



WELL INFORMATION					
MWD Run Number	100	200	300	400	
Date run completed	11-May-12	12-May-12	15-May-12	16-May-12	
Rig Bit Number	2	3	4	5	
Bit Size (in)	8.750	8.750	6.125	6.125	
Tool Nominal OD (in)	6.750	6.750	4.850	4.850	
Log Start Depth (MD, ft)	585.00	5,927.00	6,956.00	10,450.00	
Log End Depth (MD, ft)	5,927.00	6,956.00	10,450.00	10,986.00	
Drill or Wipe	Drill	Drill	Drill	Drill	
Drill/Wipe Start Date and Time	09-May-12 17:00	11-May-12 02:06	13-May-12 18:30	15-May-12 23:45	
Drill/Wipe End Date and Time	11-May-12 00:30	12-May-12 03:45	15-May-12 02:00	16-May-12 07:15	
Min Inc (deg) @ Depth (MD, ft)	.62 @ 5,559.00	3.10 @ 5,893.00	84.97 @ 6,984.00	87.44 @ 10,986.00	
Max Inc (deg) @ Depth (MD, ft)	17.57 @ 2,410.00	81.94 @ 6,901.00	93.24 @ 7,652.00	91.14 @ 10,514.00	
Bit TFA(in2) / Bit Type	.75 / PDC	.75 / PDC	.46 / PDC	.46 / PDC	
Flow Rate (gpm)	570.00	576.00	270.00	270.00	
Max AV (fpm) / CV (fpm) @ MWD	411.0 / NA	417.0 / NA	429.0 / NA	432.0 / NA	
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel	
Density (ppg) / Viscosity (spqt)	8.60 / 27.00	9.80 / 33.00	9.50 / 32.00	9.70 / 33.00	
Filtrate CL (ppm)	2,300.00	1,900.00	2,000.00	2,000.00	
pH / Fluid Loss (mptm)	8.80 / NA	9.50 / NA	10.10 / NA	9.50 / NA	
PV (cP) / YP (lbf2)	1 / 4.00	7 / 8.00	8 / 6.00	9 / 10.00	
% Solids / % Sand	3.70 / 0.25	6.20 / 0.50	5.70 / 0.25	8.20 / 0.25	
% Oil / Oil:Water Ratio	0 / 0:96.0	0 / 0:88	0 / 0:92.5	0 / 0:91.5	
Rm @ Measured Temp (degF)	NA @ NA	NA @ NA	NA @ NA	NA @ NA	
Rmf @ Measured Temp (degF)	NA @ NA	NA @ NA	NA @ NA	NA @ NA	
Rmc @ Measured Temp (degF)	NA @ NA	NA @ NA	NA @ NA	NA @ NA	
Max Tool Temp (deg F) / S	458.48 / PDM	478.70 / PDM	338.71 / PDM	338.71 / PDM	

Max Tool Temp (degF) / Source	156.13 / PCM	172.78 / PCM	228.74 / PCM	228.74 / PCM	
Rm @ Max Tool Temp (degF)	NA @ NA	NA @ NA	NA @ NA	NA @ NA	
Lead MWD Engineer	Gary Eifert	Gary Eifert	Gary Eifert	Gary Eifert	
Customer Representative	Johnny Sanchez	Johnny Sanchez	Johnny Sanchez	Johnny Sanchez	

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM	PCM	
Software Version	5.76	5.76	5.76	5.76	
Sub Serial Number	11341347	11341347	11297891	11297891	
Insert Serial Number	11400855	11226936	11226936	11226936	
Date and Time Initialized	18-Apr-12 20:04	11-May-12 03:58	22-Apr-12 10:26	22-Apr-12 10:26	
Date and Time Read	11-May-12 09:32	12-May-12 12:15	16-May-12 16:18	16-May-12 16:31	
ECMB SW Version	N/A	N/A	N/A	N/A	

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC	PCDC	
Distance From Bit (ft)	56.00	55.00	60.00	60.00	
Software Version	6.21	6.21	6.21	6.21	
Sub Serial Number	11341347	11341347	11297891	11297891	
Sonde Serial Number	11833220	11297574	11297574	11297574	
Sensor ID Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	165.00	189.33	348.68	173.56	

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG	PCG	
Distance From Bit (ft)	49.03	47.71	53.15	52.65	
Recorded Sample Period (sec)	10	10	10	10	
Software Version	8.15	8.15	8.15	8.15	
Sub Serial Number	11341347	11341347	11297891	11297891	
Insert/Sonde Serial Number	11292594	11121362	11121362	11121362	

REMARKS

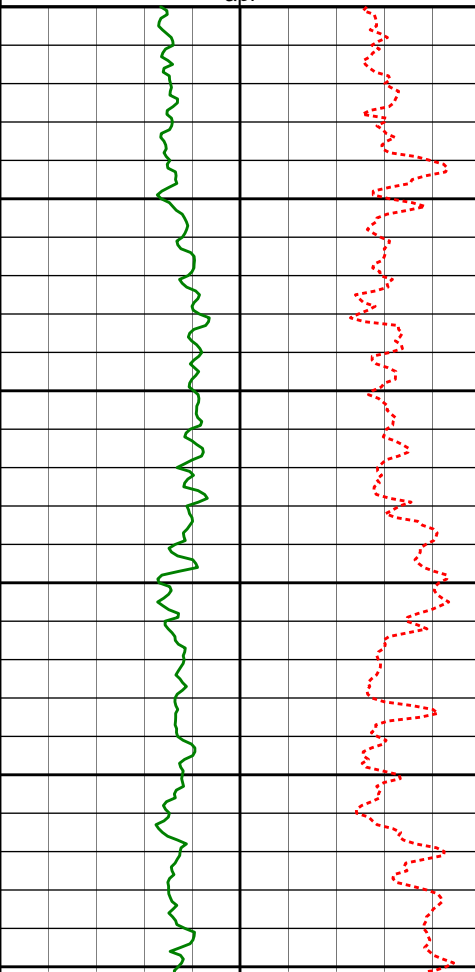
1. All depths are measured bit depths, referenced to the Driller's pipe tally and are measured from the Drill Floor, unless otherwise specified.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annual velocities are calculated using the "Power Law" model for water based fluids and the "Bingham Plastic" model for oil and synthetic based fluids.
4. All data presented is recorded data unless otherwise specified.
5. The following smoothing parameters have been applied to the data:
PGRC (Corrected Gamma Ray):
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft
ROPA (Average Rate of Penetration)
Interval Resolution: 0.5 ft
Interval Distance: 1.2 ft
Gap Fill: 3.0 ft
6. INSITE version 7.3.40

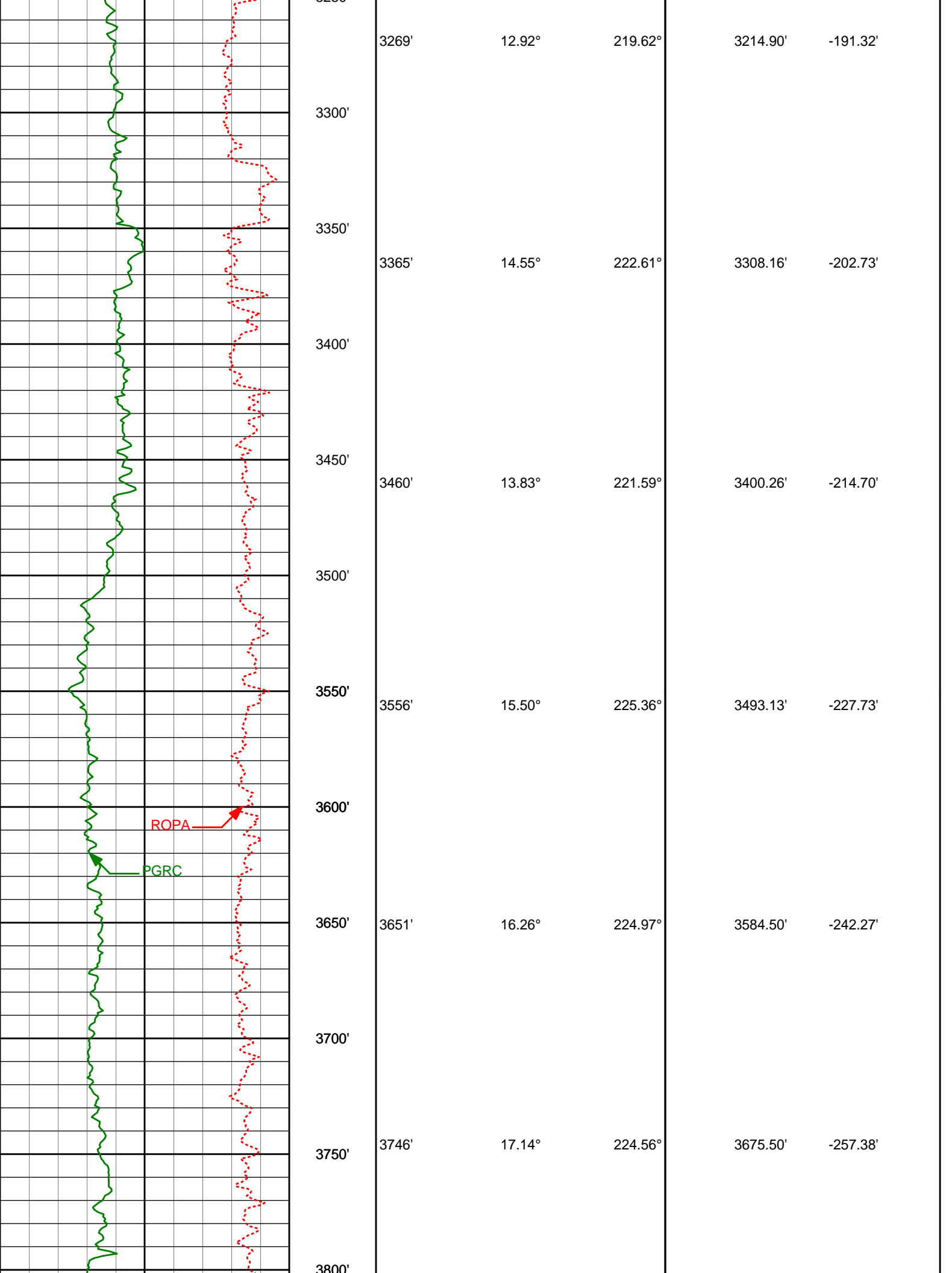
WARRANTY

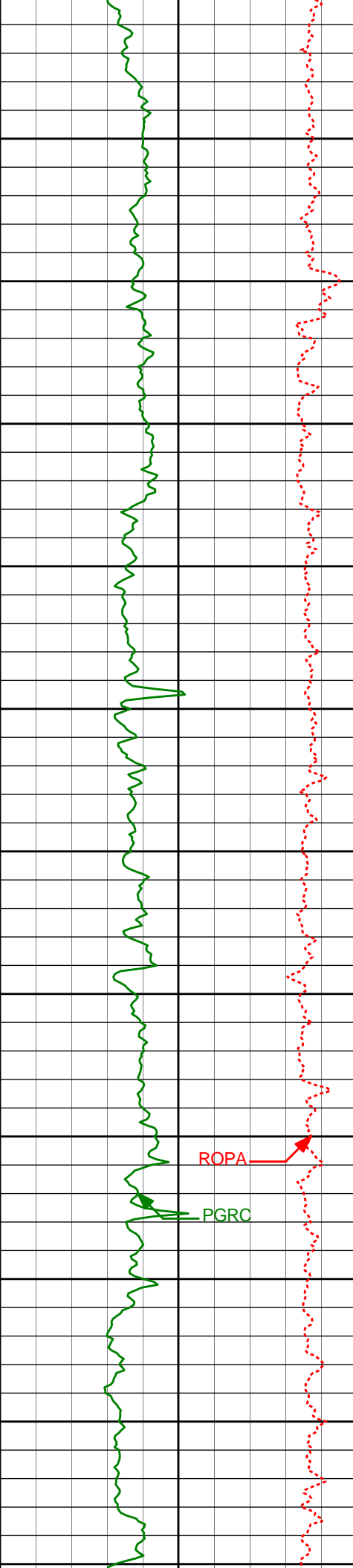
HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES 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 FOR ALL DRILLING, COMPLETION AND PRODUCTION OPERATION. HALLIBURTON MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON.

HALLIBURTON

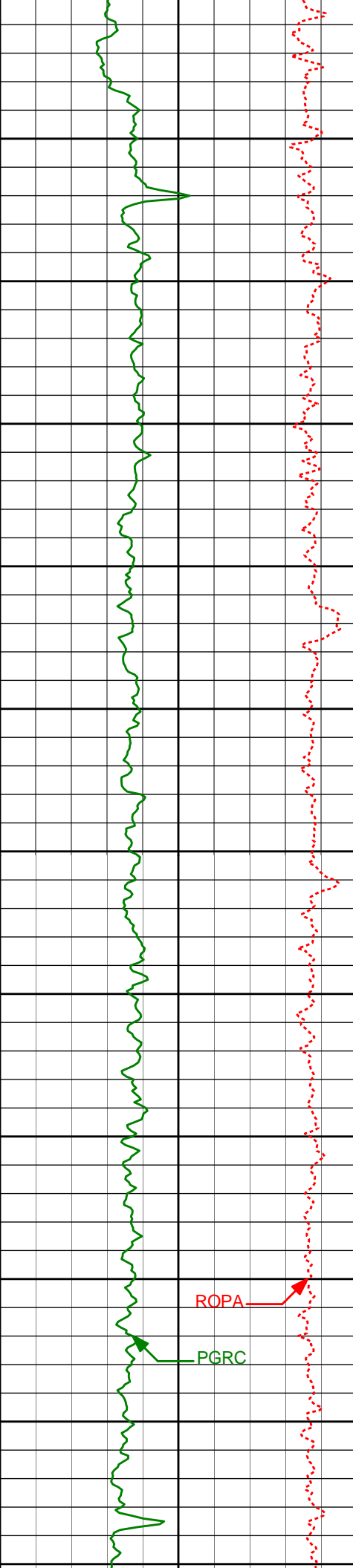
MD Main Log 1:600

Average Rate of Penetration ROPA 1K0 feet per hr						
Gamma Ray PGRC 0200 api		Measured Depth (ft) 1:600	Depth	Inc	Azi.	TVDV.S.
		3000'				
		3050'				
		3079'		11.95°	213.85°	3029.58'-173.43'
		3100'				
		3150'				
		3174'		13.05°	216.03°	3122.33'-181.74'
		3200'				
		3250'				

