



WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	03-Sep-15	07-Sep-15			
Rig Bit Number	2	3			
Bit Size (in)	8.750	6.125			
Tool Nominal OD (in)	6.750	4.750			
Log Start Depth (MD, ft)	636.00	6,840.00			
Log End Depth (MD, ft)	6,840.00	16,000.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	01-Sep-15 22:58	04-Sep-15 09:47			
Drill/Wipe End Date and Time	03-Sep-15 06:13	06-Sep-15 18:48			
Min Inc (deg) @ Depth (MD, ft)	0.15 @ 825.00	88.06 @ 15,113.00			
Max Inc (deg) @ Depth (MD, ft)	83.42 @ 6,784.00	92.56 @ 11,705.00			
Bit TFA(in2) / Bit Type	0.98 / PDC	0.98 / PDC			
Flow Rate (gpm)	585.96	310.35			
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A			
Fluid Type	Native/Spud Mud	Native/Spud Mud			
Density (ppg) / Viscosity (spqt)	10.65 / 43.00	9.35 / 34.00			
Filtrate CL (ppm)	2,400.00	2,800.00			
pH / Fluid Loss (mptm)	8.60 / 9	9.10 / 5			
PV (cP) / YP (lbf2)	10 / 12.00	7 / 8.00			
% Solids / % Sand	11.70 / 0.20	5.20 / 0.20			
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A			
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A			
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A			
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A			
Max Tool Temp (degF) @ Depth (MD, ft)	178.05 @ 825.00	200.70 @ 825.00			

Max Tool Temp (degF) / Source	170.37 / PCM	238.70 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A			
Lead MWD Engineer	Matt Busche	Matt Busche			
Customer Representative	Stetson Nielsen	Stetson Nielsen			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11341335	12334785			
Insert Serial Number	11400992	11227493			
Date and Time Initialized	01-Sep-15 17:09	03-Sep-15 13:33			
Date and Time Read	03-Sep-15 13:44	07-Sep-15 11:47			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	56.00	66.00			
Software Version	6.21	6.21			
Sub Serial Number	11341335	12334785			
Sonde Serial Number	11297516	11637592			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	312.80	115.00			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	48.92	69.27			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11341335	12334785			
Insert/Sonde Serial Number	12037420	12071509			

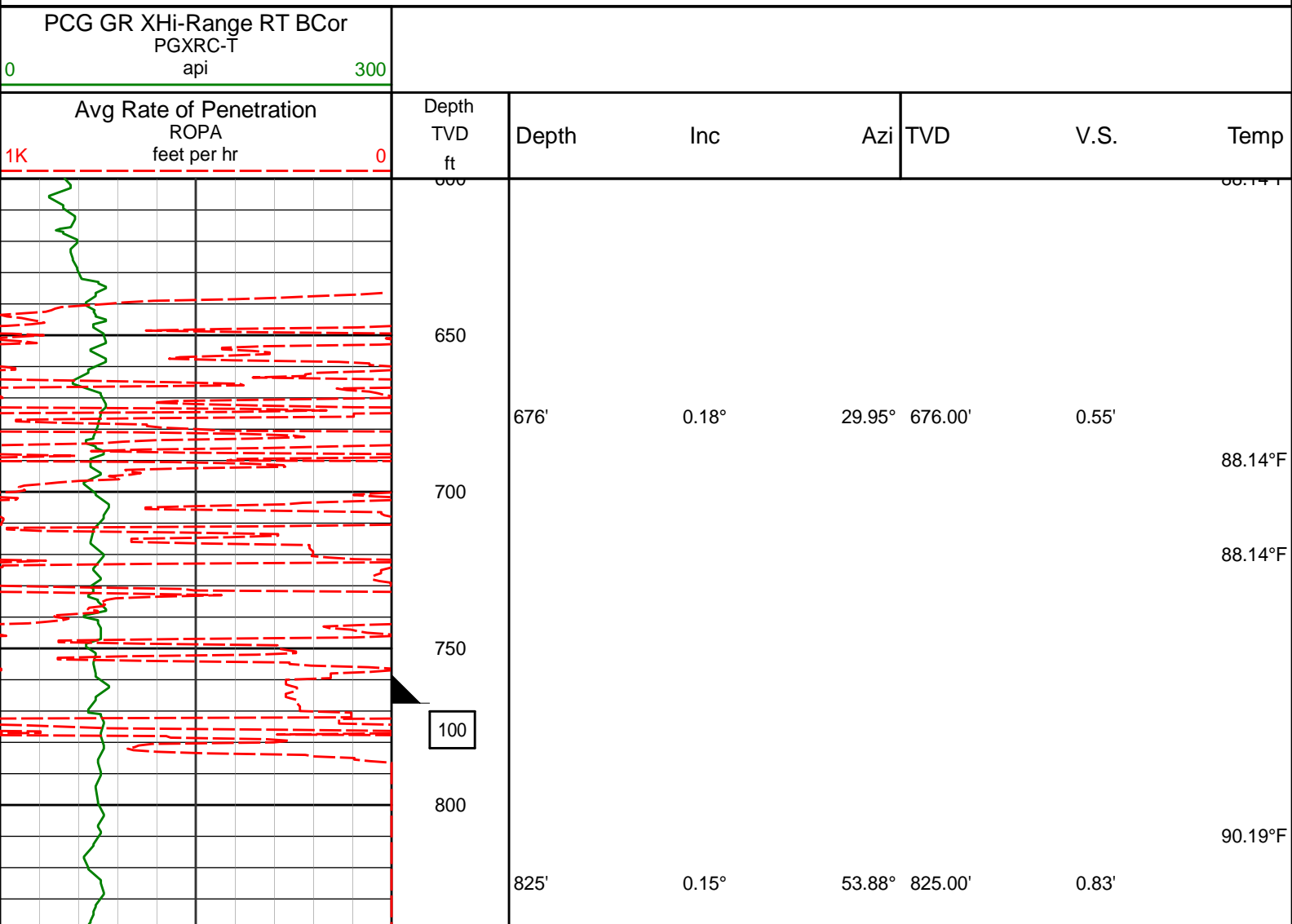
REMARKS

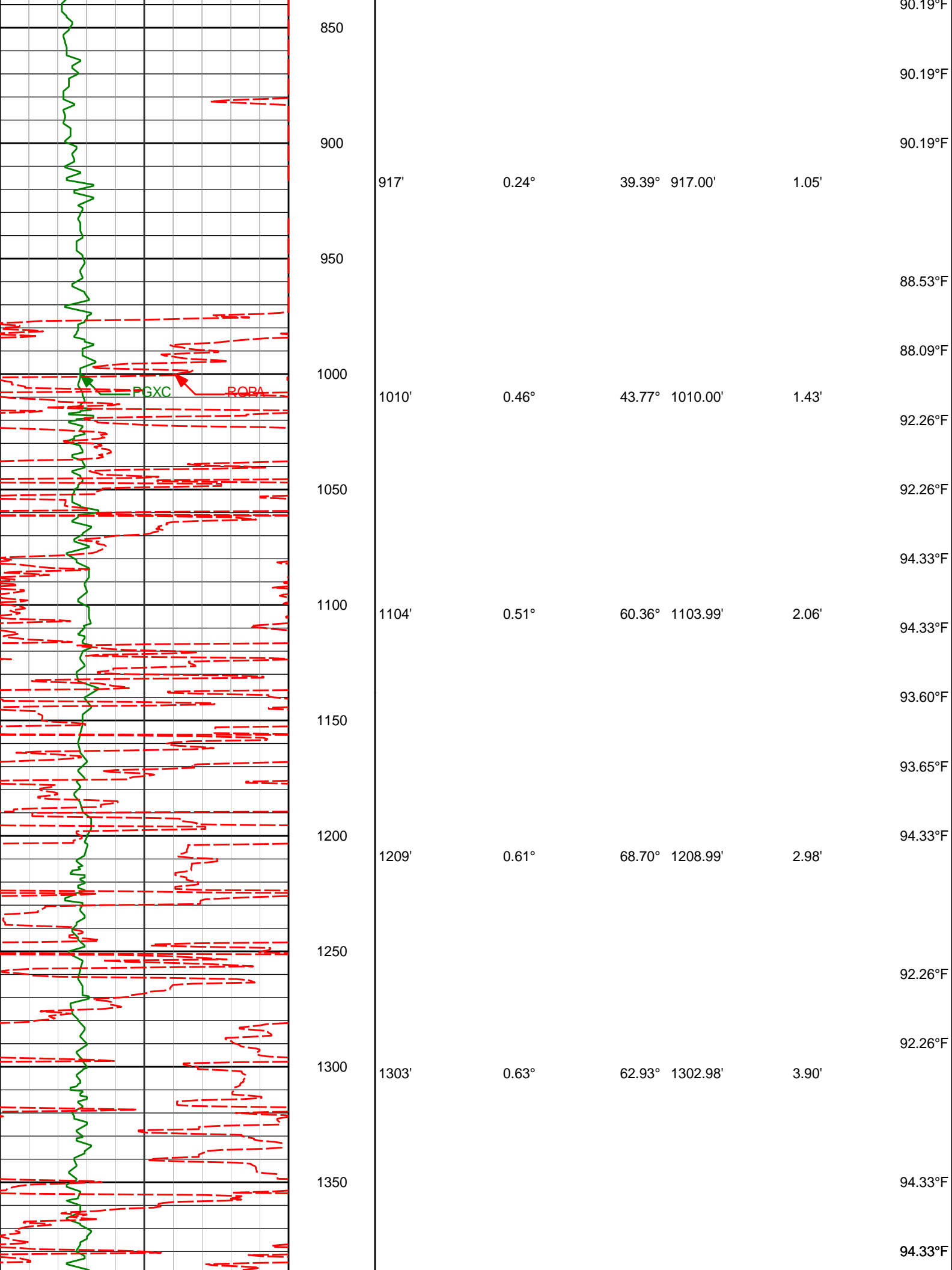
1. All depths are calibrated to driller's pipe tally and are measured depth's from the Drill Floor.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded data unless otherwise specified.
4. The following smoothing parameters have been applied to the data:
 - 1:600 Log
PGRC (Gamma CG) and ROPA (Average Rate of Penetration)
Interval Resolution: 1.0 ft
Interval Distance: 3.0 ft
 - 1:240 Log
PGRC (Gamma CG):
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
 - ROPA (Average Rate Of Penetration):
Interval Resolution: 0.5 ft
Interval Distance: 1.2 ft

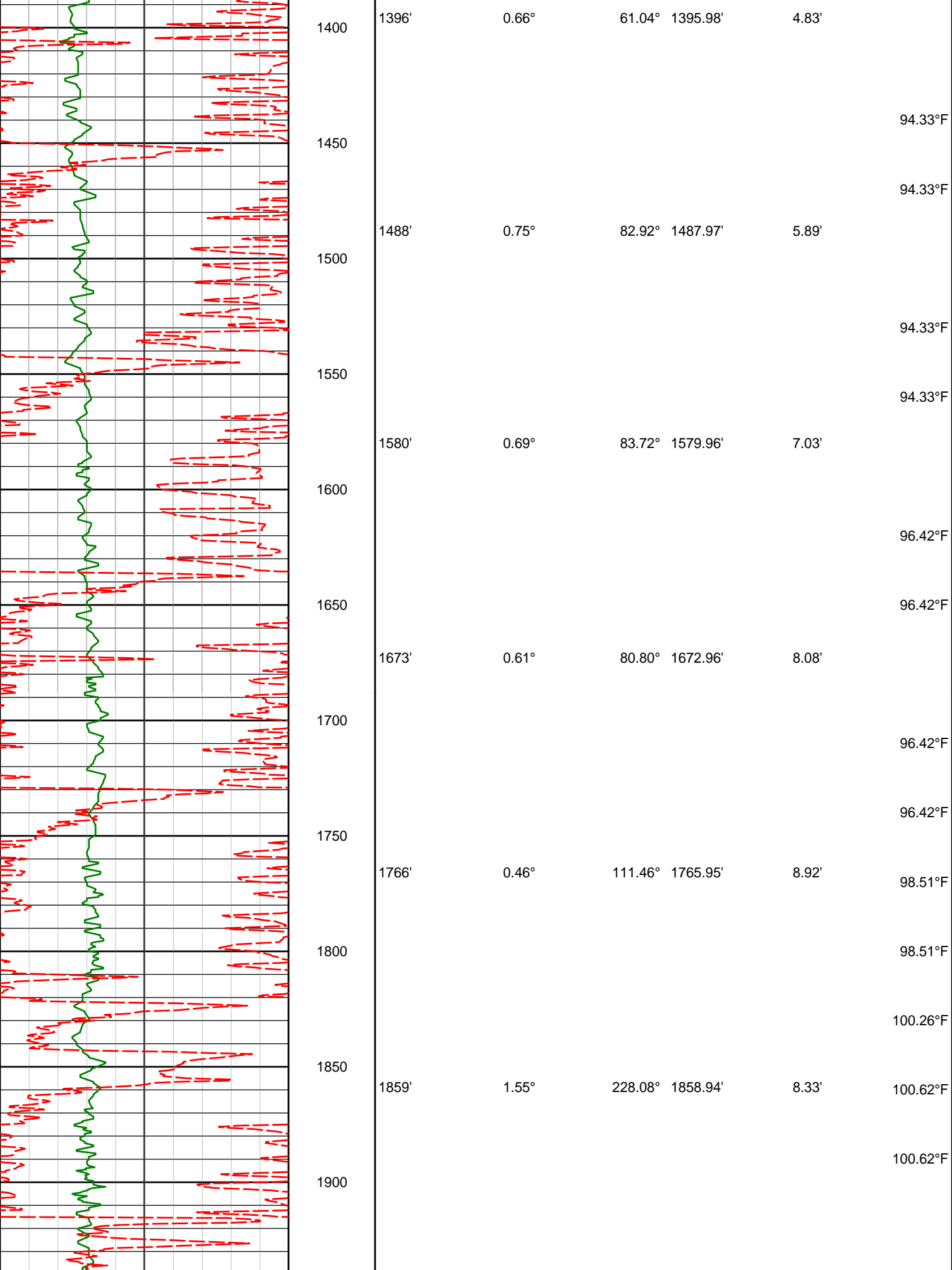
WARRANTY

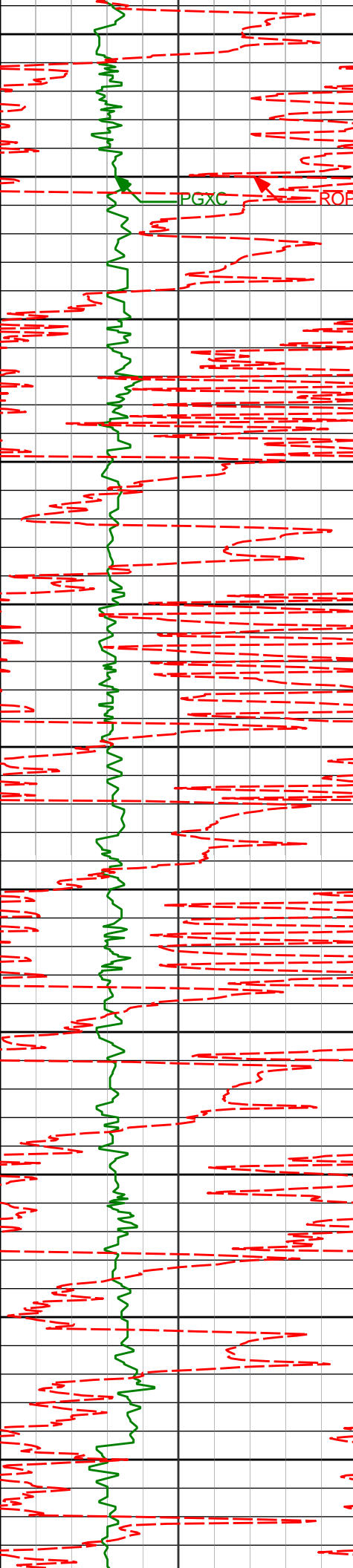
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MD Detail 1:600 Scale

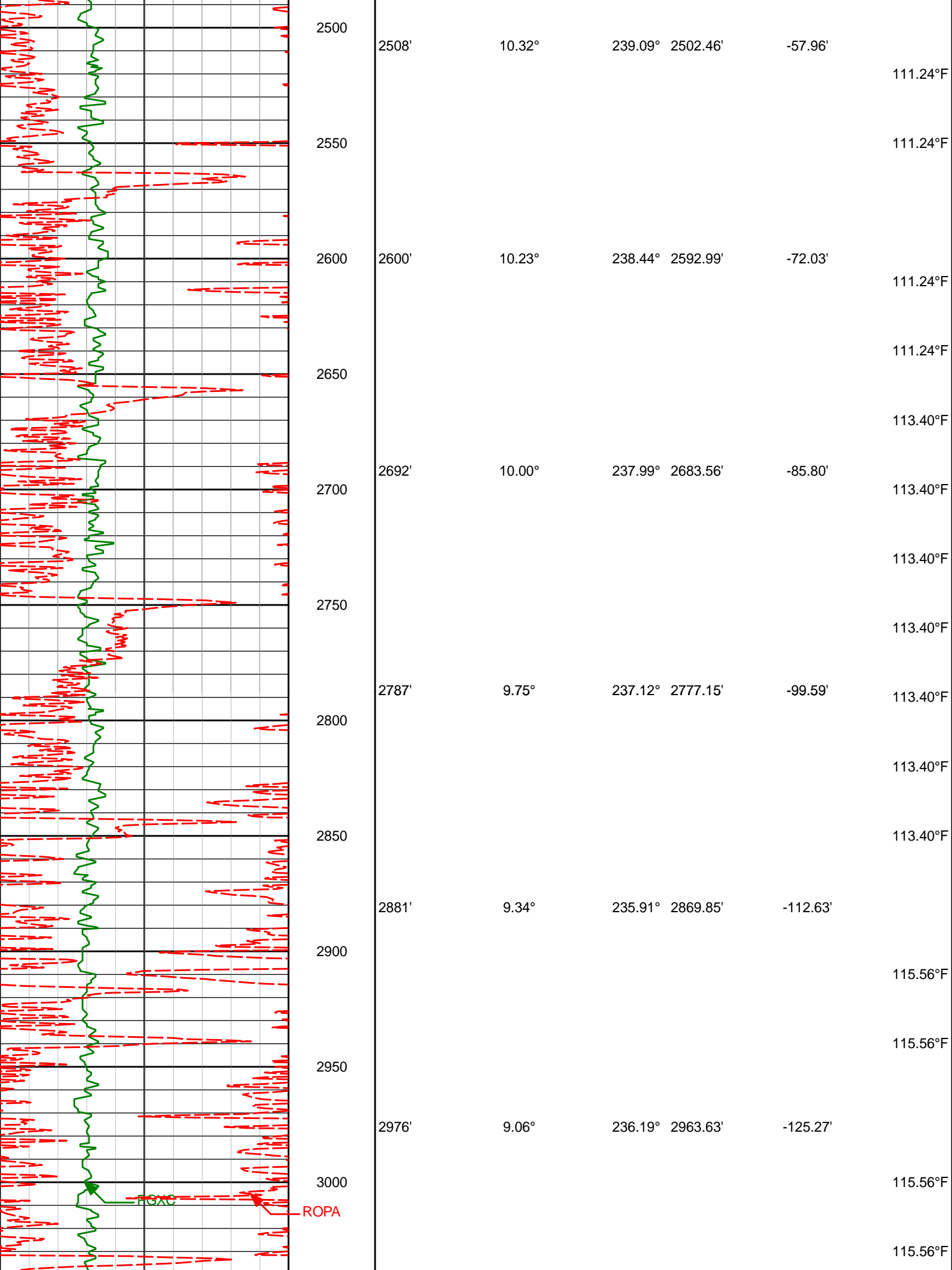


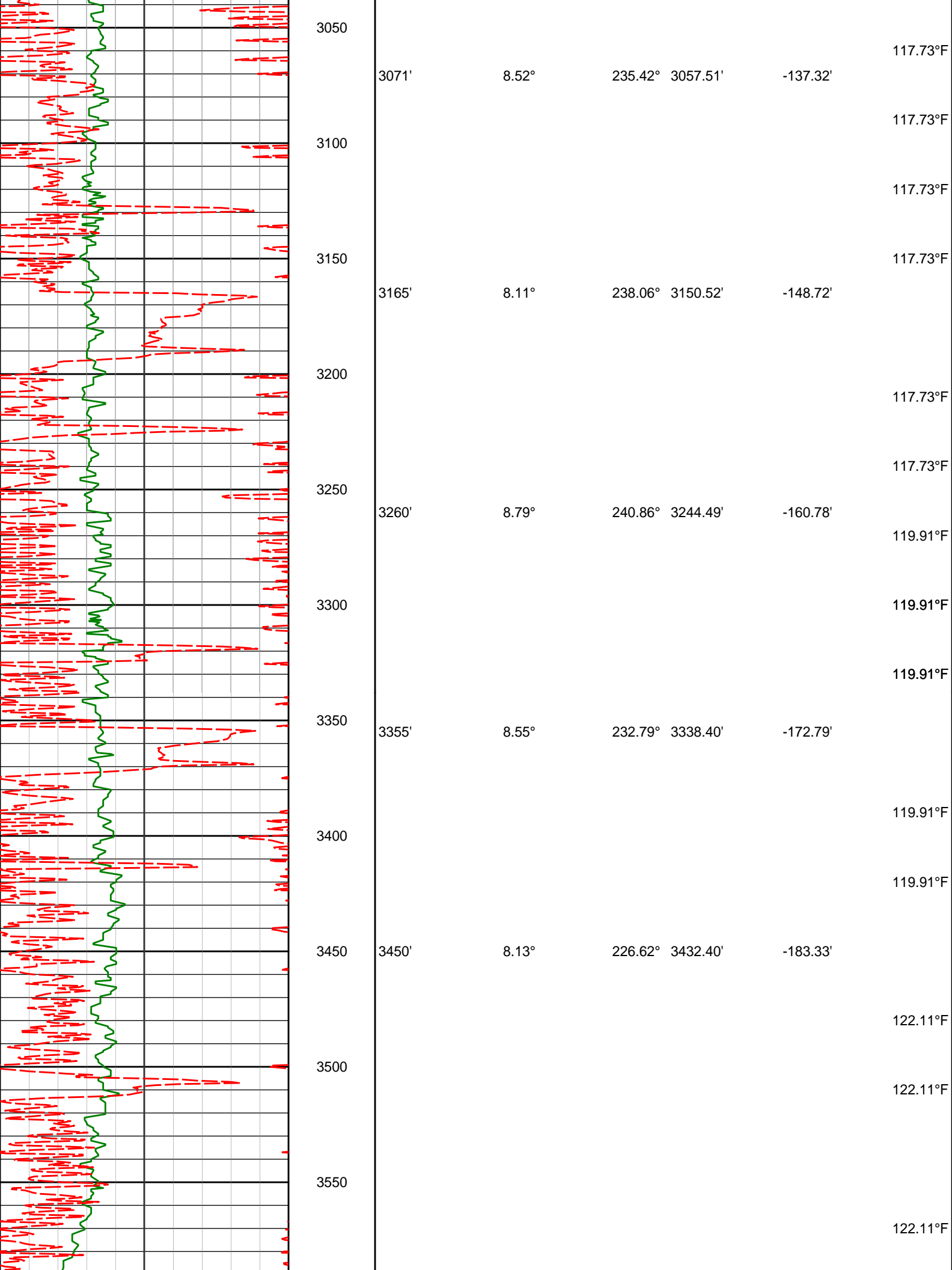


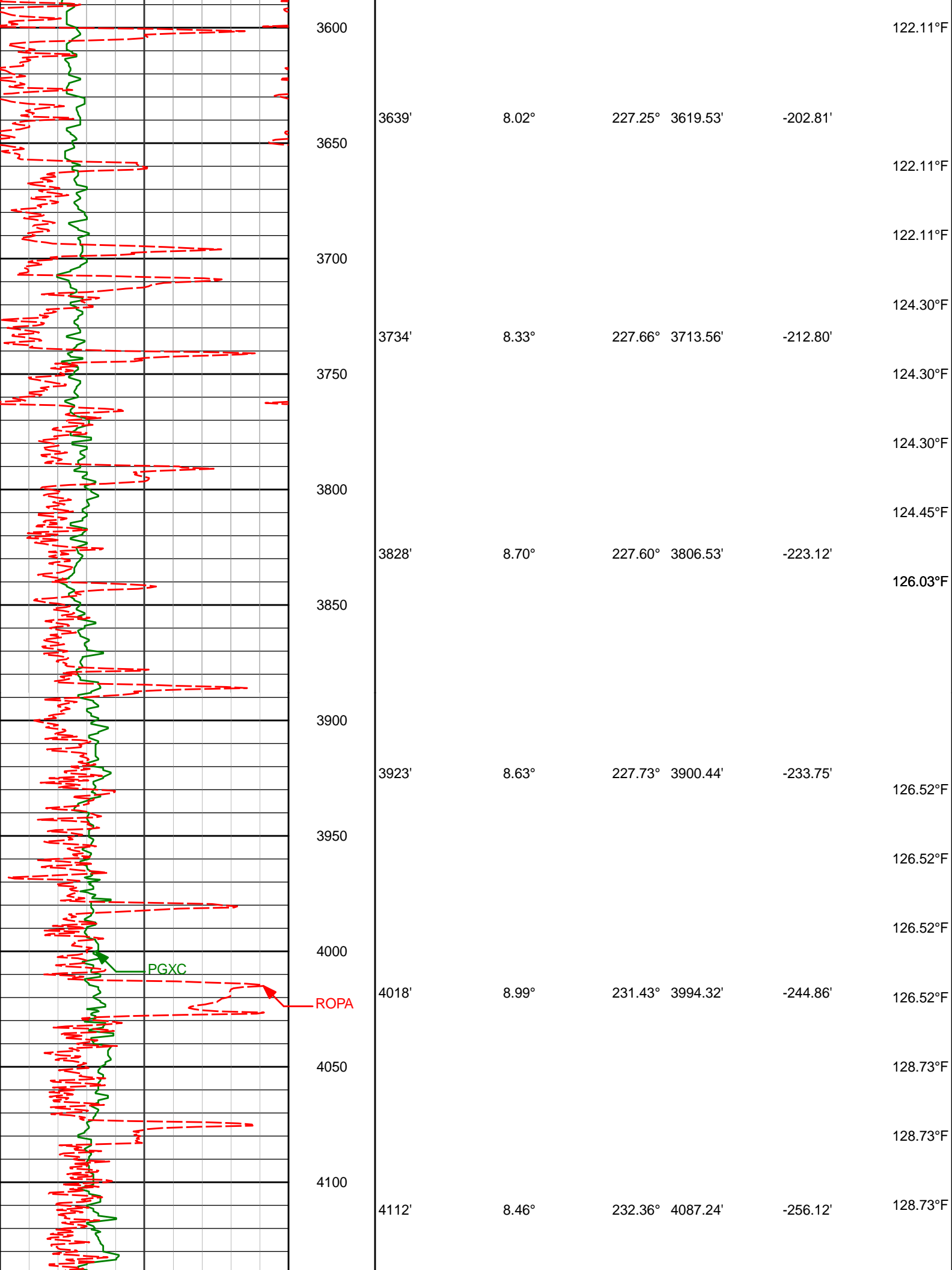


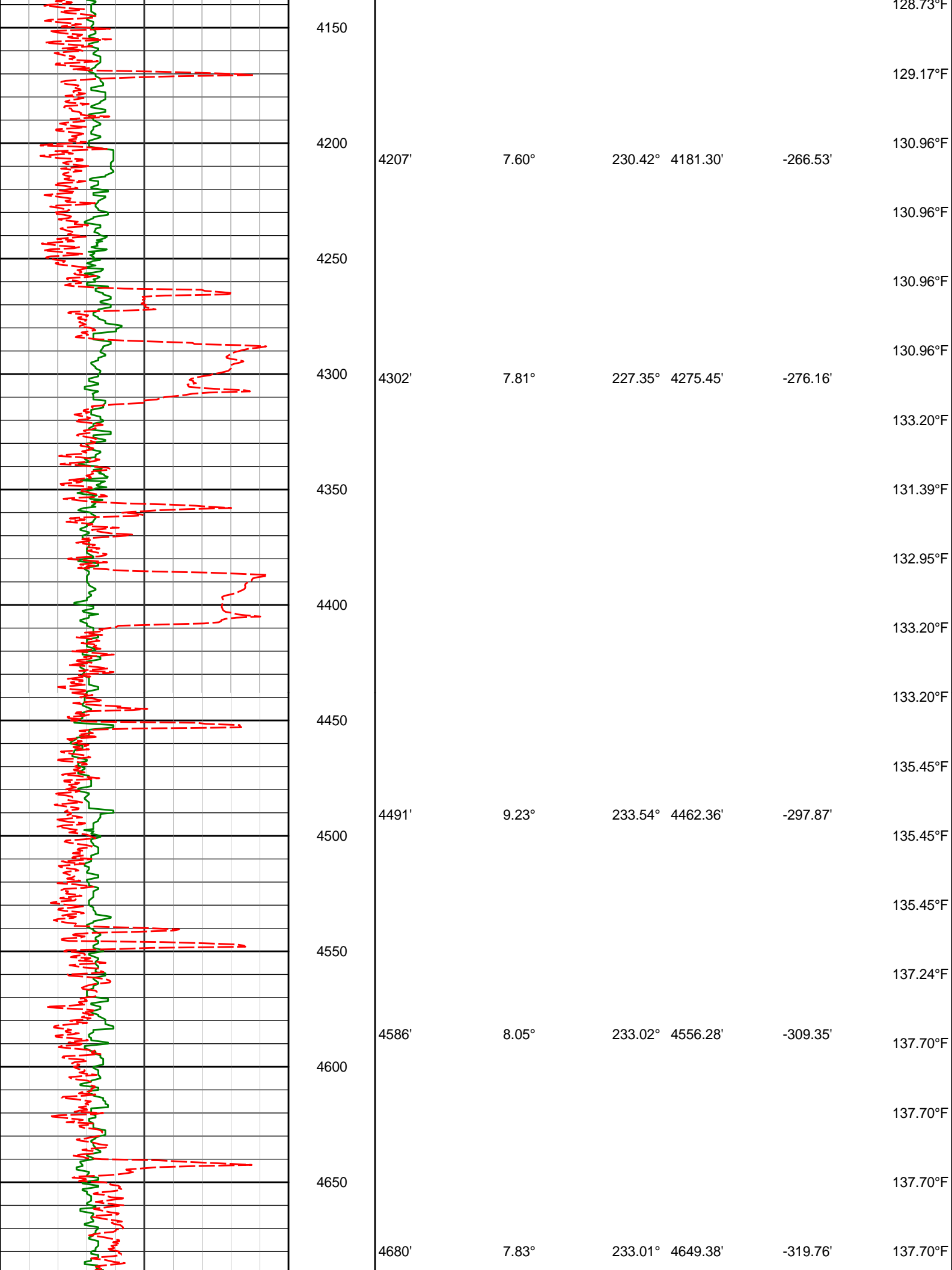


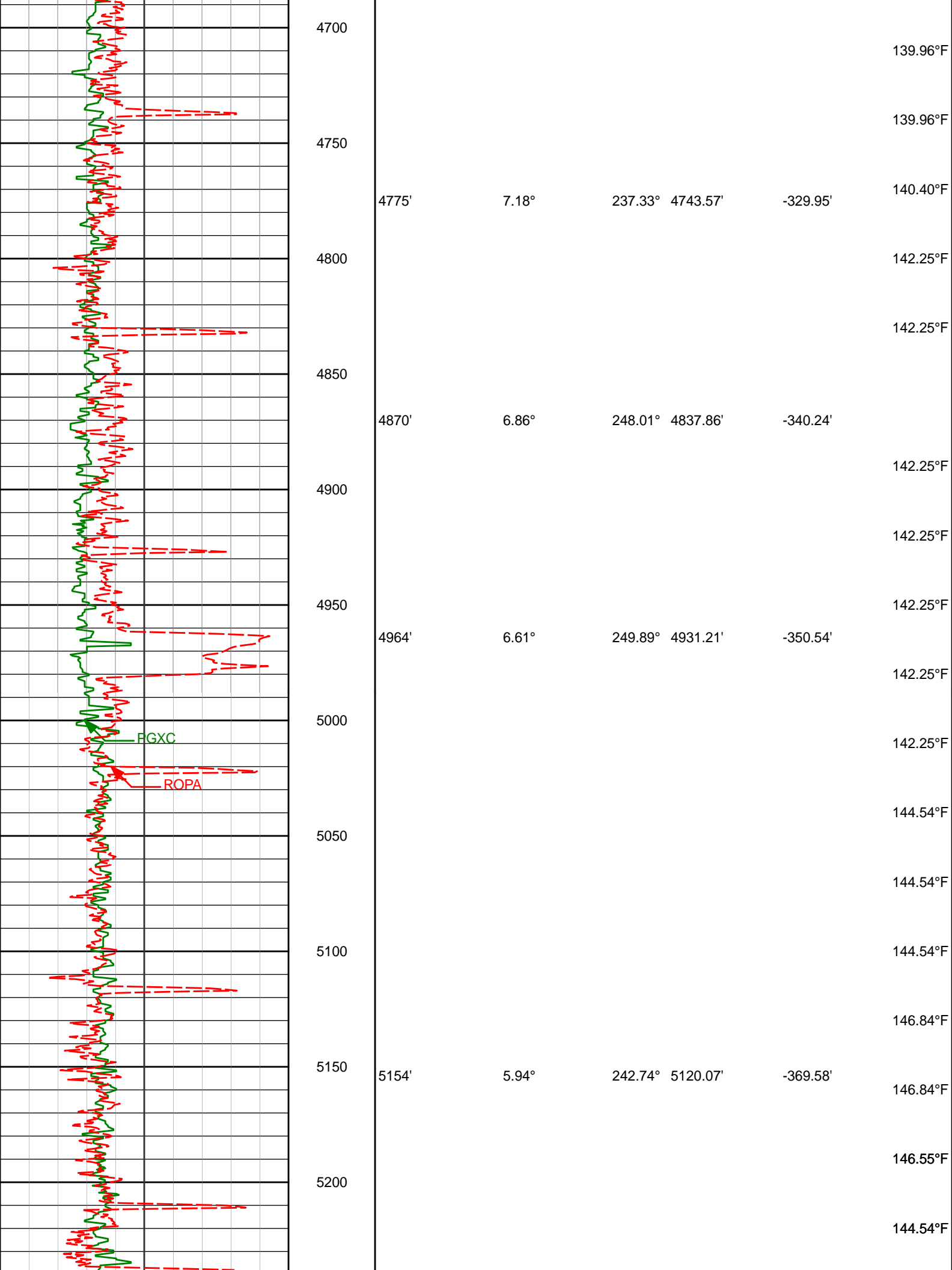
1950	1951'	2.89°	227.11°	1950.87'	5.70'	102.72°F
						102.72°F
						102.72°F
2000						102.72°F
						103.33°F
2050	2044'	5.12°	228.33°	2043.64'	0.86'	104.83°F
						104.83°F
2100						104.83°F
						104.83°F
2150	2136'	6.60°	232.21°	2135.15'	-6.41'	105.29°F
						106.97°F
2200						106.97°F
						106.97°F
2250	2230'	7.88°	245.20°	2228.41'	-16.56'	106.97°F
						106.97°F
2300						109.09°F
						109.09°F
2350	2323'	9.65°	246.95°	2320.32'	-29.55'	109.09°F
						109.09°F
2400						109.09°F
						109.09°F
2450	2415'	10.19°	239.50°	2410.95'	-43.69'	109.09°F
						109.09°F

