

## PCG Pressure Case Gamma Ray

[illegible]

## WELL INFORMATION

<b>MWD Run Number</b>	100	200	300		
<b>Date run completed</b>	08-Jun-14	11-Jun-14	16-Jun-14		
<b>Rig Bit Number</b>	0100	0200	0300		
<b>Bit Size (in)</b>	13.500	8.750	6.125		
<b>Tool Nominal OD (in)</b>	6.750	6.750	4.750		
<b>Log Start Depth (MD, ft)</b>	147.00	1,550.00	6,006.00		
<b>Log End Depth (MD, ft)</b>	1,550.00	6,006.00	13,604.00		
<b>Drill or Wipe</b>	Drill	Drill	Drill		
<b>Drill/Wipe Start Date and Time</b>	07-Jun-14 16:51	09-Jun-14 07:06	12-Jun-14 17:25		
<b>Drill/Wipe End Date and Time</b>	08-Jun-14 00:45	10-Jun-14 20:51	16-Jun-14 02:38		
<b>Min Inc (deg) @ Depth (MD, ft)</b>	0.06 @ 172.00	0.18 @ 2,913.00	87.47 @ 9,139.00		
<b>Max Inc (deg) @ Depth (MD, ft)</b>	3.69 @ 1,453.00	91.73 @ 5,952.00	92.84 @ 7,923.00		
<b>Bit TFA(in2) / Bit Type</b>	0.90 / PDC	0.74 / PDC	0.98 / PDC		
<b>Flow Rate (gpm)</b>	685.48	538.22	256.19		
<b>Max AV (fpm) / CV (fpm) @ MWD</b>	NA / NA	NA / NA	NA / NA		
<b>Fluid Type</b>	Native/Spud Mud	Fresh Water Gel	Fresh Water Gel		
<b>Density (ppg) / Viscosity (spqt)</b>	8.40 / 0.00	10.20 / 45.00	9.90 / 40.00		
<b>Filtrate CL (ppm)</b>	0.00	2,000.00	2,000.00		
<b>pH / Fluid Loss (mptm)</b>	8.00 / 0	9.60 / 0	9.50 / 10		
<b>PV (cP) / YP (lbf2)</b>	NA / NA	14 / 17.00	15 / 12.00		
<b>% Solids / % Sand</b>	0 / 0.25	10 / 0.25	10 / 0.25		
<b>% Oil / Oil:Water Ratio</b>	NA / NA	NA / NA	NA / NA		
<b>Rm @ Measured Temp (degF)</b>	NA @ NA	NA @ NA	NA @ NA		
<b>Rmf @ Measured Temp (degF)</b>	NA @ NA	NA @ NA	NA @ NA		
<b>Rmc @ Measured Temp (degF)</b>	NA @ NA	NA @ NA	NA @ NA		
<b>Max Temp (degF) / RPM</b>	110.00 / RPM	175.00 / RPM	200.00 / RPM		

Max Tool Temp (degF) / Source	119.91 / PCM	175.21 / PCM	226.08 / PCM		
Rm @ Max Tool Temp (degF)	NA @ 119.91	NA @ 175.21	NA @ 226.08		
Lead MWD Engineer	Scott Trowbridge	Scott Trowbridge	Scott Trowbridge		
Customer Representative	Kennith Wilkerson	Kennith Wilkerson	Kennith Wilkerson		

## SENSOR INFORMATION

### Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.93	5.93	5.93		
Sub Serial Number	11341350	11341350	12310748		
Insert Serial Number	11620309	11680735	11620309		
Date and Time Initialized	07-Jun-14 06:26	08-Jun-14 18:02	11-Jun-14 16:44		
Date and Time Read	08-Jun-14 06:03	11-Jun-14 06:33	17-Jun-14 05:46		
ECMB SW Version	N/A	N/A	N/A		

### Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	56.41	51.56	47.24		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11341350	11341350	12310748		
Sonde Serial Number	11062116	11145708	11062116		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	329.70	200.89	220.84		

### Gamma Ray Sensor Information

Tool Type		PCG	PCG		
Distance From Bit (ft)		60.06	36.64		
Recorded Sample Period (sec)		10	10		
Software Version		8.15	8.15		
Sub Serial Number		11341350	12310748		
Insert/Sonde Serial Number		11293372	12071284		

## REMARKS

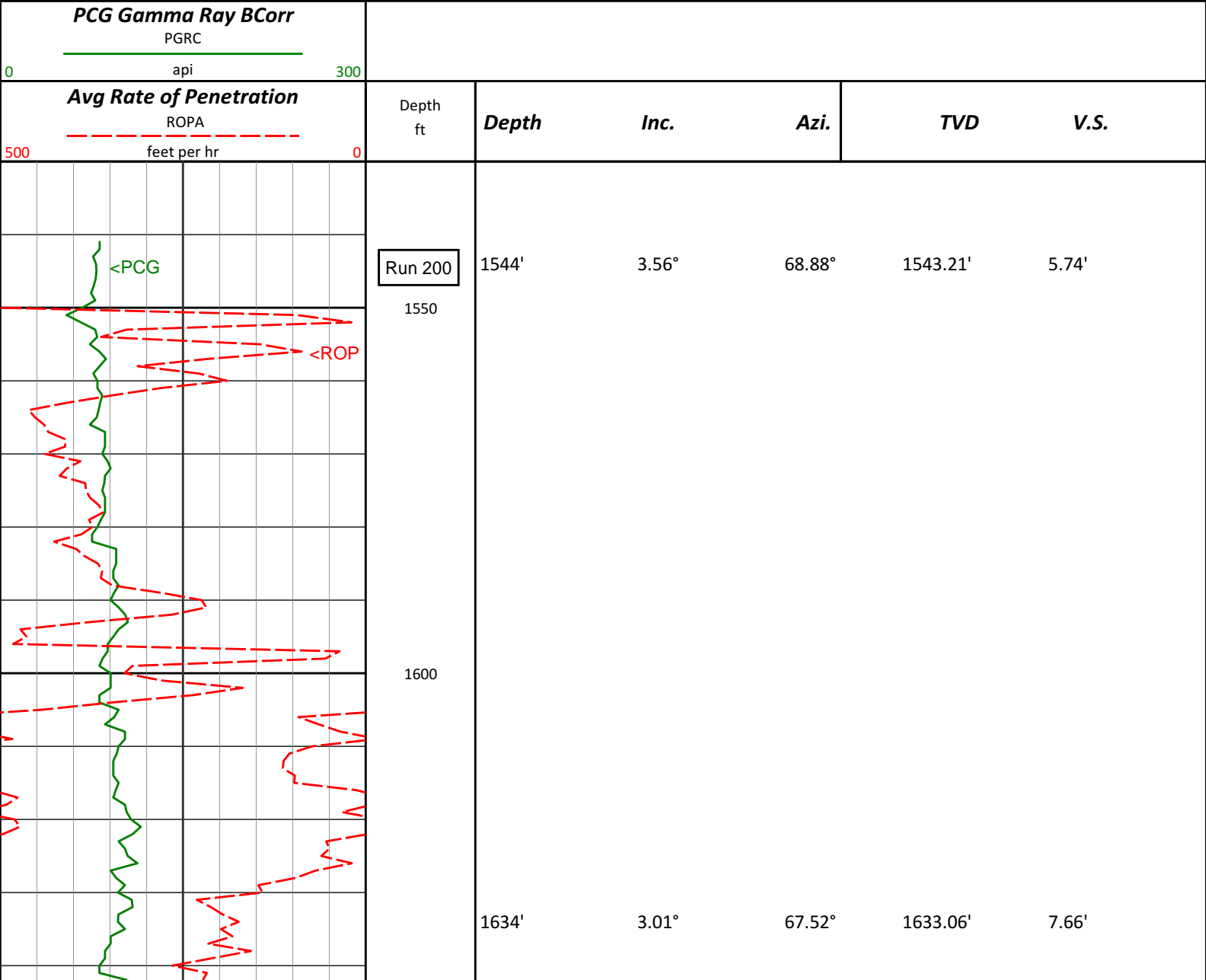
1. All depths are measured bit depths, referenced to the Driller's pipe tally and are measured from the Drill Floor, unless otherwise specified.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annular velocities are calculated using the "Power Law" for water based fluids and the "Bingham Plastic" model for oil and synthetic based fluids.
4. All data is stored data unless otherwise specified.
5. The following smoothing parameters have been applied to the data:  
 PCG Gamma Ray BCorr (PGRC)  
 Interval Resolution: .5  
 Interval Distance: .6  
 Gap Fill: 3  
 Average Rate of Penetration (ROPA)  
 Interval Resolution: .5  
 Interval Distance: 1.2  
 Gap Fill: 3
6. INSITE Version 8.0.20

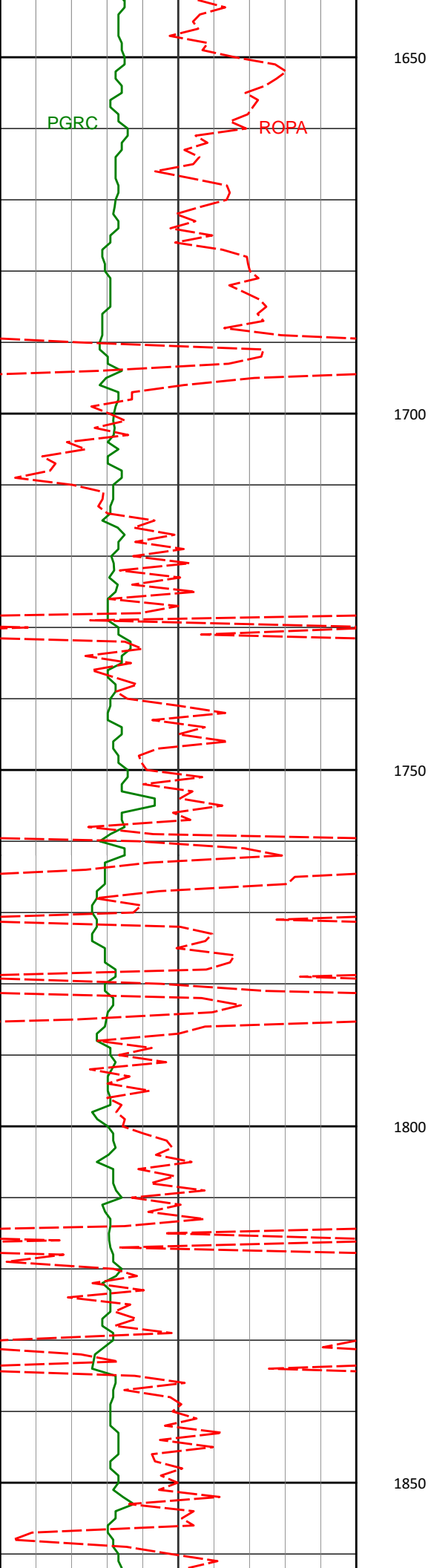
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HALLIBURTON  
Sperry Drilling Services  
MD Main Log 1:240

Whiting Oil and Gas  
Razor 26I-2315A  
Frontier 26  
Sec. 26-T10N-R58W





1726'

2.86°

66.60°

1724.94'

9.51'

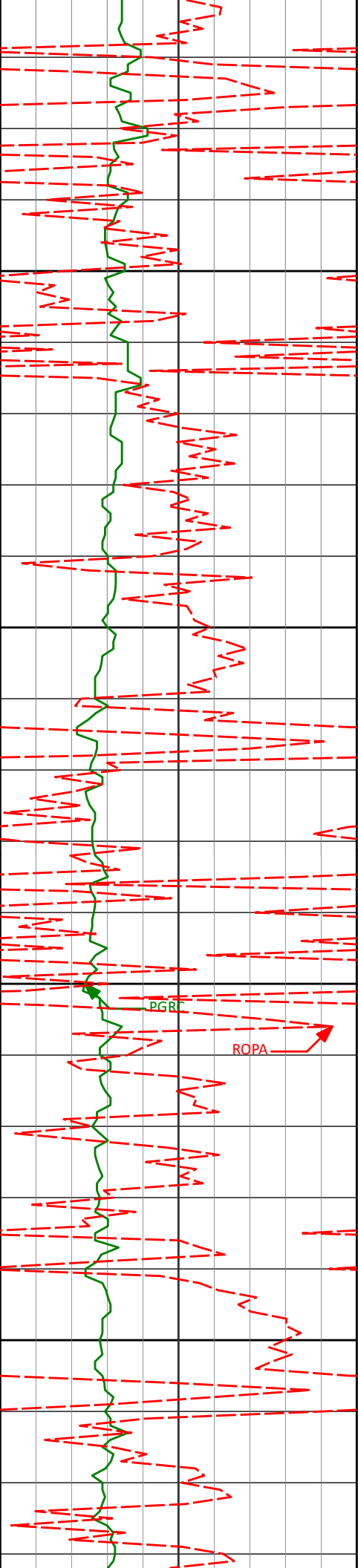
1816'

3.44°

69.70°

1814.80'

11.36'



1900

1908'

3.40°

64.01°

1906.64'

13.53'

1950

2000

1999'

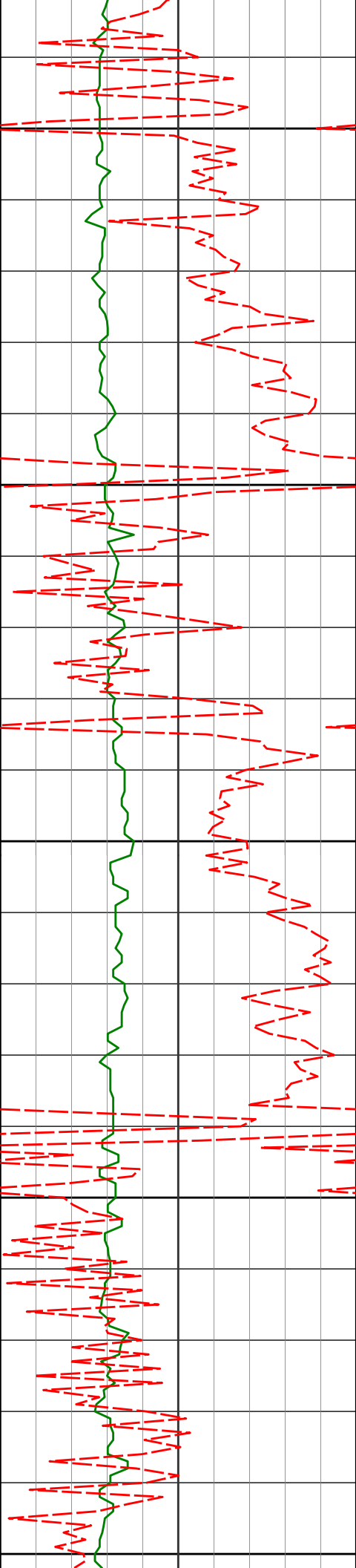
3.72°

60.46°

1997.46'

16.18'

2050



2090'

3.40°

64.42°

2088.29'

18.82'

2100

2150

2200

2250

2182'

2.65°

71.33°

2180.16'

20.69'

2273'

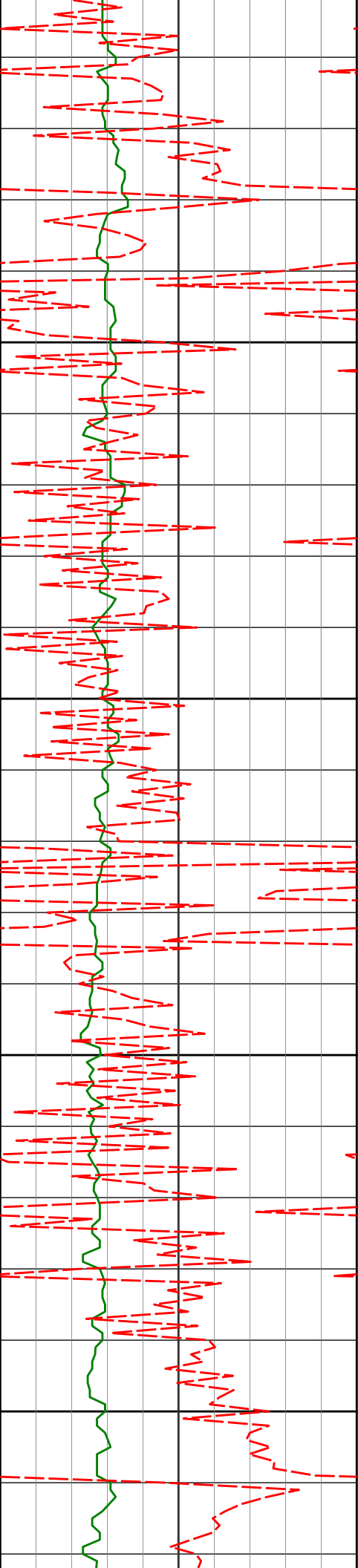
1.20°

64.06°

2271.11'

21.79'

2300



2350

2364'

2.94°

55.24°

2362.04'

23.54'

2400

2450

2456'

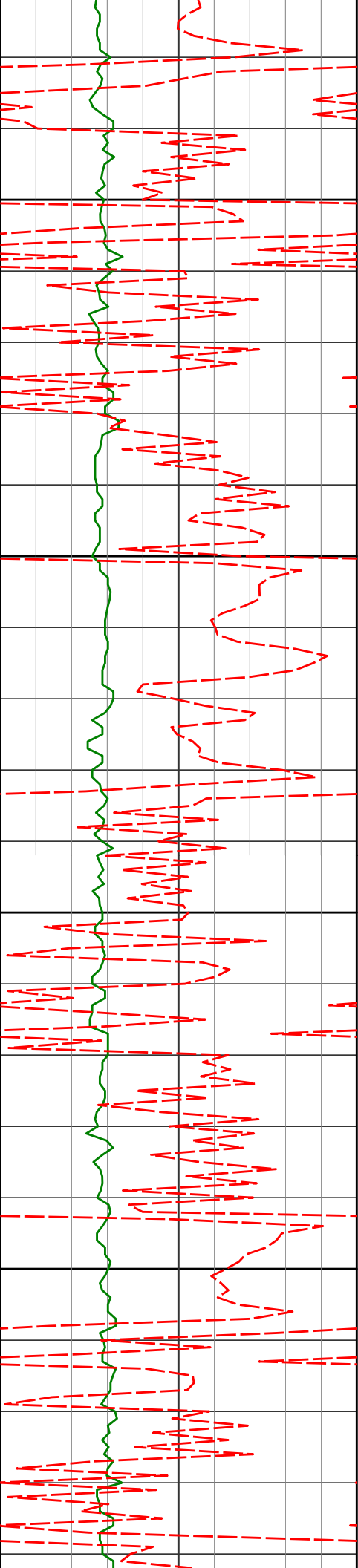
2.72°

46.84°

2453.93'

