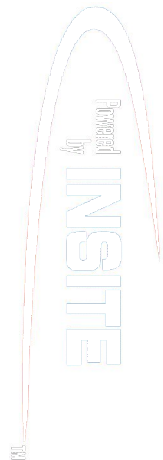


**PCD-C Pressure Case Directional
PCG-K Pressure Case Gamma**

1 : 240

Country		: USA		<div>Company : Anadarko Petroleum Corp.</div> <div>Rig : H&P 308</div> <div>Well : Paragon 10N-31HZ</div> <div>Field : Wattenberg</div> <div>Country : USA</div> <div>API Number : 05123385480000</div>			
Field		: Wattenberg					
Location		: Lat: 40° 4' 26.57" North Long: 104° 42' 10.45" West					
Well		: Paragon 10N-31HZ					
Company		: Anadarko Petroleum Corp.					
Rig		: H&P 308		<div>Other Services</div> <div>Directional Drilling</div>			
LOCATION							
Latitude : 40° 4' 26.57" North		Longitude : 104° 42' 10.45" West		UTM Easting = 3,223,064,400 ft			
UTM Northing = 1,270,823,250 ft						Elev. KB N/A	
Permanent Datum : Ground Level		Elevation : 4985.00 ft		DF 5010.00 ft			
Log Measured From : Drill Floor		25.00 ft Above Permanent Datum		GL 4985.00 ft			
Drilling Measured From : Drill Floor		MD LOG		WD N/A			
Depth Logged : 1,161.00 ft To 14,353.00 ft		Unit No. : 11610114		Job No. : CA-XX-0901047704			
Date Logged : 24-Jan-14 To 02-Feb-14		Plot Type : Final					
Total Depth MD : 14,353.00 ft TVD : 7,196.42 ft		Plot Date : 05-Feb-14					
Spud Date : 24-Jan-14							
Run No.		Borehole Record (MD)		Run No.		Borehole Record (MD)	
	Size	From	To		Size	From	To
0100	8.750 in	1,161.00 ft	7,141.00 ft				
0200	8.750 in	7,141.00 ft	7,566.00 ft				
0300	6.125 in	7,566.00 ft	14,353.00 ft				
				Casing Record (MD)			
	Size	Weight	From	To			
	9.625 in	32.00 lbpf	SURFACE	1,151.00 ft			
	7.000 in	26.00 lbpf	SURFACE	7,551.00 ft			

MD LOG
WELL INFORMATION

MWD Run Number	100	200	300		
Date run completed	26-Jan-14	28-Jan-14	02-Feb-14		
Rig Bit Number	0100	0200	0300		
Bit Size (in)	8.750	8.750	6.125		
Tool Nominal OD (in)	6.750	6.750	4.750		
Log Start Depth (MD, ft)	1,161.00	7,141.00	7,566.00		
Log End Depth (MD, ft)	7,141.00	7,566.00	14,353.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	24-Jan-14 03:25	26-Jan-14 19:05	29-Jan-14 17:40		
Drill/Wipe End Date and Time	26-Jan-14 06:20	27-Jan-14 17:45	01-Feb-14 10:30		
Min Inc (deg) @ Depth (MD, ft)	0.03 @ 1,389.00	51.33 @ 7,187.00	85.62 @ 14,305.00		
Max Inc (deg) @ Depth (MD, ft)	45.62 @ 7,140.00	84.45 @ 7,515.00	94.44 @ 12,808.00		
Bit TFA(in2) / Bit Type	0.97 / PDC	0.92 / Tricone	0.61 / PDC		
Flow Rate (gpm)	561.37	420.00	298.57		
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A		
Fluid Type	Polymer	Polymer	Polymer		
Density (ppg) / Viscosity (spqt)	9.70 / 36.00	9.80 / 36.00	9.60 / 74.00		
Filtrate CL (ppm)	2,100.00	2,100.00	2,400.00		
pH / Fluid Loss (mptm)	9.00 / N/A	9.00 / N/A	9.00 / N/A		
PV (cP) / YP (lbf/ft2)	7 / 2.00	7 / 2.00	24 / 16.00		
% Solids / % Sand	6.6 / .6	6.6 / .6	8.1 / .15		
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A	N/A / N/A		
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		

Max Tool Temp (degF) / Source	165.58 / PCM	187.48 / PCM	236.82 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ 165.58	N/A @ 187.48	N/A @ 236.82		
Lead MWD Engineer	Ryan White	Ryan White	Ryan White		
Customer Representative	Stan Walters	Stan Walters	Stan Walters		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.84	5.84		
Sub Serial Number	11303519	11303519	11303519		
Insert Serial Number	12230080	11680708	12230080		
Date and Time Initialized	23-Jan-14 21:12	26-Jan-14 09:00	27-Jan-14 23:29		
Date and Time Read	01-Jan-70 00:00	01-Jan-70 00:00	01-Jan-70 00:00		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	52.00	46.57	48.00		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11303519	11303519	11303519		
Sonde Serial Number	11638559	11902192	11638559		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	328.35	7.41	119.50		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	54.70	51.52	50.63		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	11303519	11303519	11303519		
Insert/Sonde Serial Number	11293268	11293410	11293268		

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" 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

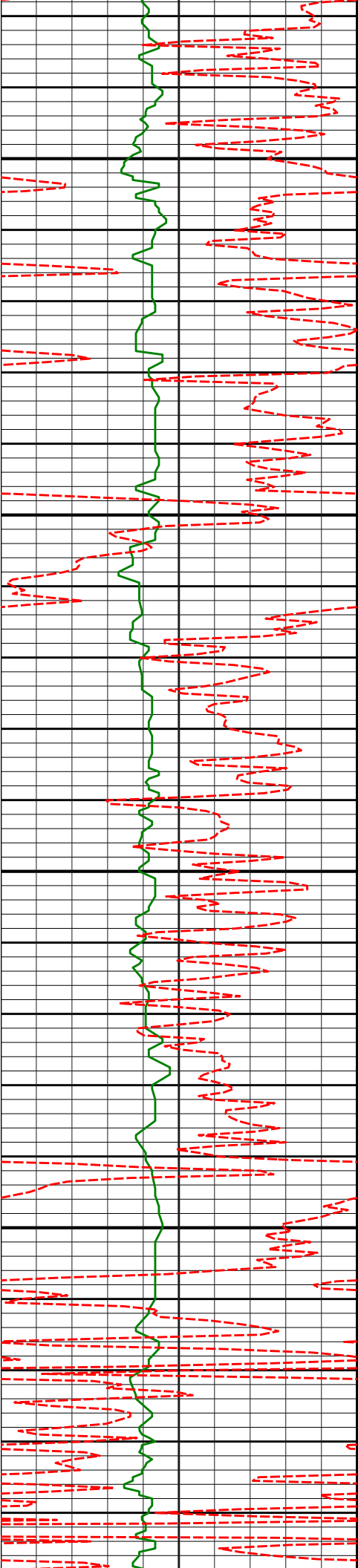
ROPA (Average Rate of Penetration):

Interval Resolution: 0.5 ft

Interval Distance: 1.2 ft

Gap Fill : 3.0 ft

6. INSITE version 8.0.10 Build 08



1300

1350

1400

1450

1296'

0.10°

32.32°

1295.98'

-3.94'

1389'

0.03°

298.70°

1388.98'

-3.86'

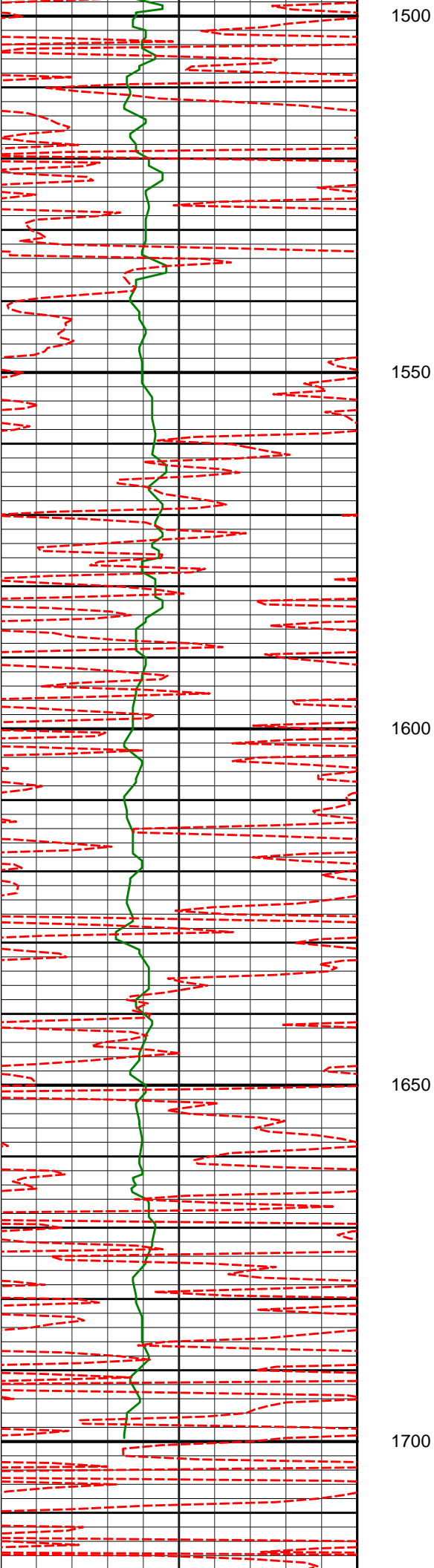
1483'

0.29°

267.28°

1482.98'

-3.86'



1575'

0.34°

198.56°

1574.98'

-4.13'

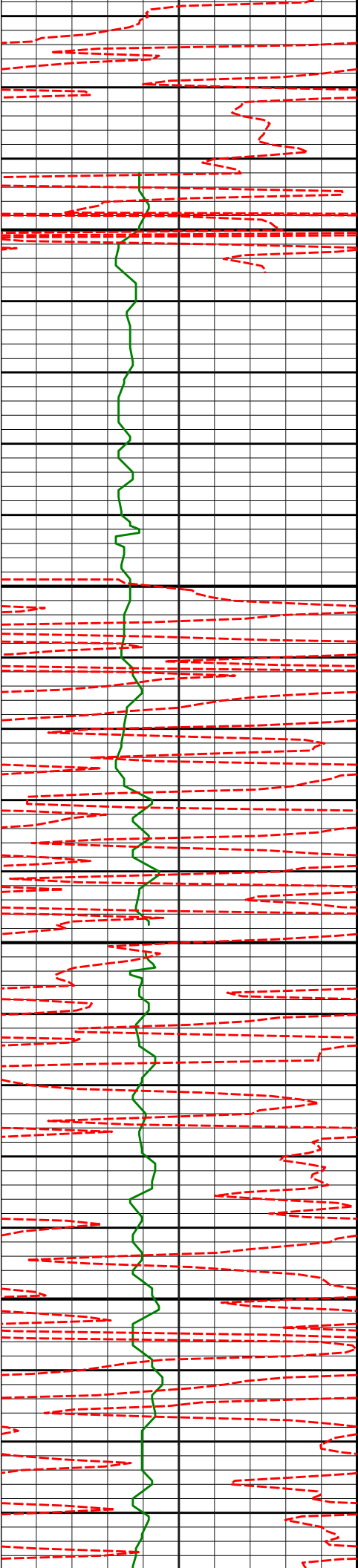
1669'

0.24°

244.25°

1668.98'

-4.48'



1750

1800

1850

1900

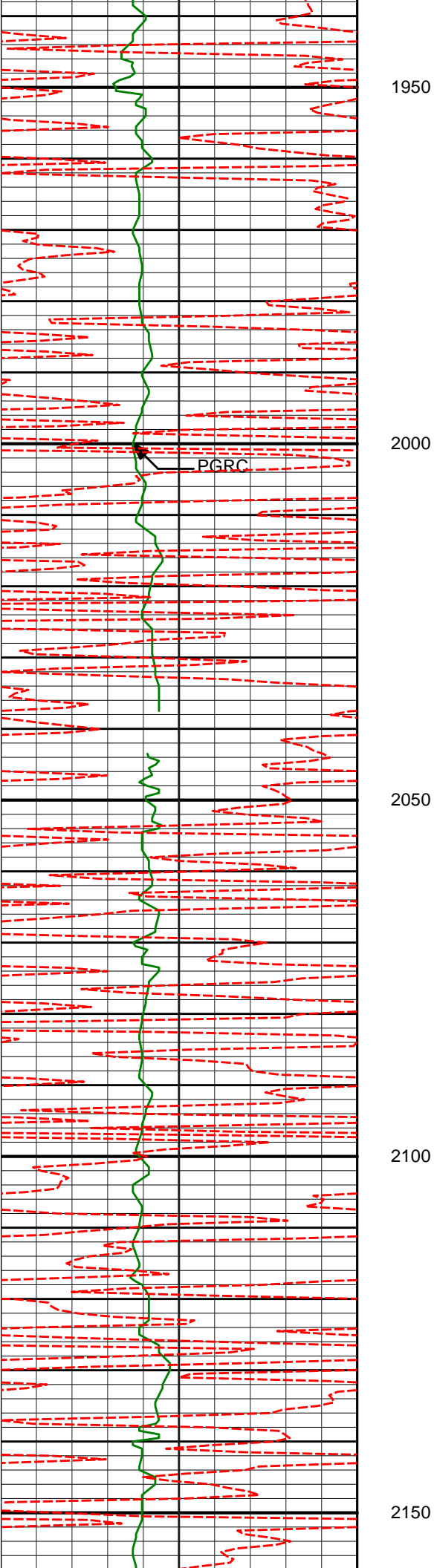
1856'

0.34°

251.22°

1855.97'

-4.84'



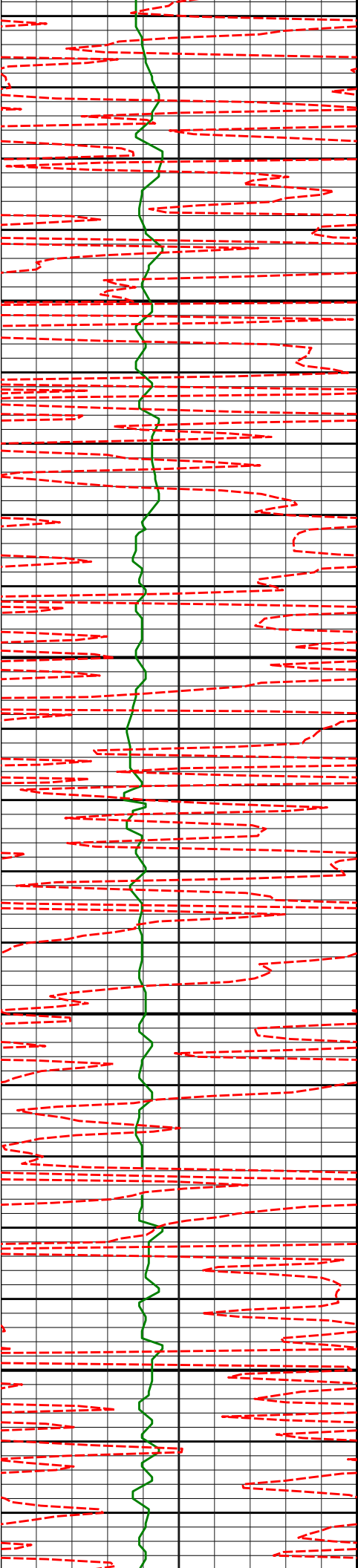
2041'

0.61°

258.86°

2040.97'

-5.21'



2200

2228'

0.65°

284.14°

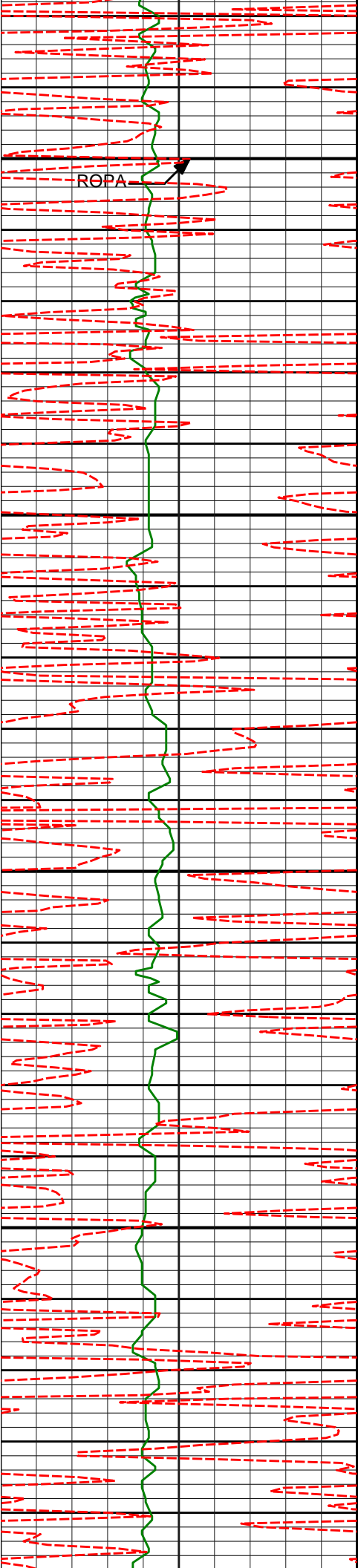
2227.96'

-5.16'

2250

2300

2350



2400

ROPA

2414'

