



WELL INFORMATION					
MWD Run Number	100				
Date run completed	11-Apr-15				
Rig Bit Number	2				
Bit Size (in)	8.750				
Tool Nominal OD (in)	6.750				
Log Start Depth (MD, ft)	682.00				
Log End Depth (MD, ft)	6,490.00				
Drill or Wipe	Drill				
Drill/Wipe Start Date and Time	09-Apr-15 23:18				
Drill/Wipe End Date and Time	11-Apr-15 07:40				
Min Inc (deg) @ Depth (MD, ft)	0.11 @ 731.00				
Max Inc (deg) @ Depth (MD, ft)	84.42 @ 6,433.00				
Bit TFA(in2) / Bit Type	1.53 / PDC				
Flow Rate (gpm)	585.76				
Max AV (fpm) / CV (fpm) @ MWD	504.4 / 400.0				
Fluid Type	Native/Spud Mud				
Density (ppg) / Viscosity (spqt)	9.60 / 32.00				
Filtrate CL (ppm)	1,300.00				
pH / Fluid Loss (mptm)	10.20 / 20				
PV (cP) / YP (lhf2)	3 / 3.00				
% Solids / % Sand	1.50 / 0.05				
% Oil / Oil:Water Ratio	N/A / N/A				
Rm @ Measured Temp (degF)	N/A @ N/A				
Rmf @ Measured Temp (degF)	N/A @ N/A				
Rmc @ Measured Temp (degF)	N/A @ N/A				
Max Tool Temp (degF) @ Depth (MD, ft)	168.00 / 682.00				

Max Tool Temp (degF) / Source	162.80 / PCM				
Rm @ Max Tool Temp (degF)	N/A @ N/A				
Lead MWD Engineer	Robert Barnes				
Customer Representative	Jeremy Stolz				

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM				
Software Version	5.93				
Sub Serial Number	11342274				
Insert Serial Number	10997267				
Date and Time Initialized	08-Apr-15 20:45				
Date and Time Read	11-Apr-15 13:11				
ECMB SW Version	N/A				

Directional Sensor Information

Tool Type	PCDC				
Distance From Bit (ft)	57.00				
Software Version	6.21				
Sub Serial Number	11342274				
Sonde Serial Number	11638501				
Sensor ID Number	N/A				
Toolface Offset (deg)	35.90				

Gamma Ray Sensor Information

Tool Type	PCG				
Distance From Bit (ft)	49.87				
Recorded Sample Period (sec)	10				
Software Version	8.15				
Sub Serial Number	11342274				
Insert/Sonde Serial Number	11681051				

REMARKS

1. All depths are calibrated to driller's pipe tally and are true vertical depth from the Drill Floor.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annular velocities are calculated using the "Power Law" model for water based fluids and the "Brigham Plastic" model for oil and synthetic based fluids.
4. All data presented is recorded data unless otherwise specified.
5. 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

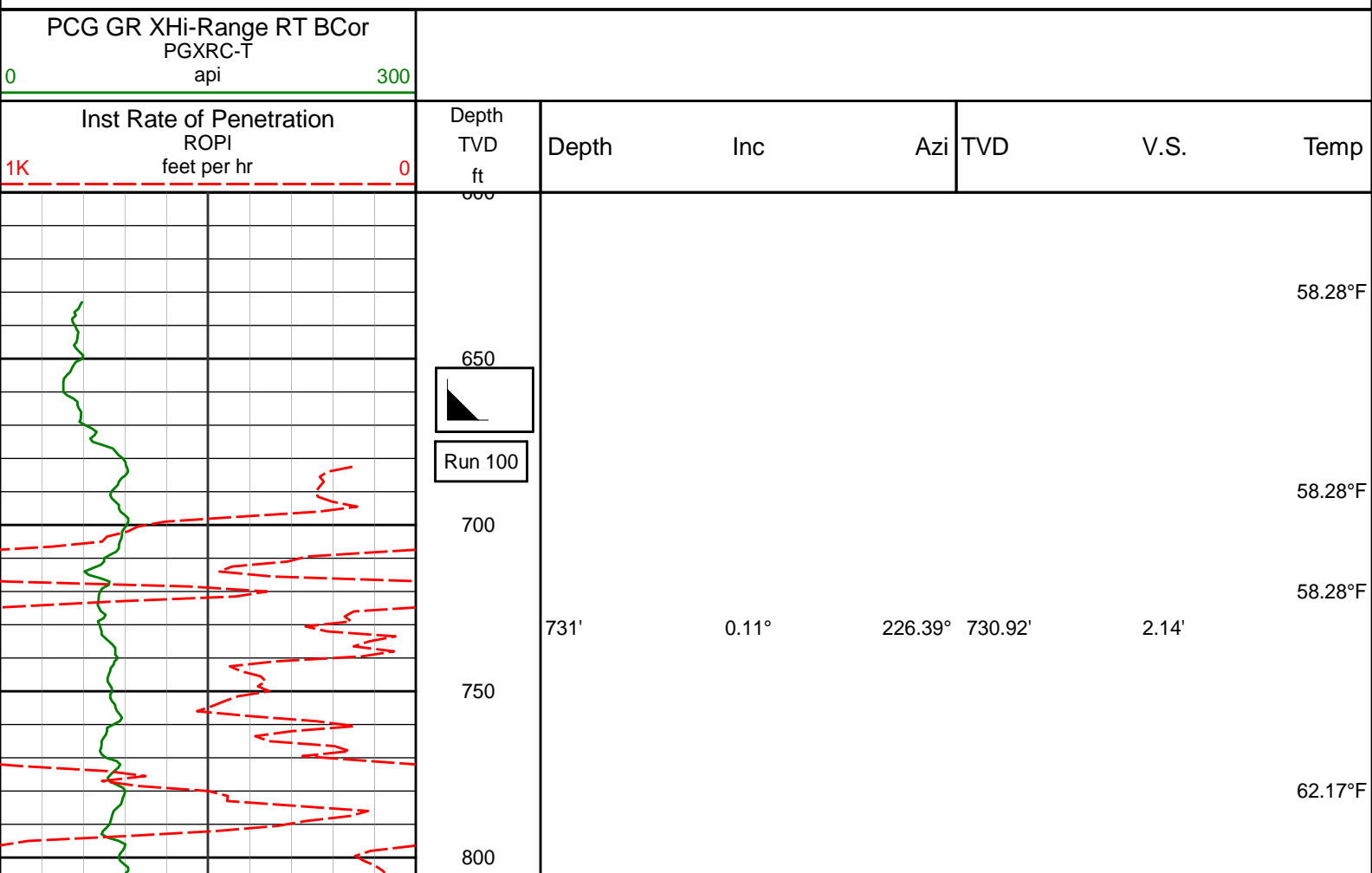
Interval Resolution: 0.5 ft
Interval Distance: 1.2 ft

