

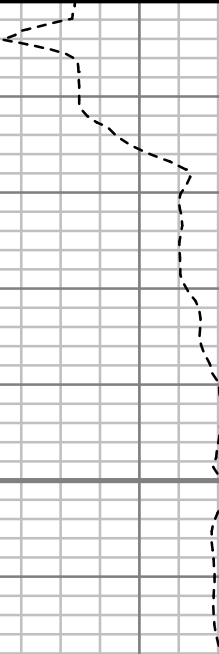

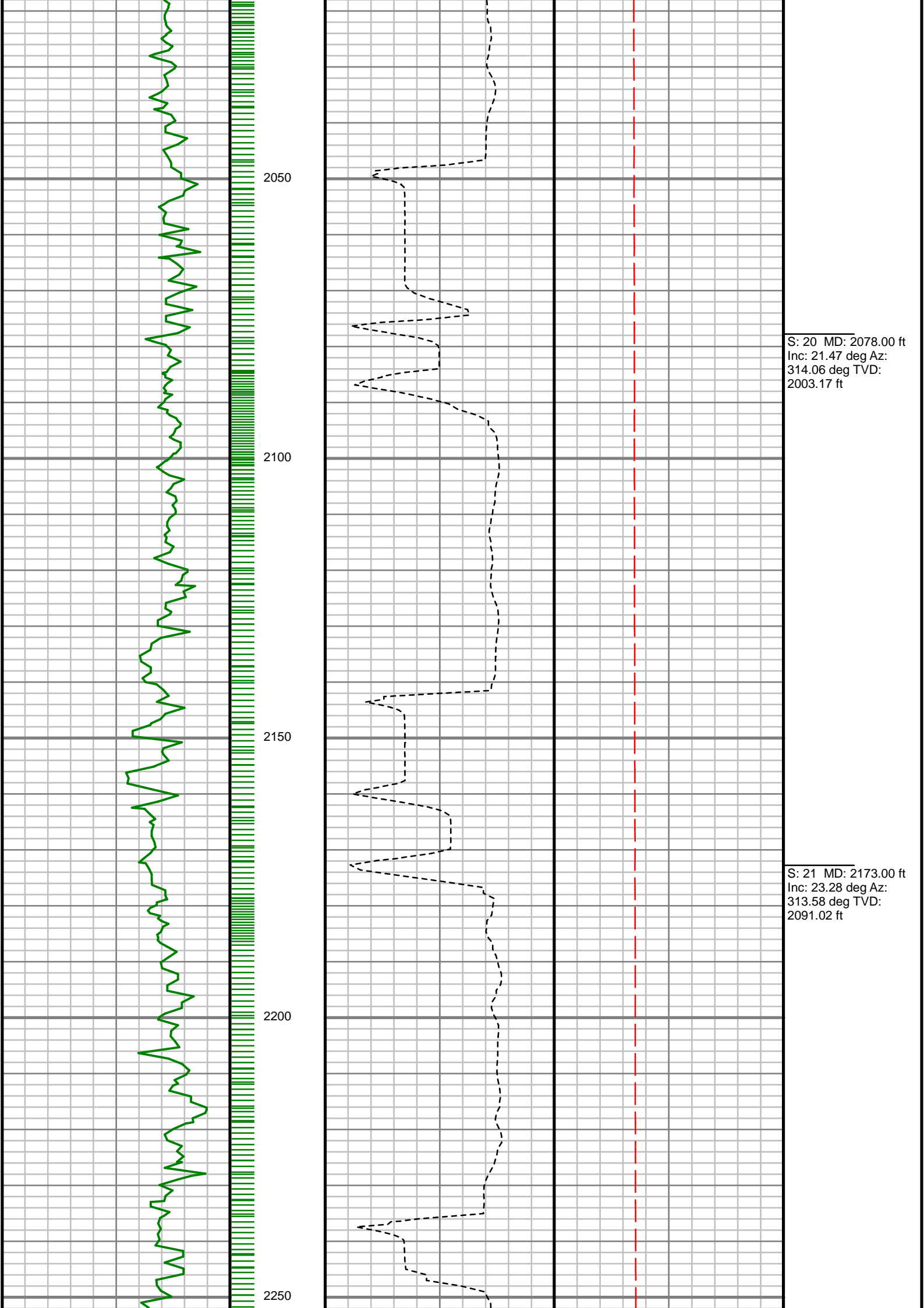
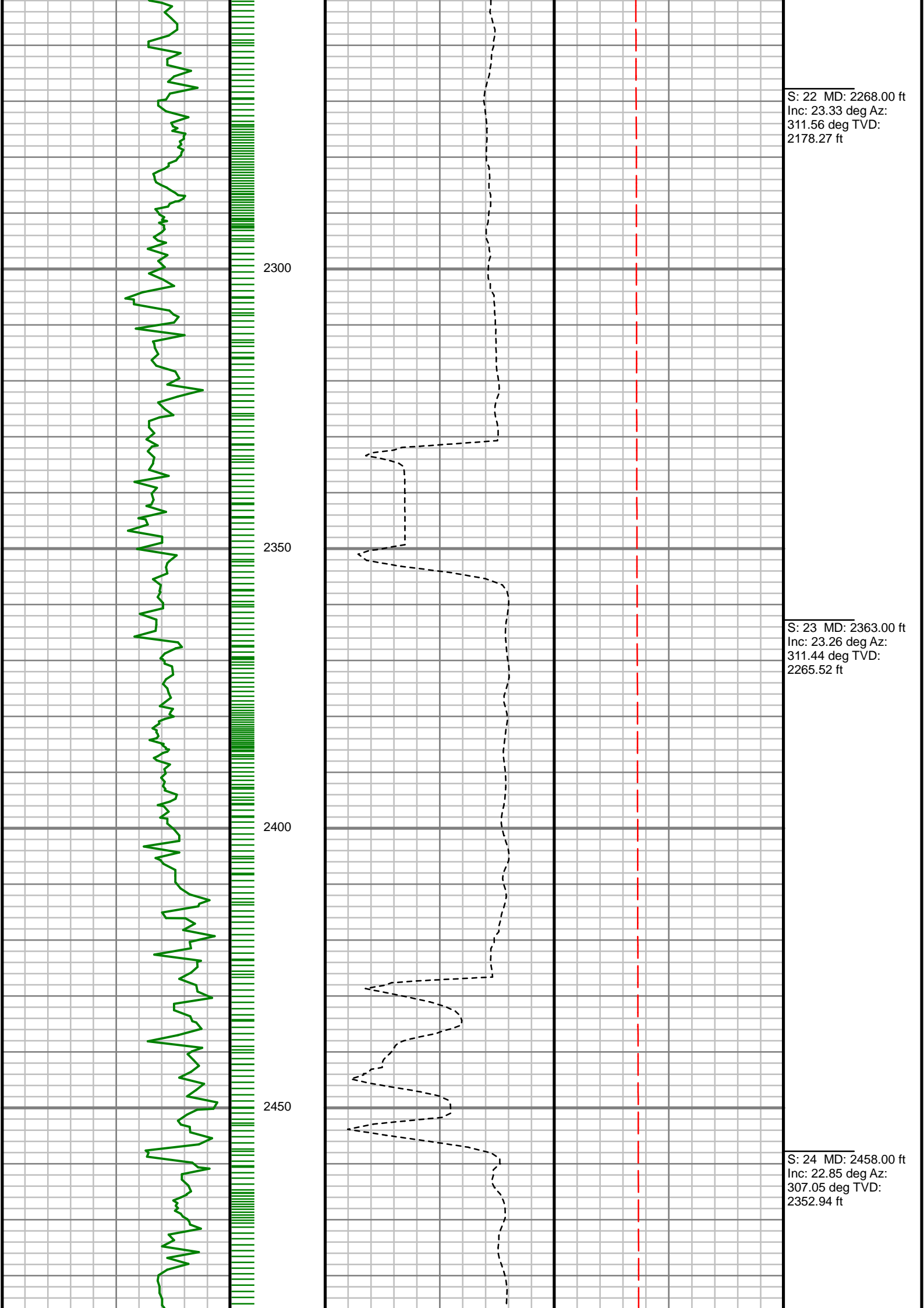


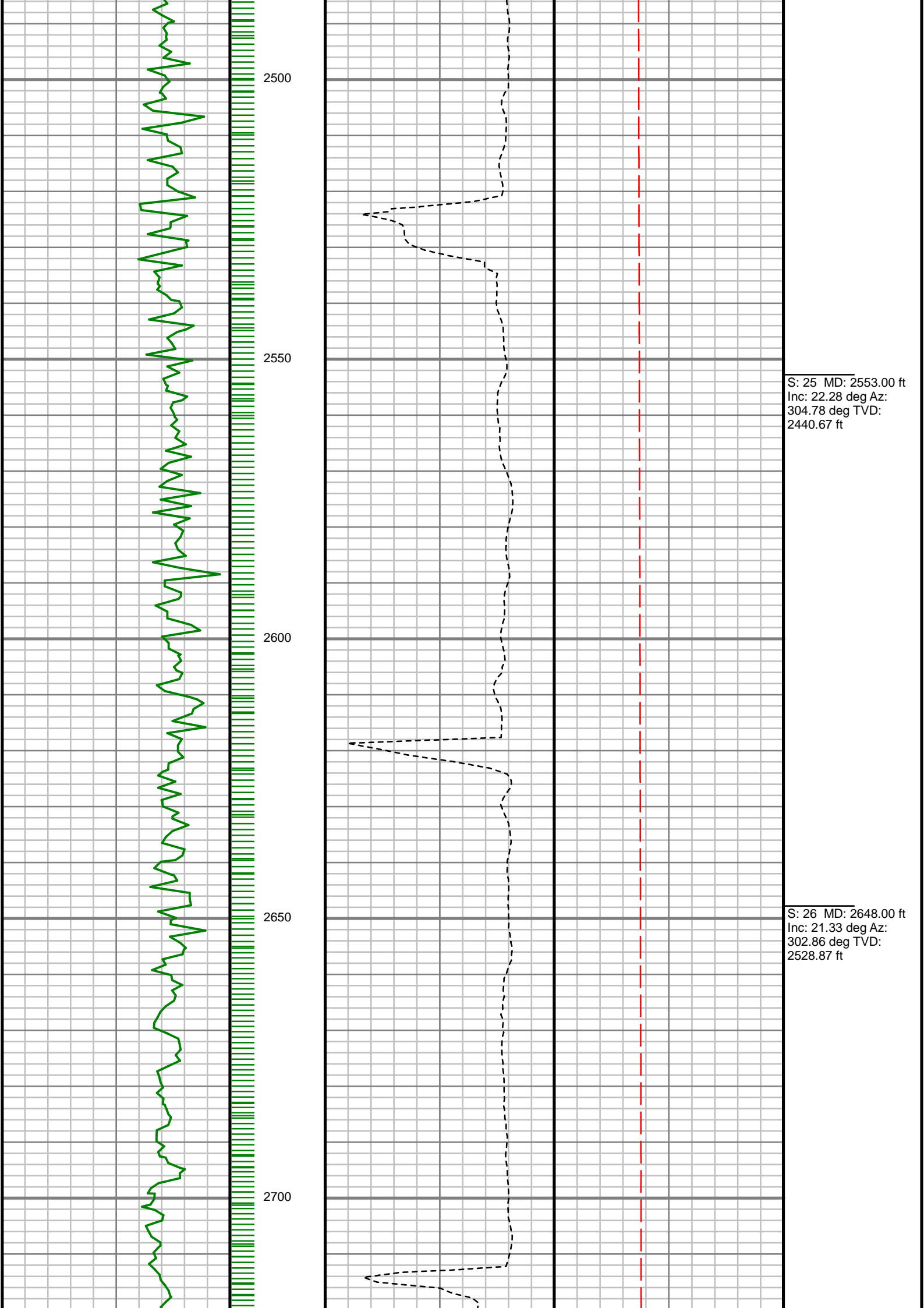
[illegible]

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 34C-32HZ WATTENBERG FIELD WELD COUNTY, COLORADO 05123423950000				
Gamma Ray (GR) 0 Unit = aapi 150	MEASURED DEPTH 1:240 (ft)	Rate of Penetration (ROP) 0 Unit = ft/hr 1000	Tool Temperature (T-TEMP) 0 Unit = °F 300	Comments
	 2000			S: 19 MD: 1984.00 ft Inc: 21.29 deg Az: 314.96 deg TVD: 1915.64 ft

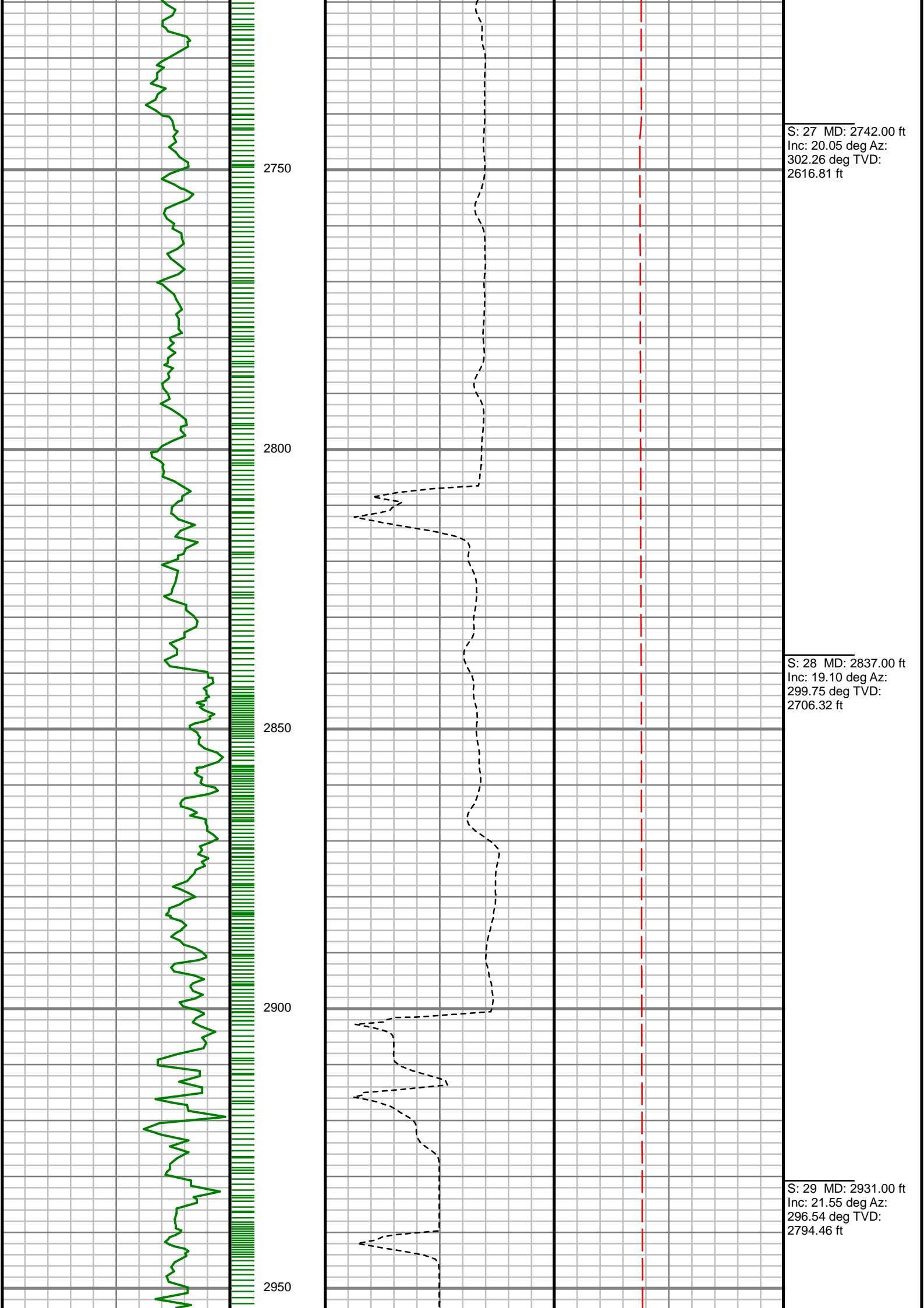


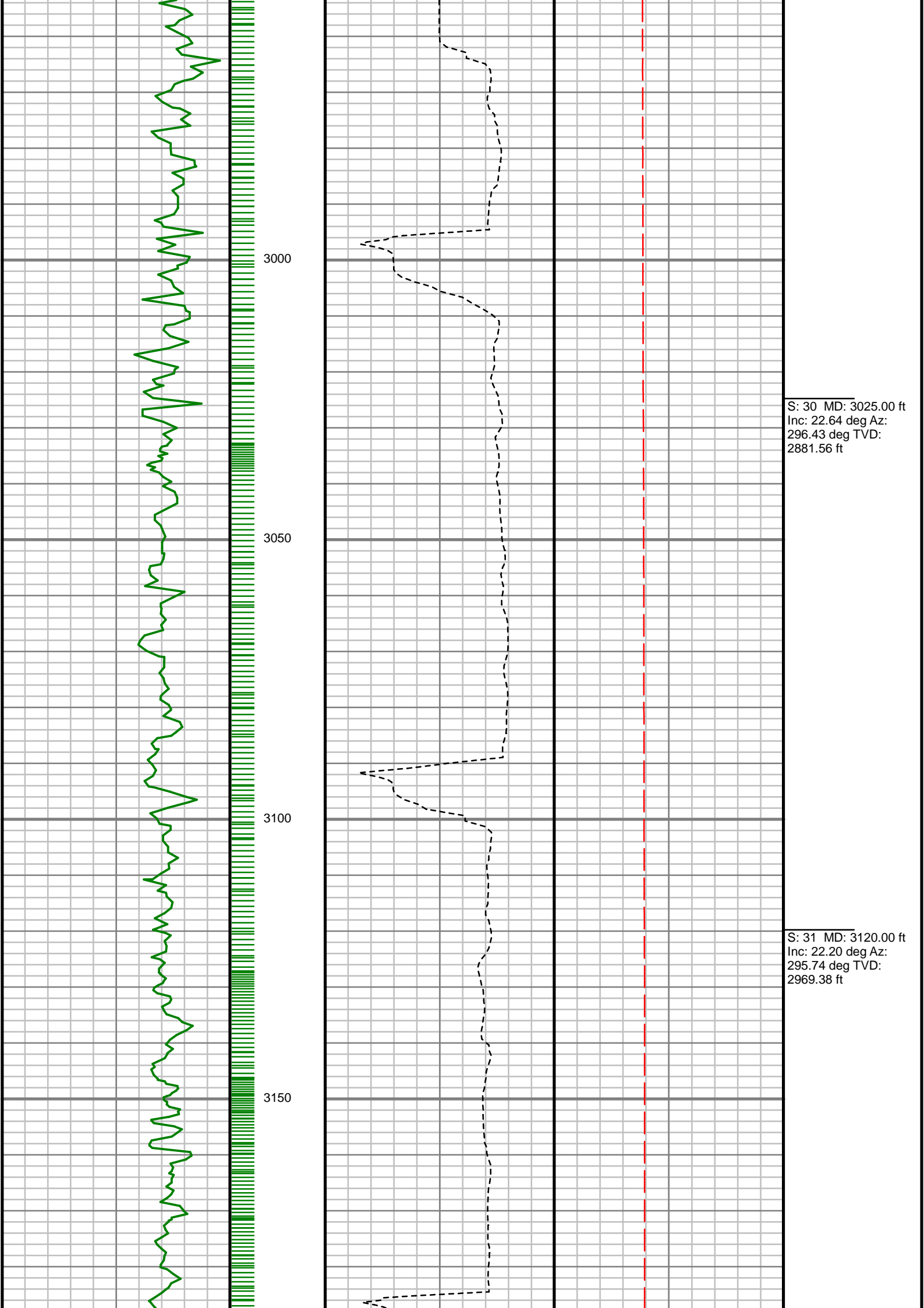




S: 25 MD: 2553.00 ft
Inc: 22.28 deg Az:
304.78 deg TVD:
2440.67 ft

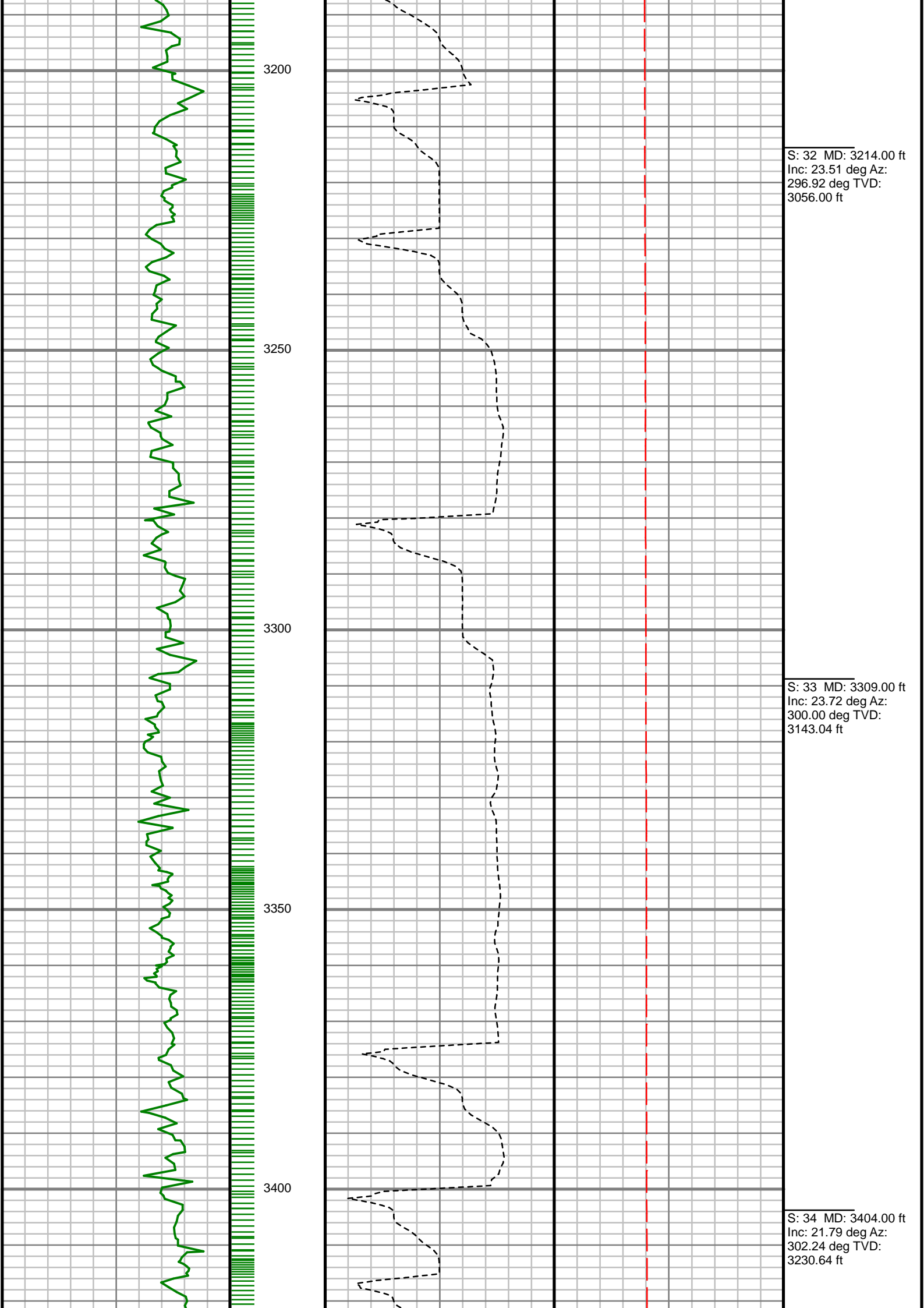
S: 26 MD: 2648.00 ft
Inc: 21.33 deg Az:
302.86 deg TVD:
2528.87 ft

