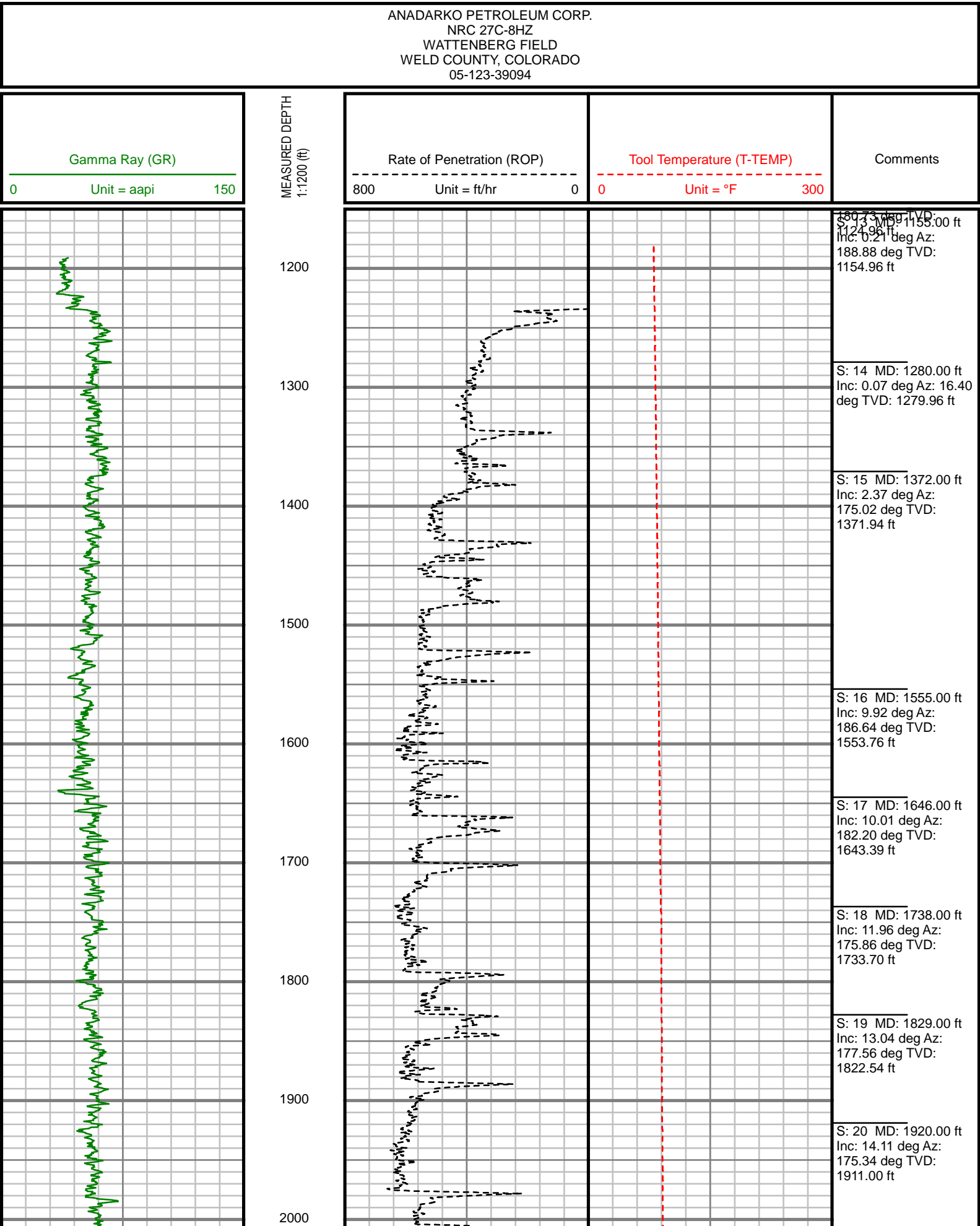
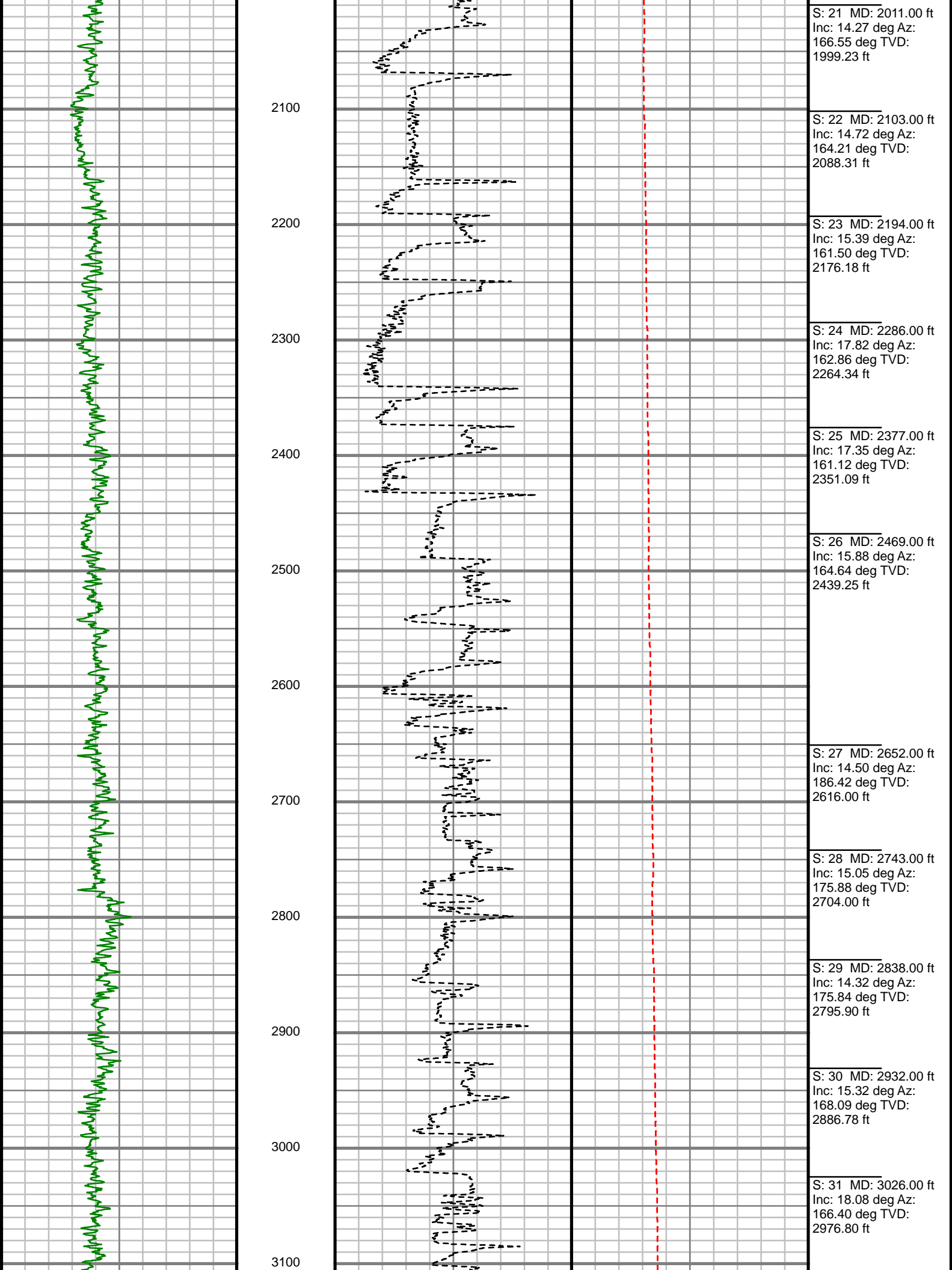