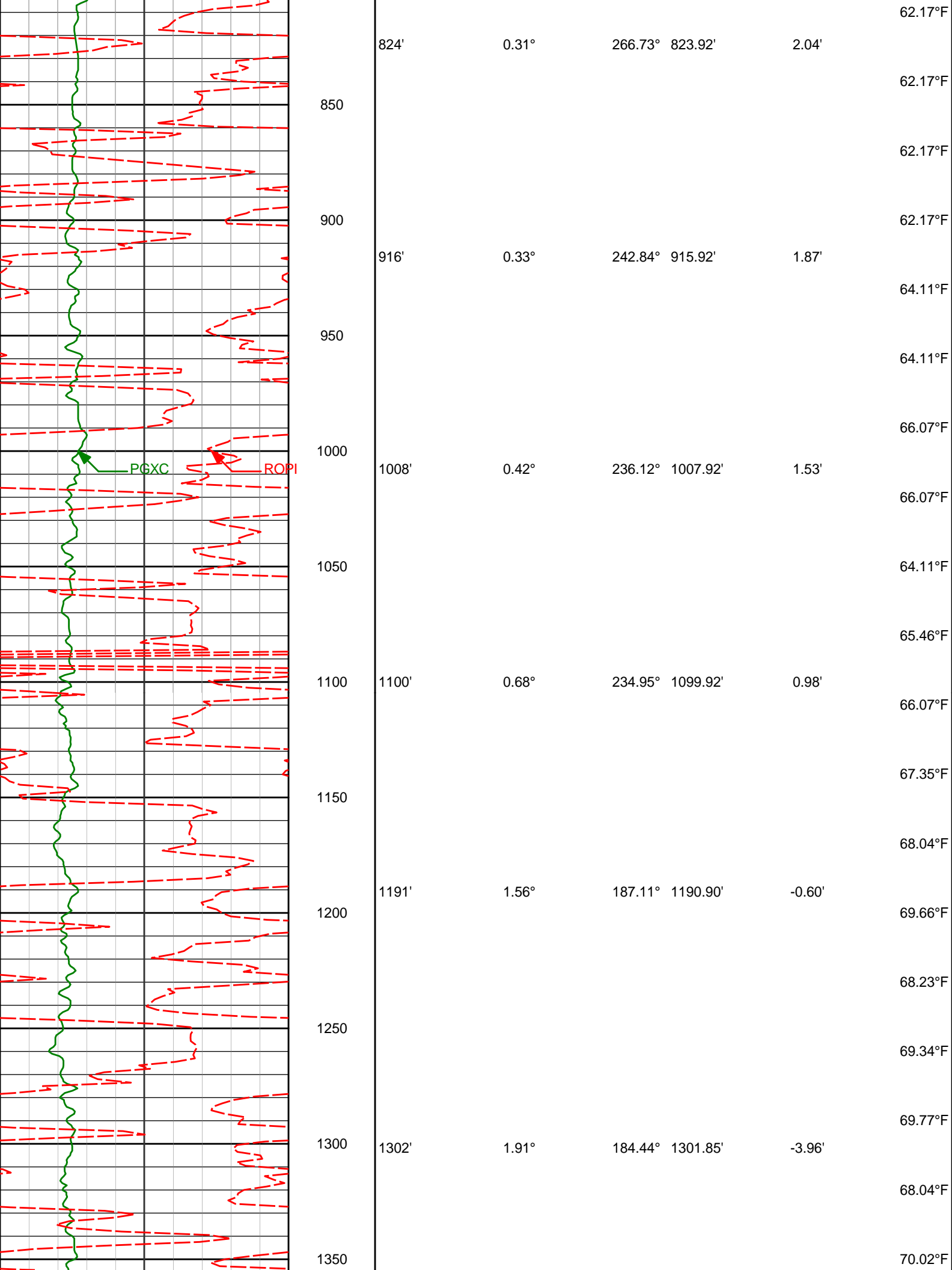
6. Insite Version V8.1.10

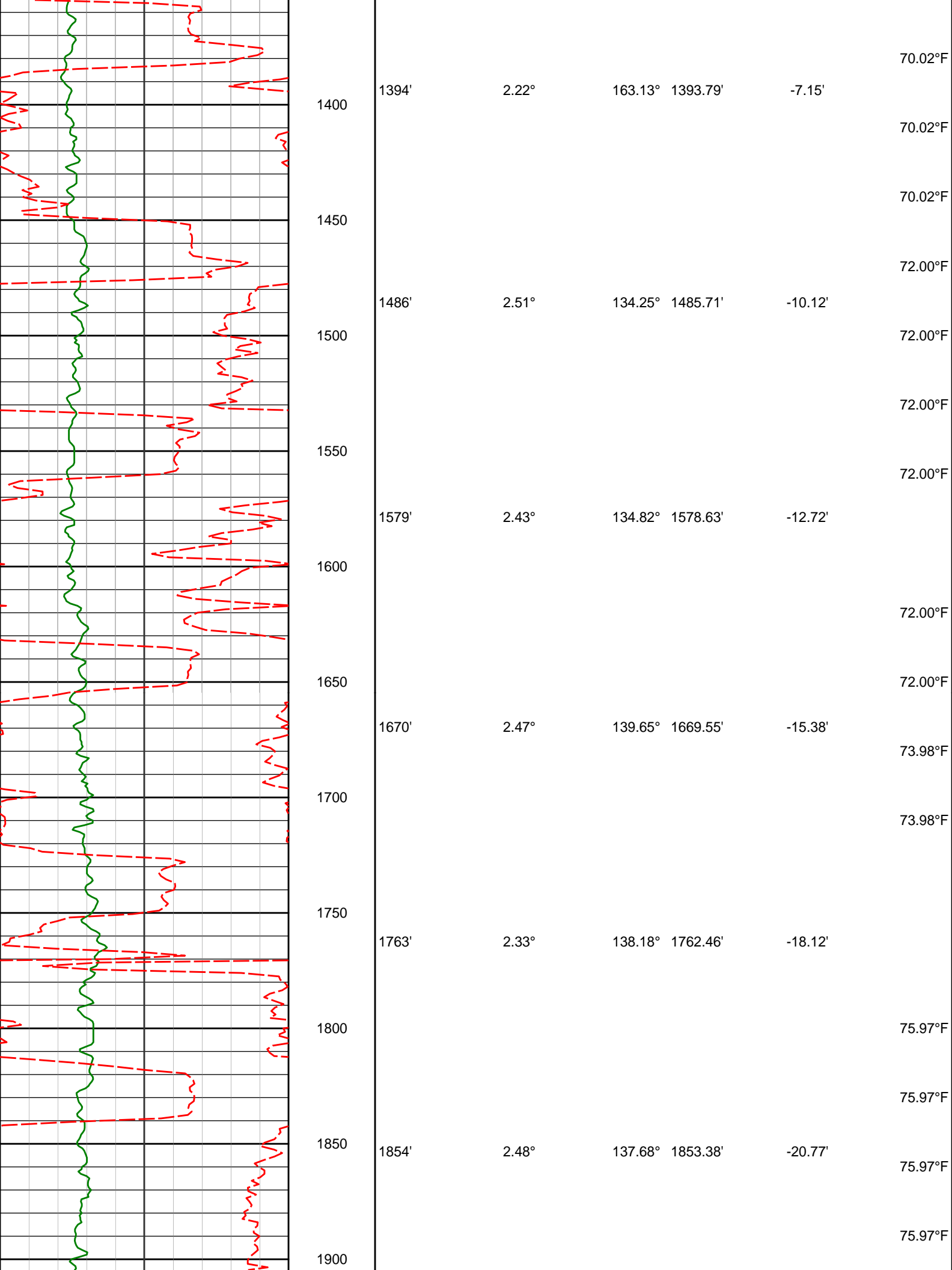
WARRANTY

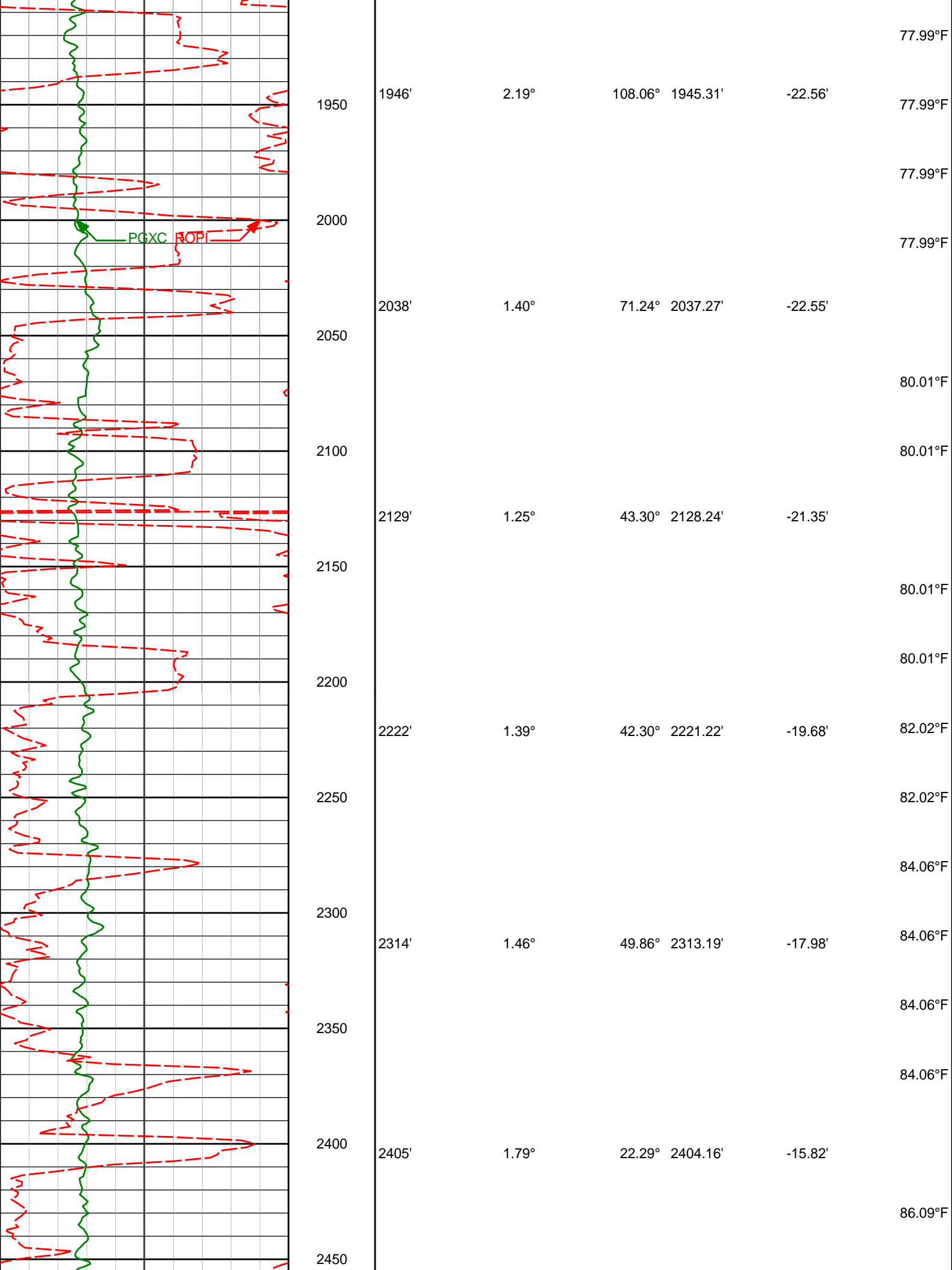
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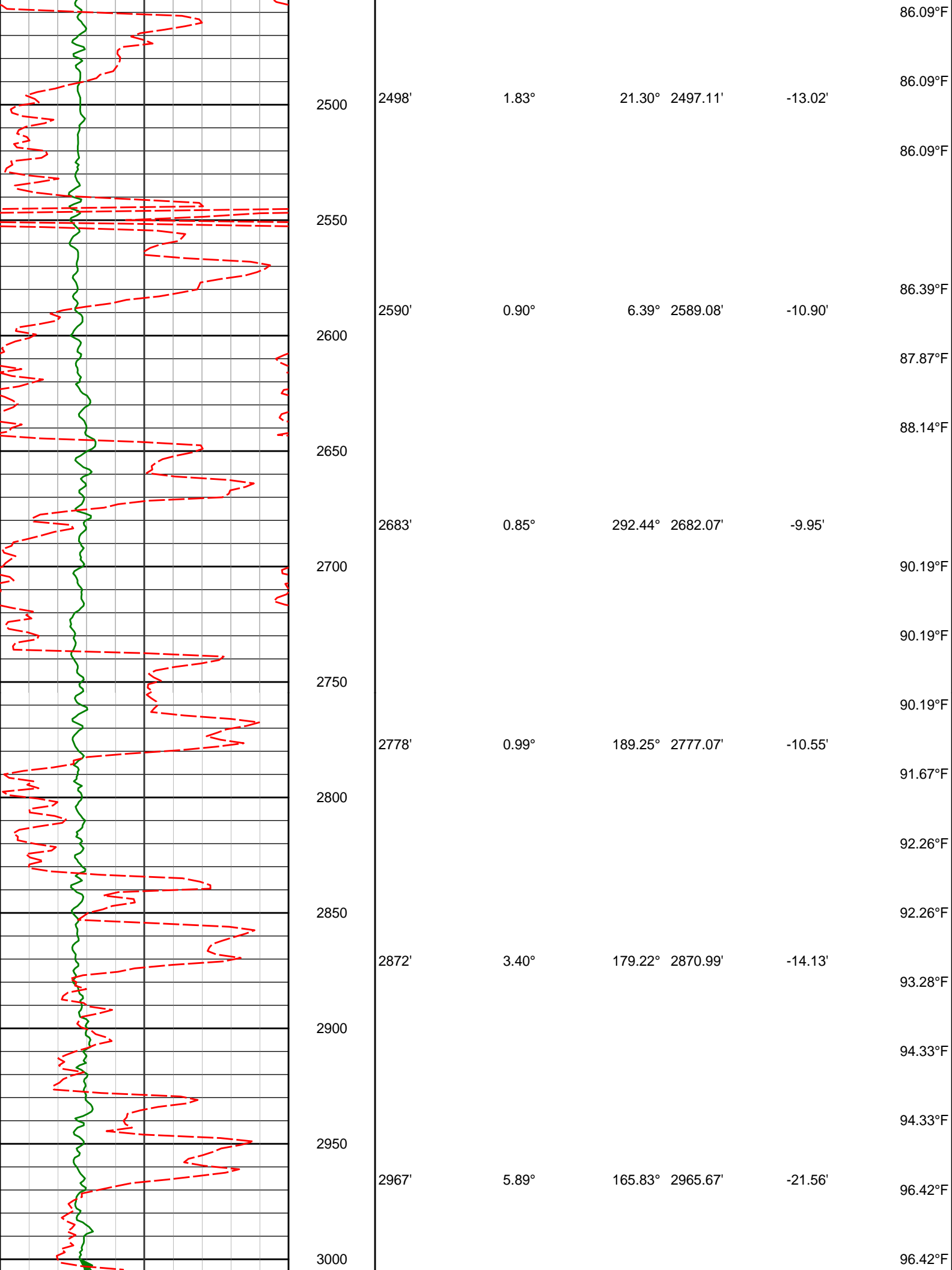
TVD Detail 1:600 Scale

