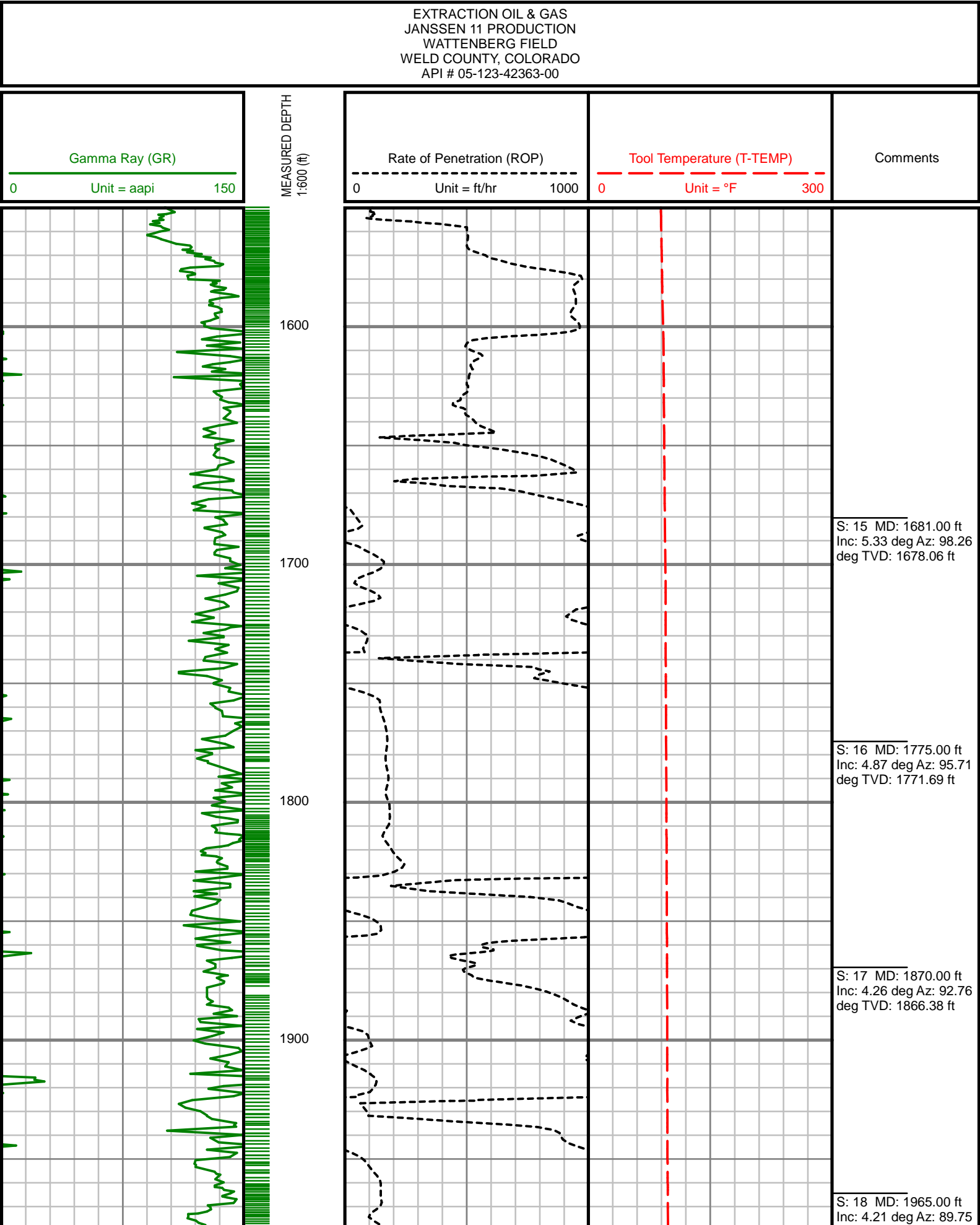
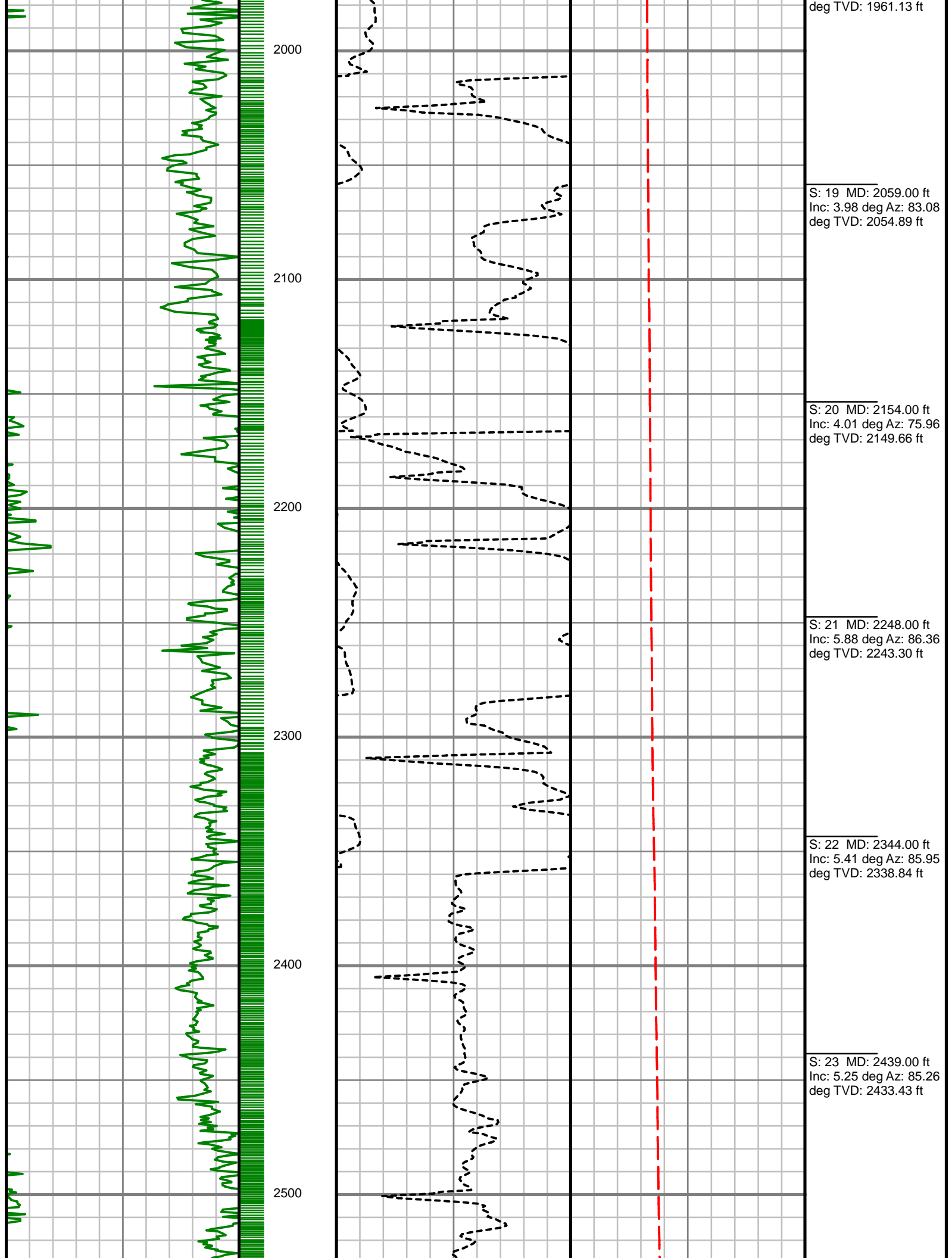
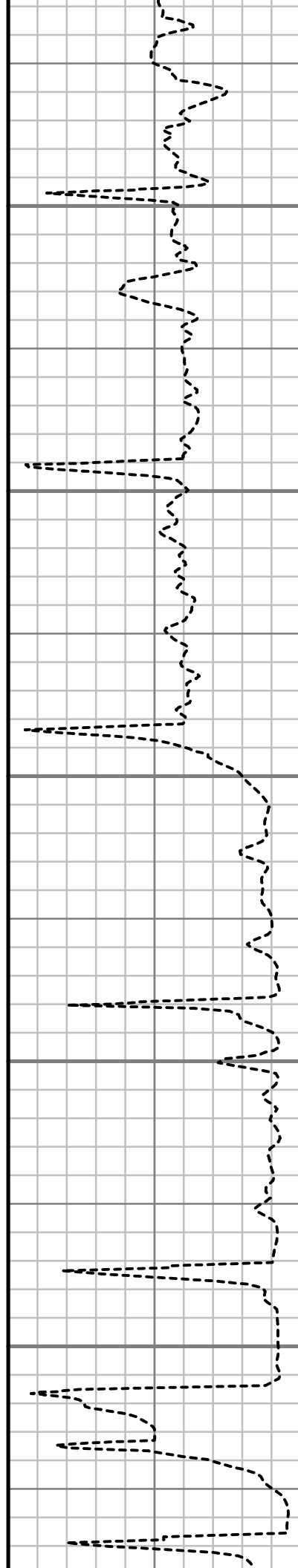
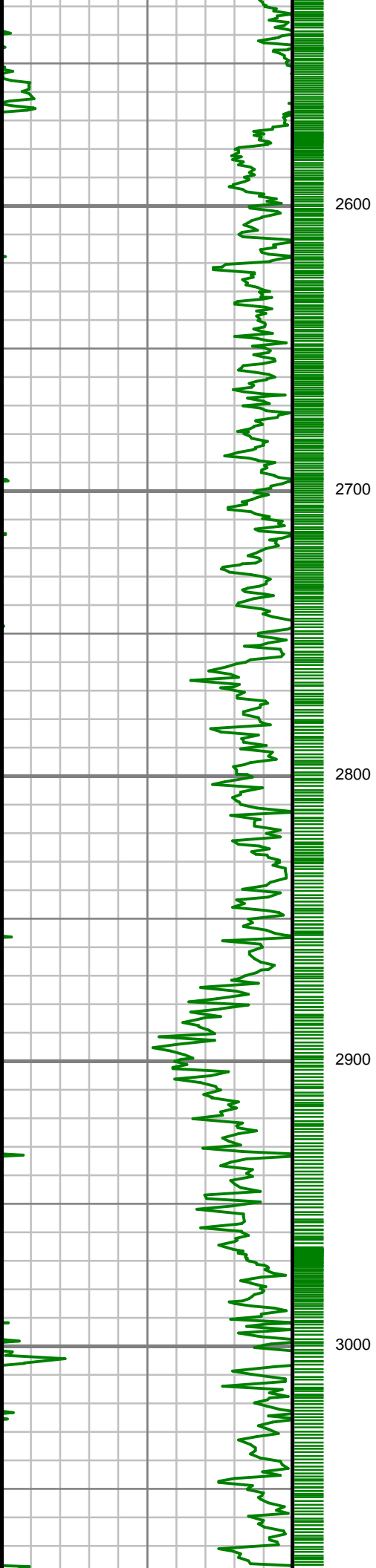