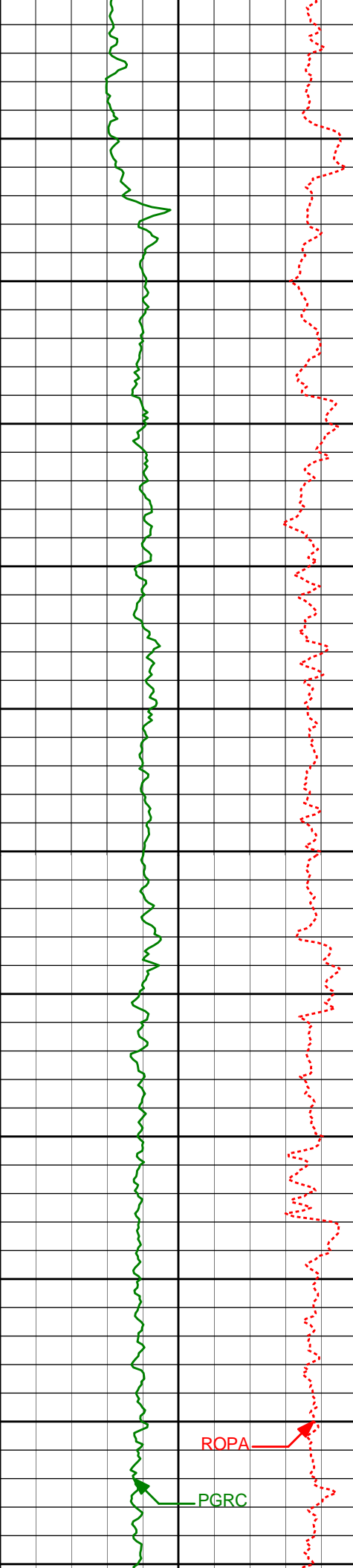




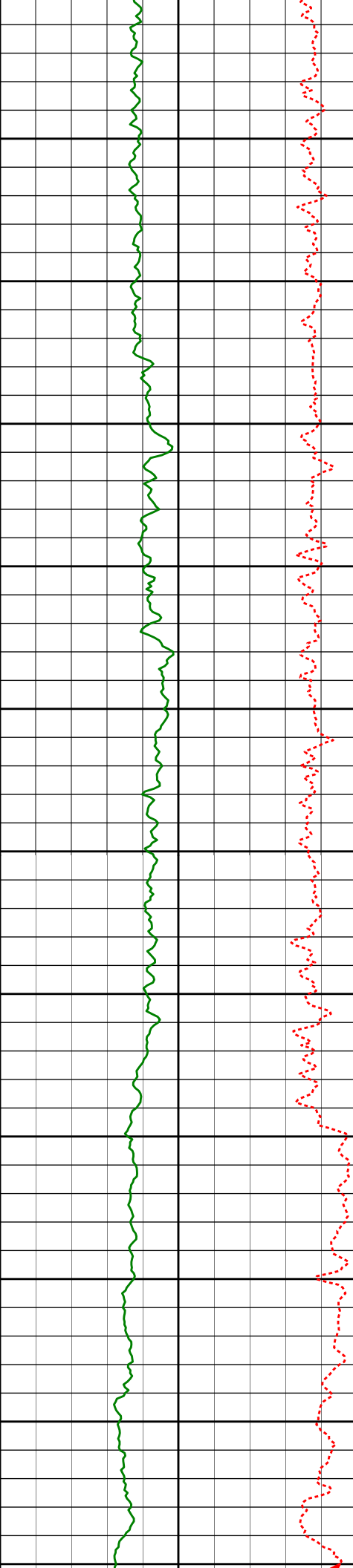
3850'	3841'	17.51°	224.68°	3766.18'	-272.99'
3900'					
3950'	3937'	15.81°	218.67°	3858.16'	-287.01'
4000'					
4050'	4032'	15.72°	217.62°	3949.58'	-298.73'
4100'					
4150'	4127'	14.89°	220.44°	4041.21'	-310.44'
4200'					
4250'	4223'	14.38°	219.72°	4134.09'	-322.18'
4300'					
4350'	4318'	13.96°	222.52°	4226.20'	-333.79'



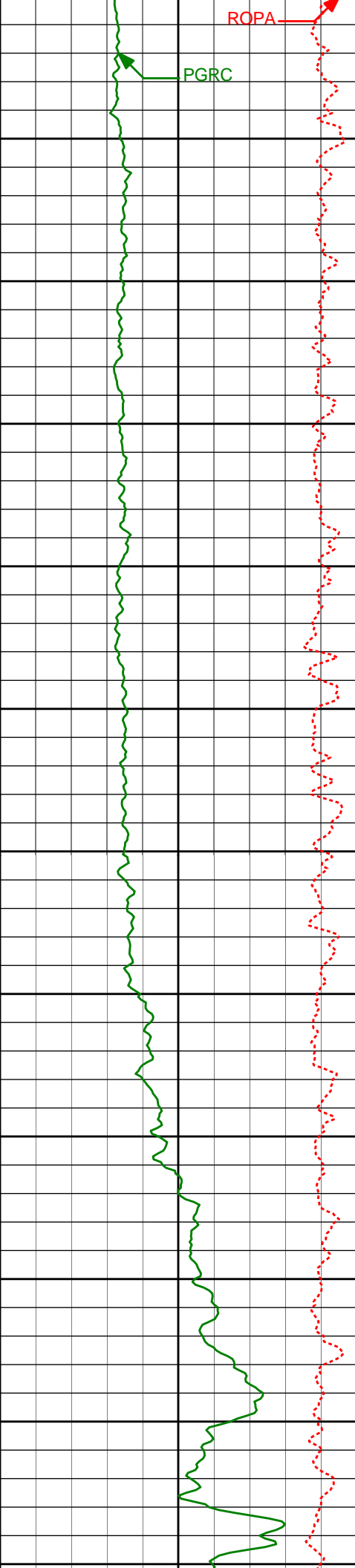
4400'				
4413'	13.87°	221.91°	4318.42'	-345.58'
4450'				
4500'	12.52°	220.23°	4411.88'	-356.52'
4550'				
4600'	12.53°	218.86°	4504.62'	-366.32'
4650'				
4700'	12.25°	221.51°	4598.38'	-376.31'
4750'				
4795'	11.21°	224.00°	4691.40'	-386.42'
4850'				
4891'	10.89°	227.09°	4785.62'	-396.81'
4900'				



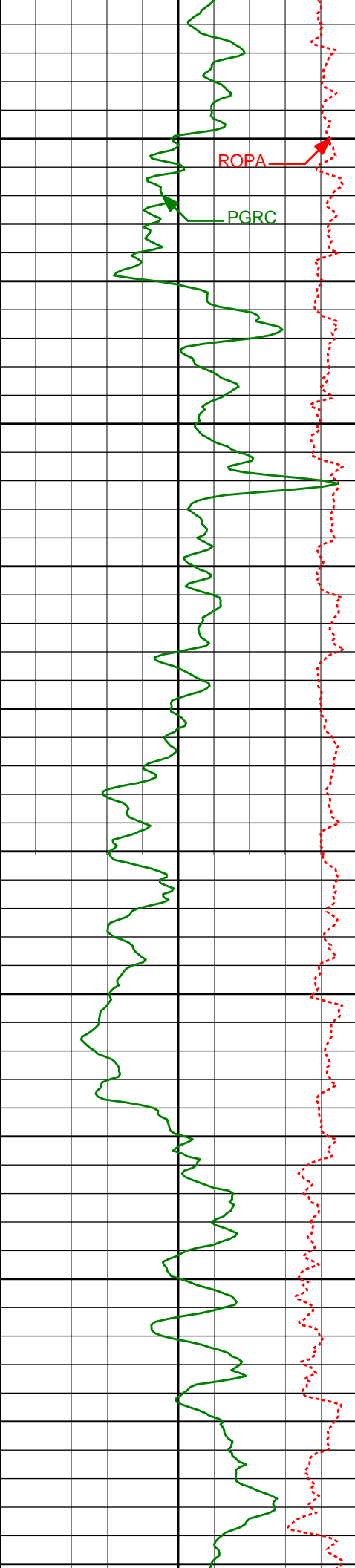
4900'				
4950'				
4986'	9.34°	217.30°	4879.14'	-405.47'
5000'				
5050'				
5082'	6.10°	208.84°	4974.26'	-410.46'
5100'				
5150'				
5177'	5.27°	212.85°	5068.80'	-413.61'
5200'				
5250'				
5272'	2.47°	198.82°	5163.57'	-415.50'
5300'				
5350'				
5367'	0.73°	179.41°	5258.53'	-415.65'
5400'				
5450'				



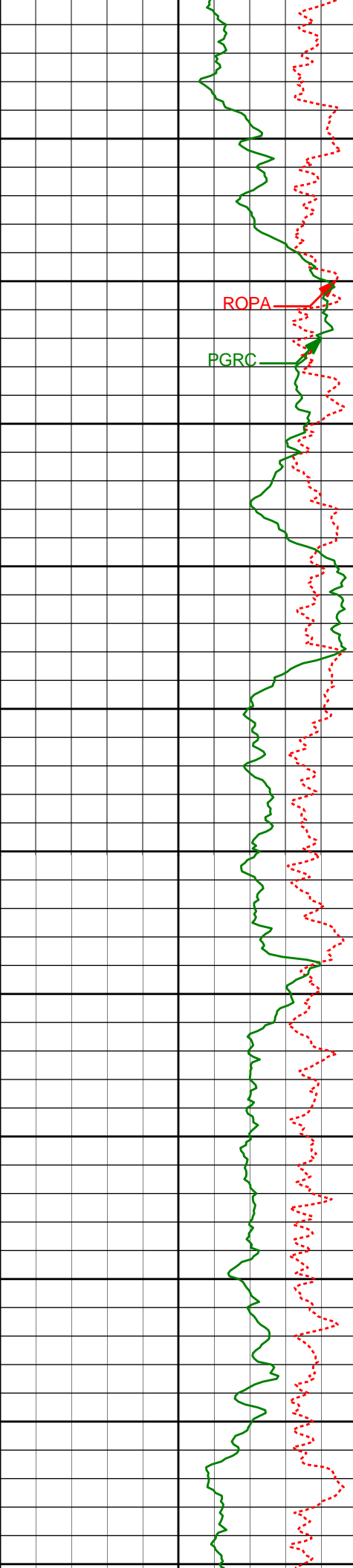
5463'	0.81°	148.75°	5354.52'	-415.06'
5500'				
5550'				
5559'	0.62°	148.64°	5450.51'	-414.25'
5600'				
5650'				
5654'	1.00°	148.52°	5545.50'	-413.34'
5700'				
5750'				
5749'	1.10°	146.89°	5640.49'	-412.14'
5800'				
5794'	1.15°	142.13°	5685.48'	-411.50'
5850'				
5846'	1.54°	118.79°	5737.47'	-410.44'
5900'				
5893'	3.10°	101.93°	5784.43'	-408.57'
<Run 200>				
5941'	6.72°	85.69°	5832.24'	-404.56'
5950'				
5989'	9.25°	82.55°	5879.78'	-398.20'
6000'				



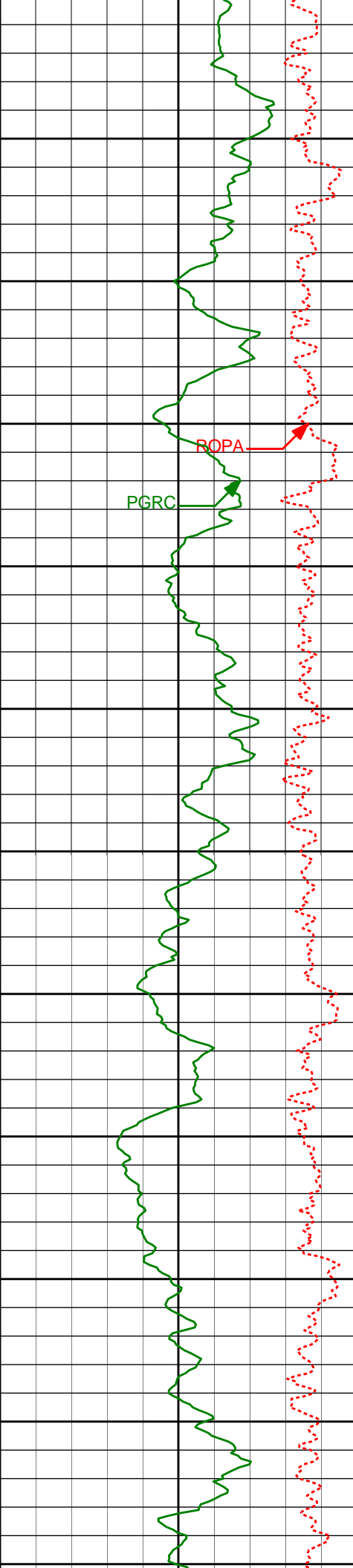
6036'	11.35°	92.47°	5926.02'	-390.04'
6050'				
6084'	14.33°	98.15°	5972.82'	-379.44'
6100'				
6132'	18.01°	97.30°	6018.91'	-366.10'
6150'				
6180'	21.26°	96.98°	6064.11'	-350.02'
6200'				
6228'	24.42°	95.32°	6108.35'	-331.46'
6250'				
6276'	27.91°	92.54°	6151.42'	-310.48'
6300'				
6323'	31.29°	93.12°	6192.28'	-287.51'
6350'				
6371'	35.70°	94.09°	6232.30'	-261.25'
6400'				
6418'	40.33°	95.34°	6269.32'	-232.50'
6450'				
6466'	45.16°	94.23°	6304.56'	-200.13'
6500'				
6514'	50.94°	93.12°	6336.63'	-164.75'
6550'				



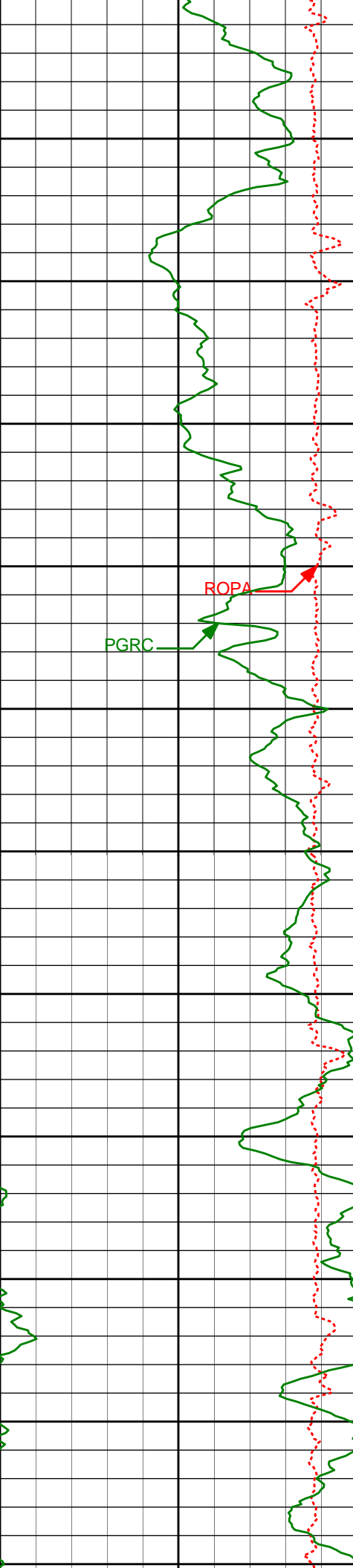
6550'	6562'	56.45°	93.04°	6365.04'	-126.47'
6600'	6609'	60.95°	90.05°	6389.46'	-86.89'
6650'	6657'	64.24°	90.31°	6411.55'	-45.06'
6700'	6705'	67.60°	91.00°	6431.13'	-1.98'
6750'	6753'	70.90°	91.68°	6448.13'	42.25'
6800'	6800'	73.29°	92.23°	6462.58'	86.39'
6850'	6848'	77.26°	91.85°	6474.77'	132.22'
6900'	6896' 6901'	81.48° 81.94°	92.55° 92.91°	6483.63' 6484.35'	178.81' 183.71'
6950'	Casing Set @ MD 6946'				
<Run 300>					
7000'	6984'	84.97°	95.22°	6493.81'	265.52'
7050'					
7100'	7079'	85.51°	94.64°	6501.70'	359.63'



