



1 : 600 / 1 : 240

WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	22-Mar-16	26-Mar-16			
Rig Bit Number	100	0200			
Bit Size (in)	8.500	8.500			
Tool Nominal OD (in)	6.750	6.750			
Log Start Depth (MD, ft)	1,958.00	7,086.00			
Log End Depth (MD, ft)	7,086.00	16,040.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	21-Mar-16 14:00	23-Mar-16 06:00			
Drill/Wipe End Date and Time	22-Mar-16 18:30	25-Mar-16 20:35			
Min Inc (deg) @ Depth (MD, ft)	0.02 @ 938.00	86.58 @ 7,137.00			
Max Inc (deg) @ Depth (MD, ft)	85.00 @ 7,030.00	91.72 @ 12,962.00			
Bit TFA(in2) / Bit Type	0.98 / PDC	1.50 / PDC			
Flow Rate (gpm)	595.65	588.08			
Max AV (fpm) / CV (fpm) @ MWD	350.0 / 450.0	250.0 / 350.0			
Fluid Type	Diesel Mud Base	Diesel Mud Base			
Density (ppg) / Viscosity (spqt)	9.40 / 54.00	9.45 / 43.00			
Filtrate CL (ppm)	15,000.00	15,000.00			
pH / Fluid Loss (mptm)	N/A / N/A	N/A / N/A			
PV (cP) / YP (lbf2)	13 / 10.00	14 / 9.00			
% Solids / % Sand	9.40 / 0.1	9.40 / 0.1			
% Oil / Oil:Water Ratio	73.00 / 3:1	73.00 / 3:1			
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 (in F) / S	127.46 / PDM	222.54 / PDM			

Max Tool Temp (degF) / Source	187.48 / PCM	239.54 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A			
Lead MWD Engineer	Adam Sampson	Adam Sampson			
Customer Representative	Charles Colville	Charles Colville			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11342298	11342298			
Insert Serial Number	11145577	11620268			
Date and Time Initialized	20-Mar-16 16:36	22-Mar-16 20:50			
Date and Time Read	23-Mar-16 01:50	26-Mar-16 17:10			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	56.00	63.00			
Software Version	6.33	6.33			
Sub Serial Number	11342298	11342298			
Sonde Serial Number	10859934	11478016			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	328.90	116.80			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	49.75	50.43			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11342298	11342298			
Insert/Sonde Serial Number	11681020	11293354			

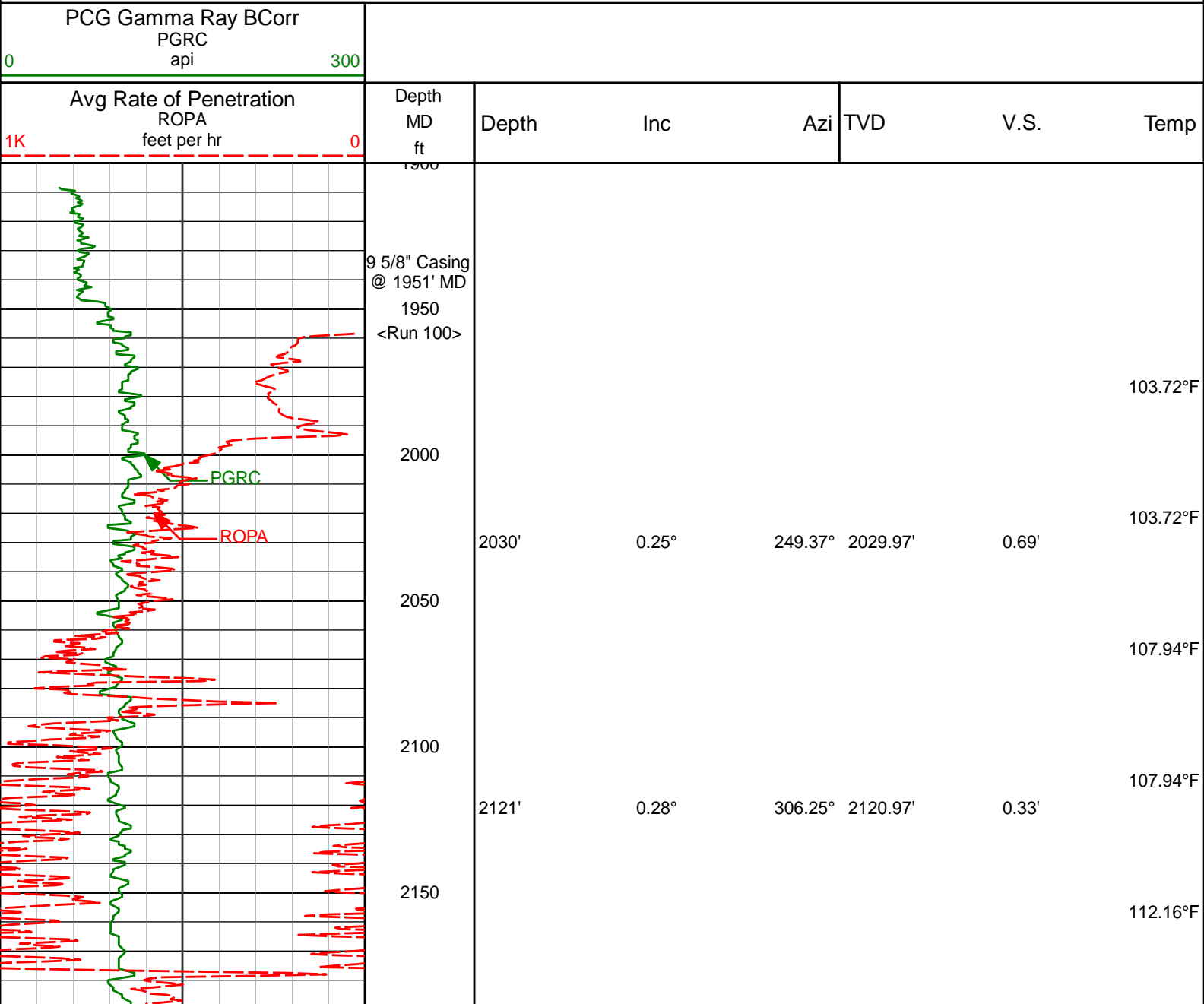
REMARKS

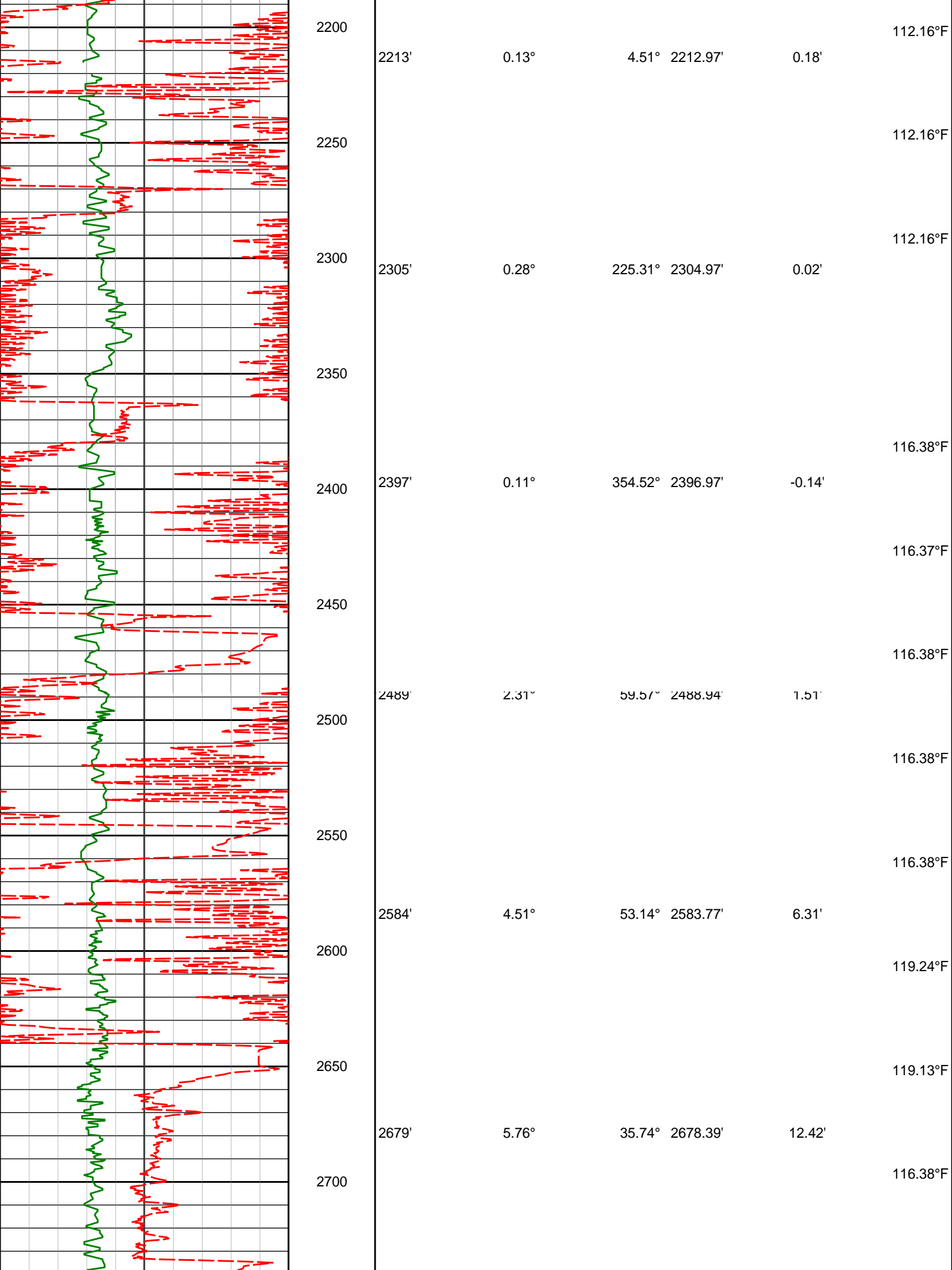
1. All depths are calibrated to driller's pipe tally and are measured depths from the drill floor.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded (memory data) unless otherwise stated.
4. The following smoothing parameters have been applied to the data:
 - 1:600 (2"):
 - Interval: 1.0 ft
 - Coercion Distance: 3.0 ft (ROPA)
 - Interval: 1.0 ft
 - Coercion Distance: 3.0 ft (Gamma Ray)
 - 1:240 (5"):
 - Interval: 0.5 ft
 - Coercion Distance: 1.2 ft (ROPA)
 - Interval: 0.5 ft
 - Coercion Distance: 0.6 ft (Gamma Ray)

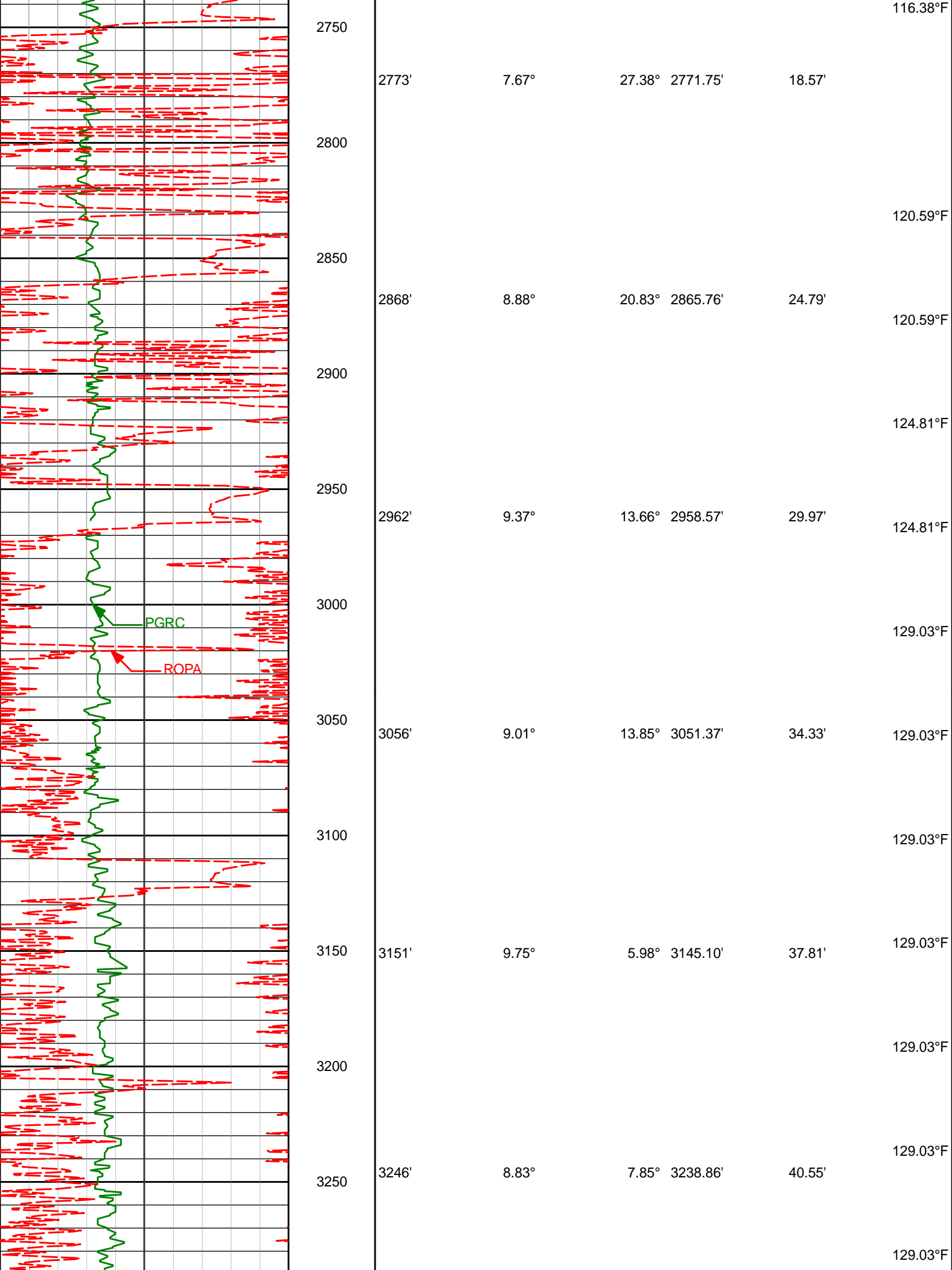
WARRANTY

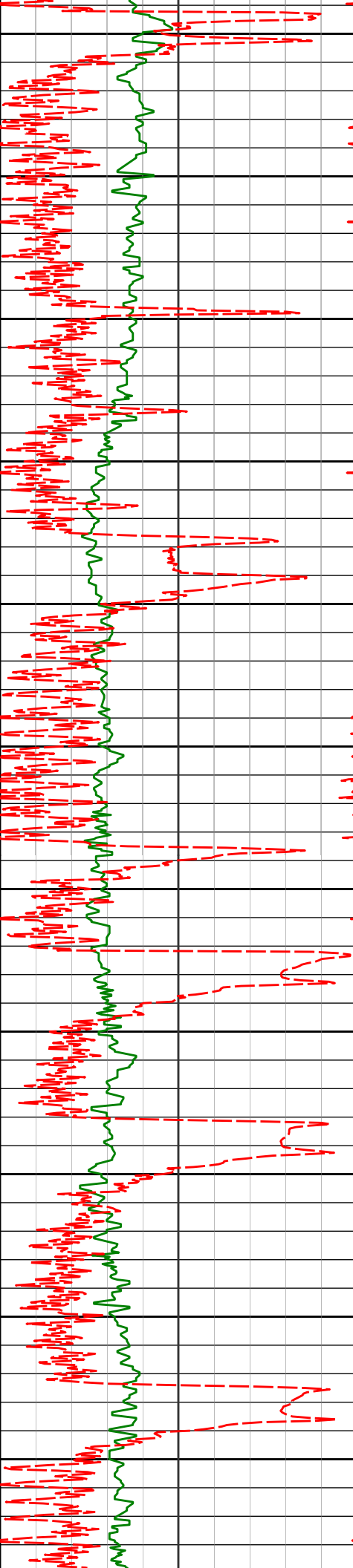
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MD Detail 1:600 Scale



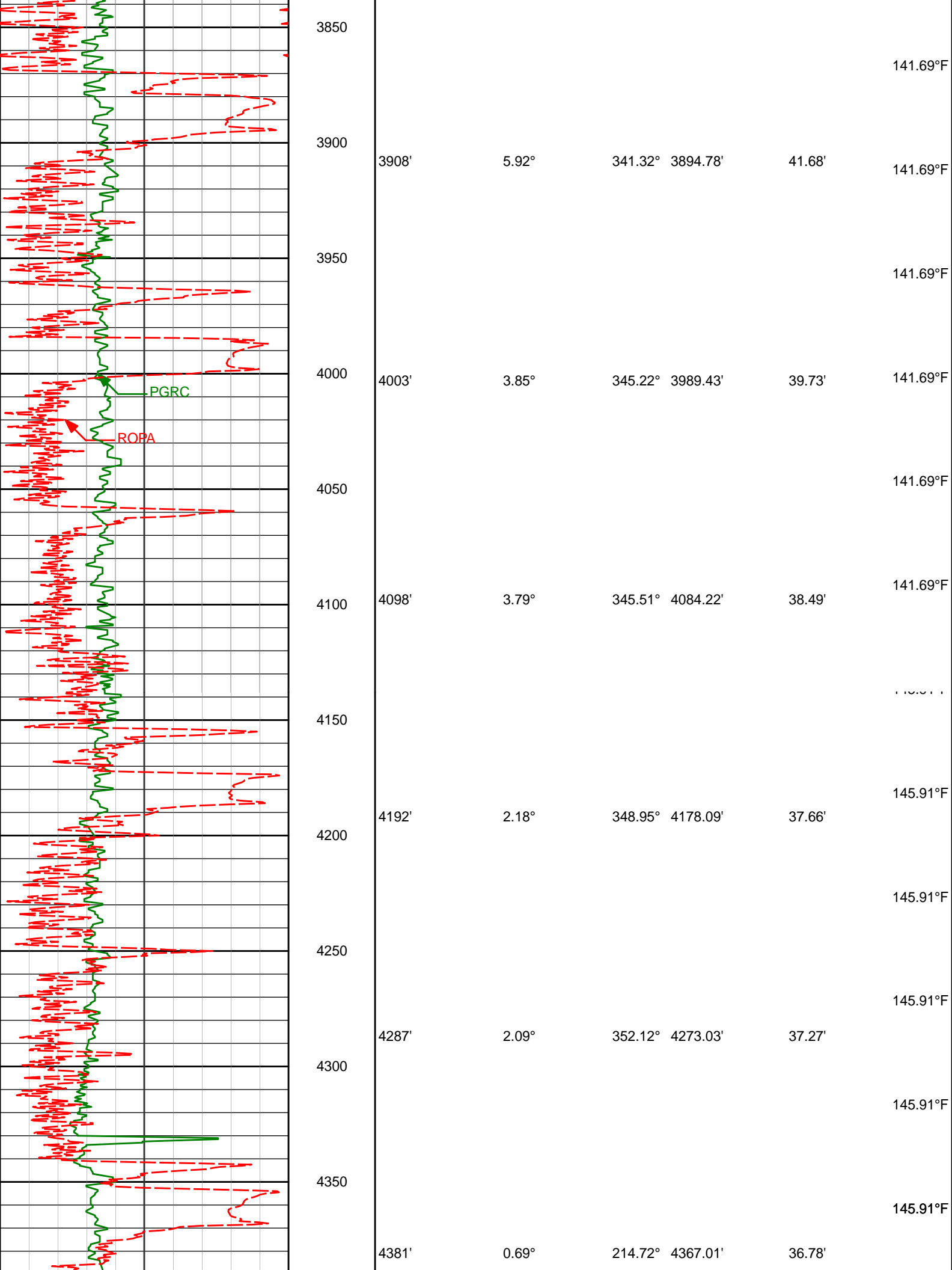


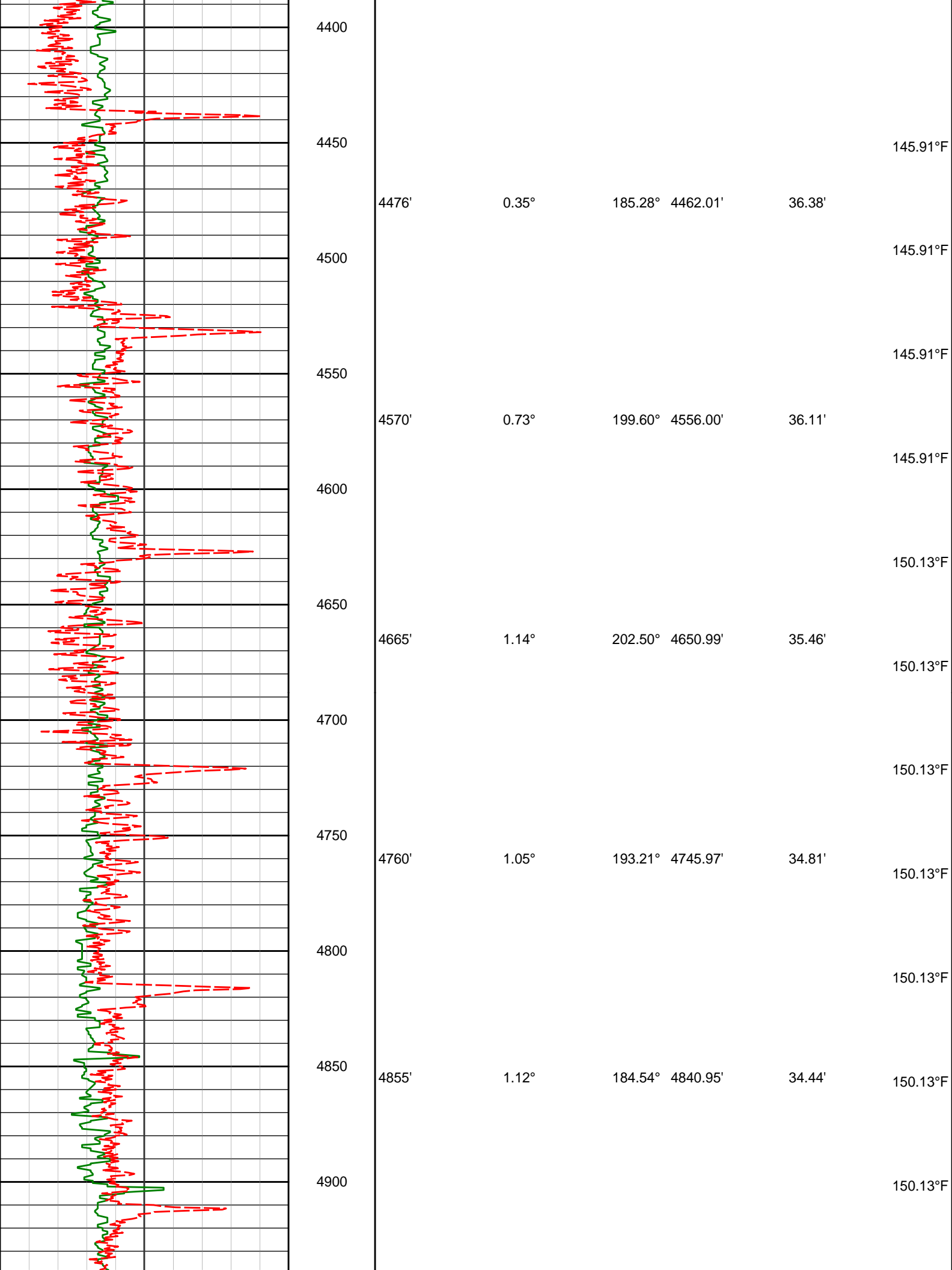


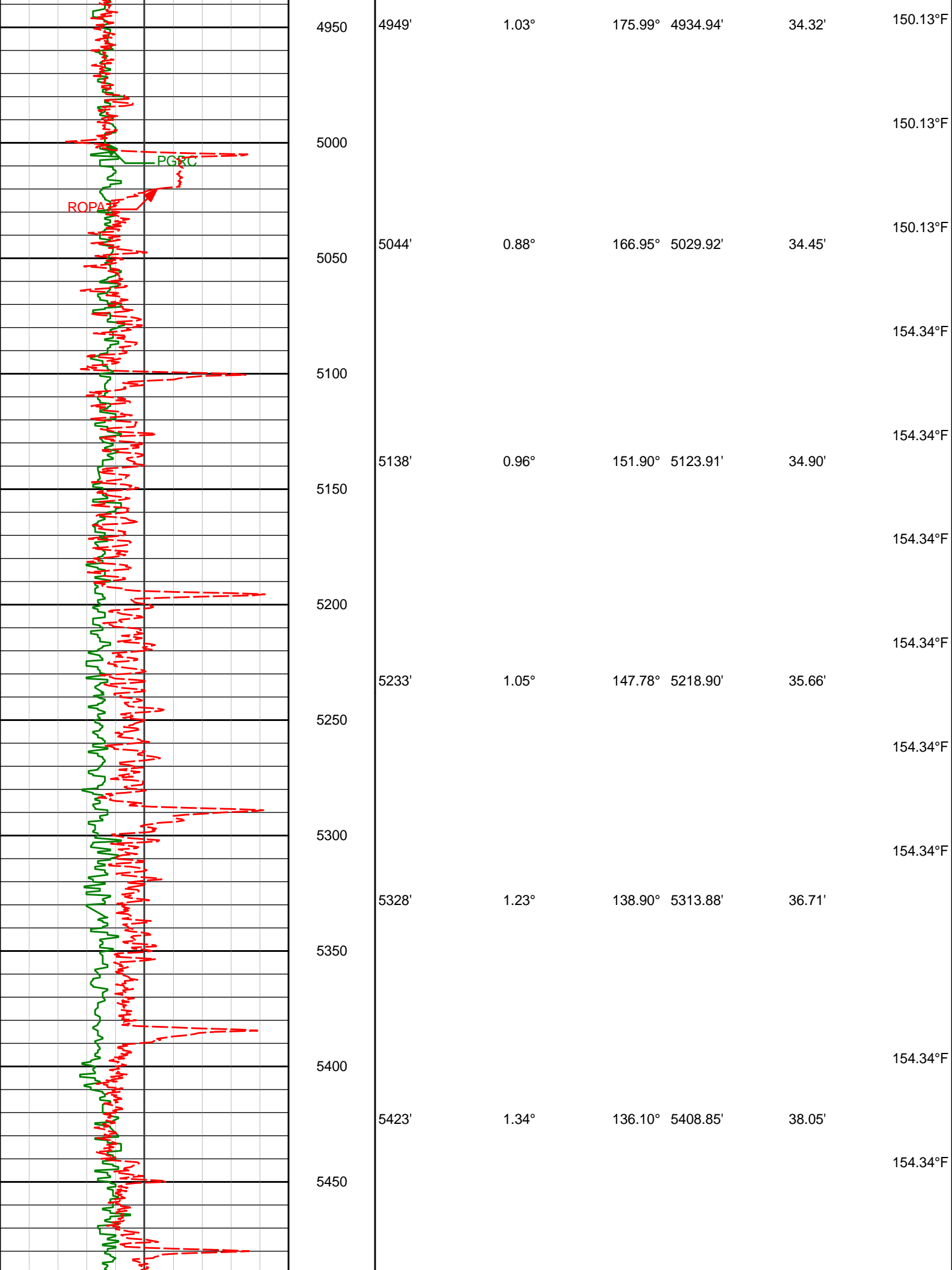


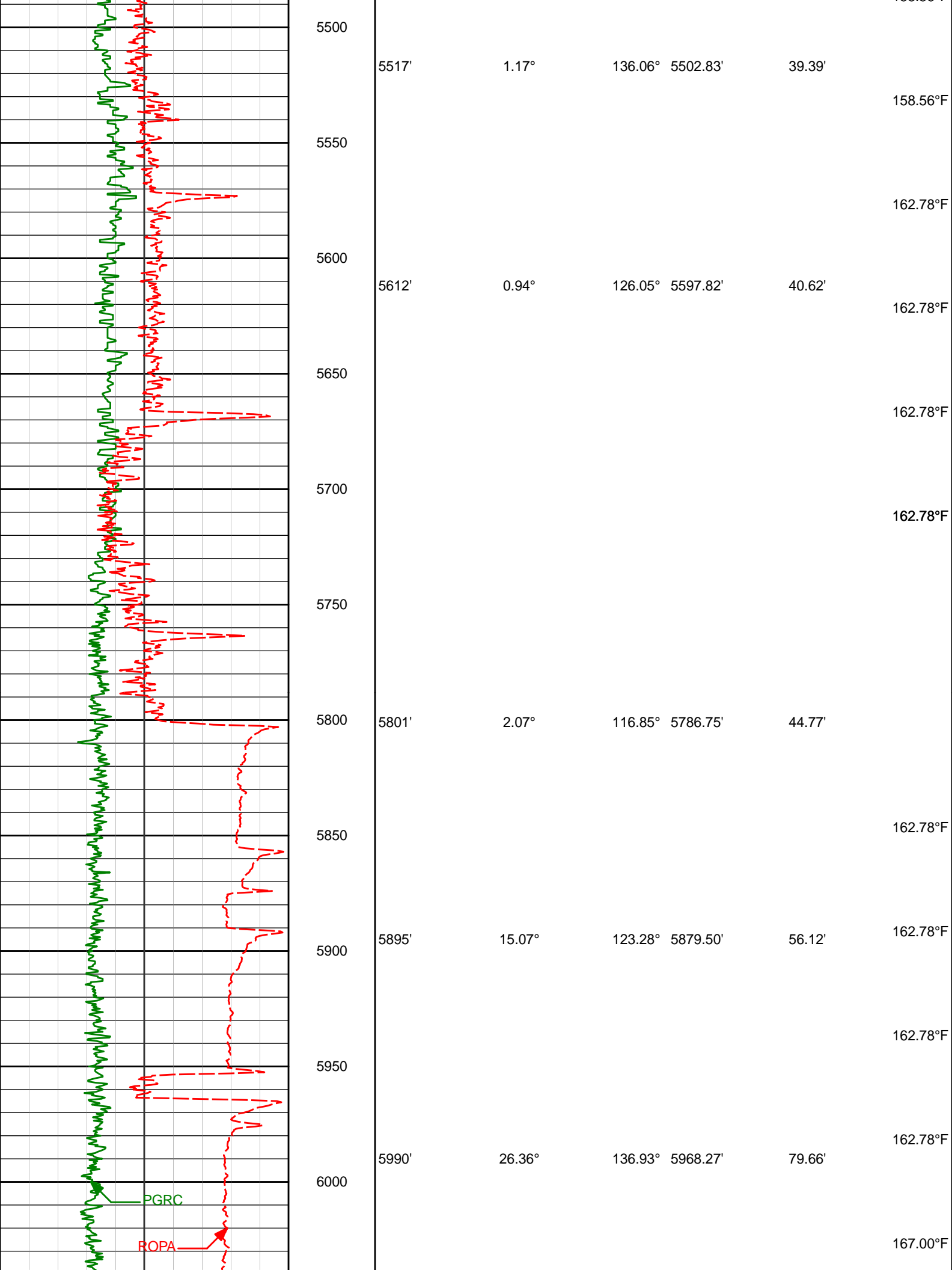
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750
3800

