.8		
SALINITY (ppm)	2300	2400	2200	2200		
Rm (ohmm @ deg F)	-	-	-	-		
Rmf (ohmm @ deg F)	-	-	-	-		
MAX TEMP (deg F)	159	165	222	233		
Rm @ MAX TEMP (ohmm)	-	-	-	-		
LWD ENGINEER #1	B. GREER	B. GREER	B. GREER	B. GREER		
LWD ENGINEER #2	M. SCHUSTER	M. SCHUSTER	M. SCHUSTER	M. SCHUSTER		
LWD ENGINEER #3	-	-	-	-		
LOG WITNESS #1	S. SADLE	S. SADLE	S. SADLE	S. SADLE		
LOG WITNESS #2	-	-	-	-		

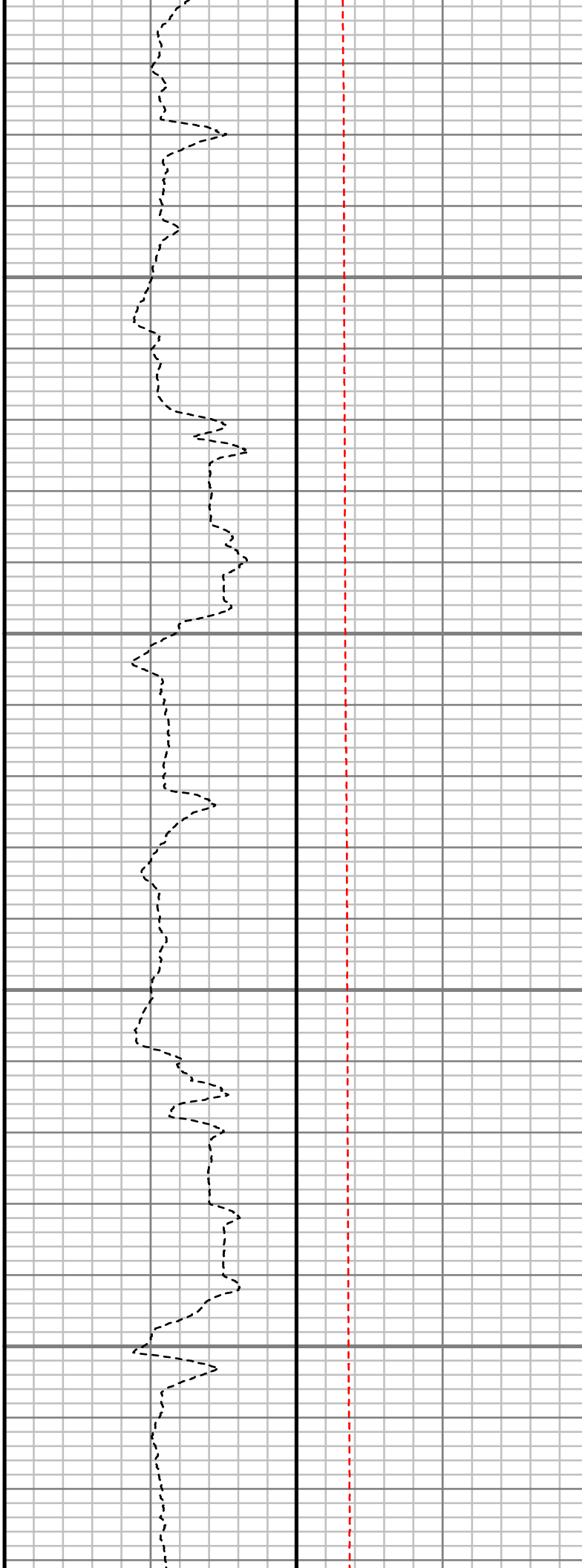
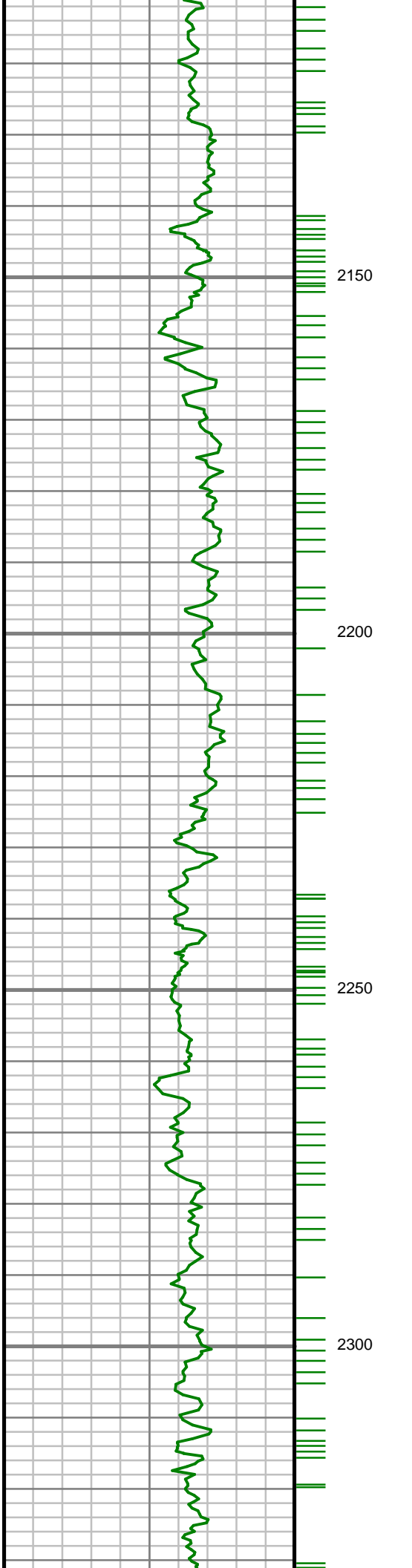
Remarks
ANADARKO E&P ONSHORE LLC PRODUCTION AFE# 2097452
SCIENTIFIC DRILLING INTERNATIONAL JOB# 271767
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
RUN #1 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-062 / CONT = 221 / MWD EYE = 0922 / GAMMA RAY = 1208
BIT TO SENSOR OFFSETS: SURVEY = 52.68 FT. / GAMMA RAY = 43.43 FT.
RUN #2 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-100 / CONT = 625 / MWD EYE = 589 / GAMMA RAY = 1188
BIT TO SENSOR OFFSETS: SURVEY = 49.10 FT. / GAMMA RAY = 39.85 FT.
RUN #3 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-133 / CONT = 863 / MWD EYE = 864 / GAMMA RAY = 1169
BIT TO SENSOR OFFSETS: SURVEY = 58.34 FT. / GAMMA RAY = 49.09 FT.
RUN #4 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-252 / CONT = 260 / MWD EYE = 1017 / GAMMA RAY = 1344
BIT TO SENSOR OFFSETS: SURVEY = 58.55 FT. / GAMMA RAY = 49.30 FT.
MNEMONICS LIST:

[illegible]





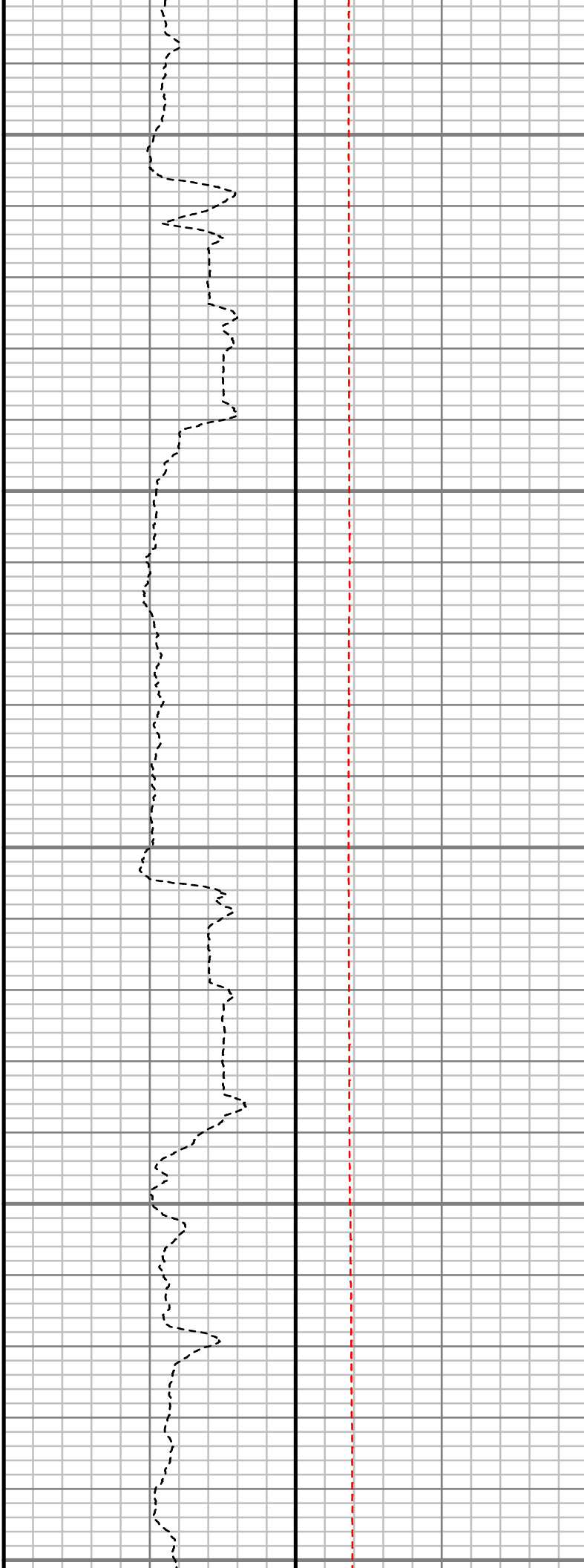
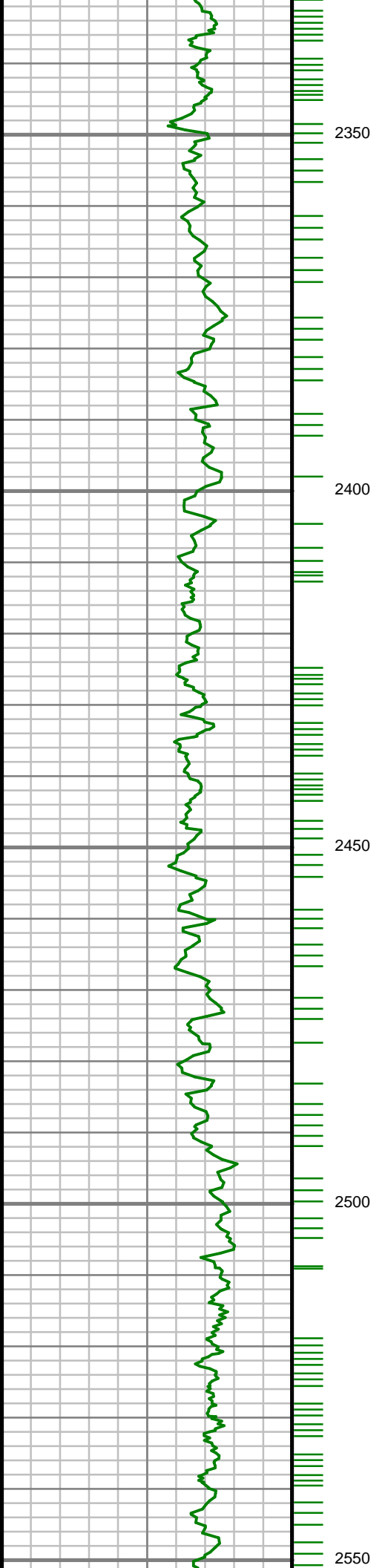
S: 21 MD: 2024.00 ft
Inc: 0.95 deg Az:
130.86 deg TVD:
2023.88 ft



S: 22 MD: 2119.00 ft
Inc: 1.81 deg Az:
154.52 deg TVD:
2118.85 ft

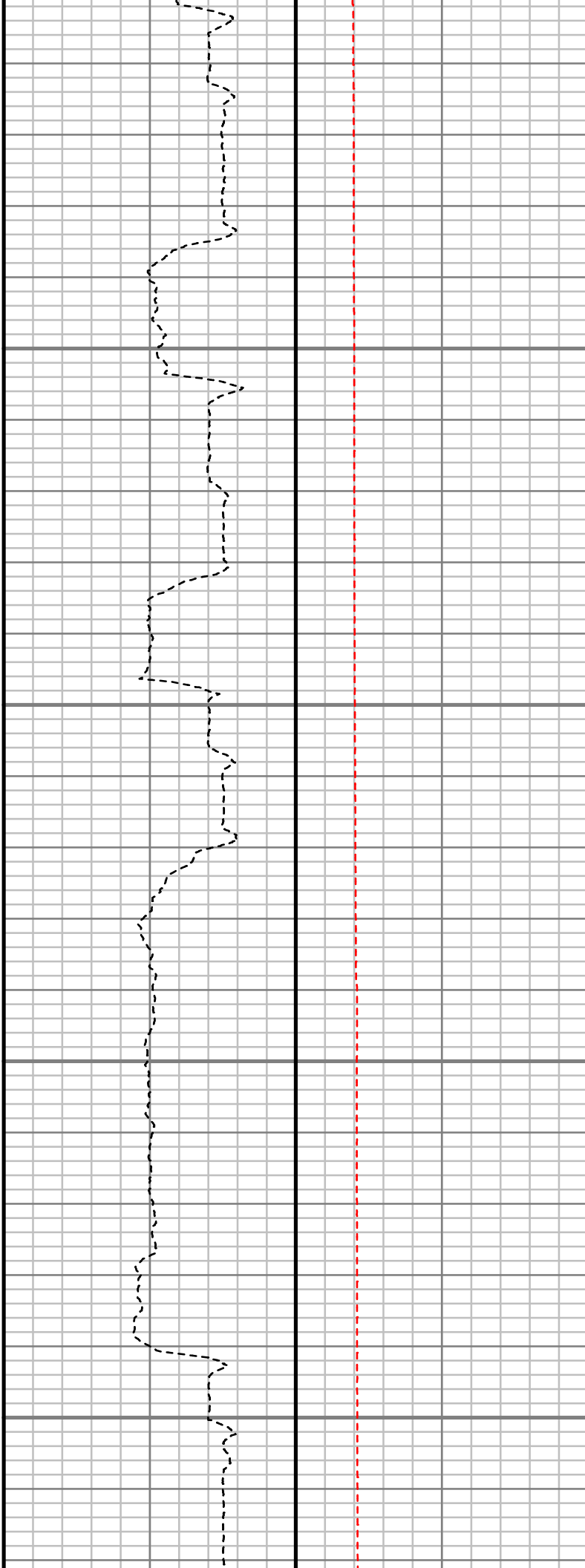
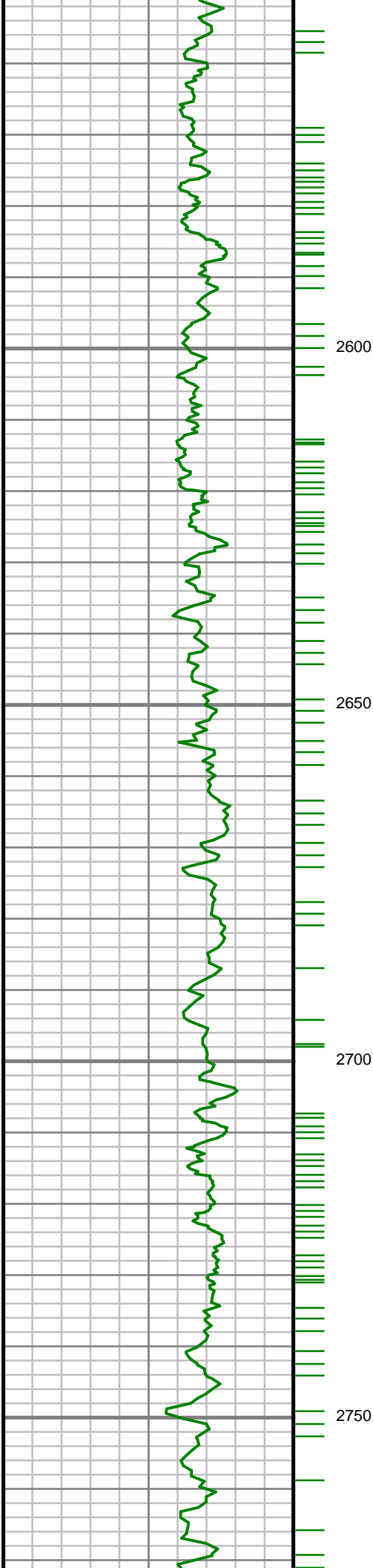
S: 23 MD: 2214.00 ft
Inc: 2.49 deg Az:
154.96 deg TVD:
2213.78 ft

S: 24 MD: 2308.00 ft
Inc: 3.06 deg Az:
163.10 deg TVD:
2307.67 ft



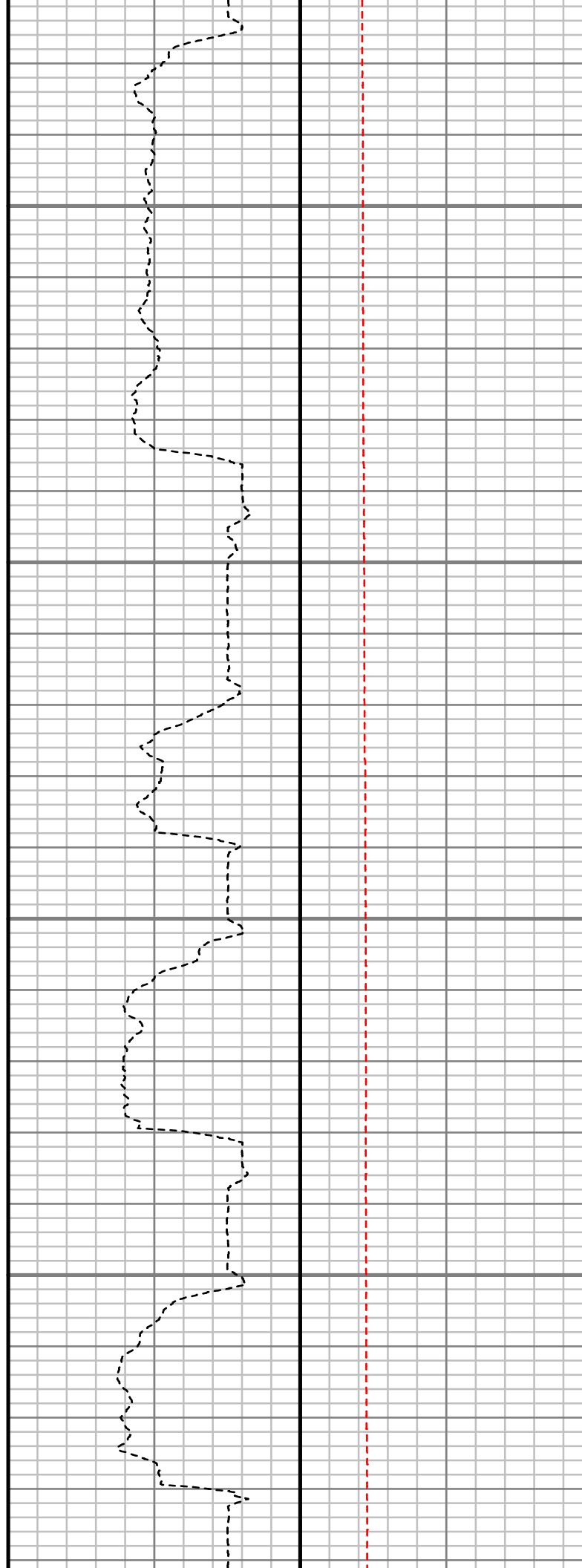
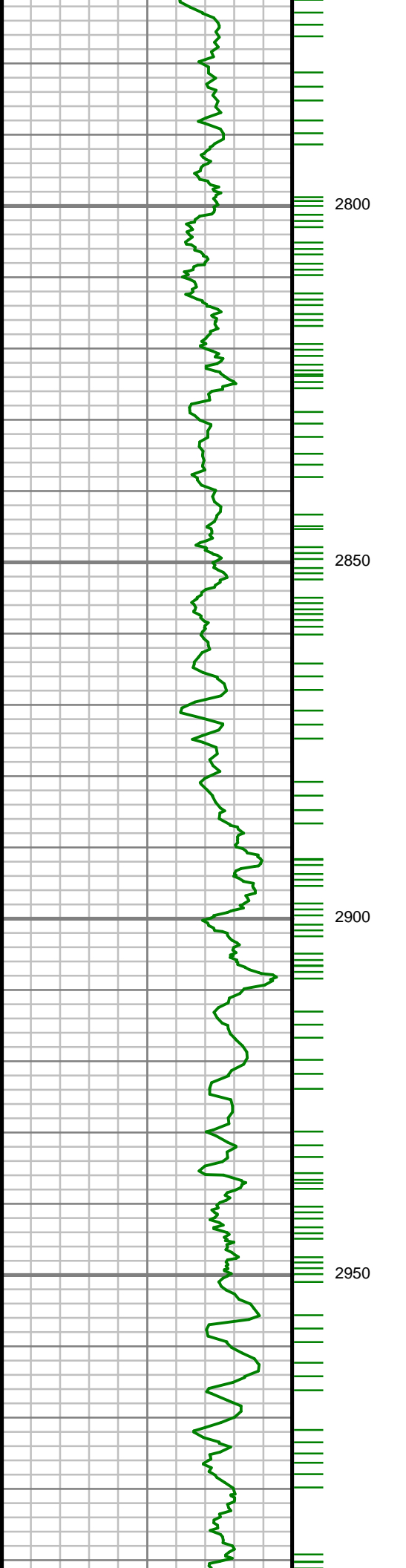
S: 25 MD: 2403.00 ft
Inc: 3.02 deg Az:
186.00 deg TVD:
2402.54 ft

S: 26 MD: 2497.00 ft
Inc: 3.97 deg Az:
190.94 deg TVD:
2496.37 ft



S: 27 MD: 2592.00 ft
Inc: 5.88 deg Az:
198.71 deg TVD:
2591.01 ft

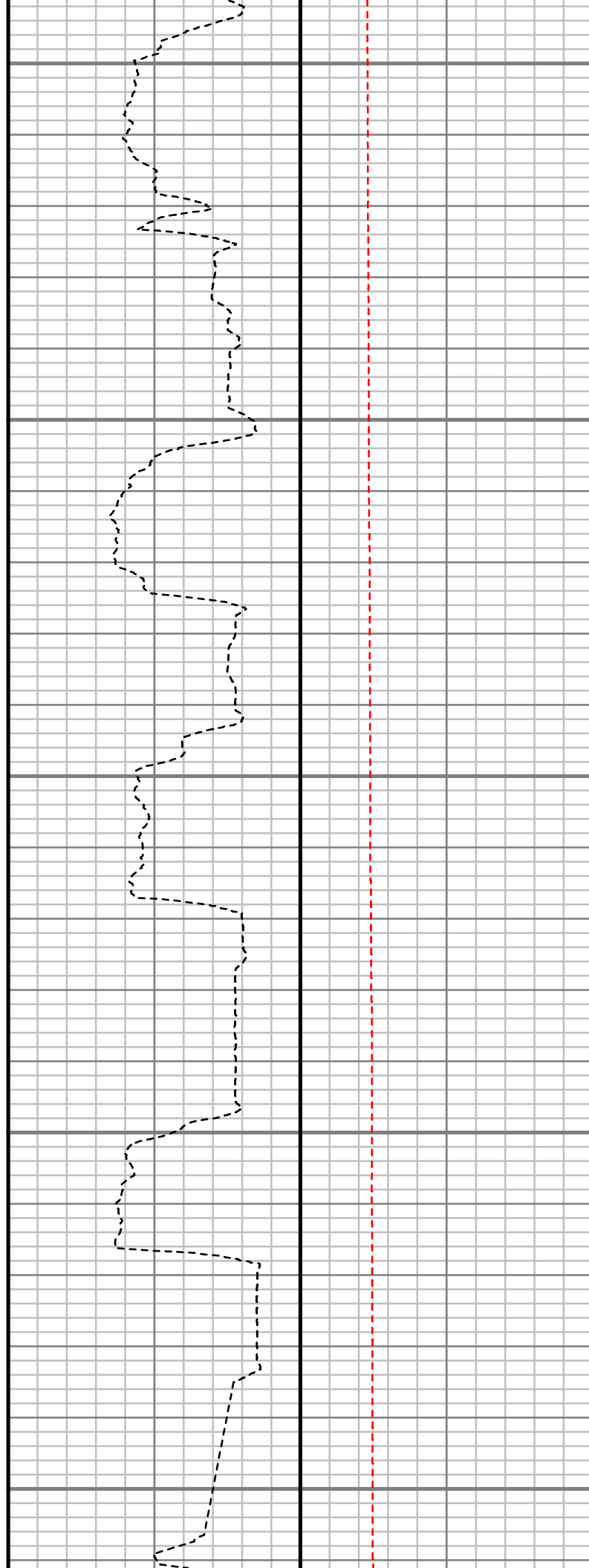
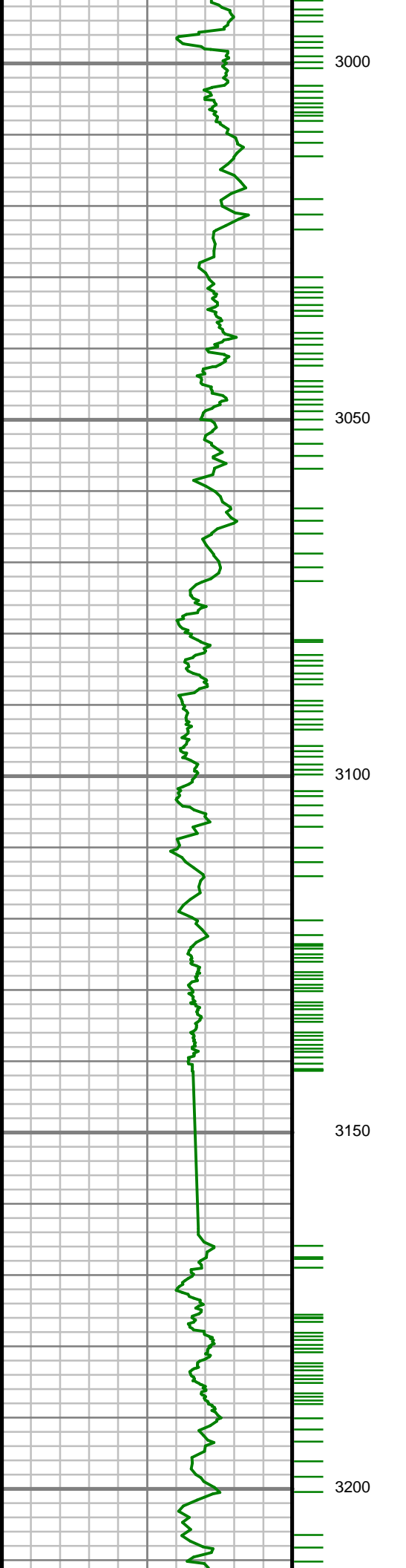
S: 28 MD: 2686.00 ft
Inc: 7.99 deg Az:
192.42 deg TVD:
2684.32 ft



S: 29 MD: 2780.00 ft
Inc: 9.18 deg Az:
188.89 deg TVD:
2777.27 ft

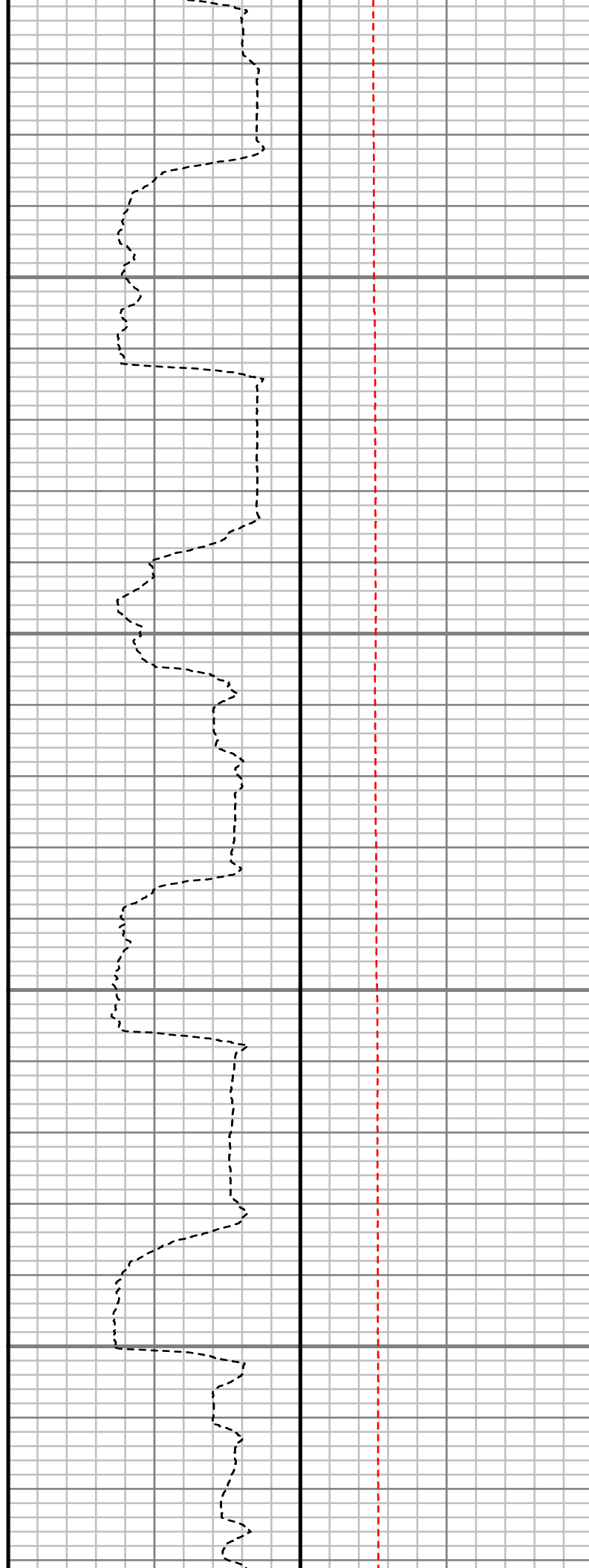
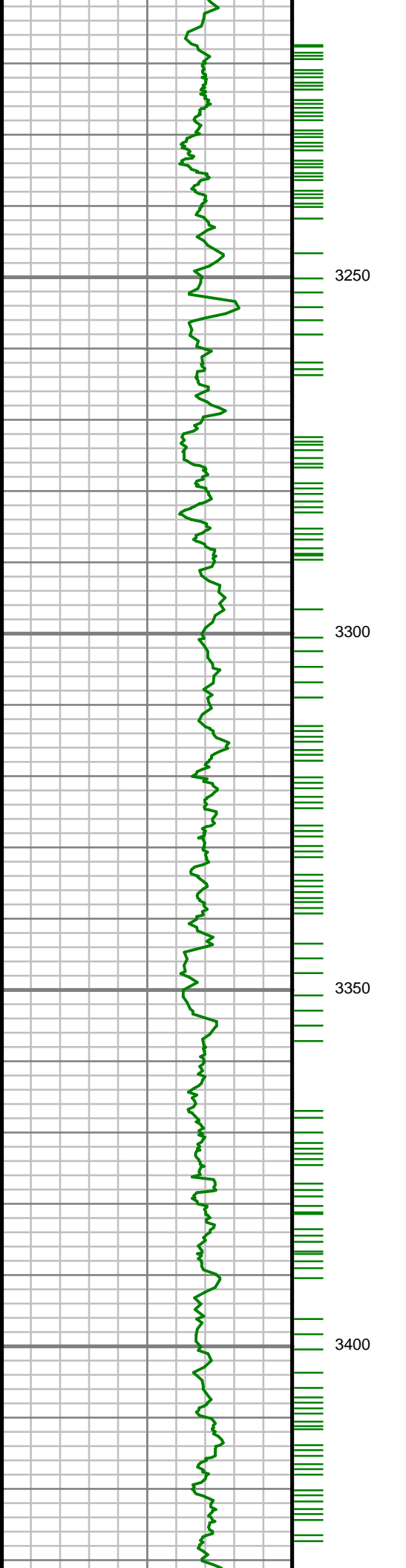
S: 30 MD: 2875.00 ft
Inc: 9.87 deg Az:
190.60 deg TVD:
2870.96 ft