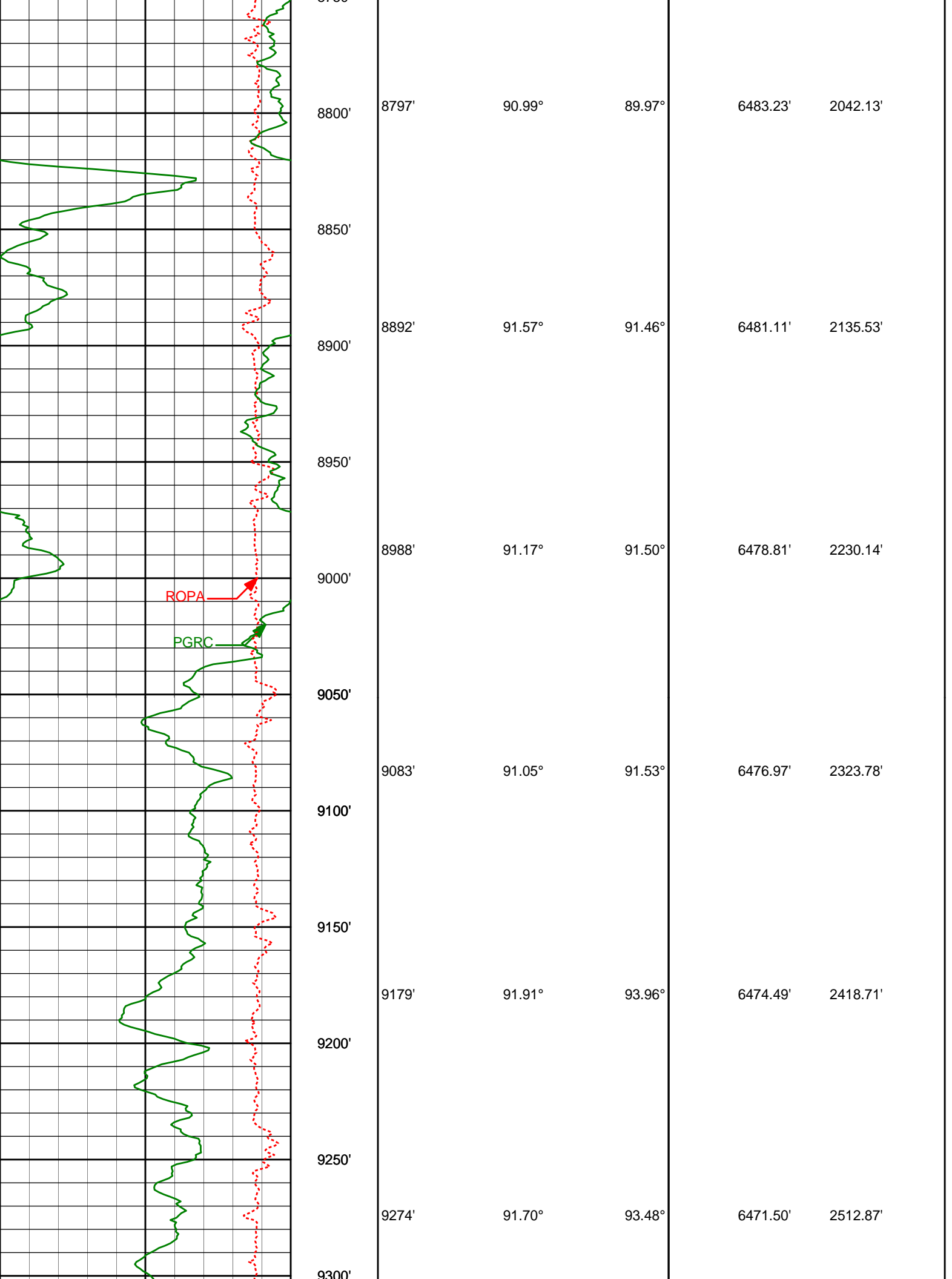
7100'				
7150'				
7174'	87.04°	92.08°	6507.87'	453.55'
7200'				
7220'				
7250'				
7270'	88.40°	91.58°	6511.69'	548.20'
7300'				
7350'				
7365'	92.06°	91.77°	6511.31'	641.89'
7400'				
7450'				
7461'	92.50°	89.76°	6507.49'	736.24'
7500'				
7550'				
7556'	91.97°	91.40°	6503.78'	829.55'
7600'				
7650'				

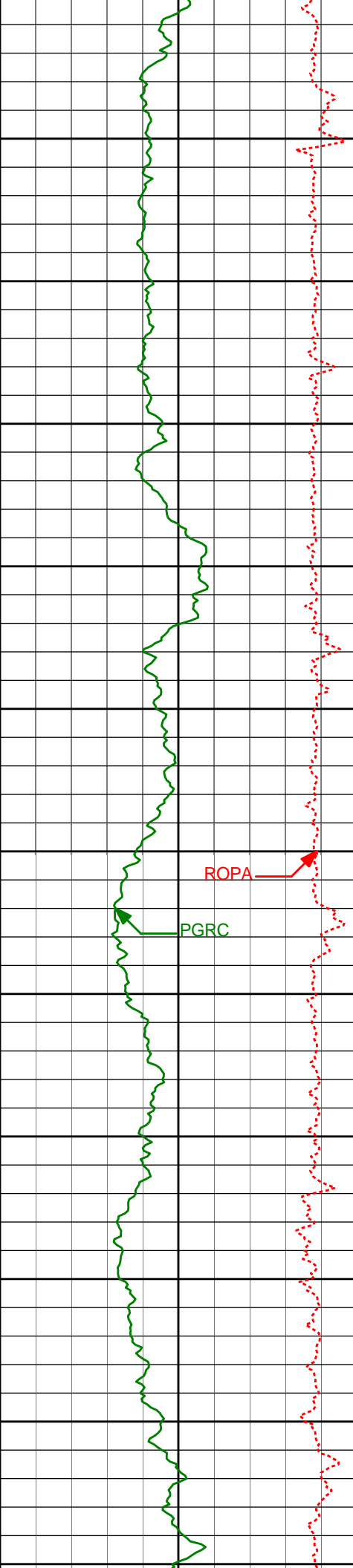


7650'	7652'	93.24°	85.75°	6499.42'	923.11'
7700'					
7750'	7747'	92.47°	88.86°	6494.69'	1015.22'
7800'					
7850'	7843'	91.70°	89.00°	6491.20'	1108.99'
7900'					
7950'	7938'	92.34°	88.56°	6487.86'	1201.72'
8000'					
8050'	8033'	91.36°	88.18°	6484.80'	1294.32'
8100'					
8150'	8129'	91.29°	87.72°	6482.58'	1387.76'
8200'					

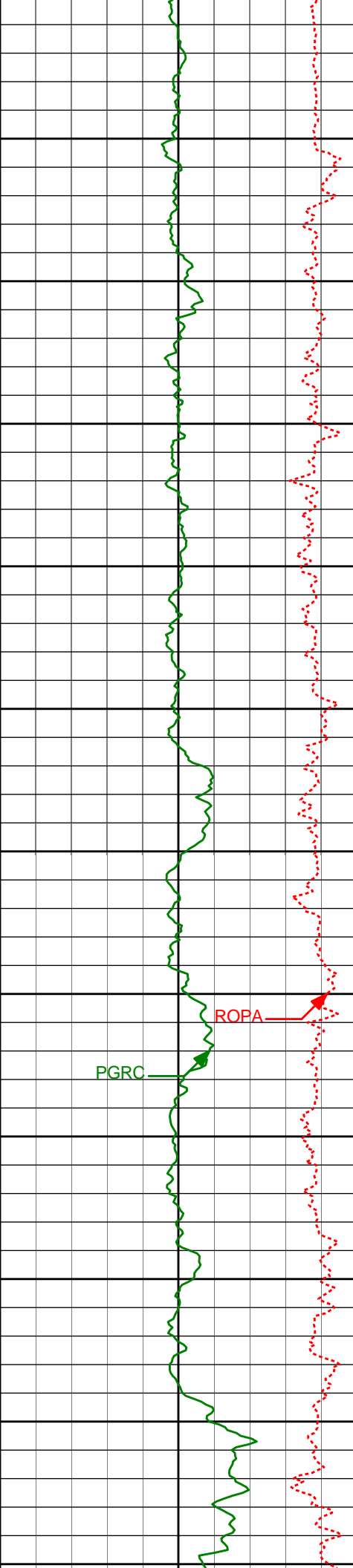


8224'	90.86°	88.53°	6480.79'	1480.30'
8250'				
8300'				
8320'	89.38°	88.76°	6480.59'	1574.02'
8350'				
8400'				
8415'	88.12°	89.85°	6482.66'	1666.97'
8450'				
8500'				
8510'	89.54°	89.25°	6484.60'	1760.00'
8550'				
8600'				
8606'	90.71°	90.54°	6484.39'	1854.15'
8650'				
8700'				
8701'	89.85°	91.67°	6483.93'	1947.70'
8750'				

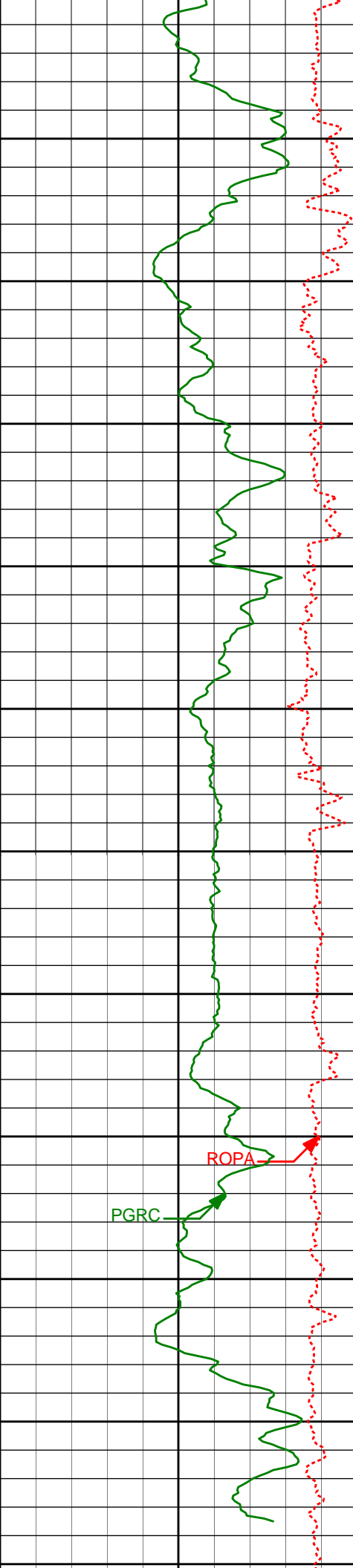




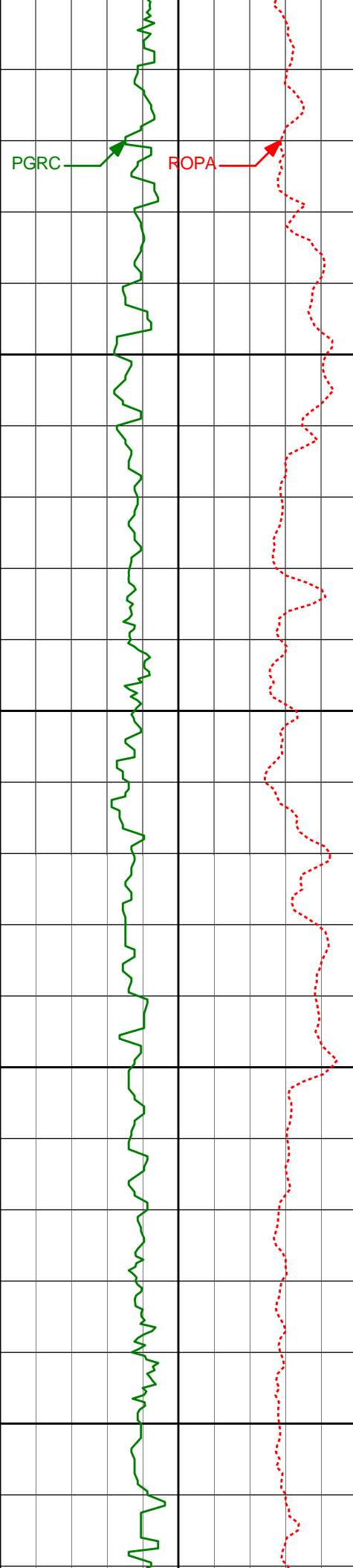
9350'				
	9370'	89.91°	93.28°	6470.16' 2607.97'
9400'				
9450'				
	9465'	91.79°	91.86°	6468.75' 2701.89'
9500'				
9550'				
	9561'	90.15°	92.92°	6467.13' 2796.75'
9600'				
9650'	9656'	89.66°	93.01°	6467.28' 2890.78'
9700'				
9750'	9752'	90.99°	93.31°	6466.74' 2985.85'
9800'				
9850'	9847'	91.48°	92.23°	6464.70' 3079.81'



9900'				
9942'	90.86°	90.66°	6462.76'	3173.43'
9950'				
10000'				
10038'	90.25°	90.41°	6461.83'	3267.78'
10050'				
10100'				
10133'	88.80°	90.58°	6462.62'	3361.14'
10150'				
10200'				
10227'	88.30°	89.57°	6465.00'	3453.35'
10250'				
10275'	90.00°	90.56°	6465.71'	3500.45'
10300'				
10323'	90.86°	91.40°	6465.35'	3547.70'
10350'				
10390'	92.43°	92.36°	6463.42'	3613.79'
10400'				



10418'	93.12°	93.31°	6462.06'	3641.46'
10450'	<Run 400>			
10500'				
10514'	91.14°	92.74°	6458.50'	3736.43'
10550'				
10600'				
10609'	90.12°	92.63°	6457.45'	3830.39'
10650'				
10700'				
10705'	88.98°	92.44°	6458.20'	3925.30'
10750'				
10800'	88.12°	91.20°	6460.60'	4019.01'
10850'				
10900'	87.81°	90.37°	6464.01'	4113.38'
10926'	87.44°	90.15°	6465.25'	4142.82'
10950'				



3100'

3150'

3200'

3250'

3300'

3174'

13.05°

216.03°

3122.33'

-181.74'

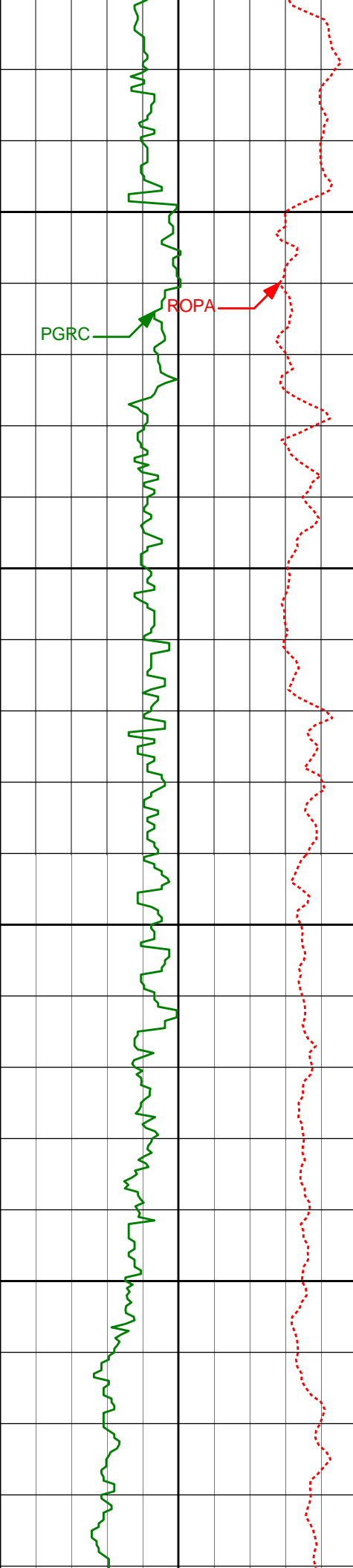
3269'

12.92°

219.62°

3214.90'

-191.32'



3350'

3400'

3450'

3500'

3365'

14.55°

222.61°

3308.16'

-202.73'