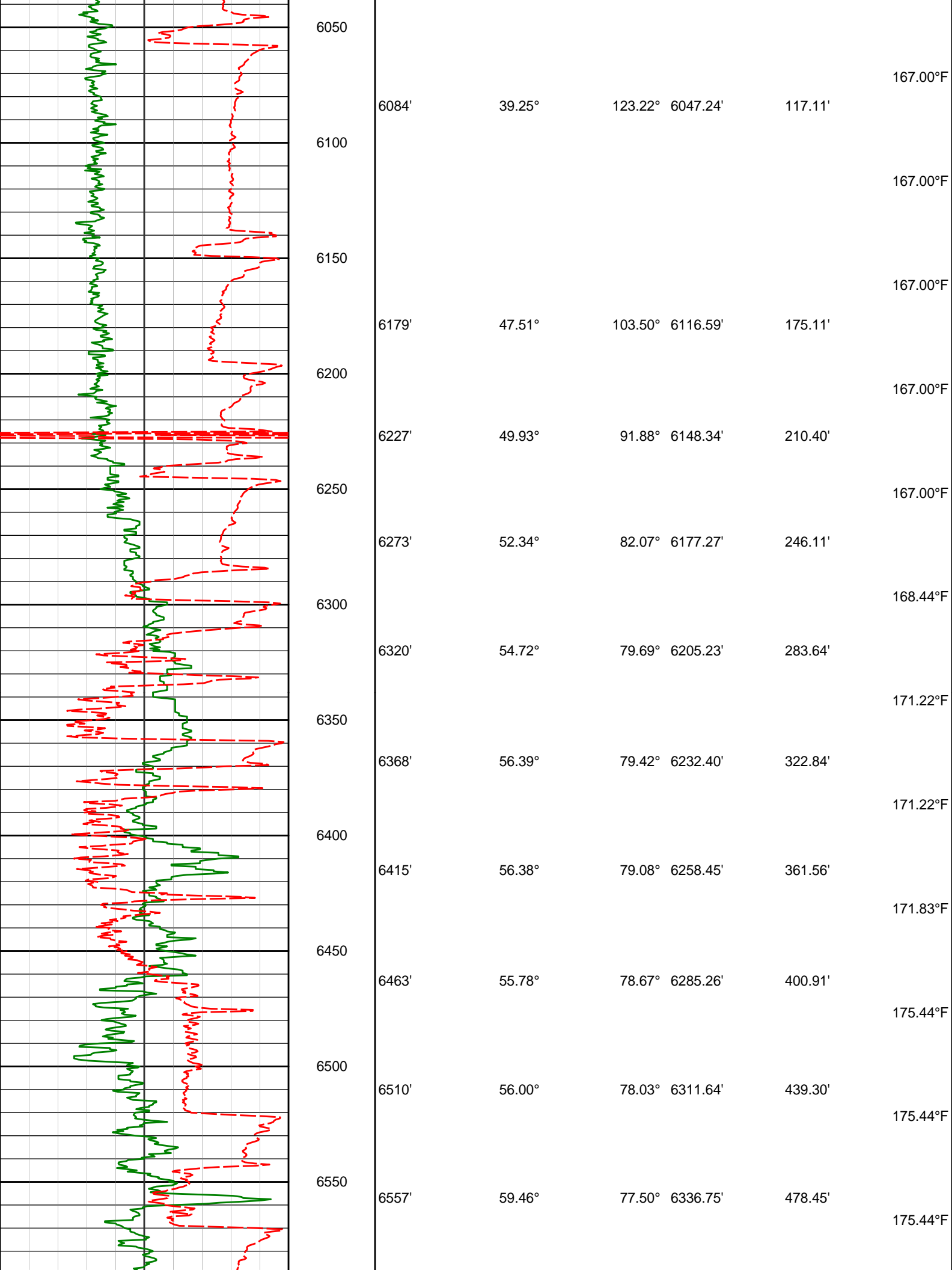
					129.03°F
3340'	8.02°	7.91°	3331.85'	43.24'	
					133.25°F
3435'	7.66°	8.22°	3425.96'	45.82'	
					133.25°F
					133.25°F
3625'	8.60°	0.23°	3614.06'	49.24'	
					137.47°F
					137.47°F
3719'	7.70°	343.41°	3707.13'	48.20'	
					137.47°F
					137.47°F
3814'	6.84°	337.19°	3801.36'	44.84'	

