



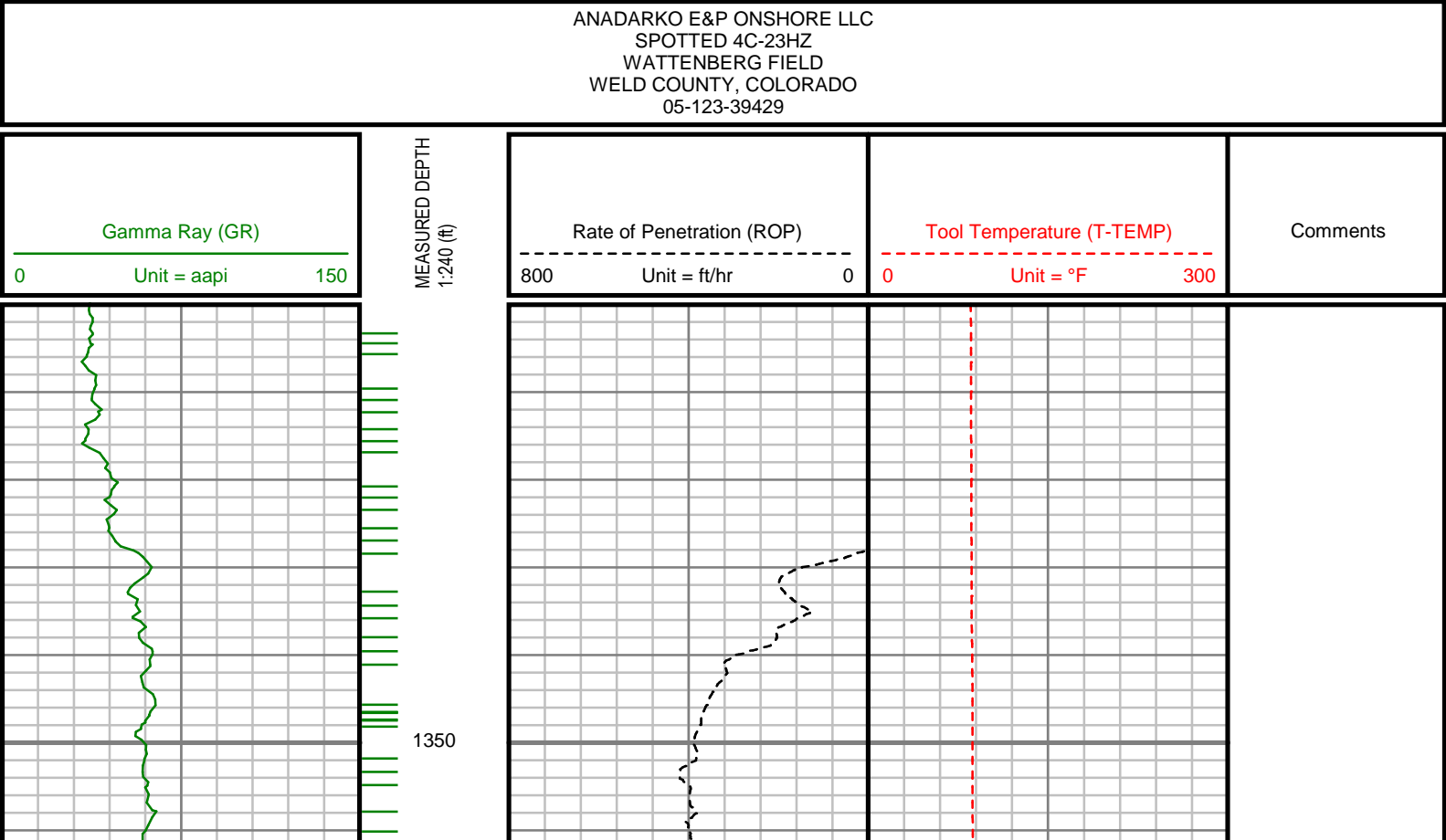
## GAMMA RAY

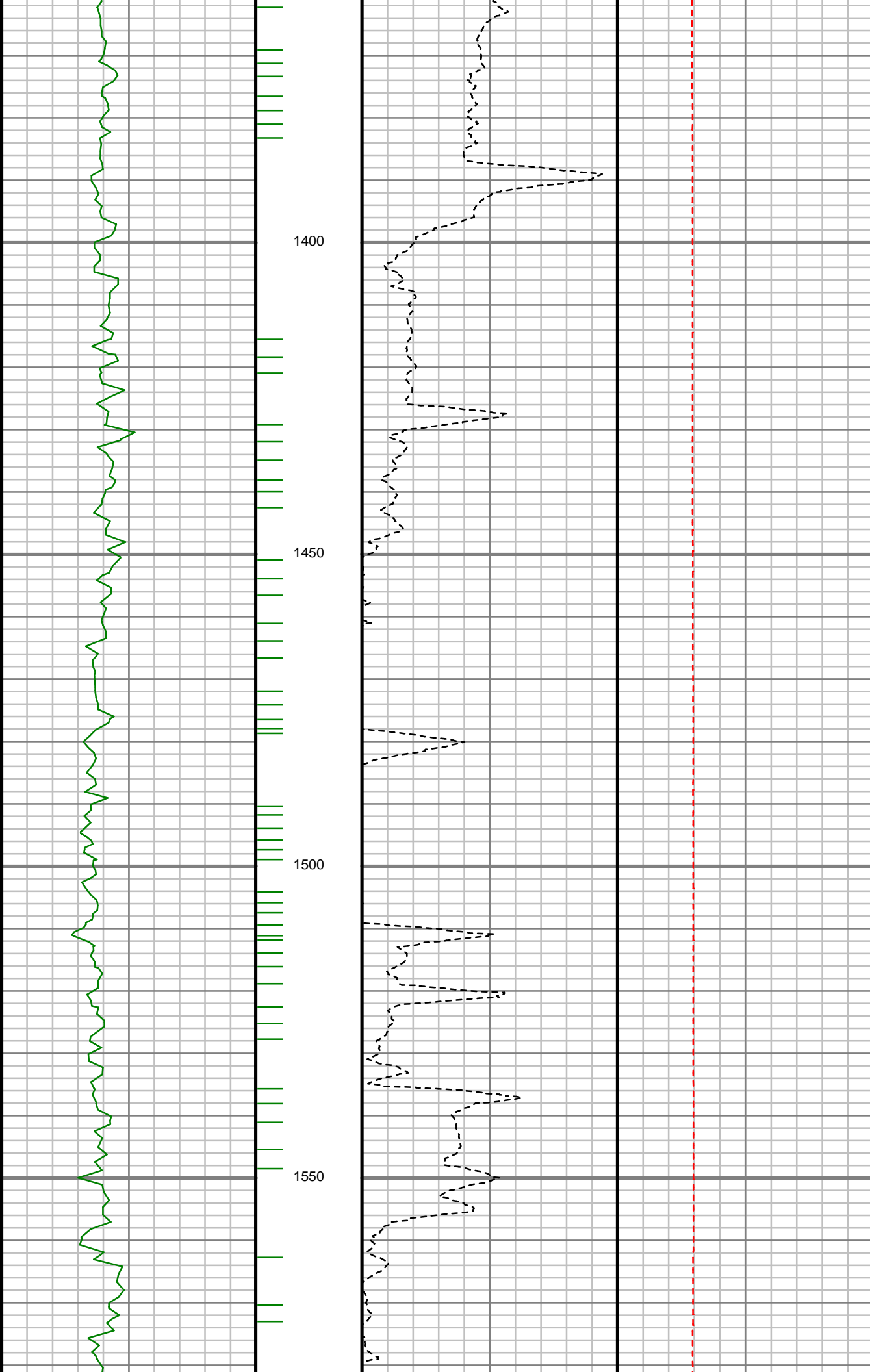
5" = 100' FEET MD

COMPANY : ANADARKO E&P ONSHORE LLC						WELL : SPOTTED 29N-23HZ FIELD : WATTENBURG COUNTY : WELD STATE : COLORADO COUNTRY : U.S.A. UWI : 05-123-39429					
DEPT. REF. : RKB						WELL LOCATION LAT:40°7'1.754"N LONG:104°51'51.624"W N:1286160.42 ft E:3177774.99 ft SEC:23 TWP:2N RANGE:67W					
REF. HEIGHT : 25.000 ft						RKB to Ground Level					
GROUND LEVEL : 4966.000 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		1251		0-10		0		6754	
8.75		1251		7796		10-90		6754		7796	
6.125		7796		12536		90-		7796		12536	
CASING RECORD											
CASING SIZE	in	FROM	ft	TO	ft						
9.625		0		1251							
7		0		7796							
						DRILLING CO.: H&P					
						RIG: 311					
						LMD UNIT NO.: C-46 DISTRICT: CASPER					
						SPUD DATE: 06/10/2014					
						LMD START DATE: 06/24/2014 DEPTH: 1251 ft					
						LMD END DATE: 07/01/2014 DEPTH: 1246 ft					
						TOTAL DEPTH: 12536 ft					

Remarks
ANADARKO E&P ONSHORE LLC PRODUCTION AFE# 2089197
SCIENTIFIC DRILLING INTERNATIONAL JOB# 167346
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: PULSAR = 128-174 / CONT = 477 / EYE = 826 / GAMMA RAY = 1101
BIT TO SENSOR OFFSETS: SURVEY = 52.43 FT. / GAMMA RAY = 43.18 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-196 / CONT =603 / EYE = 298 / GAMMA RAY = 1076
BIT TO SENSOR OFFSETS: SURVEY = 60.19 FT. / GAMMA RAY = 50.94 FT.
RUN #3: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-108 / CONT = 590 / EYE = 185 / GAMMA RAY = 1031
BIT TO SENSOR OFFSETS: SURVEY = 60.19 FT. / GAMMA RAY = 50.94 FT.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

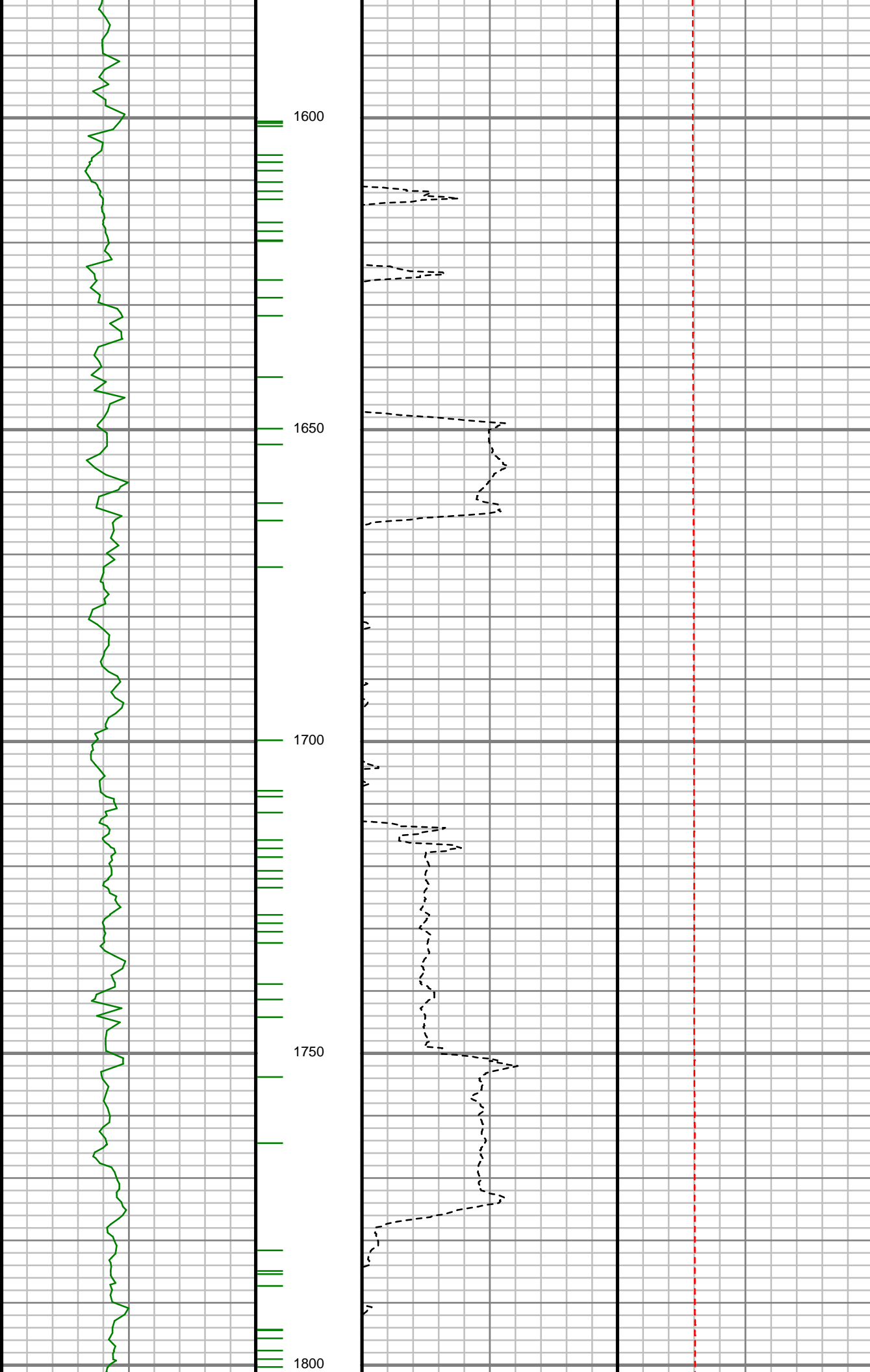
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.



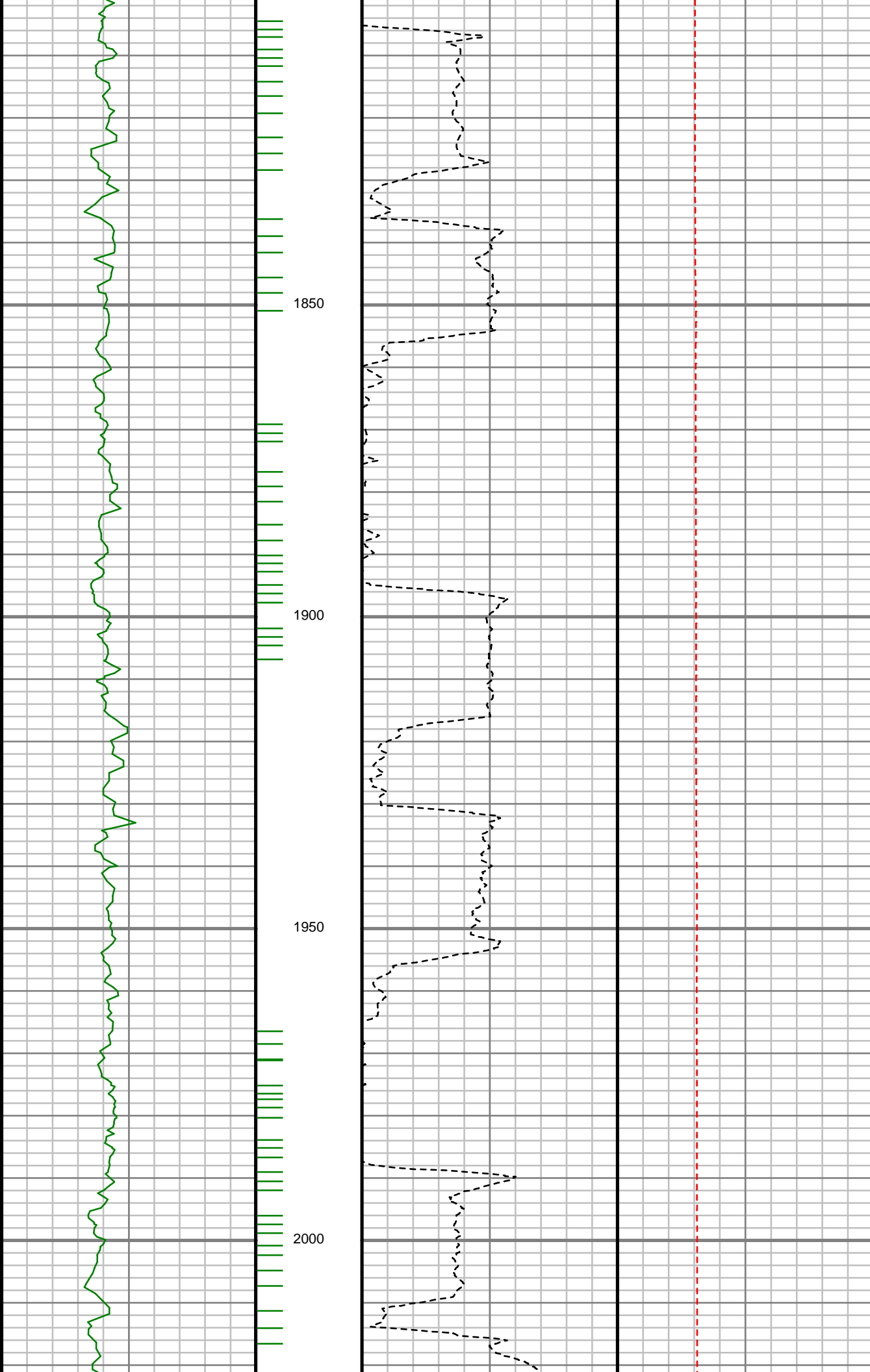


S: 14 MD: 1465.00 ft  
Inc: 0.95 deg Az:  
324.81 deg TVD:  
1464.93 ft

S: 15 MD: 1573.00 ft  
Inc: 1.69 deg Az:  
126.44 deg TVD:

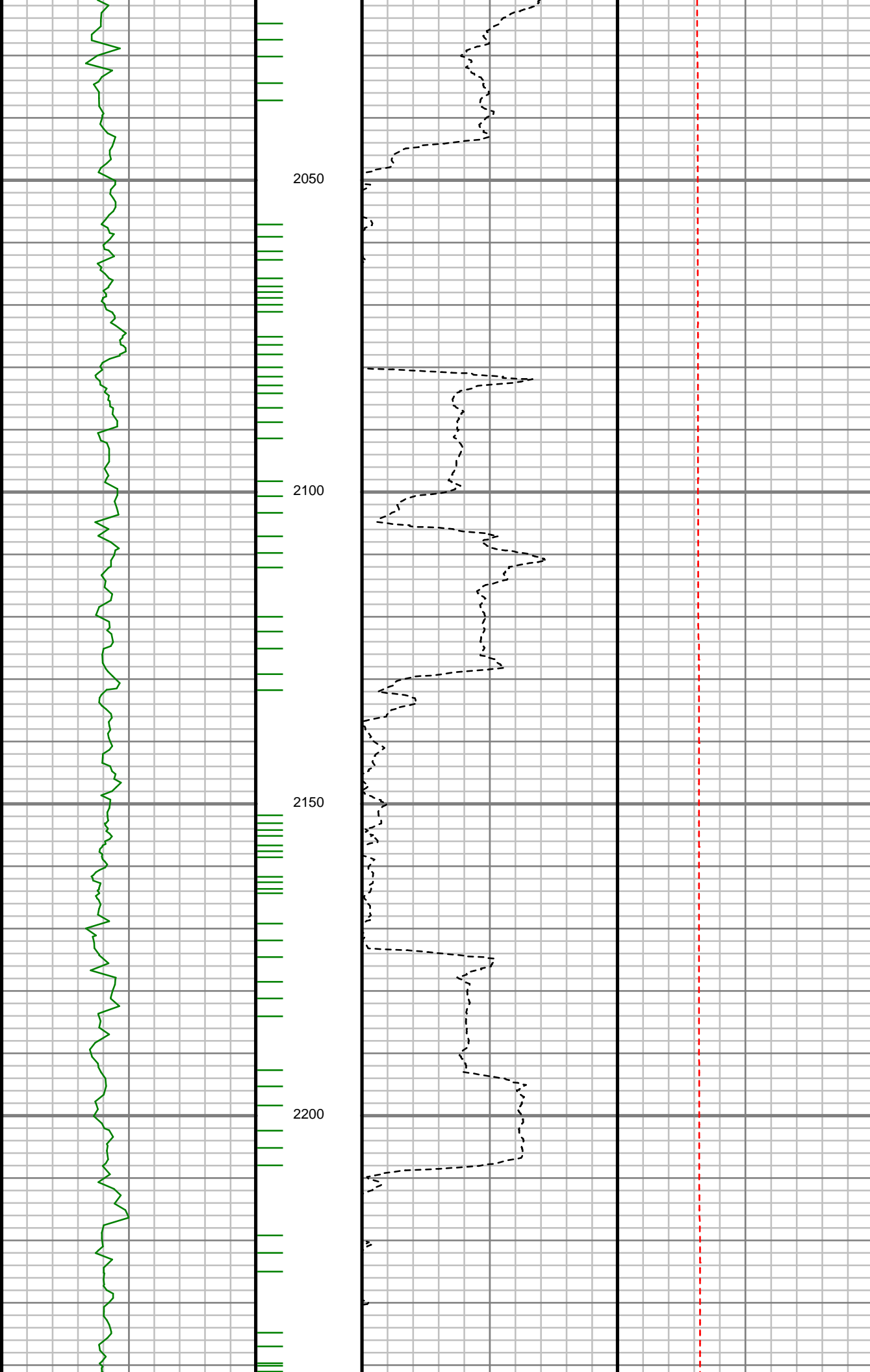


S: 16 MD: 1753.00 ft  
Inc: 4.44 deg Az:  
137.37 deg TVD:  
1752.64 ft



S: 17 MD: 1844.00 ft  
Inc: 6.30 deg Az:  
147.20 deg TVD:  
1843.24 ft

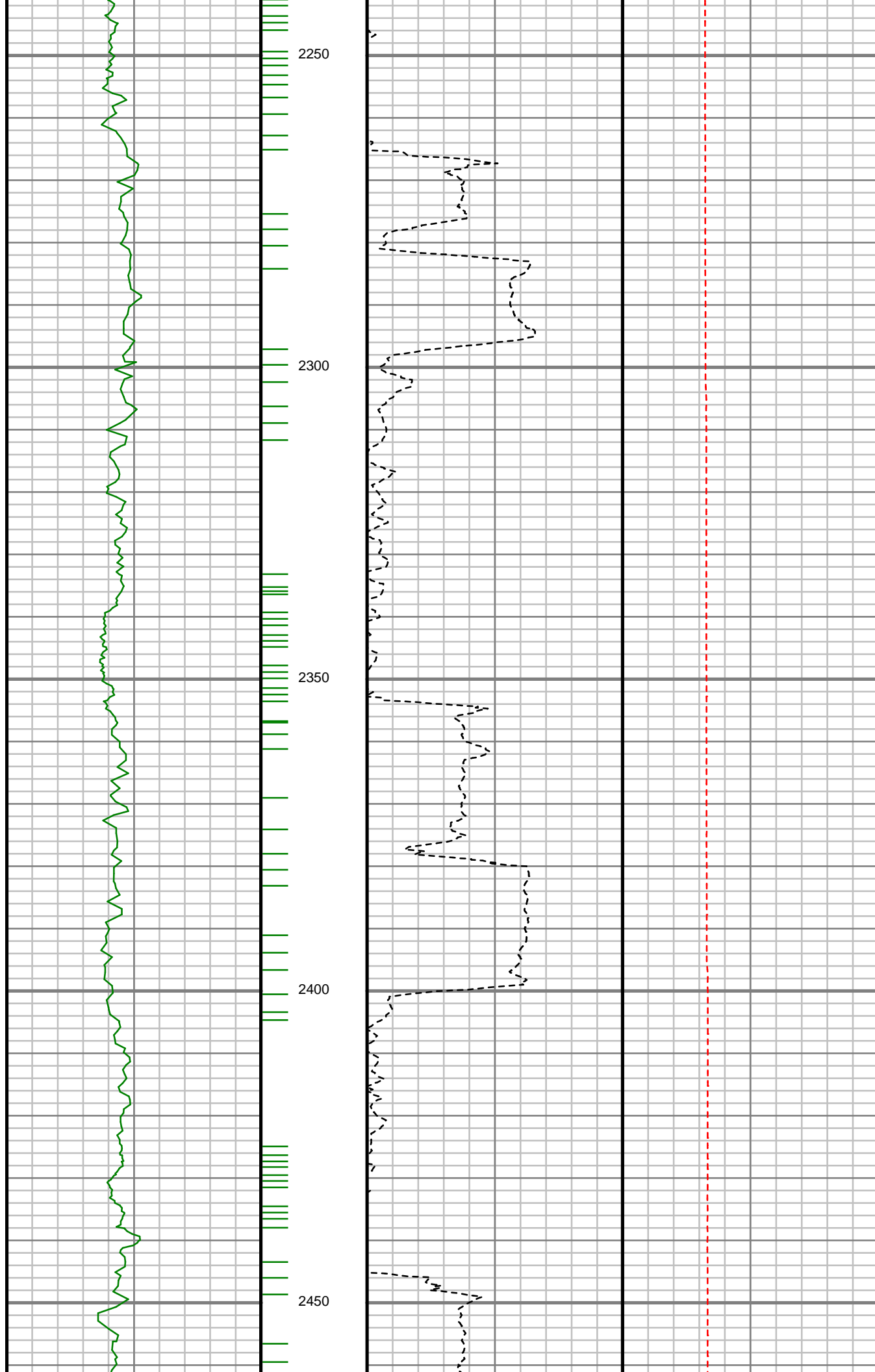
S: 18 MD: 1936.00 ft  
Inc: 8.16 deg Az:  
143.50 deg TVD:  
1934.50 ft



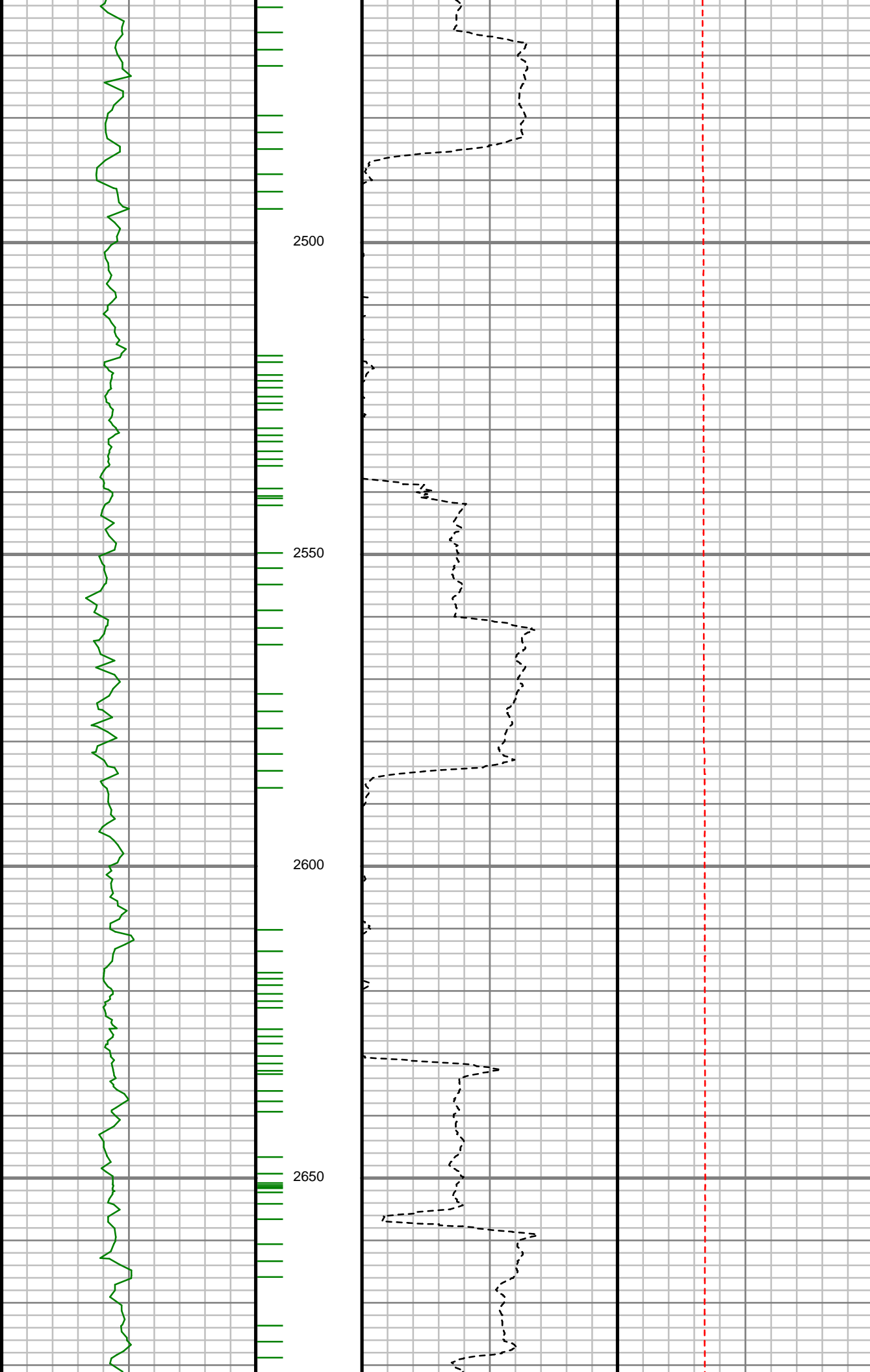
S: 19 MD: 2027.00 ft  
Inc: 11.09 deg Az:  
147.70 deg TVD:  
2024.21 ft