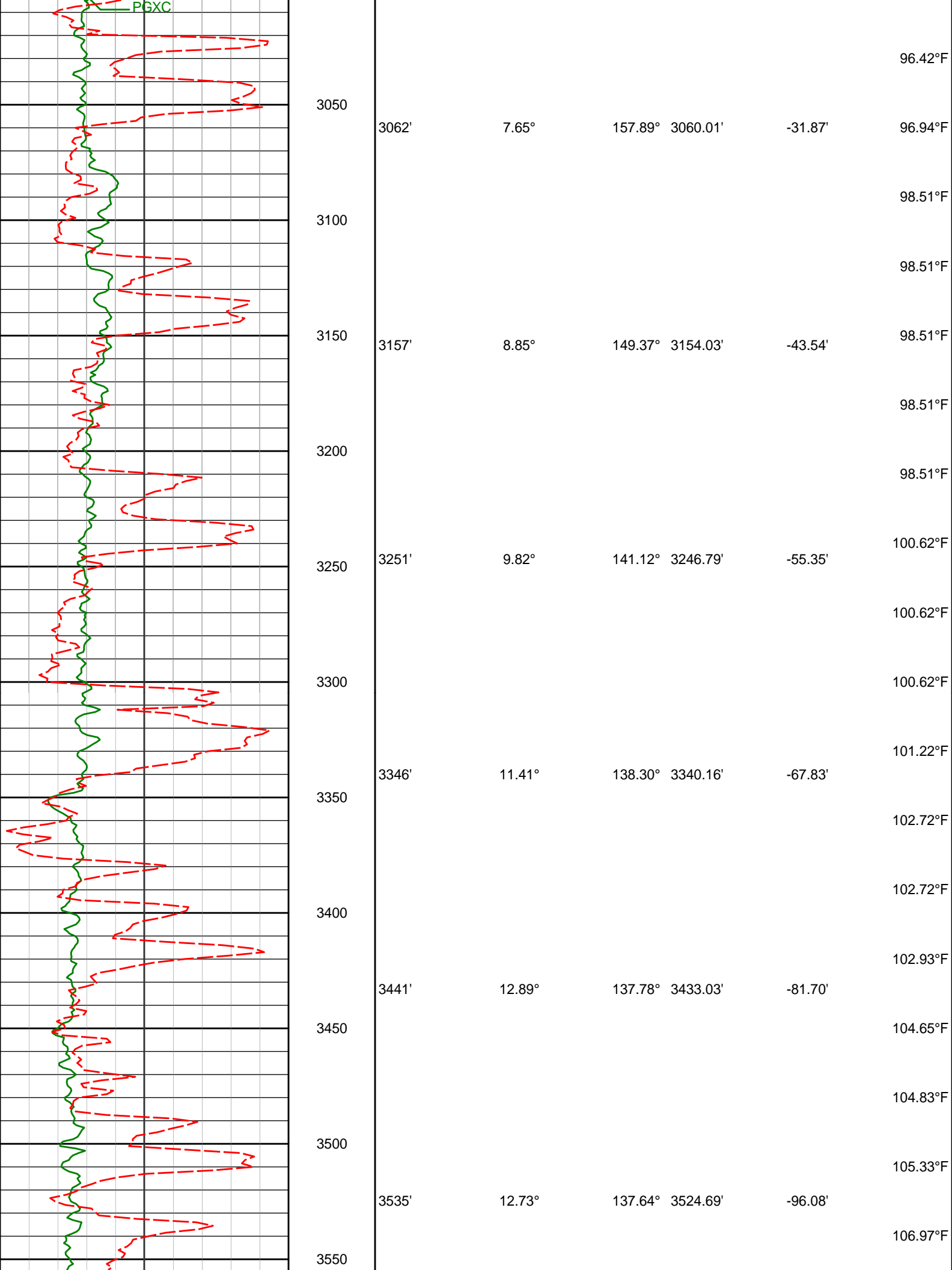


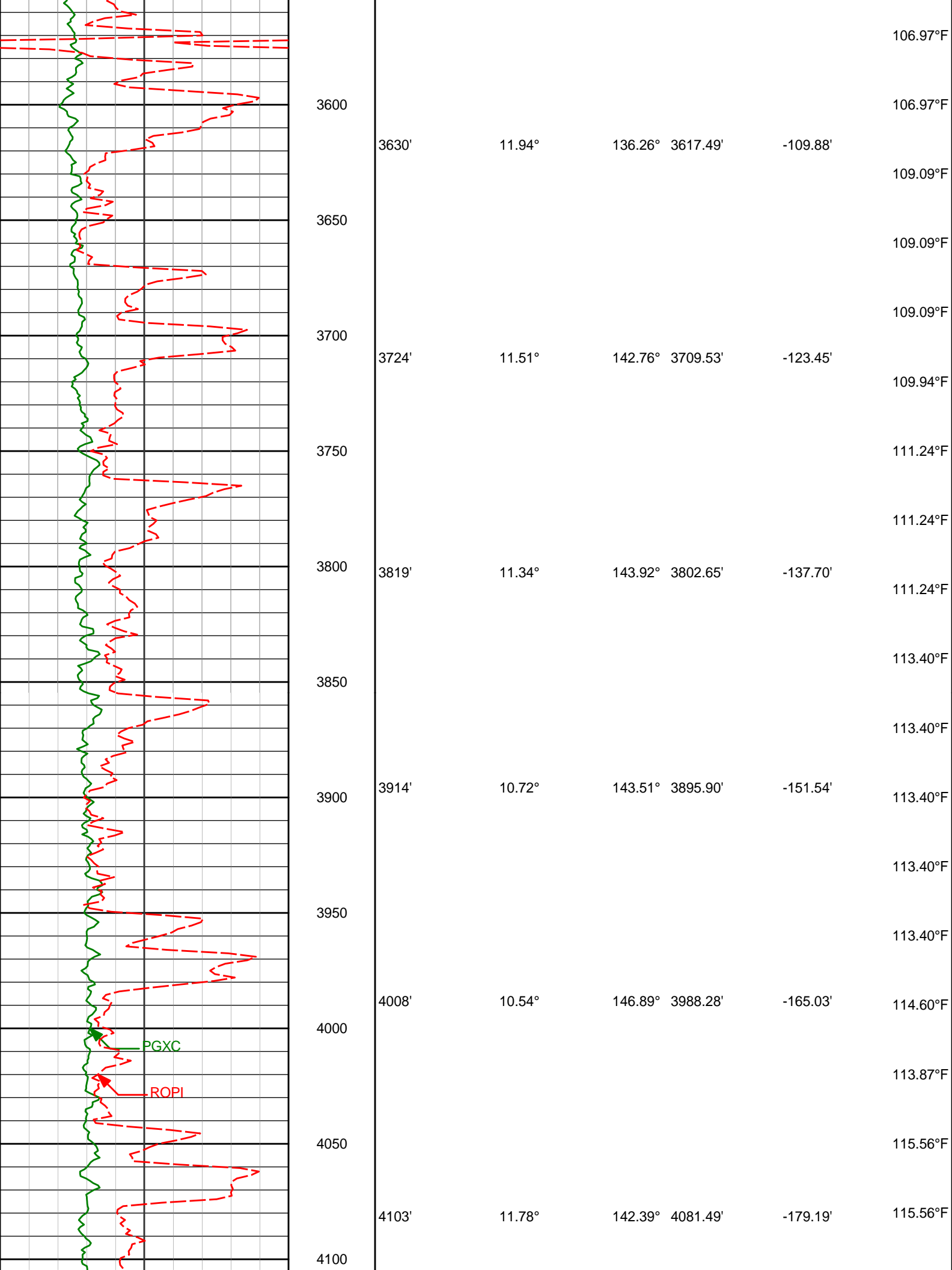


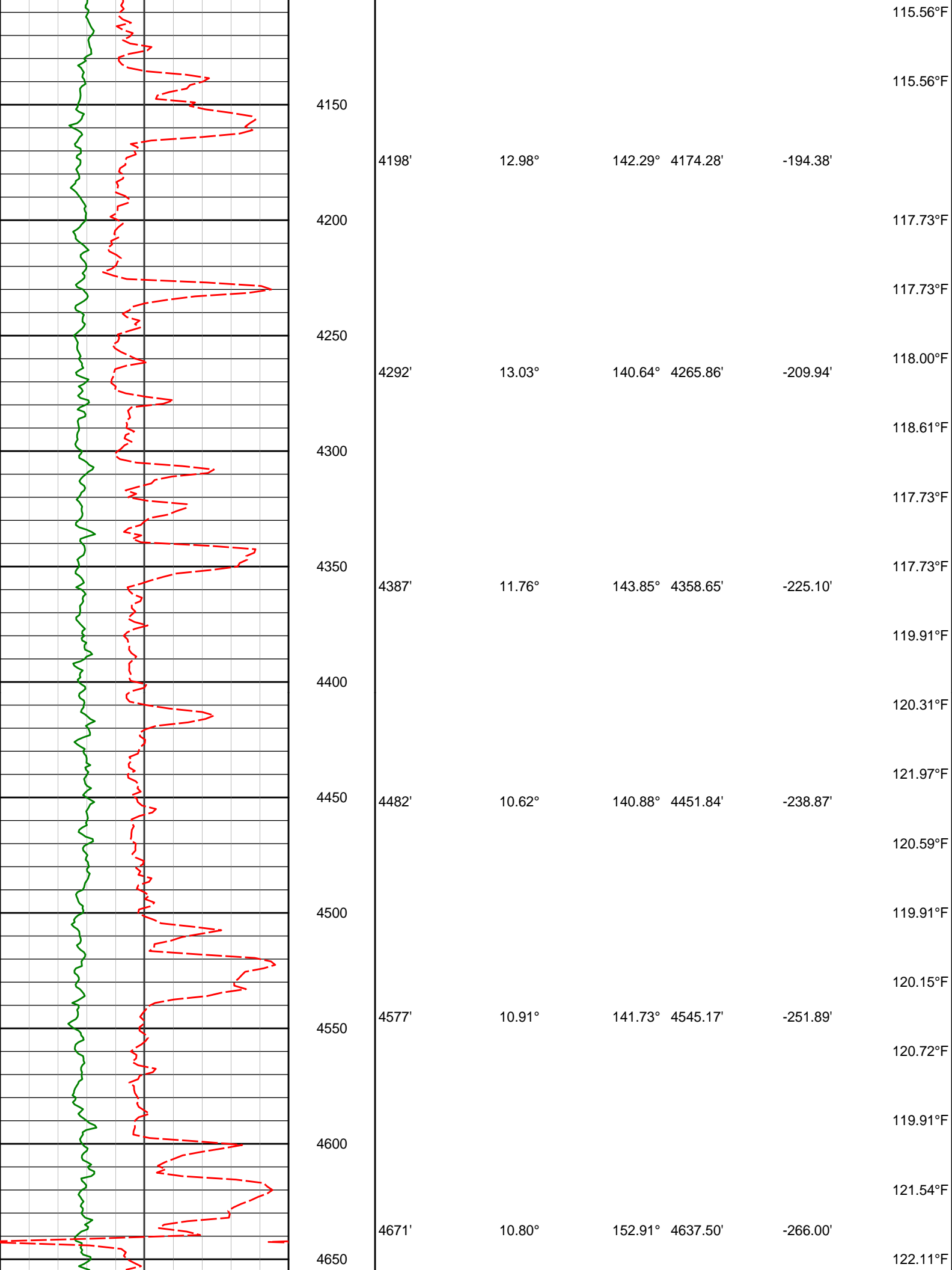


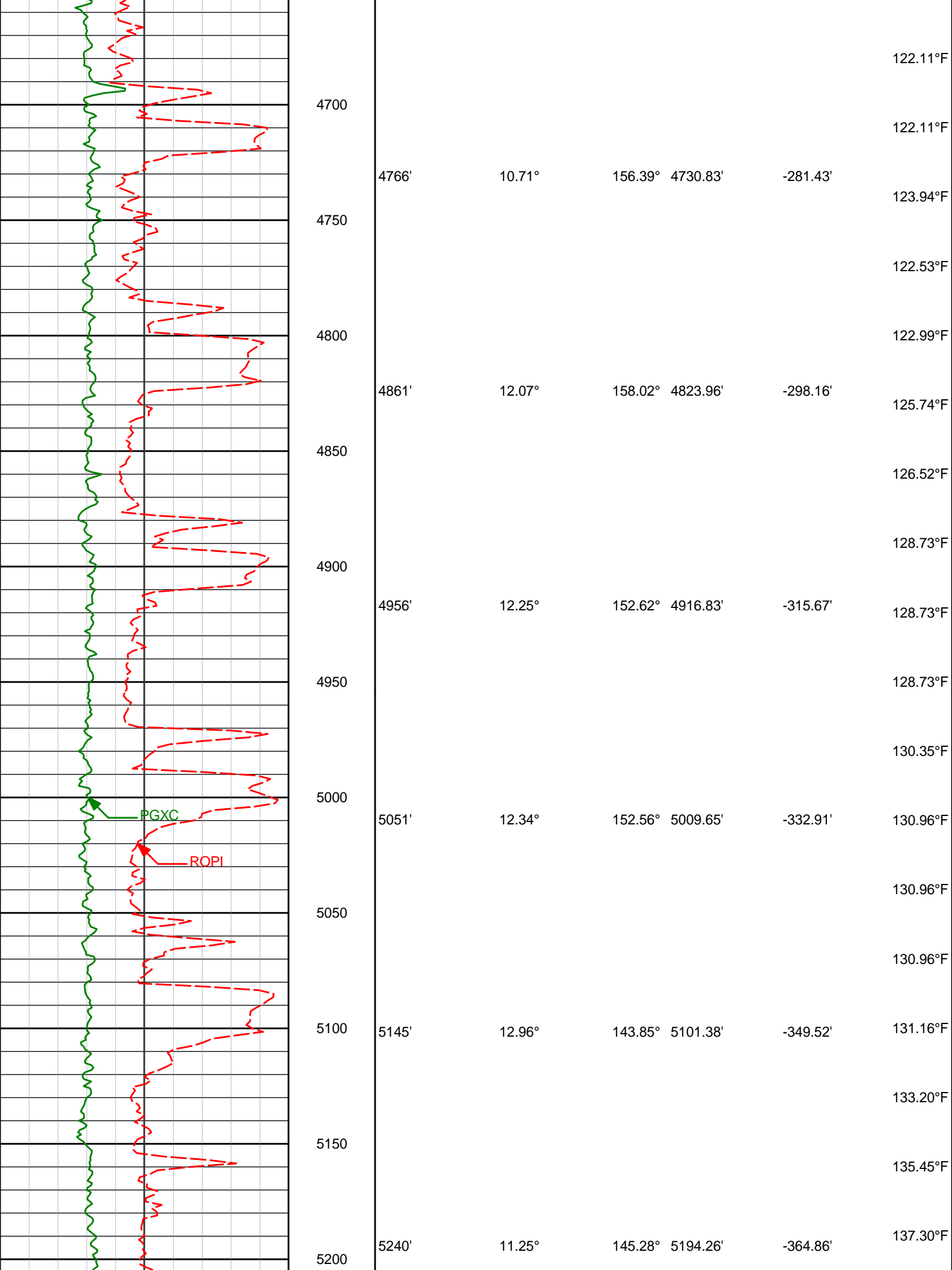


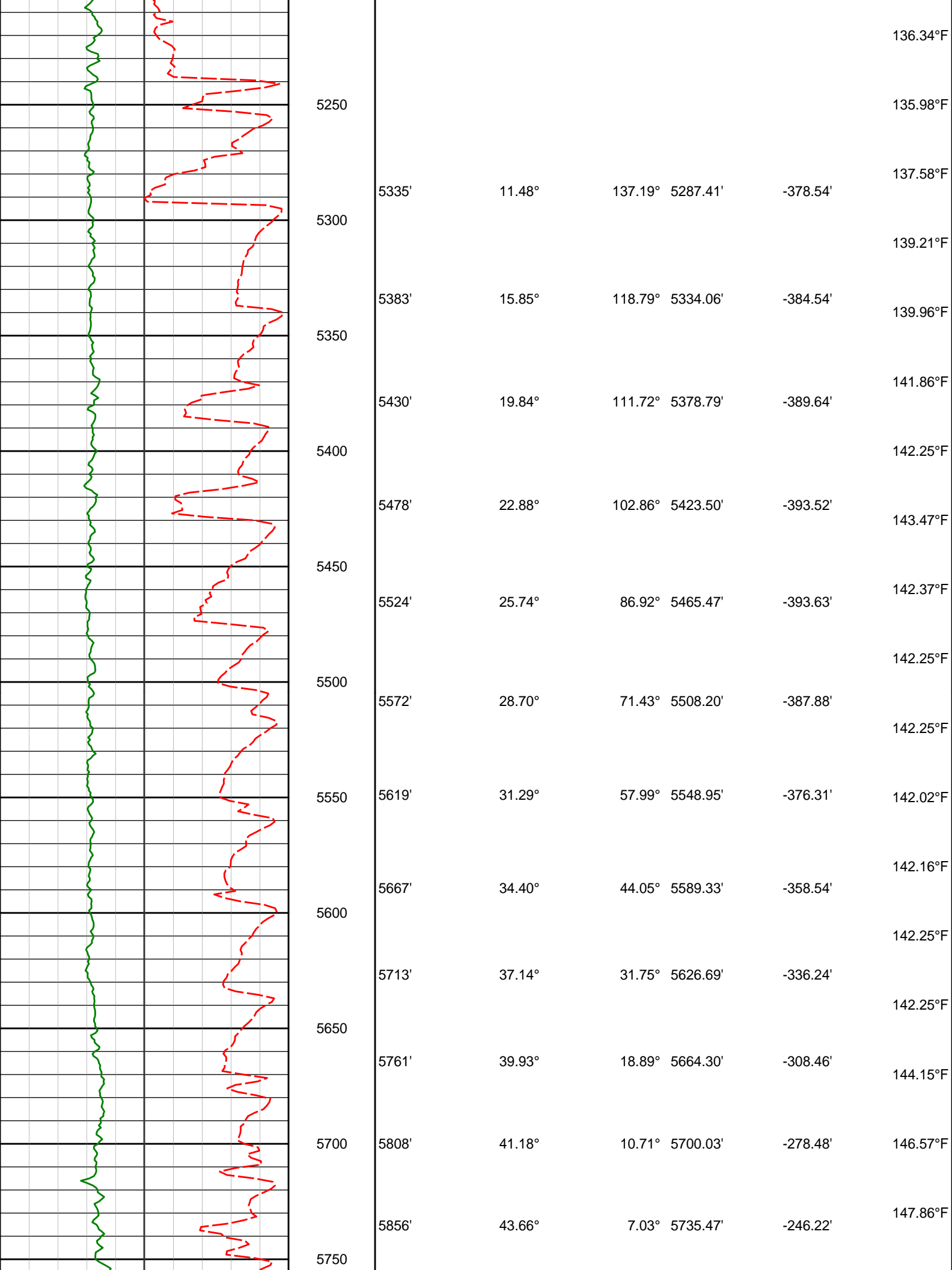


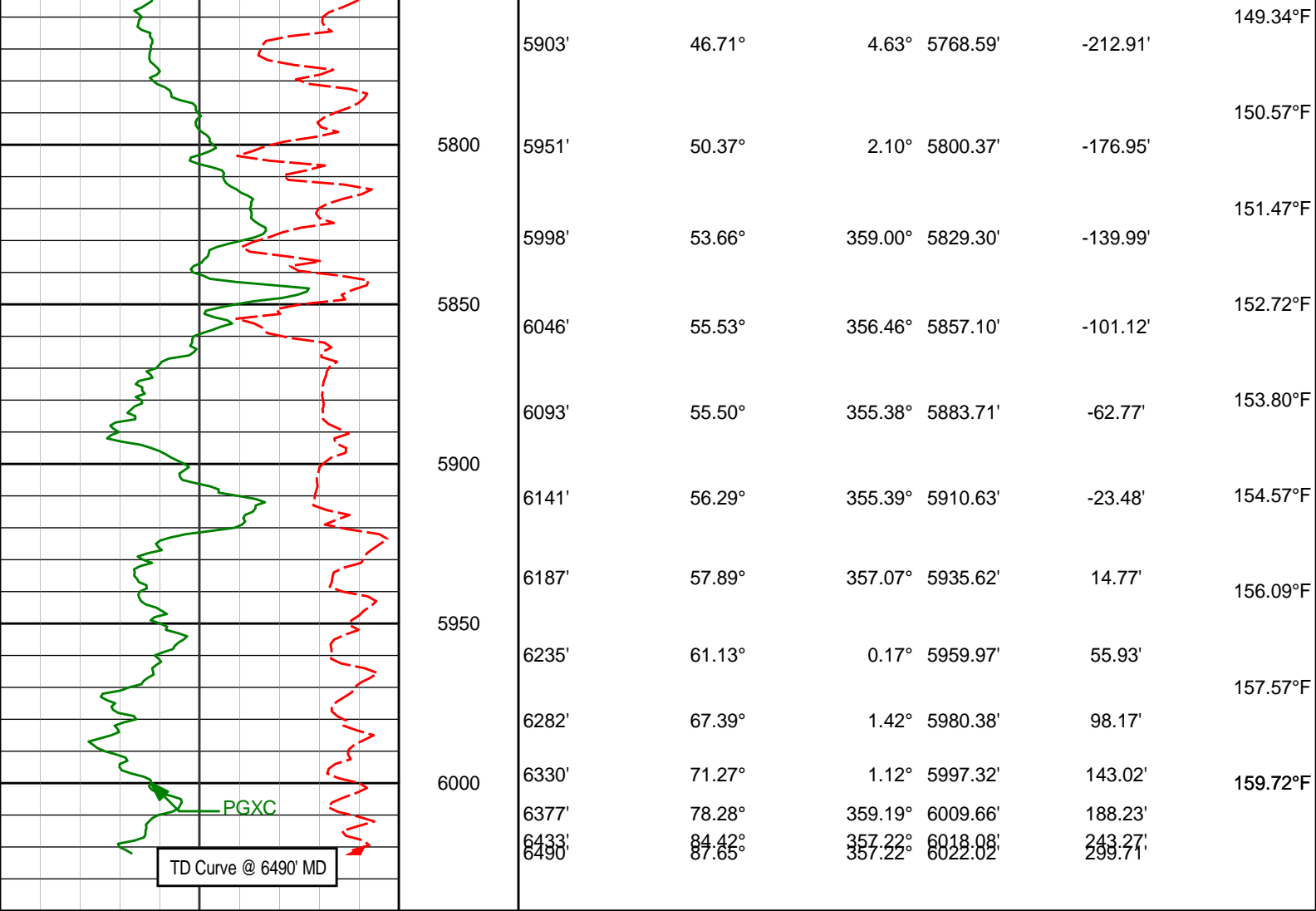








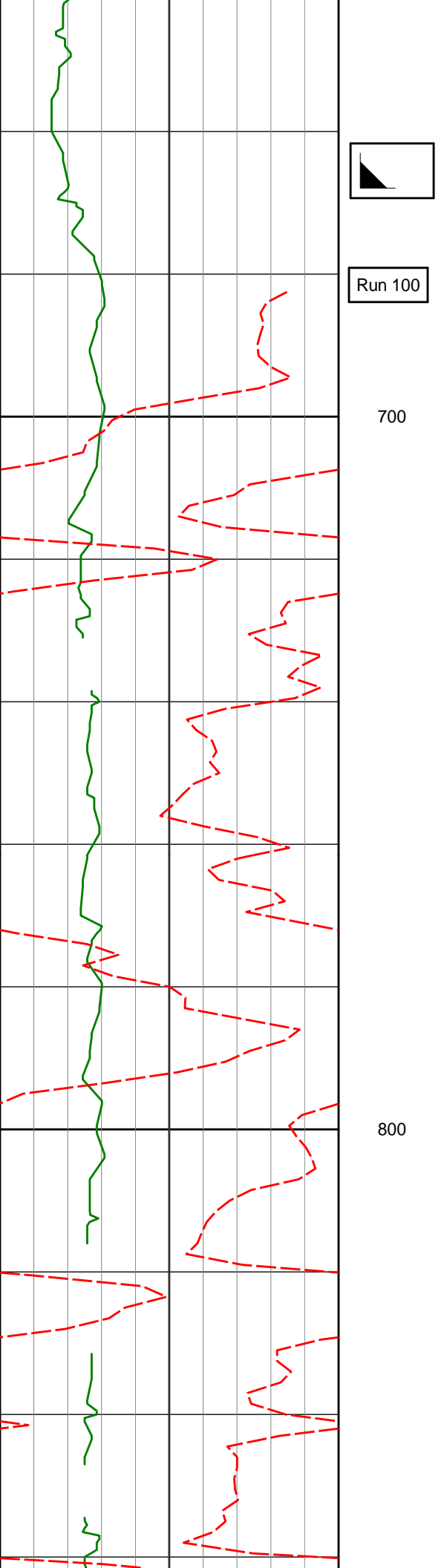




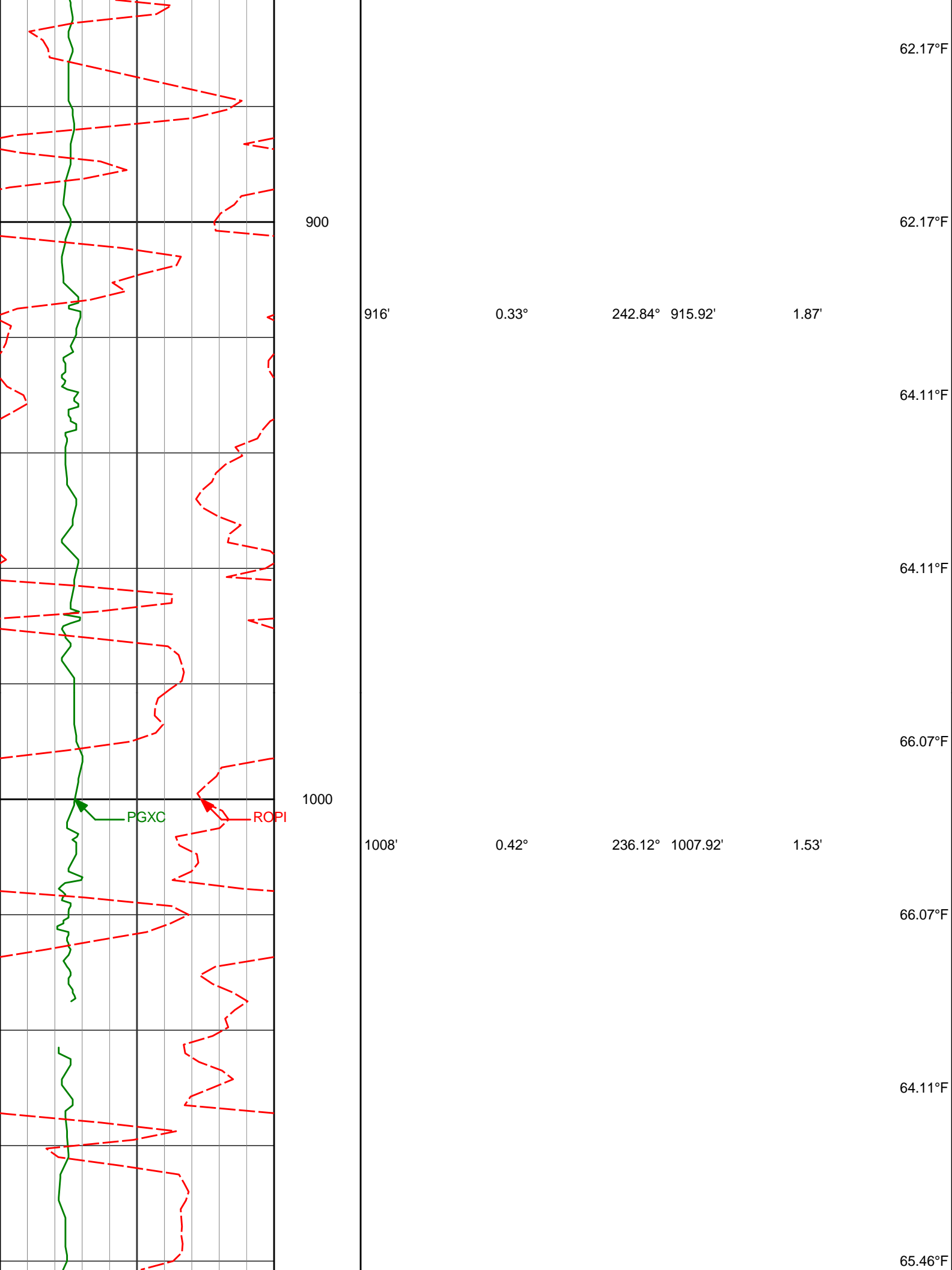
Inst Rate of Penetration ROPI feet per hr	Depth TVD ft	Depth	Inc	Azi	TVD	V.S.	Temp
1K 0							
PCG GR XHi-Range RT BCor PGXRC-T api							
0 300							

