



5" = 100' FEET MD

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : SUNFLOWER 7N-17HZ
FIELD : WATTENBERG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05-123-42069

COMPANY : ANADARKO E&P ONSHORE LLC

WELL : SUNFLOWER 7N-17HZ

FIELD : WATTENBERG

COUNTY : WELD

STATE : COLORADO

COUNTRY : U.S.A.

UWI : 05-123-42069

WELL LOCATION

LAT:40.1536950°N LONG:104.6832480°W

N:14582858.54 ft E:1728924.24 ft

SEC:08

TWP: 2N

RANGE: 65W

OTHER SERVICES

DIRECTIONAL
ROP

DEPTH REF. : RKB

REF. HEIGHT : 20.000 ft

RKB to Ground Level

GROUND LEVEL : 4901.000 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	1893	12615	0 - 11	0	4000
			11 - 0	4000	6470
			0 - 89	6470	7494
			89 - 92	7494	12615

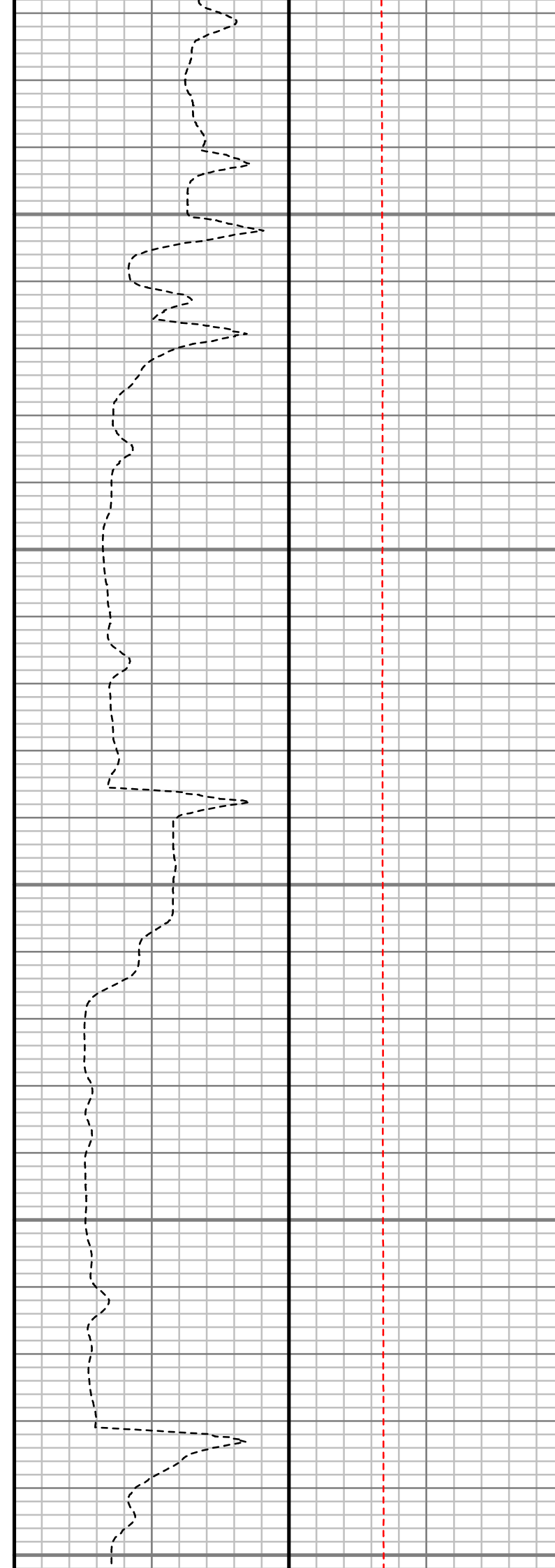
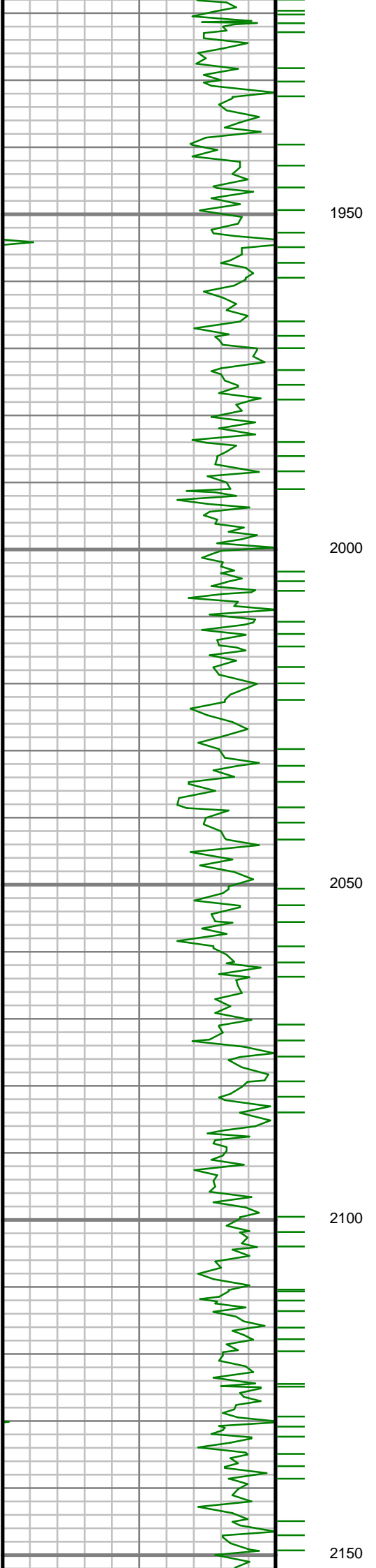
CASING RECORD

CASING SIZE in	FROM ft	TO ft			
9.625	0	1883			
			DRILLING CO. : PRECISION DRILLING		
			RIG : 461		
			LWD UNIT NO. : MWD-00282-CDISTRICT : CASPER		
			SPUD DATE : 11/09/2015		
			LWD START DATE : 11/09/2015	DEPTH : 1893 ft	
			LWD END DATE : 11/12/2015	DEPTH : 12615 ft	
			TOTAL DEPTH : 12615 ft		

[illegible]

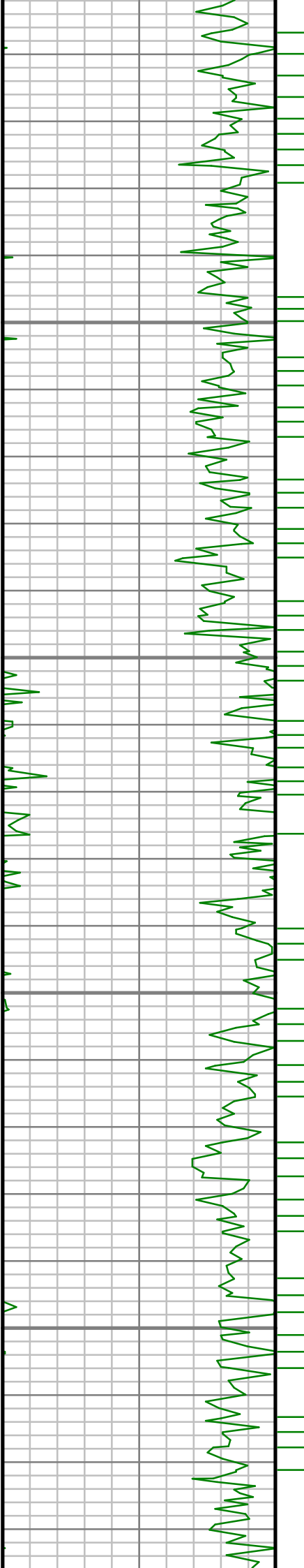
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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 SUNFLOWER 7N-17HZ WATTENBERG FIELD WELD COUNTY, COLORADO 05-123-42069							
Gamma Ray (GR)		MEASURED DEPTH 1:240 (ft)	Rate of Penetration (ROP)		Tool Temperature (T-TEMP)		Comments
0	Unit = aapi 150		1000	Unit = ft/hr 0	0	Unit = °F 300	



S: 22 MD: 1982.00 ft
Inc: 12.39 deg Az:
298.55 deg TVD:
1961.09 ft

S: 23 MD: 2077.00 ft
Inc: 11.67 deg Az:
294.48 deg TVD:
2054.01 ft

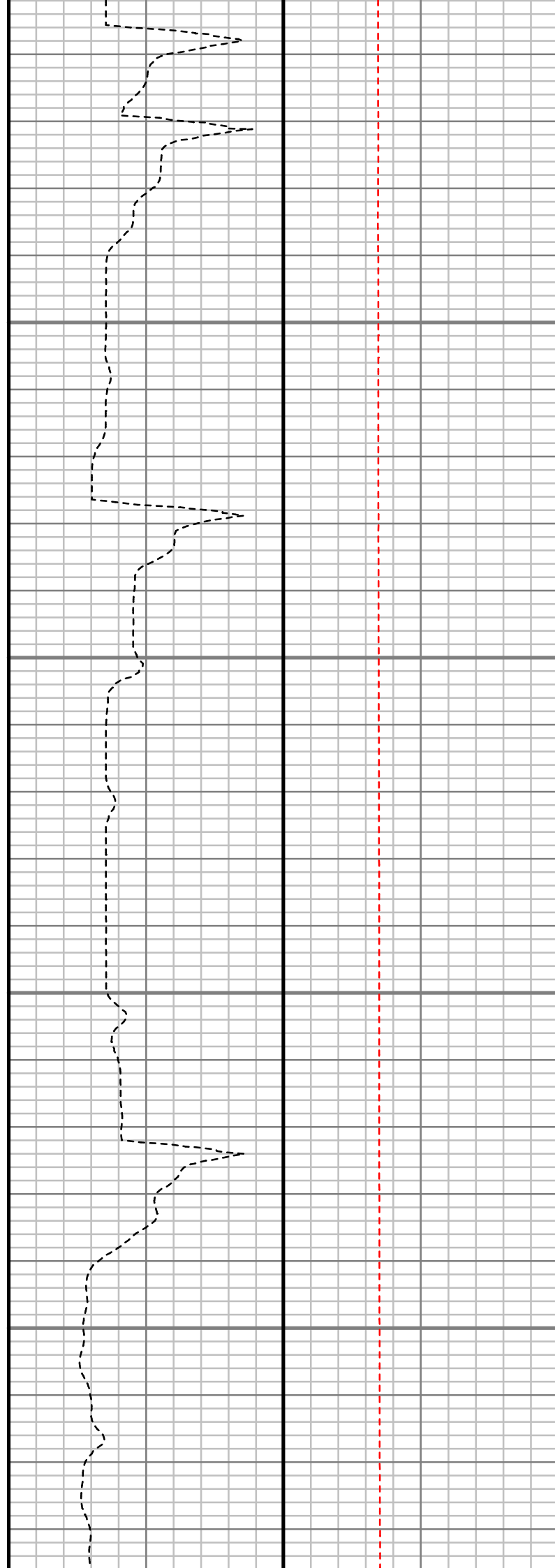


2200

2250

2300

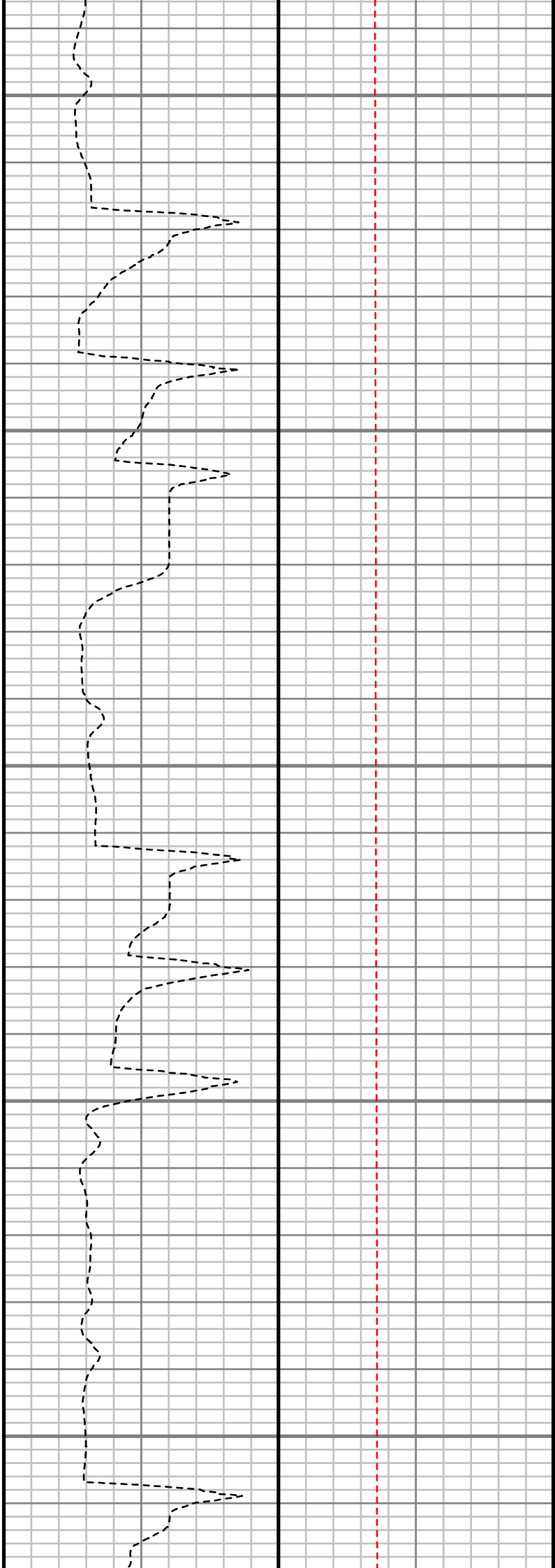
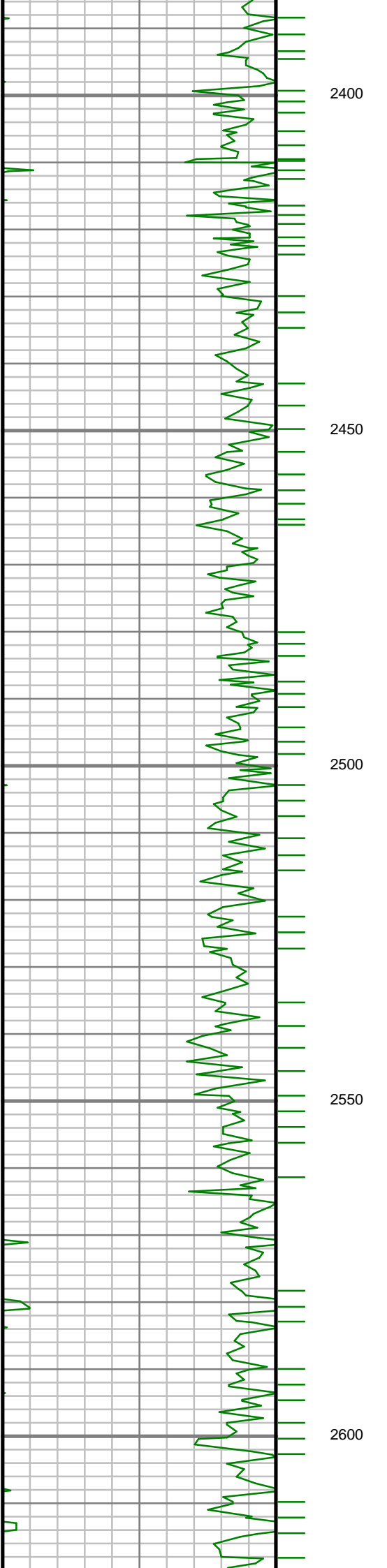
2350



S: 24 MD: 2171.00 ft
Inc: 12.12 deg Az:
302.81 deg TVD:
2145.99 ft

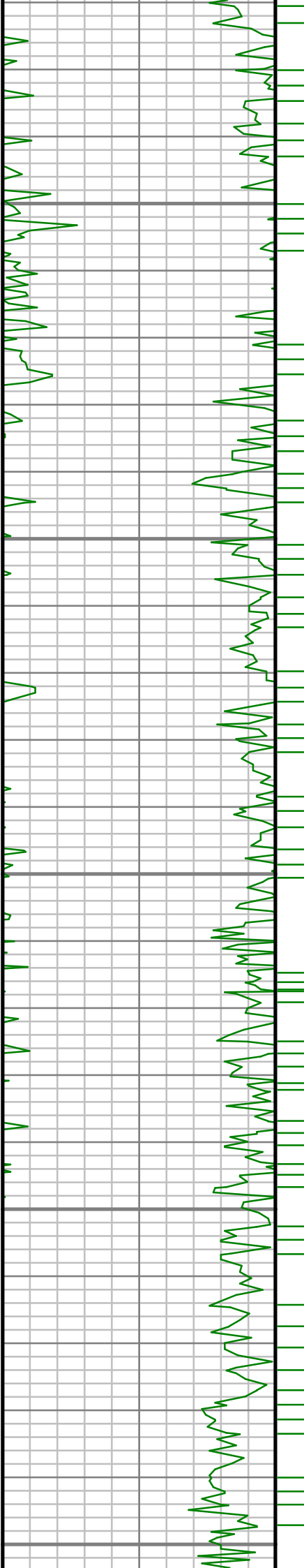
S: 25 MD: 2265.00 ft
Inc: 12.12 deg Az:
298.26 deg TVD:
2237.90 ft

S: 26 MD: 2360.00 ft
Inc: 11.38 deg Az:
297.22 deg TVD:
2330.91 ft



S: 27 MD: 2455.00 ft
Inc: 10.72 deg Az:
302.71 deg TVD:
2424.15 ft

S: 28 MD: 2550.00 ft
Inc: 11.47 deg Az:
313.83 deg TVD:
2517.38 ft



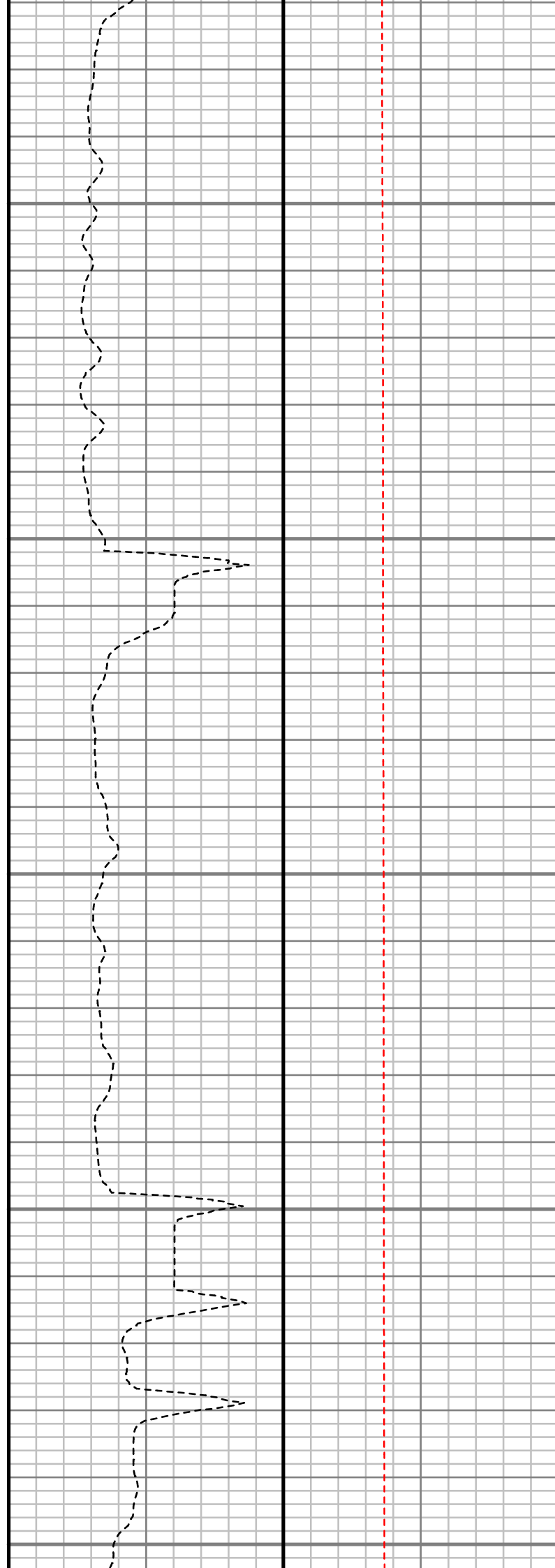
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2700

2750

2800

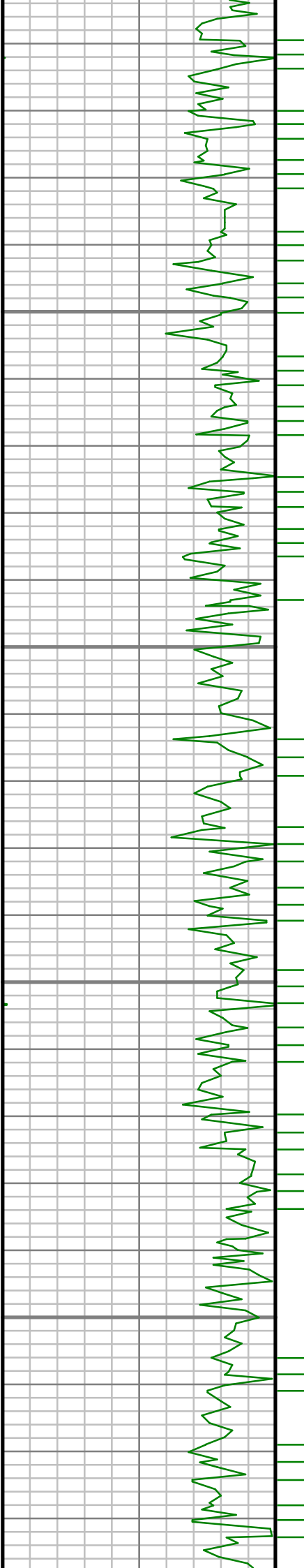
2850



S: 29 MD: 2645.00 ft
Inc: 11.96 deg Az:
310.42 deg TVD:
2610.40 ft

S: 30 MD: 2741.00 ft
Inc: 10.58 deg Az:
305.81 deg TVD:
2704.55 ft

S: 31 MD: 2835.00 ft
Inc: 11.71 deg Az:
306.98 deg TVD:
2796.78 ft

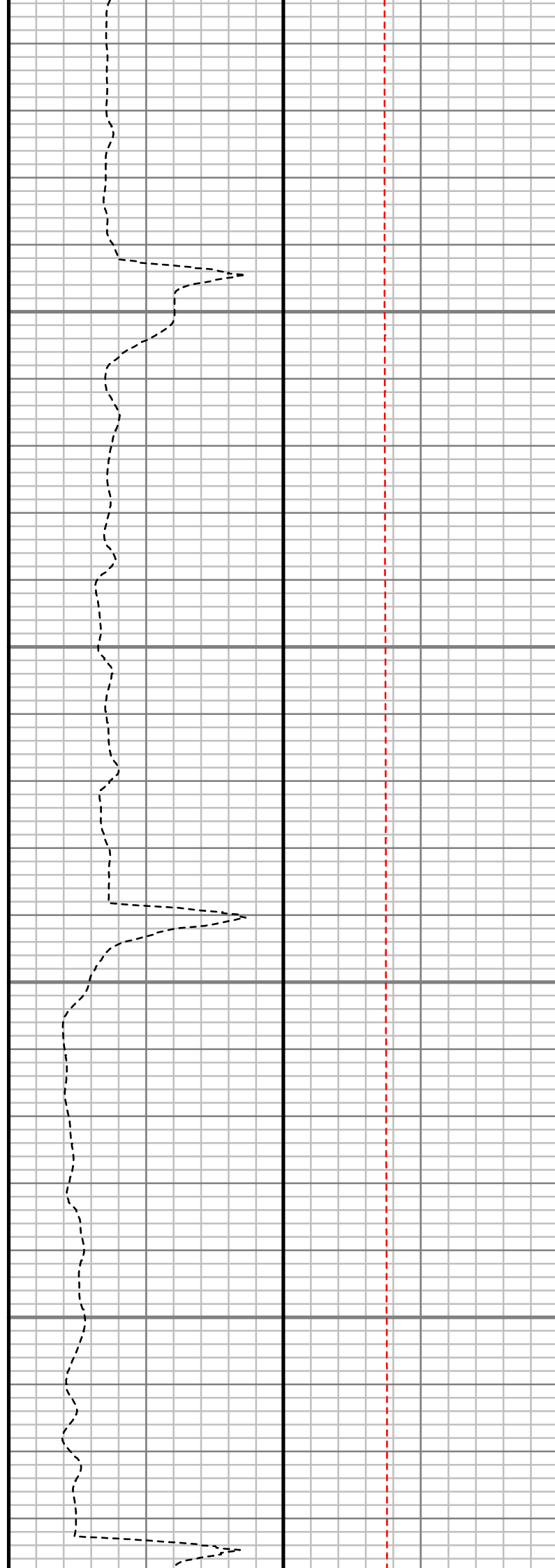


2900

2950

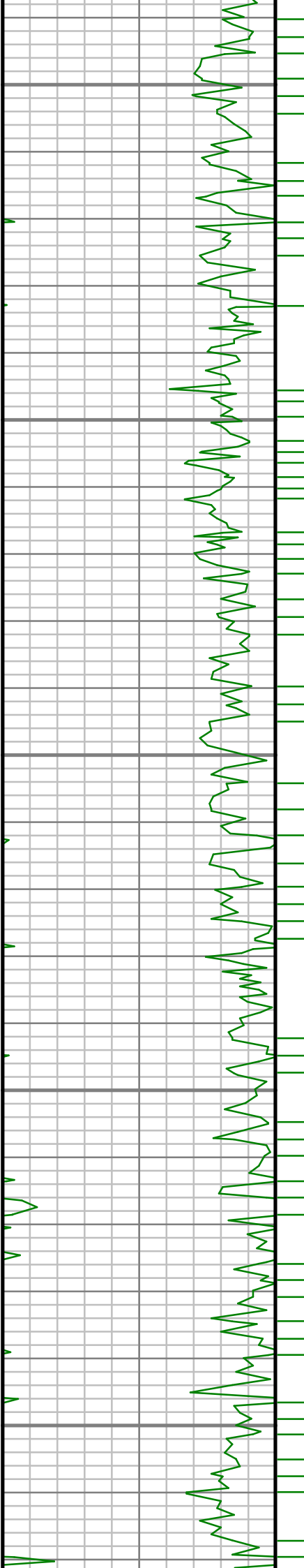
3000

3050



S: 32 MD: 2931.00 ft
Inc: 11.83 deg Az:
303.71 deg TVD:
2890.76 ft

S: 33 MD: 3025.00 ft
Inc: 11.00 deg Az:
301.63 deg TVD:
2982.90 ft



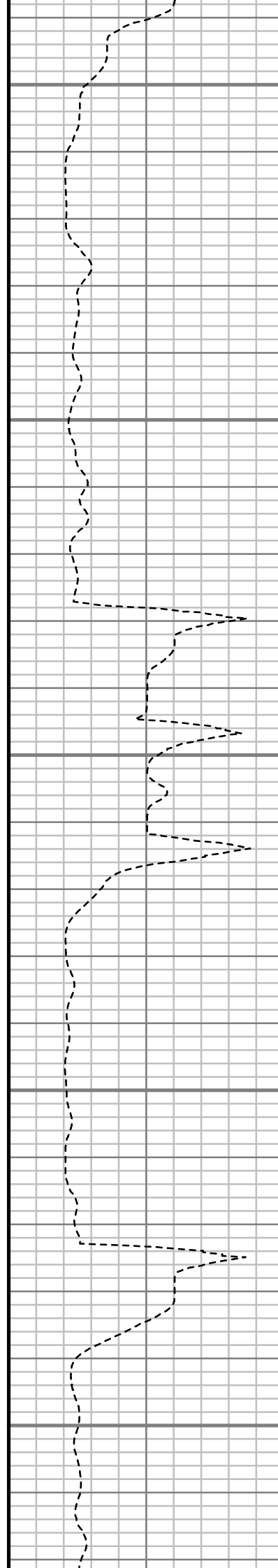
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3150

