



5" = 100' FEET MD

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : LAND FED 35C-32HZ
FIELD : WATTENBERG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05123423970000

COMPANY : ANADARKO E&P ONSHORE LLC

WELL : LAND FED 35C-32HZ

FIELD : WATTENBERG

COUNTY : WELD

STATE : COLORADO

COUNTRY : U.S.A.

UWI : 05123423970000

WELL LOCATION

LAT:40°5'56.494"N LONG:104°48'19.487"W
N:14562852.67 ft E:1694832.16 ft

SEC:32

TWP: 2N

RANGE: 66W

OTHER SERVICES

DIRECTIONAL
ROP

DEPTH REF. : RKB

REF. HEIGHT : 20.000 ft

RKB to Ground Level

GROUND LEVEL : 4899.000 ft

G.L. to MEAN SEA LEVEL

BOREHOLE RECORD

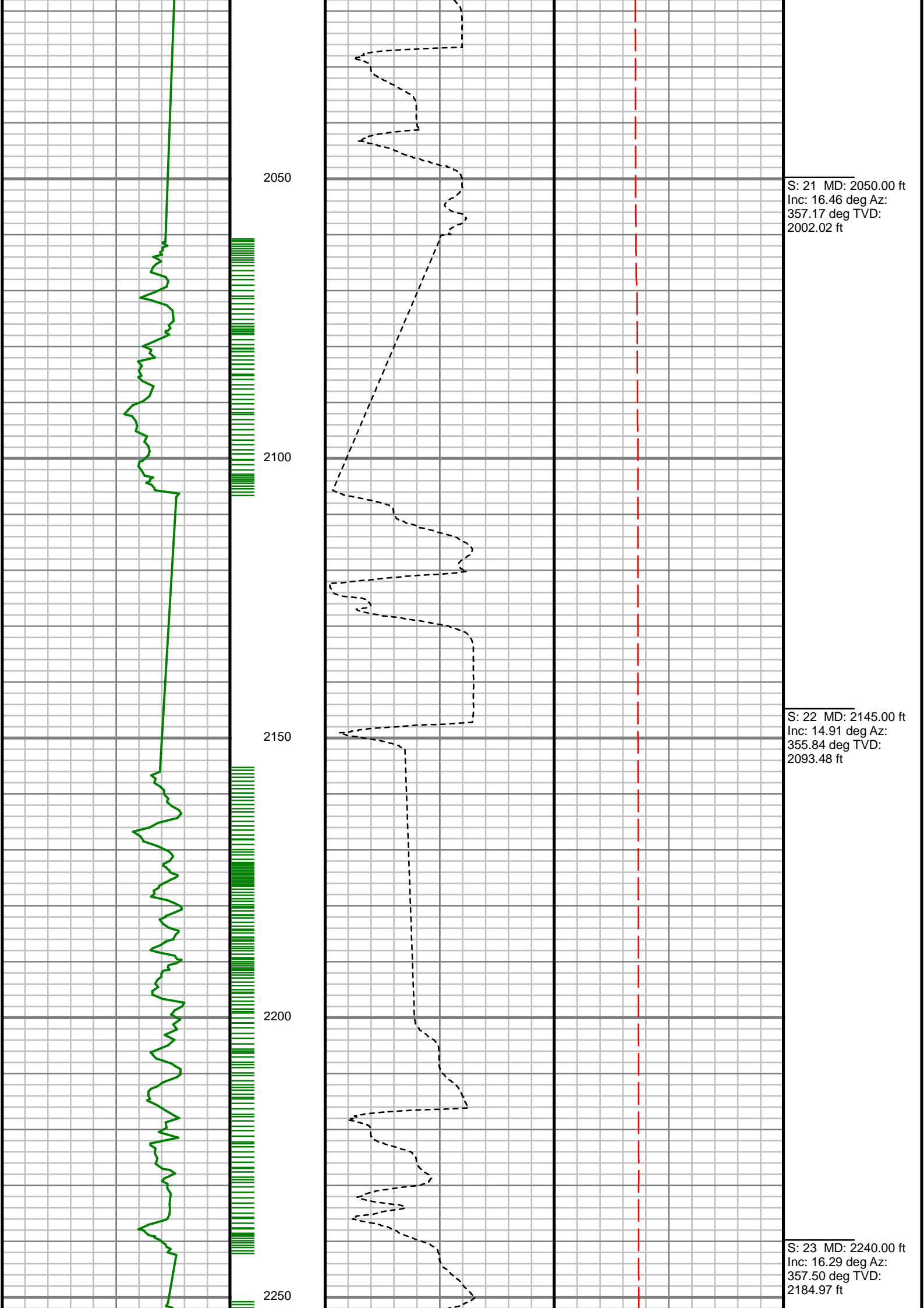
DEVIATION RECORD

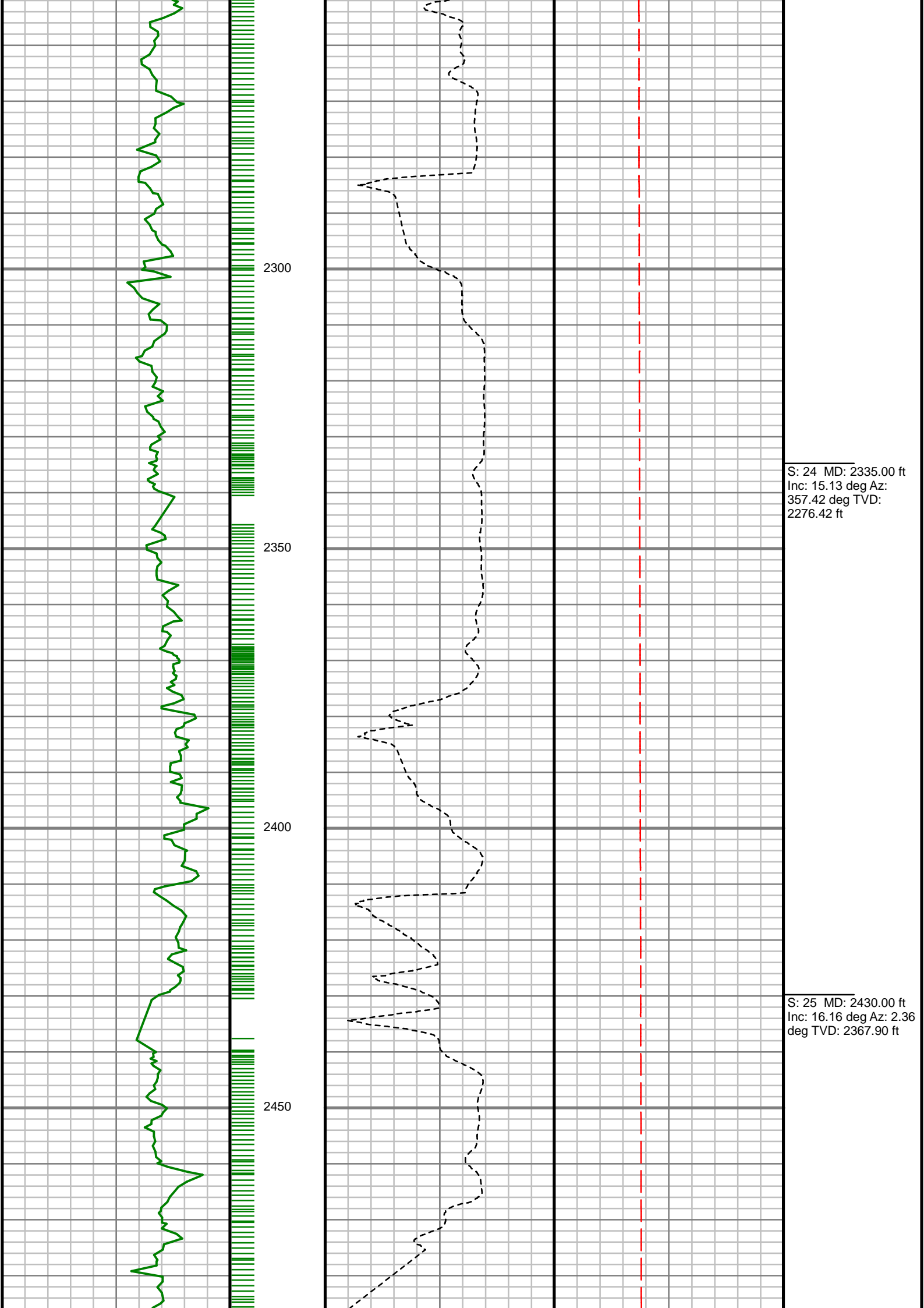
CASING RECORD					
CASING SIZE in	FROM ft	TO ft			
9.625	0	1870			
			DRILLING CO. : PRECISION DRILLING		
			RIG : 461		
			LWD UNIT NO. :	DISTRICT : CASPER	
			SPUD DATE : 05/17/2016		
			LWD START DATE : 06/27/2016	DEPTH : 1950 ft	
			LWD END DATE : 06/29/2016	DEPTH : 06/29/2016	
			TOTAL DEPTH : 13085 ft		

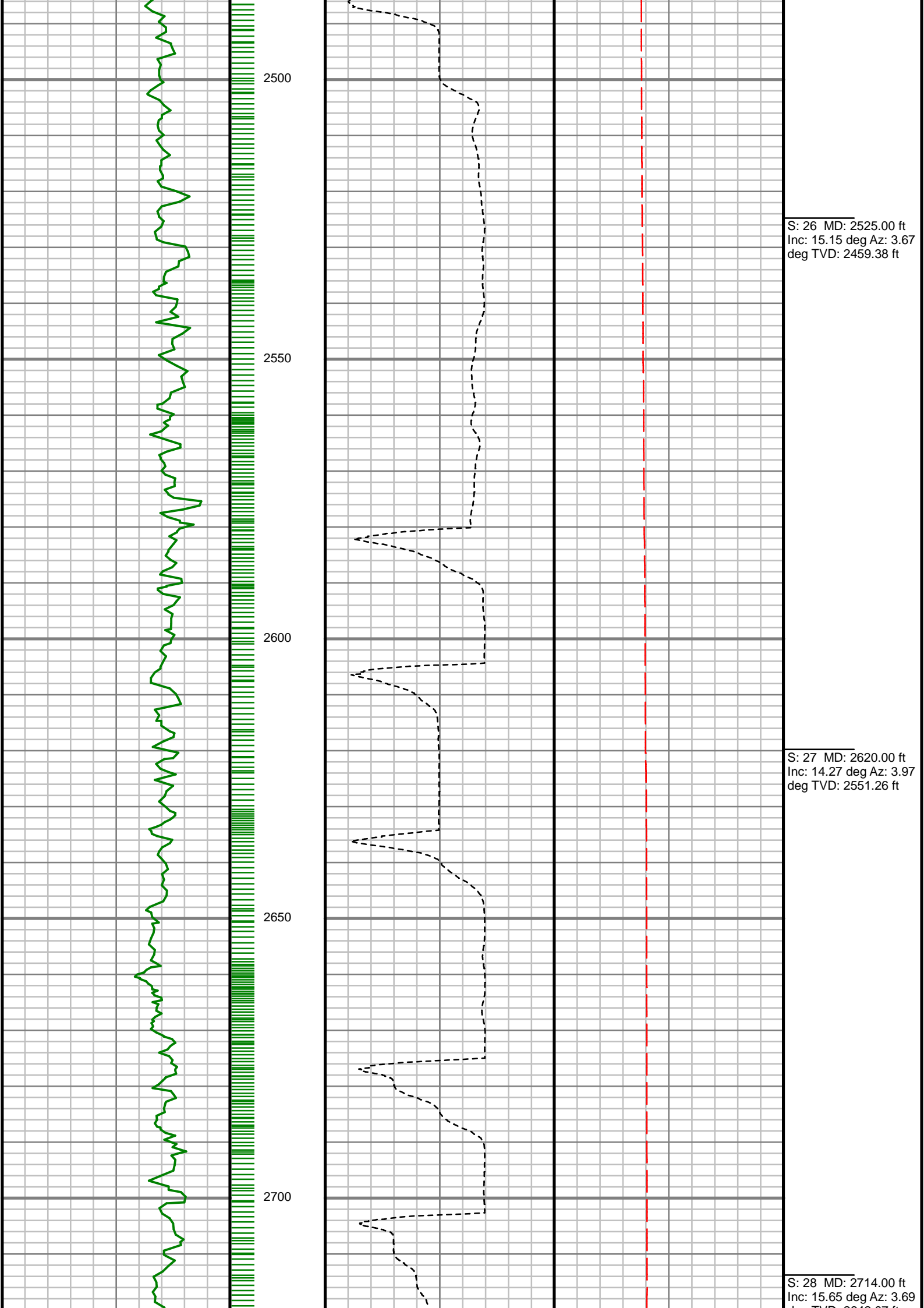
[illegible]

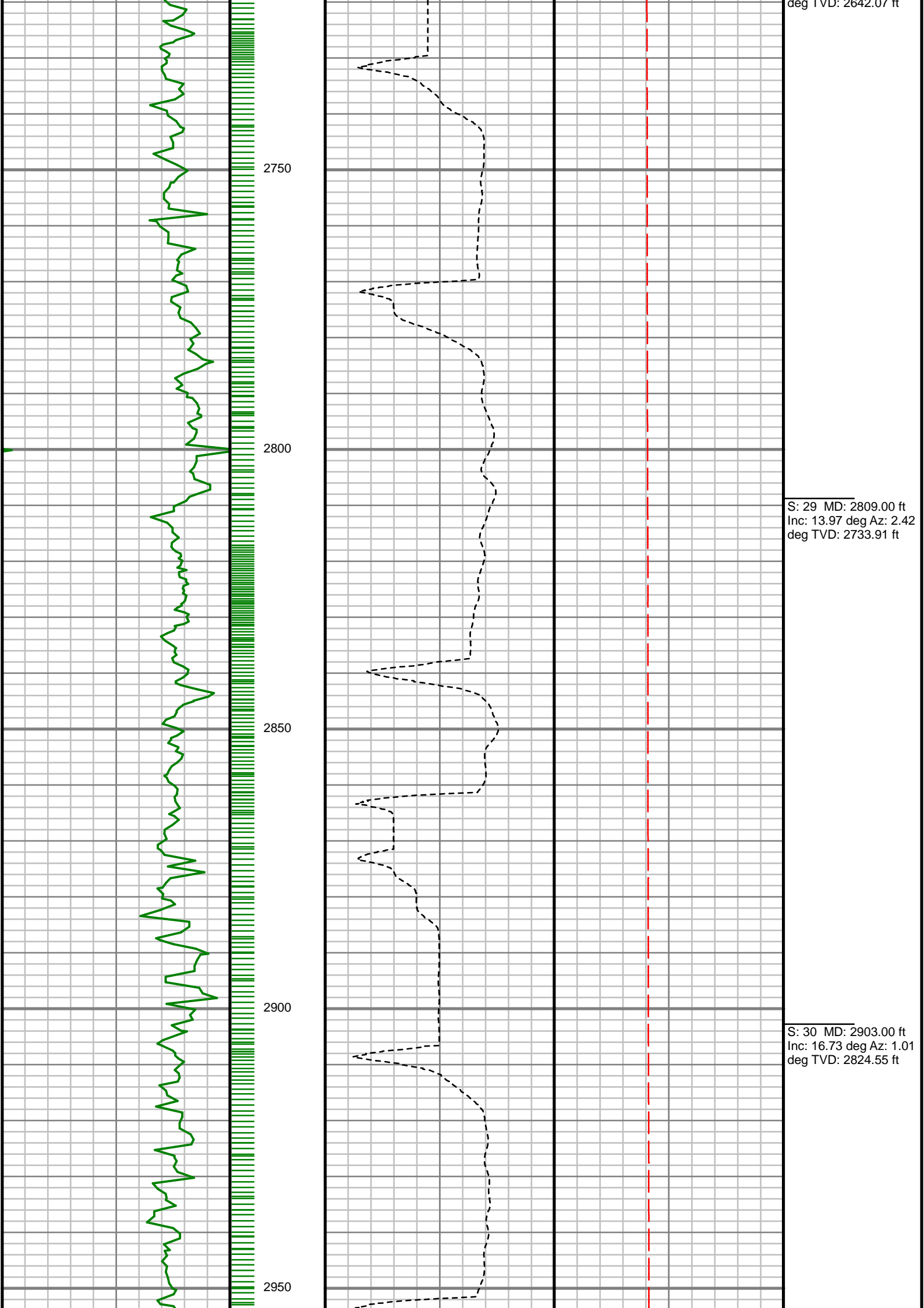
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

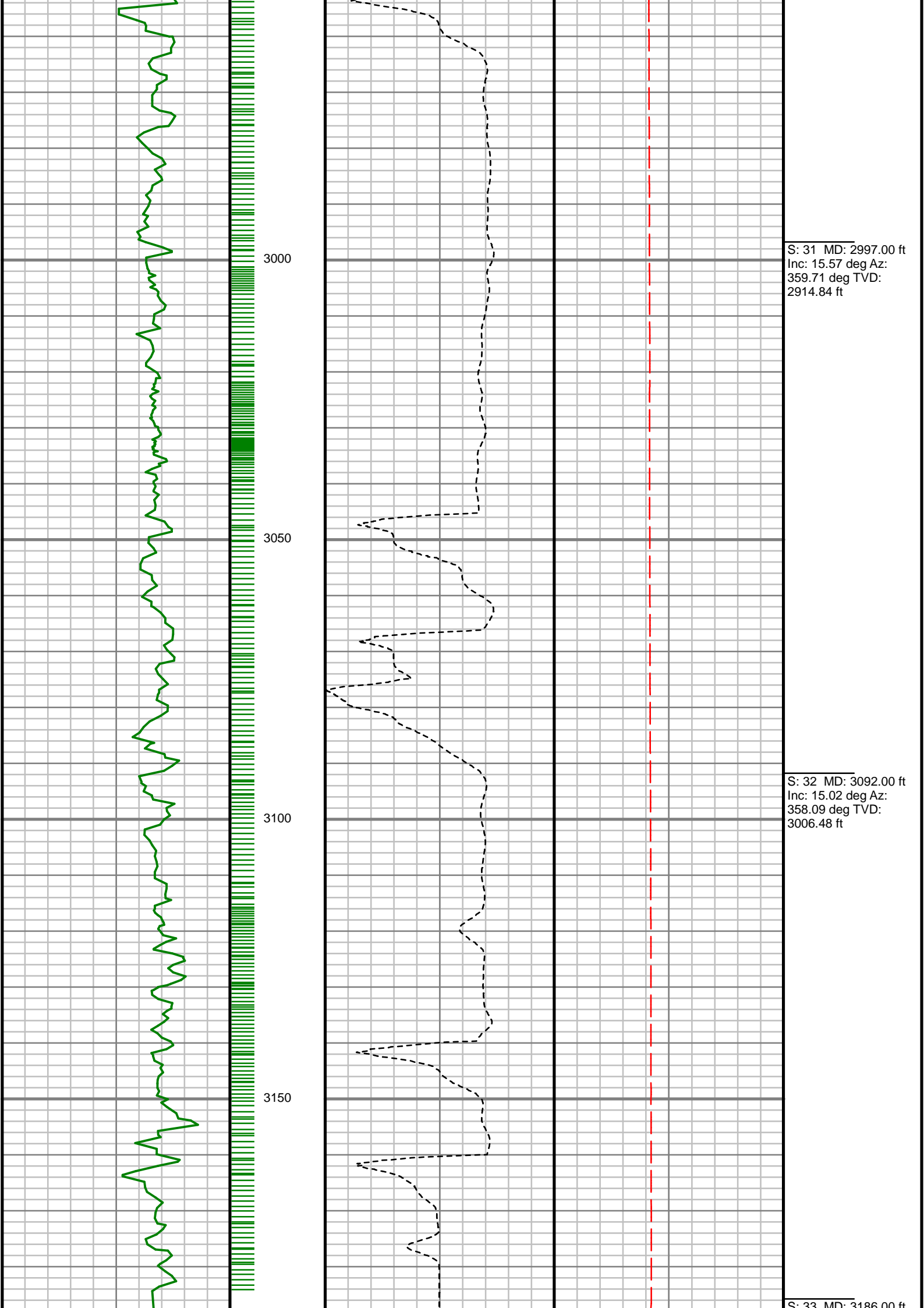
ANADARKO E&P ONSHORE LLC. LAND FED 35C-32HZ WATTENBURG FIELD WELD COUNTY, COLORADO 0512343970000			
Gamma Ray (GR) Unit = aapi	MEASURED DEPTH 1:240 (ft)	Rate of Penetration (ROP) Unit = ft/hr	Tool Temperature (T-TEMP) Unit = °F
S: 20 MD: 1956.00 ft Inc: 14.54 deg Az: 352.49 deg TVD: 1911.44 ft			

