



1 : 600 / 1 : 240

WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	26-Aug-15	28-Aug-15			
Rig Bit Number	0100	0200			
Bit Size (in)	8.750	6.125			
Tool Nominal OD (in)	6.750	4.750			
Log Start Depth (MD, ft)	1,129.00	6,355.00			
Log End Depth (MD, ft)	6,355.00	10,651.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	25-Aug-15 01:50	26-Aug-15 22:53			
Drill/Wipe End Date and Time	25-Aug-15 21:50	27-Aug-15 21:30			
Min Inc (deg) @ Depth (MD, ft)	0.35 @ 1,202.00	88.49 @ 6,473.00			
Max Inc (deg) @ Depth (MD, ft)	86.61 @ 6,291.00	92.38 @ 10,589.00			
Bit TFA(in2) / Bit Type	0.98 / PDC	.98 / PDC			
Flow Rate (gpm)	578.21	311.03			
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)	10.20 / 27.00	10.40 / 37.00			
Filtrate CL (ppm)	1,600.00	1,700.00			
pH / Fluid Loss (mptm)	9.90 / 77	10.90 / 0			
PV (cP) / YP (lbf2)	2 / 3.00	10 / 13.00			
% Solids / % Sand	12.2 / 0.30	9.2 / .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)	N/A @ N/A	N/A @ N/A			

Max Tool Temp (degF) / Source	N/A / N/A	N/A / N/A			
Rm @ Max Tool Temp (degF)	N/A @ 175.21	N/A @ 220.77			
Lead MWD Engineer	Cody Wurdeman	Cody Wurdeman			
Customer Representative	Cliff Kester	Cliff Kester			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11303511	12361803			
Insert Serial Number	11619985	11400870			
Date and Time Initialized	24-Aug-15 14:00	26-Aug-15 00:52			
Date and Time Read	26-Aug-15 02:49	28-Aug-15 06:03			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	64.00	62.00			
Software Version	6.33	6.21			
Sub Serial Number	11303511	12361803			
Sonde Serial Number	10859920	11478016			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	253.00	249.20			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	57.32	55.45			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11303511	12361803			
Insert/Sonde Serial Number	11680918	12037418			

REMARKS

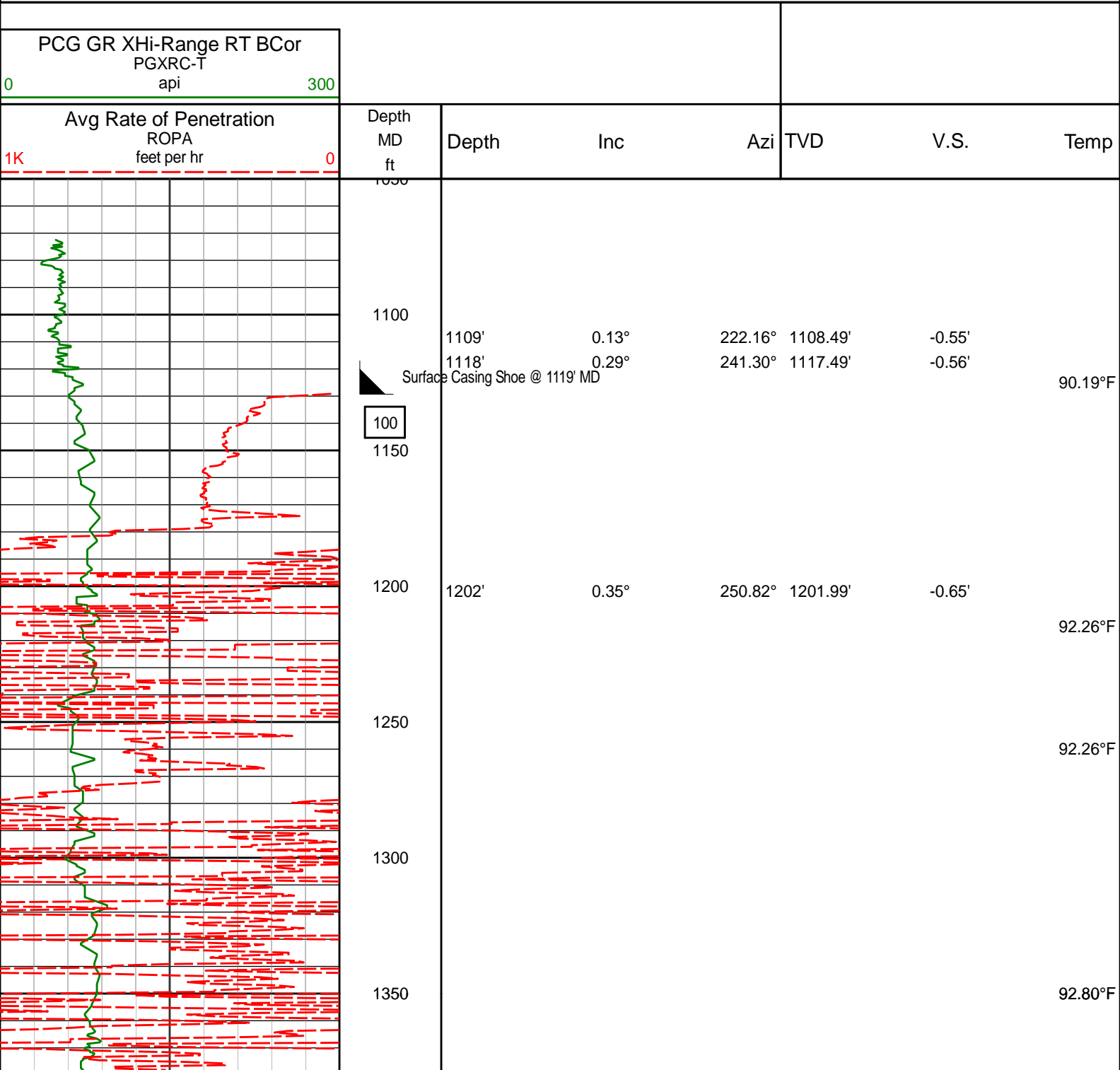
1. All depths are calibrated to driller's pipe tally and are total vertical depth from the drill floor.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded (memory data) unless otherwise stated.
4. Any gaps in gamma are due to high ROP.
5. Environmental parameters used in gamma and resistance processing:
Hole Size: 6.125"
Mud Density: 9.9-10.3
6. The following smoothing parameters have been applied to the data:
Interval: 0.5 ft
Coercion Distance: 1.2 ft (ROPA)
Interval: 0.5 ft
Coercion Distance: 0.6 ft (Gamma Ray)

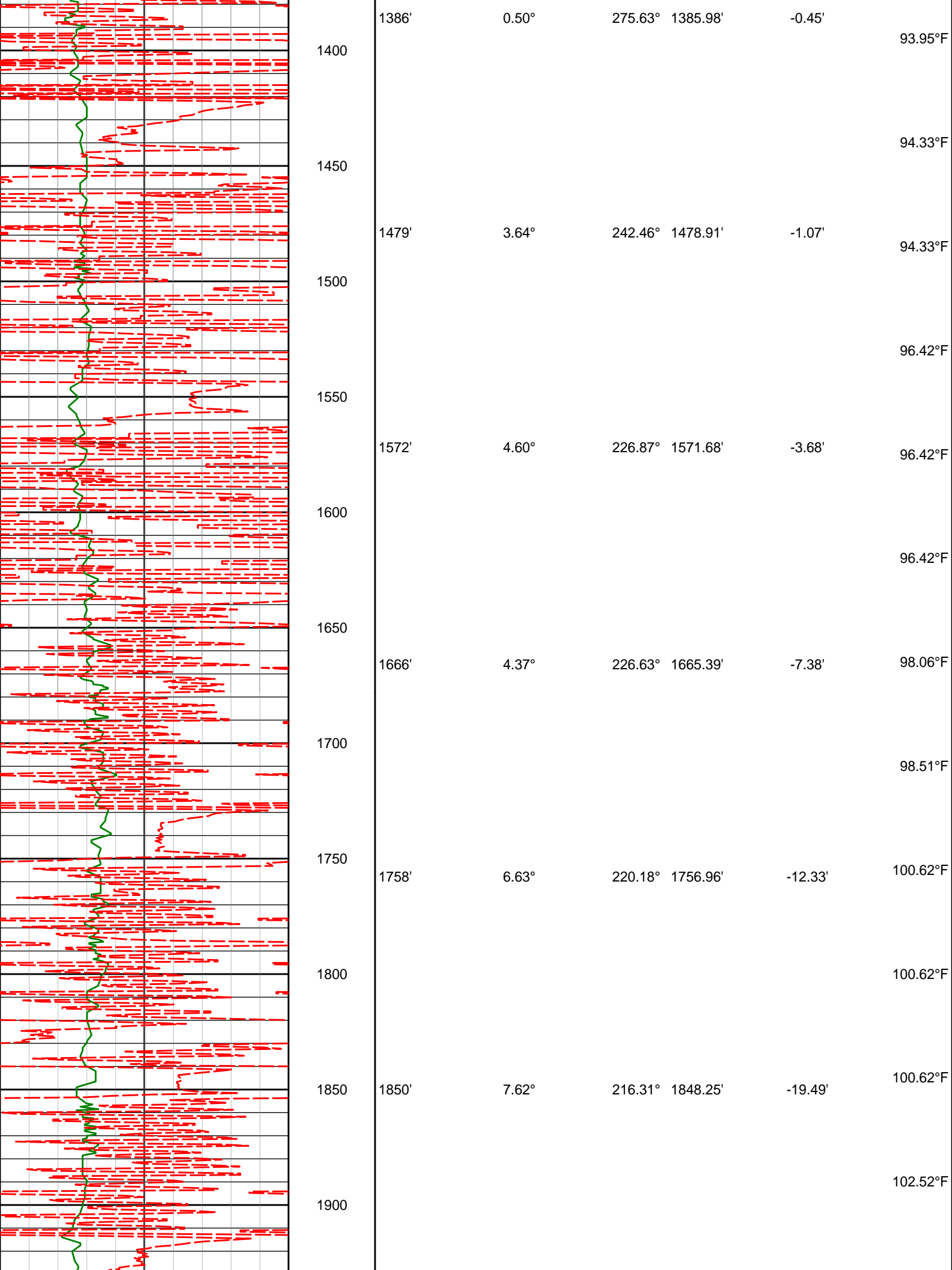
WARRANTY

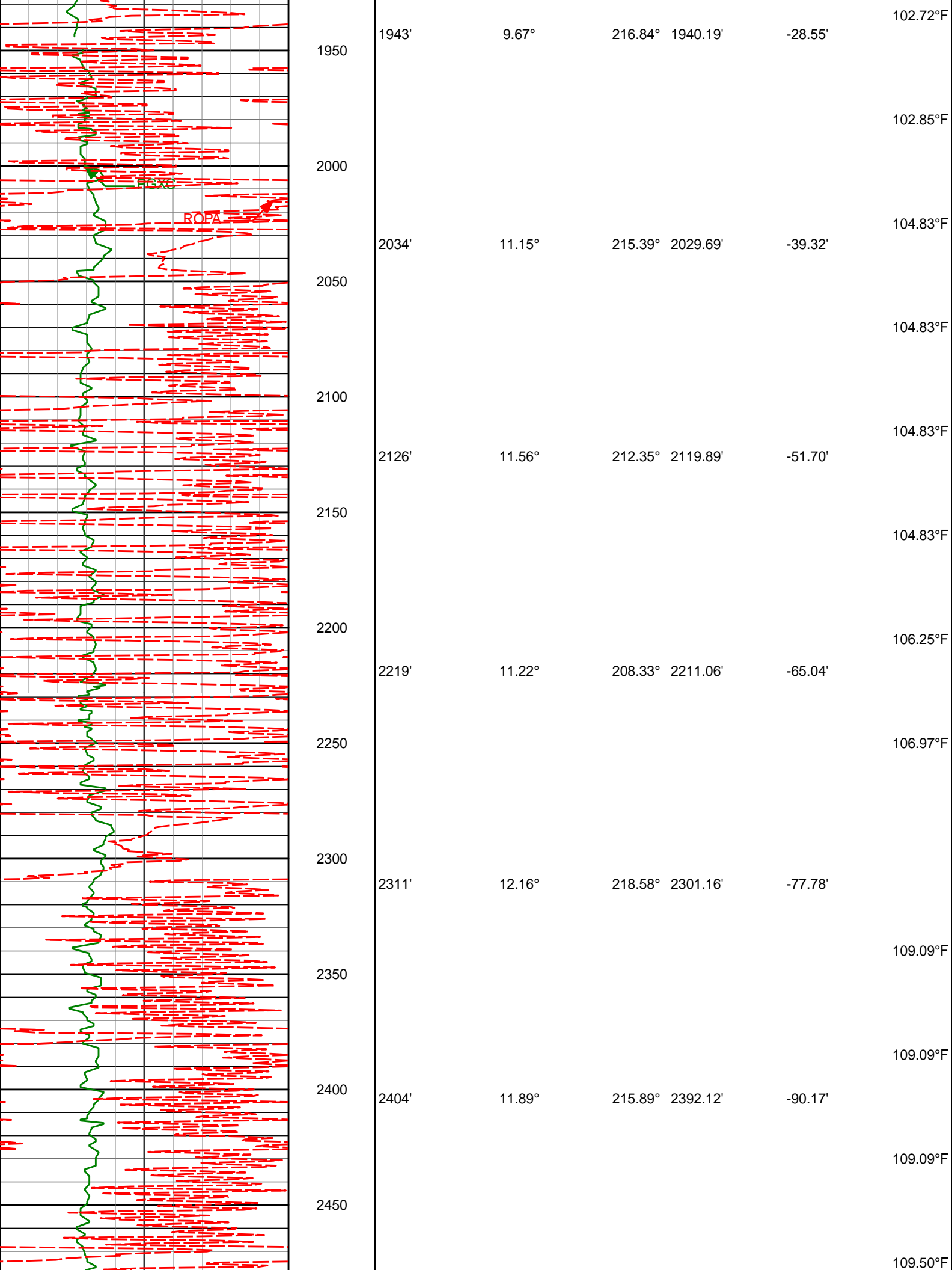
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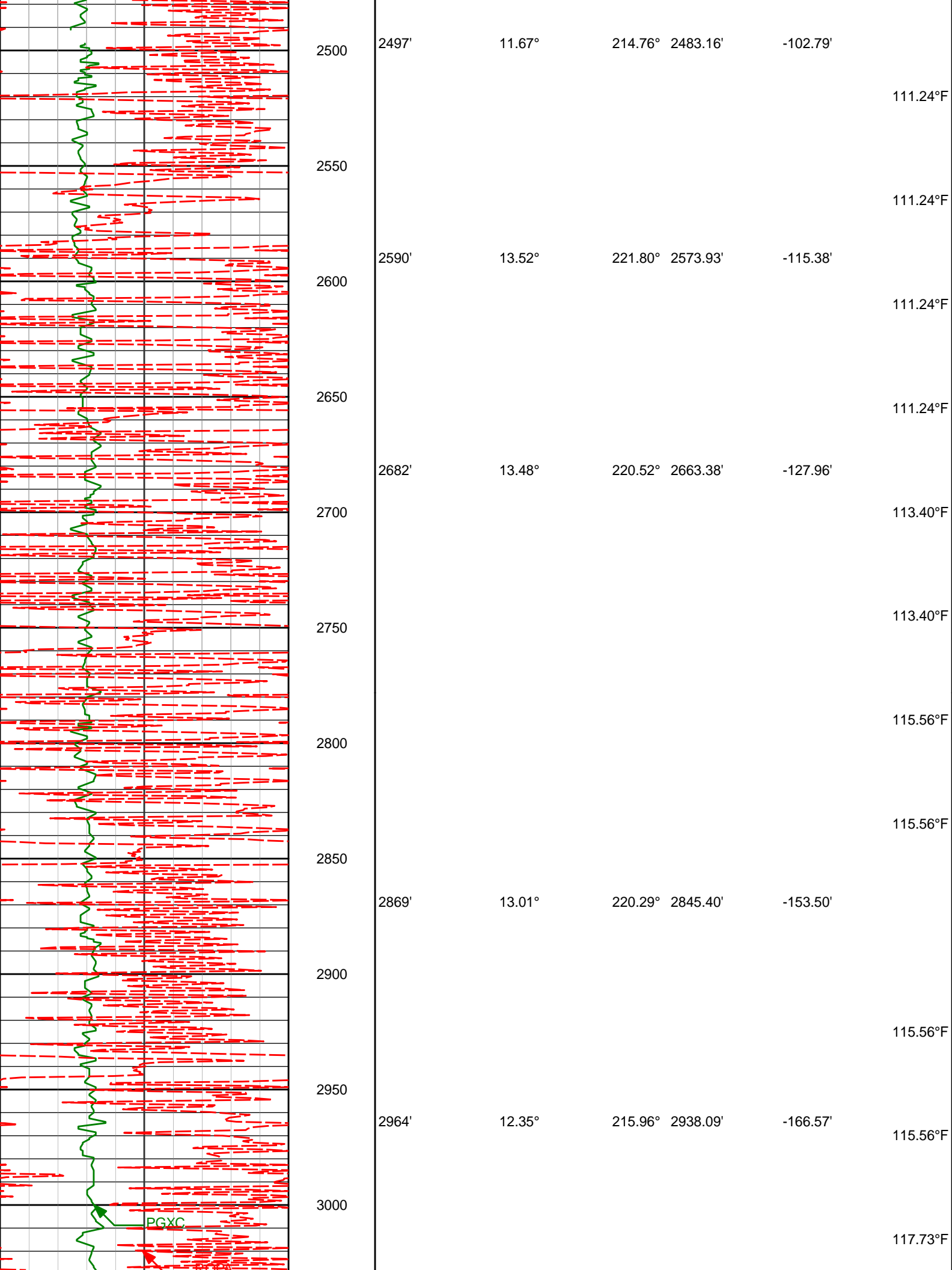
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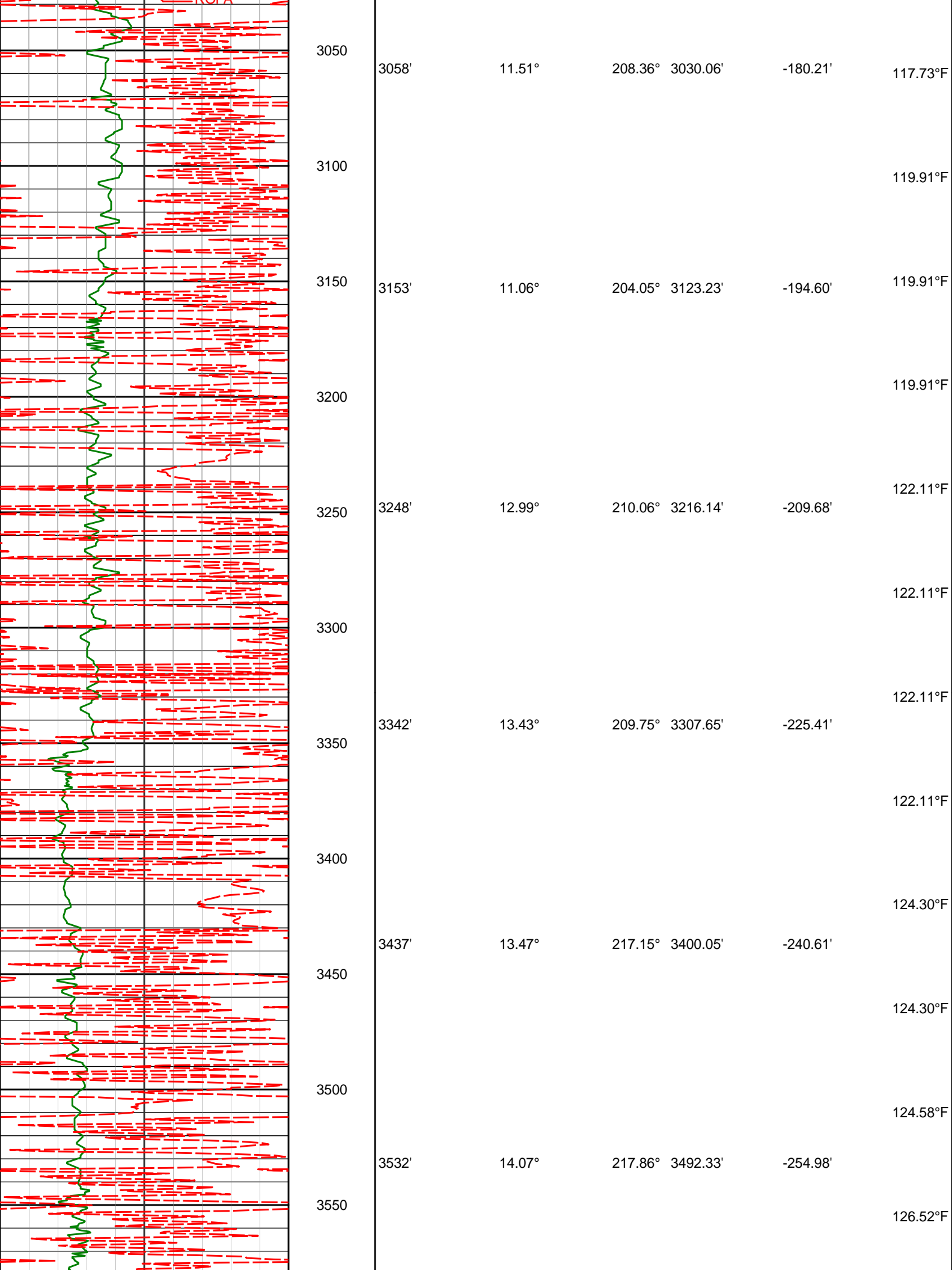
MD Detail 1:600 Scale