S: 20 MD: 2119.00 ft  
Inc: 11.64 deg Az:  
139.63 deg TVD:  
2114.41 ft

S: 21 MD: 2210.00 ft  
Inc: 12.78 deg Az:  
138.20 deg TVD:  
2203.35 ft



S: 22 MD: 2302.00 ft  
Inc: 12.32 deg Az:  
142.05 deg TVD:  
2293.16 ft

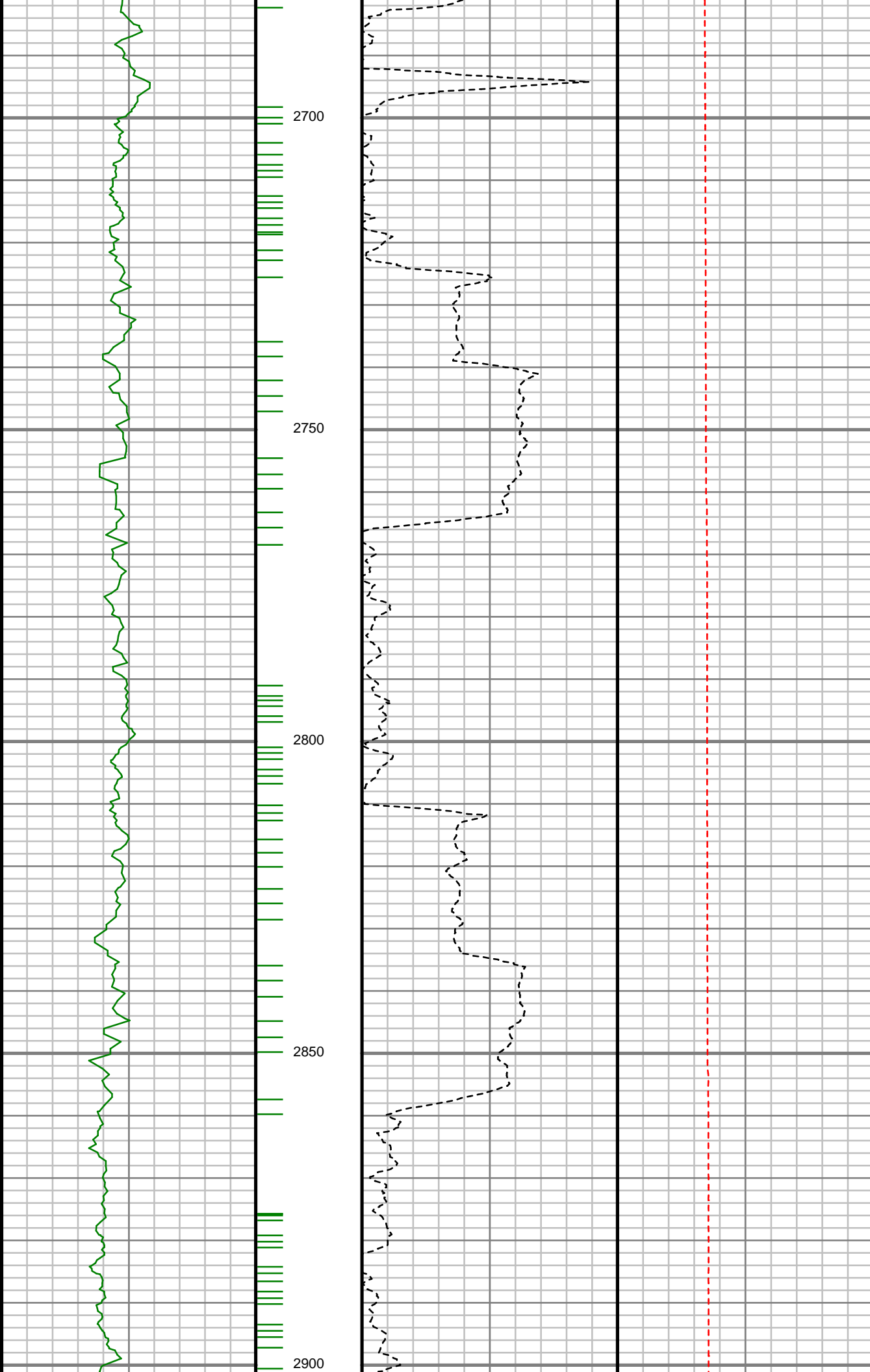


S: 23 MD: 2484.00 ft  
Inc: 14.50 deg Az:  
144.10 deg TVD:  
2470.19 ft

S: 24 MD: 2576.00 ft  
Inc: 15.47 deg Az:  
148.53 deg TVD:  
2559.06 ft

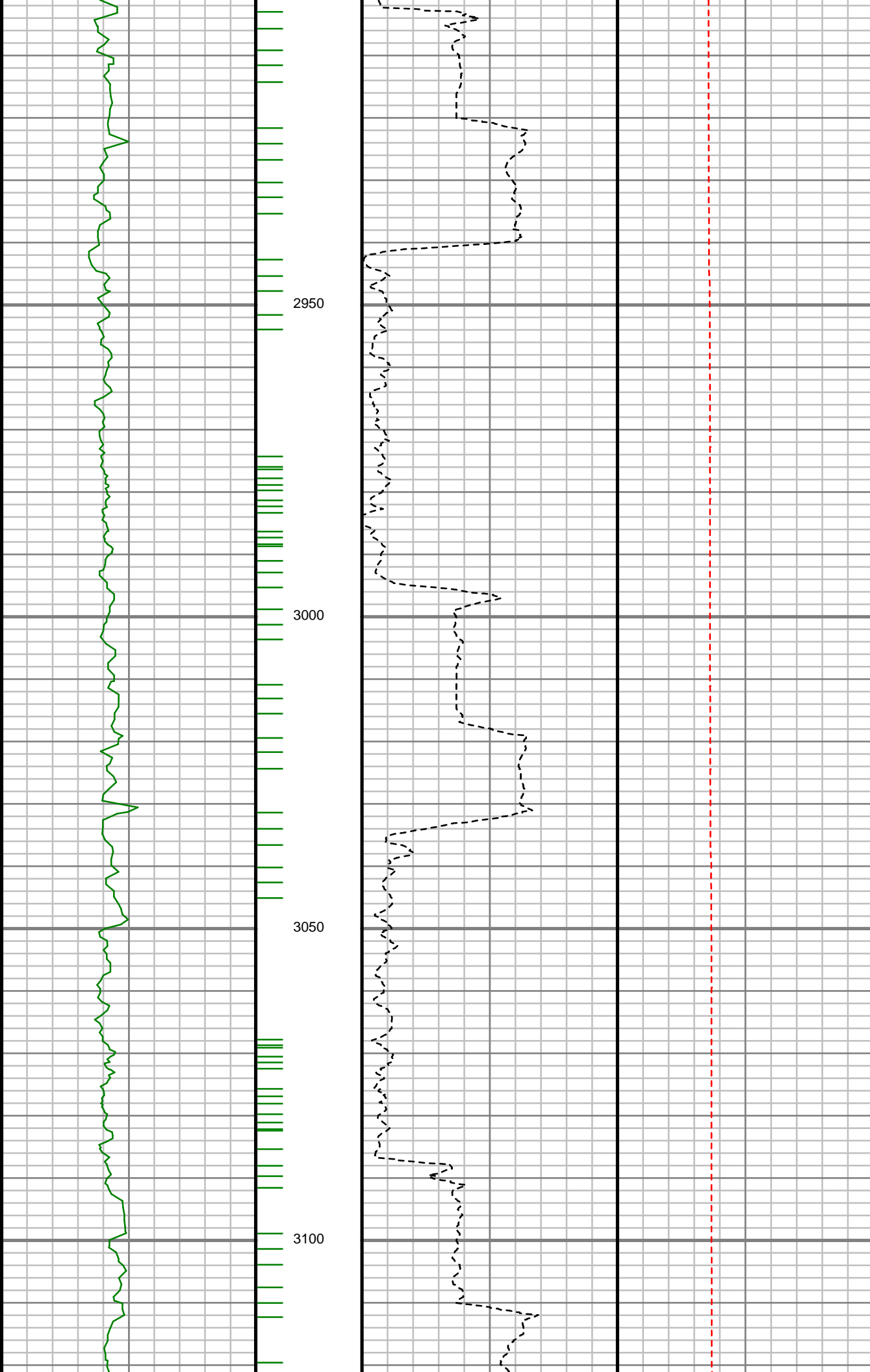
S: 25 MD: 2667.00 ft  
Inc: 15.01 deg Az:  
147.69 deg TVD:  
2646.86 ft





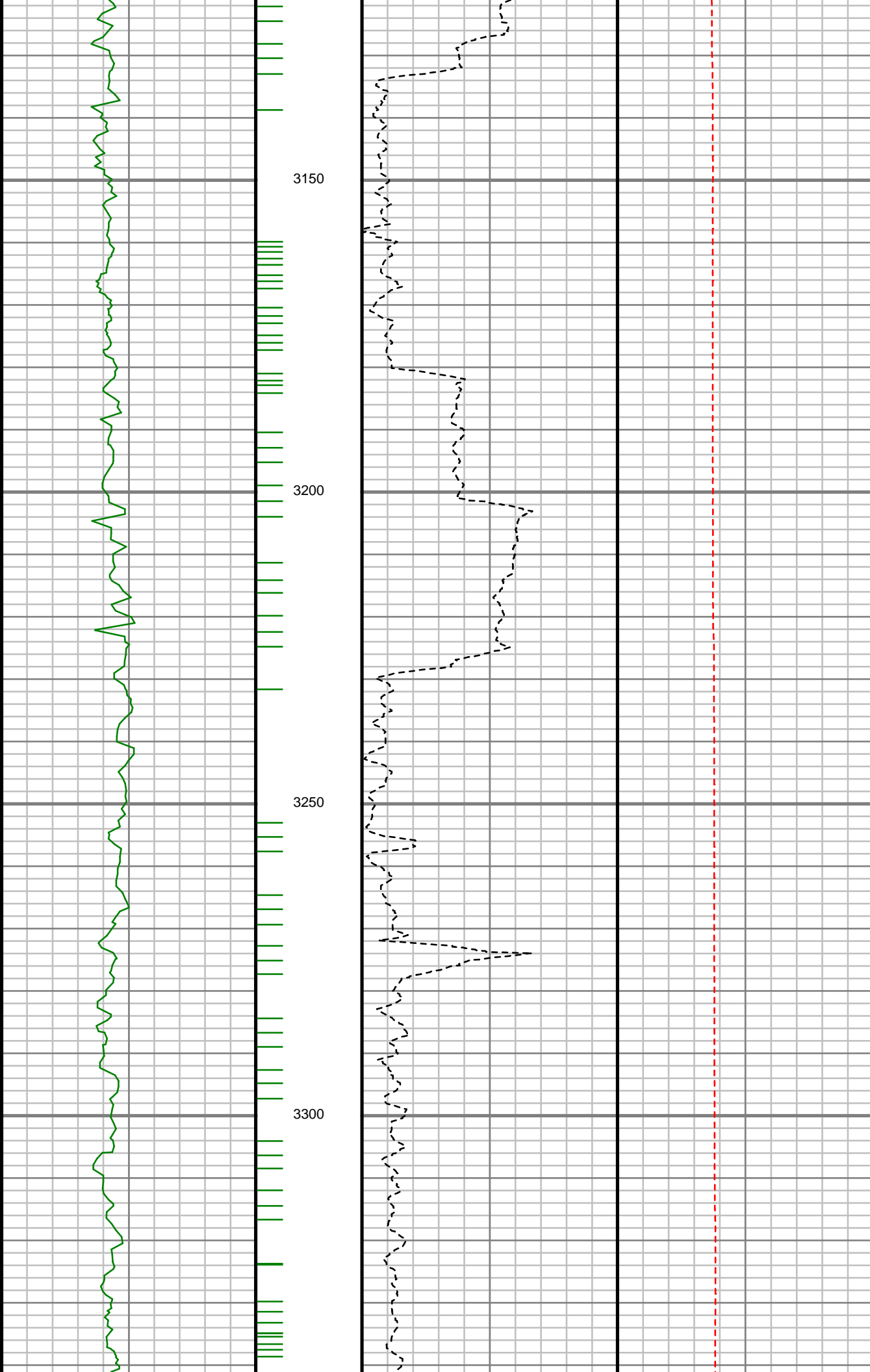
S: 26 MD: 2759.00 ft  
Inc: 15.57 deg Az:  
151.43 deg TVD:  
2735.61 ft

S: 27 MD: 2850.00 ft  
Inc: 15.58 deg Az:  
159.11 deg TVD:  
2823.28 ft



S: 28 MD: 2941.00 ft  
Inc: 17.39 deg Az:  
157.83 deg TVD:  
2910.53 ft

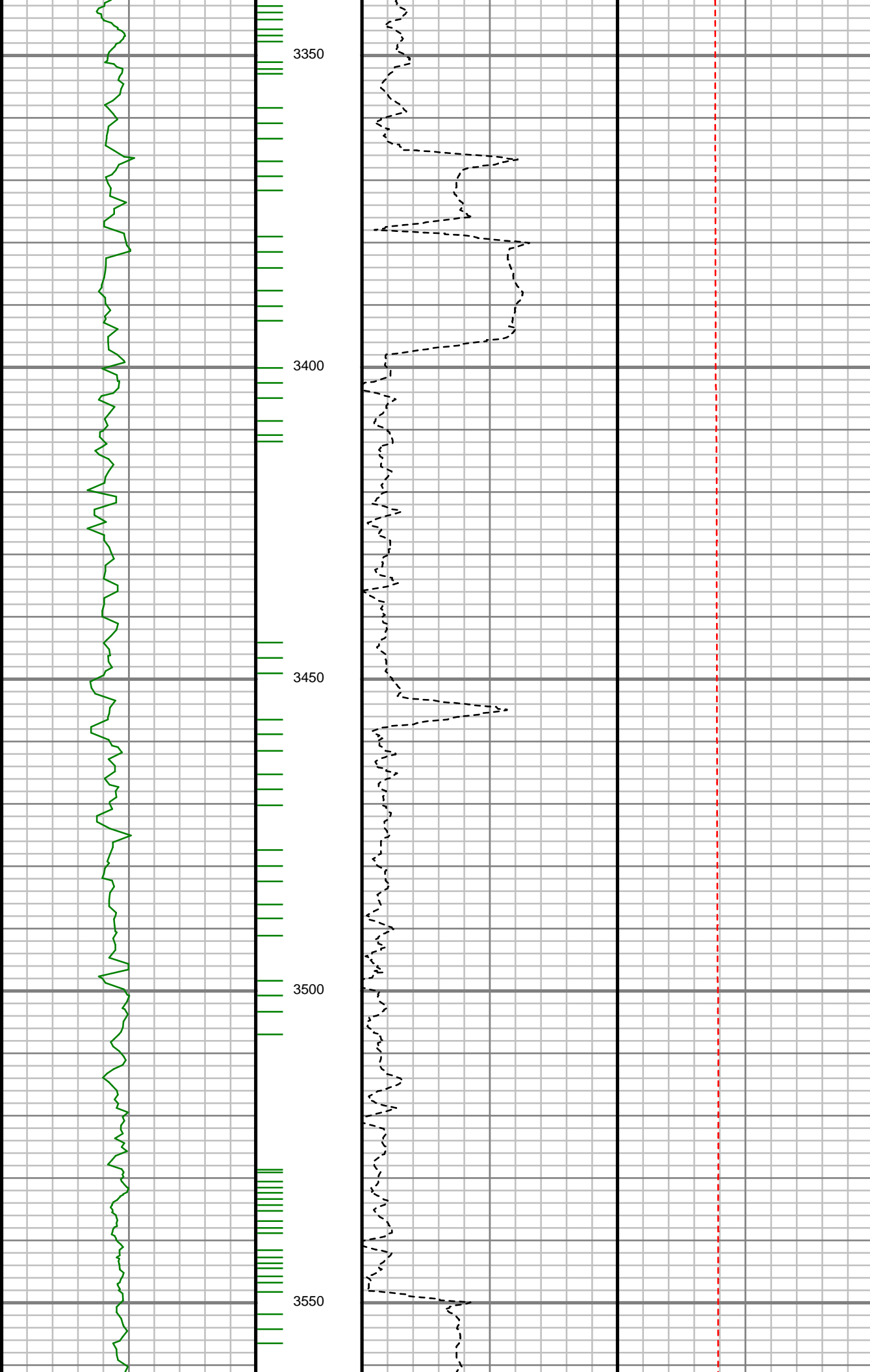
S: 29 MD: 3033.00 ft  
Inc: 16.35 deg Az:  
155.65 deg TVD:  
2998.57 ft



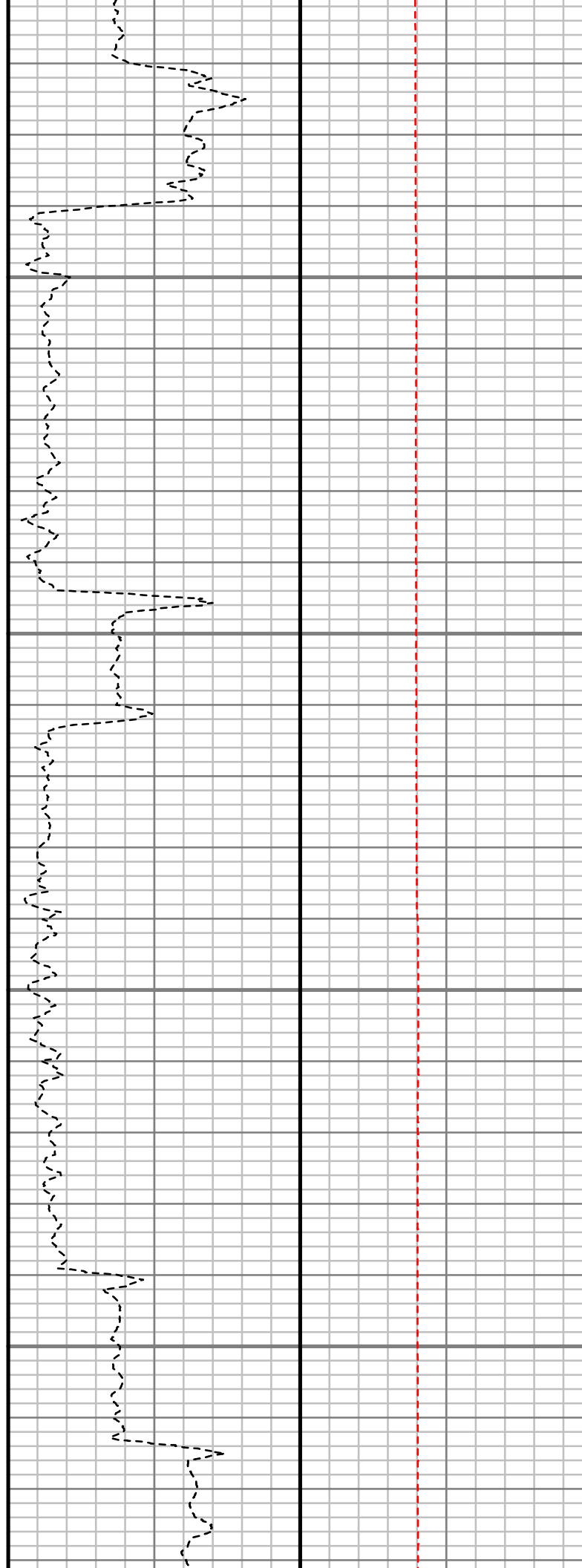
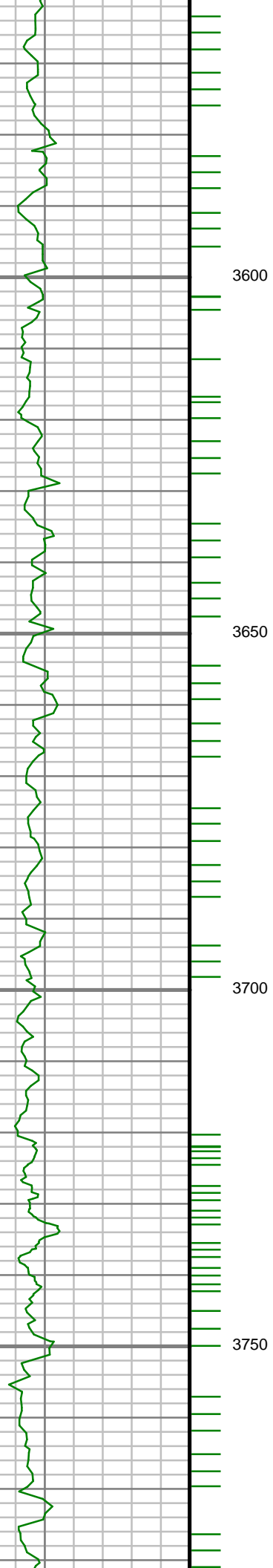
S: 30 MD: 3124.00 ft  
Inc: 16.77 deg Az:  
157.29 deg TVD:  
3085.80 ft

S: 31 MD: 3216.00 ft  
Inc: 16.69 deg Az:  
151.27 deg TVD:  
3173.91 ft

S: 32 MD: 3307.00 ft  
Inc: 14.09 deg Az:  
150.86 deg TVD:  
3261.64 ft

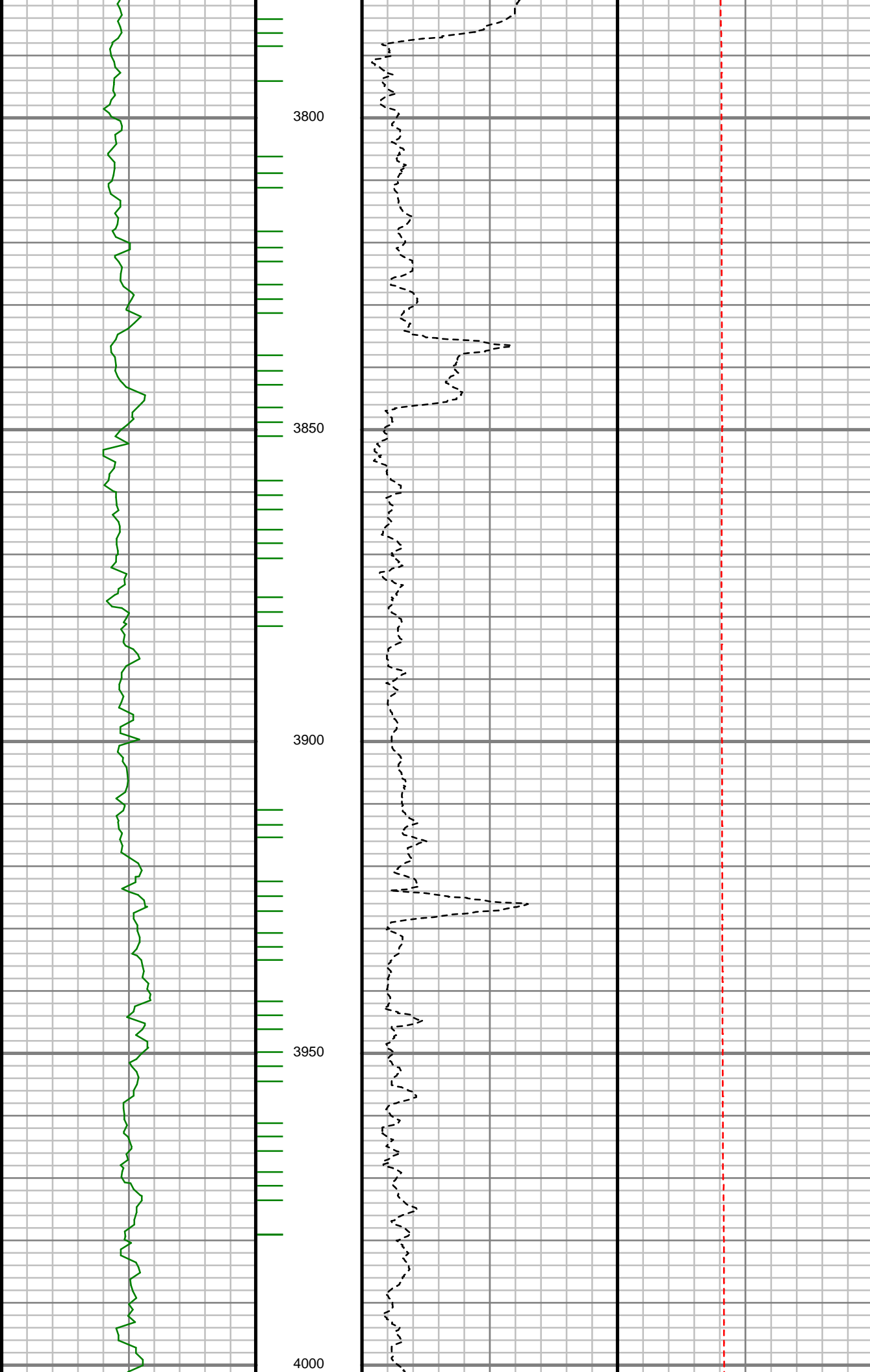


S: 33 MD: 3496.00 ft  
Inc: 9.10 deg Az:  
143.49 deg TVD:  
3446.73 ft



S: 34 MD: 3590.00 ft  
Inc: 7.02 deg Az:  
151.94 deg TVD:  
3539.80 ft

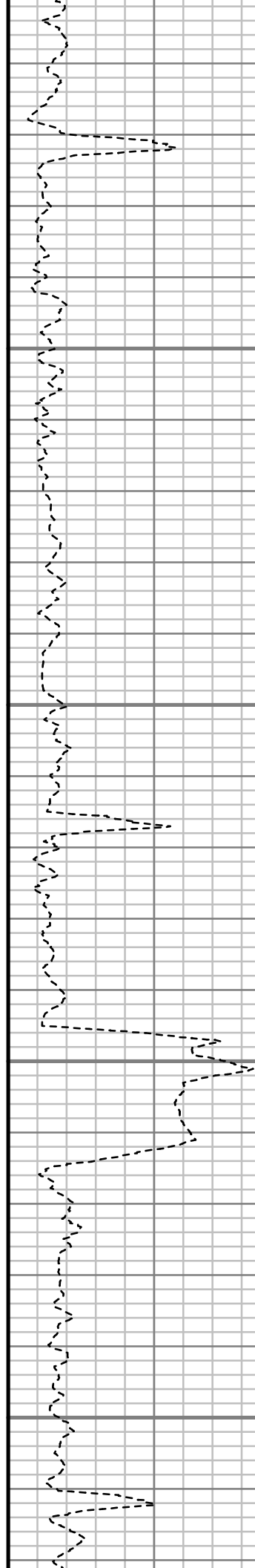
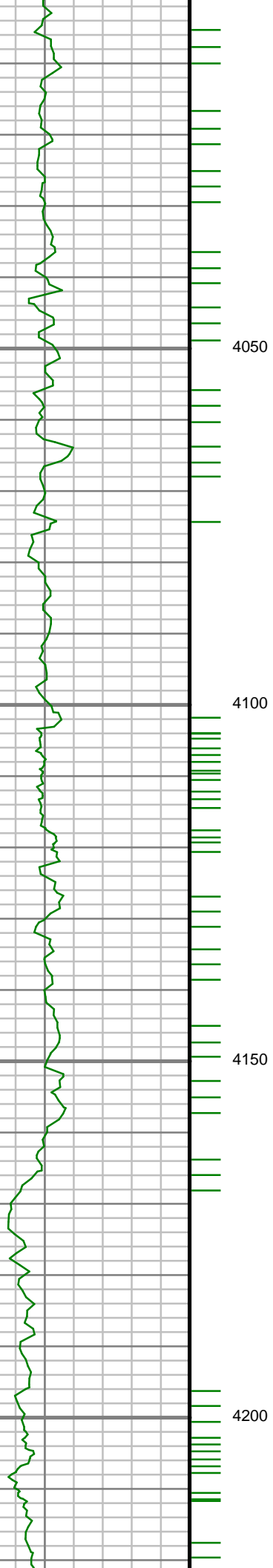
S: 35 MD: 3779.00 ft

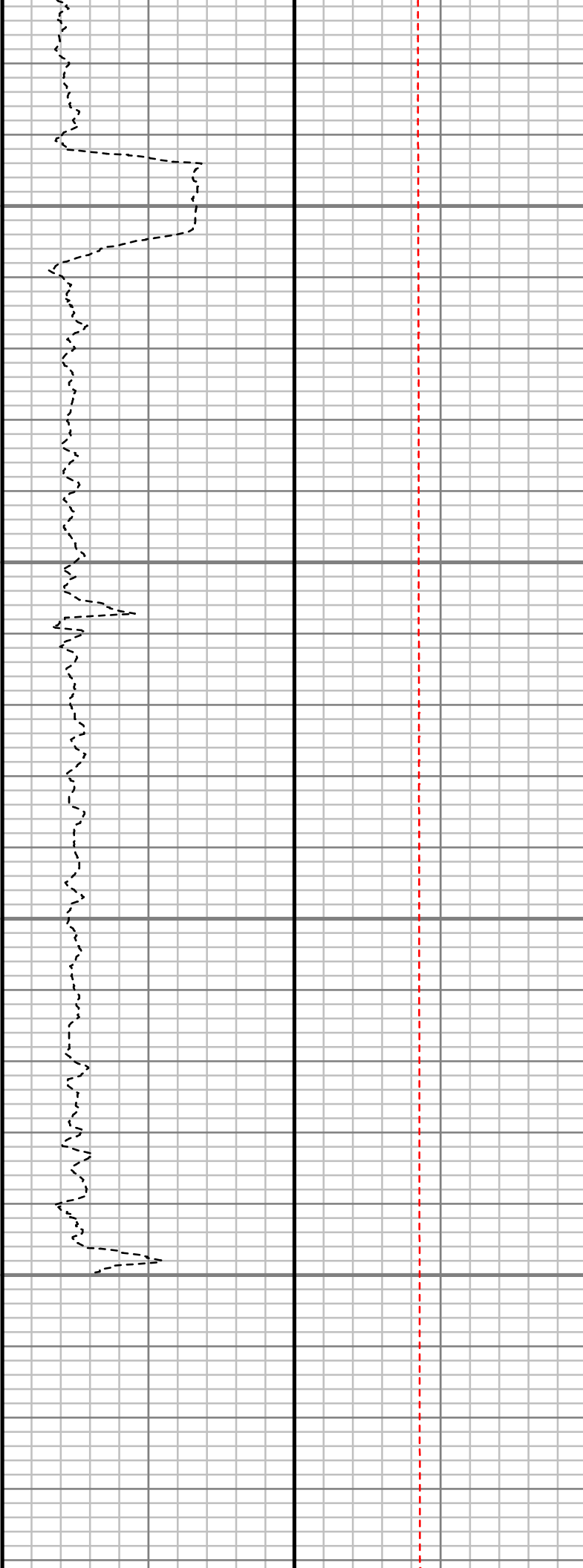
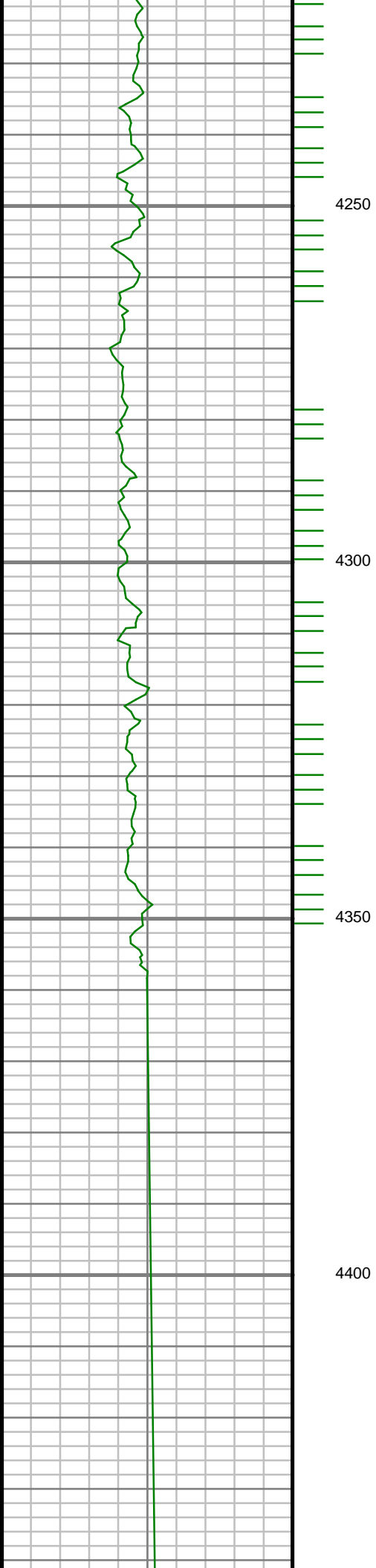