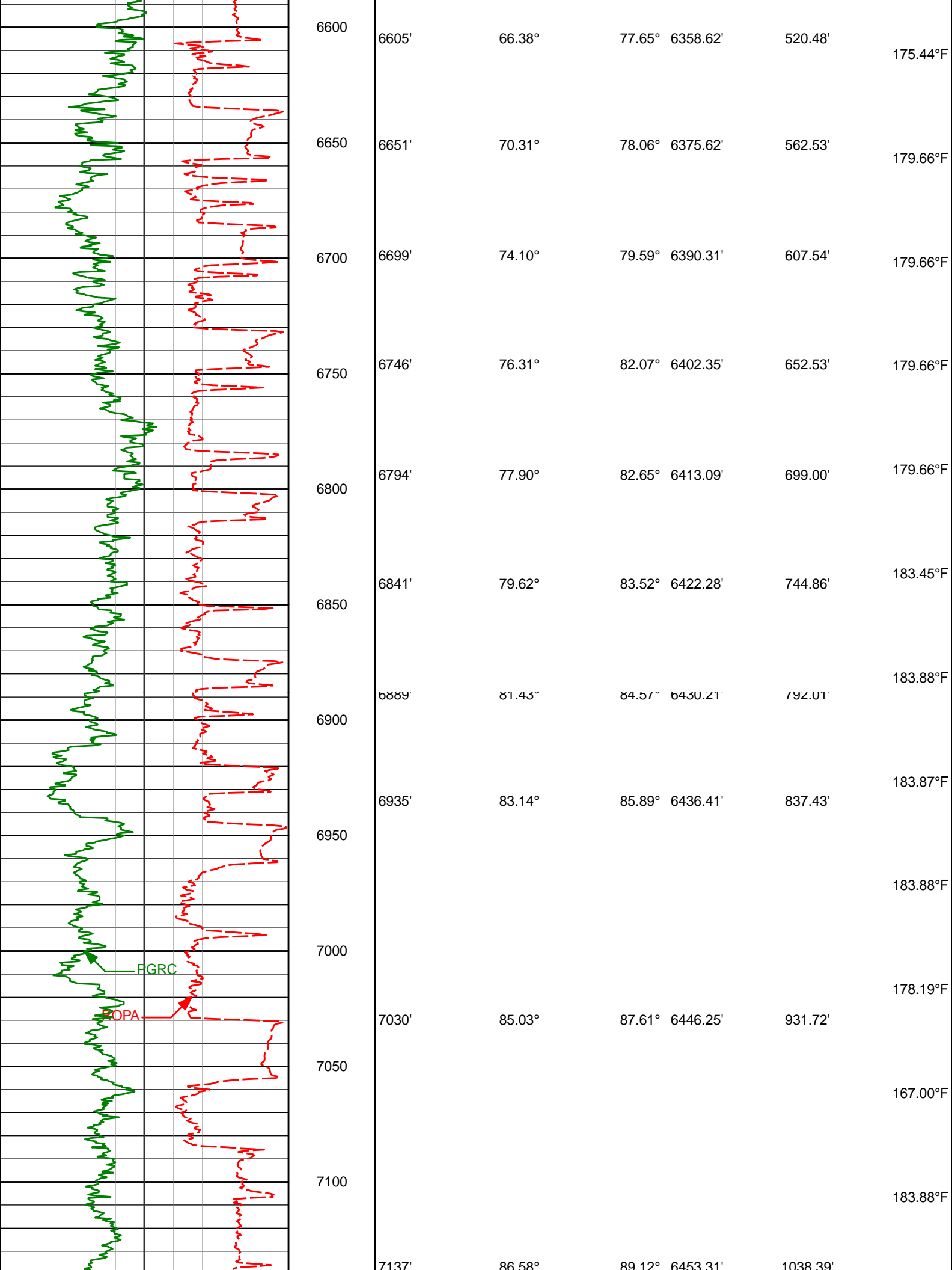


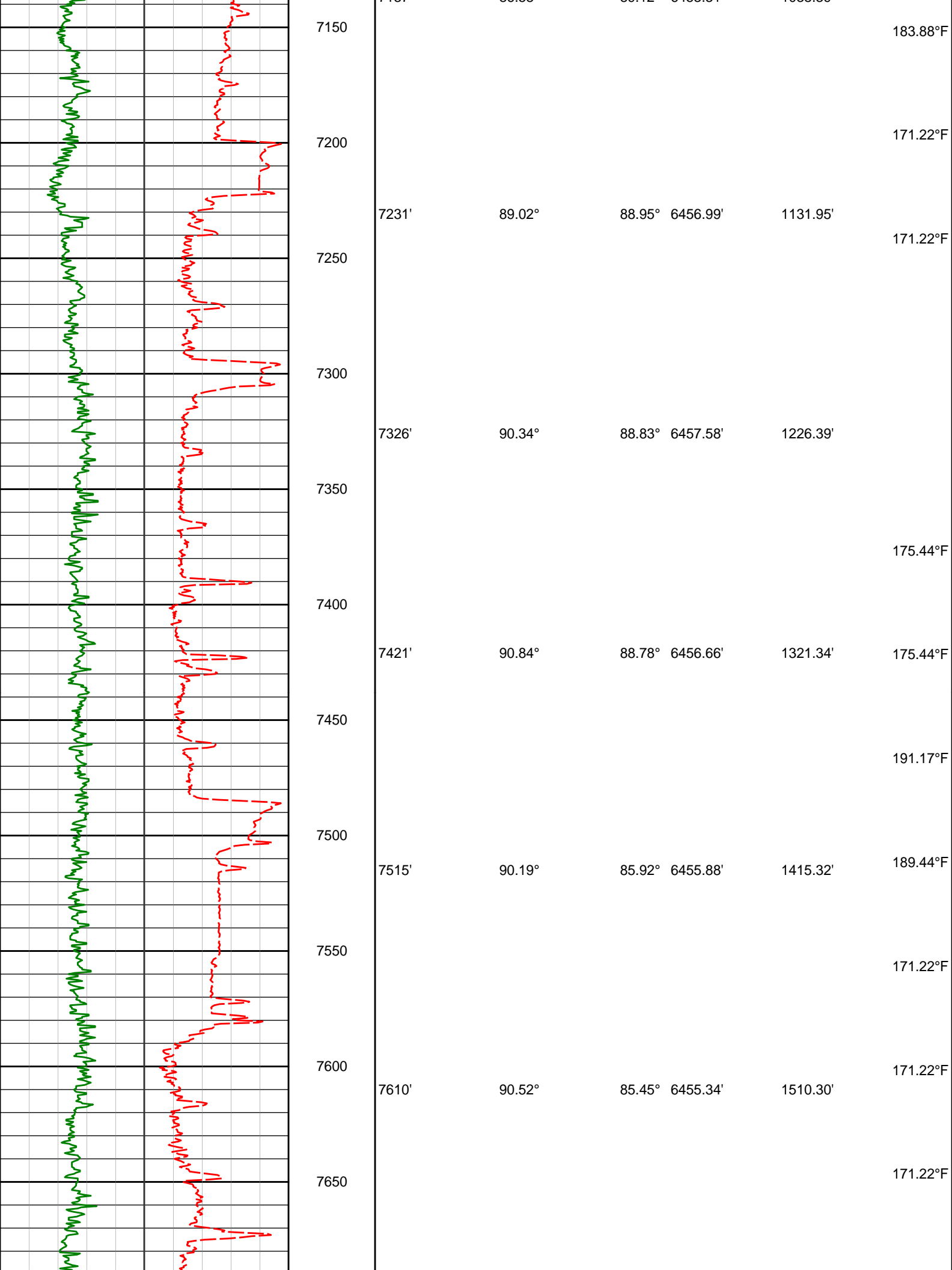


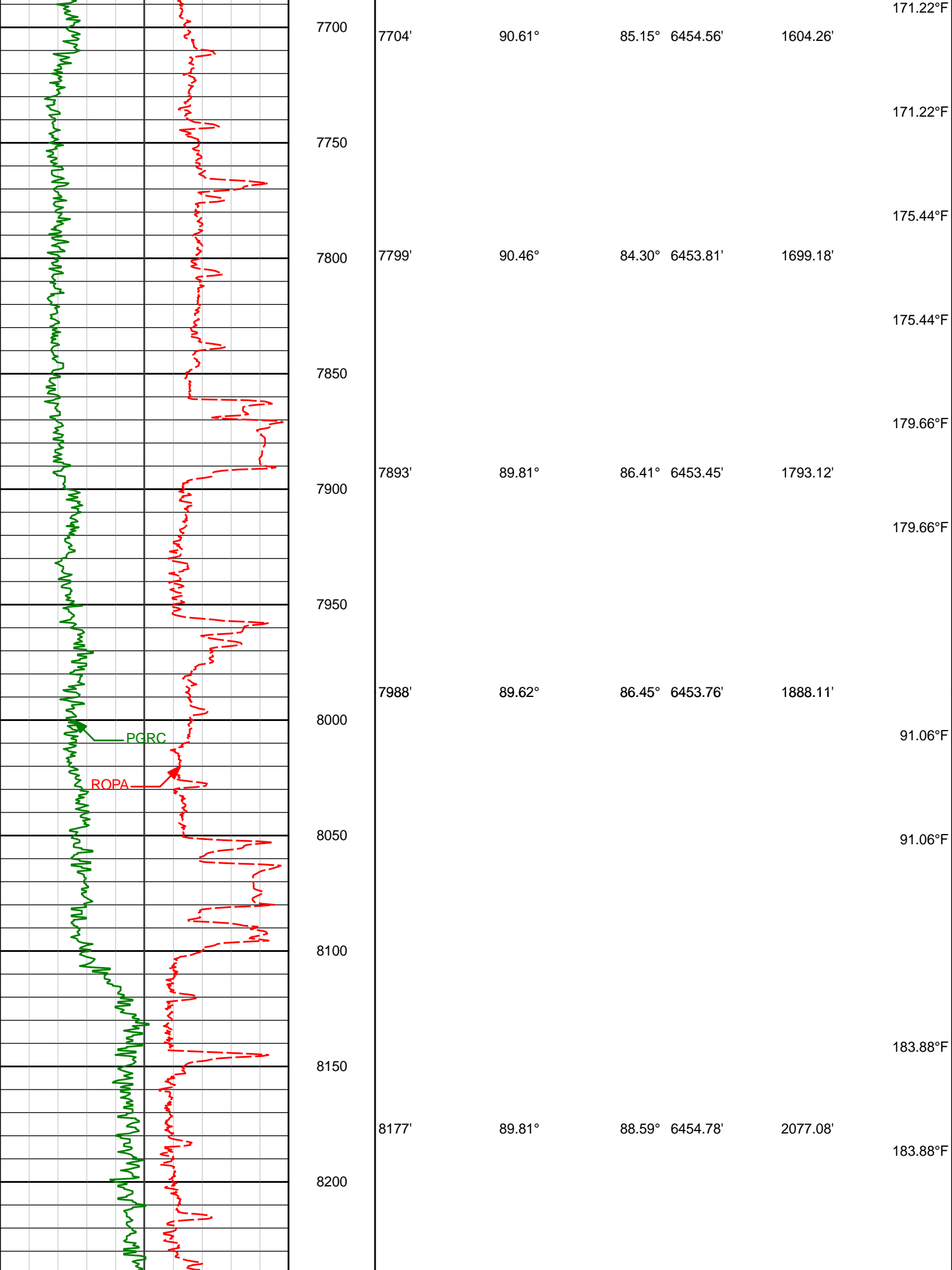


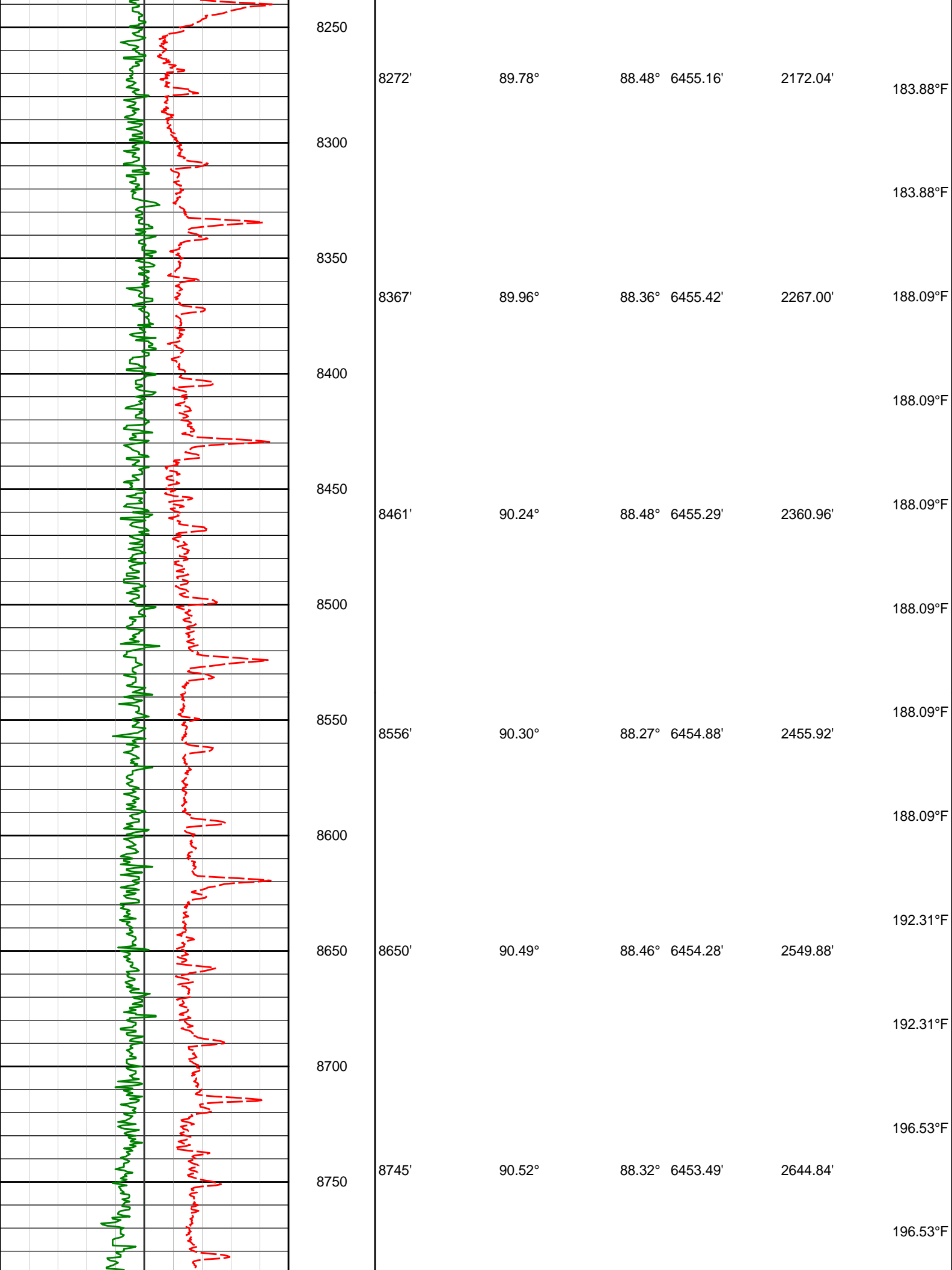


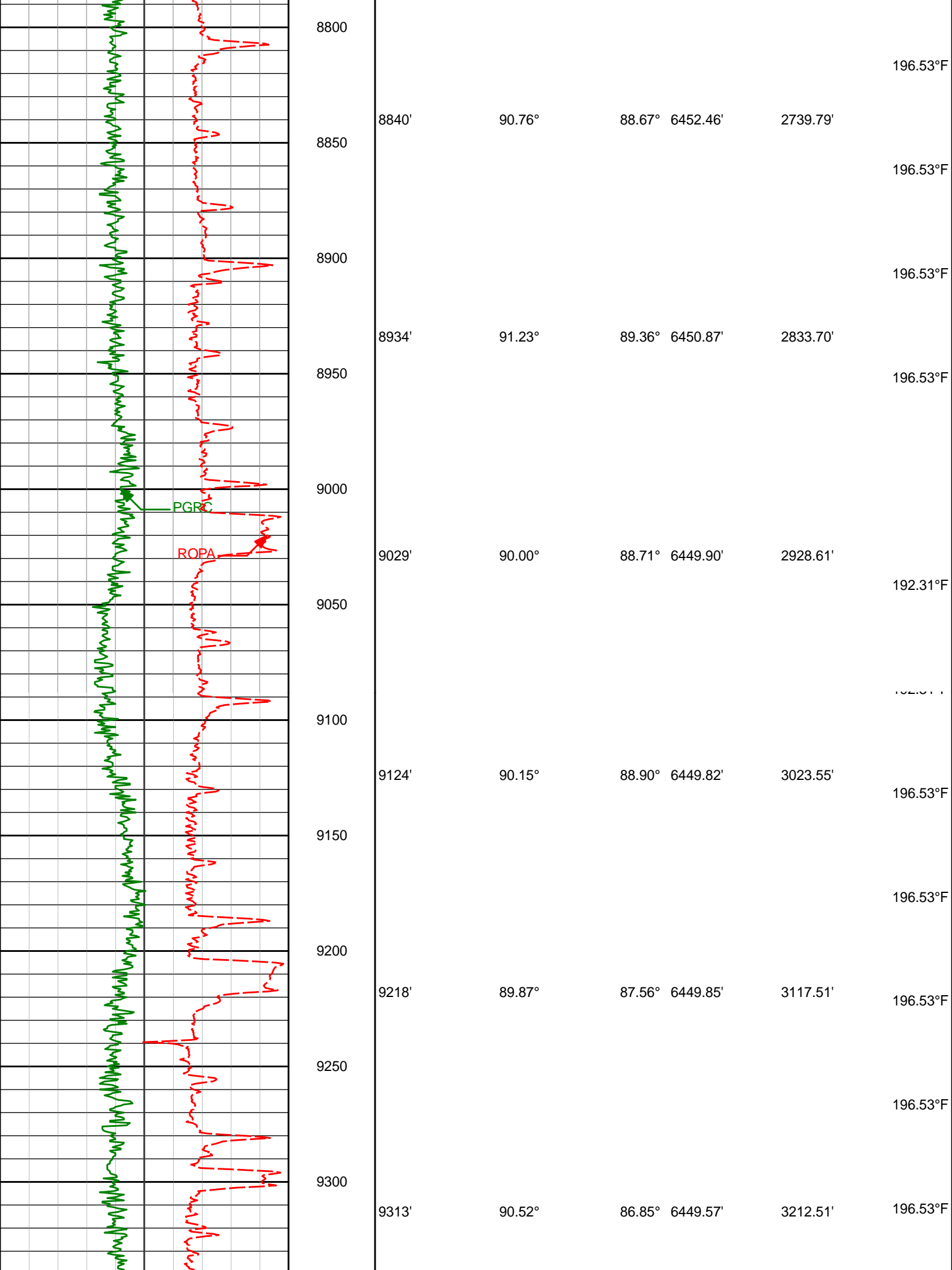


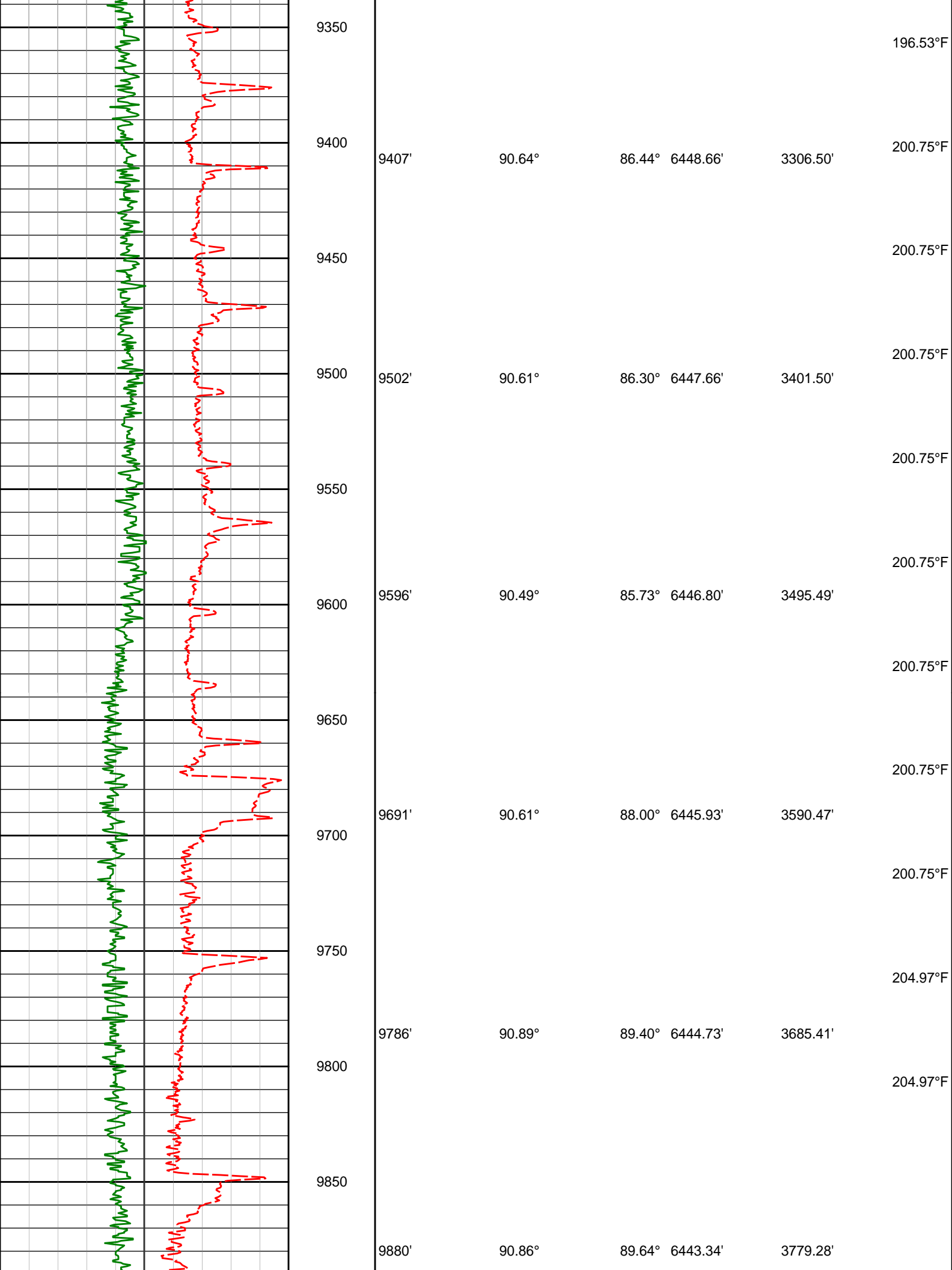


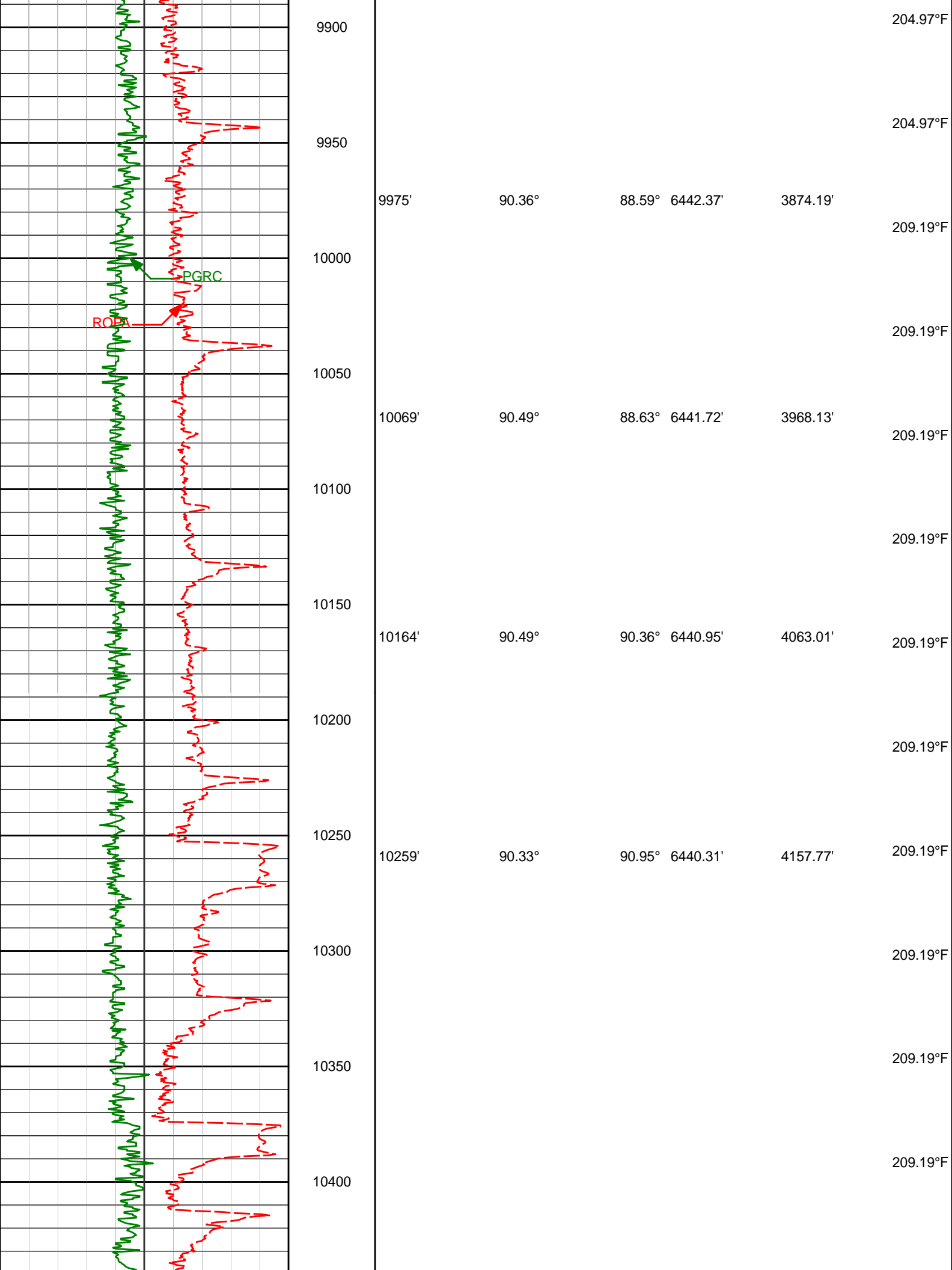


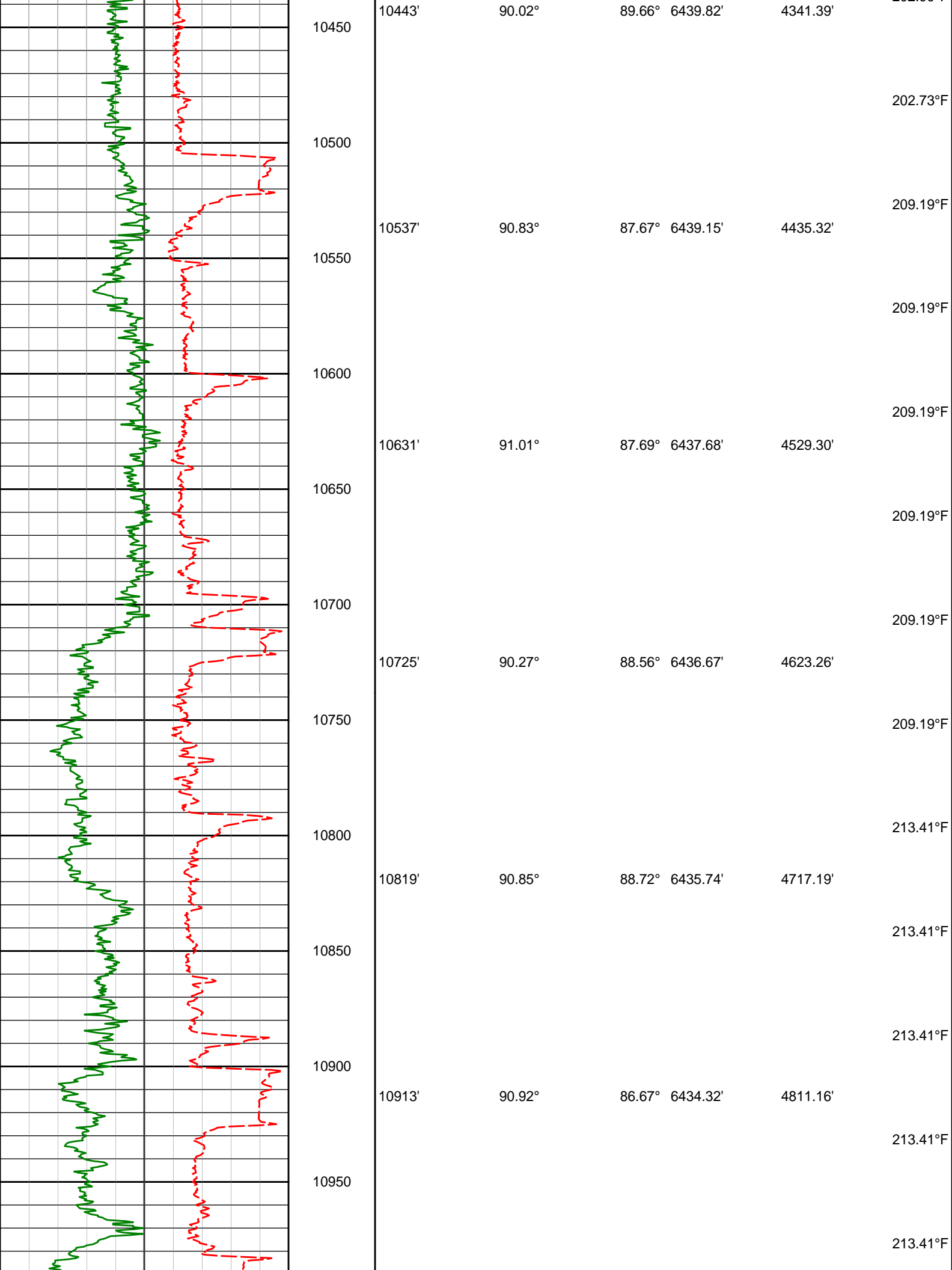


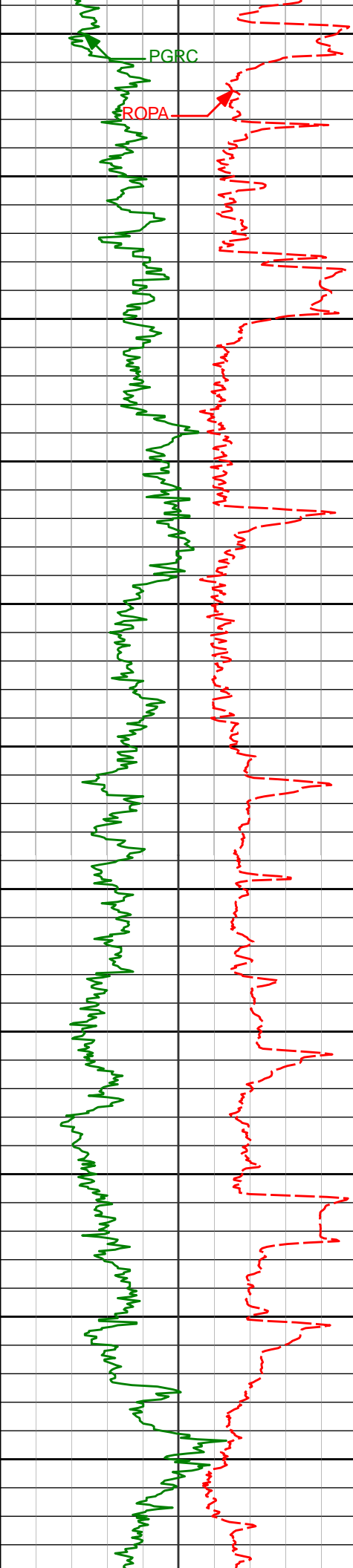






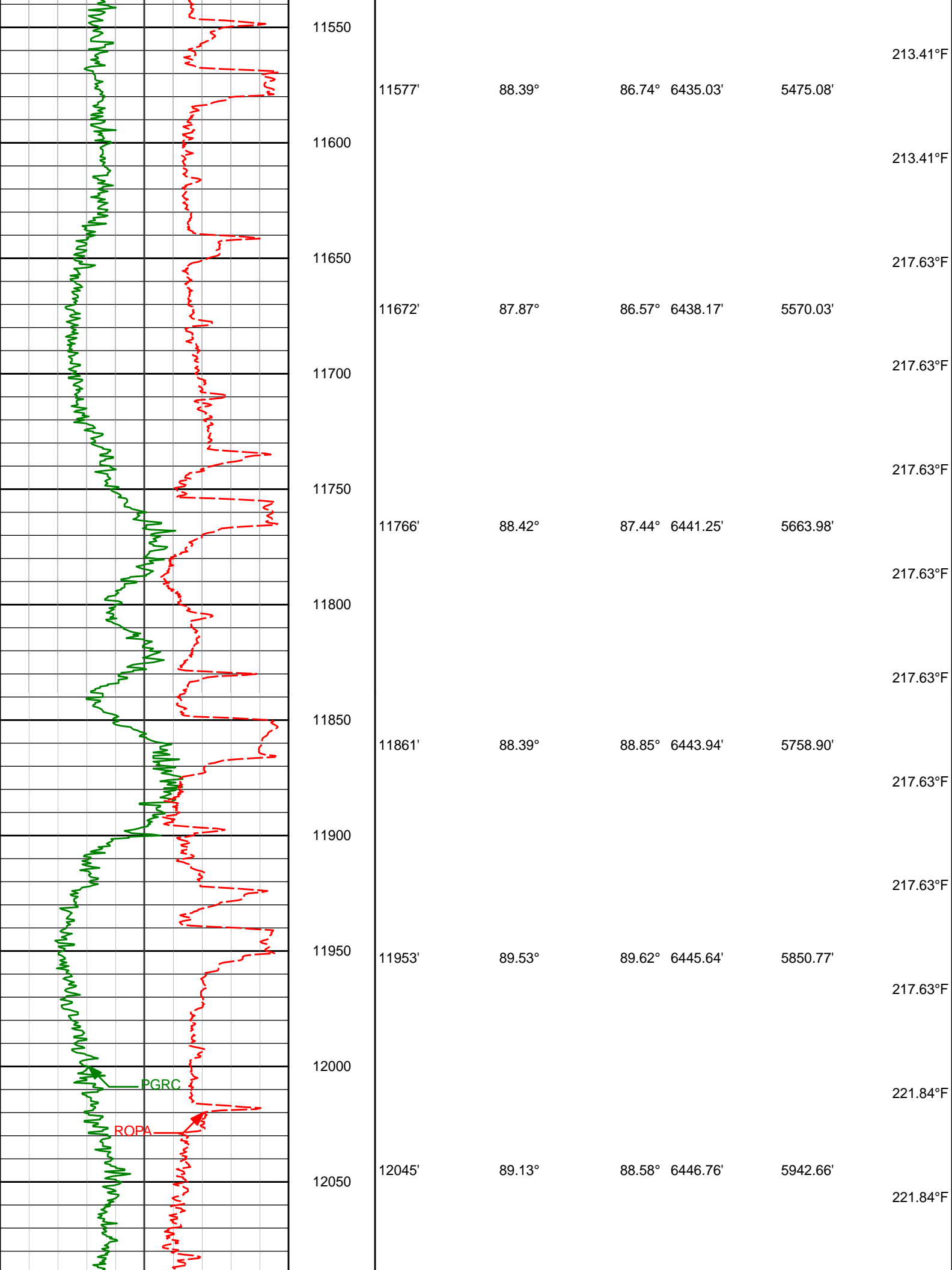


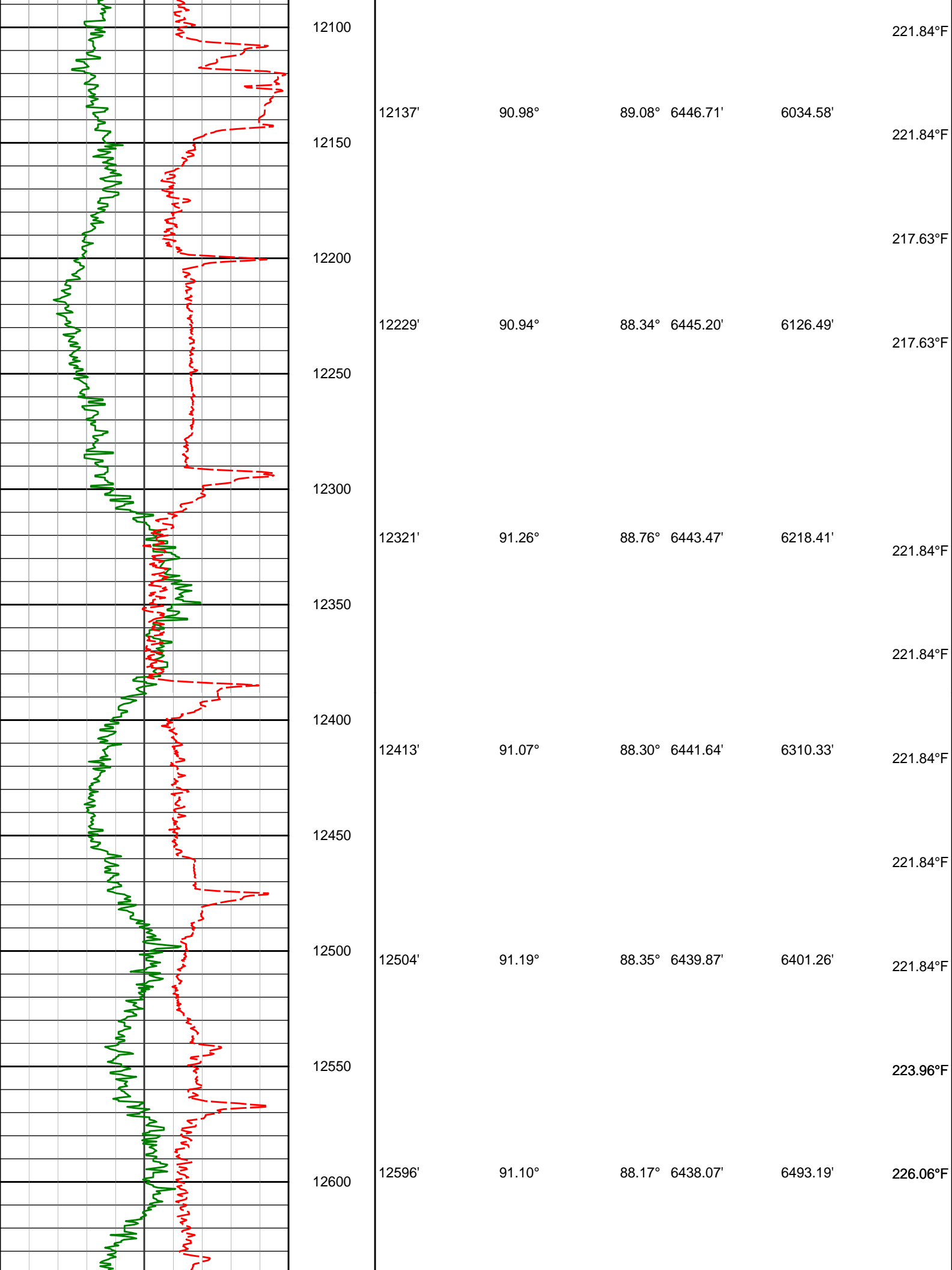


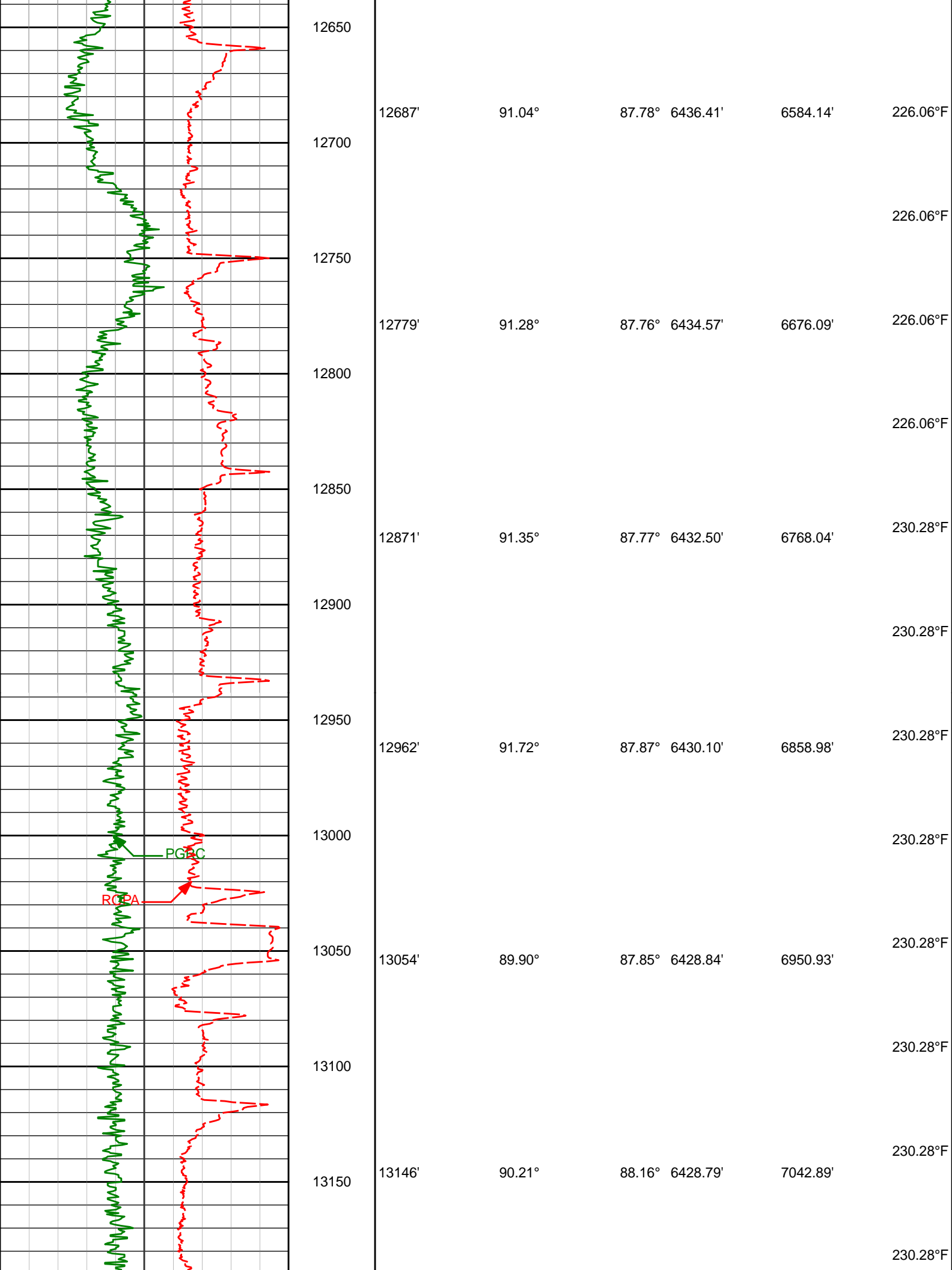


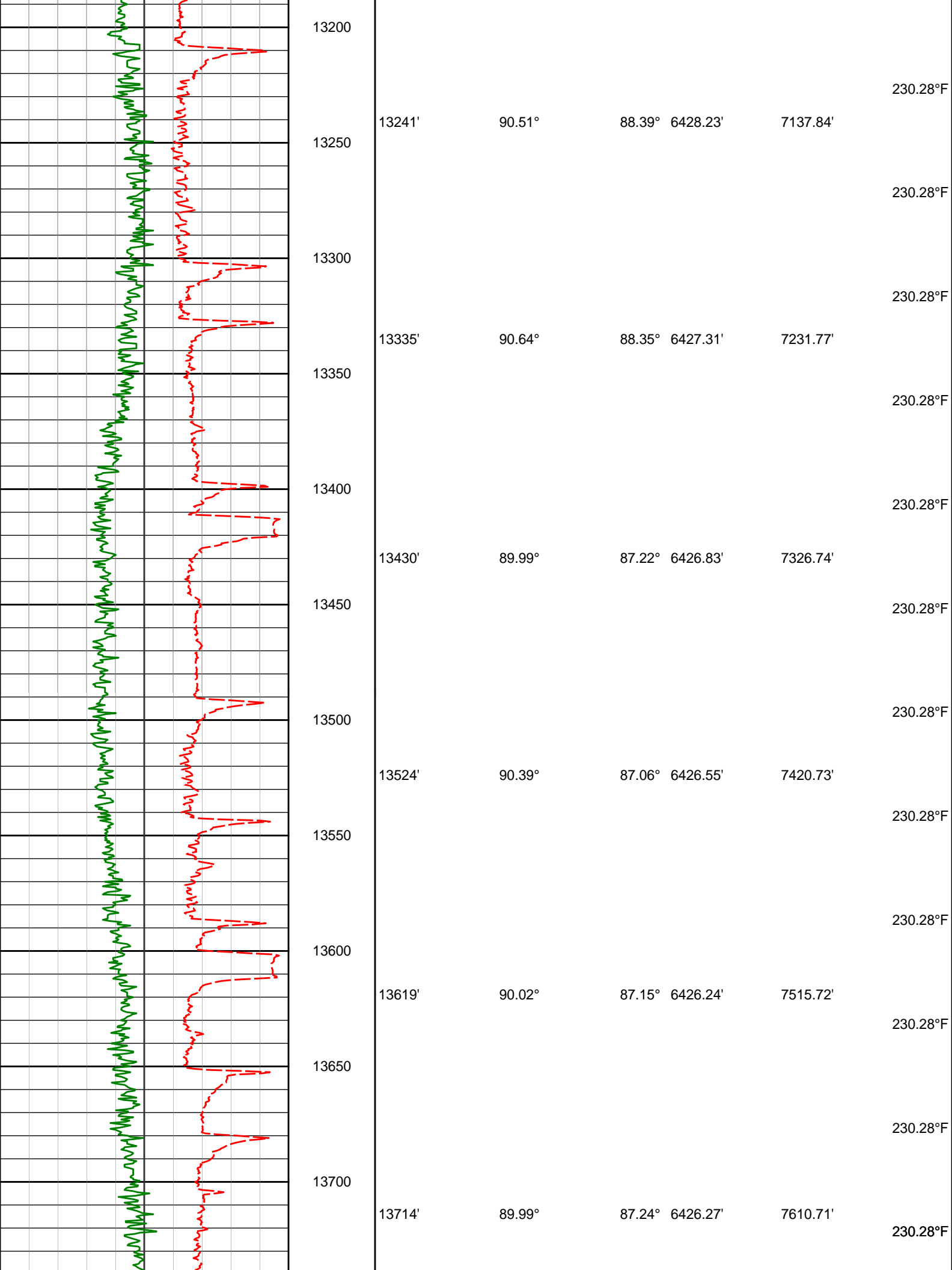
11000
11050
11100
11150
11200
11250
11300
11350
11400
11450
11500

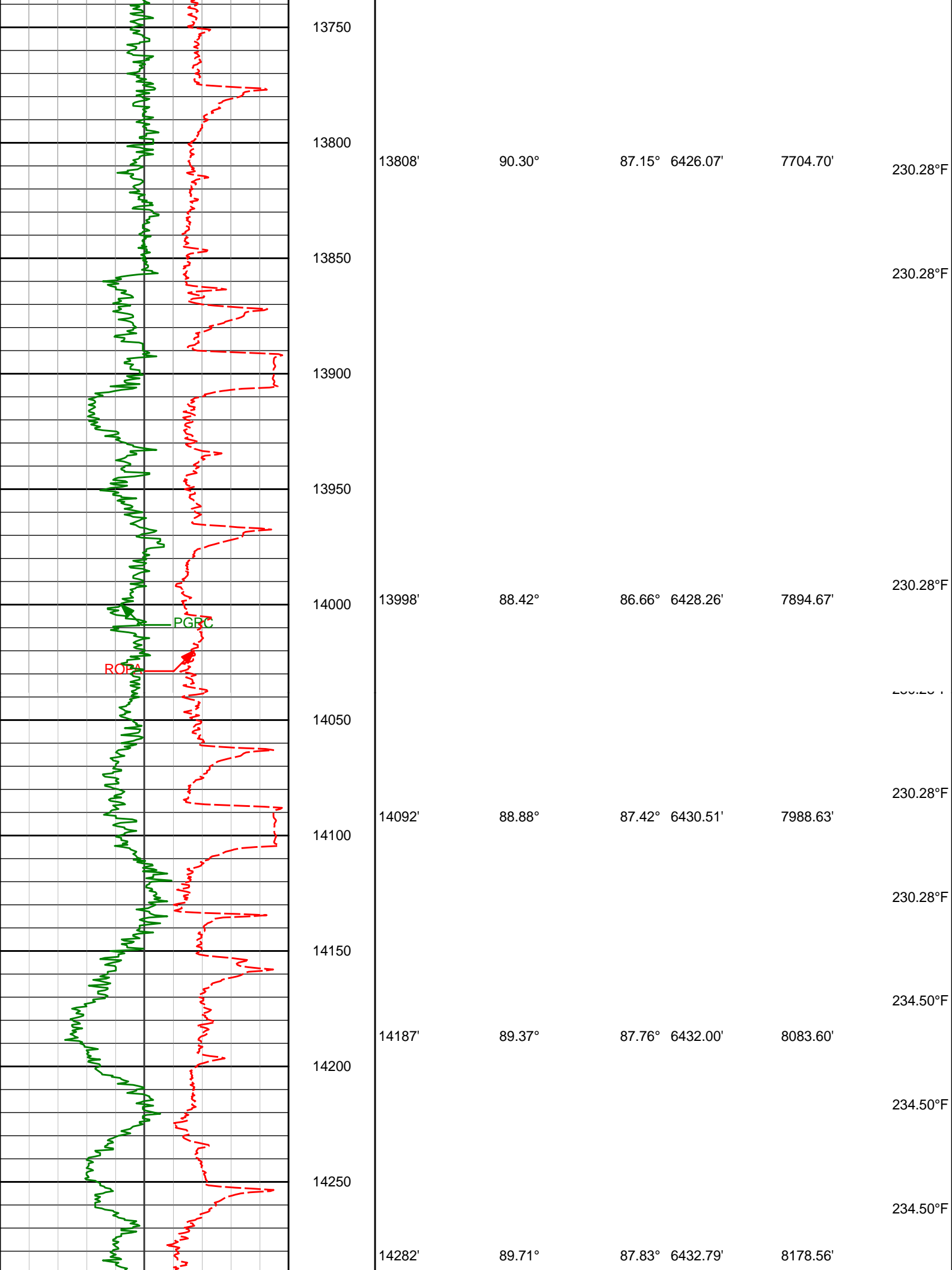
11008'	90.42°	86.75°	6433.25'	4906.16'	213.41°F
11102'	88.85°	86.94°	6433.88'	5000.15'	213.41°F
11196'	89.37°	87.18°	6435.37'	5094.14'	213.41°F
11293'	90.30°	87.18°	6435.69'	5191.13'	213.41°F
11388'	91.28°	87.36°	6434.41'	5286.11'	213.41°F
11482'	89.84°	86.64°	6433.52'	5380.10'	217.63°F