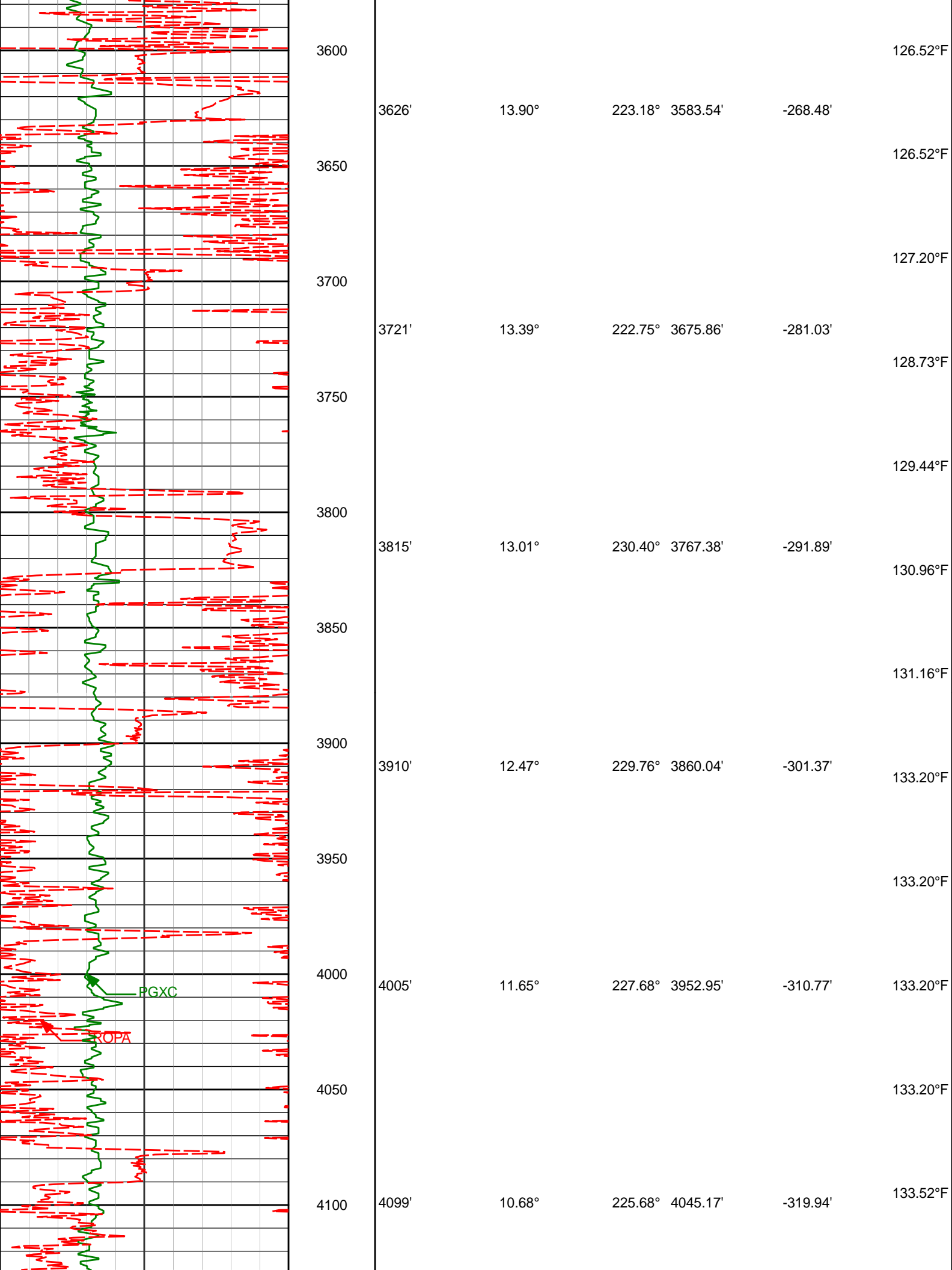


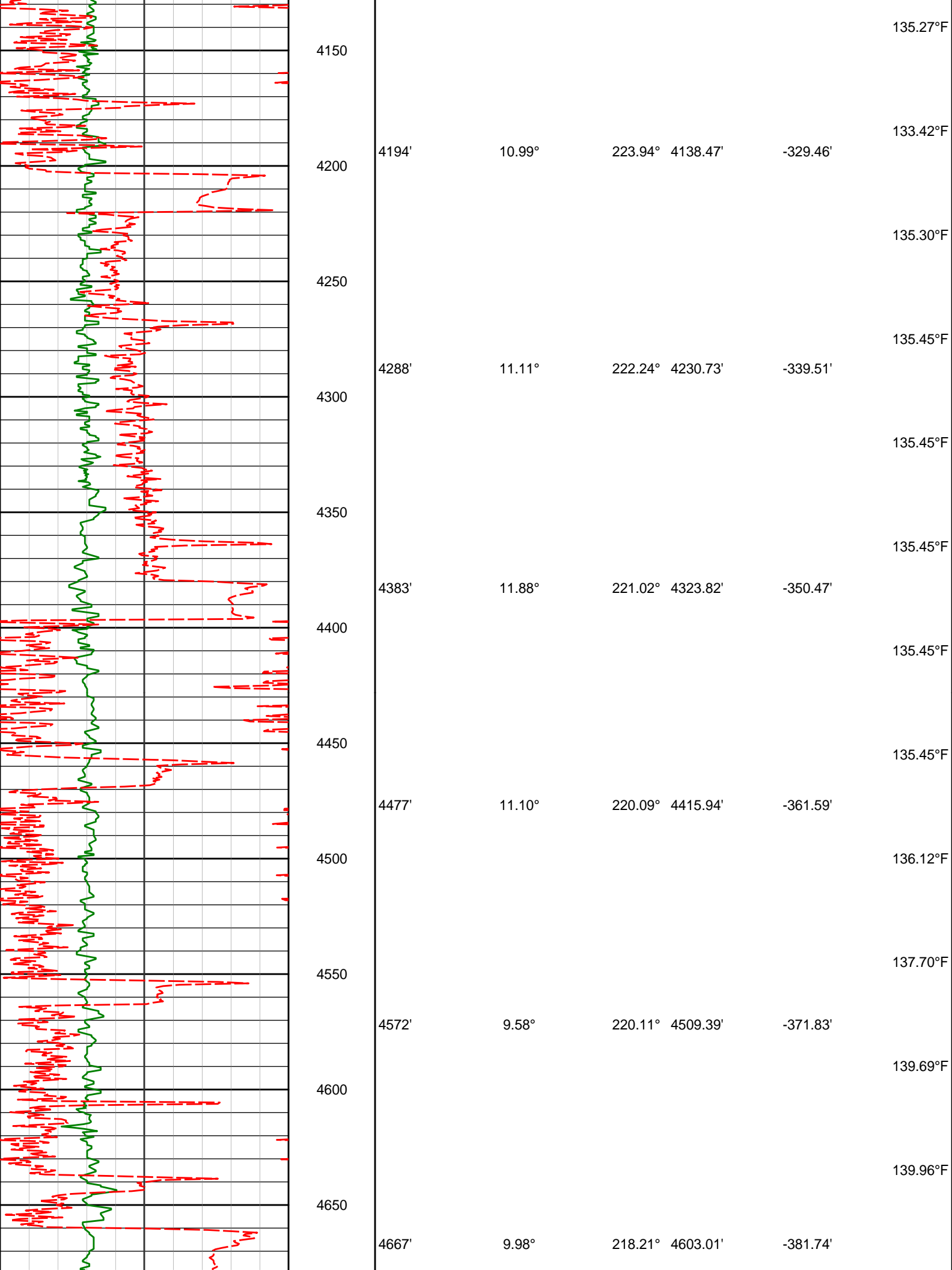


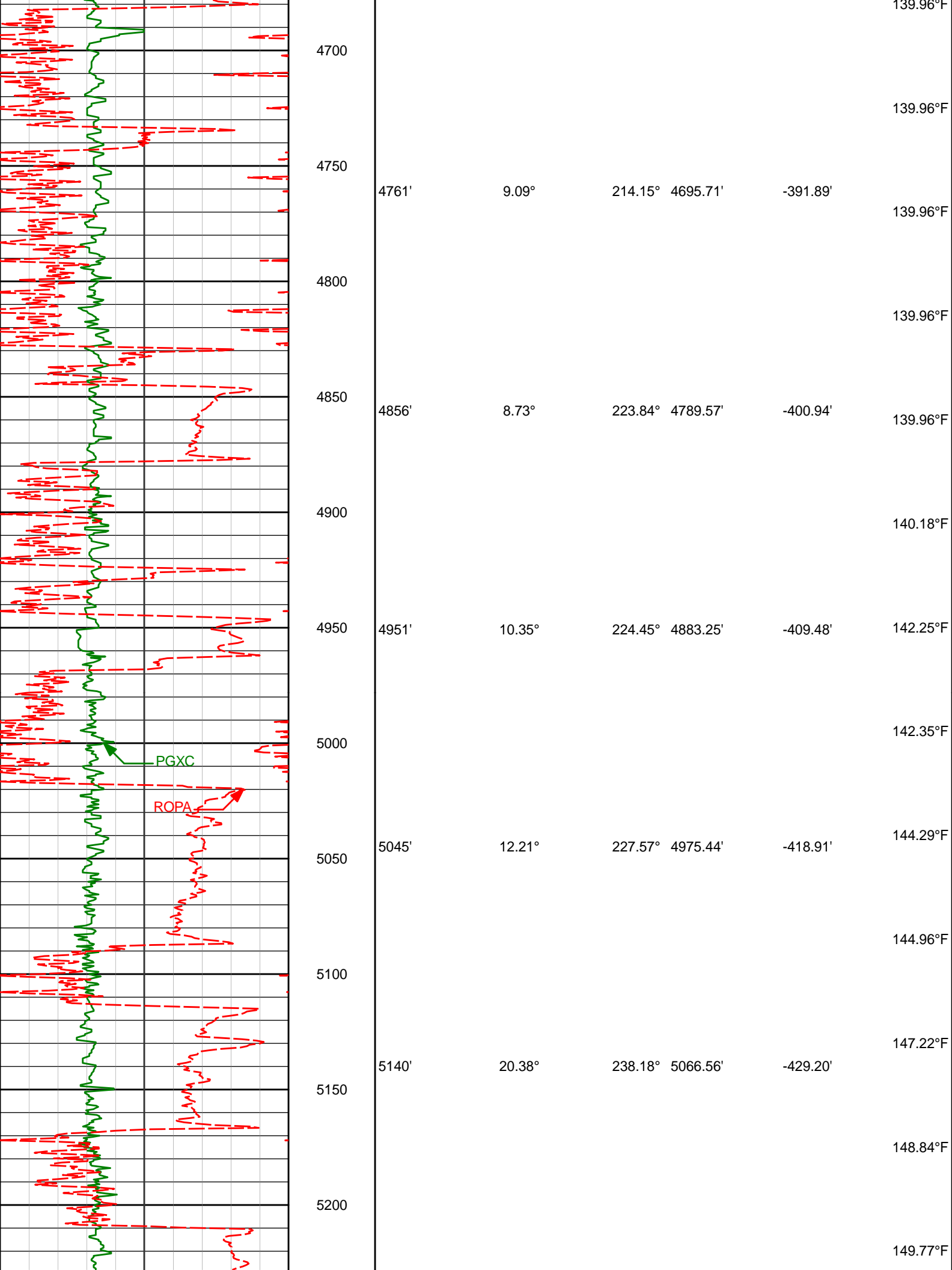


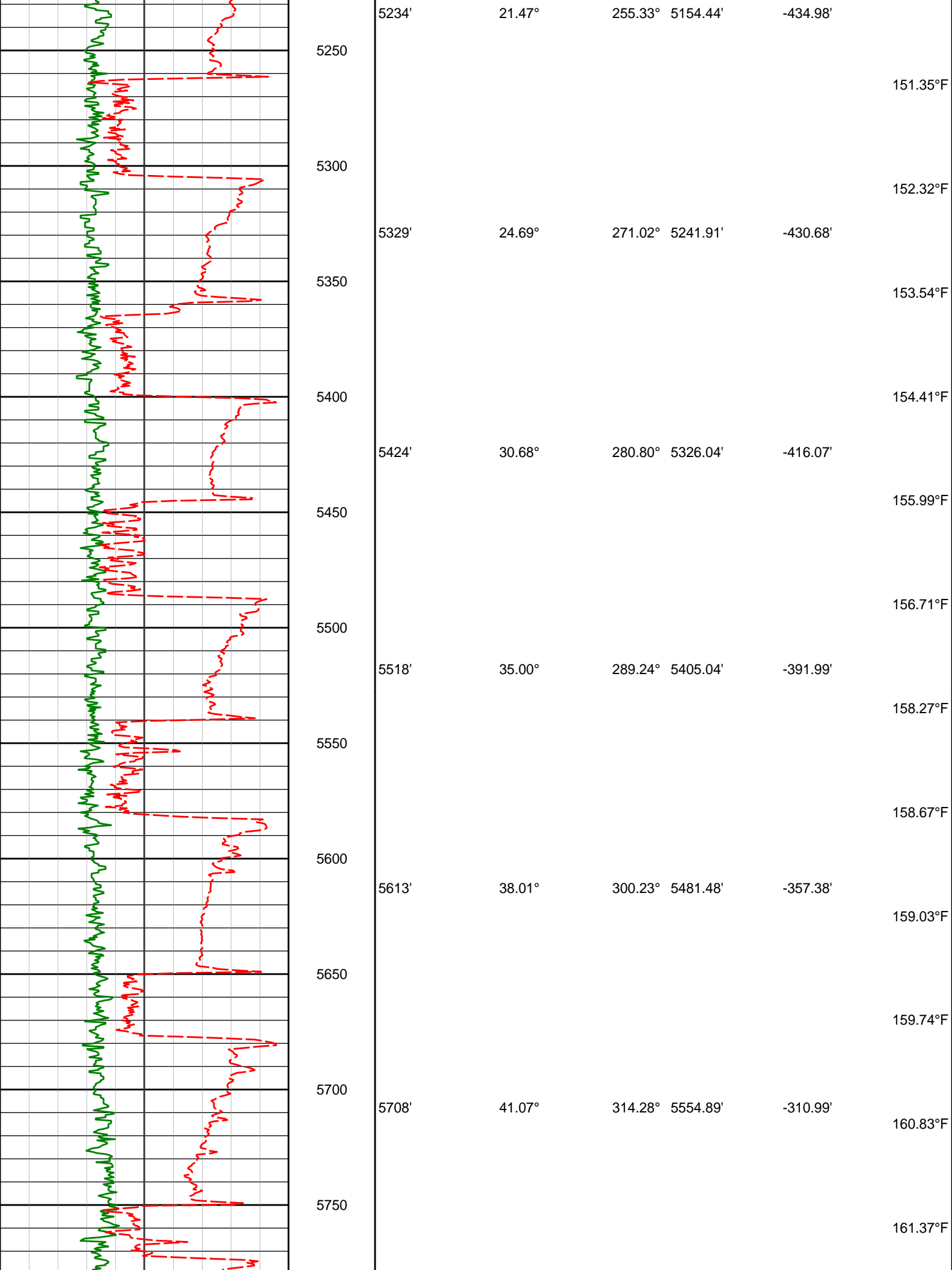


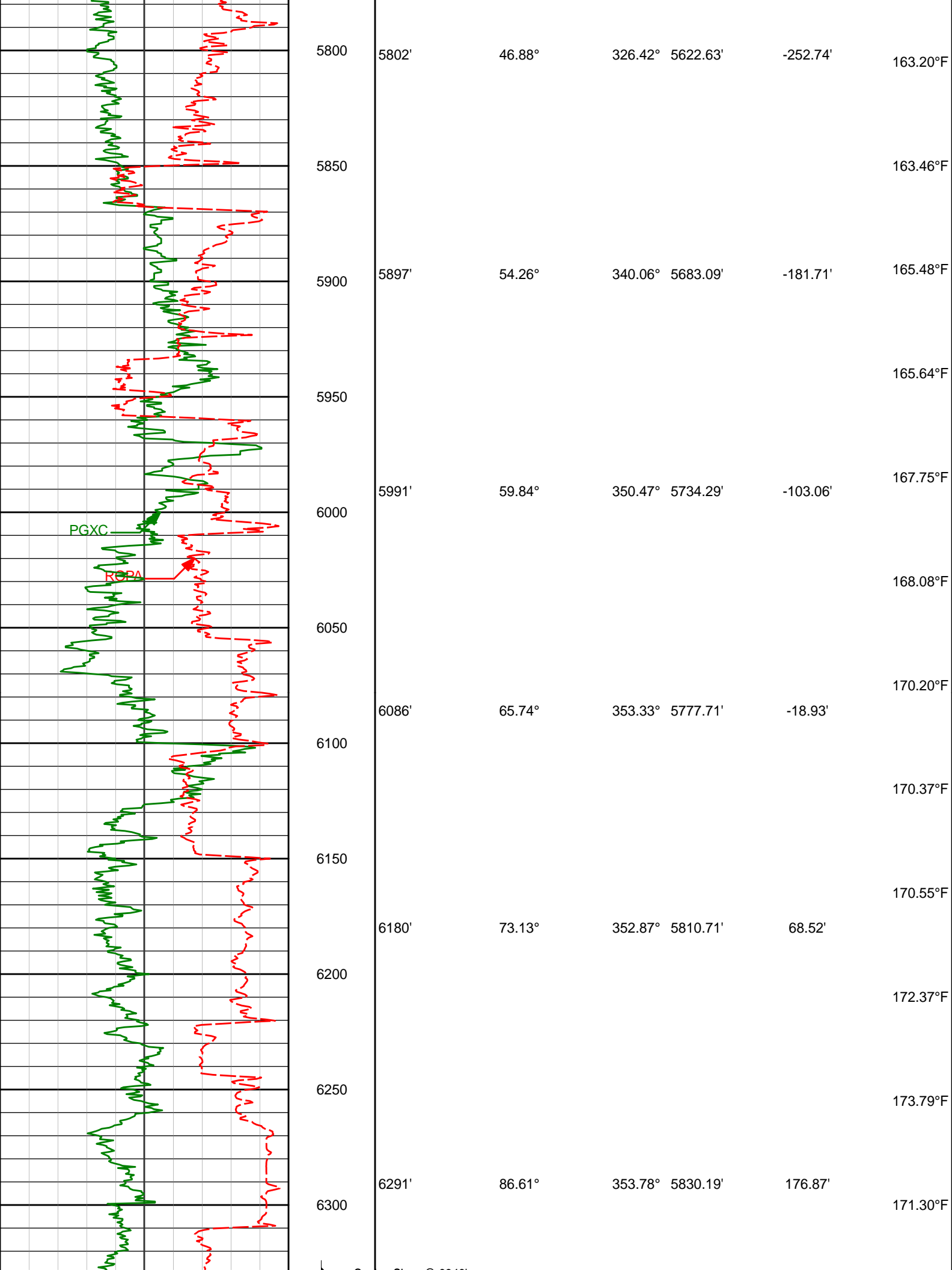


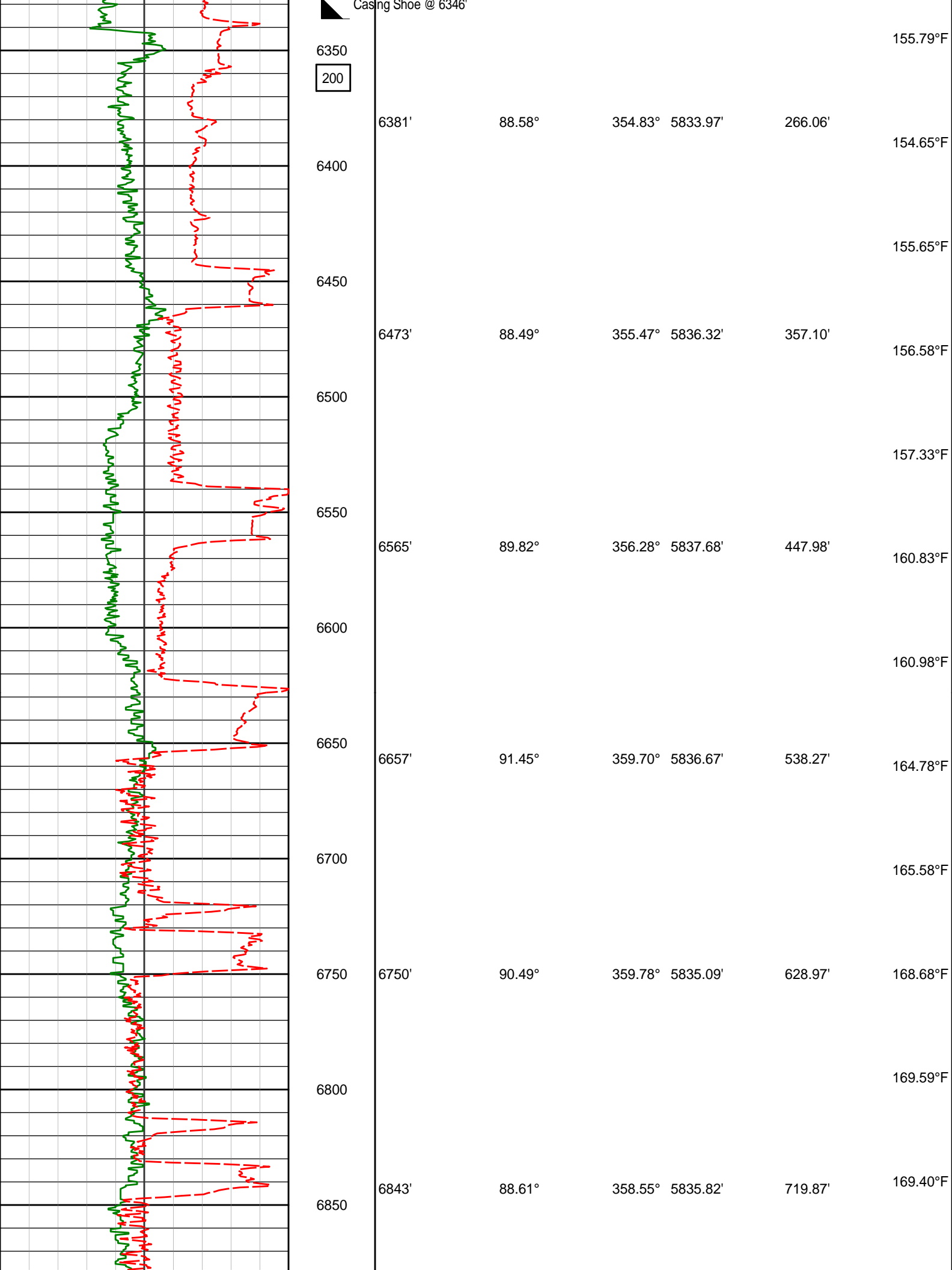


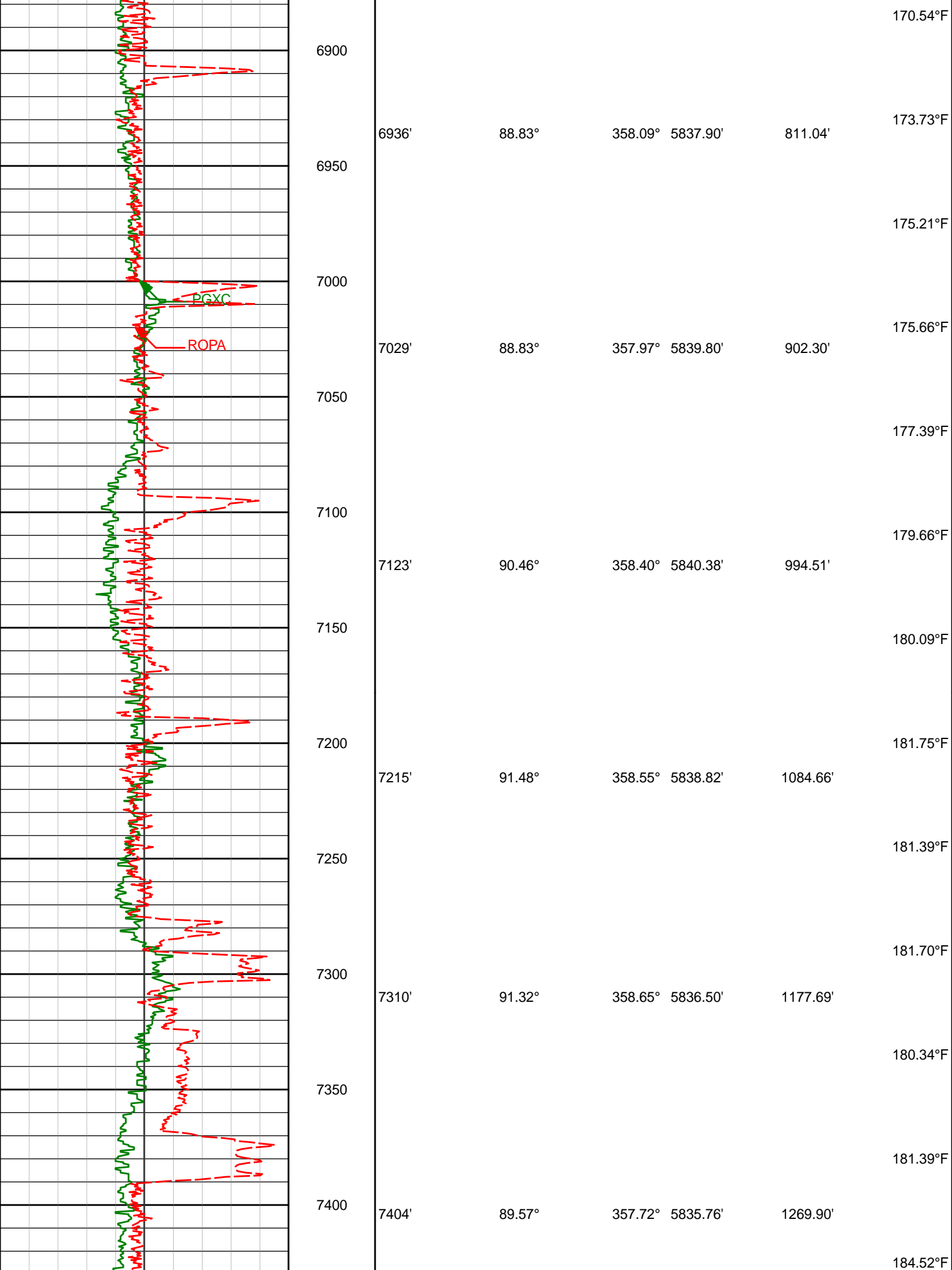












170.54°F

6900

6936'