1.04°

333.07°

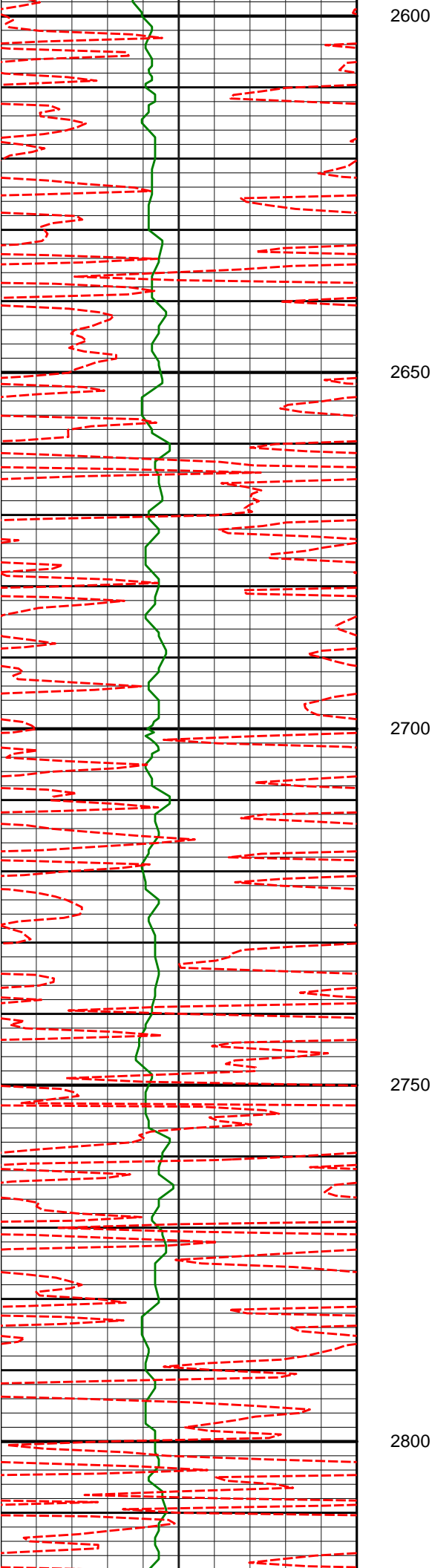
2413.94'

-3.40'

2450

2500

2550



2603'

0.86°

345.61°

2602.91'

-0.51'

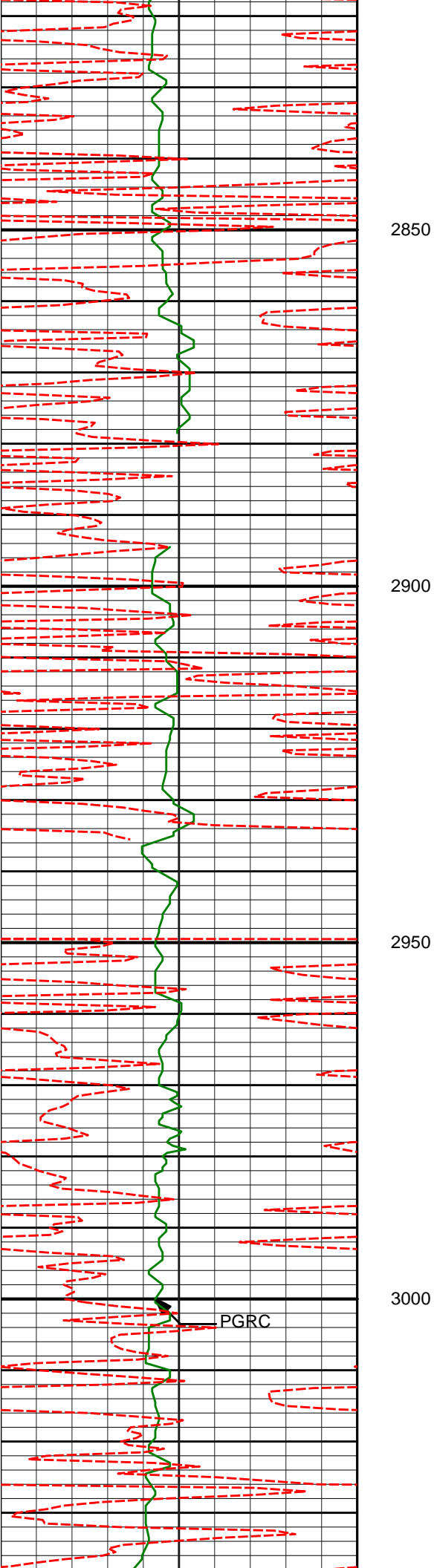
2792'

0.65°

351.55°

2791.89'

1.92'



2850

2900

2950

2981'

0.56°

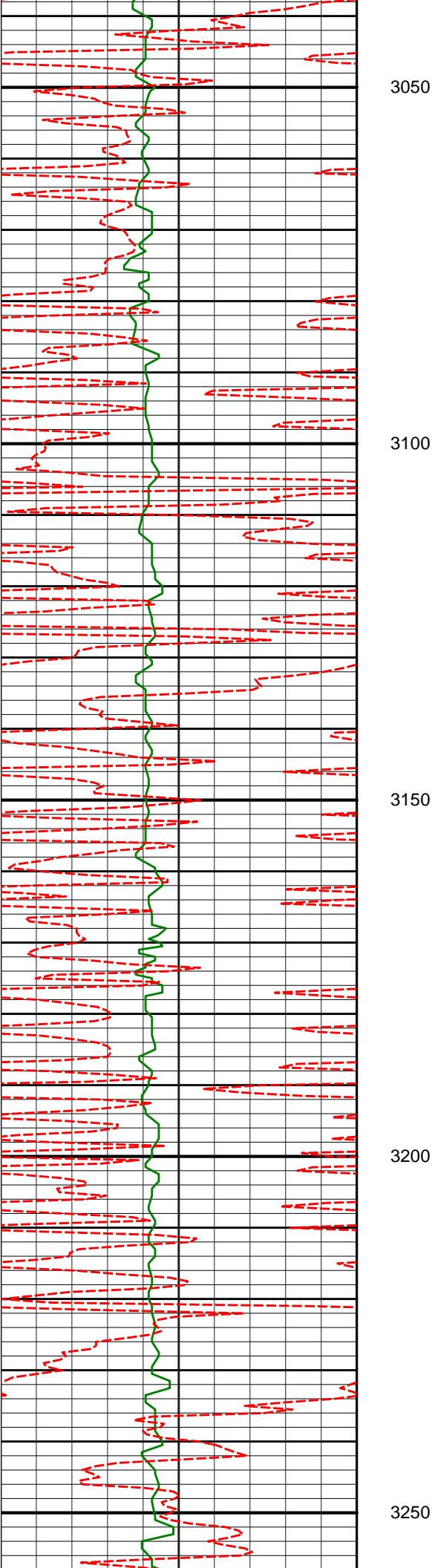
327.29°

2980.88'

3.76'

3000

PGRC



3050

3100

3150

3200

3250

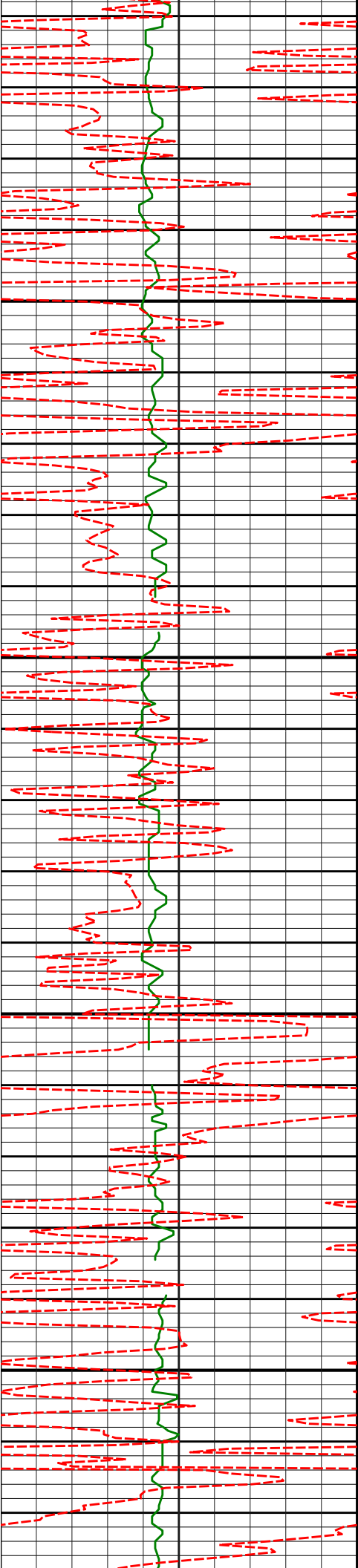
3170'

0.88°

356.26°

3169.87'

5.98'



3300

3350

3400

3450

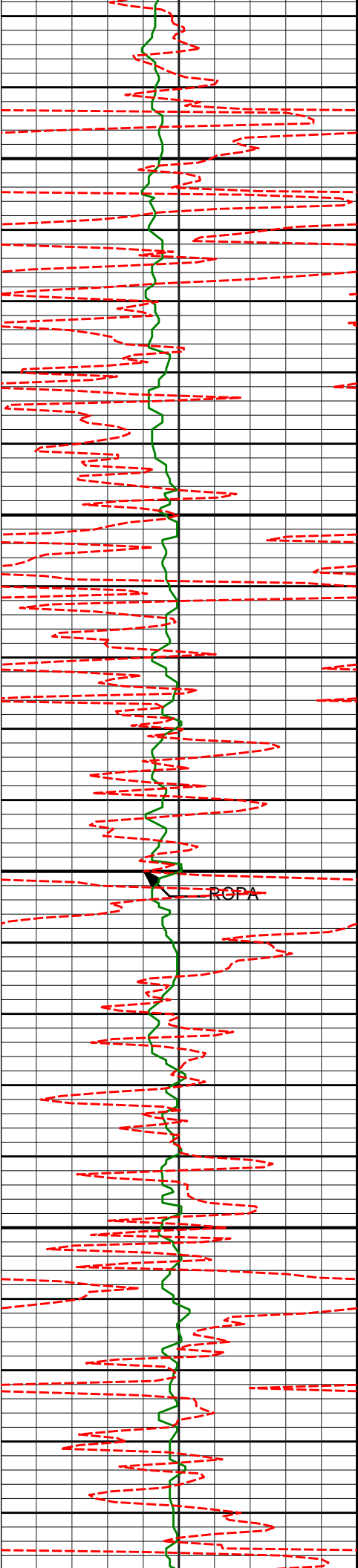
3358'

0.81°

6.26°

3357.85'

8.74'



3500

3550

3600

3650

3547'

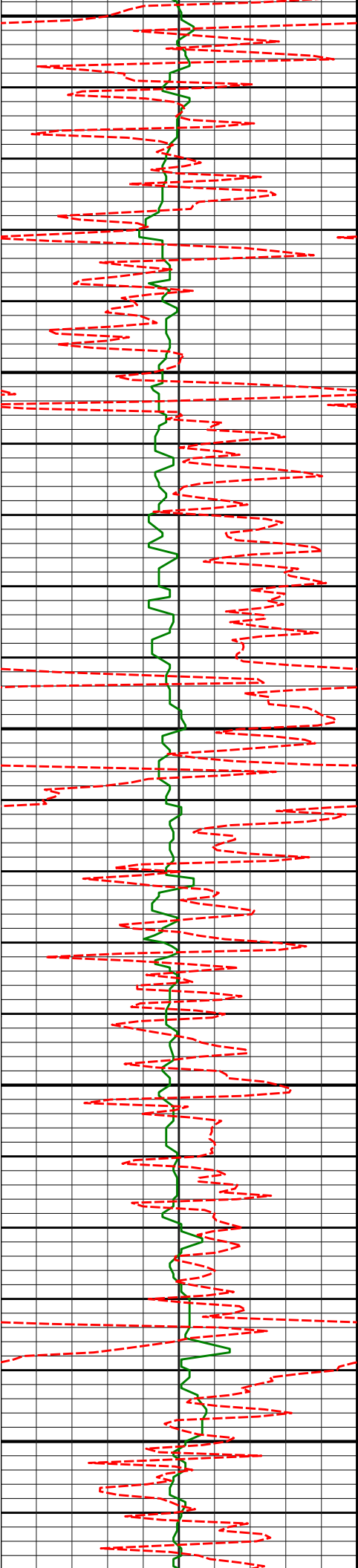
0.14°

215.93°

3546.84'

9.88'

ROPA



3700

3737'

2.78°

230.44°

3736.77'

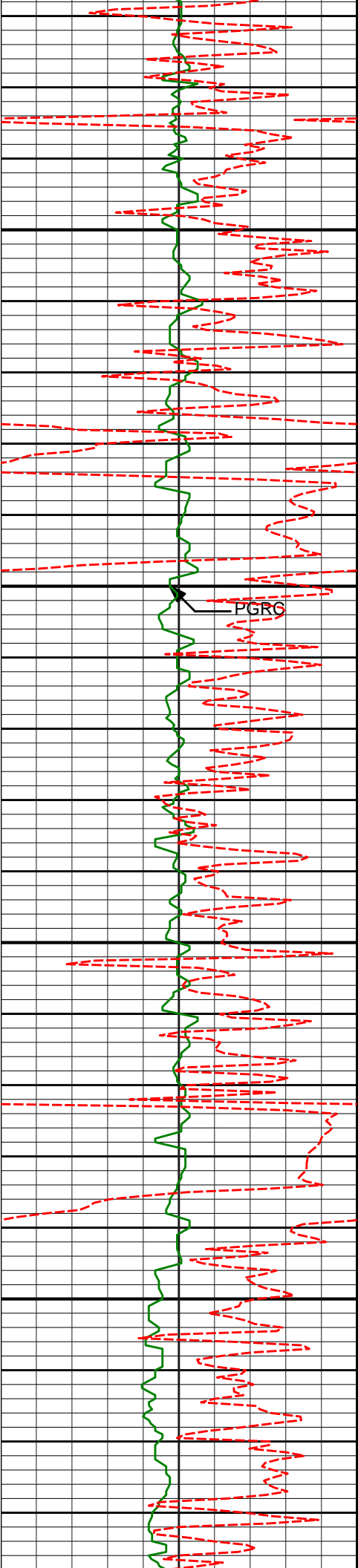
6.74'

3750

3800

3850

3900



3926'

2.17°

170.18°

3925.62'

0.28'

3950

4000

PGRO

4050

4100

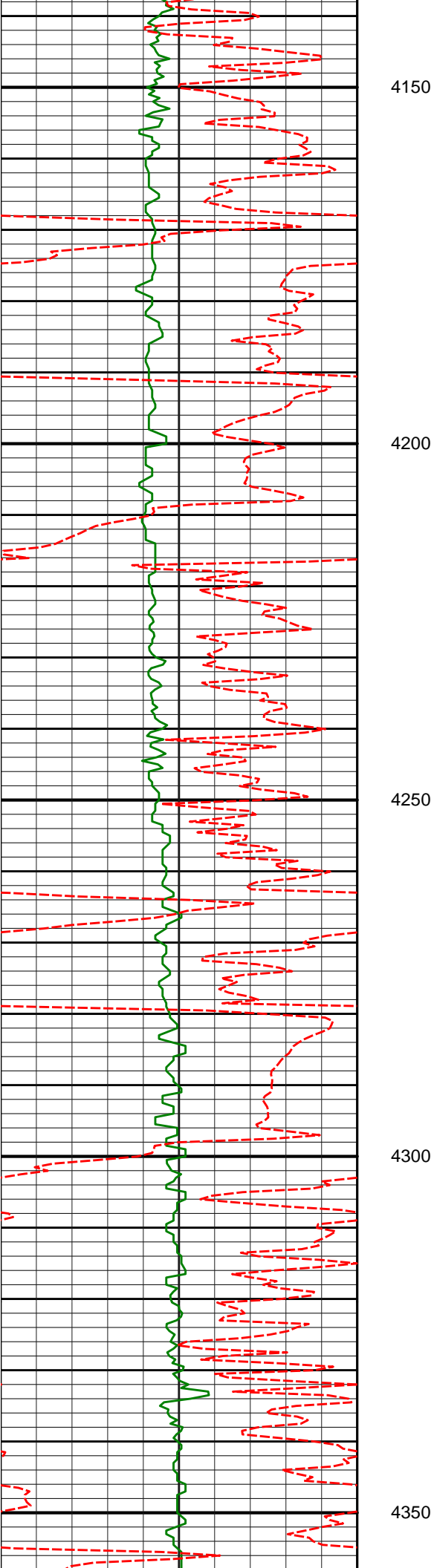
4114'

3.61°

161.61°

4113.37'

-8.83'



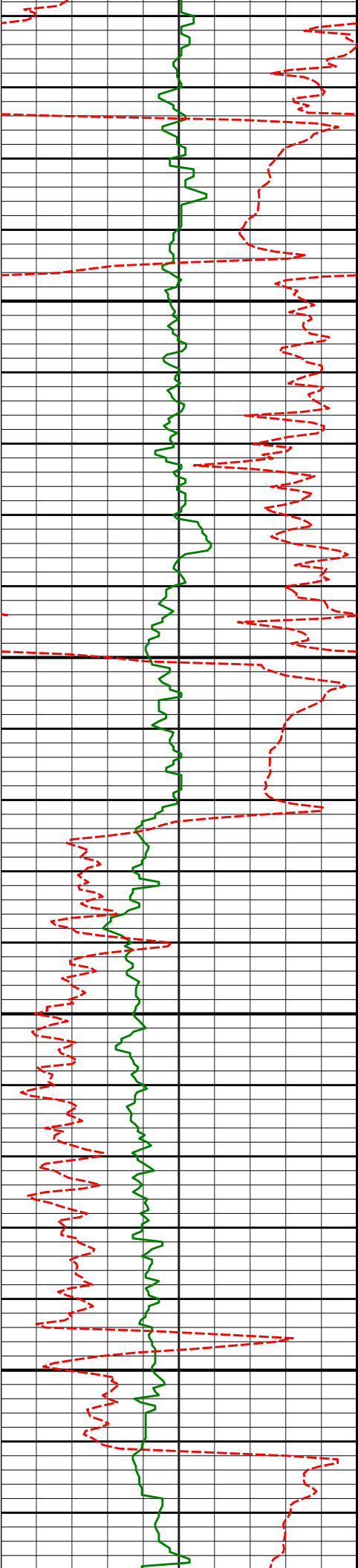
4303'

6.93°

179.63°

4301.56'

-25.88'