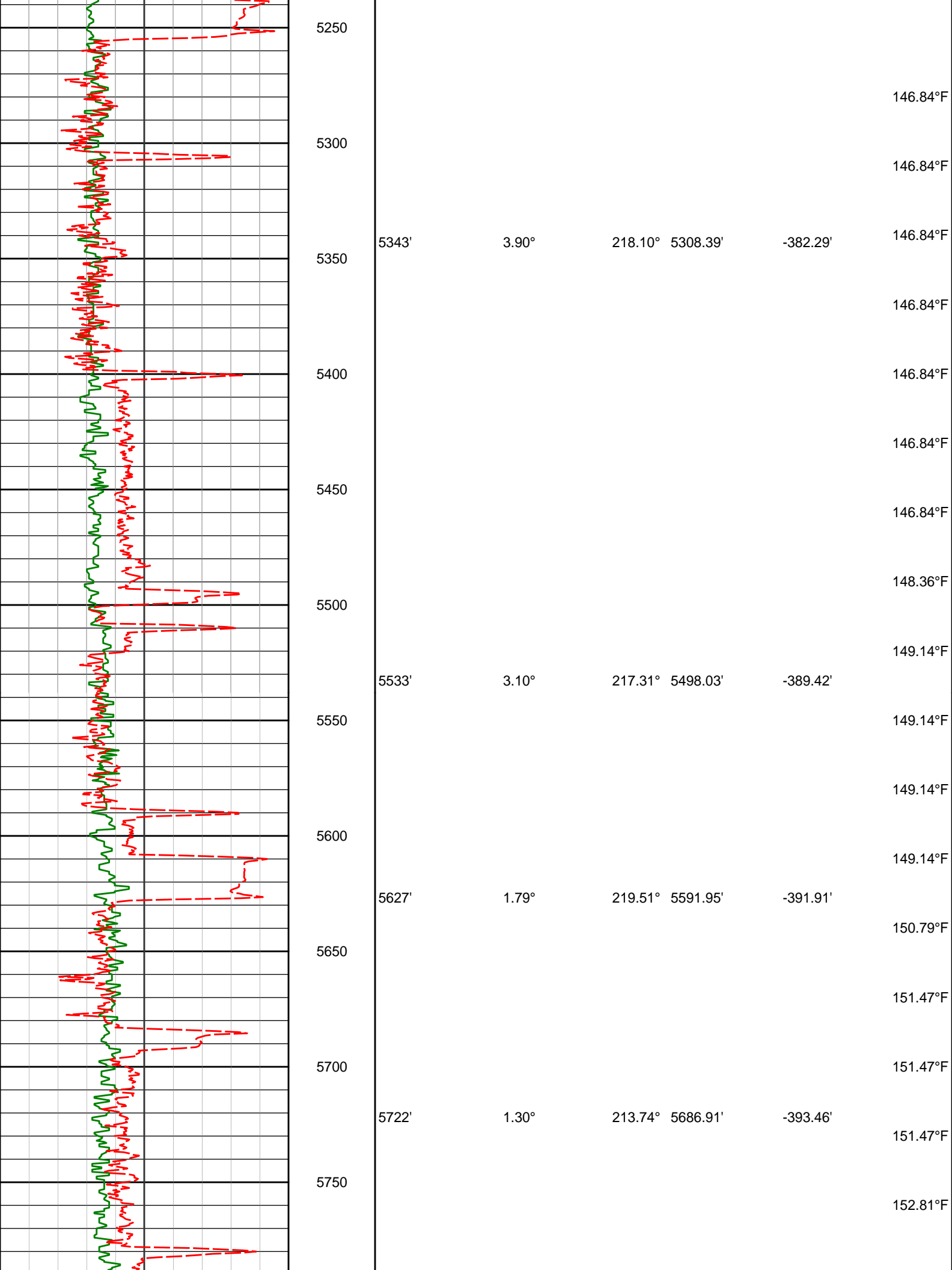


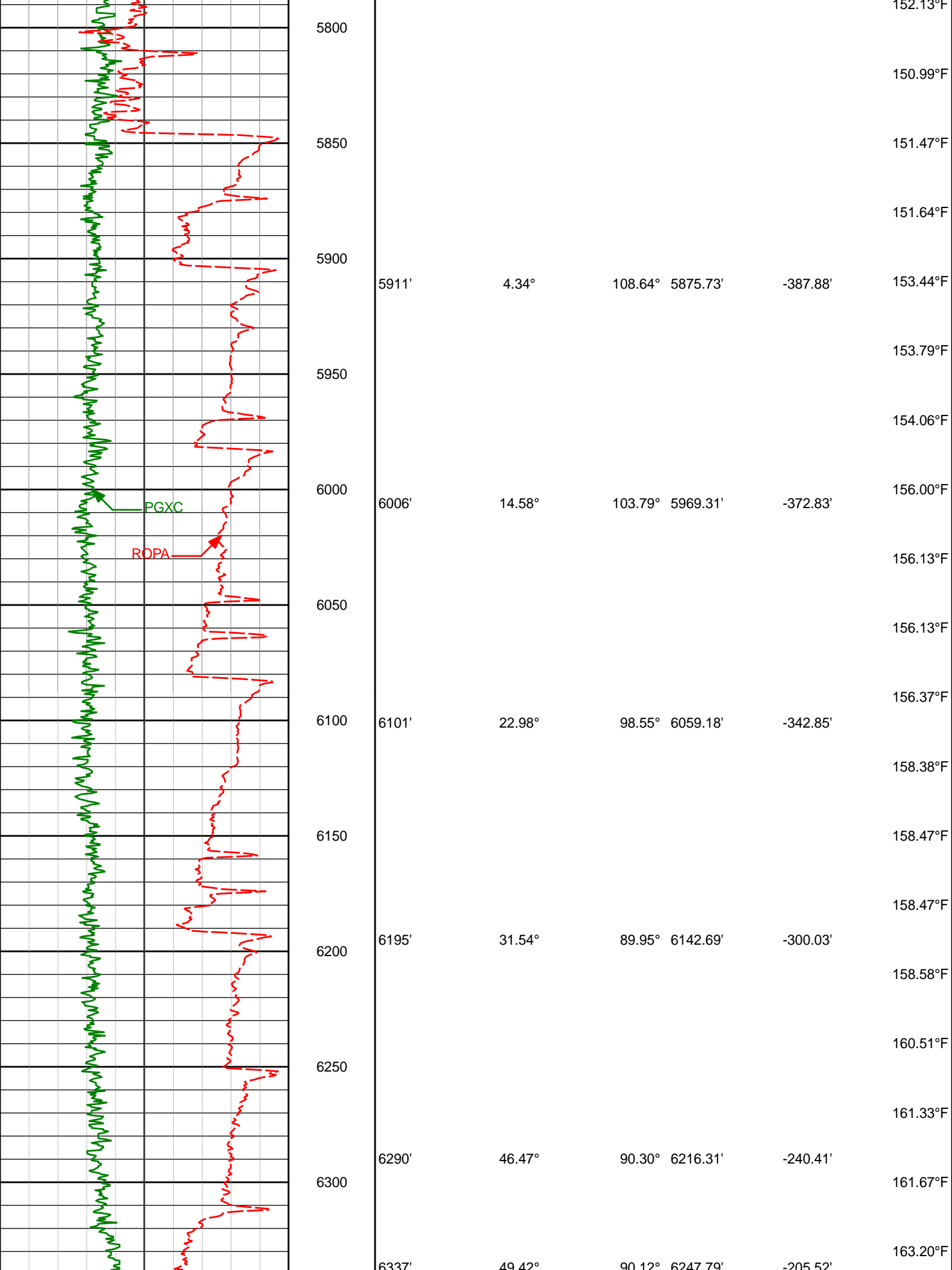


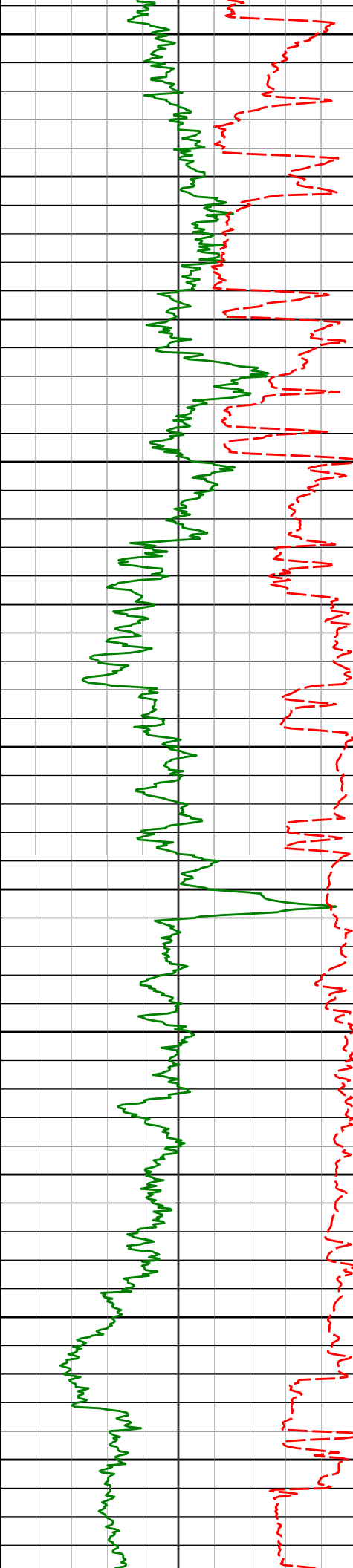




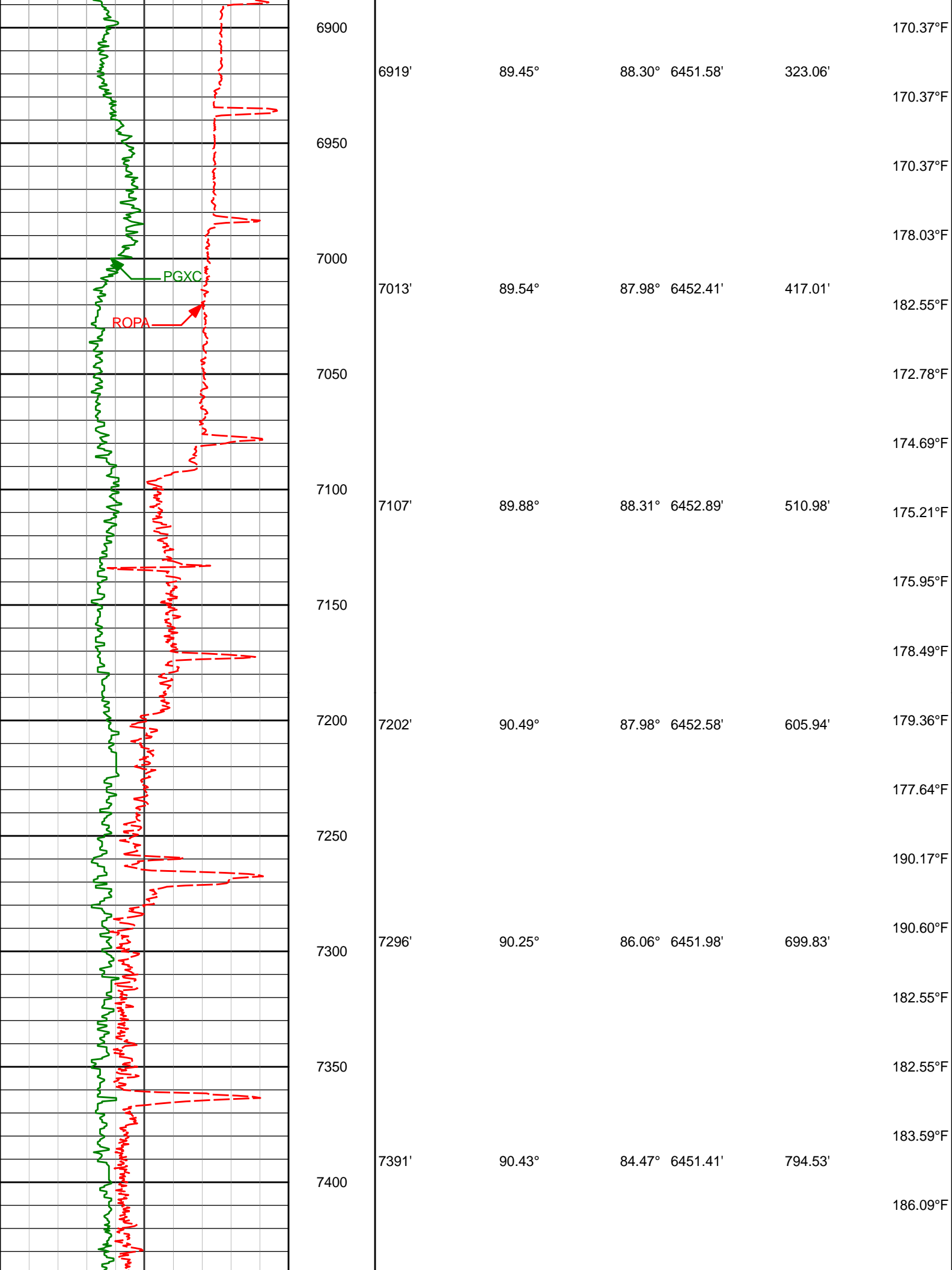


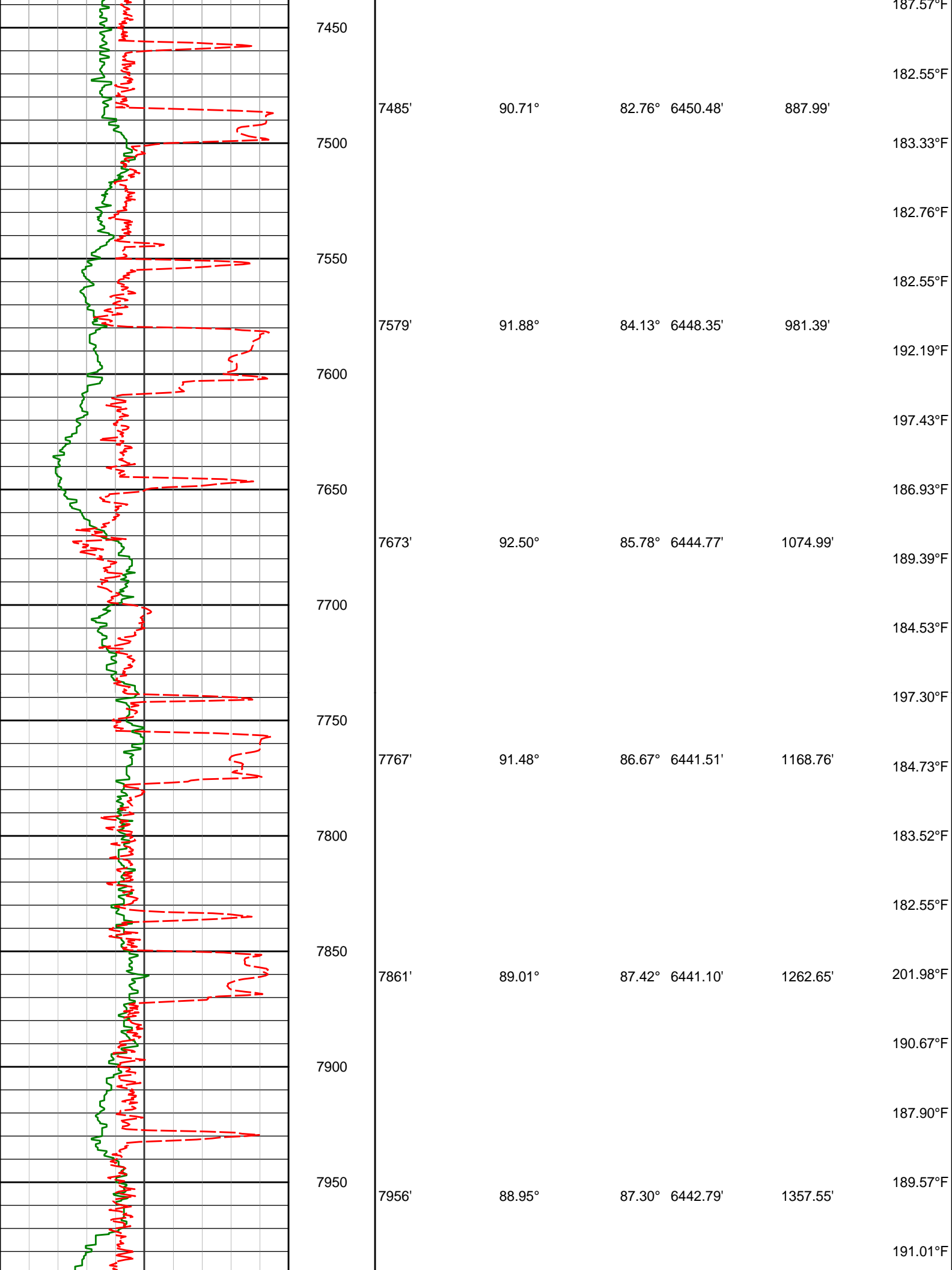


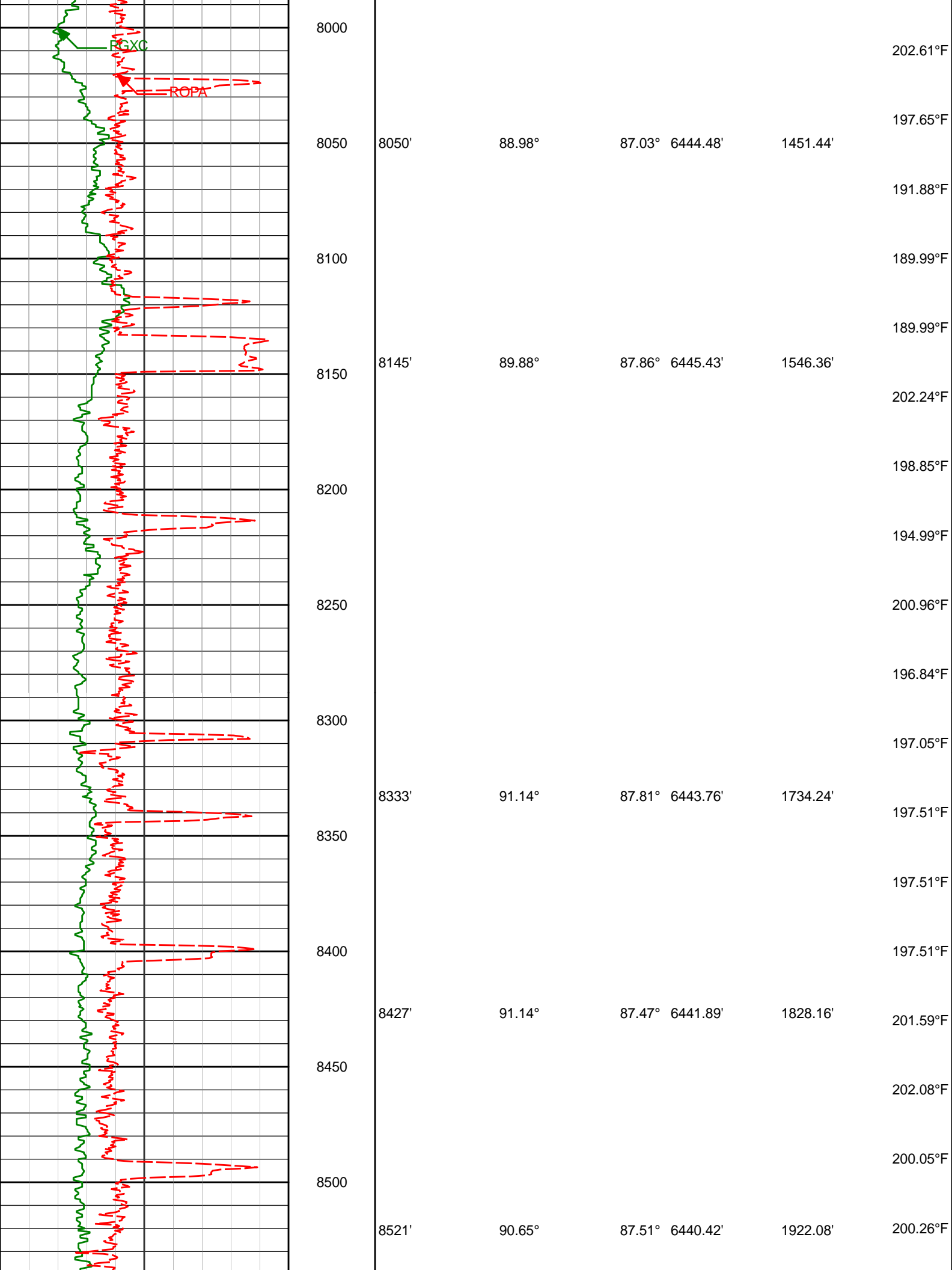


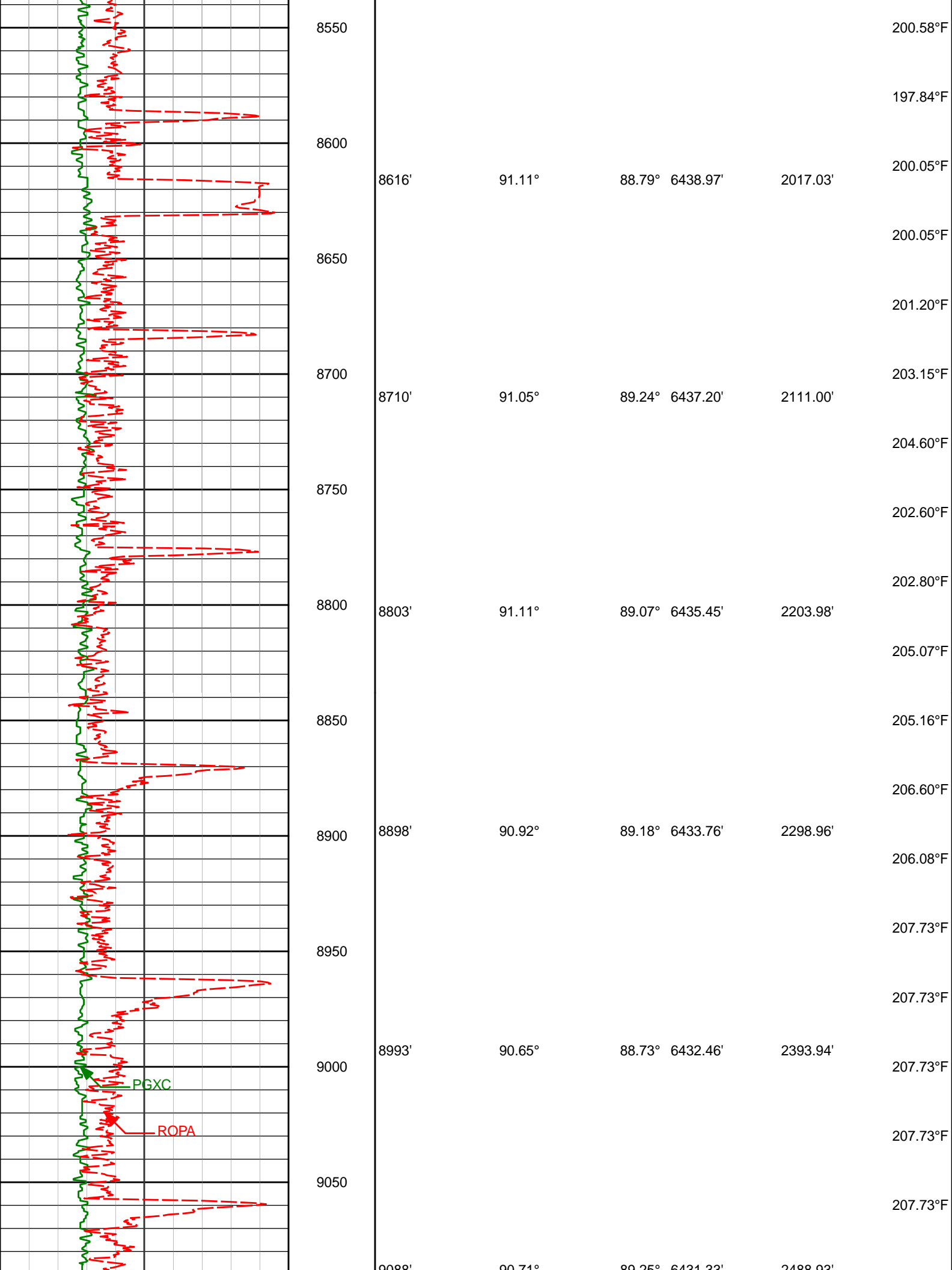


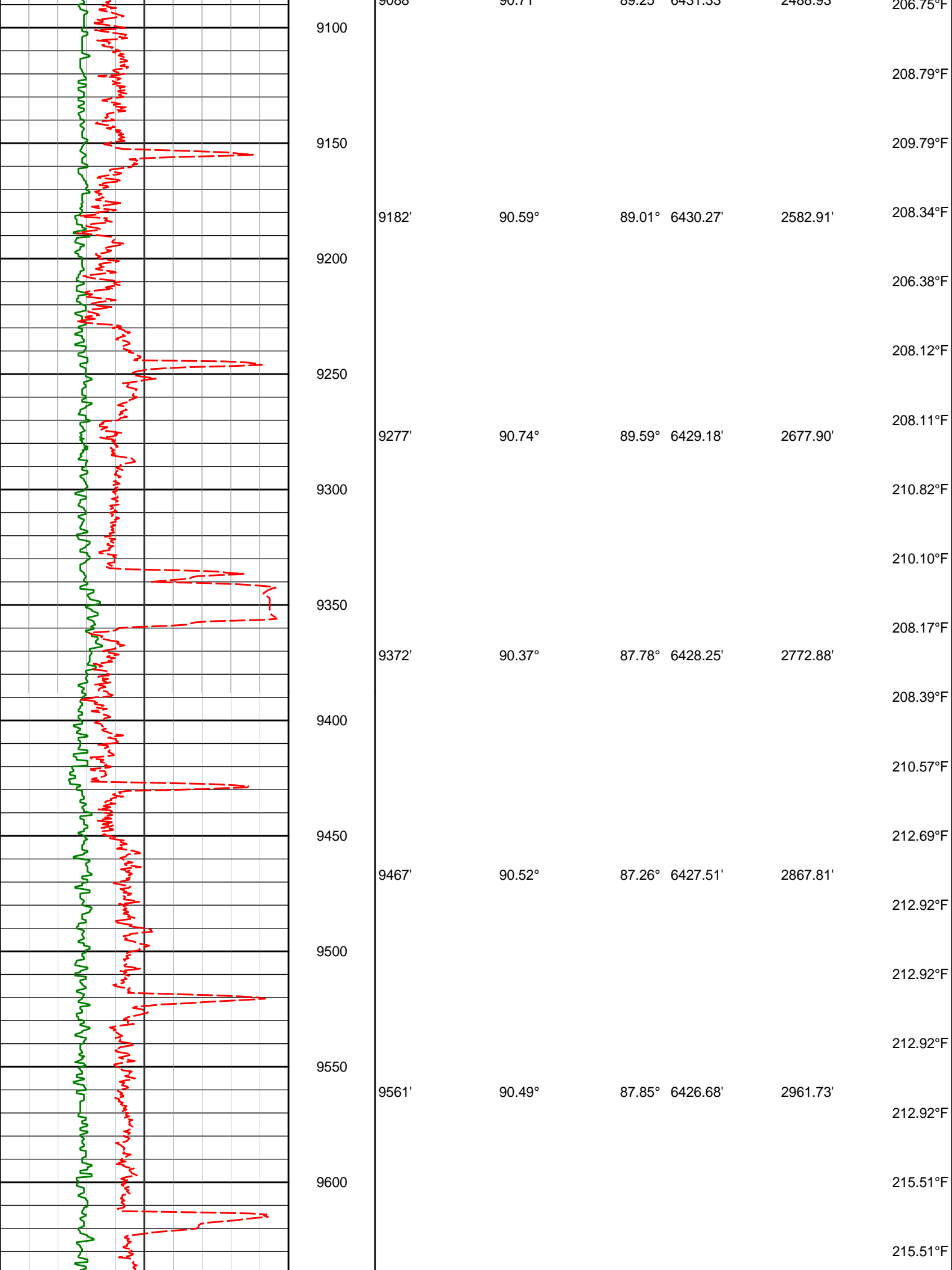
6350					163.20°F
6385'	53.07°	90.09°	6277.83'	-168.10'	163.20°F
6400					163.20°F
6432'	54.01°	89.77°	6305.76'	-130.30'	163.20°F
6450					163.20°F
6479'	55.10°	90.46°	6333.02'	-92.01'	164.53°F
6500					163.31°F
6526'	59.29°	89.16°	6358.48'	-52.52'	164.18°F
6550					165.58°F
6574'	62.66°	88.65°	6381.77'	-10.56'	165.68°F
6600					167.73°F
6621'	66.35°	88.64°	6401.99'	31.85'	167.97°F
6650					168.62°F
6669'	71.31°	88.90°	6419.32'	76.59'	169.43°F
6700					170.39°F
6716'	75.14°	90.11°	6432.88'	121.58'	170.87°F
6750					172.15°F
6784'	83.42°	89.10°	6445.52'	188.34'	182.65°F
6800					170.37°F
6850					
6871'	89.29°	87.27°	6451.05'	275.09'	

