

Remarks
ANADARKO E&P ONSHORE LLC. PRODUCTION AFE# 2102967
SCIENTIFIC DRILLING INTERNATIONAL JOB# 214734
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN #1 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-522 / CONT= 880 / MWD EYE=1100 / GAMMA RAY=1140
BIT TO SENSOR OFFSETS: SURVEY=52.71 FT. / GAMMA RAY=43.46 FT
RUN #2 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-122 / CONT= 590 / MWD EYE=0702 / GAMMA RAY=1031
BIT TO SENSOR OFFSETS: SURVEY=60.54 FT. / GAMMA RAY=51.29 FT
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

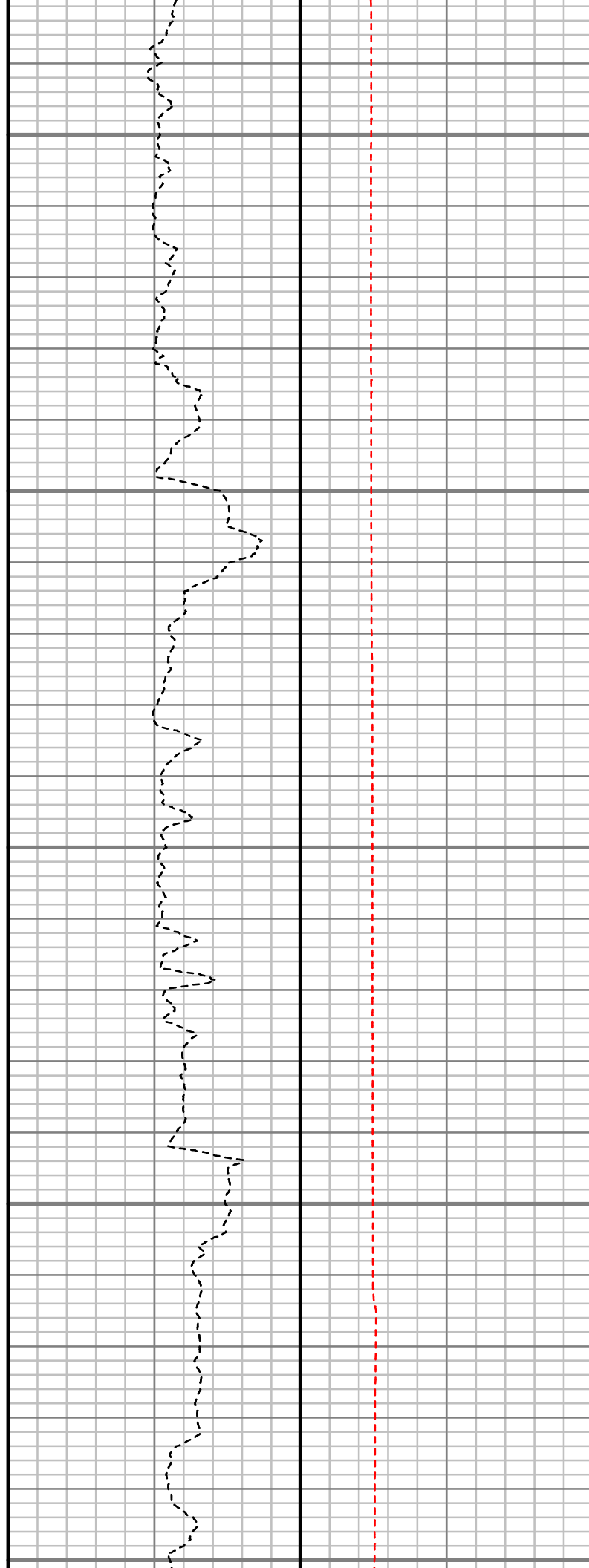
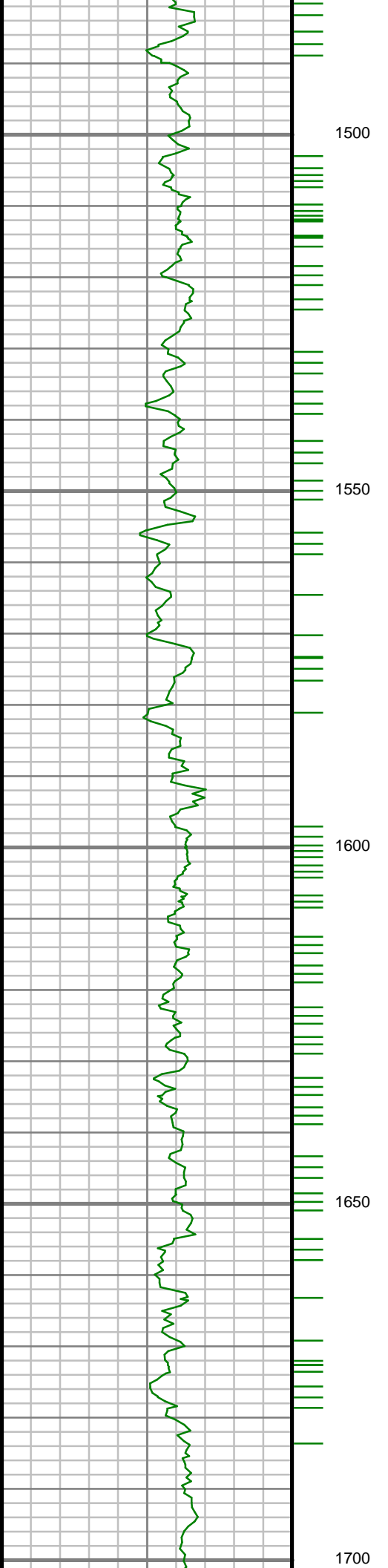
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.

[illegible]

S: 14 MD: 1272.00 ft
Inc: 0.94 deg Az: 68.24
deg TVD: 1271.93 ft

S: 15 MD: 1387.00 ft
Inc: 0.44 deg Az: 59.77
deg TVD: 1386.92 ft

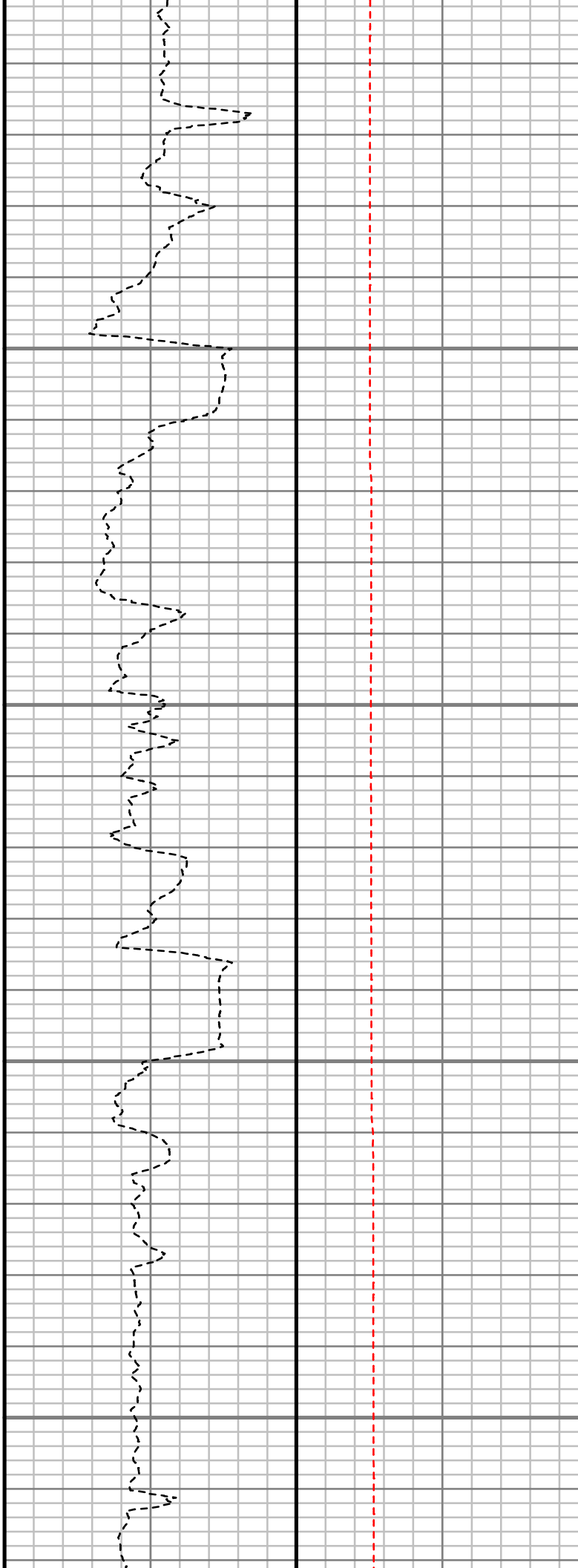
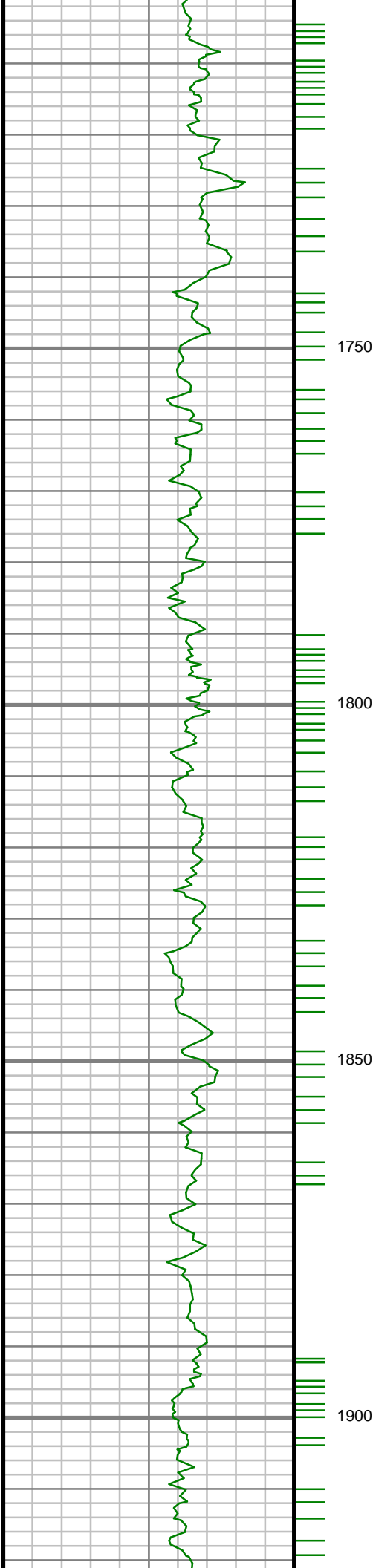
S: 16 MD: 1478.00 ft



Inc: 1.38 deg Az: 14.69
deg TVD: 1477.90 ft

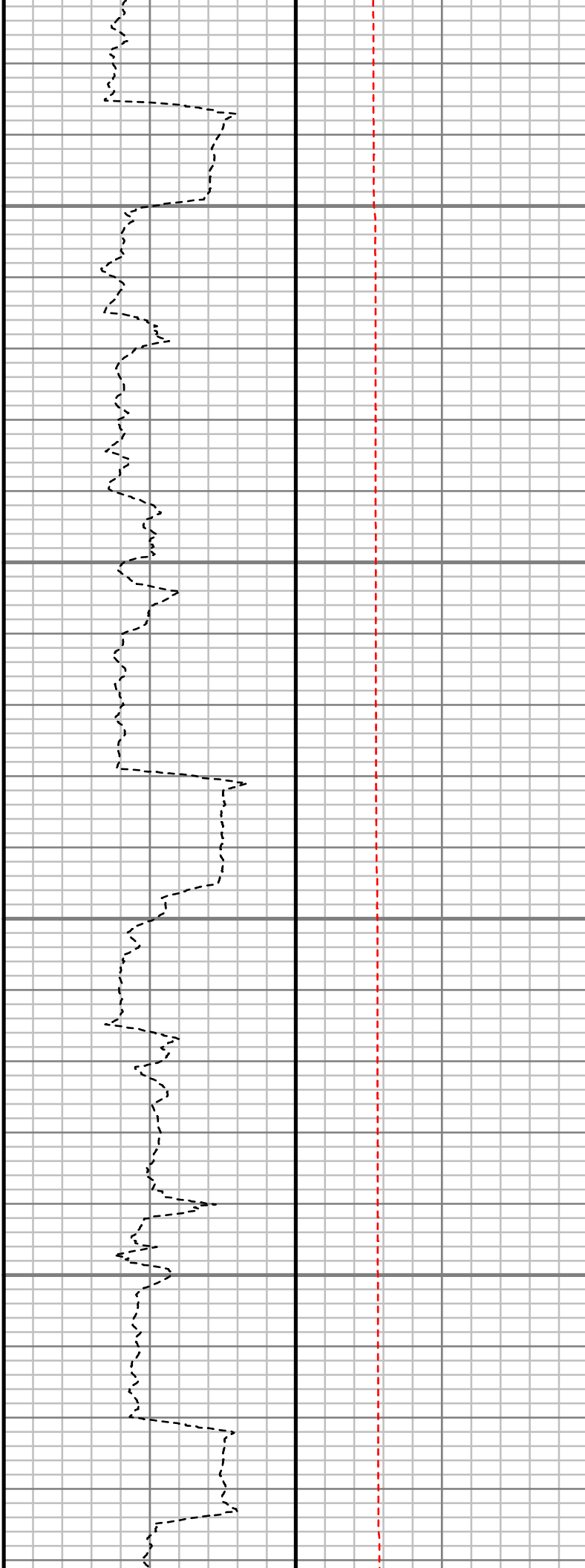
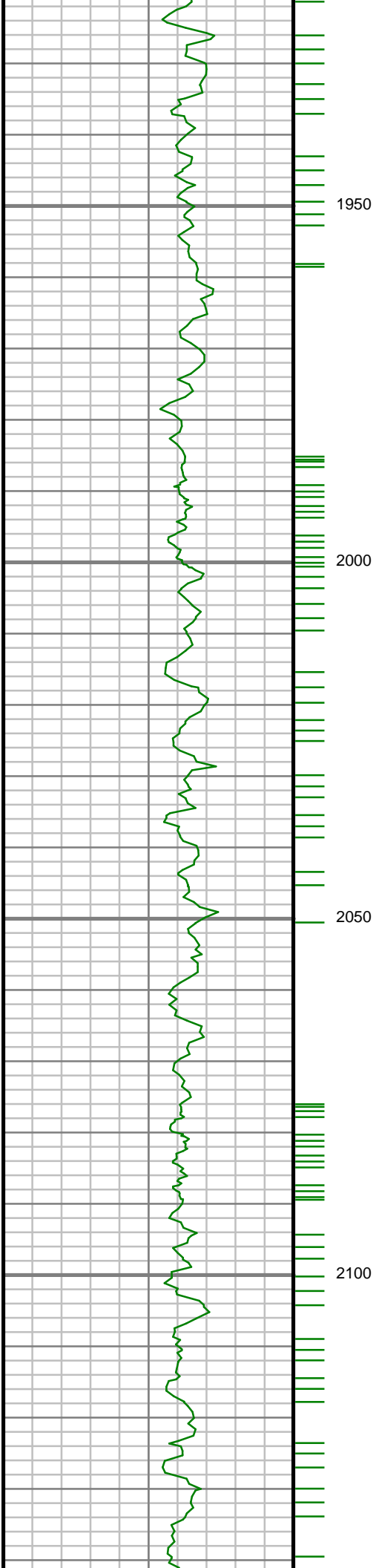
S: 17 MD: 1569.00 ft
Inc: 2.79 deg Az:
345.54 deg TVD:
1568.84 ft

S: 18 MD: 1674.00 ft
Inc: 4.81 deg Az:
325.22 deg TVD:
1673.61 ft



S: 19 MD: 1766.00 ft
Inc: 6.21 deg Az:
325.68 deg TVD:
1765.19 ft

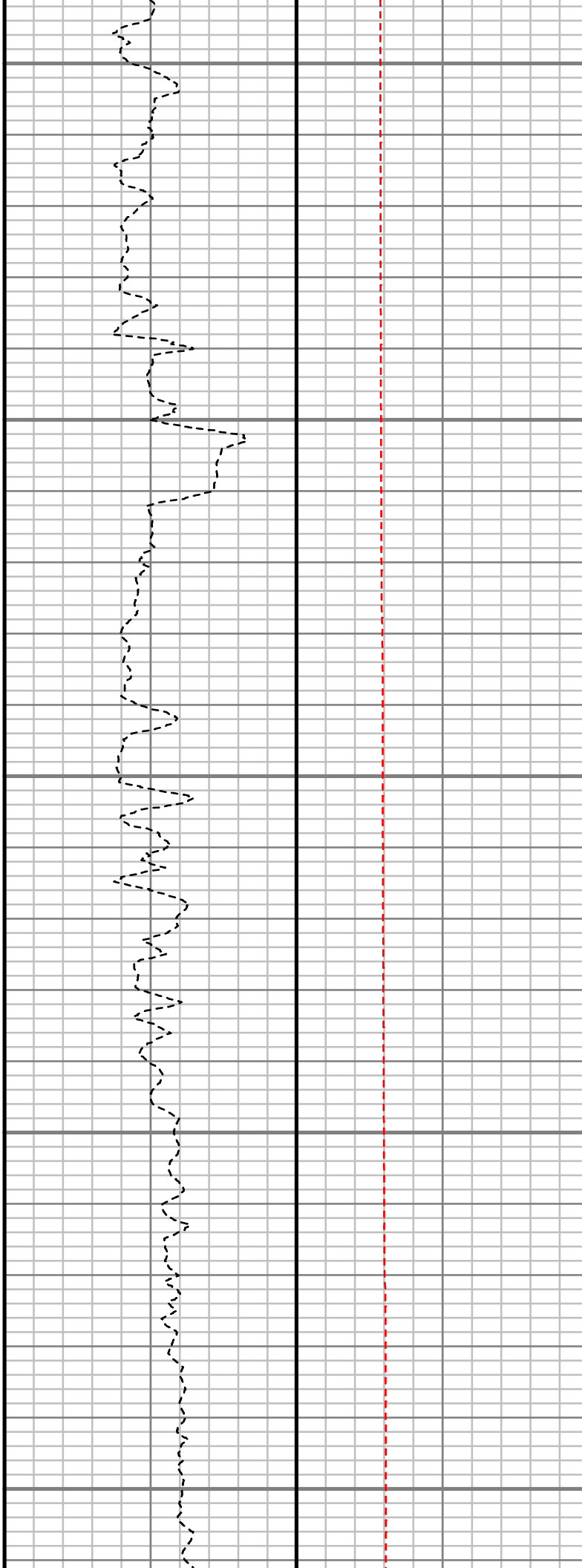
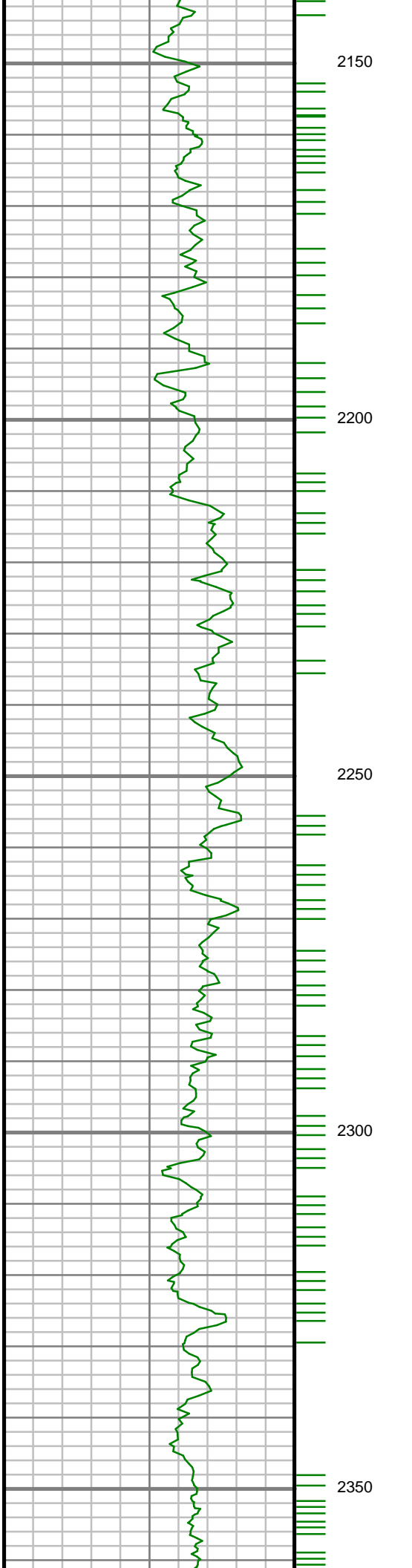
S: 20 MD: 1857.00 ft
Inc: 8.38 deg Az:
317.29 deg TVD:
1855.45 ft



S: 21 MD: 1948.00 ft
Inc: 10.01 deg Az:
313.25 deg TVD:
1945.27 ft

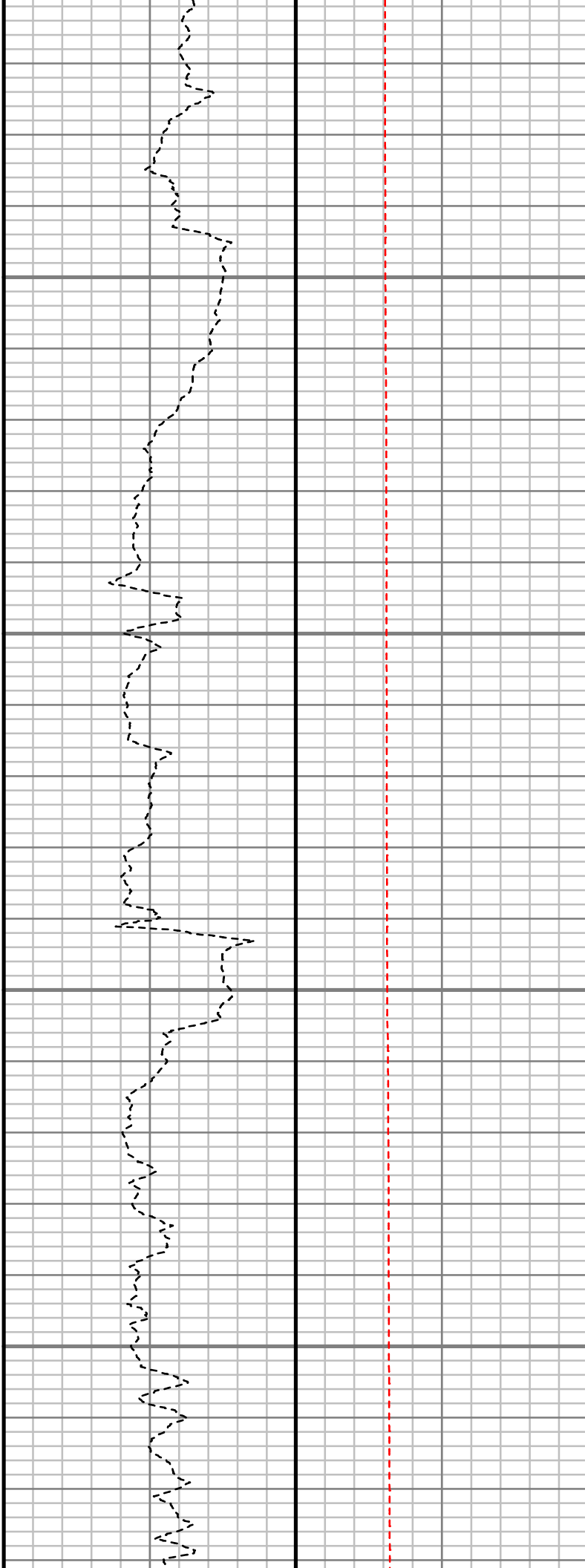
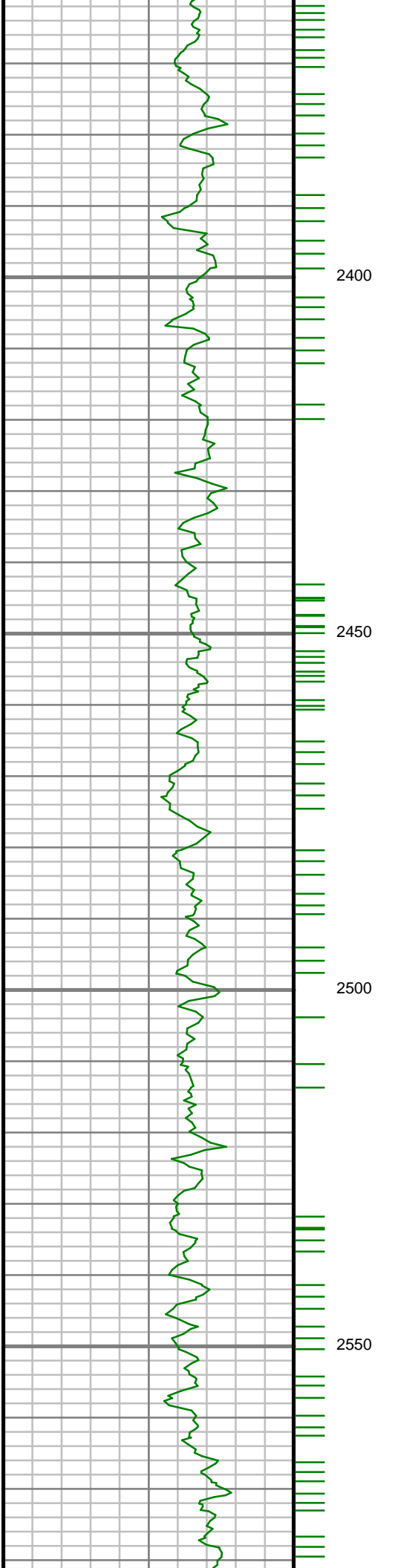
S: 22 MD: 2040.00 ft
Inc: 10.71 deg Az:
303.56 deg TVD:
2035.78 ft

S: 23 MD: 2131.00 ft
Inc: 12.64 deg Az:
303.61 deg TVD:
2124.89 ft



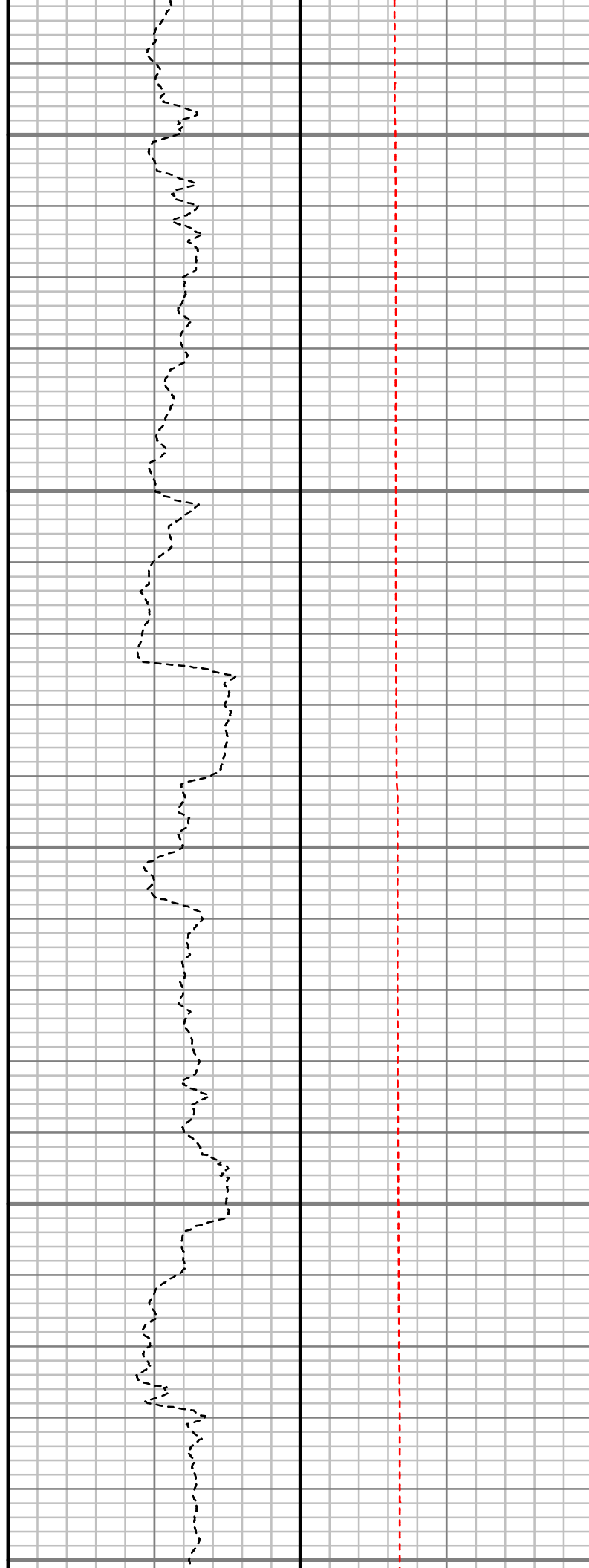
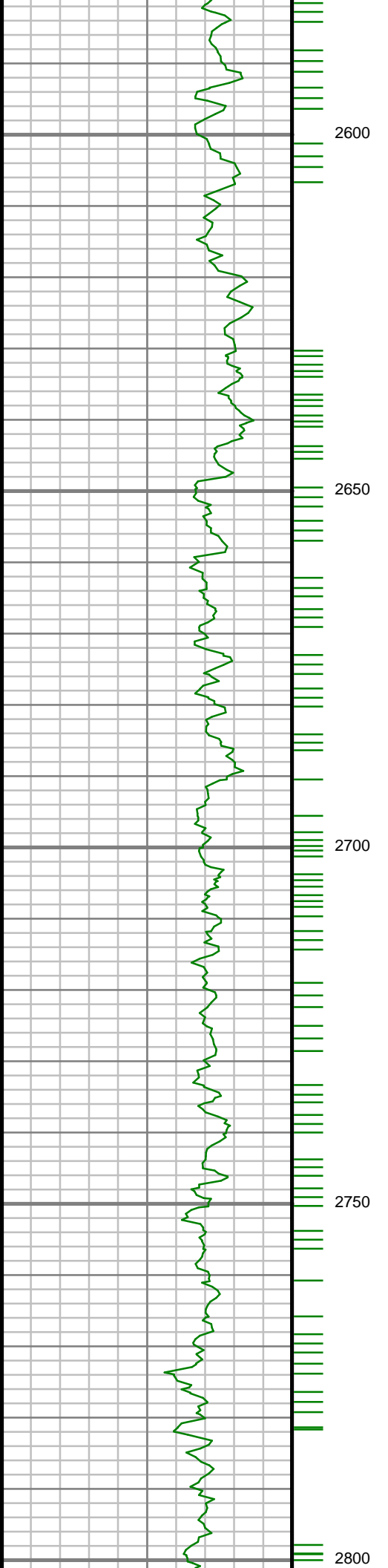
S: 24 MD: 2222.00 ft
Inc: 13.33 deg Az:
299.71 deg TVD:
2213.57 ft