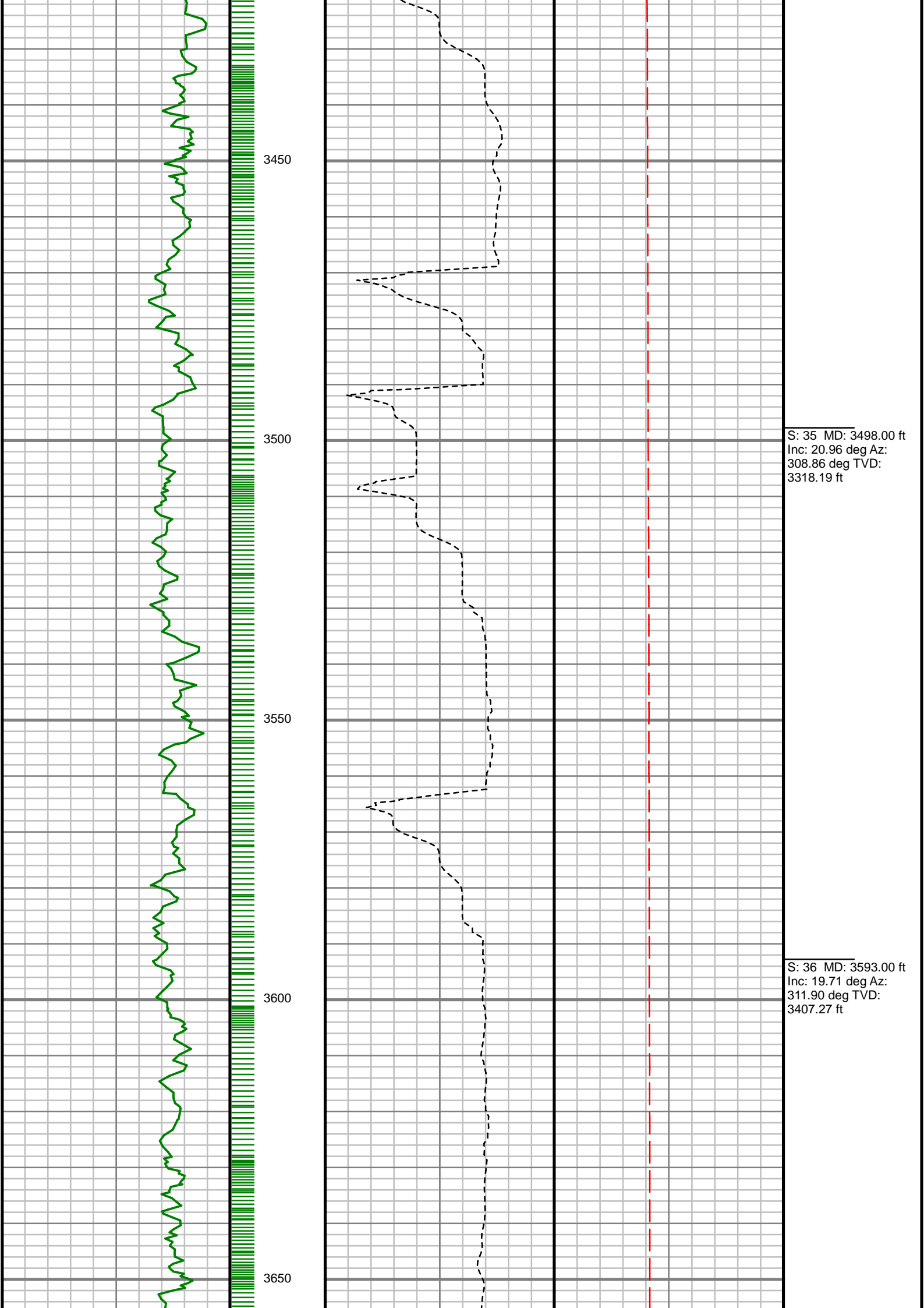


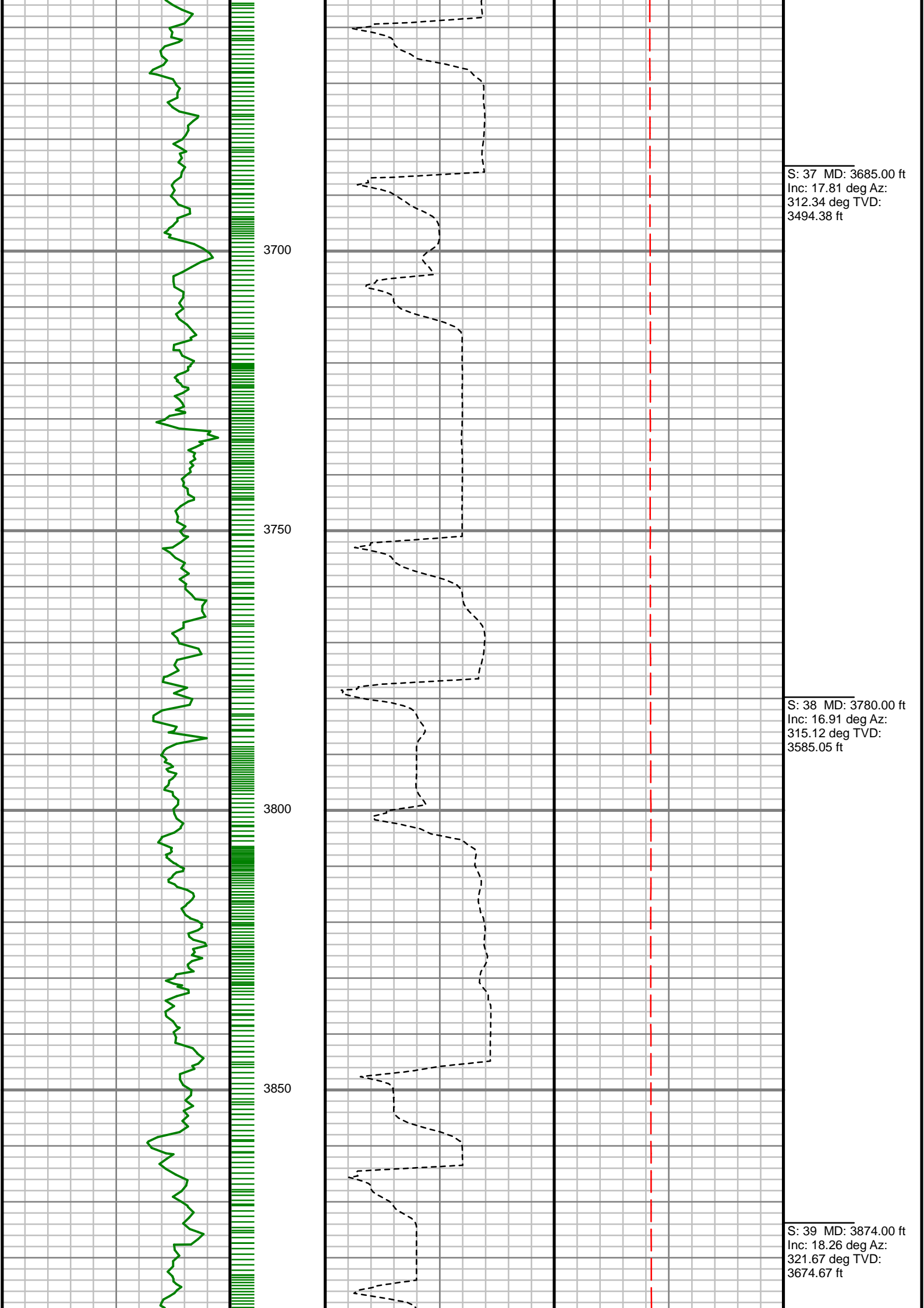


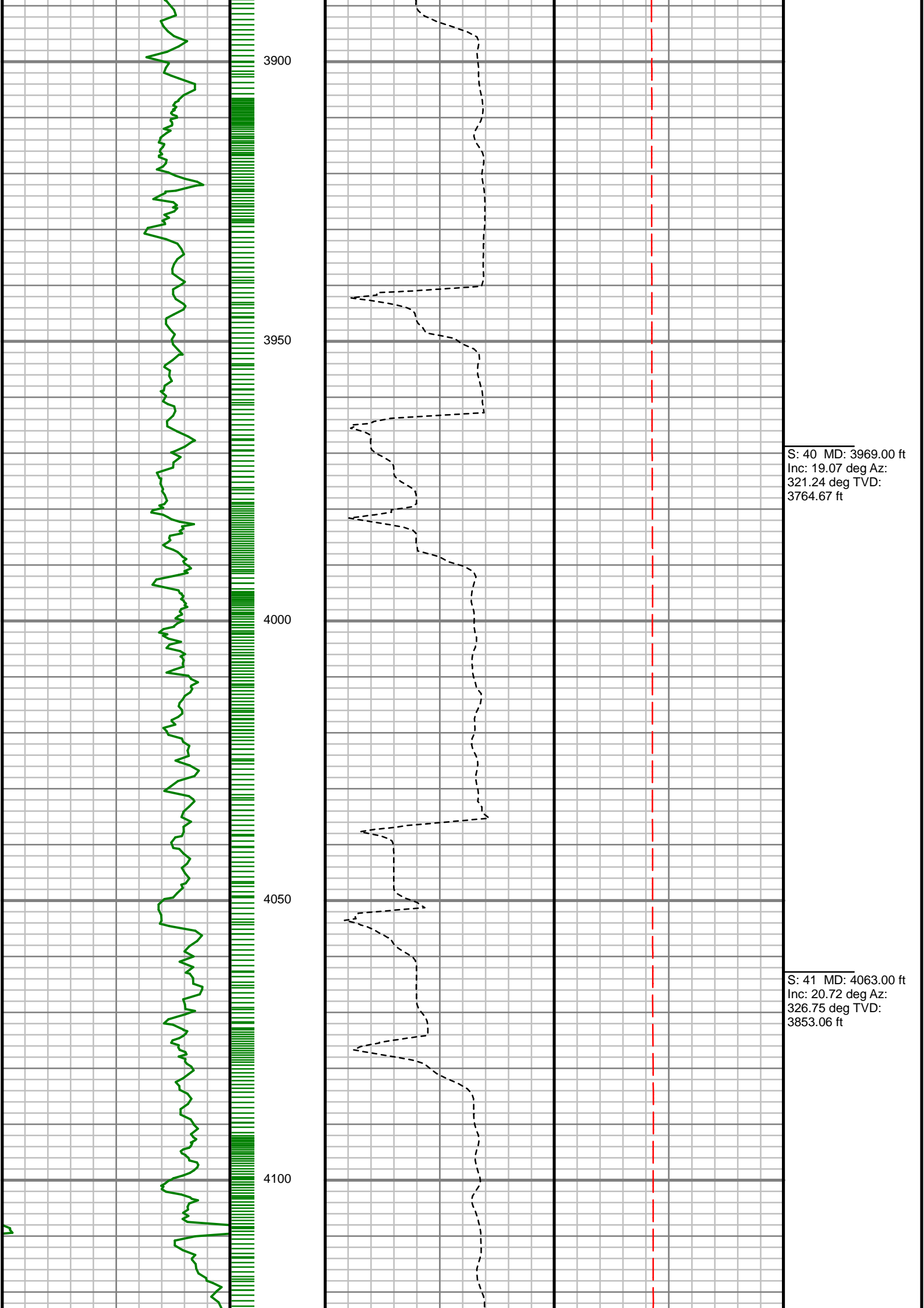
S: 30 MD: 3025.00 ft
Inc: 22.64 deg Az:
296.43 deg TVD:
2881.56 ft

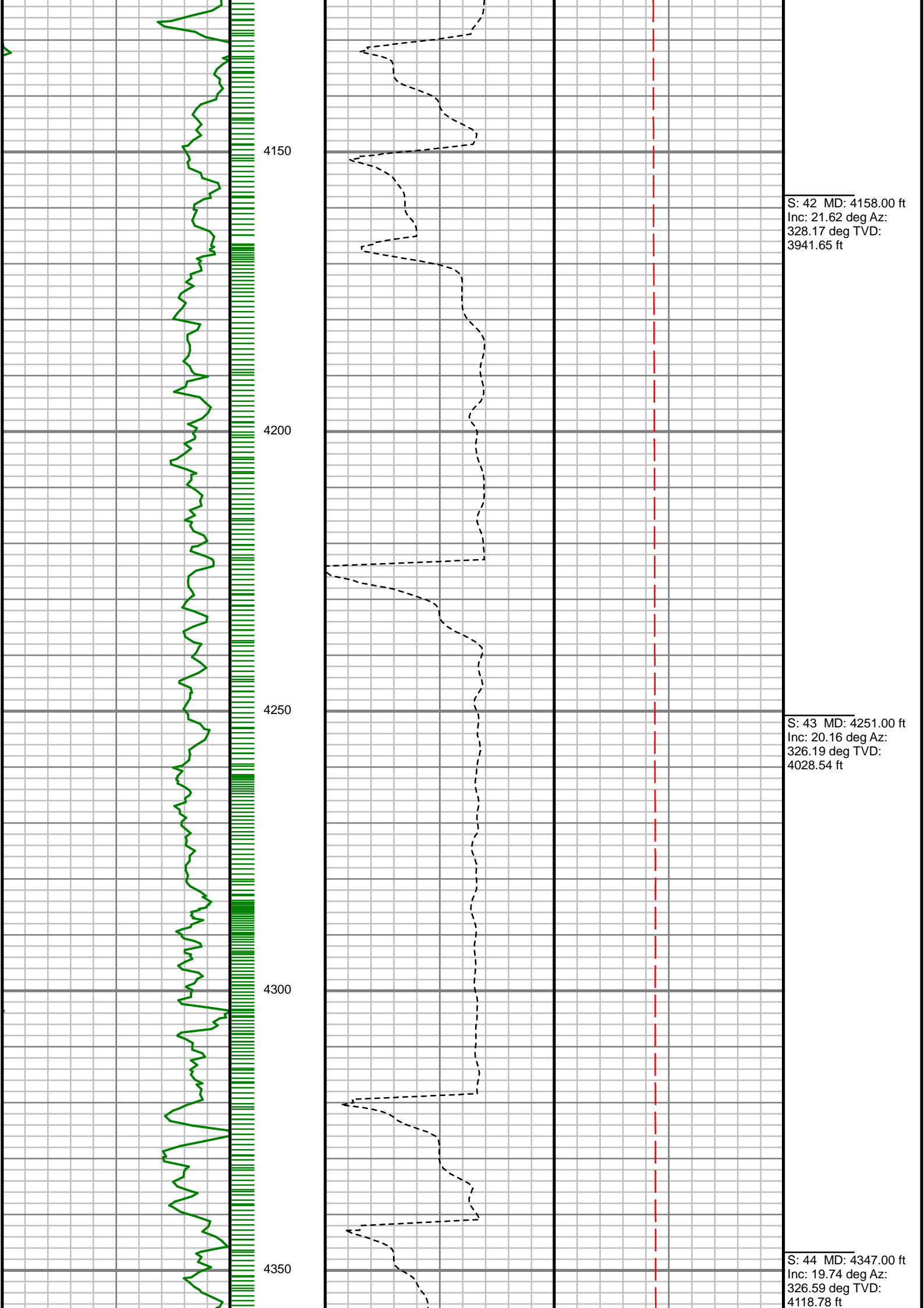
S: 31 MD: 3120.00 ft
Inc: 22.20 deg Az:
295.74 deg TVD:
2969.38 ft

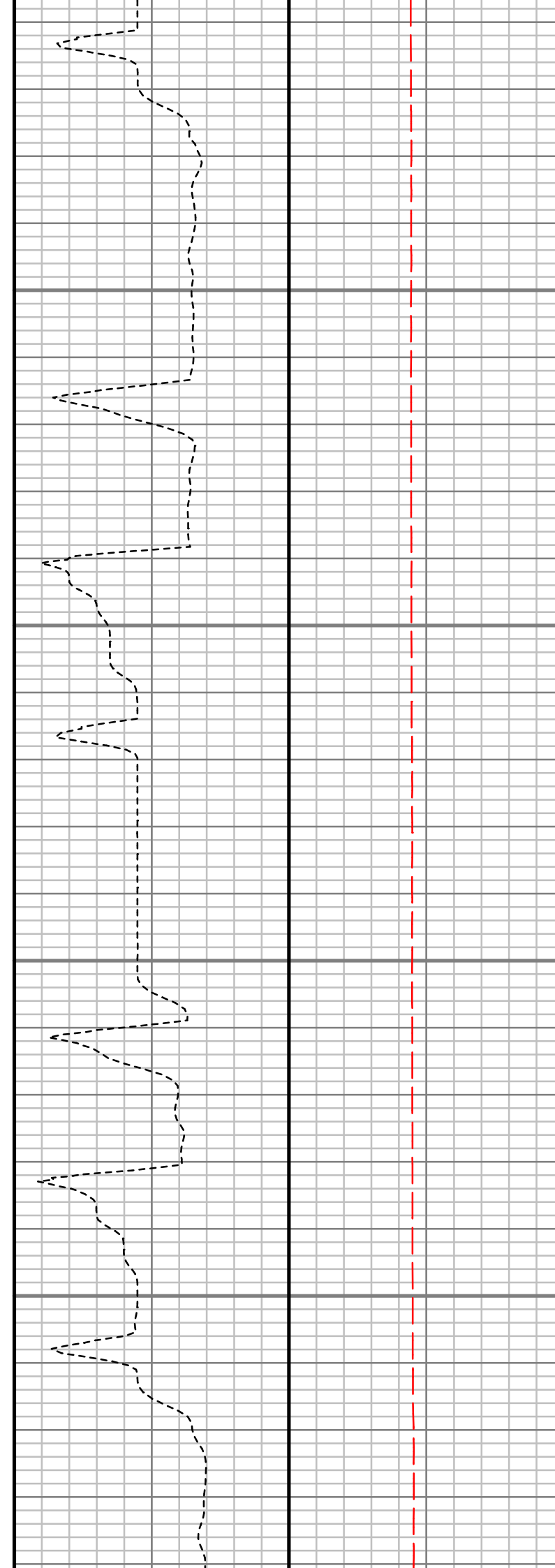
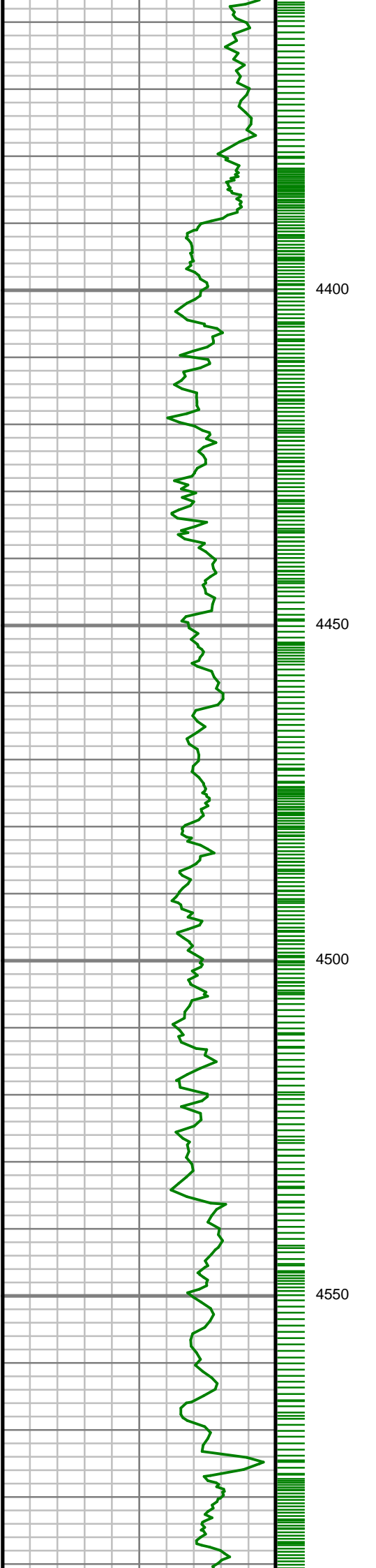