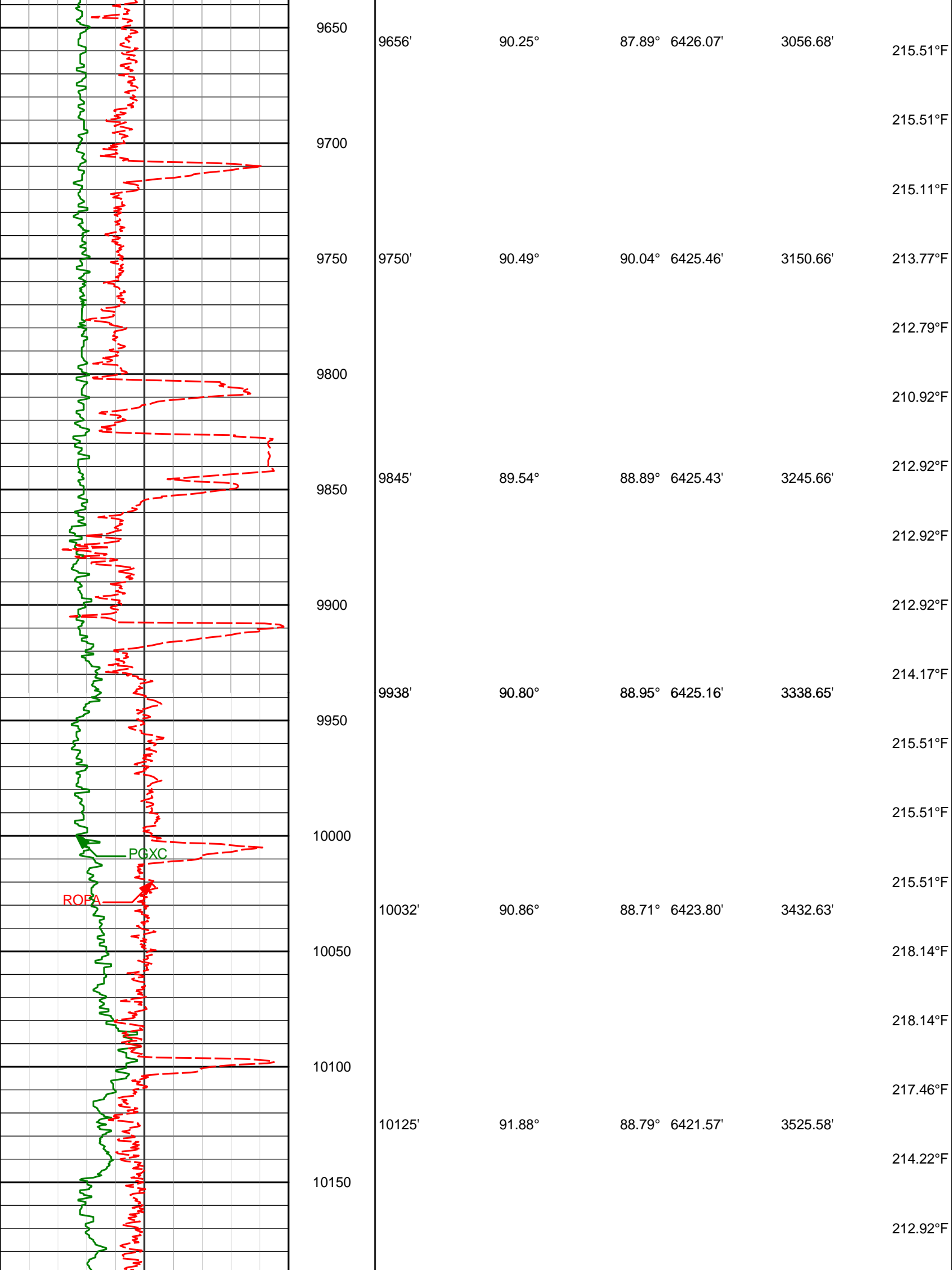


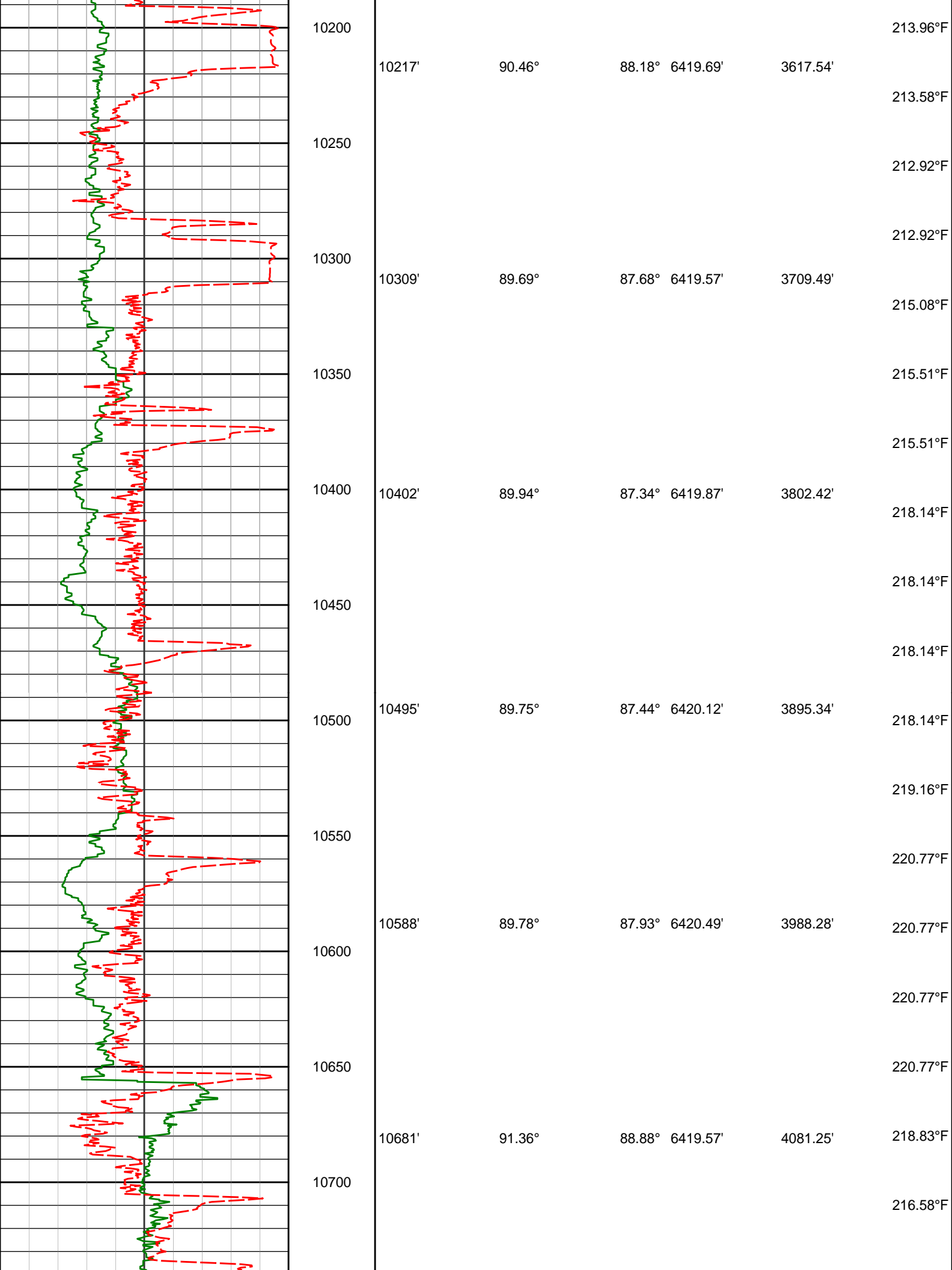


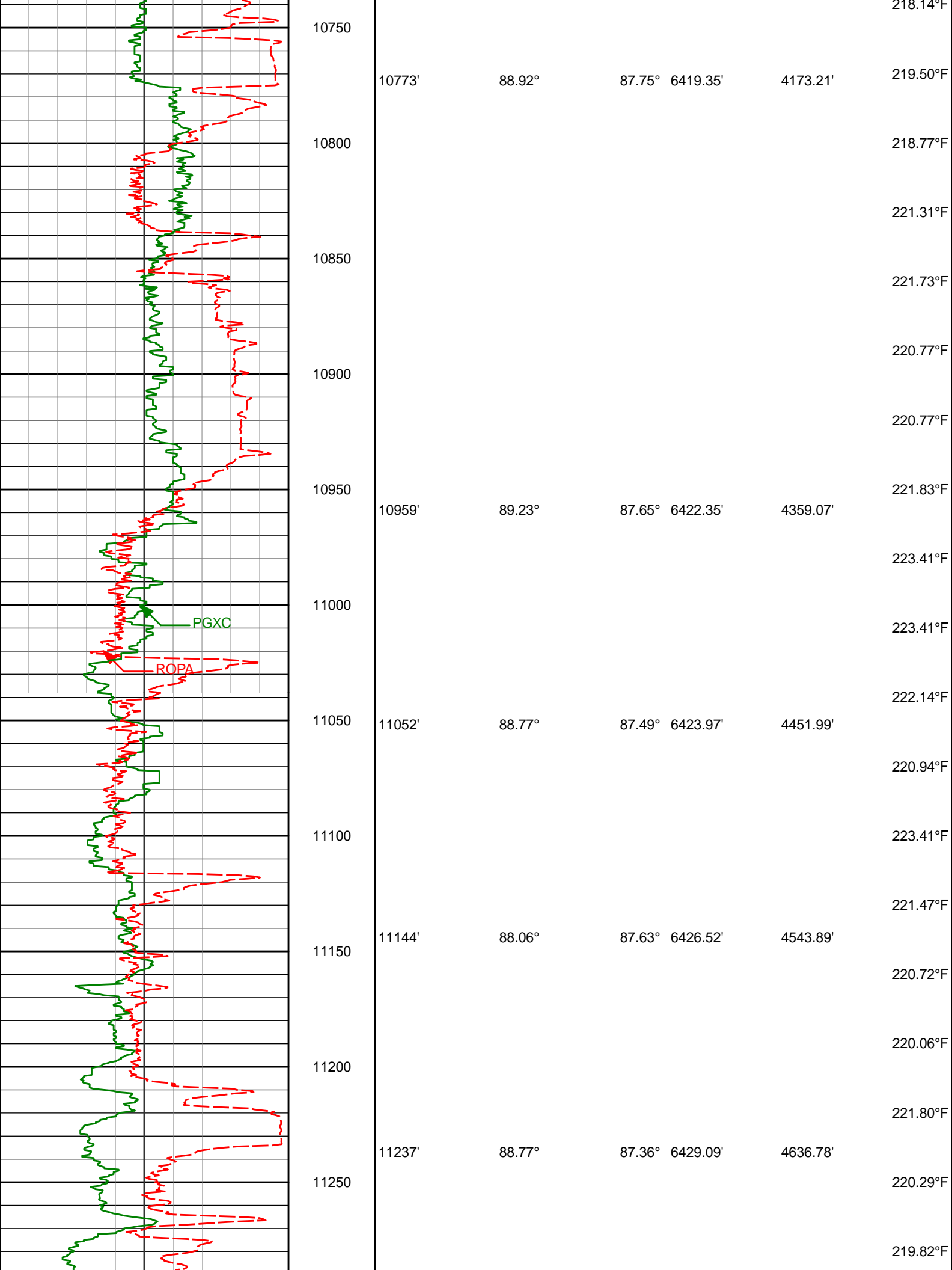


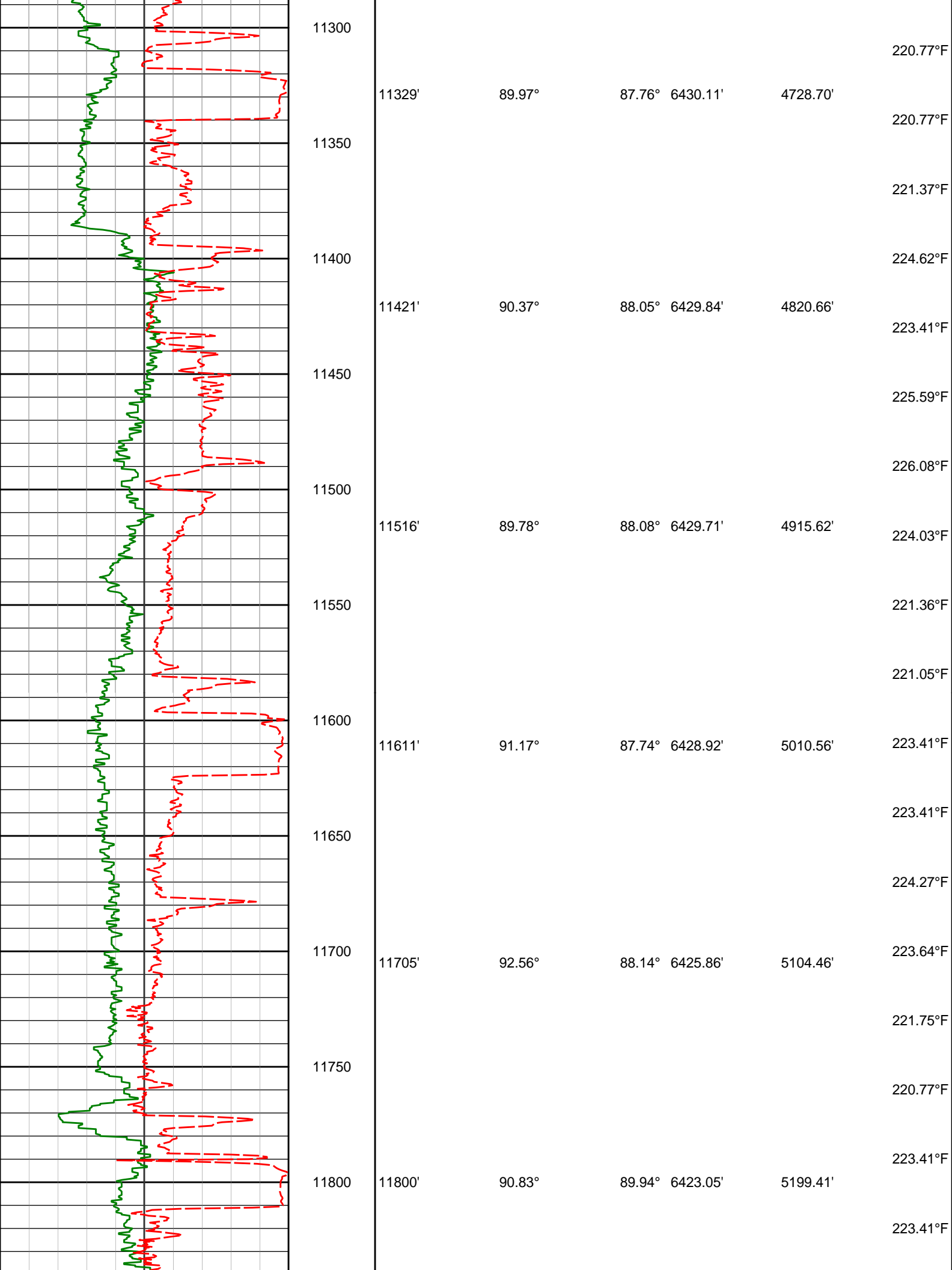


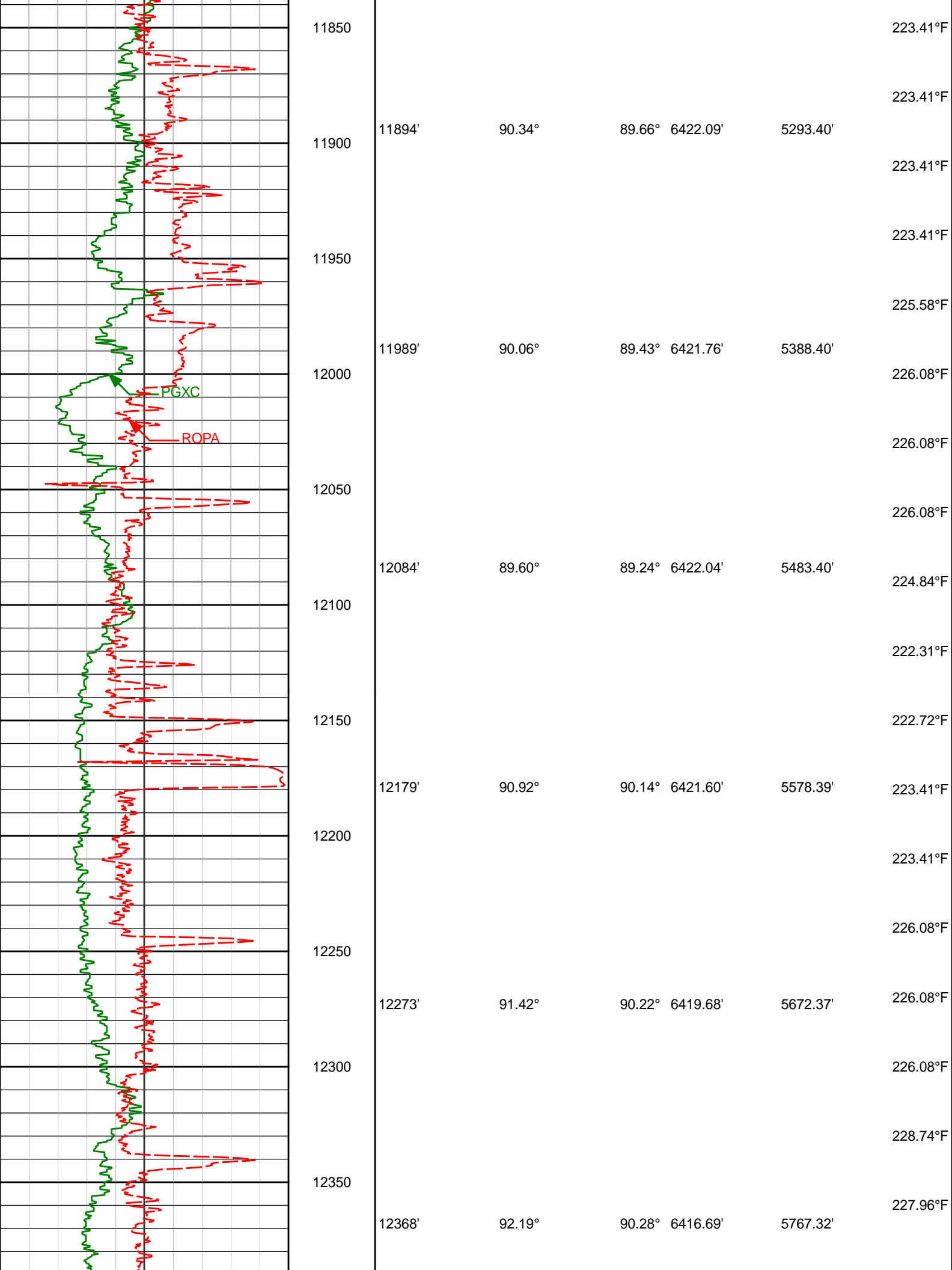


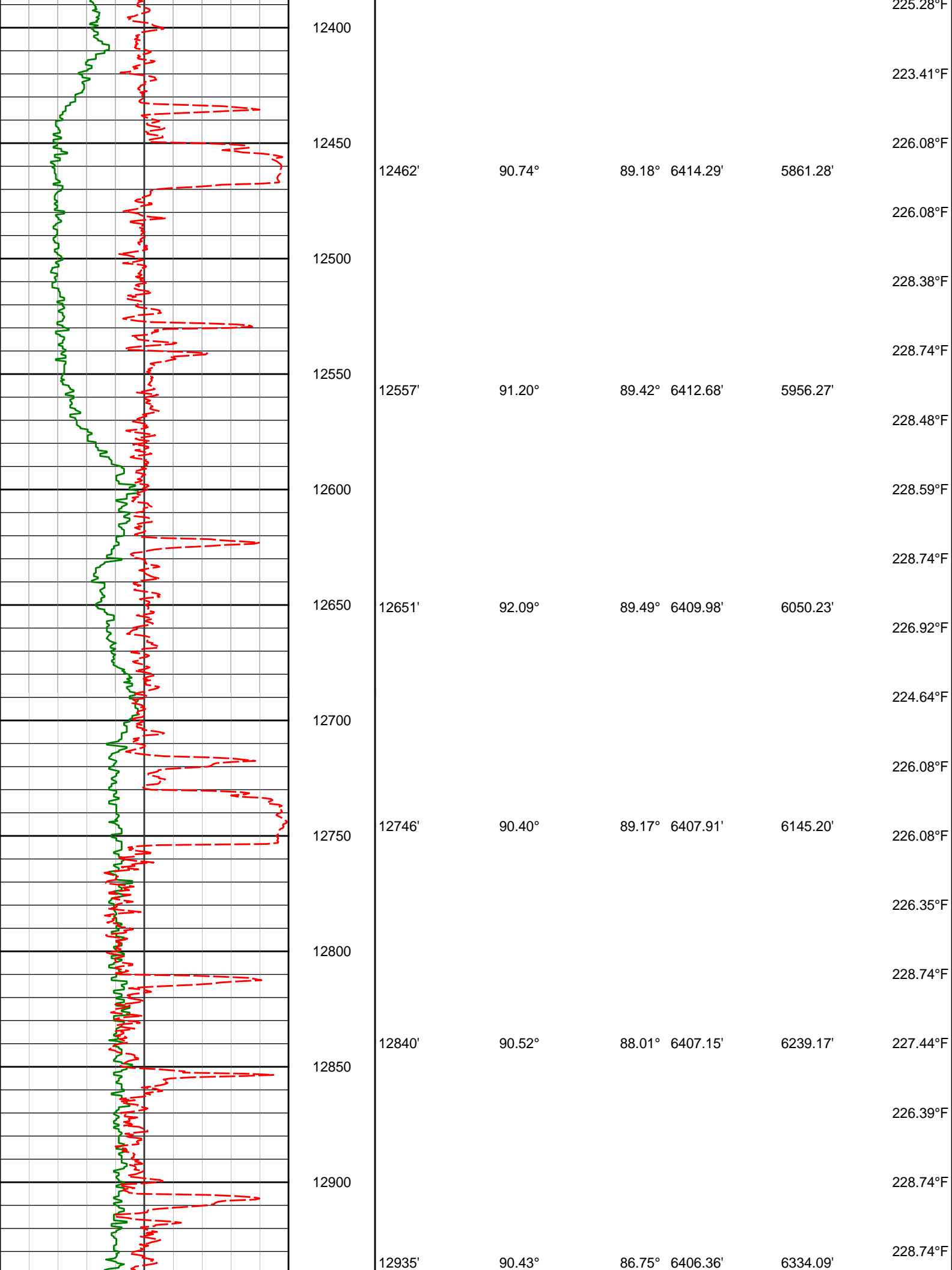


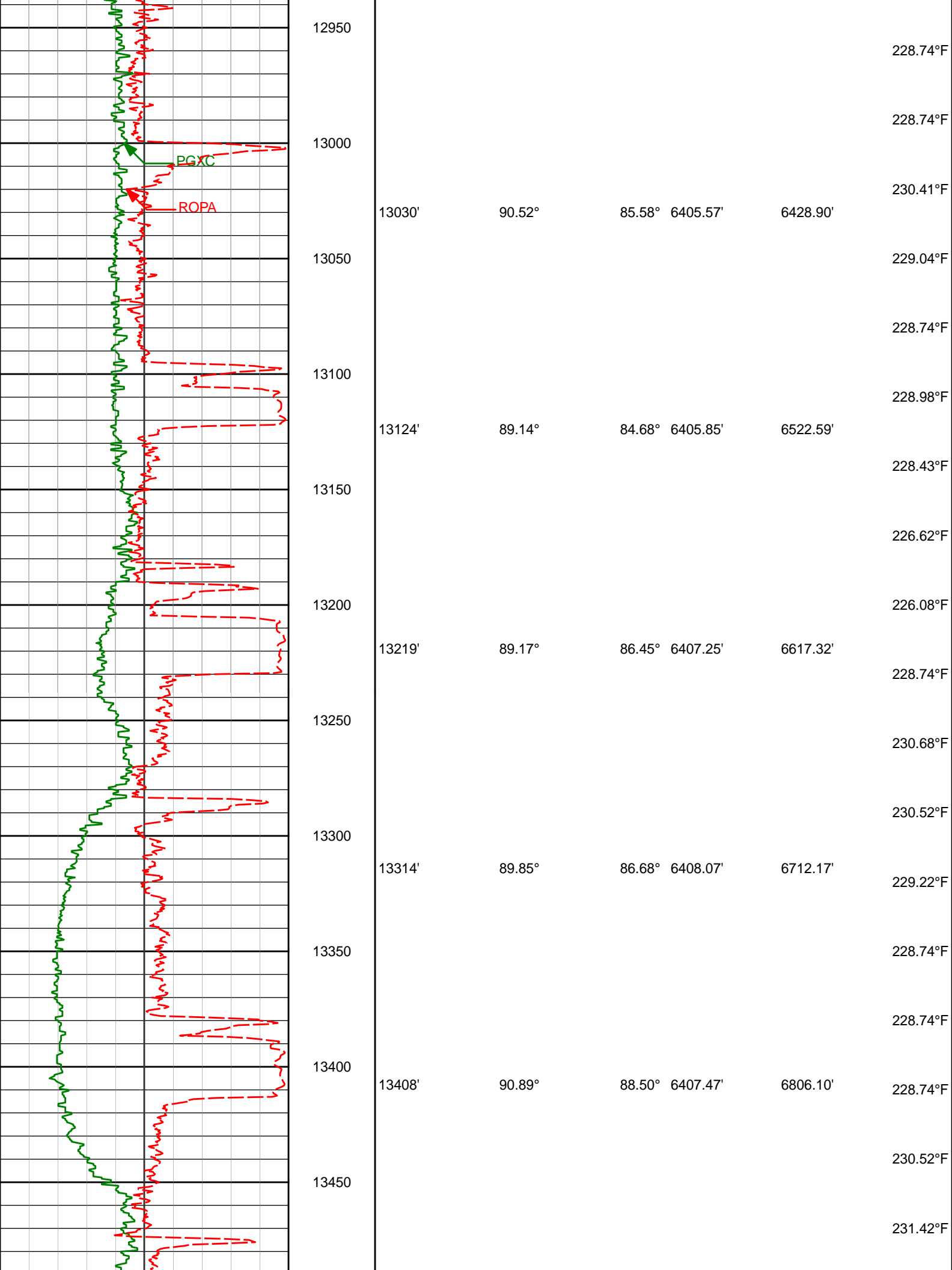


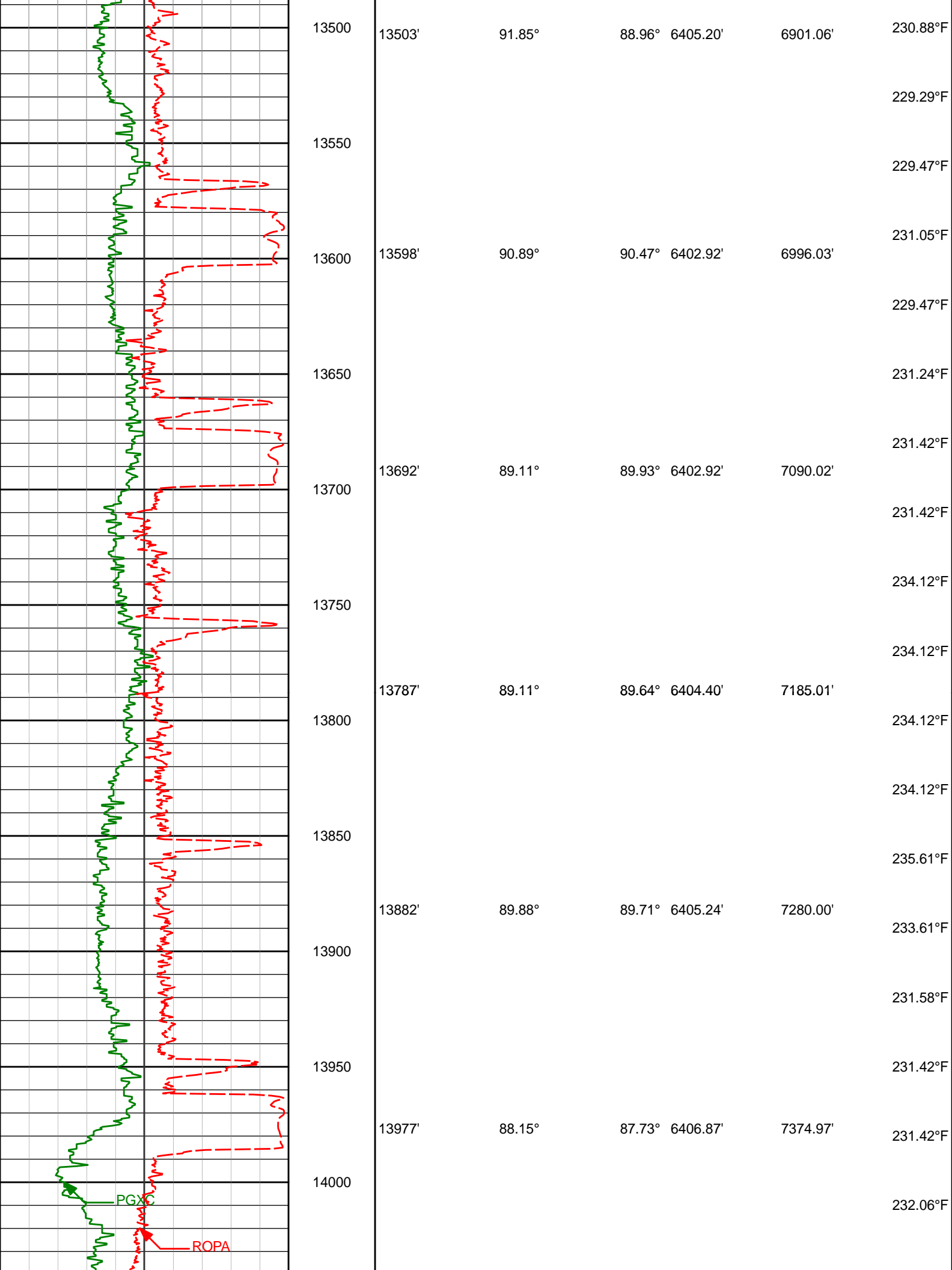


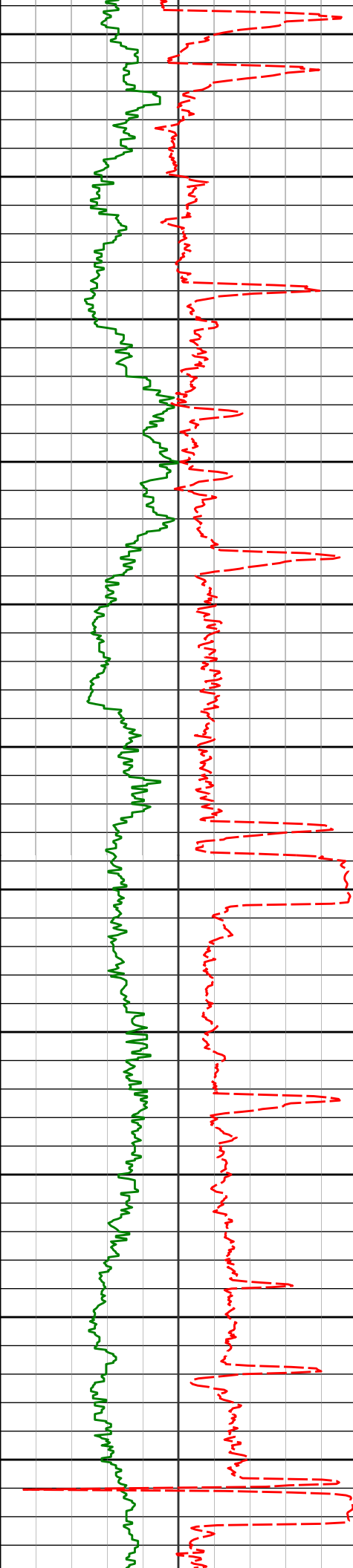




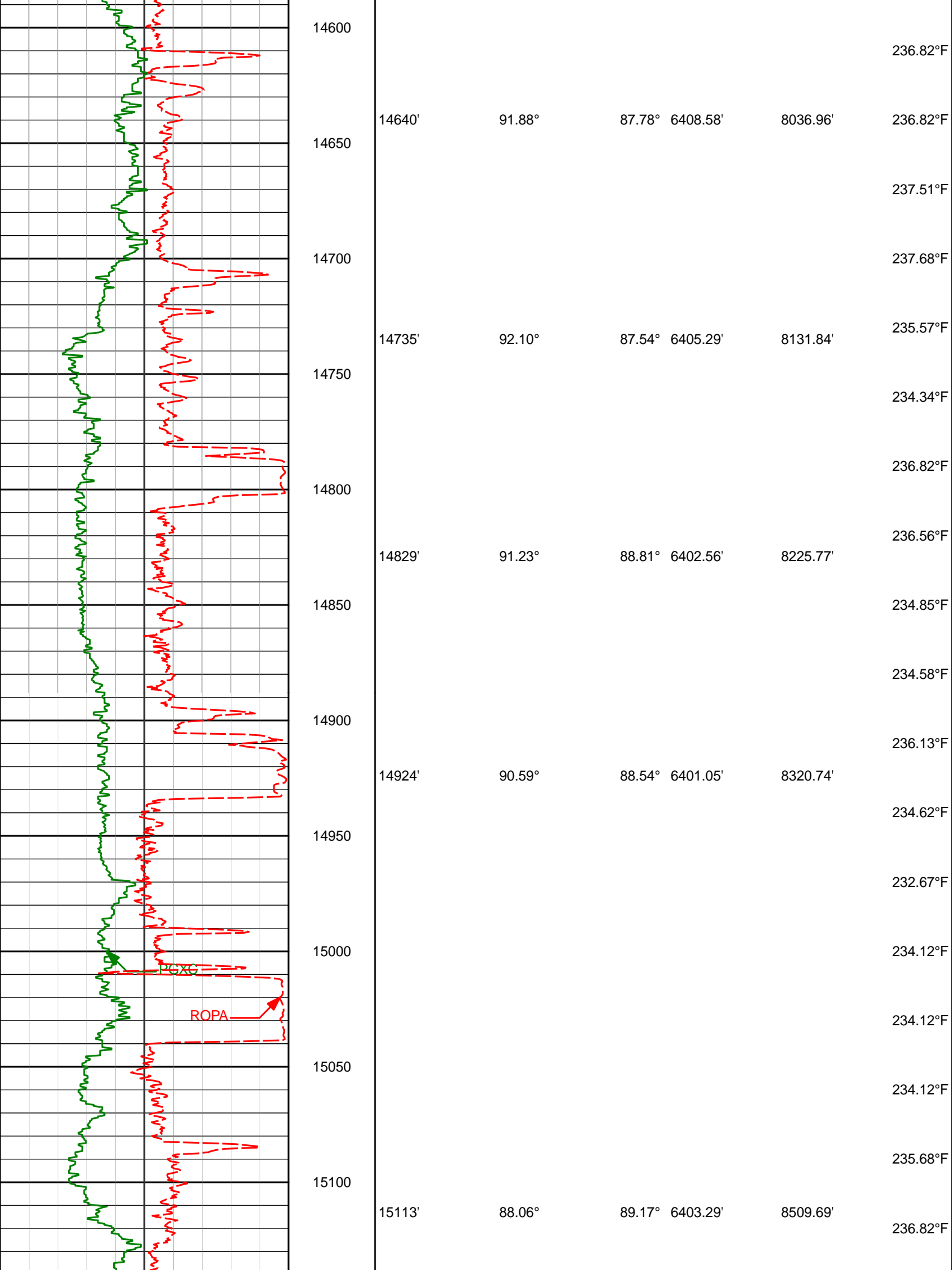


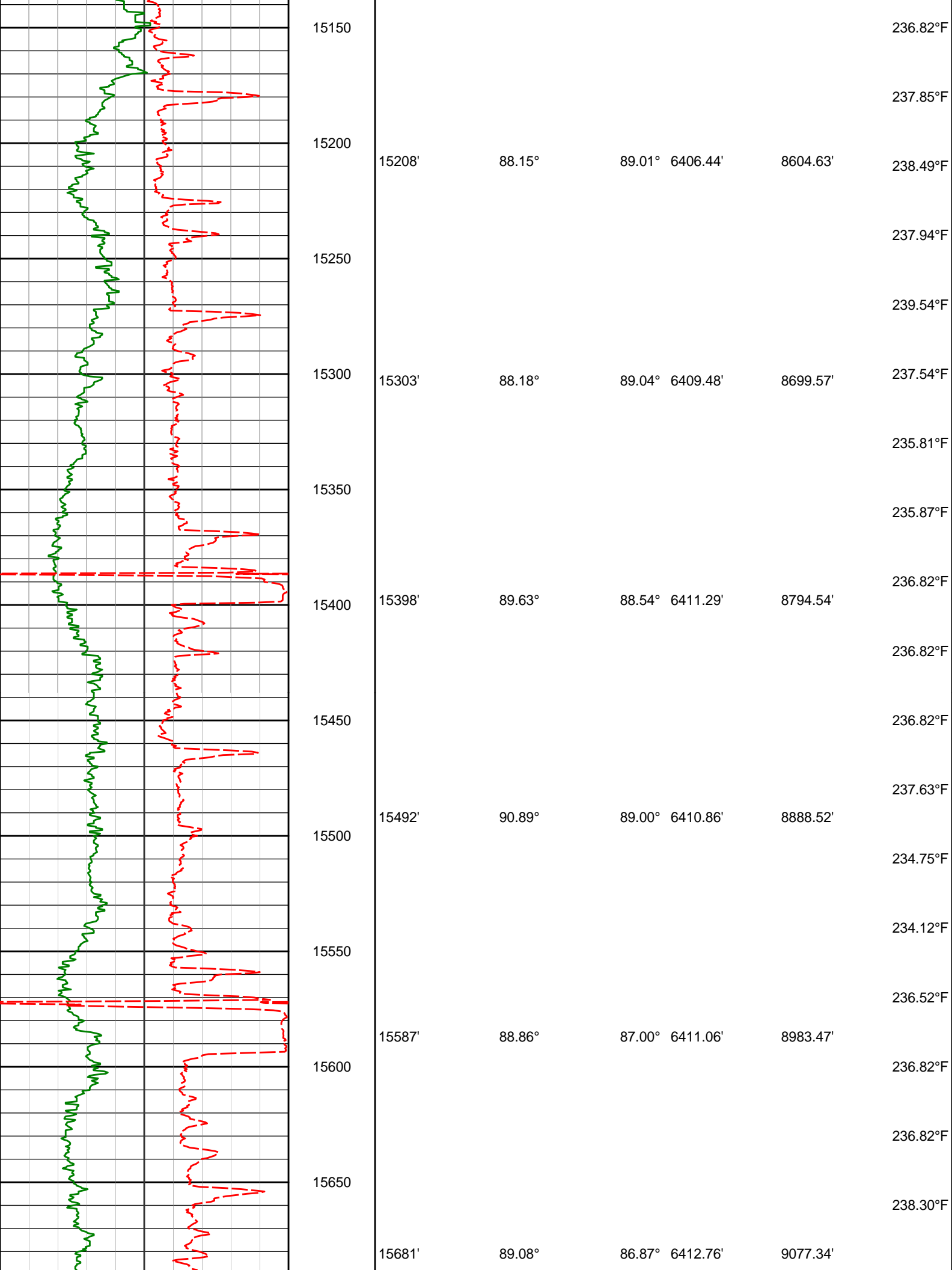


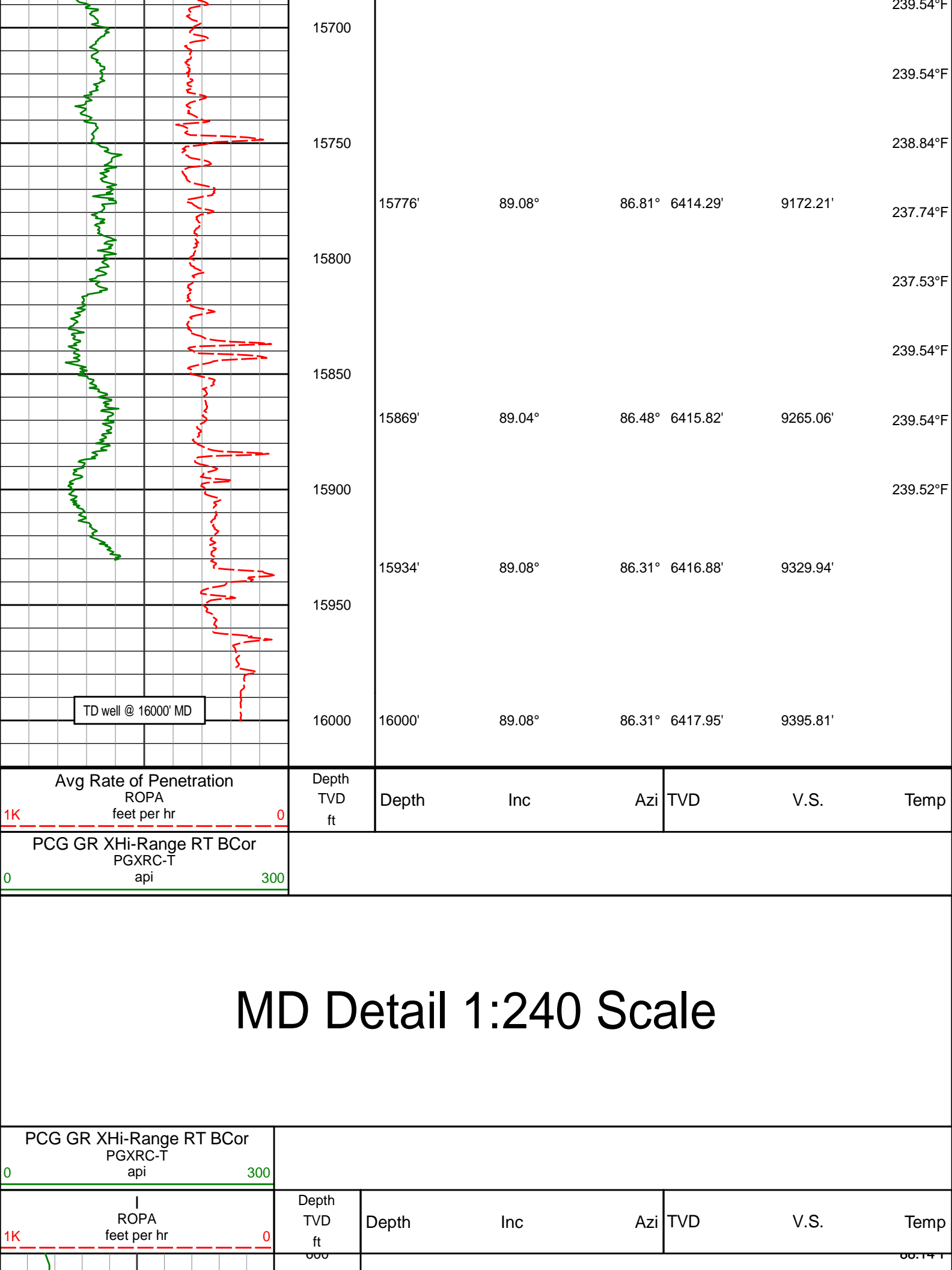




14050						234.12°F
	14072'	88.09°	87.29°	6409.99'	7469.84'	234.12°F
14100						234.12°F
						234.40°F
14150						236.82°F
	14166'	88.24°	87.00°	6413.00'	7563.70'	236.82°F
14200						236.82°F
						236.82°F
14250						235.44°F
	14261'	88.34°	87.04°	6415.83'	7658.55'	233.72°F
14300						234.12°F
						234.26°F
14350	14356'	90.59°	86.84°	6416.72'	7753.43'	236.69°F
						236.82°F
14400						236.82°F
						236.82°F
14450	14451'	91.66°	86.81°	6414.86'	7848.28'	237.09°F
						235.52°F
14500						234.12°F
	14545'	92.03°	86.77°	6411.83'	7942.11'	235.60°F
14550						236.82°F





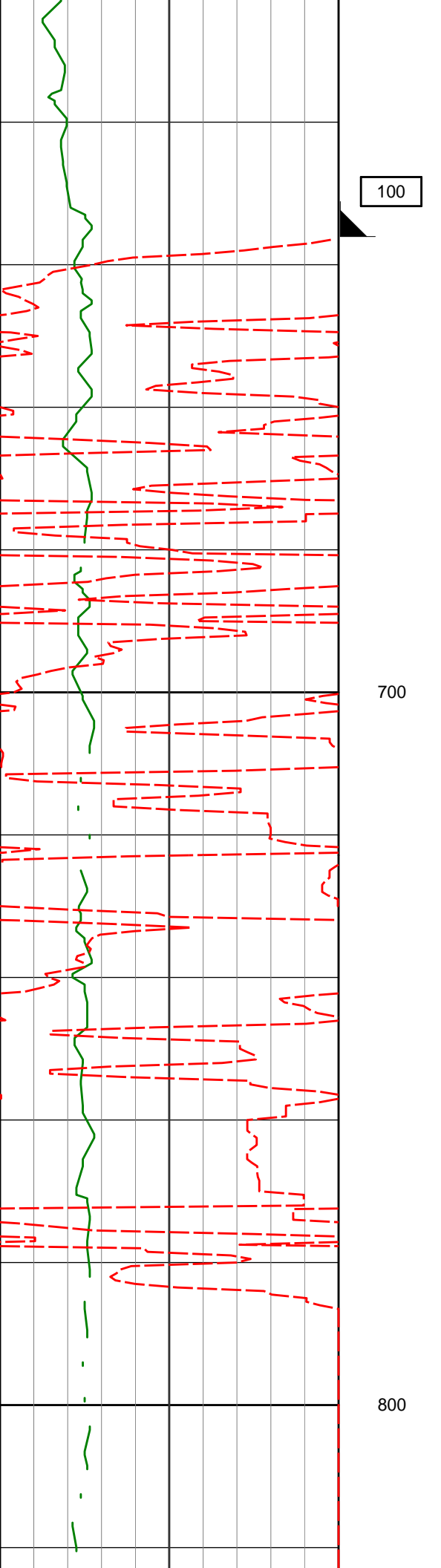


TD well @ 16000' MD

Avg Rate of Penetration ROPA feet per hr		Depth TVD ft	Depth	Inc	Azi	TVD	V.S.	Temp
1K 0								
PCG GR XHi-Range RT BCor PGXRC-T api								
0 300								

MD Detail 1:240 Scale

PCG GR XHi-Range RT BCor PGXRC-T api		Depth TVD ft	Depth	Inc	Azi	TVD	V.S.	Temp
0 300								
I ROPA feet per hr								
1K 0								



676'

0.18°

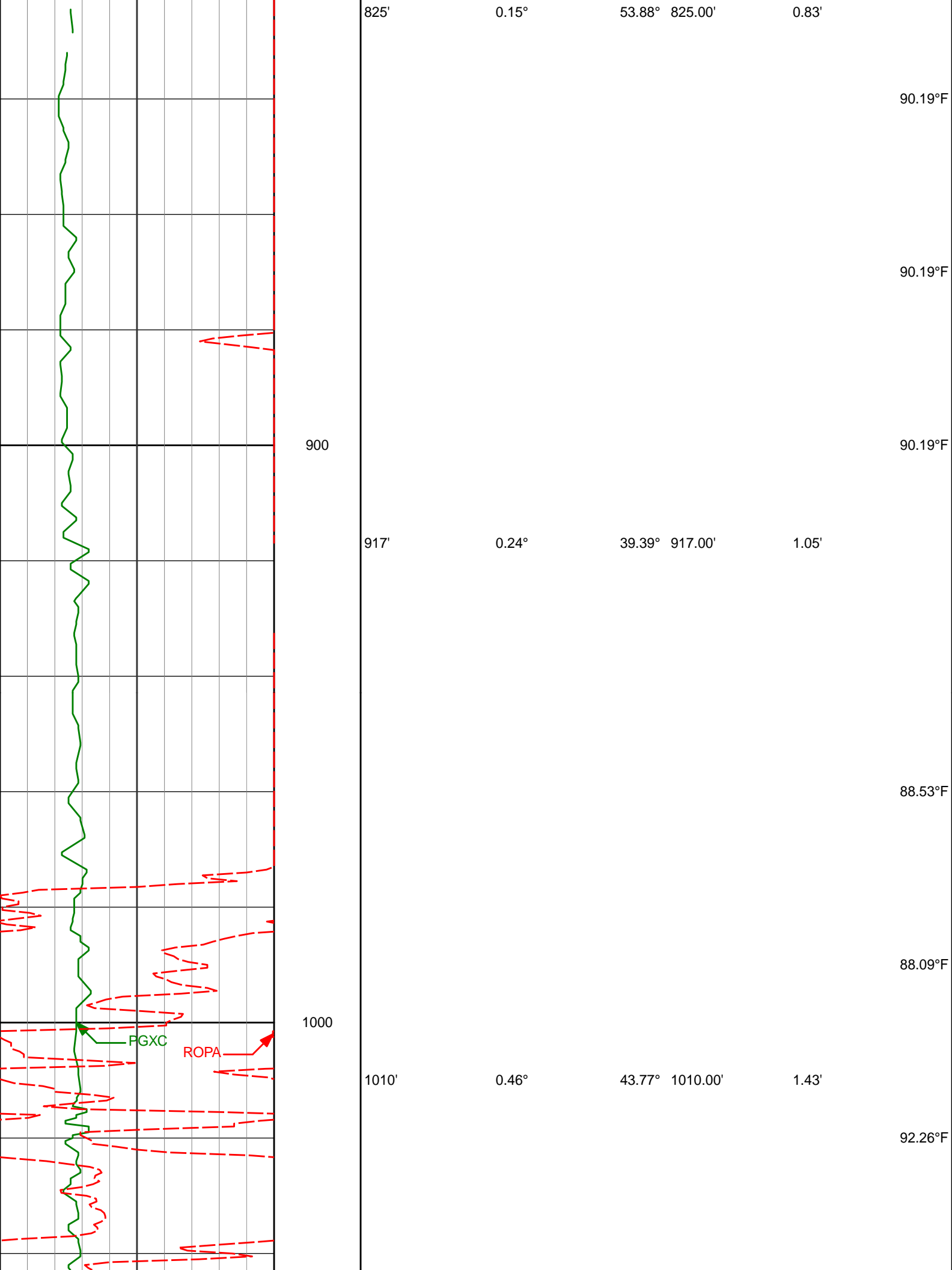
29.95° 676.00'

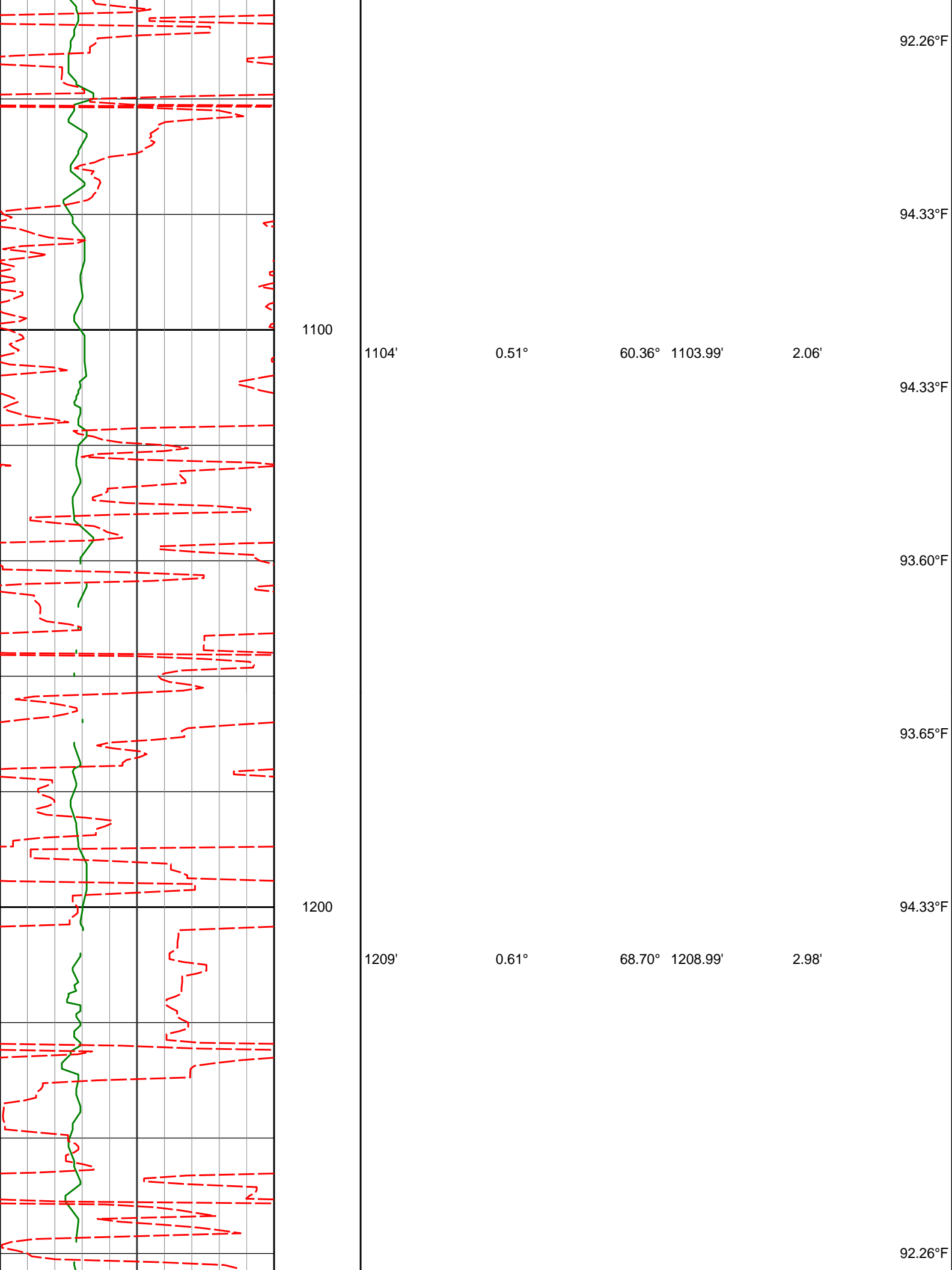
0.55'

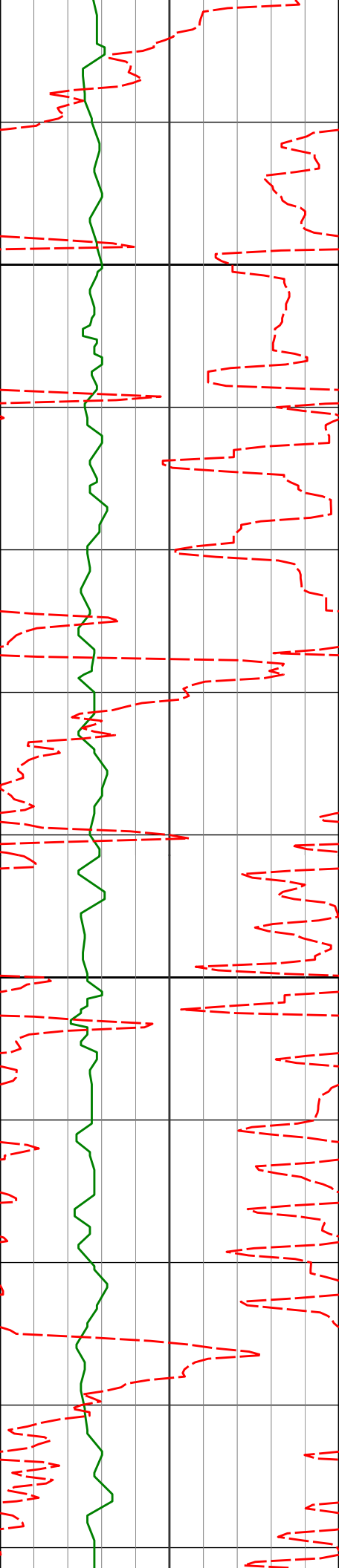
88.14°F

88.14°F

90.19°F







1300

1303'

0.63°

62.93° 1302.98'

3.90'

92.26°F

1400

1396'

0.66°

61.04° 1395.98'

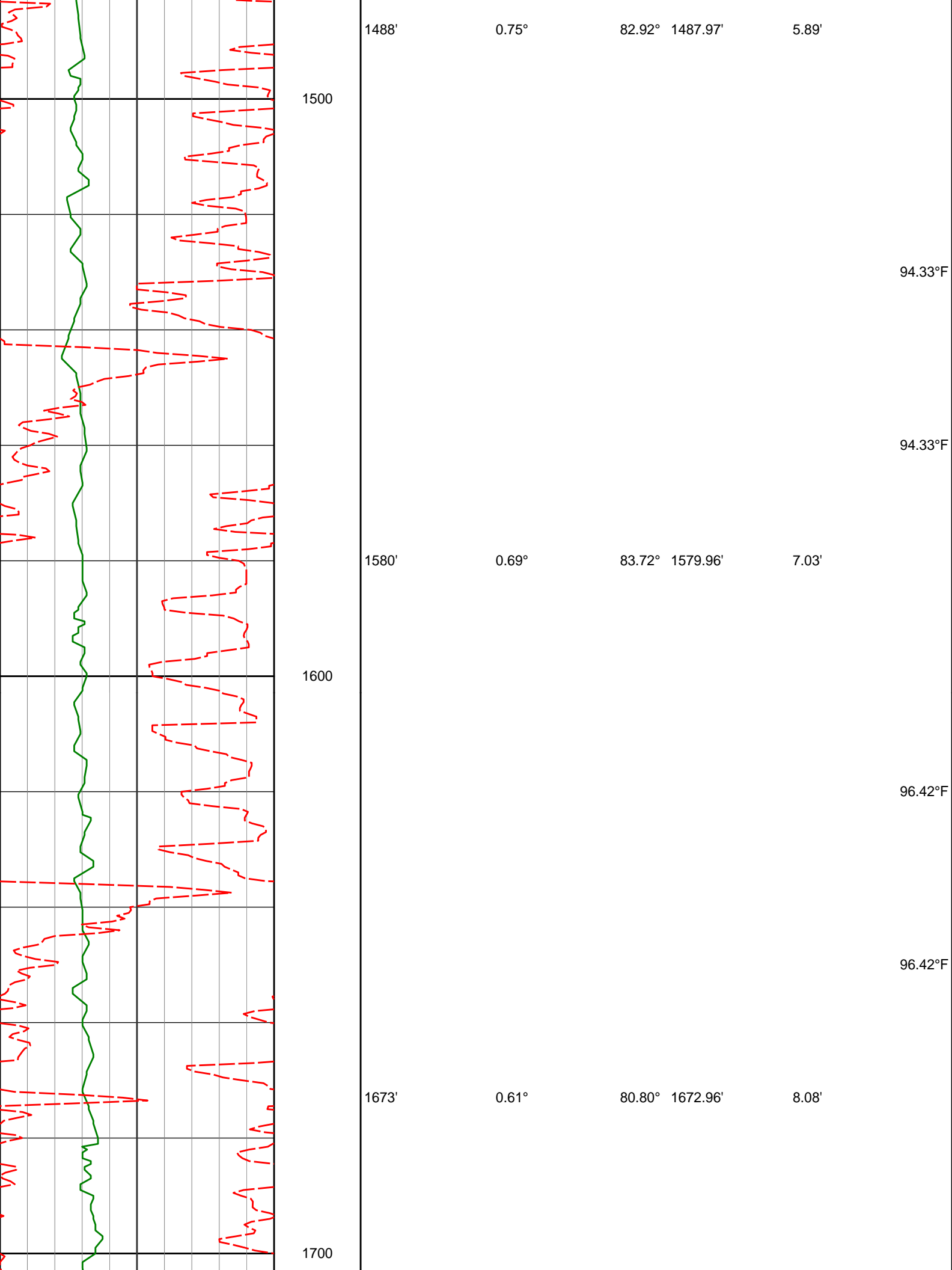
4.83'