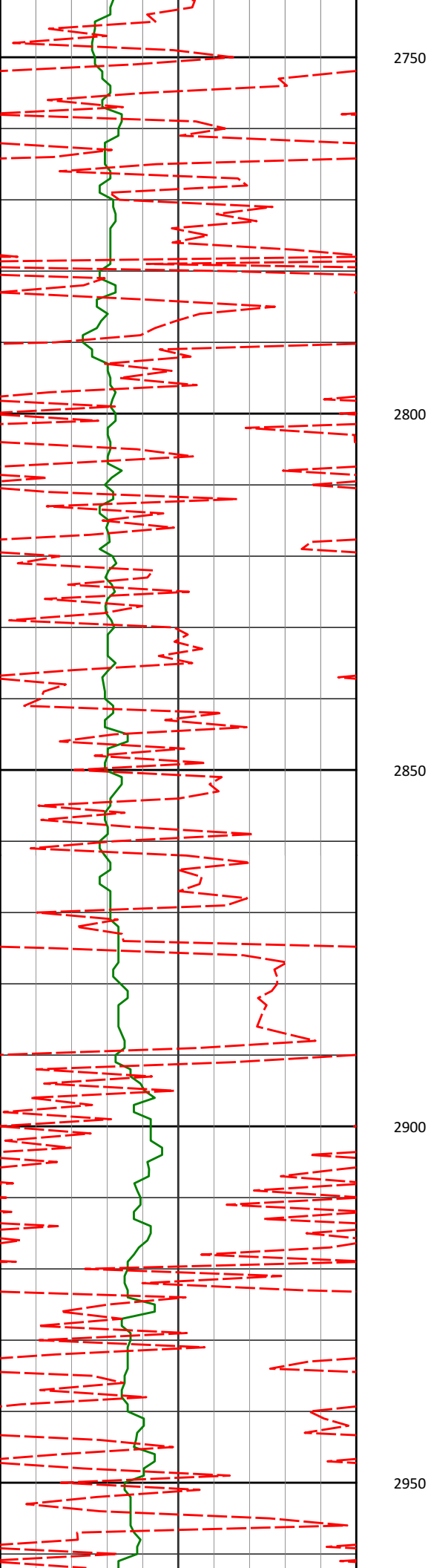
26.39'

2500



2550	2547'	1.20°	23.82°	2544.88'	28.75'
2600					
2650	2639'	1.07°	53.54°	2636.86'	30.14'
2700					
	2730'	1.76°	149.44°	2727.84'	29.45'





2822'

1.90°

119.01°

2819.80'

27.50'

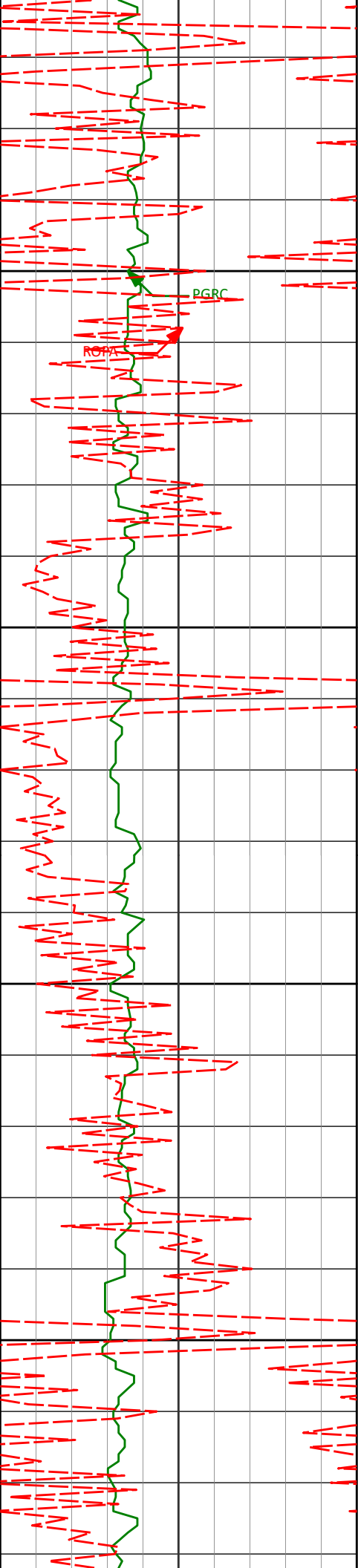
2913'

0.18°

96.04°

2910.78'

26.76'



3000

3004'

0.52°

266.21°

3001.78'

26.71'

3050

3100

3096'

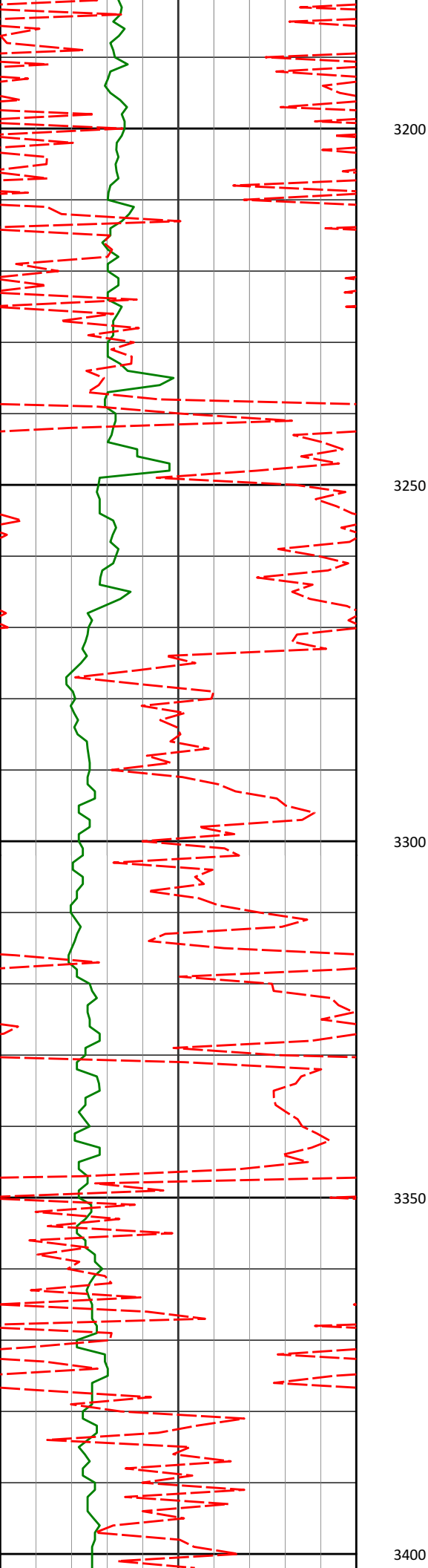
0.57°

251.45°

3093.77'

26.54'

3150



3187'

0.83°

257.35°

3184.76'

26.25'

3200

3250

3279'

0.90°

273.30°

3276.75'

26.14'

3300

3350

3370'

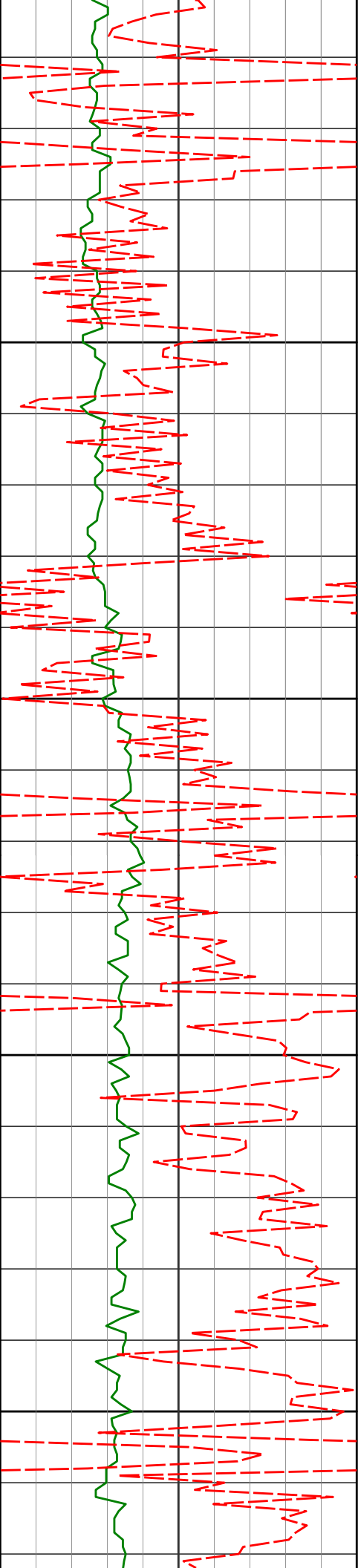
0.31°

162.15°

3367.75'

25.94'

3400



3450

3462'

0.32°

187.98°

3459.75'

25.45'

3500

3550

3554'

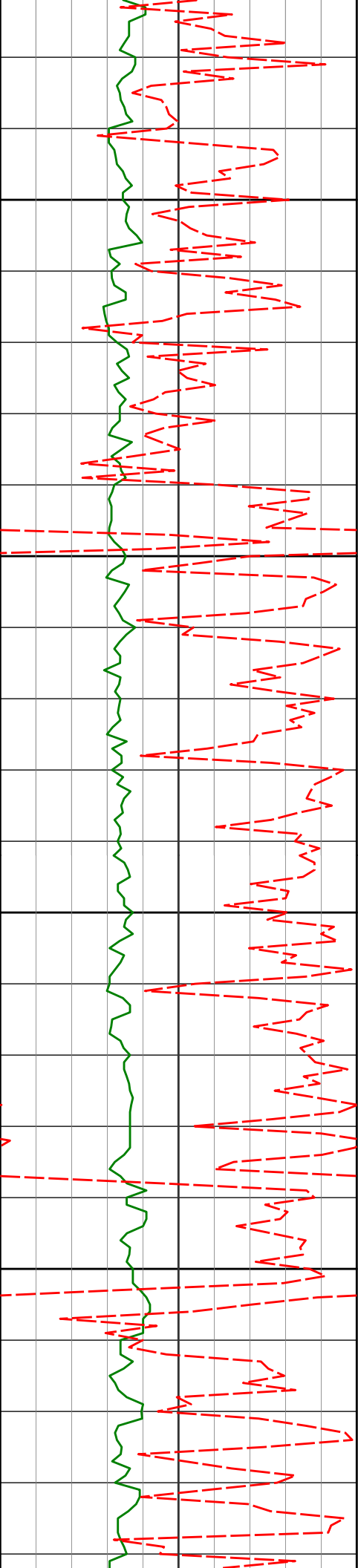
0.45°

167.85°

3551.75'

24.84'

3600



3645'

0.74°

224.49°

3642.74'

24.07'

3650

3700

3737'

0.82°

215.67°

3734.73'

23.11'

3750

3800

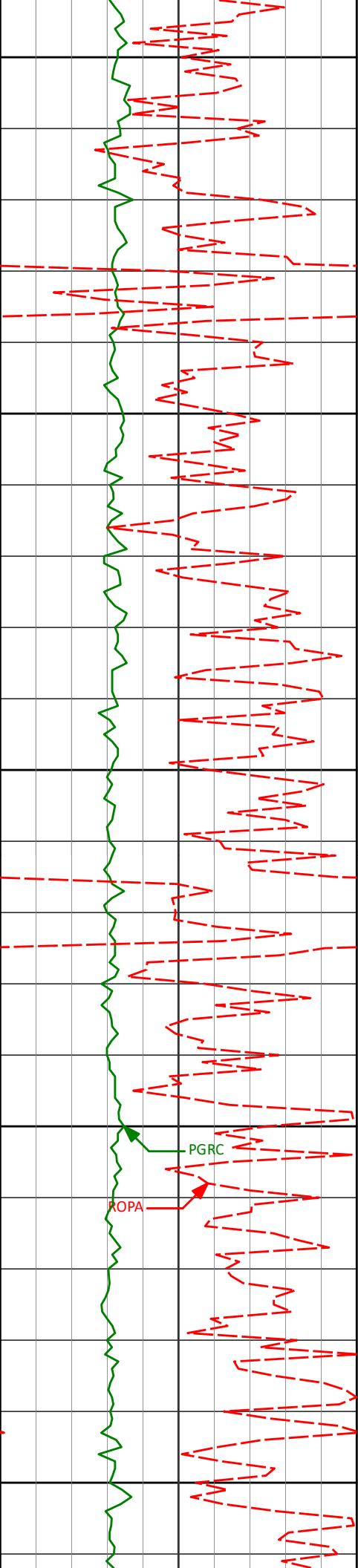
3829'

0.83°

265.47°

3826.73'

22.52'



3850

3900

3950

4000

4050

3921'

1.02°

250.79°

3918.71'

22.20'

4012'

0.84°

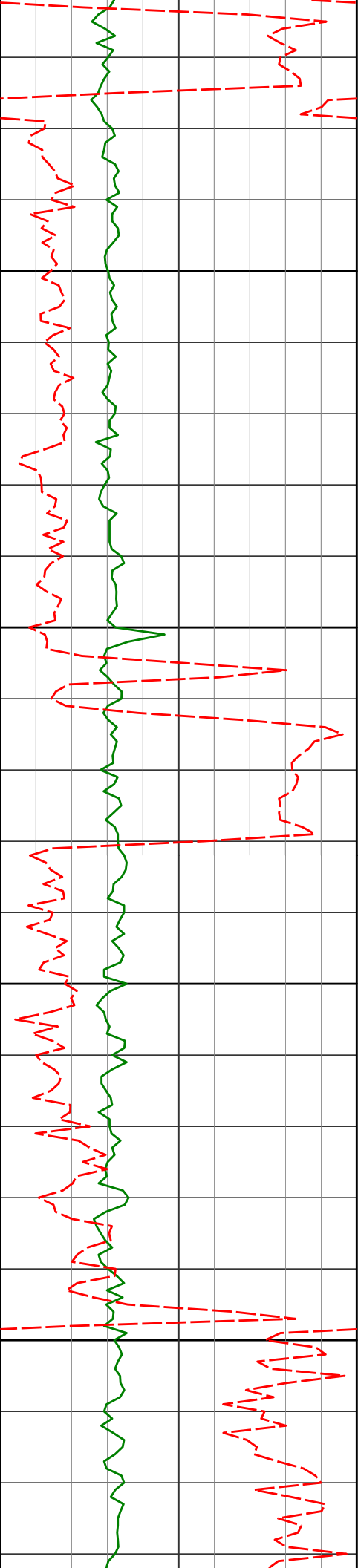
263.88°

4009.70'

21.85'

PGRC

ROPA



4100

4104'

1.47°

288.35°

4101.68'

22.15'

4150

4200

4250

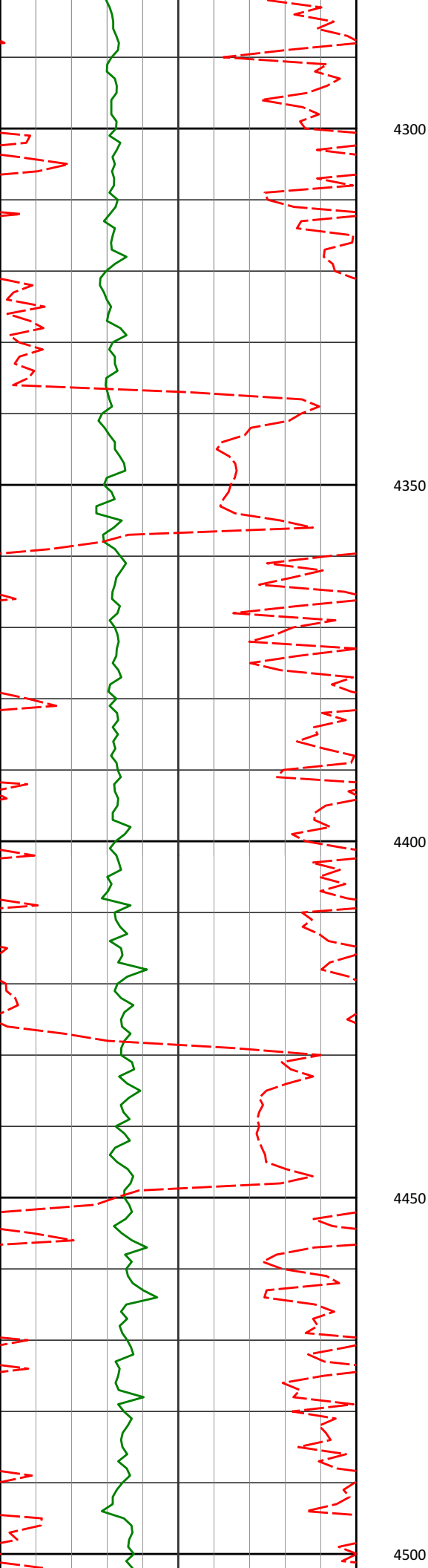
4194'