All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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: 24 MD: 2535.00 ft
Inc: 5.08 deg Az: 83.75
deg TVD: 2529.04 ft

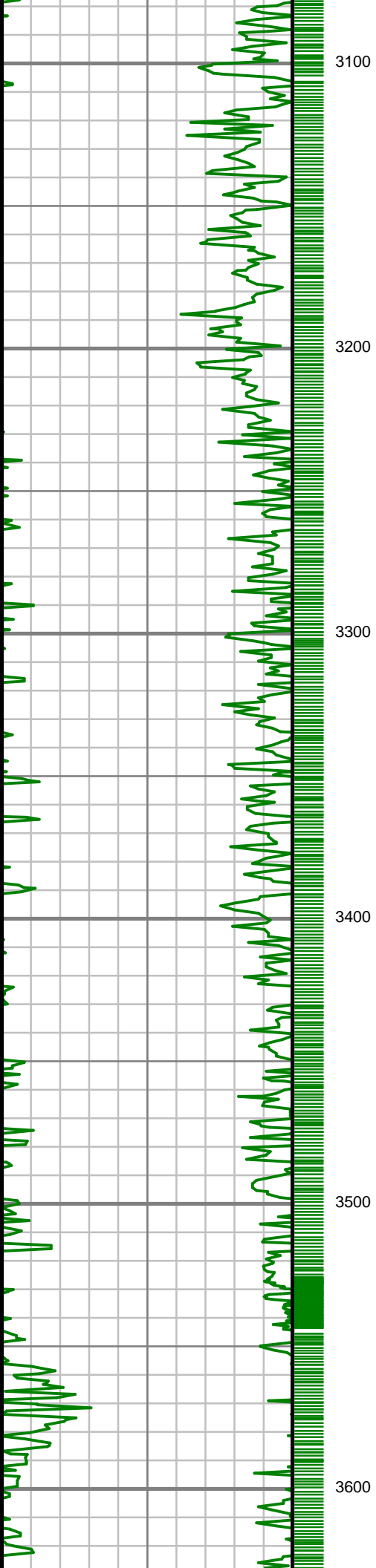
S: 25 MD: 2629.00 ft
Inc: 5.04 deg Az: 87.45
deg TVD: 2622.67 ft

S: 26 MD: 2723.00 ft
Inc: 4.44 deg Az: 88.19
deg TVD: 2716.35 ft

S: 27 MD: 2818.00 ft
Inc: 4.33 deg Az: 91.30
deg TVD: 2811.07 ft

S: 28 MD: 2913.00 ft
Inc: 3.98 deg Az: 92.48
deg TVD: 2905.82 ft

S: 29 MD: 3009.00 ft
Inc: 4.13 deg Az: 86.85
deg TVD: 3001.58 ft



3100

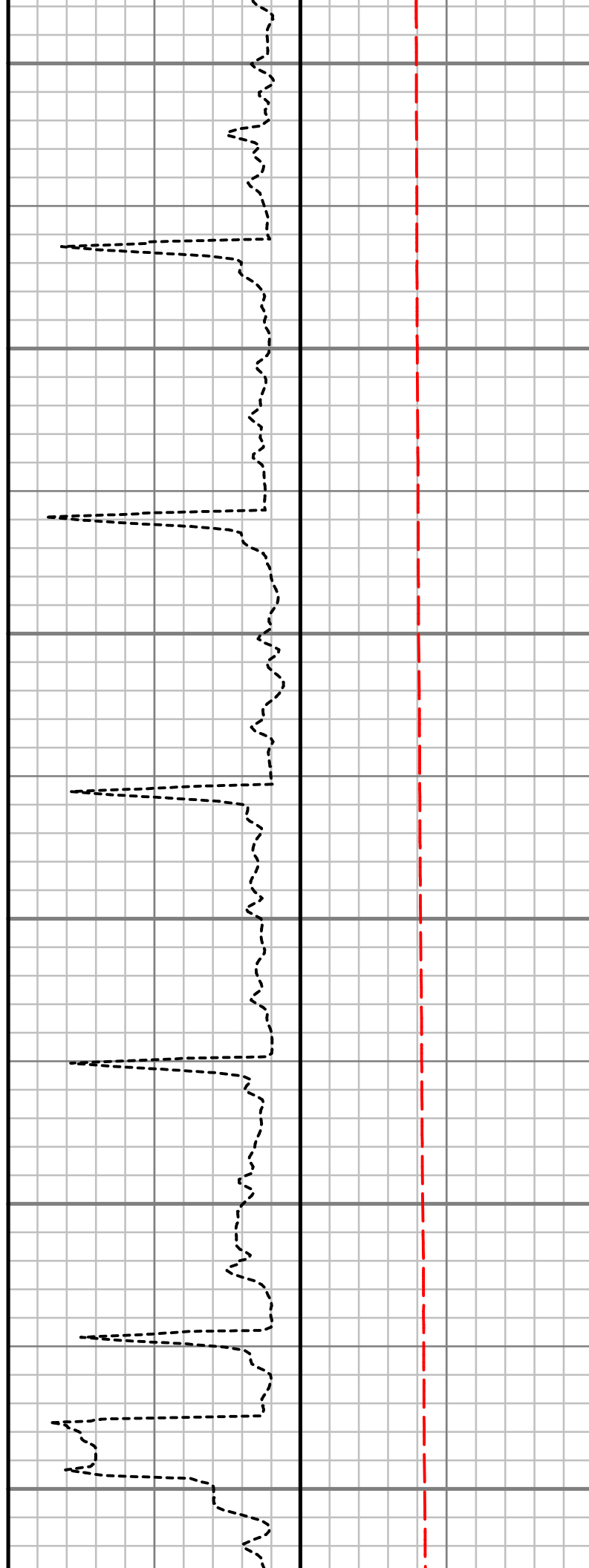
3200

3300

3400

3500

3600



S: 30 MD: 3103.00 ft
Inc: 6.12 deg Az: 96.09
deg TVD: 3095.20 ft

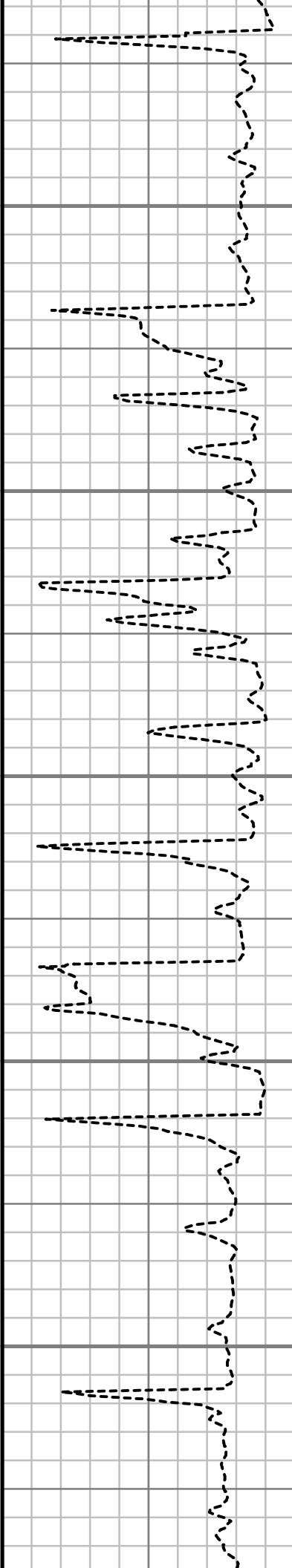
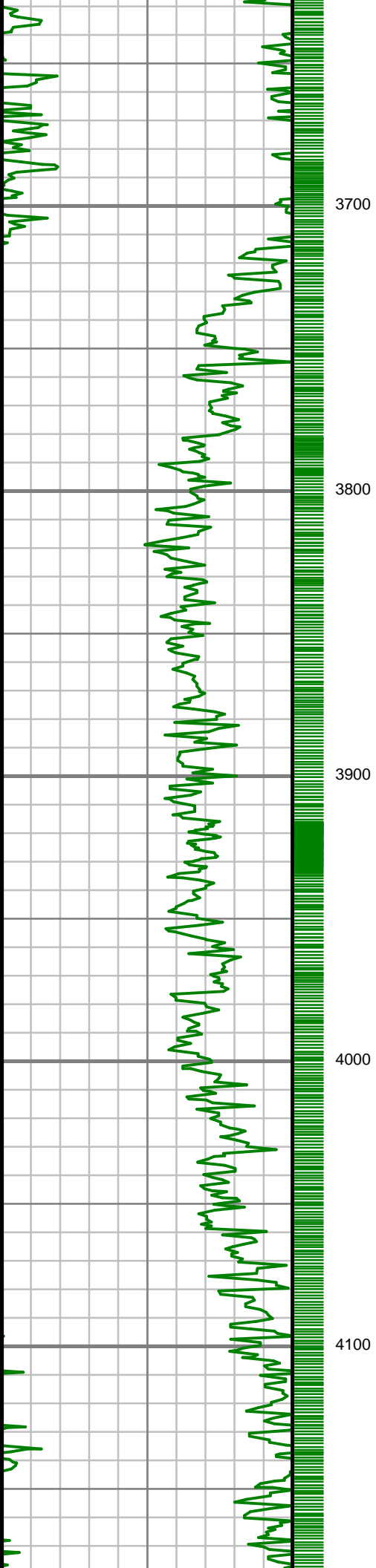
S: 31 MD: 3198.00 ft
Inc: 5.66 deg Az: 93.85
deg TVD: 3189.70 ft