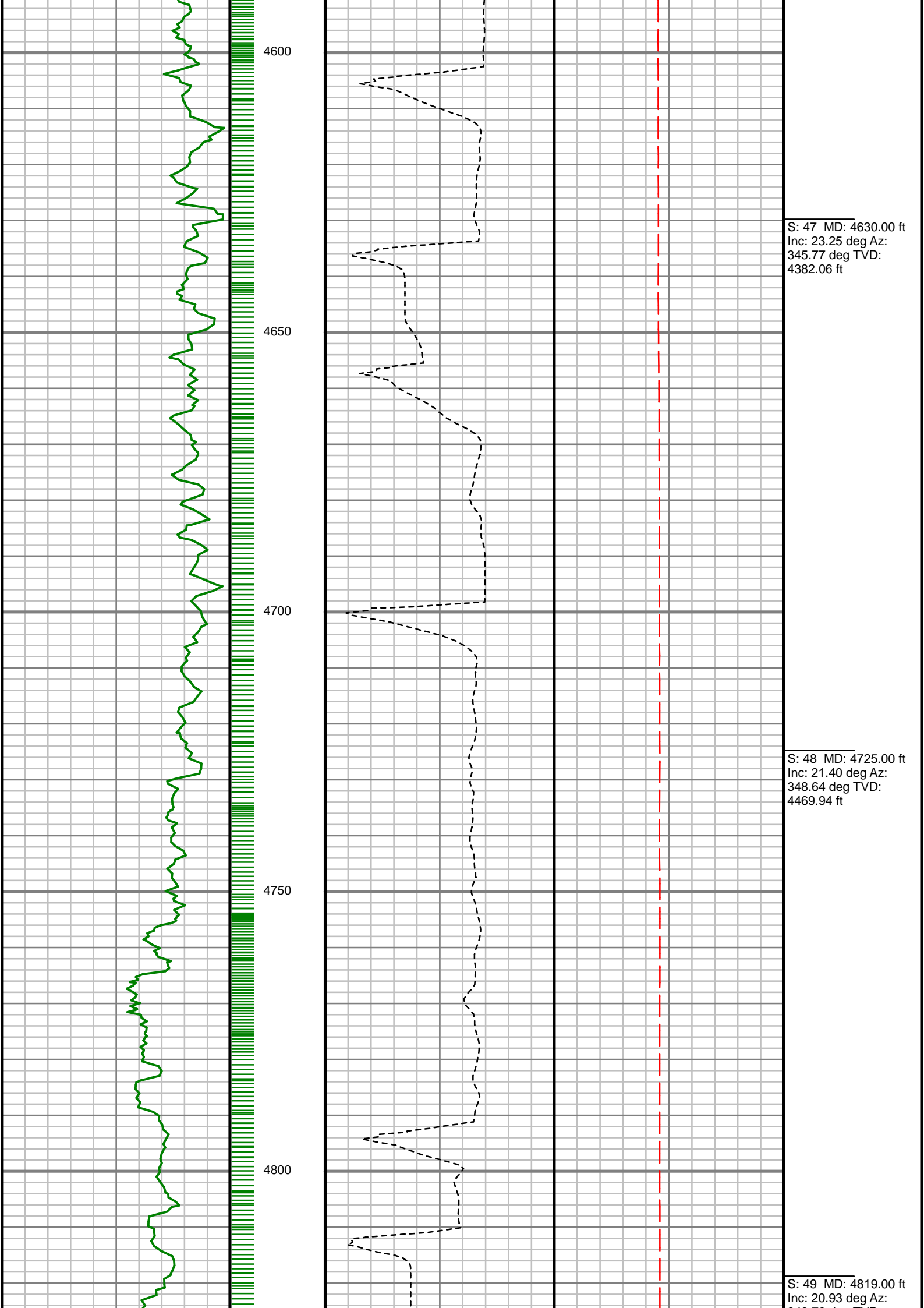


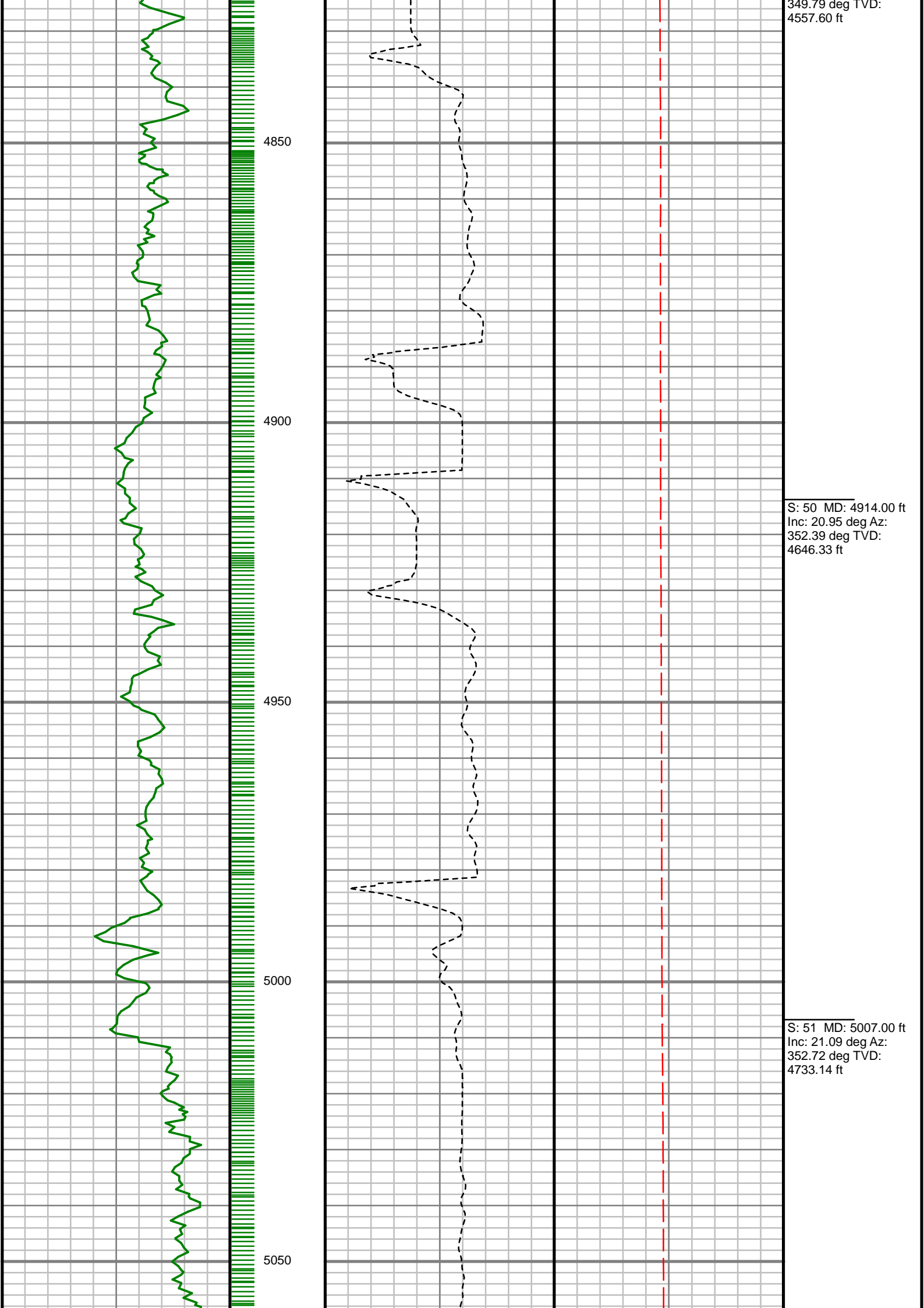




S: 45 MD: 4442.00 ft
Inc: 20.74 deg Az:
329.65 deg TVD:
4207.91 ft

S: 46 MD: 4535.00 ft
Inc: 22.30 deg Az:
339.49 deg TVD:
4294.46 ft

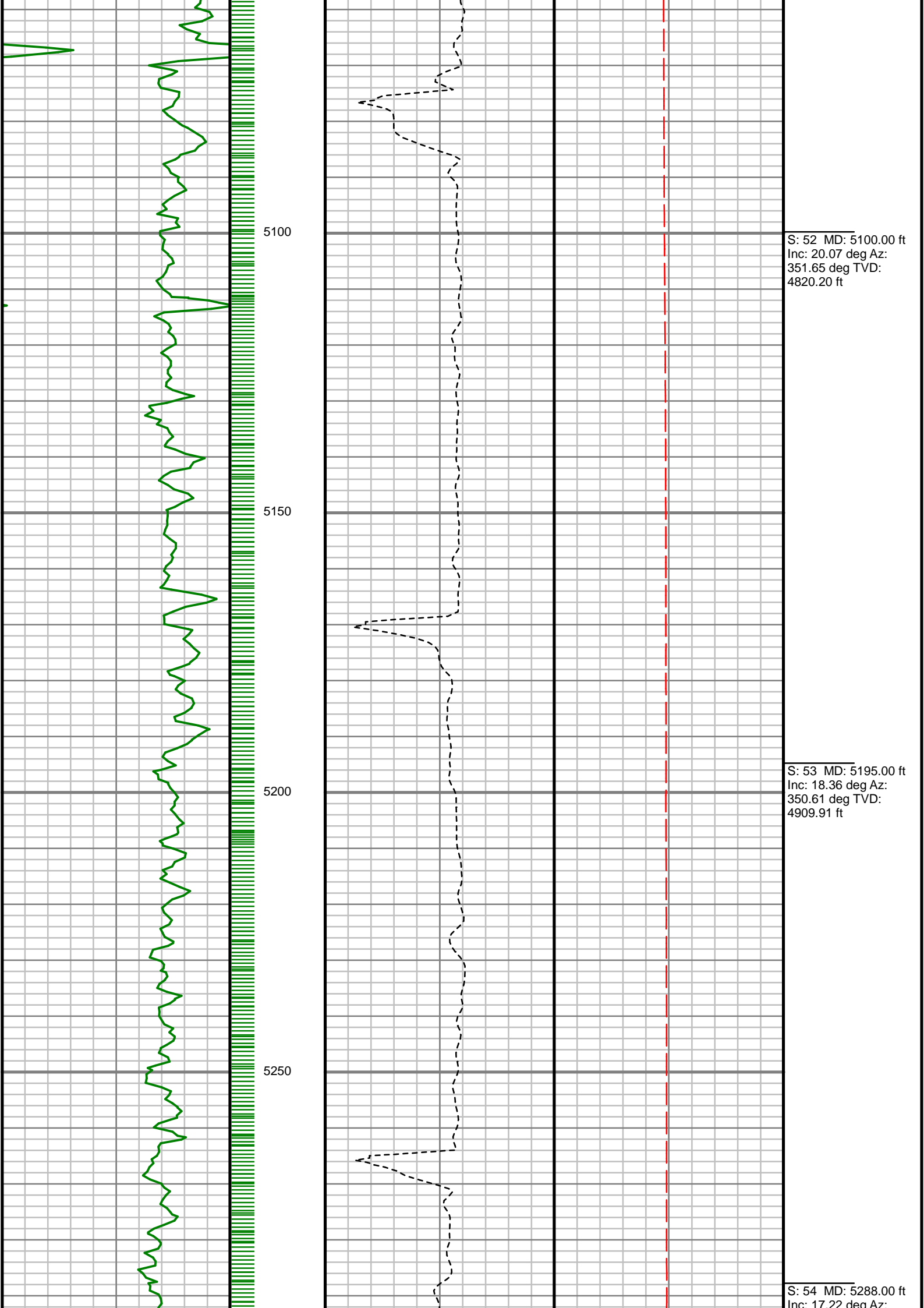


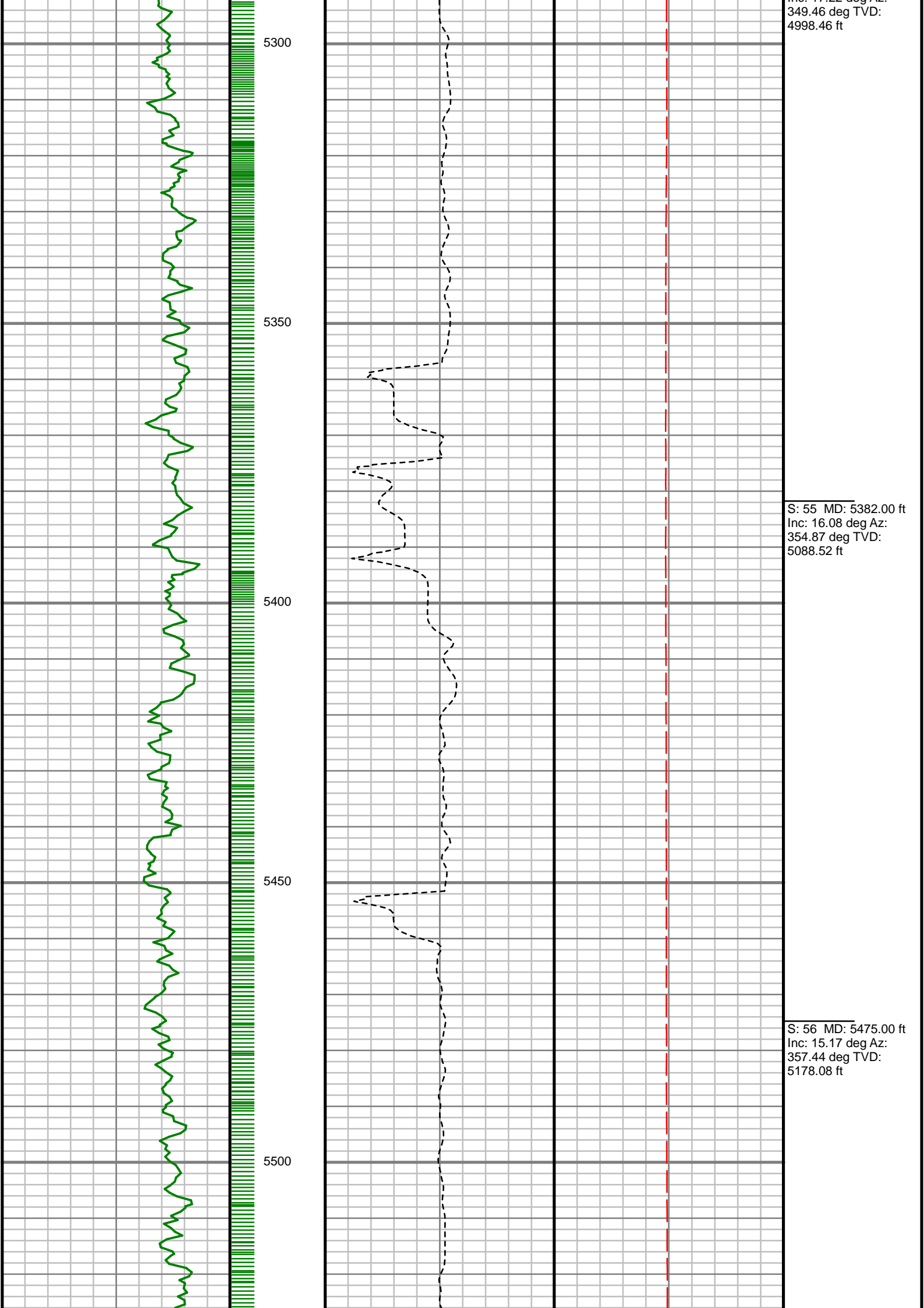


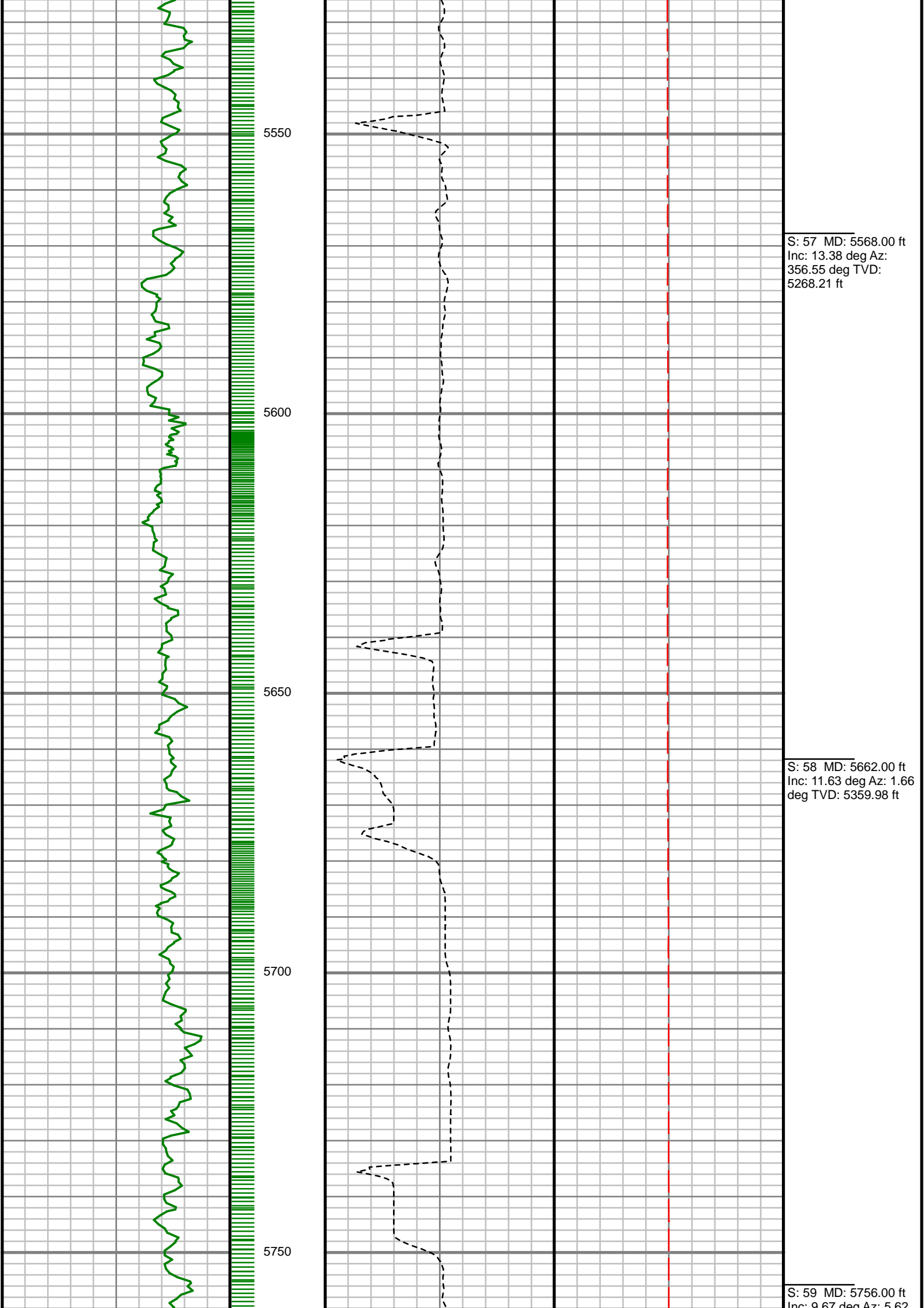
349.79 deg TVD:
4557.60 ft

S: 50 MD: 4914.00 ft
Inc: 20.95 deg Az:
352.39 deg TVD:
4646.33 ft

S: 51 MD: 5007.00 ft
Inc: 21.09 deg Az:
352.72 deg TVD:
4733.14 ft



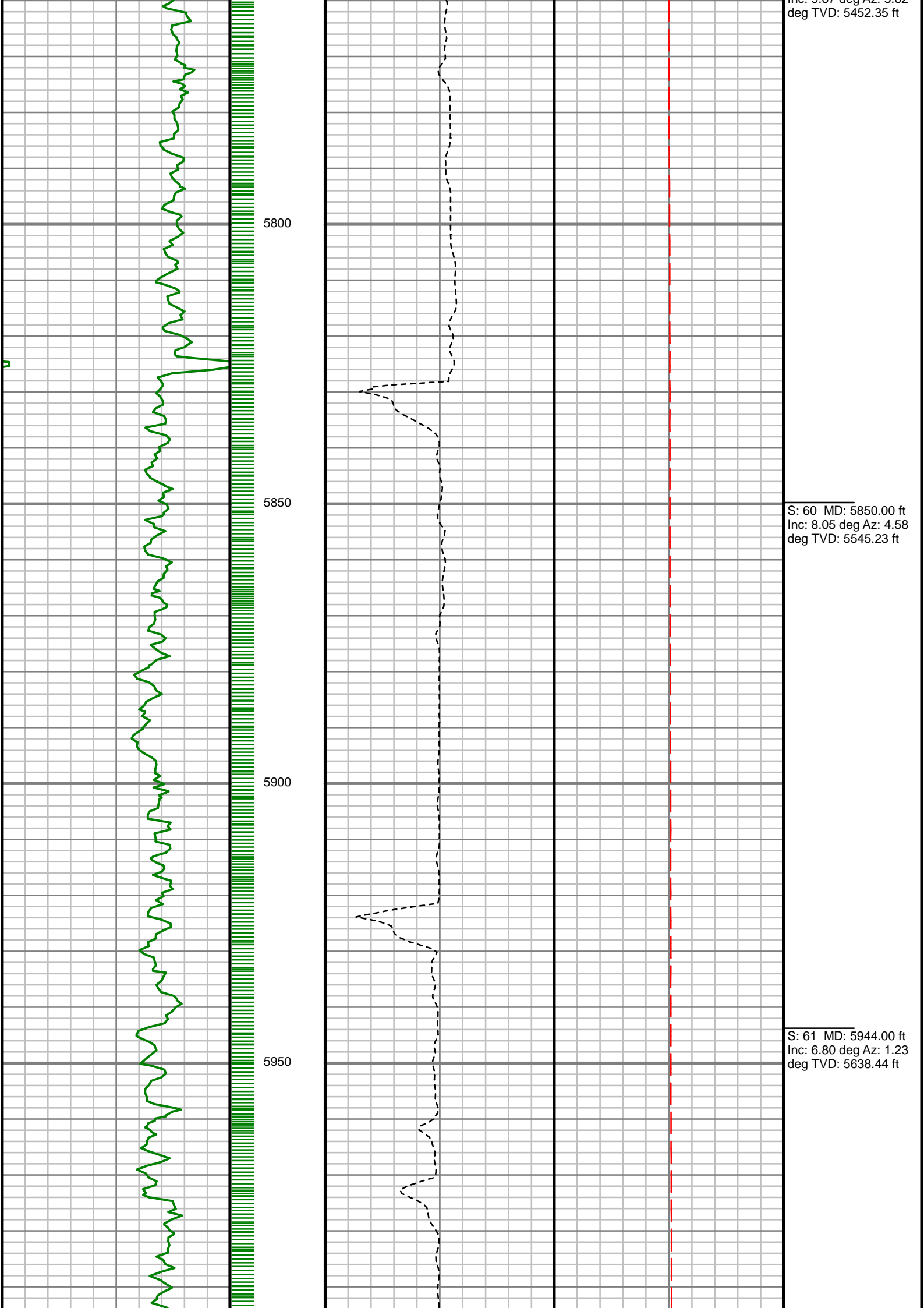


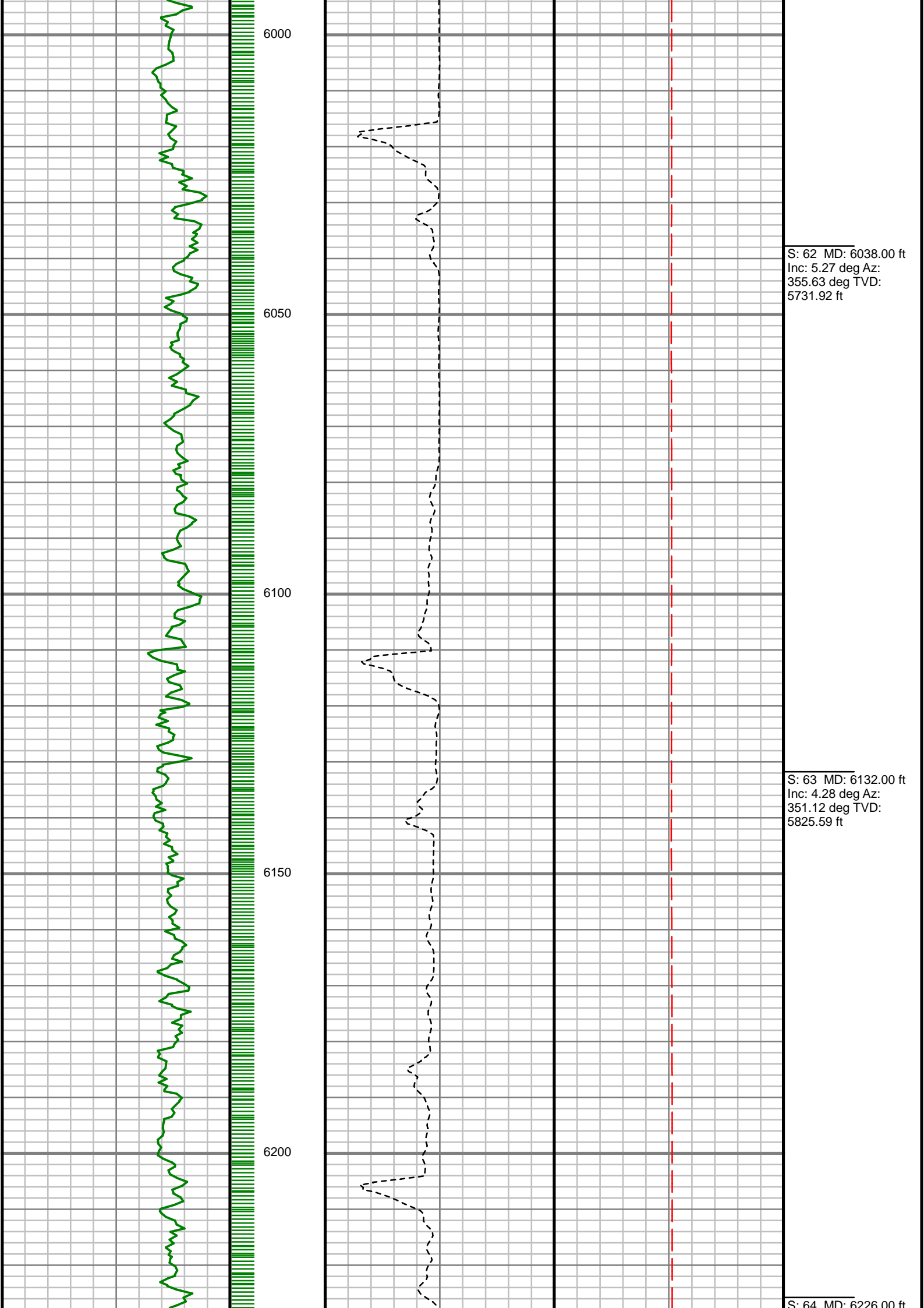


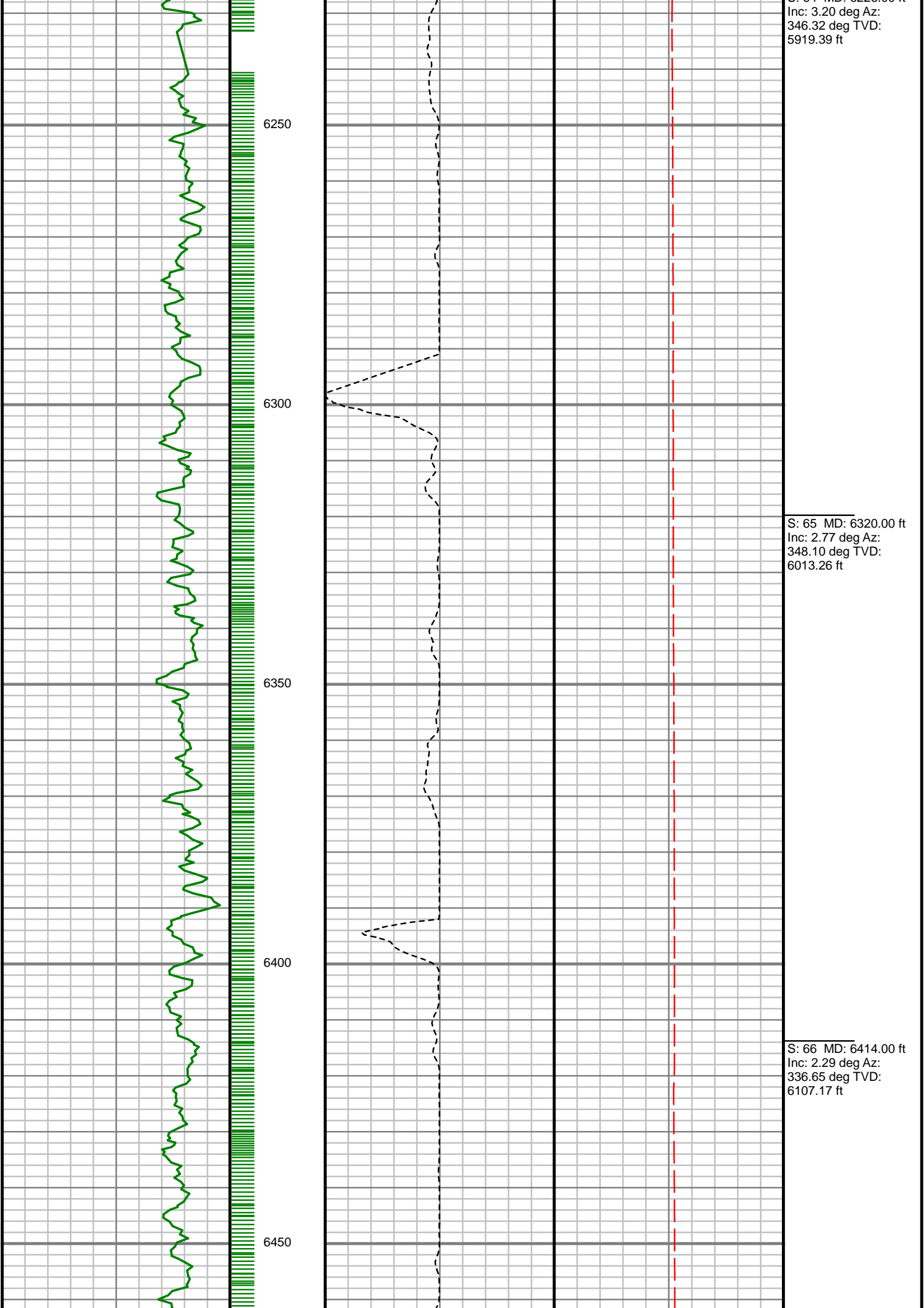
S: 57 MD: 5568.00 ft
Inc: 13.38 deg Az:
356.55 deg TVD:
5268.21 ft

