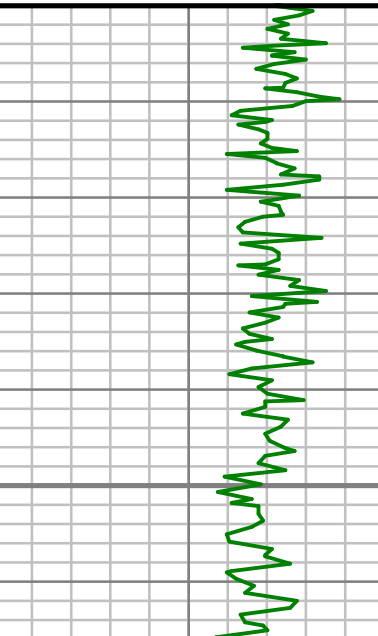


[illegible]

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

ANADARKO E&P ONSHORE LLC
LAND FED 34N-32HZ
WATTENBURG FIELD
WELD COUNTY, COLORADO
05123423960000

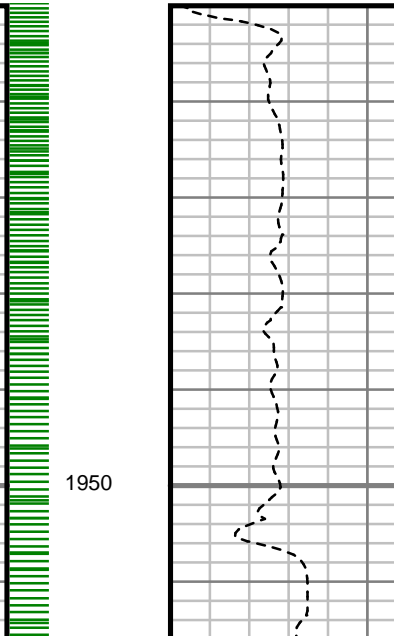
Gamma Ray (GR)
0Unit = aapi150




MEASURED DEPTH
1:240 (ft)

1950

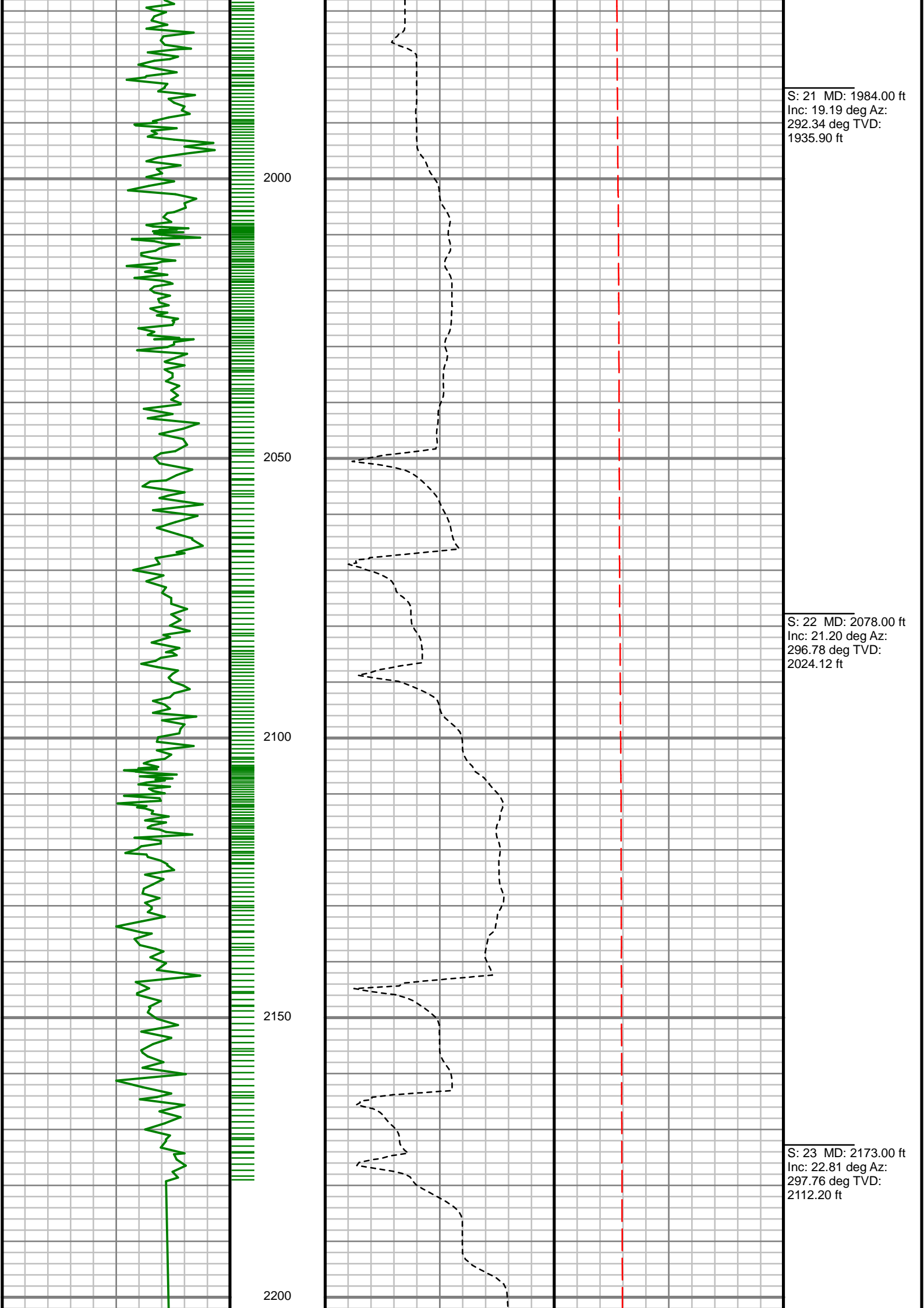
Rate of Penetration (ROP)
0Unit = ft/hr1000

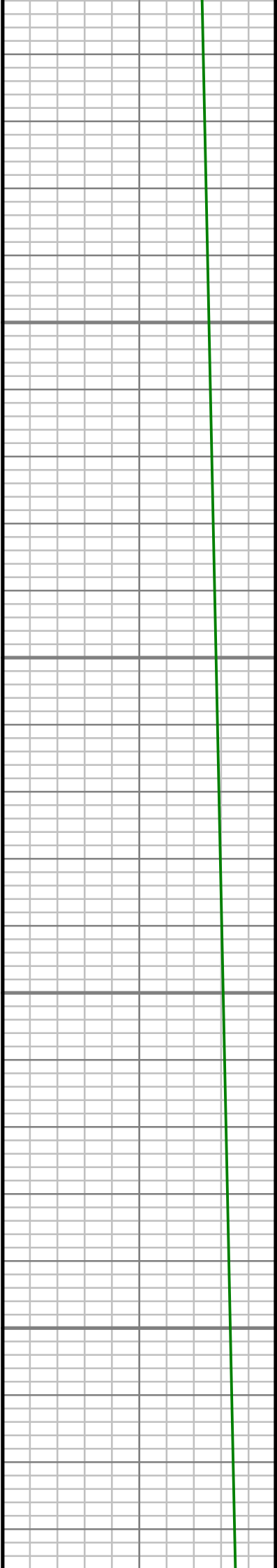


Tool Temperature (TEMP)
0Unit = °F300



Comments





2250

2300

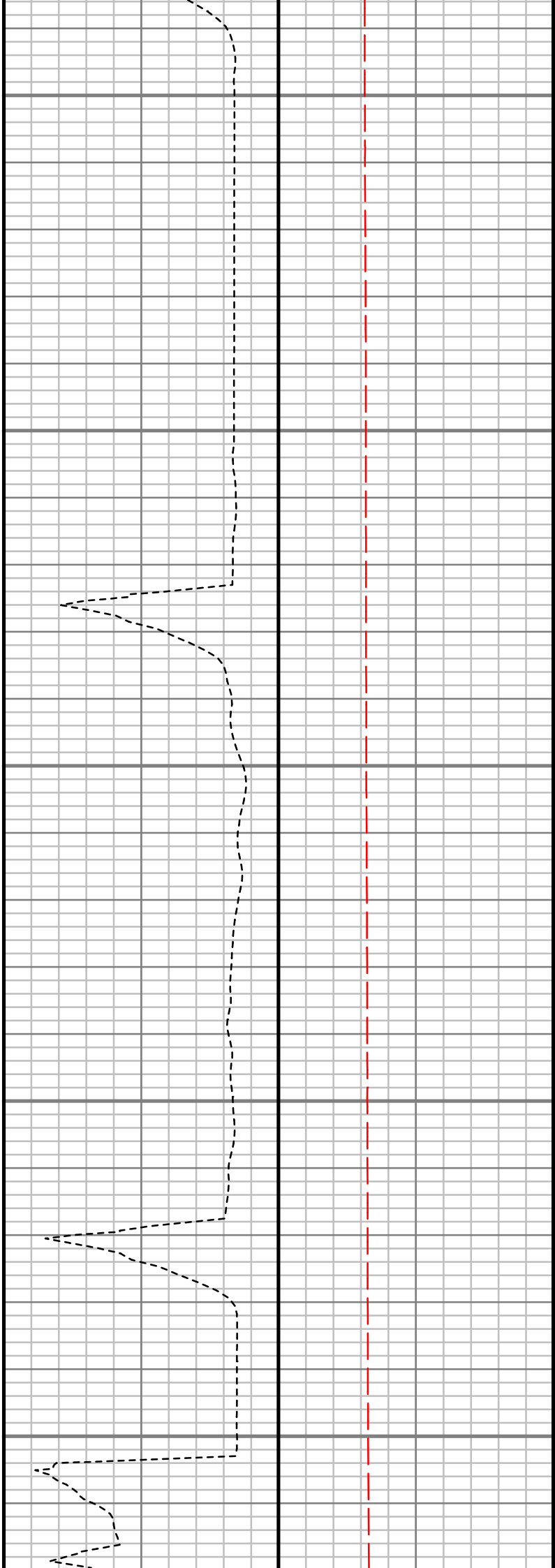
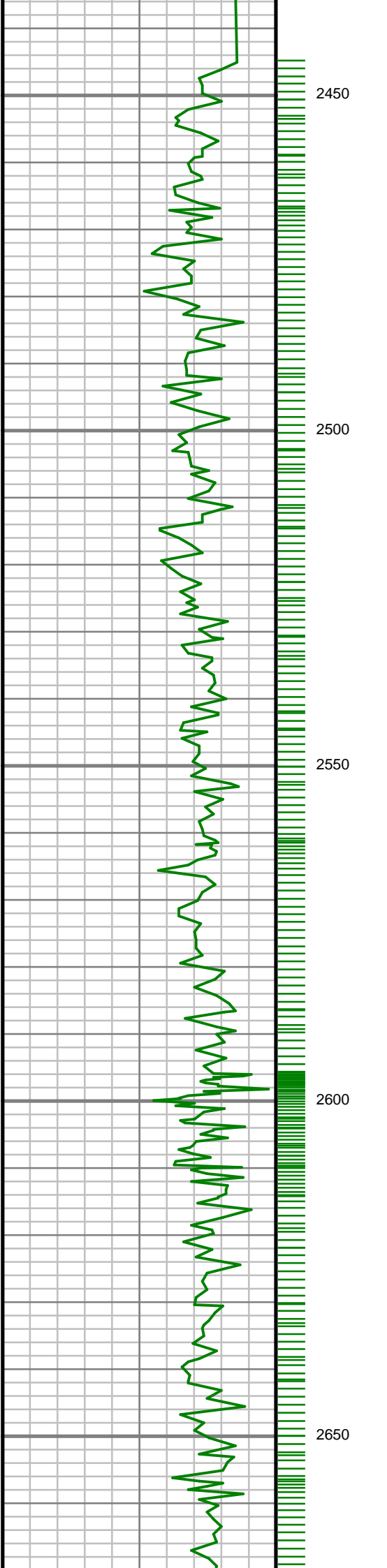
2350

2400



S: 24 MD: 2268.00 ft
Inc: 23.30 deg Az:
296.20 deg TVD:
2199.61 ft

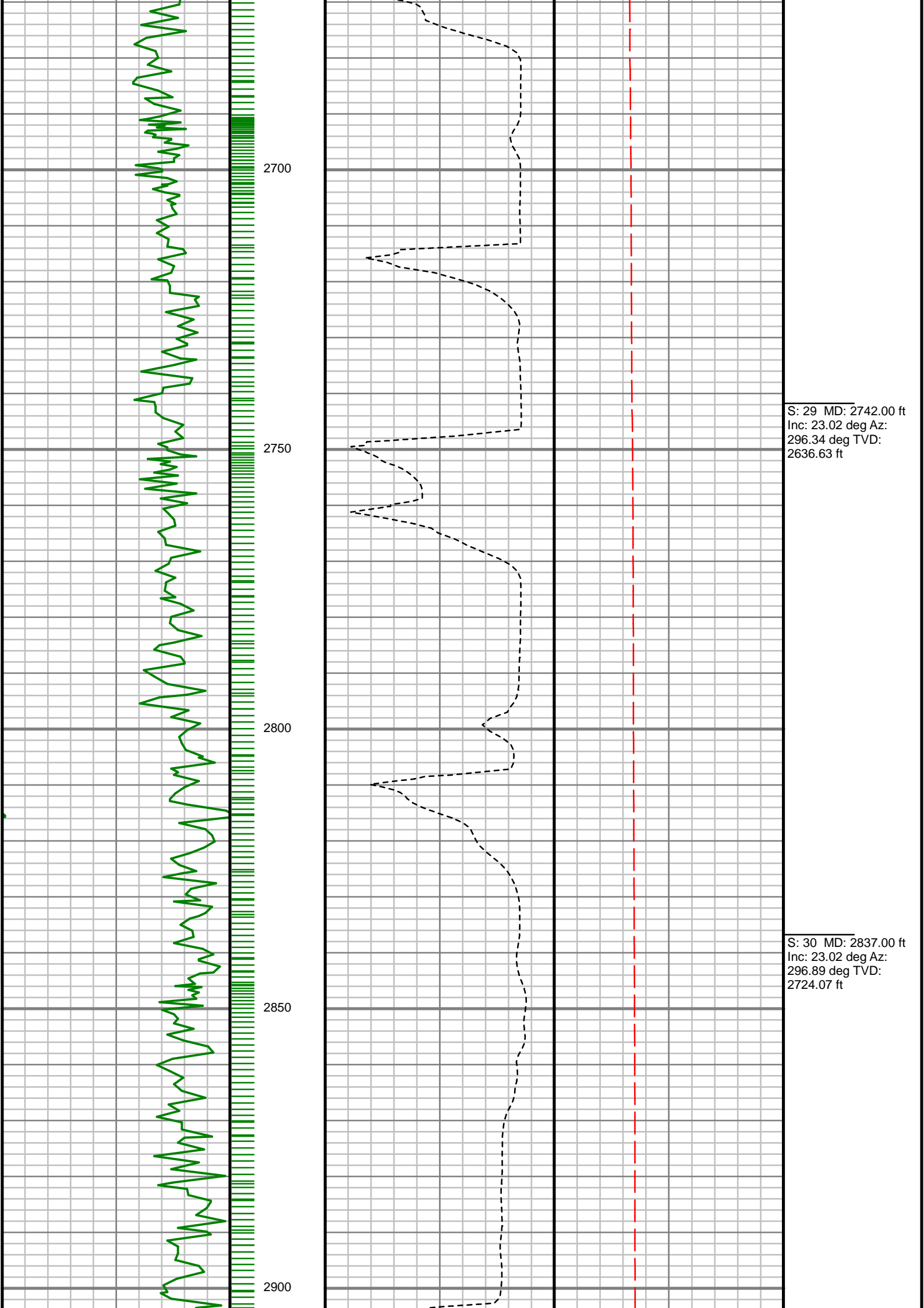
S: 25 MD: 2363.00 ft
Inc: 23.22 deg Az:
294.94 deg TVD:
2286.89 ft

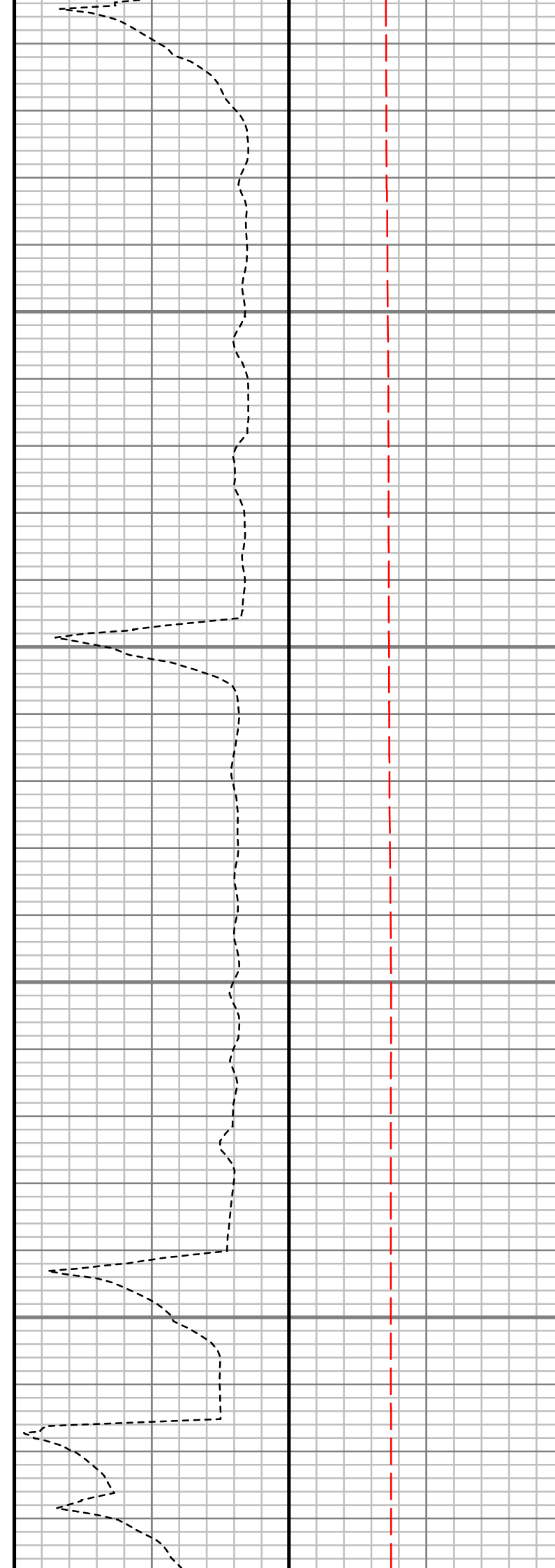
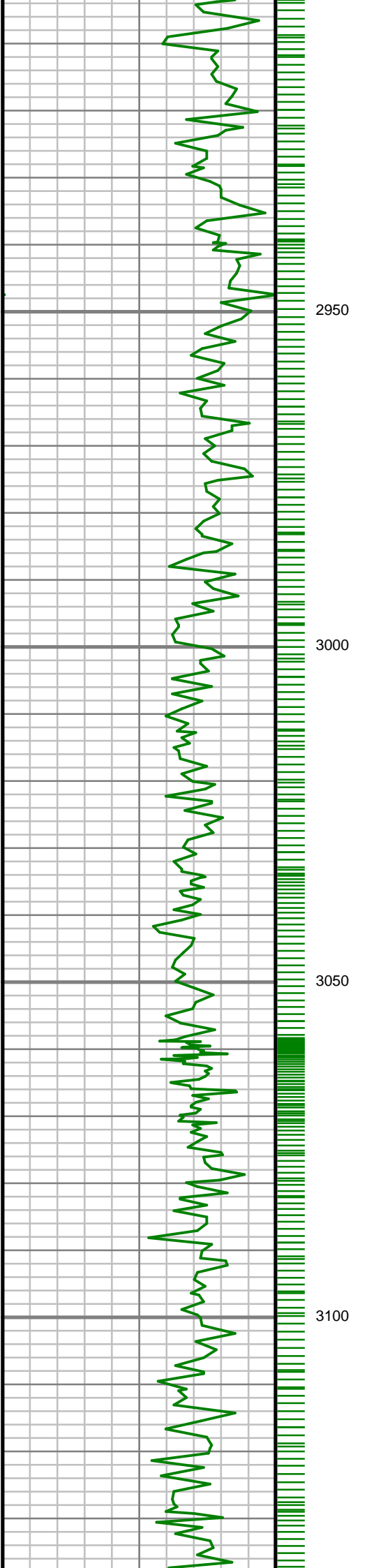