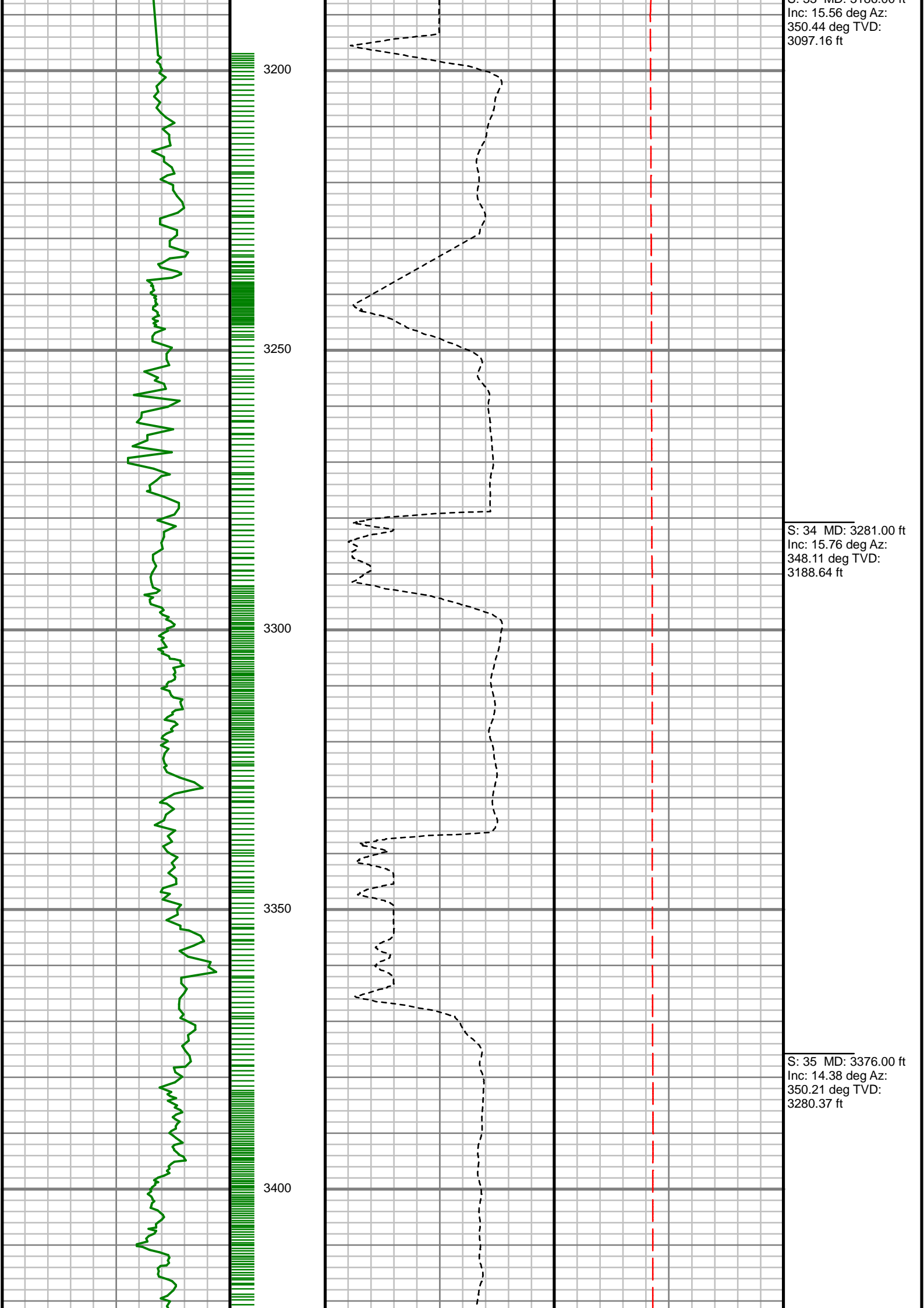


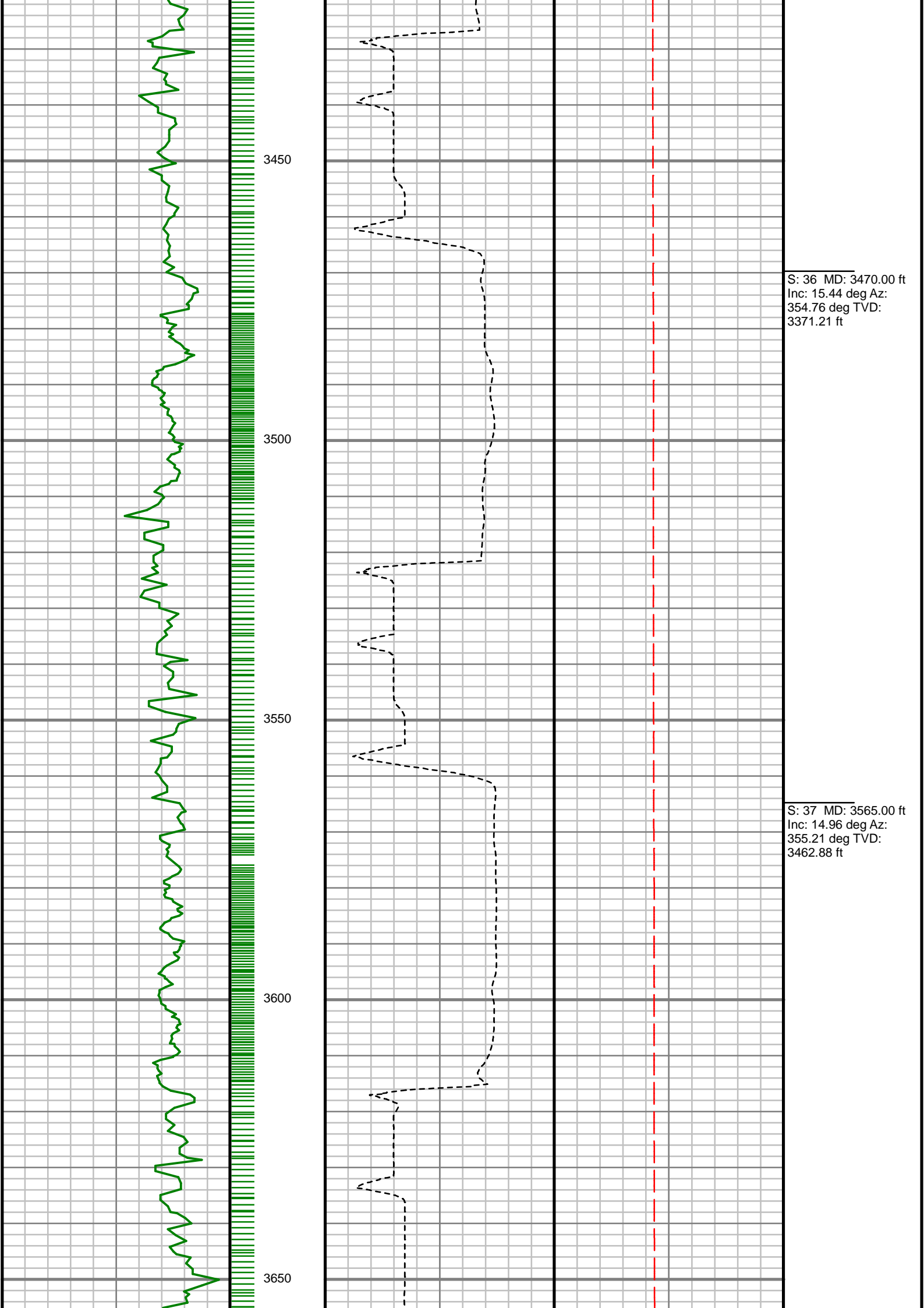






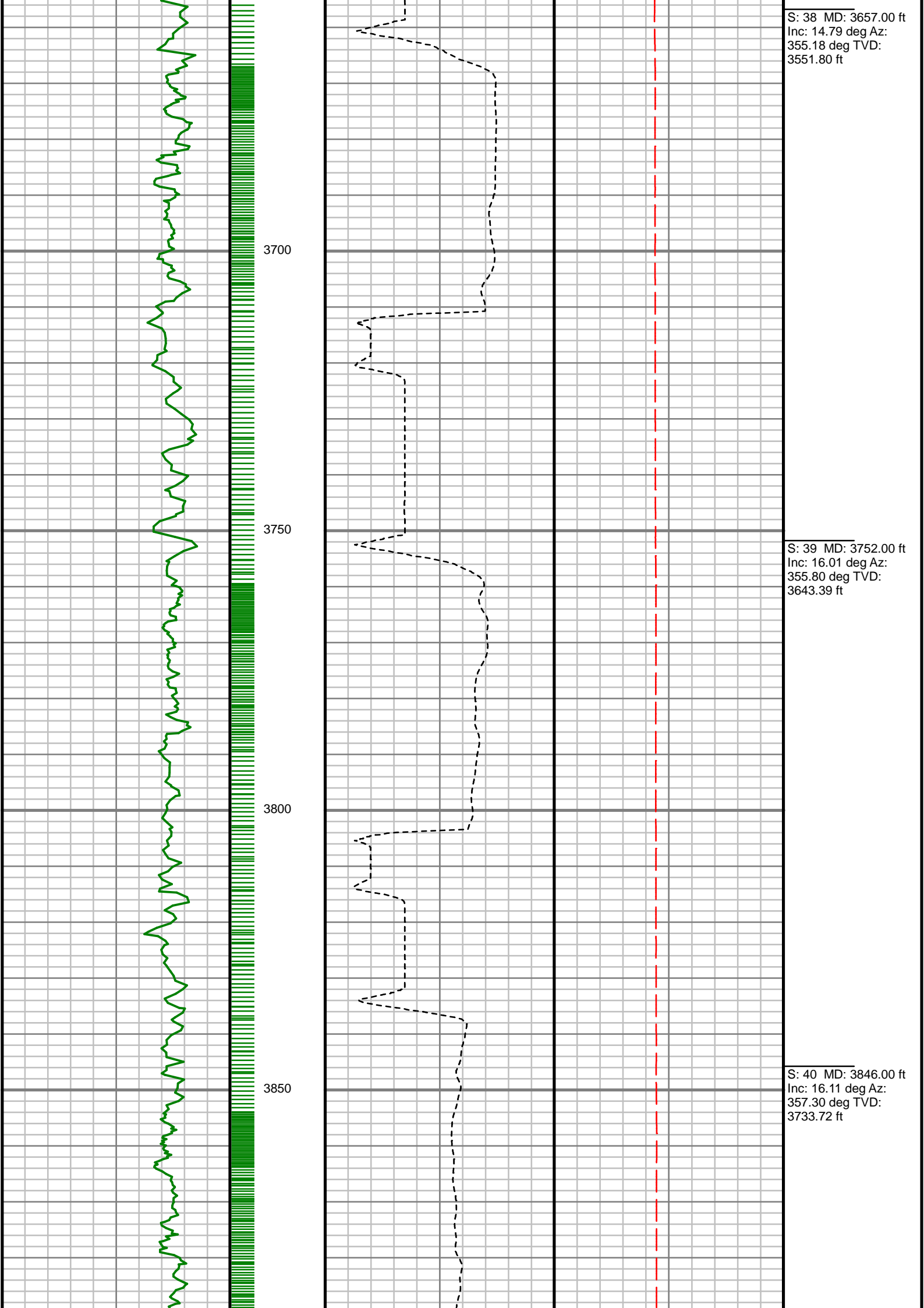


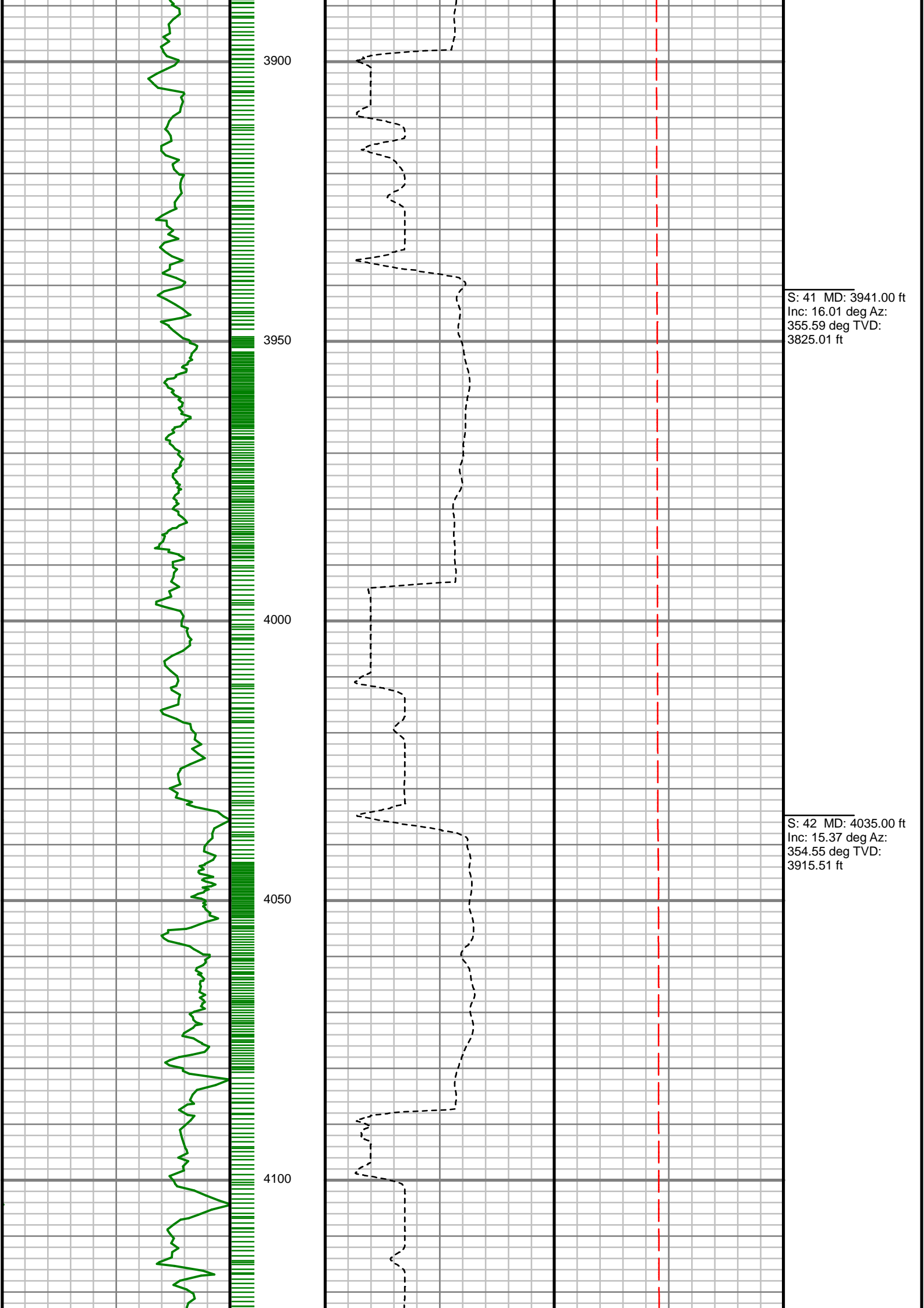


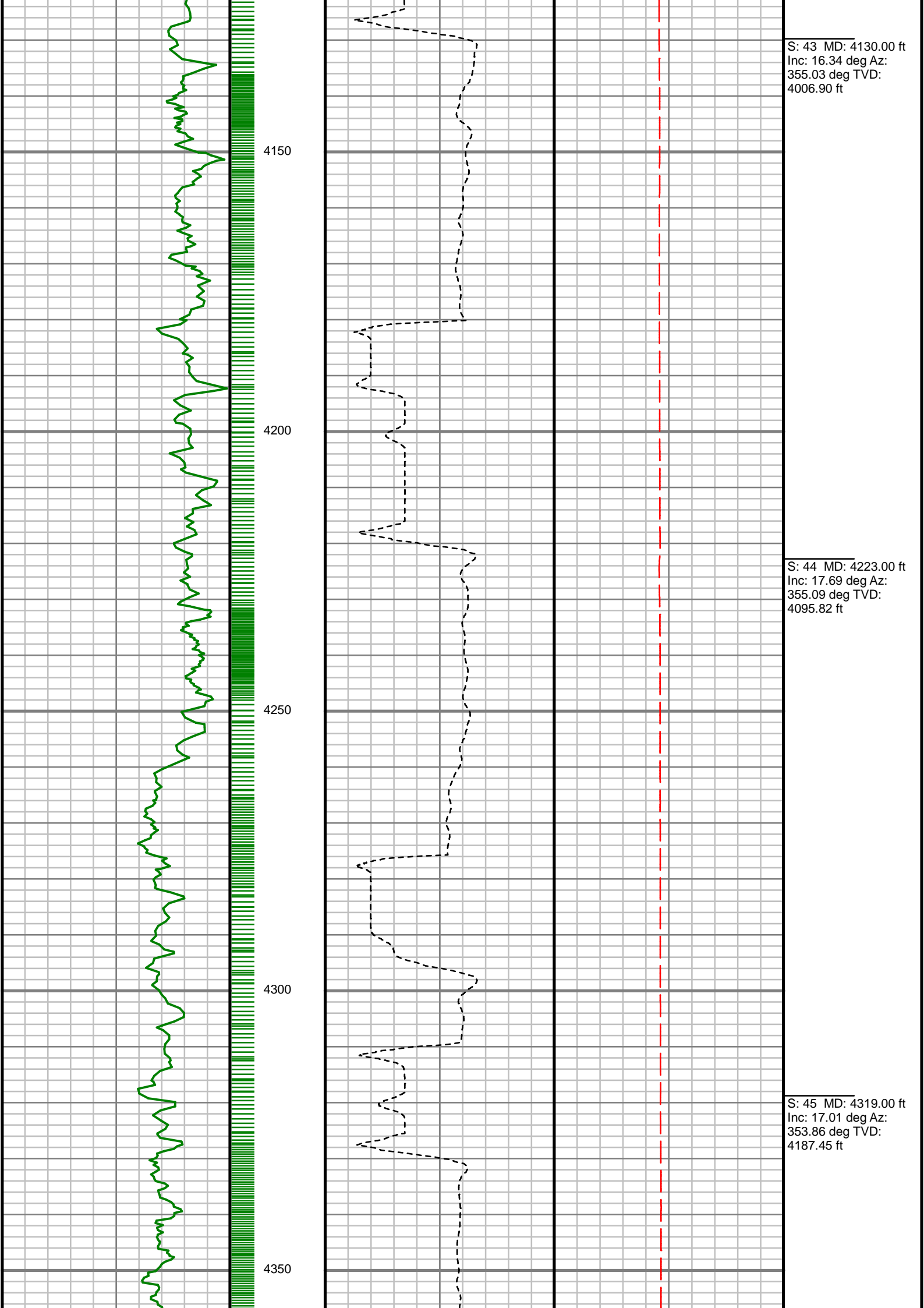


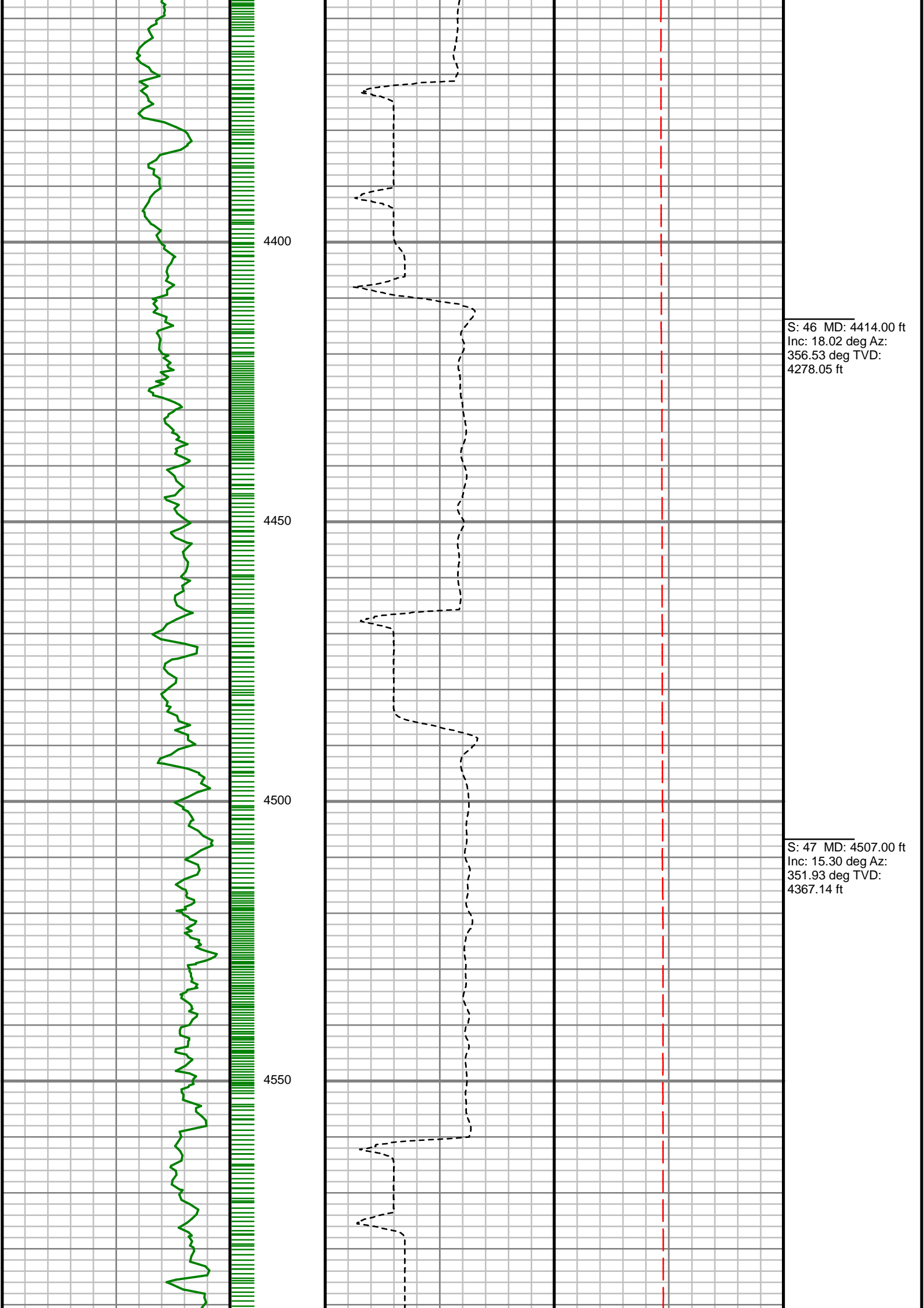
S: 36 MD: 3470.00 ft
Inc: 15.44 deg Az:
354.76 deg TVD:
3371.21 ft

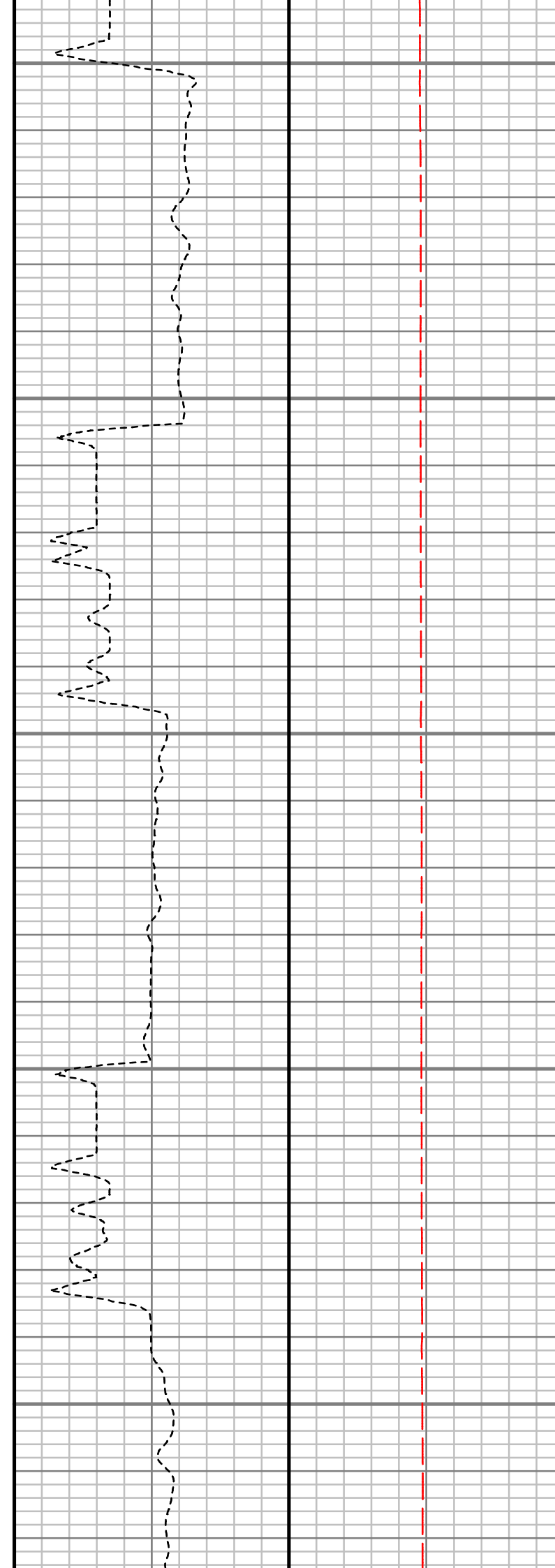
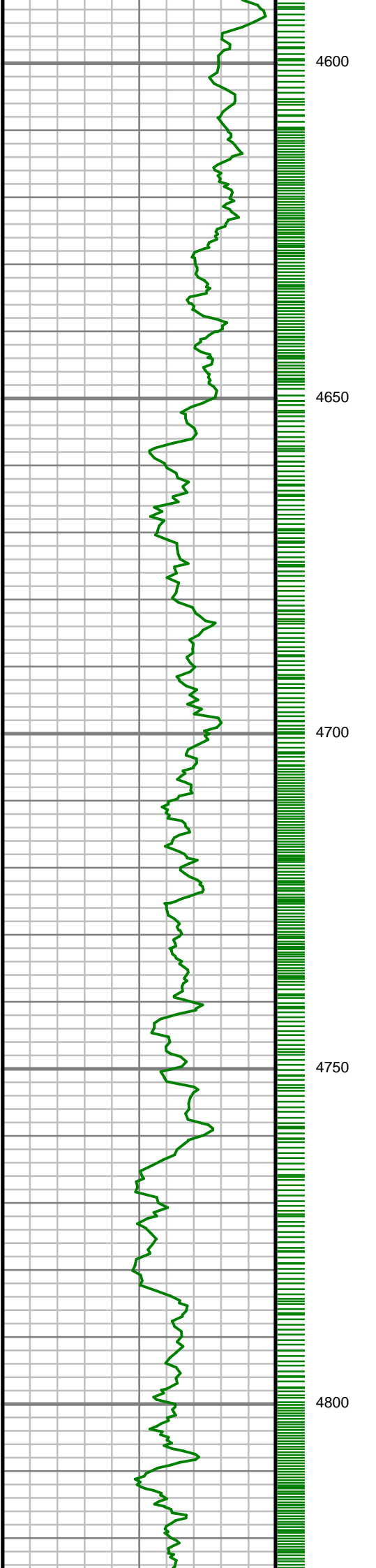
S: 37 MD: 3565.00 ft
Inc: 14.96 deg Az:
355.21 deg TVD:
3462.88 ft







