



1 : 600 / 1 : 240

WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	21-Aug-15	23-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)	1,100.00	6,323.00			
Log End Depth (MD, ft)	6,323.00	10,663.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	20-Aug-15 08:00	22-Aug-15 04:30			
Drill/Wipe End Date and Time	21-Aug-15 02:30	23-Aug-15 05:45			
Min Inc (deg) @ Depth (MD, ft)	0.22 @ 1,109.00	88.15 @ 9,387.00			
Max Inc (deg) @ Depth (MD, ft)	85.59 @ 6,257.00	92.13 @ 7,873.00			
Bit TFA(in2) / Bit Type	0.98 /	0.98 /			
Flow Rate (gpm)	590.90	311.07			
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)	8.90 / 27.00	10.25 / 34.00			
Filtrate CL (ppm)	900.00	1,700.00			
pH / Fluid Loss (mptm)	8.50 / 18	8.70 / 8			
PV (cP) / YP (lbf2)	2 / 3.00	7 / 9.00			
% Solids / % Sand	1.7 / .2	8.70 / 0.15			
% 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) / Source	167.00 / PCM	213.40 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A			
Lead MWD Engineer	Brian Neu	Brian Neu			
Customer Representative	Jim Boyd	Jim Boyd			

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	19-Aug-15 15:11	21-Aug-15 05:24			
Date and Time Read	21-Aug-15 07:42	23-Aug-15 12:35			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	66.00	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)	147.30	288.90			

Gamma Ray Sensor Information

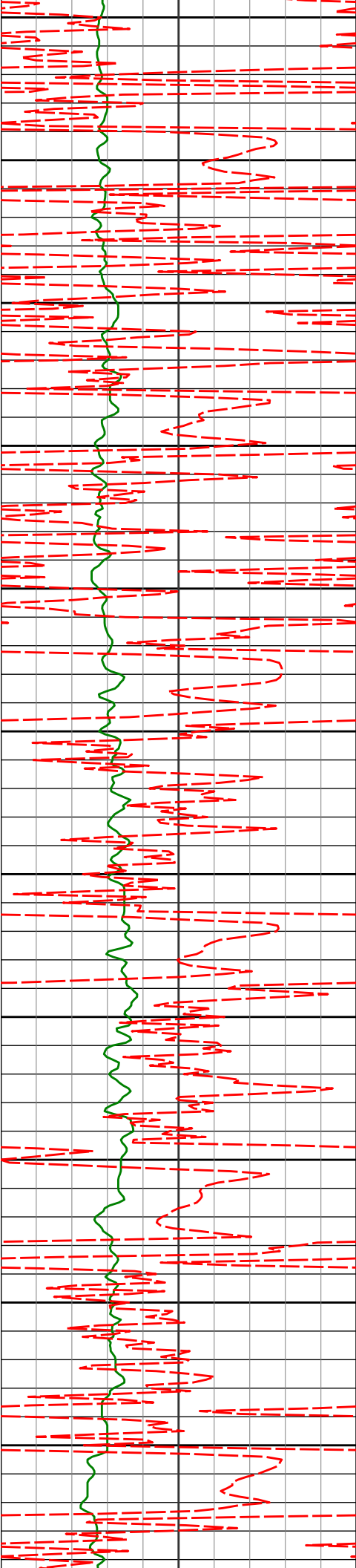
Tool Type	PCG	PCG			
Distance From Bit (ft)	59.26	55.47			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11303511	12361803			
Insert/Sonde Serial Number	11680918	12037418			

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. Environmental parameters used in gamma and resistance processing:
Hole Size: 6.125"
Mud Density: 9.9-10.3
5. 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

HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY OTHER THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY



1400

1450

1479'

5.23°

207.12°

1478.50'

-14.78'

1500

1550

1572'

6.83°

200.67°

1570.99'

-23.11'

1600

1650

1666'

8.16°

195.46°

1664.18'

-34.15'

1700

1750

1758'

9.03°

198.46°

1755.15'

-46.61'

1800

1850

1850'

10.97°

201.57°

1845.75'

-60.71'

1900

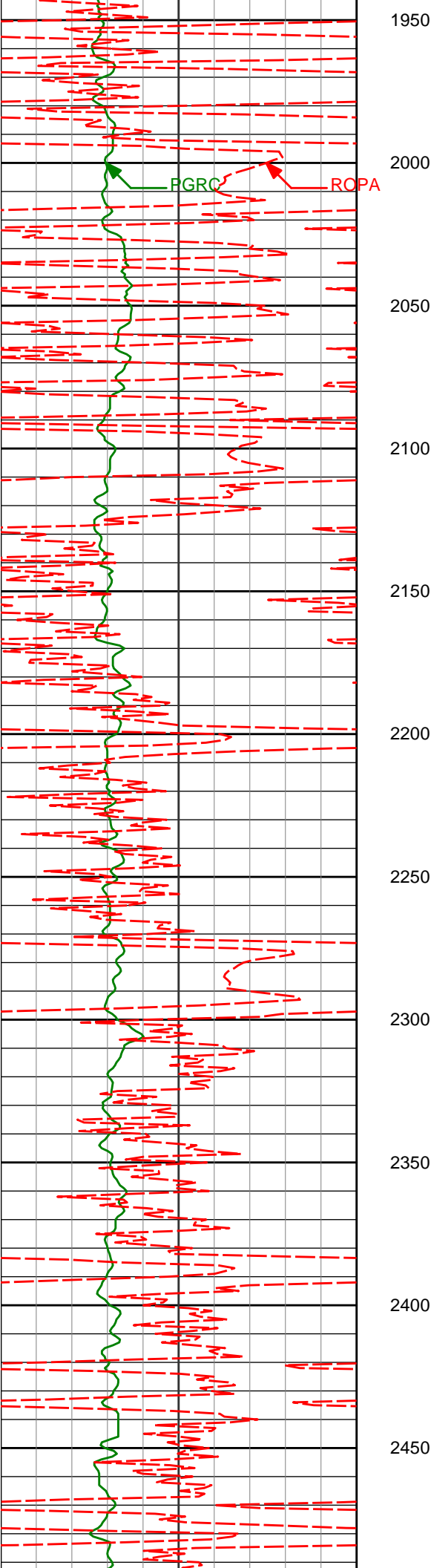
1942'

11.80°

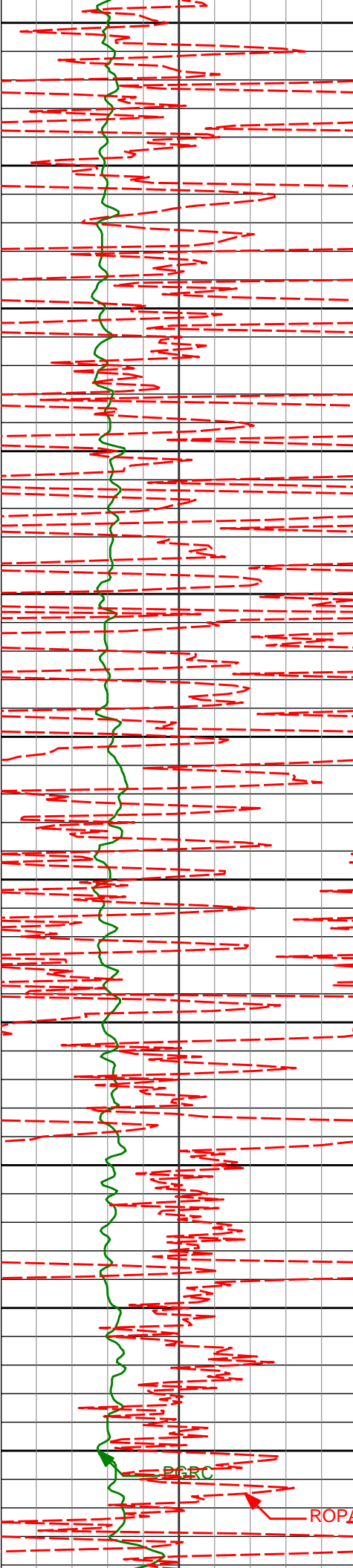
200.40°

1936.92'

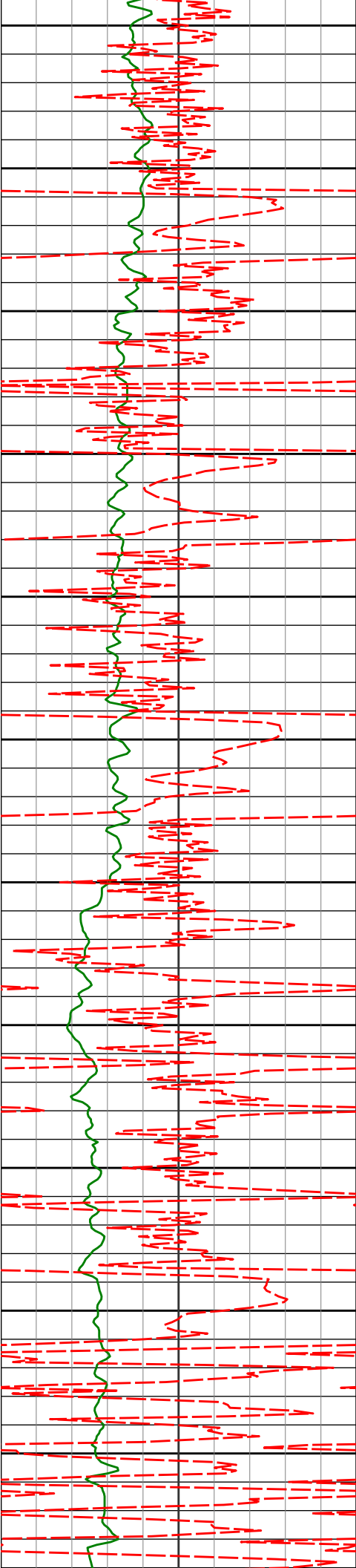
-76.70'



1943'	11.80°	200.49°	1930.92'	-76.79'
2034'	12.98°	204.67°	2025.80'	-93.59'
2126'	13.38°	207.41°	2115.38'	-110.99'
2218'	13.22°	205.32°	2204.91'	-128.49'
2310'	13.27°	212.75°	2294.47'	-145.31'
2404'	12.64°	211.92°	2386.08'	-161.40'



2500	2497'	12.12°	211.78°	2476.91'	-176.74'
2550					
2600	2590'	13.65°	216.26°	2567.57'	-192.13'
2650					
2700	2682'	13.84°	216.09°	2656.94'	-207.85'
2750					
2800	2776'	13.41°	214.90°	2748.29'	-223.95'
2850					
2900	2869'	12.55°	213.30°	2838.91'	-239.47'
2950					
3000	2964'	11.33°	206.69°	2931.86'	-254.93'



3050

3058'

9.01°

197.25°

3024.38'

-269.21'

3100

3150

3153'

8.96°

201.73°

3118.22'

-282.39'

3200

3250

3248'

10.91°

203.85°

3211.79'

-296.47'

3300

3350

3342'

14.26°

206.58°

3303.52'

-313.60'

3400

3450

3437'

15.16°

205.42°

3395.40'

-333.64'

3500

3550

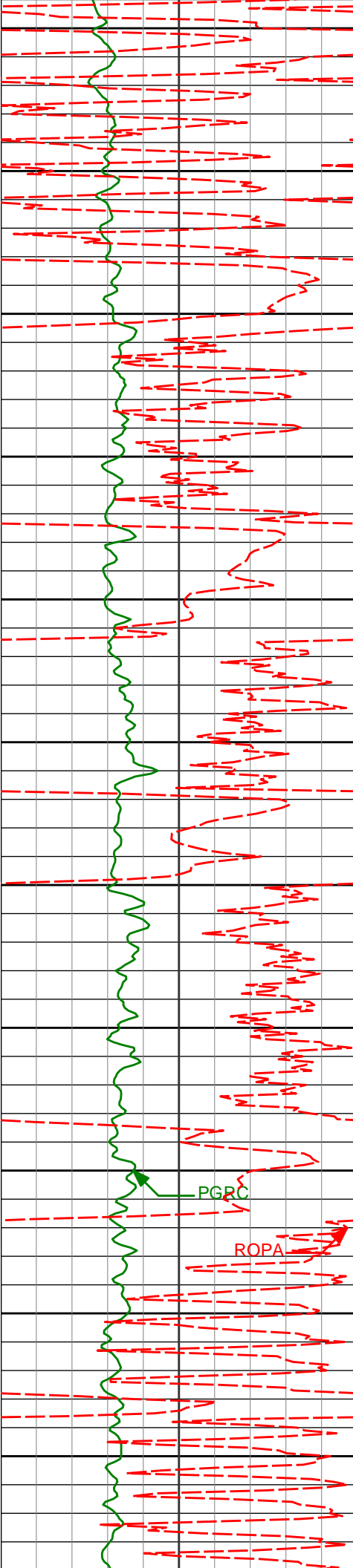
3532'

16.92°

208.66°

3486.70'

-355.14'



3600

3626' 17.73° 208.22° 3576.43' -377.70'

3650

3700

3721' 17.41° 207.81° 3667.00' -400.94'

3750

3800

3815' 15.95° 215.63° 3757.06' -421.73'

3850

3900

3910' 14.59° 229.35° 3848.73' -437.68'

3950

4000

4004' 11.09° 231.28° 3940.37' -448.74'

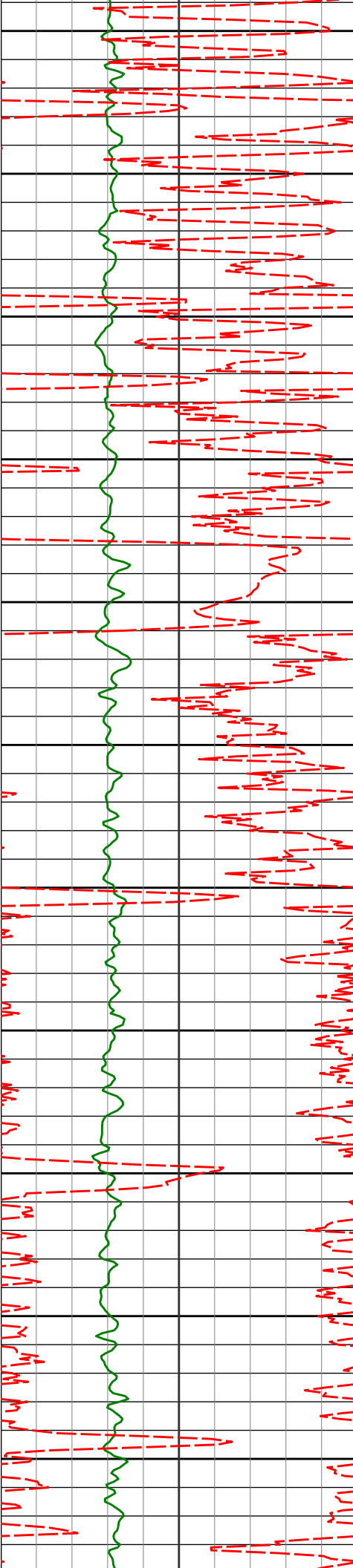
PGRC

ROPA

4050

4100

4099' 9.97° 231.93° 4033.77' -457.56'



4150

4194'

8.99°

232.96°

4127.47'

-465.31'

4200

4250

4300

4350

4383'

7.68°

205.99°

4314.54'

-483.01'

4400

4450

4477'

6.39°

204.67°

4407.83'

-492.63'

4500

4550

4572'

5.96°

202.37°

4502.28'

-501.35'

4600

4650

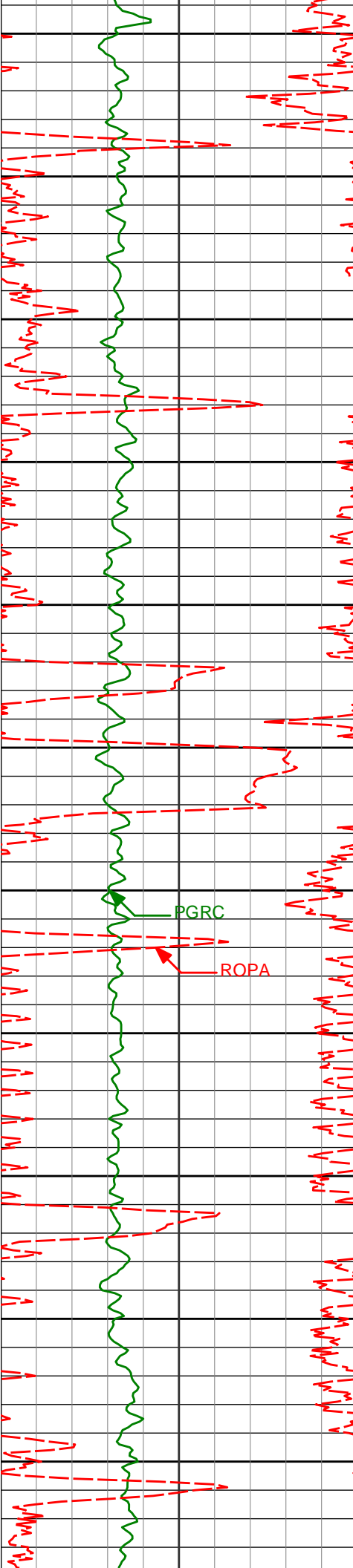
4667'

