

PCG Pressure Case Gamma PCD Pressure Case Directional

[illegible]

WELL INFORMATION

MWD Run Number	100	200	300		
Date run completed	05-Mar-14	06-Mar-14	09-Mar-14		
Rig Bit Number	2	3	4		
Bit Size (in)	8.750	8.750	6.125		
Tool Nominal OD (in)	6.750	6.750	4.750		
Log Start Depth (MD, ft)	628.00	5,960.00	6,996.00		
Log End Depth (MD, ft)	5,960.00	6,996.00	11,178.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	05-Mar-14 02:15	06-Mar-14 00:30	07-Mar-14 03:30		
Drill/Wipe End Date and Time	05-Mar-14 02:15	06-Mar-14 11:00	08-Mar-14 16:30		
Min Inc (deg) @ Depth (MD, ft)	0.16 @ 1,363.00	1.27 @ 5,996.00	84.51 @ 7,053.00		
Max Inc (deg) @ Depth (MD, ft)	13.36 @ 3,822.00	78.19 @ 6,942.00	92.00 @ 11,114.00		
Bit TFA(in2) / Bit Type	0.91 / PDC	1.24 / PDC	0.98 / PDC		
Flow Rate (gpm)	597.30	569.57	300.00		
Max AV (fpm) / CV (fpm) @ MWD	417.0 / NA	417.0 / NA	454.0 / NA		
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel		
Density (ppg) / Viscosity (spqt)	8.95 / 31.00	10.20 / 37.00	8.95 / 31.00		
Filtrate CL (ppm)	2,300.00	2,100.00	2,100.00		
pH / Fluid Loss (mptm)	8.60 / 16	9.50 / 7	9.50 / 10		
PV (cP) / YP (lbf2)	5 / 4.00	11 / 14.00	6 / 5.00		
% Solids / % Sand	1 / 0.25	10.7 / .2	4.20 / 0.15		
% Oil / Oil:Water Ratio	N/A / N/A	NA / NA	NA / NA		
Rm @ Measured Temp (degF)	N/A @ N/A	NA @ NA	NA @ NA		
Rmf @ Measured Temp (degF)	N/A @ N/A	NA @ NA	NA @ NA		
Rmc @ Measured Temp (degF)	N/A @ N/A	NA @ NA	NA @ NA		
Max Tool Temp (in F) / S	145.00 / PCM	122.00 / PCM	217.00 / PCM		

Max Tool Temp (degF) / Source	145.90 / PCM	163.20 / PCM	217.00 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ N/A	NA @ NA	NA @ NA		
Lead MWD Engineer	Gary Eifert	Gary Eifert	Gary Eifert		
Customer Representative	Matt Settles	Matt Settles	Matt Settles		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.84	5.84		
Sub Serial Number	11342275	11342275	12134685		
Insert Serial Number	11619995	11619995	10997273		
Date and Time Initialized	03-Mar-14 11:23	01-Jan-70 00:00	06-Mar-14 17:20		
Date and Time Read	06-Mar-14 16:33	06-Mar-14 16:46	09-Mar-14 02:39		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	55.00	54.00	64.00		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11342275	11342275	12134685		
Sonde Serial Number	11833228	11833228	11477956		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	30.30	103.16	176.59		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	48.33	46.54	57.04		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	11342275	11342275	12134685		
Insert/Sonde Serial Number	11681019	11681019	12037425		

REMARKS

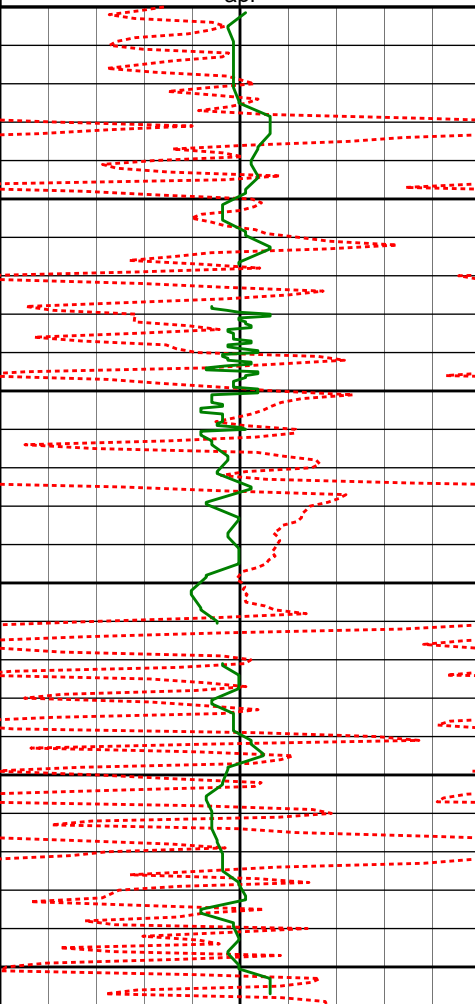
1. All depths are measured bit depths, referenced to the Driller's pipe tally and are measured from the Drill Floor, unless otherwise specified.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annual velocities are calculated using the "Power Law" model for water based fluids and the "Bingham Plastic" model for oil and synthetic based fluids.
4. All data presented is recorded data unless otherwise specified.
5. The following smoothing parameters have been applied to the data:
PGRC (Corrected Gamma Ray):
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft
ROPA (Average Rate of Penetration)
Interval Resolution: 0.5 ft
Interval Distance: 1.2 ft
Gap Fill: 3.0 ft
6. INSITE version 8.0

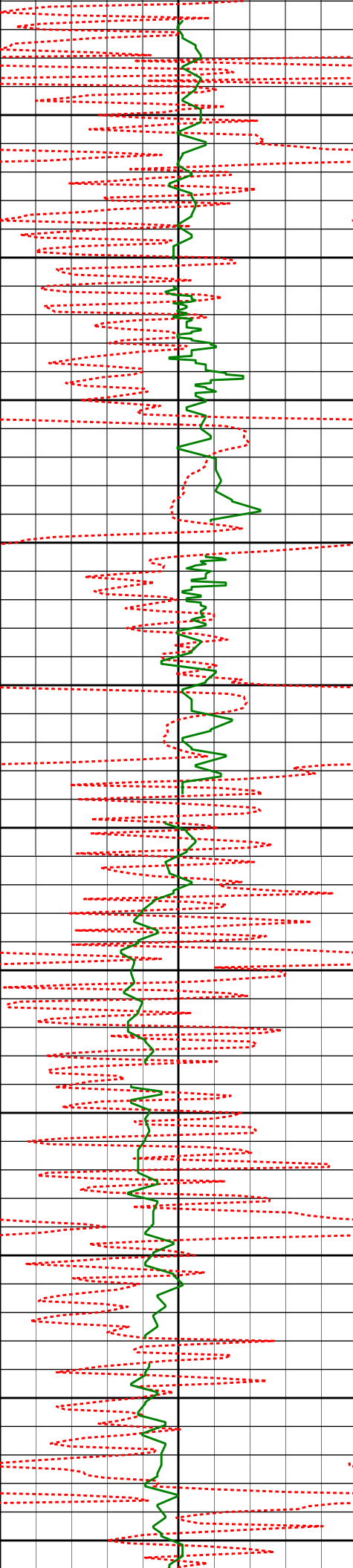
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MD Main Log 1:600

Average Rate of Penetration ROPA						
1K0						
feet per hr						
PCG Gamma Ray BCorr PGRC		Measured Depth (ft) 1:600	Depth	Inc	Azi.	TVDV.S.
0200						
api						
		3000'				
		3050'				
		3069'	3069'	8.87°	198.63°	3056.17'45.42'
		3100'				
		3150'				
		3163'	3163'	11.04°	201.10°	3148.75'52.38'
		3200'				
		3250'				
		3257'	3257'	9.93°	204.07°	3241.18'60.37'



3300'

3350'

3400'

3450'

3500'

3550'

3600'

3650'

3700'

3750'

3800'

3352'

8.12°

193.91°

3335.00'

66.61'

3445'

9.85°

201.19°

3426.86'

72.34'

3539'

10.68°

195.27°

3519.36'

79.01'

3633'

11.50°

195.27°

3611.60'

85.38'

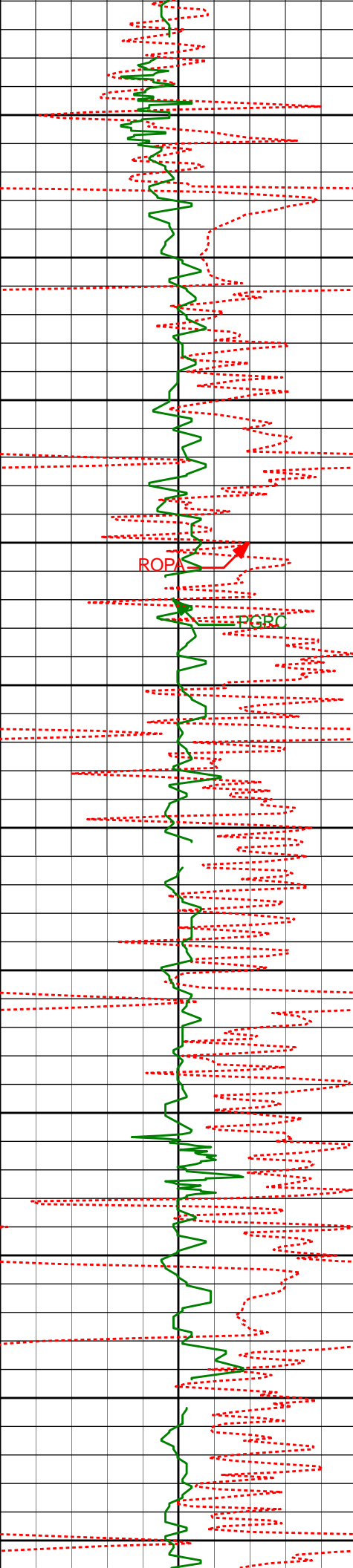
3728'

12.55°

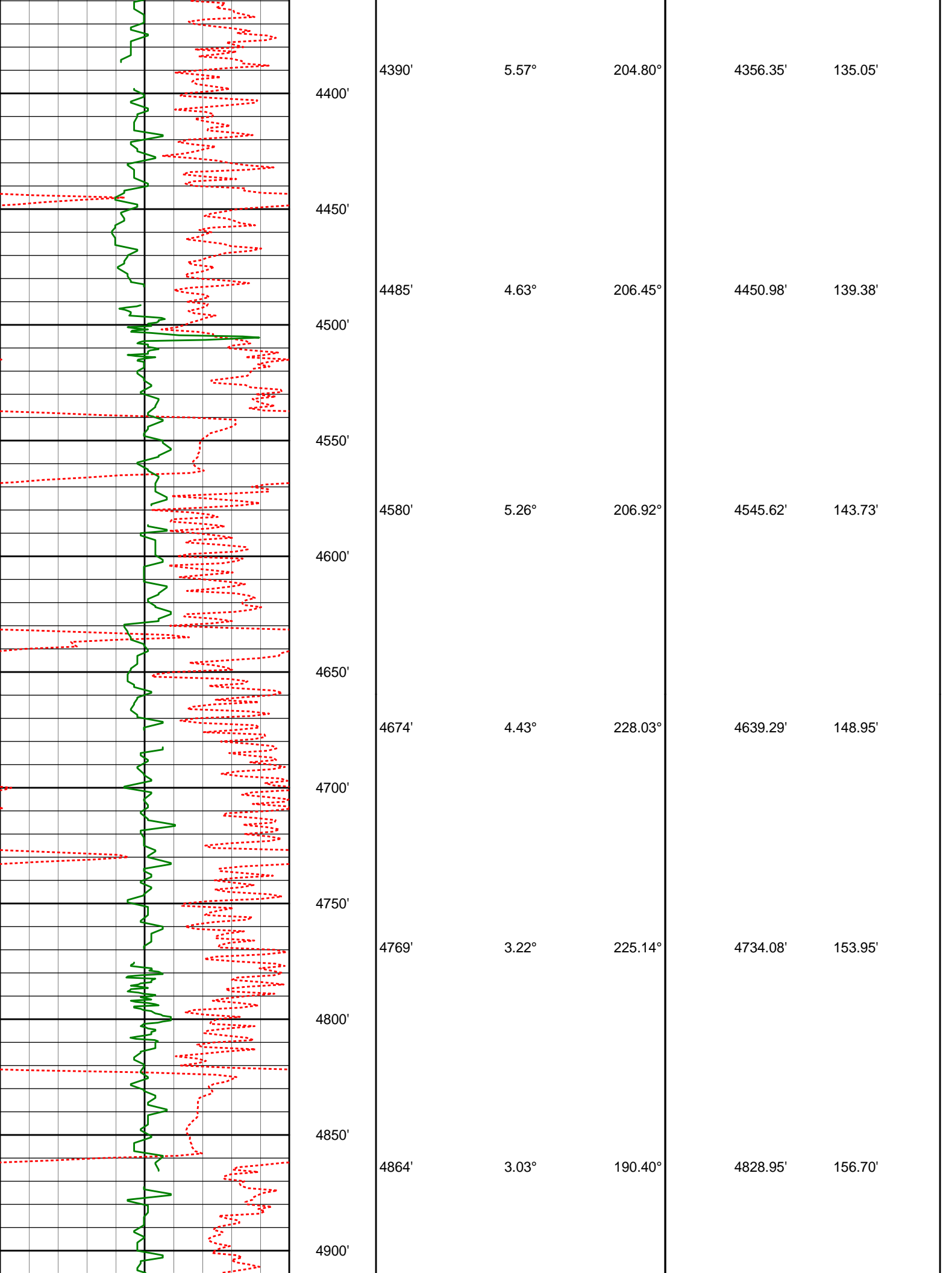
195.76°

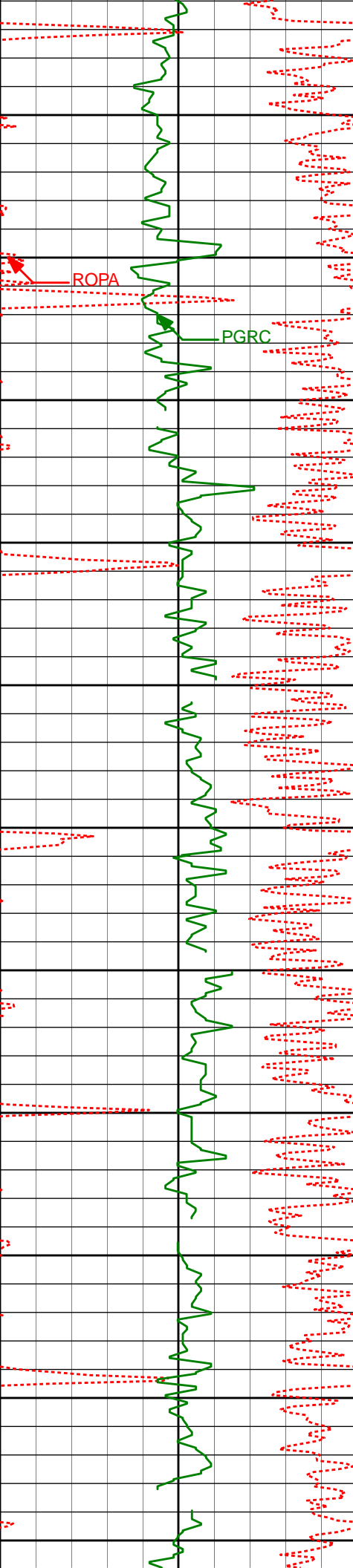
3704.52'

92.44'

