



5" = 100' FEET MD

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : CHEESE STATE 1N-21H2
FIELD : WATTENBERG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05-123-40948

COMPANY : ANADARKO E&P ONSHORE LLC

WELL : CHEESE STATE 1N-21HZ

FIELD : WATTENBERG

COUNTY : WELD

STATE : COLORADO

COUNTRY : U.S.A.

UWI : 05-123-40948

WELL LOCATION

LAT:40°12'9.047"N LONG:104°39'44.226"W

N:14600657.32 ft E:1734714.18 ft

SEC:28

TWP: 3N

RANGE: 65W

OTHER SERVICES

DIRECTIONAL
ROP

DEPTH REF. : RKB

REF. HEIGHT : 25.000 ft

RKB to Ground Level

GROUND LEVEL : 4818.000 ft

G.L. to MEAN SEA LEVEL

BOREHOLE RECORD

DEVIATION RECORD

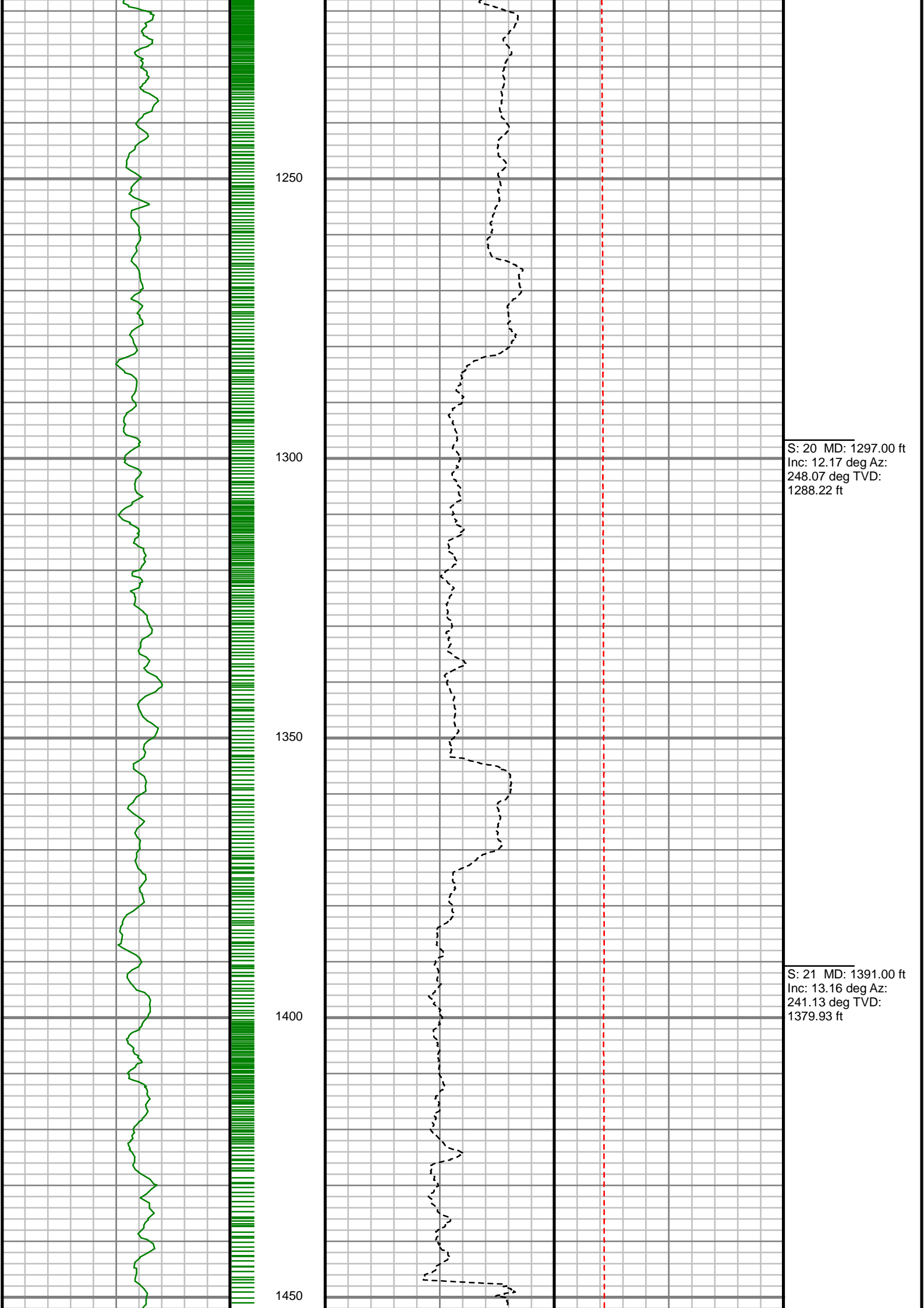
HOLE SIZE in	FROM ft	TO ft	INCLINATION deg	FROM ft	TO ft
8.5	1213	12564	0-12	0	1747
			12-90	1747	7343
			90-92	7343	12564

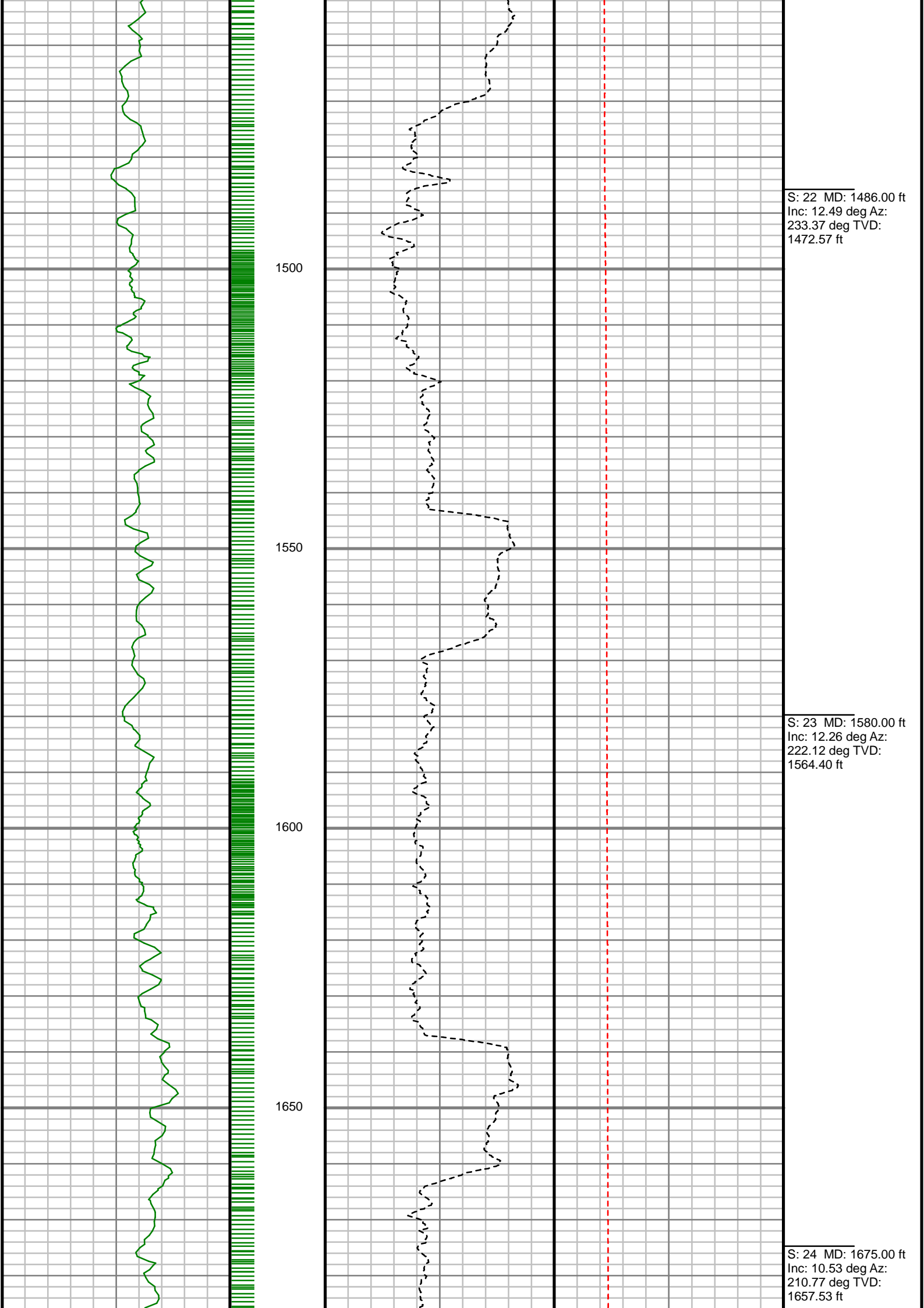
CASING RECORD

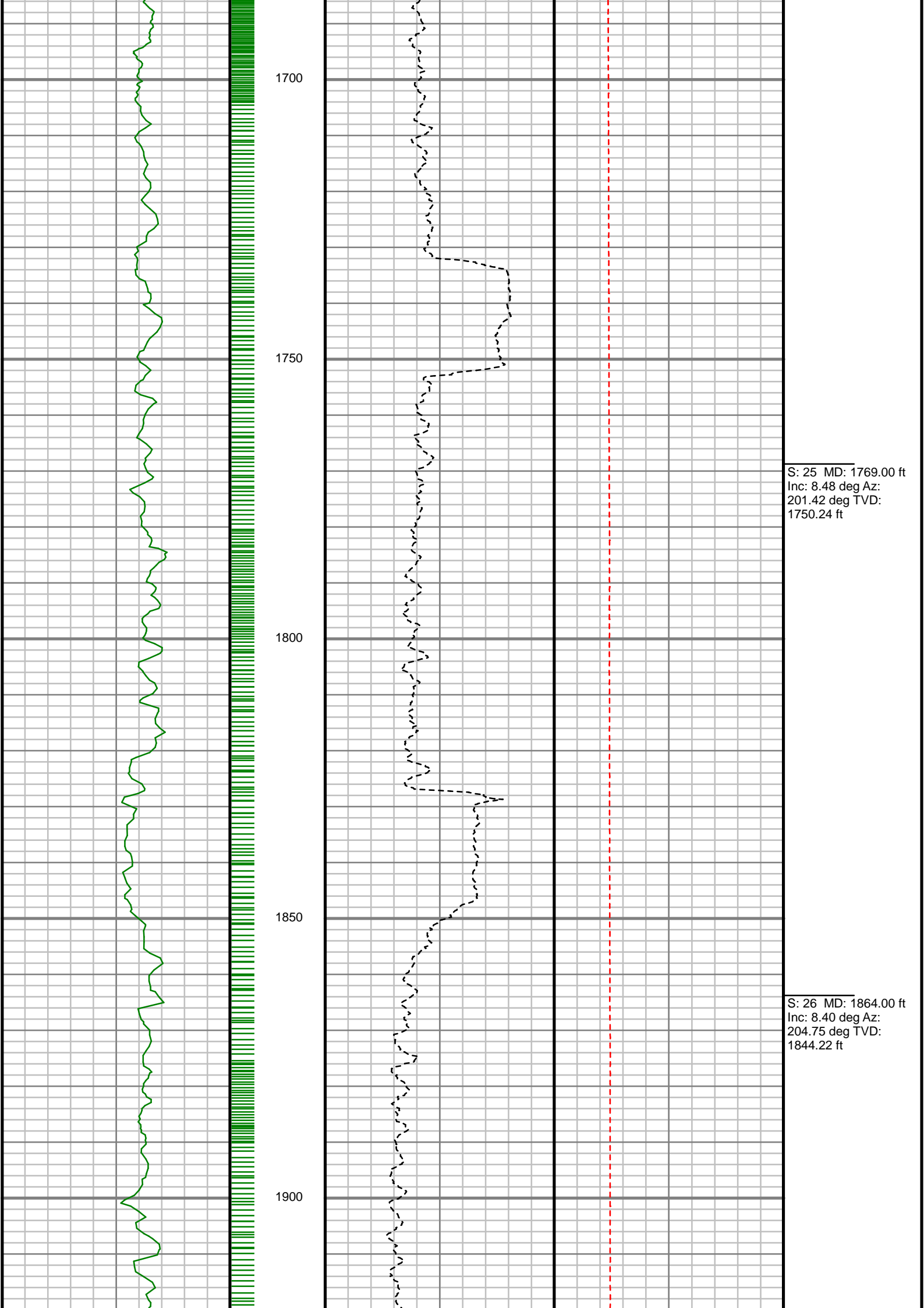
CASING SIZE in	FROM ft	TO ft			
9.625	0	1202			
			DRILLING CO. : H&P		
			RIG : 307		
			LWD UNIT NO. : C46-EM#114 DISTRICT:ICASPER		
			SPUD DATE : 05/11/2015		
			LWD START DATE : 05/13/2015	DEPTH : 1213 ft	
			LWD END DATE : 05/16/2015	DEPTH : 12564 ft	
			TOTAL DEPTH : 12564 ft		

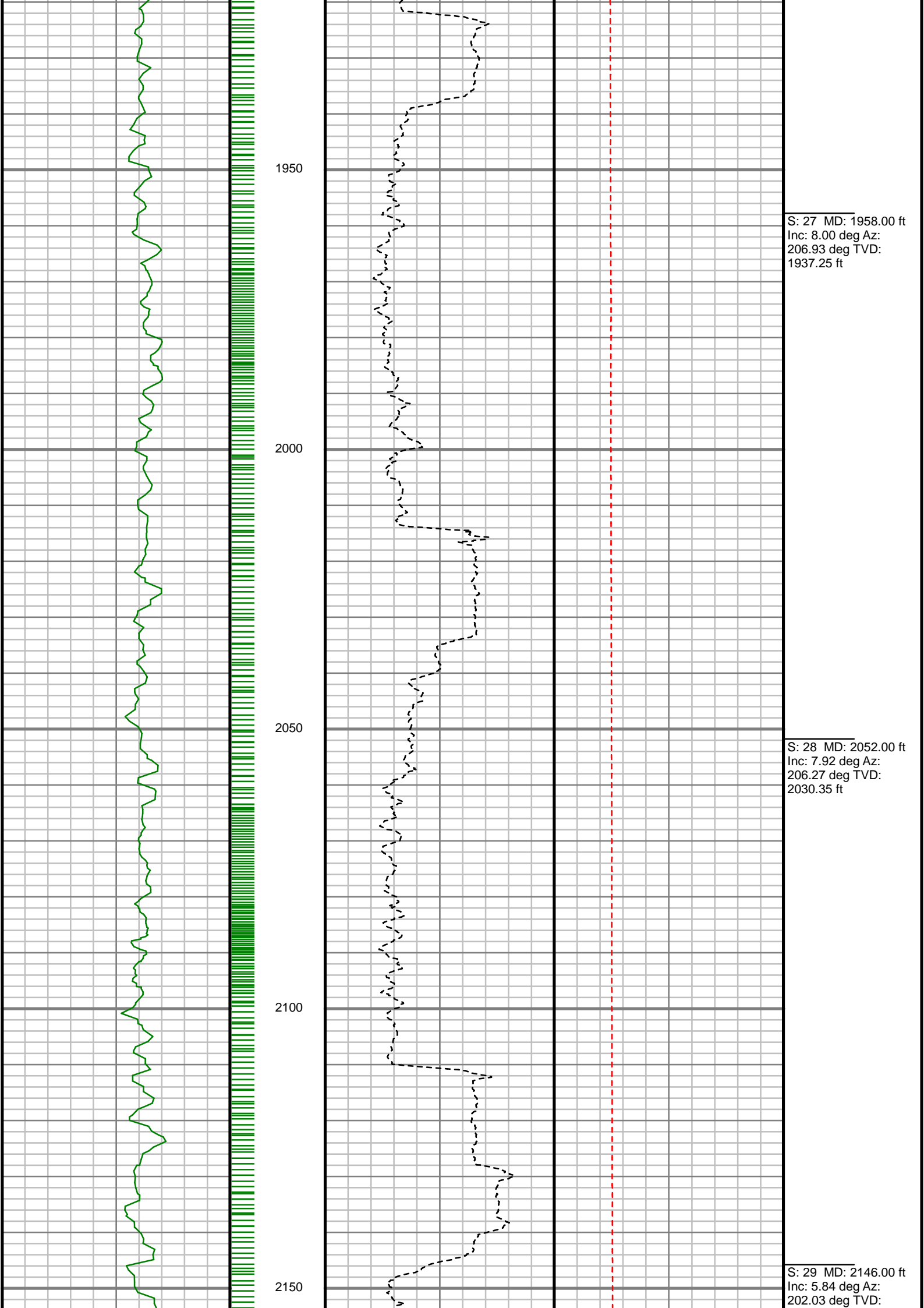
Run Data

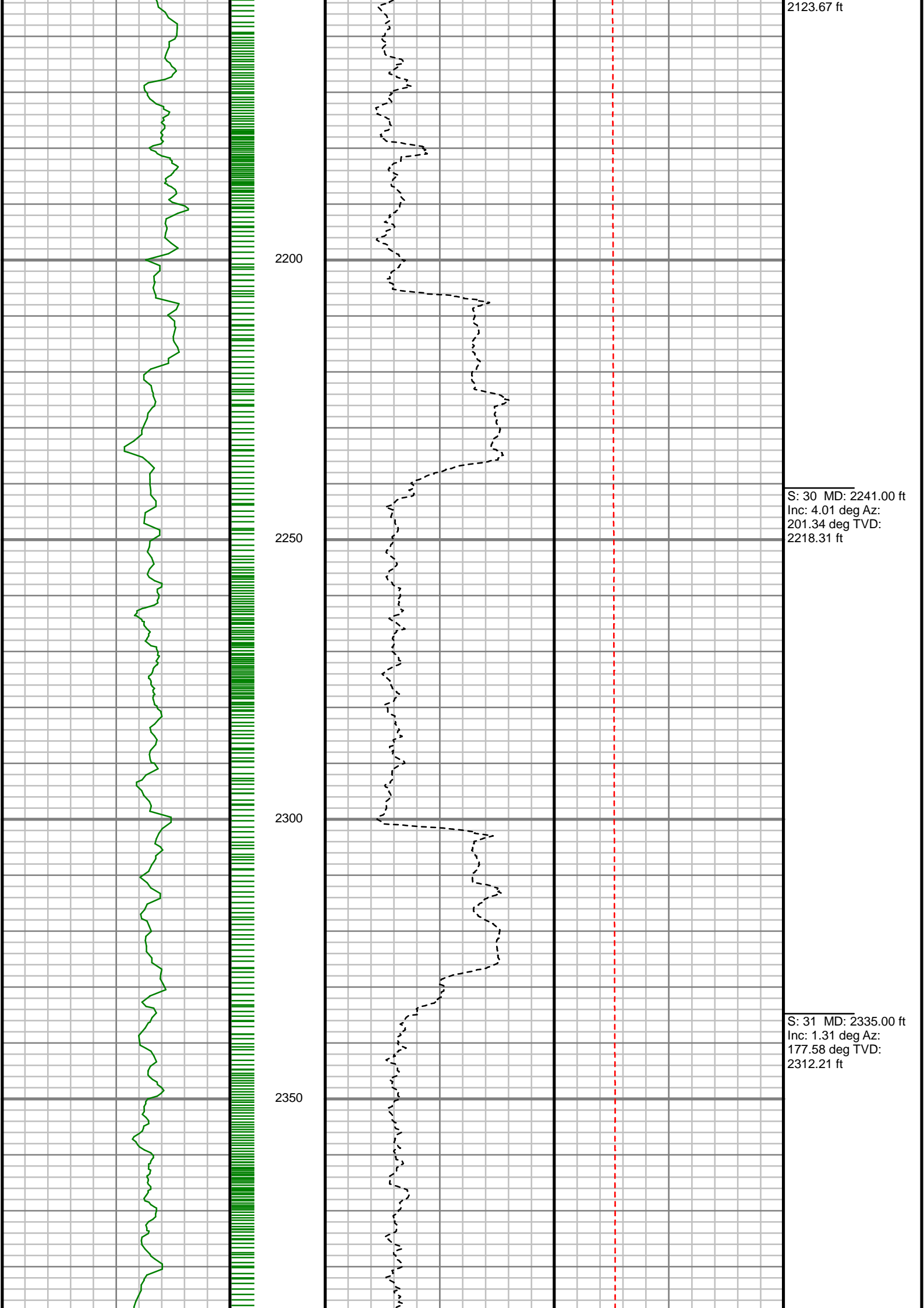
RUN NUMBER	1						
START DATE	05/13/2015						
START TIME	1100						
END DATE	05/16/2015						
END TIME	1030						
DEPTH IN (ft)	1212						
DEPTH OUT (ft)	12564						
LOG TOP (ft)	1166						
LOG BOTTOM (ft)	12517						
HOLE SIZE (in)	8.5						
MUD DATA @ (ft)	1212						
MUD TYPE	OIL-BASED						
DENSITY (lb / gal)	9.1						
VISCOSITY (s / qt)	73						
pH	-						
FLUID LOSS (cm3 / 30)	5.4						
SALINITY (ppm)	30.44						
Rm (ohmm @ deg F)	-						
Rmf (ohmm @ deg F)	-						
MAX TEMP (deg F)	233						
Rm @ MAX TEMP (ohmm)	-						
LWD ENGINEER #1	S. WAXLER						
LWD ENGINEER #2	B. GREER						
LWD ENGINEER #3	-						
LOG WITNESS #1	S. SADLE						
LOG WITNESS #2	R. CANNON						