S: 58 MD: 5662.00 ft
Inc: 11.63 deg Az: 1.66
deg TVD: 5359.98 ft

S: 59 MD: 5756.00 ft
Inc: 9.67 deg Az: 5.62



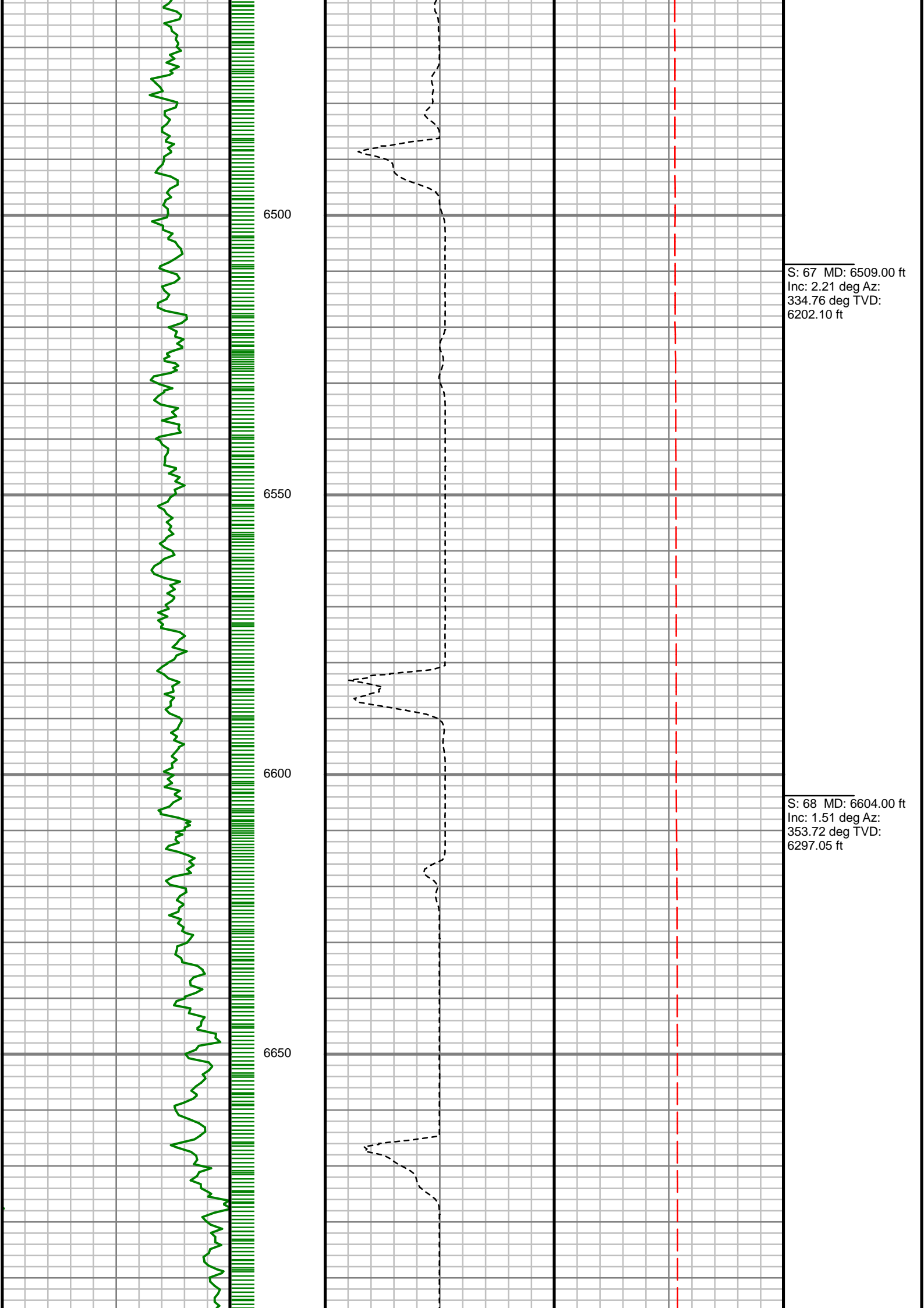


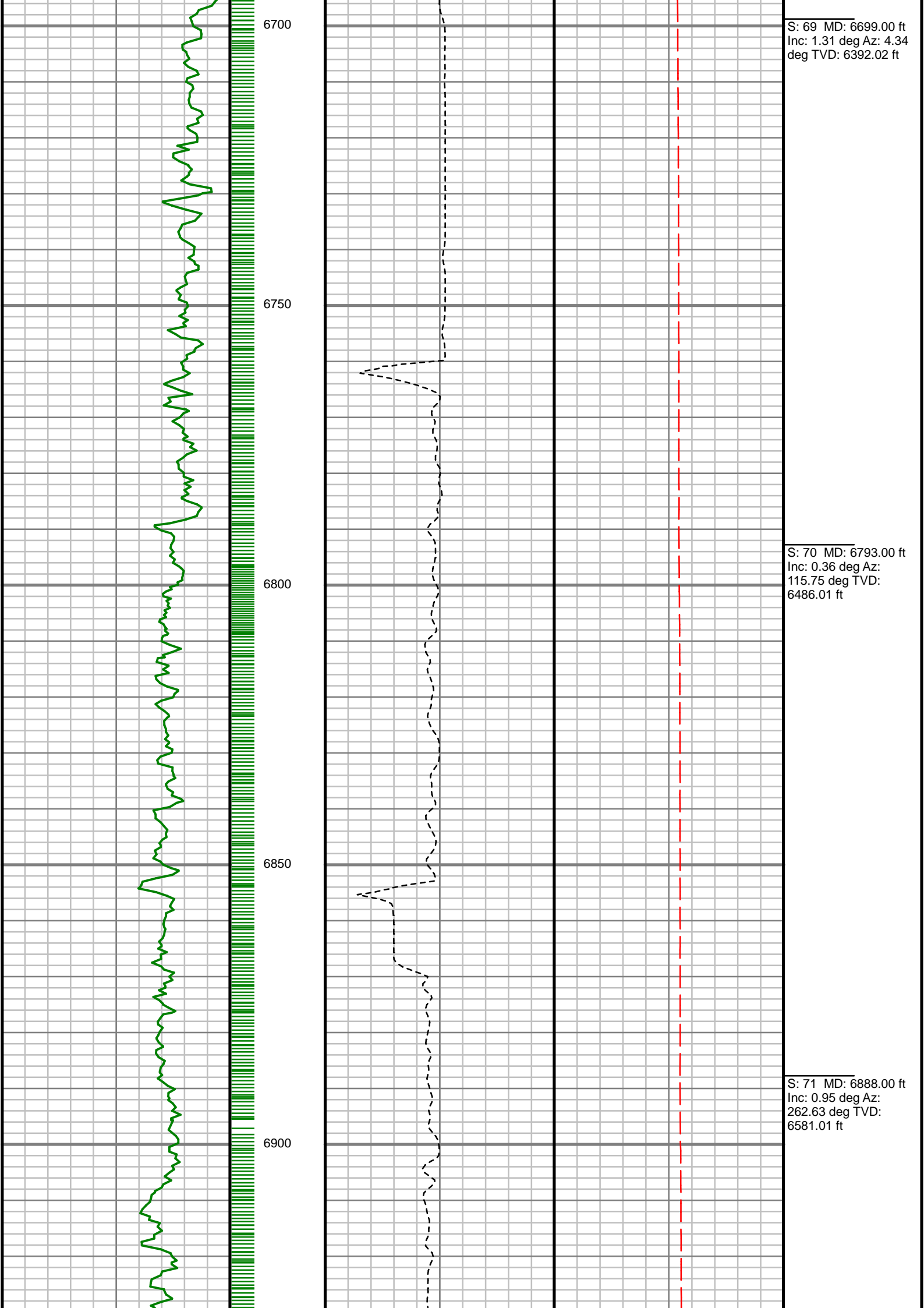


Inc: 3.20 deg Az:
346.32 deg TVD:
5919.39 ft

S: 65 MD: 6320.00 ft
Inc: 2.77 deg Az:
348.10 deg TVD:
6013.26 ft

S: 66 MD: 6414.00 ft
Inc: 2.29 deg Az:
336.65 deg TVD:
6107.17 ft

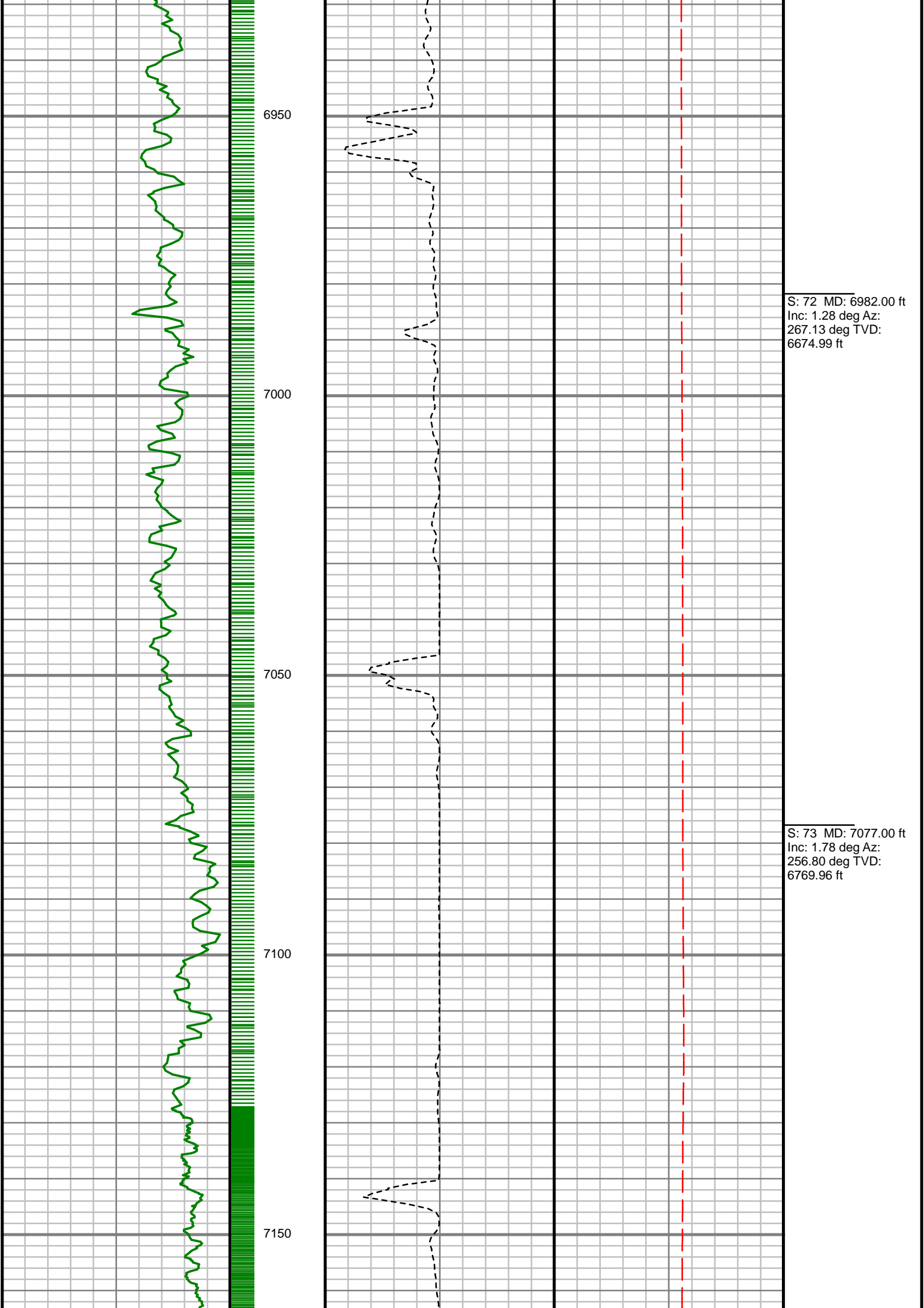




S: 69 MD: 6699.00 ft
Inc: 1.31 deg Az: 4.34
deg TVD: 6392.02 ft

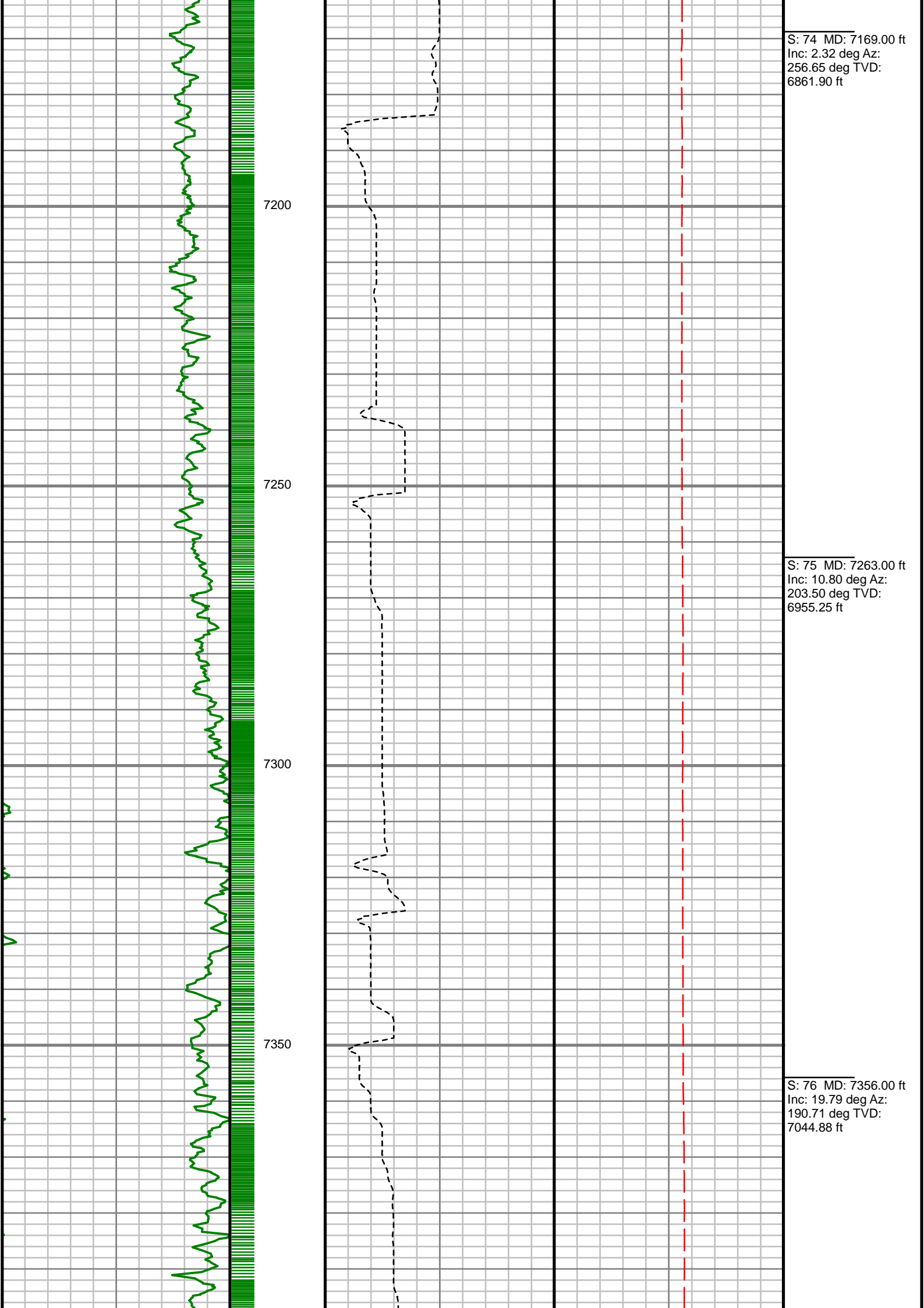
S: 70 MD: 6793.00 ft
Inc: 0.36 deg Az:
115.75 deg TVD:
6486.01 ft

S: 71 MD: 6888.00 ft
Inc: 0.95 deg Az:
262.63 deg TVD:
6581.01 ft



S: 72 MD: 6982.00 ft
Inc: 1.28 deg Az:
267.13 deg TVD:
6674.99 ft

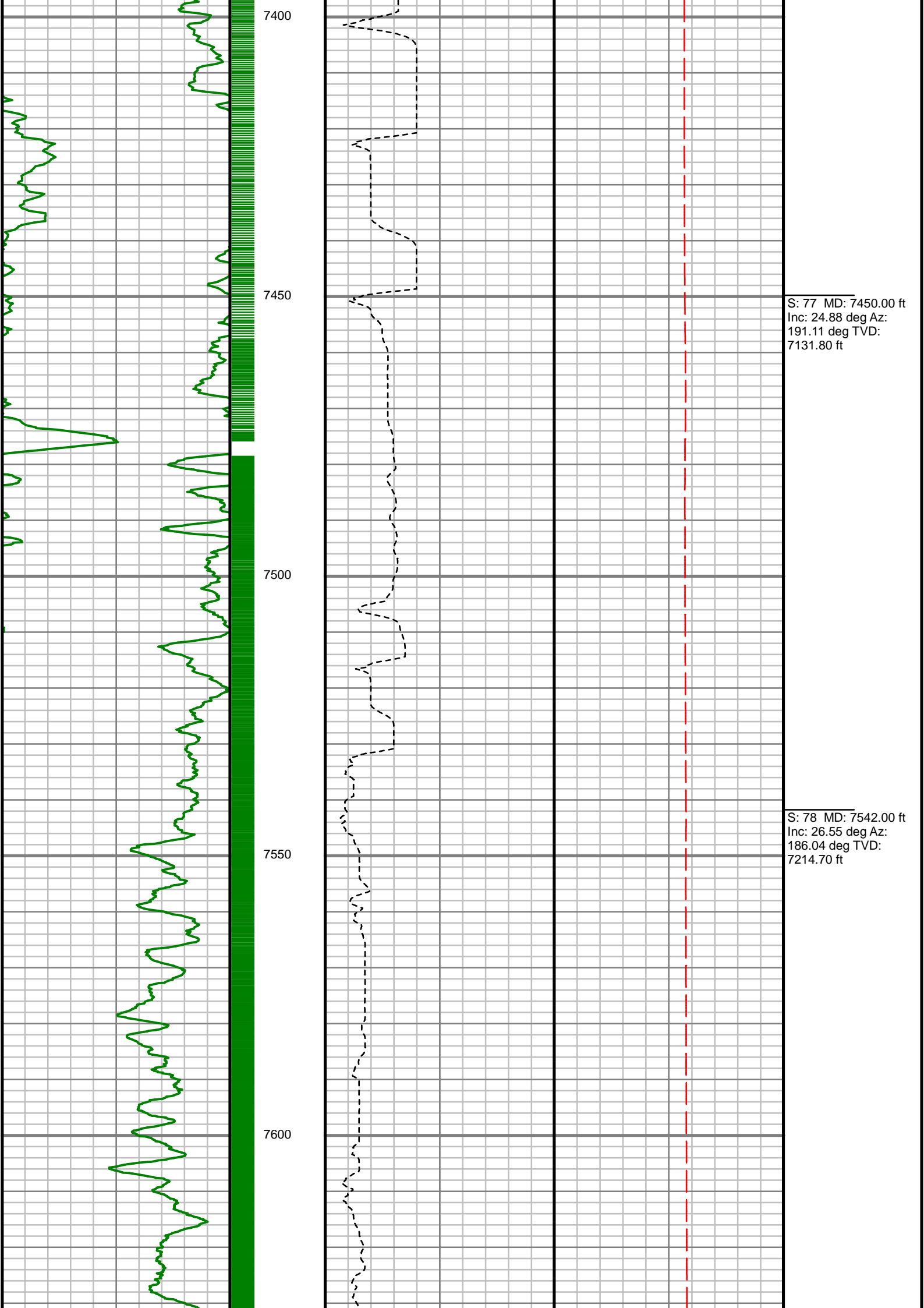
S: 73 MD: 7077.00 ft
Inc: 1.78 deg Az:
256.80 deg TVD:
6769.96 ft