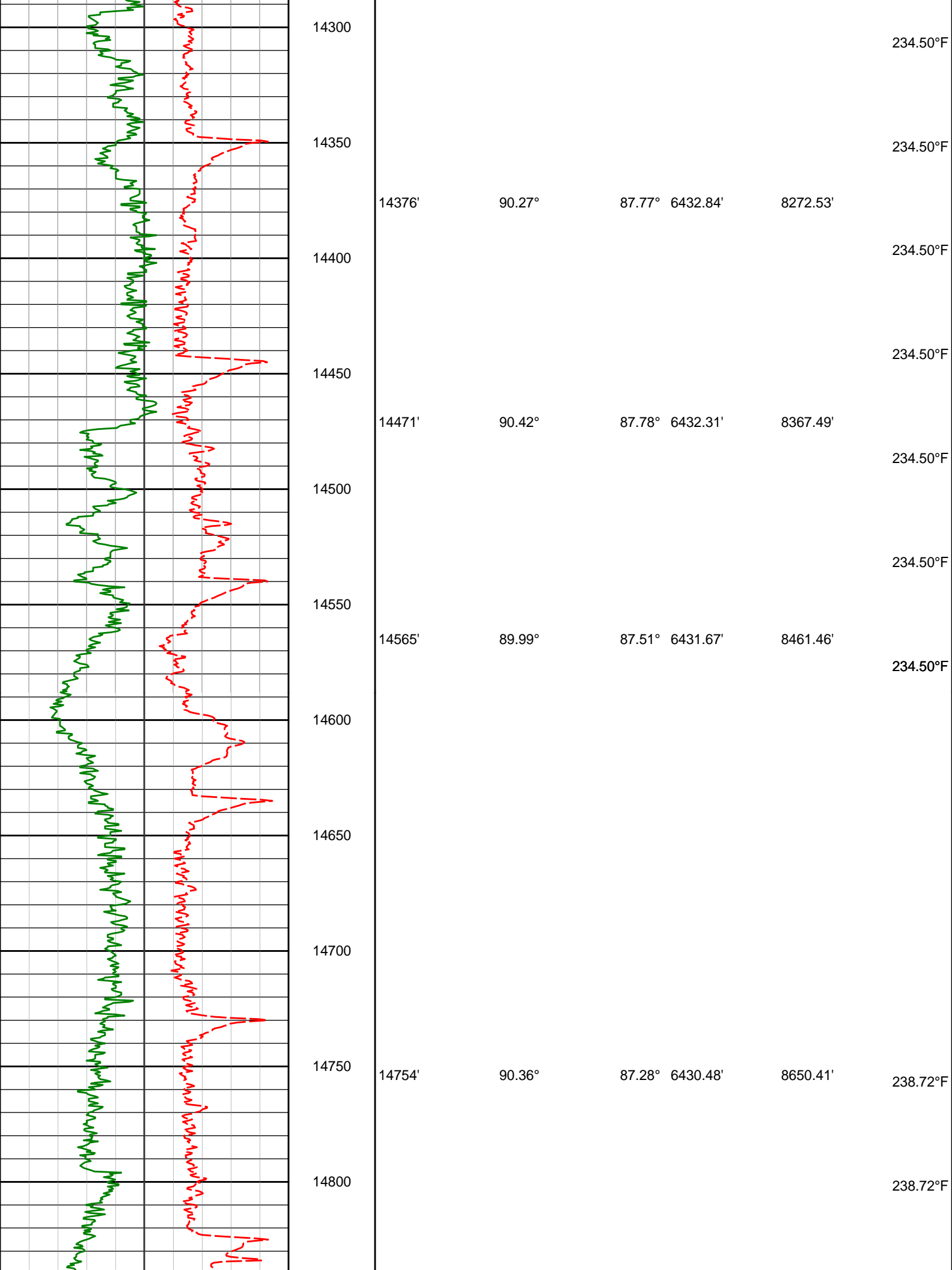


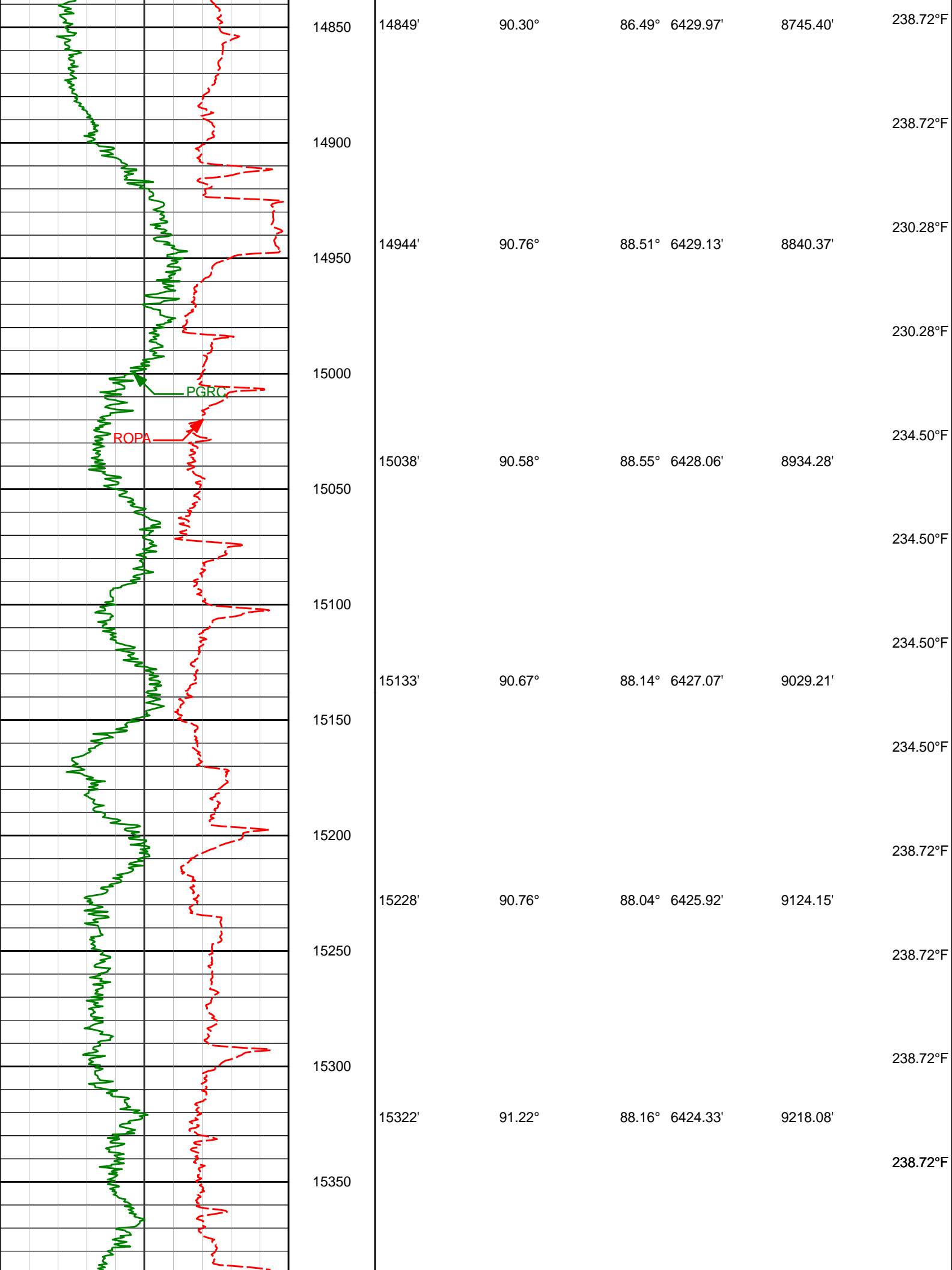


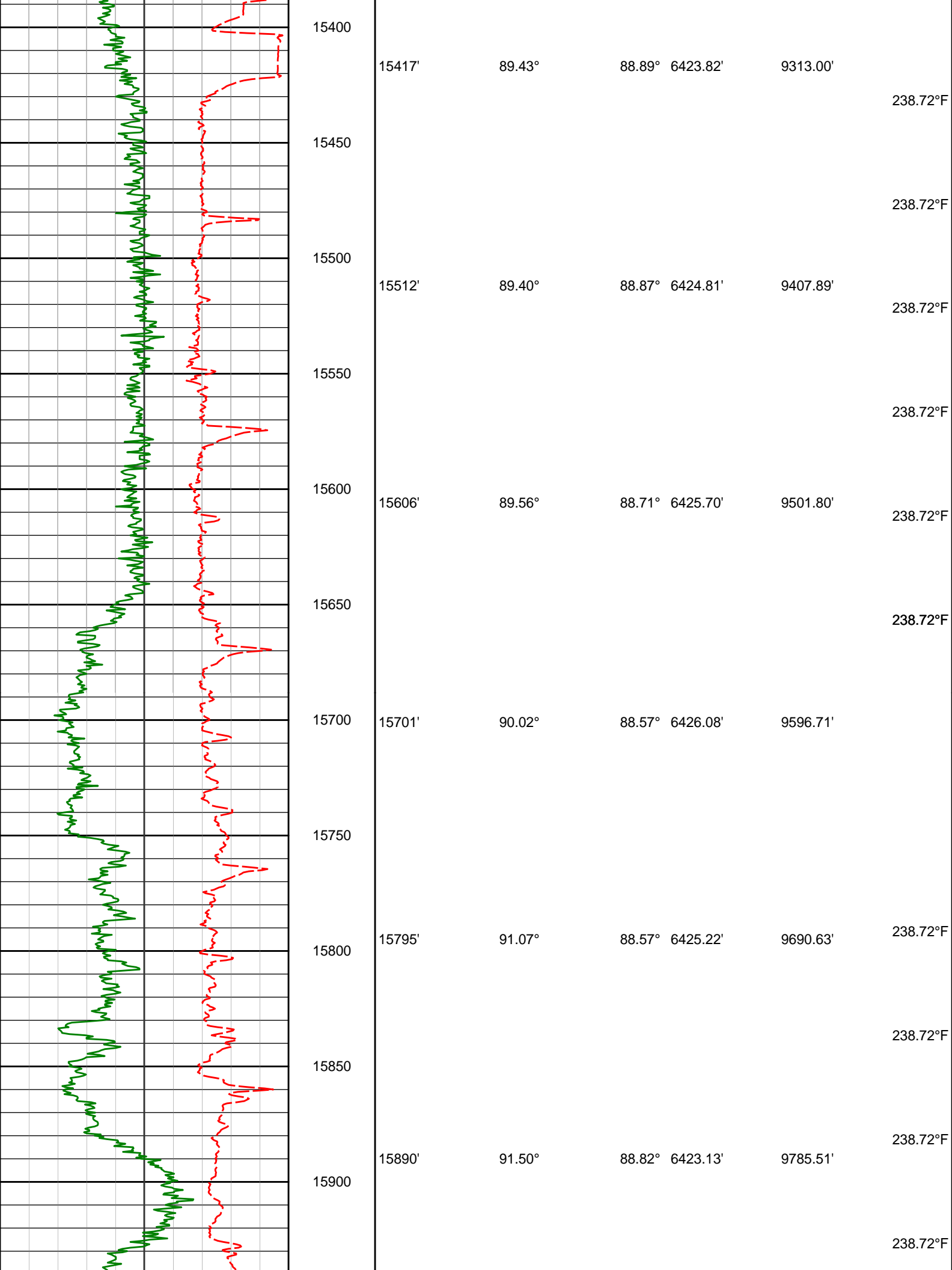




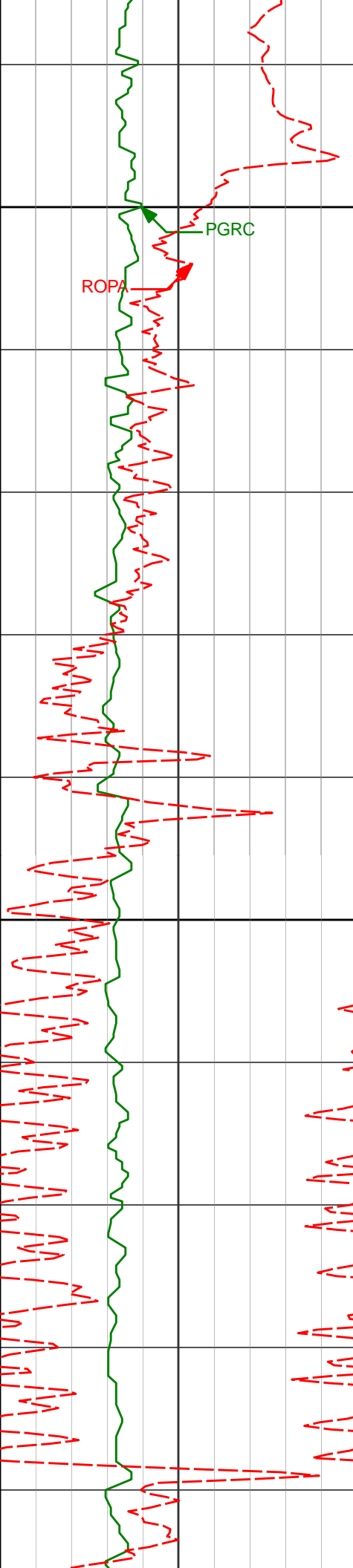








9 5/8" Casing
@ 1951' MD
<Run 100>



2000

2030'

0.25°

249.37° 2029.97'

0.69'

103.72°F

2100

2121'

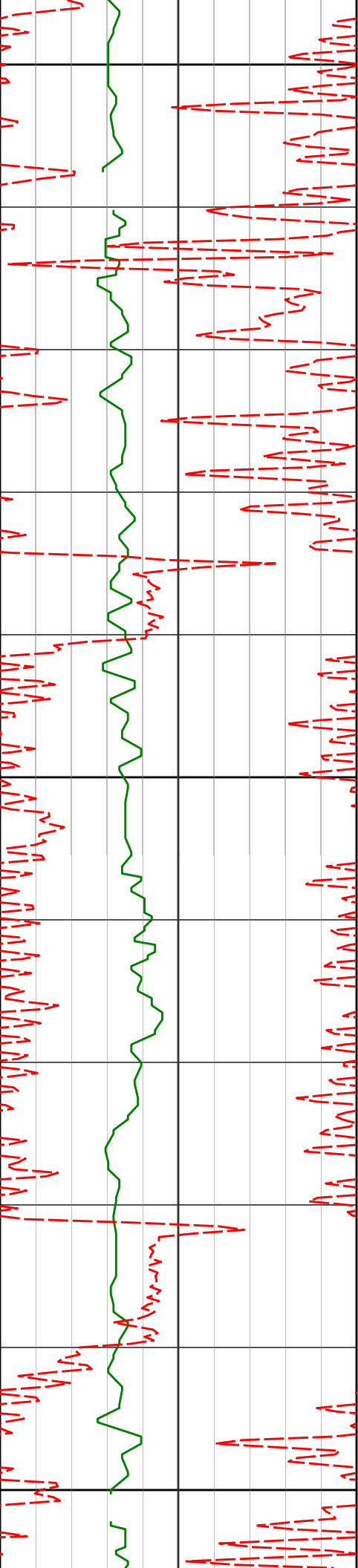
0.28°

306.25° 2120.97'

0.33'

107.94°F

112.16°F



2200

112.16°F

2213'

0.13°

4.51° 2212.97'

0.18'

112.16°F

112.16°F

2300

2305'

0.28°

225.31° 2304.97'

0.02'

116.38°F

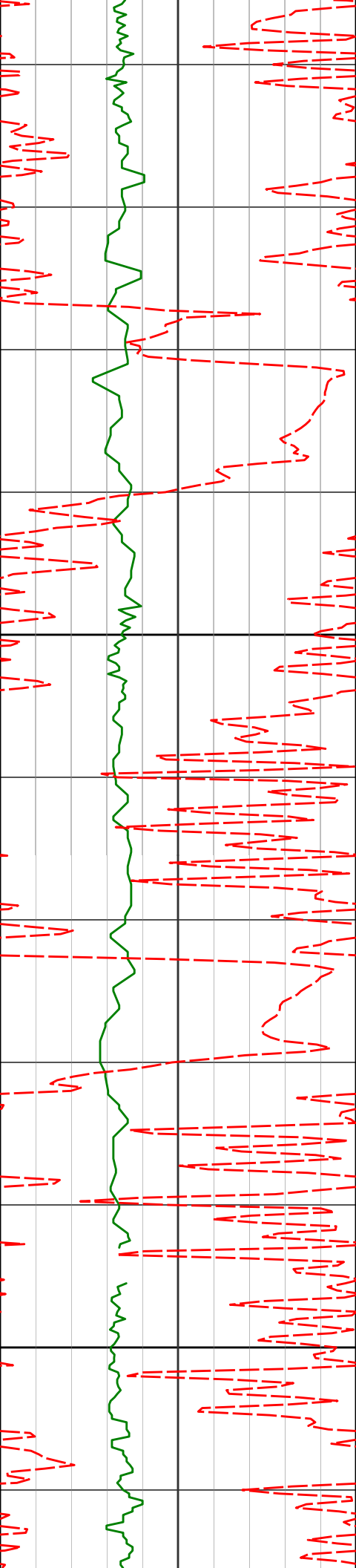
2400

2397'

0.11°

354.52° 2396.97'

-0.14'



2500

2600

2489'

2.31°

59.57° 2488.94'

1.51'

2584'

4.51°

53.14° 2583.77'

6.31'

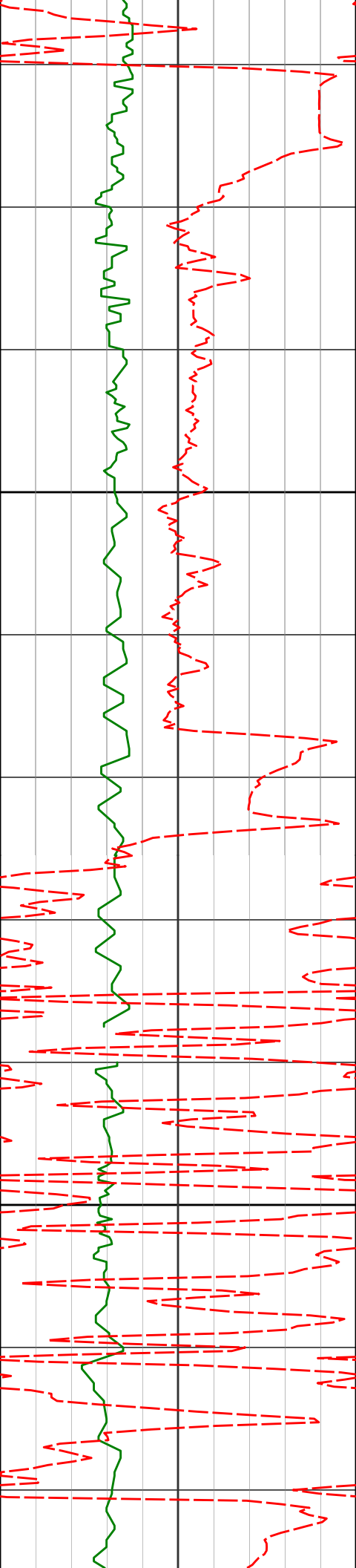
116.37°F

116.38°F

116.38°F

116.38°F

119.24°F

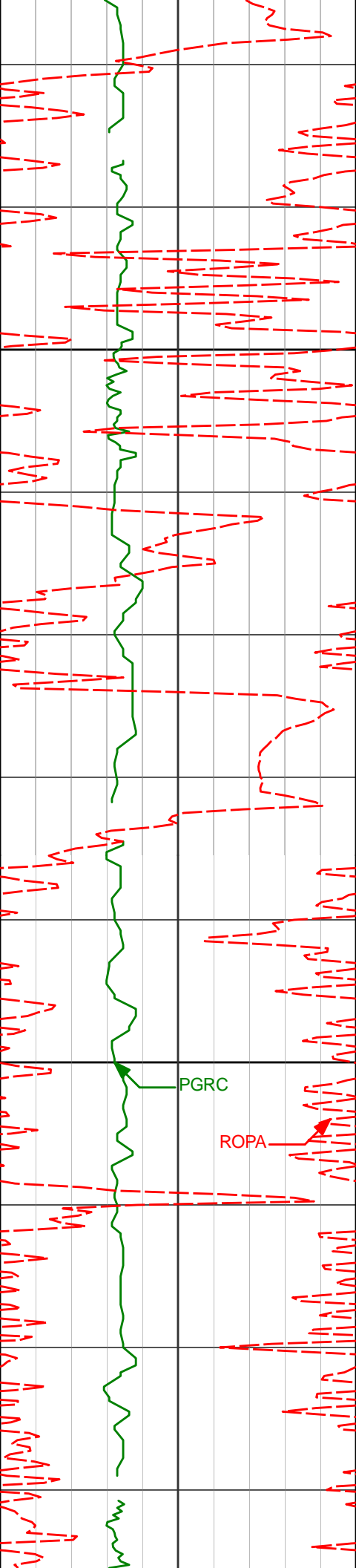


119.13°F

116.38°F

116.38°F

120.59°F



2868'

8.88°

20.83° 2865.76'

24.79'

120.59°F

2900

124.81°F

2962'

9.37°

13.66° 2958.57'

29.97'

124.81°F

3000

PGRC

ROPA

129.03°F

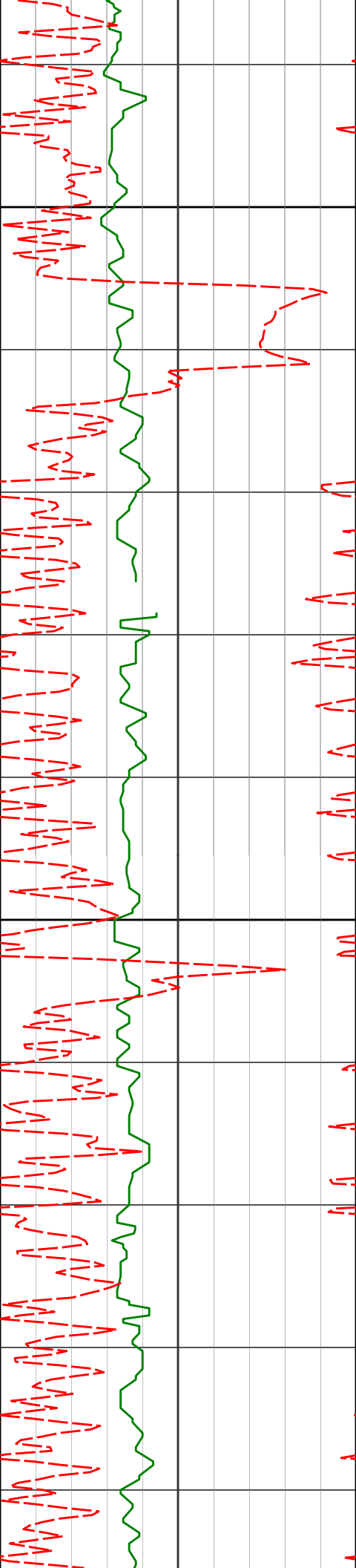
3056'

9.01°

13.85° 3051.37'

34.33'

129.03°F



3100

129.03°F

3151'

9.75°

5.98°

3145.10'

37.81'

129.03°F

3200

129.03°F

3246'

8.83°

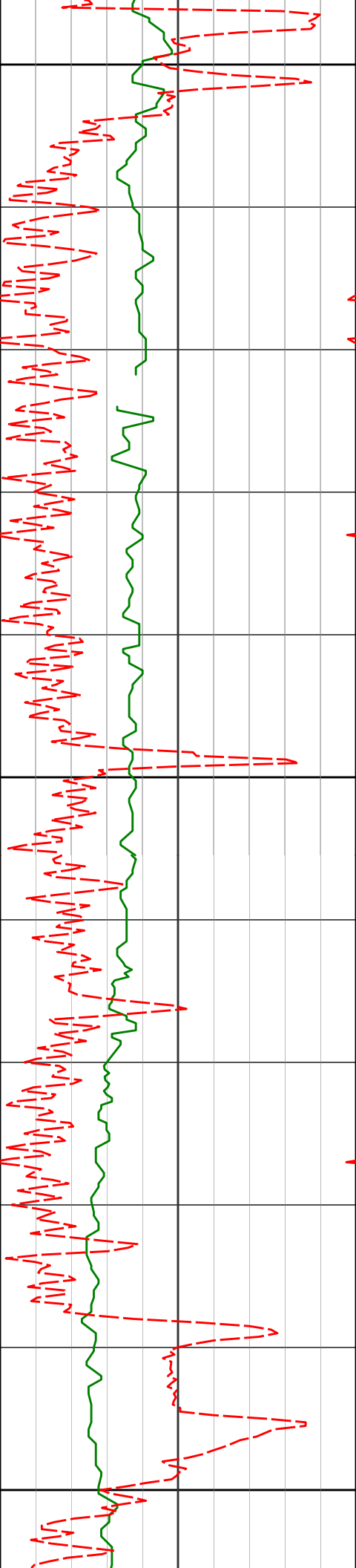
7.85°

3238.86'

40.55'

129.03°F

129.03°F



3300

3340'

8.02°

7.91°

3331.85'

43.24'

129.03°F

3400

3435'

7.66°

8.22°

3425.96'

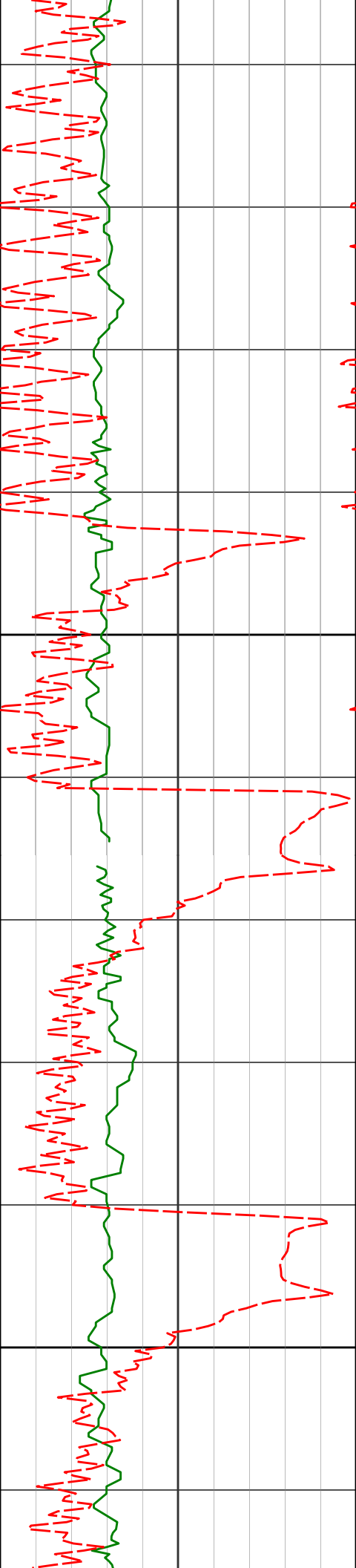
45.82'

133.25°F

133.25°F

3500

133.25°F



3600

3625'

3700

3719'

8.60°

7.70°

0.23° 3614.06'

343.41° 3707.13'

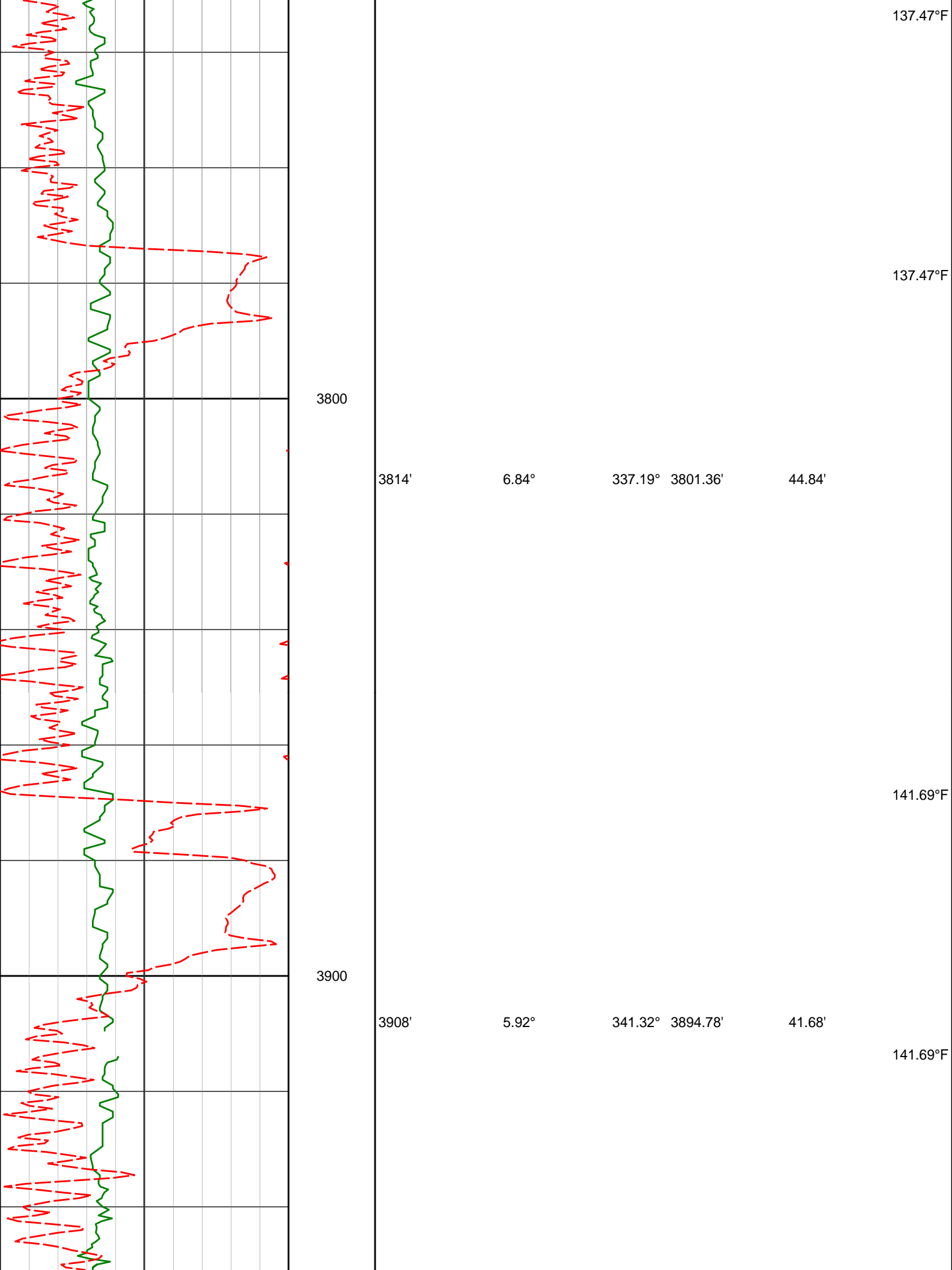
49.24'

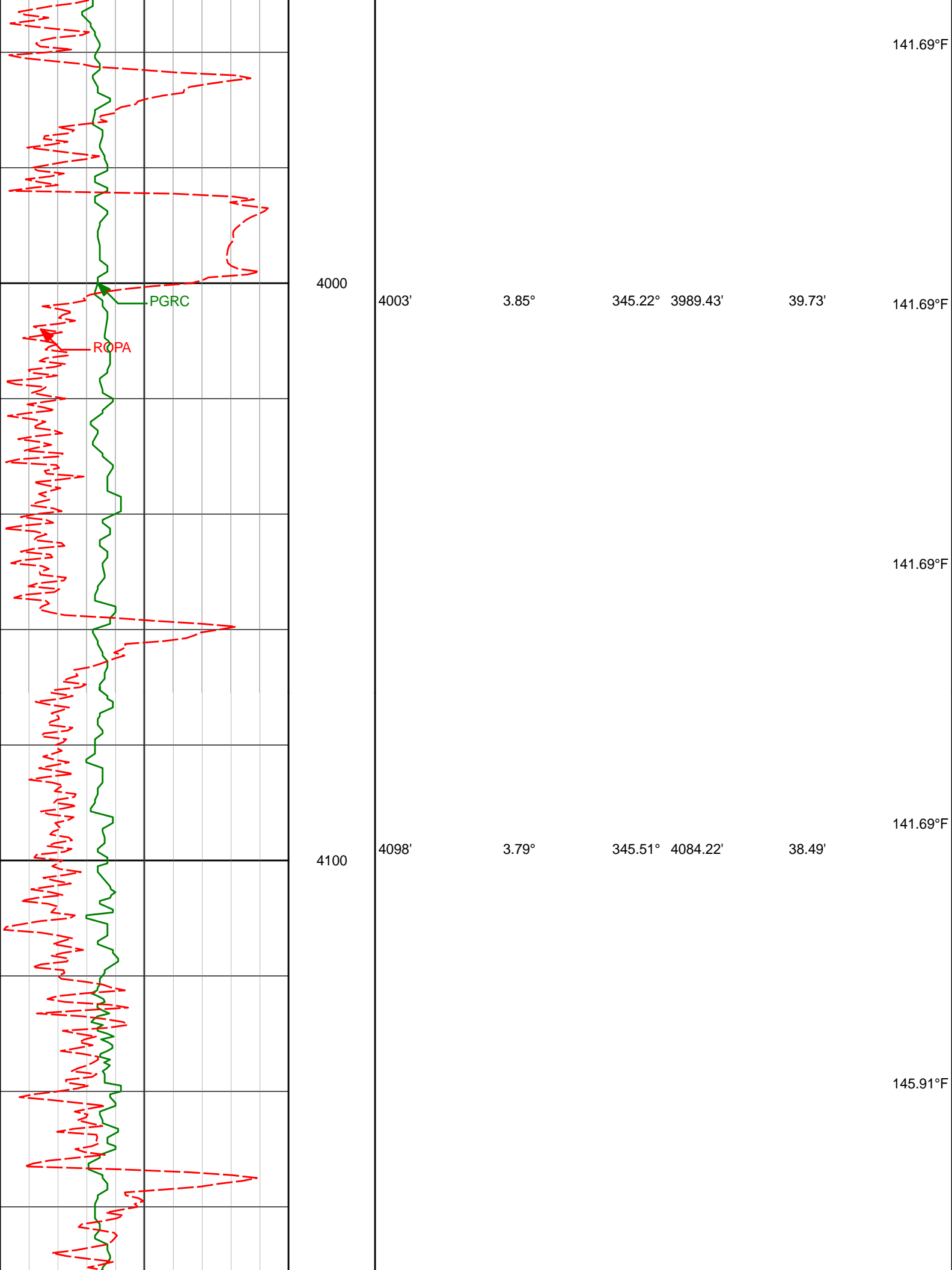
48.20'

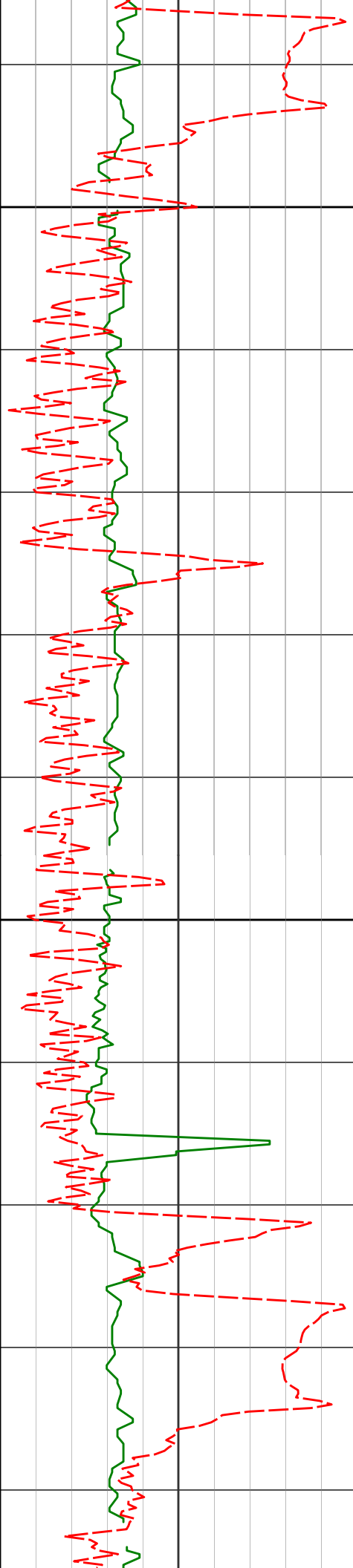
137.47°F

137.47°F

137.47°F







4200

4300

4192'

2.18°

348.95° 4178.09'

37.66'

4287'

2.09°

352.12° 4273.03'

37.27'

4381'

0.69°

214.72° 4367.01'

36.78'

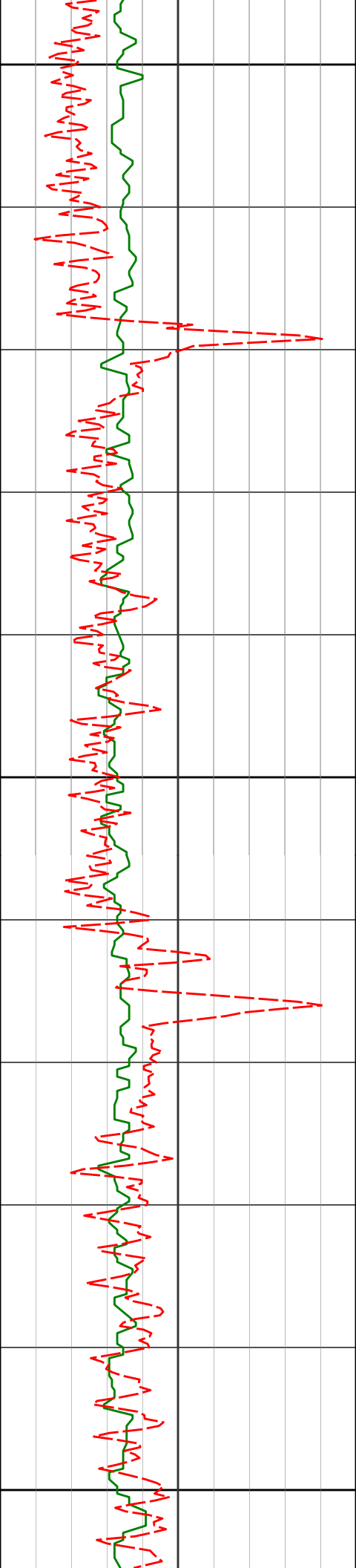
145.91°F

145.91°F

145.91°F

145.91°F

145.91°F



4400

145.91°F

4476'

0.35°

185.28° 4462.01'

36.38'

4500

145.91°F

4570'

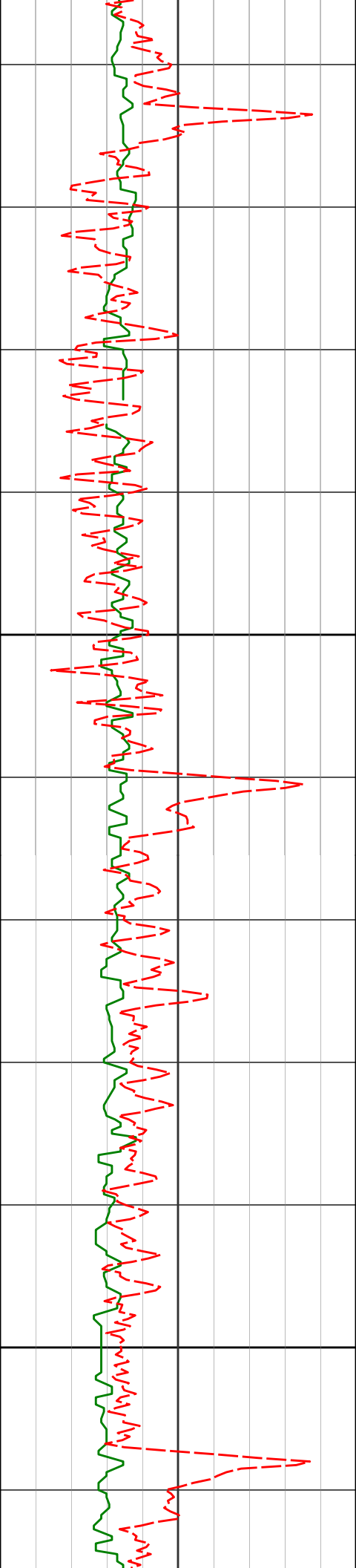
0.73°

199.60° 4556.00'