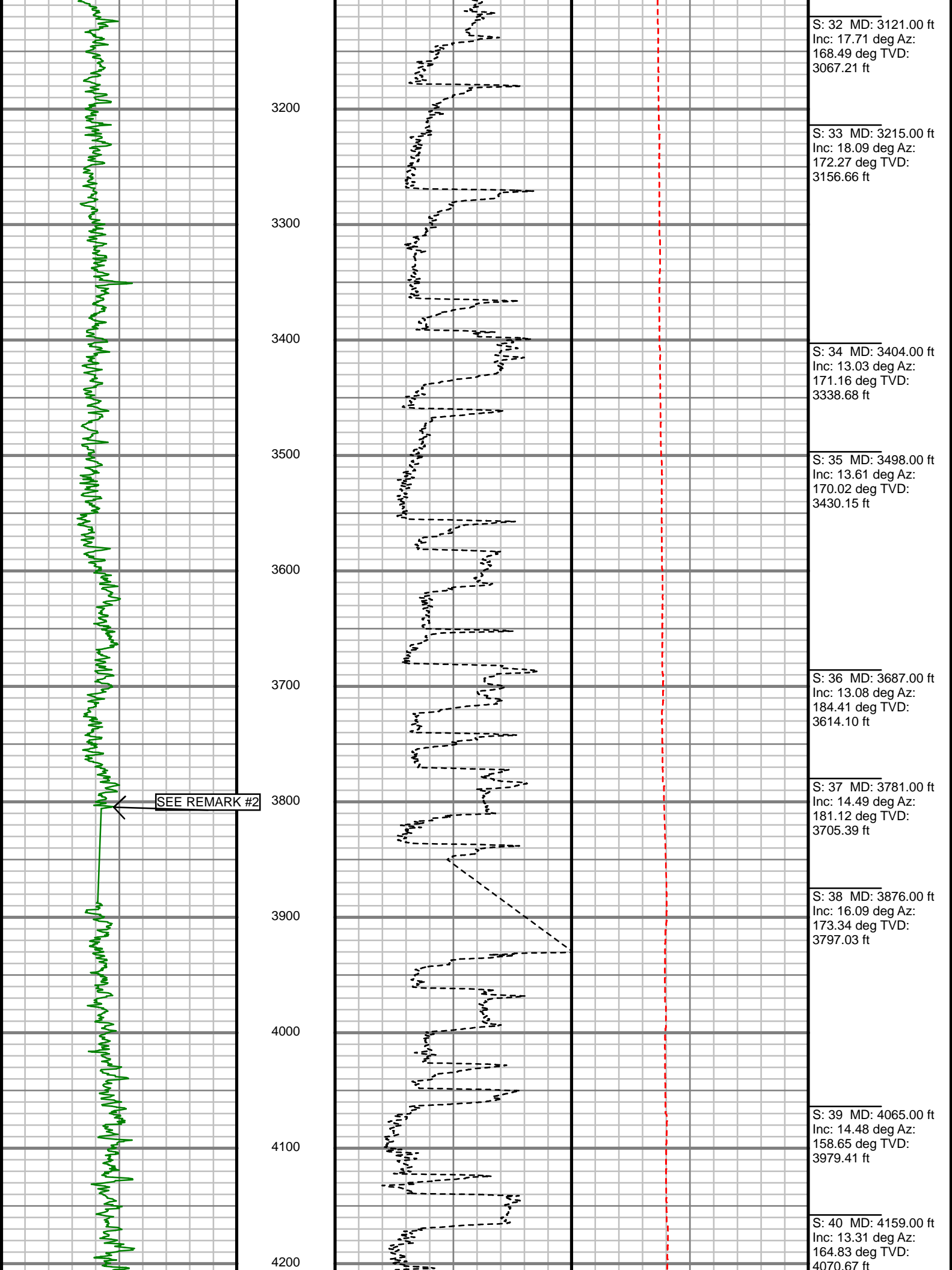
Remarks
ANADARKO PETROLEUM CORP PRODUCTION AFE# 2085768
SCIENTIFIC DRILLING INTERNATIONAL JOB# 156067
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN #1: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 128-328 / CONT = 590 / EYE = 826 / GAMMA RAY = 1101
BIT TO SENSOR OFFSETS: SURVEY = 52.43 FT. / GAMMA RAY = 43.18 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-274 / CONT = 219 / EYE = 1001 / GAMMA RAY = 1154
BIT TO SENSOR OFFSETS: SURVEY = 60.19 FT. / GAMMA RAY = 50.94 FT.
RUN #3: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-276 / CONT = 603 / EYE = 0298 / GAMMA RAY = 1031
BIT TO SENSOR OFFSETS: SURVEY = 58.57 FT. / GAMMA RAY = 49.32 FT.
RUN #4: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-274 / CONT = 219 / EYE = 1001 / GAMMA RAY = 1154
BIT TO SENSOR OFFSETS: SURVEY = 57.77 FT. / GAMMA RAY = 48.52FT.

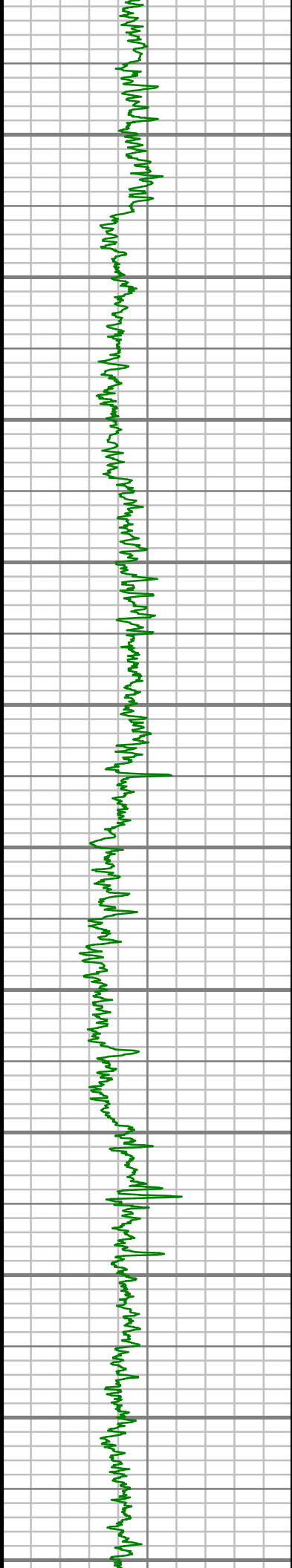
[illegible]

All interpretations are opinions based on information provided to us by others. We and our affiliates do not warrant, represent or guarantee the accuracy or completeness of any information provided to us, or 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.