3200

3250

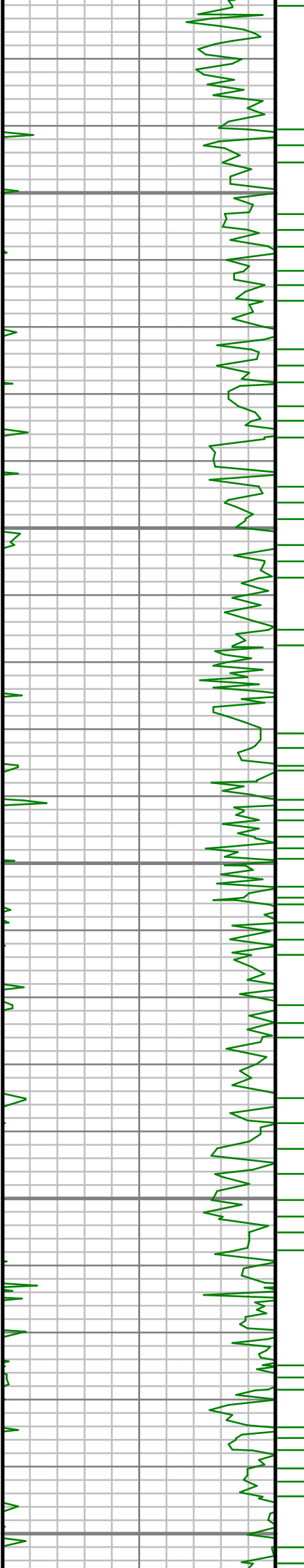
3300



S: 34 MD: 3121.00 ft
Inc: 10.30 deg Az:
299.89 deg TVD:
3077.25 ft

S: 35 MD: 3216.00 ft
Inc: 11.56 deg Az:
302.68 deg TVD:
3170.52 ft

S: 36 MD: 3311.00 ft
Inc: 10.86 deg Az:
300.94 deg TVD:
3263.71 ft



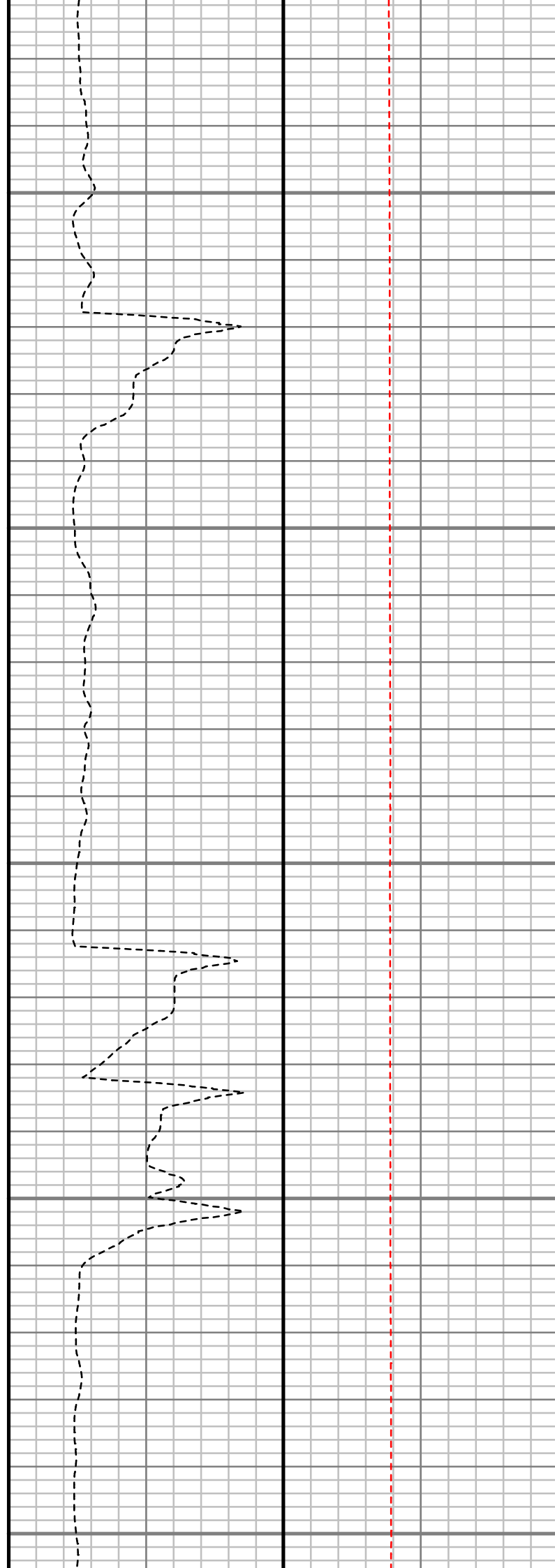
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3400

3450

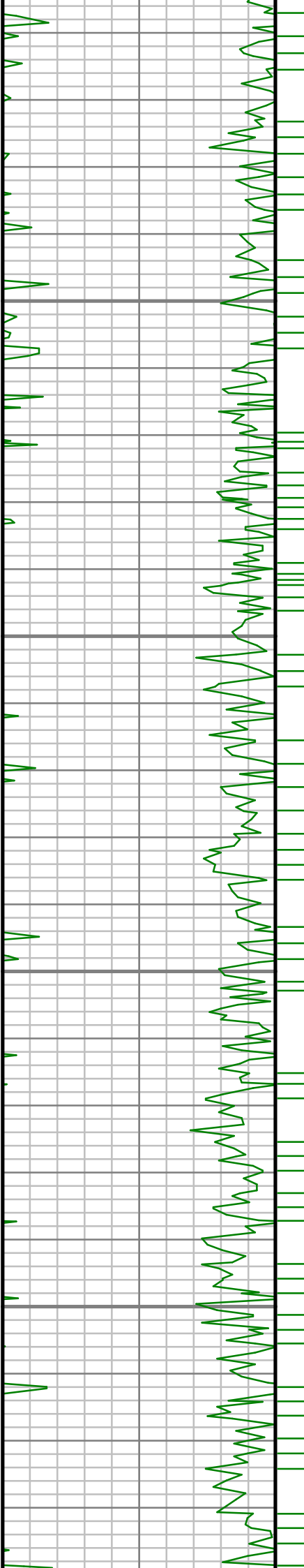
3500

3550



S: 37 MD: 3406.00 ft
Inc: 9.88 deg Az:
299.33 deg TVD:
3357.16 ft

S: 38 MD: 3501.00 ft
Inc: 10.63 deg Az:
303.33 deg TVD:
3450.64 ft

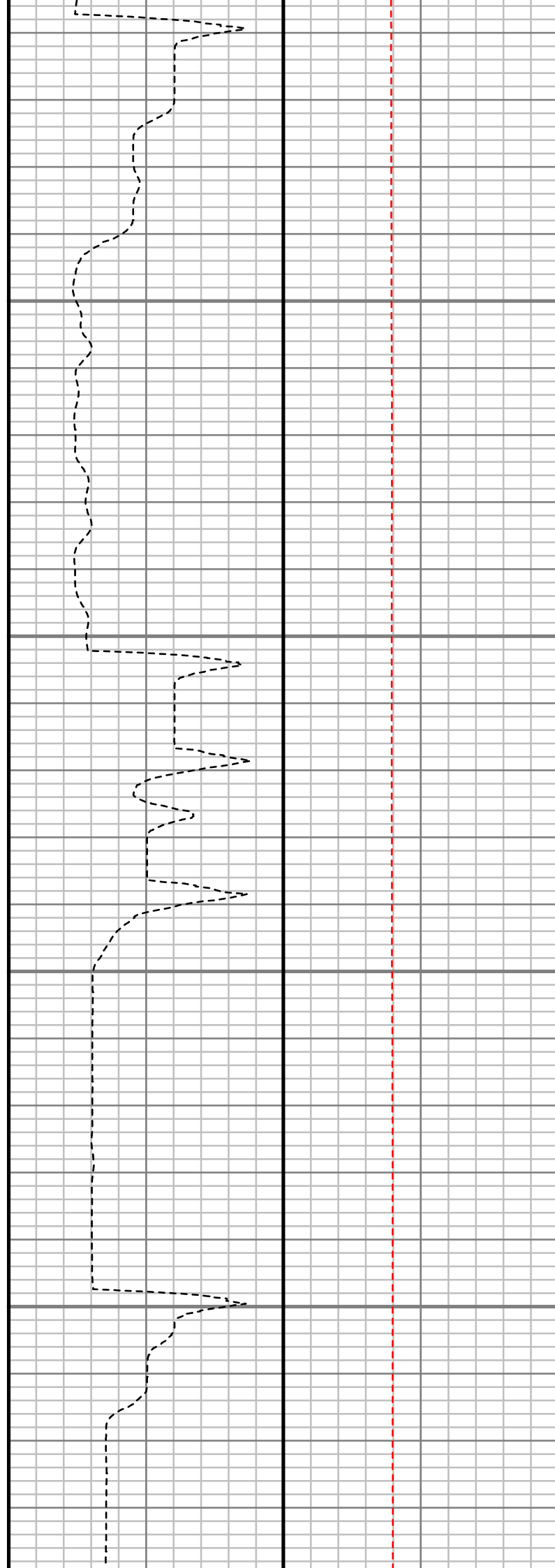


3600

3650

3700

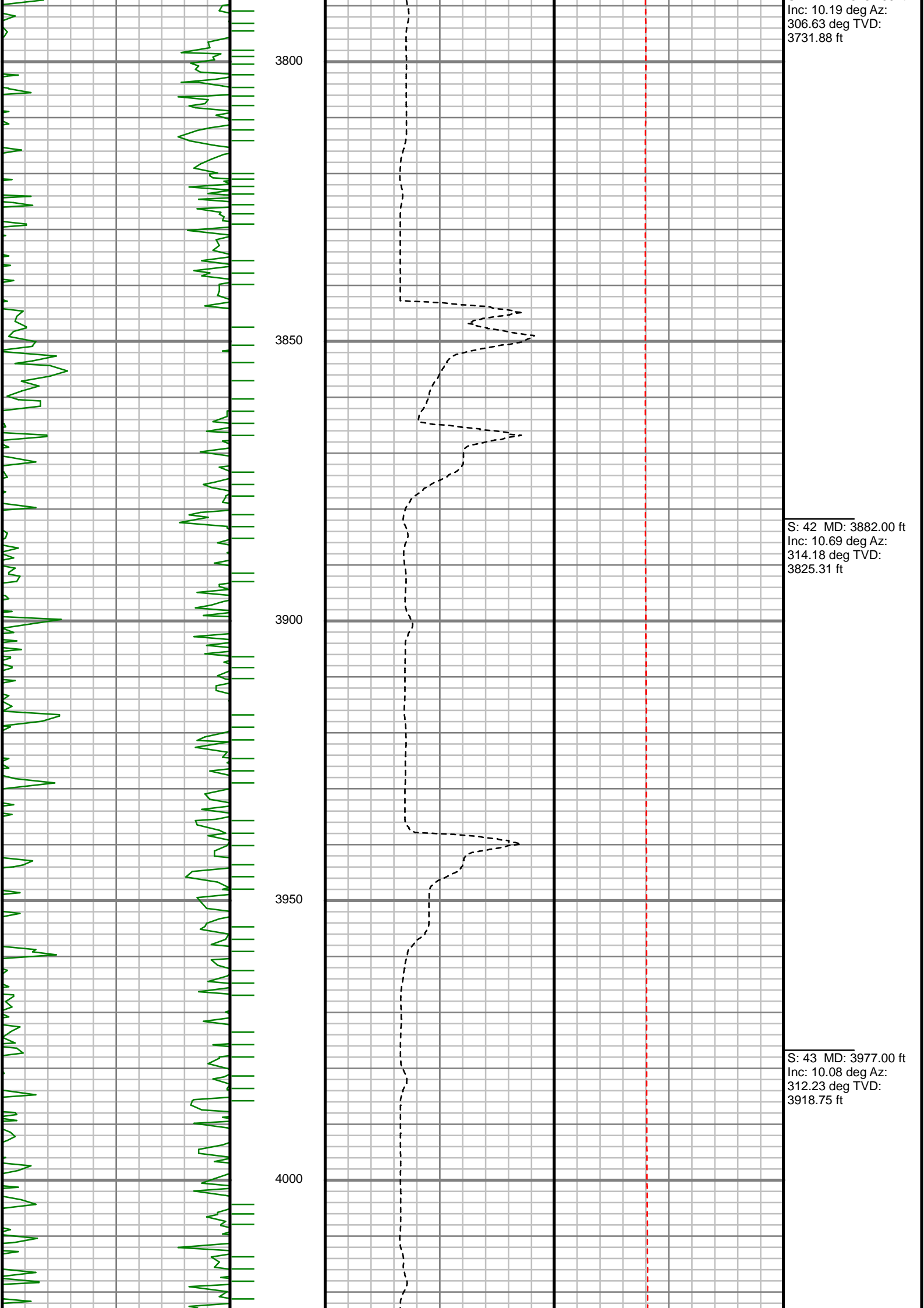
3750



S: 39 MD: 3597.00 ft
Inc: 10.26 deg Az:
301.59 deg TVD:
3545.05 ft

S: 40 MD: 3692.00 ft
Inc: 10.75 deg Az:
306.52 deg TVD:
3638.46 ft

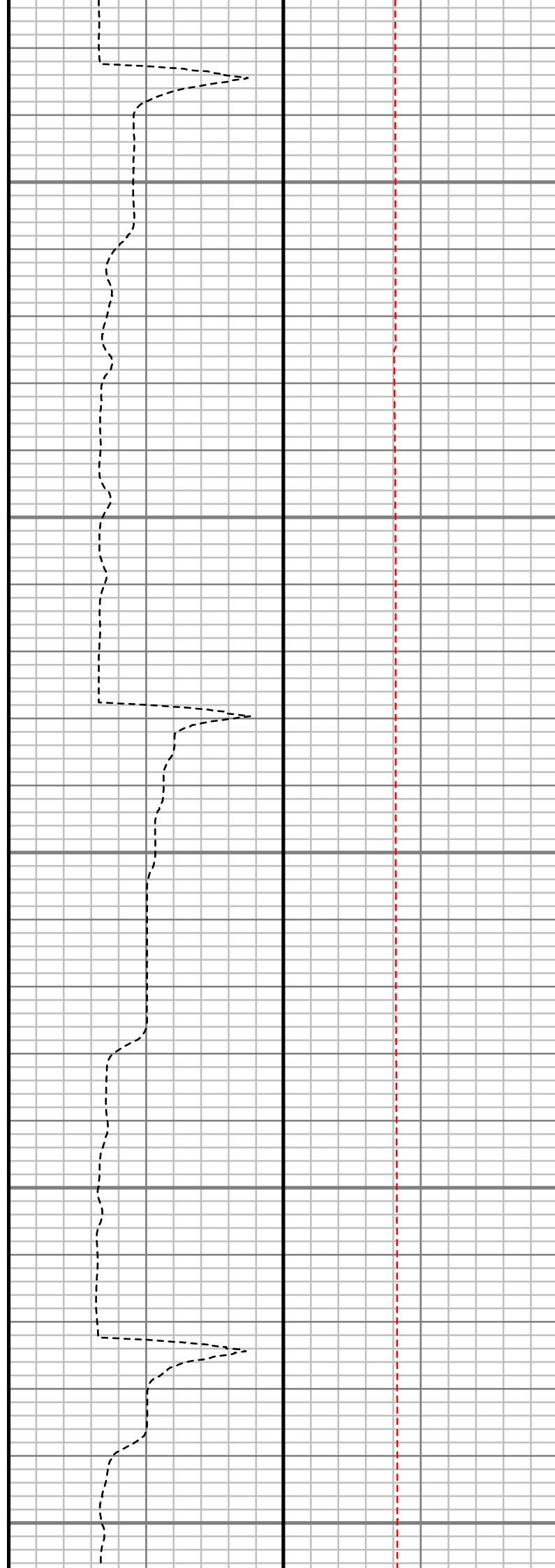
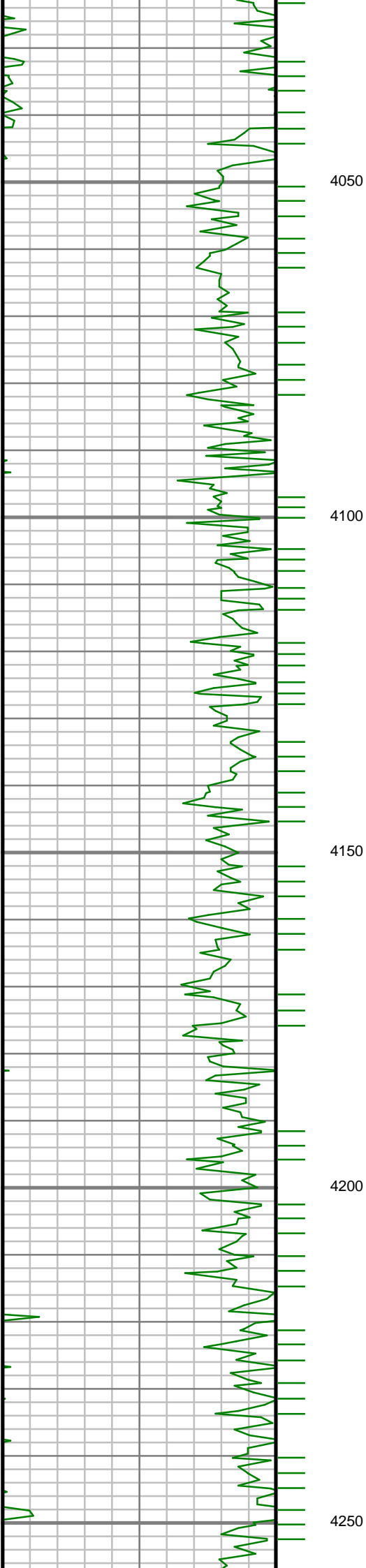
S: 41 MD: 3787.00 ft



Inc: 10.19 deg Az:
306.63 deg TVD:
3731.88 ft

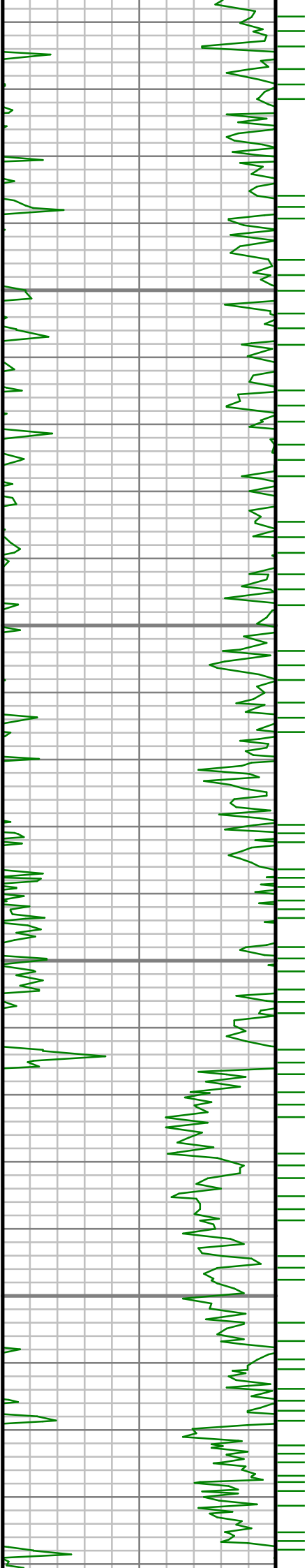
S: 42 MD: 3882.00 ft
Inc: 10.69 deg Az:
314.18 deg TVD:
3825.31 ft