S: 26 MD: 2459.00 ft
Inc: 22.74 deg Az:
293.72 deg TVD:
2375.27 ft

S: 27 MD: 2553.00 ft
Inc: 22.41 deg Az:
291.59 deg TVD:
2462.07 ft

S: 28 MD: 2648.00 ft
Inc: 22.36 deg Az:
292.76 deg TVD:
2549.91 ft

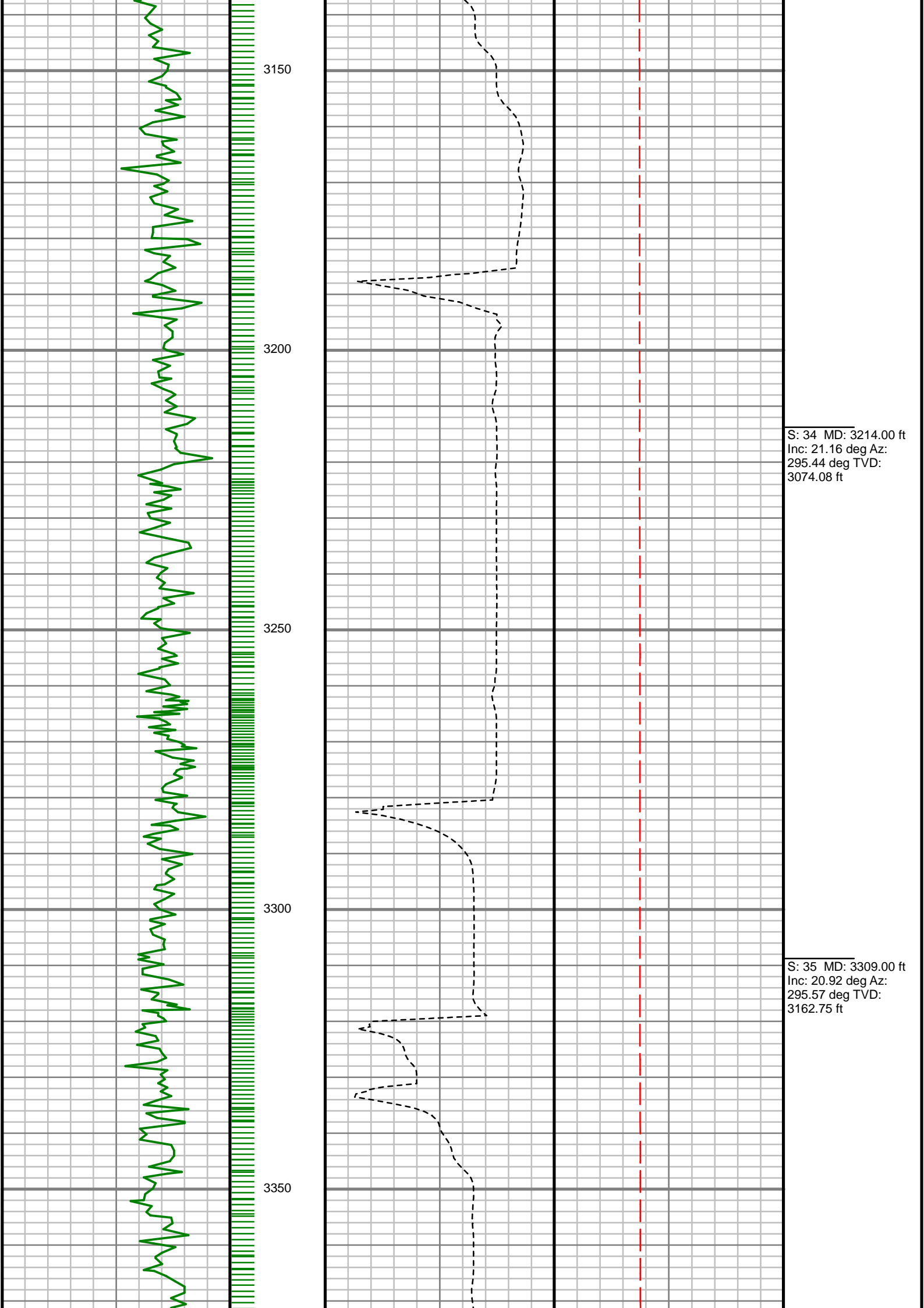


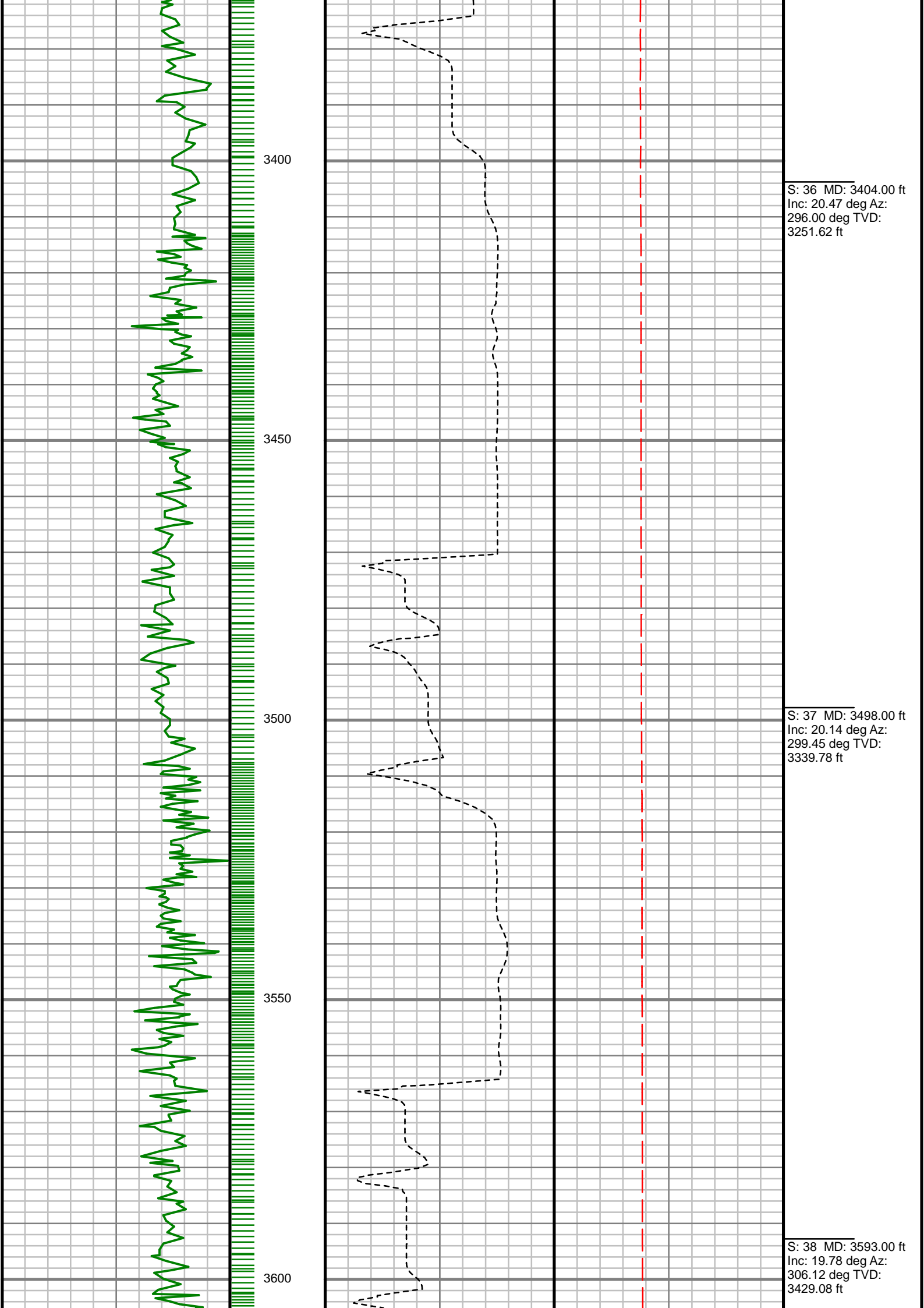


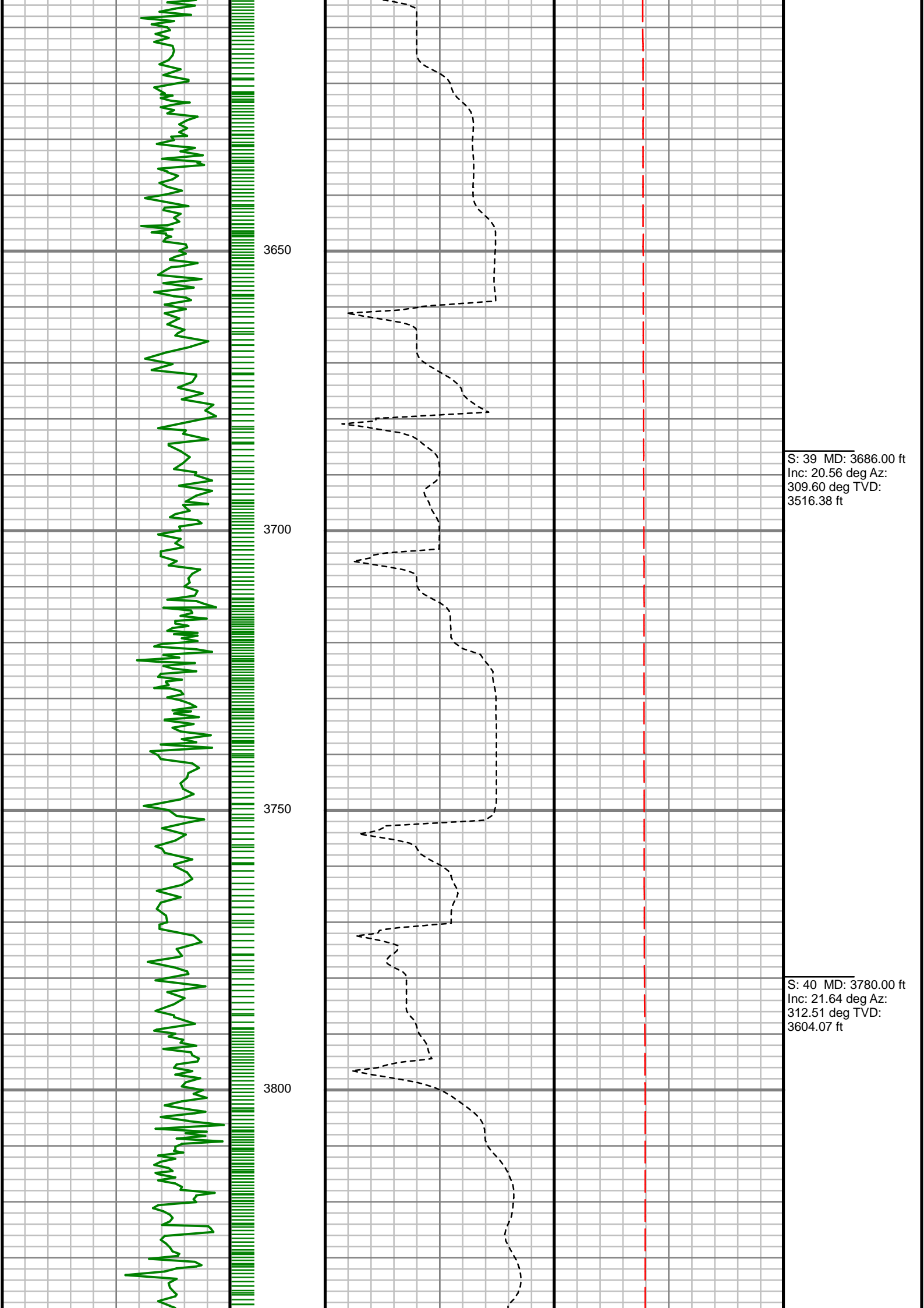
S: 31 MD: 2931.00 ft
Inc: 22.26 deg Az:
296.14 deg TVD:
2810.82 ft

S: 32 MD: 3025.00 ft
Inc: 21.68 deg Az:
295.19 deg TVD:
2898.00 ft

S: 33 MD: 3120.00 ft
Inc: 21.18 deg Az:
295.89 deg TVD:
2986.43 ft

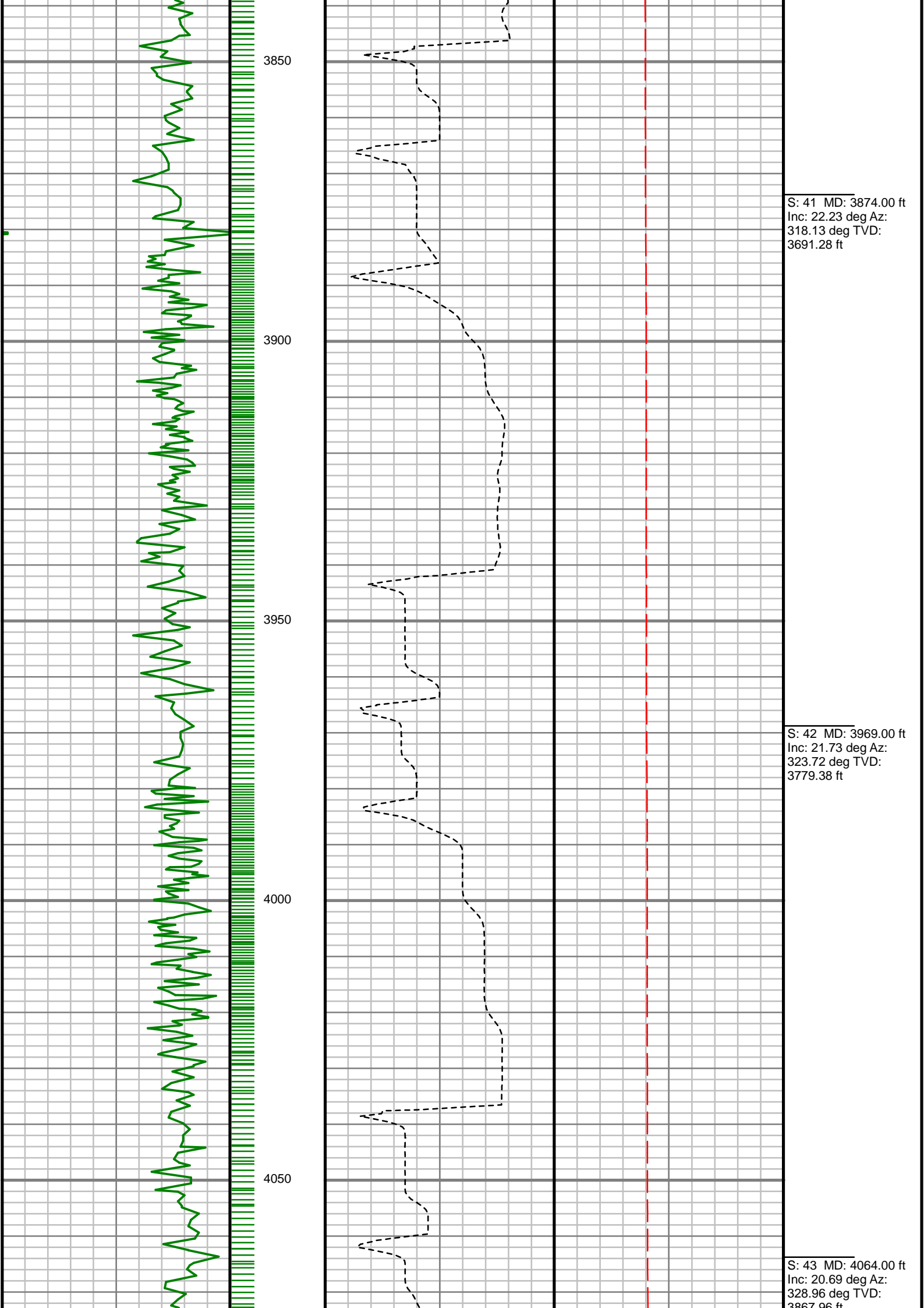


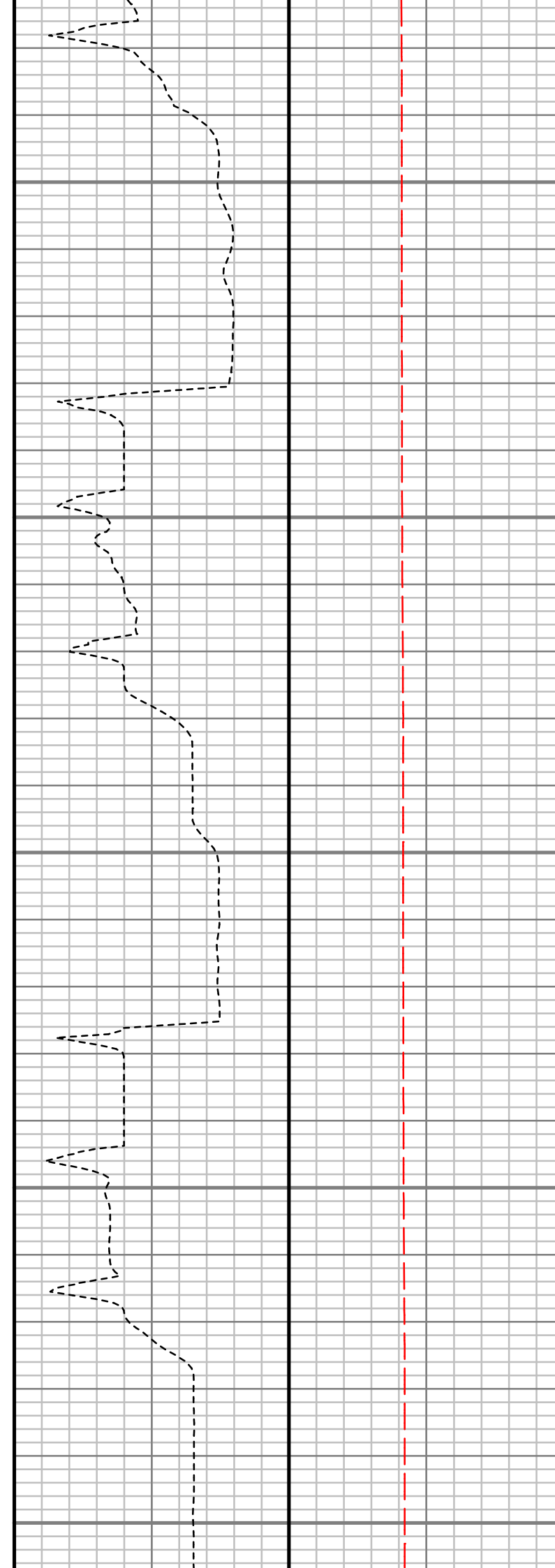
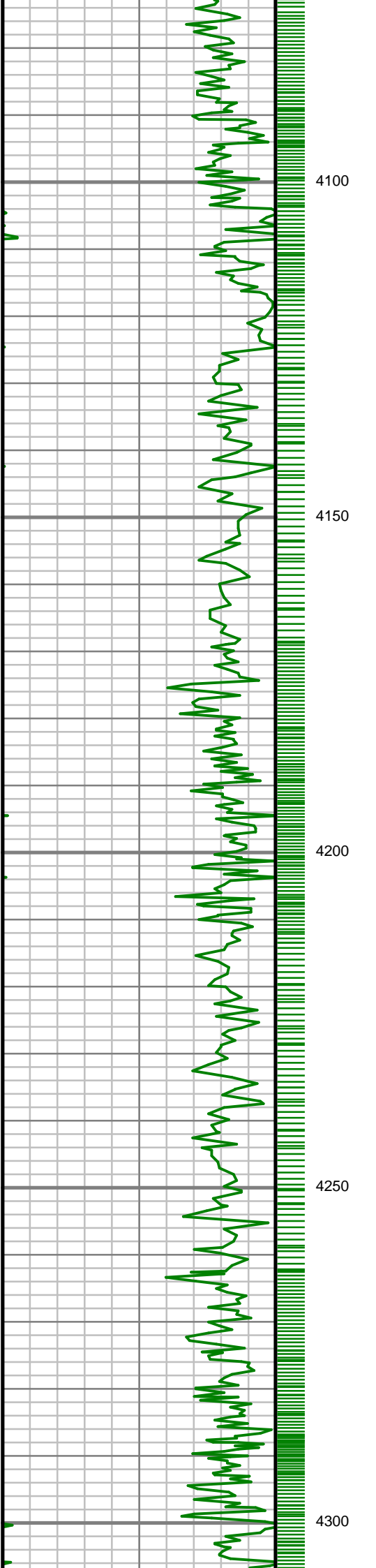




S: 39 MD: 3686.00 ft
Inc: 20.56 deg Az:
309.60 deg TVD:
3516.38 ft

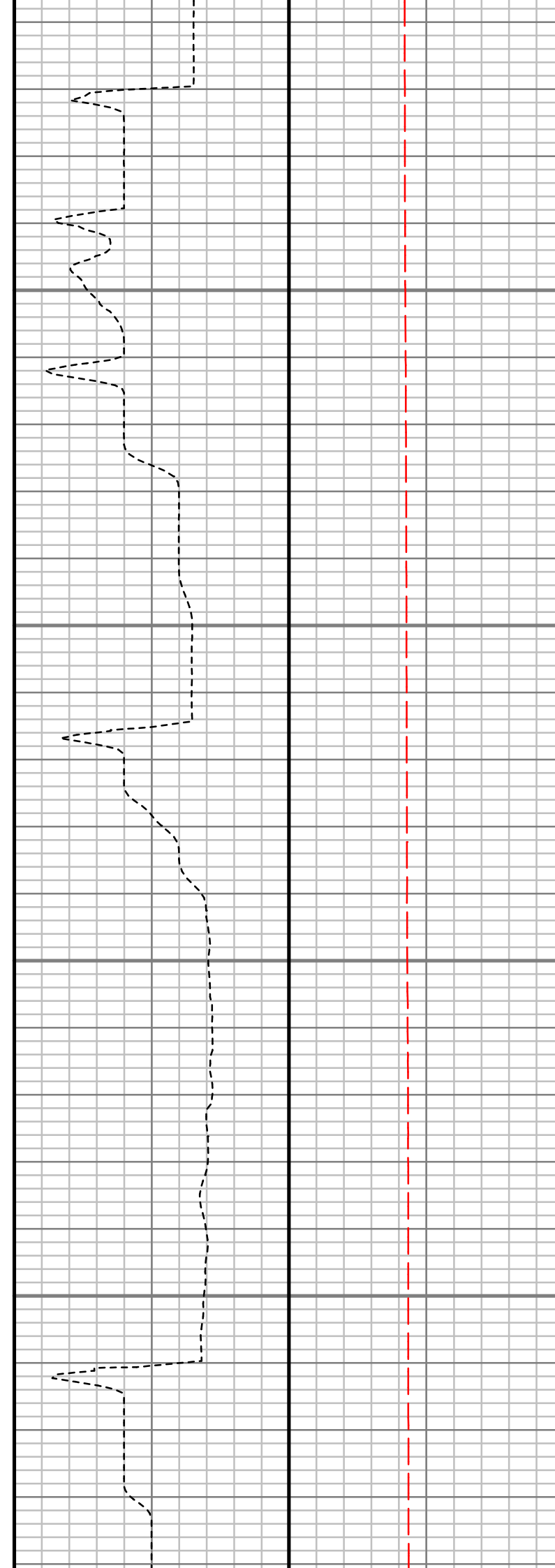
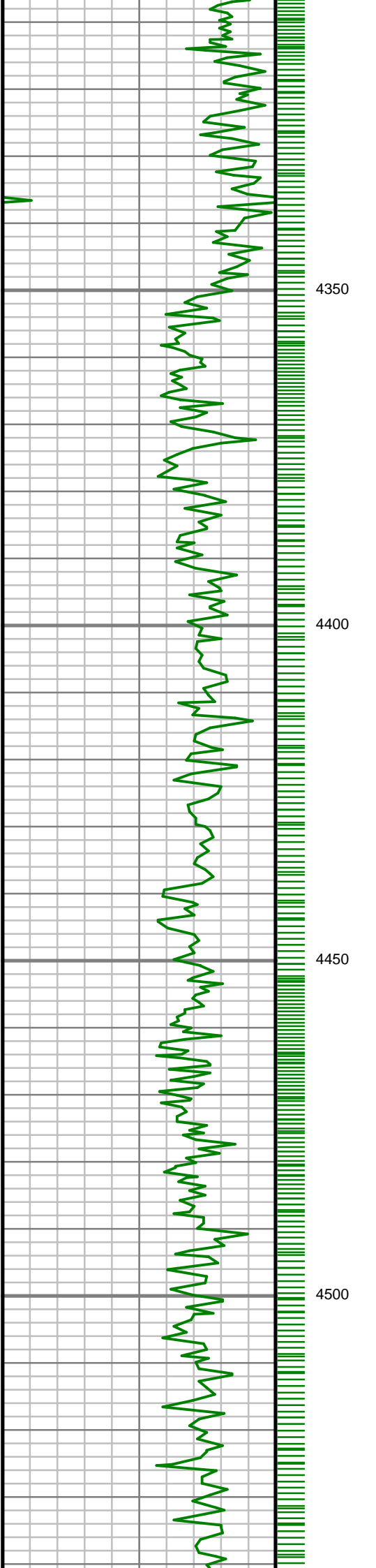
S: 40 MD: 3780.00 ft
Inc: 21.64 deg Az:
312.51 deg TVD:
3604.07 ft





S: 44 MD: 4158.00 ft
Inc: 20.17 deg Az:
334.92 deg TVD:
3956.05 ft

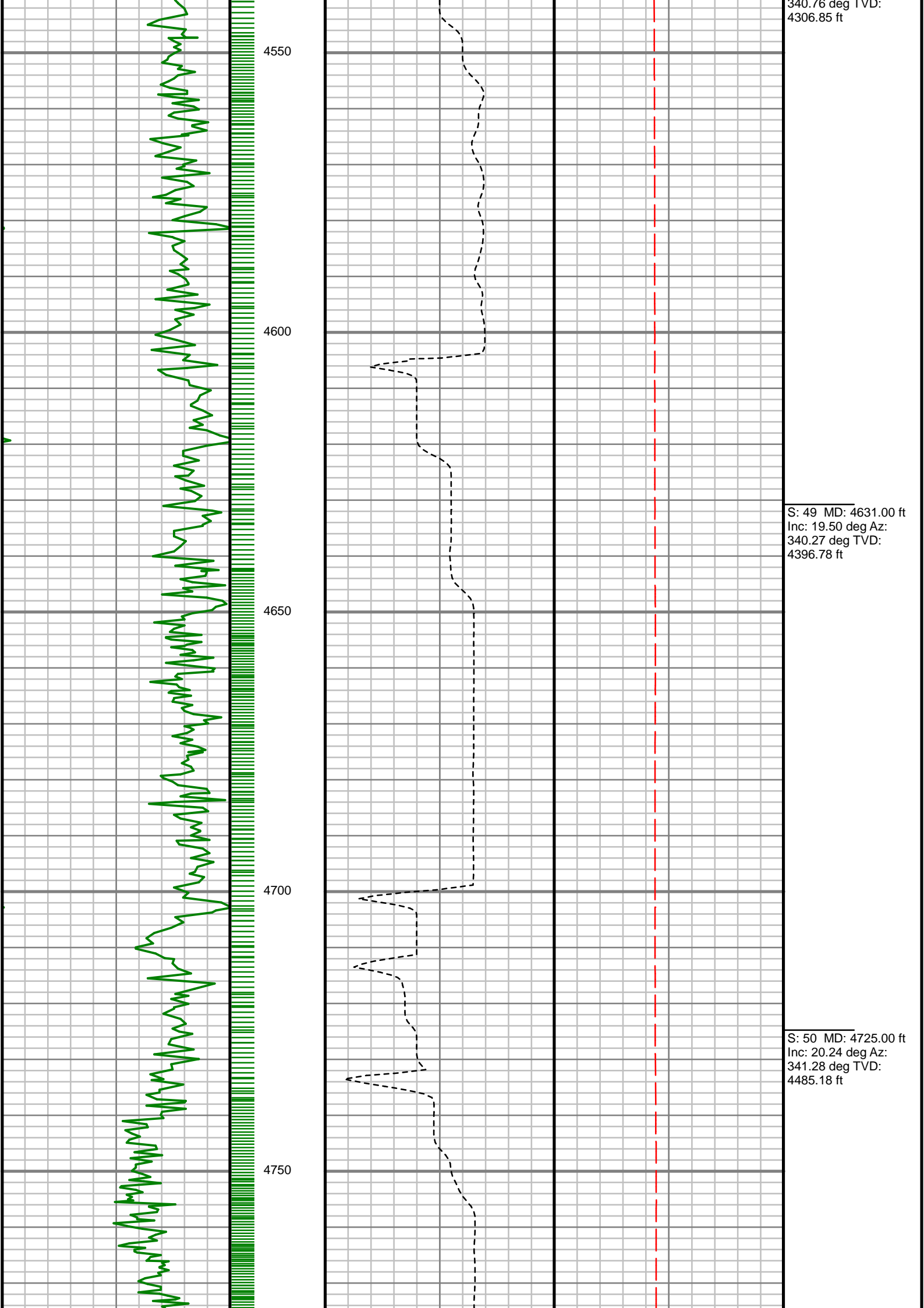
S: 45 MD: 4251.00 ft
Inc: 21.26 deg Az:
338.06 deg TVD:
4043.04 ft