88.83°

358.09° 5837.90'

811.04'

173.73°F

6950

175.21°F

7000

PGXC

ROPA

7029'

88.83°

357.97° 5839.80'

902.30'

175.66°F

7050

177.39°F

7100

179.66°F

7123'

90.46°

358.40° 5840.38'

994.51'

7150

180.09°F

7200

181.75°F

7215'

91.48°

358.55° 5838.82'

1084.66'

7250

181.39°F

7300

181.70°F

7310'

91.32°

358.65° 5836.50'

1177.69'

7350

180.34°F

7400

181.39°F

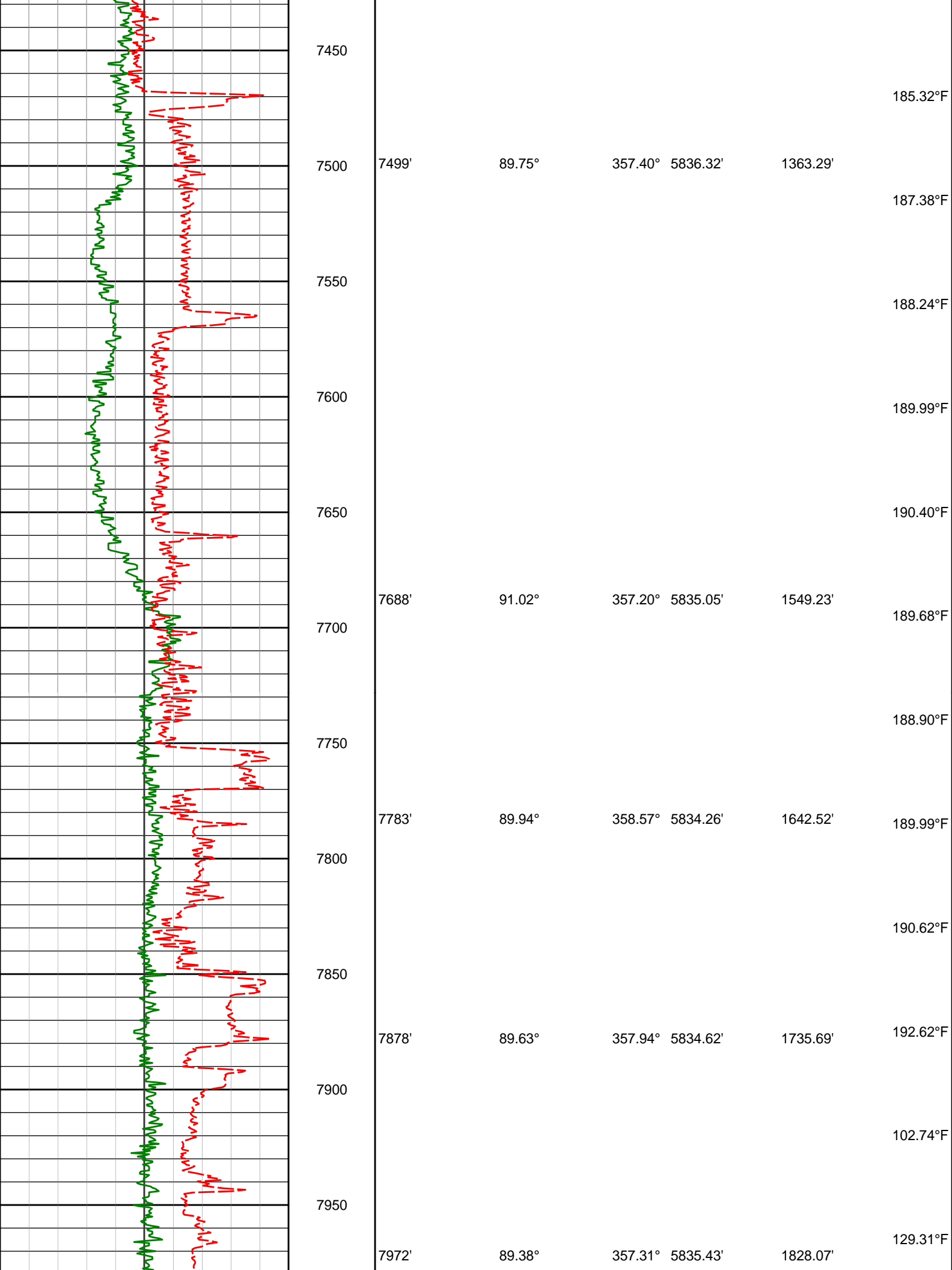
7404'

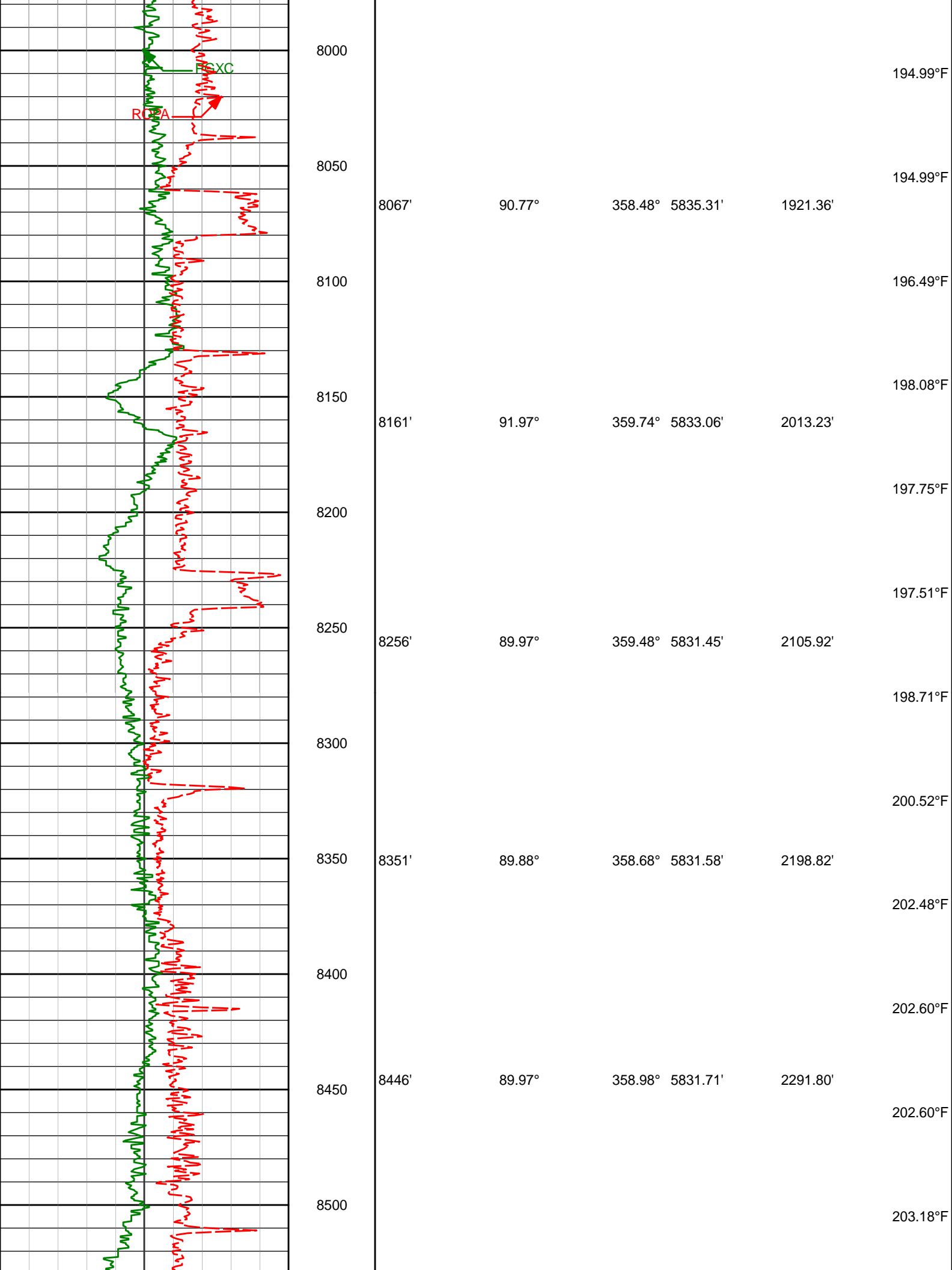
89.57°

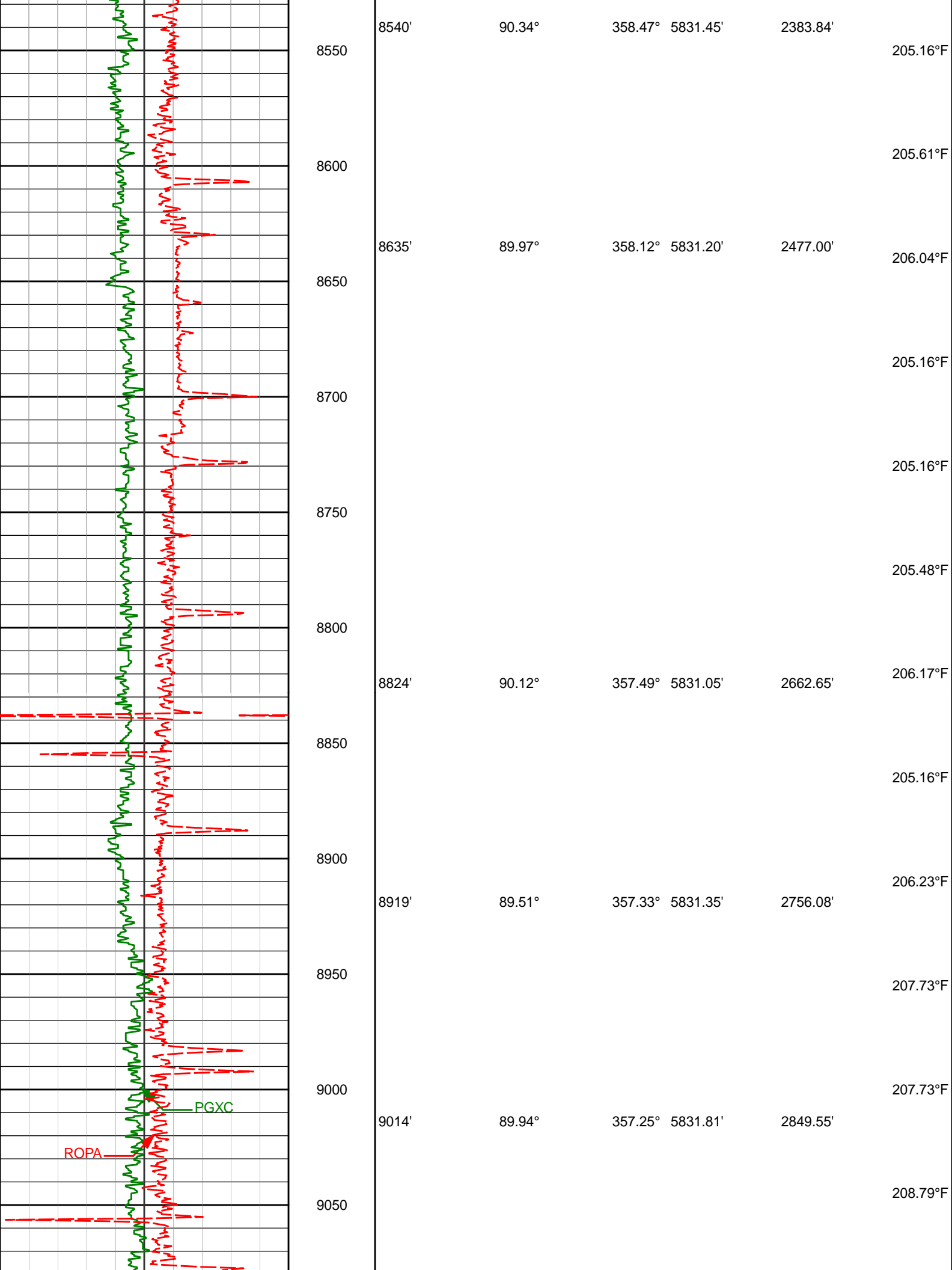
357.72° 5835.76'

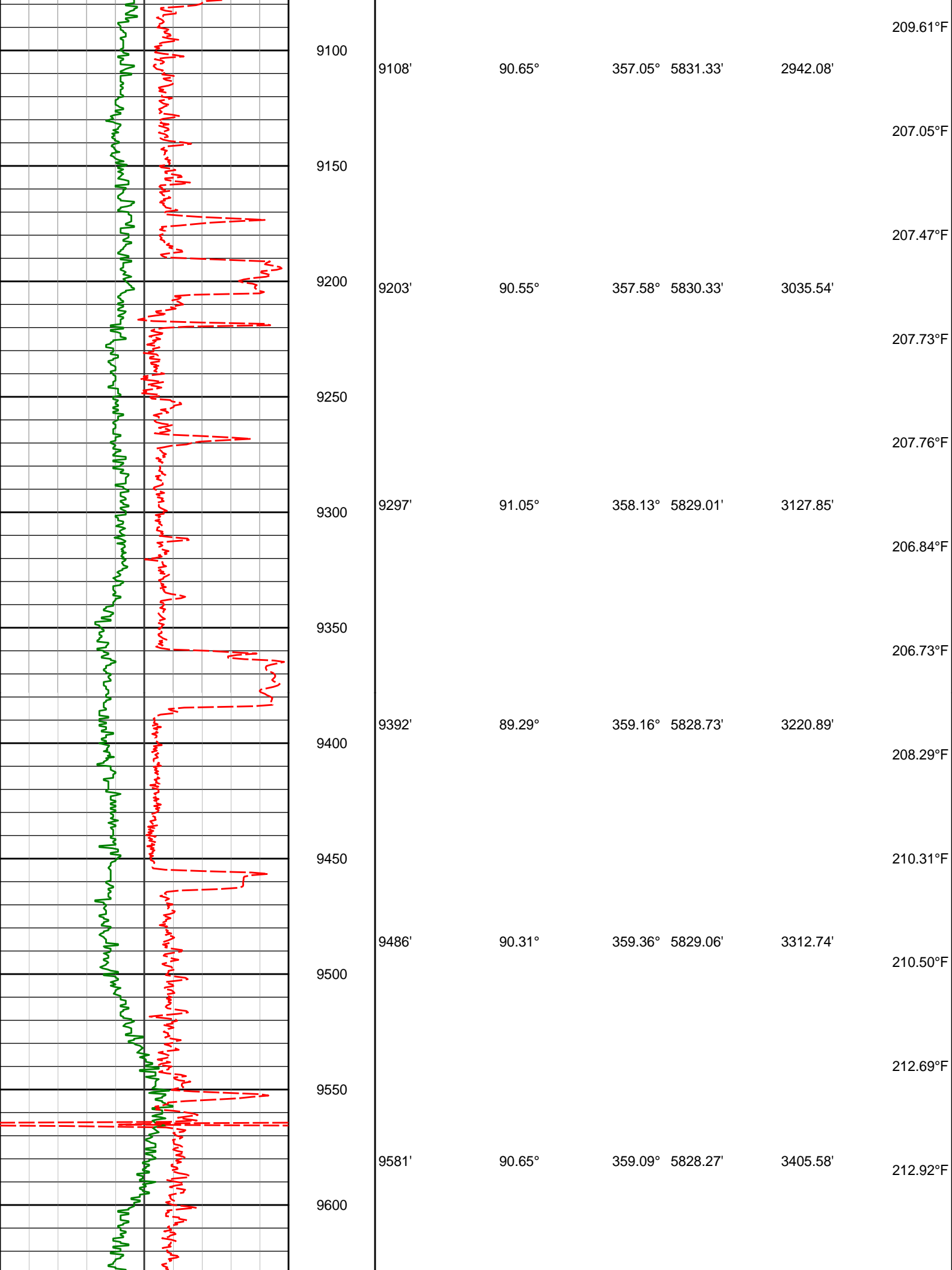
1269.90'