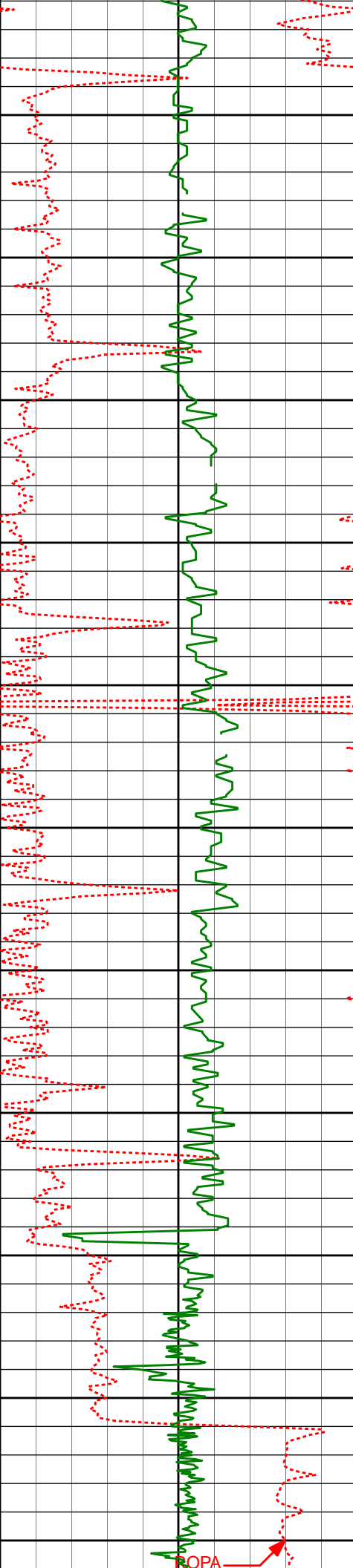


3822'	13.36°	195.39°	3796.12'	99.97'
3850'				
3900'				
3917'	11.46°	196.89°	3888.90'	107.44'
3950'				
4000'				
4010'	10.36°	195.56°	3980.22'	113.92'
4050'				
4100'				
4105'	9.05°	195.58°	4073.86'	119.65'
4150'				
4200'				
4200'	7.90°	196.08°	4167.82'	124.70'
4250'				
4295'	7.44°	201.90°	4261.97'	129.91'
4300'				
4350'				

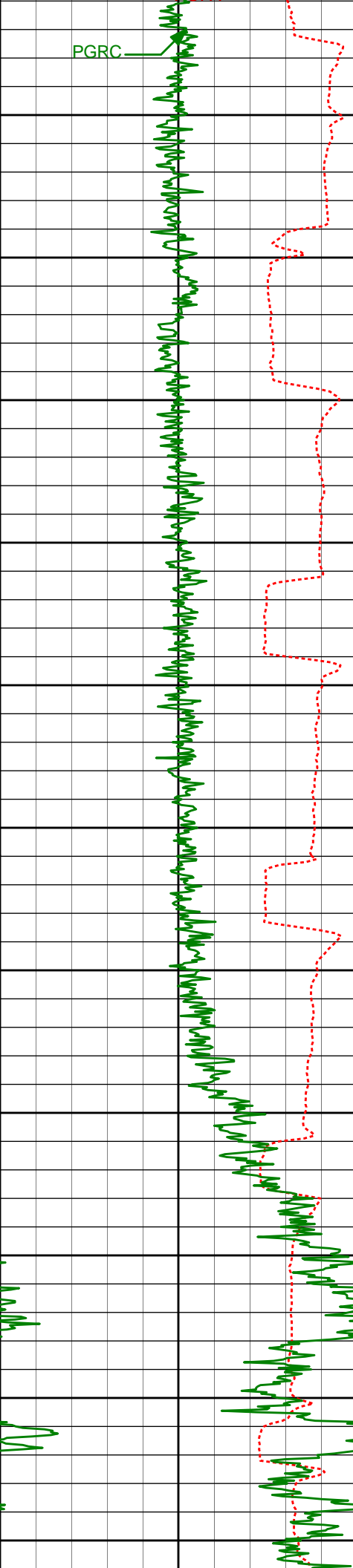




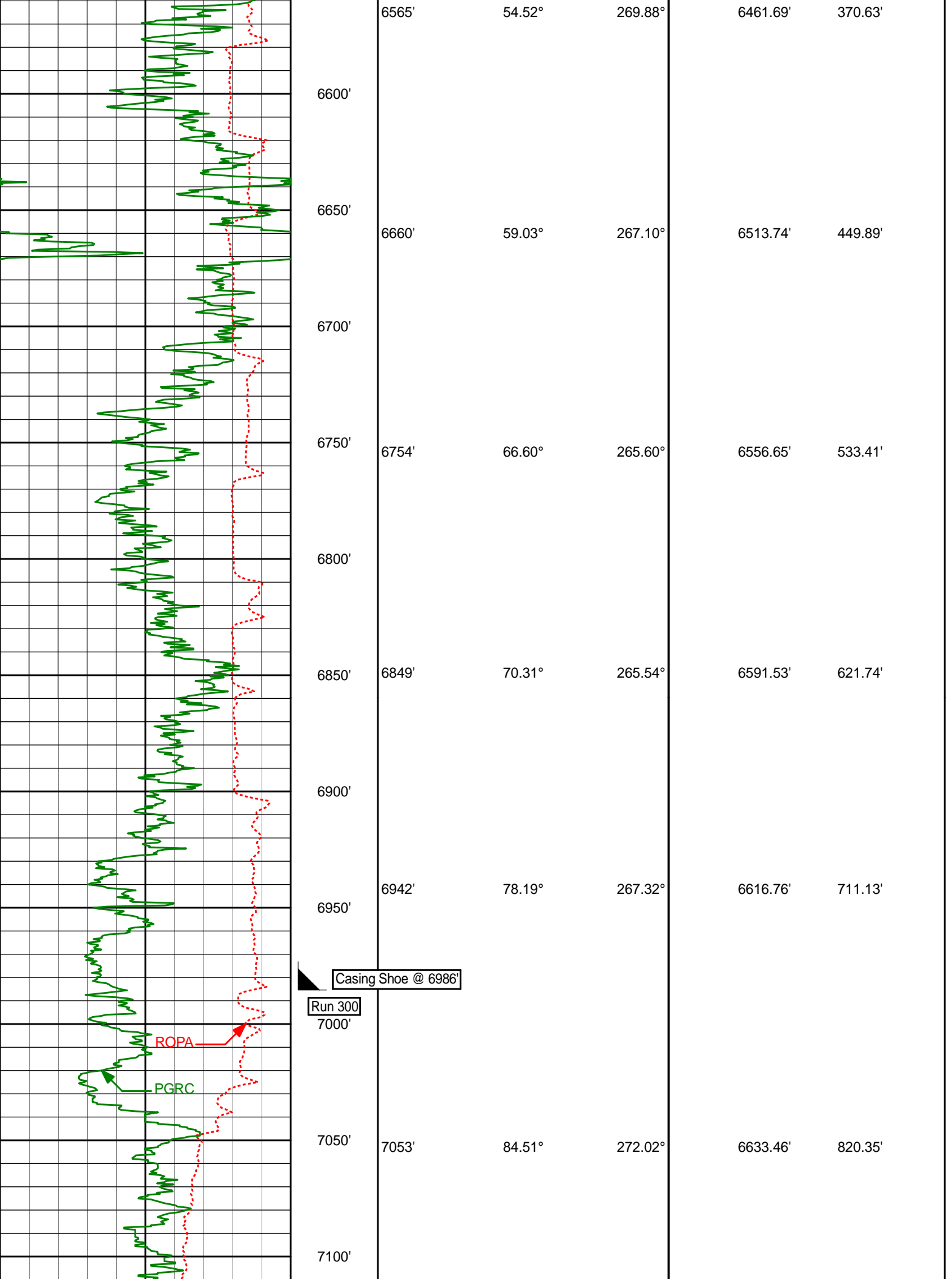
4950'	4958'	3.07°	182.13°	4922.81'	157.70'
5000'					
5050'	5053'	2.88°	174.85°	5017.69'	158.04'
5100'					
5150'	5148'	2.14°	167.88°	5112.59'	157.84'
5200'					
5250'	5243'	1.51°	151.92°	5207.55'	157.15'
5300'					
5350'					
5400'					
5450'	5432'	0.32°	23.06°	5396.53'	155.94'

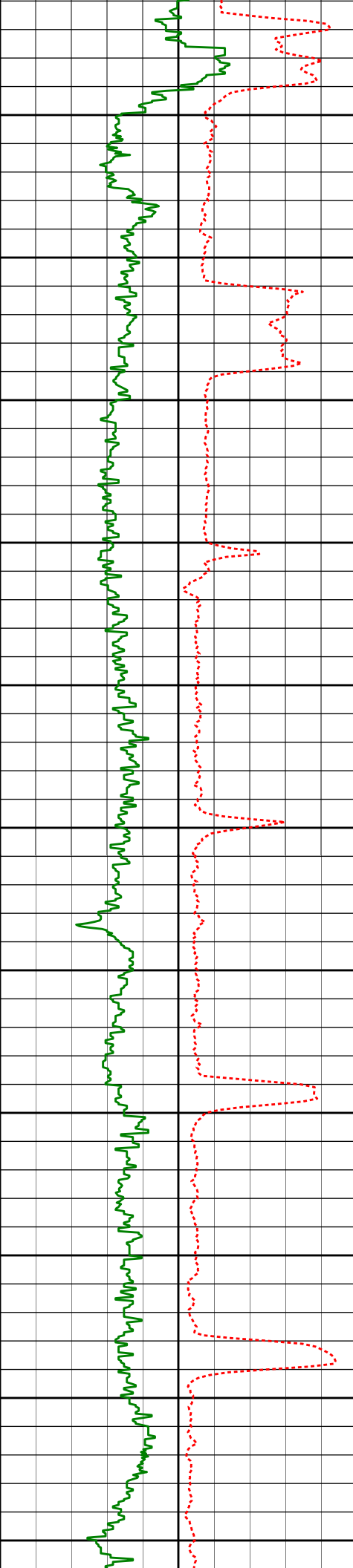


5500'				
5527'	0.89°	47.78°	5491.52'	155.22'
5550'				
5600'				
5622'	0.72°	76.97°	5586.51'	154.04'
5650'				
5700'				
5716'	0.76°	89.43°	5680.50'	152.83'
5750'				
5800'				
5811'	0.65°	98.03°	5775.50'	151.68'
5850'				
5900'				
5906'	0.71°	138.34°	5870.49'	150.81'
5950'				
Run200				
5996'	1.27°	164.82°	5960.48'	150.31'
6000'				

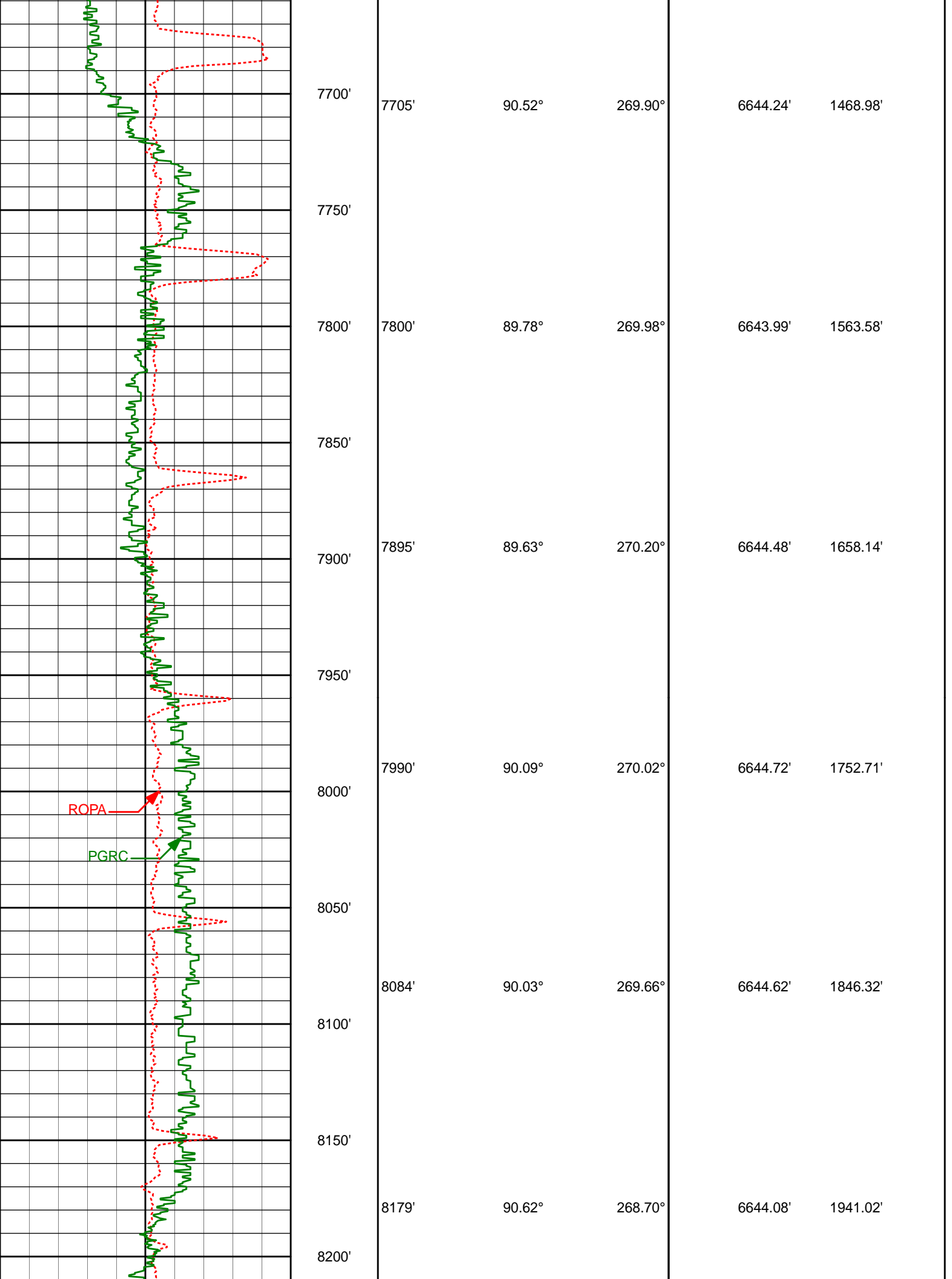


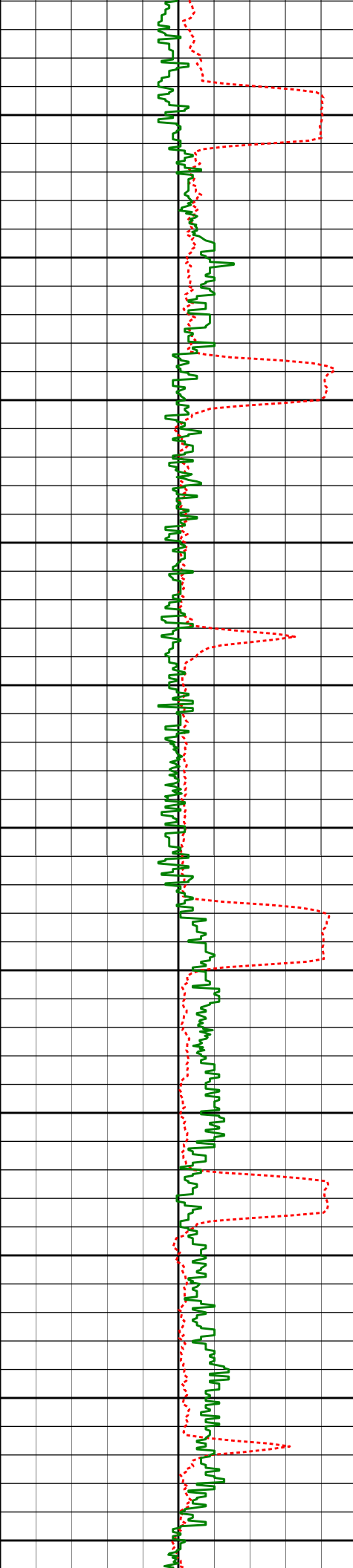
6044'	2.99°	246.76°	6008.45'	151.41'
6050'				
6091'	7.66°	269.40°	6055.24'	155.70'
6100'				
6150'				
6186'	13.33°	268.71°	6148.61'	172.95'
6200'				
6250'				
6281'	21.68°	268.44°	6239.13'	201.43'
6300'				
6350'				
6375'	31.04°	270.49°	6323.27'	242.96'
6400'				
6450'				
6470'	42.83°	269.54°	6399.07'	299.69'
6500'				
6550'				





7150'	7147'	85.77°	270.61°	6641.42'	913.37'
7200'					
7250'	7240'	89.11°	269.65°	6645.57'	1005.84'
7300'					
7350'	7333'	89.85°	270.24°	6646.42'	1098.44'
7400'					
7450'	7425'	89.32°	269.06°	6647.08'	1190.08'
7500'					
7550'	7518'	90.77°	269.30°	6647.01'	1282.78'
7600'					
7650'	7612'	91.05°	270.10°	6645.52'	1376.40'





8250'

8274'

90.55°

270.30°

6643.11'

2035.67'

8300'

8350'

8369'

89.85°

270.01°

6642.78'

2130.22'

8400'

8450'

8464'

89.78°

268.06°

6643.08'

2224.94'

8500'

8550'

8558'

89.44°

268.83°

6643.72'

2318.73'

8600'

8650'

8653'

90.03°

269.83°

6644.16'

2413.41'

8700'

8750'