S: 31 MD: 2969.00 ft
Inc: 11.55 deg Az:
187.63 deg TVD:
2963.32 ft



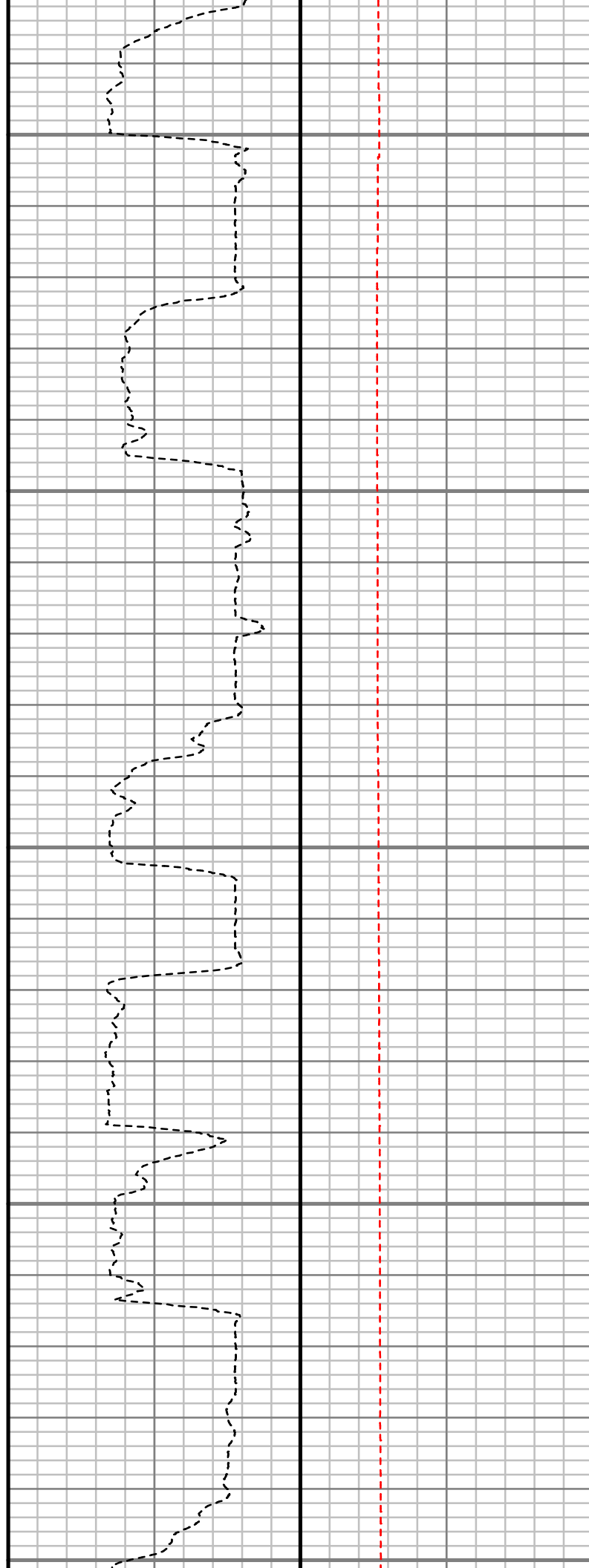
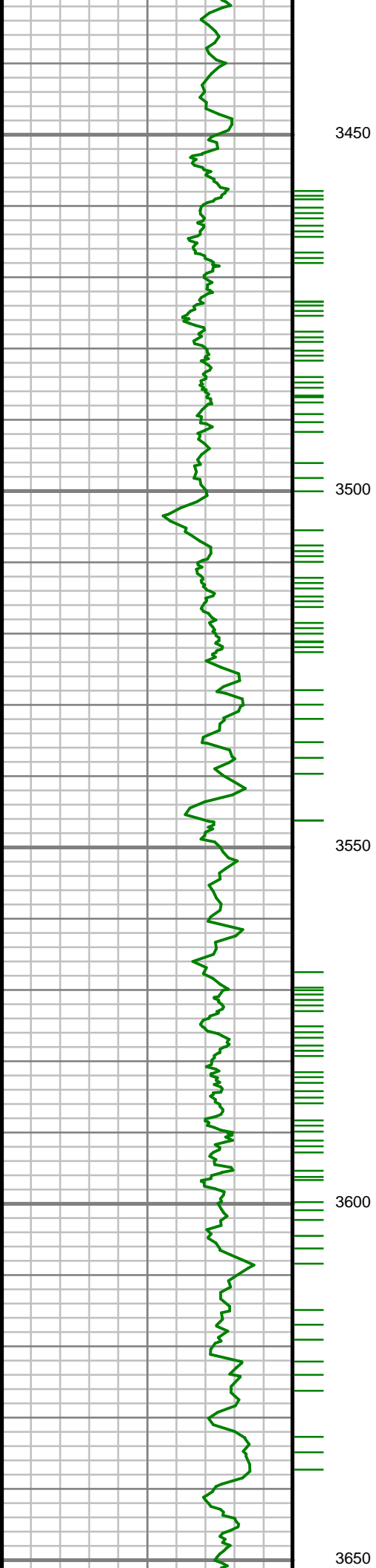
S: 32 MD: 3063.00 ft
Inc: 11.80 deg Az:
187.64 deg TVD:
3055.37 ft

S: 33 MD: 3158.00 ft
Inc: 15.15 deg Az:
185.83 deg TVD:
3147.75 ft



S: 34 MD: 3252.00 ft
Inc: 16.41 deg Az:
183.47 deg TVD:
3238.20 ft

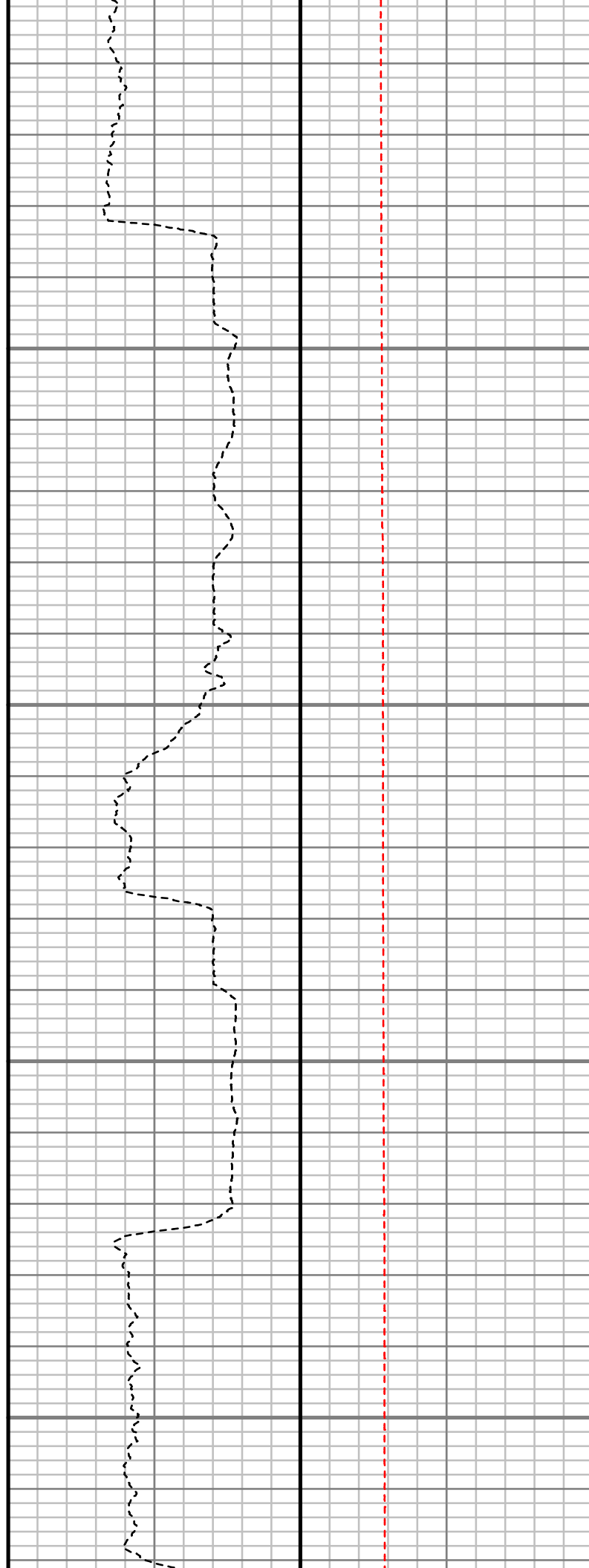
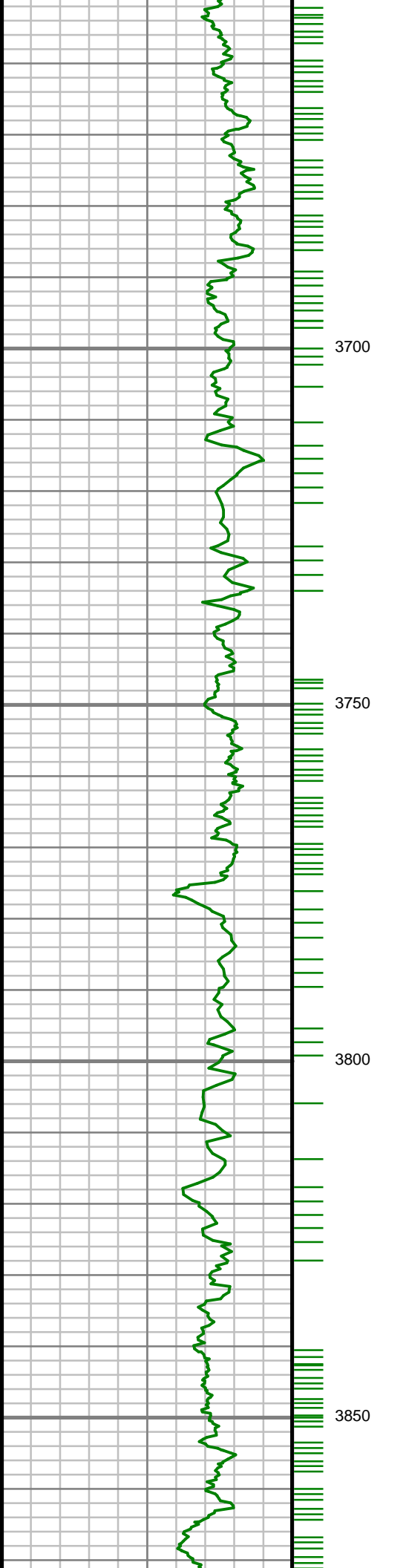
S: 35 MD: 3346.00 ft
Inc: 17.80 deg Az:
182.66 deg TVD:
3328.05 ft



S: 36 MD: 3440.00 ft
Inc: 19.66 deg Az:
186.06 deg TVD:
3417.07 ft

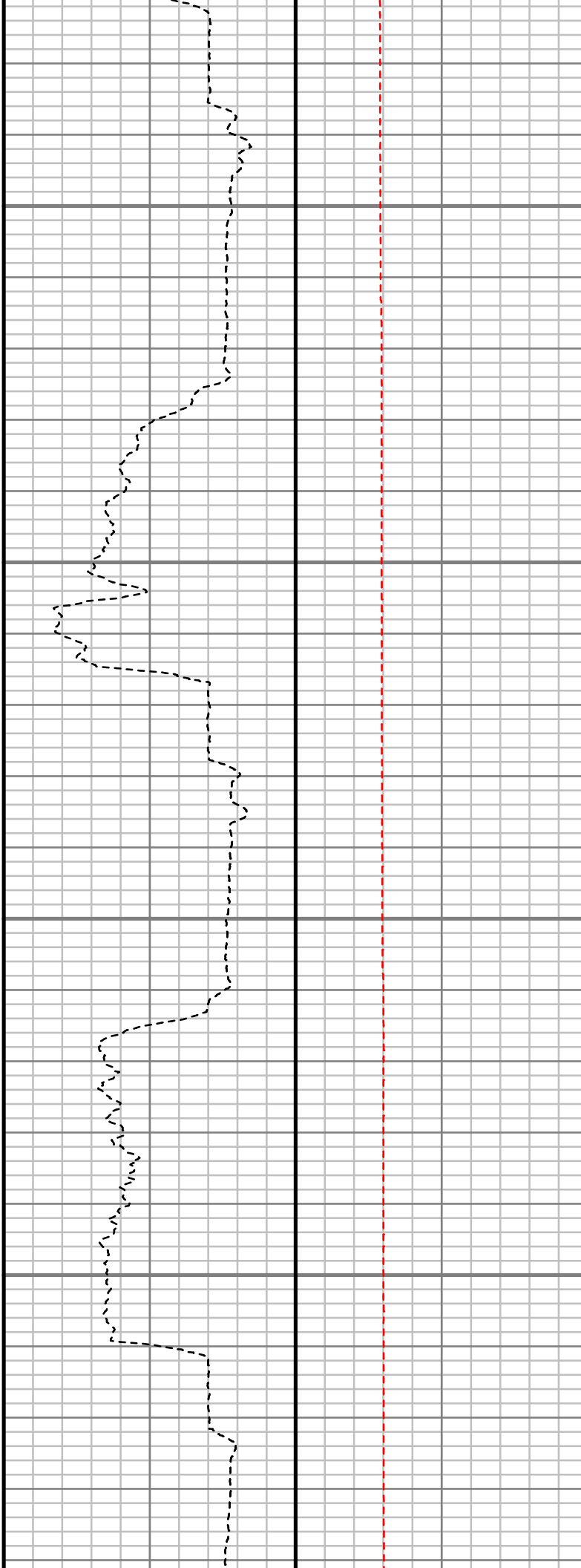
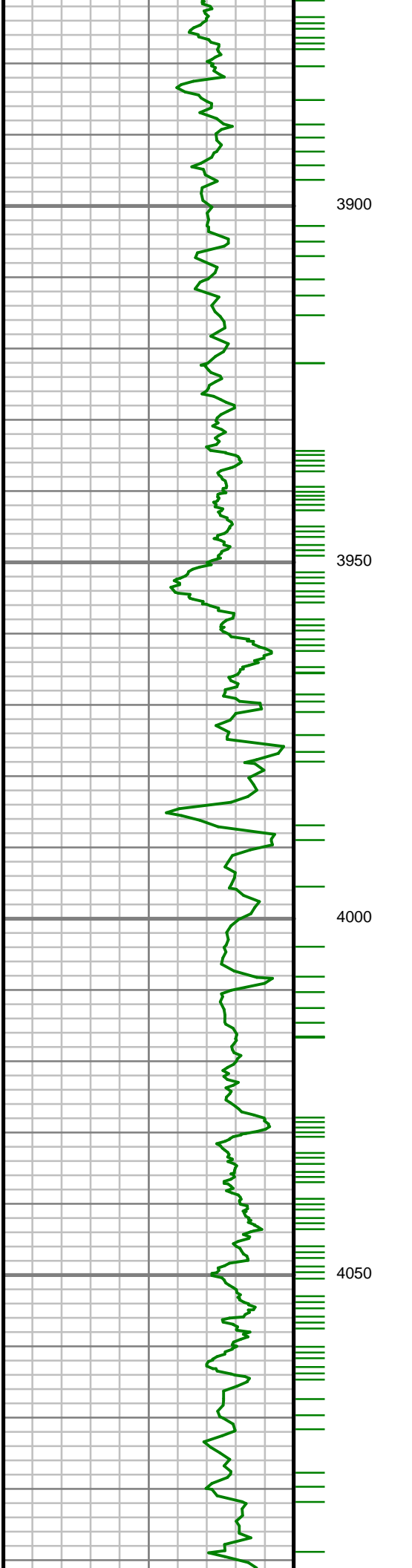
S: 37 MD: 3534.00 ft
Inc: 21.67 deg Az:
187.45 deg TVD:
3505.02 ft

S: 38 MD: 3628.00 ft
Inc: 20.80 deg Az:
181.33 deg TVD:
3592.64 ft



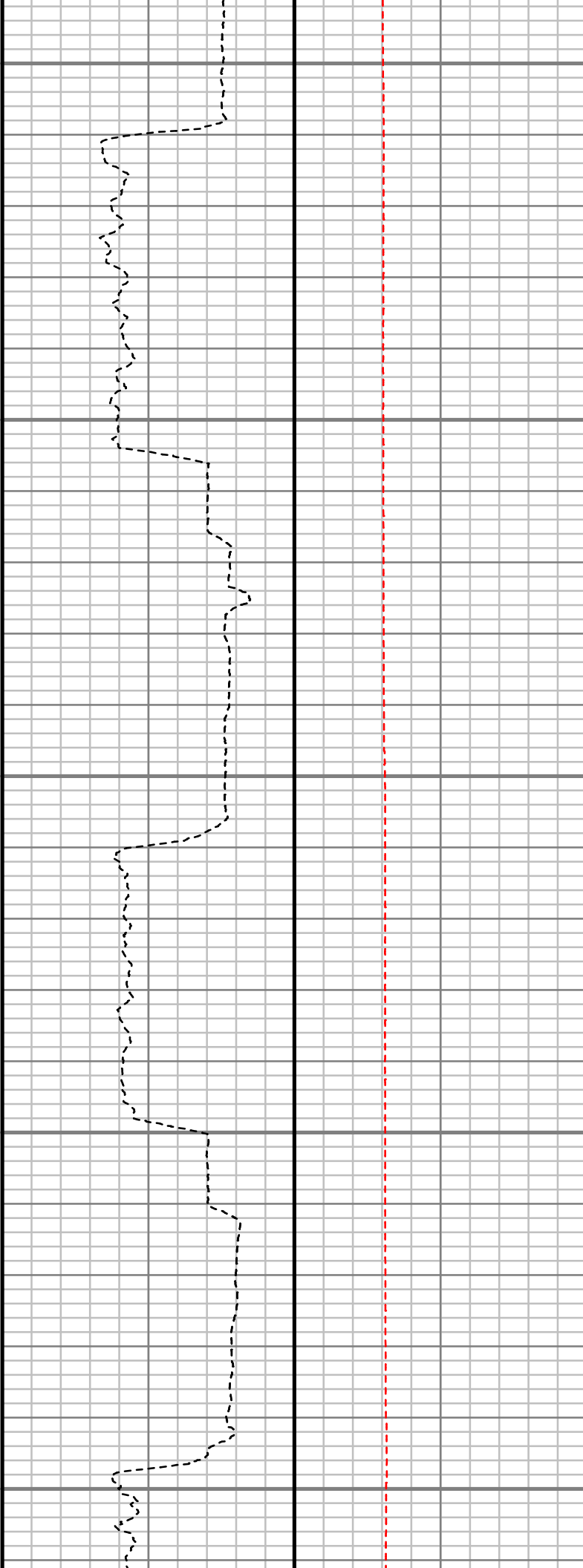
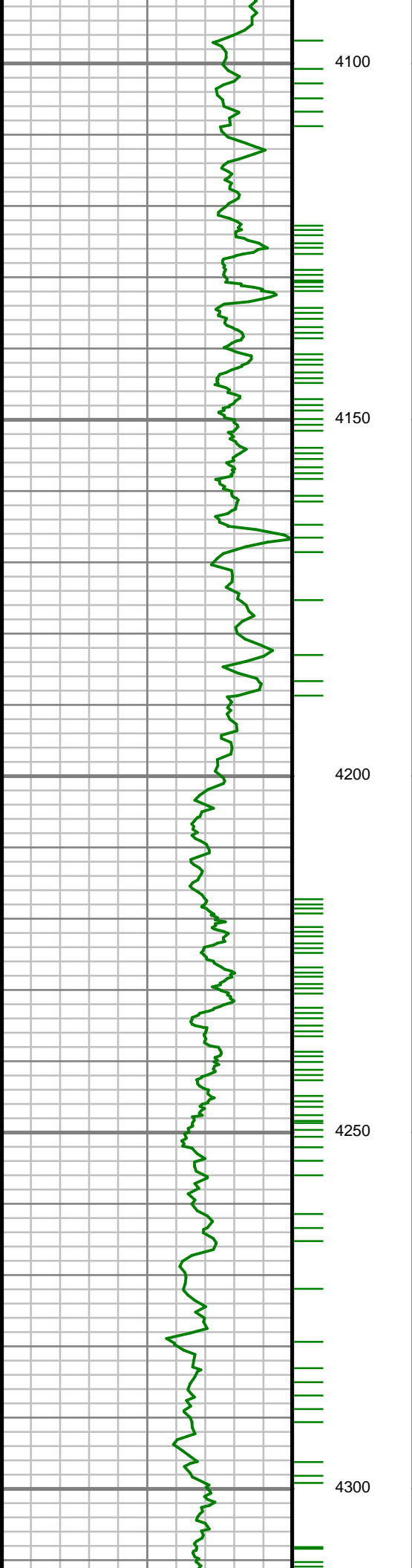
S: 39 MD: 3723.00 ft
Inc: 20.75 deg Az:
176.32 deg TVD:
3681.47 ft

S: 40 MD: 3817.00 ft
Inc: 22.14 deg Az:
177.68 deg TVD:
3768.97 ft



S: 41 MD: 3911.00 ft
Inc: 18.42 deg Az:
182.27 deg TVD:
3857.13 ft

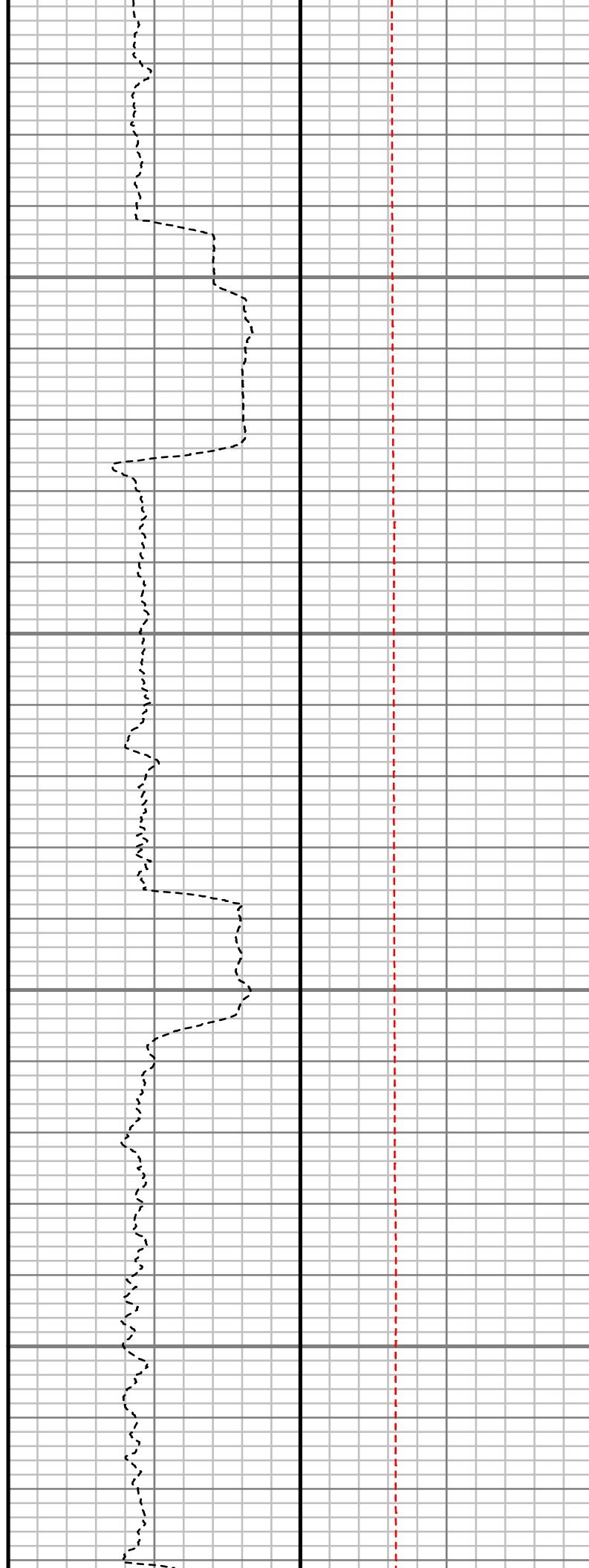
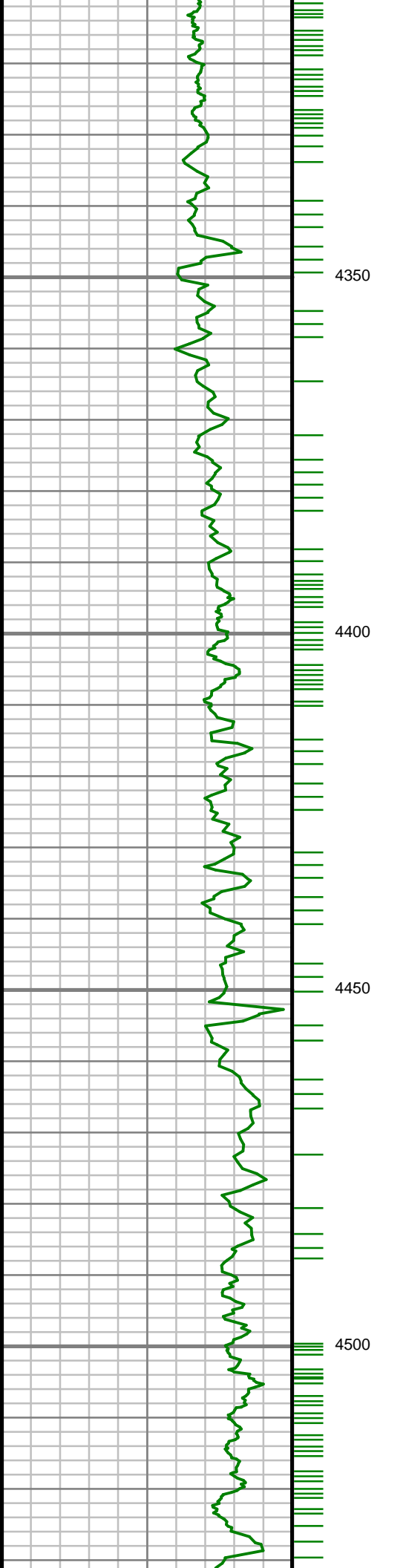
S: 42 MD: 4005.00 ft
Inc: 19.10 deg Az:
187.52 deg TVD:
3946.14 ft



S: 43 MD: 4099.00 ft
Inc: 18.60 deg Az:
191.47 deg TVD:
4035.11 ft

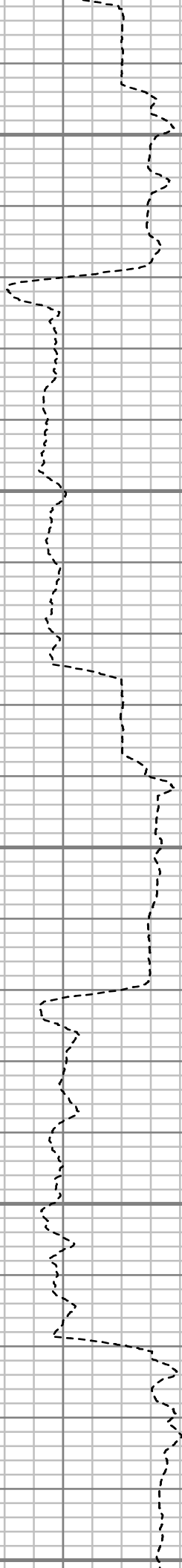
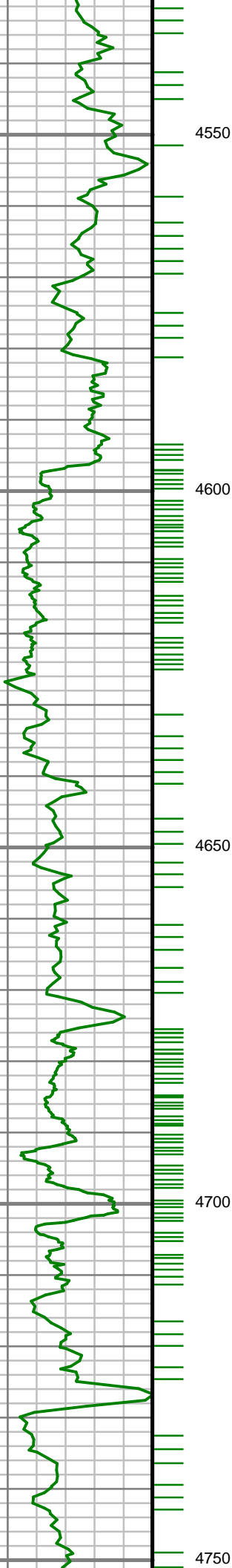
S: 44 MD: 4194.00 ft
Inc: 16.65 deg Az:
186.16 deg TVD:
4125.65 ft

S: 45 MD: 4288.00 ft
Inc: 19.46 deg Az:
183.38 deg TVD:
4215.01 ft



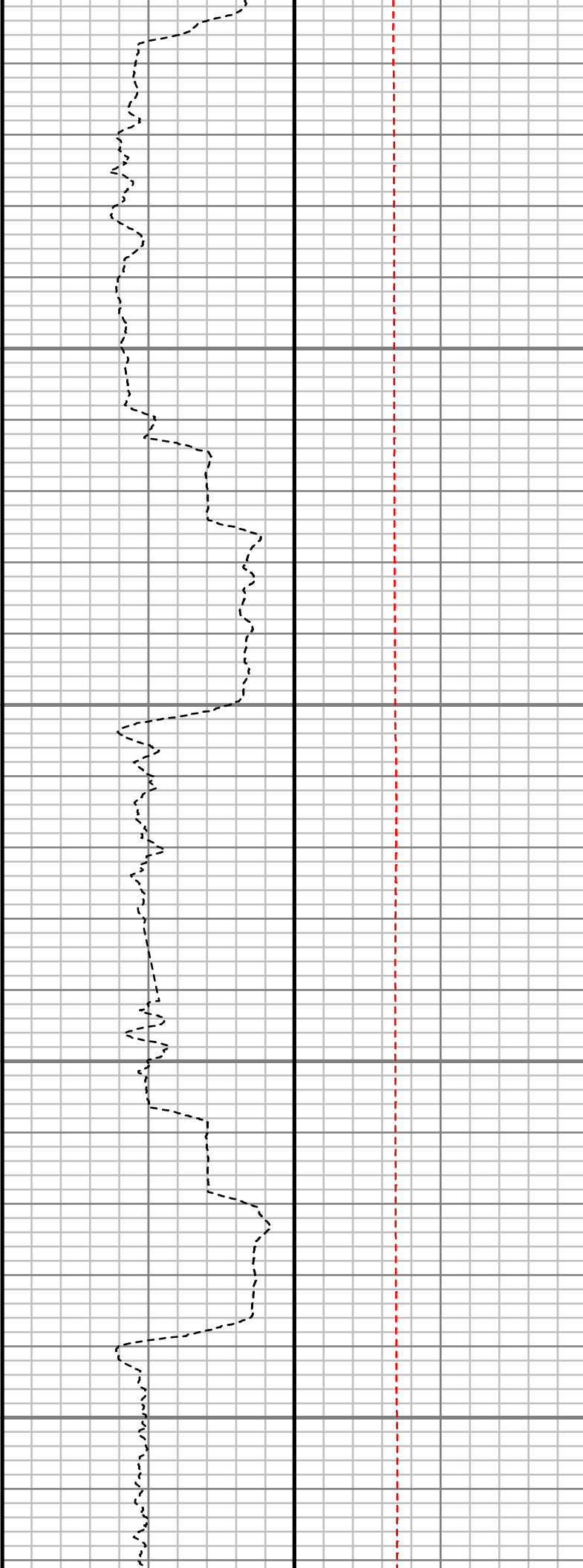
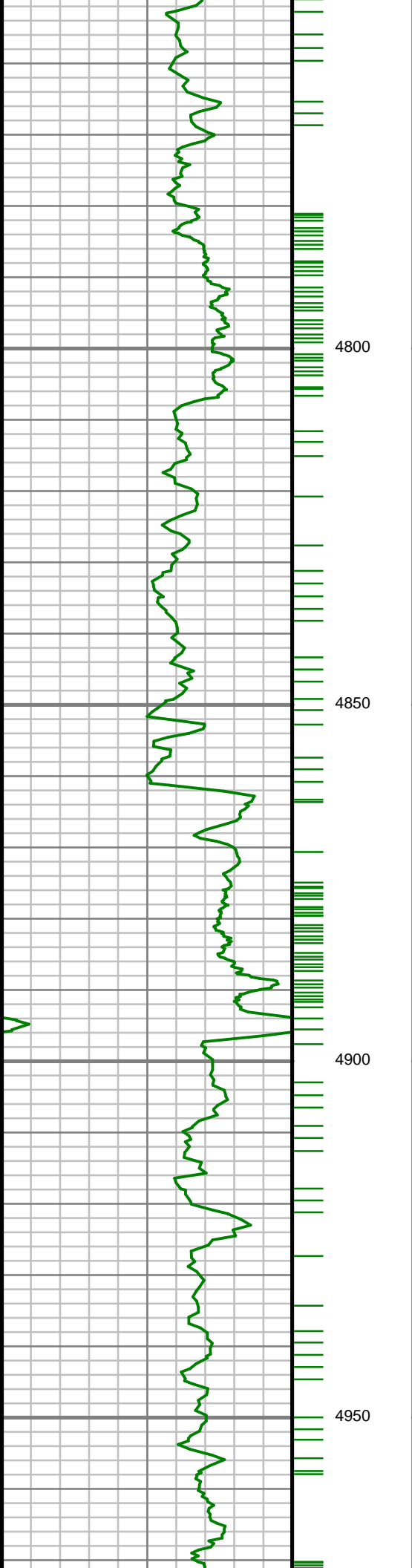
S: 46 MD: 4382.00 ft
Inc: 21.36 deg Az:
181.21 deg TVD:
4303.11 ft