36.11'

4600

145.91°F



4700

4800

4665'

1.14°

202.50° 4650.99'

35.46'

4760'

1.05°

193.21° 4745.97'

34.81'

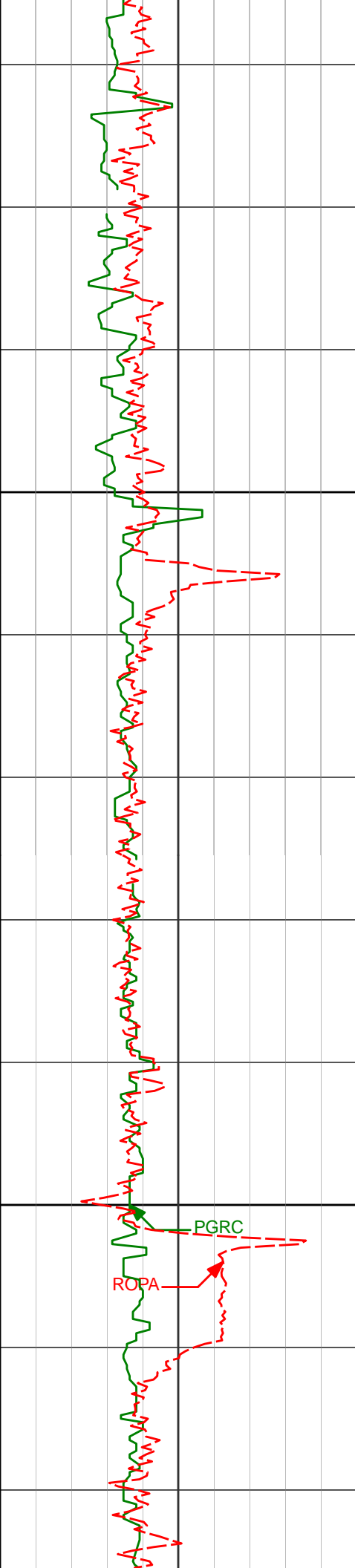
150.13°F

150.13°F

150.13°F

150.13°F

150.13°F



4900

5000

4855'

1.12°

184.54° 4840.95'

34.44'

150.13°F

4949'

1.03°

175.99° 4934.94'

34.32'

150.13°F

5044'

0.88°

166.95° 5029.92'

34.45'

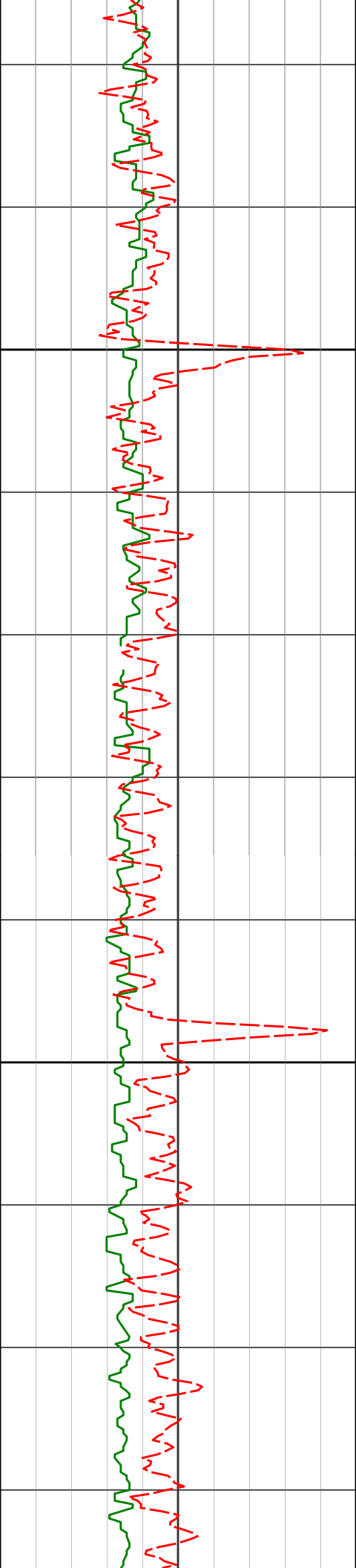
150.13°F

150.13°F

150.13°F

PGRC

ROPA



5100

5200

154.34°F

154.34°F

154.34°F

154.34°F

154.34°F

5138'

0.96°

151.90° 5123.91'

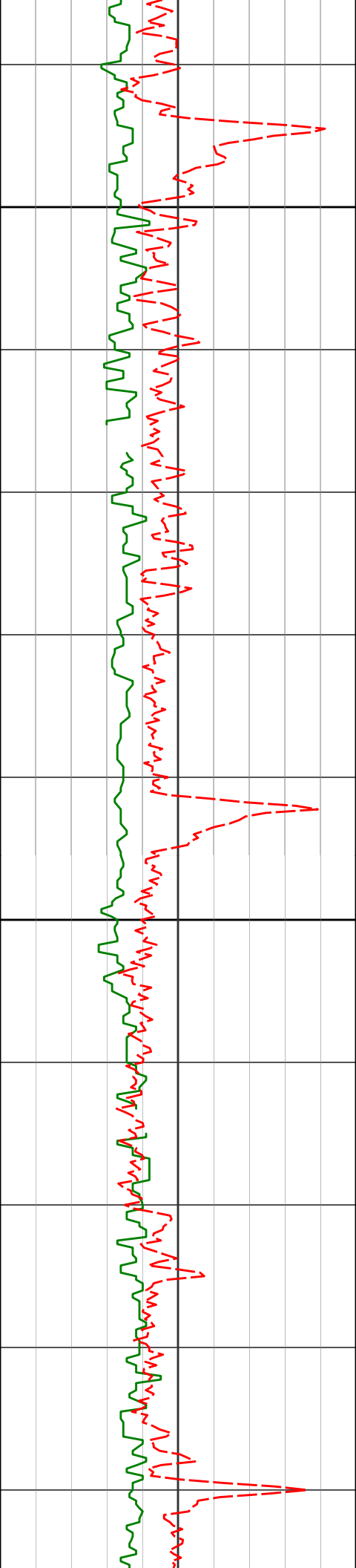
34.90'

5233'

1.05°

147.78° 5218.90'

35.66'



5300

5328'

1.23°

138.90° 5313.88'

36.71'

154.34°F

5400

5423'

1.34°

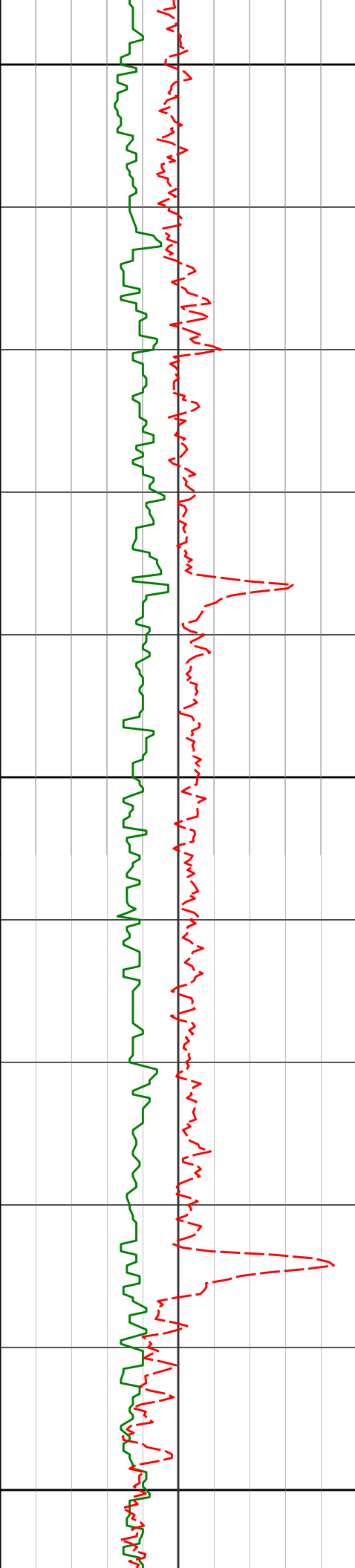
136.10° 5408.85'

38.05'

154.34°F

154.34°F

158.56°F



5500

5517'

1.17°

136.06°

5502.83'

39.39'

158.56°F

162.78°F

5600

5612'

0.94°

126.05°

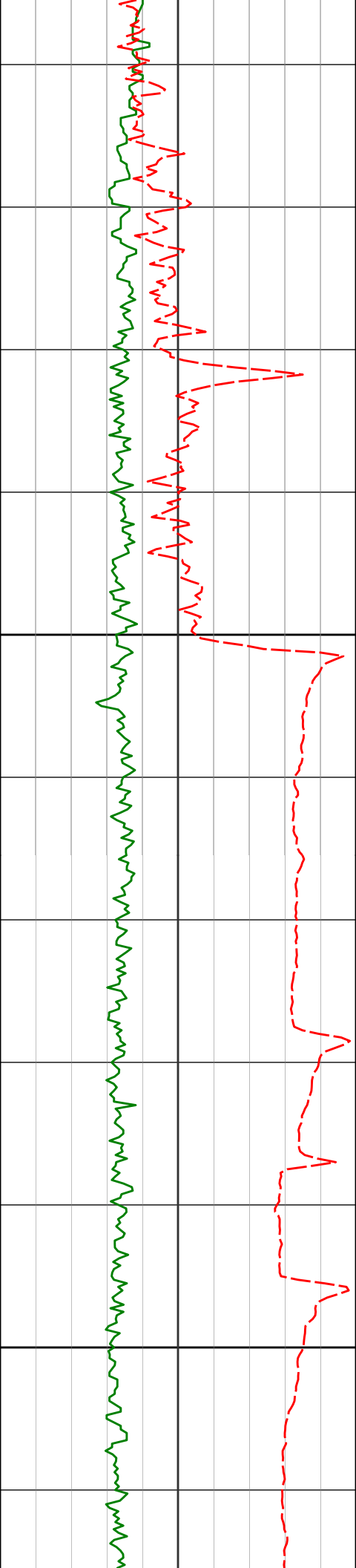
5597.82'

40.62'

162.78°F

162.78°F

5700



5800

5801'

2.07°

116.85° 5786.75'

44.77'

5900

5895'

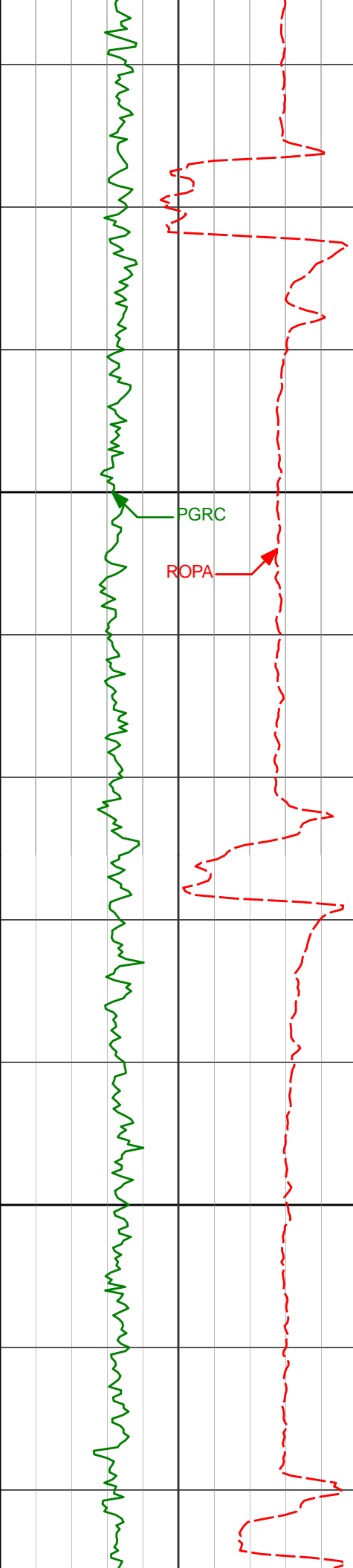
15.07°

123.28° 5879.50'

56.12'

162.78°F

162.78°F



6000

6100

5990'

26.36°

136.93° 5968.27'

79.66'

6084'

39.25°

123.22° 6047.24'

117.11'

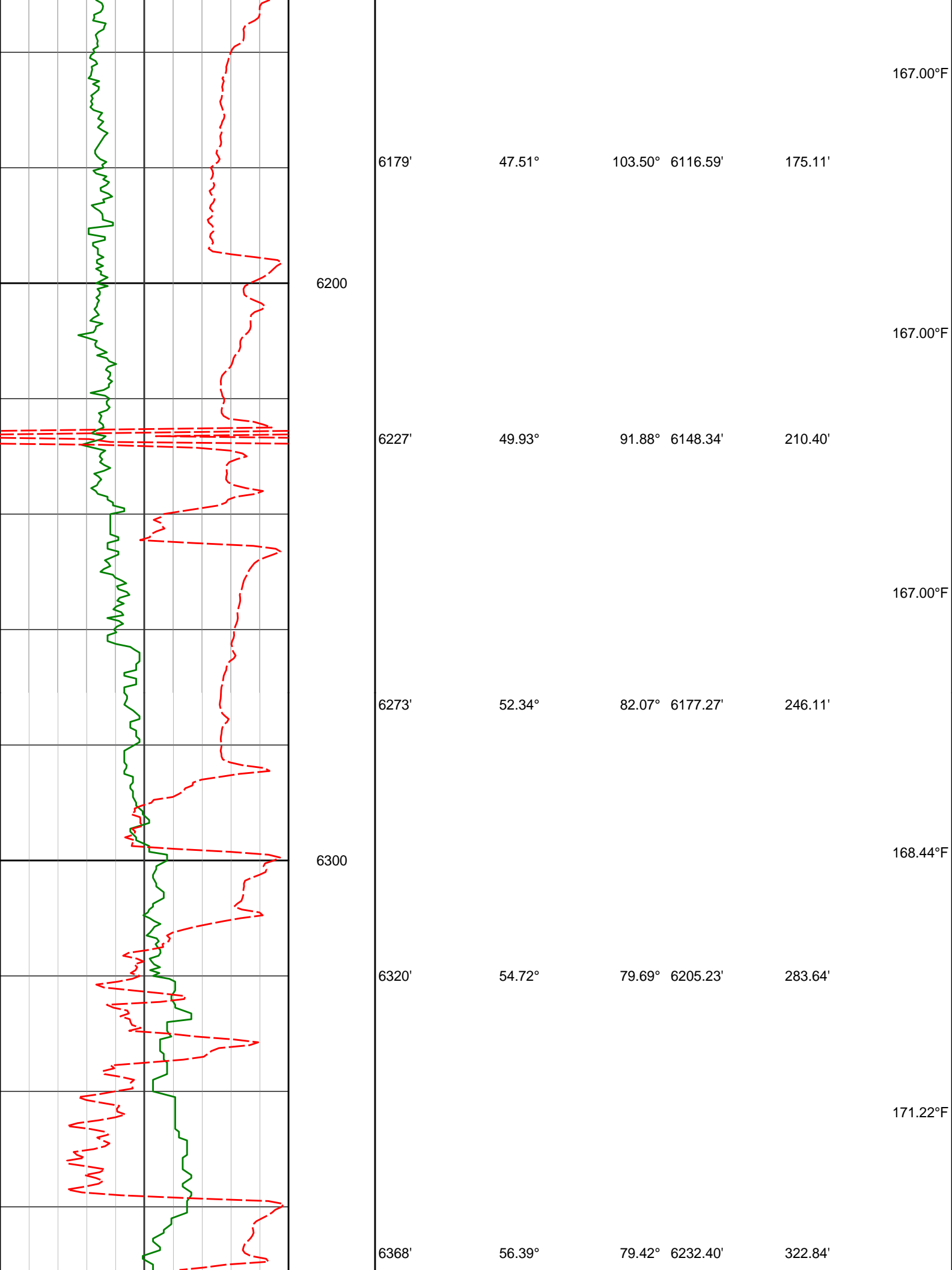
162.78°F

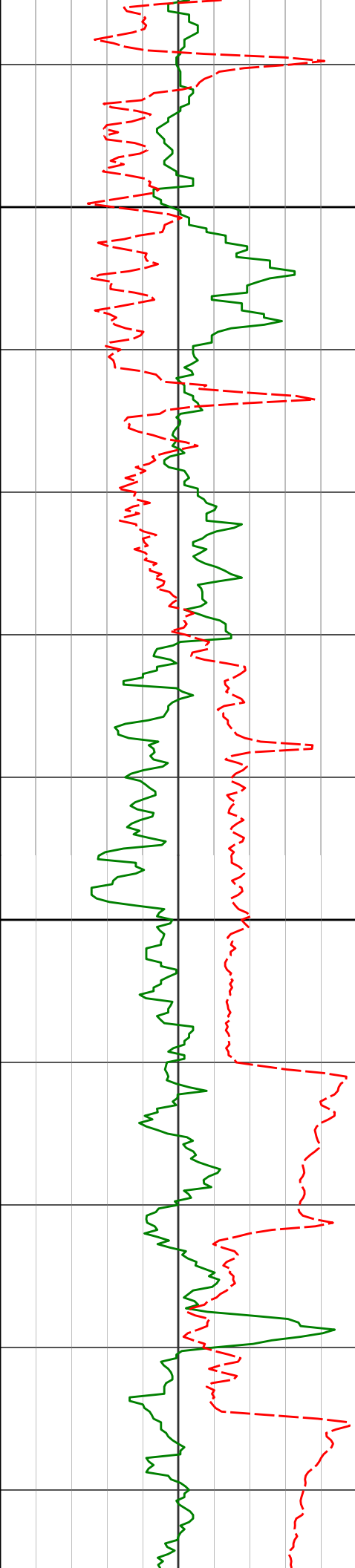
162.78°F

167.00°F

167.00°F

167.00°F





6400

6415'

56.38°

79.08°

6258.45'

361.56'

171.22°F

6463'

55.78°

78.67°

6285.26'

400.91'

171.83°F

175.44°F

6500

6510'

56.00°

78.03°

6311.64'

439.30'

175.44°F

6557'

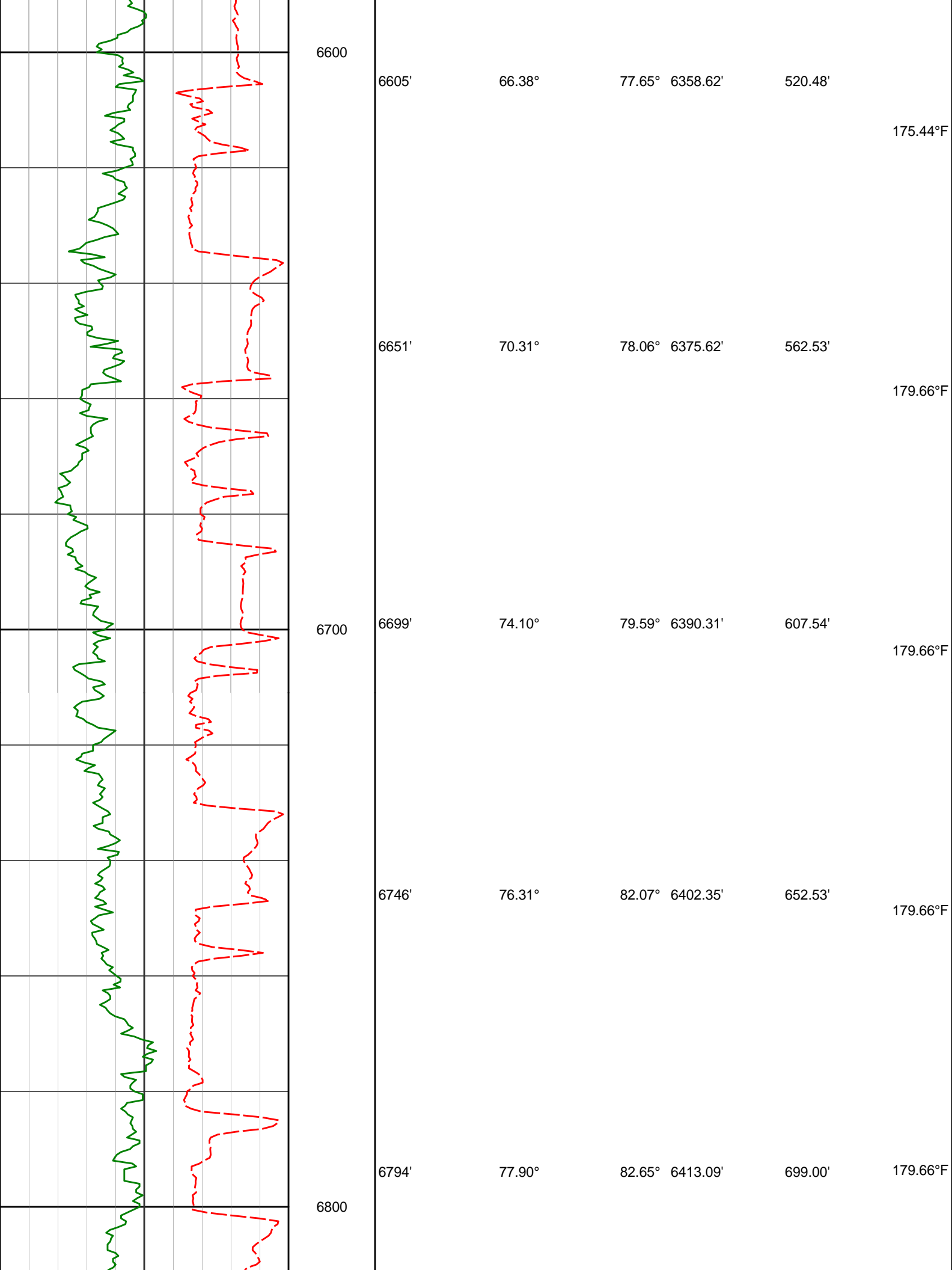
59.46°

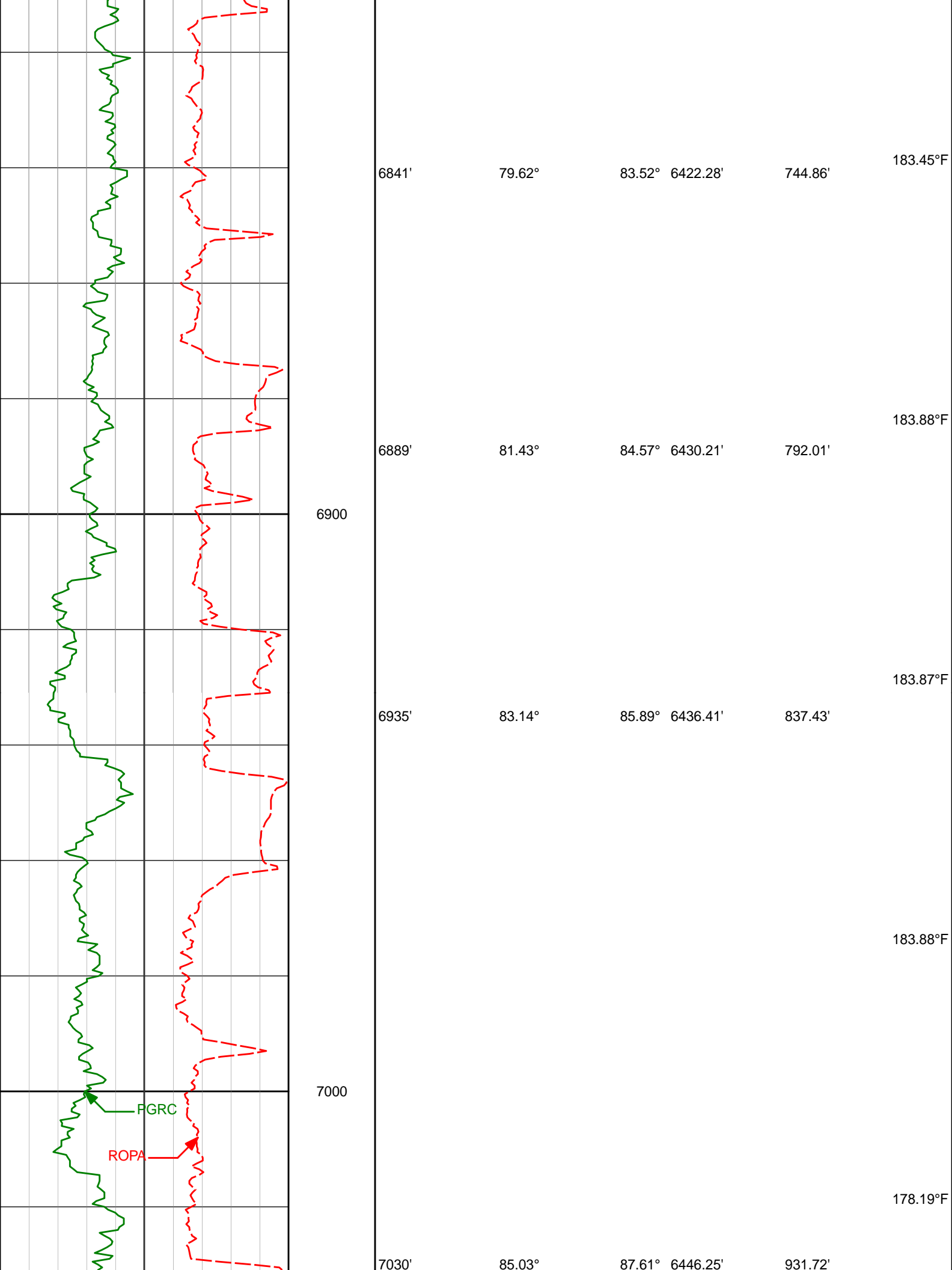
77.50°

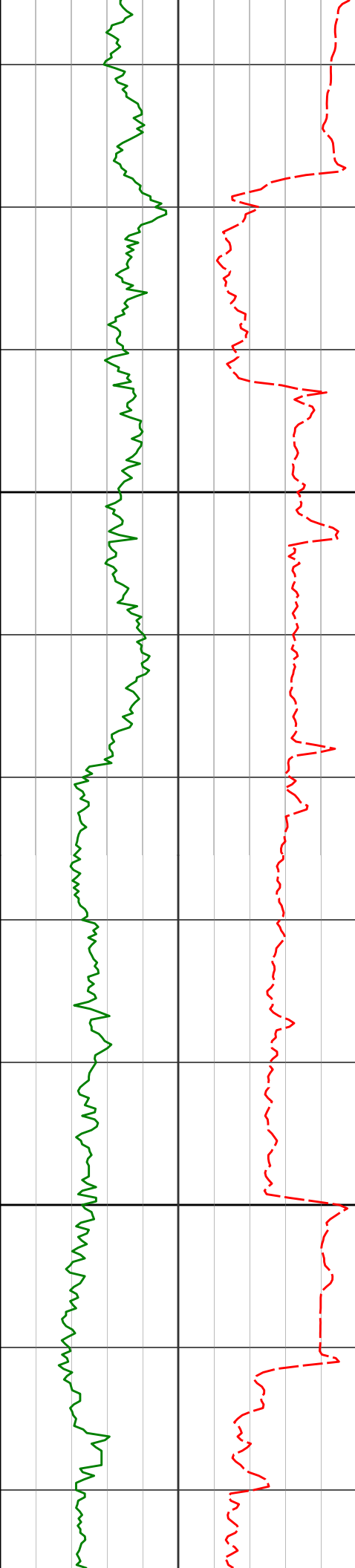
6336.75'

478.45'

175.44°F







7100

7137'

86.58°

89.12° 6453.31'

1038.39'

7200

7231'

89.02°

88.95° 6456.99'

1131.95'

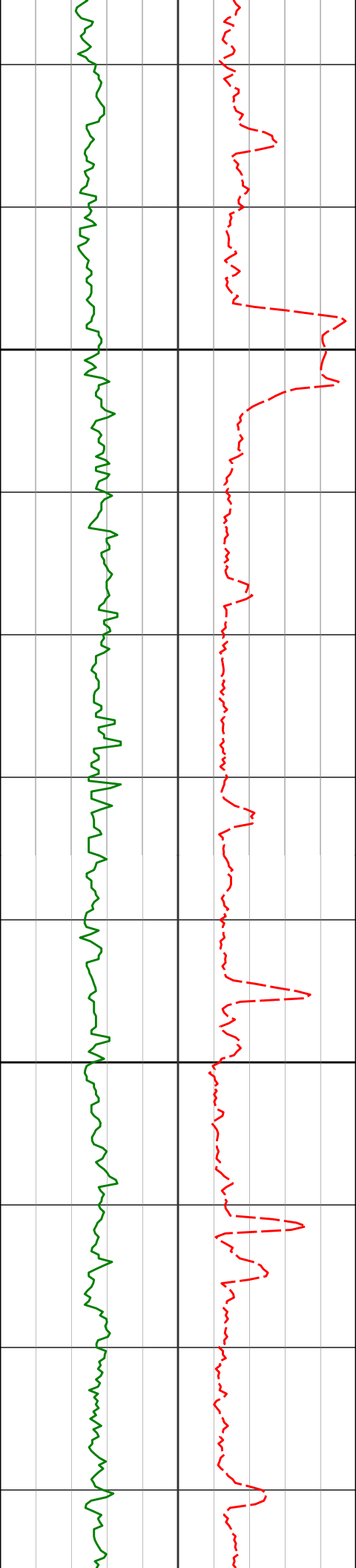
167.00°F

183.88°F

183.88°F

171.22°F

171.22°F



7300

7326'

90.34°

88.83° 6457.58'

1226.39'

7400

7421'

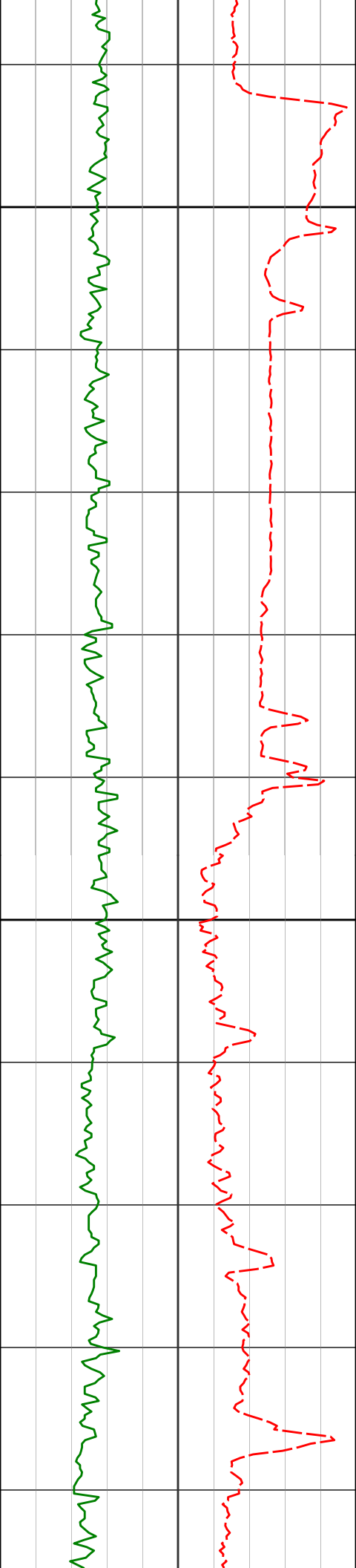
90.84°

88.78° 6456.66'