S: 46 MD: 4347.00 ft
Inc: 21.86 deg Az:
340.34 deg TVD:
4132.32 ft

S: 47 MD: 4442.00 ft
Inc: 21.98 deg Az:
341.50 deg TVD:
4220.45 ft

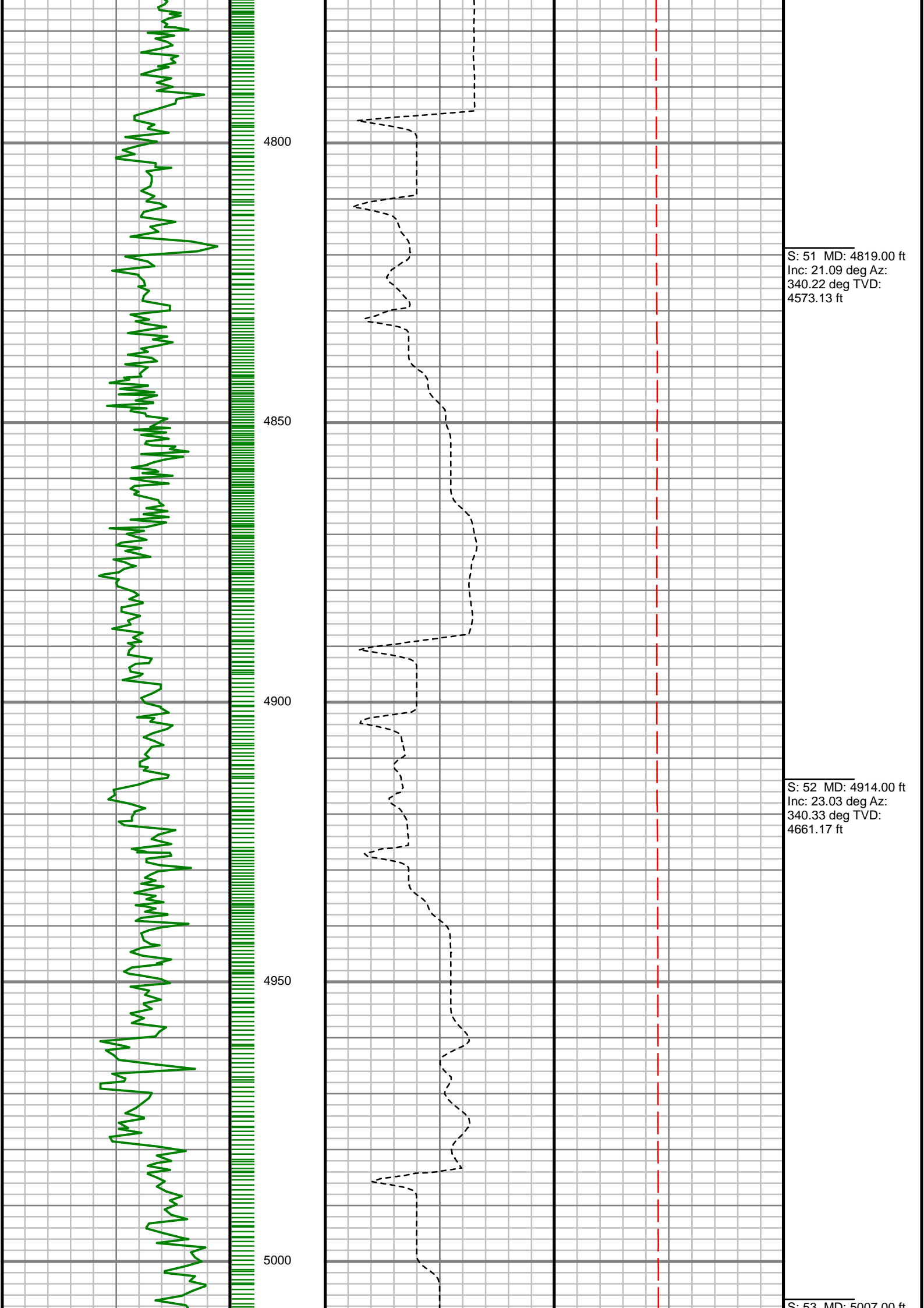
S: 48 MD: 4535.00 ft
Inc: 21.46 deg Az:

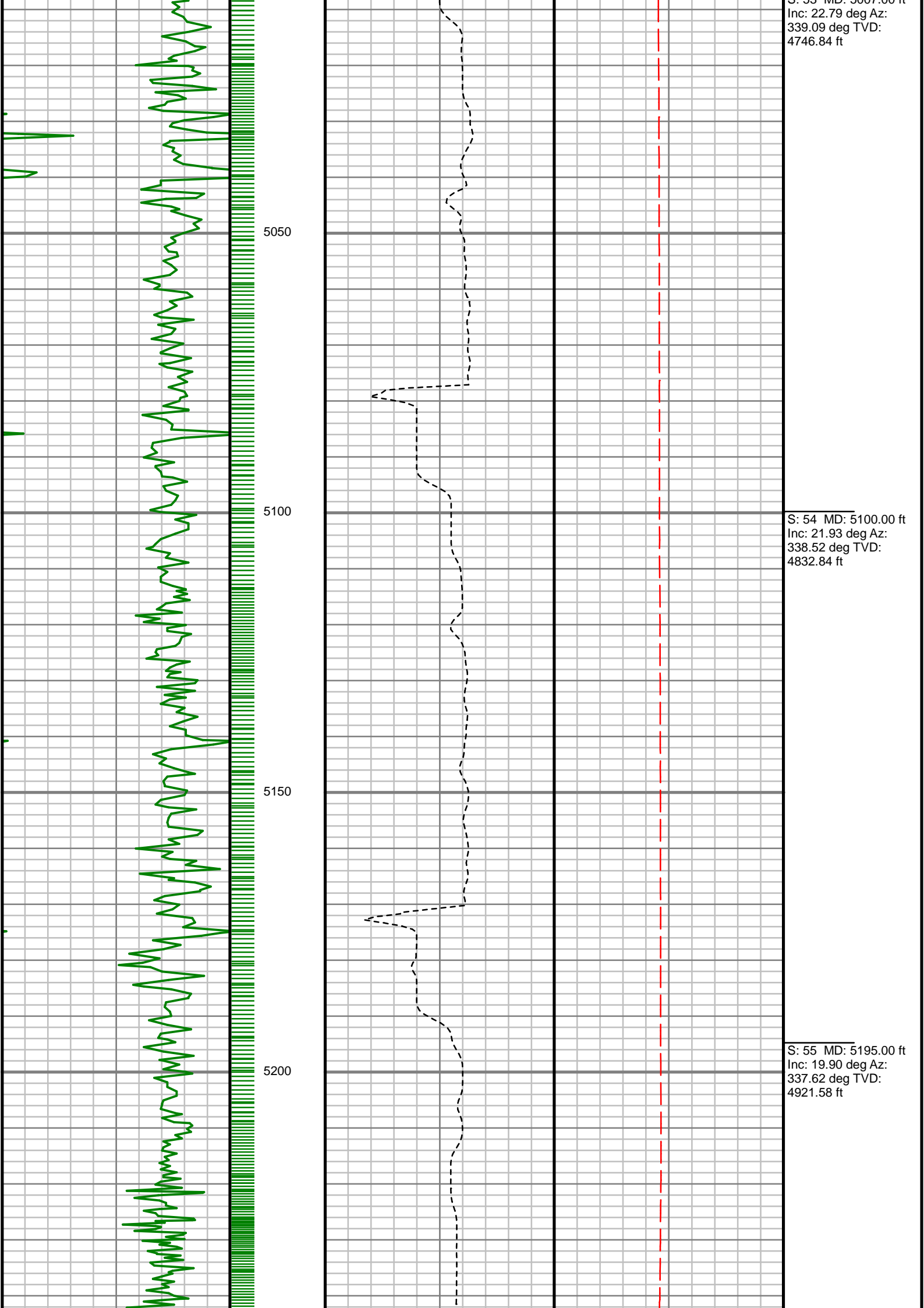


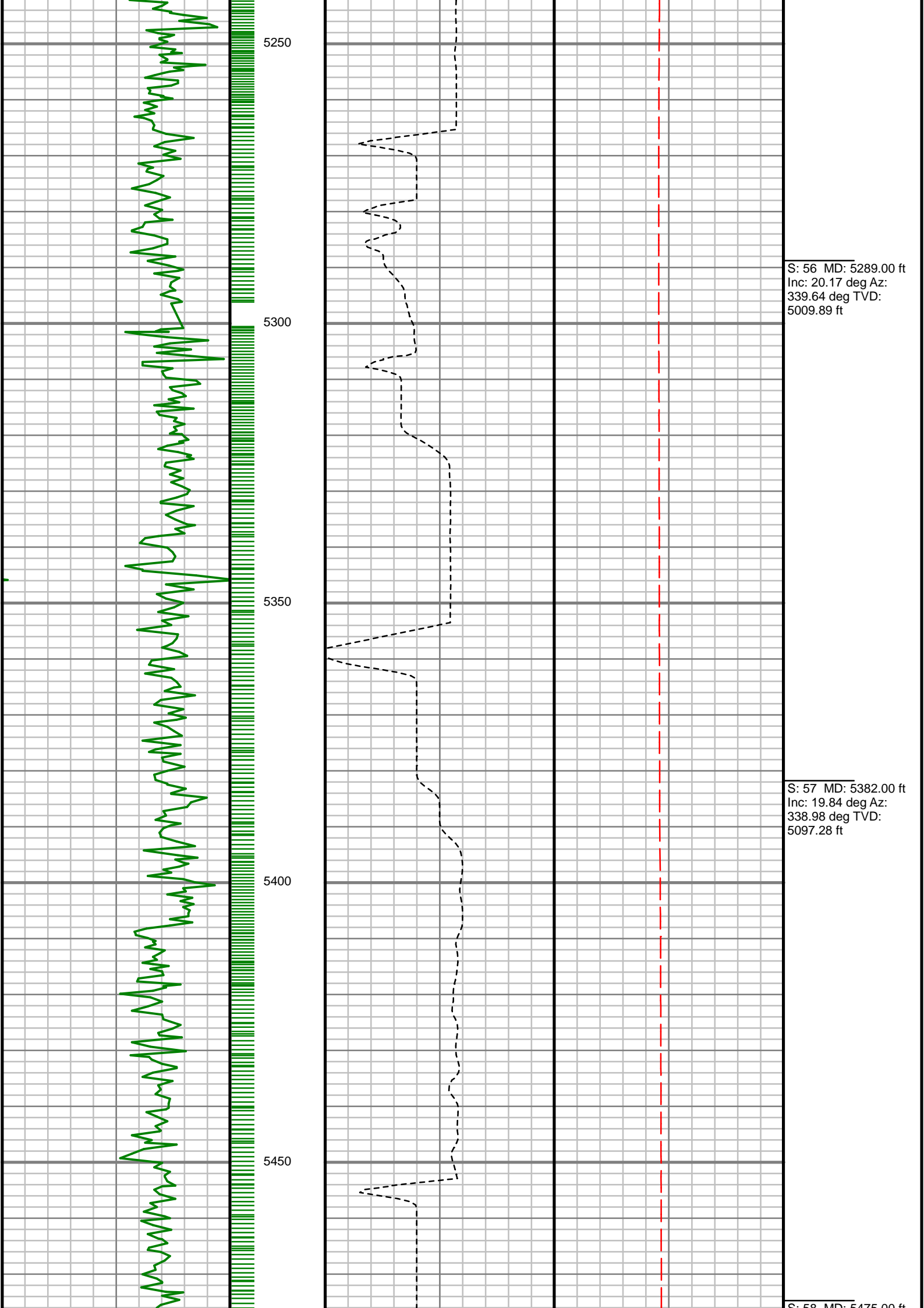
340.76 deg TVD:
4306.85 ft

S: 49 MD: 4631.00 ft
Inc: 19.50 deg Az:
340.27 deg TVD:
4396.78 ft

S: 50 MD: 4725.00 ft
Inc: 20.24 deg Az:
341.28 deg TVD:
4485.18 ft



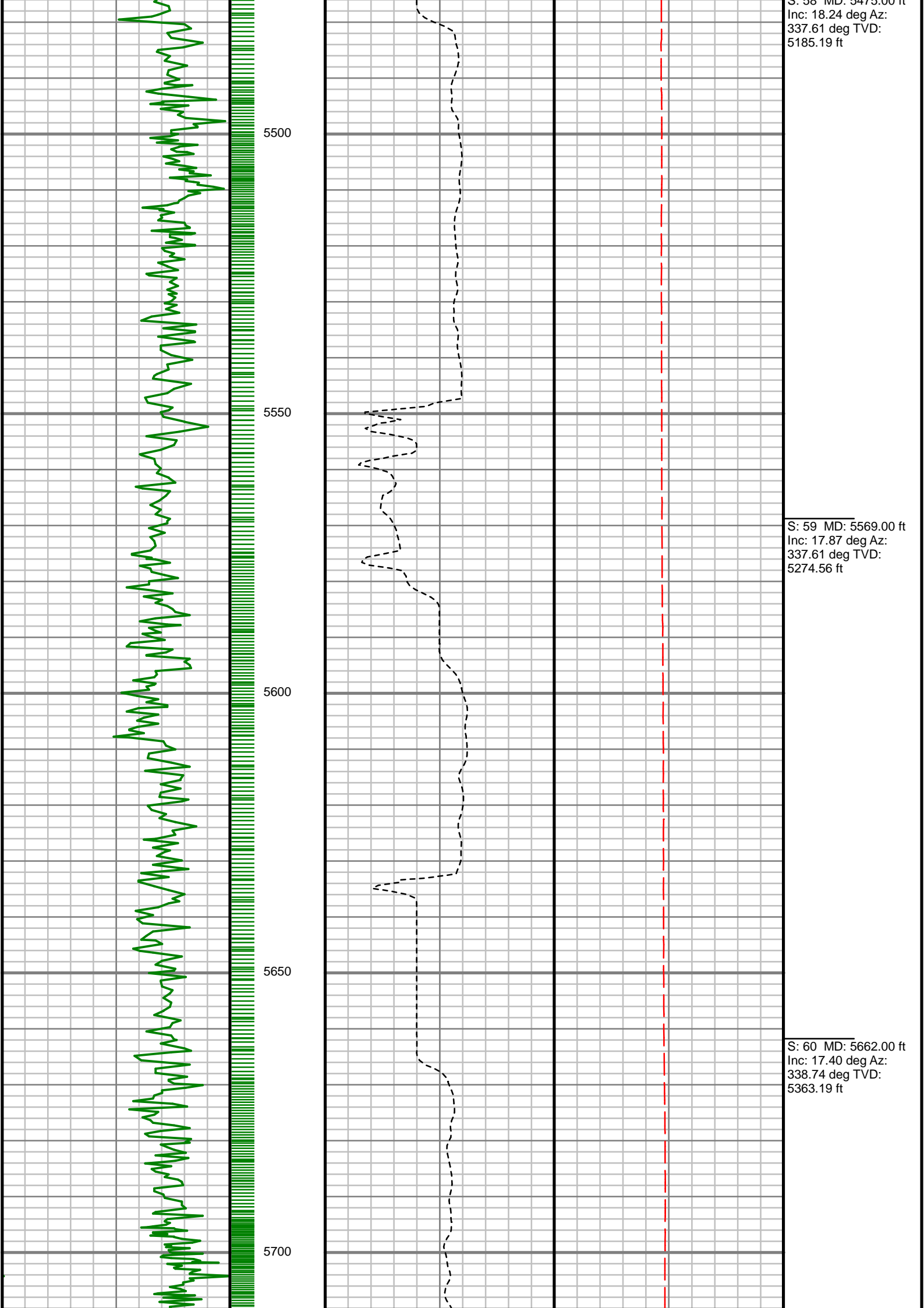


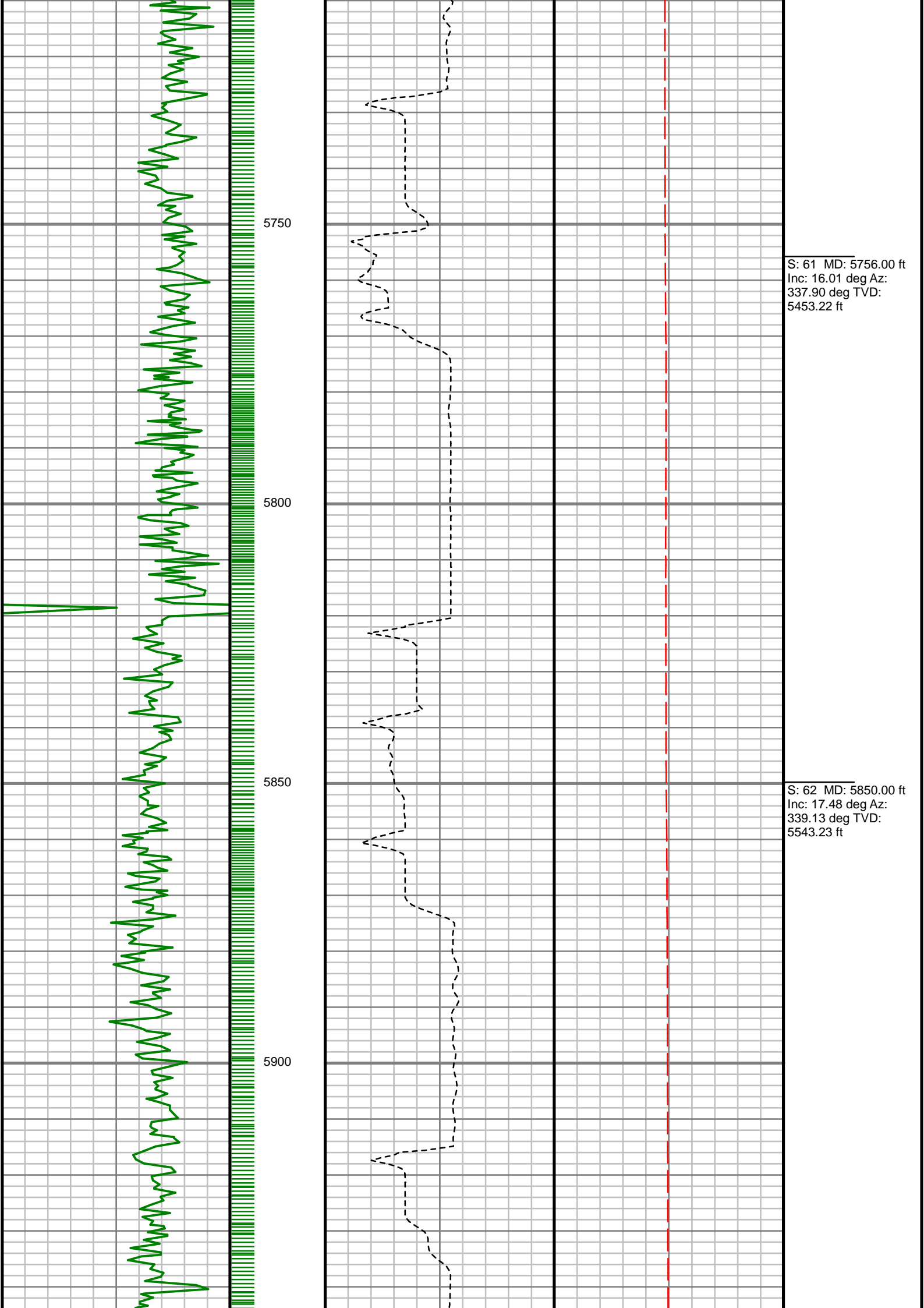


S: 56 MD: 5289.00 ft
Inc: 20.17 deg Az:
339.64 deg TVD:
5009.89 ft

S: 57 MD: 5382.00 ft
Inc: 19.84 deg Az:
338.98 deg TVD:
5097.28 ft

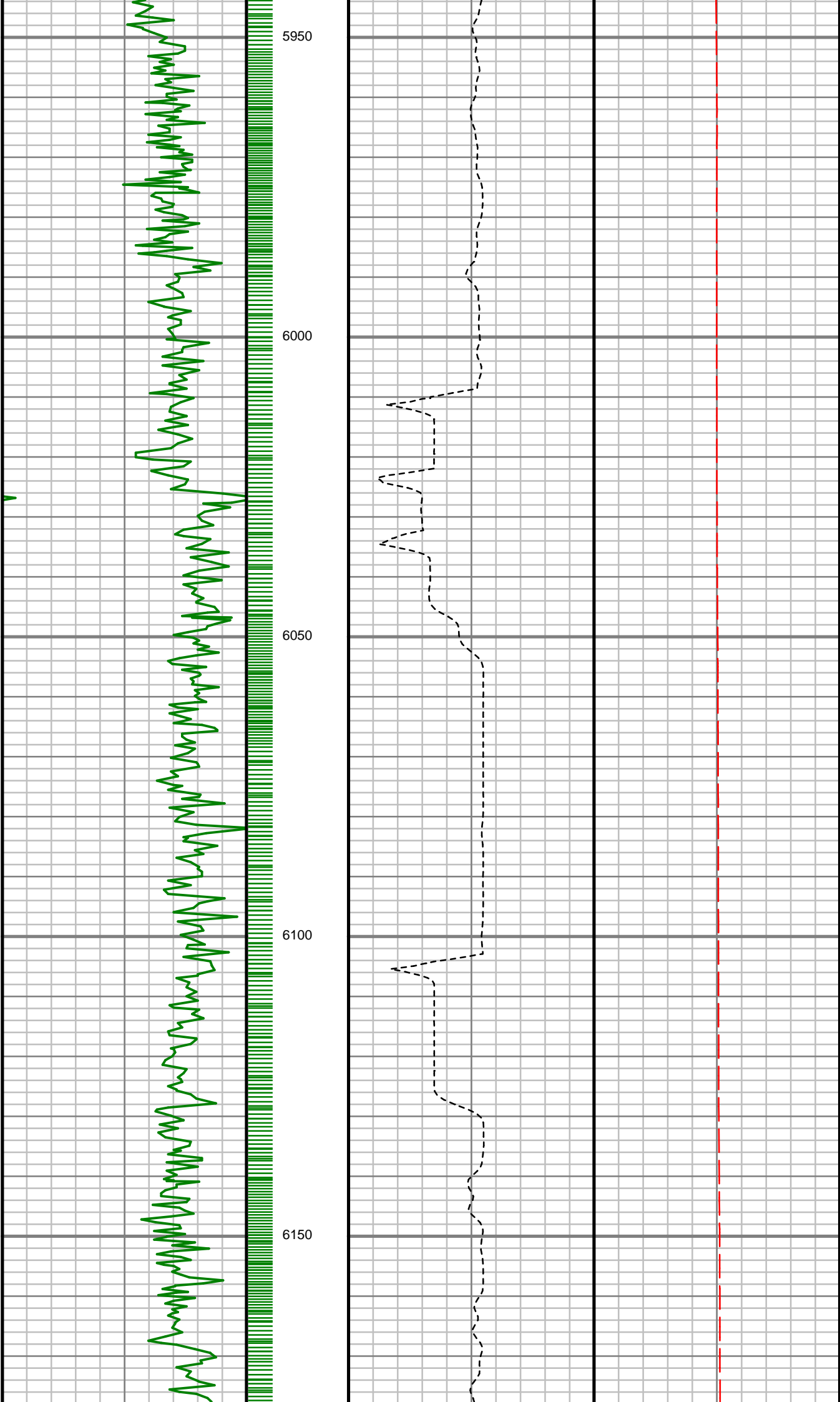
S: 58 MD: 5475.00 ft





S: 61 MD: 5756.00 ft
Inc: 16.01 deg Az:
337.90 deg TVD:
5453.22 ft

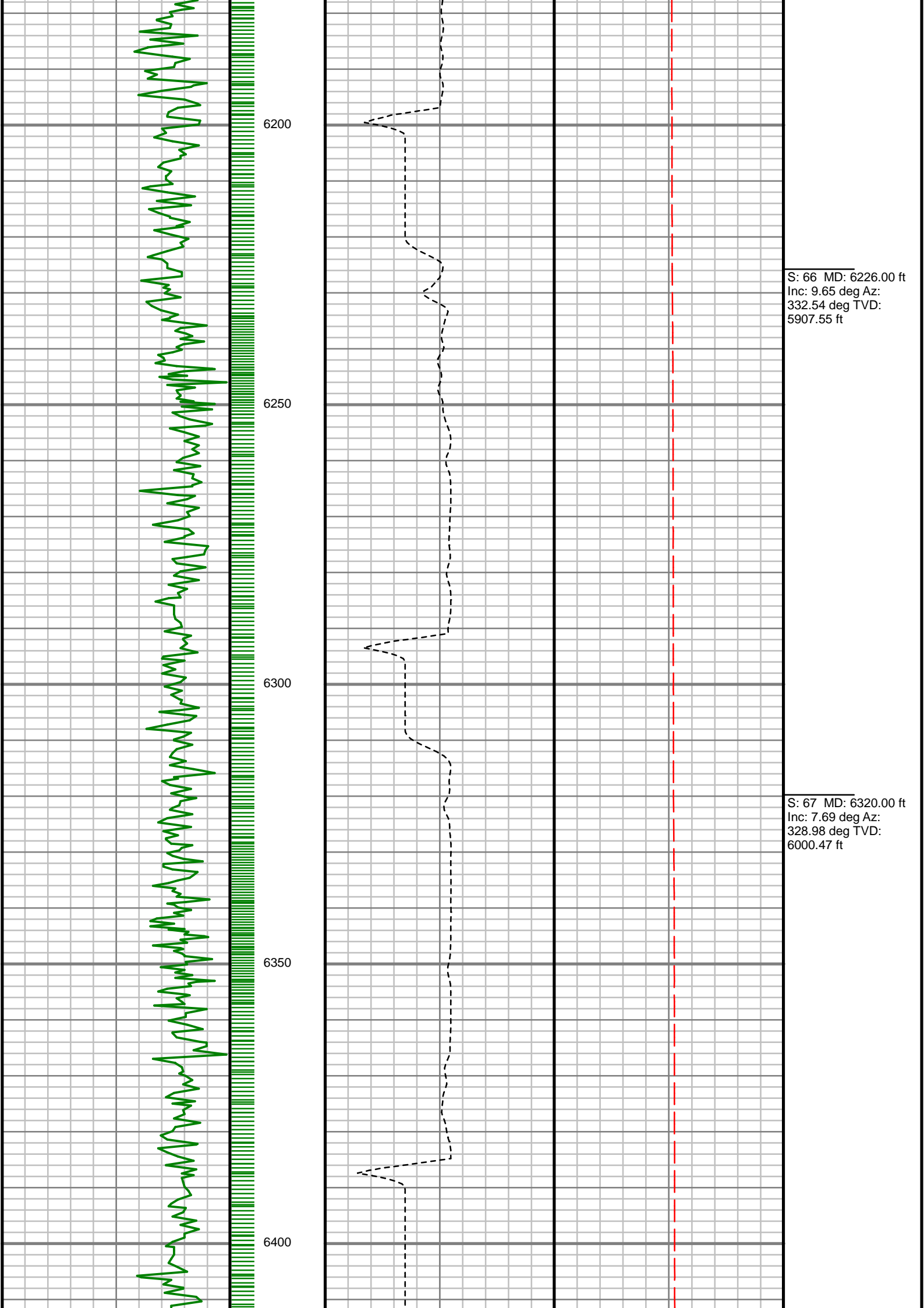
S: 62 MD: 5850.00 ft
Inc: 17.48 deg Az:
339.13 deg TVD:
5543.23 ft

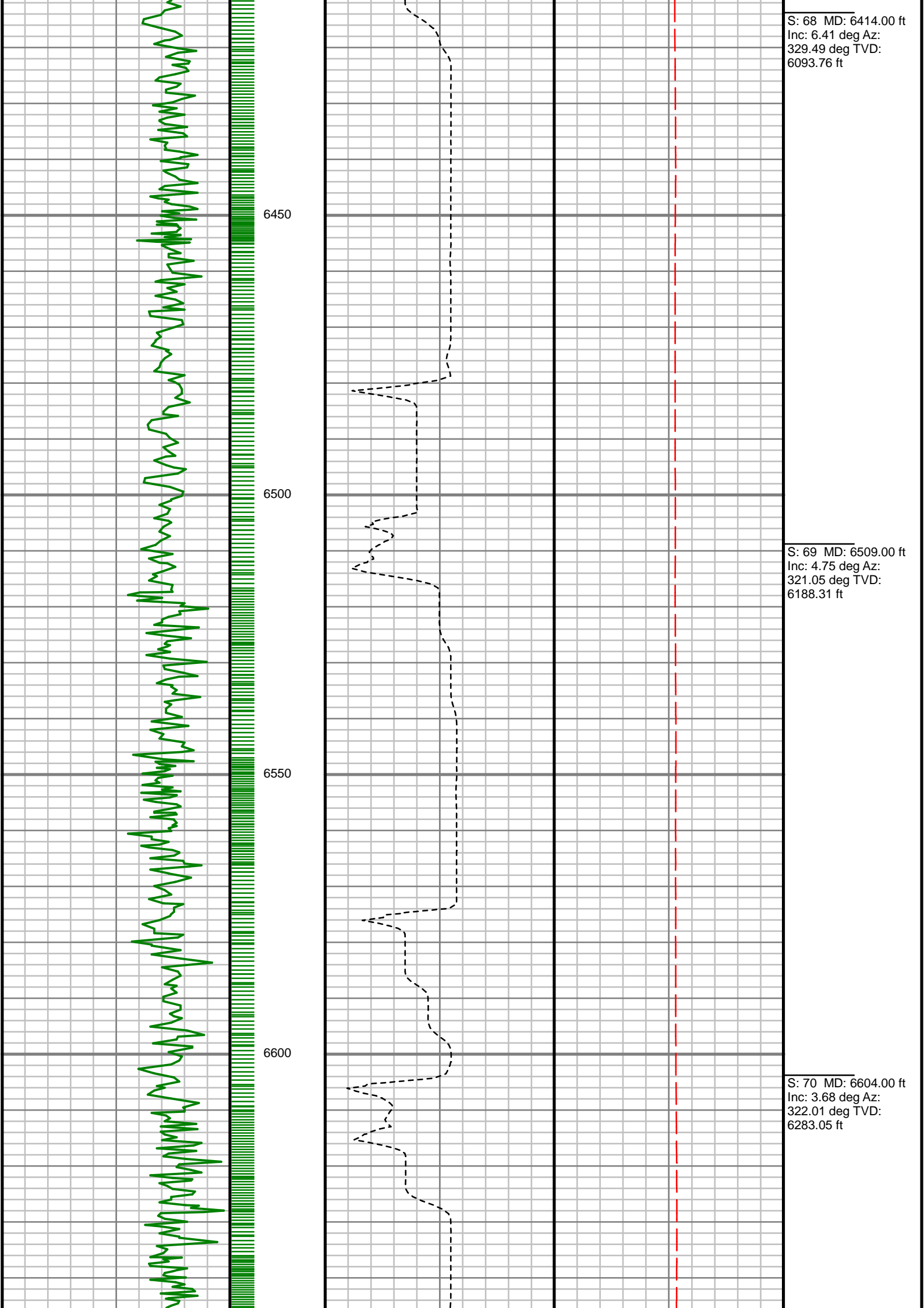


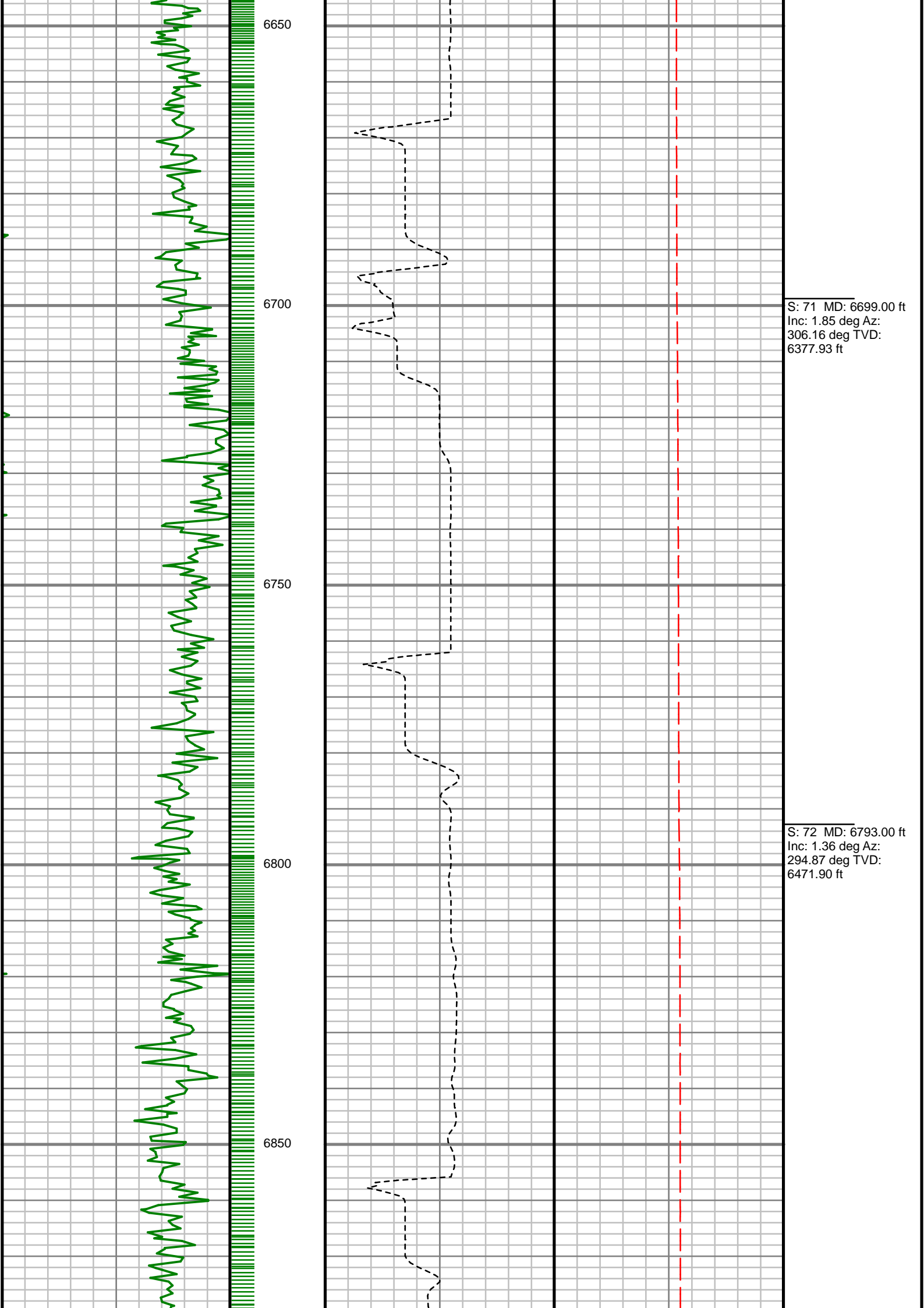
S: 63 MD: 5944.00 ft
Inc: 17.14 deg Az:
339.93 deg TVD:
5632.97 ft

S: 64 MD: 6038.00 ft
Inc: 13.87 deg Az:
336.31 deg TVD:
5723.54 ft

S: 65 MD: 6132.00 ft
Inc: 11.77 deg Az:
335.69 deg TVD:
5815.19 ft

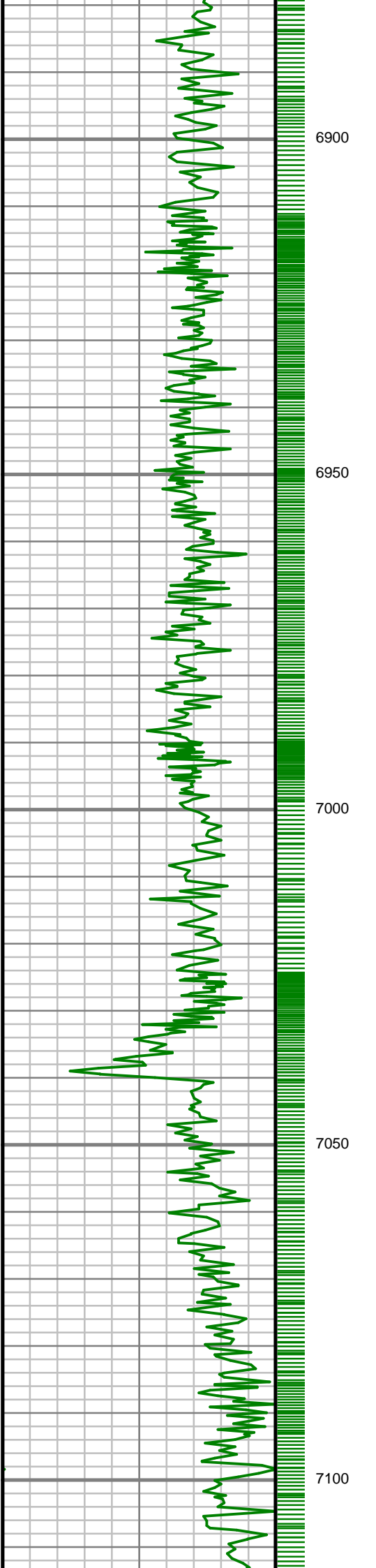






S: 71 MD: 6699.00 ft
Inc: 1.85 deg Az:
306.16 deg TVD:
6377.93 ft

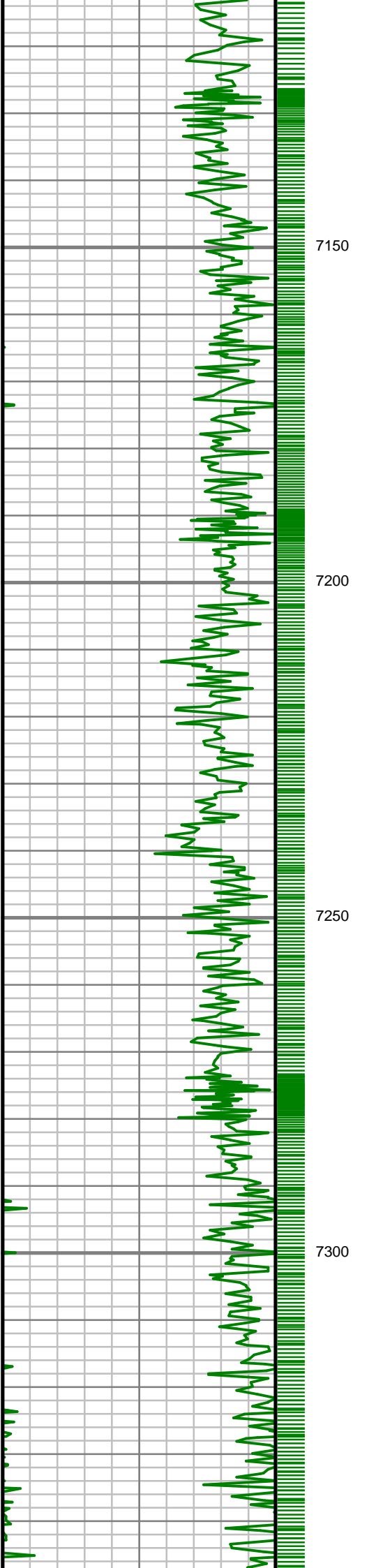
S: 72 MD: 6793.00 ft
Inc: 1.36 deg Az:
294.87 deg TVD:
6471.90 ft



S: 73 MD: 6888.00 ft
Inc: 1.22 deg Az:
312.16 deg TVD:
6566.87 ft

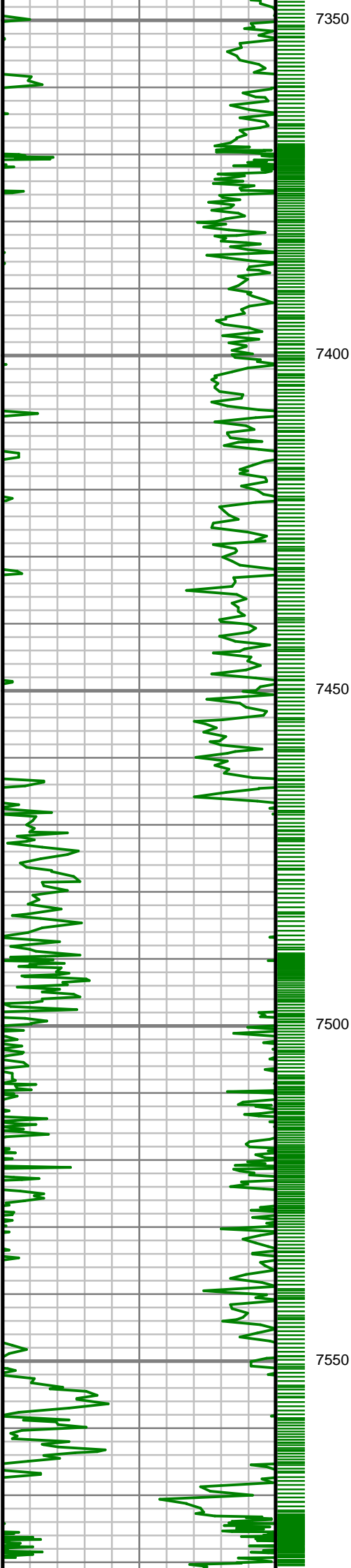
S: 74 MD: 6982.00 ft
Inc: 0.82 deg Az:
125.57 deg TVD:
6660.87 ft

S: 75 MD: 7077.00 ft
Inc: 10.66 deg Az:
177.26 deg TVD:
6755.29 ft



S: 76 MD: 7170.00 ft
Inc: 17.34 deg Az:
180.00 deg TVD:
6845.48 ft

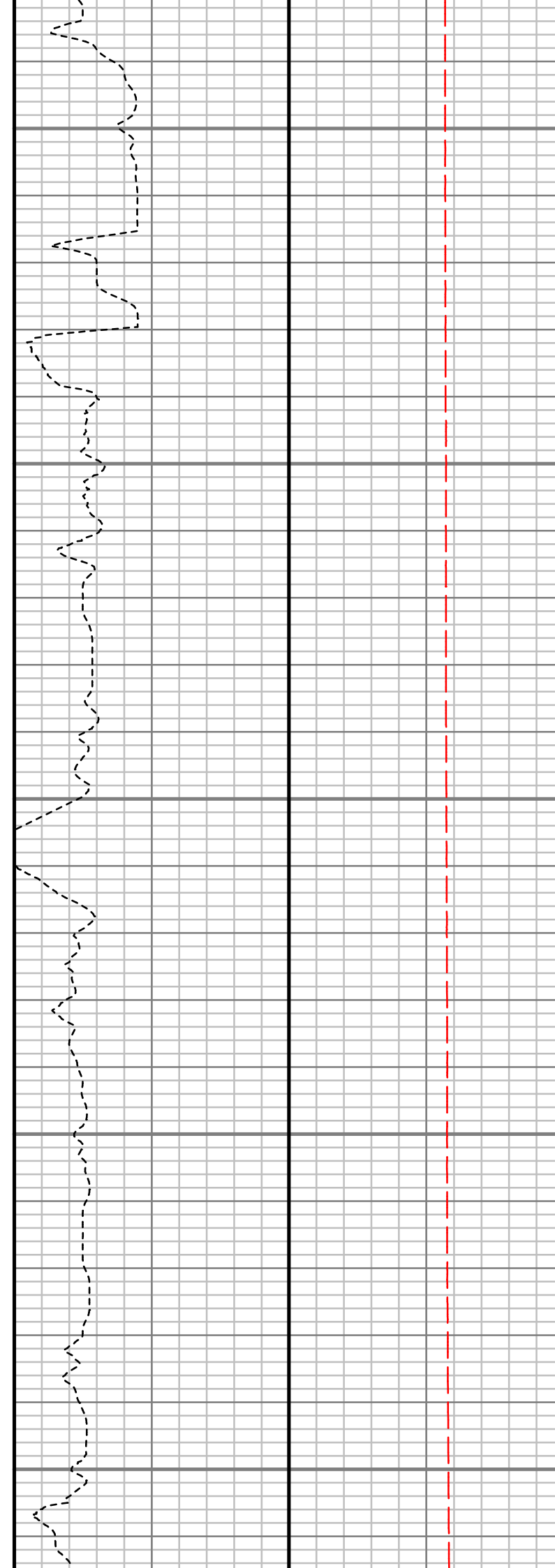
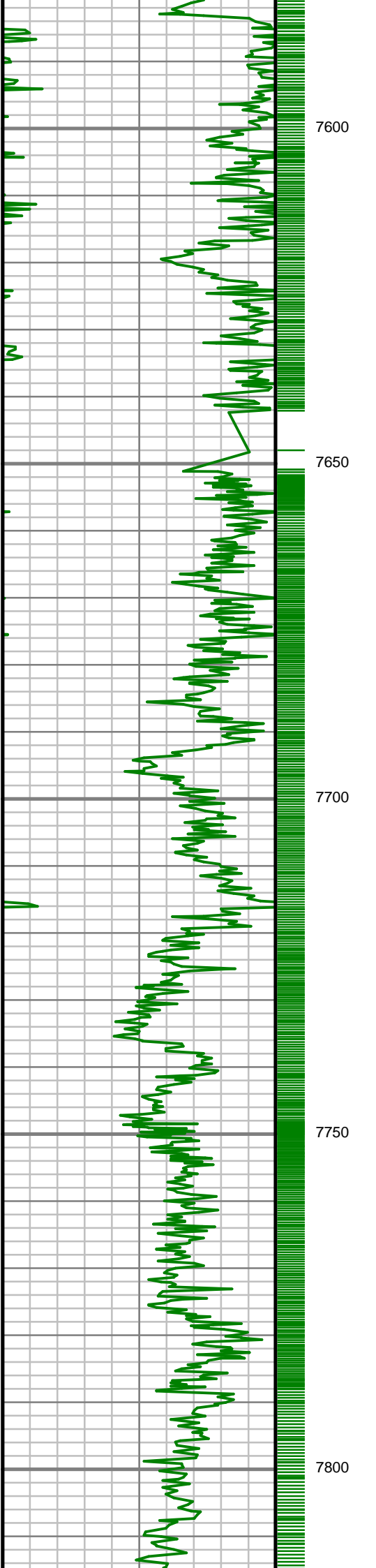
S: 77 MD: 7263.00 ft
Inc: 25.17 deg Az:
188.79 deg TVD:
6932.11 ft