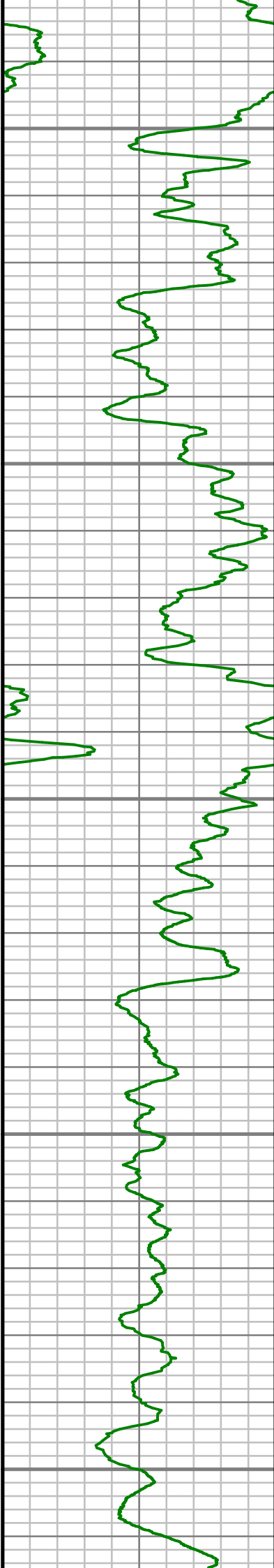


S: 74 MD: 7169.00 ft
Inc: 2.32 deg Az:
256.65 deg TVD:
6861.90 ft

S: 75 MD: 7263.00 ft
Inc: 10.80 deg Az:
203.50 deg TVD:
6955.25 ft

S: 76 MD: 7356.00 ft
Inc: 19.79 deg Az:
190.71 deg TVD:
7044.88 ft





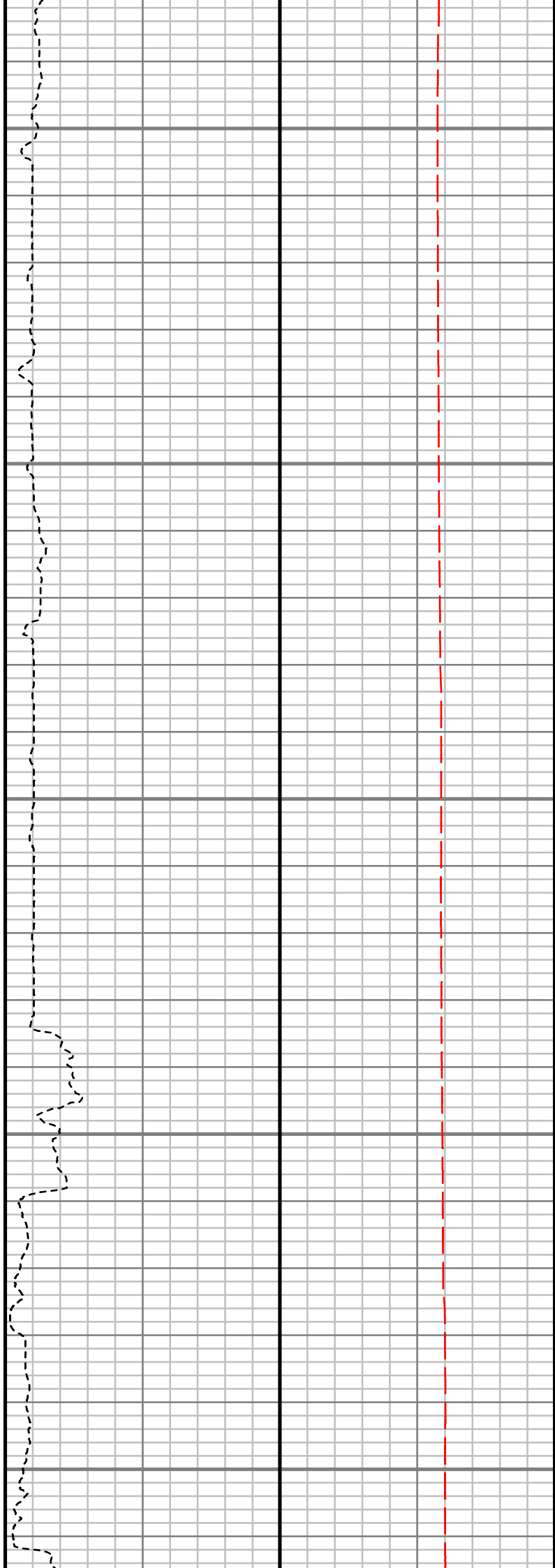
7650

7700

7750

7800

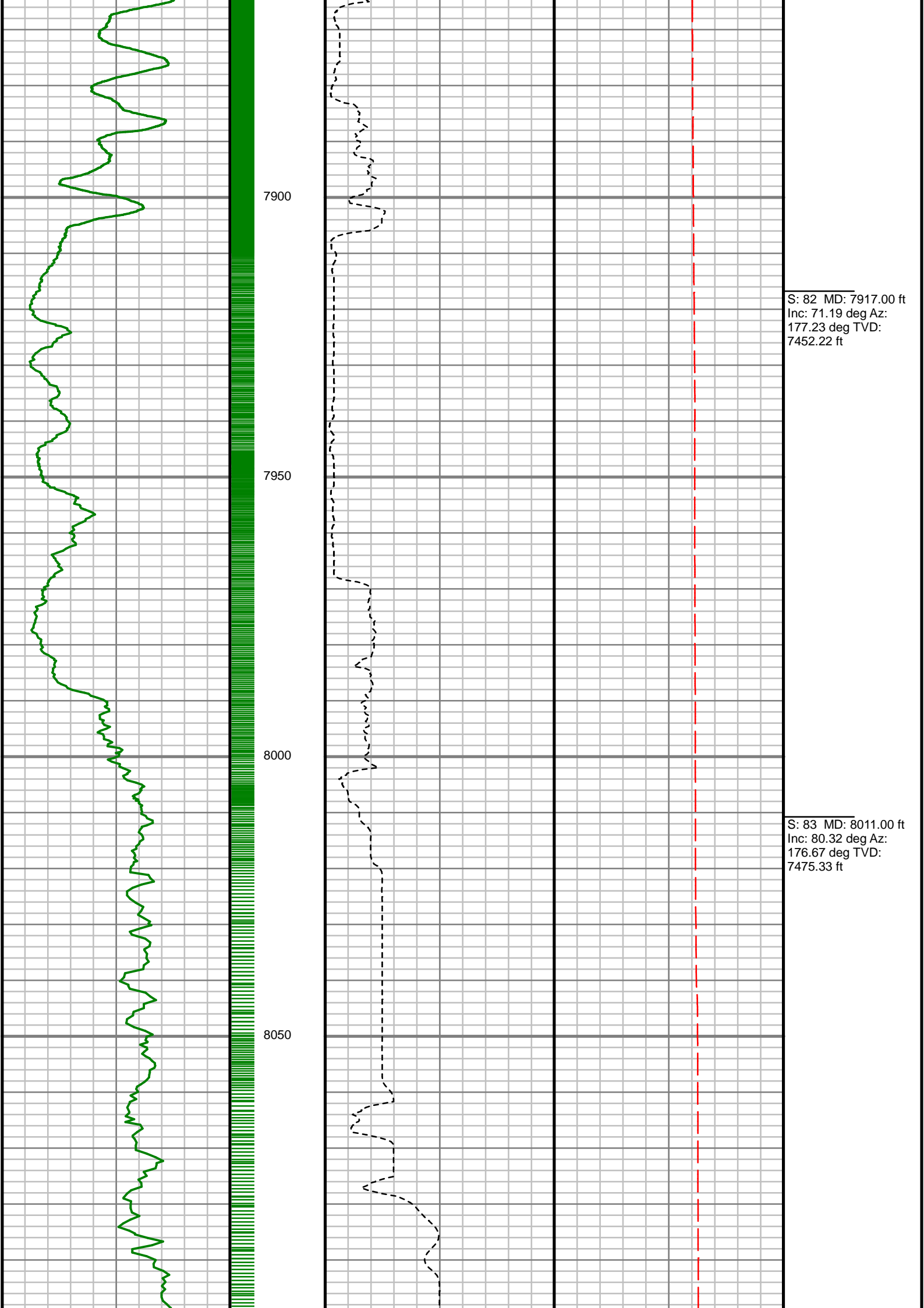
7850

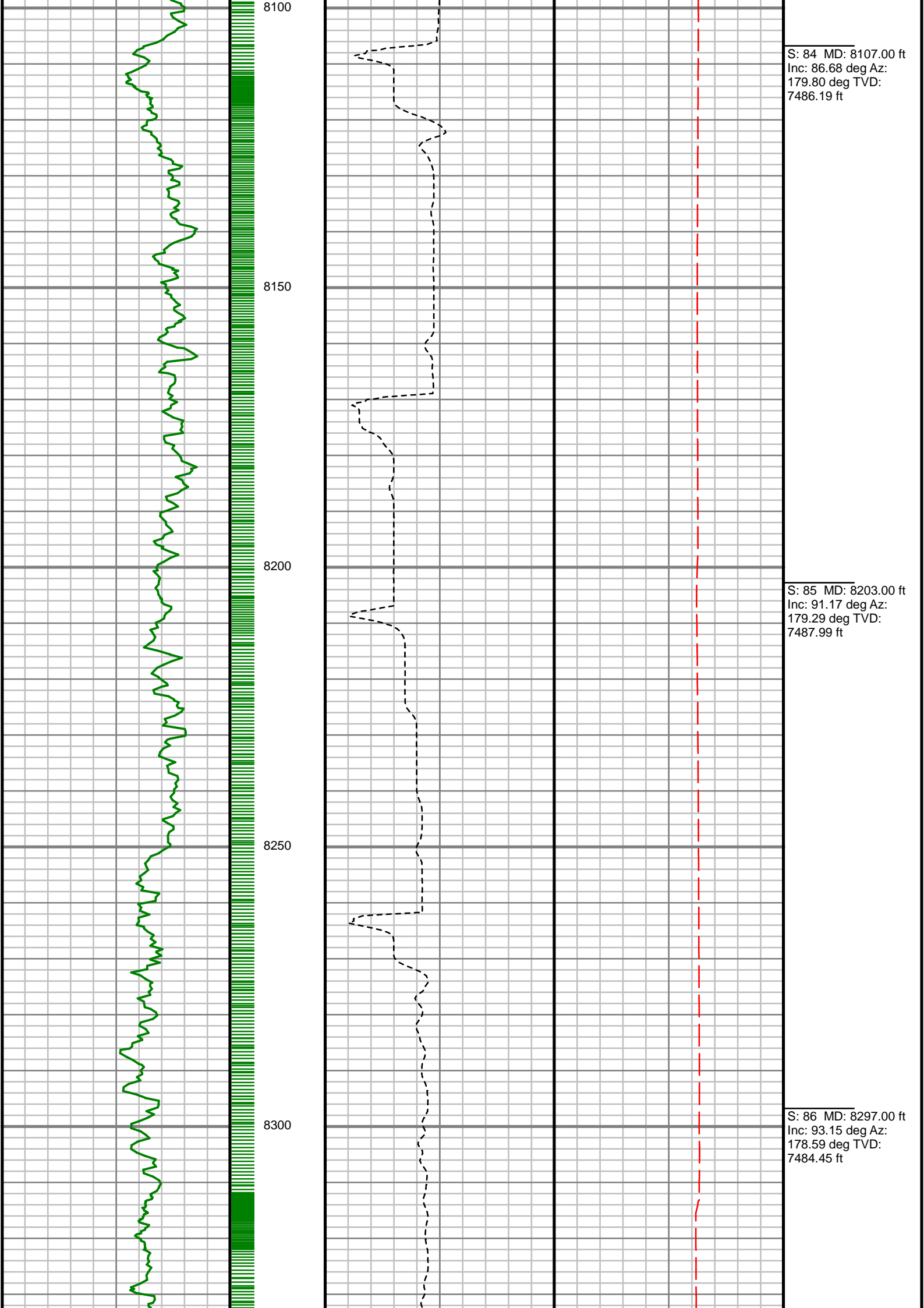


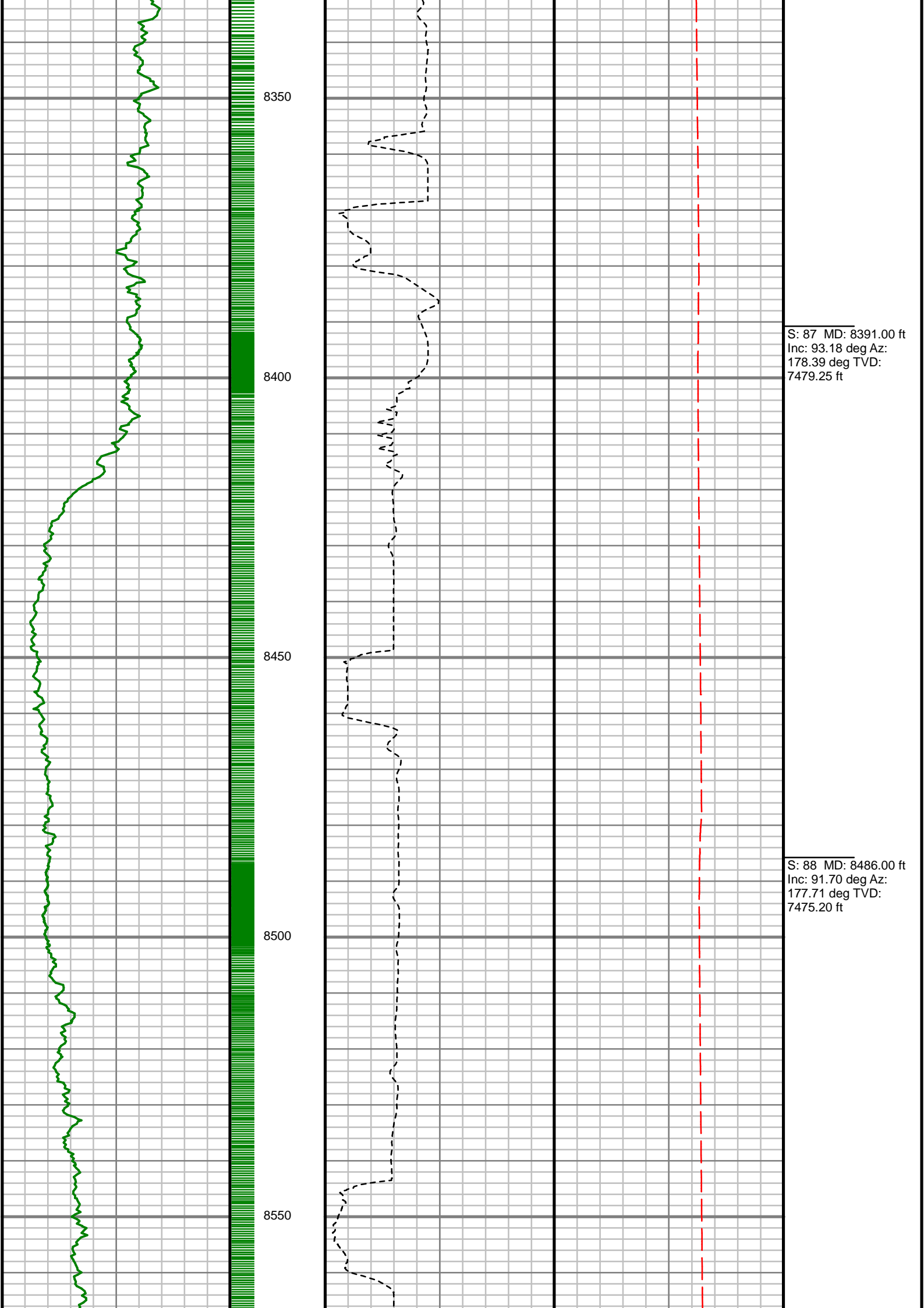
S: 79 MD: 7637.00 ft
Inc: 36.90 deg Az:
180.53 deg TVD:
7295.41 ft

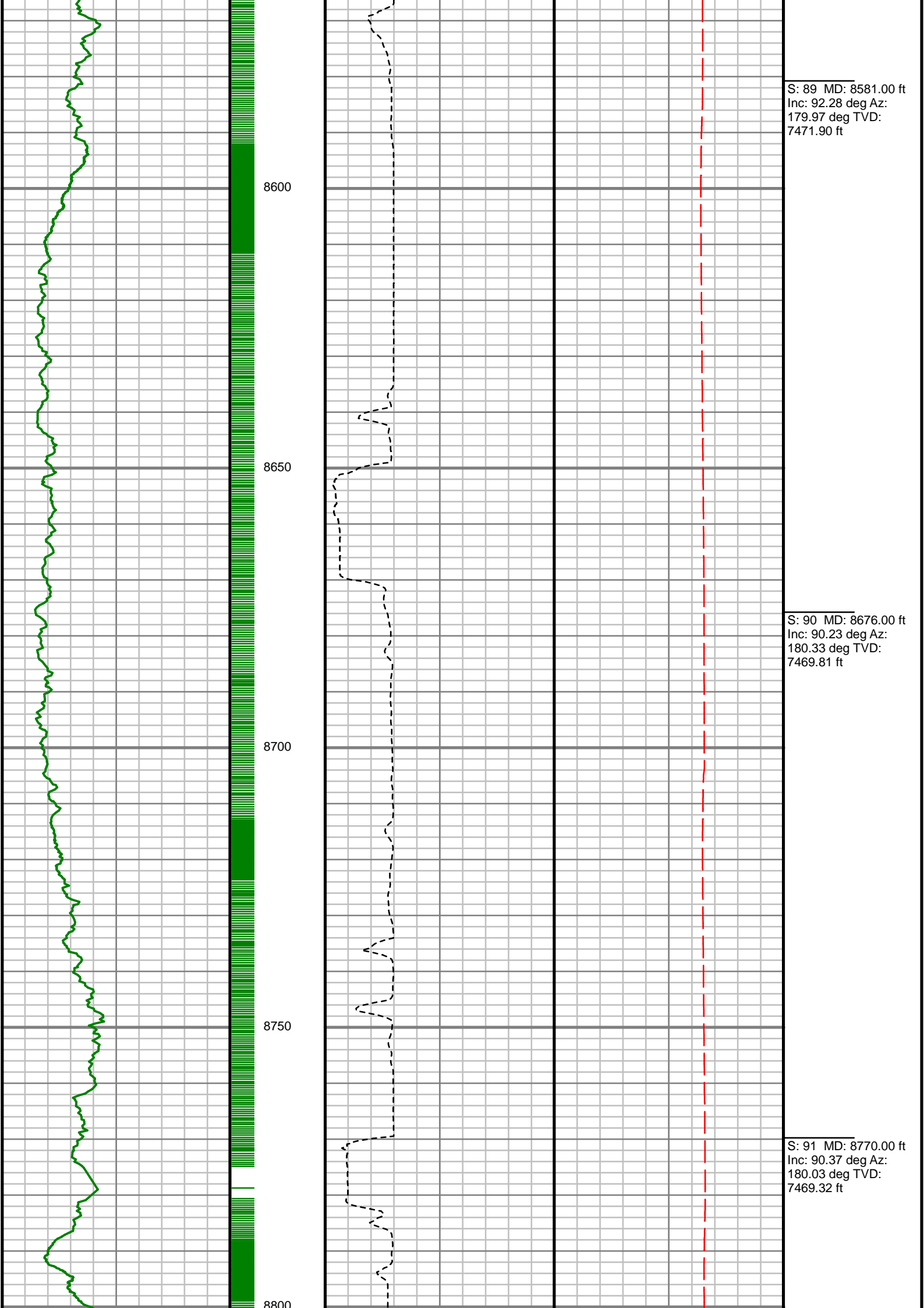
S: 80 MD: 7730.00 ft
Inc: 50.47 deg Az:
179.23 deg TVD:
7362.51 ft

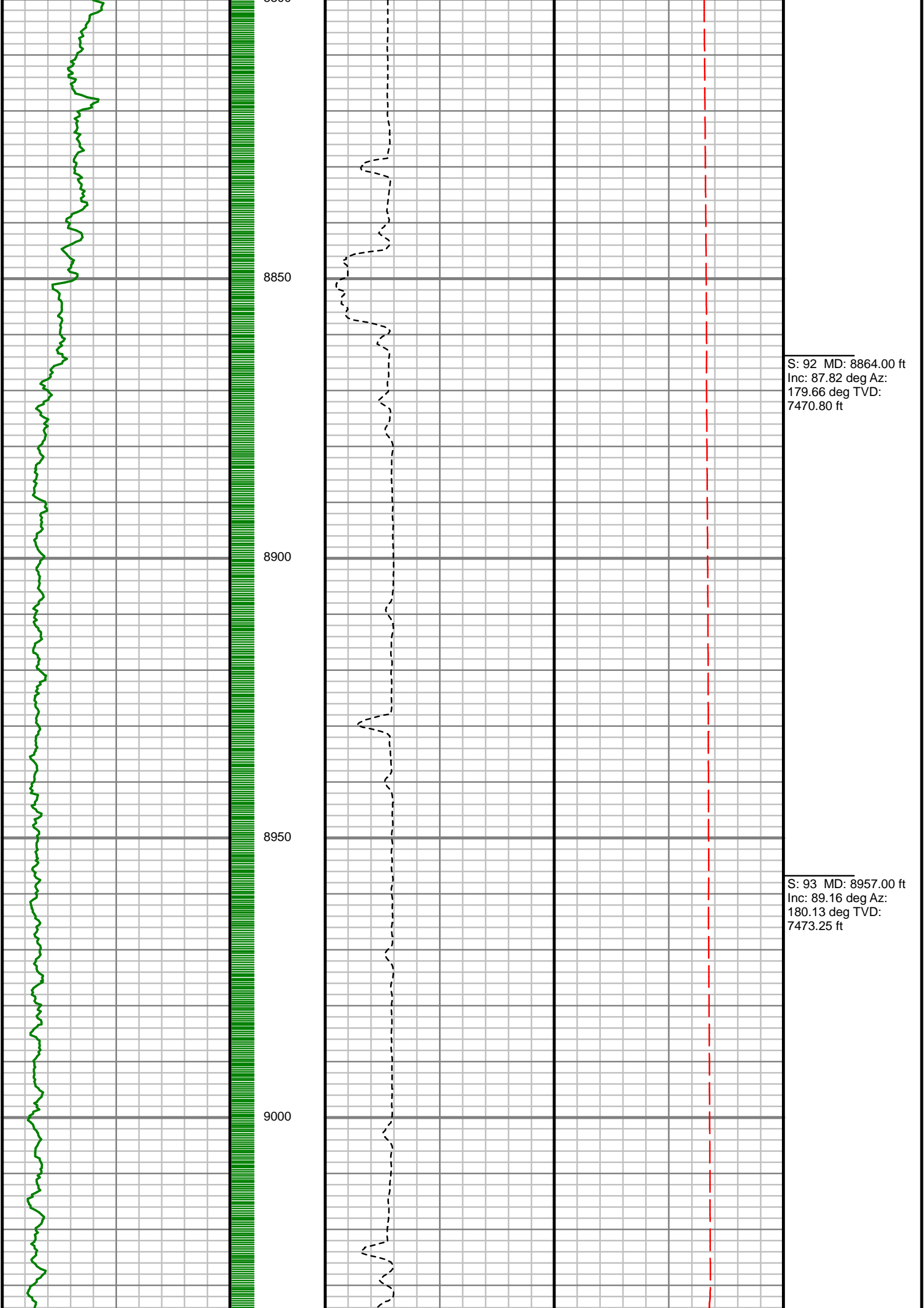
S: 81 MD: 7824.00 ft
Inc: 61.55 deg Az:
175.71 deg TVD:
7414.99 ft