1321.34'

175.44°F

191.17°F



7500

7515'

90.19°

85.92° 6455.88'

1415.32'

189.44°F

171.22°F

7600

7610'

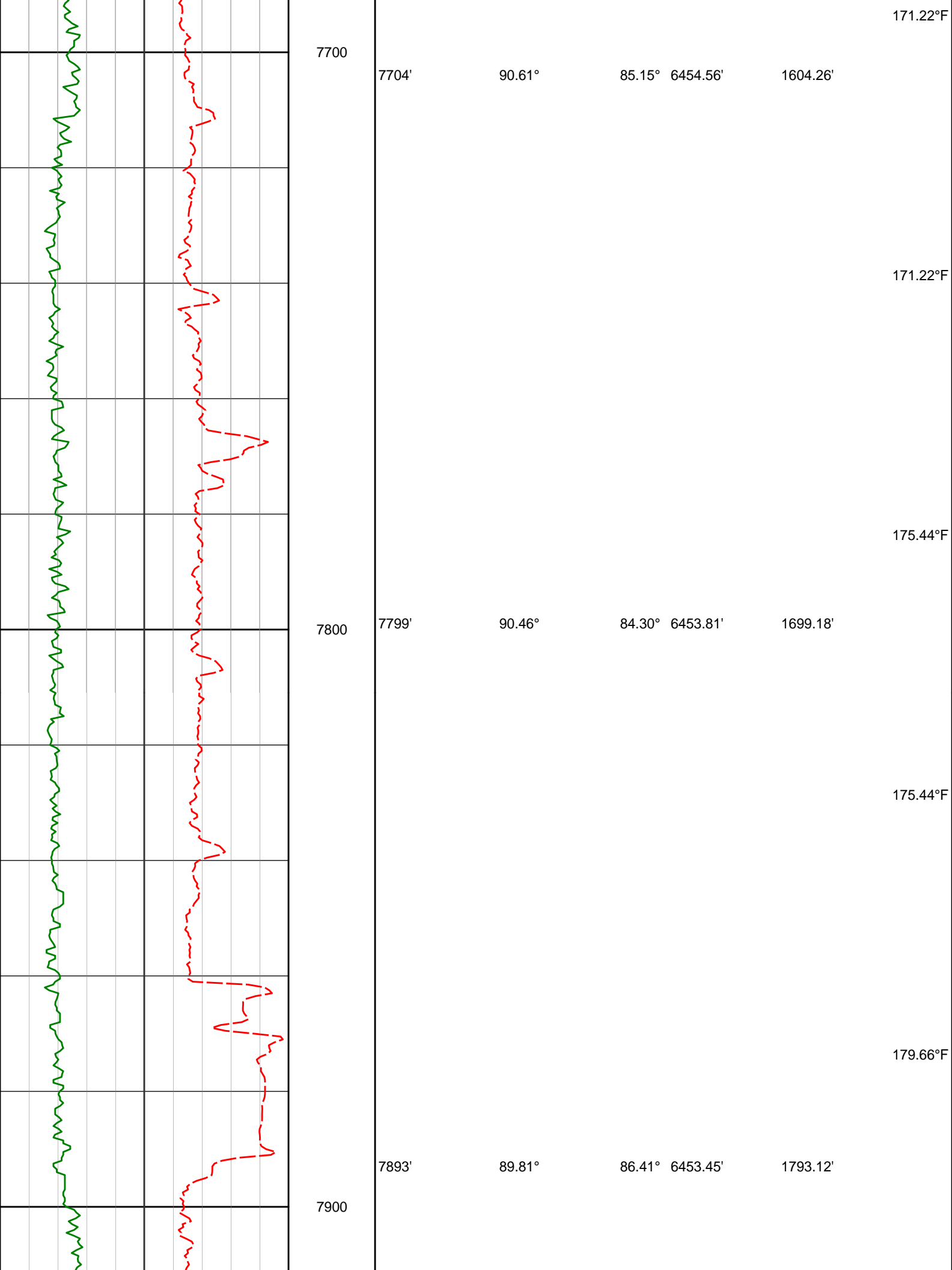
90.52°

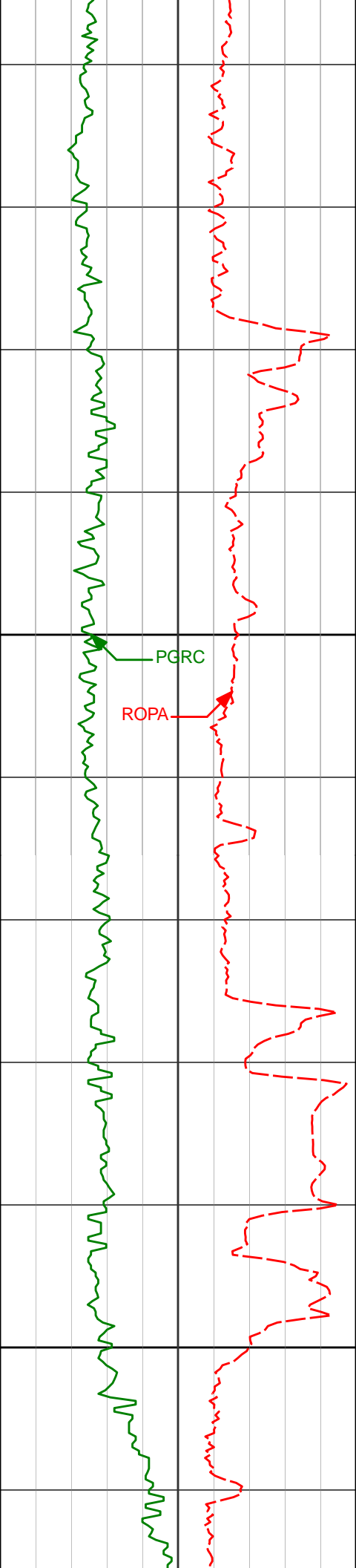
85.45° 6455.34'

1510.30'

171.22°F

171.22°F





8000

8100

7988'

89.62°

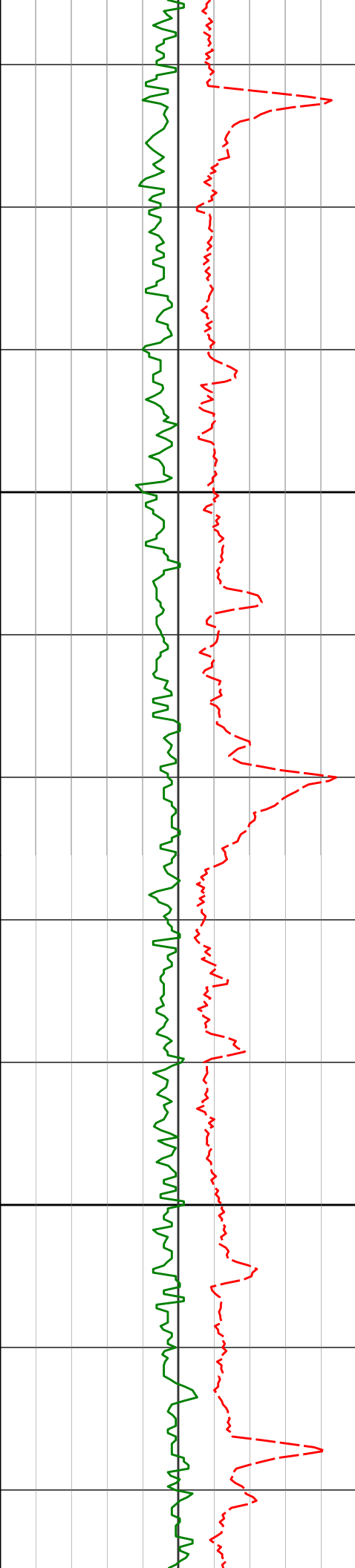
86.45° 6453.76'

1888.11'

179.66°F

91.06°F

91.06°F



8200

8300

8177'

89.81°

88.59° 6454.78'

2077.08'

8272'

89.78°

88.48° 6455.16'

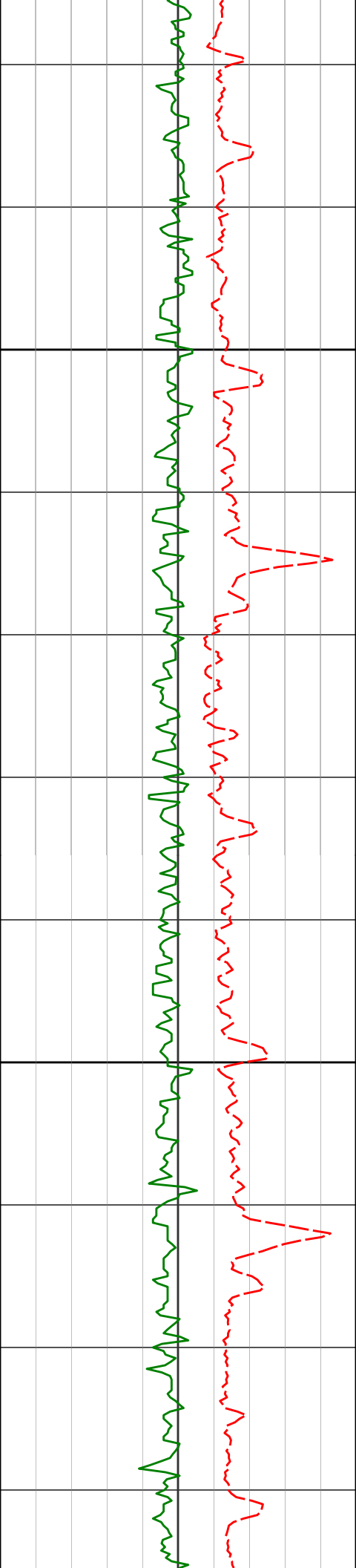
2172.04'

183.88°F

183.88°F

183.88°F

183.88°F



8400

8500

8367'

89.96°

88.36°

6455.42'

2267.00'

188.09°F

8461'

90.24°

88.48°

6455.29'

2360.96'

188.09°F

8556'

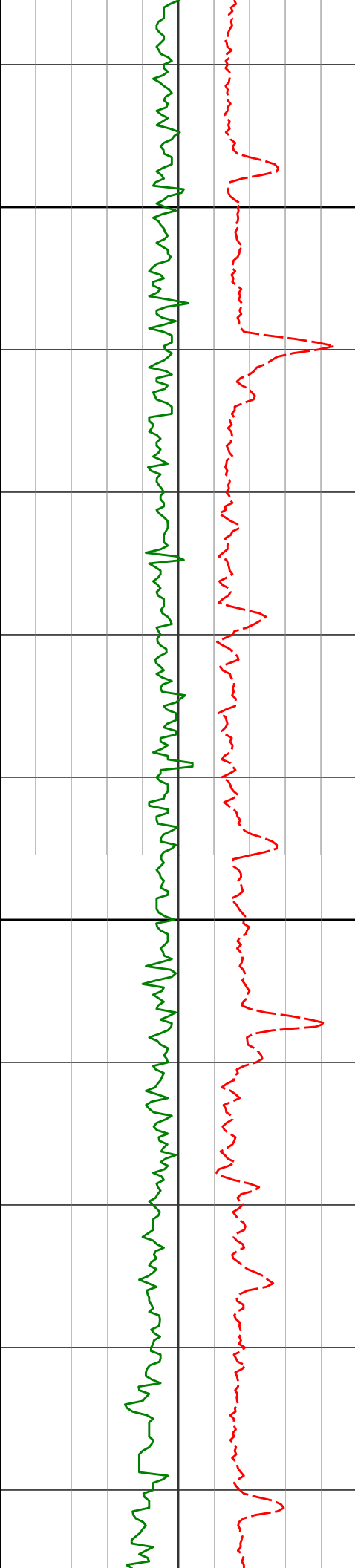
90.30°

88.27°

6454.88'

2455.92'

188.09°F



8600

8700

188.09°F

192.31°F

8650'

90.49°

88.46°

6454.28'

2549.88'

192.31°F

196.53°F

8745'

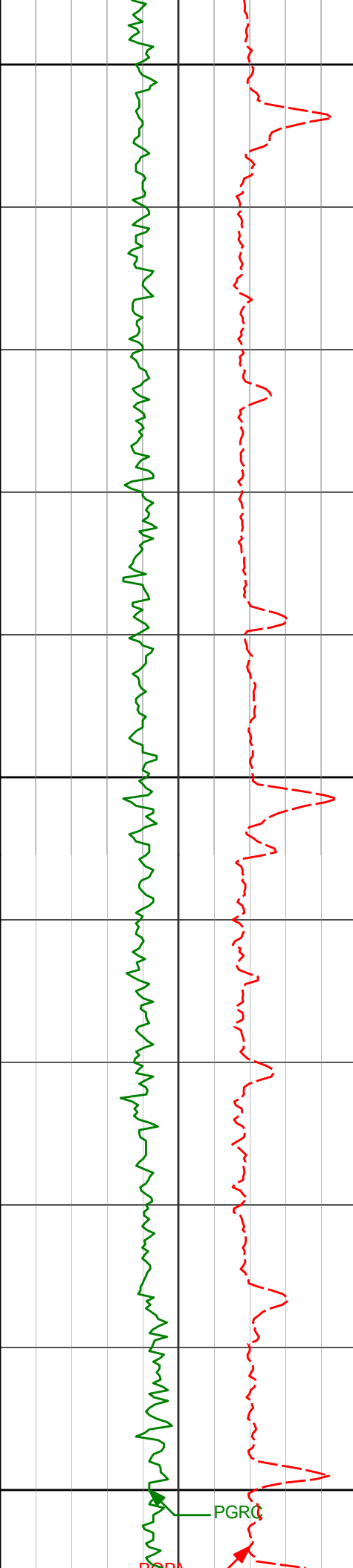
90.52°

88.32°

6453.49'

2644.84'

196.53°F



8800

8840'

90.76°

88.67° 6452.46'

2739.79'

196.53°F

8900

8934'

91.23°

89.36° 6450.87'

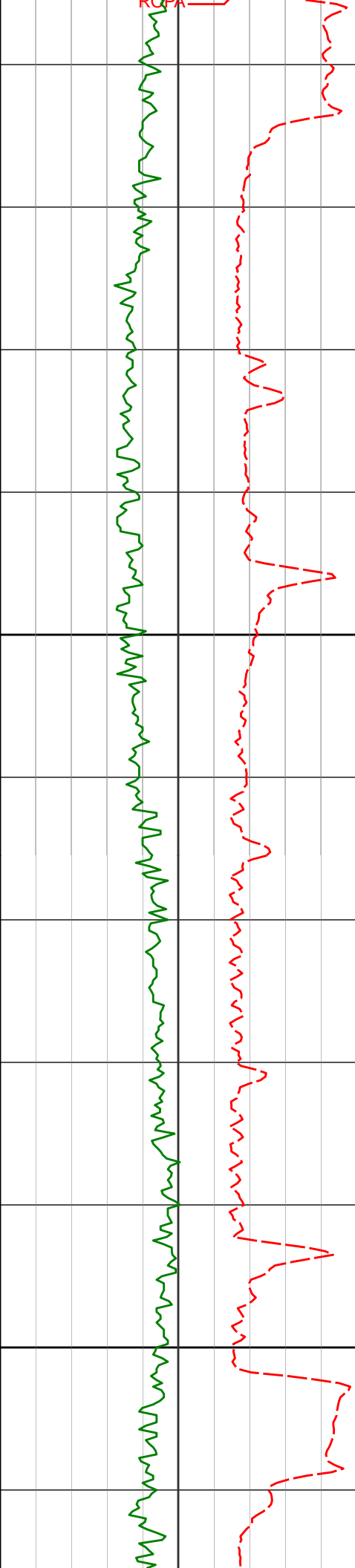
2833.70'

196.53°F

9000

PGRC

196.53°F



9100

9200

9029'

90.00°

88.71° 6449.90'

2928.61'

192.31°F

192.31°F

9124'

90.15°

88.90° 6449.82'

3023.55'

196.53°F

196.53°F

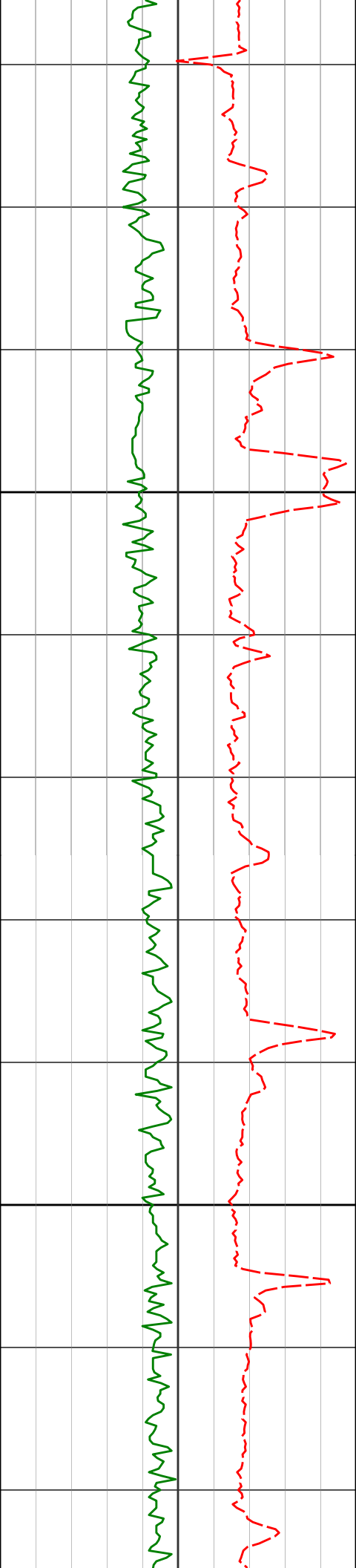
9218'

89.87°

87.56° 6449.85'

3117.51'

196.53°F



9300

9313'

90.52°

86.85° 6449.57'

3212.51'

196.53°F

196.53°F

196.53°F

9400

9407'

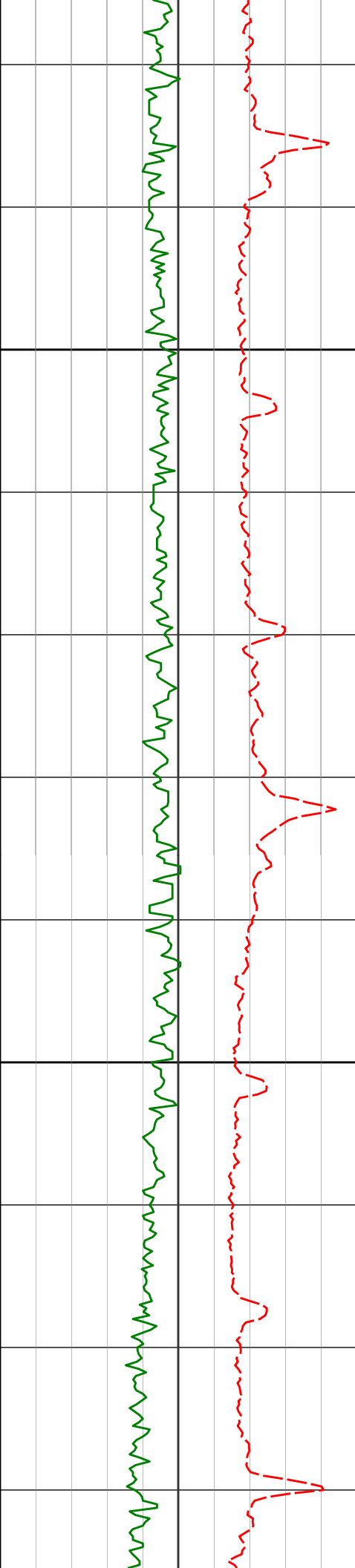
90.64°

86.44° 6448.66'

3306.50'

200.75°F

200.75°F



9500

9502'

90.61°

86.30° 6447.66'

3401.50'

200.75°F

200.75°F

200.75°F

9600

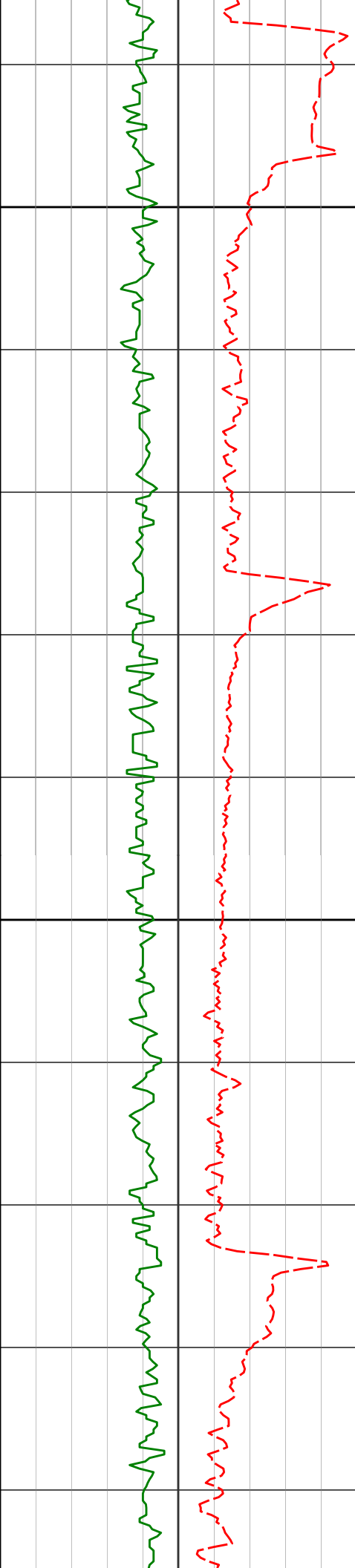
9596'

90.49°

85.73° 6446.80'

3495.49'

200.75°F



9700

9800

9691'

90.61°

88.00° 6445.93'

3590.47'

9786'

90.89°

89.40° 6444.73'

3685.41'

9880'

90.86°

89.64° 6443.34'

3779.28'

200.75°F

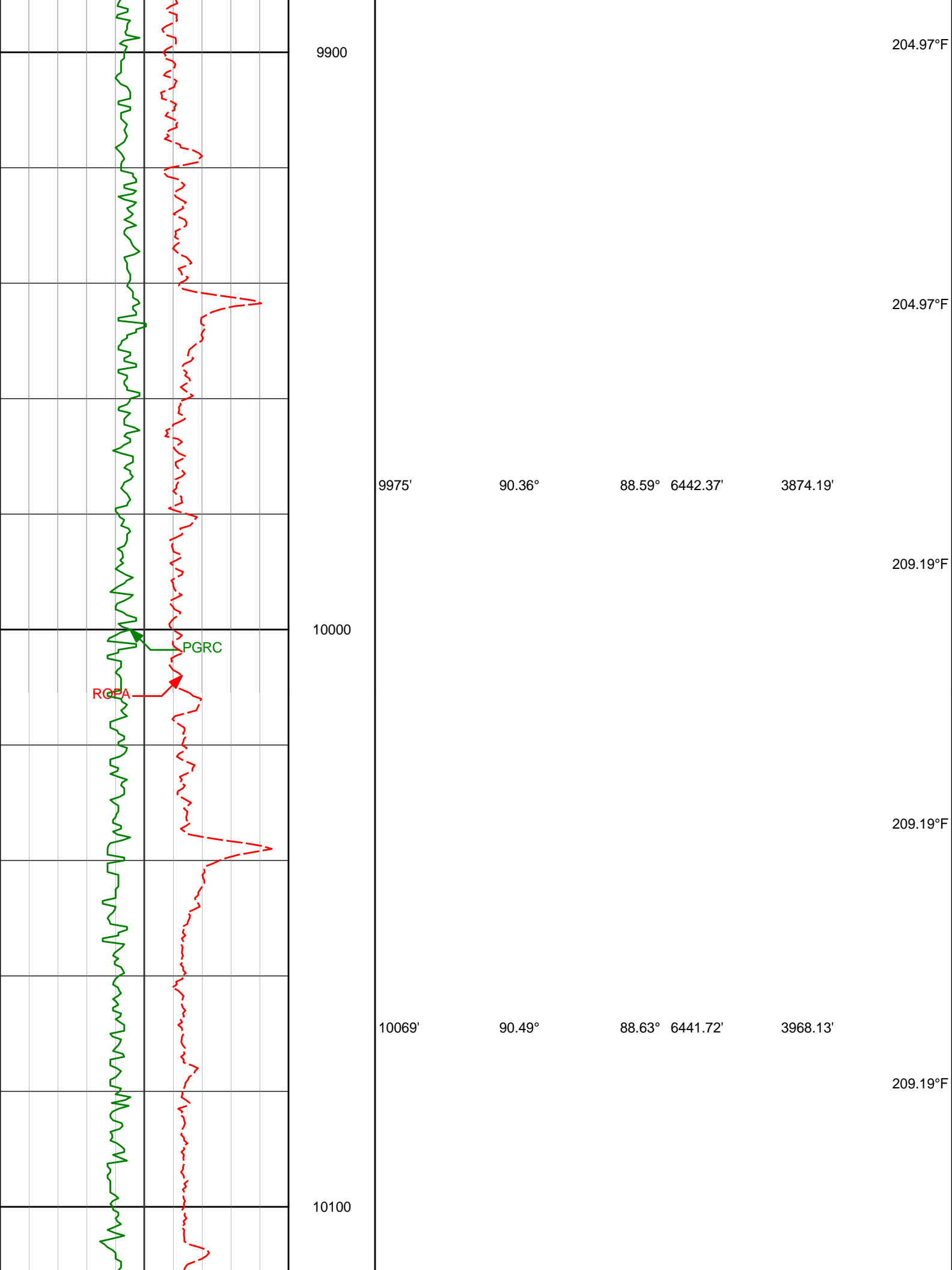
200.75°F

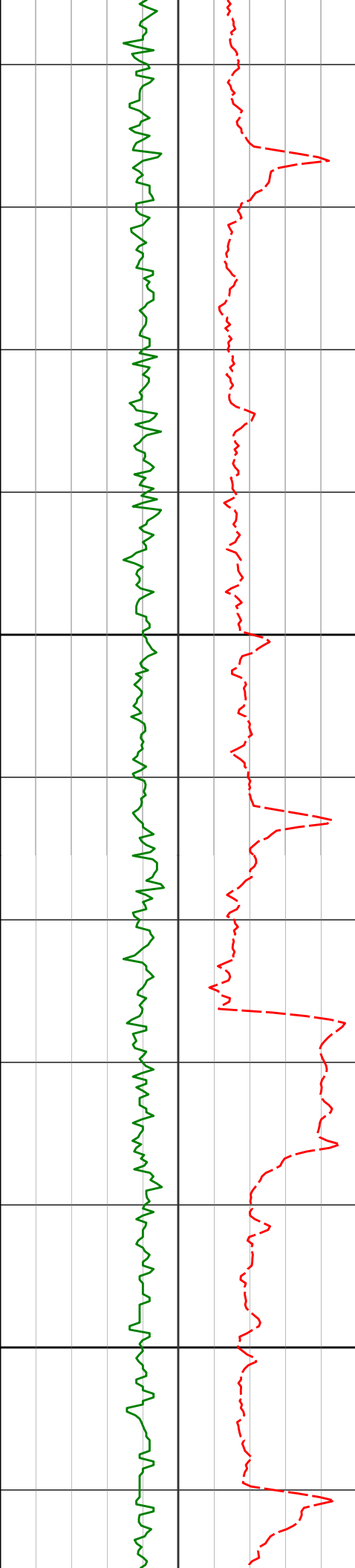
204.97°F

204.97°F

204.97°F

200.75°F





10200

10300

10164'

90.49°

90.36°

6440.95'

4063.01'

10259'

90.33°

90.95°

6440.31'

4157.77'

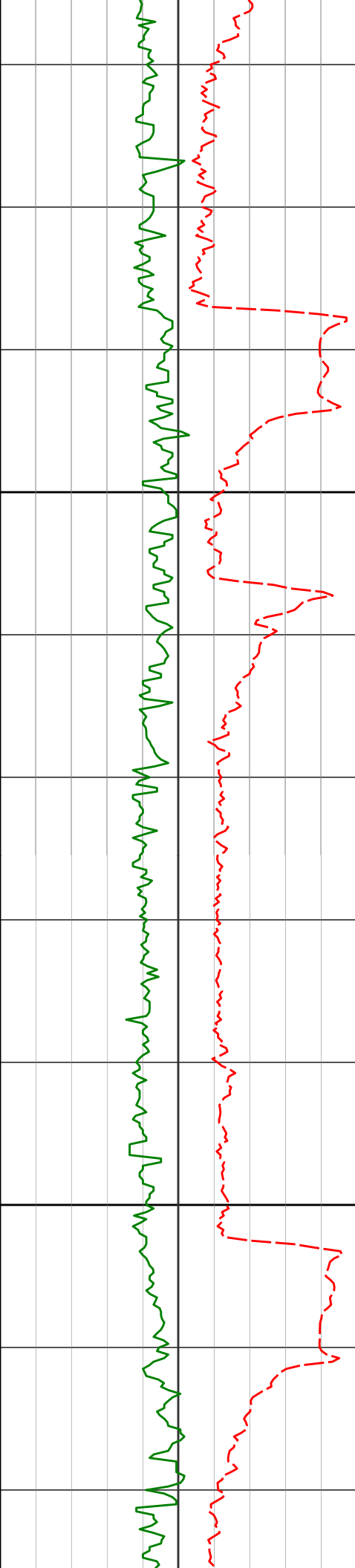
209.19°F

209.19°F

209.19°F

209.19°F

209.19°F



10400

10500

10443'

90.02°

89.66° 6439.82'

4341.39'

10537'

90.83°

87.67° 6439.15'

4435.32'

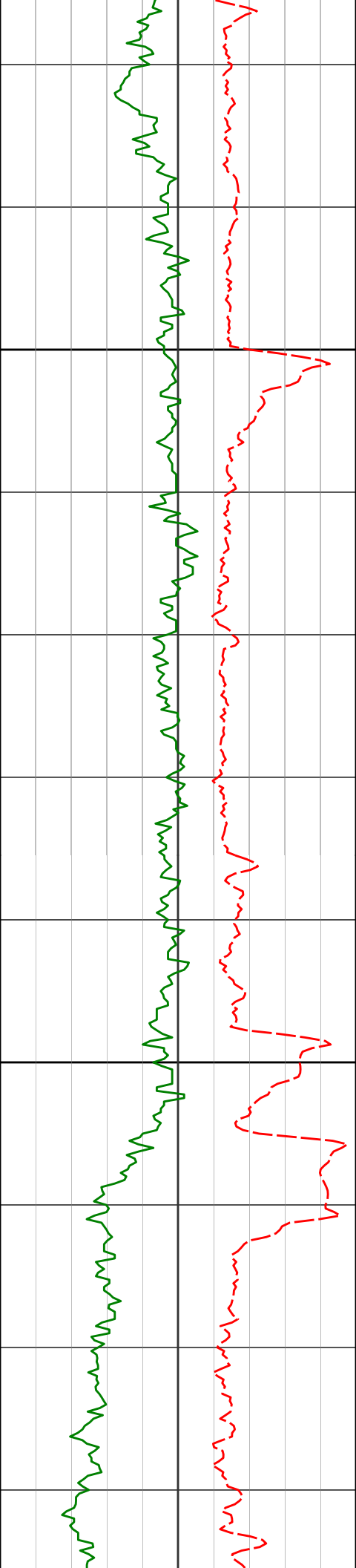
209.19°F

209.19°F

202.99°F

202.73°F

209.19°F



10600

10700

10631'