S: 78 MD: 7356.00 ft
Inc: 29.96 deg Az:
180.63 deg TVD:
7014.56 ft

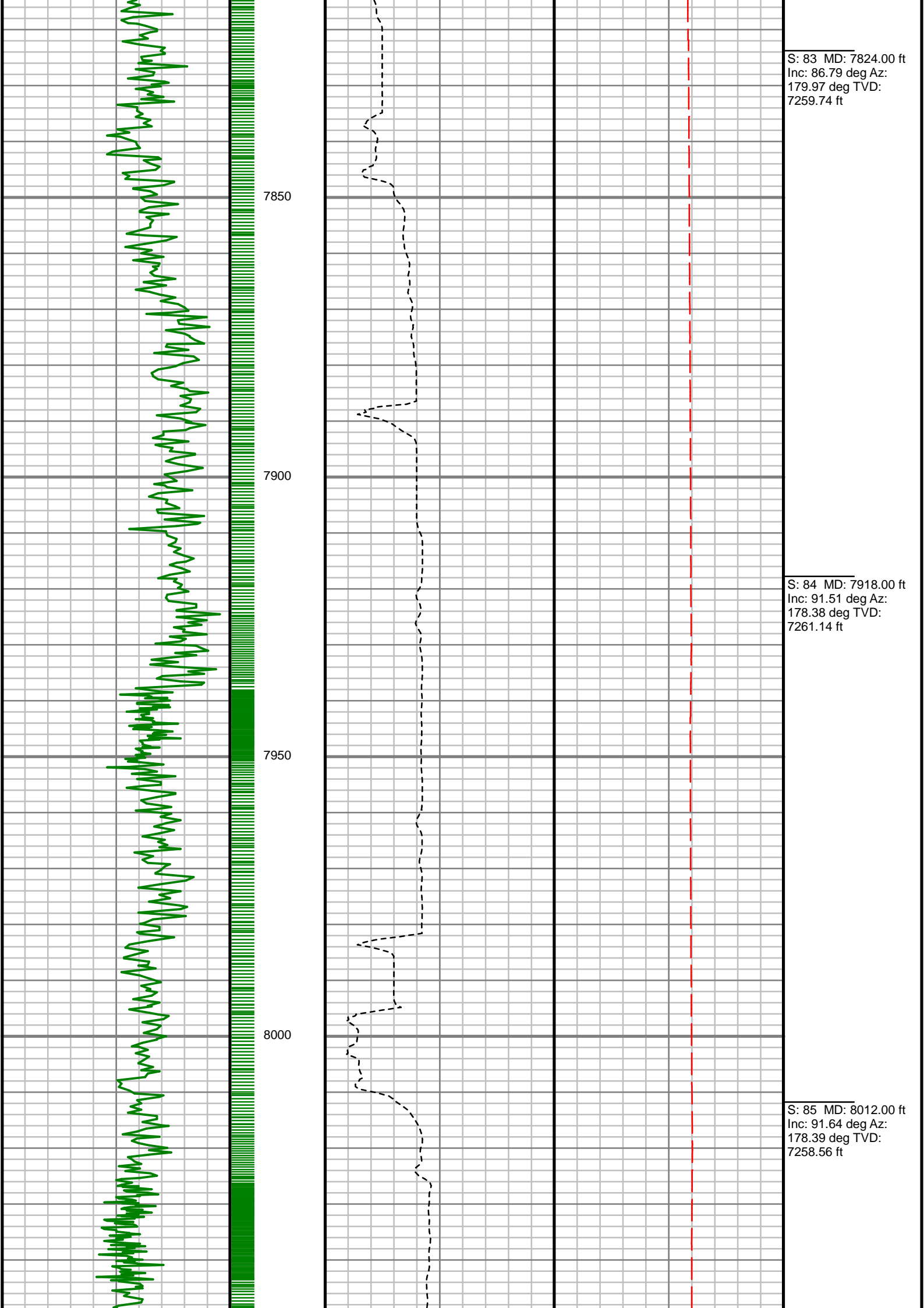
S: 79 MD: 7450.00 ft
Inc: 42.58 deg Az:
176.19 deg TVD:
7090.20 ft

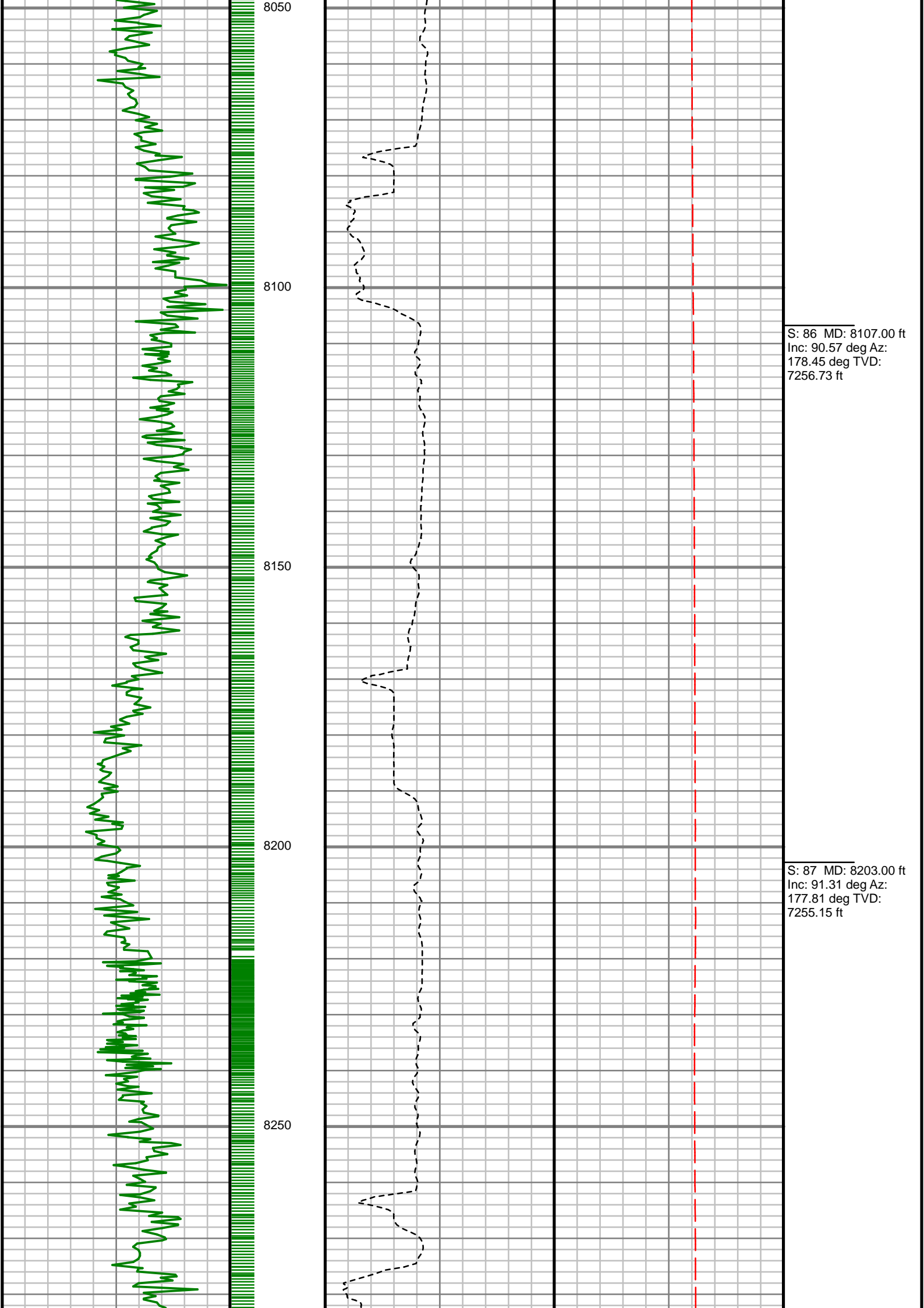
S: 80 MD: 7542.00 ft
Inc: 53.12 deg Az:
177.65 deg TVD:
7151.86 ft

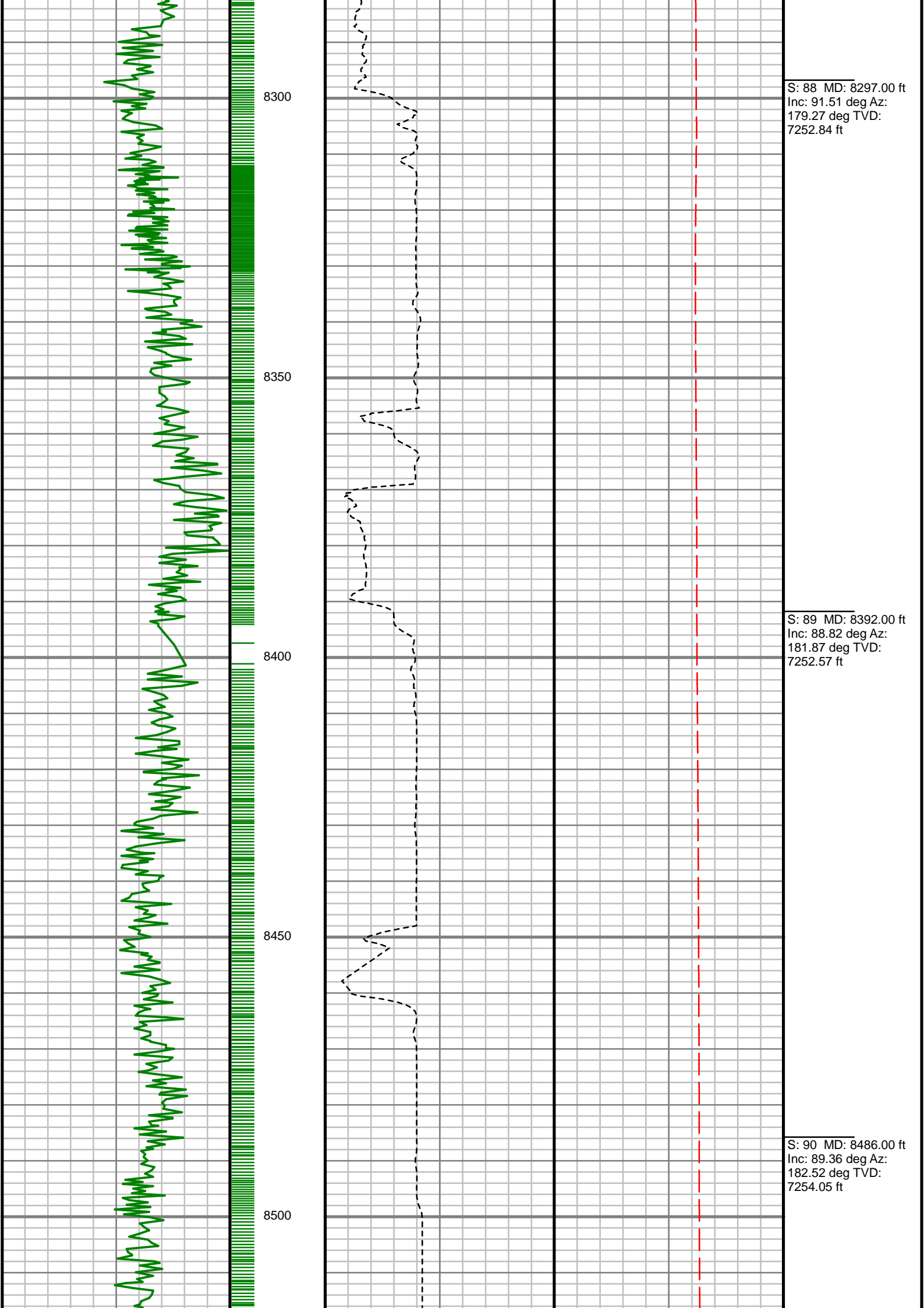


S: 81 MD: 7637.00 ft
Inc: 58.46 deg Az:
173.42 deg TVD:
7205.27 ft

S: 82 MD: 7730.00 ft
Inc: 73.08 deg Az:
173.16 deg TVD:
7243.34 ft



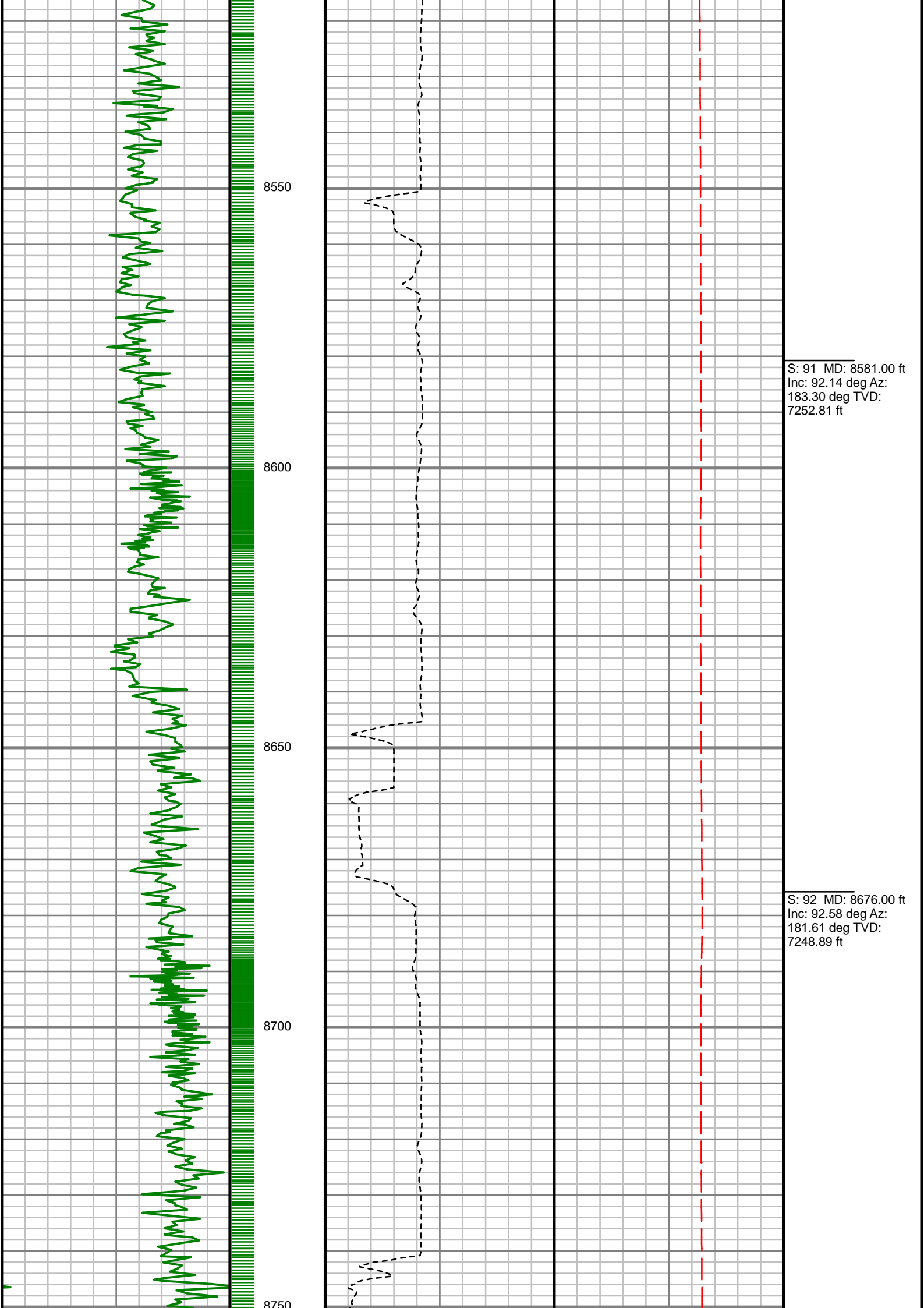


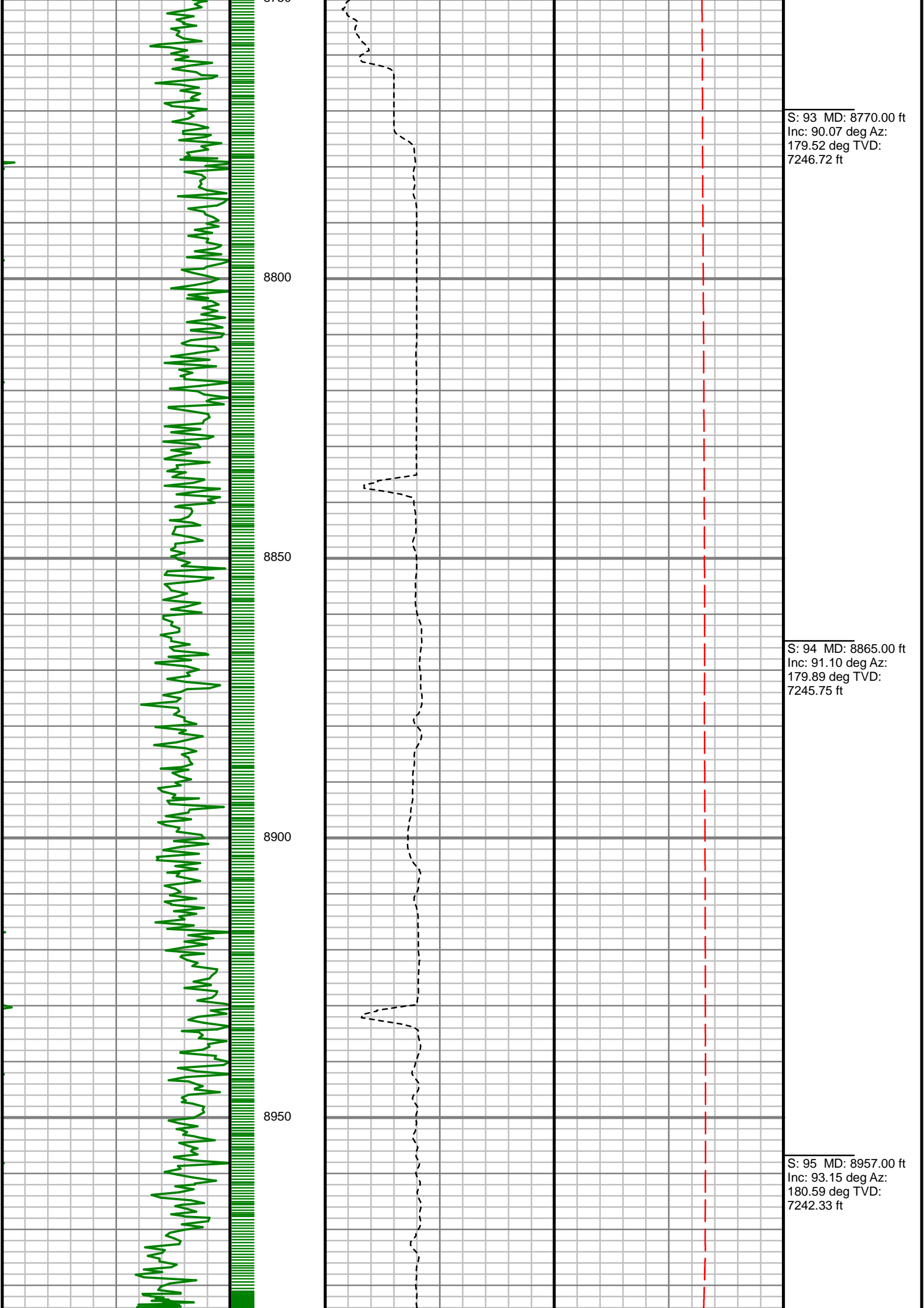


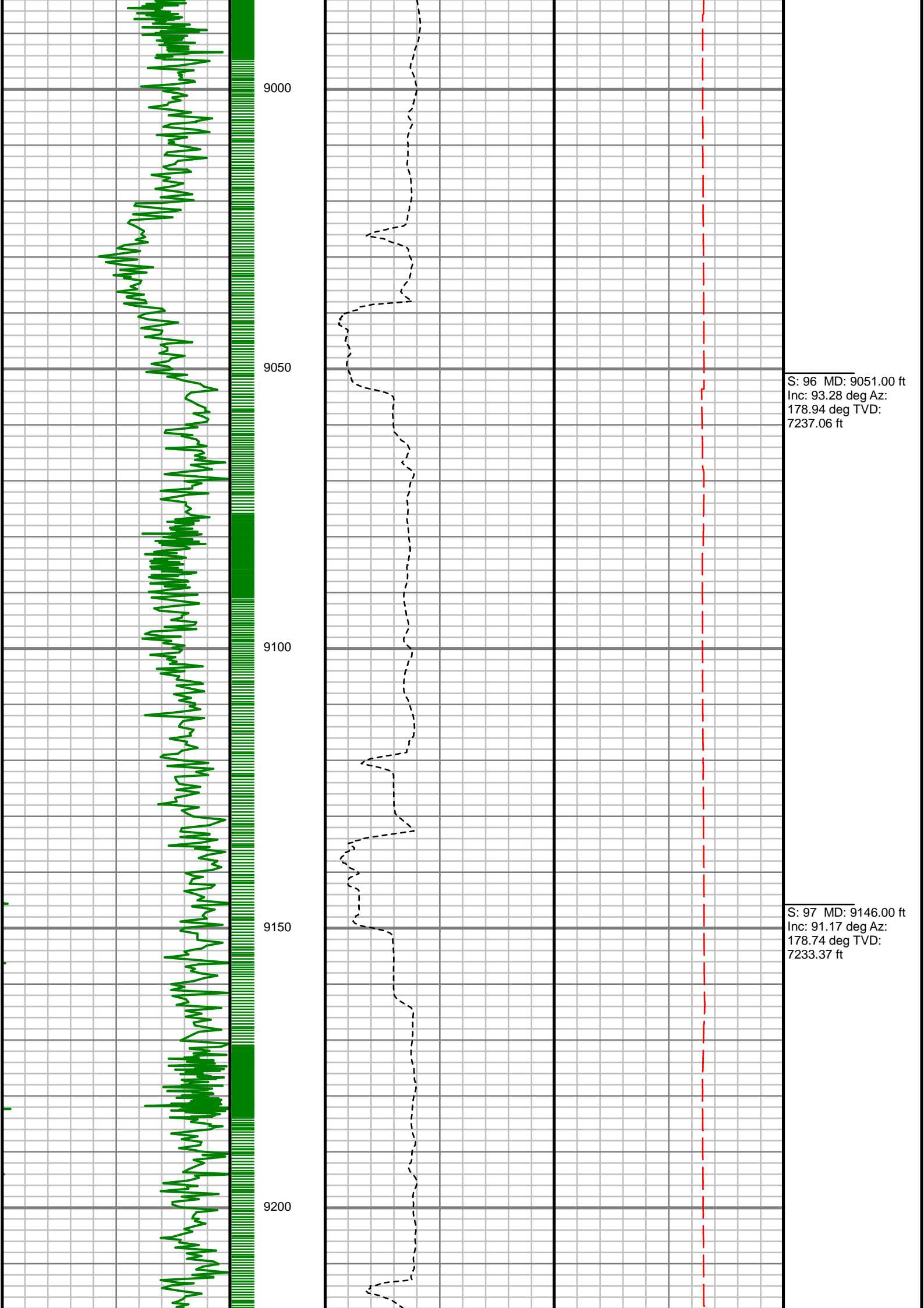
S: 88 MD: 8297.00 ft
Inc: 91.51 deg Az:
179.27 deg TVD:
7252.84 ft

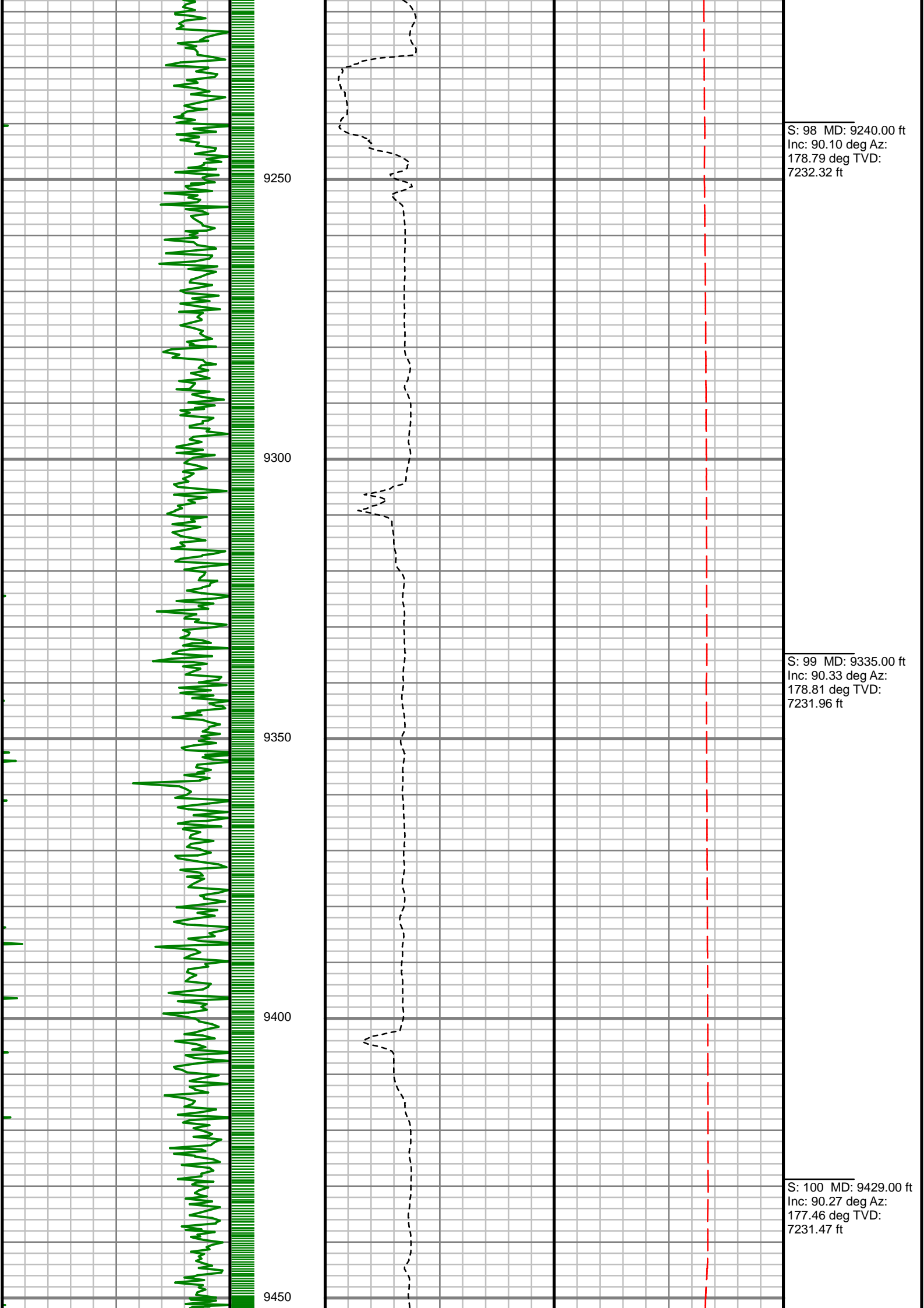
S: 89 MD: 8392.00 ft
Inc: 88.82 deg Az:
181.87 deg TVD:
7252.57 ft