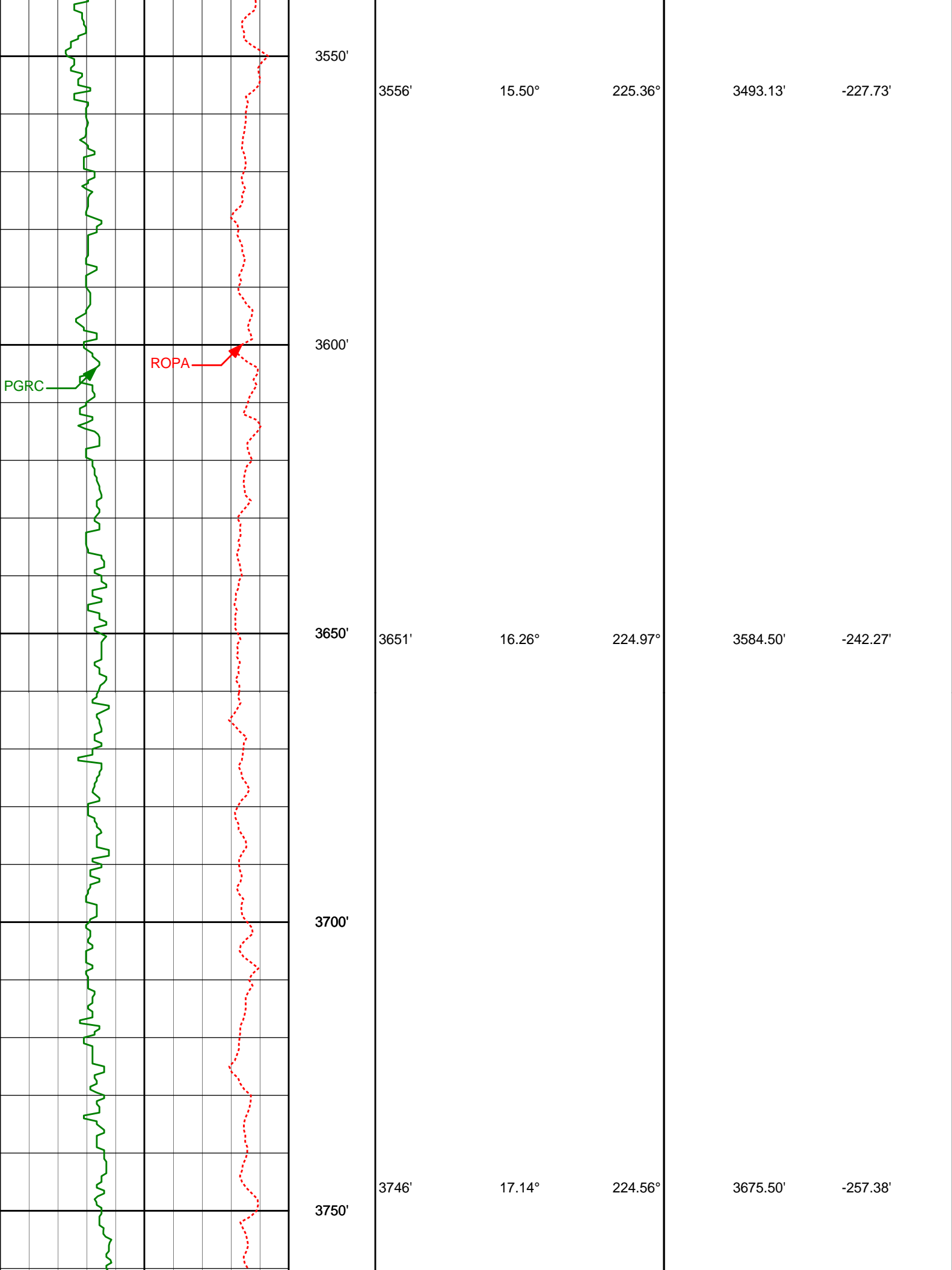
3460'

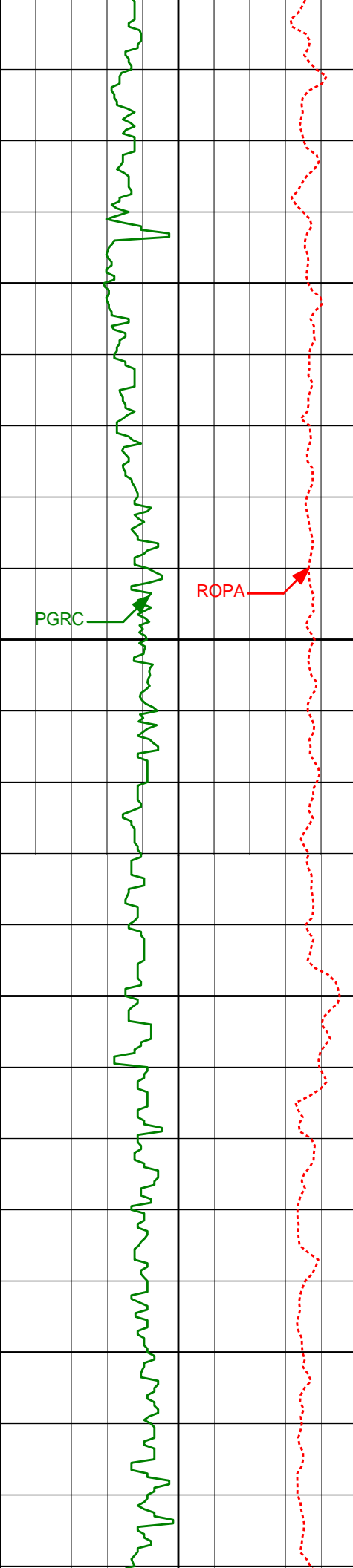
13.83°

221.59°

3400.26'

-214.70'





3800'

3850'

3900'

3950'

3841'

17.51°

224.68°

3766.18'

-272.99'

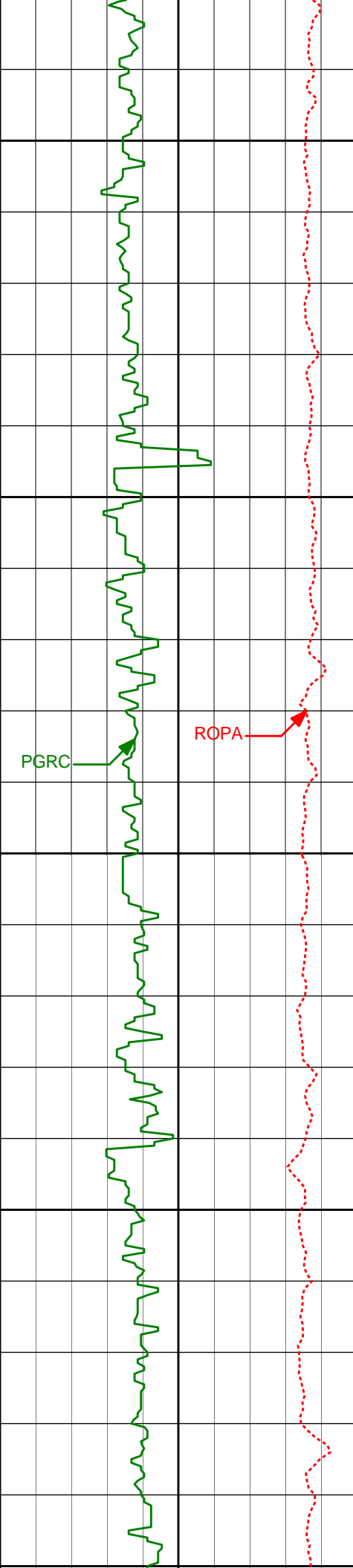
3937'

15.81°

218.67°

3858.16'

-287.01'



4000'

4032'

15.72°

217.62°

3949.58'

-298.73'

4050'

PGRC

ROPA

4100'

4127'

14.89°

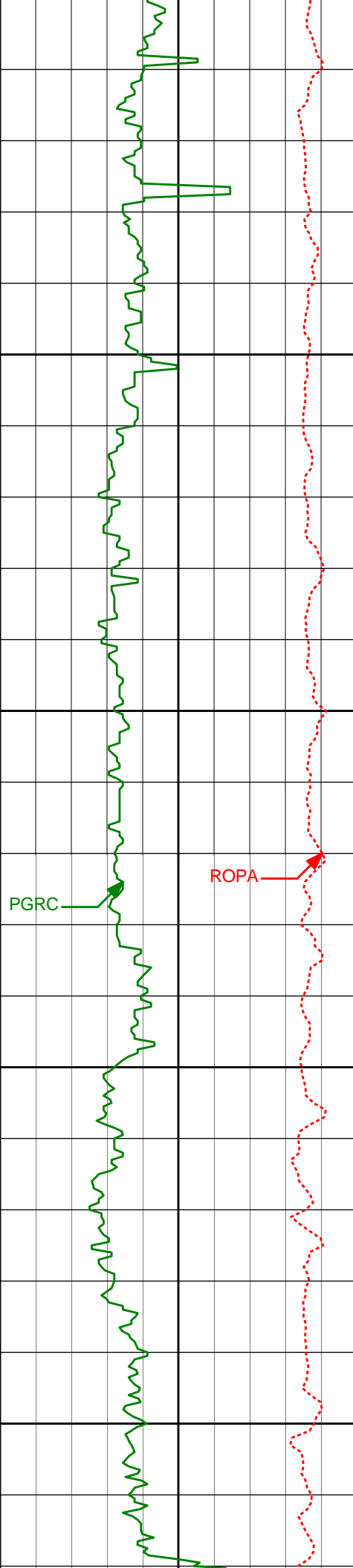
220.44°

4041.21'

-310.44'

4150'

4200'



4200'

4250'

4300'

4350'

4400'

4223'

14.38°

219.72°

4134.09'

-322.18'

4318'

13.96°

222.52°

4226.20'

-333.79'

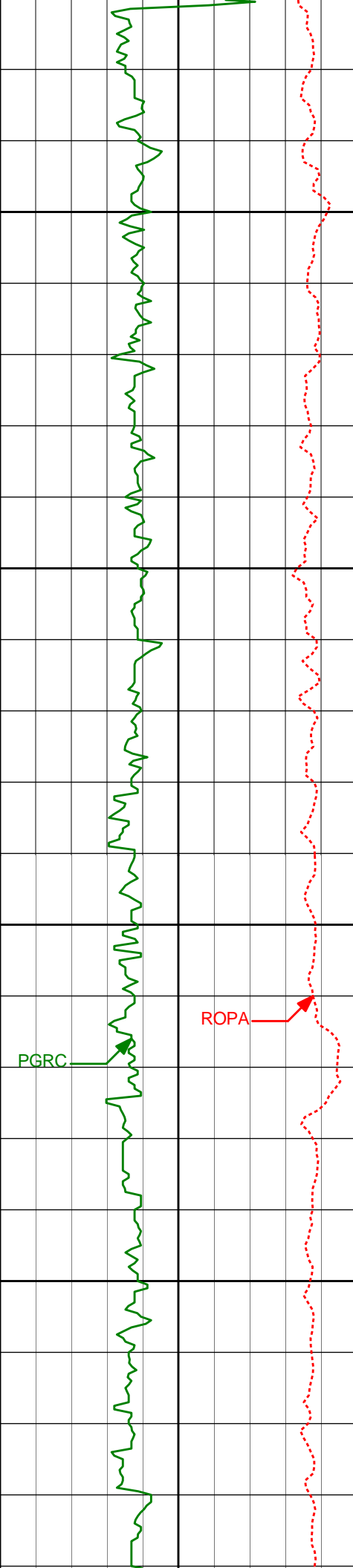
4413'

13.87°

221.91°

4318.42'

-345.58'



4450'

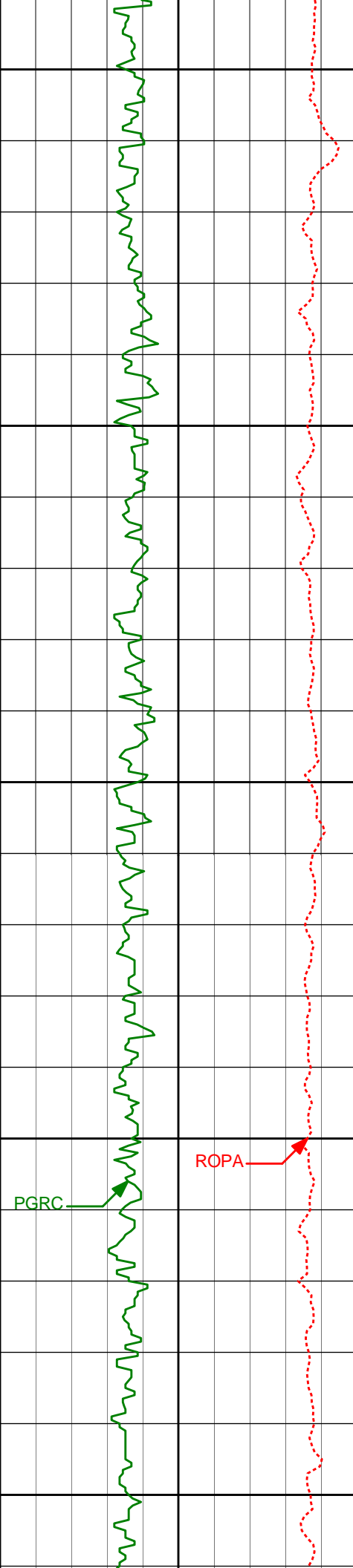
4500'

4550'

4600'

4509'	12.52°	220.23°	4411.88'	-356.52'
-------	--------	---------	----------	----------

4604'	12.53°	218.86°	4504.62'	-366.32'
-------	--------	---------	----------	----------



4650'

4700'

4750'

4800'

4850'

4700'

4795'

12.25°

11.21°

221.51°

224.00°

4598.38'

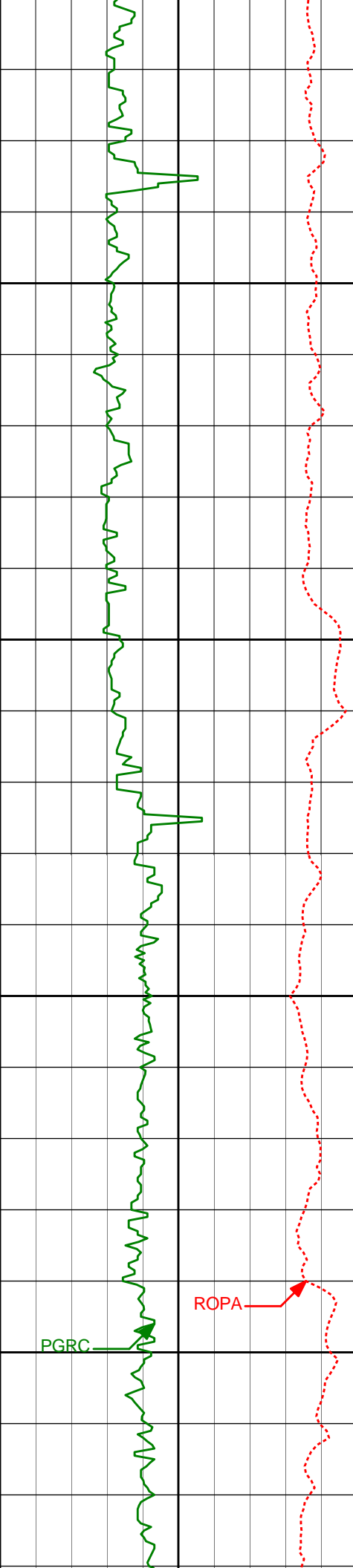
4691.40'

-376.31'

-386.42'

ROPA

PGRC



4891'	10.89°	227.09°	4785.62'	-396.81'
-------	--------	---------	----------	----------

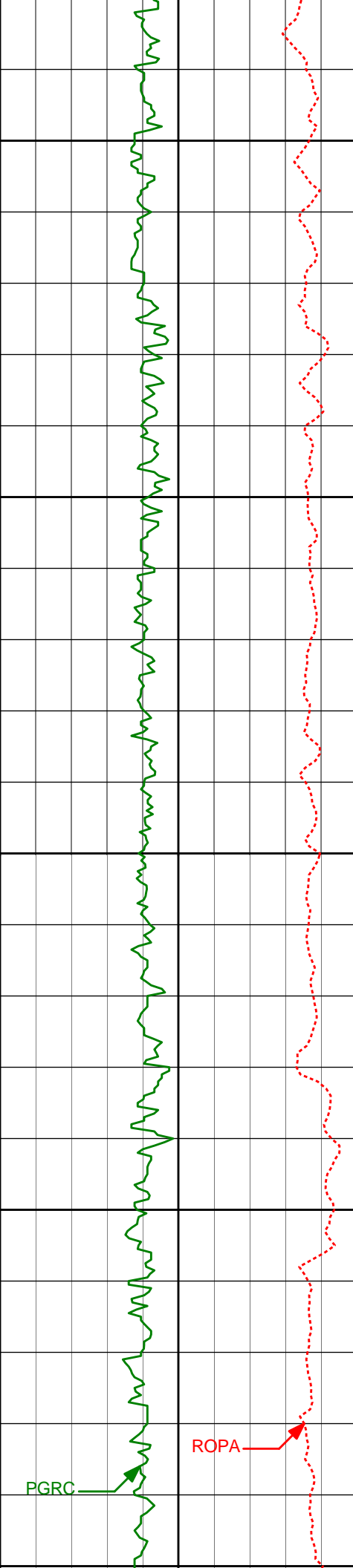
4900'

4950'

4986'	9.34°	217.30°	4879.14'	-405.47'
-------	-------	---------	----------	----------

5000'

5050'



5100'