S: 47 MD: 4476.00 ft
Inc: 18.94 deg Az:
180.76 deg TVD:
4391.35 ft



S: 48 MD: 4570.00 ft
Inc: 16.53 deg Az:
180.46 deg TVD:
4480.88 ft

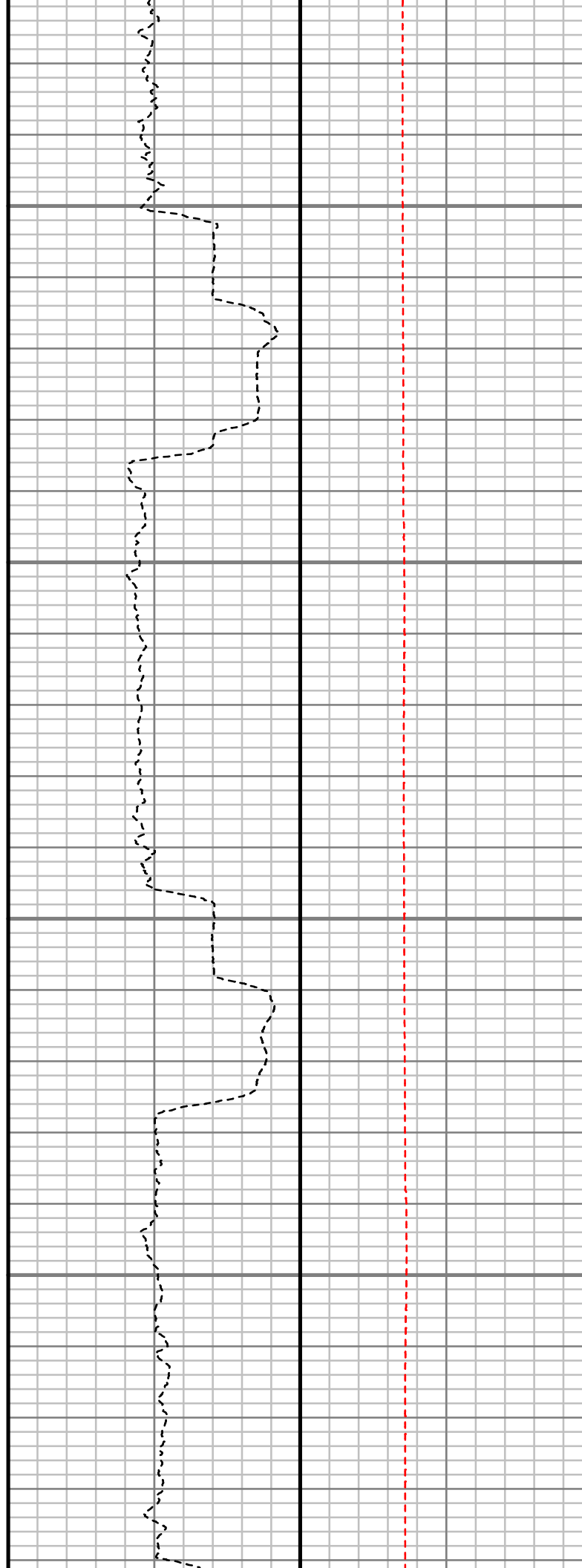
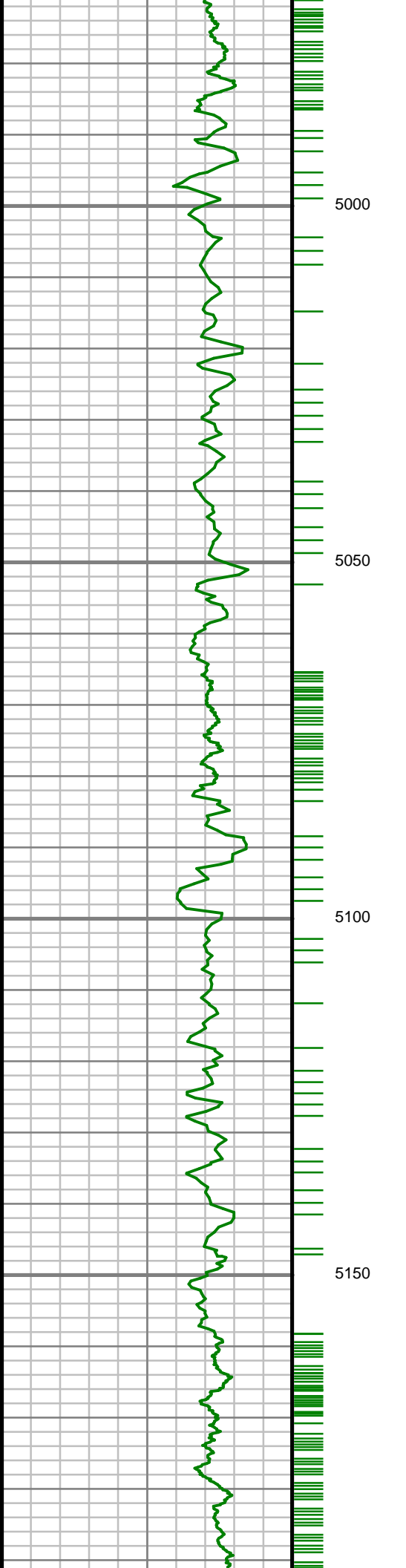
S: 49 MD: 4664.00 ft
Inc: 15.82 deg Az:
184.30 deg TVD:
4571.16 ft



S: 50 MD: 4758.00 ft
Inc: 14.96 deg Az:
187.00 deg TVD:
4661.79 ft

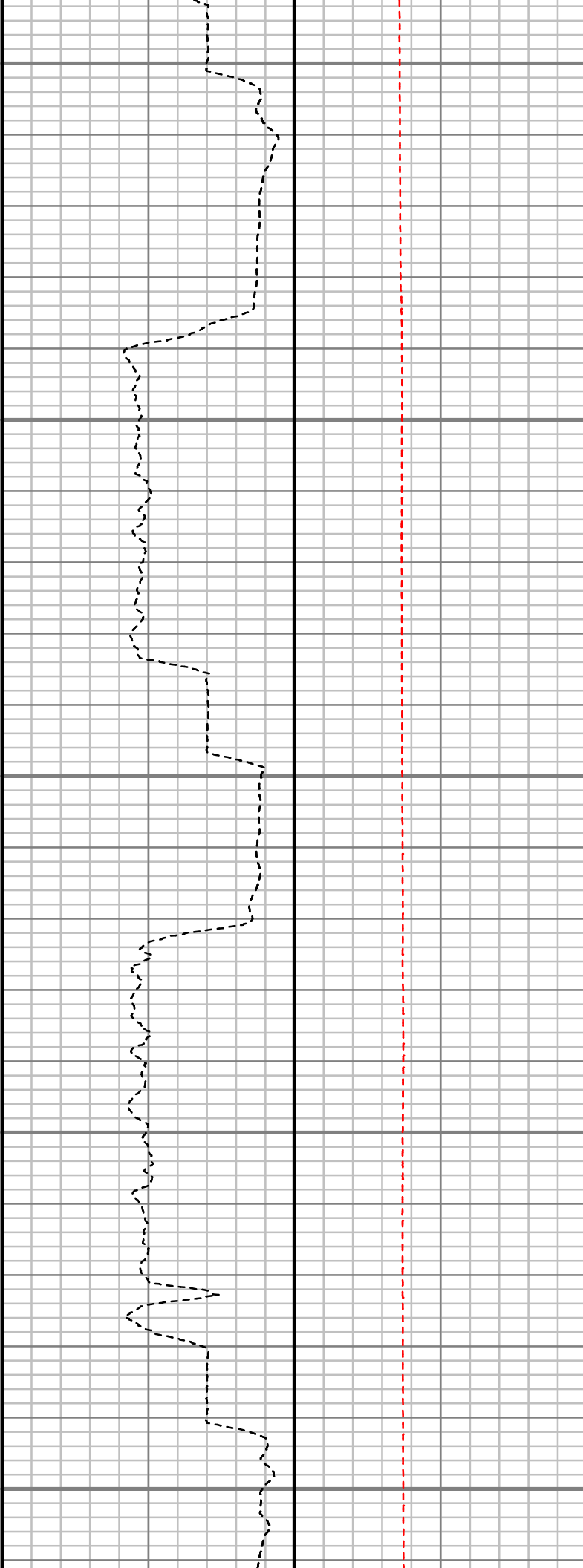
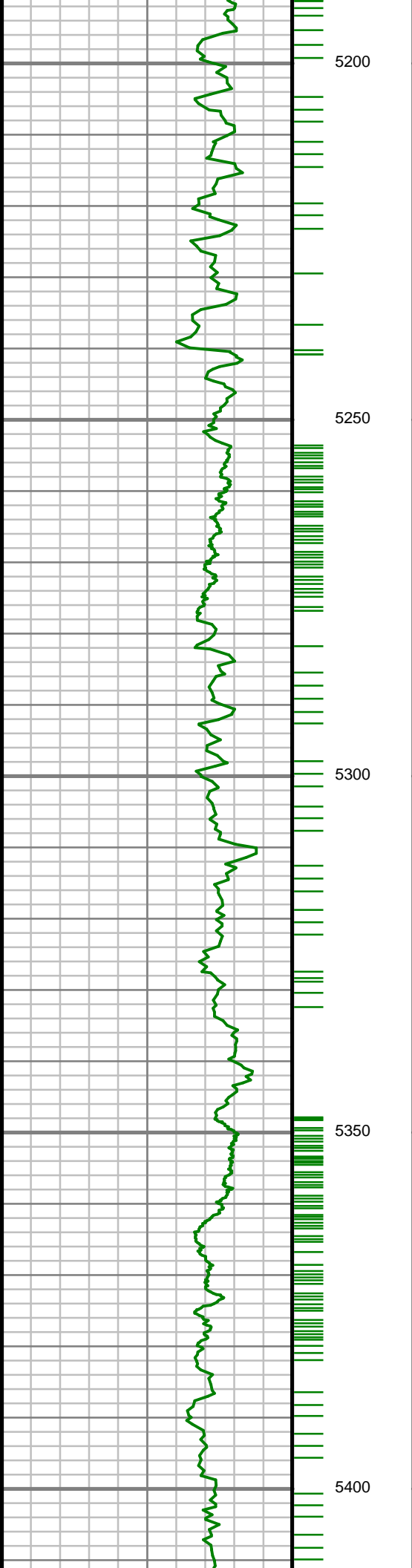
S: 51 MD: 4853.00 ft
Inc: 14.00 deg Az:
188.46 deg TVD:
4753.77 ft

S: 52 MD: 4947.00 ft
Inc: 14.76 deg Az:
188.65 deg TVD:
4844.83 ft



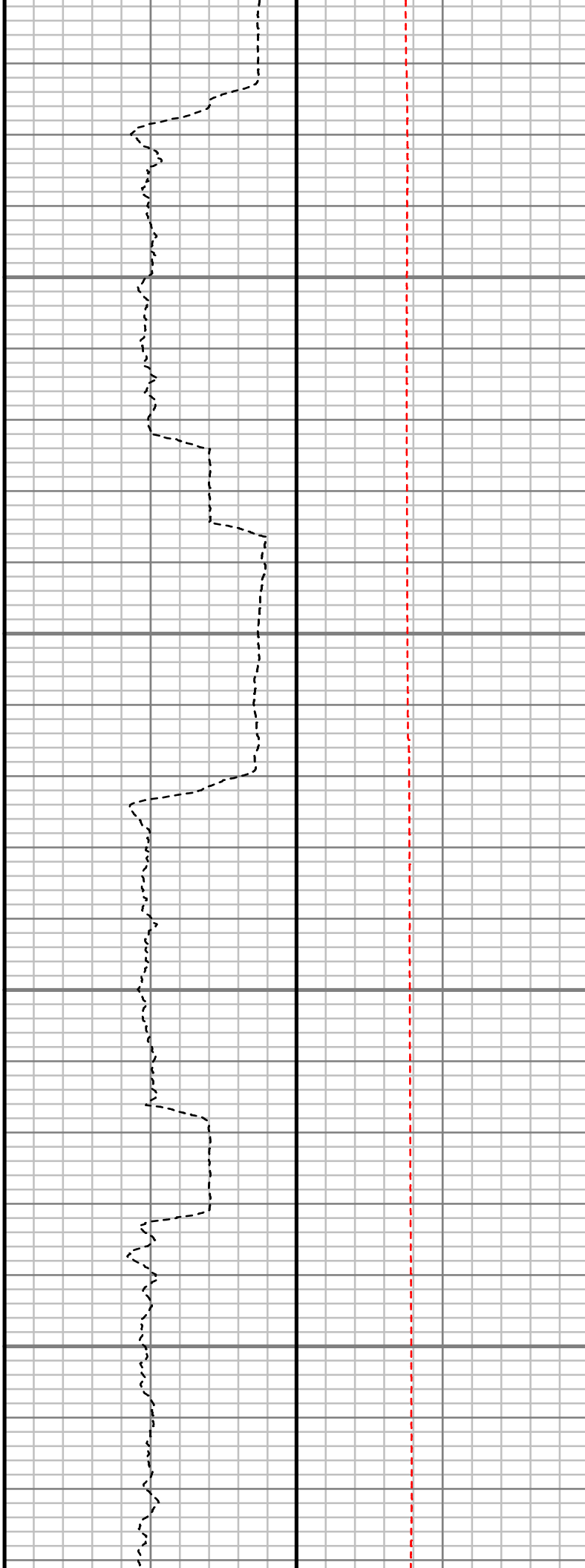
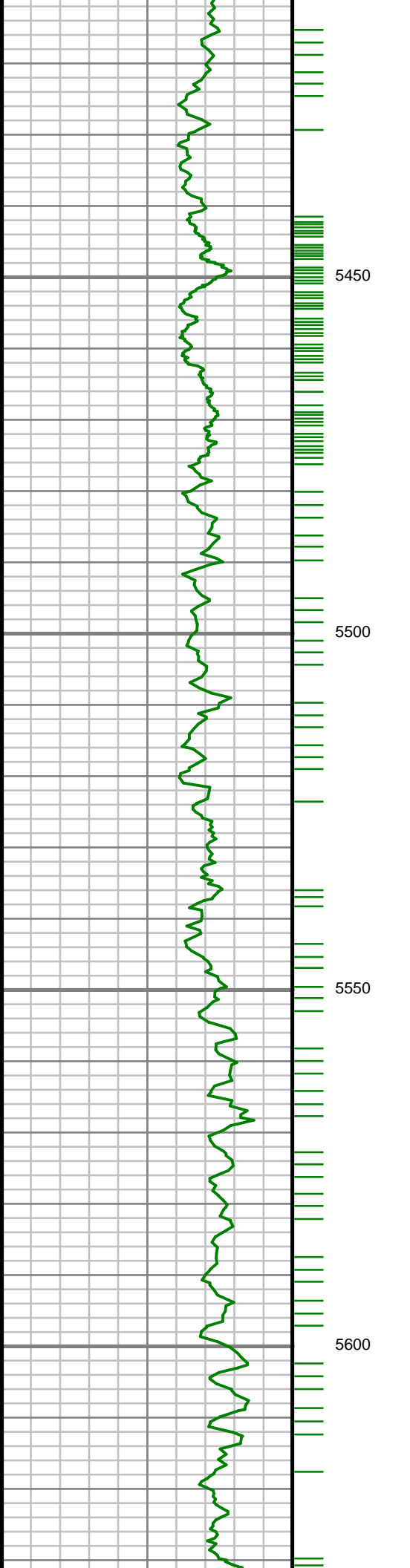
S: 53 MD: 5041.00 ft
Inc: 13.98 deg Az:
191.16 deg TVD:
4935.89 ft

S: 54 MD: 5135.00 ft
Inc: 11.52 deg Az:
193.10 deg TVD:
5027.56 ft



S: 55 MD: 5230.00 ft
Inc: 11.08 deg Az:
190.12 deg TVD:
5120.72 ft

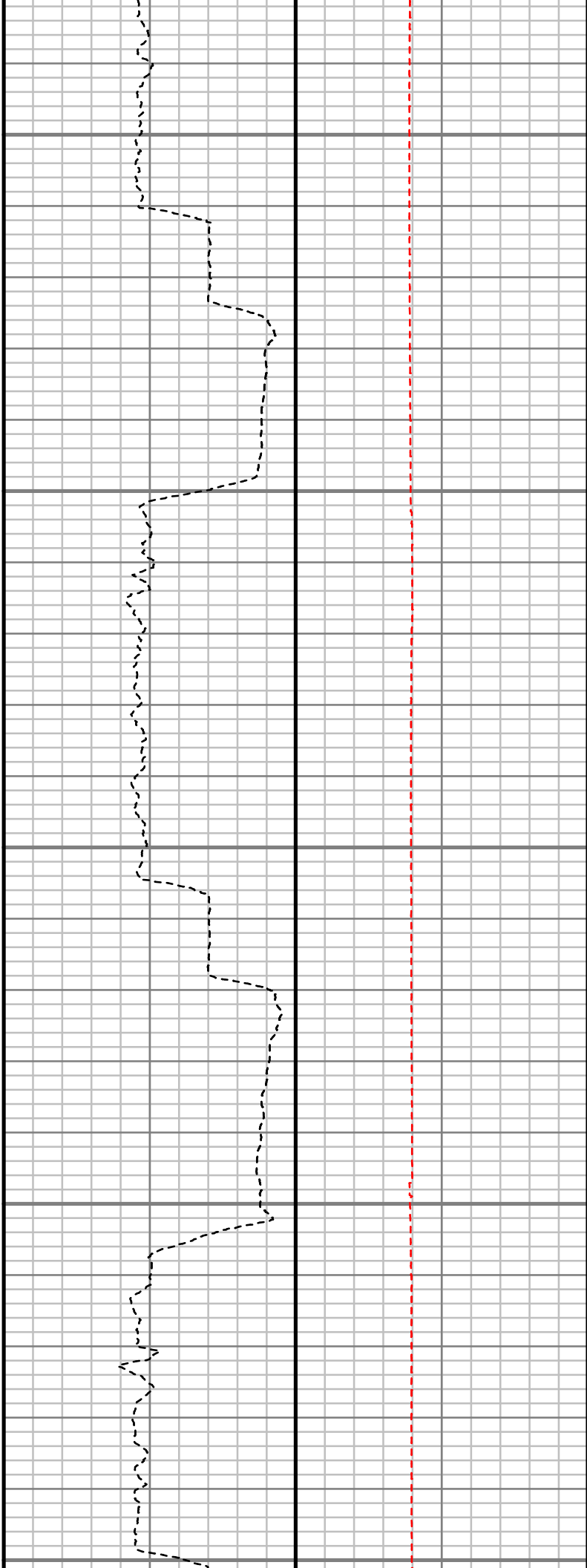
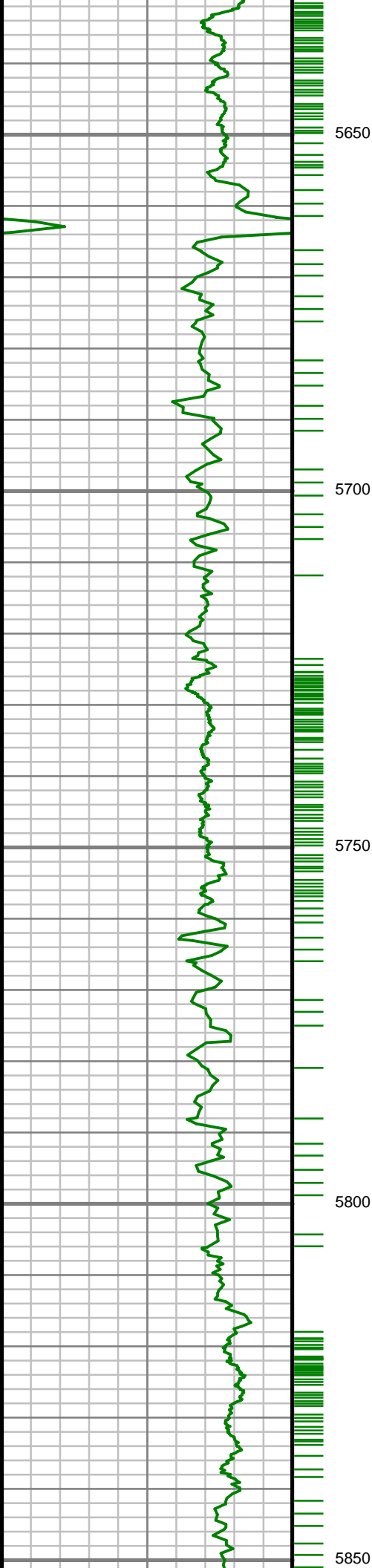
S: 56 MD: 5324.00 ft
Inc: 10.03 deg Az:
191.20 deg TVD:
5213.13 ft



S: 57 MD: 5418.00 ft
Inc: 9.84 deg Az:
183.25 deg TVD:
5305.73 ft

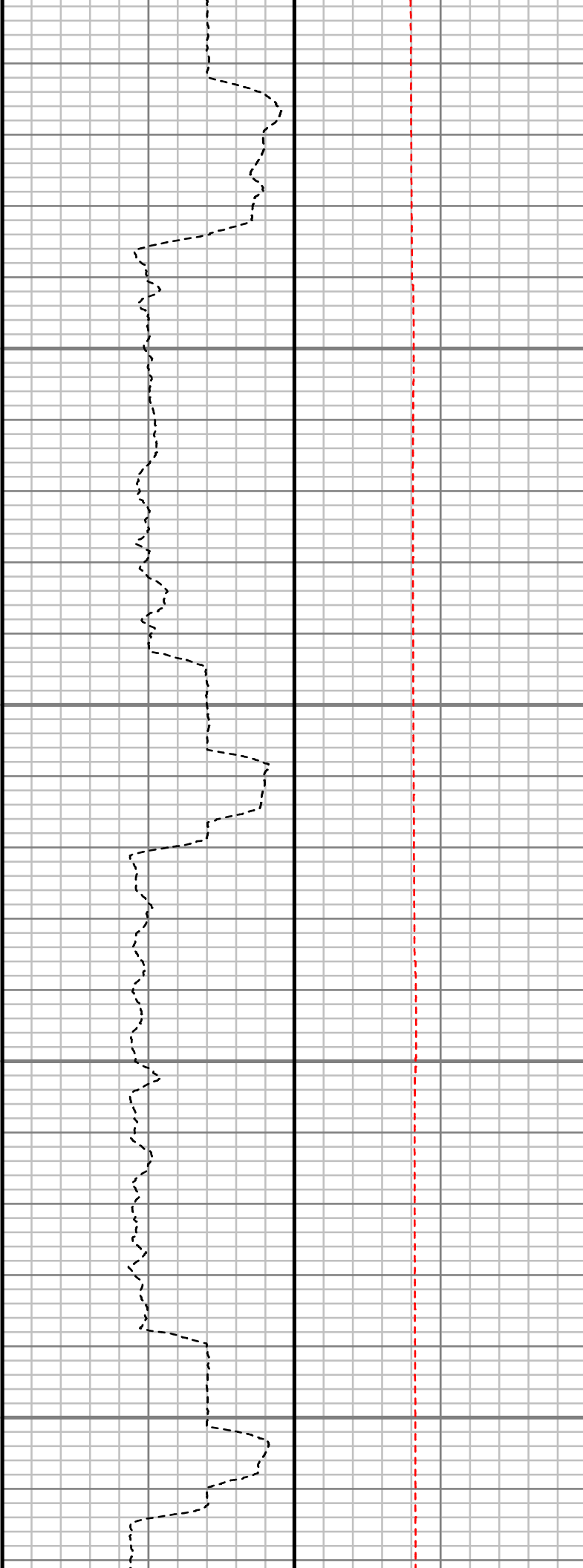
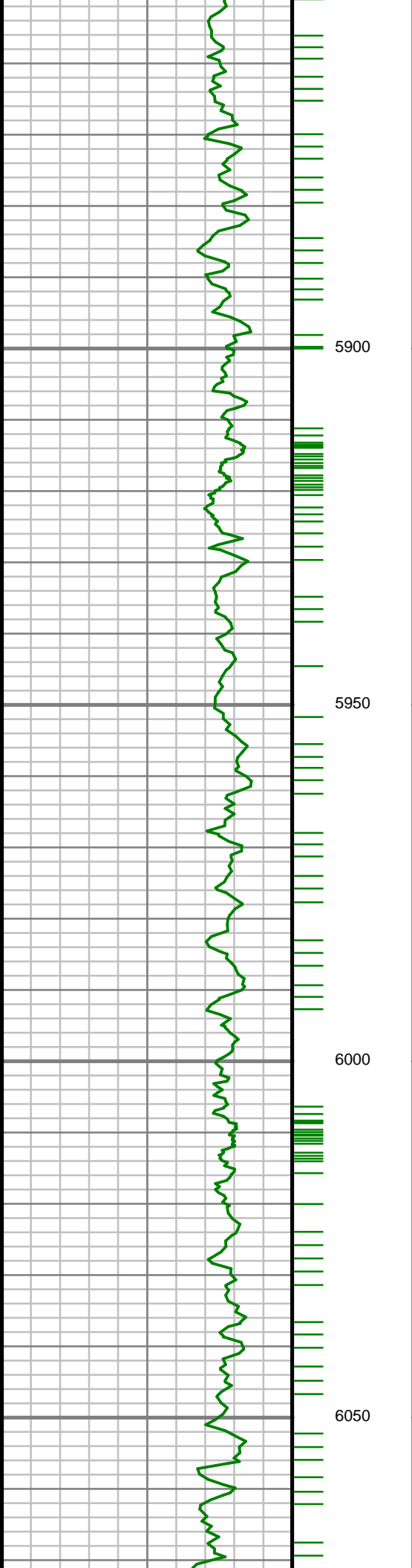
S: 58 MD: 5512.00 ft
Inc: 11.18 deg Az:
182.12 deg TVD:
5398.15 ft

S: 59 MD: 5606.00 ft
Inc: 7.54 deg Az:
181.83 deg TVD:
5490.88 ft



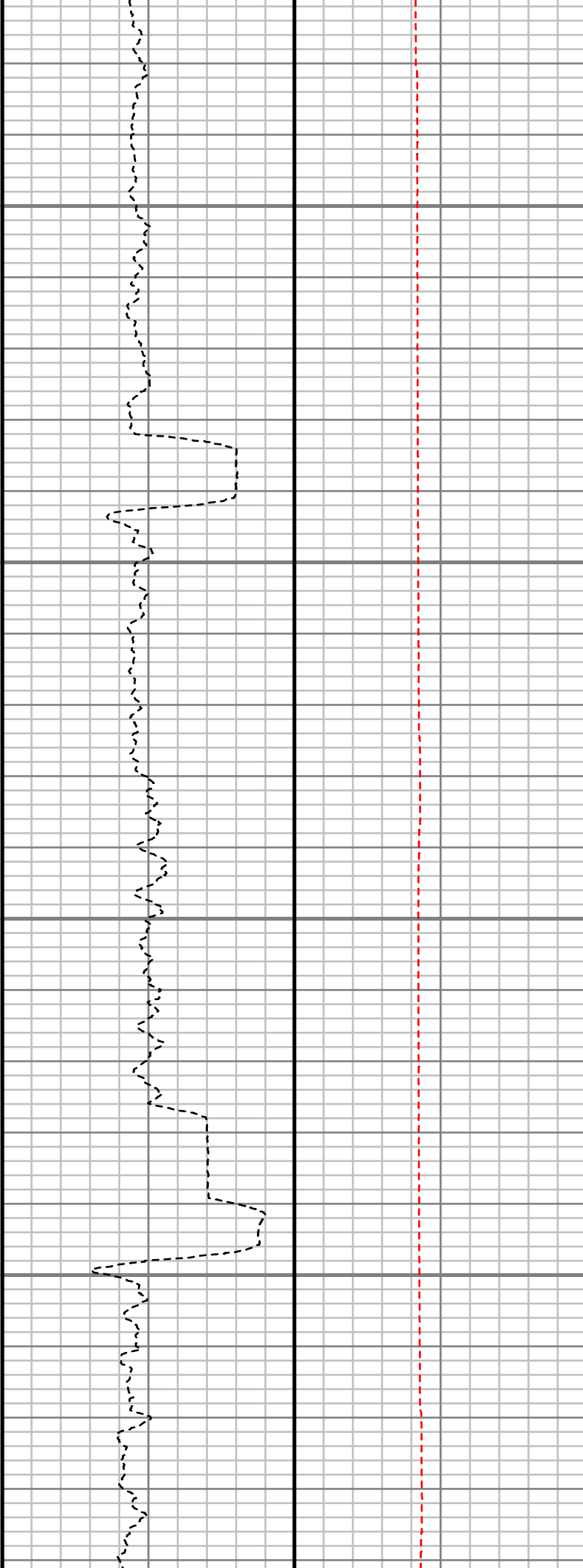
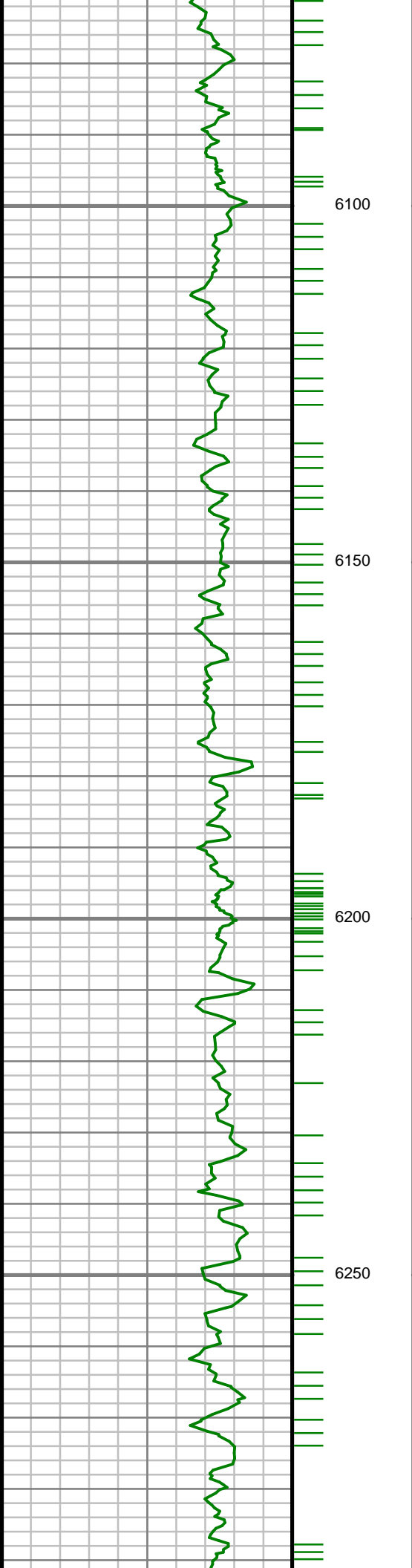
S: 60 MD: 5700.00 ft
Inc: 7.10 deg Az:
183.42 deg TVD:
5584.11 ft