4.76°

192.22°

4596.87'

-509.32'



4700

4750

4800

4850

4900

4950

5000

5050

5100

5150

5200

4761'

4.07°

183.37° 4690.59'

-516.26'

4856'

4.01°

187.35° 4785.35'

-522.77'

4951'

3.53°

186.56° 4880.15'

-528.80'

5045'

2.11°

199.88° 4974.03'

-533.13'

5140'

2.08°

204.81° 5068.97'

-536.12'

5234'

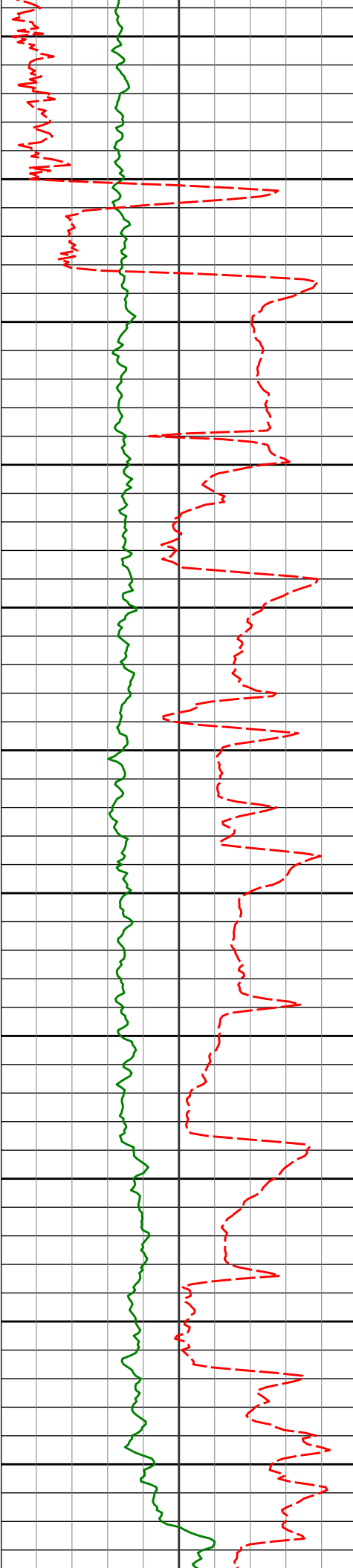
1.67°

203.87° 5162.92'

-538.72'

PGRC

ROPA



5250

5300

5350

5400

5450

5500

5550

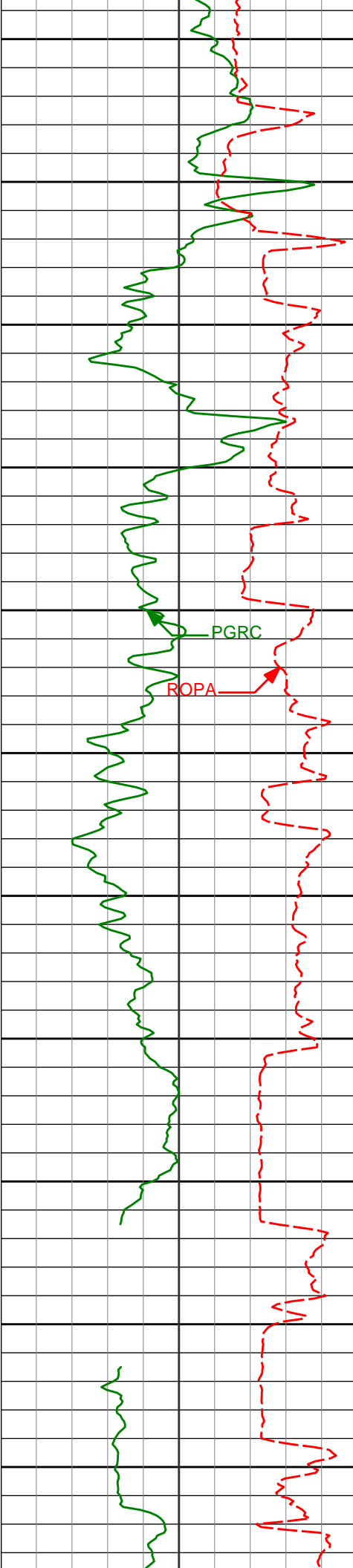
5600

5650

5700

5750

5329'	0.62°	222.57°	5257.90'	-540.22'
5424'	10.77°	344.44°	5352.35'	-531.72'
5518'	16.93°	341.89°	5443.58'	-509.52'
5613'	24.43°	345.87°	5532.40'	-476.34'
5708'	32.39°	347.24°	5615.89'	-431.39'



5800 5802' 37.64° 351.02° 5692.86' -377.56'

5850

5900 5897' 46.95° 349.37° 5763.06' -313.75'

5950

6000 5991' 57.78° 349.85° 5820.37' -239.49'

PGRC

ROPA

6050

6086' 69.11° 353.27° 5862.79' -154.68'

6100

6150

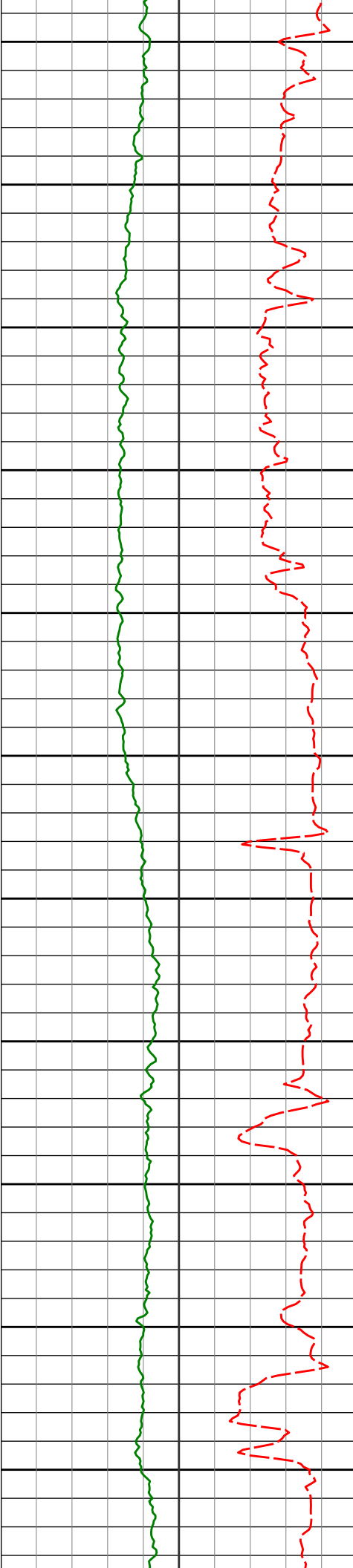
6180' 80.66° 357.67° 5887.27' -64.27'

6200

6250 6257' 85.59° 358.93° 5896.48' 11.71'

6300
Casing Shoe @ 6317' MD

Run 200



6350

6376'

89.35°

359.71° 5901.73'

129.64'

6400

6450

6468'

89.26°

359.94° 5902.85'

220.81'

6500

6550

6600

6650

6652'

90.34°

1.40° 5903.49'

402.76'

6700

6750

6746'

90.92°

1.07° 5902.45'

495.57'

6800

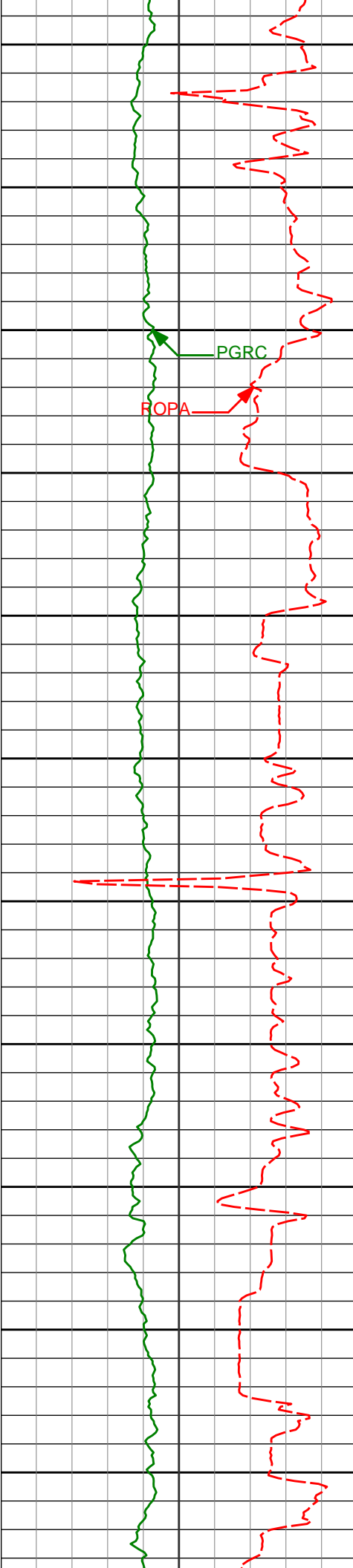
6850

6839'

91.20°

0.91° 5900.73'

587.45'



6900

6932'

89.45°

359.86° 5900.20'

679.48'

6950

7000

PGRC

ROPA

7024'

89.29°

359.56° 5901.21'

770.67'

7050

7100

7118'

89.72°

359.71° 5902.02'

863.87'

7150

7200

7211'

89.94°

359.28° 5902.30'

956.10'

7250

7300

7305'

90.43°

359.50° 5902.00'

1049.35'

7350

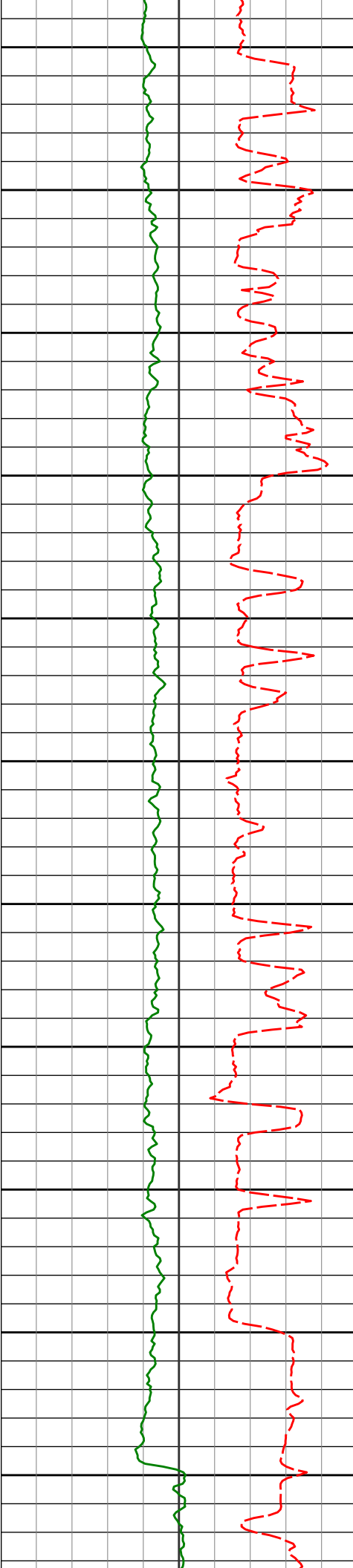
7400

7400'

88.98°

358.48° 5902.48'

1143.67'



7450

7500

7550

7600

7650

7700

7750

7800

7850

7900

7950

7495'

88.77°

357.24° 5904.35'

1238.17'

7589'

89.94°

357.02° 5905.41'

1331.81'

7684'

89.32°

355.83° 5906.02'

1426.54'

7778'

92.13°

357.07° 5904.83'

1520.26'

7873'

92.13°

356.72° 5901.31'

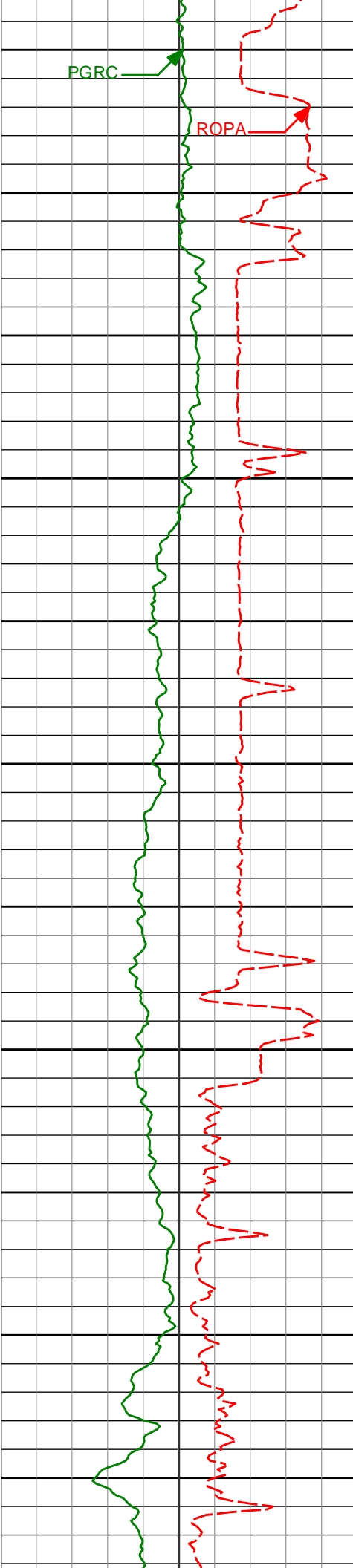
1614.86'

7968'

91.91°

356.44° 5897.96'

1709.52'



8000

PGRC

ROPA

8050

8062'

90.77°

357.51° 5895.76'

1803.16'

8100

8150

8157'

91.30°

358.17° 5894.04'

1897.67'

8200

8250

8252'

91.14°

357.47° 5892.02'

1992.18'

8300

8350

8346'

90.15°

357.16° 5890.96'

2085.79'

8400

8450

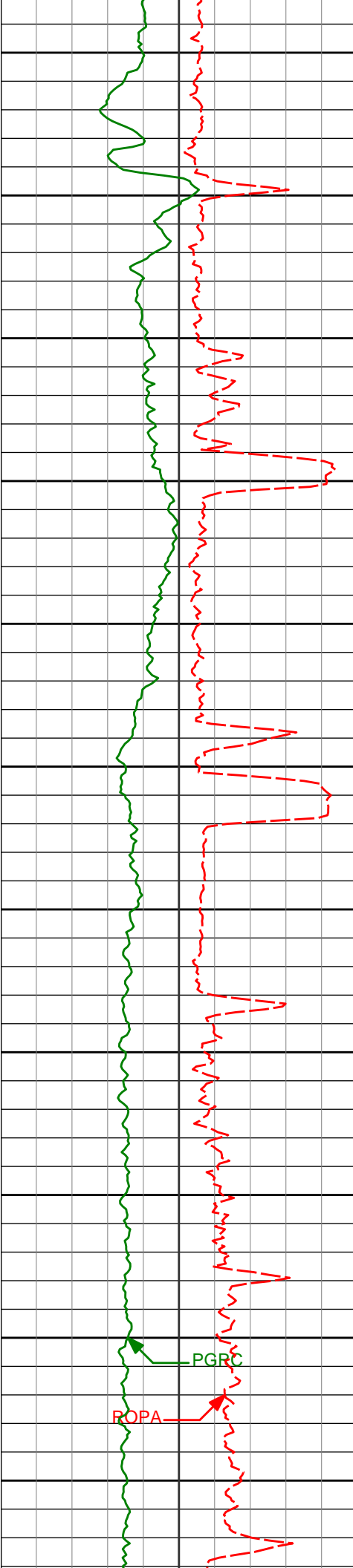
8441'

89.94°

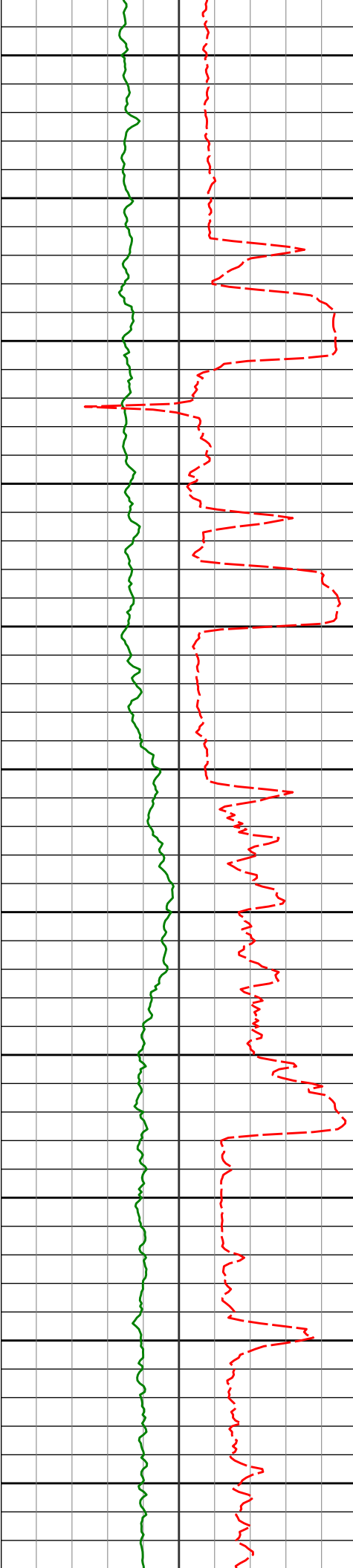
357.05° 5890.89'