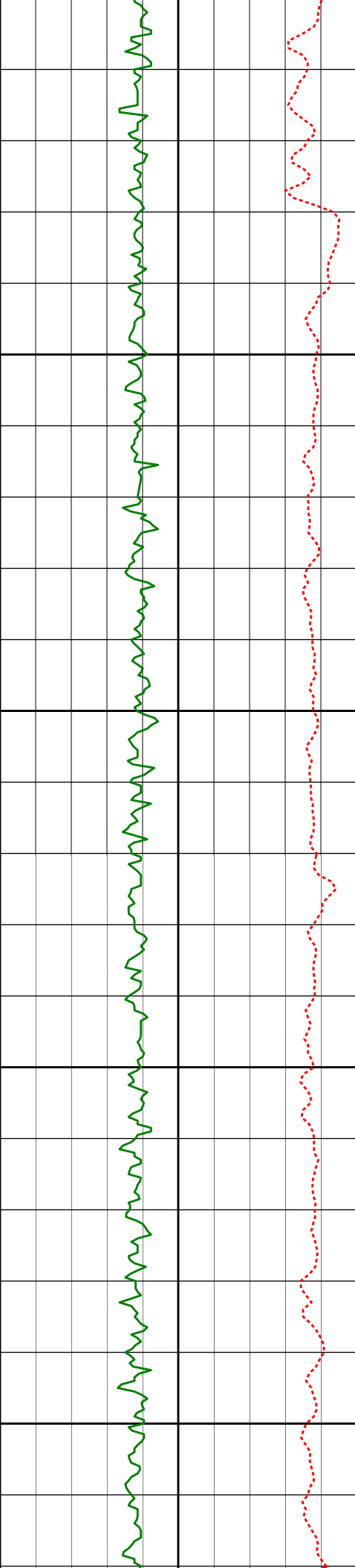
5150'

5200'

5250'

5300'

5082'	6.10°	208.84°	4974.26'	-410.46'
5177'	5.27°	212.85°	5068.80'	-413.61'
5272'	2.47°	198.82°	5163.57'	-415.50'



5350'

5400'

5450'

5500'

5367'

0.73°

179.41°

5258.53'

-415.65'

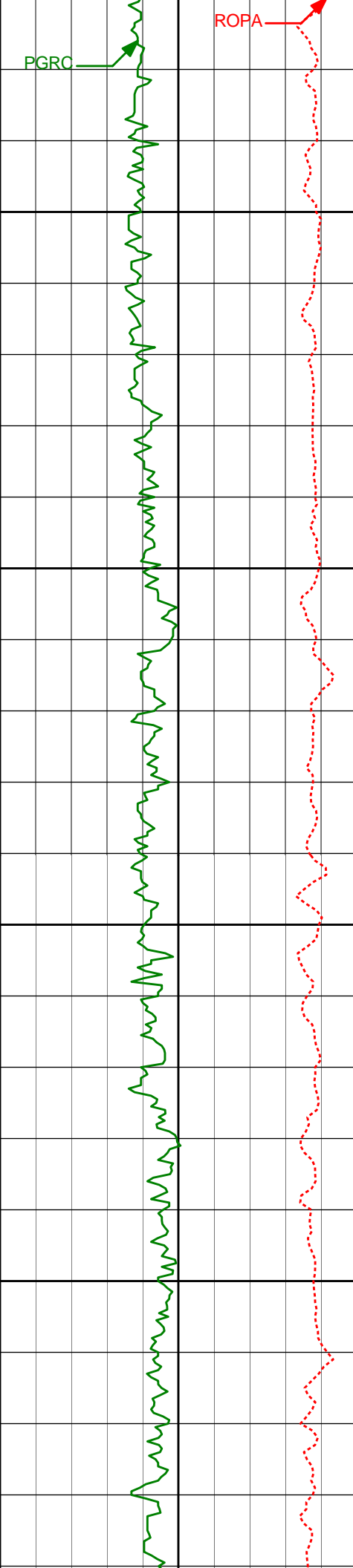
5463'

0.81°

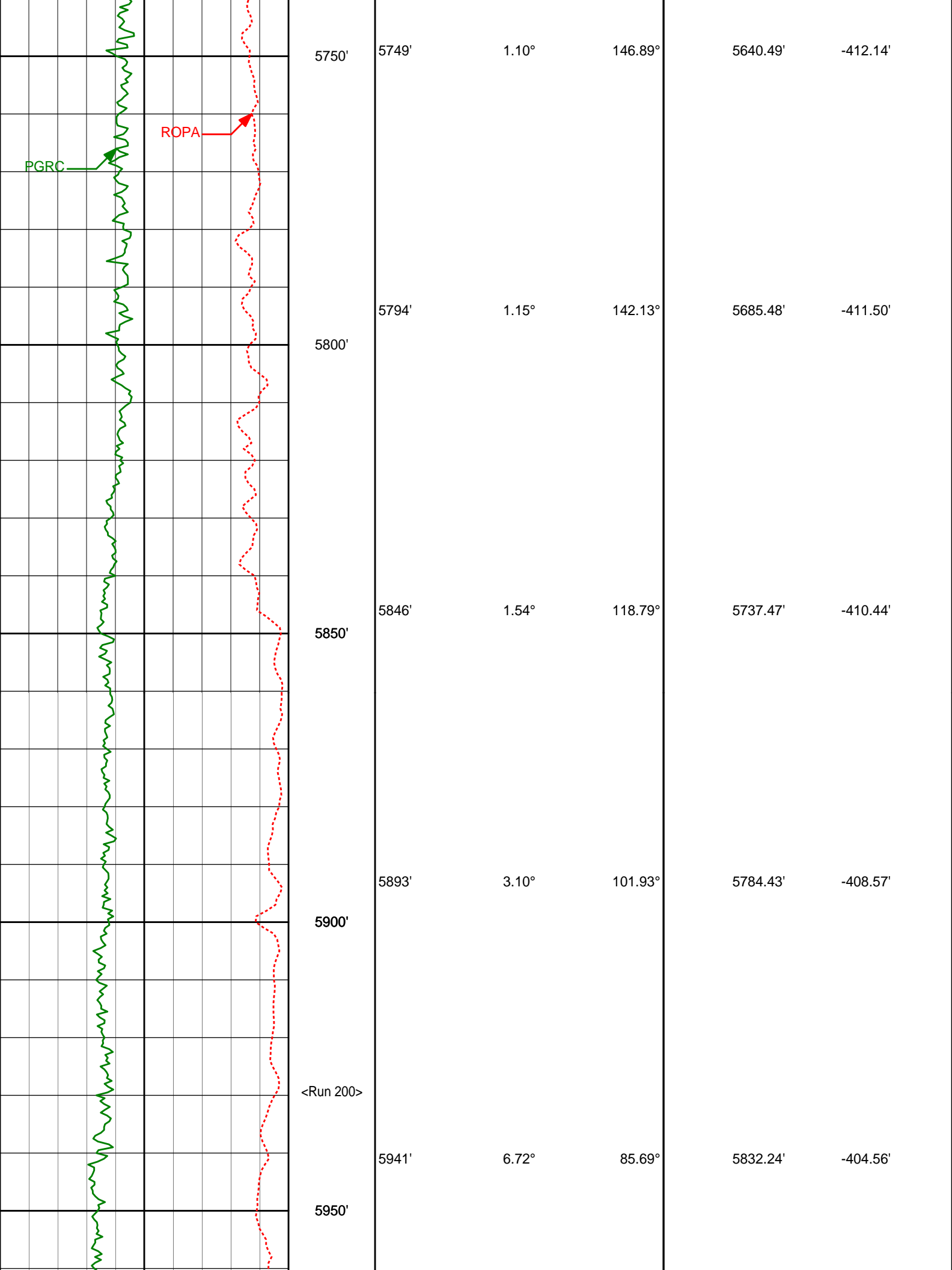
148.75°

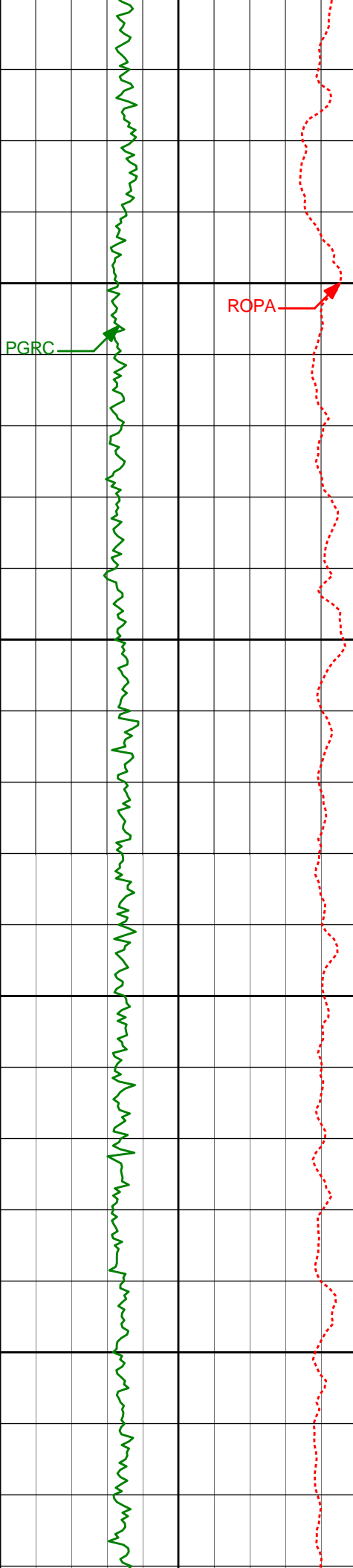
5354.52'

-415.06'



5559'	0.62°	148.64°	5450.51'	-414.25'
5654'	1.00°	148.52°	5545.50'	-413.34'





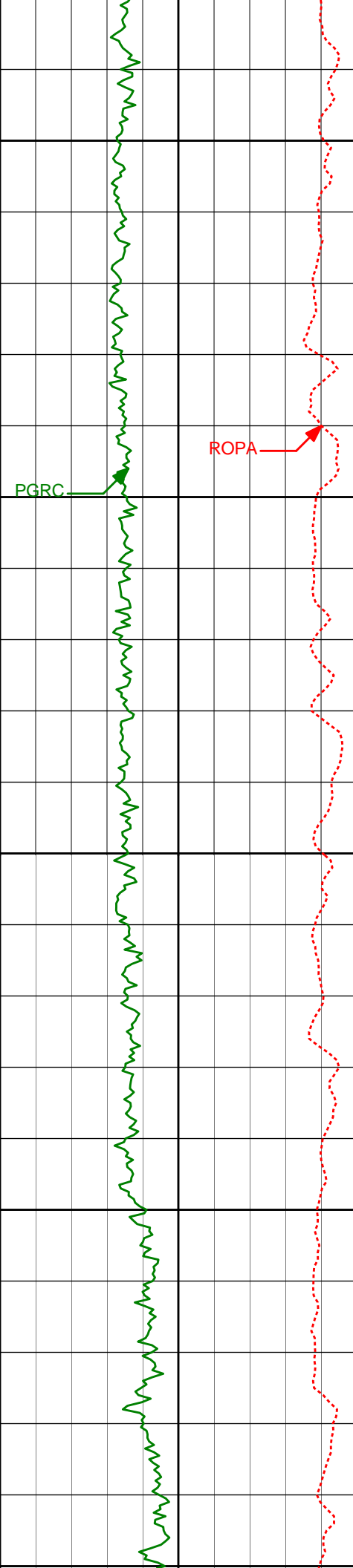
6000'

6050'

6100'

6150'

5989'	9.25°	82.55°	5879.78'	-398.20'
6036'	11.35°	92.47°	5926.02'	-390.04'
6084'	14.33°	98.15°	5972.82'	-379.44'
6132'	18.01°	97.30°	6018.91'	-366.10'
6180'	21.26°	96.98°	6064.11'	-350.02'



6200'

6228'

24.42°

95.32°

6108.35'

-331.46'

6250'

6276'

27.91°

92.54°

6151.42'

-310.48'

6300'

6323'

31.29°

93.12°

6192.28'

-287.51'

6350'

6371'

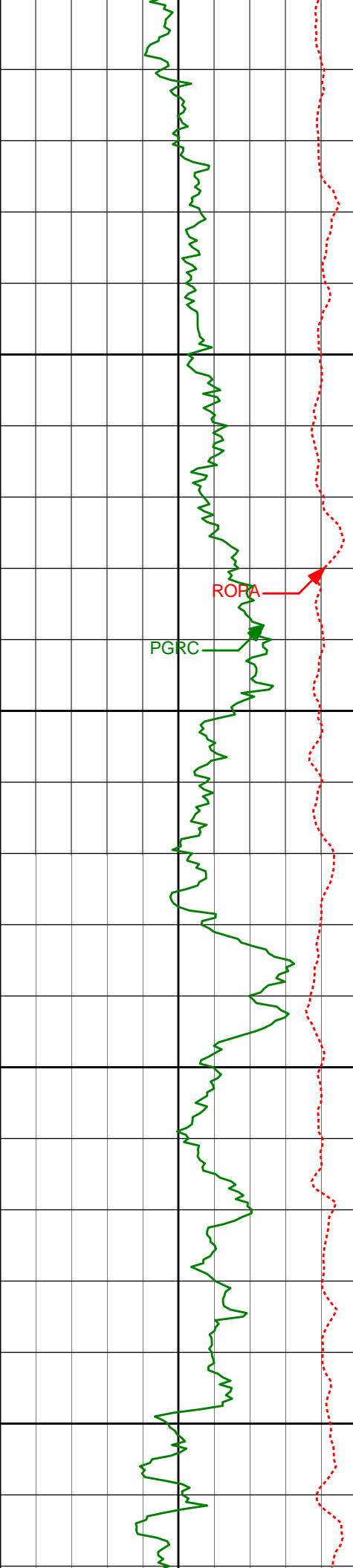
35.70°

94.09°

6232.30'

-261.25'

6400'



6400'

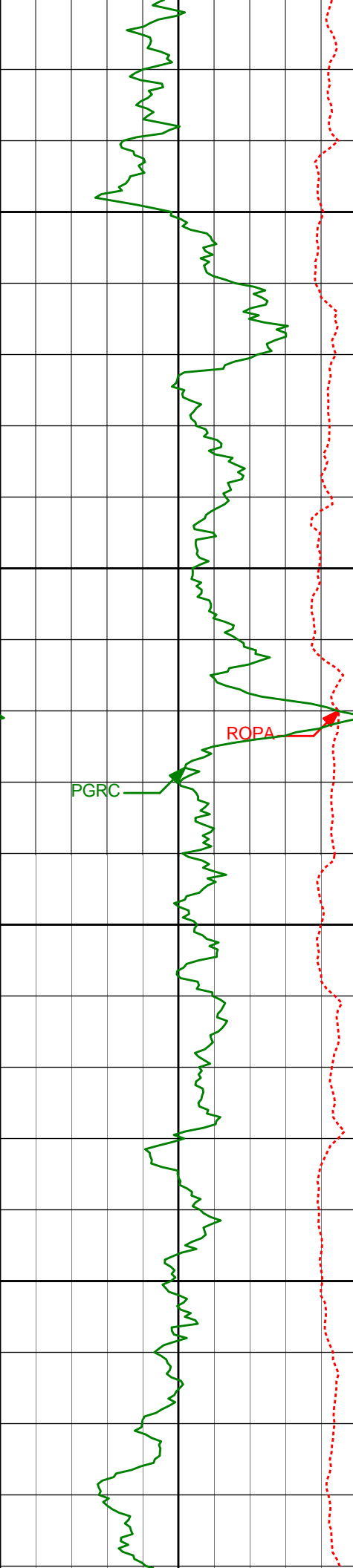
6450'

6500'

6550'

6600'

6418'	40.33°	95.34°	6269.32'	-232.50'
6466'	45.16°	94.23°	6304.56'	-200.13'
6514'	50.94°	93.12°	6336.63'	-164.75'
6562'	56.45°	93.04°	6365.04'	-126.47'
6609'	60.95°	90.05°	6389.46'	-86.89'



6650'

6657'

64.24°

90.31°

6411.55'

-45.06'

6700'

6705'

67.60°

91.00°

6431.13'

-1.98'

6750'

6753'

70.90°

91.68°

6448.13'

42.25'

6800'