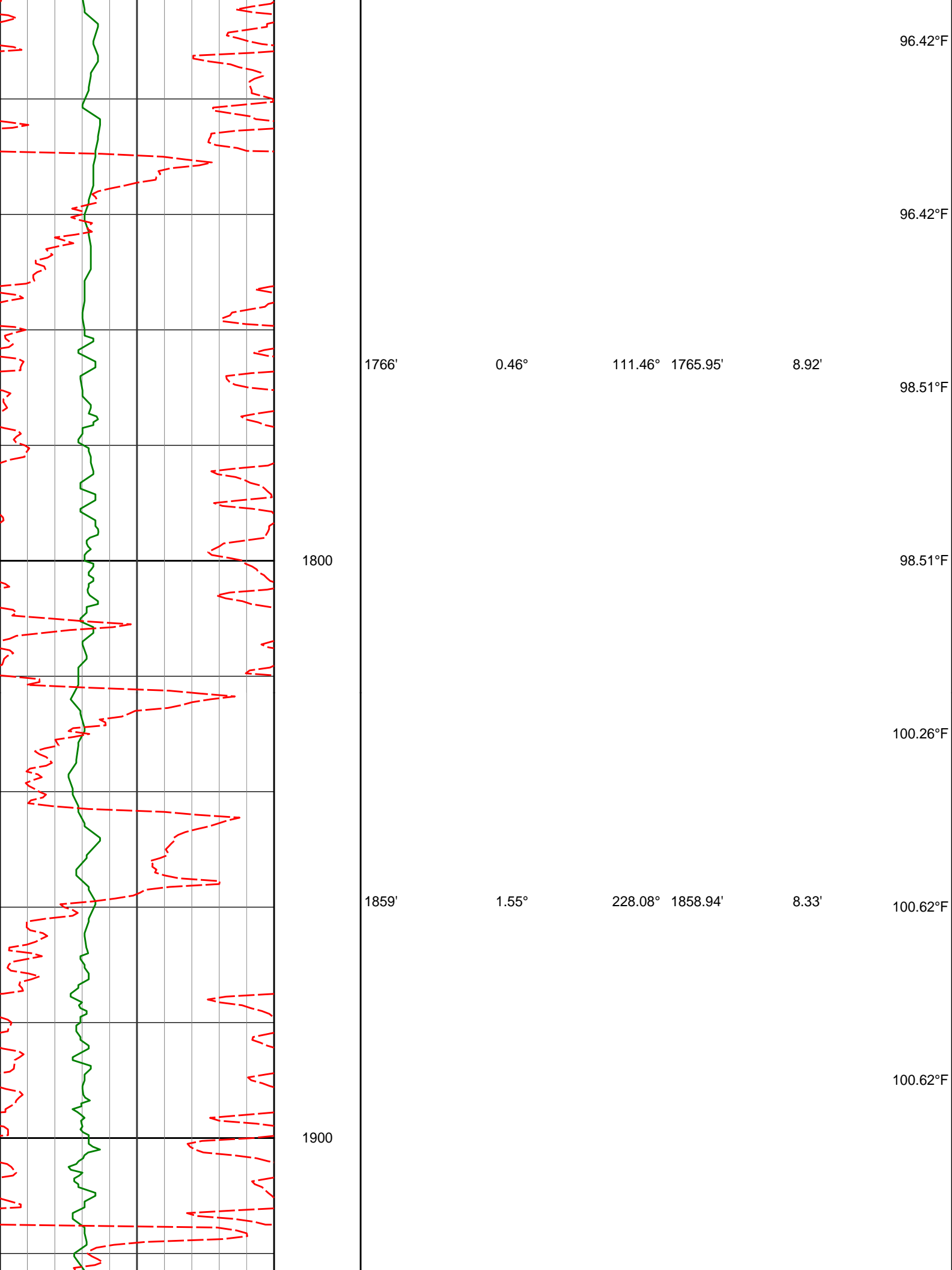
94.33°F

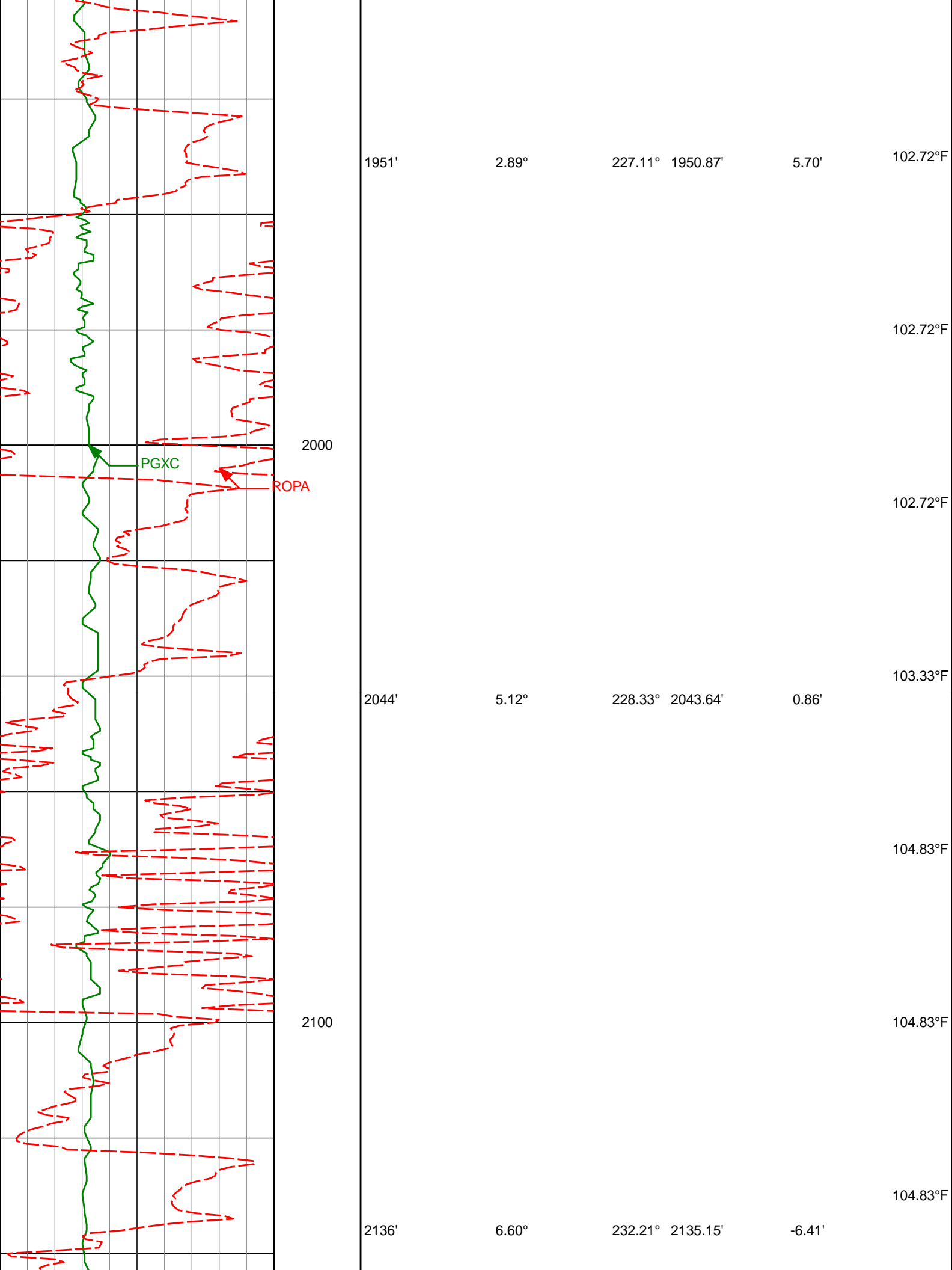
94.33°F

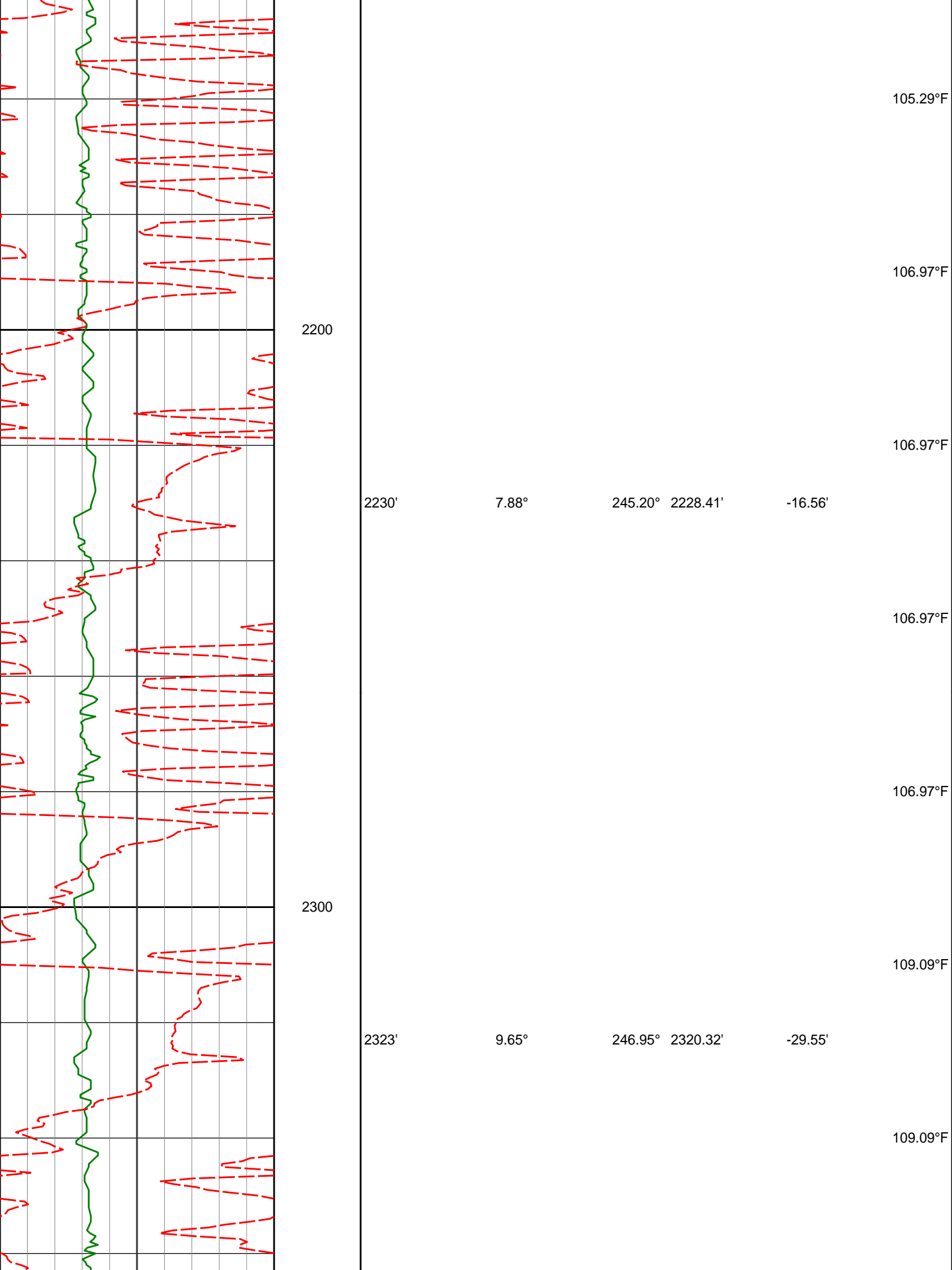
94.33°F

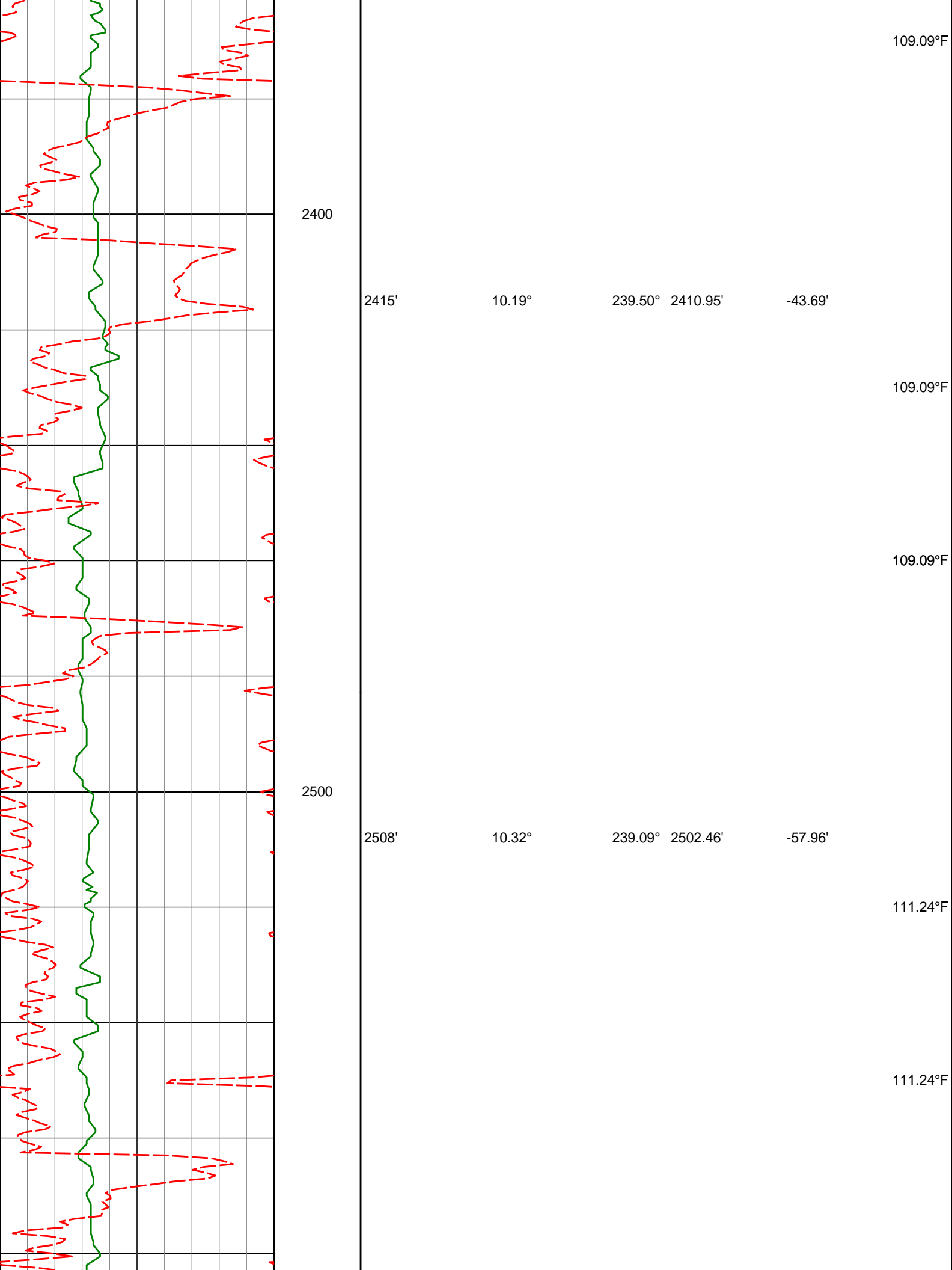
94.33°F

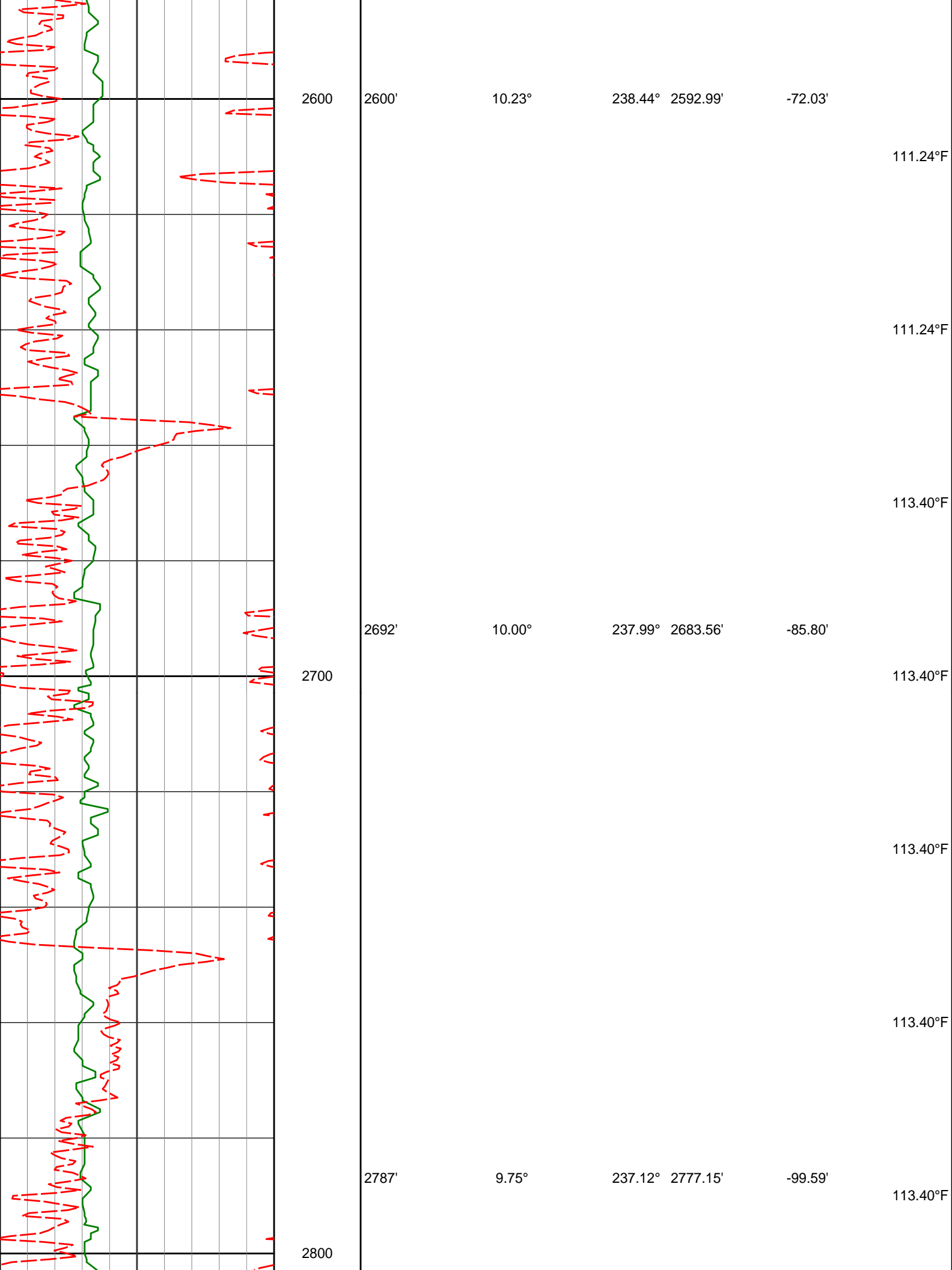


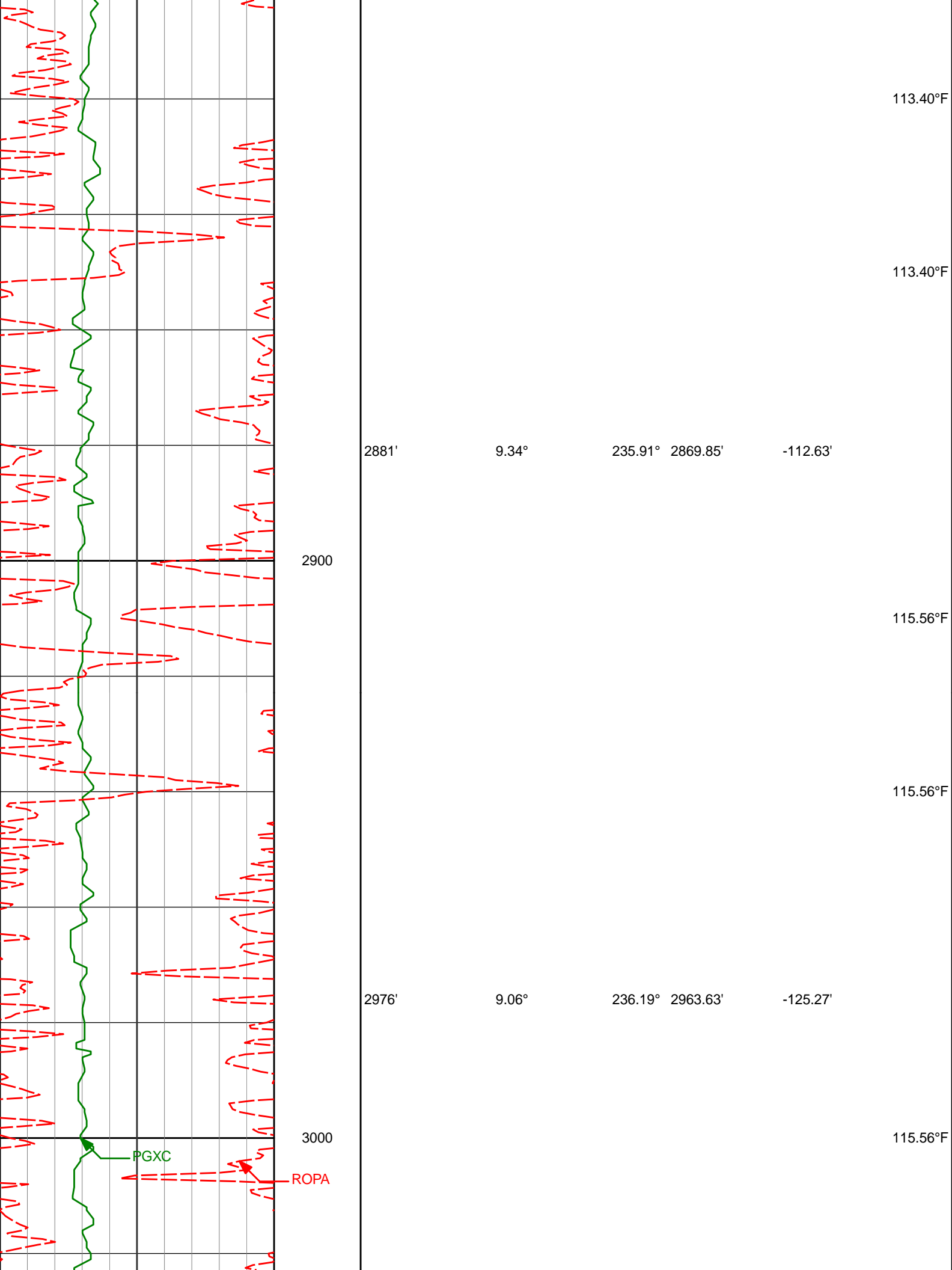


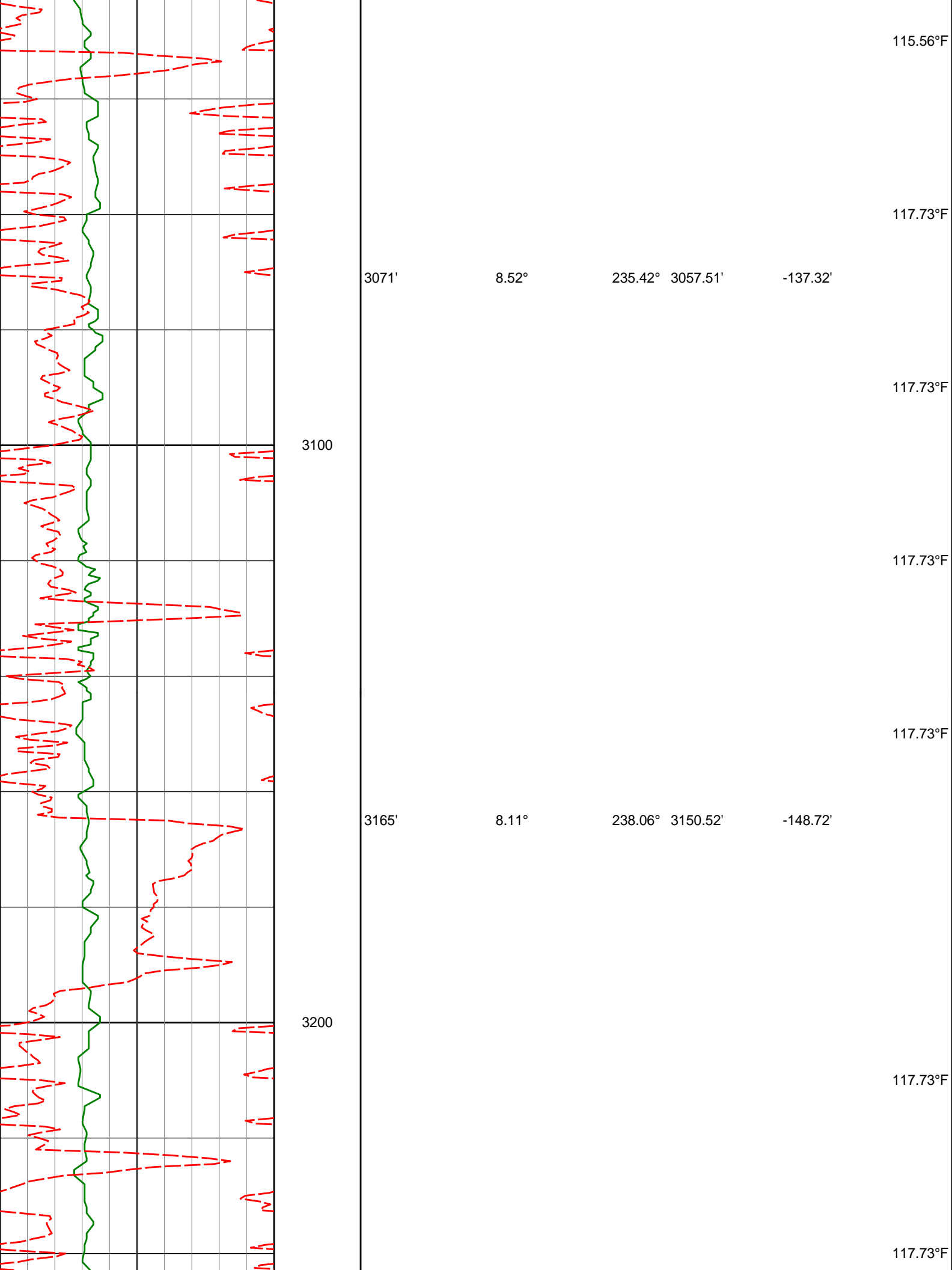


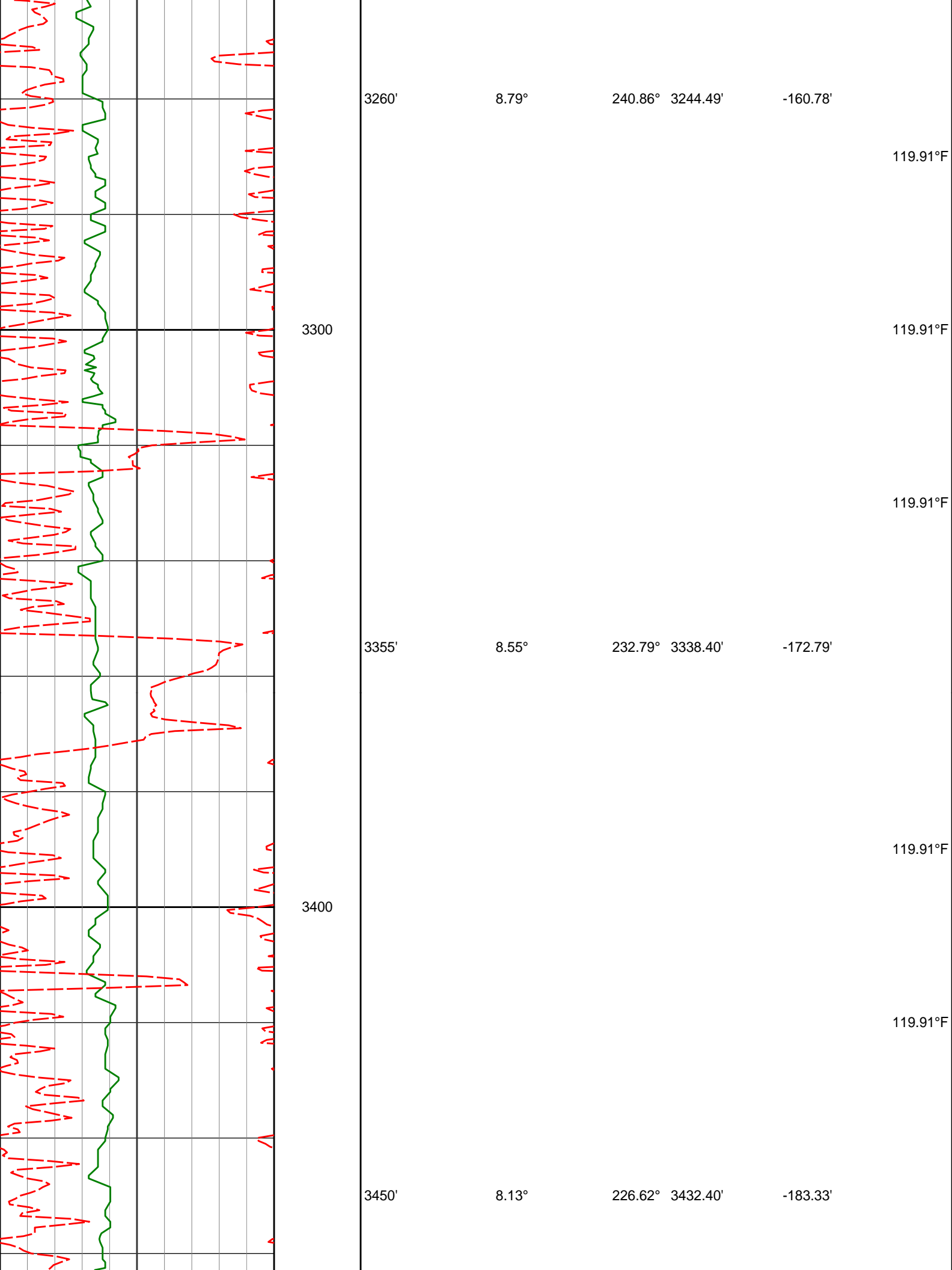


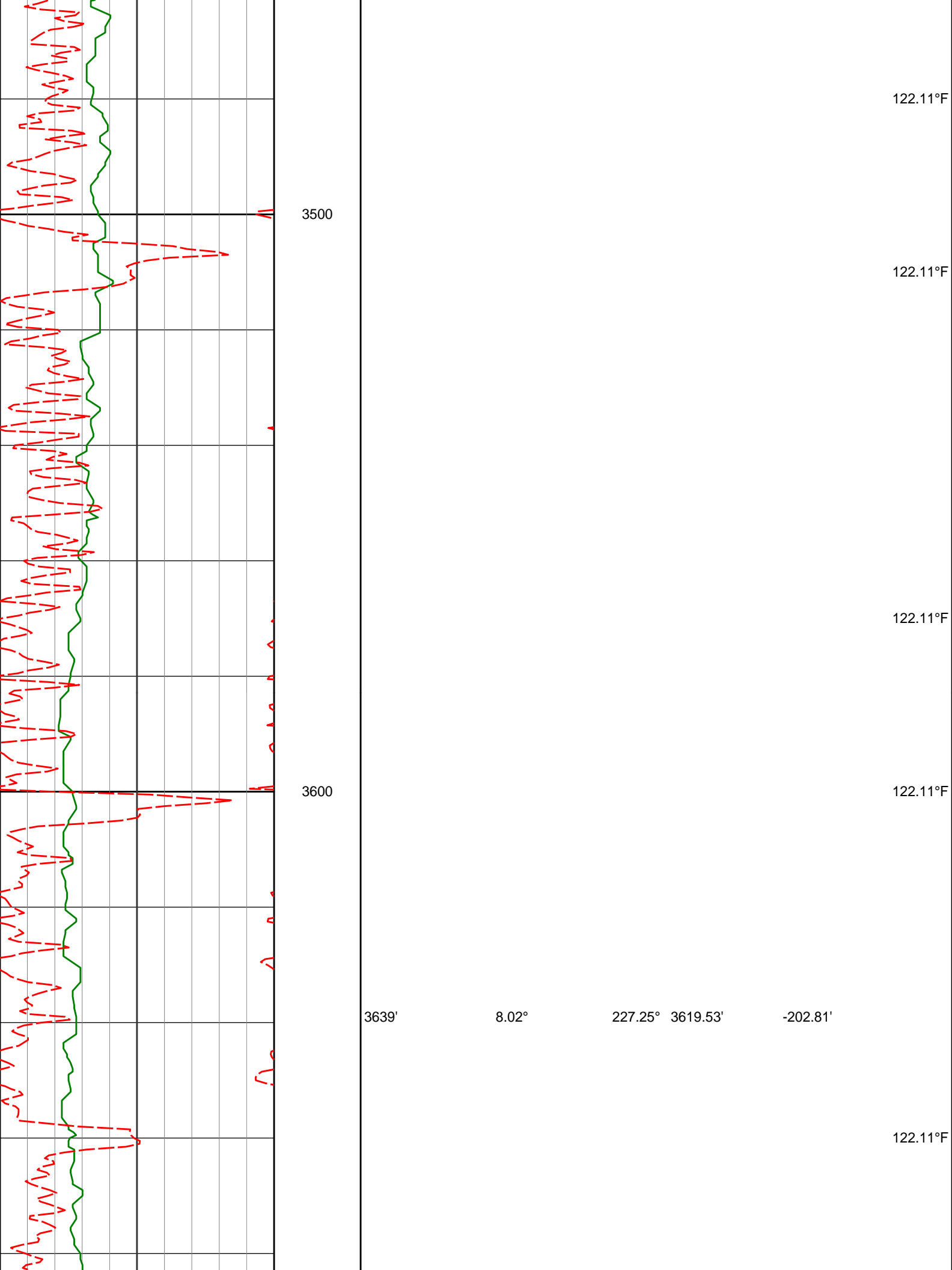


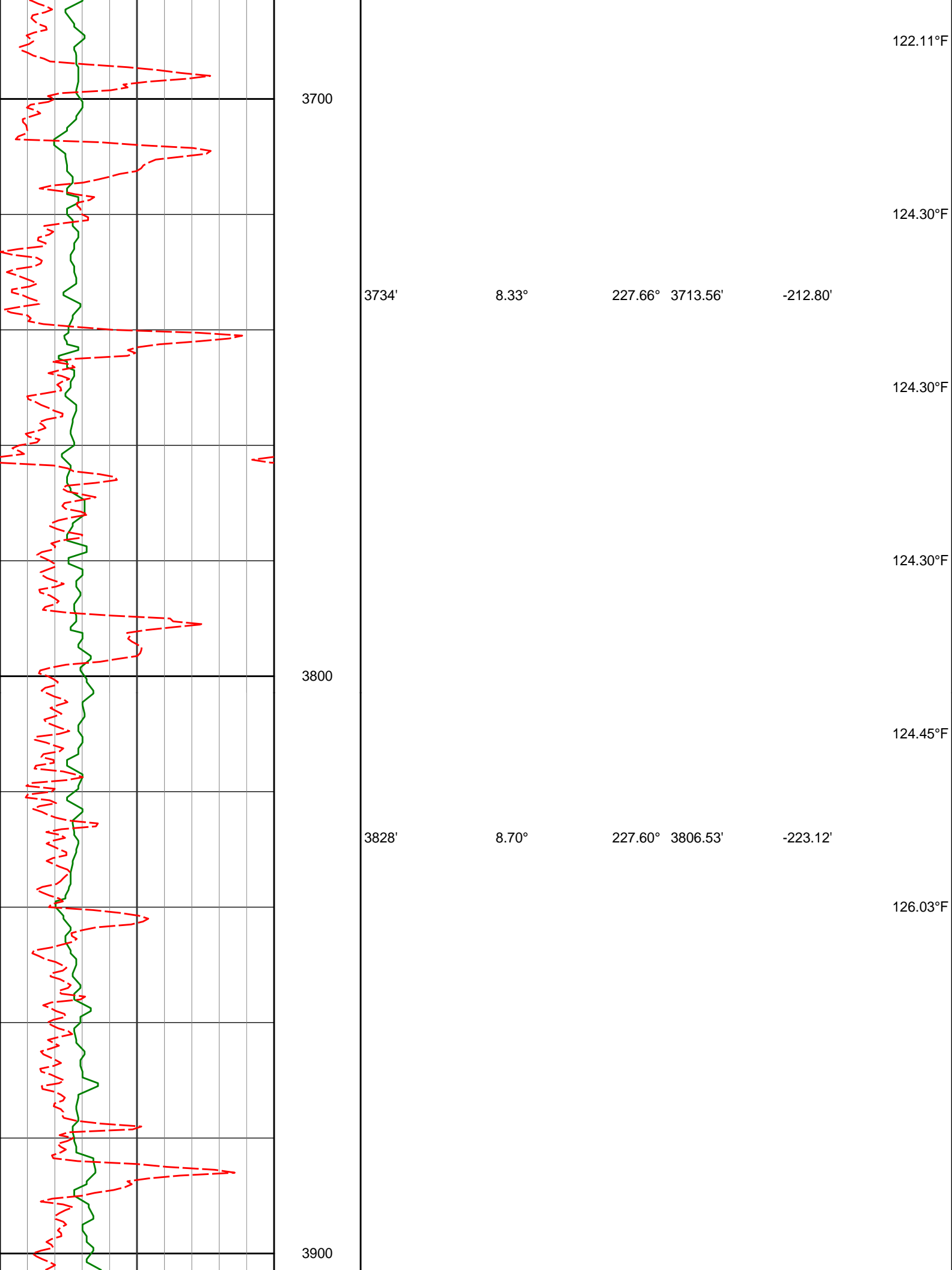


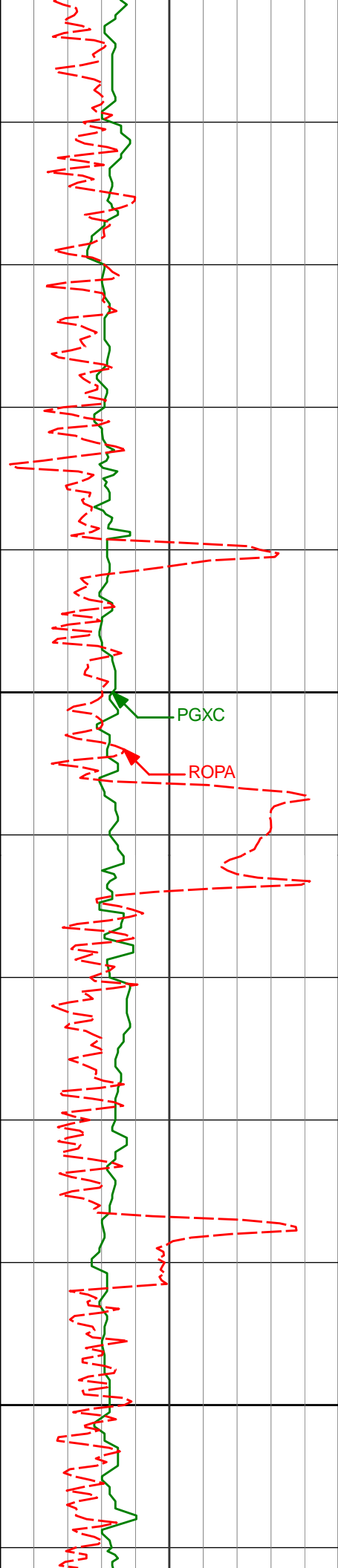












4000

4100

3923'

8.63°

227.73° 3900.44'

-233.75'

126.52°F

126.52°F

4018'

8.99°

231.43° 3994.32'

-244.86'

126.52°F

128.73°F

128.73°F

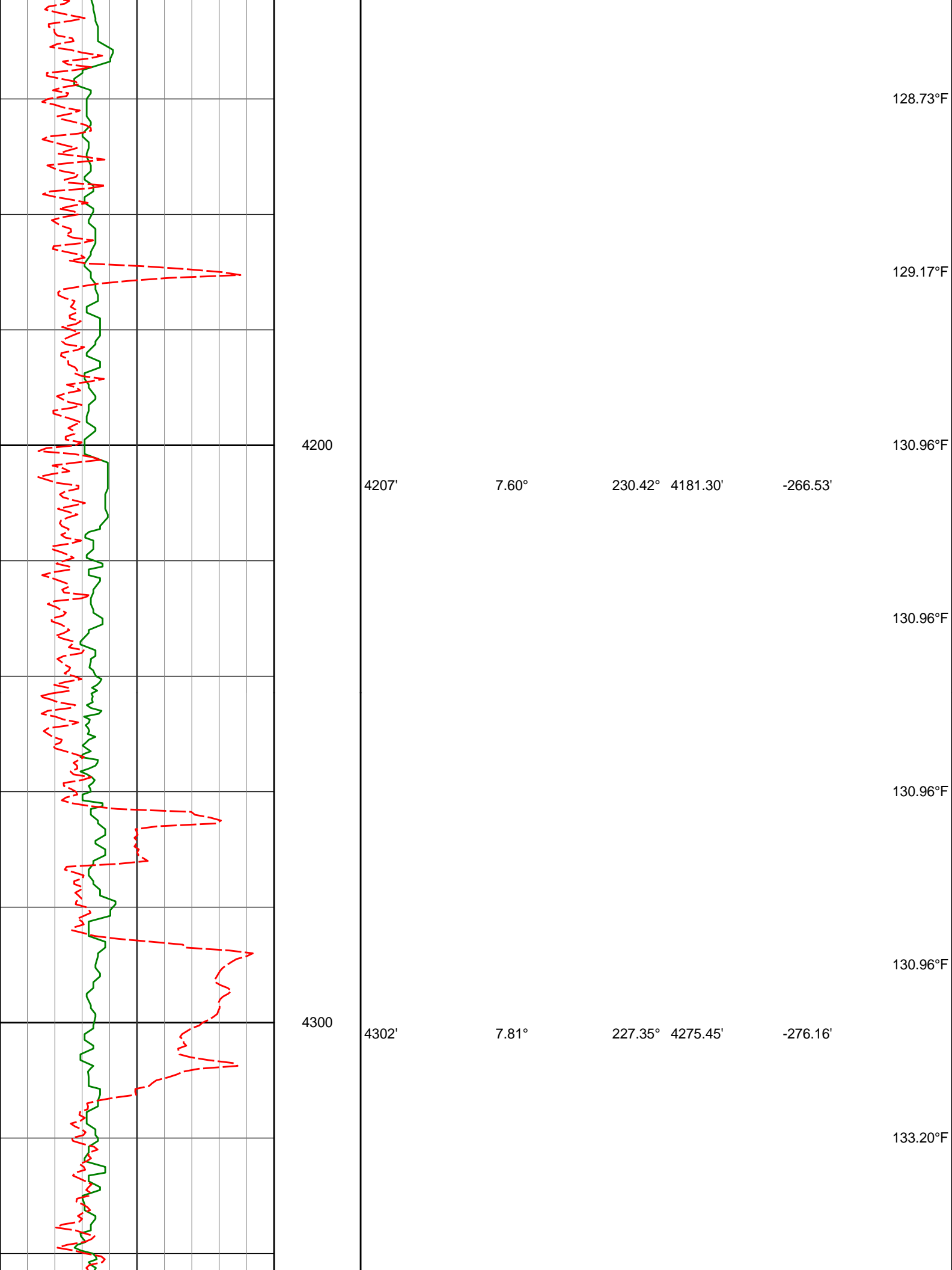
4112'

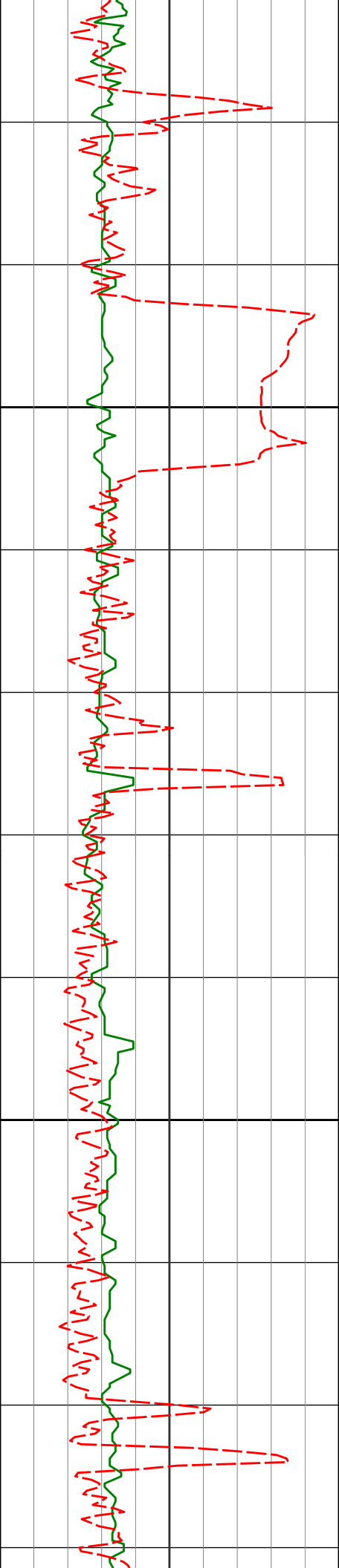
8.46°

232.36° 4087.24'

-256.12'

128.73°F





4400

4500

4491'

9.23°

233.54° 4462.36'

-297.87'