10725'

91.01°

90.27°

87.69°

88.56°

6437.68'

6436.67'

4529.30'

4623.26'

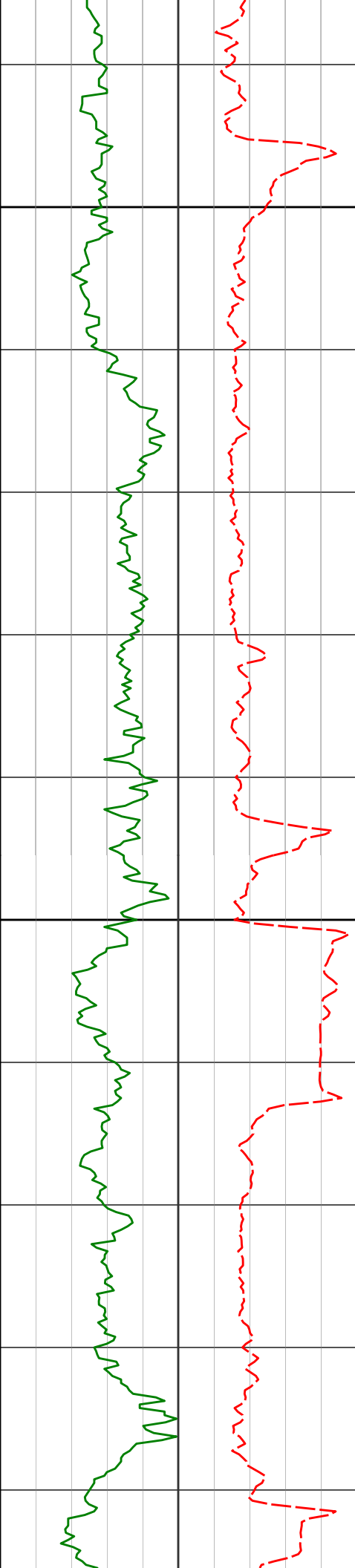
209.19°F

209.19°F

209.19°F

209.19°F

209.19°F



10800

10819'

90.85°

88.72° 6435.74'

4717.19'

213.41°F

213.41°F

213.41°F

10900

10913'

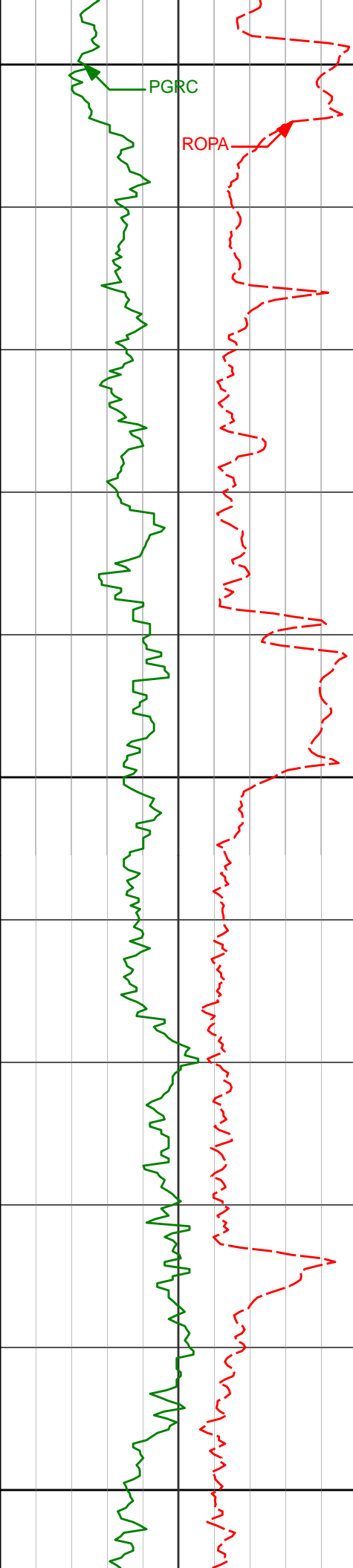
90.92°

86.67° 6434.32'

4811.16'

213.41°F

213.41°F



11000

11008'

90.42°

86.75° 6433.25'

4906.16'

213.41°F

213.41°F

11100

11102'

88.85°

86.94° 6433.88'

5000.15'

213.41°F

11200

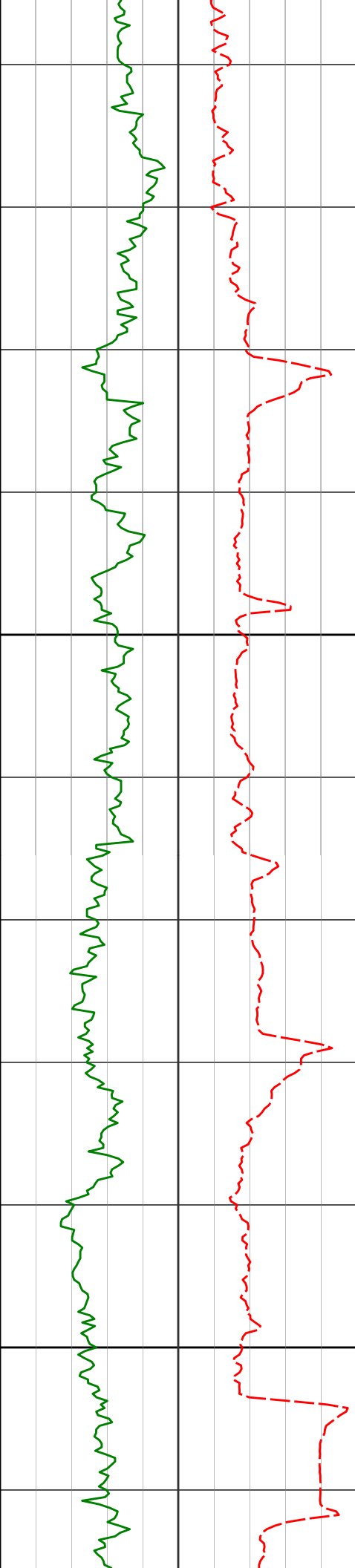
11196'

89.37°

87.18° 6435.37'

5094.14'

213.41°F



11300

11400

11293'

90.30°

87.18°

6435.69'

5191.13'

213.41°F

213.41°F

213.41°F

11388'

91.28°

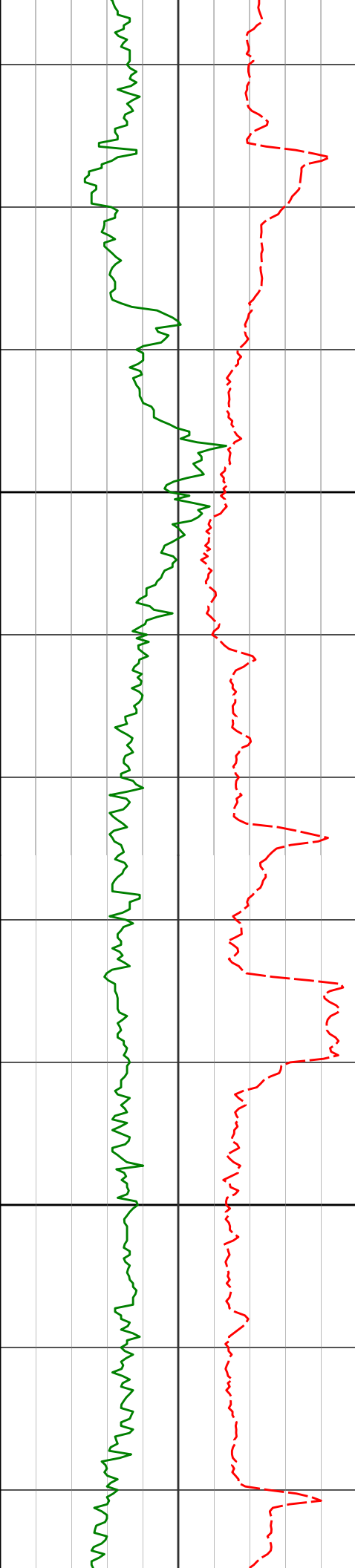
87.36°

6434.41'

5286.11'

213.41°F

213.41°F



11500

11600

11482'

89.84°

86.64° 6433.52'

5380.10'

11577'

88.39°

86.74° 6435.03'

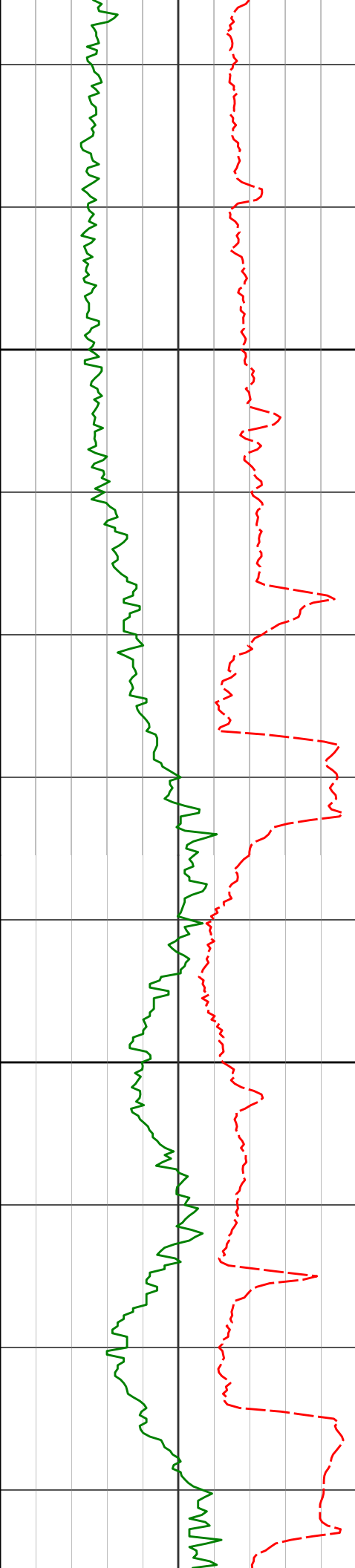
5475.08'

217.63°F

217.63°F

213.41°F

213.41°F



11700

11800

11672'

87.87°

86.57° 6438.17'

5570.03'

11766'

88.42°

87.44° 6441.25'

5663.98'

11861'

88.39°

88.85° 6443.94'

5758.90'

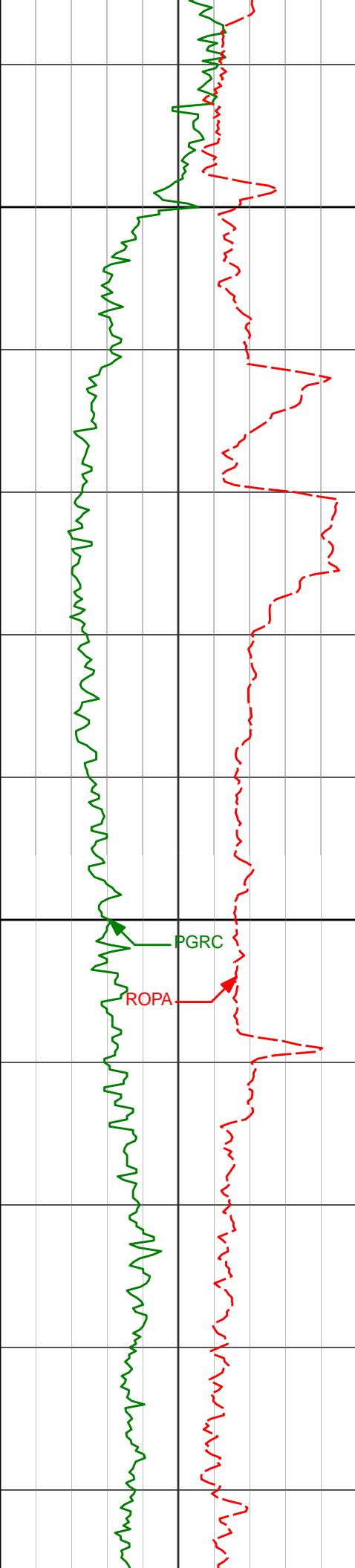
217.63°F

217.63°F

217.63°F

217.63°F

217.63°F



11900

12000

11953'

12045'

89.53°

89.13°

89.62°

88.58°

6445.64'

6446.76'

5850.77'

5942.66'

217.63°F

217.63°F

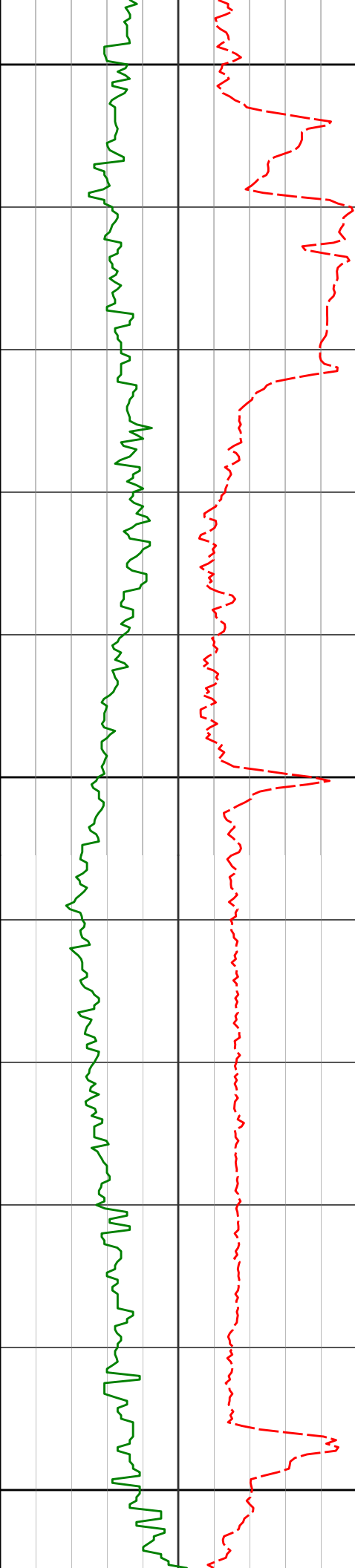
217.63°F

221.84°F

221.84°F

PGRC

ROPA



12100

221.84°F

12137'

90.98°

89.08° 6446.71'

6034.58'

221.84°F

12200

217.63°F

12229'

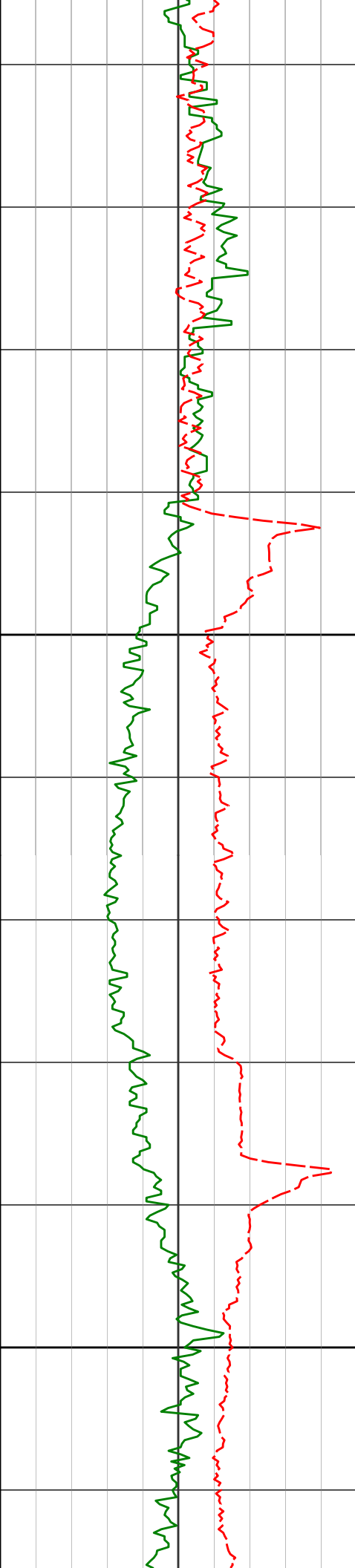
90.94°

88.34° 6445.20'

6126.49'

217.63°F

12300



12400

12500

12321'

12413'

12504'

91.26°

91.07°

91.19°

88.76° 6443.47'

88.30° 6441.64'

88.35° 6439.87'

6218.41'

6310.33'

6401.26'

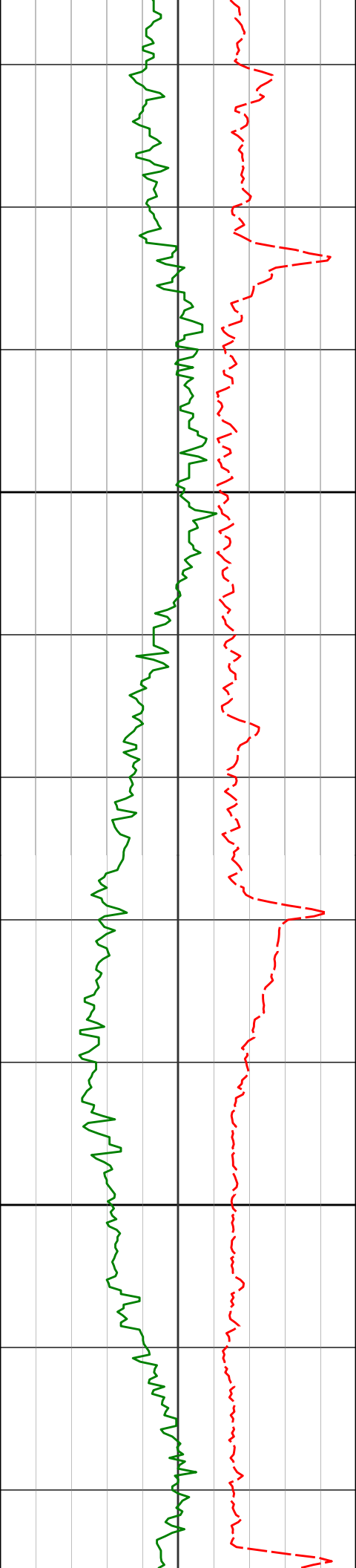
221.84°F

221.84°F

221.84°F

221.84°F

221.84°F



12600

12700

12596'

12687'

91.10°

91.04°

88.17° 6438.07'

87.78° 6436.41'

6493.19'

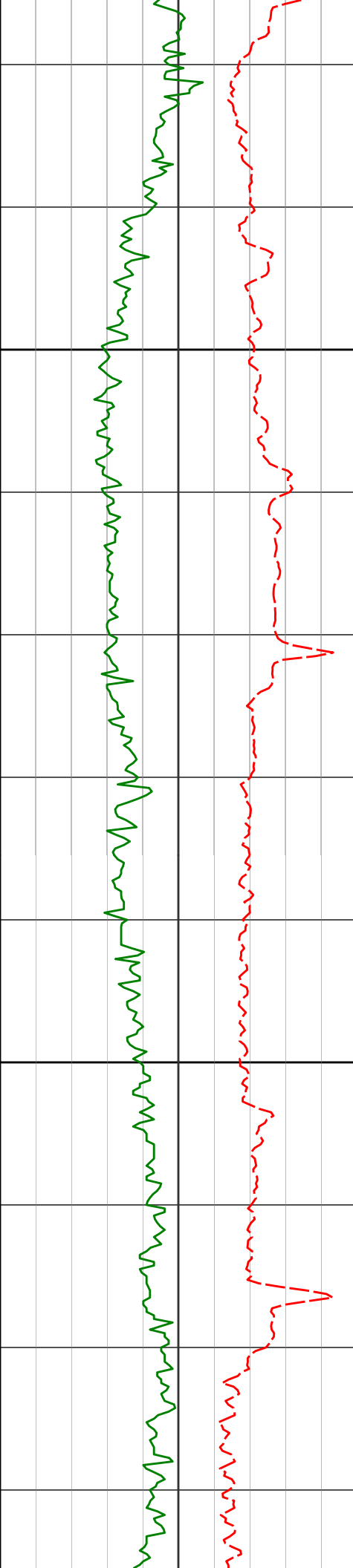
6584.14'

223.96°F

226.06°F

226.06°F

226.06°F



12800

12900

12779' 91.28° 87.76° 6434.57' 6676.09' 226.06°F

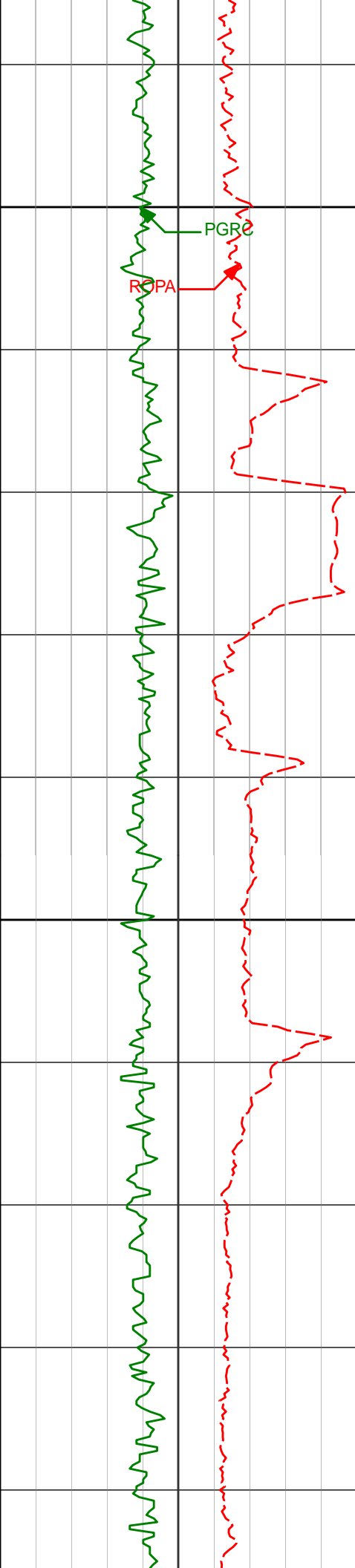
226.06°F

12871' 91.33° 87.77° 6432.50' 6706.04' 230.28°F

230.28°F

12962' 91.72° 87.87° 6430.10' 6858.98' 230.28°F

230.28°F



13000

230.28°F

13054'

89.90°

87.85° 6428.84'

6950.93'

230.28°F

13100

230.28°F

13146'

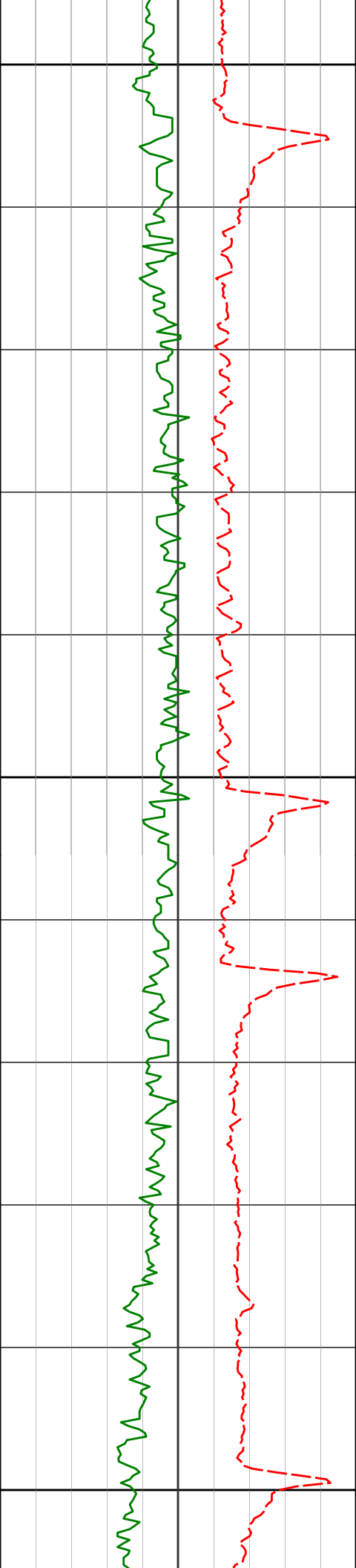
90.21°

88.16° 6428.79'

7042.89'

230.28°F

230.28°F



13200

13241'

90.51°

88.39° 6428.23'

7137.84'

13300

13335'

90.64°

88.35° 6427.31'

7231.77'

13400

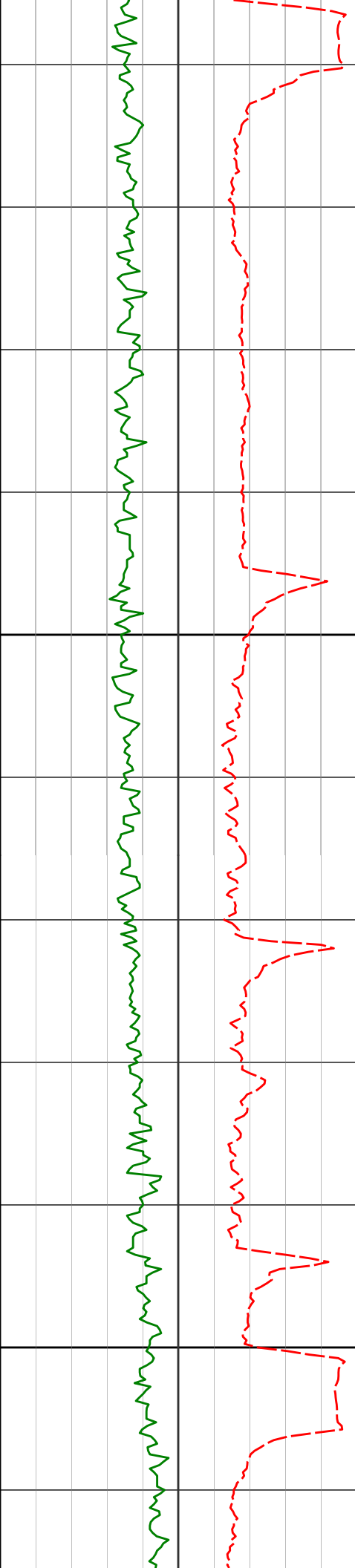
230.28°F

230.28°F

230.28°F

230.28°F

230.28°F



13430'

89.99°

87.22° 6426.83'

7326.74'

230.28°F

13500

230.28°F

13524'

90.39°

87.06° 6426.55'

7420.73'

230.28°F

13600

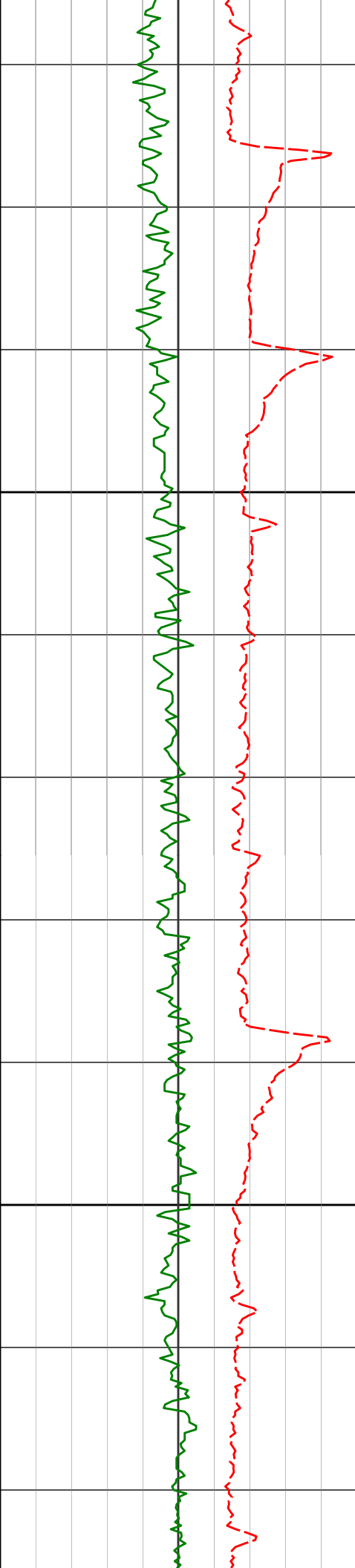
230.28°F

13619'

90.02°

87.15° 6426.24'

7515.72'



13700

13714'

89.99°

87.24° 6426.27'

7610.71'

13800

13808'

90.30°

87.15° 6426.07'

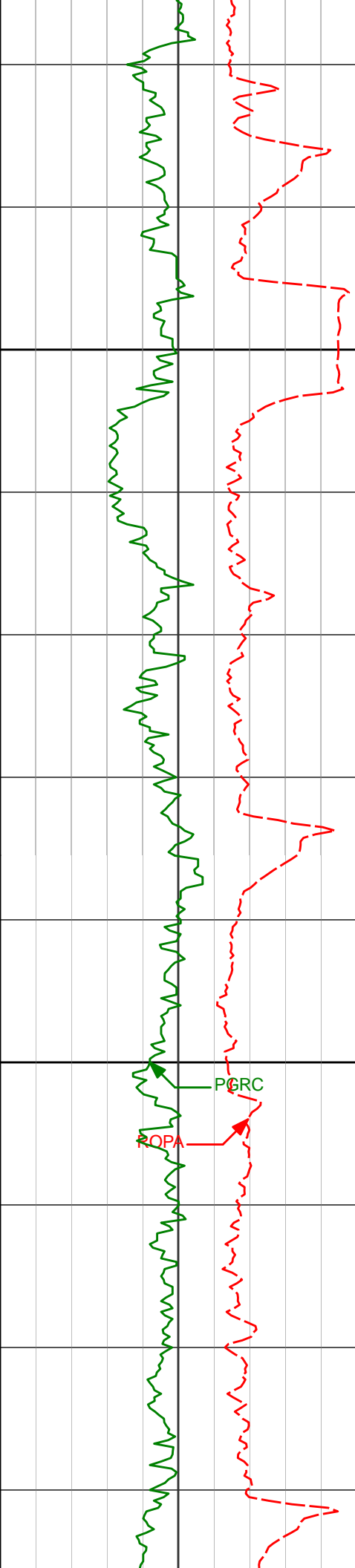
7704.70'

230.28°F

230.28°F

230.28°F

230.28°F



13900

14000

13998'

88.42°

86.66° 6428.26'

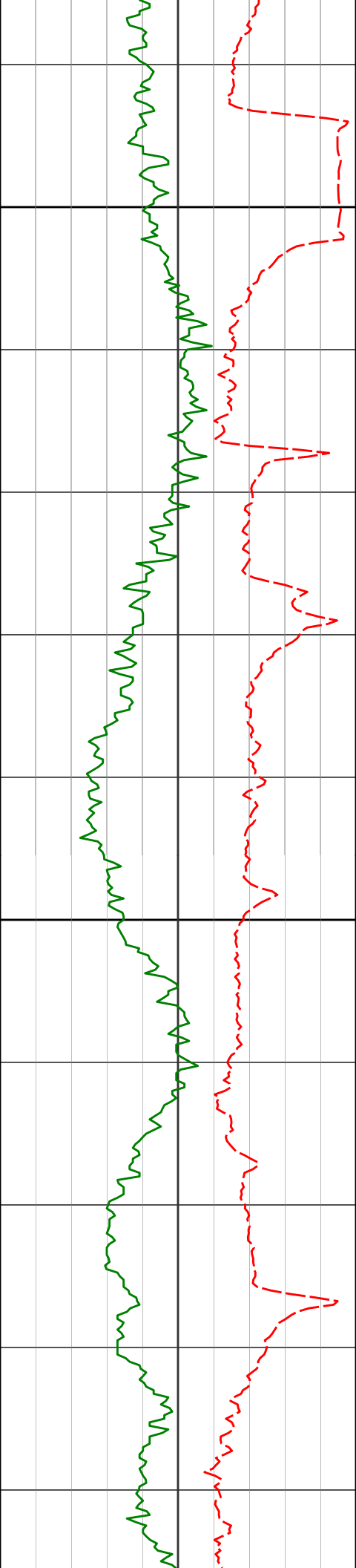
7894.67'