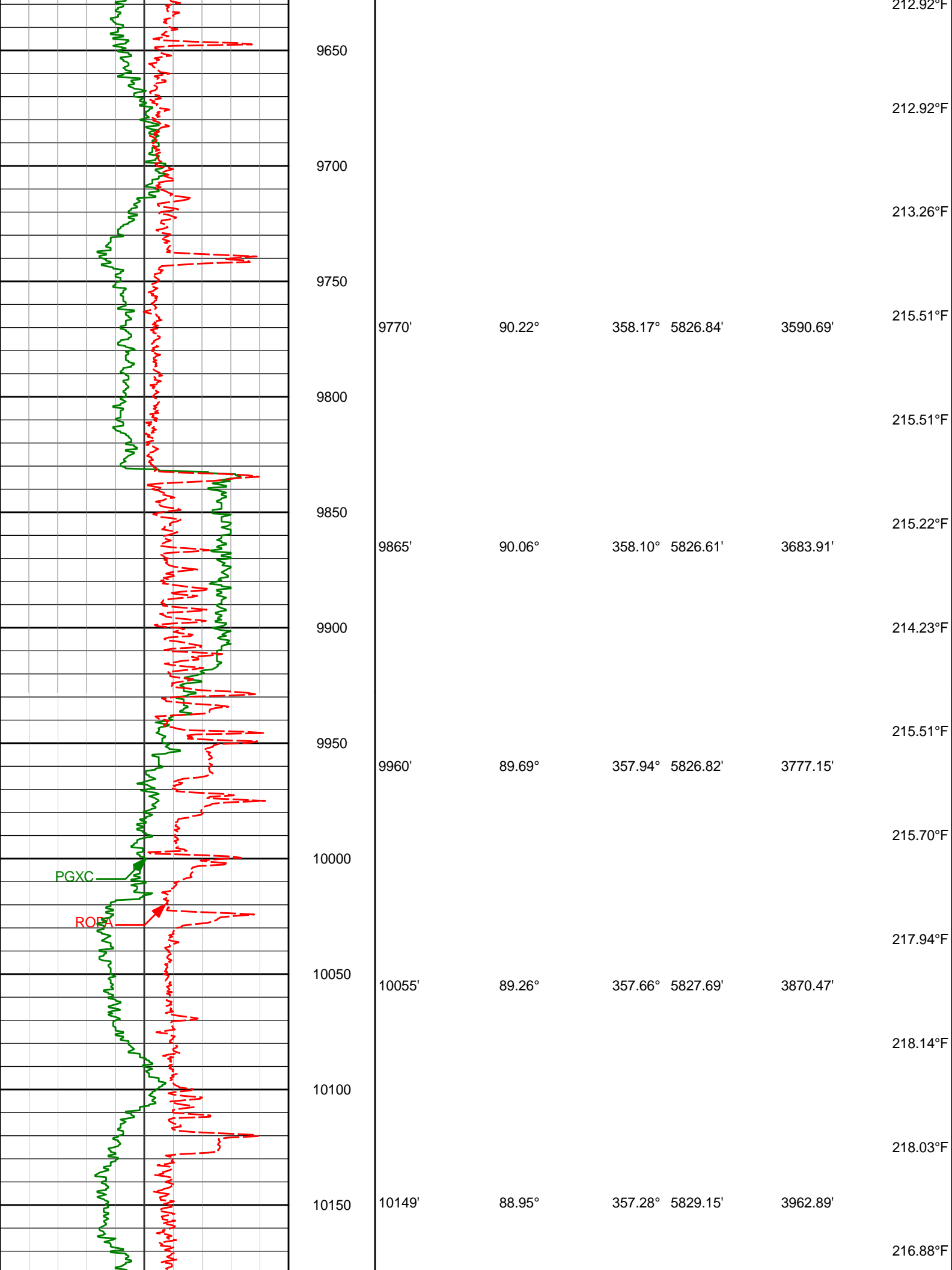
184.52°F

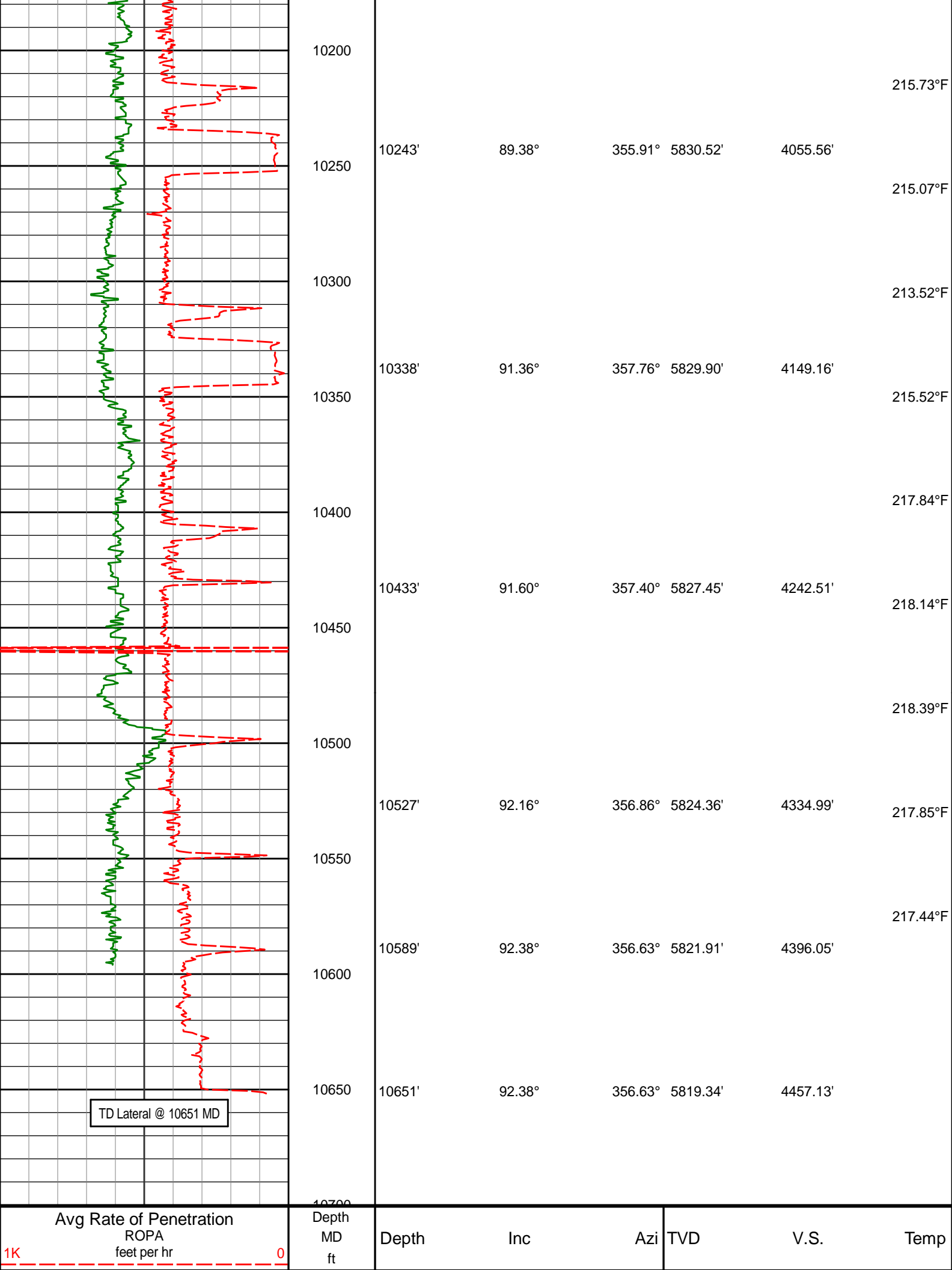


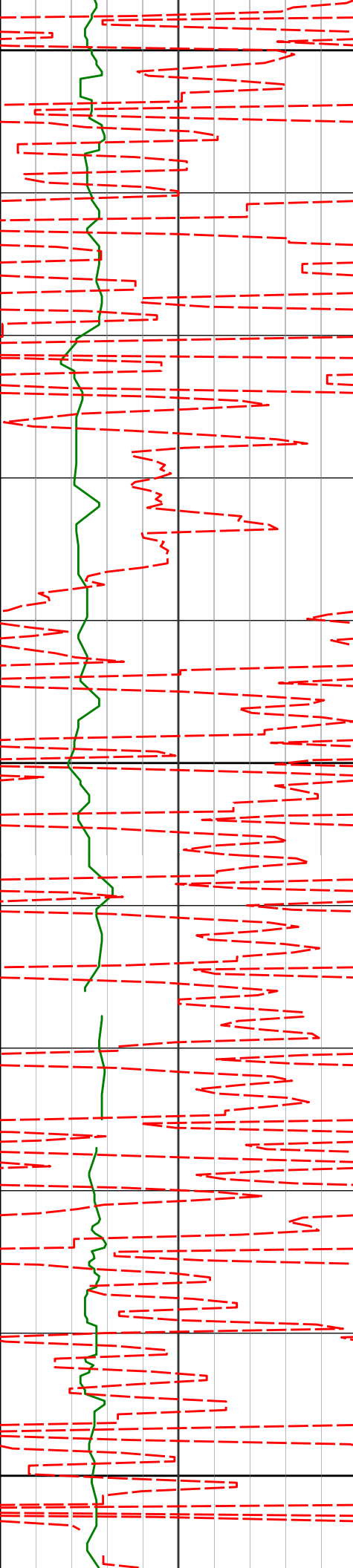












1200

1202'

0.35°

250.82° 1201.99'

-0.65'

92.26°F

92.26°F

1300

1386'

0.50°

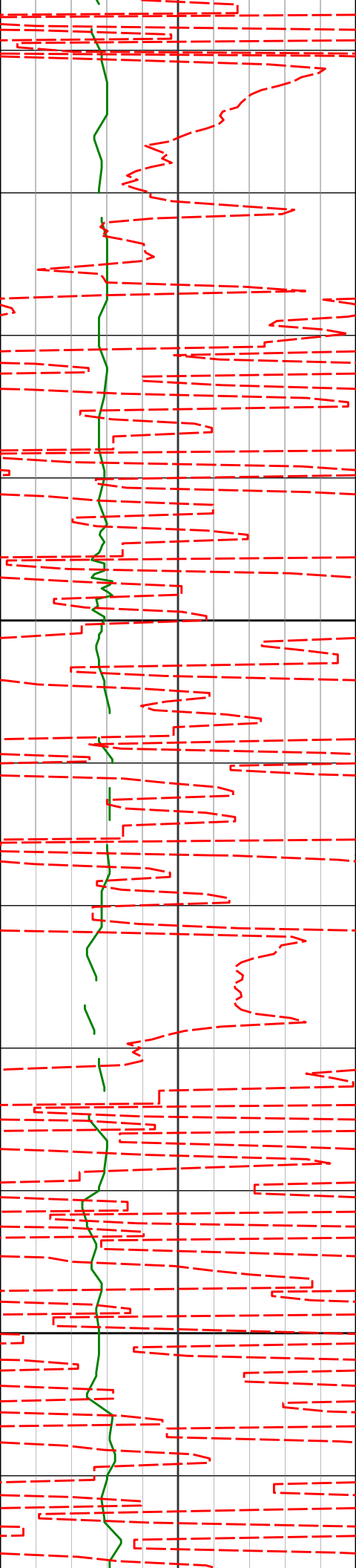
275.63° 1385.98'

-0.45'

92.80°F

93.95°F

1400



1500

1600

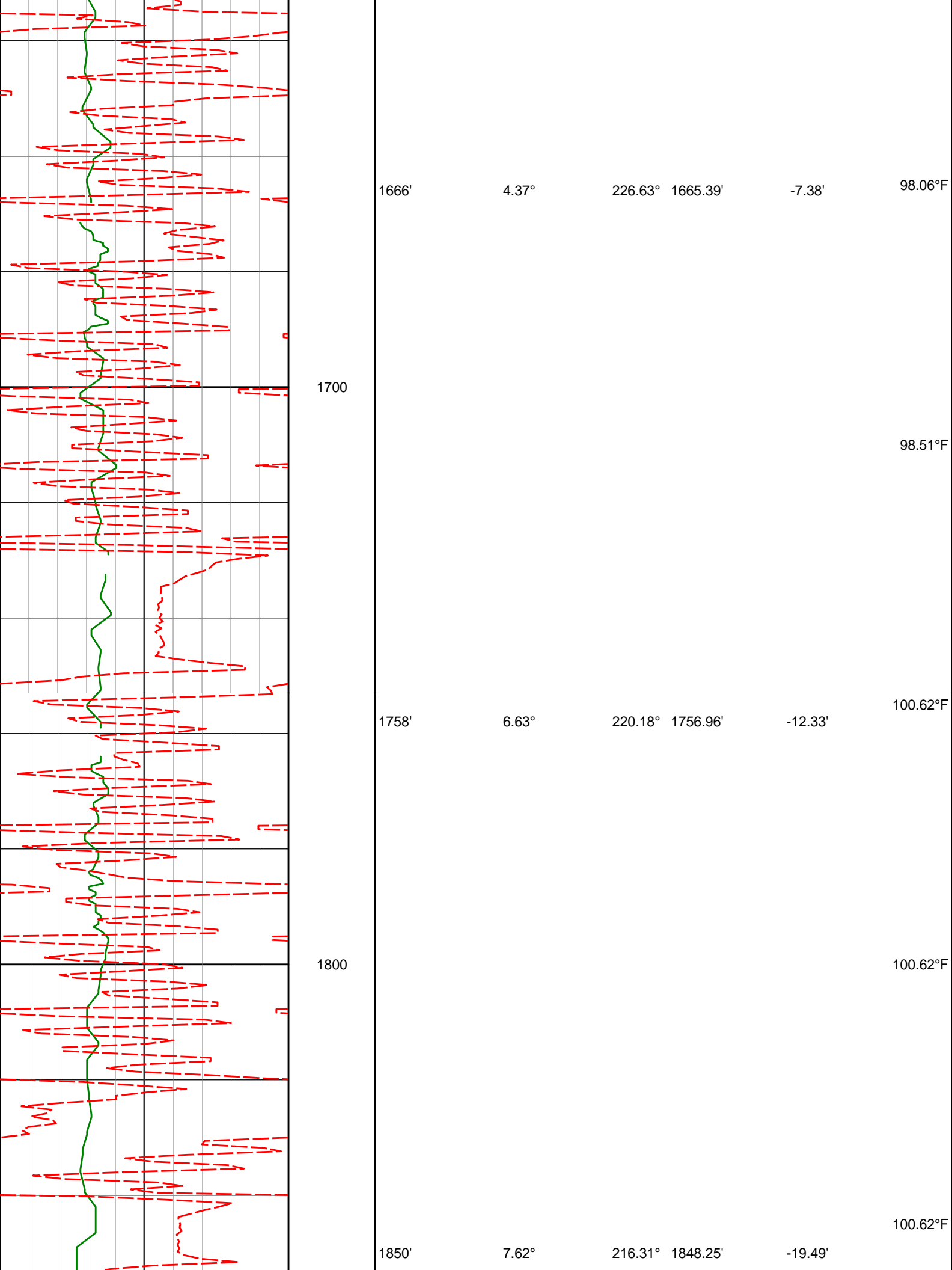
94.33°F

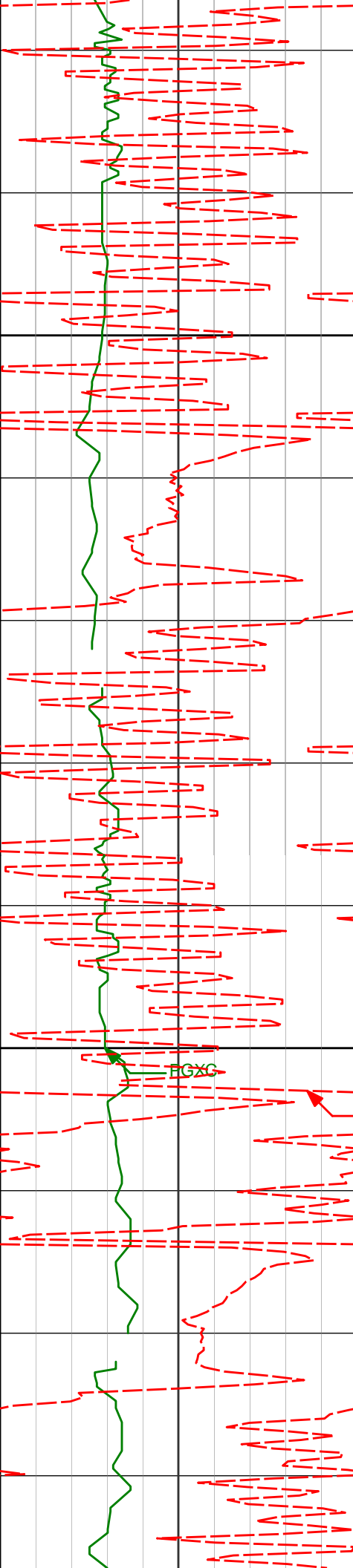
94.33°F

96.42°F

96.42°F

96.42°F





1900

102.52°F

102.72°F

1943'

9.67°

216.84°

1940.19'

-28.55'

102.85°F

2000

FGXC

ROPA

104.83°F

2034'

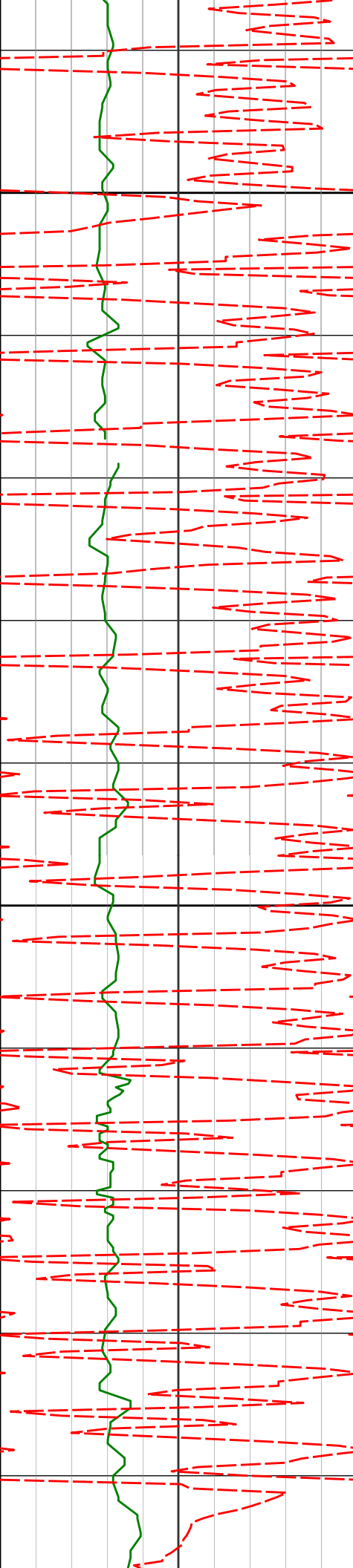
11.15°

215.39°

2029.69'

-39.32'

104.83°F



2100

104.83°F

2126'

11.56°

212.35° 2119.89'

-51.70'

104.83°F

2200

106.25°F

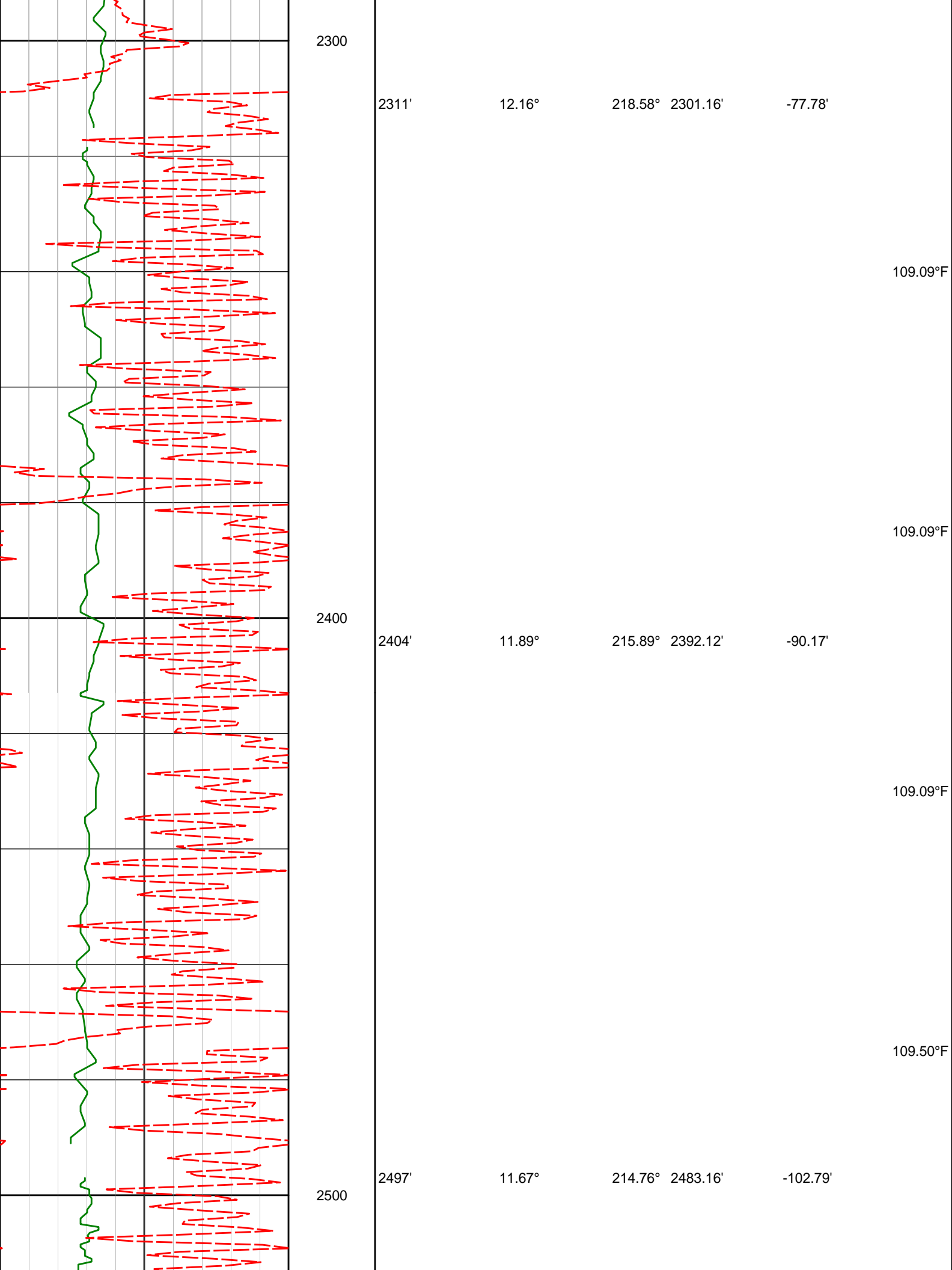
2219'

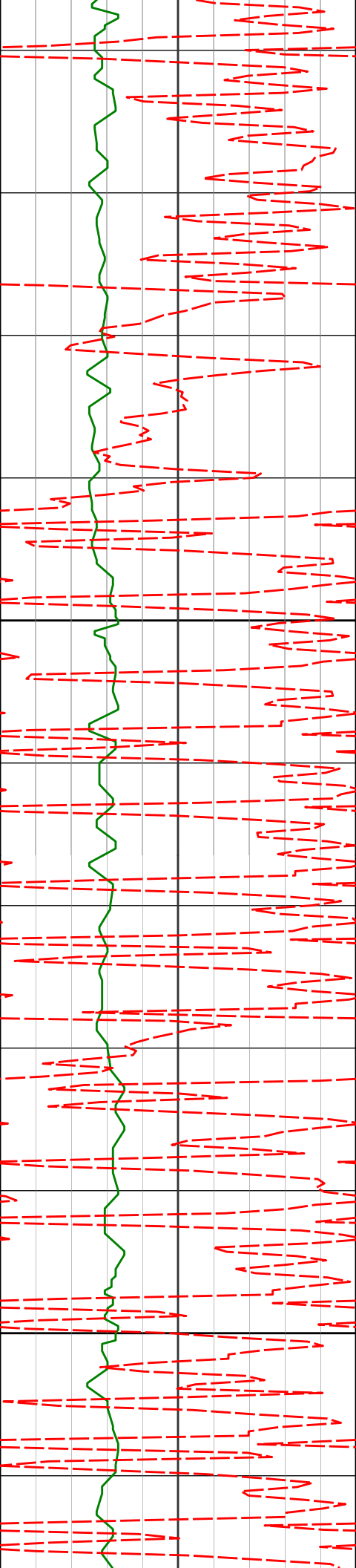
11.22°

208.33° 2211.06'

-65.04'

106.97°F





2600

2700

2590'

13.52°

221.80° 2573.93'

-115.38'

2682'

13.48°

220.52° 2663.38'

-127.96'

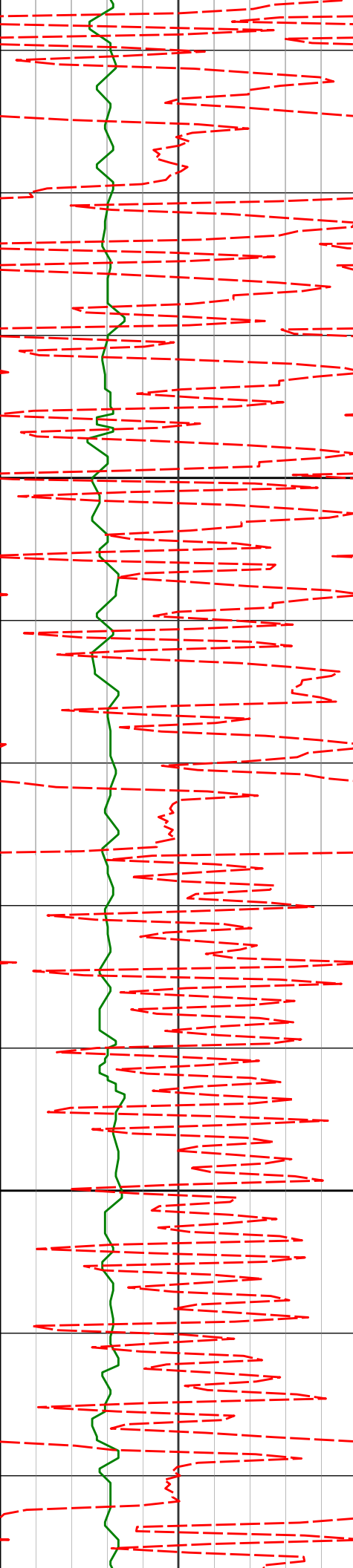
111.24°F

111.24°F

111.24°F

111.24°F

113.40°F



2800

2900

2869'