131.39°F

132.95°F

133.20°F

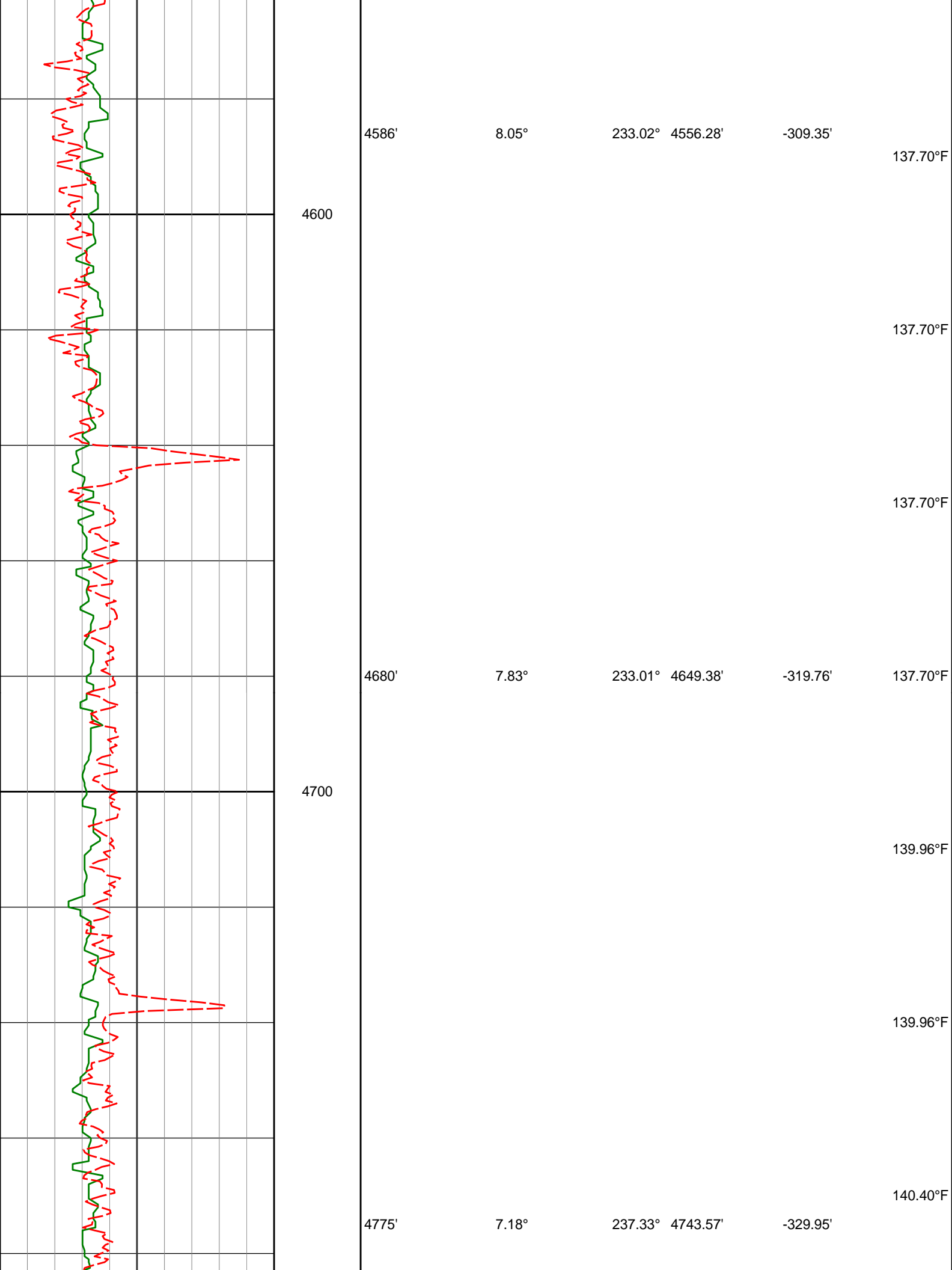
133.20°F

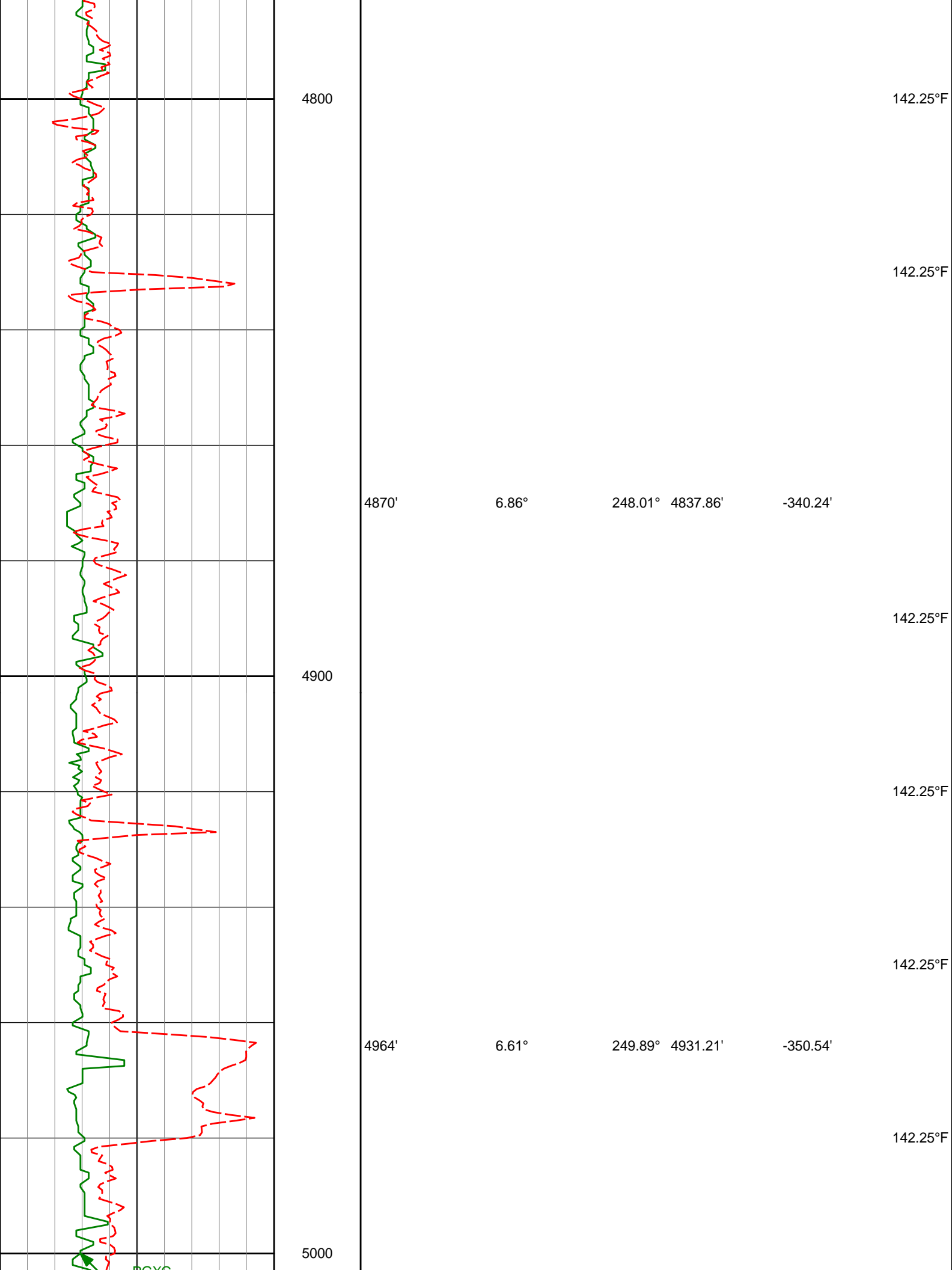
135.45°F

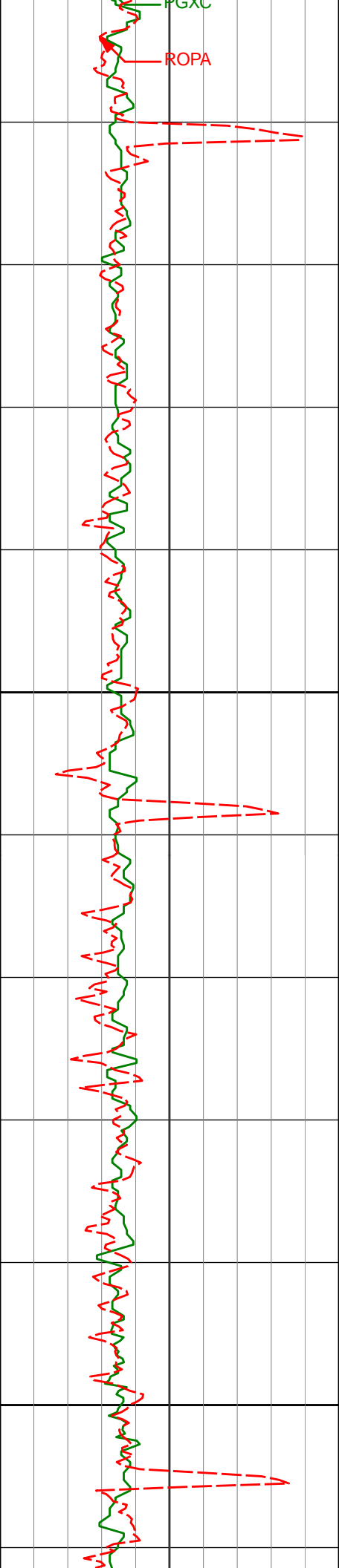
135.45°F

135.45°F

137.24°F







5100

5154'

5.94°

242.74° 5120.07'

-369.58'

5200

142.25°F

144.54°F

144.54°F

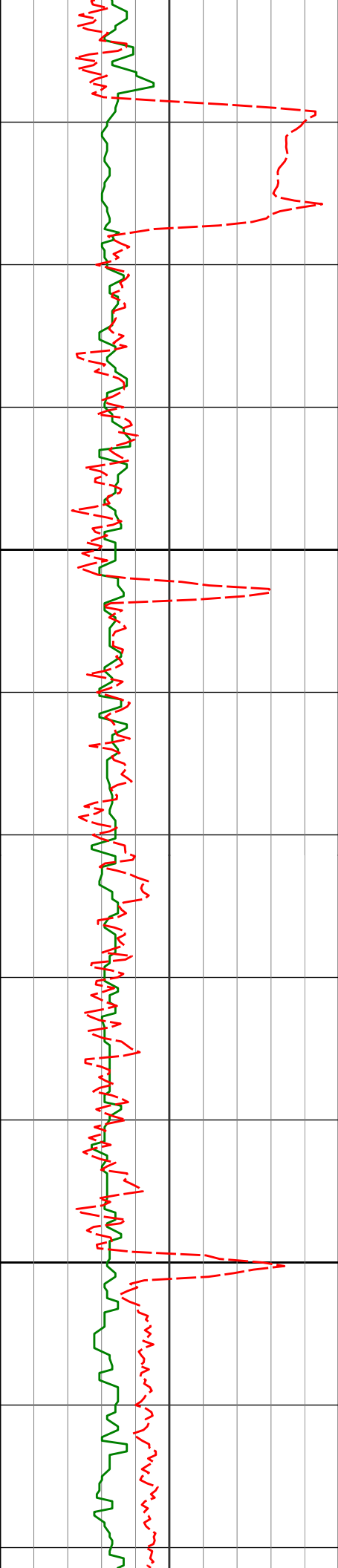
144.54°F

146.84°F

146.84°F

146.55°F

144.54°F



5300

5400

5343

3.90°

218.10°

5308.39

-382.29

146.84°F

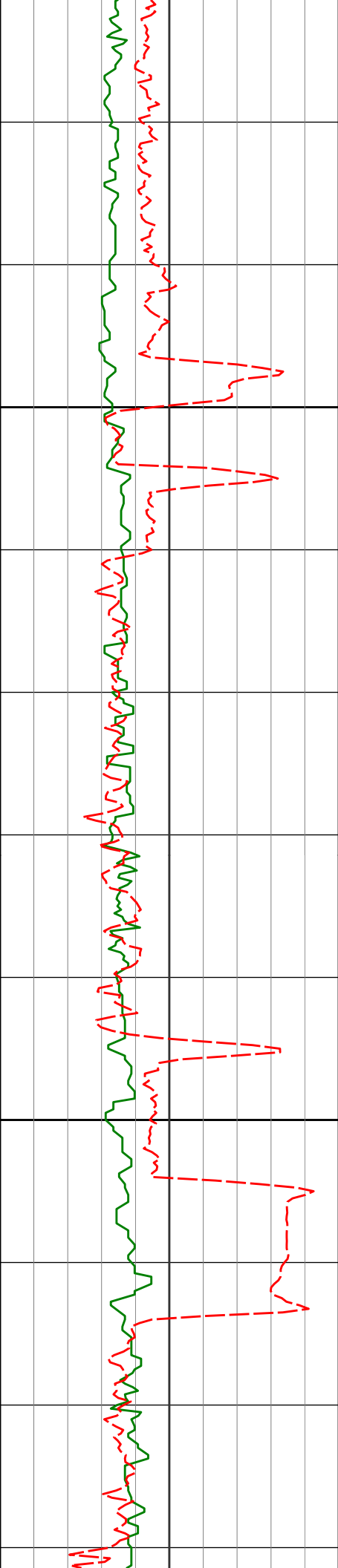
146.84°F

146.84°F

146.84°F

146.84°F

146.84°F



5500

5533'

3.10°

217.31° 5498.03'

-389.42'

5600

5627'

1.79°

219.51° 5591.95'

-391.91'

146.84°F

148.36°F

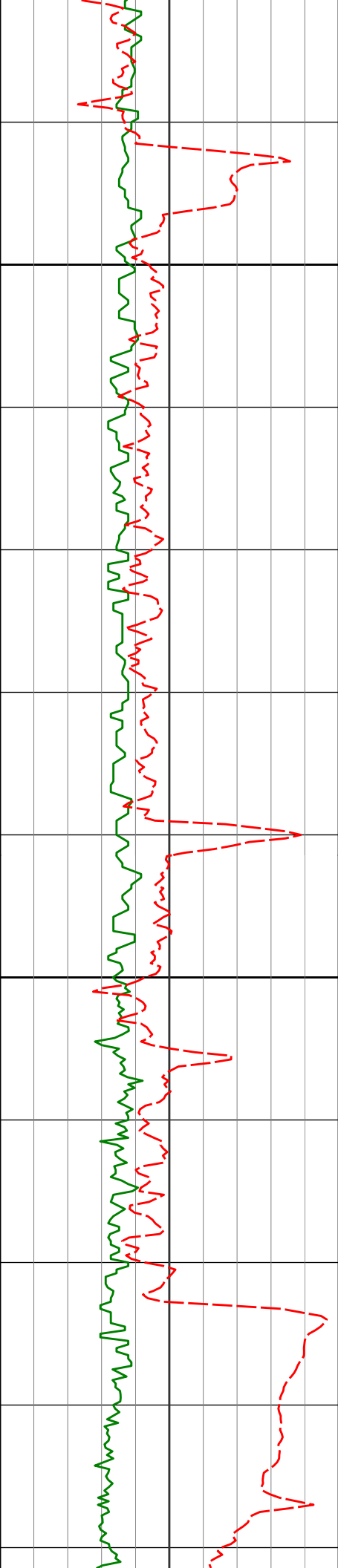
149.14°F

149.14°F

149.14°F

149.14°F

150.79°F



5700

5722'

1.30°

213.74° 5686.91'

-393.46'

5800

151.47°F

151.47°F

151.47°F

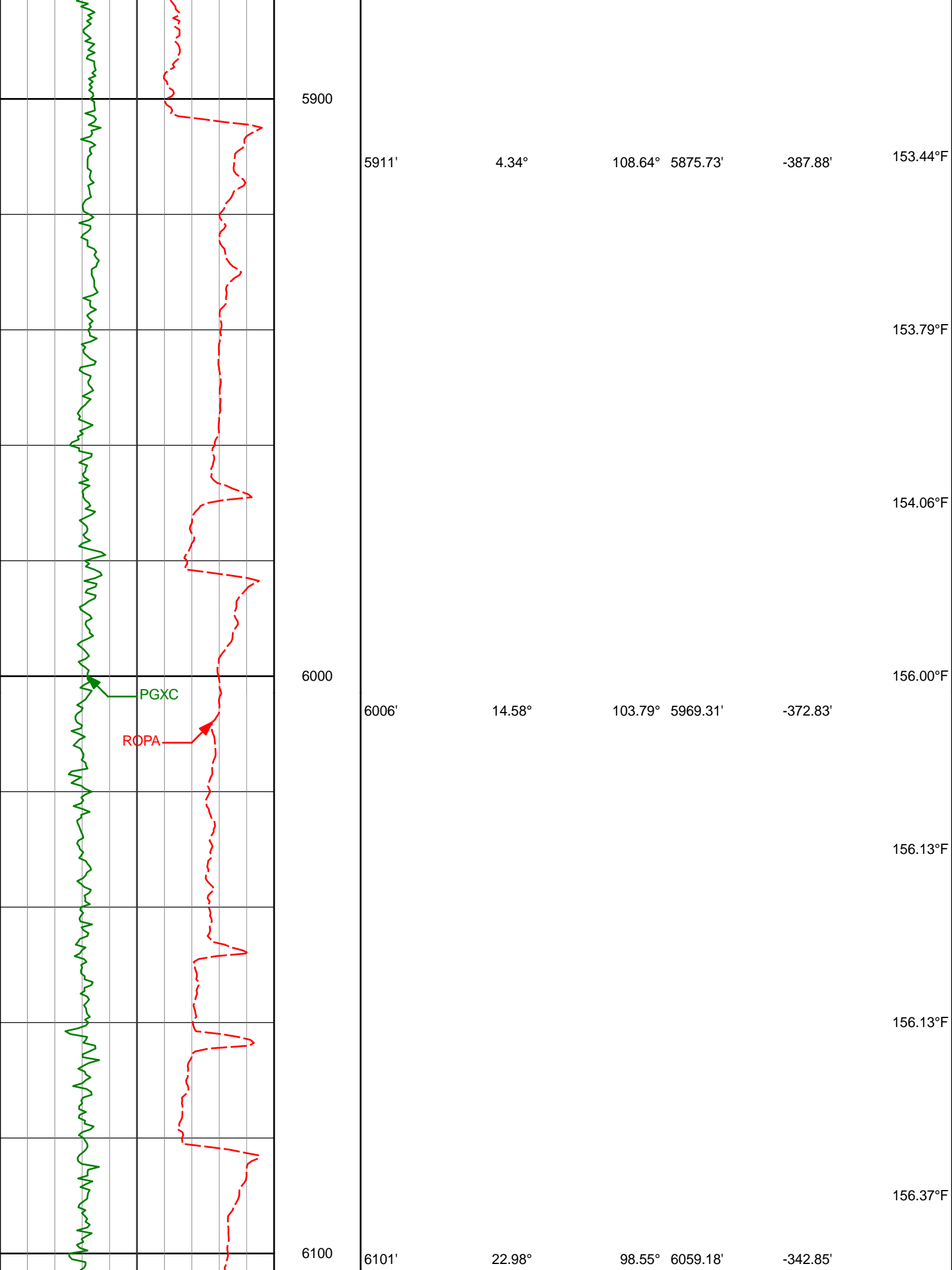
152.81°F

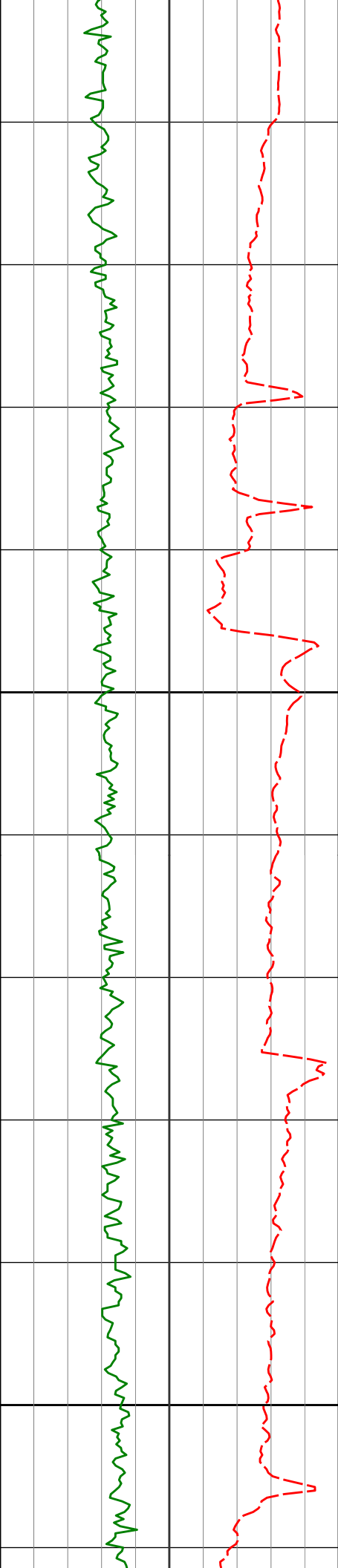
152.13°F

150.99°F

151.47°F

151.64°F





6200

6300

6195'

6290'

31.54°

46.47°

89.95°

90.30°

6142.69'

6216.31'

-300.03'

-240.41'

158.38°F

158.47°F

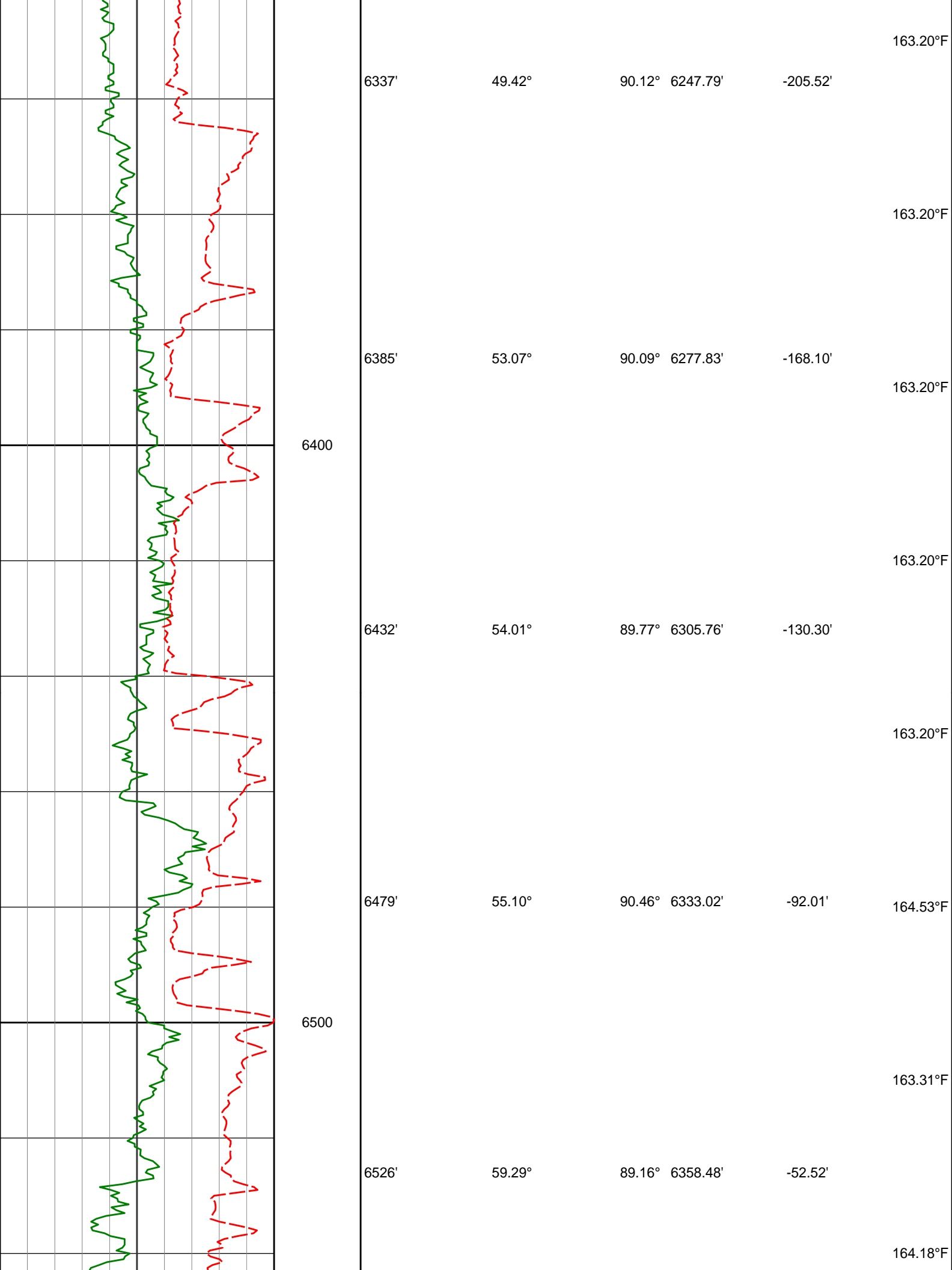
158.47°F

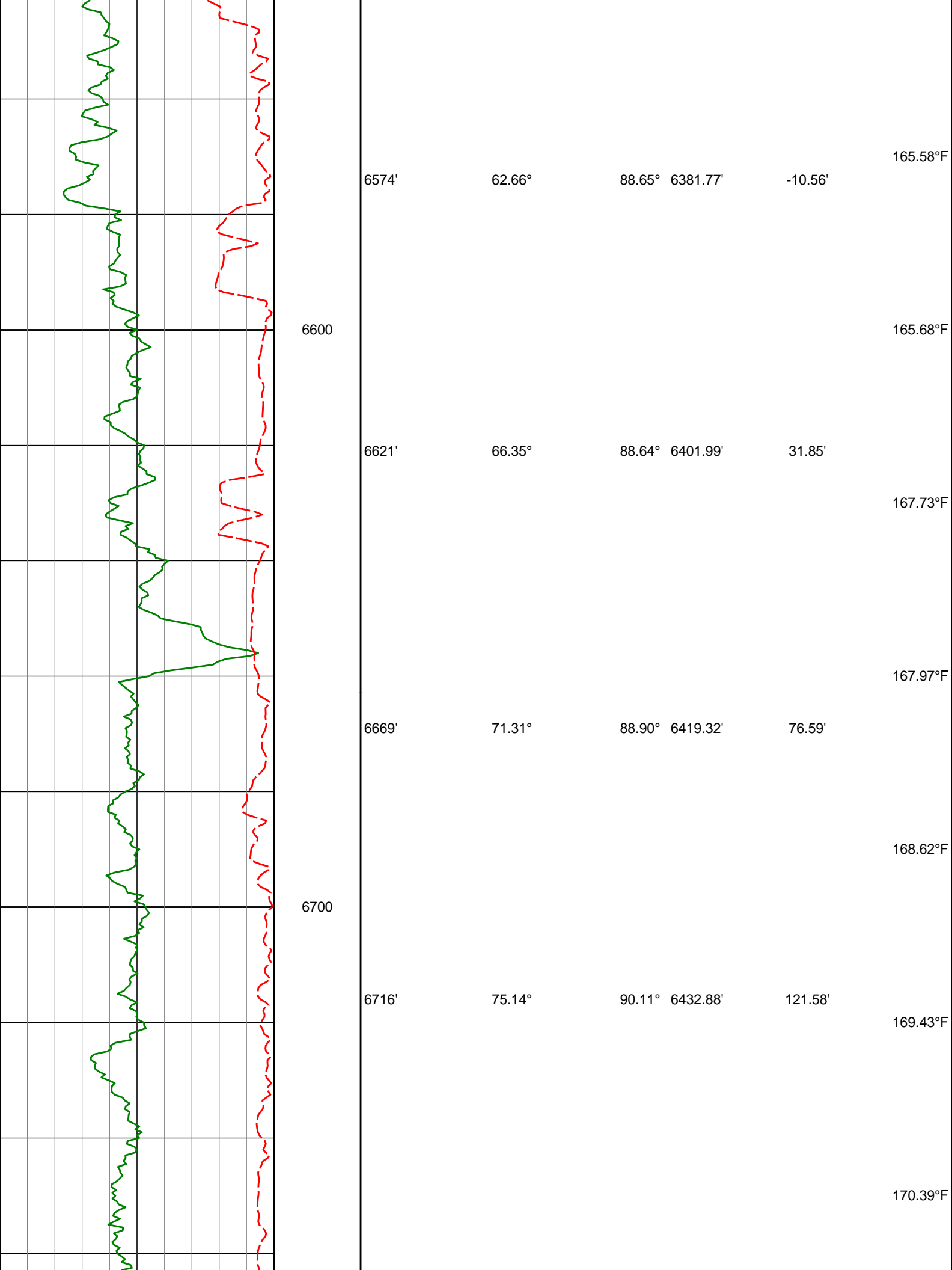
158.58°F

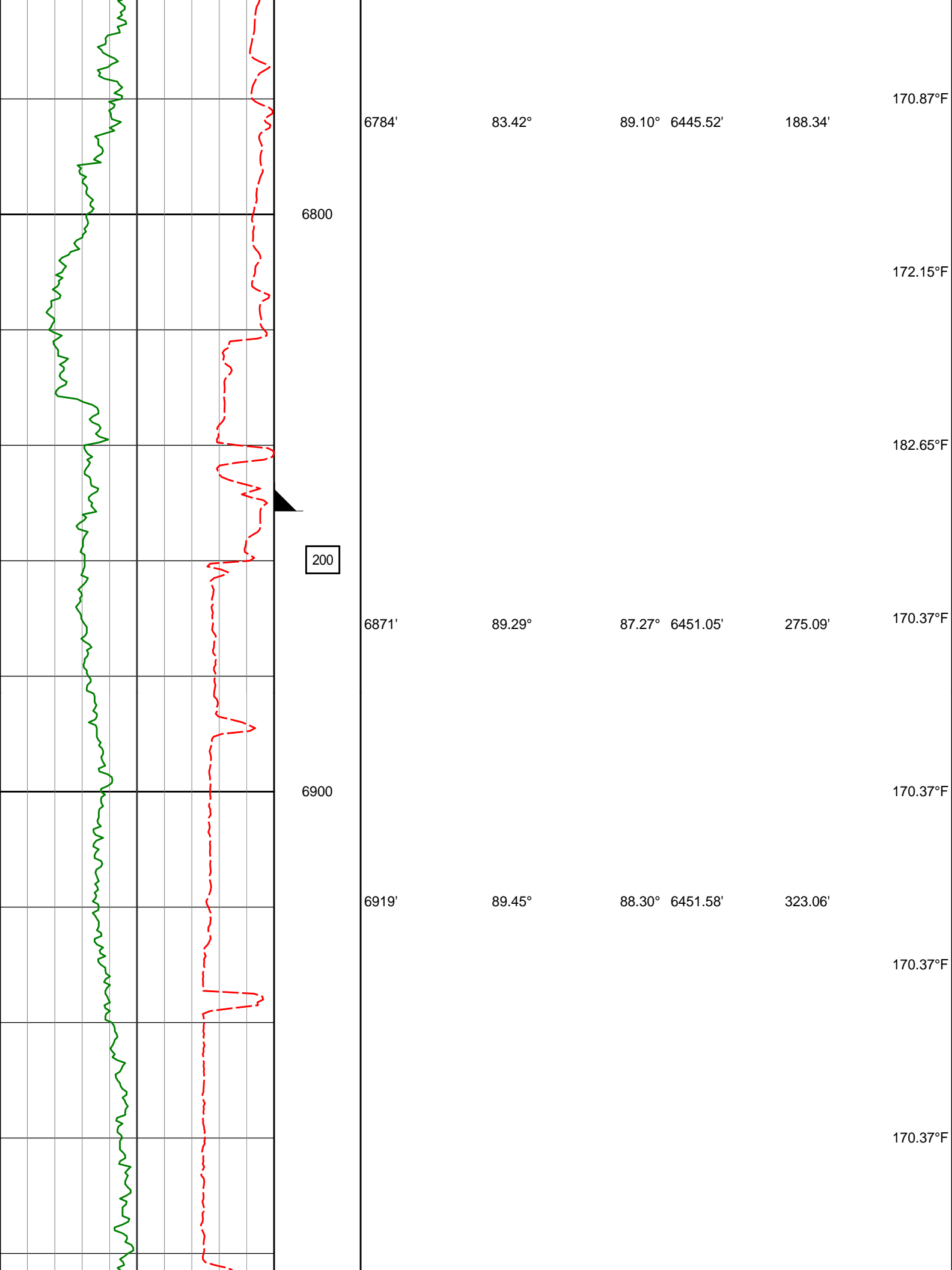
160.51°F

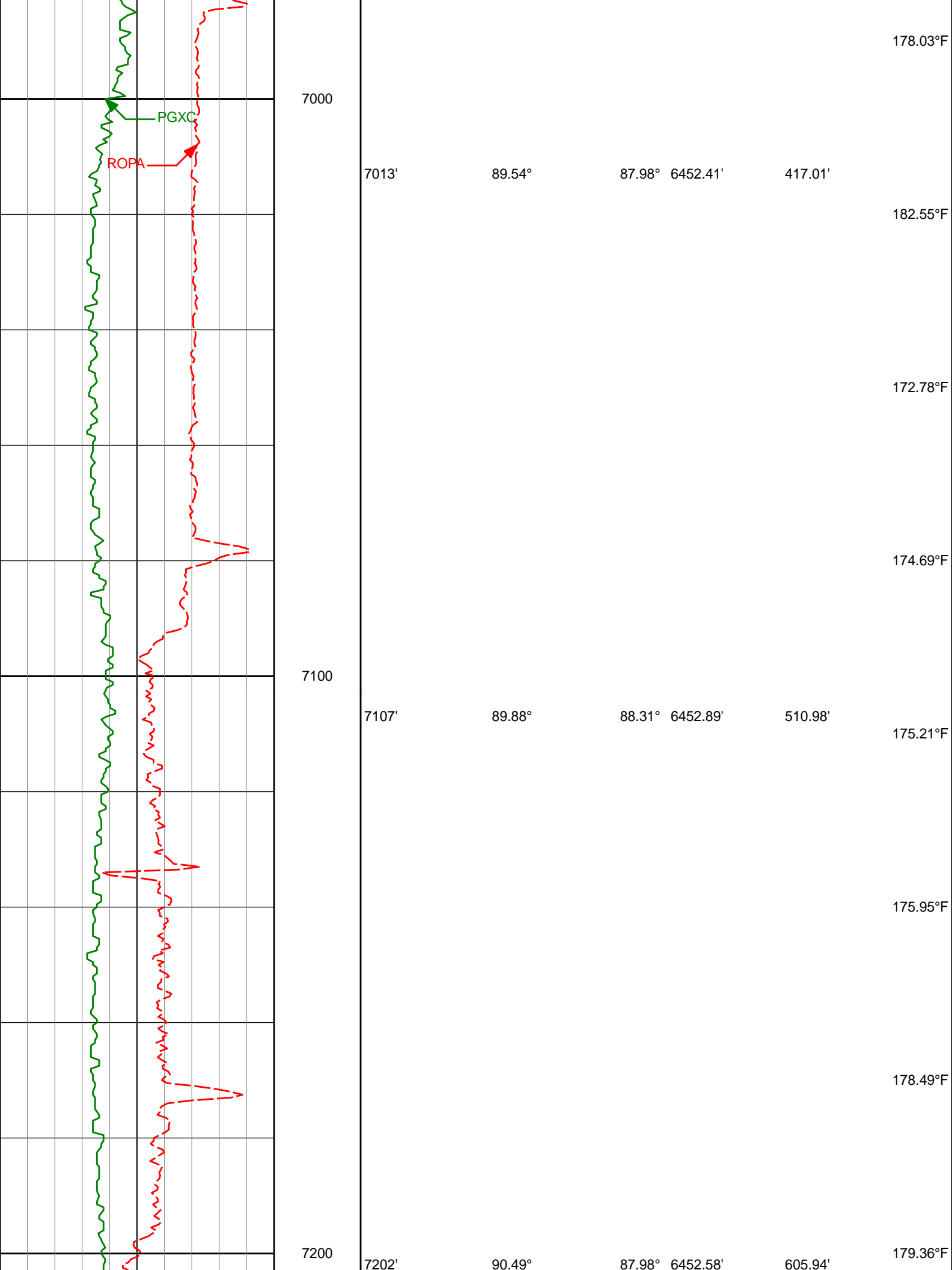
161.33°F

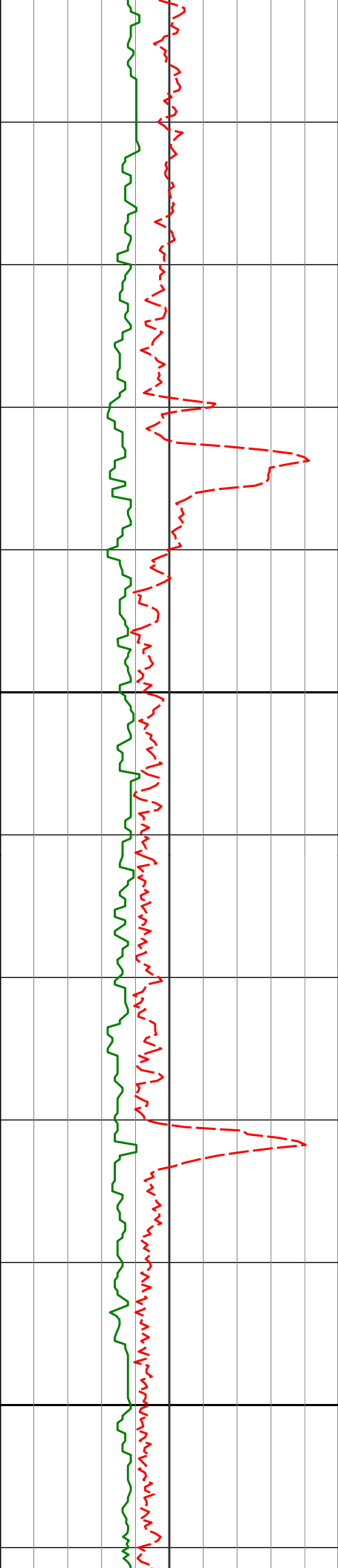
161.67°F











7300

7296'

90.25°

86.06°

6451.98'

699.83'

177.64°F

190.17°F

190.60°F

182.55°F

182.55°F

183.59°F

7400

7391'

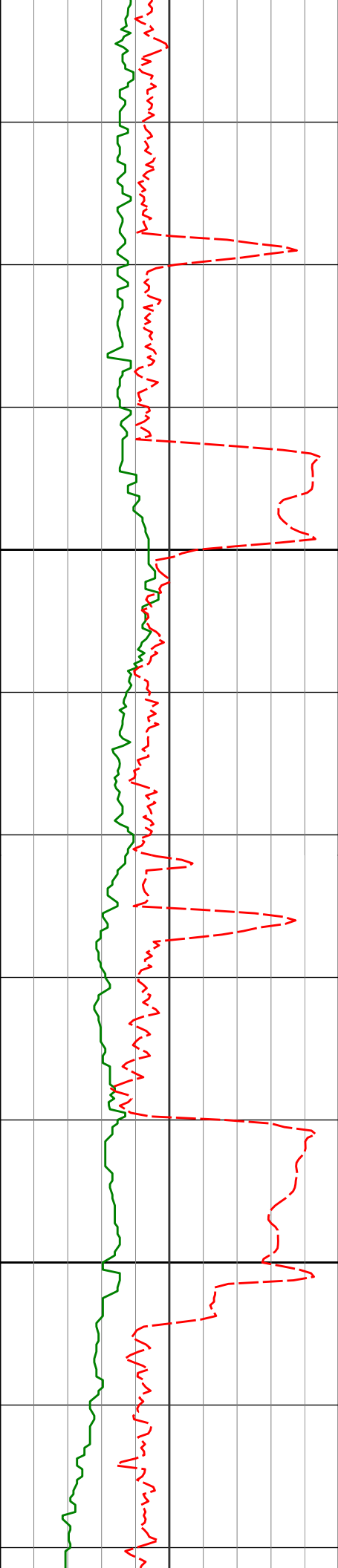
90.43°

84.47°

6451.41'

794.53'

186.09°F



7500

7600

7485'

7579'

90.71°

91.88°

82.76° 6450.48'

84.13° 6448.35'

887.99'

981.39'

187.57°F

182.55°F

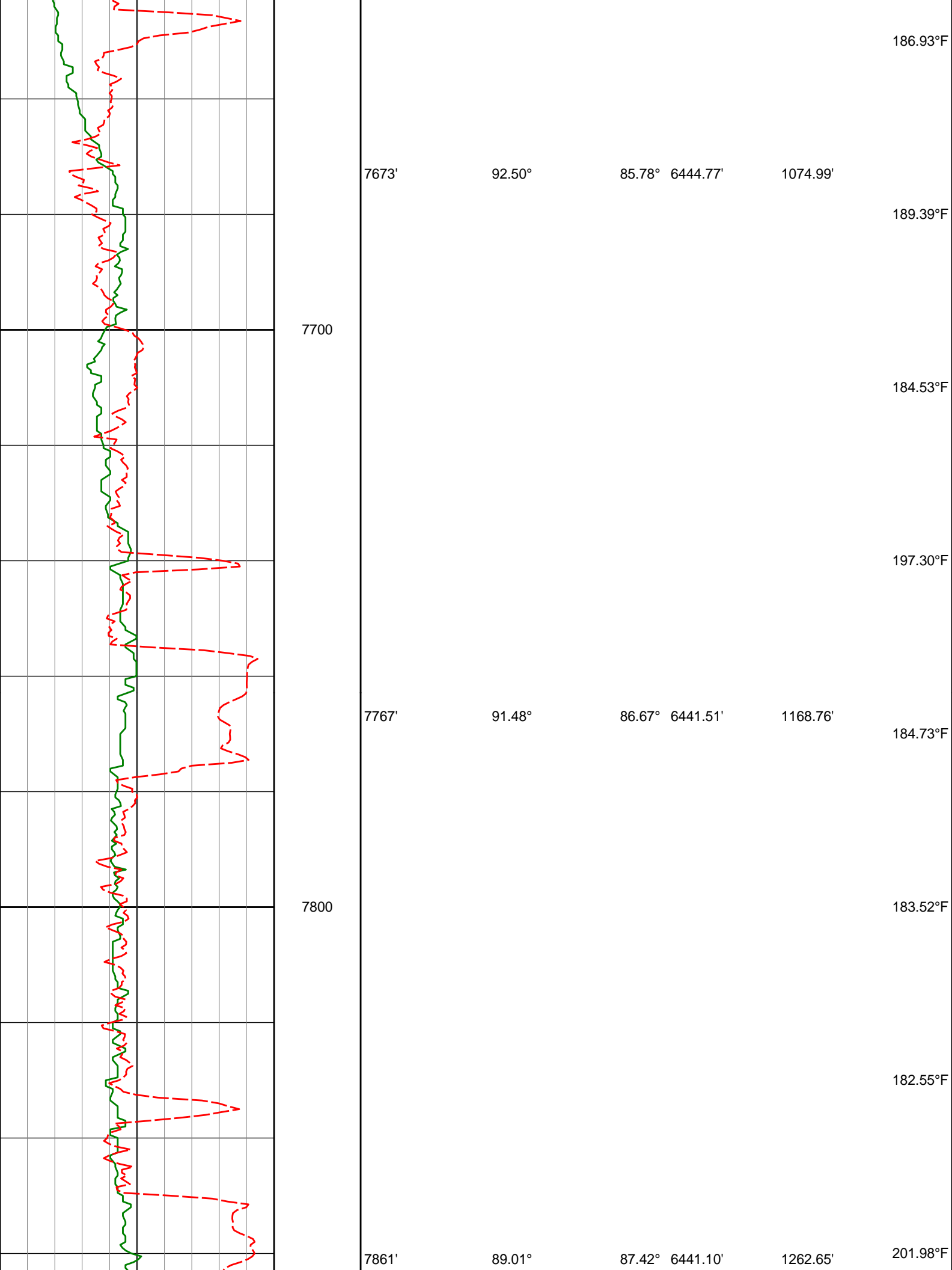
183.33°F

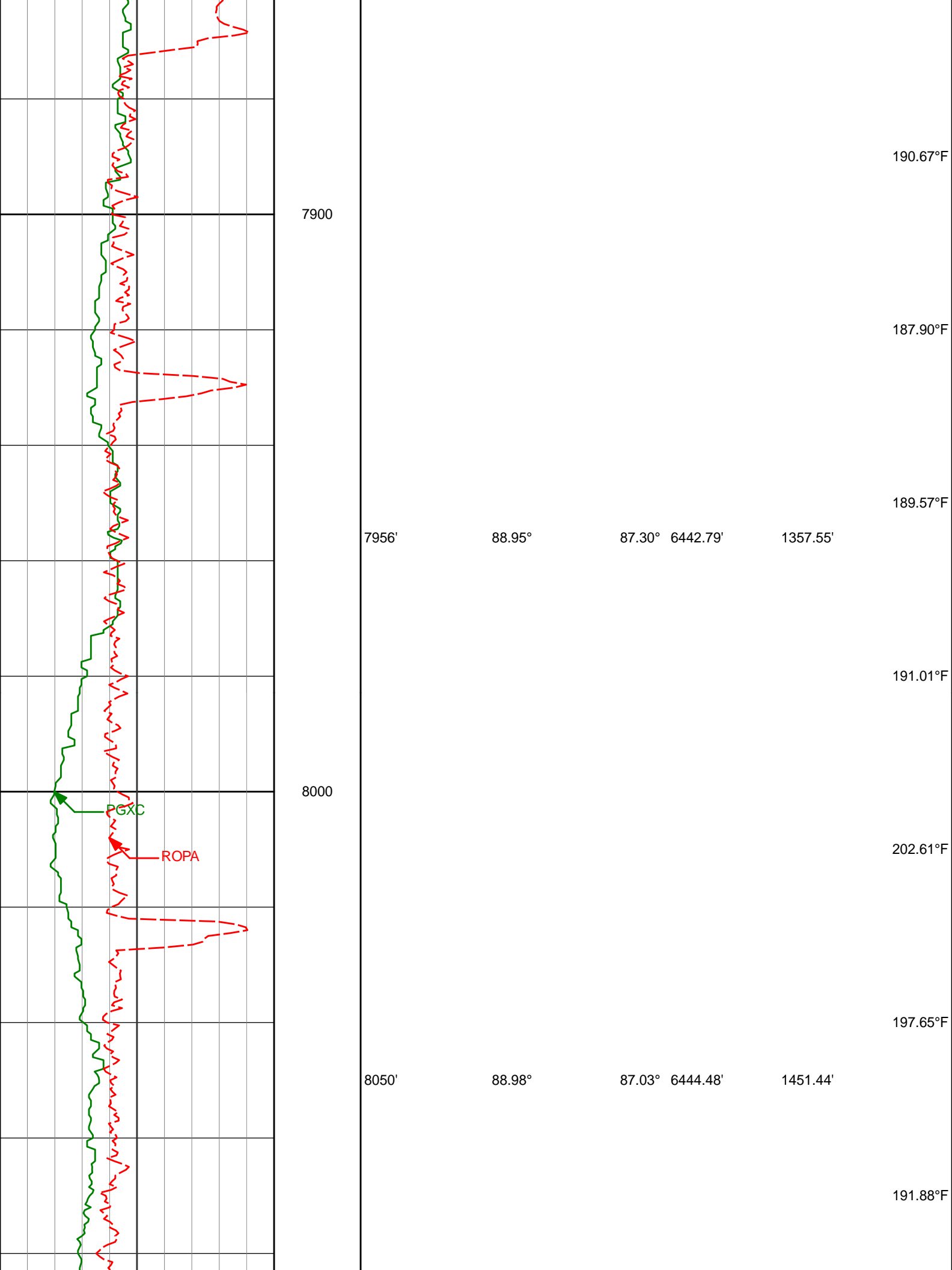
182.76°F

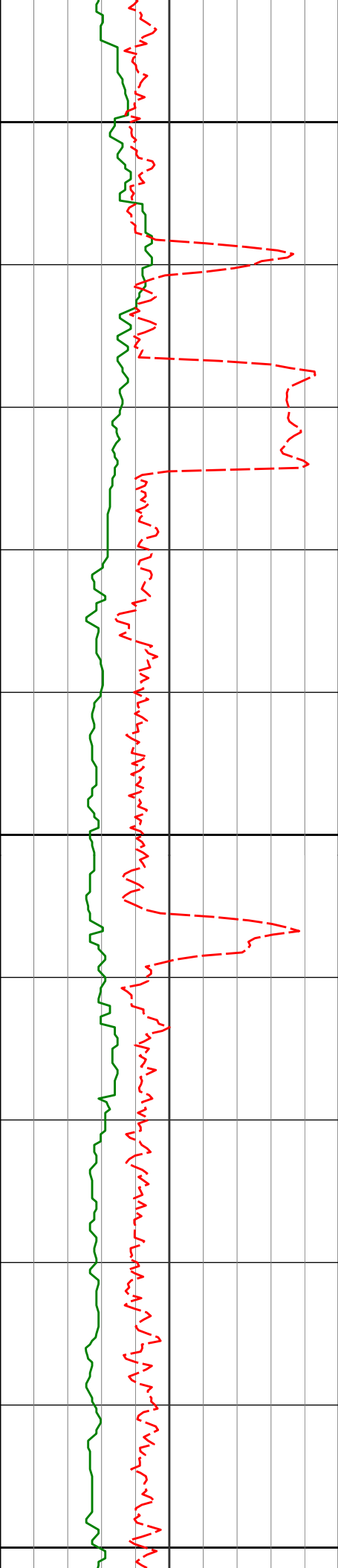
182.55°F

192.19°F

197.43°F







8100

189.99°F

189.99°F

8145'