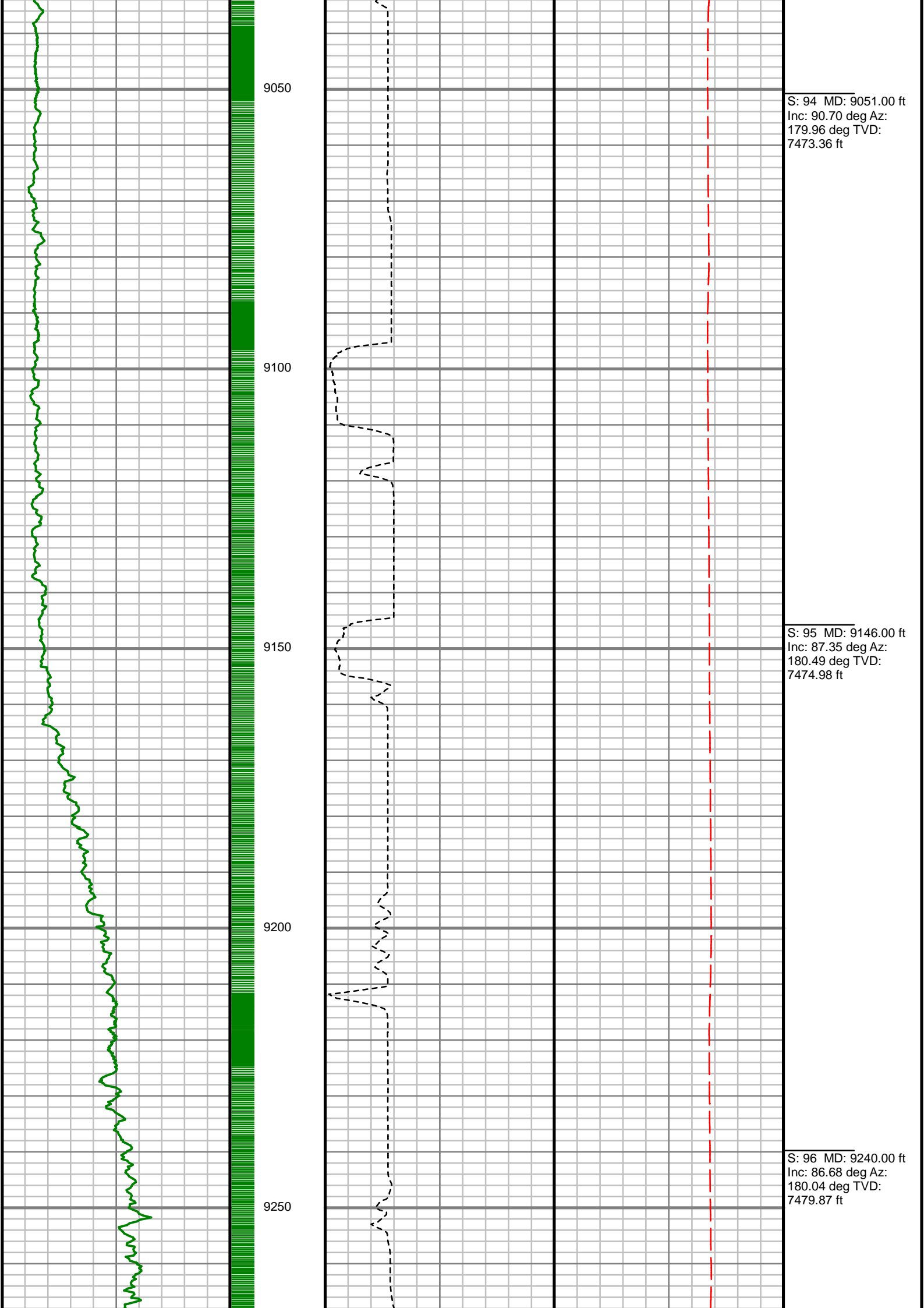


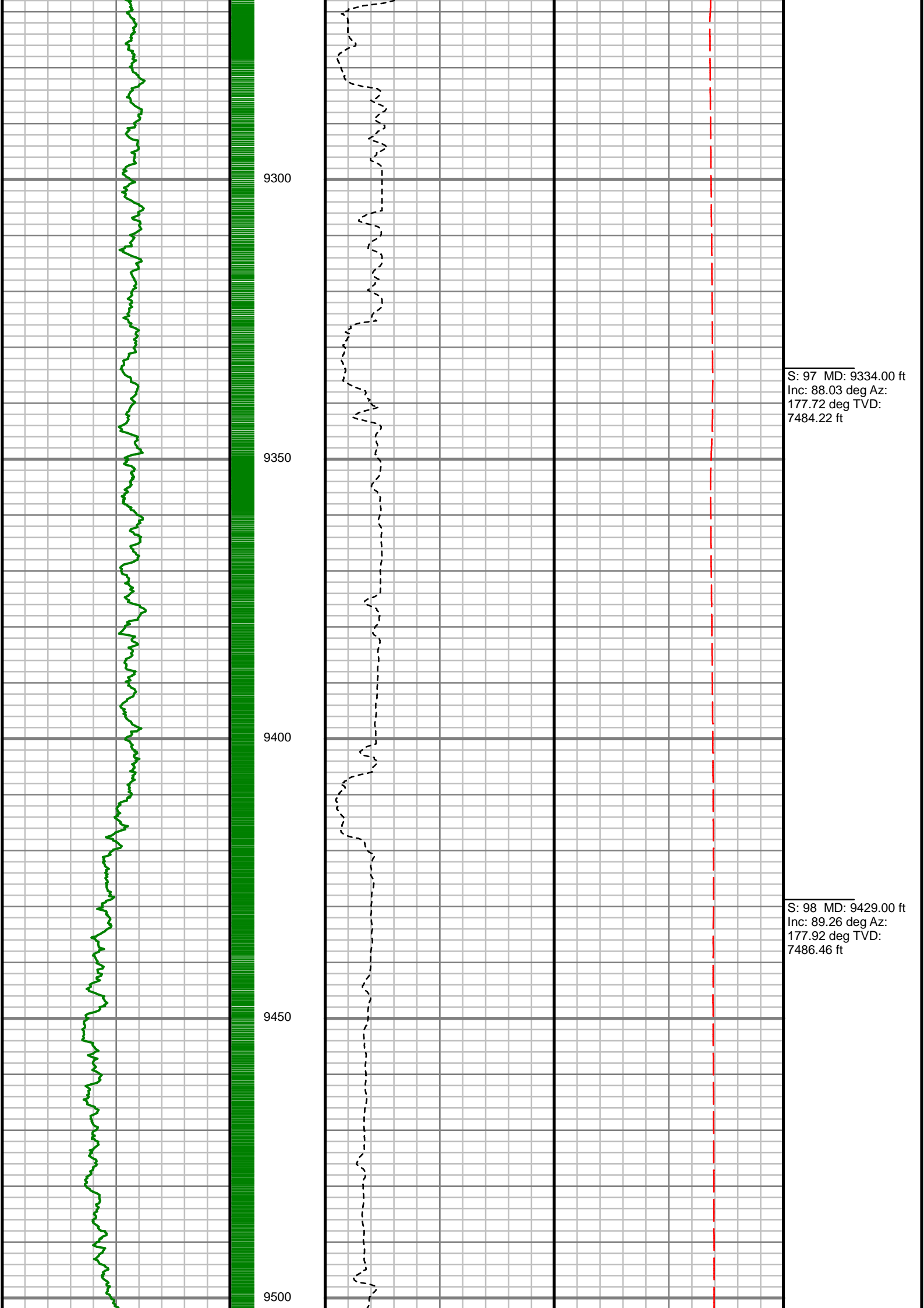






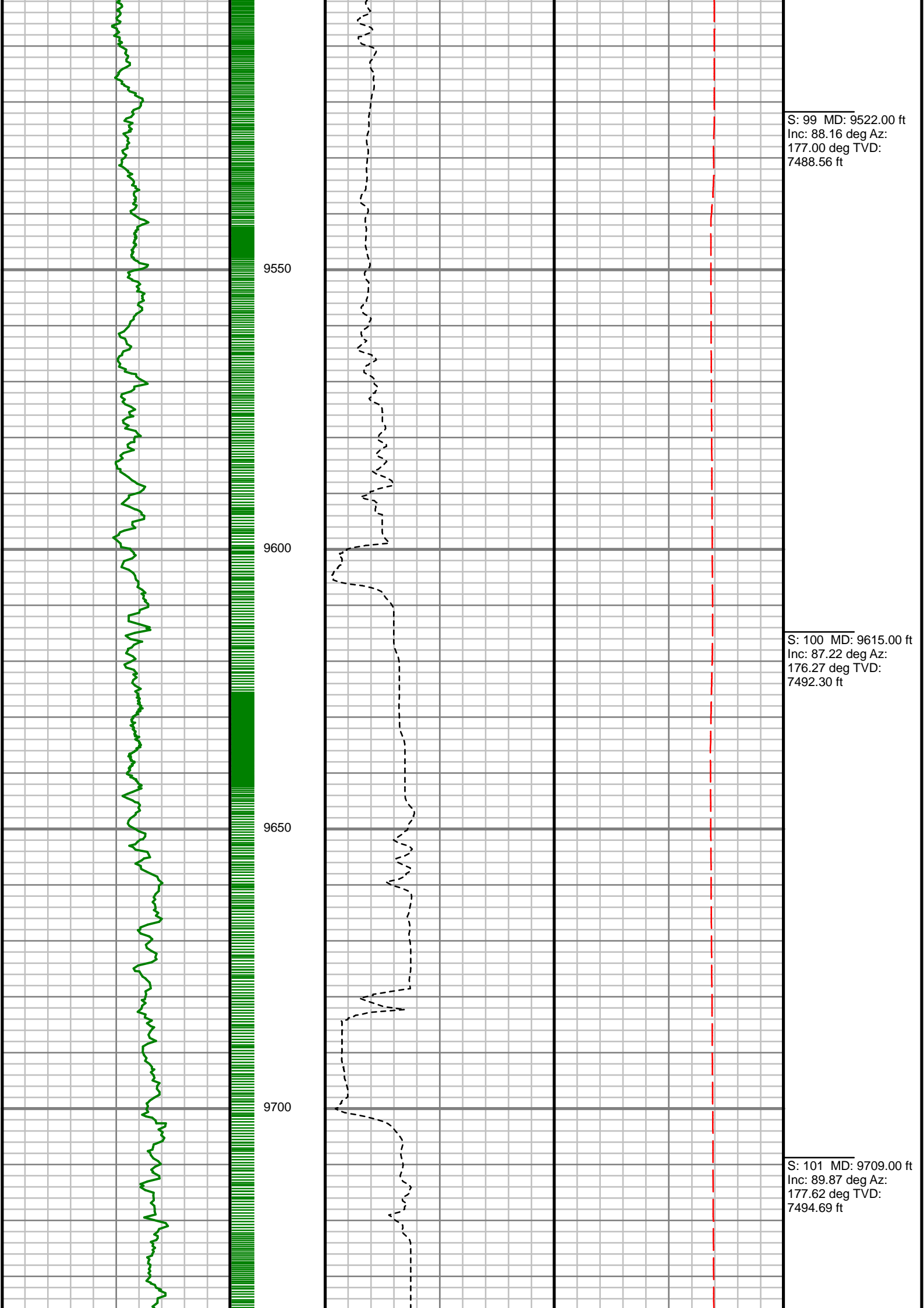






S: 97 MD: 9334.00 ft
Inc: 88.03 deg Az:
177.72 deg TVD:
7484.22 ft

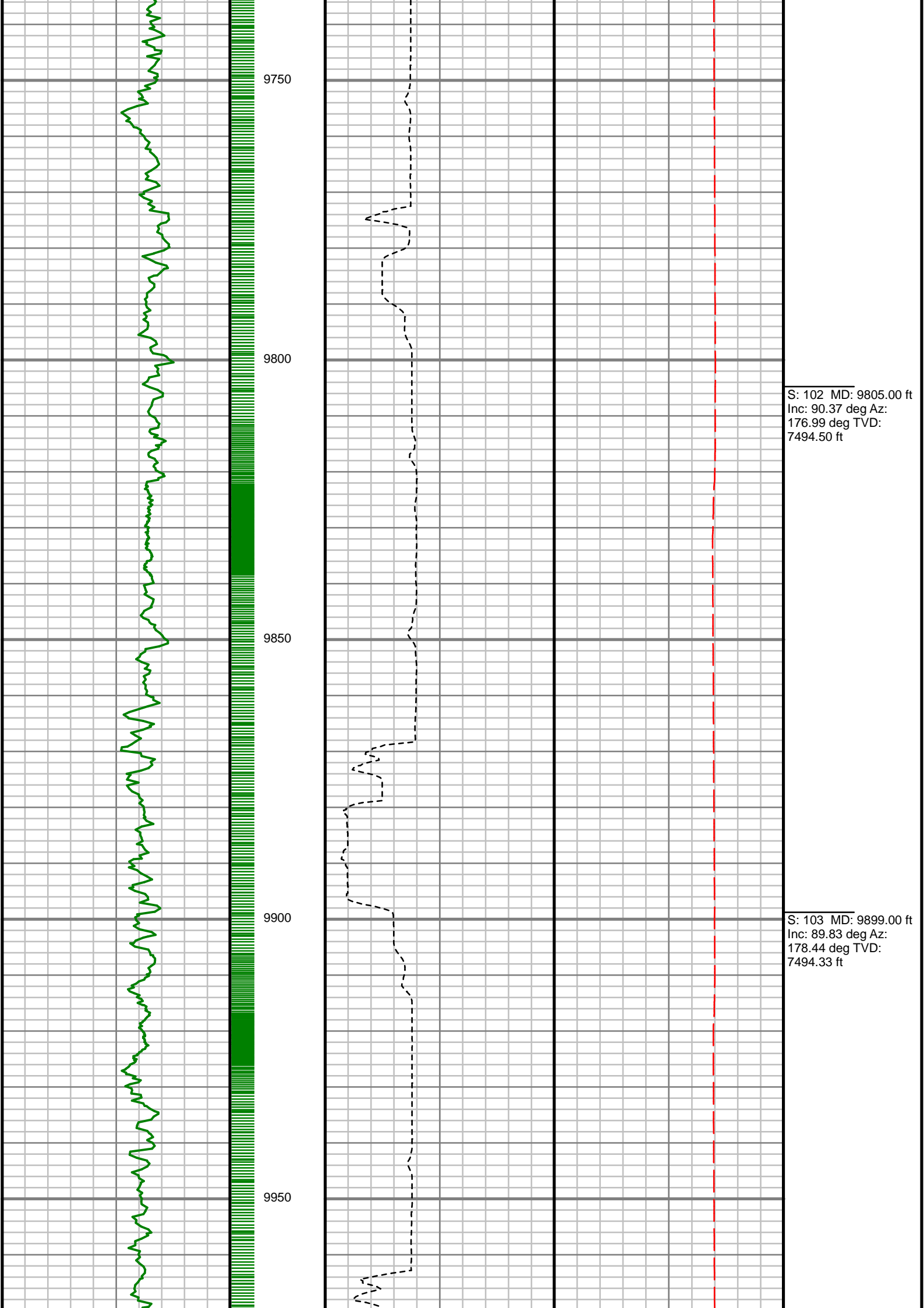
S: 98 MD: 9429.00 ft
Inc: 89.26 deg Az:
177.92 deg TVD:
7486.46 ft



S: 99 MD: 9522.00 ft
Inc: 88.16 deg Az:
177.00 deg TVD:
7488.56 ft

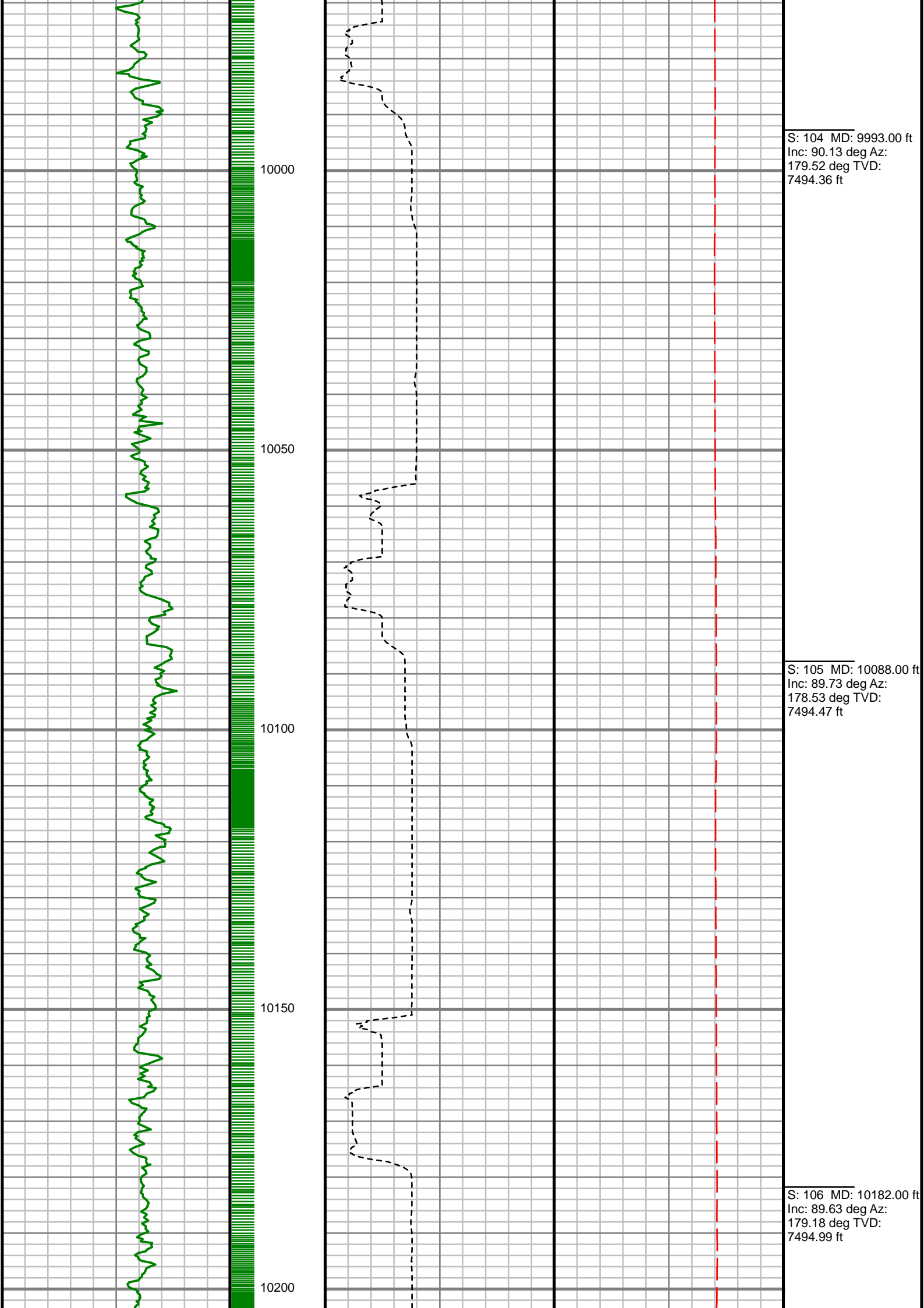
S: 100 MD: 9615.00 ft
Inc: 87.22 deg Az:
176.27 deg TVD:
7492.30 ft

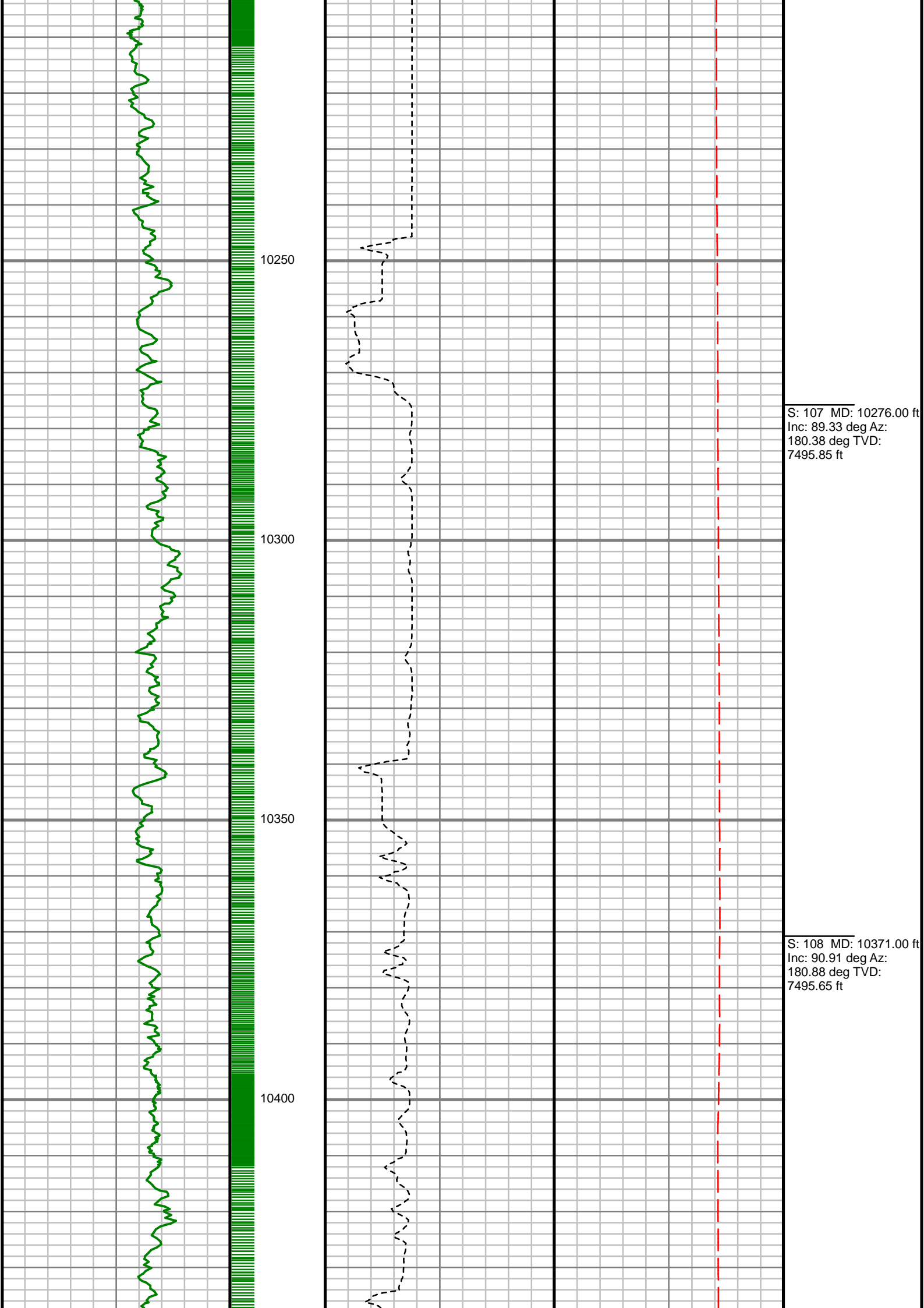
S: 101 MD: 9709.00 ft
Inc: 89.87 deg Az:
177.62 deg TVD:
7494.69 ft

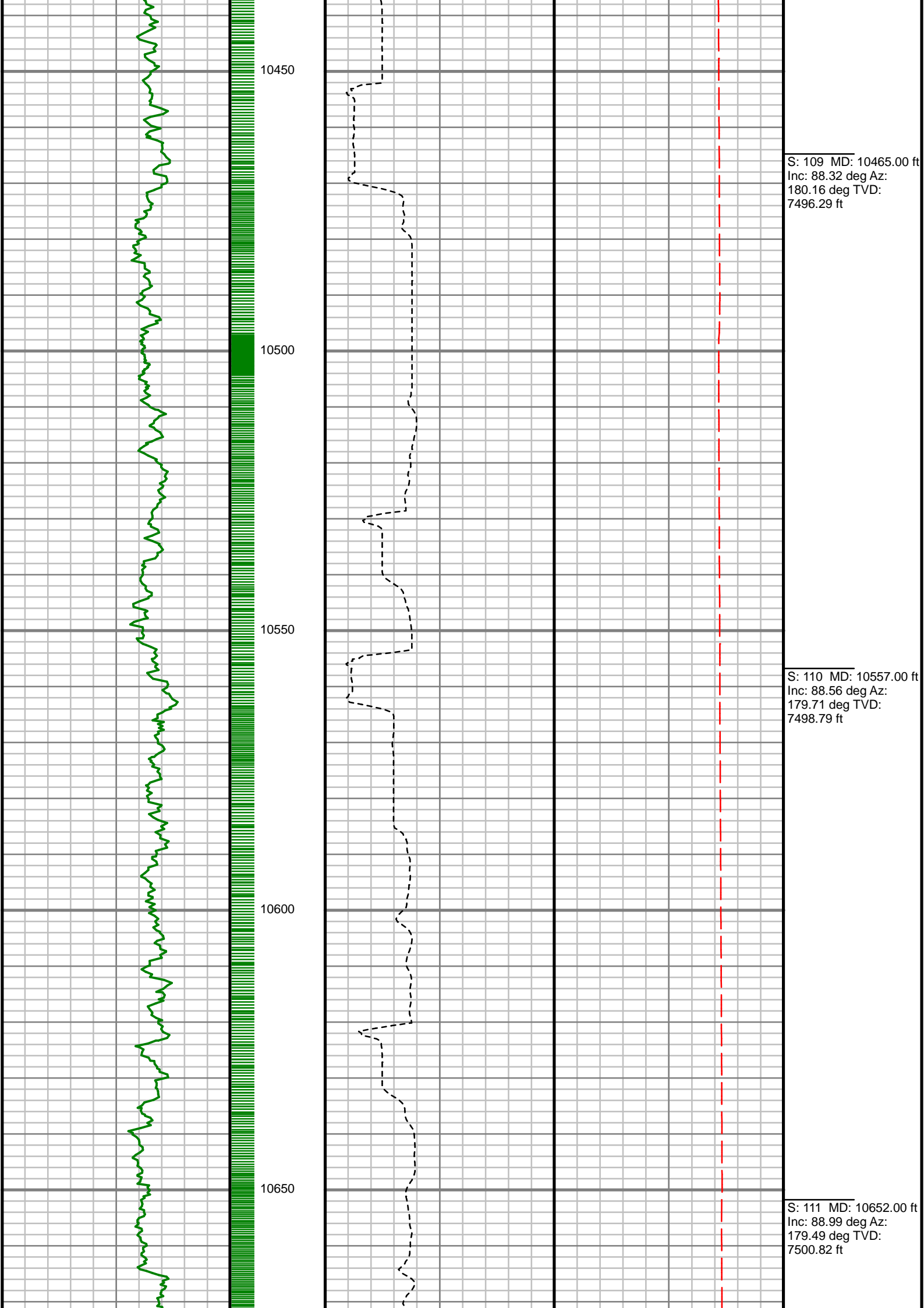


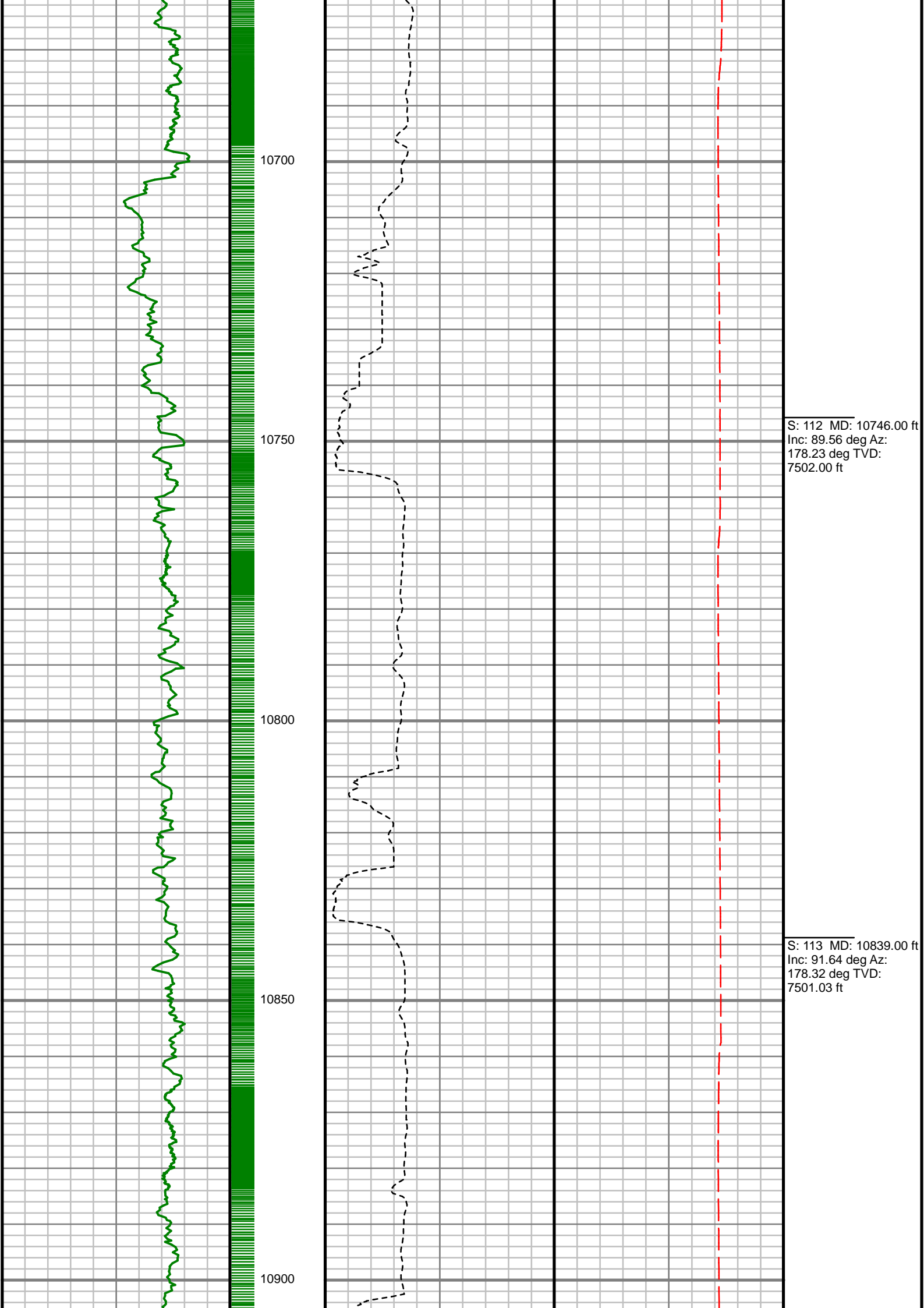
S: 102 MD: 9805.00 ft
Inc: 90.37 deg Az:
176.99 deg TVD:
7494.50 ft