Inc: 5.73 deg Az:  
157.69 deg TVD:  
3727.63 ft

S: 36 MD: 3873.00 ft  
Inc: 3.46 deg Az:  
167.07 deg TVD:  
3821.32 ft

S: 37 MD: 3967.00 ft  
Inc: 2.15 deg Az:  
136.50 deg TVD:  
3915.21 ft



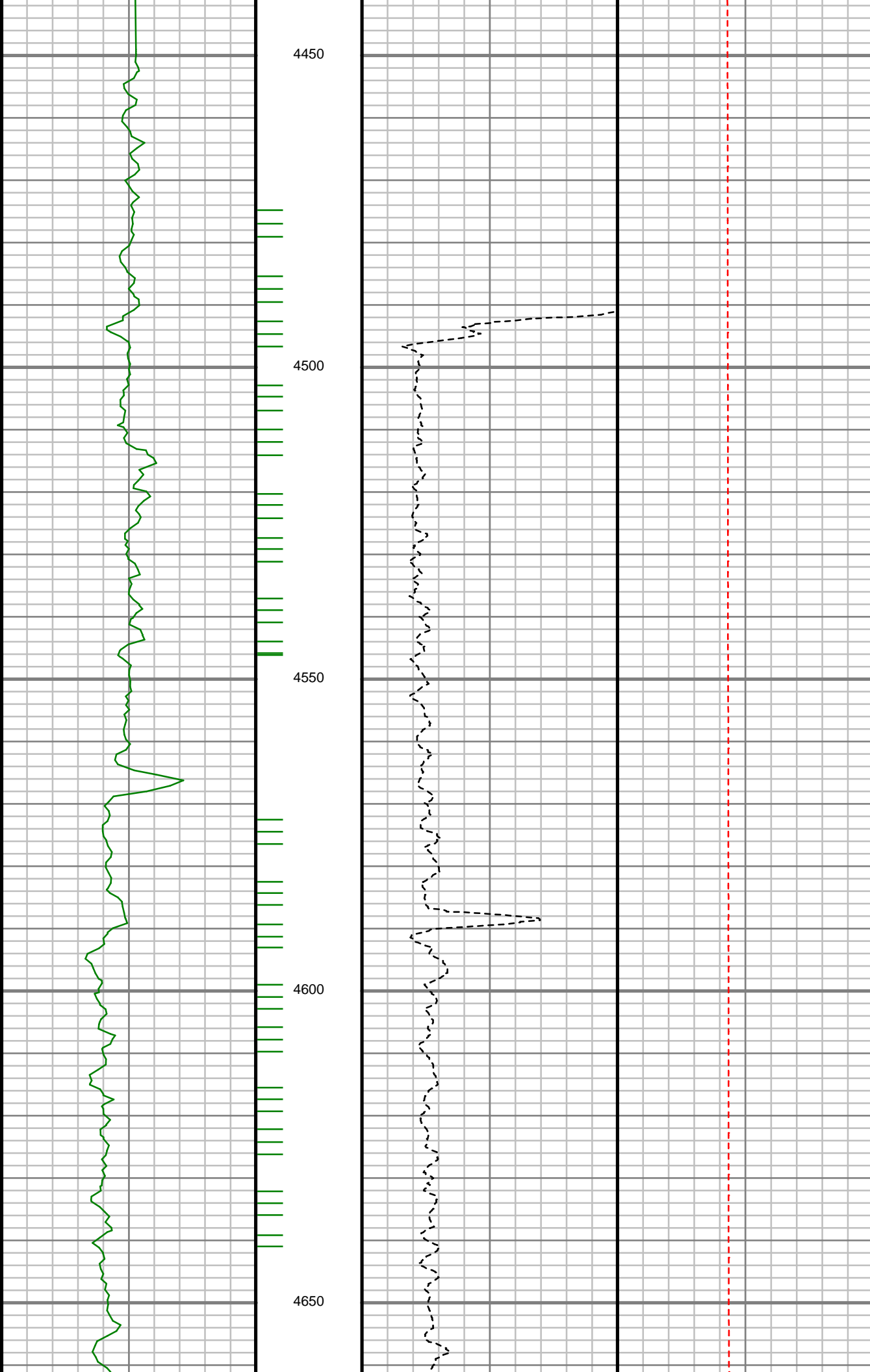


S: 38 MD: 4250.00 ft  
Inc: 2.59 deg Az:  
156.40 deg TVD:  
4197.98 ft

S: 39 MD: 4344.00 ft  
Inc: 3.22 deg Az:  
149.89 deg TVD:  
4291.86 ft

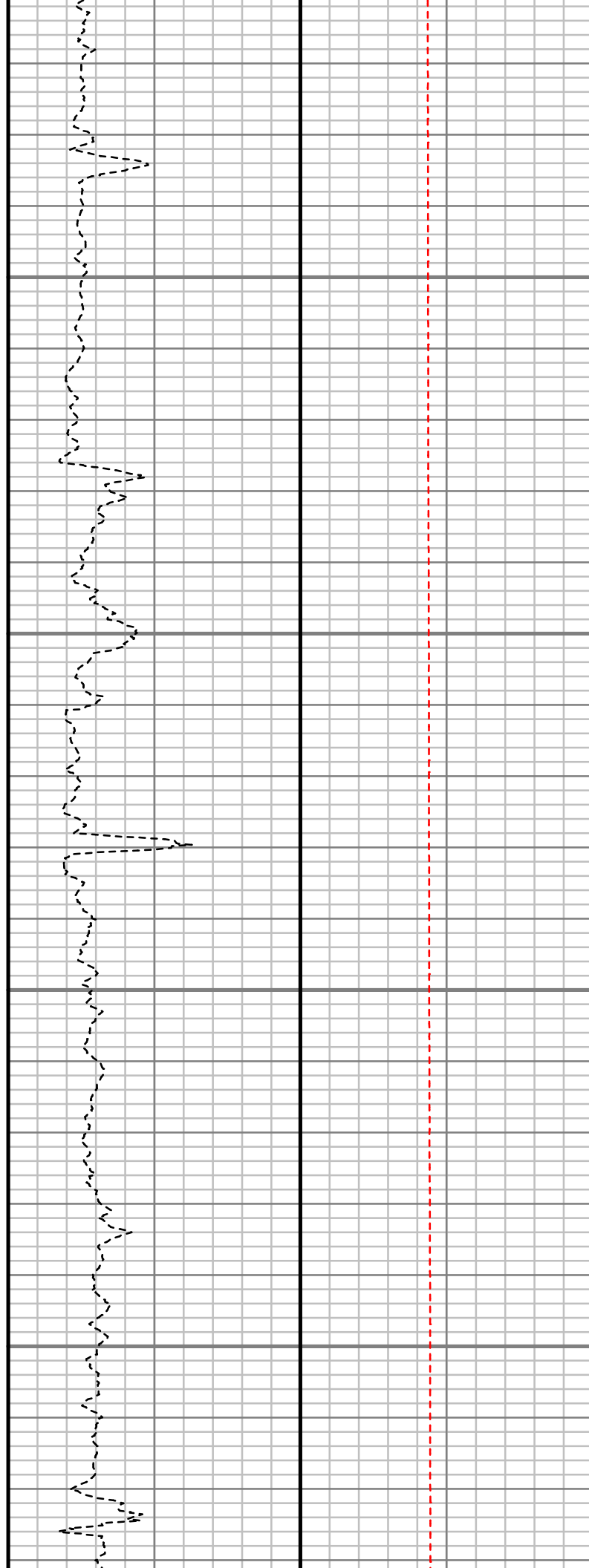
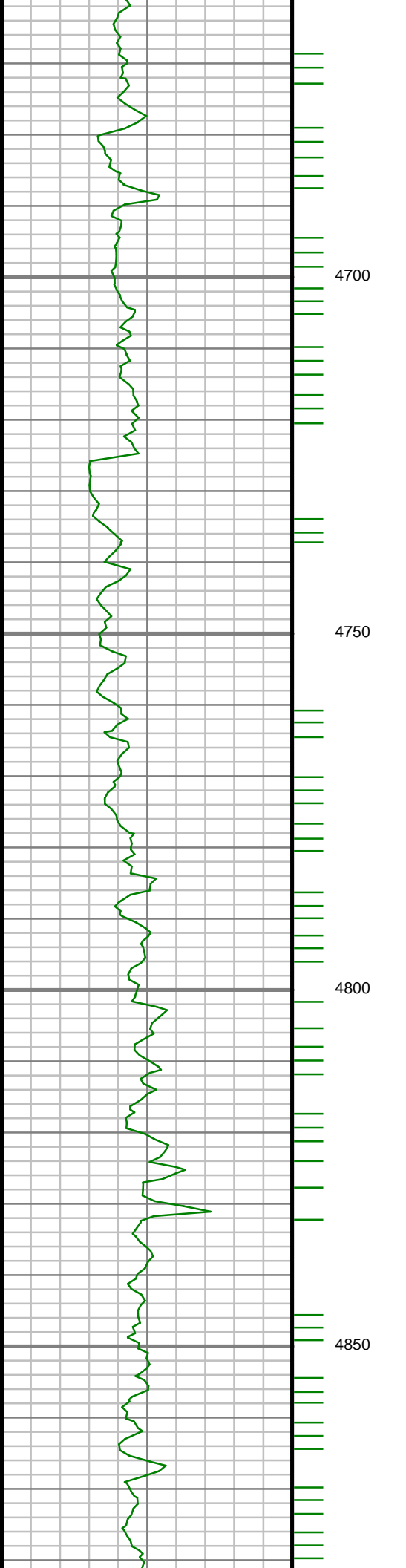
S: 40 MD: 4439.00 ft





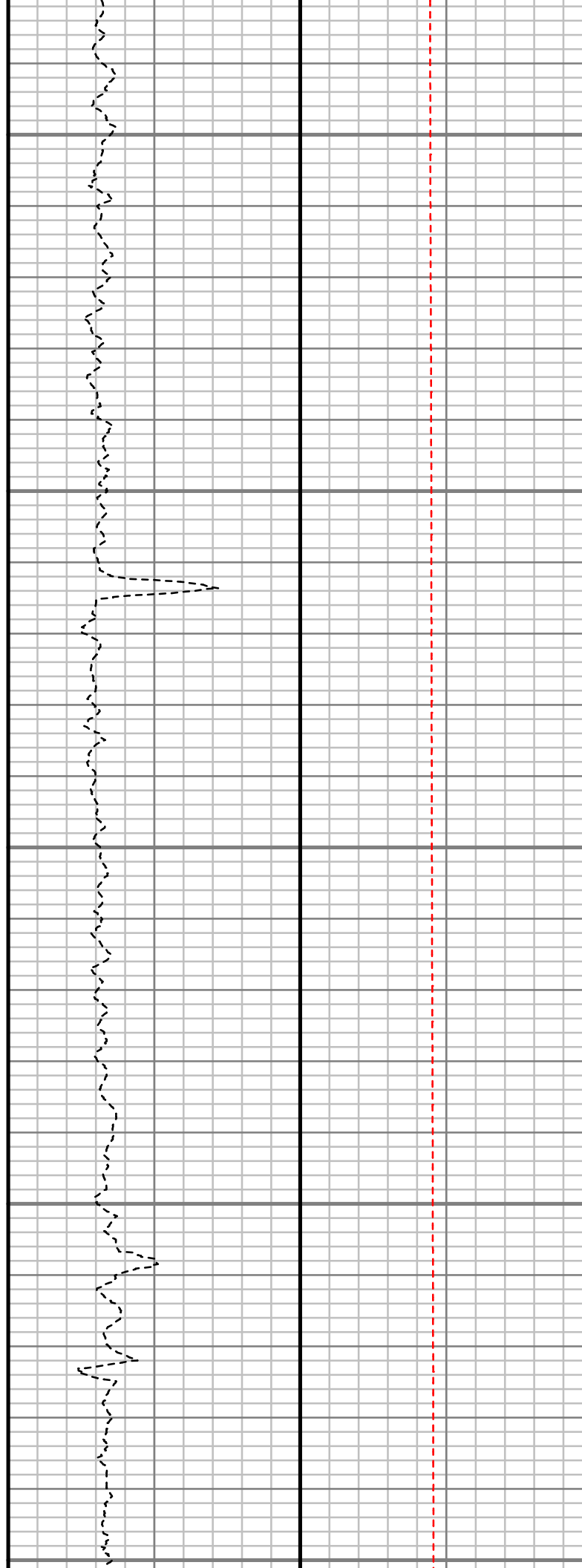
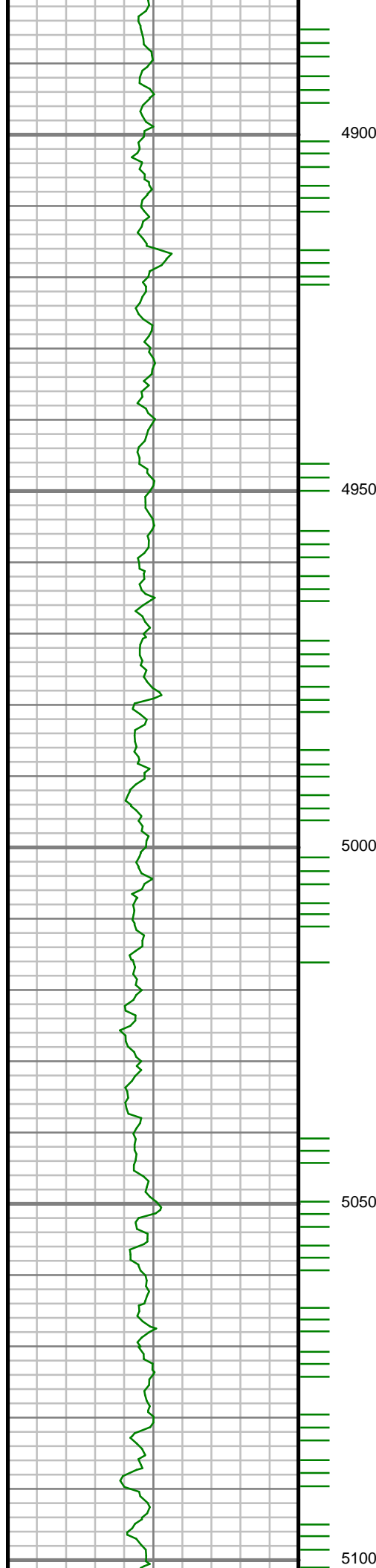
Inc: 2.42 deg Az:  
139.01 deg TVD:  
4386.74 ft

S: 41 MD: 4627.00 ft  
Inc: 2.28 deg Az:  
108.65 deg TVD:  
4574.59 ft



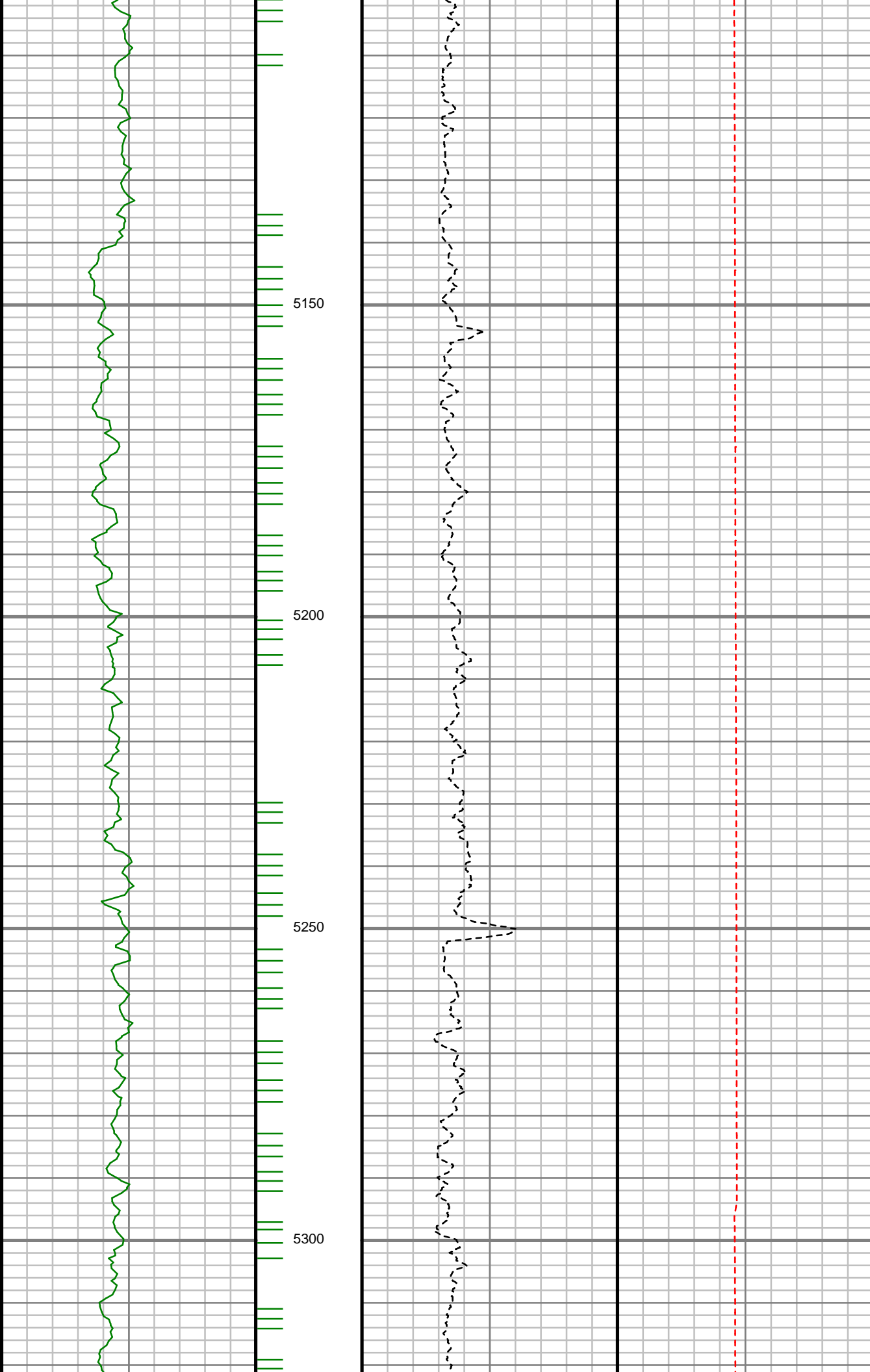
S: 42 MD: 4721.00 ft  
Inc: 2.21 deg Az:  
130.03 deg TVD:  
4668.52 ft

S: 43 MD: 4816.00 ft  
Inc: 1.26 deg Az:  
156.36 deg TVD:  
4763.48 ft

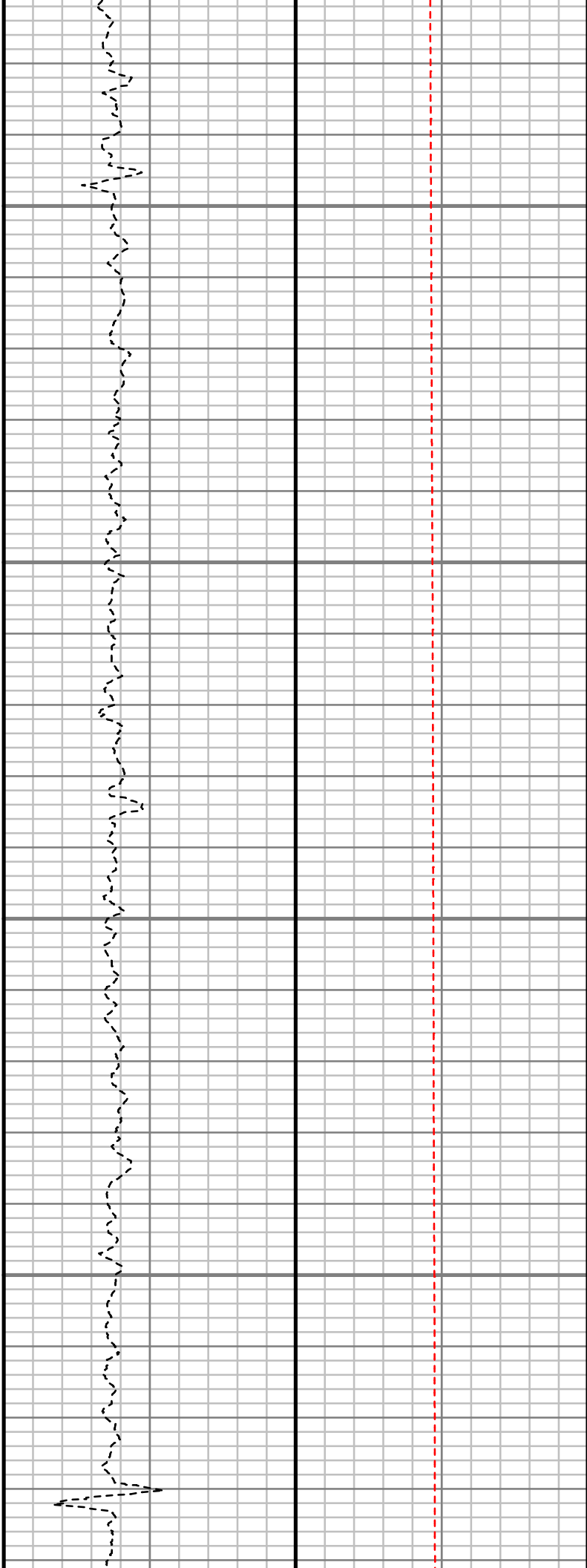
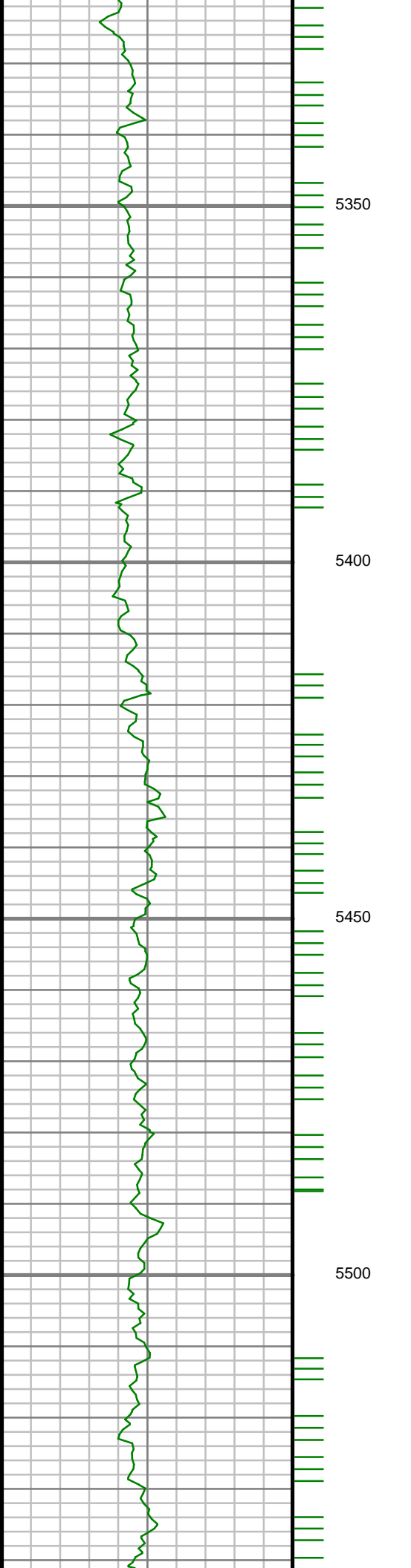


S: 44 MD: 4910.00 ft  
Inc: 0.68 deg Az:  
131.69 deg TVD:  
4857.46 ft

S: 45 MD: 5004.00 ft  
Inc: 0.46 deg Az: 59.24  
deg TVD: 4951.46 ft

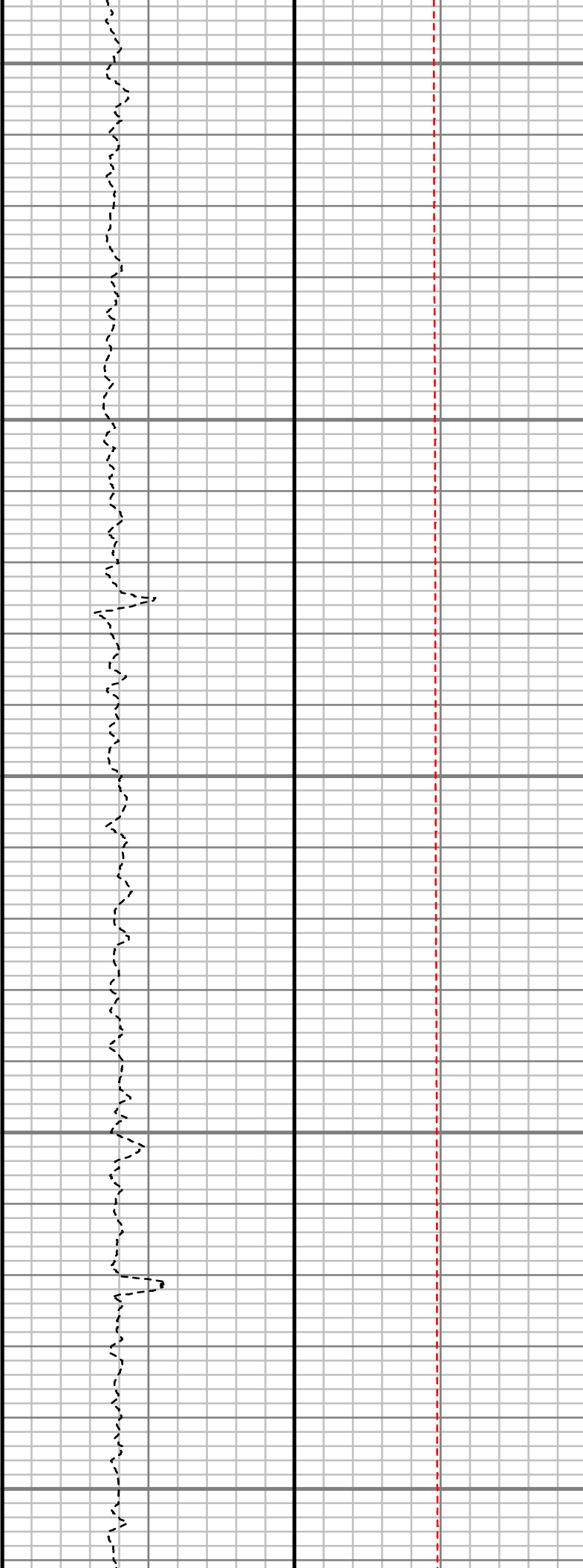
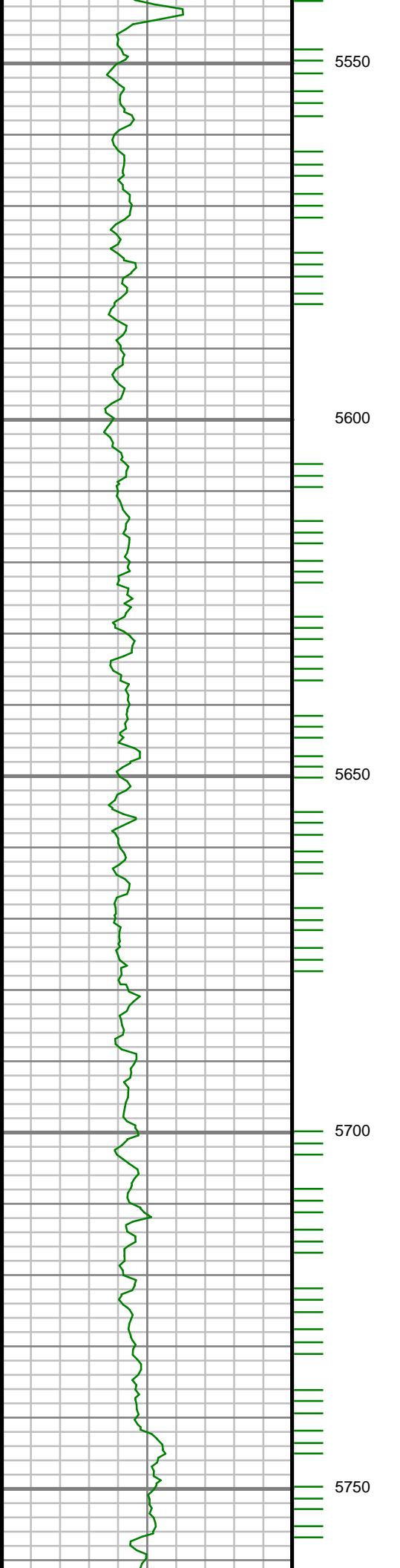


S: 46 MD: 5288.00 ft  
Inc: 0.88 deg Az:  
354.34 deg TVD:  
5235.44 ft



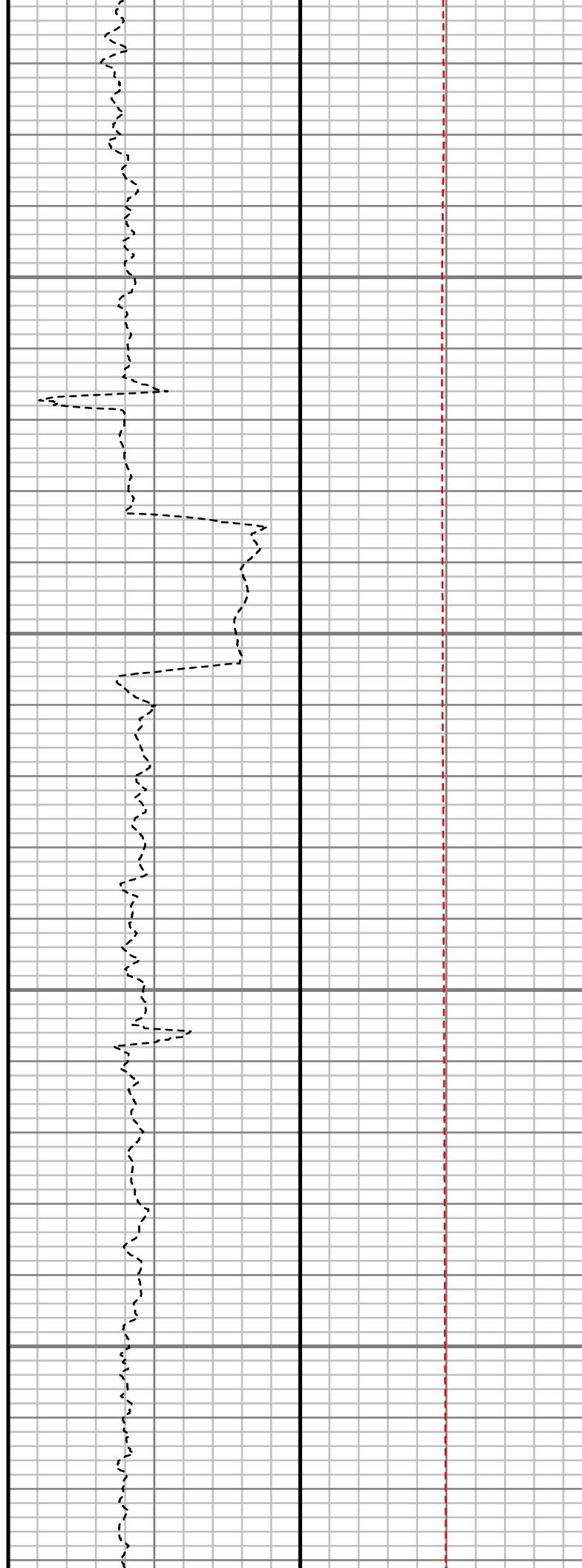
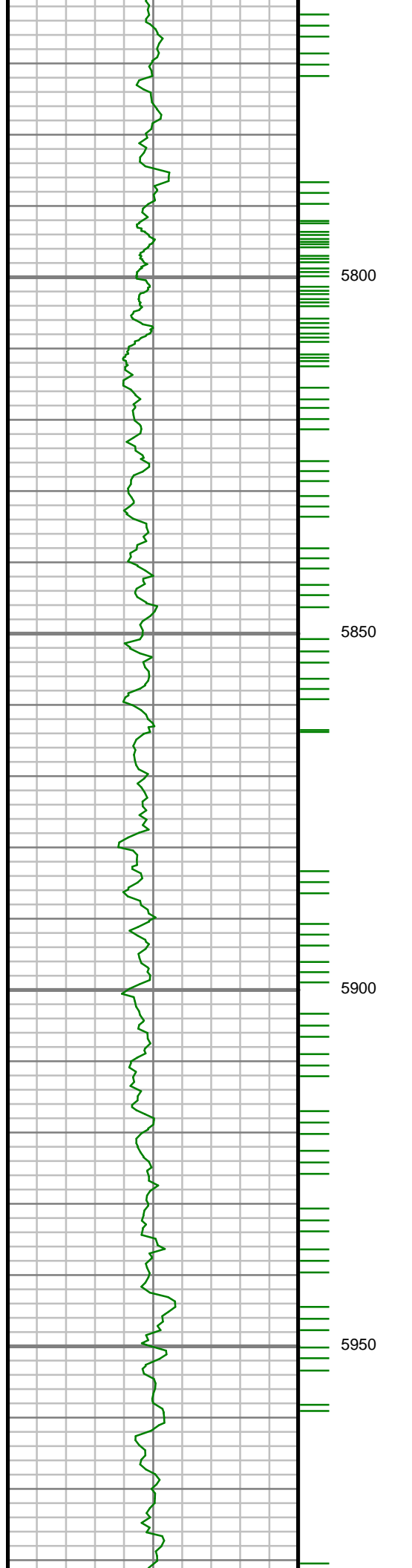
S: 47 MD: 5382.00 ft  
Inc: 0.69 deg Az: 293.80 deg TVD: 5329.44 ft