1.53°

344.76°

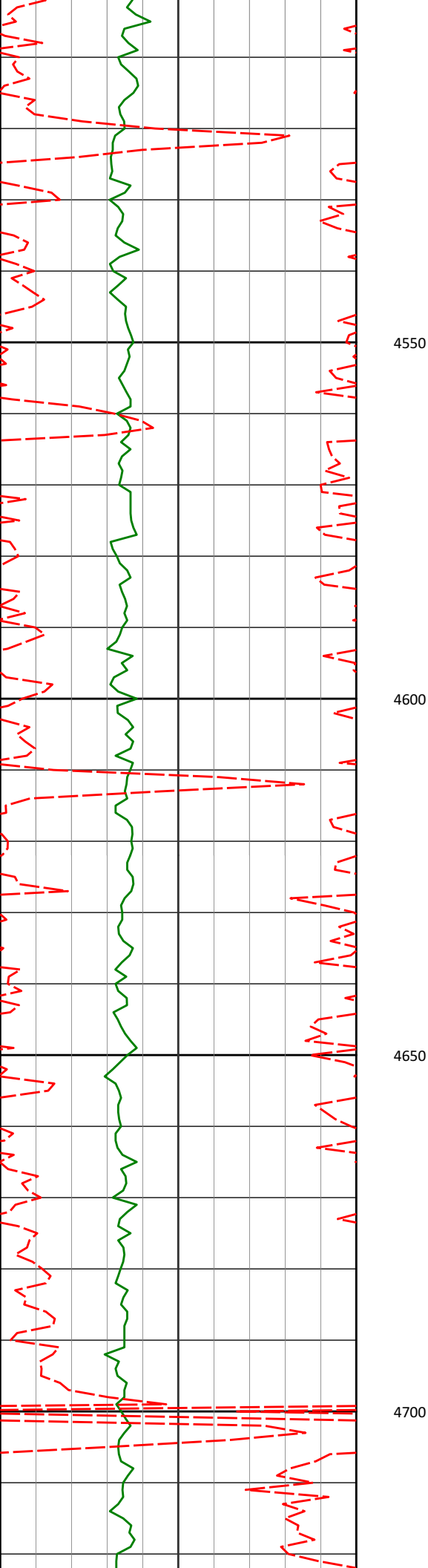
4191.66'

23.67'



4285'	1.19°	3.28°	4282.63'	25.78'
4300				
4350				
4377'	3.09°	40.35°	4374.57'	28.63'
4400				
4450				
4468'	1.74°	40.80°	4465.48'	31.55'
4500				





4560'

1.25°

38.89°

4557.45'

33.40'

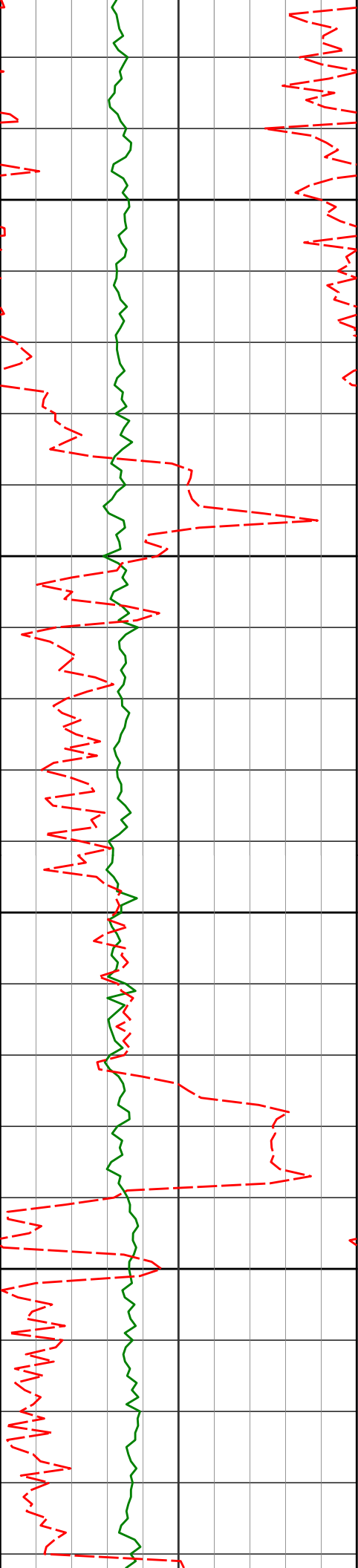
4650'

0.98°

9.89°

4647.44'

34.92'



4743'

1.15°

6.71°

4740.42'

36.63'

4750

4800

4834'

1.04°

5.55°

4831.40'

38.36'

4850

4900

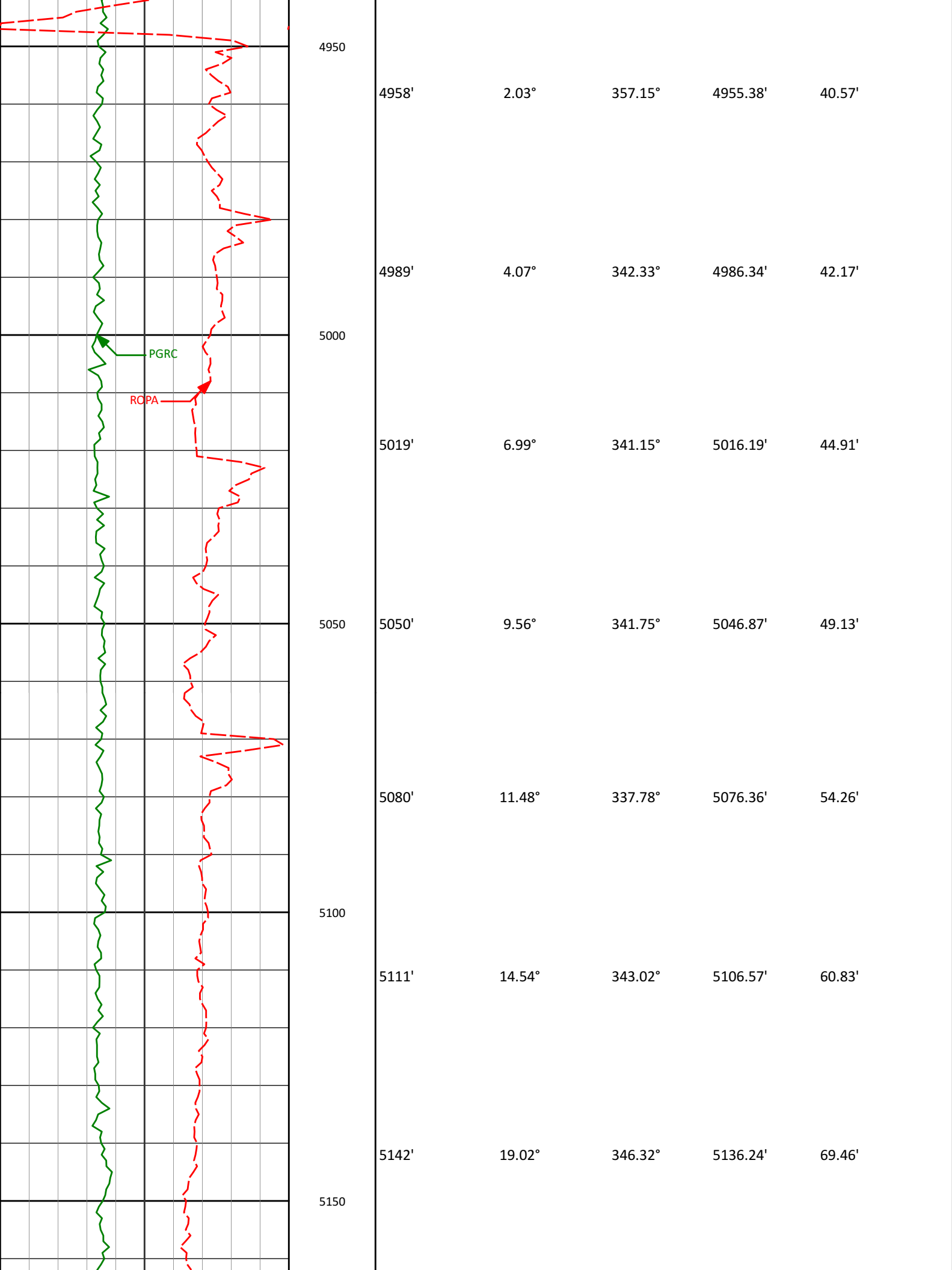
4927'

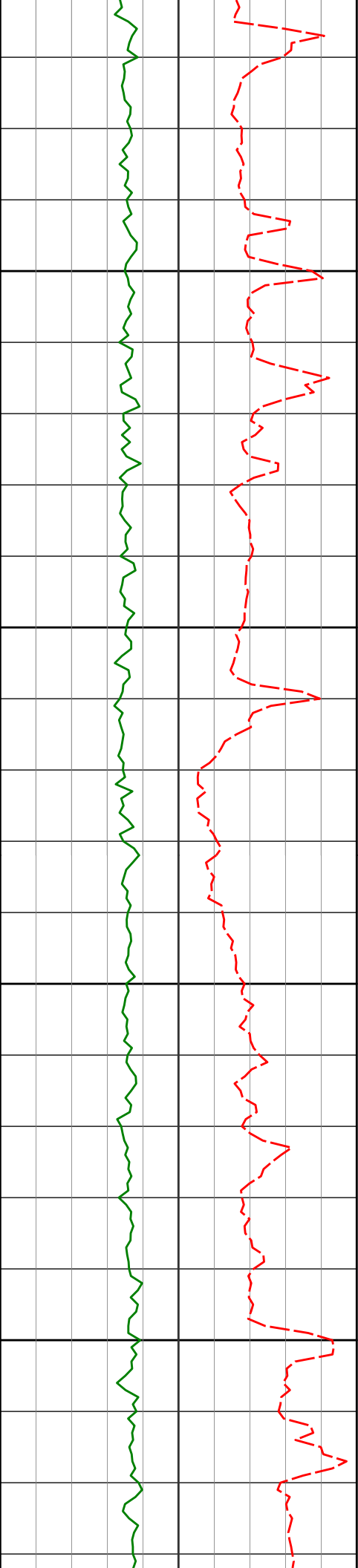
0.77°

9.40°

4924.39'

39.82'





5200

5250

5300

5350

5172'

22.03°

350.66°

5164.33'

79.75'

5203'

22.59°

357.45°

5193.02'

91.44'

5233'

25.93°

357.89°

5220.36'

103.75'

5265'

28.71°

357.13°

5248.79'

118.42'

5296'

31.18°

357.25°

5275.65'

133.87'

5328'

34.46°

357.93°

5302.54'

151.20'

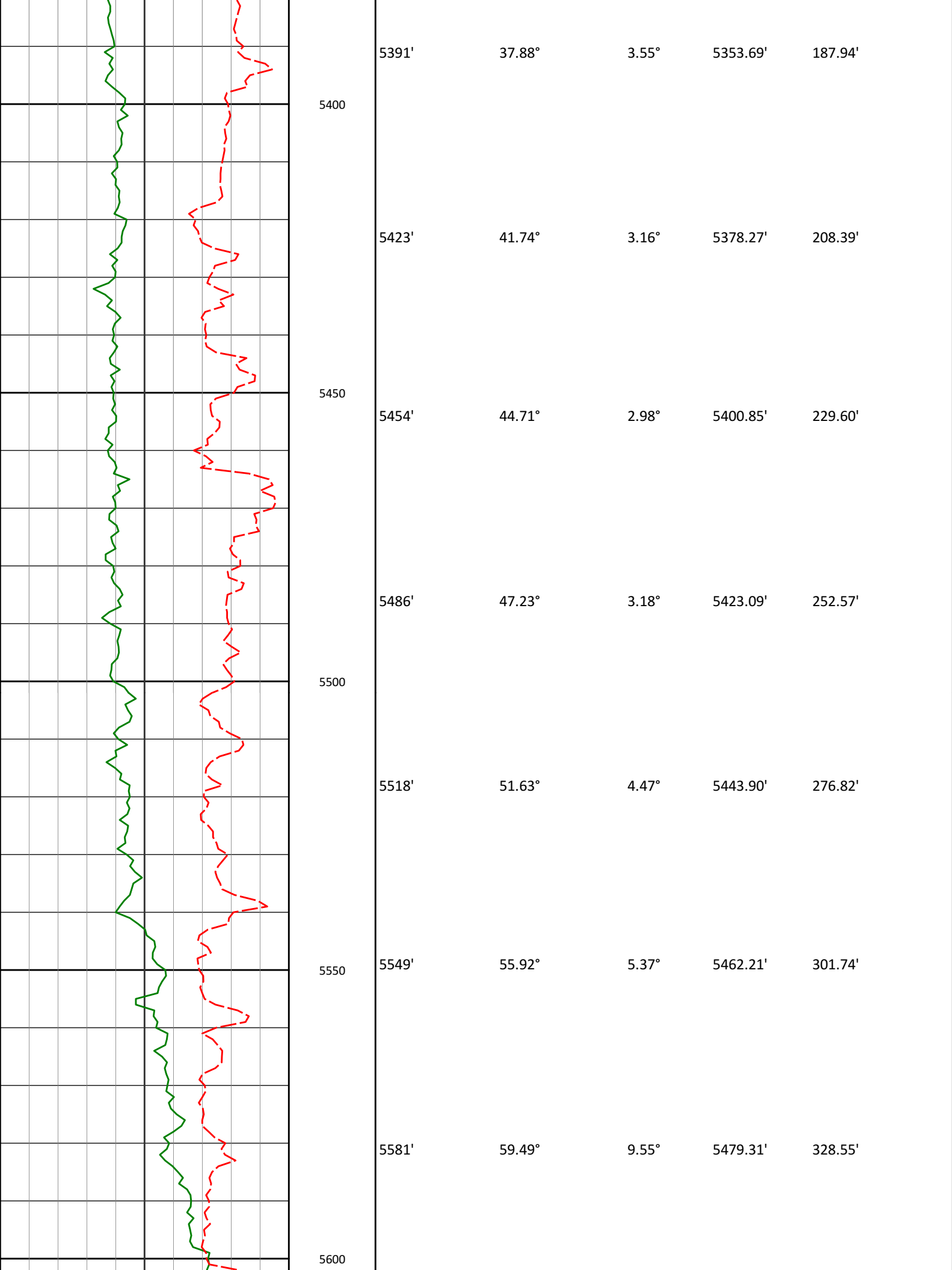
5360'

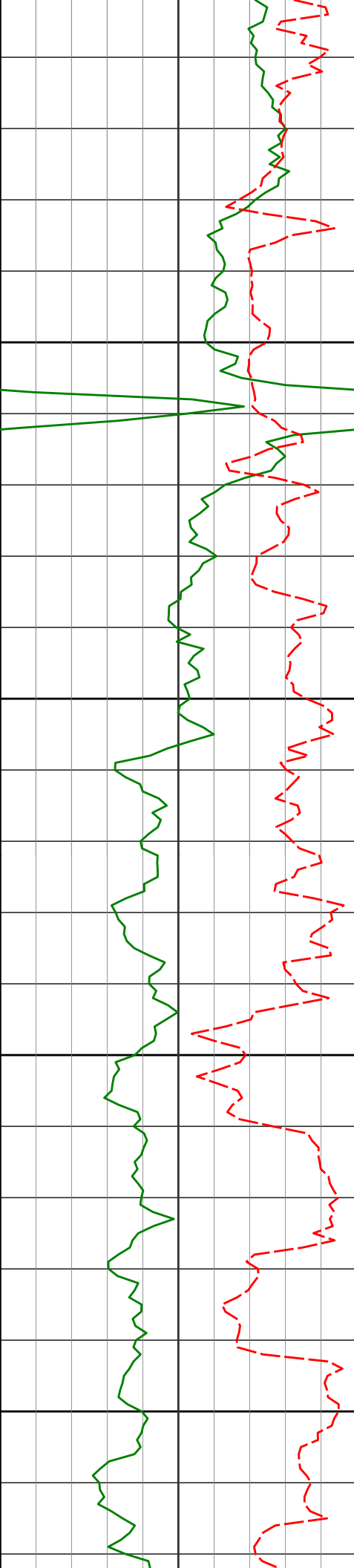
35.28°

0.20°

5328.79'

169.48'





5650

5700

5750

5800

5613'

5644'

5676'

5707'

5739'

5771'

5802'

62.33°

67.16°

71.28°

74.85°

77.23°

78.62°

80.11°

9.54°

7.91°

6.42°

3.39°

2.94°

3.63°

2.93°

5494.87'

5508.09'

5519.44'

5528.47'

5536.19'

5542.89'

5548.61'

356.14'

383.86'

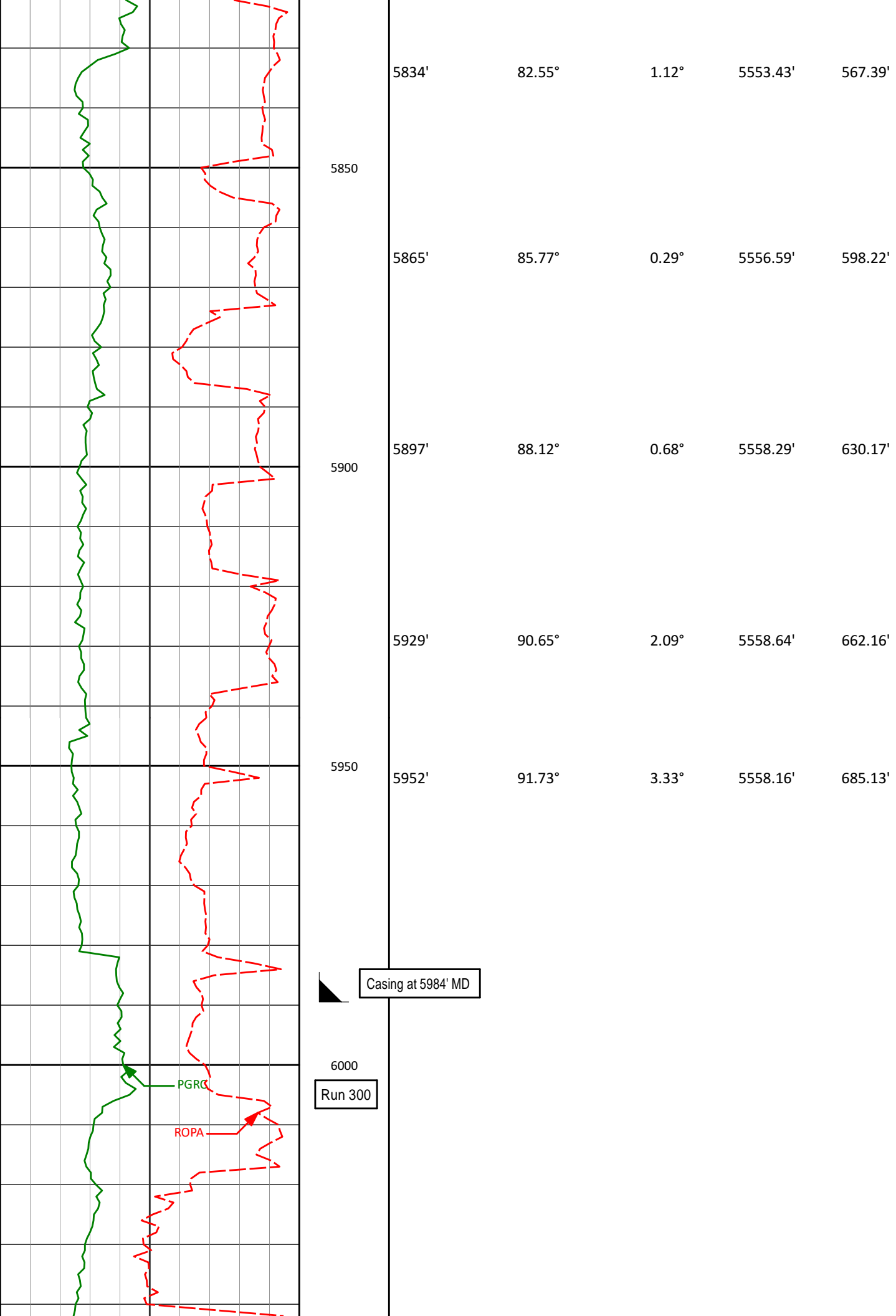
413.55'