4400

4450

4500

4550

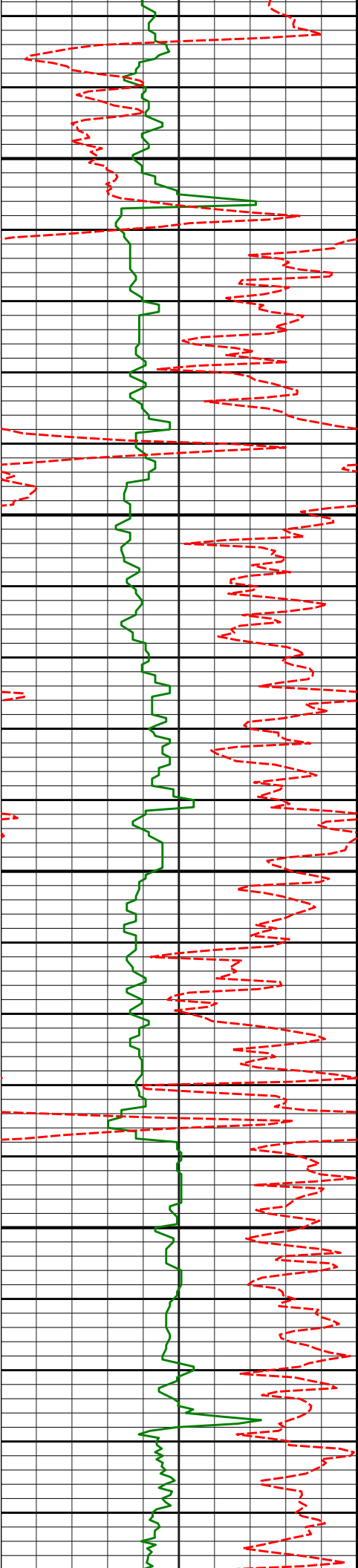
4492'

9.14°

176.76°

4488.69'

-52.26'



4600

4650

4700

4750

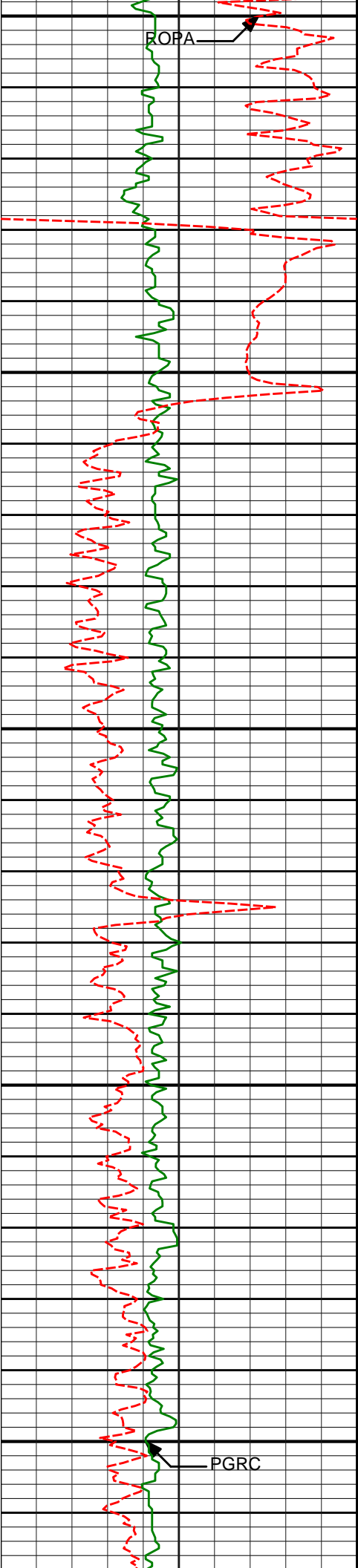
4681'

9.44°

174.58°

4675.22'

-82.67'



4800

4850

4900

4950

5000

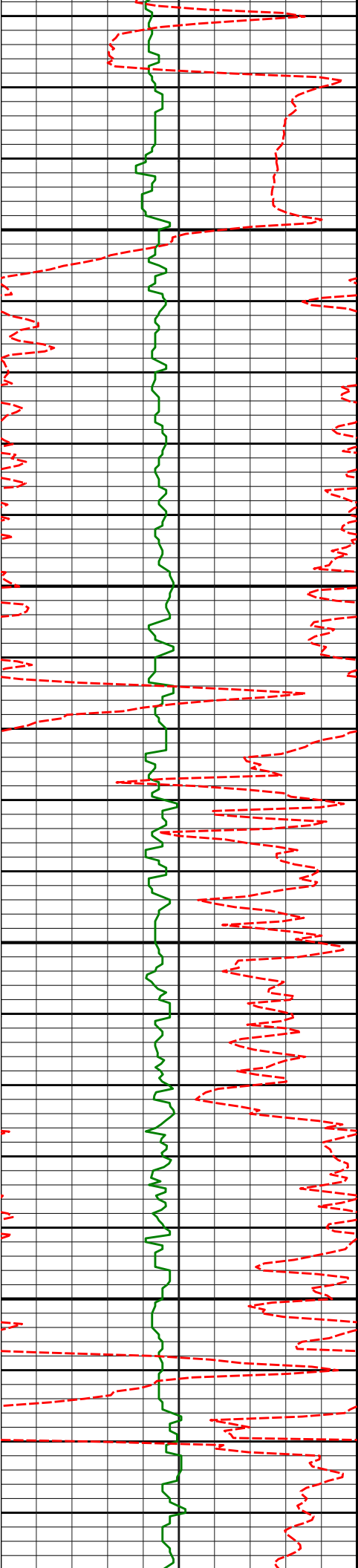
4870'

10.67°

177.09°

4861.31'

-115.56'



5050

5059'

10.92°

181.79°

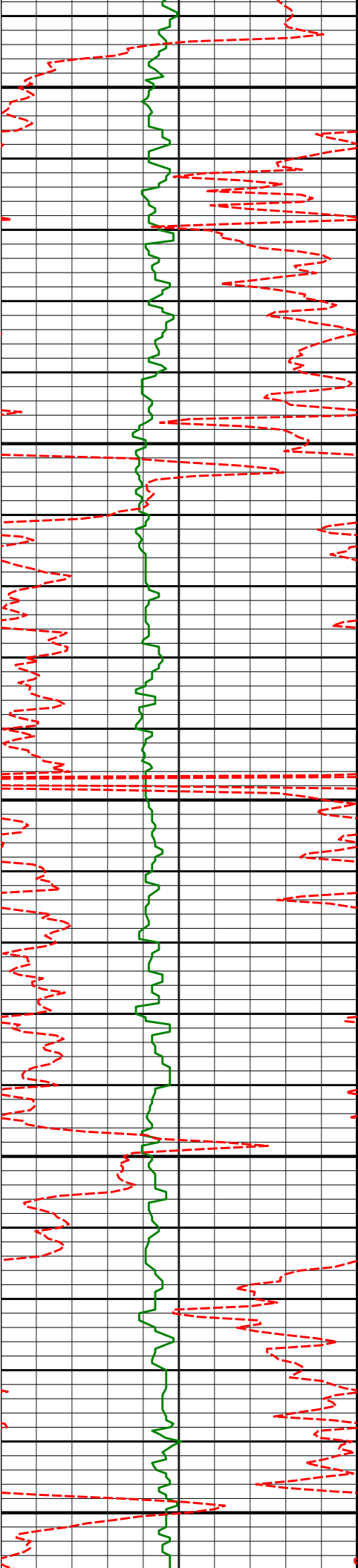
5046.97'

-150.92'

5100

5150

5200



5250

5248'

9.94°

177.66°

5232.85'

-185.12'

5300

5350

5400

5437'

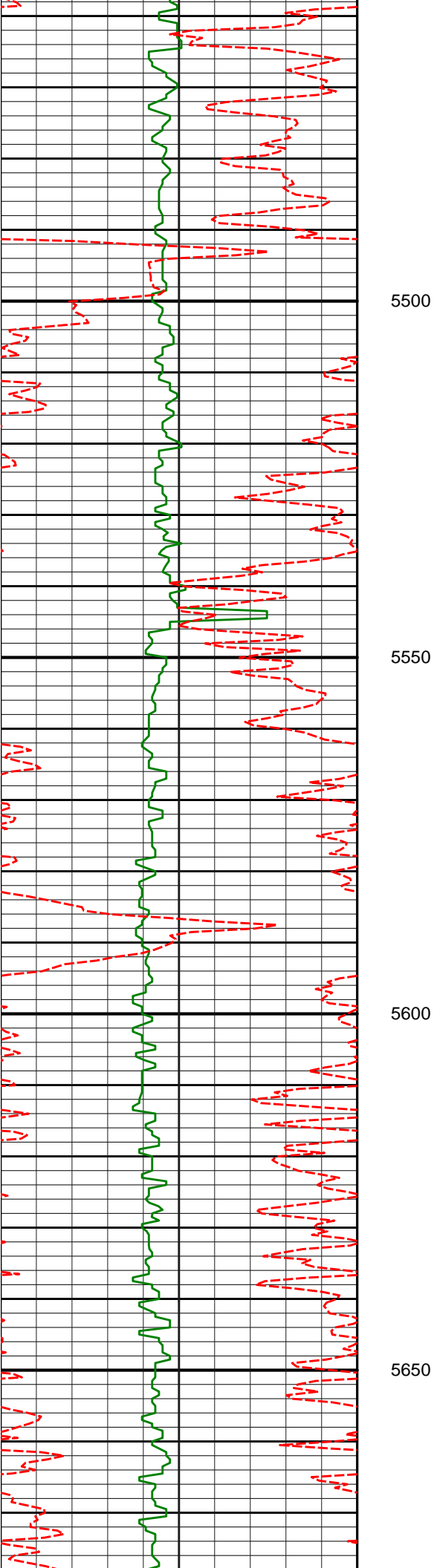
7.72°

178.27°

5419.60'

-214.10'

5450



5500

5550

5600

5650

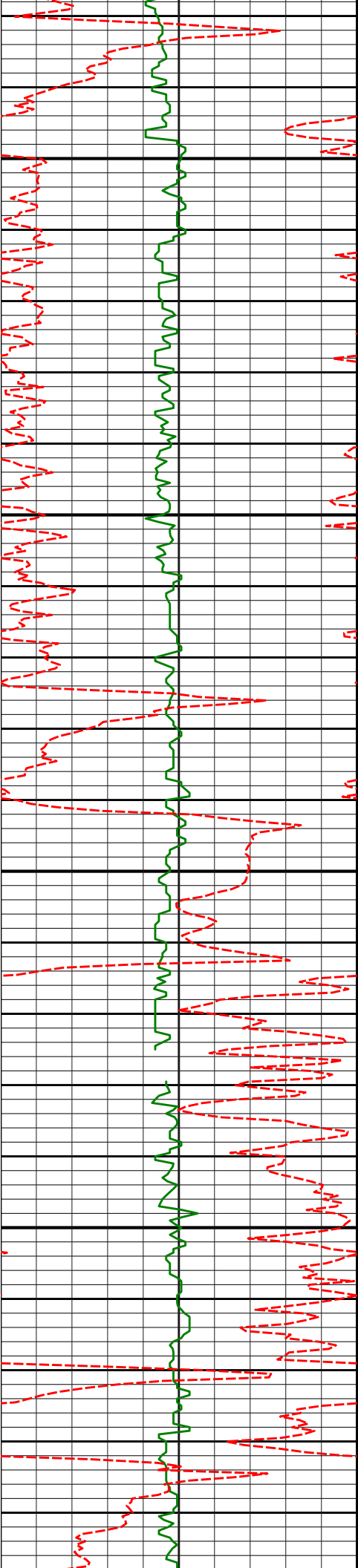
5626'

4.71°

169.06°

5607.47'

-234.40'



5700

5750

5800

5815'

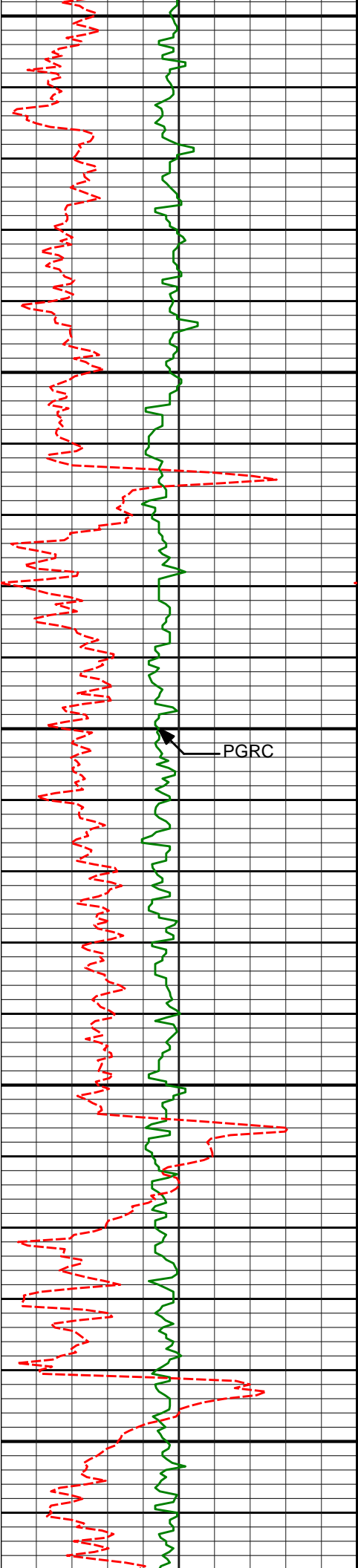
2.65°

190.48°

5796.08'

-246.32'

5850



5900

5950

6000

6050

6100

PGRC

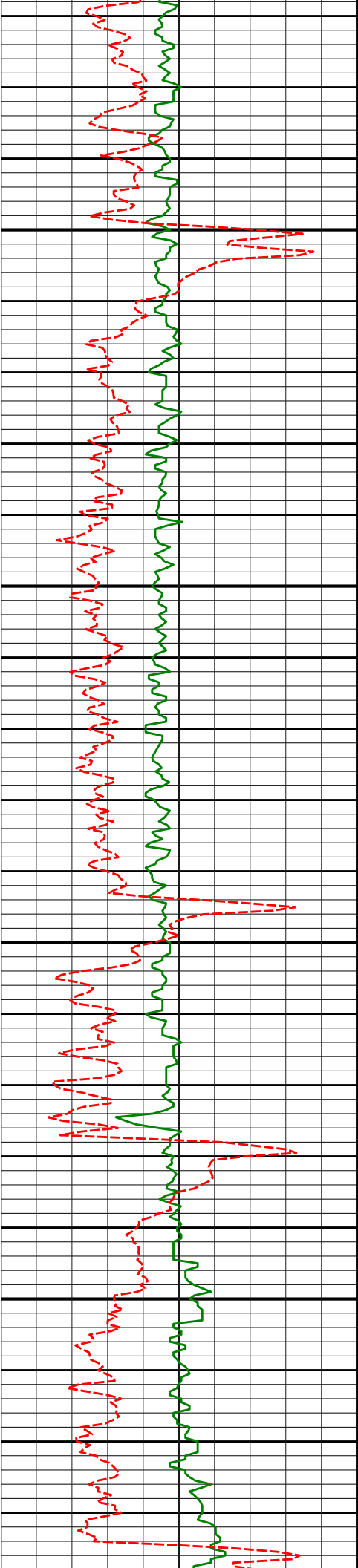
6003'

0.60°

174.38°

5983.99'

-251.57'



6150

6192'

0.78°

4.76°

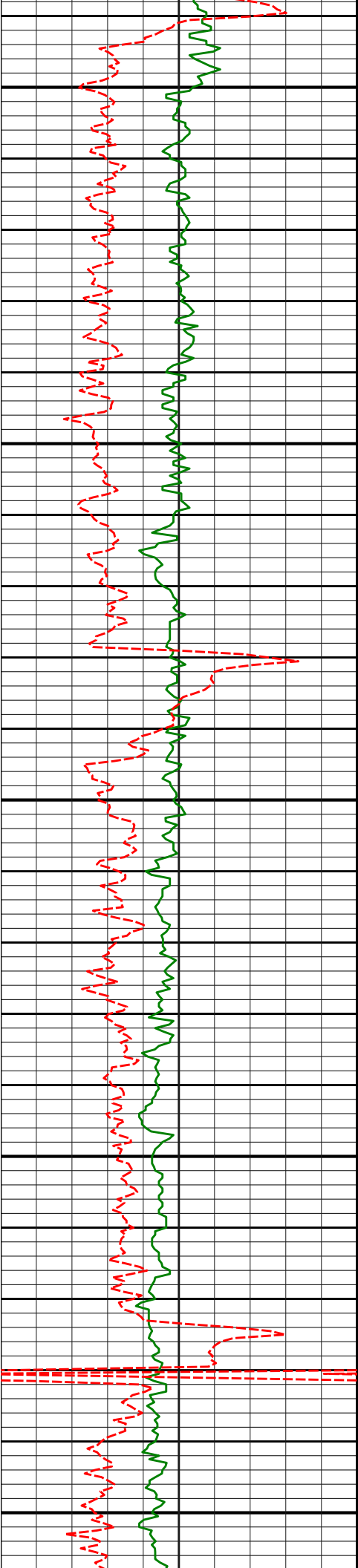
6172.99'

-251.27'

6200

6250

6300



6350

6400

6450

6500

6550

6381'

0.68°

354.57°

6361.97'

-248.88'

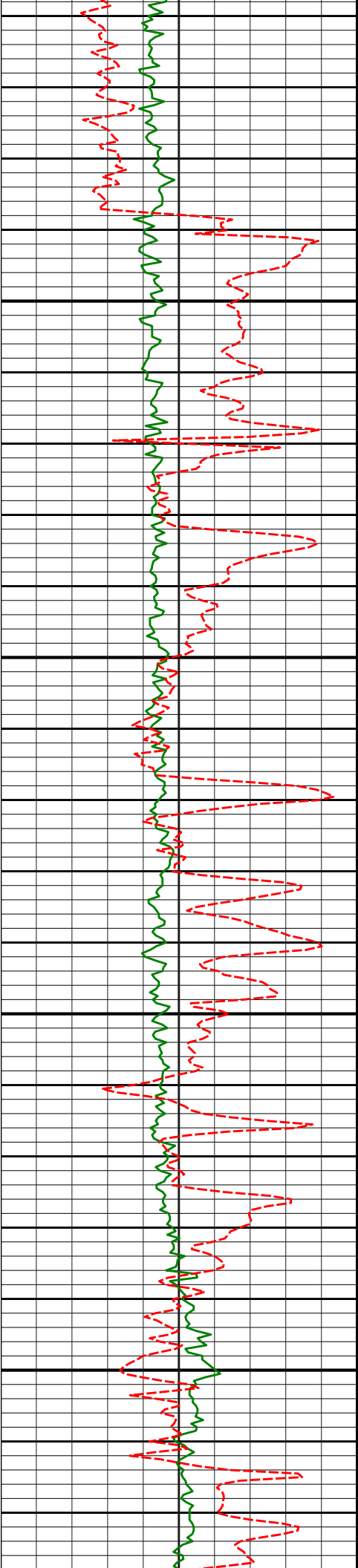
6476'