S: 32 MD: 3294.00 ft
Inc: 4.99 deg Az: 96.24
deg TVD: 3285.29 ft

S: 33 MD: 3389.00 ft
Inc: 3.63 deg Az: 98.57
deg TVD: 3380.01 ft

S: 34 MD: 3484.00 ft
Inc: 3.52 deg Az:
105.15 deg TVD:
3474.83 ft

S: 35 MD: 3579.00 ft
Inc: 3.23 deg Az:
106.79 deg TVD:
3569.66 ft



S: 36 MD: 3674.00 ft
Inc: 4.51 deg Az: 98.23
deg TVD: 3664.45 ft

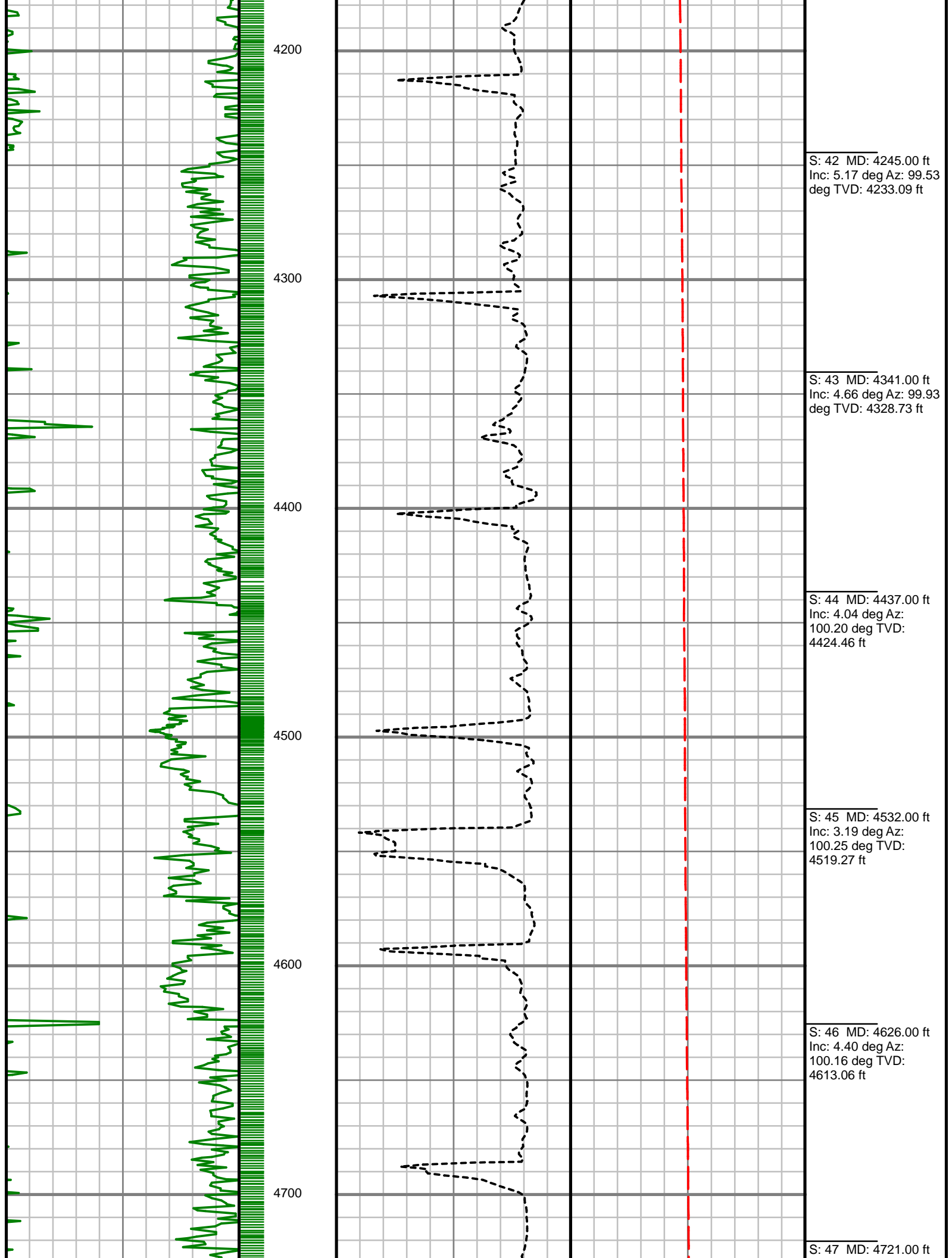
S: 37 MD: 3770.00 ft
Inc: 4.33 deg Az: 98.91
deg TVD: 3760.16 ft

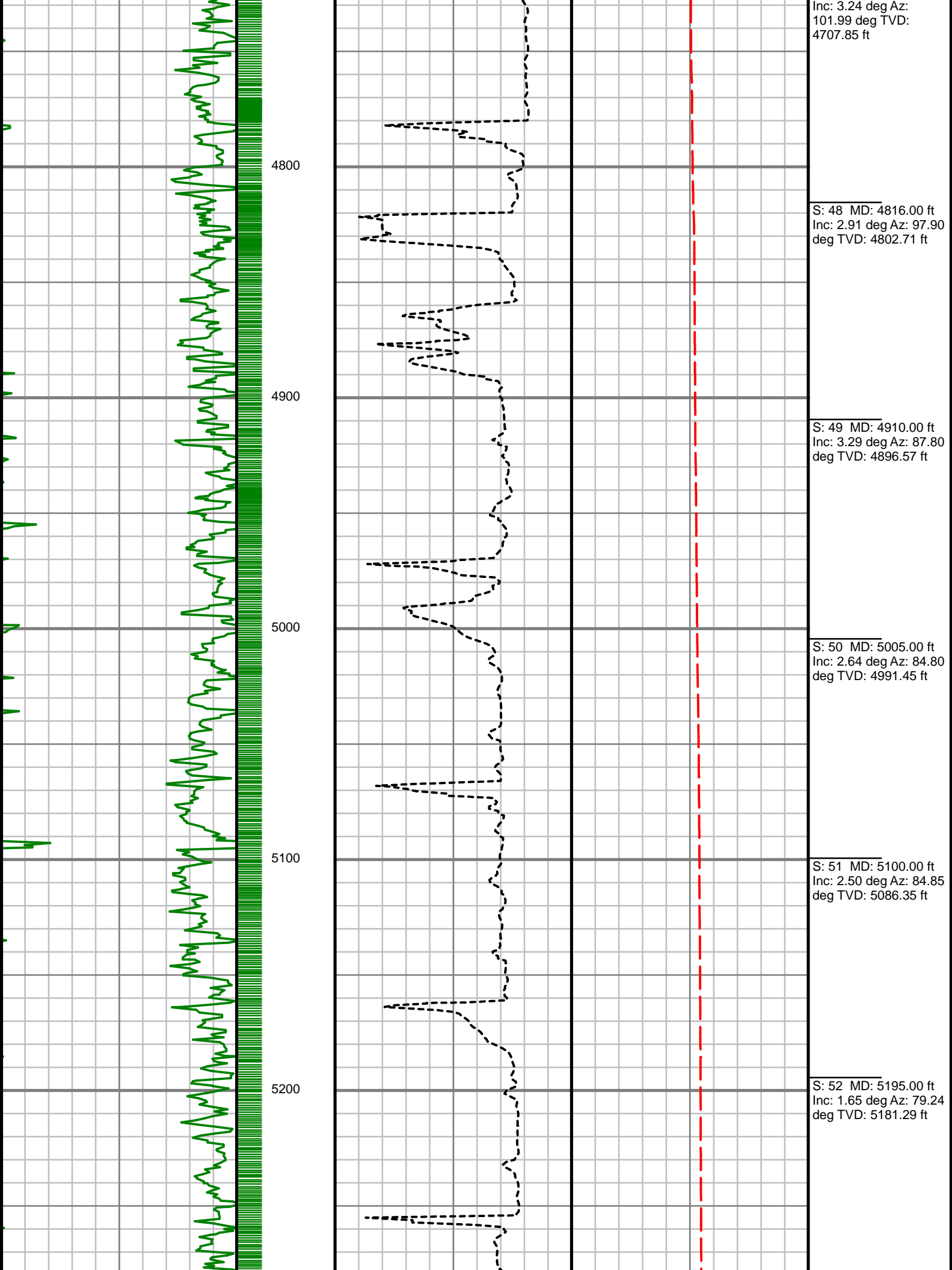
S: 38 MD: 3865.00 ft
Inc: 3.89 deg Az: 95.06
deg TVD: 3854.92 ft

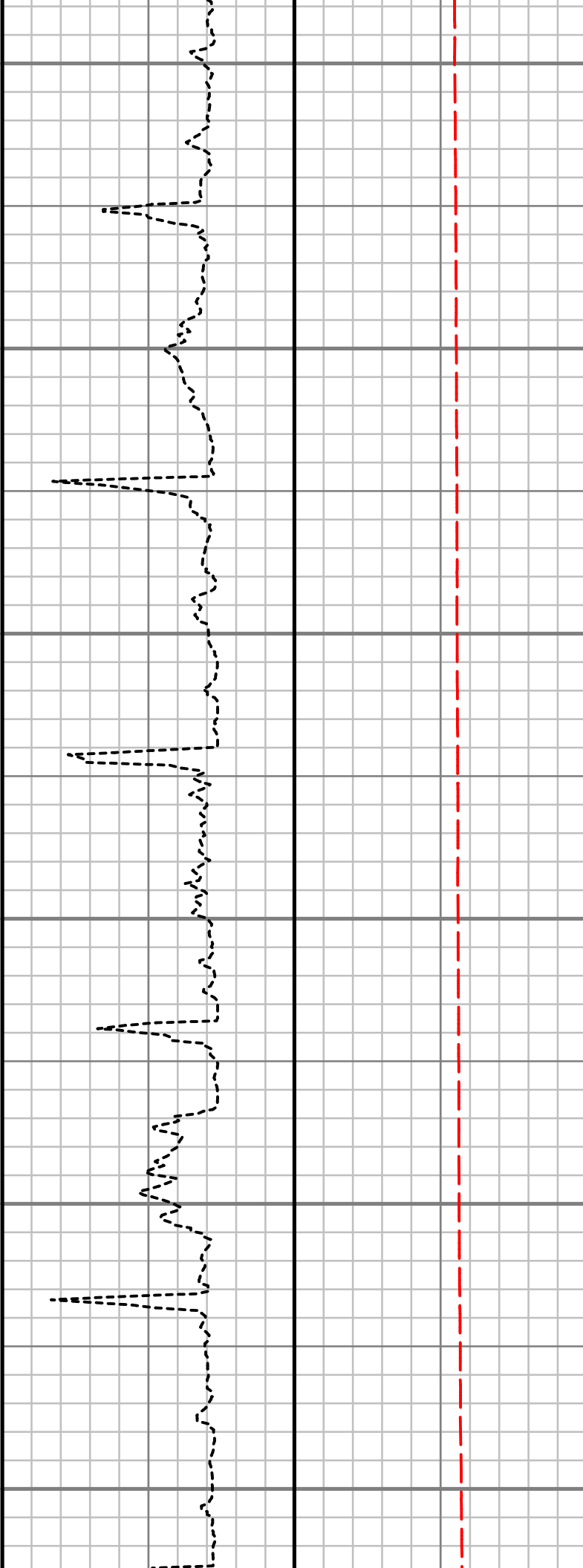
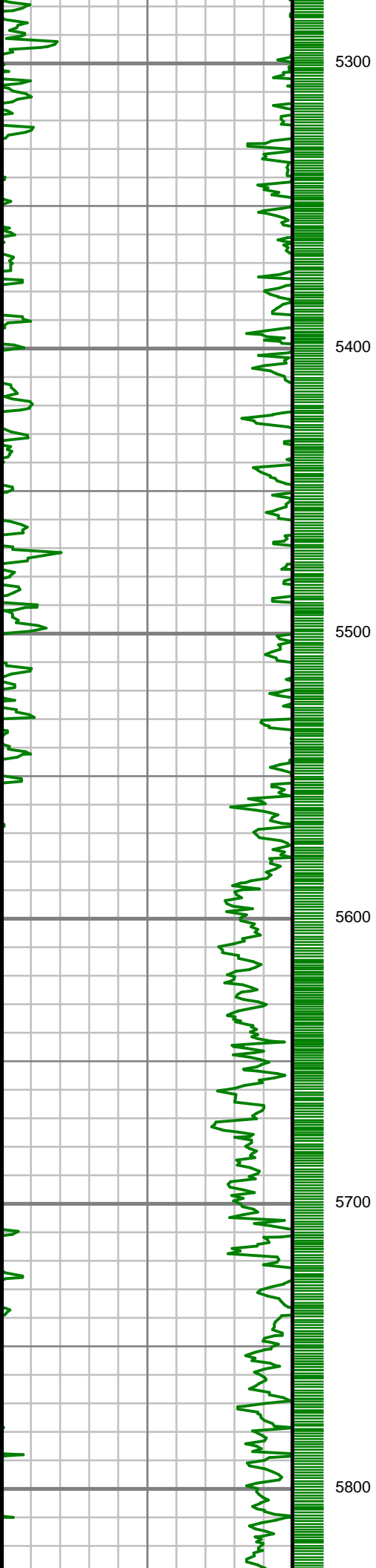
S: 39 MD: 3960.00 ft
Inc: 4.95 deg Az: 93.10
deg TVD: 3949.63 ft