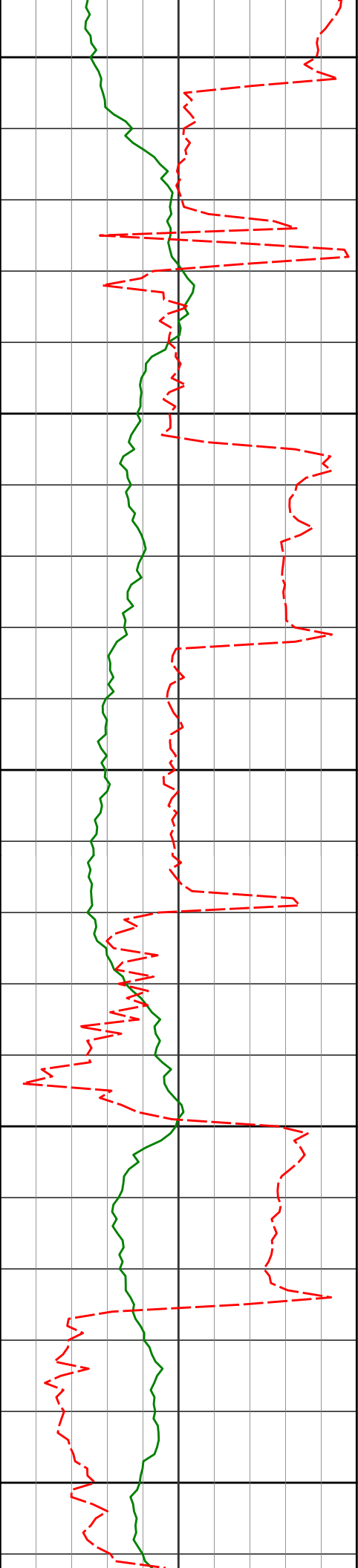
443.10'

474.11'

505.35'

535.77'





6050

6056'	92.19°	3.96°	5554.60'	788.88'
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6100

6119'	91.79°	1.61°	5552.41'	851.77'
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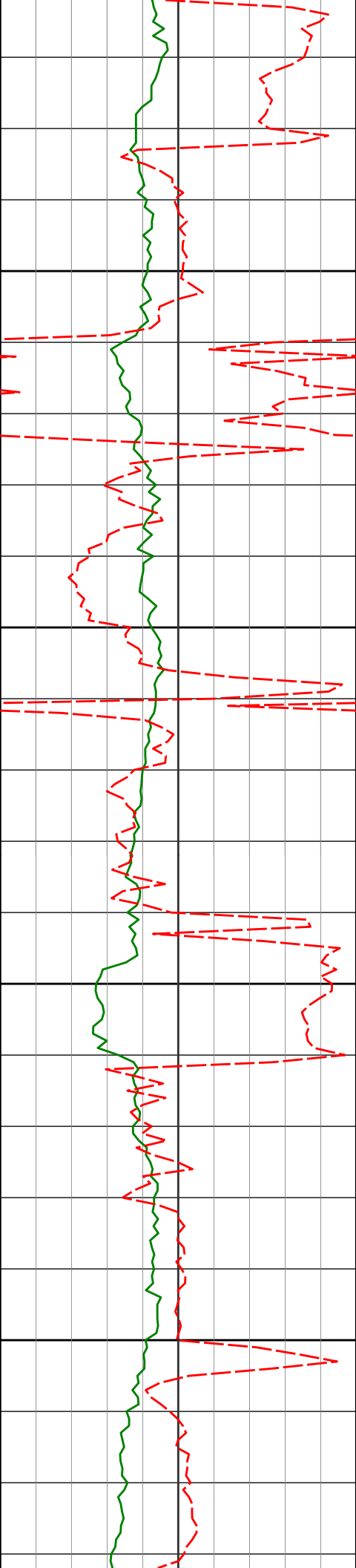
6150

6200

6214'	92.65°	358.28°	5548.73'	946.69'
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6250





6300

6350

6400

6450

6309'

90.12°

355.13°

5546.44'

1041.46'

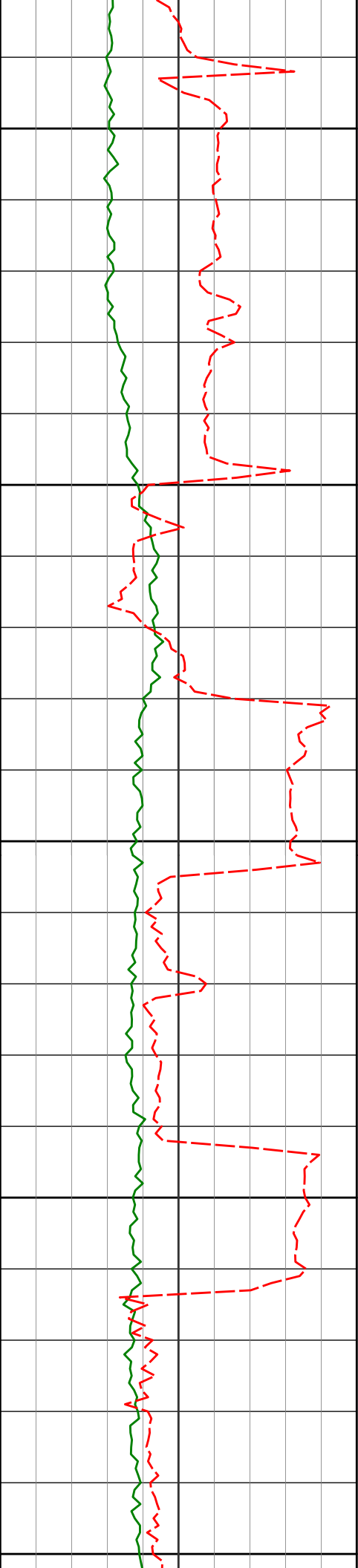
6404'

88.69°

354.51°

5547.42'

1136.04'



6500

6550

6600

6650

6700

6499'

6594'

6689'

90.07°

90.82°

89.68°

355.33°

357.57°

358.72°

5548.45'

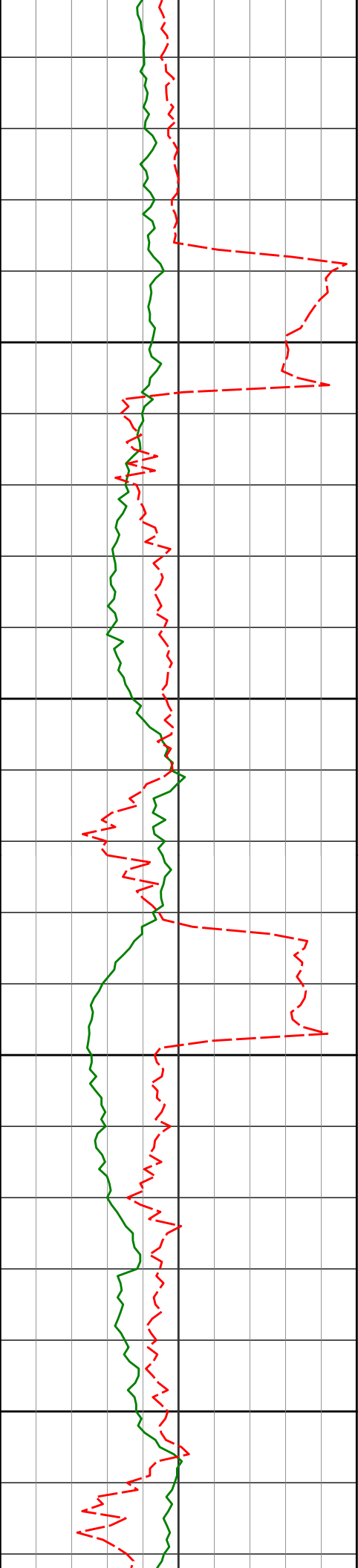
5547.71'

5547.30'

1230.63'

1325.42'

1420.36'



6750

6784'

88.71°

357.23°

5548.63'

1515.27'

6800

6850

6879'

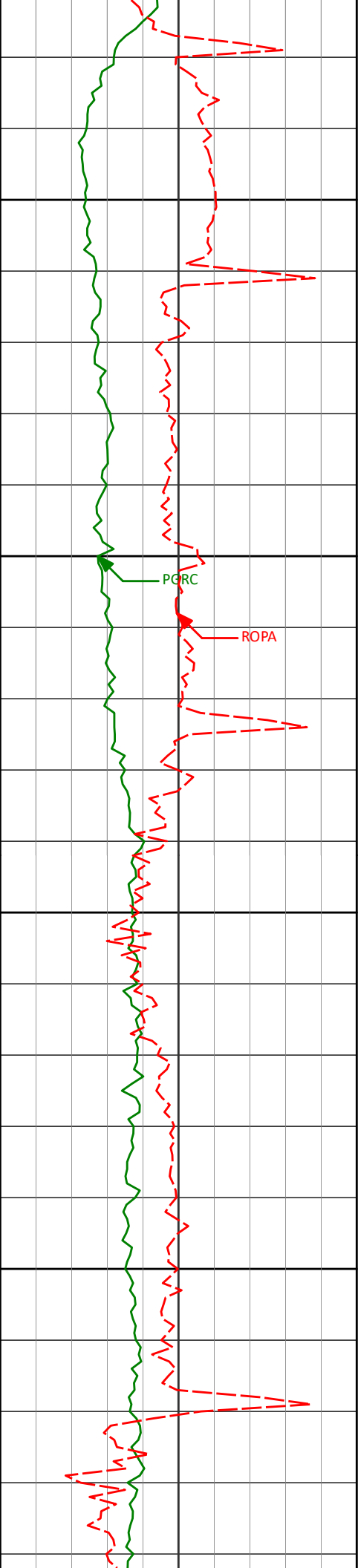
87.78°

355.73°

5551.54'

1610.03'

6900



6950

6974'

88.24°

355.71°

5554.84'

1704.68'

7000

PGRC

ROPA

7050

7069'

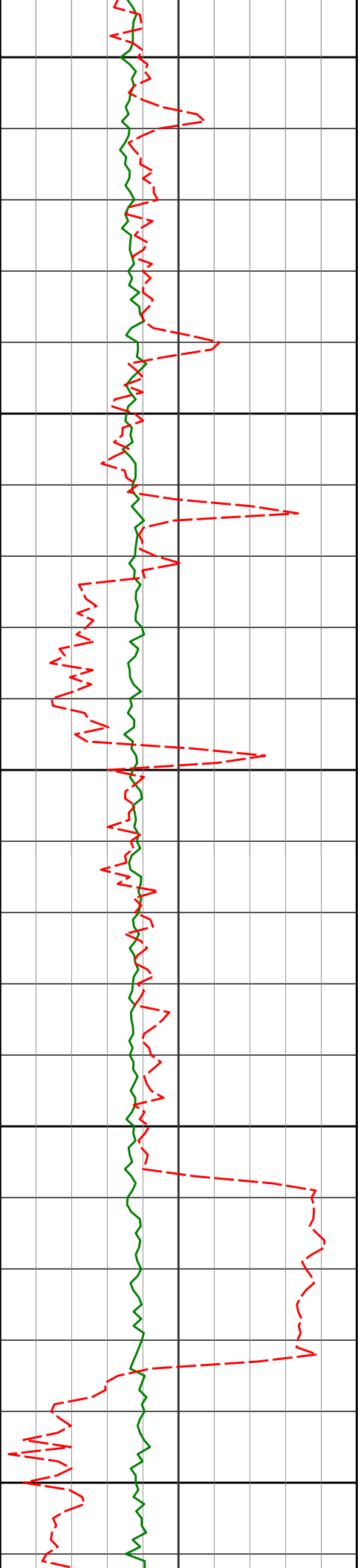
89.05°

355.03°

5557.09'

1799.32'

7100



7150

7164'

89.76°

354.59°

5558.07'

1893.90'

7200

7250

7259'

89.57°

353.57°

5558.63'

1988.36'

7300

7350

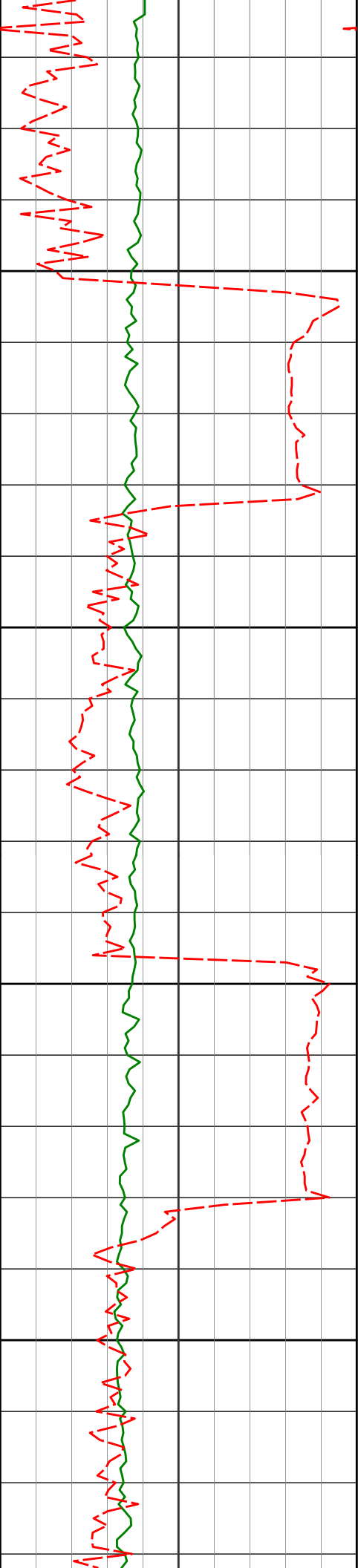
7354'

88.86°

354.98°

5559.93'

2082.84'



7400

7450

7500

7550

7448'

88.95°

356.51°

5561.73'

2176.54'

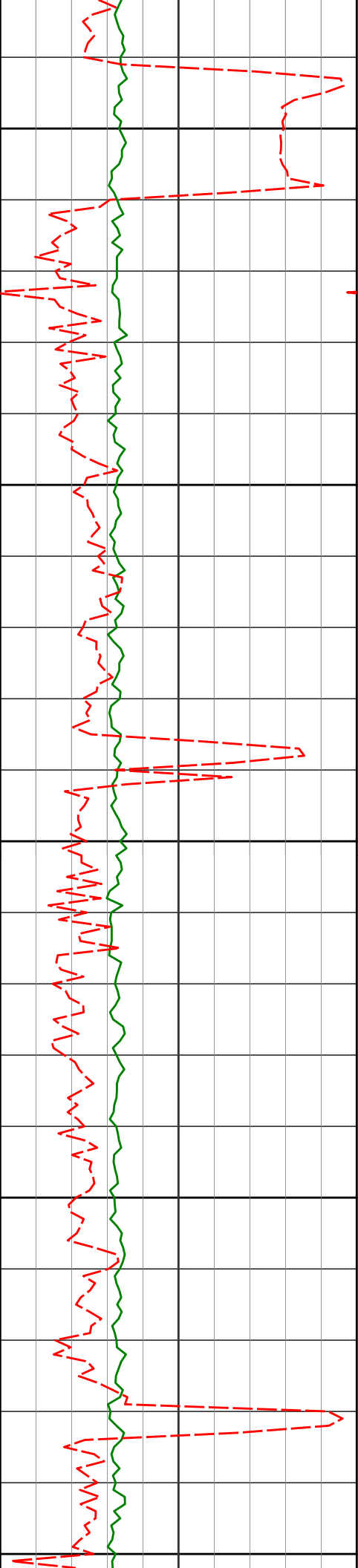
7543'

89.55°

0.01°

5562.97'

2271.46'



7600

7638'

90.43°

2.15°

5562.99'

2366.44'

7650

7700

7733'

90.51°

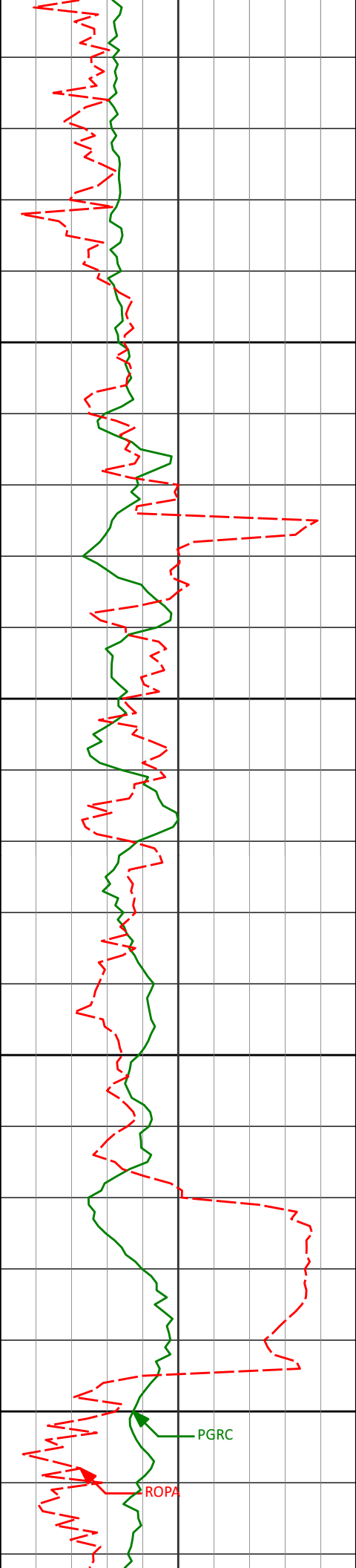
0.75°

5562.21'