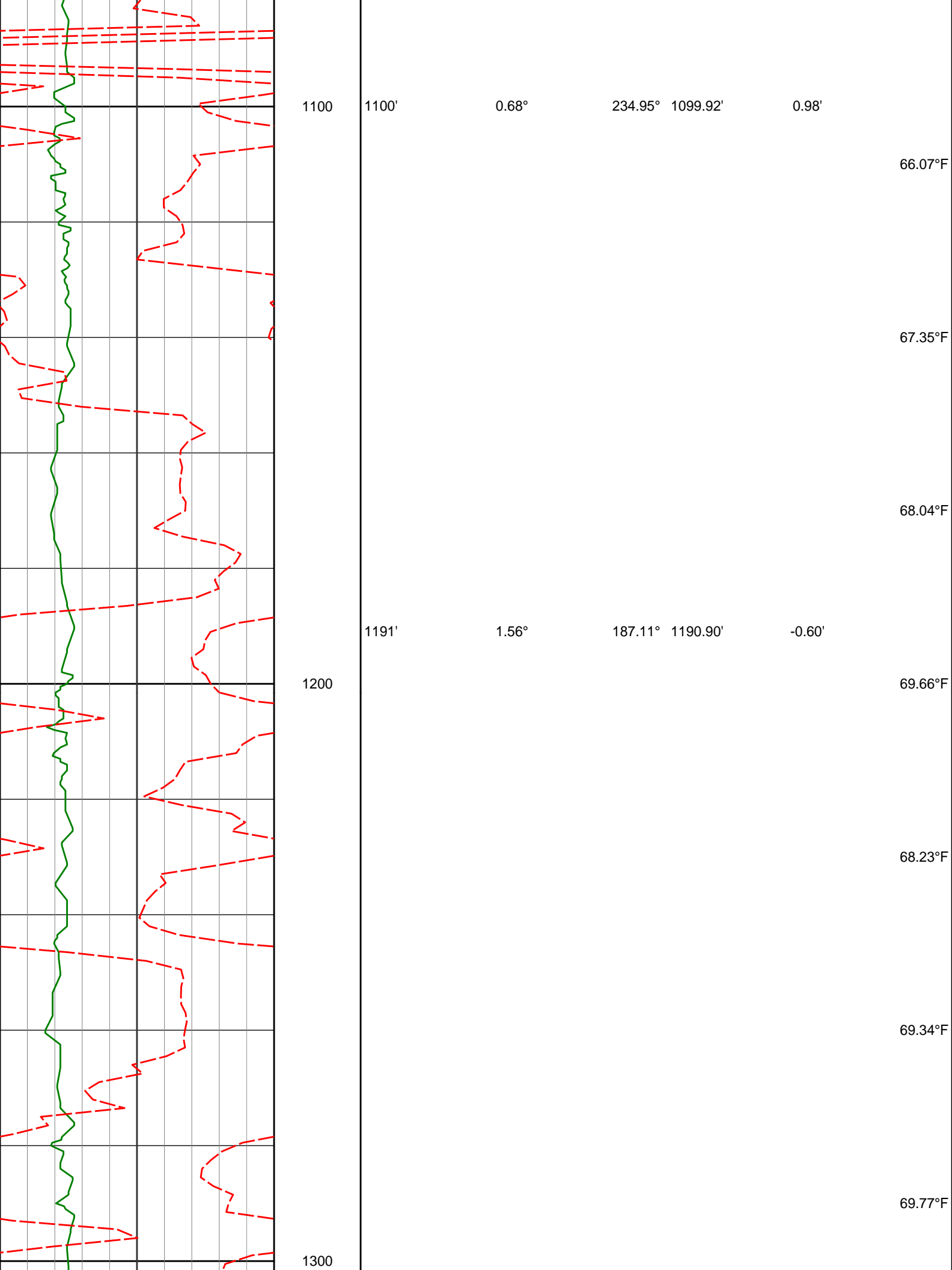
TVD Detail 1:240 Scale

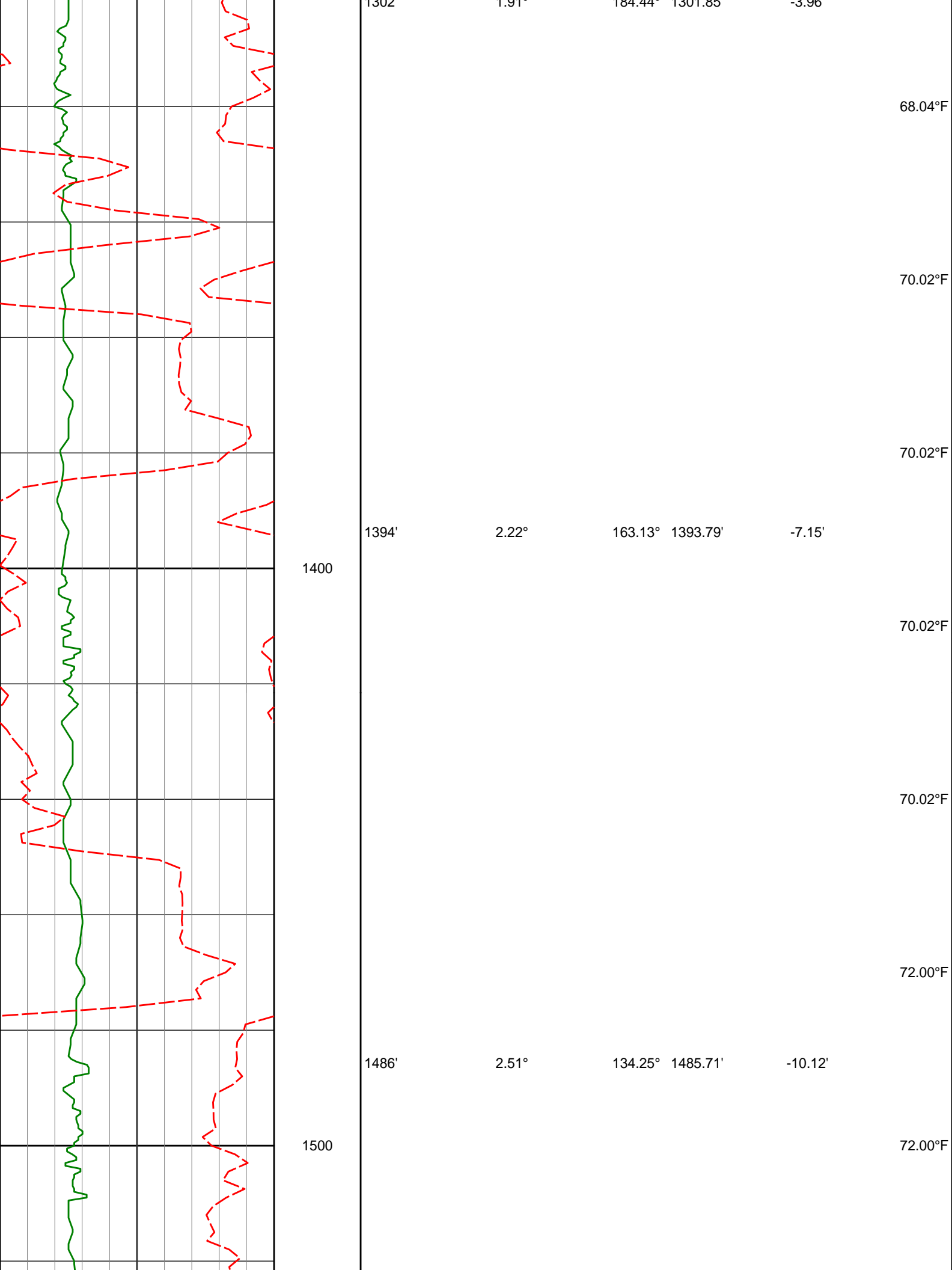
PCG GR XHi-Range RT BCor PGXRC-T api	Depth TVD ft	Depth	Inc	Azi	TVD	V.S.	Temp
0 300							
Inst Rate of Penetration ROPI feet per hr							
1K 0							
							58.28°F

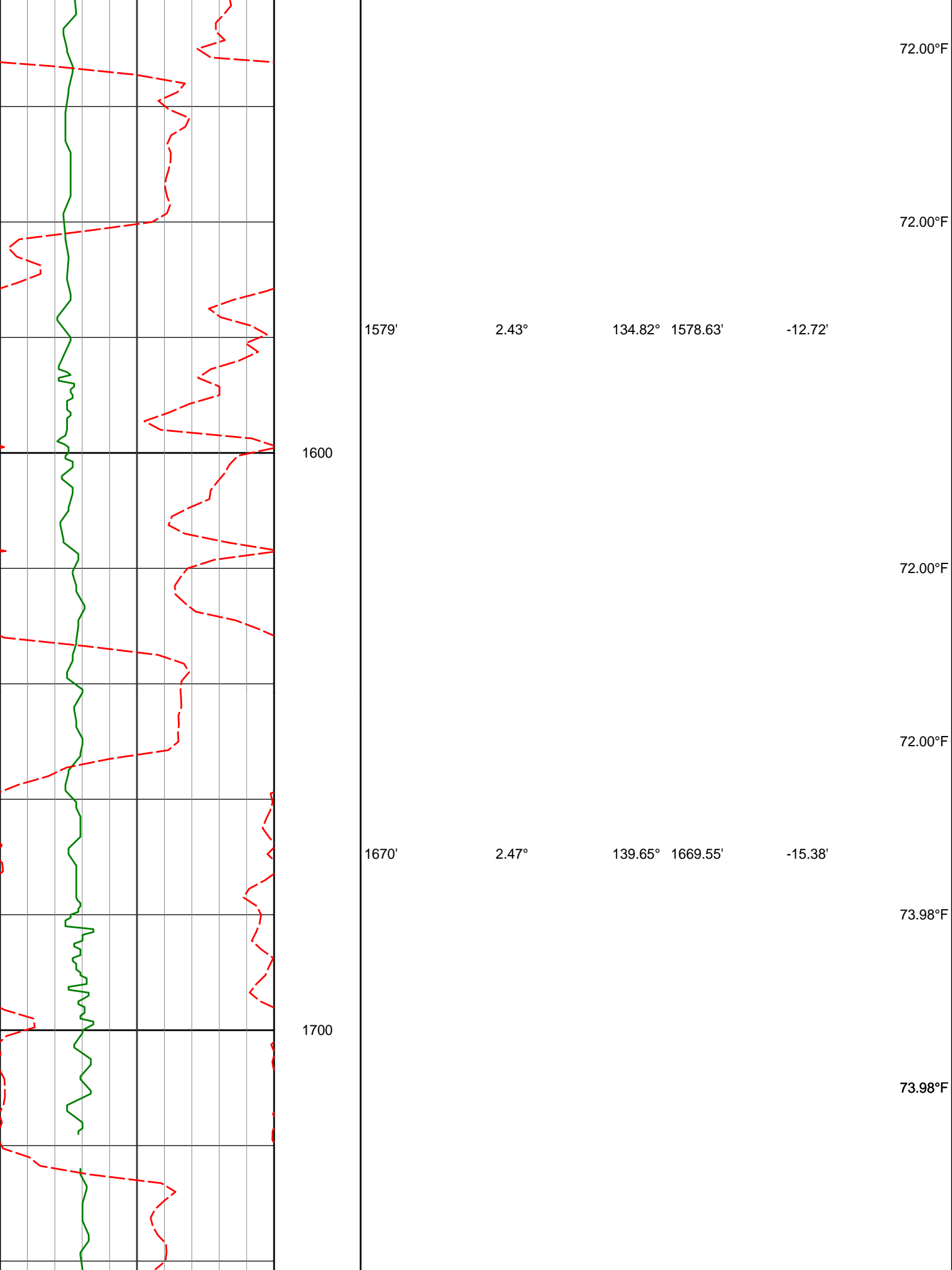


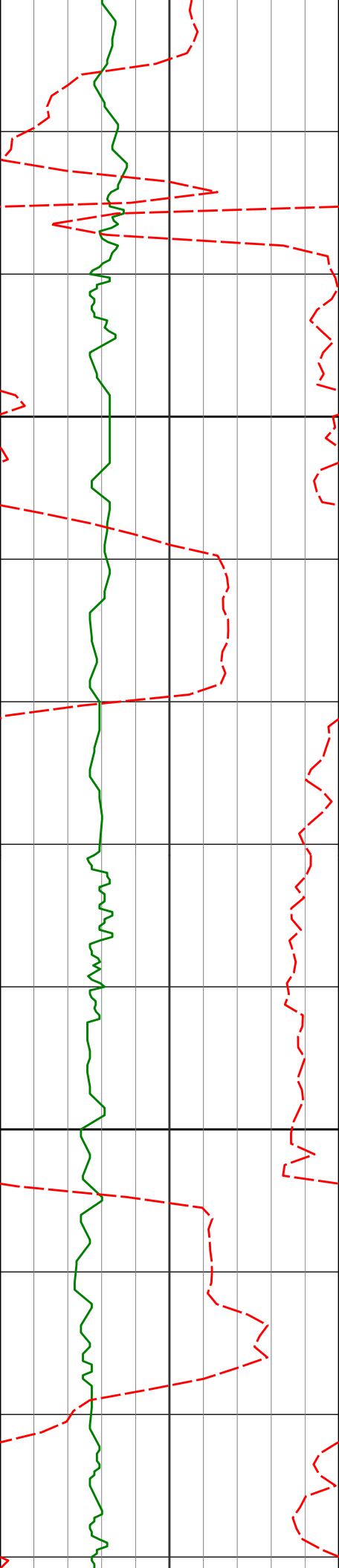
					58.28°F
731'	0.11°	226.39°	730.92'	2.14'	
					62.17°F
824'	0.31°	266.73°	823.92'	2.04'	
					62.17°F











1800

1900

1763'

2.33°

138.18° 1762.46'

-18.12'

1854'

2.48°

137.68° 1853.38'

-20.77'

1946'

2.19°

108.06° 1945.31'

-22.56'

75.97°F

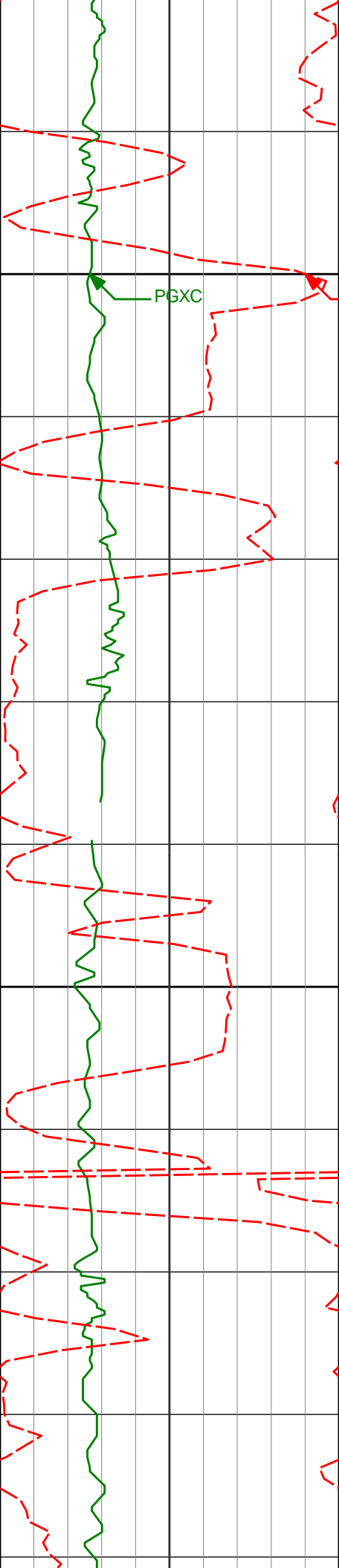
75.97°F

75.97°F

75.97°F

77.99°F

77.99°F



77.99°F

77.99°F

2000

PGXC

ROPI

80.01°F

80.01°F

80.01°F

2038'

1.40°

71.24° 2037.27'

-22.55'