2180.43'

8500



8550	8536'	90.31°	356.57°	5890.69'	2275.12'
8600					
8630'		90.77°	356.23°	5889.80'	2368.85'
8650					
8700					
8725'		90.65°	357.26°	5888.63'	2463.54'
8750					
8800					
8820'		89.32°	356.37°	5888.65'	2558.22'
8850					
8900					
8914'		89.57°	357.52°	5889.56'	2651.88'
8950					
9000					
9009'		90.03°	359.17°	5889.90'	2746.32'
9050					



9100

9104'

90.00°

1.65° 5889.87'

2840.33'

9150

9200

9198'

89.45°

0.37° 5890.32'

2933.20'

9250

9300

9292'

88.77°

358.78° 5891.79'

3026.40'

9350

9400

9387'

88.15°

358.02° 5894.35'

3120.79'

9450

9500

9482'

89.85°

357.49° 5896.01'

3215.32'

9550

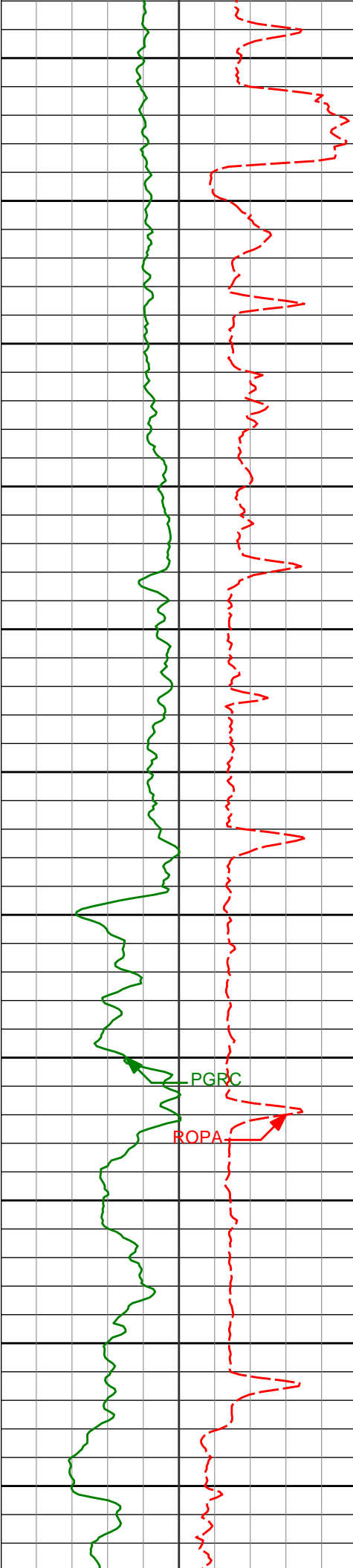
9600

9577'

89.63°

356.66° 5896.44'

3309.97'



9650

9671'

90.68°

357.20° 5896.19'

3403.64'

9700

9750

9766'

90.92°

357.24° 5894.86'

3498.25'

9800

9850

9861'

90.96°

356.46° 5893.30'

3592.92'

9900

9950

9955'

90.86°

355.81° 5891.81'

3686.68'

10000

PGRC

ROPA

10050

10050'

90.06°

355.96° 5891.04'

3781.47'

10100

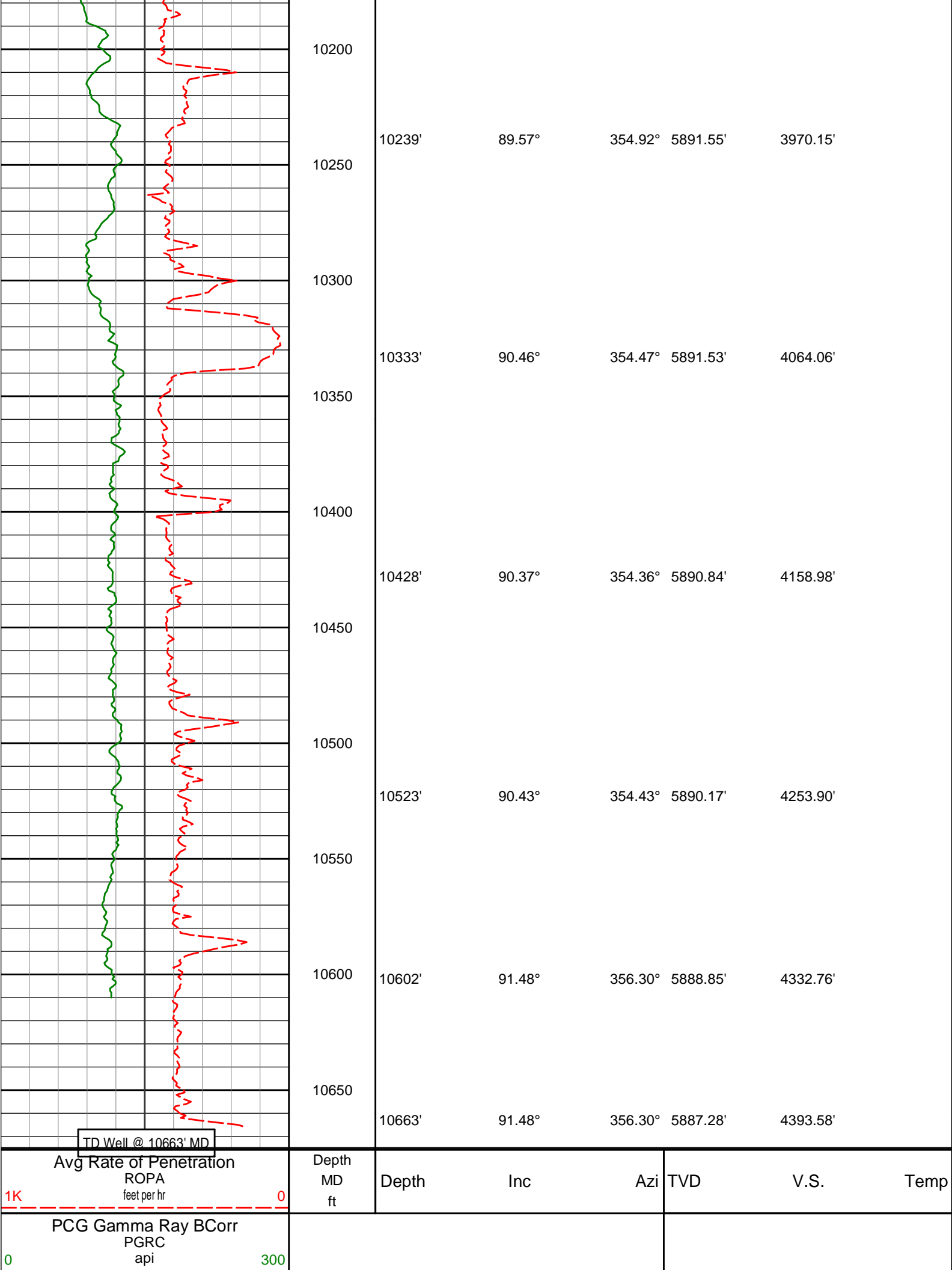
10150

10144'

89.88°

355.47° 5891.09'

3875.29'



TD Well @ 10663' MD

Avg Rate of Penetration
ROPA
feet per hr

Depth
MD
ft

Depth

Inc

Azi

TVD

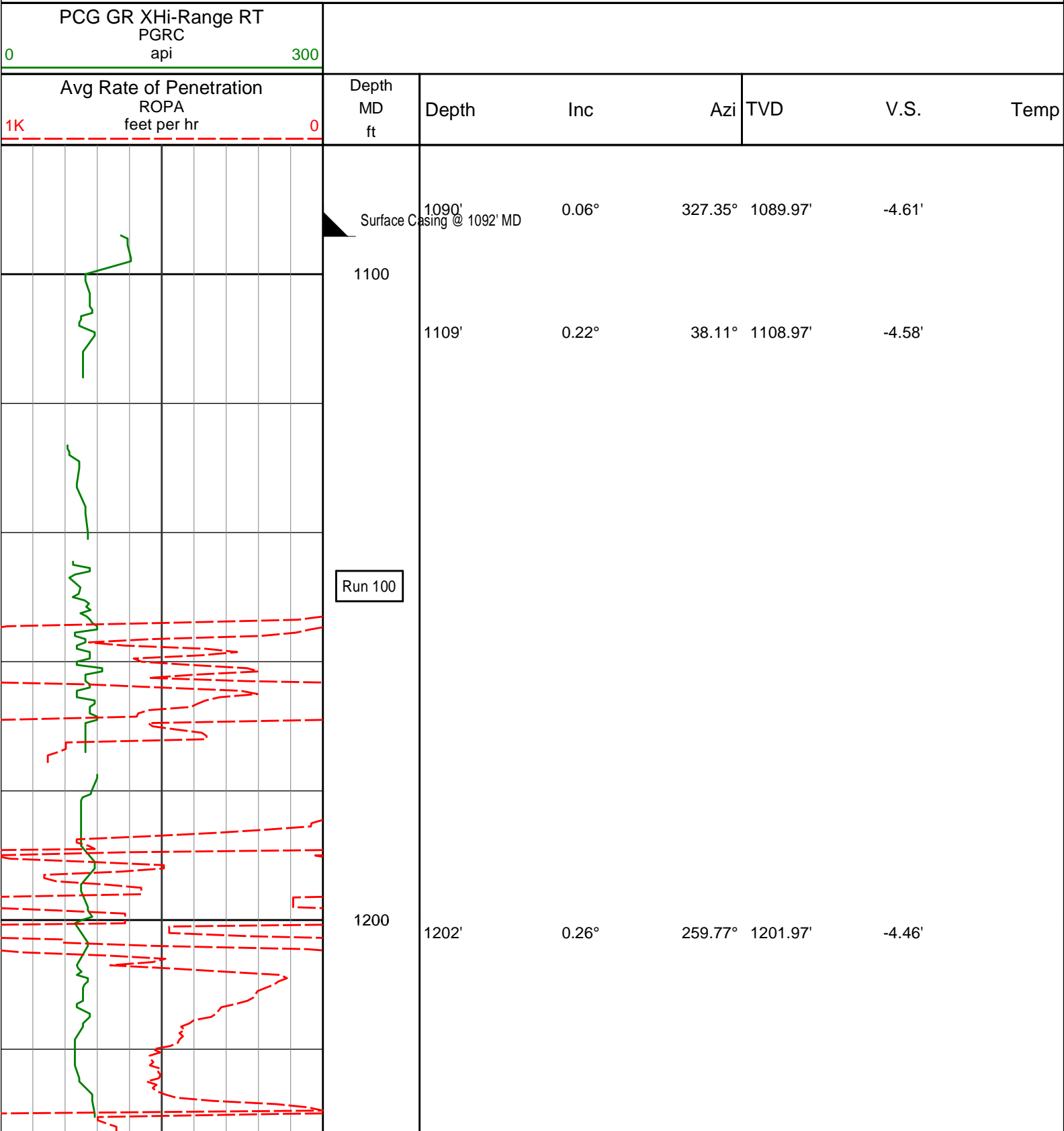
V.S.

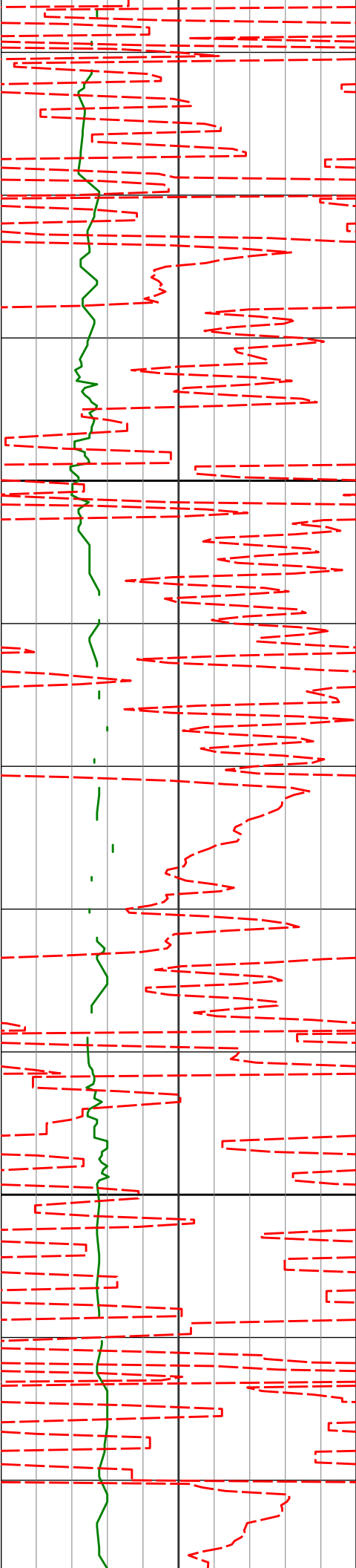
Temp

PCG Gamma Ray BCorr
PGRC
api

300

MD Detail 1:240 Scale





1300

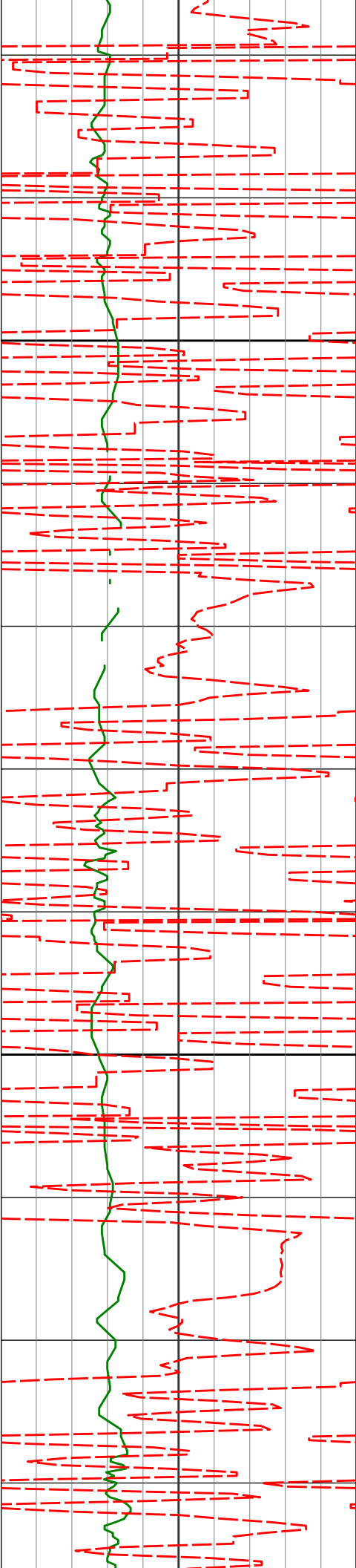
1386'

4.03°

217.65° 1385.81'

-9.01'

1400



1479'

5.23°

207.12° 1478.50'

-14.78'

1500

1572'

6.83°

200.67° 1570.99'

-23.11'

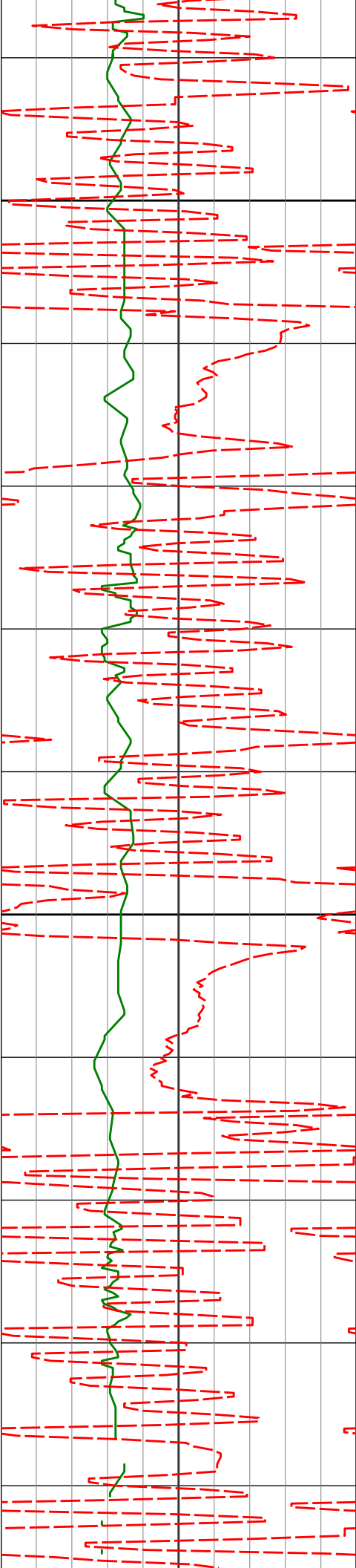
1600

1666'

8.16°

195.46° 1664.18'

-34.15'



1700

1758'

9.03°

198.46° 1755.15'

-46.61'