0.59°

11.68°

6456.96'

-247.84'



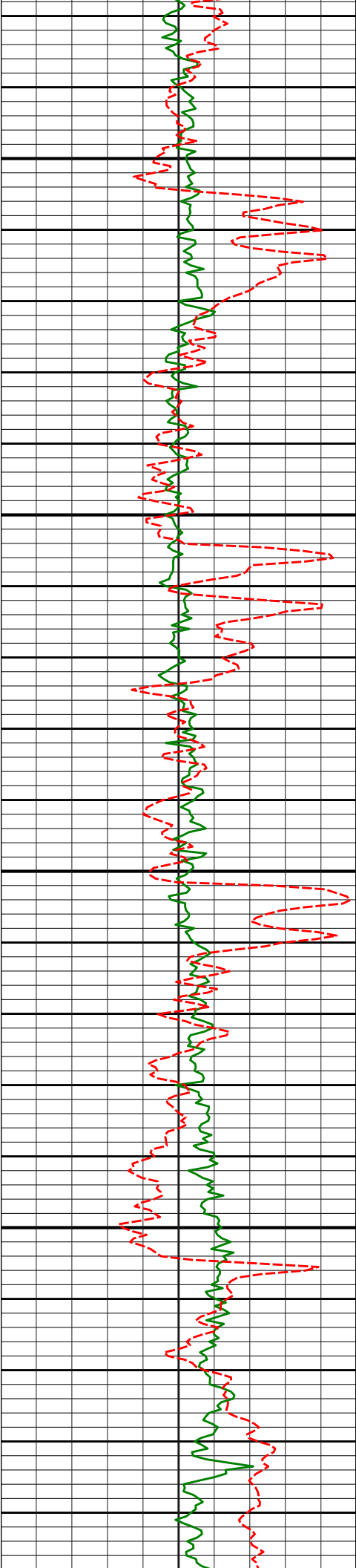
6600

6650

6700

6750

6570'	0.63°	32.56°	6550.96'	-246.92'
6617'	2.90°	311.82°	6597.94'	-245.92'
6664'	7.09°	336.83°	6644.75'	-242.47'
6711'	8.01°	340.03°	6691.35'	-236.74'
6759'	10.28°	335.33°	6738.73'	-229.72'



6800

6806'

12.95°

342.04°

6784.77'

-220.91'

6850

6853'

17.10°

343.68°

6830.15'

-209.29'

6900

6900'

21.15°

339.61°

6874.55'

-194.73'

6950

6948'

25.76°

334.61°

6918.58'

-177.22'

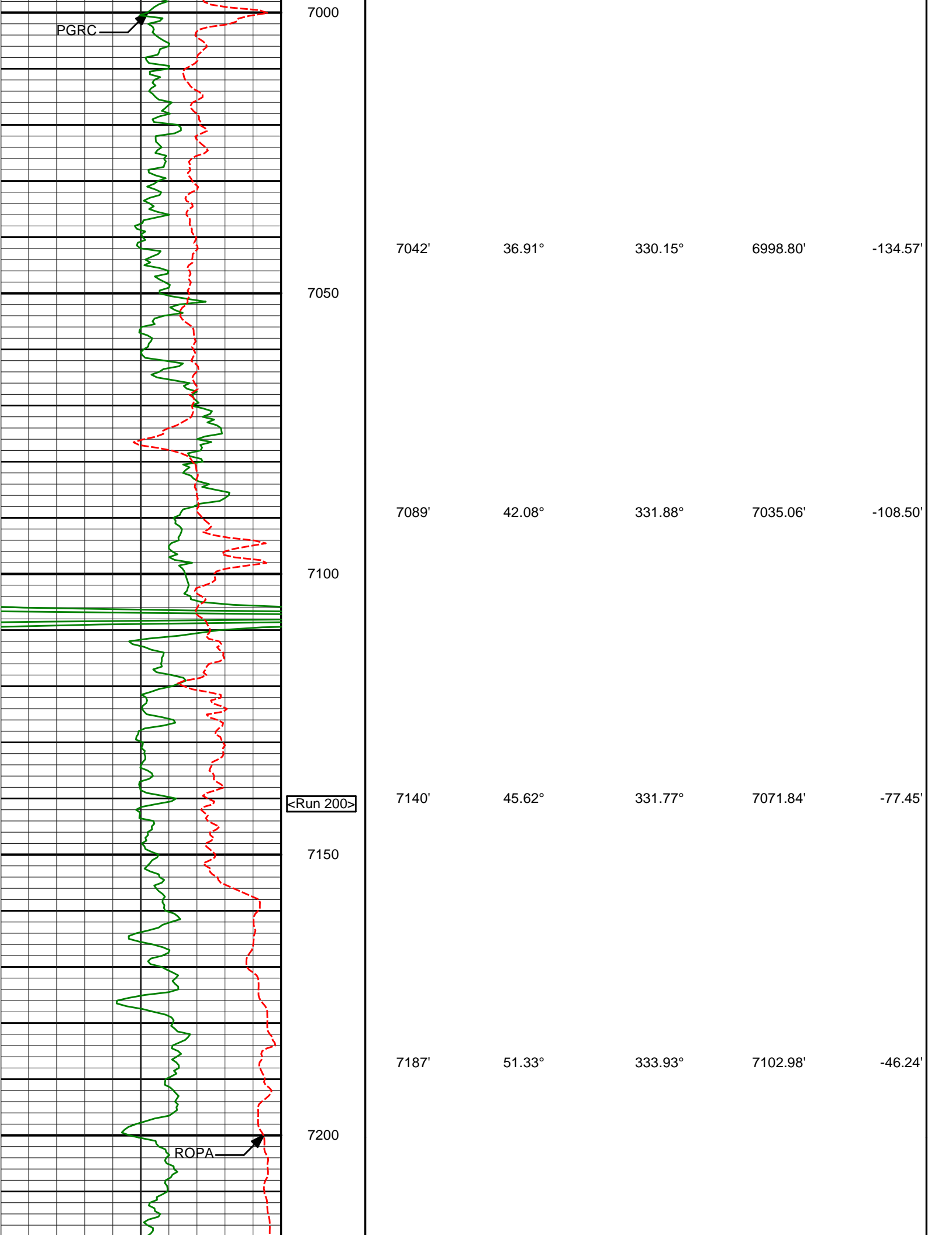
6995'

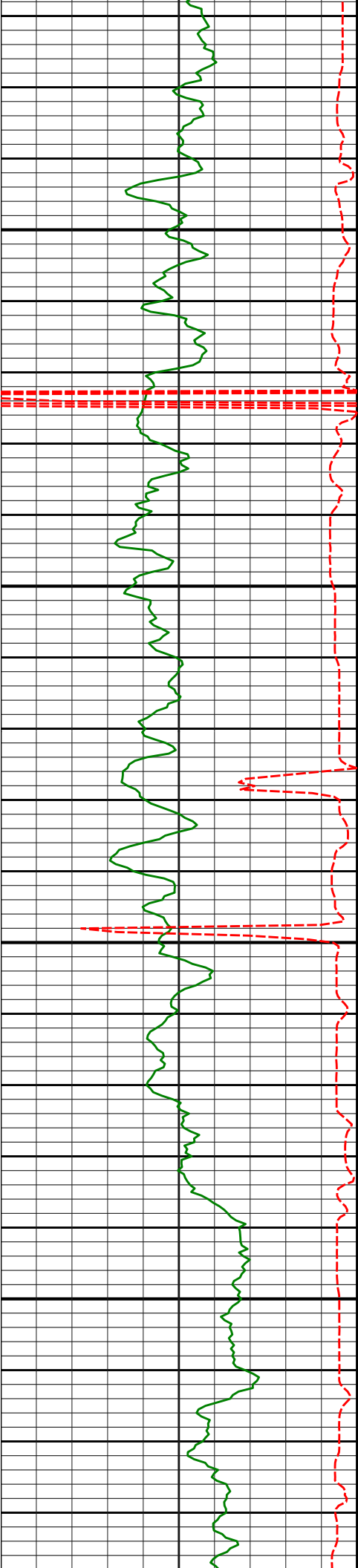
31.19°

330.95°

6959.88'

-157.39'





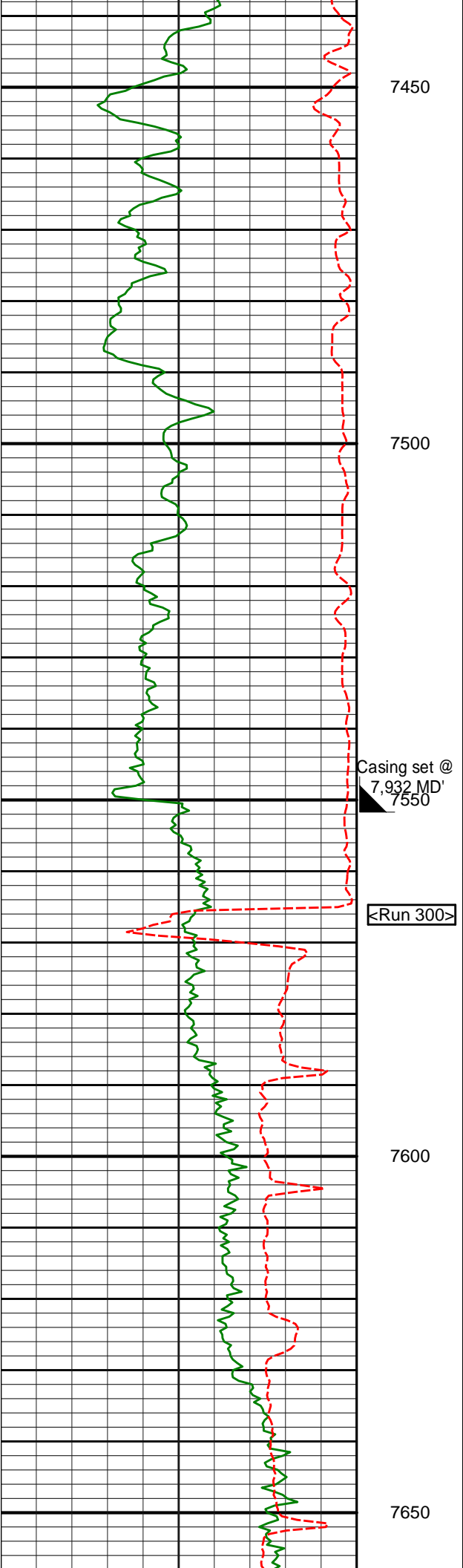
7250

7300

7350

7400

7234'	55.29°	340.32°	7131.08'	-11.61'
7281'	60.90°	343.29°	7155.91'	26.21'
7329'	66.46°	344.44°	7177.19'	67.46'
7376'	71.80°	349.32°	7193.93'	110.15'
7423'	76.72°	352.30°	7206.68'	154.75'



7450

7470'

81.00°

357.94°

7215.77'

200.64'

7500

7515'

84.45°

3.16°

7221.47'

245.26'

Casing set @
7,932 MD'
7550

<Run 300>

7600

7601'

90.99°

5.04°

7224.89'

330.95'

7632'

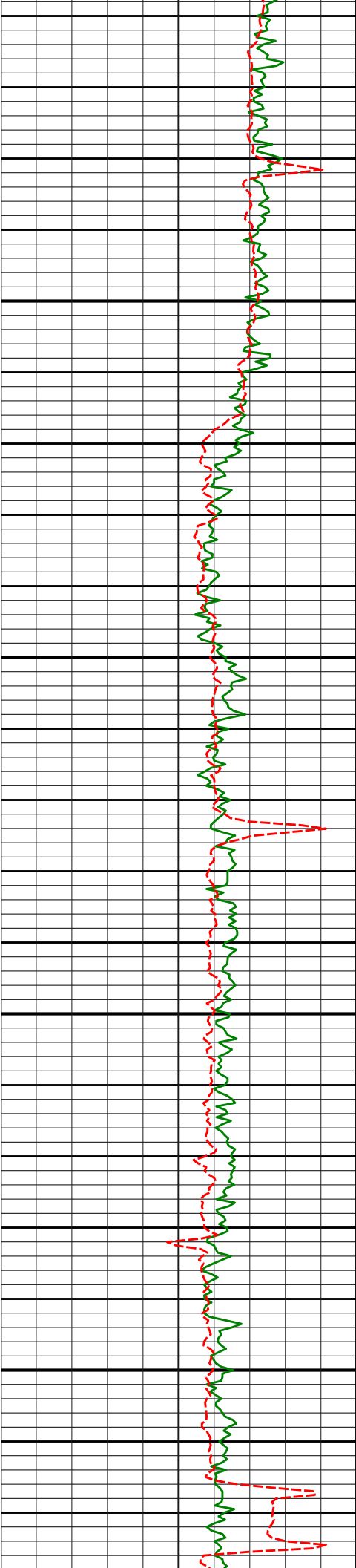
90.99°

5.20°

7224.35'

361.84'

7650



7700

7750

7800

7850

7725'

90.71°

4.32°

7222.97'

454.55'

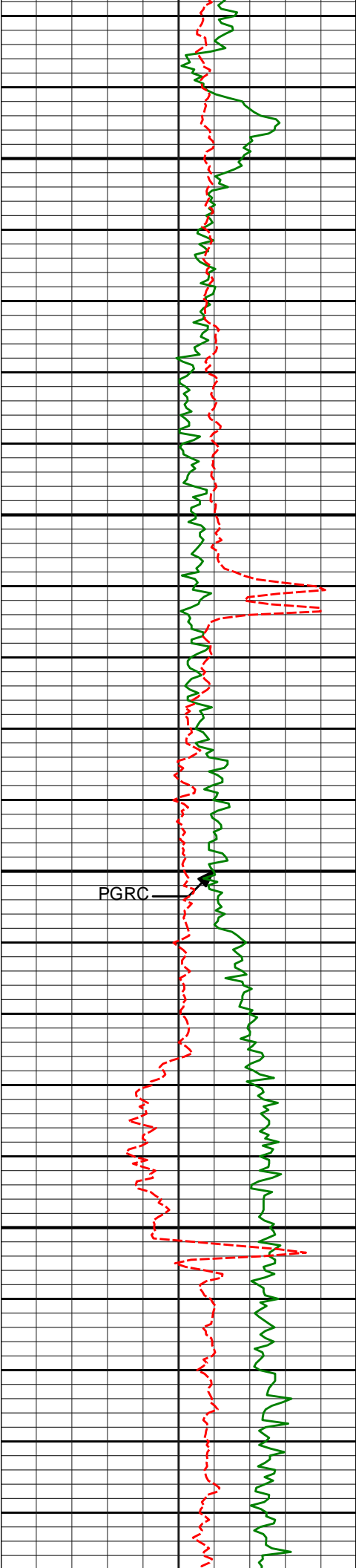
7818'

90.40°

3.95°

7222.07'

547.34'



7900

7911'

90.34°

3.86°

7221.47'

640.15'

7950

8000

PGRC

8005'

90.74°

3.68°

7220.59'

733.98'

8050

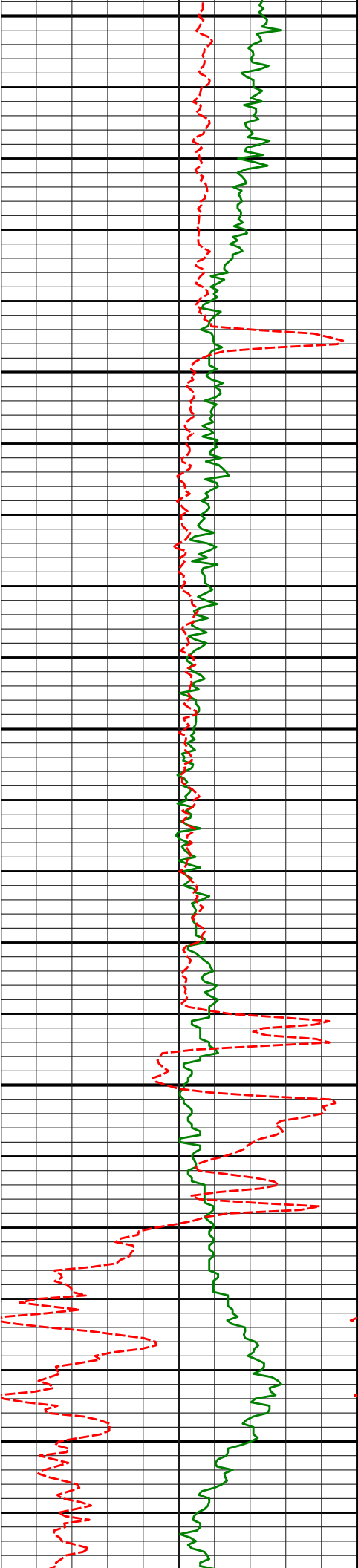
8097'

90.06°

3.48°

7219.94'

825.83'



8100

8150

8200

8250

8300

8191'

89.78°

3.57°

7220.08'

919.68'

