



WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	19-Aug-15	22-Aug-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)	776.00	6,170.00			
Log End Depth (MD, ft)	6,170.00	10,481.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	17-Aug-15 19:00	20-Aug-15 00:29			
Drill/Wipe End Date and Time	18-Aug-15 21:31	21-Aug-15 20:24			
Min Inc (deg) @ Depth (MD, ft)	0.03 @ 804.00	86.98 @ 6,231.00			
Max Inc (deg) @ Depth (MD, ft)	83.58 @ 6,114.00	91.45 @ 10,481.00			
Bit TFA(in2) / Bit Type	0.98 / PDC	0.46 / PDC			
Flow Rate (gpm)	578.47	300.41			
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)	9.85 / 43.00	10.20 / 38.00			
Filtrate CL (ppm)	2,200.00	2,500.00			
pH / Fluid Loss (mptm)	9.50 / 9	9.50 / 9			
PV (cP) / YP (lbf2)	11 / 11.00	10 / 10.00			
% Solids / % Sand	11.50 / 0.25	10.00 / 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 Joint (lb) / S	100,000 / PDM	210,410 / PDM			

Max Tool Temp (degF) / Source	162.80 / PCM	213.40 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A			
Lead MWD Engineer	Matt Busche	Matt Busche			
Customer Representative	Jeremy Stolz	Jeremy Stolz			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11341339	12368592			
Insert Serial Number	11400992	11400842			
Date and Time Initialized	16-Aug-15 18:21	18-Aug-15 18:04			
Date and Time Read	19-Aug-15 03:50	22-Aug-15 06:14			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	56.00	68.00			
Software Version	6.21	6.21			
Sub Serial Number	11341339	12368592			
Sonde Serial Number	11297516	11637592			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	316.90	122.50			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	48.84	70.68			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11341339	12368592			
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

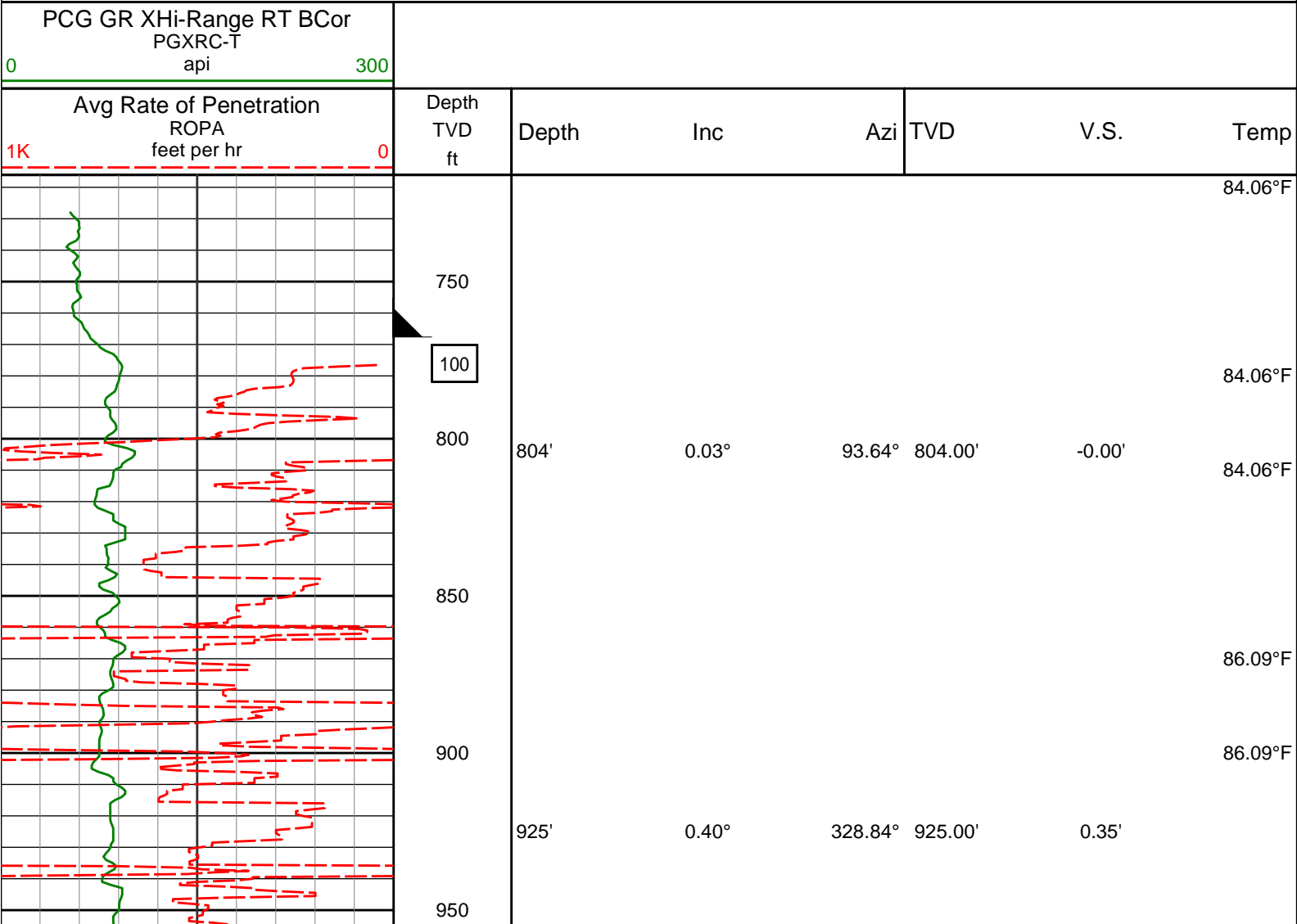
1:240 Log
PGRC (Gamma CG):
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft

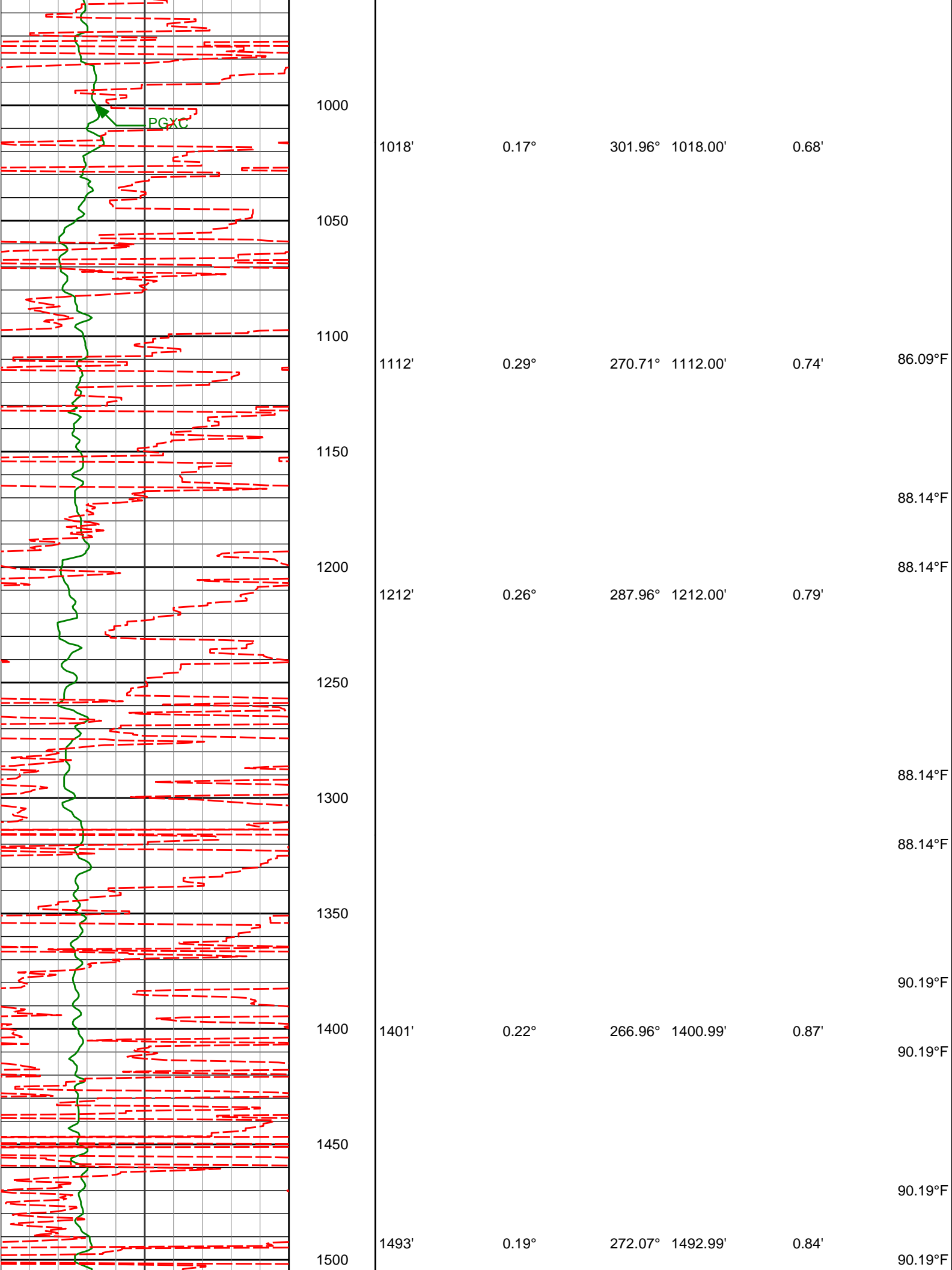
ROPA (Average Rate Of Penetration):
Interval Resolution: 0.5 ft
Interval Distance: 1.2 ft

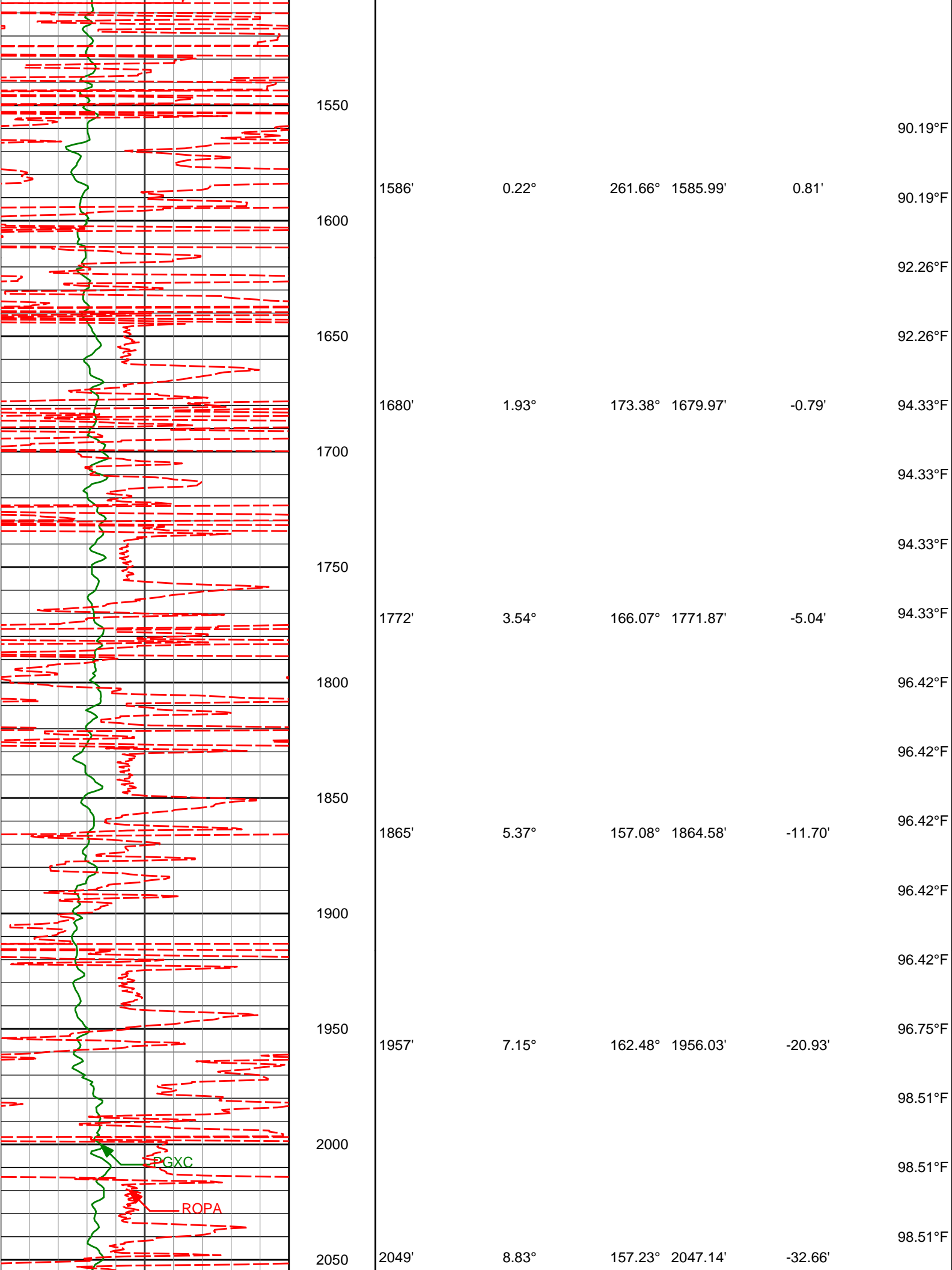
WARRANTY

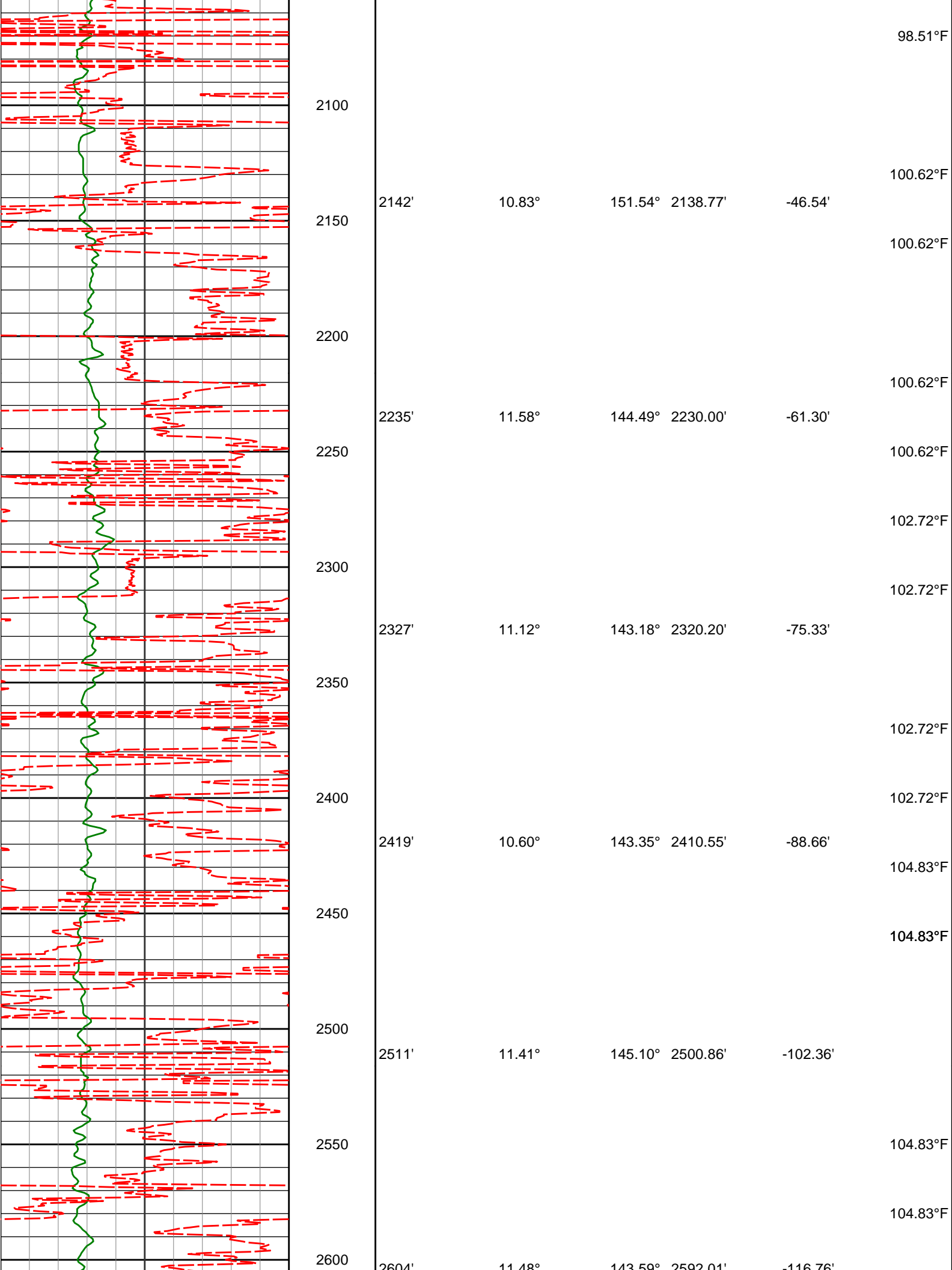
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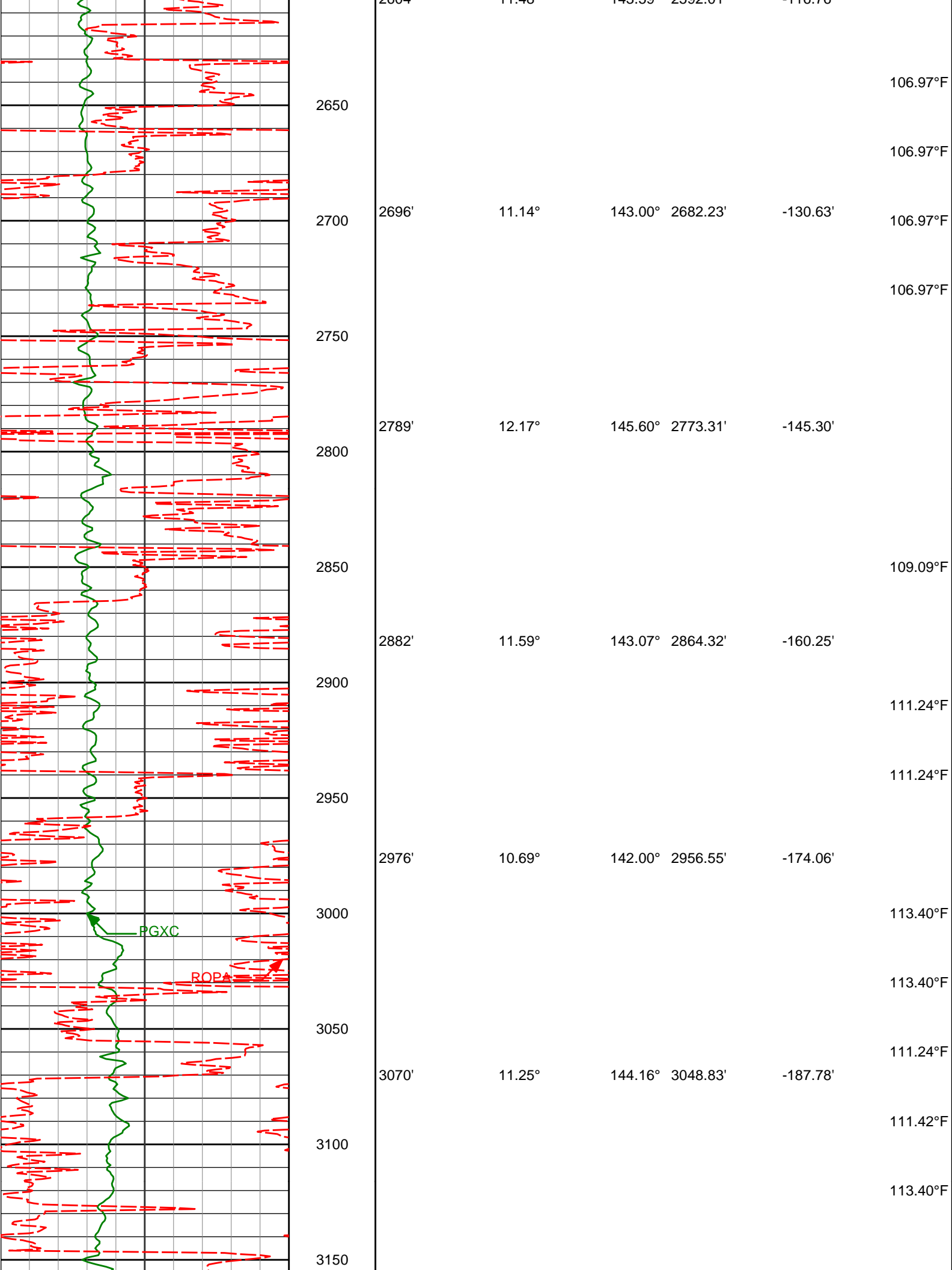
MD Detail 1:600 Scale