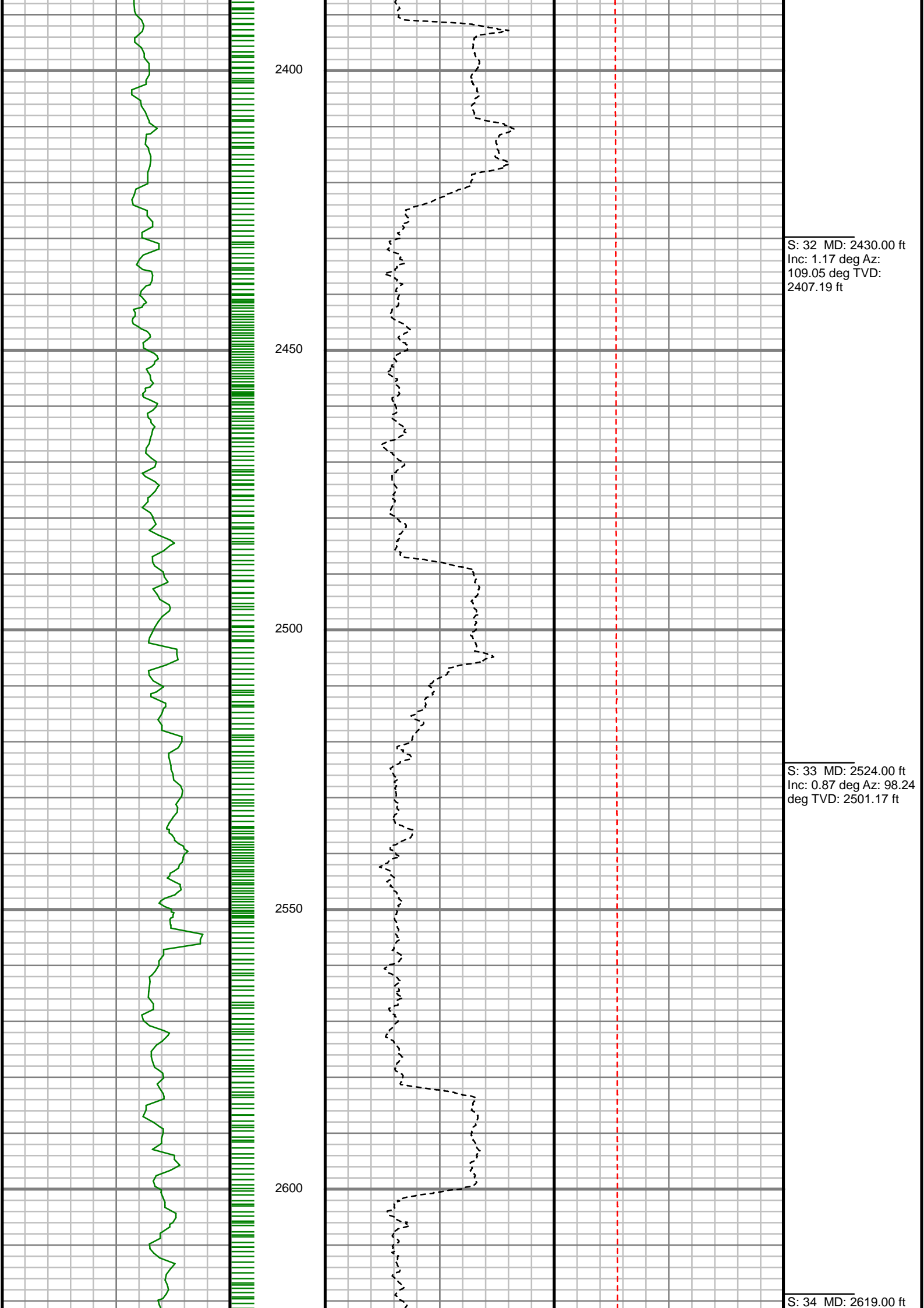


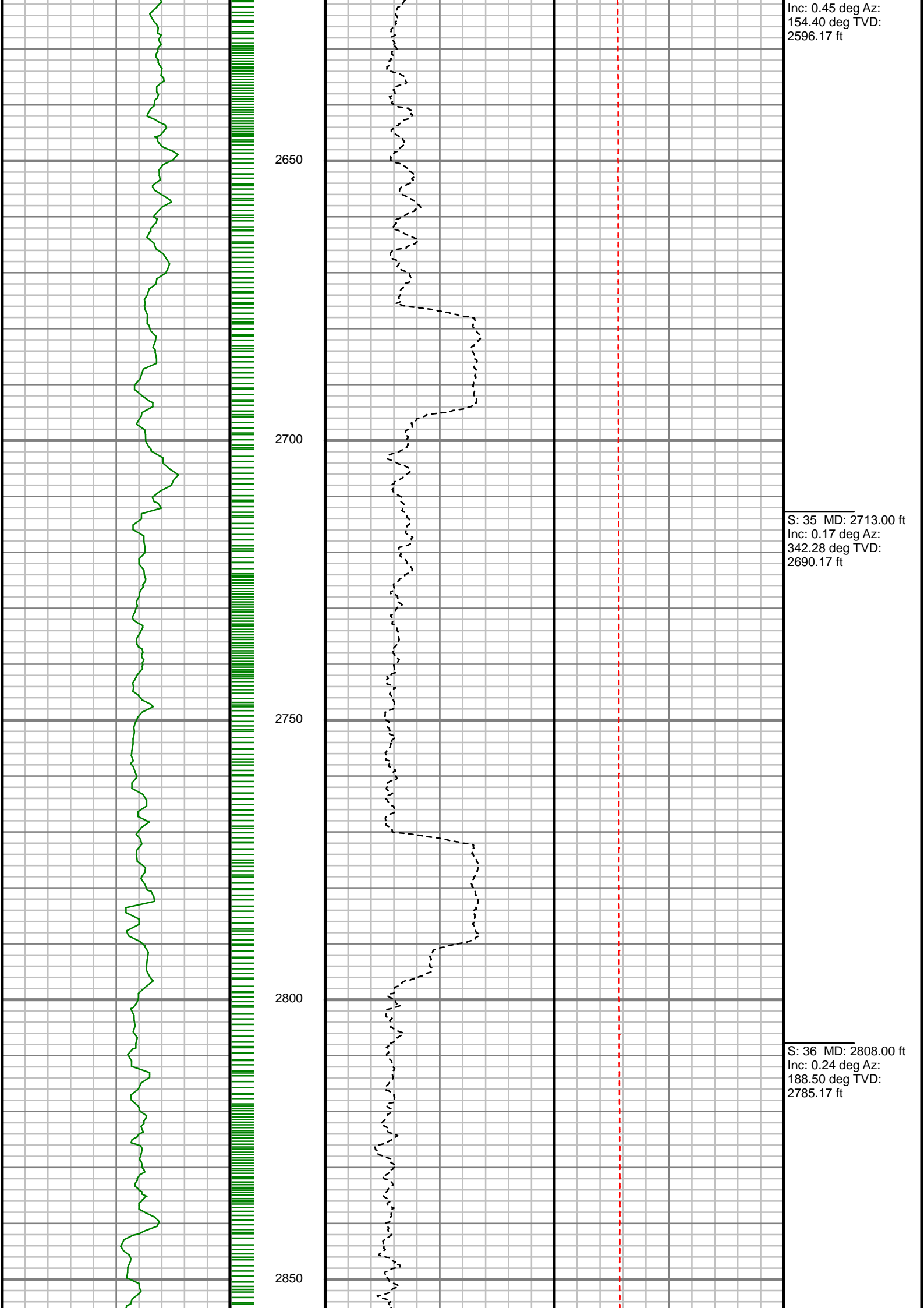


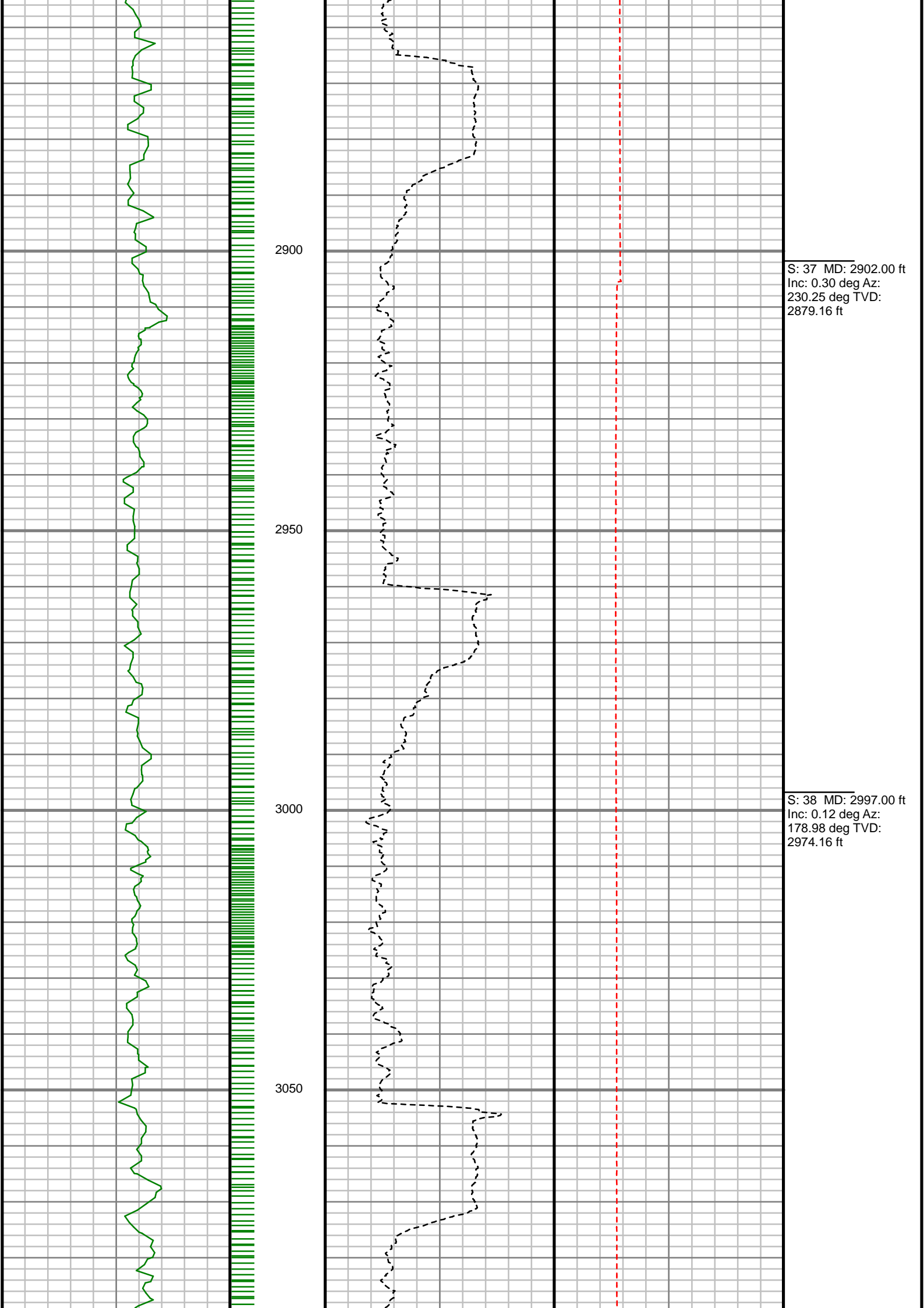


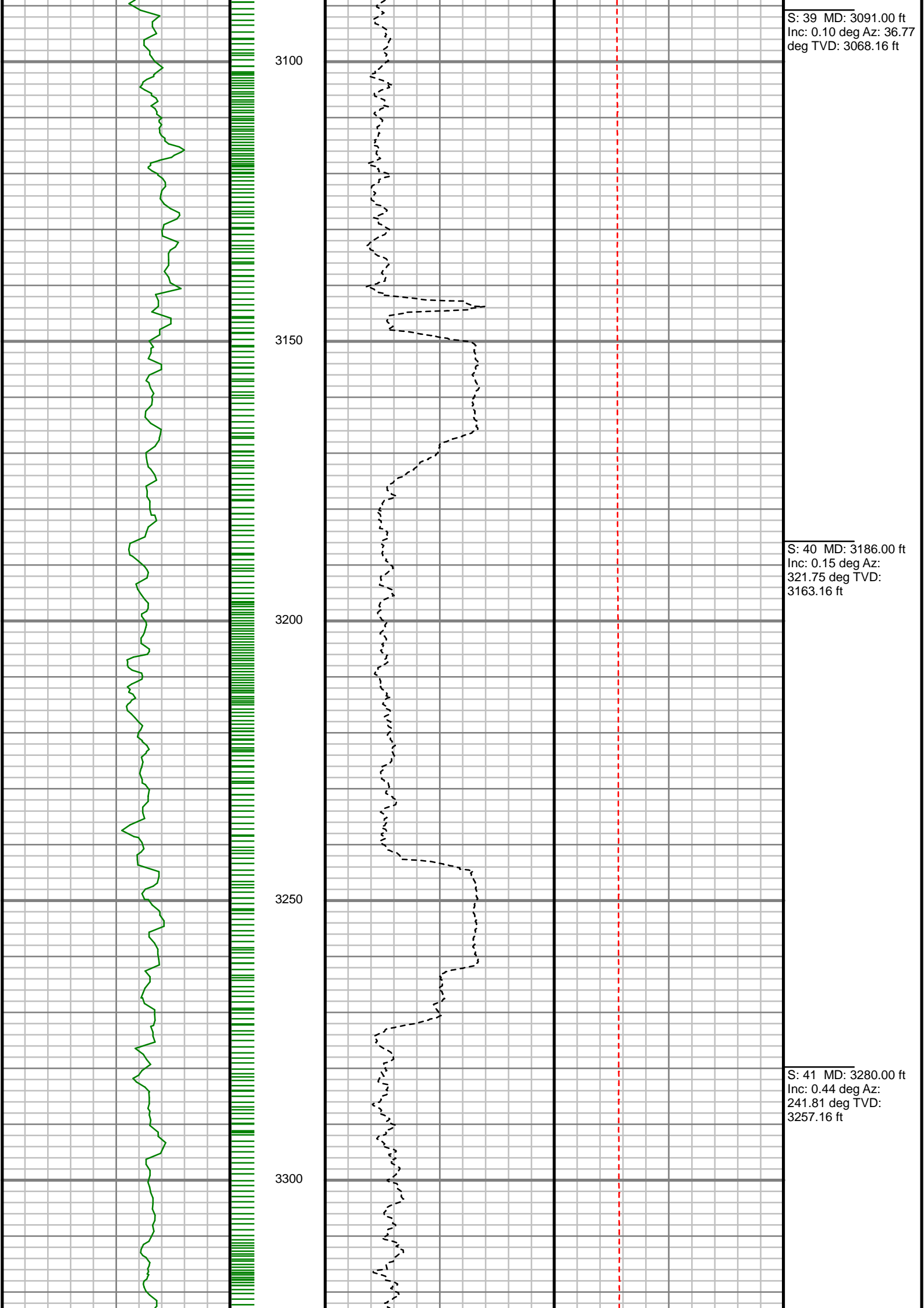


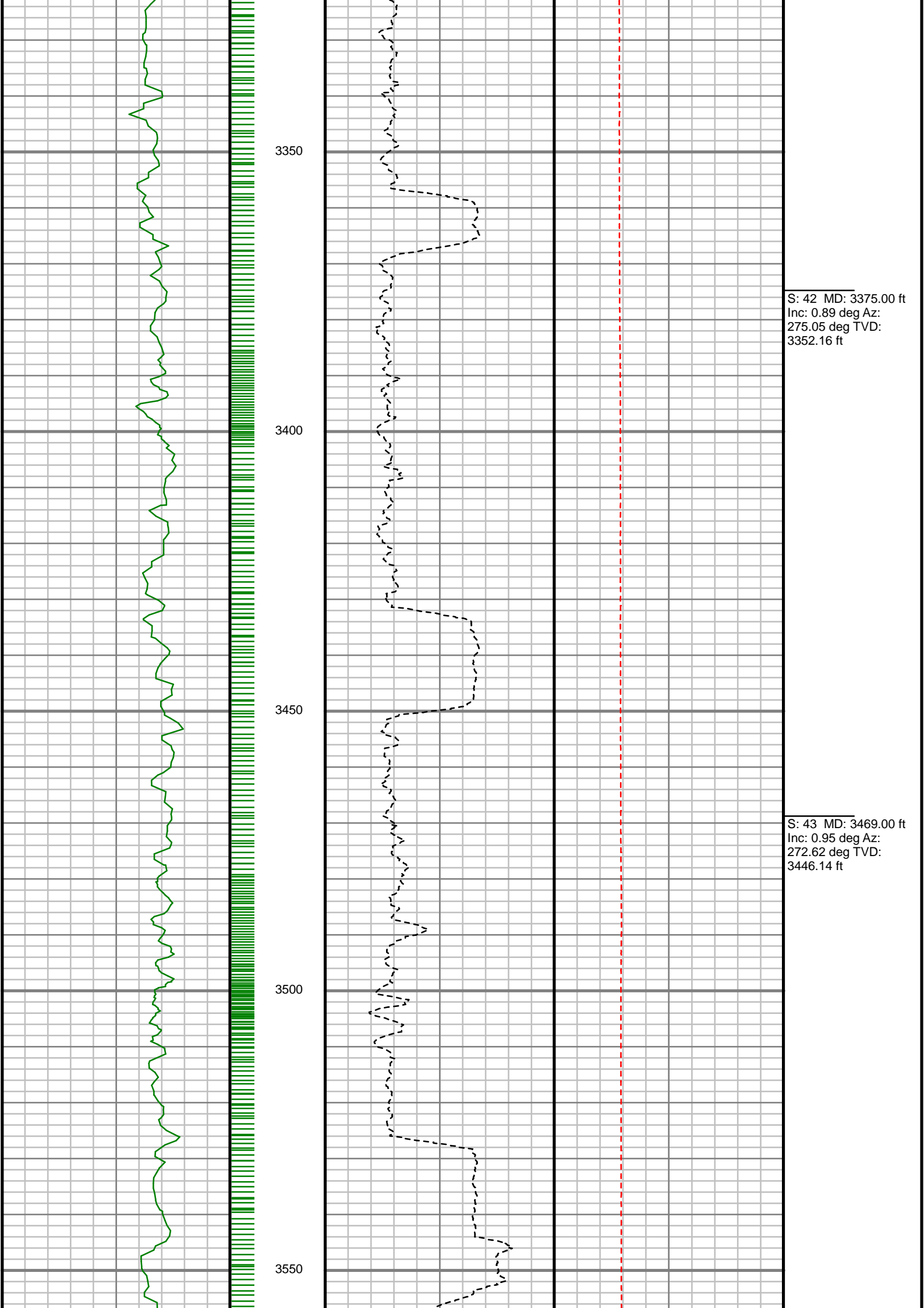


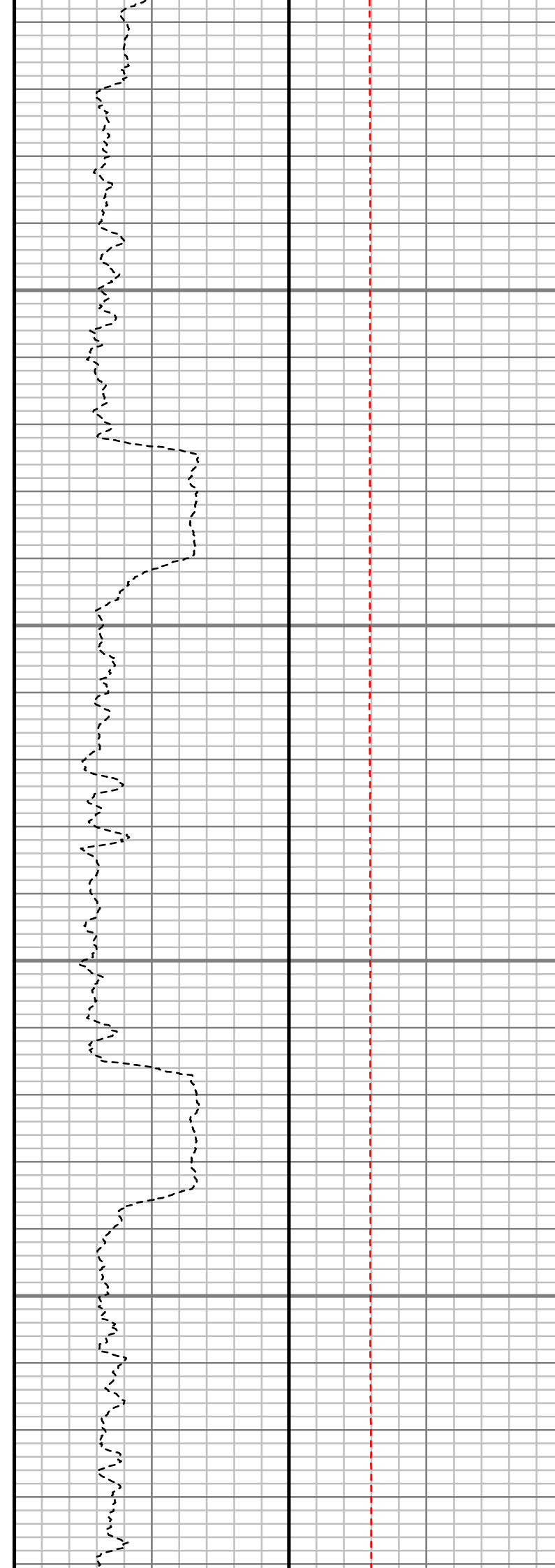
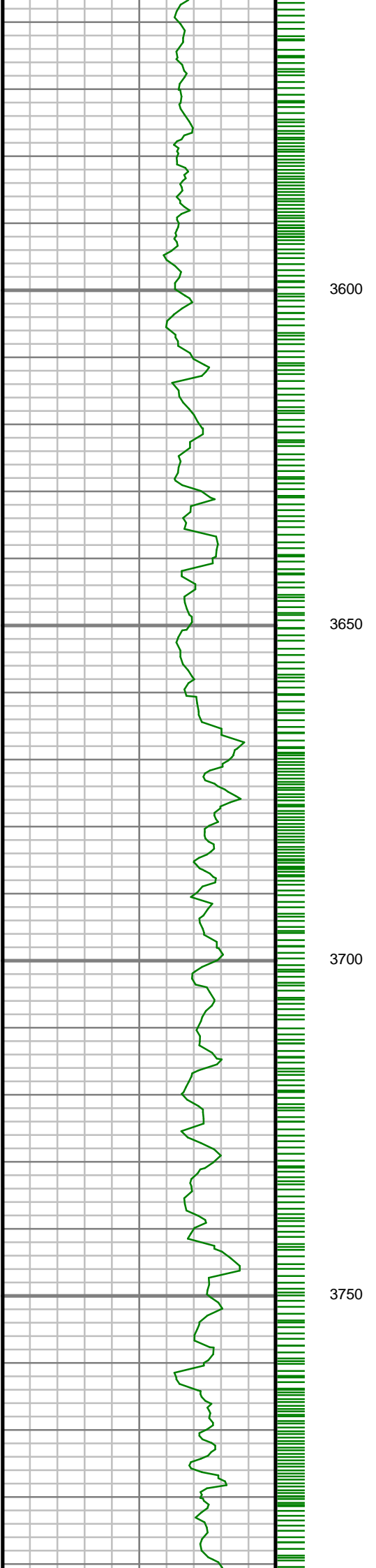