13.01°

220.29° 2845.40'

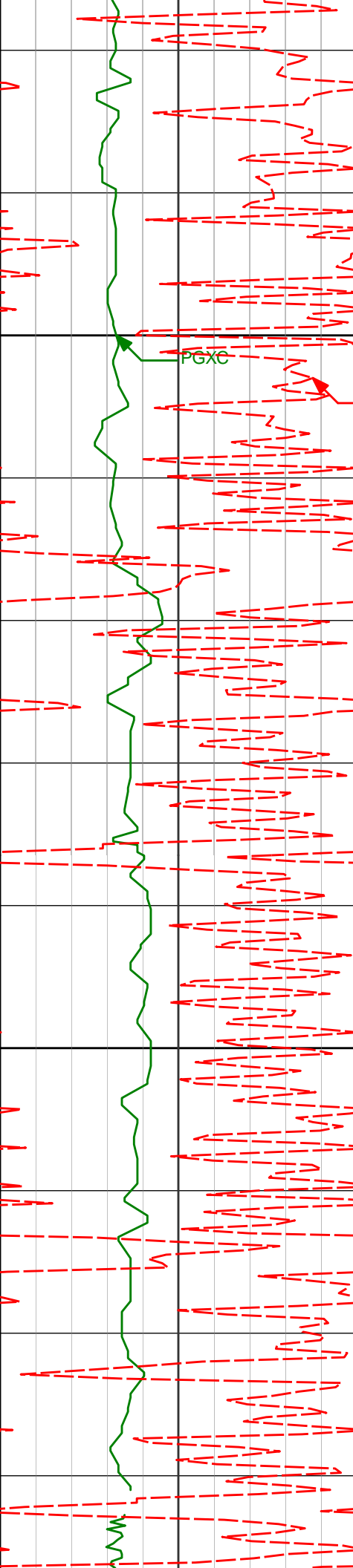
-153.50'

113.40°F

115.56°F

115.56°F

115.56°F



2964'

12.35°

215.96°

2938.09'

-166.57'

115.56°F

3000

PGXC

ROPA

117.73°F

3058'

11.51°

208.36°

3030.06'

-180.21'

117.73°F

3100

119.91°F

3153'

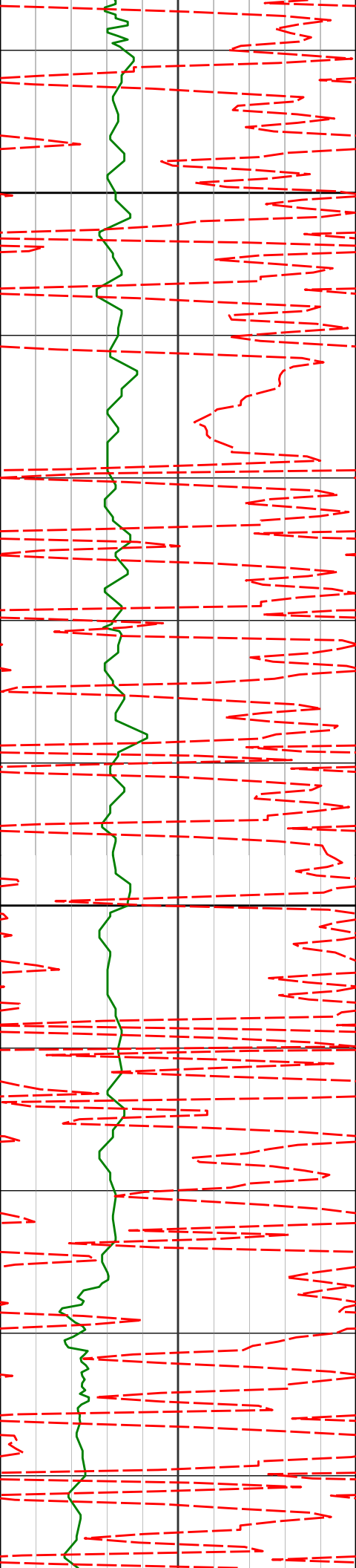
11.06°

204.05°

3123.23'

-194.60'

119.91°F



3200

119.91°F

122.11°F

3248'

12.99°

210.06°

3216.14'

-209.68'

122.11°F

3300

122.11°F

3342'

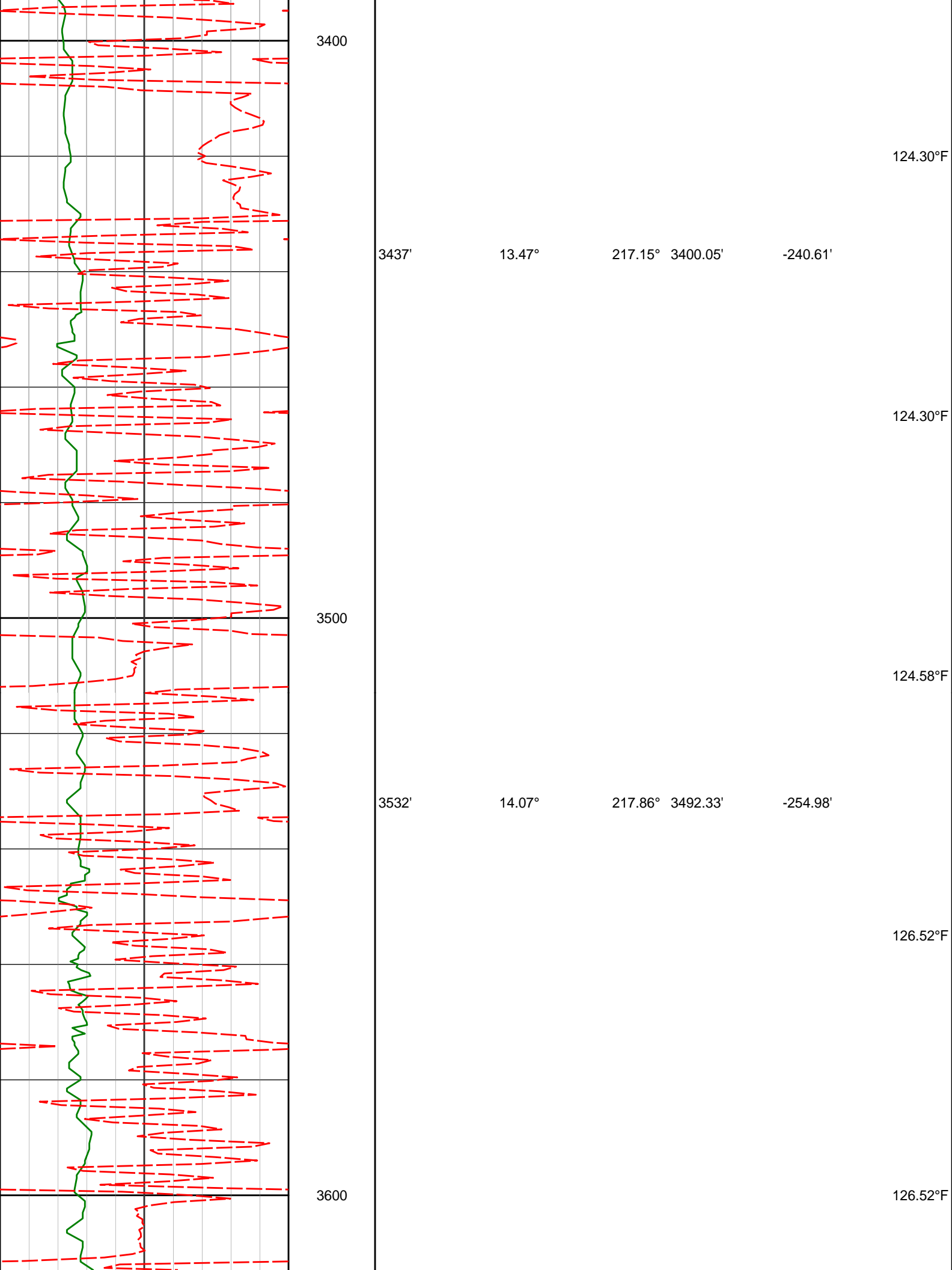
13.43°

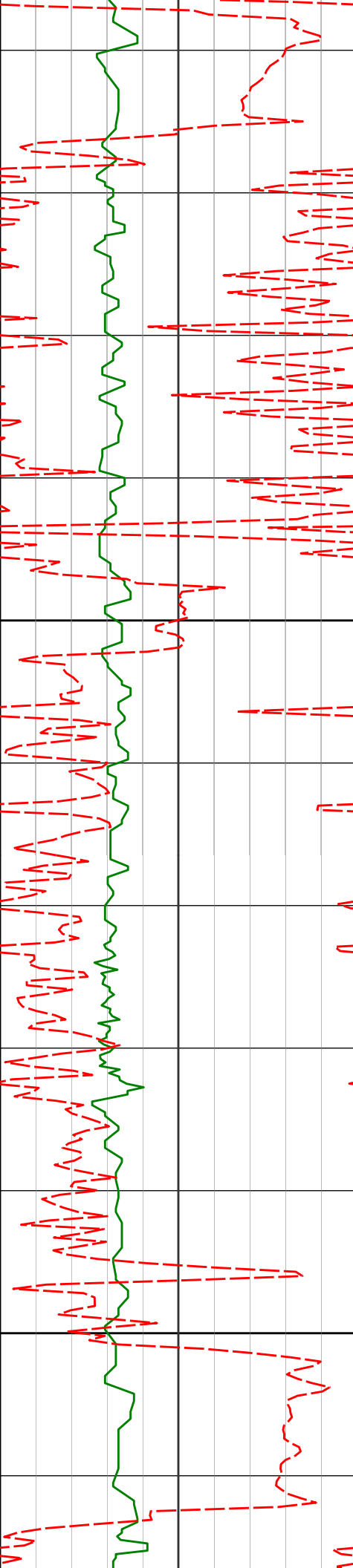
209.75°

3307.65'

-225.41'

122.11°F





3626'

13.90°

223.18° 3583.54'

-268.48'

126.52°F

127.20°F

3700

3721'

13.39°

222.75° 3675.86'

-281.03'

128.73°F

129.44°F

3800

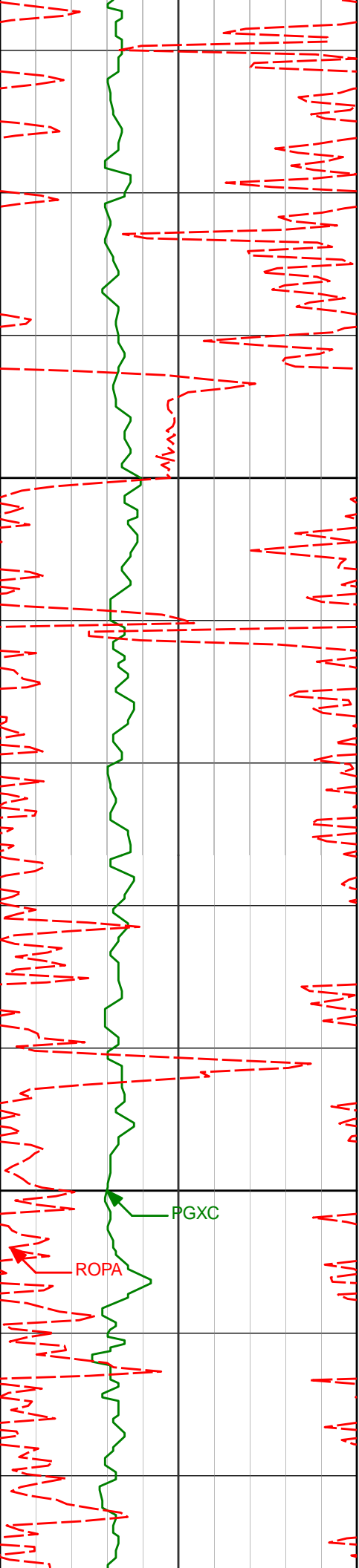
3815'

13.01°

230.40° 3767.38'

-291.89'

130.96°F



3900

3910'

12.47°

229.76°

3860.04'

-301.37'

131.16°F

133.20°F

133.20°F

4000

4005'

11.65°

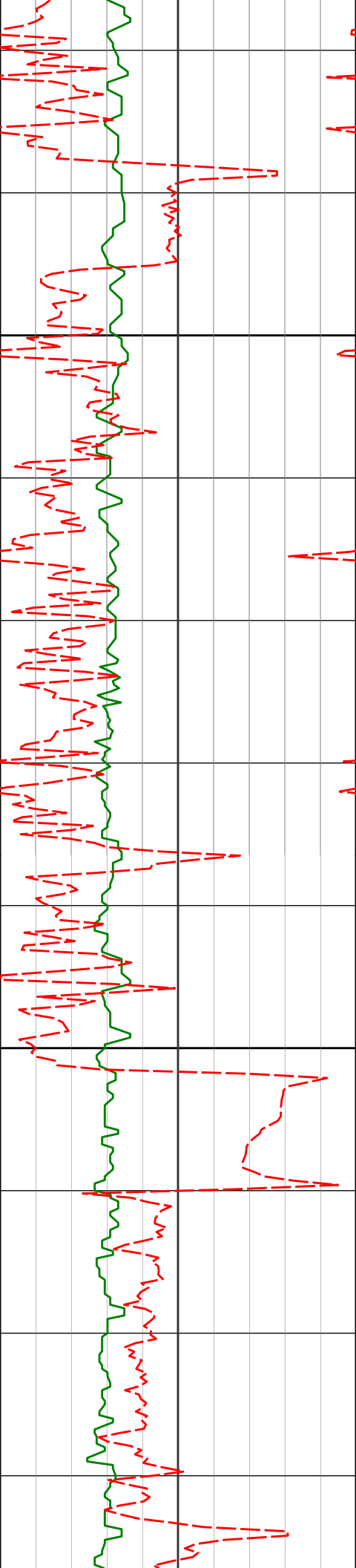
227.68°

3952.95'

-310.77'

133.20°F

133.20°F



4100

4200

4099'

4194'

10.68°

10.99°

225.68°

223.94°

4045.17'

4138.47'

-319.94'

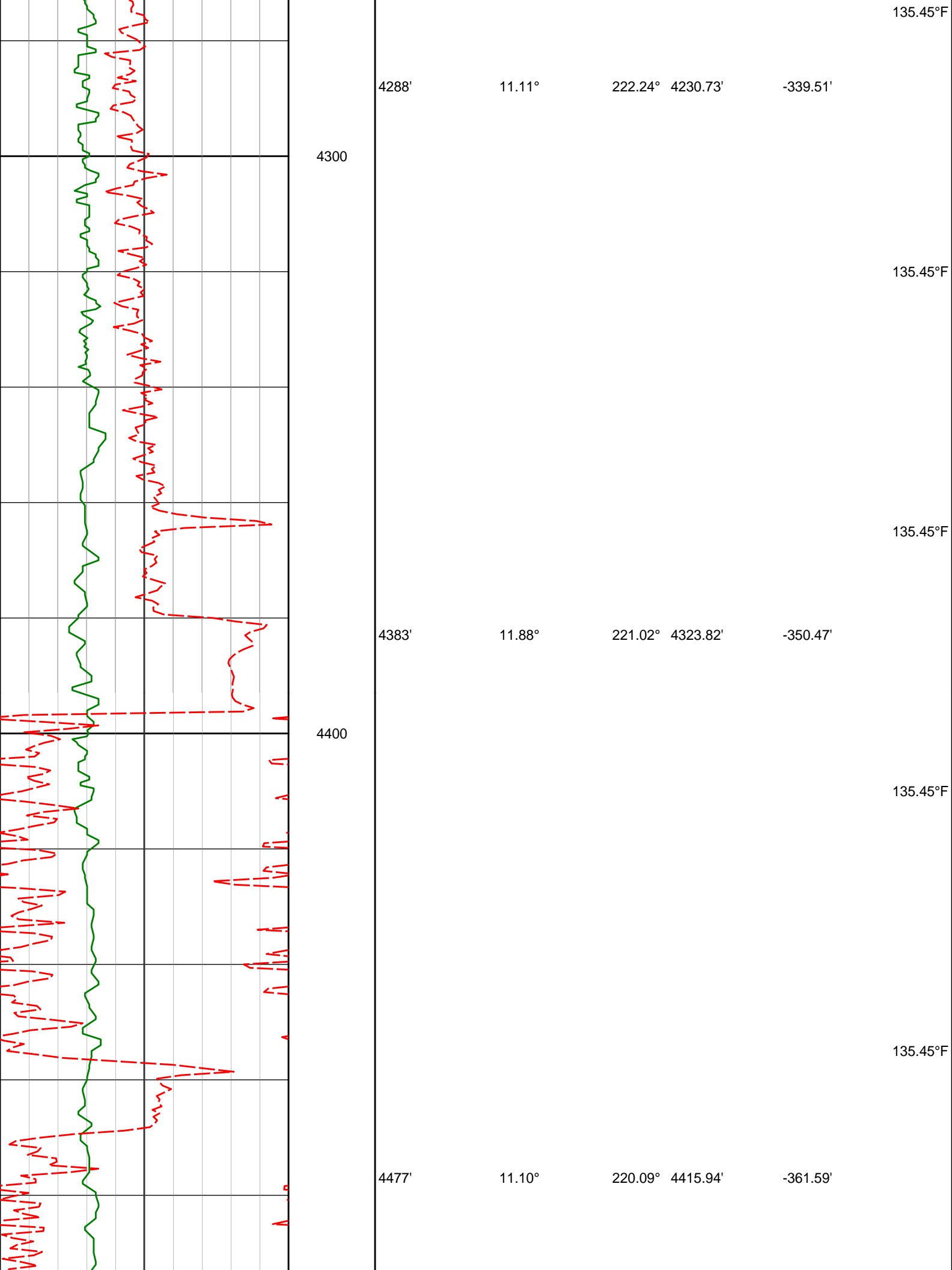
-329.46'

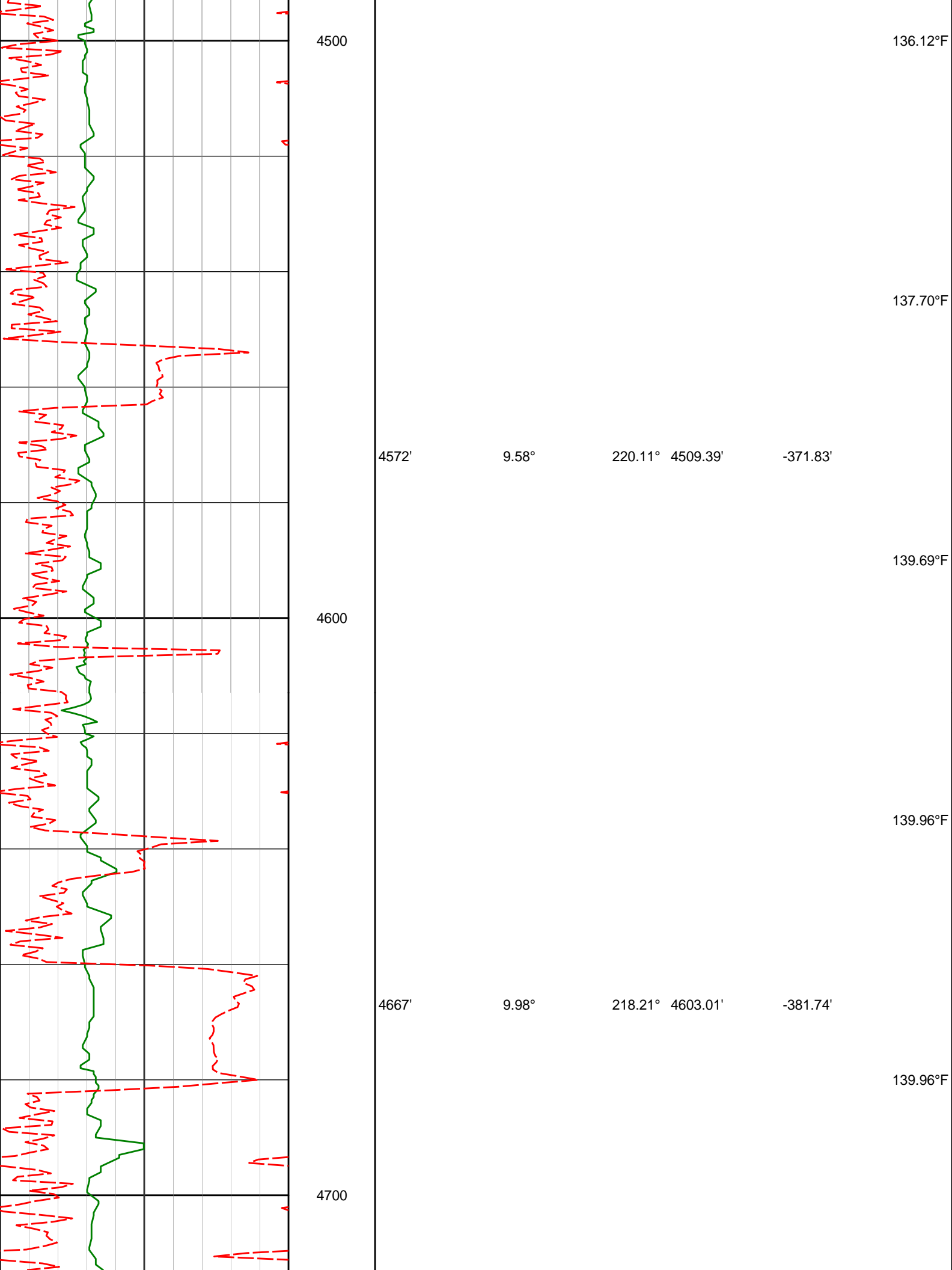
133.52°F

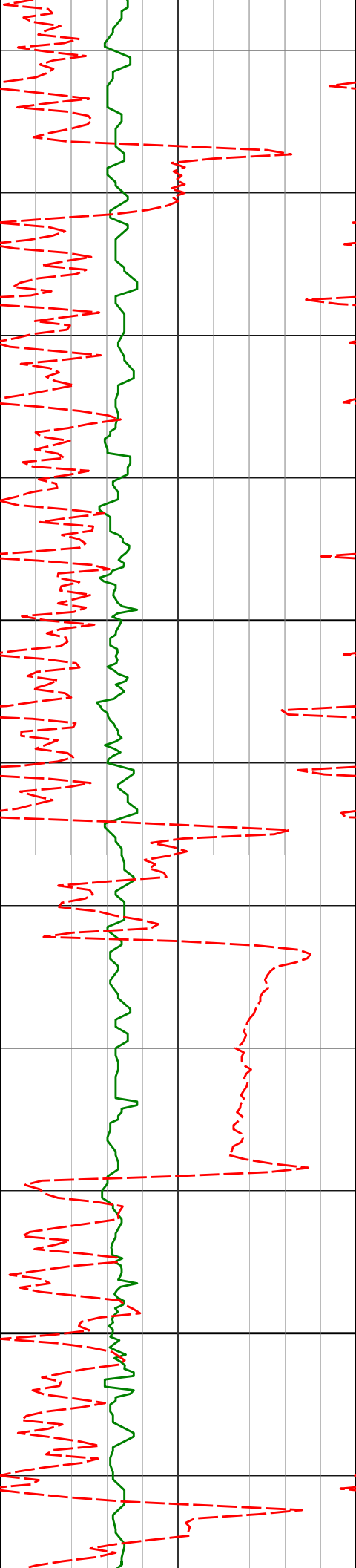
135.27°F

133.42°F

135.30°F







4800

4900

4761'