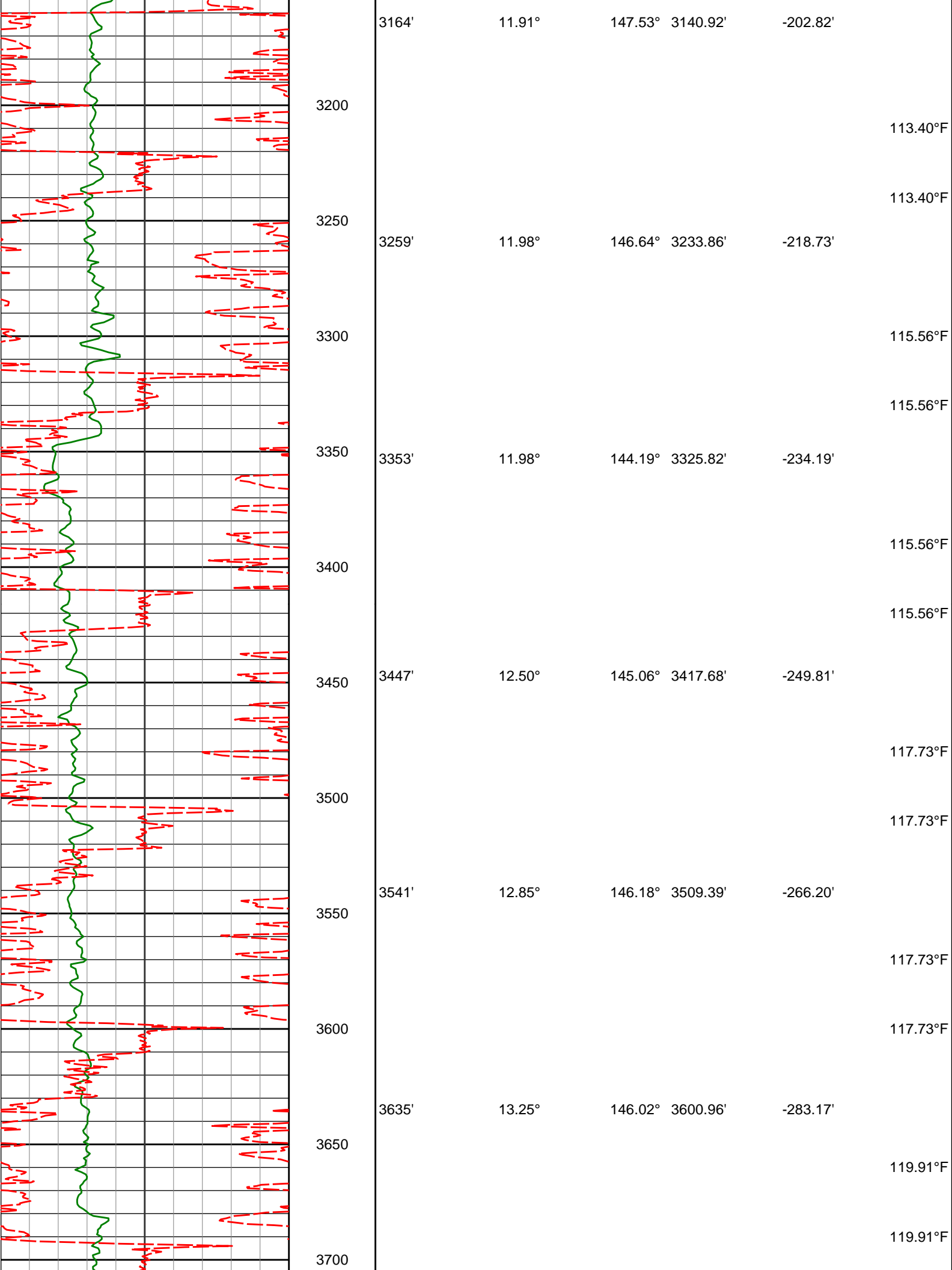


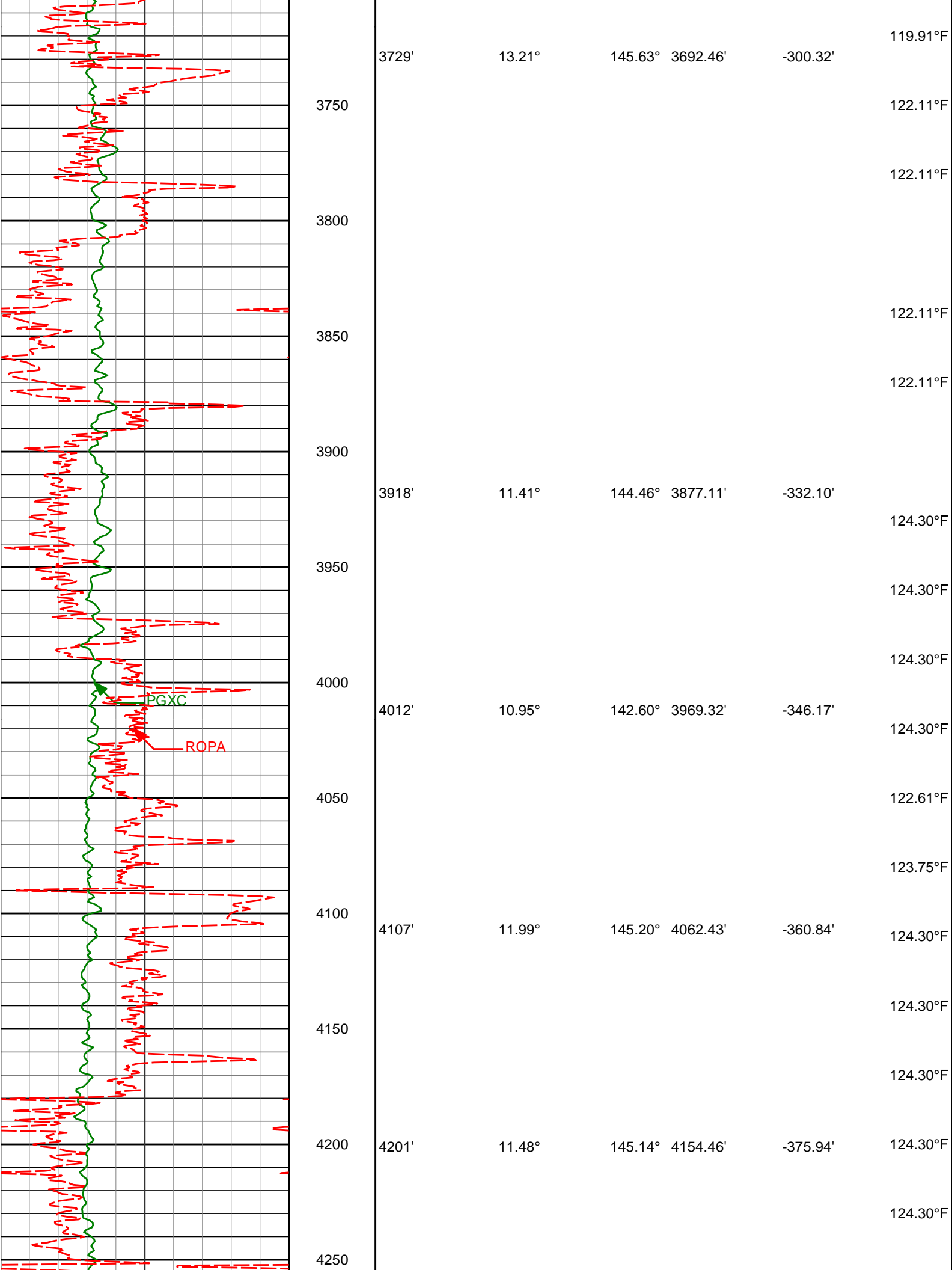


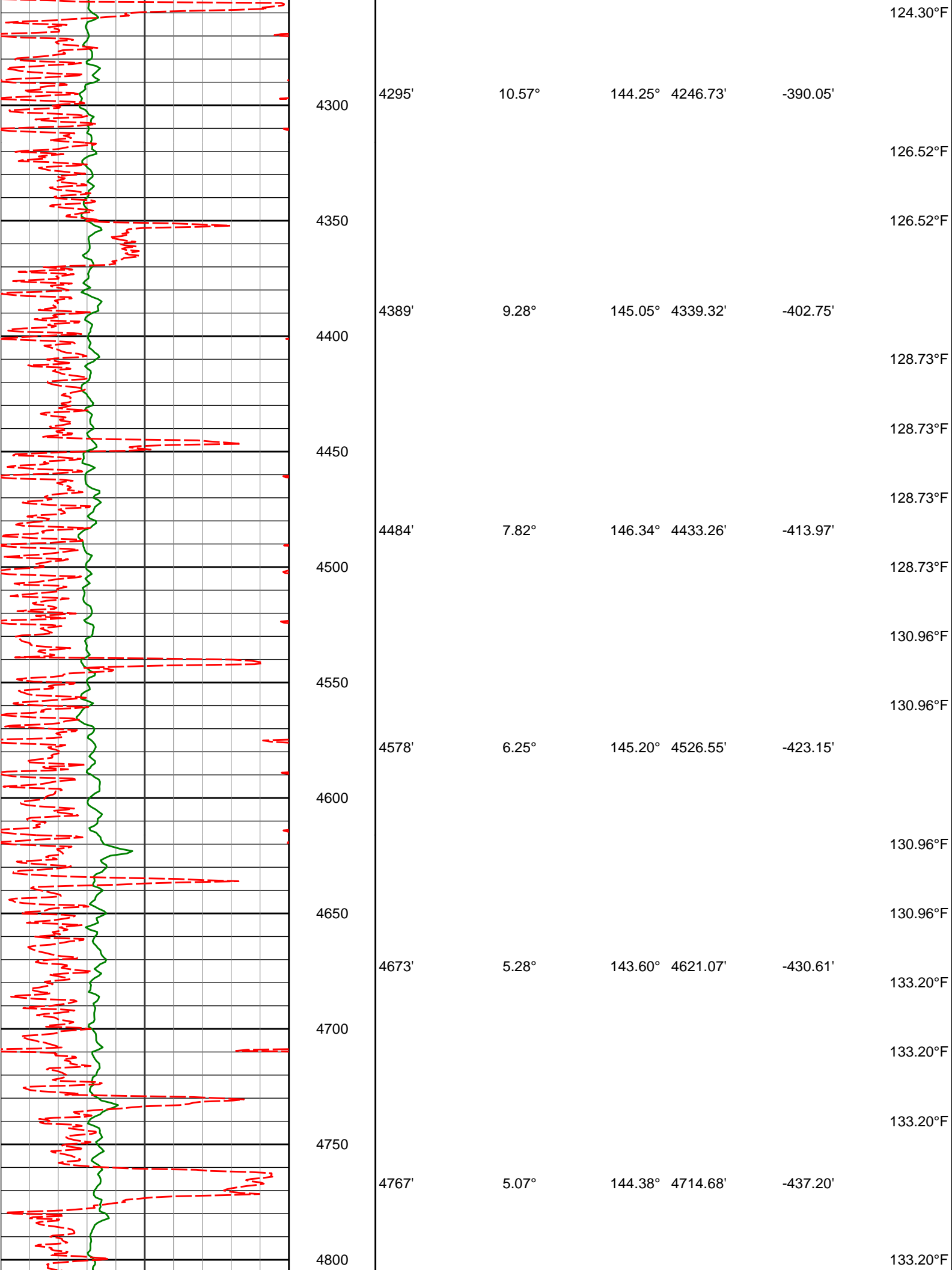


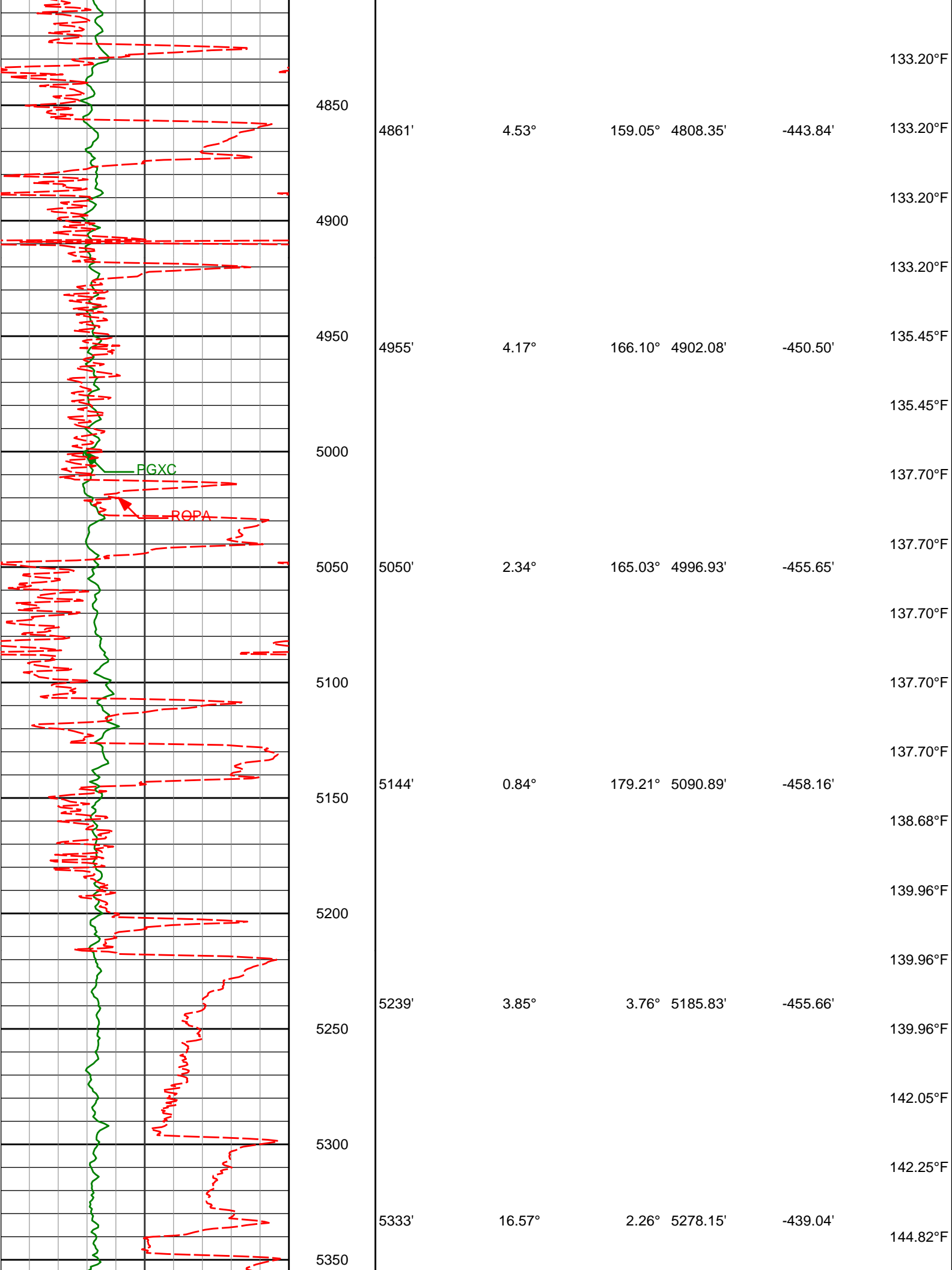


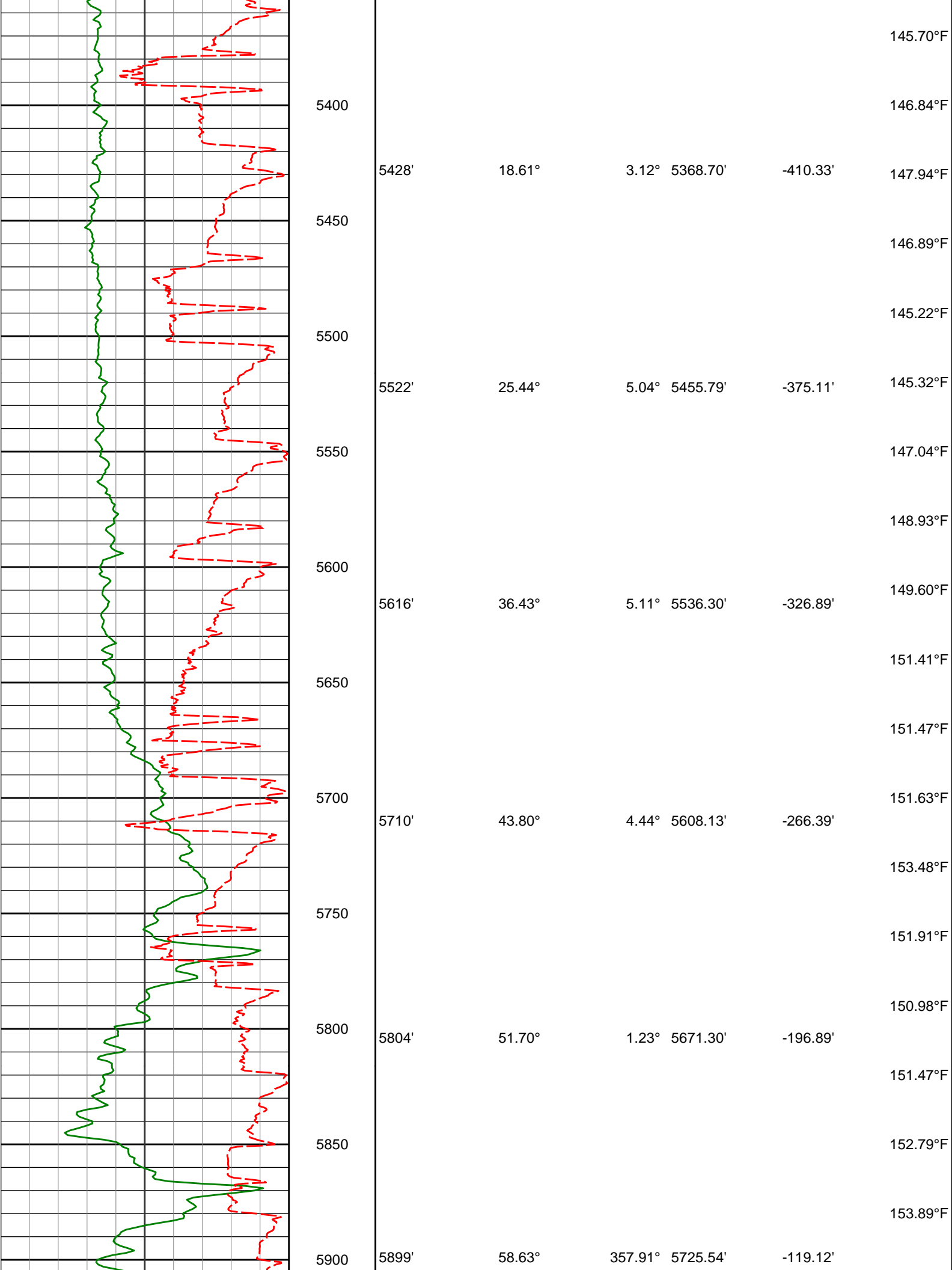


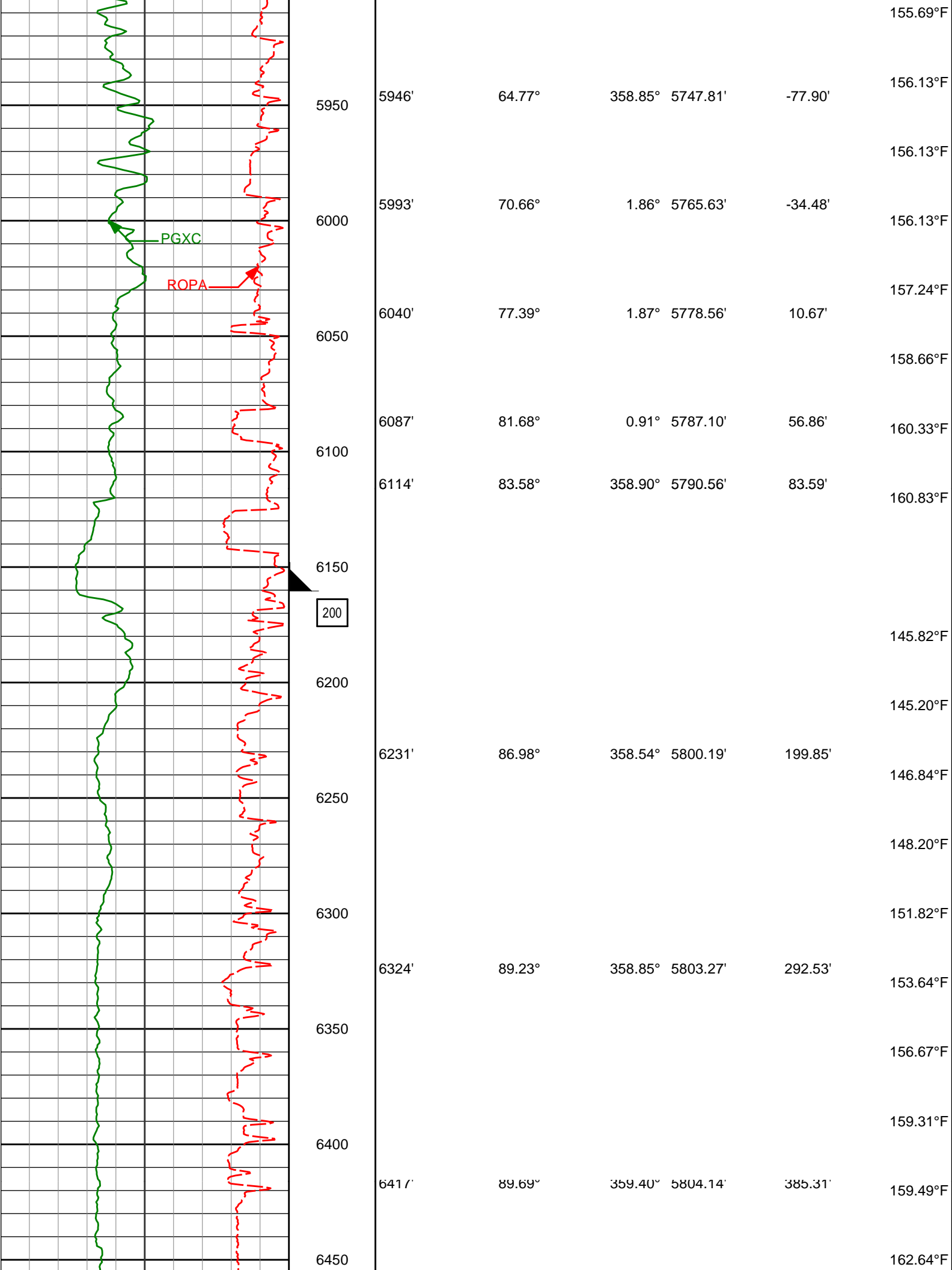


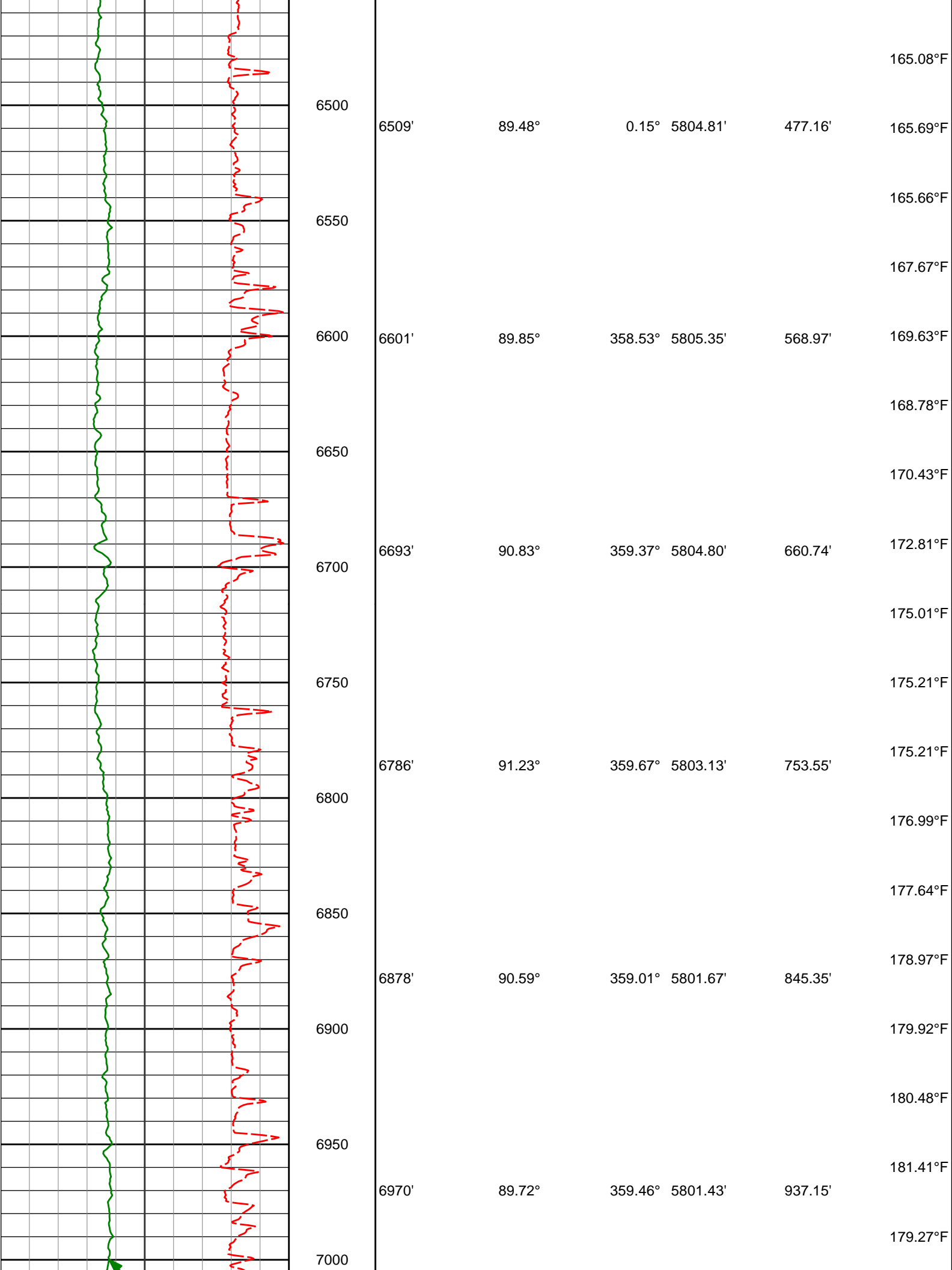


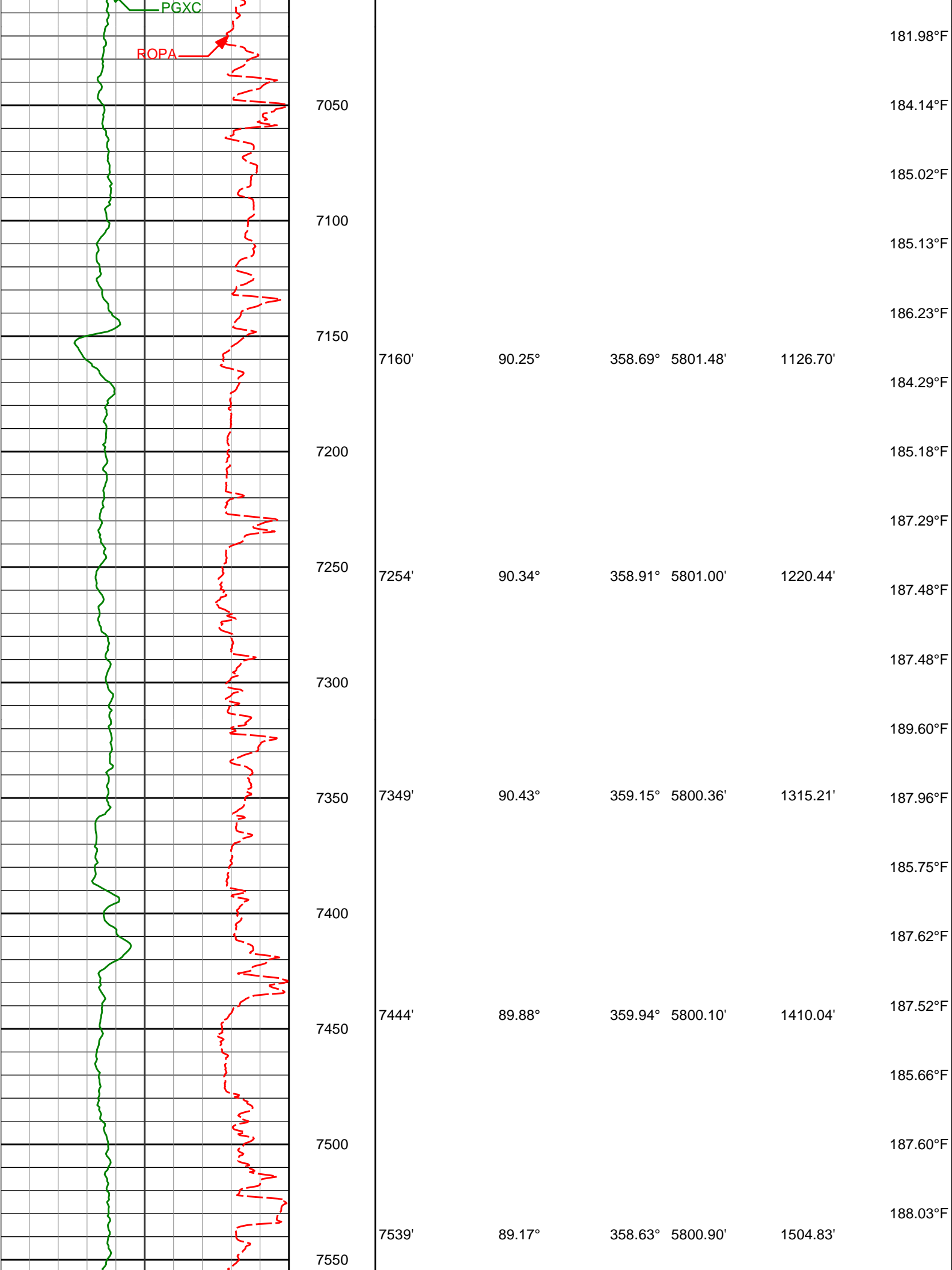


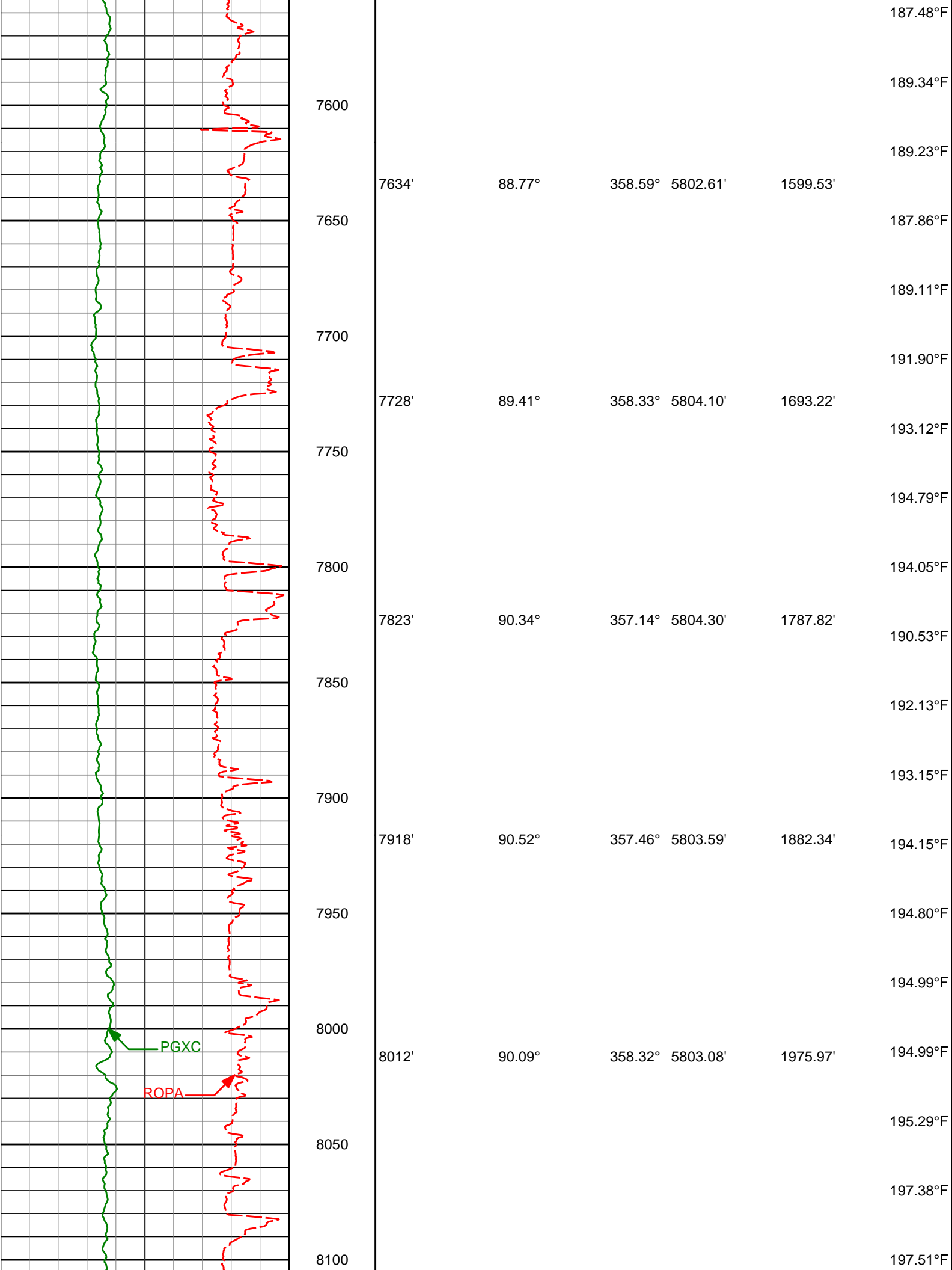


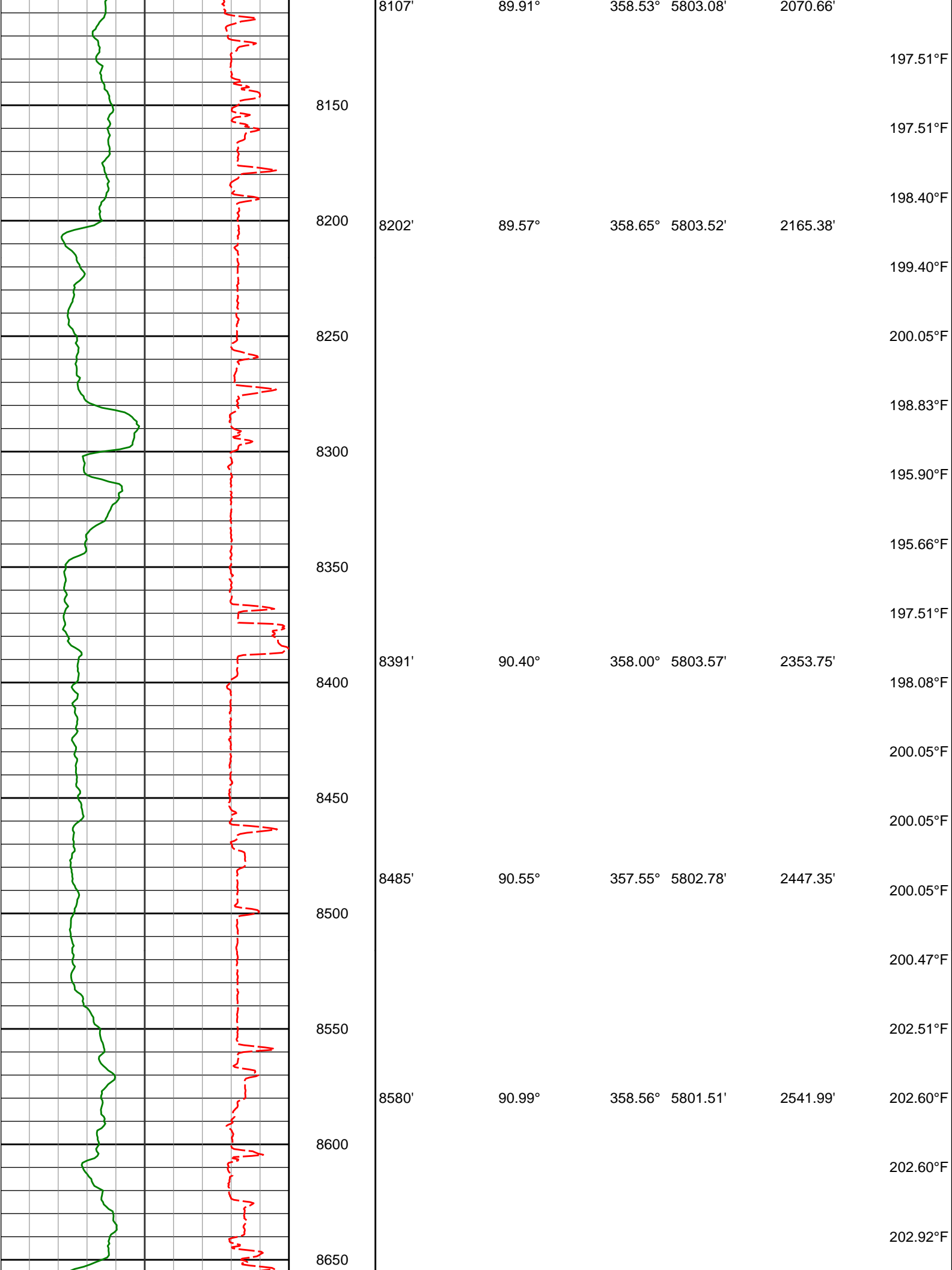