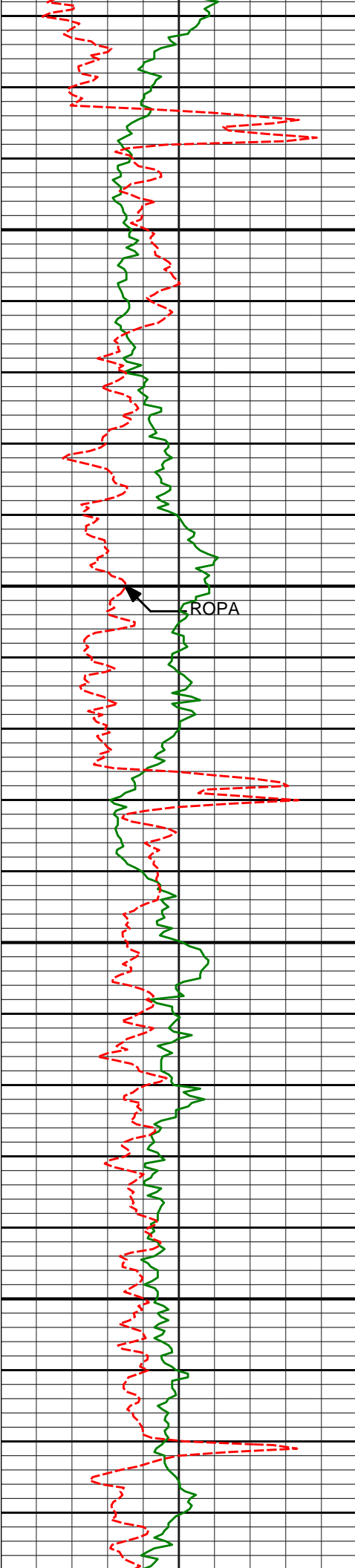
8284'

91.97°

3.16°

7218.66'

1012.53'



8350

8377'

92.09°

3.81°

7215.36'

1105.33'

8400

ROPA

8450

8470'

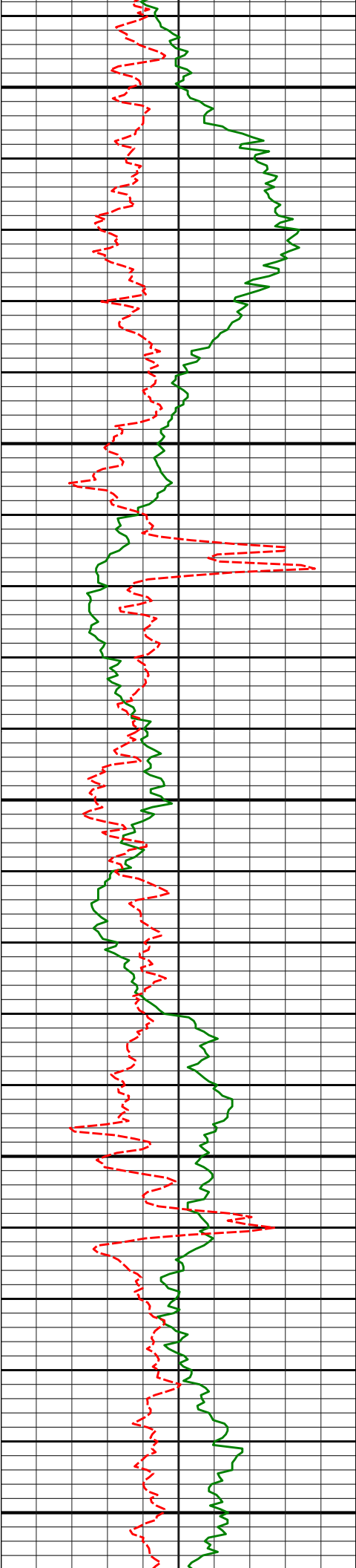
92.62°

3.82°

7211.54'

1198.08'

8500



8550

8563'

92.77°

3.75°

7207.17'

1290.81'

8600

8650

8656'

93.05°

3.73°

7202.45'

1383.52'

8700

8750

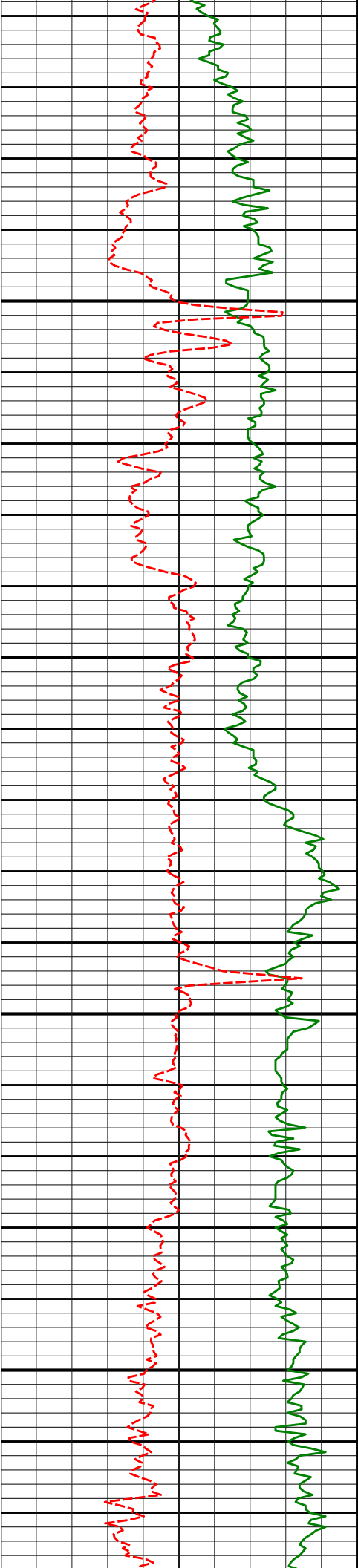
8750'

93.21°

3.67°

7197.31'

1477.22'



8800

8843'

93.06°

3.84°

7192.23'

1569.91'

8850

8900

8936'

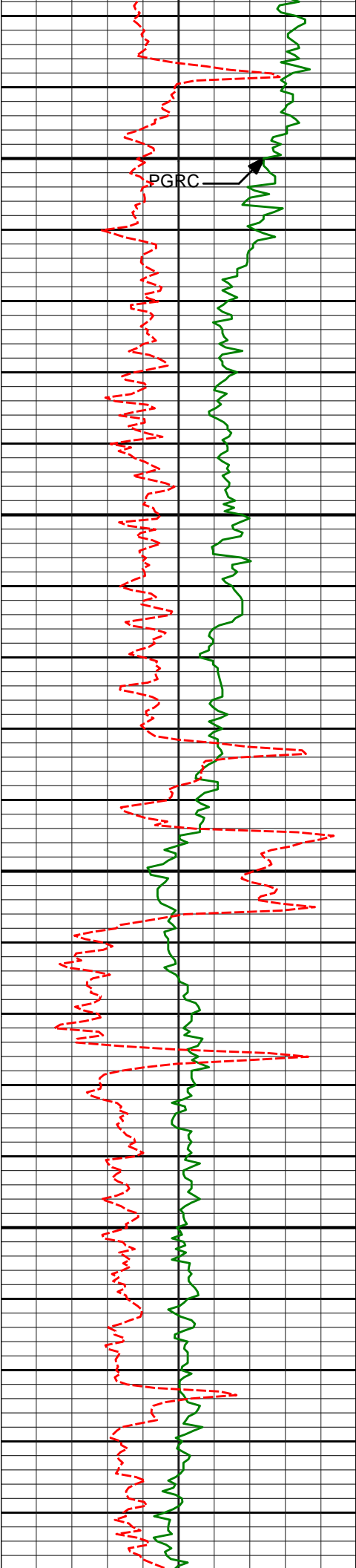
92.53°

3.47°

7187.69'

1662.64'

8950



PGRC

9000

9050

9100

9150

9030'

92.50°

2.66°

7183.57'

1756.44'

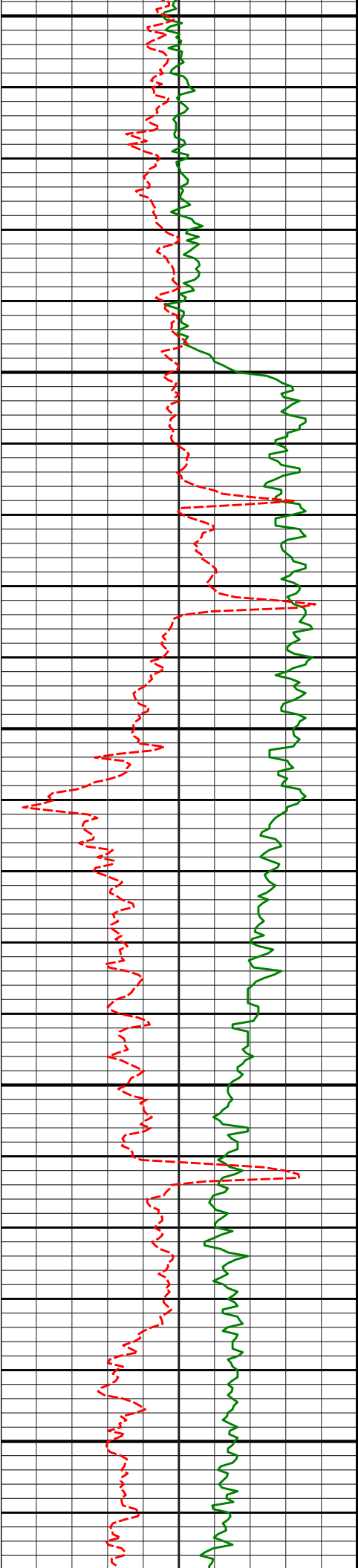
9125'

90.86°

4.57°

7180.78'

1851.24'



9200

9219'

90.65°

4.26°

7179.54'

1944.99'

9250

9300

9313'

90.15°

3.66°

7178.89'

2038.80'

9350

9400

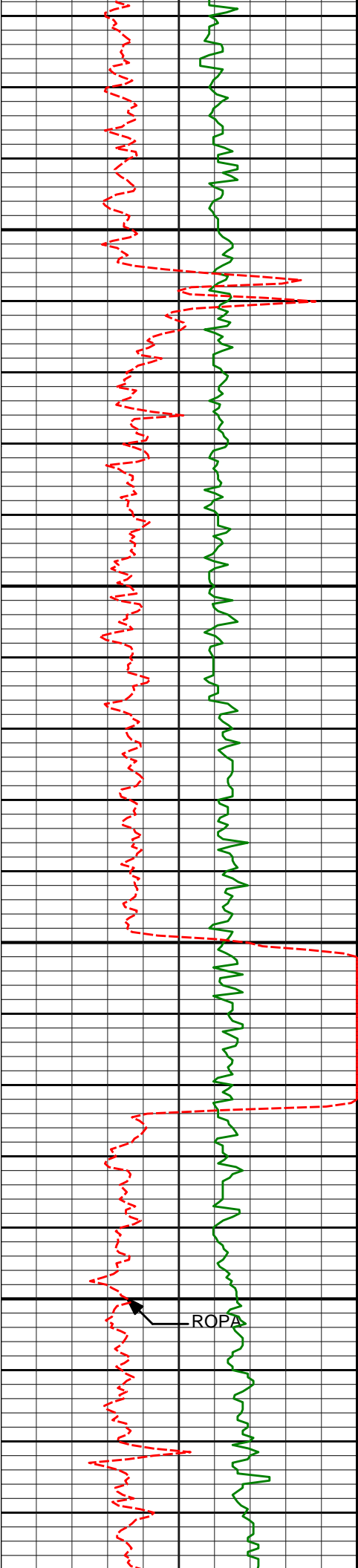
9408'

90.28°

3.66°

7178.53'

2133.64'



9450

9500

9550

9600

9502'

89.48°

2.25°

7178.73'

2227.53'

9597'

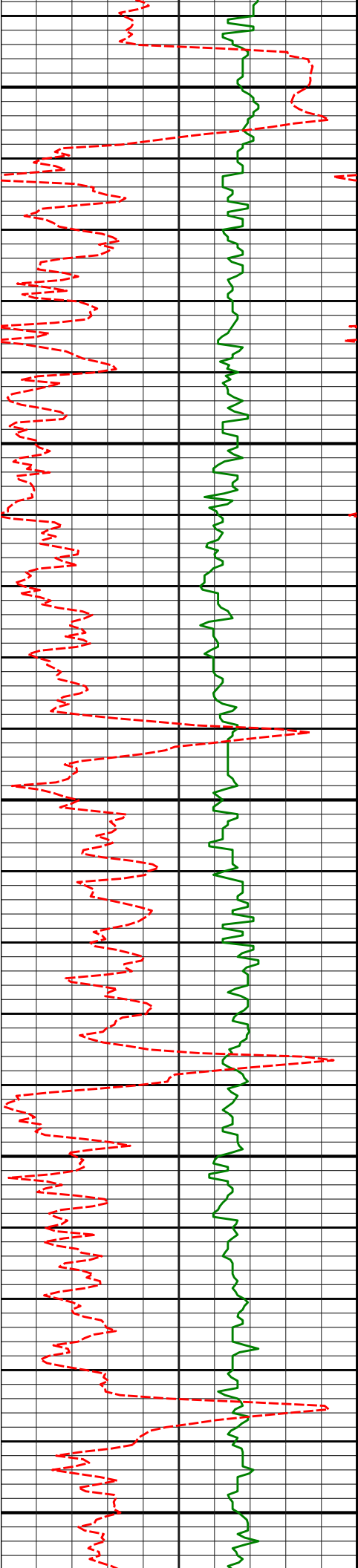
89.57°

2.44°

7179.52'

2322.47'

ROPA



9650

9690'

90.80°

2.92°

7179.21'

2415.39'

9700

9750

9785'

90.65°

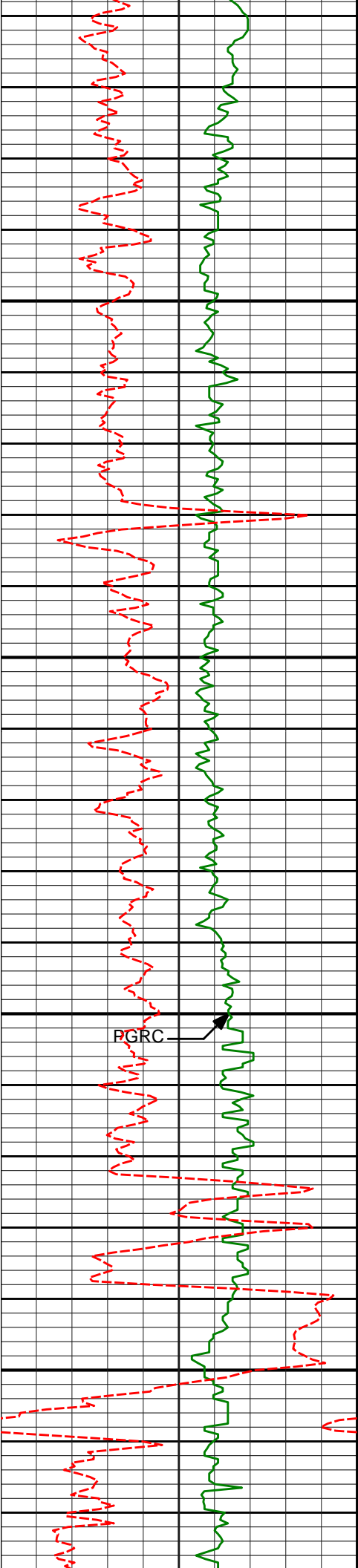
2.88°

7178.01'

2510.28'

9800

9850



9879'	90.34°	2.96°	7177.20'	2604.18'
-------	--------	-------	----------	----------

9900

9950

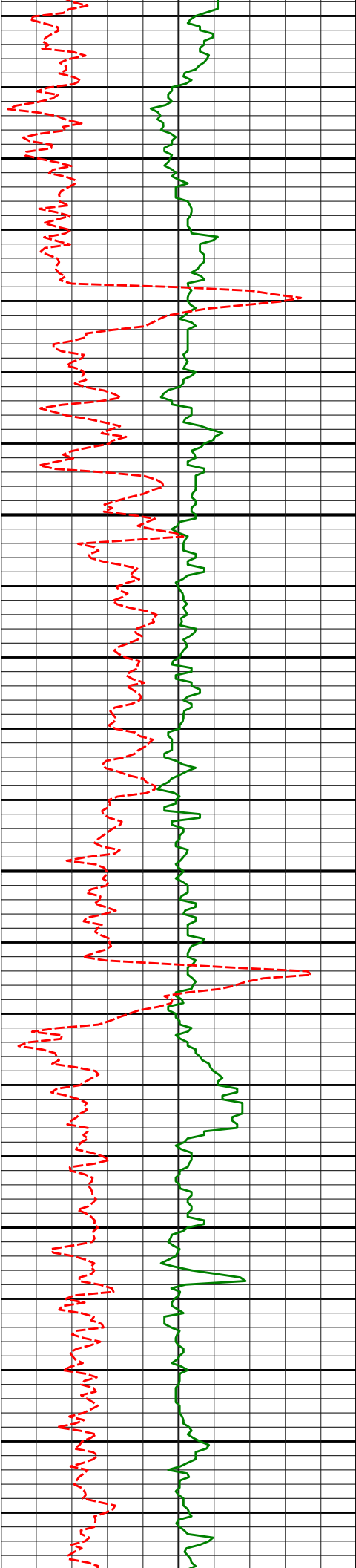
9974'	89.48°	2.06°	7177.35'	2699.11'
-------	--------	-------	----------	----------

10000

PGRC

10050

10069'	91.48°	2.06°	7176.55'	2794.06'
--------	--------	-------	----------	----------



10100

10150

10200

10250

10163'

91.23°

1.99°

7174.33'

2887.99'

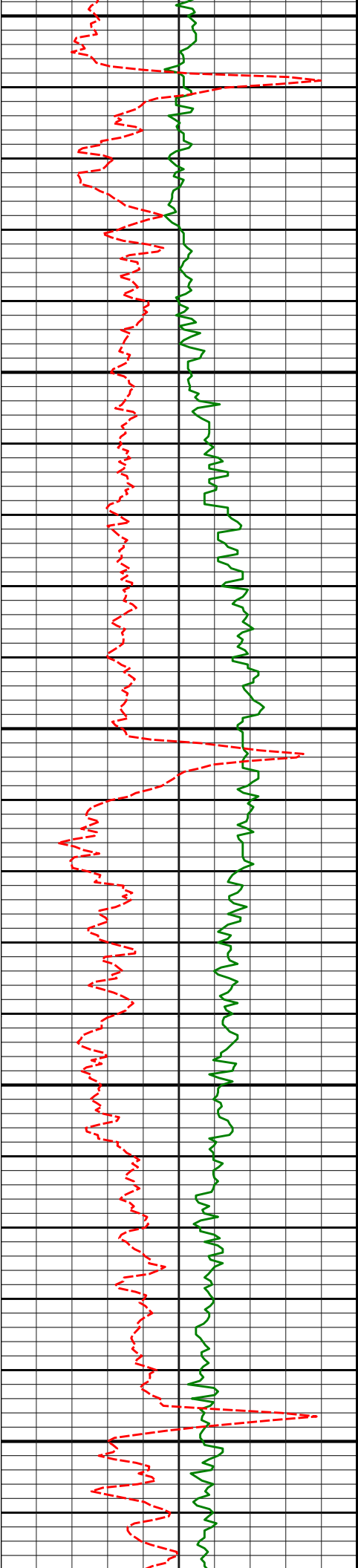
10257'