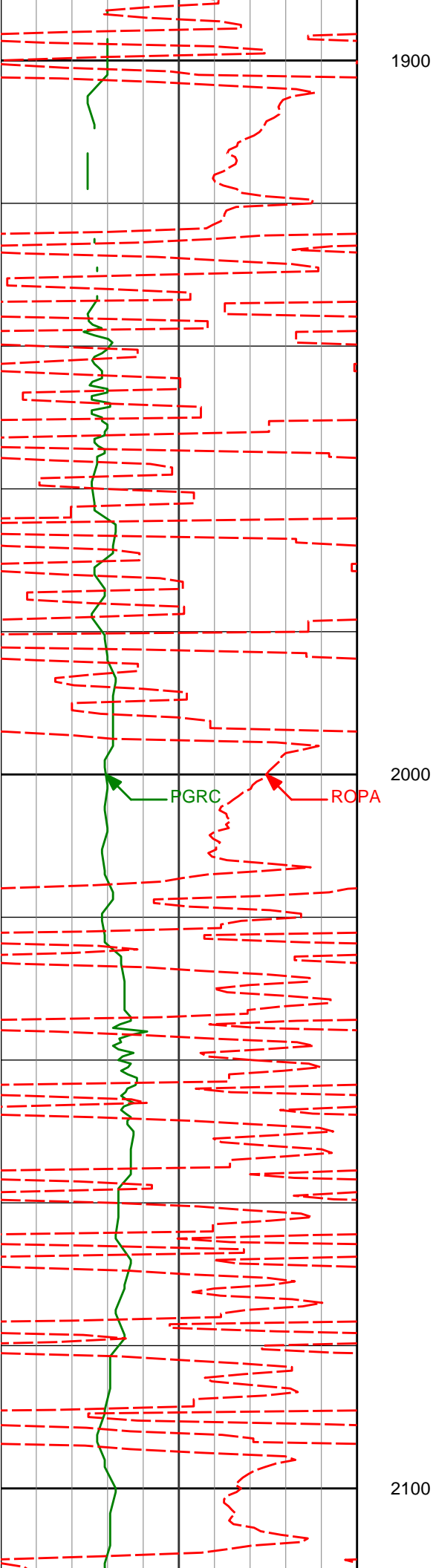
1800

1850'

10.97°

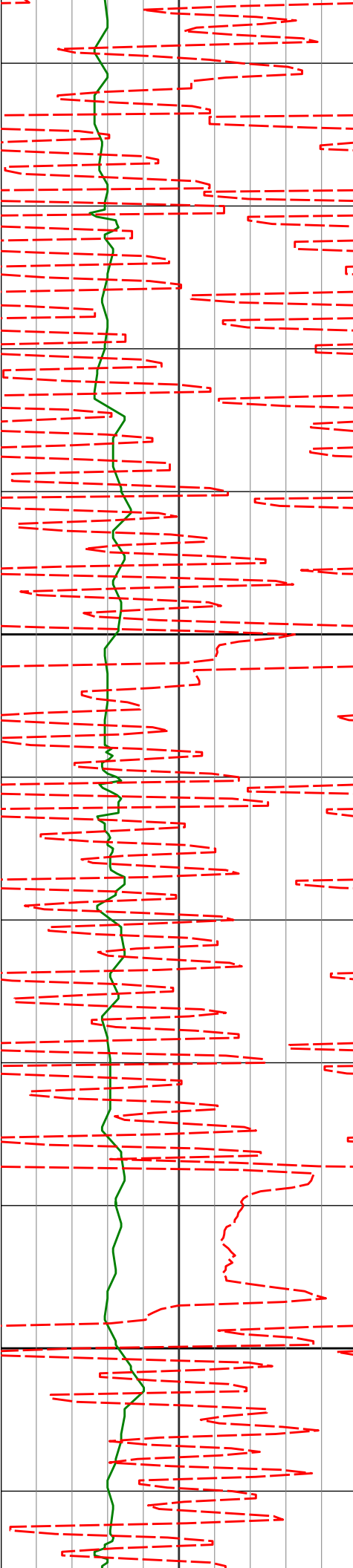
201.57° 1845.75'

-60.71'



11.80° 200.49° 1936.92' -76.79'

12.98° 204.67° 2025.80' -93.59'



2126'

13.38°

207.41° 2115.38'

-110.99'

2200

2218'

13.22°

205.32° 2204.91'

-128.49'

2300

2310'

13.27°

212.75° 2294.47'

-145.31'



2400

2404'

12.64°

211.92° 2386.08'

-161.40'

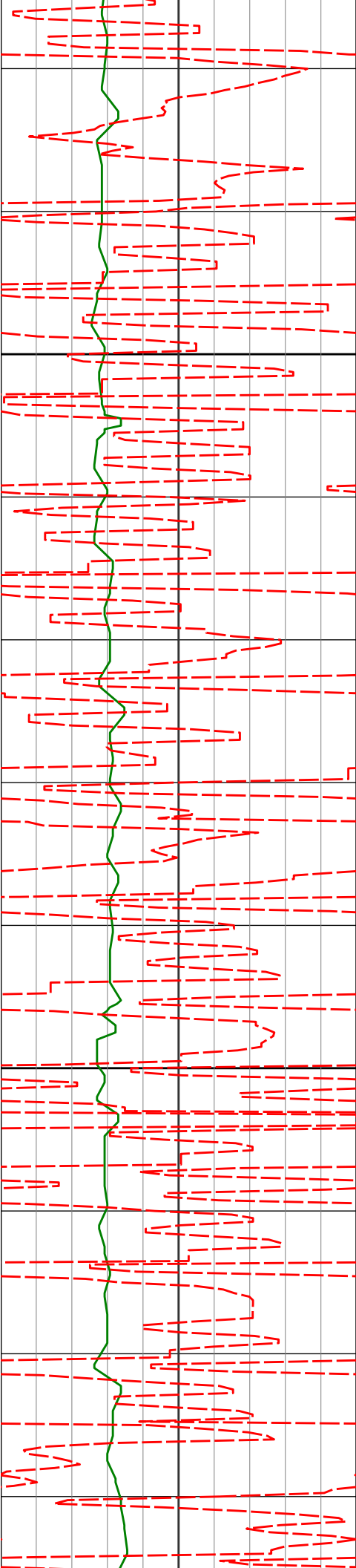
2500

2497'

12.12°

211.78° 2476.91'

-176.74'



2590'

13.65°

216.26° 2567.57'

-192.13'

2600

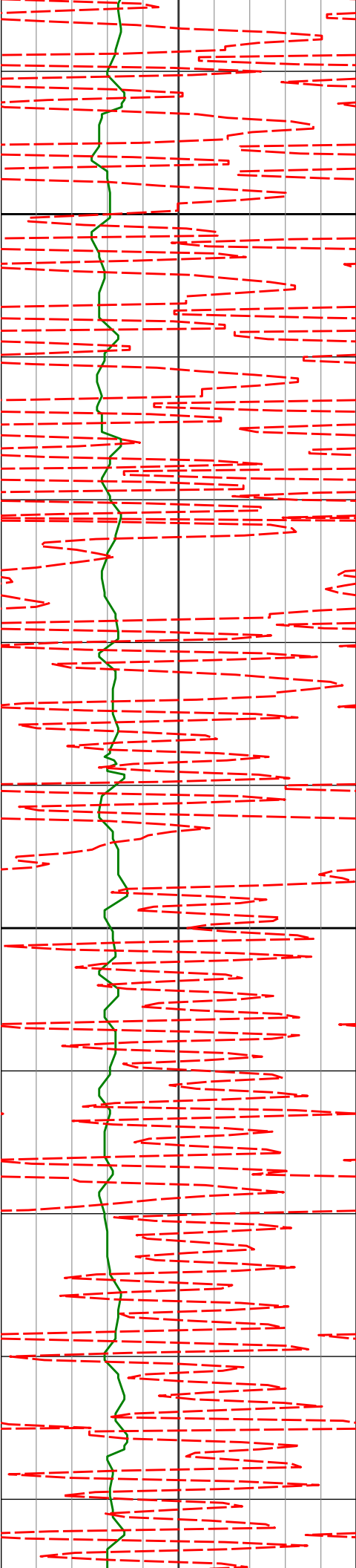
2682'

13.84°

216.09° 2656.94'

-207.85'

2700



2800

2900

2776'

13.41°

214.90° 2748.29'

-223.95'

2869'

12.55°

213.30° 2838.91'

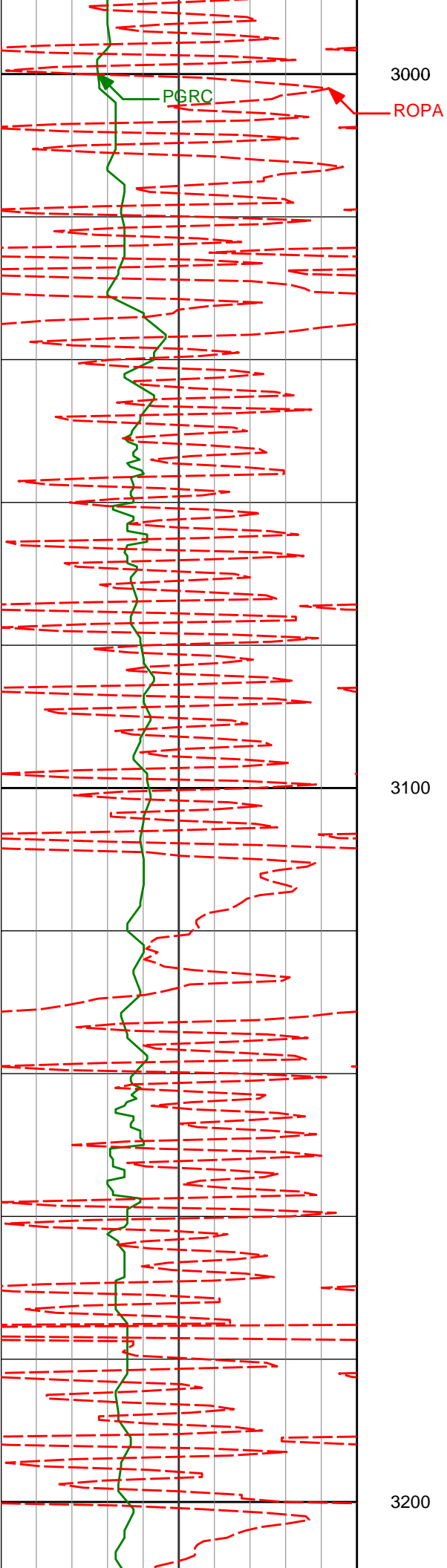
-239.47'

2964'

11.33°

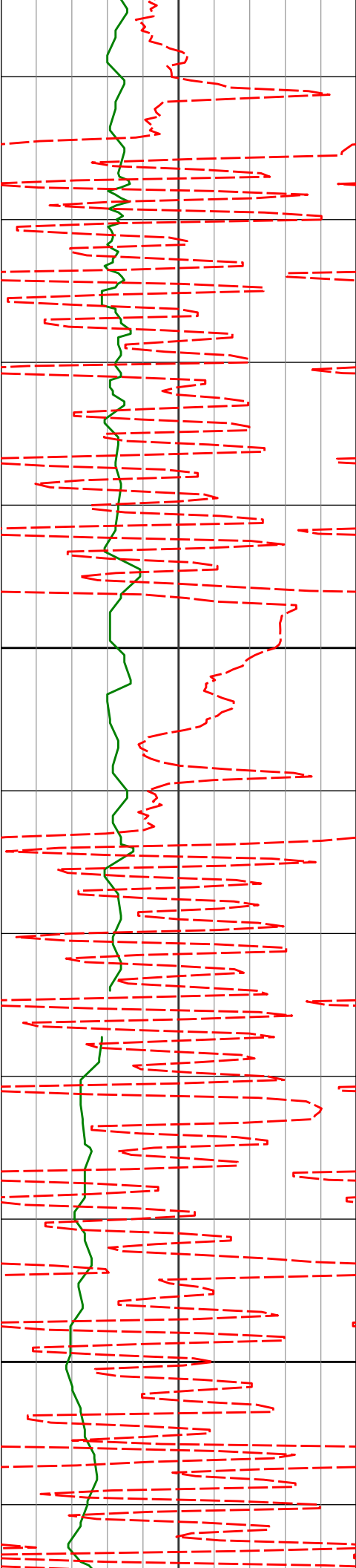
206.69° 2931.86'

-254.93'



3058' 9.01° 197.25° 3024.38' -269.21'

3153' 8.96° 201.73° 3118.22' -282.39'



3248'

10.91°

203.85° 3211.79'

-296.47'

3300

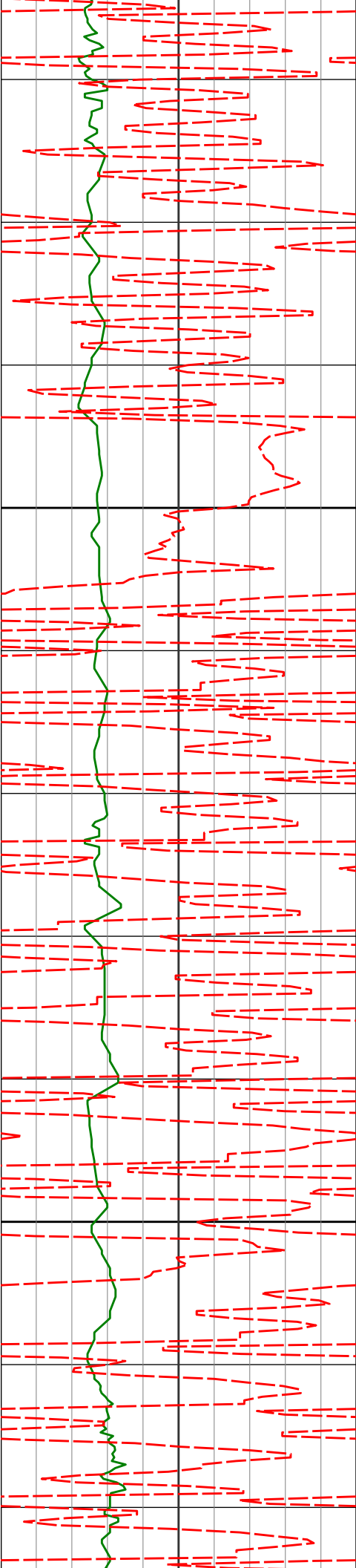
3342'

14.26°

206.58° 3303.52'

-313.60'

3400



3437'

15.16°

205.42° 3395.40'

-333.64'

3500

3532'

16.92°

208.66° 3486.70'

-355.14'

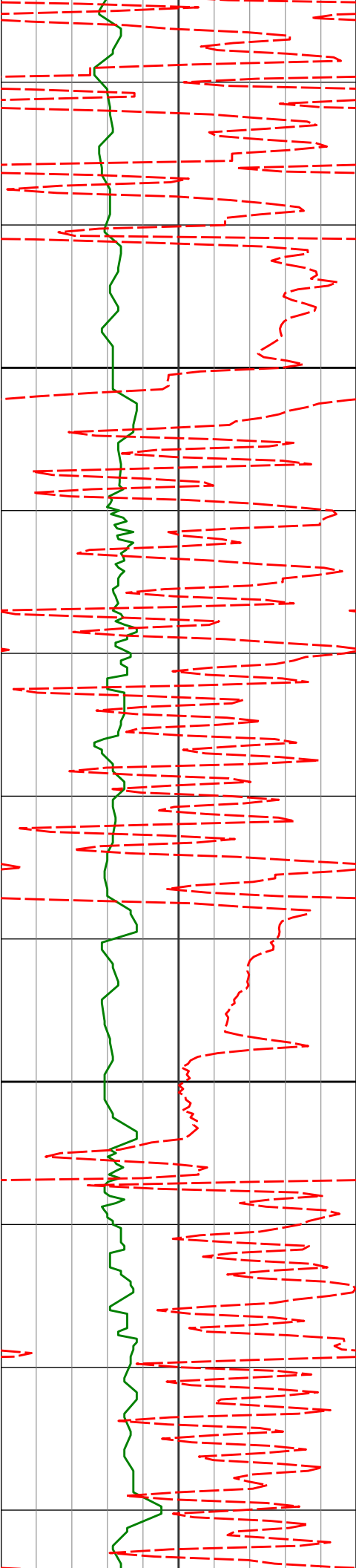
3600

3626'

17.73°

208.22° 3576.43'

-377.70'



3700

3721'

17.41°

207.81° 3667.00'

-400.94'