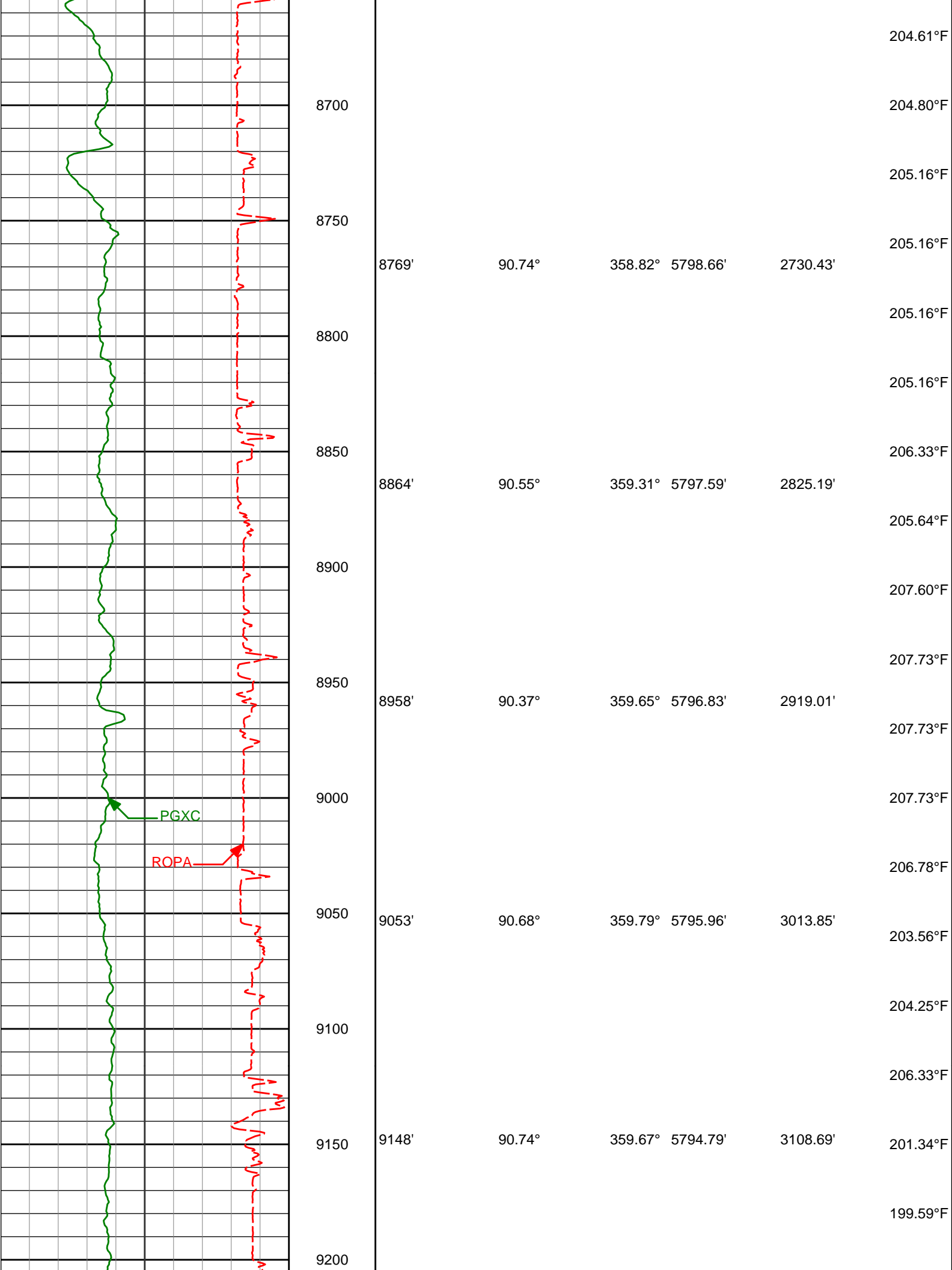


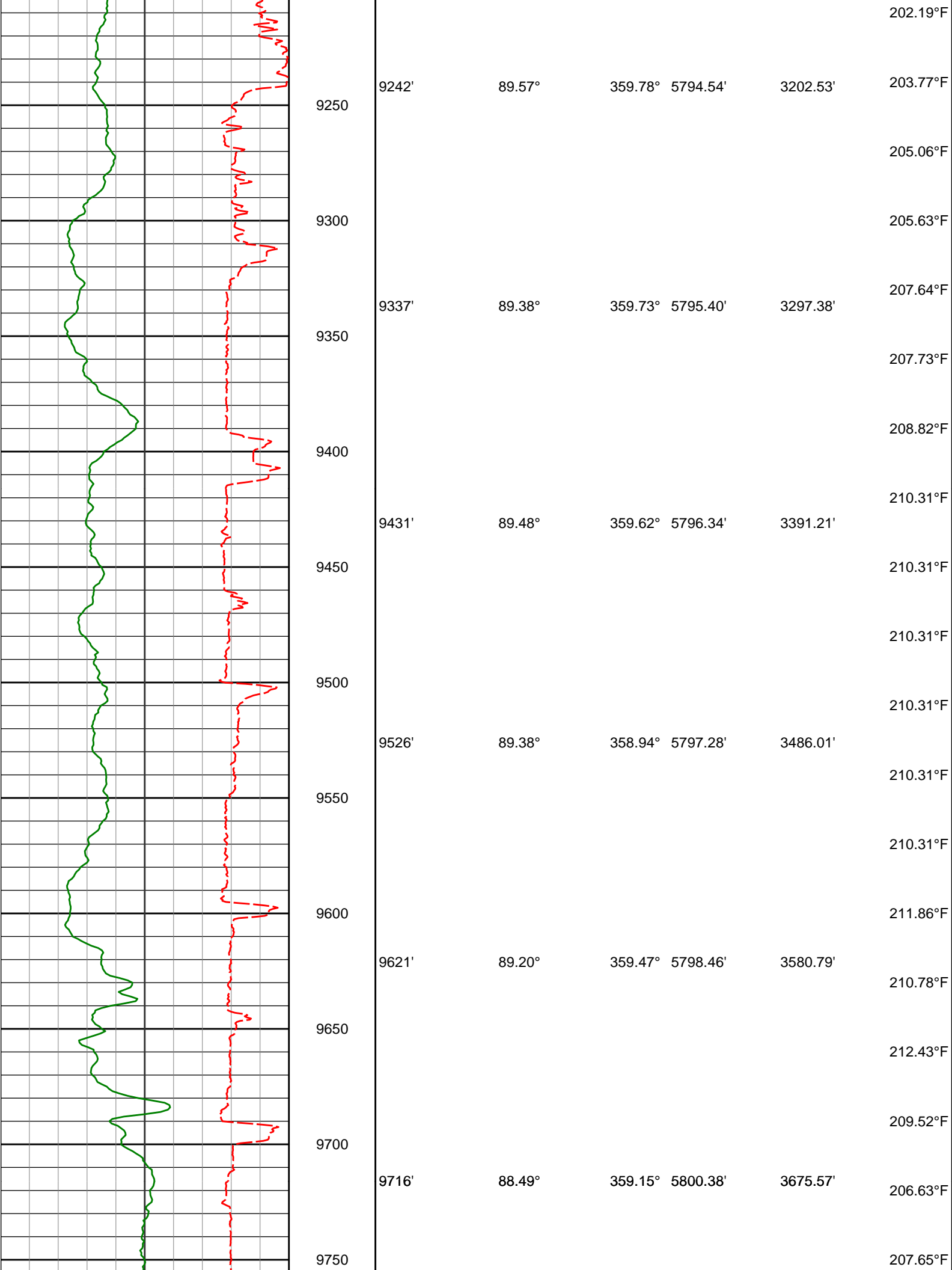


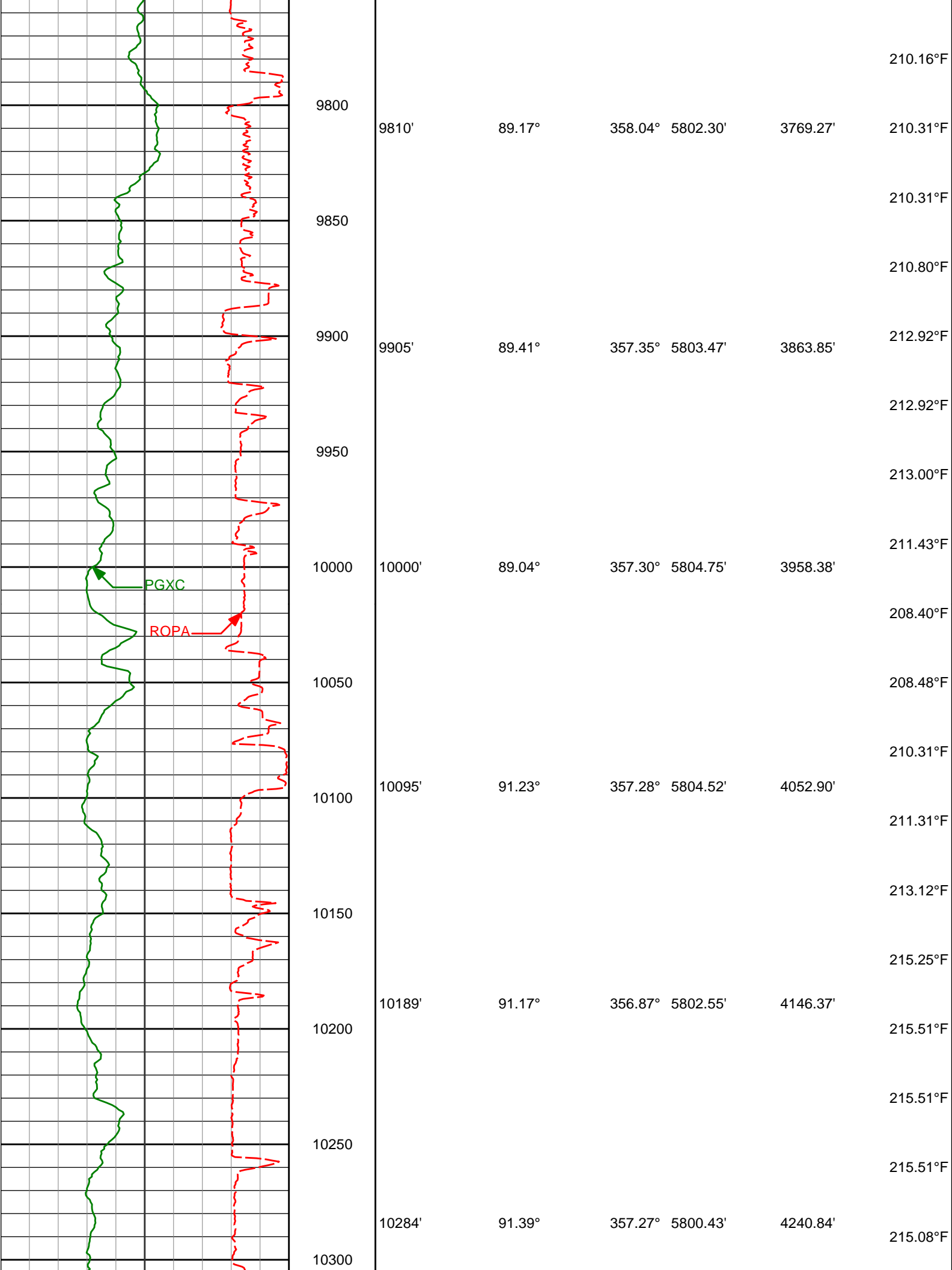


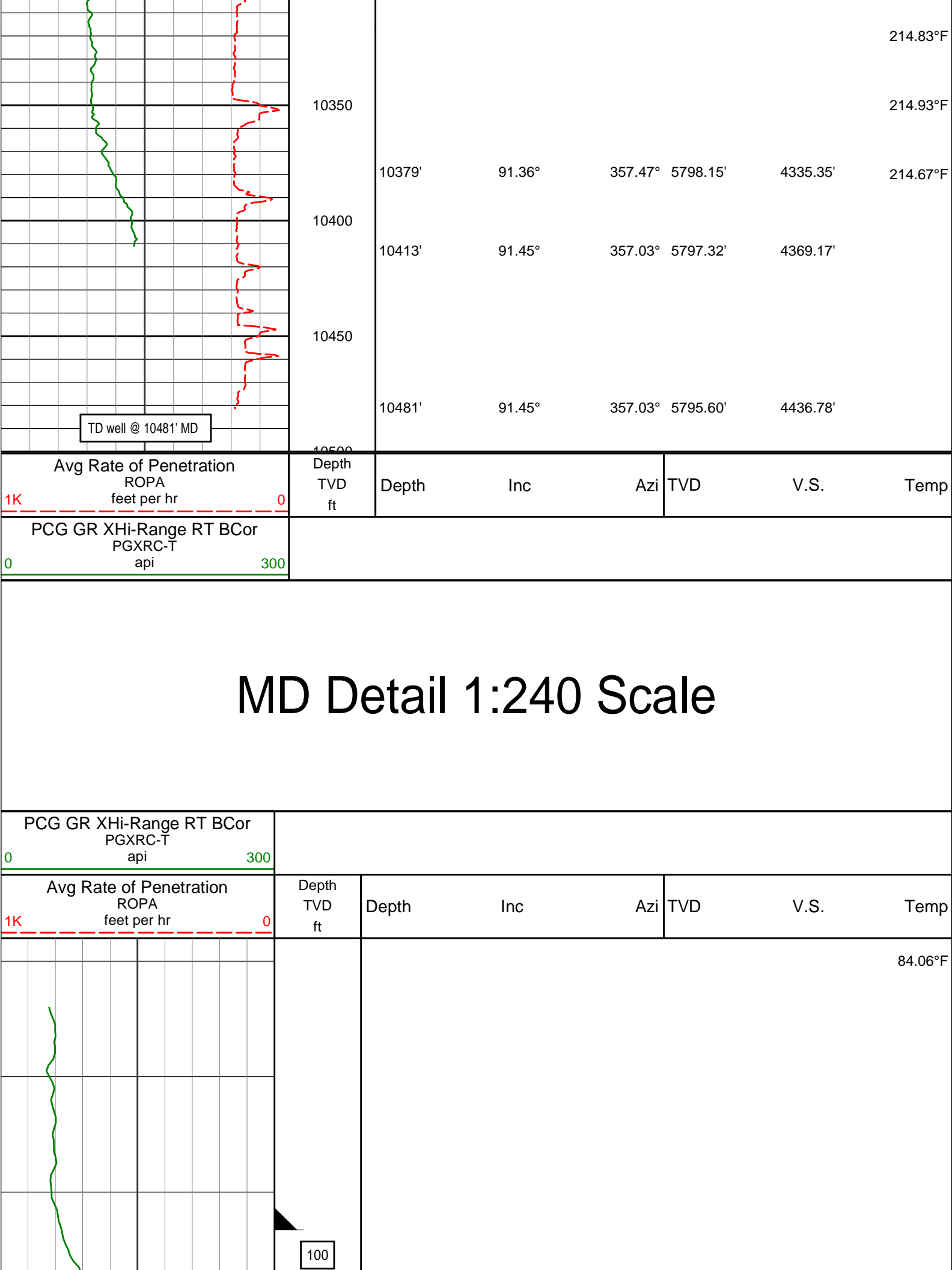




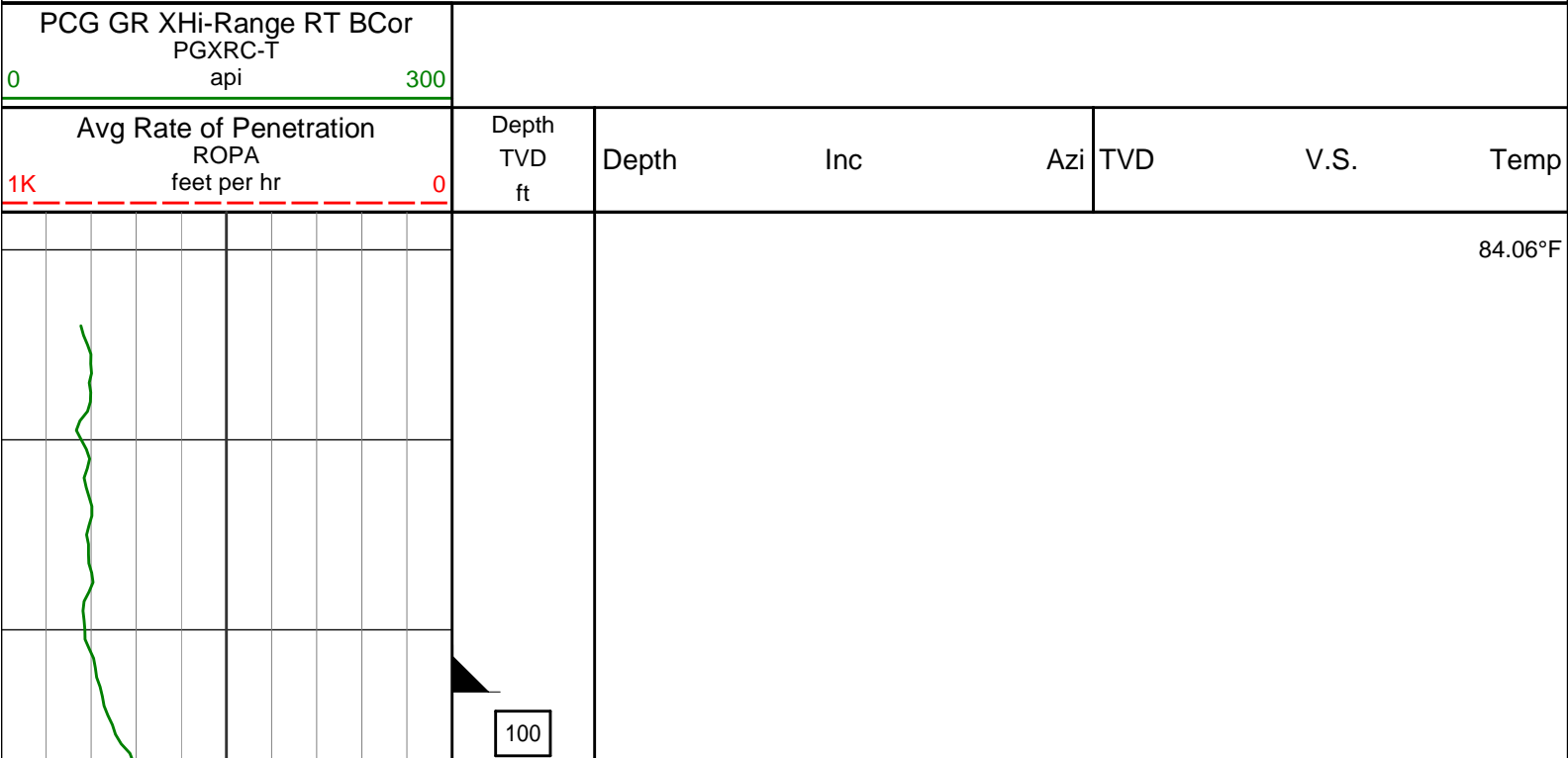


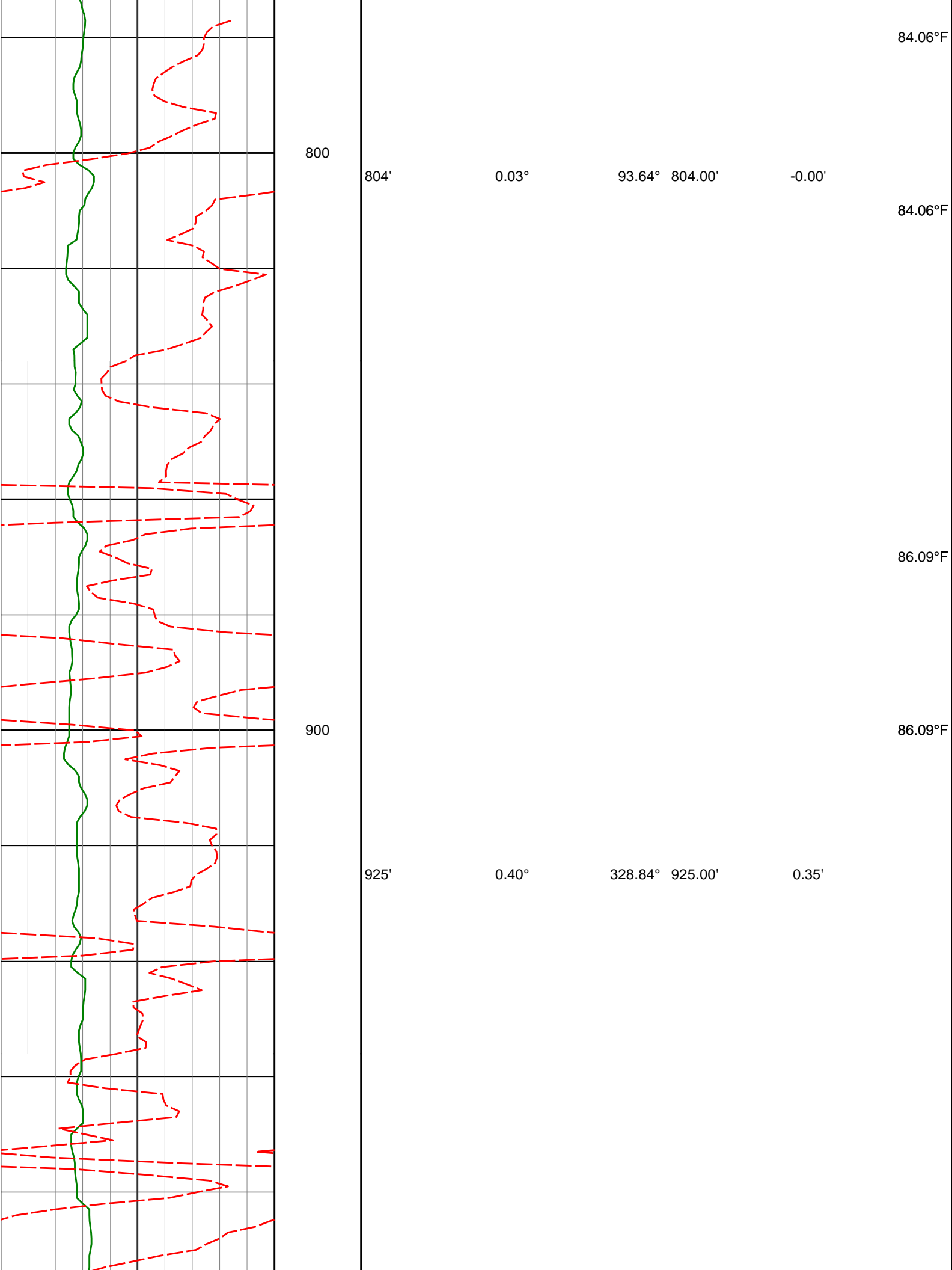


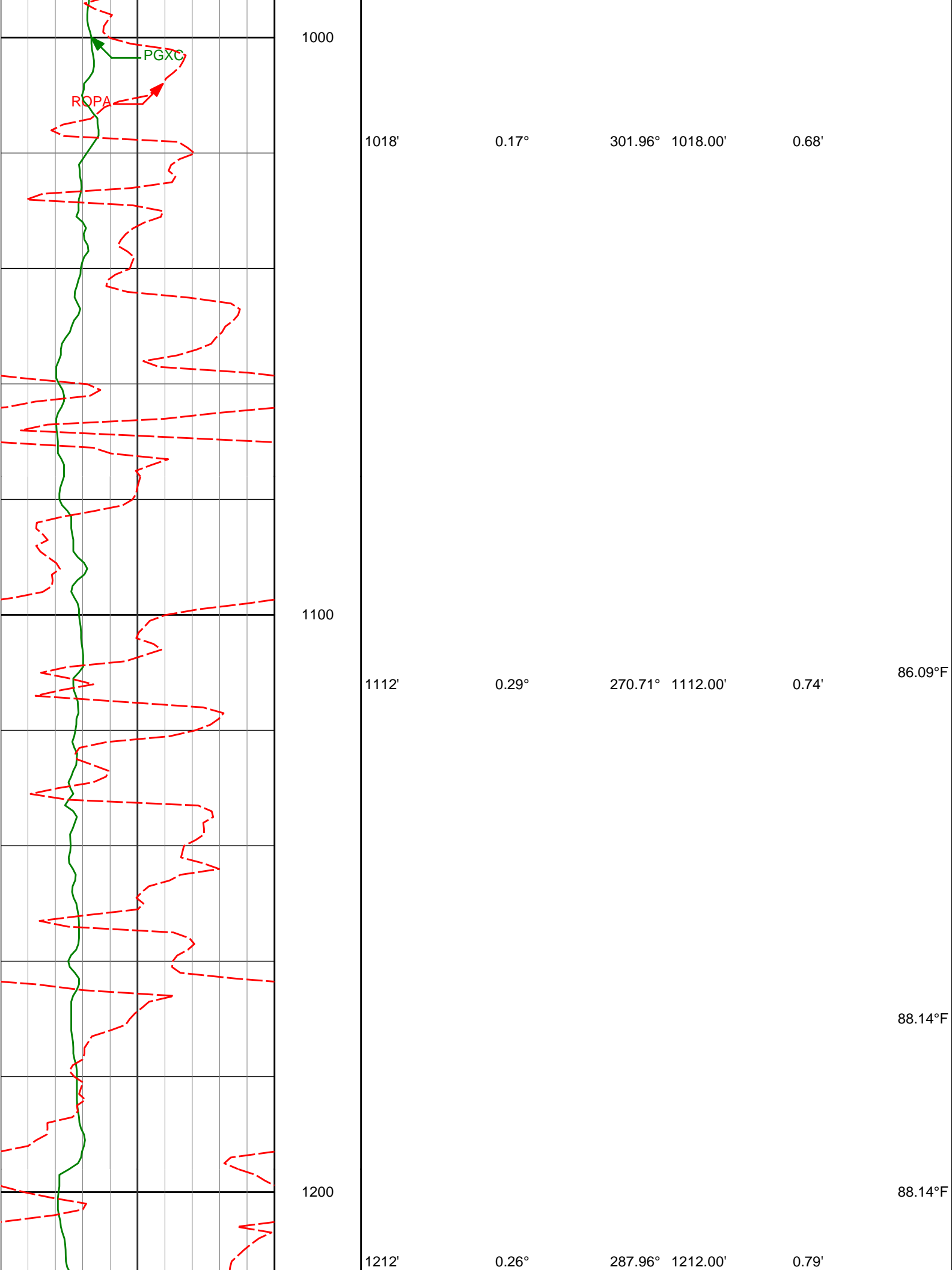




MD Detail 1:240 Scale









1300

1400

1401'

0.22°

266.96° 1400.99'

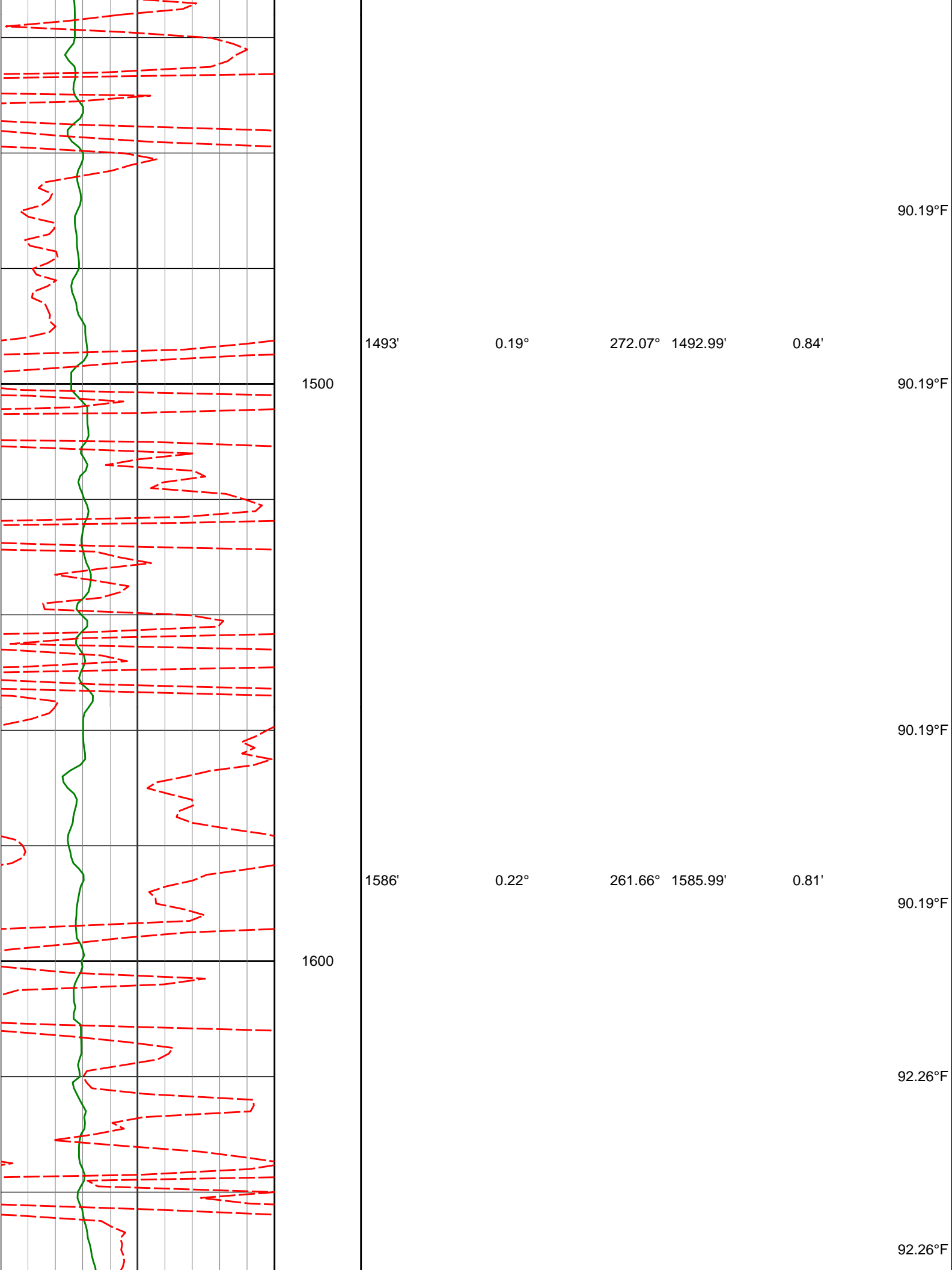
0.87'