4300

4400

4500

4600

4700

4800

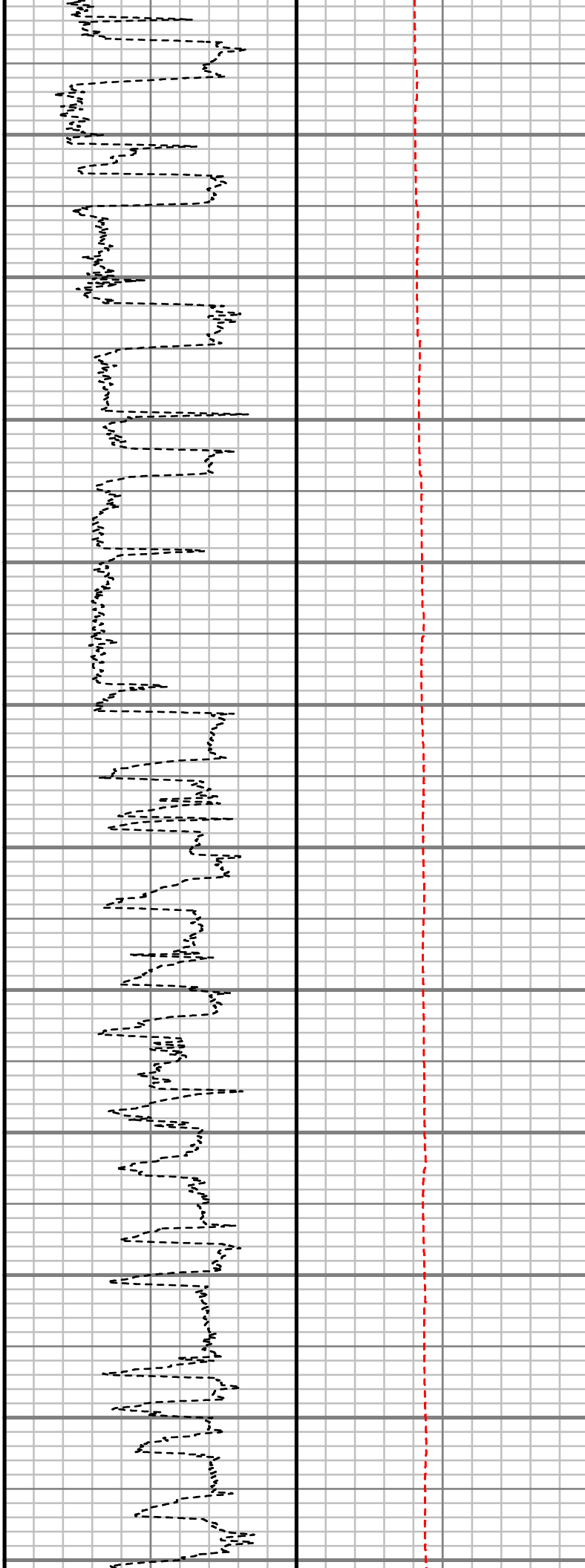
4900

5000

5100

5200

5300



S: 41 MD: 4347.00 ft
Inc: 13.95 deg Az:
174.05 deg TVD:
4253.39 ft

S: 42 MD: 4442.00 ft
Inc: 15.40 deg Az:
175.30 deg TVD:
4345.29 ft

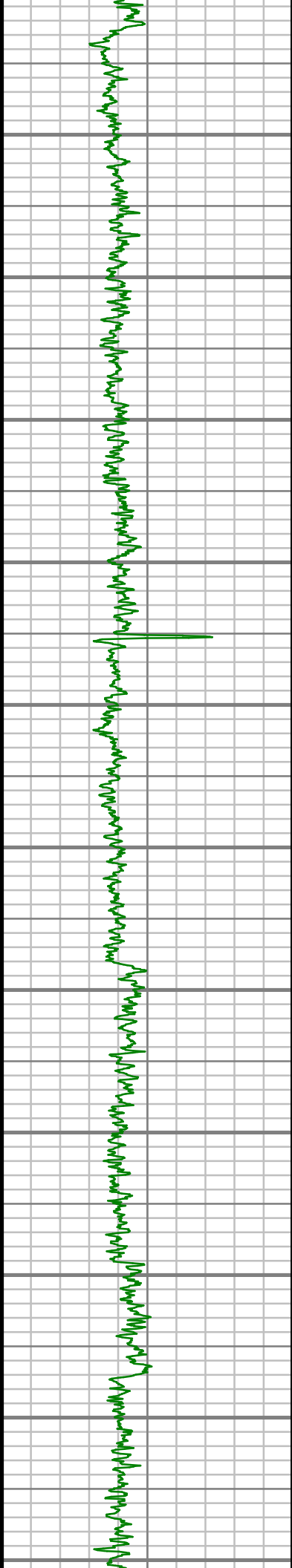
S: 43 MD: 4536.00 ft
Inc: 16.65 deg Az:
179.42 deg TVD:
4435.64 ft