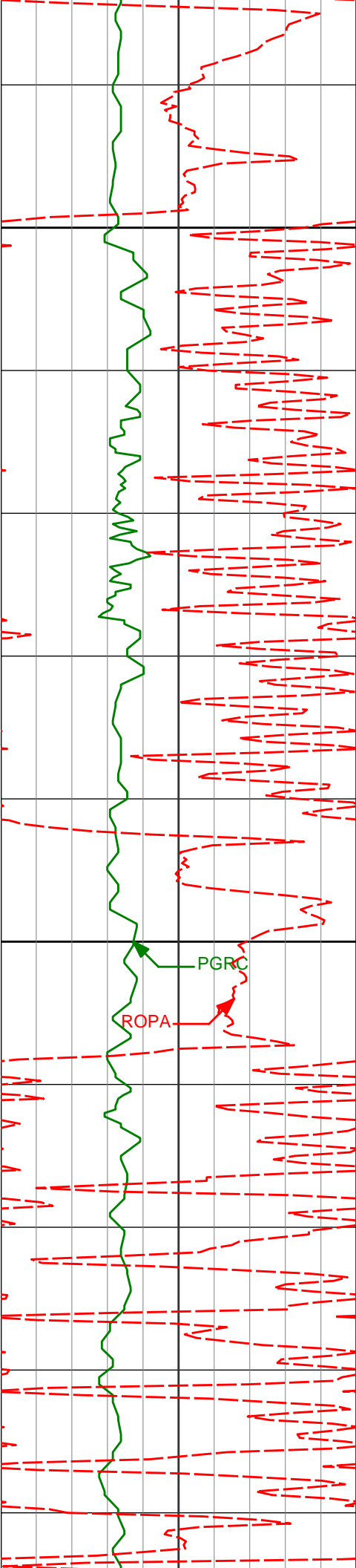
3800

3815'

15.95°

215.63° 3757.06'

-421.73'



3900

3910'

14.59°

229.35° 3848.73'

-437.68'

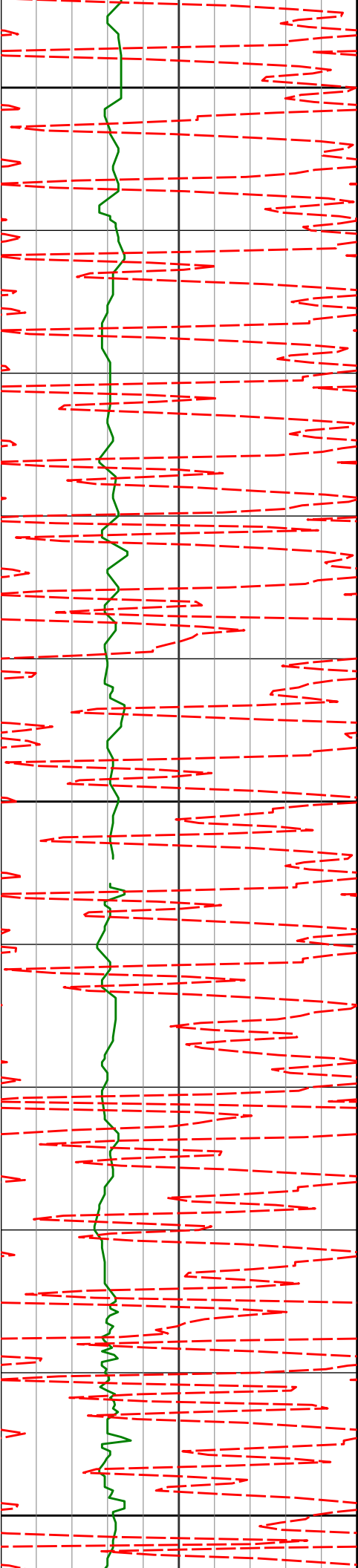
4000

4004'

11.09°

231.28° 3940.37'

-448.74'



4100

4099'

9.97°

231.93° 4033.77'

-457.56'

4200

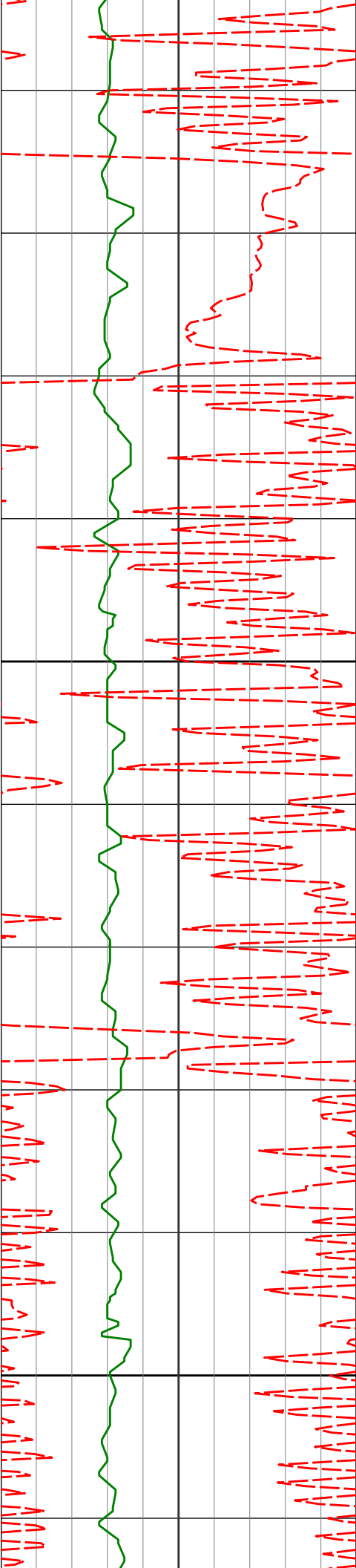
4194'

8.99°

232.96° 4127.47'

-465.31'

4300



4400

4500

4383'

4477'

7.68°

6.39°

205.99°

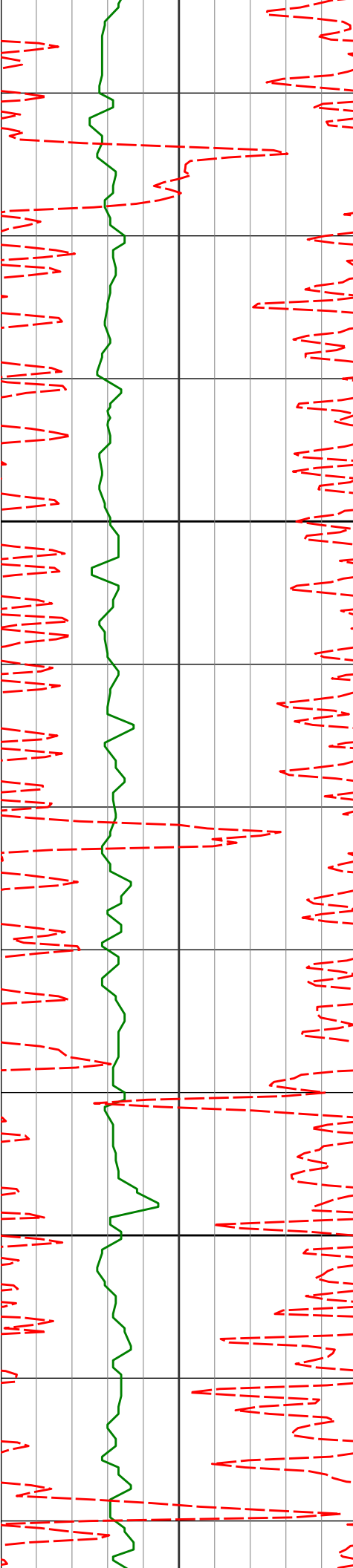
204.67°

4314.54'

4407.83'

-483.01'

-492.63'



4600

4700

4572'

5.96°

202.37° 4502.28'

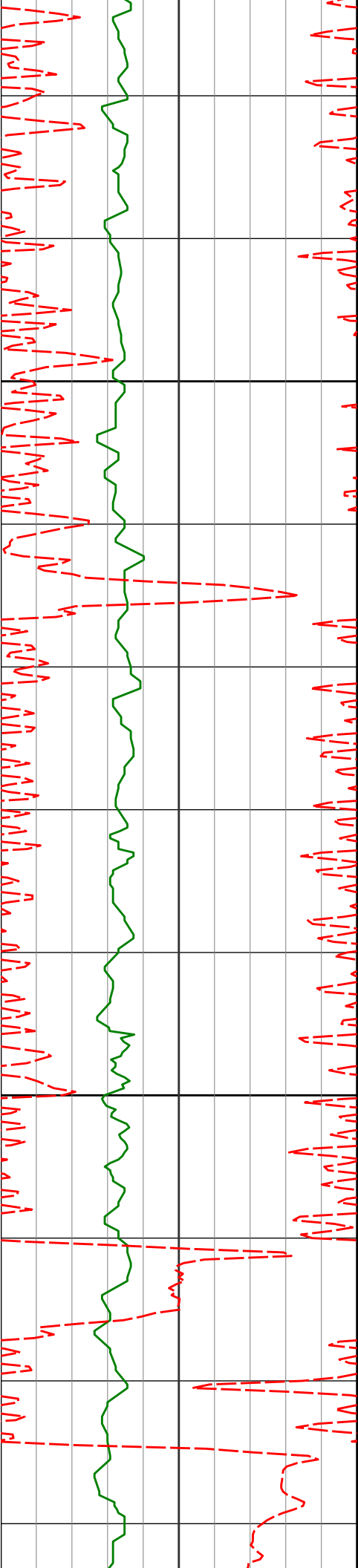
-501.35'

4667'

4.76°

192.22° 4596.87'

-509.32'



4800

4900

4761'

4.07°

183.37° 4690.59'

-516.26'

4856'

4.01°

187.35° 4785.35'

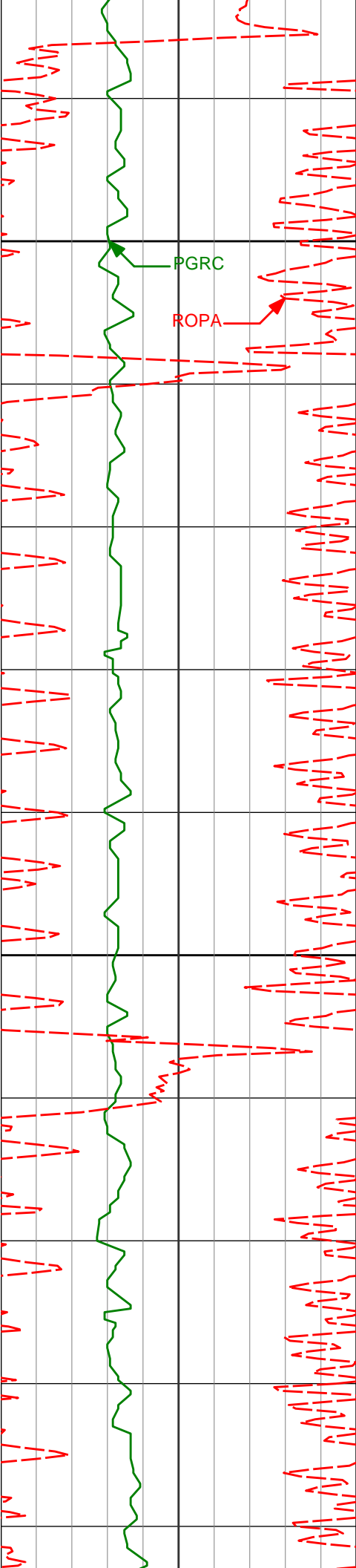
-522.77'

4951'

3.53°

186.56° 4880.15'

-528.80'



5000

PGRC

ROPA

5045'

2.11°

199.88° 4974.03'

-533.13'

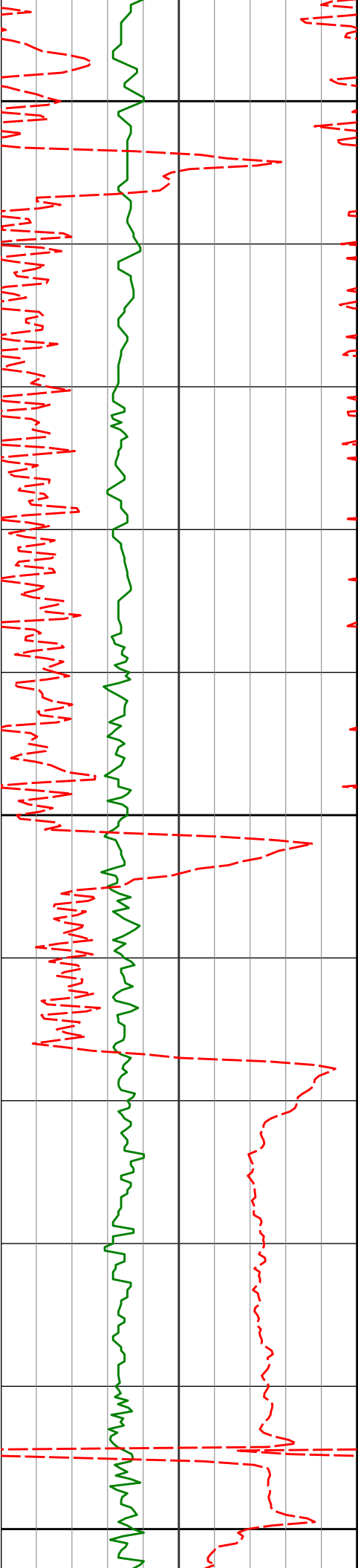
5100

5140'

2.08°

204.81° 5068.97'

-536.12'



5200

5234'

1.67°

203.87° 5162.92'

-538.72'

5300

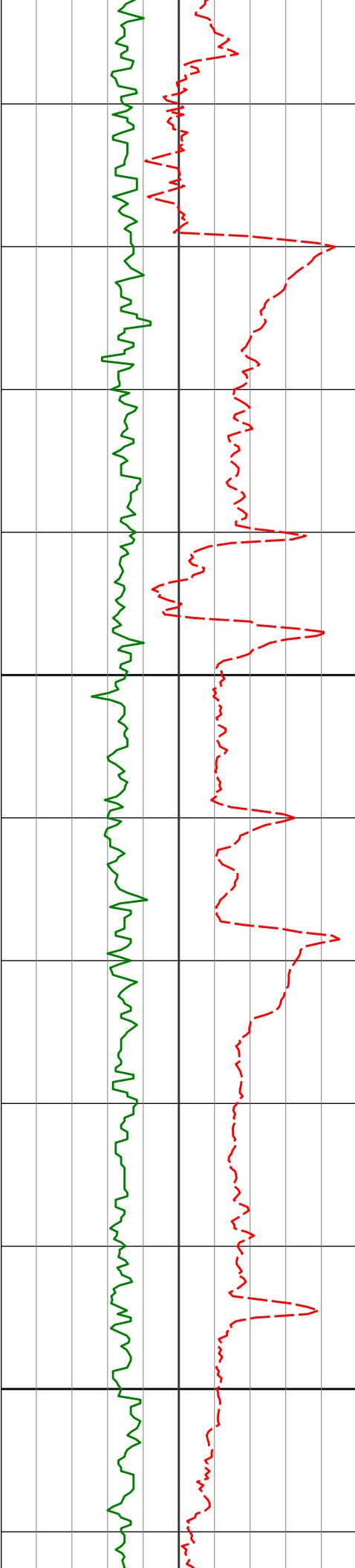
5329'

0.62°

222.57° 5257.90'

-540.22'

5400



5500

5600

5424'

10.77°

344.44° 5352.35'

-531.72'

5518'

16.93°

341.89° 5443.58'

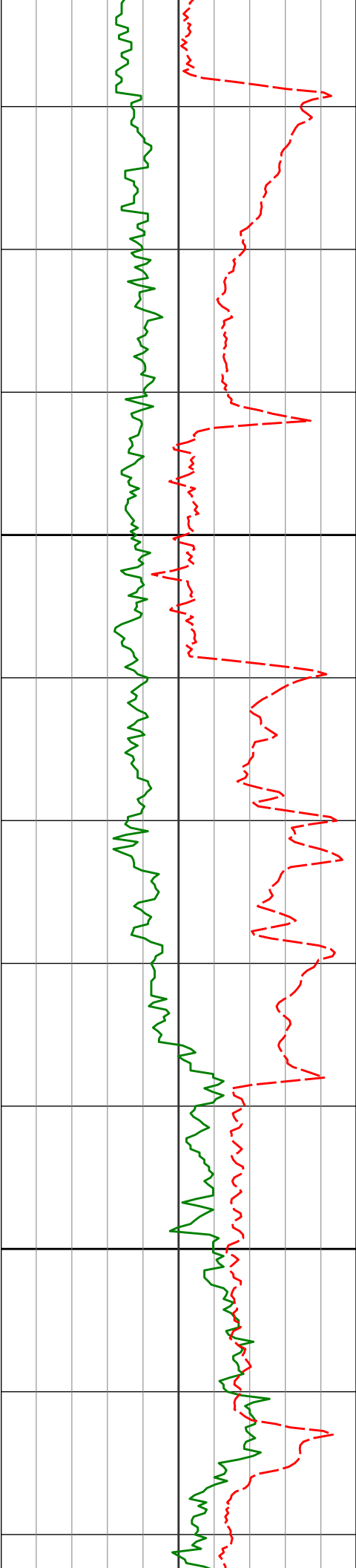
-509.52'

5613'

24.43°

345.87° 5532.40'

-476.34'



5700

5708'

32.39°

347.24° 5615.89'

-431.39'