S: 48 MD: 5476.00 ft  
Inc: 0.27 deg Az: 21.28 deg TVD: 5423.43 ft



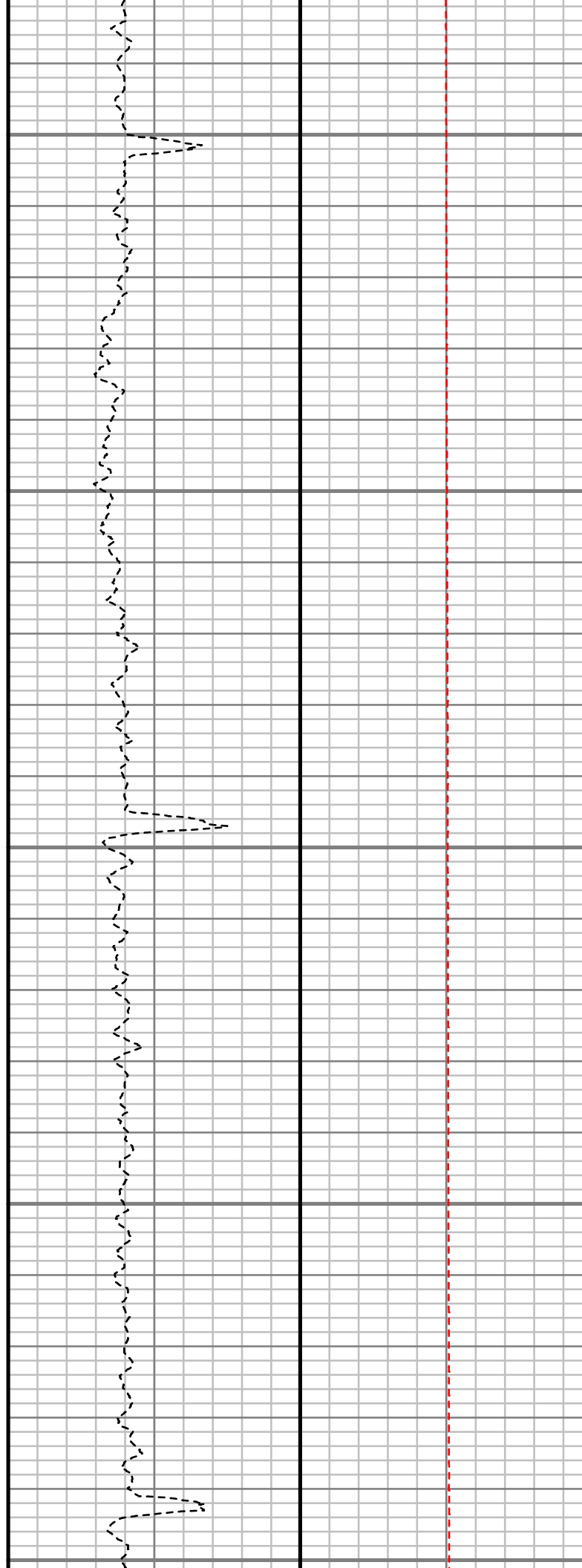
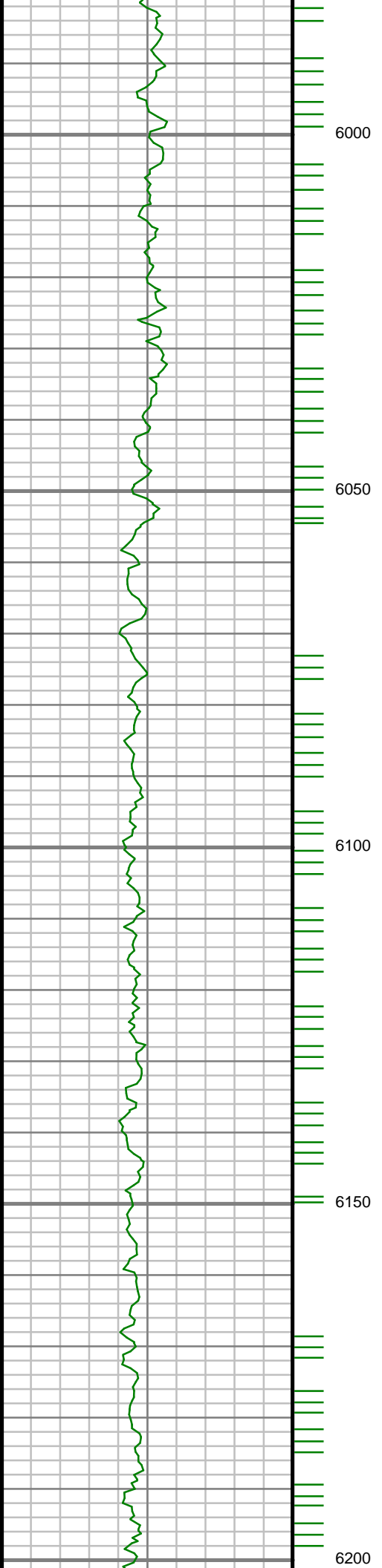
S: 49 MD: 5571.00 ft  
Inc: 1.18 deg Az:  
313.78 deg TVD:  
5518.42 ft

S: 50 MD: 5665.00 ft  
Inc: 1.20 deg Az:  
311.34 deg TVD:  
5612.40 ft



S: 51 MD: 5853.00 ft  
Inc: 1.12 deg Az:  
196.65 deg TVD:  
5800.38 ft

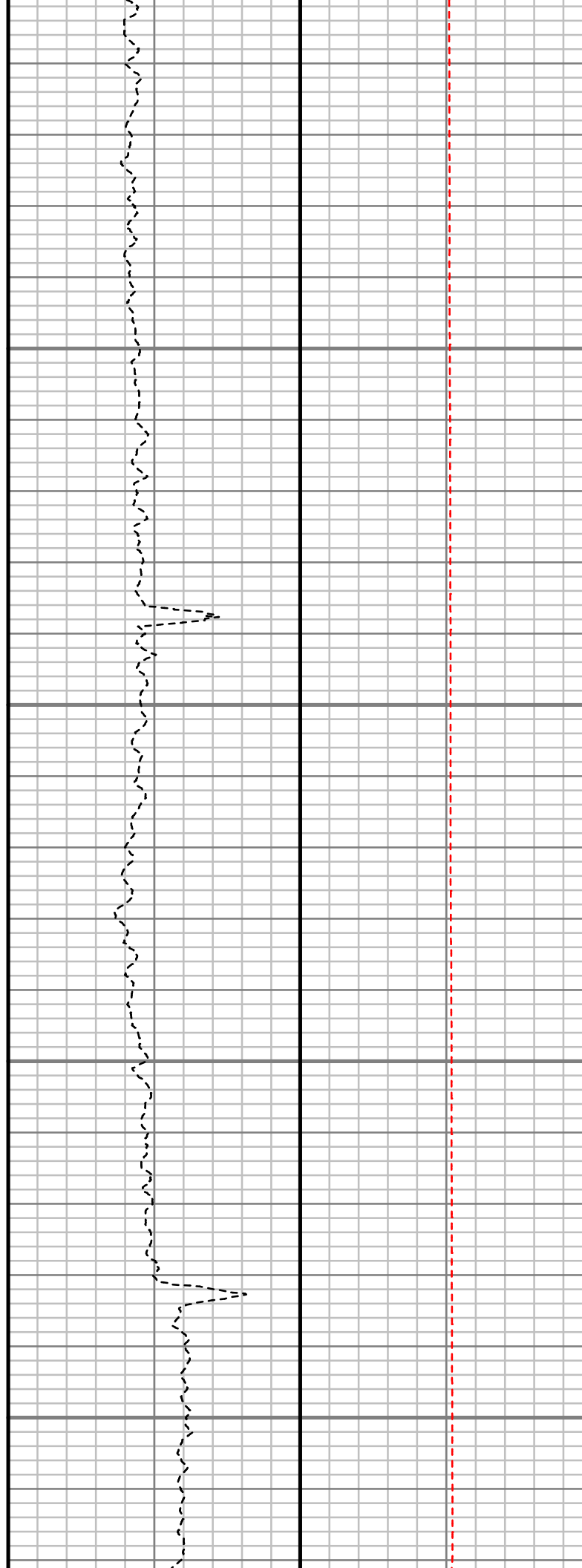
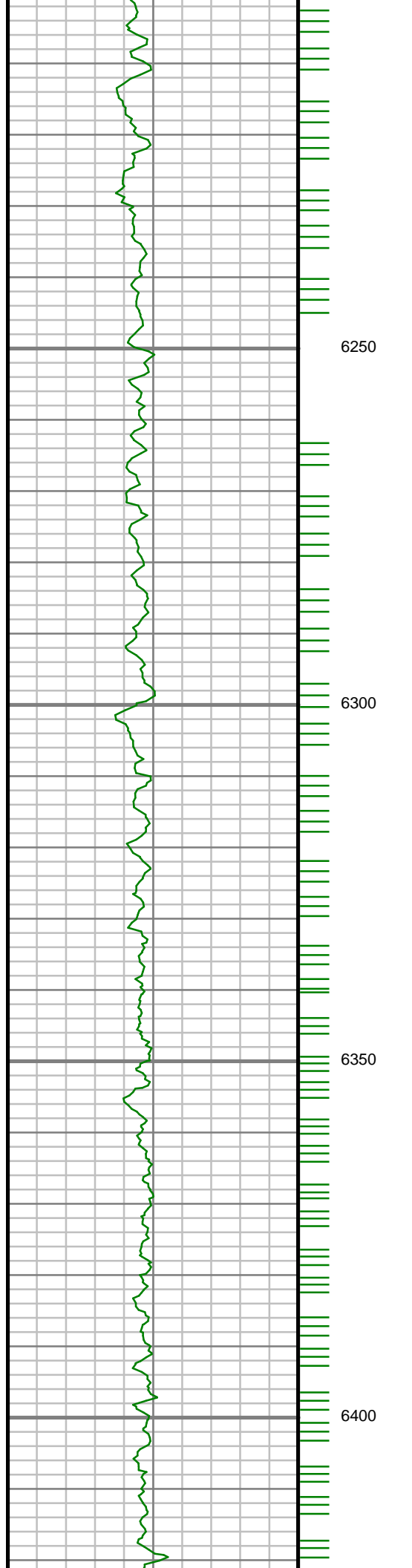
S: 52 MD: 5948.00 ft  
Inc: 1.92 deg Az:  
196.47 deg TVD:  
5895.35 ft



S: 53 MD: 6042.00 ft  
Inc: 1.02 deg Az:  
252.09 deg TVD:  
5989.32 ft

S: 54 MD: 6136.00 ft  
Inc: 0.78 deg Az:  
262.02 deg TVD:  
6083.31 ft

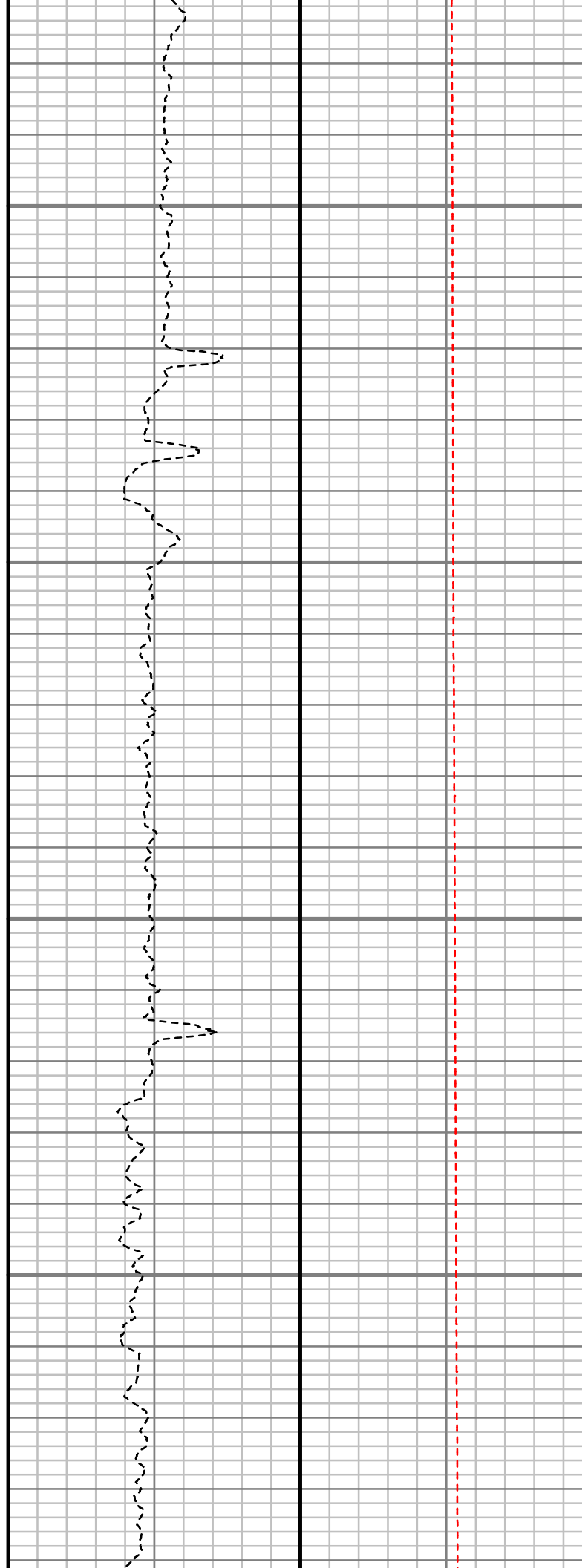
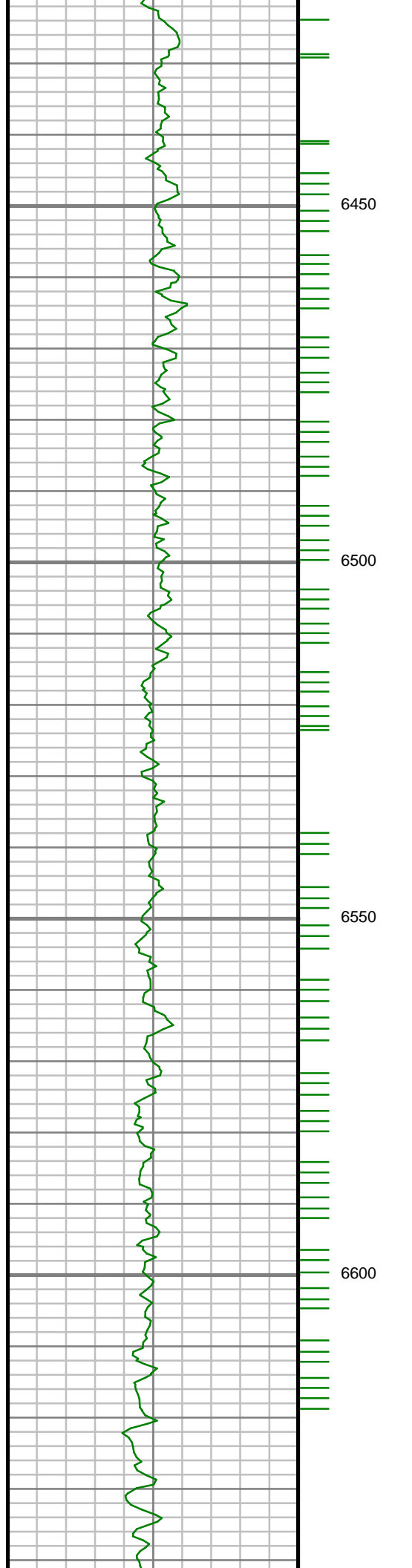




S: 55 MD: 6231.00 ft  
Inc: 0.59 deg Az: 37.30  
deg TVD: 6178.31 ft

S: 56 MD: 6325.00 ft  
Inc: 0.80 deg Az:  
319.60 deg TVD:  
6272.30 ft

S: 57 MD: 6419.00 ft



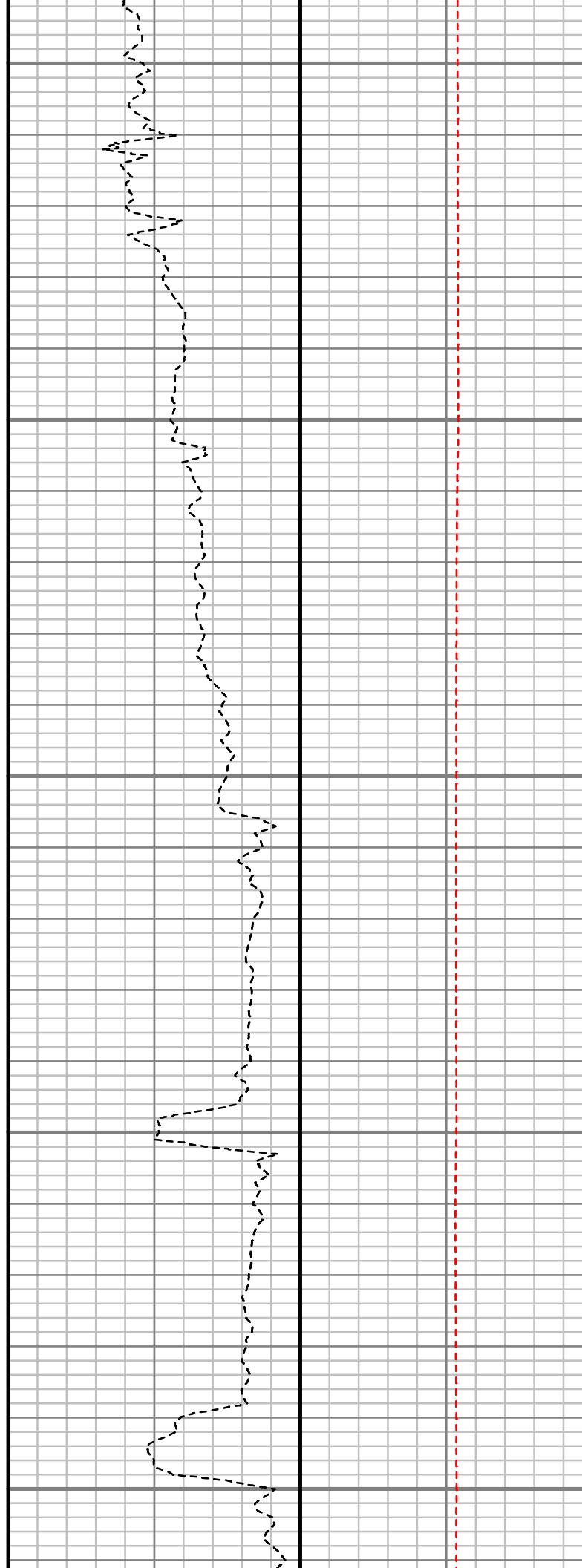
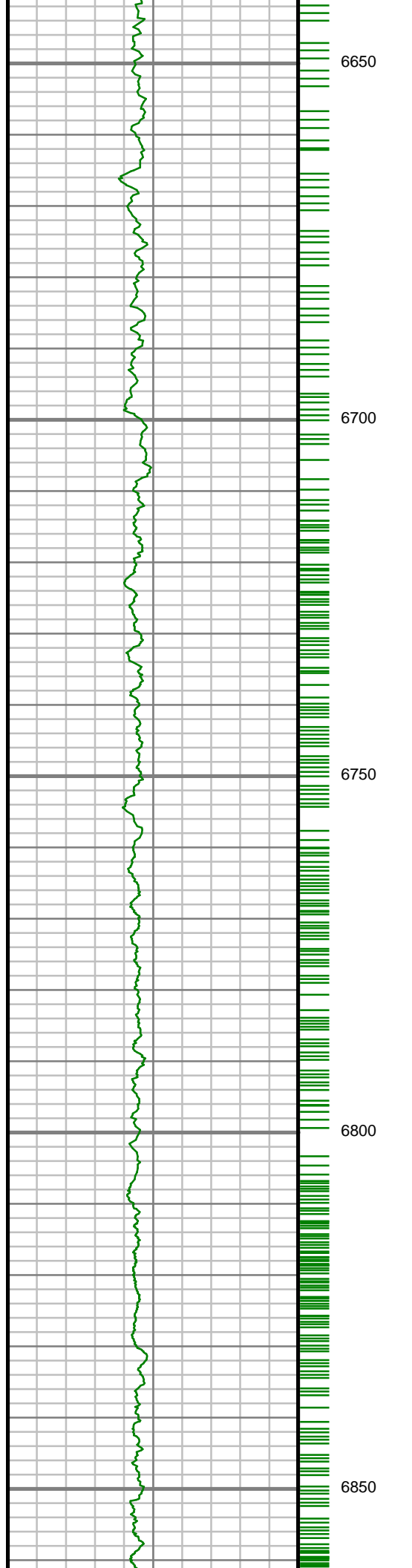
Inc: 0.44 deg Az: 56.06  
deg TVD: 6366.30 ft

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S: 58 MD: 6514.00 ft  
Inc: 0.30 deg Az:  
284.66 deg TVD:  
6461.30 ft

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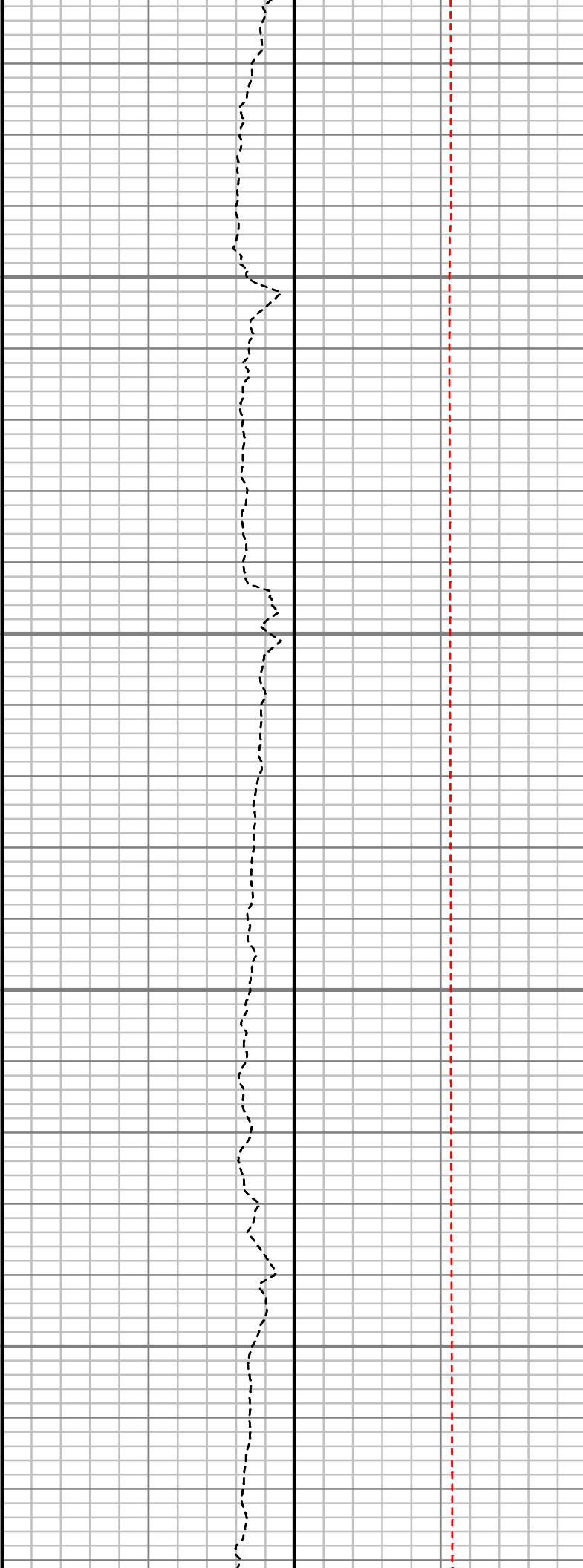
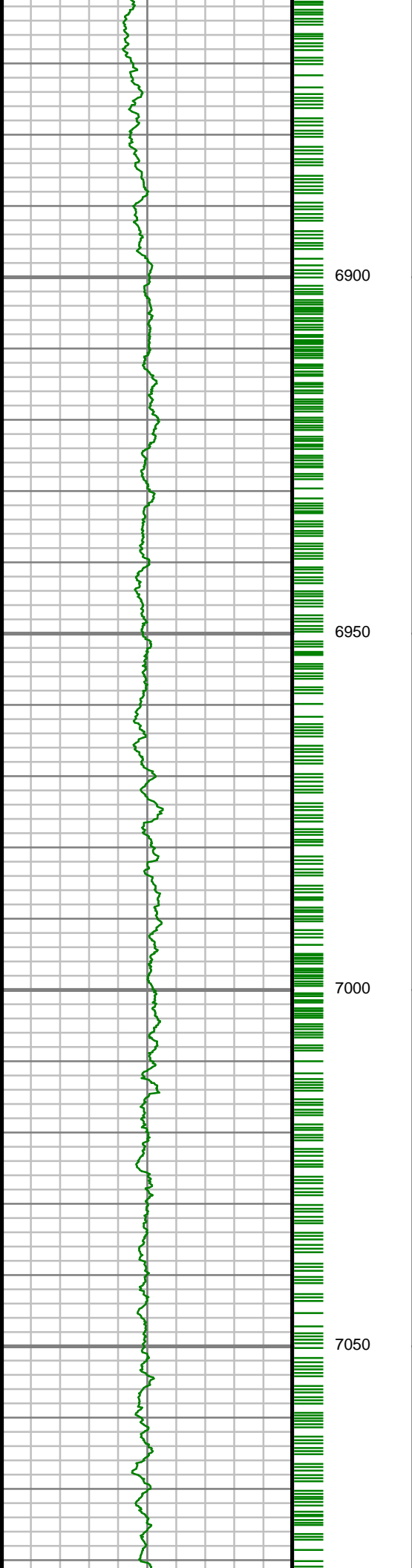
S: 59 MD: 6608.00 ft  
Inc: 0.70 deg Az:  
310.25 deg TVD:  
6555.29 ft



S: 60 MD: 6702.00 ft  
Inc: 0.94 deg Az: 0.87  
deg TVD: 6649.29 ft

S: 61 MD: 6796.00 ft  
Inc: 4.86 deg Az:  
341.87 deg TVD:  
6743.15 ft

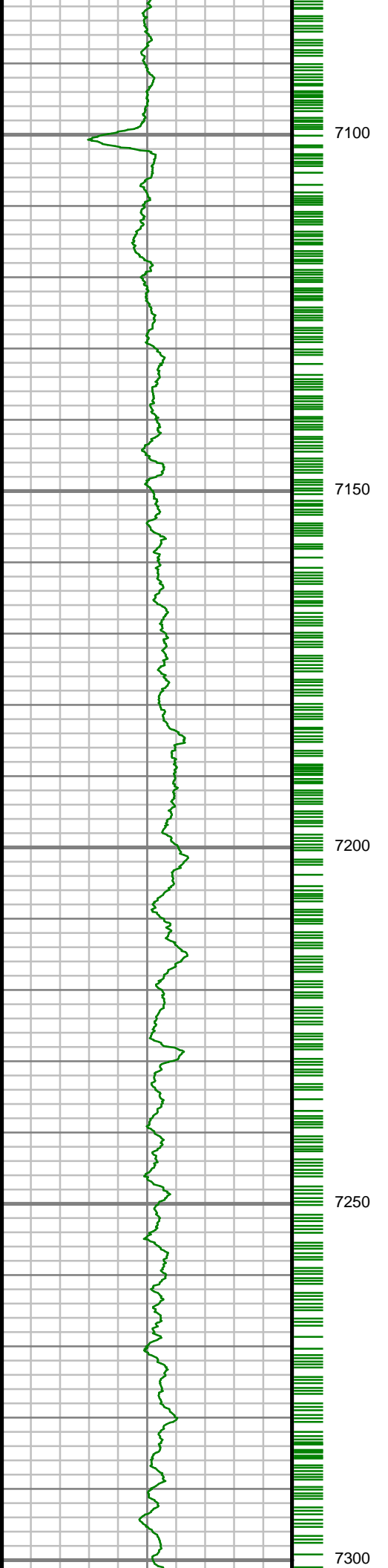
S: 62 MD: 6843.00 ft  
Inc: 7.60 deg Az:  
338.57 deg TVD:  
6789.87 ft