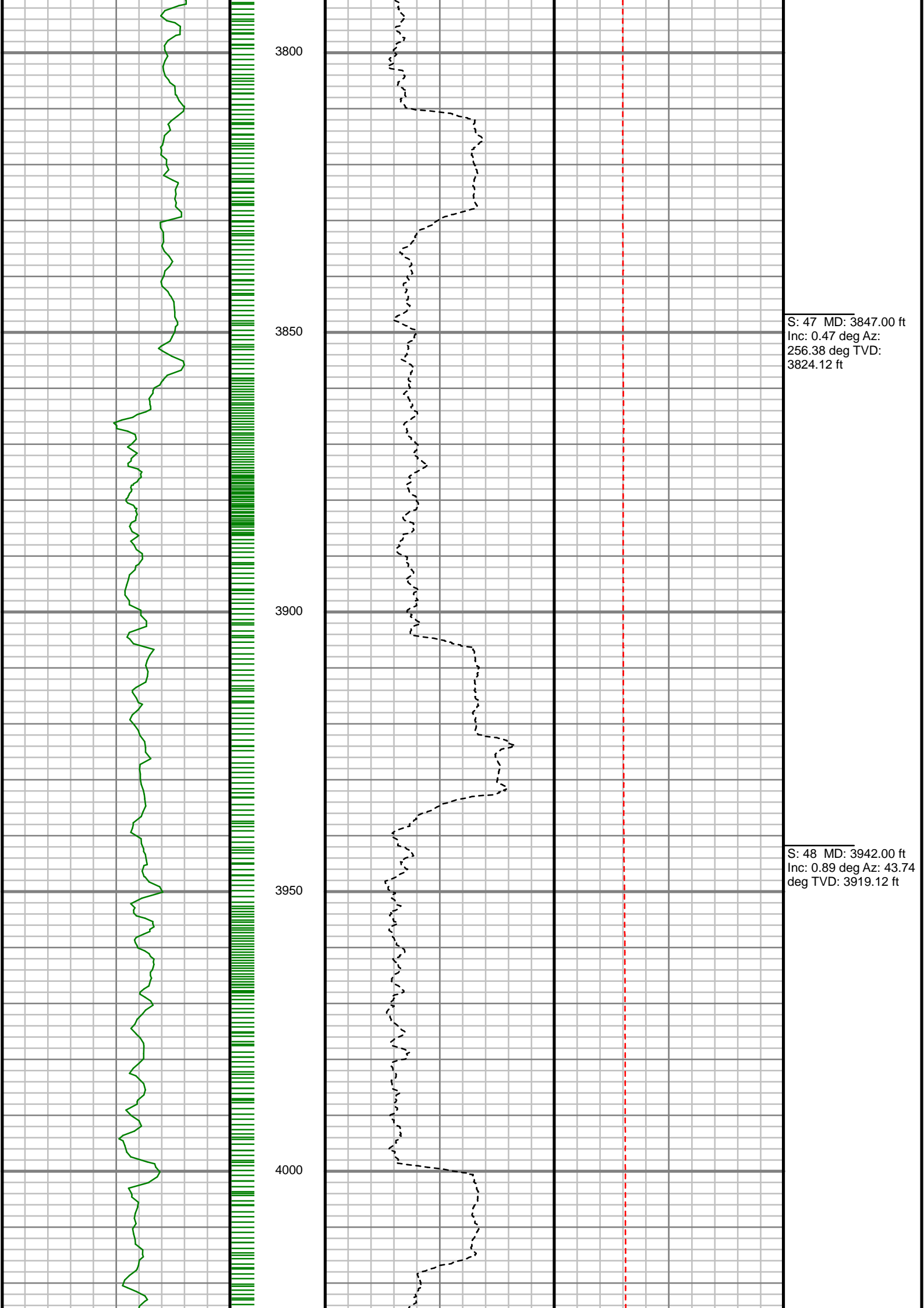


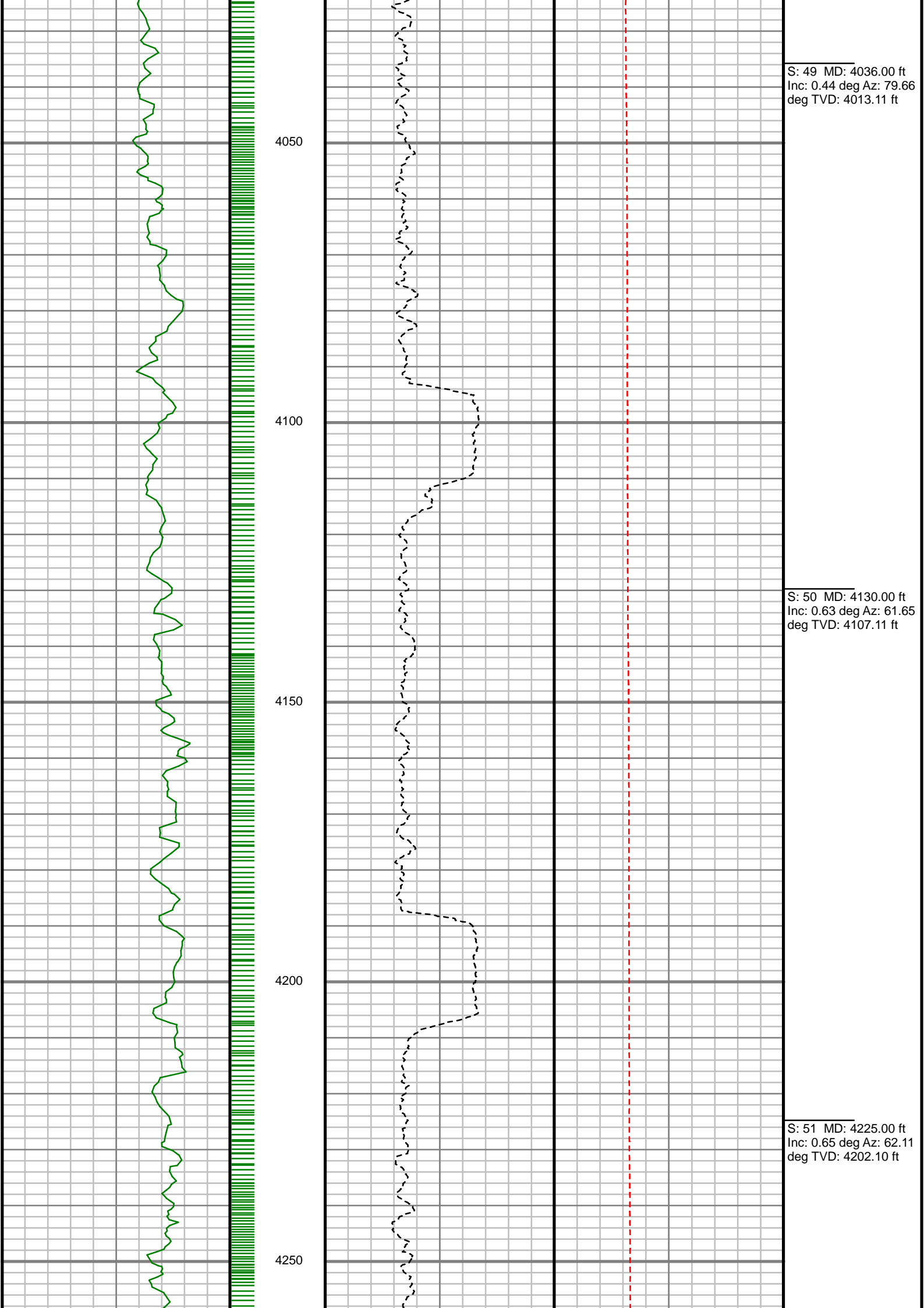


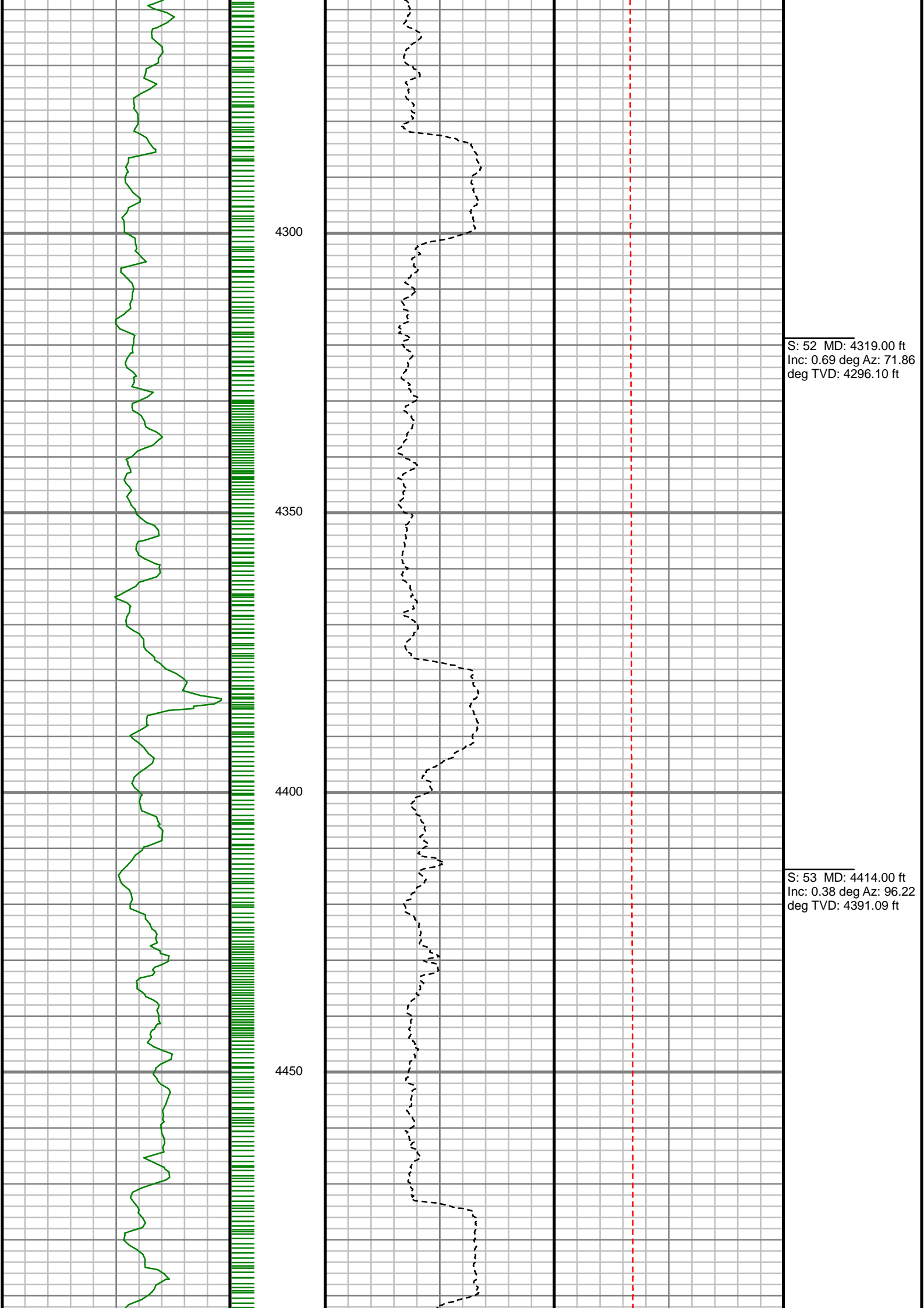
S: 44 MD: 3564.00 ft
Inc: 0.28 deg Az: 90.97
deg TVD: 3541.14 ft

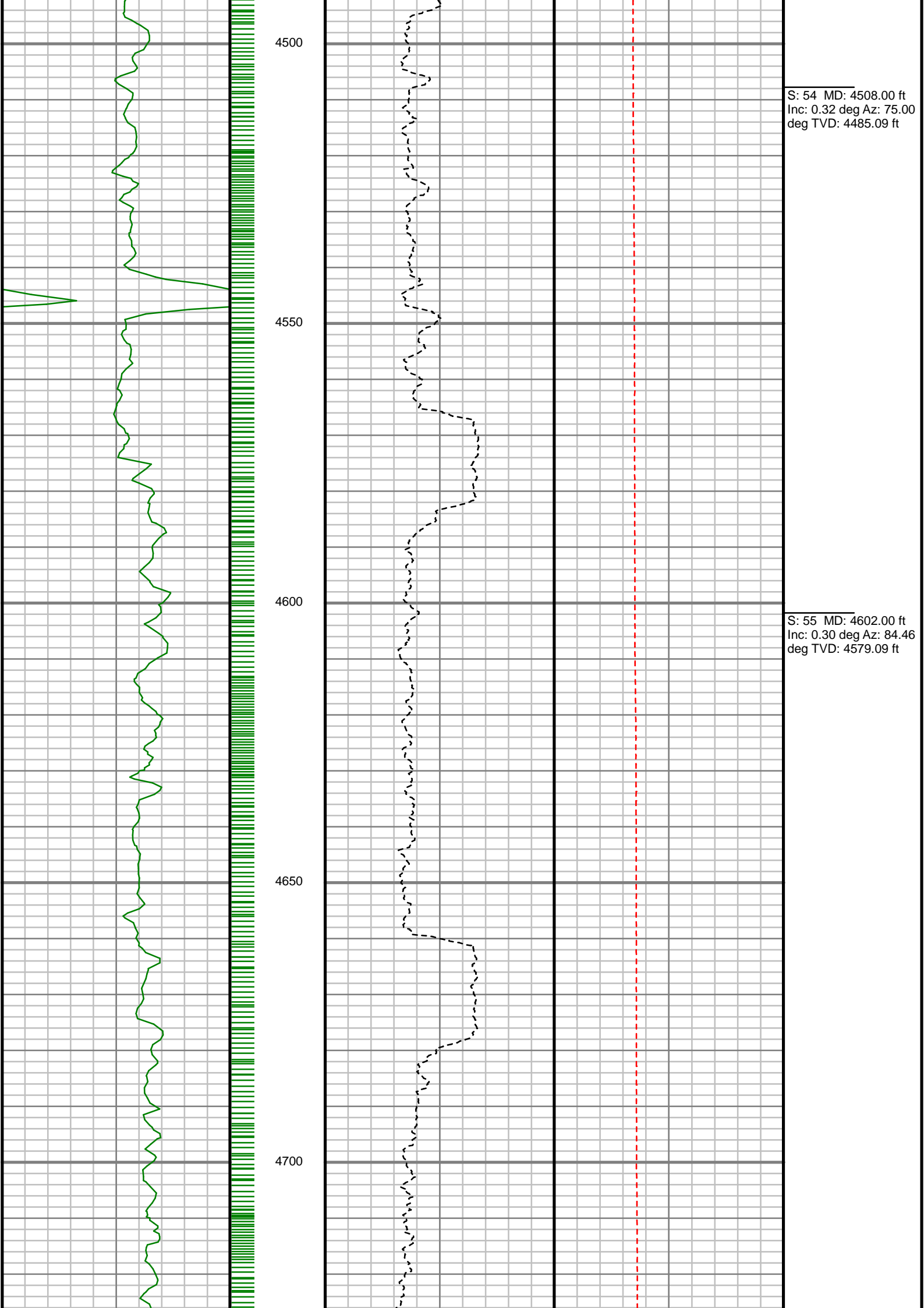
S: 45 MD: 3658.00 ft
Inc: 1.07 deg Az:
194.87 deg TVD:
3635.14 ft

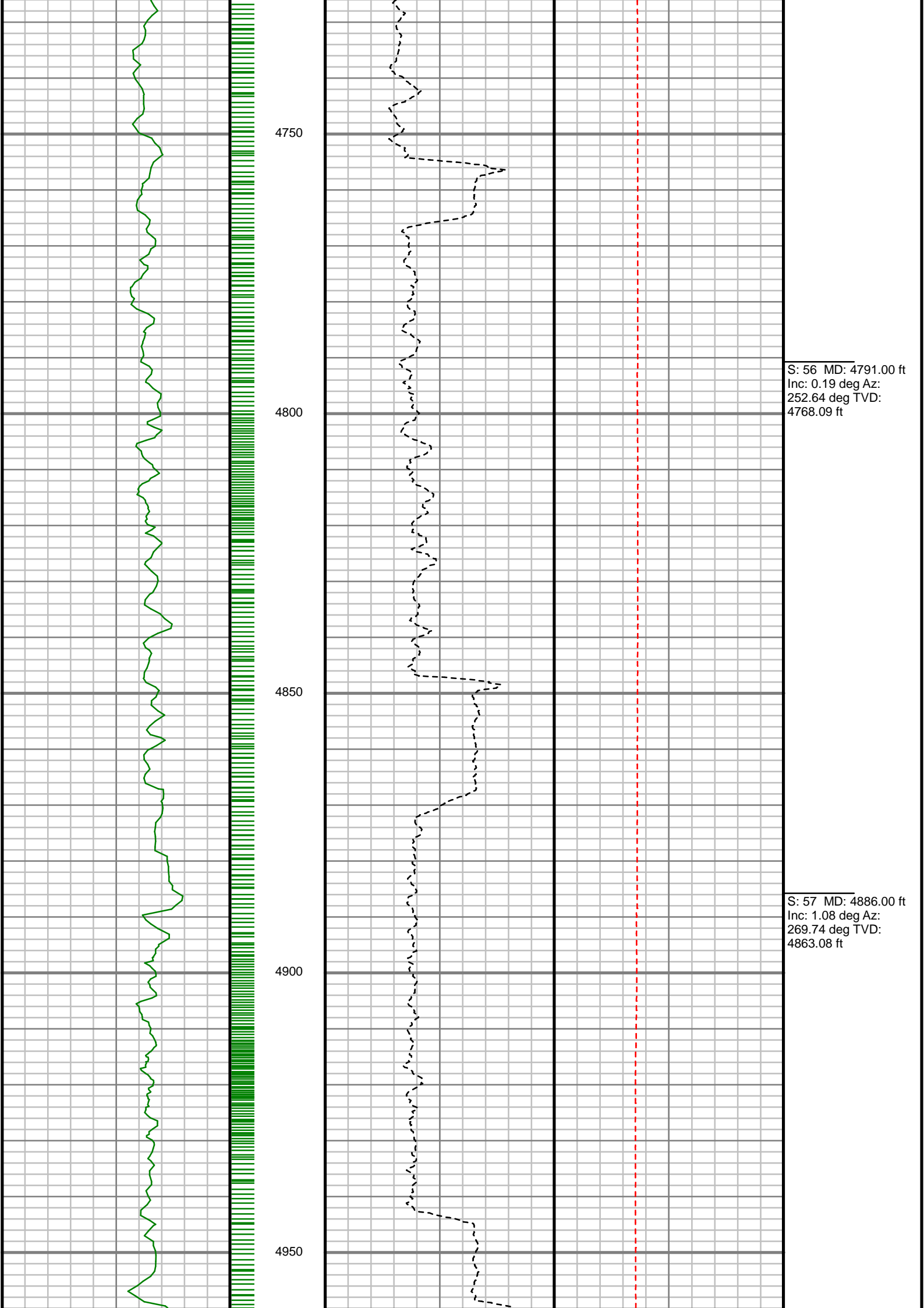
S: 46 MD: 3753.00 ft
Inc: 0.48 deg Az:
228.99 deg TVD:
3730.13 ft





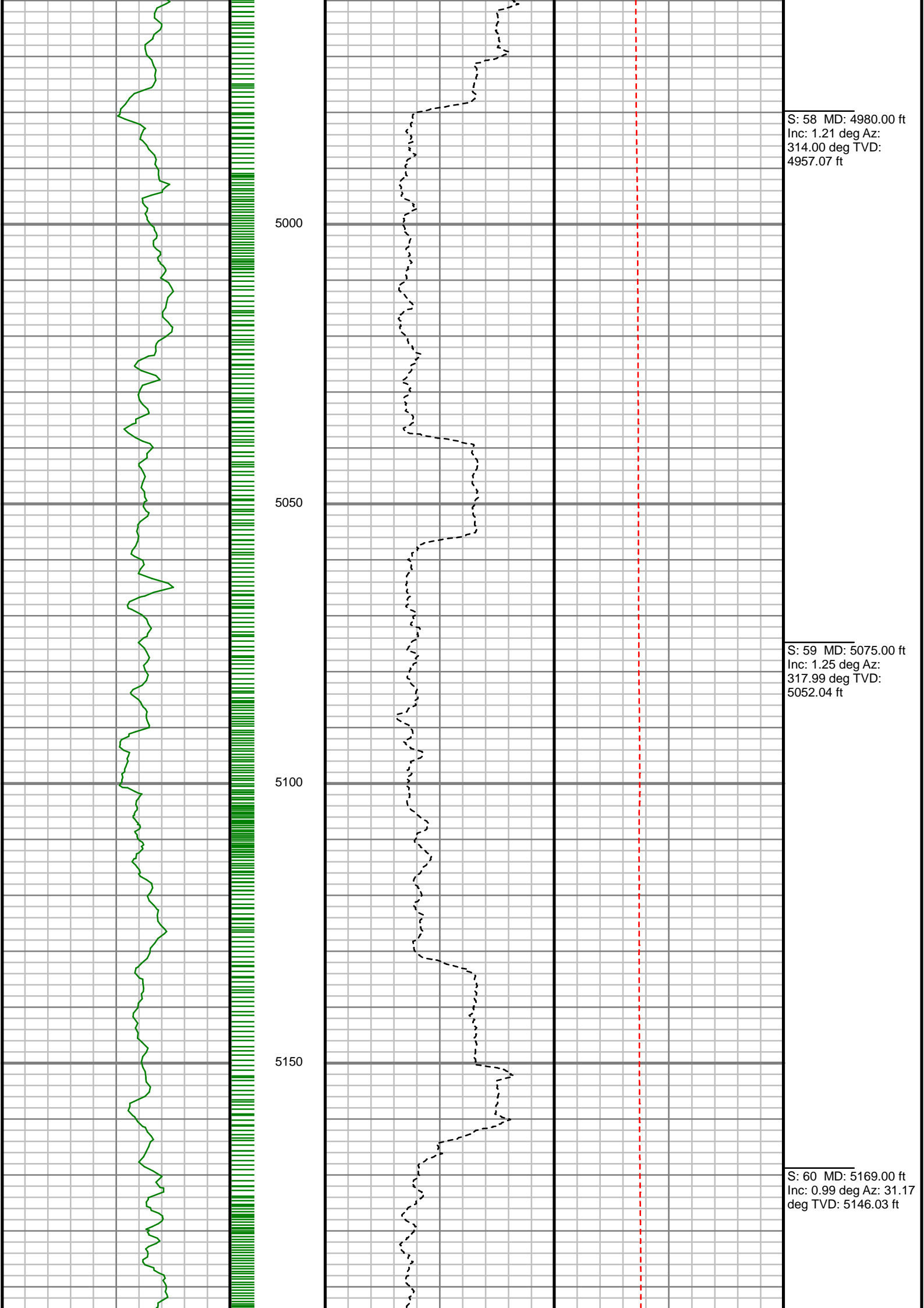


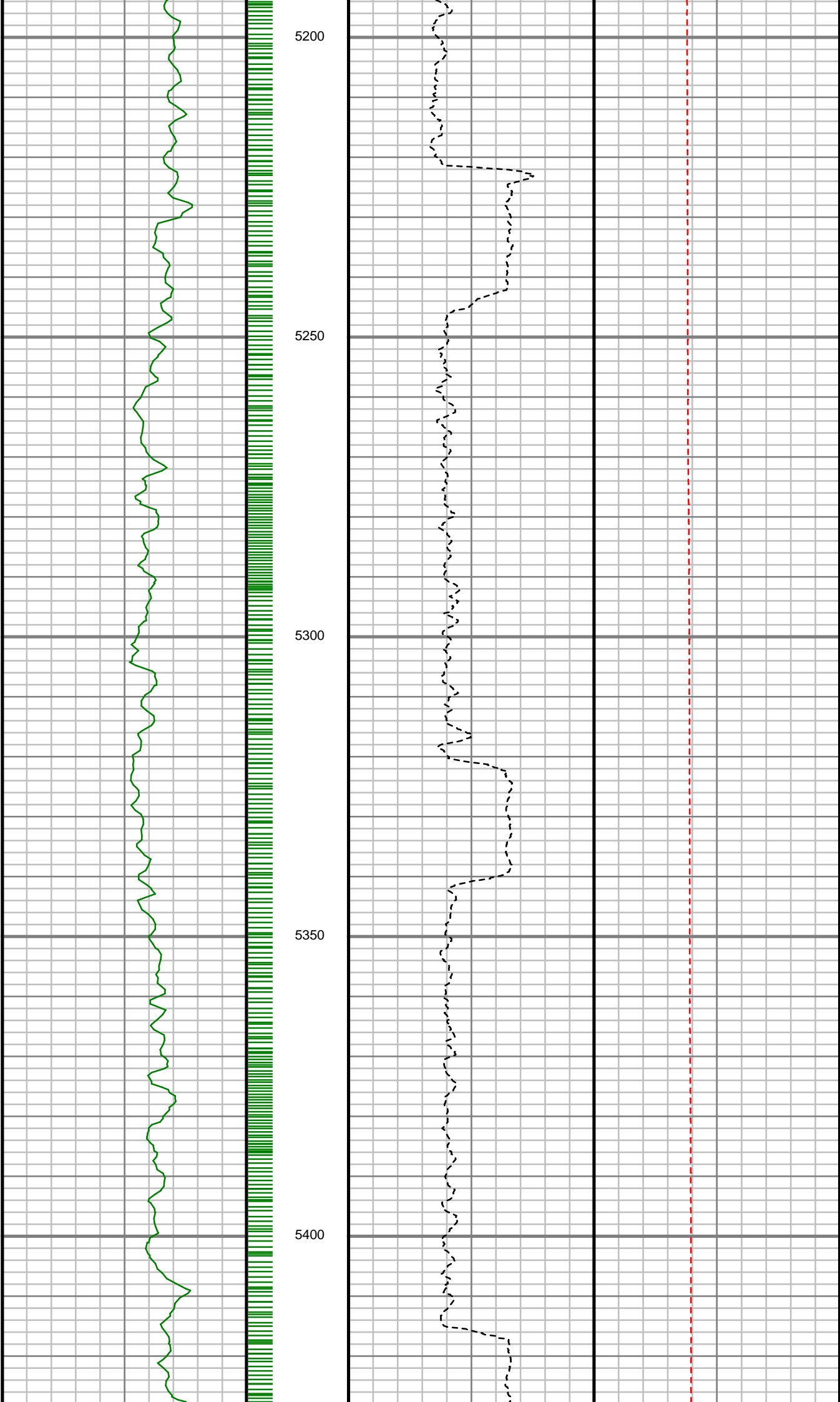




S: 56 MD: 4791.00 ft
Inc: 0.19 deg Az:
252.64 deg TVD:
4768.09 ft

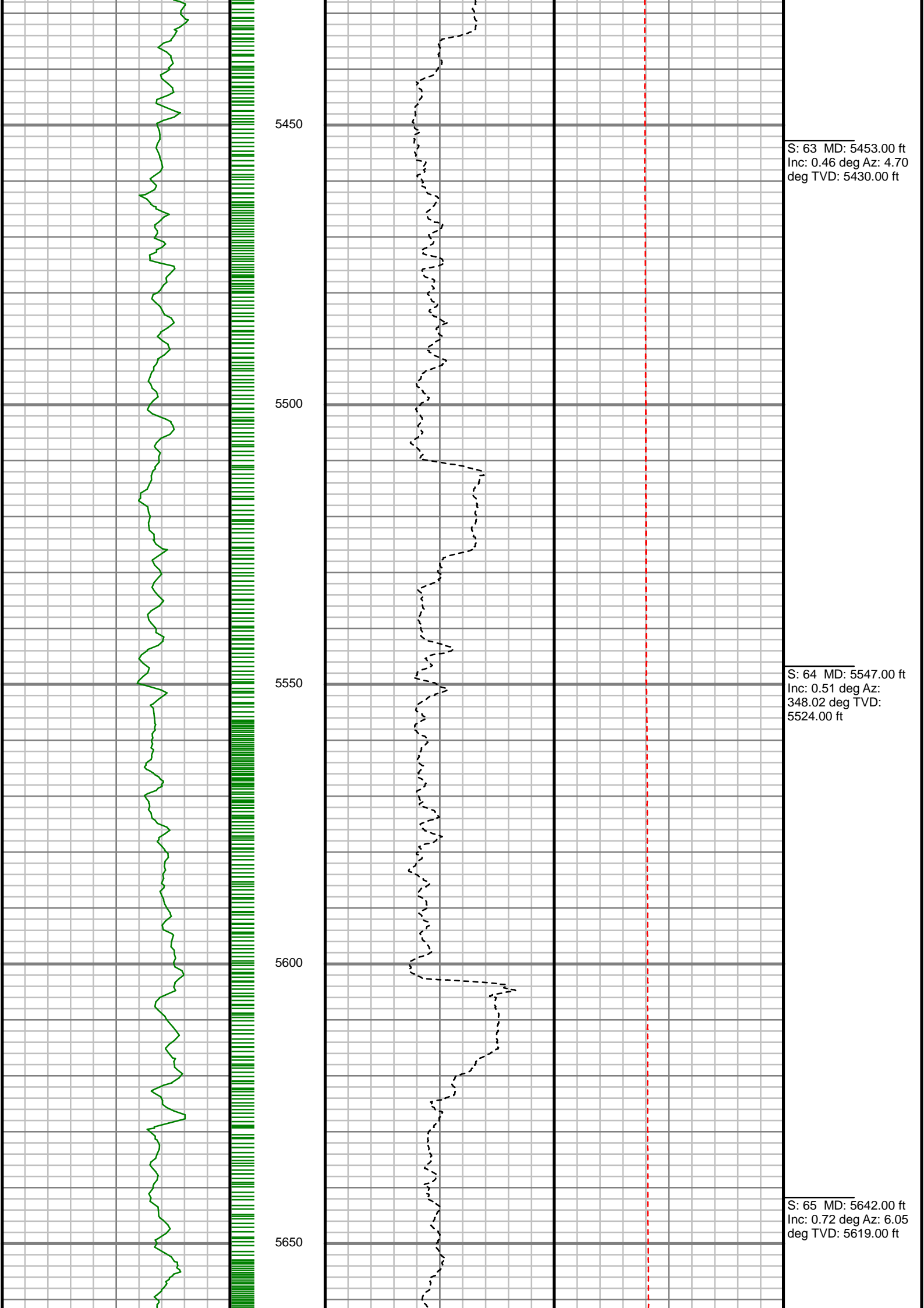
S: 57 MD: 4886.00 ft
Inc: 1.08 deg Az:
269.74 deg TVD:
4863.08 ft