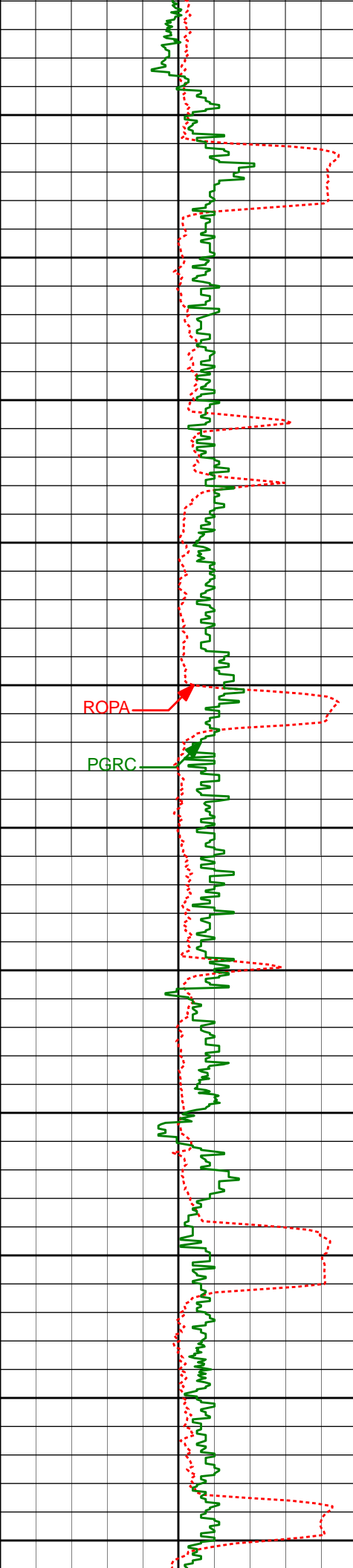
8748'

90.96°

269.79°

6643.34'

2508.01'



8800'

8850'

8900'

8950'

9000'

9050'

9100'

9150'

9200'

9250'

9300'

8843'

89.20°

270.58°

6643.21'

2602.56'

8938'

90.00°

271.12°

6643.87'

2697.00'

9032'

89.26°

271.01°

6644.48'

2790.40'

9127'

90.34°

271.36°

6644.81'

2884.78'

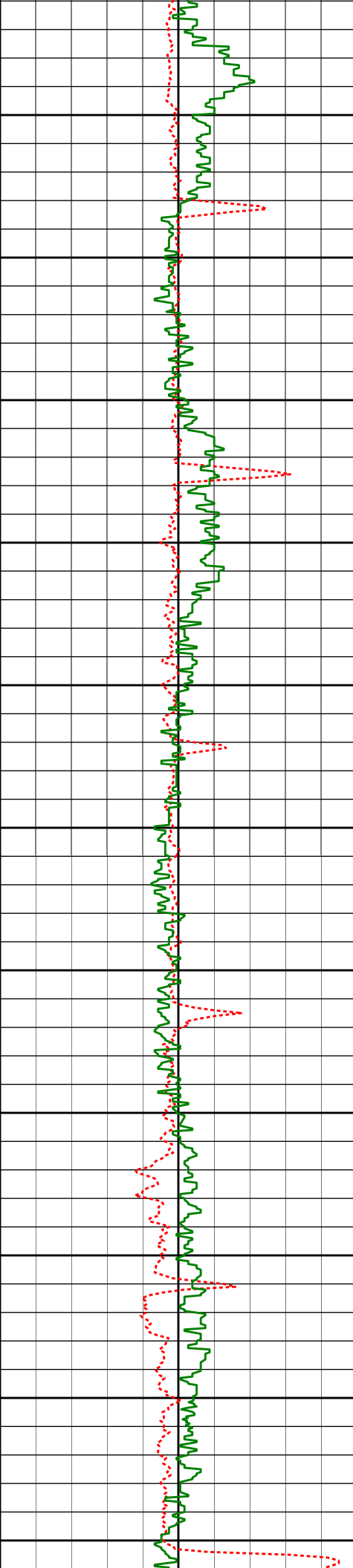
9222'

90.12°

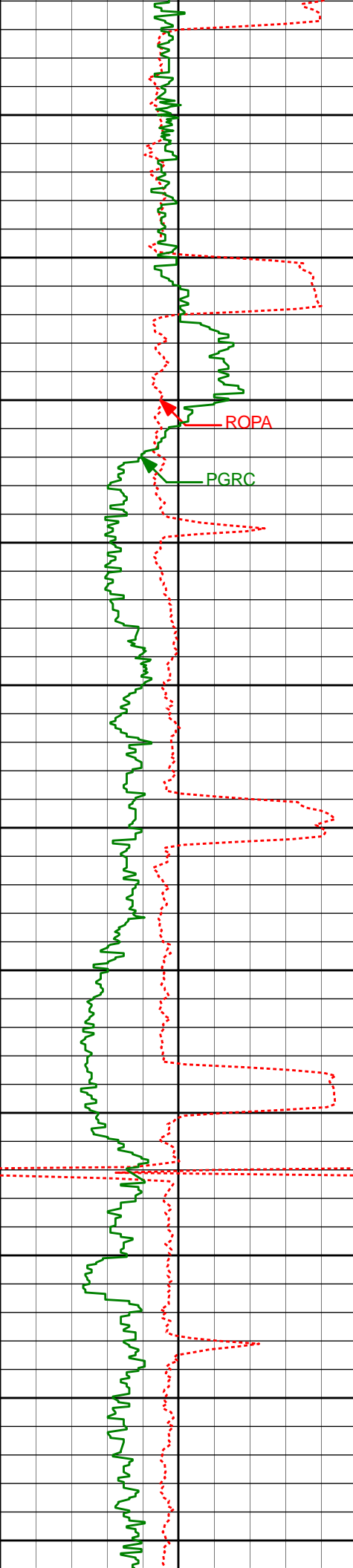
269.86°

6644.43'

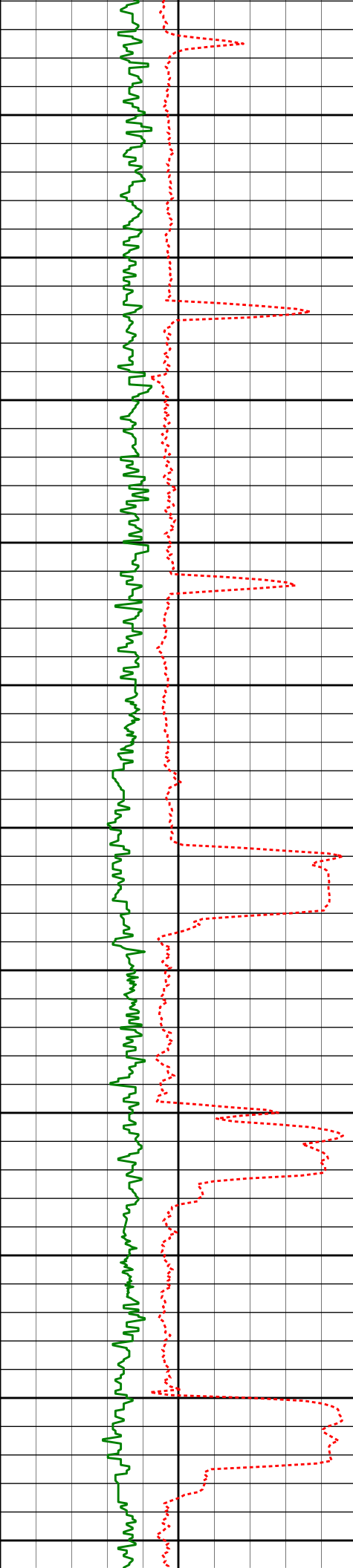
2979.26'



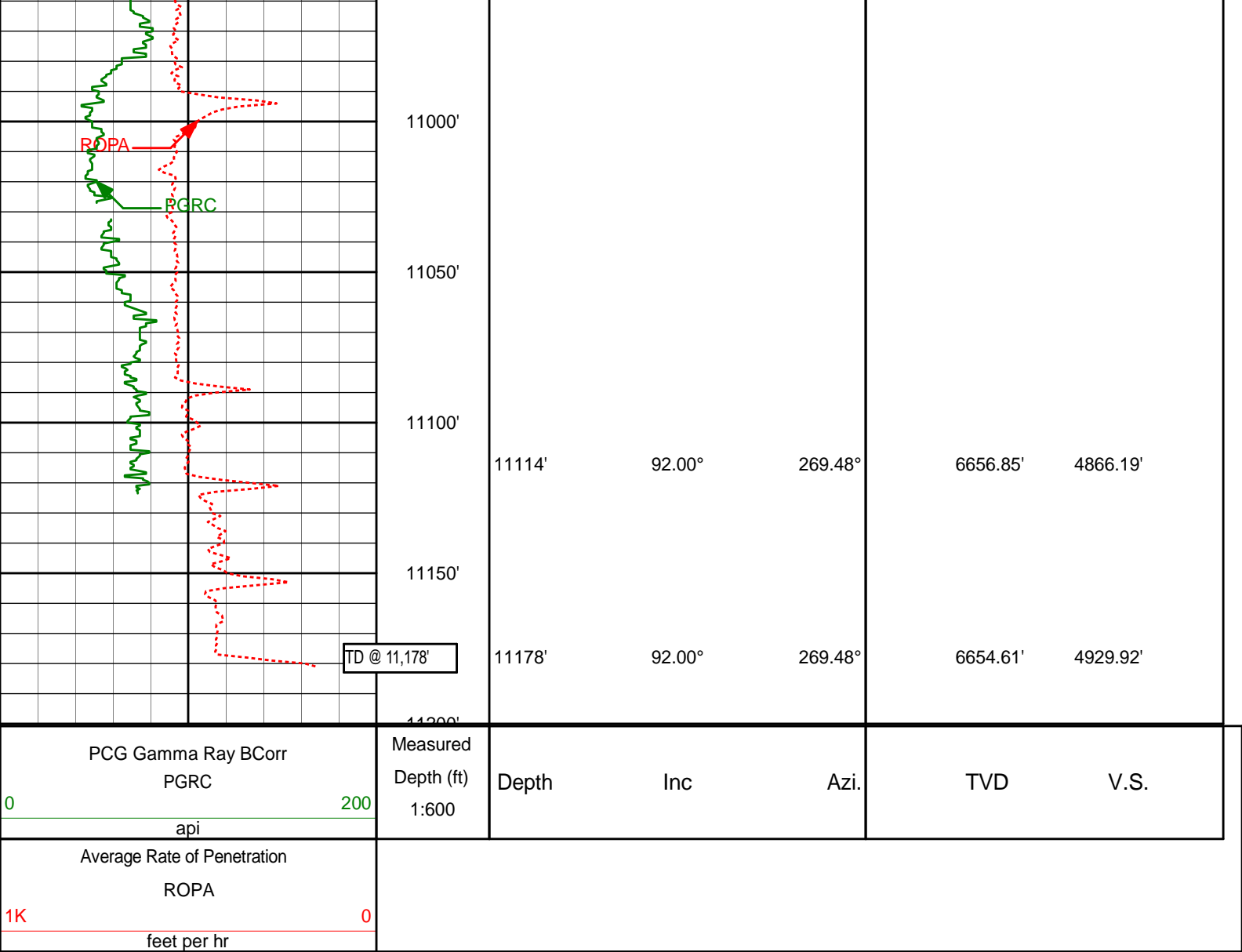
	9317'	88.61°	268.56°	6645.48'	3073.95'
9350'					
9400'	9411'	89.23°	268.84°	6647.25'	3167.69'
9450'					
9500'	9506'	89.10°	268.76°	6648.64'	3262.43'
9550'					
9600'	9601'	89.97°	268.34°	6649.41'	3357.20'
9650'					
9700'	9696'	89.85°	267.92°	6649.56'	3452.03'
9750'					
9800'	9791'	90.62°	267.98°	6649.17'	3546.87'
9850'					



9886'	90.37°	267.53°	6648.35'	3641.72'
9900'				
9950'				
9981'	88.21°	267.89°	6649.53'	3736.57'
10000'				
10050'				
10076'	87.99°	267.73°	6652.68'	3831.37'
10100'				
10150'				
10171'	88.21°	268.96°	6655.83'	3926.12'
10200'				
10250'				
10265'	89.02°	270.18°	6658.10'	4019.74'
10300'				
10350'				
10360'	89.66°	270.50°	6659.19'	4114.26'
10400'				

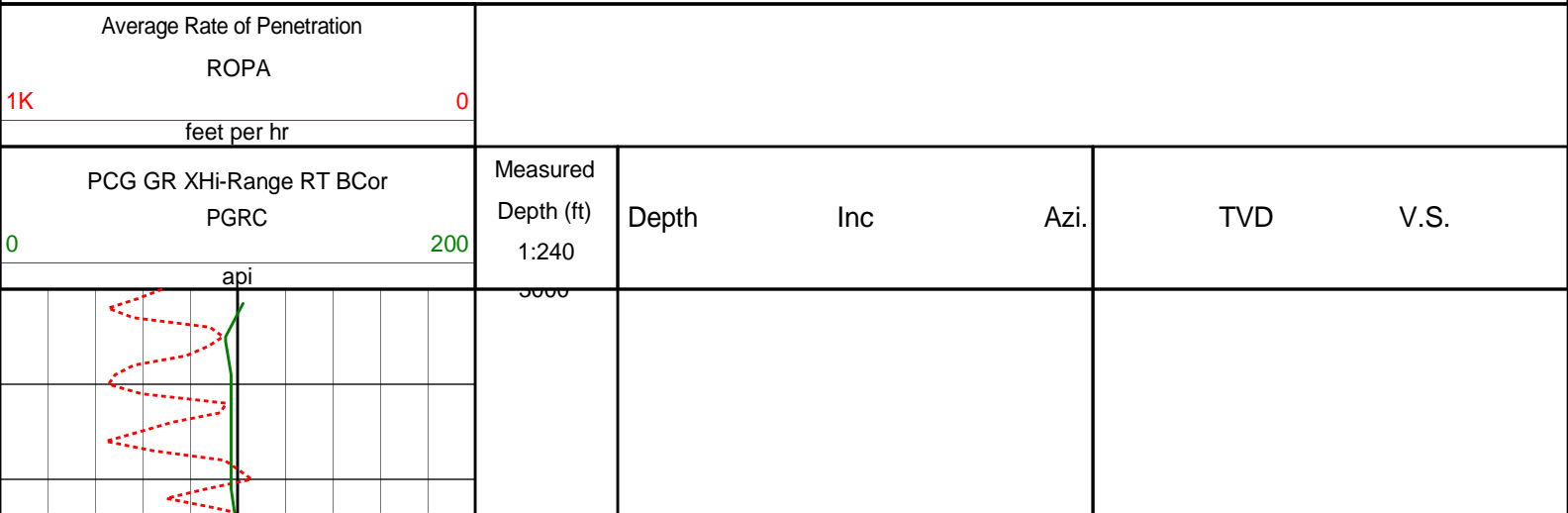


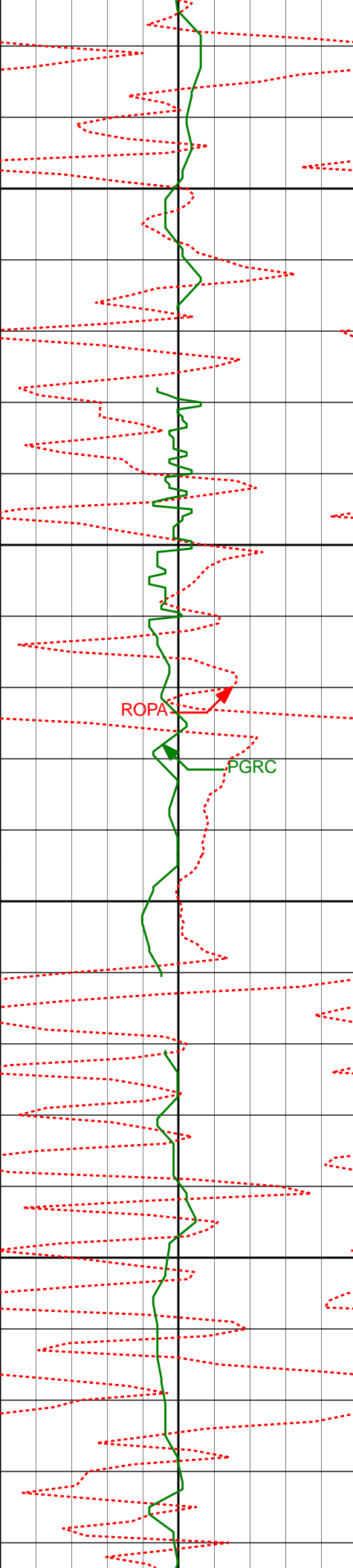
10450'	10455'	89.48°	268.97°	6659.91'	4208.88'
10500'					
10550'	10550'	89.91°	267.99°	6660.41'	4303.66'
10600'					
10650'	10645'	90.28°	267.02°	6660.25'	4398.54'
10700'					
10750'	10739'	89.51°	268.00°	6660.43'	4492.42'
10800'					
10850'	10834'	90.00°	268.10°	6660.83'	4587.25'
10900'					
10950'	10929'	90.31°	269.97°	6660.58'	4681.96'