S: 63 MD: 6891.00 ft  
Inc: 10.27 deg Az:  
348.54 deg TVD:  
6837.28 ft

S: 64 MD: 6985.00 ft  
Inc: 18.73 deg Az:  
348.33 deg TVD:  
6928.20 ft

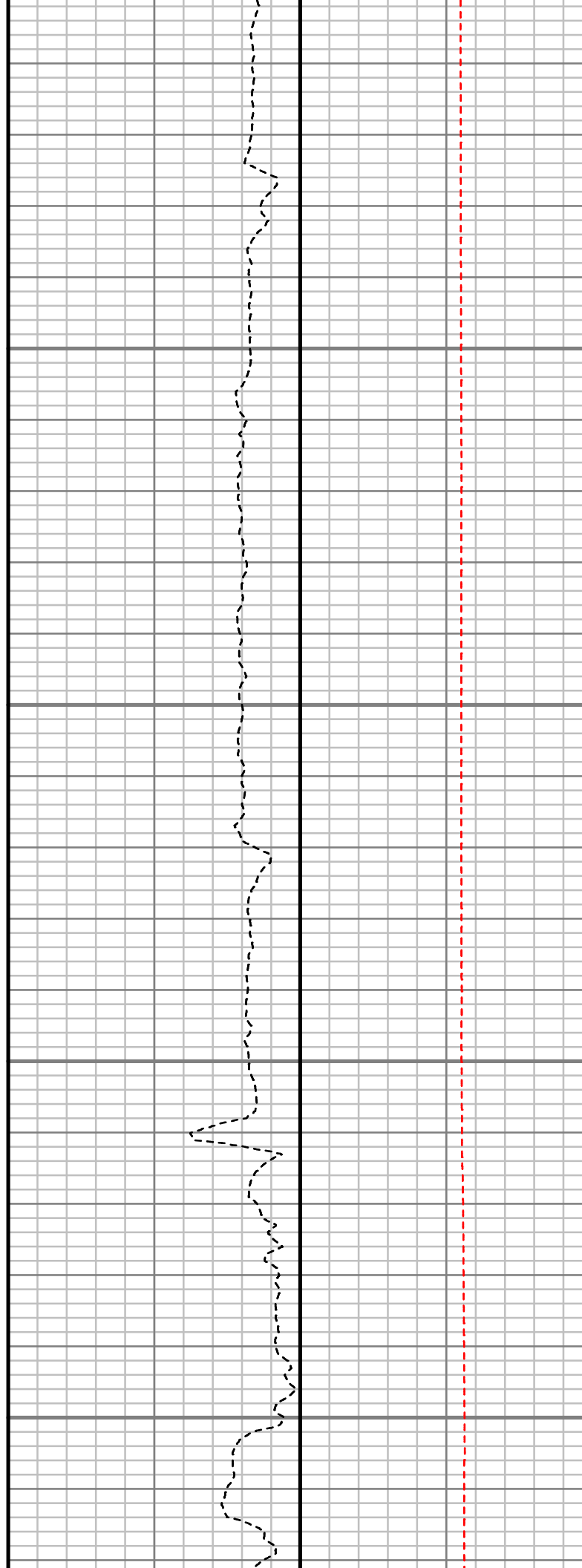
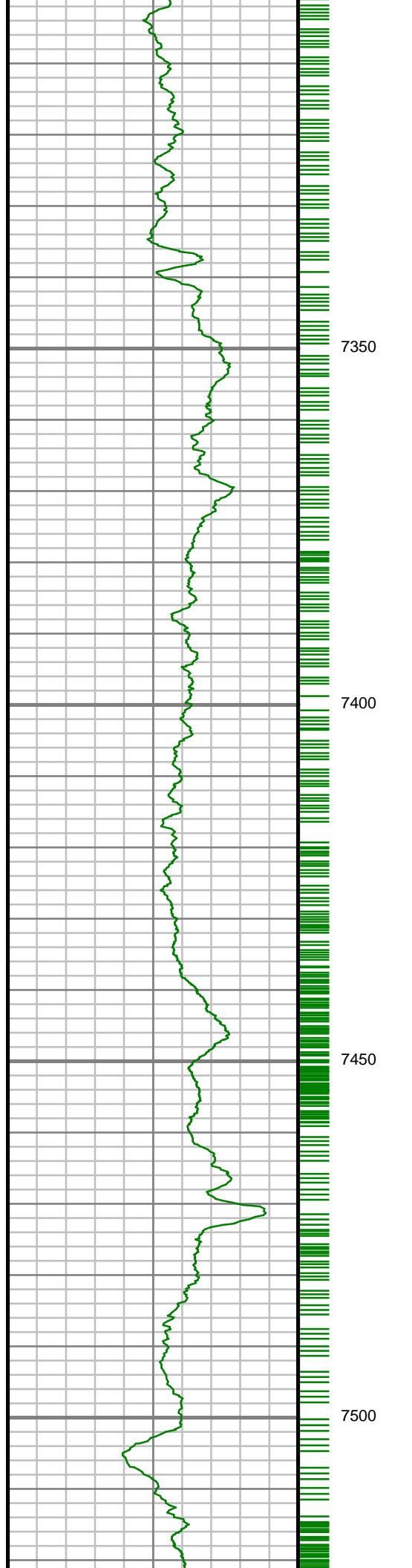
S: 65 MD: 7079.00 ft



Inc: 25.19 deg Az:  
345.41 deg TVD:  
7015.34 ft

S: 66 MD: 7173.00 ft  
Inc: 34.26 deg Az:  
341.88 deg TVD:  
7096.88 ft

S: 67 MD: 7268.00 ft  
Inc: 44.17 deg Az:  
345.15 deg TVD:  
7170.40 ft

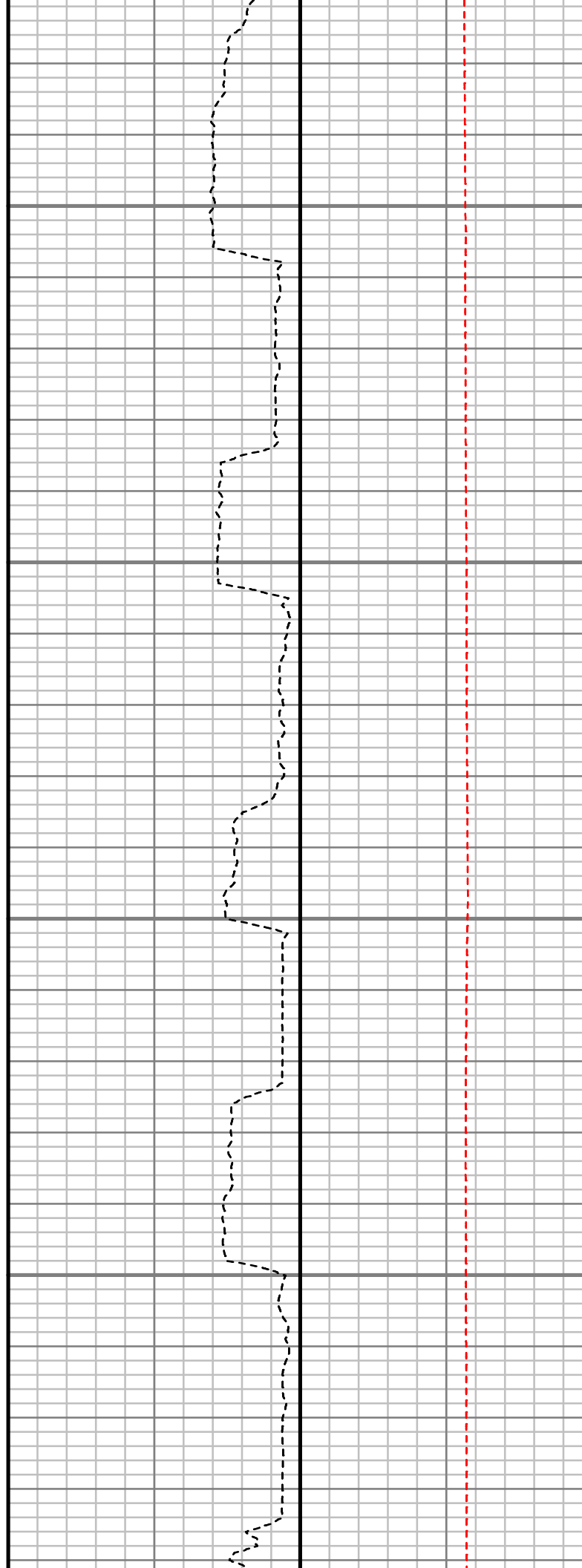
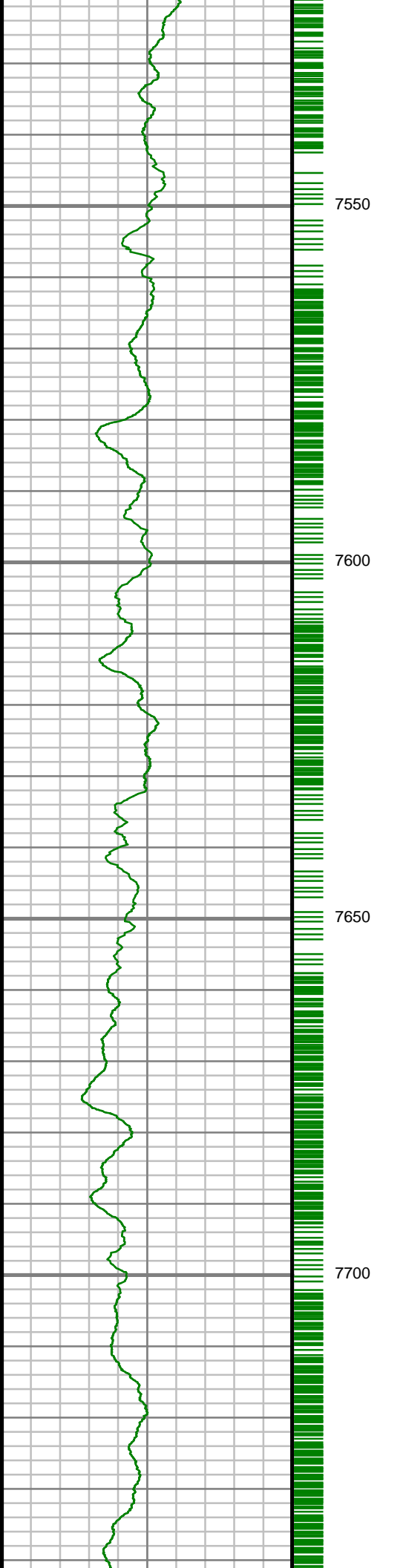


S: 68 MD: 7362.00 ft  
Inc: 52.46 deg Az: 355.04 deg TVD: 7232.94 ft

S: 69 MD: 7409.00 ft  
Inc: 55.39 deg Az: 0.16 deg TVD: 7260.63 ft

S: 70 MD: 7457.00 ft  
Inc: 61.53 deg Az: 1.86 deg TVD: 7285.72 ft

S: 71 MD: 7504.00 ft  
Inc: 64.31 deg Az: 2.57 deg TVD: 7307.12 ft



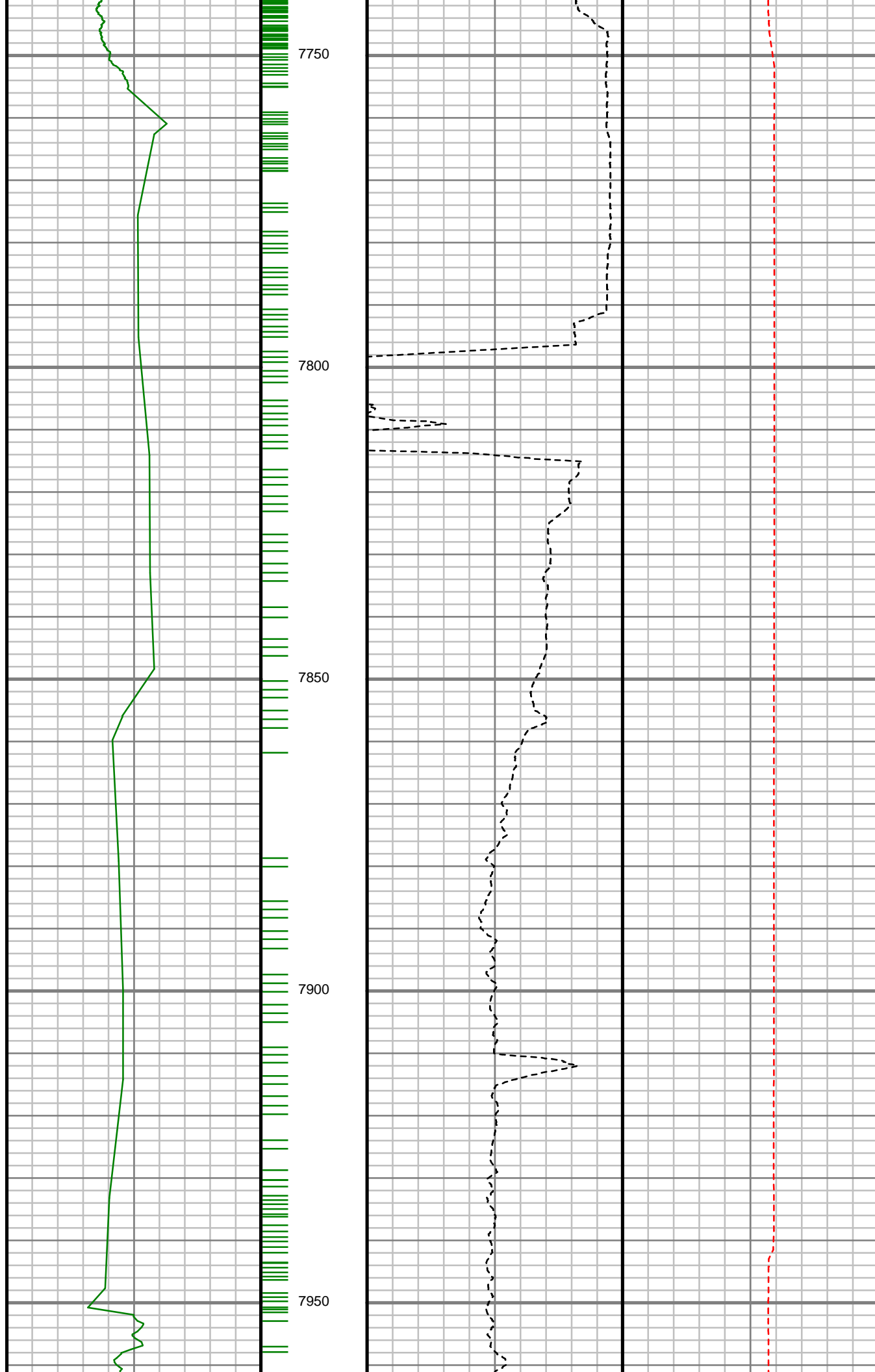
S: 72 MD: 7551.00 ft  
Inc: 66.30 deg Az: 2.25  
deg TVD: 7326.76 ft

S: 73 MD: 7598.00 ft  
Inc: 69.74 deg Az: 2.23  
deg TVD: 7344.35 ft

S: 74 MD: 7645.00 ft  
Inc: 74.29 deg Az: 2.49  
deg TVD: 7358.86 ft

S: 75 MD: 7692.00 ft  
Inc: 76.92 deg Az: 2.53  
deg TVD: 7370.55 ft

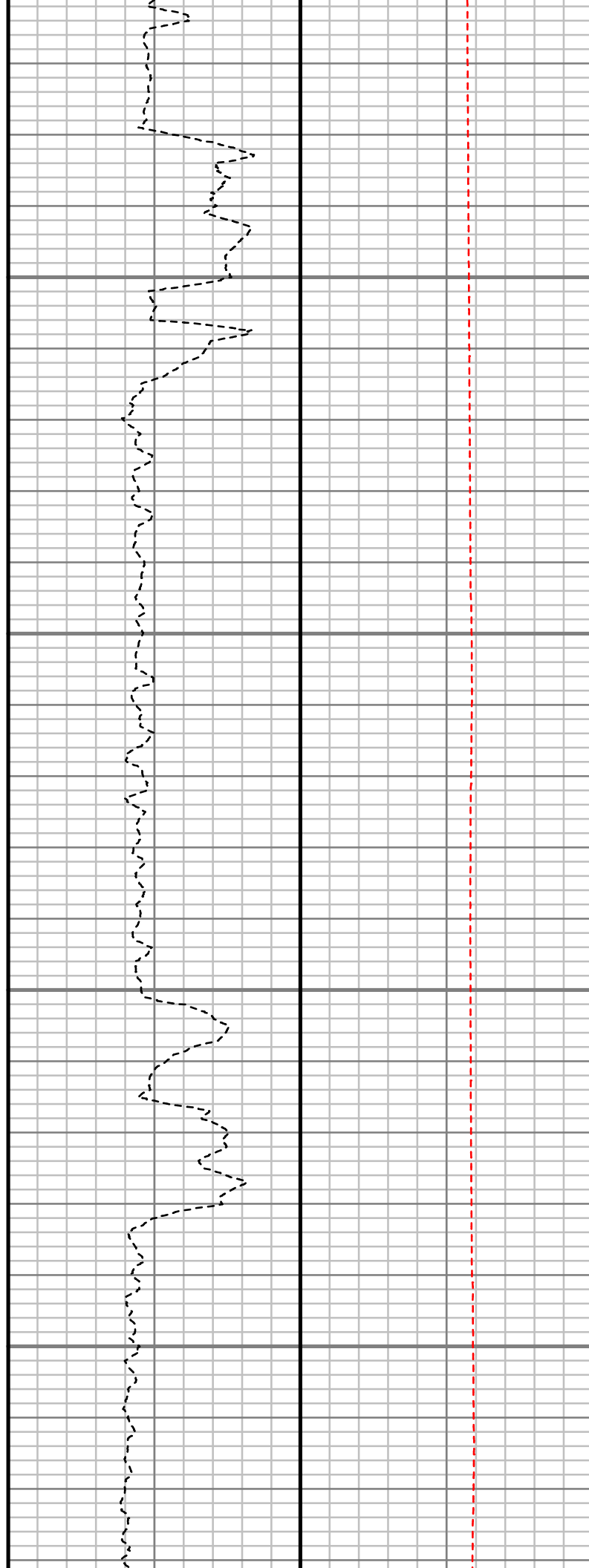
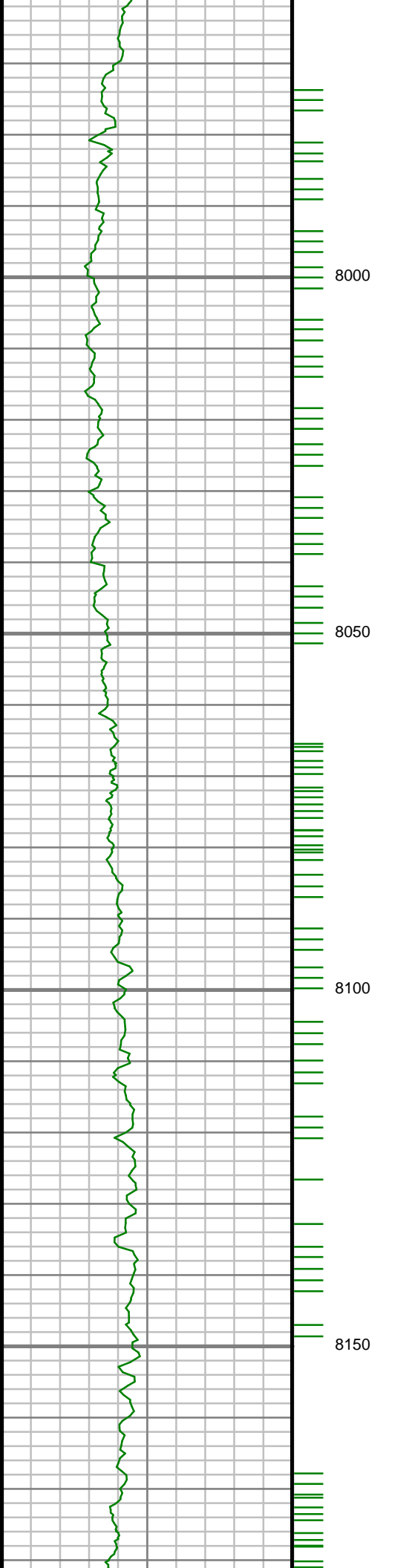
S: 76 MD: 7739.00 ft



Inc: 82.54 deg Az: 1.81  
deg TVD: 7378.92 ft

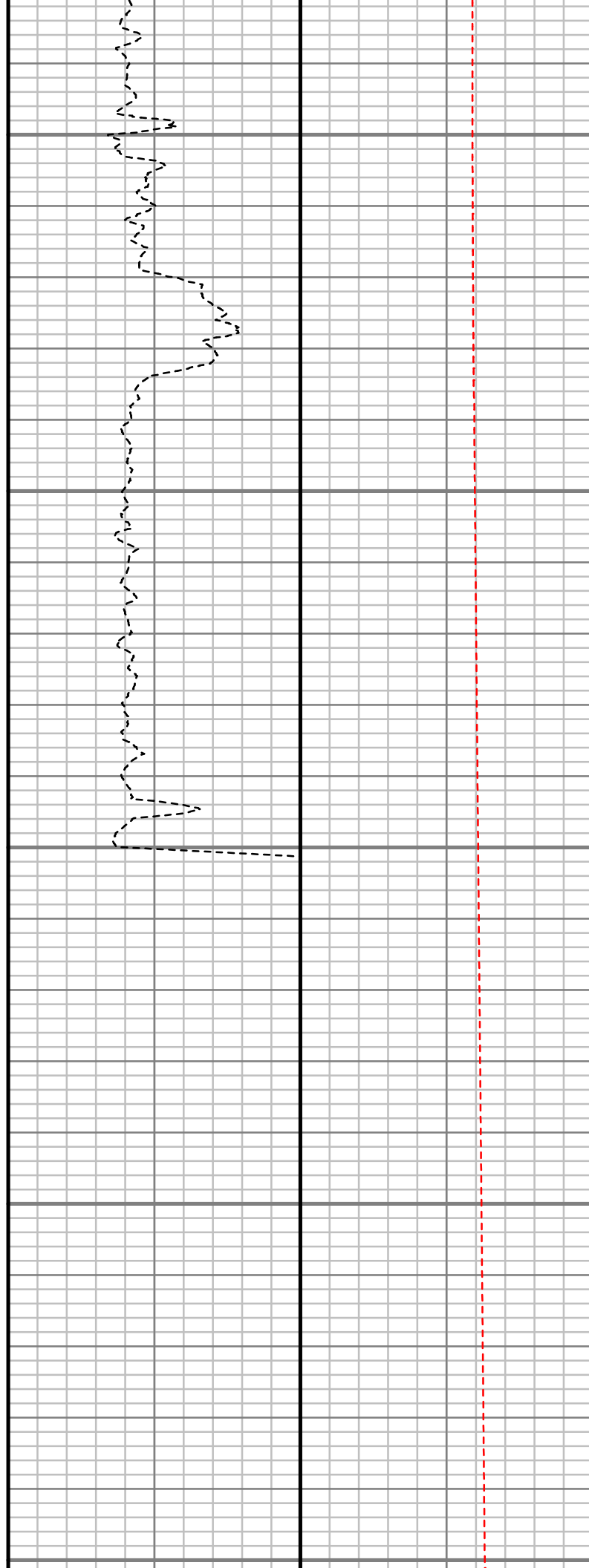
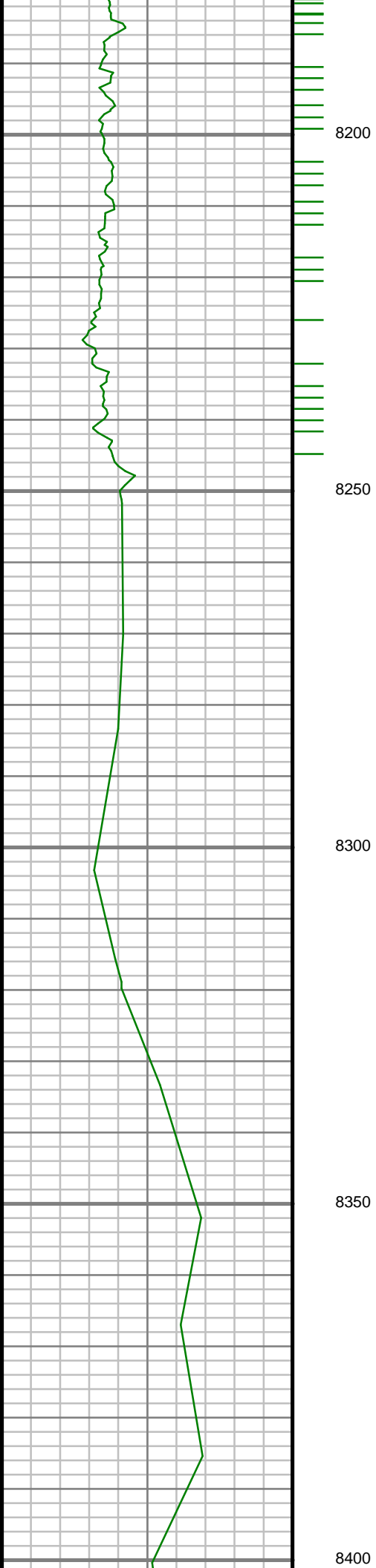
S: 77 MD: 7920.00 ft  
Inc: 88.76 deg Az:  
359.82 deg TVD:  
7392.65 ft



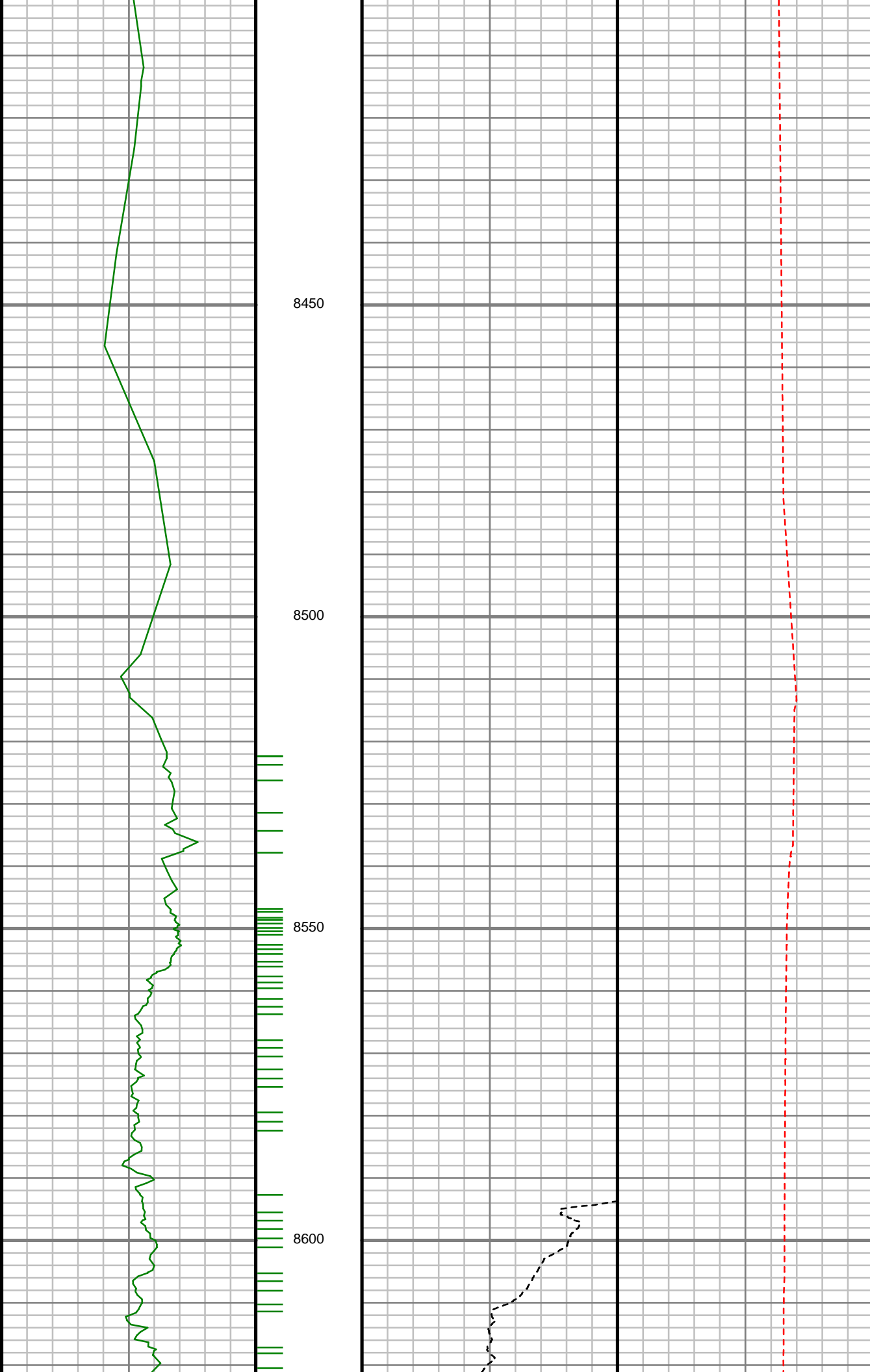


S: 78 MD: 8041.00 ft  
Inc: 89.43 deg Az: 1.01  
deg TVD: 7394.56 ft

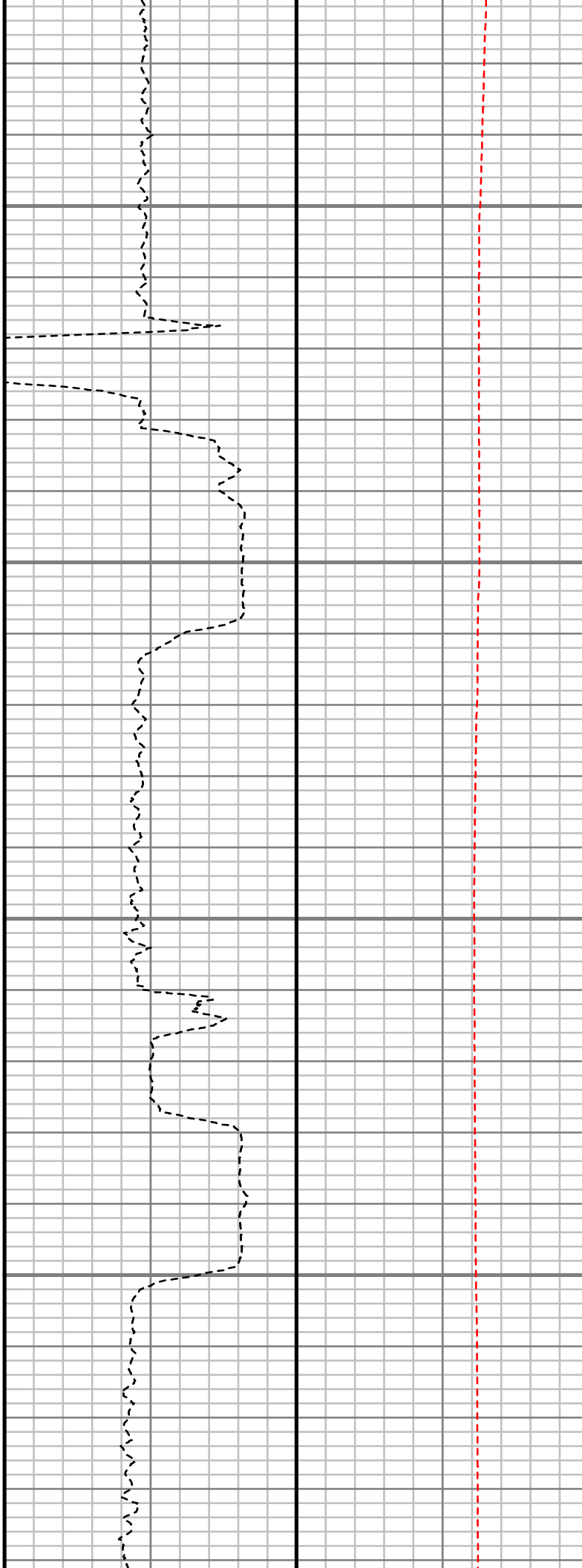
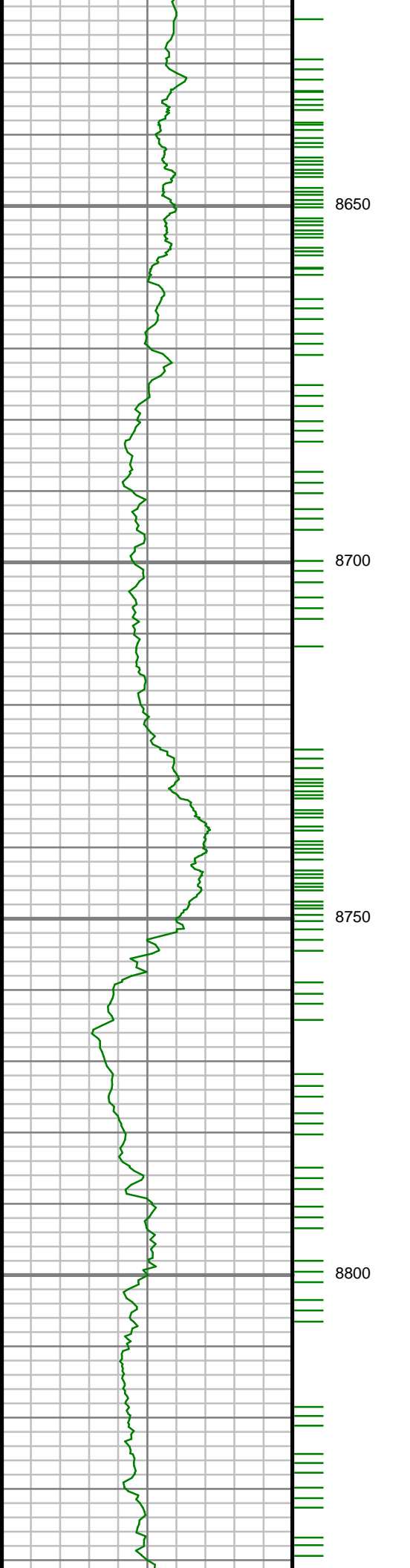
S: 79 MD: 8135.00 ft  
Inc: 90.17 deg Az: 0.97  
deg TVD: 7394.90 ft