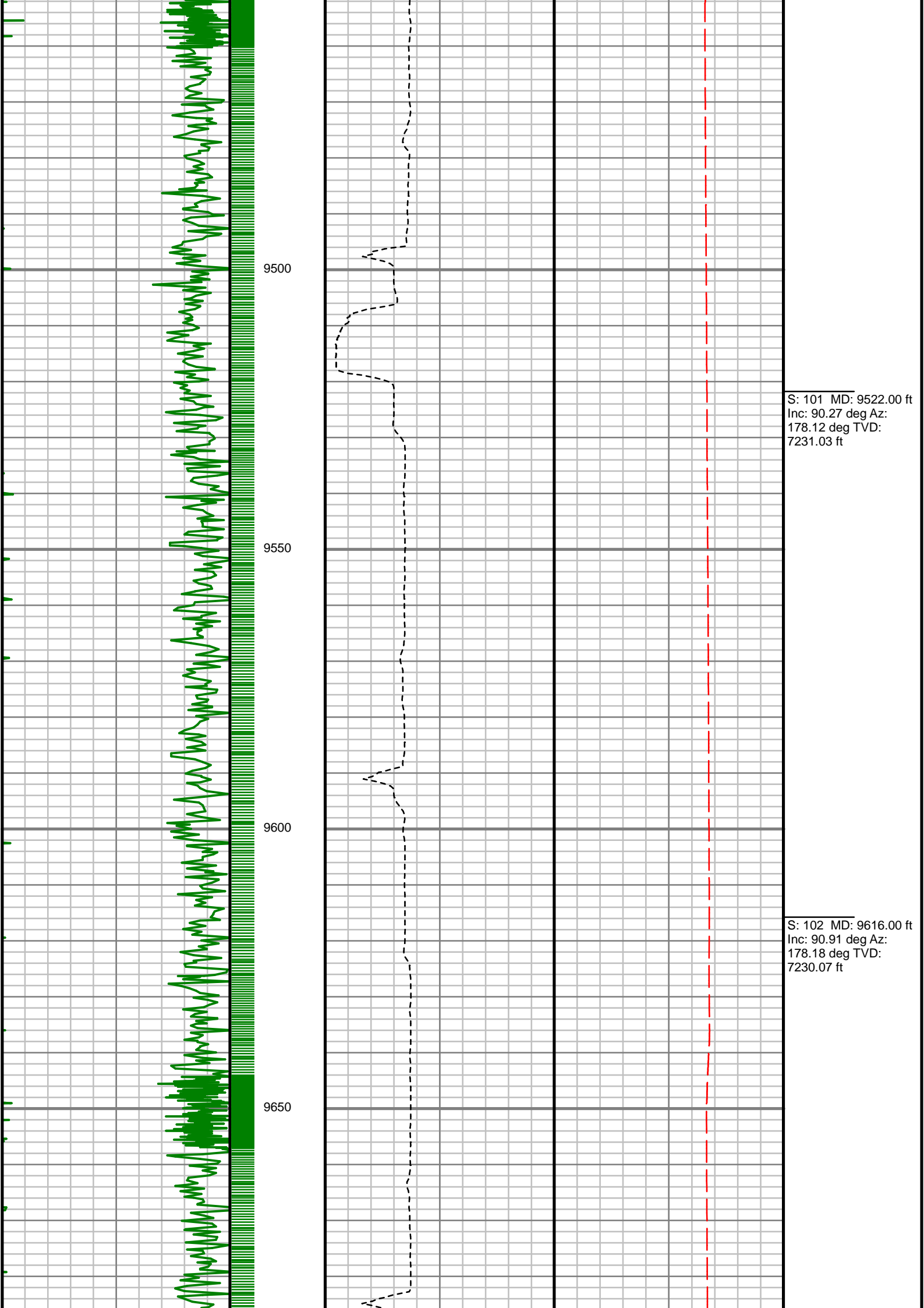
S: 90 MD: 8486.00 ft
Inc: 89.36 deg Az:
182.52 deg TVD:
7254.05 ft

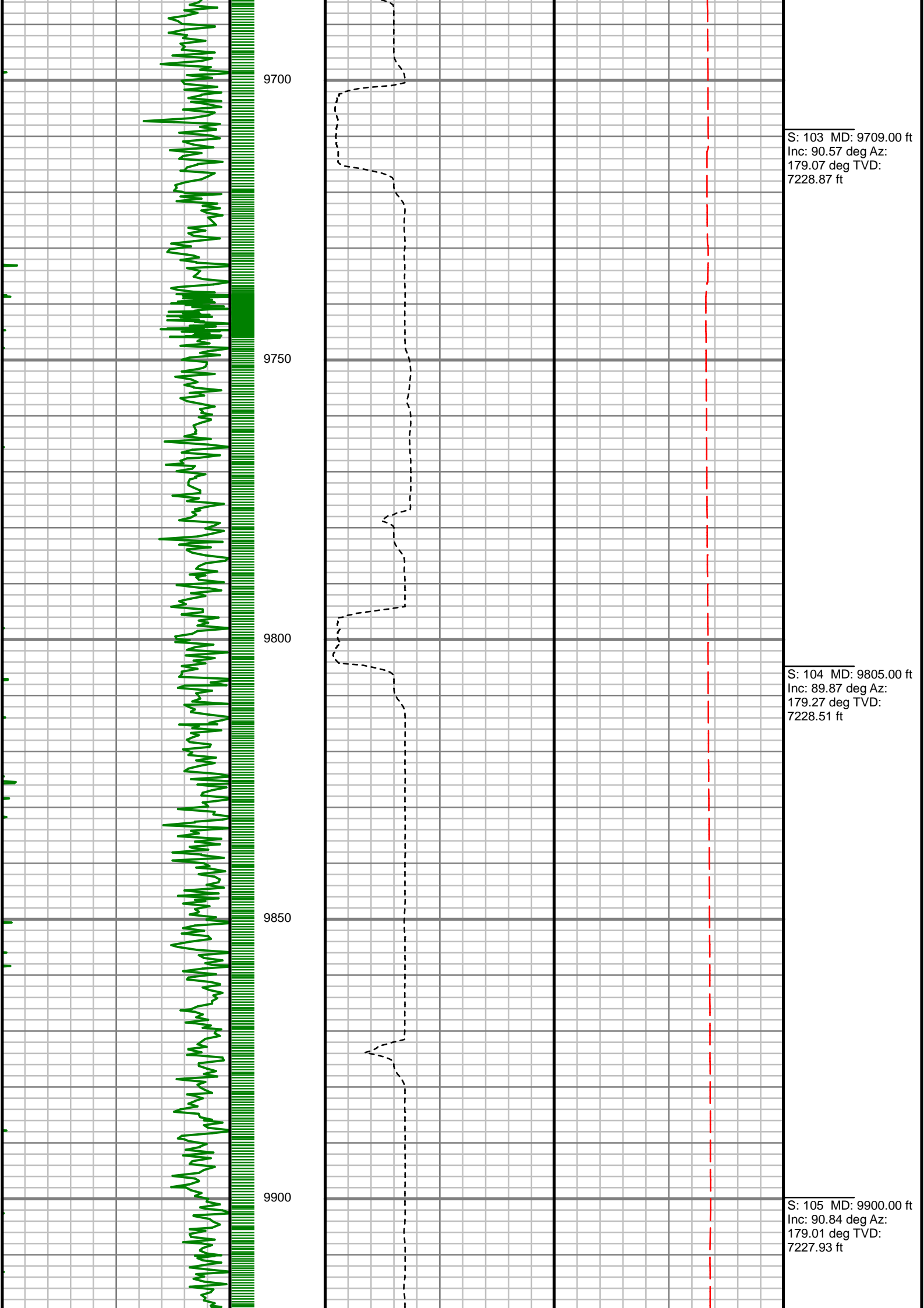


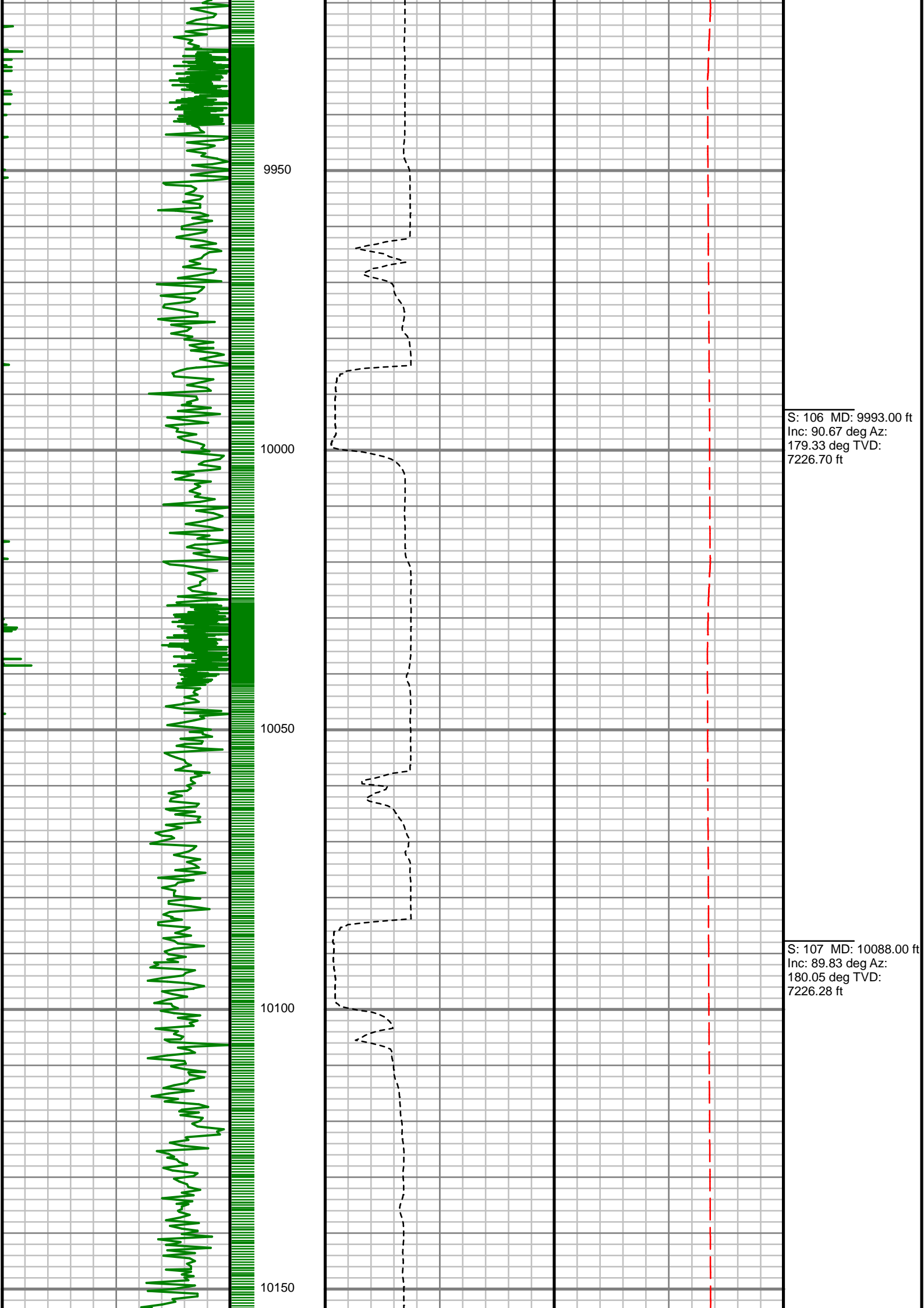


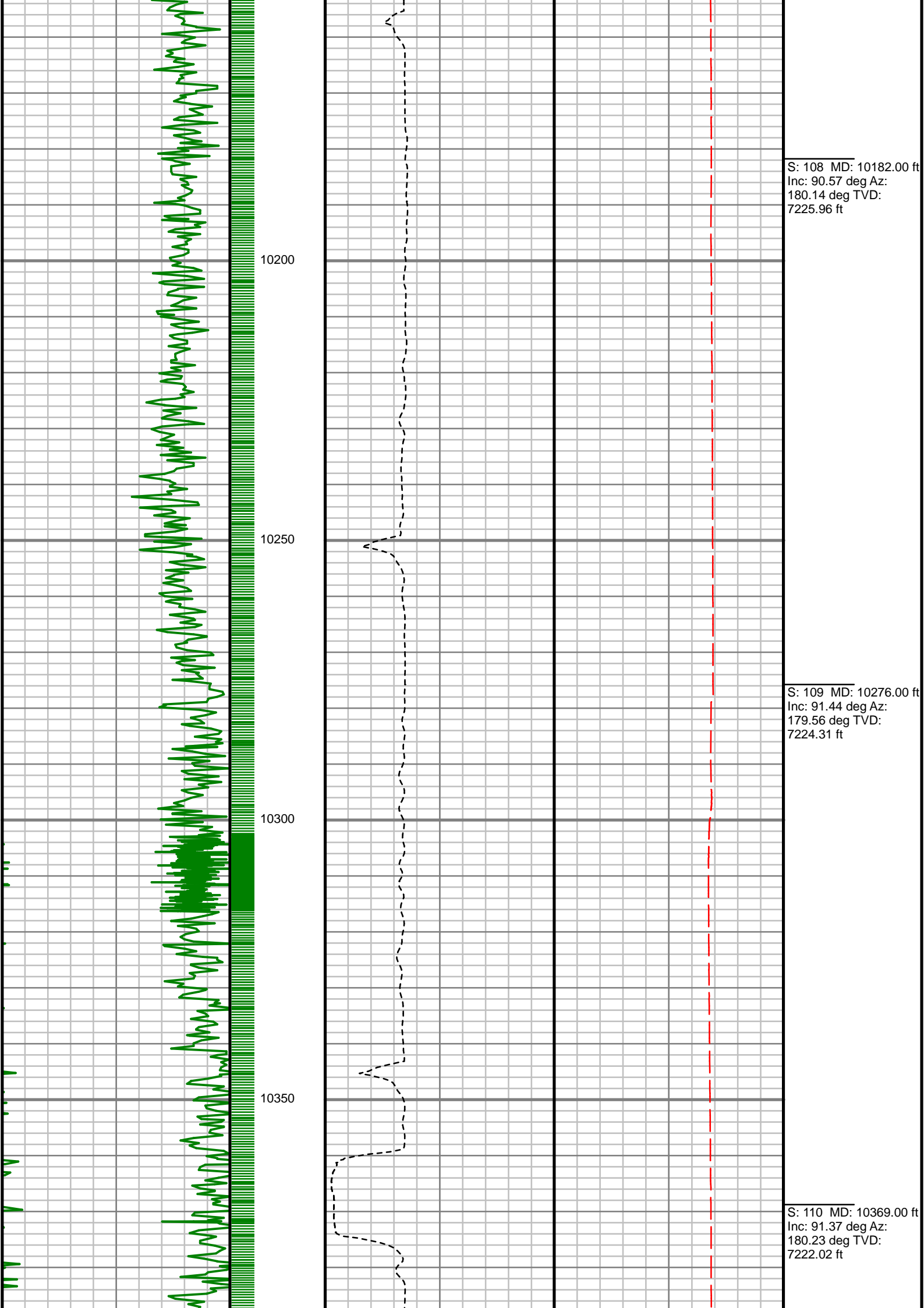


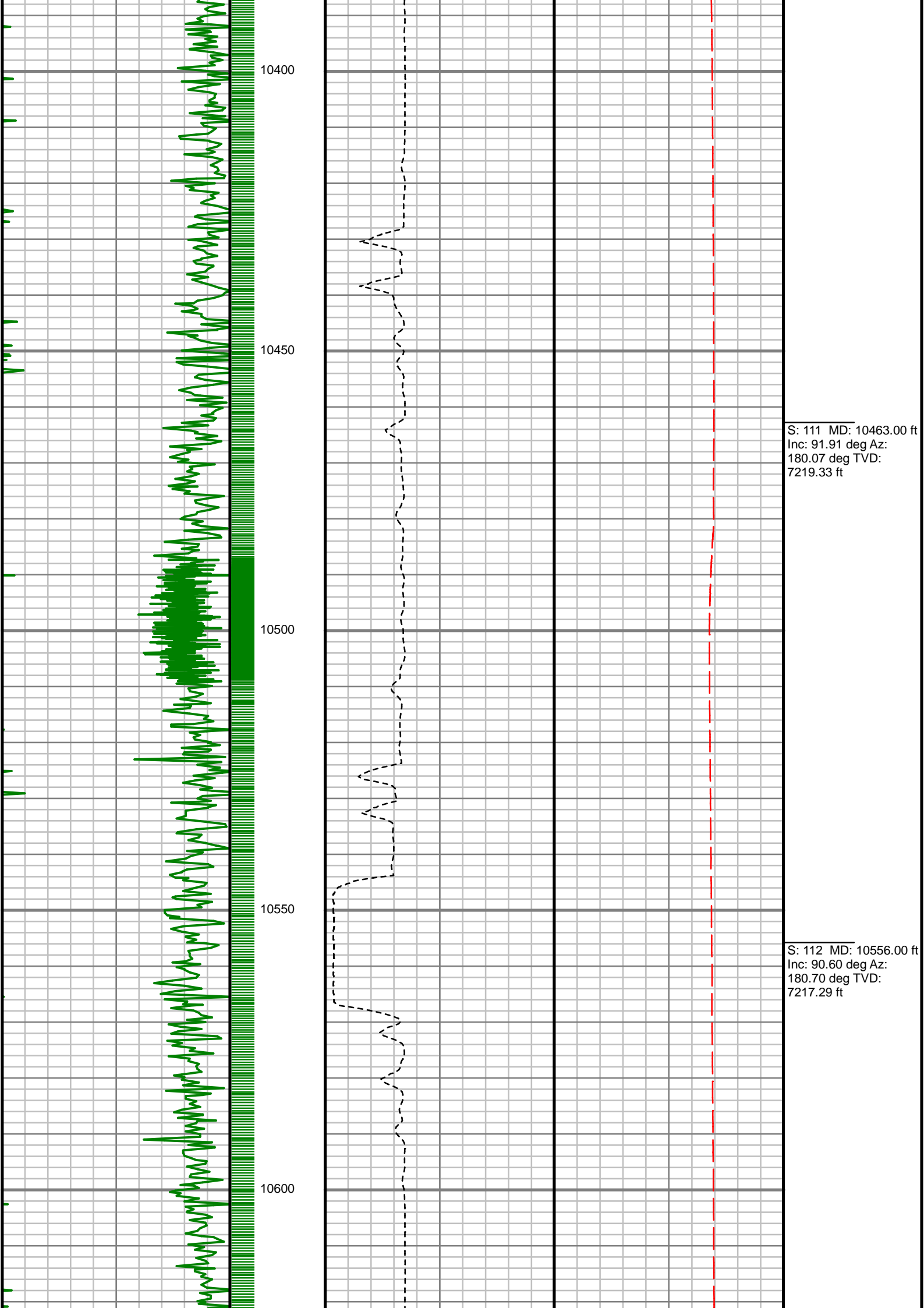


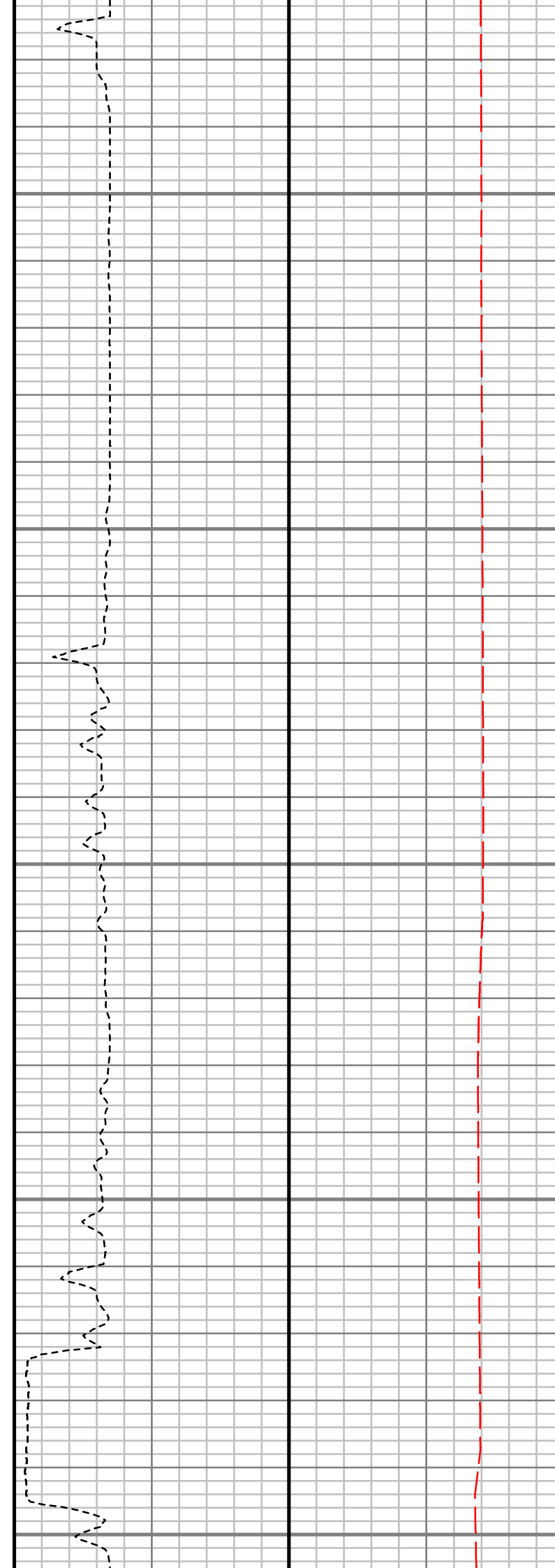
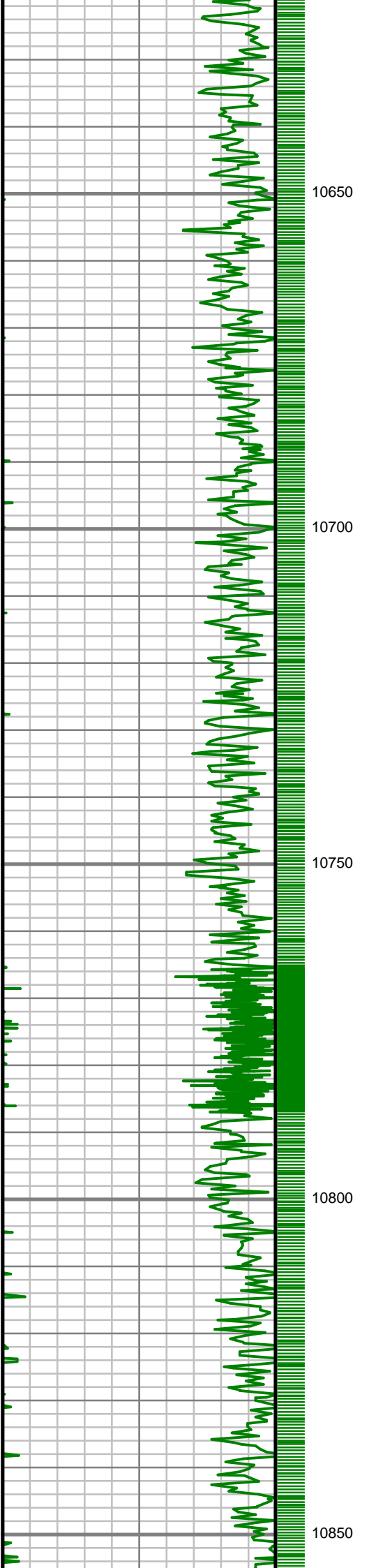