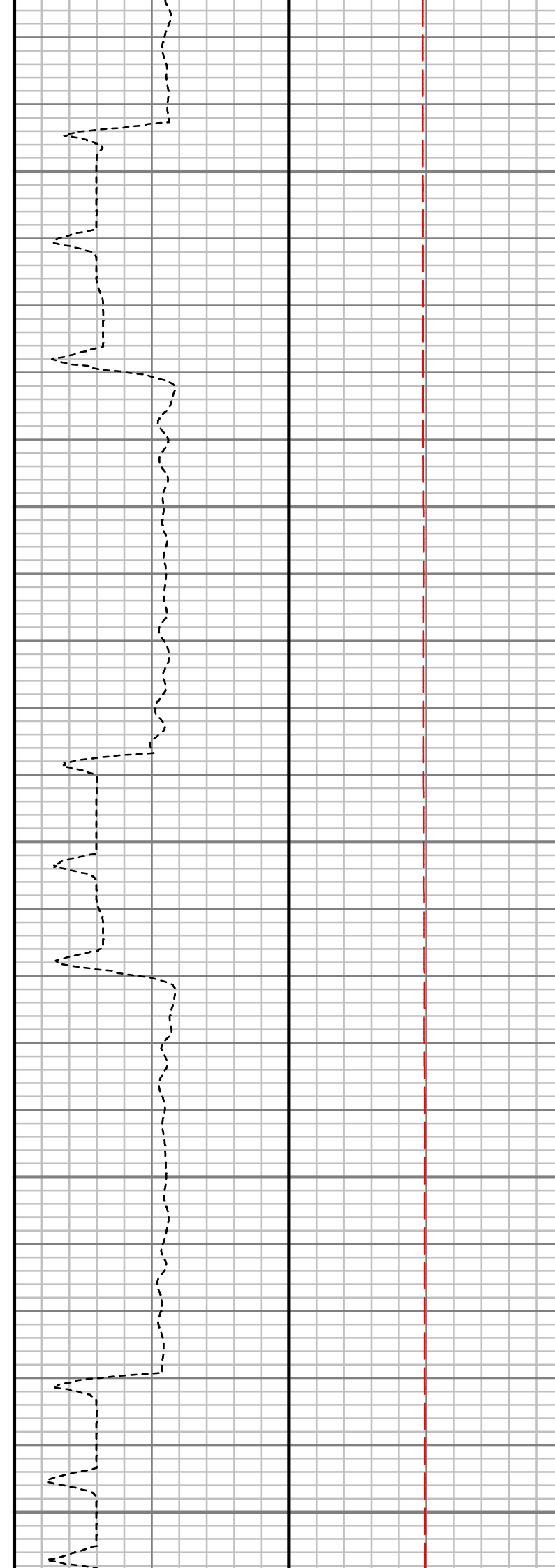
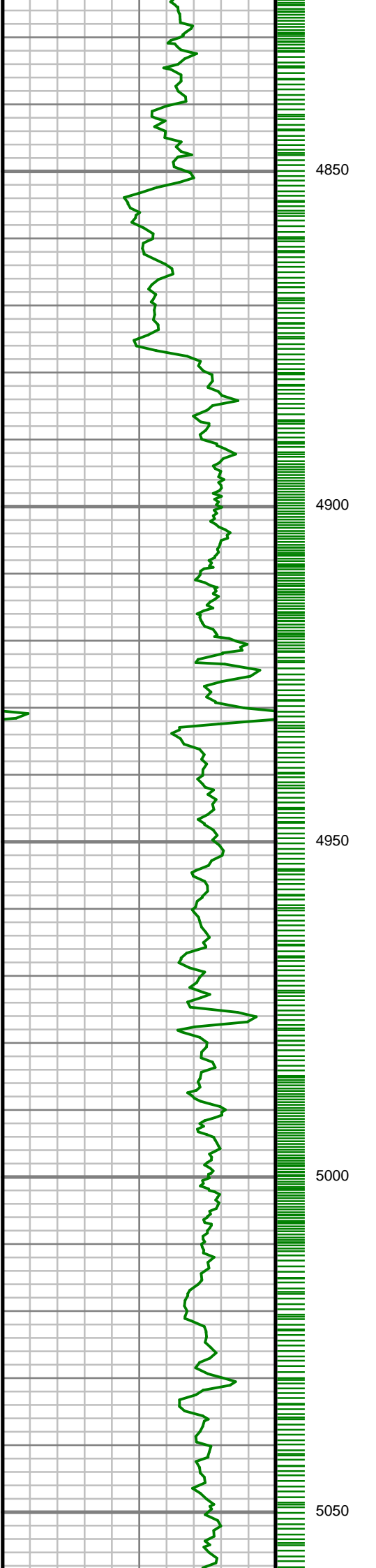




S: 48 MD: 4602.00 ft
Inc: 15.09 deg Az:
355.34 deg TVD:
4458.82 ft

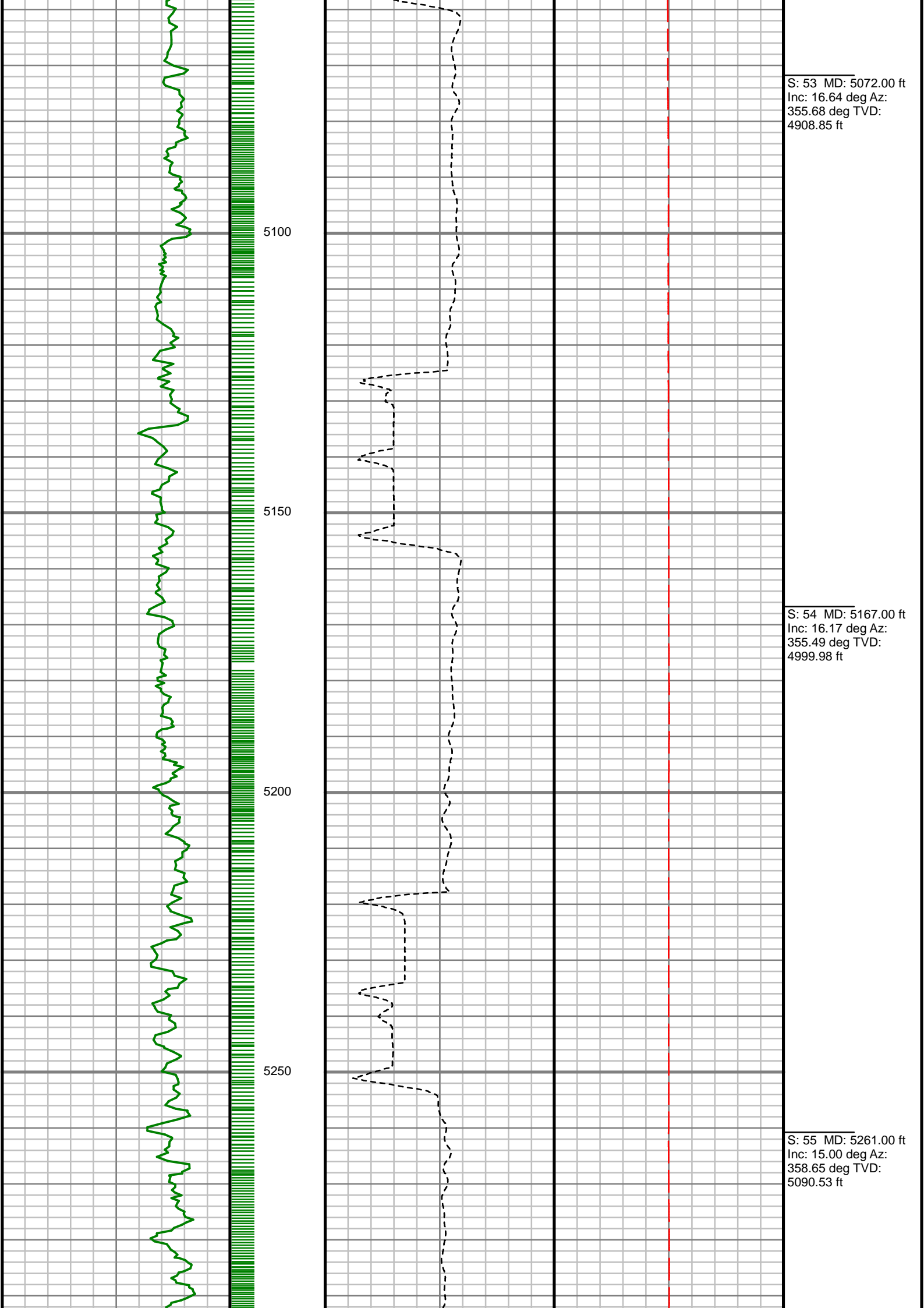
S: 49 MD: 4697.00 ft
Inc: 16.24 deg Az:
355.39 deg TVD:
4550.29 ft

S: 50 MD: 4791.00 ft
Inc: 16.81 deg Az:
350.63 deg TVD:
4640.41 ft



S: 51 MD: 4886.00 ft
Inc: 17.12 deg Az:
352.48 deg TVD:
4731.28 ft

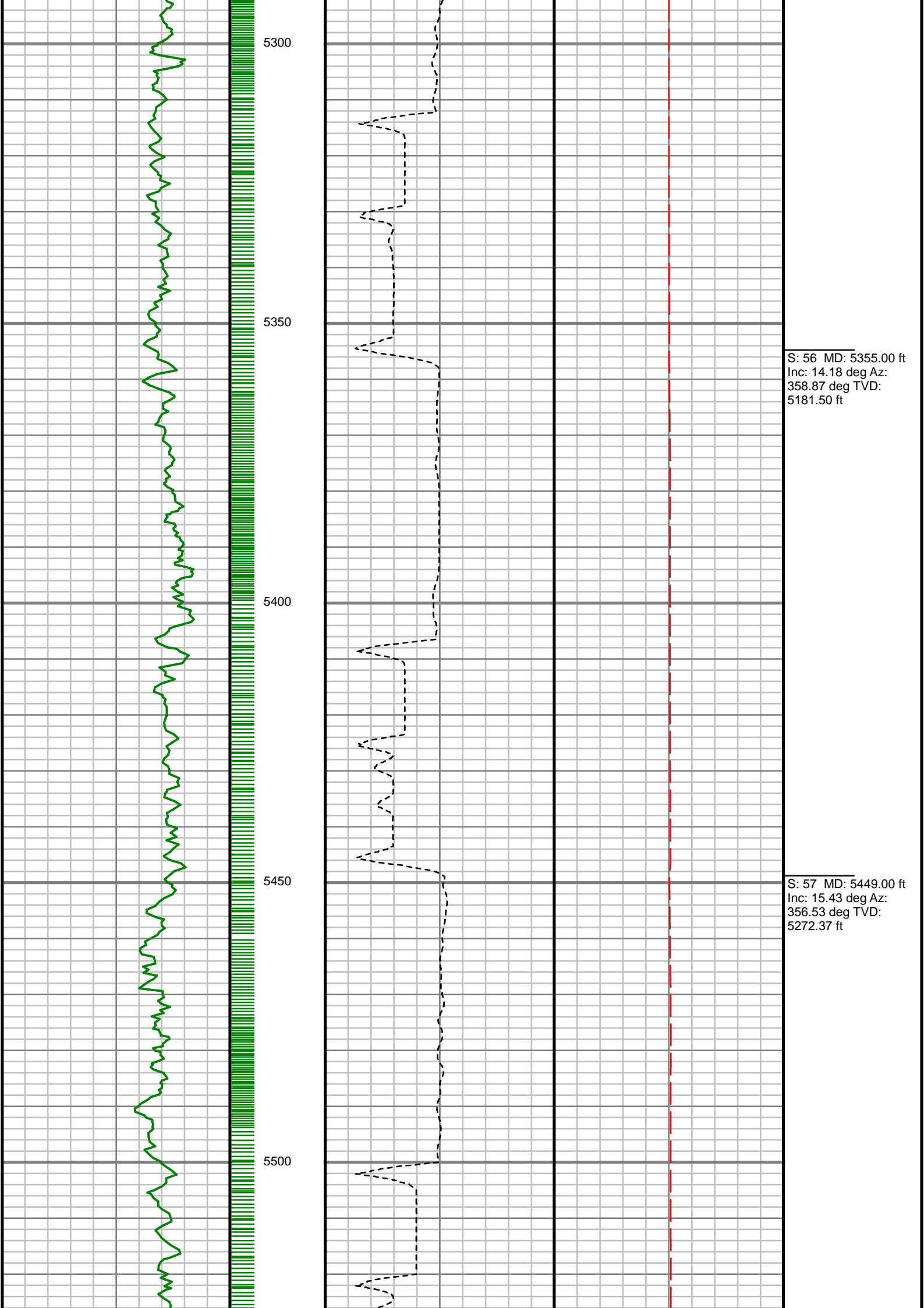
S: 52 MD: 4979.00 ft
Inc: 17.75 deg Az:
354.60 deg TVD:
4820.01 ft

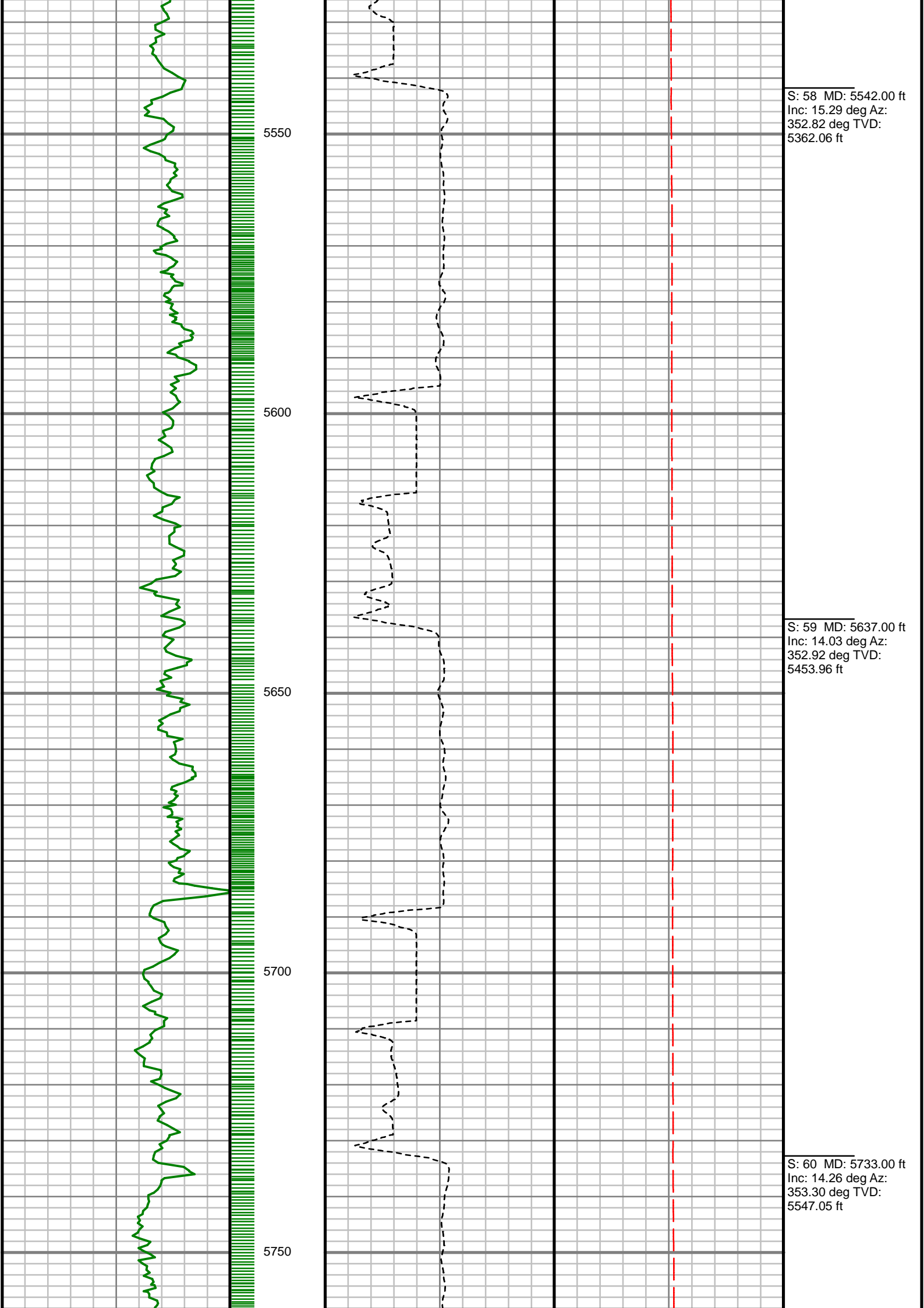


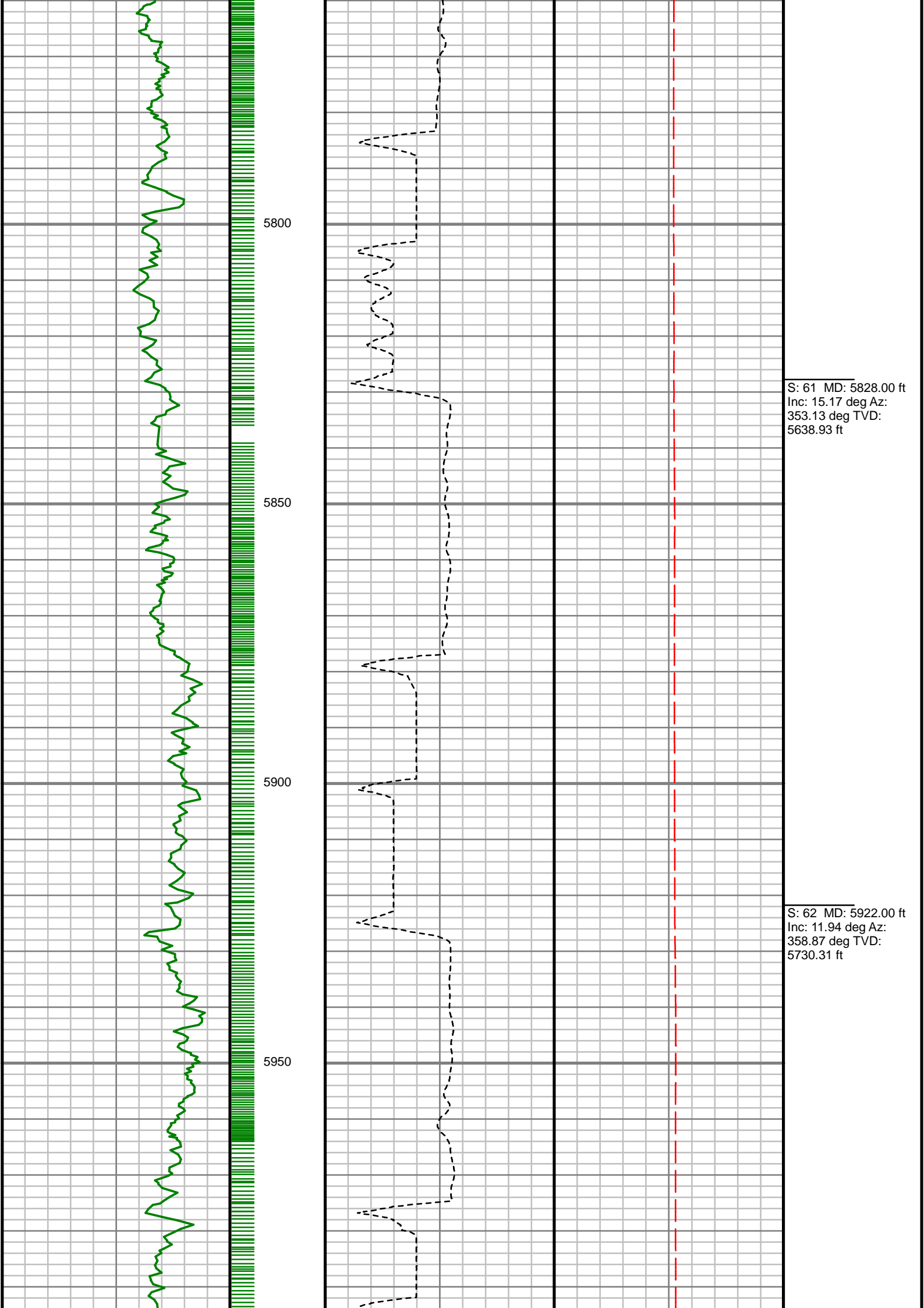
S: 53 MD: 5072.00 ft
Inc: 16.64 deg Az:
355.68 deg TVD:
4908.85 ft

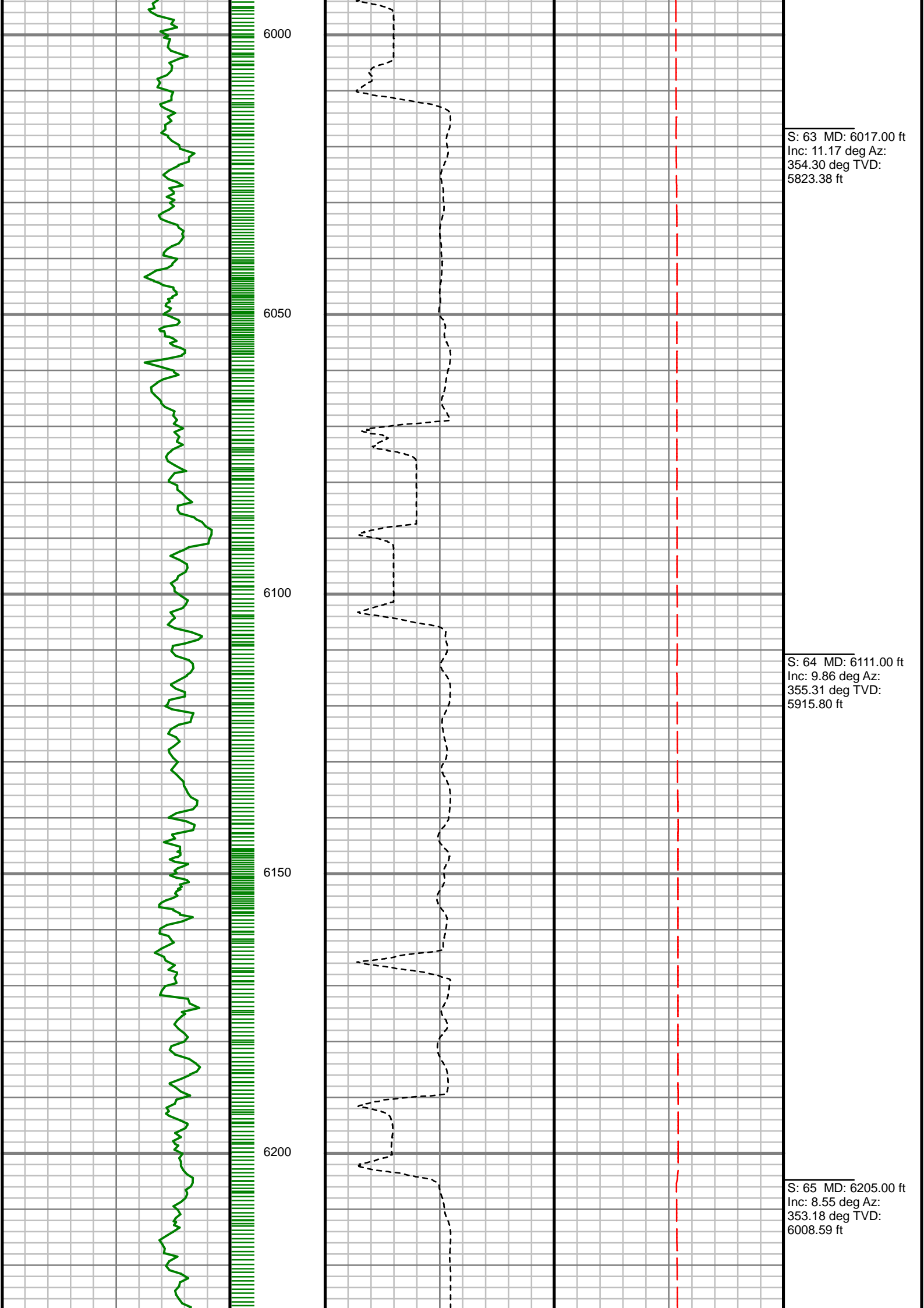
S: 54 MD: 5167.00 ft
Inc: 16.17 deg Az:
355.49 deg TVD:
4999.98 ft

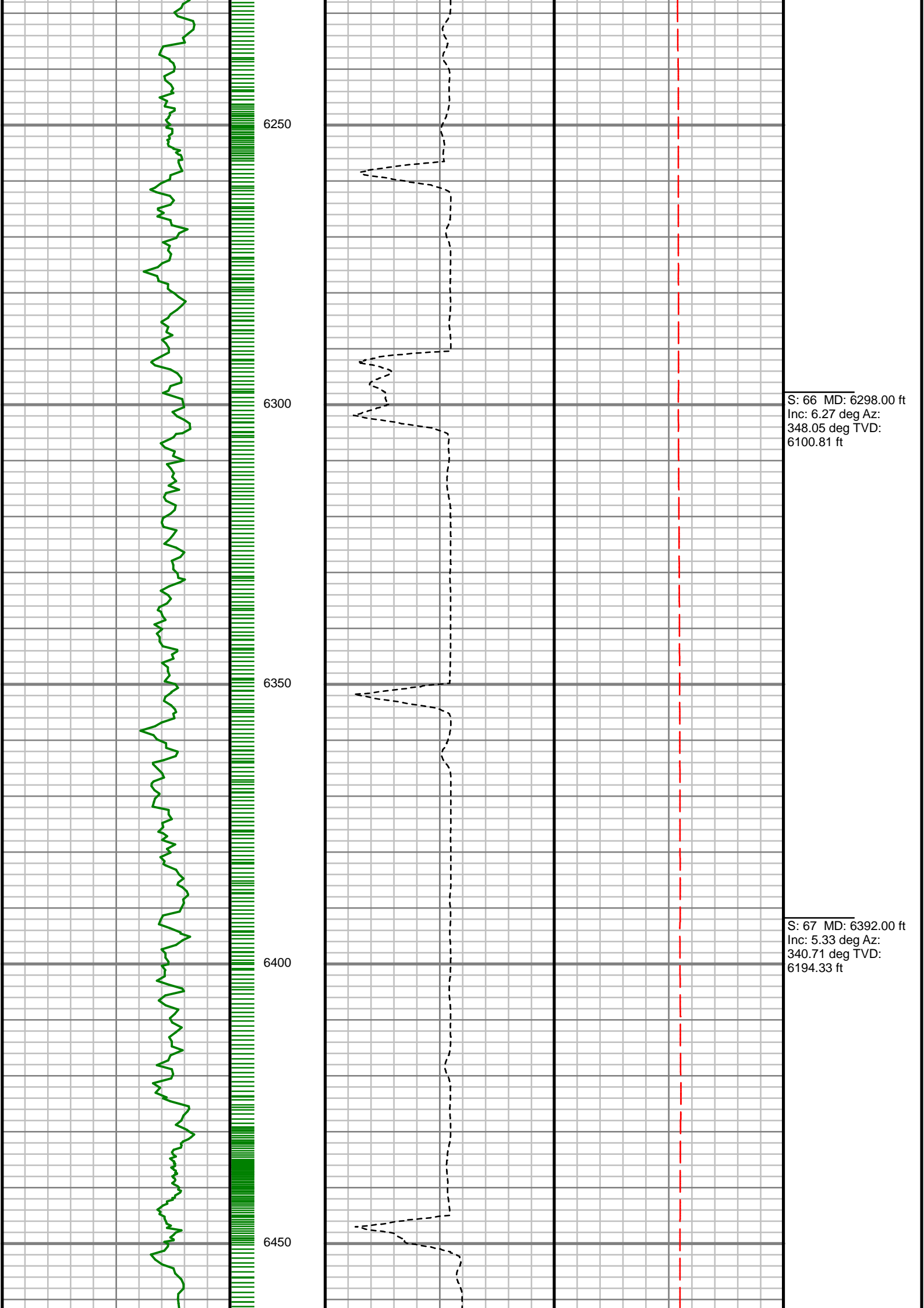
S: 55 MD: 5261.00 ft
Inc: 15.00 deg Az:
358.65 deg TVD:
5090.53 ft