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MD Main Log 1:240





3050'

3069'

8.87°

198.63°

3056.17'

45.42'

3100'

ROPA

PGRC

3150'

3163'

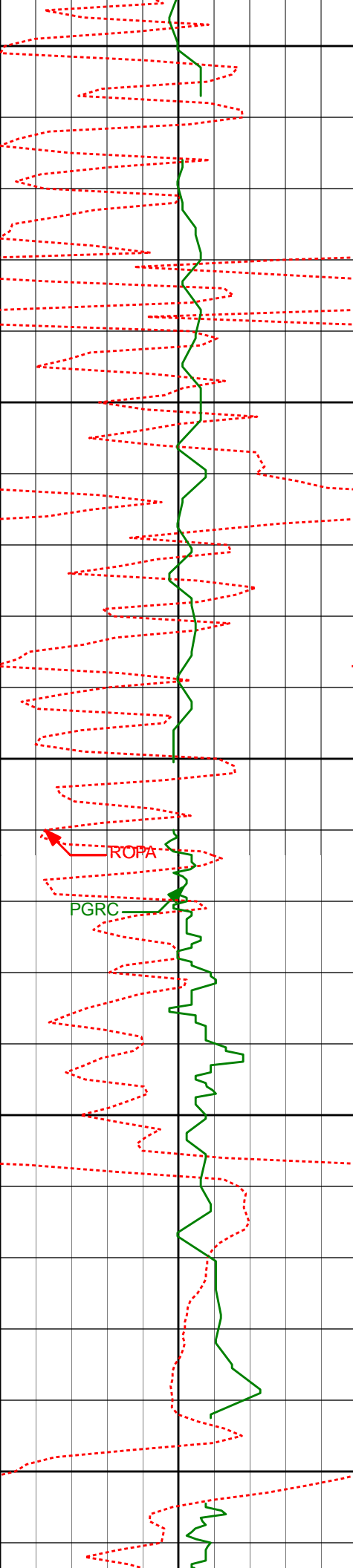
11.04°

201.10°

3148.75'

52.38'

3200'



3250'

3257'

9.93°

204.07°

3241.18'

60.37'

3300'

3350'

3352'

8.12°

193.91°

3335.00'

66.61'

3400'

3445'

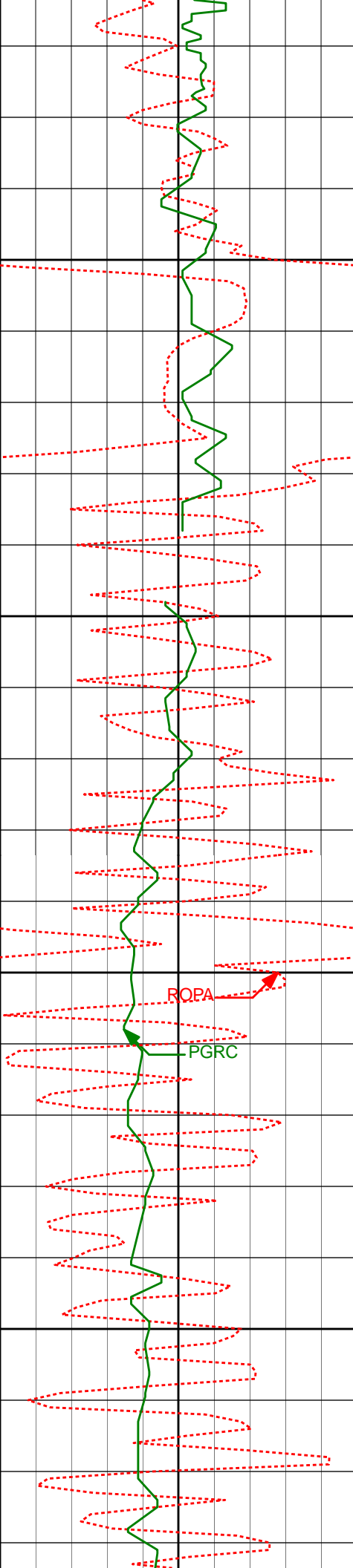
9.85°

201.19°

3426.86'

72.34'

3450'



3500'

3550'

3600'

3650'

3539'

10.68°

195.27°

3519.36'

79.01'

3633'

11.50°

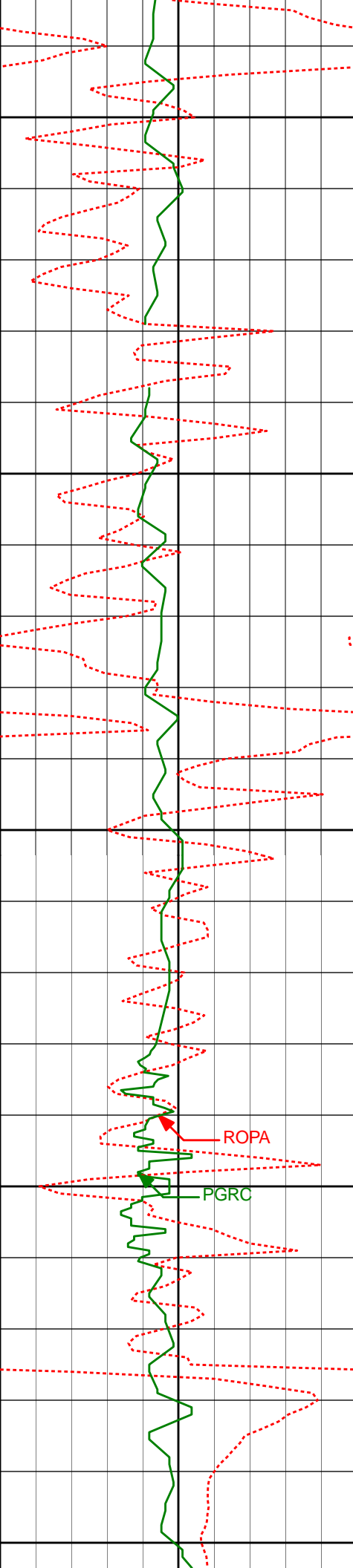
195.27°

3611.60'

85.38'

ROPA

PGRC



3700'

3728'

12.55°

195.76°

3704.52'

92.44'

3750'

3800'

3822'

13.36°

195.39°

3796.12'

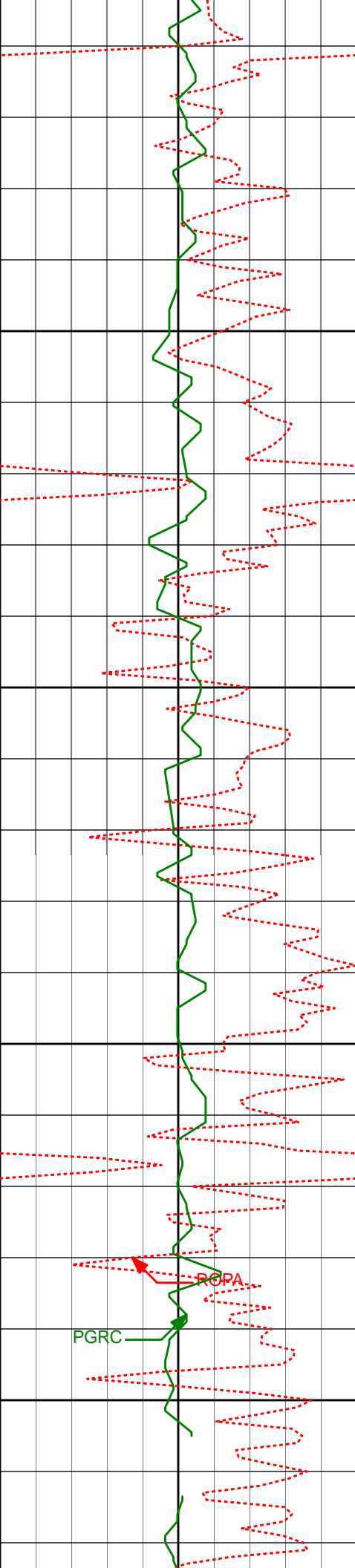
99.97'

3850'

ROPA

PGRC

3900'



3950'

4000'

4050'

4100'

3917'

4010'

4105'

11.46°

10.36°

9.05°

196.89°

195.56°

195.58°

3888.90'

3980.22'

4073.86'

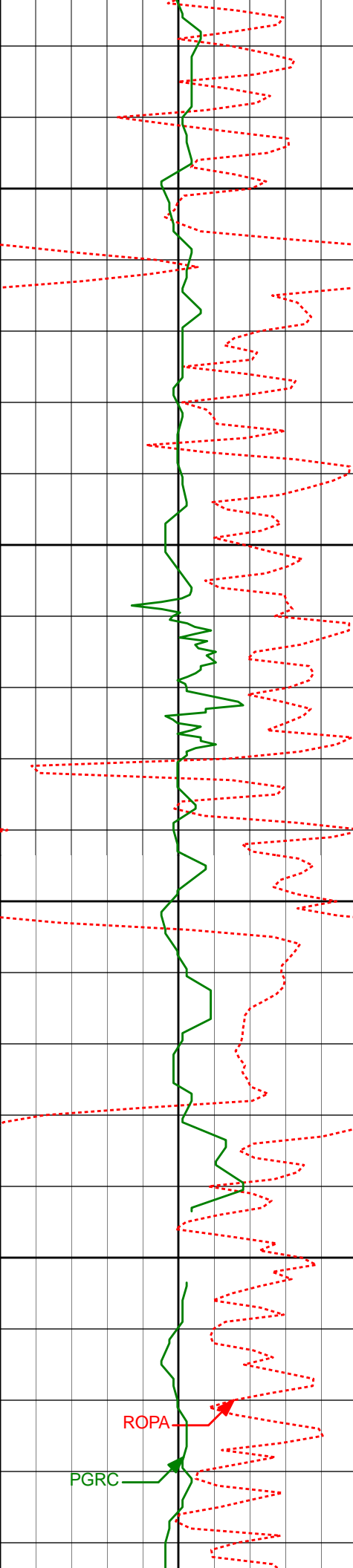
107.44'

113.92'

119.65'

PGRC

RCPA



4150'

4200'

4250'

4300'

4200'

4295'

7.90°

7.44°

196.08°

201.90°

4167.82'

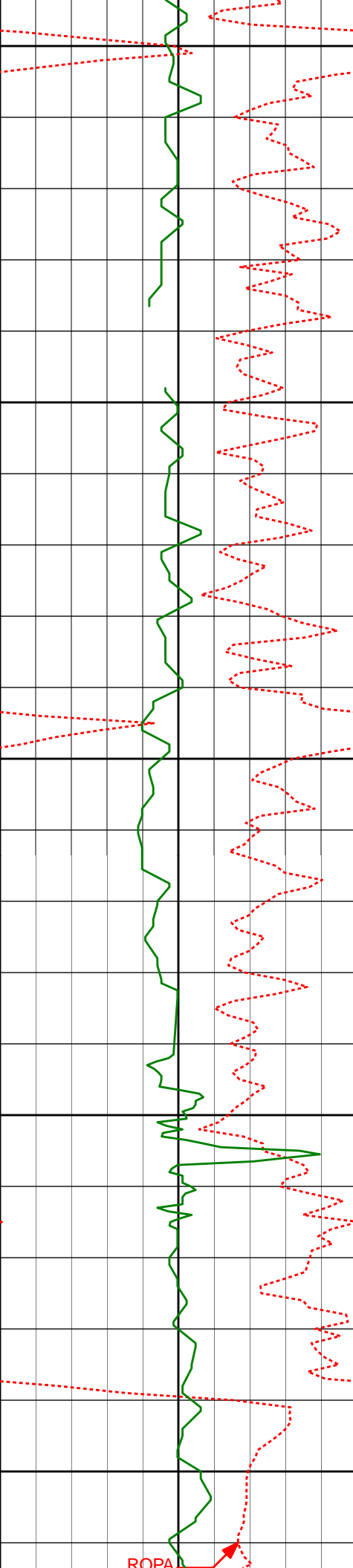
4261.97'

124.70'

129.91'

ROPA

PGRC



4350'

4390'

4400'

4450'

4485'

4500'

4550'

5.57°

204.80°

4356.35'

135.05'

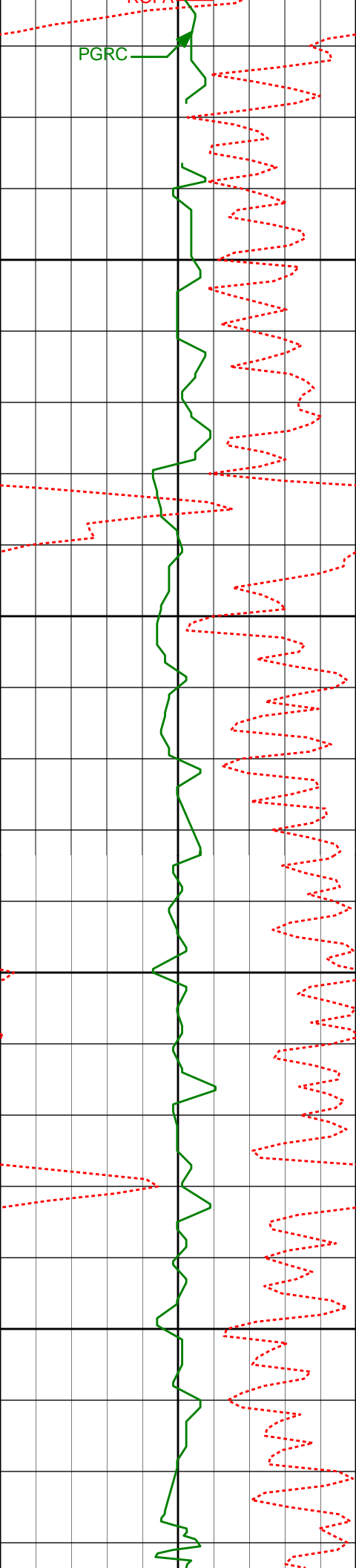
4.63°

206.45°

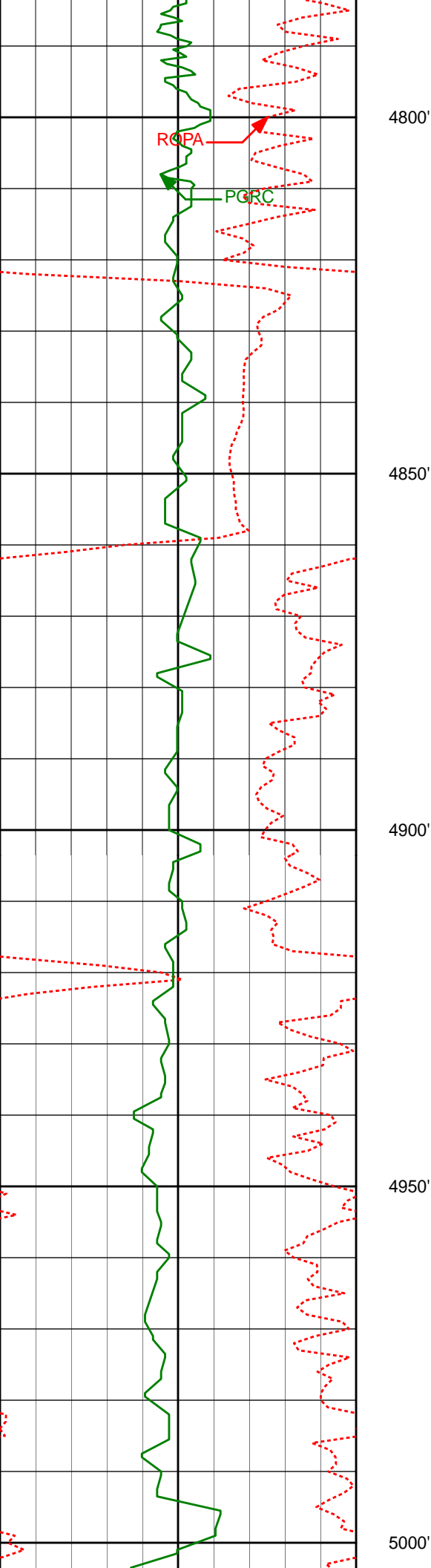
4450.98'