89.88°

87.86° 6445.43'

1546.36'

202.24°F

198.85°F

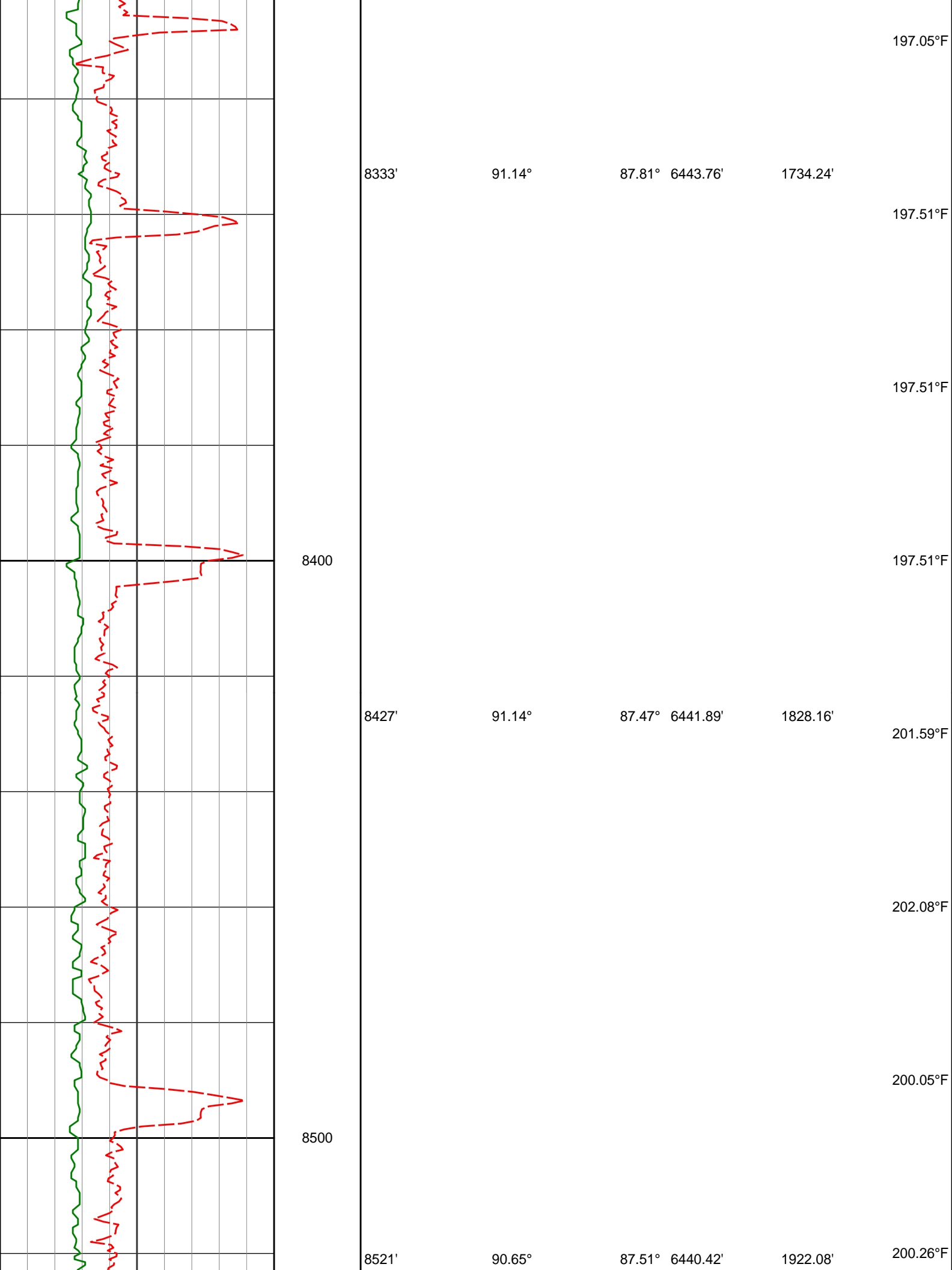
8200

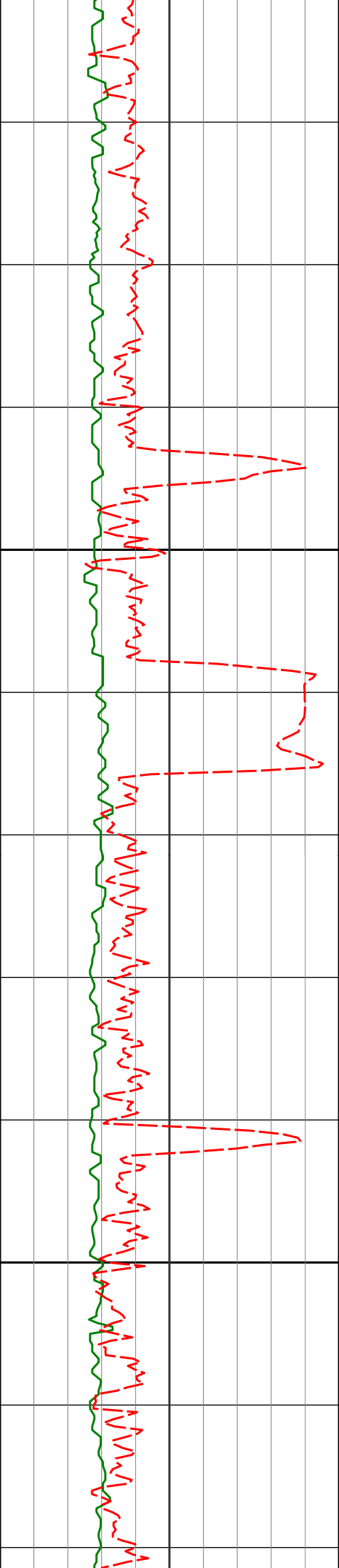
194.99°F

200.96°F

196.84°F

8300





8600

8616'

91.11°

88.79° 6438.97'

2017.03'

200.58°F

197.84°F

200.05°F

200.05°F

201.20°F

8700

8710'

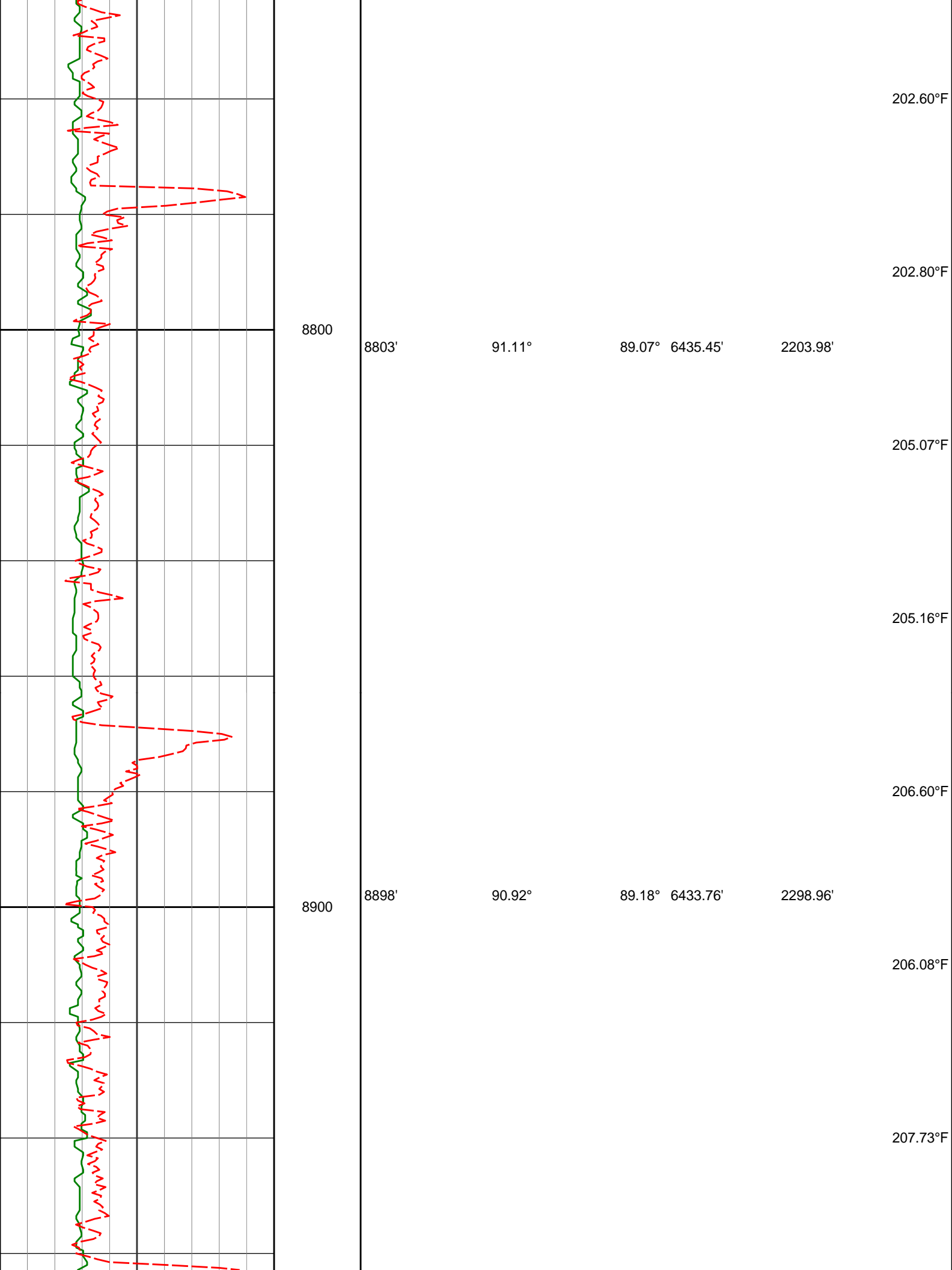
91.05°

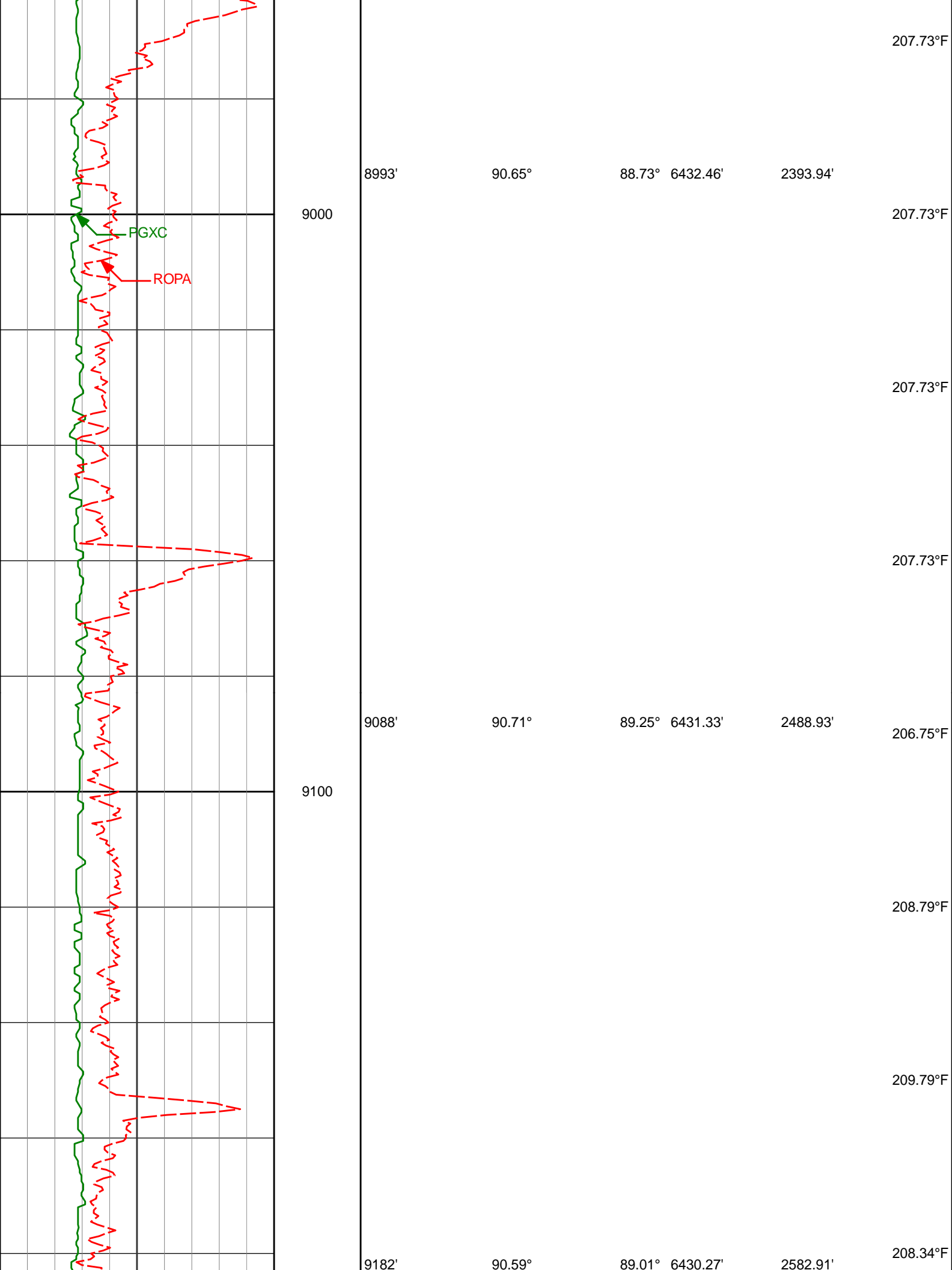
89.24° 6437.20'

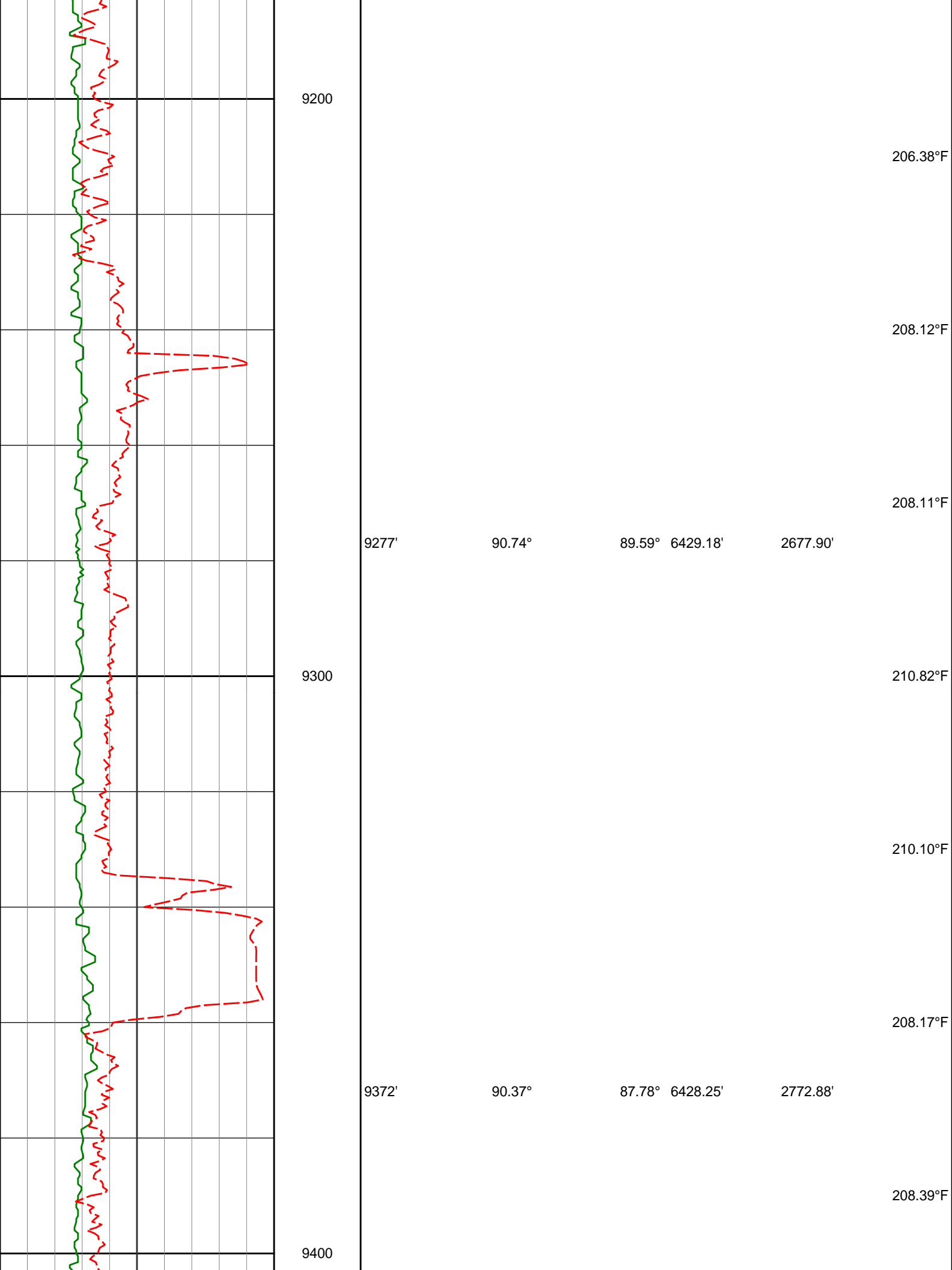
2111.00'

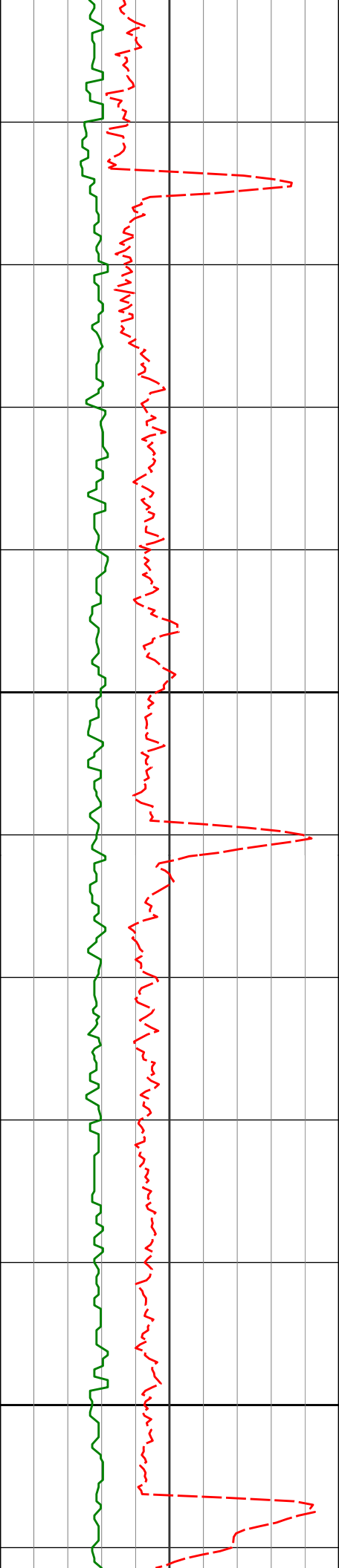
203.15°F

204.60°F









9500

9600

9467'

9561'

90.52°

90.49°

87.26° 6427.51'

87.85° 6426.68'

2867.81'

2961.73'

210.57°F

212.69°F

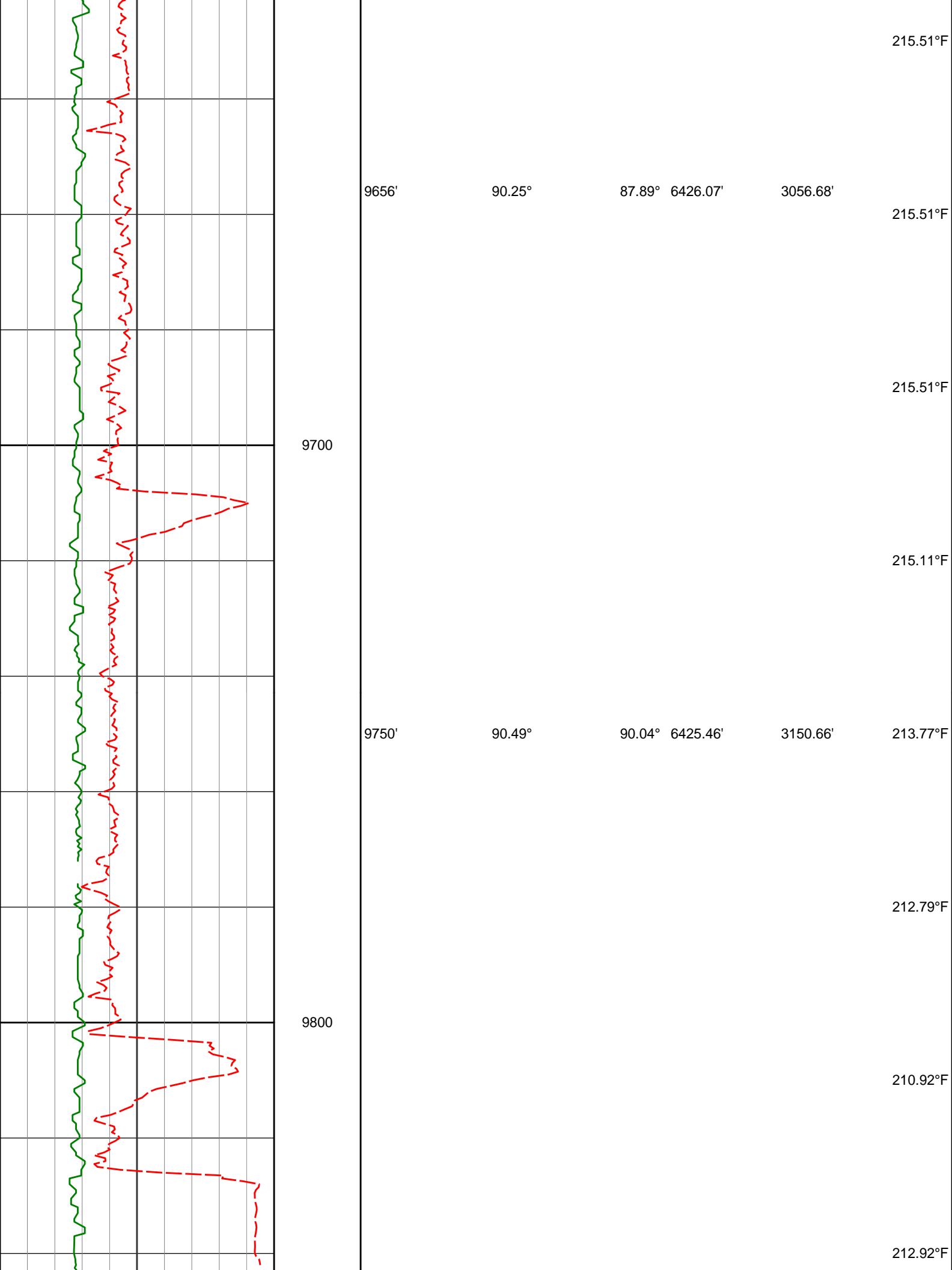
212.92°F

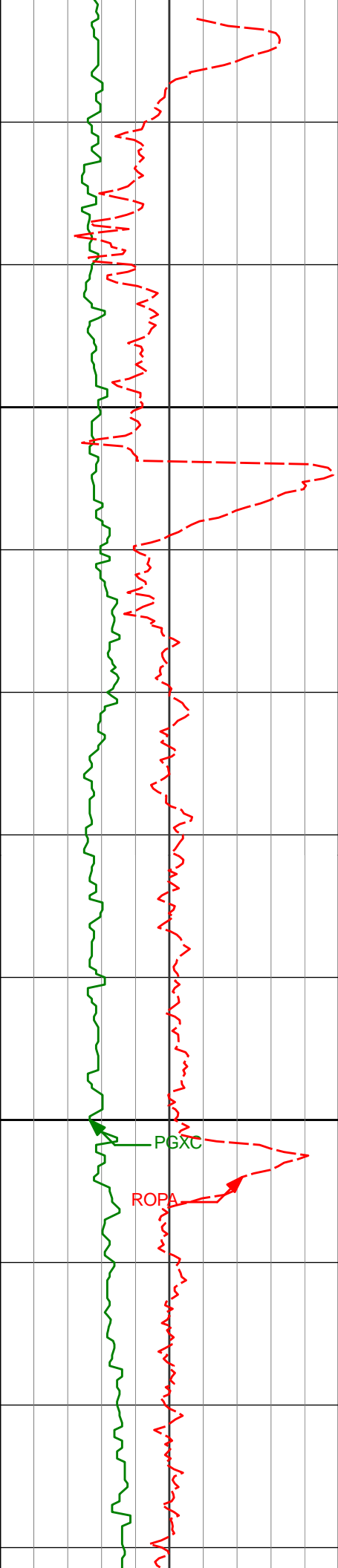
212.92°F

212.92°F

212.92°F

215.51°F





9900

10000

9845'

9938'

10032'

89.54°

90.80°

90.86°

88.89° 6425.43'

88.95° 6425.16'

88.71° 6423.80'

3245.66'

3338.65'

3432.63'

212.92°F

212.92°F

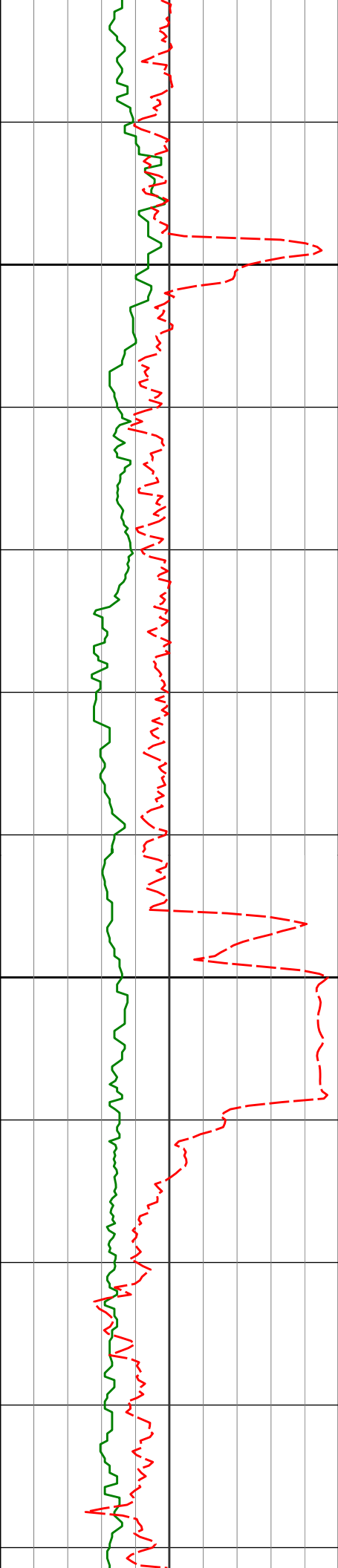
214.17°F

215.51°F

215.51°F

215.51°F

218.14°F



10100

10125'

91.88°

88.79° 6421.57'

3525.58'

10200

10217'

90.46°

88.18° 6419.69'

3617.54'

218.14°F

217.46°F

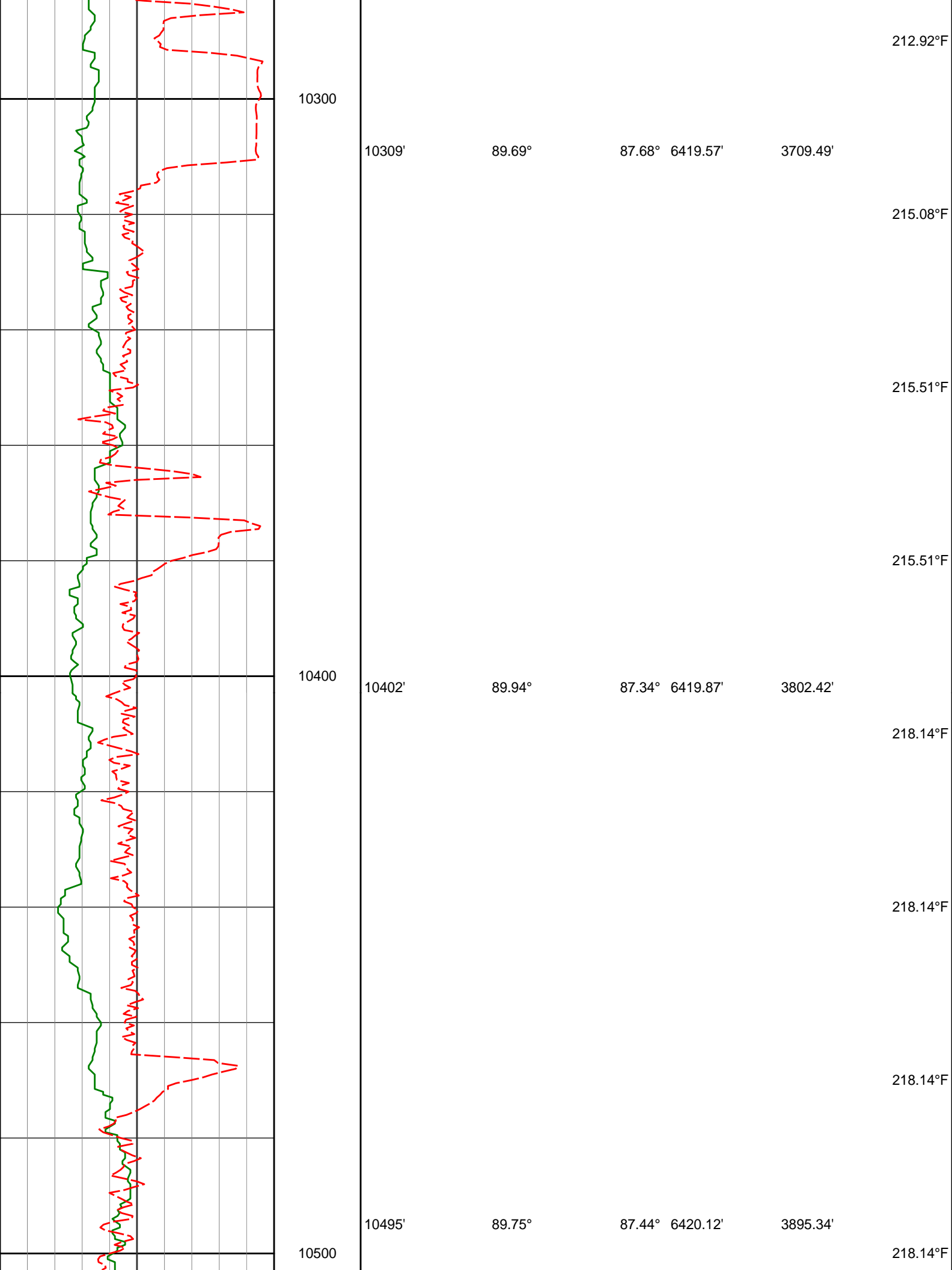
214.22°F

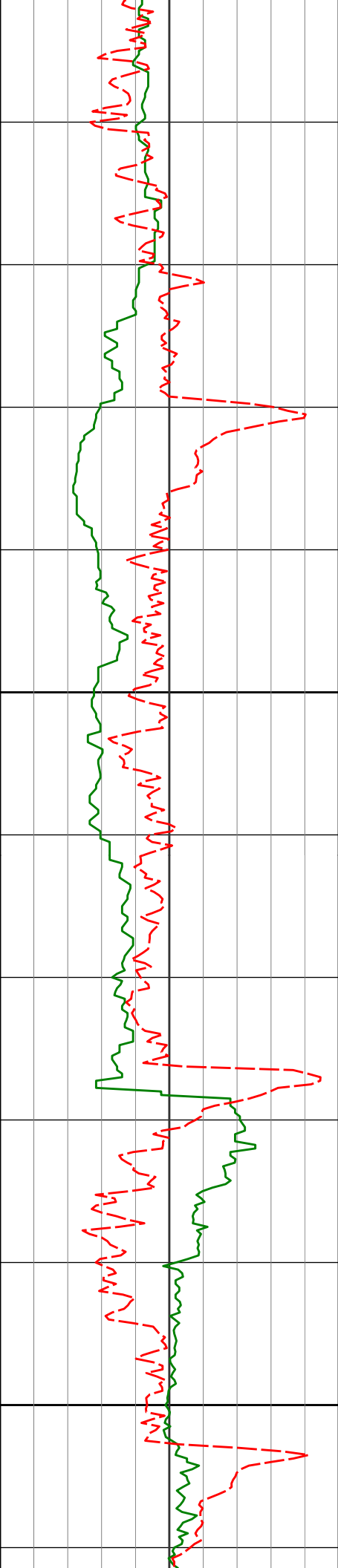
212.92°F

213.96°F

213.58°F

212.92°F





10600

10700

10588'

10681'

89.78°

91.36°

87.93° 6420.49'

88.88° 6419.57'

3988.28'

4081.25'

219.16°F

220.77°F

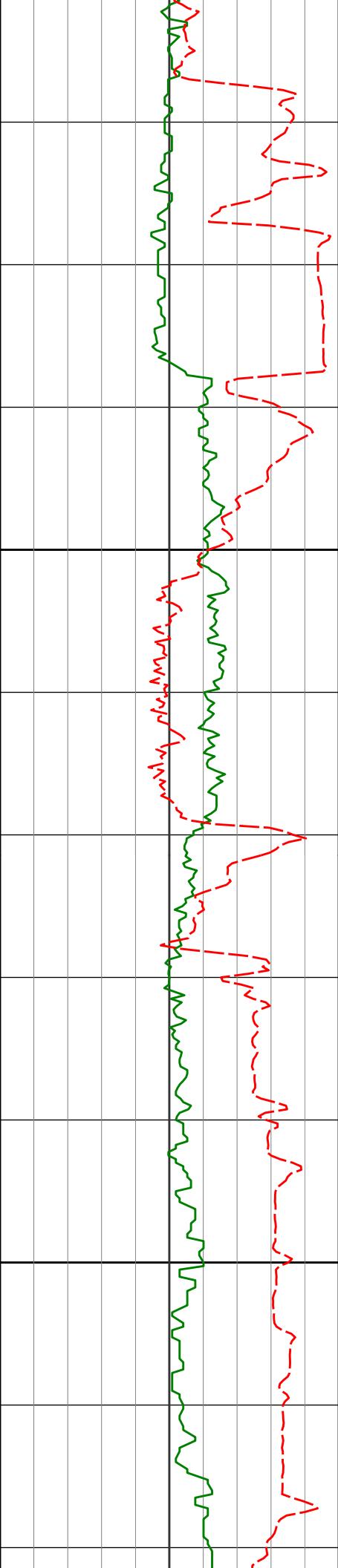
220.77°F

220.77°F

220.77°F

218.83°F

216.58°F



10800

10900

10773'

88.92°

87.75° 6419.35'

4173.21'

218.14°F

219.50°F

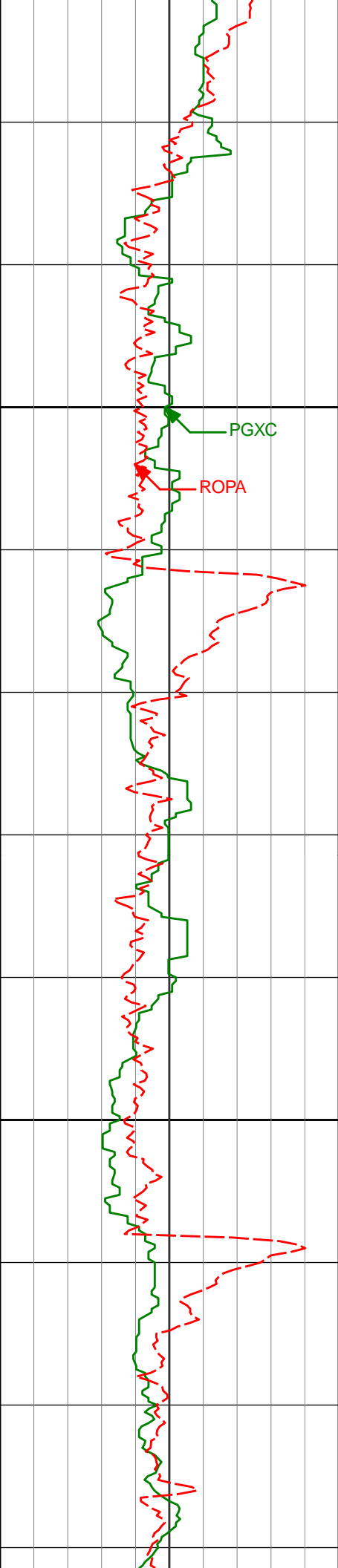
218.77°F

221.31°F

221.73°F

220.77°F

220.77°F



11000

11100

10959'

11052'

11144'

89.23°

88.77°

88.06°

87.65° 6422.35'

87.49° 6423.97'

87.63° 6426.52'

4359.07'

4451.99'

4543.89'

221.83°F

223.41°F

223.41°F

222.14°F

220.94°F

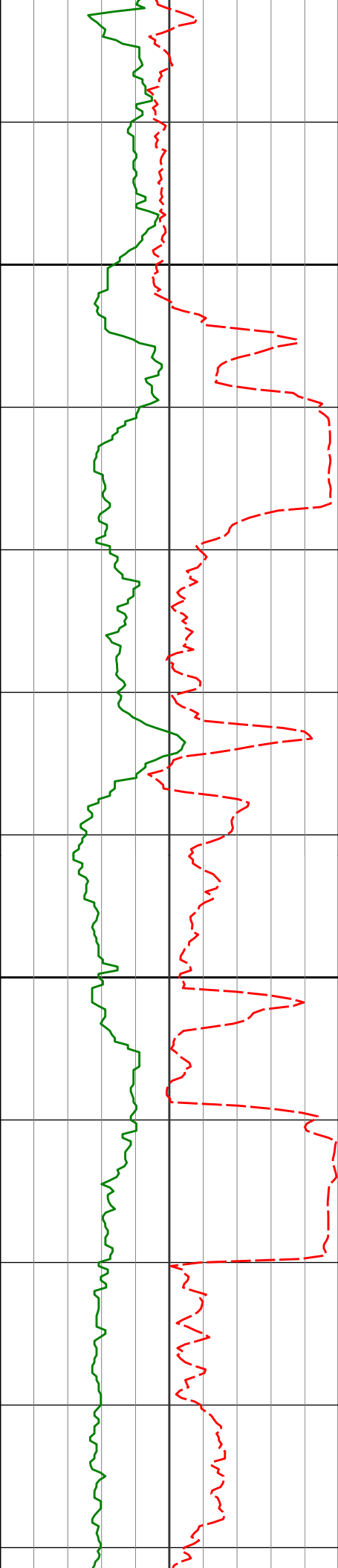
223.41°F

221.47°F

220.72°F

PGXC

ROPA



11200

11237'

88.77°

87.36° 6429.09'

4636.78'

11300

11329'

89.97°

87.76° 6430.11'

4728.70'