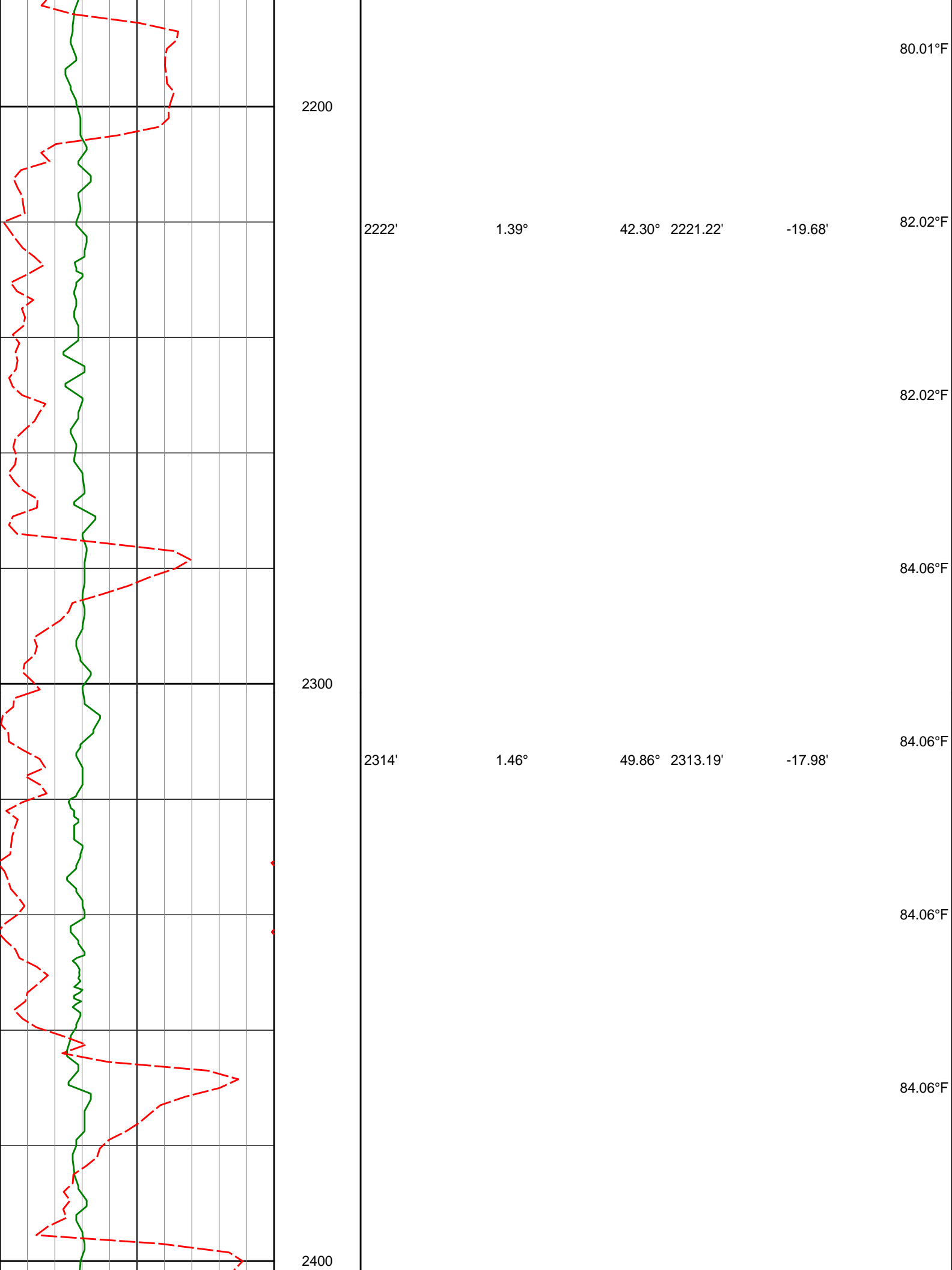
2100

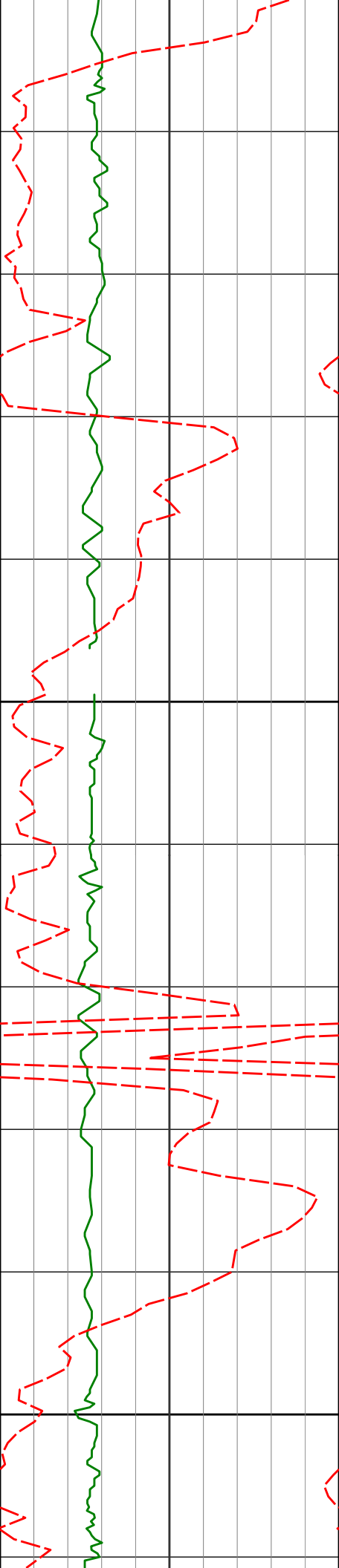
2129'

1.25°

43.30° 2128.24'

-21.35'





2500

2600

2405'	1.79°	22.29°	2404.16'	-15.82'
2498'	1.83°	21.30°	2497.11'	-13.02'
2590'	0.90°	6.39°	2589.08'	-10.90'

86.09°F

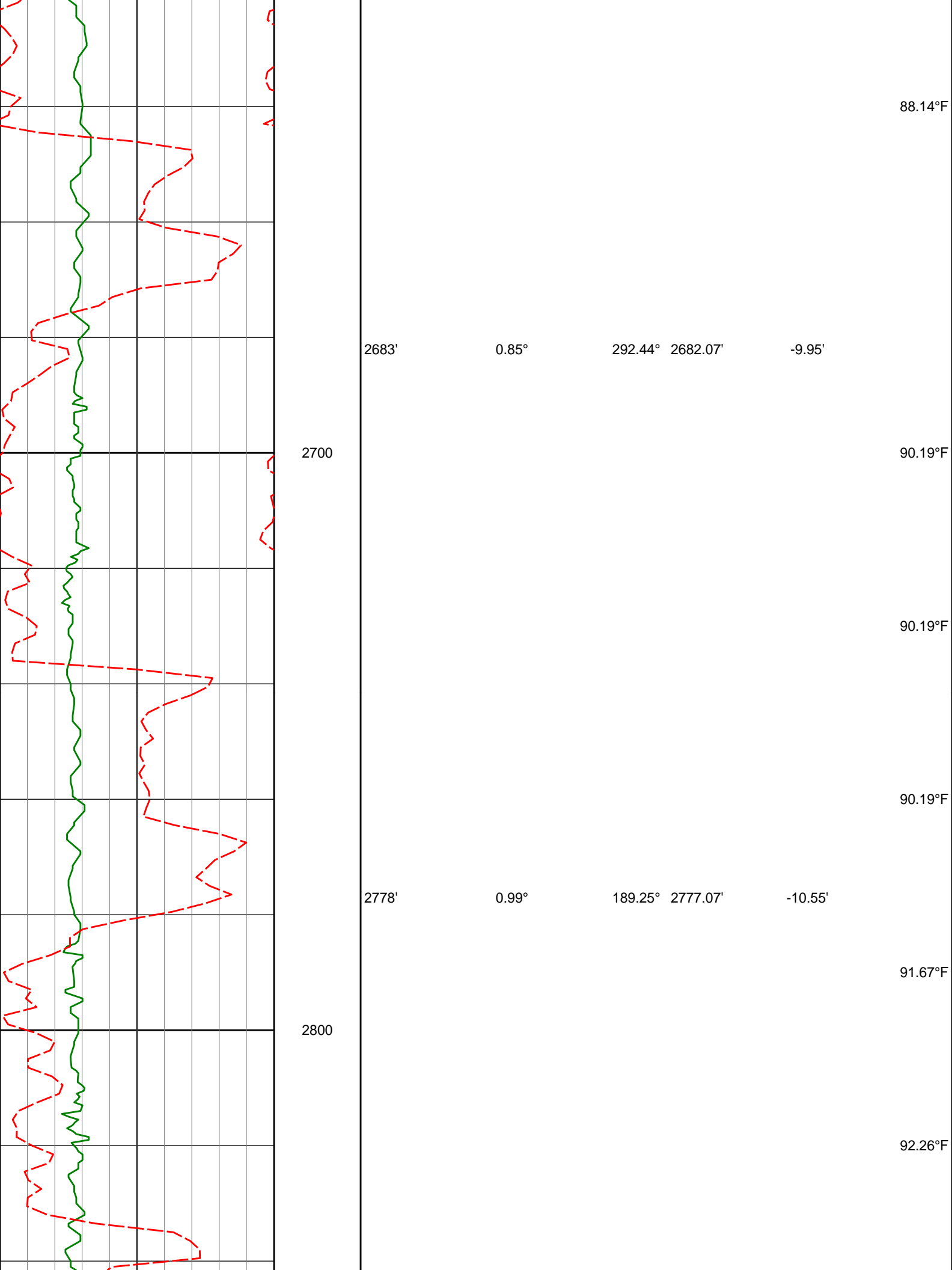
86.09°F

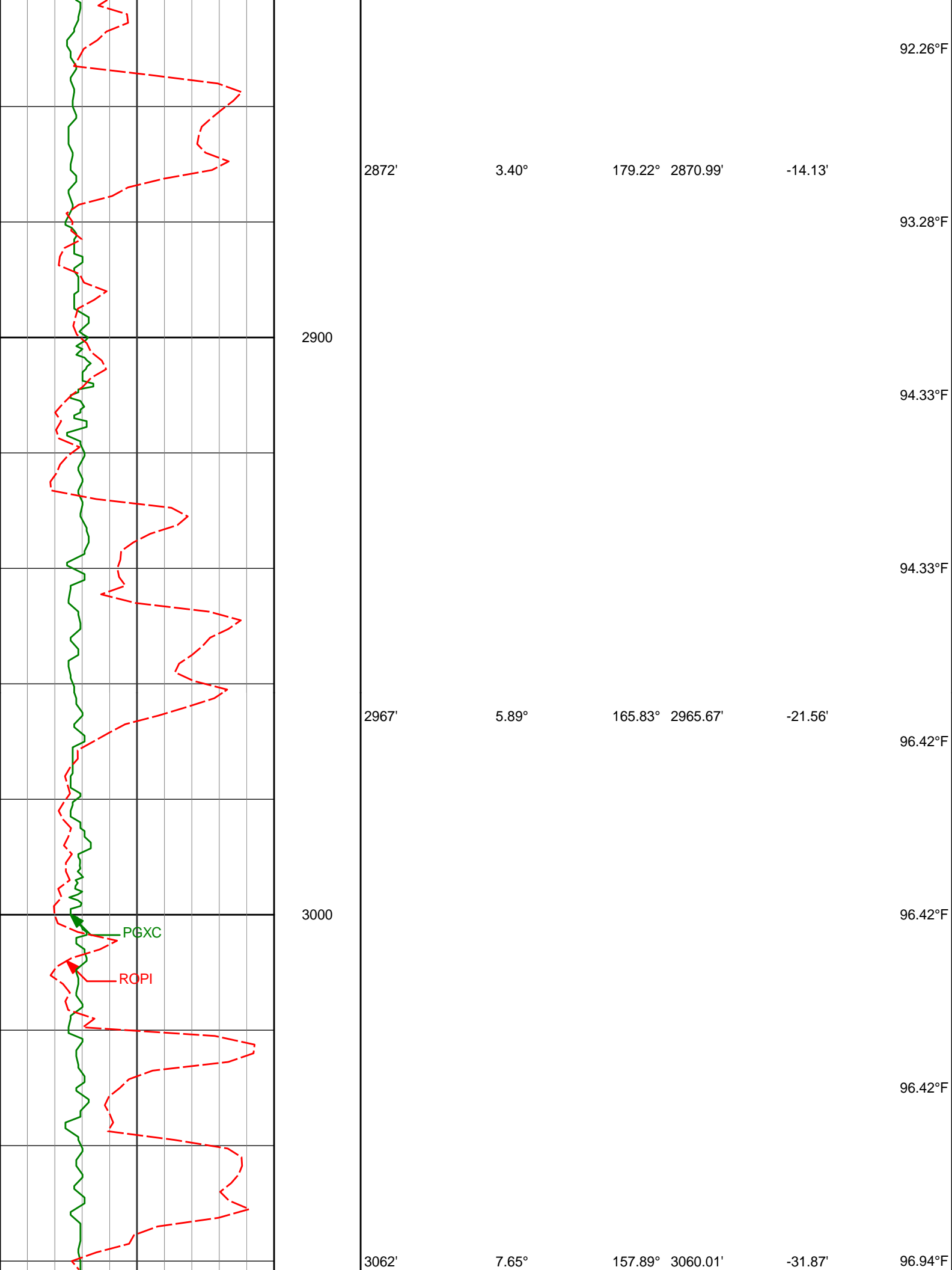
86.09°F

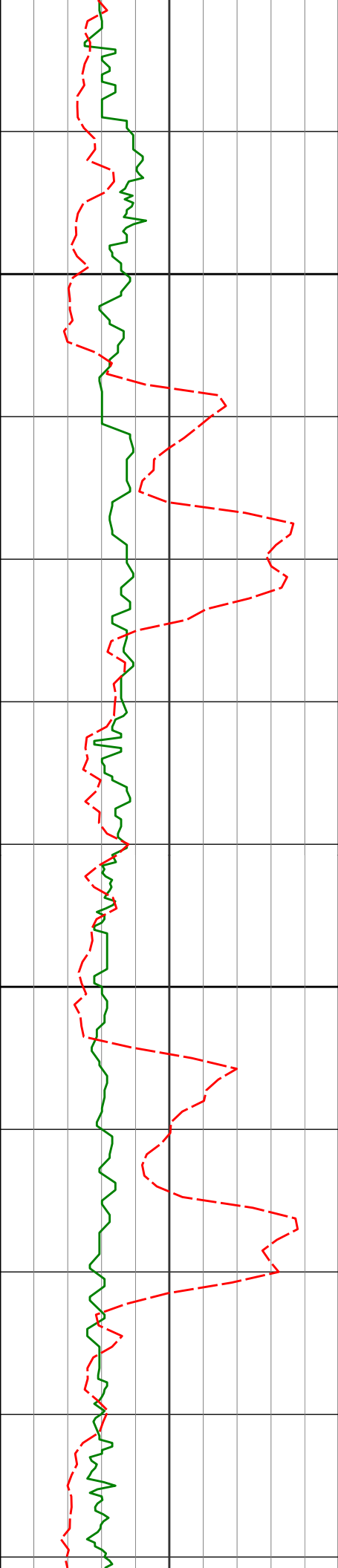
86.09°F

86.39°F

87.87°F







3100

3157'

3200

3251'

8.85°

149.37° 3154.03'

9.82°

141.12° 3246.79'