139.38'

ROPA



4580'	5.26°	206.92°	4545.62'	143.73'
4600'				
4650'				
4674'	4.43°	228.03°	4639.29'	148.95'
4700'				
4750'				
4769'	3.22°	225.14°	4734.08'	153.95'



4864'

3.03°

190.40°

4828.95'

156.70'

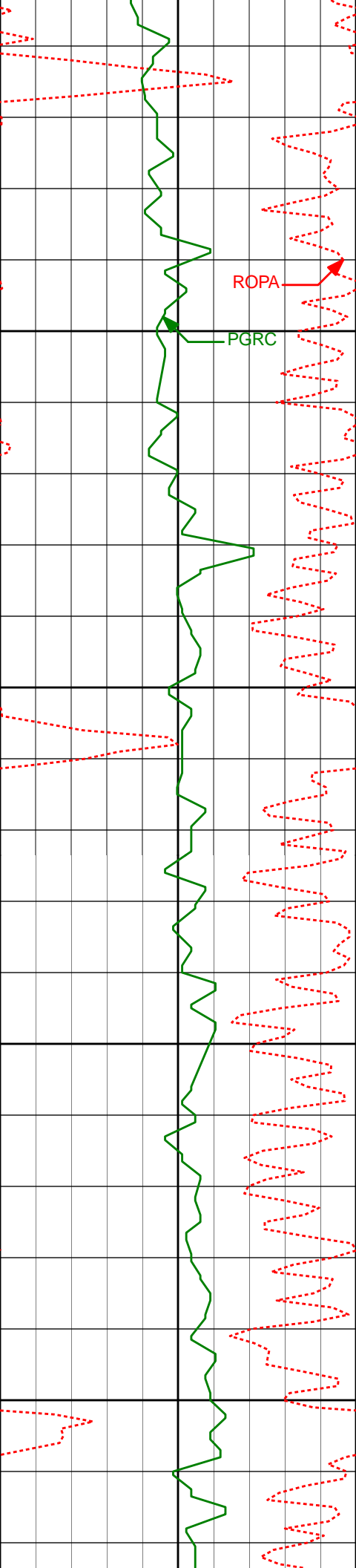
4958'

3.07°

182.13°

4922.81'

157.70'



ROP

PGRC

5050'

5100'

5150'

5200'

5053'

2.88°

174.85°

5017.69'

158.04'

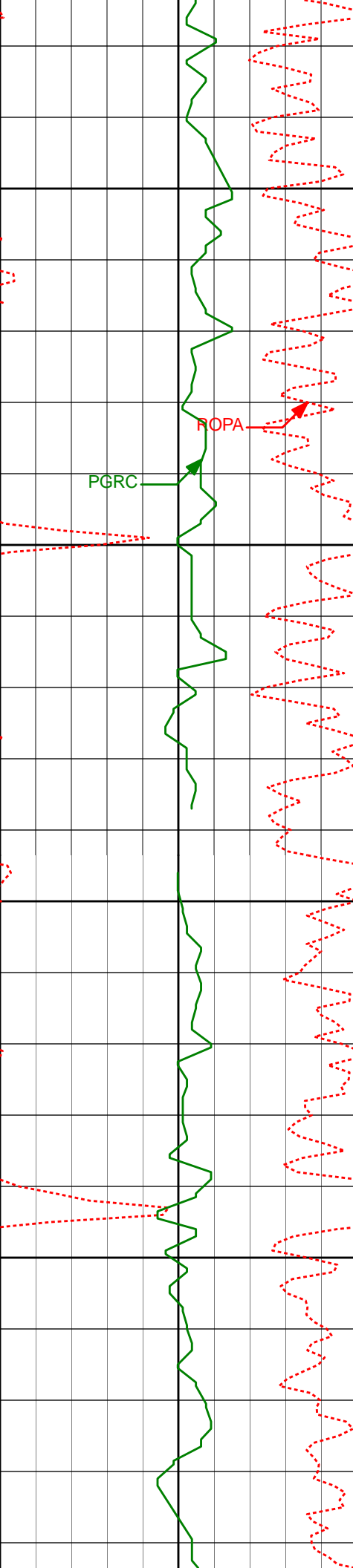
5148'

2.14°

167.88°

5112.59'

157.84'



5250'

5300'

5350'

5400'

5243'

1.51°

151.92°

5207.55'

157.15'

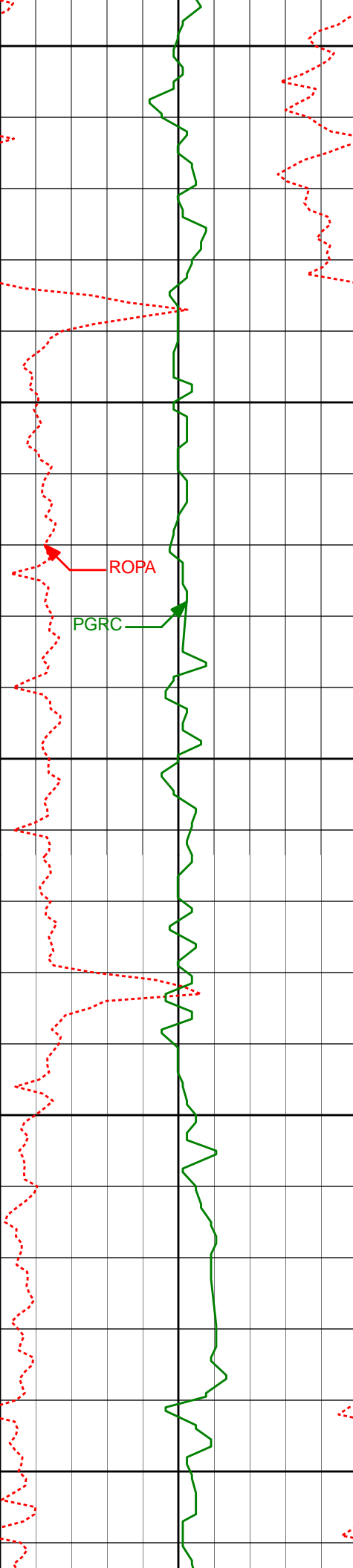
5432'

0.32°

23.06°

5396.53'

155.94'



5450'

5500'

5550'

5600'

5650'

5527'

0.89°

47.78°

5491.52'

155.22'

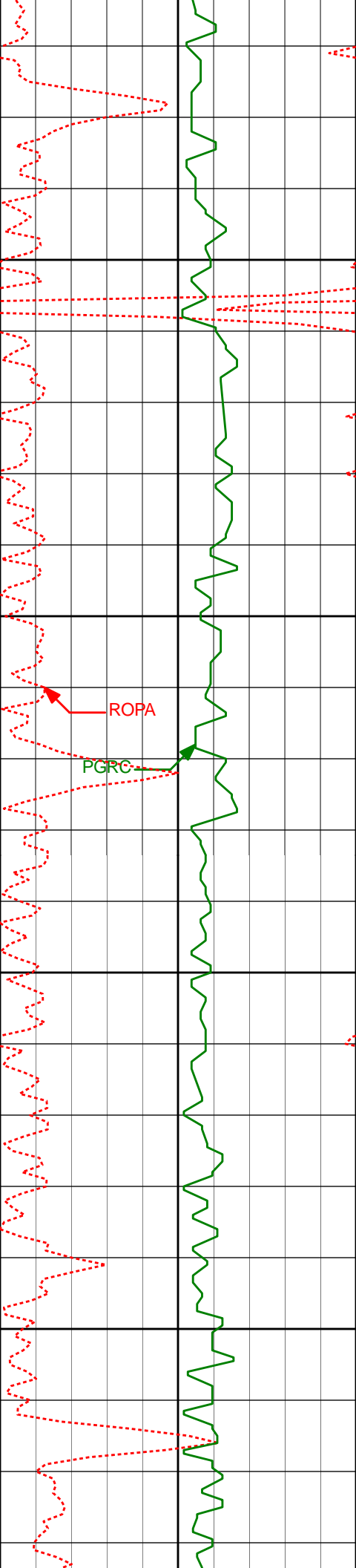
5622'

0.72°

76.97°

5586.51'

154.04'



5700'

5750'

5800'

5850'

5716'

0.76°

89.43°

5680.50'

152.83'

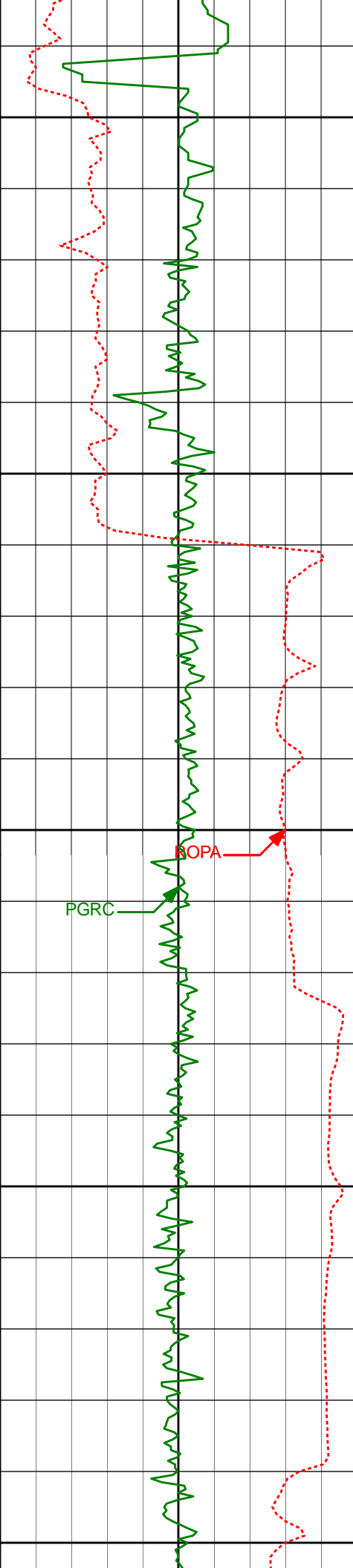
5811'

0.65°

98.03°

5775.50'

151.68'



Run200

5900'

5906'

0.71°

138.34°

5870.49'

150.81'

5950'

6000'

5996'

1.27°

164.82°

5960.48'

150.31'

6050'

6044'

2.99°

246.76°

6008.45'

151.41'

6100'

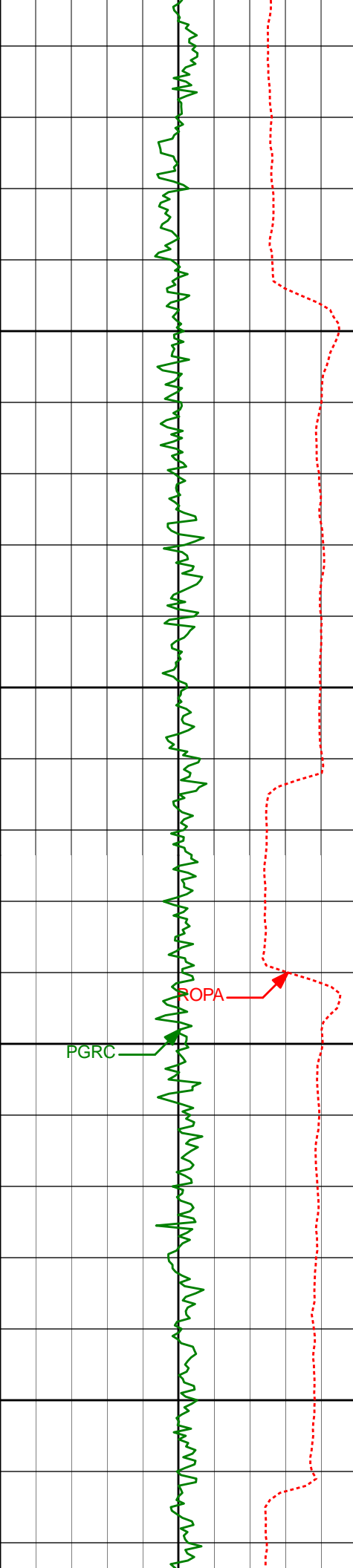
6091'

7.66°

269.40°

6055.24'

155.70'



6150'

6200'

6250'

6300'

6186'

13.33°

268.71°

6148.61'

172.95'

6281'

21.68°

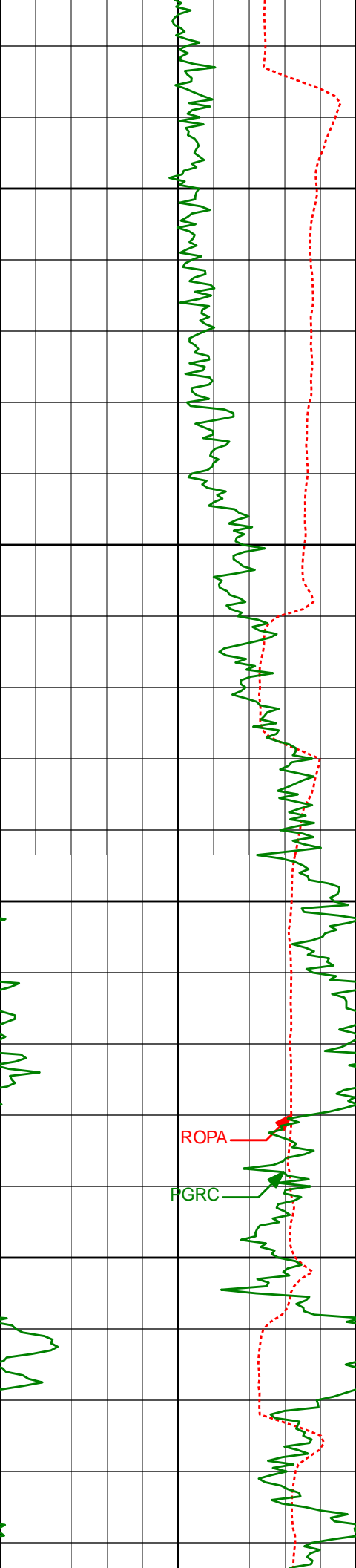
268.44°

6239.13'

201.43'

PGRC

POPA



6350'

6375'

31.04°

270.49°

6323.27'

242.96'

6400'

6450'

6470'

42.83°

269.54°

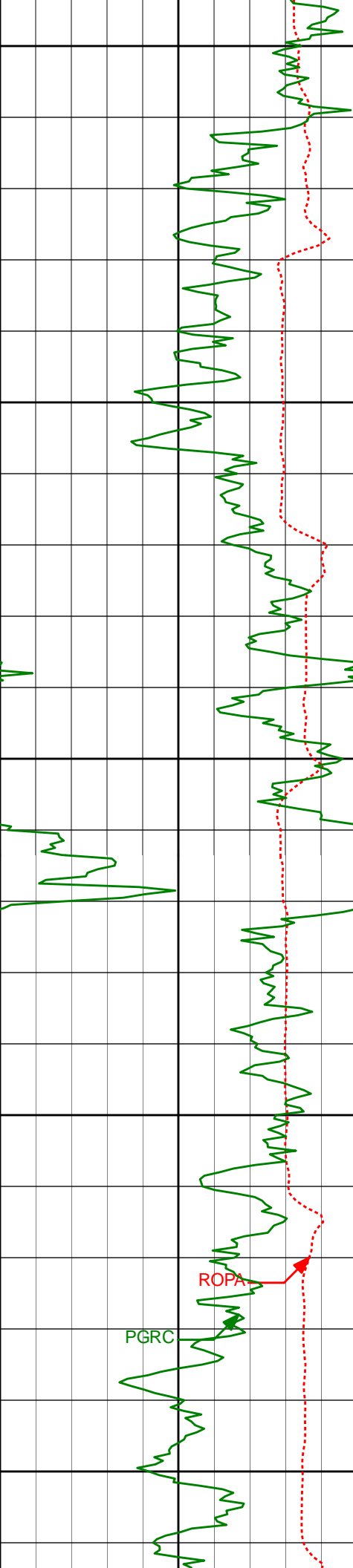
6399.07'

299.69'

6500'

ROPA

PGRC



6550'

6565'

54.52°

269.88°

6461.69'

370.63'

6600'

6650'

6660'

59.03°

267.10°

6513.74'

449.89'

6700'

ROPA

PGRC

6750'