S: 61 MD: 5795.00 ft
Inc: 7.46 deg Az:
184.97 deg TVD:
5678.35 ft



S: 62 MD: 5889.00 ft
Inc: 6.45 deg Az:
188.65 deg TVD:
5771.65 ft

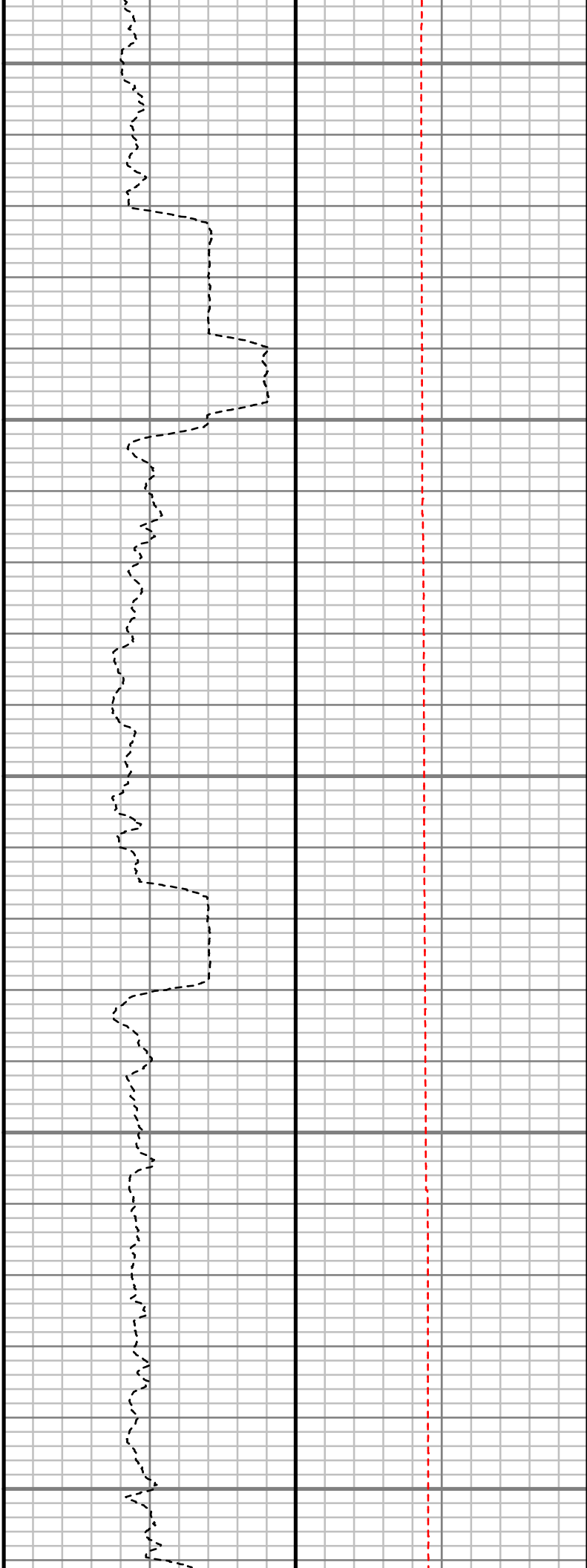
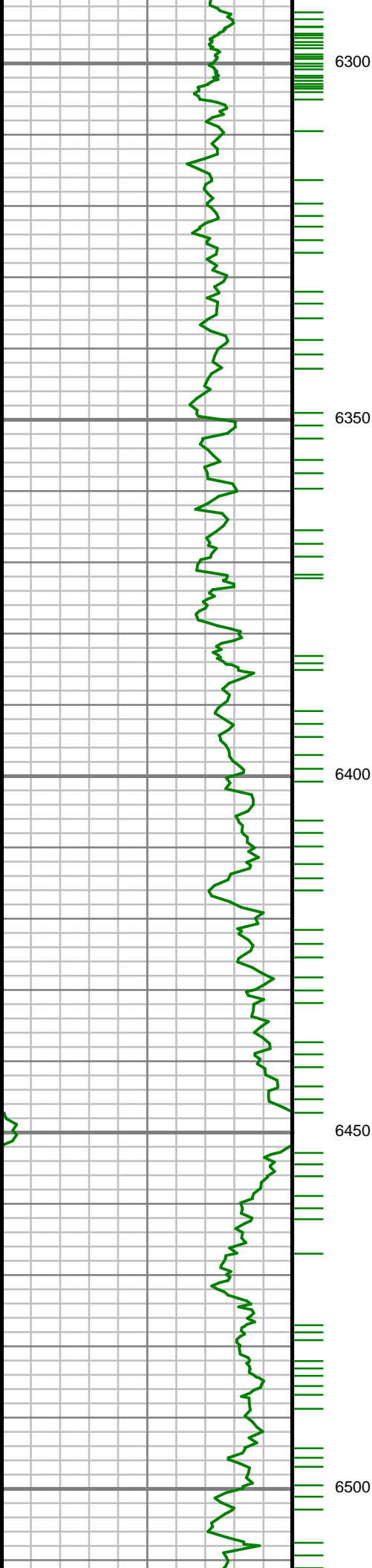
S: 63 MD: 5983.00 ft
Inc: 4.42 deg Az:
188.16 deg TVD:
5865.23 ft



S: 64 MD: 6077.00 ft
Inc: 2.92 deg Az:
188.73 deg TVD:
5959.03 ft

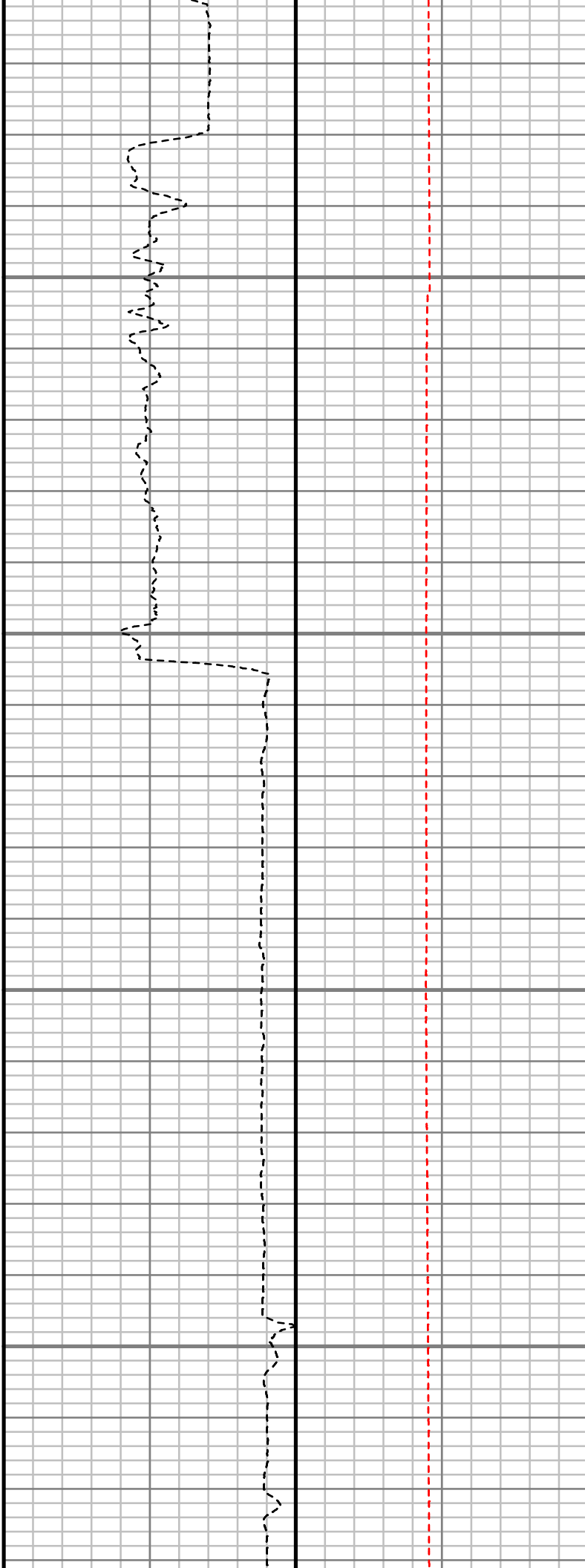
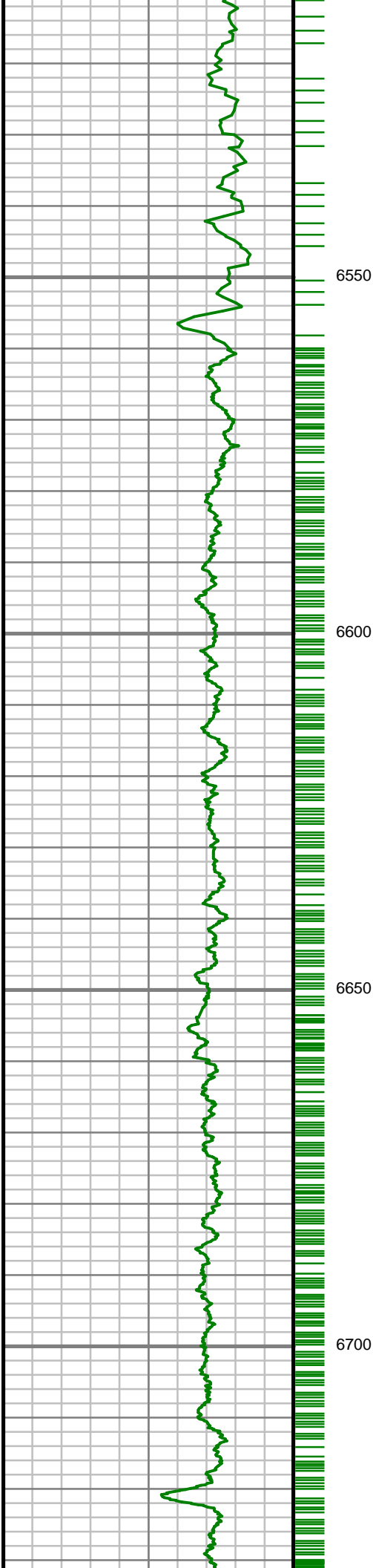
S: 65 MD: 6172.00 ft
Inc: 1.97 deg Az:
262.80 deg TVD:
6053.96 ft

S: 66 MD: 6266.00 ft
Inc: 1.39 deg Az:
241.72 deg TVD:
6147.92 ft



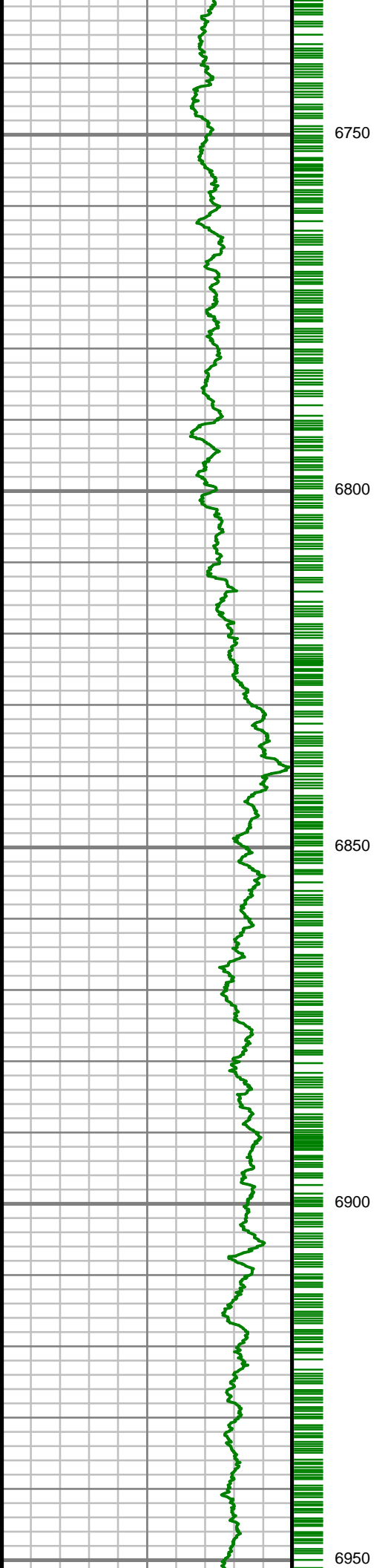
S: 67 MD: 6361.00 ft
Inc: 0.85 deg Az:
188.00 deg TVD:
6242.91 ft

S: 68 MD: 6455.00 ft
Inc: 0.82 deg Az:
188.66 deg TVD:
6336.90 ft



S: 69 MD: 6549.00 ft
Inc: 0.78 deg Az:
193.45 deg TVD:
6430.89 ft

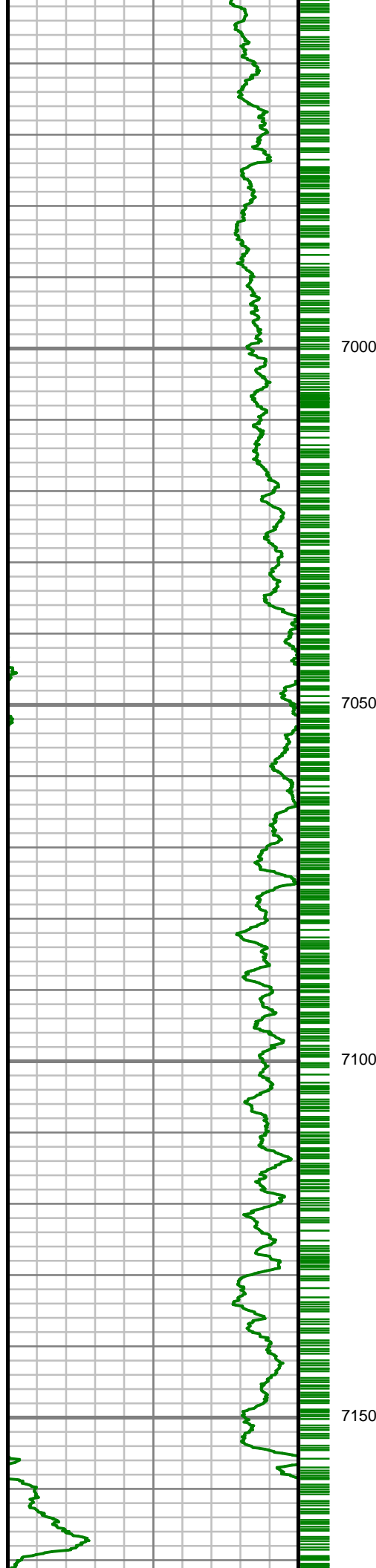
S: 70 MD: 6644.00 ft
Inc: 3.32 deg Az: 5.75
deg TVD: 6525.85 ft



S: 71 MD: 6738.00 ft
Inc: 10.82 deg Az:
356.92 deg TVD:
6619.07 ft

S: 72 MD: 6832.00 ft
Inc: 15.79 deg Az: 1.41
deg TVD: 6710.52 ft

S: 73 MD: 6926.00 ft
Inc: 21.68 deg Az:
359.48 deg TVD:
6799.50 ft



7000

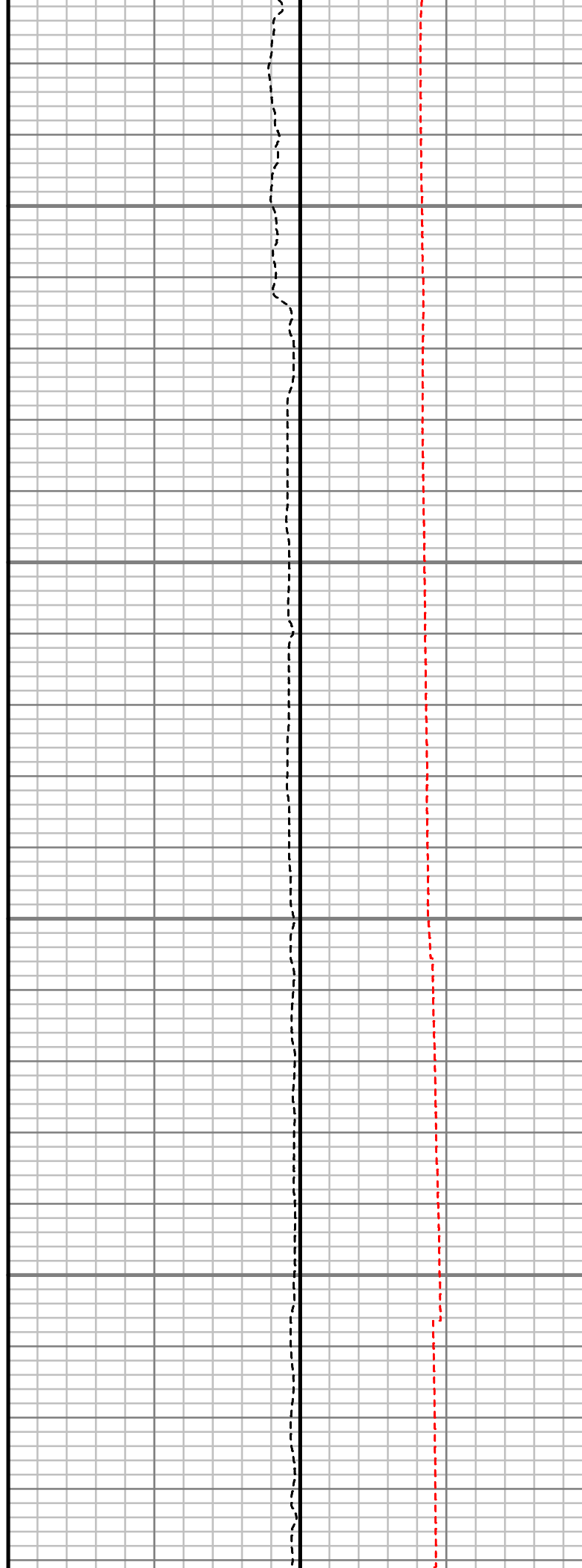
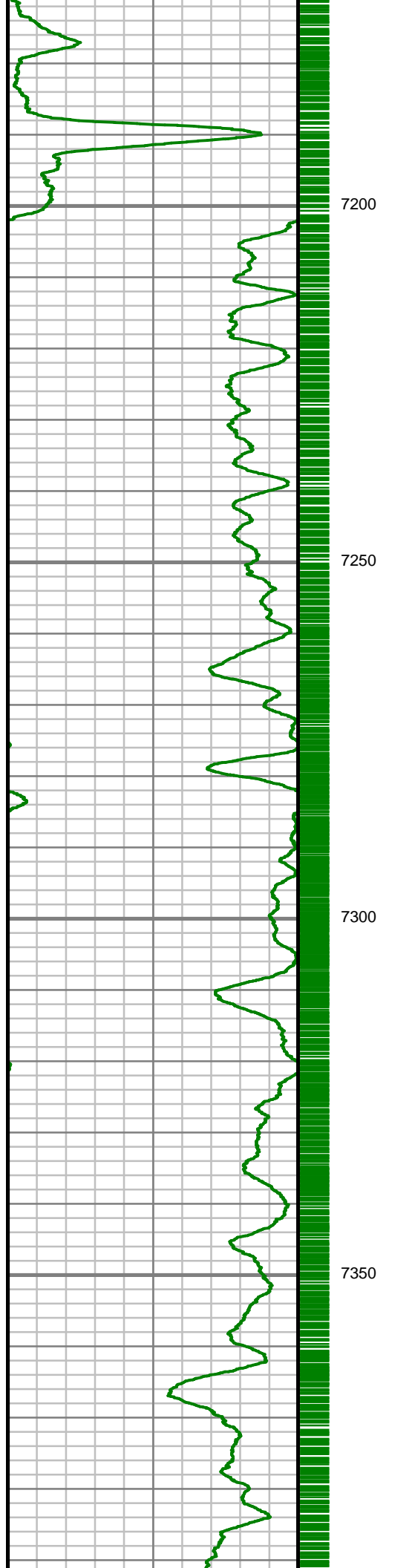
7050

7100

7150

S: 74 MD: 7020.00 ft
Inc: 27.06 deg Az:
356.28 deg TVD:
6885.09 ft

S: 75 MD: 7115.00 ft
Inc: 33.87 deg Az:
357.87 deg TVD:
6966.93 ft

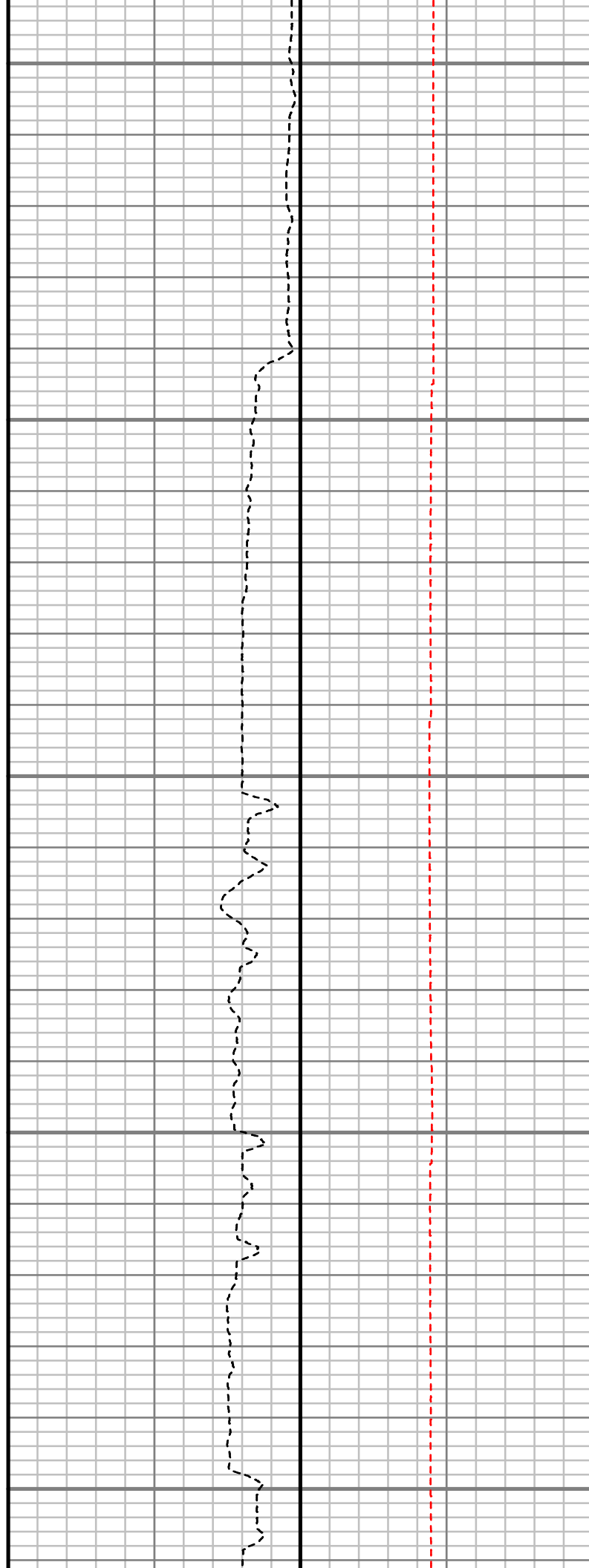
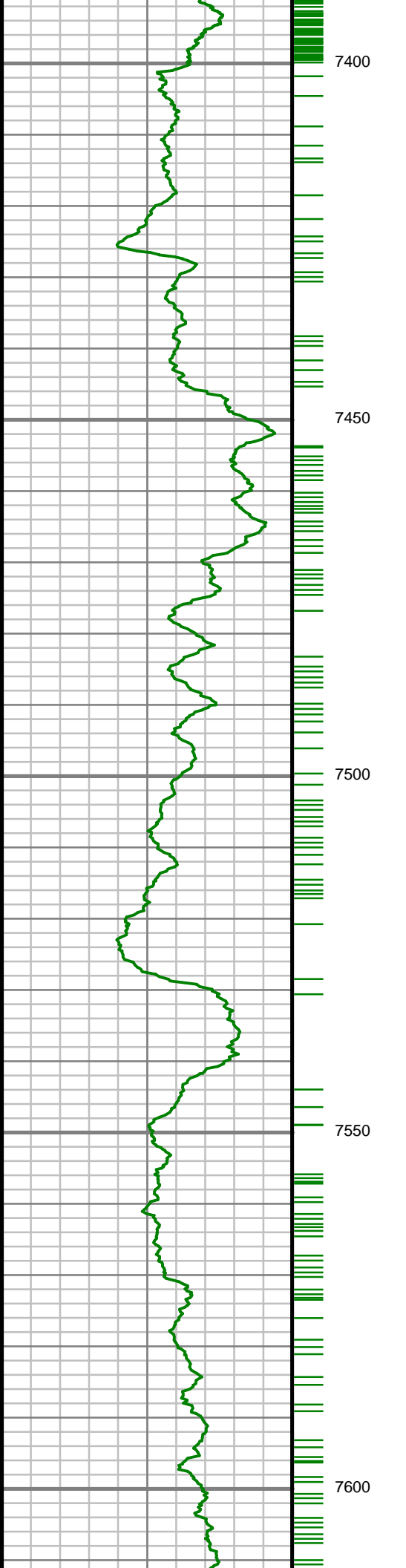


S: 76 MD: 7208.00 ft
Inc: 41.38 deg Az: 356.51 deg TVD: 7040.54 ft

S: 77 MD: 7302.00 ft
Inc: 59.18 deg Az: 1.08 deg TVD: 7100.38 ft

S: 78 MD: 7348.00 ft
Inc: 69.08 deg Az: 0.55 deg TVD: 7120.43 ft

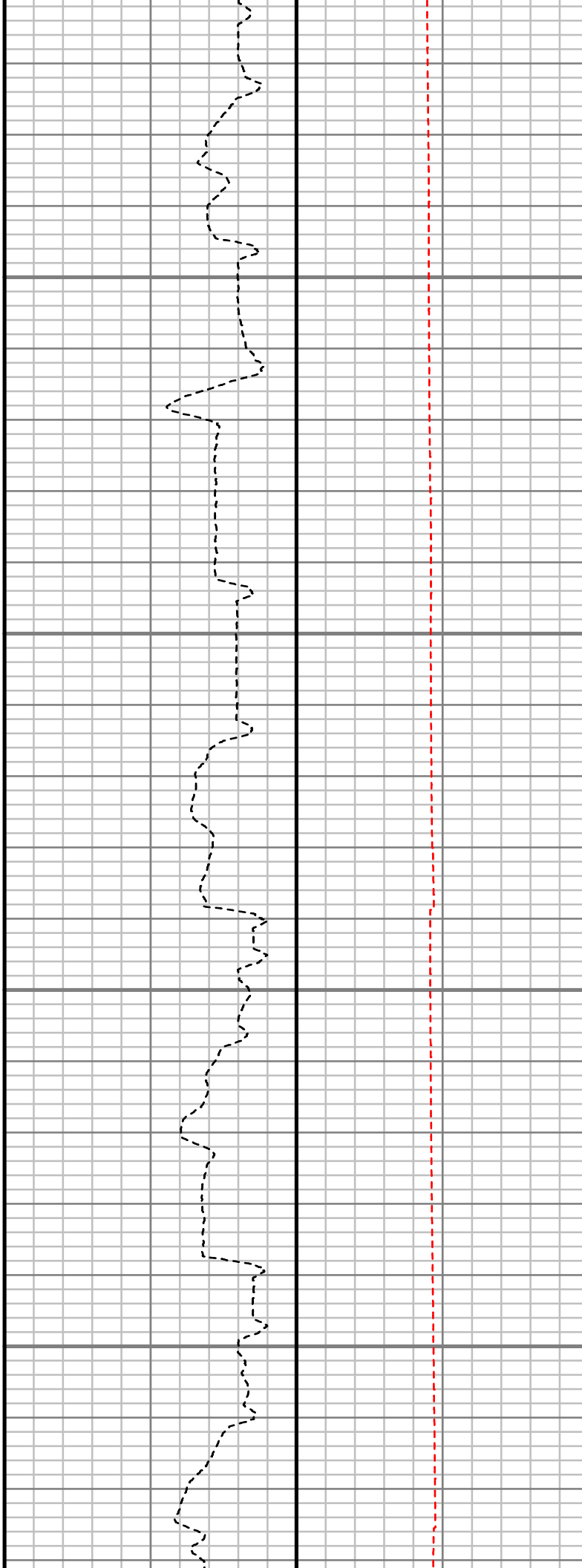
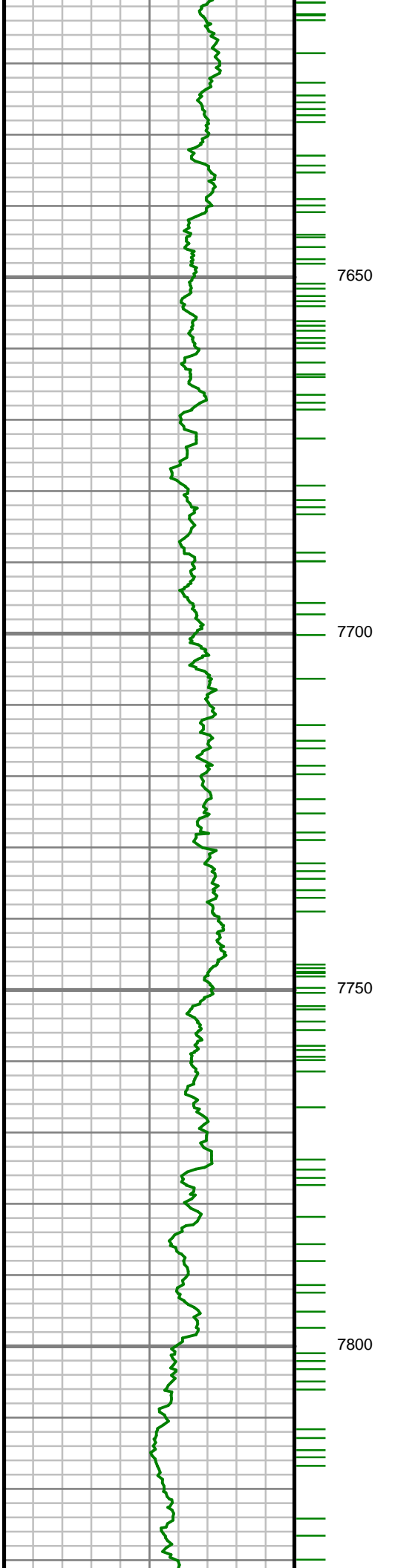
S: 79 MD: 7389.00 ft



Inc: 76.76 deg Az:
358.49 deg TVD:
7132.46 ft

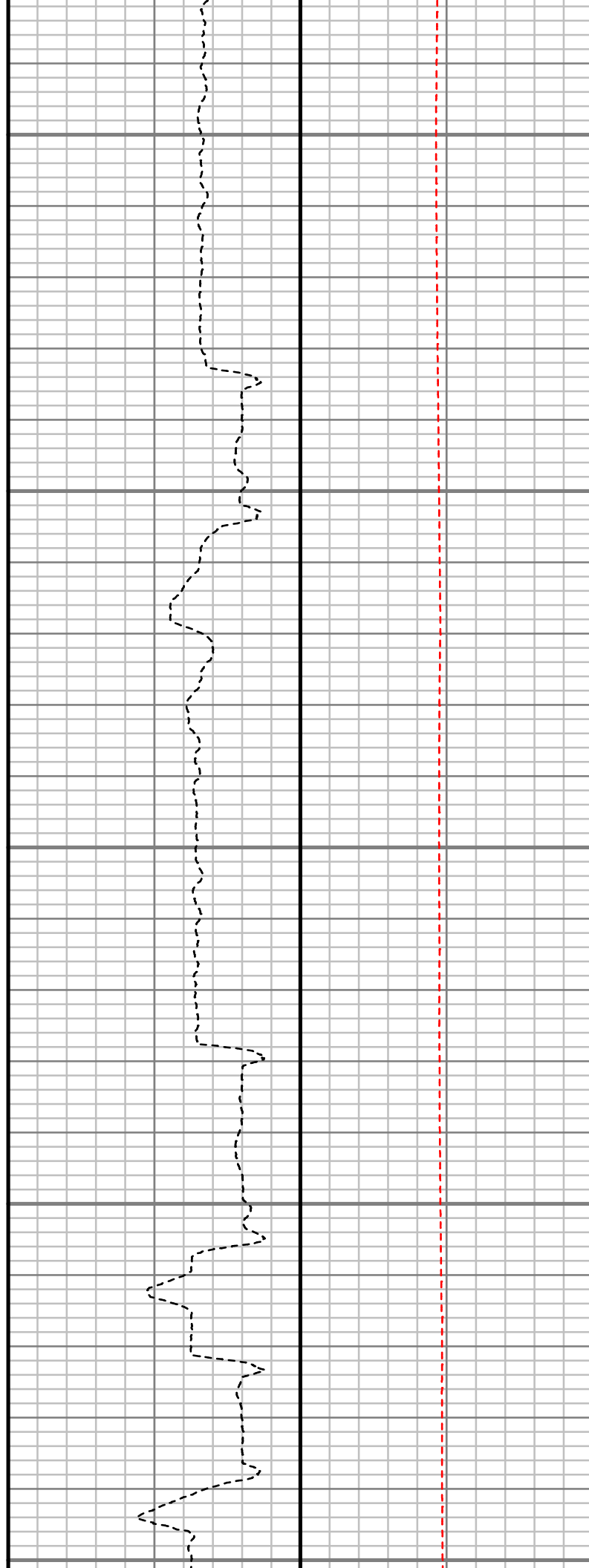
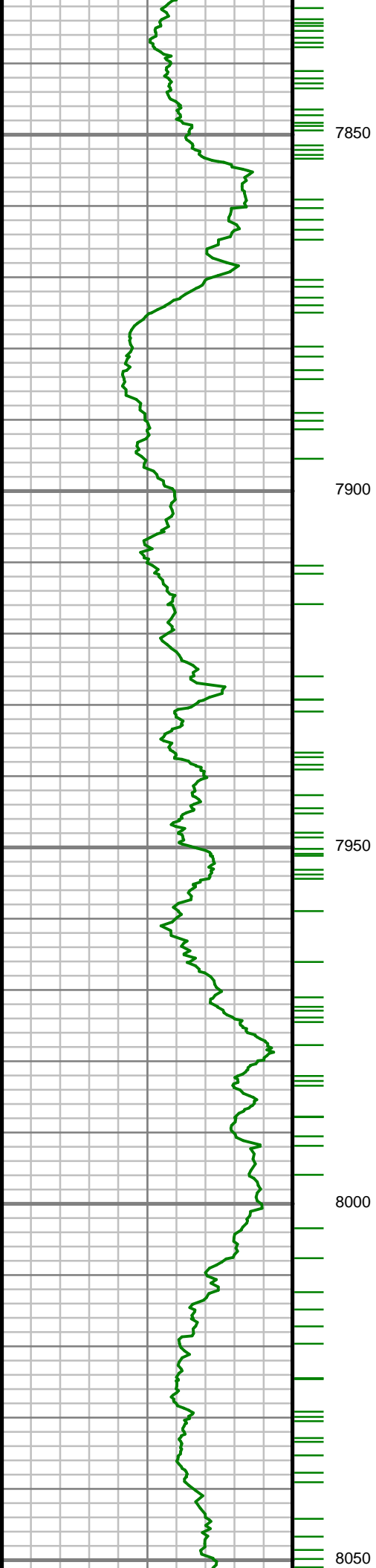
S: 80 MD: 7443.00 ft
Inc: 84.31 deg Az:
358.13 deg TVD:
7141.34 ft