S: 25 MD: 2314.00 ft
Inc: 11.83 deg Az:
299.33 deg TVD:
2303.36 ft



S: 26 MD: 2405.00 ft
Inc: 13.41 deg Az:
303.11 deg TVD:
2392.16 ft

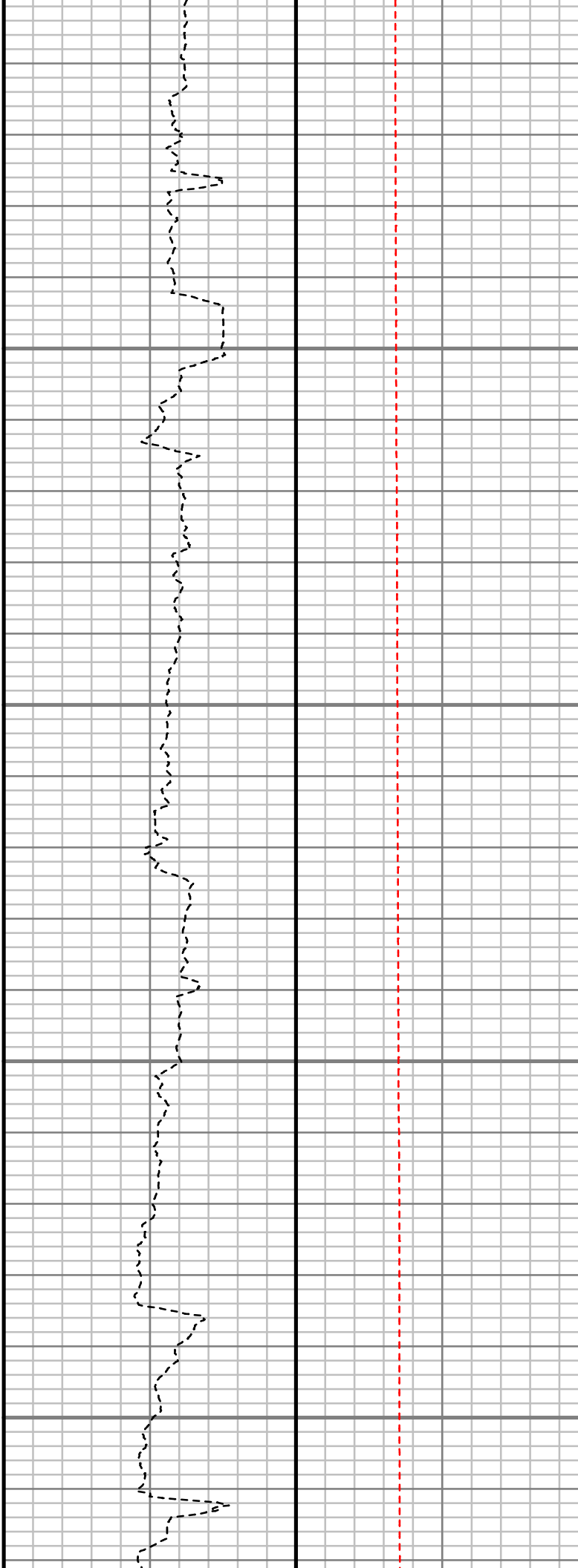
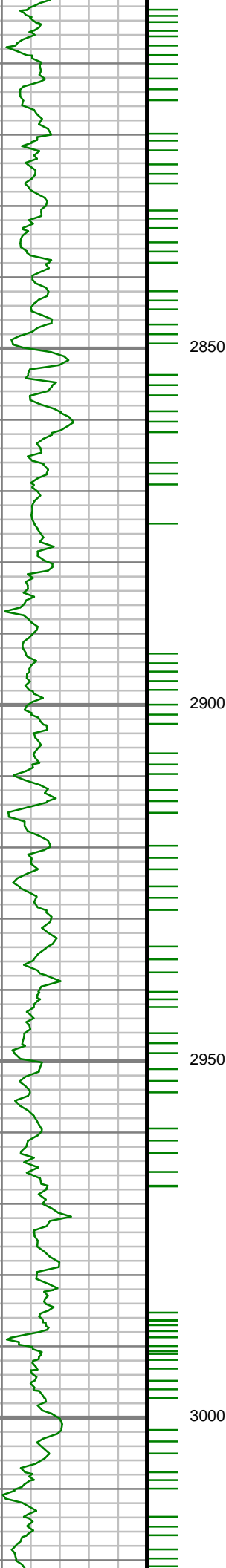
S: 27 MD: 2496.00 ft
Inc: 13.03 deg Az:
295.90 deg TVD:
2480.75 ft



S: 28 MD: 2588.00 ft
Inc: 11.48 deg Az:
295.80 deg TVD:
2570.66 ft

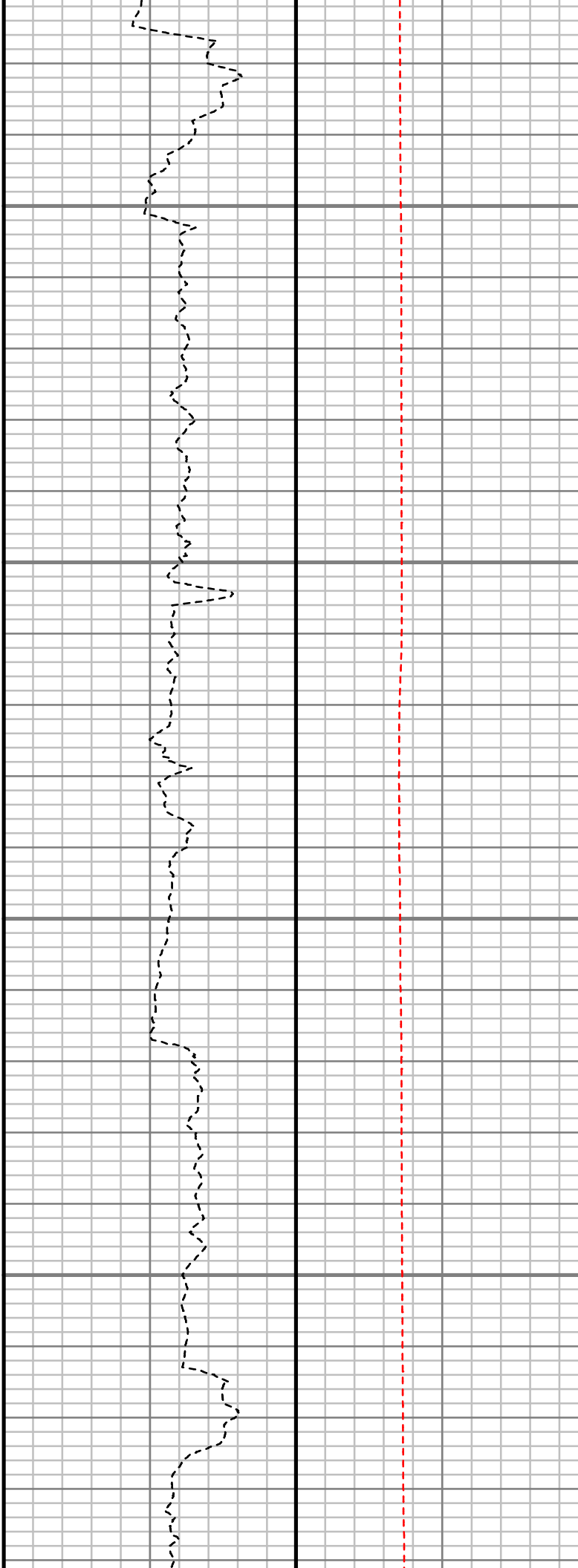
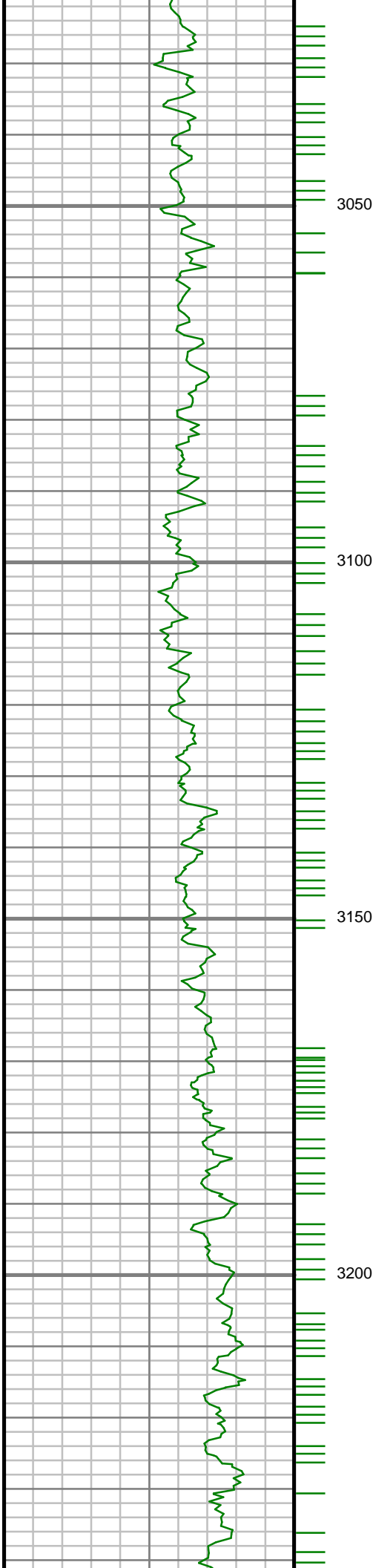
S: 29 MD: 2680.00 ft
Inc: 10.88 deg Az:
299.48 deg TVD:
2660.91 ft

S: 30 MD: 2771.00 ft
Inc: 12.45 deg Az:
302.18 deg TVD:
2750.03 ft



S: 31 MD: 2863.00 ft
Inc: 13.90 deg Az:
301.96 deg TVD:
2839.61 ft

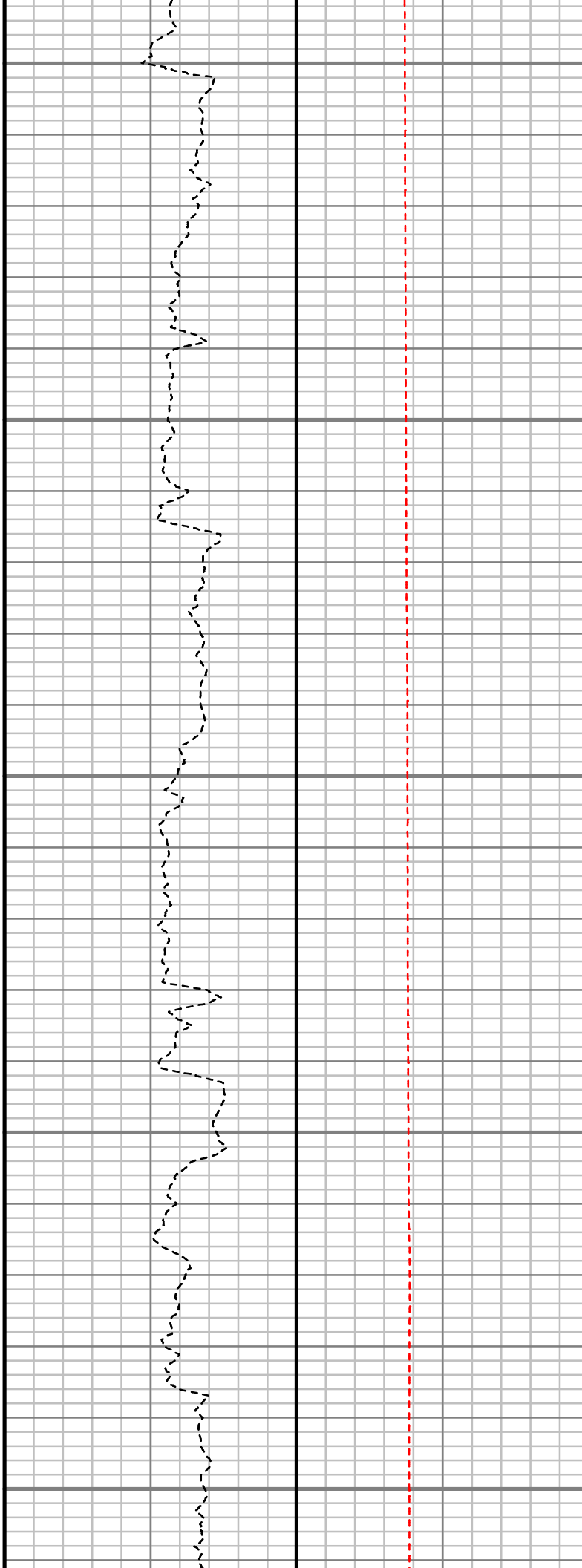
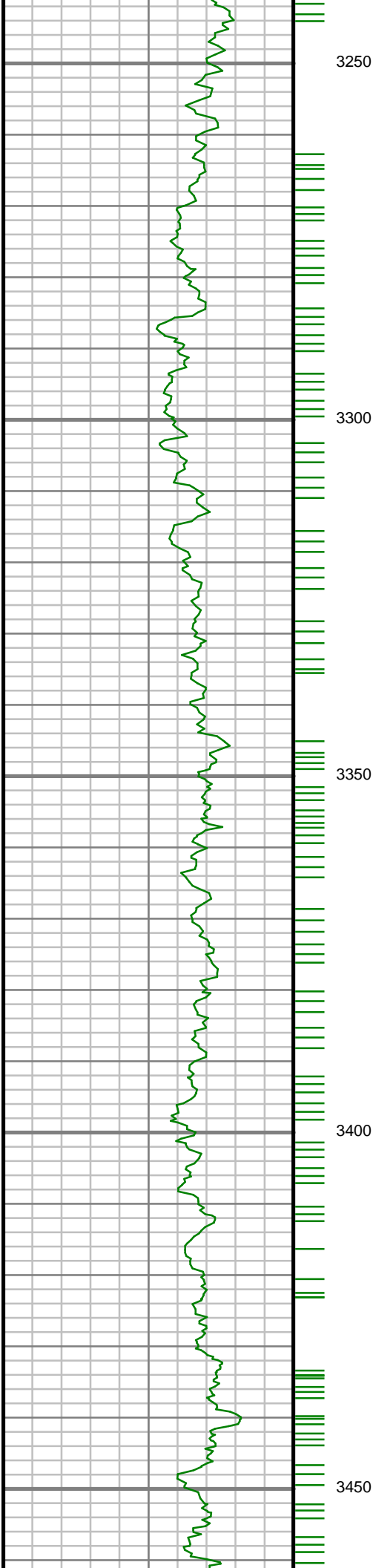
S: 32 MD: 2954.00 ft
Inc: 13.75 deg Az:
301.64 deg TVD:
2927.97 ft



S: 33 MD: 3045.00 ft
Inc: 14.39 deg Az:
300.40 deg TVD:
3016.24 ft

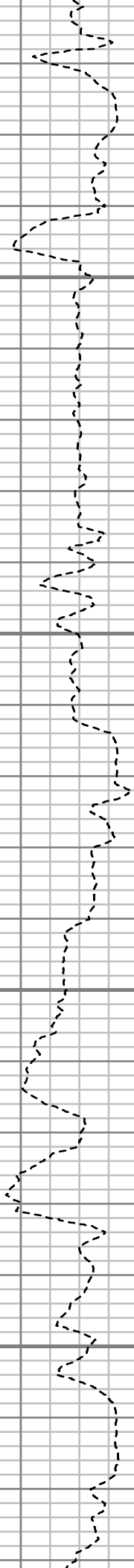
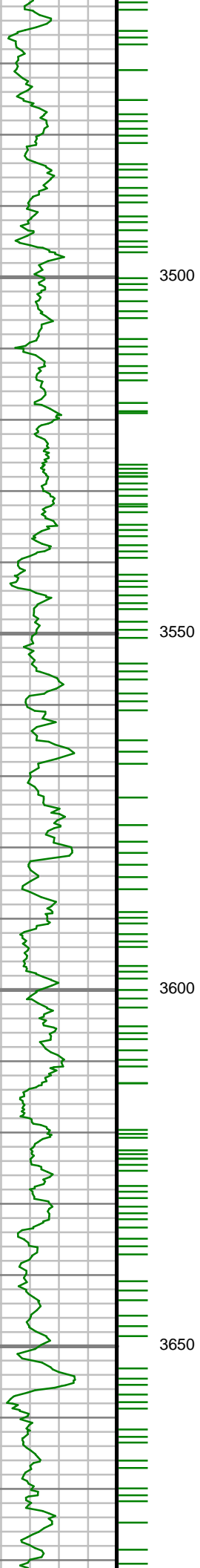
S: 34 MD: 3136.00 ft
Inc: 14.07 deg Az:
300.57 deg TVD:
3104.45 ft

S: 35 MD: 3227.00 ft
Inc: 12.60 deg Az:
290.68 deg TVD:
3193.00 ft



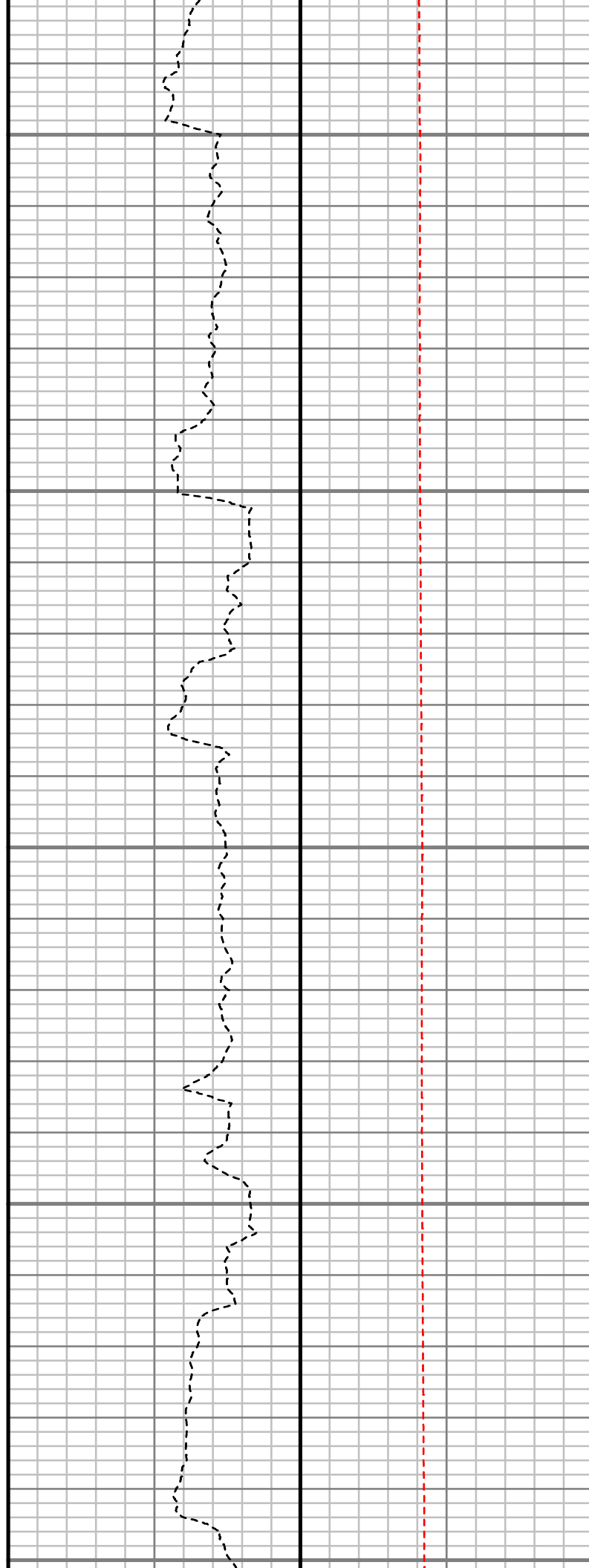
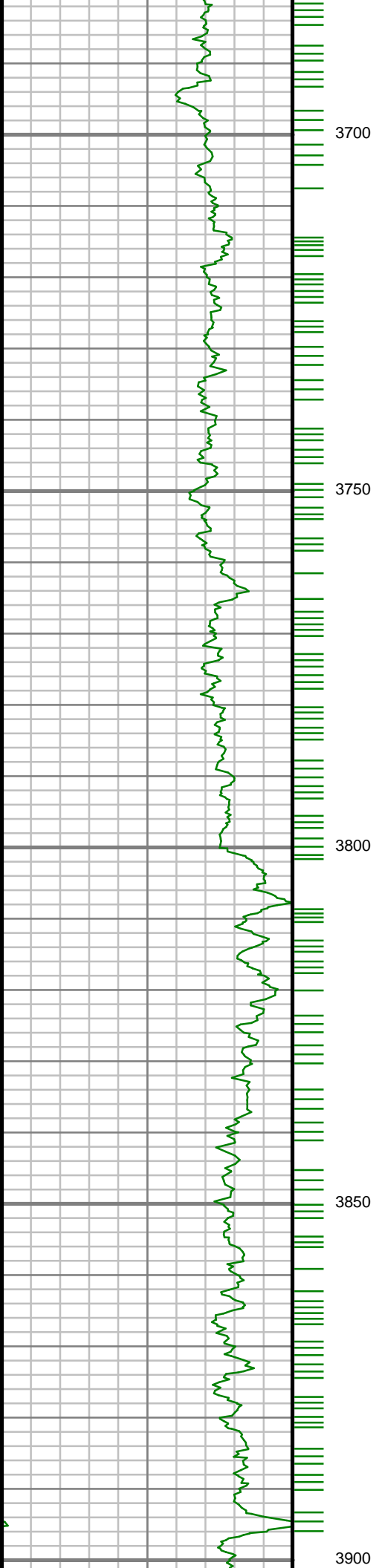
S: 36 MD: 3319.00 ft
Inc: 12.31 deg Az:
289.58 deg TVD:
3282.84 ft

S: 37 MD: 3413.00 ft
Inc: 10.20 deg Az:
296.08 deg TVD:
3375.03 ft



S: 38 MD: 3507.00 ft
Inc: 9.92 deg Az:
295.58 deg TVD:
3467.59 ft

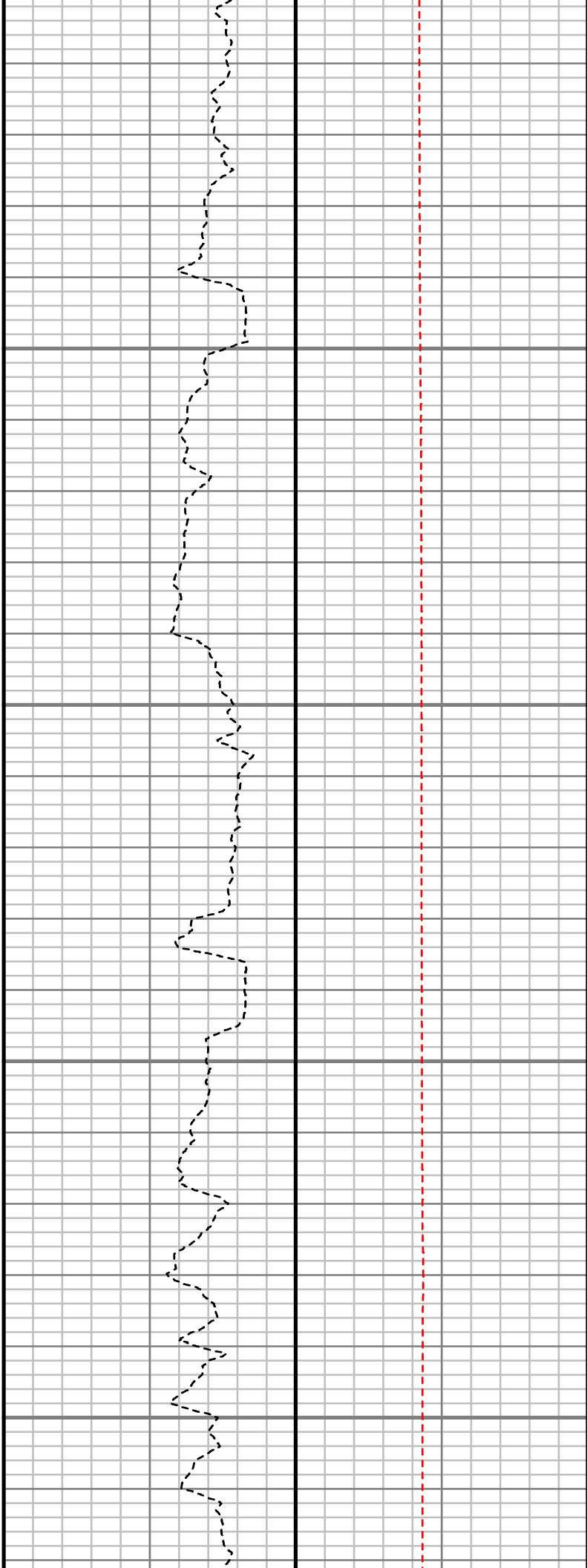
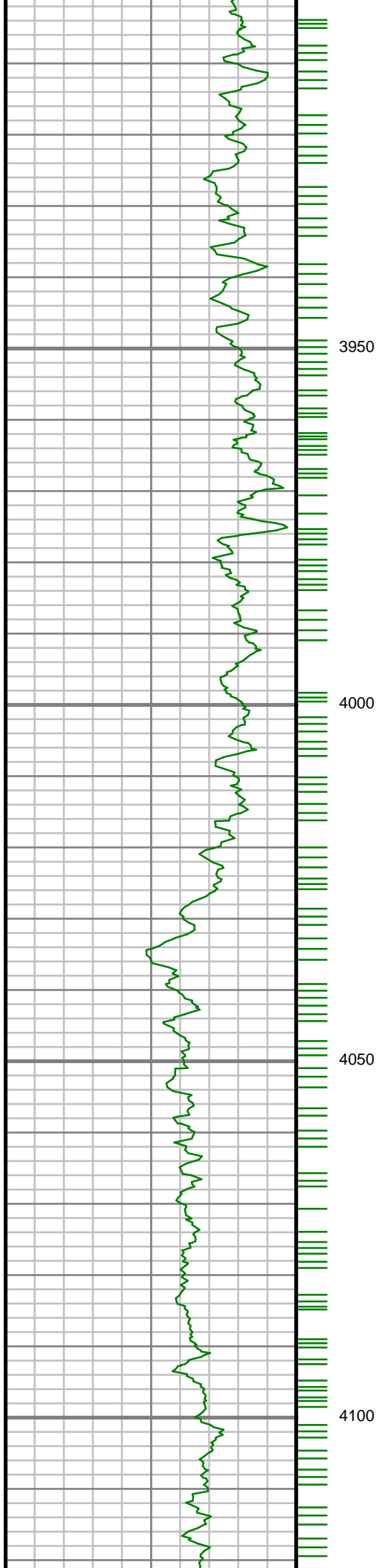
S: 39 MD: 3602.00 ft
Inc: 11.59 deg Az:
300.65 deg TVD:
3560.92 ft



S: 40 MD: 3696.00 ft
Inc: 11.70 deg Az:
303.64 deg TVD:
3652.98 ft

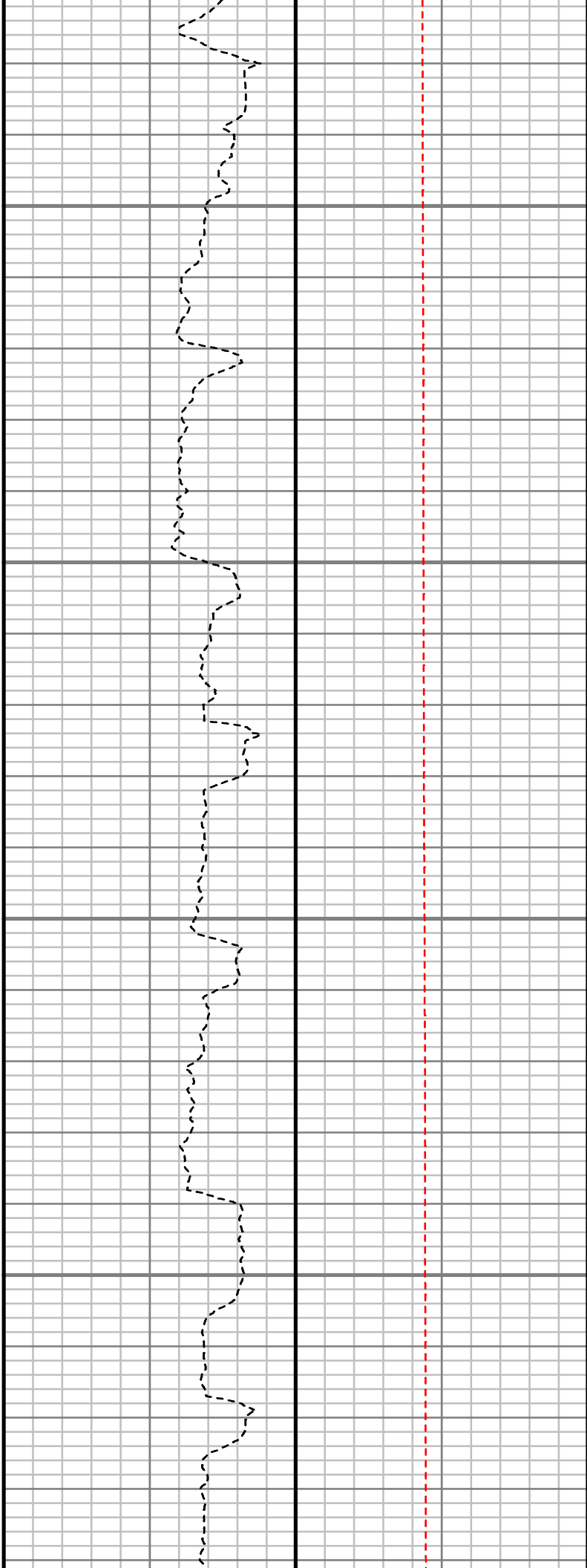
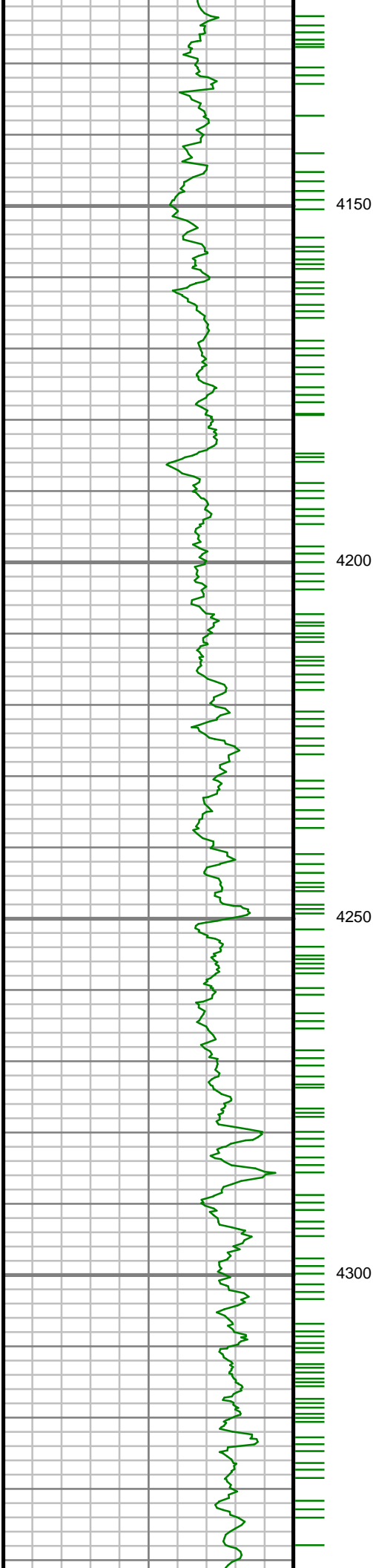
S: 41 MD: 3790.00 ft
Inc: 12.13 deg Az:
303.40 deg TVD:
3744.96 ft