220.06°F

221.80°F

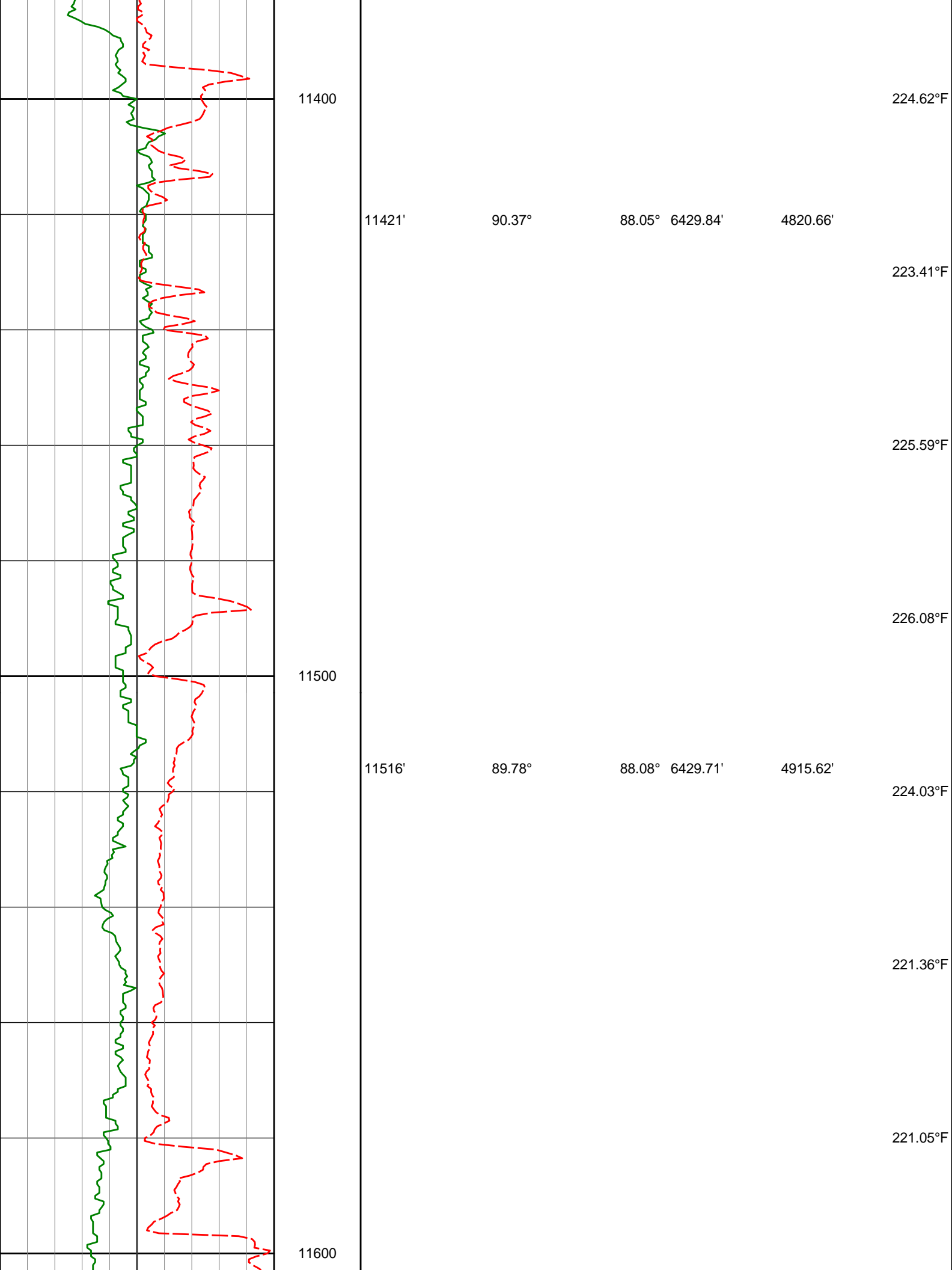
220.29°F

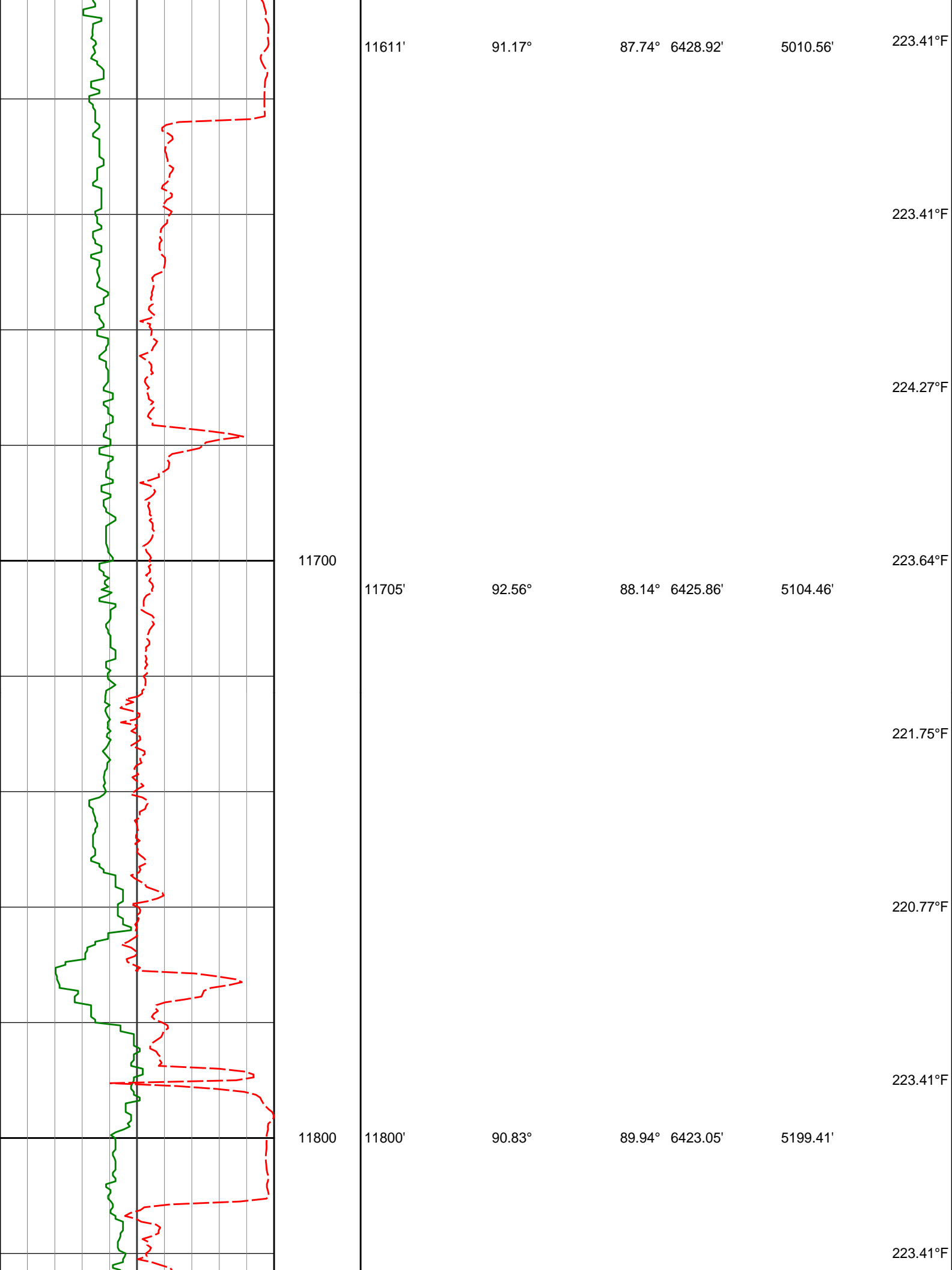
219.82°F

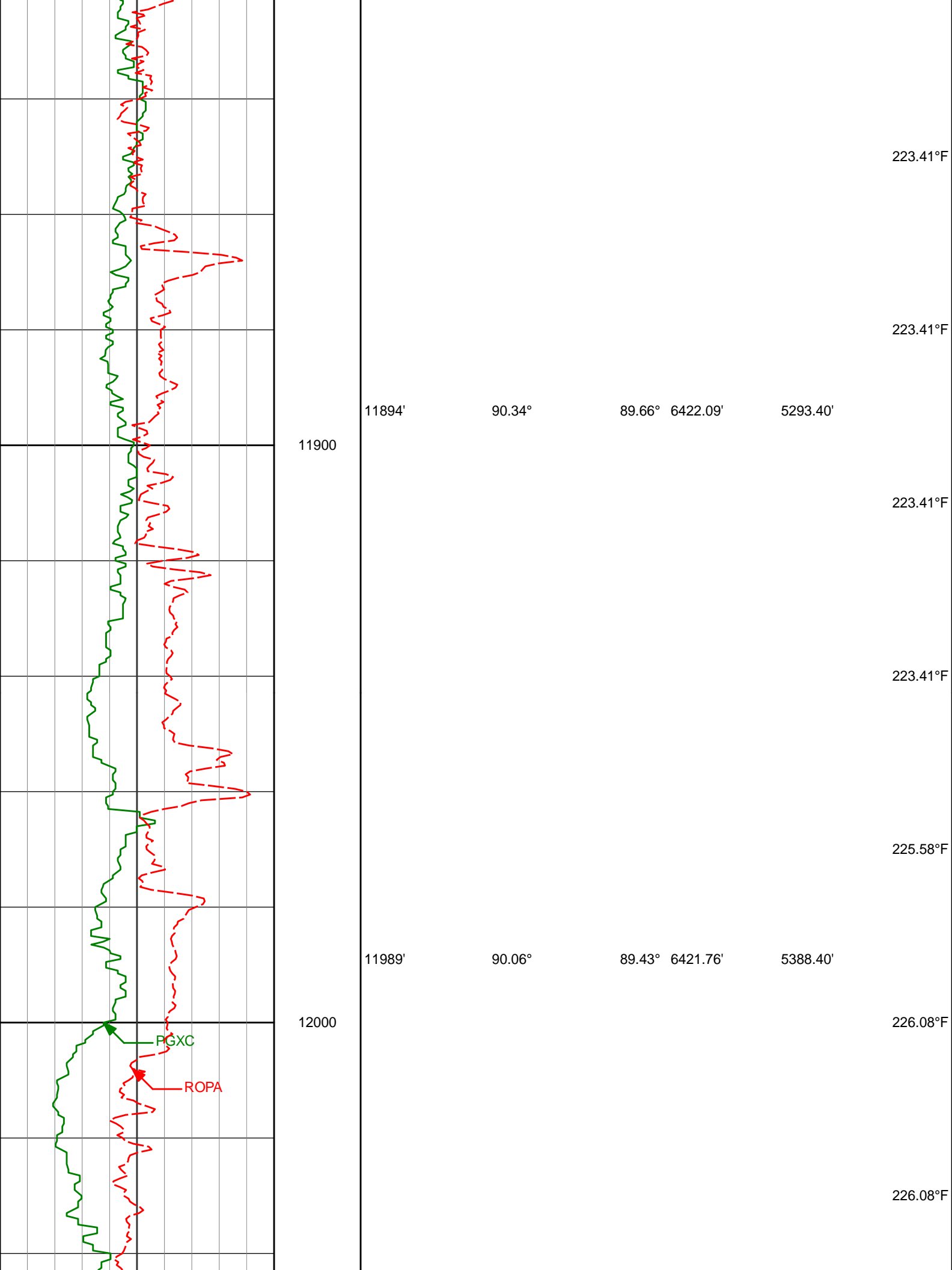
220.77°F

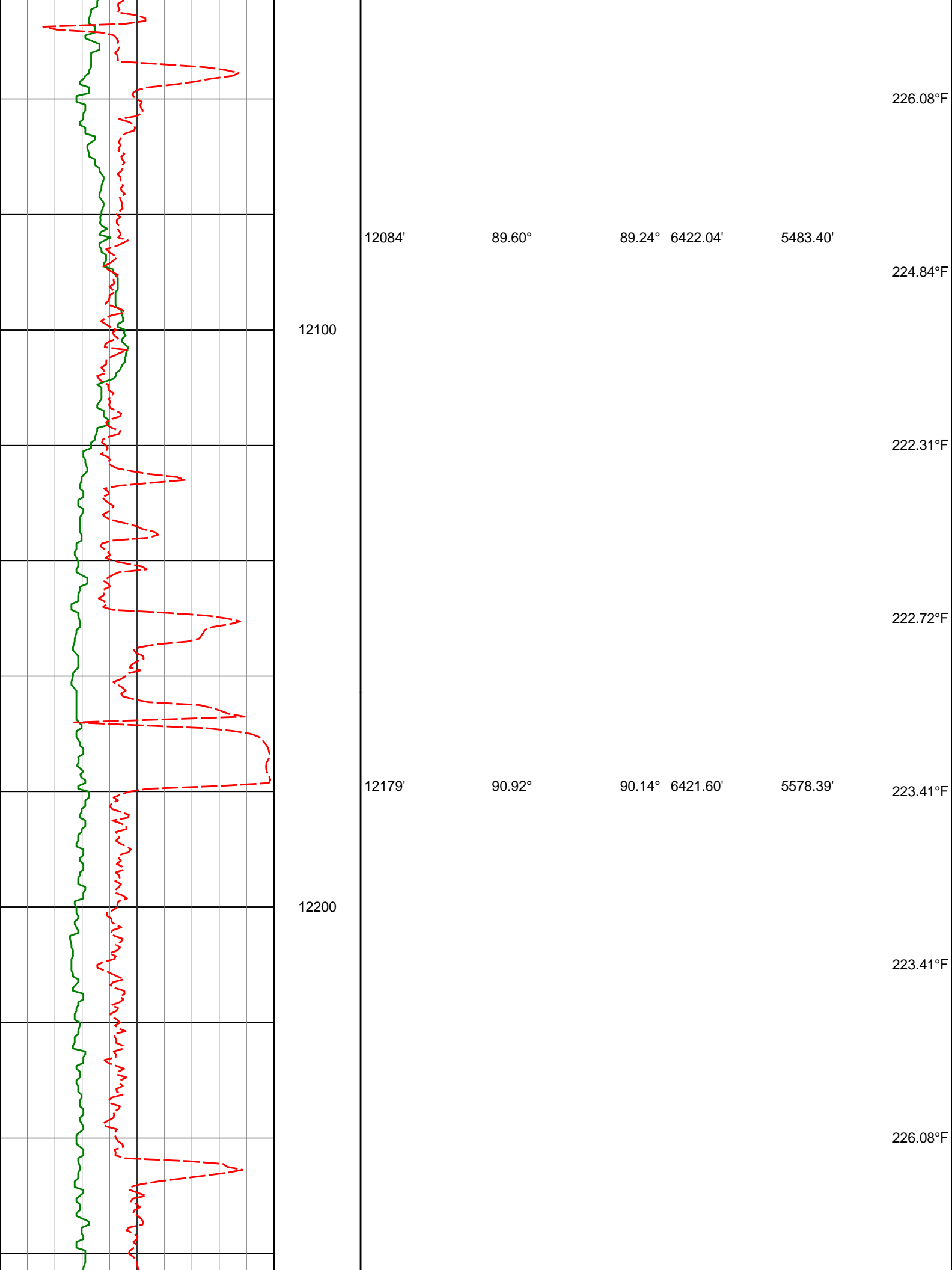
220.77°F

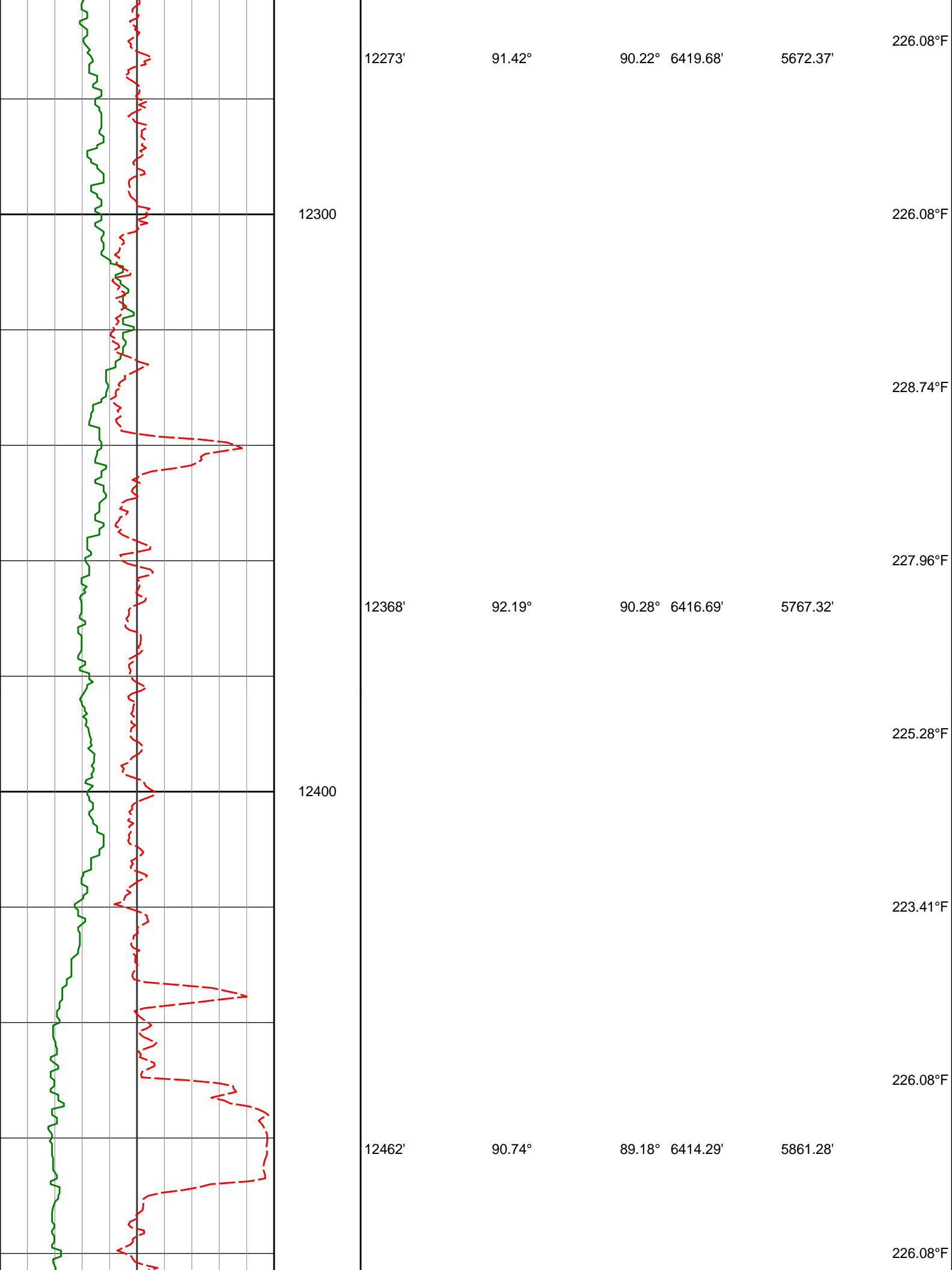
221.37°F

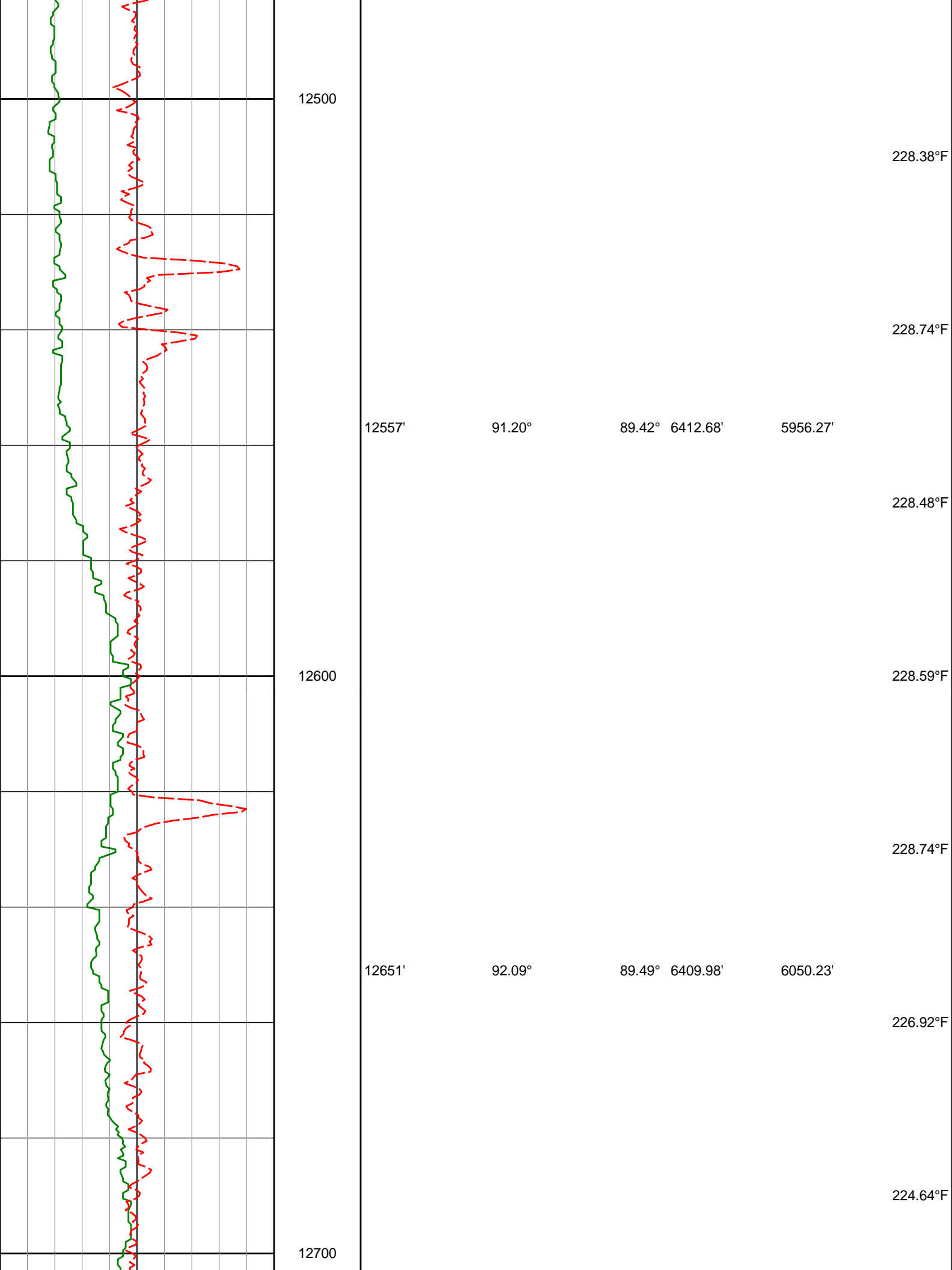


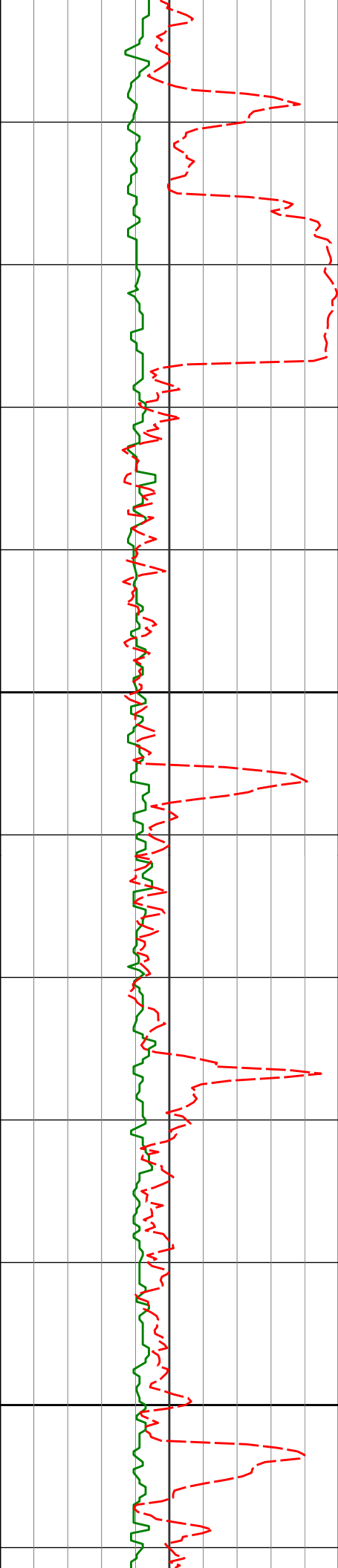












12746'

90.40°

89.17° 6407.91'

6145.20'

12800

12840'

90.52°

88.01° 6407.15'

6239.17'

12900

226.08°F

226.08°F

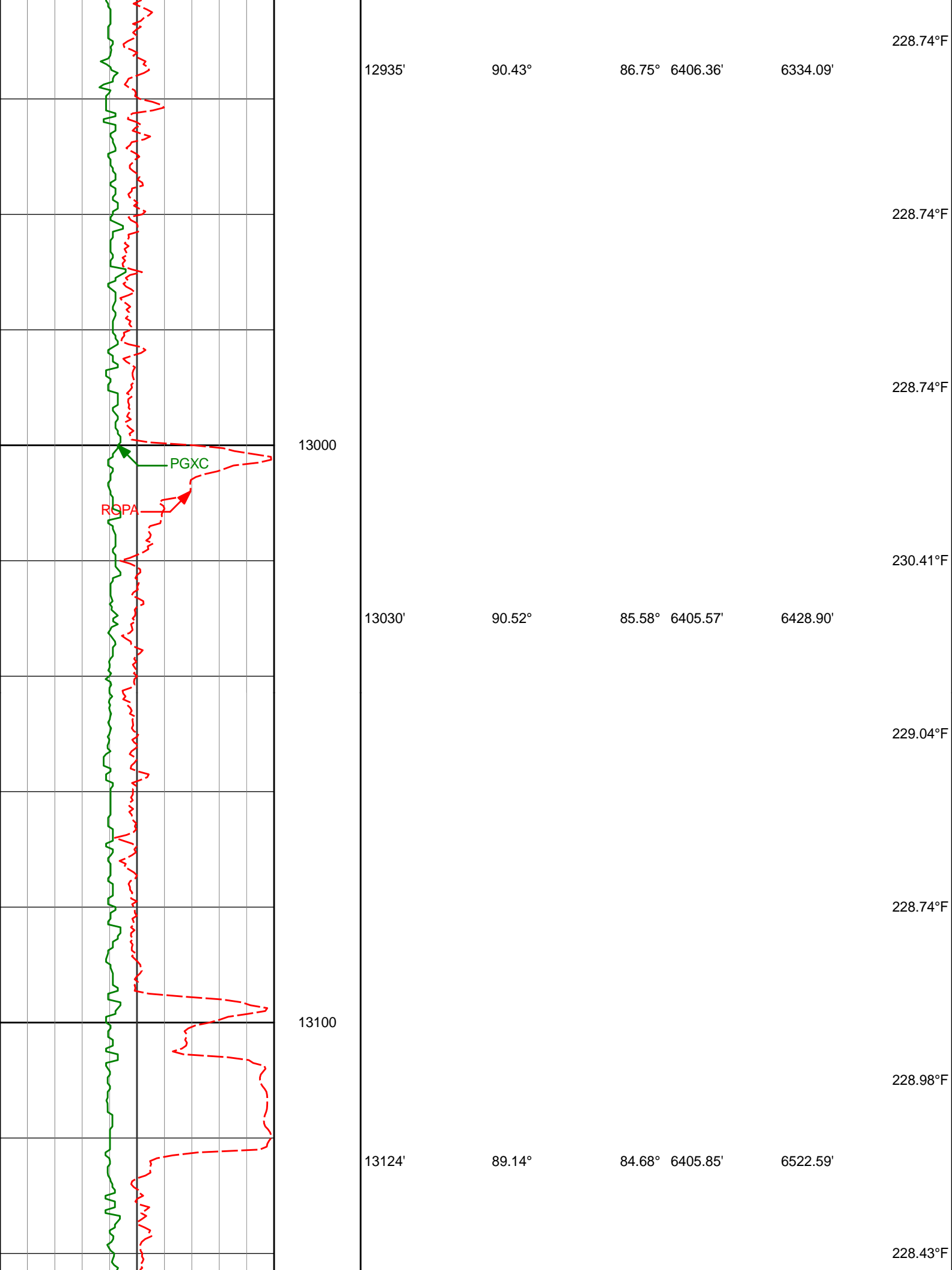
226.35°F

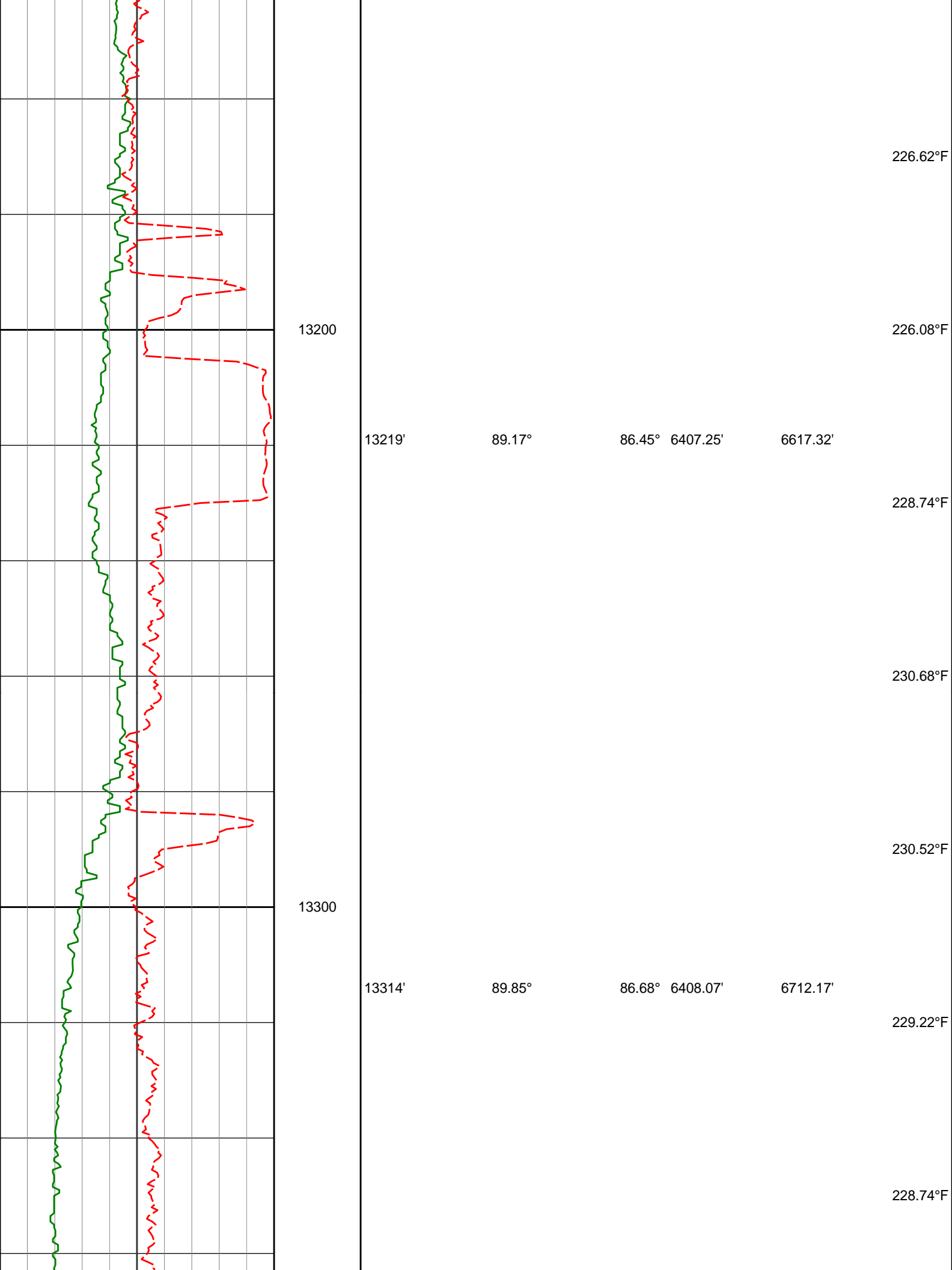
228.74°F

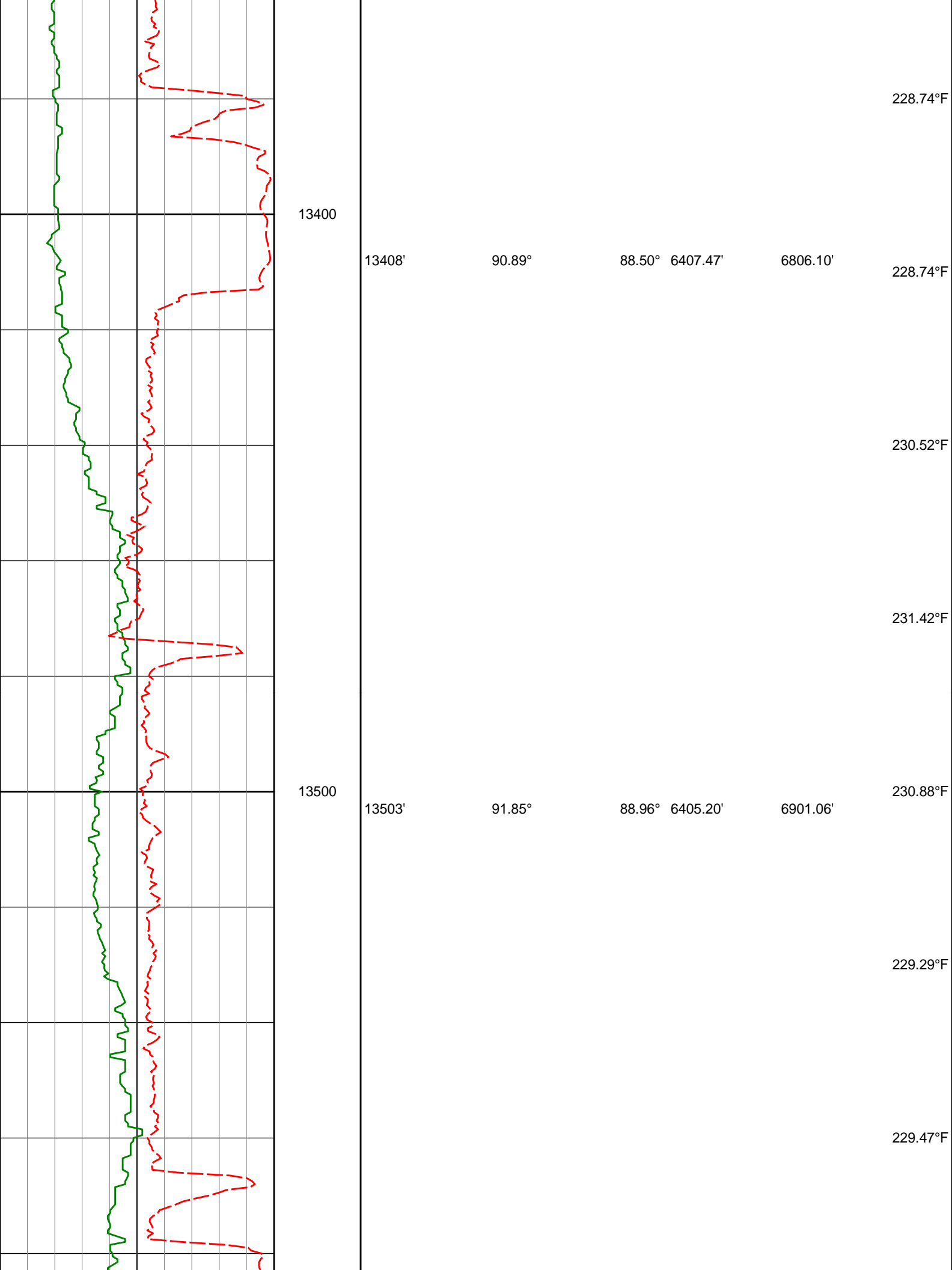
227.44°F

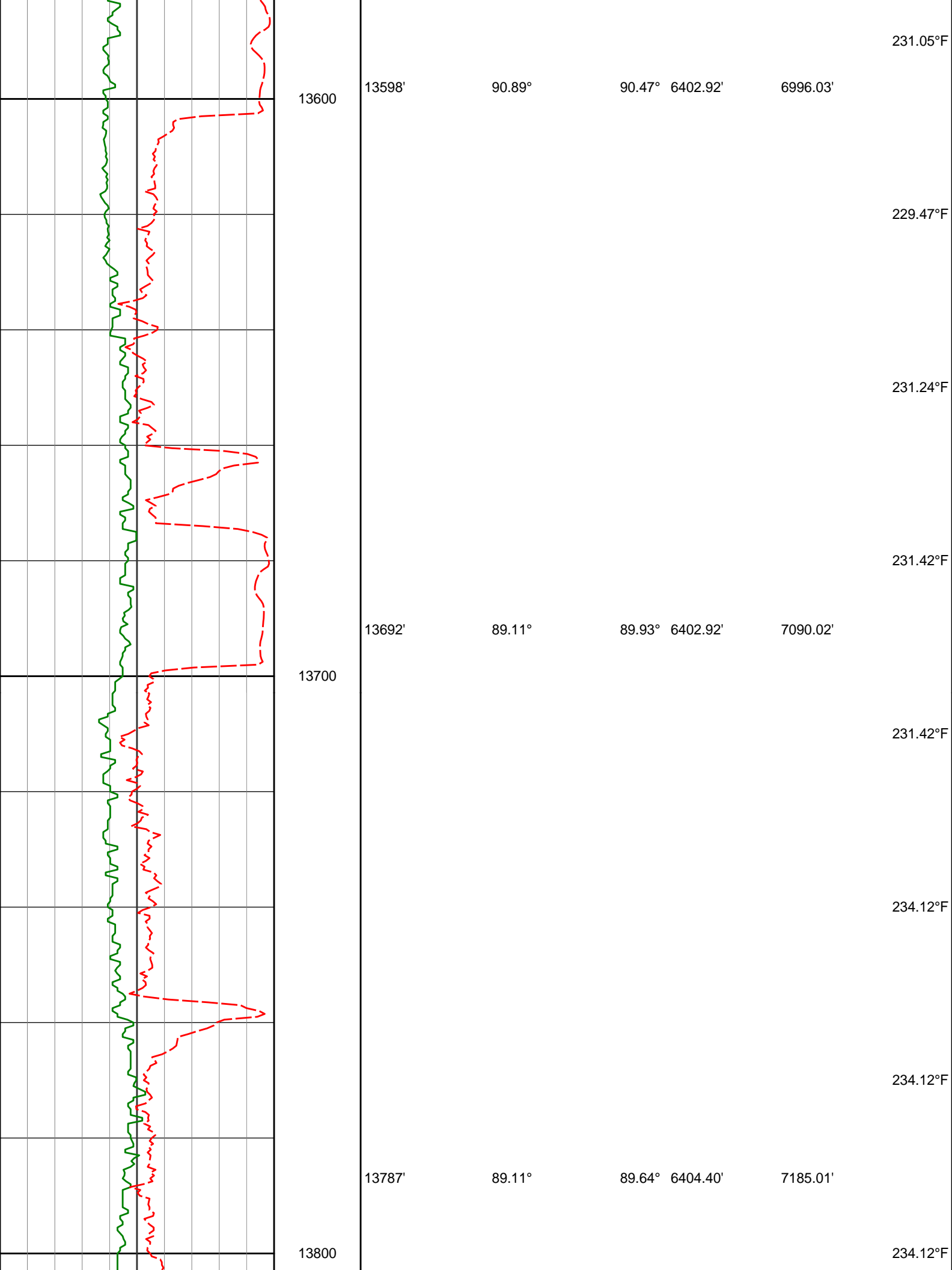
226.39°F

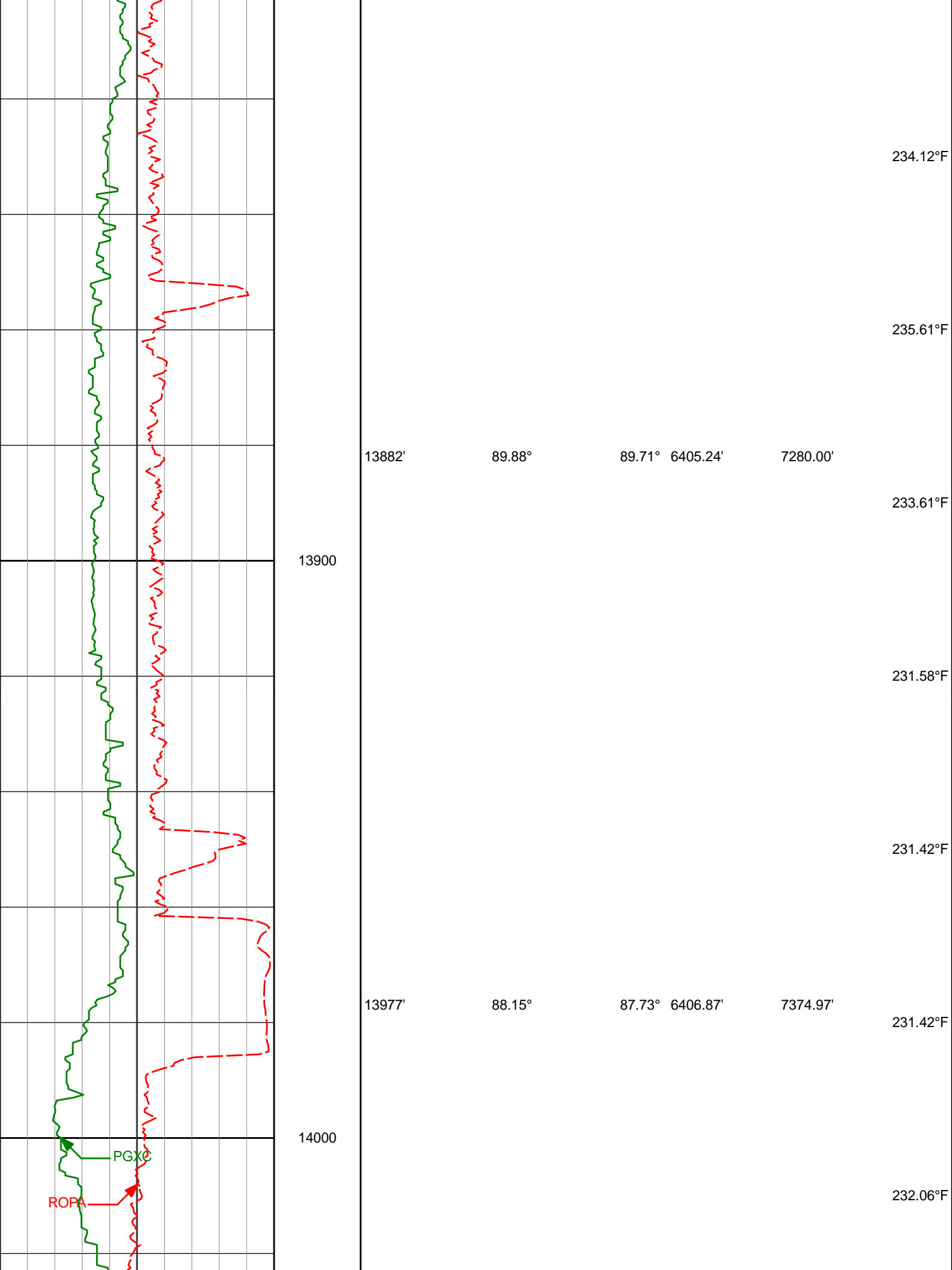
228.74°F

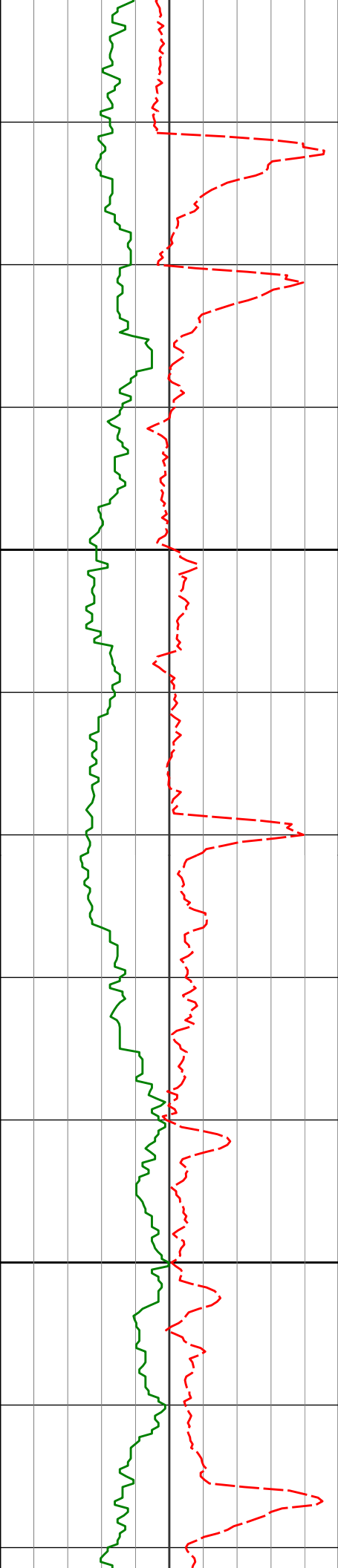












14100

14200

14072'

14166'

88.09°

88.24°

87.29° 6409.99'

87.00° 6413.00'

7469.84'

7563.70'