S: 81 MD: 7538.00 ft
Inc: 85.39 deg Az:
358.12 deg TVD:
7149.86 ft



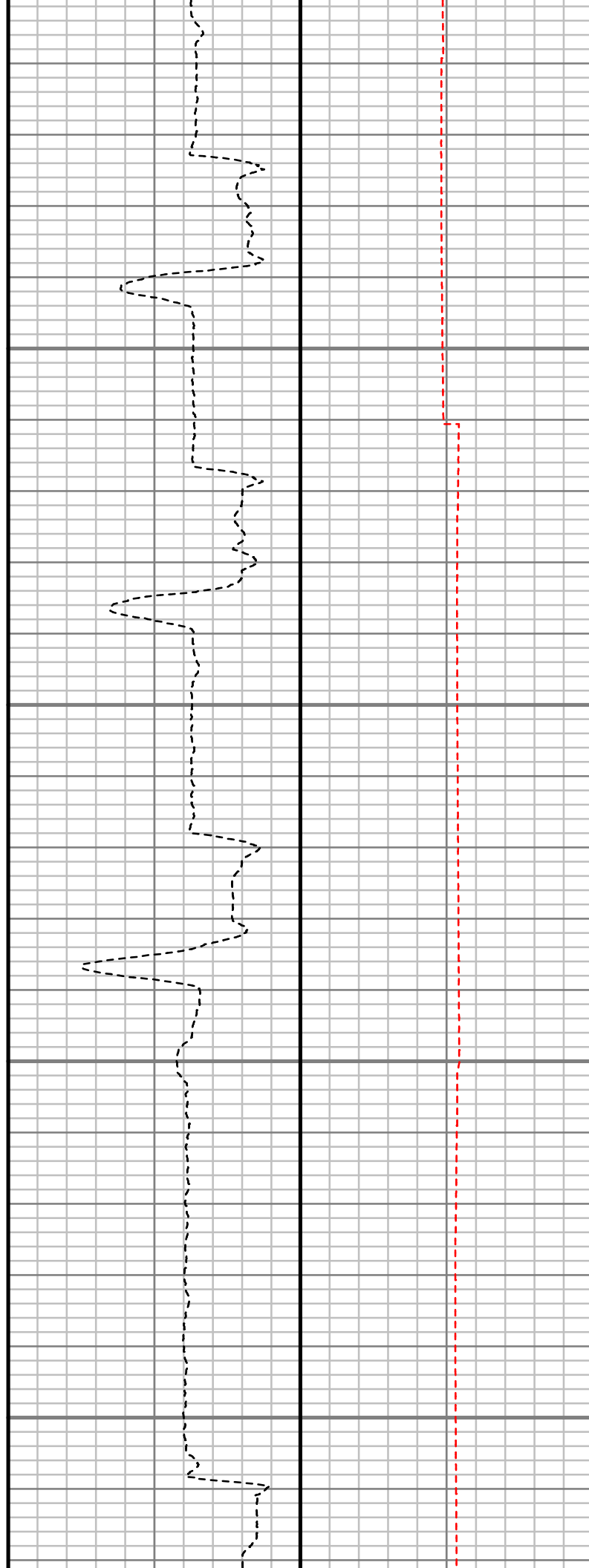
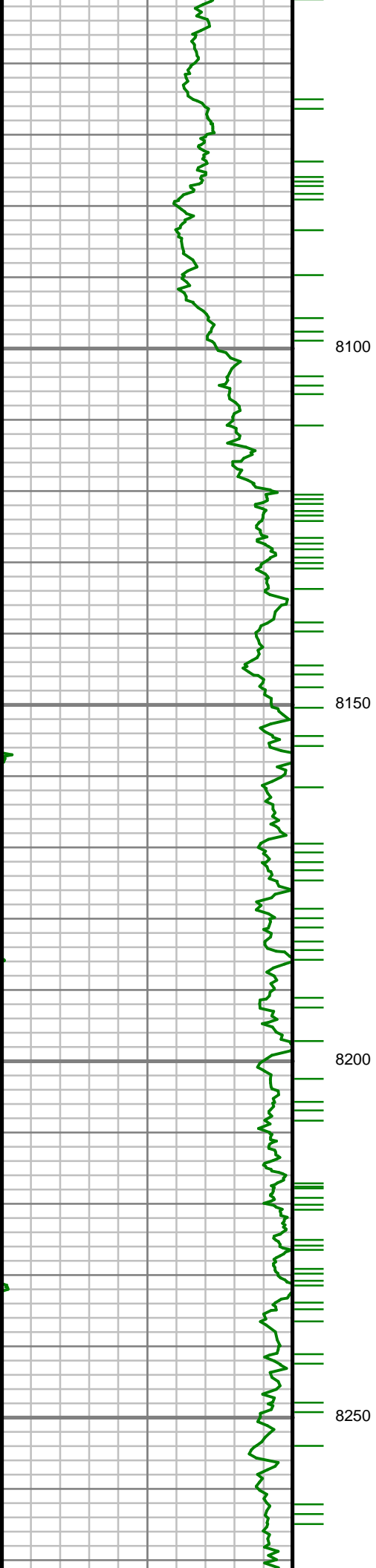
S: 82 MD: 7632.00 ft
Inc: 87.68 deg Az:
357.99 deg TVD:
7155.54 ft

S: 83 MD: 7821.00 ft
Inc: 91.78 deg Az: 0.89
deg TVD: 7156.43 ft



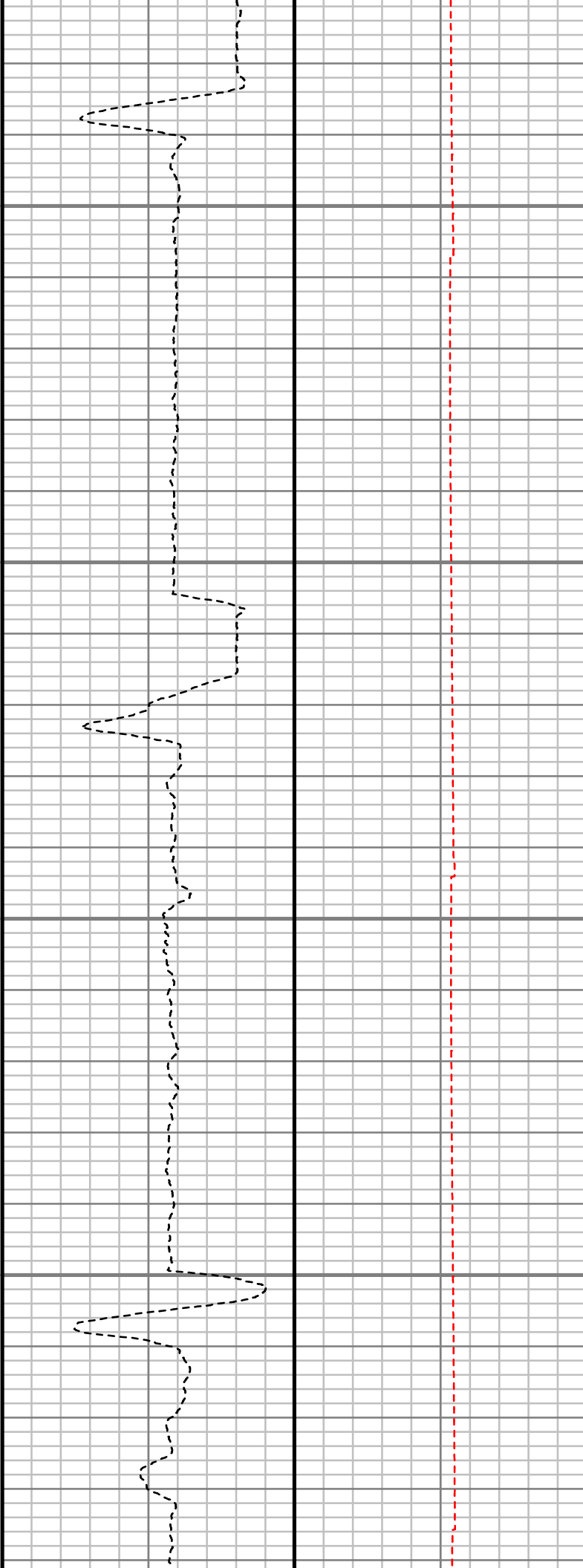
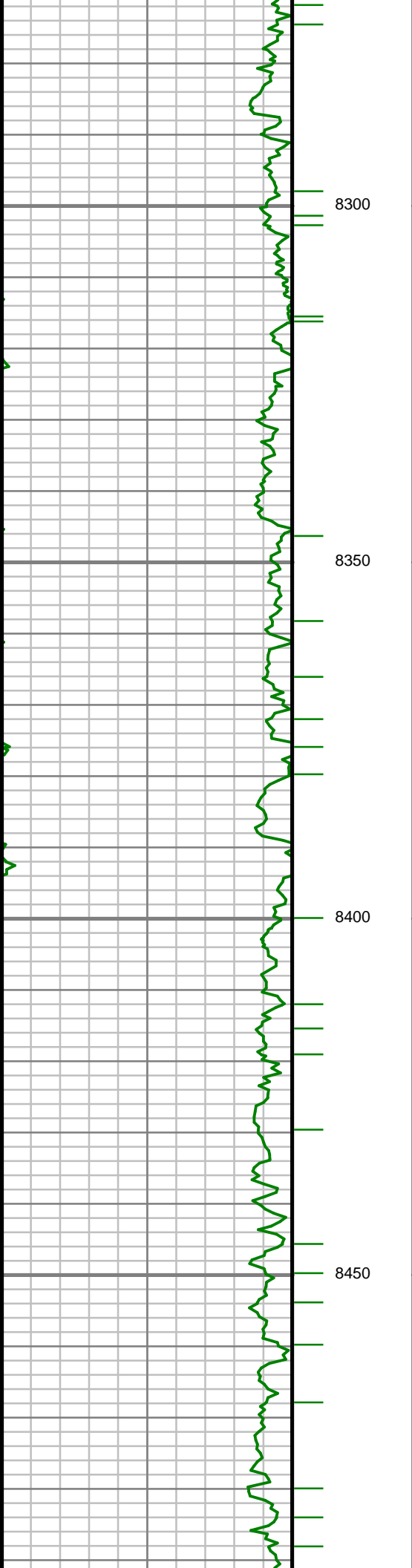
S: 84 MD: 7915.00 ft
Inc: 92.76 deg Az: 1.25
deg TVD: 7152.71 ft

S: 85 MD: 8010.00 ft
Inc: 91.95 deg Az: 0.18
deg TVD: 7148.81 ft



S: 86 MD: 8105.00 ft
Inc: 91.04 deg Az: 0.65
deg TVD: 7146.33 ft

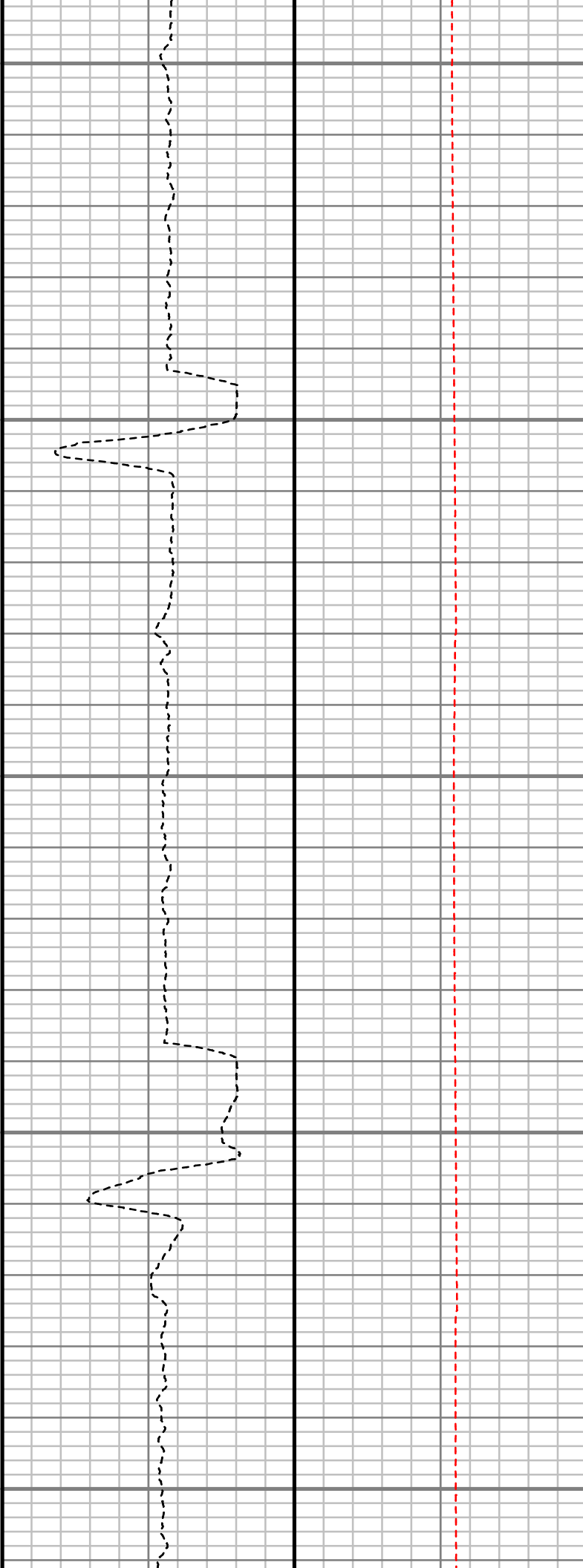
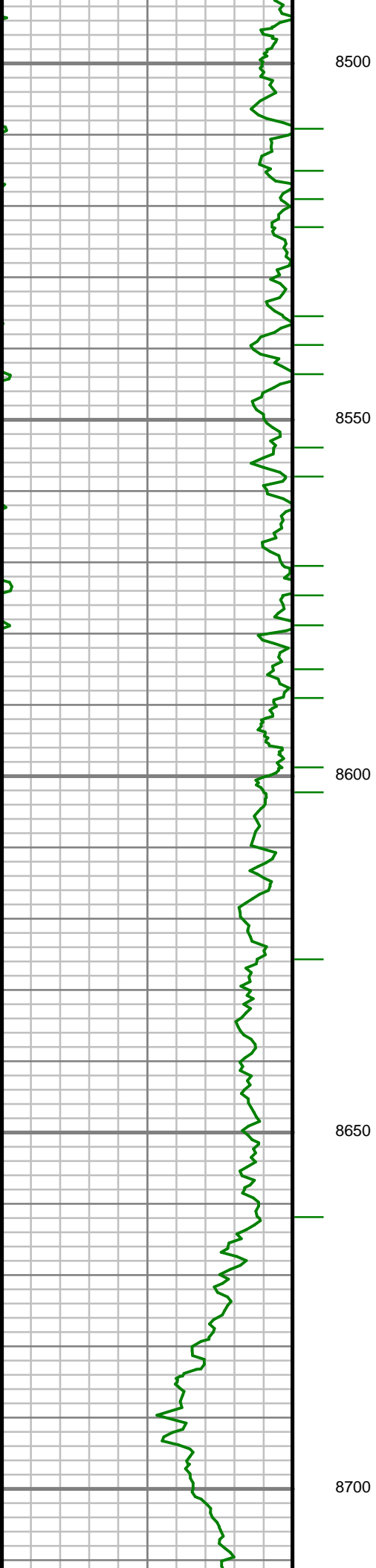
S: 87 MD: 8199.00 ft
Inc: 90.54 deg Az:
359.70 deg TVD:
7145.03 ft



S: 88 MD: 8294.00 ft
Inc: 89.29 deg Az: 0.46
deg TVD: 7145.17 ft

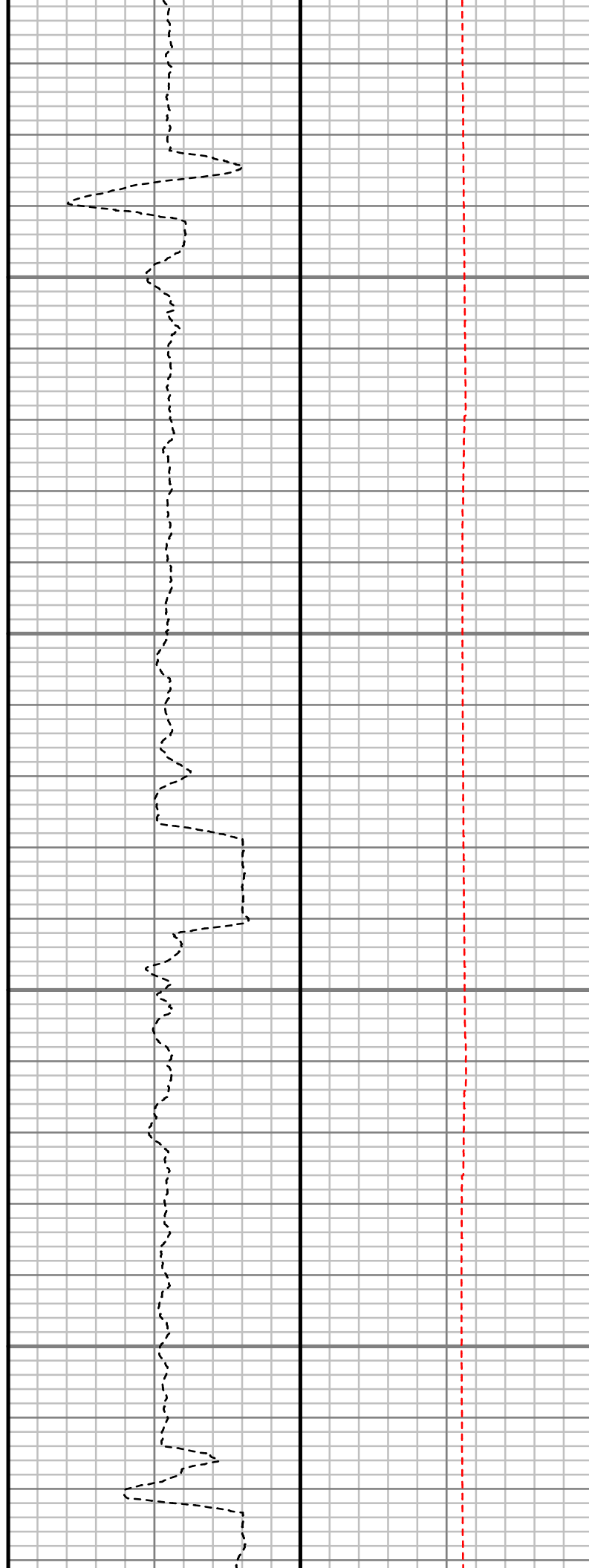
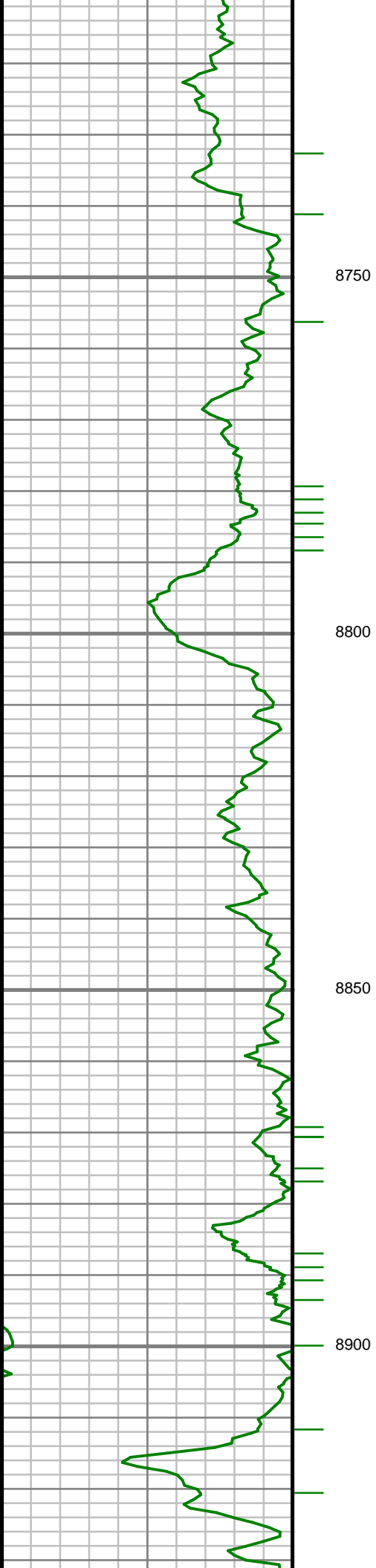
S: 89 MD: 8388.00 ft
Inc: 89.56 deg Az: 0.46
deg TVD: 7146.11 ft

S: 90 MD: 8483.00 ft
Inc: 89.56 deg Az: 0.91
deg TVD: 7146.83 ft



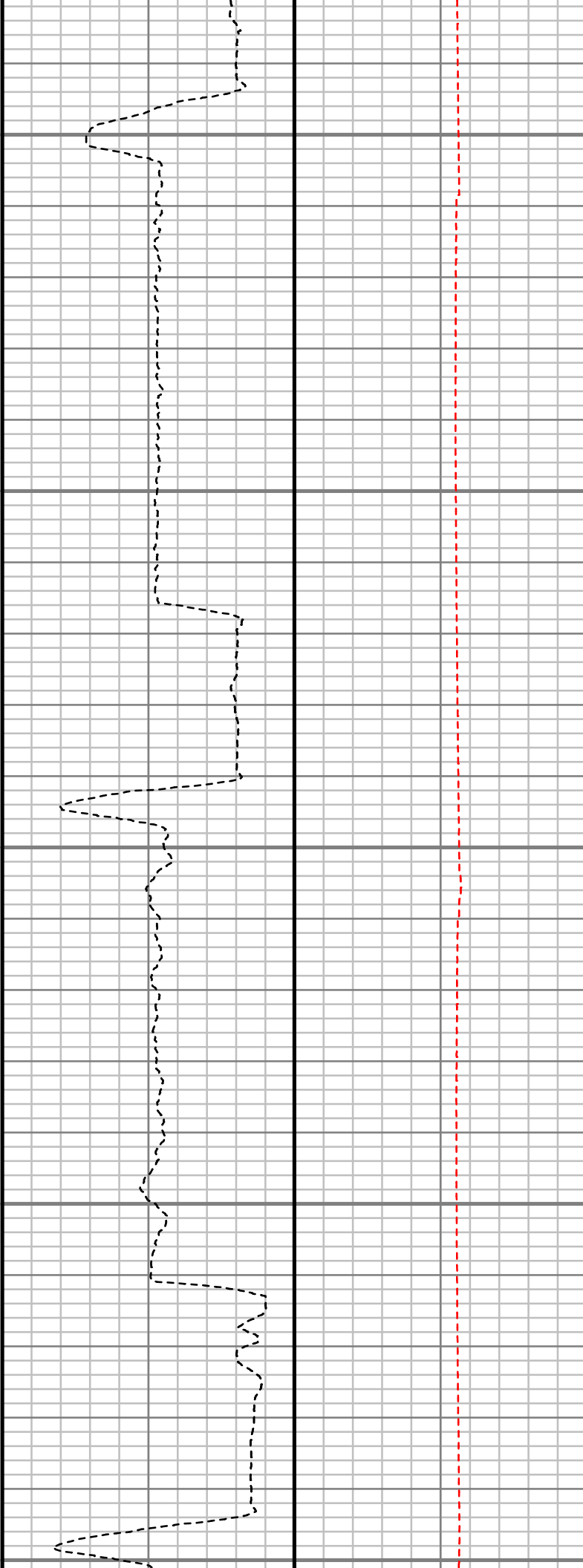
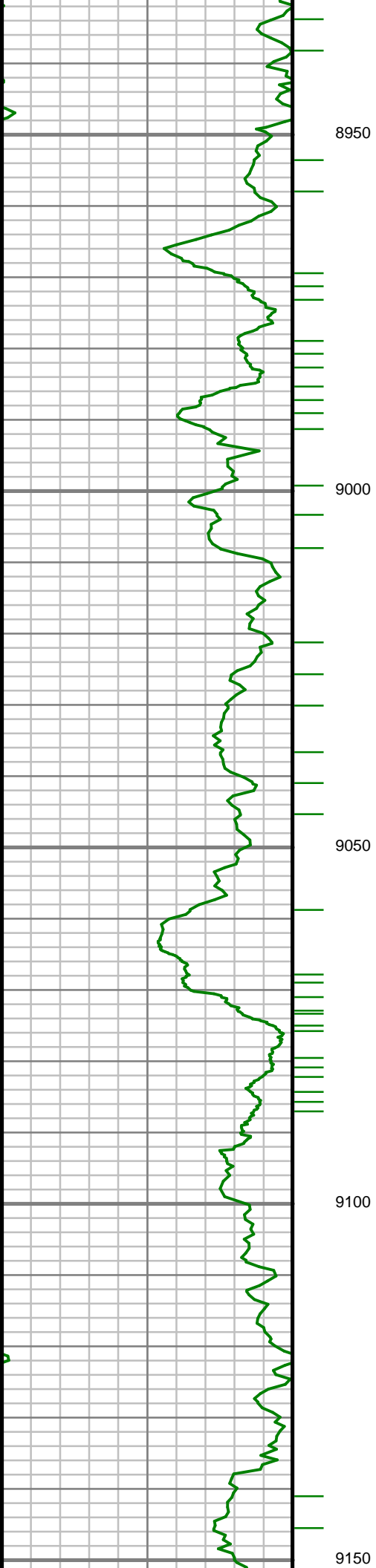
S: 91 MD: 8578.00 ft
Inc: 90.24 deg Az: 1.18
deg TVD: 7147.00 ft

S: 92 MD: 8672.00 ft
Inc: 89.29 deg Az: 0.00
deg TVD: 7147.39 ft



S: 93 MD: 8767.00 ft
Inc: 90.37 deg Az: 0.01
deg TVD: 7147.66 ft

S: 94 MD: 8861.00 ft
Inc: 90.74 deg Az: 1.24
deg TVD: 7146.76 ft

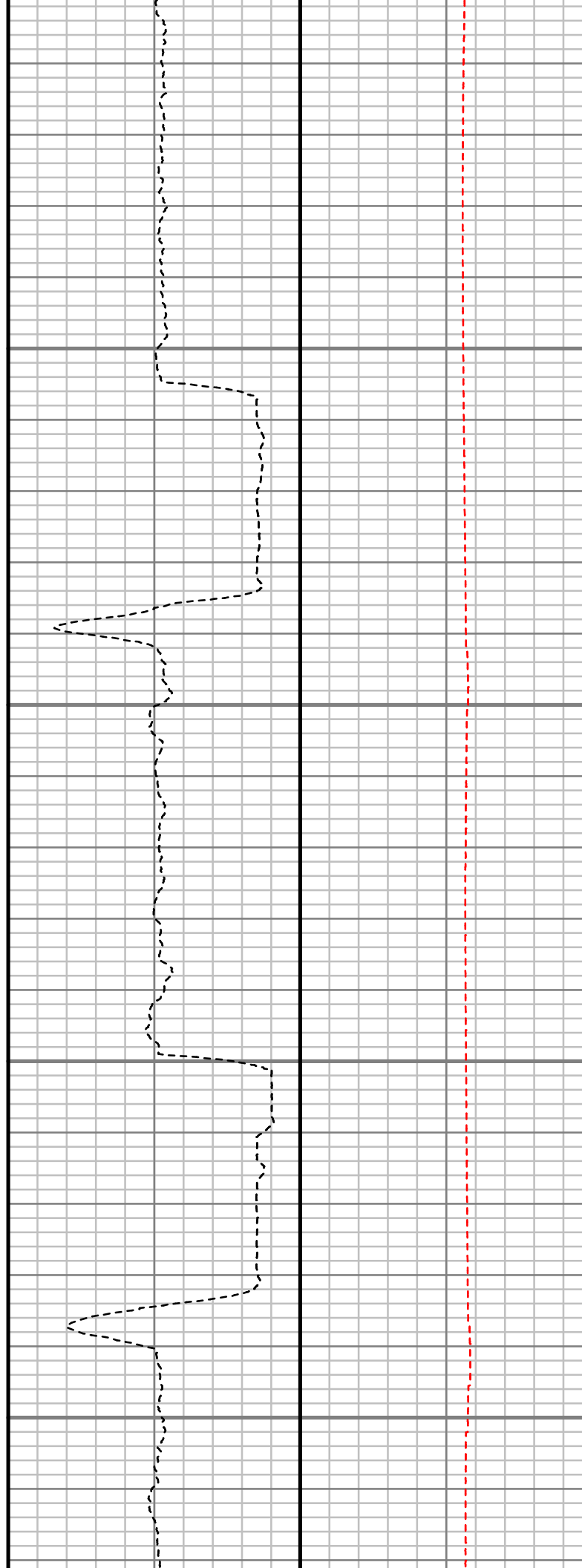
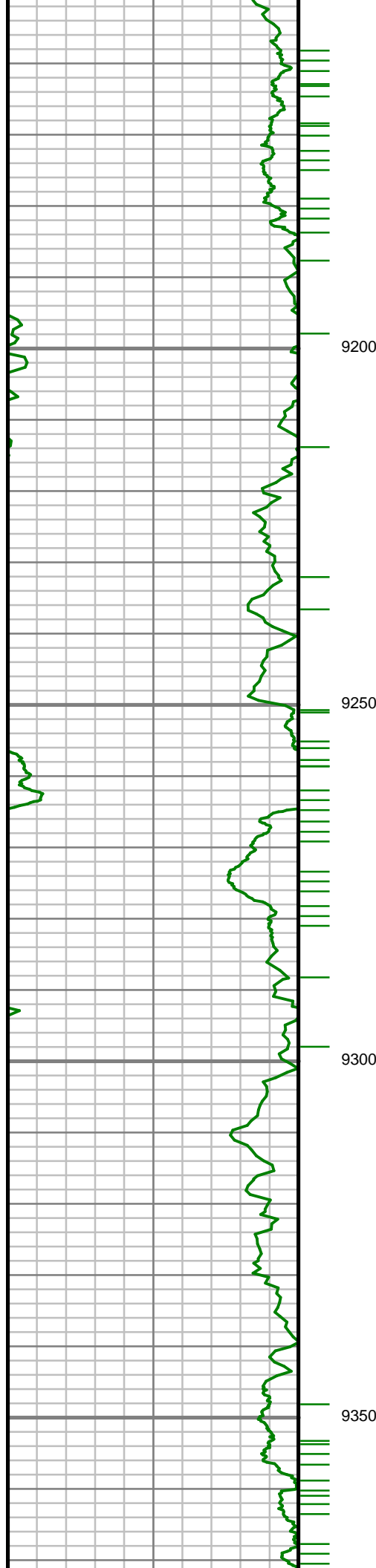