S: 42 MD: 3885.00 ft
Inc: 12.60 deg Az:
304.11 deg TVD:
3837.75 ft



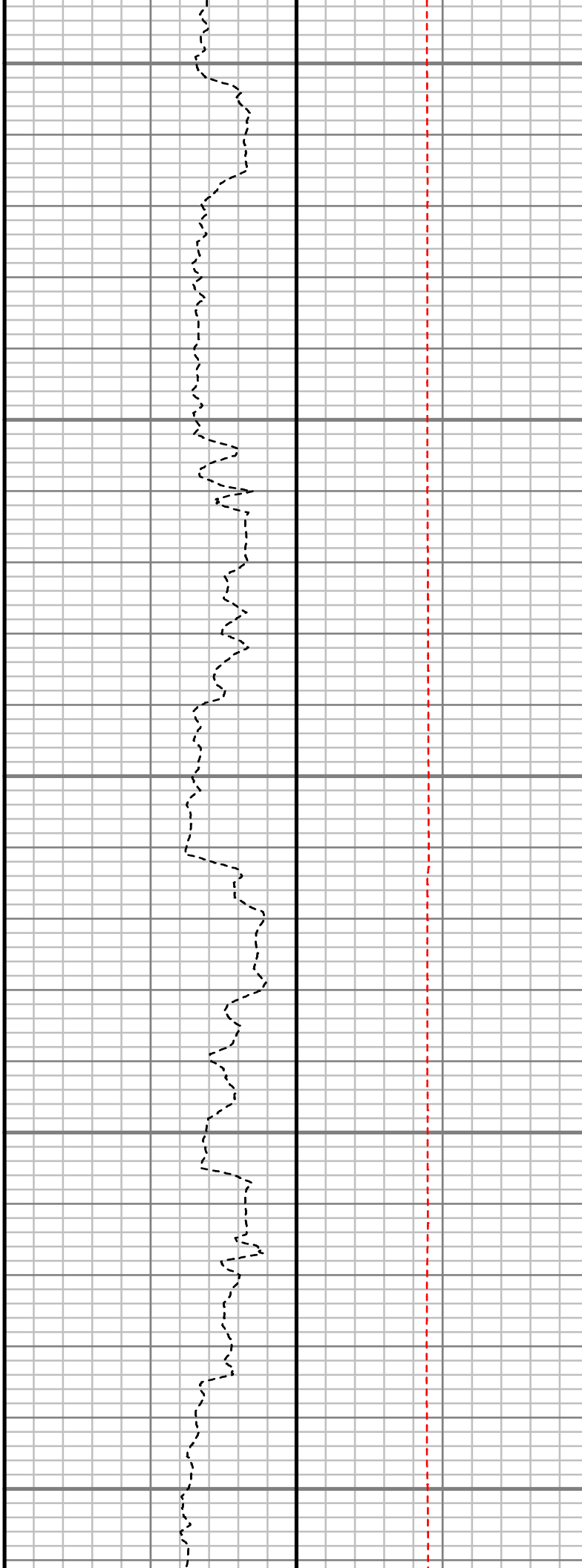
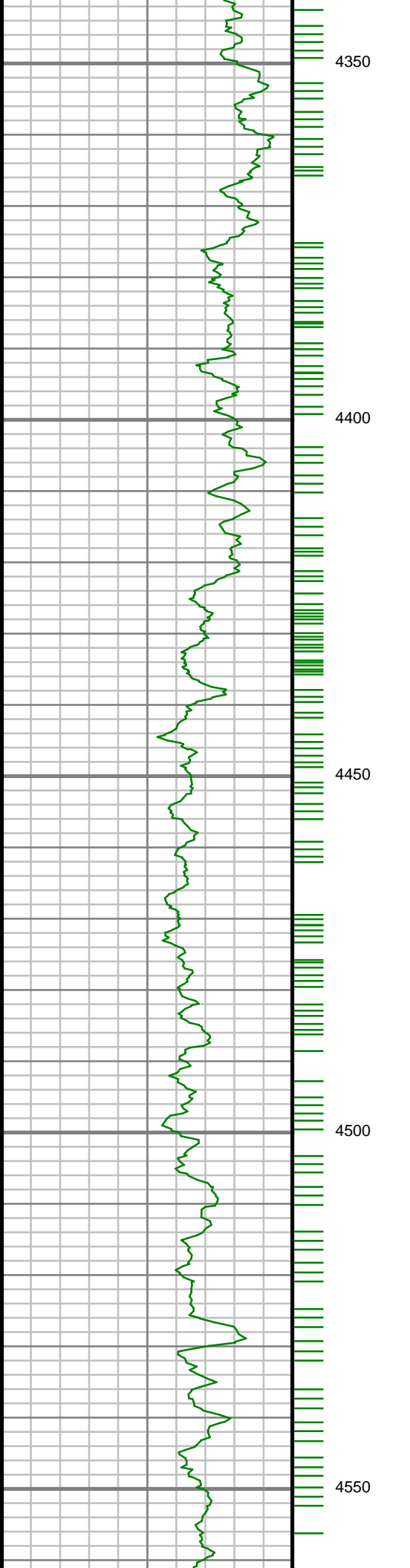
S: 43 MD: 3979.00 ft
Inc: 11.93 deg Az:
301.38 deg TVD:
3929.61 ft

S: 44 MD: 4073.00 ft
Inc: 12.07 deg Az:
302.17 deg TVD:
4021.56 ft



S: 45 MD: 4168.00 ft
Inc: 12.09 deg Az:
293.98 deg TVD:
4114.46 ft

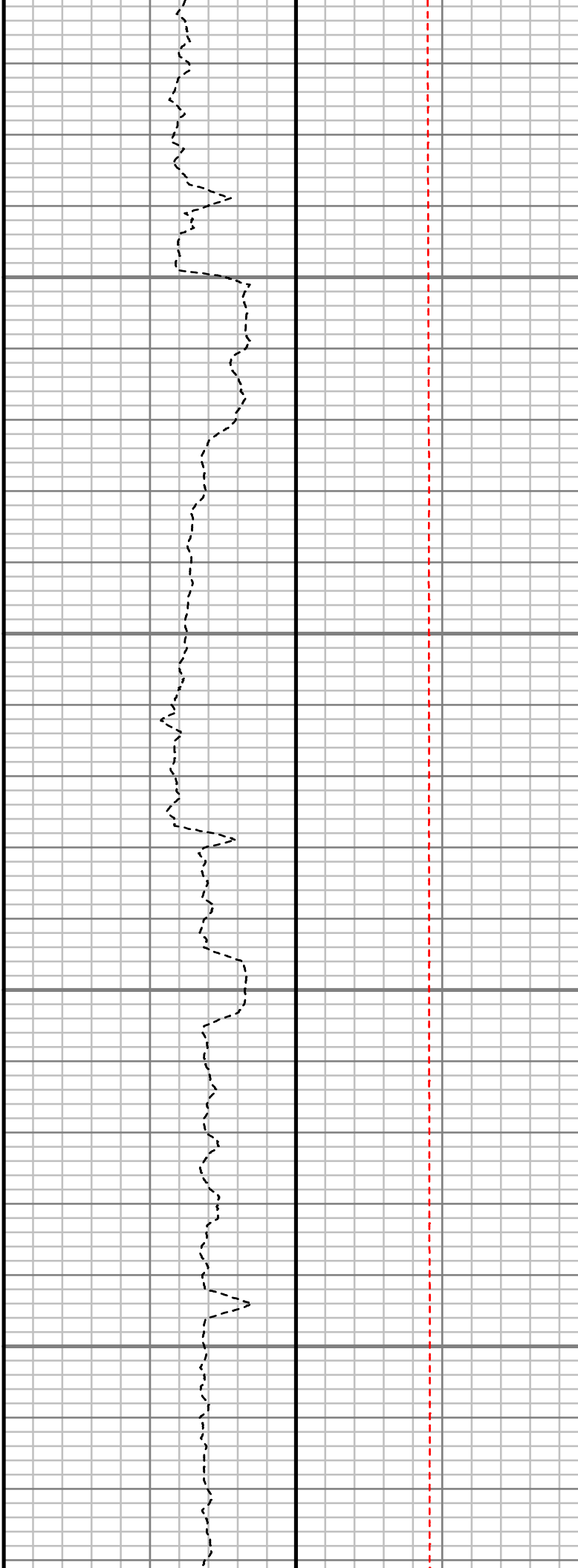
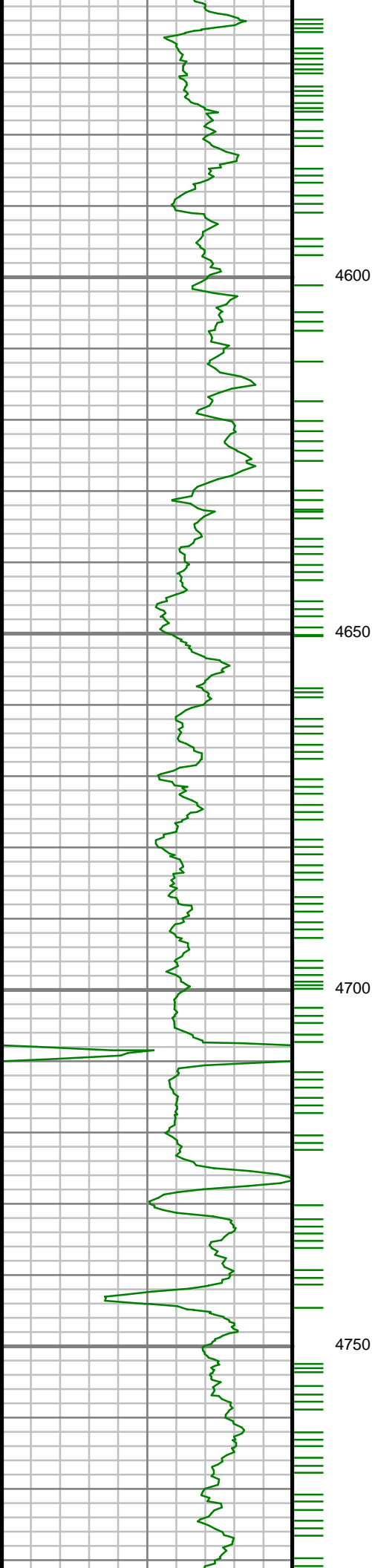
S: 46 MD: 4262.00 ft
Inc: 11.45 deg Az:
294.56 deg TVD:
4206.48 ft



S: 47 MD: 4356.00 ft
Inc: 10.09 deg Az:
294.95 deg TVD:
4298.83 ft

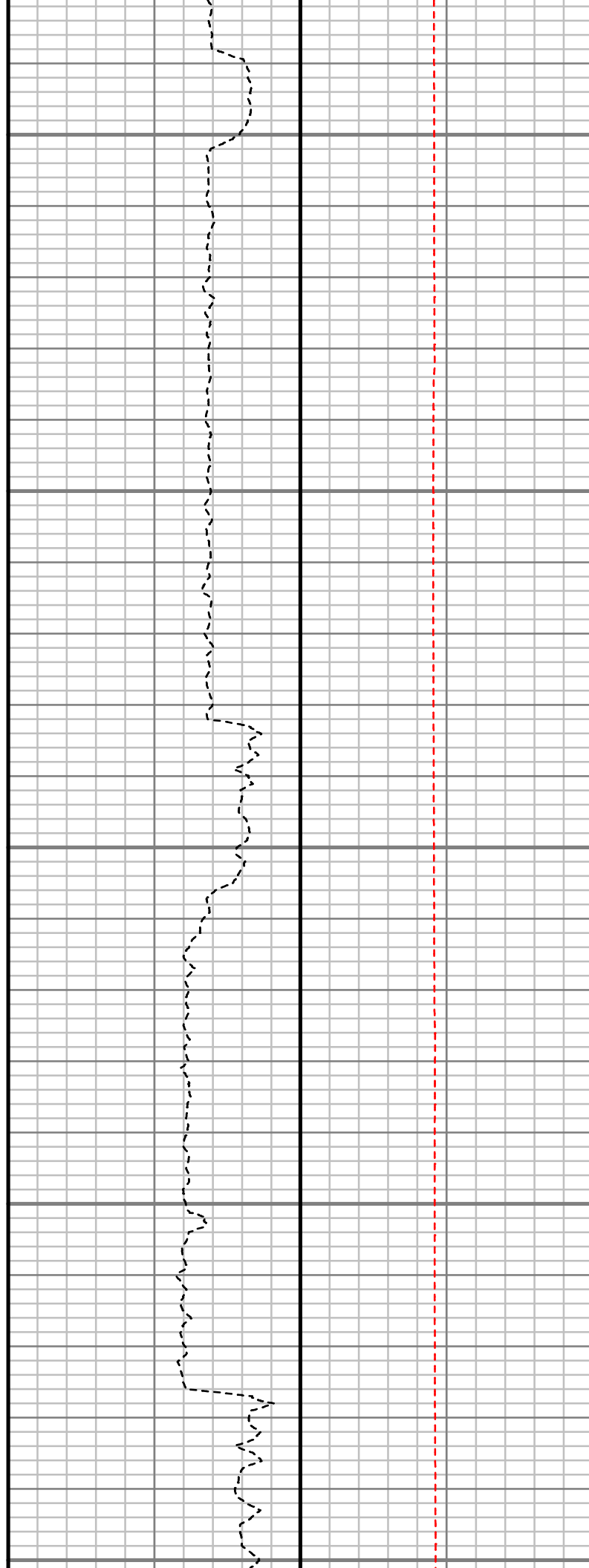
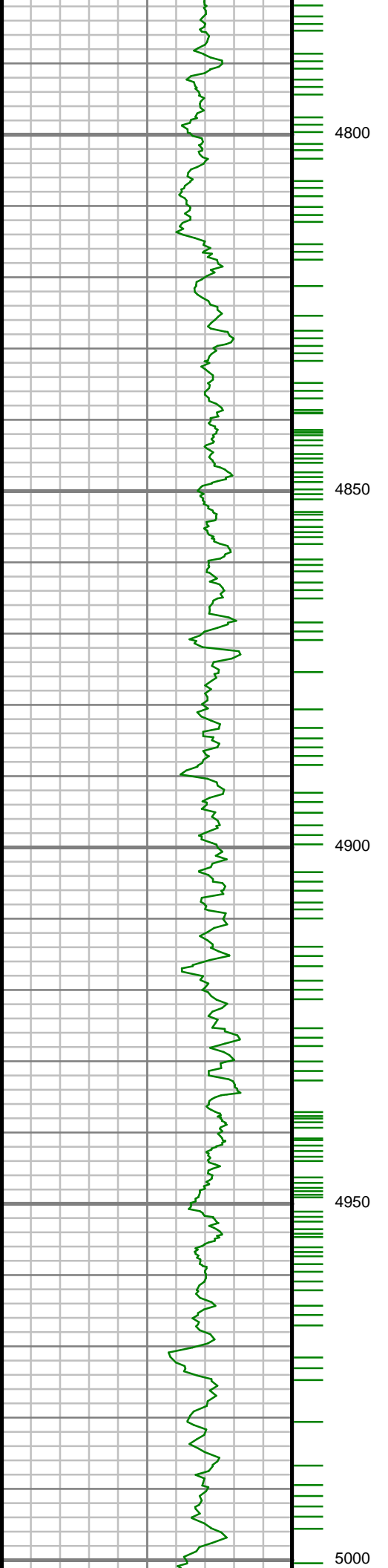
S: 48 MD: 4451.00 ft
Inc: 10.52 deg Az:
291.70 deg TVD:
4392.29 ft

S: 49 MD: 4545.00 ft
Inc: 11.68 deg Az:
298.47 deg TVD:
4484.54 ft



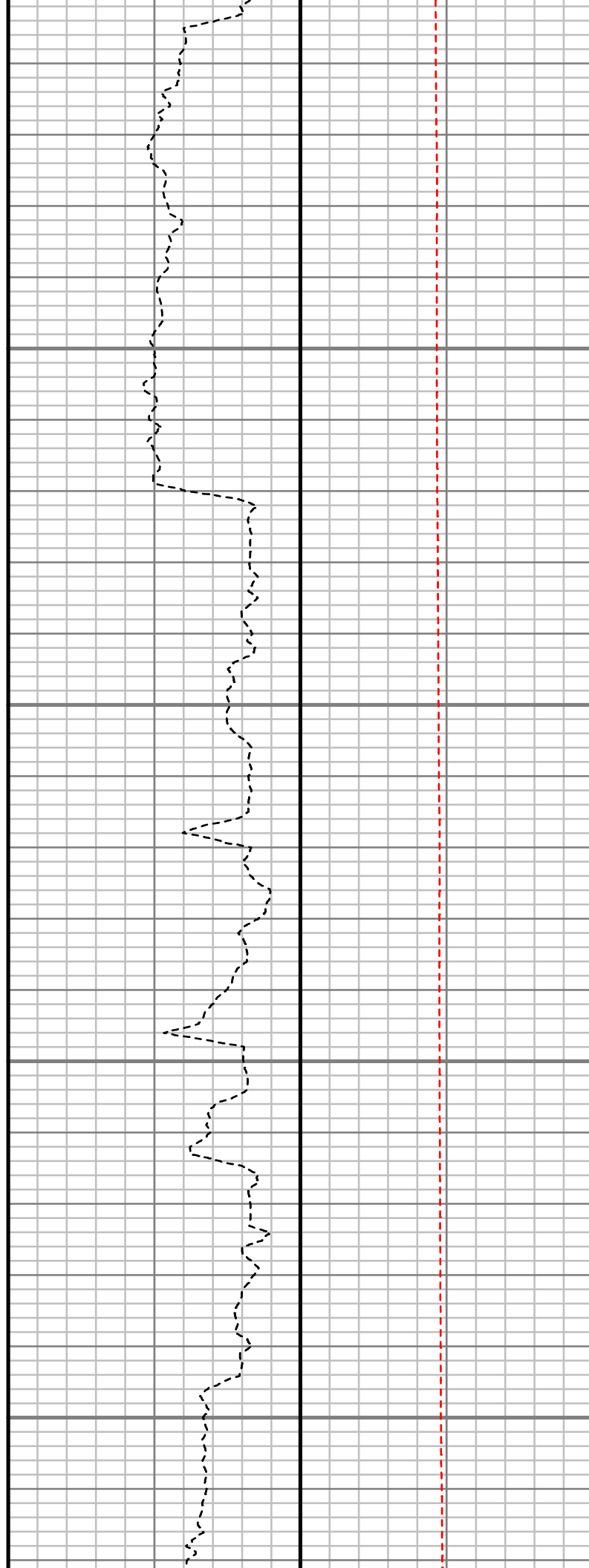
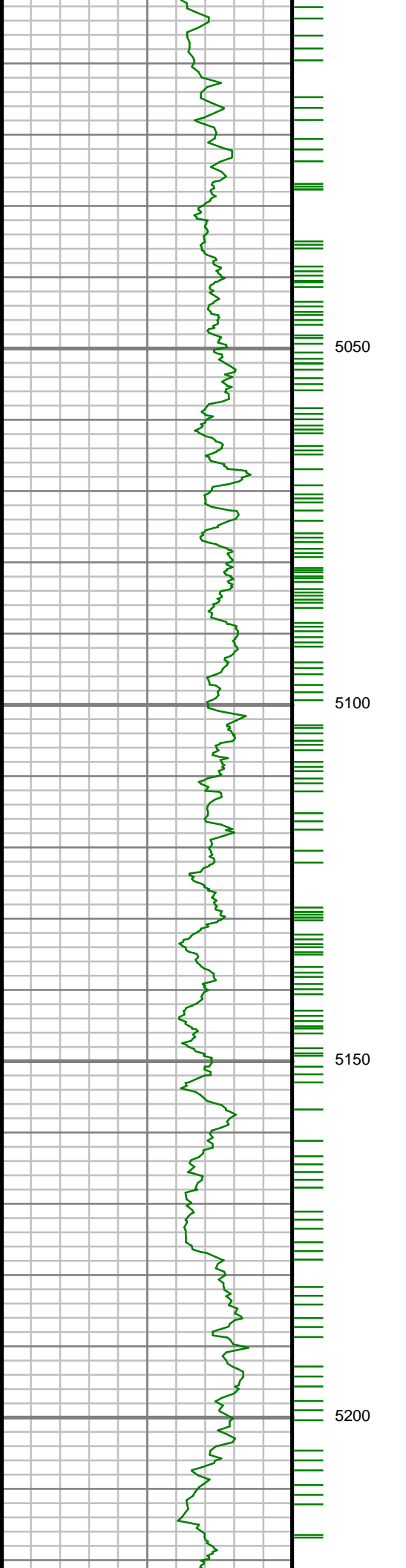
S: 50 MD: 4639.00 ft
Inc: 12.80 deg Az:
297.36 deg TVD:
4576.40 ft

S: 51 MD: 4733.00 ft
Inc: 12.32 deg Az:
297.66 deg TVD:
4668.15 ft



S: 52 MD: 4827.00 ft
Inc: 11.62 deg Az:
297.43 deg TVD:
4760.11 ft

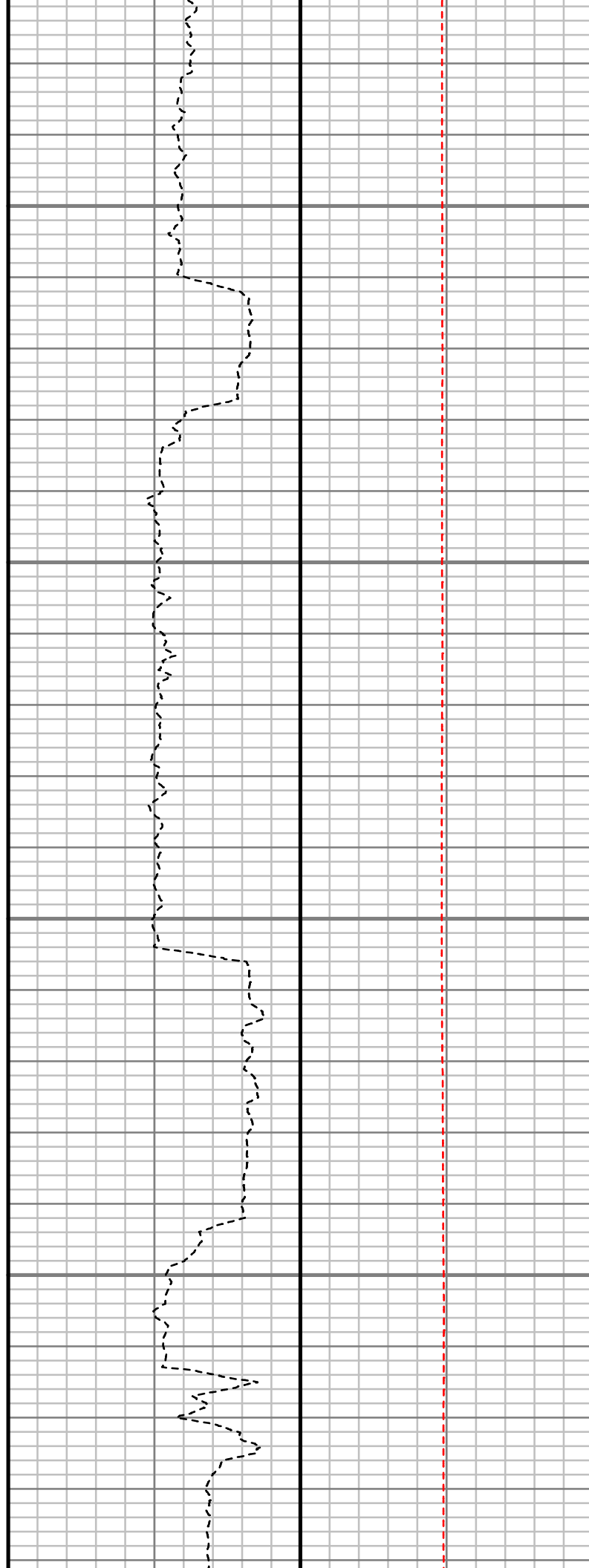
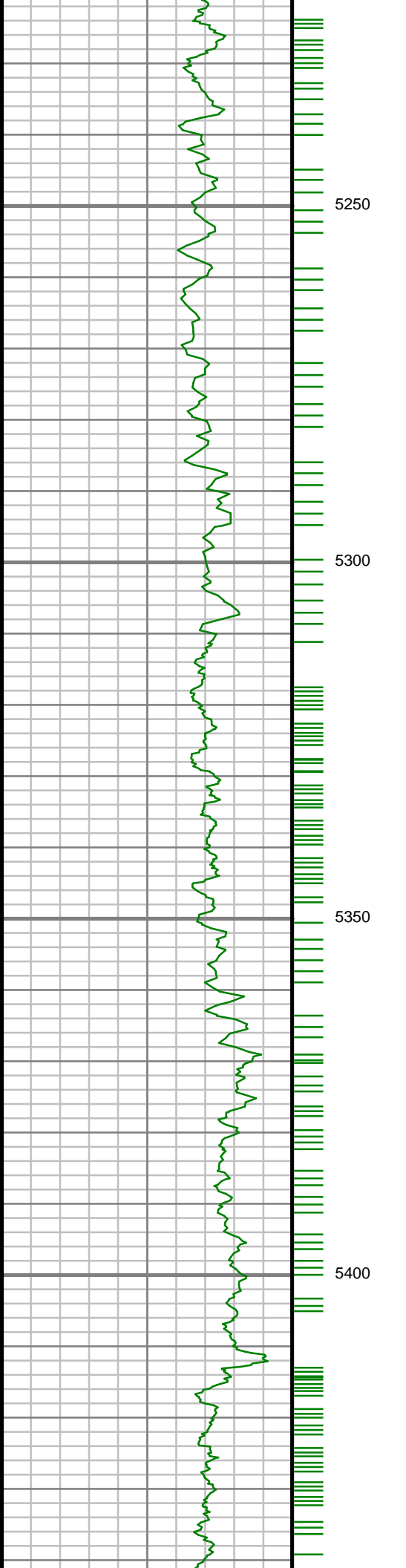
S: 53 MD: 4922.00 ft
Inc: 11.68 deg Az:
297.81 deg TVD:
4853.15 ft



S: 54 MD: 5016.00 ft
Inc: 12.03 deg Az:
294.38 deg TVD:
4945.15 ft

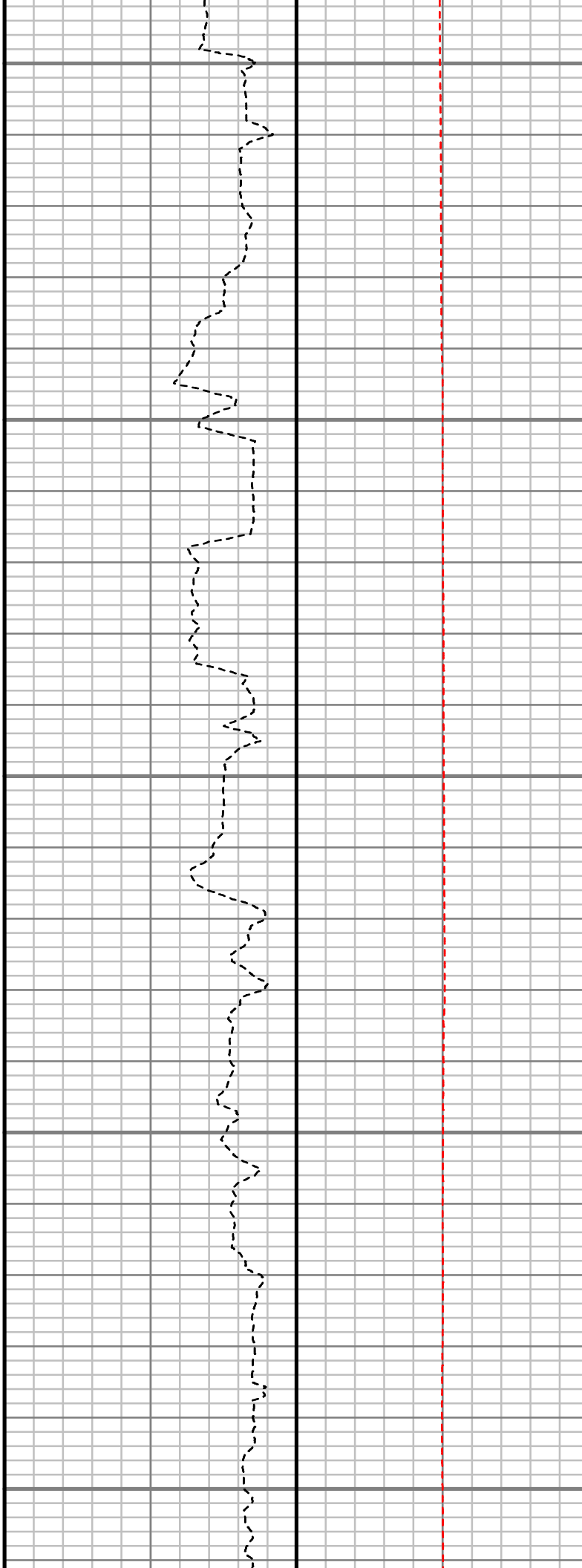
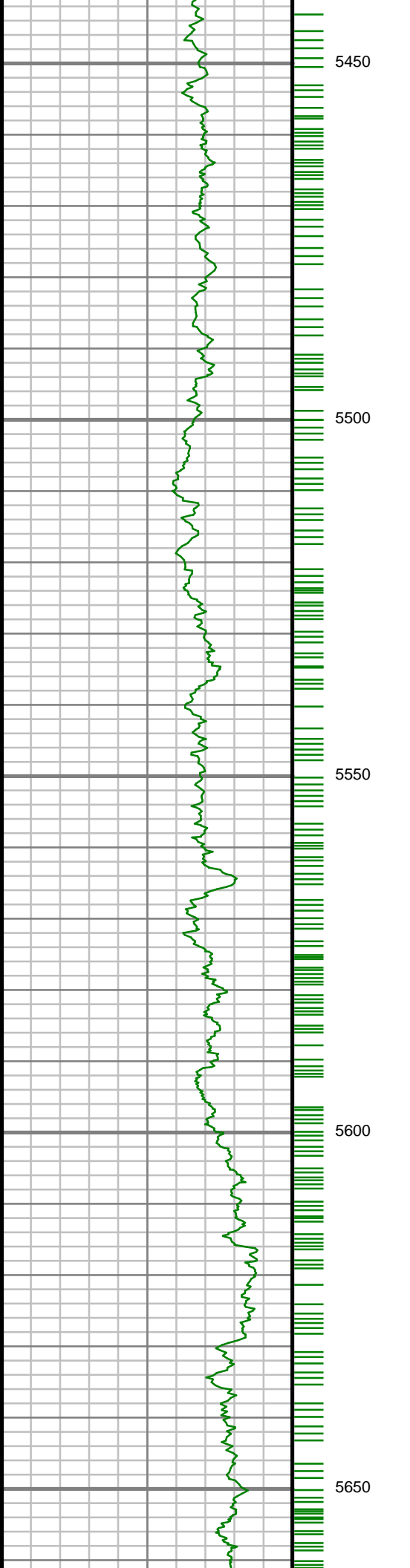
S: 55 MD: 5111.00 ft
Inc: 11.54 deg Az:
291.09 deg TVD:
5038.15 ft