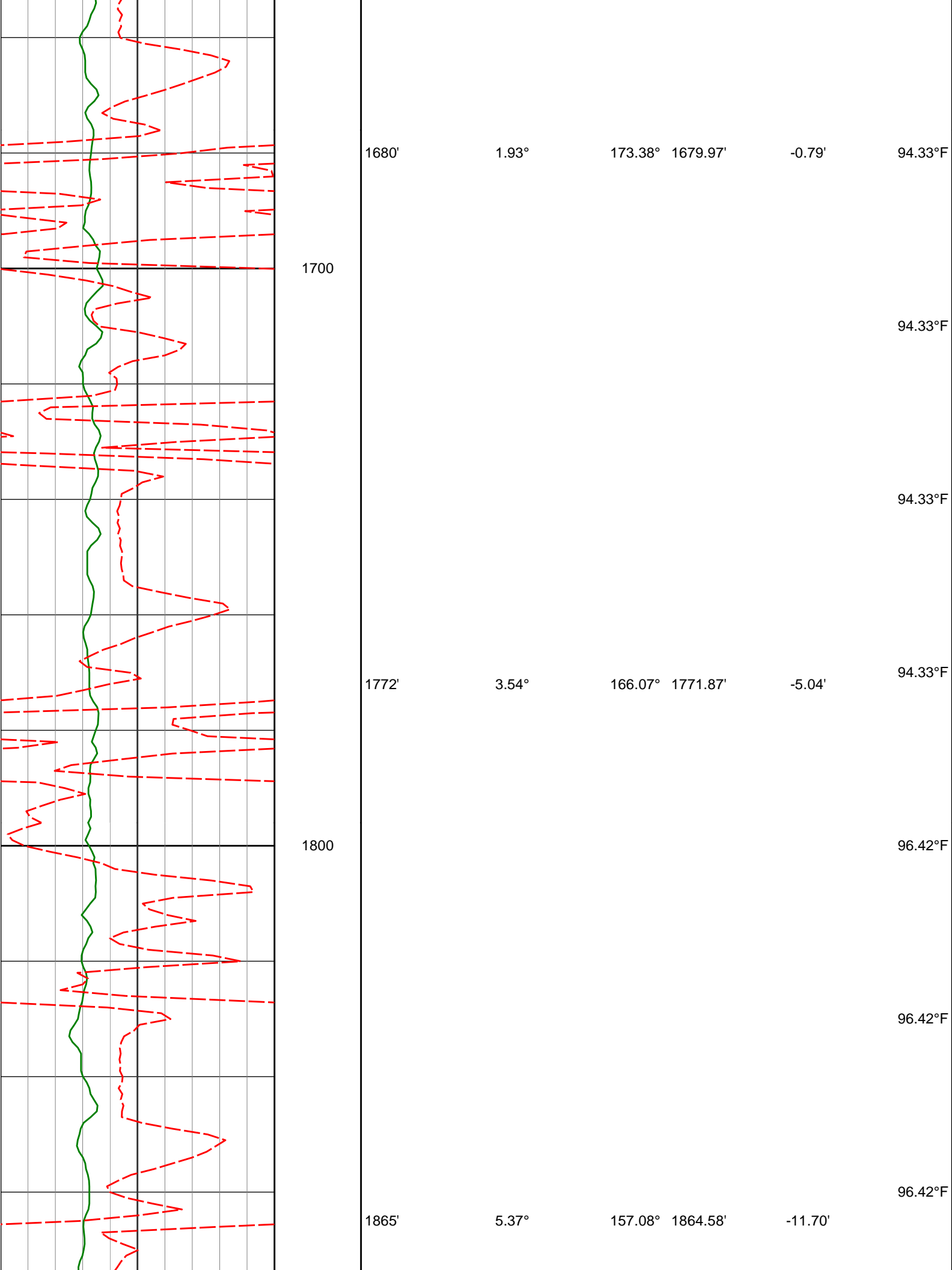
88.14°F

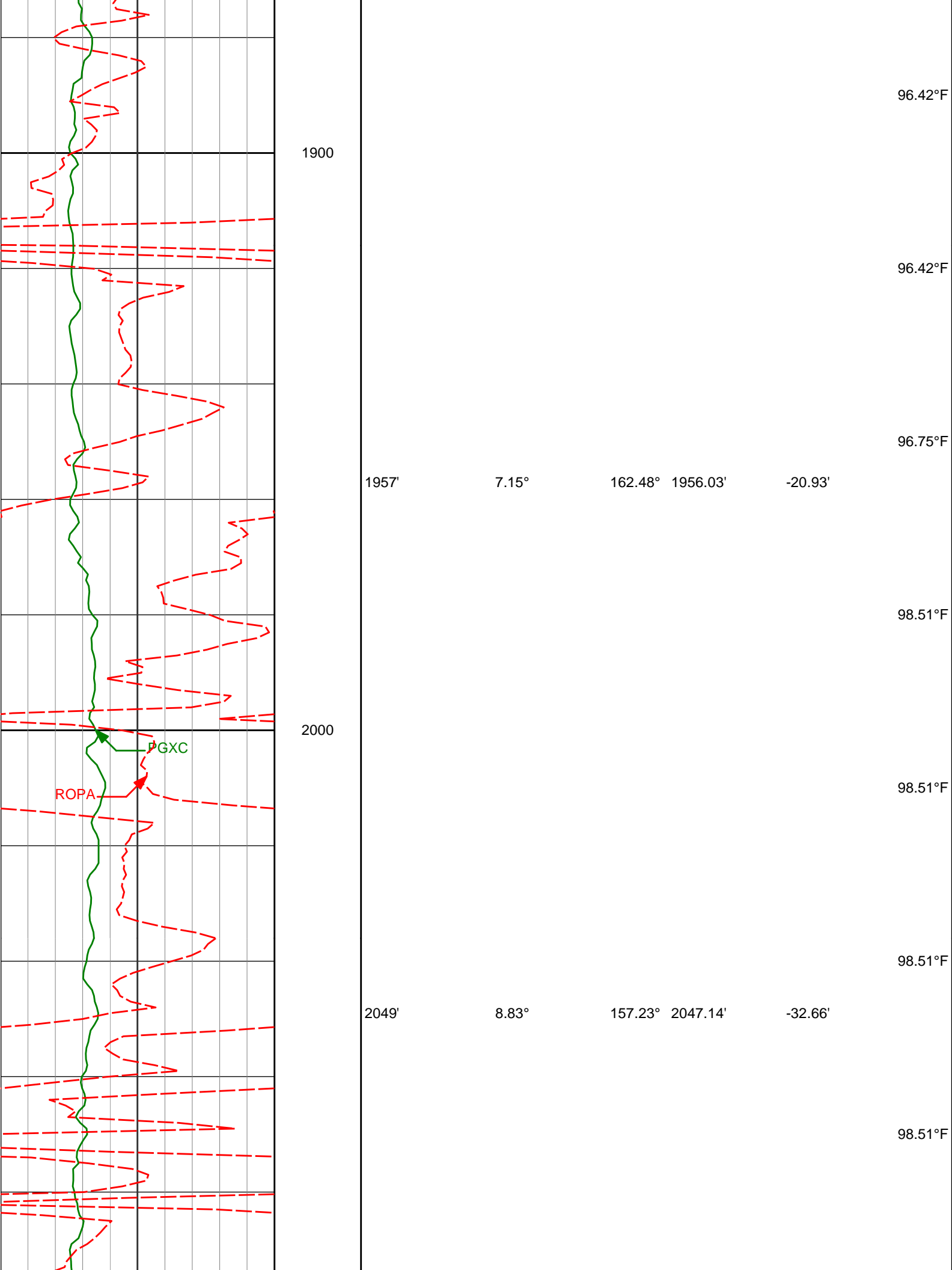
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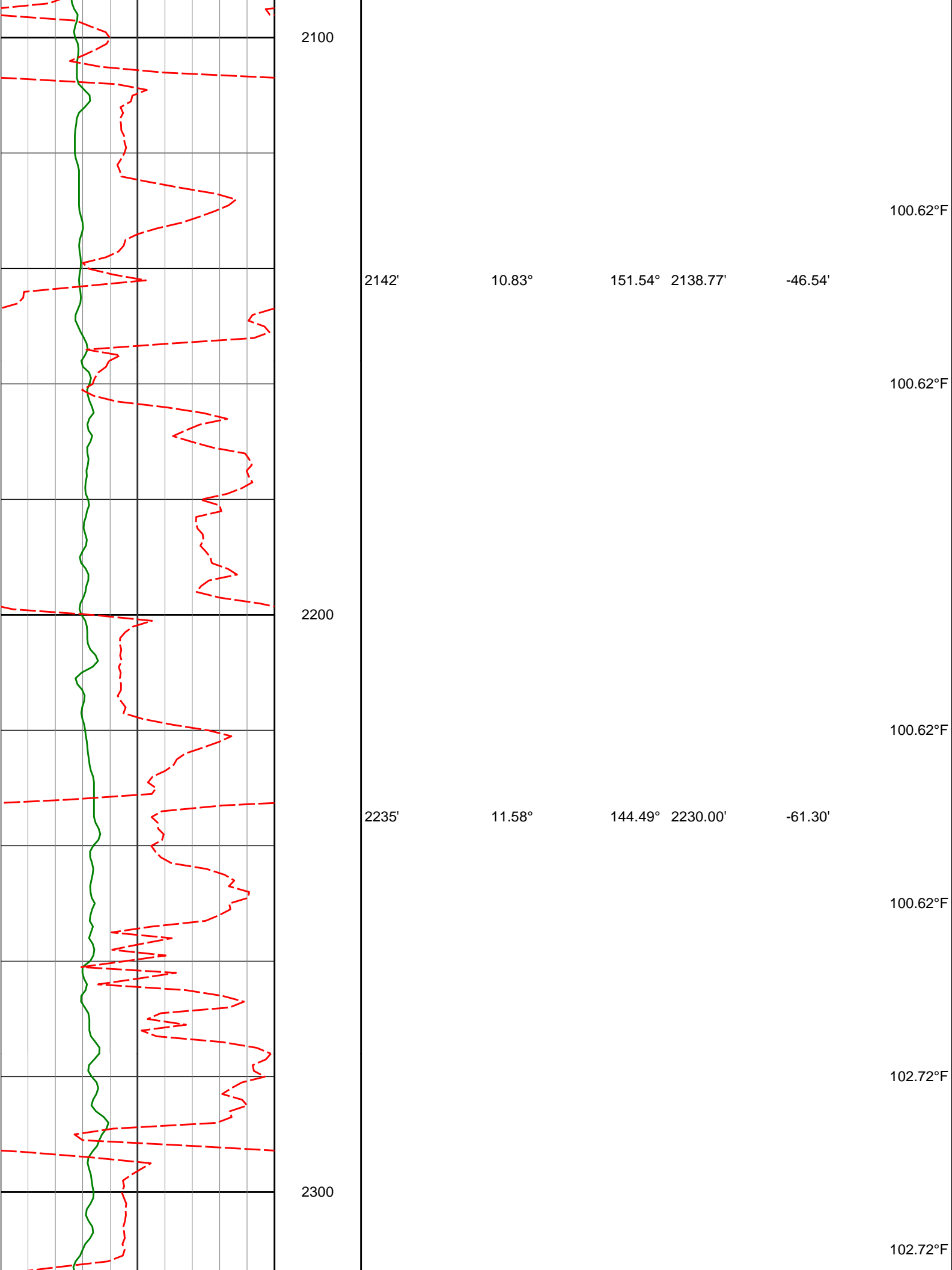
90.19°F

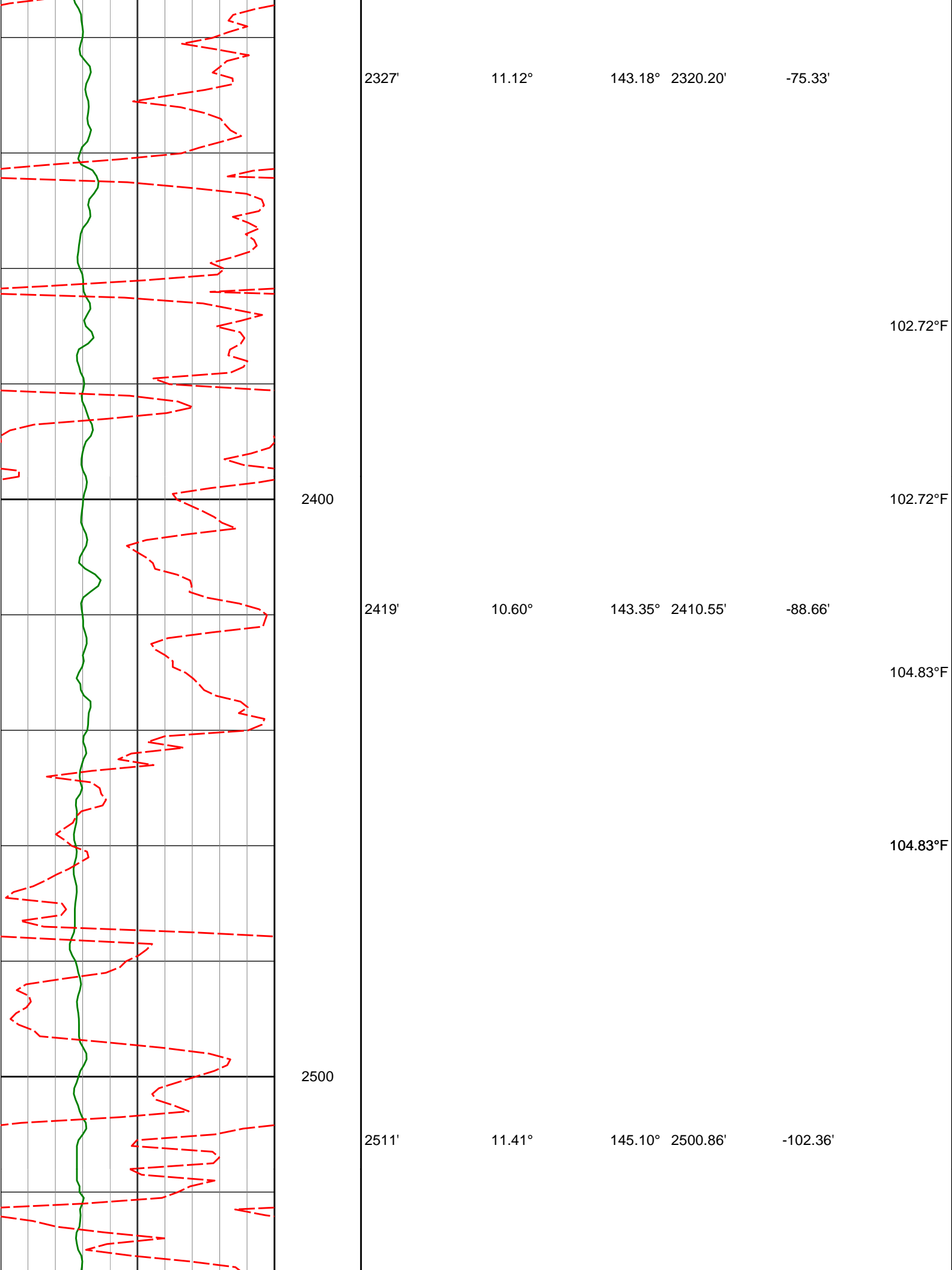
90.19°F

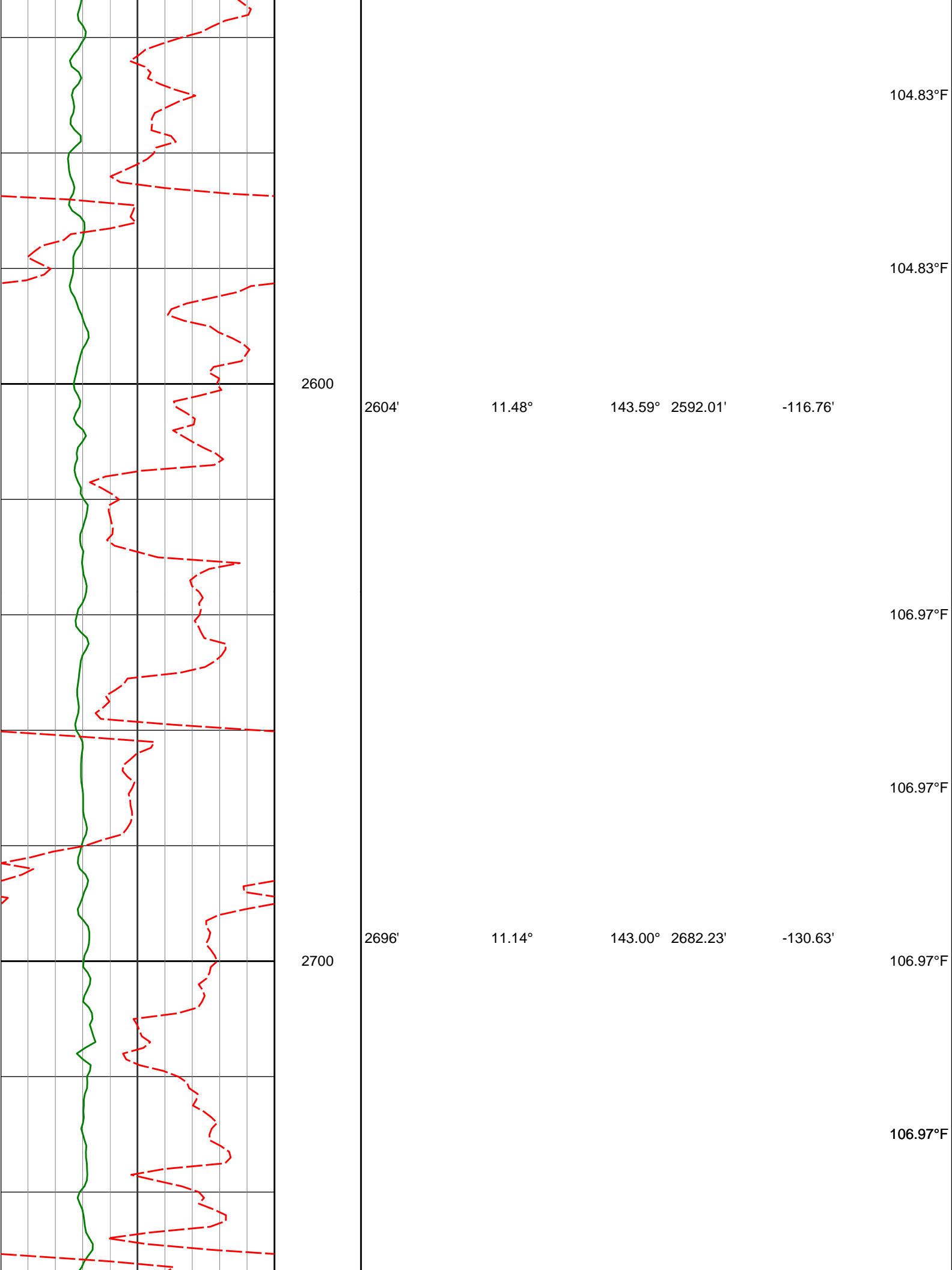


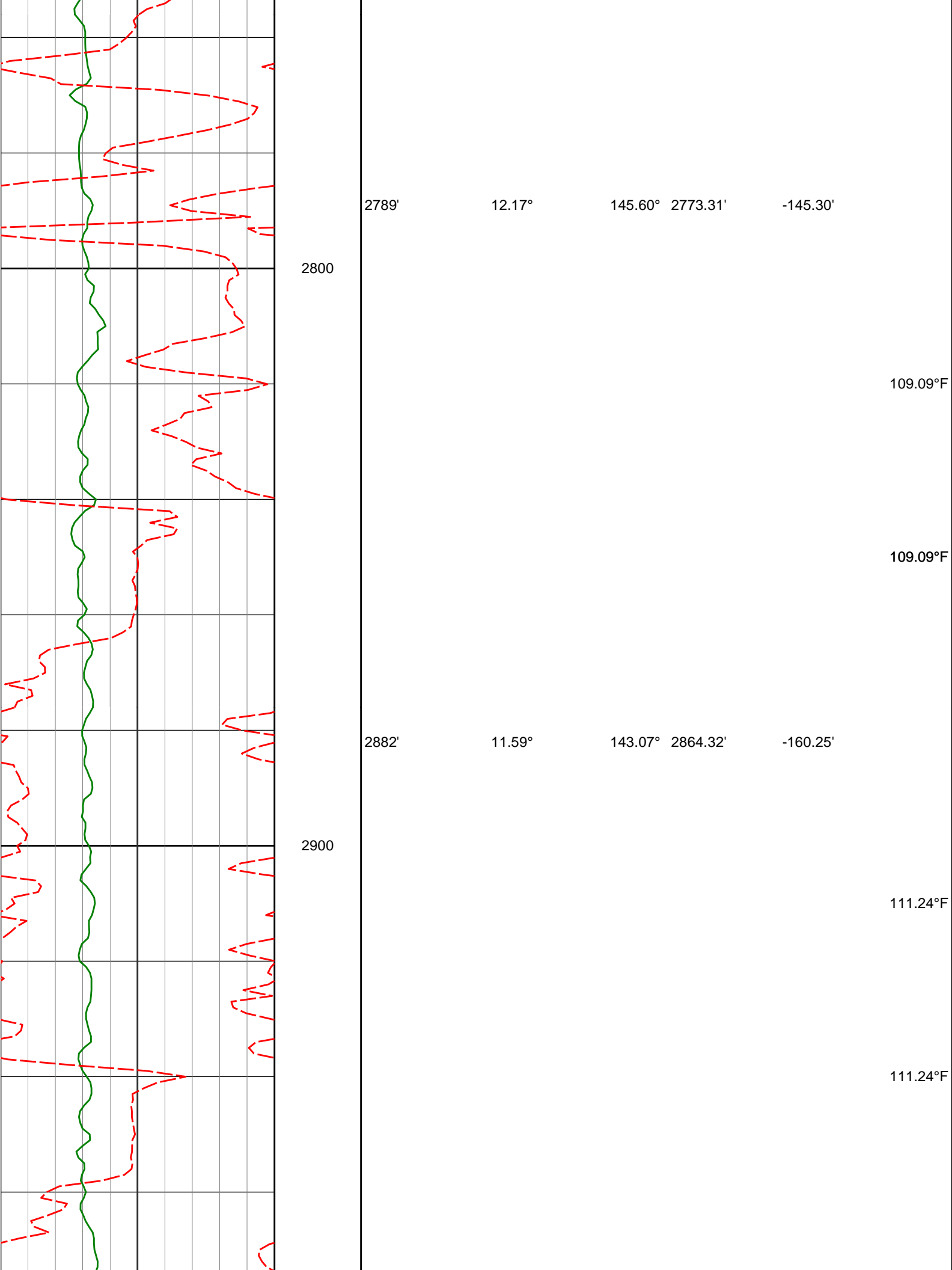


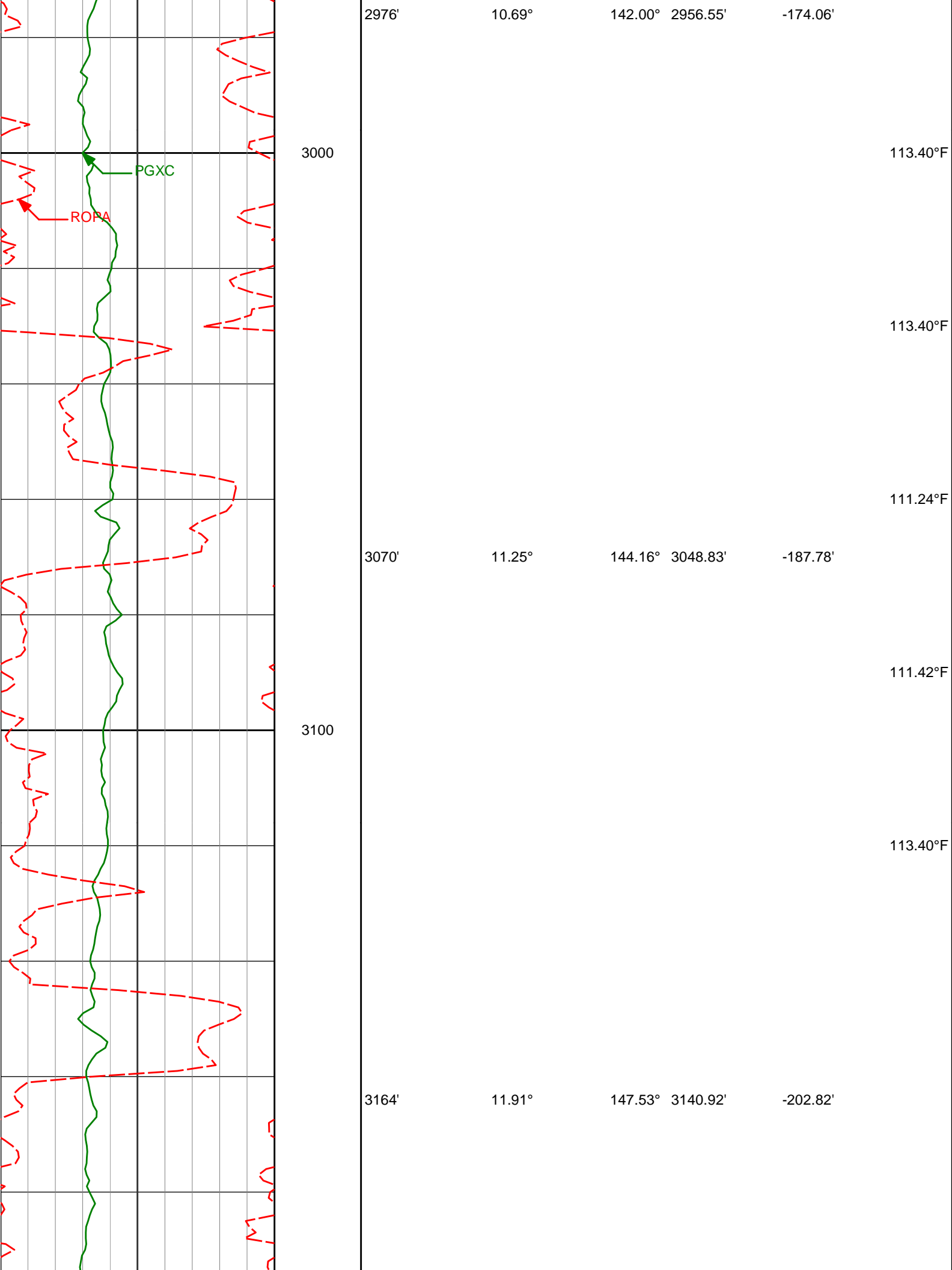


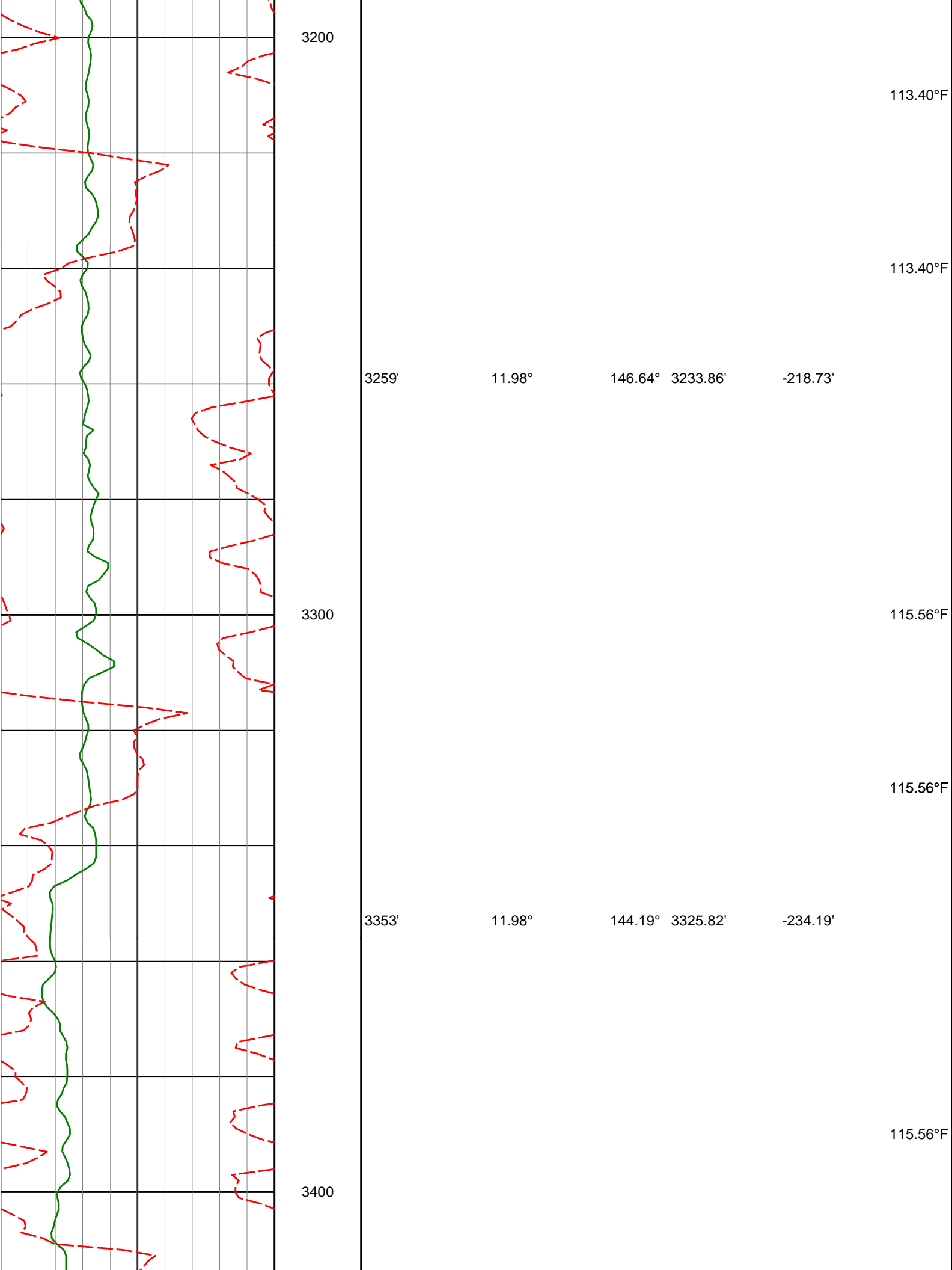


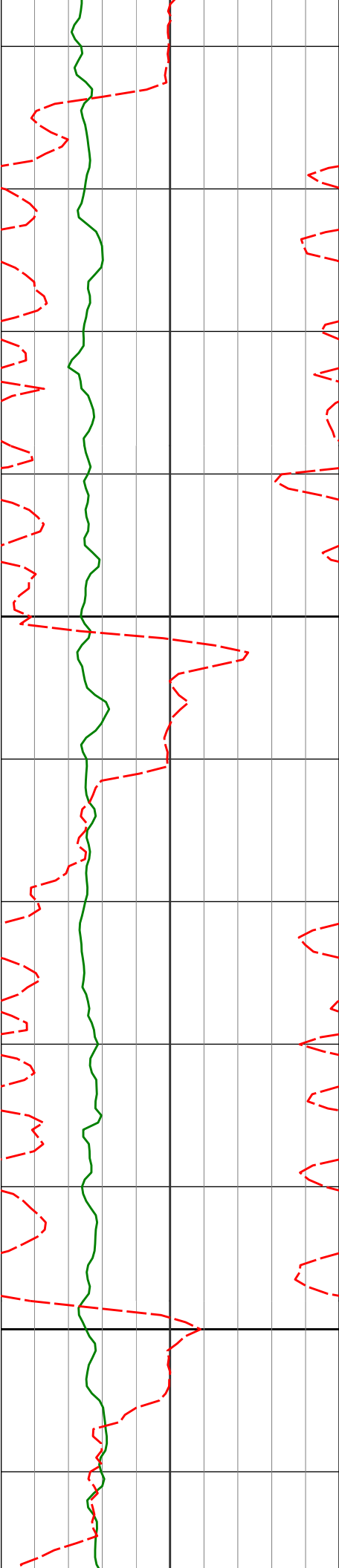












3500

3600

3447'

3541'

12.50°

12.85°

145.06°

146.18°

3417.68'

3509.39'

-249.81'

-266.20'