S: 40 MD: 4055.00 ft
Inc: 6.65 deg Az:
106.17 deg TVD:
4044.15 ft

S: 41 MD: 4150.00 ft
Inc: 6.18 deg Az:
104.47 deg TVD:
4138.55 ft







S: 53 MD: 5290.00 ft
Inc: 1.42 deg Az: 90.68
deg TVD: 5276.25 ft

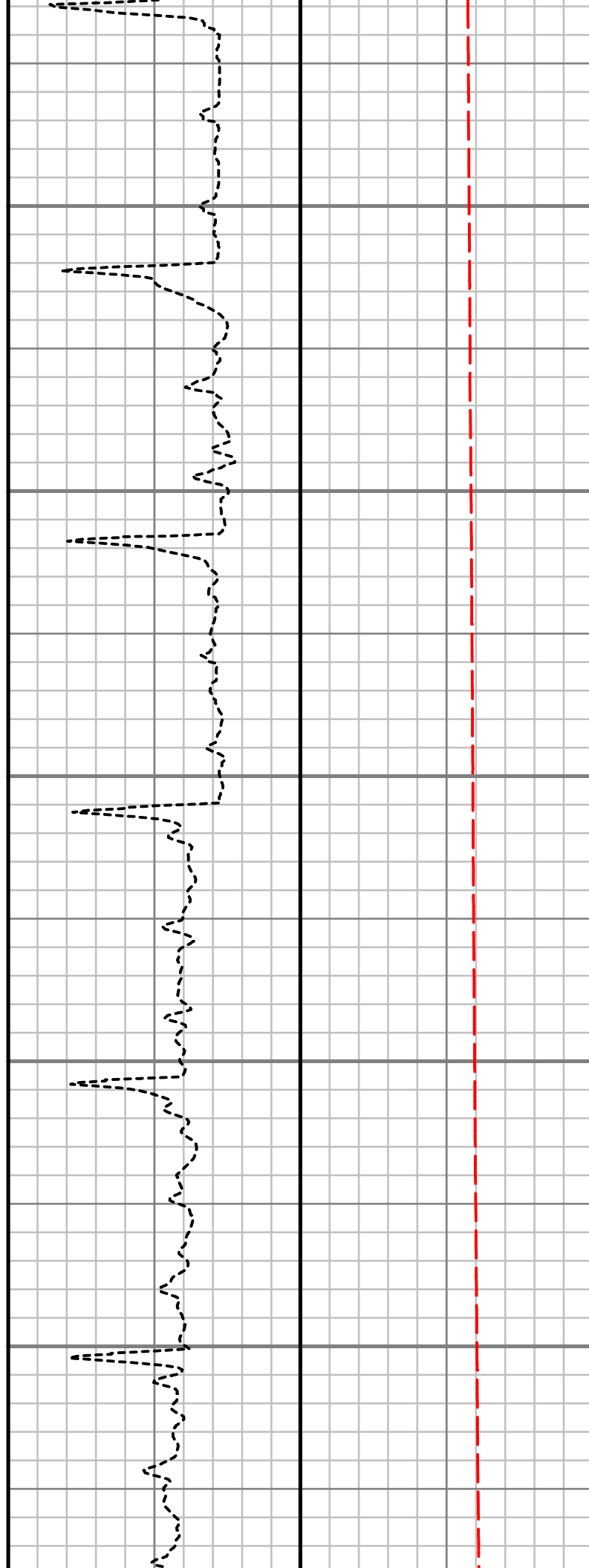
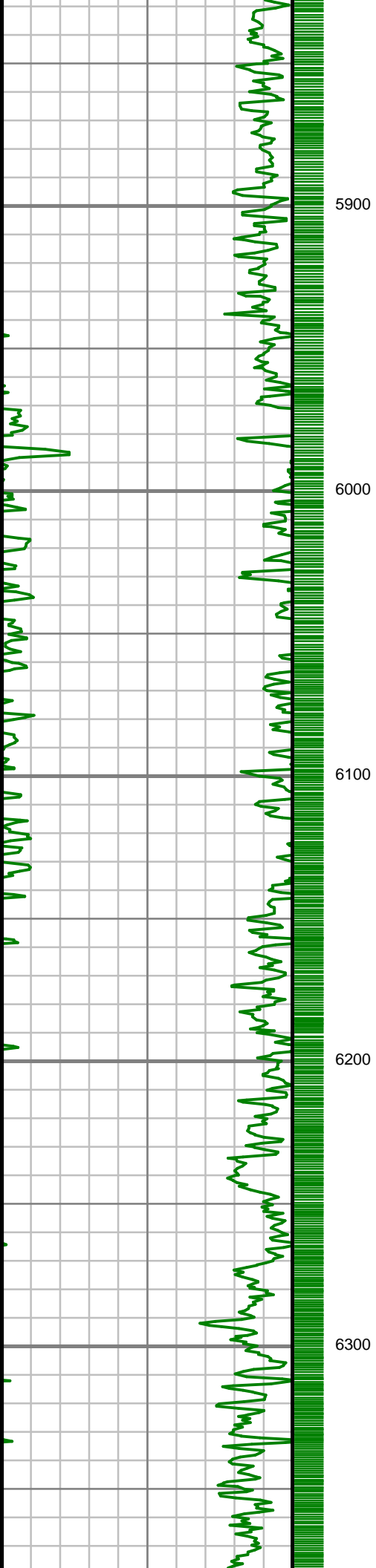
S: 54 MD: 5385.00 ft
Inc: 0.77 deg Az: 65.85
deg TVD: 5371.24 ft

S: 55 MD: 5481.00 ft
Inc: 0.86 deg Az: 19.70
deg TVD: 5467.23 ft

S: 56 MD: 5576.00 ft
Inc: 0.72 deg Az: 2.65
deg TVD: 5562.22 ft

S: 57 MD: 5672.00 ft
Inc: 0.42 deg Az: 61.87
deg TVD: 5658.21 ft

S: 58 MD: 5767.00 ft
Inc: 0.31 deg Az:
158.11 deg TVD:
5753.21 ft



S: 59 MD: 5862.00 ft
Inc: 0.53 deg Az:
196.20 deg TVD:
5848.21 ft

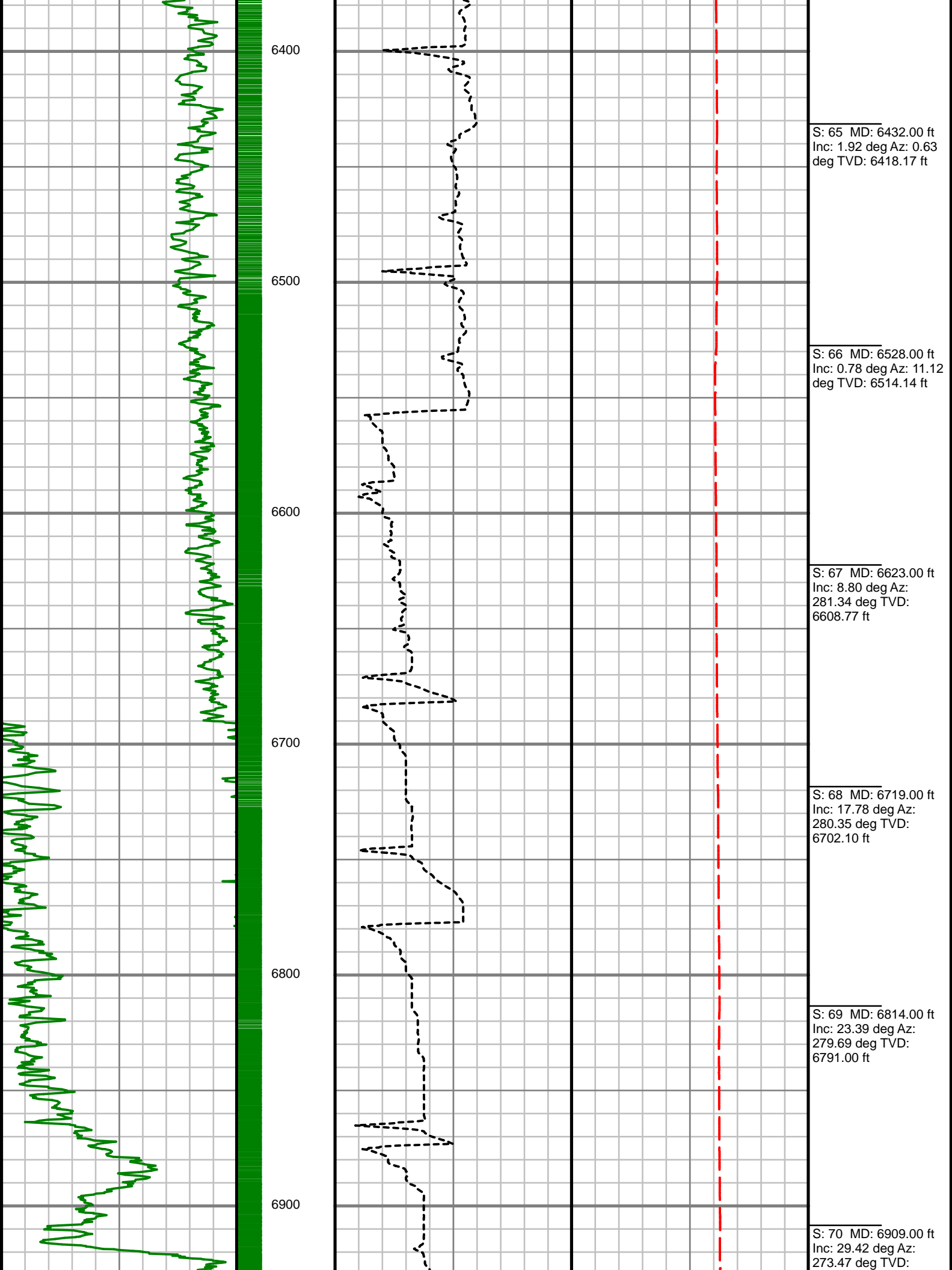
S: 60 MD: 5957.00 ft
Inc: 0.03 deg Az: 77.86
deg TVD: 5943.21 ft