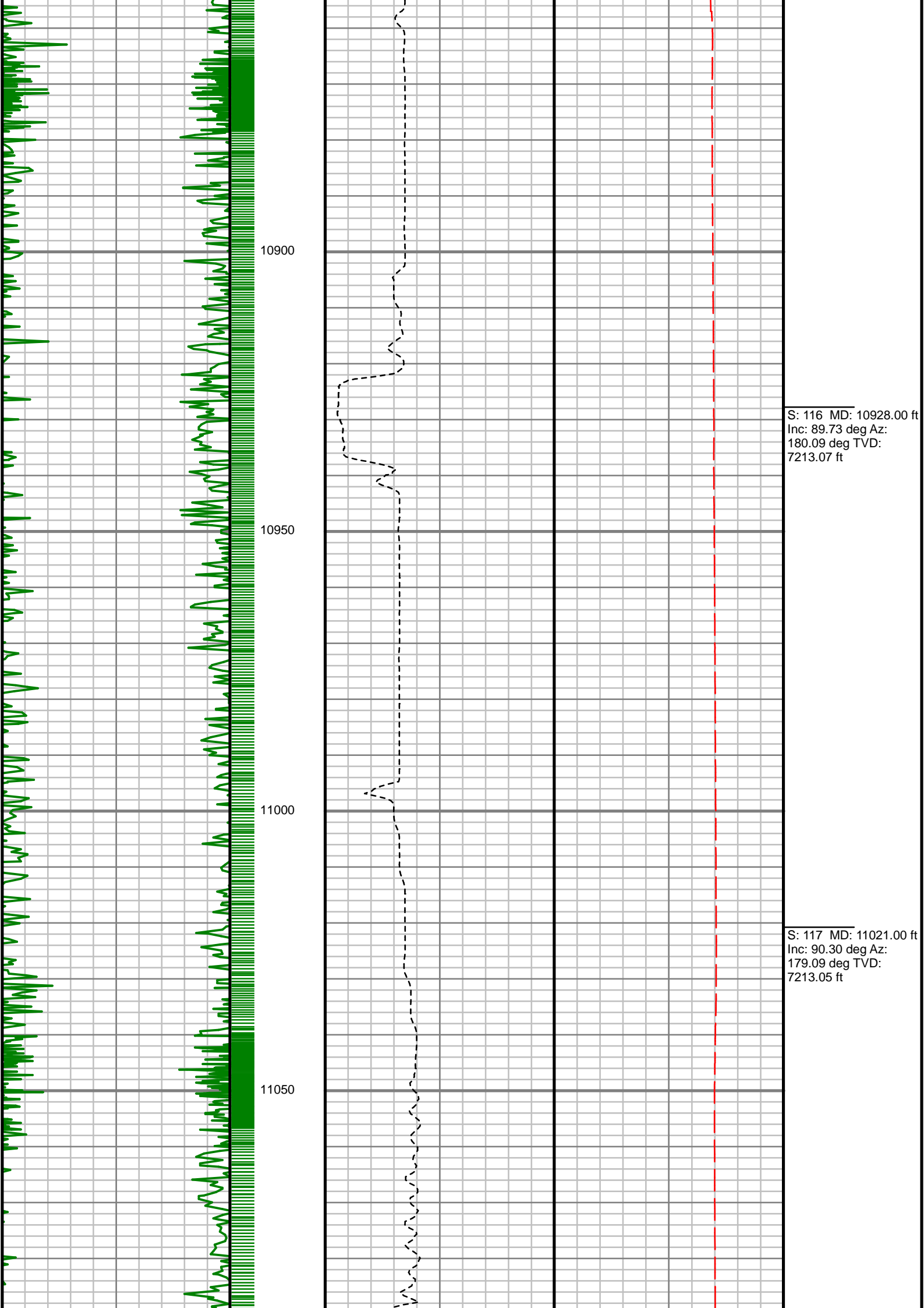


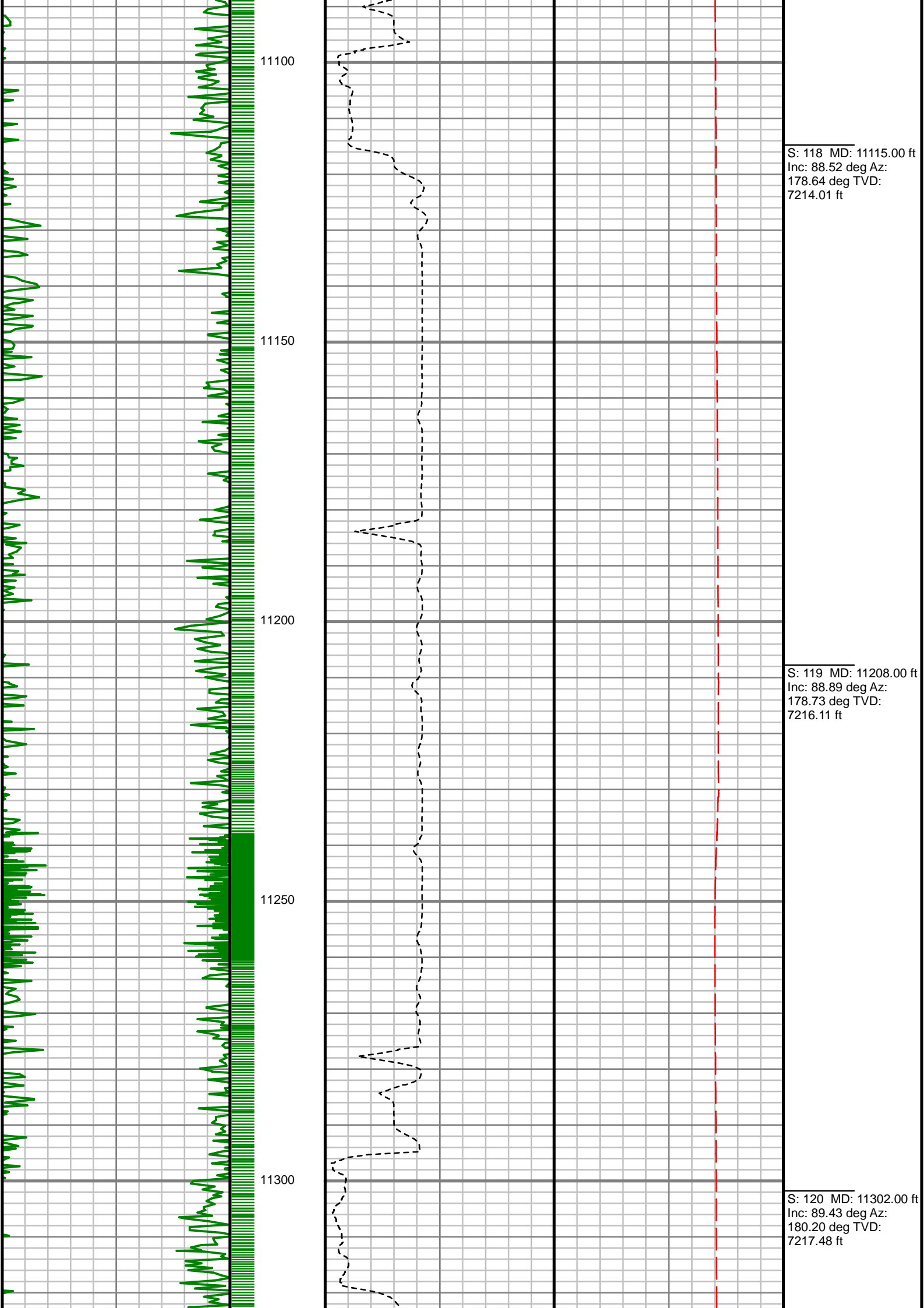


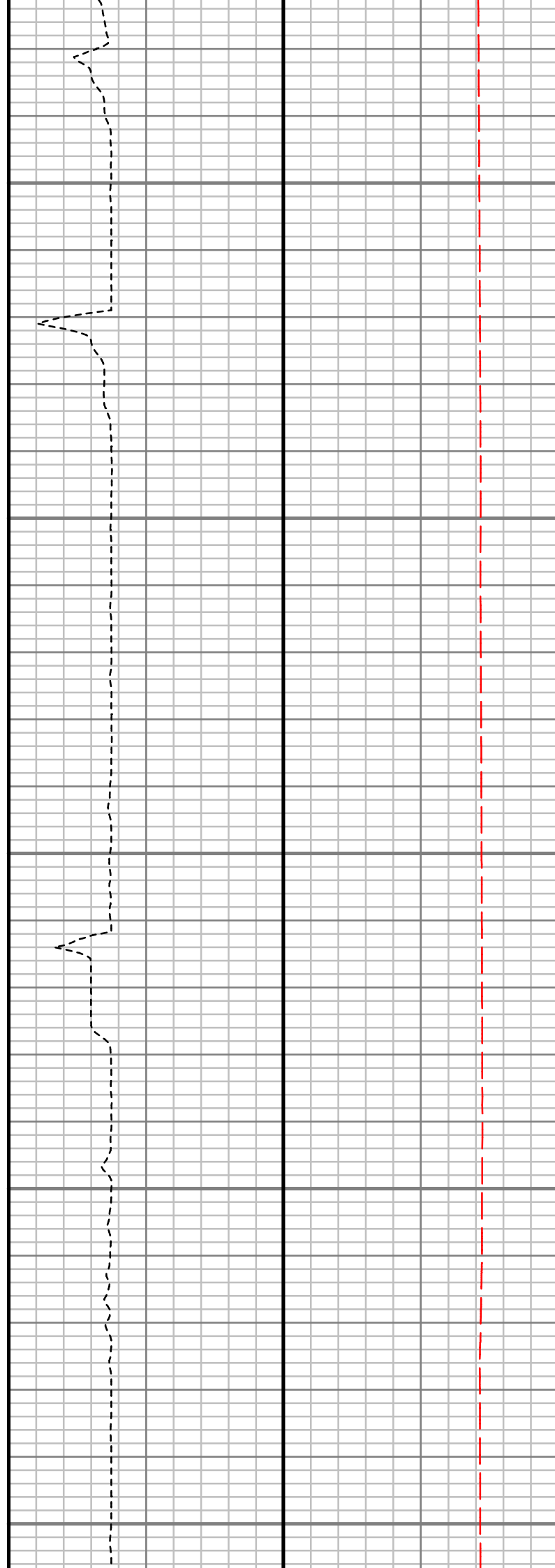
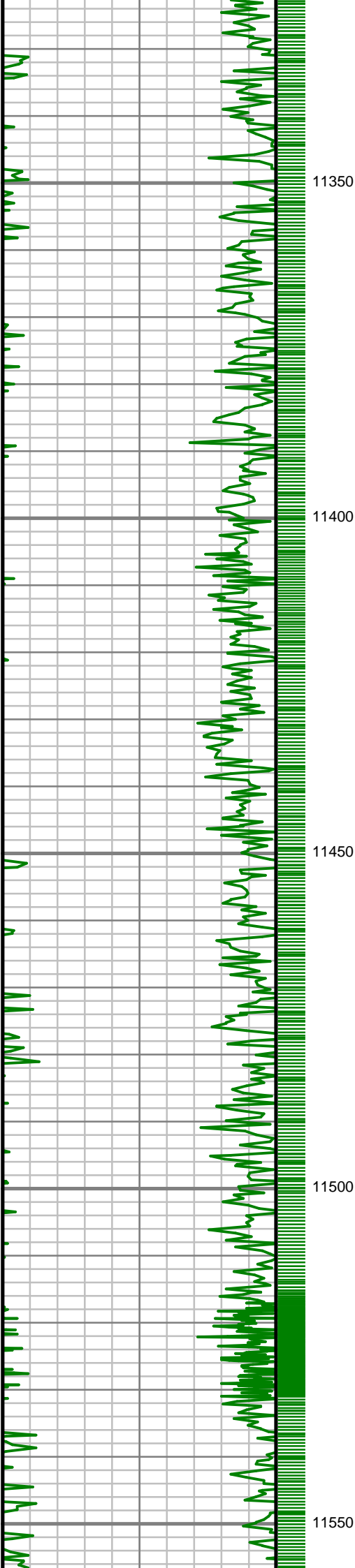
S: 113 MD: 10649.00 ft
Inc: 89.83 deg Az:
180.66 deg TVD:
7216.94 ft

S: 114 MD: 10742.00 ft
Inc: 91.71 deg Az:
180.17 deg TVD:
7215.69 ft

S: 115 MD: 10834.00 ft
Inc: 90.90 deg Az:
179.98 deg TVD:
7213.60 ft

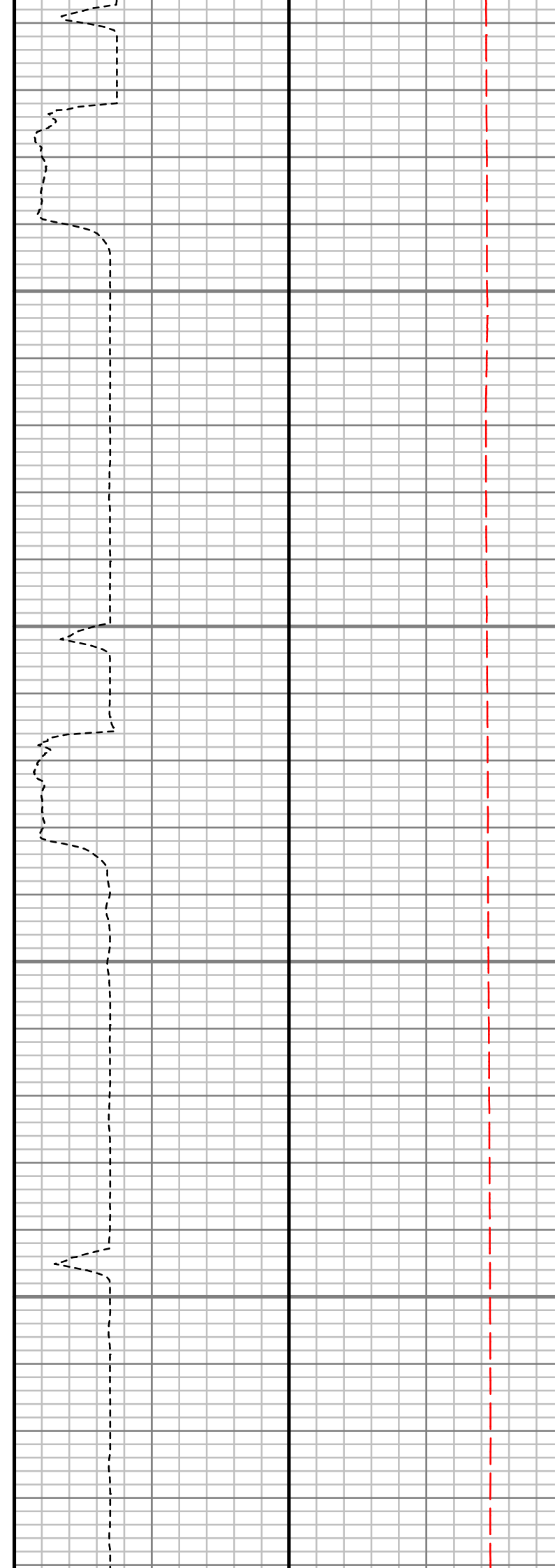
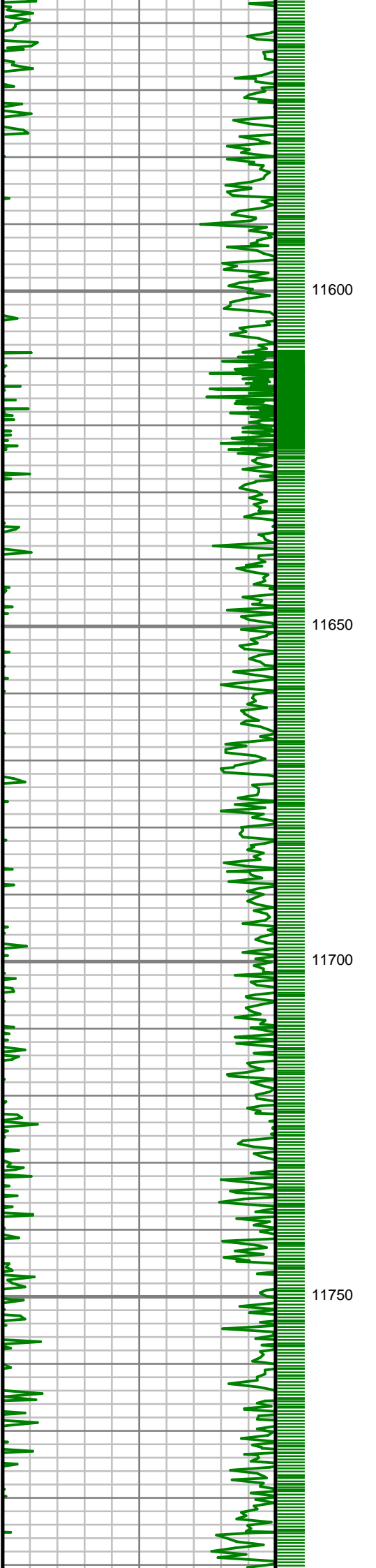






S: 121 MD: 11394.00 ft
Inc: 89.53 deg Az:
181.28 deg TVD:
7218.31 ft

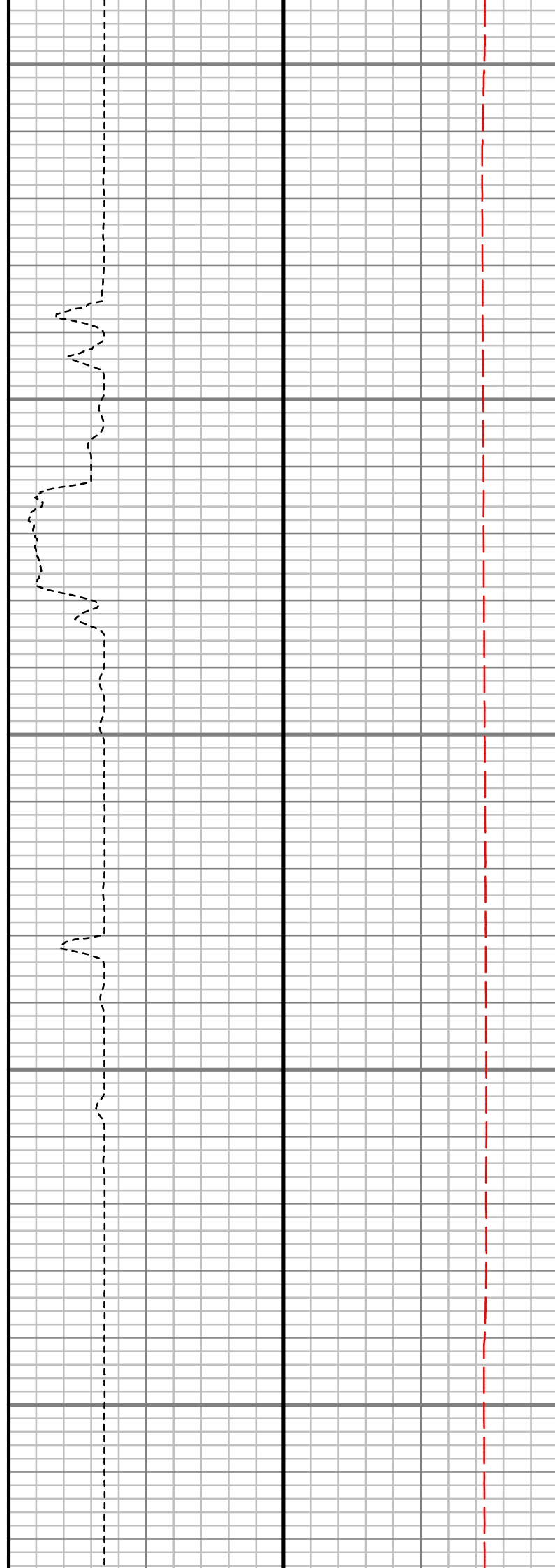
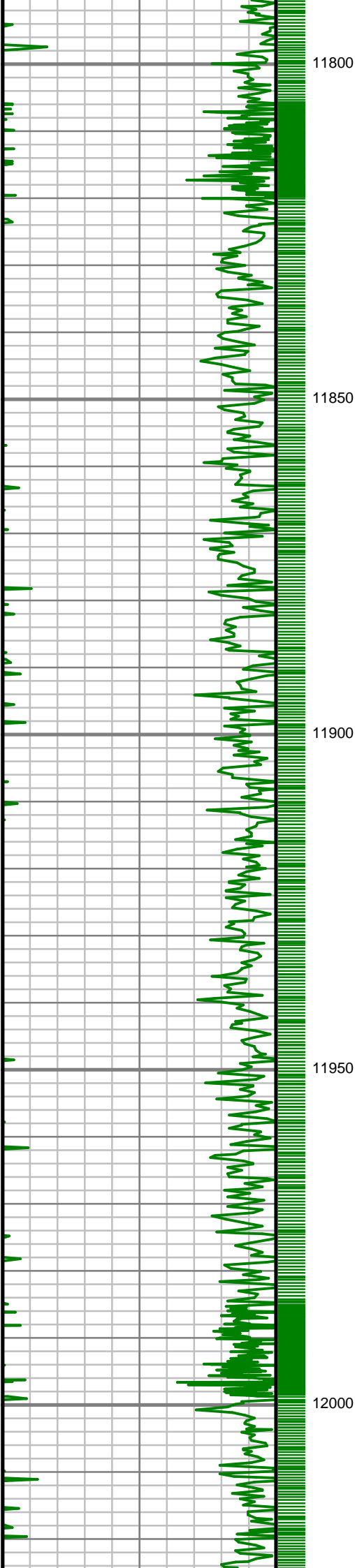
S: 122 MD: 11489.00 ft
Inc: 90.77 deg Az:
180.95 deg TVD:
7218.06 ft



S: 123 MD: 11584.00 ft
Inc: 91.34 deg Az:
181.24 deg TVD:
7216.31 ft

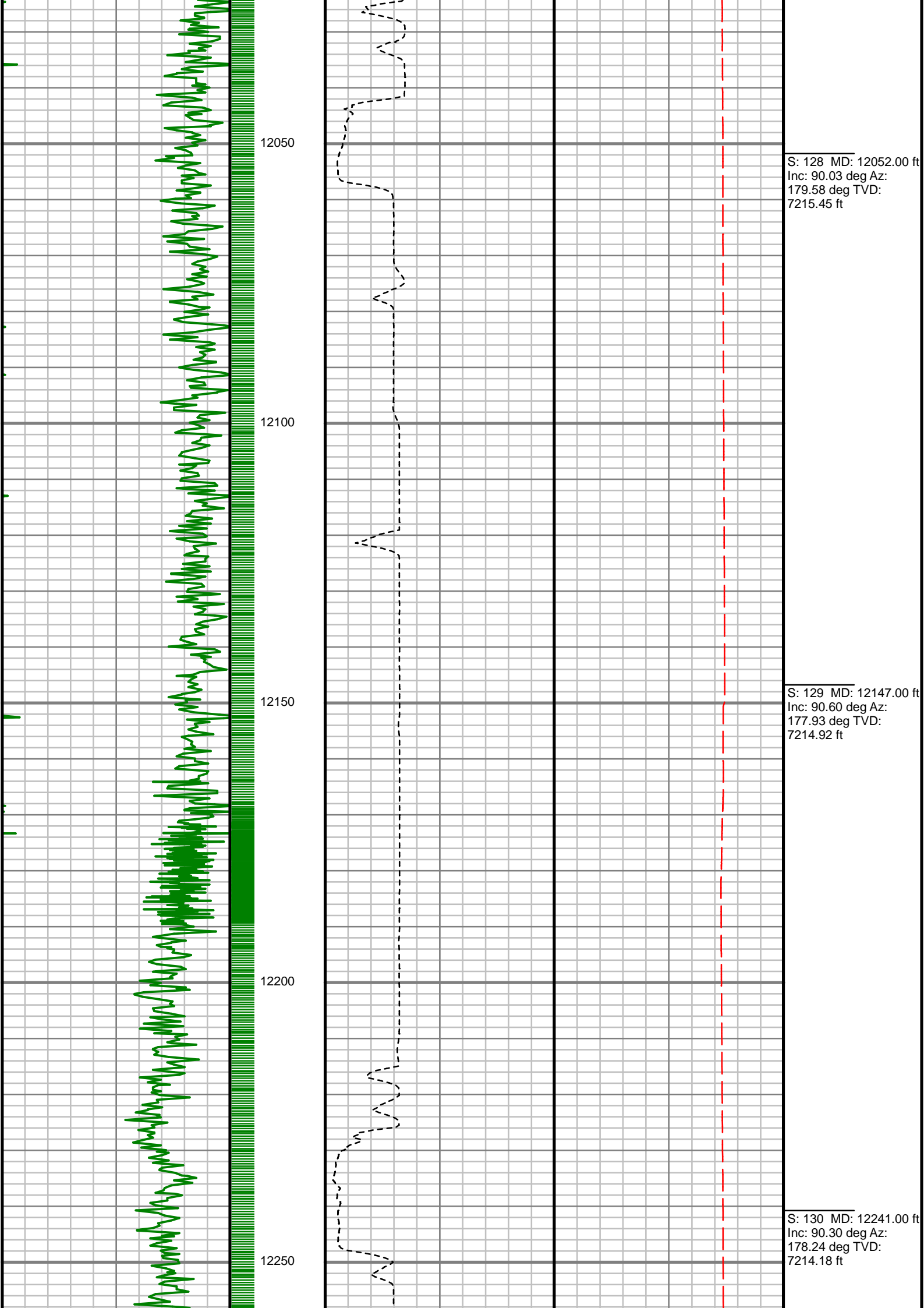
S: 124 MD: 11677.00 ft
Inc: 89.13 deg Az:
181.21 deg TVD:
7215.93 ft