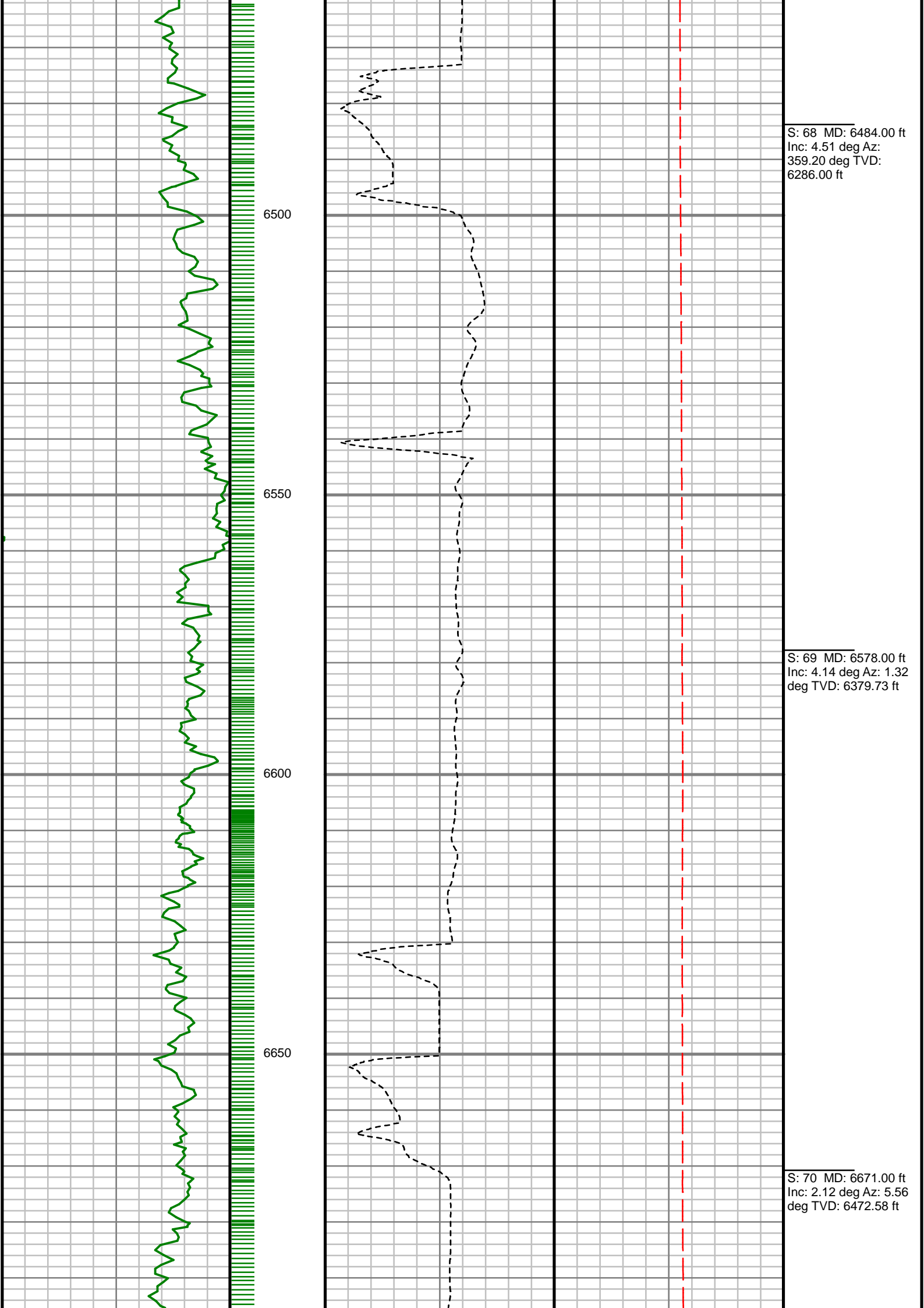








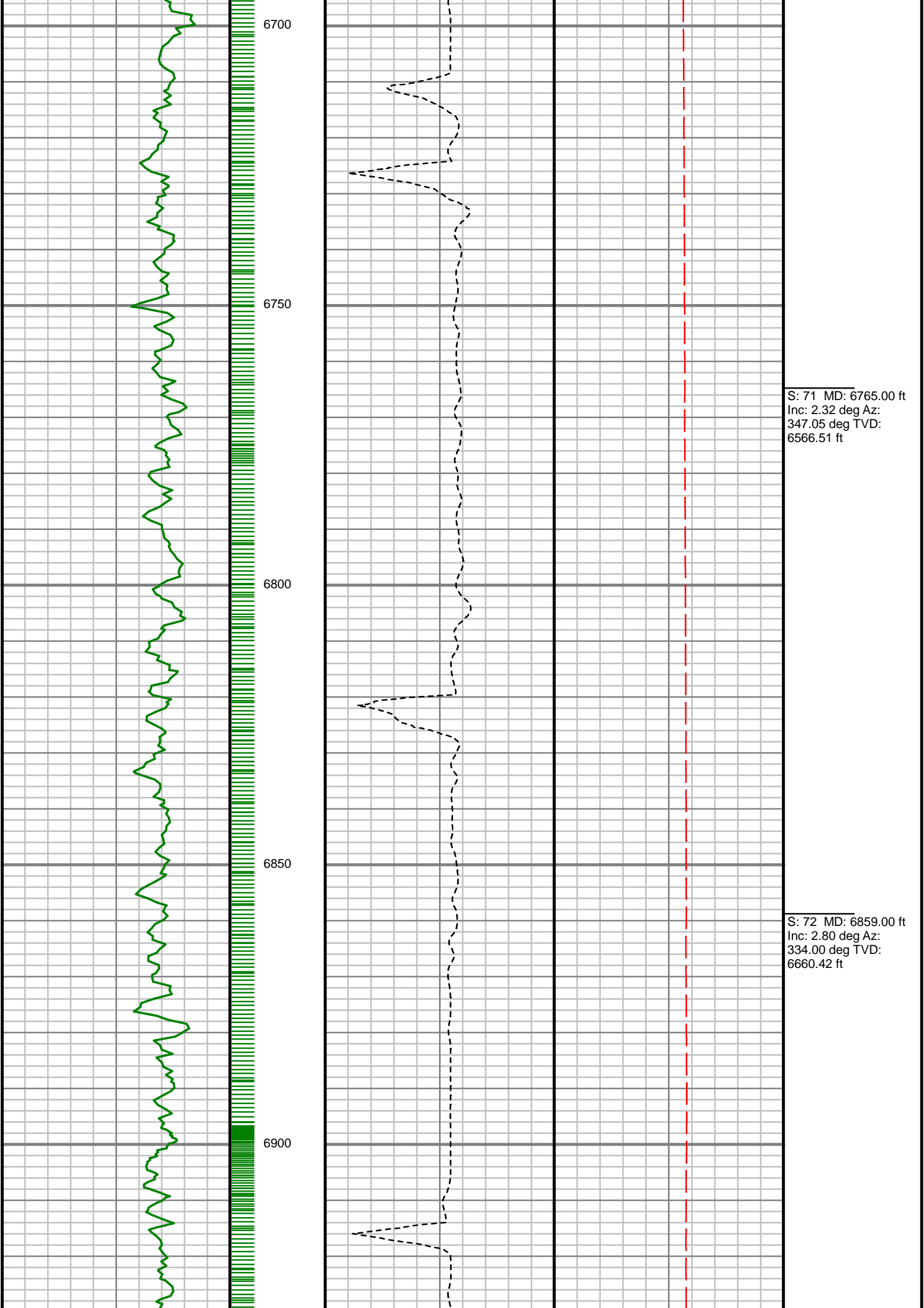


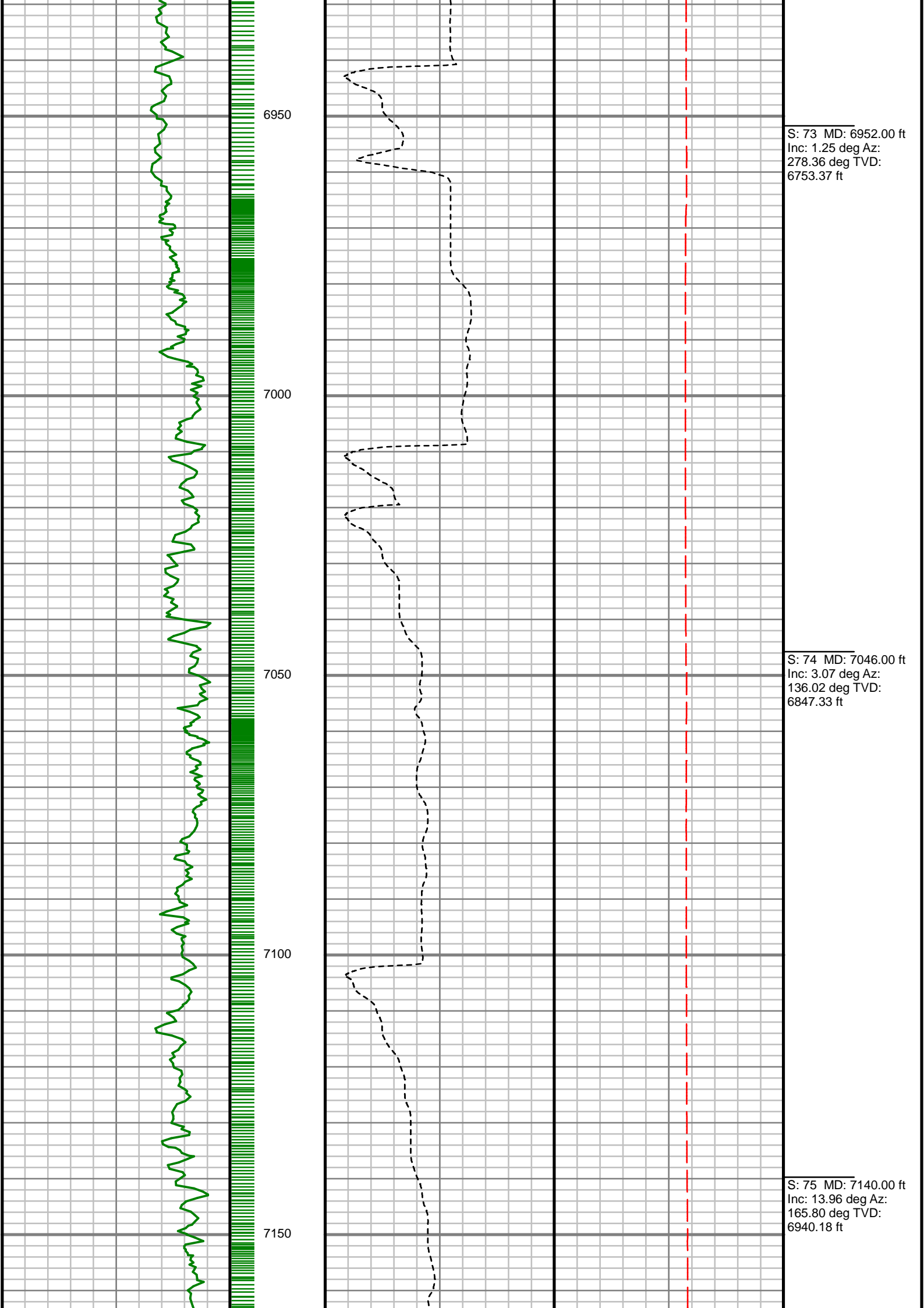


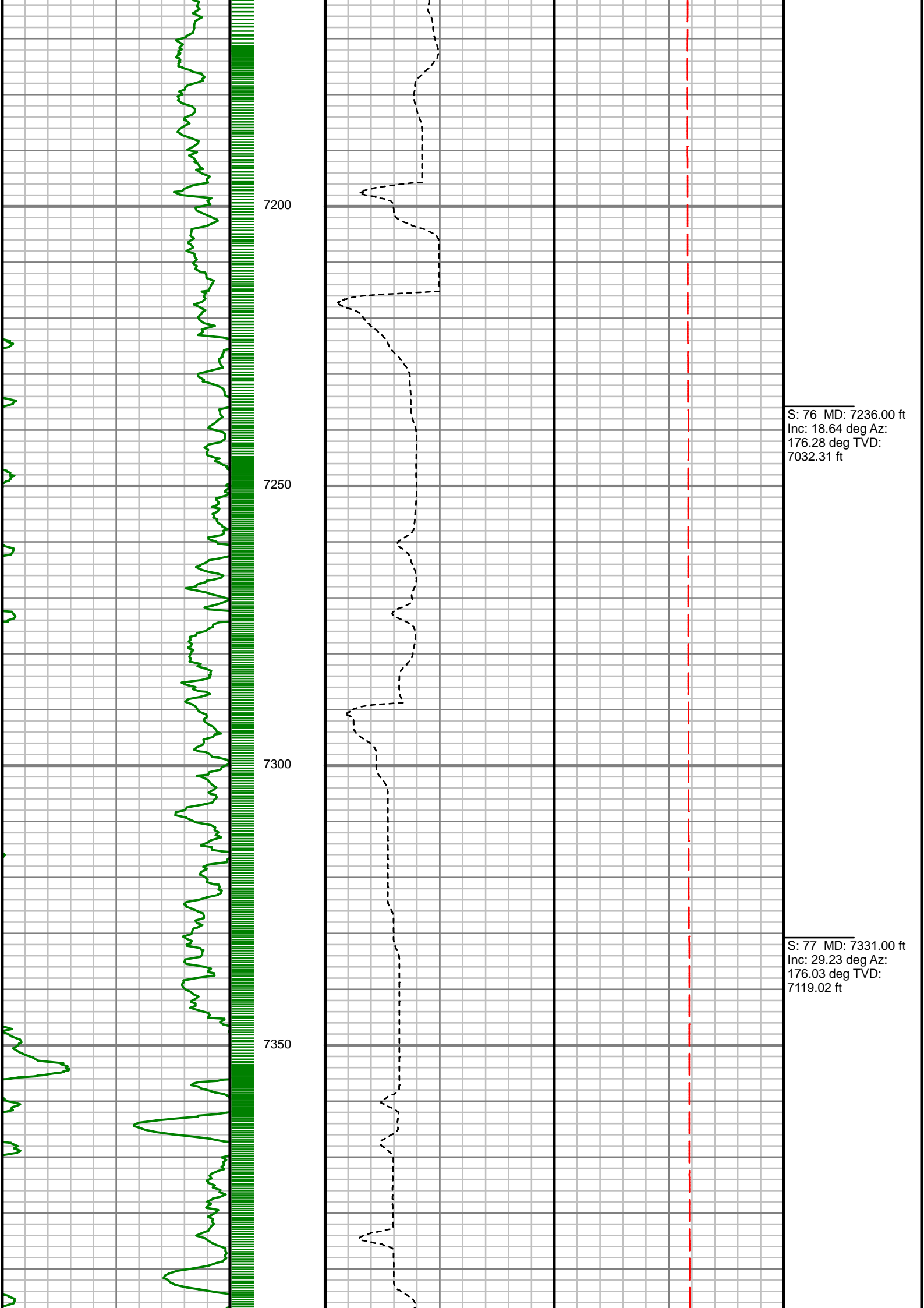
S: 68 MD: 6484.00 ft
Inc: 4.51 deg Az:
359.20 deg TVD:
6286.00 ft

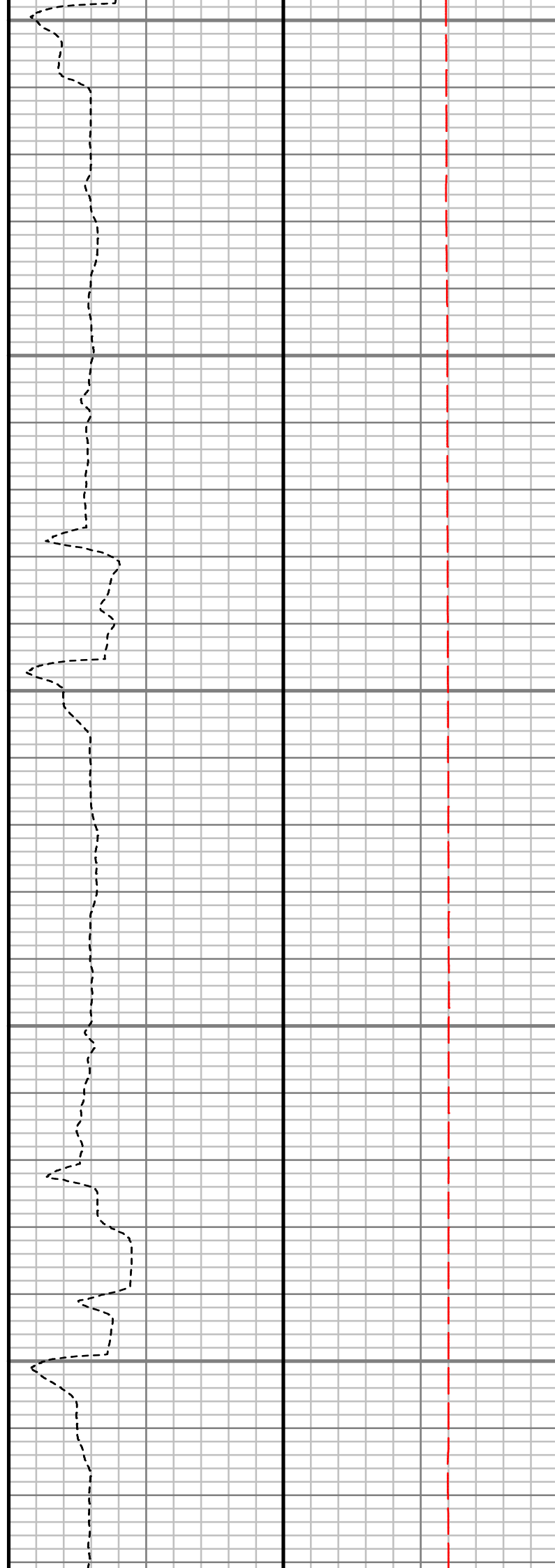
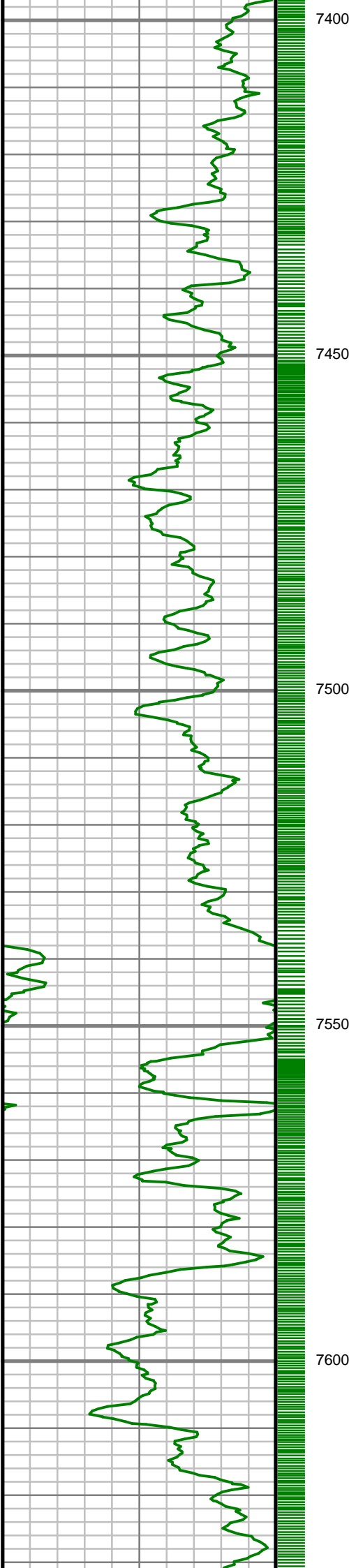
S: 69 MD: 6578.00 ft
Inc: 4.14 deg Az: 1.32
deg TVD: 6379.73 ft