S: 44 MD: 4725.00 ft
Inc: 14.49 deg Az:
180.43 deg TVD:
4617.69 ft

S: 45 MD: 4914.00 ft
Inc: 18.00 deg Az:
175.70 deg TVD:
4799.12 ft

S: 46 MD: 5103.00 ft
Inc: 13.18 deg Az:
175.99 deg TVD:
4981.12 ft

S: 47 MD: 5197.00 ft
Inc: 9.03 deg Az:
173.89 deg TVD:
5073.34 ft



5400

5500

5600

5700

5800

5900

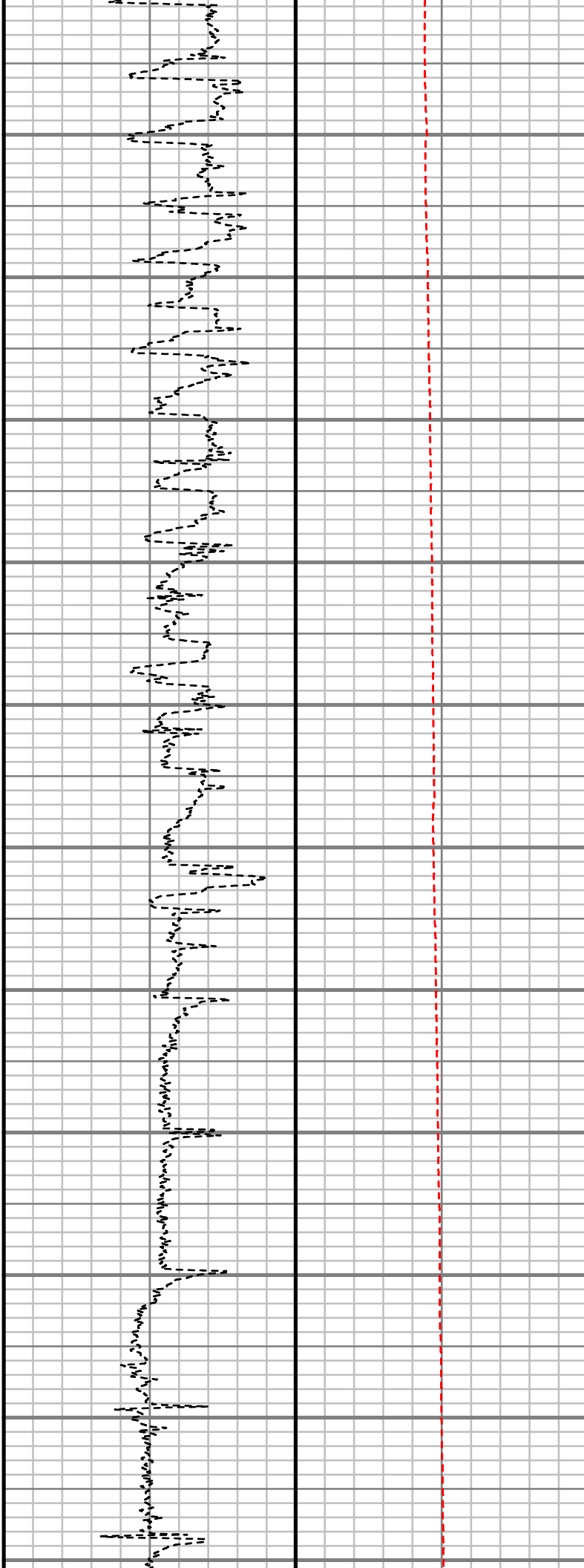
6000

6100

6200

6300

6400



S: 48 MD: 5386.00 ft
Inc: 1.95 deg Az:
145.31 deg TVD:
5261.37 ft

S: 49 MD: 5574.00 ft
Inc: 2.80 deg Az: 22.94
deg TVD: 5449.29 ft

S: 50 MD: 5669.00 ft
Inc: 2.69 deg Az: 31.60
deg TVD: 5544.18 ft

S: 51 MD: 5763.00 ft
Inc: 2.21 deg Az: 27.42
deg TVD: 5638.09 ft

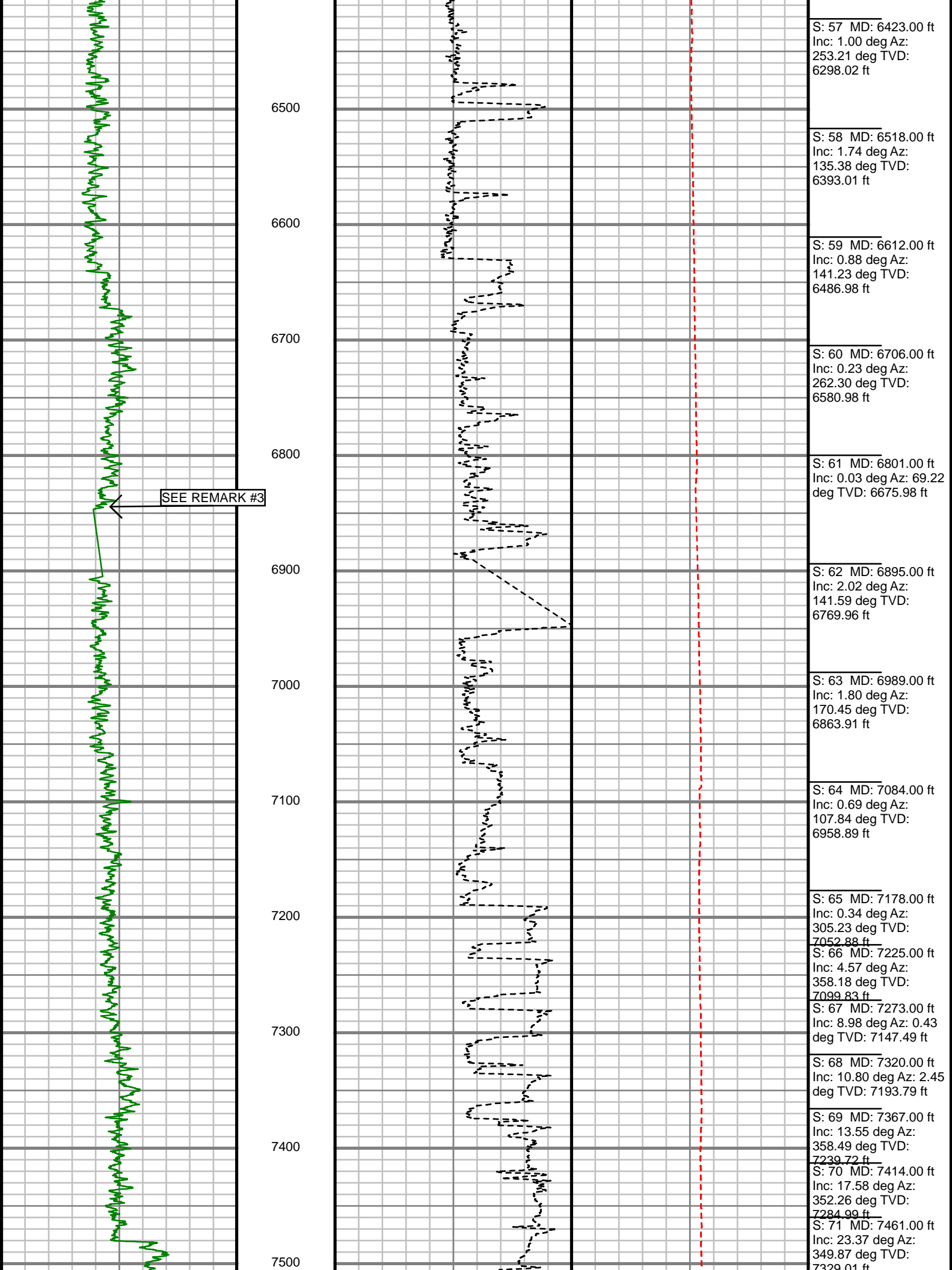
S: 52 MD: 5952.00 ft
Inc: 0.48 deg Az:
298.82 deg TVD:
5827.04 ft

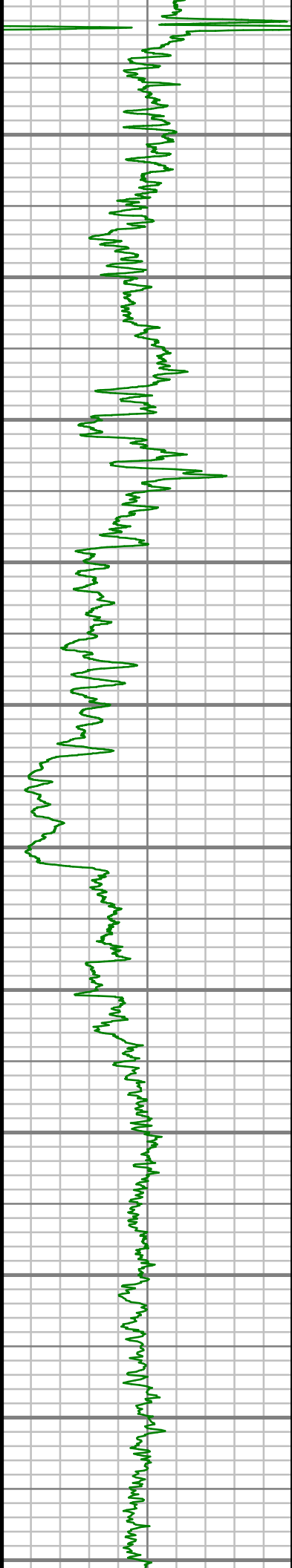
S: 53 MD: 6046.00 ft
Inc: 0.68 deg Az:
342.68 deg TVD:
5921.04 ft