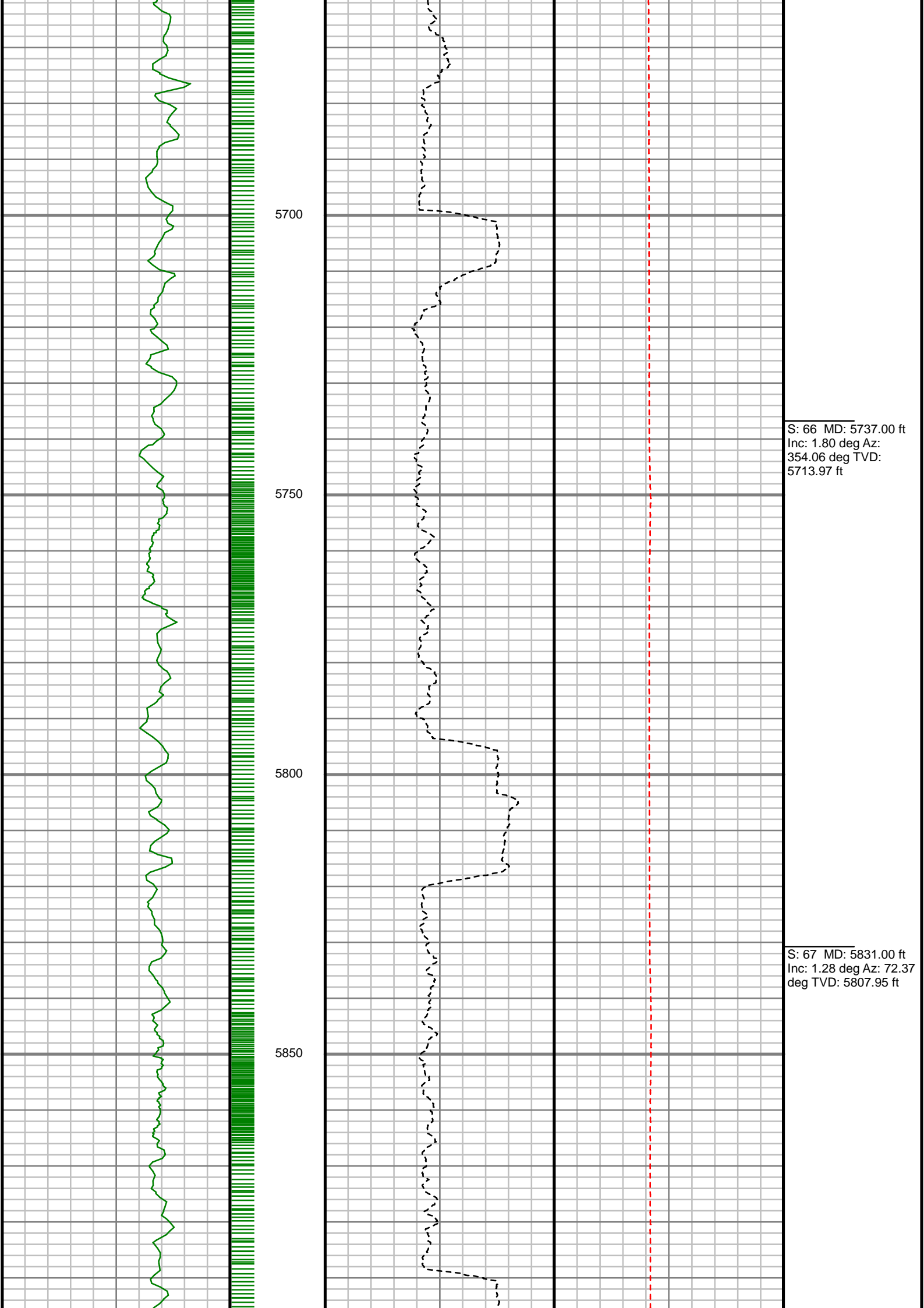


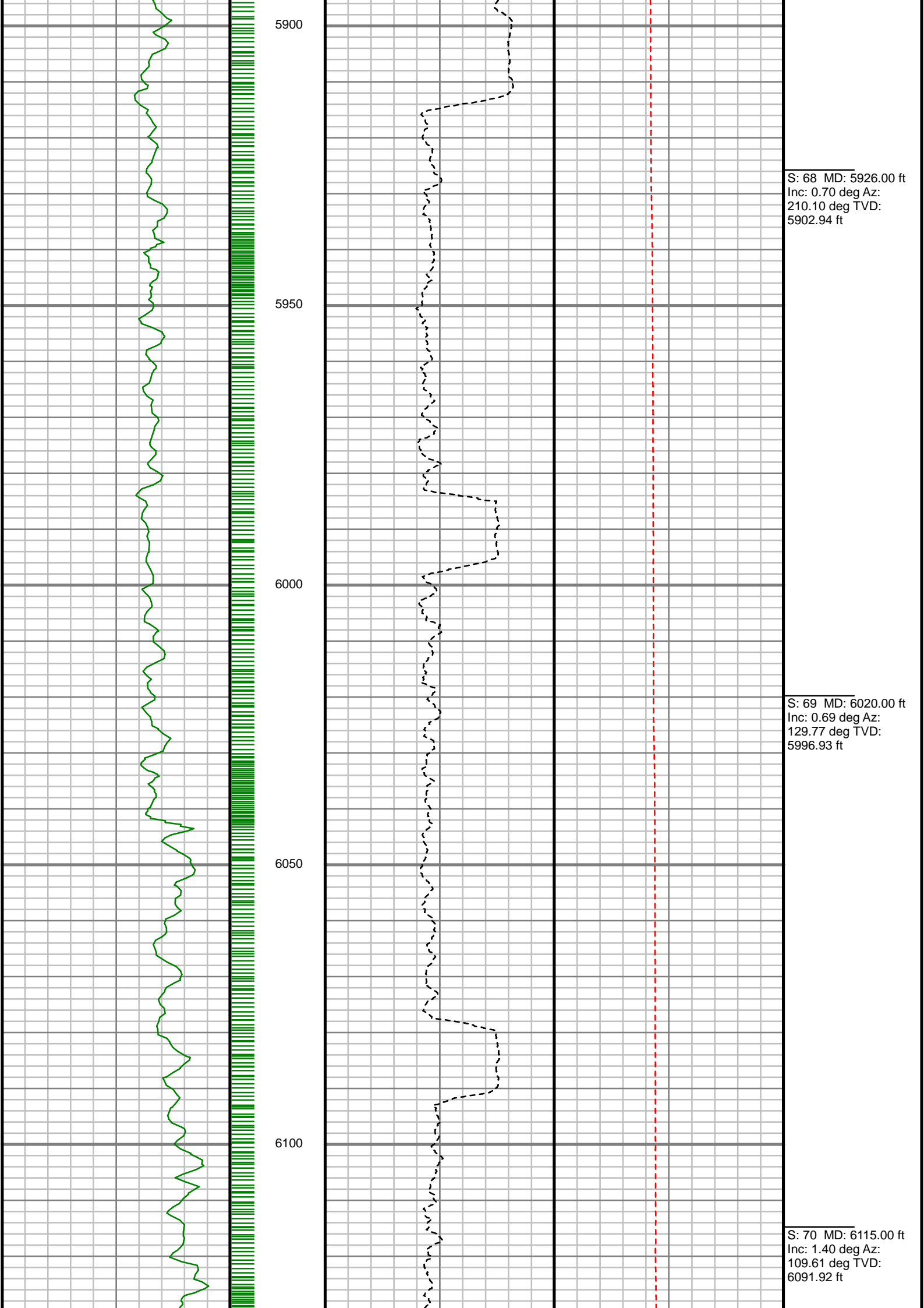


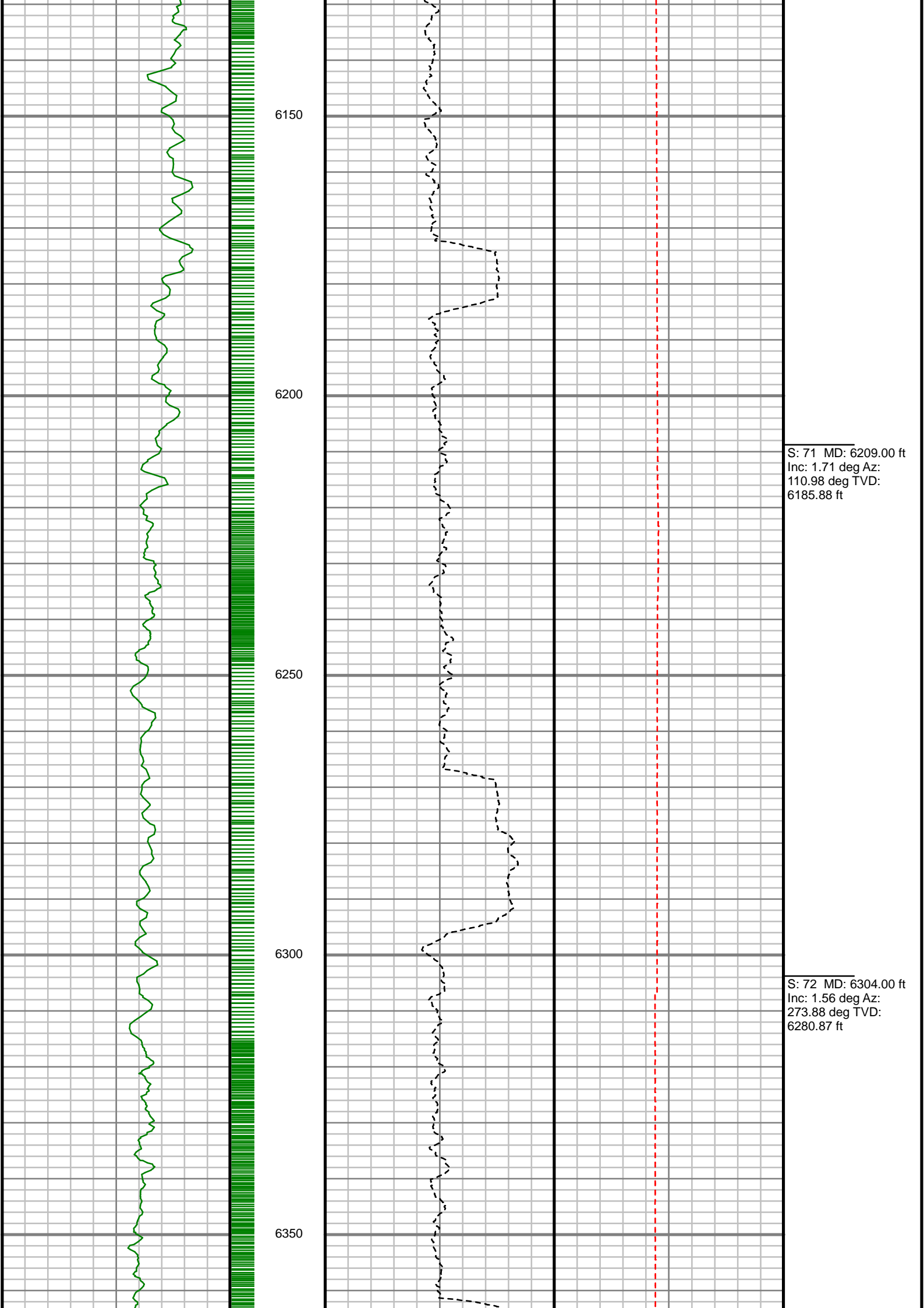
S: 61 MD: 5264.00 ft
Inc: 0.75 deg Az: 19.20
deg TVD: 5241.02 ft

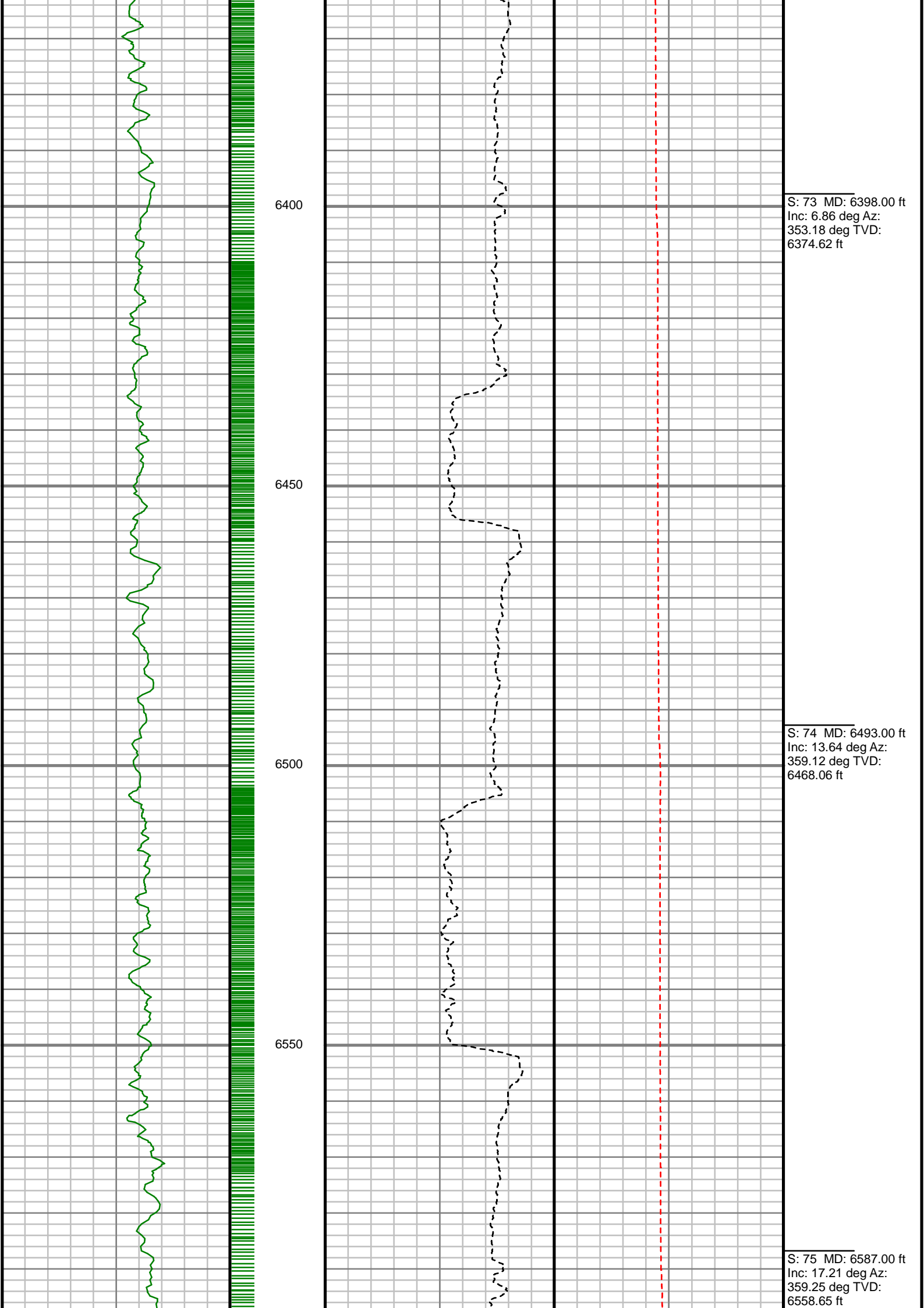
S: 62 MD: 5358.00 ft
Inc: 0.86 deg Az: 0.38
deg TVD: 5335.01 ft