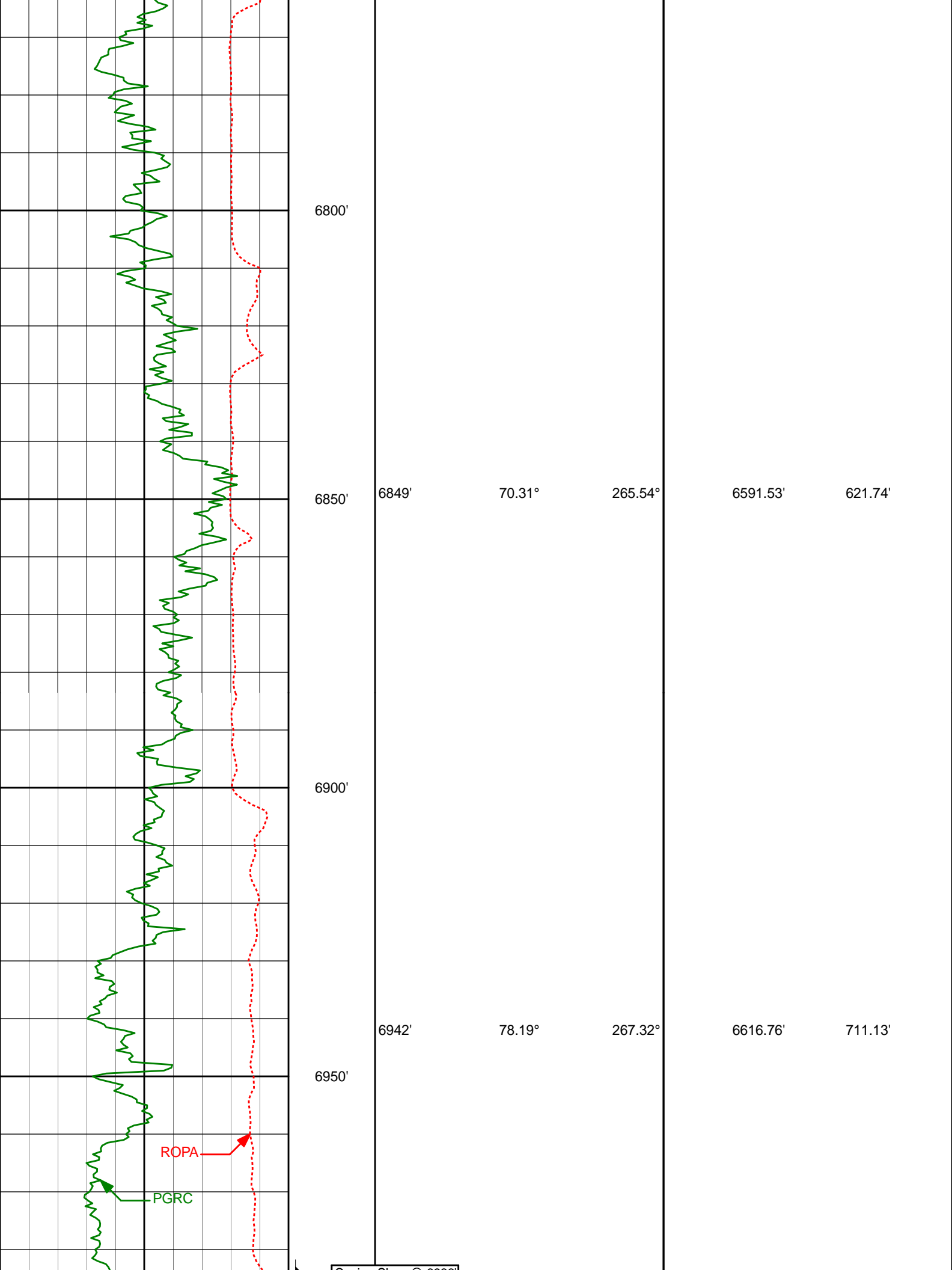
6754'

66.60°

265.60°

6556.65'

533.41'



6800'

6850'

6900'

6950'

6849'

70.31°

265.54°

6591.53'

621.74'

6942'

78.19°

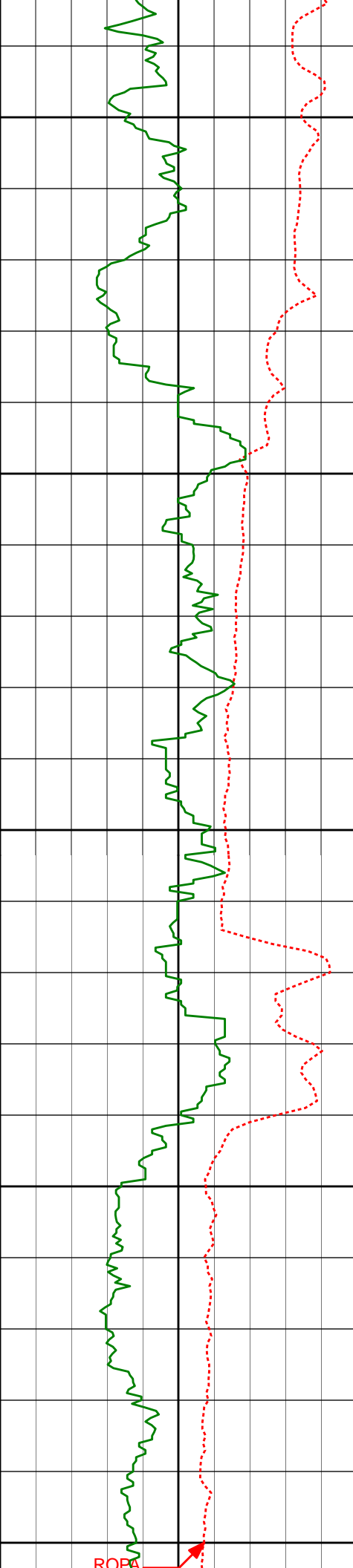
267.32°

6616.76'

711.13'

ROPA

PGRC



Casing Shoe @ 6986'

Run 300

7000'

7050'

7100'

7150'

7200'

7053'

84.51°

272.02°

6633.46'

820.35'

7147'

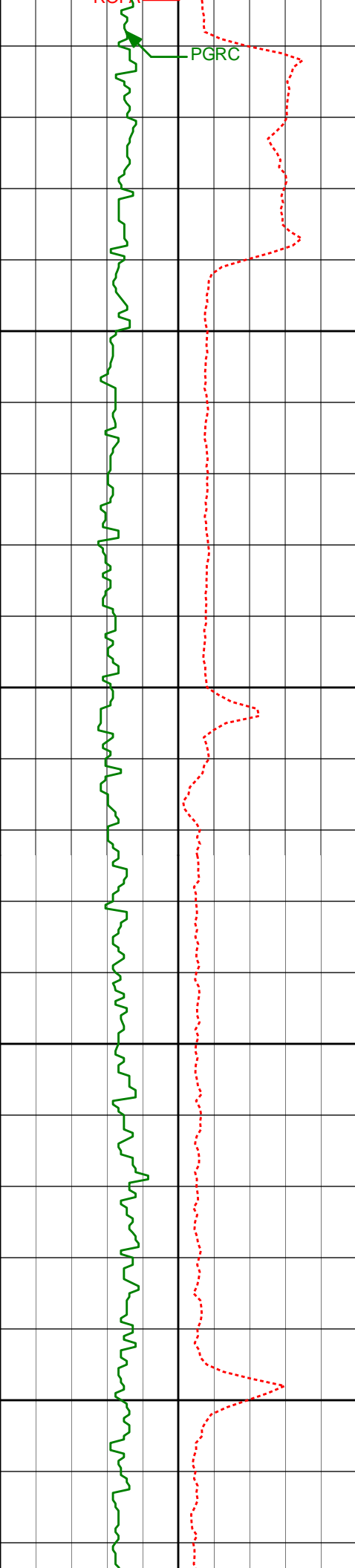
85.77°

270.61°

6641.42'

913.37'

ROPA



7240'

89.11°

269.65°

6645.57'

1005.84'

7250'

7300'

7333'

89.85°

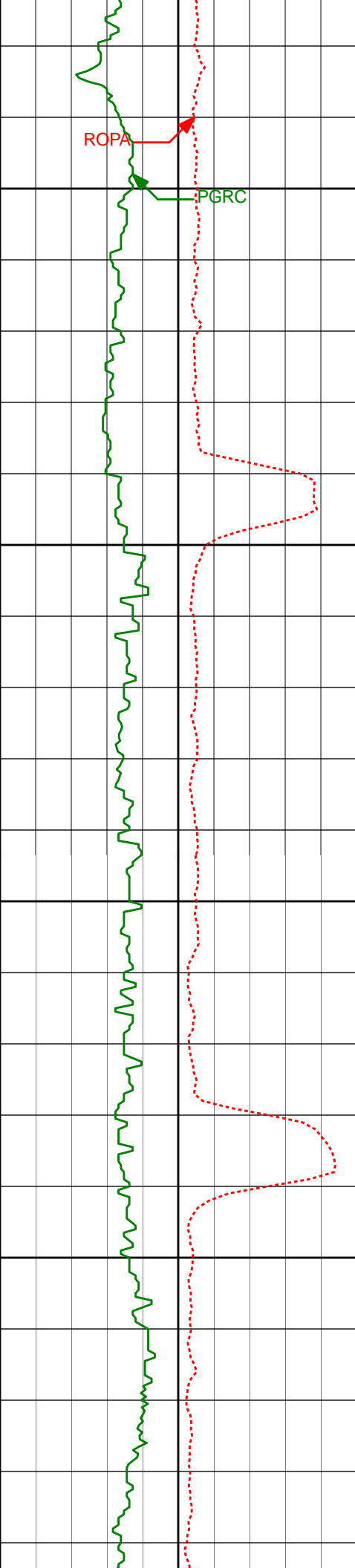
270.24°

6646.42'

1098.44'

7350'

7400'



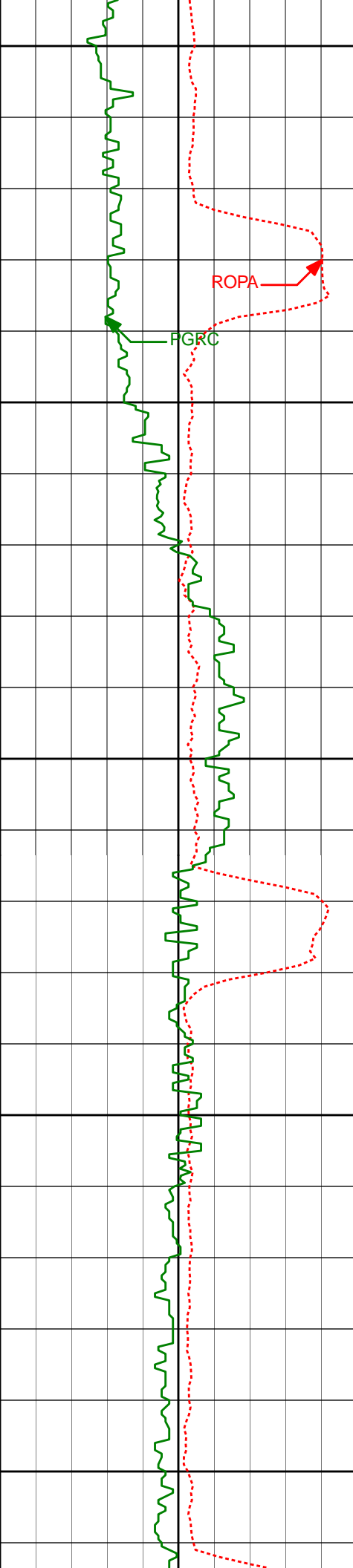
7450'

7500'

7550'

7600'

7425'	89.32°	269.06°	6647.08'	1190.08'
7518'	90.77°	269.30°	6647.01'	1282.78'
7612'	91.05°	270.10°	6645.52'	1376.40'



7650'

ROPA

FGRC

7700'

7705'

90.52°

269.90°

6644.24'

1468.98'

7750'

7800'

7800'

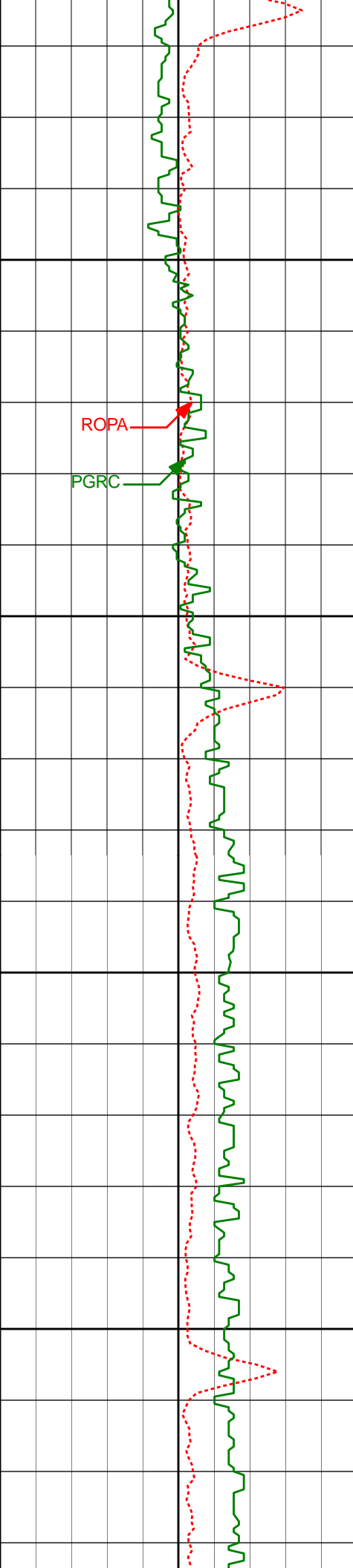
89.78°

269.98°

6643.99'

1563.58'

7850'



7900'

7950'

8000'

8050'

7895'

89.63°

270.20°

6644.48'

1658.14'

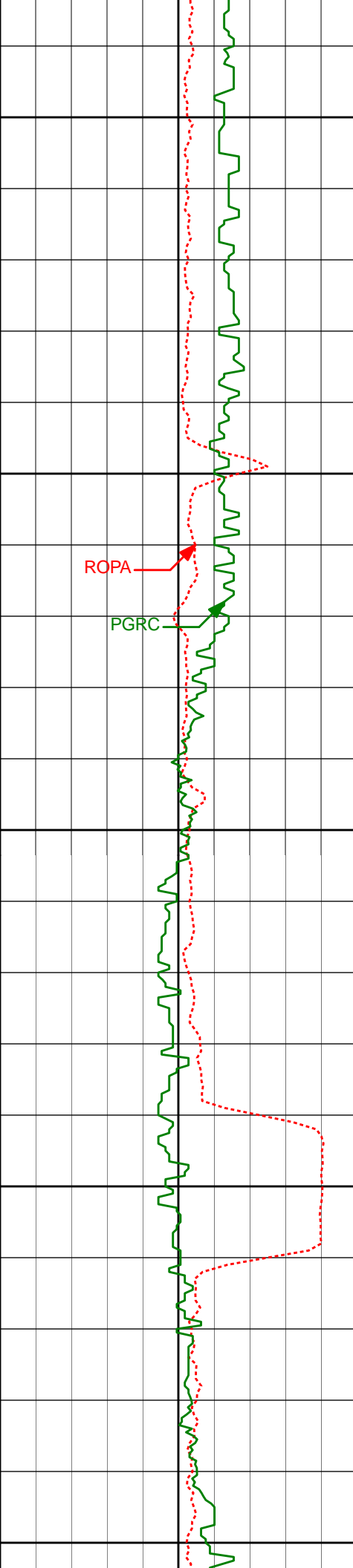
7990'

90.09°

270.02°

6644.72'

1752.71'



8100'

8150'

8200'

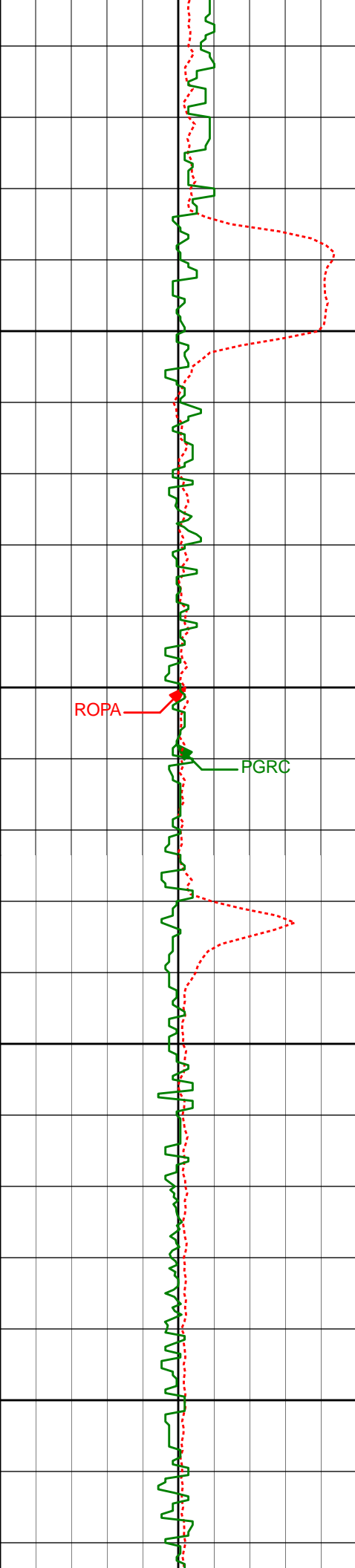
8250'