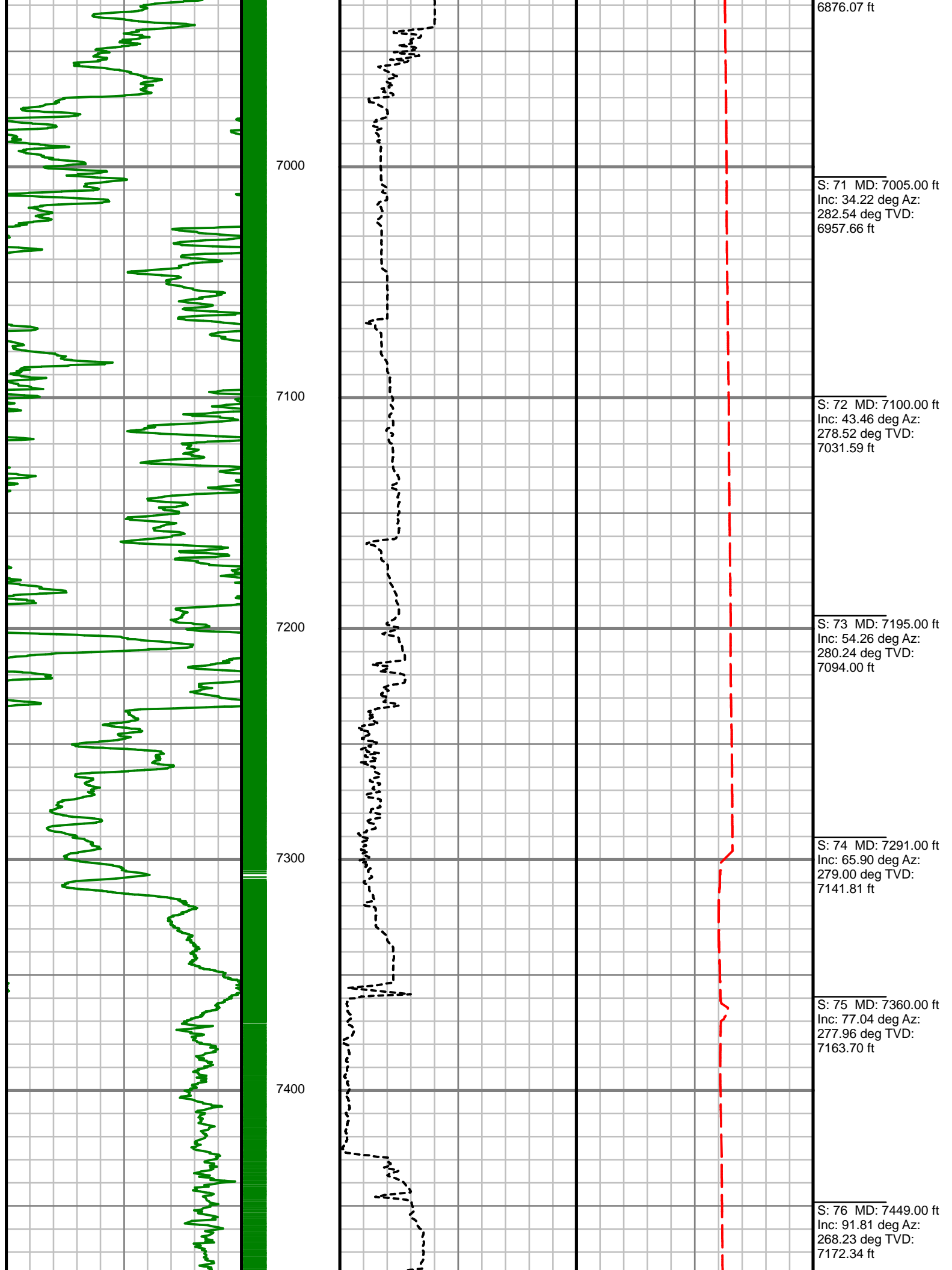
S: 61 MD: 6051.00 ft
Inc: 0.43 deg Az:
164.06 deg TVD:
6037.21 ft

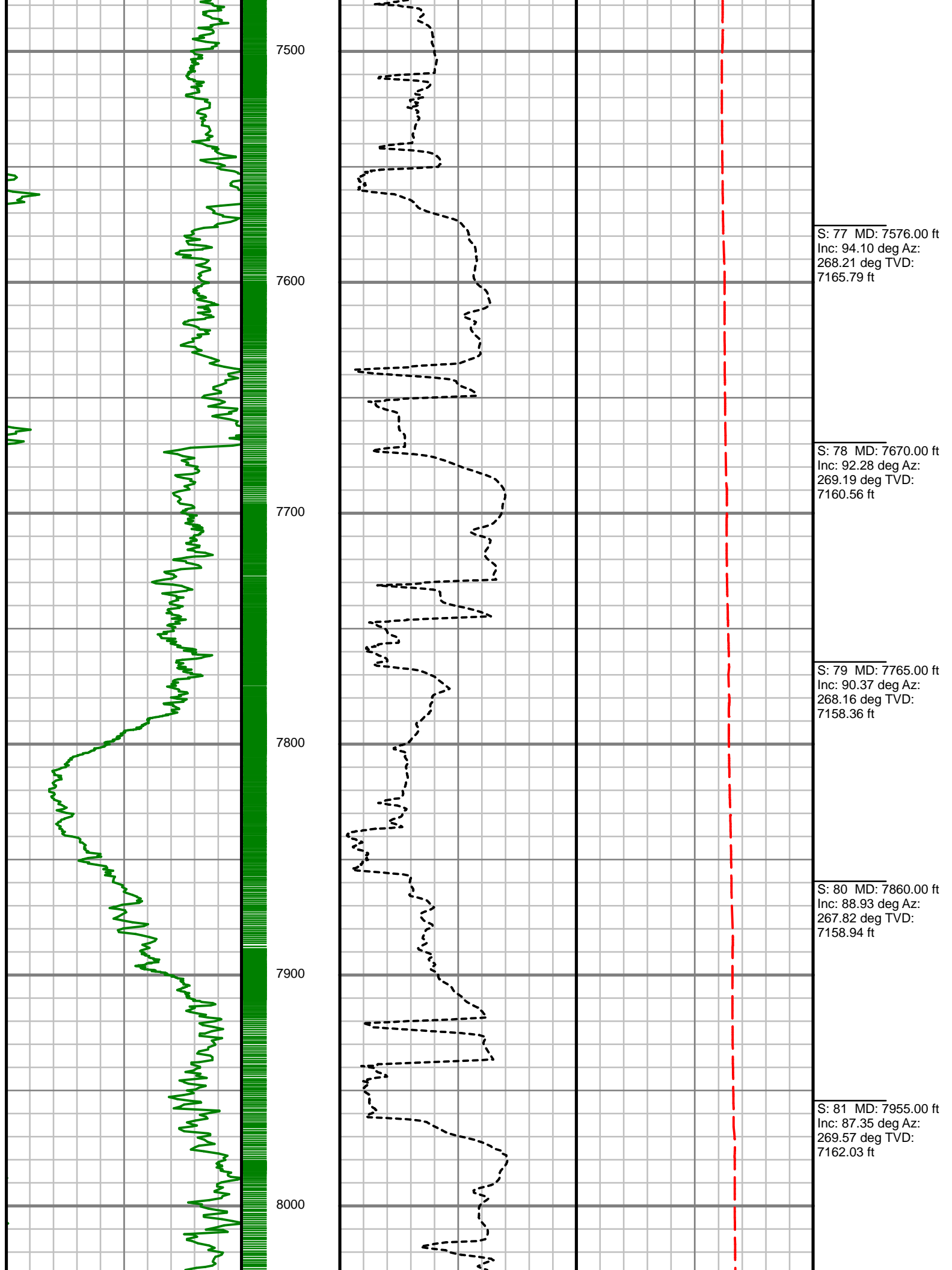
S: 62 MD: 6146.00 ft
Inc: 0.51 deg Az: 89.67
deg TVD: 6132.21 ft