POPA

PGRC

230.28°F

230.28°F



14100

14200

14092'

88.88°

87.42°

6430.51'

7988.63'

230.28°F

14187'

89.37°

87.76°

6432.00'

8083.60'

230.28°F

234.50°F

234.50°F

234.50°F

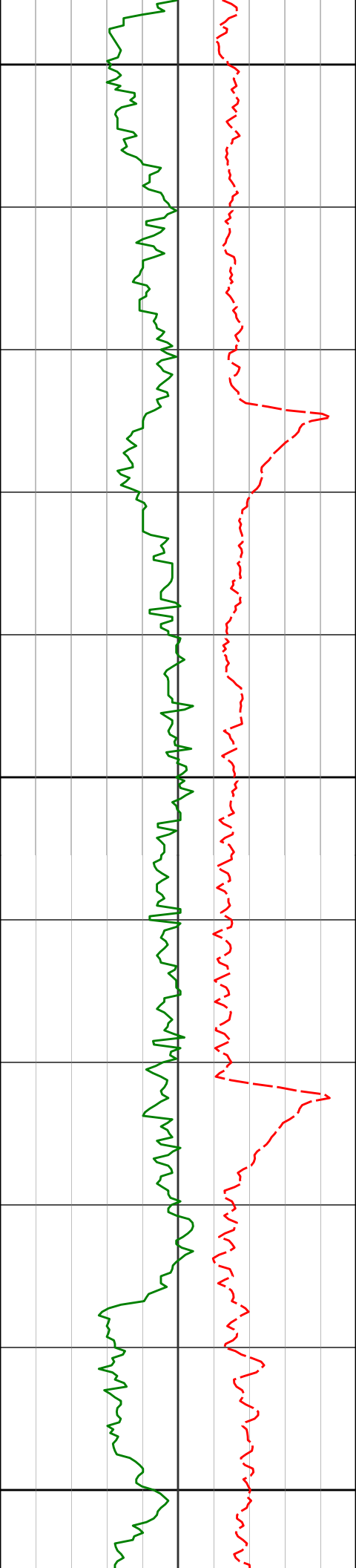
14282'

89.71°

87.83°

6432.79'

8178.56'



14300

234.50°F

234.50°F

14376'

90.27°

87.77° 6432.84'

8272.53'

14400

234.50°F

234.50°F

14471'

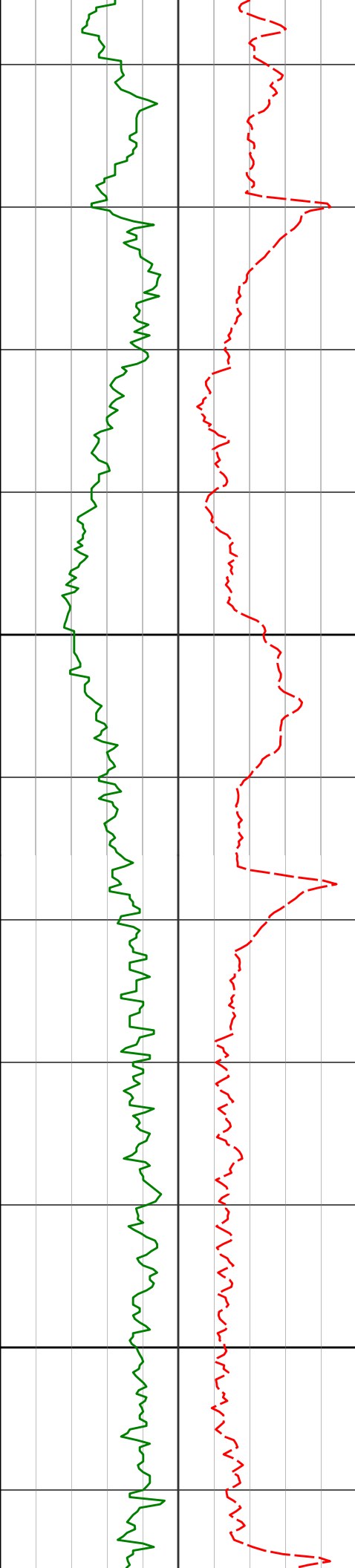
90.42°

87.78° 6432.31'

8367.49'

14500

234.50°F



14600

14700

14565'

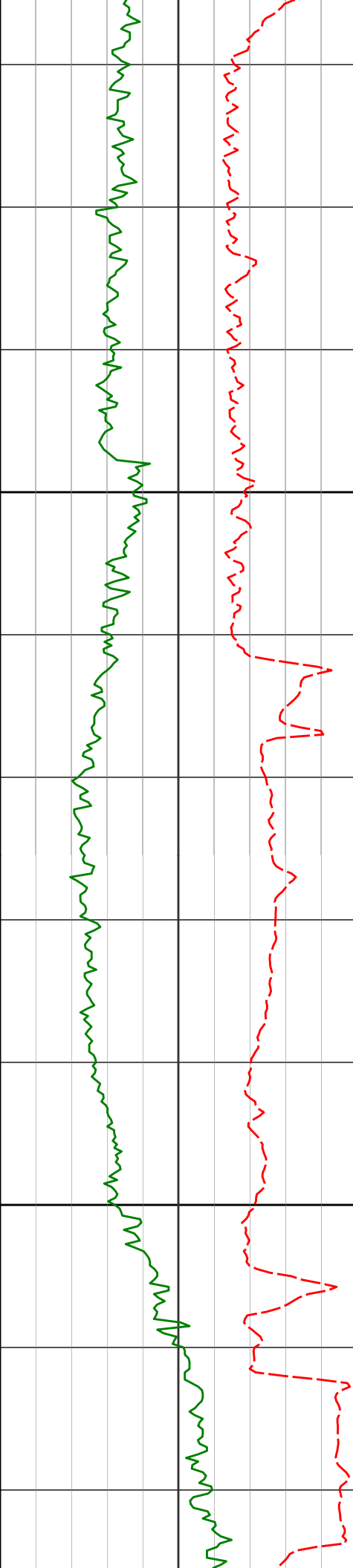
89.99°

87.51° 6431.67'

8461.46'

234.50°F

234.50°F



14800

14900

14754'

90.36°

87.28° 6430.48'

8650.41'

14849'

90.30°

86.49° 6429.97'

8745.40'

14944'

90.76°

88.51° 6429.13'

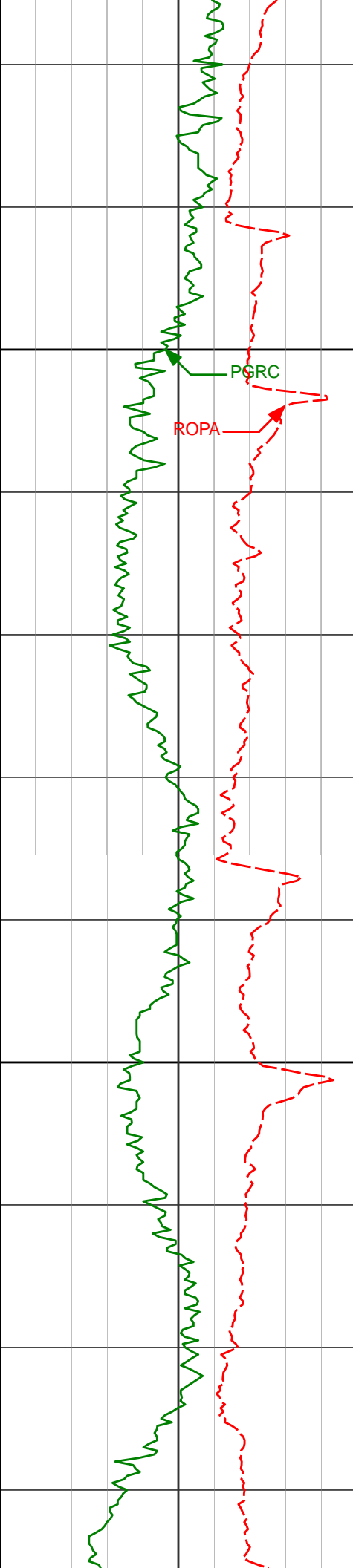
8840.37'

238.72°F

238.72°F

238.72°F

230.28°F



15000

15100

15038'

15133'

90.58°

90.67°

88.55° 6428.06'

88.14° 6427.07'

8934.28'

9029.21'

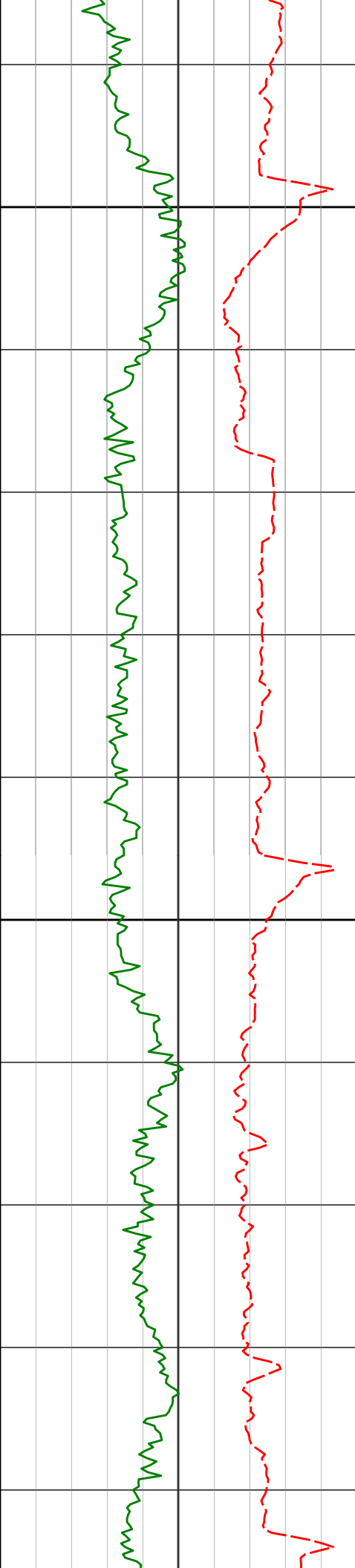
230.28°F

234.50°F

234.50°F

234.50°F

234.50°F



15200

15300

15228'

90.76°

88.04° 6425.92'

9124.15'

15322'

91.22°

88.16° 6424.33'

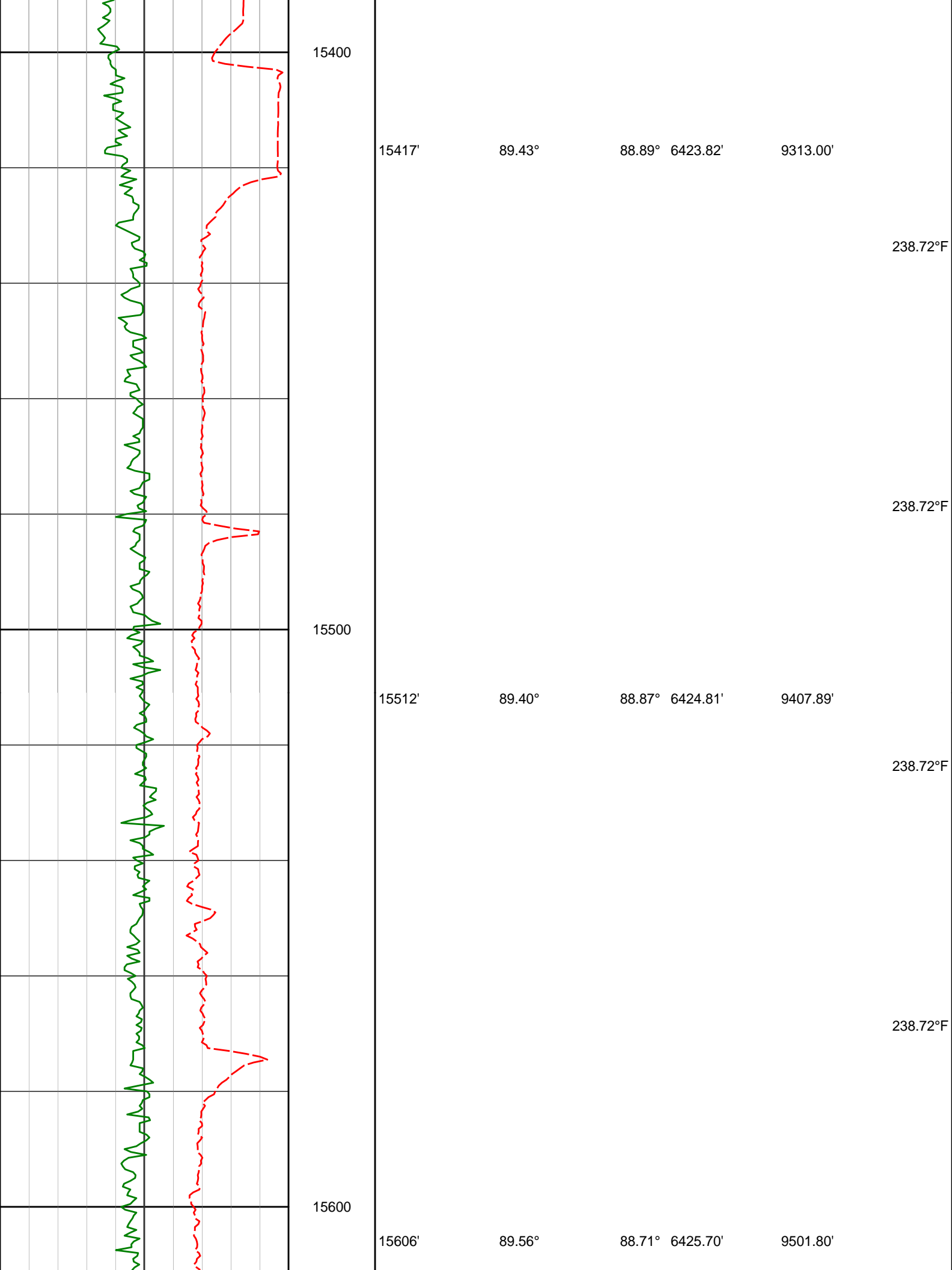
9218.08'

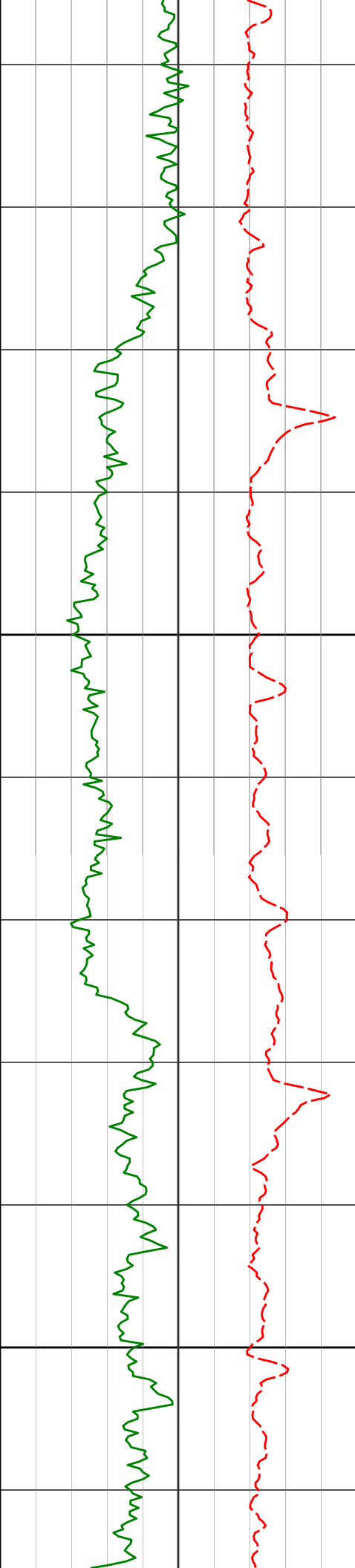
238.72°F

238.72°F

238.72°F

238.72°F





15700

15701'

90.02°

88.57° 6426.08'

9596.71'

15800

15795'

91.07°

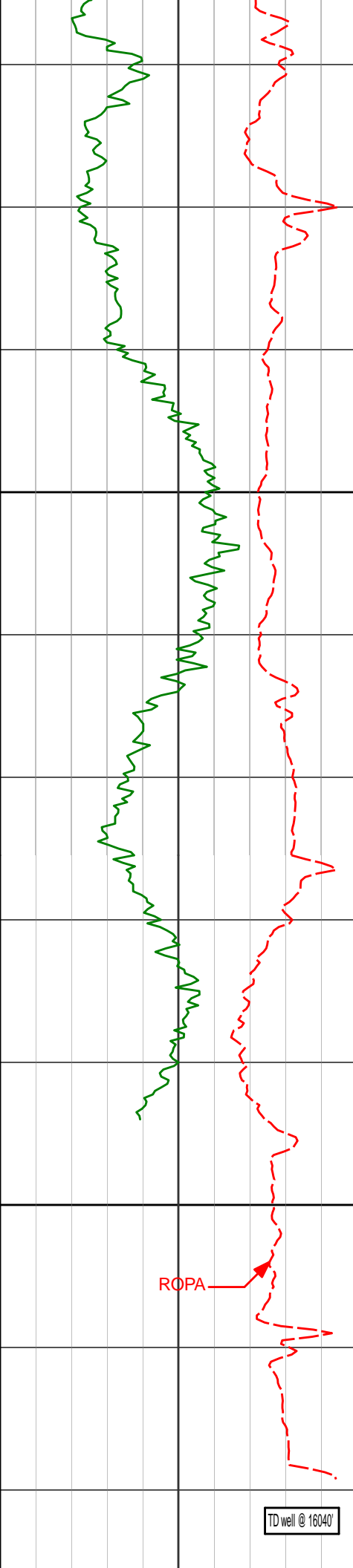
88.57° 6425.22'

9690.63'

238.72°F

238.72°F

238.72°F



15900

16000

15890'	91.50°	88.82°	6423.13'	9785.51'
15977'	91.62°	88.36°	6420.79'	9872.41'
16040'	91.62°	88.36°	6418.98'	9935.34'

238.72°F

238.72°F

238.72°F

238.72°F

TD well @ 16040'

2962.00	9.36	13.70	2958.57	51.65 N	27.25 E	29.97	1.35
3056.00	9.00	13.99	3051.37	66.22 N	30.84 E	34.33	0.39
3151.00	9.74	6.29	3145.10	81.42 N	33.52 E	37.81	1.53
3246.00	8.82	8.23	3238.86	96.62 N	35.44 E	40.55	1.02
3340.00	8.02	8.23	3331.85	110.24 N	37.41 E	43.24	0.86
3435.00	7.65	8.62	3425.96	123.05 N	39.31 E	45.82	0.39
3625.00	8.58	0.40	3614.06	149.74 N	41.30 E	49.24	0.78
3719.00	7.69	343.50	3707.13	162.78 N	39.57 E	48.20	2.70
3814.00	6.83	337.43	3801.36	174.10 N	35.59 E	44.84	1.21
3908.00	5.91	341.51	3894.78	183.85 N	31.91 E	41.68	1.09
4003.00	3.85	345.26	3989.43	191.57 N	29.55 E	39.73	2.20
4098.00	3.79	345.91	4084.22	197.70 N	27.97 E	38.49	0.07
4192.00	2.18	349.29	4178.09	202.46 N	26.89 E	37.66	1.72
4287.00	2.09	352.19	4273.03	205.95 N	26.32 E	37.27	0.15
4381.00	0.69	215.12	4367.01	207.19 N	25.76 E	36.78	2.81
4476.00	0.35	185.82	4462.01	206.43 N	25.40 E	36.38	0.44
4570.00	0.73	199.49	4556.00	205.58 N	25.17 E	36.11	0.42
4665.00	1.14	202.59	4650.99	204.13 N	24.60 E	35.46	0.43
4760.00	1.05	193.30	4745.97	202.41 N	24.04 E	34.81	0.21
4855.00	1.12	184.74	4840.95	200.64 N	23.76 E	34.44	0.18
4949.00	1.03	176.53	4934.94	198.89 N	23.74 E	34.32	0.19
5044.00	0.88	167.25	5029.92	197.32 N	23.95 E	34.45	0.23
5138.00	0.96	151.84	5123.91	195.92 N	24.48 E	34.90	0.27
5233.00	1.05	148.03	5218.90	194.48 N	25.32 E	35.66	0.12
5328.00	1.23	139.20	5313.88	192.97 N	26.44 E	36.71	0.26
5423.00	1.33	136.14	5408.85	191.41 N	27.87 E	38.05	0.13
5517.00	1.17	136.46	5502.83	189.92 N	29.29 E	39.39	0.17
5612.00	0.94	126.41	5597.82	188.76 N	30.59 E	40.62	0.31
5801.00	2.07	116.89	5786.75	186.30 N	34.87 E	44.77	0.61
5895.00	15.06	123.32	5879.50	178.79 N	46.64 E	56.12	13.84
5990.00	26.34	137.06	5968.27	156.49 N	71.41 E	79.66	12.85
6084.00	39.22	123.49	6047.24	124.65 N	110.61 E	117.11	15.70
6179.00	47.48	103.76	6116.59	99.59 N	170.04 E	175.11	16.62
6227.00	49.89	91.98	6148.34	94.74 N	205.64 E	210.40	19.09
6273.00	52.31	81.67	6177.27	96.78 N	241.29 E	246.11	18.19
6320.00	54.69	79.15	6205.23	103.08 N	278.53 E	283.64	6.66
6368.00	56.36	79.03	6232.40	110.57 N	317.39 E	322.84	3.48
6415.00	56.34	78.41	6258.45	118.22 N	355.75 E	361.56	1.10
6463.00	55.75	77.96	6285.26	126.37 N	394.72 E	400.91	1.45
6510.00	55.97	77.39	6311.64	134.67 N	432.73 E	439.30	1.10
6557.00	59.42	77.06	6336.75	143.46 N	471.46 E	478.45	7.36
6605.00	66.34	76.63	6358.62	153.18 N	513.04 E	520.48	14.45
6651.00	70.27	76.65	6375.62	163.06 N	554.62 E	562.53	8.54
6699.00	74.06	77.57	6390.31	173.24 N	599.15 E	607.54	8.10
6746.00	76.27	80.27	6402.35	181.97 N	643.73 E	652.53	7.28
6794.00	77.86	80.43	6413.09	189.81 N	689.85 E	699.00	3.33
6841.00	79.59	81.90	6422.28	196.88 N	735.39 E	744.86	4.77
6889.00	81.40	81.75	6430.21	203.62 N	782.25 E	792.01	3.80
6935.00	83.11	82.74	6436.41	209.77 N	827.41 E	837.43	4.27
7030.00	85.00	83.75	6446.25	220.89 N	921.24 E	931.72	2.26
7042.00	86.05	84.54	6447.18	222.11 N	933.14 E	943.67	10.99
7137.00	86.55	84.63	6453.31	231.06 N	1027.52 E	1038.39	0.53
7231.00	88.98	96.57	6456.99	230.07 N	1121.26 E	1131.95	12.96
7326.00	90.31	88.82	6457.58	225.60 N	1216.08 E	1226.39	8.28
7421.00	90.80	88.79	6456.66	227.58 N	1311.06 E	1321.34	0.52
7515.00	90.15	85.93	6455.88	231.91 N	1404.94 E	1415.32	3.12
7610.00	90.49	85.58	6455.34	238.94 N	1499.68 E	1510.30	0.52
7799.00	90.43	84.44	6453.81	255.38 N	1687.96 E	1699.18	0.60
7893.00	89.78	0.00	6453.45	263.62 N	1781.59 E	1793.12	1.20
7988.00	89.60	86.56	6453.76	270.21 N	1876.36 E	1888.11	1.20
8177.00	89.78	88.73	6454.78	277.97 N	2065.19 E	2077.08	1.16
8272.00	89.75	88.63	6455.16	280.16 N	2160.16 E	2172.04	0.11
8367.00	89.94	88.53	6455.42	282.51 N	2255.13 E	2267.00	0.22
8461.00	90.22	88.67	6455.29	284.80 N	2349.10 E	2360.96	0.33
8556.00	90.28	88.45	6454.88	287.18 N	2444.07 E	2455.92	0.24
8650.00	90.46	88.66	6454.28	289.55 N	2538.04 E	2549.88	0.29
8745.00	90.49	88.50	6453.49	291.90 N	2633.01 E	2644.84	0.17
8840.00	90.74	88.88	6452.46	294.07 N	2727.98 E	2739.79	0.47
8934.00	91.20	89.59	6450.87	295.33 N	2821.96 E	2833.70	0.90
9029.00	89.97	88.92	6449.90	296.57 N	2916.94 E	2928.61	1.48
9124.00	90.12	89.16	6449.82	298.17 N	3011.93 E	3023.55	0.30
9218.00	89.85	87.79	6449.85	300.67 N	3105.89 E	3117.51	1.48
9313.00	90.49	87.10	6449.57	304.90 N	3200.80 E	3212.51	1.00
9407.00	90.62	86.71	6448.66	309.98 N	3294.65 E	3306.50	0.43

9502.00	90.59	86.53	6447.66	315.58 N	3389.48 E	3401.50	0.20
9596.00	90.46	85.99	6446.80	321.71 N	3483.28 E	3495.49	0.58
9691.00	90.59	88.27	6445.93	326.46 N	3578.15 E	3590.47	2.40
9786.00	90.86	89.67	6444.73	328.17 N	3673.12 E	3685.41	1.50
9880.00	90.83	89.92	6443.34	328.51 N	3767.11 E	3779.28	0.26
9975.00	90.34	88.85	6442.37	329.53 N	3862.10 E	3874.19	1.23
10069.00	90.46	88.91	6441.72	331.36 N	3956.08 E	3968.13	0.14
10164.00	90.46	90.65	6440.95	331.73 N	4051.07 E	4063.01	1.84
10259.00	90.31	91.24	6440.31	330.15 N	4146.06 E	4157.77	0.64
10443.00	90.00	89.96	6439.82	328.22 N	4330.04 E	4341.39	0.72
10535.00	90.80	87.99	6439.17	329.87 N	4422.02 E	4433.32	2.31
10631.00	90.98	88.02	6437.68	333.22 N	4517.95 E	4529.30	0.20
10725.00	90.25	88.88	6436.67	335.76 N	4611.91 E	4623.26	1.21
10811.00	90.83	89.06	6435.86	337.31 N	4697.89 E	4709.20	0.71
10913.00	90.89	87.02	6434.32	340.80 N	4799.81 E	4811.16	2.00
11008.00	90.40	87.09	6433.25	345.68 N	4894.68 E	4906.16	0.53
11102.00	88.83	87.30	6433.88	350.29 N	4988.56 E	5000.15	1.69
11196.00	89.35	87.54	6435.37	354.52 N	5082.46 E	5094.14	0.61
11293.00	90.28	87.58	6435.69	358.65 N	5179.37 E	5191.13	0.95
11388.00	91.26	87.77	6434.41	362.50 N	5274.28 E	5286.11	1.06
11482.00	89.82	87.06	6433.52	366.75 N	5368.18 E	5380.10	1.72
11577.00	88.37	87.15	6435.03	371.55 N	5463.04 E	5475.08	1.53
11672.00	87.84	86.98	6438.17	376.42 N	5557.86 E	5570.03	0.58
11766.00	88.40	87.88	6441.25	380.63 N	5651.72 E	5663.98	1.13
11861.00	88.37	89.33	6443.94	382.94 N	5746.65 E	5758.90	1.53
11953.00	89.51	90.13	6445.64	383.36 N	5838.63 E	5850.77	1.51
12045.00	89.11	89.08	6446.76	384.00 N	5930.62 E	5942.66	1.23
12137.00	90.96	89.59	6446.71	385.06 N	6022.61 E	6034.58	2.09
12229.00	90.92	88.88	6445.20	386.29 N	6114.59 E	6126.49	0.78
12321.00	91.23	89.31	6443.47	387.74 N	6206.56 E	6218.41	0.58
12413.00	91.05	88.85	6441.64	389.21 N	6298.53 E	6310.33	0.54
12504.00	91.17	88.91	6439.87	390.98 N	6389.49 E	6401.26	0.15
12596.00	91.08	88.75	6438.07	392.86 N	6481.46 E	6493.19	0.21
12687.00	91.02	88.33	6436.41	395.17 N	6572.41 E	6584.14	0.46
12779.00	91.26	88.34	6434.57	397.84 N	6664.36 E	6676.09	0.27
12871.00	91.32	88.38	6432.50	400.47 N	6756.29 E	6768.04	0.08
12962.00	91.70	88.48	6430.10	402.96 N	6847.23 E	6858.98	0.42
13054.00	89.88	88.43	6428.84	405.44 N	6939.18 E	6950.93	1.98
13146.00	90.18	88.75	6428.79	407.70 N	7031.15 E	7042.89	0.48
13241.00	90.49	89.00	6428.23	409.56 N	7126.13 E	7137.84	0.42
13335.00	90.62	88.98	6427.31	411.22 N	7220.12 E	7231.77	0.13
13430.00	89.97	87.83	6426.83	413.86 N	7315.08 E	7326.74	1.39
13524.00	90.37	87.67	6426.55	417.55 N	7409.00 E	7420.73	0.46
13619.00	90.00	87.76	6426.24	421.34 N	7503.93 E	7515.72	0.40
13714.00	89.97	87.85	6426.27	424.98 N	7598.86 E	7610.71	0.10
13808.00	90.28	87.76	6426.07	428.58 N	7692.79 E	7704.70	0.34
13998.00	88.40	87.24	6428.26	436.88 N	7882.58 E	7894.67	1.03
14092.00	88.86	88.03	6430.51	440.77 N	7976.48 E	7988.63	0.97
14187.00	89.35	88.38	6432.00	443.74 N	8071.42 E	8083.60	0.64
14282.00	89.69	88.47	6432.79	446.35 N	8166.38 E	8178.56	0.37
14376.00	90.25	88.40	6432.84	448.92 N	8260.34 E	8272.53	0.60
14471.00	90.40	88.50	6432.31	451.49 N	8355.31 E	8367.49	0.19
14754.00	90.34	88.03	6430.48	460.07 N	8638.17 E	8650.41	0.17
14849.00	90.28	87.21	6429.97	464.02 N	8733.08 E	8745.40	0.86
14944.00	90.74	89.27	6429.13	466.93 N	8828.03 E	8840.37	2.21
15038.00	90.55	89.31	6428.06	468.10 N	8922.02 E	8934.28	0.20
15133.00	90.65	88.90	6427.07	469.59 N	9017.00 E	9029.21	0.45
15228.00	90.74	88.81	6425.92	471.49 N	9111.97 E	9124.15	0.13
15322.00	91.20	88.90	6424.33	473.36 N	9205.94 E	9218.08	0.50
15417.00	89.41	89.61	6423.82	474.59 N	9300.93 E	9313.00	2.03
15512.00	89.38	89.58	6424.81	475.25 N	9395.92 E	9407.89	0.05
15606.00	89.54	89.43	6425.70	476.06 N	9489.91 E	9501.80	0.23
15701.00	90.00	89.28	6426.08	477.13 N	9584.91 E	9596.71	0.51
15795.00	91.05	89.31	6425.22	478.29 N	9678.89 E	9690.63	1.12
15890.00	91.48	89.55	6423.13	479.24 N	9773.87 E	9785.51	0.52
15977.00	91.60	89.11	6420.79	480.26 N	9860.83 E	9872.41	0.53

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 86.94 DEGREES (GRID)

A TOTAL CORRECTION OF 3.51 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

A TOTAL CORRECTION OF 7.51 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 15977.00 FEET
IS 9872.52 FEET ALONG 87.21 DEGREES (GRID)

final survey is a projection to TD

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