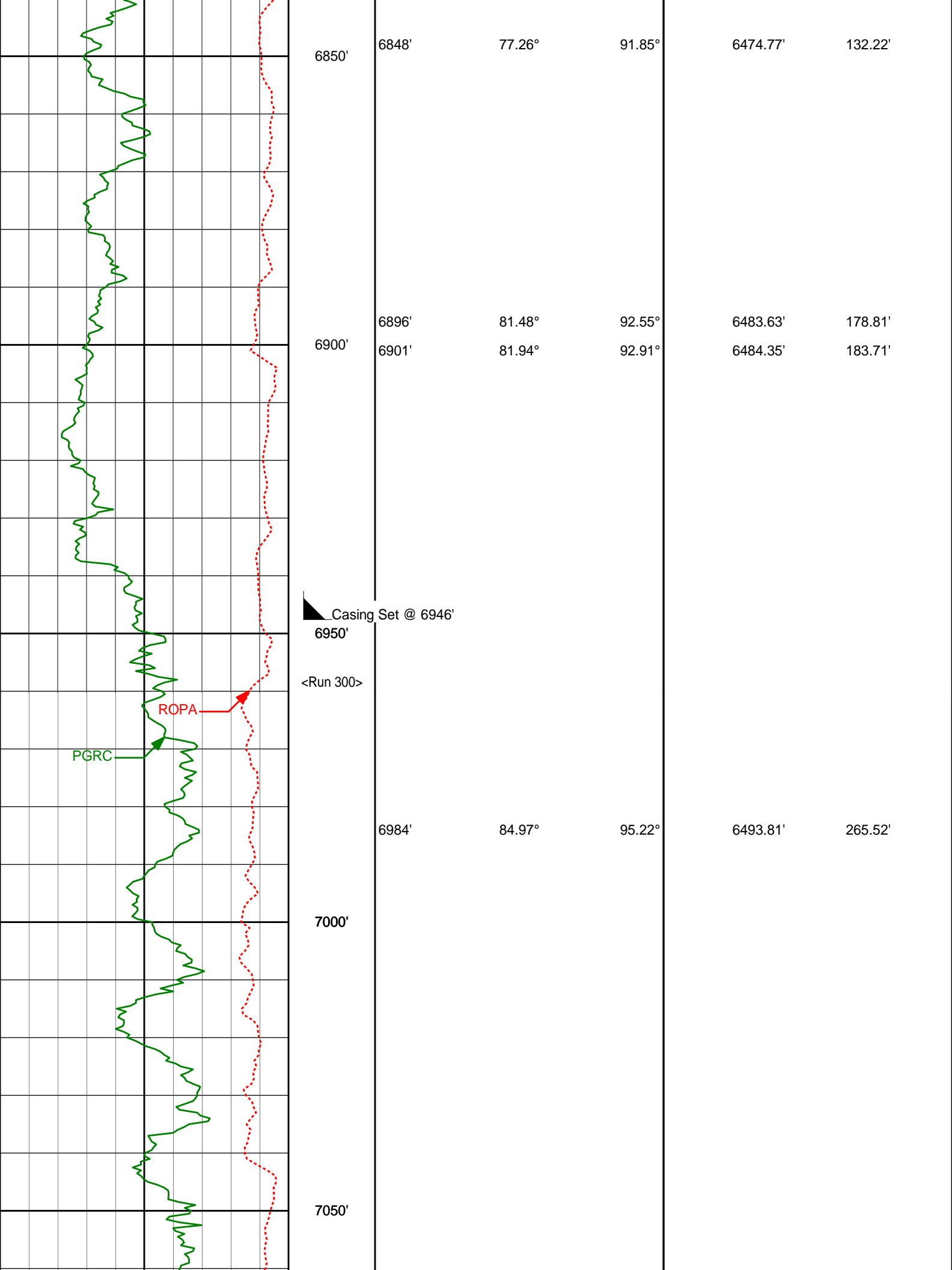
6800'

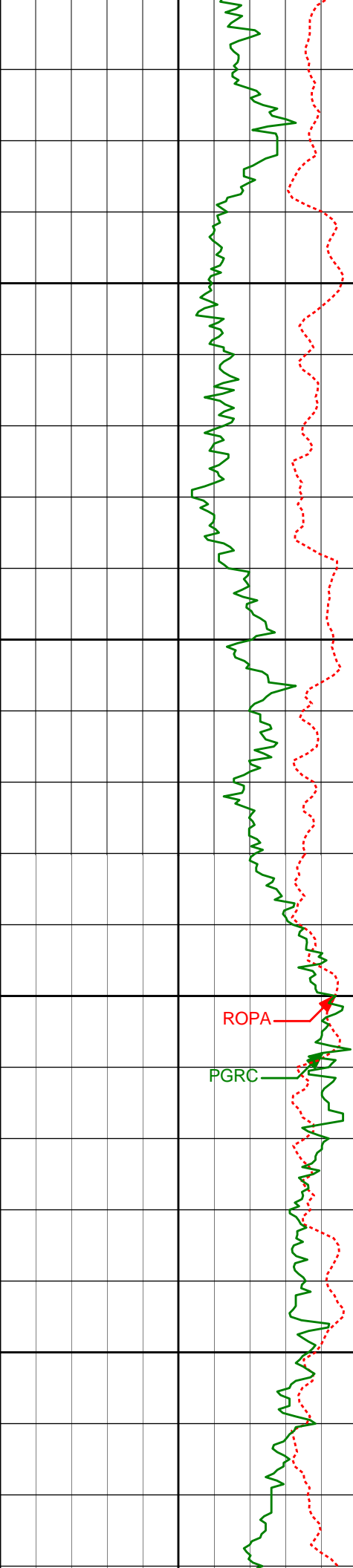
73.29°

92.23°

6462.58'

86.39'





7100'

7150'

7200'

7250'

7079'

85.51°

94.64°

6501.70'

359.63'

7174'

87.04°

92.08°

6507.87'

453.55'

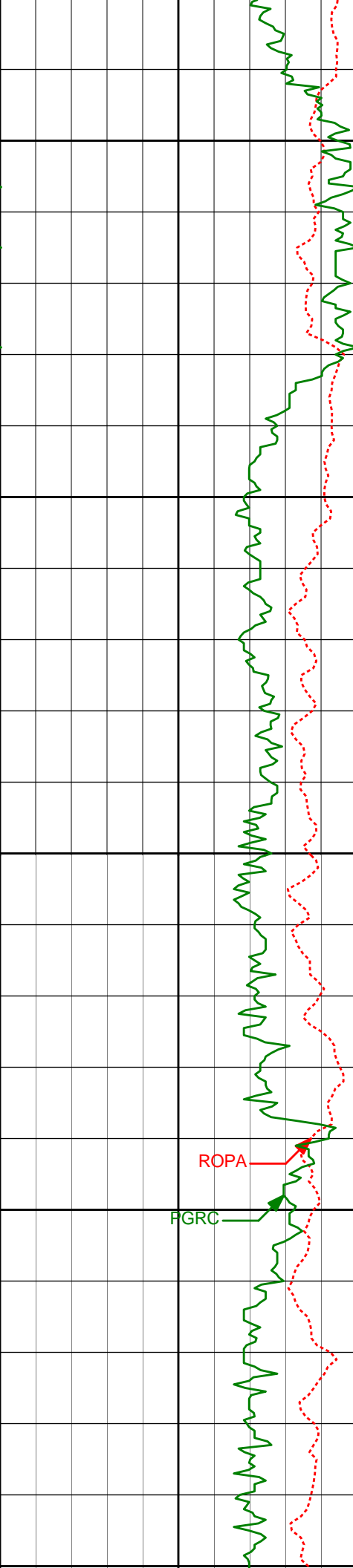
7270'

88.40°

91.58°

6511.69'

548.20'



7300'

7350'

7400'

7450'

7500'

7365'

92.06°

91.77°

6511.31'

641.89'

ROP

FGRC

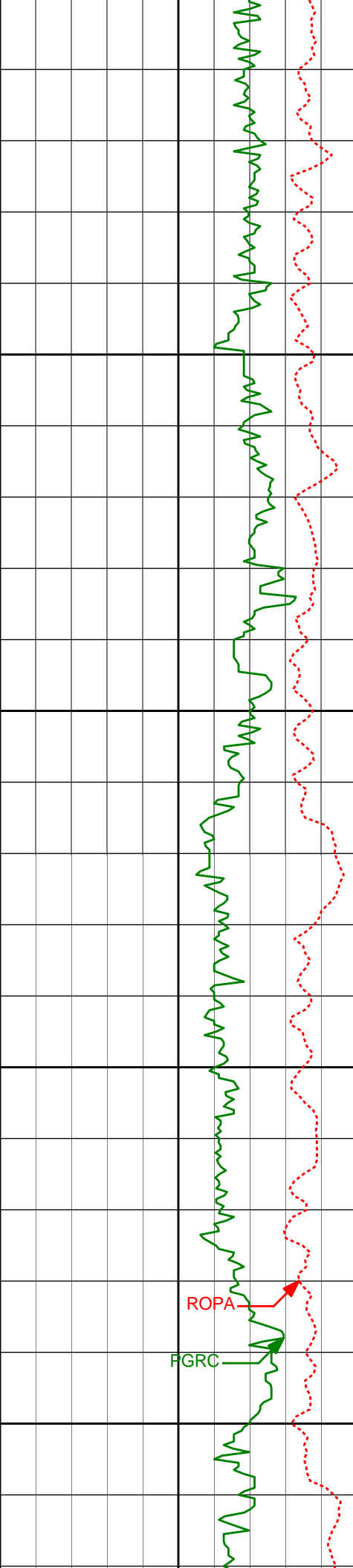
7461'

92.50°

89.76°

6507.49'

736.24'



7500'

7550'

7600'

7650'

7700'

7556'

91.97°

91.40°

6503.78'

829.55'

7652'

93.24°

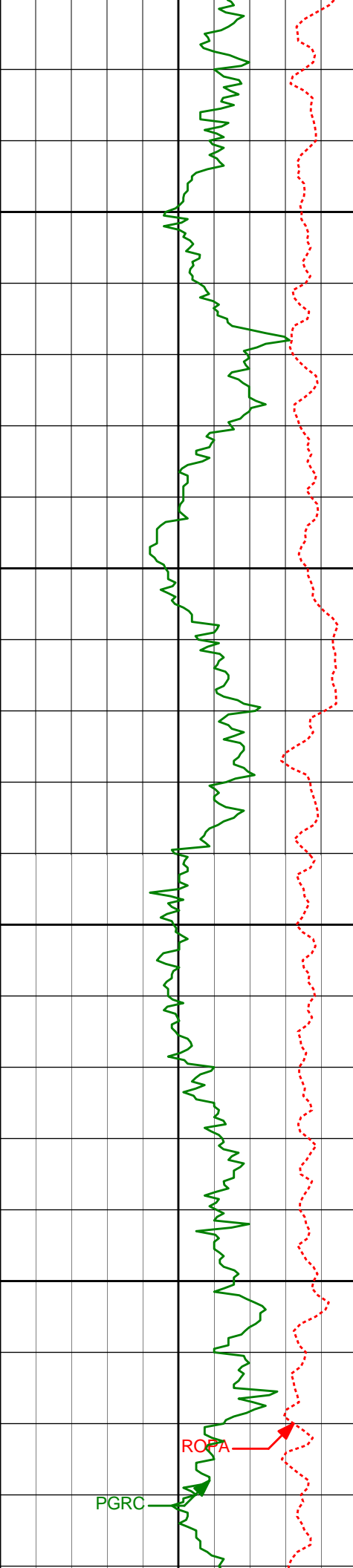
85.75°

6499.42'

923.11'

ROPA

FGRC



7750'

7800'

7850'

7900'

7747'

92.47°

88.86°

6494.69'

1015.22'

7843'

91.70°

89.00°

6491.20'

1108.99'

7938'

92.34°

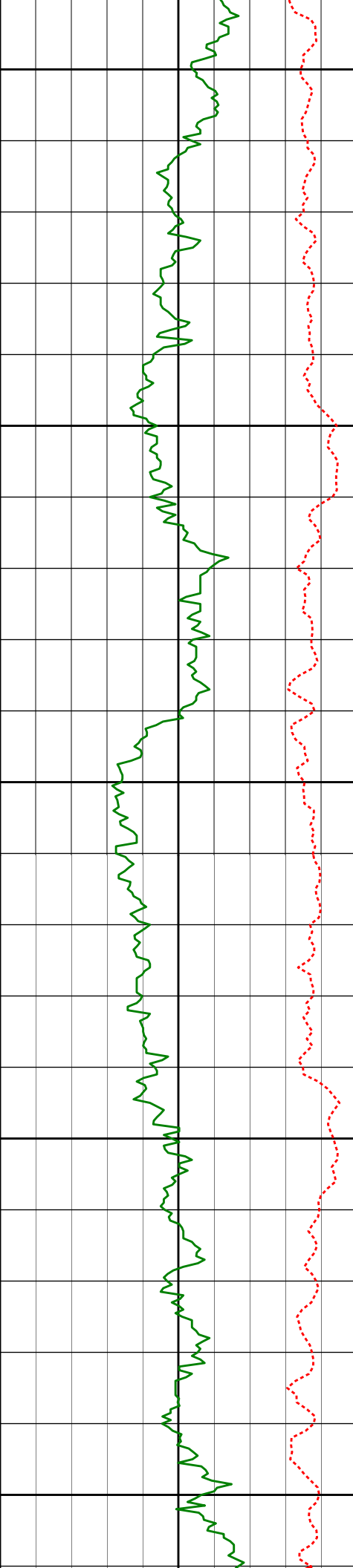
88.56°

6487.86'

1201.72'

ROFA

PGRC



7950'

8000'

8050'

8100'

8150'

8033'

91.36°

88.18°

6484.80'

1294.32'

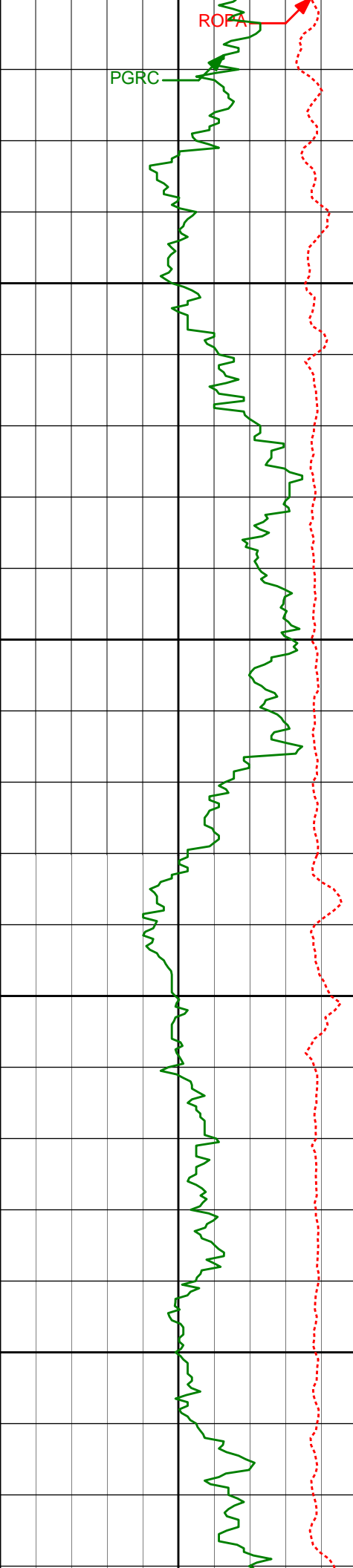
8129'

91.29°

87.72°

6482.58'

1387.76'



8200'

8224'

90.86°

88.53°

6480.79'

1480.30'

8250'

8300'

8320'

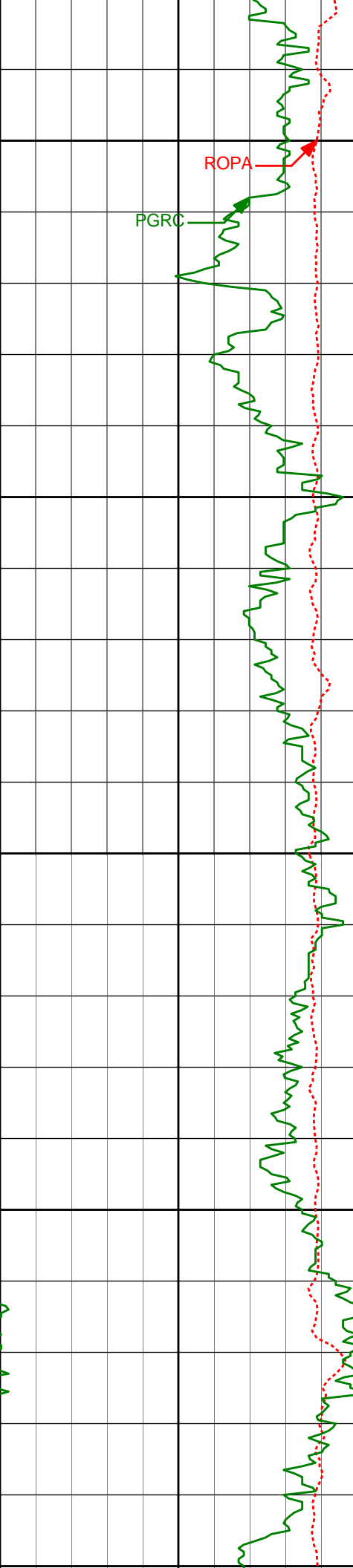
89.38°

88.76°

6480.59'