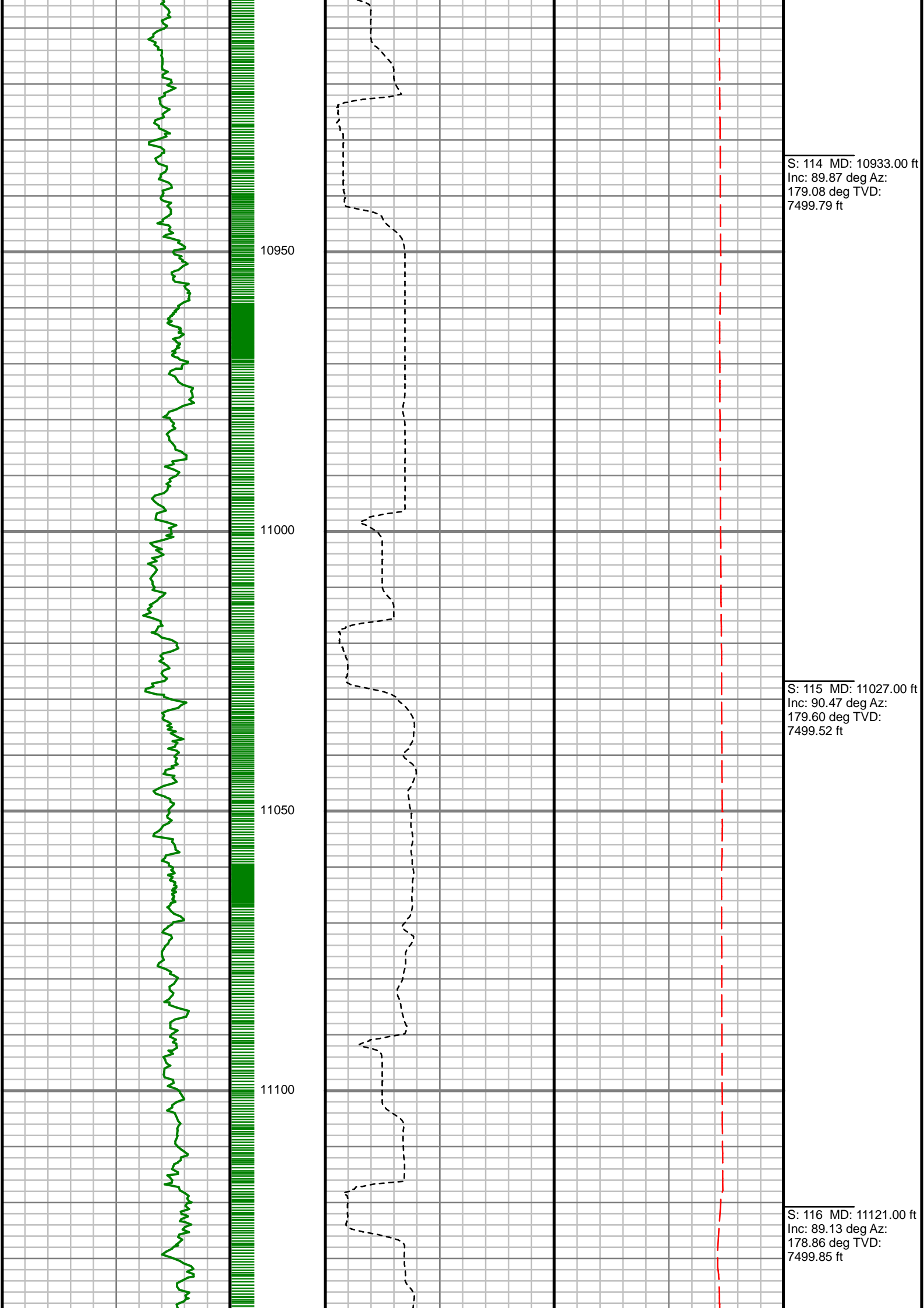
S: 103 MD: 9899.00 ft
Inc: 89.83 deg Az:
178.44 deg TVD:
7494.33 ft