S: 56 MD: 5205.00 ft
Inc: 12.38 deg Az:
296.18 deg TVD:
5130.11 ft



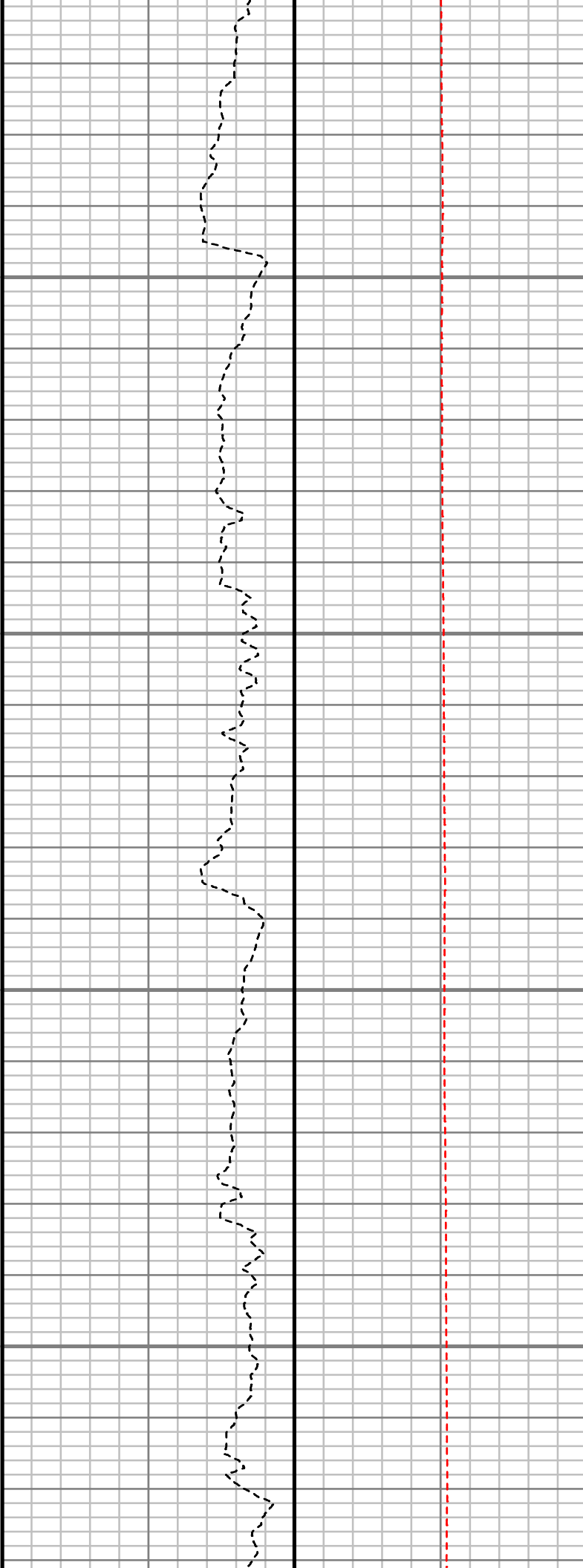
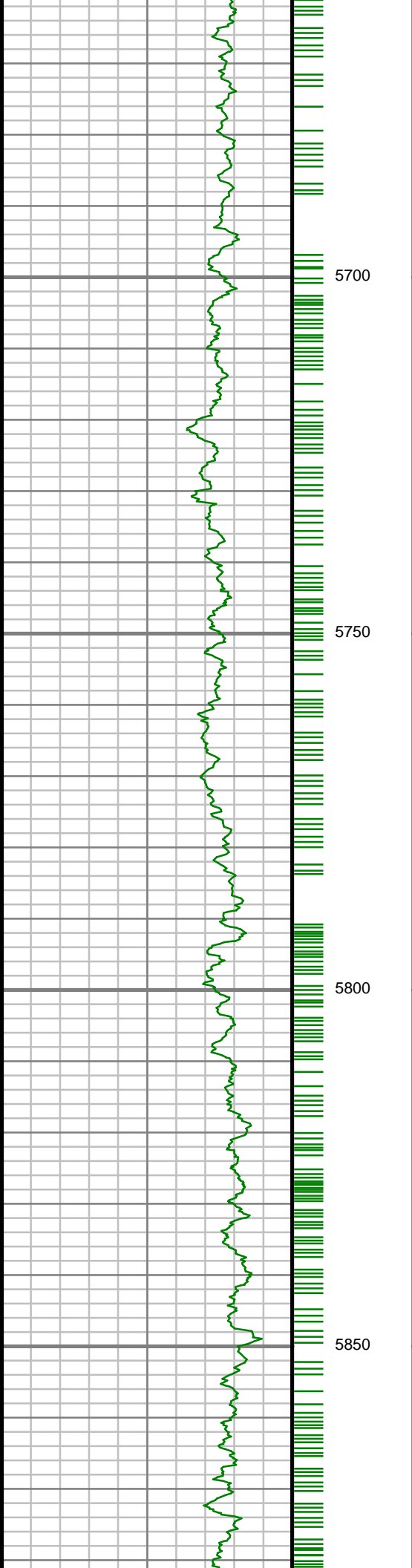
S: 57 MD: 5299.00 ft
Inc: 11.50 deg Az:
297.20 deg TVD:
5222.07 ft

S: 58 MD: 5394.00 ft
Inc: 11.54 deg Az:
306.28 deg TVD:
5315.17 ft



S: 59 MD: 5488.00 ft
Inc: 13.11 deg Az:
300.87 deg TVD:
5407.00 ft

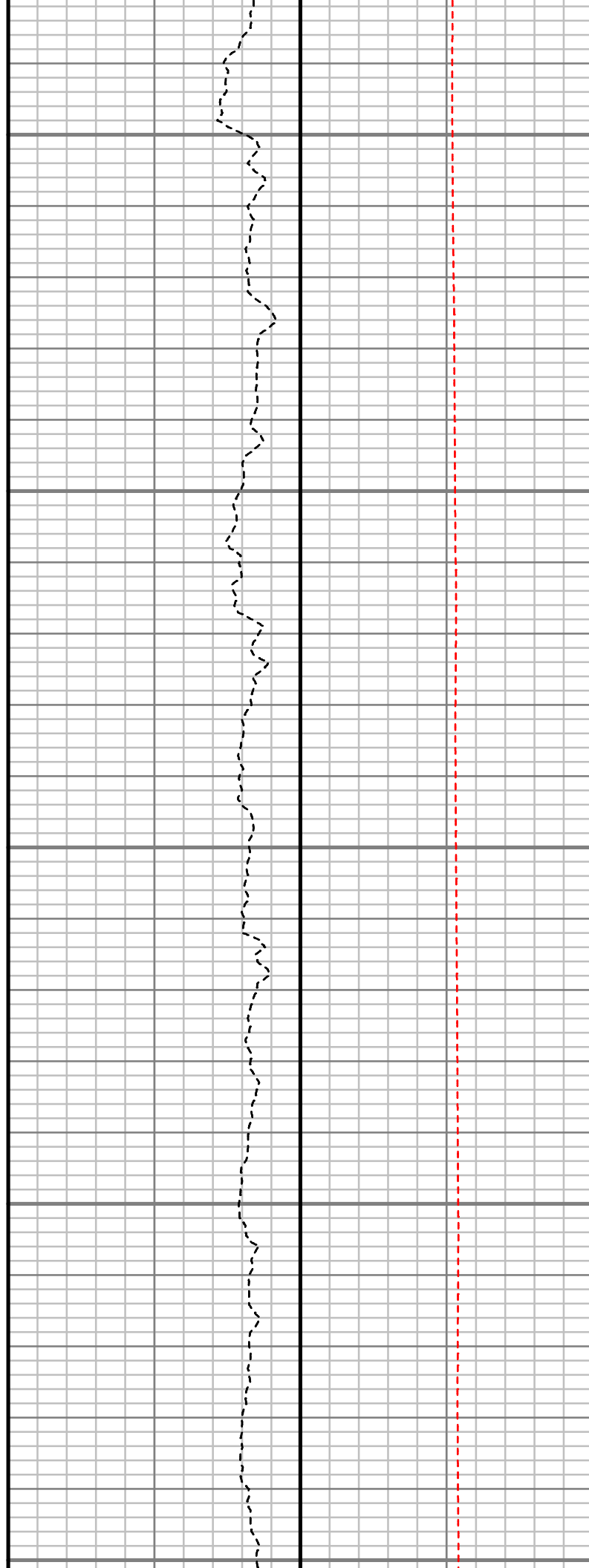
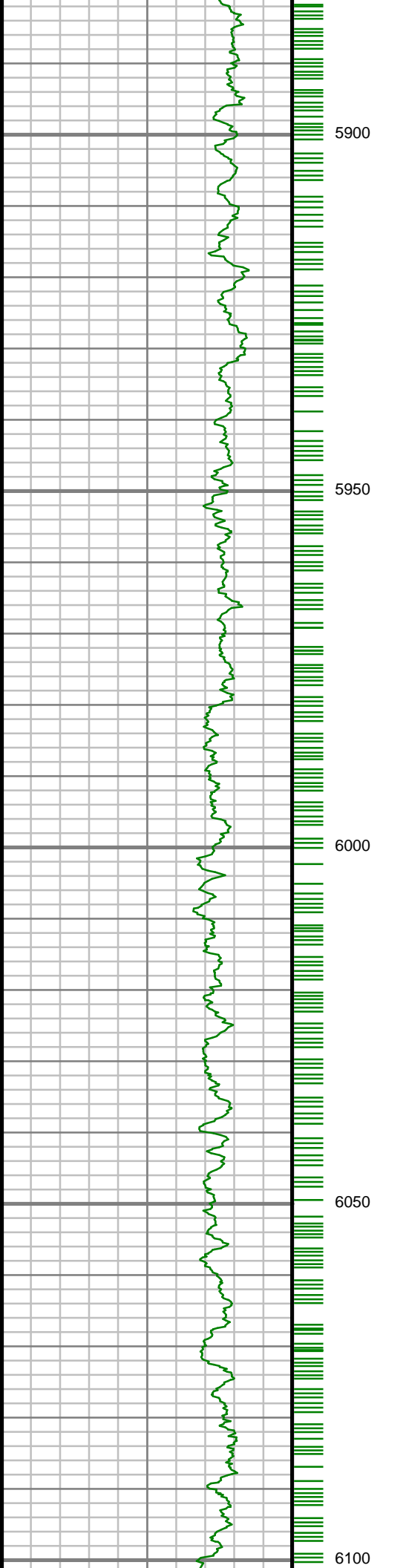
S: 60 MD: 5582.00 ft
Inc: 11.90 deg Az:
299.67 deg TVD:
5498.77 ft



S: 61 MD: 5676.00 ft
Inc: 13.28 deg Az:
294.76 deg TVD:
5590.51 ft

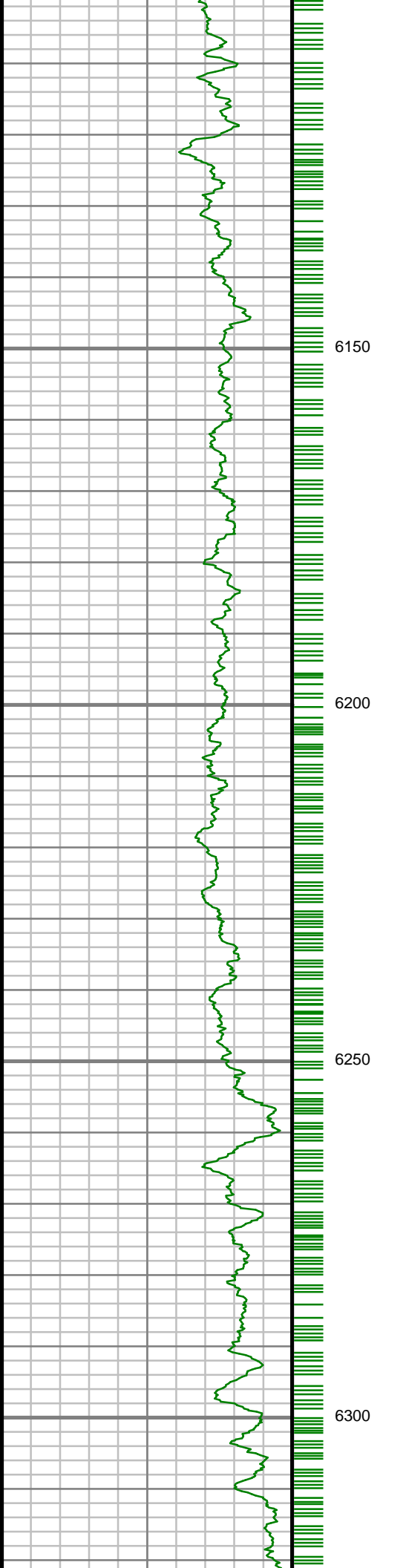
S: 62 MD: 5771.00 ft
Inc: 12.69 deg Az:
293.79 deg TVD:
5683.08 ft

S: 63 MD: 5865.00 ft
Inc: 10.99 deg Az:
296.80 deg TVD:
5775.08 ft



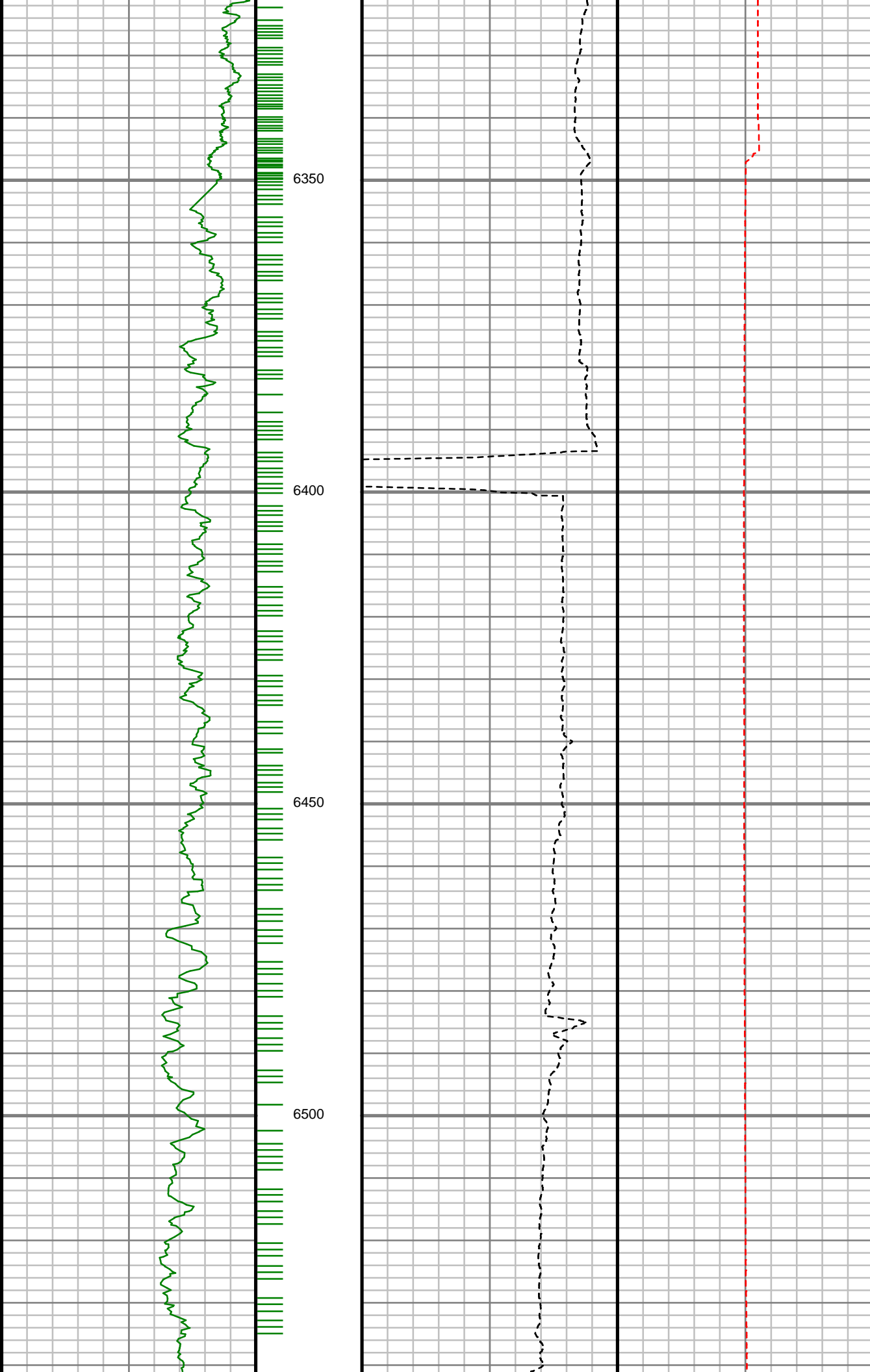
S: 64 MD: 5959.00 ft
Inc: 10.95 deg Az:
299.20 deg TVD:
5867.36 ft

S: 65 MD: 6054.00 ft
Inc: 11.84 deg Az:
299.50 deg TVD:
5960.48 ft



S: 66 MD: 6148.00 ft
Inc: 11.31 deg Az:
298.55 deg TVD:
6052.57 ft

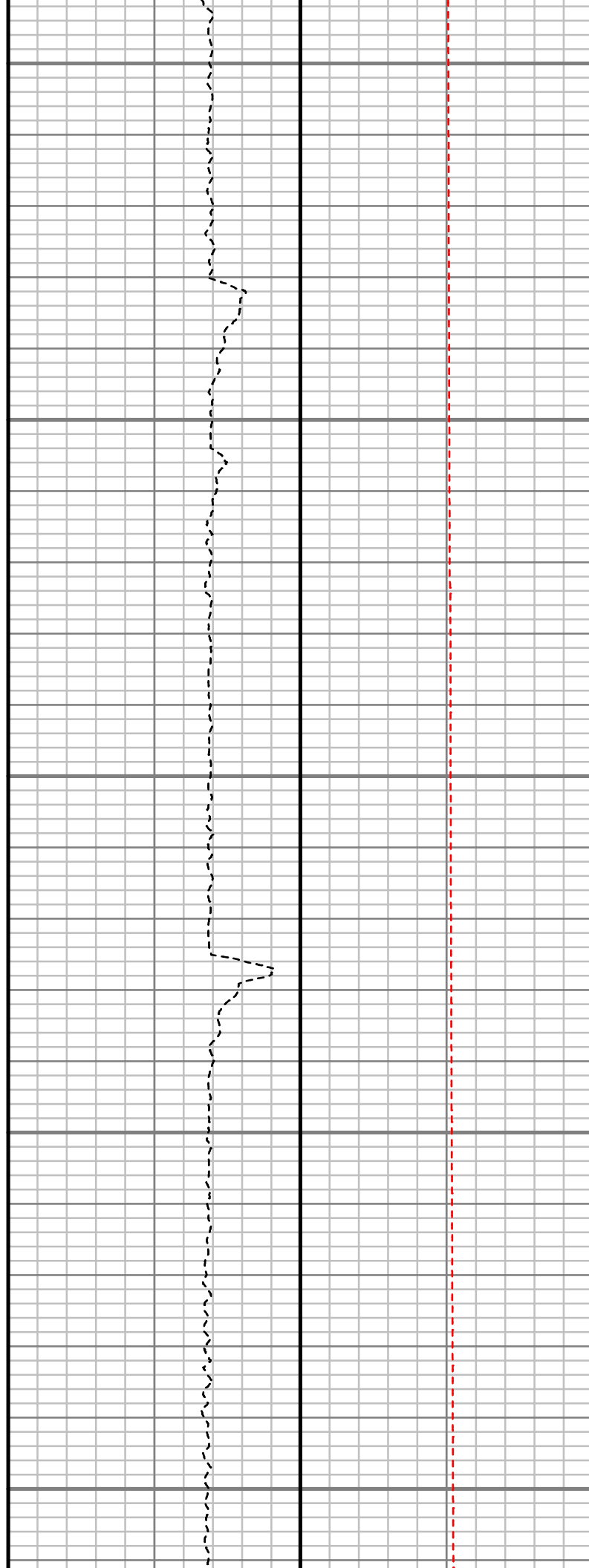
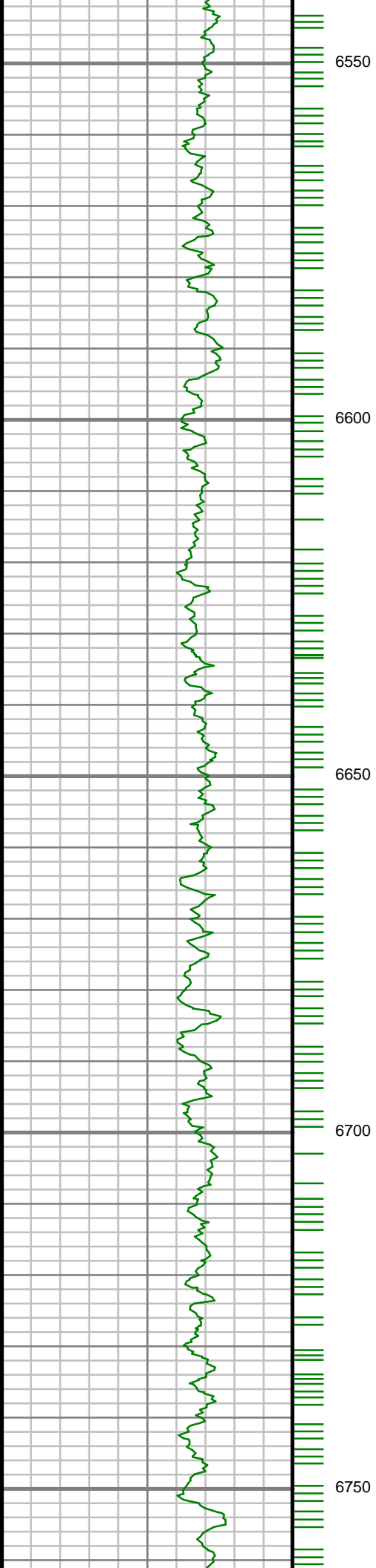
S: 67 MD: 6243.00 ft
Inc: 9.84 deg Az:
295.51 deg TVD:
6145.96 ft



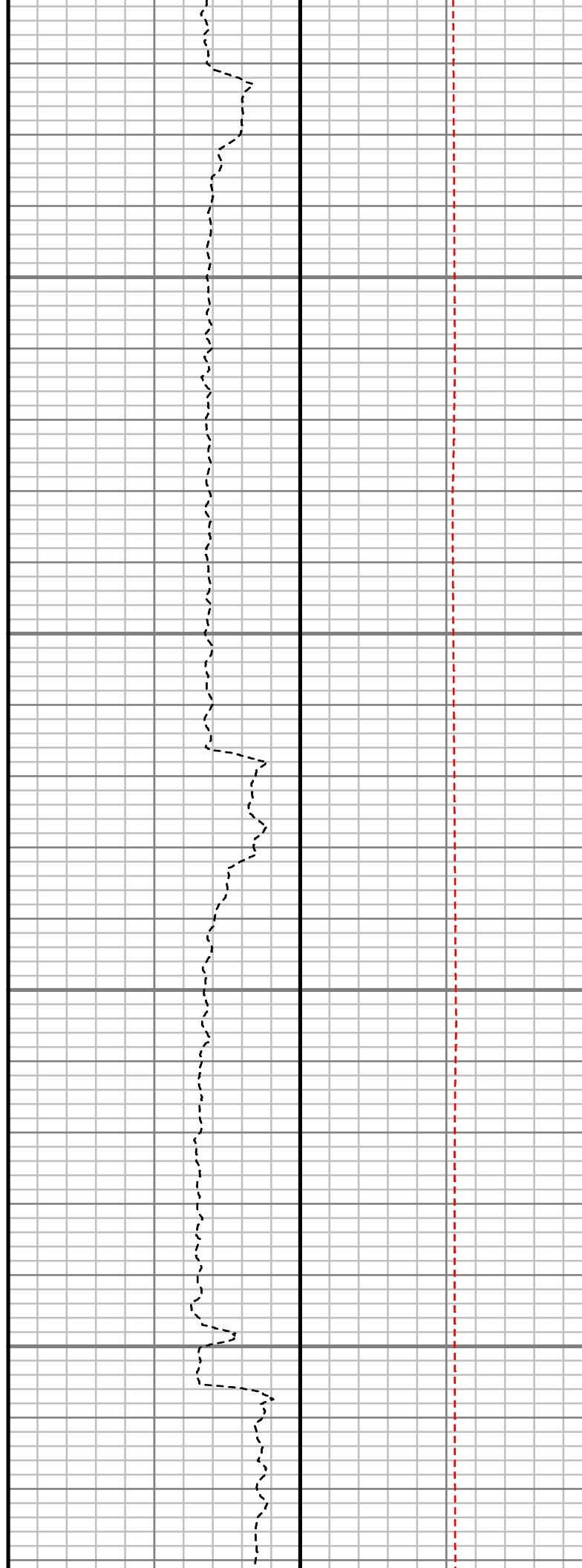
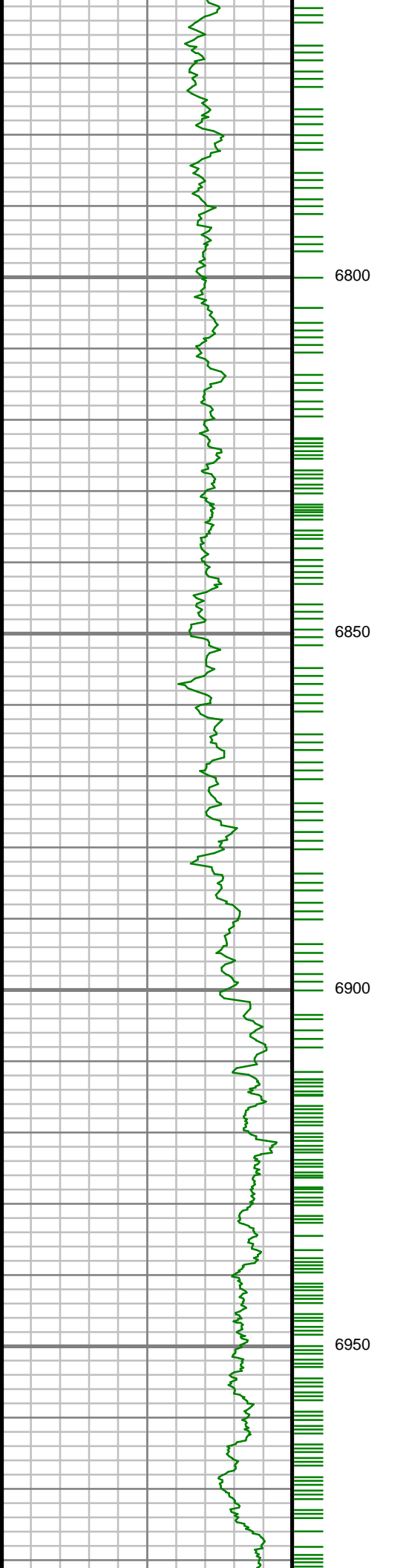
S: 68 MD: 6337.00 ft
Inc: 8.44 deg Az:
293.10 deg TVD:
6238.76 ft