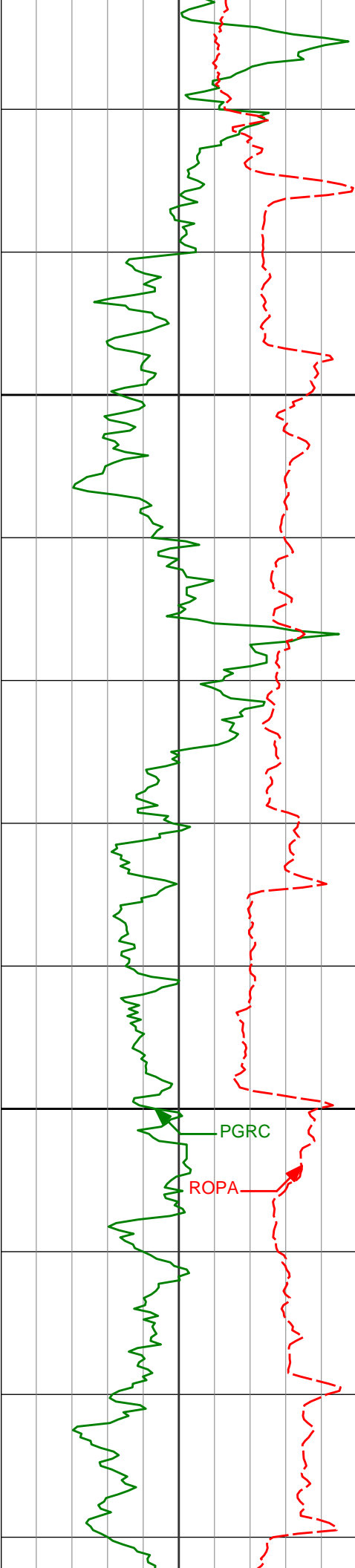
5800

5802'

37.64°

351.02° 5692.86'

-377.56'



5900

6000

5897'

46.95°

349.37° 5763.06'

-313.75'

5991'

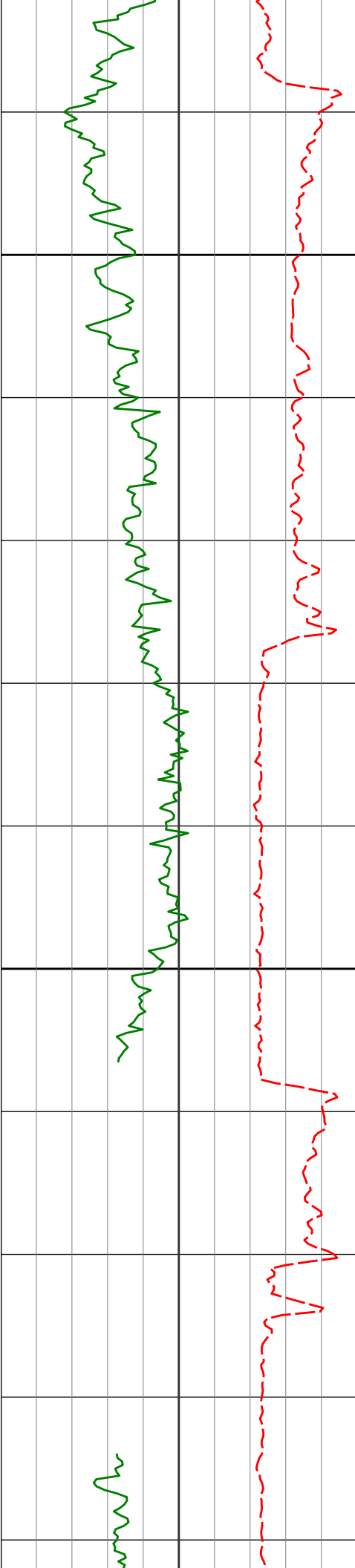
57.78°

349.85° 5820.37'

-239.49'

PGRC

ROPA



6100

6200

6086'

69.11°

353.27° 5862.79'

-154.68'

6180'

80.66°

357.67° 5887.27'

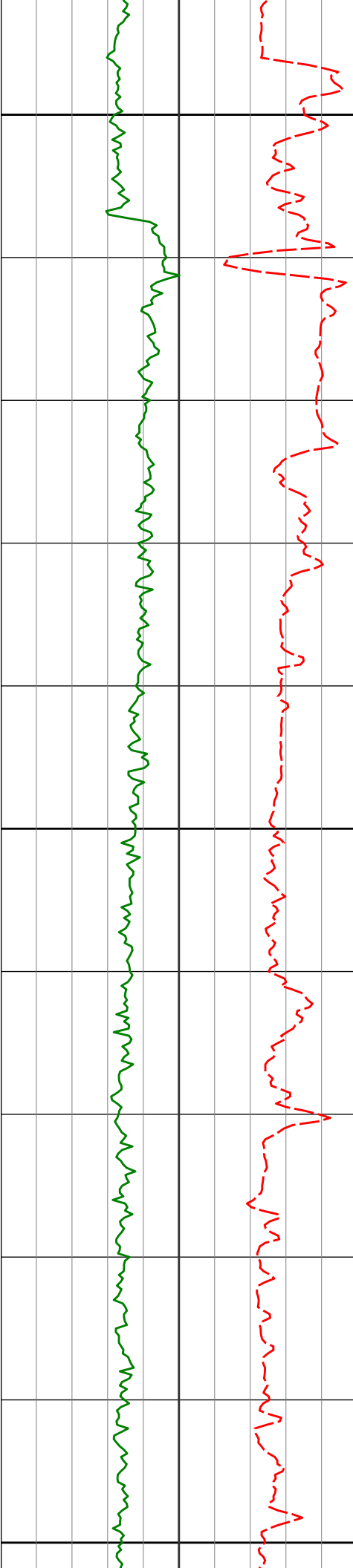
-64.27'

6257'

85.59°

358.93° 5896.48'

11.71'



6300

Casing Shoe @ 6317' MD

Run 200

6400

6376'

89.35°

359.71° 5901.73'

129.64'

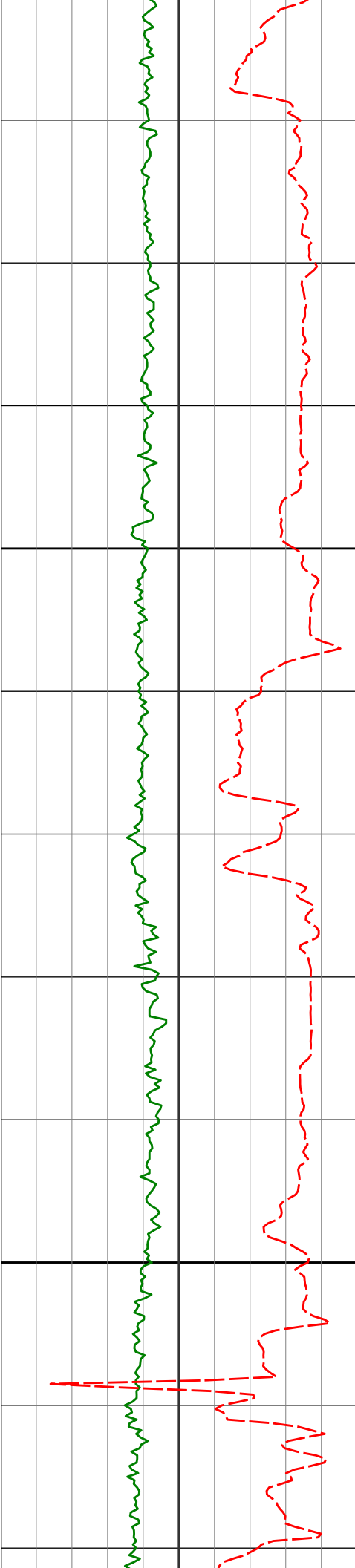
6468'

89.26°

359.94° 5902.85'

220.81'

6500



6800

6900

6746'

90.92°

1.07° 5902.45'

495.57'

6839'

91.20°

0.91° 5900.73'

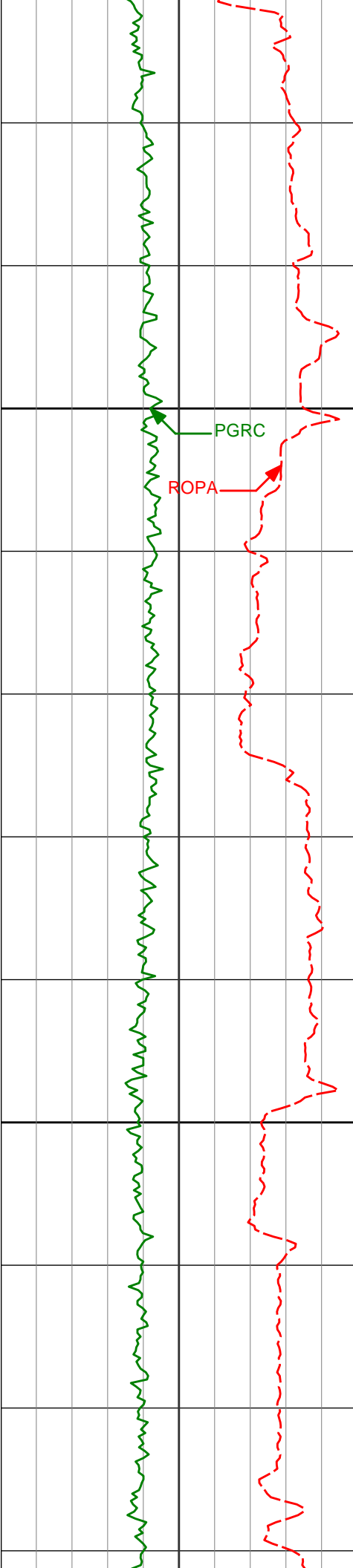
587.45'

6932'

89.45°

359.86° 5900.20'

679.48'



7000

7024'

89.29°

359.56° 5901.21'

770.67'

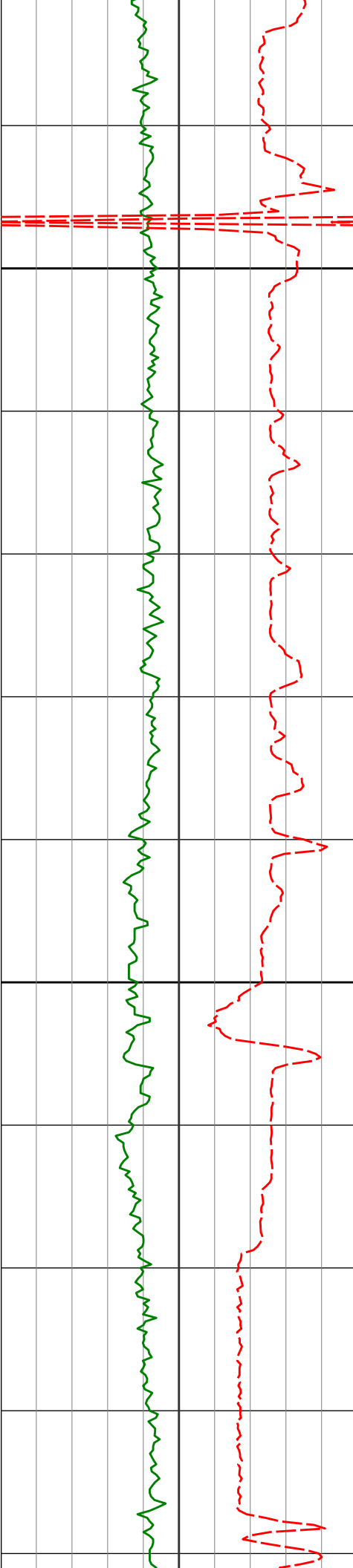
7100

7118'

89.72°

359.71° 5902.02'

863.87'



7200

7211'

89.94°

359.28° 5902.30'

956.10'

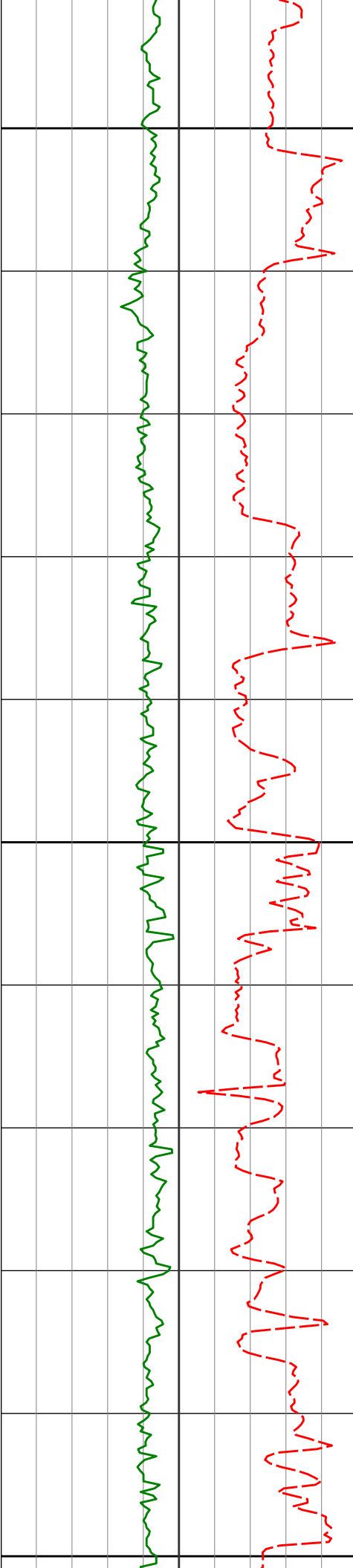
7300

7305'

90.43°

359.50° 5902.00'

1049.35'



7400

7400'

88.98°

358.48° 5902.48'

1143.67'

7500

7495'

88.77°

357.24° 5904.35'

1238.17'

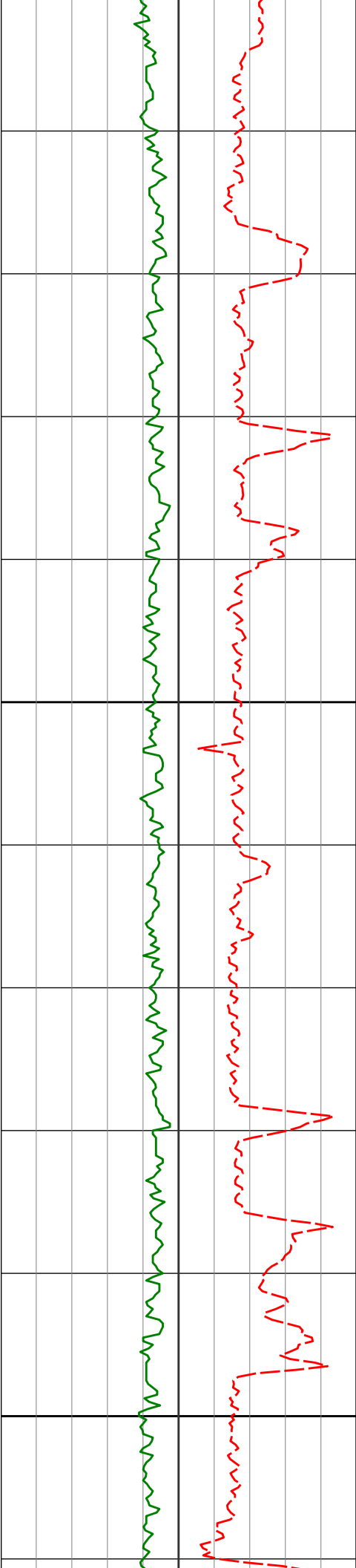
7600

7589'

89.94°

357.02° 5905.41'

1331.81'



7700

7800

7684'

89.32°

355.83° 5906.02'

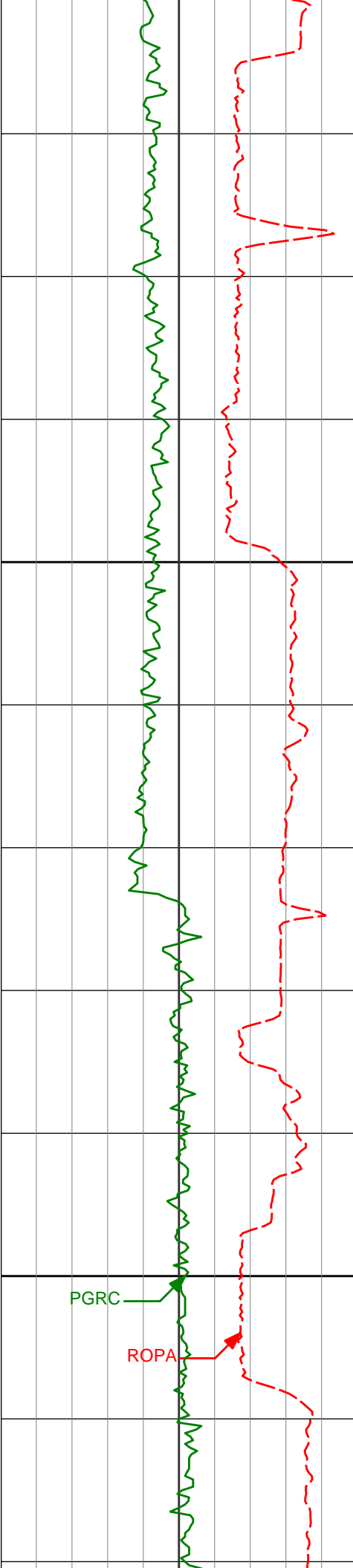
1426.54'

7778'

92.13°

357.07° 5904.83'

1520.26'



7900

8000

7873'

92.13°

356.72° 5901.31'

1614.86'

7968'