S: 43 MD: 3977.00 ft
Inc: 10.08 deg Az:
312.23 deg TVD:
3918.75 ft



S: 44 MD: 4072.00 ft
Inc: 9.19 deg Az:
315.47 deg TVD:
4012.41 ft

S: 45 MD: 4167.00 ft
Inc: 9.00 deg Az:
314.49 deg TVD:
4106.21 ft

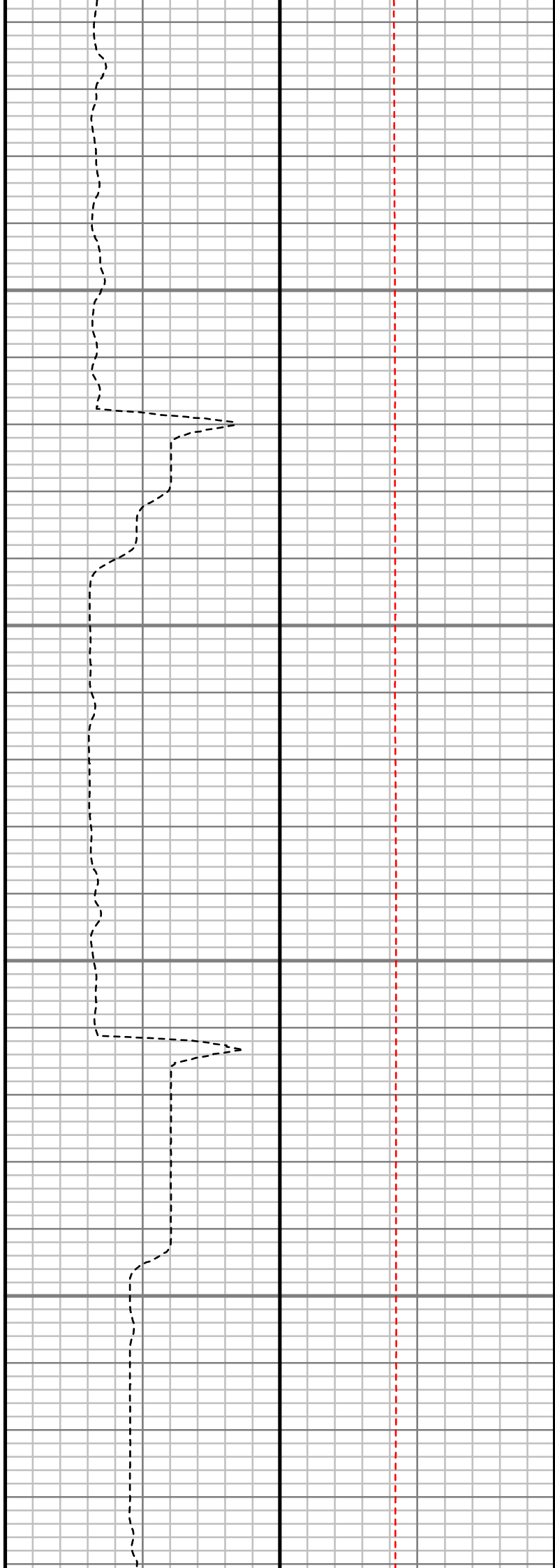


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4350

4400

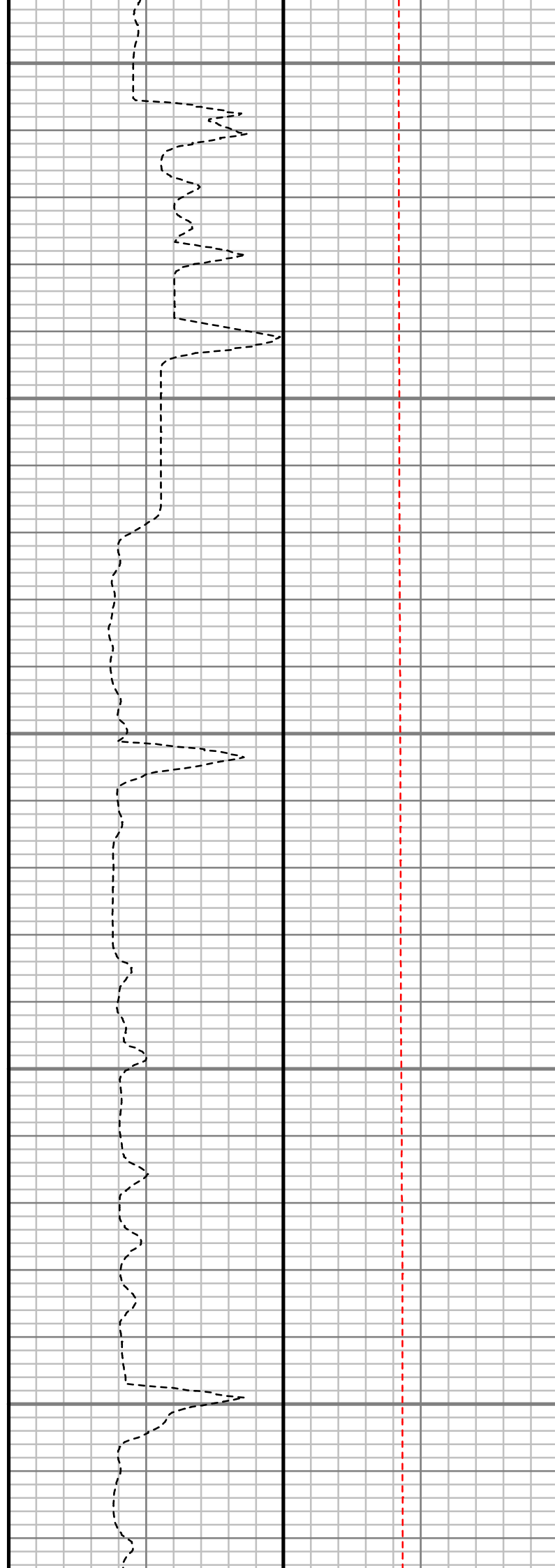
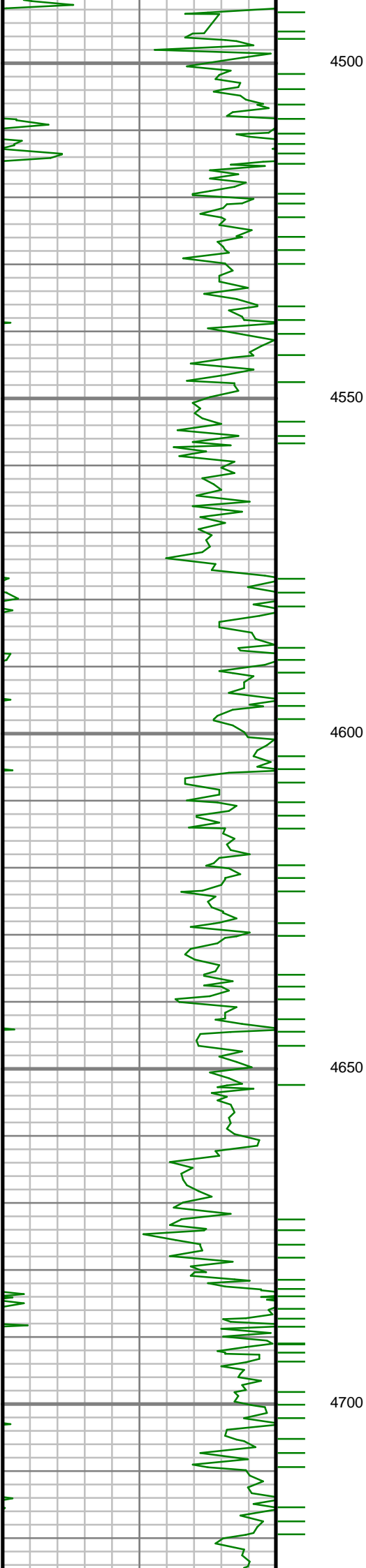
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S: 46 MD: 4262.00 ft
Inc: 8.47 deg Az:
313.45 deg TVD:
4200.11 ft

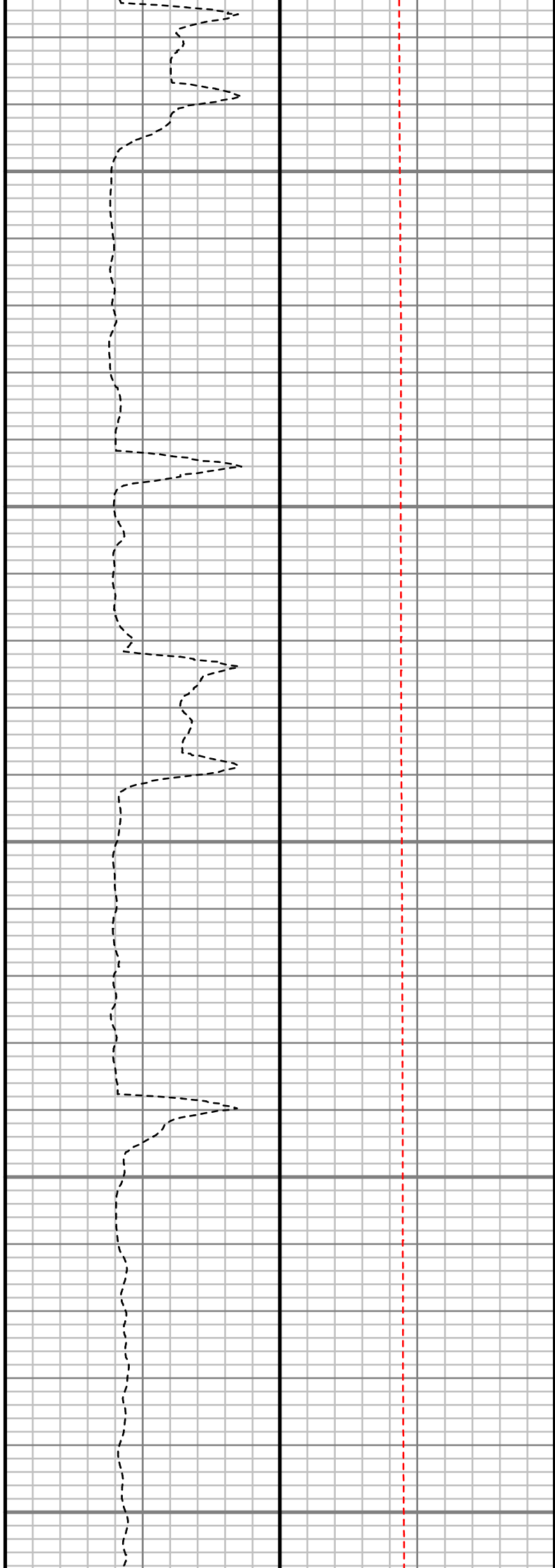
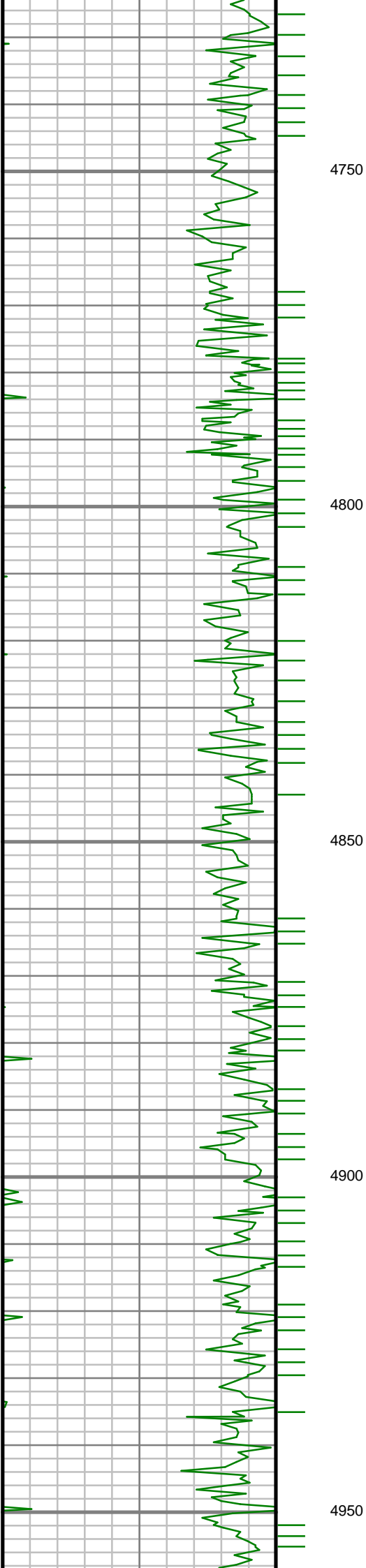
S: 47 MD: 4357.00 ft
Inc: 7.45 deg Az:
311.20 deg TVD:
4294.20 ft

S: 48 MD: 4453.00 ft
Inc: 6.72 deg Az:
312.53 deg TVD:
4389.46 ft



S: 49 MD: 4547.00 ft
Inc: 5.15 deg Az:
308.30 deg TVD:
4482.96 ft

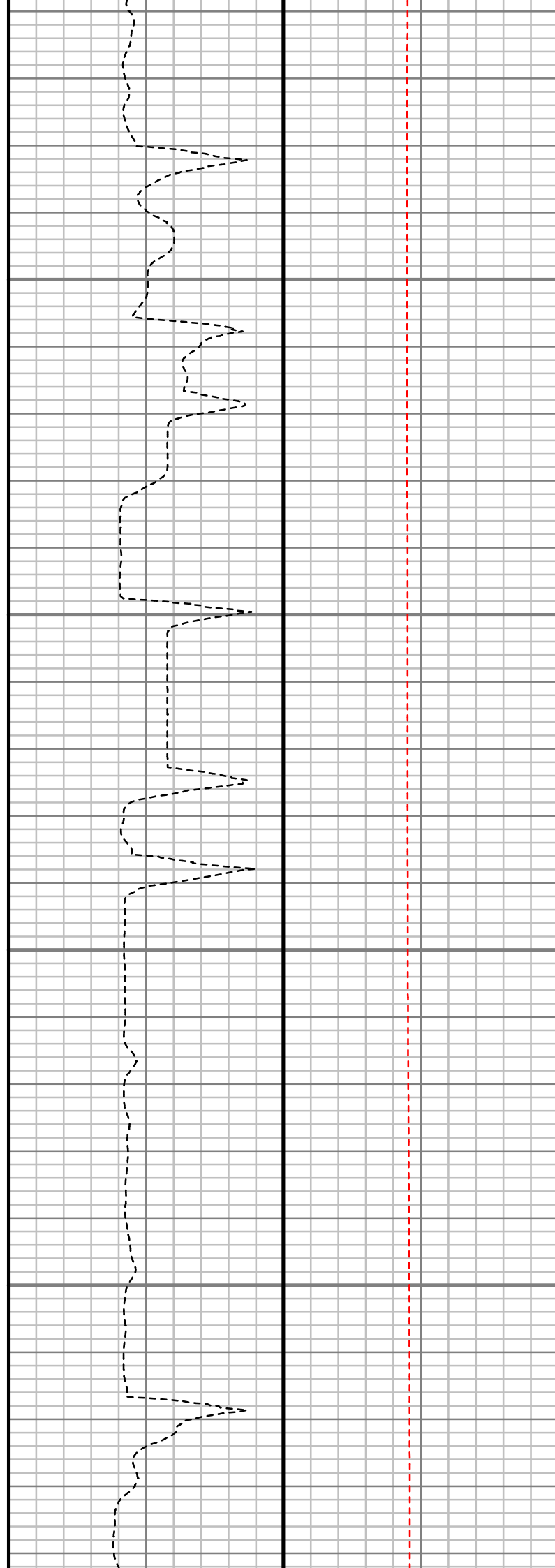
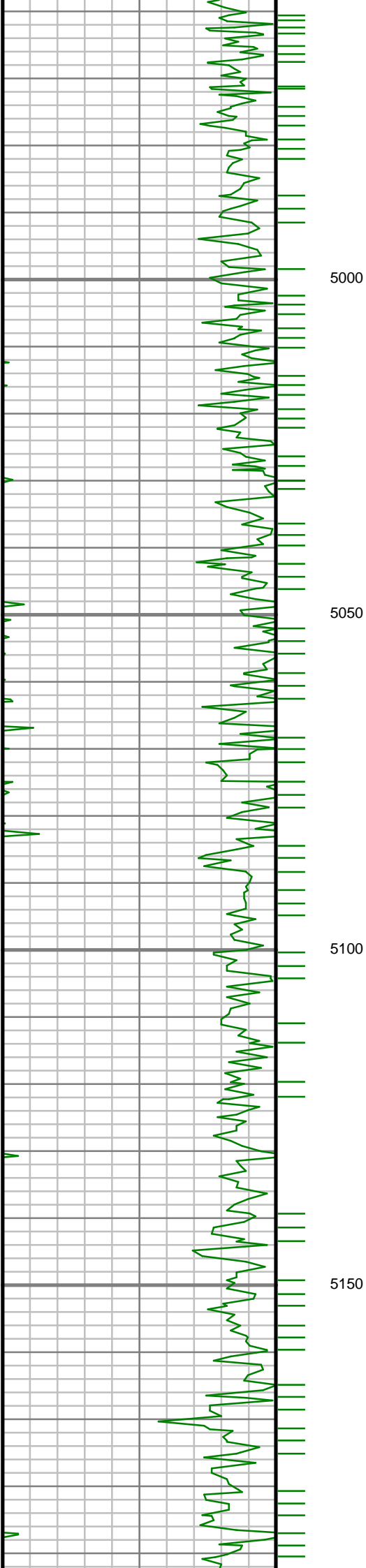
S: 50 MD: 4643.00 ft
Inc: 4.67 deg Az:
308.53 deg TVD:
4578.60 ft



S: 51 MD: 4737.00 ft
Inc: 3.17 deg Az:
310.38 deg TVD:
4672.38 ft

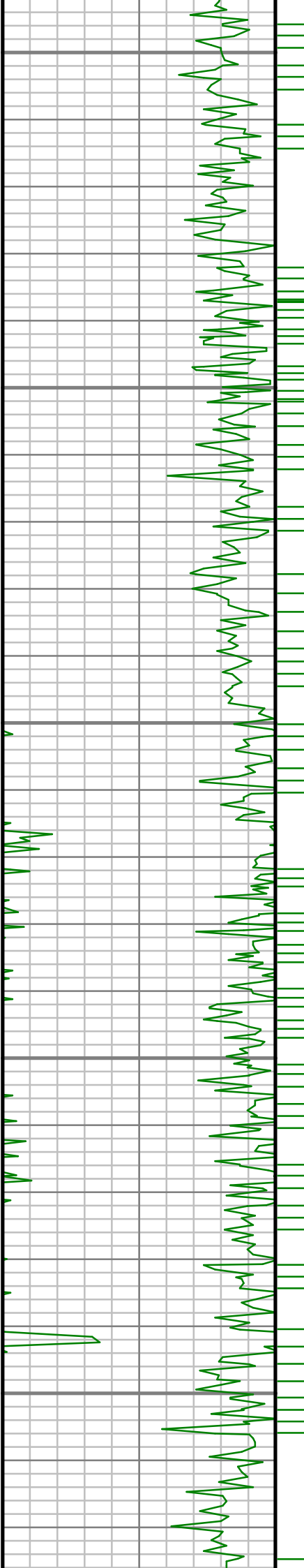
S: 52 MD: 4832.00 ft
Inc: 0.99 deg Az:
338.25 deg TVD:
4767.31 ft

S: 53 MD: 4928.00 ft
Inc: 1.22 deg Az: 16.73
deg TVD: 4863.30 ft



S: 54 MD: 5022.00 ft
Inc: 1.24 deg Az:
313.85 deg TVD:
4957.28 ft

S: 55 MD: 5117.00 ft
Inc: 1.17 deg Az:
334.35 deg TVD:
5052.26 ft



5200

5250

5300

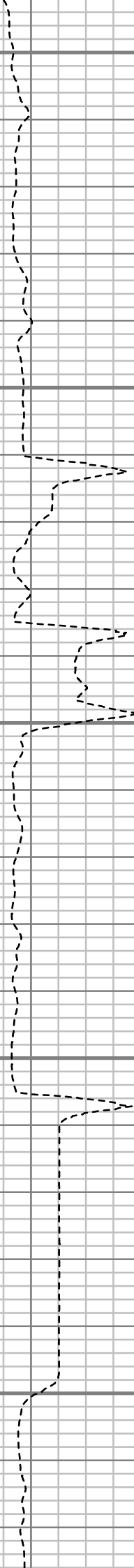
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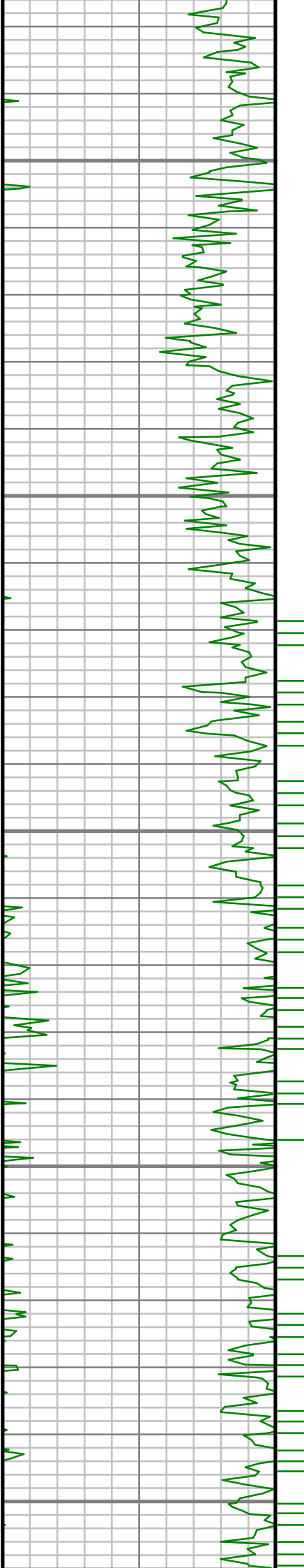
5400

S: 56 MD: 5211.00 ft
Inc: 1.44 deg Az:
351.04 deg TVD:
5146.24 ft

S: 57 MD: 5306.00 ft
Inc: 1.73 deg Az:
286.44 deg TVD:
5241.21 ft

S: 58 MD: 5401.00 ft
Inc: 1.50 deg Az:
279.76 deg TVD:
5336.17 ft





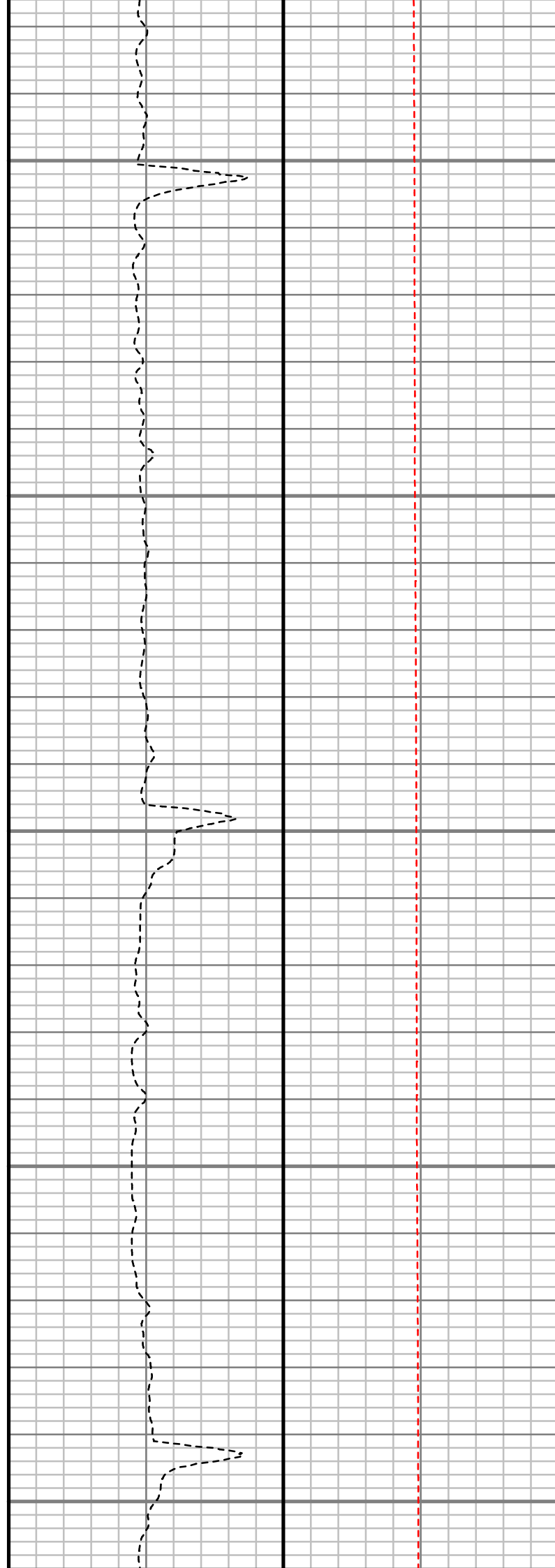
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5500