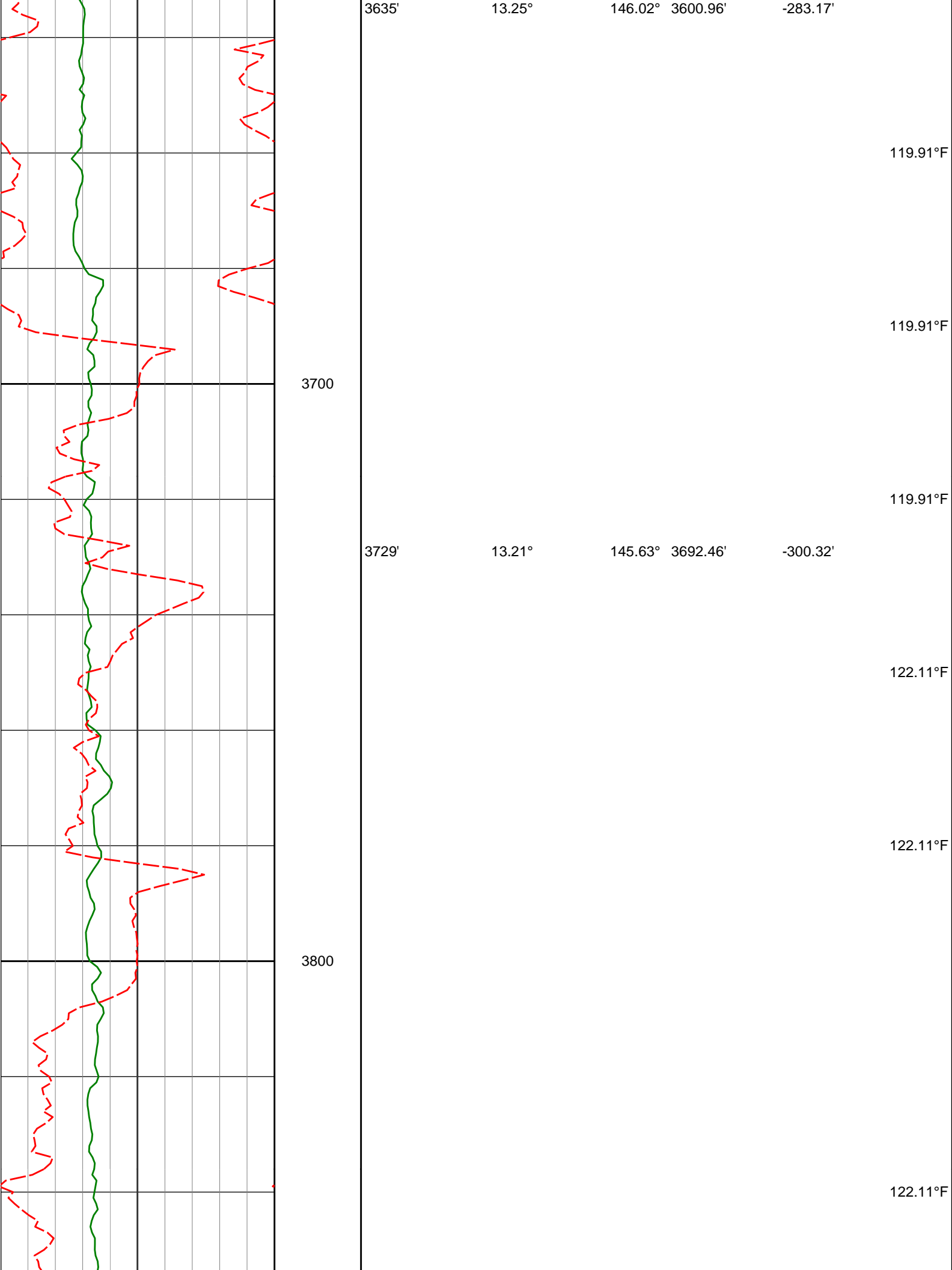
115.56°F

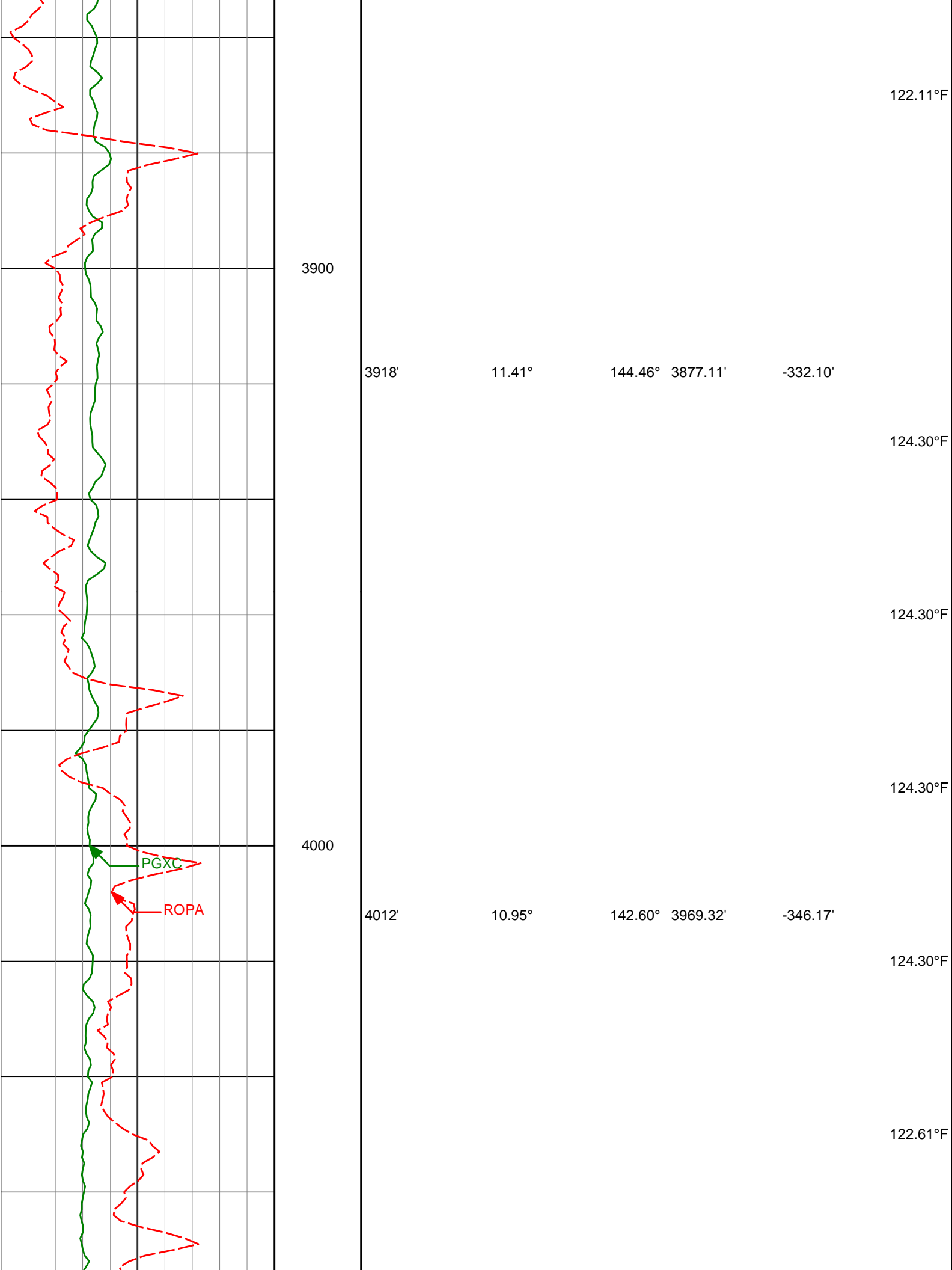
117.73°F

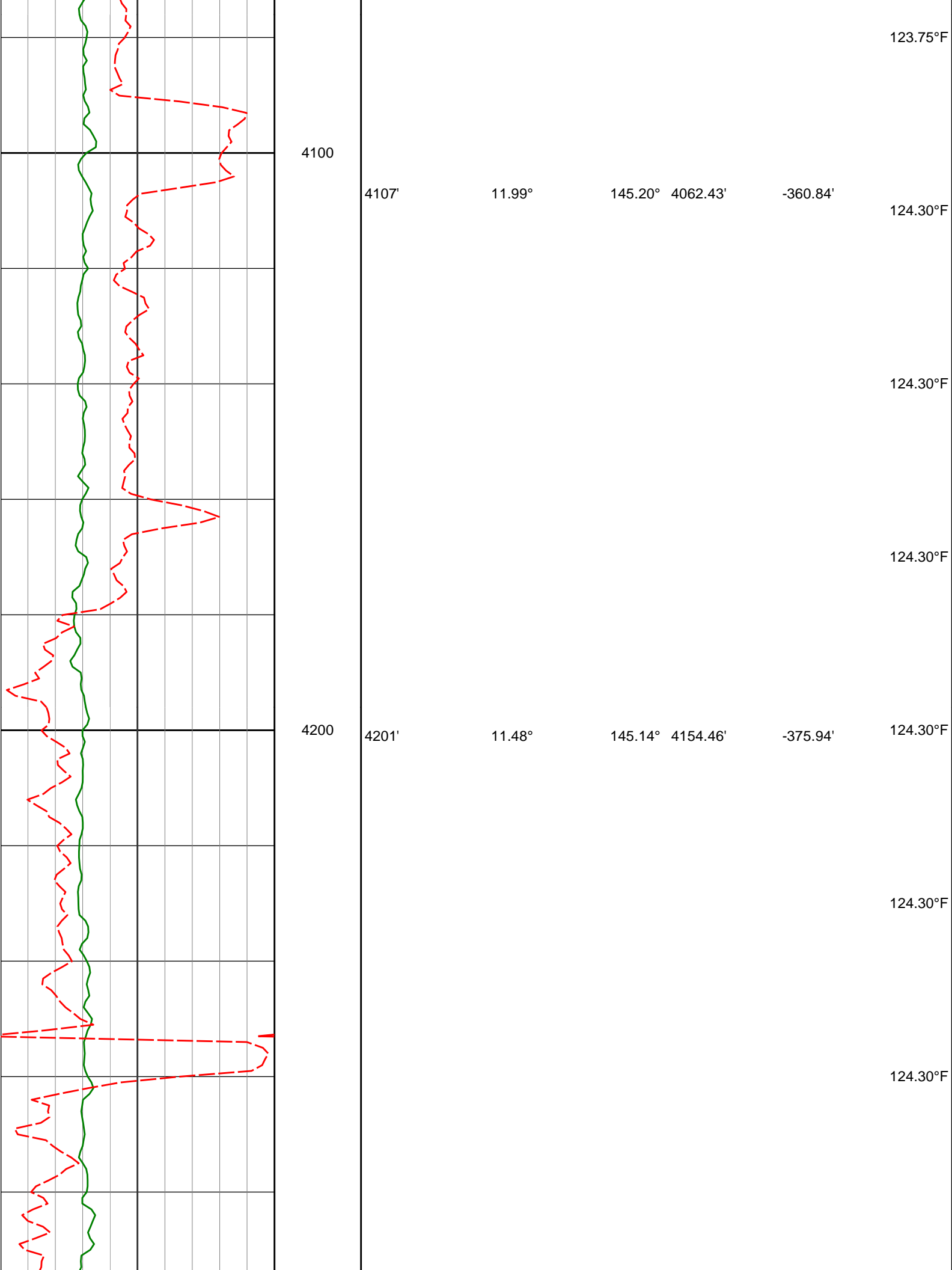
117.73°F

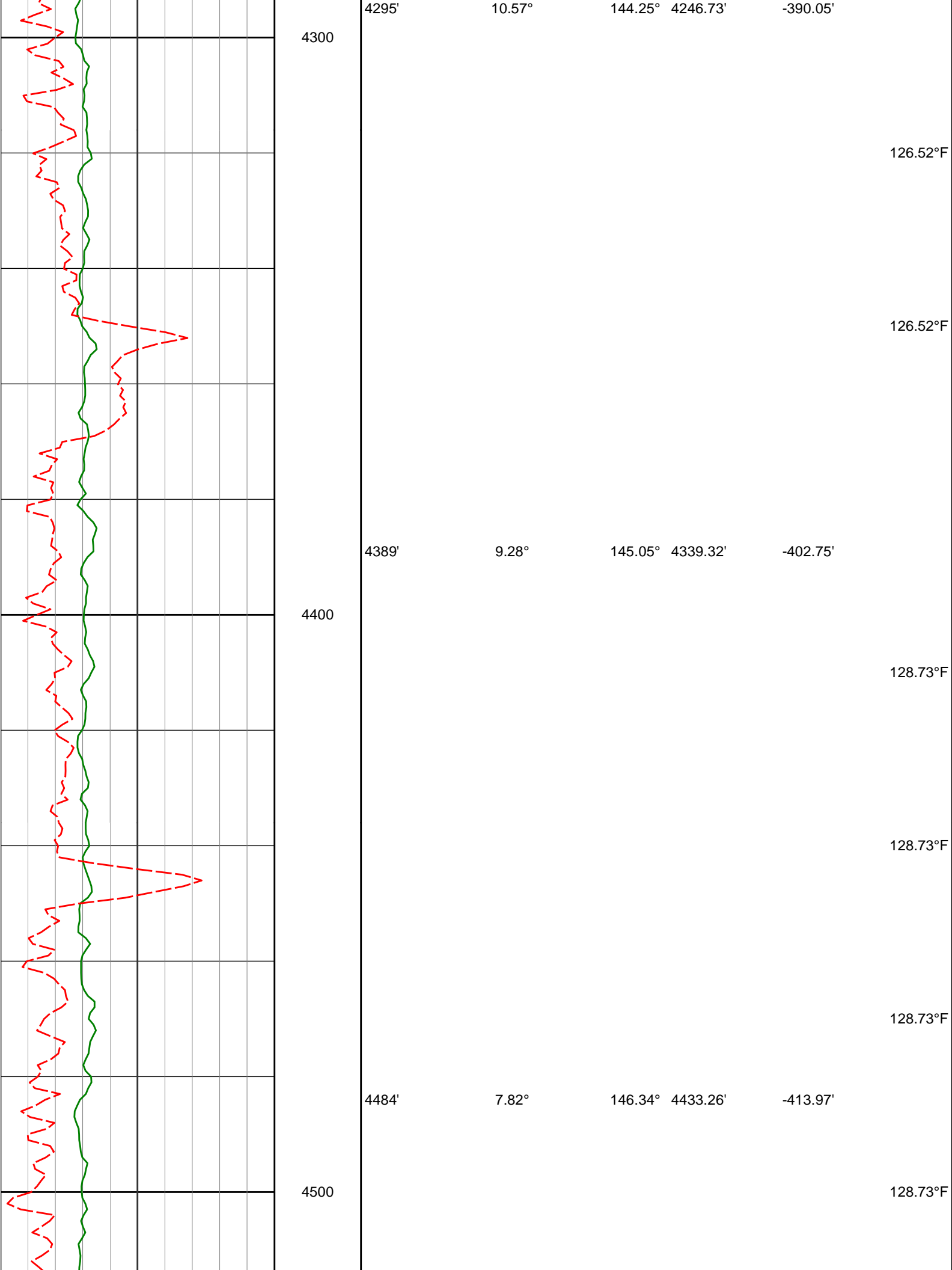
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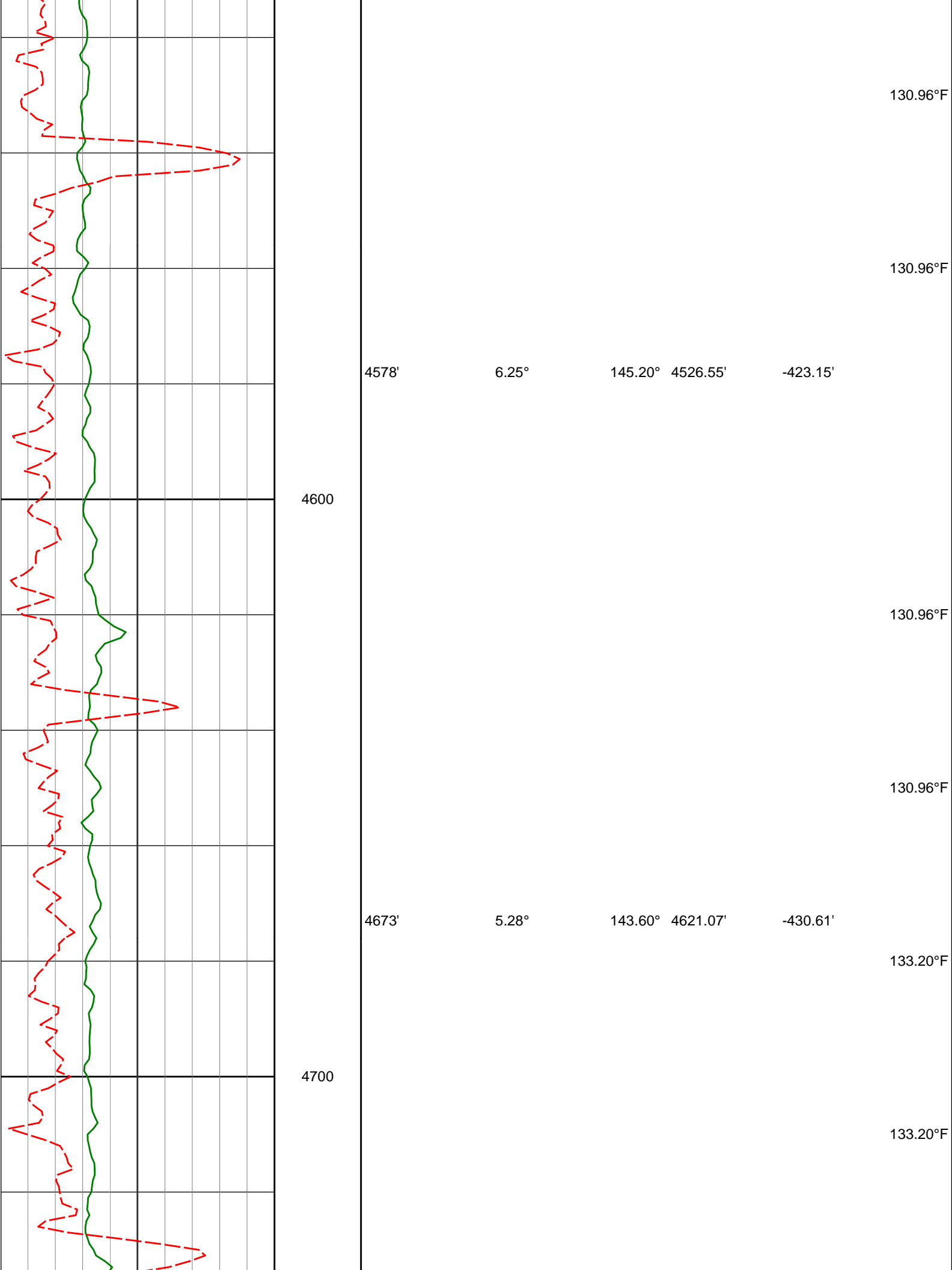
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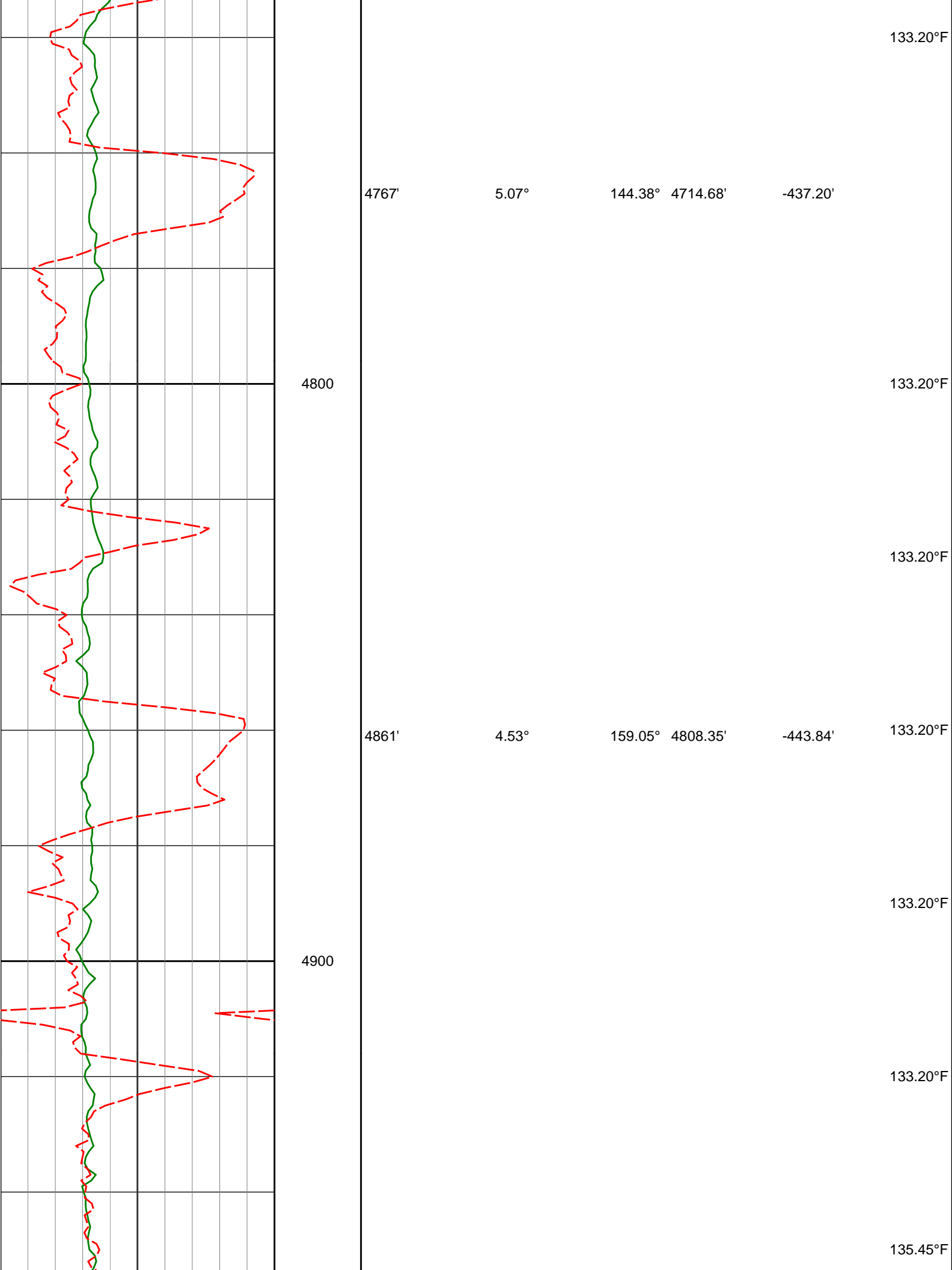