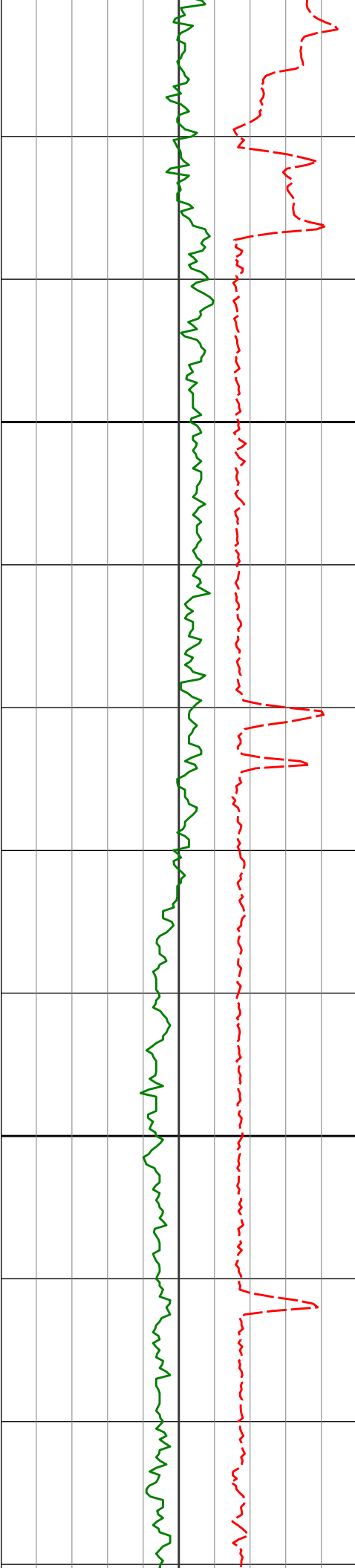
91.91°

356.44° 5897.96'

1709.52'

PGRC

ROPA



8100

8200

8062'

90.77°

357.51° 5895.76'

1803.16'

8157'

91.30°

358.17° 5894.04'

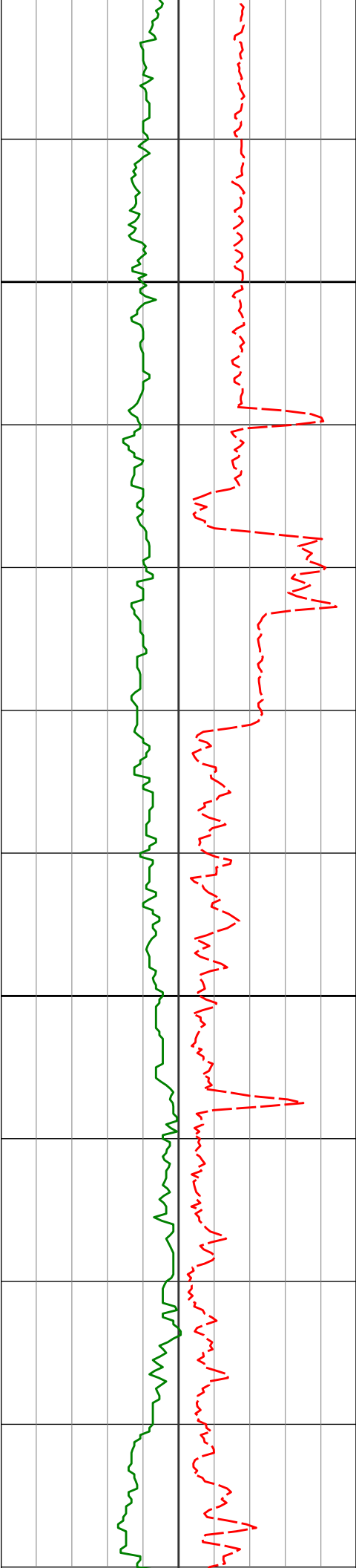
1897.67'

8252'

91.14°

357.47° 5892.02'

1992.18'



8300

8346'

90.15°

357.16° 5890.96'

2085.79'

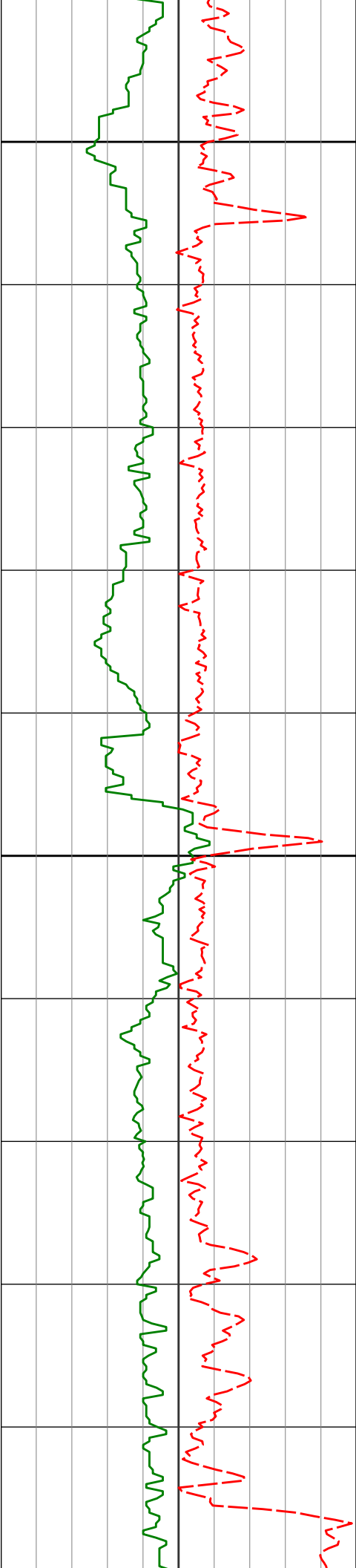
8400

8441'

89.94°

357.05° 5890.89'

2180.43'



8500

8536'

90.31°

356.57° 5890.69'

2275.12'

8600

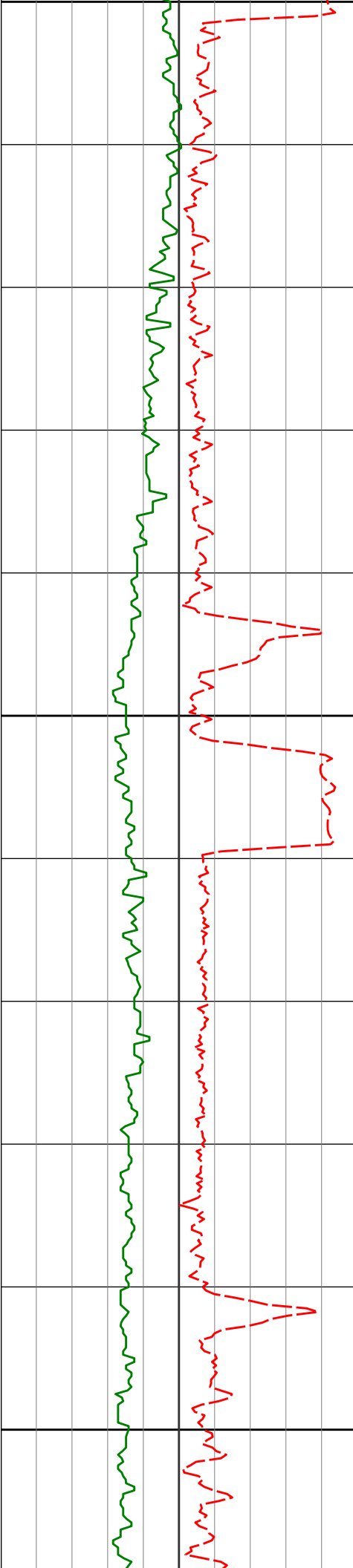
8630'

90.77°

356.23° 5889.80'

2368.85'

8700



8700

8725'

90.65°

357.26° 5888.63'

2463.54'

8800

8820'

89.32°

356.37° 5888.65'

2558.22'

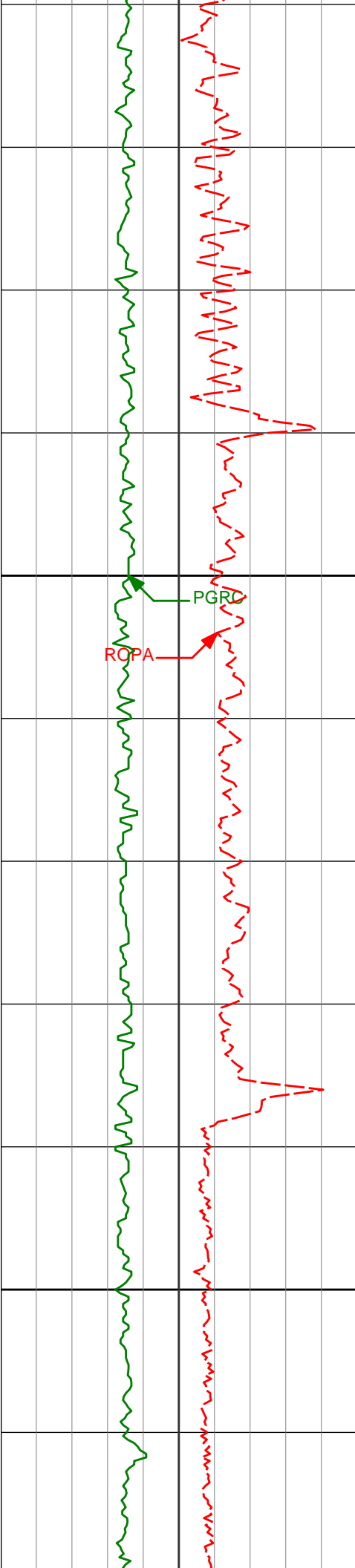
8900

8914'

89.57°

357.52° 5889.56'

2651.88'



9000

9009'

90.03°

359.17° 5889.90'

2746.32'

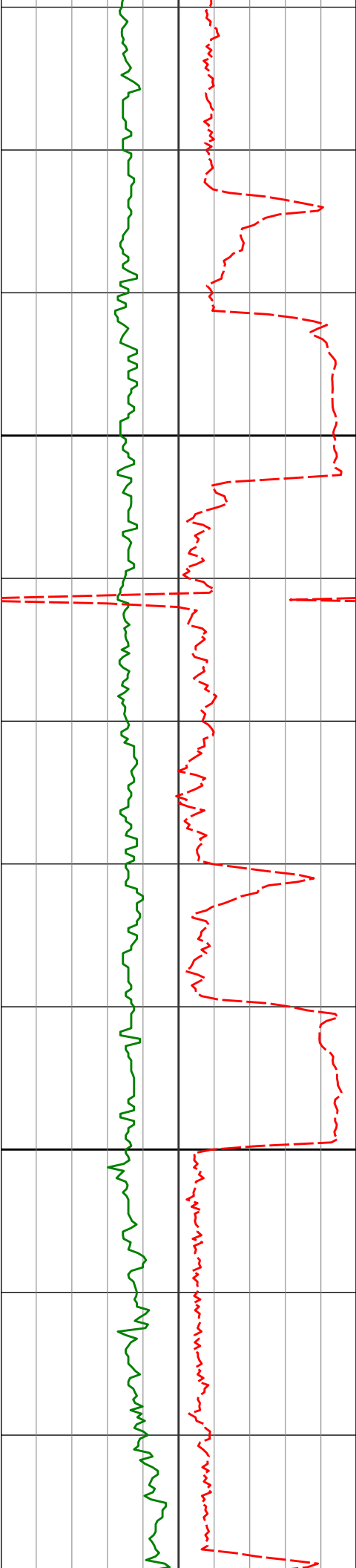
9100

9104'

90.00°

1.65° 5889.87'

2840.33'



9200

9300

9198'

9292'

89.45°

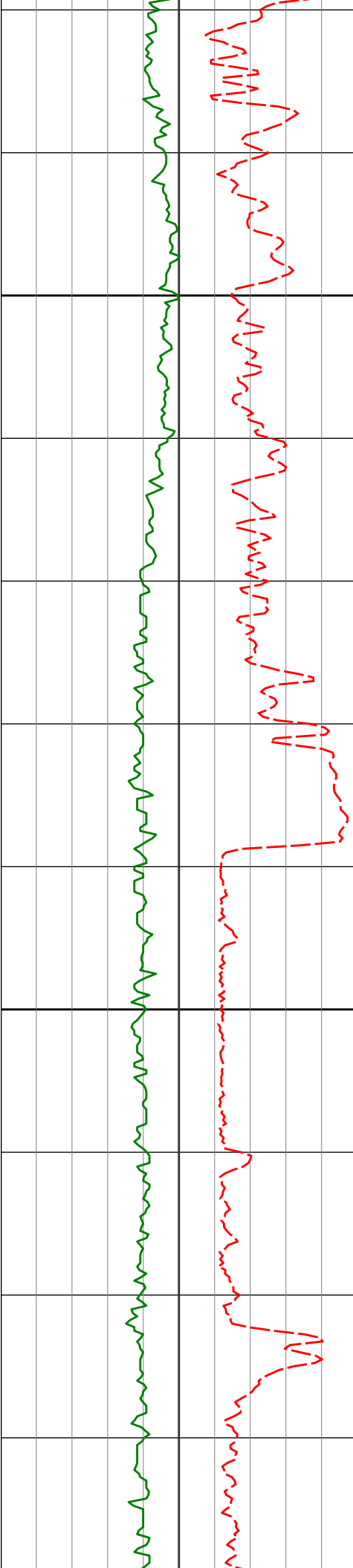
88.77°

0.37° 5890.32'

358.78° 5891.79'

2933.20'

3026.40'



9400

9500

9387'

88.15°

358.02° 5894.35'

3120.79'

9482'

89.85°

357.49° 5896.01'

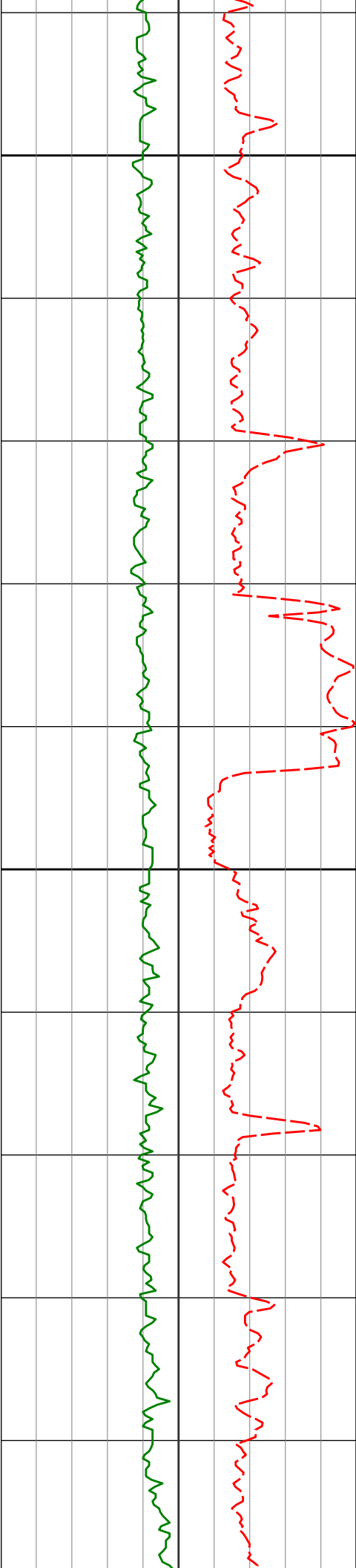
3215.32'

9577'

89.63°

356.66° 5896.44'

3309.97'



9600

9671'

90.68°

357.20° 5896.19'

3403.64'

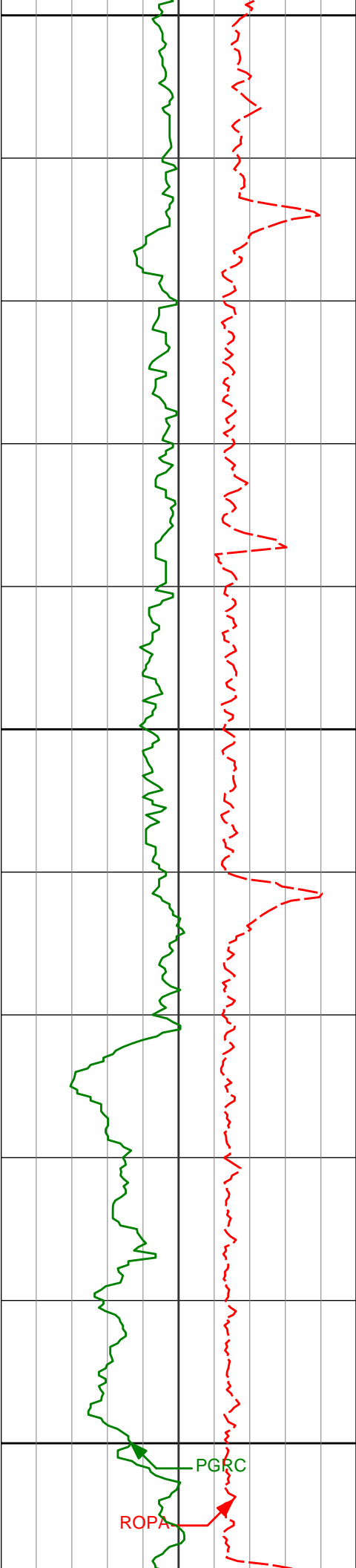
9700

9766'

90.92°

357.24° 5894.86'

3498.25'



9800

9861'