S: 80 MD: 8230.00 ft  
Inc: 91.74 deg Az: 0.62  
deg TVD: 7393.31 ft

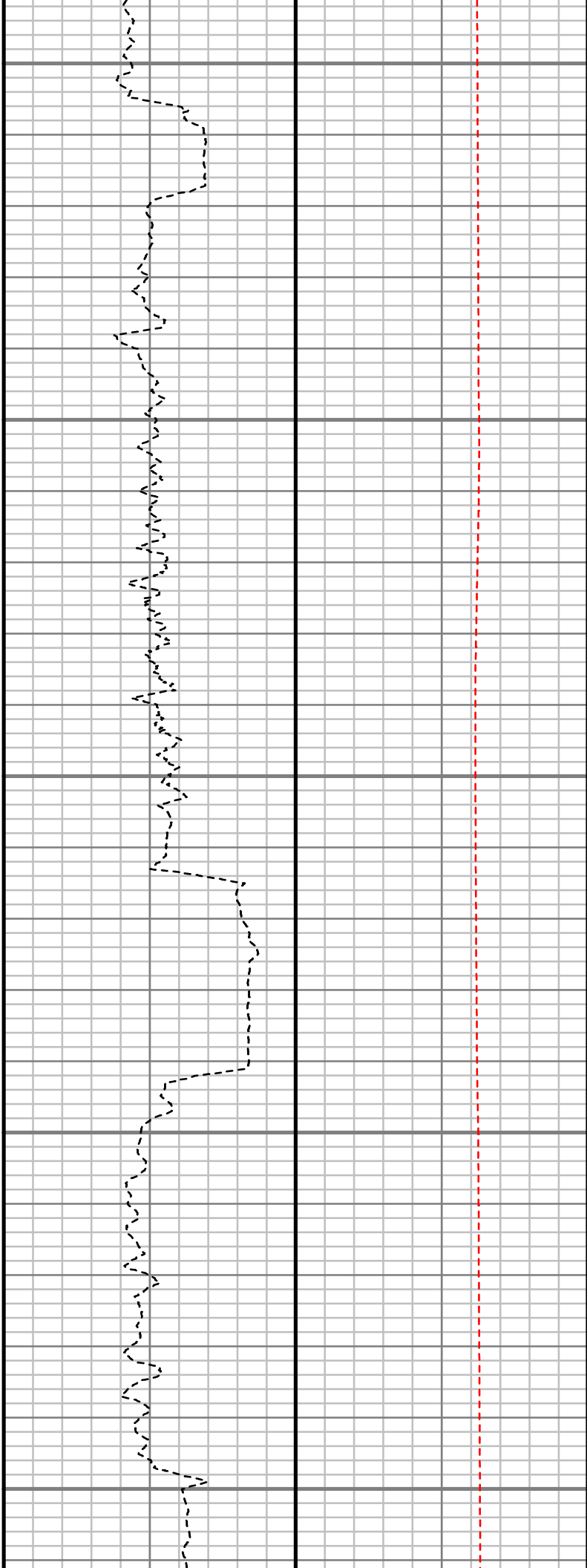
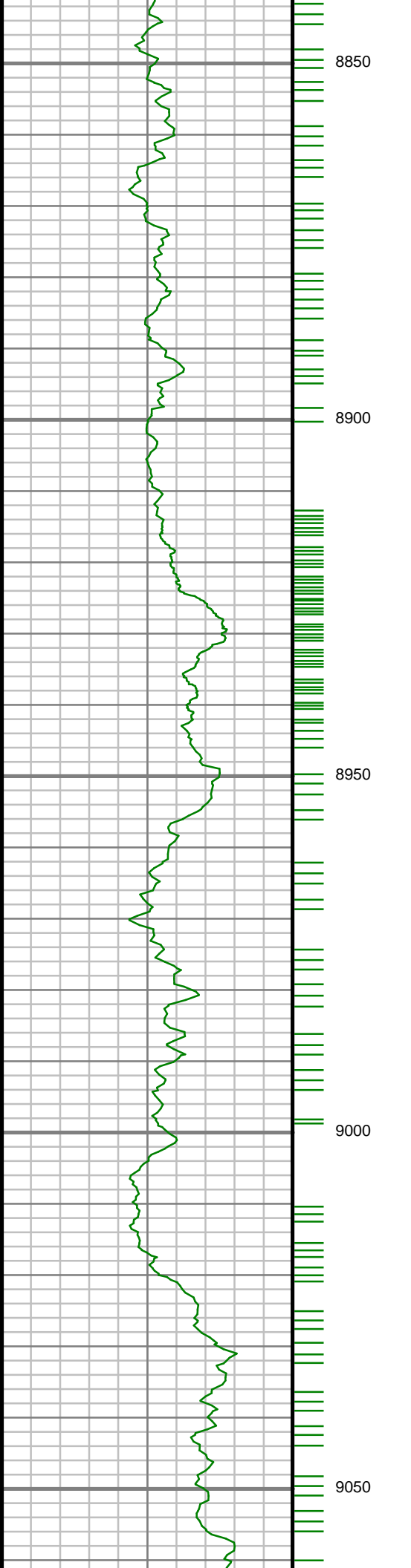


S: 81 MD: 8513.00 ft  
Inc: 91.65 deg Az: 2.55  
deg TVD: 7384.94 ft

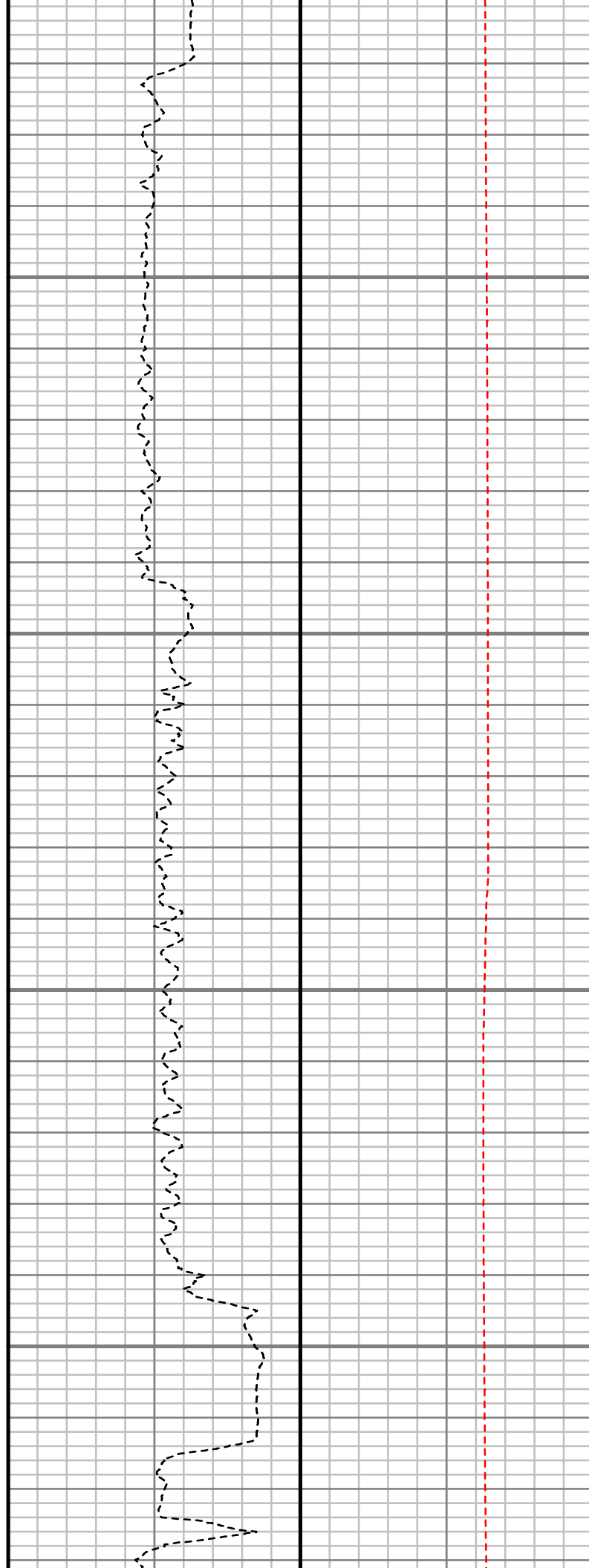
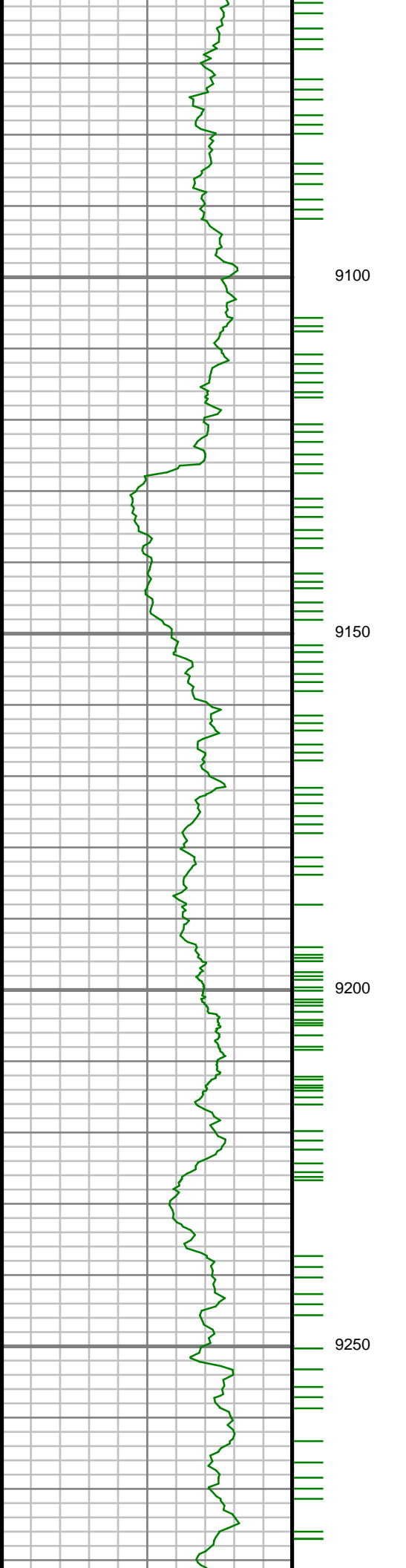


S: 82 MD: 8702.00 ft  
Inc: 90.98 deg Az: 2.38  
deg TVD: 7380.61 ft

S: 83 MD: 8796.00 ft  
Inc: 89.60 deg Az: 1.54  
deg TVD: 7380.14 ft



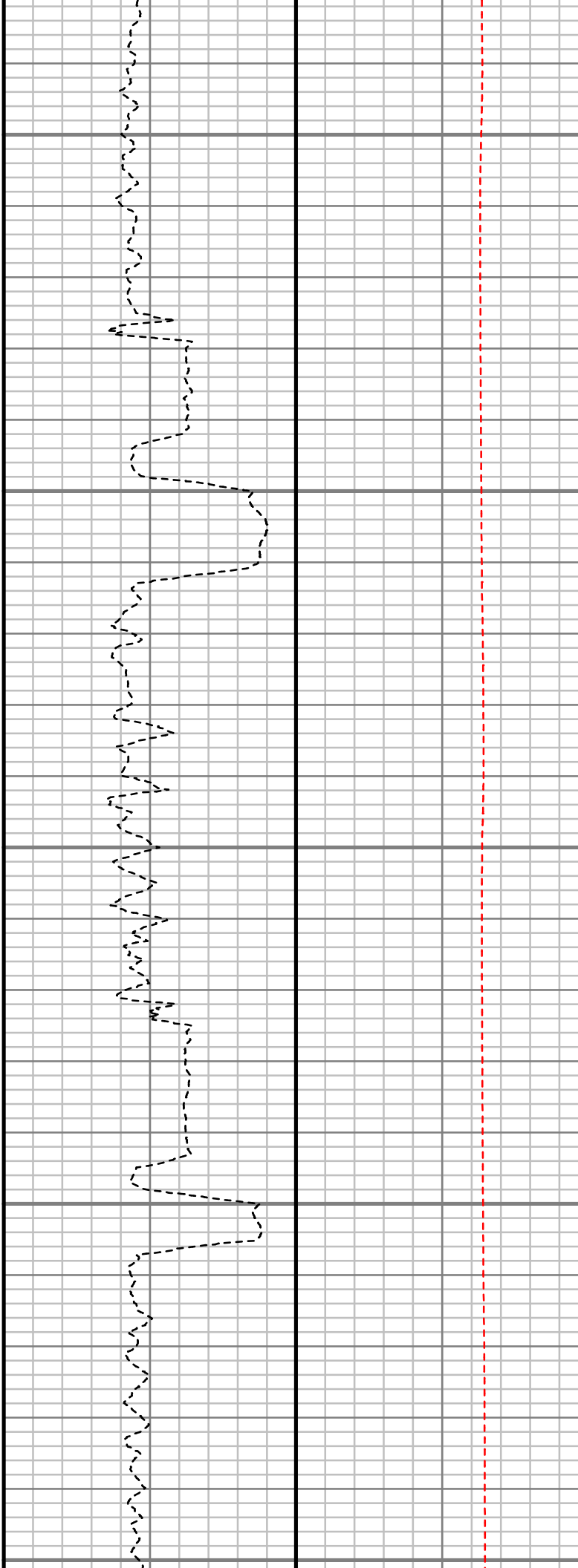
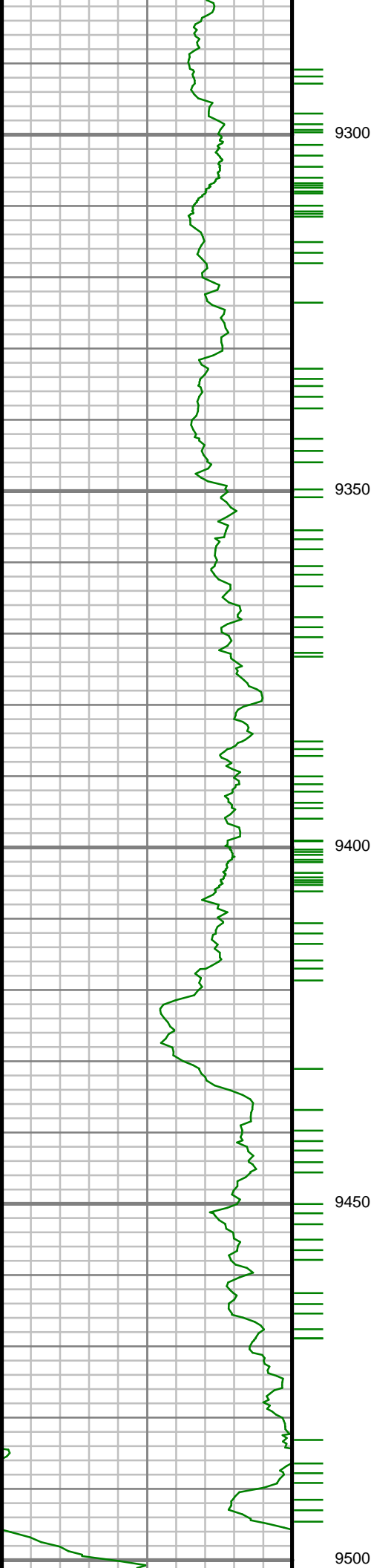
S: 84 MD: 8984.00 ft  
Inc: 89.06 deg Az: 1.88  
deg TVD: 7382.35 ft



S: 85 MD: 9078.00 ft  
Inc: 89.49 deg Az: 1.17  
deg TVD: 7383.54 ft

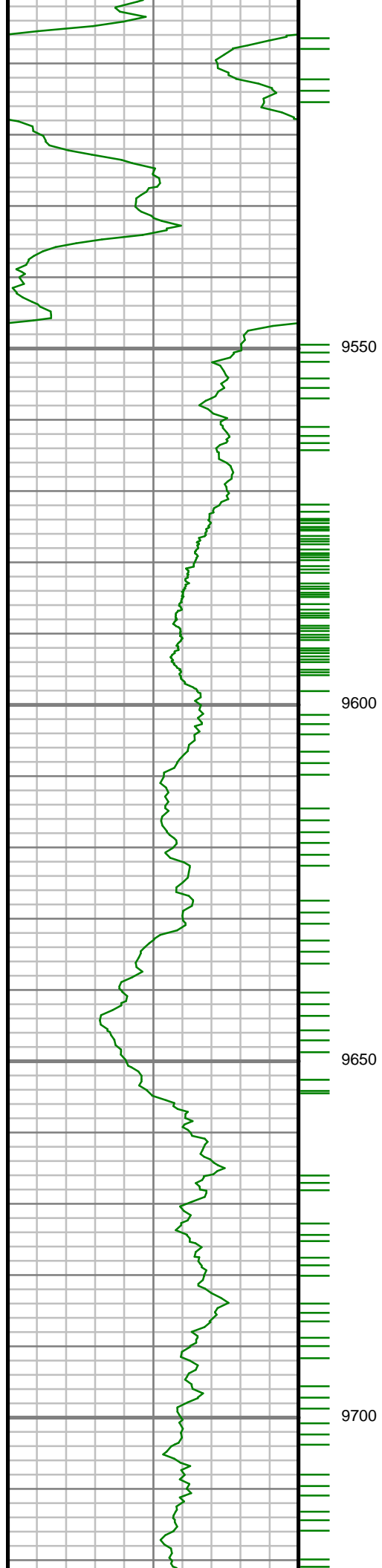
S: 86 MD: 9173.00 ft  
Inc: 90.61 deg Az: 1.08  
deg TVD: 7383.45 ft

S: 87 MD: 9267.00 ft  
Inc: 90.10 deg Az: 1.48  
deg TVD: 7382.88 ft



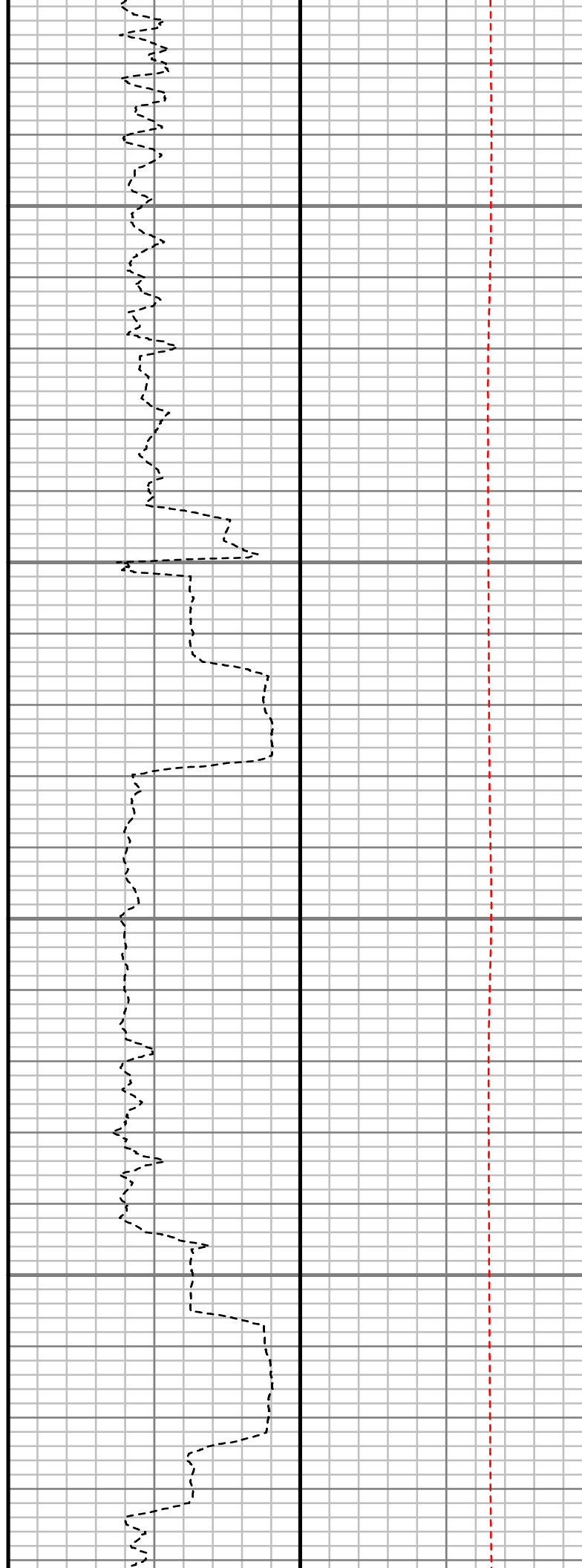
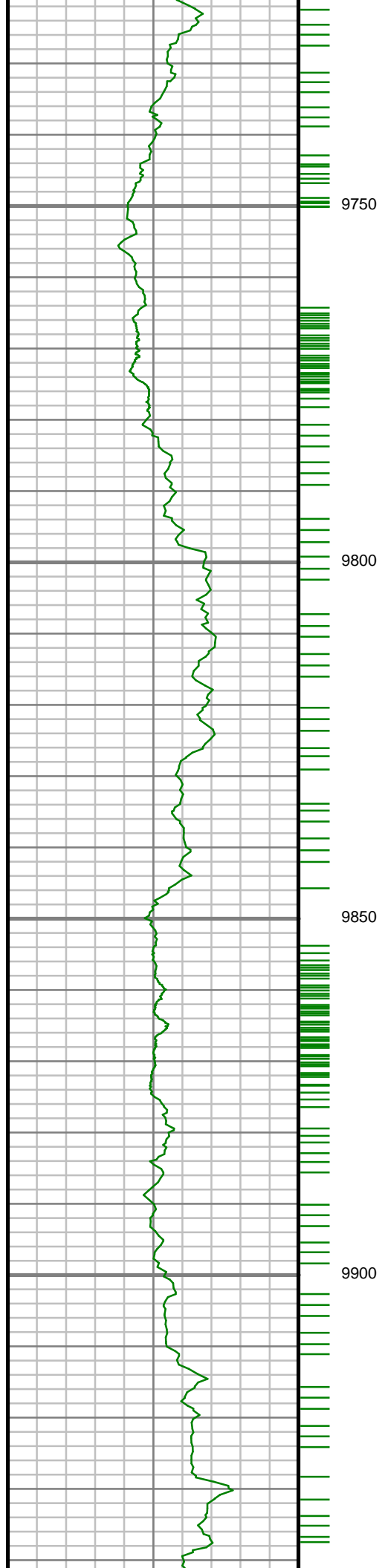
S: 88 MD: 9361.00 ft  
Inc: 89.70 deg Az:  
359.88 deg TVD:  
7383.04 ft

S: 89 MD: 9456.00 ft  
Inc: 89.97 deg Az:  
359.84 deg TVD:  
7383.32 ft



S: 90 MD: 9550.00 ft  
Inc: 90.50 deg Az:  
359.55 deg TVD:  
7382.93 ft

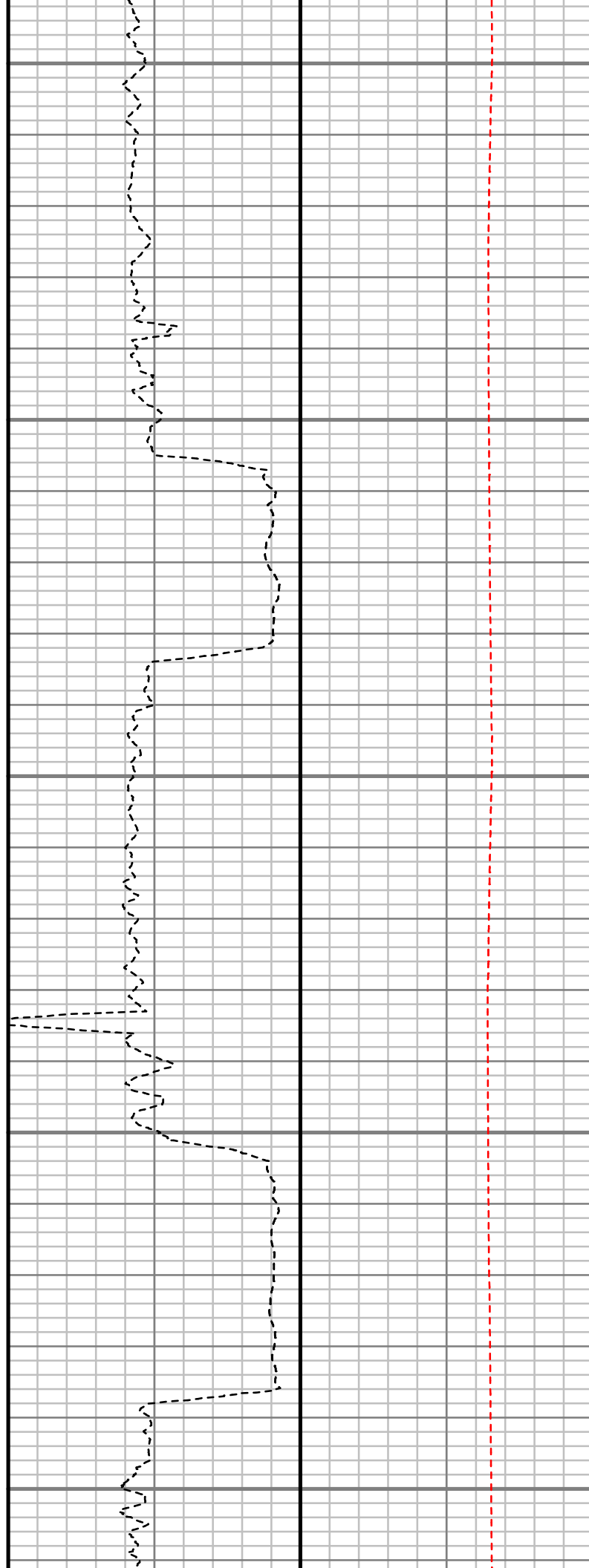
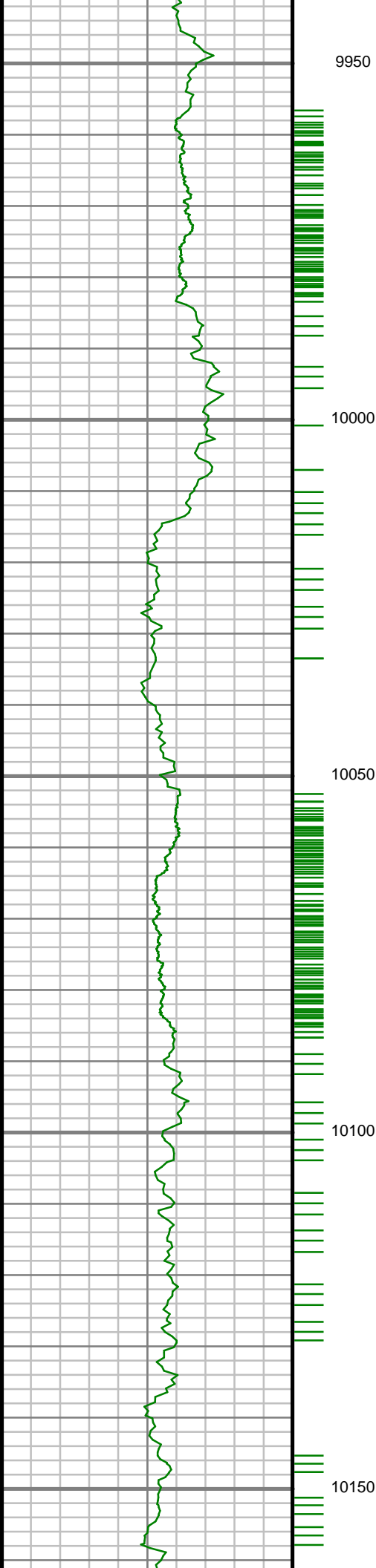




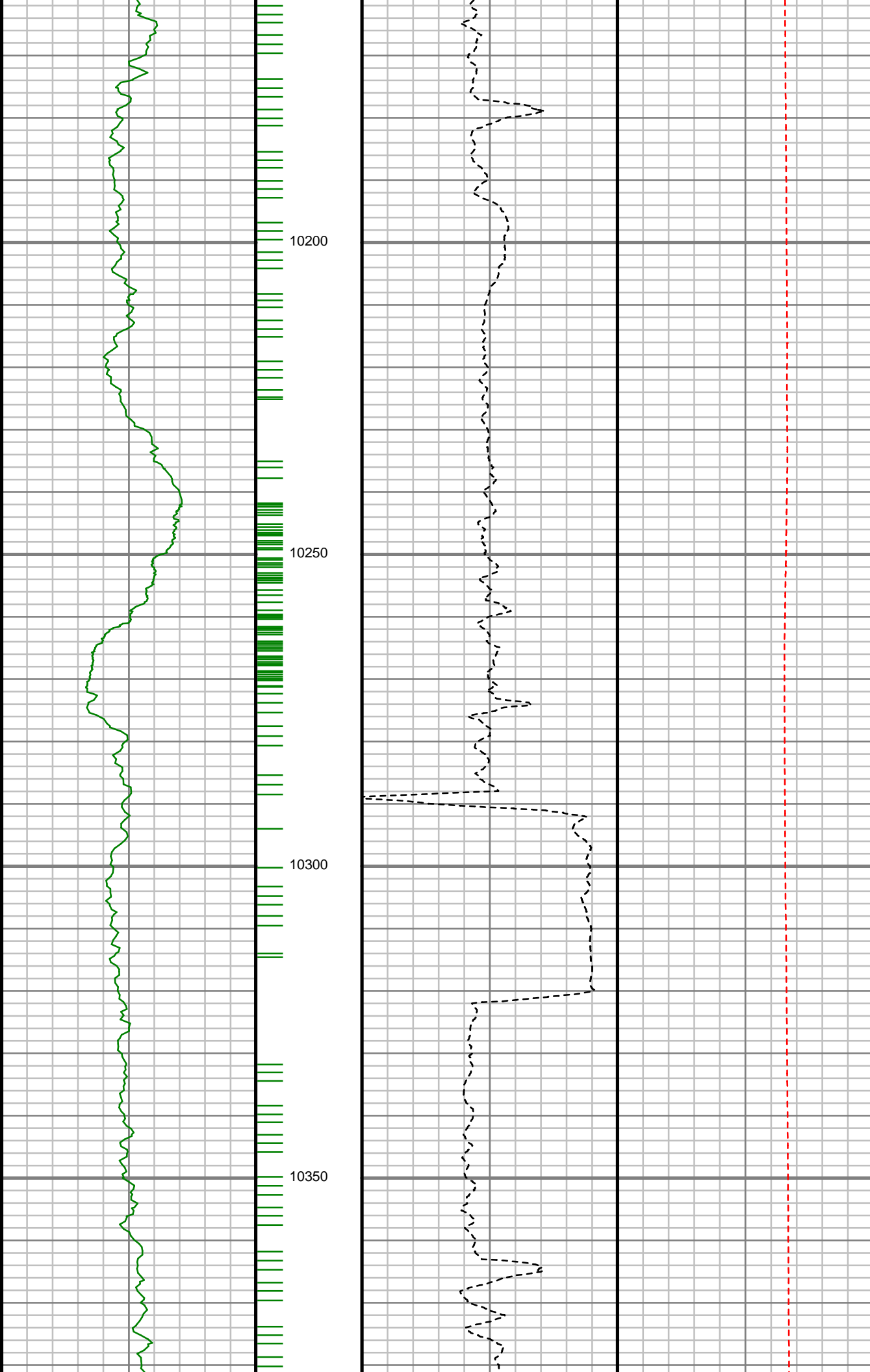
S: 91 MD: 9738.00 ft  
Inc: 90.20 deg Az:  
359.74 deg TVD:  
7381.77 ft