2461.42'

7750

7800



7828'	91.14°	2.26°	5560.84'	2556.38'
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7850

7900

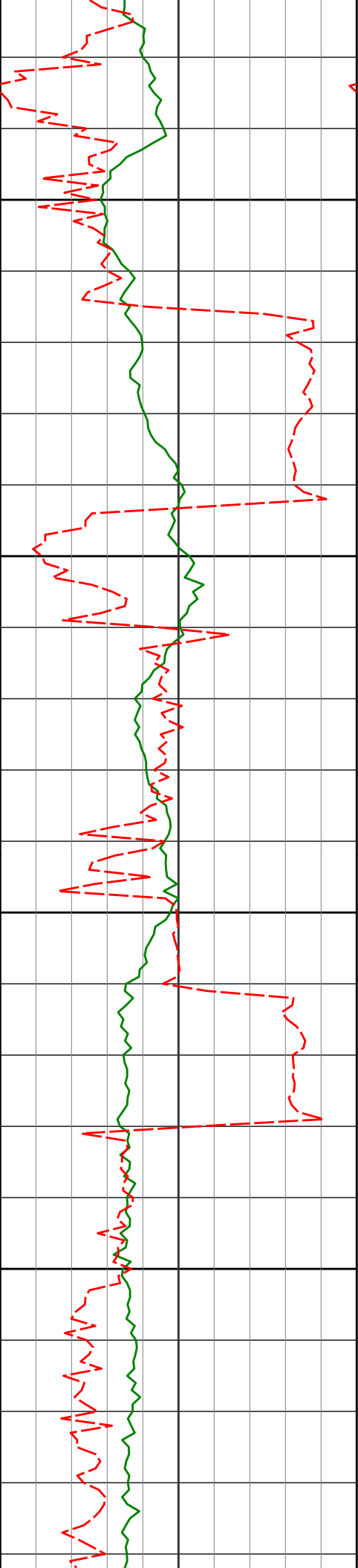
7923'	92.84°	0.88°	5557.54'	2651.29'
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7950

8000

8018'	92.31°	1.07°	5553.27'	2746.18'
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8050

8100

8150

8200

8112'

90.52°

0.19°

5550.95'

2840.14'

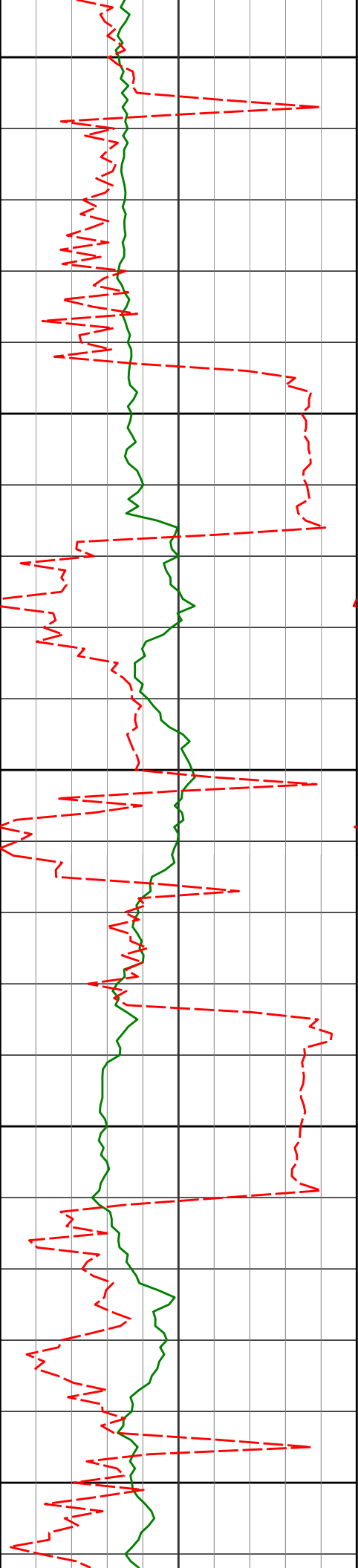
8207'

89.91°

0.98°

5550.60'

2935.14'



8250

8300

8350

8400

8450

8302'

88.57°

358.76°

5551.86'

3030.12'

8397'

88.07°

0.16°

5554.64'

3125.07'



8492'

87.79°

0.76°

5558.07'

3220.01'

8500

8550

8587'

90.00°

1.15°

5559.91'

3314.98'

8600

8650

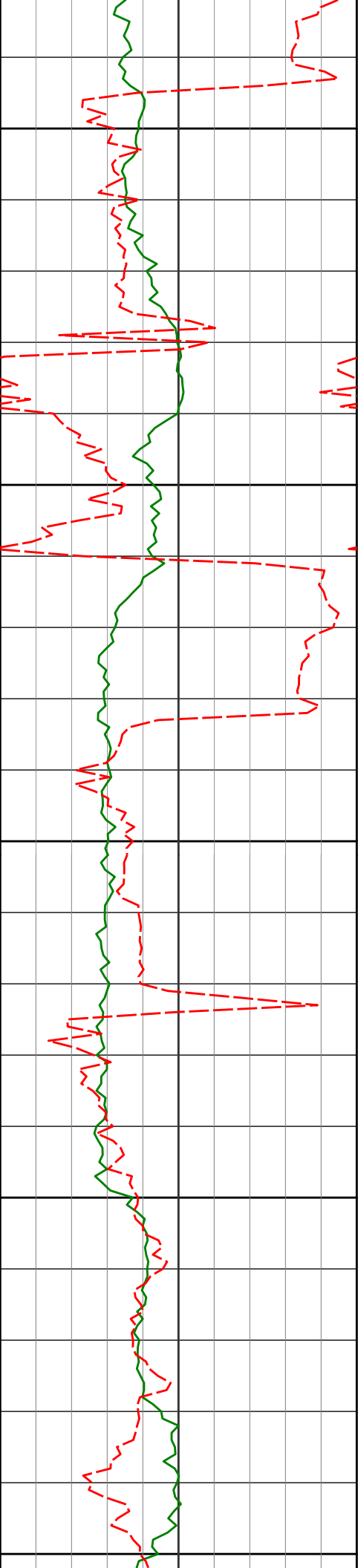
8680'

90.37°

0.21°

5559.60'

3407.97'



8700

8750

8800

8850

8900

8771'

89.26°

359.84°

5559.90'

3498.97'

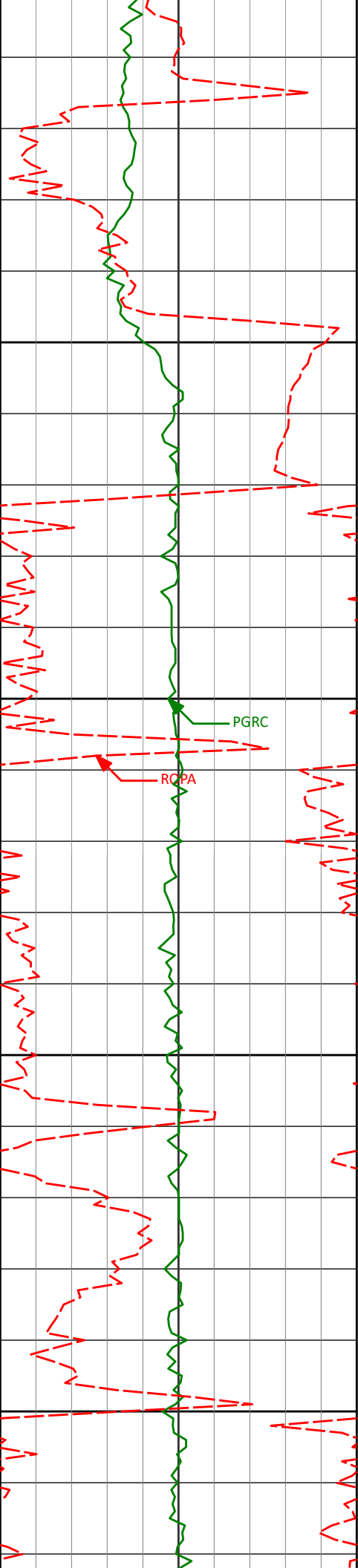
8864'

89.11°

359.61°

5561.22'

3591.96'



8950

8956'

89.51°

0.51°

5562.33'

3683.95'

9000

PGRC

RCPA

9050

9048'

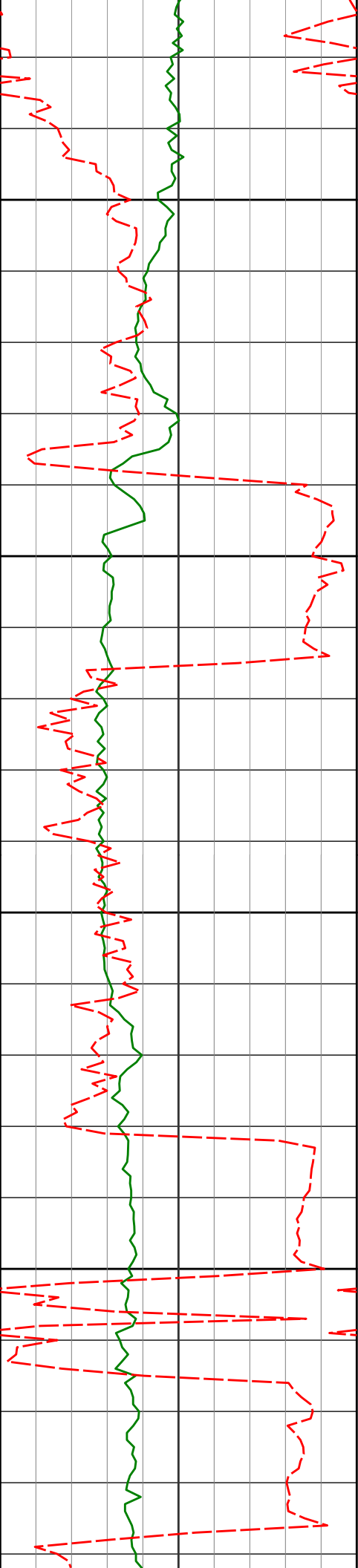
88.43°

358.71°

5563.98'

3775.92'

9100



9139'

87.47°

358.09°

5567.24'

3866.82'

9150

9200

9232'

88.07°

357.86°

5570.86'

3959.68'

9250

9300

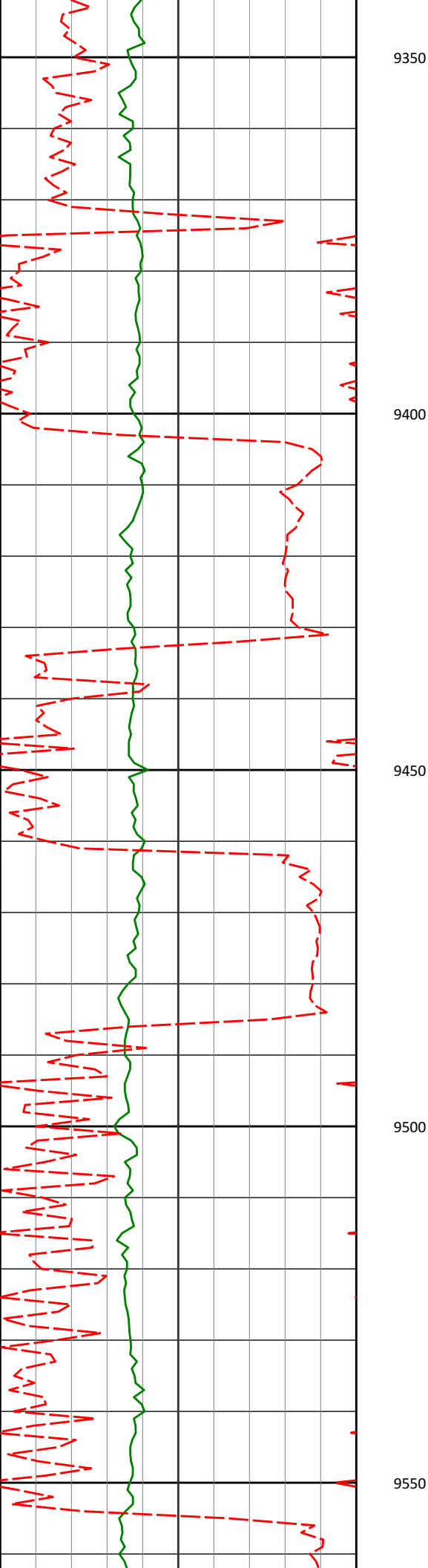
9323'

89.45°

357.32°

5572.83'

4050.56'



9415'

90.52°

358.15°

5572.85'

4142.48'

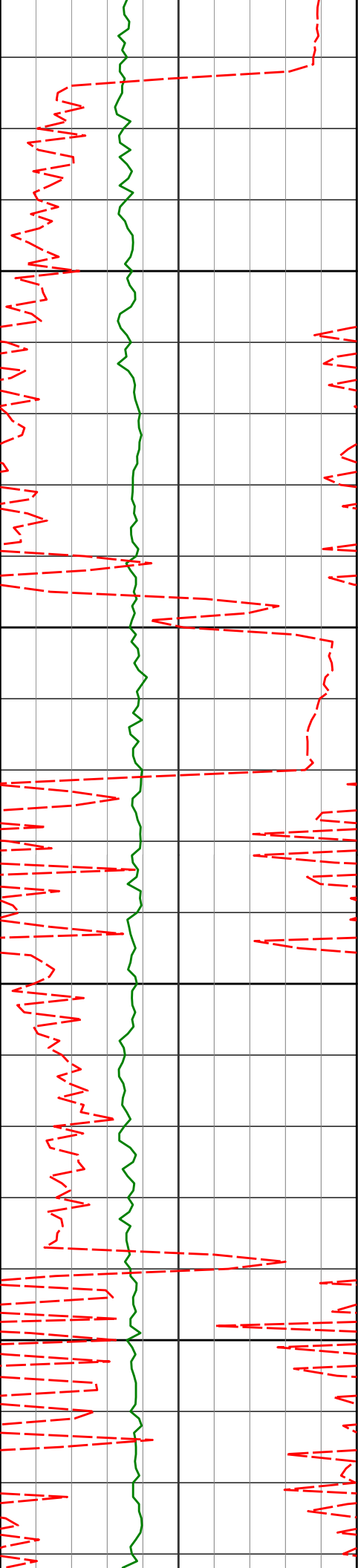
9505'

90.00°

0.38°

5572.44'

4232.46'



9600

9650

9700

9750

9596'

9688'

9779'

89.08°

90.15°

89.09°

0.25°

1.17°

358.24°

5573.17'

5573.79'

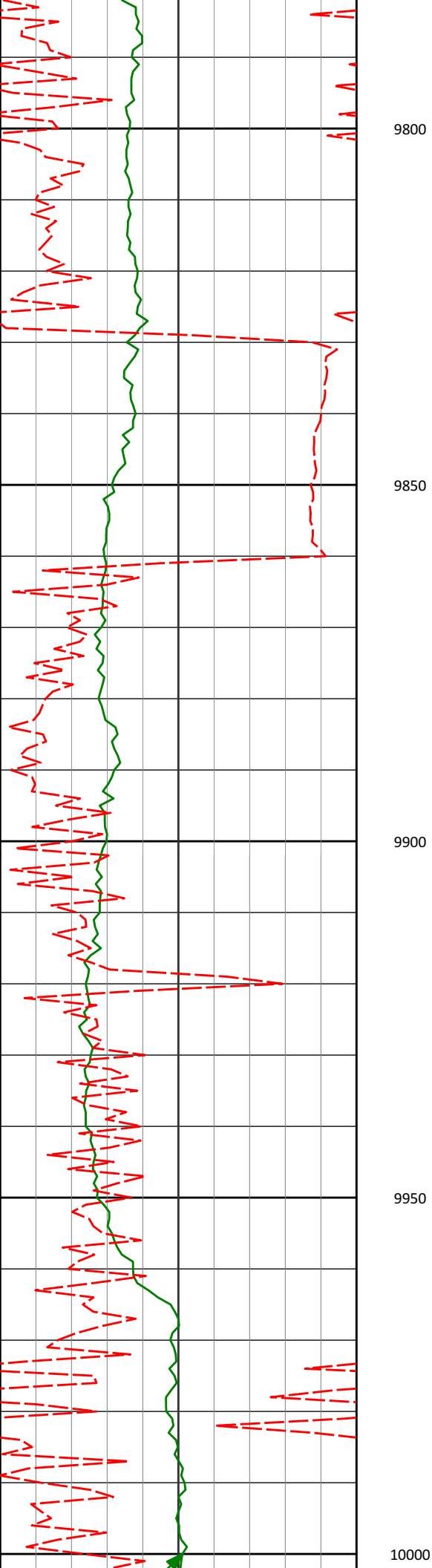
5574.40'

4323.45'

4415.45'

4506.43'





9869'

90.68°

2.03°

5574.58'

4596.41'