9.09°

214.15° 4695.71'

-391.89'

4856'

8.73°

223.84° 4789.57'

-400.94'

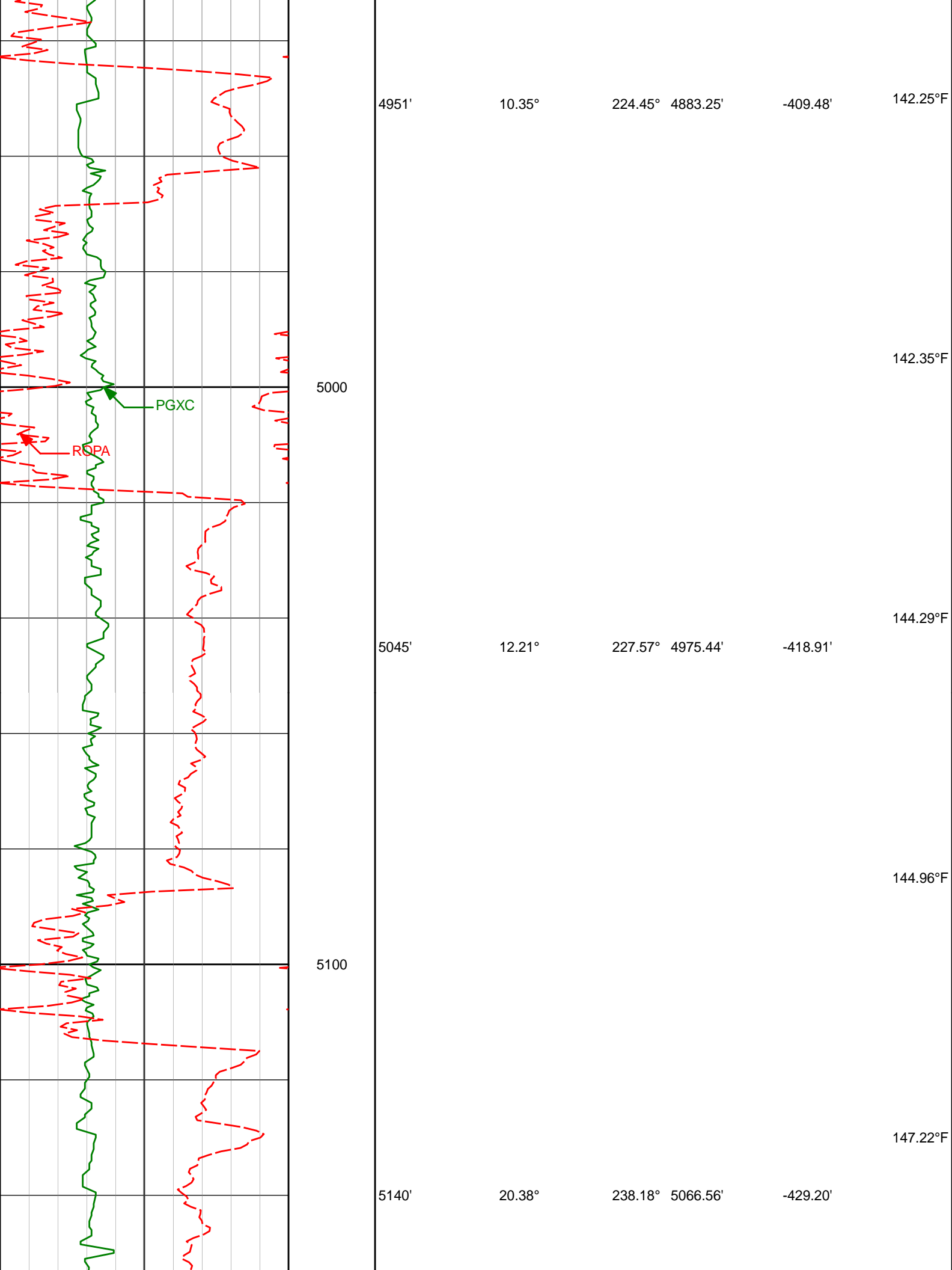
139.96°F

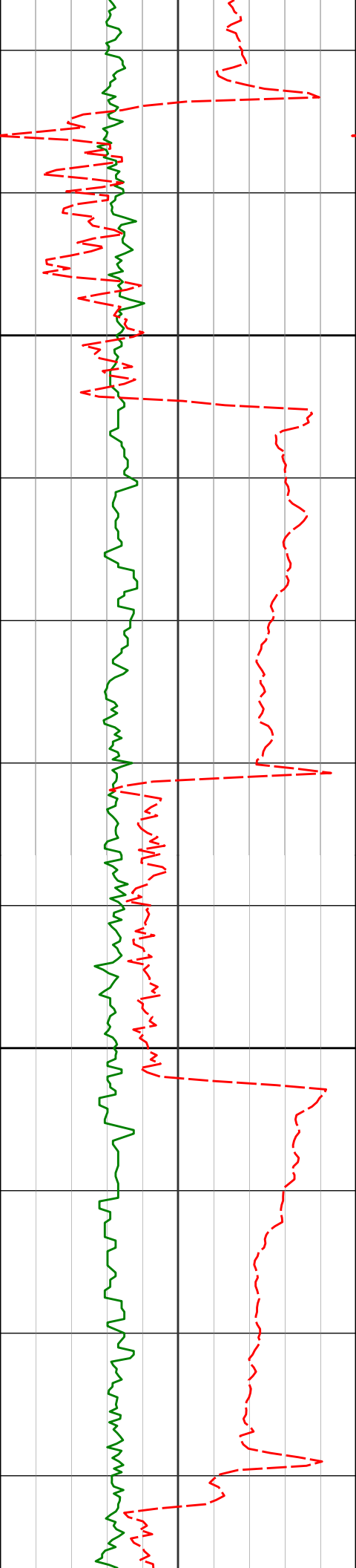
139.96°F

139.96°F

139.96°F

140.18°F





5200

5300

5234'

5329'

21.47°

24.69°

255.33° 5154.44'

271.02° 5241.91'

-434.98'

-430.68'

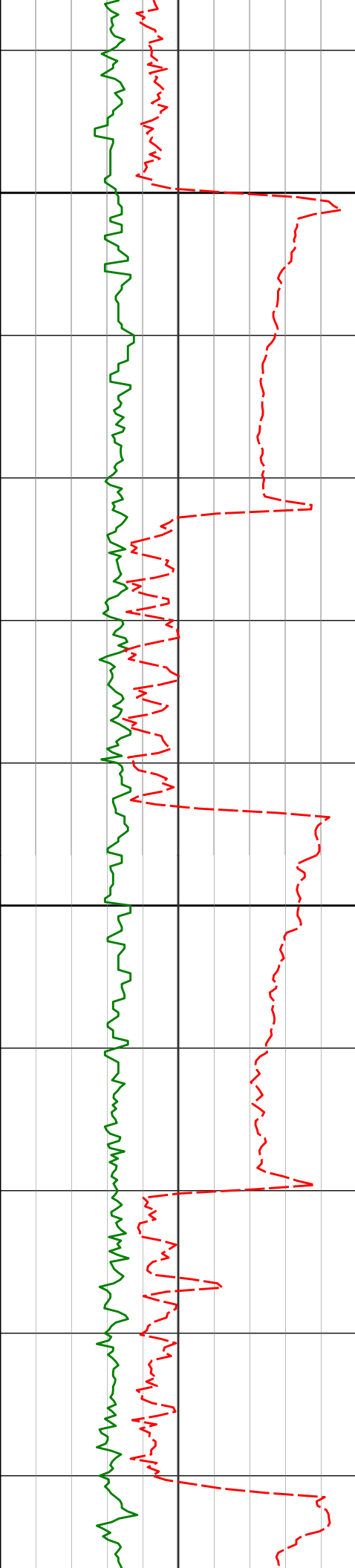
148.84°F

149.77°F

151.35°F

152.32°F

153.54°F



5400

154.41°F

5424'

30.68°

280.80° 5326.04'

-416.07'

155.99°F

5500

5518'

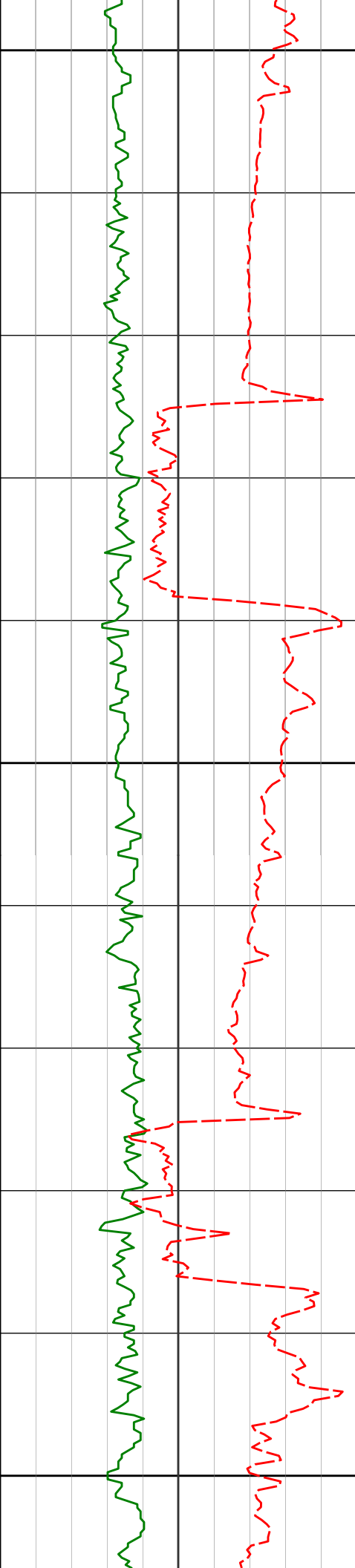
35.00°

289.24° 5405.04'

-391.99'

158.27°F

158.67°F



5600

5613'

38.01°

300.23° 5481.48'

-357.38'

159.03°F

159.74°F

5700

5708'

41.07°

314.28° 5554.89'

-310.99'

160.83°F

161.37°F

5800

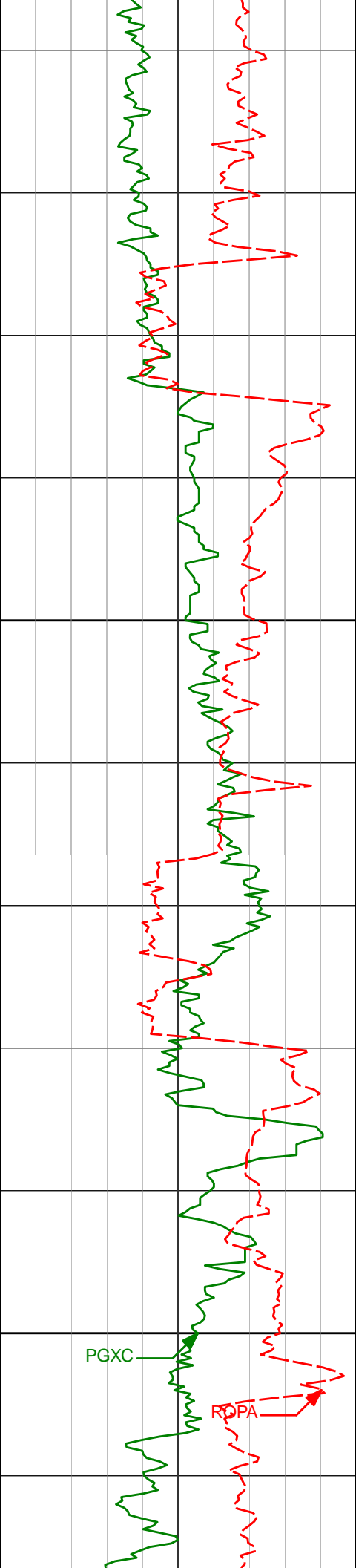
5802'

46.88°

326.42° 5622.63'

-252.74'

163.20°F



5900

6000

5897'

5991'

54.26°

59.84°

340.06°

350.47°

5683.09'

5734.29'

-181.71'

-103.06'

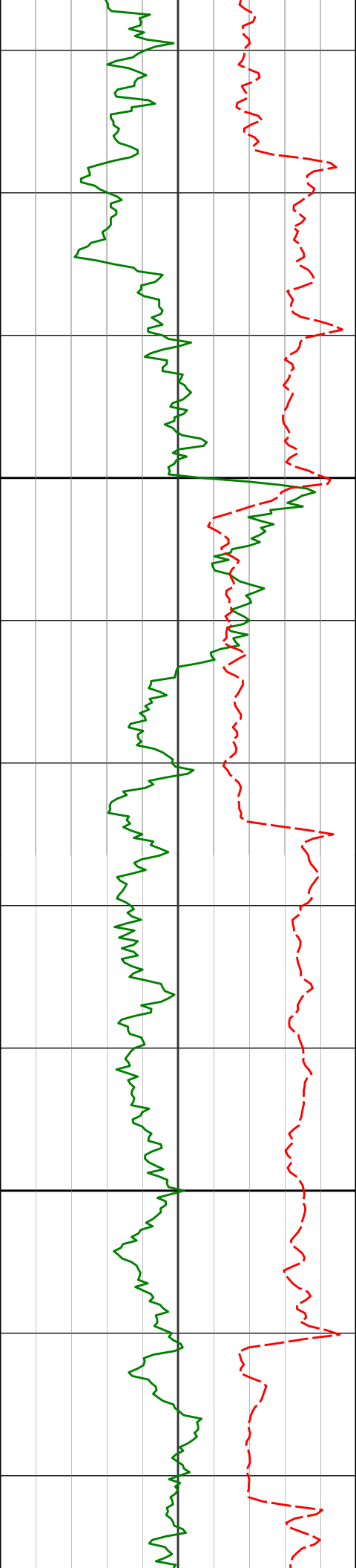
163.46°F

165.48°F

165.64°F

167.75°F

168.08°F



6100

6086'

65.74°

353.33° 5777.71'

-18.93'

170.20°F

170.37°F

170.55°F

6180'

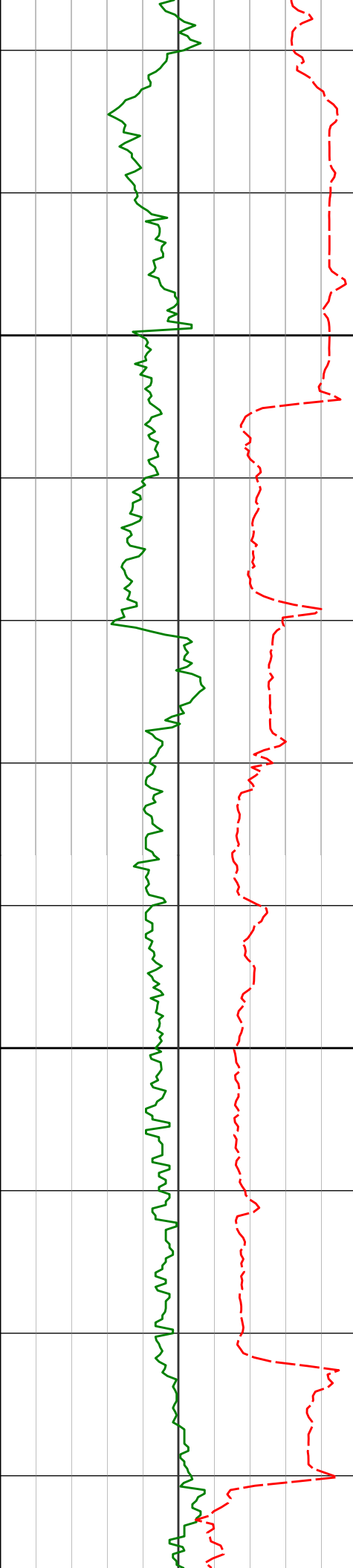
73.13°

352.87° 5810.71'

68.52'

6200

172.37°F



Casing Shoe @ 6346'

200

6291'

86.61°

353.78° 5830.19'

176.87'

6300

171.30°F

6381'

88.58°

354.83° 5833.97'

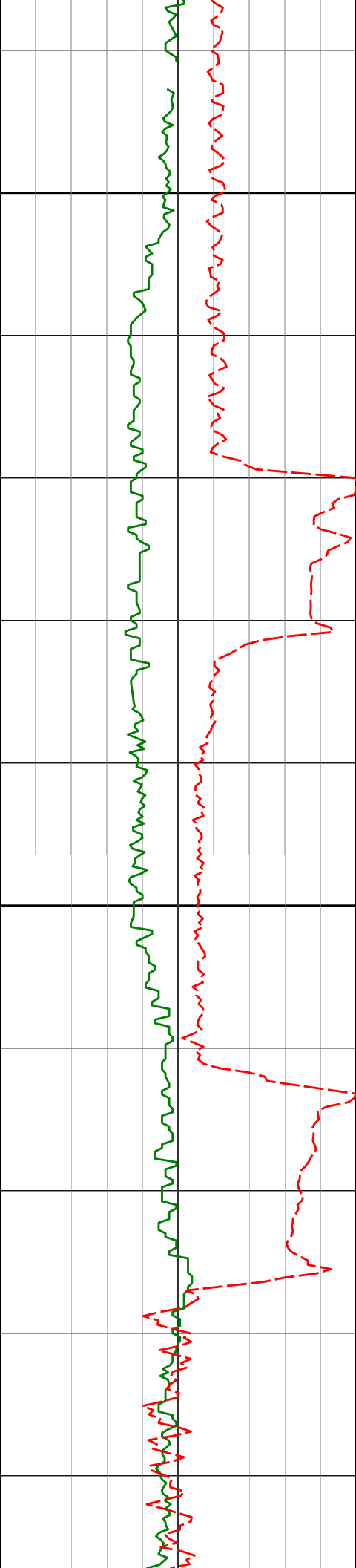
266.06'

6400

154.65°F

155.65°F

173.79°F



6500

6600

6565'

6657'

89.82°

91.45°

356.28°

359.70°

5837.68'

5836.67'

447.98'

538.27'

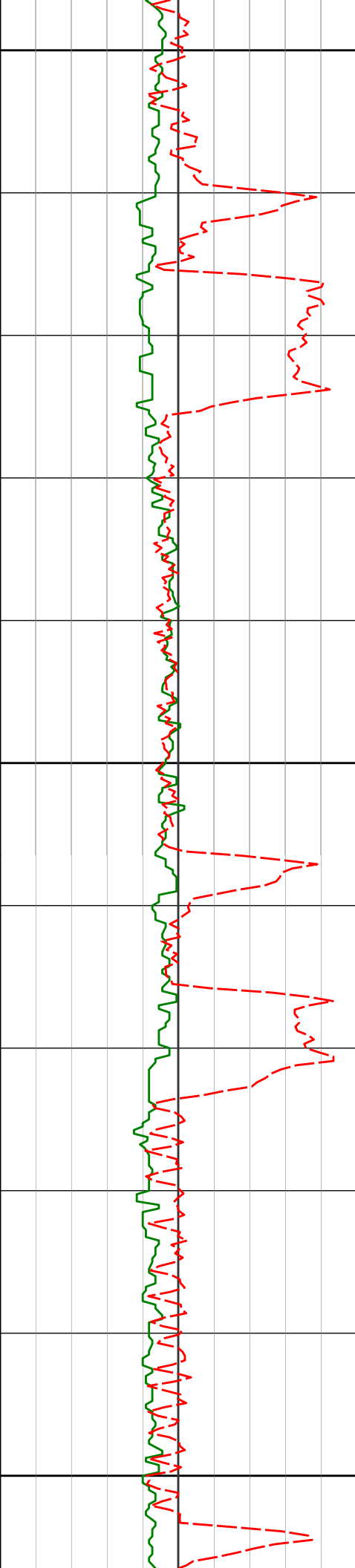
156.58°F

157.33°F

160.83°F

160.98°F

164.78°F



6700

165.58°F

6750'

90.49°

359.78° 5835.09'

628.97'

168.68°F

6800

169.59°F

6843'

88.61°

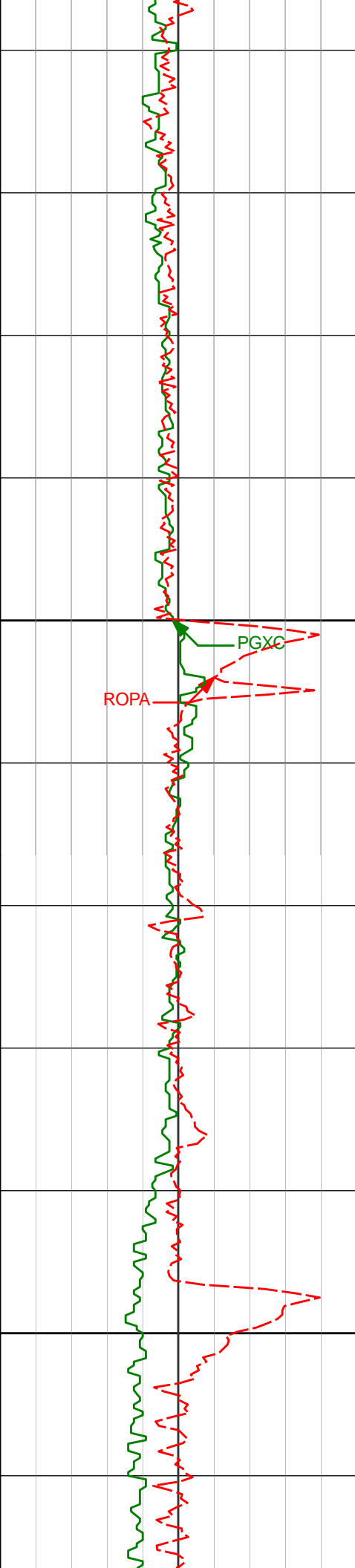
358.55° 5835.82'