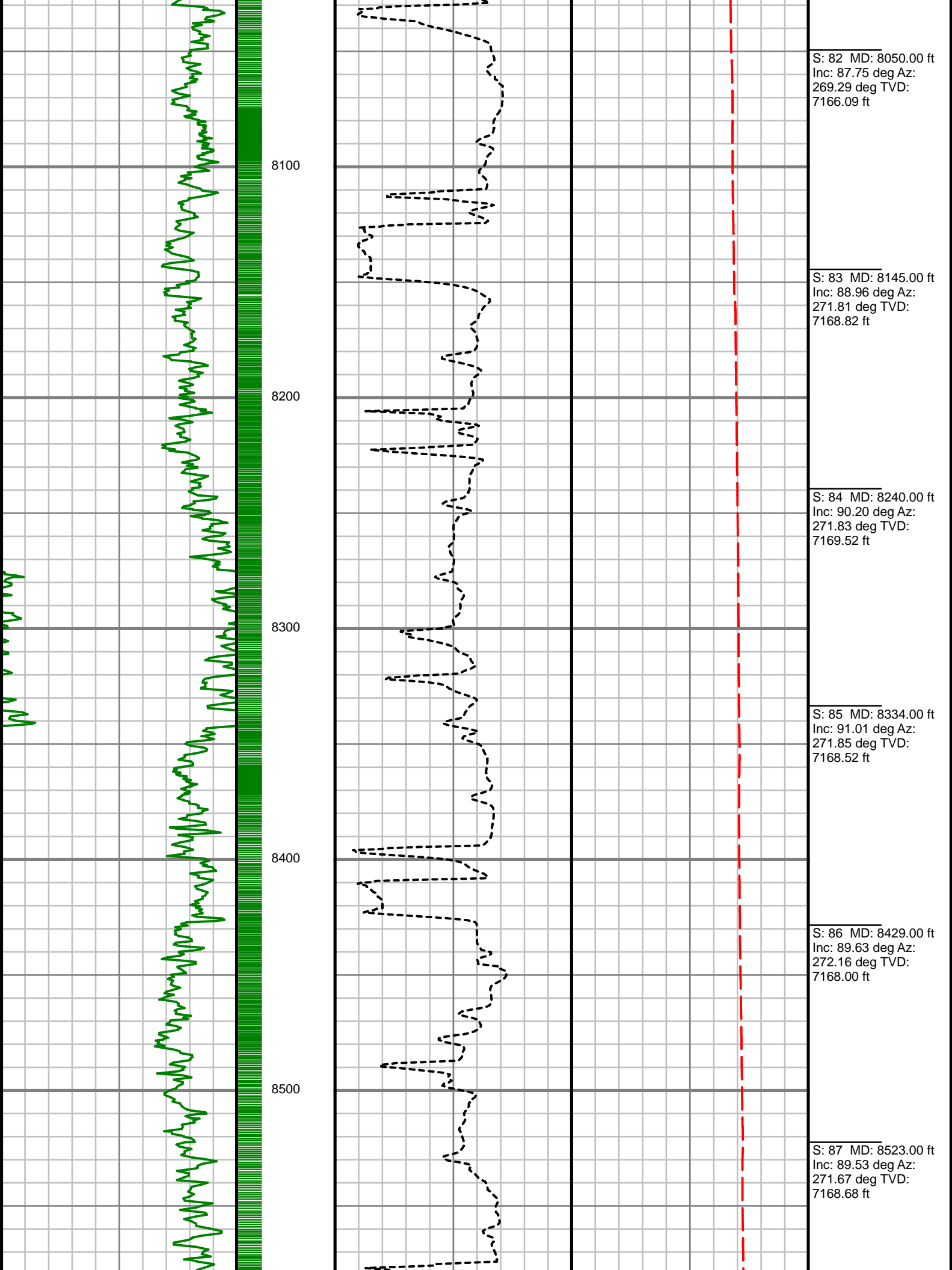
S: 63 MD: 6241.00 ft
Inc: 0.55 deg Az: 39.27
deg TVD: 6227.20 ft

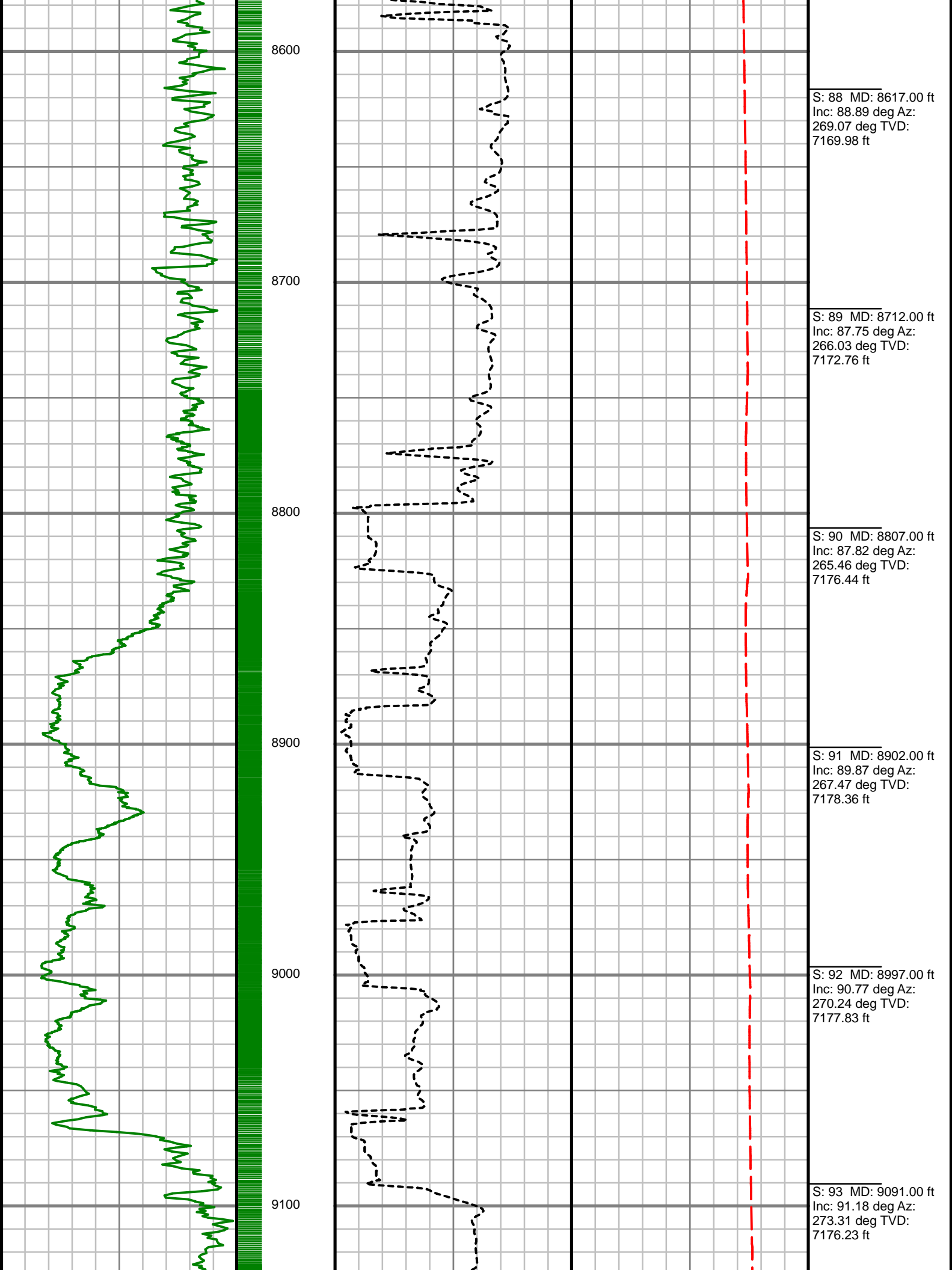
S: 64 MD: 6337.00 ft
Inc: 0.64 deg Az: 35.02
deg TVD: 6323.20 ft