S: 95 MD: 8956.00 ft
Inc: 90.74 deg Az: 0.69
deg TVD: 7145.53 ft

S: 96 MD: 9050.00 ft
Inc: 90.67 deg Az: 0.88
deg TVD: 7144.38 ft

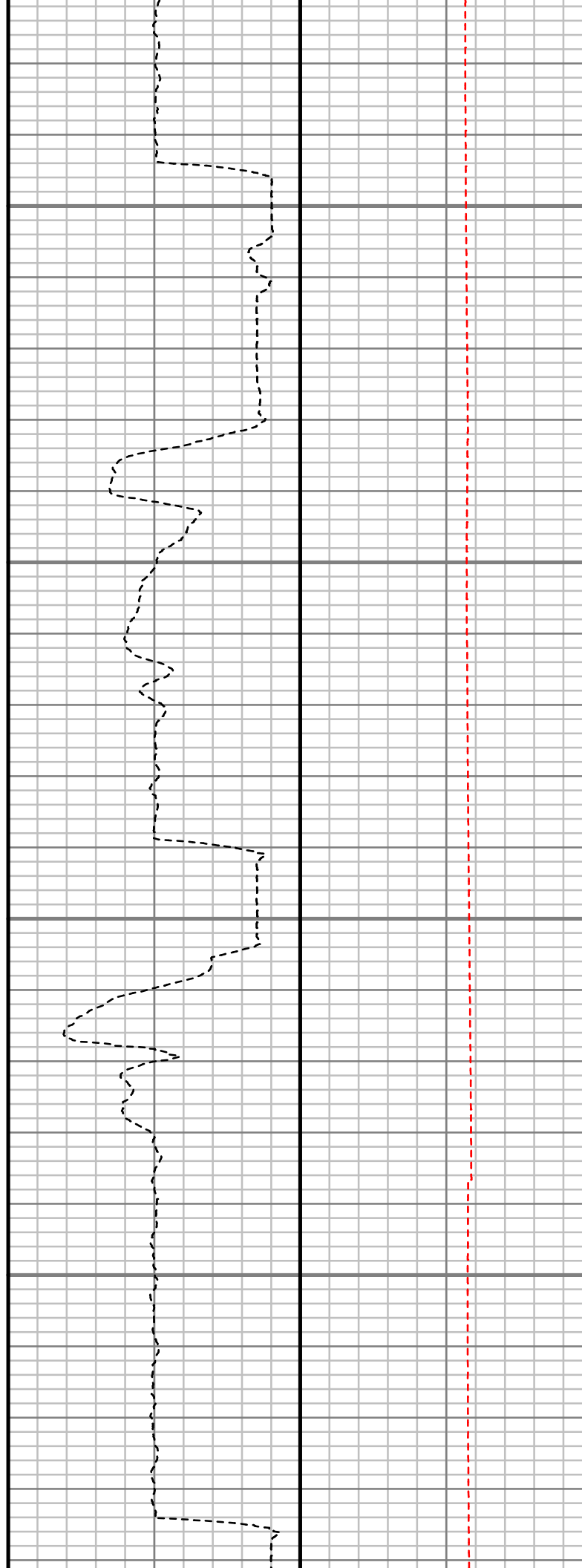
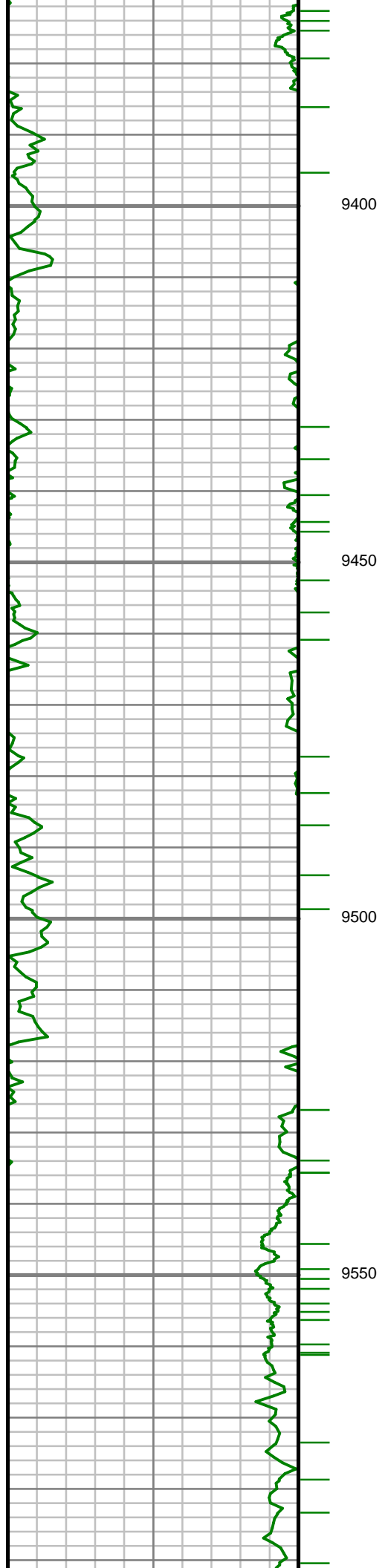
S: 97 MD: 9145.00 ft
Inc: 90.67 deg Az: 0.85
deg TVD: 7142.26 ft

deg TVD: 7143.26 ft



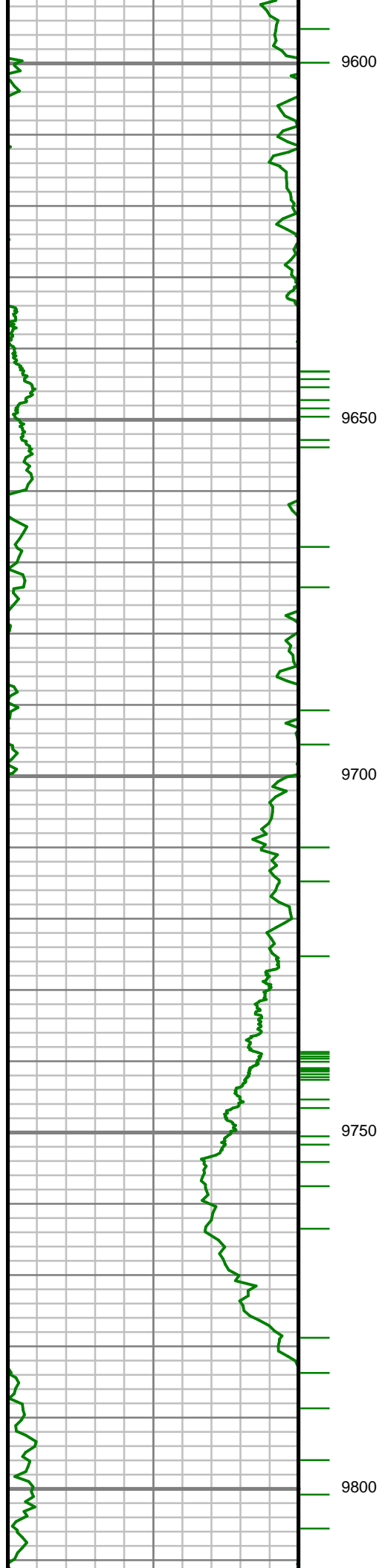
S: 98 MD: 9239.00 ft
Inc: 90.17 deg Az: 2.07
deg TVD: 7142.57 ft

S: 99 MD: 9334.00 ft
Inc: 89.50 deg Az: 2.49
deg TVD: 7142.85 ft



S: 100 MD: 9428.00 ft
Inc: 88.89 deg Az: 2.55
deg TVD: 7144.17 ft

S: 101 MD: 9523.00 ft
Inc: 89.16 deg Az: 1.56
deg TVD: 7145.79 ft

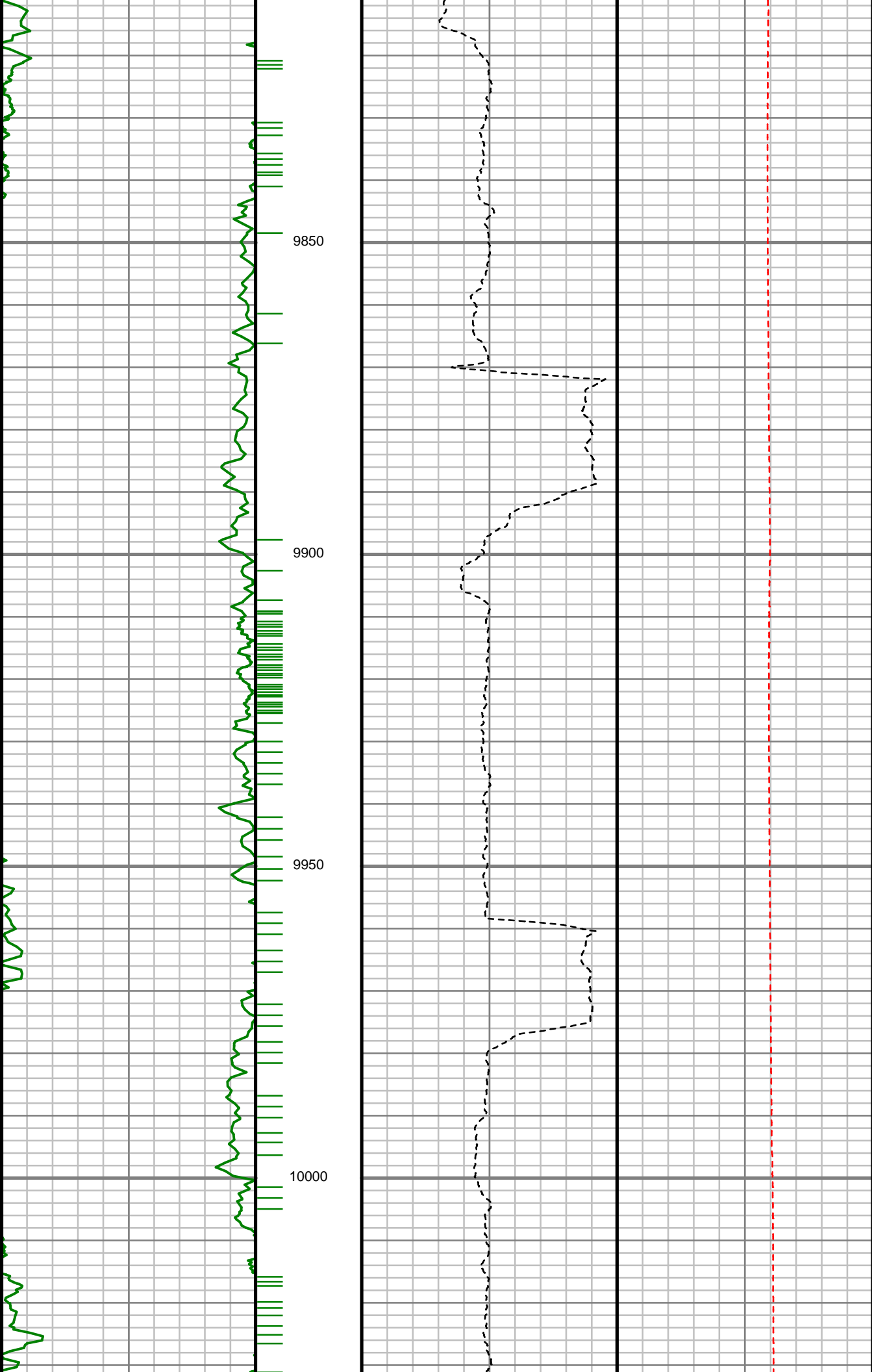


S: 102 MD: 9618.00 ft
Inc: 89.23 deg Az: 0.15
deg TVD: 7147.13 ft

S: 103 MD: 9712.00 ft
Inc: 89.87 deg Az:
359.70 deg TVD:
7147.87 ft

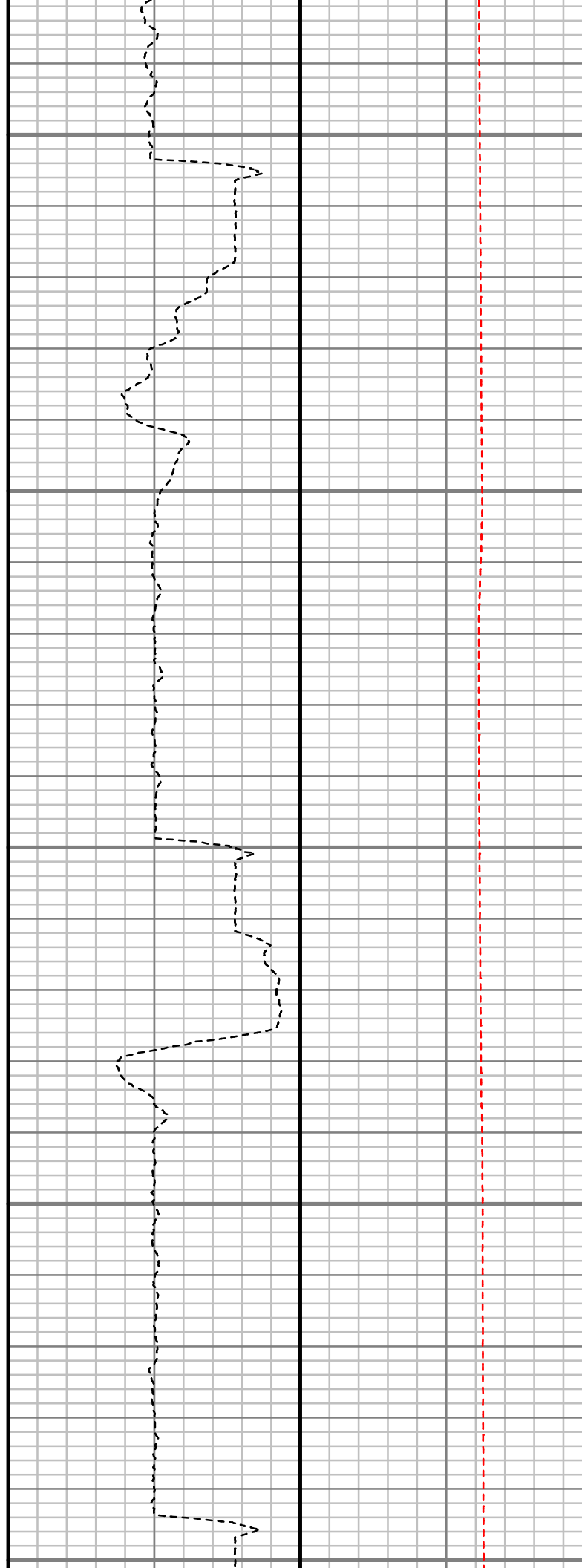
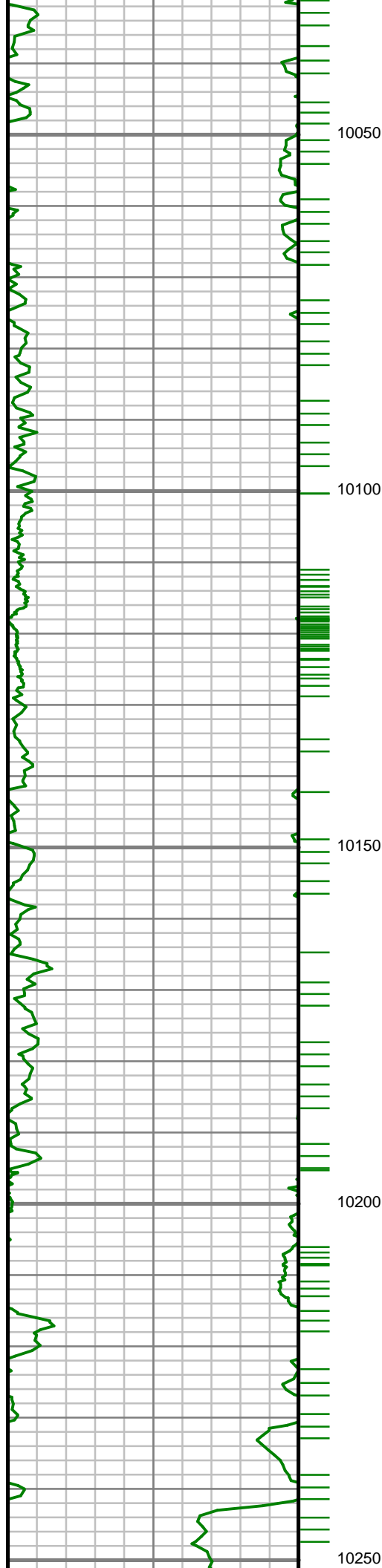
S: 104 MD: 9806.00 ft
Inc: 89.46 deg Az: 0.01

deg TVD: 7148.42 ft



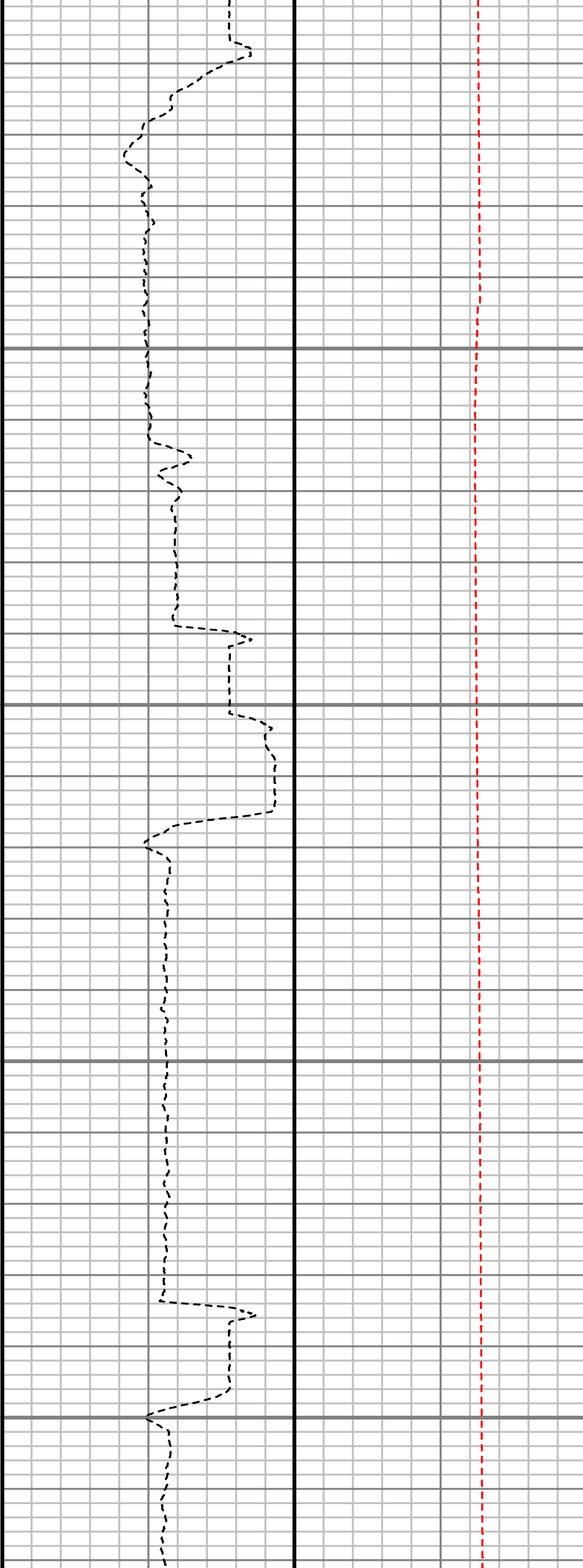
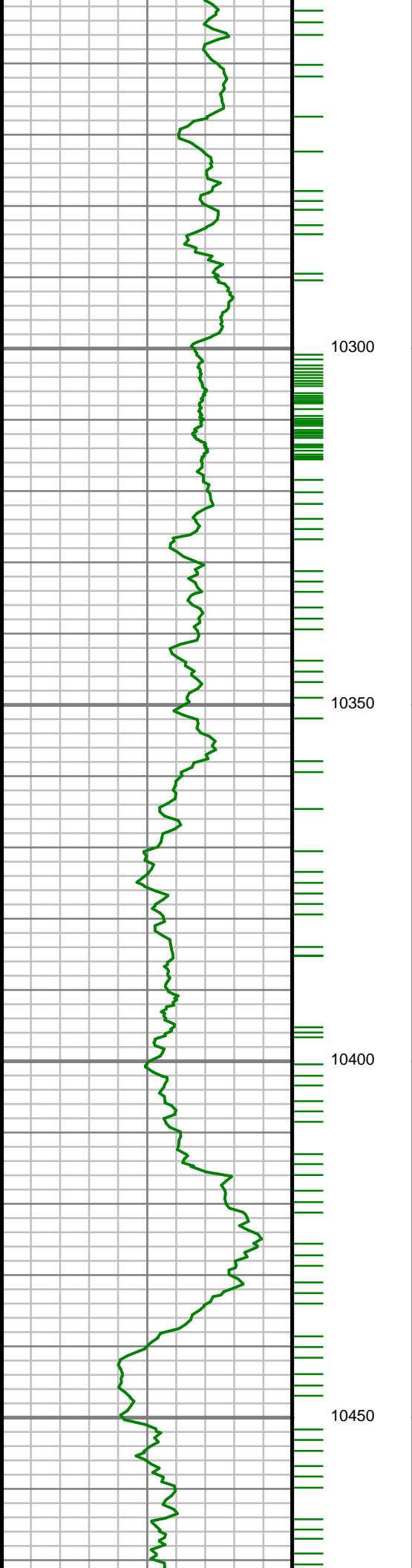
S: 105 MD: 9900.00 ft
Inc: 90.17 deg Az:
358.67 deg TVD:
7148.72 ft

S: 106 MD: 9993.00 ft
Inc: 89.66 deg Az:
358.46 deg TVD:
7148.86 ft



S: 107 MD: 10087.00 ft
Inc: 89.76 deg Az:
359.24 deg TVD:
7149.33 ft

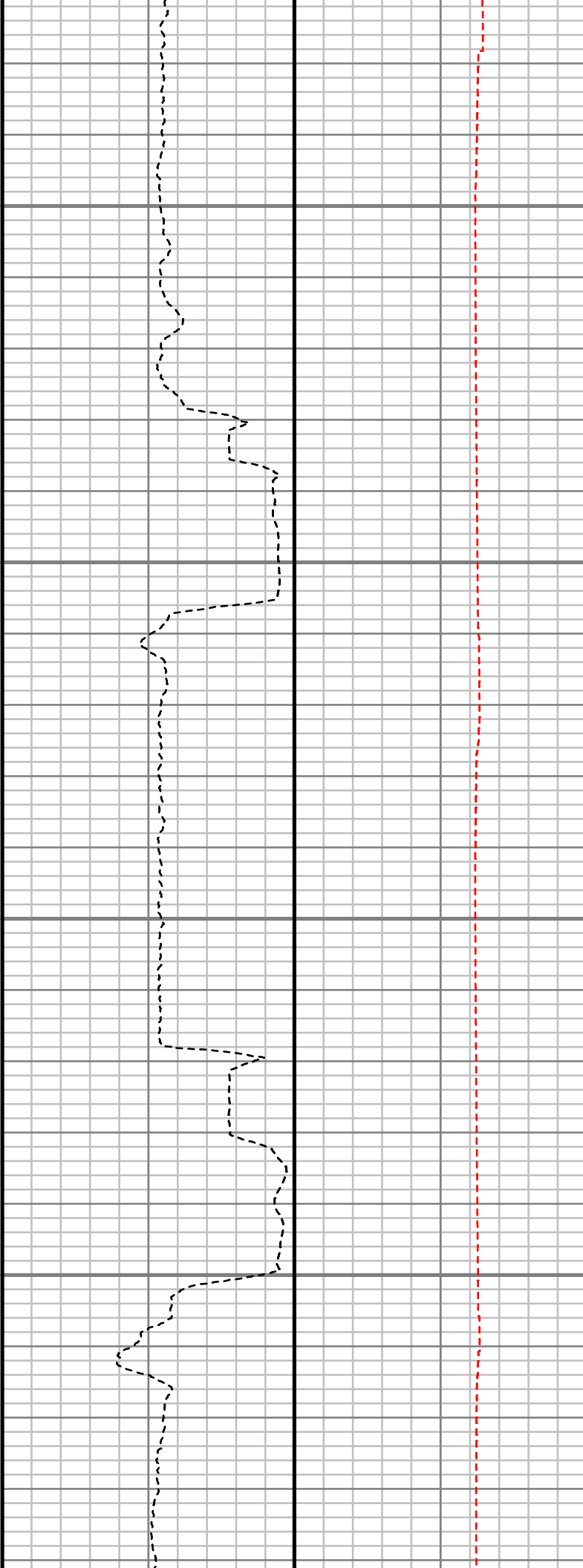
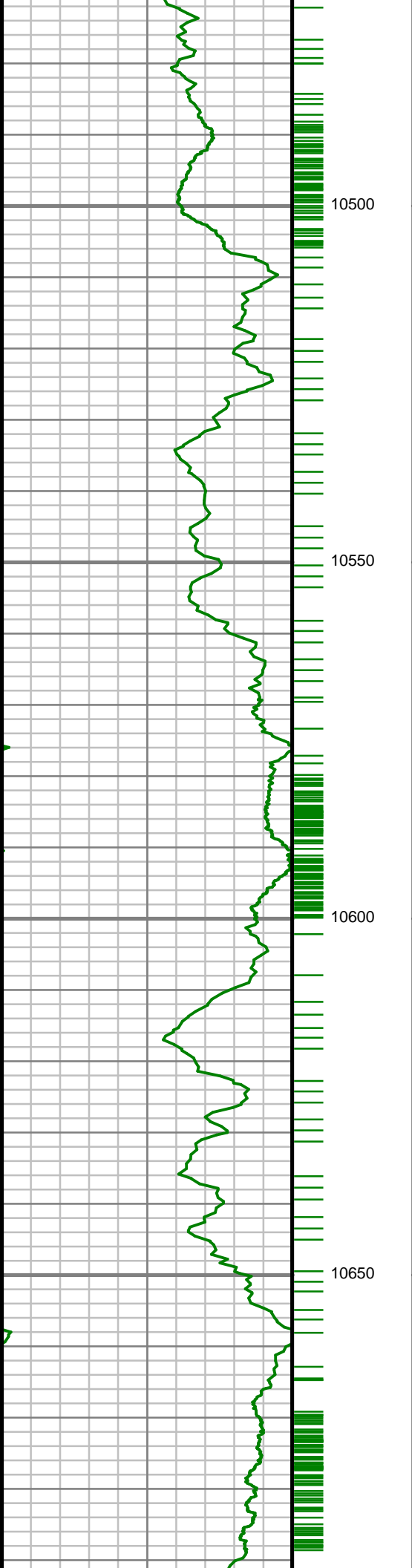
S: 108 MD: 10182.00 ft
Inc: 88.52 deg Az:
359.24 deg TVD:
7150.75 ft



S: 109 MD: 10276.00 ft
Inc: 89.36 deg Az:
359.63 deg TVD:
7152.49 ft

S: 110 MD: 10370.00 ft
Inc: 89.50 deg Az:
358.85 deg TVD:
7153.42 ft

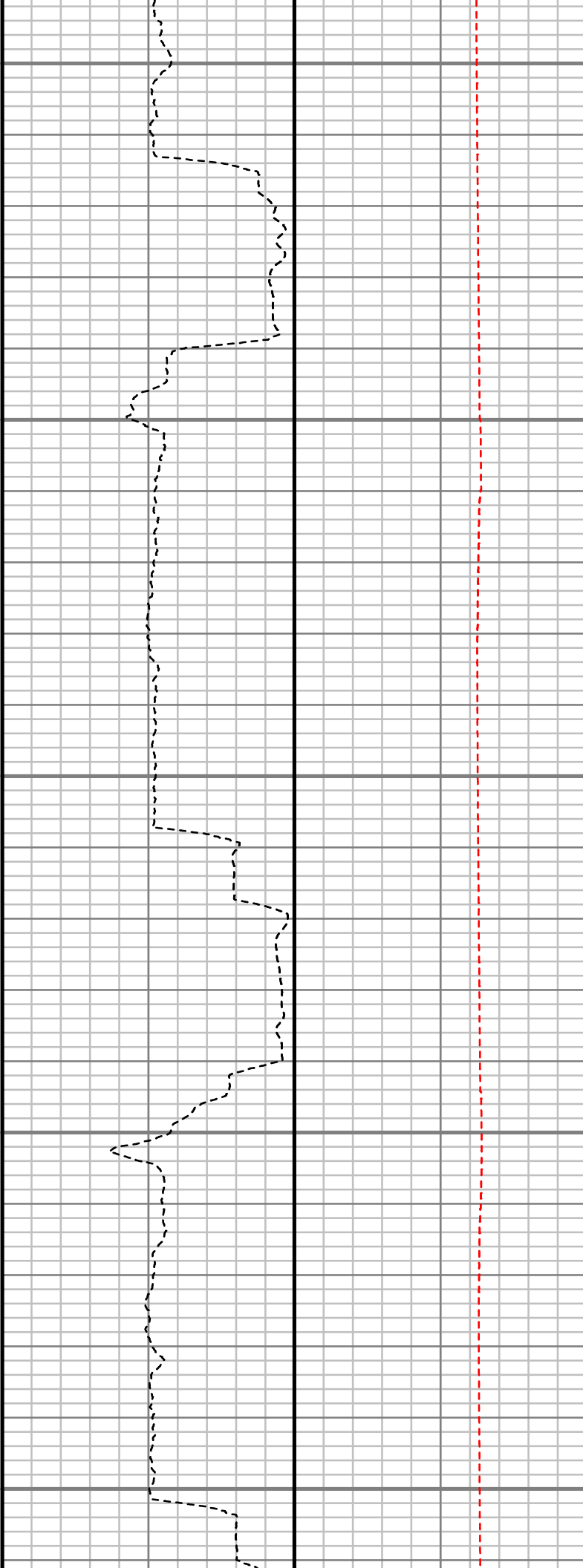
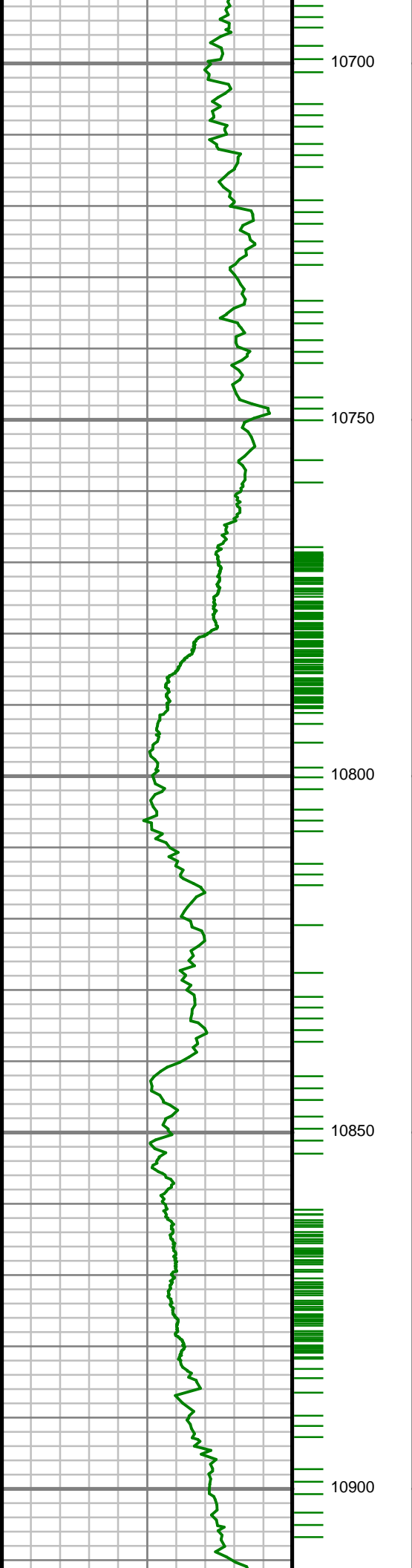
S: 111 MD: 10464.00 ft
Inc: 91.21 deg Az:
359.08 deg TVD:



7152.84 ft

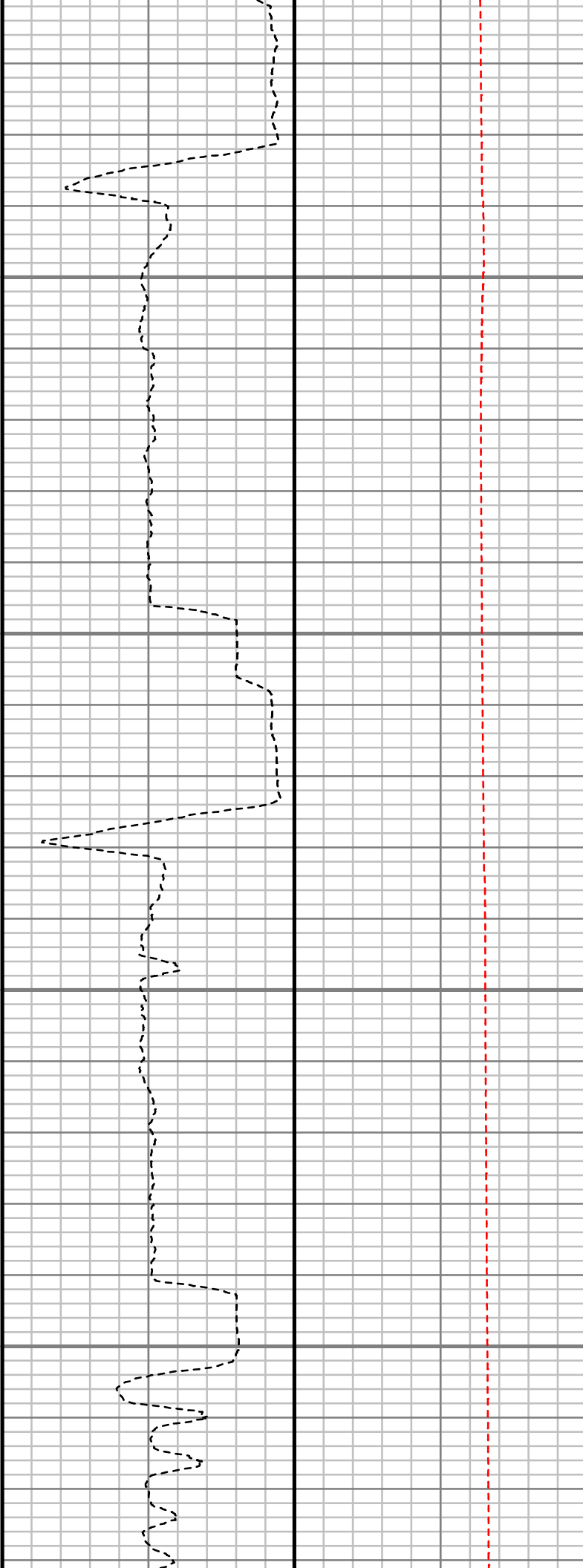
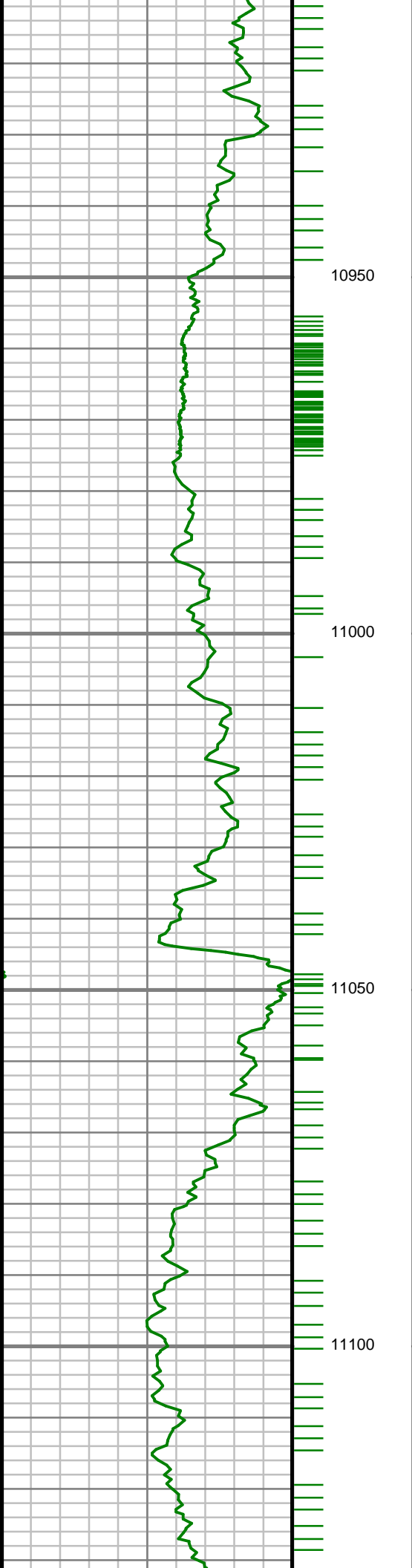
S: 112 MD: 10559.00 ft
Inc: 91.21 deg Az:
358.92 deg TVD:
7150.84 ft