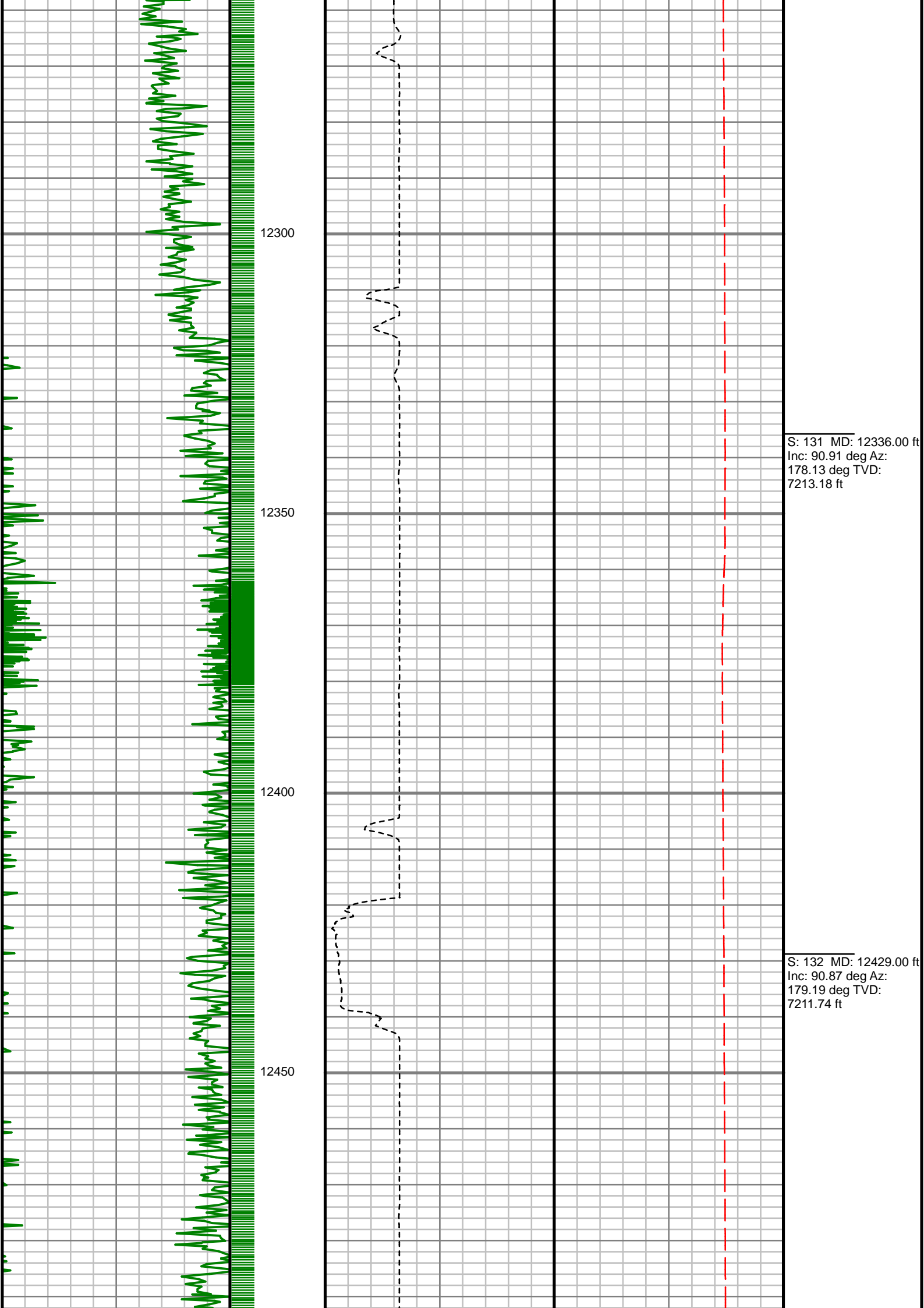
S: 125 MD: 11769.00 ft
Inc: 90.44 deg Az:
181.41 deg TVD:
7216.28 ft

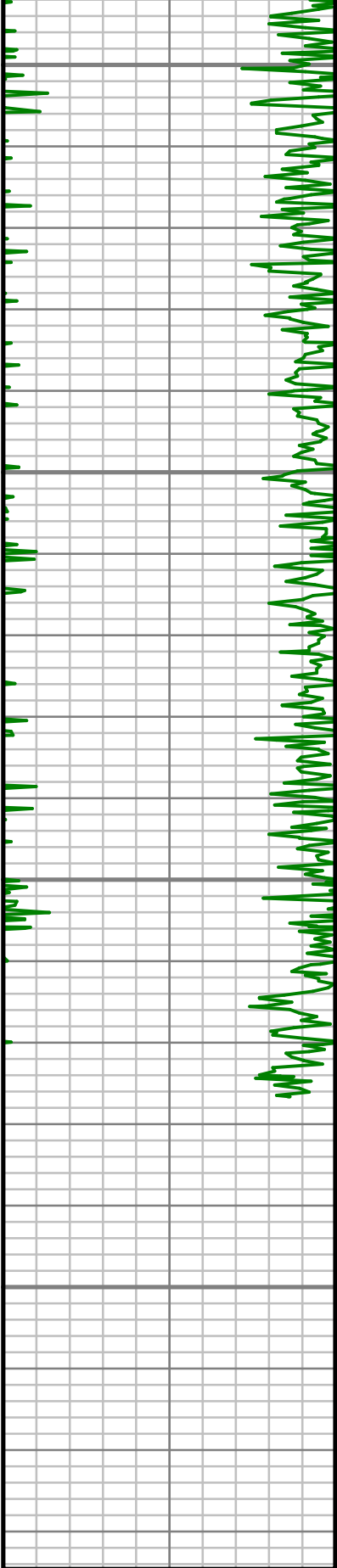


S: 126 MD: 11863.00 ft
Inc: 89.93 deg Az:
180.43 deg TVD:
7215.98 ft

S: 127 MD: 11957.00 ft
Inc: 90.33 deg Az:
180.49 deg TVD:
7215.76 ft







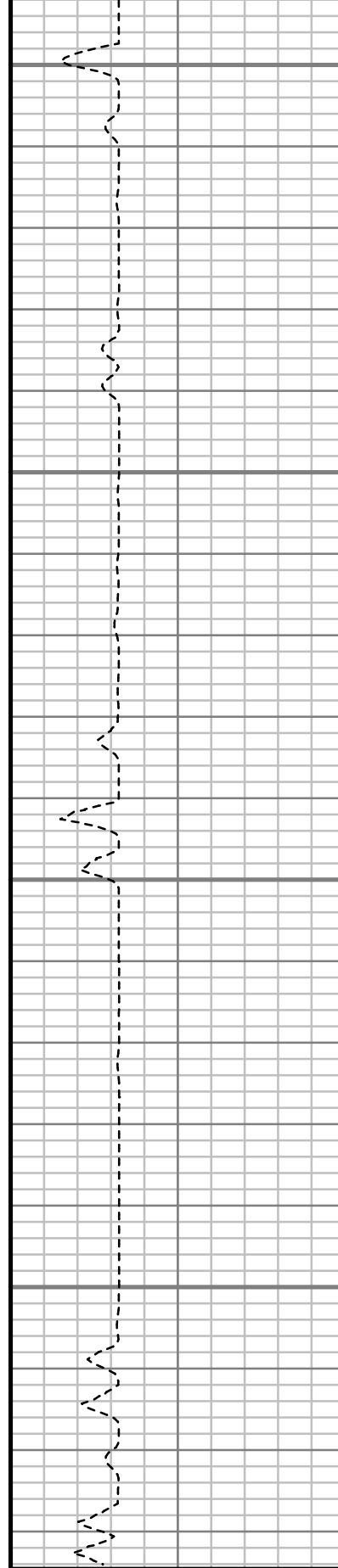
12500

12550

12600

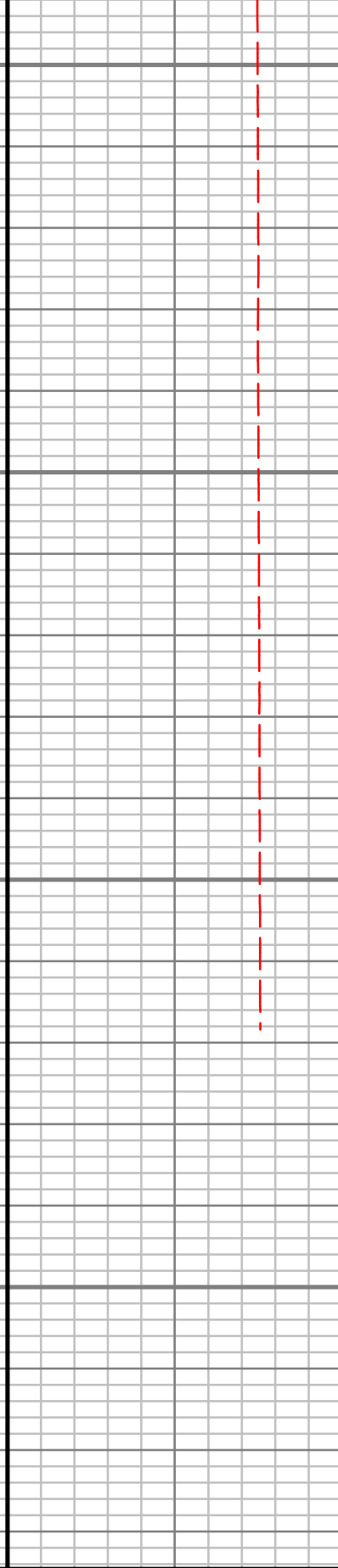
12650

MEASURED DEPTH
1:240 (ft)



Rate of Penetration (ROP)

0 Unit = ft/hr 1000



Tool Temperature (TEMP)

0 Unit = °F 300

S: 133 MD: 12522.00 ft
Inc: 90.64 deg Az:
178.65 deg TVD:
7210.51 ft

S: 134 MD: 12614.00 ft
Inc: 92.18 deg Az:
178.72 deg TVD:
7208.25 ft

Comments

SURVEY REPORT

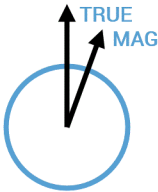
LAND FED 34N-32HZ LAND FED 34N-32HZ

CUSTOMER ANADARKO E&P ONSHORE LLC
PROJECT LAND FED 34N-32HZ
FIELD WATTENBURG

WELL INFORMATION
Lat/Long 40.099029° N, 104.805842° W
Northing 14,562,853.16 ft
Easting 1,694,712.19 ft
UWI 0512342396

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

VERTICAL SECTION REFERENCE
+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 179.95°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION Local Gravity: 999.046 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-2384 ft	BGGM2015	20 May 2016	8.34°	add 8.34°
2384-5288 ft	BGGM2015	20 May 2016	8.37°	add 8.37°
5288-7634 ft	BGGM2015	20 May 2016	8.39°	add 8.39°
7634-12614 ft	BGGM2015	20 May 2016	8.37°	add 8.37°

WELL NOTES **OPERATORS**
J. MEYERS, Z. BROWN

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
44.00	0.36	294.99	44.00	-0.06	0.06	-0.13	0.82
75.50	0.26	302.31	75.50	-0.14	0.14	-0.28	0.34
169.40	0.19	272.86	169.40	-0.26	0.26	-0.61	0.14
263.40	0.49	293.27	263.40	-0.43	0.43	-1.14	0.34
357.30	1.99	316.62	357.27	-1.77	1.77	-2.62	1.65
451.20	2.94	314.58	451.08	-4.65	4.65	-5.46	1.02
545.20	3.19	318.37	544.95	-8.30	8.29	-8.91	0.34
639.10	4.70	316.92	638.62	-13.07	13.06	-13.28	1.61
733.10	6.38	316.40	732.18	-19.67	19.65	-19.51	1.79
827.00	8.49	310.75	825.29	-27.98	27.95	-28.36	2.38
921.00	10.45	301.92	918.01	-37.03	36.99	-40.85	2.59
1015.80	11.31	295.13	1011.11	-45.54	45.49	-56.57	1.63
1109.10	12.61	297.79	1102.38	-54.19	54.12	-73.86	1.51
1203.20	14.46	295.35	1193.86	-64.02	63.94	-93.57	2.06
1296.70	15.19	289.10	1284.26	-73.05	72.95	-115.69	1.88
1390.60	16.54	289.08	1374.58	-81.46	81.34	-139.95	1.44
1486.20	18.17	291.04	1465.82	-91.29	91.14	-166.73	1.81
1581.70	19.58	293.16	1556.19	-102.95	102.78	-195.34	1.64
1676.20	19.32	292.24	1645.29	-115.12	114.93	-224.37	0.43

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1697.00	19.28	292.19	1664.93	-117.73	117.53	-230.73	0.21
1984.00	19.19	292.34	1935.90	-153.63	153.36	-318.23	0.04
2078.00	21.20	296.78	2024.12	-167.19	166.89	-347.70	2.69
2173.00	22.81	297.76	2112.20	-183.54	183.21	-379.34	1.73
2268.00	23.30	296.20	2199.61	-200.44	200.08	-412.50	0.82
2363.00	23.22	294.94	2286.89	-216.66	216.27	-446.34	0.53
2459.00	22.74	293.72	2375.27	-232.14	231.72	-480.49	0.70
2553.00	22.41	291.59	2462.07	-246.07	245.62	-513.79	0.94
2648.00	22.36	292.76	2549.91	-259.75	259.28	-547.29	0.47
2742.00	23.02	296.34	2636.63	-274.86	274.35	-580.26	1.63
2837.00	23.02	296.89	2724.07	-291.53	291.00	-613.47	0.23
2931.00	22.26	296.14	2810.82	-307.72	307.16	-645.85	0.86
3025.00	21.68	295.19	2898.00	-322.98	322.39	-677.54	0.73
3120.00	21.18	295.89	2986.43	-337.97	337.35	-708.86	0.59
3214.00	21.16	295.44	3074.08	-352.70	352.06	-739.46	0.17
3309.00	20.92	295.57	3162.75	-367.42	366.74	-770.25	0.25
3404.00	20.47	296.00	3251.62	-382.05	381.35	-800.48	0.50
3498.00	20.14	299.45	3339.78	-397.24	396.52	-829.35	1.32
3593.00	19.78	306.12	3429.08	-414.78	414.04	-856.59	2.42
3686.00	20.56	309.60	3516.38	-434.49	433.72	-881.89	1.54

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3780.00	21.64	312.51	3604.07	-456.75	455.96	-907.38	1.60
3874.00	22.23	318.13	3691.28	-481.73	480.91	-932.03	2.32
3969.00	21.73	323.72	3779.38	-509.31	508.48	-954.43	2.26
4064.00	20.69	328.96	3867.96	-537.89	537.04	-973.50	2.28
4158.00	20.17	334.92	3956.05	-566.81	565.95	-988.93	2.28
4251.00	21.26	338.06	4043.04	-596.99	596.12	-1002.03	1.67
4347.00	21.86	340.34	4132.32	-629.98	629.10	-1014.54	1.07
4442.00	21.98	341.50	4220.45	-663.51	662.61	-1026.14	0.47
4535.00	21.46	340.76	4306.85	-696.08	695.18	-1037.26	0.63
4631.00	19.50	340.27	4396.78	-727.76	726.85	-1048.46	2.05
4725.00	20.24	341.28	4485.18	-757.94	757.02	-1058.97	0.87
4819.00	21.09	340.22	4573.13	-789.26	788.33	-1069.91	0.99
4914.00	23.03	340.33	4661.17	-822.86	821.92	-1081.95	2.05
5007.00	22.79	339.09	4746.84	-856.83	855.88	-1094.51	0.58
5100.00	21.93	338.52	4832.84	-889.83	888.87	-1107.30	0.95
5195.00	19.90	337.62	4921.58	-921.31	920.33	-1119.95	2.17
5289.00	20.17	339.64	5009.89	-951.31	950.32	-1131.68	0.79
5382.00	19.84	338.98	5097.28	-981.08	980.09	-1142.92	0.44
5475.00	18.24	337.61	5185.19	-1009.28	1008.27	-1154.13	1.79
5569.00	17.87	337.61	5274.56	-1036.23	1035.21	-1165.22	0.39

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5662.00	17.40	338.74	5363.19	-1062.39	1061.37	-1175.70	0.63
5756.00	16.01	337.90	5453.22	-1087.51	1086.47	-1185.67	1.50
5850.00	17.48	339.13	5543.23	-1112.72	1111.67	-1195.58	1.62
5944.00	17.14	339.93	5632.97	-1138.93	1137.88	-1205.37	0.44
6038.00	13.87	336.31	5723.54	-1162.28	1161.22	-1214.65	3.63
6132.00	11.77	335.69	5815.19	-1181.34	1180.28	-1223.12	2.24
6226.00	9.65	332.54	5907.55	-1197.08	1196.01	-1230.71	2.33
6320.00	7.69	328.98	6000.47	-1209.47	1208.39	-1237.58	2.16
6414.00	6.41	329.49	6093.76	-1219.39	1218.30	-1243.49	1.36
6509.00	4.75	321.05	6188.31	-1227.02	1225.93	-1248.65	1.95
6604.00	3.68	322.01	6283.05	-1232.48	1231.39	-1253.00	1.13
6699.00	1.85	306.16	6377.93	-1235.79	1234.70	-1256.11	2.07
6793.00	1.36	294.87	6471.90	-1237.16	1236.06	-1258.35	0.61
6888.00	1.22	312.16	6566.87	-1238.31	1237.21	-1260.13	0.44
6982.00	0.82	125.57	6660.87	-1238.60	1237.50	-1260.32	2.16
7077.00	10.66	177.26	6755.29	-1229.40	1228.30	-1259.35	10.71
7170.00	17.34	180.00	6845.48	-1206.93	1205.84	-1258.94	7.22
7263.00	25.17	188.79	6932.11	-1173.47	1172.37	-1261.97	9.08
7356.00	29.96	180.63	7014.56	-1130.67	1129.56	-1265.25	6.54
7450.00	42.58	176.19	7090.20	-1075.23	1074.13	-1263.39	13.71

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7542.00	53.12	177.65	7151.86	-1007.22	1006.12	-1259.80	11.51
7637.00	58.46	173.42	7205.27	-928.95	927.86	-1253.60	6.72
7730.00	73.08	173.16	7243.34	-844.95	843.86	-1243.70	15.73
7824.00	86.79	179.97	7259.74	-752.83	751.75	-1238.29	16.22
7918.00	91.51	178.38	7261.14	-658.88	657.80	-1236.93	5.30
8012.00	91.64	178.39	7258.56	-564.95	563.87	-1234.28	0.14
8107.00	90.57	178.45	7256.73	-470.00	468.93	-1231.67	1.13
8203.00	91.31	177.81	7255.15	-374.06	372.99	-1228.54	1.02
8297.00	91.51	179.27	7252.84	-280.12	279.05	-1226.14	1.57
8392.00	88.82	181.87	7252.57	-185.15	184.07	-1227.09	3.93
8486.00	89.36	182.52	7254.05	-91.23	90.16	-1230.70	0.90
8581.00	92.14	183.30	7252.81	3.62	-4.70	-1235.52	3.04
8676.00	92.58	181.61	7248.89	98.45	-99.53	-1239.58	1.84
8770.00	90.07	179.52	7246.72	192.41	-193.49	-1240.51	3.48
8865.00	91.10	179.89	7245.75	287.40	-288.48	-1240.03	1.16
8957.00	93.15	180.59	7242.33	379.33	-380.41	-1240.42	2.35
9051.00	93.28	178.94	7237.06	473.18	-474.26	-1240.03	1.76
9146.00	91.17	178.74	7233.37	568.08	-569.16	-1238.11	2.23
9240.00	90.10	178.79	7232.32	662.05	-663.13	-1236.08	1.14
9335.00	90.33	178.81	7231.96	757.03	-758.11	-1234.08	0.25

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9429.00	90.27	177.46	7231.47	850.98	-852.06	-1231.02	1.44
9522.00	90.27	178.12	7231.03	943.92	-944.99	-1227.44	0.71
9616.00	90.91	178.18	7230.07	1037.86	-1038.93	-1224.41	0.68
9709.00	90.57	179.07	7228.87	1130.83	-1131.90	-1222.18	1.02
9805.00	89.87	179.27	7228.51	1226.82	-1227.89	-1220.78	0.76
9900.00	90.84	179.01	7227.93	1321.81	-1322.87	-1219.35	1.06
9993.00	90.67	179.33	7226.70	1414.79	-1415.85	-1218.01	0.39
10088.00	89.83	180.05	7226.28	1509.79	-1510.85	-1217.50	1.16
10182.00	90.57	180.14	7225.96	1603.79	-1604.85	-1217.65	0.79
10276.00	91.44	179.56	7224.31	1697.77	-1698.83	-1217.40	1.12
10369.00	91.37	180.23	7222.02	1790.74	-1791.80	-1217.23	0.73
10463.00	91.91	180.07	7219.33	1884.70	-1885.77	-1217.48	0.59
10556.00	90.60	180.70	7217.29	1977.68	-1978.74	-1218.11	1.56
10649.00	89.83	180.66	7216.94	2070.67	-2071.73	-1219.21	0.83
10742.00	91.71	180.17	7215.69	2163.65	-2164.72	-1219.88	2.08
10834.00	90.90	179.98	7213.60	2255.63	-2256.69	-1220.00	0.90
10928.00	89.73	180.09	7213.07	2349.62	-2350.69	-1220.06	1.25
11021.00	90.30	179.09	7213.05	2442.62	-2443.68	-1219.40	1.24
11115.00	88.52	178.64	7214.01	2536.59	-2537.66	-1217.54	1.95
11208.00	88.89	178.73	7216.11	2629.55	-2630.61	-1215.40	0.41

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11302.00	89.43	180.20	7217.48	2723.53	-2724.59	-1214.52	1.66
11394.00	89.53	181.28	7218.31	2815.52	-2816.58	-1215.70	1.18
11489.00	90.77	180.95	7218.06	2910.49	-2911.56	-1217.55	1.35
11584.00	91.34	181.24	7216.31	3005.46	-3006.52	-1219.37	0.68
11677.00	89.13	181.21	7215.93	3098.43	-3099.50	-1221.36	2.38
11769.00	90.44	181.41	7216.28	3190.40	-3191.47	-1223.46	1.44
11863.00	89.93	180.43	7215.98	3284.39	-3285.46	-1224.96	1.17
11957.00	90.33	180.49	7215.76	3378.38	-3379.45	-1225.72	0.43
12052.00	90.03	179.58	7215.45	3473.38	-3474.45	-1225.77	1.01
12147.00	90.60	177.93	7214.92	3568.35	-3569.42	-1223.70	1.84
12241.00	90.30	178.24	7214.18	3662.30	-3663.37	-1220.56	0.47
12336.00	90.91	178.13	7213.18	3757.25	-3758.31	-1217.55	0.65
12429.00	90.87	179.19	7211.74	3850.21	-3851.28	-1215.37	1.14
12522.00	90.64	178.65	7210.51	3943.19	-3944.25	-1213.62	0.63
12614.00	92.18	178.72	7208.25	4035.14	-4036.20	-1211.50	1.68

5" = 100' FEET MD