8300'

ROPA

PGRC

8084'	90.03°	269.66°	6644.62'	1846.32'
8179'	90.62°	268.70°	6644.08'	1941.02'
8274'	90.55°	270.30°	6643.11'	2035.67'



8350'

8369'

89.85°

270.01°

6642.78'

2130.22'

8400'

ROPA

PGRC

8450'

8464'

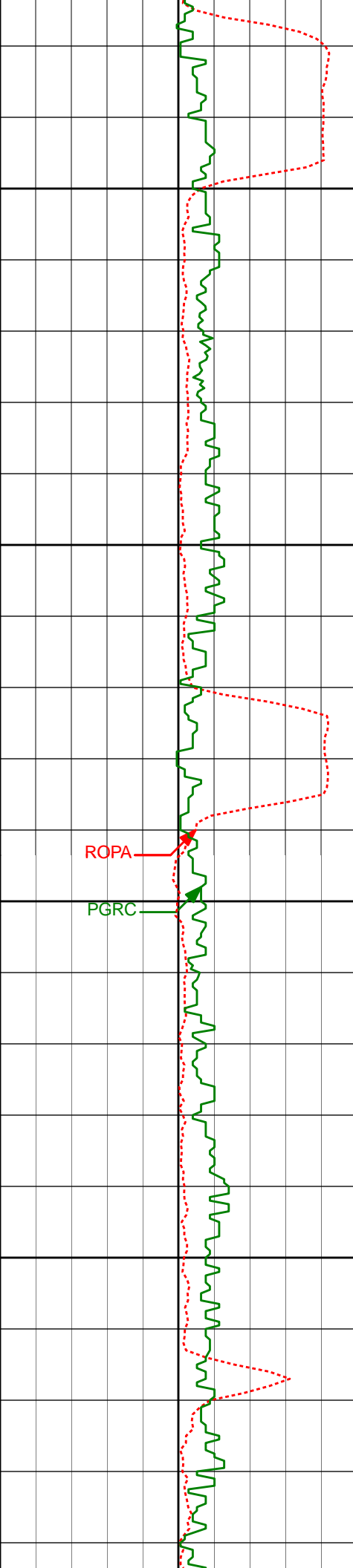
89.78°

268.06°

6643.08'

2224.94'

8500'



8550'

8600'

8650'

8700'

ROPA

PGRC

8558'

89.44°

268.83°

6643.72'

2318.73'

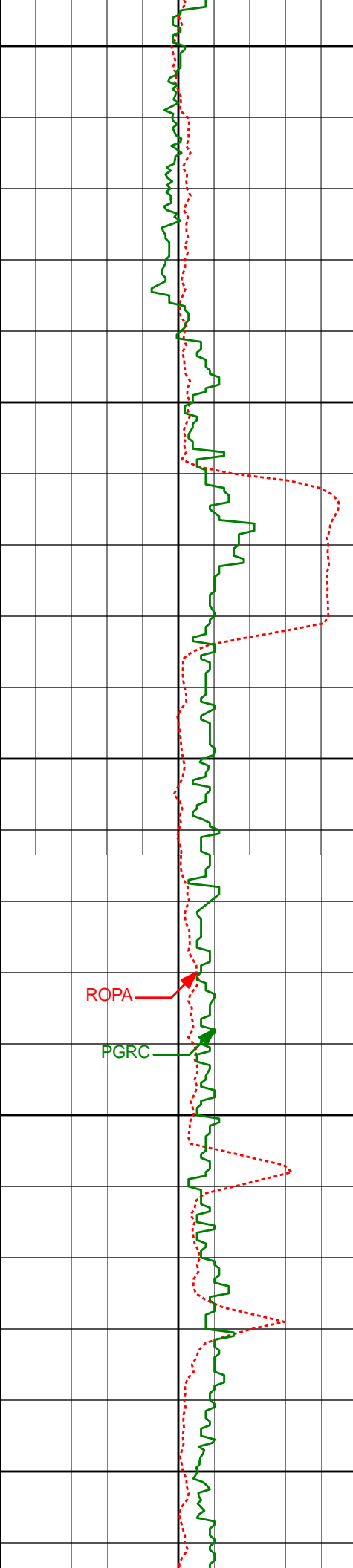
8653'

90.03°

269.83°

6644.16'

2413.41'



8750'

8800'

8850'

8900'

8950'

8748'

8843'

8938'

90.96°

89.20°

90.00°

269.79°

270.58°

271.12°

6643.34'

6643.21'

6643.87'

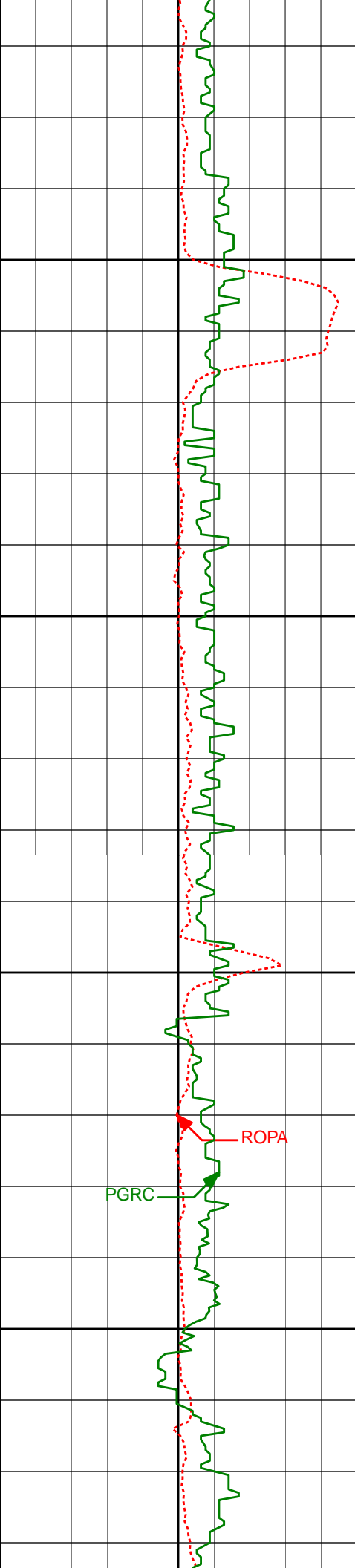
2508.01'

2602.56'

2697.00'

ROPA

PGRC



9000'

9050'

9100'

9150'

9032'

89.26°

271.01°

6644.48'

2790.40'

9127'

90.34°

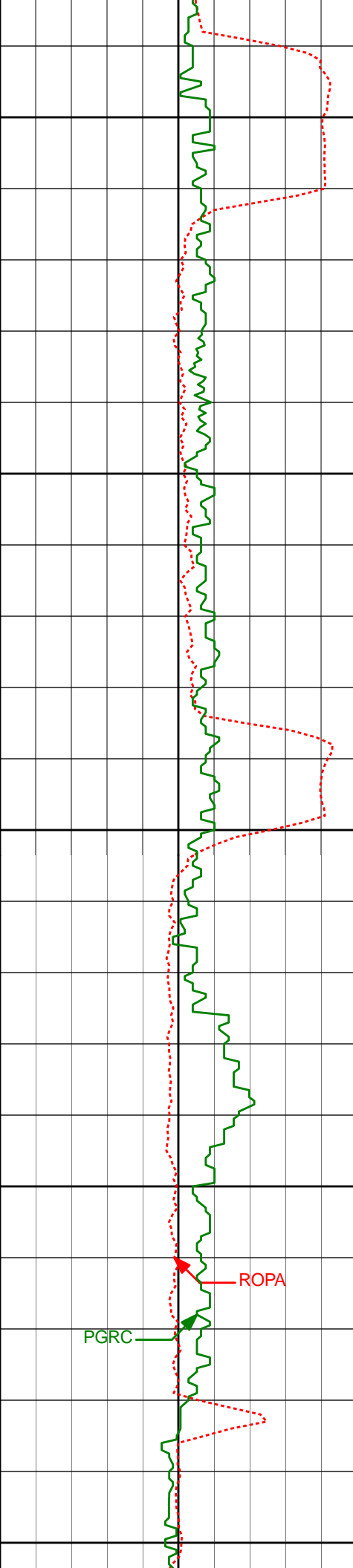
271.36°

6644.81'

2884.78'

PGRC

ROPA



9200'

9222'

90.12°

269.86°

6644.43'

2979.26'

9250'

9300'

9317'

88.61°

268.56°

6645.48'

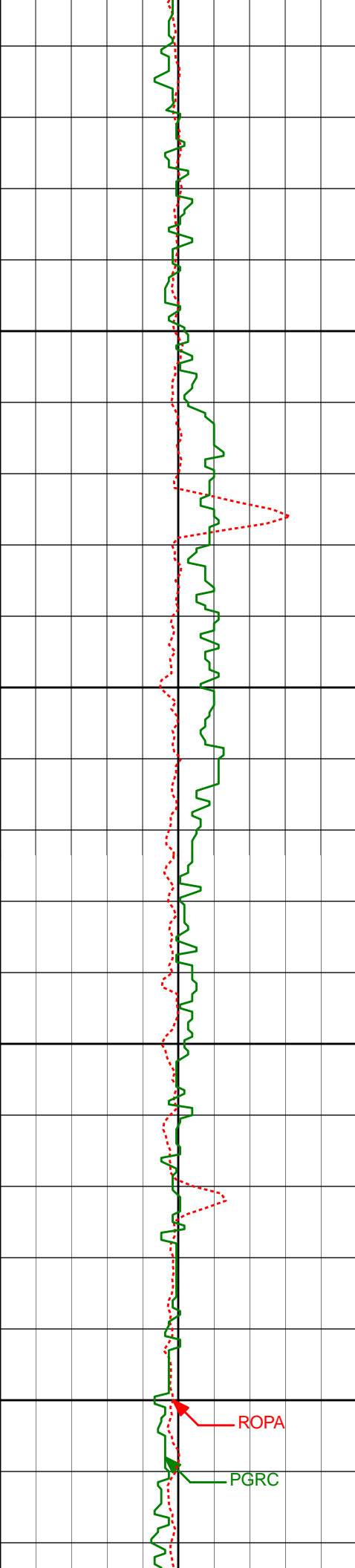
3073.95'

9350'

PGRC

ROPA

9400'



9411'

89.23°

268.84°

6647.25'

3167.69'

9450'

9500'

9506'

89.10°

268.76°

6648.64'

3262.43'

9550'

9600'

9601'

89.97°

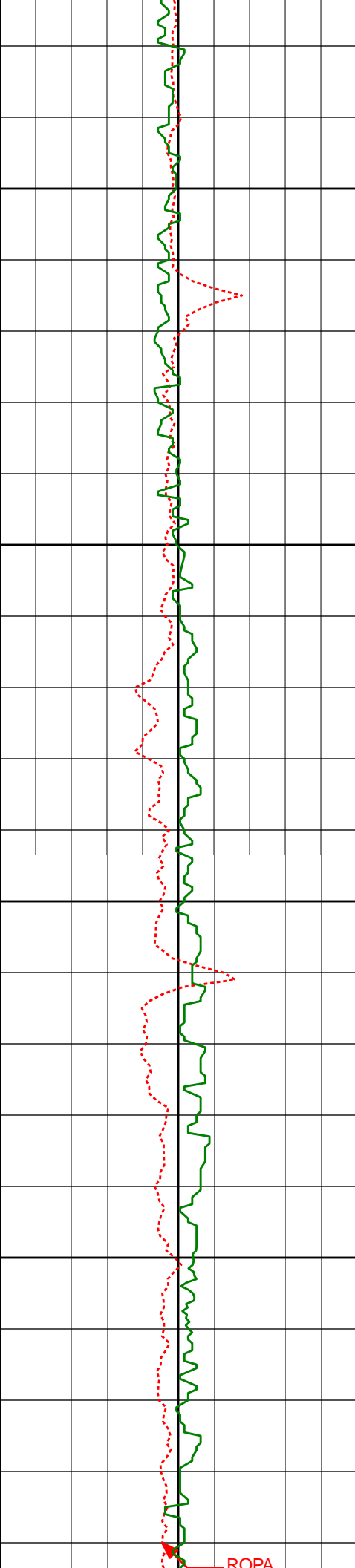
268.34°

6649.41'

3357.20'

ROPA

PGRC



9650'

9700'

9750'

9800'

9696'

89.85°

267.92°

6649.56'

3452.03'

9791'

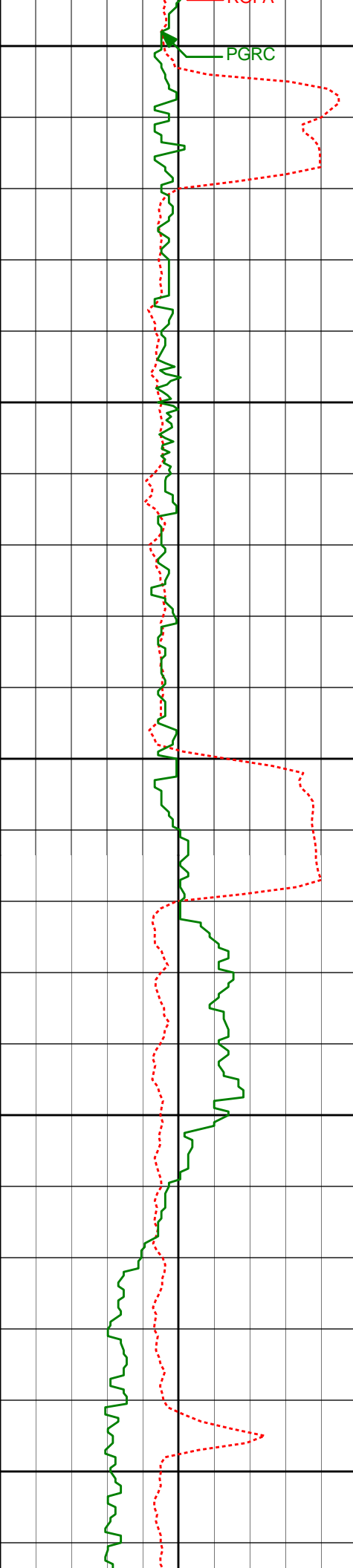
90.62°

267.98°

6649.17'

3546.87'

ROPA



PGRC

9850'

9886'

90.37°

267.53°

6648.35'

3641.72'

9900'

9950'

9981'

88.21°

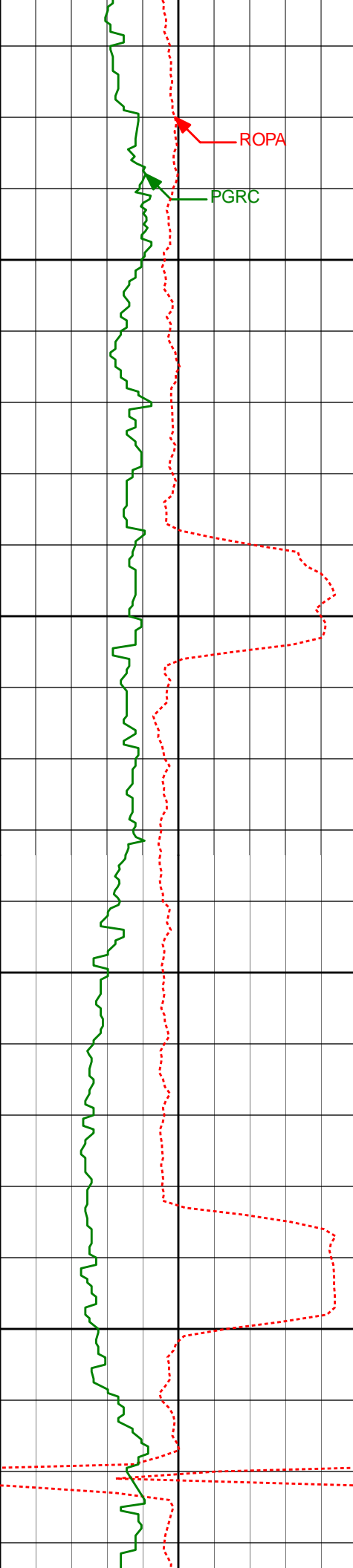
267.89°

6649.53'