S: 92 MD: 9833.00 ft  
Inc: 89.83 deg Az:  
359.70 deg TVD:  
7381.75 ft

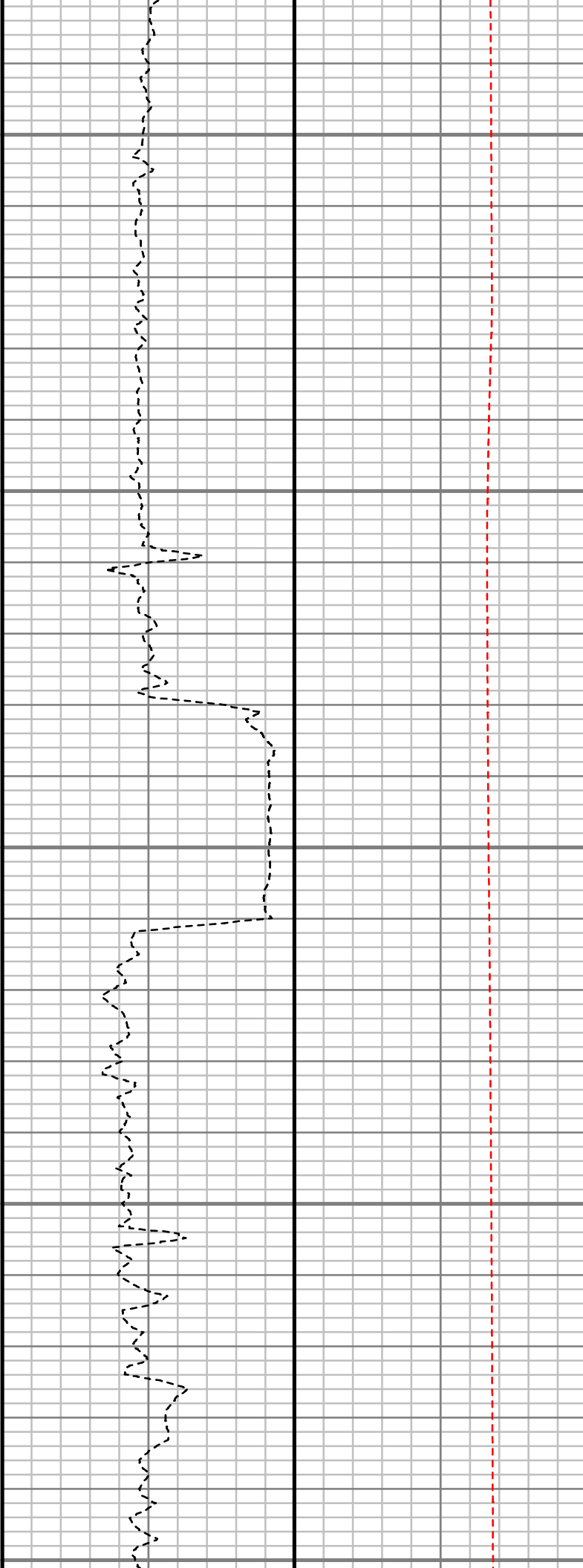
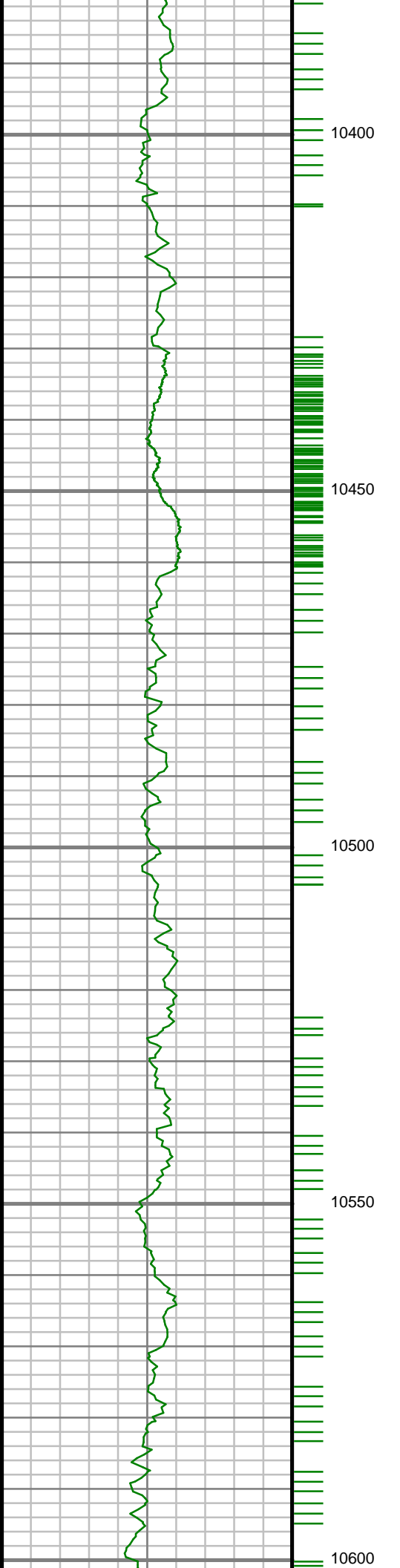
S: 93 MD: 9927.00 ft  
Inc: 89.97 deg Az: 0.82  
deg TVD: 7381.91 ft



S: 94 MD: 10021.00 ft  
Inc: 89.73 deg Az: 0.80  
deg TVD: 7382.16 ft



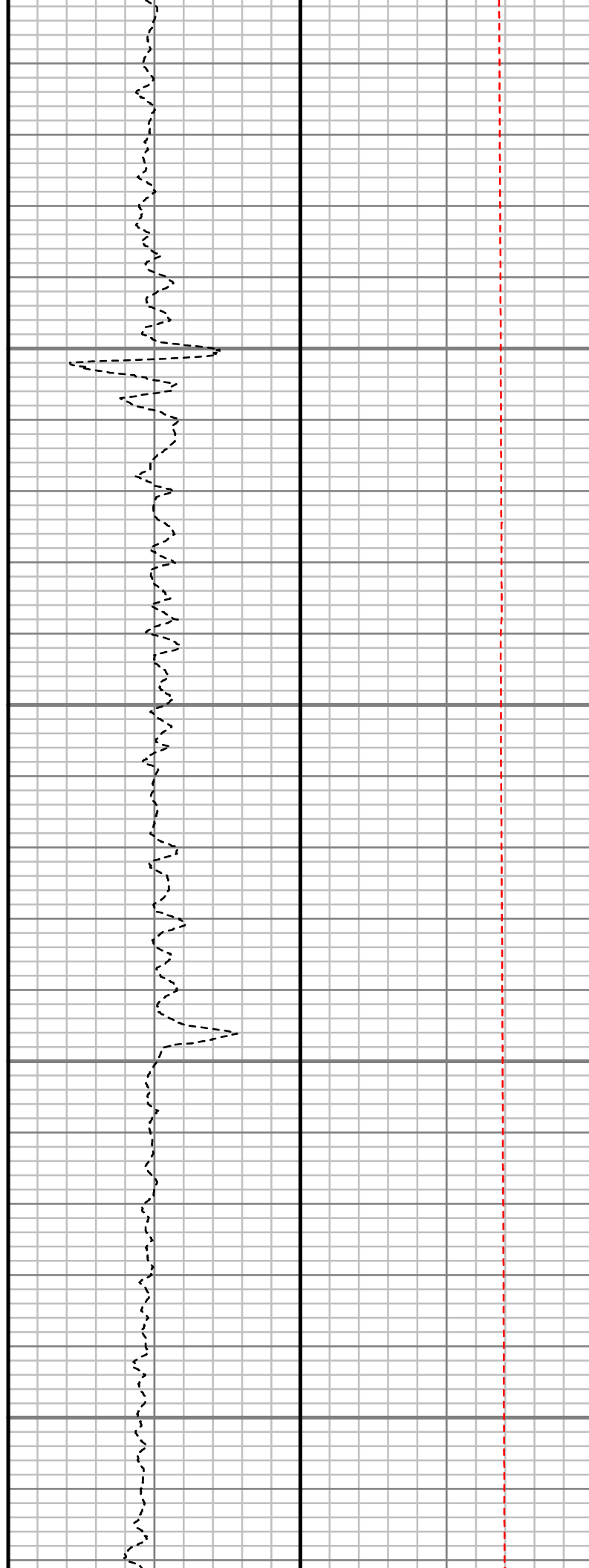
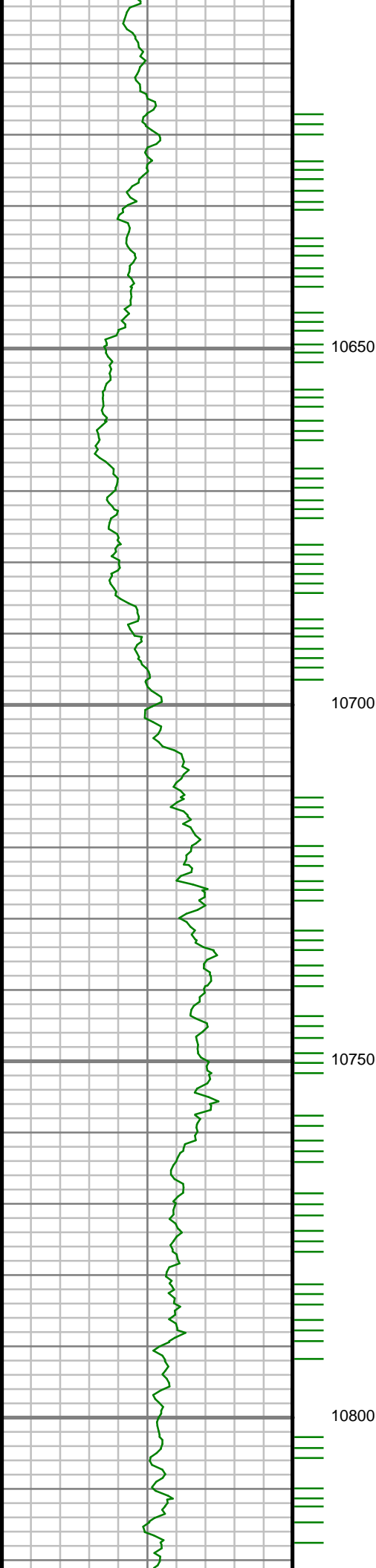
S: 95 MD: 10305.00 ft  
Inc: 90.50 deg Az: 3.64  
deg TVD: 7381.58 ft



S: 96 MD: 10399.00 ft  
Inc: 90.37 deg Az: 3.60  
deg TVD: 7380.86 ft

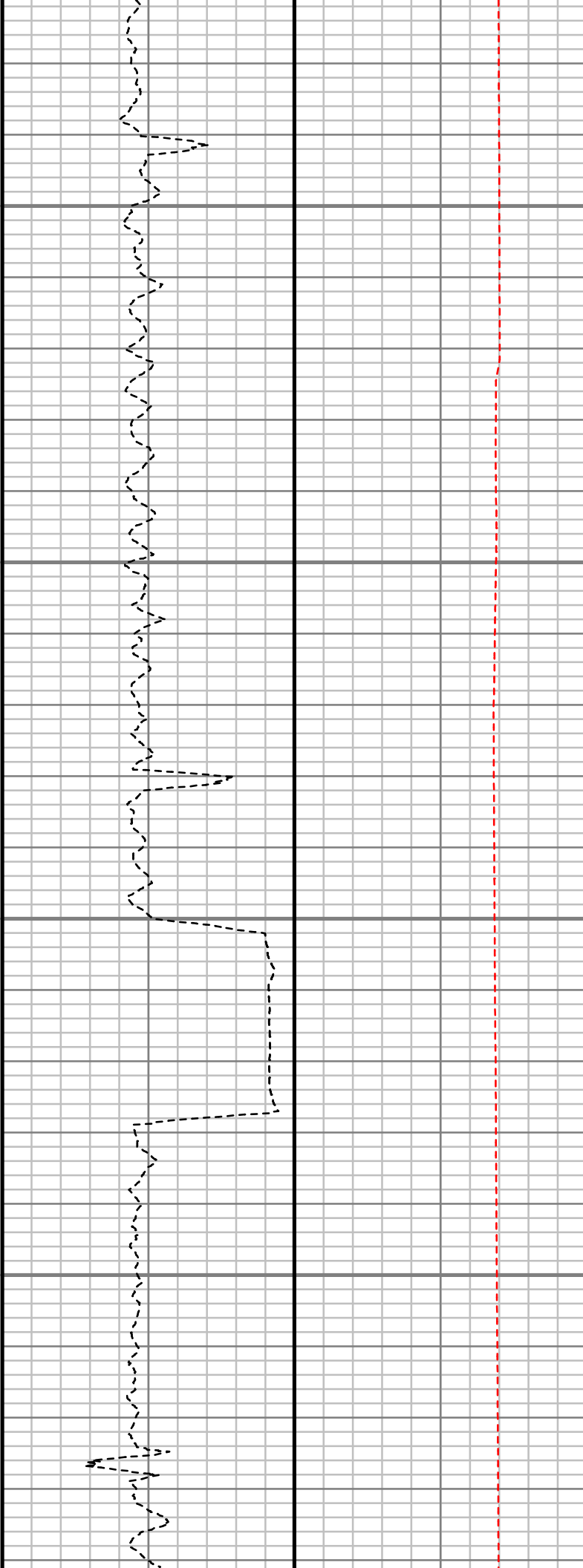
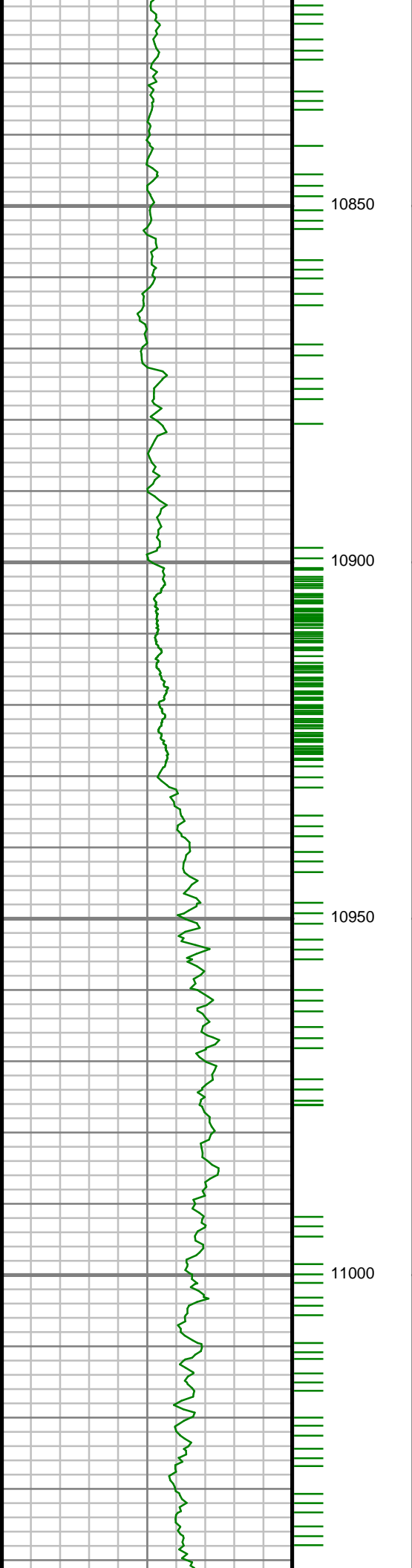
S: 97 MD: 10493.00 ft  
Inc: 89.02 deg Az: 4.18  
deg TVD: 7381.36 ft

S: 98 MD: 10587.00 ft  
Inc: 88.01 deg Az: 3.94  
deg TVD: 7383.78 ft

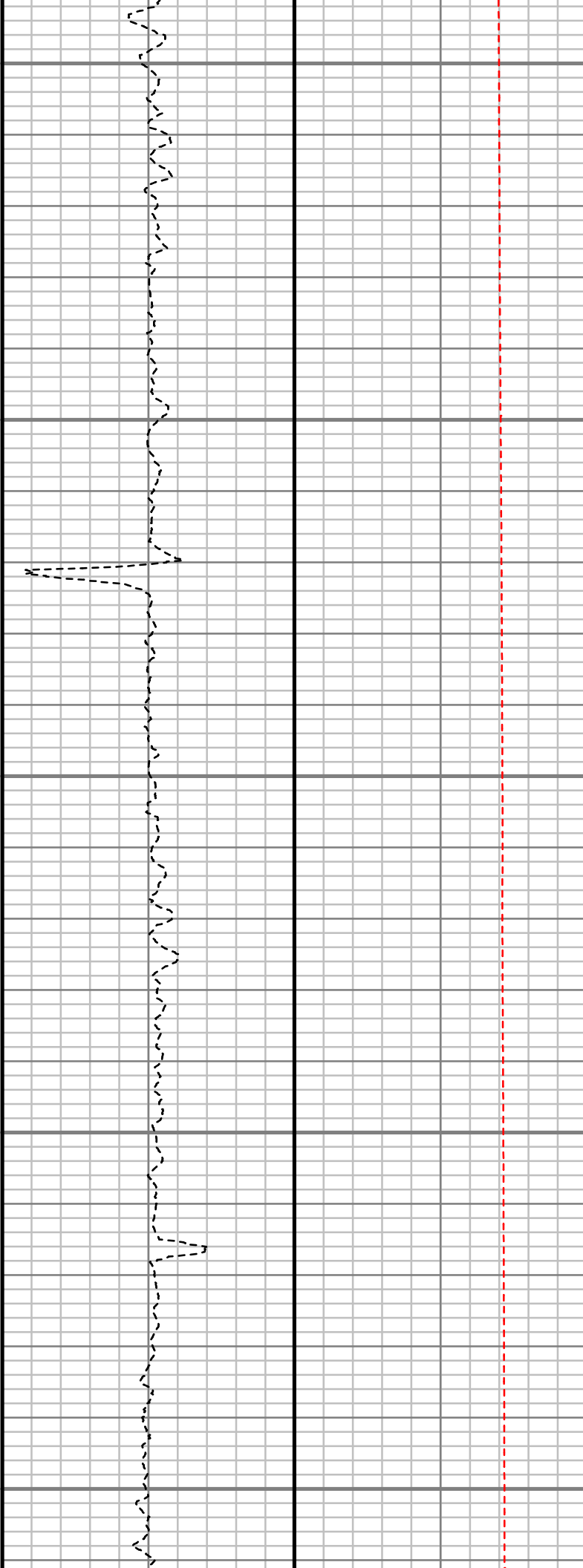
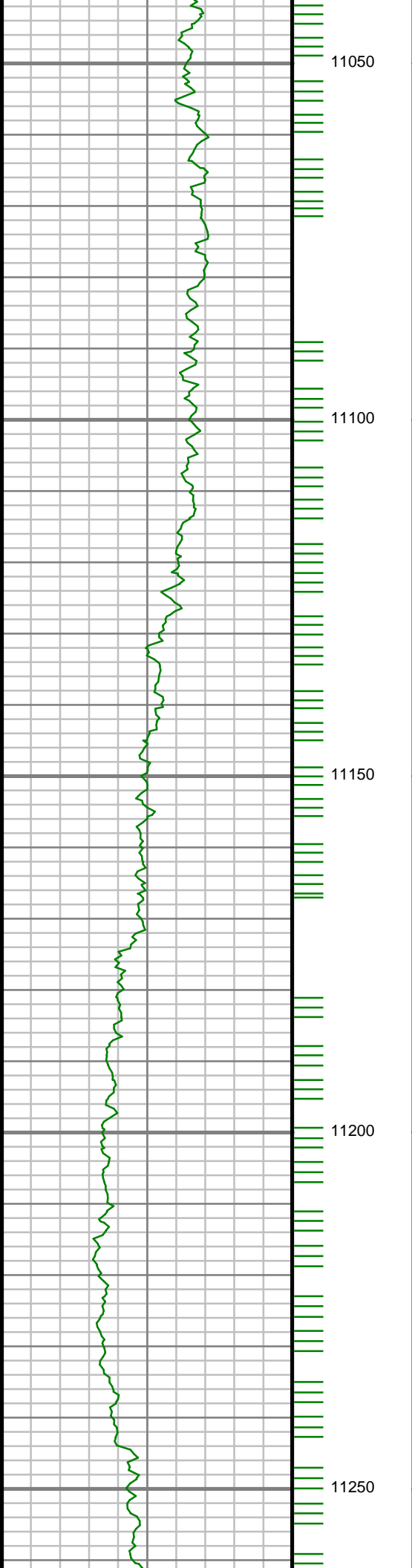


S: 99 MD: 10682.00 ft  
Inc: 89.06 deg Az: 3.87  
deg TVD: 7386.21 ft

S: 100 MD: 10776.00 ft  
Inc: 89.46 deg Az: 3.56  
deg TVD: 7387.42 ft



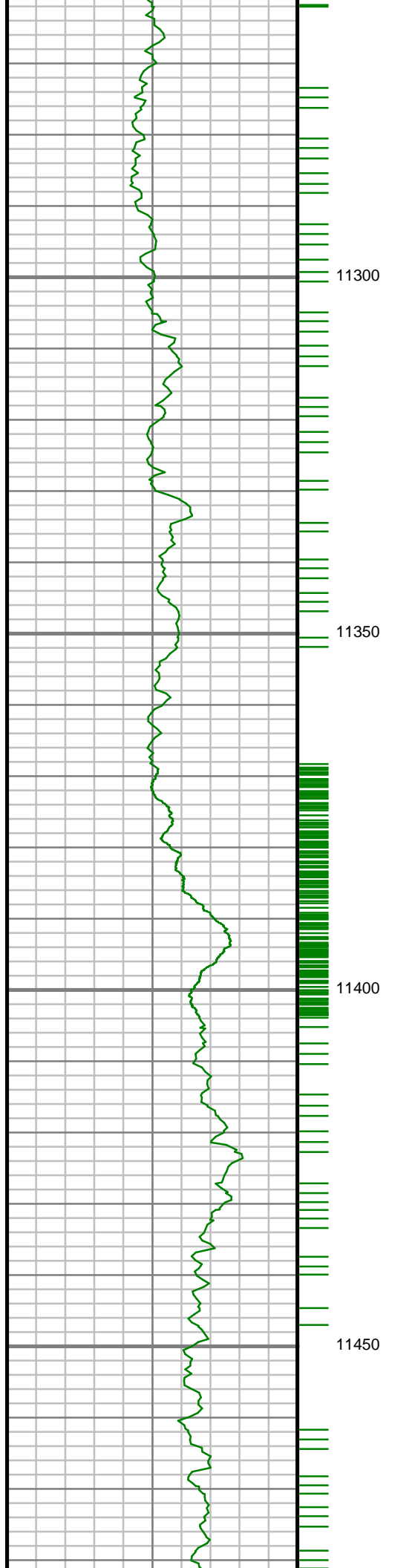
S: 101 MD: 10965.00 ft  
Inc: 90.20 deg Az: 1.35  
deg TVD: 7387.98 ft



S: 102 MD: 11059.00 ft  
Inc: 90.20 deg Az: 0.07  
deg TVD: 7387.65 ft

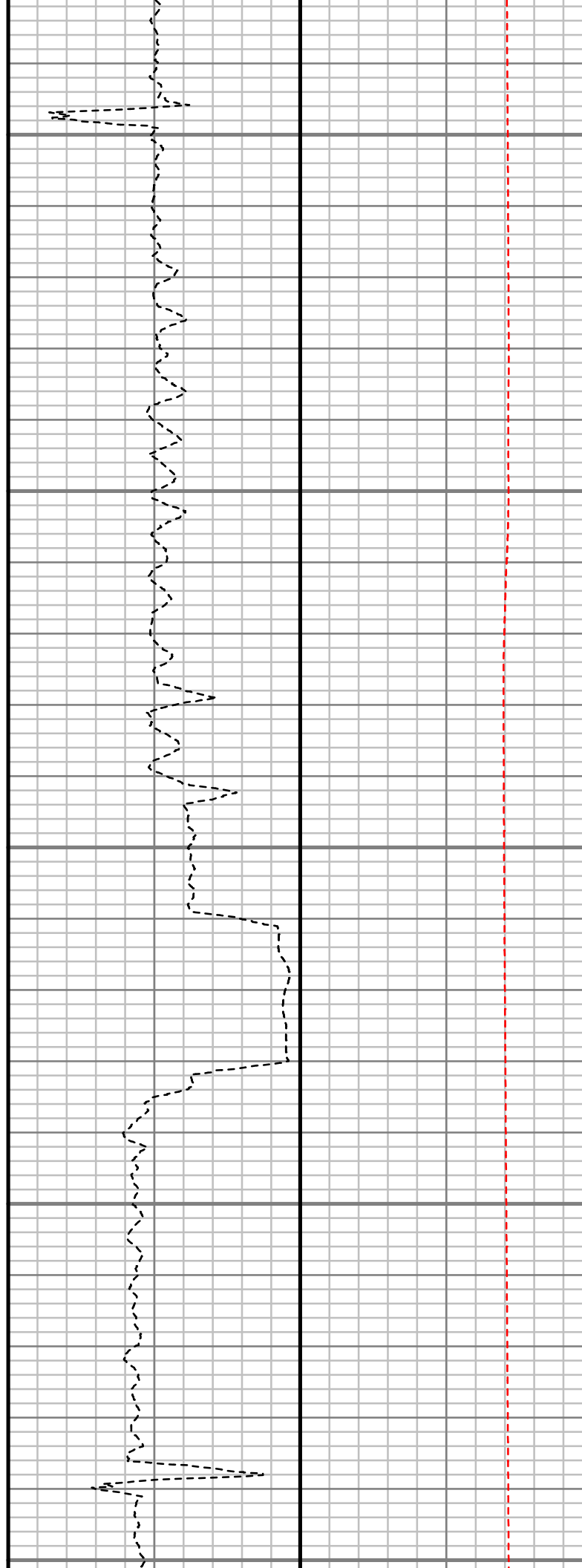
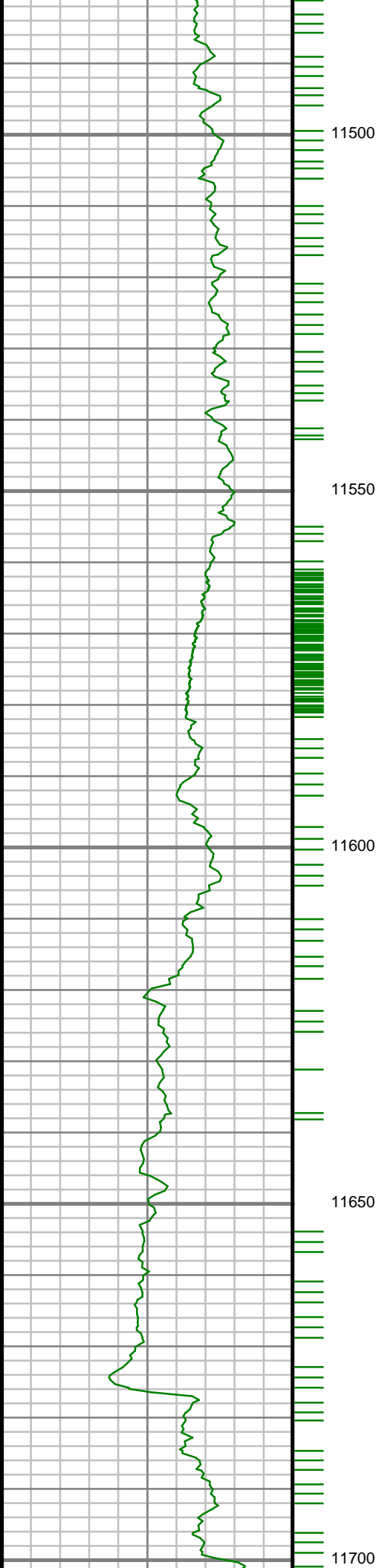
S: 103 MD: 11154.00 ft  
Inc: 89.97 deg Az: 0.13  
deg TVD: 7387.51 ft