1574.02'

8350'



8400'

8450'

8500'

8550'

8600'

8415'

88.12°

89.85°

6482.66'

1666.97'

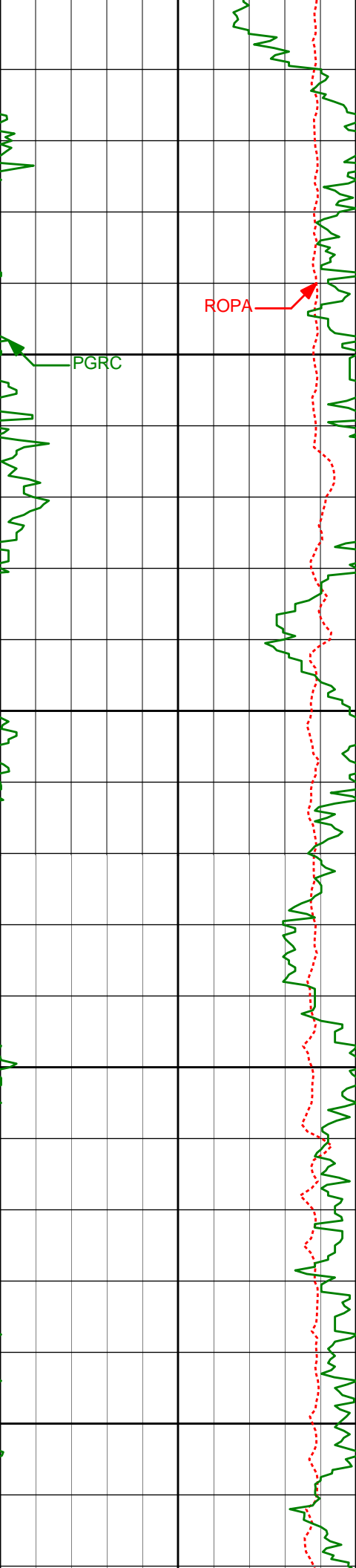
8510'

89.54°

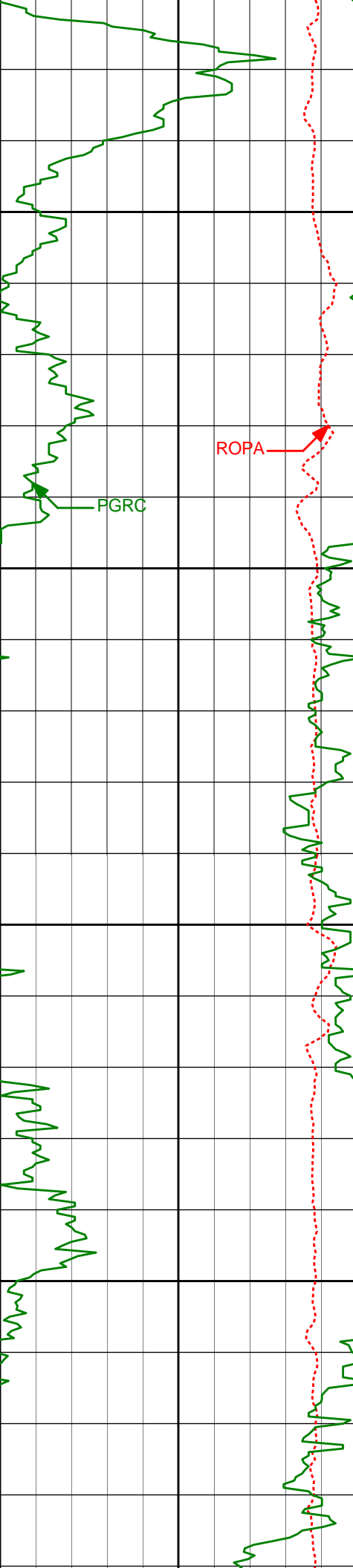
89.25°

6484.60'

1760.00'



8600'	8606'	90.71°	90.54°	6484.39'	1854.15'
8650'					
8700'	8701'	89.85°	91.67°	6483.93'	1947.70'
8750'					
8800'	8797'	90.99°	89.97°	6483.23'	2042.13'



8850'

8900'

8950'

9000'

8892'

91.57°

91.46°

6481.11'

2135.53'

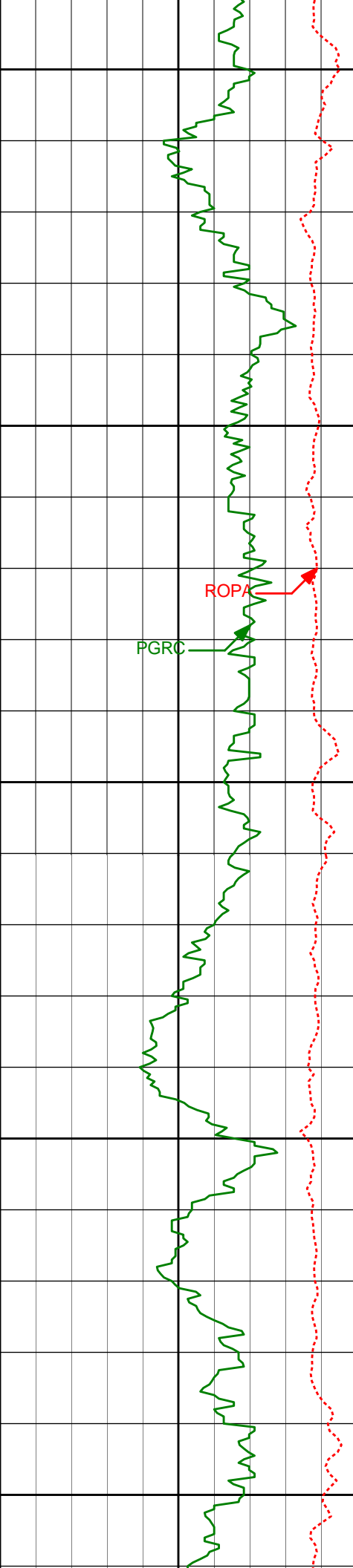
8988'

91.17°

91.50°

6478.81'

2230.14'



9050'

9083'

91.05°

91.53°

6476.97'

2323.78'

9100'

ROPA

PGRC

9150'

9179'

91.91°

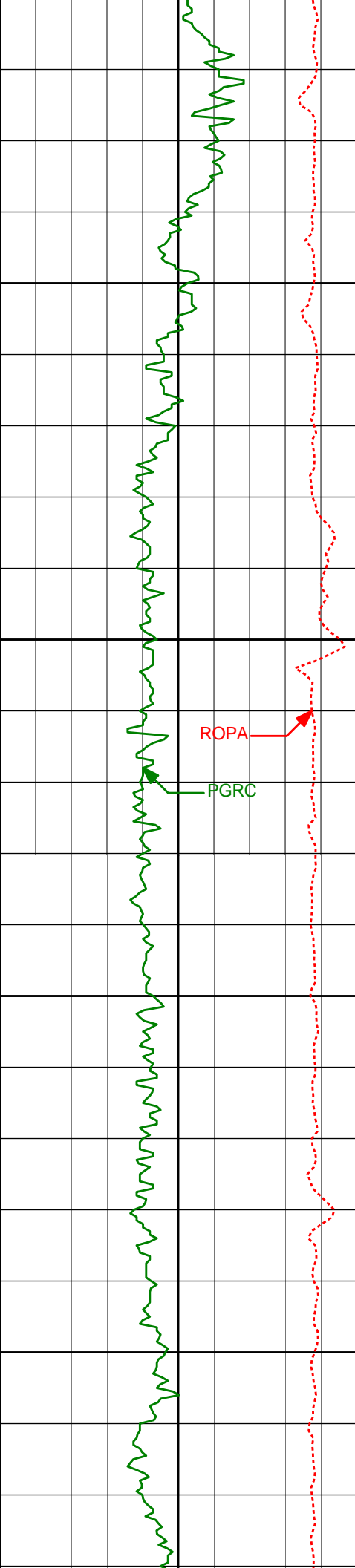
93.96°

6474.49'

2418.71'

9200'

9250'



9300'

9350'

9400'

9450'

9274'

91.70°

93.48°

6471.50'

2512.87'

9370'

89.91°

93.28°

6470.16'

2607.97'

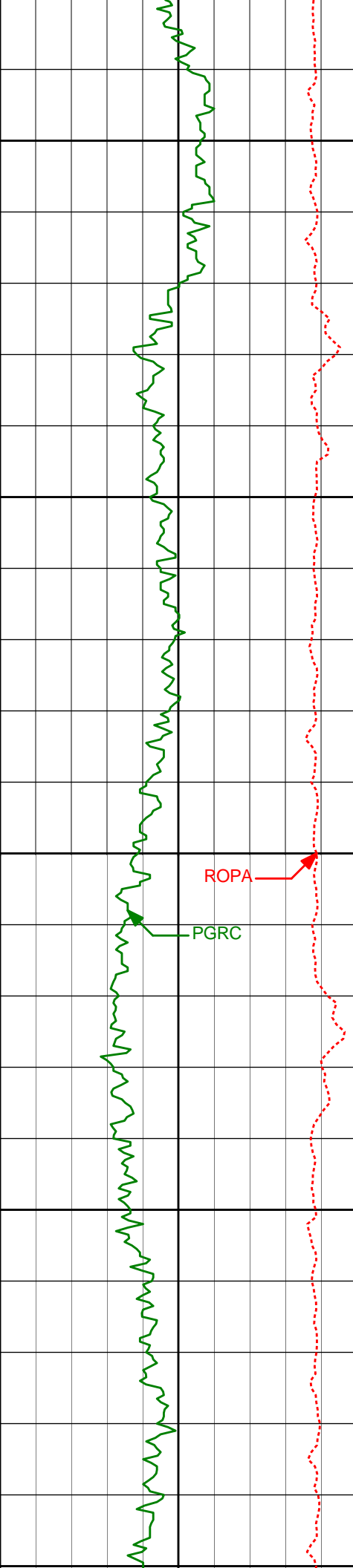
9465'

91.79°

91.86°

6468.75'

2701.89'



9500'

9550'

9600'

9650'

9700'

9561'

90.15°

92.92°

6467.13'

2796.75'

ROPA

PGRC

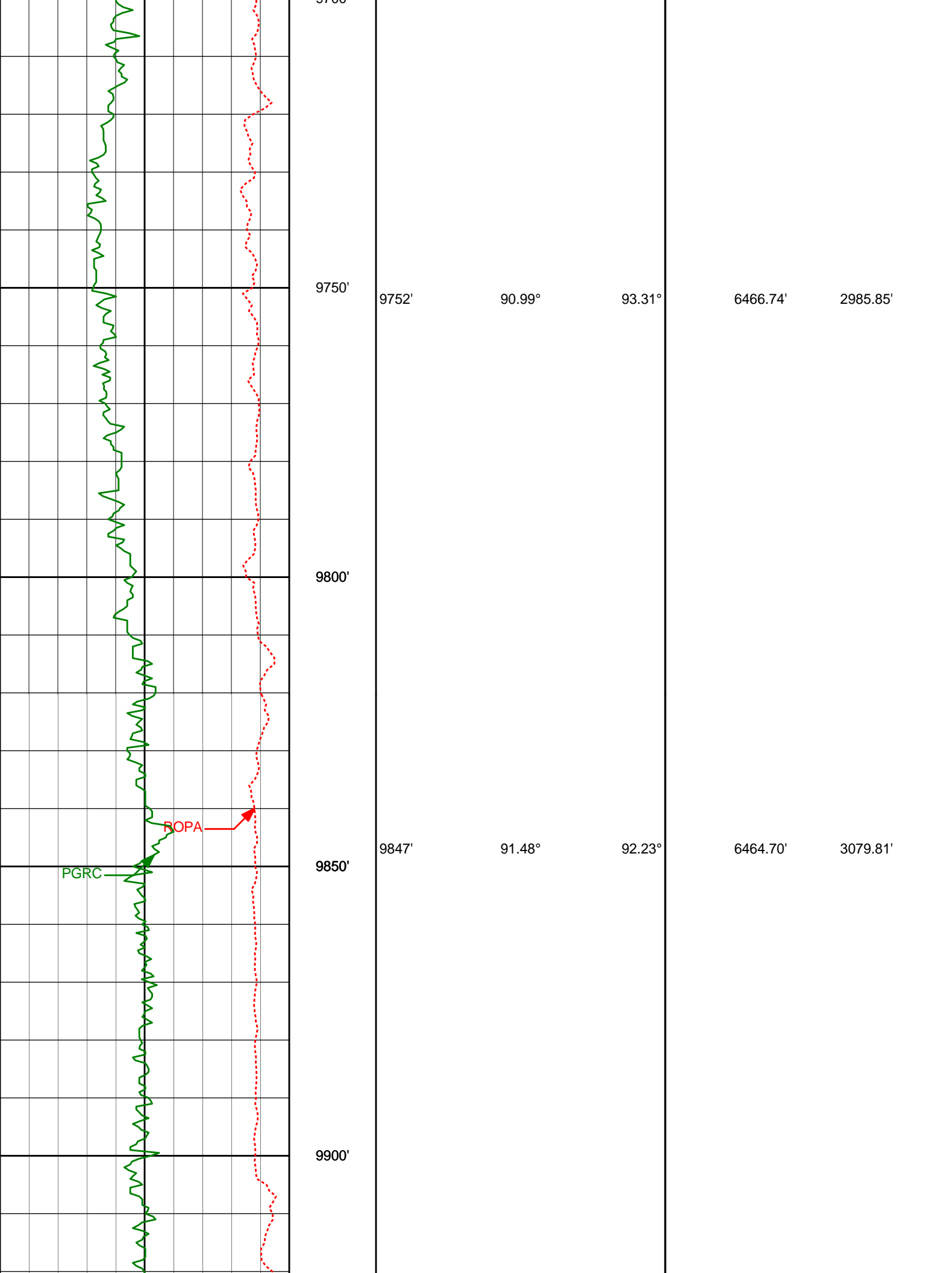
9656'

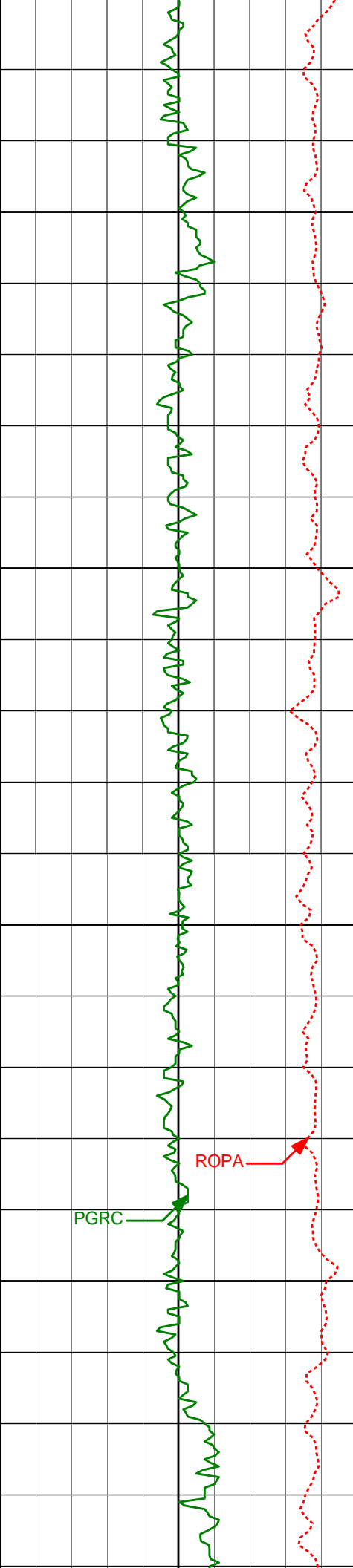
89.66°

93.01°

6467.28'