91.05°

1.01°

7172.46'

2981.95'



10300

10350

10400

10450

10500

10352'

90.89°

0.72°

7170.85'

3076.94'

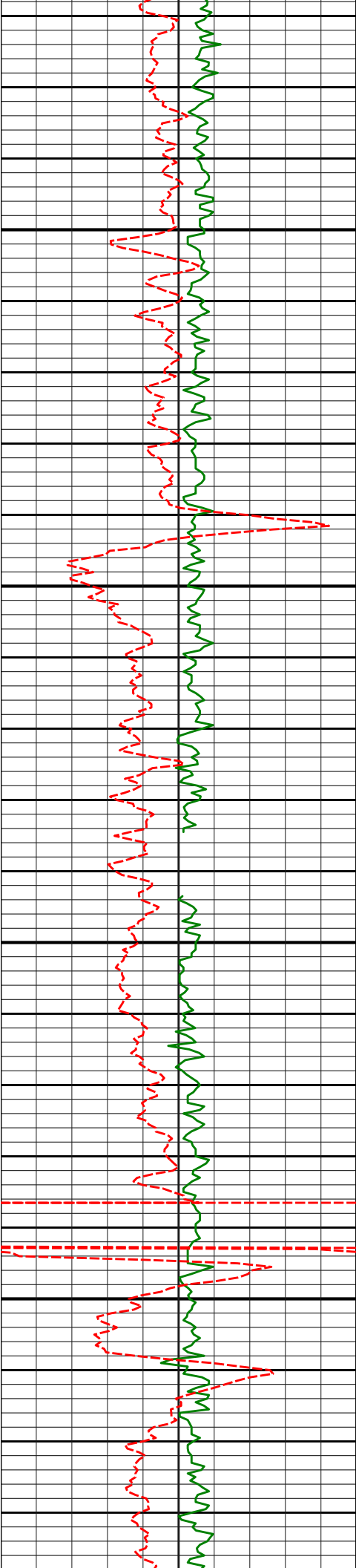
10446'

90.00°

359.72°

7170.12'

3170.93'



10550

10600

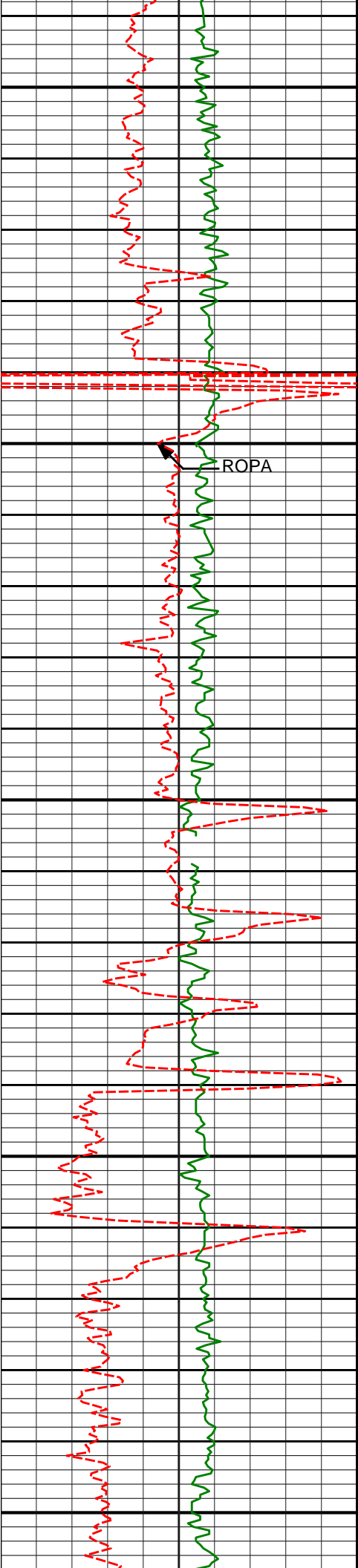
10650

10700

10541'	89.88°	359.71°	7170.22'	3265.93'
--------	--------	---------	----------	----------

10635'	90.15°	0.13°	7170.20'	3359.92'
--------	--------	-------	----------	----------

10730'	90.00°	359.80°	7170.07'	3454.92'
--------	--------	---------	----------	----------



10750

10800

ROPA

10850

10900

10950

10824'

89.32°

358.71°

7170.63'

3548.90'

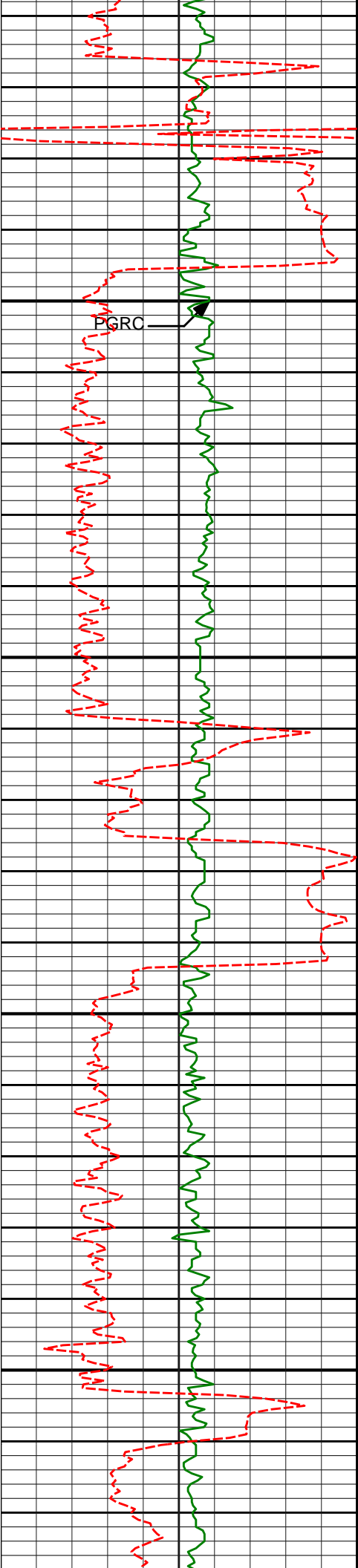
10919'

88.67°

356.83°

7172.30'

3643.79'



11000

PGRC

11013'

89.57°

358.06°

7173.74'

3737.66'

11050

11100

11108'

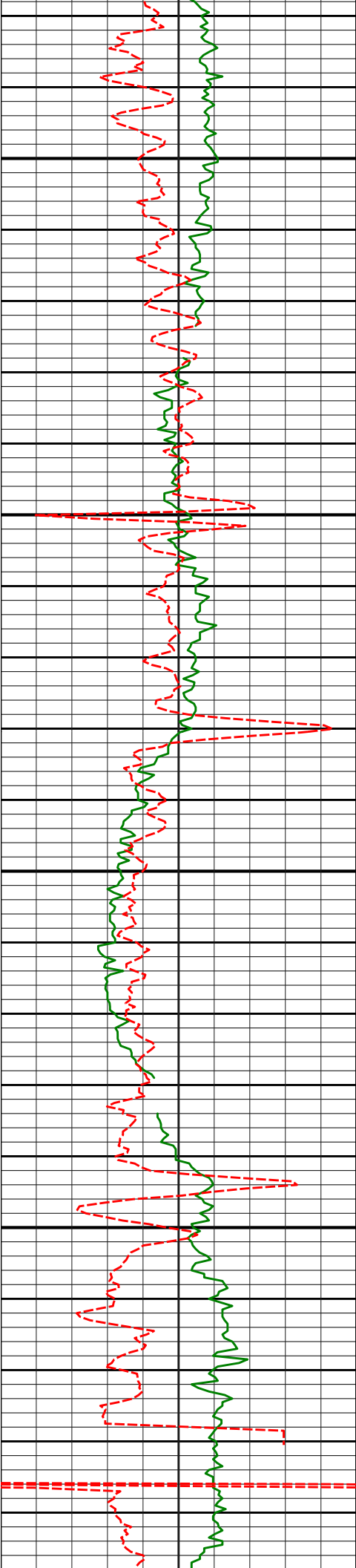
89.29°

359.71°

7174.69'

3832.62'

11150



11200

11202'

89.60°

359.92°

7175.60'

3926.61'

11250

11300

11297'

89.14°

359.80°

7176.64'

4021.60'

11350

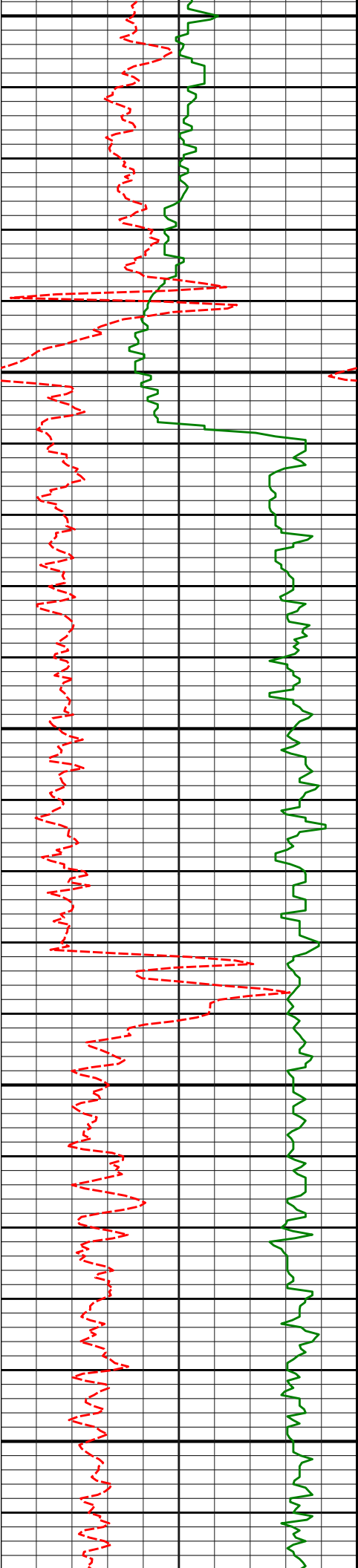
11391'

89.04°

359.47°

7178.13'

4115.58'



11400

11450

11500

11550

11600

11485'

88.70°

359.11°

7179.99'

4209.55'

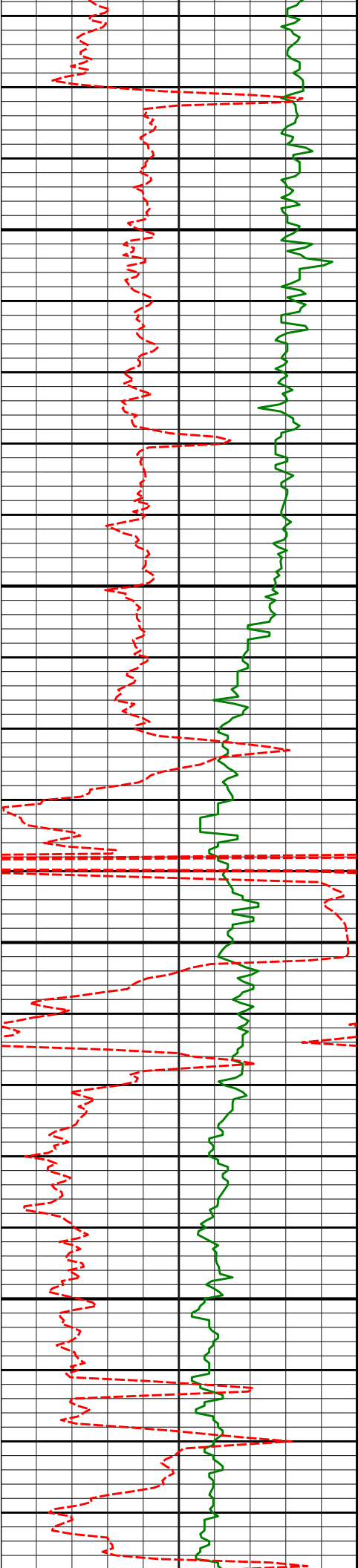
11580'

89.08°

358.81°

7181.83'

4304.50'



11650

11674'

88.46°

358.43°

7183.85'

4398.44'

11700

11750

11768'

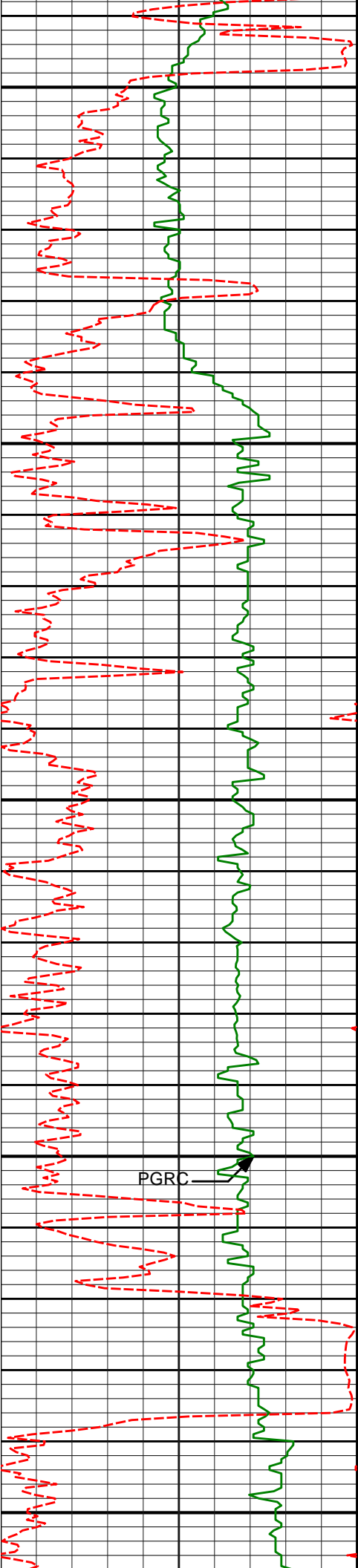
88.43°

359.57°

7186.40'

4492.38'

11800



11850

11863'

88.92°

359.78°

7188.59'

4587.35'

11900

11950

11957'

87.78°

358.50°

7191.30'

4681.28'

12000

PGRC

12050

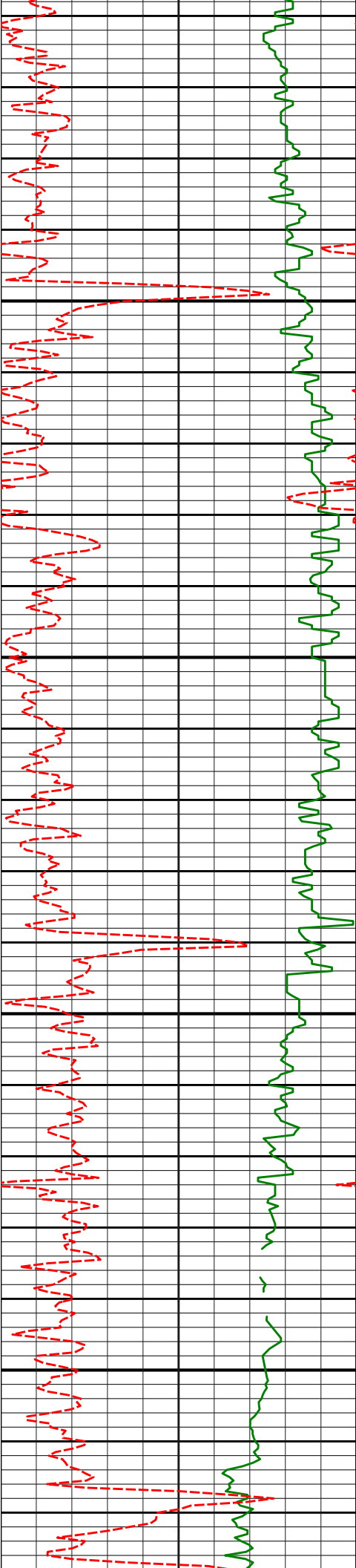
12052'

89.17°

0.23°

7193.83'

4776.23'



12100

12146'

89.81°

0.43°

7194.67'

4870.23'

12150

12200

12241'

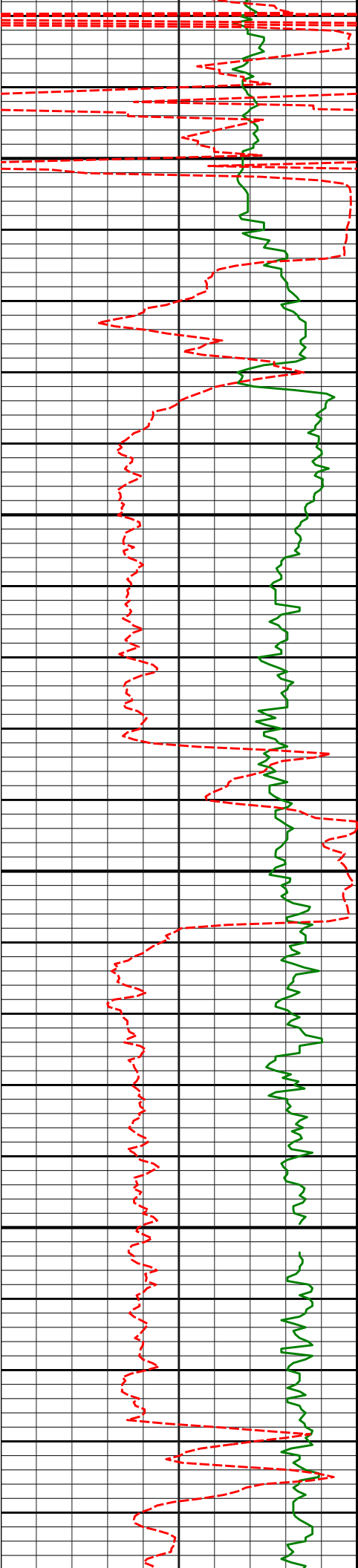
89.20°

358.83°

7195.49'