719.87'

169.40°F

170.54°F

6900



7000

7100

6936'

88.83°

358.09° 5837.90'

811.04'

173.73°F

175.21°F

175.66°F

7029'

88.83°

357.97° 5839.80'

902.30'

177.39°F

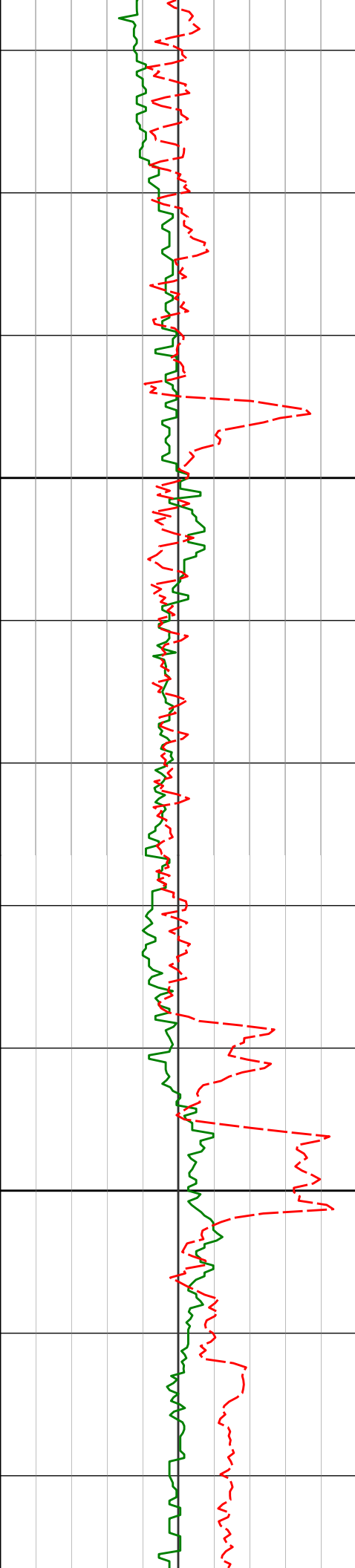
179.66°F

7123'

90.46°

358.40° 5840.38'

994.51'



7200

7215'

91.48°

358.55° 5838.82'

1084.66'

7300

7310'

91.32°

358.65° 5836.50'

1177.69'

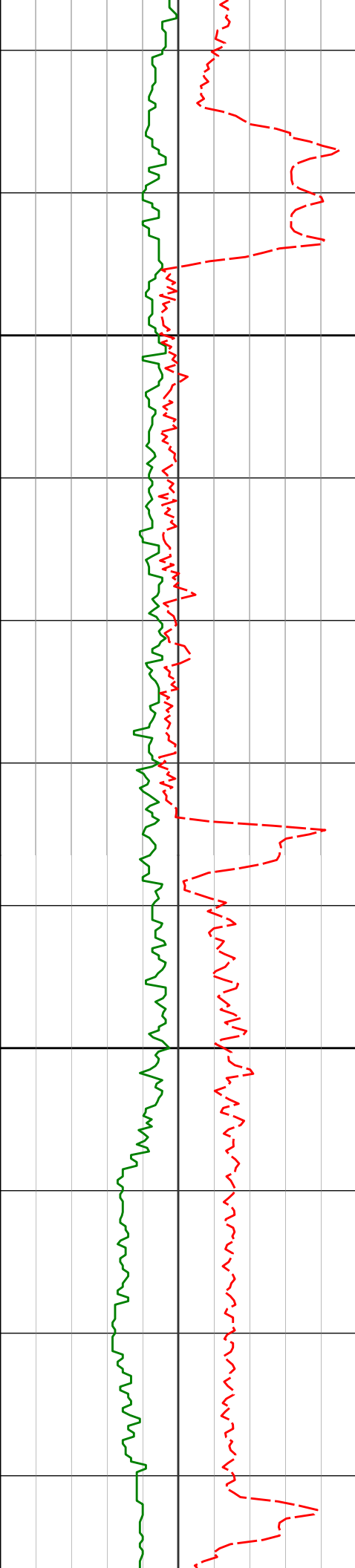
180.09°F

181.75°F

181.39°F

181.70°F

180.34°F



7400

7500

7404'

7499'

89.57°

89.75°

357.72° 5835.76'

357.40° 5836.32'

1269.90'

1363.29'

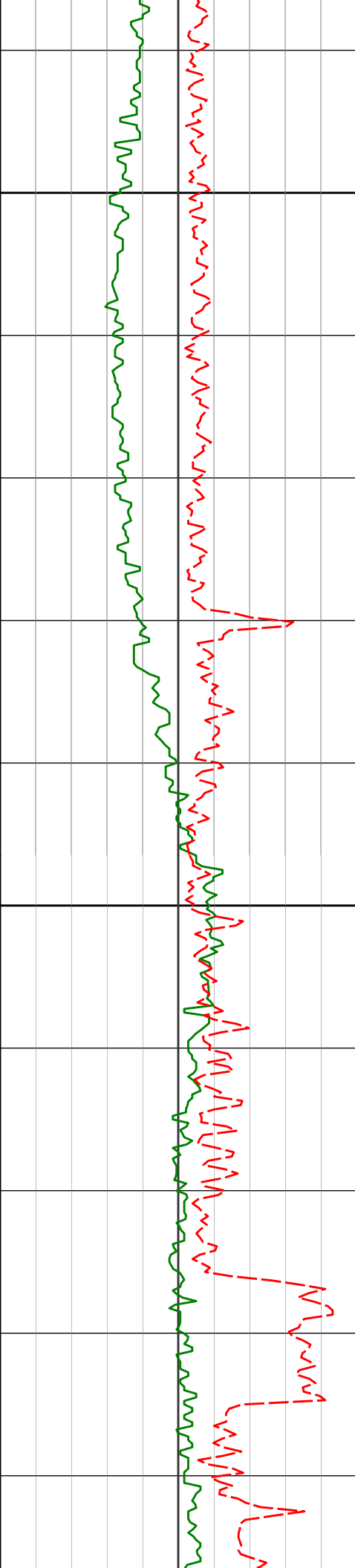
181.39°F

184.52°F

185.32°F

187.38°F

188.24°F



7600

189.99°F

190.40°F

7688'

91.02°

357.20° 5835.05'

1549.23'

189.68°F

7700

188.90°F

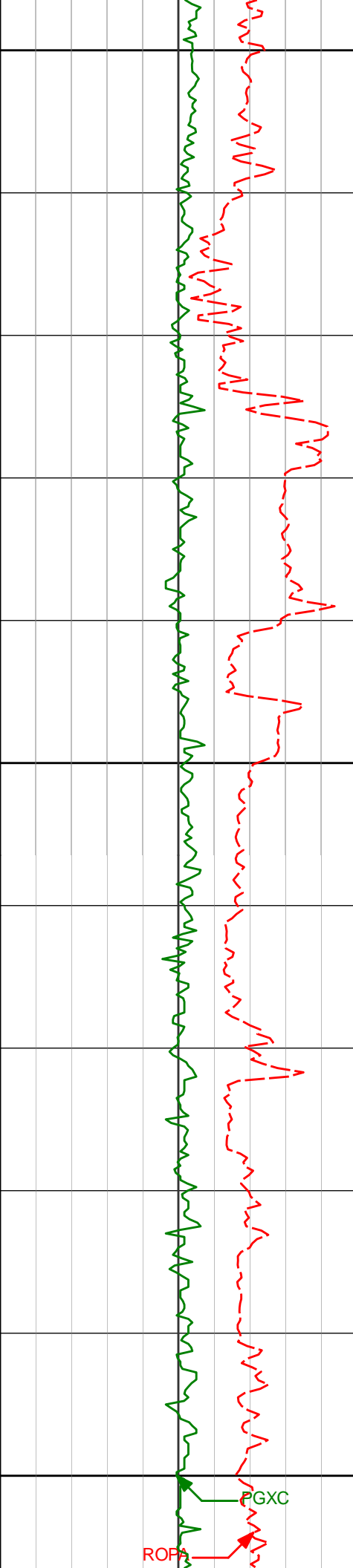
7783'

89.94°

358.57° 5834.26'

1642.52'

189.99°F



7800

190.62°F

7878'

89.63°

357.94° 5834.62'

1735.69'

192.62°F

7900

102.74°F

7972'

89.38°

357.31° 5835.43'

1828.07'

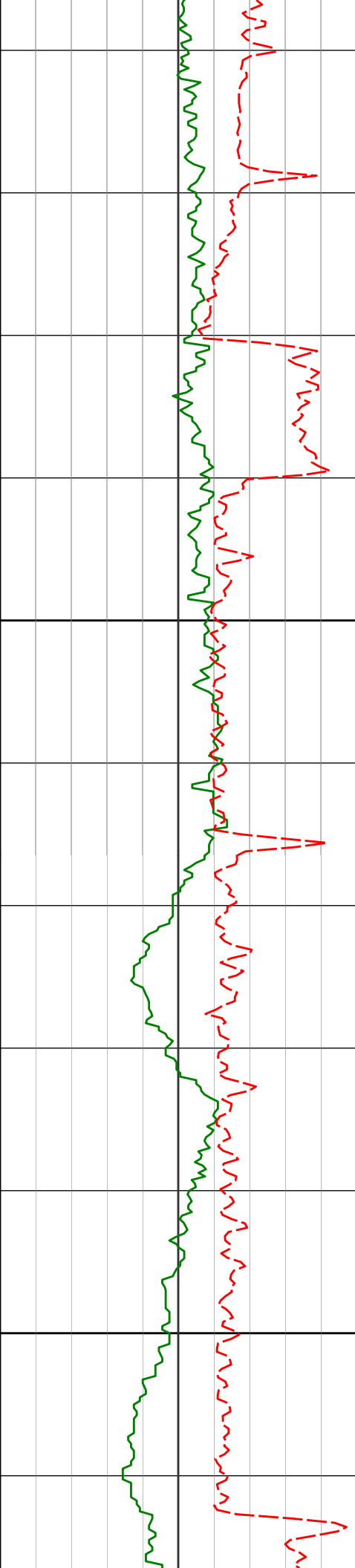
129.31°F

8000

194.99°F

ROFA

PGXC



8067'

90.77°

358.48° 5835.31'

1921.36'

8100

8161'

91.97°

359.74° 5833.06'

2013.23'

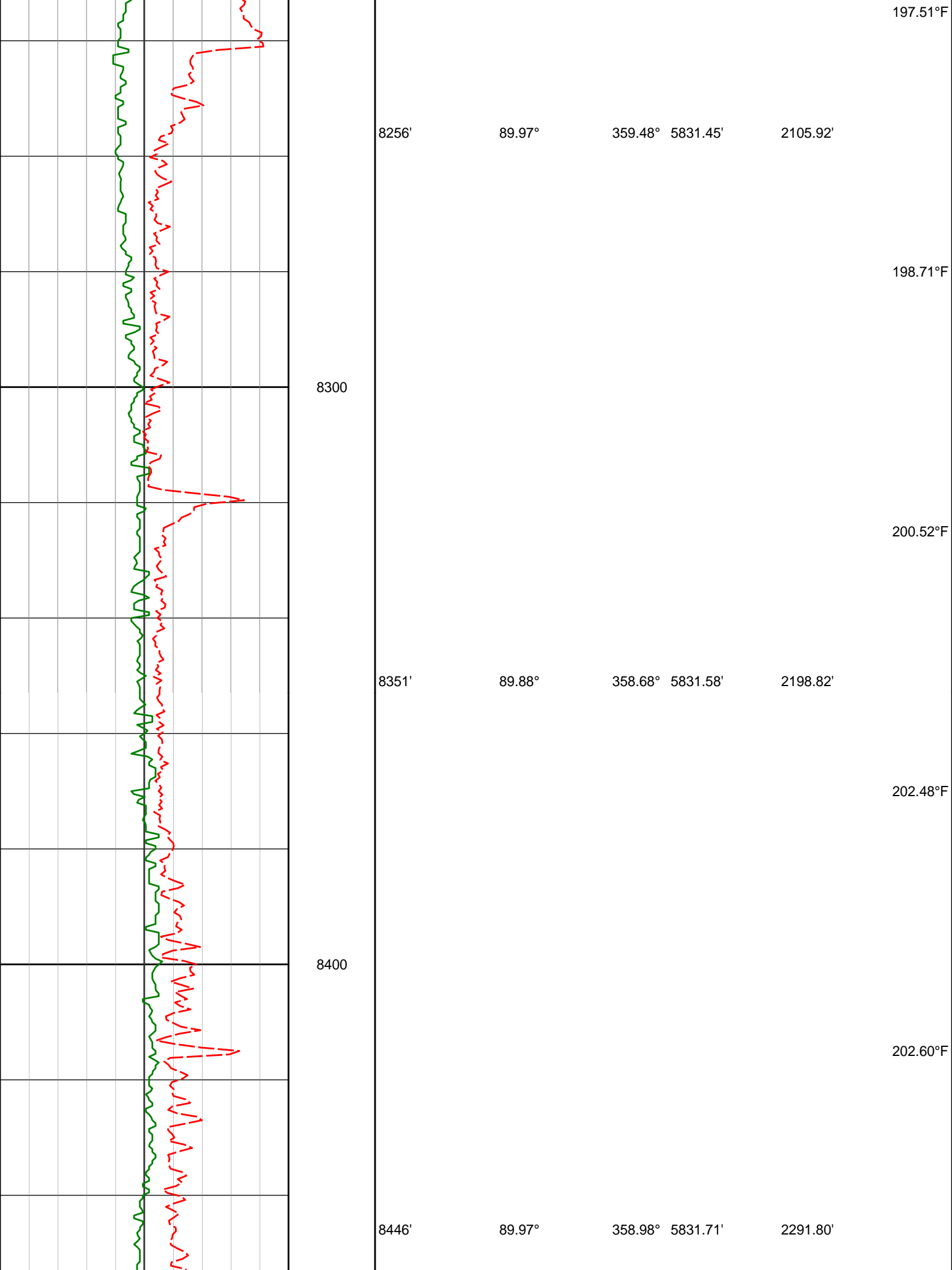
8200

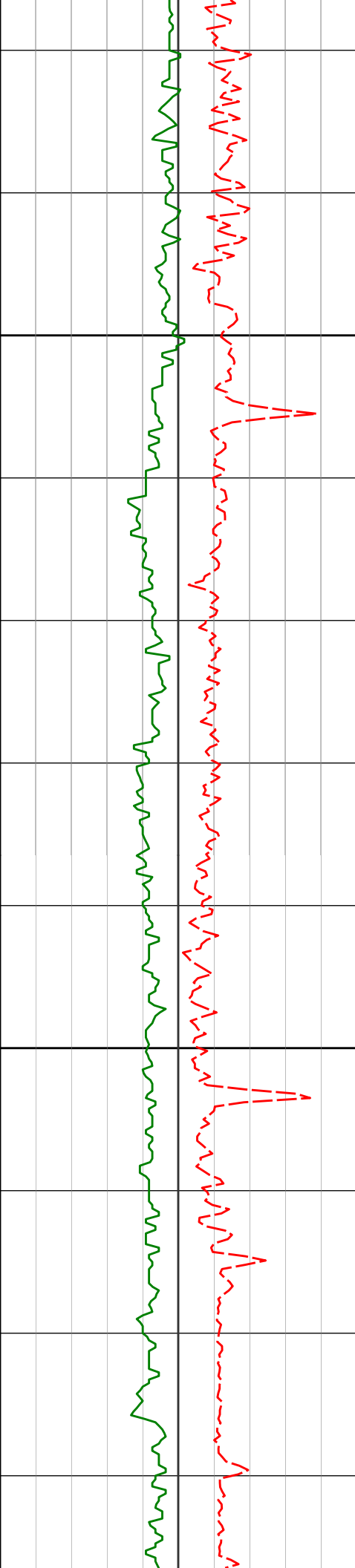
194.99°F

196.49°F

198.08°F

197.75°F





8500

8540'

90.34°

358.47° 5831.45'

2383.84'

8600

8635'

89.97°

358.12° 5831.20'

2477.00'

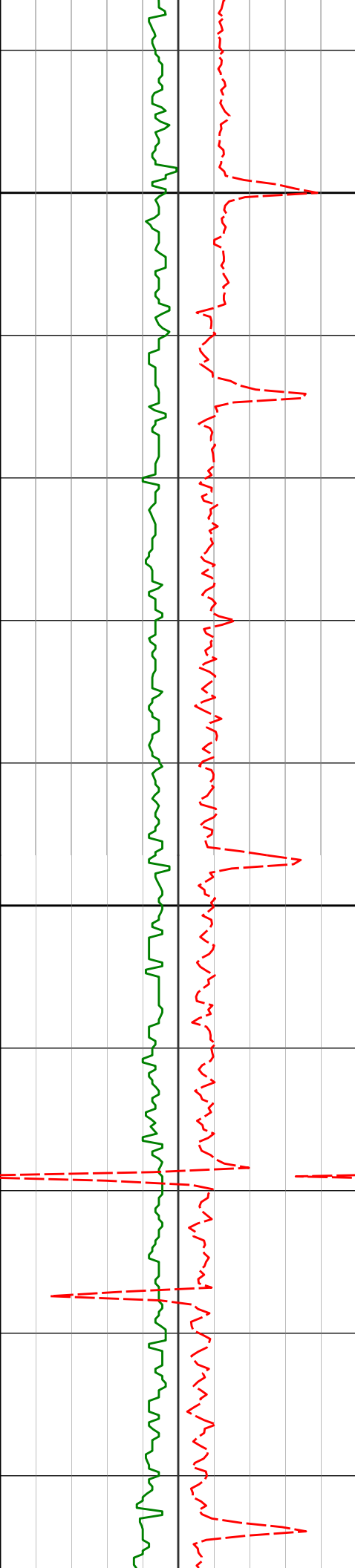
202.60°F

203.18°F

205.16°F

205.61°F

206.04°F



8700

8800

8824'

90.12°

357.49° 5831.05'

2662.65'

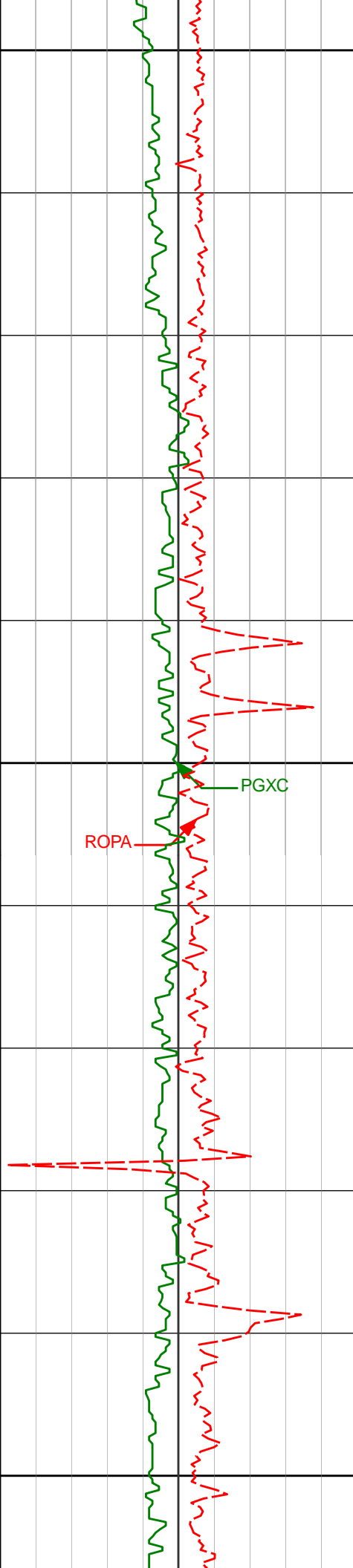
205.16°F

205.16°F

205.48°F

206.17°F

205.16°F



8900

206.23°F

8919'

89.51°

357.33° 5831.35'

2756.08'

207.73°F

9000

207.73°F

ROPA

PGXC

9014'

89.94°

357.25° 5831.81'

2849.55'

208.79°F

209.61°F

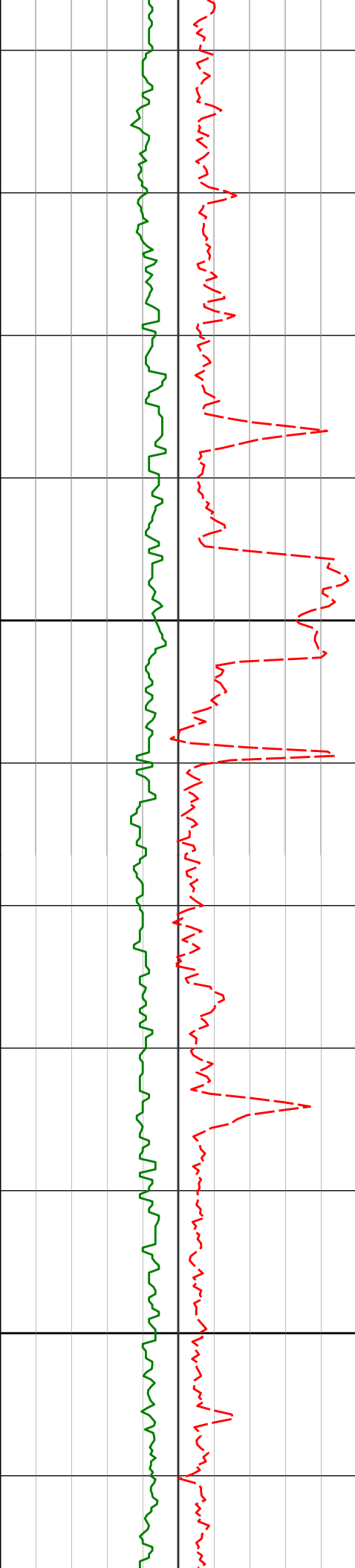
9100

9108'

90.65°

357.05° 5831.33'

2942.08'



9200

9300

9203'

9297'

90.55°

91.05°

357.58° 5830.33'

358.13° 5829.01'

3035.54'

3127.85'