90.96°

356.46° 5893.30'

3592.92'

9900

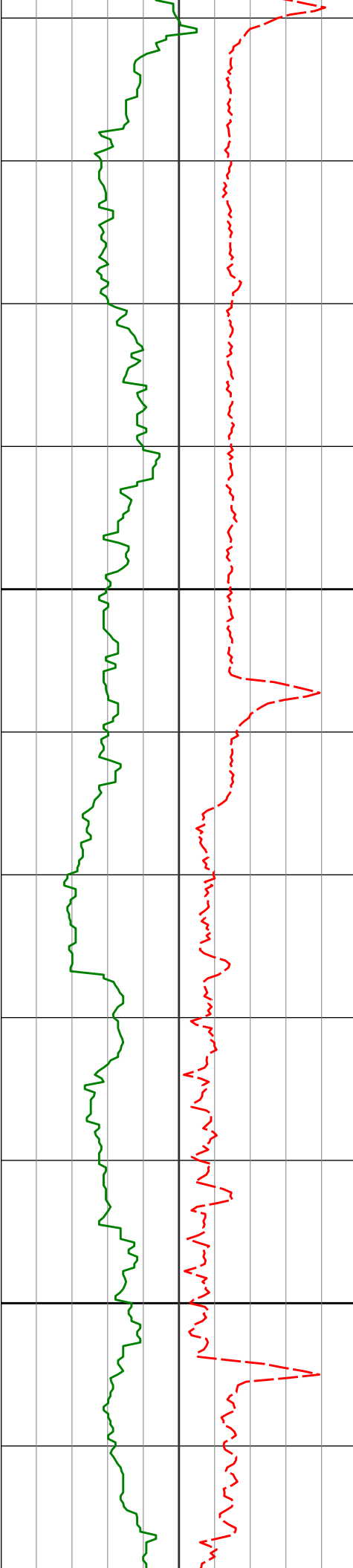
9955'

90.86°

355.81° 5891.81'

3686.68'

10000

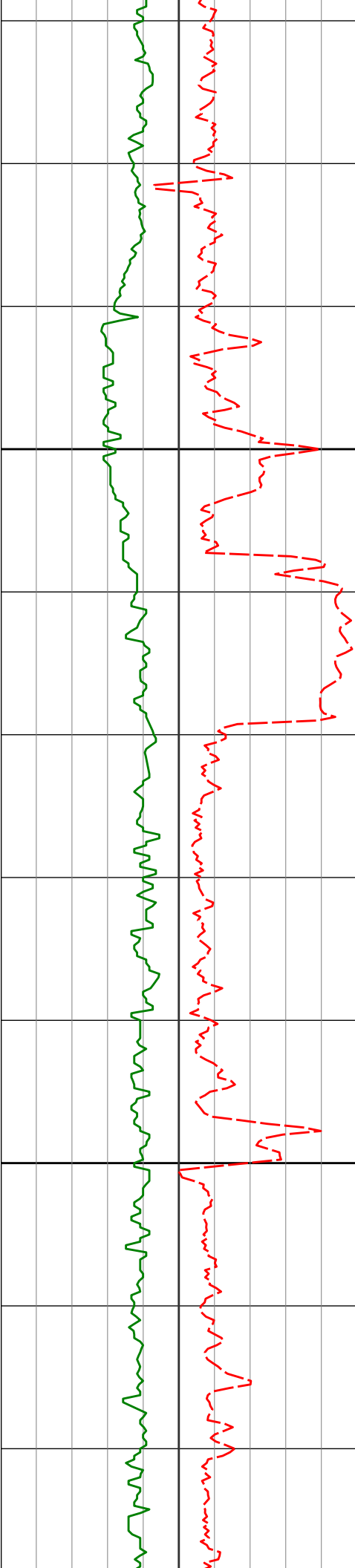


10100

10200

10050'	90.06°	355.96°	5891.04'	3781.47'
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10144'	89.88°	355.47°	5891.09'	3875.29'
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10300

10333'

10400

10428'

10239'

90.46°

89.57°

354.47°

354.92°

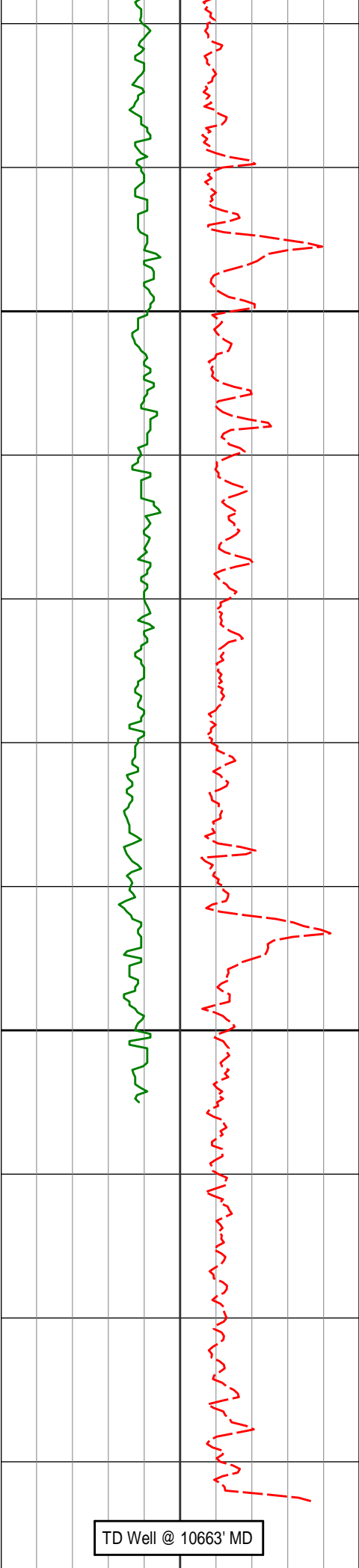
5891.53'

5891.55'

4064.06'

3970.15'

4158.98'



10500

10523' 90.43° 354.43° 5890.17' 4253.90'

10600

10602' 91.48° 356.30° 5888.85' 4332.76'

10663' 91.48° 356.30° 5887.28' 4393.58'

TD Well @ 10663' MD

Avg Rate of Penetration ROPA feet per hr		Depth MD ft	Depth	Inc	Azi	TVD	V.S.	Temp
1K-----0								
PCG GR XHi-Range RT PGRC api								
0-----300								

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Greyson LD28-773
Wattenburg
Weld Colorado
USA
CA-XX-0902595960

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
92.52	0.15	115.55	92.52	0.05 S	0.11 E	-0.07	0.16
183.20	0.39	126.86	183.20	0.29 S	0.46 E	-0.35	0.27
273.88	0.73	107.57	273.87	0.65 S	1.26 E	-0.81	0.42
364.56	0.69	118.77	364.55	1.08 S	2.29 E	-1.39	0.16
455.24	0.78	140.28	455.22	1.82 S	3.16 E	-2.24	0.32
545.92	0.42	132.34	545.90	2.52 S	3.80 E	-3.01	0.41
636.60	0.41	118.93	636.57	2.90 S	4.33 E	-3.46	0.11
727.28	0.41	173.41	727.25	3.38 S	4.65 E	-3.98	0.42
817.96	0.31	191.22	817.93	3.94 S	4.64 E	-4.54	0.17
908.64	0.24	272.40	908.61	4.18 S	4.40 E	-4.74	0.40
999.32	0.13	275.87	999.29	4.16 S	4.10 E	-4.68	0.13
1090.00	0.06	327.35	1089.97	4.11 S	3.98 E	-4.61	0.12
1109.00	0.22	38.11	1108.97	4.07 S	3.99 E	-4.58	1.11
1202.00	0.26	259.77	1201.97	3.97 S	3.89 E	-4.46	0.49
1386.00	4.03	217.65	1385.81	9.16 S	0.48 W	-9.01	2.09
1479.00	5.23	207.12	1478.50	15.53 S	4.41 W	-14.78	1.58
1572.00	6.83	200.67	1570.99	24.47 S	8.29 W	-23.11	1.87
1666.00	8.16	195.46	1664.18	36.13 S	12.04 W	-34.15	1.59
1758.00	9.03	198.46	1755.15	49.27 S	16.07 W	-46.61	1.06
1850.00	10.97	201.57	1845.75	64.26 S	21.57 W	-60.71	2.20
1943.00	11.80	200.49	1936.92	81.40 S	28.15 W	-76.79	0.91
2034.00	12.98	204.67	2025.80	99.41 S	35.68 W	-93.59	1.63
2126.00	13.38	207.41	2115.38	118.24 S	44.89 W	-110.99	0.81
2218.00	13.22	205.32	2204.91	137.20 S	54.29 W	-128.49	0.55
2310.00	13.27	212.75	2294.47	155.59 S	64.50 W	-145.31	1.85
2404.00	12.64	211.92	2386.08	173.39 S	75.77 W	-161.40	0.69
2497.00	12.12	211.78	2476.91	190.33 S	86.29 W	-176.74	0.57
2590.00	13.65	216.26	2567.57	207.47 S	97.92 W	-192.13	1.96
2682.00	13.84	216.09	2656.94	225.12 S	110.83 W	-207.85	0.22
2776.00	13.41	214.90	2748.29	243.15 S	123.69 W	-223.95	0.55
2869.00	12.55	213.30	2838.91	260.44 S	135.40 W	-239.47	1.01
2964.00	11.33	206.69	2931.86	277.40 S	145.26 W	-254.93	1.92
3058.00	9.01	197.25	3024.38	292.69 S	151.60 W	-269.21	3.03
3153.00	8.96	201.73	3118.22	306.67 S	156.55 W	-282.39	0.74
3248.00	10.91	203.85	3211.79	321.78 S	162.92 W	-296.47	2.09
3342.00	14.26	206.58	3303.52	340.28 S	171.70 W	-313.60	3.62
3437.00	15.16	205.42	3395.40	361.96 S	182.27 W	-333.64	1.00
3532.00	16.92	208.66	3486.70	385.32 S	194.24 W	-355.14	2.08
3626.00	17.73	208.22	3576.43	409.94 S	207.56 W	-377.70	0.87
3721.00	17.41	207.81	3667.00	435.25 S	221.03 W	-400.94	0.36
3815.00	15.95	215.63	3757.06	458.19 S	235.11 W	-421.73	2.85
3910.00	14.59	229.35	3848.73	476.60 S	251.80 W	-437.68	4.05
4004.00	11.09	231.28	3940.37	489.97 S	267.84 W	-448.74	3.76
4099.00	9.97	231.93	4033.77	500.75 S	281.44 W	-457.56	1.18
4194.00	8.99	232.96	4127.47	510.29 S	293.84 W	-465.31	1.04
4383.00	7.68	205.99	4314.54	530.54 S	311.17 W	-483.01	2.16

4477.00	6.39	204.67	4407.83	540.94 S	316.11 W	-492.63	1.38
4572.00	5.96	202.37	4502.28	550.31 S	320.19 W	-501.35	0.53
4667.00	4.76	192.22	4596.87	558.73 S	322.90 W	-509.32	1.60
4761.00	4.07	183.37	4690.59	565.87 S	323.92 W	-516.26	1.03
4856.00	4.01	187.35	4785.35	572.53 S	324.55 W	-522.77	0.30
4951.00	3.53	186.56	4880.15	578.72 S	325.30 W	-528.80	0.51
5045.00	2.11	199.88	4974.03	583.22 S	326.22 W	-533.13	1.65
5140.00	2.08	204.81	5068.97	586.43 S	327.54 W	-536.12	0.19
5234.00	1.67	203.87	5162.92	589.22 S	328.81 W	-538.72	0.44
5329.00	0.62	222.57	5257.90	590.86 S	329.71 W	-540.22	1.16
5424.00	10.77	344.44	5352.35	582.66 S	332.45 W	-531.72	11.70
5518.00	16.93	341.89	5443.58	561.17 S	339.07 W	-509.52	6.59
5613.00	24.43	345.87	5532.40	528.92 S	348.18 W	-476.34	8.02
5708.00	32.39	347.24	5615.89	484.99 S	358.62 W	-431.39	8.41
5802.00	37.64	351.02	5692.86	432.04 S	368.66 W	-377.56	6.04
5897.00	46.95	349.37	5763.06	369.13 S	379.62 W	-313.75	9.87
5991.00	57.78	349.85	5820.37	296.02 S	393.00 W	-239.49	11.53
6086.00	69.11	353.27	5862.79	212.10 S	405.33 W	-154.68	12.35
6180.00	80.66	357.67	5887.27	121.81 S	412.39 W	-64.27	13.08
6257.00	85.59	358.93	5896.48	45.42 S	414.65 W	11.71	6.61
6376.00	89.35	359.71	5901.73	73.44 N	416.05 W	129.64	3.23
6468.00	89.26	359.94	5902.85	165.43 N	416.33 W	220.81	0.27
6652.00	90.34	1.40	5903.49	349.41 N	414.16 W	402.76	0.99
6746.00	90.92	1.07	5902.45	443.38 N	412.14 W	495.57	0.72
6839.00	91.20	0.91	5900.73	536.35 N	410.53 W	587.45	0.34
6932.00	89.45	359.86	5900.20	629.34 N	409.90 W	679.48	2.20
7024.00	89.29	359.56	5901.21	721.33 N	410.36 W	770.67	0.37
7118.00	89.72	359.71	5902.02	815.33 N	410.96 W	863.87	0.48
7211.00	89.94	359.28	5902.30	908.32 N	411.78 W	956.10	0.52
7305.00	90.43	359.50	5902.00	1002.32 N	412.79 W	1049.35	0.58
7400.00	88.98	358.48	5902.48	1097.30 N	414.46 W	1143.67	1.86
7495.00	88.77	357.24	5904.35	1192.21 N	418.00 W	1238.17	1.33
7589.00	89.94	357.02	5905.41	1286.09 N	422.71 W	1331.81	1.27
7684.00	89.32	355.83	5906.02	1380.90 N	428.63 W	1426.54	1.41
7778.00	92.13	357.07	5904.83	1474.70 N	434.45 W	1520.26	3.26
7873.00	92.13	356.72	5901.31	1569.49 N	439.59 W	1614.86	0.37
7968.00	91.91	356.44	5897.96	1664.26 N	445.26 W	1709.52	0.37
8062.00	90.77	357.51	5895.76	1758.10 N	450.22 W	1803.16	1.67
8157.00	91.30	358.17	5894.04	1853.02 N	453.79 W	1897.67	0.89
8252.00	91.14	357.47	5892.02	1947.93 N	457.41 W	1992.18	0.76
8346.00	90.15	357.16	5890.96	2041.82 N	461.82 W	2085.79	1.10
8441.00	89.94	357.05	5890.89	2136.70 N	466.61 W	2180.43	0.25
8536.00	90.31	356.57	5890.69	2231.55 N	471.89 W	2275.12	0.64
8630.00	90.77	356.23	5889.80	2325.36 N	477.80 W	2368.85	0.61
8725.00	90.65	357.26	5888.63	2420.20 N	483.19 W	2463.54	1.09
8820.00	89.32	356.37	5888.65	2515.05 N	488.47 W	2558.22	1.68
8914.00	89.57	357.52	5889.56	2608.91 N	493.48 W	2651.88	1.24
9009.00	90.03	359.17	5889.90	2703.87 N	496.23 W	2746.32	1.81
9104.00	90.00	1.65	5889.87	2798.86 N	495.54 W	2840.33	2.61
9198.00	89.45	0.37	5890.32	2892.84 N	493.89 W	2933.20	1.49
9292.00	88.77	358.78	5891.79	2986.82 N	494.59 W	3026.40	1.83
9387.00	88.15	358.02	5894.35	3081.75 N	497.24 W	3120.79	1.03
9482.00	89.85	357.49	5896.01	3176.66 N	500.96 W	3215.32	1.87
9577.00	89.63	356.66	5896.44	3271.53 N	505.81 W	3309.97	0.90
9671.00	90.68	357.20	5896.19	3365.39 N	510.85 W	3403.64	1.26
9766.00	90.92	357.24	5894.86	3460.27 N	515.46 W	3498.25	0.26
9861.00	90.96	356.46	5893.30	3555.12 N	520.67 W	3592.92	0.82
9955.00	90.86	355.81	5891.81	3648.89 N	527.00 W	3686.68	0.71
10050.00	90.06	355.96	5891.04	3743.64 N	533.83 W	3781.47	0.86
10144.00	89.88	355.47	5891.09	3837.38 N	540.85 W	3875.29	0.56
10239.00	89.57	354.92	5891.55	3932.04 N	548.81 W	3970.15	0.67
10333.00	90.46	354.47	5891.53	4025.64 N	557.50 W	4064.06	1.06
10428.00	90.37	354.36	5890.84	4120.18 N	566.74 W	4158.98	0.15
10523.00	90.43	354.43	5890.17	4214.73 N	576.01 W	4253.90	0.10
10602.00	91.48	356.30	5888.85	4293.45 N	582.39 W	4332.76	2.71
10663.00	91.48	356.30	5887.28	4354.31 N	586.33 W	4393.58	0.00

VD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 352.14 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 10663.00 FEET
IS 4393.61 FEET ALONG 352.33 DEGREES (GRID)

Surveys to 1090 are flexi-shot surveys. Final survey is a straight line projection to TD.

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