4965.21'

12250



12300

12335'

91.20°

0.34°

7195.16'

5059.20'

12350

12400

12430'

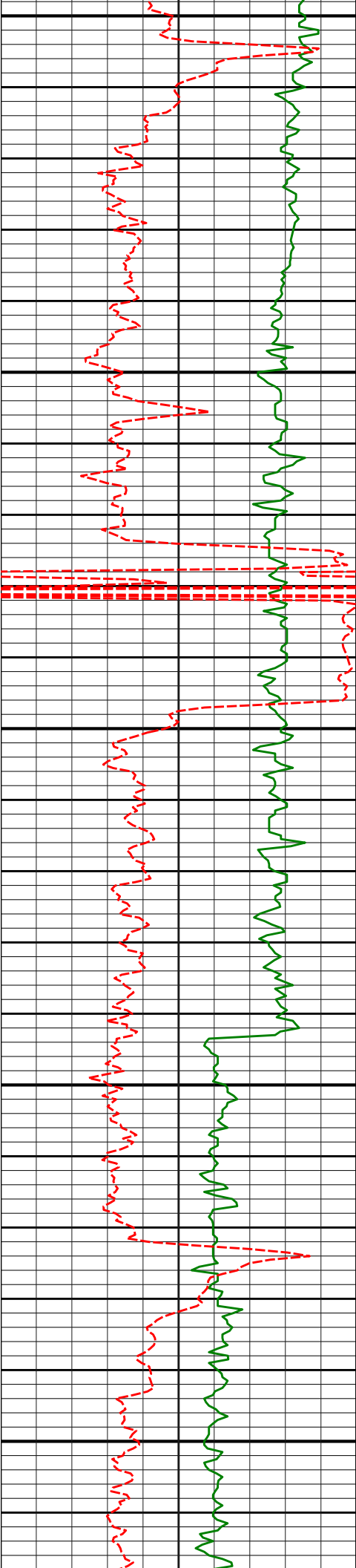
90.28°

1.48°

7193.93'

5154.18'

12450



12500

12525'

89.69°

1.26°

7193.96'

5249.16'

12550

12600

12619'

91.23°

1.39°

7193.20'

5343.14'

12650

12700

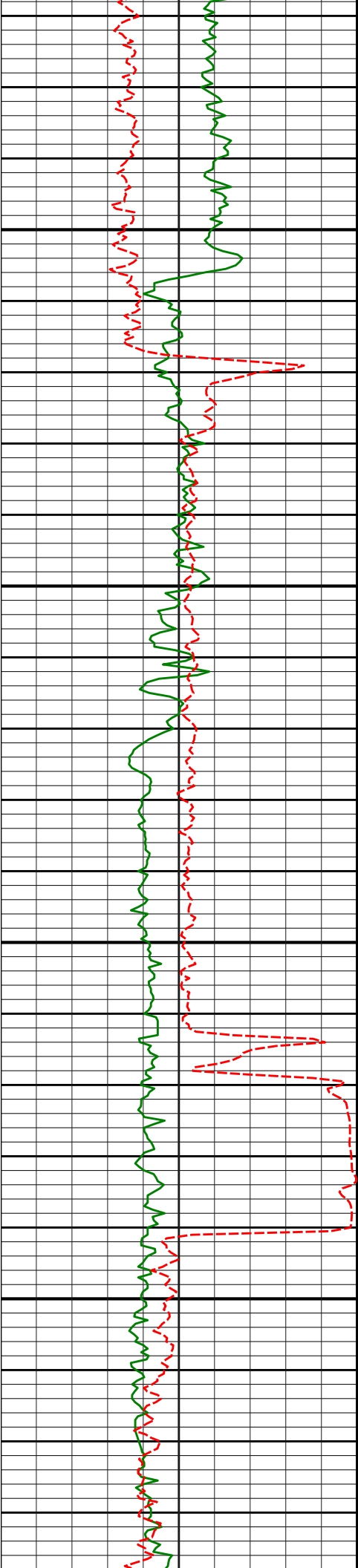
12714'

92.90°

2.18°

7189.78'

5438.05'



12750

12800

12850

12900

12808'

94.44°

2.17°

7183.76'

5531.80'

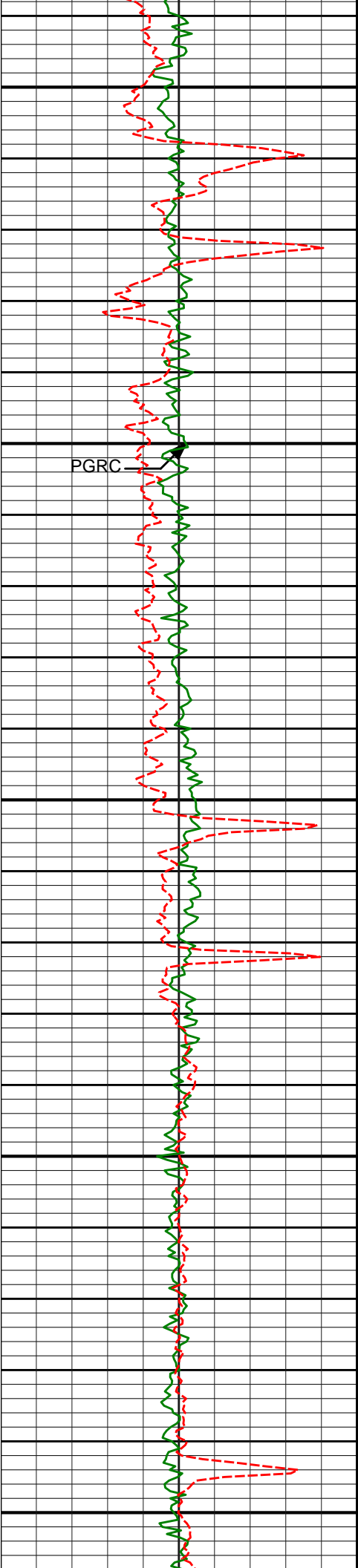
12903'

91.48°

2.95°

7178.86'

5626.59'



12950

13000

13050

13100

13150

PGRC

12997'

90.96°

3.19°

7176.86'

5720.46'

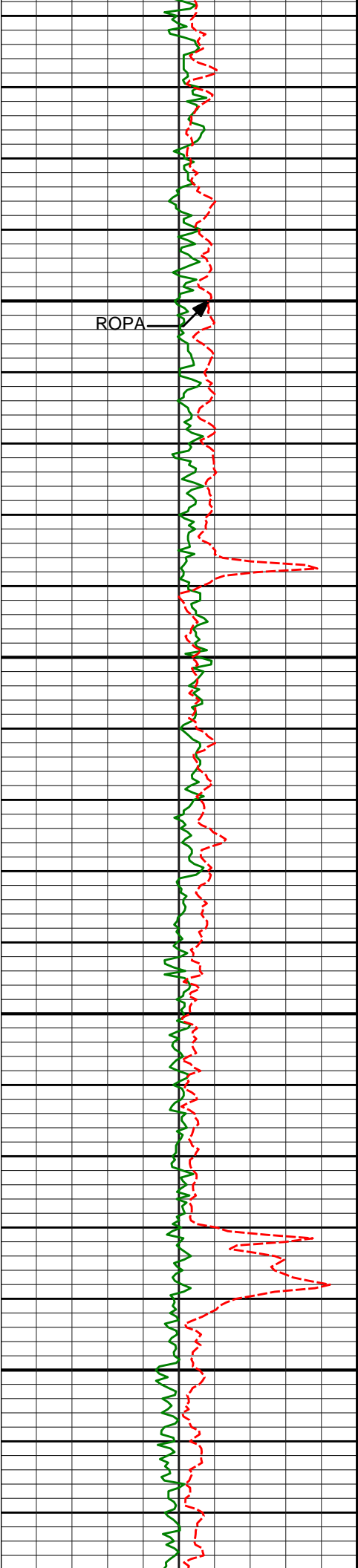
13092'

90.74°

2.39°

7175.45'

5815.36'



13200

ROPA

13250

13300

13350

13187'

91.45°

2.70°

7173.63'

5910.27'

13281'

91.42°

2.71°

7171.28'

6004.16'

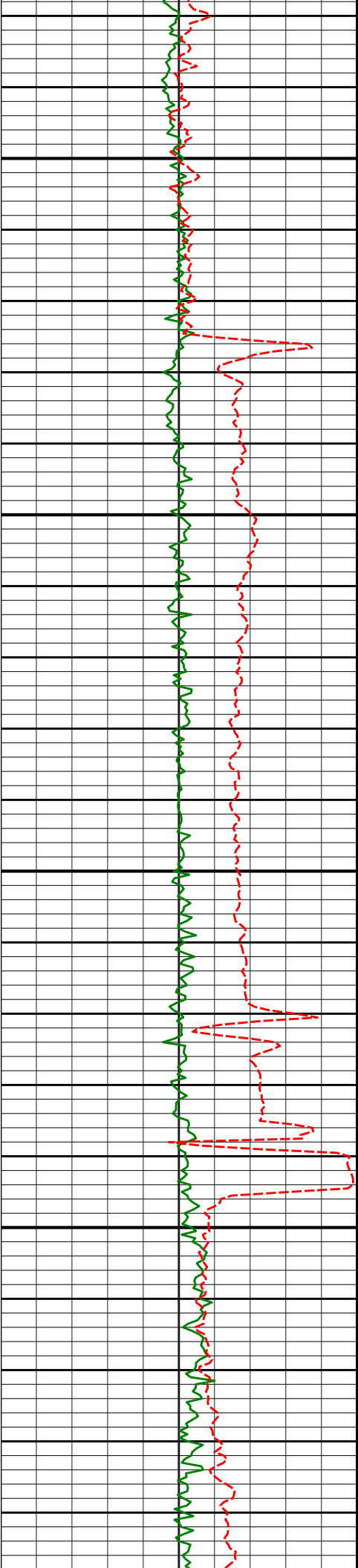
13376'

91.23°

2.44°

7169.08'

6099.06'



13400

13450

13500

13550

13470'

91.11°

2.36°

7167.16'

6192.98'

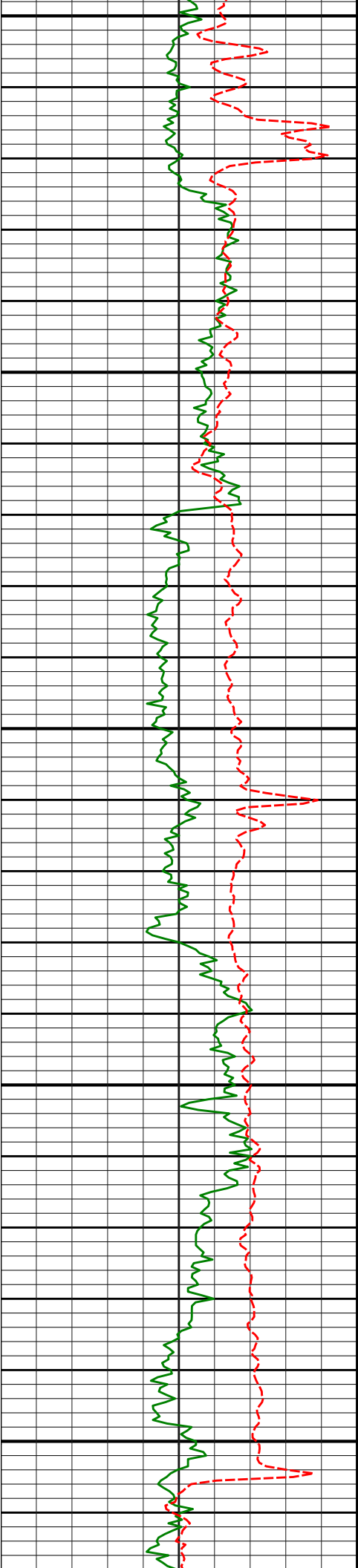
13565'

90.06°

3.53°

7166.19'

6287.87'



13600

13650

13700

13750

13800

13659'

89.54°

3.32°

7166.52'

6381.73'

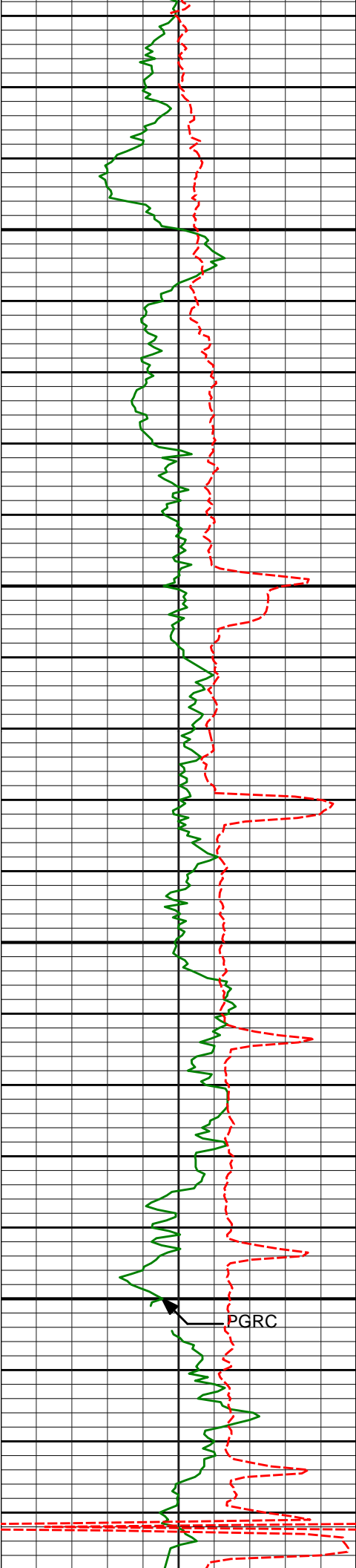
13754'

89.29°

3.40°

7167.49'

6476.60'



13850

13848'

88.77°

3.35°

7169.08'

6570.45'

13880'

88.37°

3.49°

7169.88'

6602.39'

13900

13911'

88.30°

3.18°

7170.78'

6633.34'

13943'

88.24°

3.35°

7171.75'

6665.28'

13950

13974'

87.81°

3.35°

7172.81'

6696.22'

14000

14006'

87.41°

3.30°

7174.15'

6728.15'

PGRC

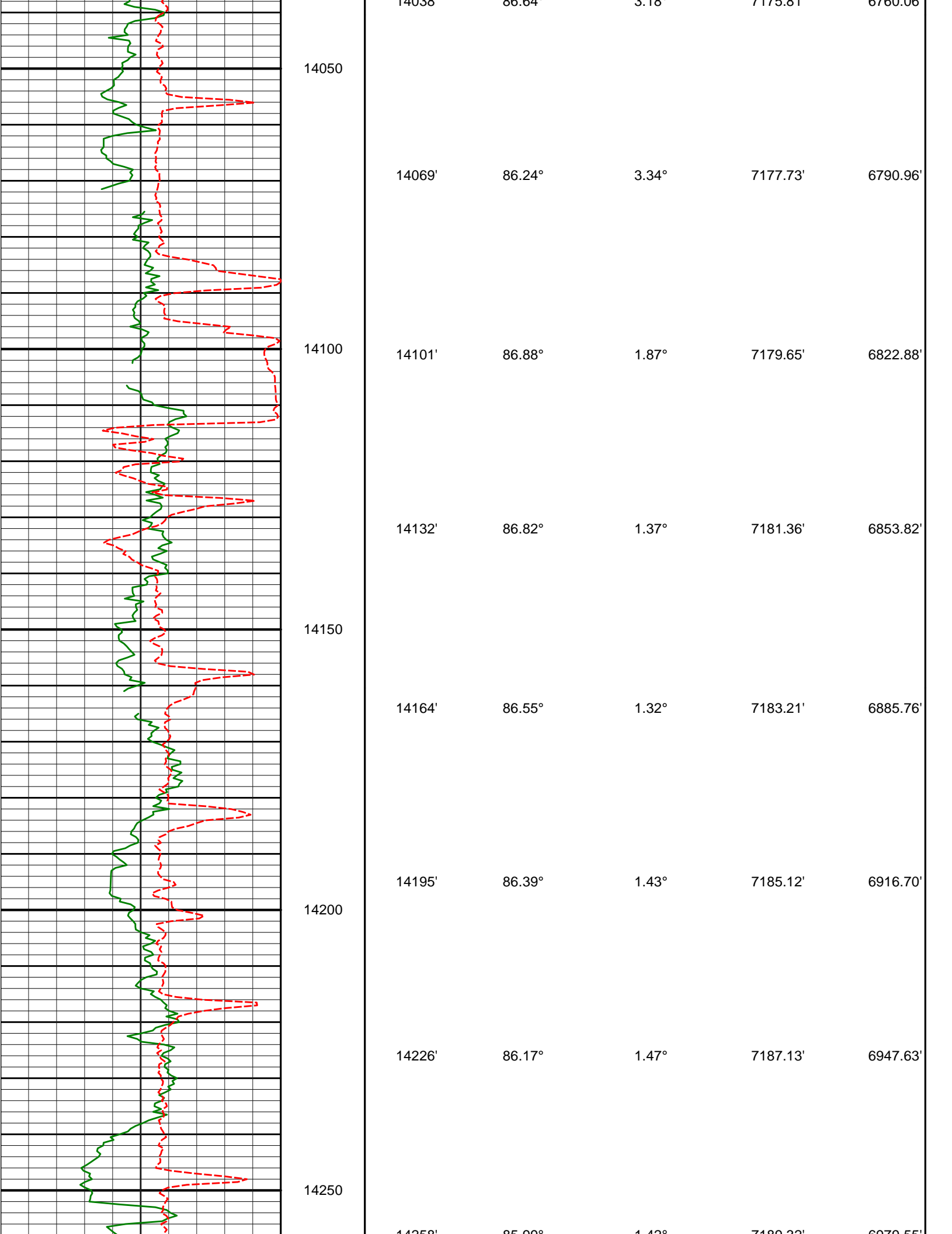
14028'