98.51°F

98.51°F

98.51°F

98.51°F

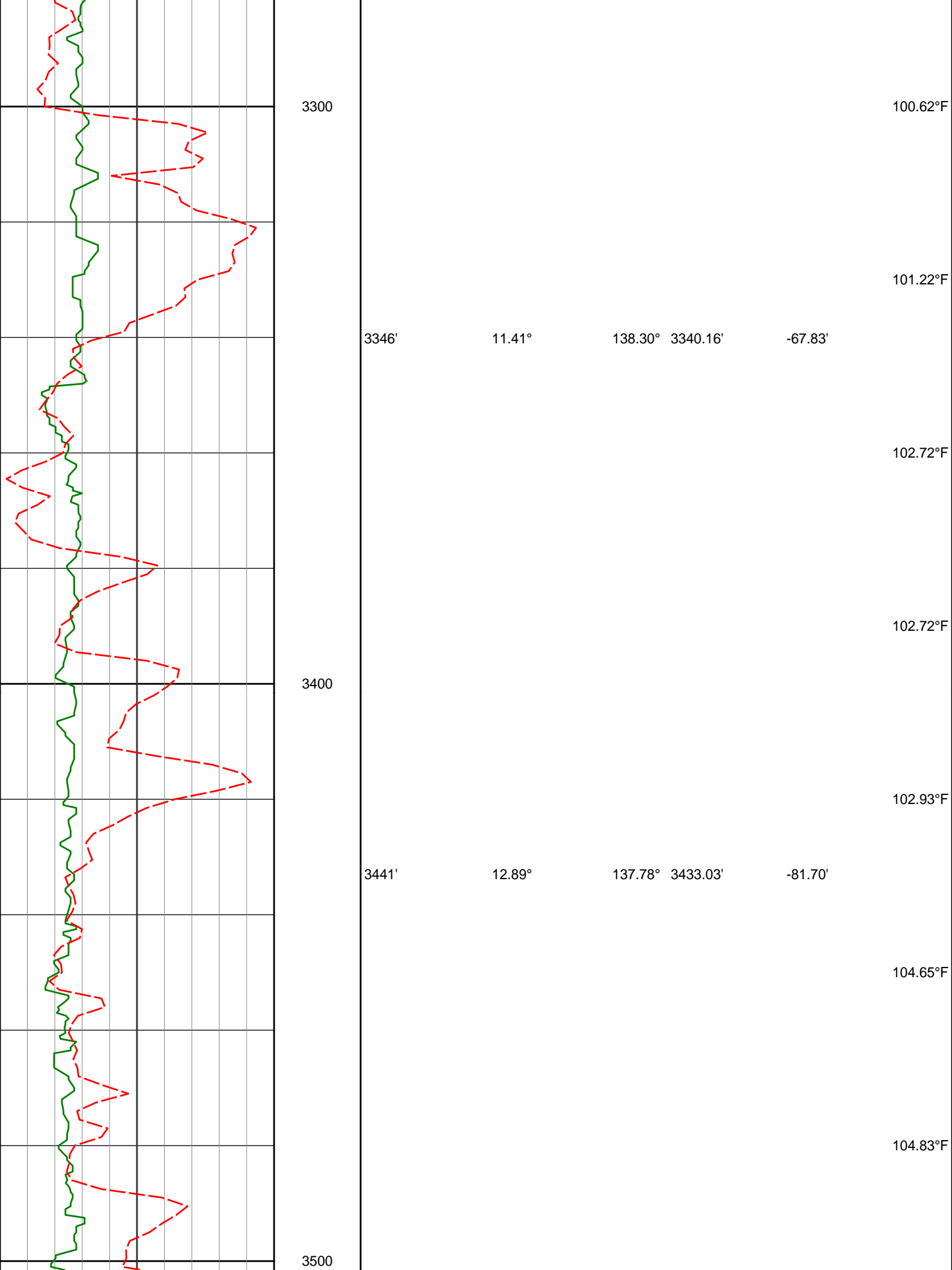
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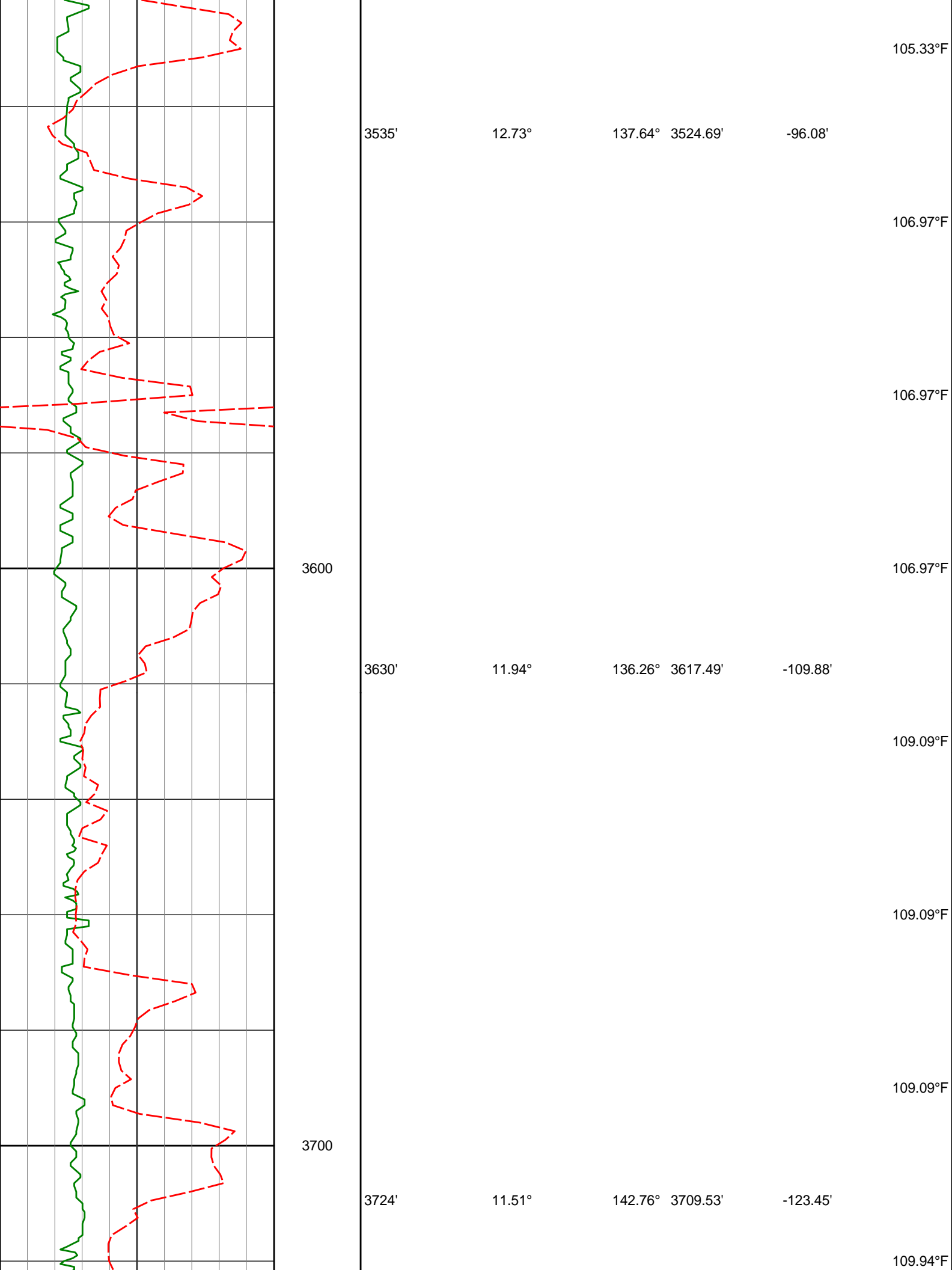
100.62°F

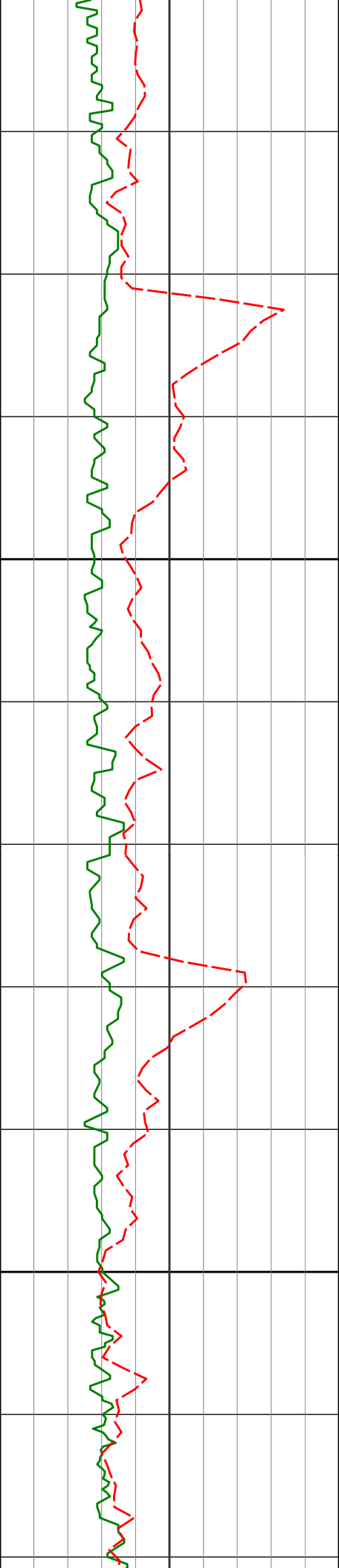
100.62°F

-43.54'

-55.35'







3800

3819'

11.34°

143.92° 3802.65'

-137.70'

111.24°F

111.24°F

111.24°F

113.40°F

113.40°F

3900

3914'

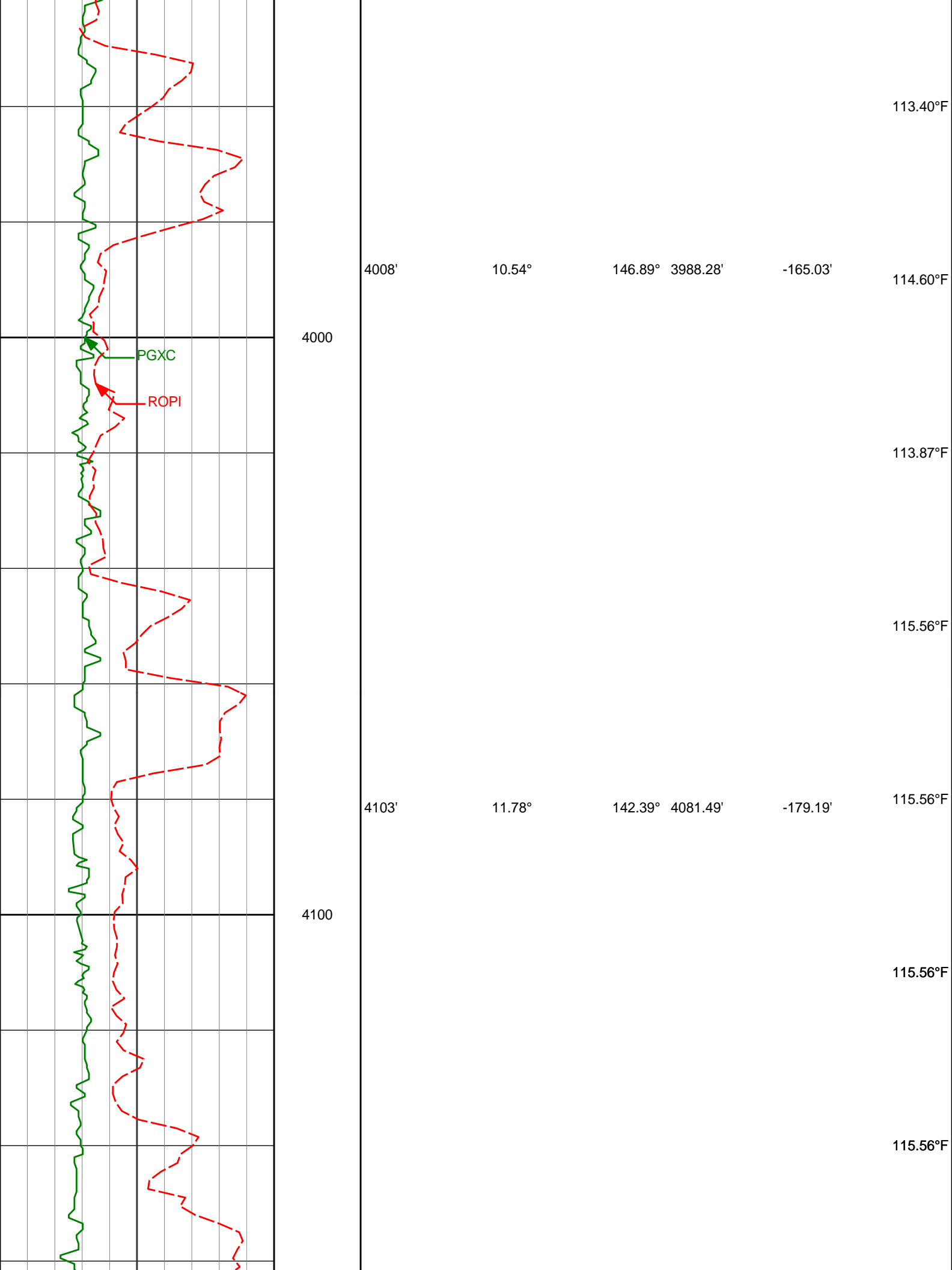
10.72°

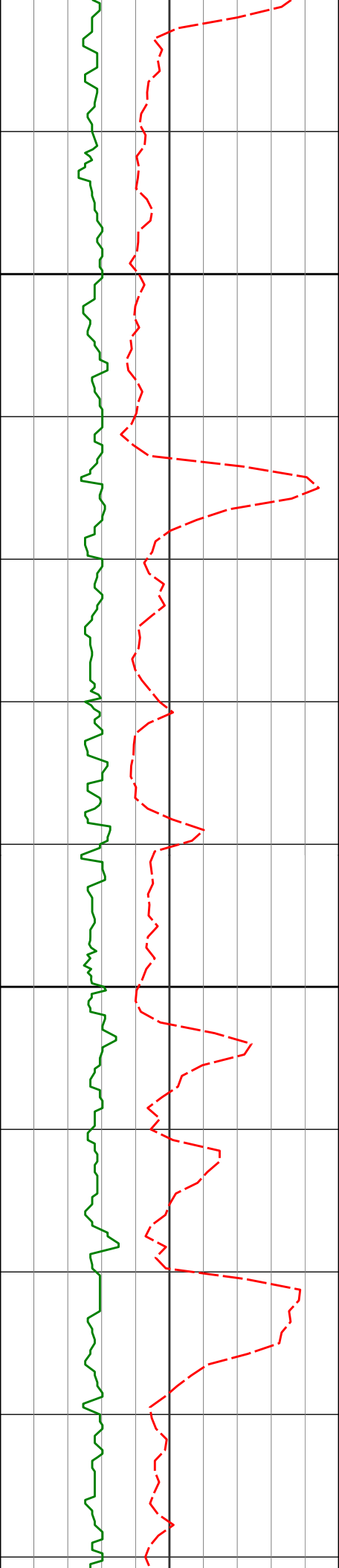
143.51° 3895.90'

-151.54'

113.40°F

113.40°F





4200

4300

4198'

12.98°

142.29° 4174.28'

-194.38'

117.73°F

117.73°F

118.00°F

4292'

13.03°

140.64° 4265.86'

-209.94'

118.61°F

117.73°F

117.73°F

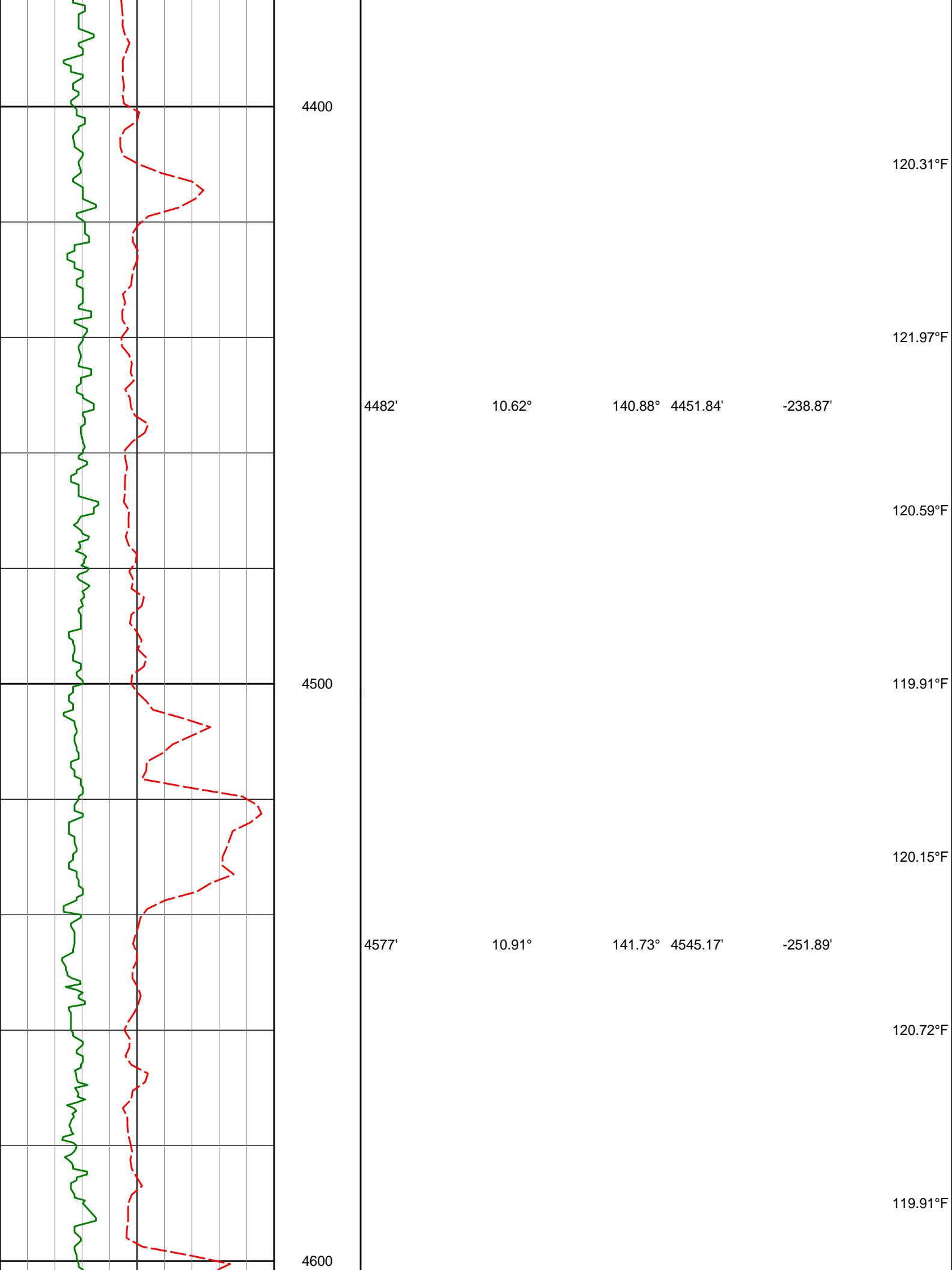
4387'