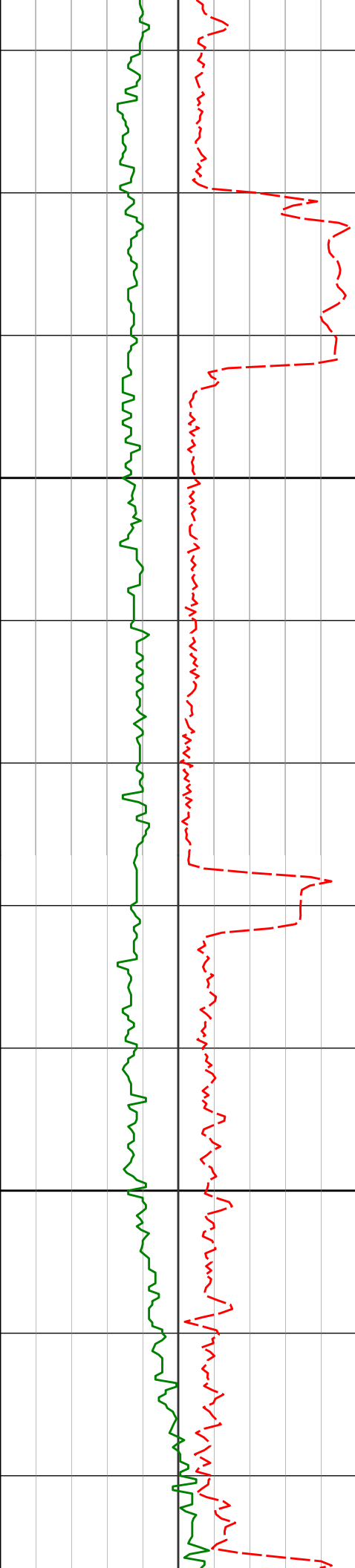
207.05°F

207.47°F

207.73°F

207.76°F

206.84°F



9400

9500

9392'

89.29°

359.16° 5828.73'

3220.89'

206.73°F

208.29°F

210.31°F

9486'

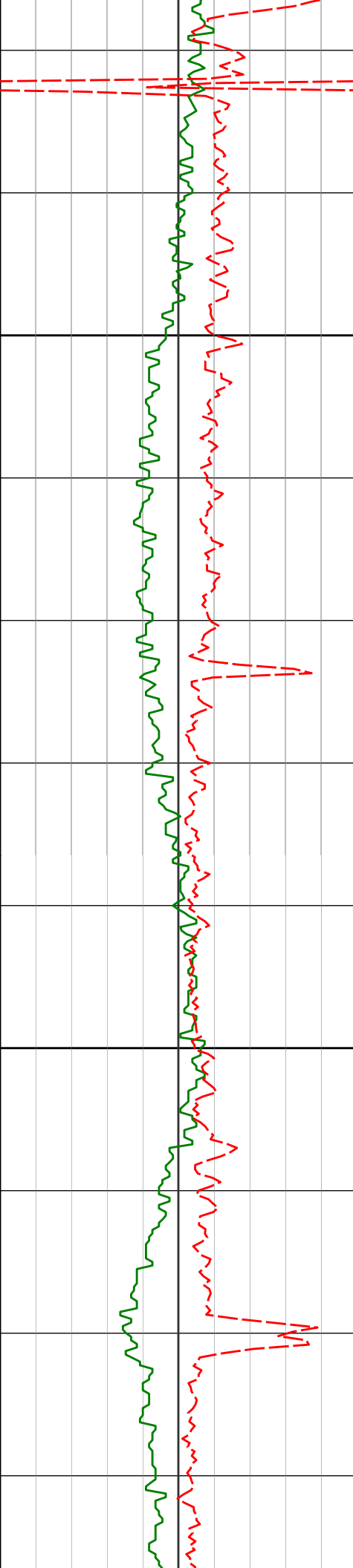
90.31°

359.36° 5829.06'

3312.74'

210.50°F

212.69°F



9600

9700

9581'

90.65°

359.09° 5828.27'

3405.58'

212.92°F

212.92°F

212.92°F

213.26°F

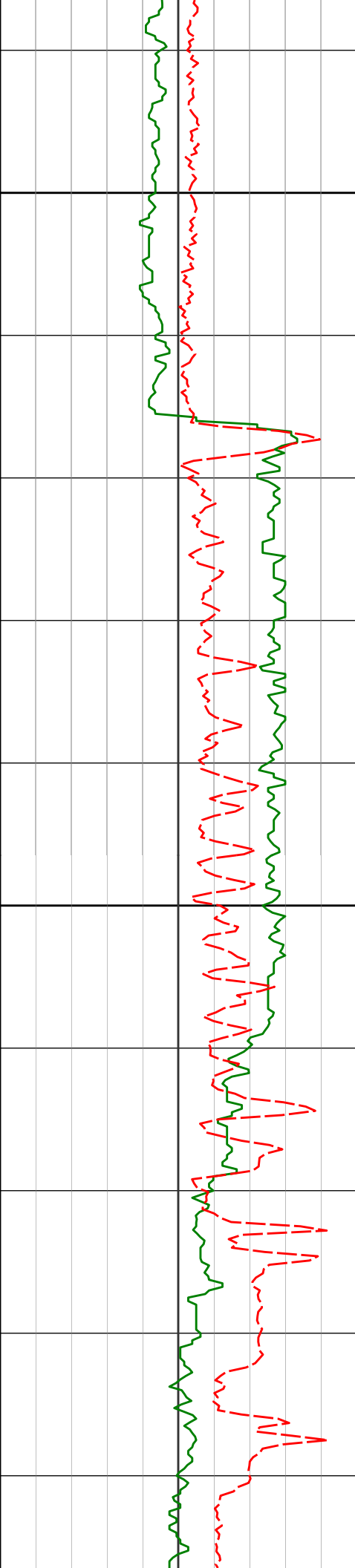
215.51°F

9770'

90.22°

358.17° 5826.84'

3590.69'



9800

215.51°F

215.22°F

9865'

90.06°

358.10°

5826.61'

3683.91'

9900

214.23°F

215.51°F

9960'

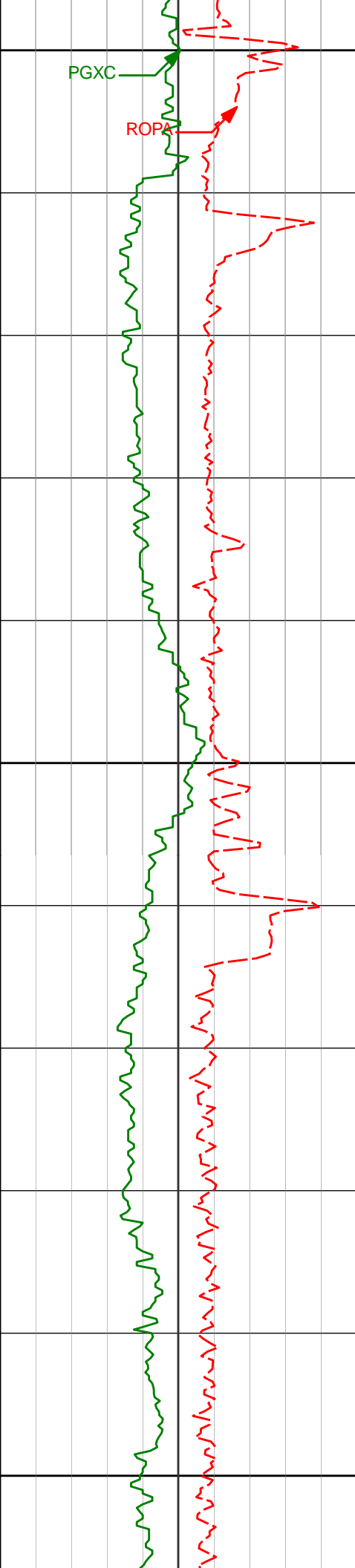
89.69°

357.94°

5826.82'

3777.15'

215.70°F



10000

PGXC

ROPA

217.94°F

10055'

89.26°

357.66° 5827.69'

3870.47'

218.14°F

10100

218.03°F

10149'

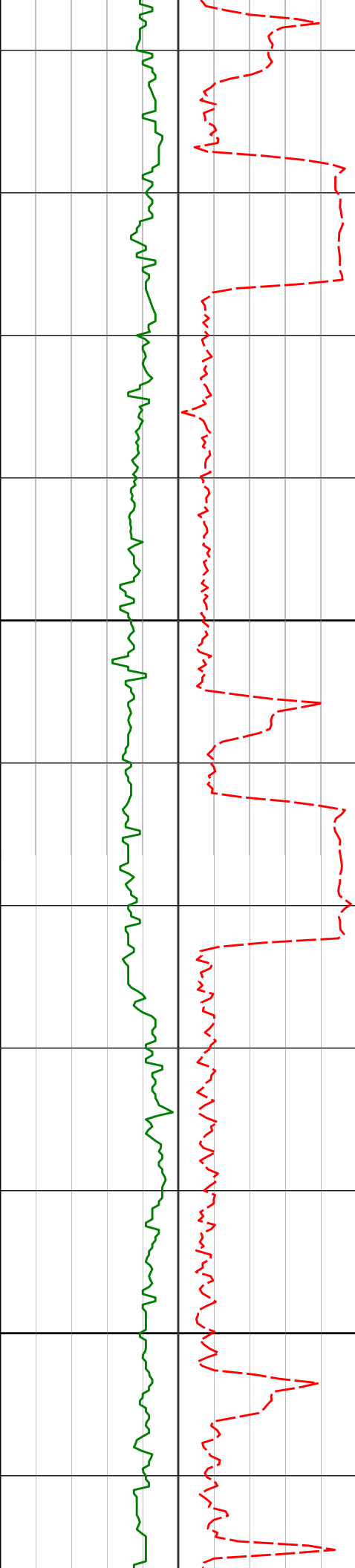
88.95°

357.28° 5829.15'

3962.89'

216.88°F

10200



10300

10400

10243'

10338'

89.38°

91.36°

355.91° 5830.52'

357.76° 5829.90'

4055.56'

4149.16'

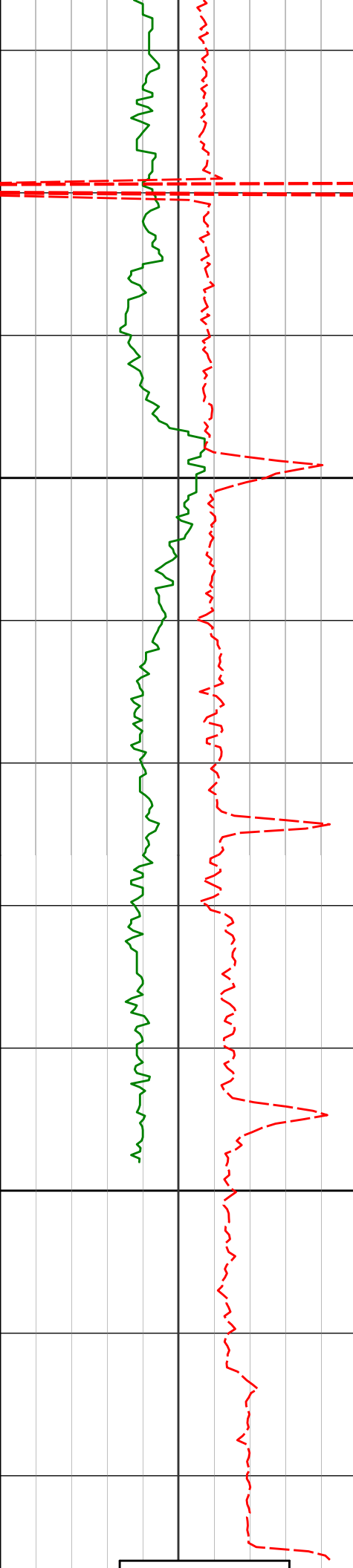
215.73°F

215.07°F

213.52°F

215.52°F

217.84°F



10500

10600

10433	91.60	337.40	5827.43	4242.31	218.14°F
10527'	92.16°	356.86°	5824.36'	4334.99'	217.85°F
10589'	92.38°	356.63°	5821.91'	4396.05'	217.44°F
10651'	92.38°	356.63°	5819.34'	4457.13'	

TD Lateral @ 10651 MD											
Avg Rate of Penetration ROPA feet per hr										Depth MD ft	Depth Inc Azi TVD V.S. Temp
PCG GR XHi-Range RT BCor PGXRC-T api											

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Greyson LD28-780
Wattenburg
Weld Colorado
USA
CA-XX-0902595941

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
91.00	0.17	125.79	91.00	0.08 S	0.11 E	-0.10	0.18
183.50	0.44	178.66	183.50	0.51 S	0.23 E	-0.55	0.39
276.00	0.48	129.17	276.00	1.11 S	0.53 E	-1.20	0.42
368.50	0.14	240.80	368.49	1.40 S	0.74 E	-1.53	0.59
461.00	0.34	298.11	460.99	1.33 S	0.40 E	-1.38	0.32
553.50	0.12	280.89	553.49	1.18 S	0.06 E	-1.16	0.25
646.00	0.20	319.20	645.99	1.04 S	0.14 W	-0.98	0.14
738.50	0.13	296.31	738.49	0.87 S	0.33 W	-0.78	0.10
831.00	0.15	354.87	830.99	0.71 S	0.43 W	-0.60	0.15
923.50	0.31	61.84	923.49	0.47 S	0.22 W	-0.41	0.31
1016.00	0.12	126.65	1015.99	0.41 S	0.08 E	-0.42	0.31
1108.50	0.13	222.16	1108.49	0.55 S	0.08 E	-0.55	0.20
1117.50	0.29	241.30	1117.49	0.57 S	0.05 E	-0.56	1.92
1202.00	0.35	250.82	1201.99	0.76 S	0.38 W	-0.65	0.09
1386.00	0.50	275.63	1385.98	0.86 S	1.71 W	-0.45	0.13
1479.00	3.64	242.46	1478.91	2.19 S	4.74 W	-1.07	3.48
1572.00	4.60	226.87	1571.68	6.10 S	10.07 W	-3.68	1.57
1666.00	4.37	226.63	1665.39	11.13 S	15.42 W	-7.38	0.24
1758.00	6.63	220.18	1756.96	17.59 S	21.40 W	-12.33	2.54
1850.00	7.62	216.31	1848.25	26.57 S	28.44 W	-19.49	1.20
1943.00	9.67	216.84	1940.19	37.79 S	36.77 W	-28.55	2.20
2034.00	11.15	215.39	2029.69	51.07 S	46.45 W	-39.32	1.65
2126.00	11.56	212.35	2119.89	66.11 S	56.53 W	-51.70	0.79
2219.00	11.22	208.33	2211.06	81.94 S	65.81 W	-65.04	0.93
2311.00	12.16	218.58	2301.16	97.40 S	76.10 W	-77.78	2.47
2404.00	11.89	215.89	2392.12	112.81 S	87.82 W	-90.17	0.67
2497.00	11.67	214.76	2483.16	128.30 S	98.80 W	-102.79	0.34
2590.00	13.52	221.80	2573.93	144.14 S	111.41 W	-115.38	2.59
2682.00	13.48	220.52	2663.38	160.31 S	125.55 W	-127.96	0.33
2869.00	13.01	220.29	2845.40	192.94 S	153.33 W	-153.50	0.25
2964.00	12.35	215.96	2938.09	209.32 S	166.21 W	-166.57	1.22
3058.00	11.51	208.36	3030.06	225.72 S	176.57 W	-180.21	1.89

3153.00	11.06	204.05	3123.23	242.39 S	184.79 W	-194.60	1.01
3248.00	12.99	210.06	3216.14	259.95 S	193.86 W	-209.68	2.41
3342.00	13.43	209.75	3307.65	278.57 S	204.56 W	-225.41	0.48
3437.00	13.47	217.15	3400.05	296.97 S	216.72 W	-240.61	1.81
3532.00	14.07	217.86	3492.33	314.90 S	230.49 W	-254.98	0.66
3626.00	13.90	223.18	3583.54	332.16 S	245.23 W	-268.48	1.38
3721.00	13.39	222.75	3675.86	348.56 S	260.51 W	-281.03	0.55
3815.00	13.01	230.40	3767.38	363.30 S	276.05 W	-291.89	1.90
3910.00	12.47	229.76	3860.04	376.74 S	292.12 W	-301.37	0.59
4005.00	11.65	227.68	3952.95	389.83 S	307.04 W	-310.77	0.97
4099.00	10.68	225.68	4045.17	402.30 S	320.29 W	-319.94	1.12
4194.00	10.99	223.94	4138.47	414.97 S	332.87 W	-329.46	0.48
4288.00	11.11	222.24	4230.73	428.13 S	345.18 W	-339.51	0.37
4383.00	11.88	221.02	4323.82	442.28 S	357.75 W	-350.47	0.85
4477.00	11.10	220.09	4415.94	456.51 S	369.93 W	-361.59	0.85
4572.00	9.58	220.11	4509.39	469.55 S	380.91 W	-371.83	1.60
4667.00	9.98	218.21	4603.01	482.07 S	391.10 W	-381.74	0.54
4761.00	9.09	214.15	4695.71	494.62 S	400.30 W	-391.89	1.19
4856.00	8.73	223.84	4789.57	506.03 S	409.51 W	-400.94	1.62
4951.00	10.35	224.45	4883.25	517.33 S	420.49 W	-409.48	1.71
5045.00	12.21	227.57	4975.44	530.06 S	433.74 W	-418.91	2.08
5140.00	20.38	238.18	5066.56	545.59 S	455.25 W	-429.20	9.13
5234.00	21.47	255.33	5154.44	558.59 S	485.83 W	-434.98	6.59
5329.00	24.69	271.02	5241.91	562.64 S	522.53 W	-430.68	7.28
5424.00	30.68	280.80	5326.04	557.74 S	566.24 W	-416.07	7.89
5518.00	35.00	289.24	5405.04	544.36 S	615.29 W	-391.99	6.69
5613.00	38.01	300.23	5481.48	520.62 S	666.35 W	-357.38	7.57
5708.00	41.07	314.28	5554.89	484.02 S	714.07 W	-310.99	9.93
5802.00	46.88	326.42	5622.63	433.75 S	755.26 W	-252.74	10.87
5897.00	54.26	340.06	5683.09	368.35 S	787.72 W	-181.71	13.51
5991.00	59.84	350.47	5734.29	292.20 S	807.52 W	-103.06	11.01
6086.00	65.74	353.33	5777.71	208.60 S	819.37 W	-18.93	6.77
6180.00	73.13	352.87	5810.71	121.28 S	829.94 W	68.52	7.87
6291.00	86.61	353.78	5830.19	13.01 S	842.59 W	176.87	12.17
6381.00	88.58	354.83	5833.97	76.47 N	851.51 W	266.06	2.48
6473.00	88.49	355.47	5836.32	168.11 N	859.29 W	357.10	0.70
6565.00	89.82	356.28	5837.68	259.85 N	865.92 W	447.98	1.69
6657.00	91.45	359.70	5836.67	351.77 N	869.15 W	538.27	4.12
6750.00	90.49	359.78	5835.09	444.76 N	869.57 W	628.97	1.03
6843.00	88.61	358.55	5835.82	537.74 N	870.92 W	719.87	2.42
6936.00	88.83	358.09	5837.90	630.68 N	873.65 W	811.04	0.54
7029.00	88.83	357.97	5839.80	723.60 N	876.84 W	902.30	0.13
7123.00	90.46	358.40	5840.38	817.55 N	879.81 W	994.51	1.80
7215.00	91.48	358.55	5838.82	909.50 N	882.26 W	1084.66	1.12
7310.00	91.32	358.65	5836.50	1004.45 N	884.58 W	1177.69	0.20
7404.00	89.57	357.72	5835.76	1098.39 N	887.55 W	1269.90	2.11
7499.00	89.75	357.40	5836.32	1193.30 N	891.60 W	1363.29	0.39
7688.00	91.02	357.20	5835.05	1382.09 N	900.50 W	1549.23	0.68
7783.00	89.94	358.57	5834.26	1477.01 N	904.00 W	1642.52	1.84
7878.00	89.63	357.94	5834.62	1571.97 N	906.89 W	1735.69	0.74
7972.00	89.38	357.31	5835.43	1665.88 N	910.79 W	1828.07	0.72
8067.00	90.77	358.48	5835.31	1760.82 N	914.28 W	1921.36	1.91
8161.00	91.97	359.74	5833.06	1854.77 N	915.74 W	2013.23	1.85
8256.00	89.97	359.48	5831.45	1949.75 N	916.39 W	2105.92	2.12
8351.00	89.88	358.68	5831.58	2044.74 N	917.91 W	2198.82	0.85
8446.00	89.97	358.98	5831.71	2139.72 N	919.85 W	2291.80	0.34
8540.00	90.34	358.47	5831.45	2233.70 N	921.94 W	2383.84	0.67
8635.00	89.97	358.12	5831.20	2328.65 N	924.76 W	2477.00	0.54
8824.00	90.12	357.49	5831.05	2517.51 N	932.01 W	2662.65	0.34
8919.00	89.51	357.33	5831.35	2612.42 N	936.30 W	2756.08	0.67
9014.00	89.94	357.25	5831.81	2707.31 N	940.79 W	2849.55	0.46
9108.00	90.65	357.05	5831.33	2801.19 N	945.47 W	2942.08	0.78
9203.00	90.55	357.58	5830.33	2896.08 N	949.91 W	3035.54	0.57
9297.00	91.05	358.13	5829.01	2990.01 N	953.43 W	3127.85	0.78
9392.00	89.29	359.16	5828.73	3084.97 N	955.68 W	3220.89	2.15
9486.00	90.31	359.36	5829.06	3178.96 N	956.89 W	3312.74	1.10
9581.00	90.65	359.09	5828.27	3273.95 N	958.17 W	3405.58	0.46
9770.00	90.22	358.17	5826.84	3462.89 N	962.69 W	3590.69	0.54
9865.00	90.06	358.10	5826.61	3557.84 N	965.79 W	3683.91	0.18
9960.00	89.69	357.94	5826.82	3652.78 N	969.07 W	3777.15	0.42
10055.00	89.26	357.66	5827.69	3747.71 N	972.72 W	3870.47	0.54
10149.00	88.95	357.28	5829.15	3841.60 N	976.87 W	3962.89	0.52
10243.00	89.38	355.91	5830.52	3935.43 N	982.44 W	4055.56	1.53
10338.00	91.36	357.76	5829.90	4030.27 N	987.69 W	4149.16	2.84

10433.00	91.60	357.40	5827.45	4125.15 N	991.70 W	4242.51	0.45
10527.00	92.16	356.86	5824.36	4218.98 N	996.40 W	4334.99	0.82
10589.00	92.38	356.63	5821.91	4280.84 N	999.92 W	4396.05	0.51
10651.00	92.38	356.63	5819.34	4342.68 N	1003.56 W	4457.13	0.01

<p> 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 347.00 DEGREES (GRID) A TOTAL CORRECTION OF 6.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD. HORIZONTAL DISPLACEMENT(CLOSURE) AT 10651.00 FEET IS 4457.13 FEET ALONG 346.99 DEGREES (GRID) Surveys to 1117.5 are flexi-shot surveys. Final survey is straight line projection to TD </p>							
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