5550

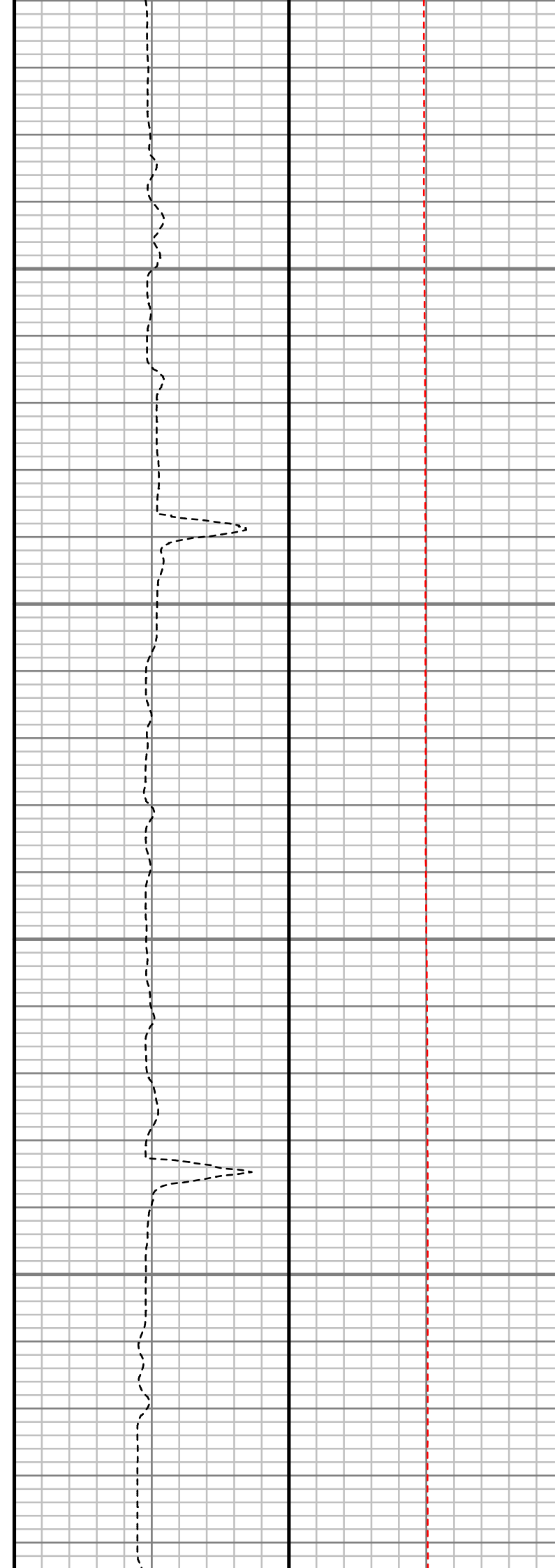
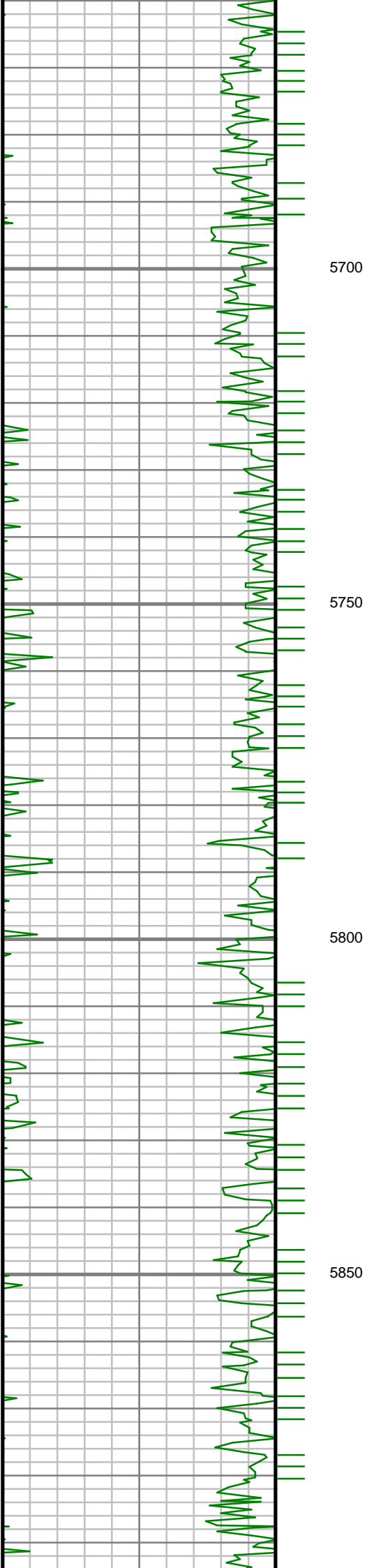
5600

5650



S: 59 MD: 5496.00 ft
Inc: 1.37 deg Az:
282.06 deg TVD:
5431.14 ft

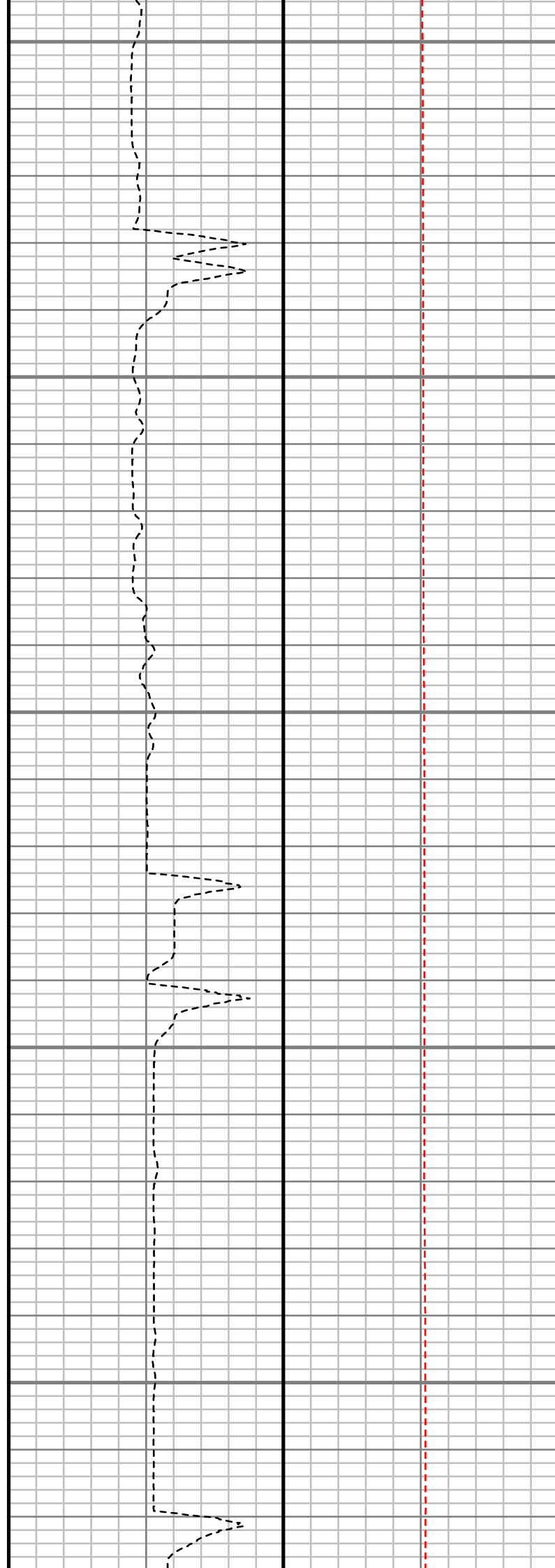
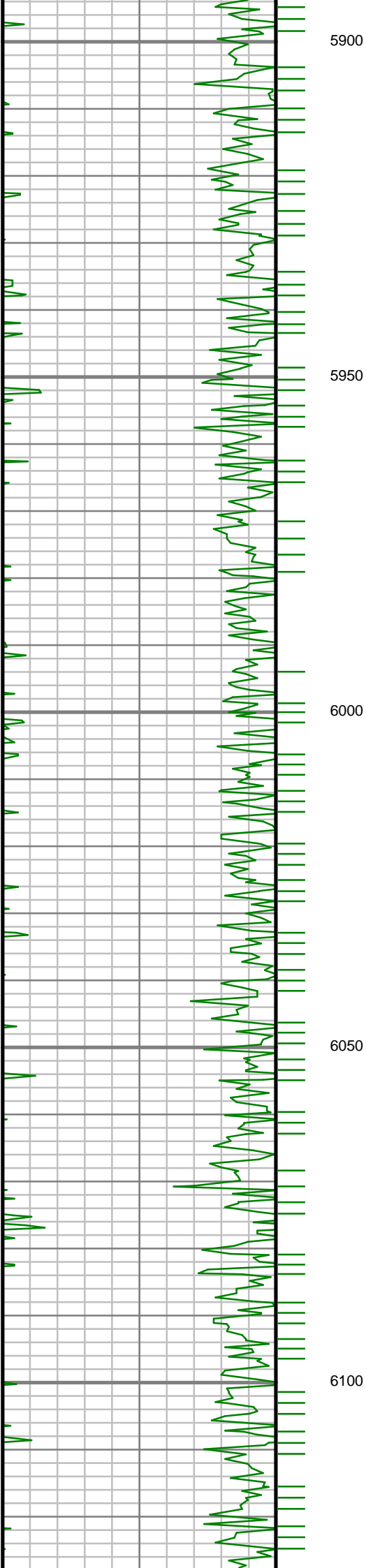
S: 60 MD: 5590.00 ft
Inc: 1.10 deg Az:
282.75 deg TVD:
5525.12 ft



S: 61 MD: 5685.00 ft
Inc: 0.97 deg Az:
285.81 deg TVD:
5620.10 ft

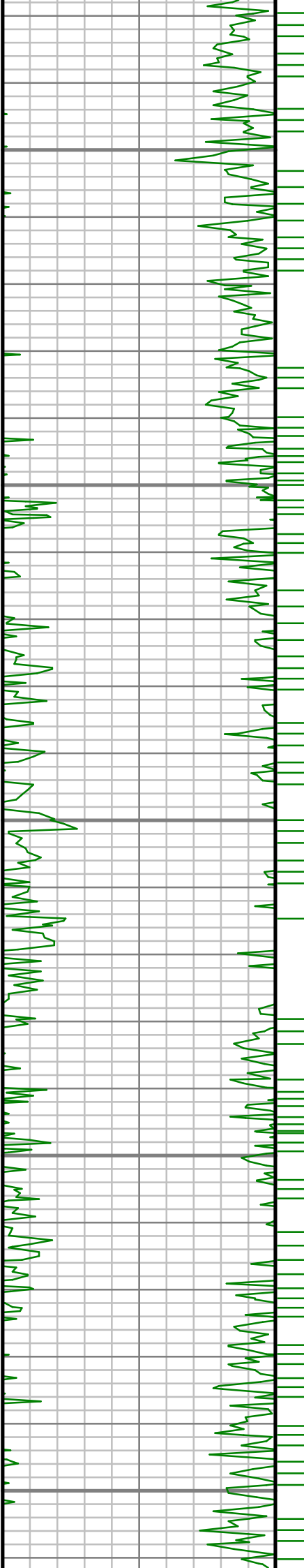
S: 62 MD: 5780.00 ft
Inc: 1.12 deg Az:
270.79 deg TVD:
5715.09 ft

S: 63 MD: 5875.00 ft
Inc: 0.85 deg Az:
257.19 deg TVD:
5810.07 ft



S: 64 MD: 5971.00 ft
Inc: 0.93 deg Az:
252.68 deg TVD:
5906.06 ft

S: 65 MD: 6064.00 ft
Inc: 0.54 deg Az:
271.18 deg TVD:
5999.05 ft



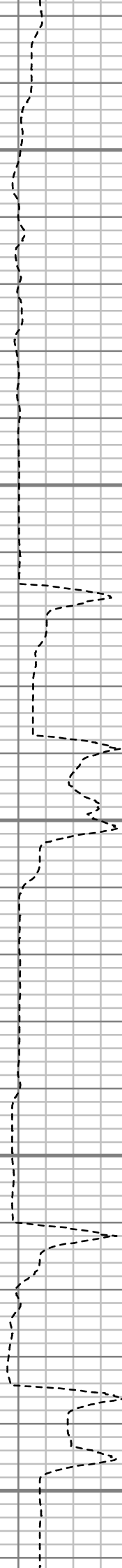
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6250

6300

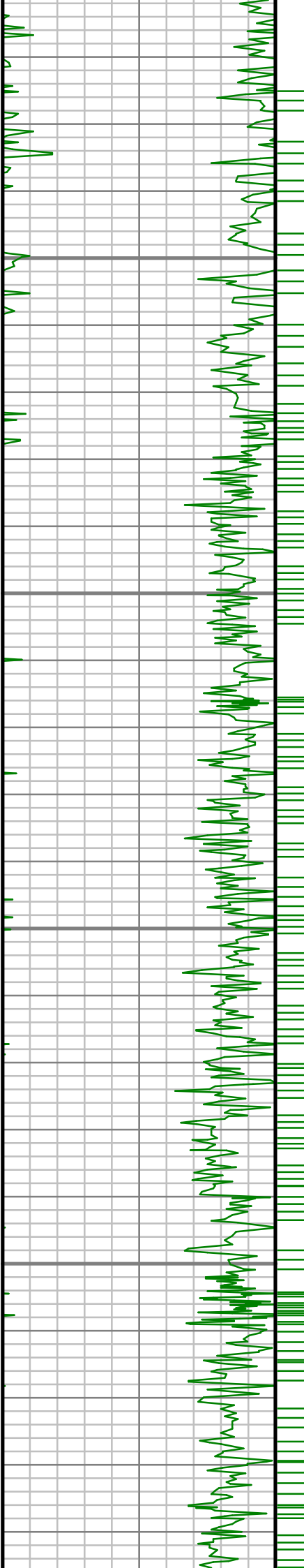
6350



S: 66 MD: 6160.00 ft
Inc: 0.48 deg Az:
259.25 deg TVD:
6095.05 ft

S: 67 MD: 6255.00 ft
Inc: 1.43 deg Az:
294.84 deg TVD:
6190.03 ft

S: 68 MD: 6349.00 ft
Inc: 0.78 deg Az:
212.91 deg TVD:
6284.02 ft

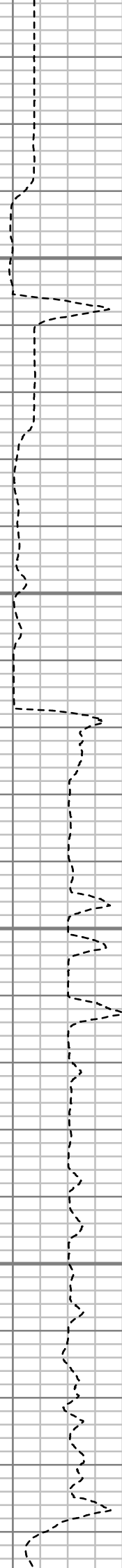


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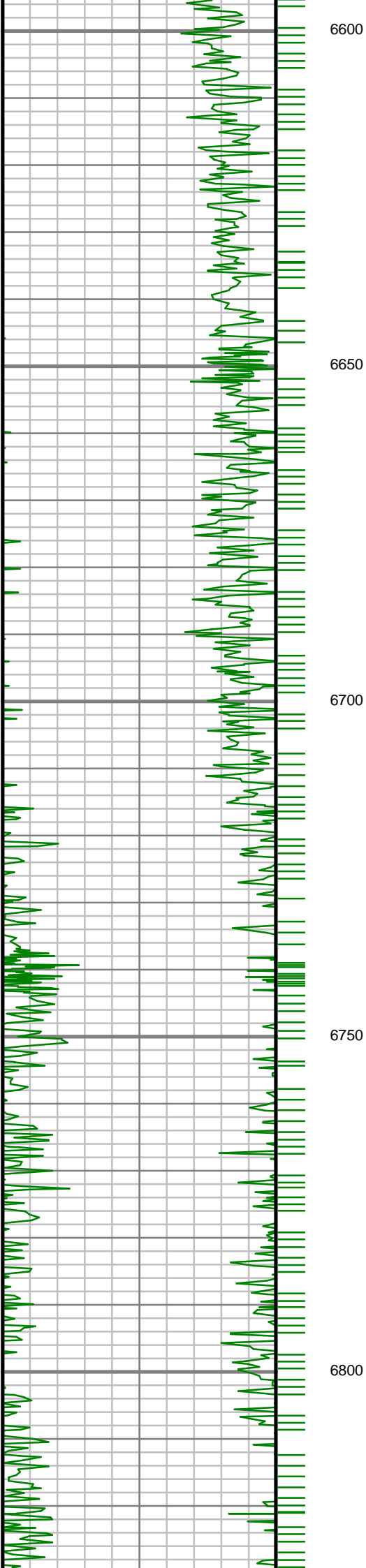
6500

6550



S: 69 MD: 6444.00 ft
Inc: 0.65 deg Az:
196.75 deg TVD:
6379.01 ft

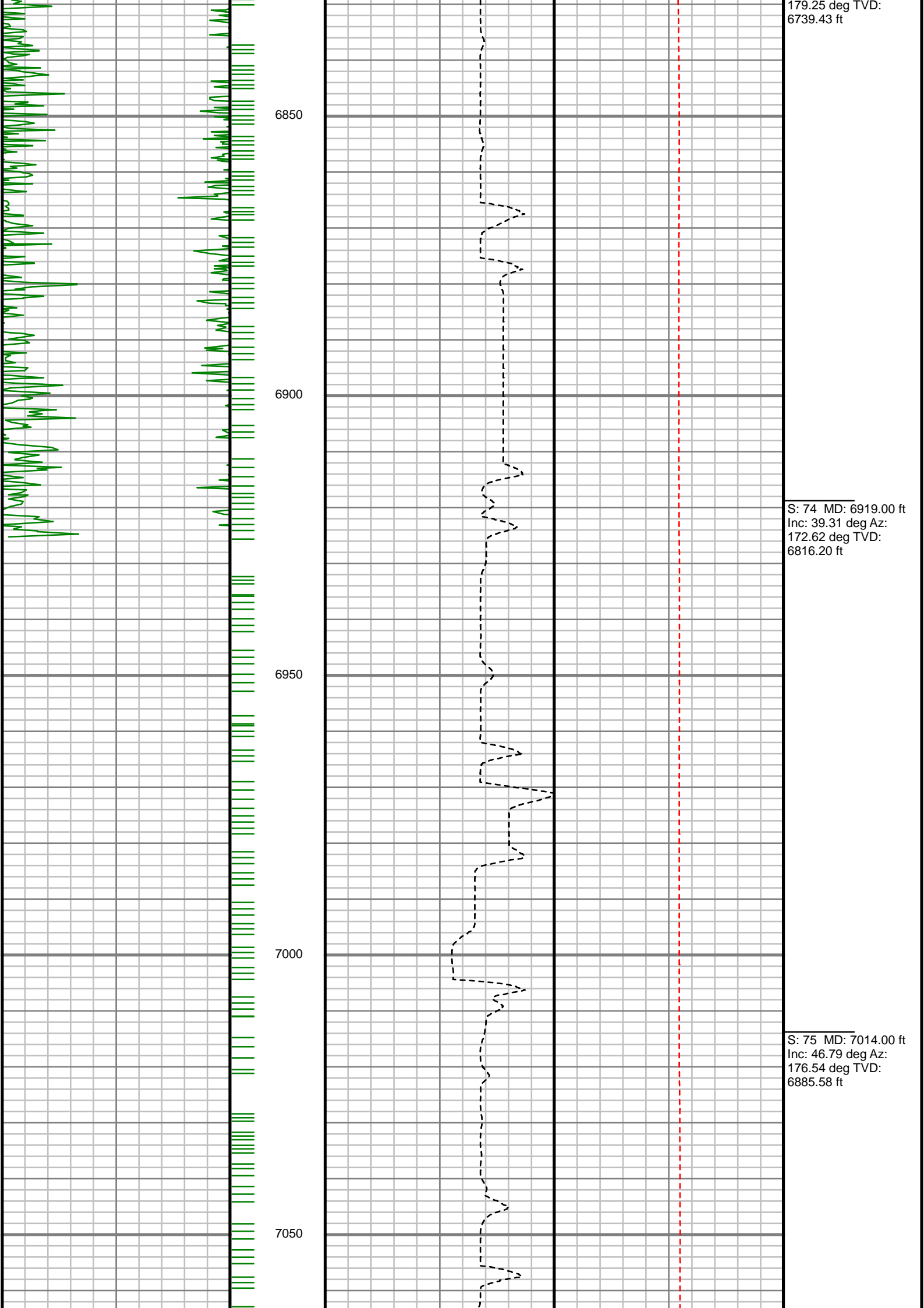
S: 70 MD: 6539.00 ft
Inc: 10.03 deg Az:
191.60 deg TVD:
6473.50 ft

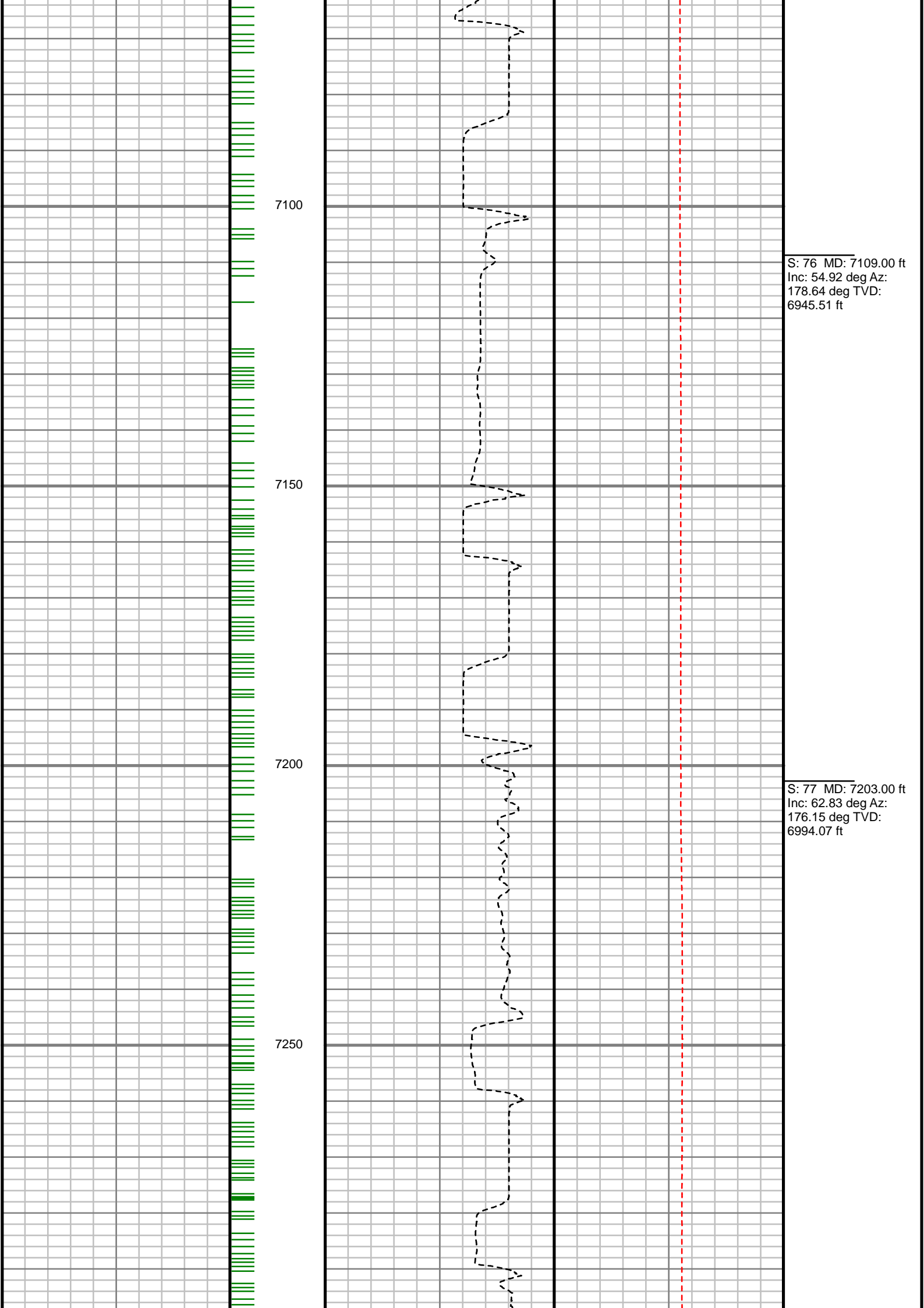


S: 71 MD: 6633.00 ft
Inc: 15.45 deg Az:
178.68 deg TVD:
6565.16 ft

S: 72 MD: 6729.00 ft
Inc: 23.23 deg Az:
178.74 deg TVD:
6655.68 ft

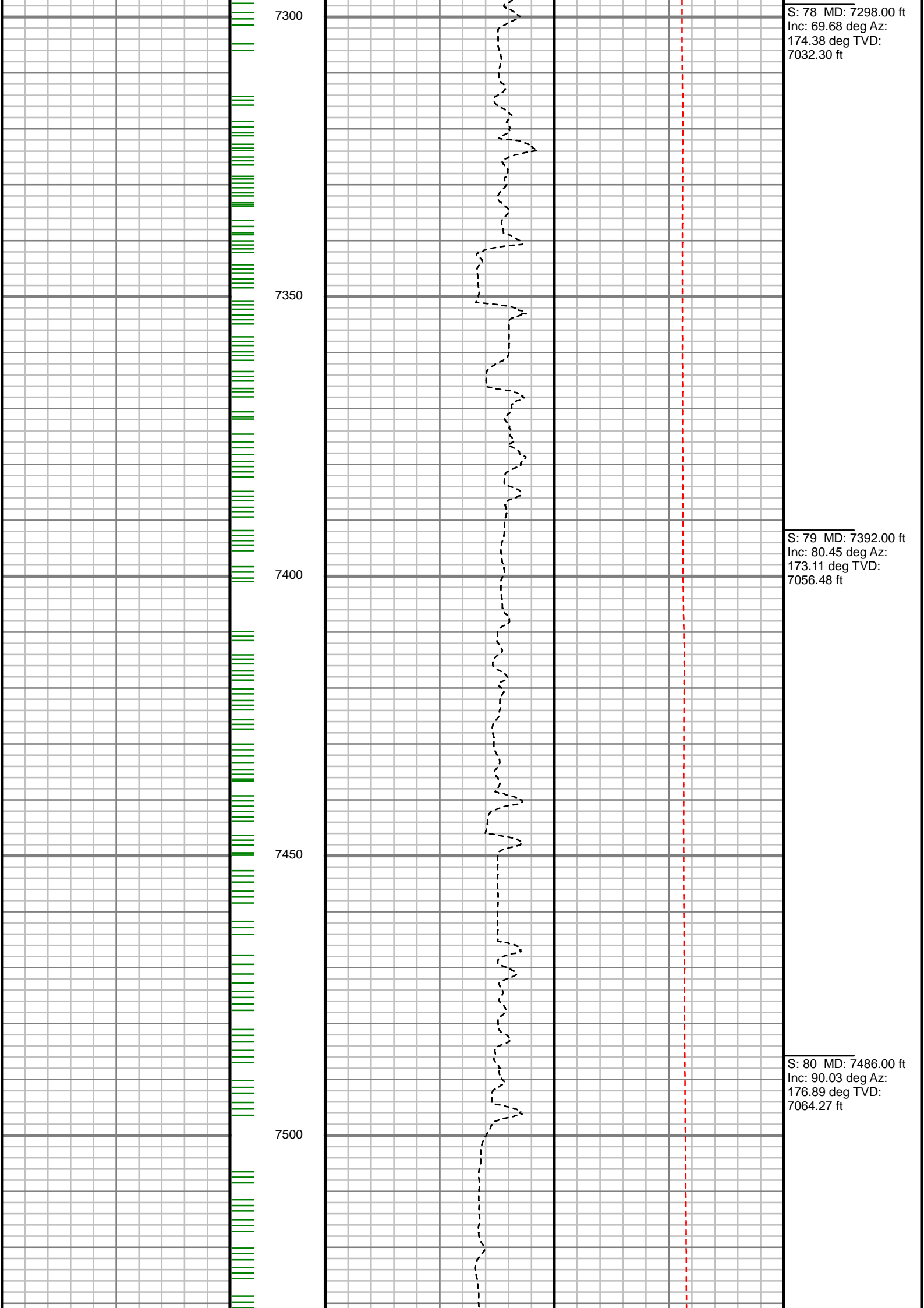
S: 73 MD: 6824.00 ft
Inc: 32.85 deg Az:

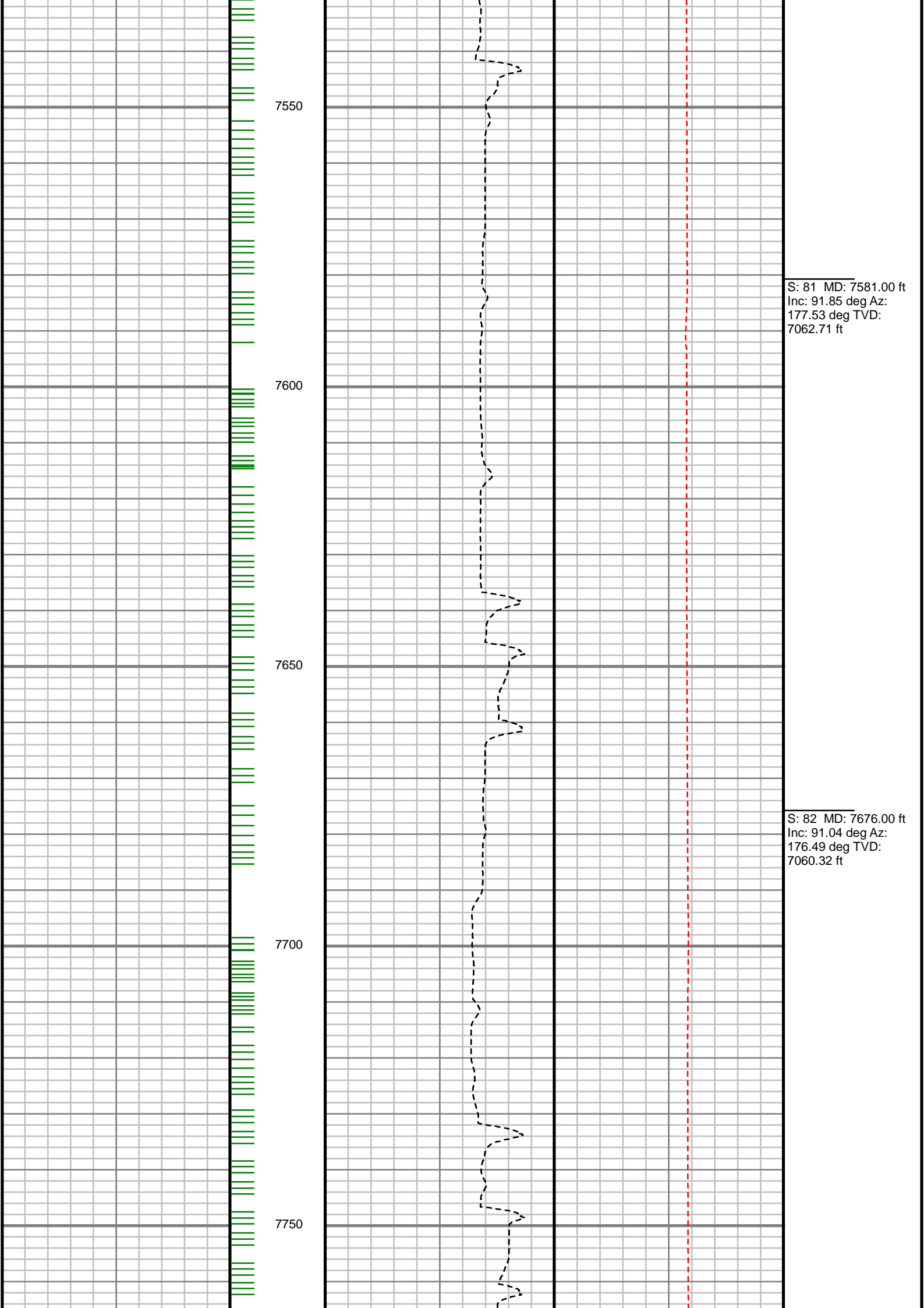


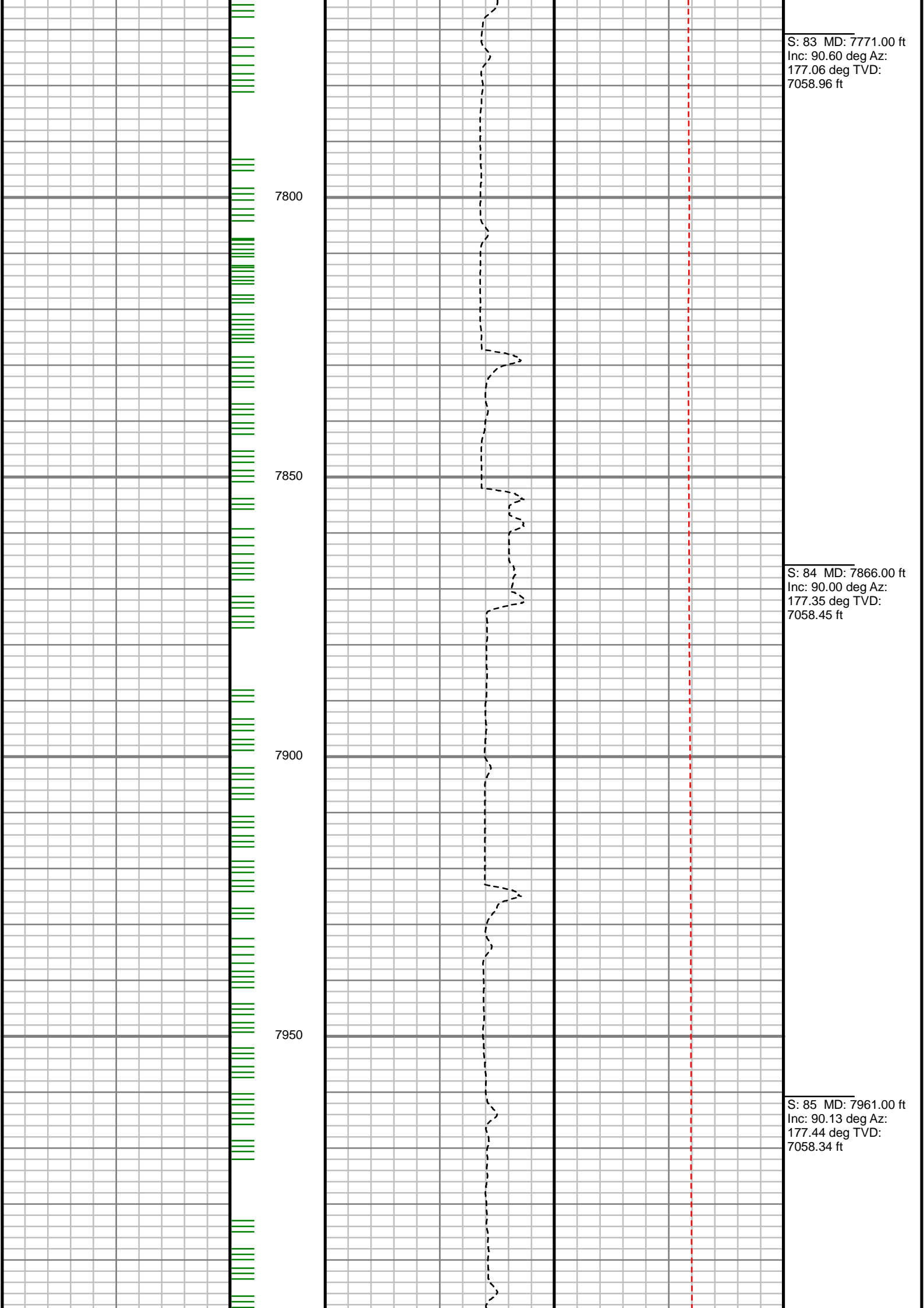


S: 76 MD: 7109.00 ft
Inc: 54.92 deg Az:
178.64 deg TVD:
6945.51 ft

S: 77 MD: 7203.00 ft
Inc: 62.83 deg Az:
176.15 deg TVD:
6994.07 ft



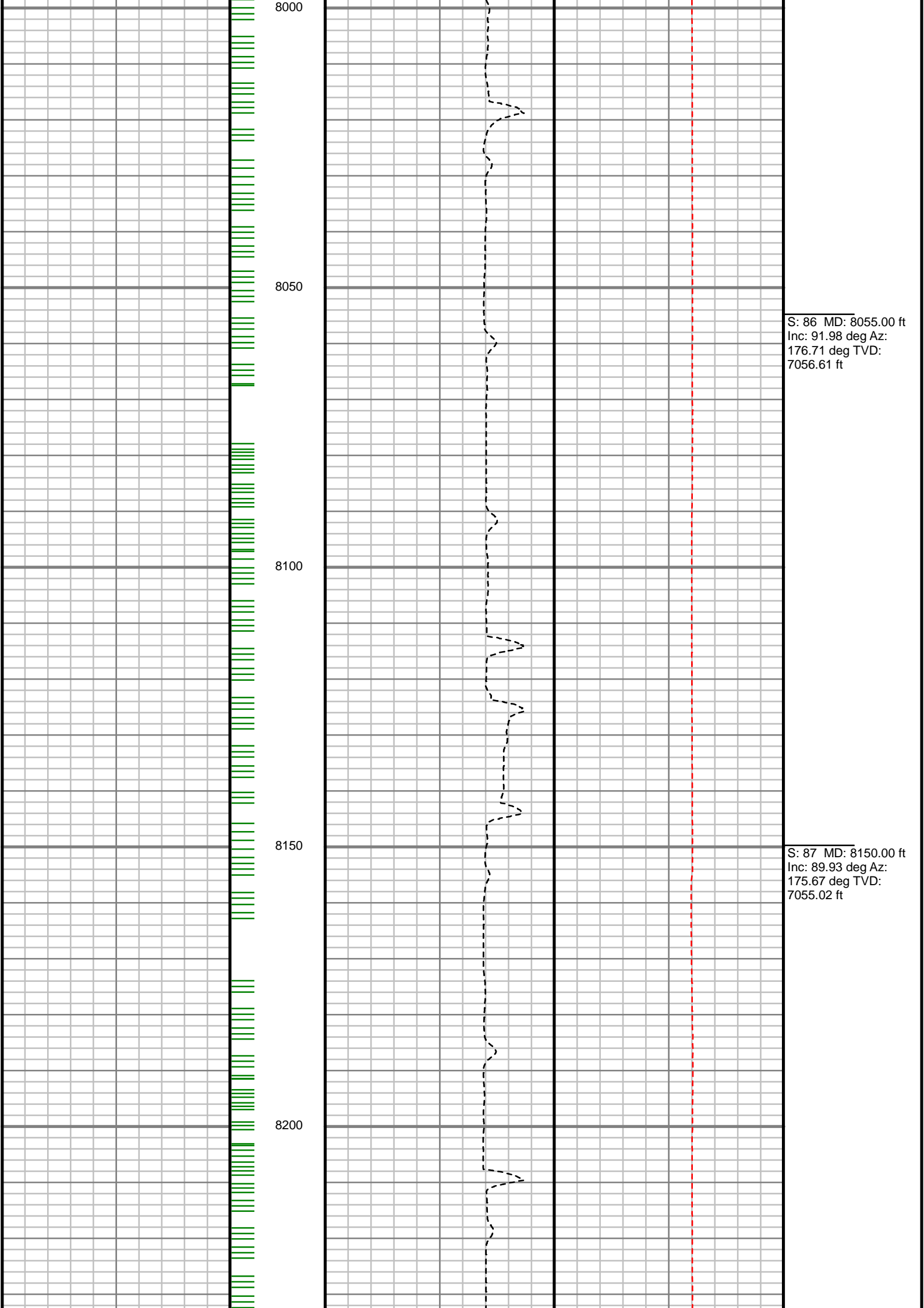


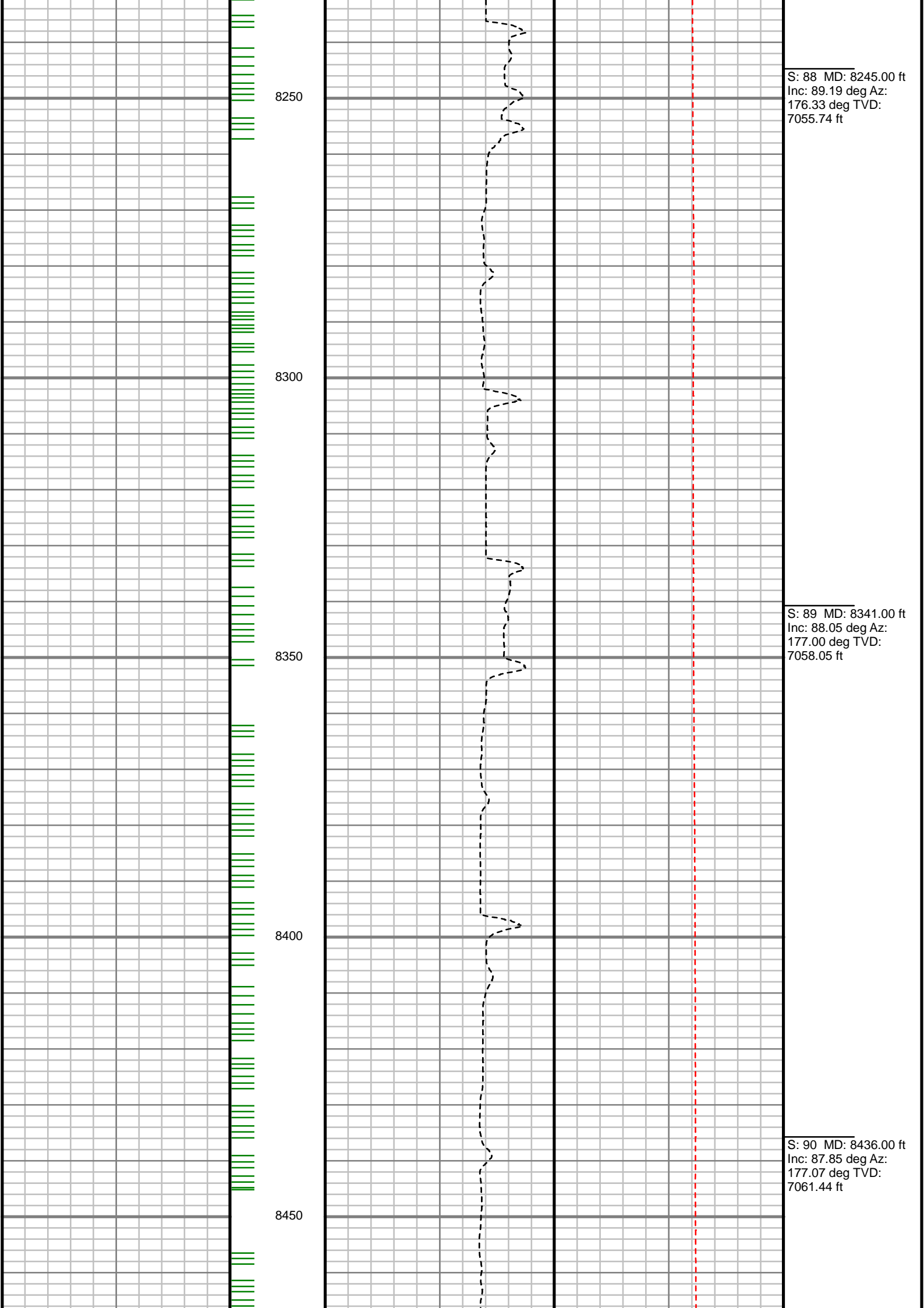


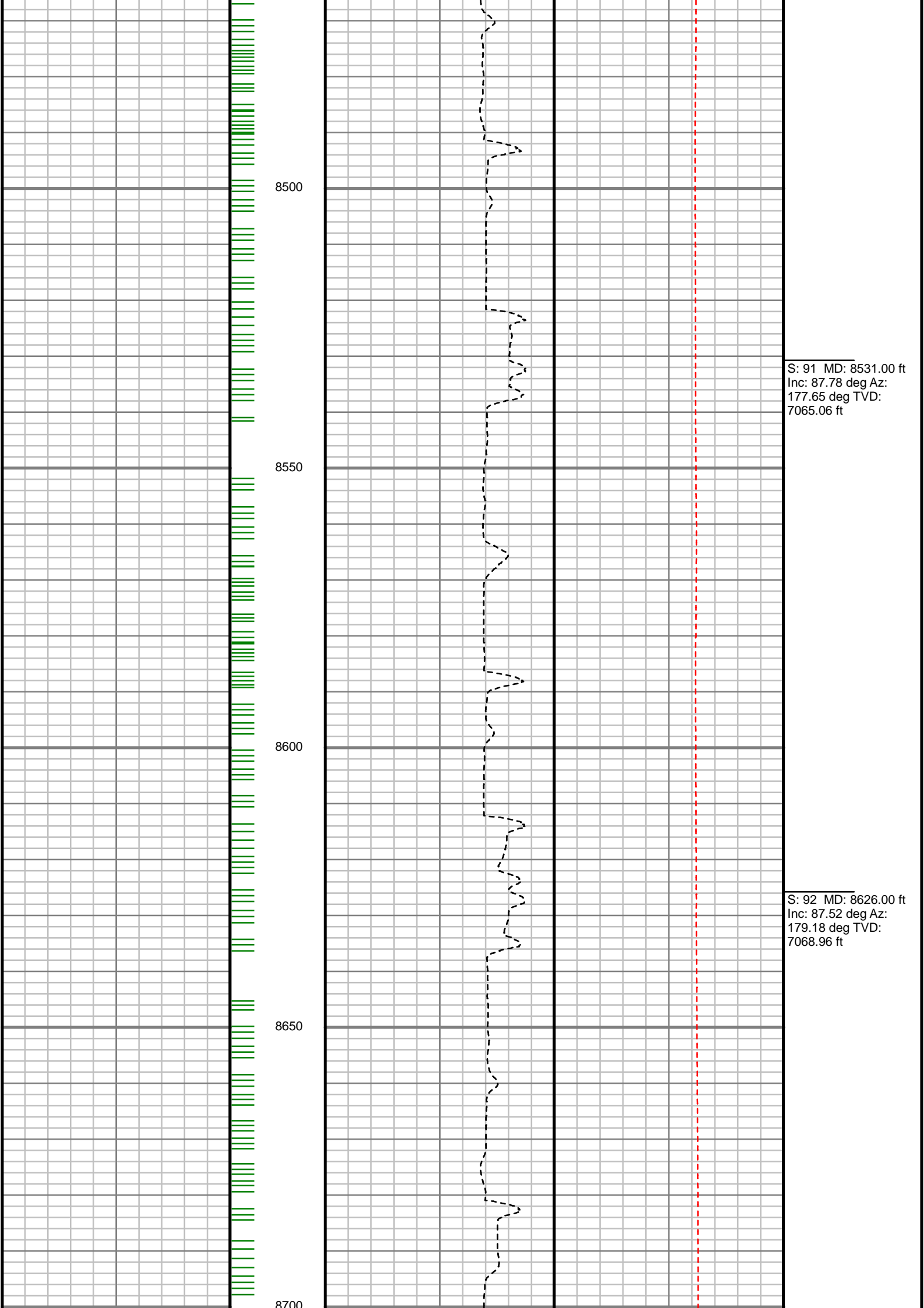
S: 83 MD: 7771.00 ft
Inc: 90.60 deg Az:
177.06 deg TVD:
7058.96 ft

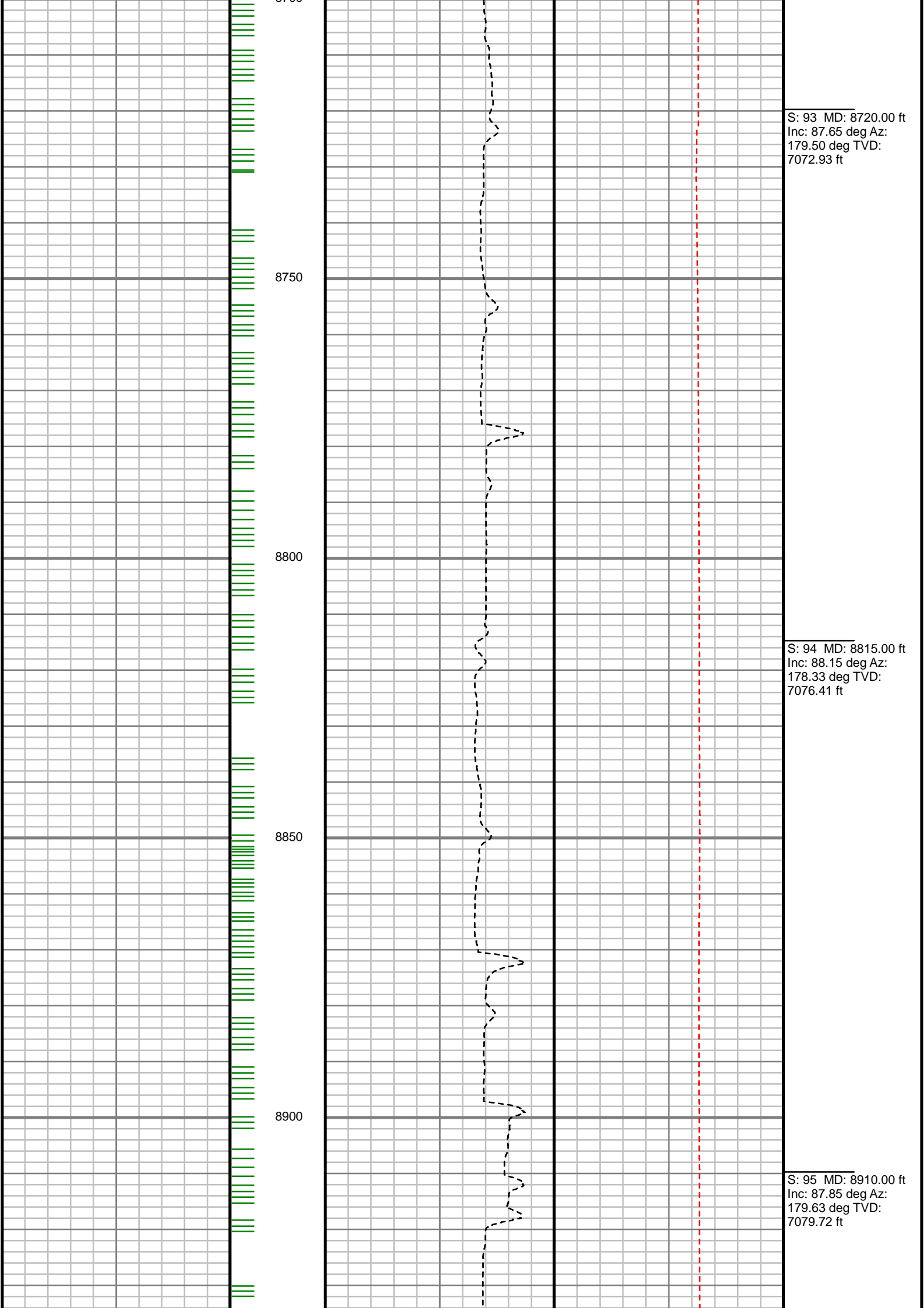
S: 84 MD: 7866.00 ft
Inc: 90.00 deg Az:
177.35 deg TVD:
7058.45 ft