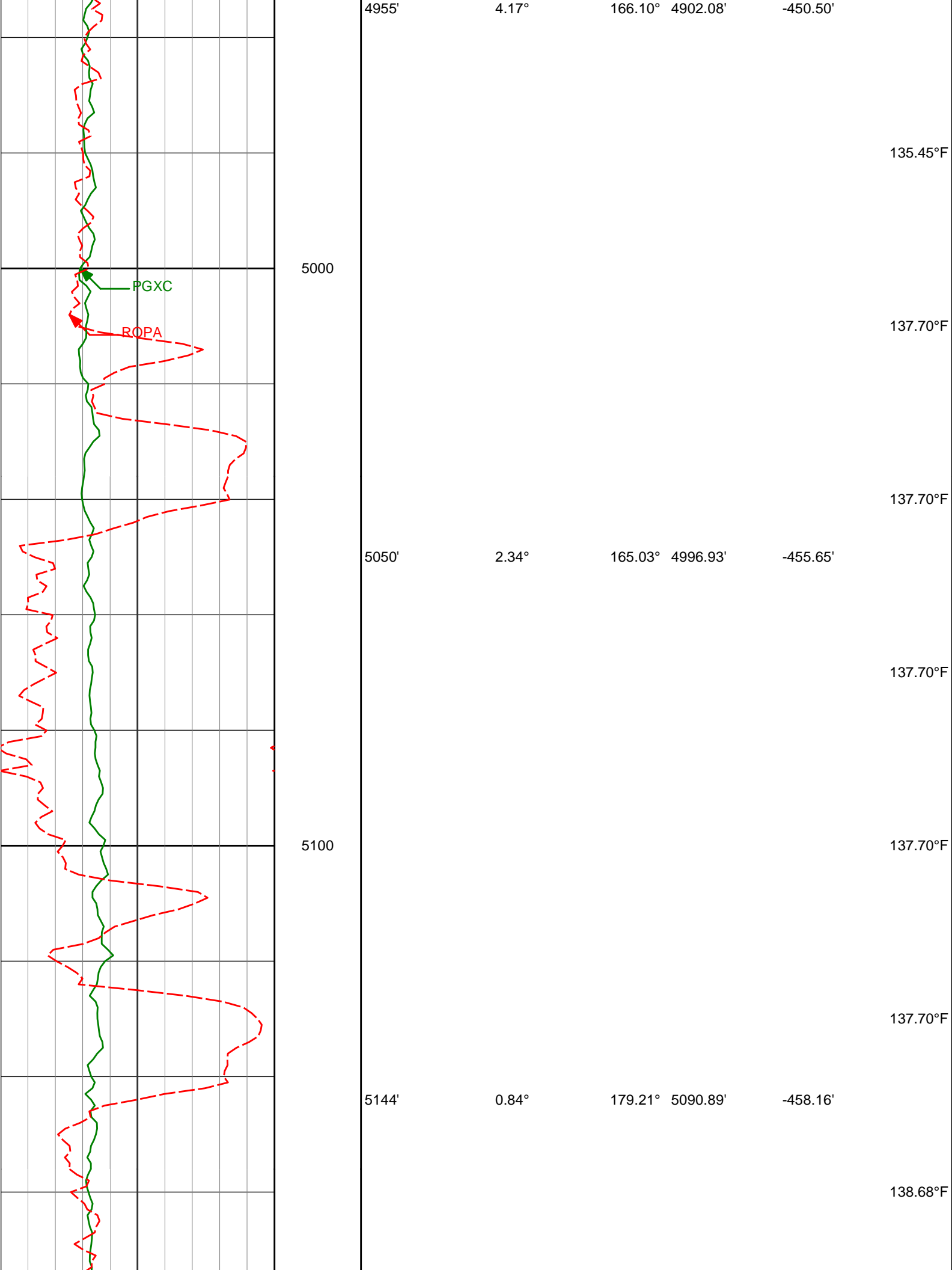


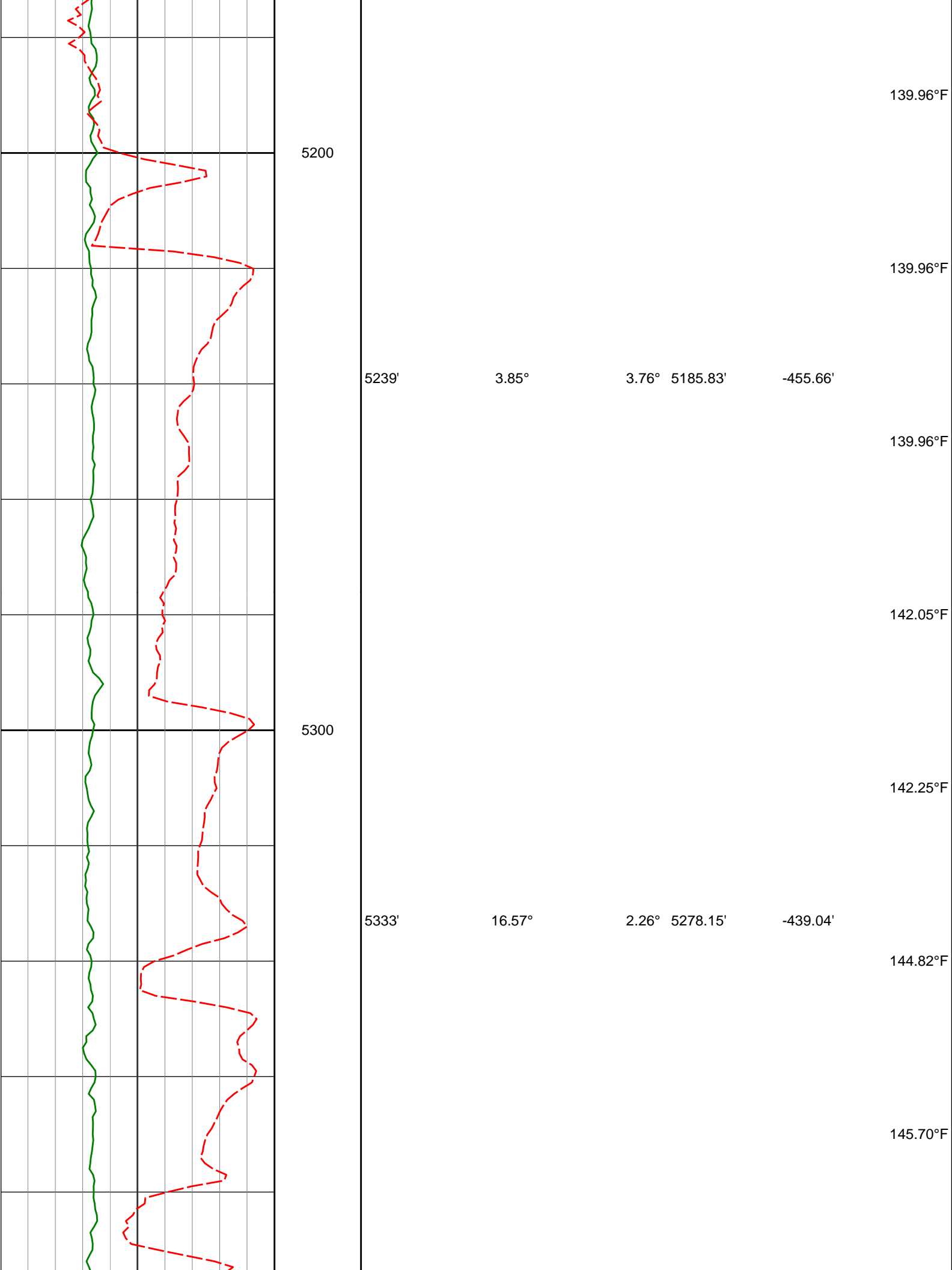


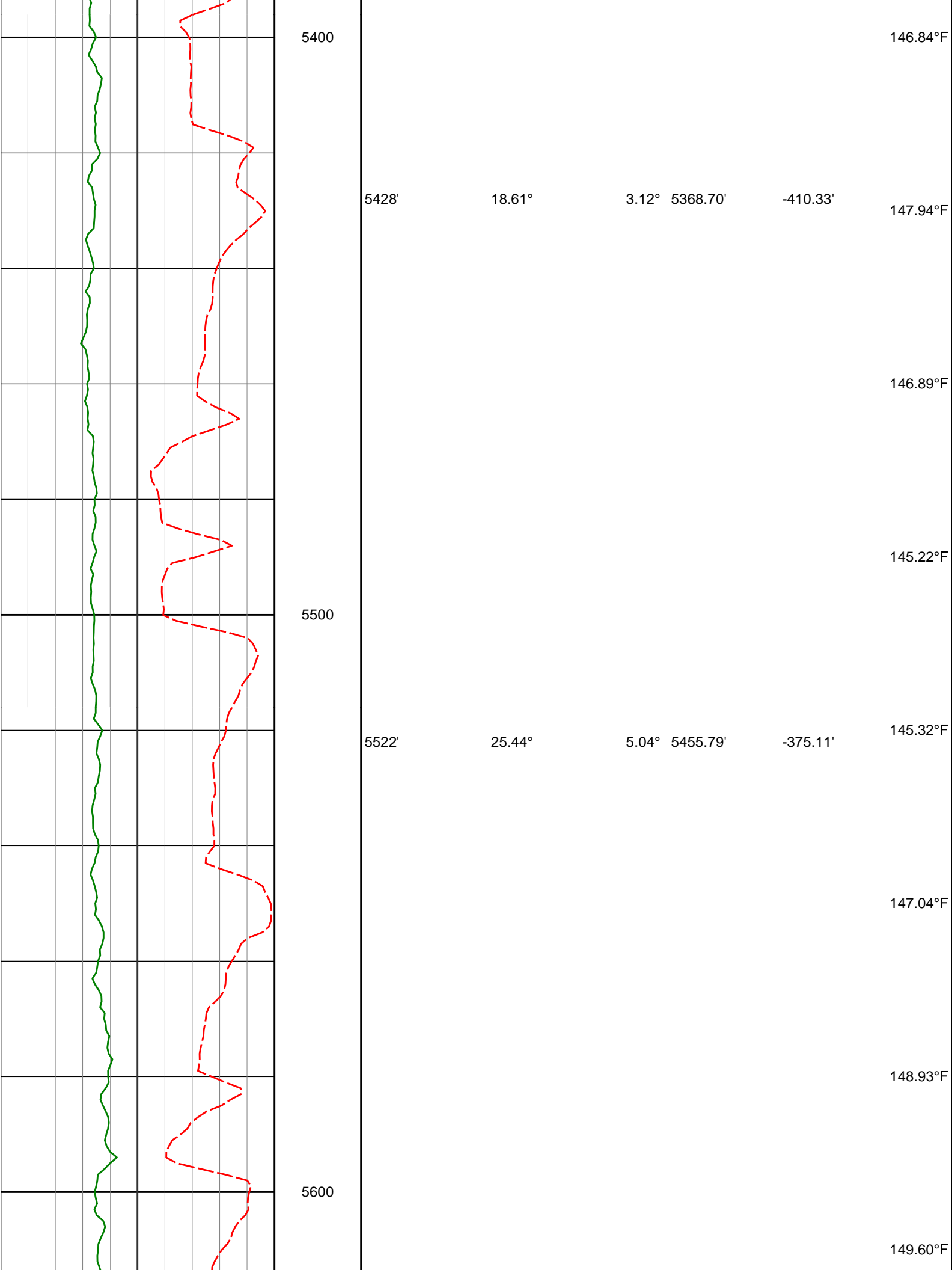


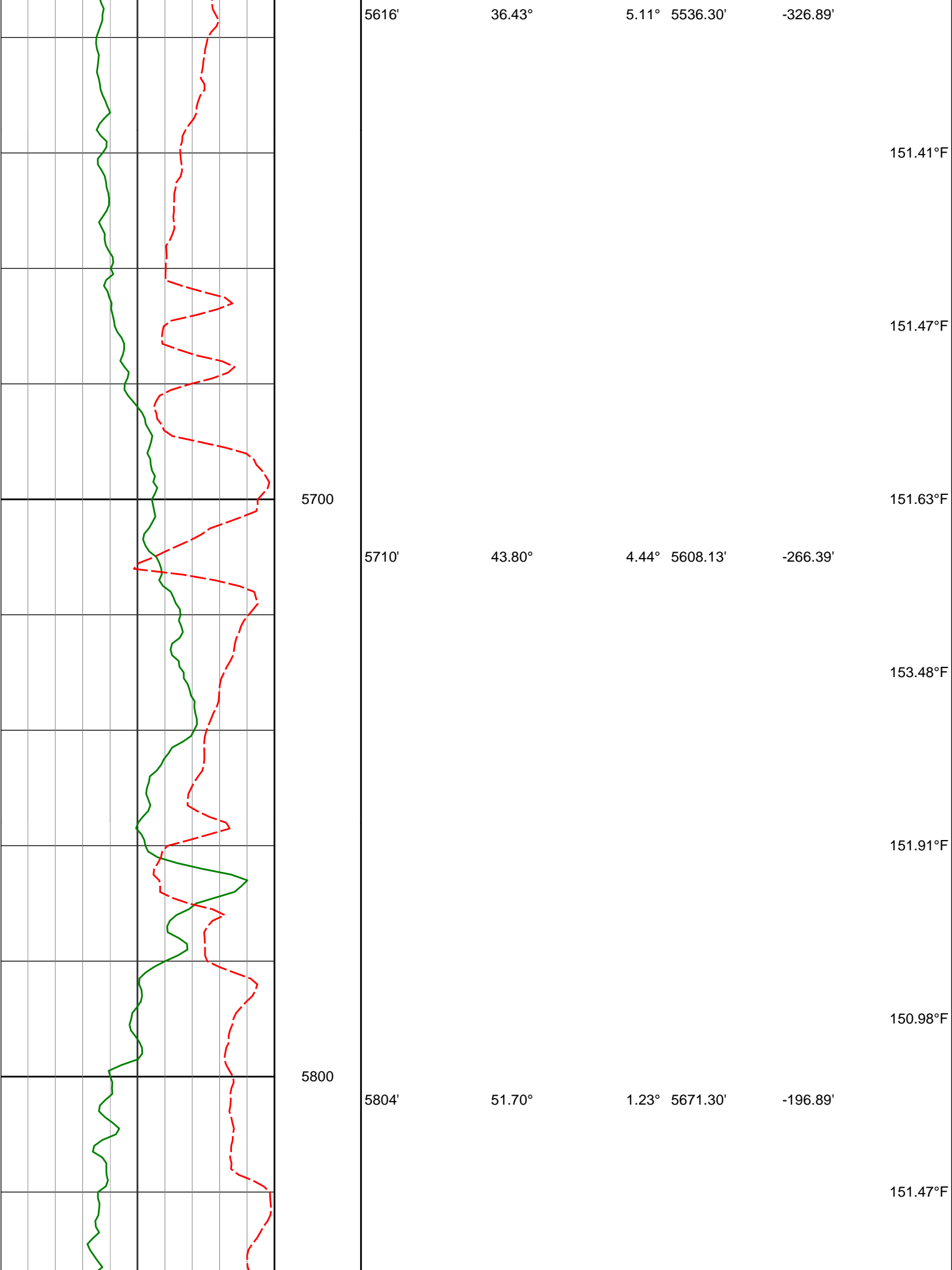


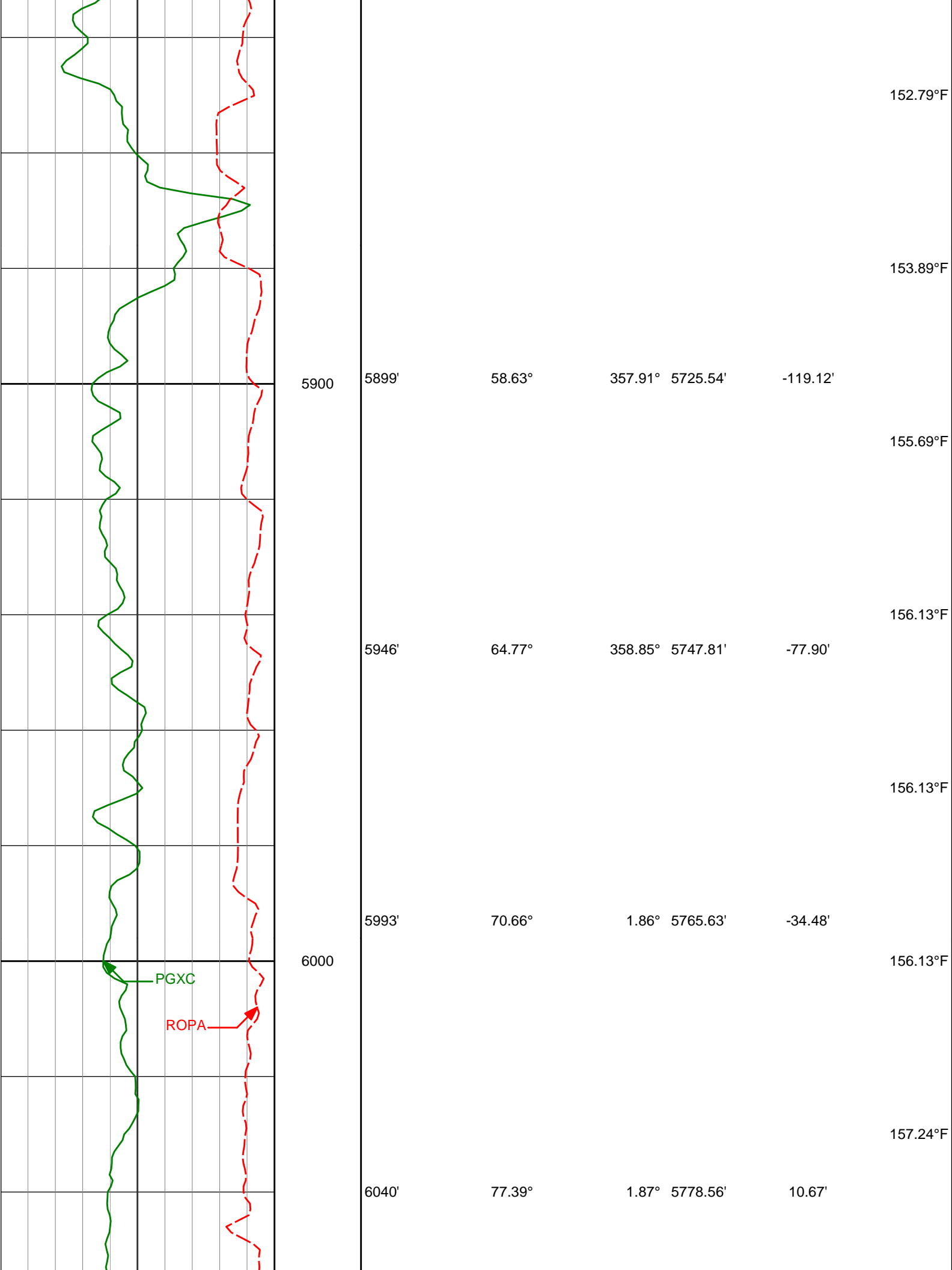


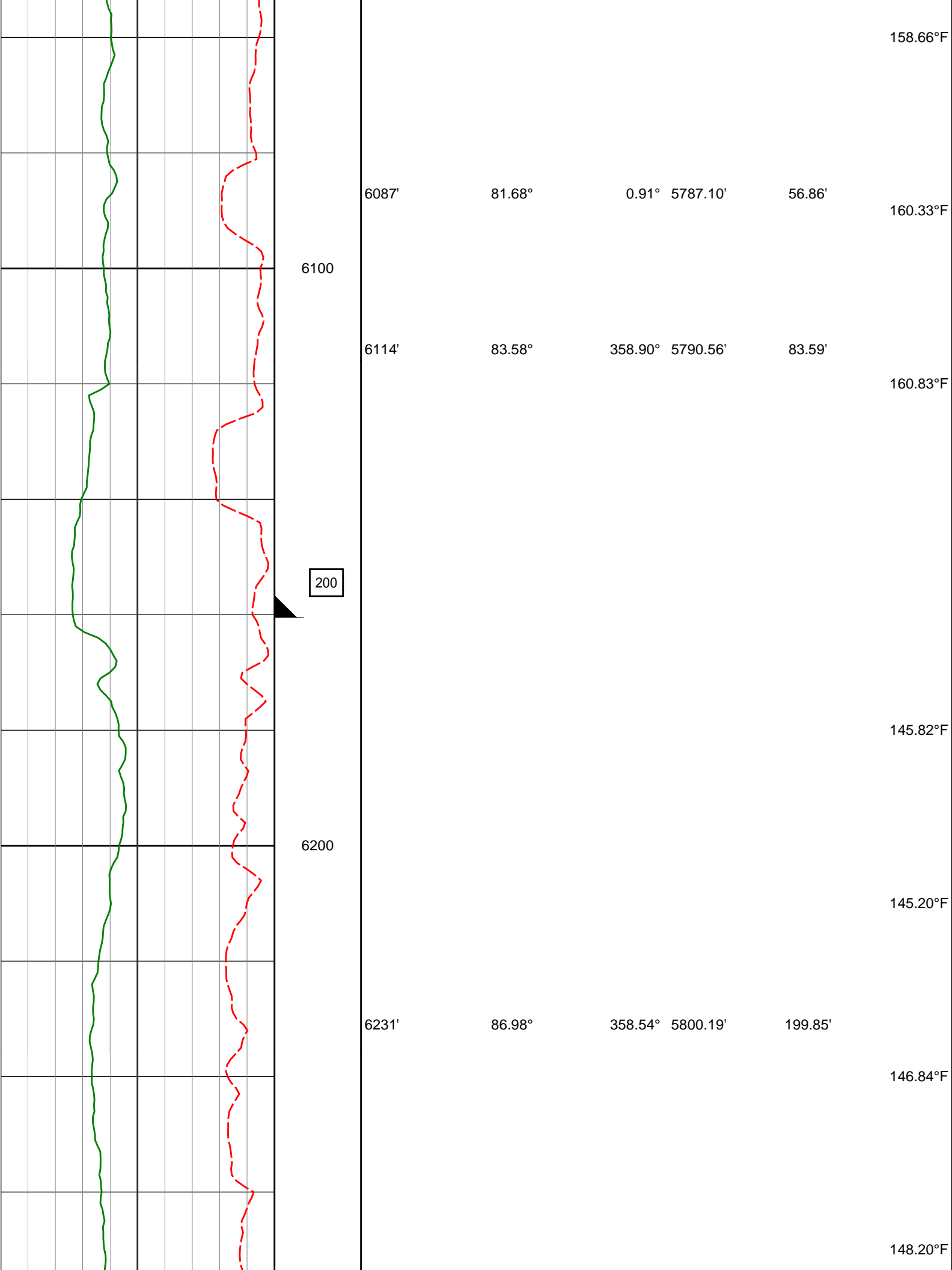


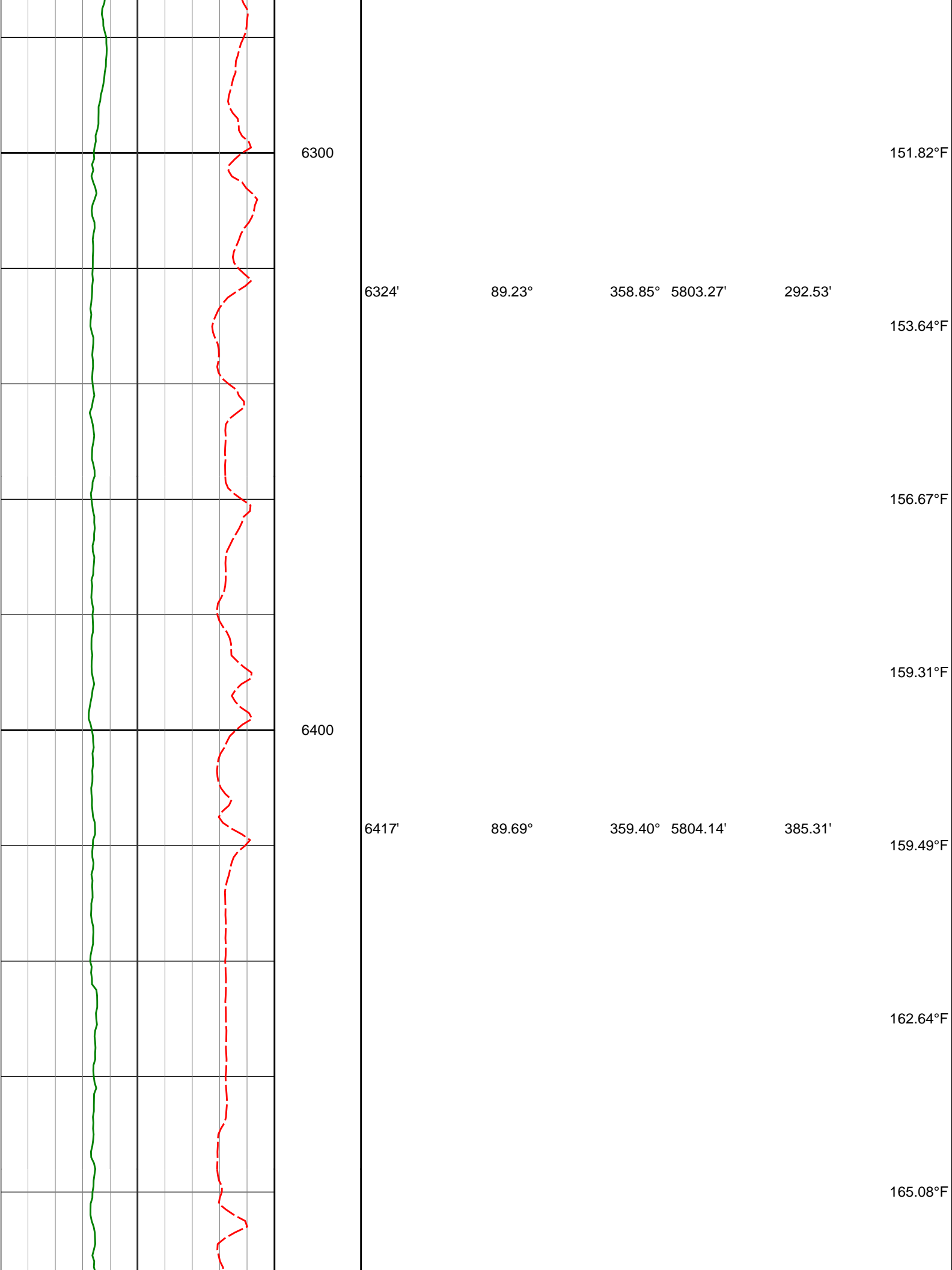


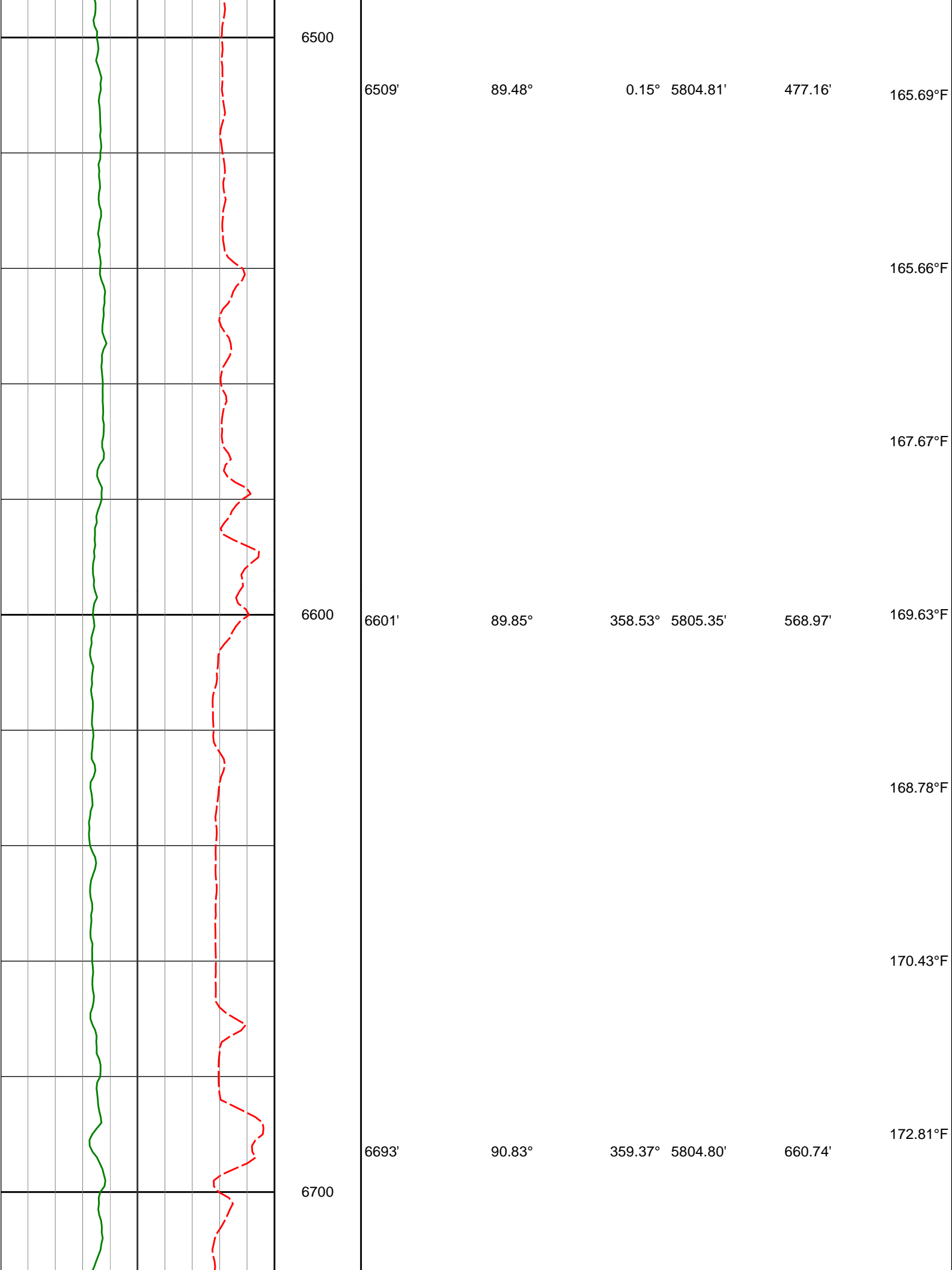


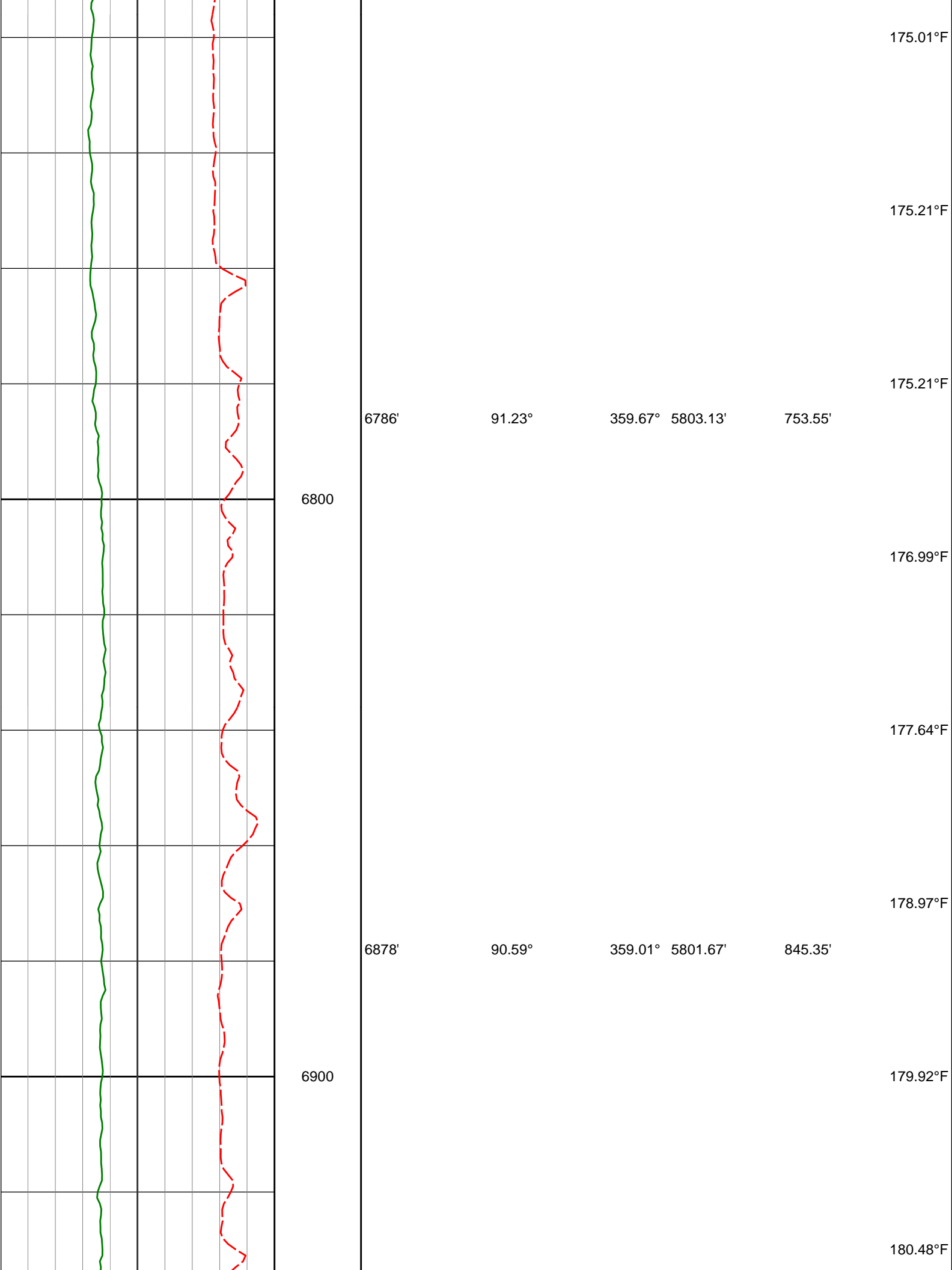


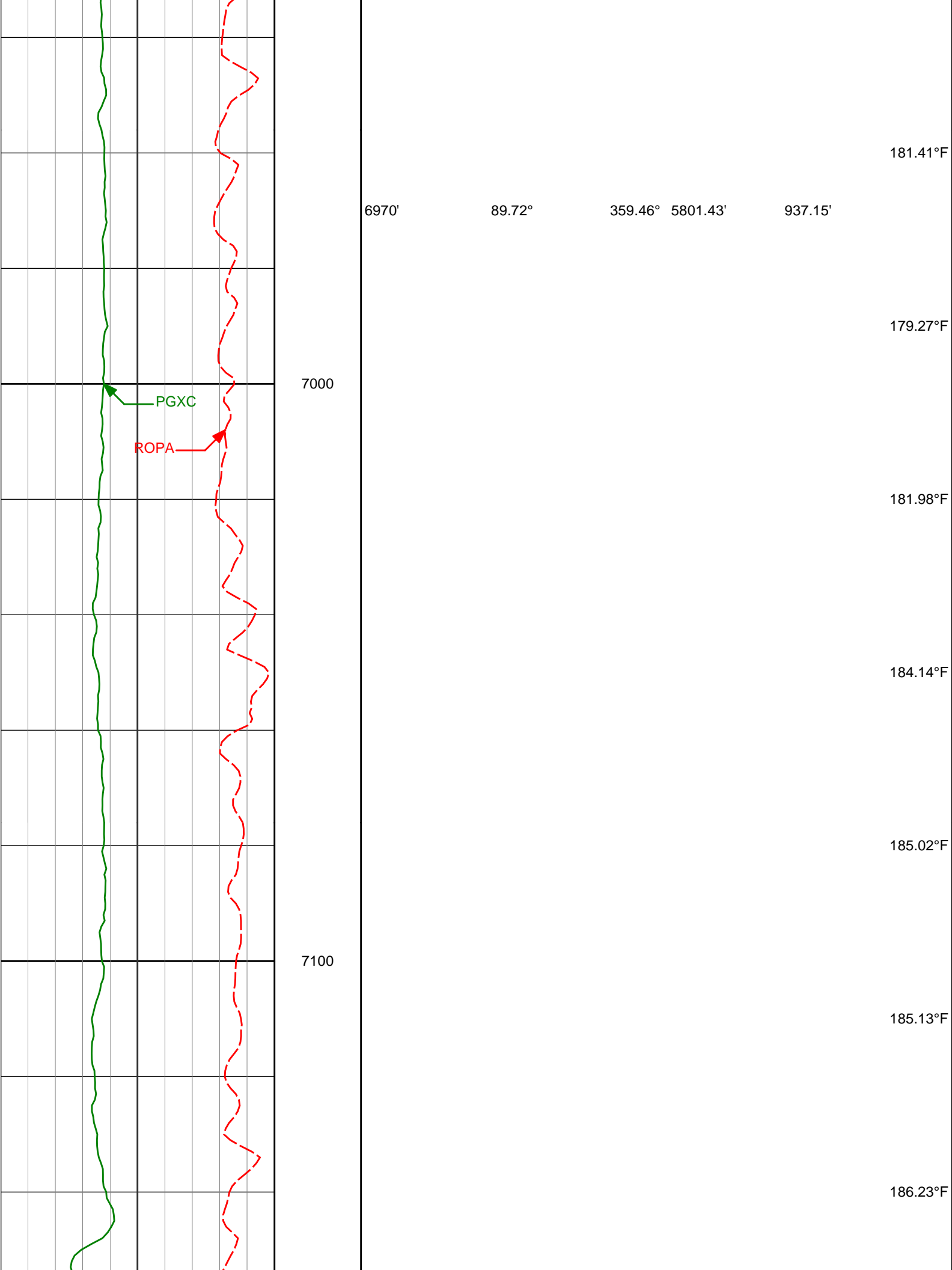


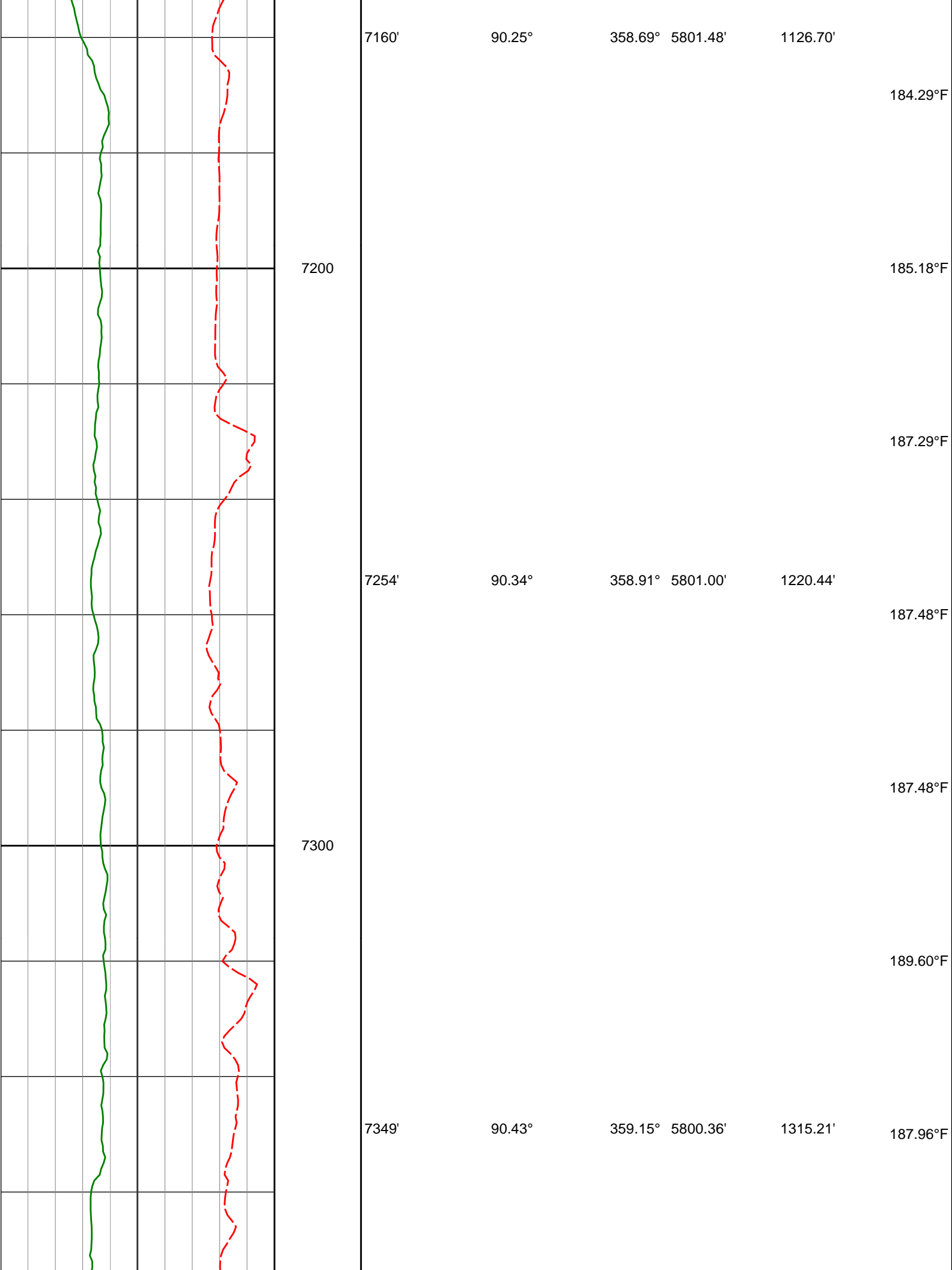


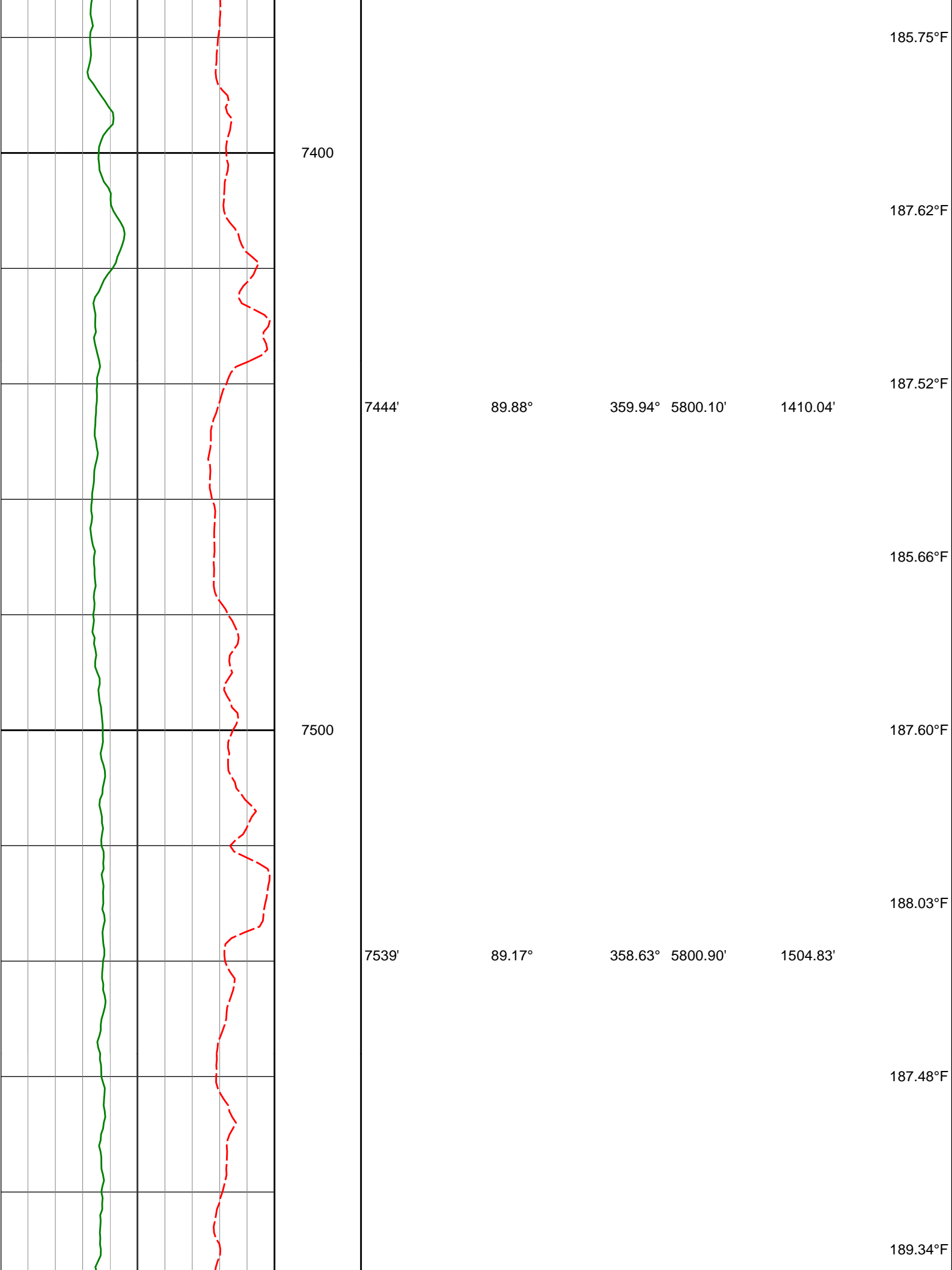


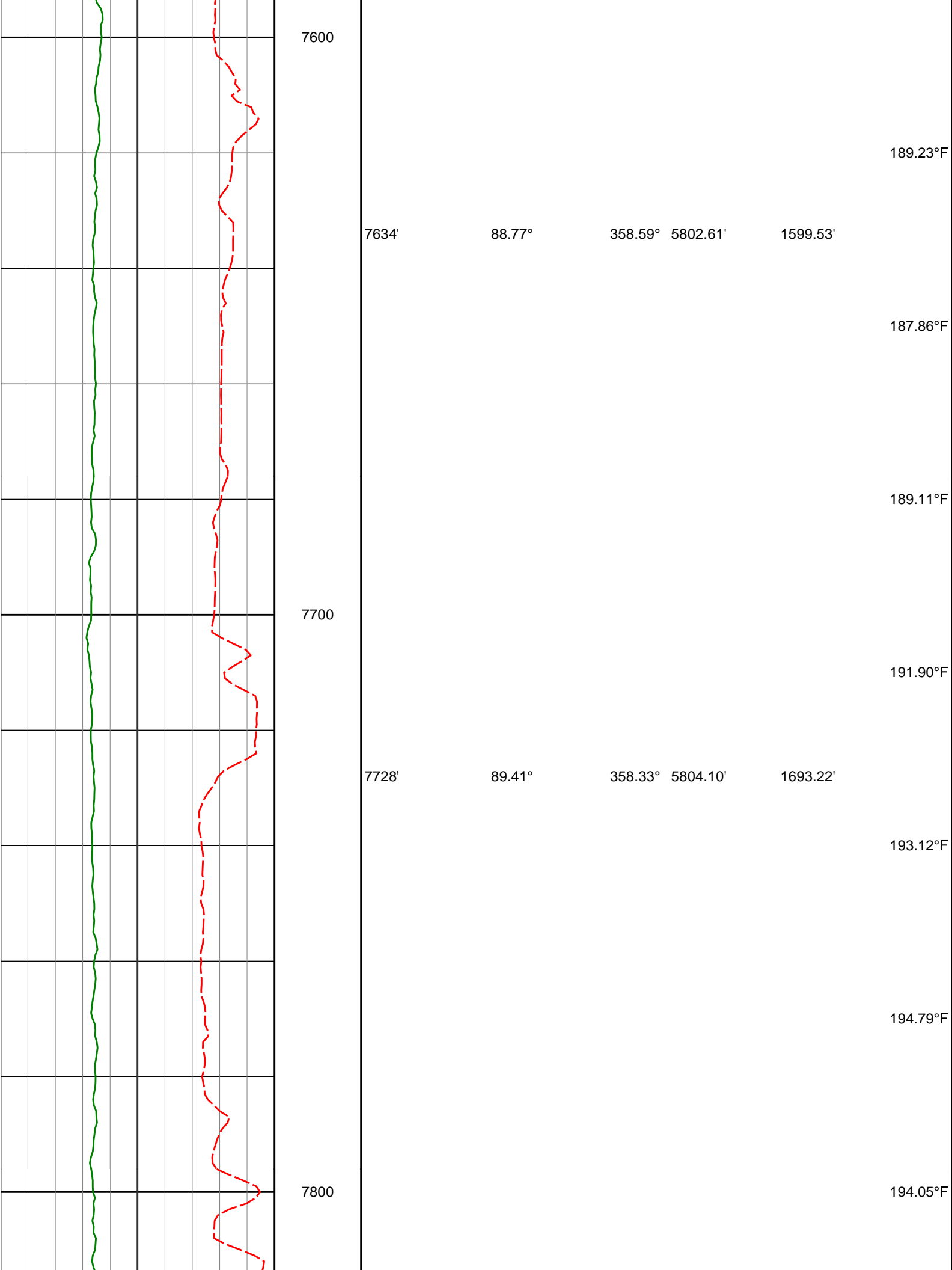


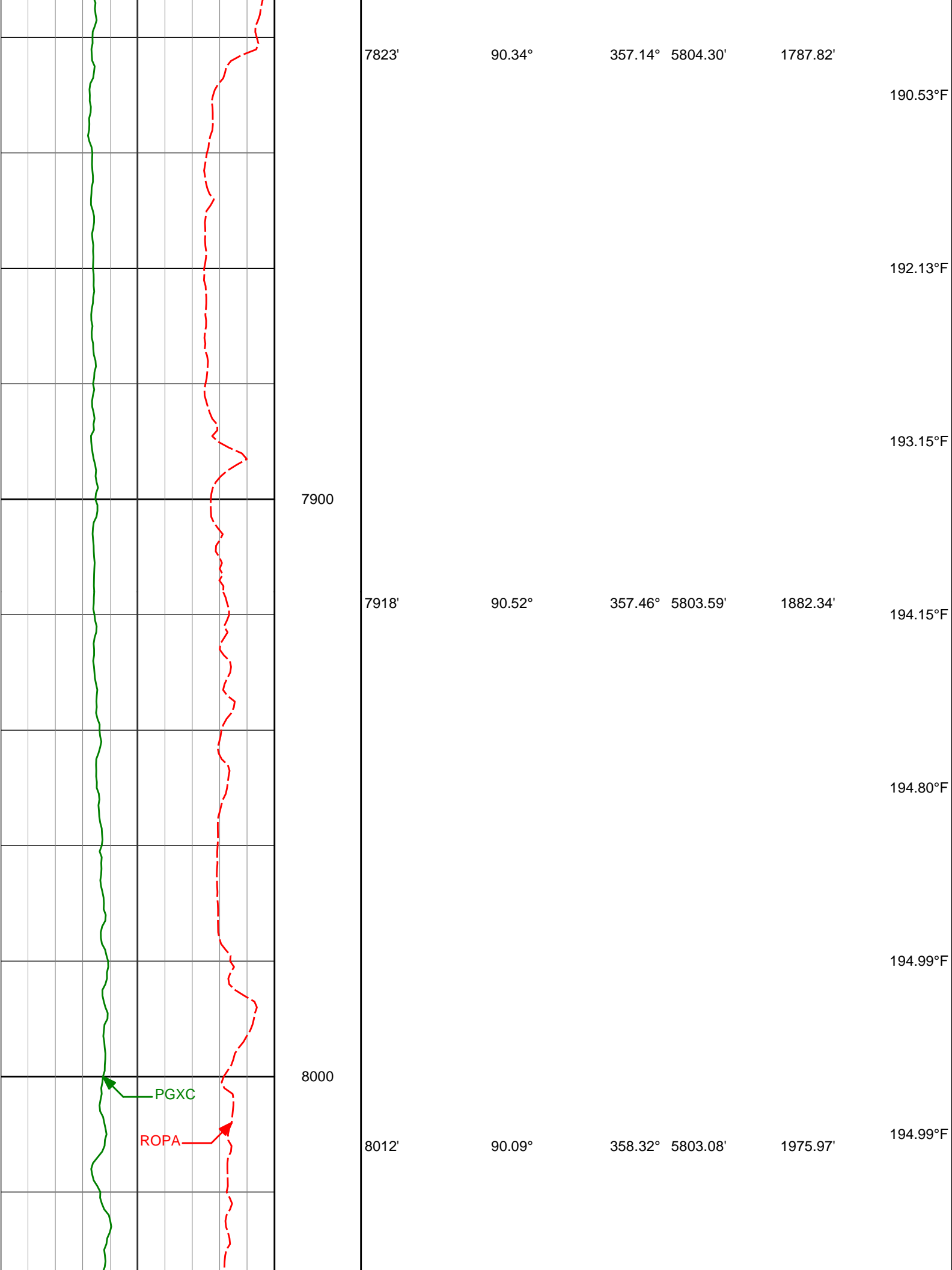


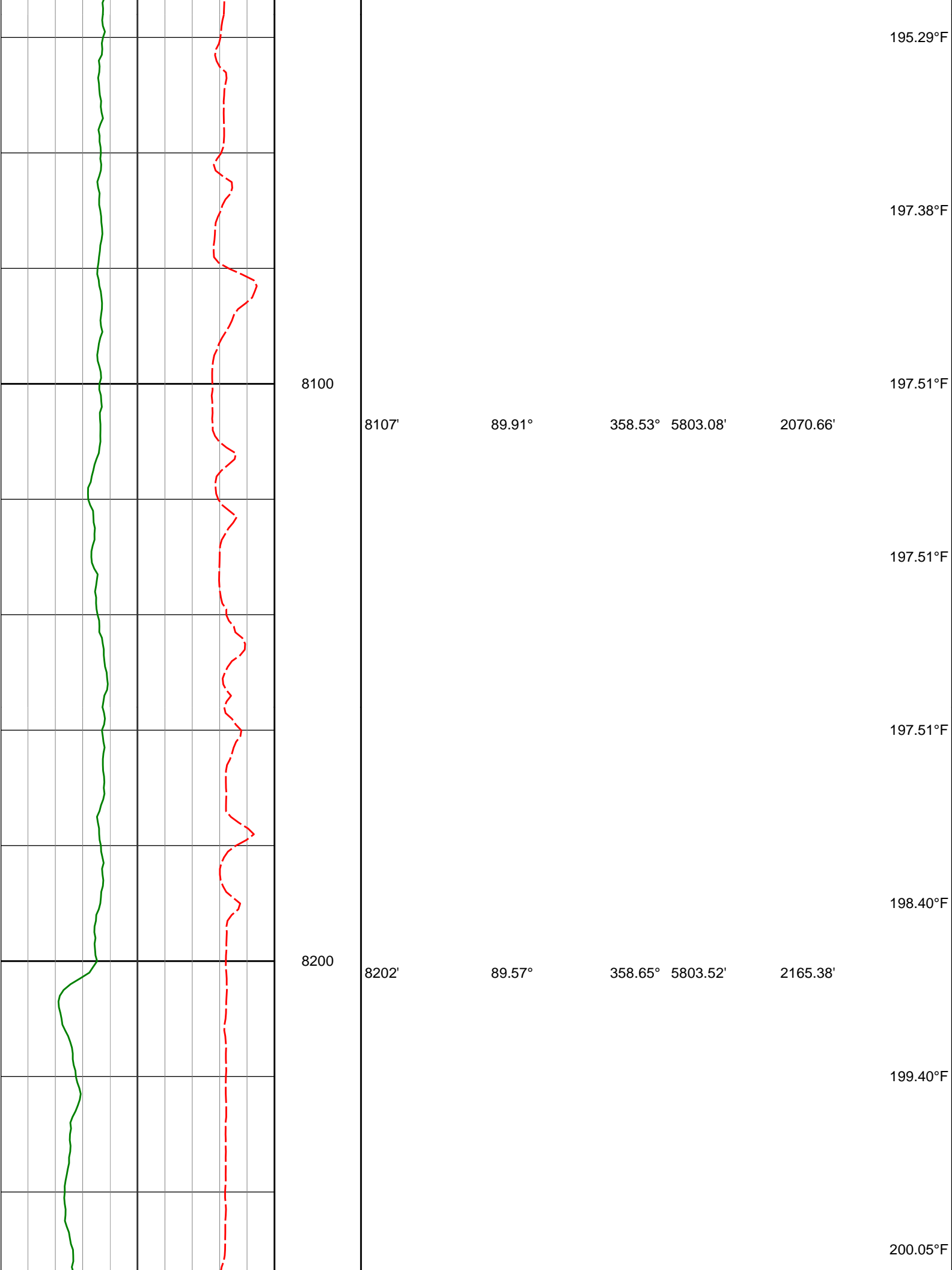












195.29°F

197.38°F

197.51°F

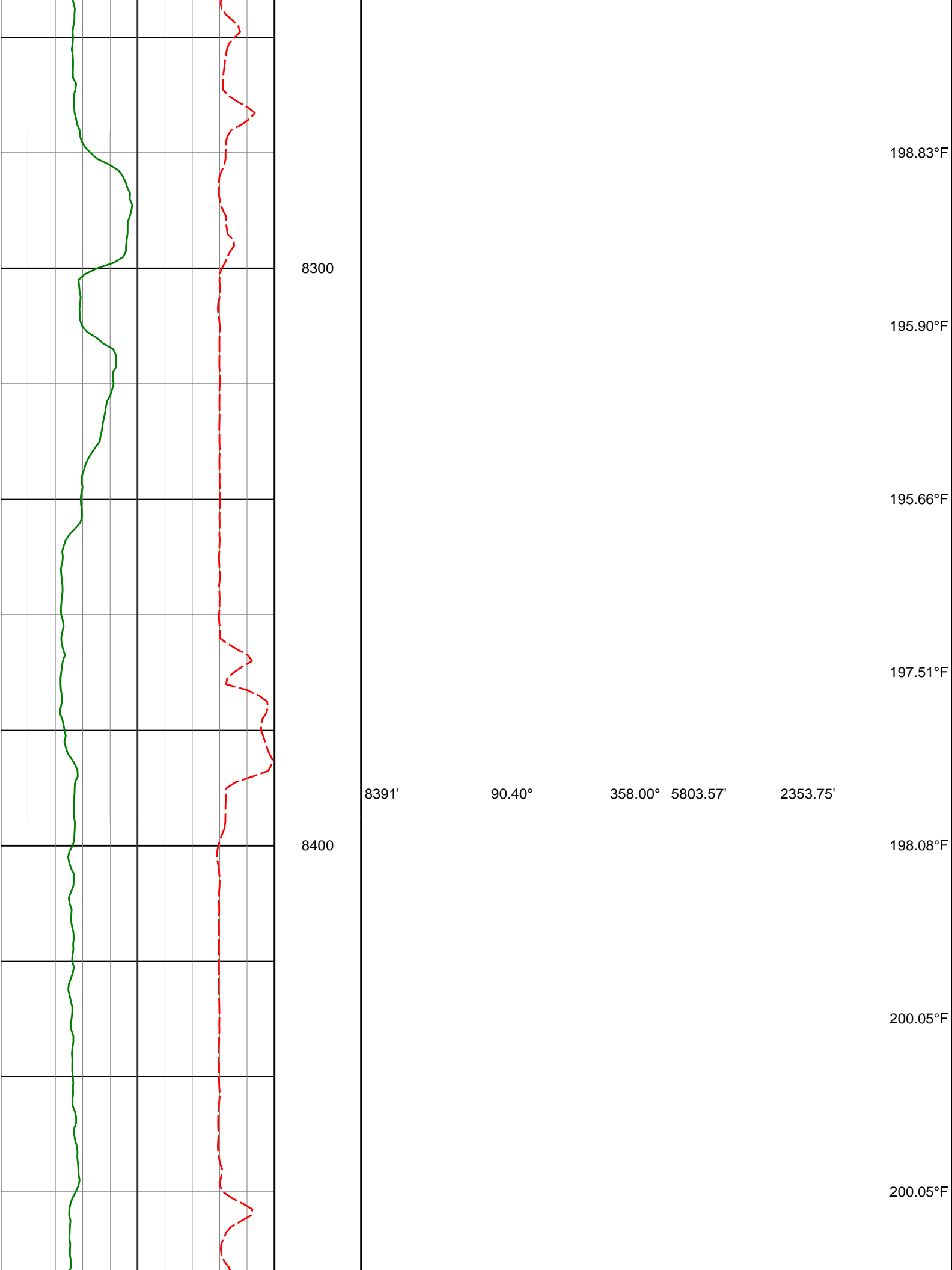
197.51°F

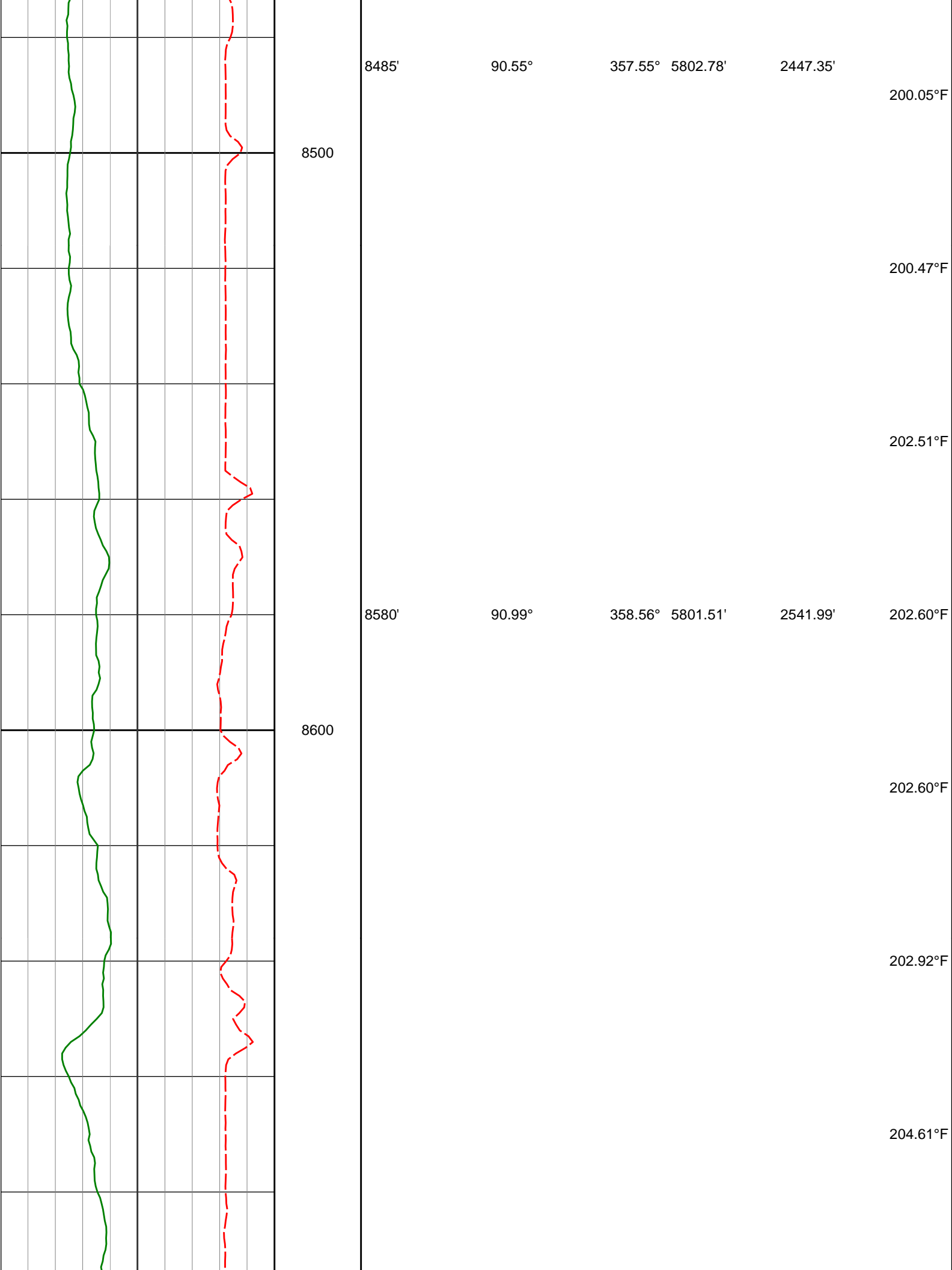
197.51°F

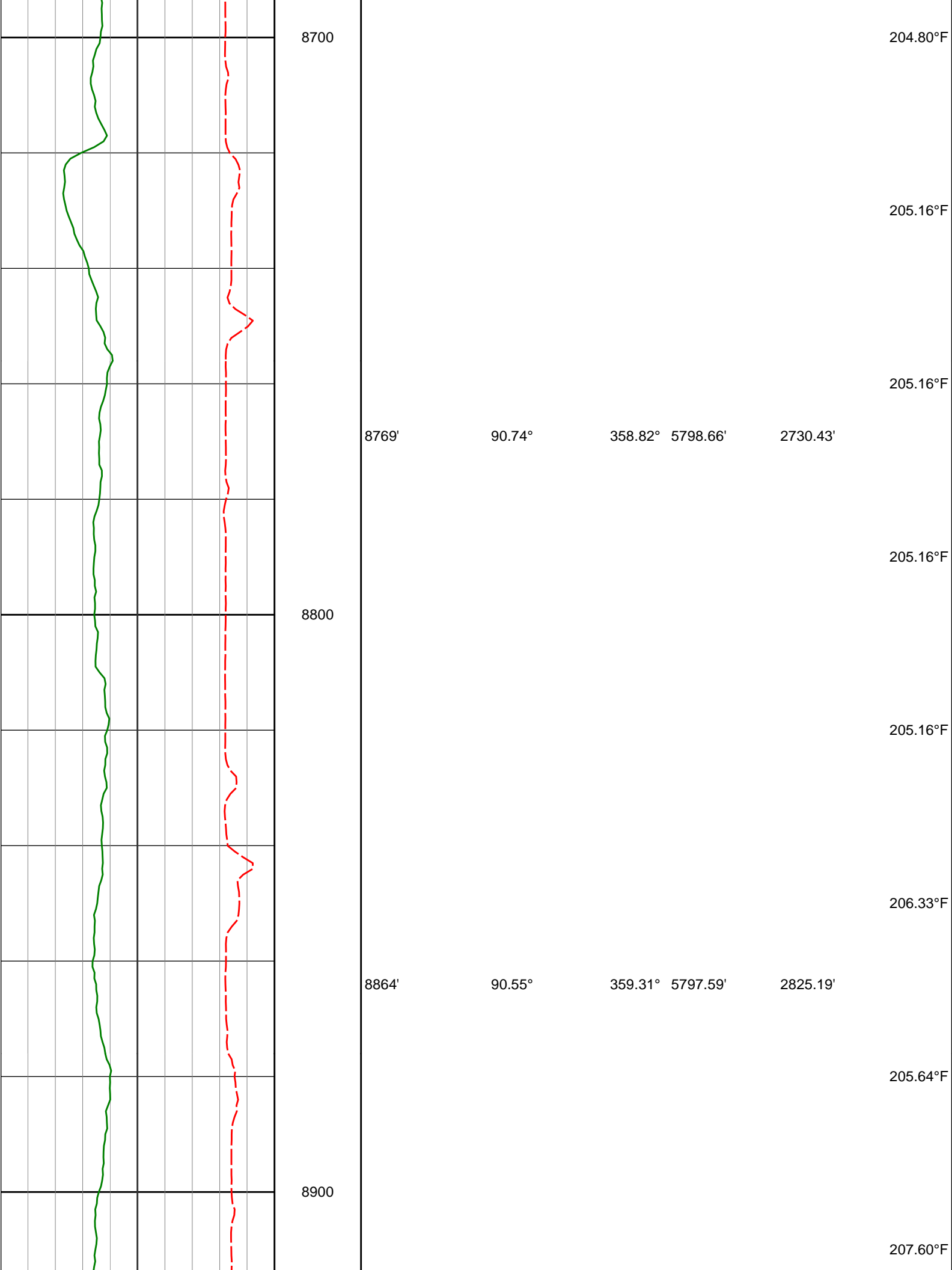
198.40°F

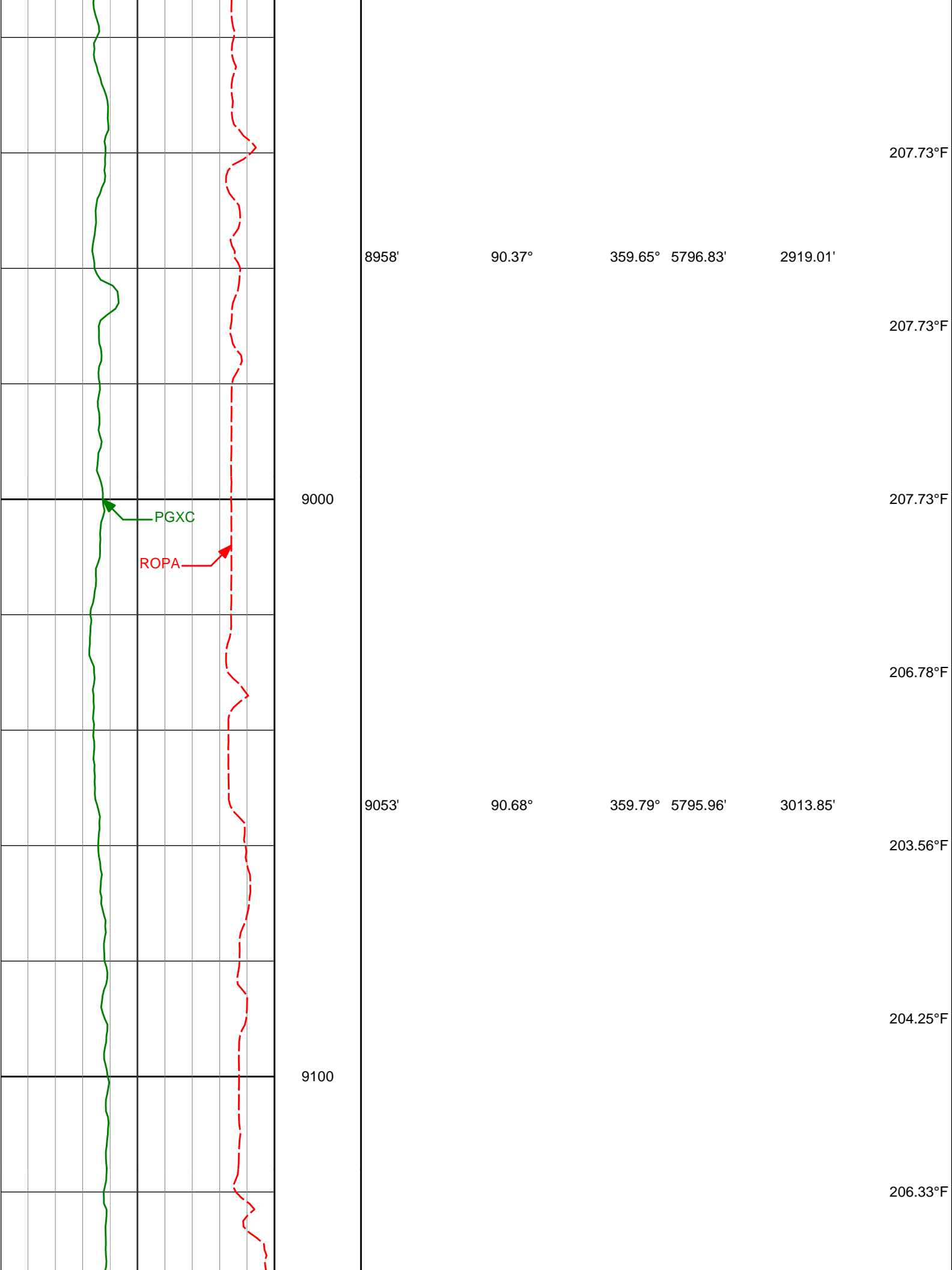
199.40°F

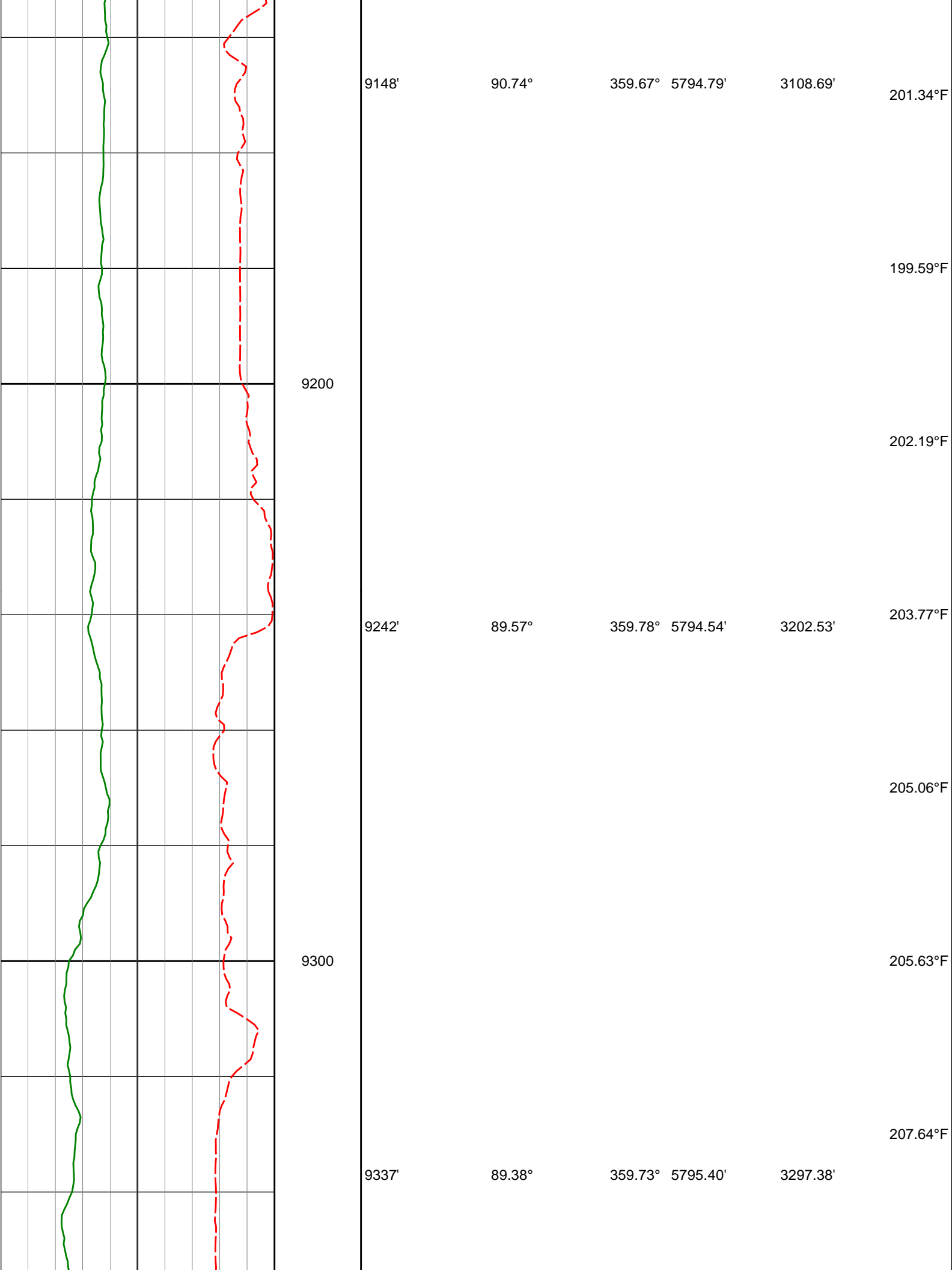
200.05°F

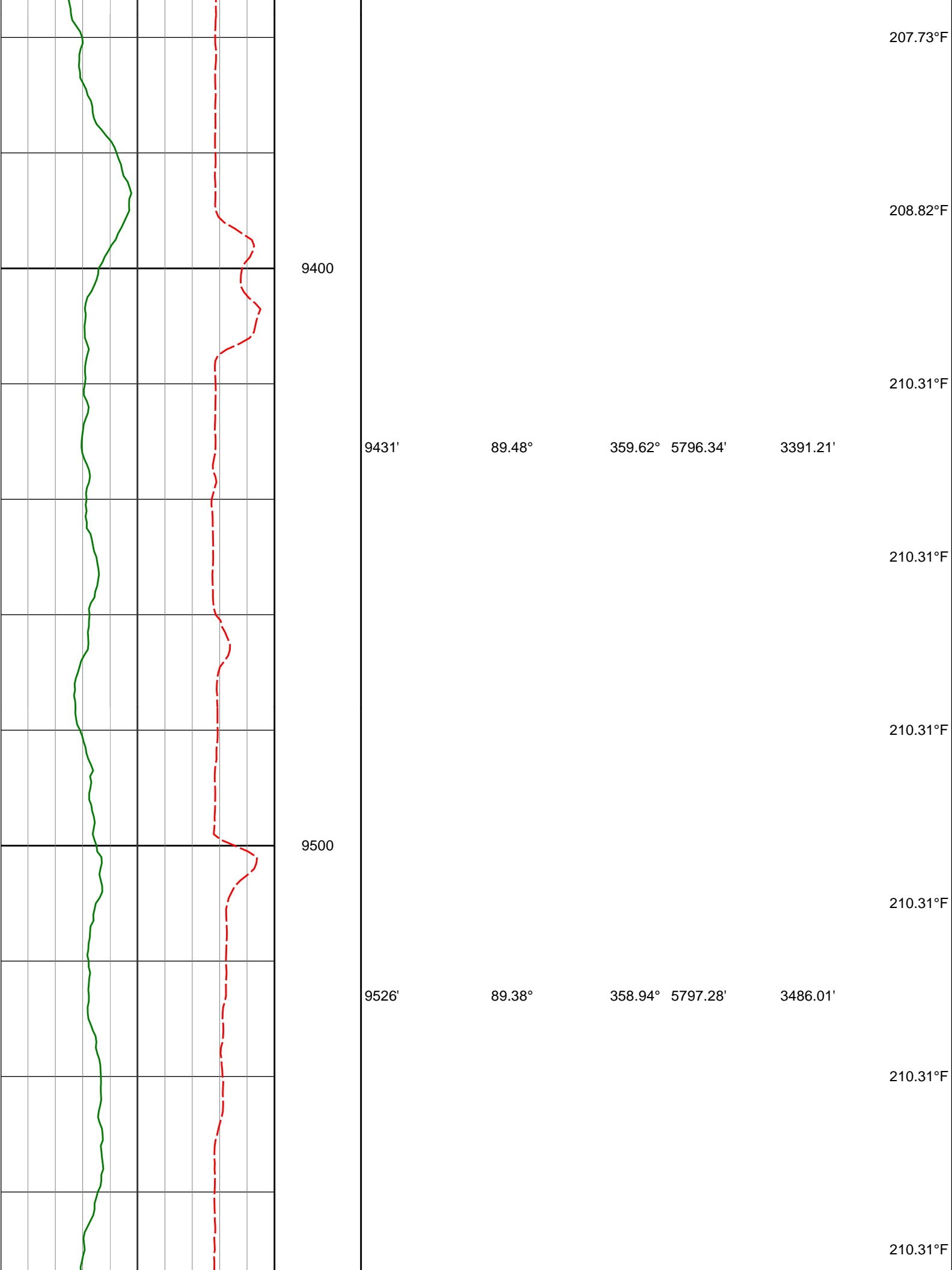


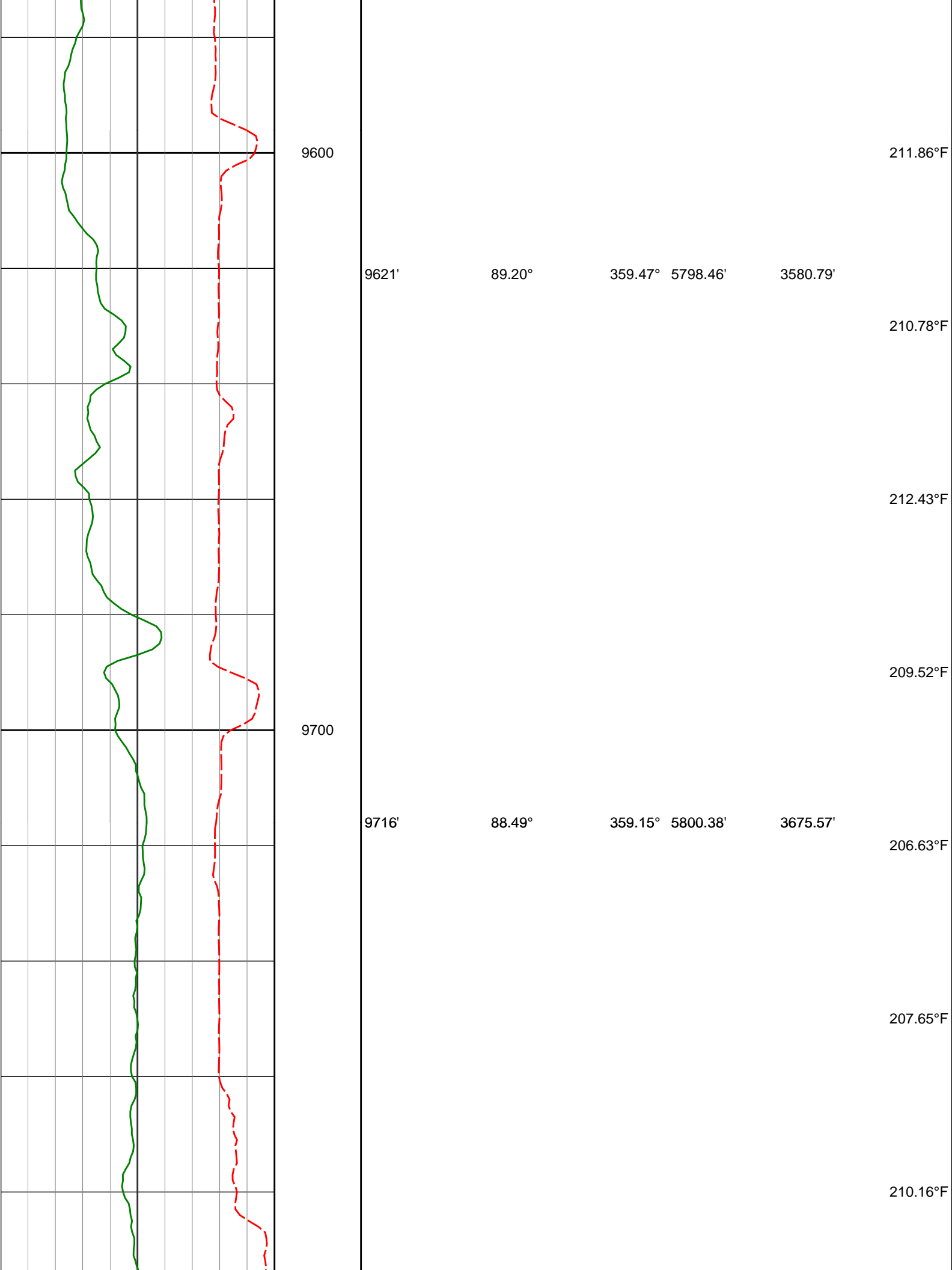


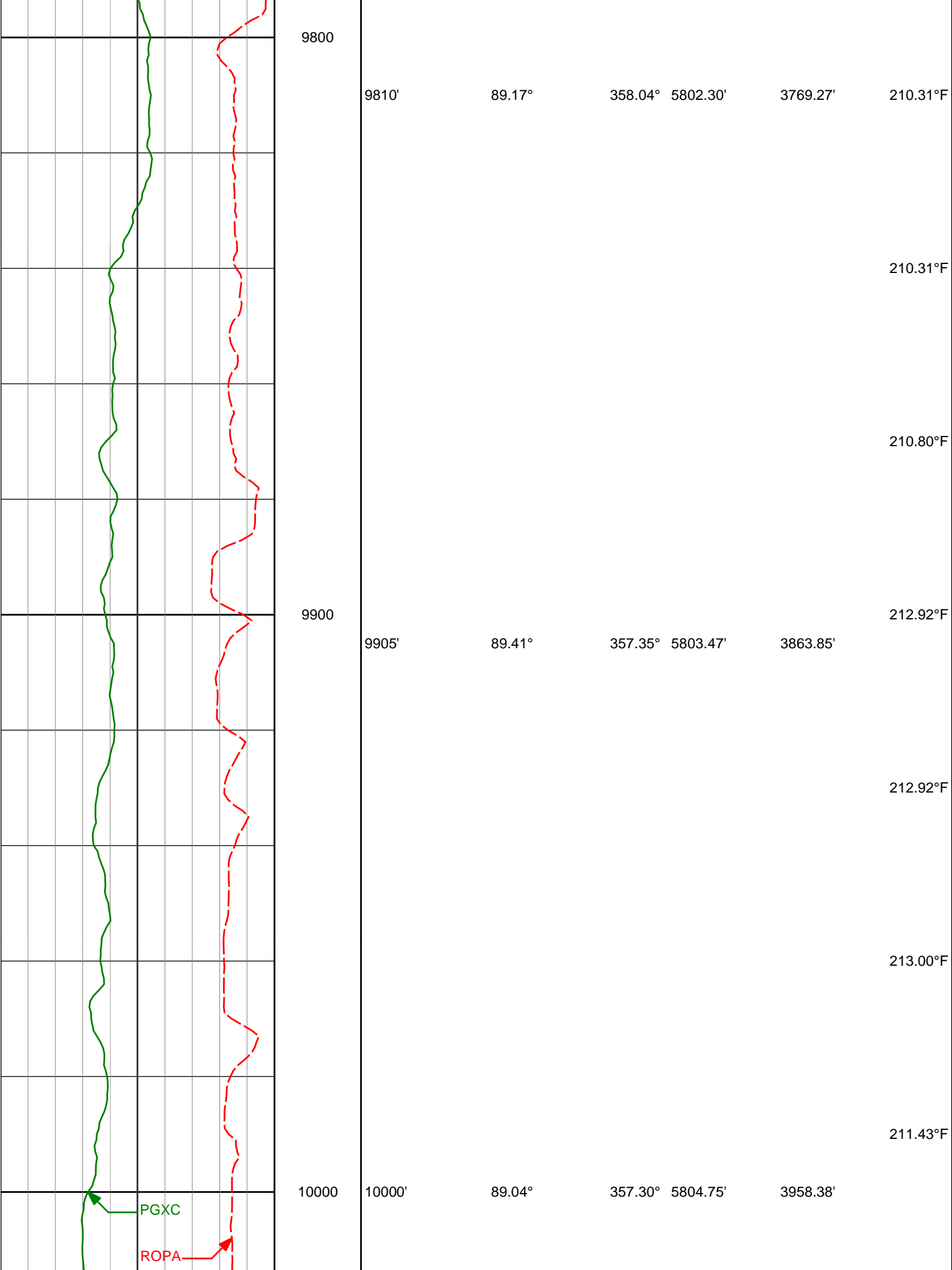


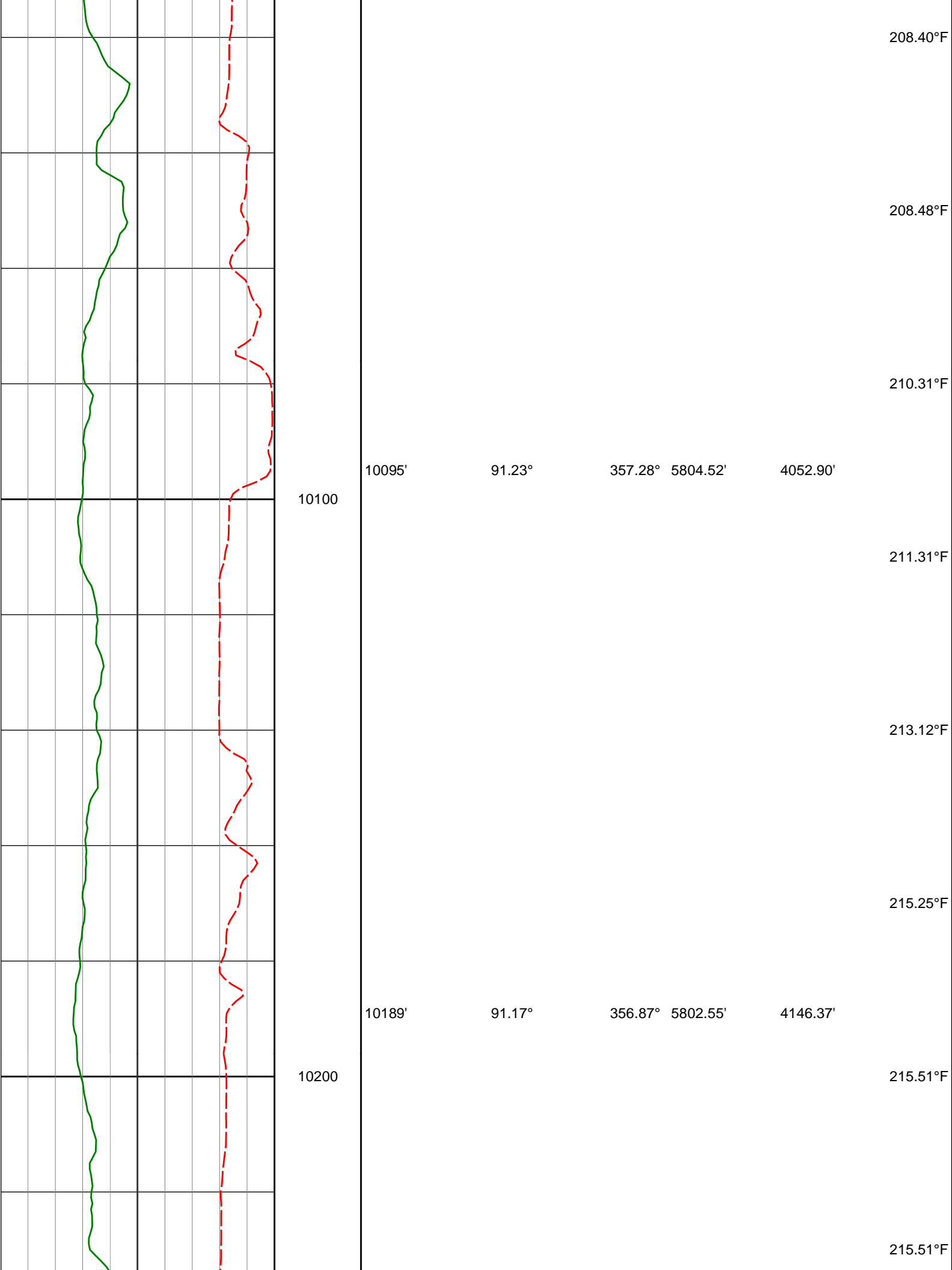


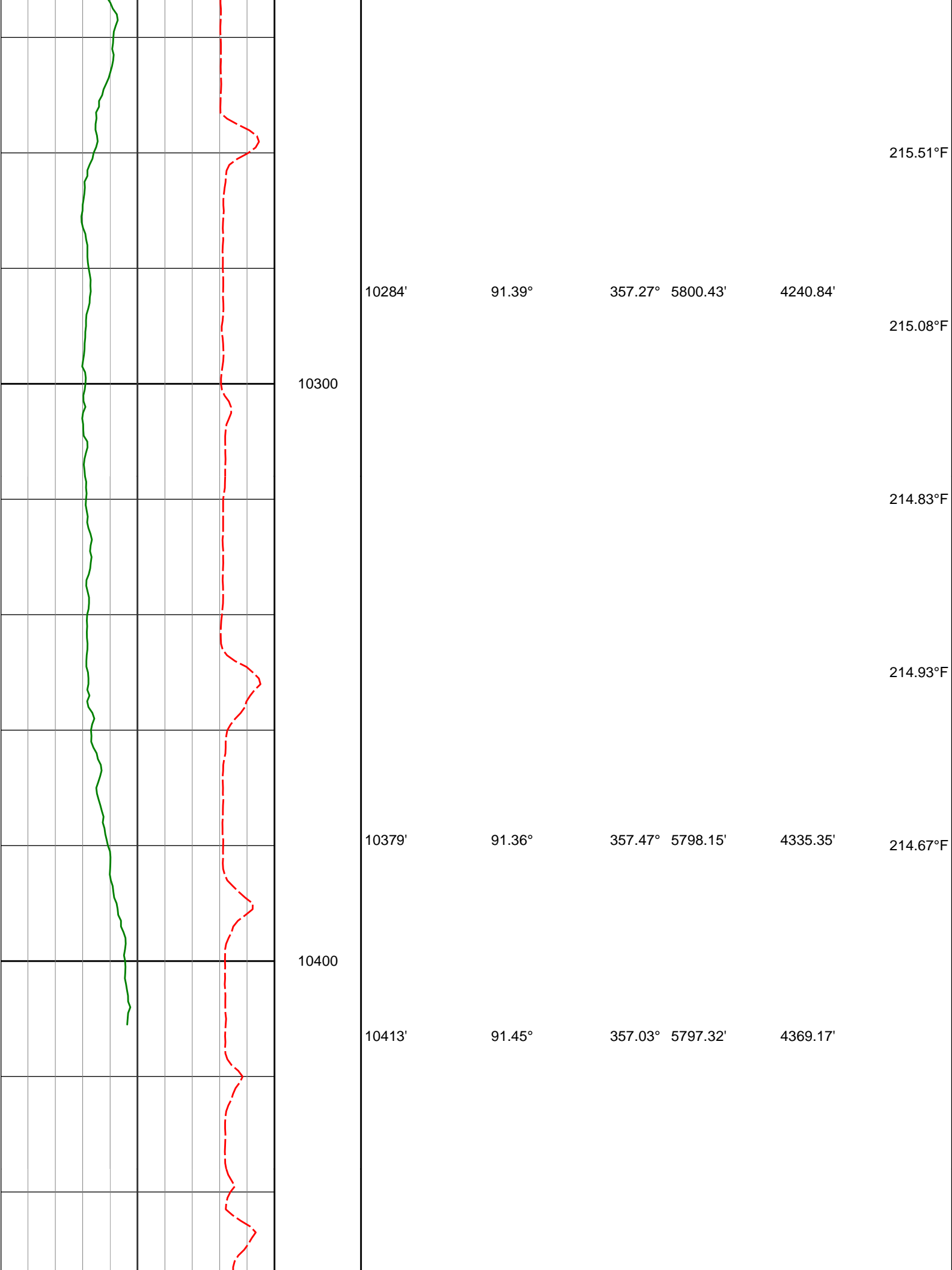












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3353.00	11.98	144.19	3325.82	242.61 S	154.12 E	-234.19	0.54
3447.00	12.50	145.06	3417.68	258.86 S	165.65 E	-249.81	0.59
3541.00	12.85	146.18	3509.39	275.89 S	177.30 E	-266.20	0.46
3635.00	13.25	146.02	3600.96	293.51 S	189.14 E	-283.17	0.42
3729.00	13.21	145.63	3692.46	311.31 S	201.23 E	-300.32	0.10
3918.00	11.41	144.46	3877.11	344.36 S	224.29 E	-332.10	0.96
4012.00	10.95	142.60	3969.32	359.01 S	235.12 E	-346.17	0.62
4107.00	11.99	145.20	4062.43	374.28 S	246.23 E	-360.84	1.22
4201.00	11.48	145.14	4154.46	389.98 S	257.15 E	-375.94	0.54
4295.00	10.57	144.25	4246.73	404.65 S	267.53 E	-390.05	0.98
4389.00	9.28	145.05	4339.32	417.87 S	276.92 E	-402.75	1.38
4484.00	7.82	146.34	4433.26	429.53 S	284.89 E	-413.97	1.56
4578.00	6.25	145.20	4526.55	439.05 S	291.35 E	-423.15	1.67