S: 104 MD: 11248.00 ft  
Inc: 91.04 deg Az:  
359.82 deg TVD:  
7386.68 ft



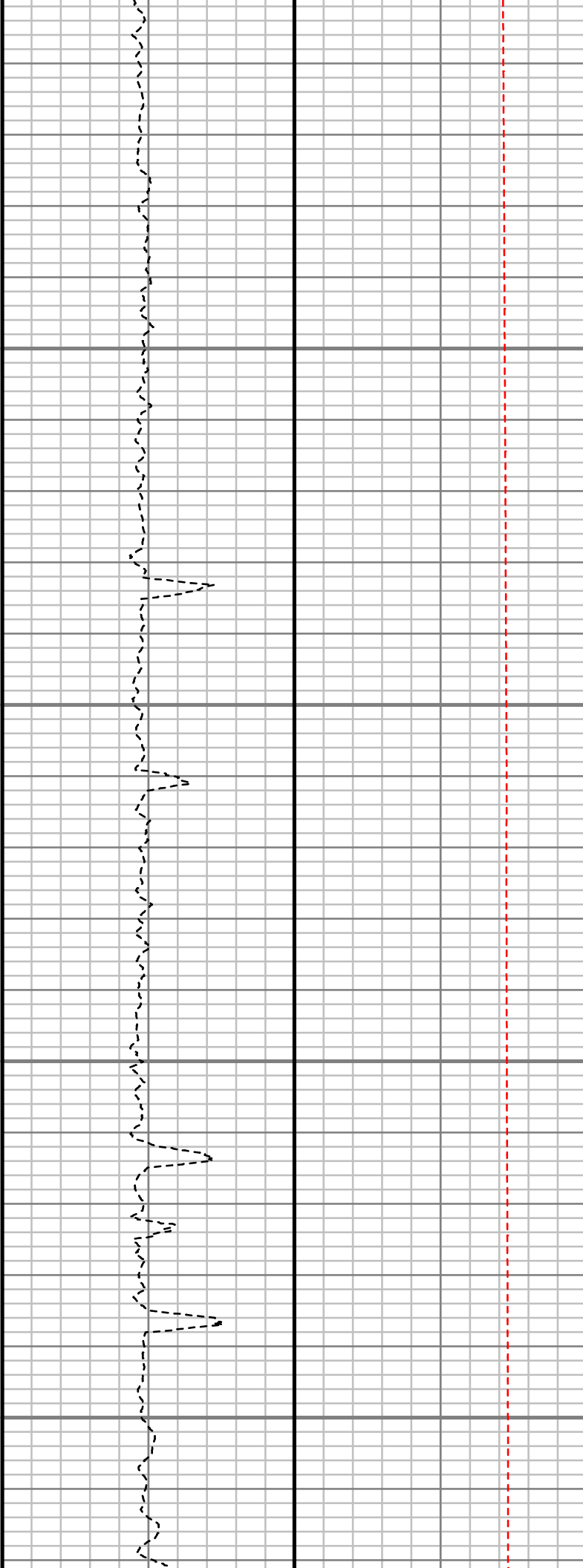
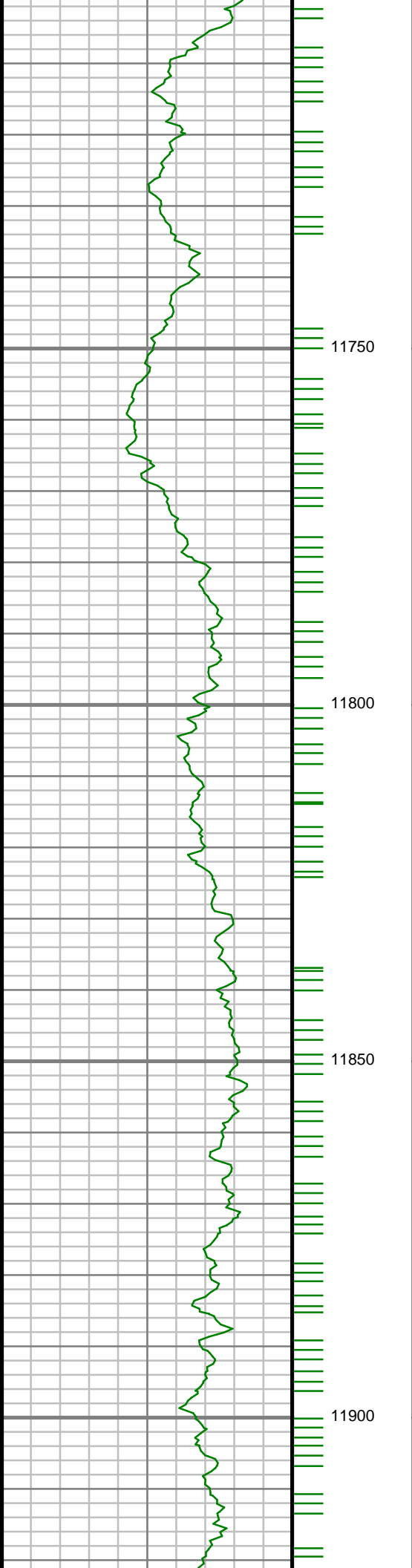
S: 105 MD: 11436.00 ft  
Inc: 90.97 deg Az:  
359.50 deg TVD:  
7383.38 ft





S: 106 MD: 11531.00 ft  
Inc: 90.27 deg Az: 0.09  
deg TVD: 7382.36 ft

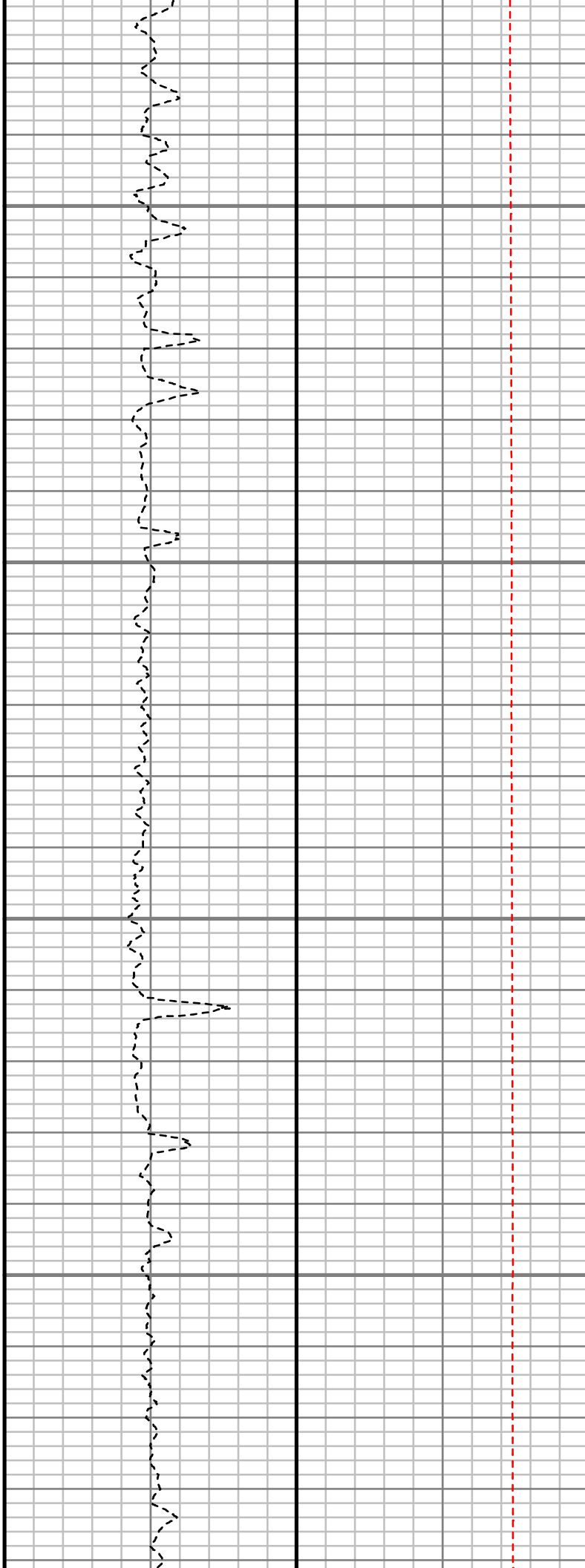
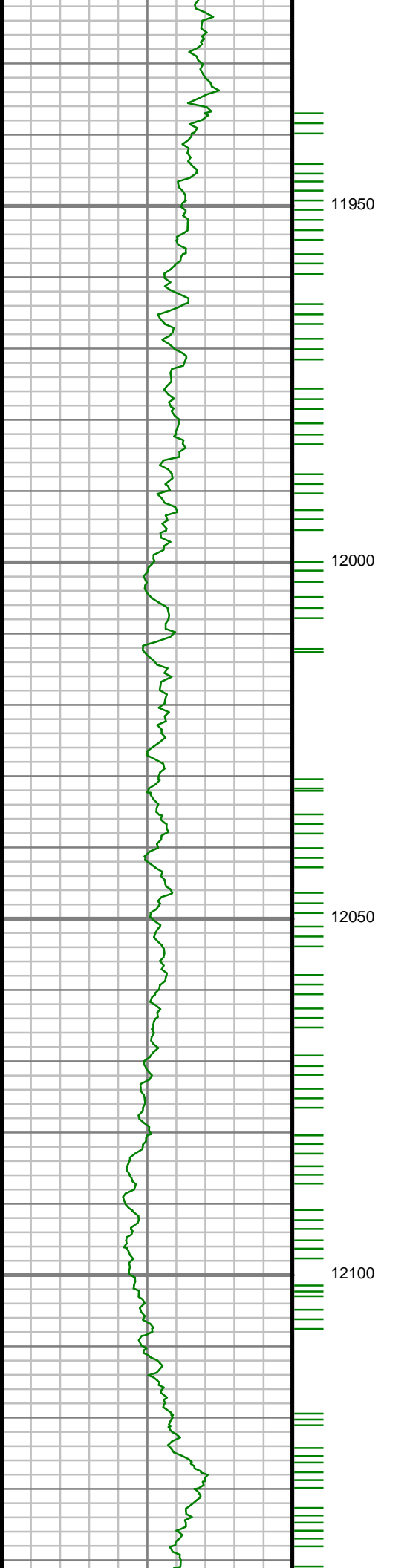
S: 107 MD: 11625.00 ft  
Inc: 88.96 deg Az:  
359.36 deg TVD:  
7382.99 ft



S: 108 MD: 11720.00 ft  
Inc: 88.56 deg Az:  
358.50 deg TVD:  
7385.05 ft

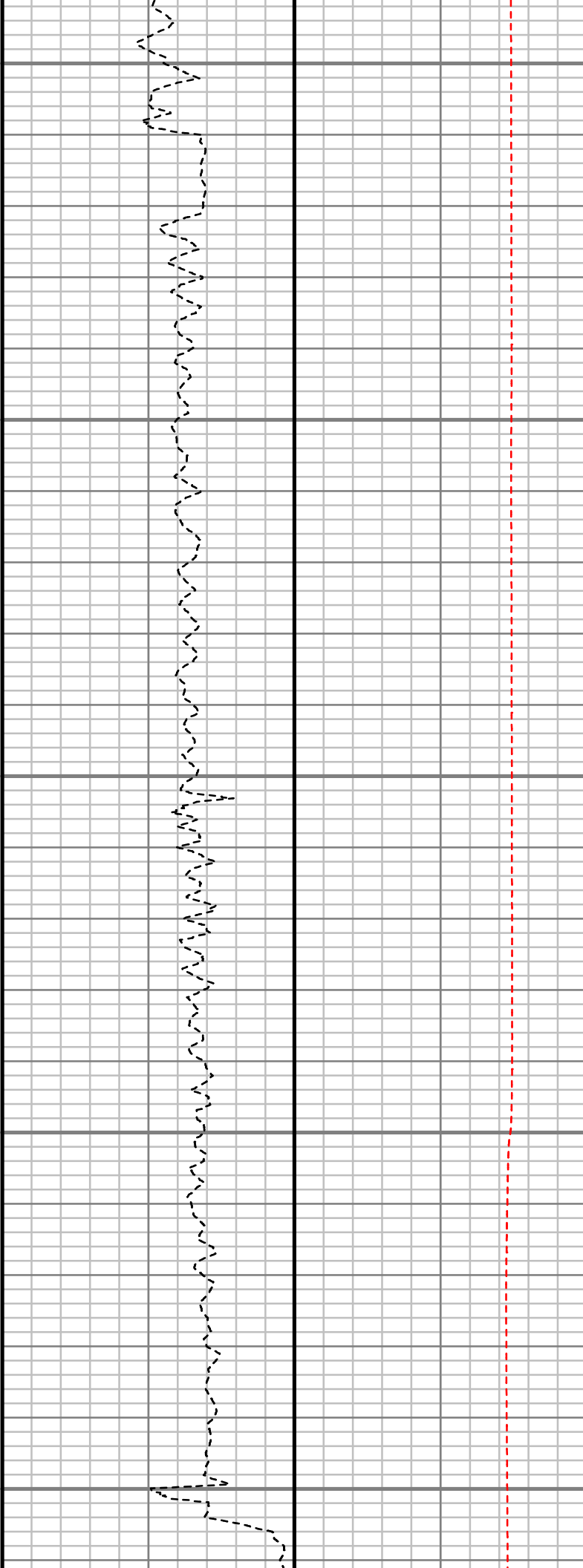
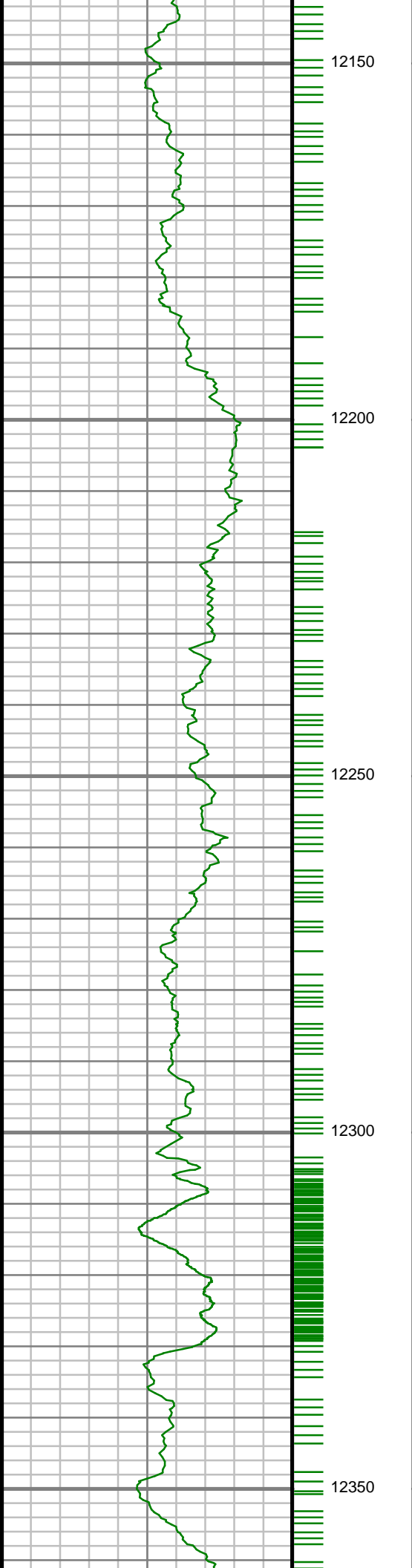
S: 109 MD: 11814.00 ft  
Inc: 88.86 deg Az:  
358.96 deg TVD:  
7387.17 ft

S: 110 MD: 11908.00 ft  
Inc: 88.93 deg Az:  
358.31 deg TVD:  
7388.99 ft



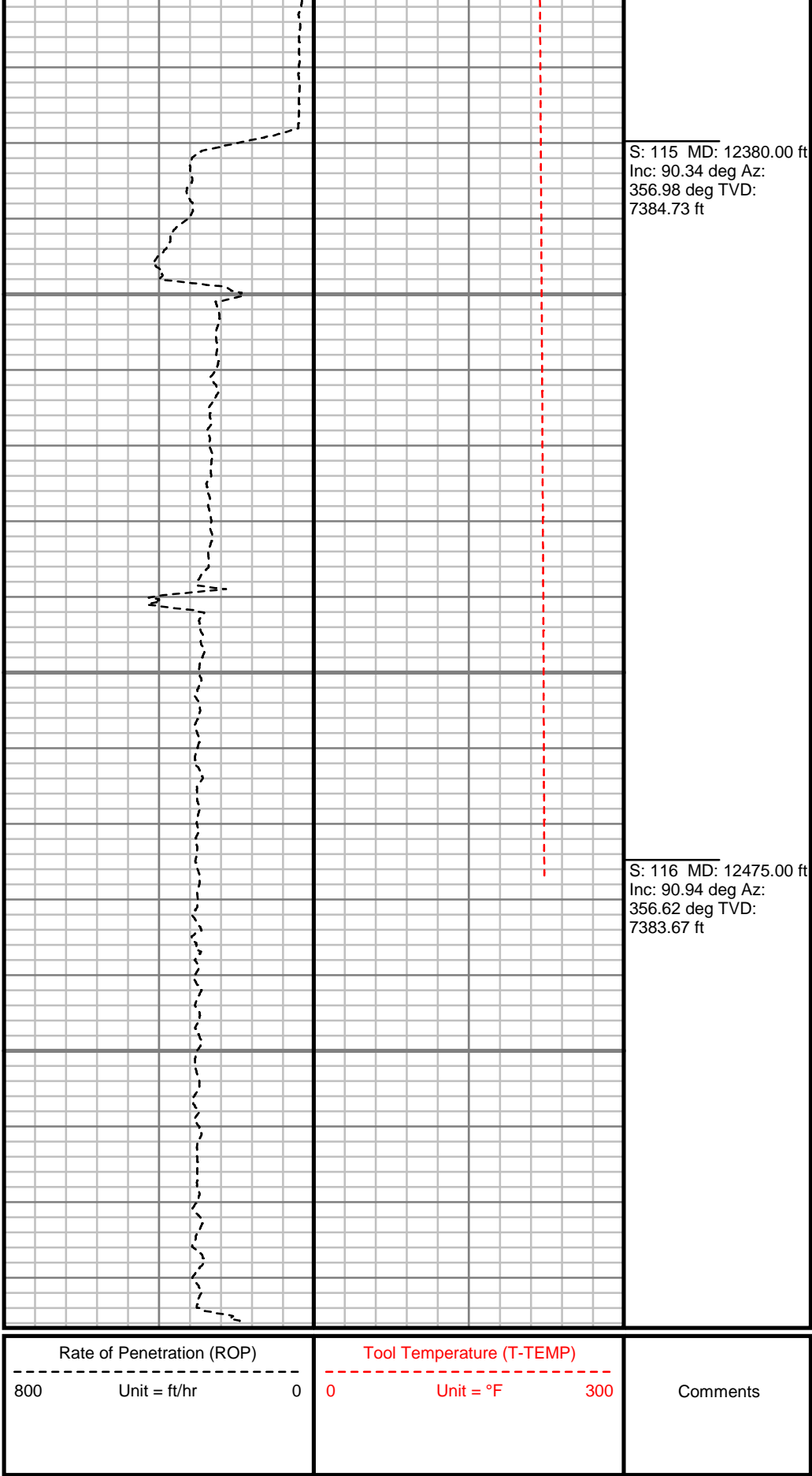
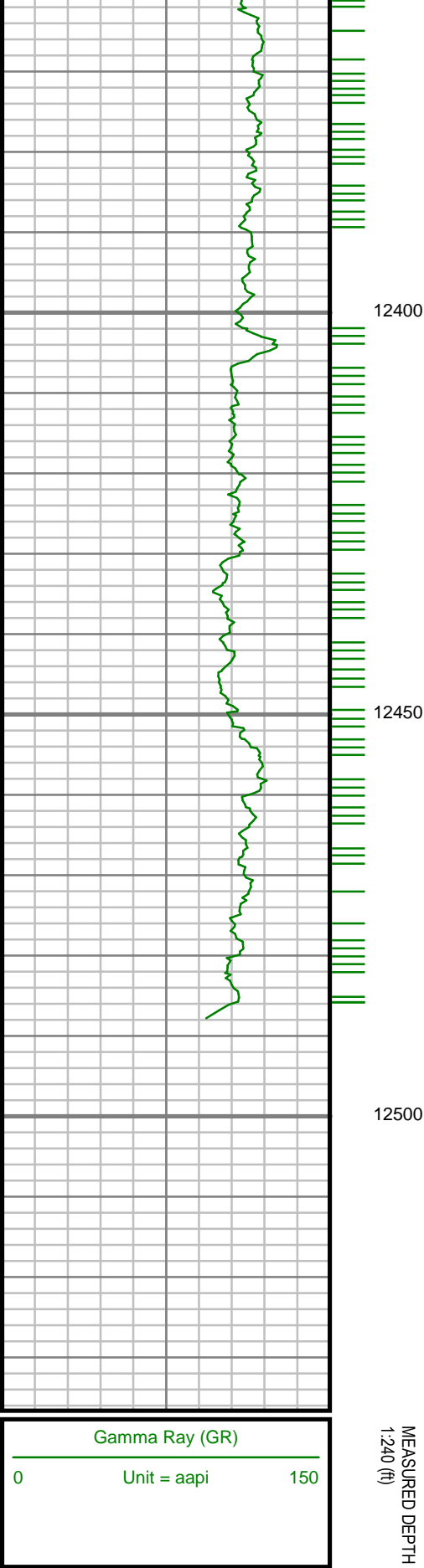
S: 111 MD: 12003.00 ft  
Inc: 89.60 deg Az:  
358.59 deg TVD:  
7390.22 ft

S: 112 MD: 12097.00 ft  
Inc: 90.34 deg Az:  
358.20 deg TVD:  
7390.27 ft



S: 113 MD: 12191.00 ft  
Inc: 91.11 deg Az:  
357.19 deg TVD:  
7389.09 ft

S: 114 MD: 12286.00 ft  
Inc: 91.92 deg Az:  
356.48 deg TVD:  
7386.57 ft



## MWD Survey Report

Well Location	SPOTTED 35-23HZ PAD
Well Name	SPOTTED 29N-23HZ
Survey Date	06/24/14
Latitude	40°7'1.754"N
Longitude	104°51'51.624"W
Btotal	52746, 52806 nT
Dip	66.77, 66.80 deg
Magnetic Declination	8.61, 8.64 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), 0.00Azim (deg)
Operator(s)	B. GREER, M. SHARKER

### Well Notes

SURVEYS FROM 0 FT. TO 1251 FT. WERE ACQUIRED BY MS GYRO MWD.

SURVEYS FROM 1251 FT. TO 12475 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	0.77	148.76	125.00	-0.57	-0.57	0.35	0.77	100.00
225.00	0.87	141.53	224.99	-1.74	-1.74	1.17	0.14	100.00
325.00	0.80	145.29	324.98	-2.91	-2.91	2.04	0.09	100.00
425.00	0.88	131.11	424.97	-3.99	-3.99	3.02	0.22	100.00
525.00	0.49	125.44	524.96	-4.74	-4.74	3.94	0.40	100.00
625.00	0.43	116.76	624.95	-5.16	-5.16	4.63	0.09	100.00
725.00	0.35	112.21	724.95	-5.44	-5.44	5.24	0.09	100.00
825.00	0.29	78.37	824.95	-5.51	-5.51	5.77	0.19	100.00
925.00	0.18	27.05	924.95	-5.32	-5.32	6.09	0.23	100.00
1025.00	0.29	305.25	1024.95	-5.03	-5.03	5.96	0.32	100.00
1125.00	0.36	341.40	1124.95	-4.59	-4.59	5.65	0.21	100.00
1225.00	0.60	267.56	1224.95	-4.31	-4.31	5.03	0.61	100.00
1465.00	0.95	324.81	1464.93	-2.75	-2.75	2.63	0.33	240.00
1573.00	1.69	126.44	1572.91	-2.96	-2.96	3.40	2.41	108.00
1753.00	4.44	137.37	1752.64	-9.67	-9.67	10.25	1.56	180.00
1844.00	6.30	147.20	1843.24	-16.46	-16.46	15.35	2.27	91.00
1936.00	8.16	143.50	1934.50	-25.96	-25.96	21.97	2.09	92.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
2027.00	11.09	147.70	2024.21	-38.55	-38.55	30.49	3.30	91.00
2119.00	11.64	139.63	2114.41	-53.10	-53.10	41.23	1.83	92.00
2210.00	12.78	138.20	2203.35	-67.60	-67.60	53.88	1.29	91.00
2302.00	12.32	142.05	2293.16	-82.92	-82.92	66.70	1.04	92.00
2484.00	14.50	144.10	2470.19	-116.69	-116.69	92.00	1.23	182.00
2576.00	15.47	148.53	2559.06	-136.49	-136.49	105.16	1.63	92.00
2667.00	15.01	147.69	2646.86	-156.79	-156.79	117.79	0.56	91.00
2759.00	15.57	151.43	2735.61	-177.71	-177.71	130.06	1.23	92.00
2850.00	15.58	159.11	2823.28	-199.85	-199.85	140.26	2.26	91.00
2941.00	17.39	157.83	2910.53	-223.87	-223.87	149.75	2.03	91.00
3033.00	16.35	155.65	2998.57	-248.40	-248.40	160.28	1.32	92.00
3124.00	16.77	157.29	3085.80	-272.17	-272.17	170.63	0.69	91.00
3216.00	16.69	151.27	3173.91	-296.00	-296.00	182.10	1.89	92.00
3307.00	14.09	150.86	3261.64	-317.15	-317.15	193.78	2.86	91.00
3496.00	9.10	143.49	3446.73	-349.28	-349.28	213.90	2.75	189.00
3590.00	7.02	151.94	3539.80	-360.33	-360.33	221.02	2.55	94.00
3779.00	5.73	157.69	3727.63	-379.24	-379.24	230.03	0.76	189.00
3873.00	3.46	167.07	3821.32	-386.35	-386.35	232.45	2.53	94.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
3967.00	2.15	136.50	3915.21	-390.40	-390.40	234.30	2.07	94.00
4250.00	2.59	156.40	4197.98	-400.10	-400.10	240.51	0.33	283.00
4344.00	3.22	149.89	4291.86	-404.33	-404.33	242.68	0.76	94.00
4439.00	2.42	139.01	4386.74	-408.15	-408.15	245.34	1.01	95.00
4627.00	2.28	108.65	4574.59	-412.33	-412.33	251.48	0.66	188.00
4721.00	2.21	130.03	4668.52	-414.10	-414.10	254.63	0.89	94.00
4816.00	1.26	156.36	4763.48	-416.23	-416.23	256.45	1.27	95.00
4910.00	0.68	131.69	4857.46	-417.55	-417.55	257.28	0.75	94.00
5004.00	0.46	59.24	4951.46	-417.73	-417.73	258.02	0.74	94.00
5288.00	0.88	354.34	5235.44	-414.99	-414.99	258.78	0.28	284.00
5382.00	0.69	293.80	5329.44	-414.05	-414.05	258.19	0.86	94.00
5476.00	0.27	21.28	5423.43	-413.61	-413.61	257.75	0.78	94.00
5571.00	1.18	313.78	5518.42	-412.73	-412.73	257.13	1.16	95.00
5665.00	1.20	311.34	5612.40	-411.41	-411.41	255.69	0.06	94.00
5853.00	1.12	196.65	5800.38	-411.87	-411.87	253.69	1.04	188.00
5948.00	1.92	196.47	5895.35	-414.28	-414.28	252.97	0.84	95.00
6042.00	1.02	252.09	5989.32	-416.05	-416.05	251.73	1.68	94.00
6136.00	0.78	262.02	6083.31	-416.39	-416.39	250.30	0.31	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
6231.00	0.59	37.30	6178.31	-416.09	-416.09	249.96	1.34	95.00
6325.00	0.80	319.60	6272.30	-415.21	-415.21	249.83	0.94	94.00
6419.00	0.44	56.06	6366.30	-414.51	-414.51	249.70	1.01	94.00
6514.00	0.30	284.66	6461.30	-414.24	-414.24	249.76	0.71	95.00
6608.00	0.70	310.25	6555.29	-413.81	-413.81	249.08	0.48	94.00
6702.00	0.94	0.87	6649.29	-412.66	-412.66	248.65	0.78	94.00
6796.00	4.86	341.87	6743.15	-408.10	-408.10	247.42	4.24	94.00
6843.00	7.60	338.57	6789.87	-403.31	-403.31	245.67	5.87	47.00
6891.00	10.27	348.54	6837.28	-396.16	-396.16	243.66	6.42	48.00
6985.00	18.73	348.33	6928.20	-373.12	-373.12	238.93	9.00	94.00
7079.00	25.19	345.41	7015.34	-338.94	-338.94	230.82	6.97	94.00
7173.00	34.26	341.88	7096.88	-294.33	-294.33	217.53	9.82	94.00
7268.00	44.17	345.15	7170.40	-236.77	-236.77	200.68	10.65	95.00
7362.00	52.46	355.04	7232.94	-167.77	-167.77	189.03	11.79	94.00
7409.00	55.39	0.16	7260.63	-129.84	-129.84	187.47	10.80	47.00
7457.00	61.53	1.86	7285.72	-88.96	-88.96	188.21	13.13	48.00
7504.00	64.31	2.57	7307.12	-47.15	-47.15	189.83	6.07	47.00
7551.00	66.30	2.25	7326.76	-4.49	-4.49	191.62	4.28	47.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
7598.00	69.74	2.23	7344.35	39.06	39.06	193.33	7.32	47.00
7645.00	74.29	2.49	7358.86	83.71	83.71	195.17	9.70	47.00
7692.00	76.92	2.53	7370.55	129.19	129.19	197.16	5.59	47.00
7739.00	82.54	1.81	7378.92	175.38	175.38	198.91	12.07	47.00
7920.00	88.76	359.82	7392.65	355.74	355.74	201.46	3.60	181.00
8041.00	89.43	1.01	7394.56	476.72	476.72	202.33	1.13	121.00
8135.00	90.17	0.97	7394.90	570.71	570.71	203.95	0.79	94.00
8230.00	91.74	0.62	7393.31	665.68	665.68	205.27	1.70	95.00
8513.00	91.65	2.55	7384.94	948.44	948.44	213.08	0.68	283.00
8702.00	90.98	2.38	7380.61	1137.21	1137.21	221.20	0.37	189.00
8796.00	89.60	1.54	7380.14	1231.15	1231.15	224.41	1.72	94.00
8984.00	89.06	1.88	7382.35	1419.05	1419.05	230.03	0.34	188.00
9078.00	89.49	1.17	7383.54	1513.01	1513.01	232.53	0.89	94.00
9173.00	90.61	1.08	7383.45	1607.99	1607.99	234.40	1.17	95.00
9267.00	90.10	1.48	7382.88	1701.97	1701.97	236.50	0.69	94.00
9361.00	89.70	359.88	7383.04	1795.96	1795.96	237.61	1.76	94.00
9456.00	89.97	359.84	7383.32	1890.96	1890.96	237.38	0.29	95.00
9550.00	90.50	359.55	7382.93	1984.95	1984.95	236.88	0.65	94.00



MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
9738.00	90.20	359.74	7381.77	2172.95	2172.95	235.71	0.19	188.00
9833.00	89.83	359.70	7381.75	2267.94	2267.94	235.24	0.39	95.00
9927.00	89.97	0.82	7381.91	2361.94	2361.94	235.66	1.20	94.00
10021.00	89.73	0.80	7382.16	2455.93	2455.93	236.99	0.25	94.00
10305.00	90.50	3.64	7381.58	2739.69	2739.69	247.99	1.04	284.00
10399.00	90.37	3.60	7380.86	2833.50	2833.50	253.93	0.15	94.00
10493.00	89.02	4.18	7381.36	2927.28	2927.28	260.31	1.56	94.00
10587.00	88.01	3.94	7383.78	3021.01	3021.01	266.95	1.10	94.00
10682.00	89.06	3.87	7386.21	3115.76	3115.76	273.42	1.10	95.00
10776.00	89.46	3.56	7387.42	3209.55	3209.55	279.52	0.54	94.00
10965.00	90.20	1.35	7387.98	3398.36	3398.36	287.61	1.23	189.00
11059.00	90.20	0.07	7387.65	3492.35	3492.35	288.78	1.37	94.00
11154.00	89.97	0.13	7387.51	3587.35	3587.35	288.94	0.26	95.00
11248.00	91.04	359.82	7386.68	3681.35	3681.35	288.90	1.19	94.00
11436.00	90.97	359.50	7383.38	3869.31	3869.31	287.79	0.17	188.00
11531.00	90.27	0.09	7382.36	3964.31	3964.31	287.46	0.97	95.00
11625.00	88.96	359.36	7382.99	4058.30	4058.30	287.01	1.60	94.00
11720.00	88.56	358.50	7385.05	4153.26	4153.26	285.24	1.00	95.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
11814.00	88.86	358.96	7387.17	4247.21	4247.21	283.16	0.59	94.00
11908.00	88.93	358.31	7388.99	4341.17	4341.17	280.92	0.70	94.00
12003.00	89.60	358.59	7390.22	4436.13	4436.13	278.35	0.76	95.00
12097.00	90.34	358.20	7390.27	4530.09	4530.09	275.71	0.89	94.00
12191.00	91.11	357.19	7389.09	4624.00	4624.00	271.93	1.35	94.00
12286.00	91.92	356.48	7386.57	4718.82	4718.82	266.69	1.14	95.00
12380.00	90.34	356.98	7384.73	4812.65	4812.65	261.32	1.77	94.00
12475.00	90.94	356.62	7383.67	4907.49	4907.49	256.02	0.74	95.00

5" = 100' FEET MD