S: 70 MD: 6671.00 ft
Inc: 2.12 deg Az: 5.56
deg TVD: 6472.58 ft





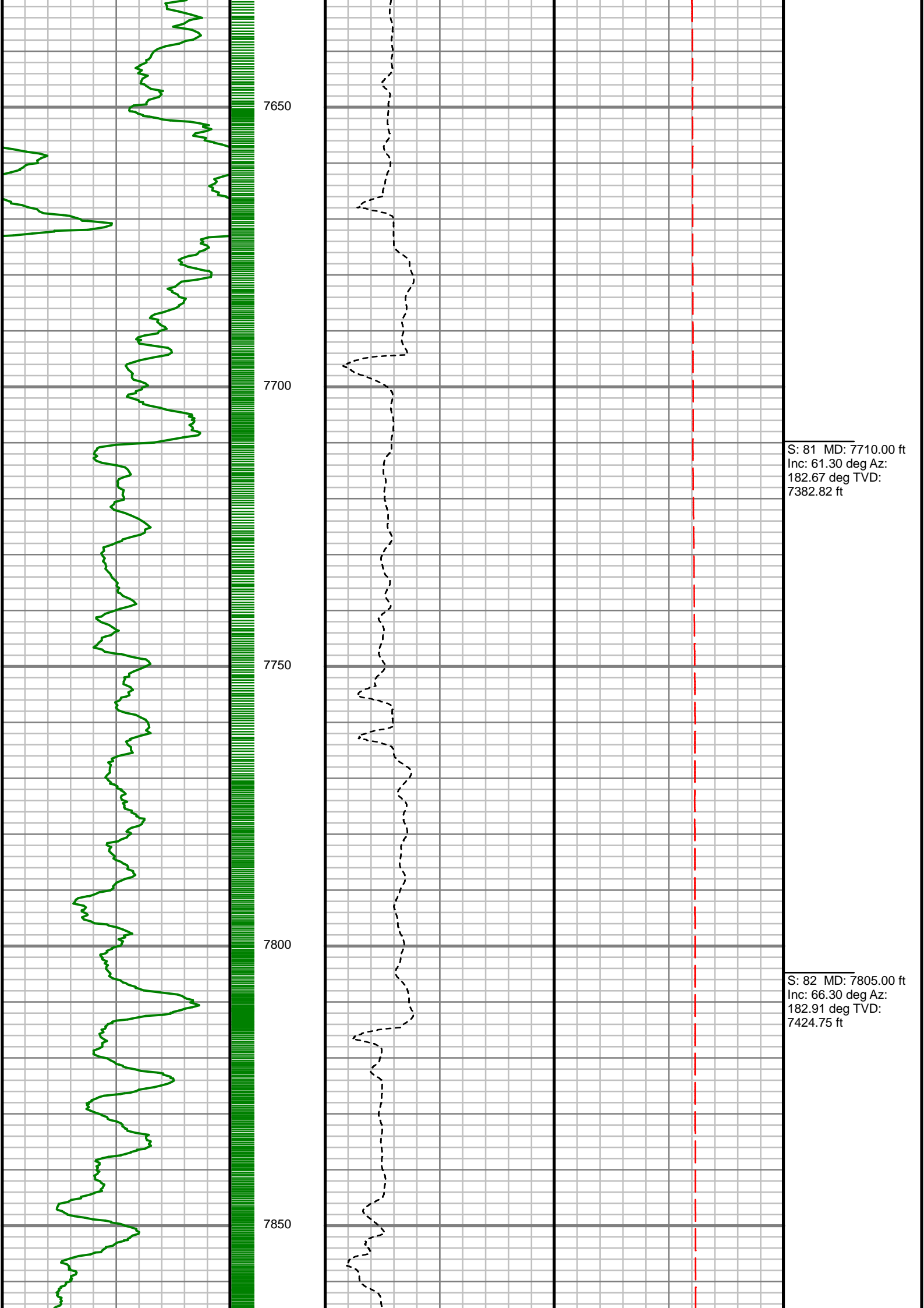


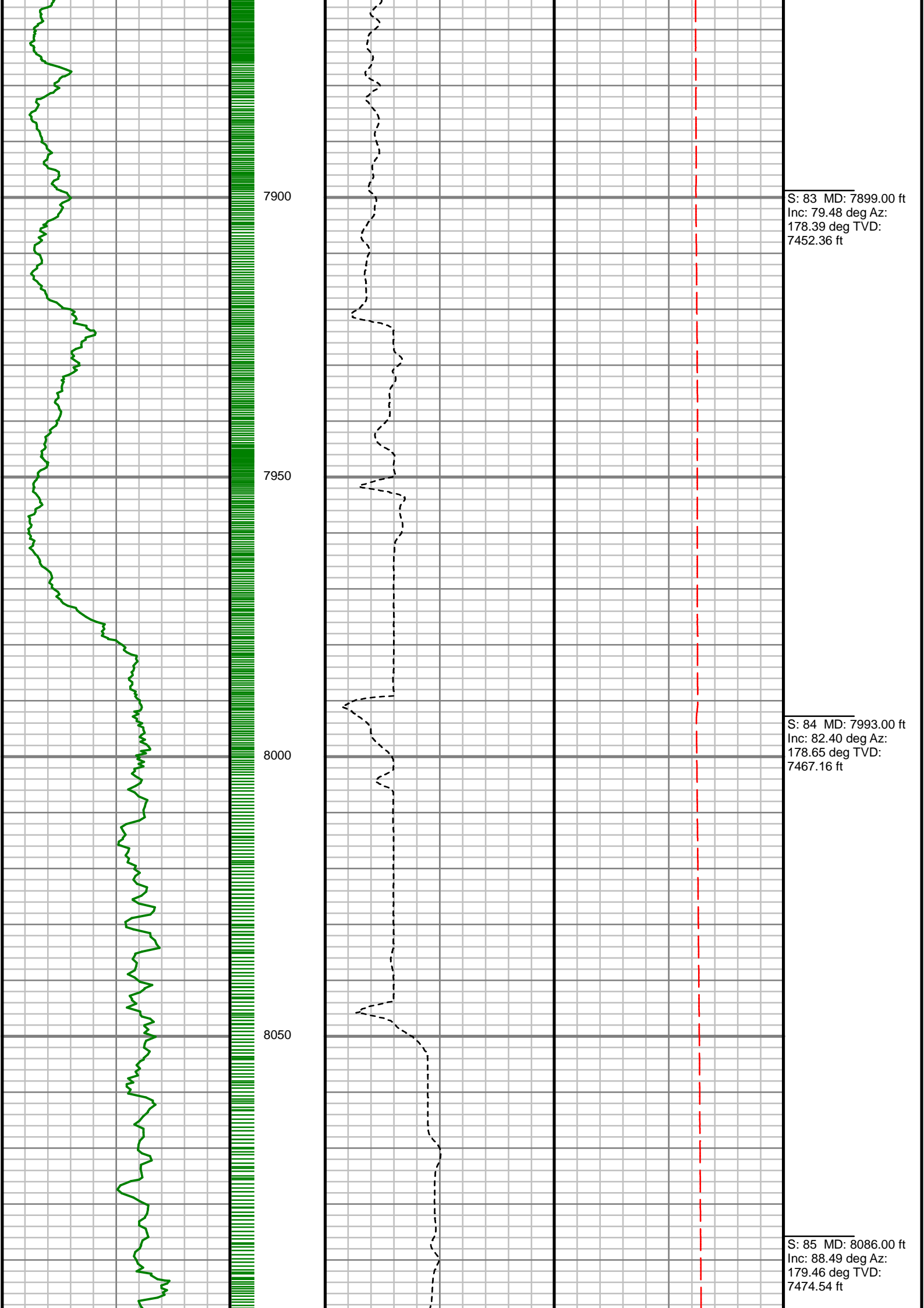


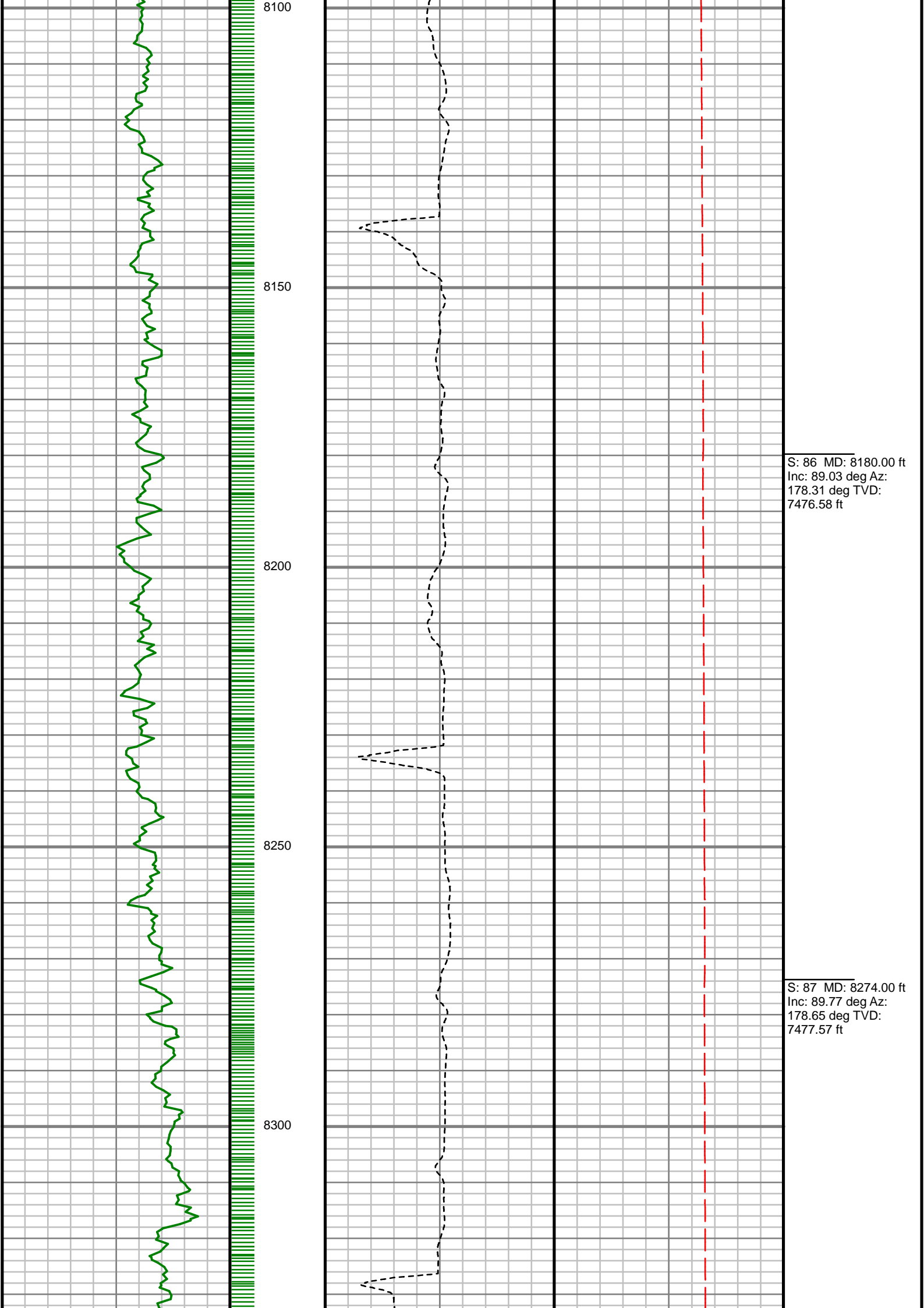
S: 78 MD: 7426.00 ft
Inc: 37.41 deg Az:
178.99 deg TVD:
7198.34 ft

S: 79 MD: 7520.00 ft
Inc: 45.56 deg Az:
179.72 deg TVD:
7268.71 ft

S: 80 MD: 7615.00 ft
Inc: 52.48 deg Az:
181.89 deg TVD:
7330.97 ft

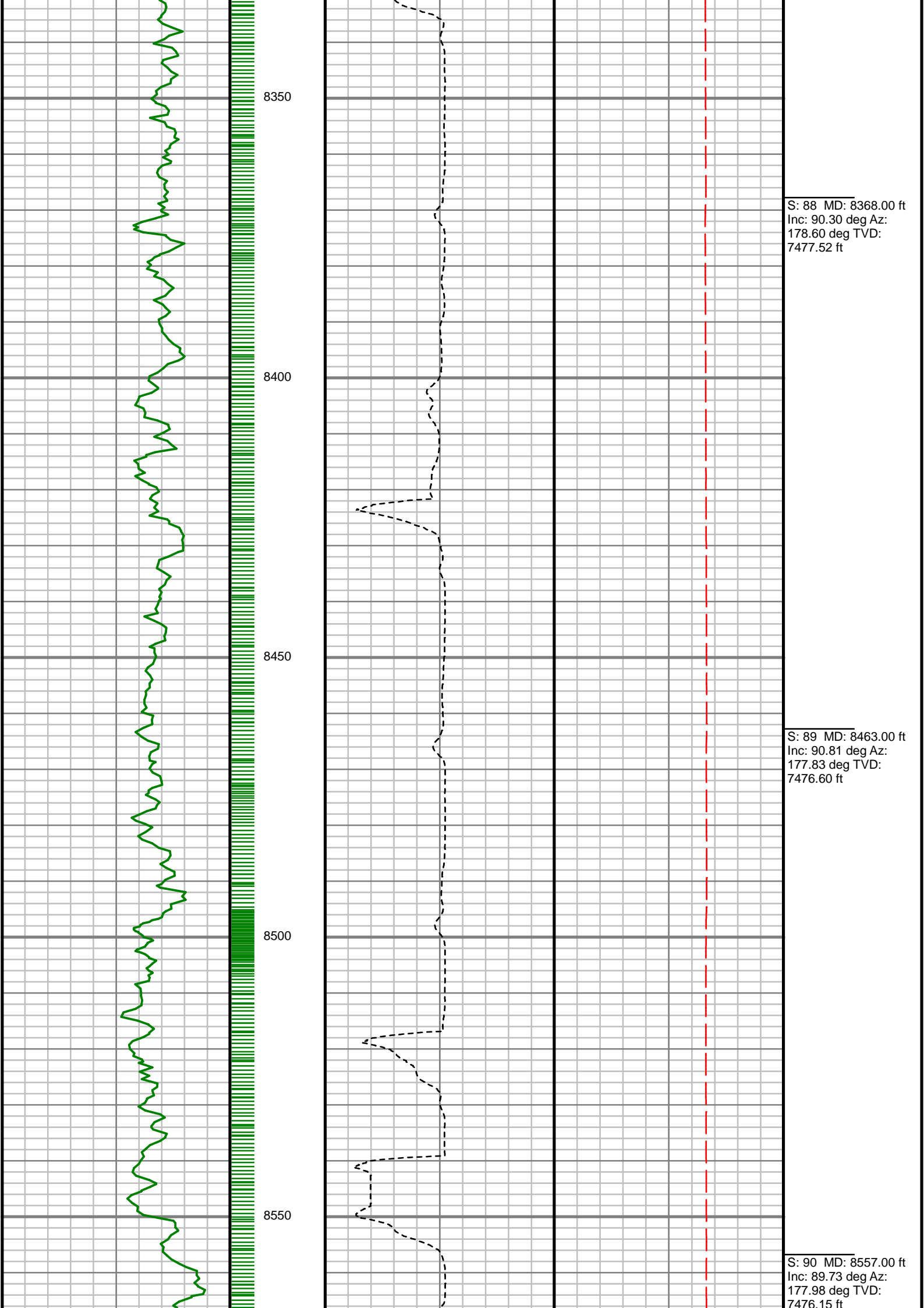






S: 86 MD: 8180.00 ft
Inc: 89.03 deg Az:
178.31 deg TVD:
7476.58 ft

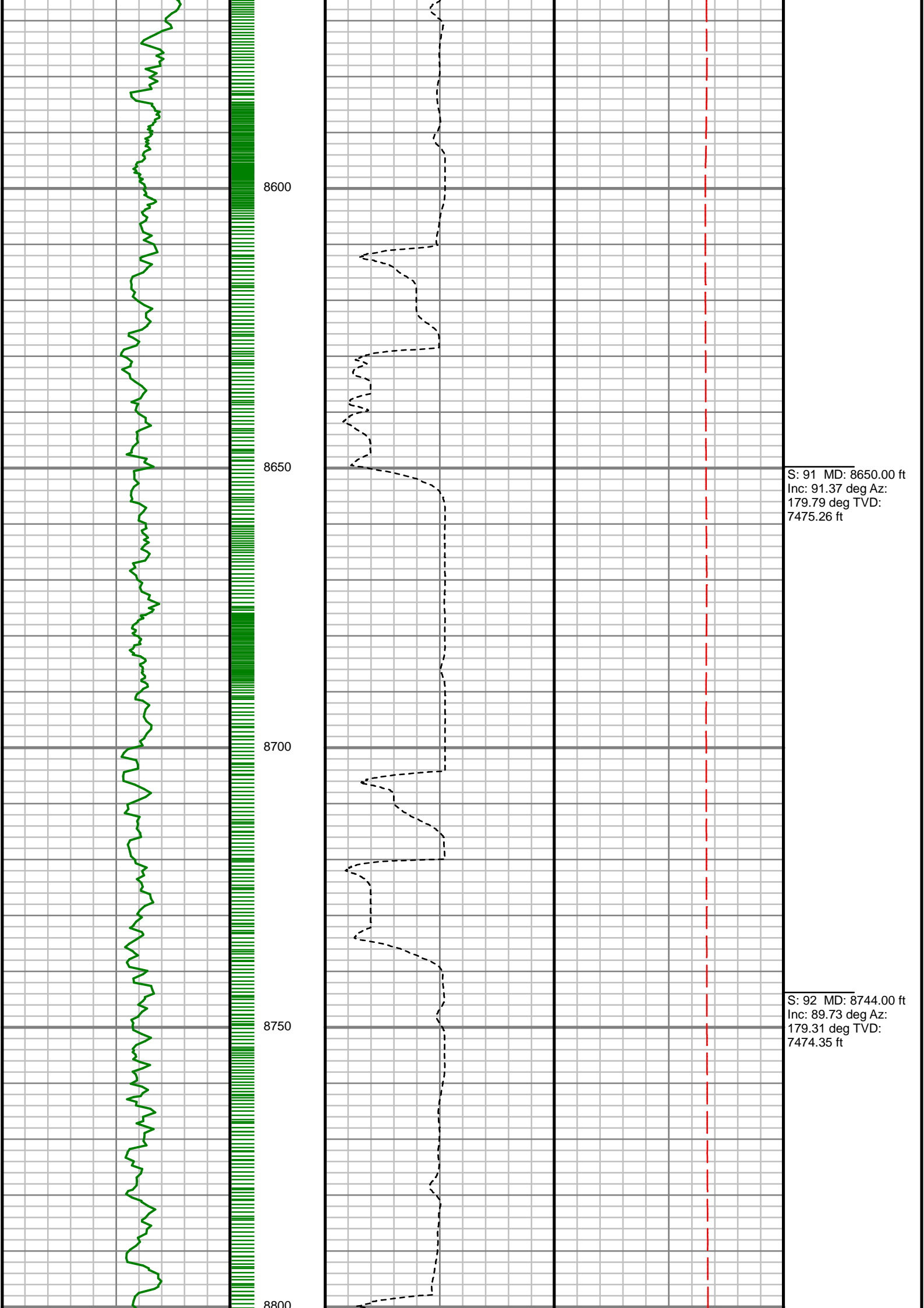
S: 87 MD: 8274.00 ft
Inc: 89.77 deg Az:
178.65 deg TVD:
7477.57 ft

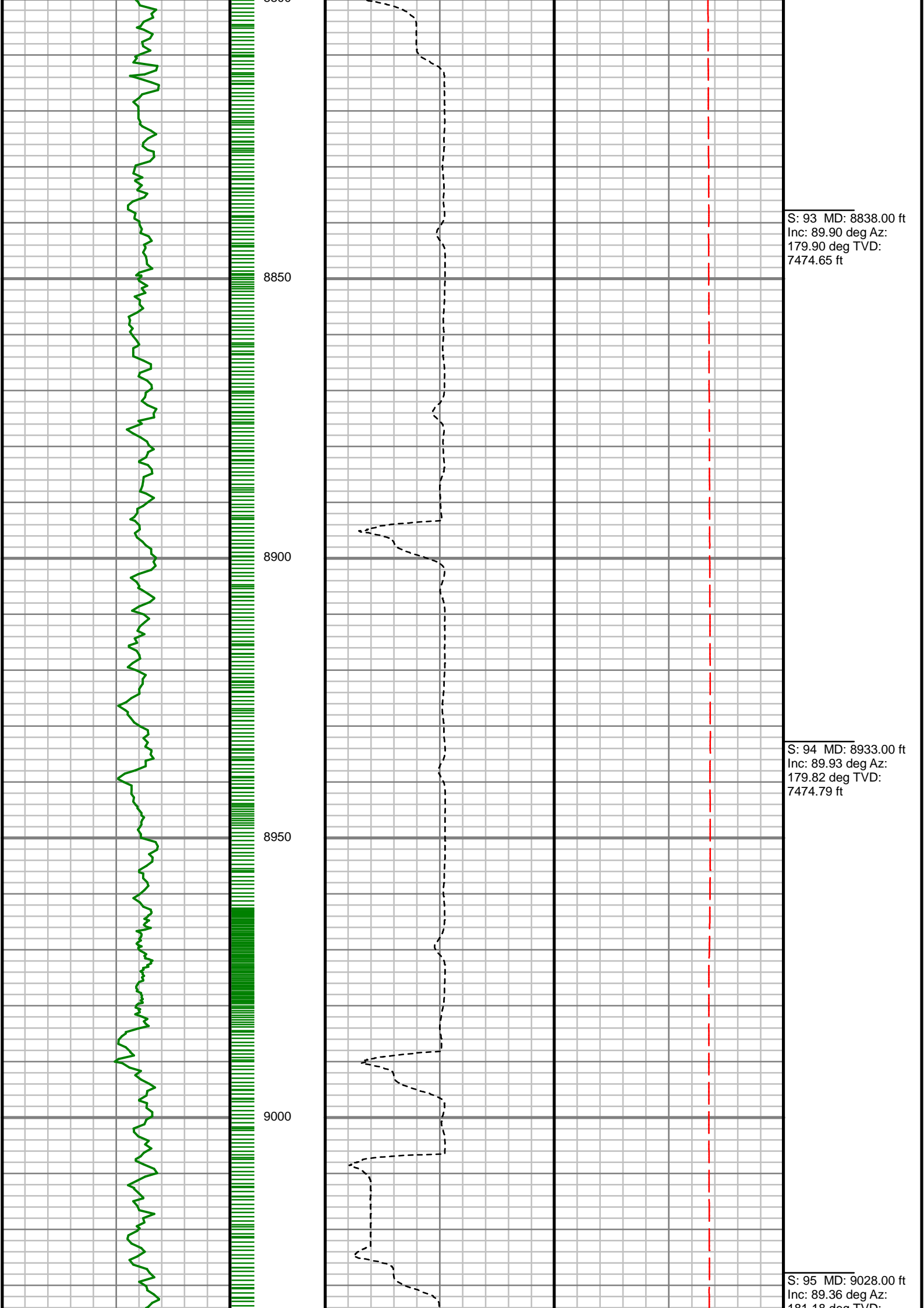


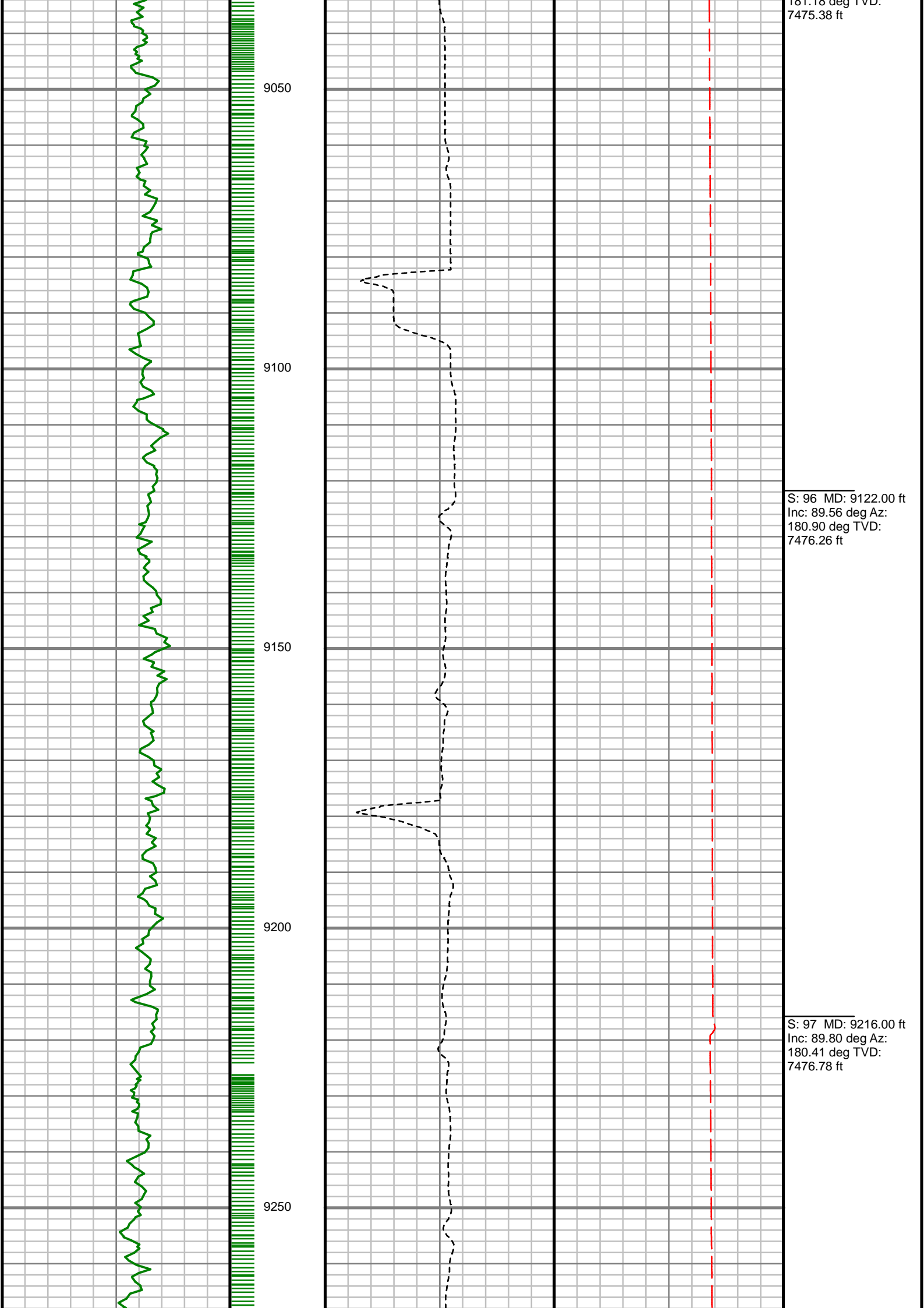
S: 88 MD: 8368.00 ft
Inc: 90.30 deg Az:
178.60 deg TVD:
7477.52 ft

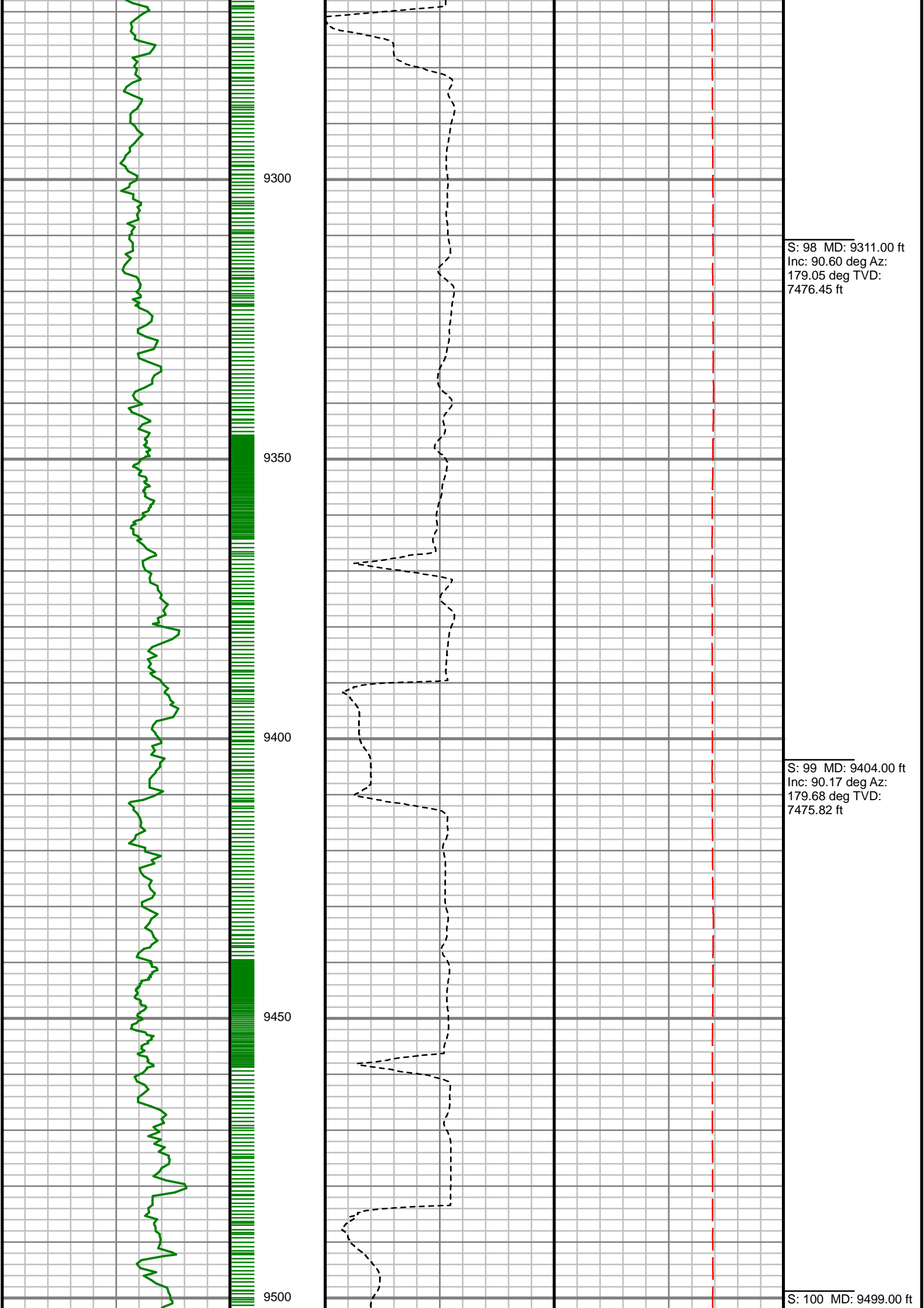
S: 89 MD: 8463.00 ft
Inc: 90.81 deg Az:
177.83 deg TVD:
7476.60 ft