4673.00	5.28	143.60	4621.07	446.82 S	296.90 E	-430.61	1.04
4767.00	5.07	144.38	4714.68	453.68 S	301.89 E	-437.20	0.23
4861.00	4.53	159.05	4808.35	460.53 S	305.63 E	-443.84	1.42
4955.00	4.17	166.10	4902.08	467.31 S	307.78 E	-450.50	0.68
5050.00	2.34	165.03	4996.93	472.54 S	309.11 E	-455.65	1.93
5144.00	0.84	179.21	5090.89	475.08 S	309.62 E	-458.16	1.64
5239.00	3.85	3.76	5185.83	472.58 S	309.84 E	-455.66	4.94
5333.00	16.57	2.26	5278.15	455.97 S	310.58 E	-439.04	13.53
5428.00	18.61	3.12	5368.70	427.30 S	311.94 E	-410.33	2.17
5522.00	25.44	5.04	5455.79	392.17 S	314.53 E	-375.11	7.30
5616.00	36.43	5.11	5536.30	344.11 S	318.80 E	-326.89	11.69
5710.00	43.80	4.44	5608.13	283.79 S	323.82 E	-266.39	7.85
5804.00	51.70	1.23	5671.30	214.36 S	327.14 E	-196.89	8.77
5899.00	58.63	357.91	5725.54	136.45 S	326.46 E	-119.12	7.84
5946.00	64.77	358.85	5747.81	95.11 S	325.31 E	-77.90	13.17
5993.00	70.66	1.86	5765.63	51.65 S	325.60 E	-34.48	13.85
6040.00	77.39	1.87	5778.56	6.51 S	327.07 E	10.67	14.33
6087.00	81.68	0.91	5787.10	39.68 N	328.19 E	56.86	9.35
6114.00	83.58	358.90	5790.56	66.46 N	328.14 E	83.59	10.20
6231.00	86.98	358.54	5800.19	183.01 N	325.54 E	199.85	2.92
6324.00	89.23	358.85	5803.27	275.93 N	323.42 E	292.53	2.44
6417.00	89.69	359.40	5804.14	368.92 N	322.00 E	385.31	0.78
6509.00	89.48	0.15	5804.81	460.91 N	321.64 E	477.16	0.85
6601.00	89.85	358.53	5805.35	552.90 N	320.58 E	568.97	1.81
6693.00	90.83	359.37	5804.80	644.88 N	318.89 E	660.74	1.40
6786.00	91.23	359.67	5803.13	737.86 N	318.11 E	753.55	0.54
6878.00	90.59	359.01	5801.67	829.84 N	317.05 E	845.35	1.00
6970.00	89.72	359.46	5801.43	921.83 N	315.82 E	937.15	1.06
7160.00	90.25	358.69	5801.48	1111.81 N	312.75 E	1126.70	0.49
7254.00	90.34	358.91	5801.00	1205.79 N	310.79 E	1220.44	0.25
7349.00	90.43	359.15	5800.36	1300.77 N	309.18 E	1315.21	0.27
7444.00	89.88	359.94	5800.10	1395.77 N	308.42 E	1410.04	1.01
7539.00	89.17	358.63	5800.90	1490.75 N	307.23 E	1504.83	1.57
7634.00	88.77	358.59	5802.61	1585.71 N	304.92 E	1599.53	0.43