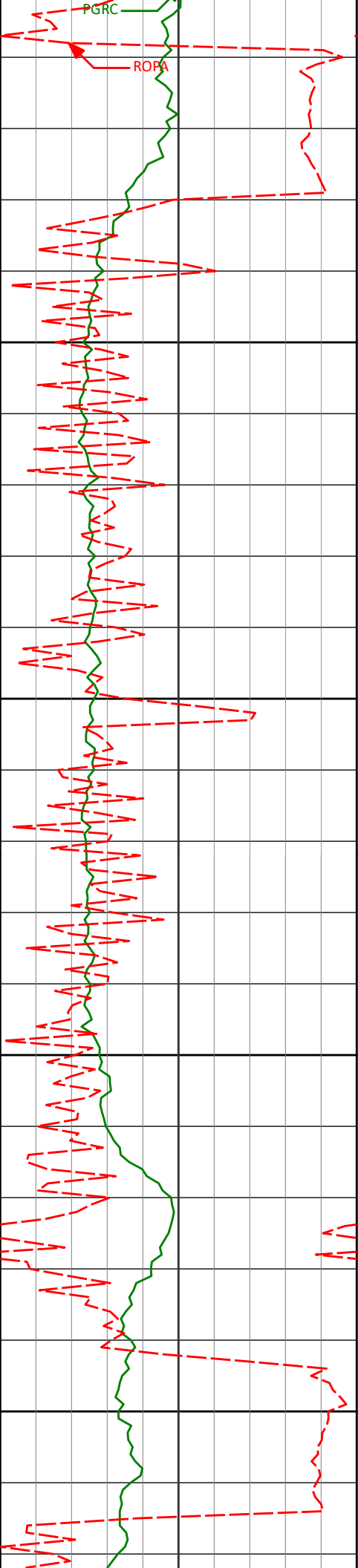
9961'

92.34°

1.91°

5572.15'

4688.33'



10050

10052'

89.94°

1.40°

5570.34'

4779.27'

10100

10150

10143'

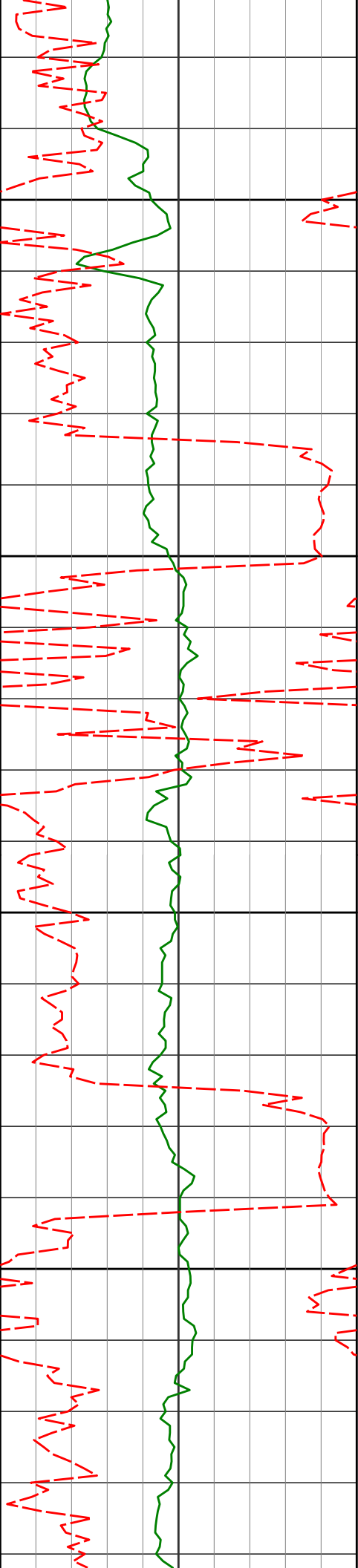
91.28°

1.36°

5569.37'

4870.25'

10200



10235'	90.54°	1.31°	5567.91'	4962.22'
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10250

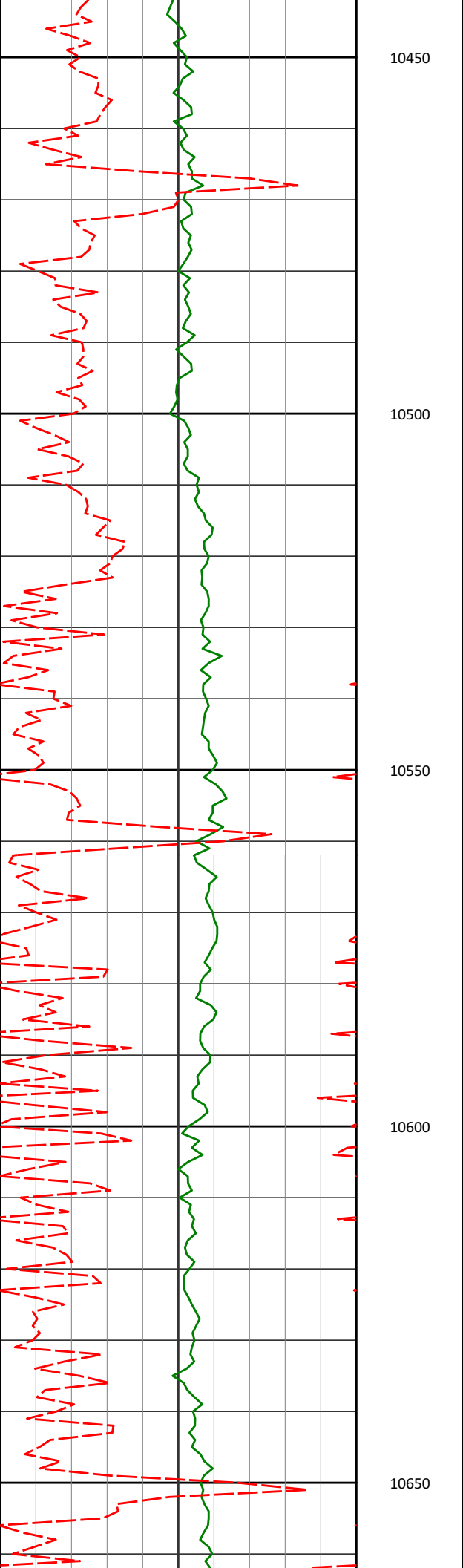
10300

10326'	90.59°	1.01°	5567.01'	5053.20'
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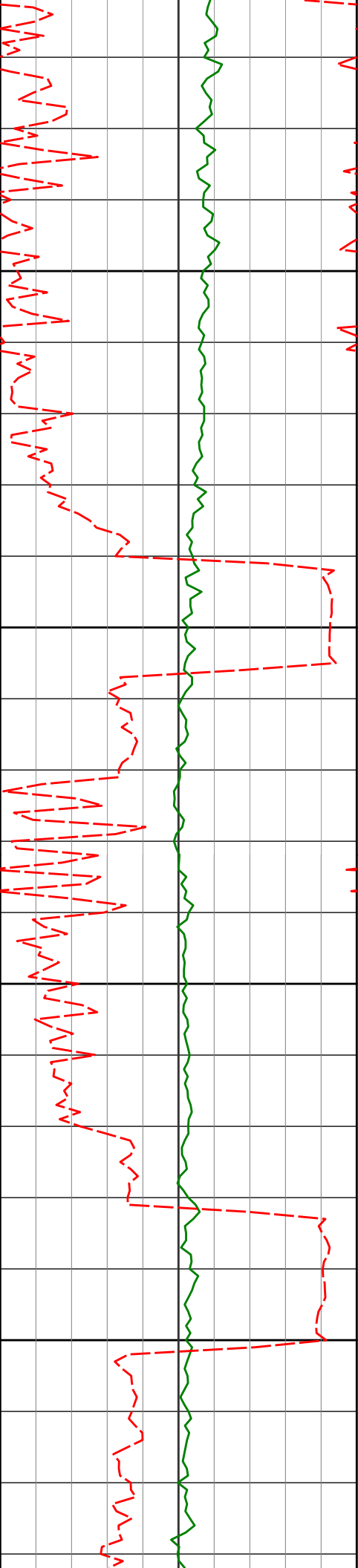
10350

10400

10417'	88.48°	2.21°	5567.75'	5144.16'
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10450					
10500					
10509'	89.17°	1.74°	5569.64'	5236.10'	
10550					
10600					
10601'	89.66°	0.97°	5570.58'	5328.07'	
10650					



10692'

91.30°

359.98°

5569.82'

5419.06'

10700

10750

10783'

90.80°

359.79°

5568.15'

5510.04'

10800

10850

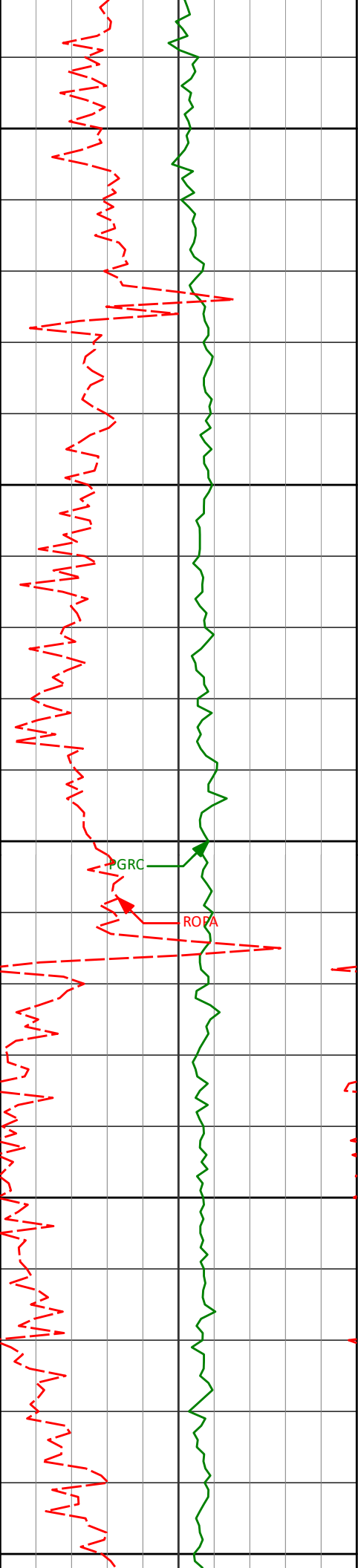
10875'

89.63°

0.10°

5567.80'

5602.04'



10900

10950

11000

11050

11100

10965'

90.10°

359.54°

5568.02'

5692.04'

PGRC

ROFA

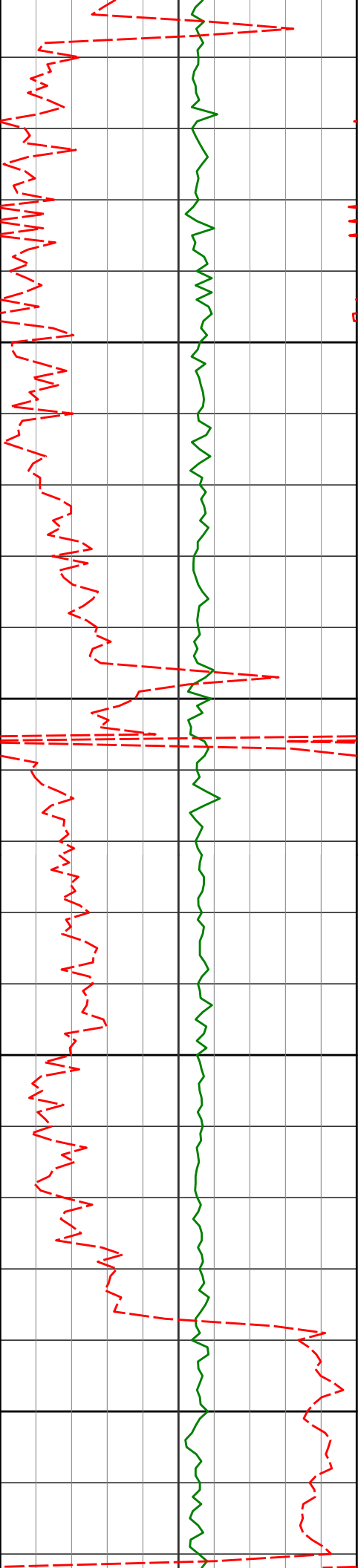
11057'

90.39°

359.05°

5567.62'

5784.03'



11150

11200

11250

11300

11148'

11239'

90.45°

89.46°

0.32°

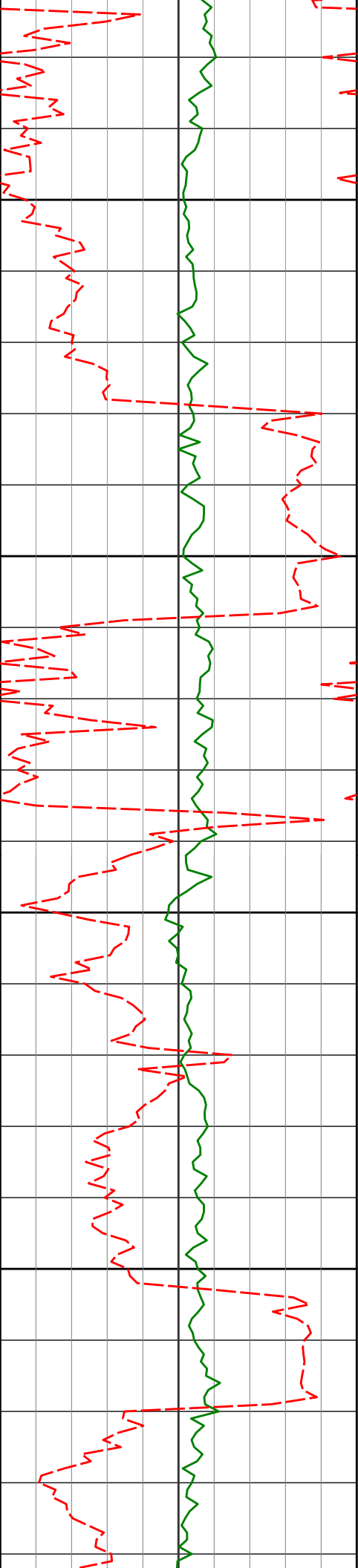
358.02°

5566.96'

5567.03'

5875.02'

5966.00'



11330'

89.38°

0.13°

5567.95'

6056.97'

11350

11400

11422'

92.07°

0.98°

5566.78'

6148.95'

11450

11500

11513'

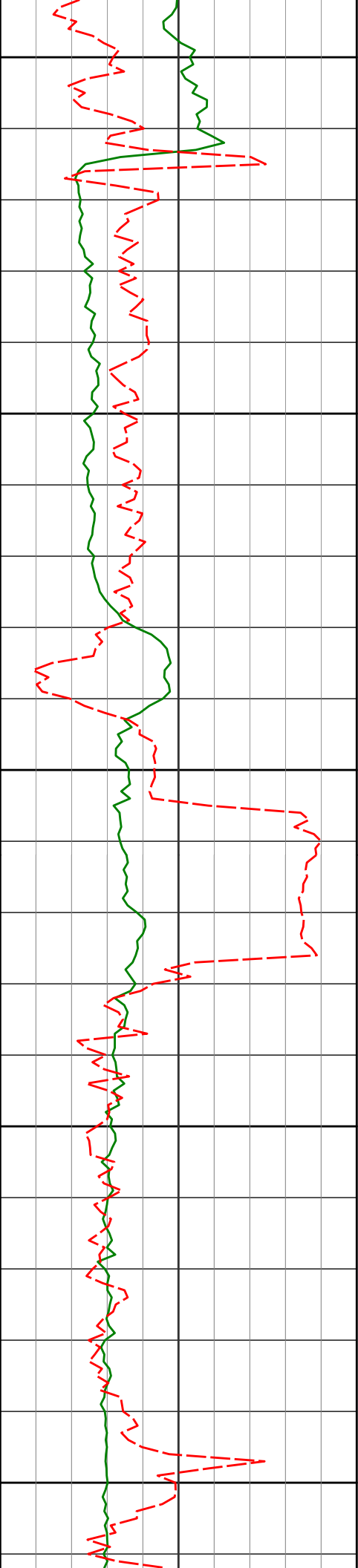
91.63°

0.37°

5563.85'

6239.90'





11550

11600

11650

11700

11750

11605'

91.88°

0.45°

5561.03'

6331.86'

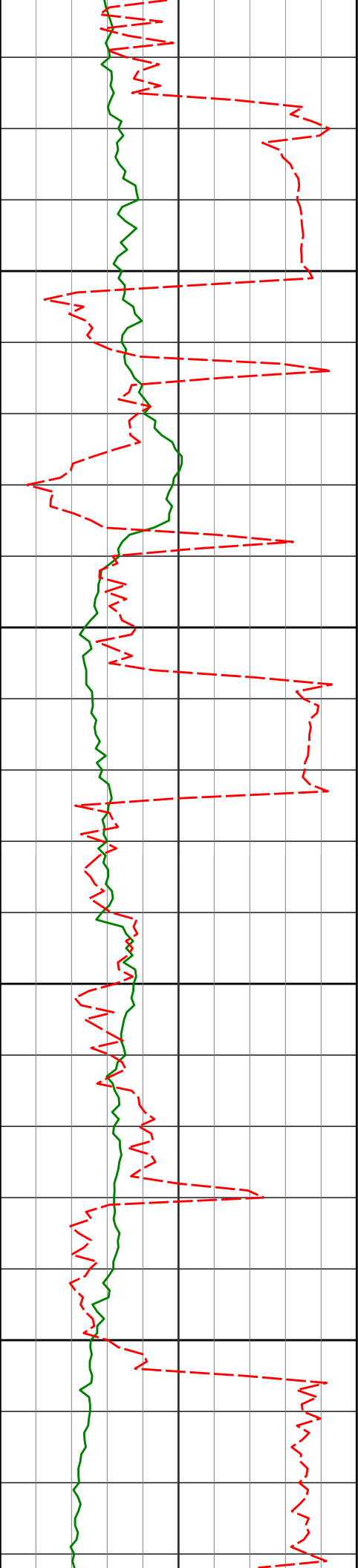
11696'