S: 69 MD: 6431.00 ft
Inc: 7.11 deg Az:
292.57 deg TVD:
6331.90 ft

S: 70 MD: 6526.00 ft
Inc: 5.36 deg Az:
289.83 deg TVD:
6426.33 ft

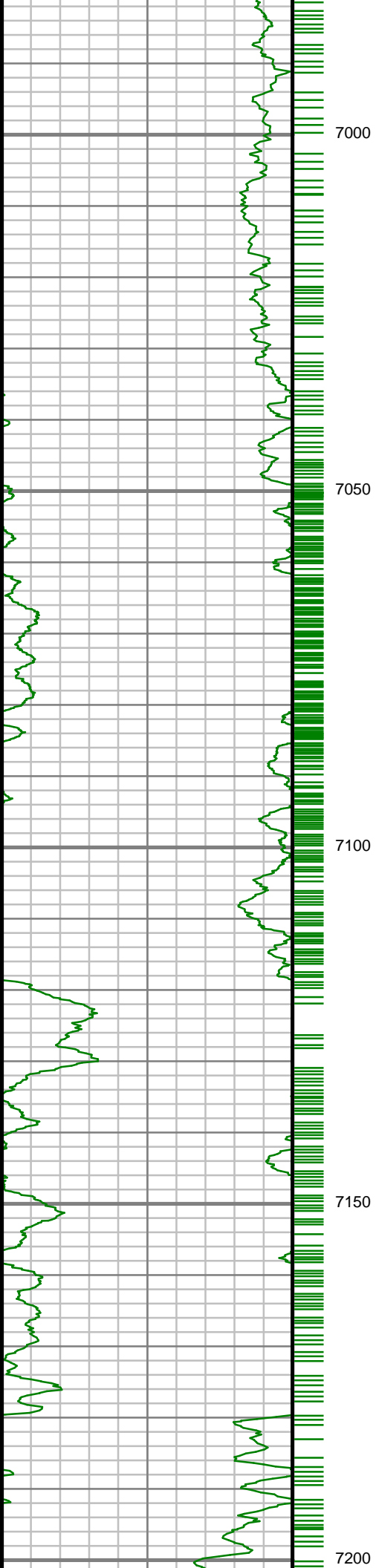


S: 71 MD: 6620.00 ft
Inc: 3.89 deg Az:
286.65 deg TVD:
6520.03 ft



S: 72 MD: 6808.00 ft
Inc: 2.18 deg Az:
271.71 deg TVD:
6707.76 ft

S: 73 MD: 6903.00 ft
Inc: 1.35 deg Az:
201.82 deg TVD:
6802.72 ft



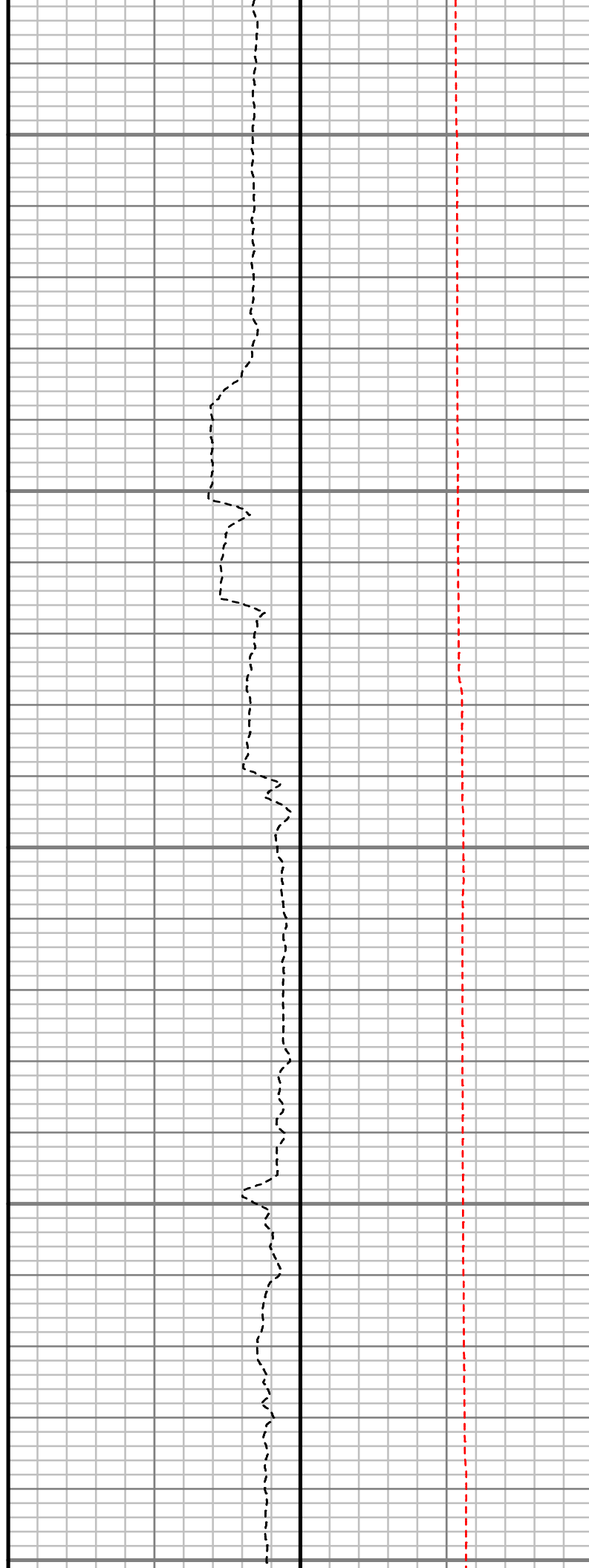
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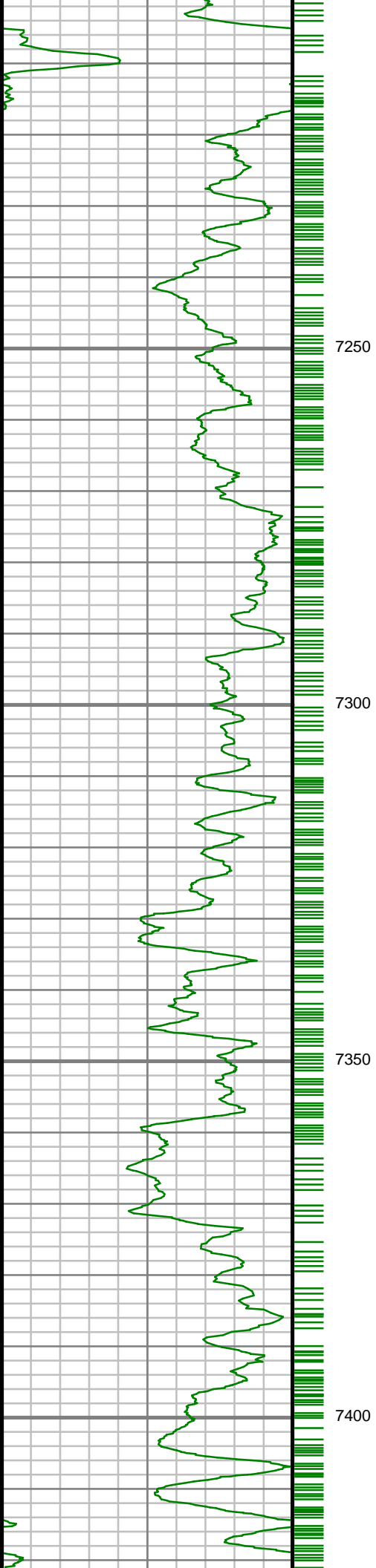
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S: 74 MD: 6997.00 ft
Inc: 7.47 deg Az:
174.66 deg TVD:
6896.40 ft

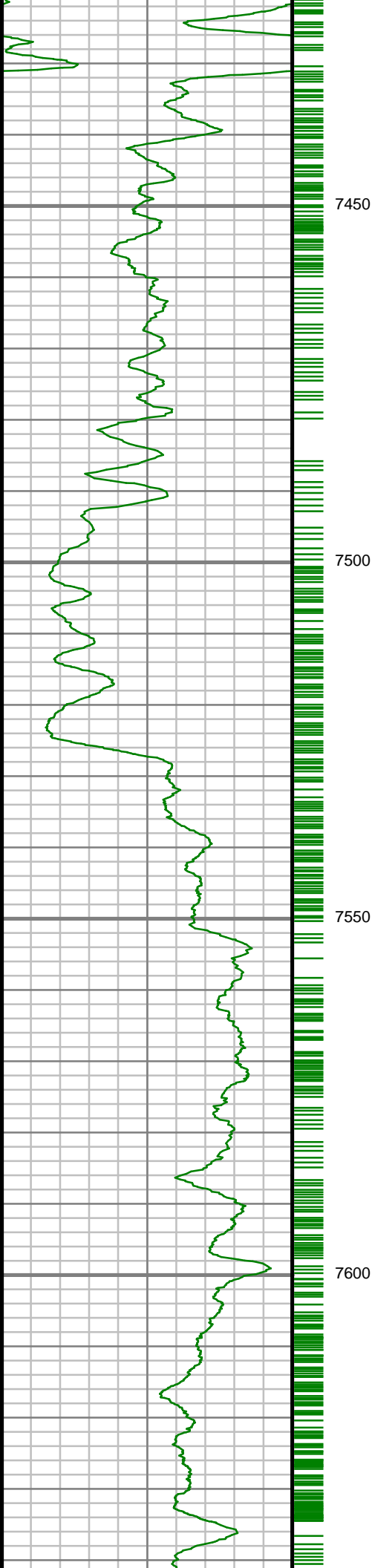
S: 75 MD: 7091.00 ft
Inc: 14.85 deg Az:
181.70 deg TVD:
6988.57 ft

S: 76 MD: 7186.00 ft
Inc: 25.28 deg Az:
174.44 deg TVD:
7077.69 ft



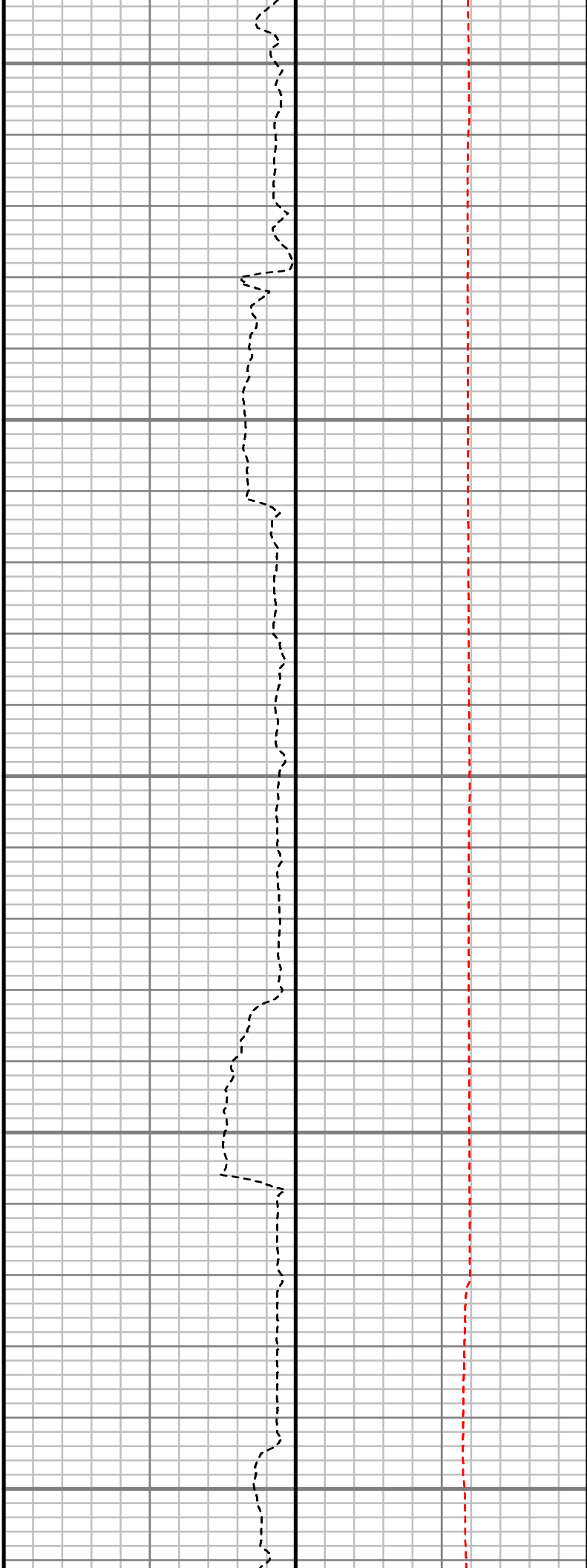
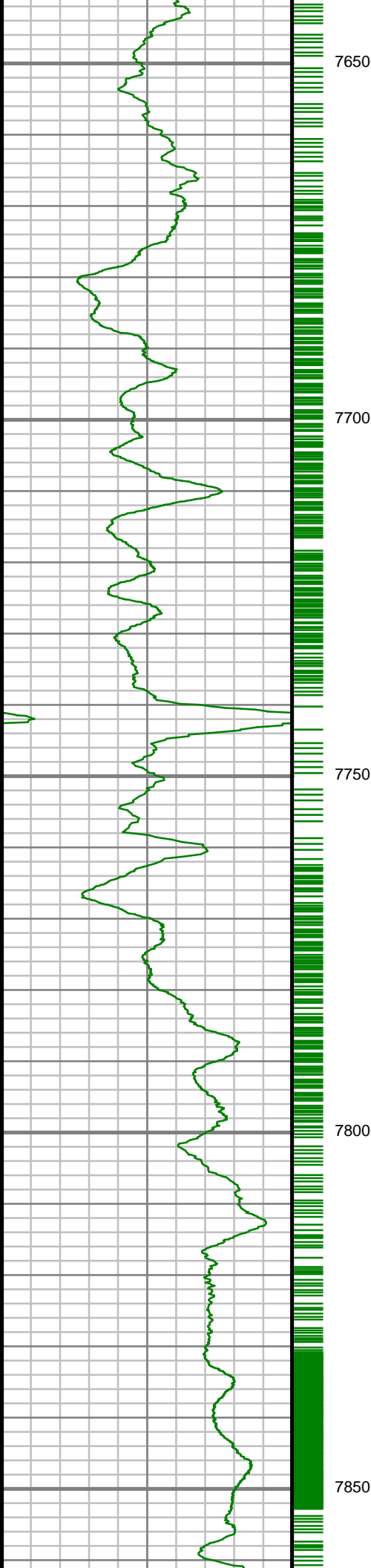
S: 77 MD: 7280.00 ft
Inc: 31.32 deg Az:
176.47 deg TVD:
7160.42 ft

S: 78 MD: 7374.00 ft
Inc: 37.15 deg Az:
180.69 deg TVD:
7238.11 ft



S: 79 MD: 7468.00 ft
Inc: 46.43 deg Az:
182.30 deg TVD:
7308.11 ft

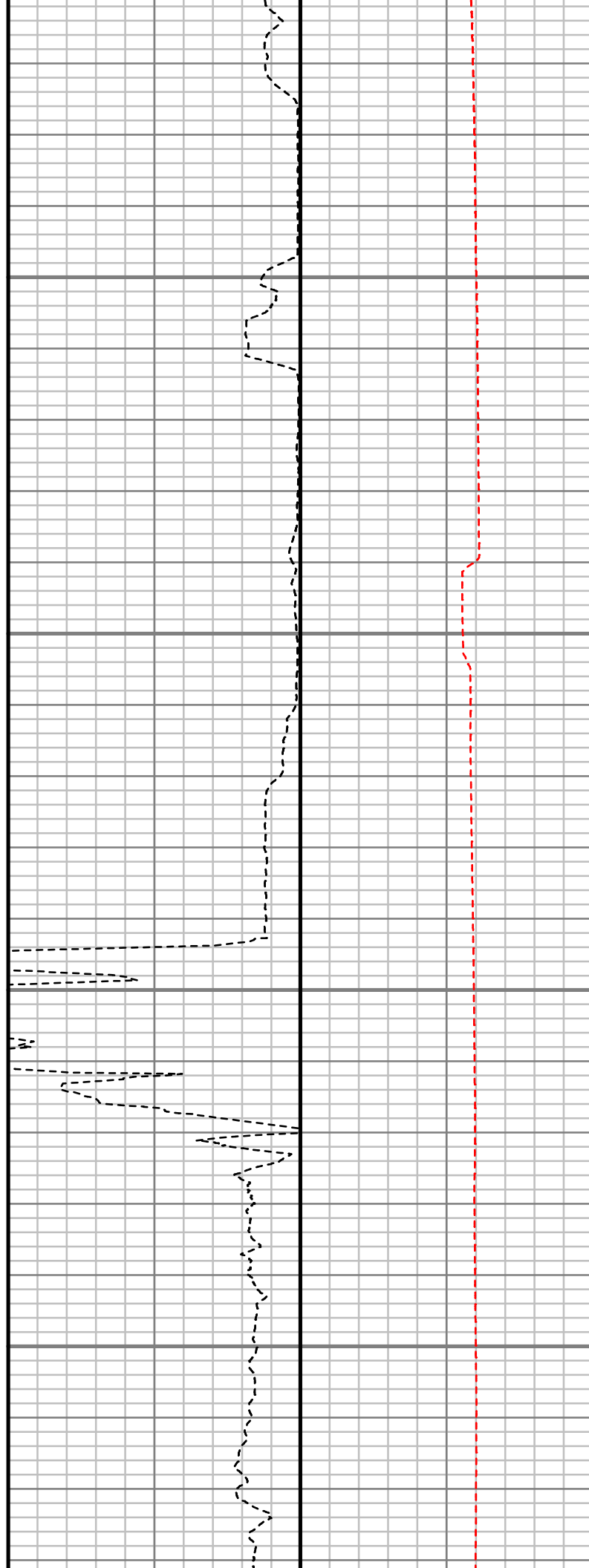
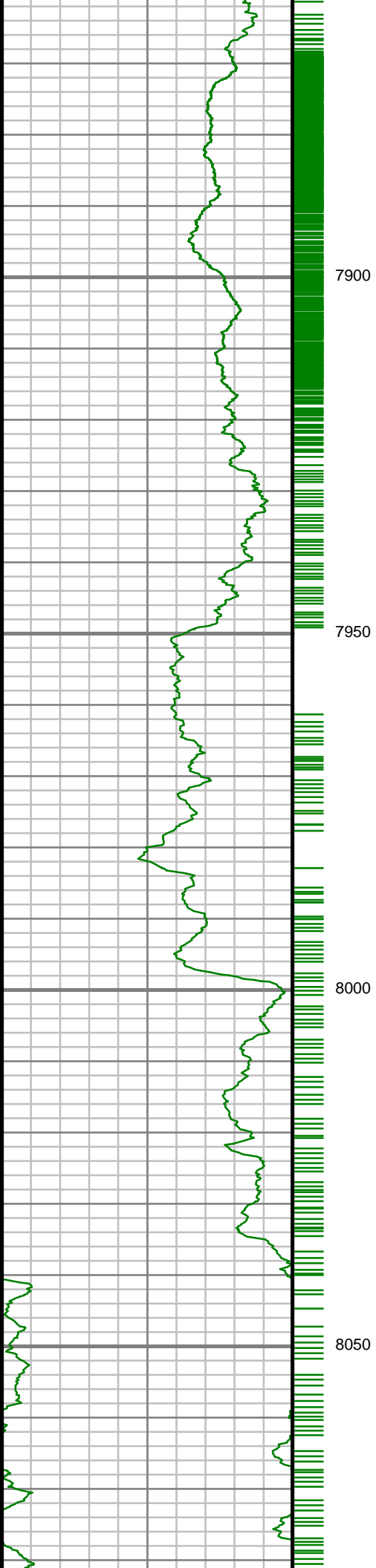
S: 80 MD: 7563.00 ft
Inc: 54.58 deg Az:
181.15 deg TVD:
7368.48 ft



S: 81 MD: 7657.00 ft
Inc: 61.23 deg Az:
179.75 deg TVD:
7418.40 ft

S: 82 MD: 7751.00 ft
Inc: 67.14 deg Az:
182.66 deg TVD:
7459.33 ft

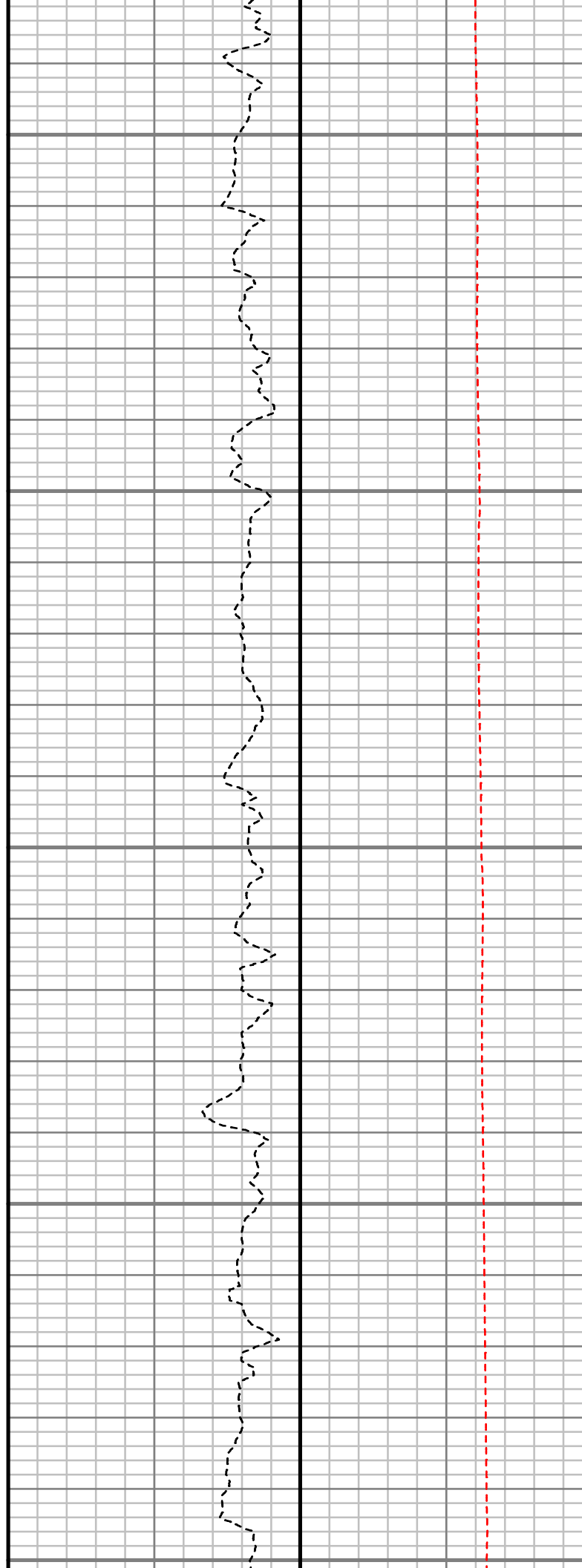
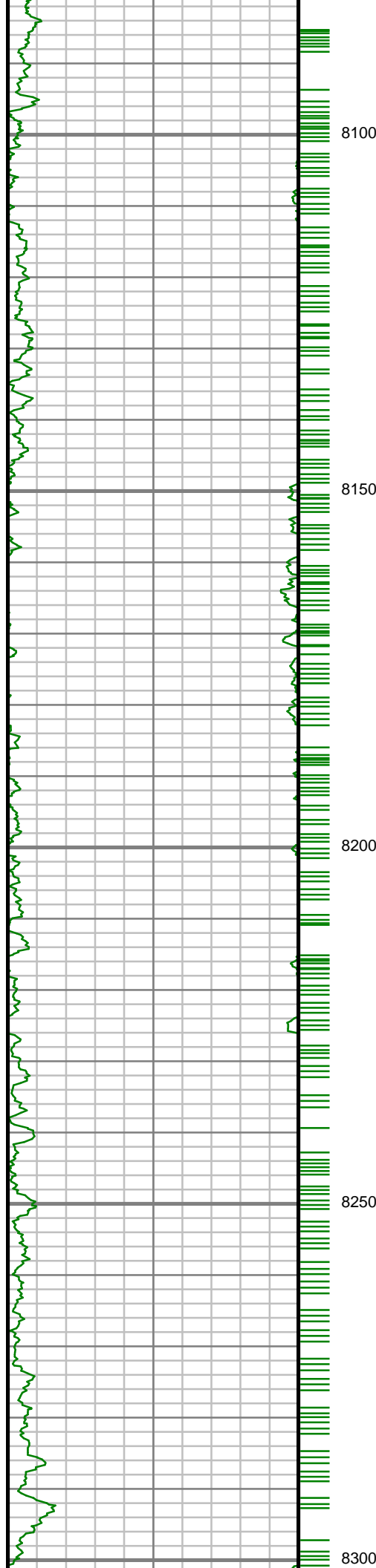
S: 83 MD: 7845.00 ft
Inc: 76.45 deg Az:
184.54 deg TVD:
7488.68 ft



S: 84 MD: 7939.00 ft
Inc: 86.54 deg Az:
183.60 deg TVD:
7502.56 ft

S: 85 MD: 8010.00 ft
Inc: 89.56 deg Az:
184.18 deg TVD:
7504.97 ft

S: 86 MD: 8057.00 ft
Inc: 89.97 deg Az:
184.56 deg TVD:
7505.17 ft

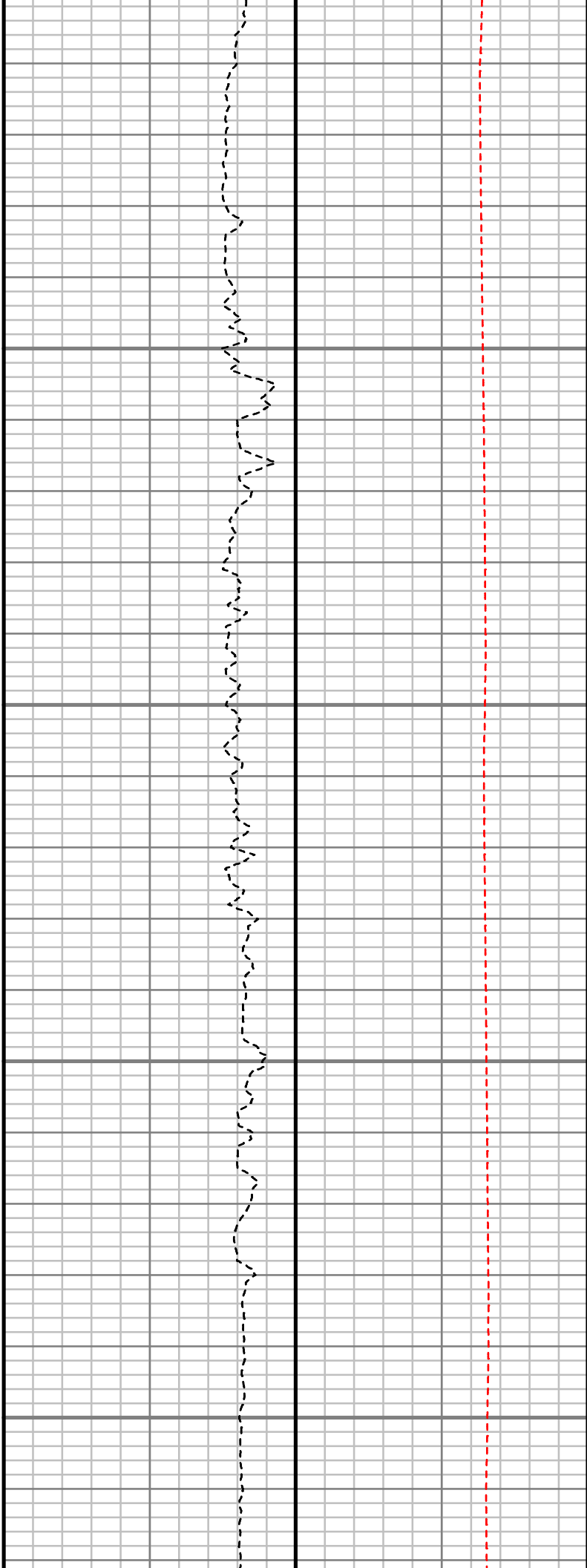
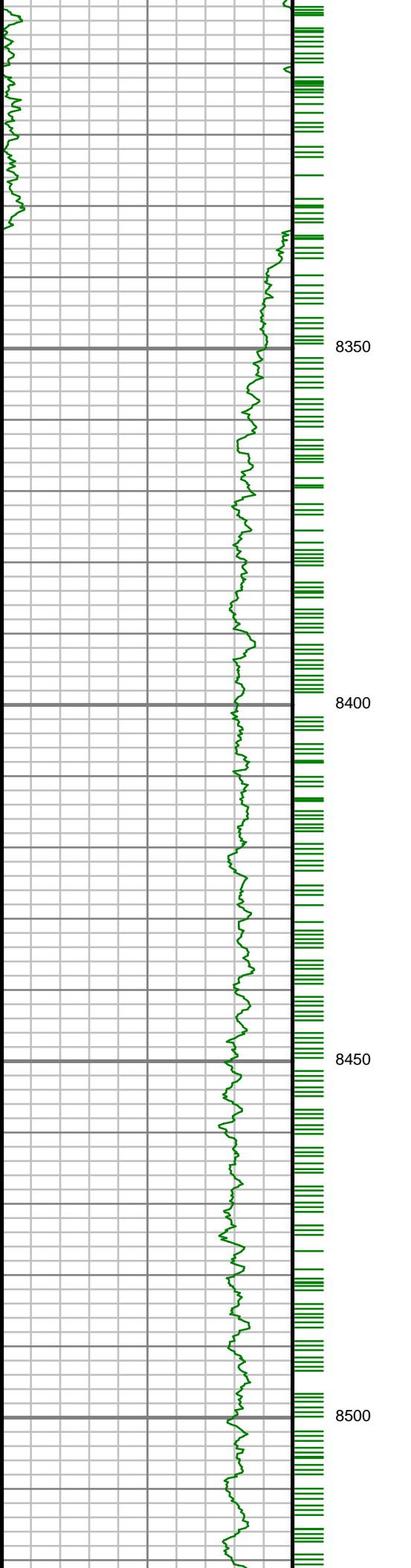


S: 87 MD: 8105.00 ft
Inc: 90.91 deg Az:
185.16 deg TVD:
7504.80 ft

S: 88 MD: 8152.00 ft
Inc: 91.54 deg Az:
183.90 deg TVD:
7503.80 ft

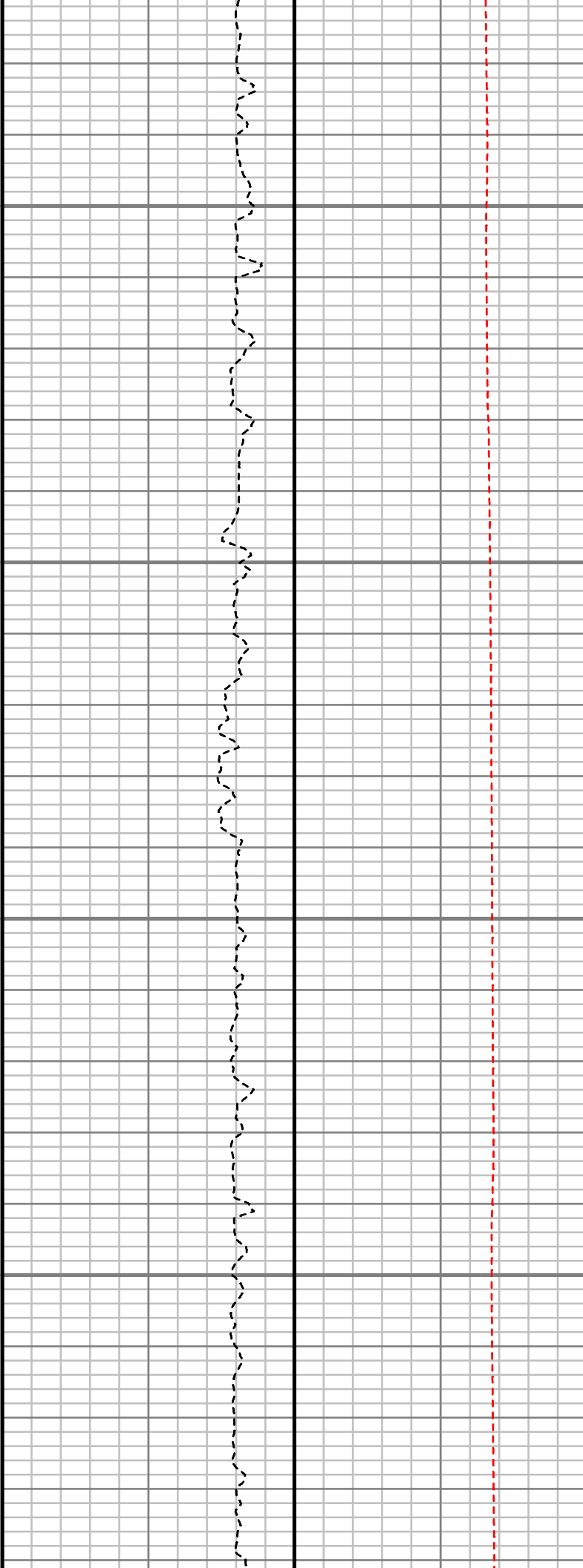
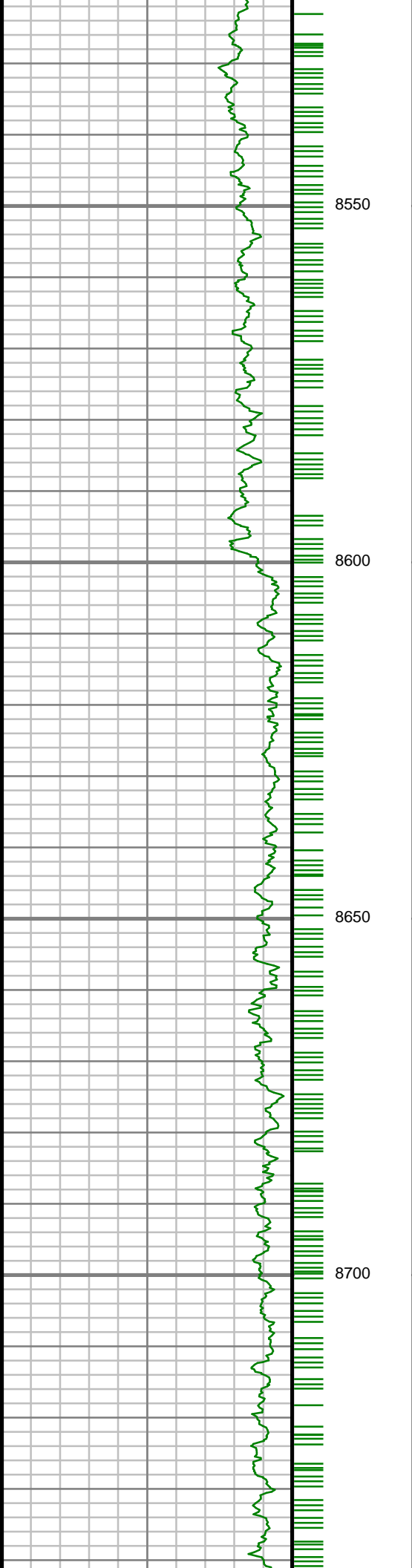
S: 89 MD: 8199.00 ft
Inc: 91.01 deg Az:
182.08 deg TVD:
7502.75 ft