234.12°F

234.12°F

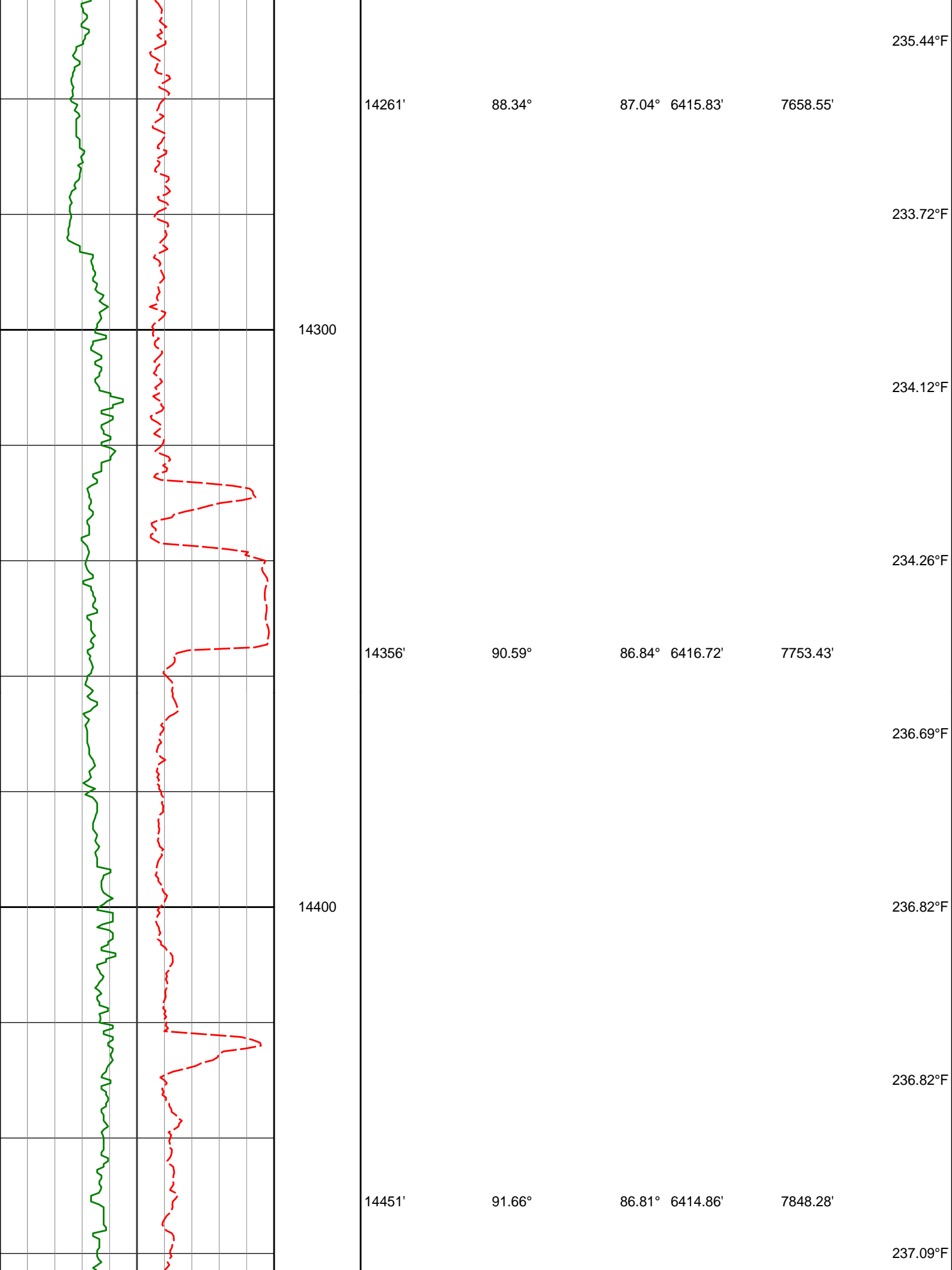
234.12°F

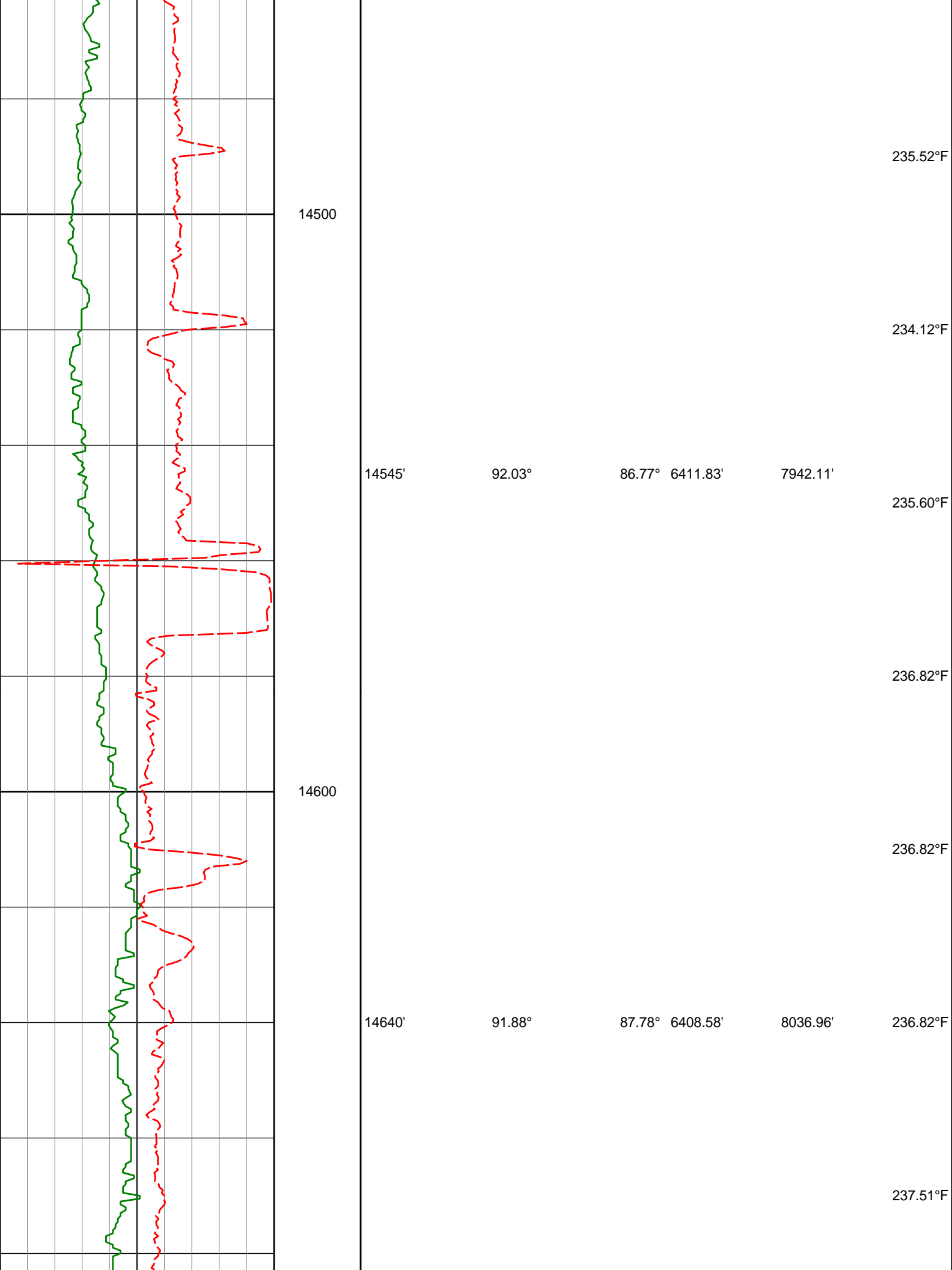
234.40°F

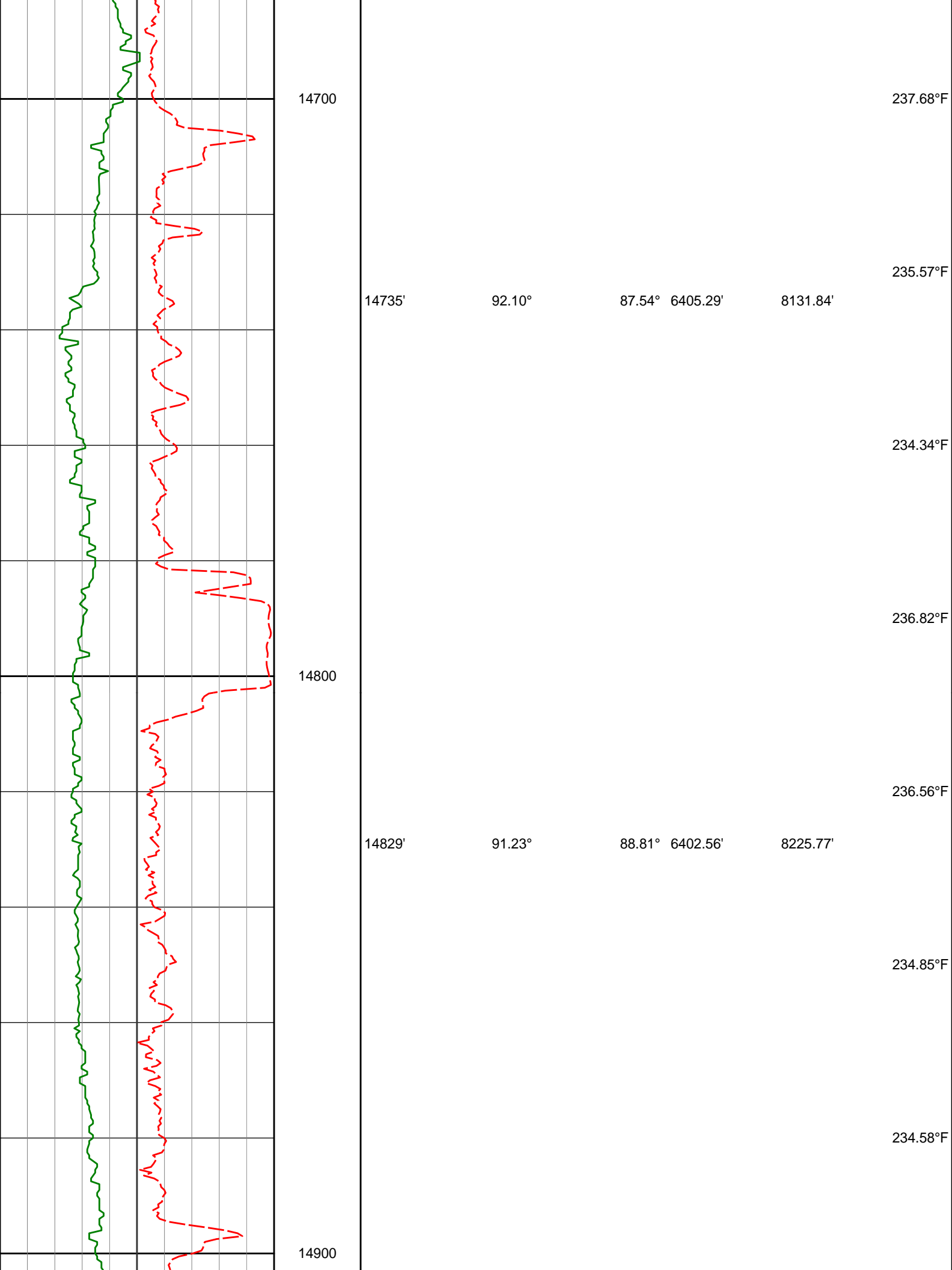
236.82°F

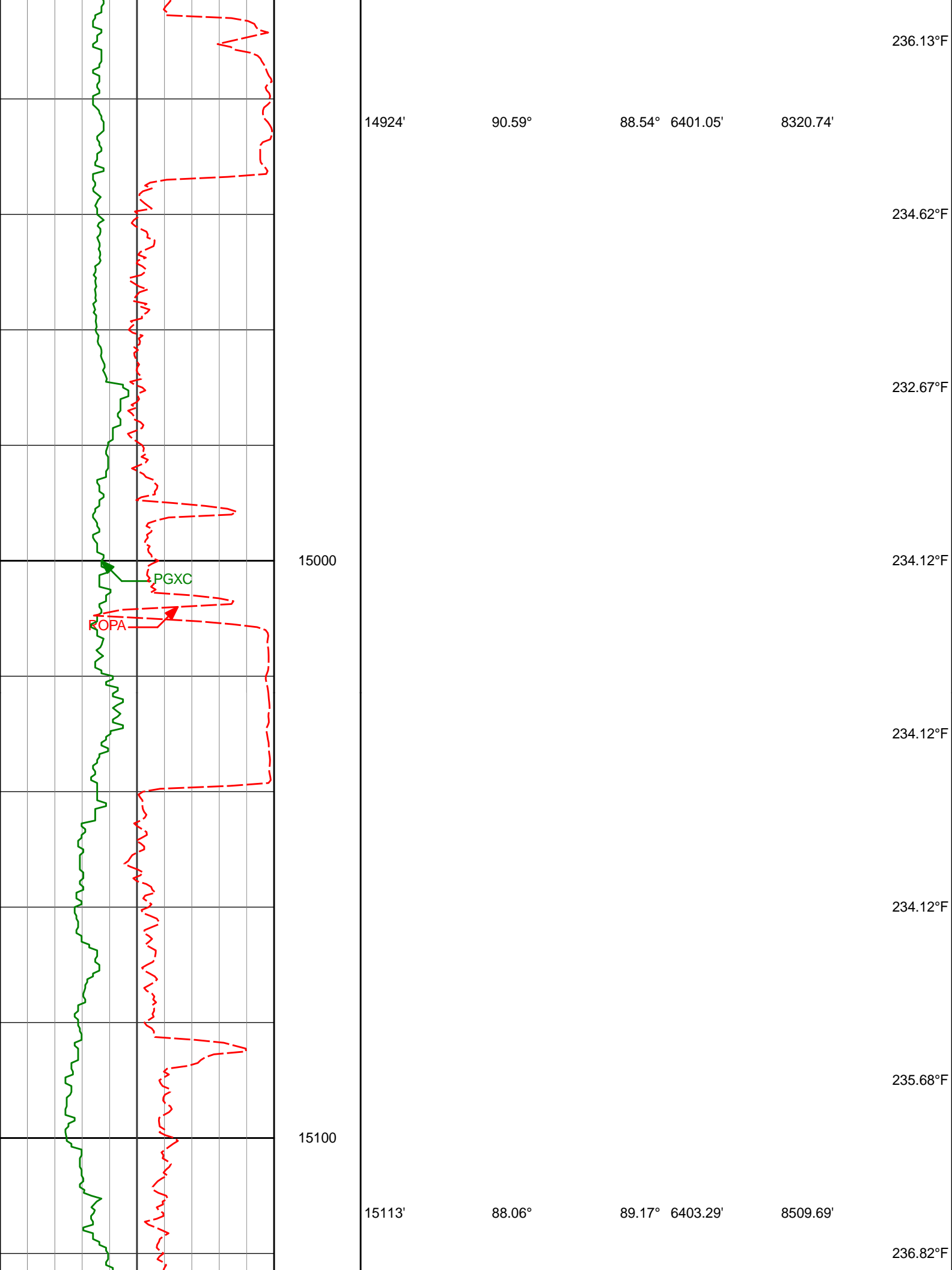
236.82°F

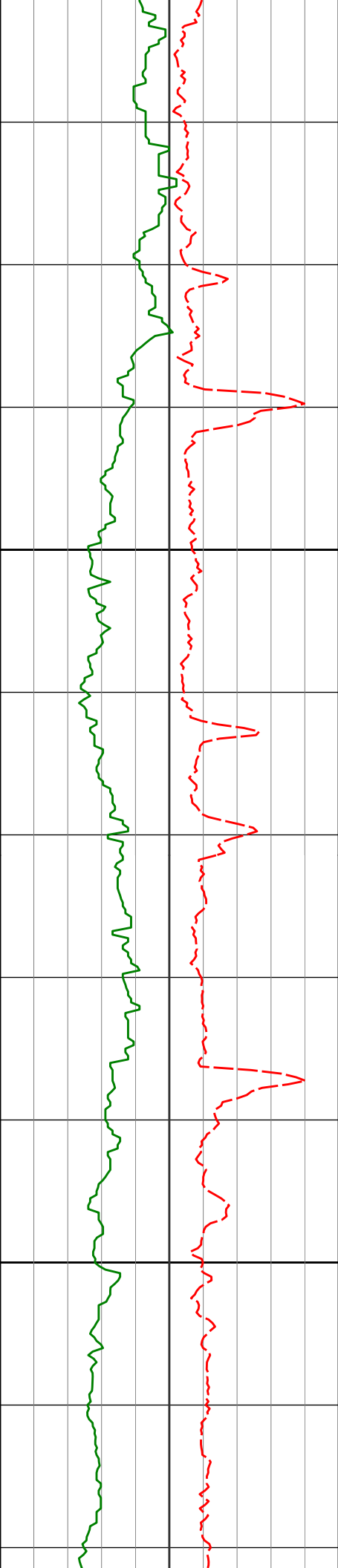
236.82°F











15200

15208'

88.15°

89.01° 6406.44'

8604.63'

238.49°F

236.82°F

237.85°F

237.94°F

239.54°F

15300

15303'

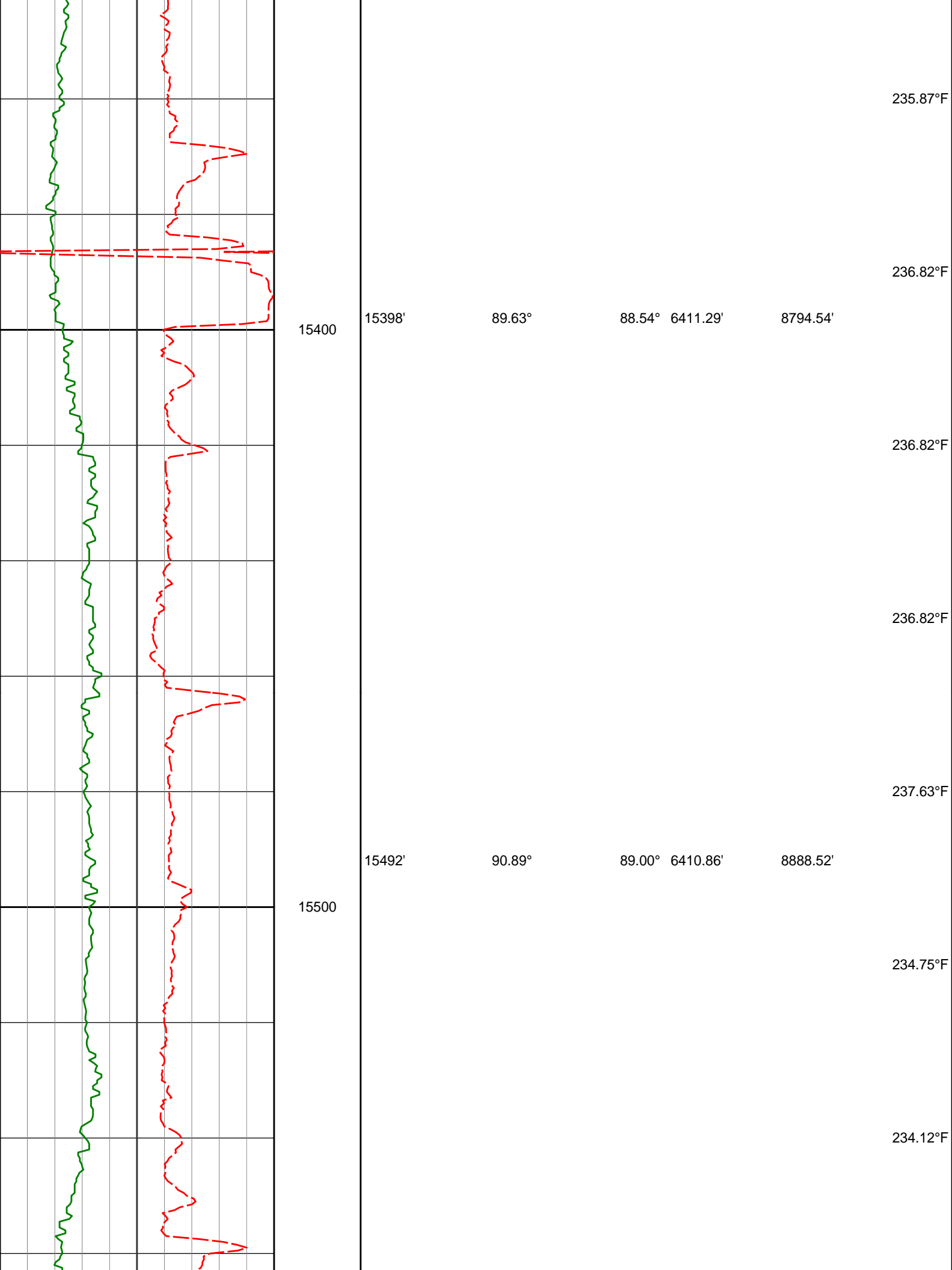
88.18°

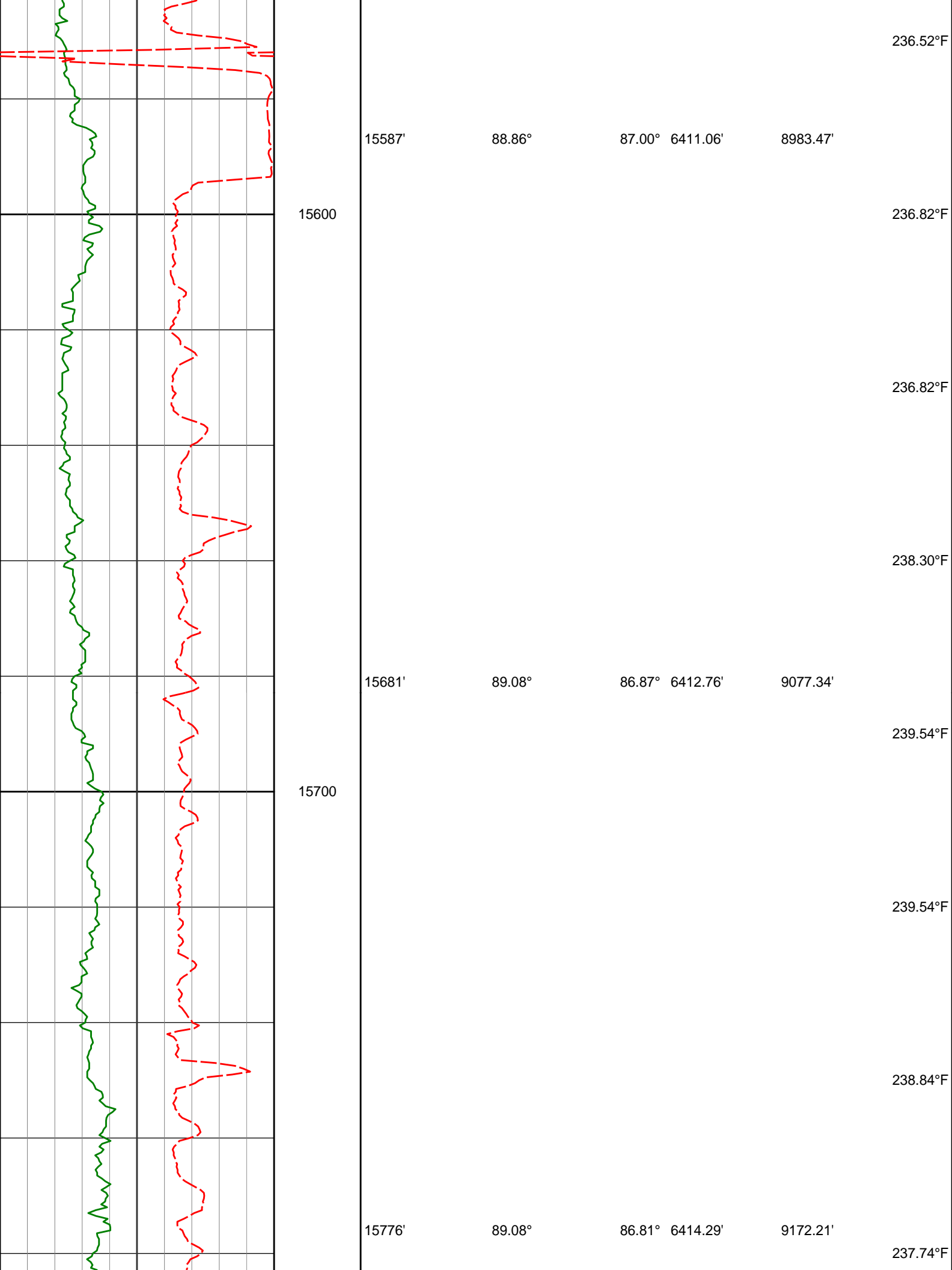
89.04° 6409.48'

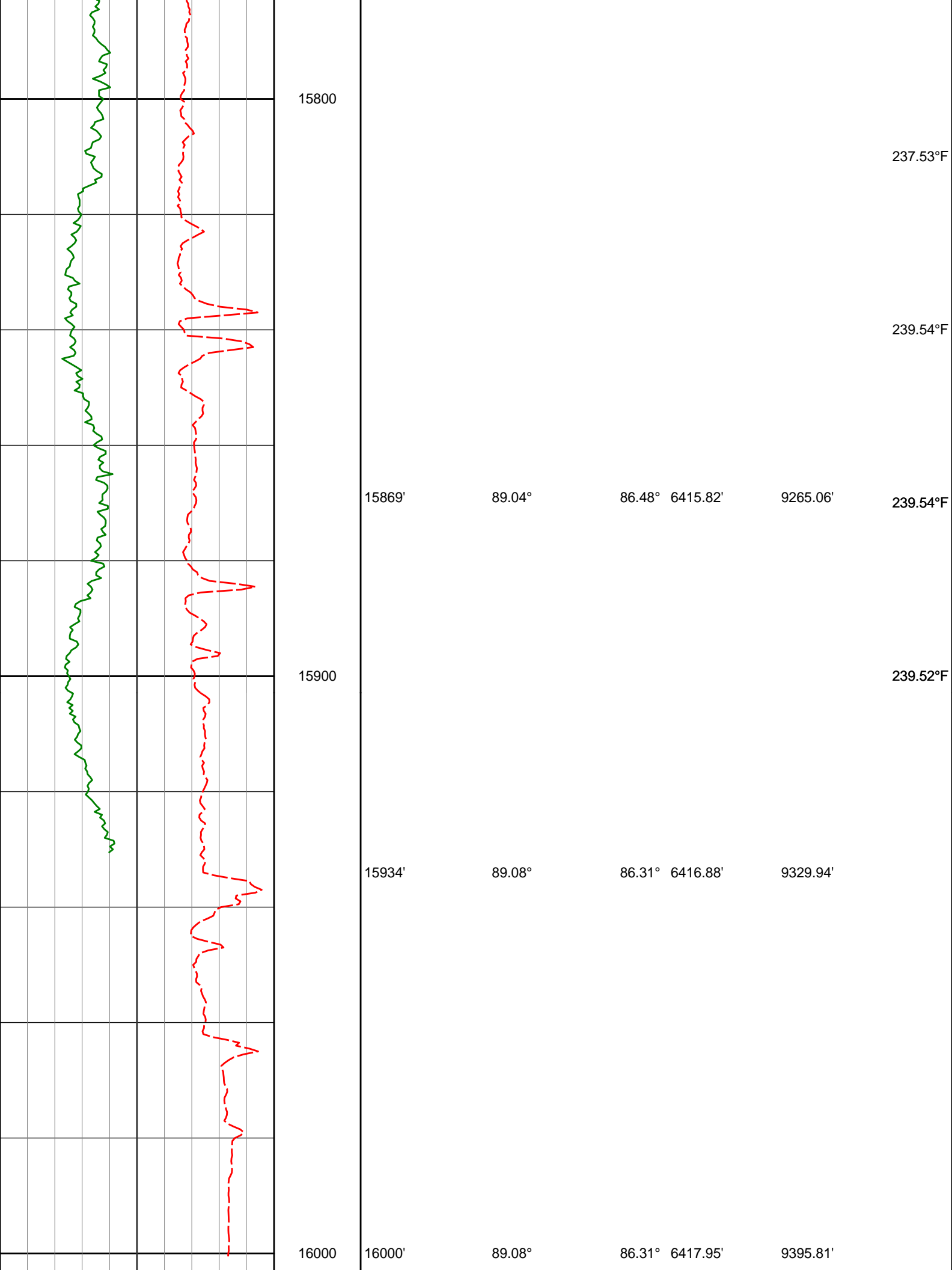
8699.57'

237.54°F

235.81°F







<div>TD well @ 16000' MD</div>					
<div> <div>1K</div> <div>ROP A</div> <div>feet per hr</div> <div>0</div> </div>		Depth	Inc	Azi	TVD
<div> <div>0</div> <div>PCG GR XHi-Range RT BCor</div> <div>PGXRC-T</div> <div>api</div> <div>300</div> </div>					

DIRECTIONAL SURVEY REPORT

Final survey projected to bit.

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
676.00	0.18	29.95	676.00	0.94 N	0.54 E	0.55	0.03
825.00	0.15	53.88	825.00	1.27 N	0.82 E	0.83	0.05
917.00	0.24	39.39	917.00	1.49 N	1.04 E	1.05	0.11
1010.00	0.46	43.77	1010.00	1.91 N	1.42 E	1.43	0.24
1104.00	0.51	60.36	1103.99	2.38 N	2.04 E	2.06	0.16
1209.00	0.61	68.70	1208.99	2.82 N	2.97 E	2.98	0.12
1303.00	0.63	62.93	1302.98	3.23 N	3.89 E	3.90	0.07
1396.00	0.66	61.04	1395.98	3.72 N	4.81 E	4.83	0.04
1488.00	0.75	82.92	1487.97	4.05 N	5.87 E	5.89	0.30
1580.00	0.69	83.72	1579.96	4.19 N	7.01 E	7.03	0.06
1673.00	0.61	80.80	1672.96	4.33 N	8.06 E	8.08	0.09
1766.00	0.46	111.46	1765.95	4.27 N	8.90 E	8.92	0.34
1859.00	1.55	228.08	1858.94	3.29 N	8.31 E	8.33	1.94
1951.00	2.89	227.11	1950.87	0.89 N	5.69 E	5.70	1.45
2044.00	5.12	228.33	2043.64	3.47 S	0.88 E	0.86	2.40
2136.00	6.60	232.21	2135.15	9.44 S	6.37 W	-6.41	1.67
2230.00	7.88	245.20	2228.41	15.45 S	16.49 W	-16.56	2.20
2323.00	9.65	246.95	2320.32	21.18 S	29.45 W	-29.55	1.93
2415.00	10.19	239.50	2410.95	28.33 S	43.56 W	-43.69	1.51
2508.00	10.32	239.09	2502.46	36.78 S	57.80 W	-57.96	0.16
2600.00	10.23	238.44	2592.99	45.29 S	71.83 W	-72.03	0.16
2692.00	10.00	237.99	2683.56	53.80 S	85.56 W	-85.80	0.26
2787.00	9.75	237.12	2777.15	62.54 S	99.31 W	-99.59	0.31
2881.00	9.34	235.91	2869.85	71.14 S	112.31 W	-112.63	0.49
2976.00	9.06	236.19	2963.63	79.62 S	124.91 W	-125.27	0.29
3071.00	8.52	235.42	3057.51	87.78 S	136.93 W	-137.32	0.58
3165.00	8.11	238.06	3150.52	95.24 S	148.29 W	-148.72	0.60
3260.00	8.79	240.86	3244.49	102.33 S	160.32 W	-160.78	0.84
3355.00	8.55	232.79	3338.40	110.13 S	172.29 W	-172.79	1.30
3450.00	8.13	226.62	3432.40	119.02 S	182.80 W	-183.33	1.04
3639.00	8.02	227.25	3619.53	137.14 S	202.19 W	-202.81	0.07
3734.00	8.33	227.66	3713.56	146.27 S	212.13 W	-212.80	0.33
3828.00	8.70	227.60	3806.53	155.65 S	222.42 W	-223.12	0.40
3923.00	8.63	227.73	3900.44	165.29 S	233.00 W	-233.75	0.08
4018.00	8.99	231.43	3994.32	174.71 S	244.07 W	-244.86	0.70
4112.00	8.46	232.36	4087.24	183.51 S	255.29 W	-256.12	0.58
4207.00	7.60	230.42	4181.30	191.78 S	265.66 W	-266.53	0.95

4302.00	7.81	227.35	4275.45	200.15 S	275.25 W	-276.16	0.49
4491.00	9.23	233.54	4462.36	217.87 S	296.89 W	-297.87	0.89
4586.00	8.05	233.02	4556.28	226.39 S	308.33 W	-309.35	1.25
4680.00	7.83	233.01	4649.38	234.20 S	318.70 W	-319.76	0.23
4775.00	7.18	237.33	4743.57	241.30 S	328.86 W	-329.95	0.90
4870.00	6.86	248.01	4837.86	246.63 S	339.12 W	-340.24	1.41
4964.00	6.61	249.89	4931.21	250.59 S	349.40 W	-350.54	0.35
5154.00	5.94	242.74	5120.07	258.85 S	368.41 W	-369.58	0.54
5343.00	3.90	218.10	5308.39	268.39 S	381.07 W	-382.29	1.53
5533.00	3.10	217.31	5498.03	277.55 S	388.17 W	-389.42	0.42
5627.00	1.79	219.51	5591.95	280.70 S	390.64 W	-391.91	1.40
5722.00	1.30	213.74	5686.91	282.74 S	392.18 W	-393.46	0.54
5911.00	4.34	108.64	5875.73	286.81 S	386.58 W	-387.88	2.56
6006.00	14.58	103.79	5969.31	290.82 S	371.52 W	-372.83	10.80
6101.00	22.98	98.55	6059.18	296.44 S	341.51 W	-342.85	9.01
6195.00	31.54	89.95	6142.69	299.15 S	298.68 W	-300.03	10.00
6290.00	46.47	90.30	6216.31	299.31 S	239.06 W	-240.41	15.72
6337.00	49.42	90.12	6247.79	299.44 S	204.16 W	-205.52	6.28
6385.00	53.07	90.09	6277.83	299.51 S	166.74 W	-168.10	7.60
6432.00	54.01	89.77	6305.76	299.46 S	128.94 W	-130.30	2.07
6479.00	55.10	90.46	6333.02	299.54 S	90.65 W	-92.01	2.61
6526.00	59.29	89.16	6358.48	299.40 S	51.16 W	-52.52	9.21
6574.00	62.66	88.65	6381.77	298.59 S	9.20 W	-10.56	7.10
6621.00	66.35	88.64	6401.99	297.59 S	33.20 E	31.85	7.84
6669.00	71.31	88.90	6419.32	296.63 S	77.94 E	76.59	10.35
6716.00	75.14	90.11	6432.88	296.24 S	122.93 E	121.58	8.51
6784.00	83.42	89.10	6445.52	295.78 S	189.68 E	188.34	12.27
6871.00	89.29	87.27	6451.05	293.03 S	276.42 E	275.09	7.06
6919.00	89.45	88.30	6451.58	291.18 S	324.38 E	323.06	2.16
7013.00	89.54	87.98	6452.41	288.13 S	418.33 E	417.01	0.35
7107.00	89.88	88.31	6452.89	285.10 S	512.28 E	510.98	0.51
7202.00	90.49	87.98	6452.58	282.03 S	607.23 E	605.94	0.74
7296.00	90.25	86.06	6451.98	277.14 S	701.09 E	699.83	2.06
7391.00	90.43	84.47	6451.41	269.30 S	795.76 E	794.53	1.69
7485.00	90.71	82.76	6450.48	258.84 S	889.17 E	887.99	1.84
7579.00	91.88	84.13	6448.35	248.12 S	982.53 E	981.39	1.91
7673.00	92.50	85.78	6444.77	239.86 S	1076.09 E	1074.99	1.88
7767.00	91.48	86.67	6441.51	233.68 S	1169.83 E	1168.76	1.44
7861.00	89.01	87.42	6441.10	228.83 S	1263.70 E	1262.65	2.74
7956.00	88.95	87.30	6442.79	224.45 S	1358.58 E	1357.55	0.14
8050.00	88.98	87.03	6444.48	219.80 S	1452.45 E	1451.44	0.29
8145.00	89.88	87.86	6445.43	215.57 S	1547.35 E	1546.36	1.28
8333.00	91.14	87.81	6443.76	208.48 S	1735.20 E	1734.24	0.67
8427.00	91.14	87.47	6441.89	204.62 S	1829.11 E	1828.16	0.36
8521.00	90.65	87.51	6440.42	200.50 S	1923.00 E	1922.08	0.53
8616.00	91.11	88.79	6438.97	197.44 S	2017.94 E	2017.03	1.44
8710.00	91.05	89.24	6437.20	195.83 S	2111.91 E	2111.00	0.48
8803.00	91.11	89.07	6435.45	194.45 S	2204.88 E	2203.98	0.20
8898.00	90.92	89.18	6433.76	193.00 S	2299.86 E	2298.96	0.23
8993.00	90.65	88.73	6432.46	191.27 S	2394.83 E	2393.94	0.56
9088.00	90.71	89.25	6431.33	189.60 S	2489.81 E	2488.93	0.55
9182.00	90.59	89.01	6430.27	188.18 S	2583.79 E	2582.91	0.29
9277.00	90.74	89.59	6429.18	187.02 S	2678.78 E	2677.90	0.63
9372.00	90.37	87.78	6428.25	184.84 S	2773.75 E	2772.88	1.95
9467.00	90.52	87.26	6427.51	180.72 S	2868.65 E	2867.81	0.57
9561.00	90.49	87.85	6426.68	176.71 S	2962.56 E	2961.73	0.63
9656.00	90.25	87.89	6426.07	173.17 S	3057.50 E	3056.68	0.26
9750.00	90.49	90.04	6425.46	171.47 S	3151.47 E	3150.66	2.31
9845.00	89.54	88.89	6425.43	170.59 S	3246.47 E	3245.66	1.57
9938.00	90.80	88.95	6425.16	168.84 S	3339.45 E	3338.65	1.36
10032.00	90.86	88.71	6423.80	166.92 S	3433.42 E	3432.63	0.27
10125.00	91.88	88.79	6421.57	164.90 S	3526.37 E	3525.58	1.10
10217.00	90.46	88.18	6419.69	162.47 S	3618.32 E	3617.54	1.68
10309.00	89.69	87.68	6419.57	159.15 S	3710.25 E	3709.49	1.00
10402.00	89.94	87.34	6419.87	155.11 S	3803.17 E	3802.42	0.46
10495.00	89.75	87.44	6420.12	150.87 S	3896.07 E	3895.34	0.23
10588.00	89.78	87.93	6420.49	147.12 S	3988.99 E	3988.28	0.52
10681.00	91.36	88.88	6419.57	144.52 S	4081.95 E	4081.25	1.97
10773.00	88.92	87.75	6419.35	141.82 S	4173.90 E	4173.21	2.91
10959.00	89.23	87.65	6422.35	134.35 S	4359.72 E	4359.07	0.17
11052.00	88.77	87.49	6423.97	130.41 S	4452.63 E	4451.99	0.52
11144.00	88.06	87.63	6426.52	126.49 S	4544.51 E	4543.89	0.78
11237.00	88.77	87.36	6429.09	122.43 S	4637.38 E	4636.78	0.81
11329.00	89.97	87.76	6430.11	118.51 S	4729.29 E	4728.70	1.38
11421.00	90.27	88.05	6429.84	115.15 S	4821.22 E	4820.66	0.54

11421.00	90.37	88.03	6429.84	113.13 S	4821.23 E	4820.86	0.34
11516.00	89.78	88.08	6429.71	111.95 S	4916.17 E	4915.62	0.62
11611.00	91.17	87.74	6428.92	108.49 S	5011.11 E	5010.56	1.50
11705.00	92.56	88.14	6425.86	105.11 S	5104.99 E	5104.46	1.54
11800.00	90.83	89.94	6423.05	103.52 S	5199.93 E	5199.41	2.62
11894.00	90.34	89.66	6422.09	103.19 S	5293.92 E	5293.40	0.60
11989.00	90.06	89.43	6421.76	102.44 S	5388.92 E	5388.40	0.38
12084.00	89.60	89.24	6422.04	101.33 S	5483.91 E	5483.40	0.52
12179.00	90.92	90.14	6421.60	100.82 S	5578.91 E	5578.39	1.68
12273.00	91.42	90.22	6419.68	101.11 S	5672.89 E	5672.37	0.53
12368.00	92.19	90.28	6416.69	101.53 S	5767.84 E	5767.32	0.81
12462.00	90.74	89.18	6414.29	101.09 S	5861.80 E	5861.28	1.94
12557.00	91.20	89.42	6412.68	99.93 S	5956.78 E	5956.27	0.55
12651.00	92.09	89.49	6409.98	99.04 S	6050.74 E	6050.23	0.95
12746.00	90.40	89.17	6407.91	97.93 S	6145.71 E	6145.20	1.82
12840.00	90.52	88.01	6407.15	95.62 S	6239.67 E	6239.17	1.24
12935.00	90.43	86.75	6406.36	91.28 S	6334.57 E	6334.09	1.33
13030.00	90.52	85.58	6405.57	84.92 S	6429.35 E	6428.90	1.23
13124.00	89.14	84.68	6405.85	76.94 S	6523.01 E	6522.59	1.76
13219.00	89.17	86.45	6407.25	69.59 S	6617.71 E	6617.32	1.86
13314.00	89.85	86.68	6408.07	63.90 S	6712.53 E	6712.17	0.76
13408.00	90.89	88.50	6407.47	59.95 S	6806.44 E	6806.10	2.23
13503.00	91.85	88.96	6405.20	57.85 S	6901.39 E	6901.06	1.12
13598.00	90.89	90.47	6402.92	57.38 S	6996.36 E	6996.03	1.88
13692.00	89.11	89.93	6402.92	57.70 S	7090.35 E	7090.02	1.99
13787.00	89.11	89.64	6404.40	57.35 S	7185.34 E	7185.01	0.31
13882.00	89.88	89.71	6405.24	56.81 S	7280.34 E	7280.00	0.81
13977.00	88.15	87.73	6406.87	54.69 S	7375.29 E	7374.97	2.77
14072.00	88.09	87.29	6409.99	50.56 S	7470.15 E	7469.84	0.46
14166.00	88.24	87.00	6413.00	45.89 S	7563.98 E	7563.70	0.35
14261.00	88.34	87.04	6415.83	40.95 S	7658.81 E	7658.55	0.11
14356.00	90.59	86.84	6416.72	35.88 S	7753.67 E	7753.43	2.38
14451.00	91.66	86.81	6414.86	30.62 S	7848.50 E	7848.28	1.13
14545.00	92.03	86.77	6411.83	25.36 S	7942.31 E	7942.11	0.40
14640.00	91.88	87.78	6408.58	20.85 S	8037.14 E	8036.96	1.08
14735.00	92.10	87.54	6405.29	16.97 S	8132.01 E	8131.84	0.34
14829.00	91.23	88.81	6402.56	13.98 S	8225.92 E	8225.77	1.64
14924.00	90.59	88.54	6401.05	11.78 S	8320.88 E	8320.74	0.74
15113.00	88.06	89.17	6403.29	8.00 S	8509.81 E	8509.69	1.38
15208.00	88.15	89.01	6406.44	6.49 S	8604.75 E	8604.63	0.19
15303.00	88.18	89.04	6409.48	4.87 S	8699.68 E	8699.57	0.04
15398.00	89.63	88.54	6411.29	2.86 S	8794.64 E	8794.54	1.61
15492.00	90.89	89.00	6410.86	0.85 S	8888.62 E	8888.52	1.43
15587.00	88.86	87.00	6411.06	2.47 N	8983.55 E	8983.47	3.00
15681.00	89.08	86.87	6412.76	7.49 N	9077.40 E	9077.34	0.27
15776.00	89.08	86.81	6414.29	12.73 N	9172.24 E	9172.21	0.07
15869.00	89.04	86.48	6415.82	18.18 N	9265.07 E	9265.06	0.36
15934.00	89.08	86.31	6416.88	22.26 N	9329.93 E	9329.94	0.26
16000.00	89.08	86.31	6417.95	26.51 N	9395.79 E	9395.81	0.01

CALCULATION BASED ON MINIMUM CURVATURE METHOD

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

**VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 89.74 DEGREES (GRID)
A TOTAL CORRECTION OF 7.57 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 16000.00 FEET
IS 9395.83 FEET ALONG 89.84 DEGREES (GRID)**