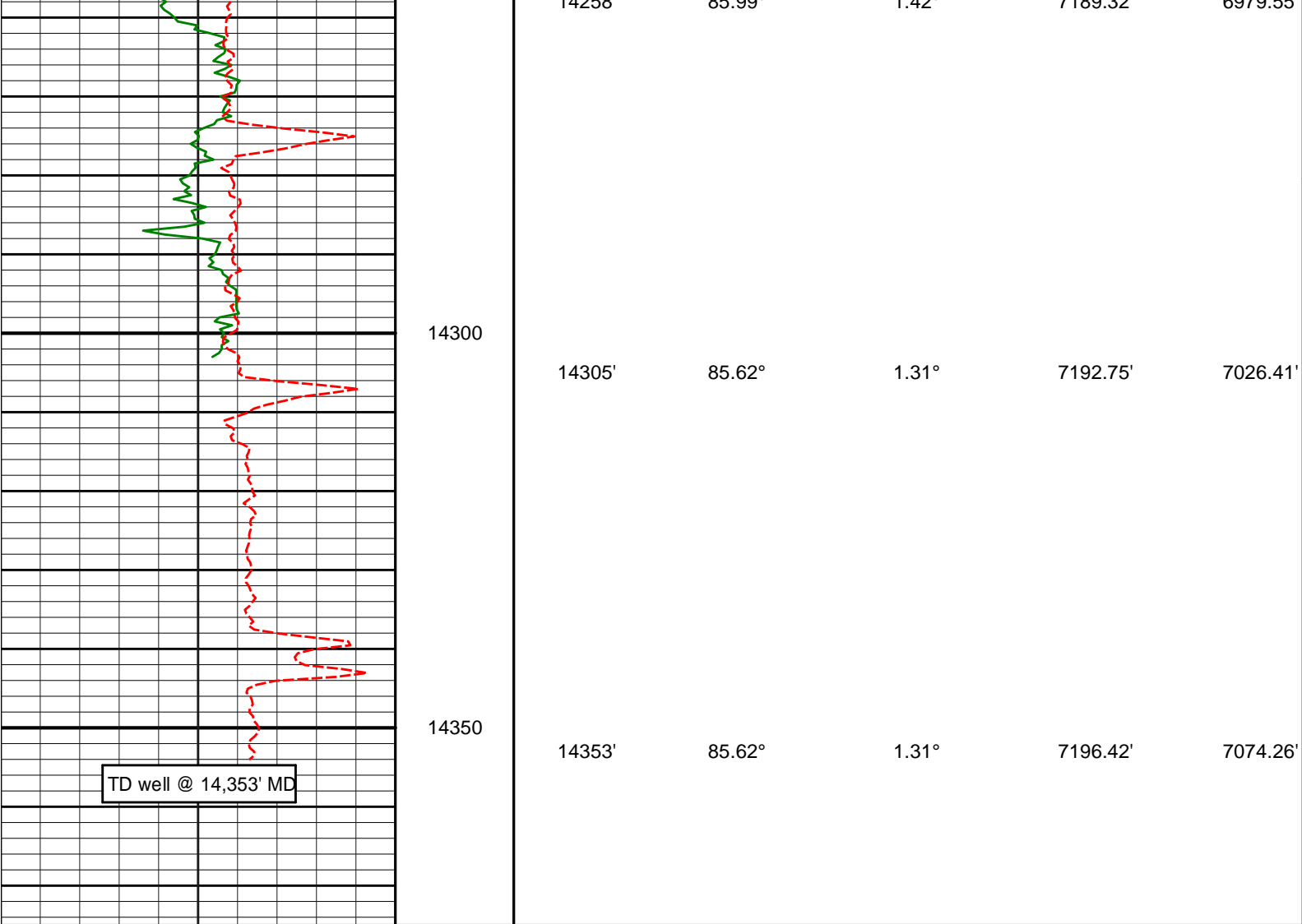
86.64°

3.18°

7175.81'

6760.06'





<div>Avg Rate of Penetration (ROPA) feet per hr</div> <div>5000</div>	<div>Depth ft 1 : 240</div>					
<div>PCG Gamma Ray (PGRC)</div> <div>0250</div>						

HALLIBURTON

Sperry Drilling

MD 1:240 Detail Log

HALLIBURTON

DIRECTIONAL SURVEY REPORT

DIRECTIONAL SURVEY REPORT
Anadarko Petroleum Corp.
Paragon 10N-31HZ
Wattenberg
Weld Colorado
USA
CA-XX-0901047704
Survey's tied on to surface gyro's.

<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>
1060.00	0.44	232.89	1059.98	3.31 S	2.88 W	-3.33	TIE-IN
1203.00	0.17	184.45	1202.98	3.85 S	3.33 W	-3.87	0.25
1296.00	0.10	32.32	1295.98	3.92 S	3.30 W	-3.94	0.28
1389.00	0.03	298.70	1388.98	3.84 S	3.28 W	-3.86	0.11
1483.00	0.29	267.28	1482.98	3.84 S	3.54 W	-3.86	0.28
1575.00	0.34	198.56	1574.98	4.11 S	3.86 W	-4.13	0.39
1669.00	0.24	244.25	1668.98	4.46 S	4.12 W	-4.48	0.26
1856.00	0.34	251.22	1855.97	4.81 S	5.00 W	-4.84	0.06
2041.00	0.61	258.86	2040.97	5.18 S	6.49 W	-5.21	0.15
2228.00	0.65	284.14	2227.96	5.11 S	8.49 W	-5.16	0.15
2414.00	1.04	333.07	2413.94	3.35 S	10.28 W	-3.40	0.42
2603.00	0.86	345.61	2602.91	0.44 S	11.41 W	-0.51	0.14
2792.00	0.65	351.55	2791.89	1.99 N	11.92 W	1.92	0.12
2981.00	0.56	327.29	2980.88	3.83 N	12.58 W	3.76	0.14
3170.00	0.88	356.26	3169.87	6.05 N	13.17 W	5.98	0.25
3358.00	0.81	6.26	3357.85	8.81 N	13.12 W	8.74	0.09
3547.00	0.14	215.93	3546.84	9.96 N	13.11 W	9.88	0.49
3737.00	2.78	230.44	3736.77	6.83 N	16.80 W	6.74	1.39
3926.00	2.17	170.18	3925.62	0.39 N	19.72 W	0.28	1.34
4114.00	3.61	161.61	4113.37	8.74 S	17.25 W	-8.83	0.80
4303.00	6.93	179.63	4301.56	25.79 S	15.30 W	-25.88	1.94
4492.00	9.14	176.76	4488.69	52.18 S	14.37 W	-52.26	1.19
4681.00	9.44	174.58	4675.22	82.60 S	12.06 W	-82.67	0.24
4870.00	10.67	177.09	4861.31	115.51 S	9.71 W	-115.56	0.69
5059.00	10.92	181.79	5046.97	150.87 S	9.38 W	-150.92	0.48
5248.00	9.94	177.66	5232.85	185.07 S	9.27 W	-185.12	0.65
5437.00	7.72	178.27	5419.60	214.06 S	8.22 W	-214.10	1.18
5626.00	4.71	169.06	5607.47	234.37 S	6.37 W	-234.40	1.67
5815.00	2.65	190.48	5796.08	246.29 S	5.69 W	-246.32	1.29
6003.00	0.60	174.38	5983.99	251.54 S	6.38 W	-251.57	1.11
6192.00	0.78	4.76	6172.99	251.24 S	6.18 W	-251.27	0.73
6381.00	0.68	354.57	6361.97	248.85 S	6.18 W	-248.88	0.09
6476.00	0.59	11.68	6456.96	247.81 S	6.13 W	-247.84	0.22
6570.00	0.63	32.56	6550.96	246.90 S	5.76 W	-246.92	0.24
6617.00	2.90	311.82	6597.94	245.89 S	6.51 W	-245.92	6.10
6664.00	7.09	336.83	6644.75	242.42 S	8.53 W	-242.47	9.84
6711.00	8.01	340.03	6691.35	236.68 S	10.79 W	-236.74	2.15
6759.00	10.28	335.33	6738.73	229.64 S	13.72 W	-229.72	4.97
6806.00	12.95	342.04	6784.77	220.82 S	17.10 W	-220.91	6.36
6853.00	17.10	343.68	6830.15	209.17 S	20.67 W	-209.29	8.88
6900.00	21.15	339.61	6874.55	194.59 S	25.56 W	-194.73	9.07
6948.00	25.76	334.61	6918.58	177.04 S	33.06 W	-177.22	10.45
6995.00	31.19	330.95	6959.88	157.15 S	43.36 W	-157.39	12.13
7042.00	36.91	330.15	6998.80	134.26 S	56.30 W	-134.57	12.21
7089.00	42.08	331.88	7035.06	108.11 S	70.76 W	-108.50	11.25
7140.00	45.62	331.77	7071.84	76.97 S	87.44 W	-77.45	6.94
7187.00	51.33	333.93	7102.98	45.66 S	103.46 W	-46.24	12.63
7234.00	55.29	340.32	7131.08	10.95 S	118.05 W	-11.61	13.77
7281.00	60.90	343.29	7155.91	26.94 N	130.47 W	26.21	13.08
7329.00	66.46	344.44	7177.19	68.25 N	142.41 W	67.46	11.78
7376.00	71.80	349.32	7193.93	111.00 N	152.34 W	110.15	14.94
7423.00	76.72	352.30	7206.68	155.64 N	159.55 W	154.75	12.12
7470.00	81.00	357.94	7215.77	201.56 N	163.45 W	200.64	14.88
7515.00	84.45	3.16	7221.47	246.17 N	163.01 W	245.26	13.83
7601.00	90.99	5.04	7224.89	331.83 N	156.87 W	330.95	7.91
7632.00	90.99	5.20	7224.35	362.70 N	154.10 W	361.84	0.52
7725.00	90.71	4.32	7222.97	455.37 N	146.39 W	454.55	0.99
7818.00	90.40	3.95	7222.07	548.13 N	139.68 W	547.34	0.52
7911.00	90.34	3.86	7221.47	640.91 N	133.35 W	640.15	0.12
8005.00	90.74	3.68	7220.59	734.70 N	127.17 W	733.98	0.47

8097.00	90.06	3.48	7219.94	826.52 N	121.42 W	825.83	0.77
8191.00	89.78	3.57	7220.08	920.34 N	115.64 W	919.68	0.31
8284.00	91.97	3.16	7218.66	1013.16 N	110.19 W	1012.53	2.40
8377.00	92.09	3.81	7215.36	1105.93 N	104.54 W	1105.33	0.71
8470.00	92.62	3.82	7211.54	1198.65 N	98.35 W	1198.08	0.57
8563.00	92.77	3.75	7207.17	1291.34 N	92.22 W	1290.81	0.18
8656.00	93.05	3.73	7202.45	1384.02 N	86.16 W	1383.52	0.30
8750.00	93.21	3.67	7197.31	1477.69 N	80.11 W	1477.22	0.18
8843.00	93.06	3.84	7192.23	1570.35 N	74.02 W	1569.91	0.24
8936.00	92.53	3.47	7187.69	1663.05 N	68.10 W	1662.64	0.69
9030.00	92.50	2.66	7183.57	1756.82 N	63.08 W	1756.44	0.86
9125.00	90.86	4.57	7180.78	1851.59 N	57.09 W	1851.24	2.65
9219.00	90.65	4.26	7179.54	1945.30 N	49.86 W	1944.99	0.40
9313.00	90.15	3.66	7178.89	2039.07 N	43.37 W	2038.80	0.83
9408.00	90.28	3.66	7178.53	2133.88 N	37.30 W	2133.64	0.14
9502.00	89.48	2.25	7178.73	2227.75 N	32.46 W	2227.53	1.72
9597.00	89.57	2.44	7179.52	2322.67 N	28.57 W	2322.47	0.22
9690.00	90.80	2.92	7179.21	2415.56 N	24.22 W	2415.39	1.42
9785.00	90.65	2.88	7178.01	2510.43 N	19.42 W	2510.28	0.16
9879.00	90.34	2.96	7177.20	2604.31 N	14.63 W	2604.18	0.34
9974.00	89.48	2.06	7177.35	2699.21 N	10.47 W	2699.11	1.31
10069.00	91.48	2.06	7176.55	2794.14 N	7.05 W	2794.06	2.11
10163.00	91.23	1.99	7174.33	2888.06 N	3.73 W	2887.99	0.28
10257.00	91.05	1.01	7172.46	2982.01 N	1.27 W	2981.95	1.06
10352.00	90.89	0.72	7170.85	3076.98 N	0.16 E	3076.94	0.35
10446.00	90.00	359.72	7170.12	3170.98 N	0.52 E	3170.93	1.42
10541.00	89.88	359.71	7170.22	3265.98 N	0.05 E	3265.93	0.13
10635.00	90.15	0.13	7170.20	3359.98 N	0.08 W	3359.92	0.53
10730.00	90.00	359.80	7170.07	3454.98 N	0.14 W	3454.92	0.38
10824.00	89.32	358.71	7170.63	3548.96 N	1.36 W	3548.90	1.37
10919.00	88.67	356.83	7172.30	3643.87 N	5.06 W	3643.79	2.09
11013.00	89.57	358.06	7173.74	3737.76 N	9.25 W	3737.66	1.62
11108.00	89.29	359.71	7174.69	3832.74 N	11.10 W	3832.62	1.76
11202.00	89.60	359.92	7175.60	3926.73 N	11.40 W	3926.61	0.40
11297.00	89.14	359.80	7176.64	4021.73 N	11.63 W	4021.60	0.50
11391.00	89.04	359.47	7178.13	4115.71 N	12.23 W	4115.58	0.37
11485.00	88.70	359.11	7179.99	4209.69 N	13.40 W	4209.55	0.53
11580.00	89.08	358.81	7181.83	4304.65 N	15.12 W	4304.50	0.51
11674.00	88.46	358.43	7183.85	4398.60 N	17.38 W	4398.44	0.77
11768.00	88.43	359.57	7186.40	4492.55 N	19.02 W	4492.38	1.21
11863.00	88.92	359.78	7188.59	4587.53 N	19.56 W	4587.35	0.56
11957.00	87.78	358.50	7191.30	4681.47 N	20.97 W	4681.28	1.82
12052.00	89.17	0.23	7193.83	4776.43 N	22.02 W	4776.23	2.34
12146.00	89.81	0.43	7194.67	4870.42 N	21.48 W	4870.23	0.71
12241.00	89.20	358.83	7195.49	4965.41 N	22.10 W	4965.21	1.80
12335.00	91.20	0.34	7195.16	5059.40 N	22.78 W	5059.20	2.67
12430.00	90.28	1.48	7193.93	5154.38 N	21.27 W	5154.18	1.54
12525.00	89.69	1.26	7193.96	5249.35 N	19.00 W	5249.16	0.66
12619.00	91.23	1.39	7193.20	5343.32 N	16.82 W	5343.14	1.64
12714.00	92.90	2.18	7189.78	5438.21 N	13.87 W	5438.05	1.94
12808.00	94.44	2.17	7183.76	5531.95 N	10.31 W	5531.80	1.64
12903.00	91.48	2.95	7178.86	5626.71 N	6.07 W	5626.59	3.22
12997.00	90.96	3.19	7176.86	5720.56 N	1.03 W	5720.46	0.61
13092.00	90.74	2.39	7175.45	5815.43 N	3.59 E	5815.36	0.87
13187.00	91.45	2.70	7173.63	5910.32 N	7.81 E	5910.27	0.82
13281.00	91.42	2.71	7171.28	6004.19 N	12.24 E	6004.16	0.03
13376.00	91.23	2.44	7169.08	6099.07 N	16.51 E	6099.06	0.35
13470.00	91.11	2.36	7167.16	6192.96 N	20.44 E	6192.98	0.15
13565.00	90.06	3.53	7166.19	6287.83 N	25.32 E	6287.87	1.65
13659.00	89.54	3.32	7166.52	6381.66 N	30.94 E	6381.73	0.60
13754.00	89.29	3.40	7167.49	6476.49 N	36.51 E	6476.60	0.28
13848.00	88.77	3.35	7169.08	6570.32 N	42.04 E	6570.45	0.56
13880.00	88.37	3.49	7169.88	6602.25 N	43.95 E	6602.39	1.32
13911.00	88.30	3.18	7170.78	6633.18 N	45.75 E	6633.34	1.02
13943.00	88.24	3.35	7171.75	6665.12 N	47.57 E	6665.28	0.56
13974.00	87.81	3.35	7172.81	6696.05 N	49.38 E	6696.22	1.39
14006.00	87.41	3.30	7174.15	6727.96 N	51.24 E	6728.15	1.26
14038.00	86.64	3.18	7175.81	6759.87 N	53.04 E	6760.06	2.44
14069.00	86.24	3.34	7177.73	6790.76 N	54.80 E	6790.96	1.39
14101.00	86.88	1.87	7179.65	6822.67 N	56.26 E	6822.88	5.00
14132.00	86.82	1.37	7181.36	6853.61 N	57.13 E	6853.82	1.62

14164.00	86.55	1.32	7183.21	6885.55 N	57.88 E	6885.76	0.86
14195.00	86.39	1.43	7185.12	6916.48 N	58.62 E	6916.70	0.63
14226.00	86.17	1.47	7187.13	6947.40 N	59.41 E	6947.63	0.72
14258.00	85.99	1.42	7189.32	6979.32 N	60.21 E	6979.55	0.58
14305.00	85.62	1.31	7192.75	7026.18 N	61.33 E	7026.41	0.82
14353.00	85.62	1.31	7196.42	7074.03 N	62.42 E	7074.26	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 0.32 DEGREES (TRUE)
A TOTAL CORRECTION OF 8.49 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 14353.00 FEET
IS 7074.30 FEET ALONG 0.51 DEGREES (TRUE)**

Final survey is a straight line projection to bit.

Date Printed:05 February 2014