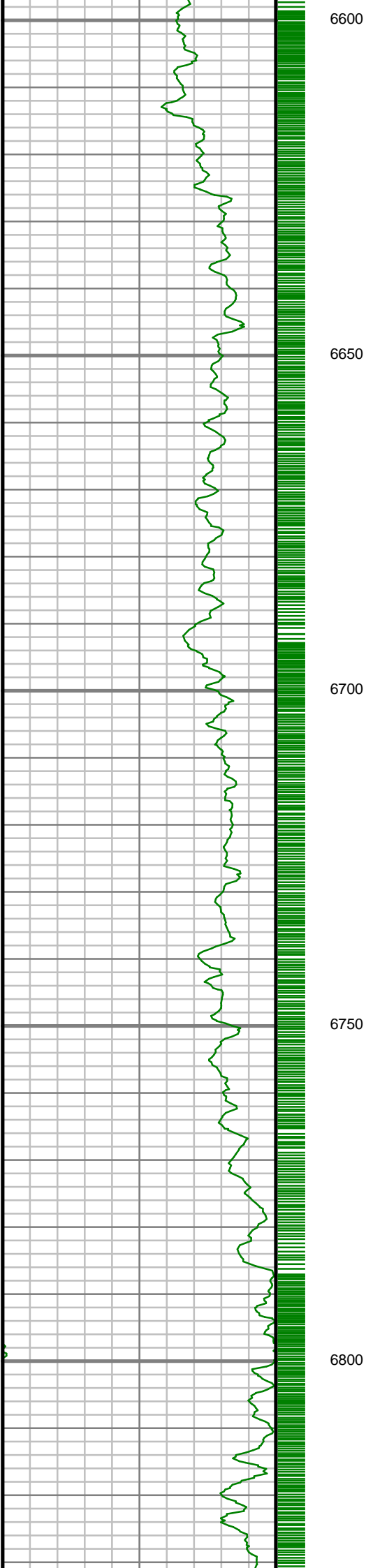












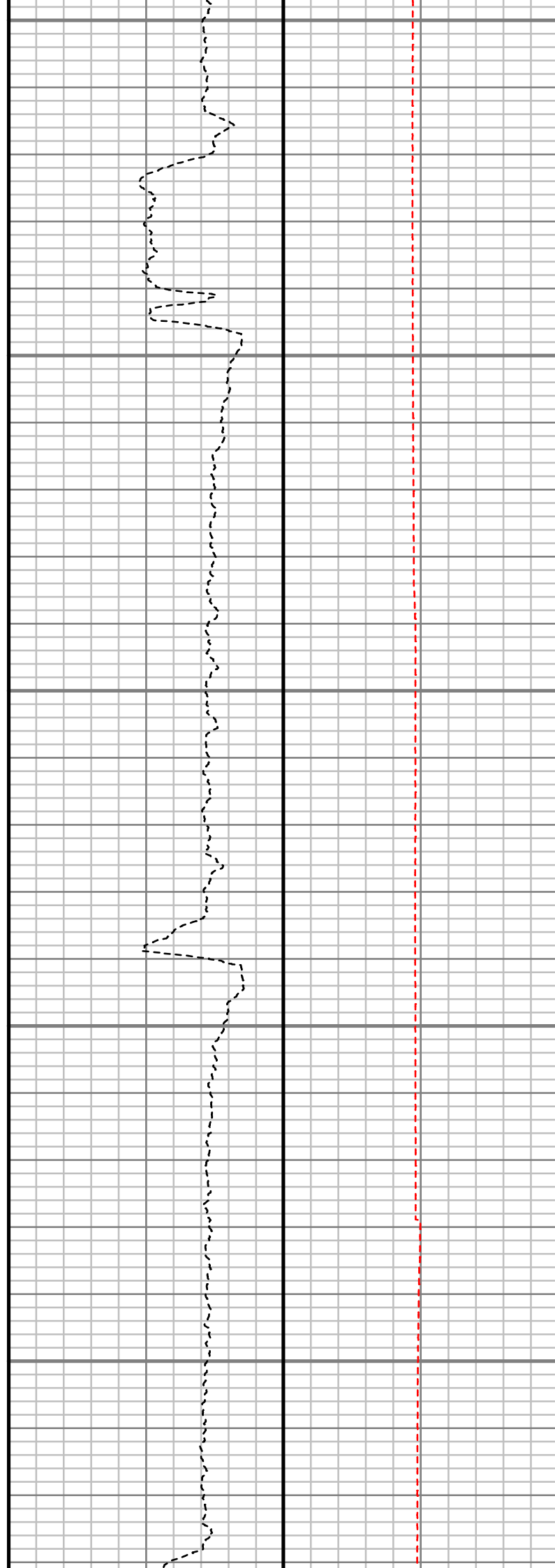
6600

6650

6700

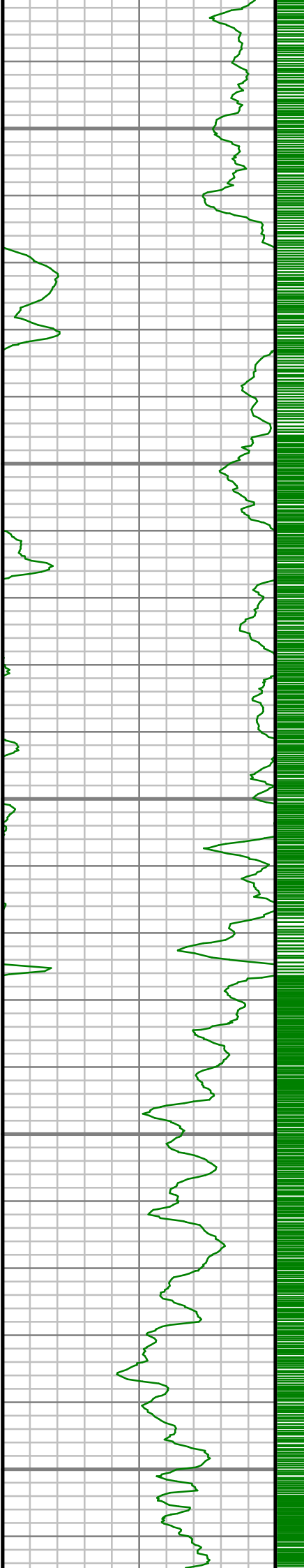
6750

6800



S: 76 MD: 6682.00 ft
Inc: 23.66 deg Az: 3.20
deg TVD: 6647.63 ft

S: 77 MD: 6776.00 ft
Inc: 31.28 deg Az: 1.89
deg TVD: 6730.97 ft



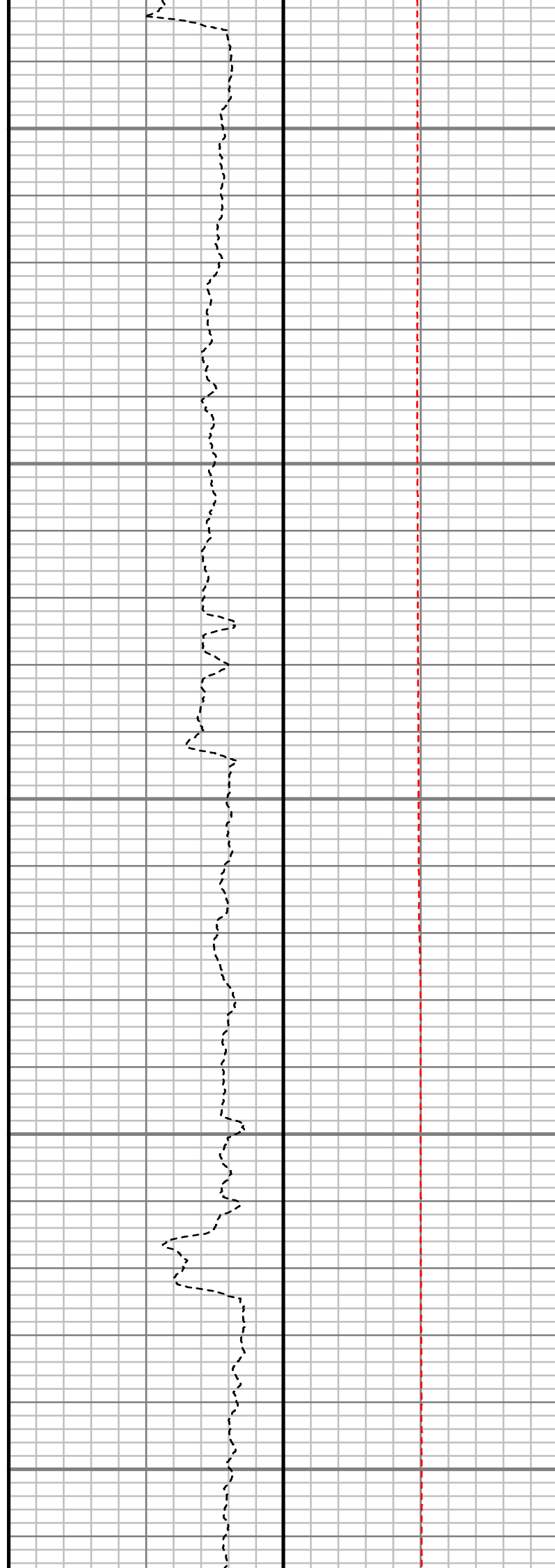
6850

6900

6950

7000

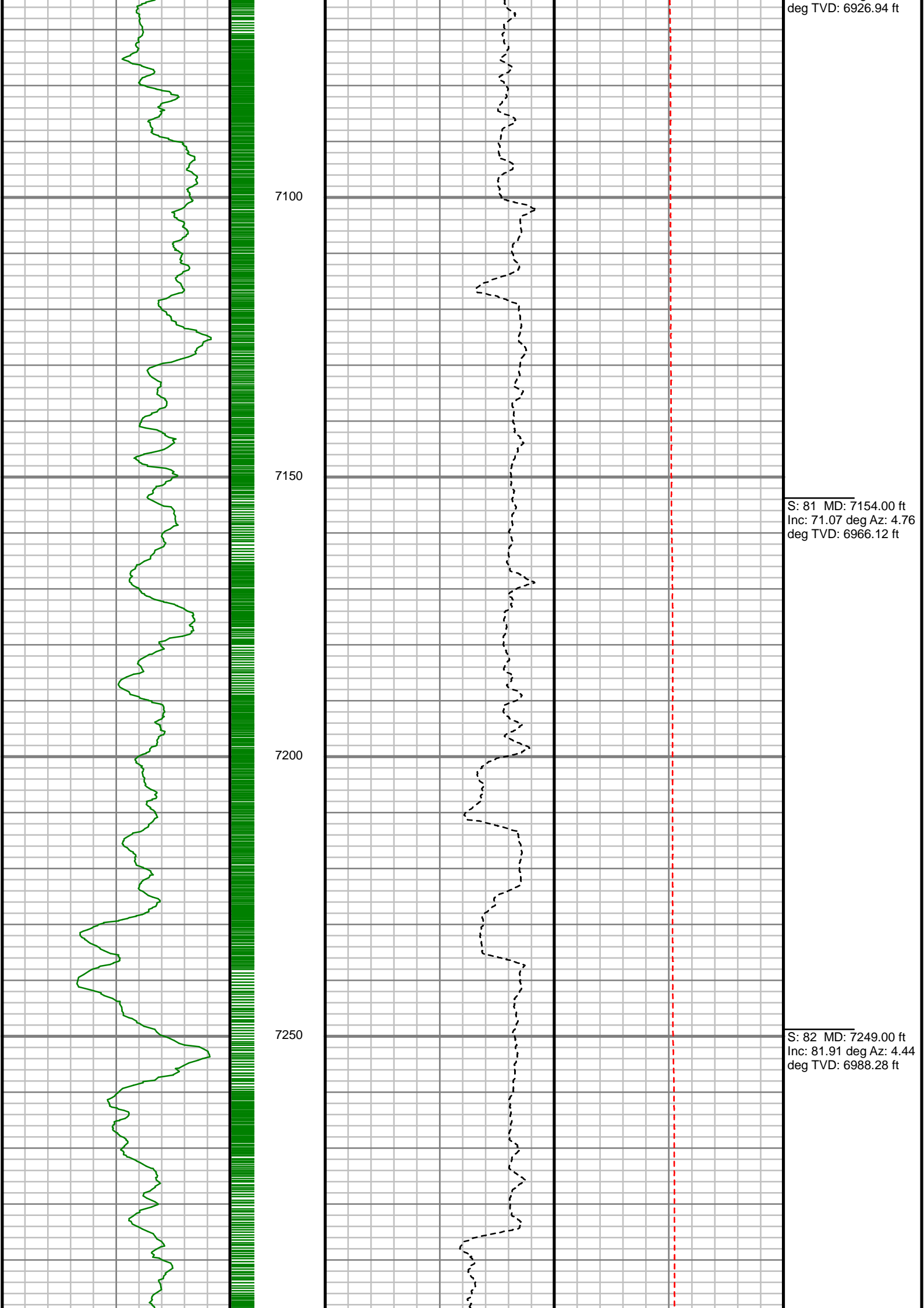
7050



S: 78 MD: 6871.00 ft
Inc: 41.34 deg Az: 2.71
deg TVD: 6807.43 ft

S: 79 MD: 6965.00 ft
Inc: 50.65 deg Az: 0.44
deg TVD: 6872.66 ft

S: 80 MD: 7060.00 ft
Inc: 59.58 deg Az: 2.18



deg TVD: 6926.94 ft

7100

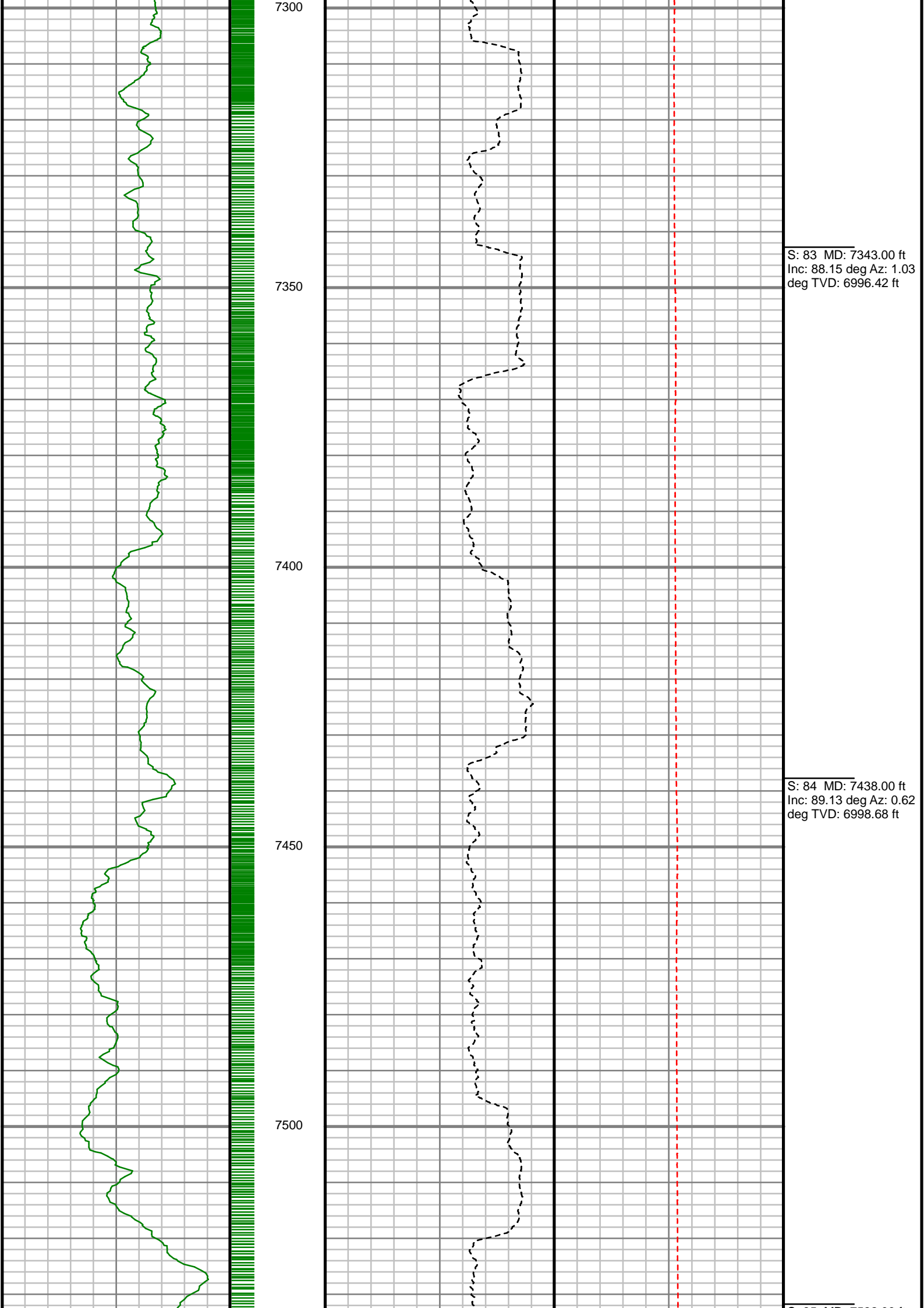
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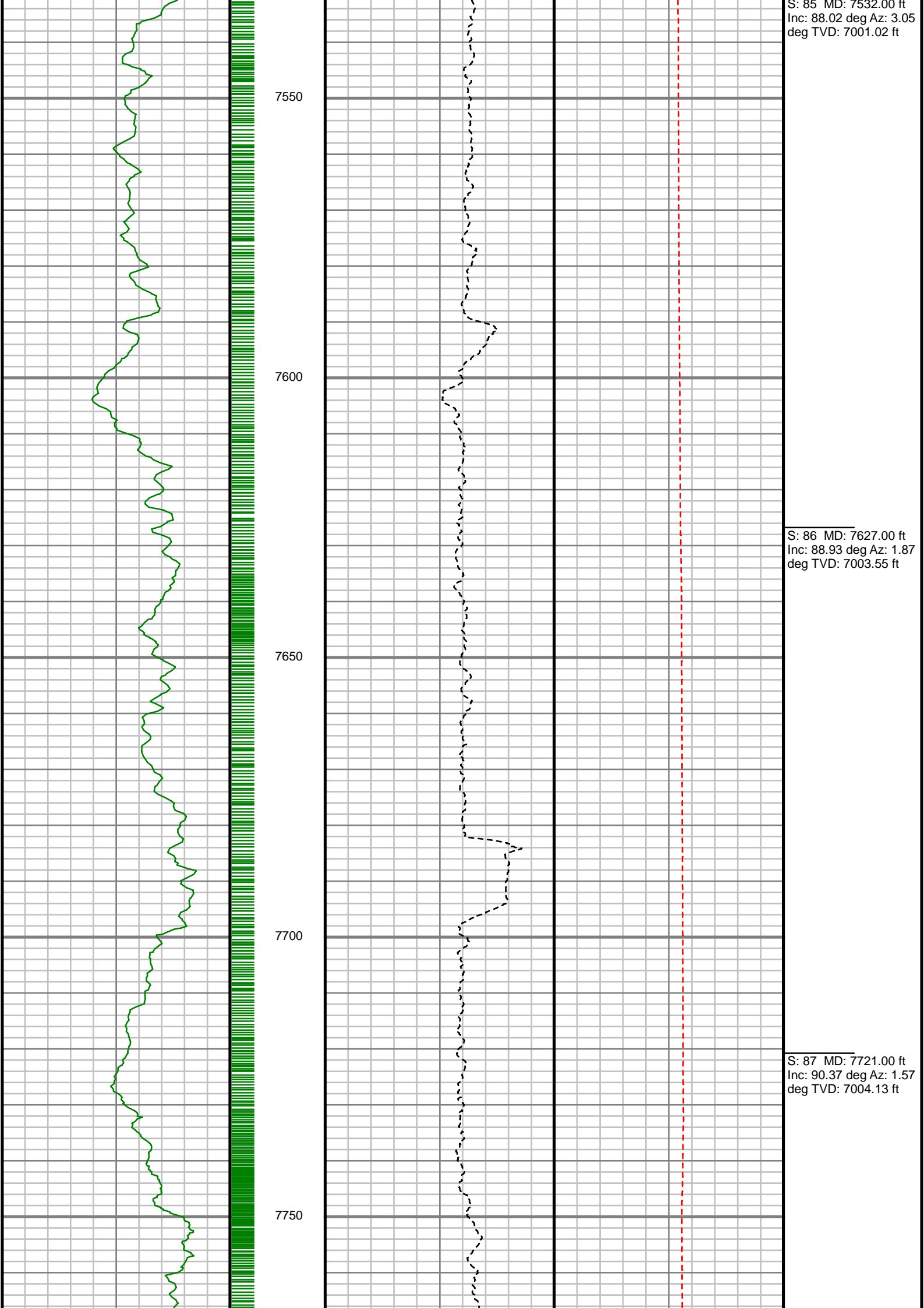
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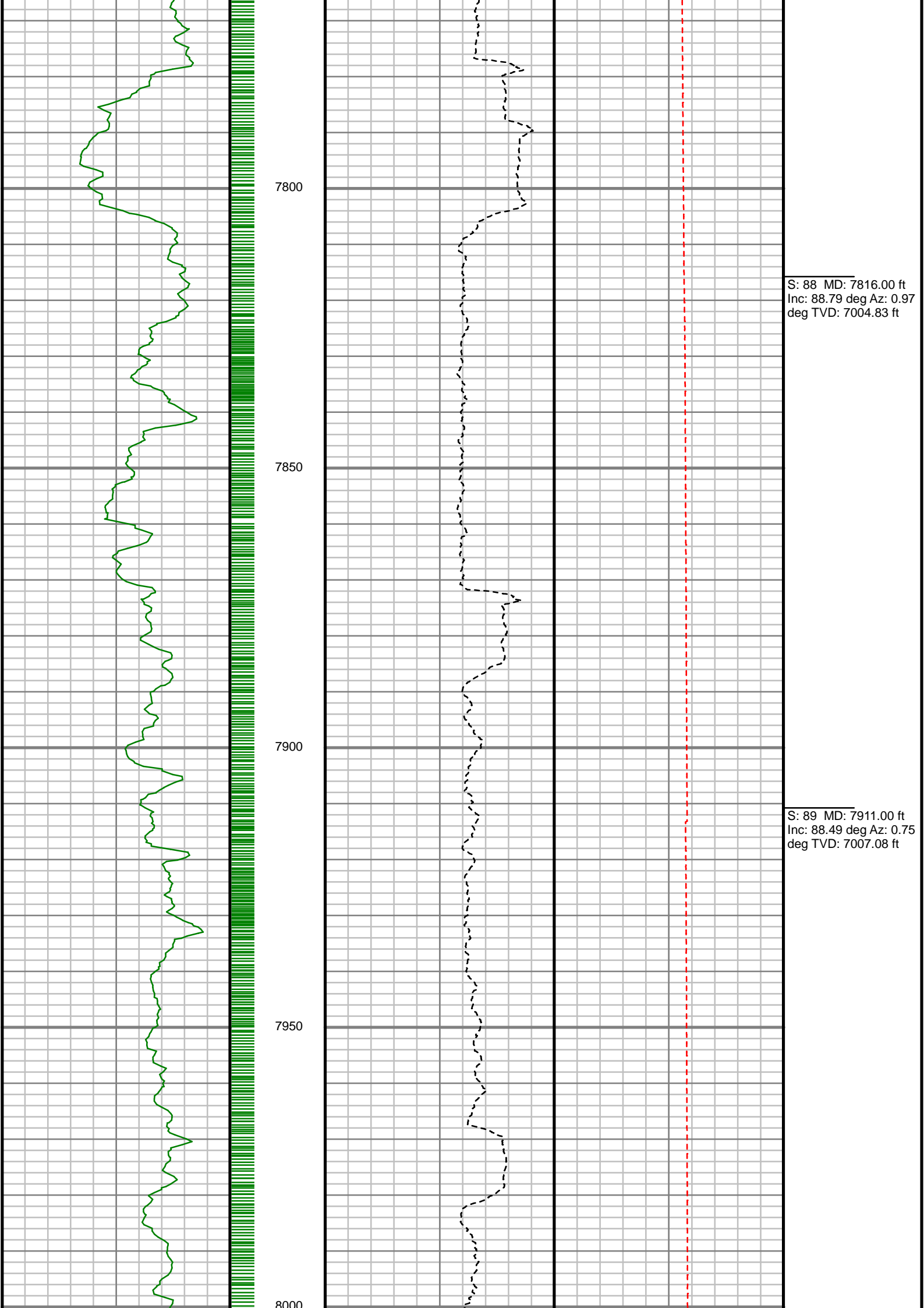
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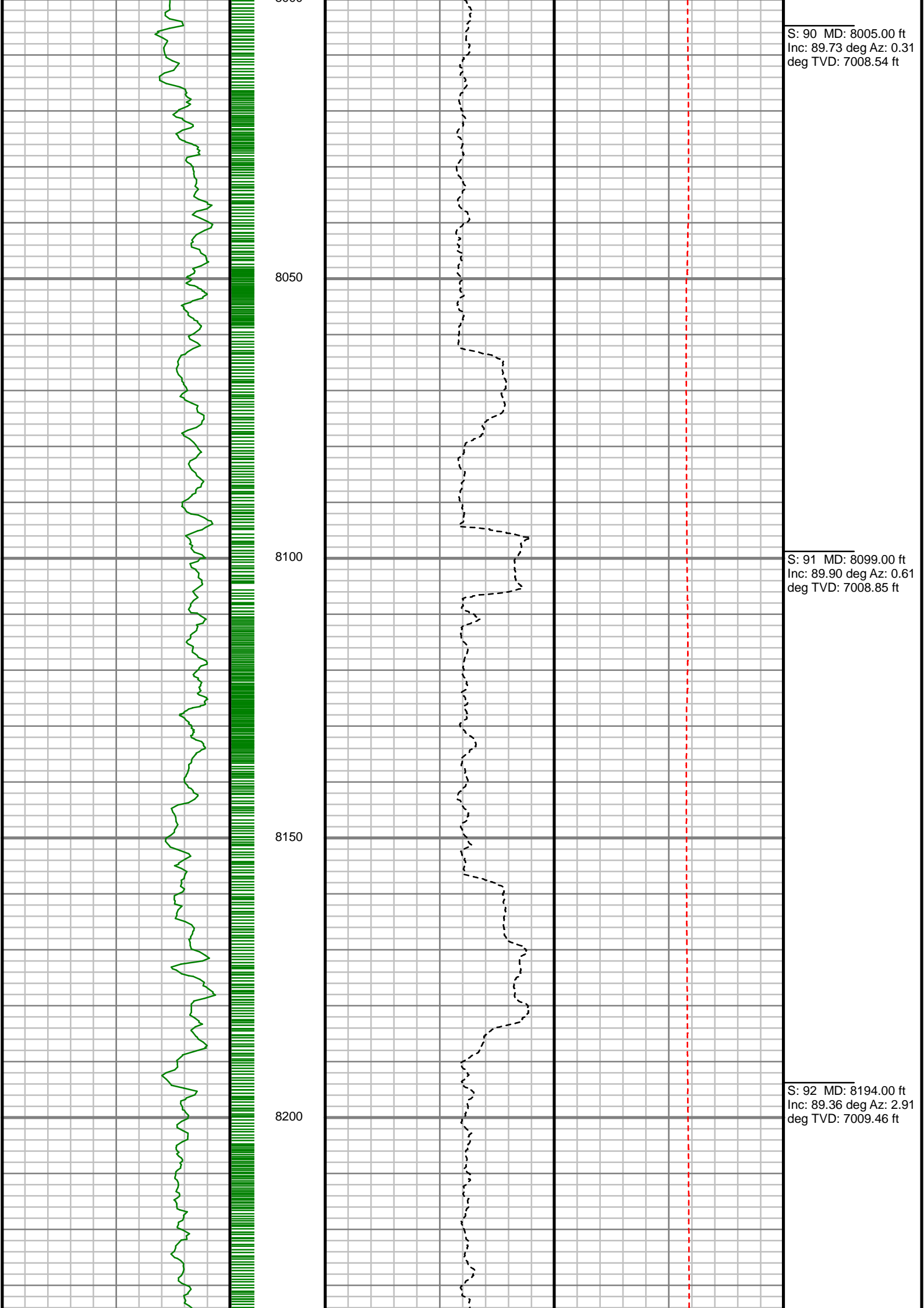
S: 81 MD: 7154.00 ft
Inc: 71.07 deg Az: 4.76
deg TVD: 6966.12 ft

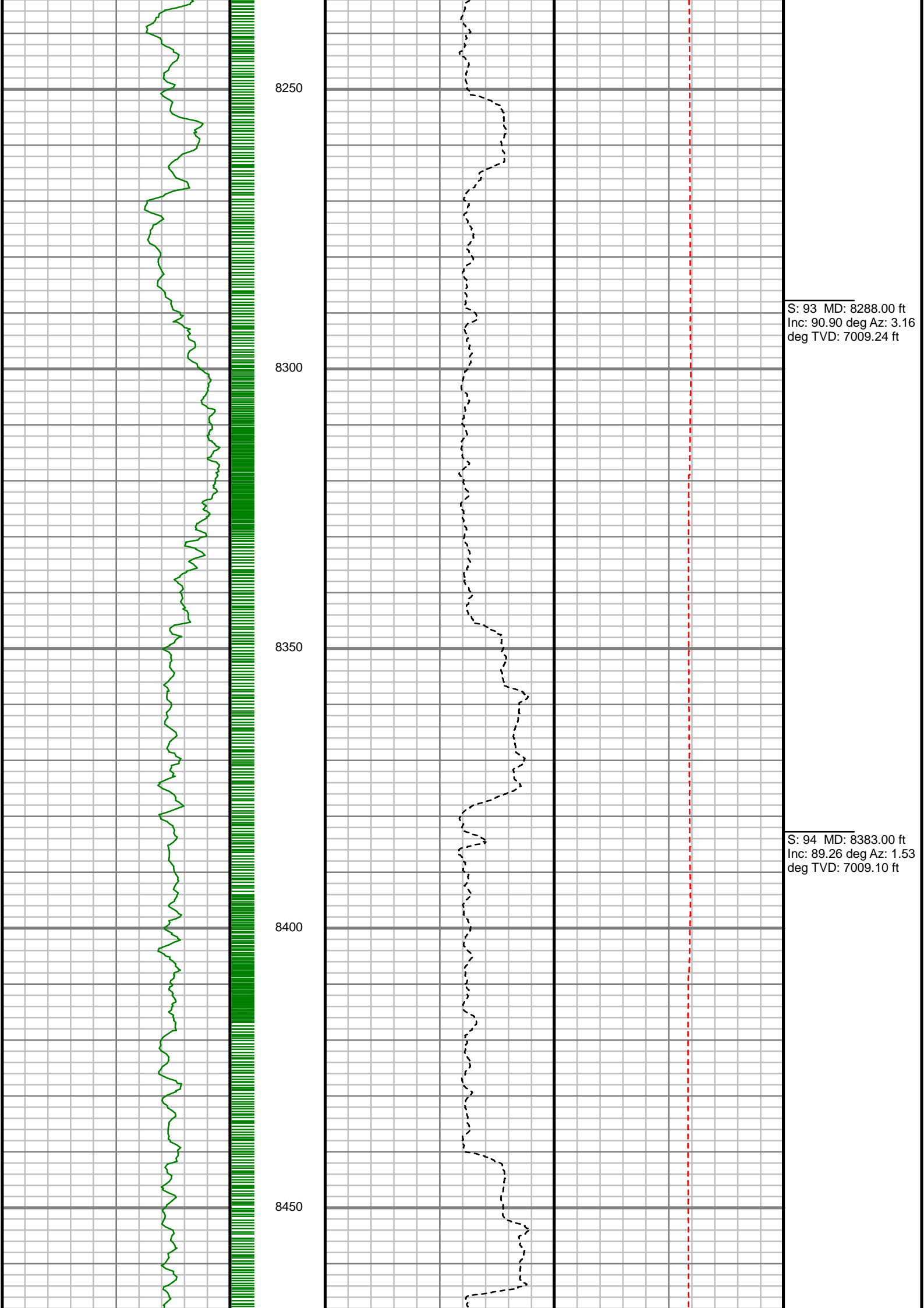
S: 82 MD: 7249.00 ft
Inc: 81.91 deg Az: 4.44
deg TVD: 6988.28 ft