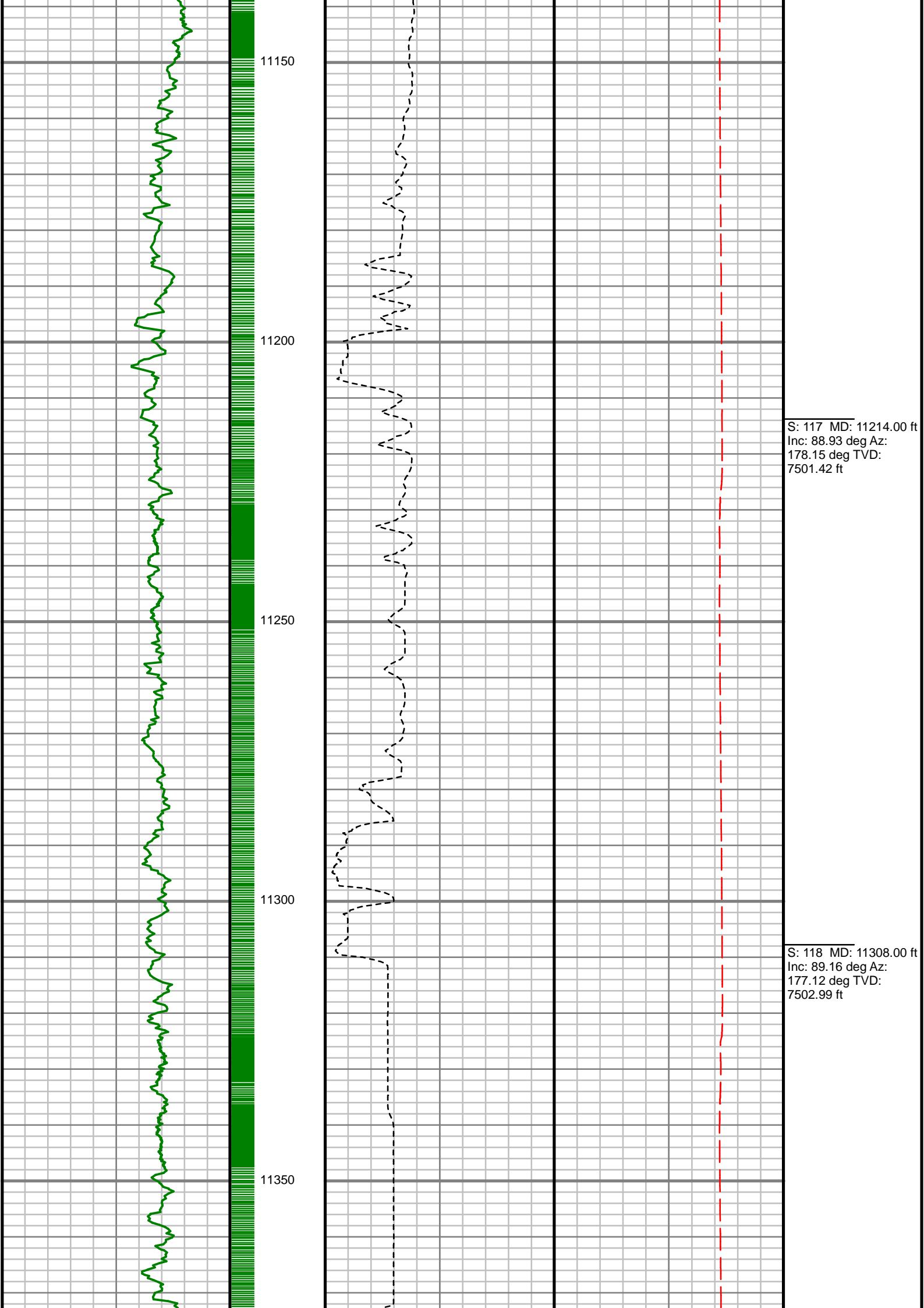


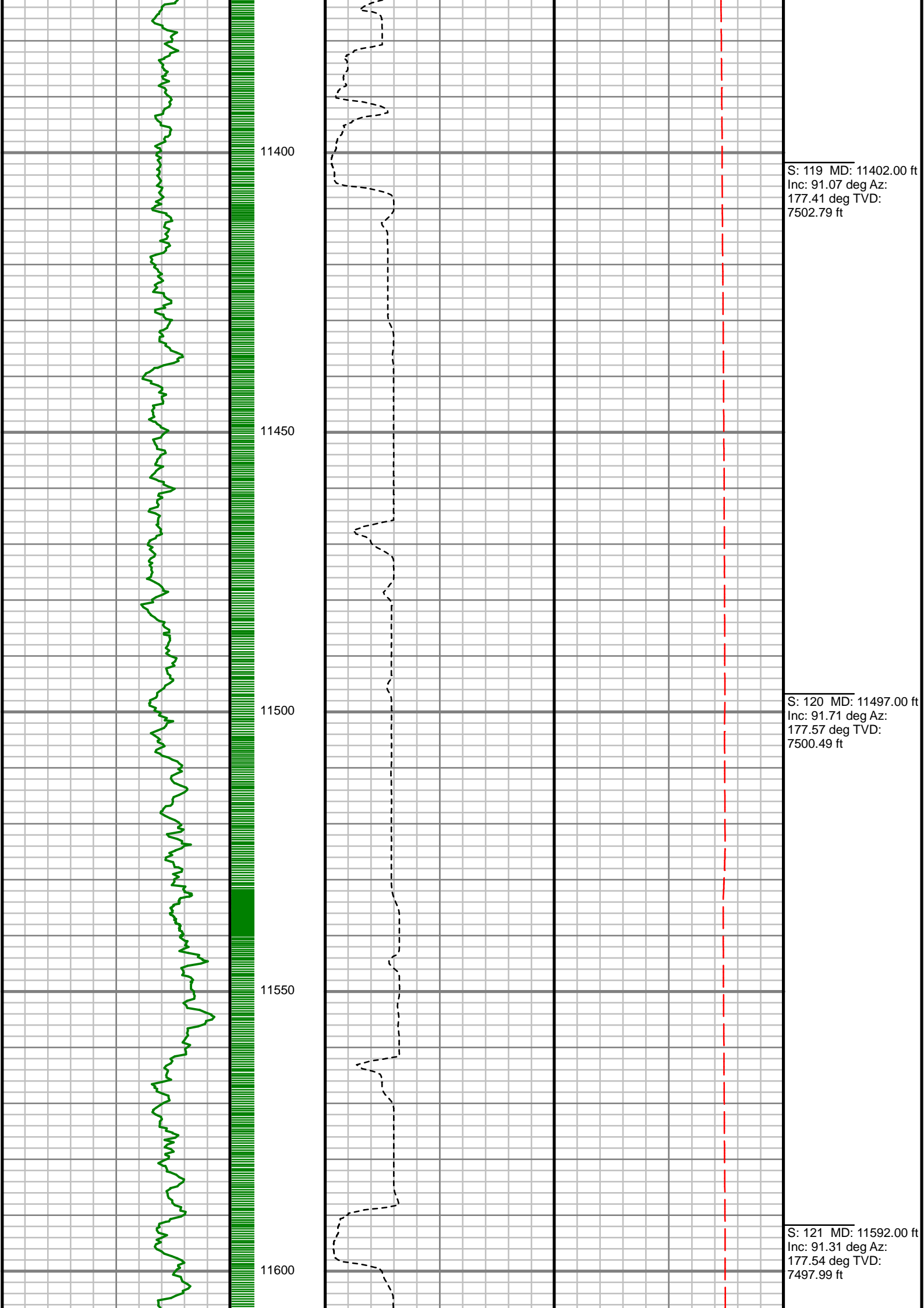


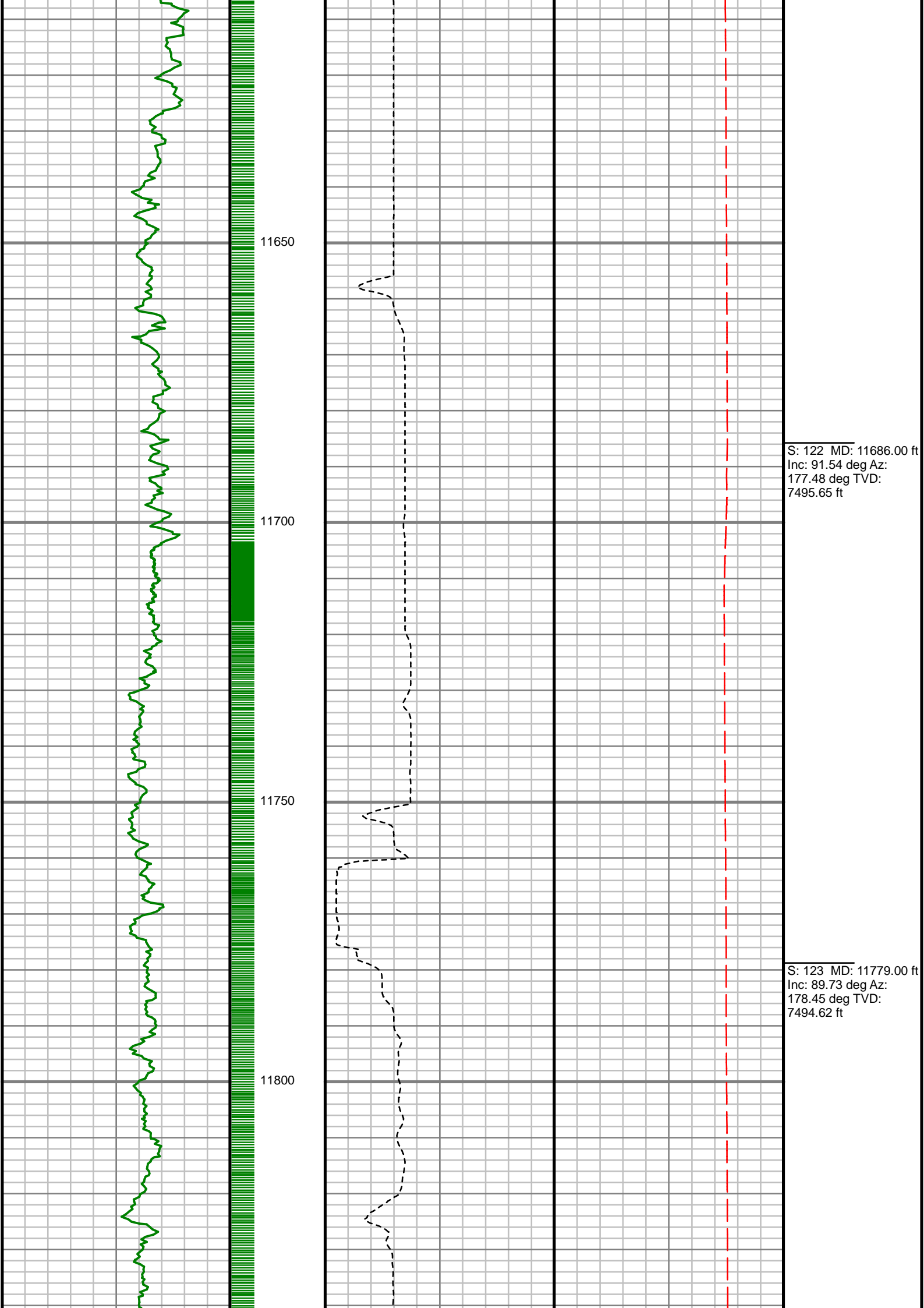


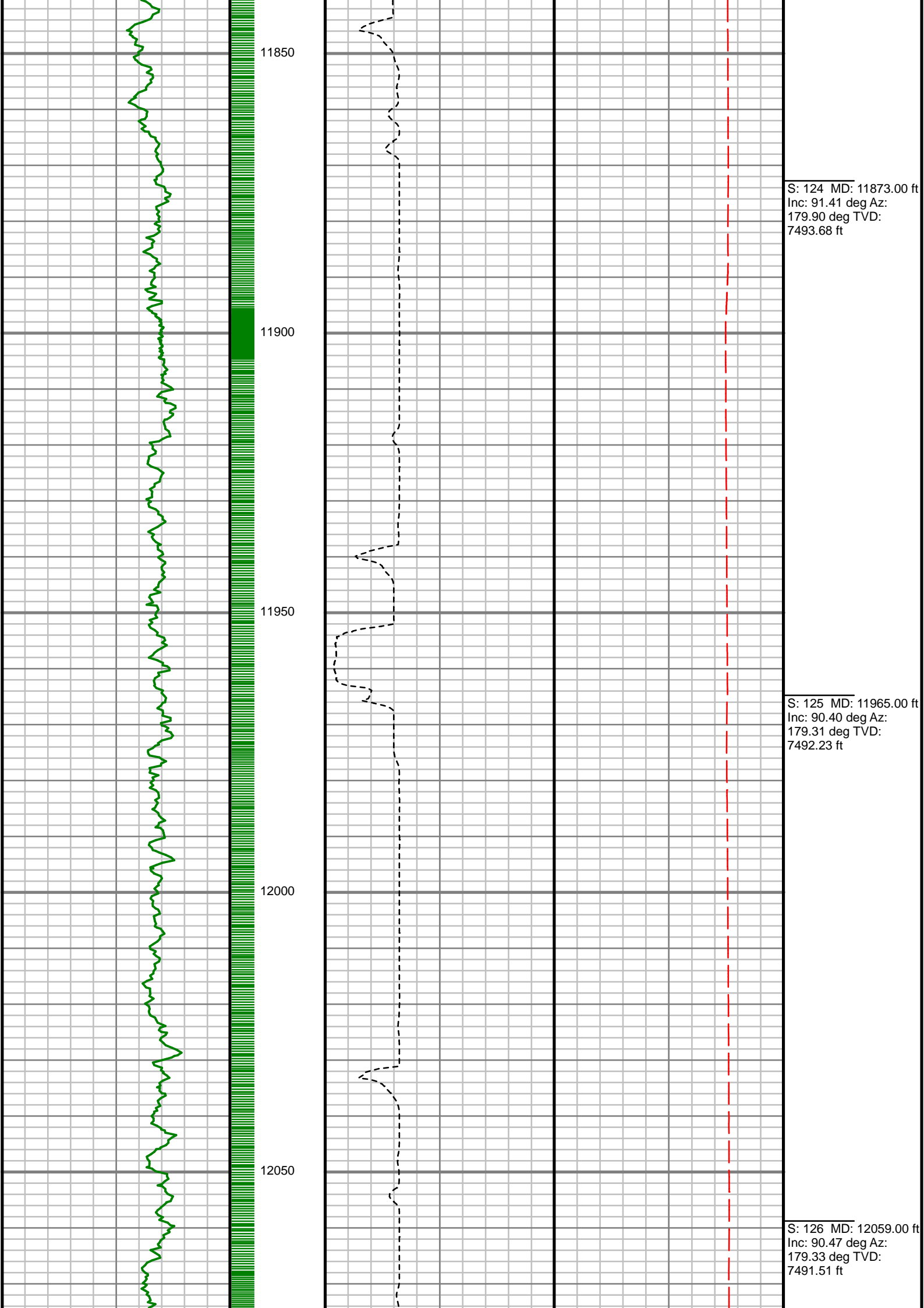


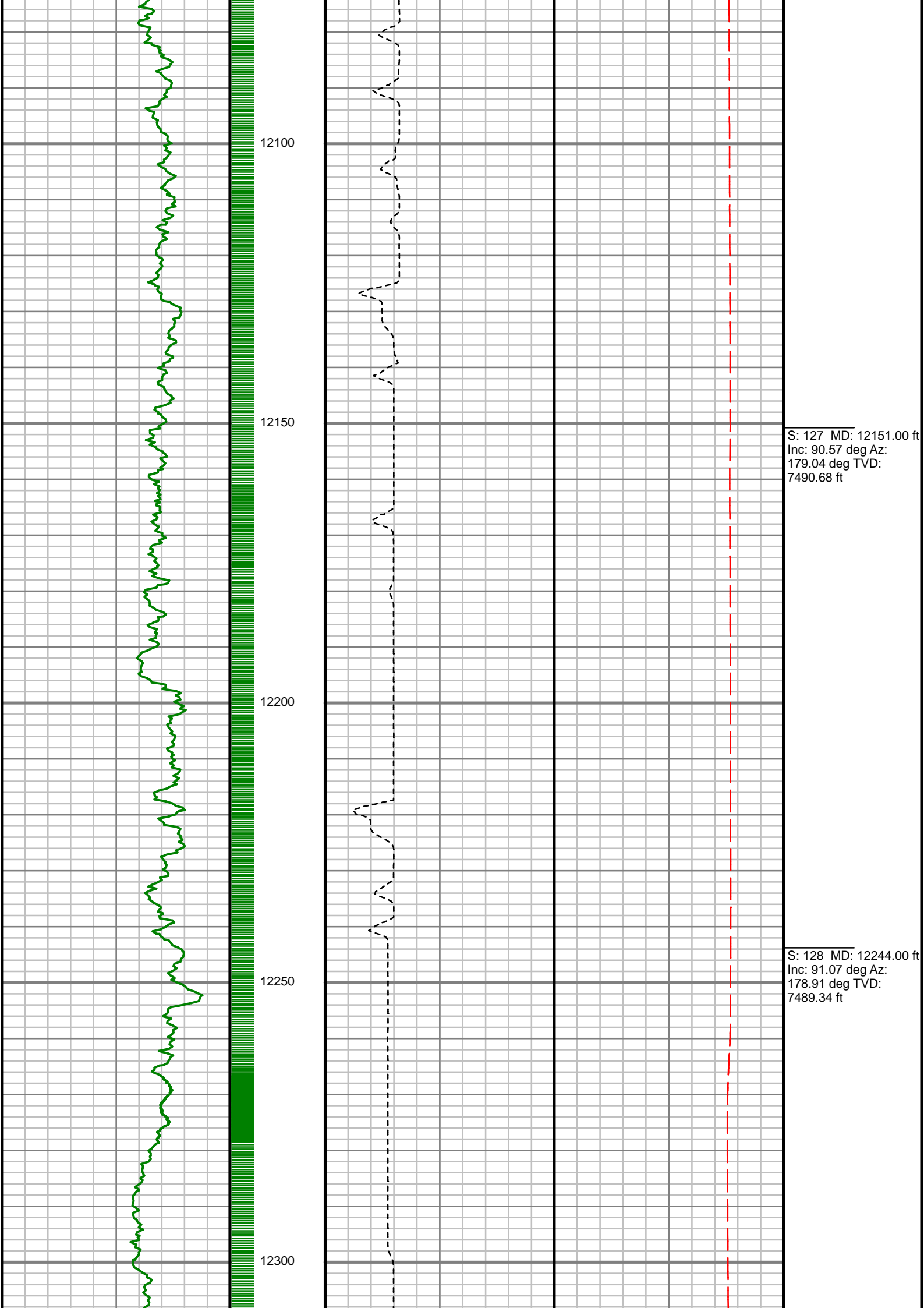


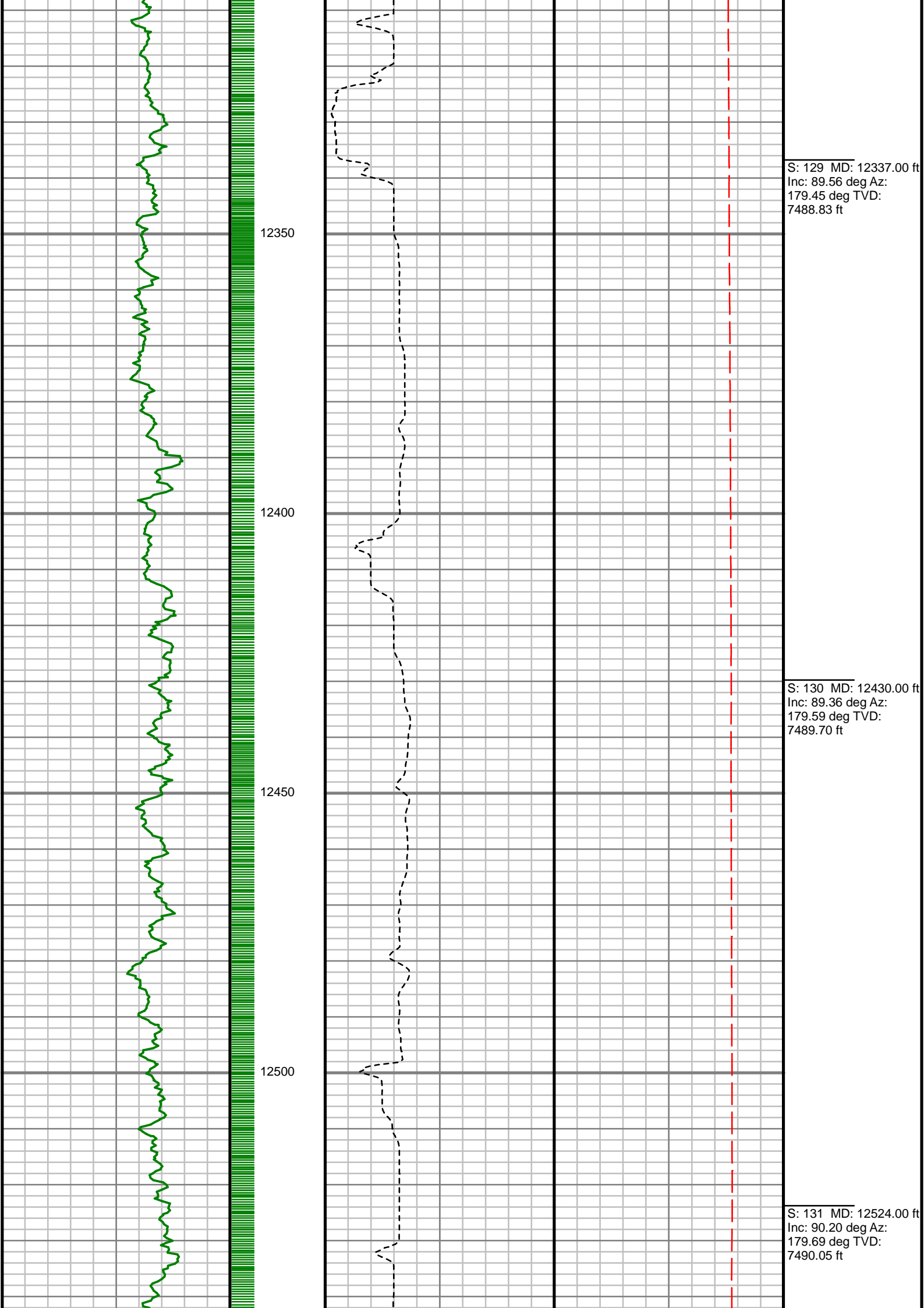








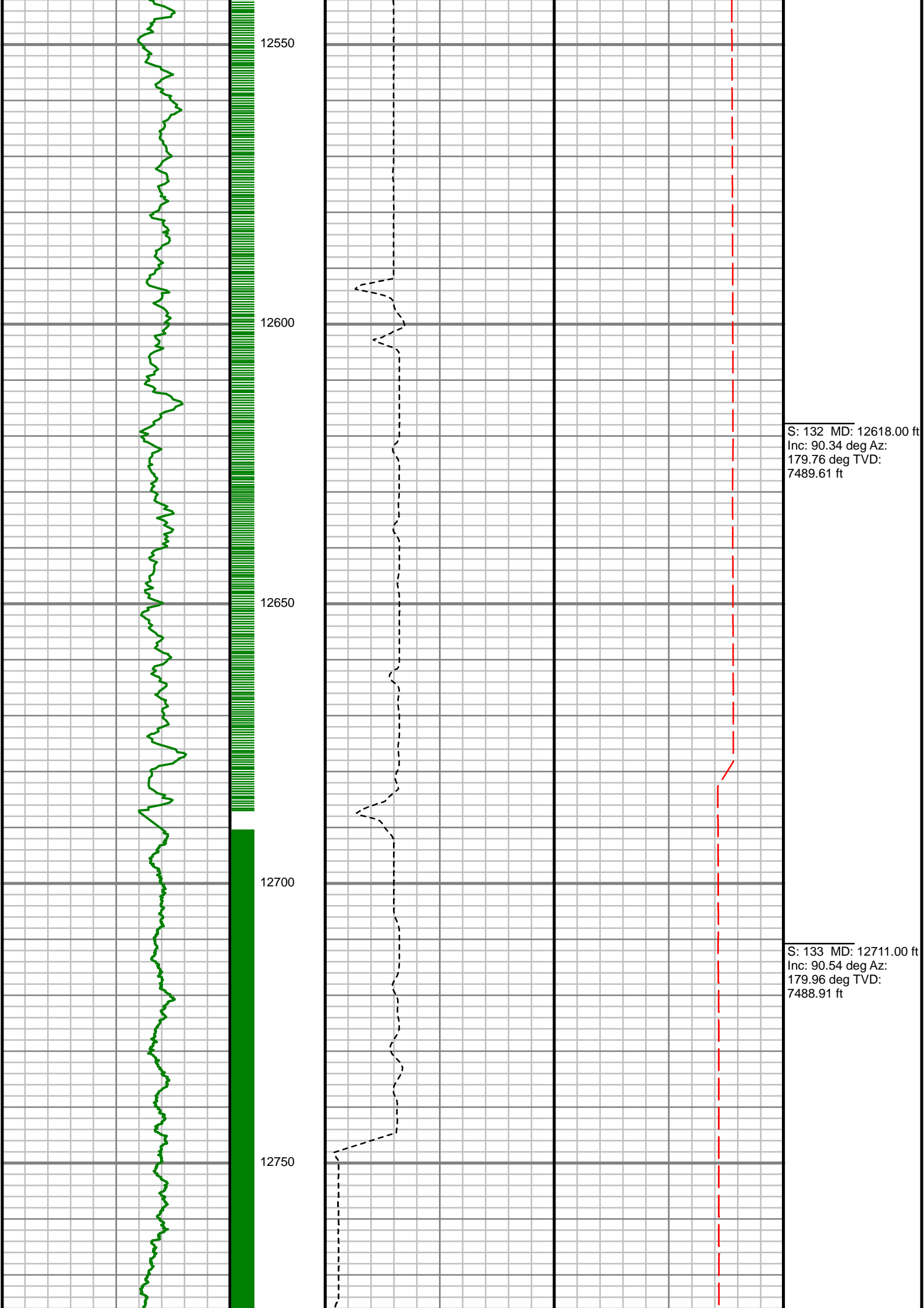


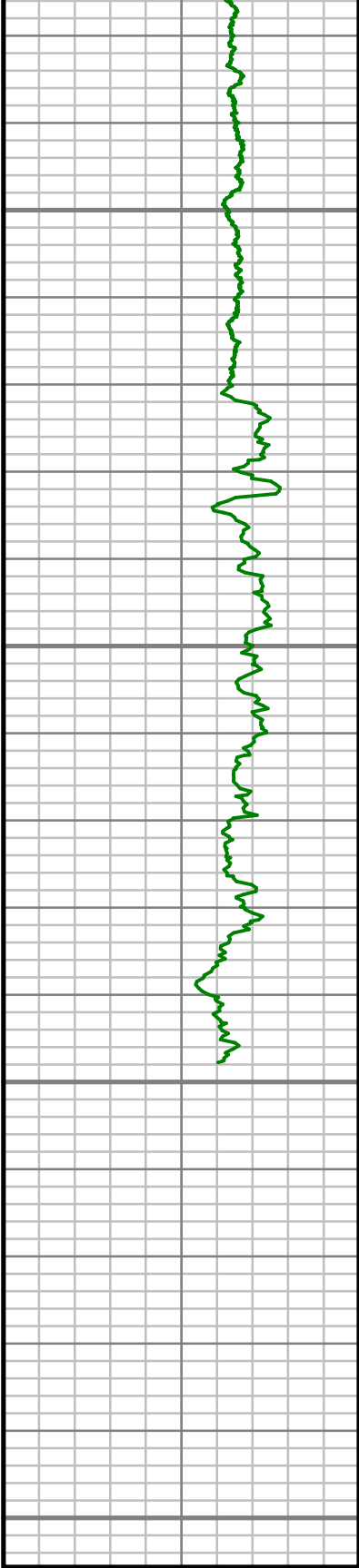


S: 129 MD: 12337.00 ft
Inc: 89.56 deg Az:
179.45 deg TVD:
7488.83 ft

S: 130 MD: 12430.00 ft
Inc: 89.36 deg Az:
179.59 deg TVD:
7489.70 ft

S: 131 MD: 12524.00 ft
Inc: 90.20 deg Az:
179.69 deg TVD:
7490.05 ft





Gamma Ray (GR)		
0	Unit = aapi	150

MEASURED DEPTH
1:240 (ft)

12800

12850

12900

12950



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

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

Comments

S: 134 MD: 12803.00 ft
Inc: 91.54 deg Az:
178.49 deg TVD:
7487.24 ft

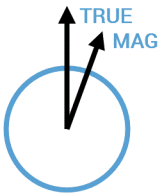
S: 135 MD: 12888.00 ft
Inc: 91.74 deg Az:
179.08 deg TVD:
7484.80 ft

CUSTOMER ANADARKO E&P ONSHORE LLC
PROJECT LAND FED
FIELD WATTENBERG

WELL INFORMATION
Lat/Long 40° 5' 56.501" N, 104° 48' 20.646" W
Northing 14,562,853.2 ft
Easting 1,694,742.11 ft
UWI 05123423950000

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 179.57°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION Local Gravity: 999.046 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-4157 ft	MAGVAR - ANADARKO	30 May 2016	8.36°	add 8.36°
4157-6225 ft	MAGVAR - ANADARKO	30 May 2016	8.38°	add 8.38°
6225-9145 ft	MAGVAR - ANADARKO	30 May 2016	8.39°	add 8.39°
9145-12888 ft	MAGVAR - ANADARKO	30 May 2016	8.37°	add 8.37°

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
213.00	1.86	326.55	212.96	-2.90	2.88	-1.91	0.87
307.00	3.18	323.28	306.87	-6.28	6.25	-4.31	1.41
401.00	3.83	319.77	400.69	-10.79	10.73	-7.89	0.73
495.00	4.75	321.59	494.43	-16.27	16.18	-12.34	0.99
589.00	6.18	321.25	588.00	-23.31	23.18	-17.92	1.52
683.00	7.59	322.15	681.32	-32.21	32.02	-24.90	1.50
777.00	9.46	318.88	774.28	-43.00	42.75	-33.79	2.05
871.00	11.38	316.80	866.72	-55.67	55.33	-45.22	2.08
965.00	12.66	310.12	958.66	-69.17	68.73	-59.45	2.01
1059.00	14.44	309.93	1050.04	-83.46	82.89	-76.31	1.89
1153.00	16.47	312.52	1140.64	-100.13	99.42	-95.12	2.28
1247.00	18.34	313.16	1230.33	-119.41	118.54	-115.73	2.00
1341.00	19.63	310.55	1319.22	-139.96	138.93	-138.52	1.64
1528.00	23.16	312.34	1493.31	-185.55	184.13	-189.58	1.92
1624.00	22.94	312.99	1581.64	-211.22	209.60	-217.22	0.35
1719.00	22.40	313.33	1669.30	-236.47	234.65	-243.93	0.58
1814.00	21.60	313.92	1757.39	-261.21	259.20	-269.70	0.87
1867.00	21.45	314.01	1806.69	-274.82	272.70	-283.69	0.29
1984.00	21.29	314.96	1915.64	-304.92	302.57	-314.11	0.32

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
2078.00	21.47	314.06	2003.17	-329.13	326.60	-338.55	0.40
2173.00	23.28	313.58	2091.02	-354.36	351.63	-364.65	1.91
2268.00	23.33	311.56	2178.27	-379.99	377.06	-392.32	0.84
2363.00	23.26	311.44	2265.52	-405.09	401.95	-420.46	0.09
2458.00	22.85	307.05	2352.94	-428.83	425.47	-449.24	1.86
2553.00	22.28	304.78	2440.67	-450.44	446.86	-478.76	1.09
2648.00	21.33	302.86	2528.87	-470.32	466.52	-508.06	1.25
2742.00	20.05	302.26	2616.81	-488.41	484.40	-536.06	1.38
2837.00	19.10	299.75	2706.32	-505.02	500.80	-563.32	1.34
2931.00	21.55	296.54	2794.46	-520.58	516.15	-592.12	2.86
3025.00	22.64	296.43	2881.56	-536.58	531.92	-623.76	1.16
3120.00	22.20	295.74	2969.38	-552.76	547.85	-656.30	0.53
3214.00	23.51	296.92	3056.00	-569.20	564.05	-689.02	1.47
3309.00	23.72	300.00	3143.04	-587.59	582.18	-722.46	1.32
3404.00	21.79	302.24	3230.64	-606.79	601.15	-753.93	2.23
3498.00	20.96	308.86	3318.19	-626.86	621.01	-781.79	2.71
3593.00	19.71	311.90	3407.27	-648.41	642.37	-806.94	1.73
3685.00	17.81	312.34	3494.38	-668.41	662.21	-828.89	2.06
3780.00	16.91	315.12	3585.05	-688.14	681.79	-849.38	1.29
3874.00	18.26	321.67	3674.67	-709.52	703.03	-868.16	2.55

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3969.00	19.07	321.24	3764.67	-733.44	726.81	-887.11	0.86
4063.00	20.72	326.75	3853.06	-759.47	752.69	-905.85	2.66
4158.00	21.62	328.17	3941.65	-788.53	781.62	-924.29	1.09
4251.00	20.16	326.19	4028.54	-816.54	809.49	-942.25	1.75
4347.00	19.74	326.59	4118.78	-843.95	836.77	-960.38	0.46
4442.00	20.74	329.65	4207.91	-871.99	864.68	-977.71	1.53
4535.00	22.30	339.49	4294.46	-902.85	895.43	-992.22	4.23
4630.00	23.25	345.77	4382.06	-937.99	930.49	-1003.14	2.75
4725.00	21.40	348.64	4469.94	-973.22	965.66	-1011.17	2.26
4819.00	20.93	349.79	4557.60	-1006.60	998.99	-1017.52	0.66
4914.00	20.95	352.39	4646.33	-1040.17	1032.53	-1022.78	0.98
5007.00	21.09	352.72	4733.14	-1073.28	1065.61	-1027.10	0.20
5100.00	20.07	351.65	4820.20	-1105.70	1097.99	-1031.54	1.17
5195.00	18.36	350.61	4909.91	-1136.63	1128.88	-1036.35	1.84
5288.00	17.22	349.46	4998.46	-1164.65	1156.87	-1041.26	1.28
5382.00	16.08	354.87	5088.52	-1191.32	1183.52	-1044.96	2.05
5475.00	15.17	357.44	5178.08	-1216.32	1208.50	-1046.66	1.23
5568.00	13.38	356.55	5268.21	-1239.23	1231.40	-1047.85	1.94
5662.00	11.63	1.66	5359.98	-1259.57	1251.74	-1048.23	2.20
5756.00	9.67	5.62	5452.35	-1276.89	1269.07	-1047.18	2.23

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5850.00	8.05	4.58	5545.23	-1291.30	1283.48	-1045.89	1.73
5944.00	6.80	1.23	5638.44	-1303.41	1295.60	-1045.24	1.41
6038.00	5.27	355.63	5731.92	-1313.28	1305.47	-1045.45	1.74
6132.00	4.28	351.12	5825.59	-1321.05	1313.23	-1046.32	1.12
6226.00	3.20	346.32	5919.39	-1327.07	1319.25	-1047.48	1.20
6320.00	2.77	348.10	6013.26	-1331.85	1324.02	-1048.57	0.47
6414.00	2.29	336.65	6107.17	-1335.80	1327.96	-1049.78	0.74
6509.00	2.21	334.76	6202.10	-1339.21	1331.36	-1051.31	0.11
6604.00	1.51	353.72	6297.05	-1342.11	1334.26	-1052.23	0.97
6699.00	1.31	4.34	6392.02	-1344.44	1336.58	-1052.29	0.34
6793.00	0.36	115.75	6486.01	-1345.37	1337.52	-1051.94	1.57
6888.00	0.95	262.63	6581.01	-1345.15	1337.29	-1052.45	1.33
6982.00	1.28	267.13	6674.99	-1345.01	1337.13	-1054.26	0.36
7077.00	1.78	256.80	6769.96	-1344.64	1336.75	-1056.75	0.60
7169.00	2.32	256.65	6861.90	-1343.91	1335.99	-1059.95	0.59
7263.00	10.80	203.50	6955.25	-1335.41	1327.45	-1065.33	10.20
7356.00	19.79	190.71	7044.88	-1311.94	1303.94	-1071.75	10.27
7450.00	24.88	191.11	7131.80	-1276.93	1268.87	-1078.52	5.41
7542.00	26.55	186.04	7214.70	-1237.54	1229.43	-1084.42	3.00
7637.00	36.90	180.53	7295.41	-1187.78	1179.66	-1086.92	11.31

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7730.00	50.47	179.23	7362.51	-1123.70	1115.57	-1086.70	14.62
7824.00	61.55	175.71	7414.99	-1045.96	1037.86	-1083.11	12.18
7917.00	71.19	177.23	7452.22	-960.98	952.92	-1077.92	10.48
8011.00	80.32	176.67	7475.33	-870.06	862.03	-1073.07	9.73
8107.00	86.68	179.80	7486.19	-774.77	766.76	-1070.15	7.37
8203.00	91.17	179.29	7487.99	-678.81	670.80	-1069.39	4.71
8297.00	93.15	178.59	7484.45	-584.89	576.89	-1067.65	2.23
8391.00	93.18	178.39	7479.25	-491.05	483.07	-1065.18	0.21
8486.00	91.70	177.71	7475.20	-396.17	388.21	-1061.95	1.72
8581.00	92.28	179.97	7471.90	-301.24	293.29	-1060.02	2.46
8676.00	90.23	180.33	7469.81	-206.27	198.32	-1060.27	2.19
8770.00	90.37	180.03	7469.32	-112.28	104.33	-1060.56	0.36
8864.00	87.82	179.66	7470.80	-18.30	10.35	-1060.30	2.74
8957.00	89.16	180.13	7473.25	74.66	-82.62	-1060.13	1.53
9051.00	90.70	179.96	7473.36	168.66	-176.62	-1060.20	1.65
9146.00	87.35	180.49	7474.98	263.62	-271.59	-1060.57	3.58
9240.00	86.68	180.04	7479.87	357.49	-365.46	-1061.01	0.86
9334.00	88.03	177.72	7484.22	451.37	-459.33	-1059.17	2.85
9429.00	89.26	177.92	7486.46	546.30	-554.24	-1055.56	1.32
9522.00	88.16	177.00	7488.56	639.21	-647.12	-1051.43	1.55

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9615.00	87.22	176.27	7492.30	732.01	-739.88	-1045.98	1.27
9709.00	89.87	177.62	7494.69	825.87	-833.71	-1040.98	3.16
9805.00	90.37	176.99	7494.50	921.79	-929.60	-1036.47	0.84
9899.00	89.83	178.44	7494.33	1015.74	-1023.52	-1032.72	1.65
9993.00	90.13	179.52	7494.36	1109.74	-1117.51	-1031.04	1.20
10088.00	89.73	178.53	7494.47	1204.73	-1212.49	-1029.43	1.13
10182.00	89.63	179.18	7494.99	1298.72	-1306.47	-1027.55	0.70
10276.00	89.33	180.38	7495.85	1392.71	-1400.46	-1027.19	1.32
10371.00	90.91	180.88	7495.65	1487.69	-1495.45	-1028.24	1.74
10465.00	88.32	180.16	7496.29	1581.67	-1589.44	-1029.10	2.85
10557.00	88.56	179.71	7498.79	1673.63	-1681.40	-1028.99	0.56
10652.00	88.99	179.49	7500.82	1768.61	-1776.38	-1028.33	0.51
10746.00	89.56	178.23	7502.00	1862.60	-1870.35	-1026.47	1.47
10839.00	91.64	178.32	7501.03	1955.56	-1963.30	-1023.68	2.23
10933.00	89.87	179.08	7499.79	2049.54	-2057.26	-1021.55	2.05
11027.00	90.47	179.60	7499.52	2143.54	-2151.26	-1020.47	0.85
11121.00	89.13	178.86	7499.85	2237.53	-2245.24	-1019.21	1.63
11214.00	88.93	178.15	7501.42	2330.50	-2338.20	-1016.78	0.79
11308.00	89.16	177.12	7502.99	2424.43	-2432.10	-1012.91	1.12
11402.00	91.07	177.41	7502.79	2518.35	-2525.99	-1008.42	2.06

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11497.00	91.71	177.57	7500.49	2613.26	-2620.87	-1004.26	0.69
11592.00	91.31	177.54	7497.99	2708.17	-2715.75	-1000.21	0.42
11686.00	91.54	177.48	7495.65	2802.08	-2809.64	-996.13	0.26
11779.00	89.73	178.45	7494.62	2895.03	-2902.57	-992.83	2.21
11873.00	91.41	179.90	7493.68	2989.02	-2996.55	-991.47	2.36
11965.00	90.40	179.31	7492.23	3081.01	-3088.53	-990.83	1.27
12059.00	90.47	179.33	7491.51	3175.00	-3182.52	-989.72	0.07
12151.00	90.57	179.04	7490.68	3267.00	-3274.51	-988.42	0.33
12244.00	91.07	178.91	7489.34	3359.98	-3367.48	-986.76	0.56
12337.00	89.56	179.45	7488.83	3452.98	-3460.47	-985.43	1.73
12430.00	89.36	179.59	7489.70	3545.97	-3553.46	-984.66	0.26
12524.00	90.20	179.69	7490.05	3639.97	-3647.46	-984.07	0.90
12618.00	90.34	179.76	7489.61	3733.97	-3741.46	-983.63	0.16
12711.00	90.54	179.96	7488.91	3826.96	-3834.45	-983.40	0.30
12803.00	91.54	178.49	7487.24	3918.94	-3926.43	-982.16	1.93
12888.00	91.74	179.08	7484.80	4003.90	-4011.37	-980.36	0.73

5" = 100' FEET MD