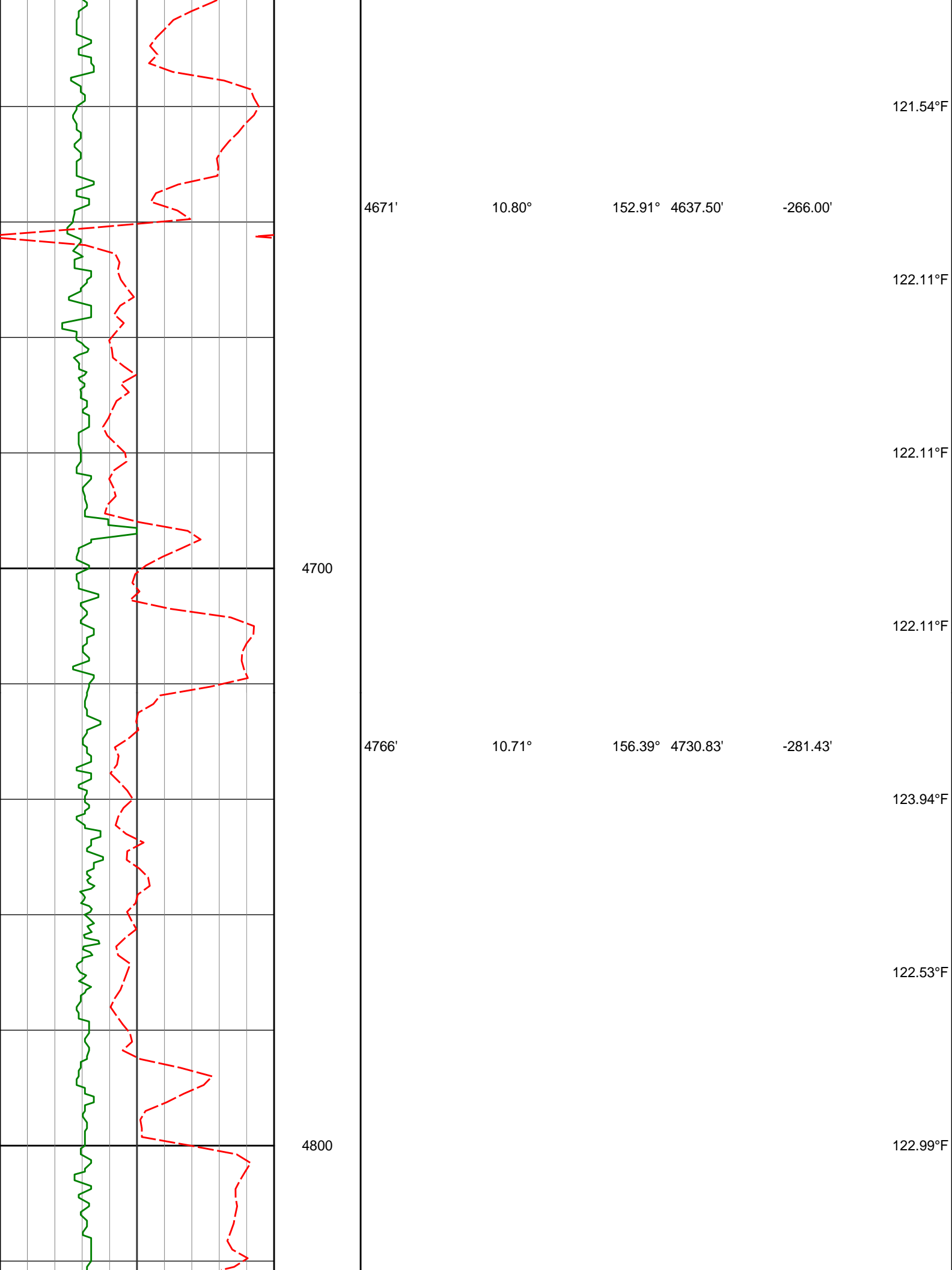
11.76°

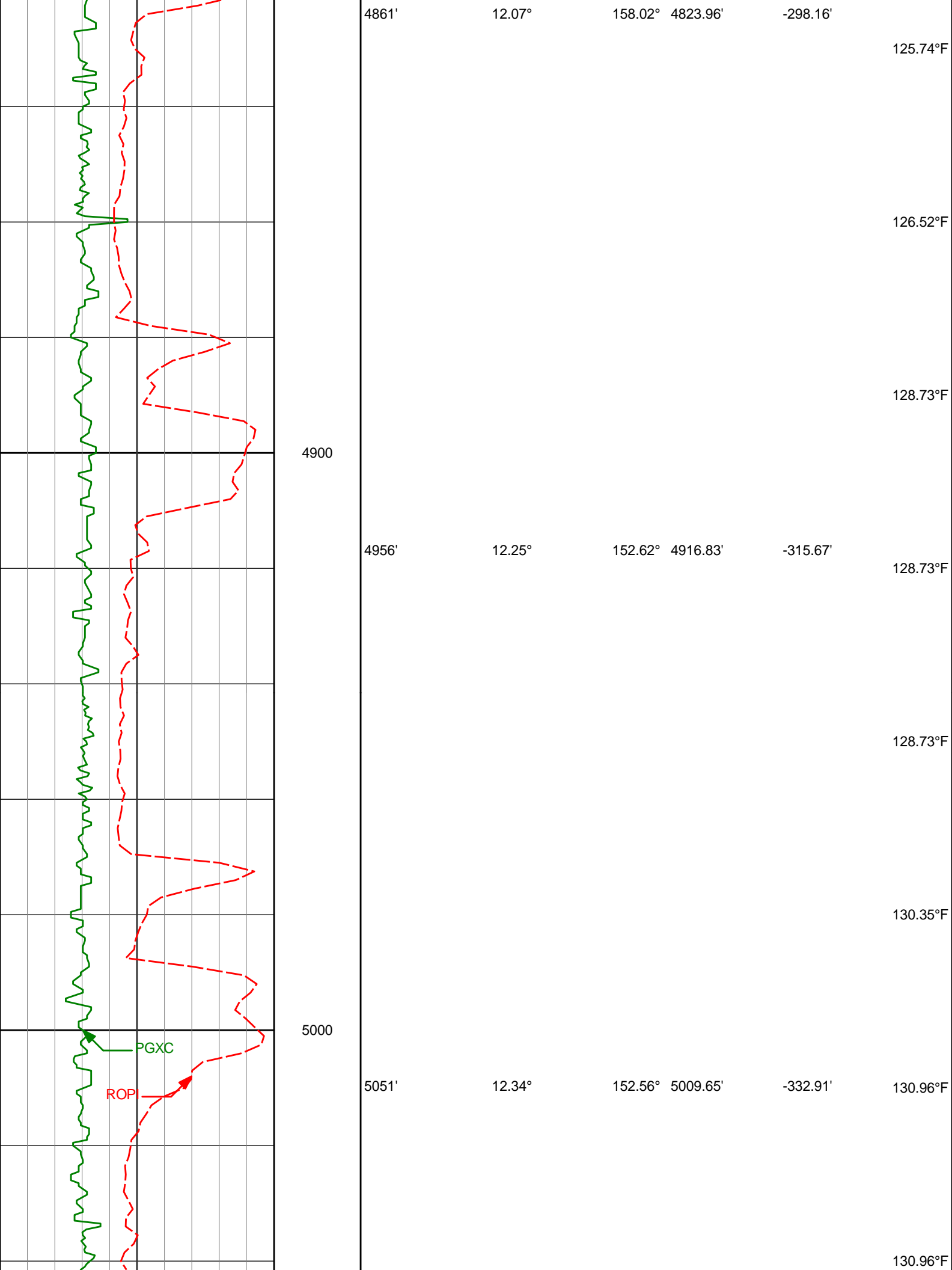
143.85° 4358.65'

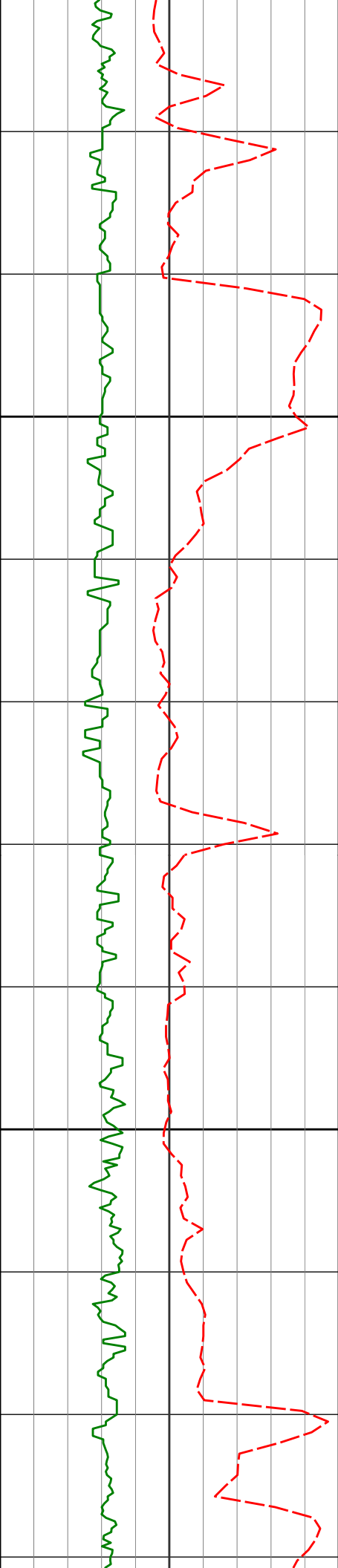
-225.10'

119.91°F









5100

5145'

12.96°

143.85°

5101.38'

-349.52'

131.16°F

133.20°F

135.45°F

137.30°F

5200

5240'