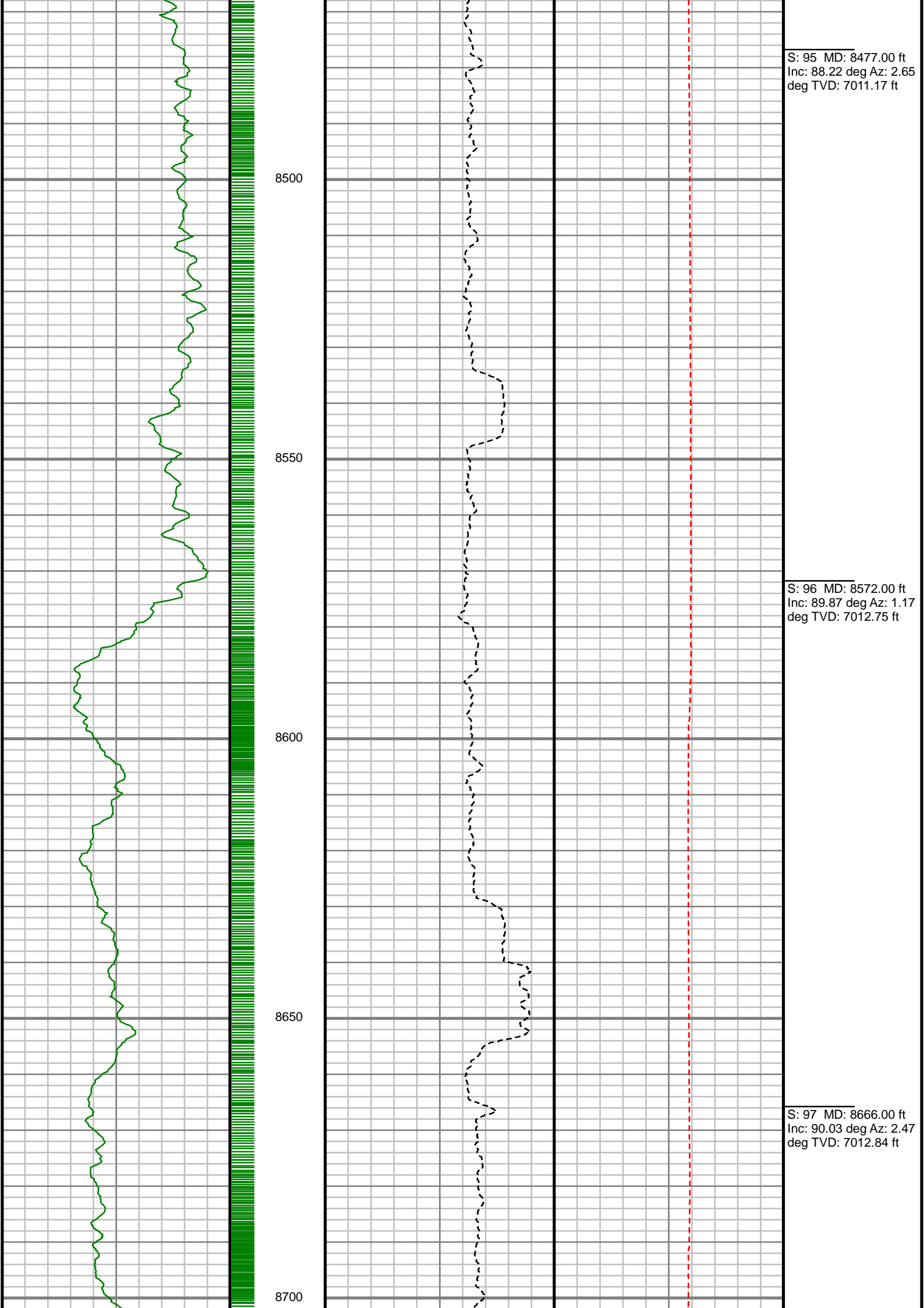


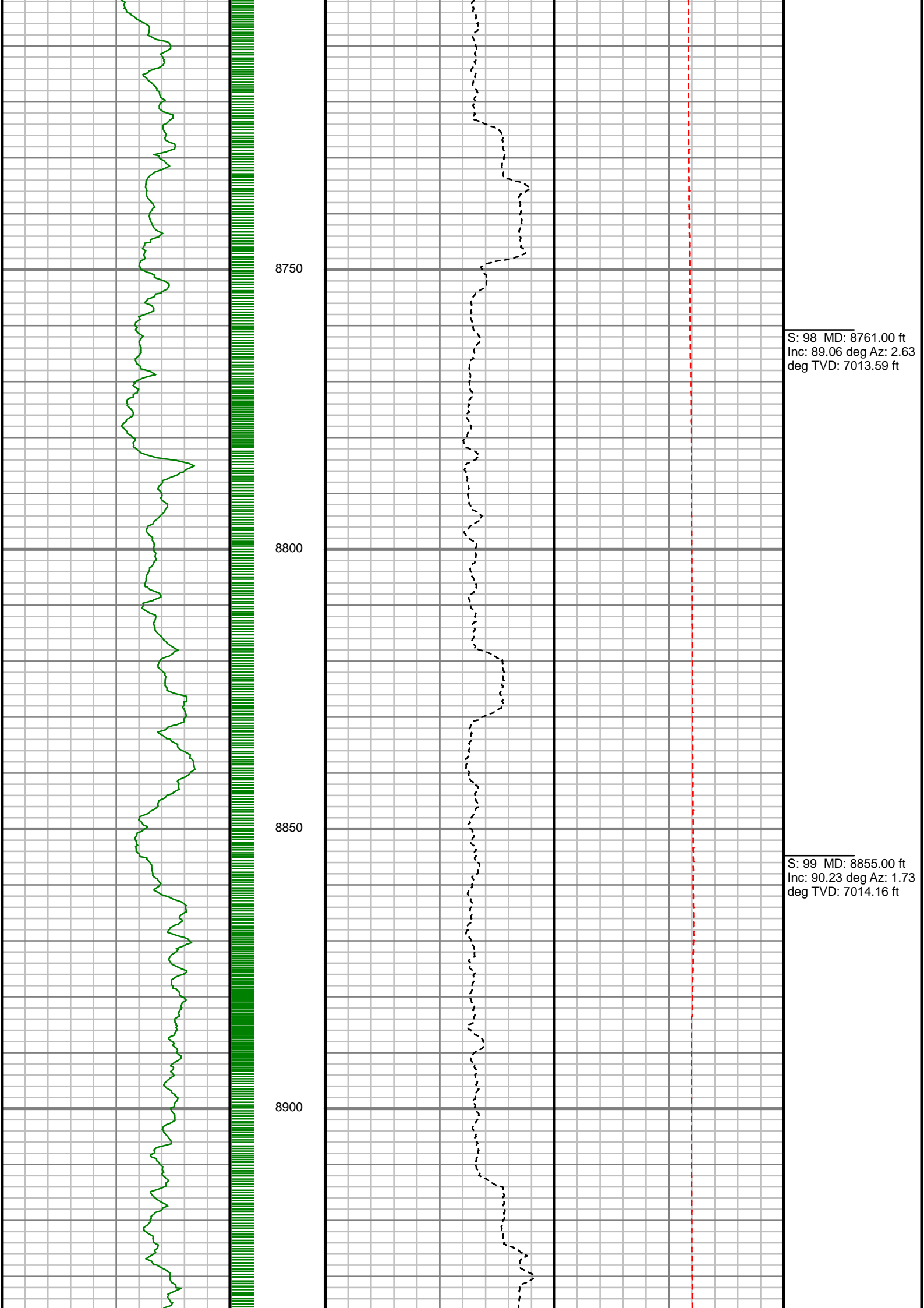


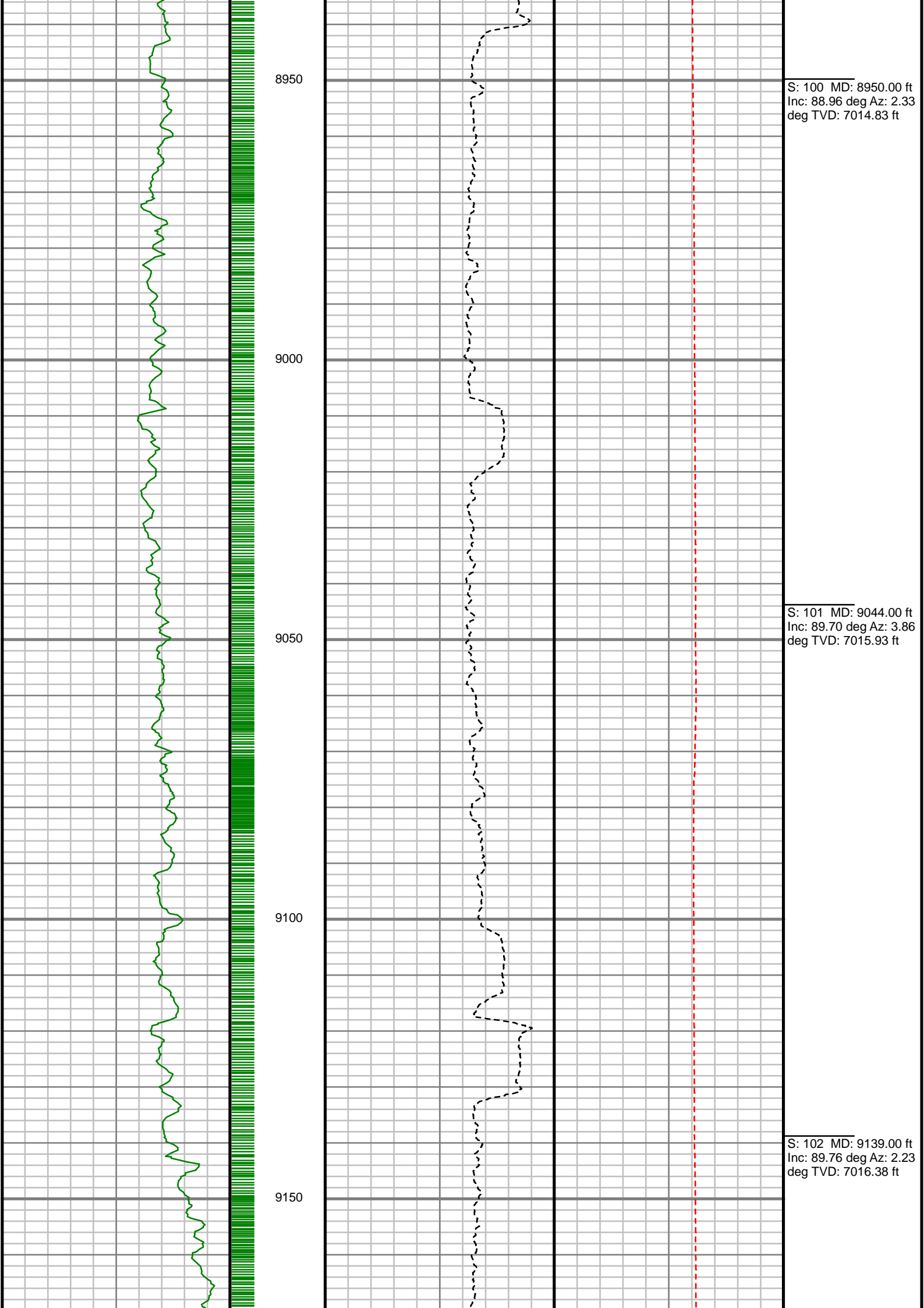


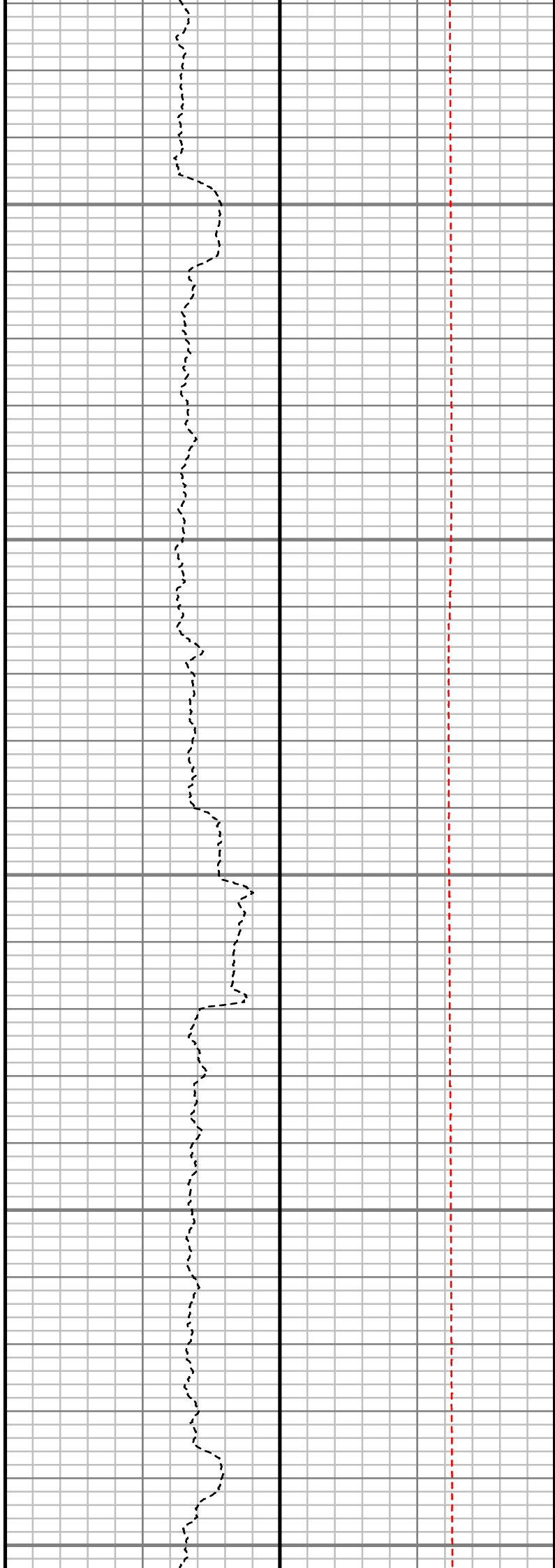
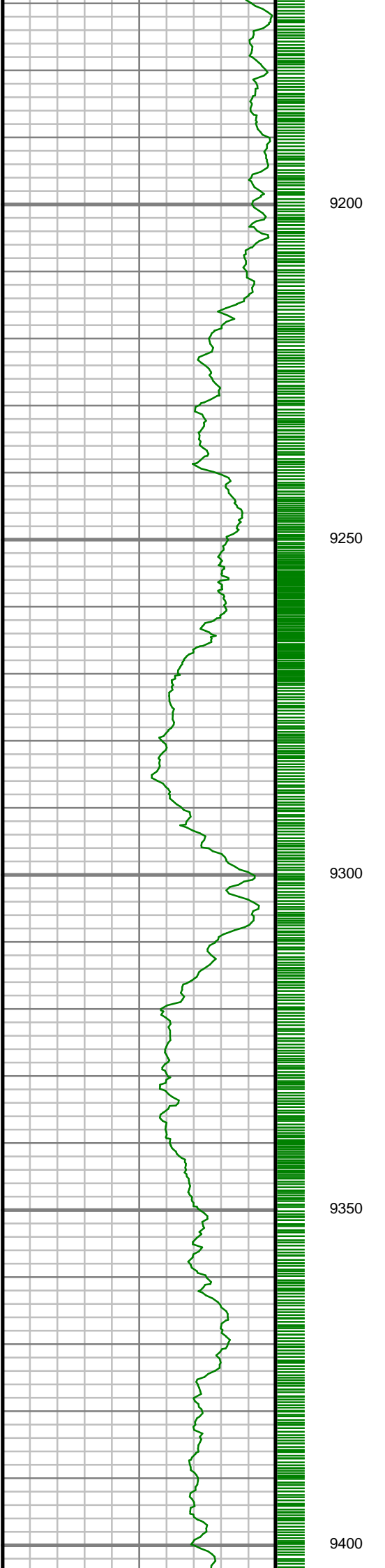






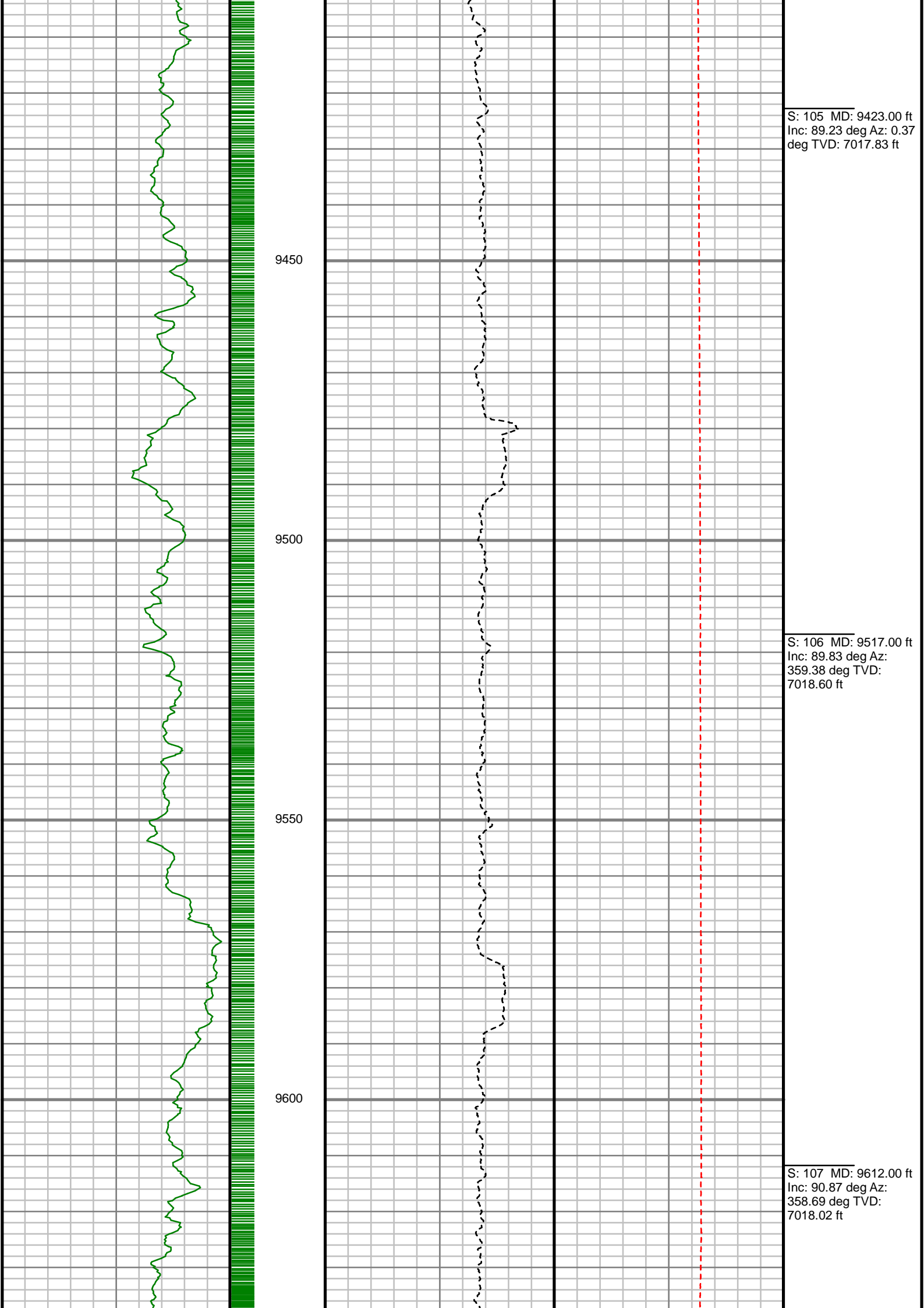


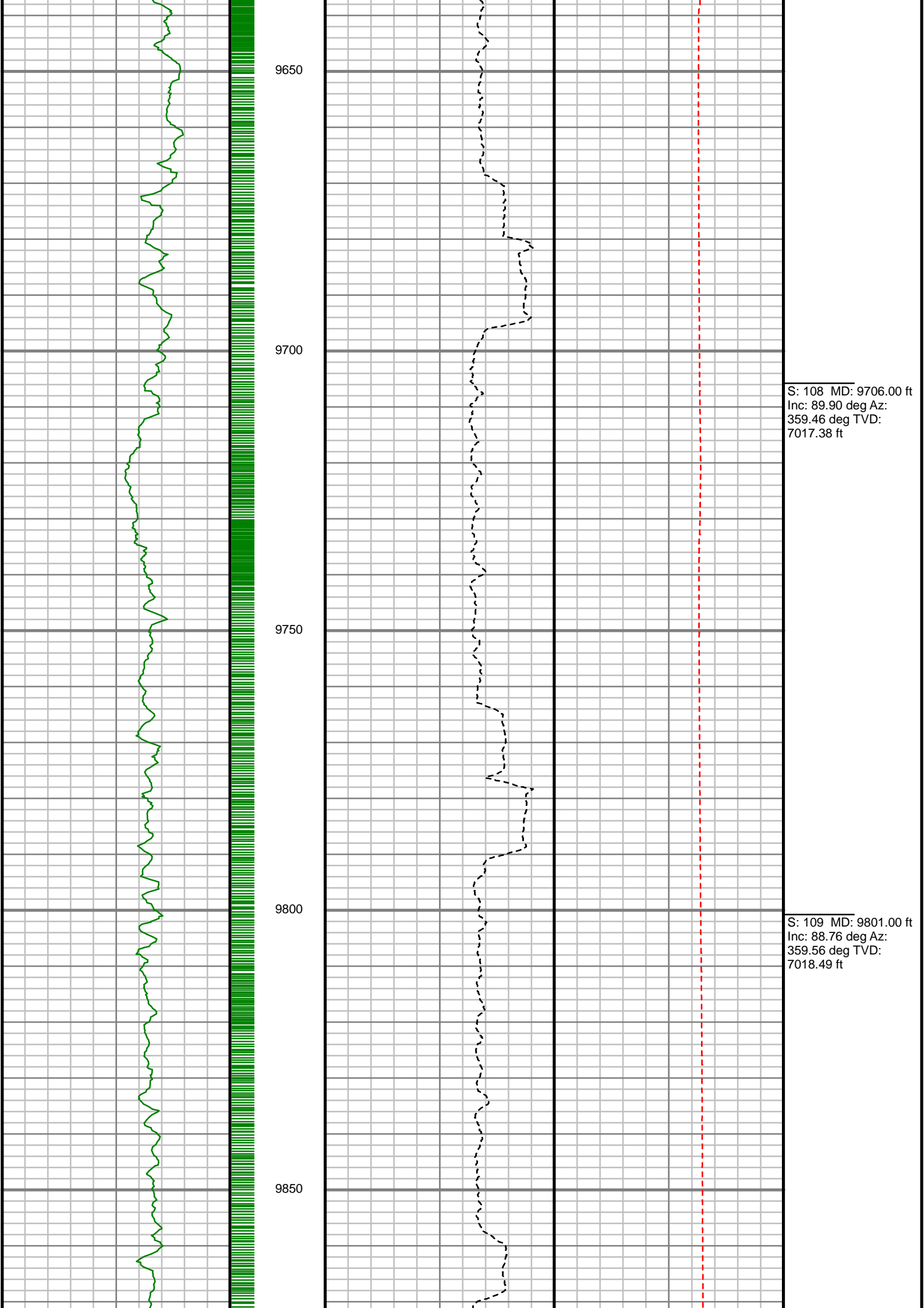


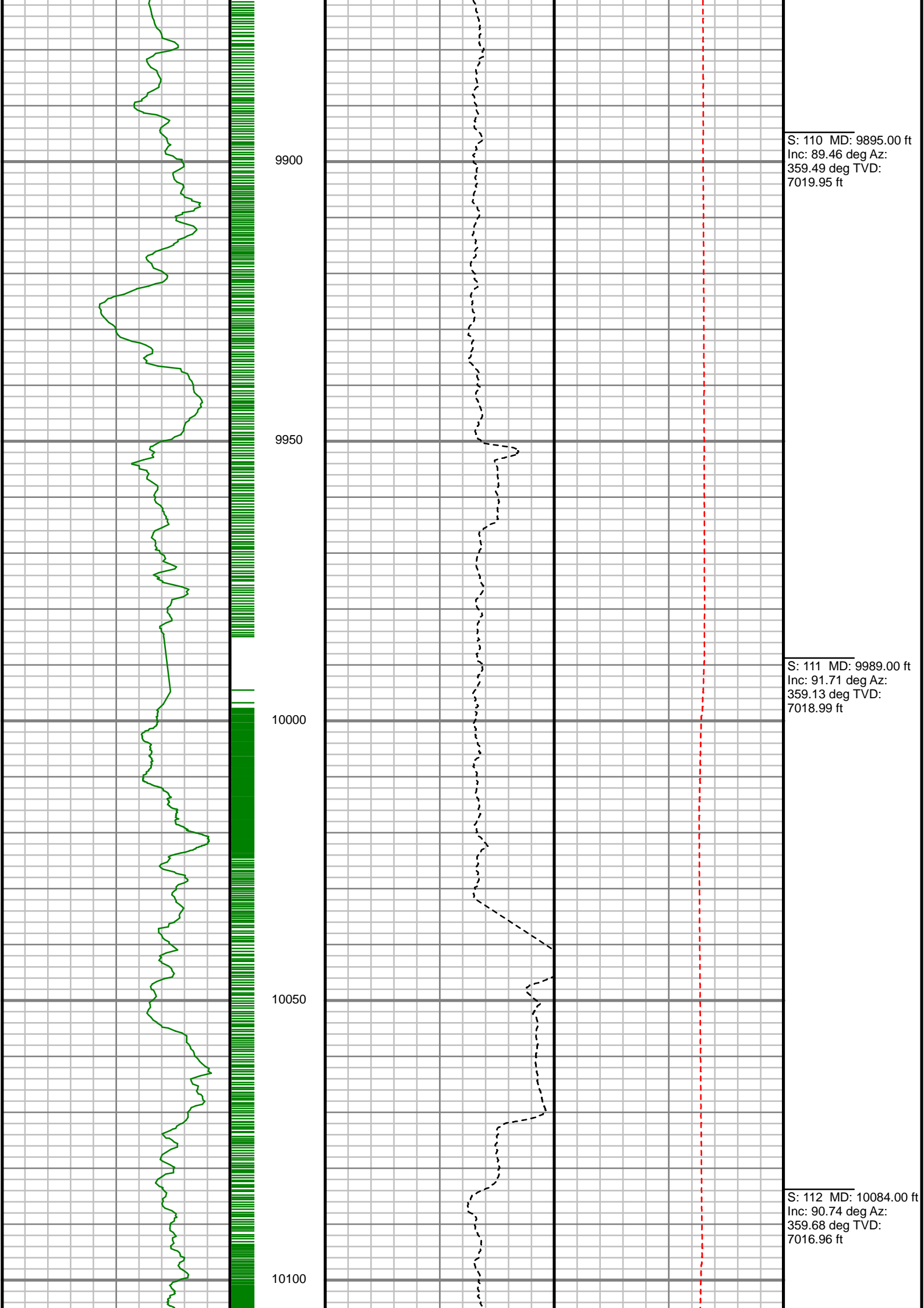


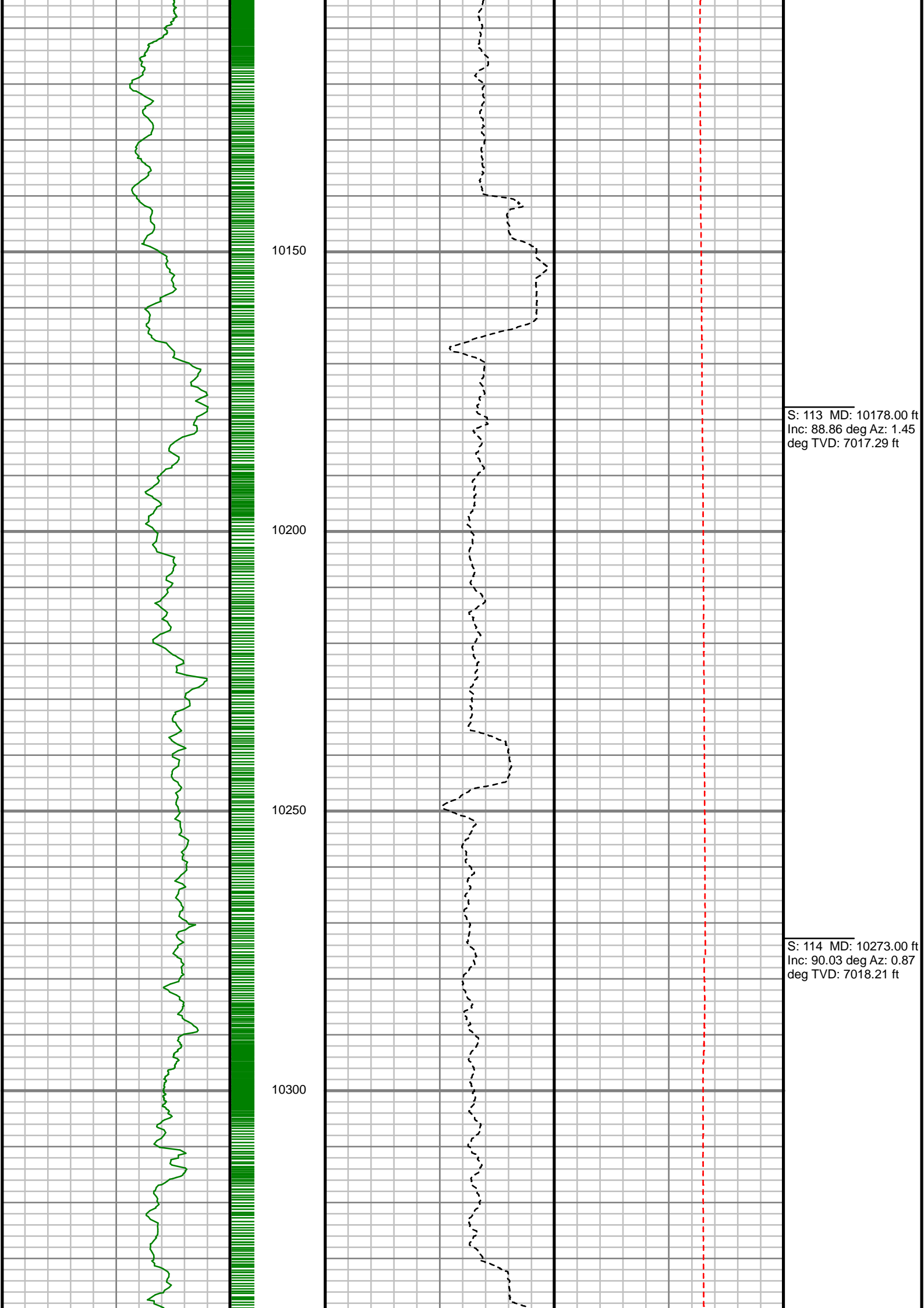
S: 103 MD: 9233.00 ft
Inc: 90.84 deg Az: 2.31
deg TVD: 7015.88 ft