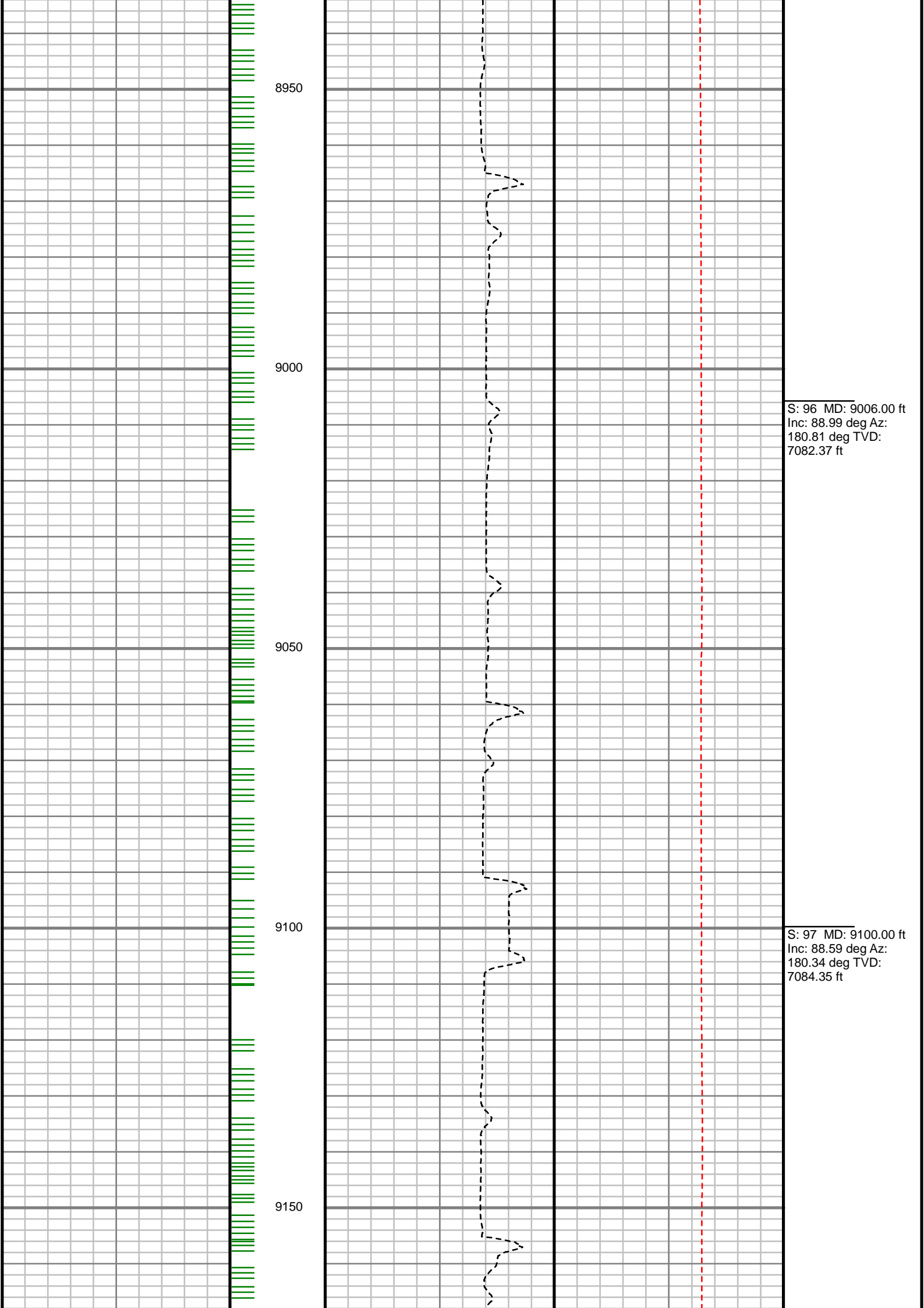
S: 85 MD: 7961.00 ft
Inc: 90.13 deg Az:
177.44 deg TVD:
7058.34 ft