S: 54 MD: 6140.00 ft
Inc: 0.31 deg Az:
288.14 deg TVD:
6015.04 ft

S: 55 MD: 6234.00 ft
Inc: 0.71 deg Az:
296.44 deg TVD:
6109.03 ft

S: 56 MD: 6329.00 ft
Inc: 0.58 deg Az:
348.43 deg TVD:
6204.03 ft





7600

7700

7800

7900

8000

8100

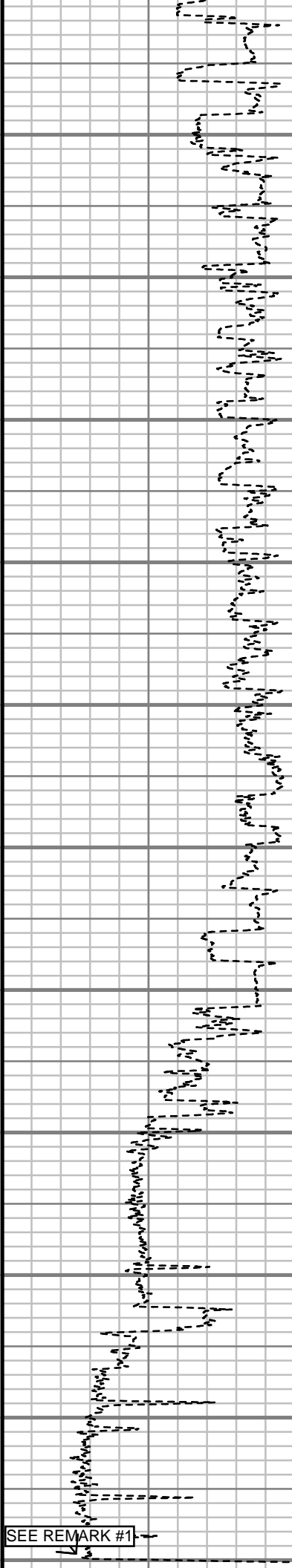
8200

8300

8400

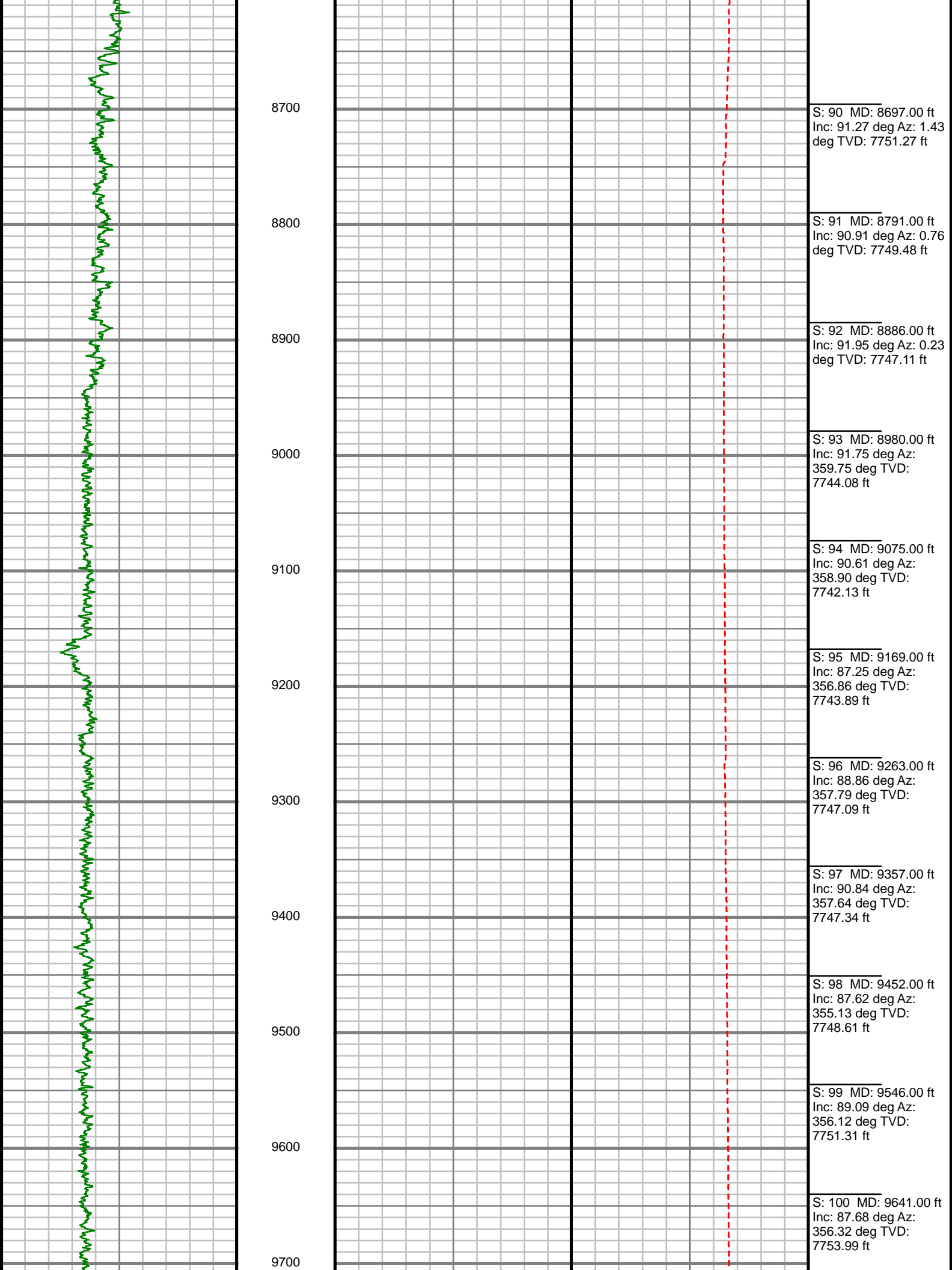
8500

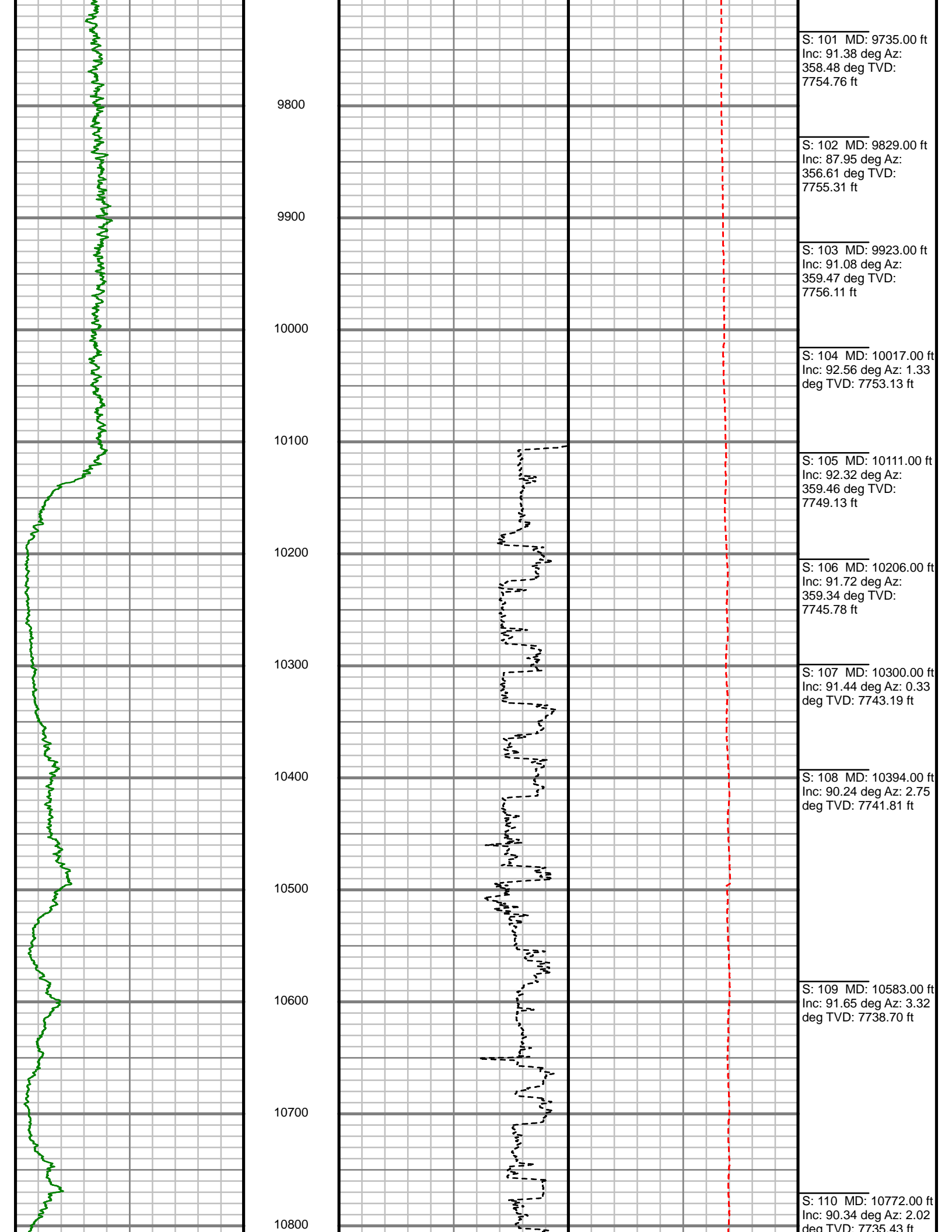
8600

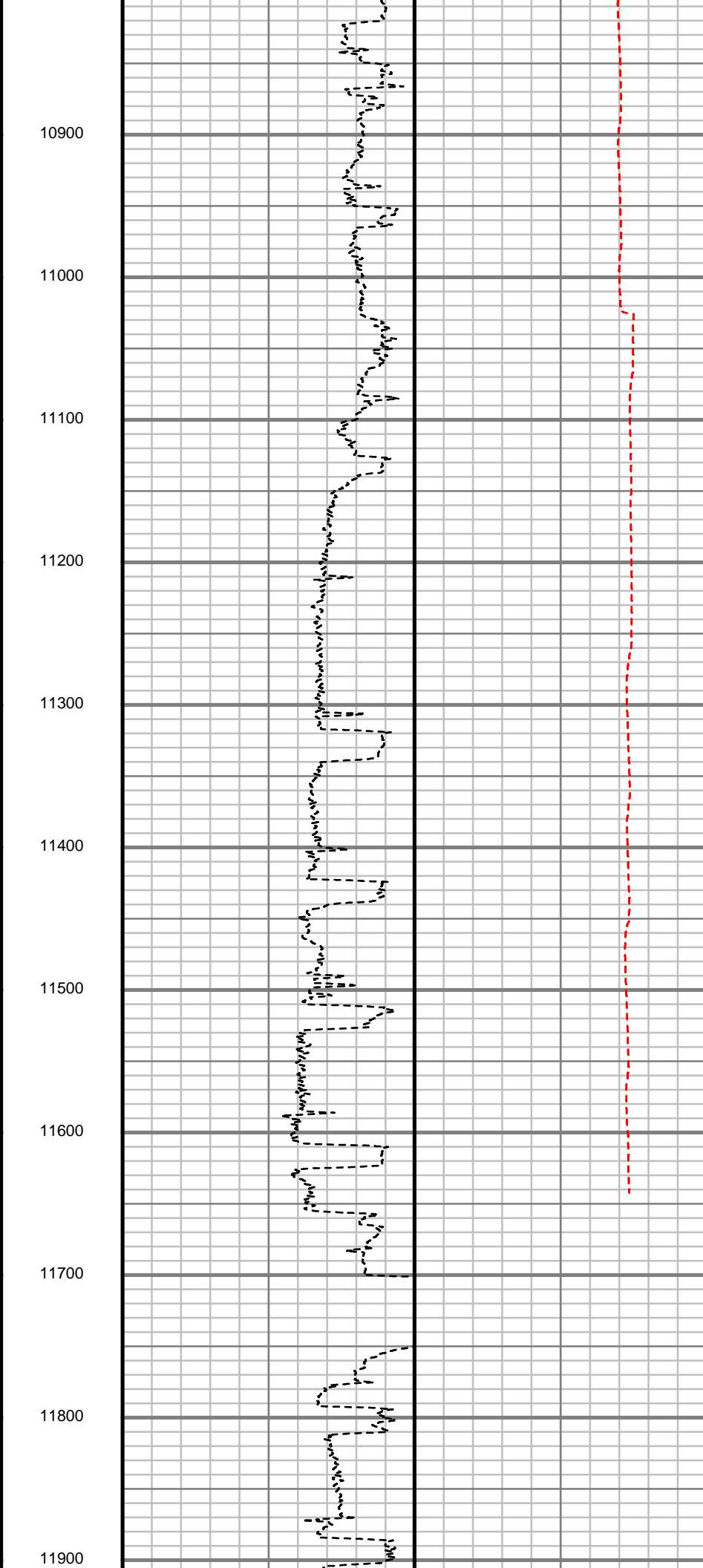
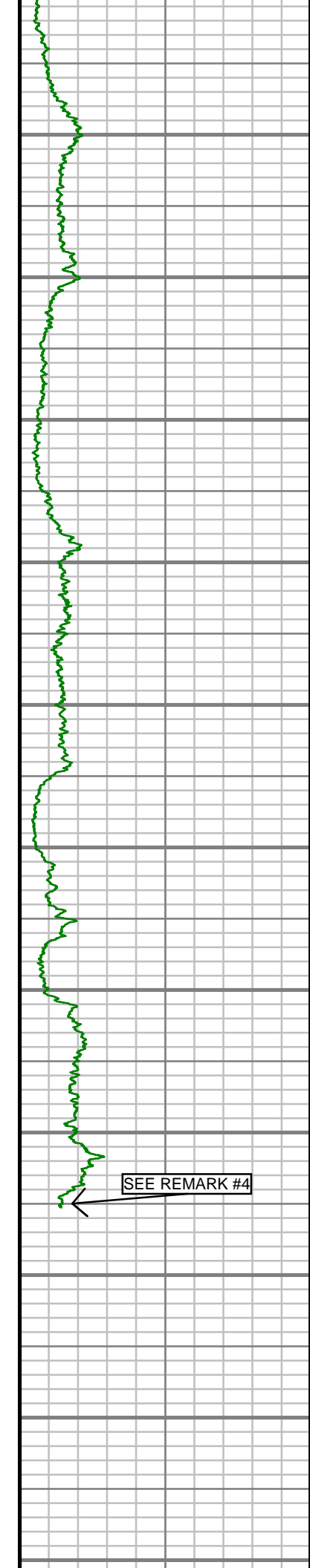


SEE REMARK #1

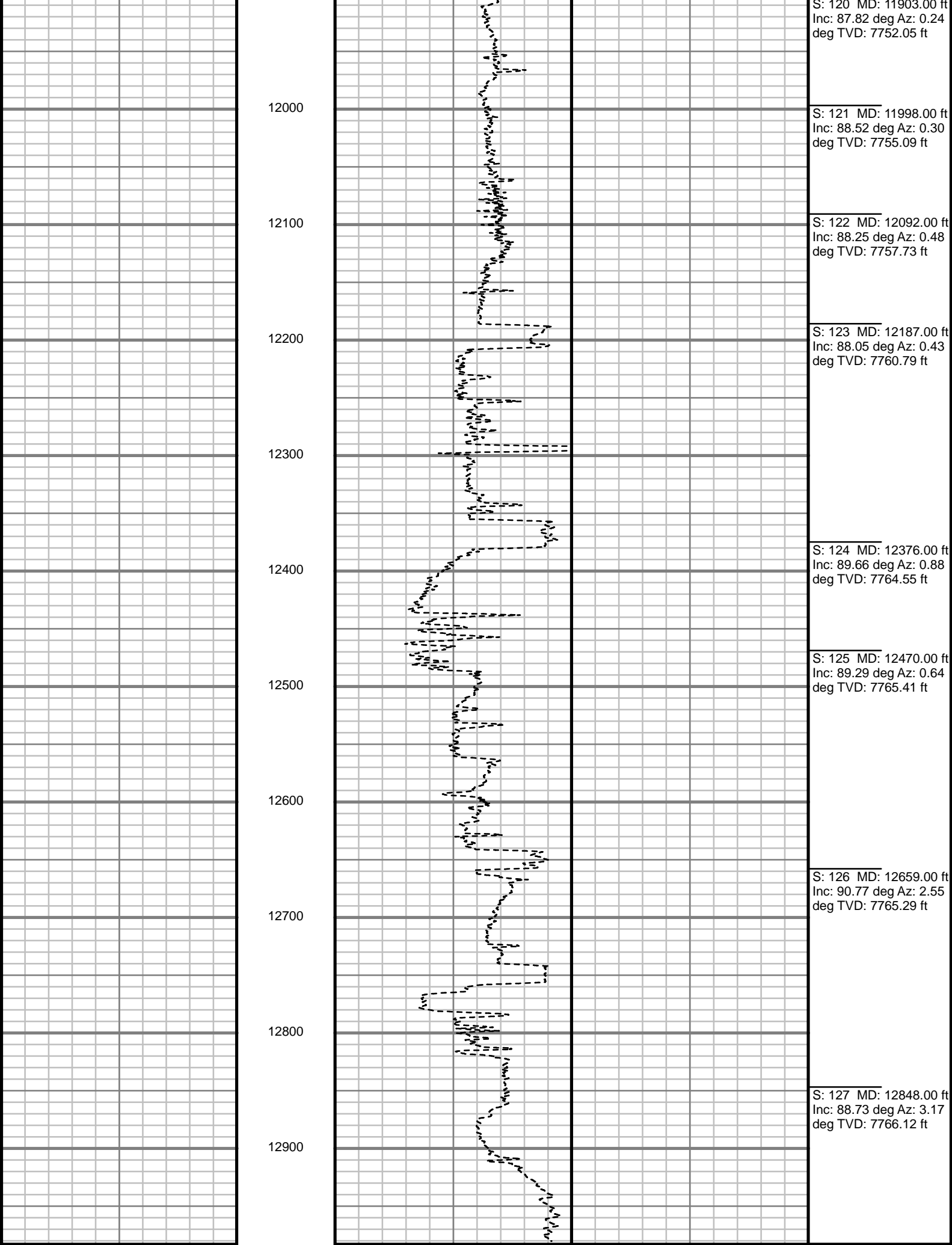
S: 72 MD: 7508.00 ft
Inc: 28.19 deg Az:
352.13 deg TVD:
7371.31 ft
S: 73 MD: 7556.00 ft
Inc: 32.20 deg Az:
355.63 deg TVD:
7412.80 ft
S: 74 MD: 7603.00 ft
Inc: 34.36 deg Az:
356.57 deg TVD:
7452.09 ft
S: 75 MD: 7650.00 ft
Inc: 38.26 deg Az:
358.07 deg TVD:
7489.96 ft
S: 76 MD: 7697.00 ft
Inc: 43.32 deg Az:
359.00 deg TVD:
7525.53 ft
S: 77 MD: 7744.00 ft
Inc: 45.13 deg Az:
358.86 deg TVD:
7559.21 ft
S: 78 MD: 7791.00 ft
Inc: 49.00 deg Az: 1.38
deg TVD: 7591.22 ft
S: 79 MD: 7839.00 ft
Inc: 53.81 deg Az: 1.96
deg TVD: 7621.15 ft
S: 80 MD: 7886.00 ft
Inc: 58.29 deg Az: 1.69
deg TVD: 7647.39 ft
S: 81 MD: 7933.00 ft
Inc: 63.14 deg Az: 1.52
deg TVD: 7670.38 ft
S: 82 MD: 7980.00 ft
Inc: 66.86 deg Az: 1.35
deg TVD: 7690.24 ft
S: 83 MD: 8027.00 ft
Inc: 70.58 deg Az: 1.98
deg TVD: 7707.29 ft
S: 84 MD: 8074.00 ft
Inc: 74.35 deg Az: 0.74
deg TVD: 7721.45 ft
S: 85 MD: 8122.00 ft
Inc: 77.95 deg Az: 1.08
deg TVD: 7732.94 ft
S: 86 MD: 8169.00 ft
Inc: 82.43 deg Az: 0.30
deg TVD: 7740.94 ft
S: 87 MD: 8328.00 ft
Inc: 88.92 deg Az:
359.41 deg TVD:
7752.92 ft
S: 88 MD: 8422.00 ft
Inc: 89.63 deg Az: 0.54
deg TVD: 7754.10 ft
S: 89 MD: 8516.00 ft
Inc: 90.47 deg Az: 0.63
deg TVD: 7754.02 ft