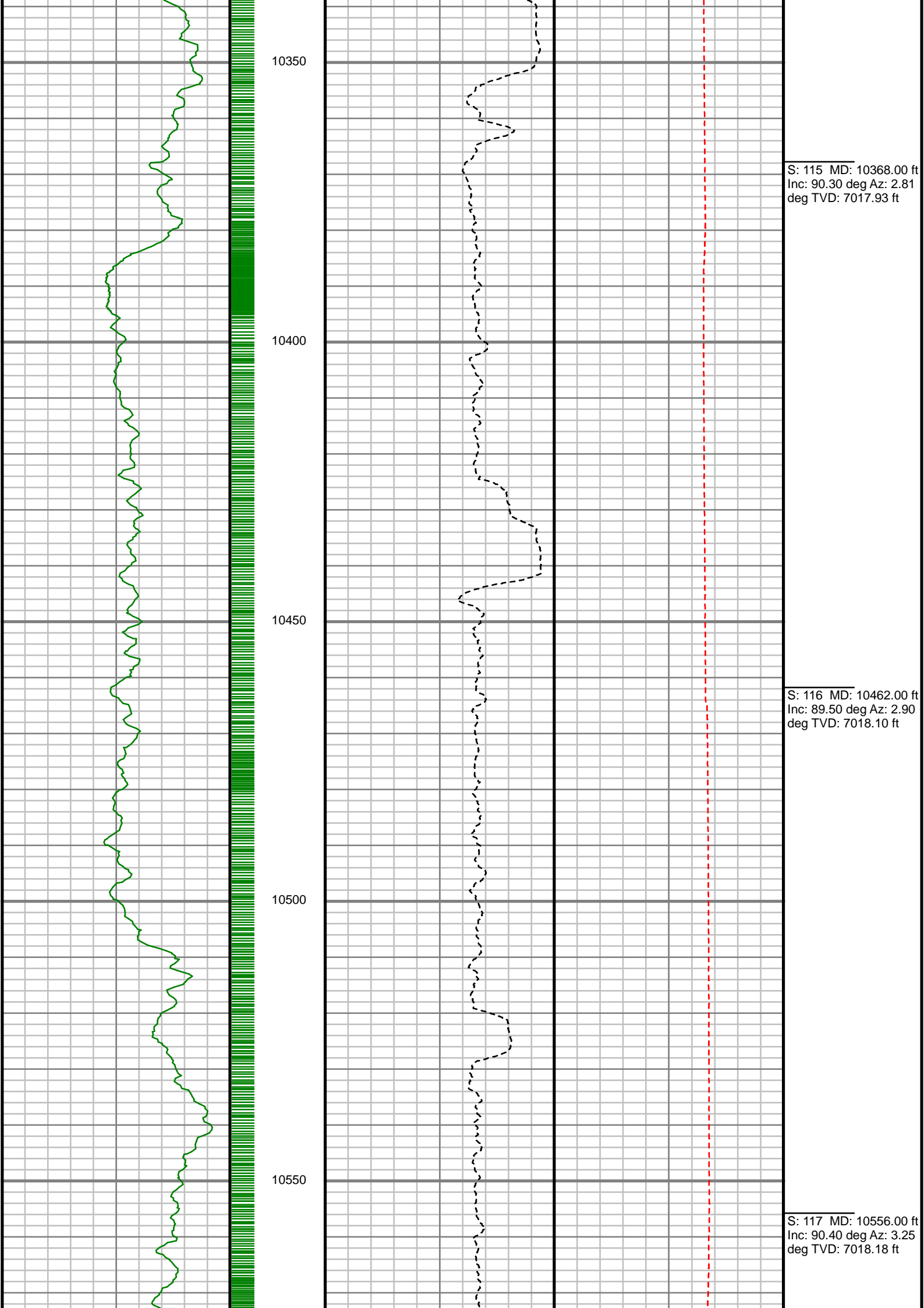
S: 104 MD: 9328.00 ft
Inc: 88.79 deg Az:
359.98 deg TVD:
7016.19 ft