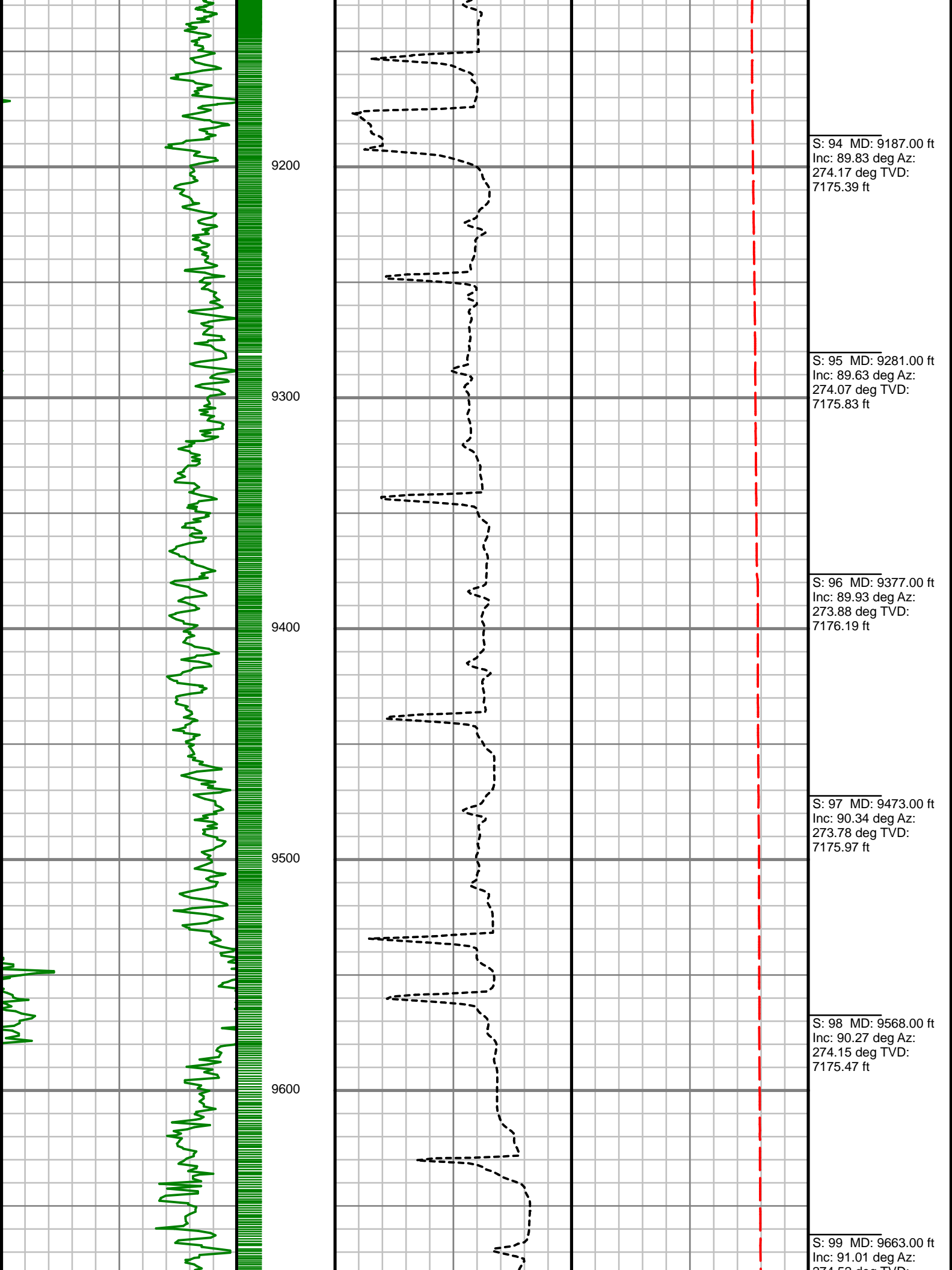


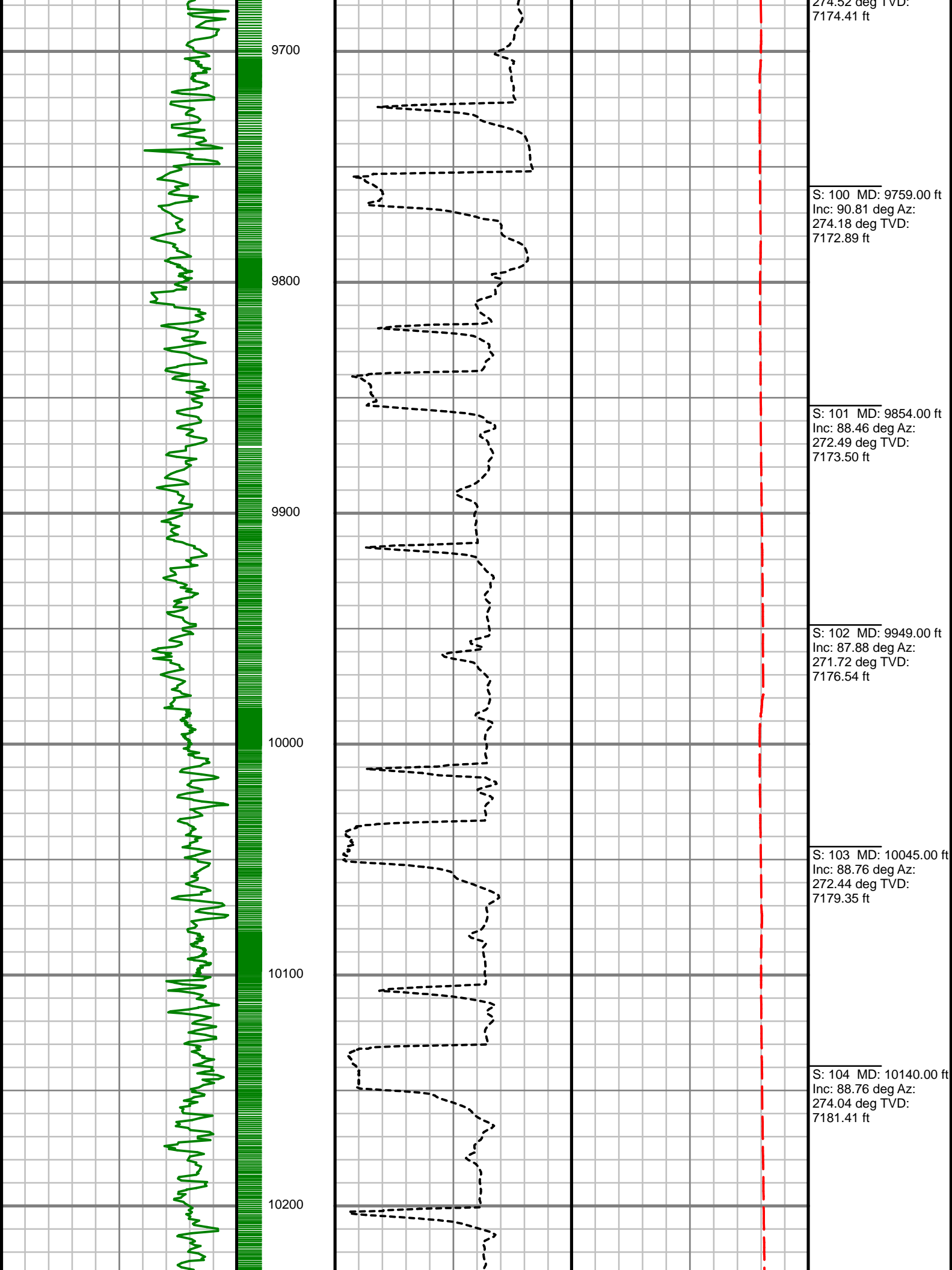


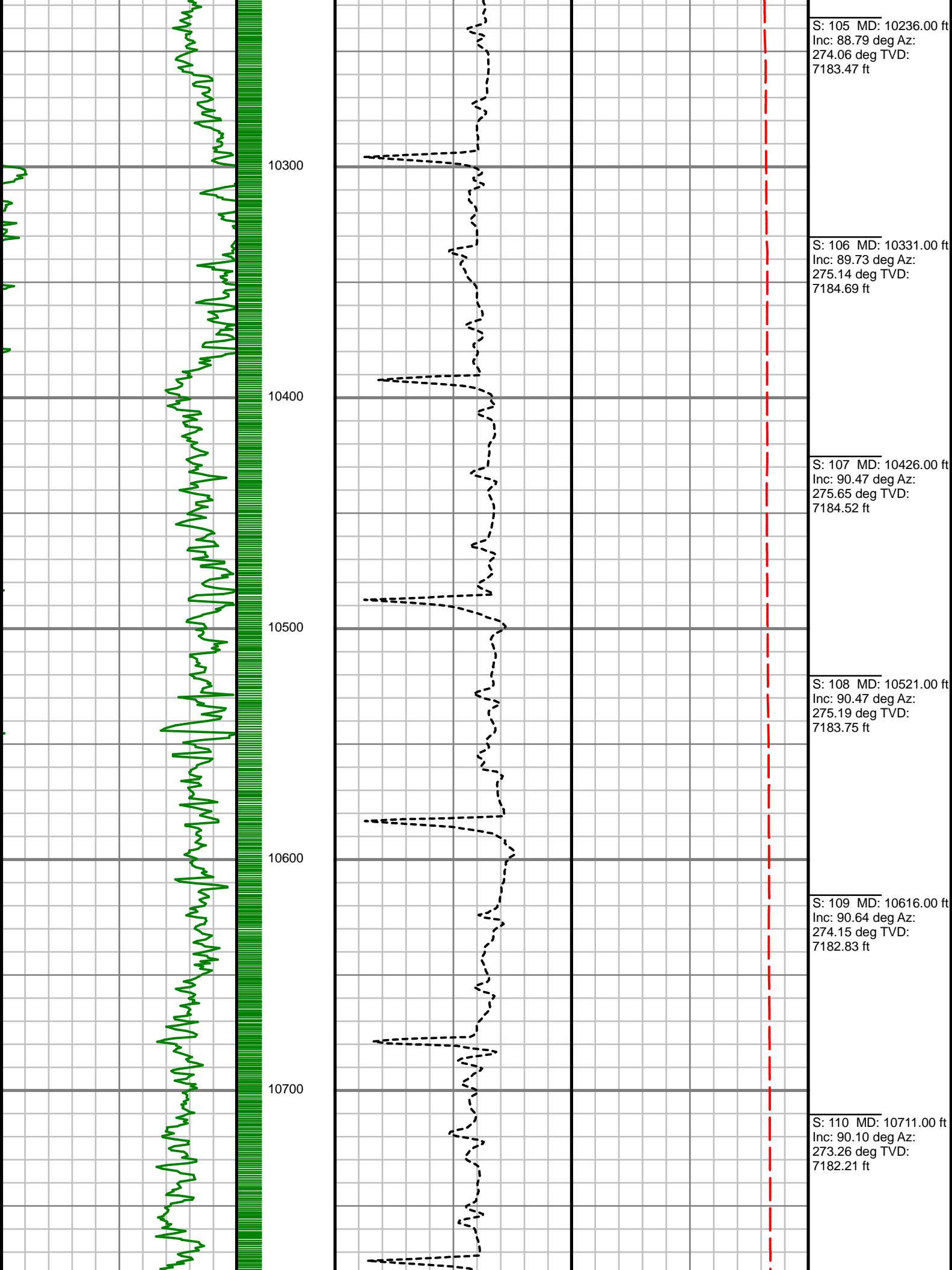


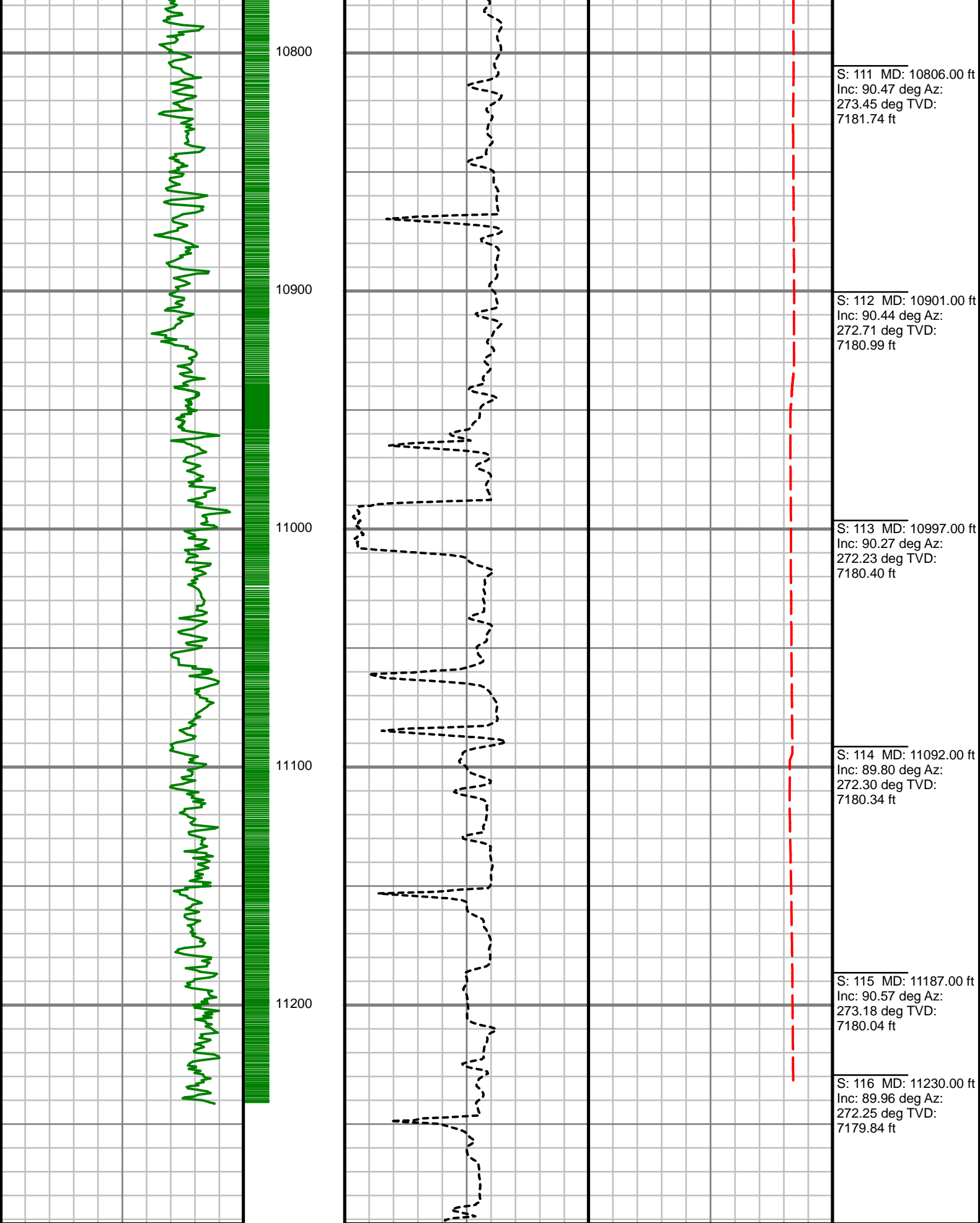












Gamma Ray (GR) Unit = aapi		Rate of Penetration (ROP) Unit = ft/hr		Tool Temperature (T-TEMP) Unit = °F		Comments
0	150	0	1000	0	300	