S: 113 MD: 10653.00 ft
Inc: 91.04 deg Az:
359.66 deg TVD:
7148.99 ft



S: 114 MD: 10747.00 ft
Inc: 90.71 deg Az:
359.56 deg TVD:
7147.56 ft

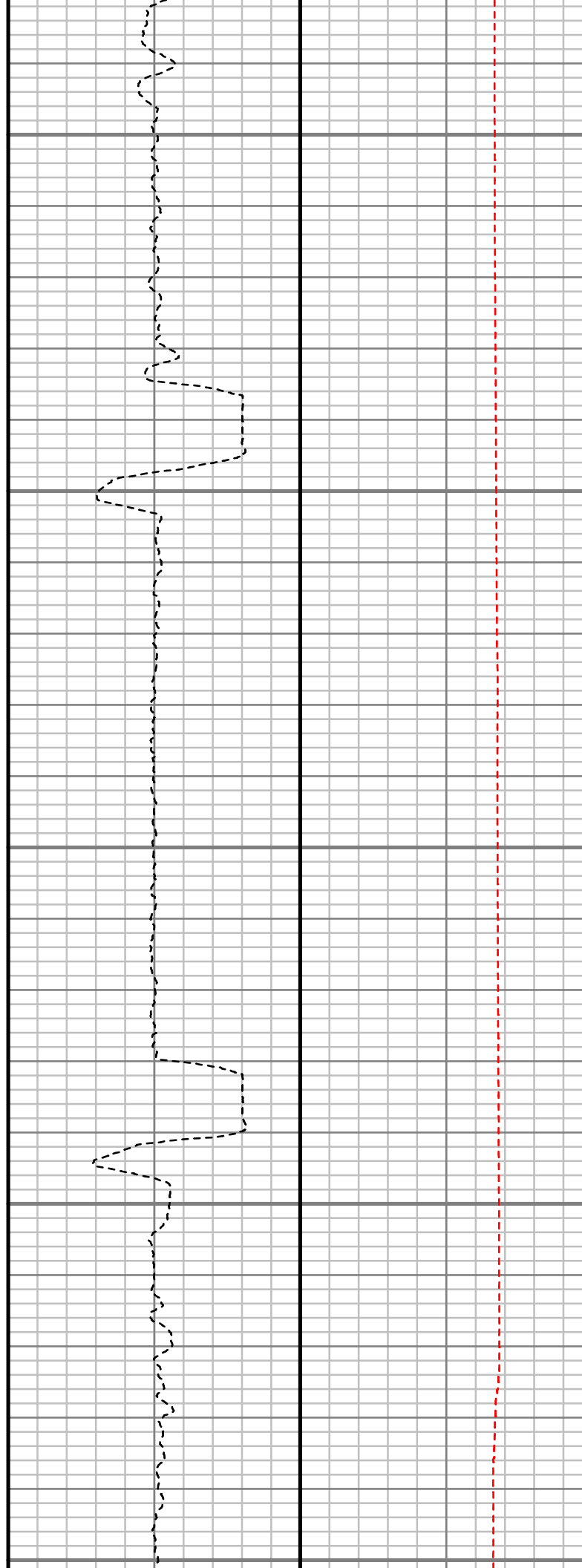
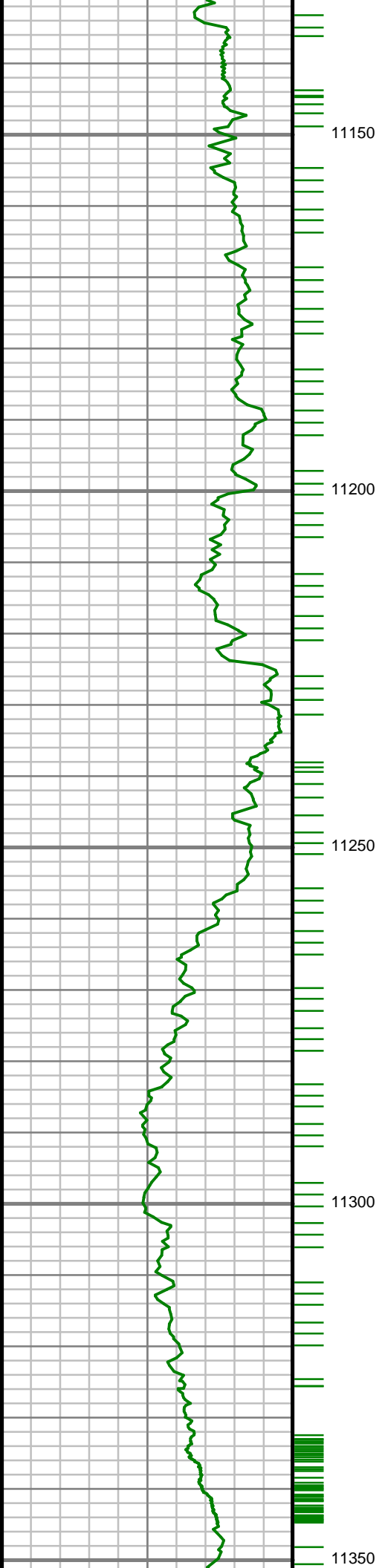
S: 115 MD: 10842.00 ft
Inc: 89.76 deg Az:
359.27 deg TVD:
7147.17 ft



S: 116 MD: 10936.00 ft
Inc: 89.29 deg Az: 0.23
deg TVD: 7147.94 ft

S: 117 MD: 11030.00 ft
Inc: 89.09 deg Az:
359.18 deg TVD:
7149.27 ft

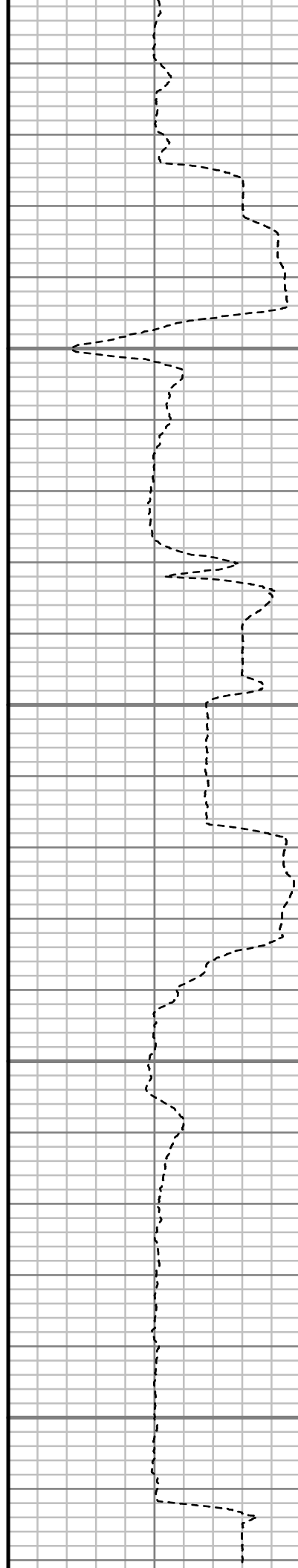
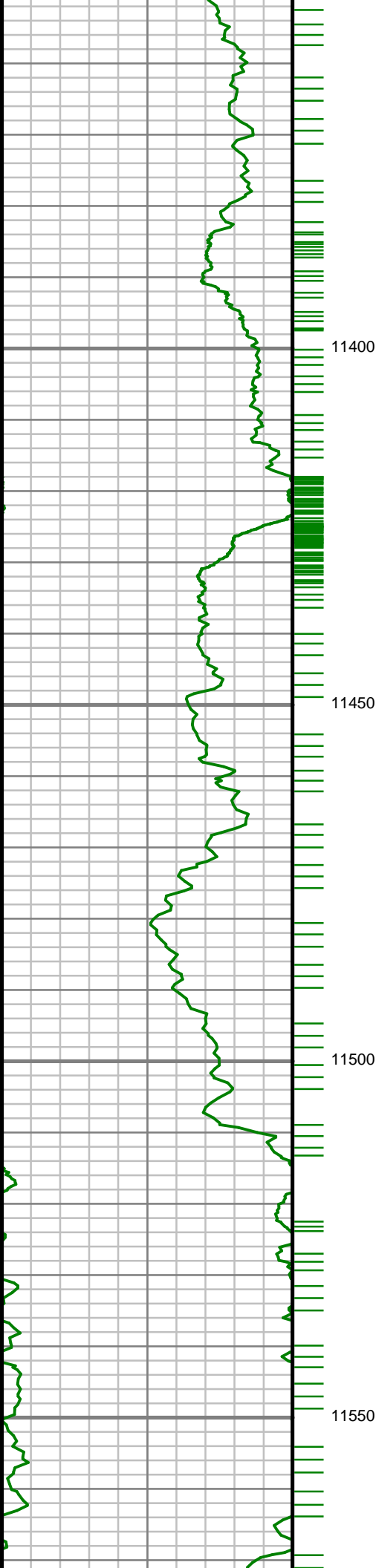
S: 118 MD: 11124.00 ft
Inc: 88.99 deg Az:
358.74 deg TVD:



7150.84 ft

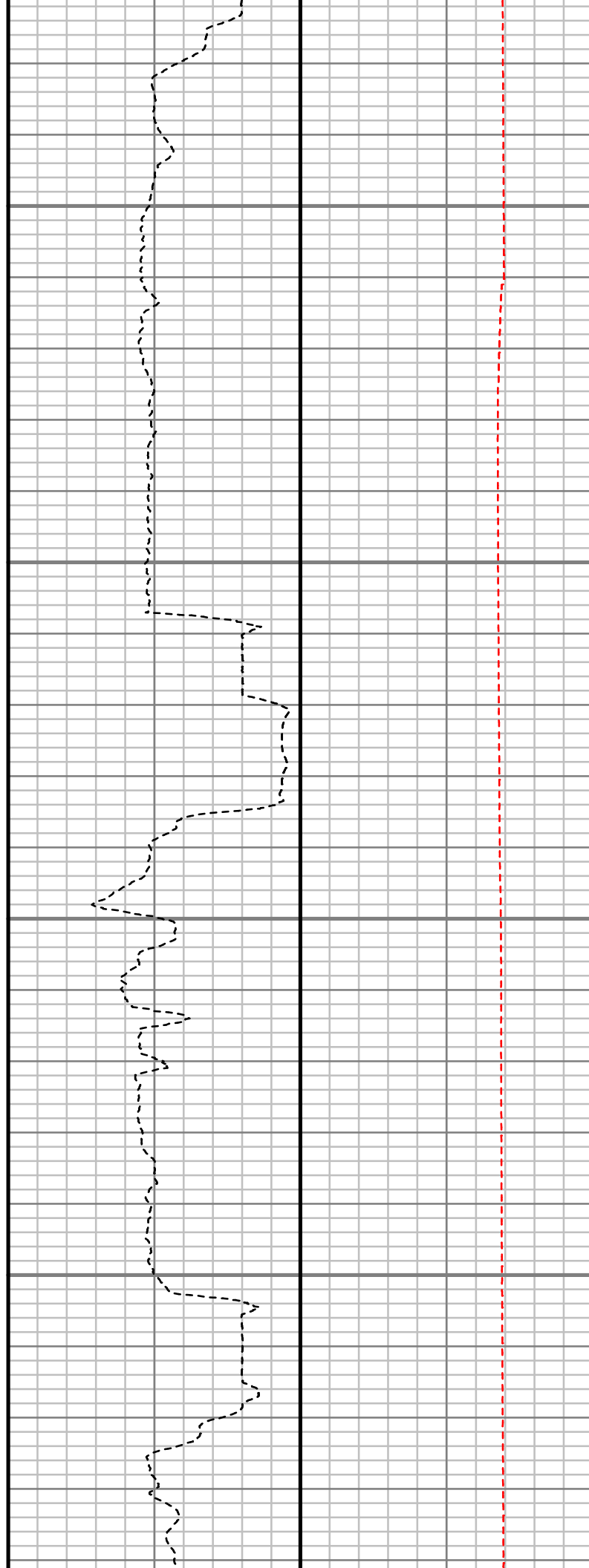
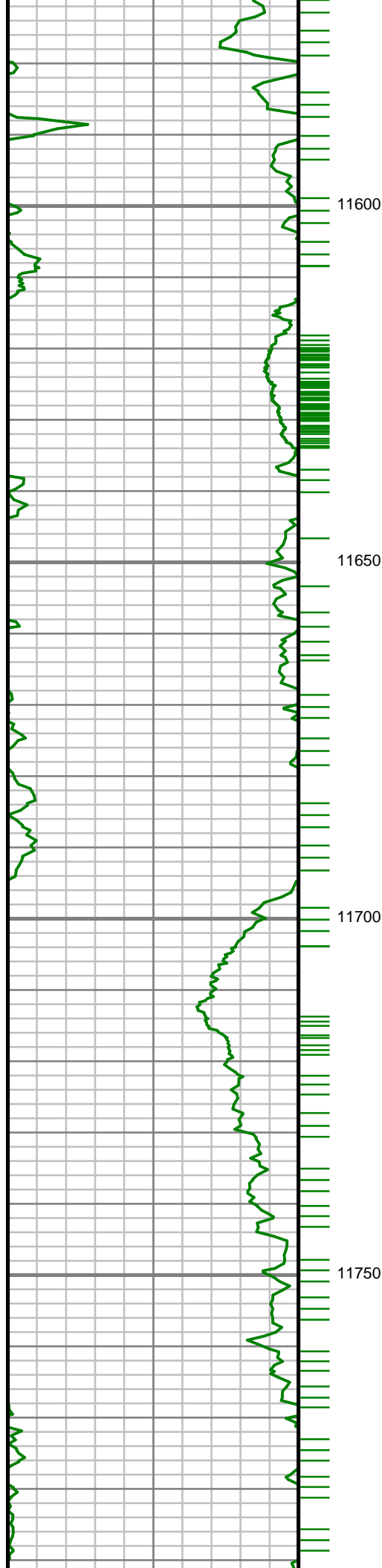
S: 119 MD: 11219.00 ft
Inc: 88.72 deg Az:
358.38 deg TVD:
7152.73 ft

S: 120 MD: 11313.00 ft
Inc: 88.69 deg Az:
358.70 deg TVD:
7154.85 ft



S: 121 MD: 11408.00 ft
Inc: 89.33 deg Az:
357.26 deg TVD:
7156.50 ft

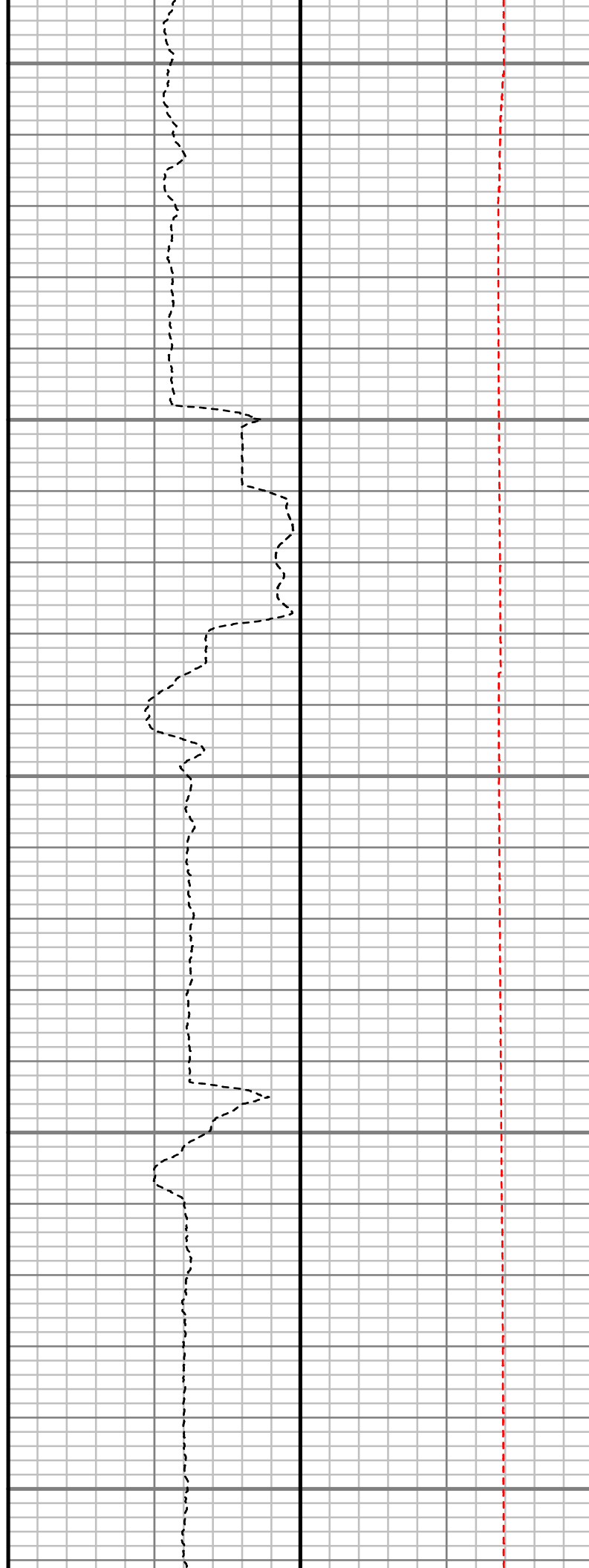
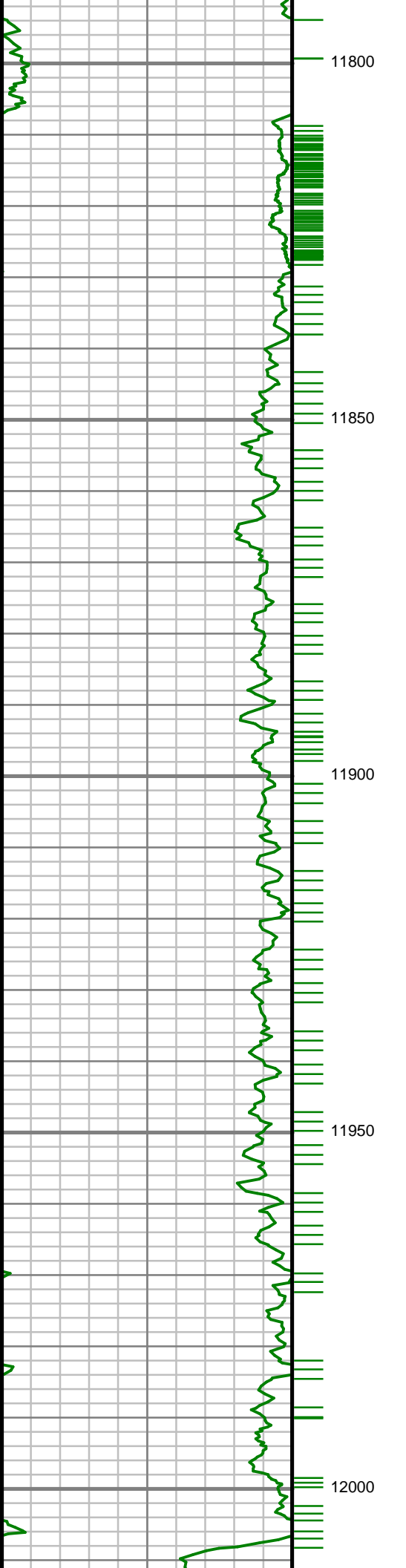
S: 122 MD: 11502.00 ft
Inc: 89.56 deg Az:
358.94 deg TVD:
7157.41 ft



S: 123 MD: 11597.00 ft
Inc: 90.13 deg Az:
358.52 deg TVD:
7157.66 ft

S: 124 MD: 11691.00 ft
Inc: 89.87 deg Az:
359.78 deg TVD:
7157.66 ft

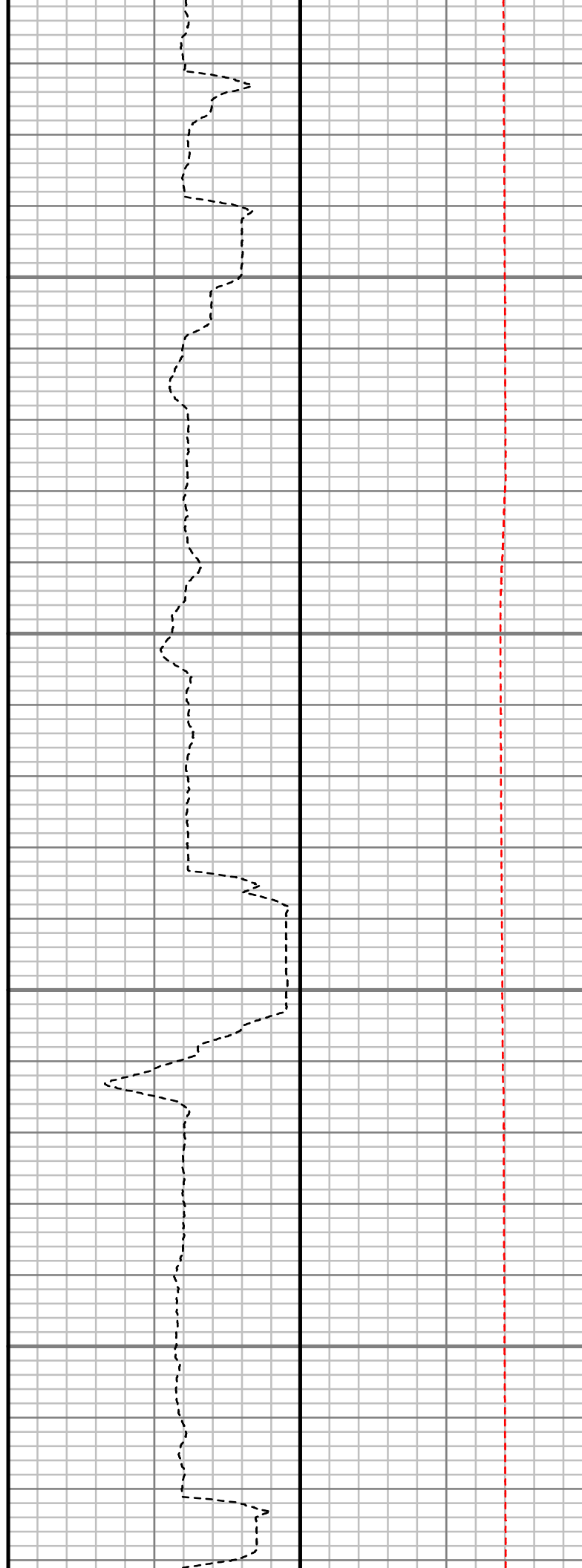
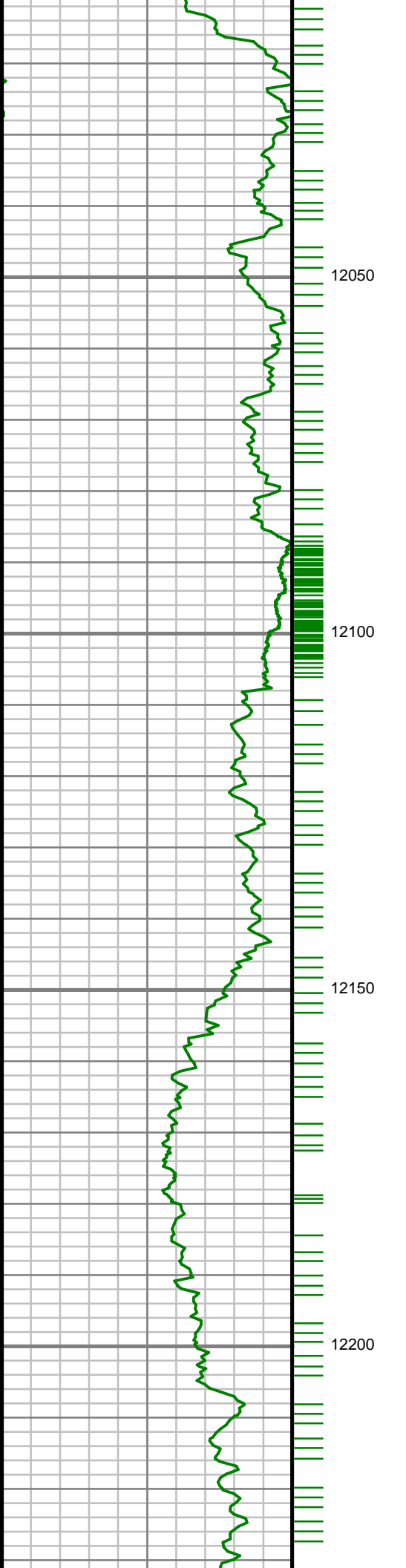
S: 125 MD: 11785.00 ft
Inc: 90.17 deg Az:
359.22 deg TVD:



359.29 deg TVD:
7157.63 ft

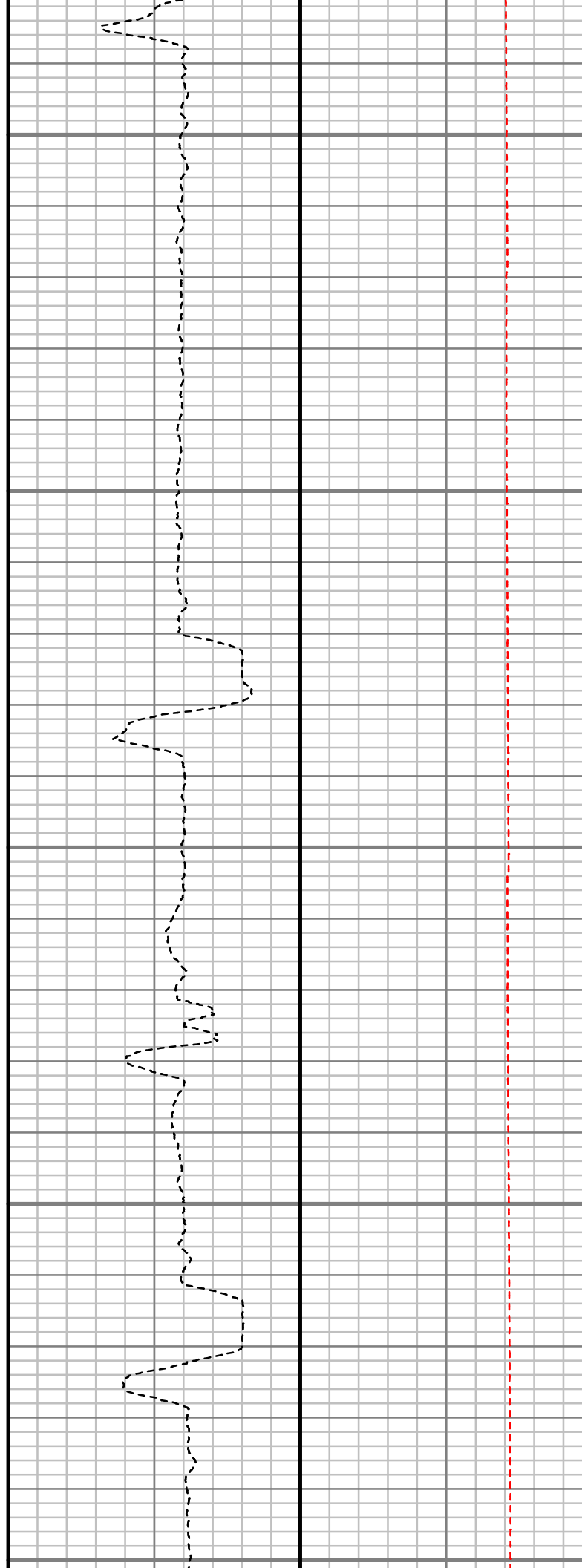
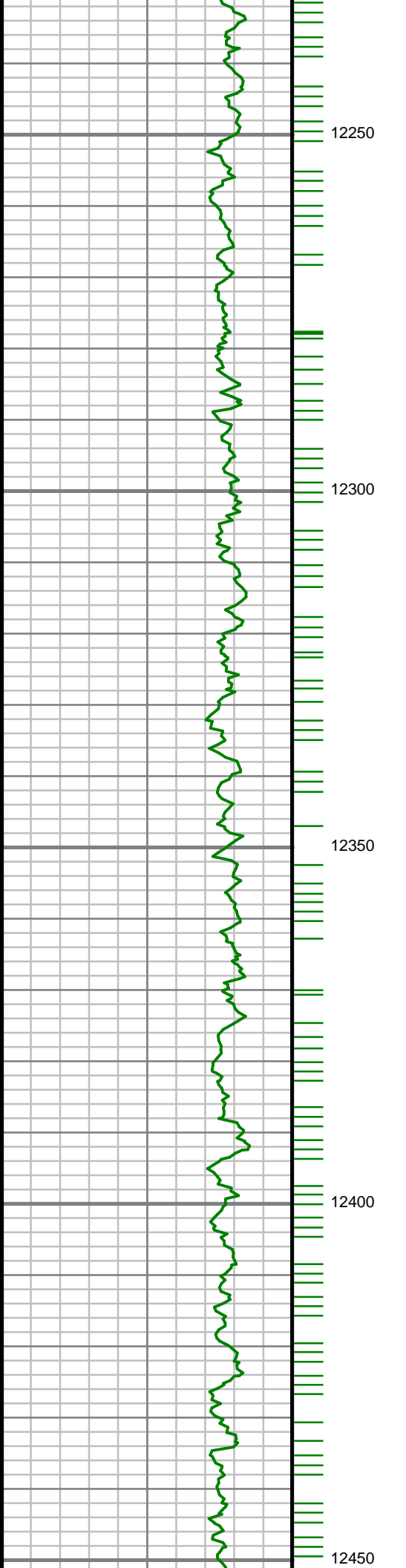
S: 126 MD: 11880.00 ft
Inc: 89.36 deg Az: 0.41
deg TVD: 7158.02 ft