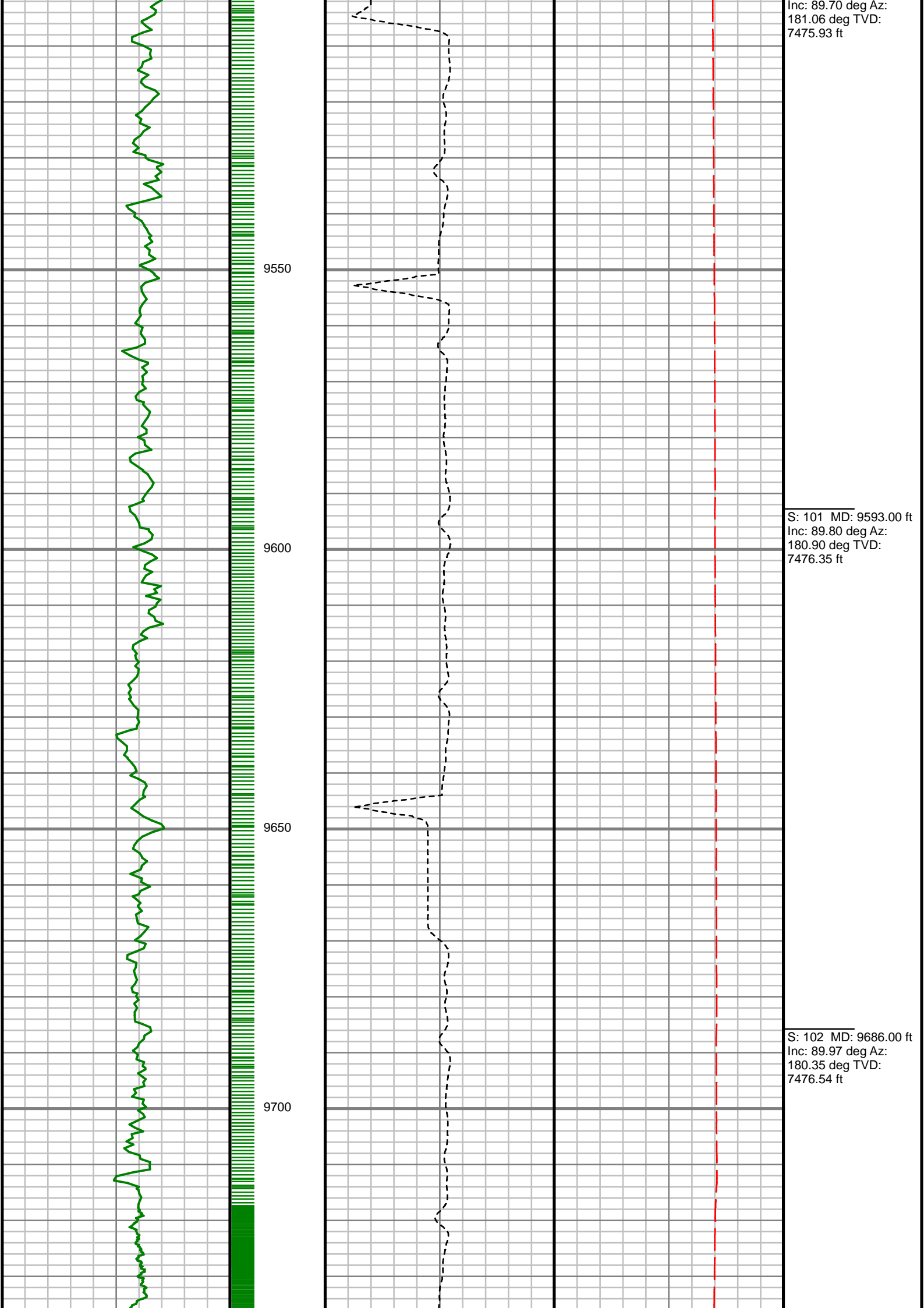
S: 90 MD: 8557.00 ft
Inc: 89.73 deg Az:
177.98 deg TVD:
7476.15 ft