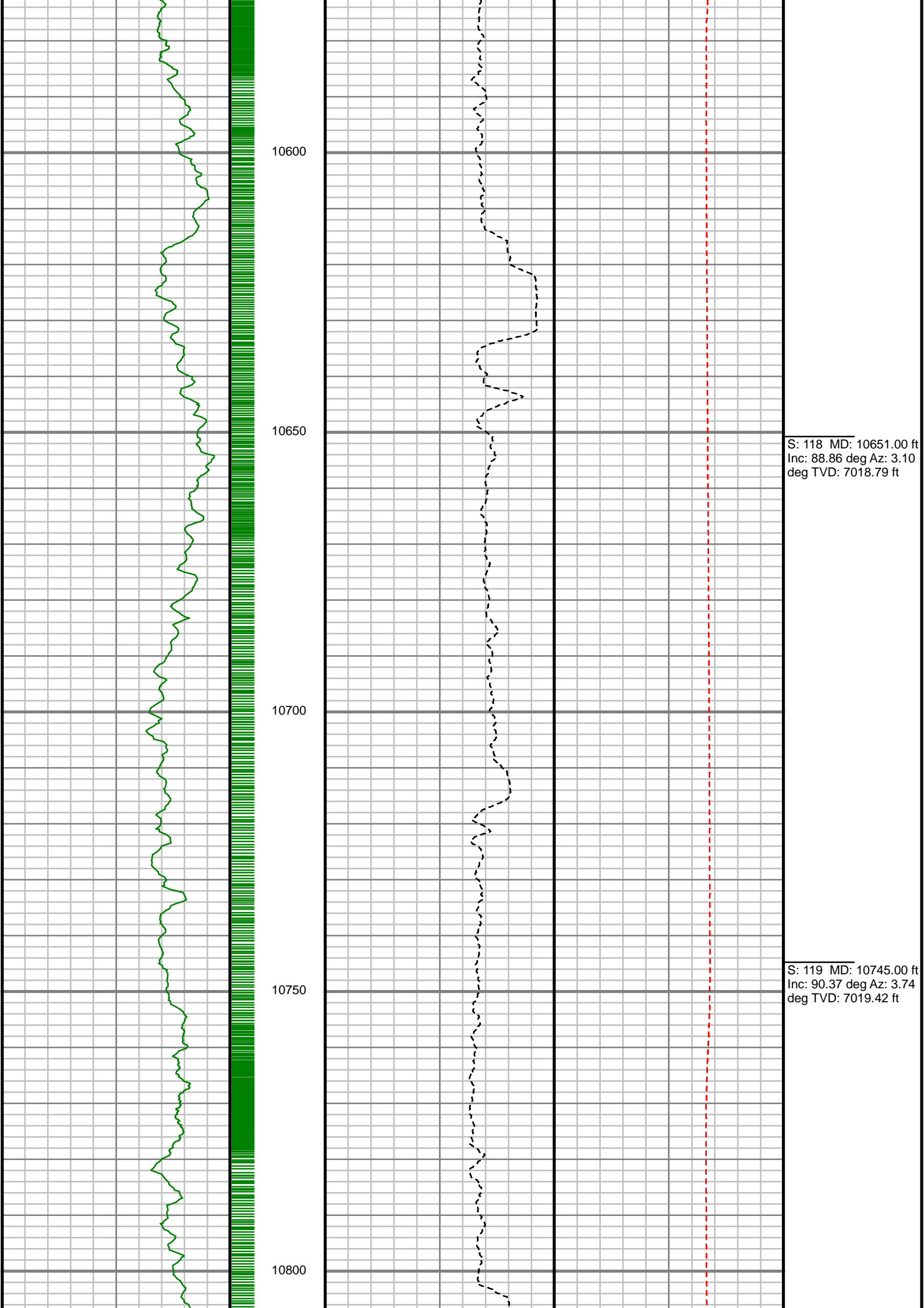


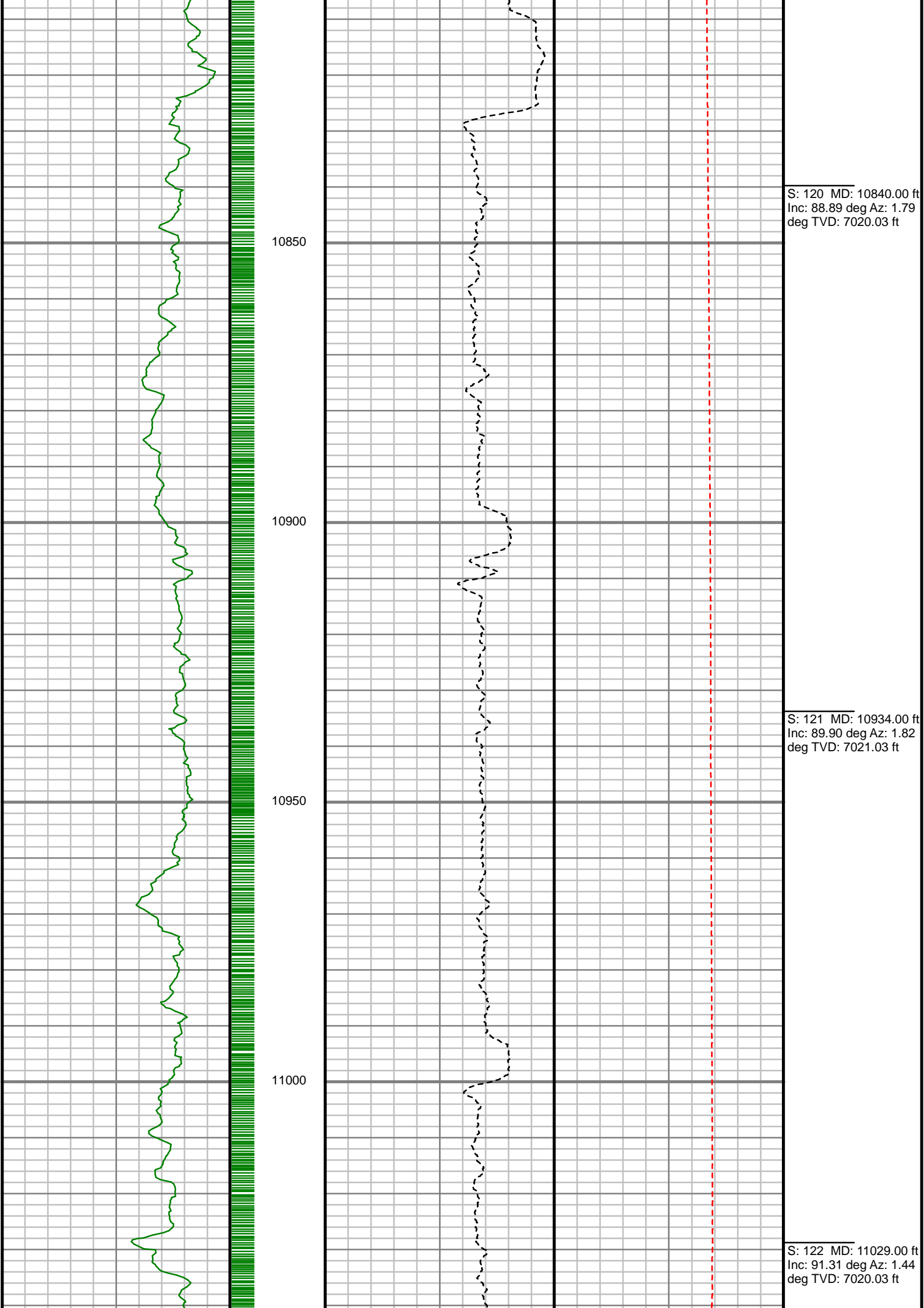


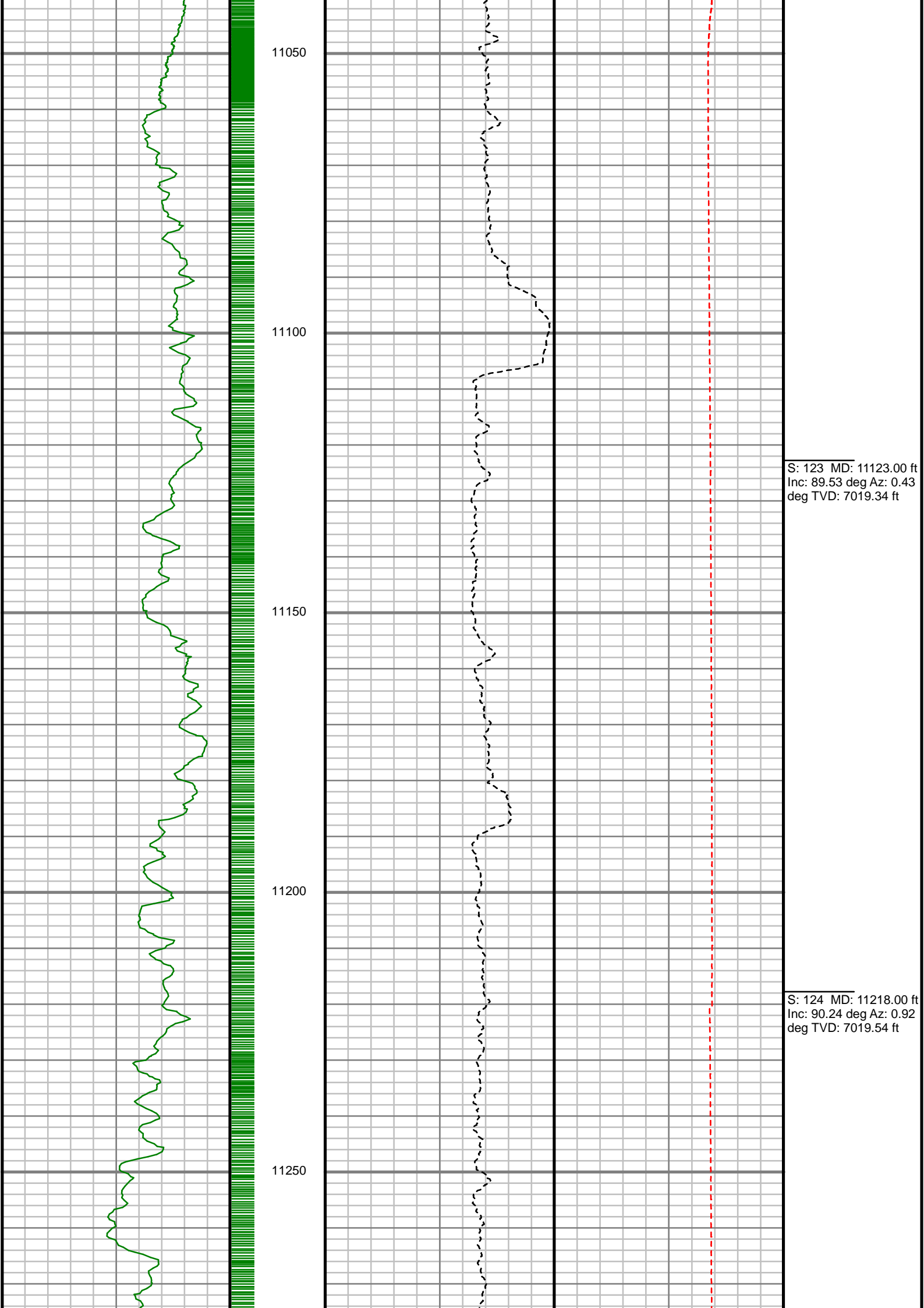


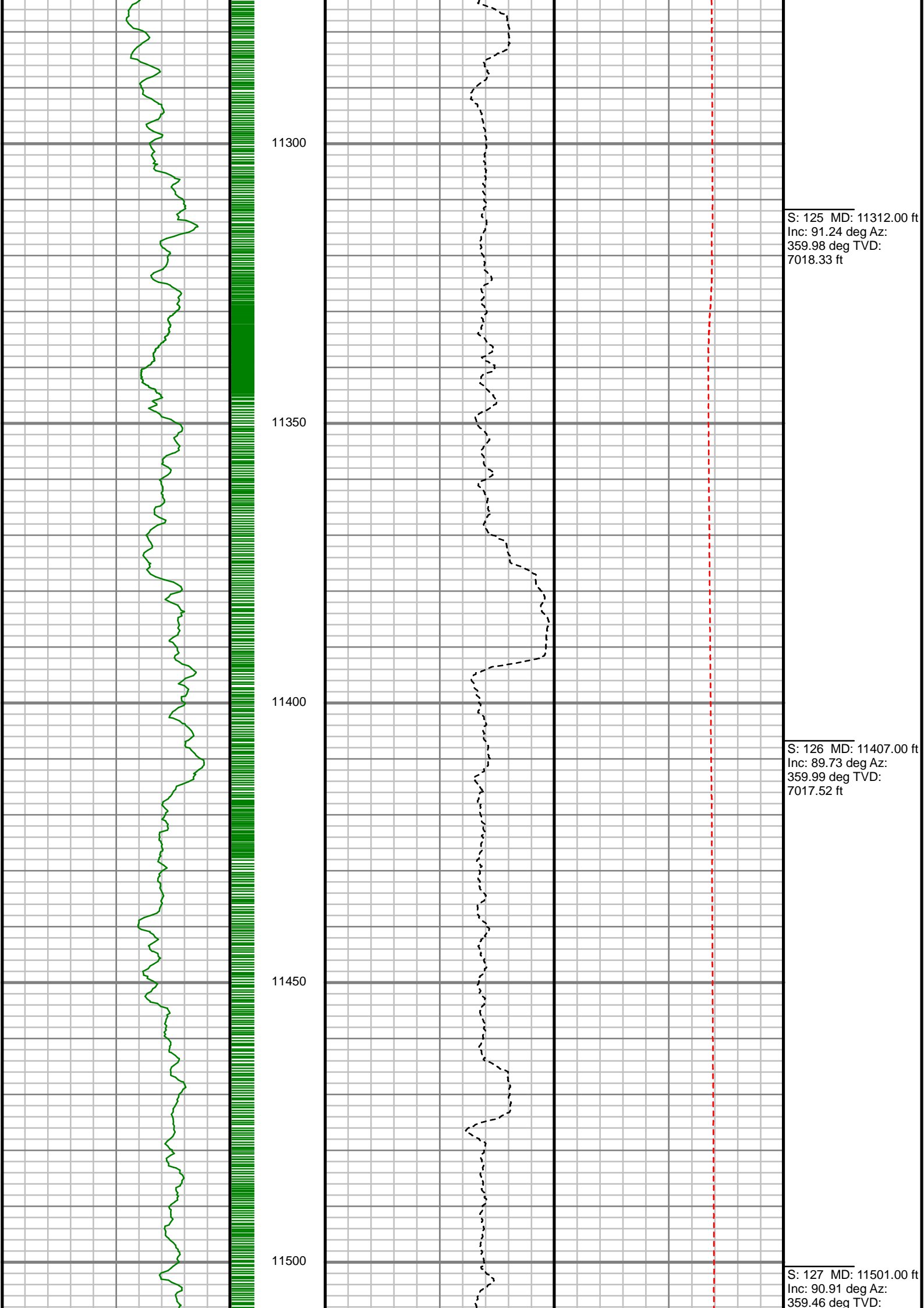


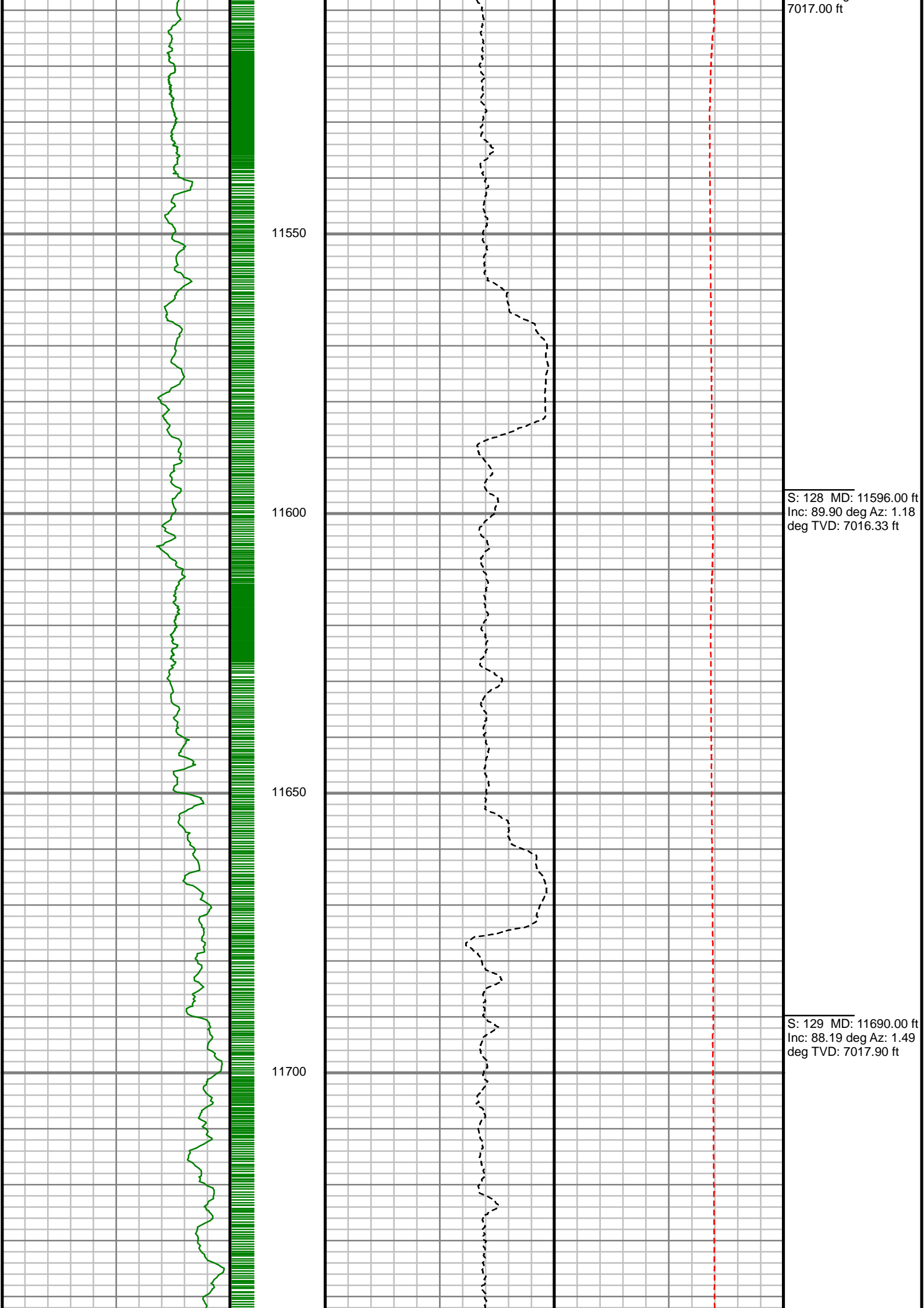


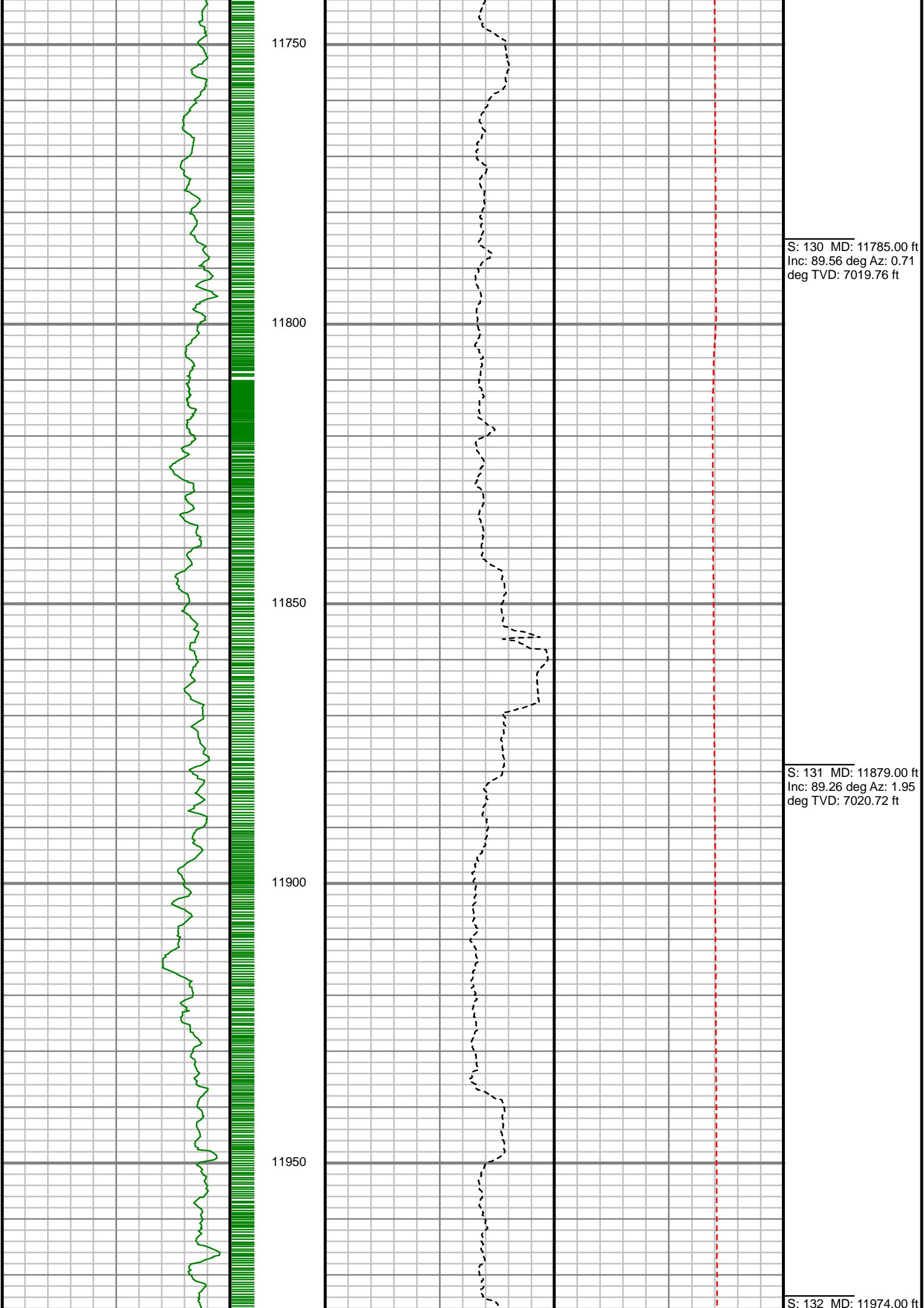


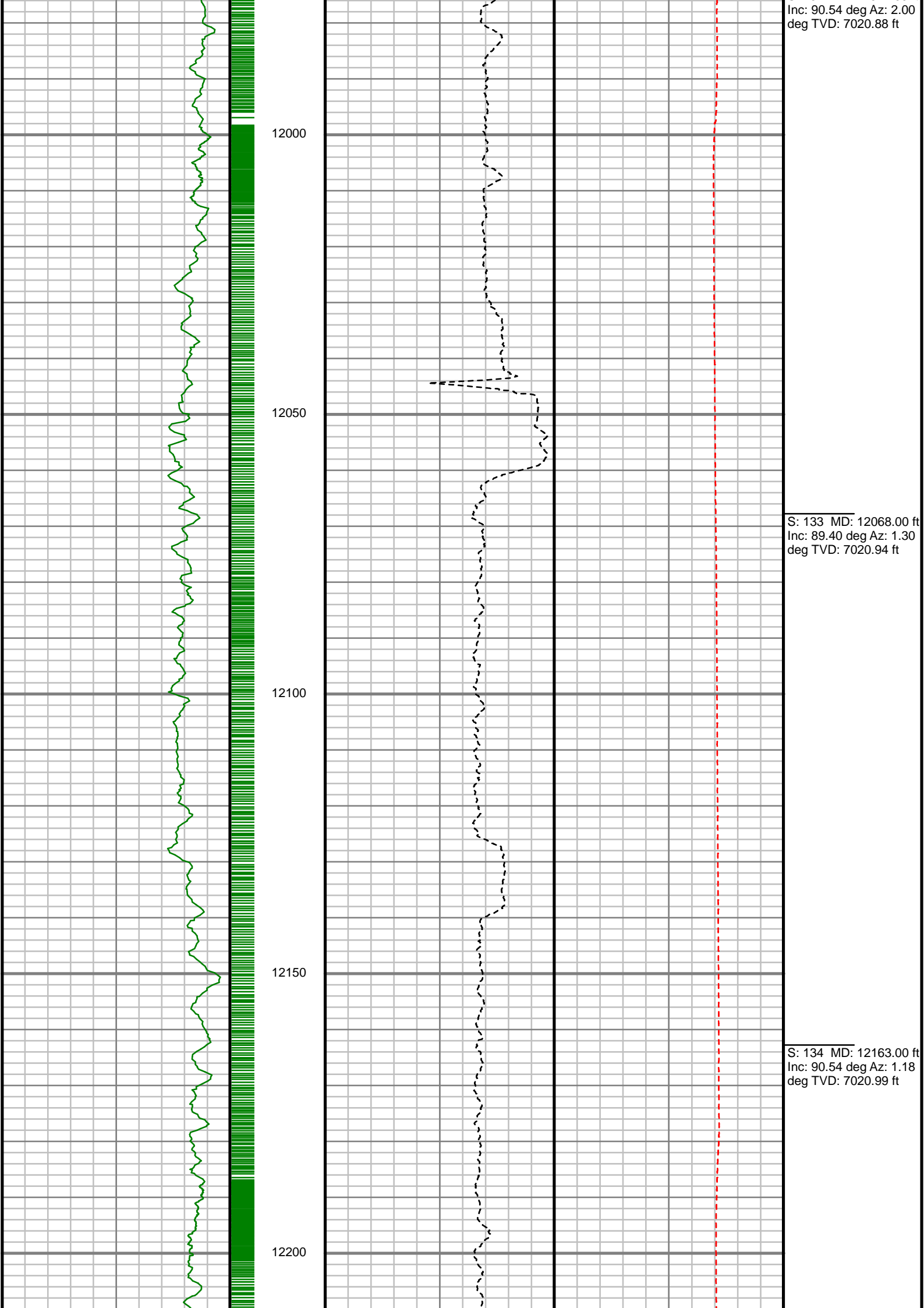


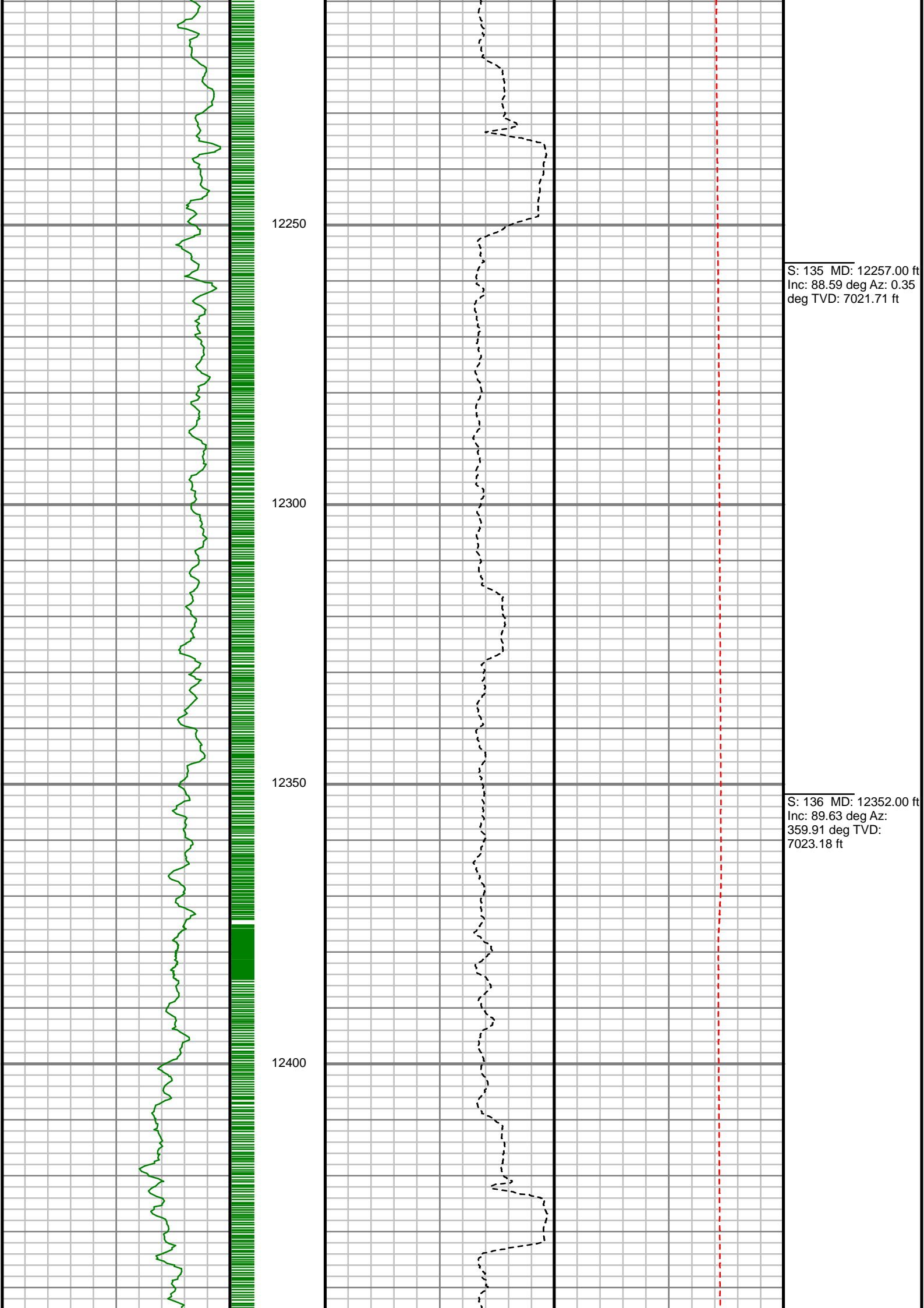


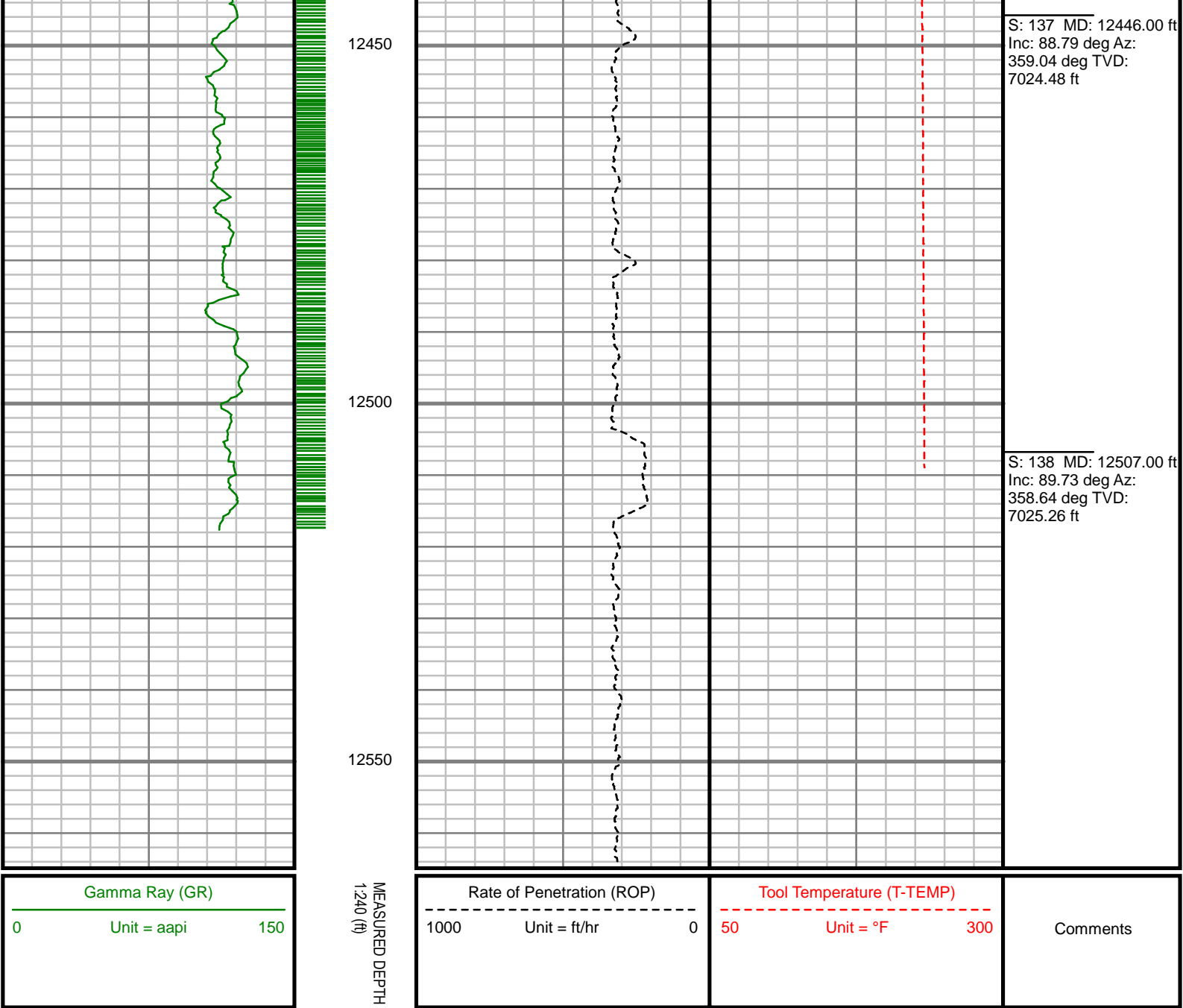












MWD Survey Report

Well Location	CHEESE 1-28HZ
Well Name	CHEESE STATE 1N-21HZ
Survey Date	5/12/2015
Latitude	40°12'9.047"N
Longitude	104°39'44.226"W
Btotal	52520 nT
Dip	66.88 deg
Magnetic Declination	8.46 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), 0.84Azim (deg)
Operator(s)	B. GREER, S. WAXLER

Well Notes
SURVEYS FROM 0 FT. TO 1176 FT. WERE ACQUIRED BY CATHEDRAL MWD.
SURVEYS FROM 1176 FT. TO 12507 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING INTERNATIONAL MWD.

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Build Rate	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	°/100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	Invalid	Invalid
20.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	20.00
103.00	1.20	247.50	102.99	-0.34	-0.33	-0.80	1.45	1.45	83.00
165.00	1.00	271.90	164.98	-0.59	-0.56	-1.94	0.81	-0.32	62.00
224.00	0.70	250.20	223.98	-0.71	-0.67	-2.80	0.74	-0.51	59.00
282.00	0.70	233.70	281.97	-1.05	-1.00	-3.42	0.35	0.00	58.00
343.00	1.10	219.80	342.96	-1.73	-1.67	-4.09	0.74	0.66	61.00
407.00	1.60	216.90	406.95	-2.93	-2.85	-5.02	0.79	0.78	64.00
471.00	2.10	217.00	470.91	-4.60	-4.51	-6.26	0.78	0.78	64.00
534.00	2.70	218.40	533.86	-6.71	-6.59	-7.88	0.96	0.95	63.00
598.00	3.60	225.00	597.76	-9.34	-9.19	-10.24	1.51	1.41	64.00
663.00	4.40	229.30	662.60	-12.46	-12.26	-13.57	1.31	1.23	65.00
727.00	5.30	237.40	726.37	-15.72	-15.46	-17.92	1.76	1.41	64.00
791.00	6.10	239.60	790.06	-19.11	-18.77	-23.34	1.30	1.25	64.00
855.00	6.80	244.10	853.65	-22.58	-22.14	-29.69	1.35	1.09	64.00
919.00	8.00	250.70	917.12	-25.82	-25.27	-37.30	2.29	1.87	64.00
983.00	9.60	252.50	980.36	-29.03	-28.35	-46.59	2.54	2.50	64.00
1047.00	10.70	253.40	1043.36	-32.49	-31.65	-57.38	1.74	1.72	64.00
1110.00	11.30	252.20	1105.20	-36.21	-35.21	-68.86	1.02	0.95	63.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
1168.00	11.80	251.10	1162.03	-40.03	-38.87	-79.88	0.94	0.86	58.00
1297.00	12.17	248.07	1288.22	-49.75	-48.22	-104.97	0.56	0.29	129.00
1391.00	13.16	241.13	1379.93	-58.89	-57.08	-123.54	1.93	1.06	94.00
1486.00	12.49	233.37	1472.57	-70.50	-68.44	-141.26	1.94	-0.71	95.00
1580.00	12.26	222.12	1564.40	-84.19	-81.91	-156.11	2.57	-0.25	94.00
1675.00	10.53	210.77	1657.53	-99.29	-96.85	-167.32	2.97	-1.82	95.00
1769.00	8.48	201.42	1750.24	-113.22	-110.68	-174.24	2.72	-2.18	94.00
1864.00	8.40	204.75	1844.22	-126.13	-123.50	-179.71	0.52	-0.08	95.00
1958.00	8.00	206.93	1937.25	-138.28	-135.57	-185.54	0.54	-0.43	94.00
2052.00	7.92	206.27	2030.35	-150.00	-147.21	-191.37	0.13	-0.09	94.00
2146.00	5.84	202.03	2123.67	-160.31	-157.45	-196.03	2.27	-2.21	94.00
2241.00	4.01	201.34	2218.31	-167.93	-165.03	-199.06	1.93	-1.93	95.00
2335.00	1.31	177.58	2312.21	-172.08	-169.16	-200.21	3.04	-2.87	94.00
2430.00	1.17	109.05	2407.19	-173.47	-170.56	-199.24	1.47	-0.14	95.00
2524.00	0.87	98.24	2501.17	-173.86	-170.98	-197.63	0.38	-0.32	94.00
2619.00	0.45	154.40	2596.17	-174.29	-171.42	-196.75	0.76	-0.45	95.00
2713.00	0.17	342.28	2690.17	-174.49	-171.62	-196.63	0.66	-0.30	94.00
2808.00	0.24	188.50	2785.17	-174.55	-171.69	-196.70	0.42	0.08	95.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
2902.00	0.30	230.25	2879.16	-174.91	-172.04	-196.92	0.21	0.06	94.00
2997.00	0.12	178.98	2974.16	-175.17	-172.30	-197.11	0.26	-0.19	95.00
3091.00	0.10	36.77	3068.16	-175.20	-172.33	-197.06	0.22	-0.02	94.00
3186.00	0.15	321.75	3163.16	-175.04	-172.17	-197.09	0.17	0.05	95.00
3280.00	0.44	241.81	3257.16	-175.12	-172.24	-197.48	0.46	0.30	94.00
3375.00	0.89	275.05	3352.16	-175.24	-172.35	-198.53	0.61	0.48	95.00
3469.00	0.95	272.62	3446.14	-175.16	-172.25	-200.04	0.08	0.07	94.00
3564.00	0.28	90.97	3541.14	-175.14	-172.22	-200.60	1.30	-0.71	95.00
3658.00	1.07	194.87	3635.14	-175.99	-173.07	-200.59	1.25	0.83	94.00
3753.00	0.48	228.99	3730.13	-177.11	-174.18	-201.12	0.76	-0.62	95.00
3847.00	0.47	256.38	3824.12	-177.47	-174.53	-201.79	0.24	-0.01	94.00
3942.00	0.89	43.74	3919.12	-177.03	-174.10	-201.67	1.38	0.43	95.00
4036.00	0.44	79.66	4013.11	-176.43	-173.51	-200.81	0.63	-0.48	94.00
4130.00	0.63	61.65	4107.11	-176.11	-173.20	-200.00	0.27	0.21	94.00
4225.00	0.65	62.11	4202.10	-175.60	-172.70	-199.07	0.02	0.02	95.00
4319.00	0.69	71.86	4296.10	-175.16	-172.27	-198.06	0.13	0.05	94.00
4414.00	0.38	96.22	4391.09	-175.00	-172.13	-197.20	0.40	-0.33	95.00
4508.00	0.32	75.00	4485.09	-174.96	-172.09	-196.64	0.15	-0.07	94.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
4602.00	0.30	84.46	4579.09	-174.86	-172.00	-196.14	0.06	-0.02	94.00
4791.00	0.19	252.64	4768.09	-174.90	-172.05	-195.95	0.26	-0.06	189.00
4886.00	1.08	269.74	4863.08	-174.97	-172.10	-197.00	0.95	0.94	95.00
4980.00	1.21	314.00	4957.07	-174.31	-171.41	-198.60	0.93	0.13	94.00
5075.00	1.25	317.99	5052.04	-172.86	-169.95	-200.01	0.10	0.05	95.00
5169.00	0.99	31.17	5146.03	-171.41	-168.49	-200.28	1.44	-0.28	94.00
5264.00	0.75	19.20	5241.02	-170.11	-167.20	-199.65	0.31	-0.25	95.00
5358.00	0.86	0.38	5335.01	-168.83	-165.92	-199.45	0.30	0.11	94.00
5453.00	0.46	4.70	5430.00	-167.74	-164.83	-199.41	0.42	-0.42	95.00
5547.00	0.51	348.02	5524.00	-166.96	-164.05	-199.47	0.16	0.06	94.00
5642.00	0.72	6.05	5619.00	-165.95	-163.04	-199.49	0.29	0.22	95.00
5737.00	1.80	354.06	5713.97	-163.87	-160.96	-199.59	1.17	1.14	95.00
5831.00	1.28	72.37	5807.95	-162.07	-159.17	-198.74	2.11	-0.56	94.00
5926.00	0.70	210.10	5902.94	-162.24	-159.35	-198.03	1.95	-0.61	95.00
6020.00	0.69	129.77	5996.93	-163.10	-160.22	-197.88	0.96	-0.01	94.00
6115.00	1.40	109.61	6091.92	-163.83	-160.97	-196.35	0.83	0.74	95.00
6209.00	1.71	110.98	6185.88	-164.68	-161.86	-193.96	0.33	0.33	94.00
6304.00	1.56	273.88	6280.87	-165.10	-162.28	-193.93	3.40	-0.16	95.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
6398.00	6.86	353.18	6374.62	-159.47	-156.61	-195.87	7.17	5.63	94.00
6493.00	13.64	359.12	6468.06	-142.63	-139.76	-196.72	7.22	7.14	95.00
6587.00	17.21	359.25	6558.65	-117.64	-114.76	-197.07	3.80	3.80	94.00
6682.00	23.66	3.20	6647.63	-84.50	-81.63	-196.19	6.94	6.79	95.00
6776.00	31.28	1.89	6730.97	-41.19	-38.34	-194.33	8.13	8.10	94.00
6871.00	41.34	2.71	6807.43	14.97	17.79	-192.03	10.61	10.59	95.00
6965.00	50.65	0.44	6872.66	82.50	85.30	-190.28	10.05	9.90	94.00
7060.00	59.58	2.18	6926.94	160.35	163.13	-188.44	9.52	9.40	95.00
7154.00	71.07	4.76	6966.12	245.52	248.23	-183.20	12.47	12.22	94.00
7249.00	81.91	4.44	6988.28	337.55	340.17	-175.80	11.41	11.41	95.00
7343.00	88.15	1.03	6996.42	431.09	433.65	-171.35	7.56	6.64	94.00
7438.00	89.13	0.62	6998.68	526.06	528.61	-169.98	1.11	1.03	95.00
7532.00	88.02	3.05	7001.02	620.01	622.52	-166.97	2.84	-1.18	94.00
7627.00	88.93	1.87	7003.55	714.93	717.40	-162.90	1.57	0.96	95.00
7721.00	90.37	1.57	7004.13	808.92	811.35	-160.08	1.57	1.54	94.00
7816.00	88.79	0.97	7004.83	903.91	906.32	-157.97	1.78	-1.66	95.00
7911.00	88.49	0.75	7007.08	998.88	1001.29	-156.54	0.39	-0.31	95.00
8005.00	89.73	0.31	7008.54	1092.87	1095.27	-155.67	1.40	1.32	94.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
8099.00	89.90	0.61	7008.85	1186.87	1189.26	-154.92	0.36	0.18	94.00
8194.00	89.36	2.91	7009.46	1281.84	1284.21	-152.00	2.49	-0.57	95.00
8288.00	90.90	3.16	7009.24	1375.77	1378.08	-147.03	1.66	1.64	94.00
8383.00	89.26	1.53	7009.10	1470.73	1472.99	-143.14	2.44	-1.73	95.00
8477.00	88.22	2.65	7011.17	1564.69	1566.90	-139.72	1.63	-1.11	94.00
8572.00	89.87	1.17	7012.75	1659.65	1661.83	-136.55	2.33	1.73	95.00
8666.00	90.03	2.47	7012.84	1753.63	1755.78	-133.57	1.39	0.18	94.00
8761.00	89.06	2.63	7013.59	1848.59	1850.68	-129.35	1.04	-1.02	95.00
8855.00	90.23	1.73	7014.16	1942.56	1944.61	-125.78	1.57	1.25	94.00
8950.00	88.96	2.33	7014.83	2037.53	2039.55	-122.41	1.49	-1.34	95.00
9044.00	89.70	3.86	7015.93	2131.45	2133.40	-117.33	1.80	0.79	94.00
9139.00	89.76	2.23	7016.38	2226.37	2228.26	-112.28	1.71	0.07	95.00
9233.00	90.84	2.31	7015.88	2320.34	2322.18	-108.56	1.15	1.14	94.00
9328.00	88.79	359.98	7016.19	2415.33	2417.15	-106.66	3.26	-2.15	95.00
9423.00	89.23	0.37	7017.83	2510.31	2512.14	-106.37	0.61	0.46	95.00
9517.00	89.83	359.38	7018.60	2604.29	2606.13	-106.57	1.23	0.64	94.00
9612.00	90.87	358.69	7018.02	2699.24	2701.12	-108.17	1.32	1.10	95.00
9706.00	89.90	359.46	7017.38	2793.19	2795.10	-109.69	1.32	-1.04	94.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Build Rate °/100ft	Course Length ft
9801.00	88.76	359.56	7018.49	2888.16	2890.09	-110.51	1.21	-1.20	95.00
9895.00	89.46	359.49	7019.95	2982.12	2984.07	-111.28	0.75	0.75	94.00
9989.00	91.71	359.13	7018.99	3076.08	3078.05	-112.42	2.42	2.39	94.00
10084.00	90.74	359.68	7016.96	3171.02	3173.03	-113.41	1.17	-1.02	95.00
10178.00	88.86	1.45	7017.29	3265.01	3267.01	-112.48	2.75	-2.00	94.00
10273.00	90.03	0.87	7018.21	3360.00	3361.99	-110.56	1.38	1.24	95.00
10368.00	90.30	2.81	7017.93	3454.99	3456.93	-107.51	2.06	0.28	95.00
10462.00	89.50	2.90	7018.10	3548.93	3550.82	-102.82	0.86	-0.86	94.00
10556.00	90.40	3.25	7018.18	3642.85	3644.68	-97.78	1.03	0.96	94.00
10651.00	88.86	3.10	7018.79	3737.77	3739.53	-92.52	1.63	-1.62	95.00
10745.00	90.37	3.74	7019.42	3831.67	3833.35	-86.90	1.74	1.60	94.00
10840.00	88.89	1.79	7020.03	3926.61	3928.23	-82.32	2.58	-1.56	95.00
10934.00	89.90	1.82	7021.03	4020.59	4022.18	-79.35	1.07	1.07	94.00
11029.00	91.31	1.44	7020.03	4115.57	4117.14	-76.65	1.53	1.48	95.00
11123.00	89.53	0.43	7019.34	4209.56	4211.12	-75.11	2.18	-1.89	94.00
11218.00	90.24	0.92	7019.54	4304.56	4306.11	-74.00	0.90	0.74	95.00
11312.00	91.24	359.98	7018.33	4398.55	4400.09	-73.26	1.46	1.07	94.00
11407.00	89.73	359.99	7017.52	4493.53	4495.09	-73.28	1.59	-1.59	95.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Build Rate	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	°/100ft	ft
11501.00	90.91	359.46	7017.00	4587.51	4589.08	-73.74	1.37	1.25	94.00
11596.00	89.90	1.18	7016.33	4682.50	4684.08	-73.21	2.10	-1.06	95.00
11690.00	88.19	1.49	7017.90	4776.48	4778.03	-71.02	1.85	-1.82	94.00
11785.00	89.56	0.71	7019.76	4871.46	4872.99	-69.20	1.66	1.44	95.00
11879.00	89.26	1.95	7020.72	4965.45	4966.96	-67.02	1.36	-0.32	94.00
11974.00	90.54	2.00	7020.88	5060.43	5061.90	-63.74	1.34	1.34	95.00
12068.00	89.40	1.30	7020.94	5154.41	5155.86	-61.02	1.43	-1.21	94.00
12163.00	90.54	1.18	7020.99	5249.41	5250.84	-58.97	1.21	1.20	95.00
12257.00	88.59	0.35	7021.71	5343.40	5344.82	-57.71	2.25	-2.07	94.00
12352.00	89.63	359.91	7023.18	5438.38	5439.81	-57.50	1.18	1.09	95.00
12446.00	88.79	359.04	7024.48	5532.34	5533.79	-58.36	1.29	-0.89	94.00
12507.00	89.73	358.64	7025.26	5593.30	5594.78	-59.60	1.68	1.54	61.00

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

5" = 100' FEET MD