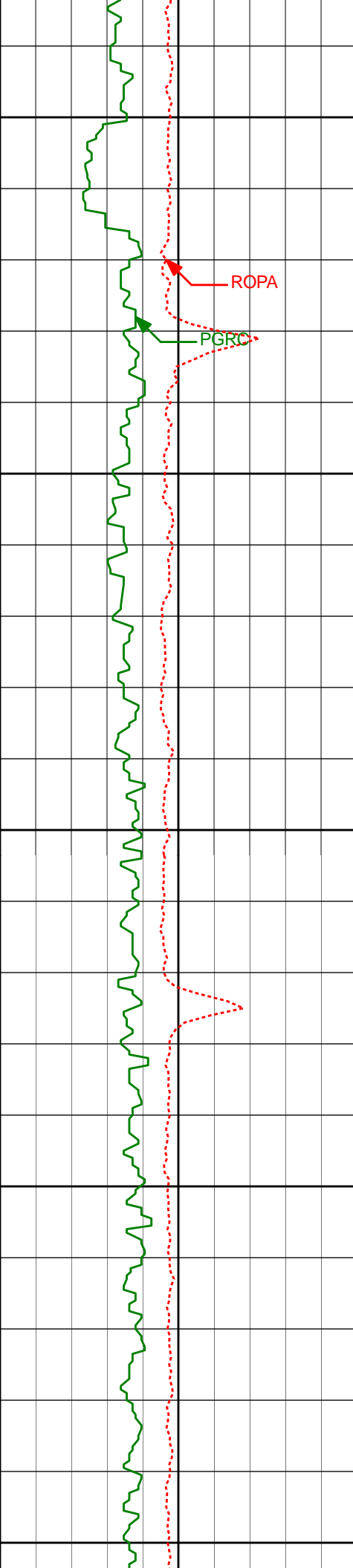
3736.57'

10000'

10050'



	10076'	87.99°	267.73°	6652.68'	3831.37'
10100'					
10150'					
	10171'	88.21°	268.96°	6655.83'	3926.12'
10200'					
10250'					
	10265'	89.02°	270.18°	6658.10'	4019.74'



10300'

10350'

10400'

10450'

10500'

ROP

PGRC

10360'

89.66°

270.50°

6659.19'

4114.26'

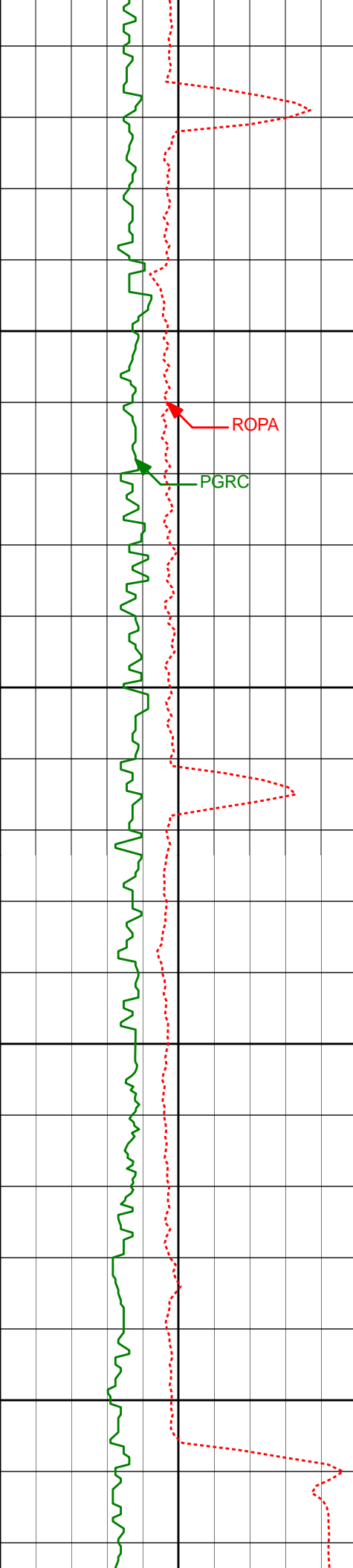
10455'

89.48°

268.97°

6659.91'

4208.88'



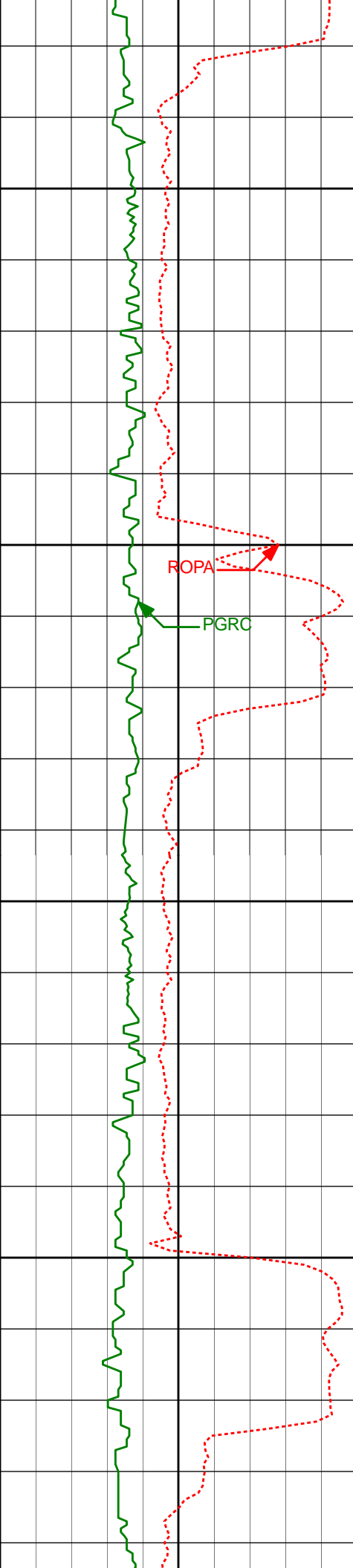
10550' 10550' 89.91° 267.99° 6660.41' 4303.66'

10600'

10650'

10645' 10645' 90.28° 267.02° 6660.25' 4398.54'

10700'



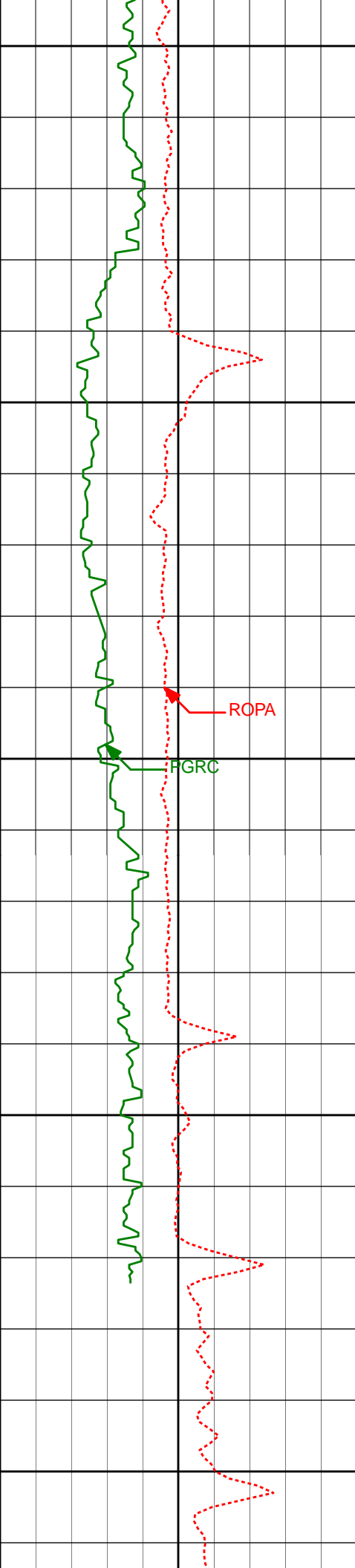
10750'

10800'

10850'

10900'

10739'	89.51°	268.00°	6660.43'	4492.42'
10834'	90.00°	268.10°	6660.83'	4587.25'
10929'	90.31°	269.97°	6660.58'	4681.96'



10950'

11000'

11050'

11100'

11150'

ROPA

FGRC

11114'

92.00°

269.48°

6656.85'

4866.19'

3445.00	9.83	201.19	3420.80	190.38 S	34.20 W	72.34	2.22
3539.00	10.68	195.27	3519.36	212.28 S	59.40 W	79.01	1.43
3633.00	11.50	195.27	3611.60	229.73 S	64.16 W	85.38	0.87
3728.00	12.55	195.76	3704.52	248.80 S	69.46 W	92.44	1.11
3822.00	13.36	195.39	3796.12	269.10 S	75.11 W	99.97	0.87
3917.00	11.46	196.89	3888.90	288.71 S	80.77 W	107.44	2.03
4010.00	10.36	195.56	3980.22	305.61 S	85.70 W	113.92	1.21
4105.00	9.05	195.58	4073.86	321.03 S	90.00 W	119.65	1.38
4200.00	7.90	196.08	4167.82	334.50 S	93.81 W	124.70	1.21
4295.00	7.44	201.90	4261.97	346.48 S	97.91 W	129.91	0.95
4390.00	5.57	204.80	4356.35	356.38 S	102.14 W	135.05	2.00
4485.00	4.63	206.45	4450.98	364.00 S	105.78 W	139.38	1.00
4580.00	5.26	206.92	4545.62	371.31 S	109.46 W	143.73	0.66
4674.00	4.43	228.03	4639.29	377.58 S	114.11 W	148.95	2.08
4769.00	3.22	225.14	4734.08	381.92 S	118.73 W	153.95	1.29
4864.00	3.03	190.40	4828.95	386.27 S	121.08 W	156.70	1.97
4958.00	3.07	182.13	4922.81	391.23 S	121.62 W	157.70	0.47
5053.00	2.88	174.85	5017.69	396.15 S	121.50 W	158.04	0.44
5148.00	2.14	167.88	5112.59	400.26 S	120.91 W	157.84	0.84
5243.00	1.51	151.92	5207.55	403.10 S	119.95 W	157.15	0.85
5432.00	0.32	23.06	5396.53	404.81 S	118.57 W	155.94	0.91
5527.00	0.89	47.78	5491.52	404.07 S	117.92 W	155.22	0.65
5622.00	0.72	76.97	5586.51	403.44 S	116.79 W	154.04	0.46
5716.00	0.76	89.43	5680.50	403.30 S	115.60 W	152.83	0.18
5811.00	0.65	98.03	5775.50	403.37 S	114.43 W	151.68	0.16
5906.00	0.71	138.34	5870.49	403.88 S	113.51 W	150.81	0.50
5996.00	1.27	164.82	5960.48	405.26 S	112.87 W	150.31	0.79
6044.00	2.99	246.76	6008.45	406.27 S	113.89 W	151.41	6.42
6091.00	7.66	269.40	6055.24	406.79 S	118.15 W	155.70	10.71
6186.00	13.33	268.71	6148.61	407.10 S	135.44 W	172.95	5.97
6281.00	21.68	268.44	6239.13	407.83 S	163.98 W	201.43	8.79
6375.00	31.04	270.49	6323.27	408.09 S	205.67 W	242.96	10.00
6470.00	42.83	269.54	6399.07	408.14 S	262.65 W	299.69	12.42
6565.00	54.52	269.88	6461.69	408.48 S	333.87 W	370.63	12.31
6660.00	59.03	267.10	6513.74	410.63 S	413.28 W	449.89	5.34
6754.00	66.60	265.60	6556.65	415.98 S	496.66 W	533.41	8.18
6849.00	70.31	265.54	6591.53	422.81 S	584.74 W	621.74	3.91
6942.00	78.19	267.32	6616.76	428.35 S	674.00 W	711.13	8.67
7053.00	84.51	272.02	6633.46	428.94 S	783.65 W	820.35	7.07
7147.00	85.77	270.61	6641.42	426.79 S	877.28 W	913.37	2.01
7240.00	89.11	269.65	6645.57	426.59 S	970.18 W	1005.84	3.74
7333.00	89.85	270.24	6646.42	426.67 S	1063.17 W	1098.44	1.02
7425.00	89.32	269.06	6647.08	427.24 S	1155.16 W	1190.08	1.41
7518.00	90.77	269.30	6647.01	428.57 S	1248.15 W	1282.78	1.58
7612.00	91.05	270.10	6645.52	429.06 S	1342.14 W	1376.40	0.90
7705.00	90.52	269.90	6644.24	429.06 S	1435.13 W	1468.98	0.61
7800.00	89.78	269.98	6643.99	429.16 S	1530.13 W	1563.58	0.78
7895.00	89.63	270.20	6644.48	429.01 S	1625.13 W	1658.14	0.28
7990.00	90.09	270.02	6644.72	428.83 S	1720.13 W	1752.71	0.52
8084.00	90.03	269.66	6644.62	429.09 S	1814.12 W	1846.32	0.39
8179.00	90.62	268.70	6644.08	430.45 S	1909.11 W	1941.02	1.19
8274.00	90.55	270.30	6643.11	431.28 S	2004.10 W	2035.67	1.69
8369.00	89.85	270.01	6642.78	431.02 S	2099.10 W	2130.22	0.80
8464.00	89.78	268.06	6643.08	432.62 S	2194.08 W	2224.94	2.05
8558.00	89.44	268.83	6643.72	435.17 S	2288.04 W	2318.73	0.90
8653.00	90.03	269.83	6644.16	436.28 S	2383.03 W	2413.41	1.22
8748.00	90.96	269.79	6643.34	436.60 S	2478.03 W	2508.01	0.98
8843.00	89.20	270.58	6643.21	436.29 S	2573.02 W	2602.56	2.03
8938.00	90.00	271.12	6643.87	434.88 S	2668.01 W	2697.00	1.02
9032.00	89.26	271.01	6644.48	433.14 S	2761.99 W	2790.40	0.80
9127.00	90.34	271.36	6644.81	431.17 S	2856.97 W	2884.78	1.20
9222.00	90.12	269.86	6644.43	430.16 S	2951.96 W	2979.26	1.60
9317.00	88.61	268.56	6645.48	431.47 S	3046.94 W	3073.95	2.10
9411.00	89.23	268.84	6647.25	433.60 S	3140.90 W	3167.69	0.72
9506.00	89.10	268.76	6648.64	435.59 S	3235.87 W	3262.43	0.16
9601.00	89.97	268.34	6649.41	438.00 S	3330.83 W	3357.20	1.02
9696.00	89.85	267.92	6649.56	441.10 S	3425.78 W	3452.03	0.46
9791.00	90.62	267.98	6649.17	444.49 S	3520.72 W	3546.87	0.81
9886.00	90.37	267.53	6648.35	448.21 S	3615.64 W	3641.72	0.54
9981.00	88.21	267.89	6649.53	452.01 S	3710.55 W	3736.57	2.31
10076.00	87.99	267.73	6652.68	455.64 S	3805.43 W	3831.37	0.29
10171.00	88.21	268.96	6655.83	458.38 S	3900.34 W	3926.12	1.31
10265.00	89.02	270.18	6658.10	459.09 S	3994.31 W	4019.74	1.56
10360.00	89.66	270.50	6659.19	458.52 S	4089.30 W	4114.26	0.75
10455.00	89.48	268.97	6659.91	458.96 S	4184.29 W	4208.88	1.62

10550.00	89.91	267.99	6660.41	461.48 S	4279.25 W	4303.66	1.13
10645.00	90.28	267.02	6660.25	465.62 S	4374.16 W	4398.54	1.09
10739.00	89.51	268.00	6660.43	469.70 S	4468.07 W	4492.42	1.33
10834.00	90.00	268.10	6660.83	472.93 S	4563.02 W	4587.25	0.53
10929.00	90.31	269.97	6660.58	474.53 S	4658.00 W	4681.96	2.00
11114.00	92.00	269.48	6656.85	475.42 S	4842.95 W	4866.19	0.95
11178.00	92.00	269.48	6654.61	476.00 S	4906.91 W	4929.92	0.00

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 264.63 DEGREES (GRID)
A TOTAL CORRECTION OF 7.62 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11178.00 FEET
IS 4929.94 FEET ALONG 264.46 DEGREES (GRID)**

Final survey is a straight line projection to TD.

Date Printed:09 March 2014