MWD Survey Report

Well Location	JANSSEN
Well Name	JANSSEN 11 PRODUCTION
Survey Date	11/27/2015
Latitude	40°30'9.461"N
Longitude	104°41'17.797"W
Btotal	52637 nT
Dip	67.05 deg
Magnetic Declination	8.49 deg
North Reference	True North
Grid Correction	None
Depth Reference	RKB (24.50 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 273.08Azim (deg)
Operator(s)	J. GREGORY, M. SMITH

Well Notes

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
234.00	0.64	62.18	234.00	-1.12	0.61	1.16	0.27
326.00	1.07	55.85	325.98	-2.25	1.33	2.32	0.48
510.00	1.27	67.74	509.95	-5.46	3.07	5.63	0.17
604.00	1.48	76.40	603.92	-7.56	3.75	7.77	0.31
699.00	1.76	81.97	698.88	-10.17	4.24	10.41	0.34
793.00	3.02	90.86	792.80	-14.06	4.41	14.32	1.39
857.00	3.75	87.81	856.69	-17.83	4.46	18.09	1.17
951.00	3.86	92.22	950.48	-24.05	4.46	24.33	0.33
1046.00	4.01	95.82	1045.26	-30.57	3.99	30.83	0.30
1140.00	4.10	93.00	1139.02	-37.21	3.49	37.45	0.23
1234.00	4.25	94.16	1232.77	-44.05	3.06	44.28	0.18
1330.00	4.65	90.87	1328.48	-51.50	2.74	51.72	0.49
1425.00	4.92	94.37	1423.15	-59.42	2.37	59.63	0.42
1486.00	5.36	92.34	1483.90	-64.88	2.06	65.09	0.78
1681.00	5.33	98.26	1678.06	-83.01	0.38	83.15	0.28
1775.00	4.87	95.71	1771.69	-91.34	-0.64	91.44	0.54
1870.00	4.26	92.76	1866.38	-98.90	-1.21	98.98	0.69
1965.00	4.21	89.75	1961.13	-105.91	-1.37	105.99	0.24
2059.00	3.98	83.08	2054.89	-112.57	-0.96	112.68	0.56

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
2154.00	4.01	75.96	2149.66	-118.99	0.24	119.17	0.52
2248.00	5.88	86.36	2243.30	-126.91	1.35	127.17	2.21
2344.00	5.41	85.95	2338.84	-136.29	1.98	136.59	0.49
2439.00	5.25	85.26	2433.43	-145.04	2.65	145.39	0.19
2535.00	5.08	83.75	2529.04	-153.58	3.48	153.99	0.22
2629.00	5.04	87.45	2622.67	-161.80	4.11	162.25	0.35
2723.00	4.44	88.19	2716.35	-169.54	4.41	170.02	0.64
2818.00	4.33	91.30	2811.07	-176.79	4.45	177.28	0.28
2913.00	3.98	92.48	2905.82	-183.66	4.22	184.16	0.37
3009.00	4.13	86.85	3001.58	-190.43	4.27	190.94	0.44
3103.00	6.12	96.09	3095.20	-198.79	3.92	199.29	2.29
3198.00	5.66	93.85	3189.70	-208.54	3.07	209.00	0.54
3294.00	4.99	96.24	3285.29	-217.44	2.30	217.88	0.74
3389.00	3.63	98.57	3380.01	-224.57	1.40	224.97	1.44
3484.00	3.52	105.15	3474.83	-230.41	0.19	230.76	0.45
3579.00	3.23	106.79	3569.66	-235.87	-1.34	236.14	0.32
3674.00	4.51	98.23	3664.45	-242.20	-2.65	242.40	1.47
3770.00	4.33	98.91	3760.16	-249.56	-3.76	249.72	0.20
3865.00	3.89	95.06	3854.92	-256.35	-4.60	256.47	0.55
3960.00	4.95	93.10	3949.63	-263.67	-5.10	263.78	1.13

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
4055.00	6.65	106.17	4044.15	-273.12	-6.85	273.15	2.25
4150.00	6.18	104.47	4138.55	-283.49	-9.66	283.38	0.53
4245.00	5.17	99.53	4233.09	-292.75	-11.65	292.55	1.18
4341.00	4.66	99.93	4328.73	-300.92	-13.04	300.65	0.53
4437.00	4.04	100.20	4424.46	-308.15	-14.31	307.82	0.64
4532.00	3.19	100.25	4519.27	-314.09	-15.37	313.72	0.90
4626.00	4.40	100.16	4613.06	-320.26	-16.47	319.84	1.29
4721.00	3.24	101.99	4707.85	-326.53	-17.67	326.05	1.23
4816.00	2.91	97.90	4802.71	-331.58	-18.56	331.06	0.42
4910.00	3.29	87.80	4896.57	-336.64	-18.79	336.12	0.71
5005.00	2.64	84.80	4991.45	-341.52	-18.48	341.02	0.71
5100.00	2.50	84.85	5086.35	-345.74	-18.10	345.27	0.14
5195.00	1.65	79.24	5181.29	-349.12	-17.66	348.68	0.92
5290.00	1.42	90.68	5276.25	-351.62	-17.42	351.19	0.40
5385.00	0.77	65.85	5371.24	-353.36	-17.17	352.95	0.83
5481.00	0.86	19.70	5467.23	-354.13	-16.23	353.77	0.67
5576.00	0.72	2.65	5562.22	-354.33	-14.97	354.04	0.28
5672.00	0.42	61.87	5658.21	-354.63	-14.20	354.37	0.65
5767.00	0.31	158.11	5753.21	-355.03	-14.28	354.77	0.57
5862.00	0.53	196.20	5848.21	-355.04	-14.94	354.75	0.36

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5957.00	0.03	77.86	5943.21	-354.96	-15.35	354.65	0.58
6051.00	0.43	164.06	6037.21	-355.10	-15.69	354.77	0.46
6146.00	0.51	89.67	6132.21	-355.64	-16.03	355.30	0.60
6241.00	0.55	39.27	6227.20	-356.34	-15.67	356.01	0.48
6337.00	0.64	35.02	6323.20	-356.89	-14.88	356.60	0.10
6432.00	1.92	0.63	6418.17	-357.10	-12.86	356.92	1.52
6528.00	0.78	11.12	6514.14	-357.12	-10.61	357.07	1.21
6623.00	8.80	281.34	6608.77	-350.01	-8.54	350.05	9.30
6719.00	17.78	280.35	6702.10	-328.15	-4.45	328.39	9.36
6814.00	23.39	279.69	6791.00	-295.01	1.33	295.51	5.91
6909.00	29.42	273.47	6876.07	-252.90	5.92	253.58	6.98
7005.00	34.22	282.54	6957.66	-202.63	13.22	203.64	7.04
7100.00	43.46	278.52	7031.59	-143.63	23.88	145.12	10.08
7195.00	54.26	280.24	7094.00	-72.63	35.61	74.66	11.45
7291.00	65.90	279.00	7141.81	9.89	49.45	-7.24	12.17
7360.00	77.04	277.96	7163.70	74.92	59.06	-71.85	16.22
7449.00	91.81	268.23	7172.34	163.15	63.72	-159.95	19.82
7576.00	94.10	268.21	7165.79	289.51	59.79	-286.72	1.80
7670.00	92.28	269.19	7160.56	383.09	57.66	-380.54	2.19
7765.00	90.37	268.16	7158.36	477.78	55.47	-475.48	2.29

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7860.00	88.93	267.82	7158.94	572.40	52.14	-570.42	1.56
7955.00	87.35	269.57	7162.03	667.06	49.99	-665.34	2.48
8050.00	87.75	269.29	7166.09	761.78	49.04	-760.25	0.52
8145.00	88.96	271.81	7168.82	856.64	49.95	-855.20	2.94
8240.00	90.20	271.83	7169.52	951.62	52.96	-950.14	1.31
8334.00	91.01	271.85	7168.52	1045.59	55.98	-1044.09	0.86
8429.00	89.63	272.16	7168.00	1140.57	59.30	-1139.03	1.48
8523.00	89.53	271.67	7168.68	1234.55	62.44	-1232.97	0.53
8617.00	88.89	269.07	7169.98	1328.42	63.05	-1326.95	2.85
8712.00	87.75	266.03	7172.76	1422.93	59.00	-1421.81	3.42
8807.00	87.82	265.46	7176.44	1517.08	51.95	-1516.48	0.60
8902.00	89.87	267.47	7178.36	1611.42	46.10	-1611.27	3.02
8997.00	90.77	270.24	7177.83	1706.15	44.20	-1706.24	3.07
9091.00	91.18	273.31	7176.23	1800.10	47.11	-1800.17	3.29
9187.00	89.83	274.17	7175.39	1896.09	53.37	-1895.96	1.66
9281.00	89.63	274.07	7175.83	1990.07	60.12	-1989.71	0.24
9377.00	89.93	273.88	7176.19	2086.06	66.77	-2085.48	0.37
9473.00	90.34	273.78	7175.97	2182.05	73.18	-2181.27	0.43
9568.00	90.27	274.15	7175.47	2277.04	79.75	-2276.04	0.40
9663.00	91.01	274.52	7174.41	2372.01	86.93	-2370.76	0.87

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	%/100ft
9759.00	90.81	274.18	7172.89	2467.97	94.21	-2466.47	0.41
9854.00	88.46	272.49	7173.50	2562.96	99.73	-2561.30	3.04
9949.00	87.88	271.72	7176.54	2657.89	103.22	-2656.18	1.01
10045.00	88.76	272.44	7179.35	2753.84	106.70	-2752.08	1.18
10140.00	88.76	274.04	7181.41	2848.81	112.08	-2846.90	1.69
10236.00	88.79	274.06	7183.47	2944.77	118.86	-2942.64	0.04
10331.00	89.73	275.14	7184.69	3039.73	126.48	-3037.32	1.51
10426.00	90.47	275.65	7184.52	3134.65	135.41	-3131.90	0.95
10521.00	90.47	275.19	7183.75	3229.57	144.38	-3226.47	0.49
10616.00	90.64	274.15	7182.83	3324.53	152.11	-3321.15	1.11
10711.00	90.10	273.26	7182.21	3419.52	158.24	-3415.95	1.09
10806.00	90.47	273.45	7181.74	3514.52	163.80	-3510.79	0.44
10901.00	90.44	272.71	7180.99	3609.51	168.90	-3605.65	0.77
10997.00	90.27	272.23	7180.40	3705.50	173.04	-3701.55	0.53
11092.00	89.80	272.30	7180.34	3800.49	176.80	-3796.48	0.50
11187.00	90.57	273.18	7180.04	3895.49	181.34	-3891.37	1.23
11230.00	89.96	272.25	7179.84	3938.49	183.38	-3934.32	2.60

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

2" = 100' FEET MD