90.68°

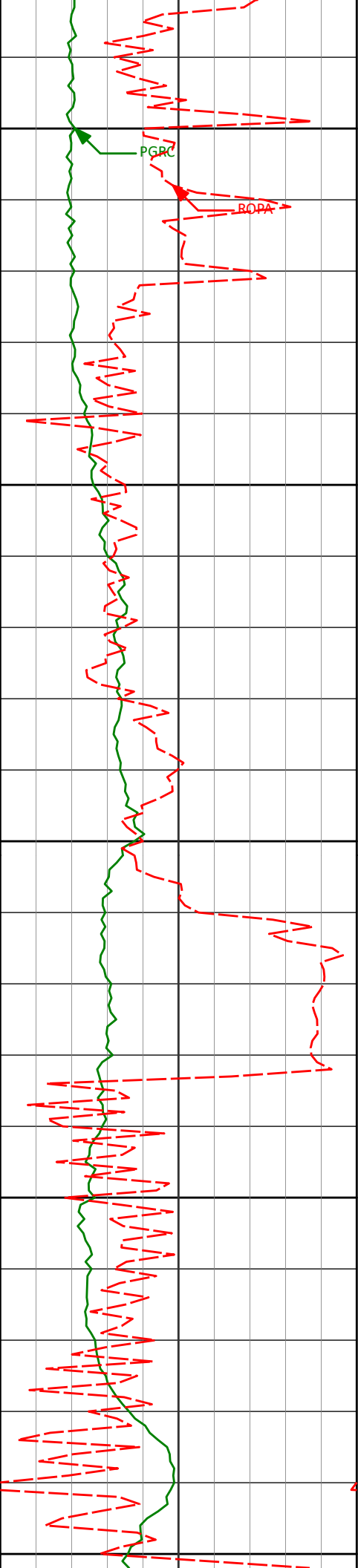
0.54°

5559.00'

6422.83'



11787'	91.51°	2.59°	5557.26'	6513.78'
11800				
11850				
11879'	88.90°	2.52°	5556.93'	6605.69'
11900				
11950				
11970'	89.35°	0.28°	5558.32'	6696.66'



12000

12050

12100

12150

12200

12062'

92.81°

0.72°

5556.58'

6788.63'

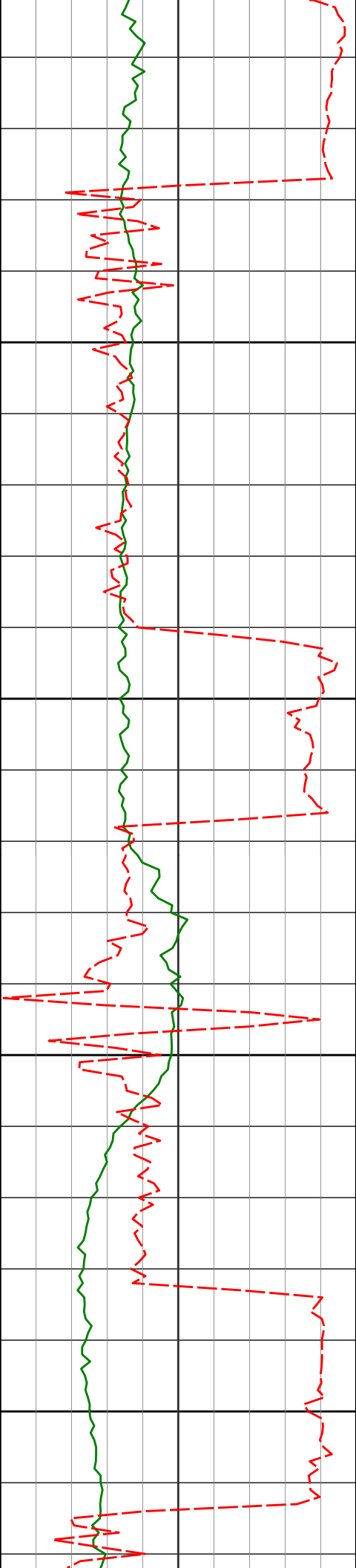
12152'

92.00°

358.87°

5552.81'

6878.54'



12250

12300

12350

12400

12244'

90.73°

358.07°

5550.62'

6970.47'

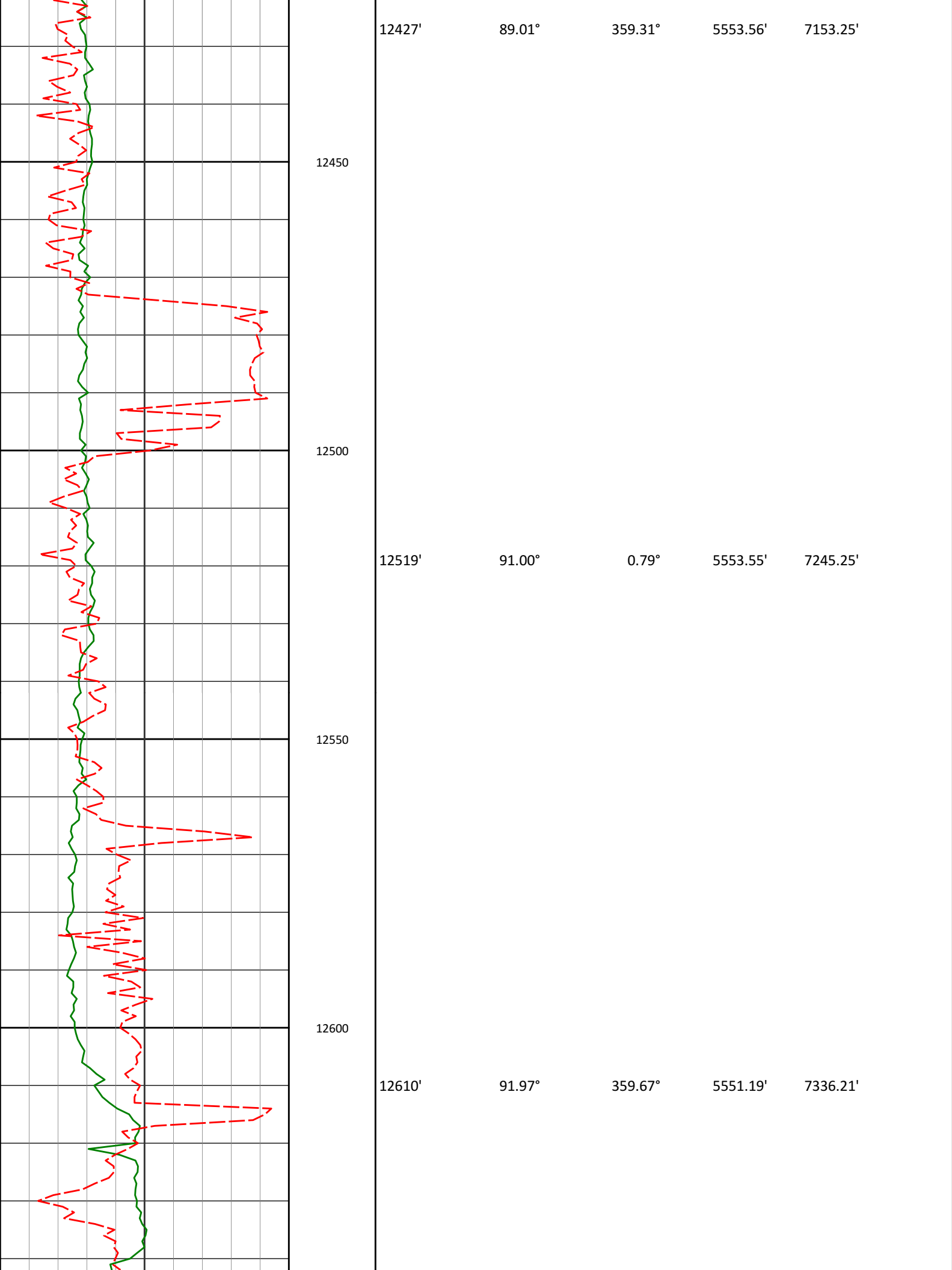
12335'

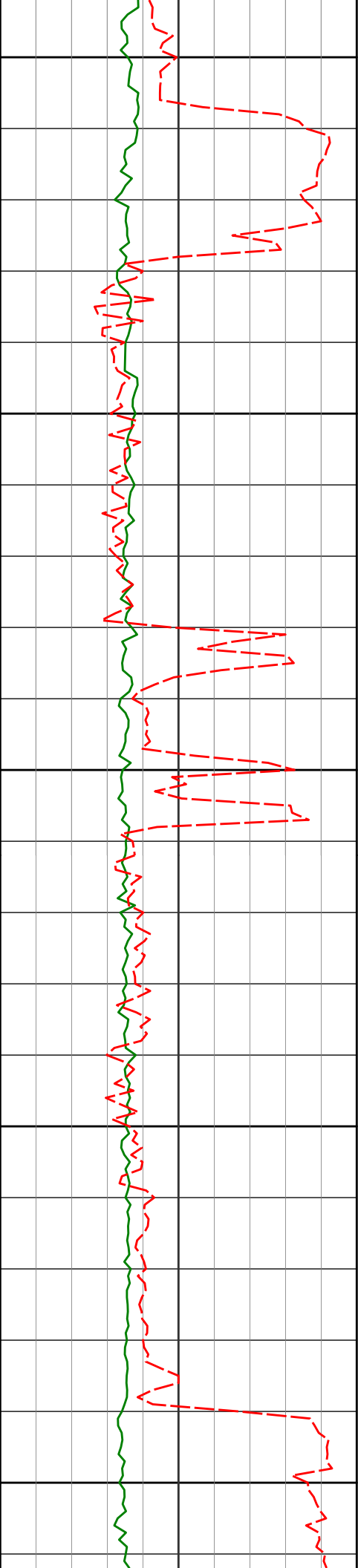
88.29°

356.75°

5551.39'

7061.35'





12650

12700

12750

12800

12850

12702'

90.22°

358.51°

5549.44'

7428.17'

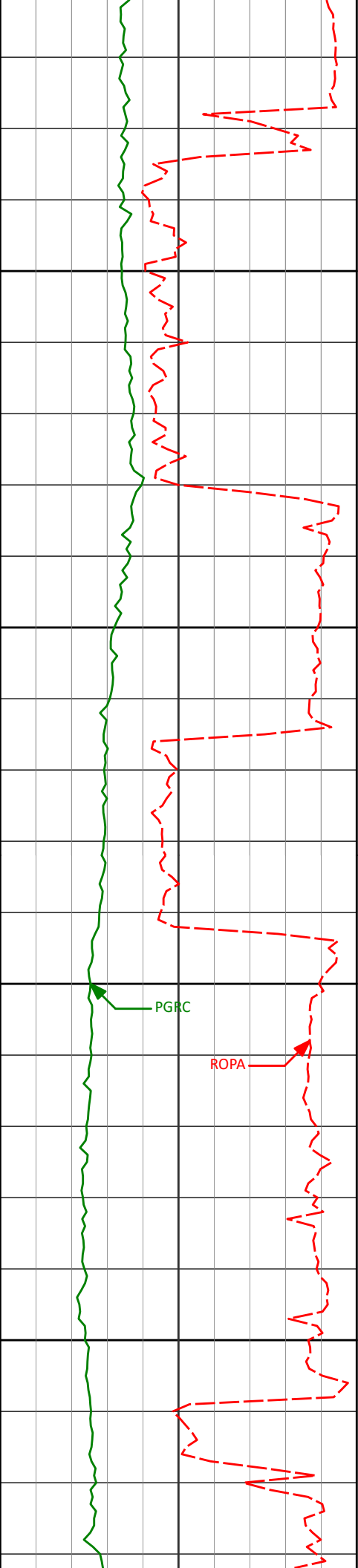
12794'

90.12°

352.53°

5549.16'

7519.83'



12886'	89.77°	351.12°	5549.25'	7610.85'
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12900

12950

12978'	90.12°	350.24°	5549.34'	7701.59'
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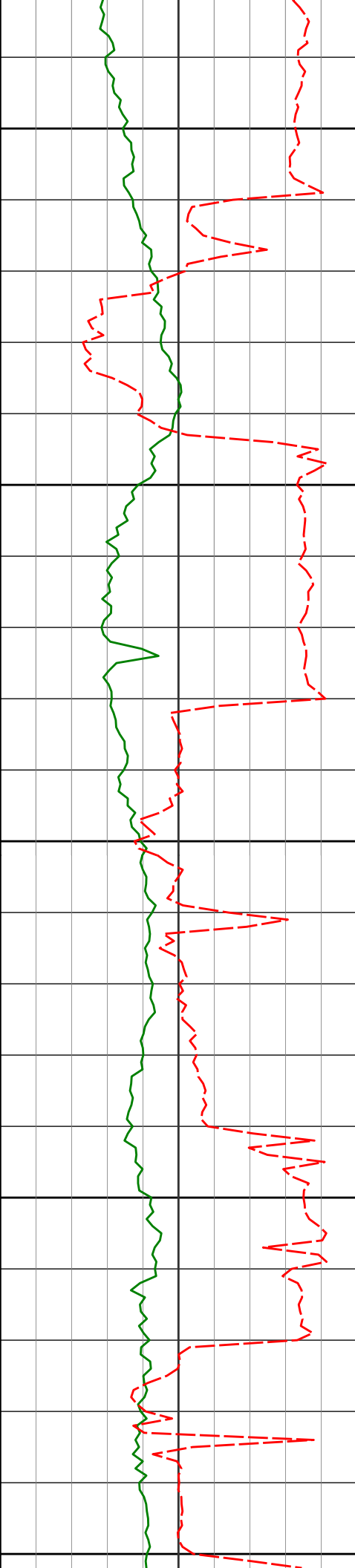
13000

PGRC

ROPA

13050

13069'	90.66°	355.87°	5548.72'	7791.84'
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13100

13150

13200

13250

13300

13161'

91.29°

1.48°

5547.15'

7883.76'

13252'

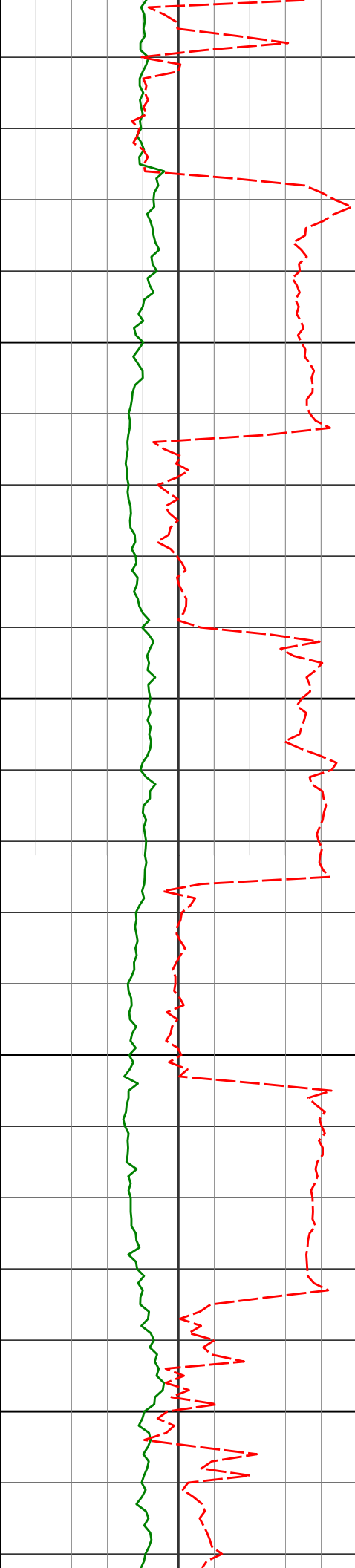
91.73°

2.99°

5544.76'

7974.67'





13350

13400

13450

13500

13343'

88.73°

1.84°

5544.39'

8065.59'

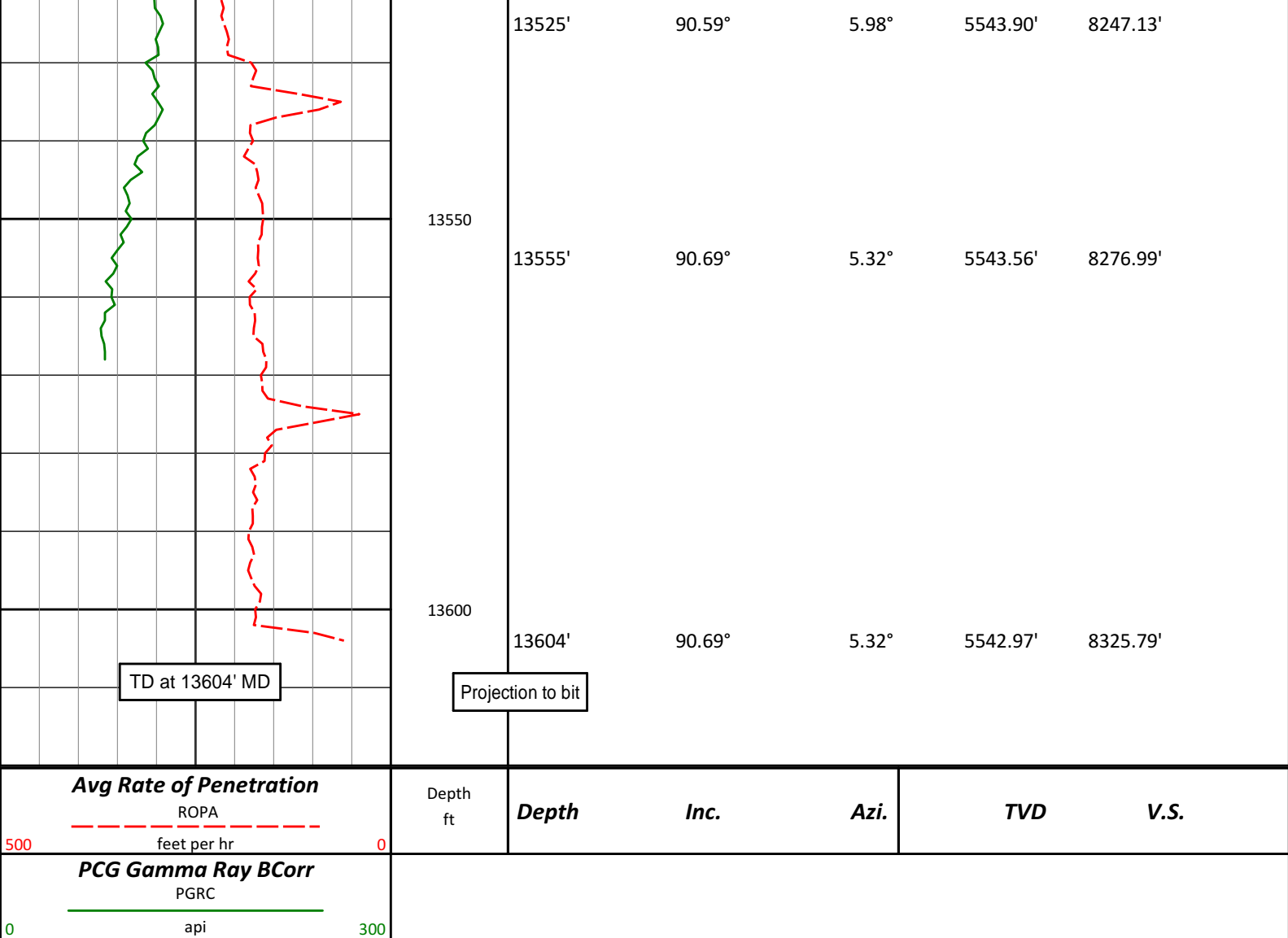
13434'

90.65°

4.14°

5544.88'

8156.47'



## HALLIBURTON

### DIRECTIONAL SURVEY REPORT

Whiting Oil and Gas

Razor #26I-2315A

Redtail

Weld Colorado

USA

CA-XX-0901406579

Surveys are Sag, IFR and MS corrected.