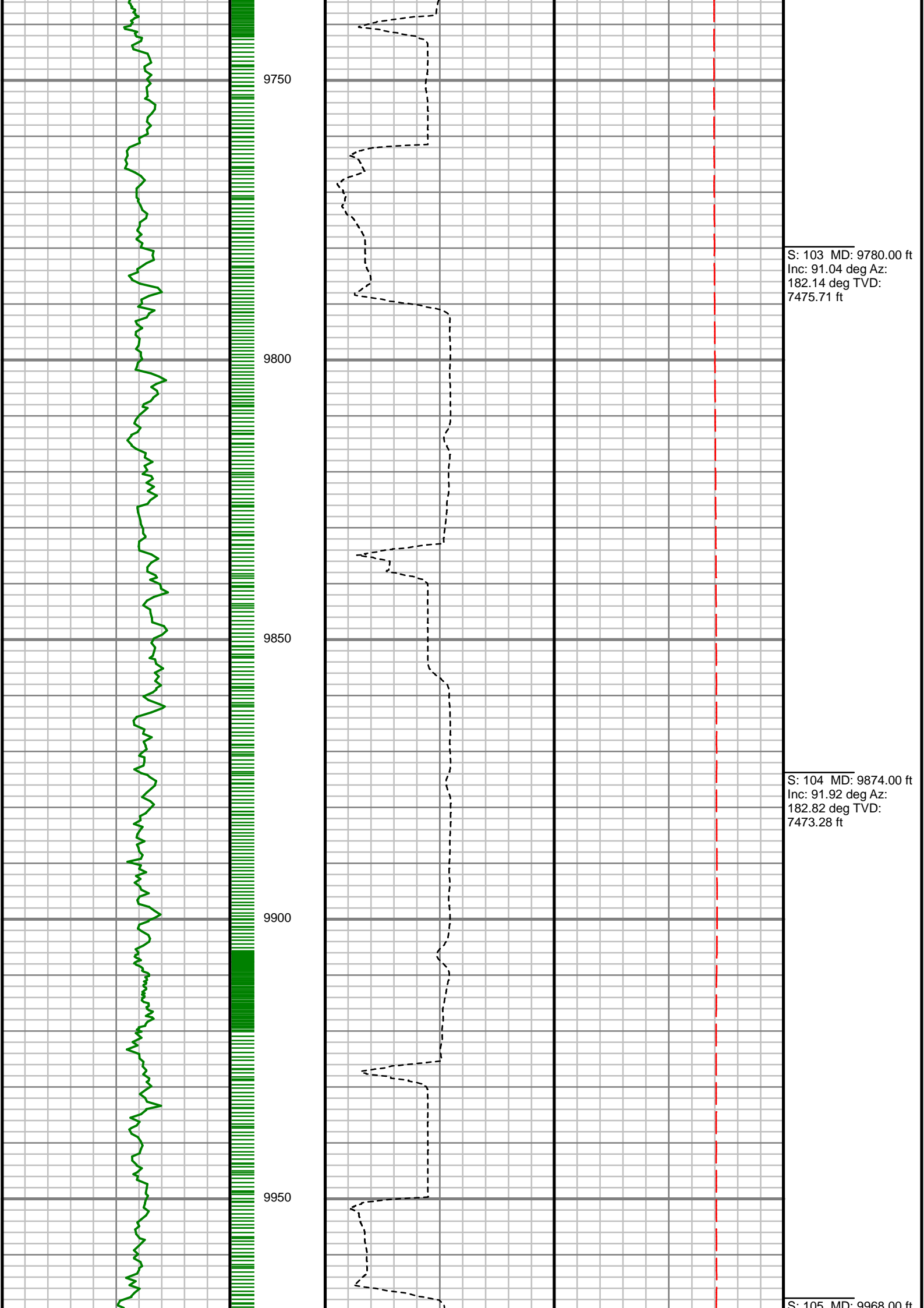


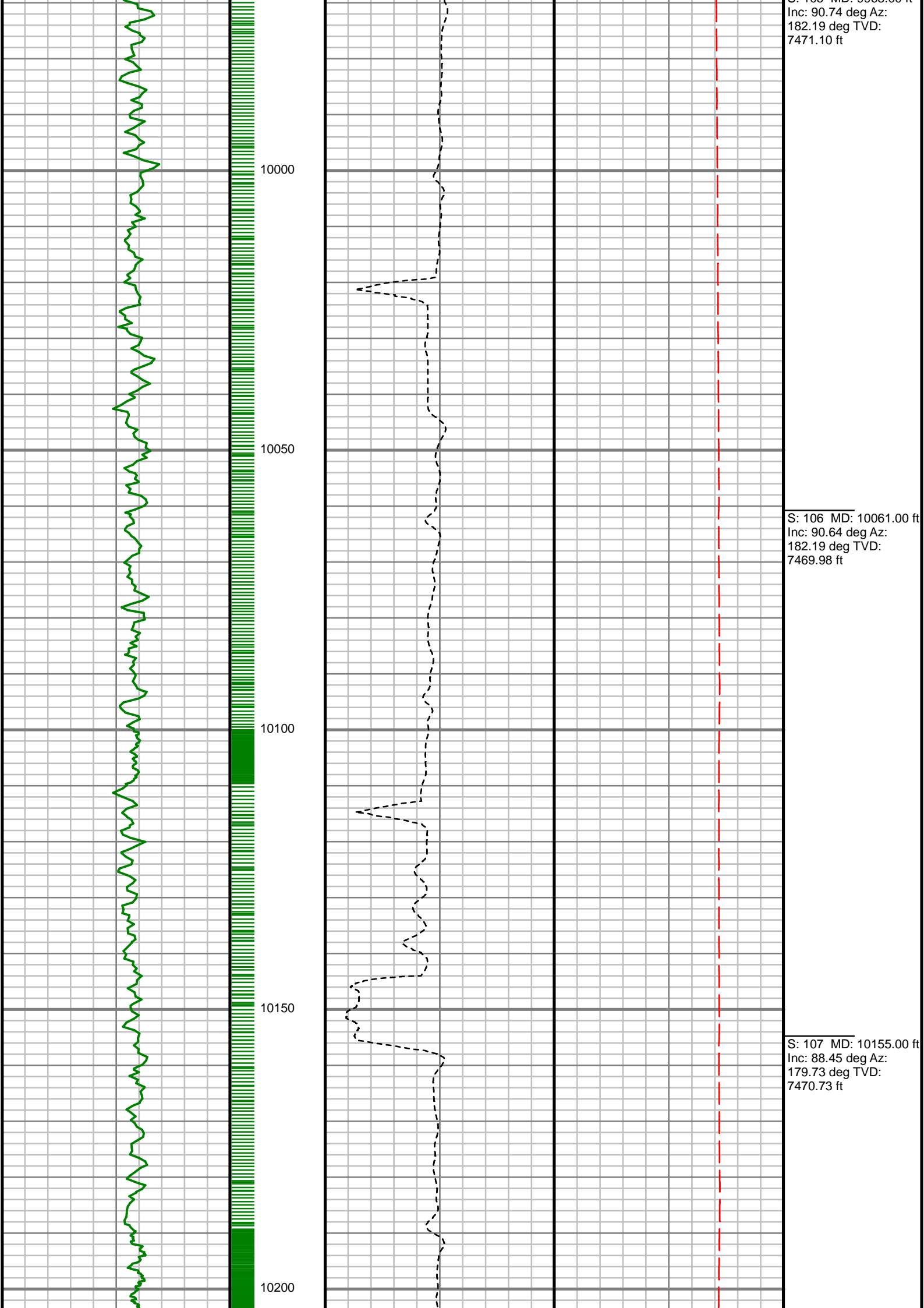


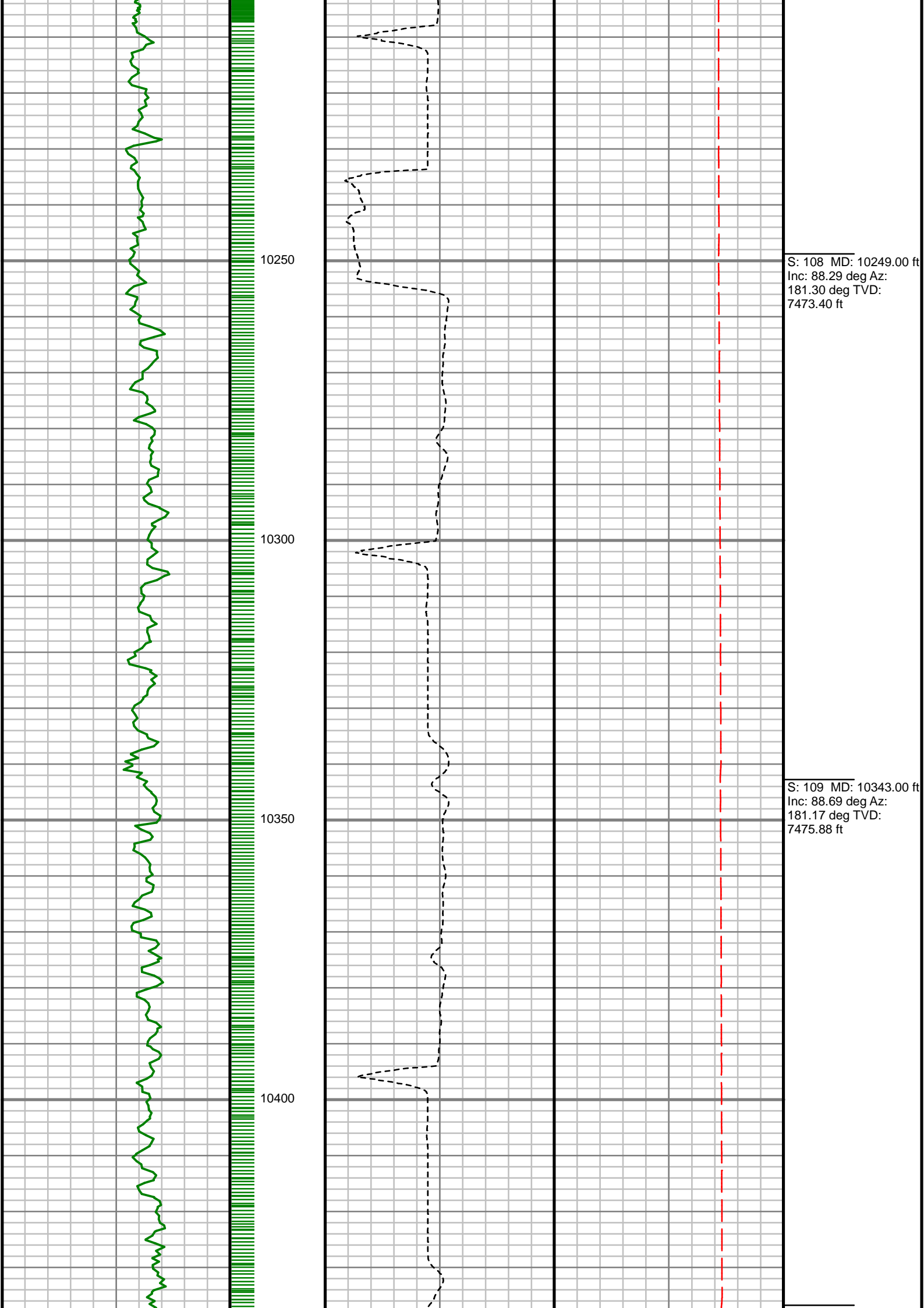


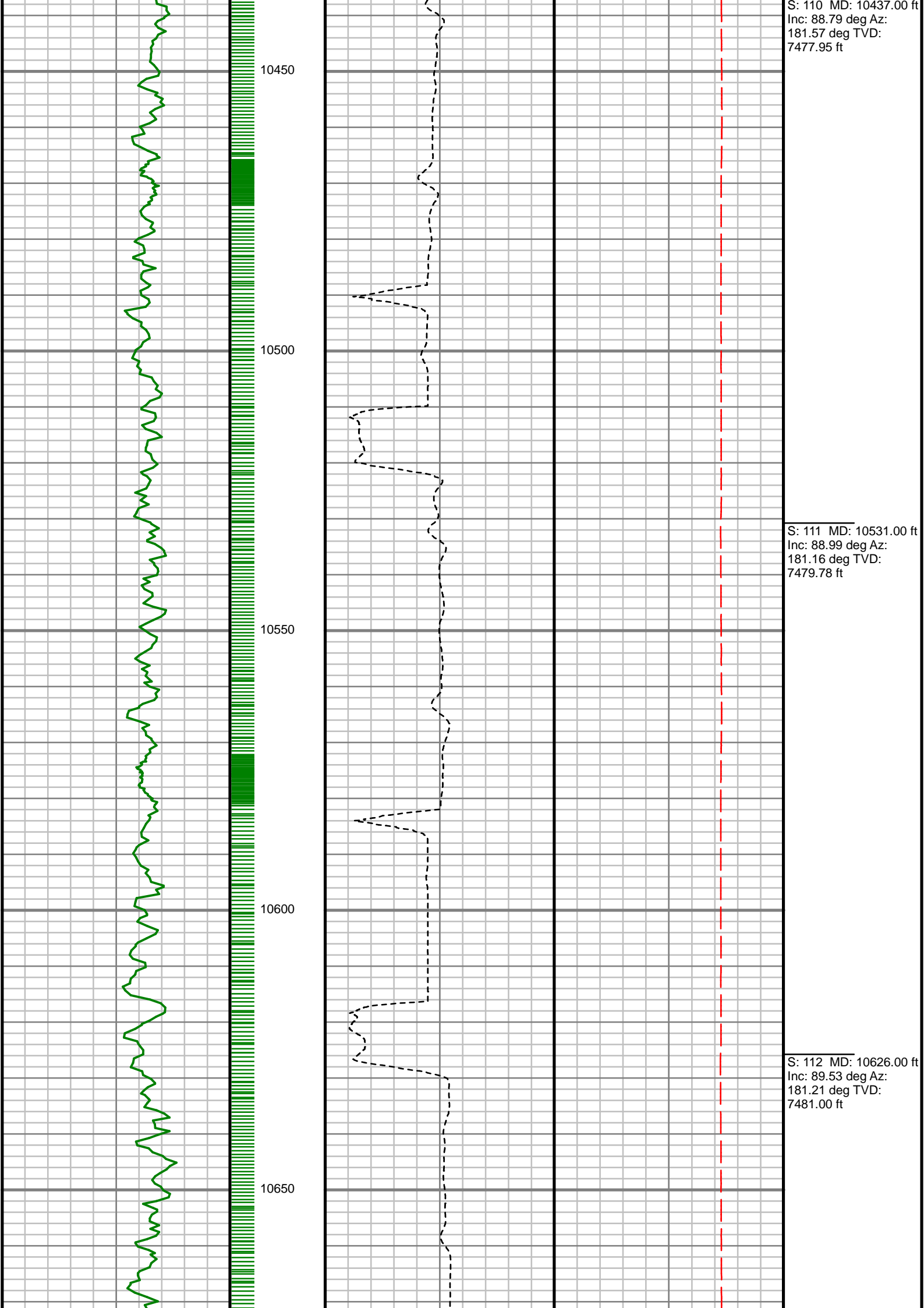








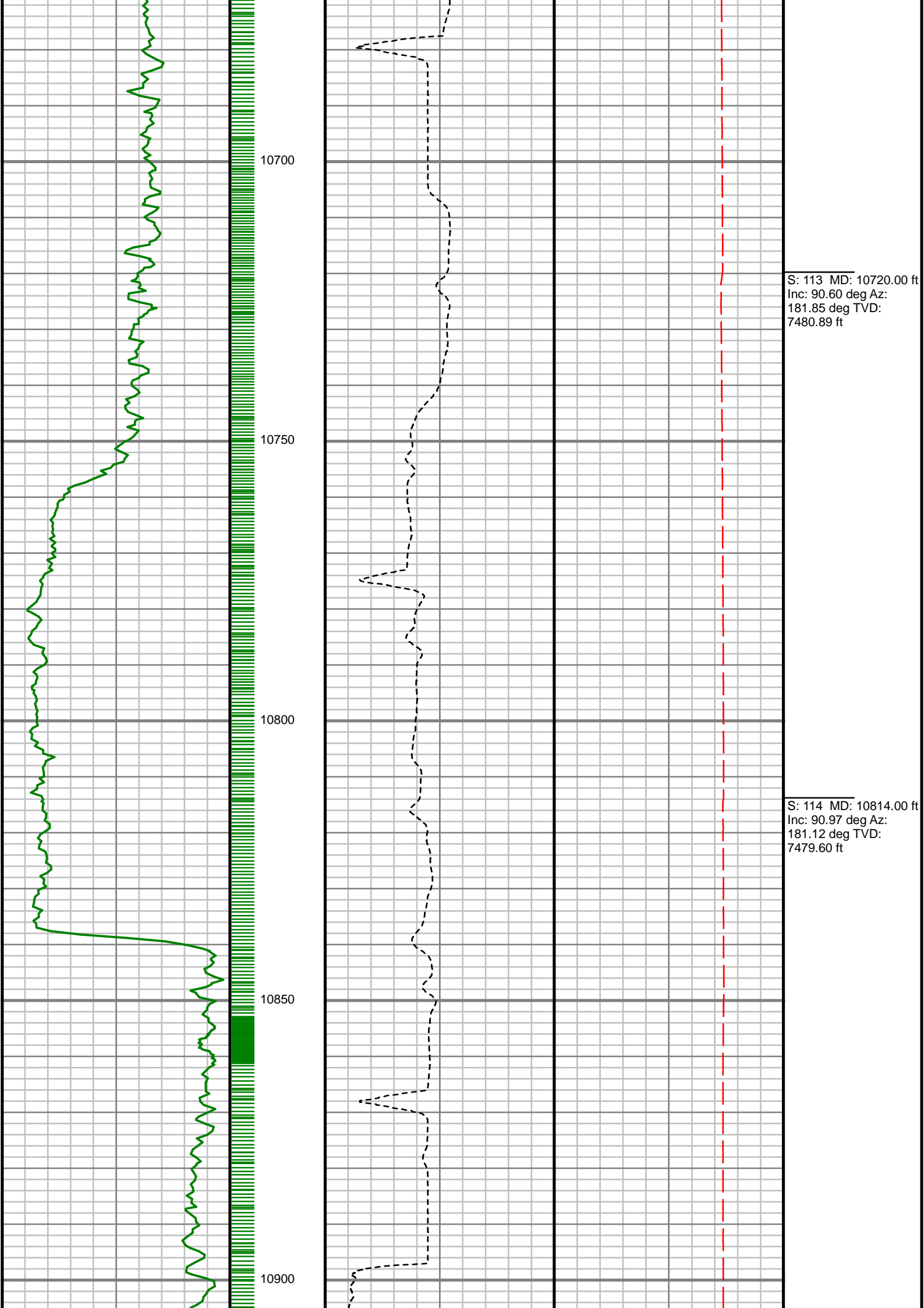


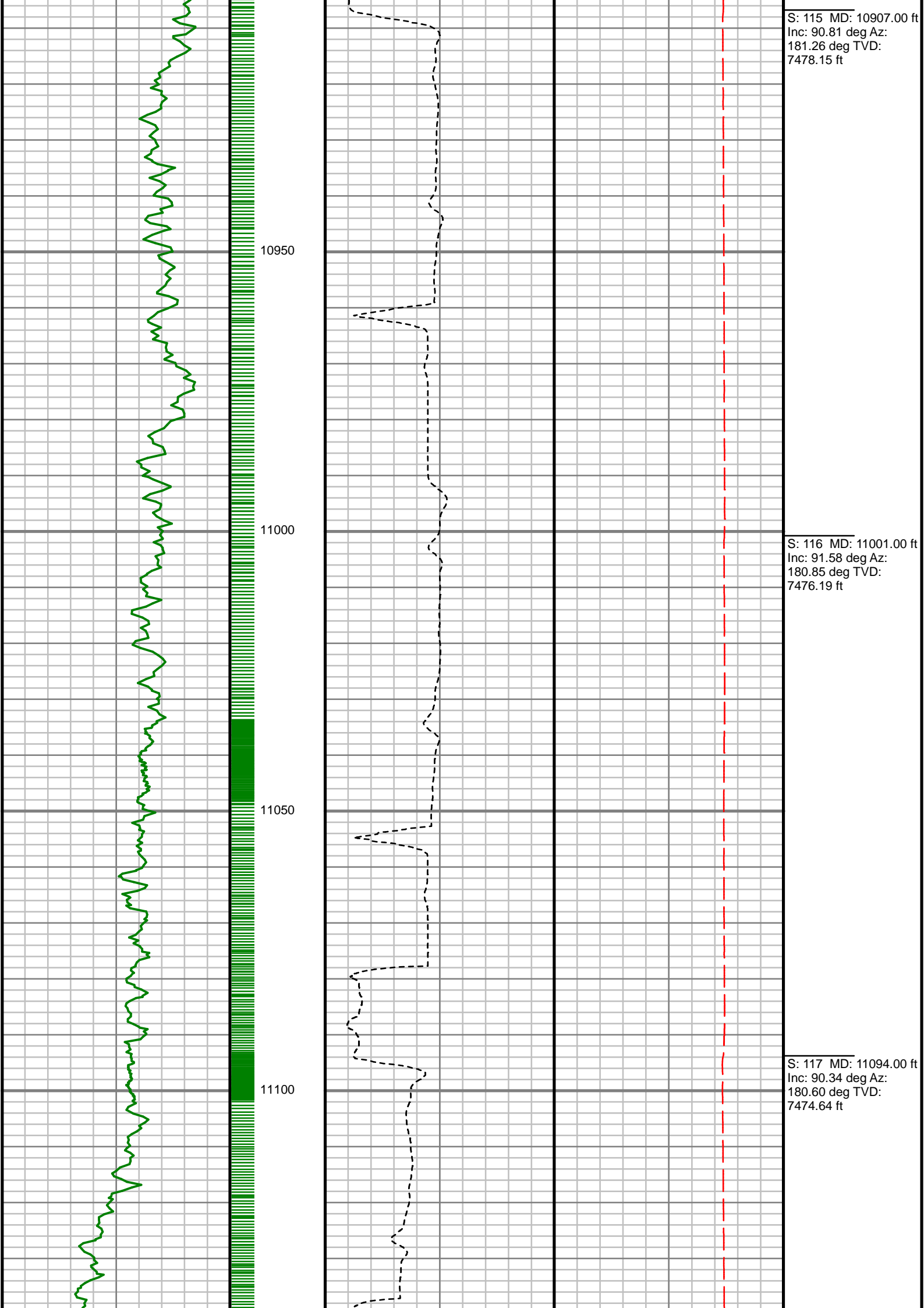


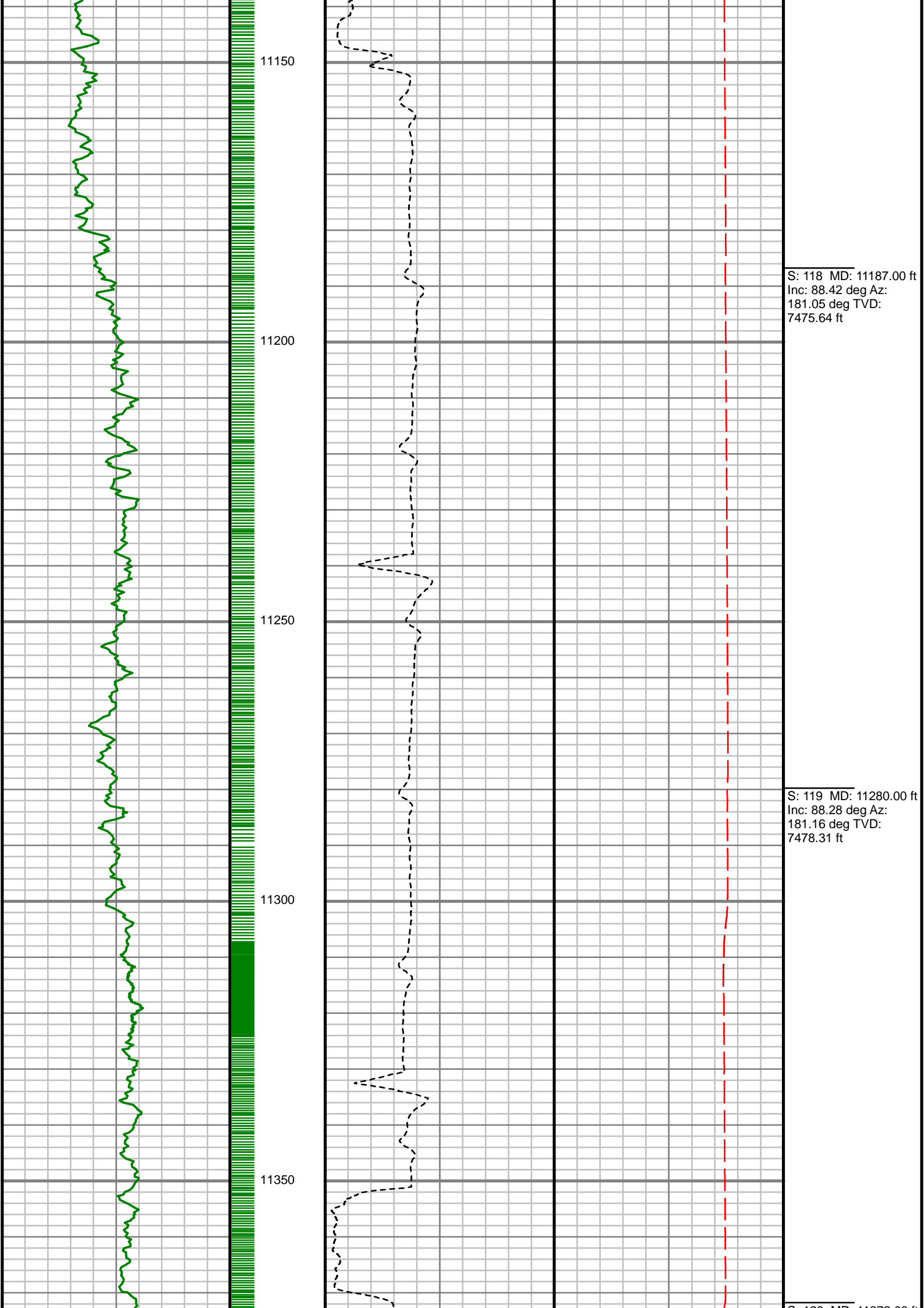
S: 110 MD: 10437.00 ft
Inc: 88.79 deg Az:
181.57 deg TVD:
7477.95 ft

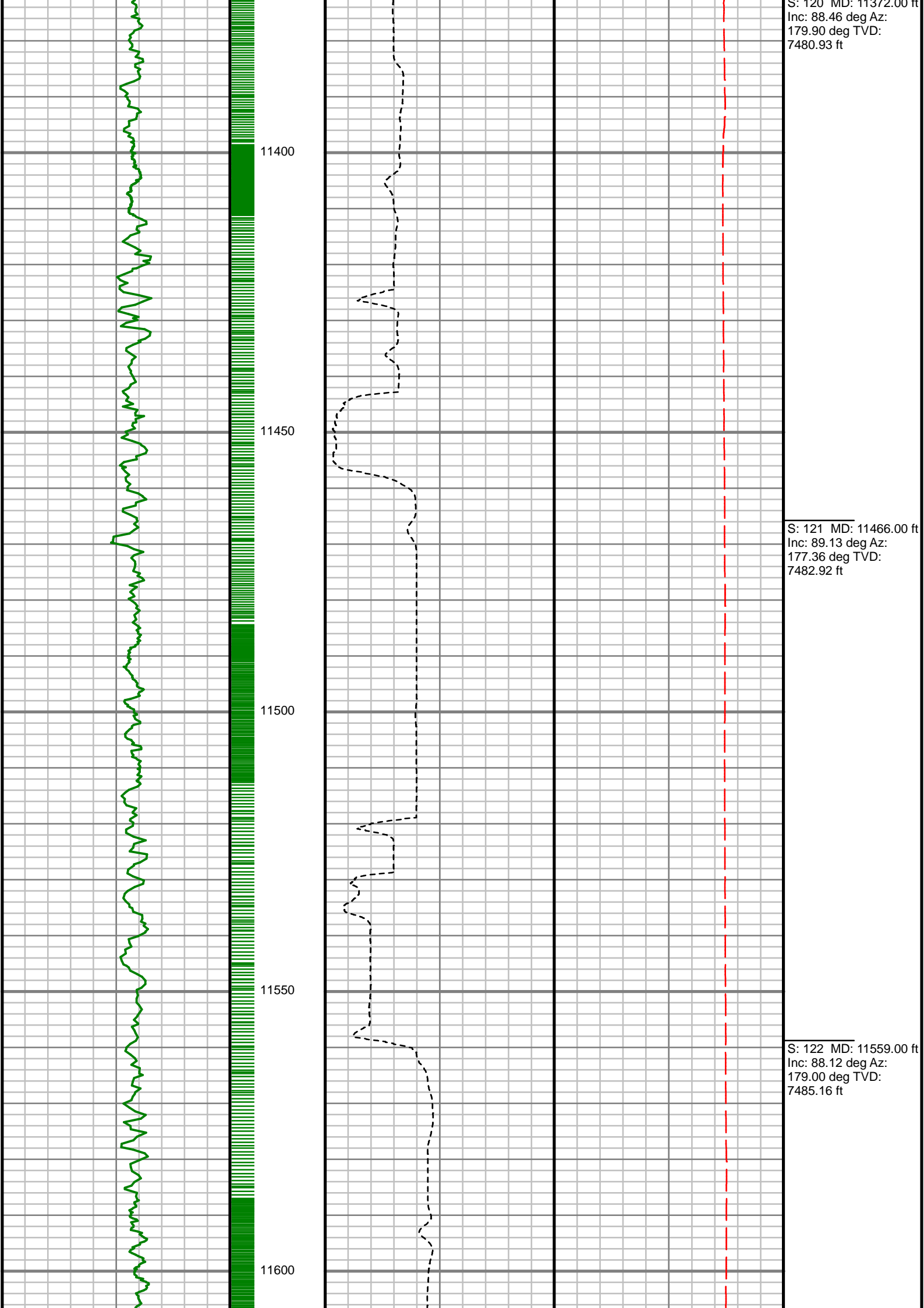
S: 111 MD: 10531.00 ft
Inc: 88.99 deg Az:
181.16 deg TVD:
7479.78 ft

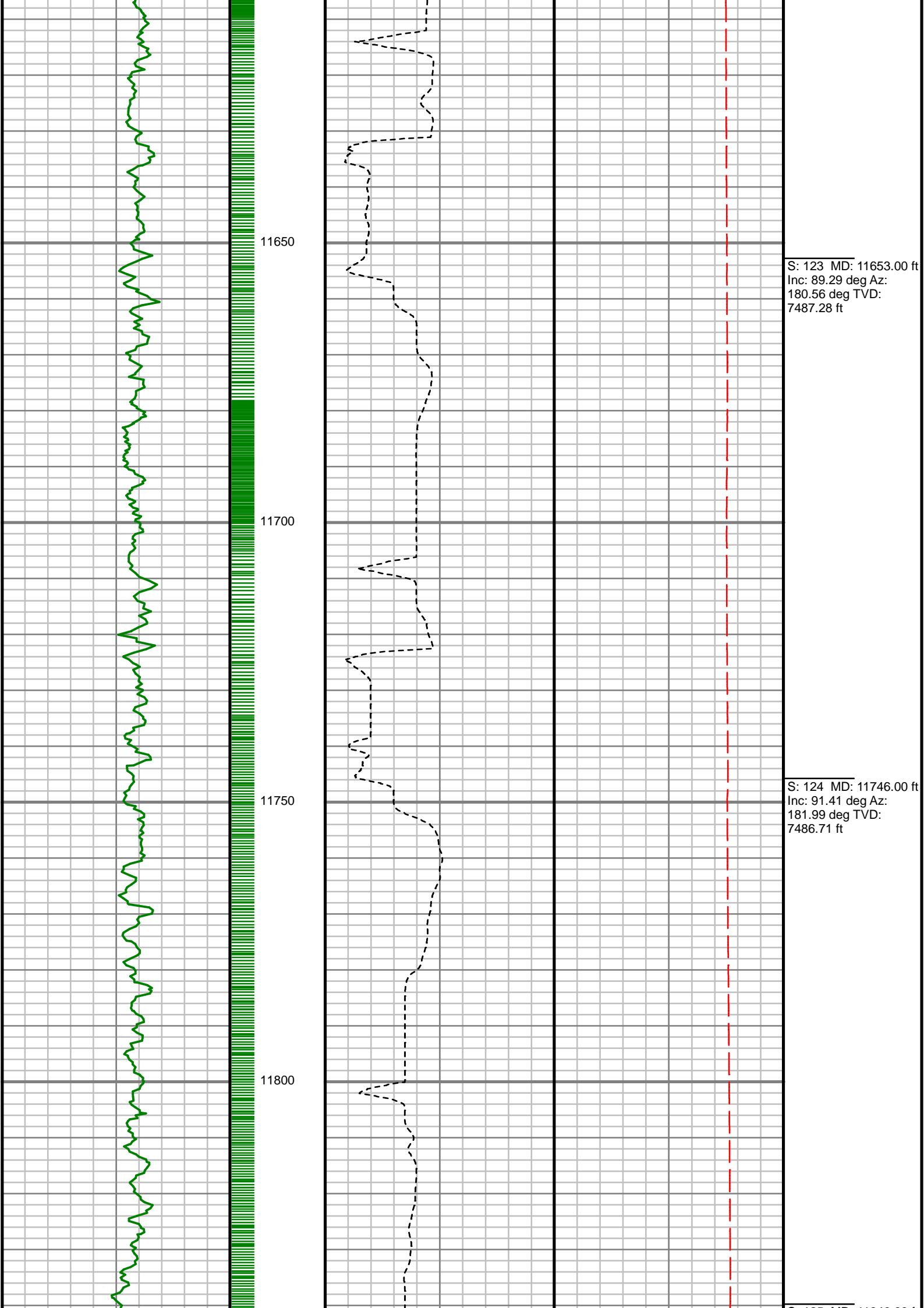
S: 112 MD: 10626.00 ft
Inc: 89.53 deg Az:
181.21 deg TVD:
7481.00 ft