S: 127 MD: 11974.00 ft
Inc: 88.96 deg Az:
359.67 deg TVD:
7159.40 ft



S: 128 MD: 12068.00 ft
Inc: 89.97 deg Az: 359.43 deg TVD: 7160.28 ft

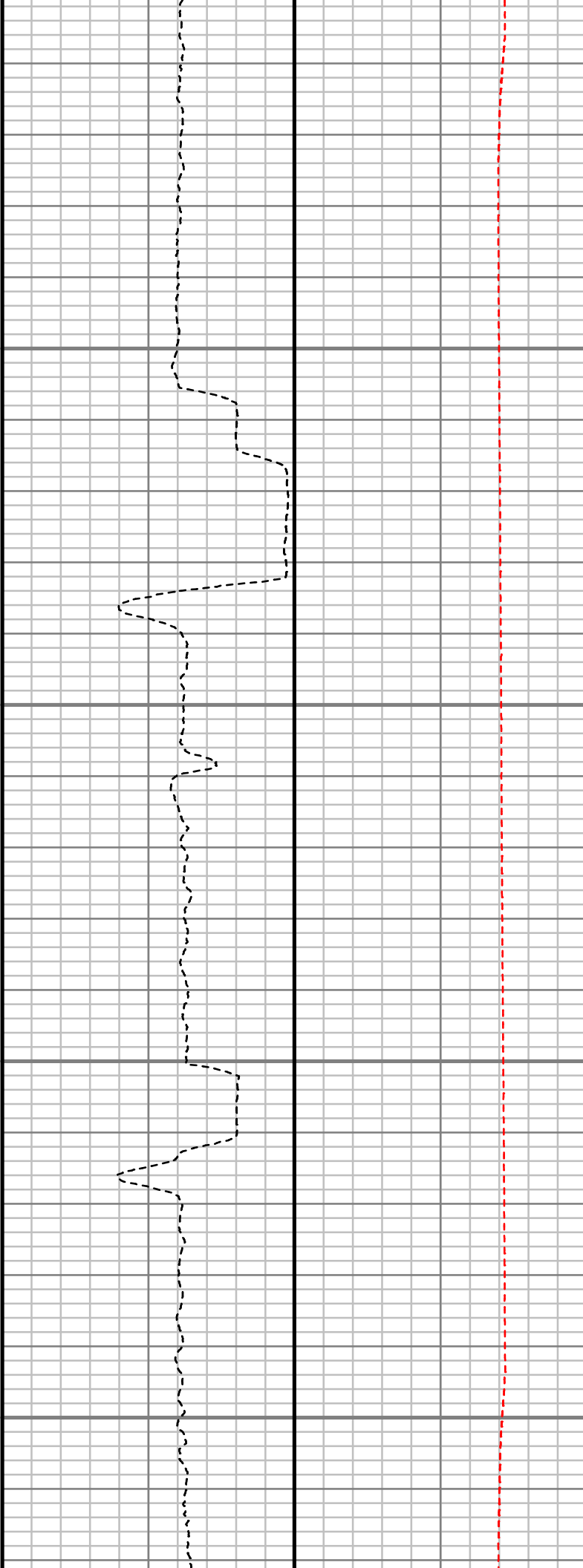
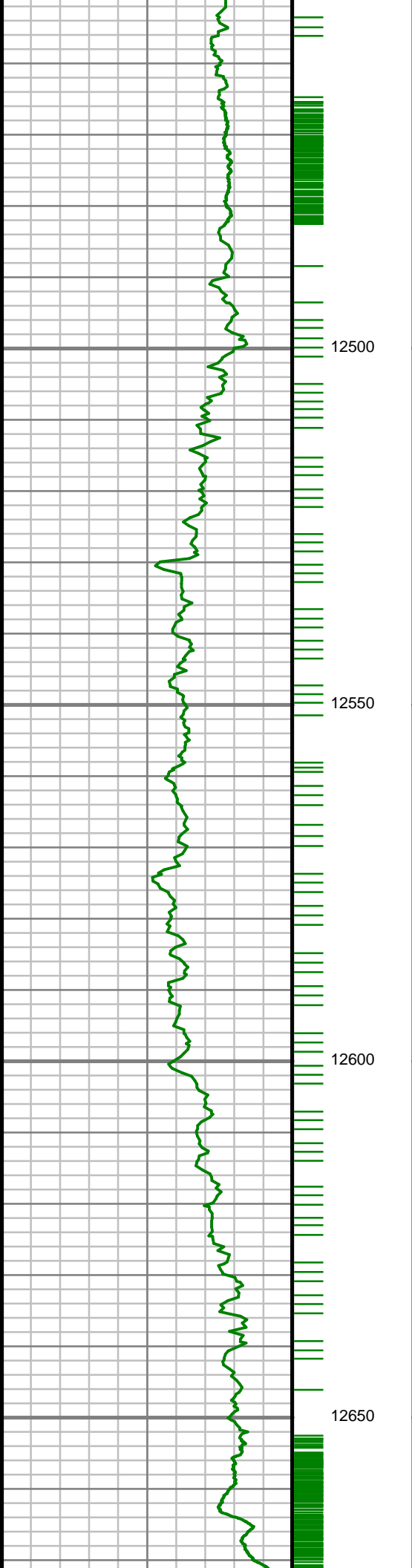
S: 129 MD: 12162.00 ft
Inc: 89.03 deg Az: 0.57 deg TVD: 7161.11 ft



S: 130 MD: 12257.00 ft
Inc: 89.60 deg Az: 0.20
deg TVD: 7162.25 ft

S: 131 MD: 12351.00 ft
Inc: 89.06 deg Az:
359.38 deg TVD:
7163.35 ft

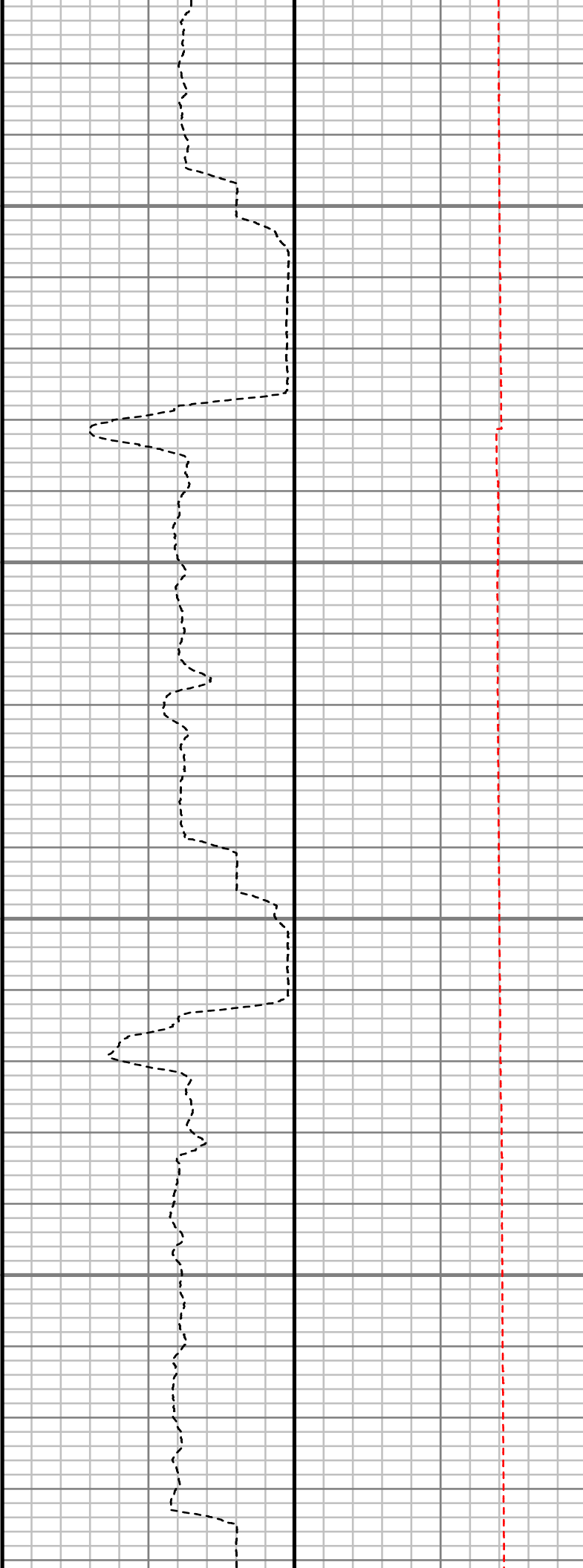
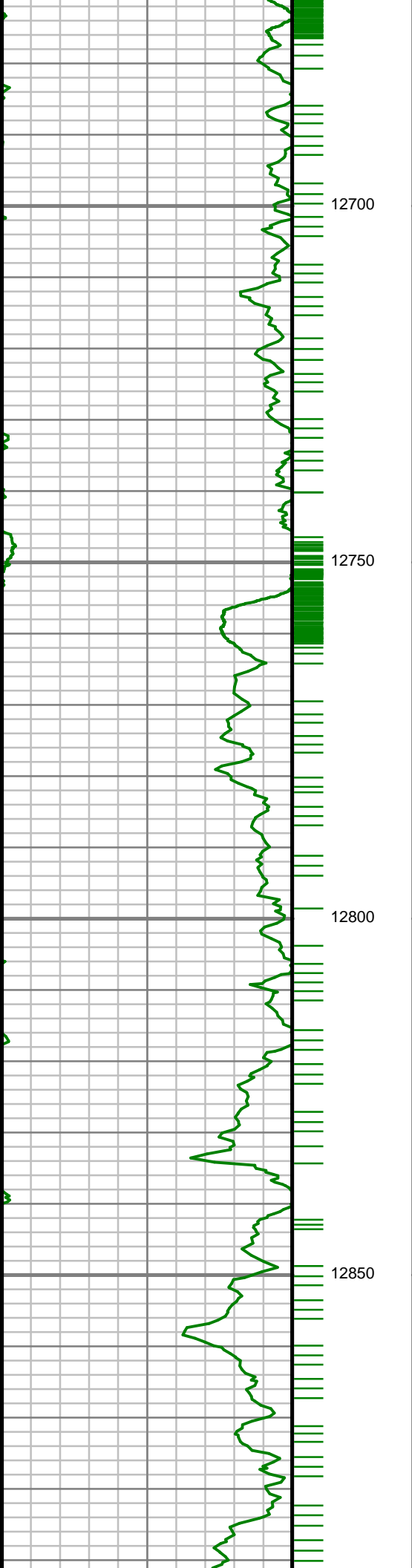
S: 132 MD: 12445.00 ft
Inc: 88.59 deg Az:
359.34 deg TVD:



338.34 deg TVD:
7165.28 ft

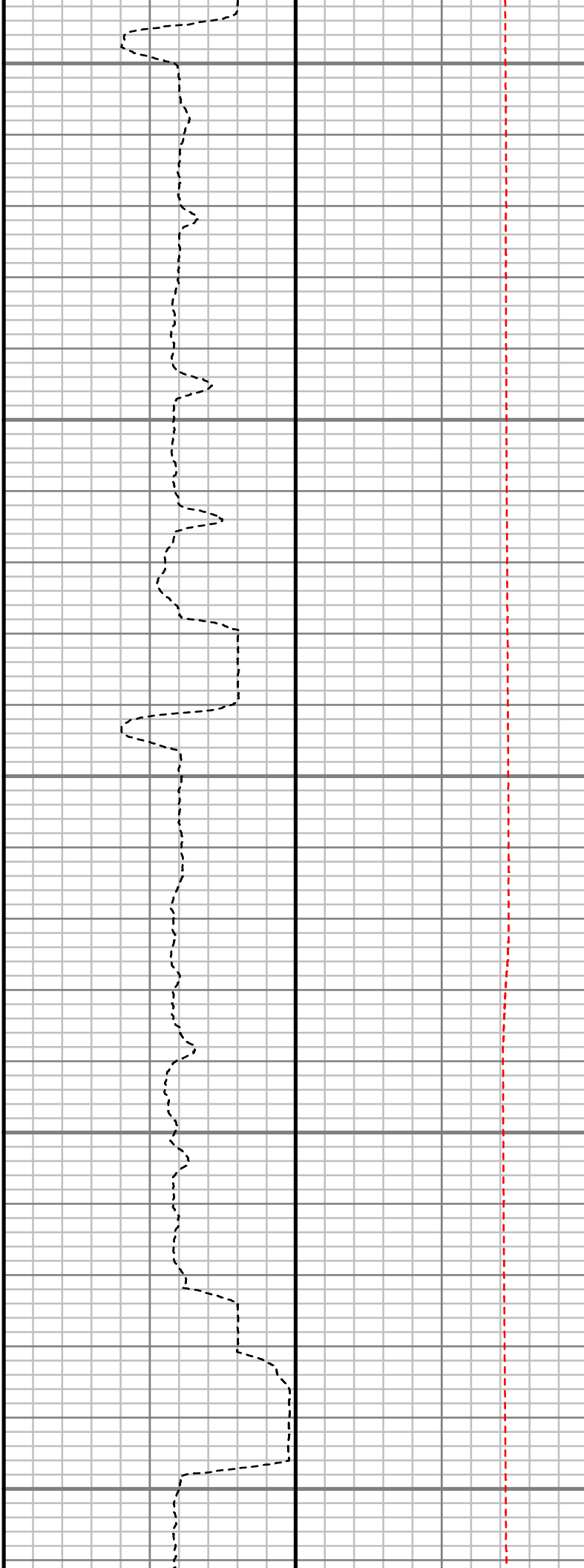
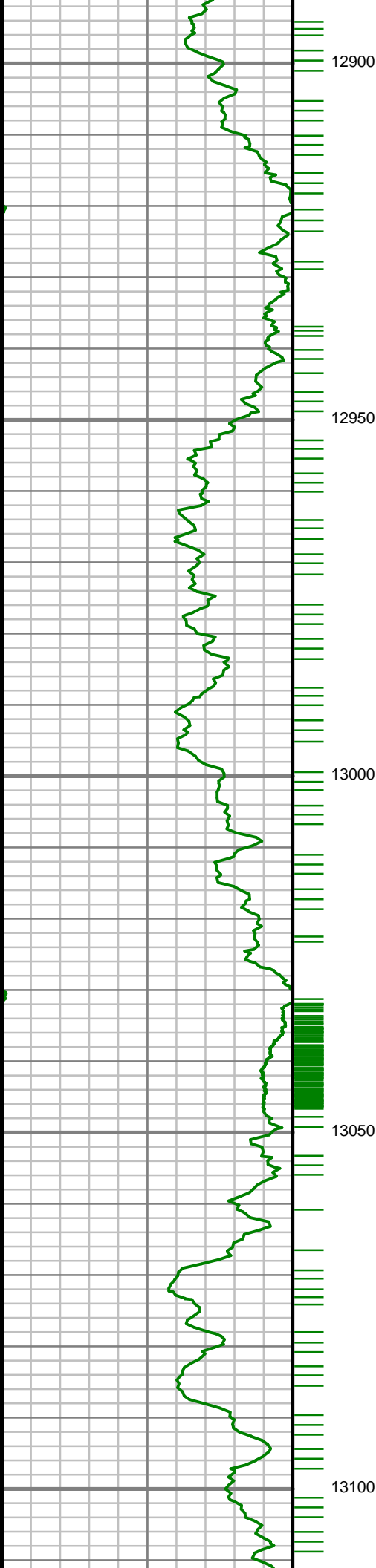
S: 133 MD: 12540.00 ft
Inc: 89.83 deg Az:
359.18 deg TVD:
7166.59 ft

S: 134 MD: 12634.00 ft
Inc: 91.14 deg Az:
359.24 deg TVD:
7165.79 ft



S: 135 MD: 12729.00 ft
Inc: 89.46 deg Az: 0.19
deg TVD: 7165.29 ft

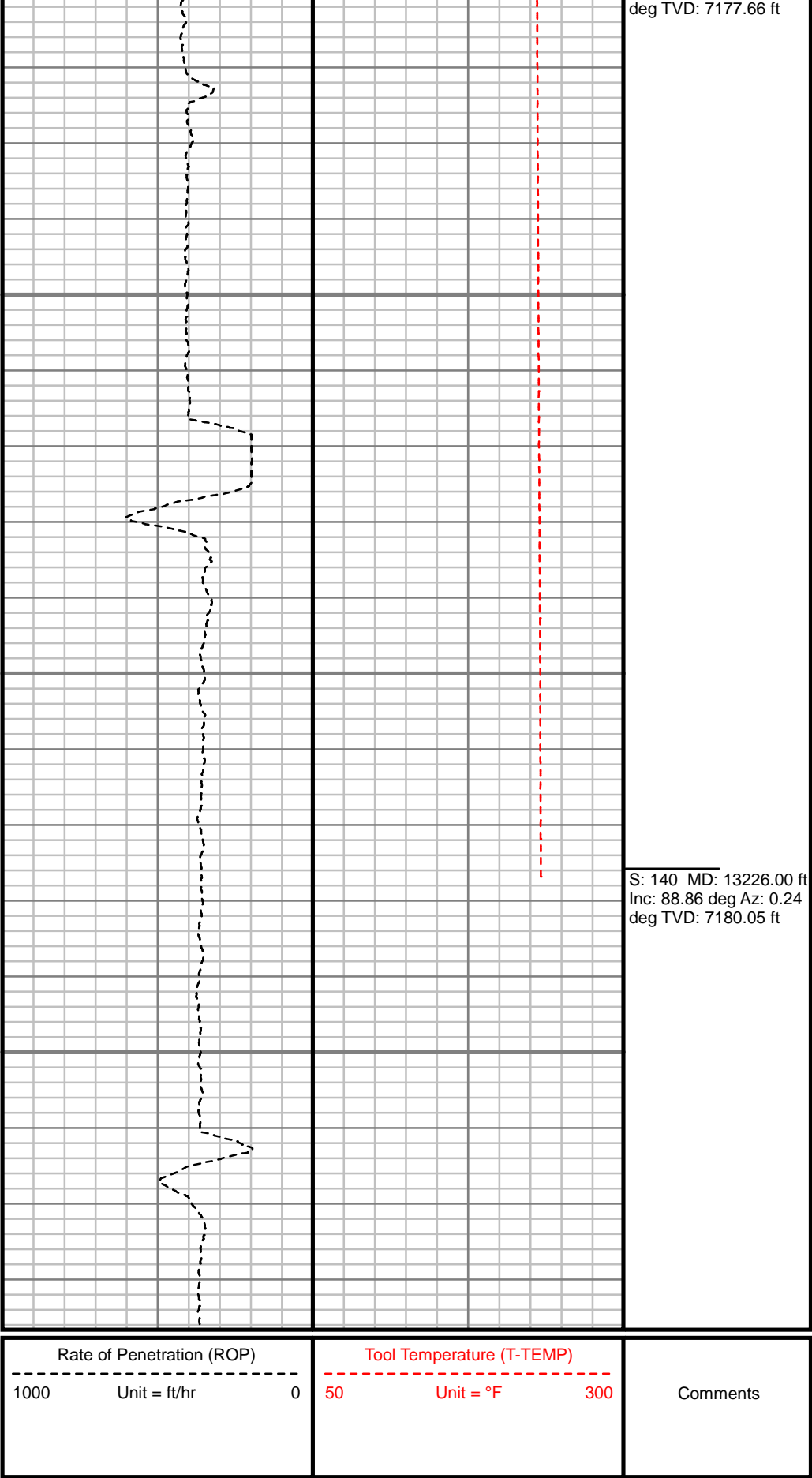
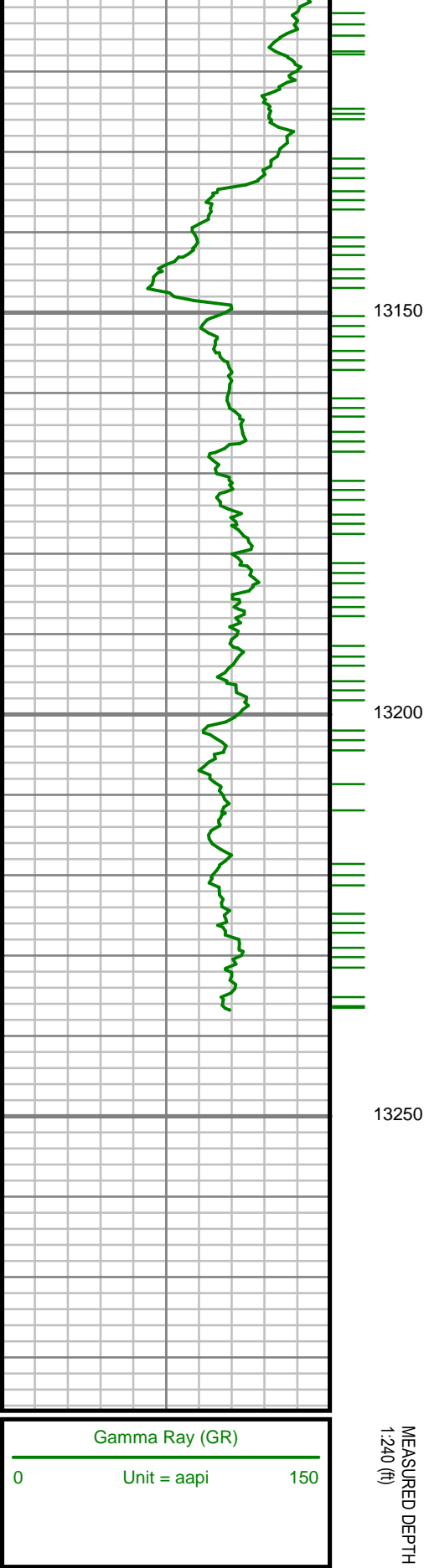
S: 136 MD: 12823.00 ft
Inc: 87.85 deg Az:
359.62 deg TVD:
7167.49 ft



S: 137 MD: 12917.00 ft
Inc: 87.75 deg Az: 0.01
deg TVD: 7171.10 ft

S: 138 MD: 13012.00 ft
Inc: 87.72 deg Az:
359.52 deg TVD:
7174.85 ft

S: 139 MD: 13106.00 ft
Inc: 88.86 deg Az: 0.25



MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	Invalid
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	25.00
101.00	0.10	278.50	101.00	0.01	0.01	-0.07	0.13	76.00
181.00	0.30	304.10	181.00	0.14	0.14	-0.31	0.27	80.00
259.00	0.30	278.30	259.00	0.28	0.28	-0.68	0.17	78.00
339.00	0.30	301.10	339.00	0.42	0.42	-1.07	0.15	80.00
419.00	0.40	272.30	419.00	0.55	0.54	-1.52	0.25	80.00
499.00	0.40	268.50	498.99	0.55	0.54	-2.08	0.03	80.00
579.00	0.60	263.00	578.99	0.50	0.48	-2.78	0.26	80.00
659.00	0.40	256.40	658.99	0.38	0.37	-3.46	0.26	80.00
739.00	0.50	238.90	738.99	0.14	0.12	-4.03	0.21	80.00
819.00	0.30	98.30	818.98	-0.07	-0.09	-4.13	0.95	80.00
899.00	0.30	90.00	898.98	-0.10	-0.12	-3.71	0.05	80.00
979.00	0.50	98.30	978.98	-0.16	-0.17	-3.15	0.26	80.00
1059.00	0.60	74.90	1058.98	-0.10	-0.11	-2.41	0.30	80.00
1139.00	0.70	65.00	1138.97	0.21	0.21	-1.56	0.19	80.00
1219.00	0.60	57.00	1218.97	0.64	0.64	-0.76	0.17	80.00
1299.00	0.70	63.60	1298.96	1.09	1.09	0.03	0.16	80.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
1379.00	0.60	54.70	1378.96	1.54	1.54	0.81	0.18	80.00
1459.00	1.00	51.00	1458.95	2.22	2.23	1.69	0.50	80.00
1542.00	0.90	144.70	1541.94	2.14	2.15	2.63	1.67	83.00
2024.00	0.95	130.86	2023.88	-3.58	-3.55	7.83	0.05	482.00
2119.00	1.81	154.52	2118.85	-5.46	-5.42	9.07	1.07	95.00
2214.00	2.49	154.96	2213.78	-8.69	-8.64	10.59	0.71	95.00
2308.00	3.06	163.10	2307.67	-12.94	-12.89	12.19	0.73	94.00
2403.00	3.02	186.00	2402.54	-17.86	-17.81	12.66	1.27	95.00
2497.00	3.97	190.94	2496.37	-23.51	-23.46	11.78	1.06	94.00
2592.00	5.88	198.71	2591.01	-31.34	-31.30	9.60	2.12	95.00
2686.00	7.99	192.42	2684.32	-42.27	-42.25	6.65	2.39	94.00
2780.00	9.18	188.89	2777.27	-56.06	-56.04	4.08	1.38	94.00
2875.00	9.87	190.60	2870.96	-71.54	-71.53	1.42	0.78	95.00
2969.00	11.55	187.63	2963.32	-88.77	-88.78	-1.32	1.88	94.00
3063.00	11.80	187.64	3055.37	-107.61	-107.63	-3.84	0.27	94.00
3158.00	15.15	185.83	3147.75	-129.58	-129.61	-6.40	3.56	95.00
3252.00	16.41	183.47	3238.20	-155.04	-155.08	-8.45	1.50	94.00
3346.00	17.80	182.66	3328.05	-182.64	-182.68	-9.92	1.50	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
3440.00	19.66	186.06	3417.07	-212.70	-212.76	-12.25	2.30	94.00
3534.00	21.67	187.45	3505.02	-245.62	-245.69	-16.17	2.20	94.00
3628.00	20.80	181.33	3592.64	-279.51	-279.60	-18.81	2.53	94.00
3723.00	20.75	176.32	3681.47	-313.18	-313.26	-18.12	1.87	95.00
3817.00	22.14	177.68	3768.97	-347.50	-347.57	-16.34	1.57	94.00
3911.00	18.42	182.27	3857.13	-380.04	-380.12	-16.21	4.30	94.00
4005.00	19.10	187.52	3946.14	-410.12	-410.20	-18.81	1.93	94.00
4099.00	18.60	191.47	4035.11	-440.03	-440.14	-23.80	1.46	94.00
4194.00	16.65	186.16	4125.65	-468.40	-468.52	-28.28	2.66	95.00
4288.00	19.46	183.38	4215.01	-497.41	-497.54	-30.65	3.12	94.00
4382.00	21.36	181.21	4303.11	-530.15	-530.29	-31.93	2.18	94.00
4476.00	18.94	180.76	4391.35	-562.52	-562.66	-32.49	2.58	94.00
4570.00	16.53	180.46	4480.88	-591.14	-591.28	-32.80	2.56	94.00
4664.00	15.82	184.30	4571.16	-617.29	-617.44	-33.87	1.36	94.00
4758.00	14.96	187.00	4661.79	-642.10	-642.26	-36.31	1.19	94.00
4853.00	14.00	188.46	4753.77	-665.62	-665.79	-39.50	1.09	95.00
4947.00	14.76	188.65	4844.83	-688.69	-688.87	-42.97	0.81	94.00
5041.00	13.98	191.16	4935.89	-711.64	-711.85	-46.97	1.06	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
5135.00	11.52	193.10	5027.56	-731.91	-732.13	-51.29	2.65	94.00
5230.00	11.08	190.12	5120.72	-750.12	-750.36	-55.05	0.77	95.00
5324.00	10.03	191.20	5213.13	-767.03	-767.28	-58.22	1.14	94.00
5418.00	9.84	183.25	5305.73	-783.07	-783.33	-60.27	1.47	94.00
5512.00	11.18	182.12	5398.15	-800.19	-800.46	-61.06	1.44	94.00
5606.00	7.54	181.83	5490.88	-815.47	-815.73	-61.59	3.87	94.00
5700.00	7.10	183.42	5584.11	-827.43	-827.70	-62.14	0.51	94.00
5795.00	7.46	184.97	5678.35	-839.43	-839.71	-63.02	0.43	95.00
5889.00	6.45	188.65	5771.65	-850.73	-851.00	-64.34	1.18	94.00
5983.00	4.42	188.16	5865.23	-859.53	-859.81	-65.65	2.15	94.00
6077.00	2.92	188.73	5959.03	-865.47	-865.76	-66.53	1.60	94.00
6172.00	1.97	262.80	6053.96	-868.06	-868.36	-68.52	3.20	95.00
6266.00	1.39	241.72	6147.92	-868.79	-869.10	-71.12	0.89	94.00
6361.00	0.85	188.00	6242.91	-870.03	-870.34	-72.23	1.18	95.00
6455.00	0.82	188.66	6336.90	-871.39	-871.70	-72.43	0.04	94.00
6549.00	0.78	193.45	6430.89	-872.68	-872.99	-72.68	0.09	94.00
6644.00	3.32	5.75	6525.85	-870.57	-870.88	-72.56	4.30	95.00
6738.00	10.82	356.92	6619.07	-859.03	-859.35	-72.76	8.04	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
6832.00	15.79	1.41	6710.52	-837.42	-837.73	-72.92	5.40	94.00
6926.00	21.68	359.48	6799.50	-807.25	-807.56	-72.77	6.29	94.00
7020.00	27.06	356.28	6885.09	-768.51	-768.83	-74.31	5.89	94.00
7115.00	33.87	357.87	6966.93	-720.43	-720.76	-76.70	7.21	95.00
7208.00	41.38	356.51	7040.54	-663.76	-664.10	-79.54	8.13	93.00
7302.00	59.18	1.08	7100.38	-591.79	-592.13	-80.68	19.29	94.00
7348.00	69.08	0.55	7120.43	-550.45	-550.79	-80.09	21.54	46.00
7389.00	76.76	358.49	7132.46	-511.29	-511.63	-80.44	19.33	41.00
7443.00	84.31	358.13	7141.34	-458.08	-458.43	-82.01	14.01	54.00
7538.00	85.39	358.12	7149.86	-363.51	-363.87	-85.11	1.14	95.00
7632.00	87.68	357.99	7155.54	-269.73	-270.10	-88.29	2.44	94.00
7821.00	91.78	0.89	7156.43	-80.79	-81.17	-90.15	2.66	189.00
7915.00	92.76	1.25	7152.71	13.11	12.74	-88.39	1.11	94.00
8010.00	91.95	0.18	7148.81	108.01	107.65	-87.21	1.41	95.00
8105.00	91.04	0.65	7146.33	202.97	202.61	-86.52	1.07	95.00
8199.00	90.54	359.70	7145.03	296.96	296.60	-86.23	1.14	94.00
8294.00	89.29	0.46	7145.17	391.96	391.60	-86.10	1.53	95.00
8388.00	89.56	0.46	7146.11	485.94	485.59	-85.35	0.29	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
8483.00	89.56	0.91	7146.83	580.93	580.58	-84.21	0.47	95.00
8578.00	90.24	1.18	7147.00	675.90	675.56	-82.48	0.76	95.00
8672.00	89.29	0.00	7147.39	769.89	769.56	-81.52	1.60	94.00
8767.00	90.37	0.01	7147.66	864.89	864.55	-81.51	1.13	95.00
8861.00	90.74	1.24	7146.76	958.87	958.54	-80.49	1.37	94.00
8956.00	90.74	0.69	7145.53	1053.84	1053.52	-78.89	0.58	95.00
9050.00	90.67	0.88	7144.38	1147.82	1147.50	-77.60	0.21	94.00
9145.00	90.67	0.85	7143.26	1242.80	1242.49	-76.17	0.04	95.00
9239.00	90.17	2.07	7142.57	1336.75	1336.45	-73.78	1.40	94.00
9334.00	89.50	2.49	7142.85	1431.66	1431.38	-70.00	0.84	95.00
9428.00	88.89	2.55	7144.17	1525.54	1525.28	-65.87	0.65	94.00
9523.00	89.16	1.56	7145.79	1620.45	1620.20	-62.47	1.08	95.00
9618.00	89.23	0.15	7147.13	1715.42	1715.18	-61.05	1.48	95.00
9712.00	89.87	359.70	7147.87	1809.41	1809.17	-61.17	0.83	94.00
9806.00	89.46	0.01	7148.42	1903.41	1903.17	-61.42	0.54	94.00
9900.00	90.17	358.67	7148.72	1997.41	1997.16	-62.51	1.61	94.00
9993.00	89.66	358.46	7148.86	2090.39	2090.13	-64.84	0.59	93.00
10087.00	89.76	359.24	7149.33	2184.37	2184.11	-66.73	0.84	94.00
10182.00	88.52	359.24	7150.75	2279.35	2279.09	-67.99	1.31	95.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
10276.00	89.36	359.63	7152.49	2373.34	2373.07	-68.91	0.98	94.00
10370.00	89.50	358.85	7153.42	2467.33	2467.05	-70.16	0.84	94.00
10464.00	91.21	359.08	7152.84	2561.31	2561.03	-71.85	1.84	94.00
10559.00	91.21	358.92	7150.84	2656.28	2656.00	-73.51	0.16	95.00
10653.00	91.04	359.66	7148.99	2750.26	2749.97	-74.68	0.80	94.00
10747.00	90.71	359.56	7147.56	2844.25	2843.96	-75.32	0.37	94.00
10842.00	89.76	359.27	7147.17	2939.25	2938.95	-76.29	1.03	95.00
10936.00	89.29	0.23	7147.94	3033.24	3032.95	-76.70	1.13	94.00
11030.00	89.09	359.18	7149.27	3127.23	3126.93	-77.18	1.14	94.00
11124.00	88.99	358.74	7150.84	3221.21	3220.91	-78.89	0.47	94.00
11219.00	88.72	358.38	7152.73	3316.17	3315.86	-81.28	0.48	95.00
11313.00	88.69	358.70	7154.85	3410.12	3409.80	-83.68	0.34	94.00
11408.00	89.33	357.26	7156.50	3505.06	3504.73	-87.04	1.66	95.00
11502.00	89.56	358.94	7157.41	3599.01	3598.67	-90.16	1.81	94.00
11597.00	90.13	358.52	7157.66	3694.00	3693.64	-92.26	0.74	95.00
11691.00	89.87	359.78	7157.66	3787.99	3787.63	-93.65	1.37	94.00
11785.00	90.17	359.29	7157.63	3881.99	3881.63	-94.41	0.62	94.00
11880.00	89.36	0.41	7158.02	3976.98	3976.62	-94.66	1.46	95.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
11974.00	88.96	359.67	7159.40	4070.97	4070.61	-94.59	0.90	94.00
12068.00	89.97	359.43	7160.28	4164.97	4164.60	-95.33	1.10	94.00
12162.00	89.03	0.57	7161.11	4258.96	4258.60	-95.33	1.58	94.00
12257.00	89.60	0.20	7162.25	4353.95	4353.59	-94.70	0.72	95.00
12351.00	89.06	359.38	7163.35	4447.94	4447.58	-95.04	1.04	94.00
12445.00	88.59	358.34	7165.28	4541.91	4541.54	-96.90	1.22	94.00
12540.00	89.83	359.18	7166.59	4636.88	4636.51	-98.96	1.58	95.00
12634.00	91.14	359.24	7165.79	4730.87	4730.49	-100.25	1.40	94.00
12729.00	89.46	0.19	7165.29	4825.86	4825.48	-100.72	2.03	95.00
12823.00	87.85	359.62	7167.49	4919.83	4919.45	-100.87	1.82	94.00
12917.00	87.75	0.01	7171.10	5013.76	5013.38	-101.17	0.42	94.00
13012.00	87.72	359.52	7174.85	5108.69	5108.31	-101.56	0.51	95.00
13106.00	88.86	0.25	7177.66	5202.65	5202.26	-101.76	1.44	94.00
13226.00	88.86	0.24	7180.05	5322.62	5322.24	-101.24	0.00	120.00



GAMMA RAY

5" = 100' FEET MD