S: 111 MD: 10866.00 ft Inc: 89.03 deg Az: 1.89 deg TVD: 7735.95 ft
S: 112 MD: 11054.00 ft Inc: 89.33 deg Az: 0.88 deg TVD: 7738.65 ft
S: 113 MD: 11149.00 ft Inc: 89.29 deg Az: 359.97 deg TVD: 7739.79 ft
S: 114 MD: 11338.00 ft Inc: 89.50 deg Az: 359.78 deg TVD: 7741.79 ft
S: 115 MD: 11432.00 ft Inc: 88.35 deg Az: 0.66 deg TVD: 7743.55 ft
S: 116 MD: 11526.00 ft Inc: 89.93 deg Az: 1.29 deg TVD: 7744.96 ft
S: 117 MD: 11620.00 ft Inc: 88.52 deg Az: 0.08 deg TVD: 7746.22 ft
S: 118 MD: 11715.00 ft Inc: 88.92 deg Az: 359.23 deg TVD: 7748.34 ft
S: 119 MD: 11809.00 ft Inc: 89.36 deg Az: 359.80 deg TVD: 7749.74 ft
S: 120 MD: 11903.00 ft Inc: 89.77 deg Az: 359.80 deg TVD: 7751.14 ft



Gamma Ray (GR)

ME 1:1

Rate of Penetration (ROP)

Tool Temperature (T-TEMP)

0	Unit = aapi	150
---	-------------	-----

ASURED DEPTH
200 (ft)

800	Unit = ft/hr	0	0	Unit = °F	300	Comments
-----	--------------	---	---	-----------	-----	----------

MWD Survey Report

Well Location	NRC 15-8HZ PAD
Well Name	NRC 27C-8HZ
Survey Date	5/26/2014
Latitude	40°3'33.372"N
Longitude	104°54'40.846"W
Btotal	52709, 52756, 52813 nT
Dip	66.49, 66.51, 66.52 deg
Magnetic Declination	8.48, 8.49, 8.50 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), 0.00Azim (deg)
Operator(s)	

Well Notes

SURVEYS FROM 0 FT. TO 1251 FT. WERE ACQUIRED BY MS GYRO MWD.

SURVEYS FROM 1251 FT. TO 12848 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING INTERNATIONAL MWD.