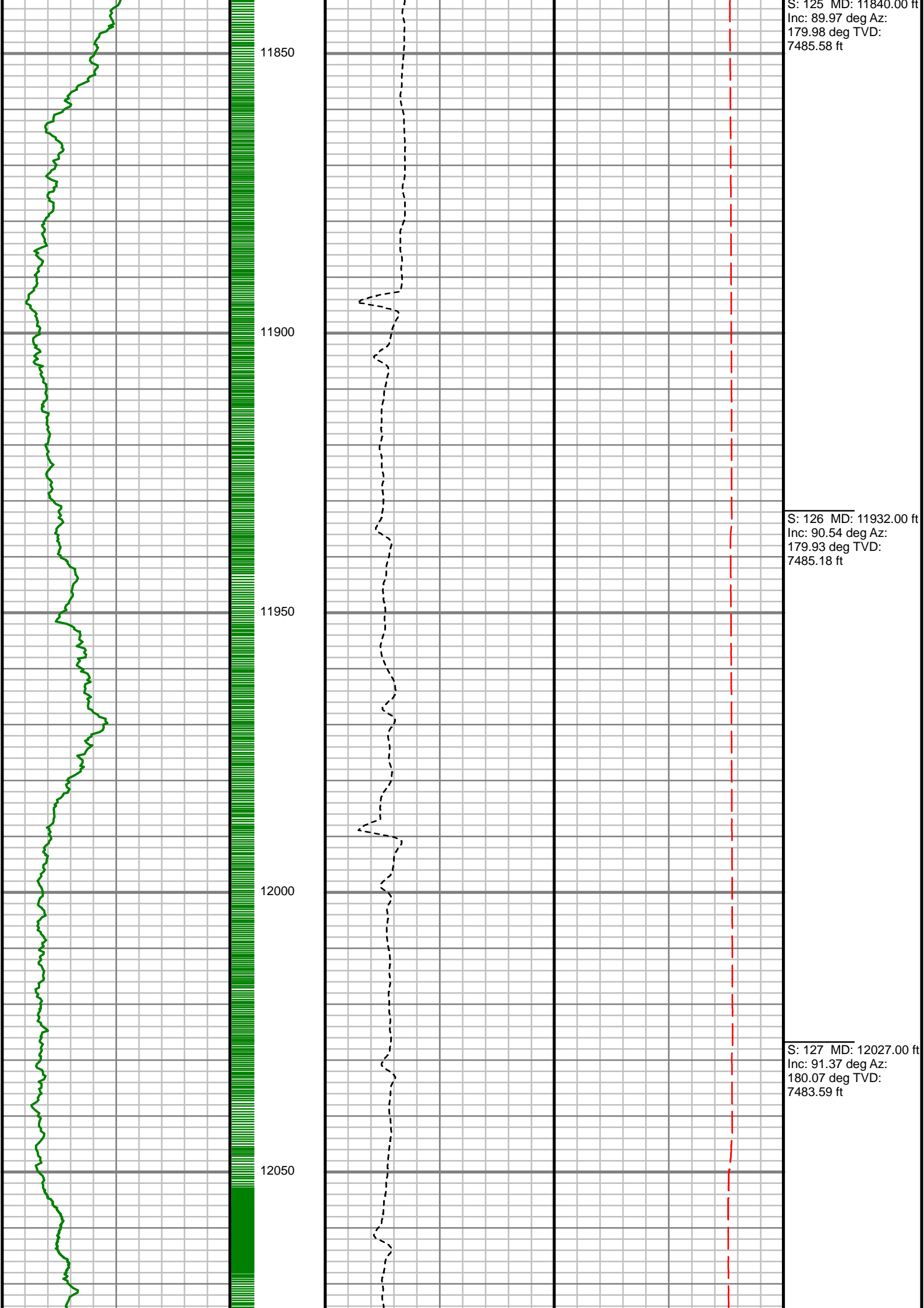


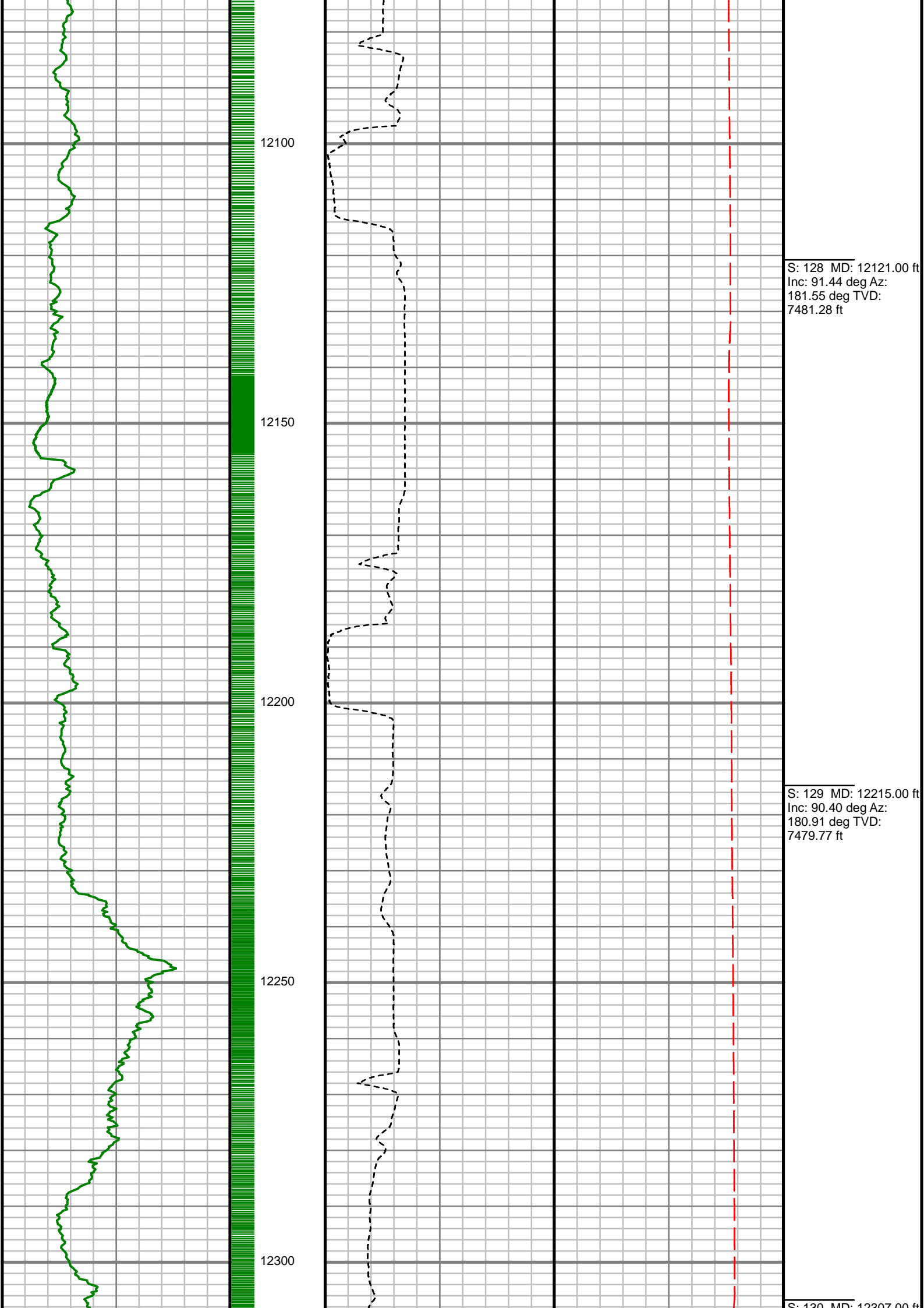


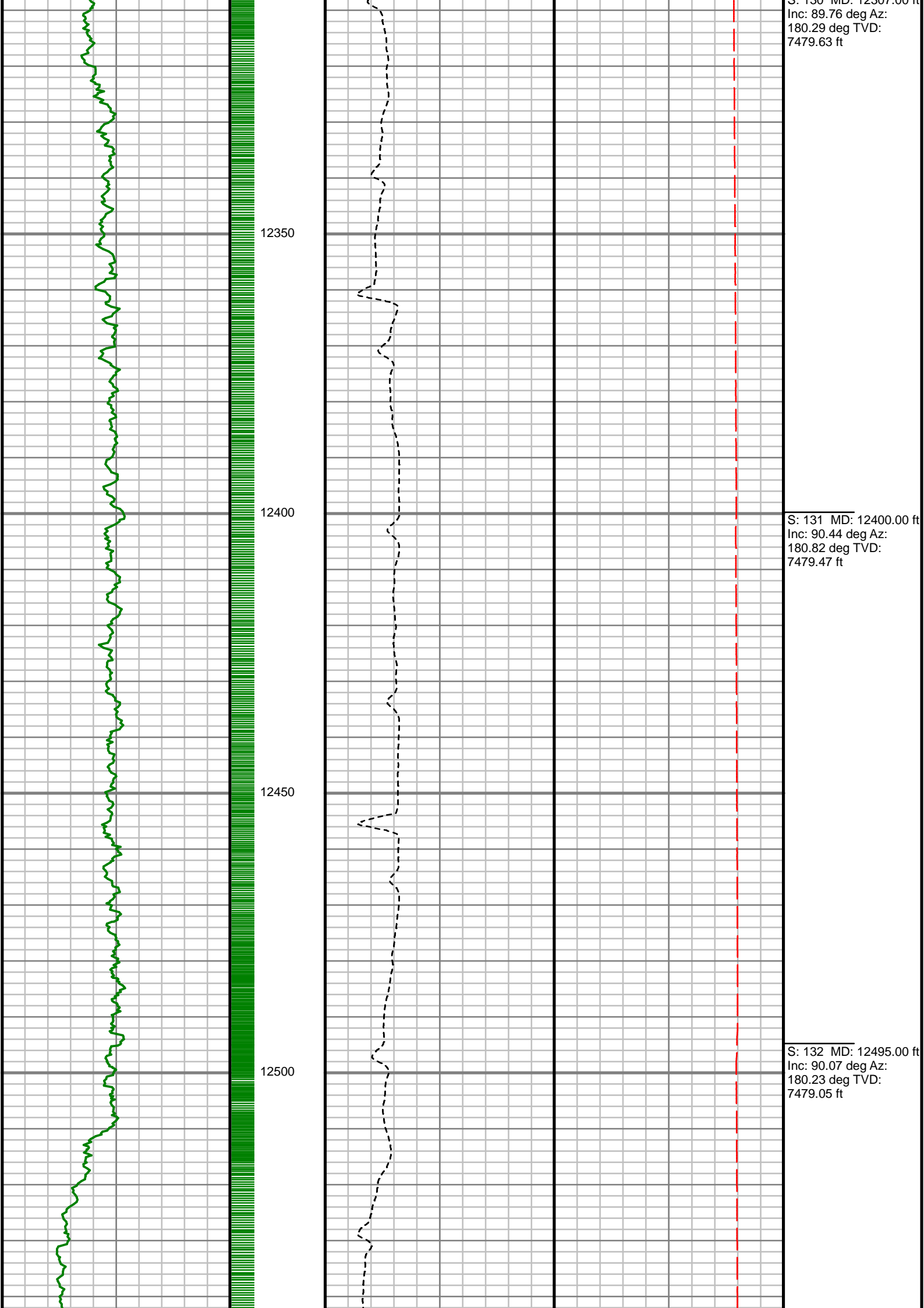


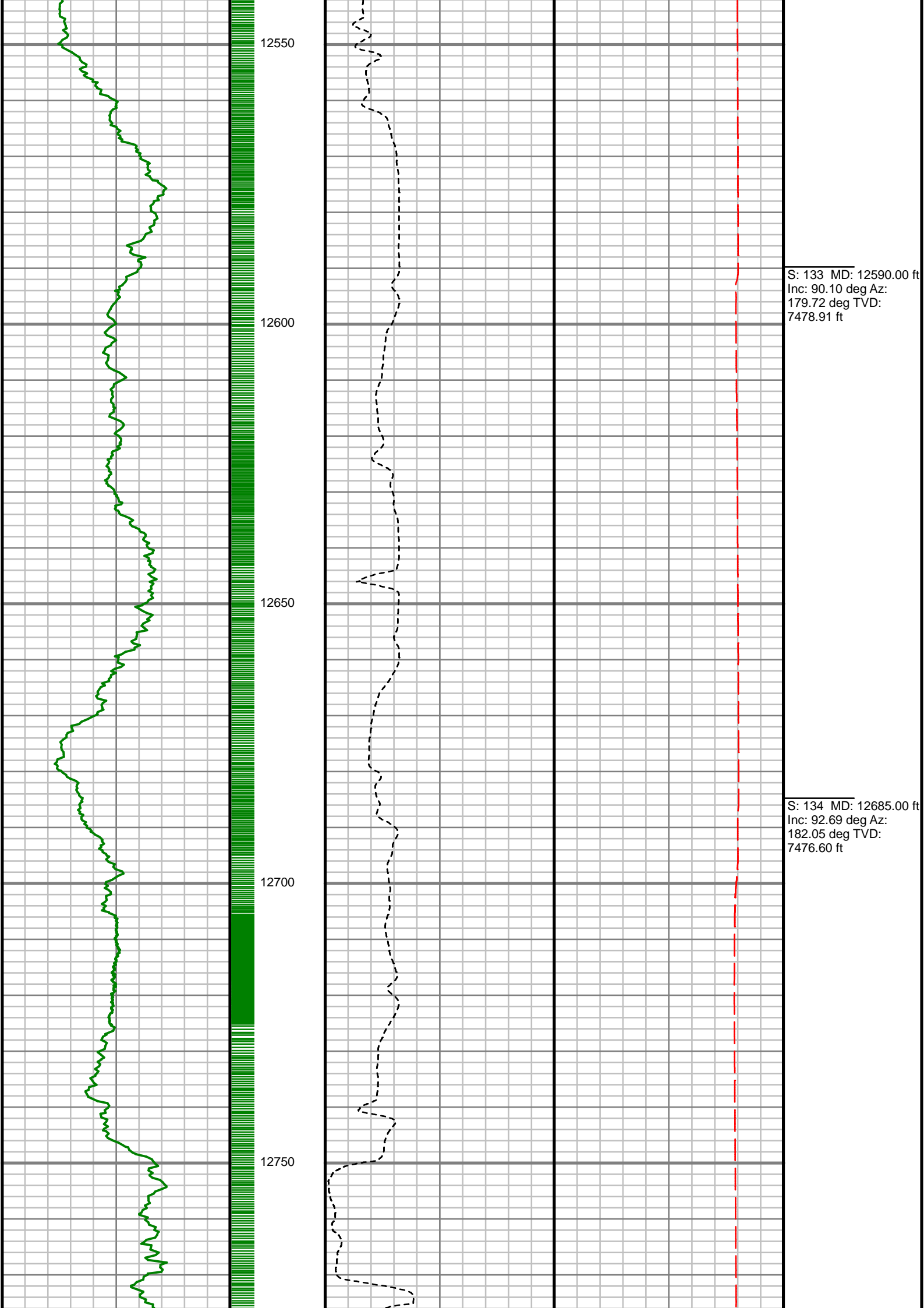


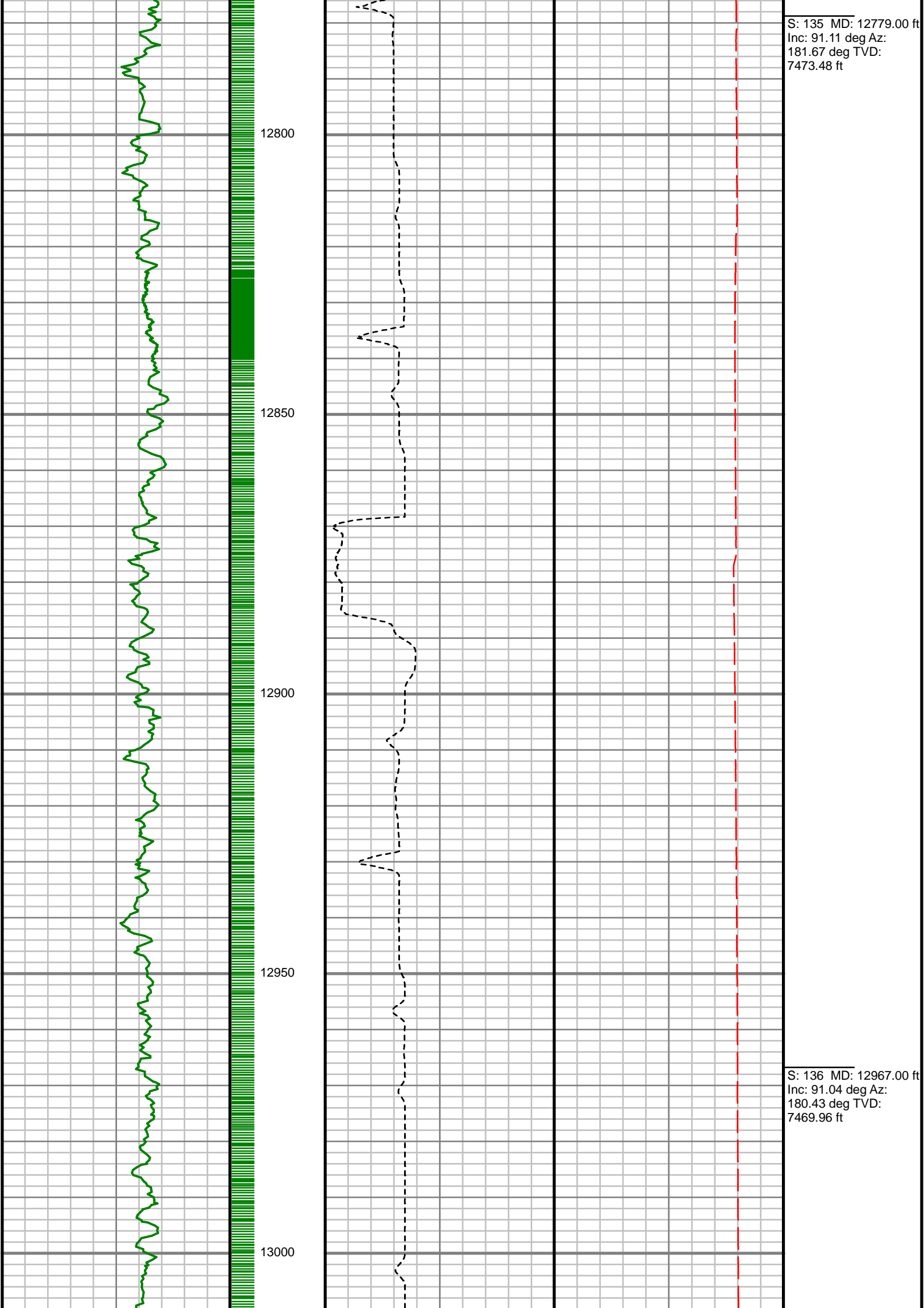


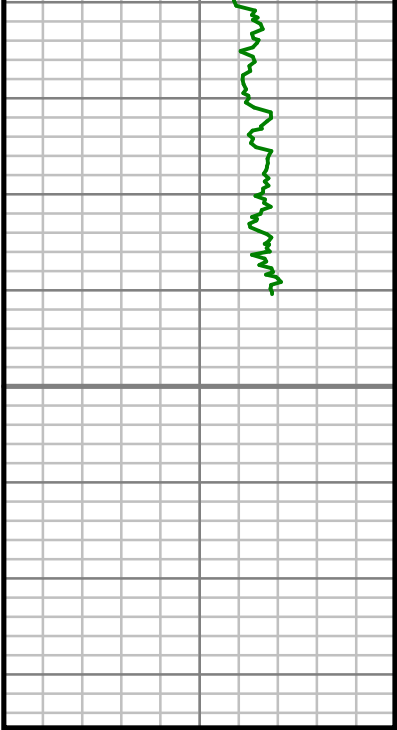








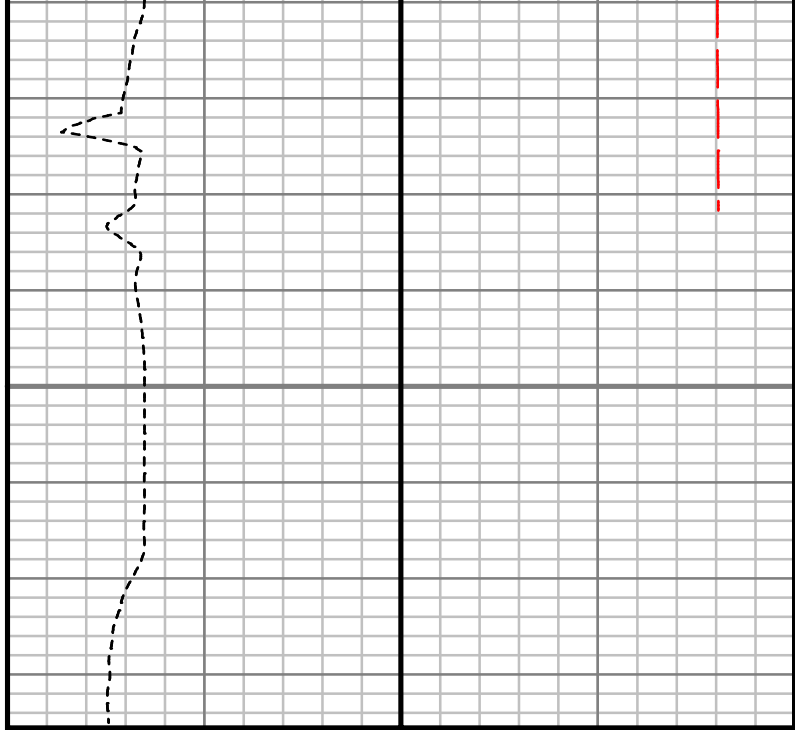




13050

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

S: 137 MD: 13030.00 ft
Inc: 93.03 deg Az:
179.29 deg TVD:
7467.72 ft

Comments

CUSTOMER ANADARKO E&P ONSHORE LLC
PROJECT LAND FED 35C-32HZ
FIELD WATTENBERG

WELL INFORMATION

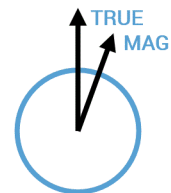
Lat/Long 40° 5' 56.494" N, 104° 48' 19.487" W
Northing 14,562,852.67 ft
Easting 1,694,832.16 ft
UWI 05123423970000

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 180.33°
Calculation Method Minimum Curvature



GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.046 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-3941 ft	ANADARKO MAGVAR	24 Jun 2016	8.34°	add 8.34°
3941-6017 ft	ANADARKO MAGVAR	24 Jun 2016	8.36°	add 8.36°
6017-9216 ft	ANADARKO MAGVAR	24 Jun 2016	8.37°	add 8.37°
9216-13030 ft	ANADARKO MAGVAR	24 Jun 2016	8.35°	add 8.35°

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
213.00	0.88	296.70	212.99	-0.73	0.73	-1.46	0.41
307.00	1.74	334.28	306.97	-2.33	2.35	-2.73	1.25
401.00	3.13	349.98	400.88	-6.14	6.16	-3.79	1.63
495.00	4.61	357.92	494.67	-12.44	12.46	-4.38	1.67
589.00	5.91	0.08	588.27	-21.05	21.08	-4.51	1.40
683.00	7.93	0.51	681.58	-32.37	32.40	-4.44	2.15
777.00	10.08	0.13	774.41	-47.09	47.11	-4.36	2.29
871.00	12.77	358.89	866.54	-65.70	65.73	-4.55	2.87
965.00	15.09	357.27	957.77	-88.31	88.34	-5.33	2.50
1059.00	14.94	357.98	1048.56	-112.63	112.67	-6.34	0.25
1153.00	15.58	359.16	1139.25	-137.36	137.40	-6.95	0.76
1247.00	15.10	359.31	1229.90	-162.22	162.27	-7.29	0.51
1341.00	14.99	359.34	1320.68	-186.62	186.67	-7.57	0.12
1434.00	15.52	355.50	1410.40	-211.04	211.10	-8.69	1.23
1528.00	16.19	354.21	1500.83	-236.61	236.67	-11.00	0.81
1624.00	17.25	354.46	1592.77	-264.07	264.16	-13.72	1.11
1719.00	16.73	354.87	1683.62	-291.70	291.80	-16.30	0.56
1814.00	16.41	354.79	1774.67	-318.67	318.78	-18.74	0.34
1842.00	16.30	355.08	1801.54	-326.52	326.63	-19.44	0.49

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
1956.00	14.54	352.49	1911.44	-356.62	356.76	-22.68	1.66
2050.00	16.46	357.17	2002.02	-381.61	381.76	-24.88	2.44
2145.00	14.91	355.84	2093.48	-407.24	407.40	-26.43	1.67
2240.00	16.29	357.50	2184.97	-432.74	432.91	-27.90	1.53
2335.00	15.13	357.42	2276.42	-458.43	458.61	-29.04	1.22
2430.00	16.16	2.36	2367.90	-484.04	484.21	-29.05	1.77
2525.00	15.15	3.67	2459.38	-509.65	509.81	-27.71	1.13
2620.00	14.27	3.97	2551.26	-533.73	533.88	-26.10	0.94
2714.00	15.65	3.69	2642.07	-557.94	558.09	-24.48	1.47
2809.00	13.97	2.42	2733.91	-582.19	582.34	-23.17	1.81
2903.00	16.73	1.01	2824.55	-607.06	607.20	-22.46	2.97
2997.00	15.57	359.71	2914.84	-633.20	633.34	-22.28	1.30
3092.00	15.02	358.09	3006.48	-658.25	658.39	-22.76	0.73
3186.00	15.56	350.44	3097.16	-682.85	683.00	-25.26	2.22
3281.00	15.76	348.11	3188.64	-708.00	708.19	-30.03	0.70
3376.00	14.38	350.21	3280.37	-732.22	732.43	-34.69	1.56
3470.00	15.44	354.76	3371.21	-756.17	756.40	-37.82	1.68
3565.00	14.96	355.21	3462.88	-780.97	781.21	-40.00	0.52
3657.00	14.79	355.18	3551.80	-804.49	804.74	-41.98	0.19
3752.00	16.01	355.80	3643.39	-829.62	829.89	-43.95	1.30

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3846.00	16.11	357.30	3733.72	-855.57	855.85	-45.52	0.45
3941.00	16.01	355.59	3825.01	-881.78	882.07	-47.14	0.51
4035.00	15.37	354.55	3915.51	-907.10	907.40	-49.32	0.74
4130.00	16.34	355.03	4006.90	-932.93	933.25	-51.68	1.02
4223.00	17.69	355.09	4095.82	-960.03	960.36	-54.02	1.46
4319.00	17.01	353.86	4187.45	-988.51	988.85	-56.77	0.80
4414.00	18.02	356.53	4278.05	-1016.98	1017.34	-59.14	1.35
4507.00	15.30	351.93	4367.14	-1043.47	1043.85	-61.74	3.24
4602.00	15.09	355.34	4458.82	-1068.20	1068.59	-64.50	0.97
4697.00	16.24	355.39	4550.29	-1093.76	1094.16	-66.58	1.21
4791.00	16.81	350.63	4640.41	-1120.25	1120.67	-69.85	1.56
4886.00	17.12	352.48	4731.28	-1147.64	1148.08	-73.91	0.66
4979.00	17.75	354.60	4820.01	-1175.30	1175.76	-77.04	0.96
5072.00	16.64	355.68	4908.85	-1202.68	1203.15	-79.37	1.24
5167.00	16.17	355.49	4999.98	-1229.41	1229.90	-81.44	0.50
5261.00	15.00	358.65	5090.53	-1254.62	1255.11	-82.76	1.54
5355.00	14.18	358.87	5181.50	-1278.28	1278.78	-83.27	0.87
5449.00	15.43	356.53	5272.37	-1302.27	1302.78	-84.25	1.48
5542.00	15.29	352.82	5362.06	-1326.78	1327.30	-86.53	1.07
5637.00	14.03	352.92	5453.96	-1350.61	1351.15	-89.52	1.32

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
5733.00	14.26	353.30	5547.05	-1373.89	1374.44	-92.33	0.26
5828.00	15.17	353.13	5638.93	-1397.83	1398.40	-95.18	0.96
5922.00	11.94	358.87	5730.31	-1419.76	1420.34	-96.84	3.72
6017.00	11.17	354.30	5823.38	-1438.73	1439.32	-97.95	1.26
6111.00	9.86	355.31	5915.80	-1455.80	1456.40	-99.51	1.40
6205.00	8.55	353.18	6008.59	-1470.75	1471.36	-101.00	1.44
6298.00	6.27	348.05	6100.81	-1482.58	1483.19	-102.88	2.55
6392.00	5.33	340.71	6194.33	-1491.70	1492.33	-105.38	1.27
6484.00	4.51	359.20	6286.00	-1499.35	1499.99	-106.84	1.92
6578.00	4.14	1.32	6379.73	-1506.44	1507.08	-106.81	0.43
6671.00	2.12	5.56	6472.58	-1511.51	1512.15	-106.57	2.19
6765.00	2.32	347.05	6566.51	-1515.09	1515.73	-106.83	0.79
6859.00	2.80	334.00	6660.42	-1519.00	1519.65	-108.26	0.80
6952.00	1.25	278.36	6753.37	-1521.17	1521.83	-110.25	2.51
7046.00	3.07	136.02	6847.33	-1519.51	1520.17	-109.52	4.40
7140.00	13.96	165.80	6940.18	-1506.69	1507.32	-104.97	12.12
7236.00	18.64	176.28	7032.31	-1480.15	1480.76	-101.13	5.74
7331.00	29.23	176.03	7119.02	-1441.77	1442.36	-98.53	11.14
7426.00	37.41	178.99	7198.34	-1389.70	1390.28	-96.42	8.78
7520.00	45.56	179.72	7268.71	-1327.50	1328.07	-95.75	8.68

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7615.00	52.48	181.89	7330.97	-1255.83	1256.41	-96.83	7.49
7710.00	61.30	182.67	7382.82	-1176.38	1176.98	-100.02	9.30
7805.00	66.30	182.91	7424.75	-1091.25	1091.87	-104.18	5.27
7899.00	79.48	178.39	7452.36	-1001.64	1002.26	-105.07	14.76
7993.00	82.40	178.65	7467.16	-908.87	909.47	-102.67	3.12
8086.00	88.49	179.46	7474.54	-816.23	816.82	-101.14	6.60
8180.00	89.03	178.31	7476.58	-722.28	722.87	-99.31	1.35
8274.00	89.77	178.65	7477.57	-628.34	628.91	-96.82	0.87
8368.00	90.30	178.60	7477.52	-534.38	534.93	-94.57	0.57
8463.00	90.81	177.83	7476.60	-439.45	439.98	-91.61	0.97
8557.00	89.73	177.98	7476.15	-345.54	346.05	-88.17	1.15
8650.00	91.37	179.79	7475.26	-252.58	253.08	-86.36	2.62
8744.00	89.73	179.31	7474.35	-158.59	159.09	-85.62	1.82
8838.00	89.90	179.90	7474.65	-64.60	65.09	-84.97	0.65
8933.00	89.93	179.82	7474.79	30.39	-29.91	-84.73	0.09
9028.00	89.36	181.18	7475.38	125.39	-124.90	-85.56	1.55
9122.00	89.56	180.90	7476.26	219.38	-218.88	-87.26	0.37
9216.00	89.80	180.41	7476.78	313.37	-312.87	-88.34	0.57
9311.00	90.60	179.05	7476.45	408.37	-407.87	-87.90	1.66
9404.00	90.17	179.68	7475.82	501.35	-500.86	-86.87	0.82

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9499.00	89.70	181.06	7475.93	596.35	-595.85	-87.49	1.53
9593.00	89.80	180.90	7476.35	690.34	-689.84	-89.09	0.20
9686.00	89.97	180.35	7476.54	783.34	-782.83	-90.11	0.62
9780.00	91.04	182.14	7475.71	877.32	-876.80	-92.15	2.23
9874.00	91.92	182.82	7473.28	971.22	-970.68	-96.22	1.18
9968.00	90.74	182.19	7471.10	1065.12	-1064.56	-100.33	1.42
10061.00	90.64	182.19	7469.98	1158.07	-1157.49	-103.88	0.11
10155.00	88.45	179.73	7470.73	1252.05	-1251.46	-105.45	3.50
10249.00	88.29	181.30	7473.40	1346.00	-1345.41	-106.29	1.69
10343.00	88.69	181.17	7475.88	1439.96	-1439.36	-108.32	0.45
10437.00	88.79	181.57	7477.95	1533.92	-1533.31	-110.56	0.45
10531.00	88.99	181.16	7479.78	1627.89	-1627.27	-112.80	0.49
10626.00	89.53	181.21	7481.00	1722.87	-1722.24	-114.76	0.57
10720.00	90.60	181.85	7480.89	1816.85	-1816.20	-117.27	1.33
10814.00	90.97	181.12	7479.60	1910.82	-1910.16	-119.70	0.87
10907.00	90.81	181.26	7478.15	2003.80	-2003.13	-121.63	0.23
11001.00	91.58	180.85	7476.19	2097.77	-2097.09	-123.36	0.93
11094.00	90.34	180.60	7474.64	2190.75	-2190.07	-124.53	1.37
11187.00	88.42	181.05	7475.64	2283.74	-2283.05	-125.87	2.11
11280.00	88.28	181.16	7478.31	2376.69	-2375.99	-127.66	0.19

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11372.00	88.46	179.90	7480.93	2468.65	-2467.95	-128.51	1.39
11466.00	89.13	177.36	7482.92	2562.58	-2561.90	-126.26	2.79
11559.00	88.12	179.00	7485.16	2655.48	-2654.82	-123.30	2.07
11653.00	89.29	180.56	7487.28	2749.45	-2748.79	-122.94	2.07
11746.00	91.41	181.99	7486.71	2842.43	-2841.76	-125.01	2.75
11840.00	89.97	179.98	7485.58	2936.41	-2935.73	-126.63	2.63
11932.00	90.54	179.93	7485.18	3028.40	-3027.73	-126.56	0.62
12027.00	91.37	180.07	7483.59	3123.39	-3122.71	-126.56	0.89
12121.00	91.44	181.55	7481.28	3217.35	-3216.67	-127.89	1.59
12215.00	90.40	180.91	7479.77	3311.33	-3310.64	-129.91	1.30
12307.00	89.76	180.29	7479.63	3403.33	-3402.63	-130.88	0.96
12400.00	90.44	180.82	7479.47	3496.33	-3495.62	-131.78	0.92
12495.00	90.07	180.23	7479.05	3591.32	-3590.62	-132.65	0.73
12590.00	90.10	179.72	7478.91	3686.32	-3685.62	-132.61	0.54
12685.00	92.69	182.05	7476.60	3781.27	-3780.56	-134.08	3.67
12779.00	91.11	181.67	7473.48	3875.19	-3874.46	-137.13	1.73
12967.00	91.04	180.43	7469.96	4063.13	-4062.39	-140.57	0.66
13030.00	93.03	179.29	7467.72	4126.09	-4125.35	-140.42	3.63

5" = 100' FEET MD