7728.00	89.41	358.33	5804.10	1679.66 N	302.39 E	1693.22	0.74
7823.00	90.34	357.14	5804.30	1774.58 N	298.63 E	1787.82	1.58
7918.00	90.52	357.46	5803.59	1869.48 N	294.16 E	1882.34	0.39
8012.00	90.09	358.32	5803.08	1963.41 N	290.70 E	1975.97	1.03
8107.00	89.91	358.53	5803.08	2058.37 N	288.10 E	2070.66	0.29
8202.00	89.57	358.65	5803.52	2153.34 N	285.77 E	2165.38	0.38
8391.00	90.40	358.00	5803.57	2342.26 N	280.25 E	2353.75	0.56
8485.00	90.55	357.55	5802.78	2436.19 N	276.60 E	2447.35	0.51
8580.00	90.99	358.56	5801.51	2531.12 N	273.37 E	2541.99	1.16
8769.00	90.74	358.82	5798.66	2720.05 N	269.06 E	2730.43	0.19
8864.00	90.55	359.31	5797.59	2815.03 N	267.50 E	2825.19	0.55
8958.00	90.37	359.65	5796.83	2909.02 N	266.65 E	2919.01	0.41
9053.00	90.68	359.79	5795.96	3004.02 N	266.18 E	3013.85	0.36
9148.00	90.74	359.67	5794.79	3099.01 N	265.73 E	3108.69	0.14
9242.00	89.57	359.78	5794.54	3193.01 N	265.28 E	3202.53	1.25
9337.00	89.38	359.73	5795.40	3288.00 N	264.88 E	3297.38	0.20
9431.00	89.48	359.62	5796.34	3382.00 N	264.34 E	3391.21	0.16
9526.00	89.38	358.94	5797.28	3476.98 N	263.15 E	3486.01	0.72
9621.00	89.20	359.47	5798.46	3571.97 N	261.83 E	3580.79	0.60
9716.00	88.49	359.15	5800.38	3666.94 N	260.69 E	3675.57	0.82
9810.00	89.17	358.04	5802.30	3760.89 N	258.38 E	3769.27	1.39
9905.00	89.41	357.35	5803.47	3855.81 N	254.56 E	3863.85	0.77
10000.00	89.04	357.30	5804.75	3950.69 N	250.12 E	3958.38	0.39
10095.00	91.23	357.28	5804.52	4045.58 N	245.63 E	4052.90	2.30

10189.00	91.17	356.87	5802.55	4139.44 N	240.84 E	4146.37	0.45
10284.00	91.39	357.27	5800.43	4234.29 N	235.98 E	4240.84	0.48
10379.00	91.36	357.47	5798.15	4329.16 N	231.62 E	4335.35	0.21
10413.00	91.45	357.03	5797.32	4363.11 N	229.99 E	4369.17	1.32
10481.00	91.45	357.03	5795.60	4431.00 N	226.46 E	4436.78	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 3.01 DEGREES (GRID)
A TOTAL CORRECTION OF 6.94 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 10481.00 FEET
IS 4436.78 FEET ALONG 2.93 DEGREES (GRID)**

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