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	Invalid
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	25.00
125.00	0.68	210.49	125.00	-0.51	-0.51	-0.30	0.68	100.00
225.00	0.69	214.56	224.99	-1.52	-1.52	-0.94	0.05	100.00
325.00	0.60	204.66	324.98	-2.49	-2.49	-1.50	0.14	100.00
425.00	0.60	200.76	424.98	-3.46	-3.46	-1.91	0.04	100.00
525.00	0.60	209.23	524.97	-4.40	-4.40	-2.35	0.09	100.00
625.00	0.53	209.37	624.97	-5.26	-5.26	-2.83	0.07	100.00
725.00	0.30	200.60	724.97	-5.91	-5.91	-3.15	0.24	100.00
825.00	0.27	172.93	824.96	-6.39	-6.39	-3.21	0.14	100.00
925.00	0.27	173.36	924.96	-6.86	-6.86	-3.16	0.00	100.00
1025.00	0.29	171.97	1024.96	-7.34	-7.34	-3.09	0.02	100.00
1125.00	0.16	180.73	1124.96	-7.73	-7.73	-3.06	0.13	100.00
1155.00	0.21	188.88	1154.96	-7.83	-7.83	-3.07	0.19	30.00
1280.00	0.07	16.40	1279.96	-7.98	-7.98	-3.08	0.22	125.00
1372.00	2.37	175.02	1371.94	-9.83	-9.83	-2.90	2.65	92.00
1555.00	9.92	186.64	1553.76	-29.29	-29.29	-4.40	4.16	183.00
1646.00	10.01	182.20	1643.39	-44.97	-44.97	-5.61	0.85	91.00
1738.00	11.96	175.86	1733.70	-62.47	-62.47	-5.23	2.49	92.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
1829.00	13.04	177.56	1822.54	-82.12	-82.12	-4.11	1.25	91.00
1920.00	14.11	175.34	1911.00	-103.43	-103.43	-2.77	1.32	91.00
2011.00	14.27	166.55	1999.23	-125.41	-125.41	0.74	2.37	91.00
2103.00	14.72	164.21	2088.31	-147.68	-147.68	6.56	0.80	92.00
2194.00	15.39	161.50	2176.18	-170.25	-170.25	13.53	1.07	91.00
2286.00	17.82	162.86	2264.34	-195.28	-195.28	21.55	2.67	92.00
2377.00	17.35	161.12	2351.09	-221.42	-221.42	30.05	0.77	91.00
2469.00	15.88	164.64	2439.25	-246.54	-246.54	37.82	1.94	92.00
2652.00	14.50	186.42	2616.00	-293.49	-293.49	41.89	3.19	183.00
2743.00	15.05	175.88	2704.00	-316.60	-316.60	41.47	3.01	91.00
2838.00	14.32	175.84	2795.90	-340.62	-340.62	43.21	0.77	95.00
2932.00	15.32	168.09	2886.78	-364.37	-364.37	46.62	2.36	94.00
3026.00	18.08	166.40	2976.80	-390.71	-390.71	52.61	2.98	94.00
3121.00	17.71	168.49	3067.21	-419.20	-419.20	58.96	0.78	95.00
3215.00	18.09	172.27	3156.66	-447.67	-447.67	63.78	1.30	94.00
3404.00	13.03	171.16	3338.68	-497.82	-497.82	71.00	2.68	189.00
3498.00	13.61	170.02	3430.15	-519.18	-519.18	74.55	0.68	94.00
3687.00	13.08	184.41	3614.10	-562.42	-562.42	76.76	1.77	189.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
3781.00	14.49	181.12	3705.39	-584.79	-584.79	75.71	1.71	94.00
3876.00	16.09	173.34	3797.03	-609.75	-609.75	77.00	2.73	95.00
4065.00	14.48	158.65	3979.41	-657.78	-657.78	88.65	2.21	189.00
4159.00	13.31	164.83	4070.67	-679.17	-679.17	95.76	2.00	94.00
4347.00	13.95	174.05	4253.39	-722.61	-722.61	103.77	1.20	188.00
4442.00	15.40	175.30	4345.29	-746.57	-746.57	105.99	1.57	95.00
4536.00	16.65	179.42	4435.64	-772.48	-772.48	107.15	1.80	94.00
4725.00	14.49	180.43	4617.69	-823.21	-823.21	107.25	1.15	189.00
4914.00	18.00	175.70	4799.12	-875.99	-875.99	109.26	1.98	189.00
5103.00	13.18	175.99	4981.12	-926.64	-926.64	112.96	2.55	189.00
5197.00	9.03	173.89	5073.34	-944.67	-944.67	114.50	4.43	94.00
5386.00	1.95	145.31	5261.37	-962.09	-962.09	117.91	3.90	189.00
5574.00	2.80	22.94	5449.29	-960.49	-960.49	121.52	2.22	188.00
5669.00	2.69	31.60	5544.18	-956.46	-956.46	123.59	0.45	95.00
5763.00	2.21	27.42	5638.09	-952.97	-952.97	125.58	0.55	94.00
5952.00	0.48	298.82	5827.04	-949.35	-949.35	126.56	1.19	189.00
6046.00	0.68	342.68	5921.04	-948.63	-948.63	126.05	0.50	94.00
6140.00	0.31	288.14	6015.04	-948.02	-948.02	125.64	0.60	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
6234.00	0.71	296.44	6109.03	-947.68	-947.68	124.88	0.43	94.00
6329.00	0.58	348.43	6204.03	-946.95	-946.95	124.25	0.61	95.00
6423.00	1.00	253.21	6298.02	-946.72	-946.72	123.37	1.27	94.00
6518.00	1.74	135.38	6393.01	-947.98	-947.98	123.59	2.50	95.00
6612.00	0.88	141.23	6486.98	-949.56	-949.56	125.05	0.92	94.00
6706.00	0.23	262.30	6580.98	-950.15	-950.15	125.32	1.08	94.00
6801.00	0.03	69.22	6675.98	-950.17	-950.17	125.16	0.27	95.00
6895.00	2.02	141.59	6769.96	-951.45	-951.45	126.21	2.13	94.00
6989.00	1.80	170.45	6863.91	-954.21	-954.21	127.49	1.04	94.00
7084.00	0.69	107.84	6958.89	-955.86	-955.86	128.28	1.69	95.00
7178.00	0.34	305.23	7052.88	-955.87	-955.87	128.59	1.08	94.00
7225.00	4.57	358.18	7099.83	-953.92	-953.92	128.42	9.31	47.00
7273.00	8.98	0.43	7147.49	-948.26	-948.26	128.39	9.19	48.00
7320.00	10.80	2.45	7193.79	-940.19	-940.19	128.60	3.95	47.00
7367.00	13.55	358.49	7239.72	-930.29	-930.29	128.65	6.11	47.00
7414.00	17.58	352.26	7284.99	-917.74	-917.74	127.55	9.28	47.00
7461.00	23.37	349.87	7329.01	-901.52	-901.52	124.95	12.45	47.00
7508.00	28.19	352.13	7371.31	-881.33	-881.33	121.79	10.46	47.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
7556.00	32.20	355.63	7412.80	-857.33	-857.33	119.26	9.11	48.00
7603.00	34.36	356.57	7452.09	-831.61	-831.61	117.51	4.72	47.00
7650.00	38.26	358.07	7489.96	-803.81	-803.81	116.22	8.51	47.00
7697.00	43.32	359.00	7525.53	-773.13	-773.13	115.45	10.84	47.00
7744.00	45.13	358.86	7559.21	-740.36	-740.36	114.84	3.86	47.00
7791.00	49.00	1.38	7591.22	-705.96	-705.96	114.94	9.12	47.00
7839.00	53.81	1.96	7621.15	-668.47	-668.47	116.04	10.06	48.00
7886.00	58.29	1.69	7647.39	-629.51	-629.51	117.28	9.54	47.00
7933.00	63.14	1.52	7670.38	-588.55	-588.55	118.42	10.32	47.00
7980.00	66.86	1.35	7690.24	-545.97	-545.97	119.49	7.93	47.00
8027.00	70.58	1.98	7707.29	-502.20	-502.20	120.76	8.00	47.00
8074.00	74.35	0.74	7721.45	-457.41	-457.41	121.82	8.42	47.00
8122.00	77.95	1.08	7732.94	-410.82	-410.82	122.57	7.53	48.00
8169.00	82.43	0.30	7740.94	-364.52	-364.52	123.12	9.67	47.00
8328.00	88.92	359.41	7752.92	-206.06	-206.06	122.71	4.12	159.00
8422.00	89.63	0.54	7754.10	-112.07	-112.07	122.67	1.42	94.00
8516.00	90.47	0.63	7754.02	-18.07	-18.07	123.63	0.90	94.00
8697.00	91.27	1.43	7751.27	162.87	162.87	126.89	0.63	181.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
8791.00	90.91	0.76	7749.48	256.84	256.84	128.69	0.82	94.00
8886.00	91.95	0.23	7747.11	351.80	351.80	129.51	1.23	95.00
8980.00	91.75	359.75	7744.08	445.75	445.75	129.49	0.55	94.00
9075.00	90.61	358.90	7742.13	540.73	540.73	128.37	1.50	95.00
9169.00	87.25	356.86	7743.89	634.63	634.63	124.90	4.18	94.00
9263.00	88.86	357.79	7747.09	728.47	728.47	120.52	1.98	94.00
9357.00	90.84	357.64	7747.34	822.39	822.39	116.78	2.11	94.00
9452.00	87.62	355.13	7748.61	917.17	917.17	110.80	4.30	95.00
9546.00	89.09	356.12	7751.31	1010.85	1010.85	103.63	1.89	94.00
9641.00	87.68	356.32	7753.99	1105.61	1105.61	97.37	1.50	95.00
9735.00	91.38	358.48	7754.76	1199.48	1199.48	93.12	4.55	94.00
9829.00	87.95	356.61	7755.31	1293.38	1293.38	89.09	4.16	94.00
9923.00	91.08	359.47	7756.11	1387.30	1387.30	85.88	4.51	94.00
10017.00	92.56	1.33	7753.13	1481.24	1481.24	86.54	2.53	94.00
10111.00	92.32	359.46	7749.13	1575.15	1575.15	87.19	2.00	94.00
10206.00	91.72	359.34	7745.78	1670.09	1670.09	86.19	0.65	95.00
10300.00	91.44	0.33	7743.19	1764.05	1764.05	85.92	1.09	94.00
10394.00	90.24	2.75	7741.81	1858.00	1858.00	88.44	2.88	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
10583.00	91.65	3.32	7738.70	2046.70	2046.70	98.43	0.81	189.00
10772.00	90.34	2.02	7735.43	2235.46	2235.46	107.23	0.98	189.00
10866.00	89.03	1.89	7735.95	2329.40	2329.40	110.45	1.40	94.00
11054.00	89.33	0.88	7738.65	2517.32	2517.32	114.99	0.56	188.00
11149.00	89.29	359.97	7739.79	2612.31	2612.31	115.69	0.96	95.00
11338.00	89.50	359.78	7741.79	2801.30	2801.30	115.28	0.15	189.00
11432.00	88.35	0.66	7743.55	2895.28	2895.28	115.64	1.53	94.00
11526.00	89.93	1.29	7744.96	2989.26	2989.26	117.24	1.81	94.00
11620.00	88.52	0.08	7746.22	3083.24	3083.24	118.36	1.97	94.00
11715.00	88.92	359.23	7748.34	3178.21	3178.21	117.80	0.99	95.00
11809.00	89.36	359.80	7749.74	3272.20	3272.20	117.00	0.76	94.00
11903.00	87.82	0.24	7752.05	3366.16	3366.16	117.03	1.71	94.00
11998.00	88.52	0.30	7755.09	3461.11	3461.11	117.48	0.74	95.00
12092.00	88.25	0.48	7757.73	3555.07	3555.07	118.12	0.35	94.00
12187.00	88.05	0.43	7760.79	3650.02	3650.02	118.88	0.22	95.00
12376.00	89.66	0.88	7764.55	3838.97	3838.97	121.04	0.88	189.00
12470.00	89.29	0.64	7765.41	3932.95	3932.95	122.28	0.47	94.00
12659.00	90.77	2.55	7765.29	4121.87	4121.87	127.54	1.28	189.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
12848.00	88.73	3.17	7766.12	4310.62	4310.62	136.98	1.13	189.00

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



GAMMA RAY

1" = 100' FEET MD