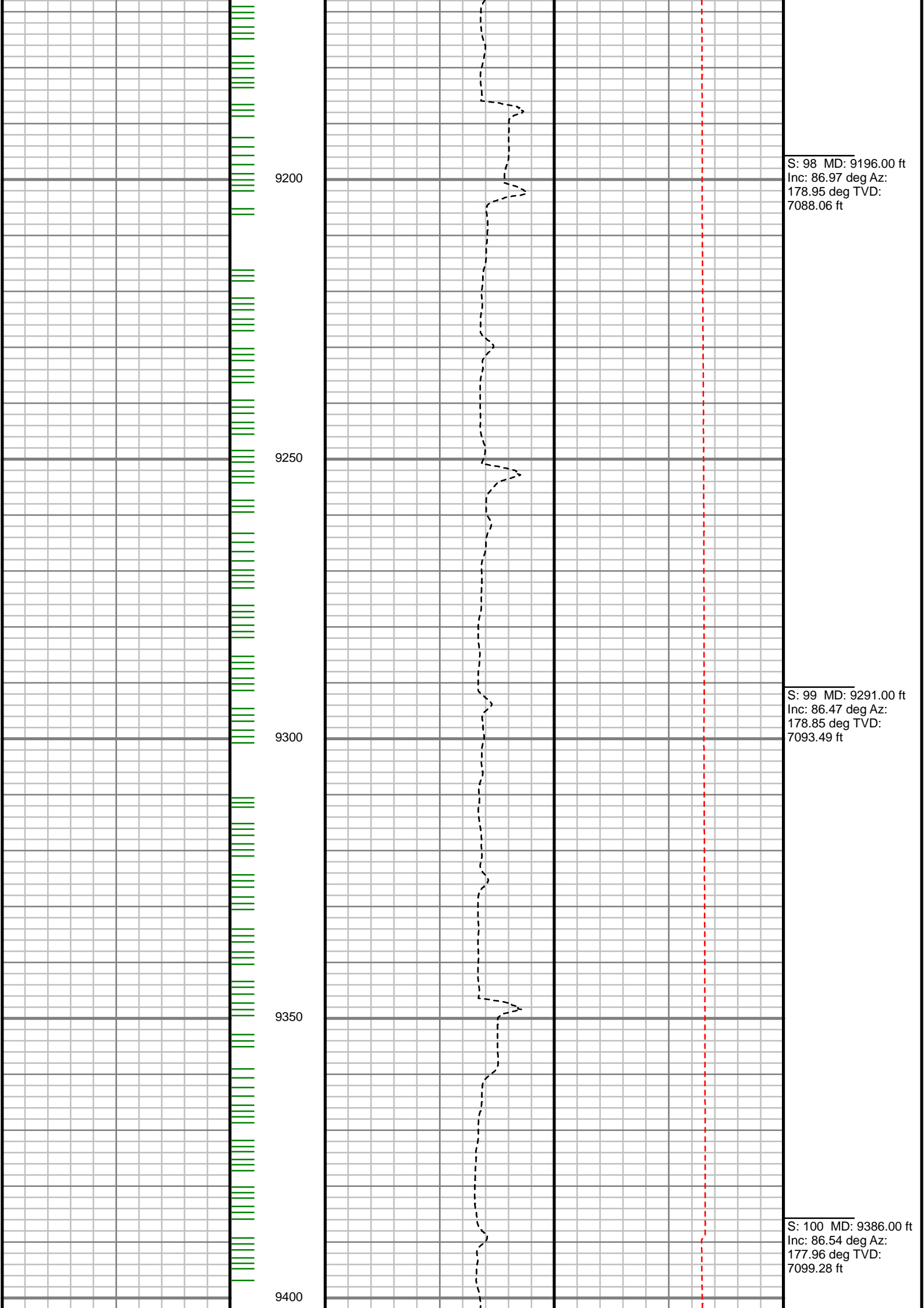


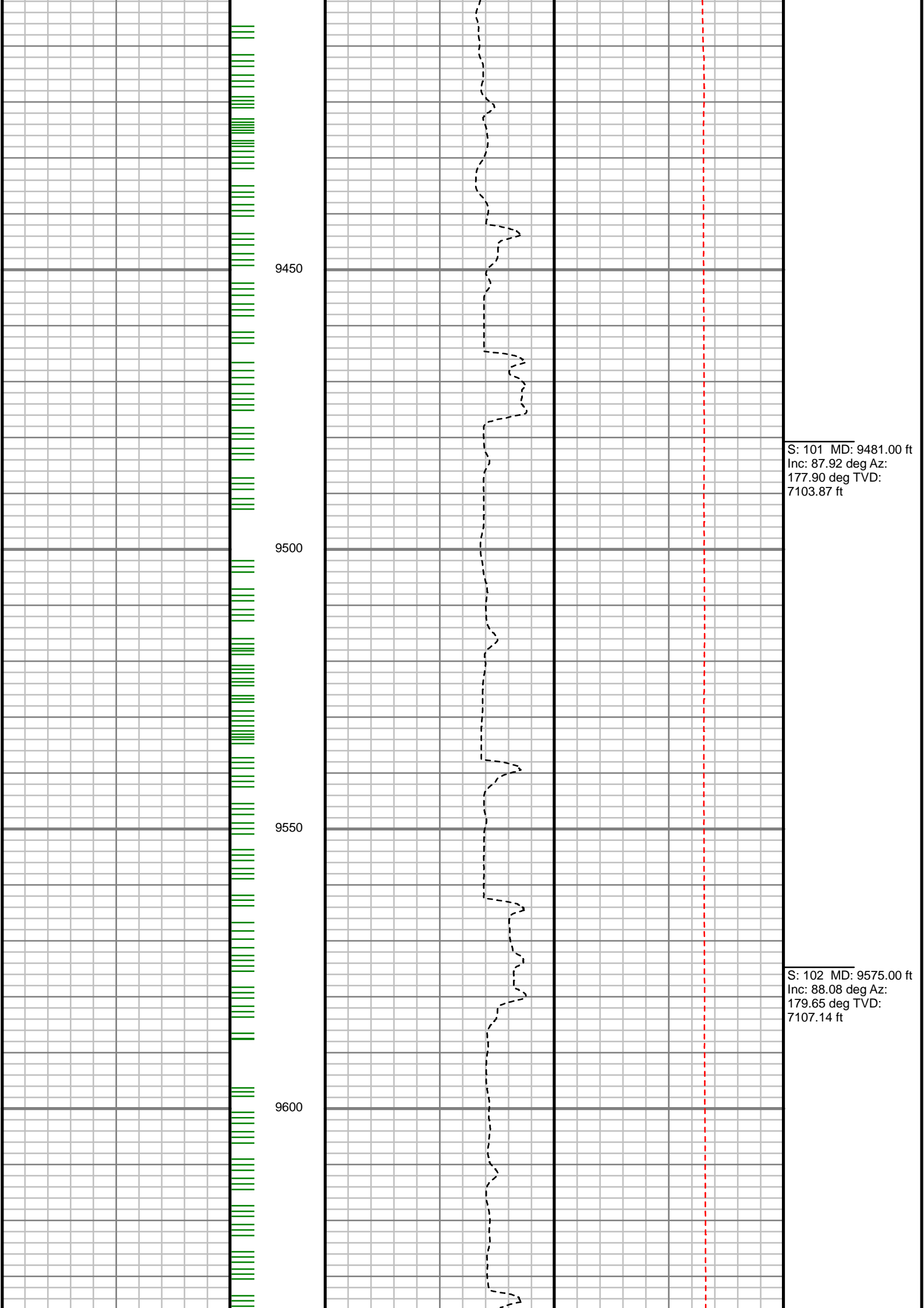


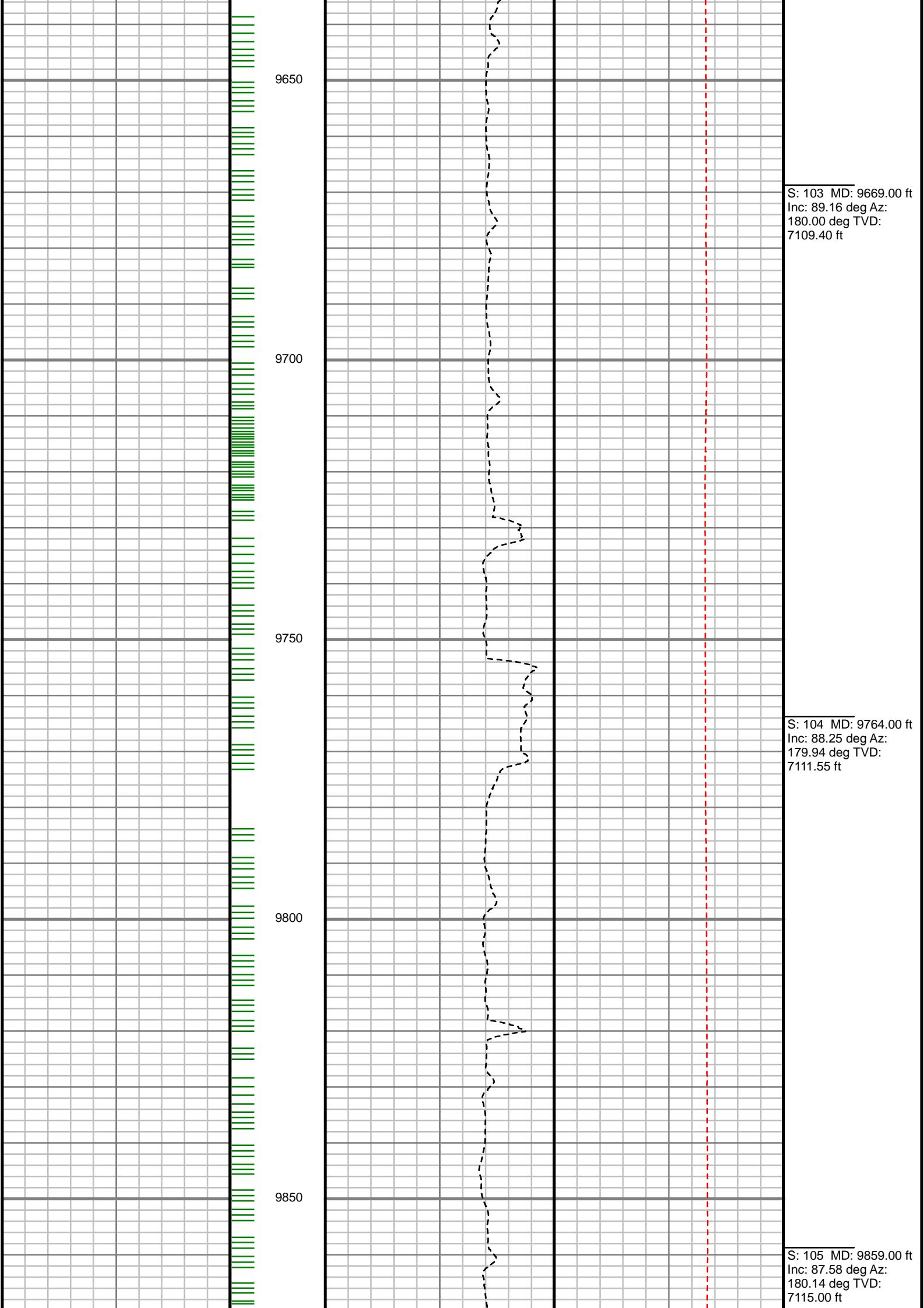


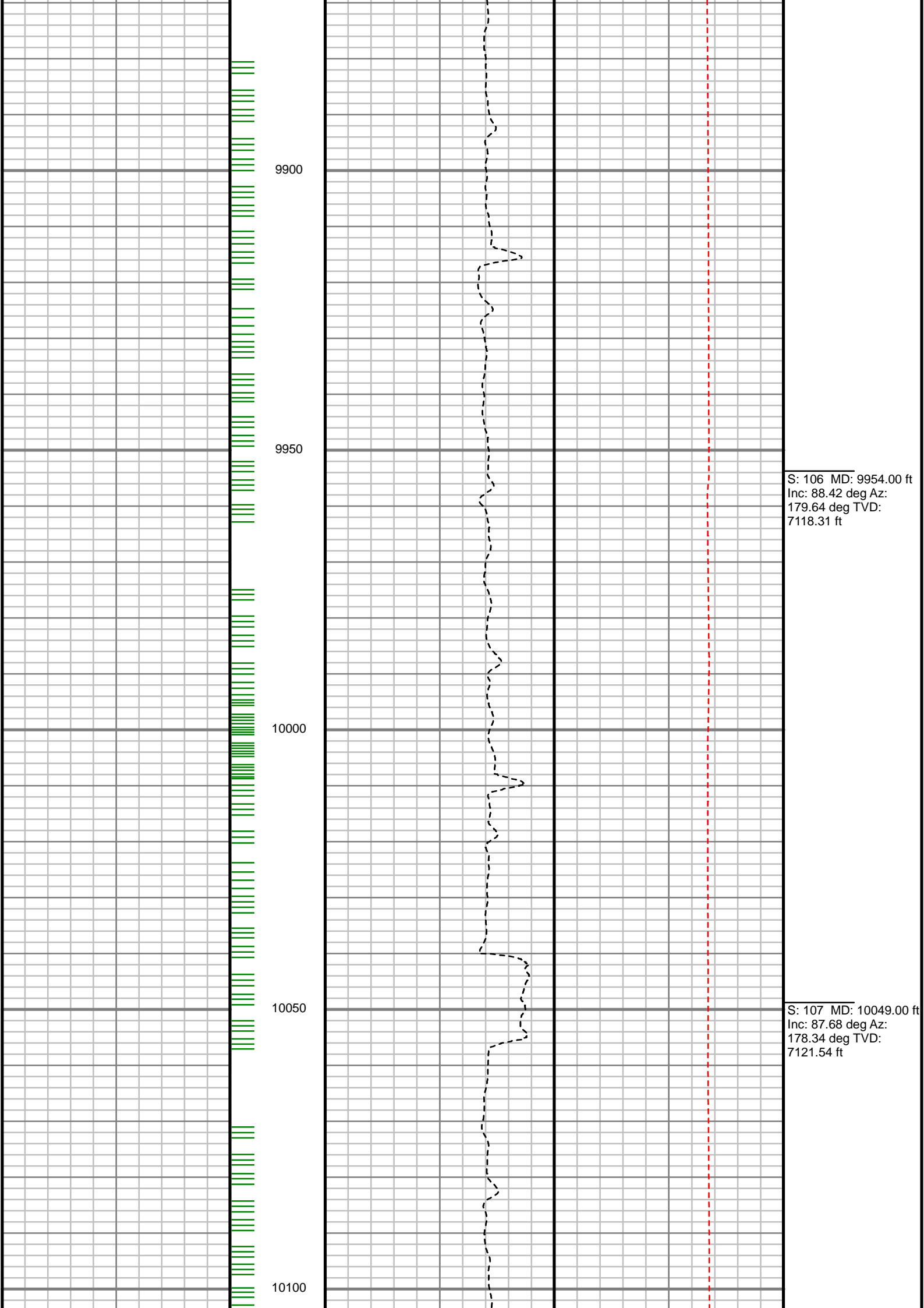


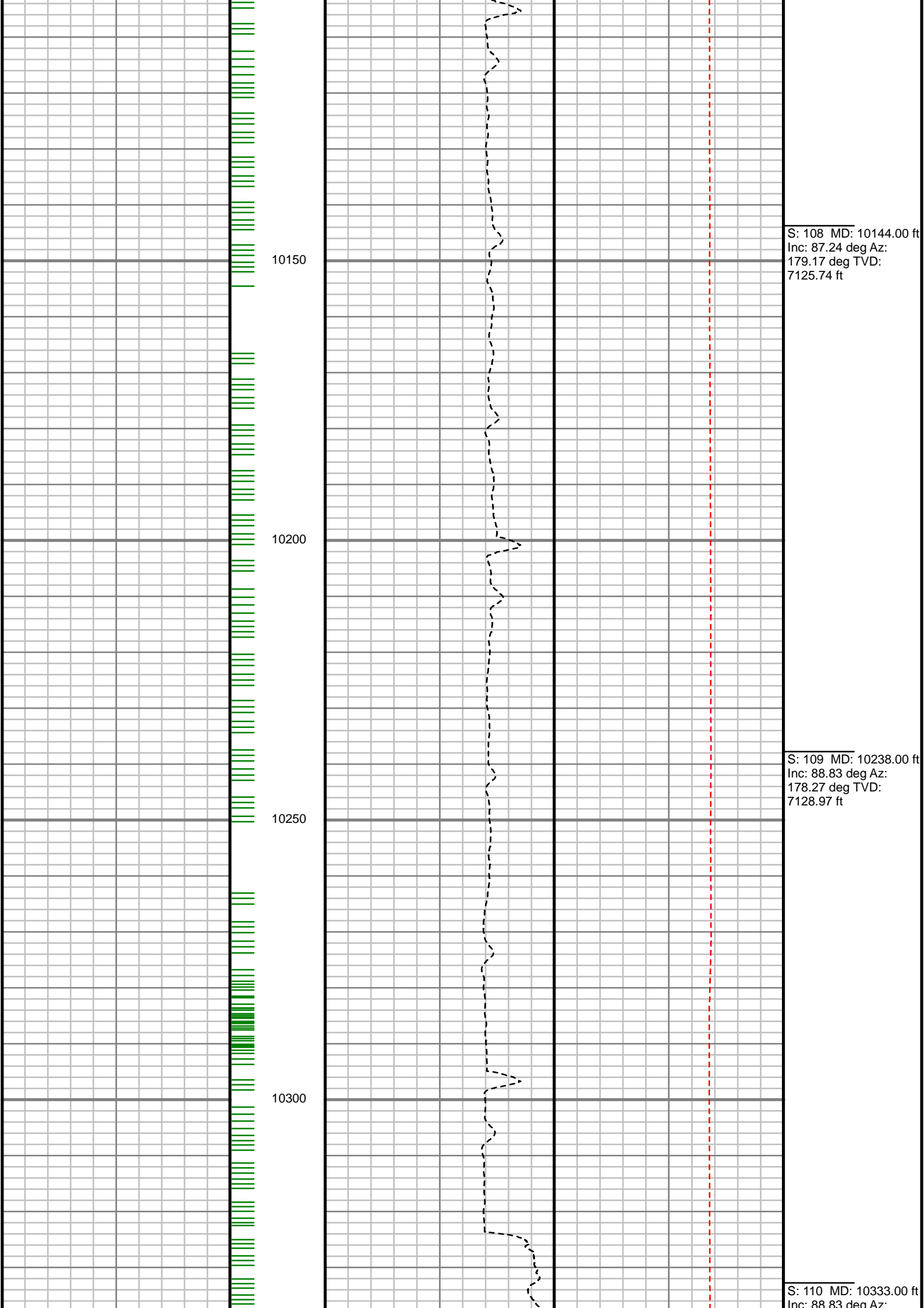








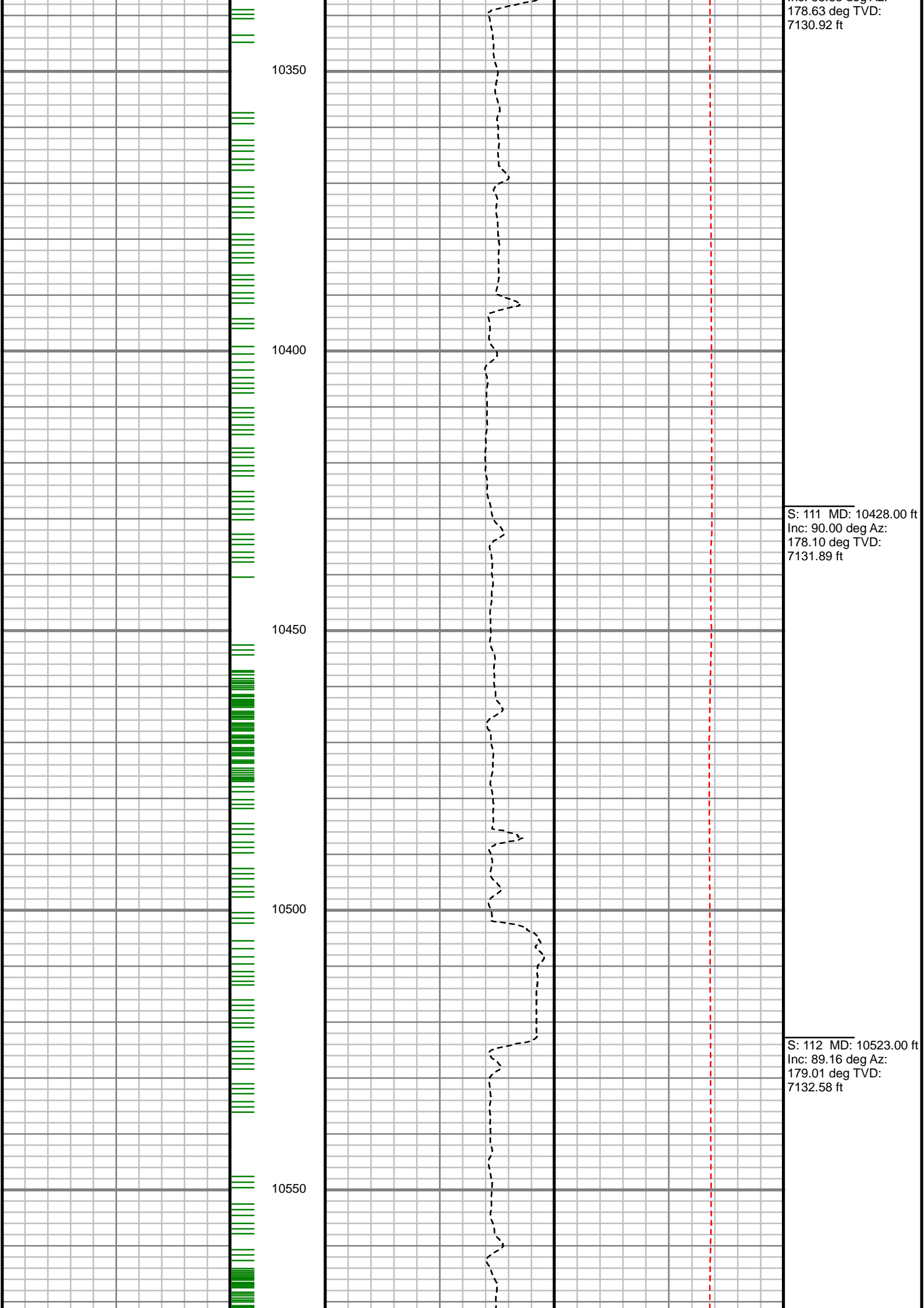


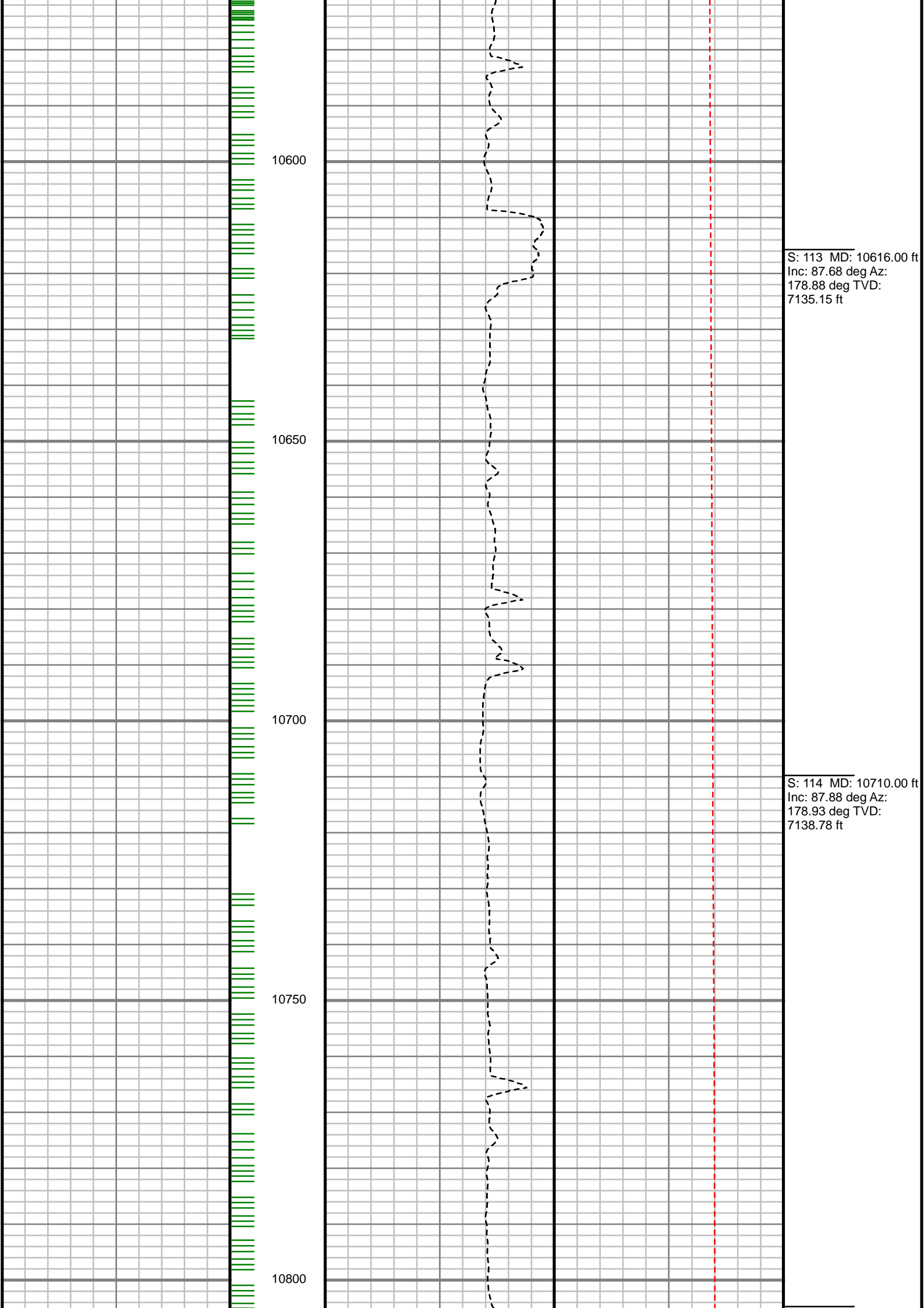


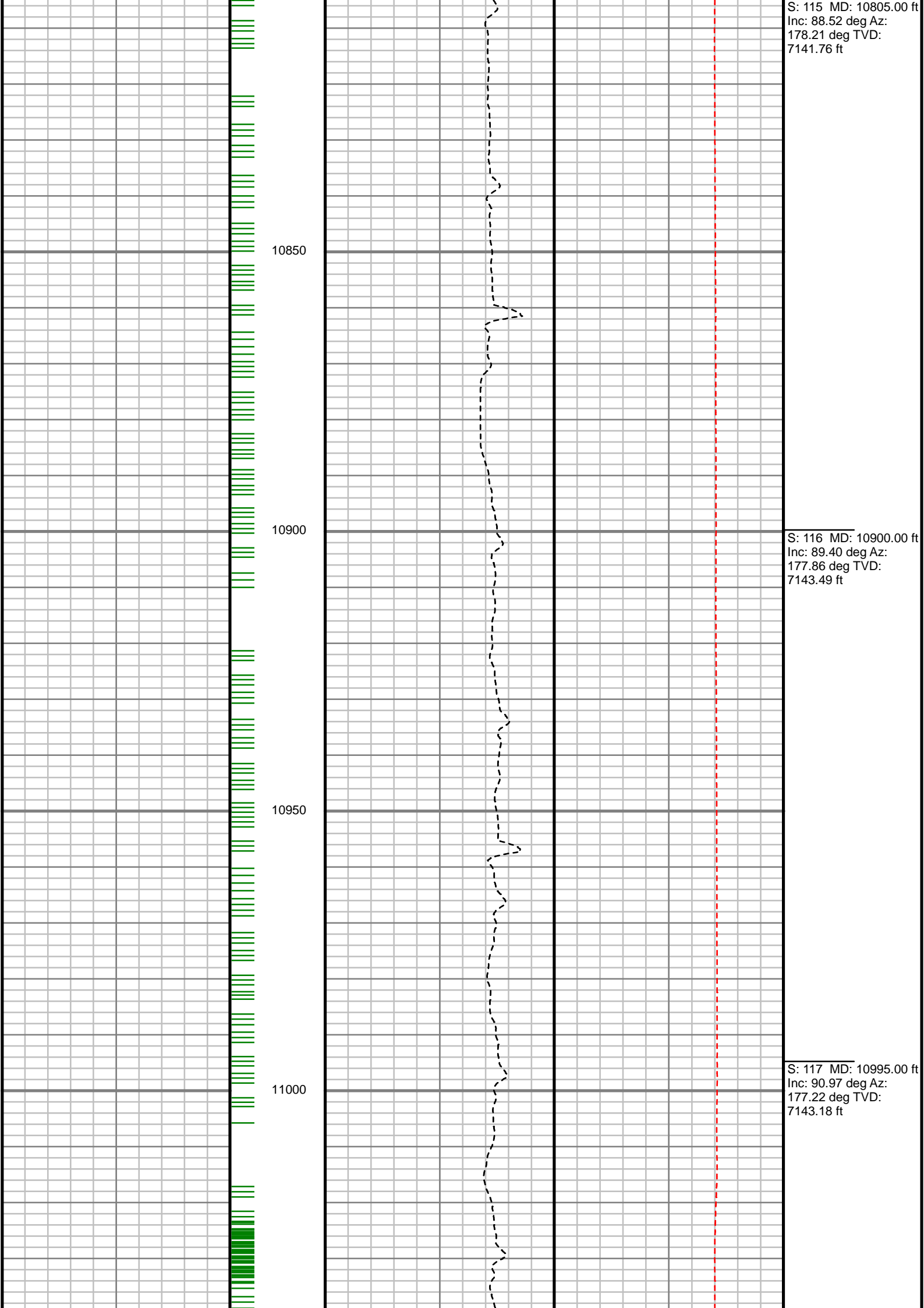
S: 108 MD: 10144.00 ft
Inc: 87.24 deg Az:
179.17 deg TVD:
7125.74 ft

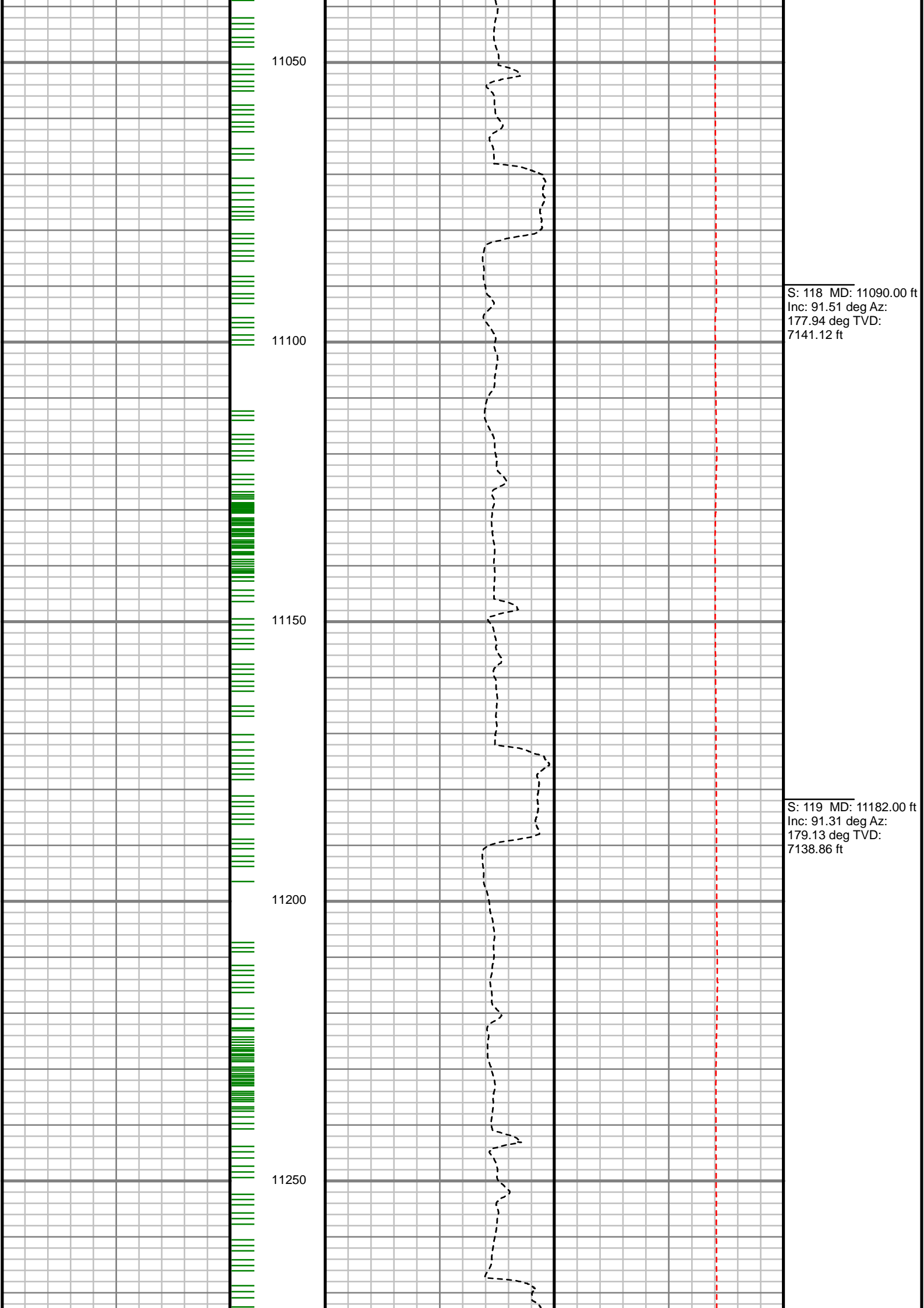
S: 109 MD: 10238.00 ft
Inc: 88.83 deg Az:
178.27 deg TVD:
7128.97 ft

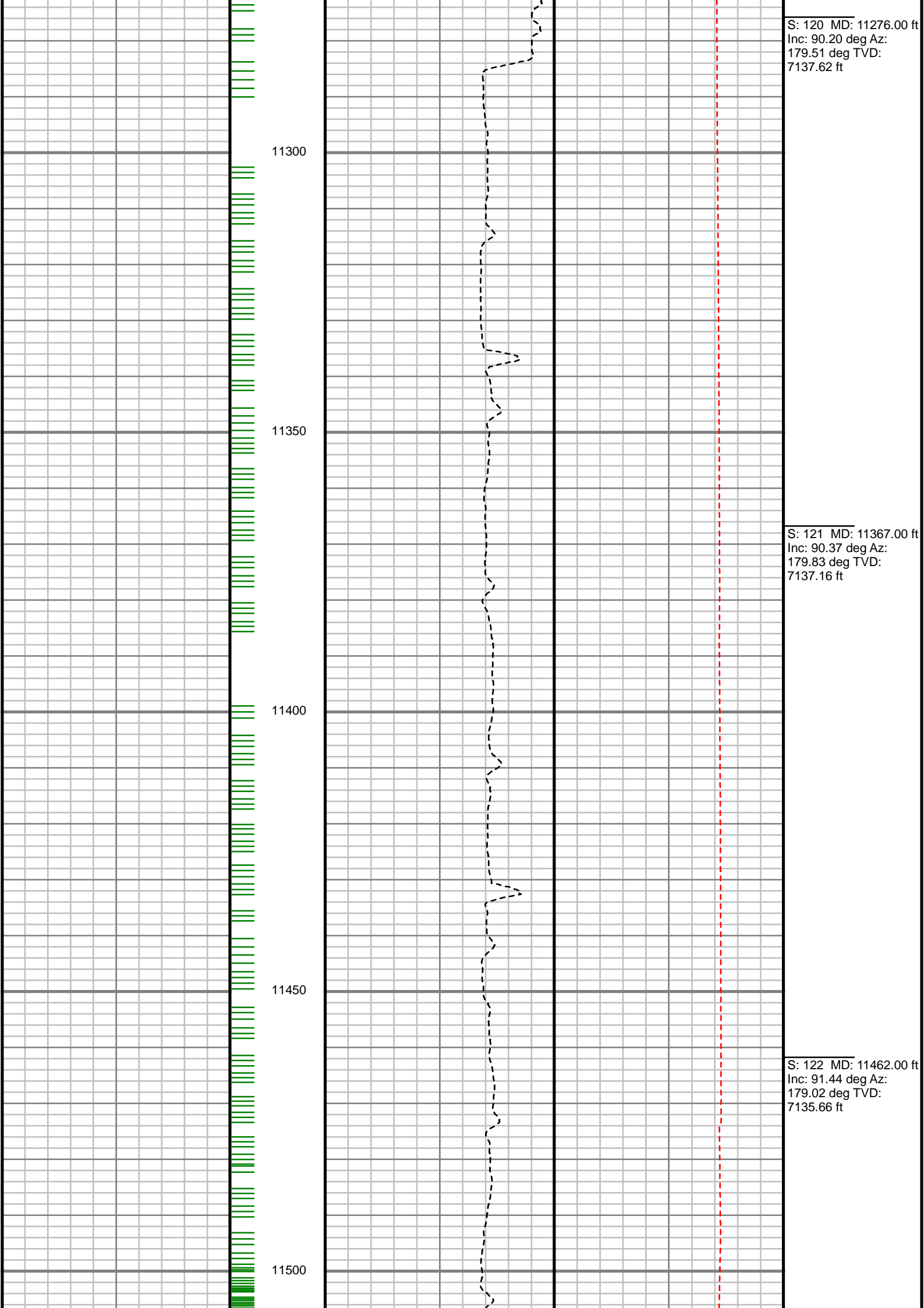
S: 110 MD: 10333.00 ft
Inc: 88.83 deg Az:

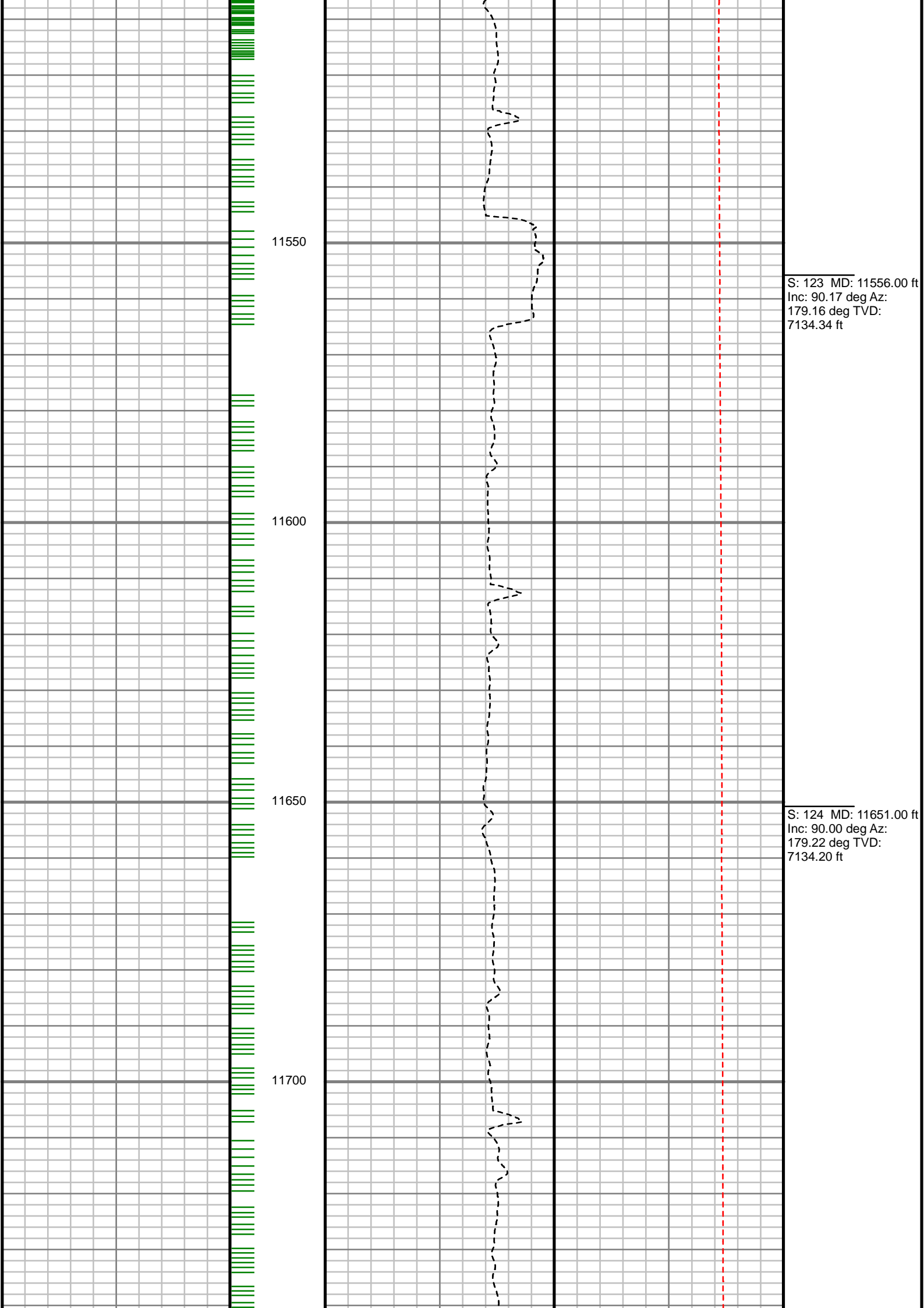


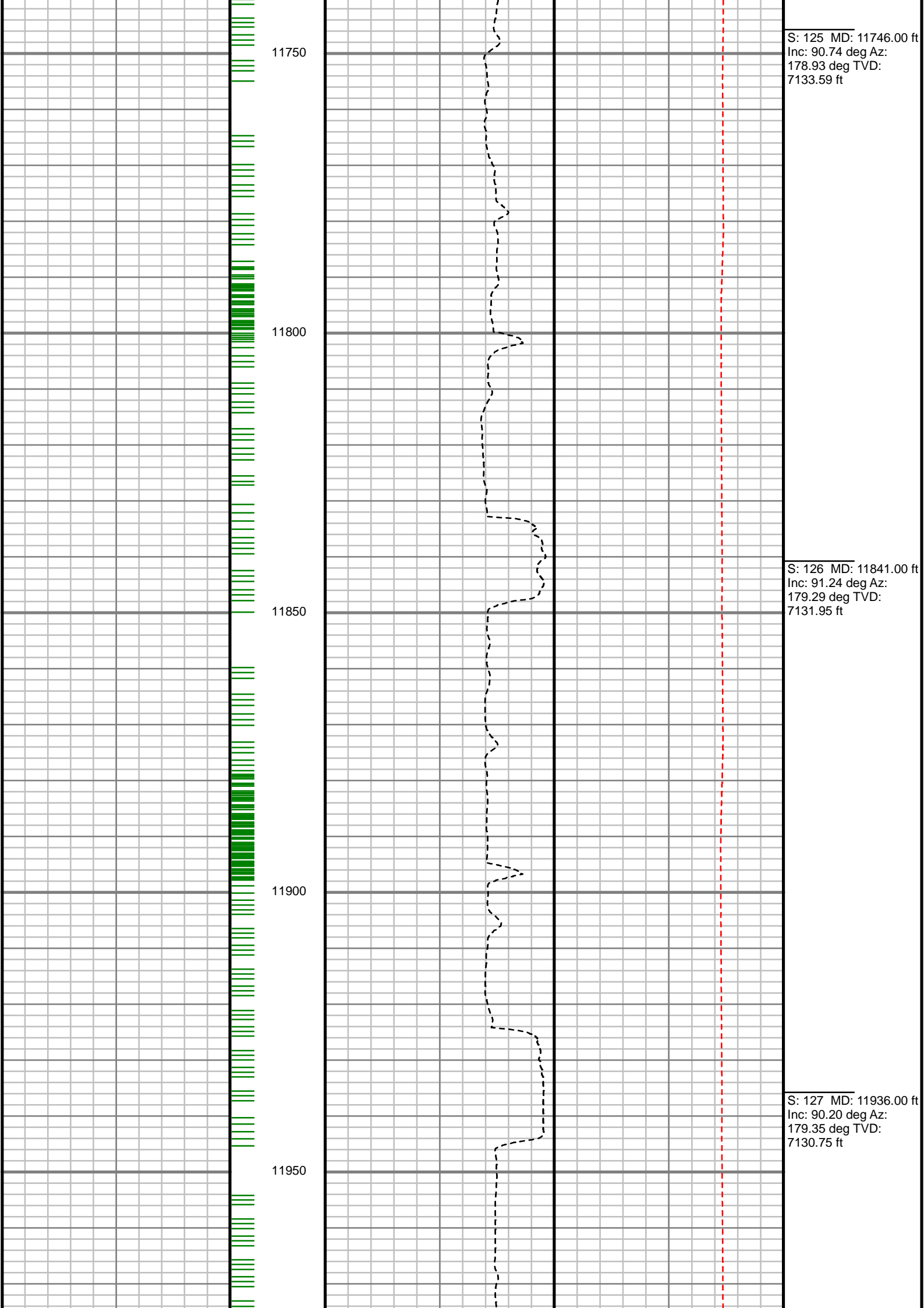


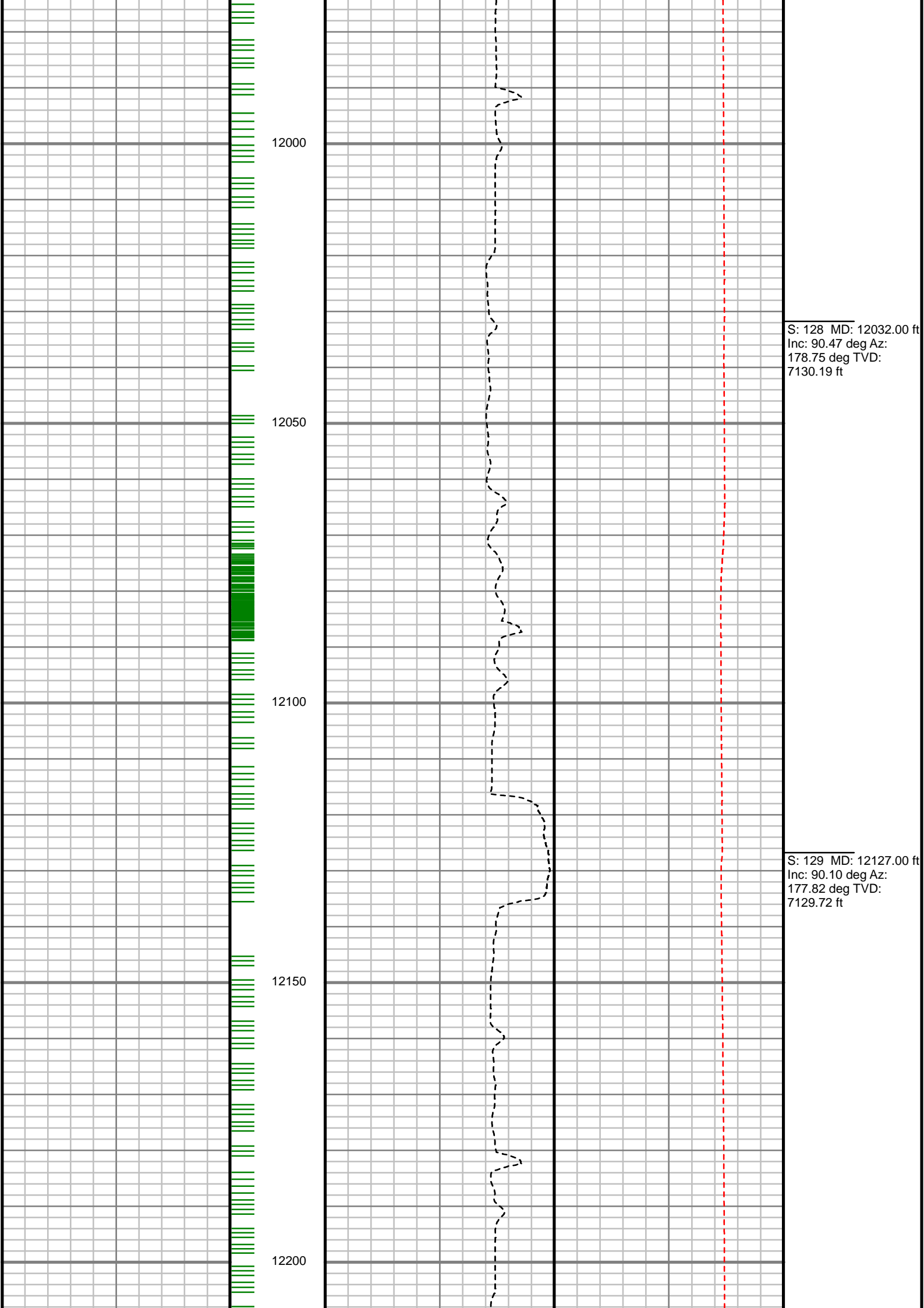


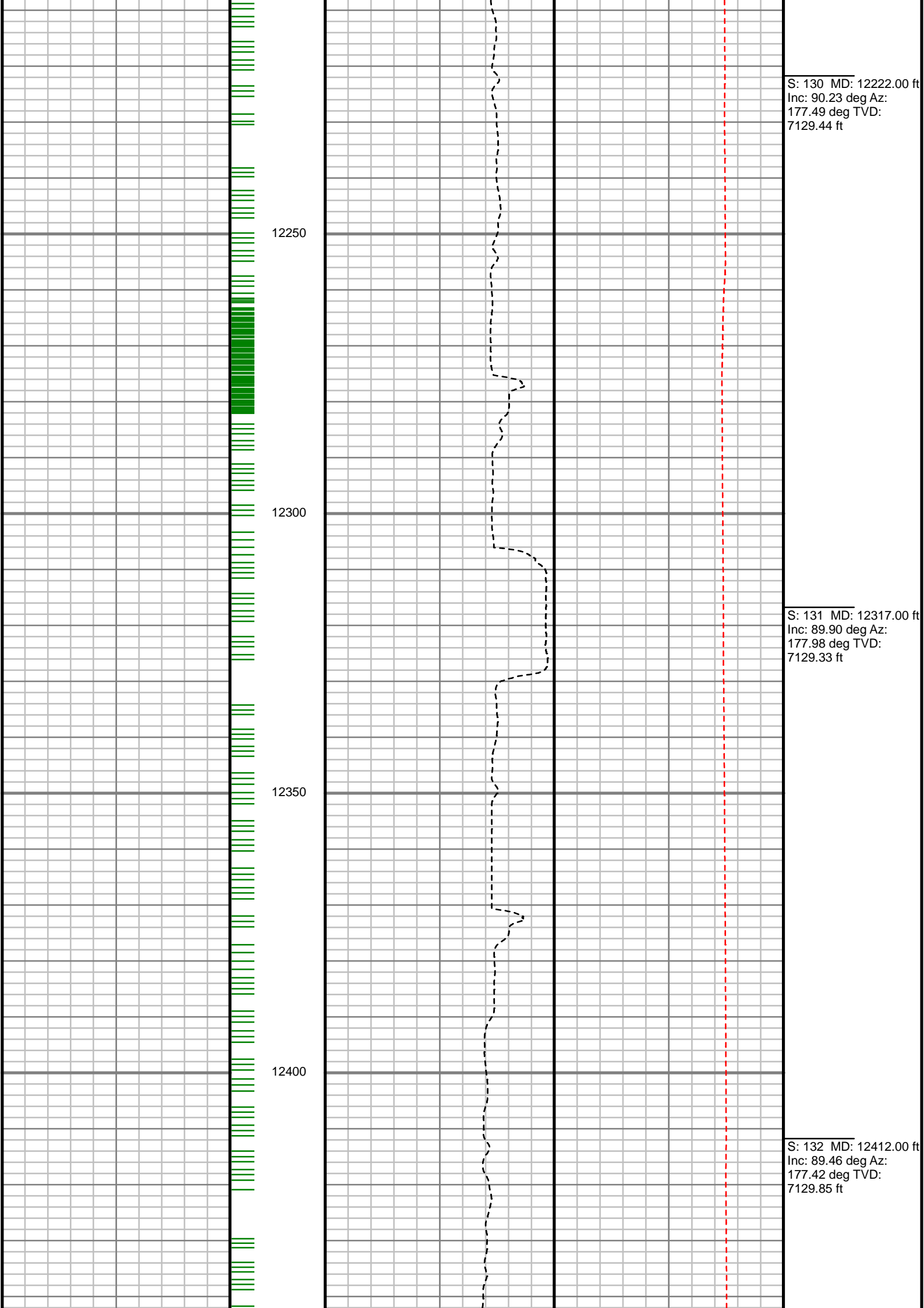


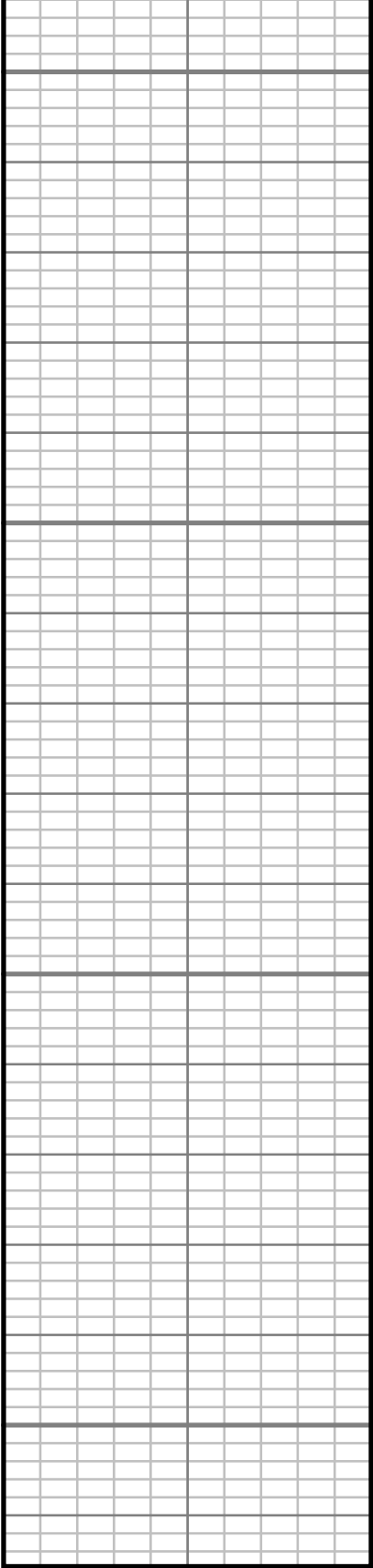




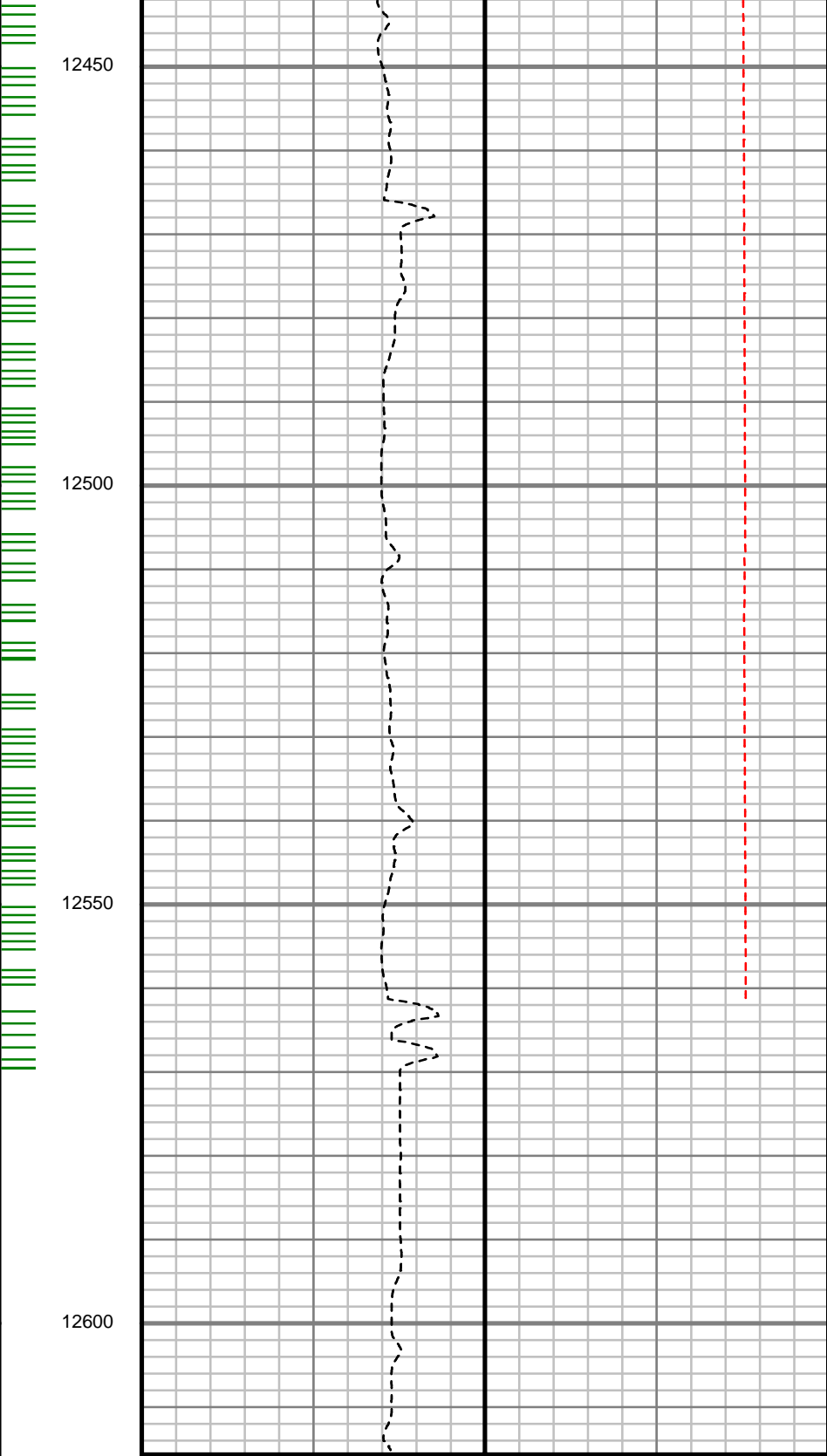




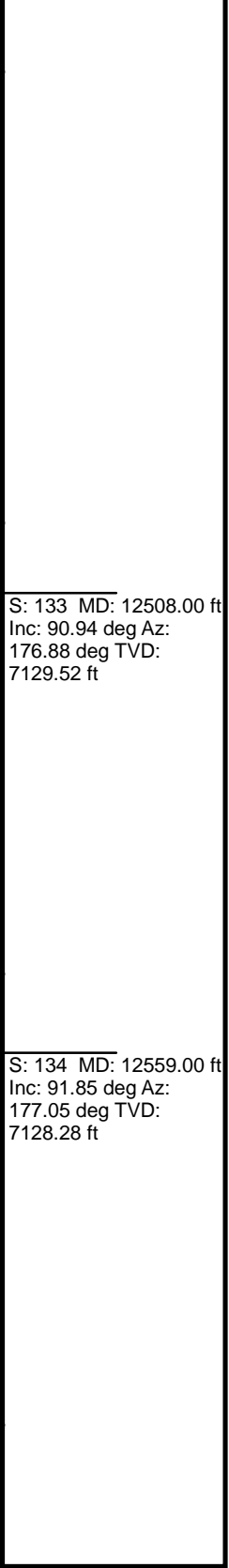




Gamma Ray (GR)		
150	Unit = aapi	300



Rate of Penetration (ROP)		Tool Temperature (T-TEMP)	
1000	Unit = ft/hr	0	Unit = °F



Comments

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
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00
97.00	0.81	298.60	97.00	-0.29	0.28	-0.52	0.96
187.00	1.55	300.47	186.98	-1.25	1.21	-2.13	0.82
277.00	2.47	303.91	276.92	-3.00	2.91	-4.79	1.03
385.00	3.52	307.82	384.77	-6.42	6.24	-9.34	0.99
475.00	4.84	312.43	474.53	-10.78	10.49	-14.32	1.51
520.00	5.12	313.32	519.36	-13.49	13.15	-17.19	0.65
610.00	6.15	310.47	608.93	-19.50	19.04	-23.77	1.19
700.00	7.36	306.60	698.30	-26.23	25.60	-32.07	1.44
790.00	8.83	301.79	787.40	-33.52	32.68	-42.57	1.80
880.00	8.68	300.02	876.35	-40.79	39.71	-54.32	0.34
970.00	8.79	298.78	965.31	-47.73	46.42	-66.23	0.24
1060.00	8.72	296.06	1054.26	-54.28	52.73	-78.39	0.47
1150.00	8.81	293.48	1143.21	-60.27	58.47	-90.84	0.45
1240.00	9.47	288.95	1232.07	-65.68	63.62	-104.16	1.08
1330.00	10.33	289.26	1320.73	-71.04	68.69	-118.78	0.96
1421.00	10.30	295.28	1410.26	-77.50	74.86	-133.84	1.18
1556.00	10.45	301.17	1543.06	-89.42	86.35	-155.23	0.79
1646.00	10.77	301.45	1631.52	-98.31	94.96	-169.39	0.36

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1736.00	10.78	301.08	1719.93	-107.33	103.69	-183.77	0.08
1829.00	10.97	299.93	1811.26	-116.53	112.60	-198.89	0.31
1982.00	12.39	298.55	1961.09	-132.17	127.70	-225.92	0.94
2077.00	11.67	294.48	2054.01	-141.37	136.55	-243.61	1.17
2171.00	12.12	302.81	2145.99	-151.00	145.84	-260.55	1.89
2265.00	12.12	298.26	2237.90	-161.36	155.86	-277.54	1.02
2360.00	11.38	297.22	2330.91	-170.70	164.87	-294.67	0.81
2455.00	10.72	302.71	2424.15	-180.08	173.94	-310.43	1.31
2550.00	11.47	313.83	2517.38	-191.68	185.26	-324.69	2.38
2645.00	11.96	310.42	2610.40	-204.89	198.19	-339.00	0.89
2741.00	10.58	305.81	2704.55	-216.79	209.79	-353.72	1.72
2835.00	11.71	306.98	2796.78	-227.87	220.58	-368.34	1.22
2931.00	11.83	303.71	2890.76	-239.50	231.90	-384.31	0.71
3025.00	11.00	301.63	2982.90	-249.86	241.95	-399.96	0.98
3121.00	10.30	299.89	3077.25	-259.24	251.03	-415.20	0.81
3216.00	11.56	302.68	3170.52	-268.91	260.40	-430.57	1.44
3311.00	10.86	300.94	3263.71	-278.96	270.14	-446.25	0.81
3406.00	9.88	299.33	3357.16	-287.85	278.74	-461.04	1.07
3501.00	10.63	303.33	3450.64	-296.95	287.54	-475.46	1.08
3597.00	10.26	301.59	3545.05	-306.58	296.89	-490.14	0.50

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3692.00	10.75	306.52	3638.46	-316.57	306.59	-504.47	1.08
3787.00	10.19	306.63	3731.88	-327.13	316.88	-518.34	0.59
3882.00	10.69	314.18	3825.31	-338.55	328.04	-531.41	1.53
3977.00	10.08	312.23	3918.75	-350.52	339.77	-543.88	0.74
4072.00	9.19	315.47	4012.41	-361.75	350.77	-555.36	1.10
4167.00	9.00	314.49	4106.21	-372.57	361.38	-565.98	0.25
4262.00	8.47	313.45	4200.11	-382.80	371.40	-576.36	0.59
4357.00	7.45	311.20	4294.20	-391.86	380.27	-586.08	1.12
4453.00	6.72	312.53	4389.46	-399.93	388.17	-594.90	0.78
4547.00	5.15	308.30	4482.96	-406.41	394.50	-602.26	1.74
4643.00	4.67	308.53	4578.60	-411.64	399.61	-608.70	0.50
4737.00	3.17	310.38	4672.38	-415.80	403.67	-613.67	1.60
4832.00	0.99	338.25	4767.31	-418.32	406.14	-615.98	2.47
4928.00	1.22	16.73	4863.30	-420.07	407.89	-616.00	0.79
5022.00	1.24	313.85	4957.28	-421.73	409.55	-616.44	1.36
5117.00	1.17	334.35	5052.26	-423.34	411.13	-617.60	0.46
5211.00	1.44	351.04	5146.24	-425.39	413.17	-618.20	0.50
5306.00	1.73	286.44	5241.21	-427.01	414.76	-619.76	1.80
5401.00	1.50	279.76	5336.17	-427.67	415.37	-622.36	0.31
5496.00	1.37	282.06	5431.14	-428.17	415.82	-624.70	0.15

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5590.00	1.10	282.75	5525.12	-428.64	416.26	-626.68	0.29
5685.00	0.97	285.81	5620.10	-429.10	416.68	-628.35	0.15
5780.00	1.12	270.79	5715.09	-429.36	416.91	-630.05	0.33
5875.00	0.85	257.19	5810.07	-429.25	416.77	-631.66	0.37
5971.00	0.93	252.68	5906.06	-428.89	416.38	-633.10	0.11
6064.00	0.54	271.18	5999.05	-428.70	416.16	-634.26	0.49
6160.00	0.48	259.25	6095.05	-428.65	416.09	-635.11	0.12
6255.00	1.43	294.84	6190.03	-429.10	416.52	-636.57	1.13
6349.00	0.78	212.91	6284.02	-429.08	416.47	-637.98	1.62
6444.00	0.65	196.75	6379.01	-428.04	415.42	-638.49	0.25
6539.00	10.03	191.60	6473.50	-419.44	406.78	-640.31	9.88
6633.00	15.45	178.68	6565.16	-398.91	386.22	-641.67	6.48
6729.00	23.23	178.74	6655.68	-367.14	354.46	-640.96	8.10
6824.00	32.85	179.25	6739.43	-322.54	309.86	-640.21	10.13
6919.00	39.31	172.62	6816.20	-266.78	254.18	-636.00	7.93
7014.00	46.79	176.54	6885.58	-202.17	189.68	-630.04	8.37
7109.00	54.92	178.64	6945.51	-128.58	116.13	-627.02	8.72
7203.00	62.83	176.15	6994.07	-48.22	35.82	-623.29	8.71
7298.00	69.68	174.38	7032.30	38.51	-50.78	-616.08	7.41
7392.00	80.45	173.11	7056.48	128.84	-140.93	-606.18	11.53

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7486.00	90.03	176.89	7064.27	222.18	-234.13	-598.05	10.95
7581.00	91.85	177.53	7062.71	317.12	-329.00	-593.42	2.03
7676.00	91.04	176.49	7060.32	412.04	-423.83	-588.47	1.39
7771.00	90.60	177.06	7058.96	506.97	-518.67	-583.13	0.75
7866.00	90.00	177.35	7058.45	601.93	-613.56	-578.50	0.70
7961.00	90.13	177.44	7058.34	696.90	-708.46	-574.18	0.17
8055.00	91.98	176.71	7056.61	790.83	-802.32	-569.38	2.11
8150.00	89.93	175.67	7055.02	885.71	-897.09	-563.07	2.42
8245.00	89.19	176.33	7055.74	980.58	-991.85	-556.44	1.05
8341.00	88.05	177.00	7058.05	1076.48	-1087.66	-550.86	1.37
8436.00	87.85	177.07	7061.44	1171.38	-1182.47	-545.94	0.23
8531.00	87.78	177.65	7065.06	1266.27	-1277.30	-541.57	0.62
8626.00	87.52	179.18	7068.96	1361.19	-1372.18	-538.94	1.63
8720.00	87.65	179.50	7072.93	1455.10	-1466.09	-537.86	0.37
8815.00	88.15	178.33	7076.41	1550.03	-1561.01	-536.06	1.35
8910.00	87.85	179.63	7079.72	1644.97	-1655.93	-534.37	1.41
9006.00	88.99	180.81	7082.37	1740.91	-1751.89	-534.74	1.71
9100.00	88.59	180.34	7084.35	1834.84	-1845.87	-535.69	0.66
9196.00	86.97	178.95	7088.06	1930.76	-1941.79	-535.10	2.22
9291.00	86.47	178.85	7093.49	2025.60	-2036.61	-533.27	0.54

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9386.00	86.54	177.96	7099.28	2120.42	-2131.40	-530.63	0.93
9481.00	87.92	177.90	7103.87	2215.30	-2226.23	-527.20	1.45
9575.00	88.08	179.65	7107.14	2309.23	-2320.14	-525.20	1.87
9669.00	89.16	180.00	7109.40	2403.19	-2414.11	-524.91	1.20
9764.00	88.25	179.94	7111.55	2498.15	-2509.09	-524.87	0.96
9859.00	87.58	180.14	7115.00	2593.07	-2604.03	-524.94	0.74
9954.00	88.42	179.64	7118.31	2687.99	-2698.97	-524.75	1.03
10049.00	87.68	178.34	7121.54	2782.93	-2793.89	-523.08	1.57
10144.00	87.24	179.17	7125.74	2877.84	-2888.78	-521.01	0.98
10238.00	88.83	178.27	7128.97	2971.78	-2982.69	-518.91	1.93
10333.00	88.83	178.63	7130.92	3066.76	-3077.64	-516.34	0.37
10428.00	90.00	178.10	7131.89	3161.75	-3172.59	-513.64	1.35
10523.00	89.16	179.01	7132.58	3256.74	-3267.56	-511.24	1.30
10616.00	87.68	178.88	7135.15	3349.70	-3360.51	-509.53	1.60
10710.00	87.88	178.93	7138.78	3443.63	-3454.42	-507.74	0.22
10805.00	88.52	178.21	7141.76	3538.58	-3549.34	-505.37	1.01
10900.00	89.40	177.86	7143.49	3633.56	-3644.27	-502.12	0.99
10995.00	90.97	177.22	7143.18	3728.53	-3739.18	-498.04	1.79
11090.00	91.51	177.94	7141.12	3823.48	-3834.07	-494.03	0.95
11182.00	91.31	179.13	7138.86	3915.45	-3926.01	-491.67	1.30

5" = 100' FEET MD