S: 90 MD: 8293.00 ft
Inc: 91.64 deg Az:
181.91 deg TVD:



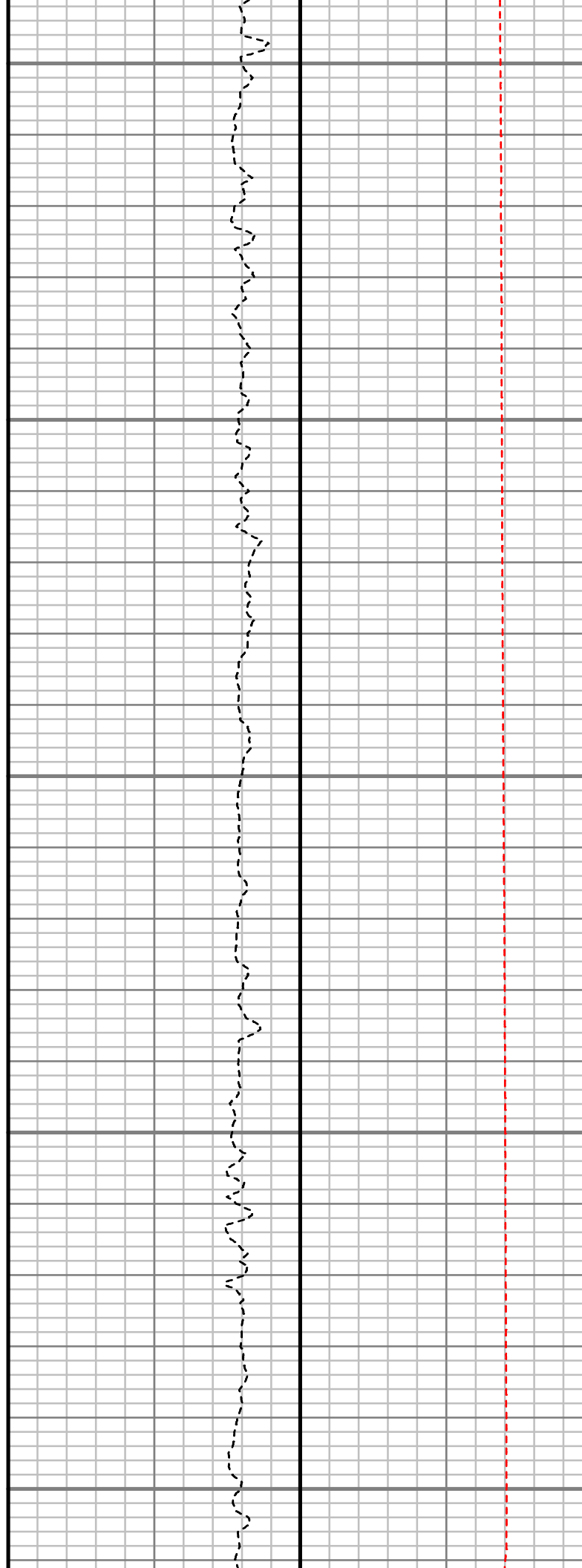
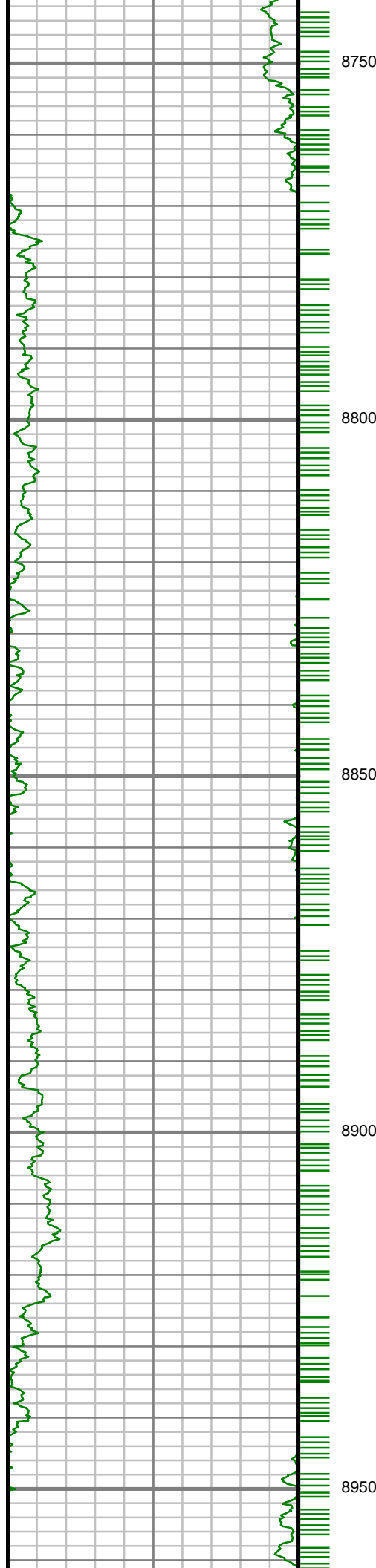
S: 91 MD: 8388.00 ft
Inc: 90.10 deg Az:
180.28 deg TVD:
7499.13 ft

S: 92 MD: 8482.00 ft
Inc: 90.13 deg Az:
180.60 deg TVD:
7498.94 ft



S: 93 MD: 8576.00 ft
Inc: 90.47 deg Az:
180.50 deg TVD:
7498.44 ft

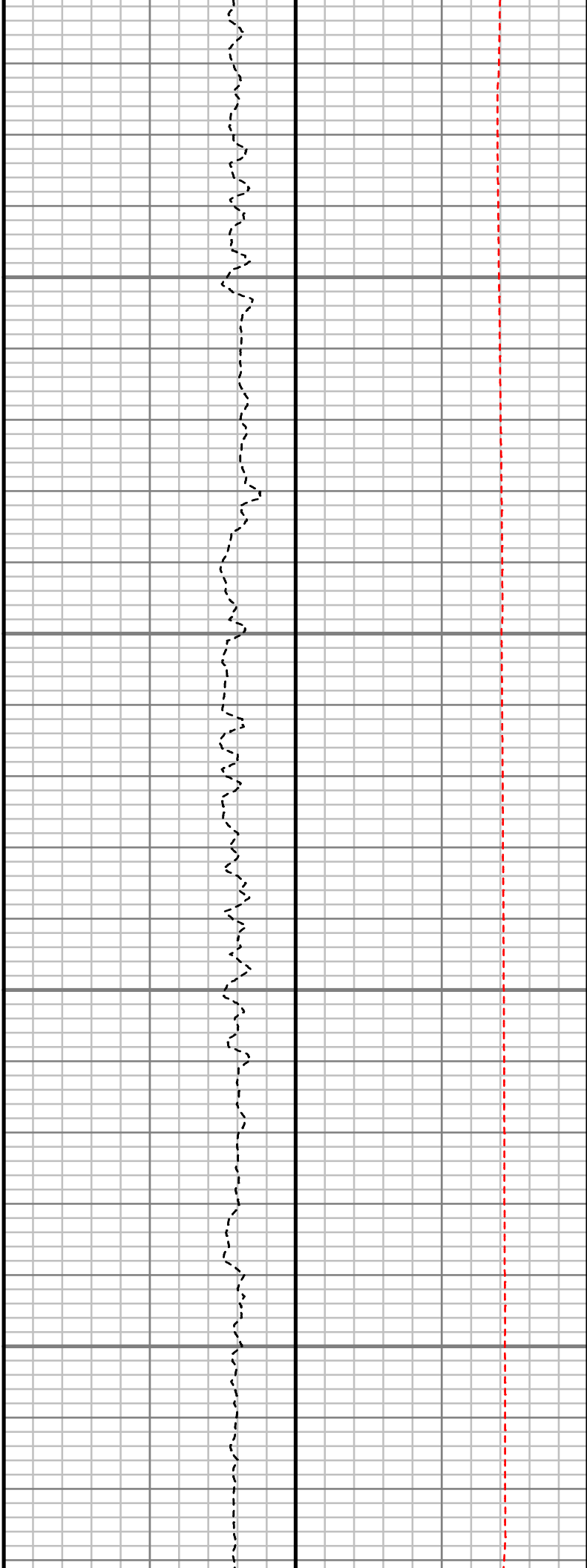
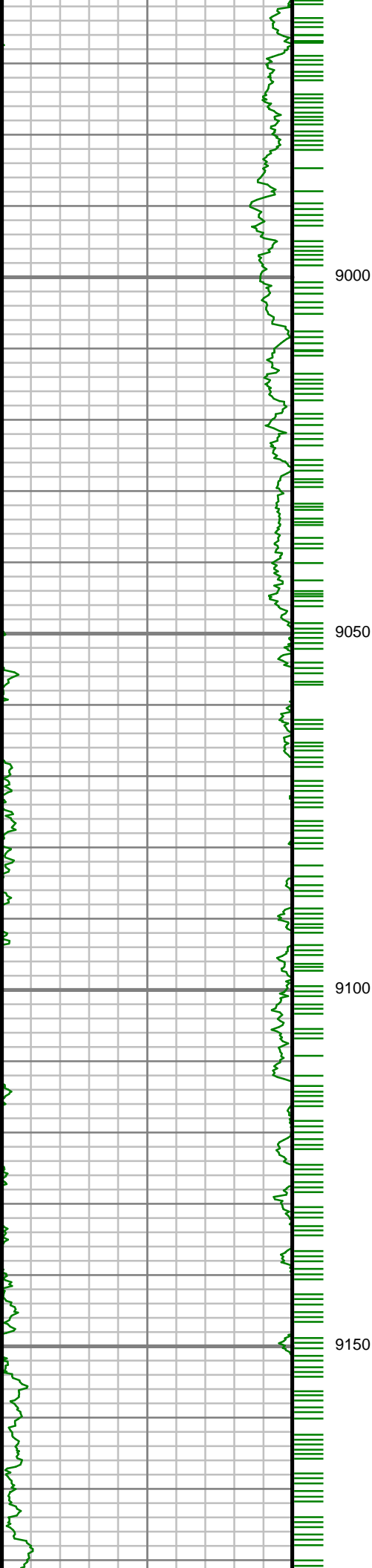
S: 94 MD: 8671.00 ft
Inc: 91.41 deg Az:
180.59 deg TVD:
7496.88 ft



S: 95 MD: 8765.00 ft
Inc: 90.87 deg Az:
179.67 deg TVD:
7495.01 ft

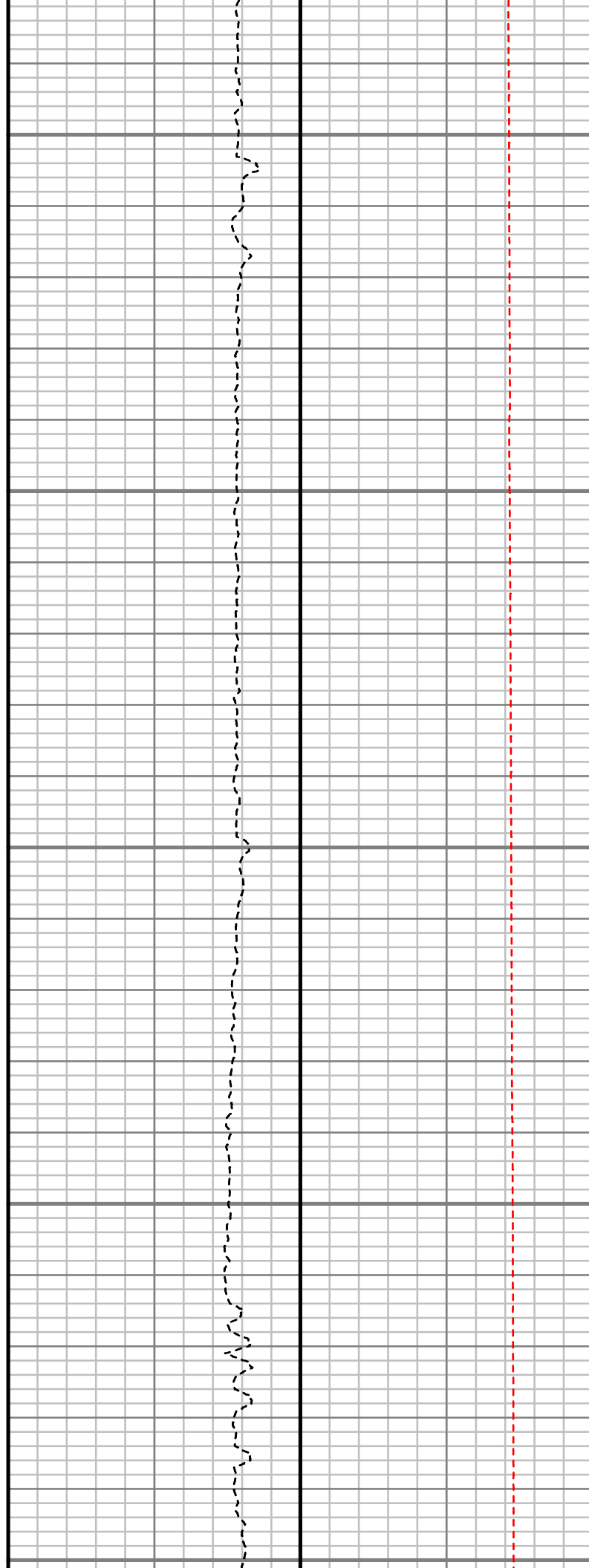
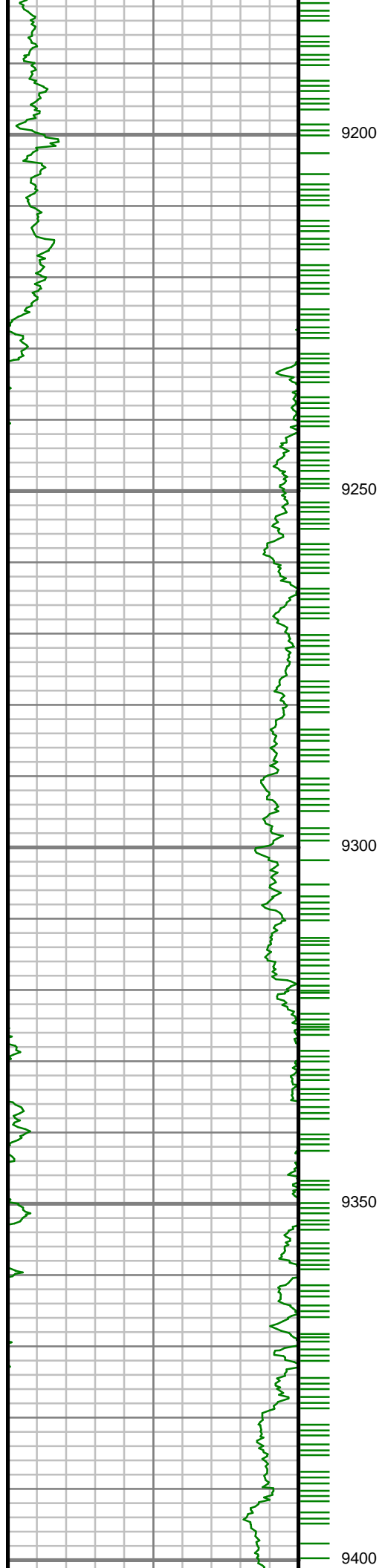
S: 96 MD: 8859.00 ft
Inc: 90.84 deg Az:
179.78 deg TVD:
7493.61 ft

S: 97 MD: 8953.00 ft
Inc: 90.54 deg Az:
179.45 deg TVD:



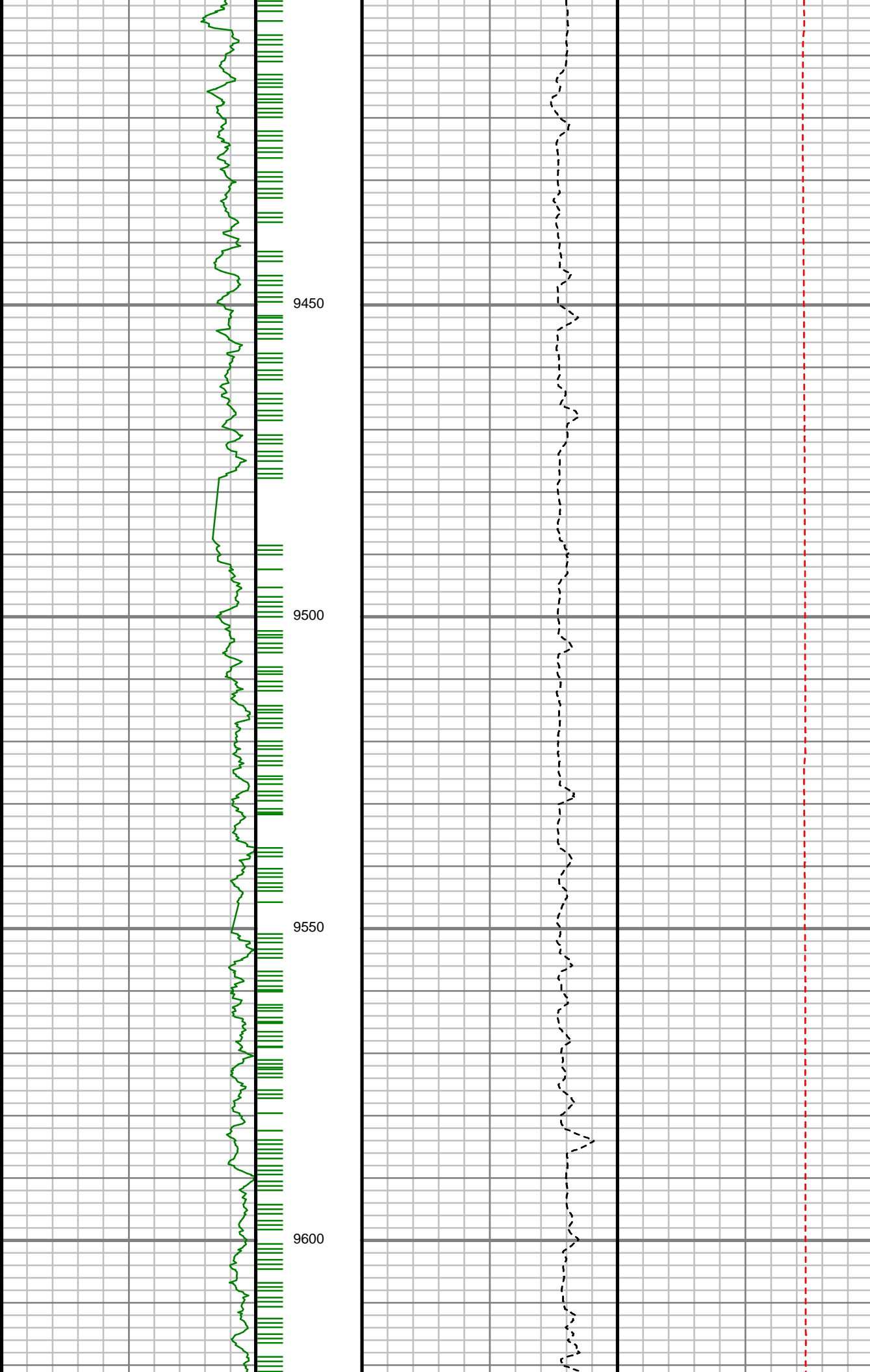
S: 98 MD: 9048.00 ft
Inc: 90.67 deg Az:
178.23 deg TVD:
7491.48 ft

S: 99 MD: 9142.00 ft
Inc: 90.81 deg Az:
178.65 deg TVD:
7490.26 ft



S: 100 MD: 9236.00 ft
Inc: 90.47 deg Az:
178.38 deg TVD:
7489.22 ft

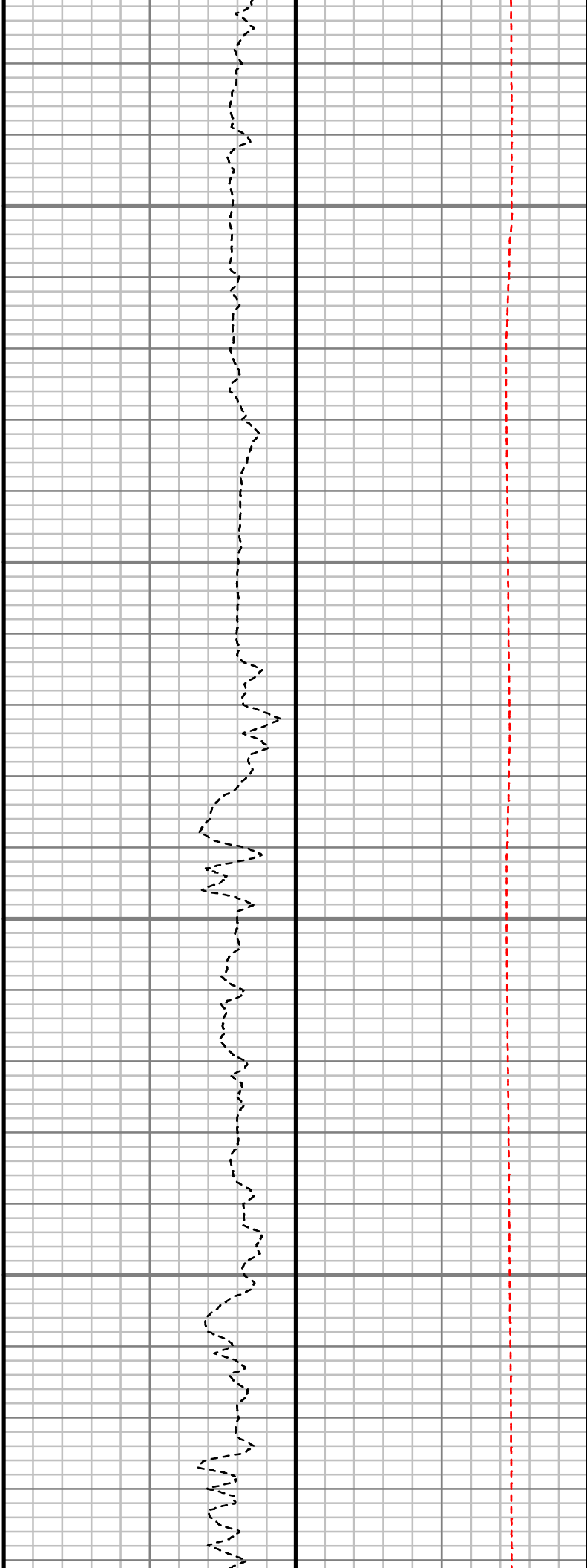
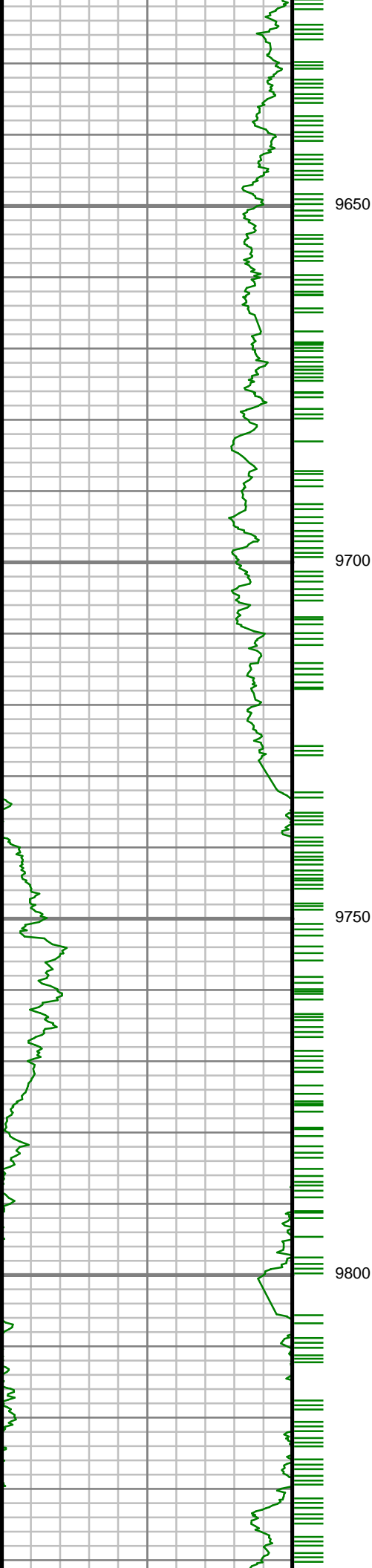
S: 101 MD: 9331.00 ft
Inc: 90.71 deg Az:
178.59 deg TVD:
7488.24 ft



S: 102 MD: 9425.00 ft
Inc: 90.47 deg Az:
178.28 deg TVD:
7487.28 ft

S: 103 MD: 9520.00 ft
Inc: 90.20 deg Az:
178.29 deg TVD:
7486.72 ft

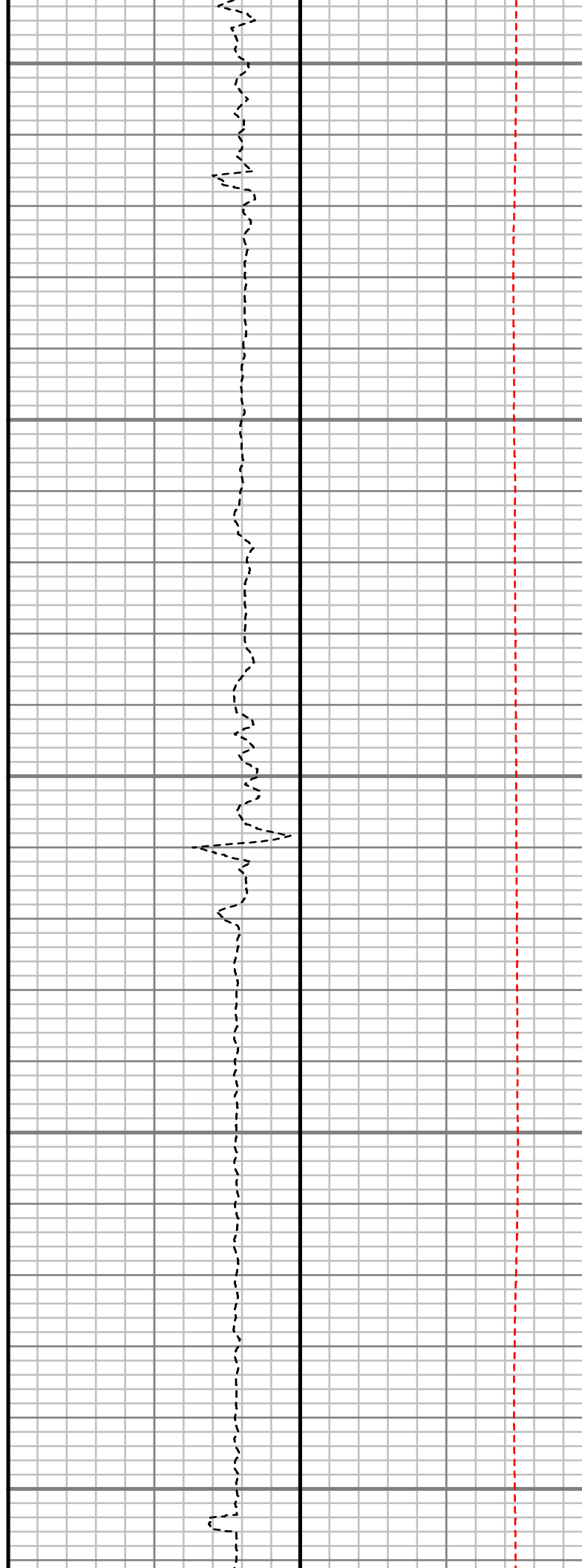
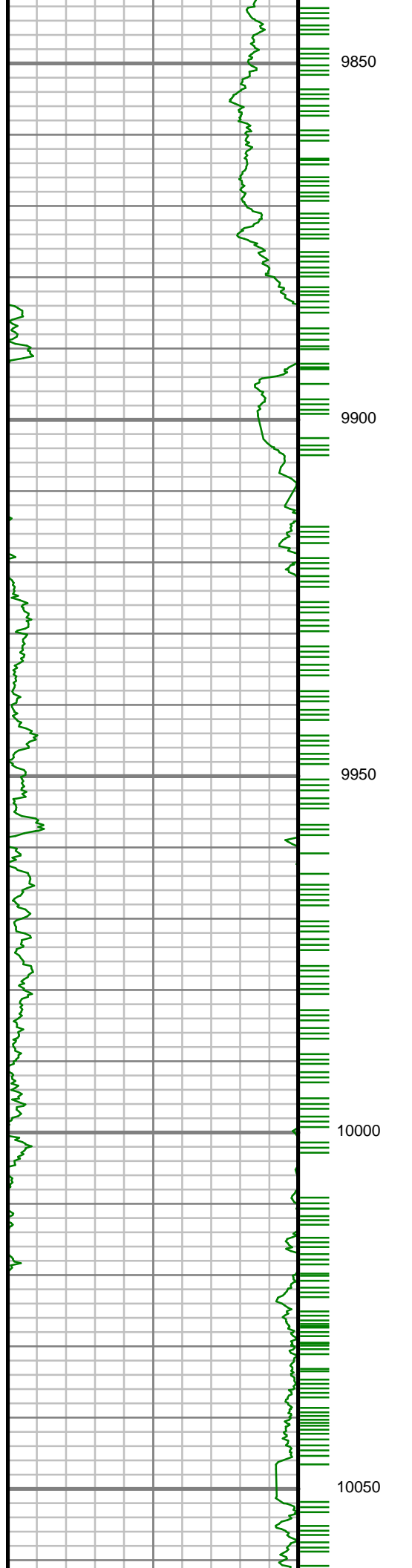
S: 104 MD: 9614.00 ft
Inc: 90.23 deg Az:
178.60 deg TVD:



7486.36 ft

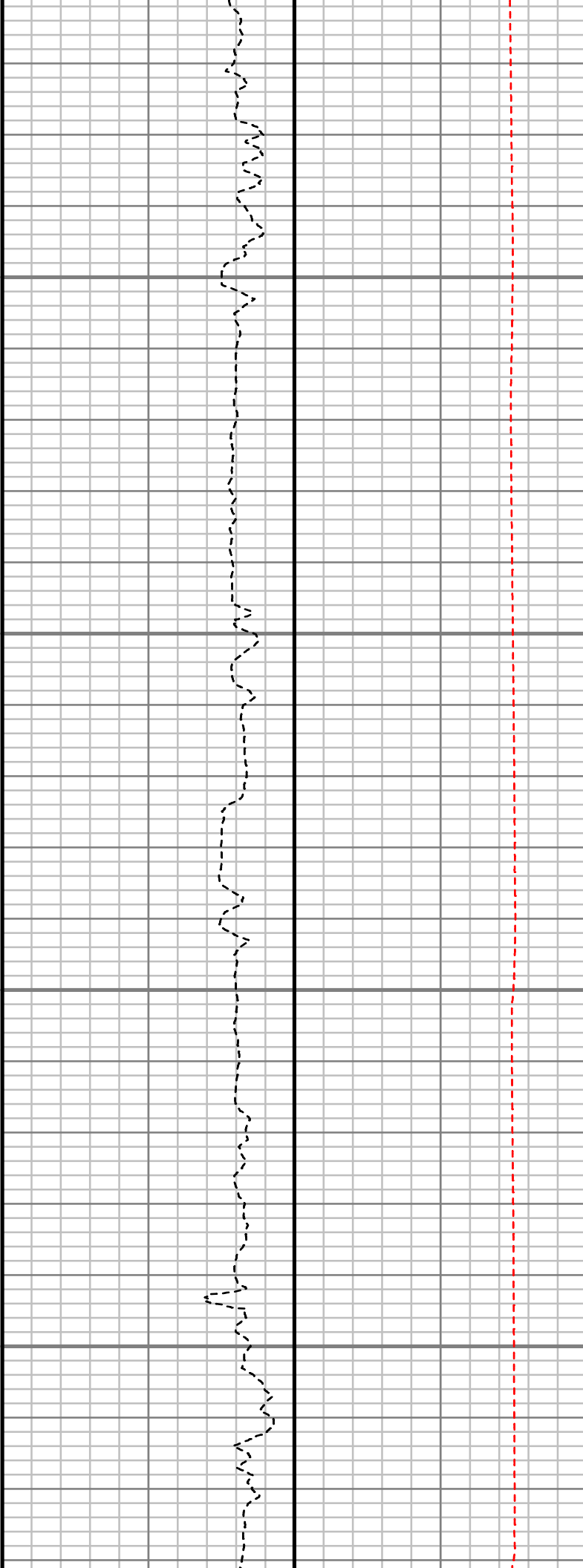
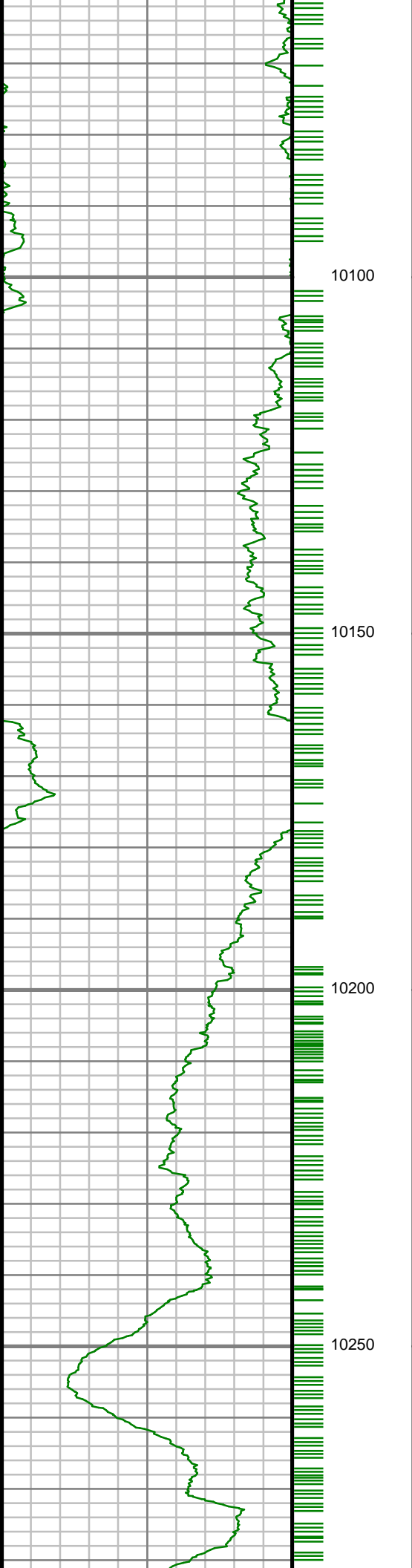
S: 105 MD: 9708.00 ft
Inc: 89.53 deg Az:
177.13 deg TVD:
7486.56 ft

S: 106 MD: 9802.00 ft
Inc: 90.71 deg Az:
177.77 deg TVD:
7486.36 ft



S: 107 MD: 9897.00 ft
Inc: 88.99 deg Az:
176.28 deg TVD:
7486.61 ft

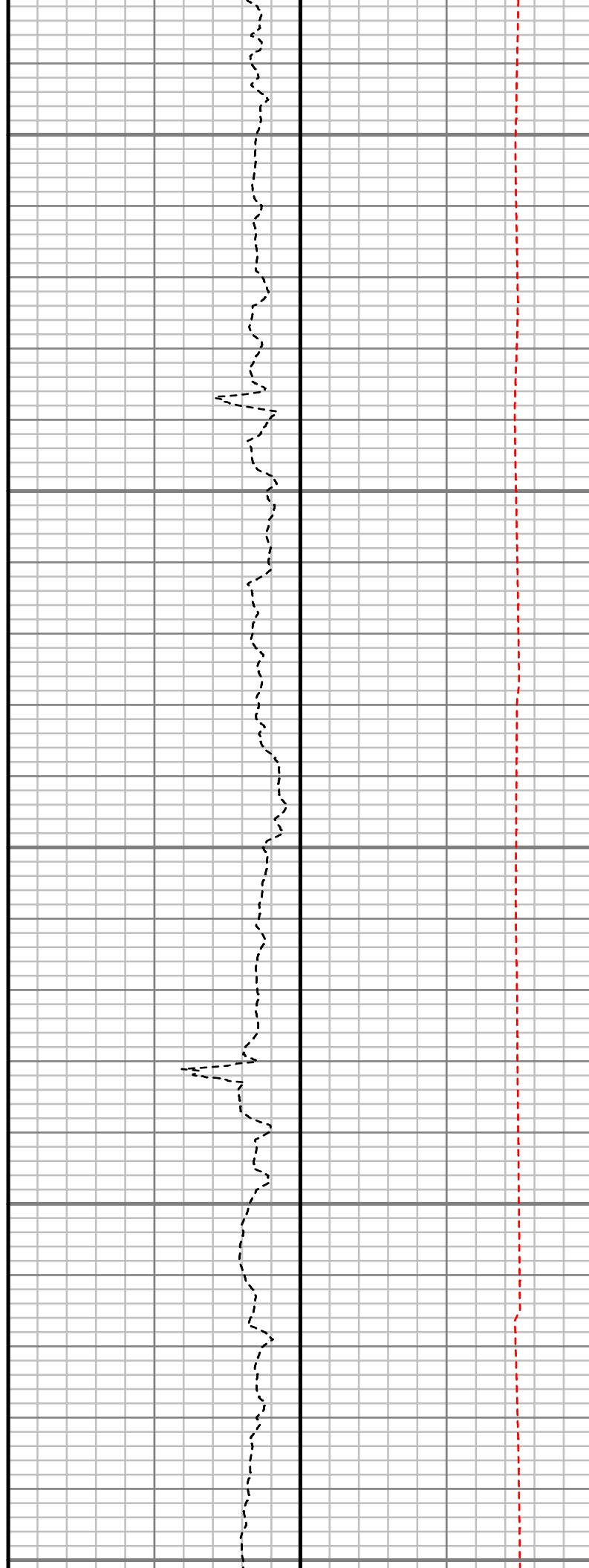
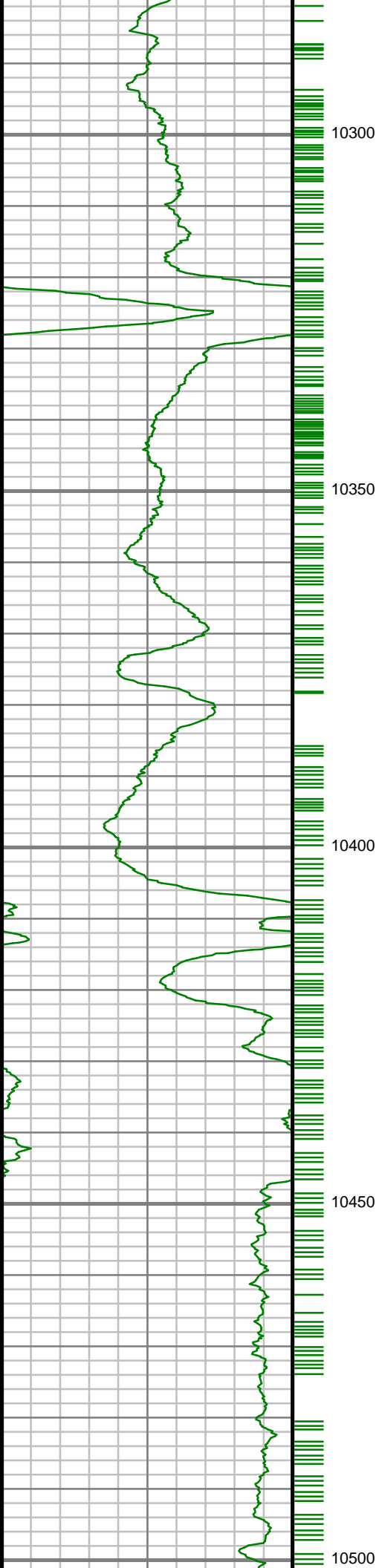
S: 108 MD: 9991.00 ft
Inc: 90.03 deg Az:
176.07 deg TVD:
7487.41 ft



S: 109 MD: 10085.00 ft
Inc: 90.84 deg Az:
177.61 deg TVD:
7486.69 ft

S: 110 MD: 10180.00 ft
Inc: 91.21 deg Az:
179.34 deg TVD:
7485.00 ft

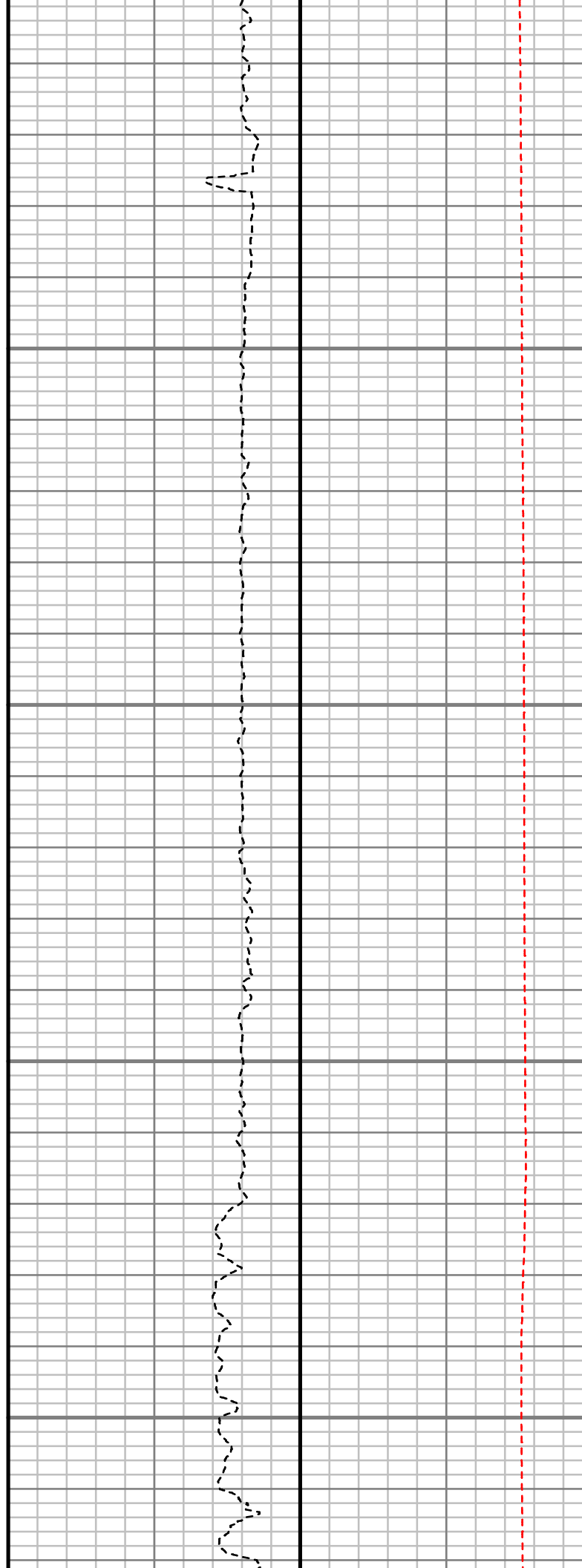
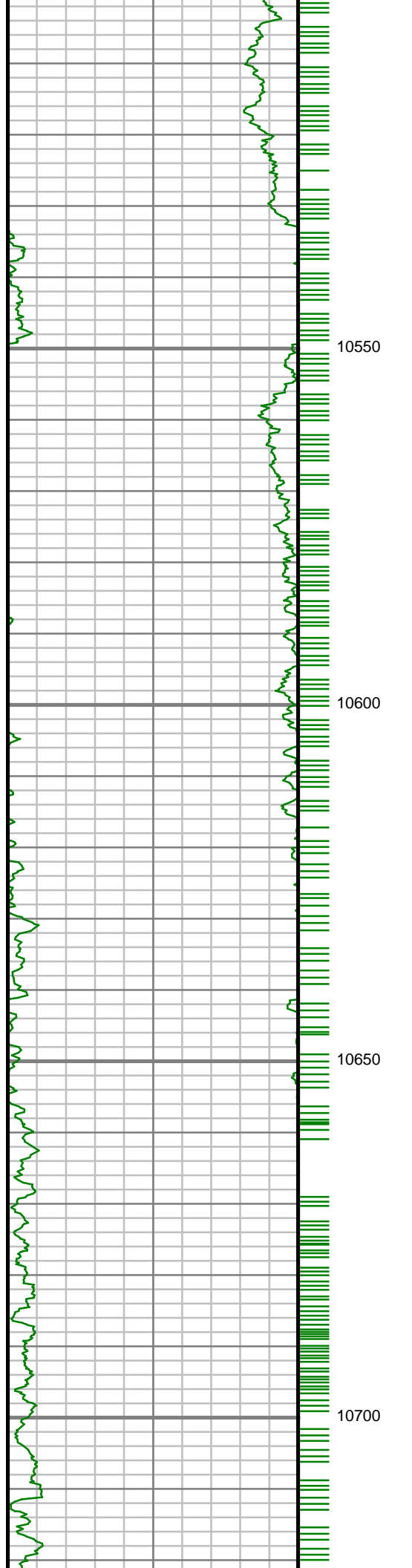
S: 111 MD: 10274.00 ft
Inc: 91.78 deg Az:
179.57 deg TVD:



7482.55 ft

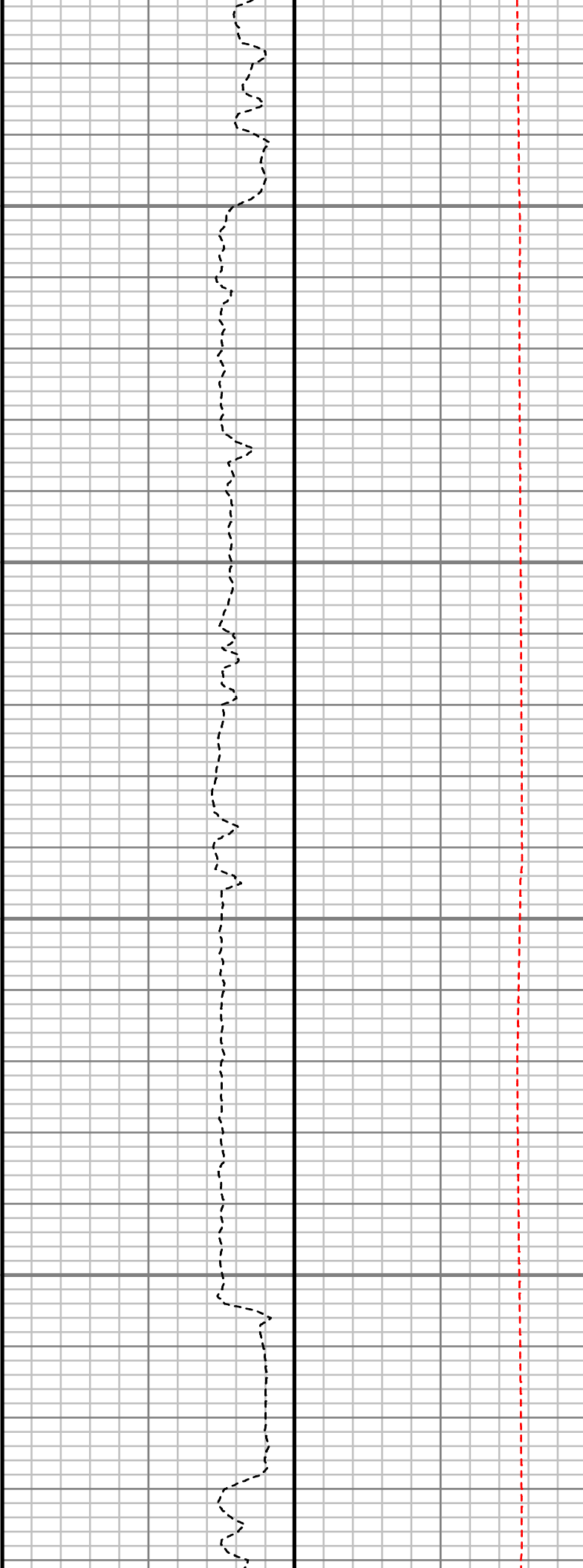
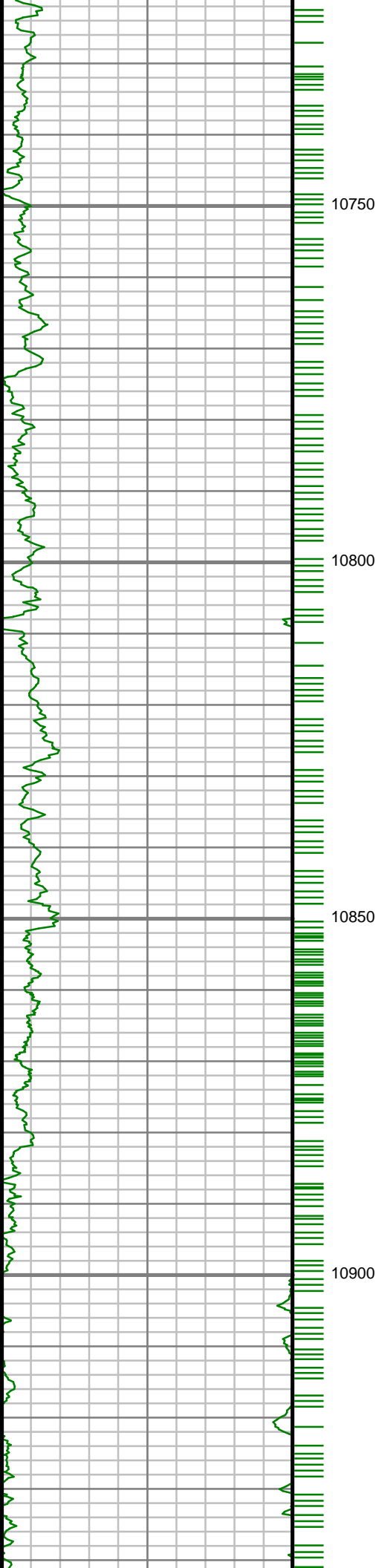
S: 112 MD: 10368.00 ft
Inc: 92.18 deg Az:
181.37 deg TVD:
7479.30 ft

S: 113 MD: 10463.00 ft
Inc: 88.99 deg Az:
181.58 deg TVD:
7478.33 ft



S: 114 MD: 10557.00 ft
Inc: 88.72 deg Az:
181.85 deg TVD:
7480.20 ft

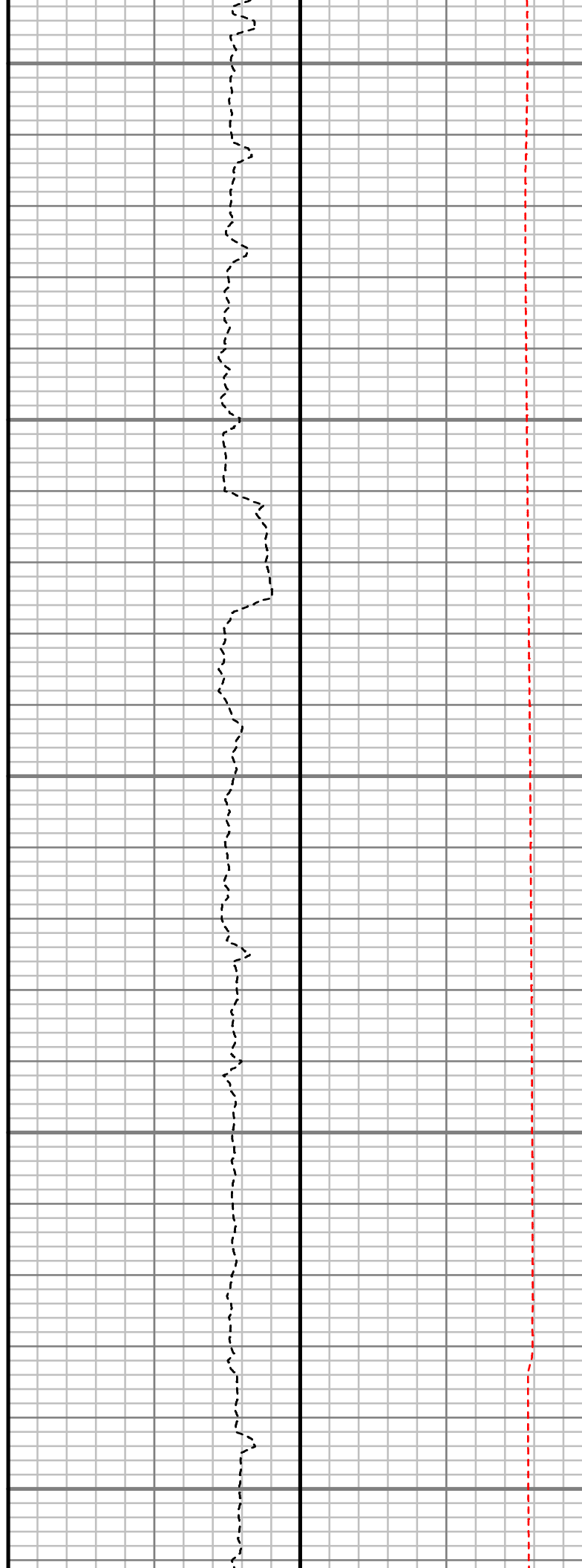
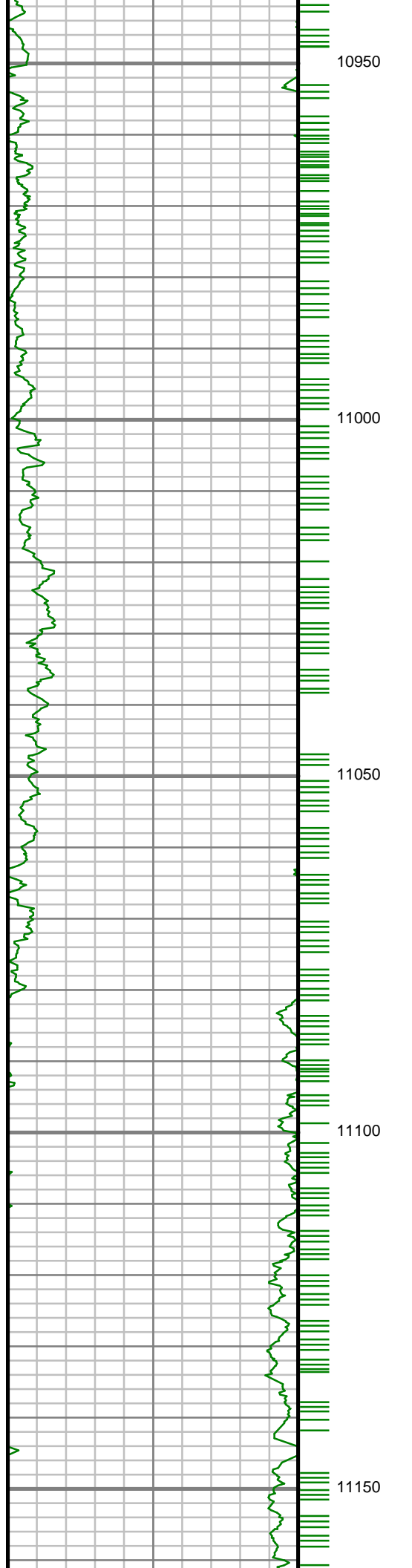
S: 115 MD: 10652.00 ft
Inc: 88.66 deg Az:
182.06 deg TVD:
7482.37 ft



S: 116 MD: 10746.00 ft
Inc: 88.72 deg Az:
179.84 deg TVD:
7484.52 ft

S: 117 MD: 10840.00 ft
Inc: 87.95 deg Az:
177.95 deg TVD:
7487.25 ft

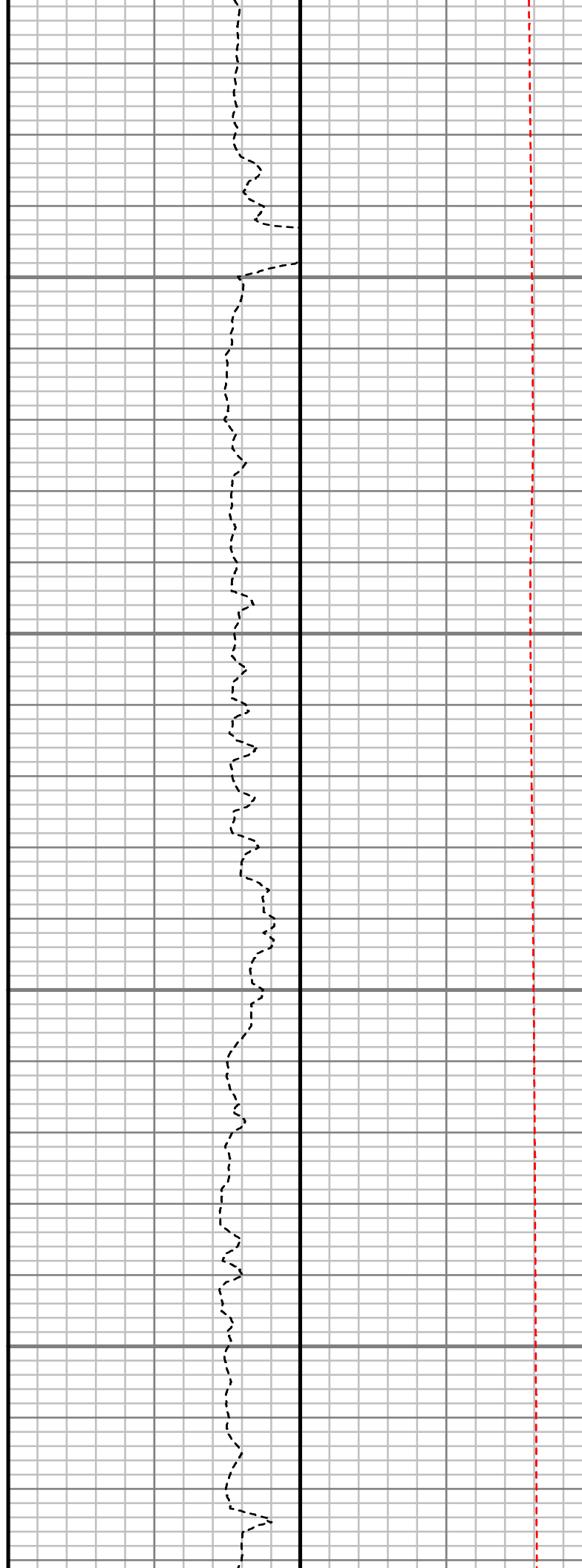
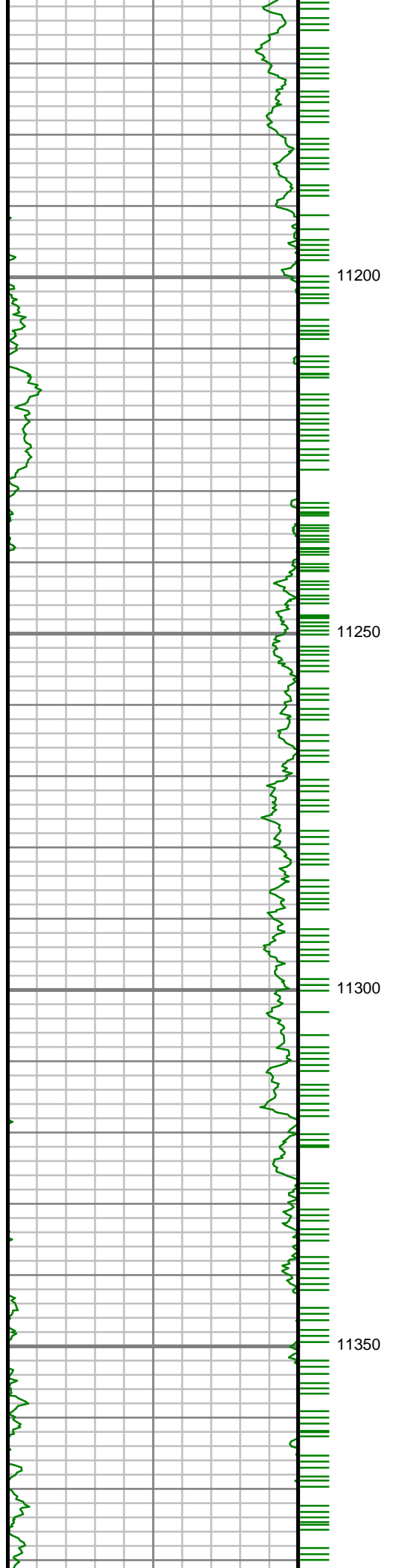
S: 118 MD: 10934.00 ft
Inc: 89.43 deg Az:
178.51 deg TVD:



7489.40 ft

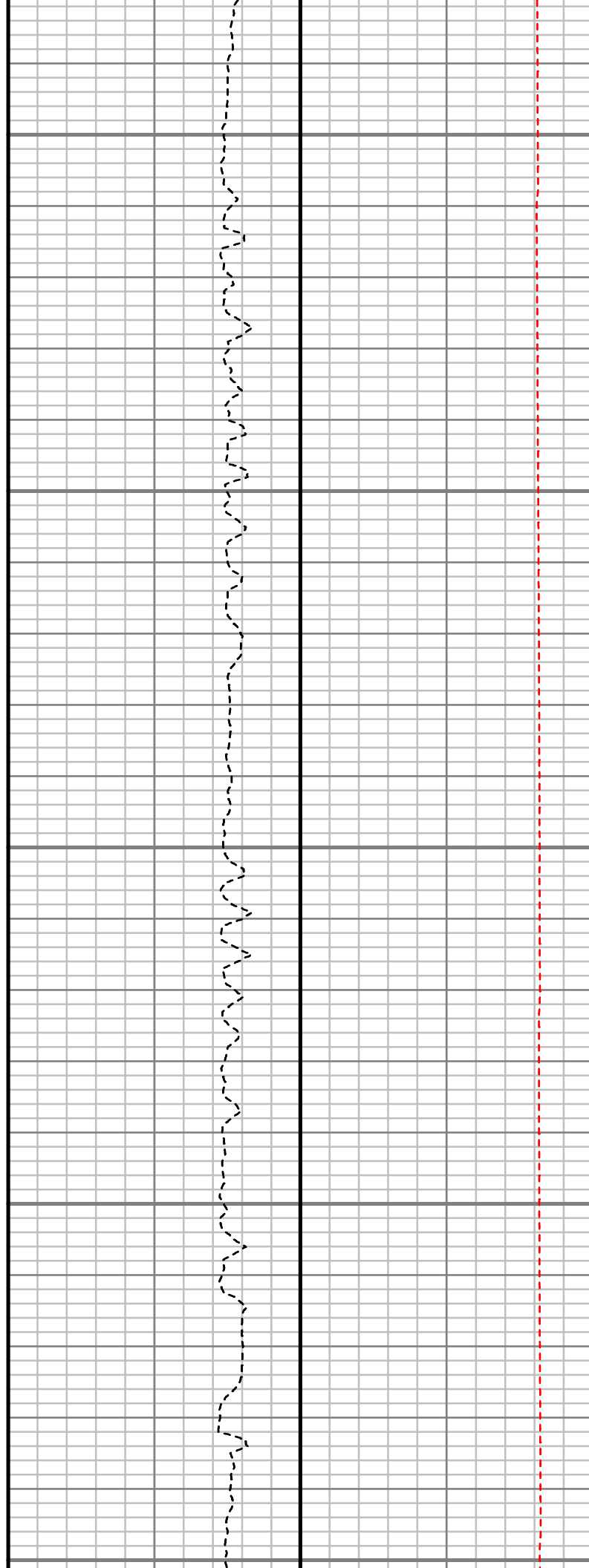
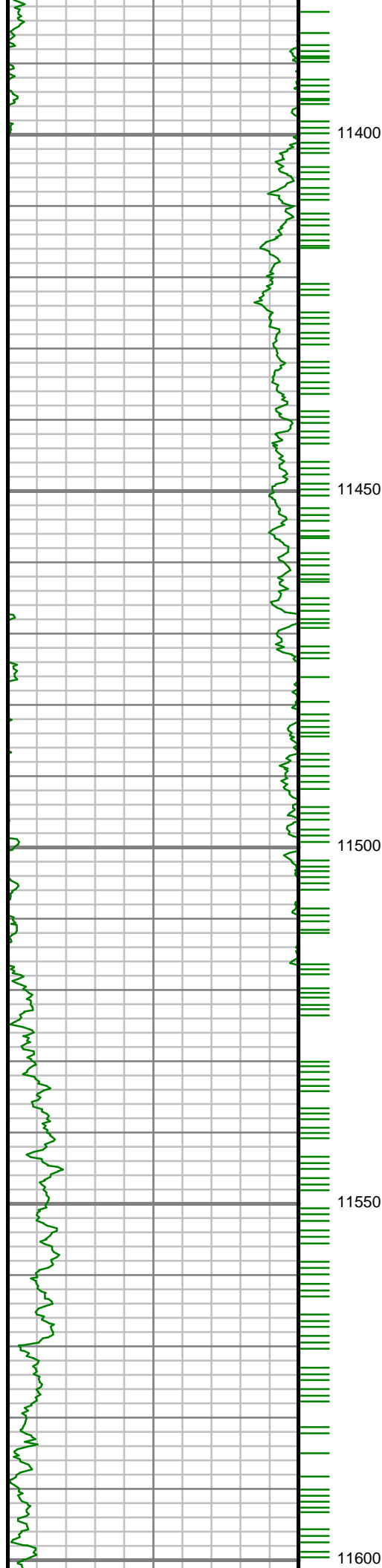
S: 119 MD: 11029.00 ft
Inc: 91.01 deg Az:
180.30 deg TVD:
7489.04 ft

S: 120 MD: 11123.00 ft
Inc: 90.34 deg Az:
179.60 deg TVD:
7487.93 ft



S: 121 MD: 11217.00 ft
Inc: 90.67 deg Az:
180.26 deg TVD:
7487.11 ft

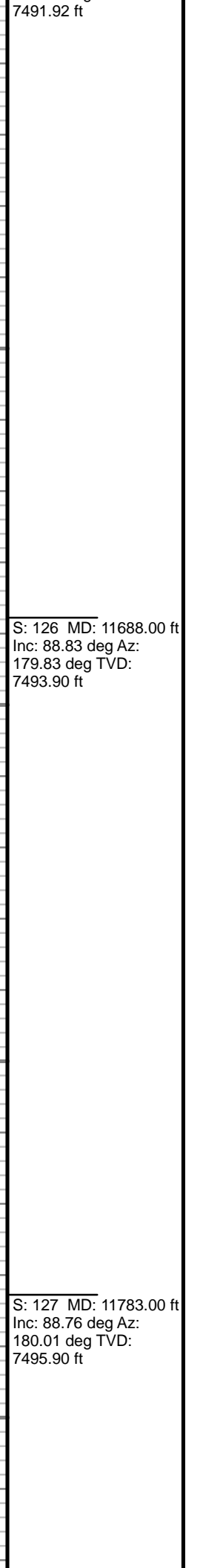
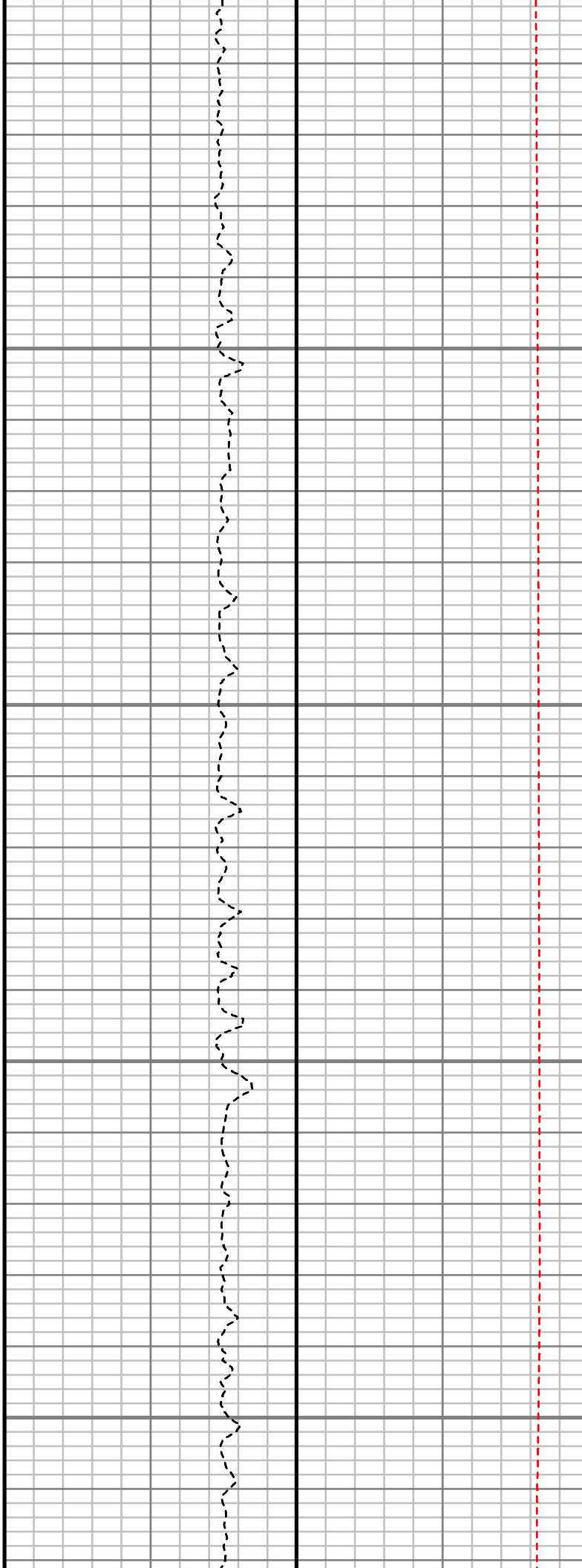
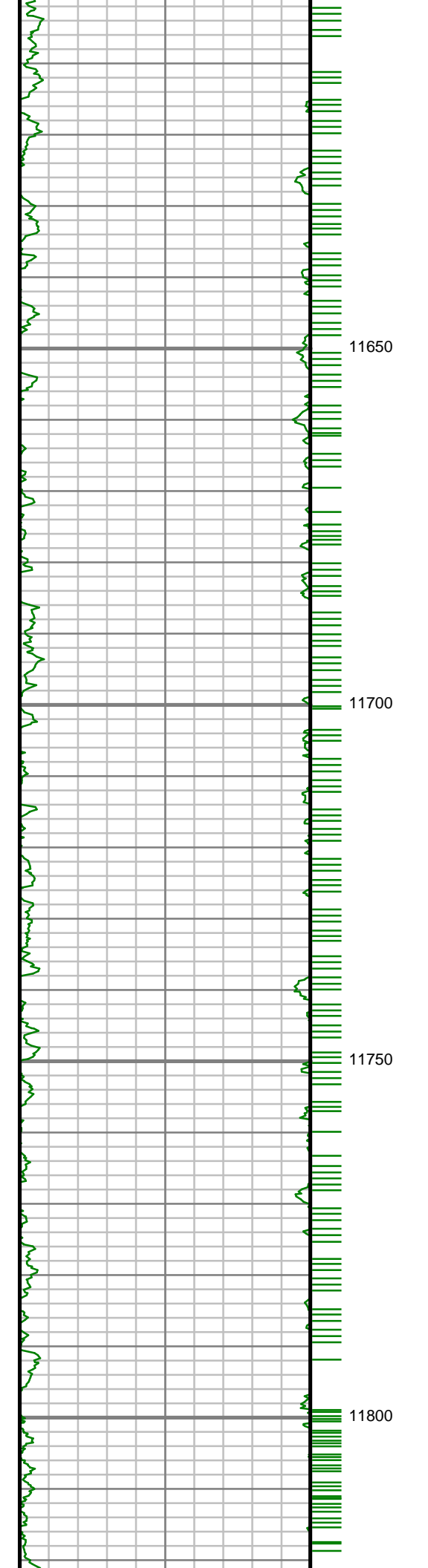
S: 122 MD: 11312.00 ft
Inc: 89.23 deg Az:
179.72 deg TVD:
7487.19 ft

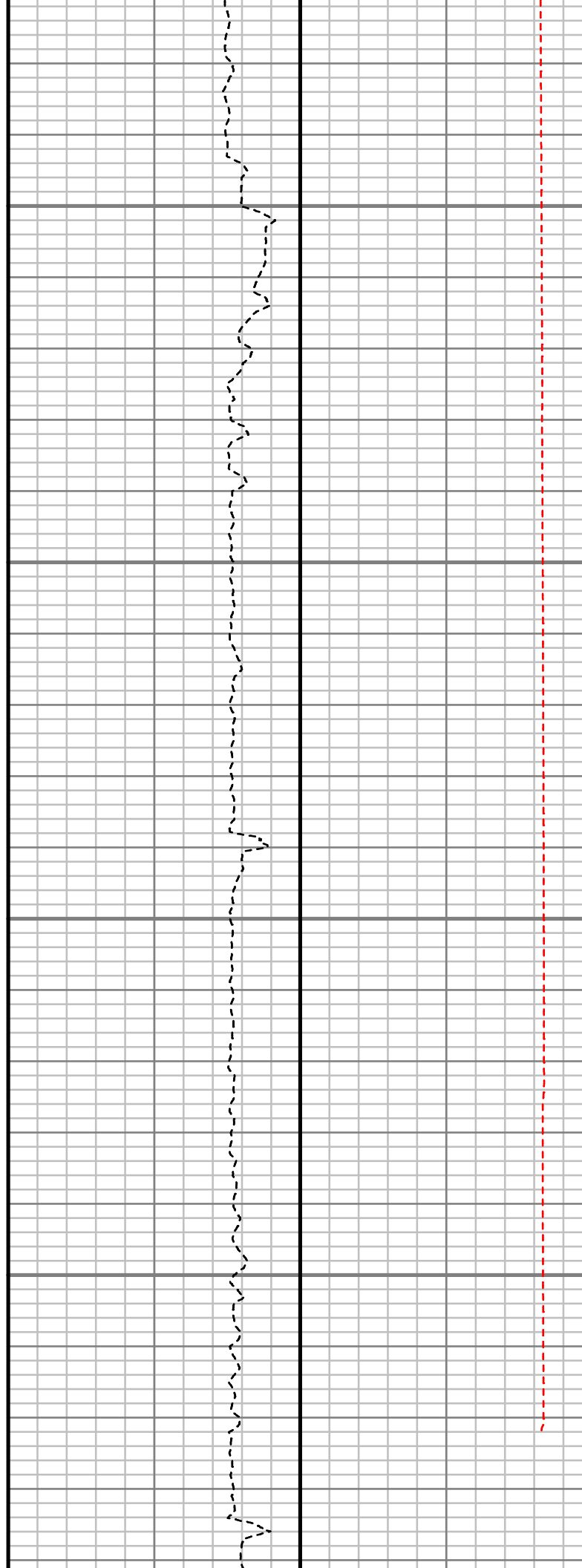
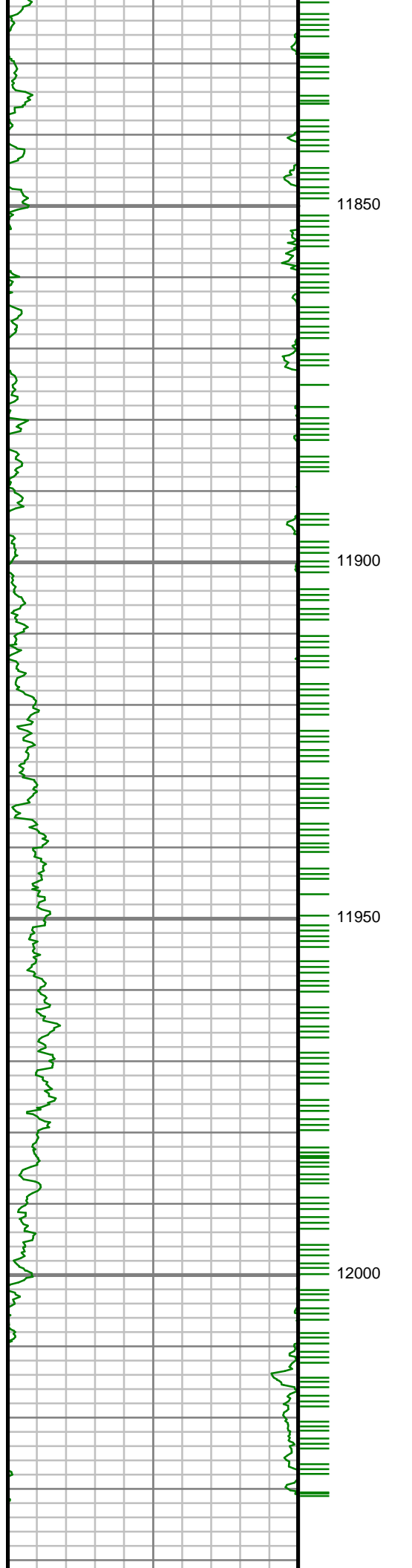


S: 123 MD: 11406.00 ft
Inc: 89.06 deg Az:
179.68 deg TVD:
7488.59 ft

S: 124 MD: 11500.00 ft
Inc: 89.06 deg Az:
179.88 deg TVD:
7490.13 ft

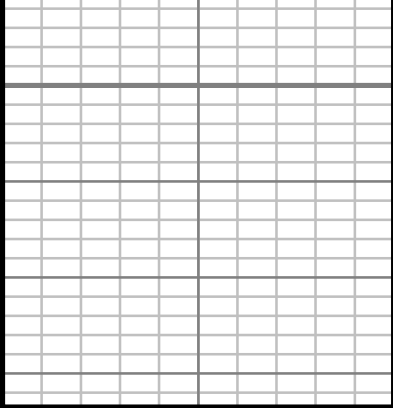
S: 125 MD: 11594.00 ft
Inc: 88.76 deg Az:
179.26 deg TVD:





S: 128 MD: 11877.00 ft
Inc: 89.93 deg Az:
180.53 deg TVD:
7496.98 ft

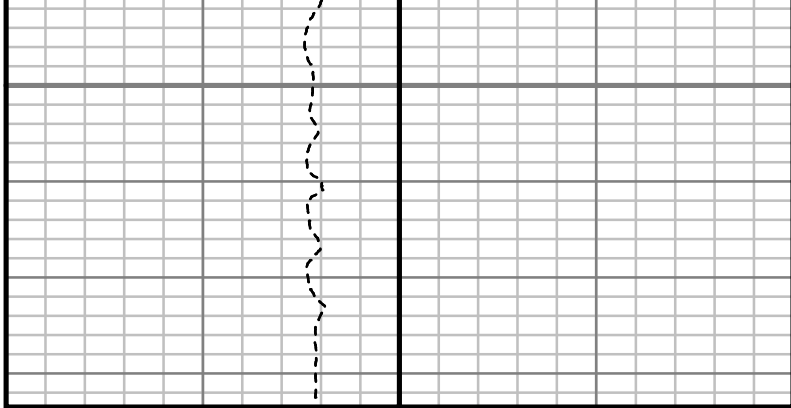
S: 129 MD: 11971.00 ft
Inc: 89.56 deg Az:
180.35 deg TVD:
7497.39 ft



Gamma Ray (GR)		
150	Unit = aapi	300

12050

MEASURED DEPTH
1:240 (ft)



Rate of Penetration (ROP)		
1000	Unit = ft/hr	0

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

Comments

MWD Survey Report

Well Location	WARDELL 2G-19HZ
Well Name	WARDELL 2G-19HZ
Survey Date	10/28/2014
Latitude	40°13.00619'N
Longitude	104°42.13266'W
Btotal	52510 nT
Dip	66.85 deg
Magnetic Declination	8.54 deg
North Reference	True North
Grid Correction	None
Depth Reference	RKB (25.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 179.83Azim (deg)
Operator(s)	

Well Notes

SURVEYS FROM 0 FT. TO 1330 FT. WERE ACQUIRED BY MS GYRO MWD.
 SURVEYS FROM 1330 FT. TO 11971 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING
 INTERNATIONAL MWD.

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
125.00	0.47	301.38	125.00	-0.21	0.21	-0.35	0.47	100.00
225.00	0.61	244.30	225.00	-0.20	0.20	-1.18	0.53	100.00
325.00	0.58	240.63	324.99	0.28	-0.28	-2.10	0.05	100.00
425.00	0.72	213.02	424.98	1.05	-1.06	-2.88	0.34	100.00
525.00	0.47	200.27	524.98	1.96	-1.97	-3.37	0.28	100.00
625.00	0.33	158.32	624.98	2.61	-2.62	-3.40	0.31	100.00
725.00	0.44	103.71	724.97	2.97	-2.98	-2.92	0.37	100.00
825.00	0.41	105.71	824.97	3.16	-3.17	-2.21	0.03	100.00
925.00	0.66	105.86	924.97	3.42	-3.42	-1.31	0.25	100.00
1025.00	0.86	75.22	1024.96	3.39	-3.39	-0.03	0.45	100.00
1125.00	0.94	76.08	1124.95	3.00	-3.00	1.49	0.08	100.00
1225.00	0.98	60.45	1224.93	2.39	-2.38	3.03	0.26	100.00
1272.00	0.94	68.24	1271.93	2.05	-2.04	3.74	0.29	47.00
1387.00	0.44	59.77	1386.92	1.48	-1.47	5.00	0.44	115.00
1478.00	1.38	14.69	1477.90	0.25	-0.23	5.58	1.22	91.00
1569.00	2.79	345.54	1568.84	-2.96	2.97	5.31	1.89	91.00
1674.00	4.81	325.22	1673.61	-9.05	9.06	2.16	2.28	105.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
1766.00	6.21	325.68	1765.19	-16.35	16.34	-2.85	1.53	92.00
1857.00	8.38	317.29	1855.45	-25.31	25.28	-10.12	2.65	91.00
1948.00	10.01	313.25	1945.27	-35.63	35.57	-20.38	1.92	91.00
2040.00	10.71	303.56	2035.78	-45.88	45.78	-33.33	2.04	92.00
2131.00	12.64	303.61	2124.89	-56.11	55.97	-48.67	2.11	91.00
2222.00	13.33	299.71	2213.57	-66.87	66.67	-66.07	1.22	91.00
2314.00	11.83	299.33	2303.36	-76.79	76.55	-83.50	1.63	92.00
2405.00	13.41	303.11	2392.16	-87.18	86.88	-100.47	1.96	91.00
2496.00	13.03	295.90	2480.75	-97.47	97.12	-118.54	1.86	91.00
2588.00	11.48	295.80	2570.66	-106.04	105.64	-136.11	1.68	92.00
2680.00	10.88	299.48	2660.91	-114.34	113.89	-151.91	1.01	92.00
2771.00	12.45	302.18	2750.03	-123.84	123.34	-167.69	1.83	91.00
2863.00	13.90	301.96	2839.61	-135.02	134.47	-185.46	1.57	92.00
2954.00	13.75	301.64	2927.97	-146.53	145.93	-203.94	0.18	91.00
3045.00	14.39	300.40	3016.24	-157.98	157.32	-222.90	0.77	91.00
3136.00	14.07	300.57	3104.45	-169.39	168.67	-242.17	0.35	91.00
3227.00	12.60	290.68	3193.00	-178.58	177.81	-260.99	2.98	91.00
3319.00	12.31	289.58	3282.84	-185.46	184.63	-279.62	0.41	92.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
3413.00	10.20	296.08	3375.03	-192.53	191.65	-296.53	2.61	94.00
3507.00	9.92	295.58	3467.59	-199.73	198.80	-311.31	0.31	94.00
3602.00	11.59	300.65	3560.92	-208.17	207.20	-326.90	2.03	95.00
3696.00	11.70	303.64	3652.98	-218.31	217.30	-342.96	0.65	94.00
3790.00	12.13	303.40	3744.96	-229.08	228.01	-359.14	0.45	94.00
3885.00	12.60	304.11	3837.75	-240.43	239.32	-376.04	0.52	95.00
3979.00	11.93	301.38	3929.61	-251.29	250.12	-392.82	0.94	94.00
4073.00	12.07	302.17	4021.56	-261.62	260.41	-409.43	0.23	94.00
4168.00	12.09	293.98	4114.46	-271.01	269.74	-426.93	1.80	95.00
4262.00	11.45	294.56	4206.48	-278.94	277.62	-444.41	0.70	94.00
4356.00	10.09	294.95	4298.83	-286.34	284.97	-460.36	1.45	94.00
4451.00	10.52	291.70	4392.29	-293.10	291.69	-475.96	0.76	95.00
4545.00	11.68	298.47	4484.54	-300.86	299.40	-492.30	1.85	94.00
4639.00	12.80	297.36	4576.40	-310.23	308.72	-509.91	1.21	94.00
4733.00	12.32	297.66	4668.15	-319.73	318.16	-528.04	0.51	94.00
4827.00	11.62	297.43	4760.11	-328.80	327.18	-545.32	0.75	94.00
4922.00	11.68	297.81	4853.15	-337.74	336.07	-562.31	0.10	95.00
5016.00	12.03	294.38	4945.15	-346.27	344.55	-579.65	0.84	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
5111.00	11.54	291.09	5038.15	-353.83	352.06	-597.53	0.87	95.00
5205.00	12.38	296.18	5130.11	-361.71	359.89	-615.35	1.43	94.00
5299.00	11.50	297.20	5222.07	-370.49	368.62	-632.72	0.97	94.00
5394.00	11.54	306.28	5315.17	-380.49	378.57	-648.81	1.91	95.00
5488.00	13.11	300.87	5407.00	-391.58	389.60	-665.54	2.07	94.00
5582.00	11.90	299.67	5498.77	-401.90	399.88	-683.12	1.32	94.00
5676.00	13.28	294.76	5590.51	-411.28	409.20	-701.35	1.86	94.00
5771.00	12.69	293.79	5683.08	-420.12	417.98	-720.81	0.67	95.00
5865.00	10.99	296.80	5775.08	-428.37	426.18	-738.25	1.92	94.00
5959.00	10.95	299.20	5867.36	-436.81	434.58	-754.04	0.49	94.00
6054.00	11.84	299.50	5960.48	-446.06	443.78	-770.40	0.94	95.00
6148.00	11.31	298.55	6052.57	-455.27	452.93	-786.89	0.60	94.00
6243.00	9.84	295.51	6145.96	-463.26	460.88	-802.40	1.66	95.00
6337.00	8.44	293.10	6238.76	-469.46	467.04	-815.99	1.54	94.00
6431.00	7.11	292.57	6331.90	-474.44	471.98	-827.70	1.42	94.00
6526.00	5.36	289.83	6426.33	-478.22	475.74	-837.30	1.87	95.00
6620.00	3.89	286.65	6520.03	-480.65	478.14	-844.48	1.59	94.00
6808.00	2.18	271.71	6707.76	-482.61	480.07	-854.16	0.99	188.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
6903.00	1.35	201.82	6802.72	-481.63	479.09	-856.39	2.25	95.00
6997.00	7.47	174.66	6896.40	-474.50	471.96	-856.23	6.70	94.00
7091.00	14.85	181.70	6988.57	-456.35	453.81	-856.02	7.97	94.00
7186.00	25.28	174.44	7077.69	-423.90	421.36	-854.41	11.26	95.00
7280.00	31.32	176.47	7160.42	-379.48	376.96	-850.96	6.51	94.00
7374.00	37.15	180.69	7238.11	-326.66	324.14	-849.80	6.70	94.00
7468.00	46.43	182.30	7308.11	-264.11	261.59	-851.51	9.94	94.00
7563.00	54.58	181.15	7368.48	-190.90	188.37	-853.68	8.62	95.00
7657.00	61.23	179.75	7418.40	-111.32	108.79	-854.27	7.18	94.00
7751.00	67.14	182.66	7459.33	-26.78	24.24	-856.11	6.87	94.00
7845.00	76.45	184.54	7488.68	62.21	-64.77	-861.75	10.08	94.00
7939.00	86.54	183.60	7502.56	154.80	-157.38	-868.33	10.79	94.00
8010.00	89.56	184.18	7504.97	225.58	-228.17	-873.14	4.33	71.00
8057.00	89.97	184.56	7505.17	272.43	-275.03	-876.72	1.17	47.00
8105.00	90.91	185.16	7504.80	320.24	-322.86	-880.79	2.32	48.00
8152.00	91.54	183.90	7503.80	367.07	-369.70	-884.50	3.00	47.00
8199.00	91.01	182.08	7502.75	413.99	-416.62	-886.95	4.03	47.00
8293.00	91.64	181.91	7500.58	507.89	-510.54	-890.23	0.70	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
8388.00	90.10	180.28	7499.13	602.85	-605.50	-892.05	2.36	95.00
8482.00	90.13	180.60	7498.94	696.85	-699.50	-892.77	0.34	94.00
8576.00	90.47	180.50	7498.44	790.84	-793.49	-893.68	0.37	94.00
8671.00	91.41	180.59	7496.88	885.82	-888.48	-894.59	1.00	95.00
8765.00	90.87	179.67	7495.01	979.80	-982.45	-894.81	1.13	94.00
8859.00	90.84	179.78	7493.61	1073.78	-1076.44	-894.36	0.12	94.00
8953.00	90.54	179.45	7492.48	1167.78	-1170.43	-893.73	0.48	94.00
9048.00	90.67	178.23	7491.48	1262.76	-1265.41	-891.80	1.29	95.00
9142.00	90.81	178.65	7490.26	1356.72	-1359.36	-889.25	0.47	94.00
9236.00	90.47	178.38	7489.22	1450.69	-1453.33	-886.81	0.46	94.00
9331.00	90.71	178.59	7488.24	1545.66	-1548.29	-884.30	0.33	95.00
9425.00	90.47	178.28	7487.28	1639.63	-1642.25	-881.74	0.41	94.00
9520.00	90.20	178.29	7486.72	1734.59	-1737.20	-878.89	0.28	95.00
9614.00	90.23	178.60	7486.36	1828.56	-1831.17	-876.34	0.34	94.00
9708.00	89.53	177.13	7486.56	1922.50	-1925.10	-872.84	1.74	94.00
9802.00	90.71	177.77	7486.36	2016.42	-2019.00	-868.66	1.43	94.00
9897.00	88.99	176.28	7486.61	2111.30	-2113.87	-863.73	2.39	95.00
9991.00	90.03	176.07	7487.41	2205.10	-2207.66	-857.46	1.13	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
10085.00	90.84	177.61	7486.69	2298.97	-2301.51	-852.28	1.86	94.00
10180.00	91.21	179.34	7485.00	2393.92	-2396.45	-849.75	1.86	95.00
10274.00	91.78	179.57	7482.55	2487.89	-2490.42	-848.86	0.65	94.00
10368.00	92.18	181.37	7479.30	2581.82	-2584.35	-849.63	1.97	94.00
10463.00	88.99	181.58	7478.33	2676.77	-2679.31	-852.08	3.36	95.00
10557.00	88.72	181.85	7480.20	2770.70	-2773.24	-854.90	0.41	94.00
10652.00	88.66	182.06	7482.37	2865.61	-2868.16	-858.14	0.23	95.00
10746.00	88.72	179.84	7484.52	2959.56	-2962.12	-859.70	2.36	94.00
10840.00	87.95	177.95	7487.25	3053.50	-3056.06	-857.89	2.17	94.00
10934.00	89.43	178.51	7489.40	3147.44	-3149.99	-854.99	1.68	94.00
11029.00	91.01	180.30	7489.04	3242.43	-3244.97	-854.00	2.51	95.00
11123.00	90.34	179.60	7487.93	3336.42	-3338.97	-853.91	1.03	94.00
11217.00	90.67	180.26	7487.11	3430.41	-3432.96	-853.79	0.79	94.00
11312.00	89.23	179.72	7487.19	3525.41	-3527.96	-853.78	1.62	95.00
11406.00	89.06	179.68	7488.59	3619.40	-3621.95	-853.29	0.18	94.00
11500.00	89.06	179.88	7490.13	3713.39	-3715.93	-852.93	0.21	94.00
11594.00	88.76	179.26	7491.92	3807.37	-3809.91	-852.22	0.73	94.00
11688.00	88.83	179.83	7493.90	3901.35	-3903.89	-851.47	0.61	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
11783.00	88.76	180.01	7495.90	3996.32	-3998.87	-851.34	0.21	95.00
11877.00	89.93	180.53	7496.98	4090.31	-4092.86	-851.78	1.37	94.00
11971.00	89.56	180.35	7497.39	4184.31	-4186.86	-852.51	0.44	94.00

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

5" = 100' FEET MD