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
172.00	0.06	118.74	172.00	0.04 S	0.08 E	-0.04	0.03
263.00	0.20	120.94	263.00	0.15 S	0.26 E	-0.15	0.15
356.00	0.12	156.26	356.00	0.32 S	0.44 E	-0.32	0.13
448.00	0.09	298.25	448.00	0.37 S	0.41 E	-0.37	0.22
540.00	0.16	25.17	540.00	0.22 S	0.40 E	-0.22	0.19
632.00	0.07	321.58	632.00	0.06 S	0.42 E	-0.06	0.16
724.00	0.07	301.57	724.00	0.01 N	0.34 E	0.01	0.03
815.00	0.43	348.45	815.00	0.37 N	0.22 E	0.37	0.42
907.00	0.25	324.00	907.00	0.87 N	0.04 E	0.87	0.25

Razor #26I-2315A

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
997.00	0.97	81.92	996.99	1.14 N	0.67 E	1.14	1.23
1088.00	2.43	79.57	1087.95	1.60 N	3.33 E	1.61	1.61
1180.00	2.83	85.01	1179.85	2.15 N	7.52 E	2.17	0.51
1271.00	3.43	90.31	1270.72	2.33 N	12.48 E	2.37	0.73
1362.00	3.40	84.95	1361.56	2.55 N	17.89 E	2.61	0.35
1453.00	3.69	68.77	1452.38	3.85 N	23.30 E	3.92	1.14
1492.00	3.52	74.14	1491.31	4.63 N	25.62 E	4.71	0.97
1544.00	3.56	68.88	1543.21	5.65 N	28.67 E	5.74	0.63
1634.00	3.01	67.52	1633.06	7.56 N	33.46 E	7.66	0.62
1726.00	2.86	66.60	1724.94	9.39 N	37.79 E	9.51	0.17
1816.00	3.44	69.70	1814.80	11.22 N	42.39 E	11.36	0.67
1908.00	3.40	64.01	1906.64	13.38 N	47.43 E	13.53	0.37
1999.00	3.72	60.46	1997.46	16.01 N	52.42 E	16.18	0.43
2090.00	3.40	64.42	2088.29	18.63 N	57.42 E	18.82	0.44
2182.00	2.65	71.33	2180.16	20.49 N	61.90 E	20.69	0.91
2273.00	1.20	64.06	2271.11	21.58 N	64.75 E	21.79	1.61
2364.00	2.94	55.24	2362.04	23.33 N	67.52 E	23.54	1.94
2456.00	2.72	46.84	2453.93	26.17 N	71.06 E	26.39	0.51
2547.00	1.20	23.82	2544.88	28.52 N	73.02 E	28.75	1.85
2639.00	1.07	53.54	2636.86	29.91 N	74.10 E	30.14	0.65
2730.00	1.76	149.44	2727.84	29.21 N	75.49 E	29.45	2.36
2822.00	1.90	119.01	2819.80	27.26 N	77.54 E	27.50	1.05
2913.00	0.18	96.04	2910.78	26.51 N	79.00 E	26.76	1.91
3004.00	0.52	266.21	3001.78	26.47 N	78.73 E	26.71	0.77
3096.00	0.57	251.45	3093.77	26.29 N	77.88 E	26.54	0.16
3187.00	0.83	257.35	3184.76	26.01 N	76.81 E	26.25	0.30
3279.00	0.90	273.30	3276.75	25.90 N	75.44 E	26.14	0.27
3370.00	0.31	162.15	3367.75	25.71 N	74.80 E	25.94	1.16
3462.00	0.32	187.98	3459.75	25.22 N	74.84 E	25.45	0.15
3554.00	0.45	167.85	3551.75	24.61 N	74.88 E	24.84	0.20
3645.00	0.74	224.49	3642.74	23.84 N	74.55 E	24.07	0.68
3737.00	0.82	215.67	3734.73	22.88 N	73.75 E	23.11	0.16
3829.00	0.83	265.47	3826.73	22.29 N	72.70 E	22.52	0.76
3921.00	1.02	250.79	3918.71	21.97 N	71.26 E	22.20	0.33
4012.00	0.84	263.88	4009.70	21.63 N	69.83 E	21.85	0.30
4104.00	1.47	288.35	4101.68	21.93 N	68.04 E	22.15	0.85
4194.00	1.53	344.76	4191.66	23.46 N	66.63 E	23.67	1.58
4285.00	1.19	3.28	4282.63	25.57 N	66.36 E	25.78	0.61
4377.00	3.09	40.35	4374.57	28.42 N	68.02 E	28.63	2.45
4468.00	1.74	40.80	4465.48	31.33 N	70.52 E	31.55	1.48
4560.00	1.25	38.89	4557.45	33.17 N	72.06 E	33.40	0.54
4650.00	0.98	9.89	4647.44	34.69 N	72.81 E	34.92	0.68
4743.00	1.15	6.71	4740.42	36.40 N	73.05 E	36.63	0.19
4834.00	1.04	5.55	4831.40	38.13 N	73.24 E	38.36	0.12
4927.00	0.77	9.40	4924.39	39.59 N	73.42 E	39.82	0.30
4958.00	2.03	357.15	4955.38	40.34 N	73.43 E	40.57	4.15
4989.00	4.07	342.33	4986.34	41.94 N	73.07 E	42.17	7.00
5019.00	6.99	341.15	5016.19	44.68 N	72.15 E	44.91	9.74
5050.00	9.56	341.75	5046.87	48.91 N	70.74 E	49.13	8.29
5080.00	11.48	337.78	5076.36	54.04 N	68.83 E	54.26	6.84
5111.00	14.54	343.02	5106.57	60.62 N	66.53 E	60.83	10.57
5142.00	19.02	346.32	5136.24	69.26 N	64.19 E	69.46	14.77
5172.00	22.03	350.66	5164.33	79.56 N	62.12 E	79.75	11.24
5203.00	22.59	357.45	5193.02	91.25 N	60.91 E	91.44	8.50
5233.00	25.93	357.89	5220.36	103.56 N	60.42 E	103.75	11.15

Razor #26I-2315A

<i>Measured Depth (feet)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (feet)</i>	<i>Latitude (feet)</i>	<i>Departure (feet)</i>	<i>Vertical Section (feet)</i>	<i>Dogleg (deg/100ft)</i>
5265.00	28.71	357.13	5248.79	118.23 N	59.77 E	118.42	8.76
5296.00	31.18	357.25	5275.65	133.69 N	59.02 E	133.87	7.97
5328.00	34.46	357.93	5302.54	151.01 N	58.29 E	151.20	10.31
5360.00	35.28	0.20	5328.79	169.30 N	58.00 E	169.48	4.80
5391.00	37.88	3.55	5353.69	187.76 N	58.62 E	187.94	10.57
5423.00	41.74	3.16	5378.27	208.21 N	59.81 E	208.39	12.09
5454.00	44.71	2.98	5400.85	229.41 N	60.95 E	229.60	9.59
5486.00	47.23	3.18	5423.09	252.38 N	62.19 E	252.57	7.89
5518.00	51.63	4.47	5443.90	276.62 N	63.82 E	276.82	14.09
5549.00	55.92	5.37	5462.21	301.53 N	65.97 E	301.74	14.04
5581.00	59.49	9.55	5479.31	328.34 N	69.50 E	328.55	15.69
5613.00	62.33	9.54	5494.87	355.91 N	74.13 E	356.14	8.88
5644.00	67.16	7.91	5508.09	383.62 N	78.38 E	383.86	16.29
5676.00	71.28	6.42	5519.44	413.29 N	82.10 E	413.55	13.59
5707.00	74.85	3.39	5528.47	442.83 N	84.63 E	443.10	14.83
5739.00	77.23	2.94	5536.19	473.84 N	86.34 E	474.11	7.56
5771.00	78.62	3.63	5542.89	505.08 N	88.14 E	505.35	4.83
5802.00	80.11	2.93	5548.61	535.49 N	89.88 E	535.77	5.29
5834.00	82.55	1.12	5553.43	567.10 N	90.99 E	567.39	9.46
5865.00	85.77	0.29	5556.59	597.94 N	91.37 E	598.22	10.72
5897.00	88.12	0.68	5558.29	629.89 N	91.64 E	630.17	7.44
5929.00	90.65	2.09	5558.64	661.87 N	92.42 E	662.16	9.05
5952.00	91.73	3.33	5558.16	684.84 N	93.50 E	685.13	7.15
6056.00	92.19	3.96	5554.60	788.57 N	100.11 E	788.88	0.75
6119.00	91.79	1.61	5552.41	851.45 N	103.17 E	851.77	3.78
6214.00	92.65	358.28	5548.73	946.37 N	103.08 E	946.69	3.62
6309.00	90.12	355.13	5546.44	1041.16 N	97.62 E	1041.46	4.25
6404.00	88.69	354.51	5547.42	1135.77 N	89.05 E	1136.04	1.64
6499.00	90.07	355.33	5548.45	1230.39 N	80.63 E	1230.63	1.69
6594.00	90.82	357.57	5547.71	1325.19 N	74.75 E	1325.42	2.49
6689.00	89.68	358.72	5547.30	1420.14 N	71.68 E	1420.36	1.70
6784.00	88.71	357.23	5548.63	1515.07 N	68.32 E	1515.27	1.87
6879.00	87.78	355.73	5551.54	1609.84 N	62.49 E	1610.03	1.86
6974.00	88.24	355.71	5554.84	1704.52 N	55.41 E	1704.68	0.48
7069.00	89.05	355.03	5557.09	1799.18 N	47.74 E	1799.32	1.11
7164.00	89.76	354.59	5558.07	1893.78 N	39.15 E	1893.90	0.88
7259.00	89.57	353.57	5558.63	1988.27 N	29.35 E	1988.36	1.09
7354.00	88.86	354.98	5559.93	2082.79 N	19.87 E	2082.84	1.66
7448.00	88.95	356.51	5561.73	2176.51 N	12.90 E	2176.54	1.63
7543.00	89.55	0.01	5562.97	2271.44 N	10.02 E	2271.46	3.74
7638.00	90.43	2.15	5562.99	2366.42 N	11.81 E	2366.44	2.44
7733.00	90.51	0.75	5562.21	2461.38 N	14.21 E	2461.42	1.48
7828.00	91.14	2.26	5560.84	2556.34 N	16.70 E	2556.38	1.72
7923.00	92.84	0.88	5557.54	2651.24 N	19.31 E	2651.29	2.30
8018.00	92.31	1.07	5553.27	2746.13 N	20.92 E	2746.18	0.59
8112.00	90.52	0.19	5550.95	2840.09 N	21.95 E	2840.14	2.12
8207.00	89.91	0.98	5550.60	2935.08 N	22.92 E	2935.14	1.05
8302.00	88.57	358.76	5551.86	3030.07 N	22.71 E	3030.12	2.73
8397.00	88.07	0.16	5554.64	3125.02 N	21.81 E	3125.07	1.56
8492.00	87.79	0.76	5558.07	3219.95 N	22.58 E	3220.01	0.70
8587.00	90.00	1.15	5559.91	3314.92 N	24.16 E	3314.98	2.36
8680.00	90.37	0.21	5559.60	3407.91 N	25.26 E	3407.97	1.09
8771.00	89.26	359.84	5559.90	3498.91 N	25.30 E	3498.97	1.29
8864.00	89.11	359.61	5561.22	3591.89 N	24.86 E	3591.96	0.30
8956.00	89.51	0.51	5562.33	3683.89 N	24.95 E	3683.95	1.07

Razor #26I-2315A

<i>Measured Depth (feet)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (feet)</i>	<i>Latitude (feet)</i>	<i>Departure (feet)</i>	<i>Vertical Section (feet)</i>	<i>Dogleg (deg/100ft)</i>
9048.00	88.43	358.71	5563.98	3775.86 N	24.33 E	3775.92	2.28
9139.00	87.47	358.09	5567.24	3866.77 N	21.79 E	3866.82	1.26
9232.00	88.07	357.86	5570.86	3959.64 N	18.50 E	3959.68	0.69
9323.00	89.45	357.32	5572.83	4050.54 N	14.68 E	4050.56	1.63
9415.00	90.52	358.15	5572.85	4142.46 N	11.04 E	4142.48	1.47
9505.00	90.00	0.38	5572.44	4232.45 N	9.89 E	4232.46	2.54
9596.00	89.08	0.25	5573.17	4323.44 N	10.39 E	4323.45	1.02
9688.00	90.15	1.17	5573.79	4415.43 N	11.53 E	4415.45	1.53
9779.00	89.09	358.24	5574.40	4506.42 N	11.06 E	4506.43	3.42
9869.00	90.68	2.03	5574.58	4596.40 N	11.27 E	4596.41	4.57
9961.00	92.34	1.91	5572.15	4688.31 N	14.43 E	4688.33	1.81
10052.00	89.94	1.40	5570.34	4779.24 N	17.06 E	4779.27	2.70
10143.00	91.28	1.36	5569.37	4870.21 N	19.25 E	4870.25	1.47
10235.00	90.54	1.31	5567.91	4962.17 N	21.39 E	4962.22	0.81
10326.00	90.59	1.01	5567.01	5053.15 N	23.24 E	5053.20	0.33
10417.00	88.48	2.21	5567.75	5144.10 N	25.79 E	5144.16	2.67
10509.00	89.17	1.74	5569.64	5236.03 N	28.96 E	5236.10	0.91
10601.00	89.66	0.97	5570.58	5328.00 N	31.14 E	5328.07	0.99
10692.00	91.30	359.98	5569.82	5418.99 N	31.89 E	5419.06	2.11
10783.00	90.80	359.79	5568.15	5509.97 N	31.71 E	5510.04	0.59
10875.00	89.63	0.10	5567.80	5601.97 N	31.62 E	5602.04	1.32
10965.00	90.10	359.54	5568.02	5691.97 N	31.34 E	5692.04	0.81
11057.00	90.39	359.05	5567.62	5783.96 N	30.21 E	5784.03	0.62
11148.00	90.45	0.32	5566.96	5874.95 N	29.71 E	5875.02	1.40
11239.00	89.46	358.02	5567.03	5965.94 N	28.39 E	5966.00	2.75
11330.00	89.38	0.13	5567.95	6056.92 N	26.92 E	6056.97	2.32
11422.00	92.07	0.98	5566.78	6148.90 N	27.81 E	6148.95	3.07
11513.00	91.63	0.37	5563.85	6239.84 N	28.88 E	6239.90	0.83
11605.00	91.88	0.45	5561.03	6331.80 N	29.54 E	6331.86	0.29
11696.00	90.68	0.54	5559.00	6422.77 N	30.33 E	6422.83	1.32
11787.00	91.51	2.59	5557.26	6513.71 N	32.81 E	6513.78	2.43
11879.00	88.90	2.52	5556.93	6605.61 N	36.91 E	6605.69	2.84
11970.00	89.35	0.28	5558.32	6696.57 N	39.13 E	6696.66	2.51
12062.00	92.81	0.72	5556.58	6788.53 N	39.94 E	6788.63	3.79
12152.00	92.00	358.87	5552.81	6878.45 N	39.61 E	6878.54	2.24
12244.00	90.73	358.07	5550.62	6970.39 N	37.16 E	6970.47	1.63
12335.00	88.29	356.75	5551.39	7061.28 N	33.05 E	7061.35	3.05
12427.00	89.01	359.31	5553.56	7153.19 N	29.89 E	7153.25	2.89
12519.00	91.00	0.79	5553.55	7245.19 N	29.97 E	7245.25	2.70
12610.00	91.97	359.67	5551.19	7336.15 N	30.33 E	7336.21	1.63
12702.00	90.22	358.51	5549.44	7428.12 N	28.87 E	7428.17	2.28
12794.00	90.12	352.53	5549.16	7519.80 N	21.69 E	7519.83	6.50
12886.00	89.77	351.12	5549.25	7610.86 N	8.61 E	7610.85	1.58
12978.00	90.12	350.24	5549.34	7701.64 N	6.29 W	7701.59	1.03
13069.00	90.66	355.87	5548.72	7791.94 N	17.29 W	7791.84	6.22
13161.00	91.29	1.48	5547.15	7883.86 N	19.42 W	7883.76	6.14
13252.00	91.73	2.99	5544.76	7974.76 N	15.87 W	7974.67	1.73
13343.00	88.73	1.84	5544.39	8065.66 N	12.04 W	8065.59	3.53
13434.00	90.65	4.14	5544.88	8156.53 N	7.29 W	8156.47	3.29
13525.00	90.59	5.98	5543.90	8247.17 N	0.73 E	8247.13	2.02
13555.00	90.69	5.32	5543.56	8277.02 N	3.69 E	8276.99	2.22
13604.00	90.69	5.32	5542.97	8325.80 N	8.23 E	8325.79	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 0.18 DEGREES (TRUE)  
A TOTAL CORRECTION OF 7.40 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.  
HORIZONTAL DISPLACEMENT(CLOSURE) AT 13604.00 FEET  
IS 8325.81 FEET ALONG 0.06 DEGREES (TRUE)**

**Tie onto surface at 0' MD  
Final Survey is a projection to bit at TD**