11.25°

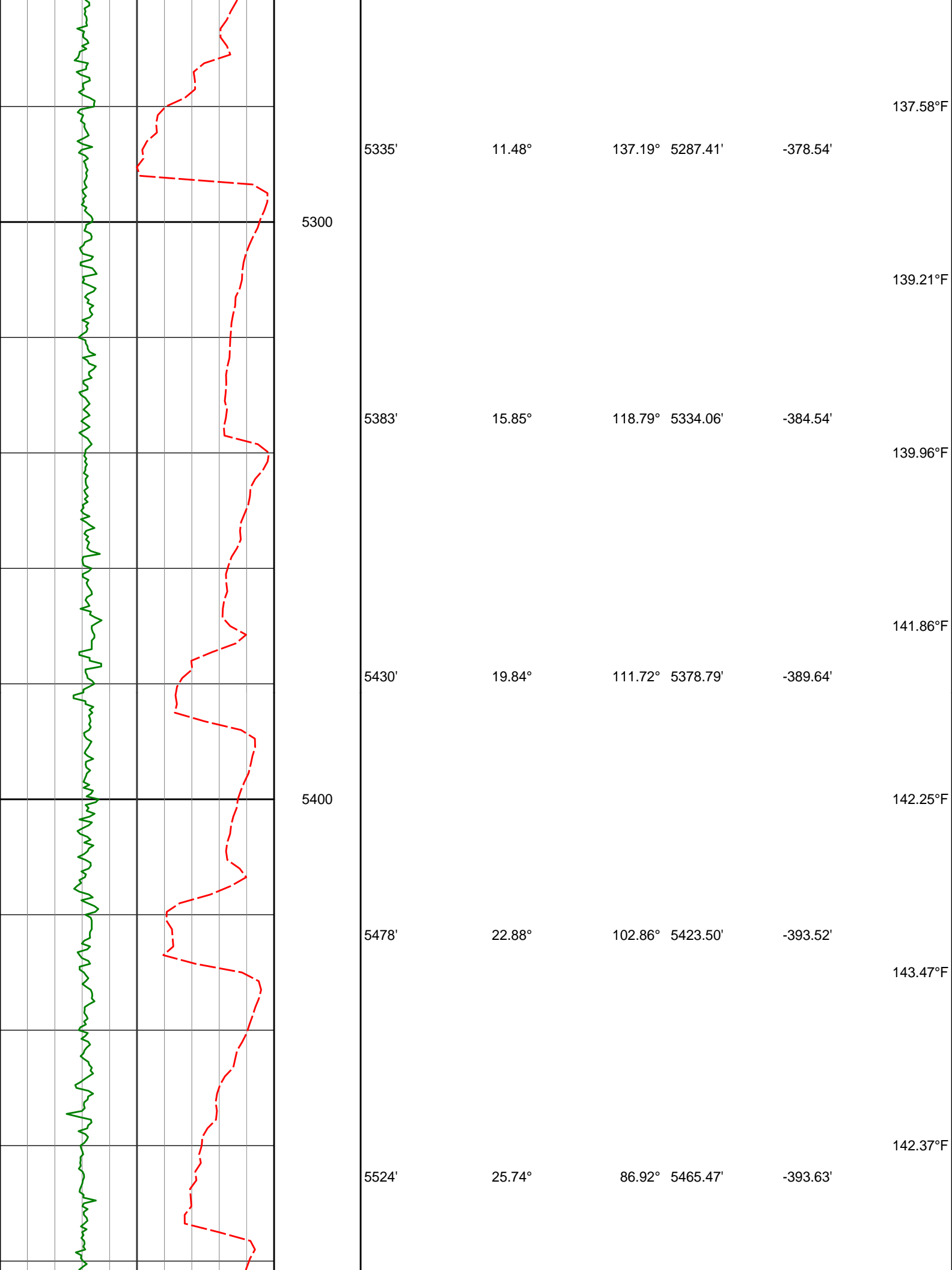
145.28°

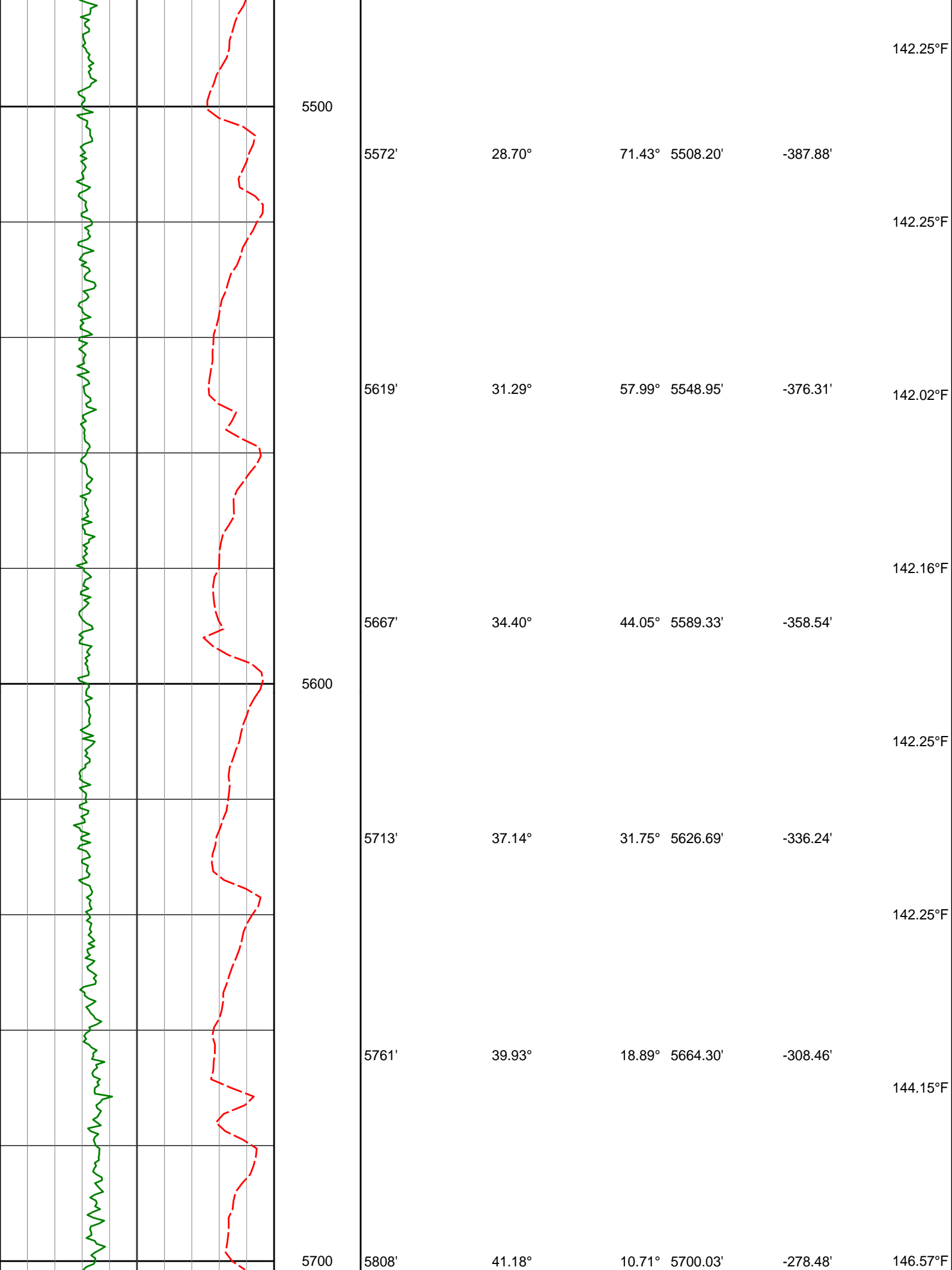
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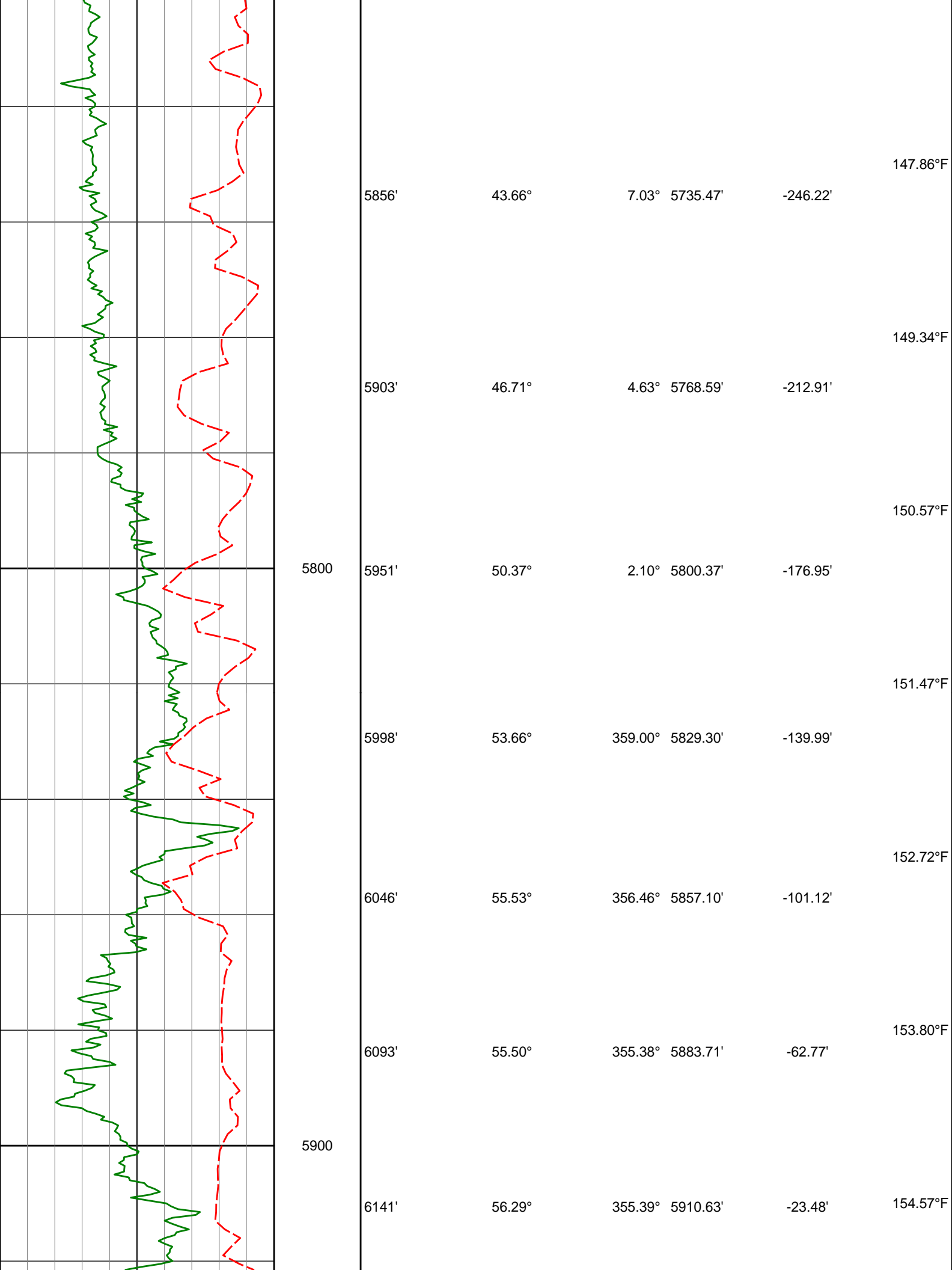
-364.86'

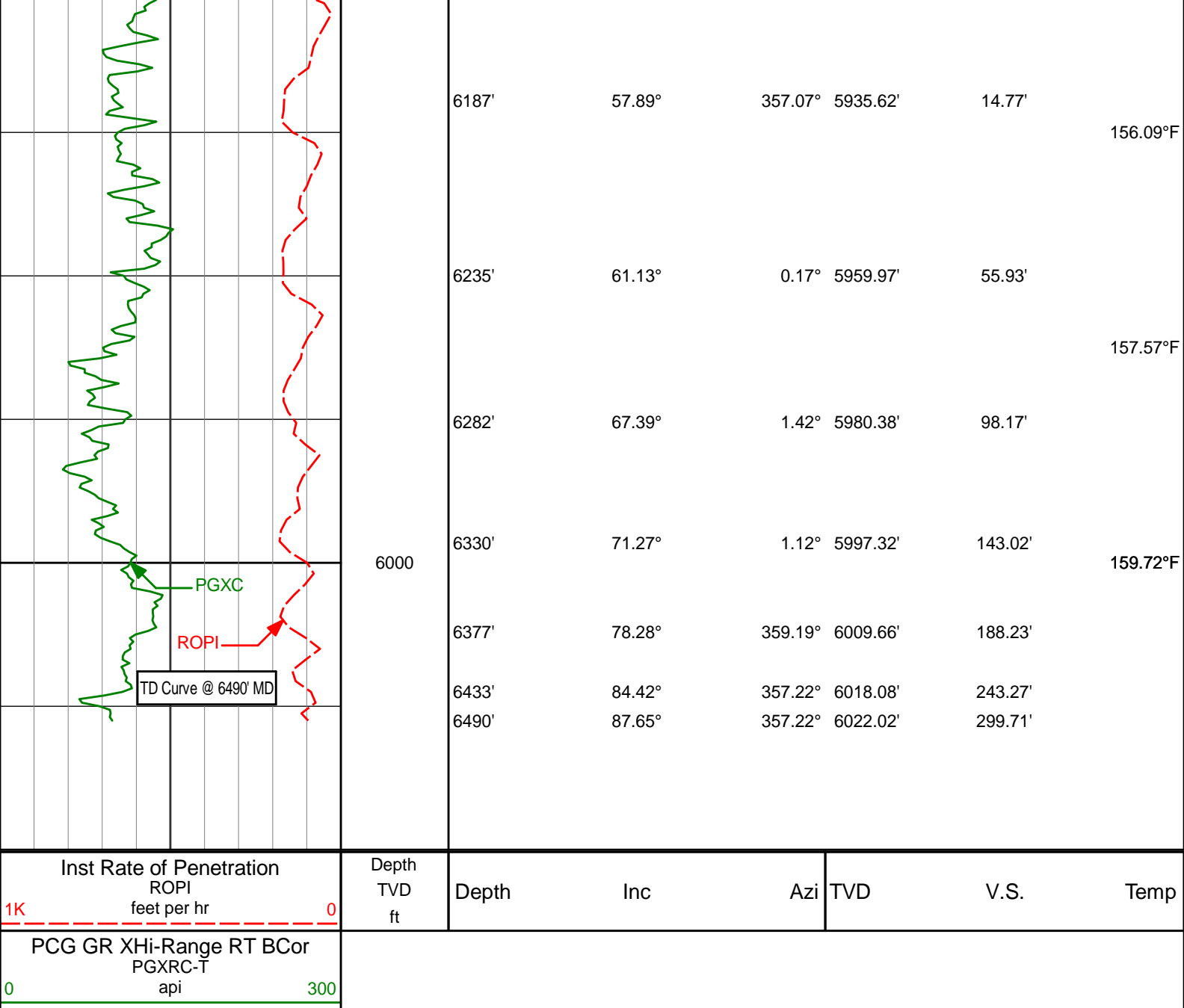
136.34°F

135.98°F









HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Kevin LC26-728
Wattenberg
Weld Colorado
USA
CA-XX-0902240508
Tied in @ Surface
First two Survey's from 3rd party source (Multi Shot EMS)
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
252.00	1.40	259.92	251.97	0.54 S	3.03 W	-0.75	0.56
485.00	1.00	338.52	484.94	0.86 N	6.58 W	0.38	0.67
731.00	0.11	226.39	730.92	2.69 N	7.54 W	2.14	0.43

824.00	0.31	266.73	823.92	2.61 N	7.85 W	2.04	0.25
916.00	0.33	242.84	915.92	2.48 N	8.33 W	1.87	0.14
1008.00	0.42	236.12	1007.92	2.17 N	8.85 W	1.53	0.11
1100.00	0.68	234.95	1099.92	1.67 N	9.57 W	0.98	0.28
1191.00	1.56	187.11	1190.90	0.13 N	10.16 W	-0.60	1.34
1302.00	1.91	184.44	1301.85	3.21 S	10.50 W	-3.96	0.32
1394.00	2.22	163.13	1393.79	6.45 S	10.10 W	-7.15	0.90
1486.00	2.51	134.25	1485.71	9.56 S	8.14 W	-10.12	1.32
1579.00	2.43	134.82	1578.63	12.37 S	5.28 W	-12.72	0.09
1670.00	2.47	139.65	1669.55	15.23 S	2.64 W	-15.38	0.23
1763.00	2.33	138.18	1762.46	18.16 S	0.08 W	-18.12	0.16
1854.00	2.48	137.68	1853.38	21.00 S	2.48 E	-20.77	0.17
1946.00	2.19	108.06	1945.31	23.02 S	5.49 E	-22.56	1.33
2038.00	1.40	71.24	2037.27	23.20 S	8.23 E	-22.55	1.48
2129.00	1.25	43.30	2128.24	22.12 S	9.96 E	-21.35	0.72
2222.00	1.39	42.30	2221.22	20.55 S	11.41 E	-19.68	0.16
2314.00	1.46	49.86	2313.19	18.97 S	13.06 E	-17.98	0.22
2405.00	1.79	22.29	2404.16	16.90 S	14.49 E	-15.82	0.92
2498.00	1.83	21.30	2497.11	14.17 S	15.58 E	-13.02	0.05
2590.00	0.90	6.39	2589.08	12.09 S	16.19 E	-10.90	1.08
2683.00	0.85	292.44	2682.07	11.10 S	15.63 E	-9.95	1.13
2778.00	0.99	189.25	2777.07	11.64 S	14.85 E	-10.55	1.52
2872.00	3.40	179.22	2870.99	15.22 S	14.76 E	-14.13	2.59
2967.00	5.89	165.83	2965.67	22.77 S	15.99 E	-21.56	2.84
3062.00	7.65	157.89	3060.01	33.35 S	19.56 E	-31.87	2.09
3157.00	8.85	149.37	3154.03	45.50 S	25.67 E	-43.54	1.80
3251.00	9.82	141.12	3246.79	57.97 S	34.39 E	-55.35	1.76
3346.00	11.41	138.30	3340.16	71.30 S	45.73 E	-67.83	1.76
3441.00	12.89	137.78	3433.03	86.16 S	59.10 E	-81.70	1.56
3535.00	12.73	137.64	3524.69	101.58 S	73.13 E	-96.08	0.17
3630.00	11.94	136.26	3617.49	116.42 S	86.98 E	-109.88	0.89
3724.00	11.51	142.76	3709.53	130.91 S	99.37 E	-123.45	1.48
3819.00	11.34	143.92	3802.65	146.00 S	110.61 E	-137.70	0.30
3914.00	10.72	143.51	3895.90	160.65 S	121.37 E	-151.54	0.66
4008.00	10.54	146.89	3988.28	174.89 S	131.26 E	-165.03	0.69
4103.00	11.78	142.39	4081.49	189.85 S	141.93 E	-179.19	1.60
4198.00	12.98	142.29	4174.28	205.97 S	154.37 E	-194.38	1.26
4292.00	13.03	140.64	4265.86	222.52 S	167.55 E	-209.94	0.40
4387.00	11.76	143.85	4358.65	238.62 S	180.06 E	-225.10	1.53
4482.00	10.62	140.88	4451.84	253.23 S	191.29 E	-238.87	1.34
4577.00	10.91	141.73	4545.17	267.08 S	202.38 E	-251.89	0.35
4671.00	10.80	152.91	4637.50	281.91 S	211.91 E	-266.00	2.24
4766.00	10.71	156.39	4730.83	297.92 S	219.50 E	-281.43	0.69
4861.00	12.07	158.02	4823.96	315.22 S	226.75 E	-298.16	1.47
4956.00	12.25	152.62	4916.83	333.38 S	235.10 E	-315.67	1.21
5051.00	12.34	152.56	5009.65	351.33 S	244.41 E	-332.91	0.10
5145.00	12.96	143.85	5101.38	368.76 S	255.26 E	-349.52	2.13
5240.00	11.25	145.28	5194.26	384.98 S	266.82 E	-364.86	1.83
5335.00	11.48	137.19	5287.41	399.53 S	278.52 E	-378.54	1.69
5383.00	15.85	118.79	5334.06	406.19 S	287.52 E	-384.54	12.75
5430.00	19.84	111.72	5378.79	412.24 S	300.56 E	-389.64	9.64
5478.00	22.88	102.86	5423.50	417.33 S	317.23 E	-393.52	9.22
5524.00	25.74	86.92	5465.47	418.79 S	335.95 E	-393.63	15.51
5572.00	28.70	71.43	5508.20	414.55 S	357.31 E	-387.88	15.94
5619.00	31.29	57.99	5548.95	404.47 S	378.39 E	-376.31	15.29
5667.00	34.40	44.05	5589.33	388.09 S	398.42 E	-358.54	16.99
5713.00	37.14	31.75	5626.69	366.91 S	414.79 E	-336.24	16.71
5761.00	39.93	18.89	5664.30	339.97 S	427.43 E	-308.46	17.63
5808.00	41.18	10.71	5700.03	310.47 S	435.19 E	-278.48	11.63
5856.00	43.66	7.03	5735.47	278.49 S	440.16 E	-246.22	7.31
5903.00	46.71	4.63	5768.59	245.33 S	443.53 E	-212.91	7.42
5951.00	50.37	2.10	5800.37	209.43 S	445.62 E	-176.95	8.60
5998.00	53.66	359.00	5829.30	172.40 S	445.95 E	-139.99	8.72
6046.00	55.53	356.46	5857.10	133.31 S	444.39 E	-101.12	5.81
6093.00	55.50	355.38	5883.71	94.67 S	441.63 E	-62.77	1.90
6141.00	56.29	355.39	5910.63	55.05 S	438.44 E	-23.48	1.65
6187.00	57.89	357.07	5935.62	16.52 S	435.90 E	14.77	4.64
6235.00	61.13	0.17	5959.97	24.82 N	434.93 E	55.93	8.73
6282.00	67.39	1.42	5980.38	67.13 N	435.53 E	98.17	13.53
6330.00	71.27	1.12	5997.32	112.02 N	436.52 E	143.02	8.11
6377.00	78.28	359.19	6009.66	157.34 N	436.63 E	188.23	15.44
6433.00	84.42	357.22	6018.08	212.65 N	434.89 E	243.27	11.50
6490.00	87.65	357.22	6022.02	269.43 N	432.13 E	299.71	5.67

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 4.11 DEGREES (GRID)
A TOTAL CORRECTION OF 7.02 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 6490.00 FEET
IS 509.24 FEET ALONG 58.06 DEGREES (GRID)**

Date Printed:13 April 2015