2890.78'





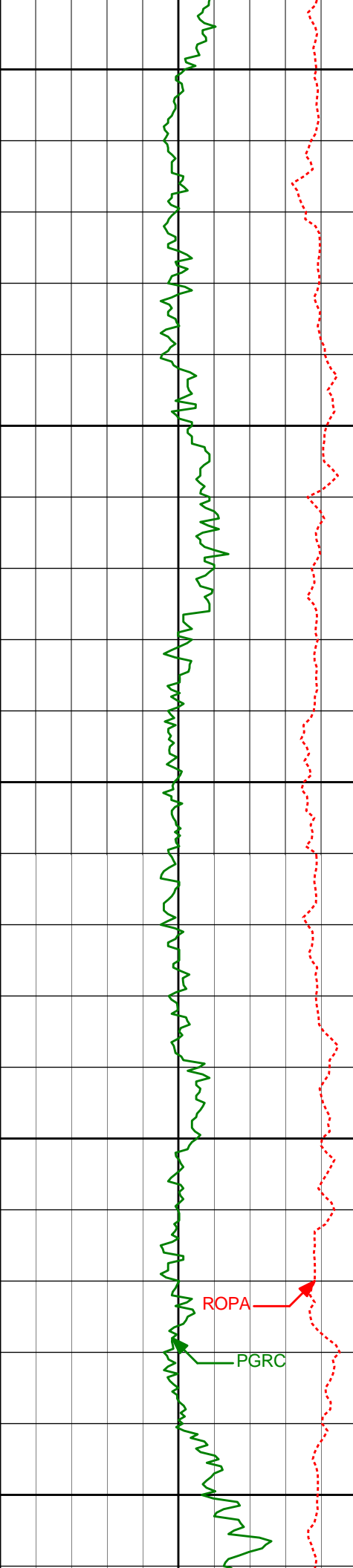
9950'

10000'

10050'

10100'

9942'	90.86°	90.66°	6462.76'	3173.43'
10038'	90.25°	90.41°	6461.83'	3267.78'
10133'	88.80°	90.58°	6462.62'	3361.14'



10150'

10200'

10250'

10300'

10350'

10227'

88.30°

89.57°

6465.00'

3453.35'

10275'

90.00°

90.56°

6465.71'

3500.45'

10323'

90.86°

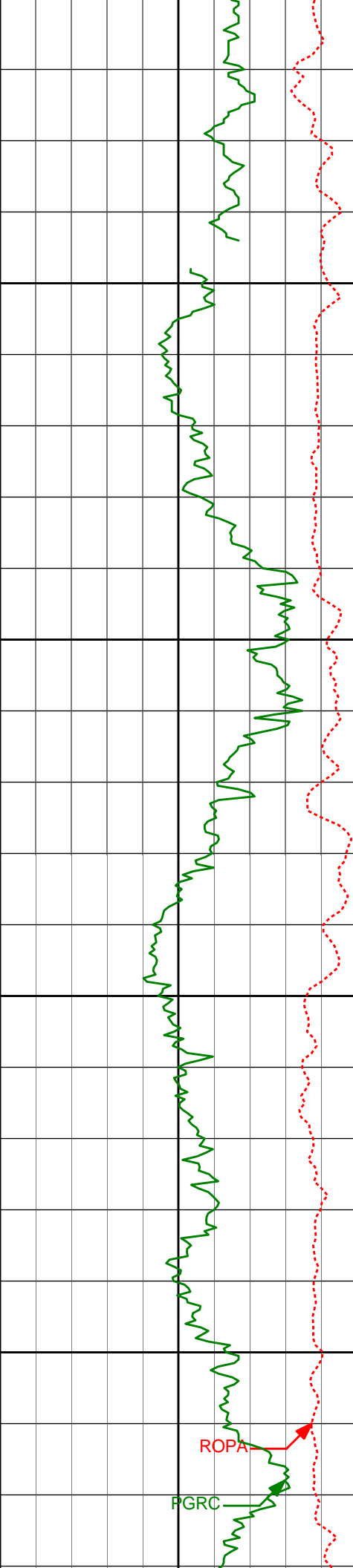
91.40°

6465.35'

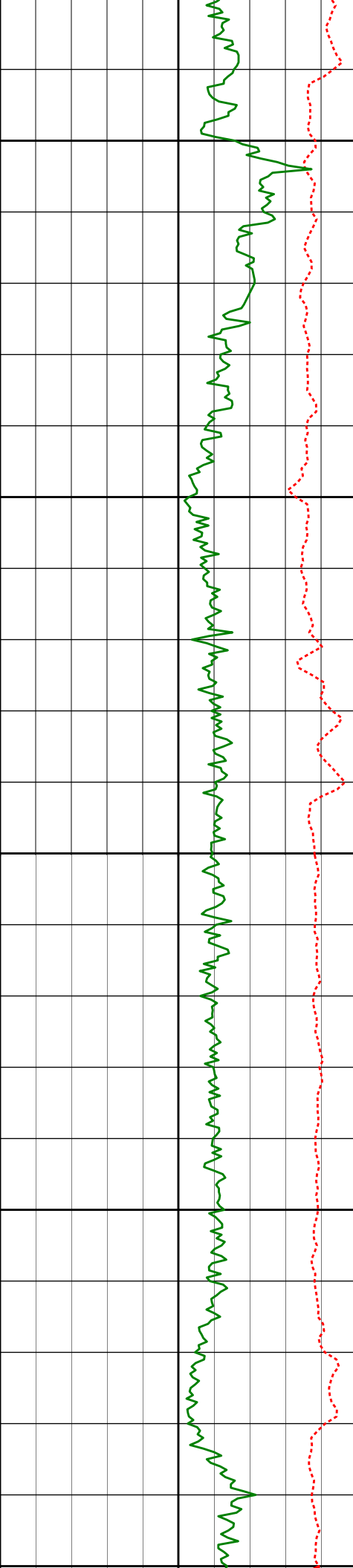
3547.70'

ROPA

PGRC



10390'	92.43°	92.36°	6463.42'	3613.79'
10400'				
10418'	93.12°	93.31°	6462.06'	3641.46'
10450'				
<Run 400>				
10500'				
10514'	91.14°	92.74°	6458.50'	3736.43'
10550'				



10600'

10609'

90.12°

92.63°

6457.45'

3830.39'

10650'

10700'

10705'

88.98°

92.44°

6458.20'

3925.30'

10750'

10800'

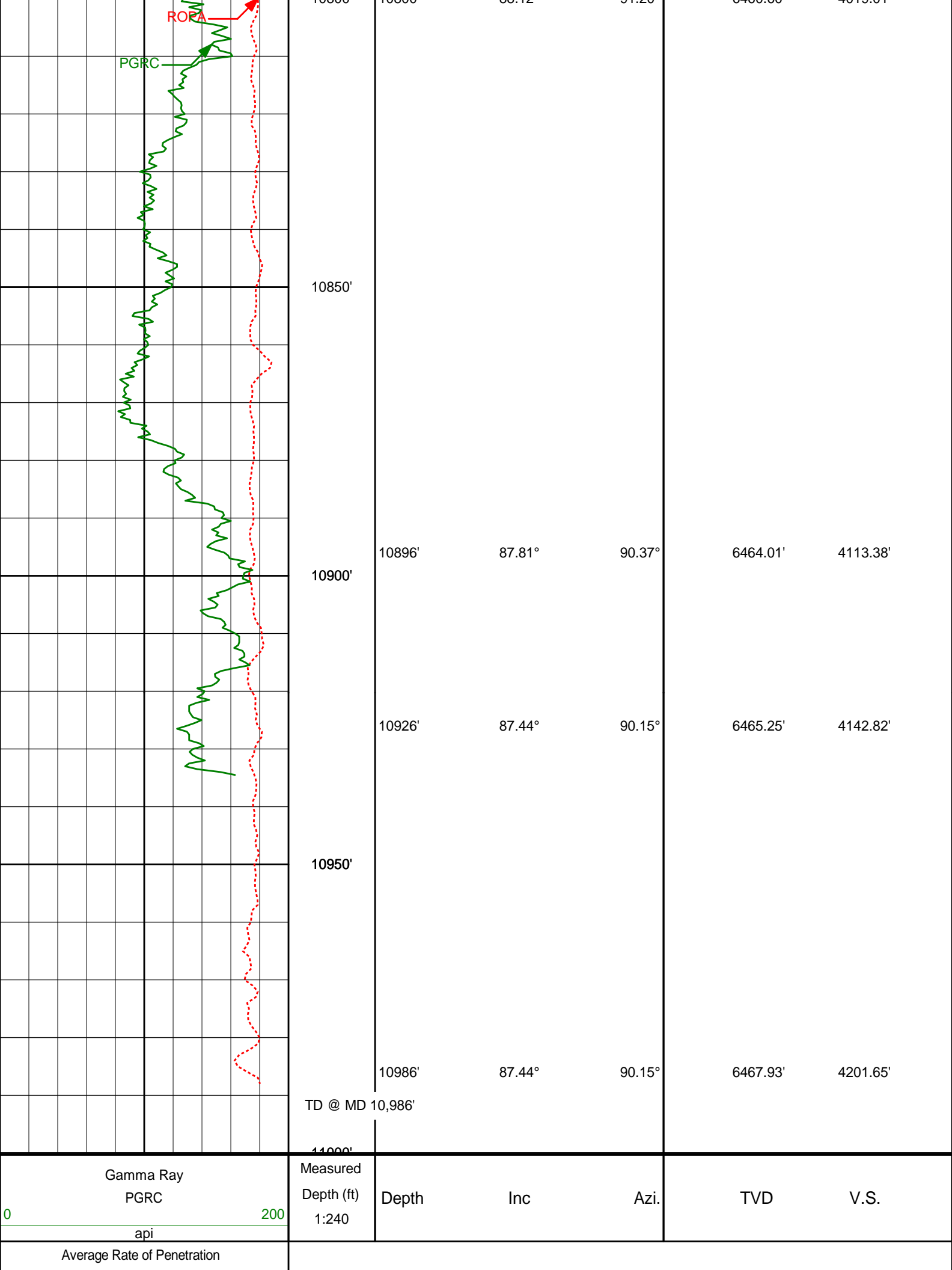
10800'

88.12°

91.20°

6460.60'

4019.01'





HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
SLW State PC BB18-65HN
Wattenberg
Weld Colorado
USA
CA-XX-0009441275

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
585.00	0.00	0.00	585.00	0.00 N	0.00 E	0.00	0.00
630.00	4.48	125.92	629.95	1.03 S	1.43 E	1.60	9.96
724.00	2.38	105.03	723.78	3.69 S	6.28 E	6.88	2.57
819.00	0.79	24.00	818.75	3.61 S	8.45 E	8.99	2.51
914.00	0.64	42.58	913.74	2.62 S	9.08 E	9.41	0.29
1008.00	0.65	42.09	1007.74	1.84 S	9.79 E	9.96	0.02
1103.00	0.63	25.59	1102.73	0.97 S	10.38 E	10.37	0.20
1195.00	1.34	227.46	1194.73	1.24 S	9.80 E	9.86	2.10
1287.00	3.70	222.21	1286.63	4.17 S	7.02 E	7.69	2.58
1379.00	6.09	225.72	1378.29	9.78 S	1.52 E	3.39	2.61
1471.00	7.85	235.51	1469.61	16.74 S	7.15 W	-3.78	2.30
1564.00	10.04	227.83	1561.47	25.79 S	18.40 W	-13.06	2.68
1656.00	12.44	214.56	1651.72	39.34 S	29.97 W	-21.79	3.82
1748.00	13.75	214.34	1741.32	56.53 S	41.76 W	-30.04	1.42
1840.00	13.96	220.48	1830.65	74.00 S	55.13 W	-39.78	1.61
1932.00	14.51	219.12	1919.83	91.38 S	69.60 W	-50.62	0.70
2025.00	13.60	217.82	2010.04	109.05 S	83.66 W	-60.99	1.03
2124.00	14.70	217.33	2106.04	128.23 S	98.41 W	-71.76	1.11
2219.00	13.34	212.81	2198.21	147.03 S	111.66 W	-81.12	1.84
2315.00	14.41	213.77	2291.41	166.27 S	124.30 W	-89.80	1.14
2410.00	17.57	220.46	2382.73	187.02 S	140.18 W	-101.37	3.85
2506.00	16.73	217.38	2474.46	209.03 S	157.98 W	-114.58	1.29
2601.00	16.34	215.26	2565.53	230.81 S	174.00 W	-126.08	0.76
2697.00	15.30	214.96	2657.89	252.22 S	189.05 W	-136.71	1.09
2792.00	13.45	217.71	2749.91	271.23 S	202.99 W	-146.71	2.08
2888.00	13.19	217.00	2843.33	288.80 S	216.41 W	-156.48	0.32
2983.00	13.04	214.10	2935.86	306.33 S	228.94 W	-165.38	0.71
3079.00	11.95	213.85	3029.58	323.55 S	240.54 W	-173.43	1.13
3174.00	13.05	216.03	3122.33	340.39 S	252.33 W	-181.74	1.26
3269.00	12.92	219.62	3214.90	357.24 S	265.41 W	-191.32	0.86
3365.00	14.55	222.61	3308.16	374.39 S	280.42 W	-202.73	1.85
3460.00	13.83	221.59	3400.26	391.66 S	296.03 W	-214.70	0.80
3556.00	15.50	225.36	3493.13	409.25 S	312.77 W	-227.73	2.01
3651.00	16.26	224.97	3584.50	427.58 S	331.20 W	-242.27	0.80
3746.00	17.14	224.56	3675.50	446.96 S	350.43 W	-257.38	0.94
3841.00	17.51	224.68	3766.18	467.10 S	370.30 W	-272.99	0.39
3937.00	15.81	218.67	3858.16	487.59 S	388.64 W	-287.01	2.52
4032.00	15.72	217.62	3949.58	507.89 S	404.58 W	-298.73	0.32
4127.00	14.89	220.44	4041.21	527.38 S	420.36 W	-310.44	1.17
4223.00	14.38	219.72	4134.09	545.94 S	435.98 W	-322.18	0.57
4318.00	13.96	222.52	4226.20	563.46 S	451.27 W	-333.79	0.85
4413.00	13.87	221.91	4318.42	580.38 S	466.62 W	-345.58	0.18
4509.00	12.52	220.23	4411.88	596.89 S	481.03 W	-356.52	1.46
4604.00	12.53	218.86	4504.62	612.78 S	494.15 W	-366.32	0.31
4700.00	12.25	221.51	4598.38	628.51 S	507.43 W	-376.31	0.66
4795.00	11.21	224.00	4691.40	642.71 S	520.53 W	-386.42	1.22
4891.00	10.89	227.09	4785.62	655.60 S	533.66 W	-396.81	0.70
4986.00	9.34	217.30	4879.14	667.85 S	544.91 W	-405.47	2.43
5082.00	6.10	208.84	4974.26	678.52 S	552.09 W	-410.46	3.57
5177.00	5.27	212.85	5068.80	686.61 S	556.90 W	-413.61	0.97
5272.00	2.47	198.82	5163.57	692.21 S	559.93 W	-415.50	3.10
5367.00	0.73	179.41	5258.53	694.76 S	560.58 W	-415.65	1.88

5463.00	0.81	148.75	5354.52	695.96 S	560.22 W	-415.06	0.43
5559.00	0.62	148.64	5450.51	696.98 S	559.60 W	-414.25	0.20
5654.00	1.00	148.52	5545.50	698.13 S	558.90 W	-413.34	0.40
5749.00	1.10	146.89	5640.49	699.60 S	557.96 W	-412.14	0.11
5794.00	1.15	142.13	5685.48	700.32 S	557.45 W	-411.50	0.23
5846.00	1.54	118.79	5737.47	701.07 S	556.52 W	-410.44	1.28
5893.00	3.10	101.93	5784.43	701.63 S	554.72 W	-408.57	3.60
5941.00	6.72	85.69	5832.24	701.69 S	550.65 W	-404.56	7.99
5989.00	9.25	82.55	5879.78	700.98 S	544.02 W	-398.20	5.35
6036.00	11.35	92.47	5926.02	700.69 S	535.65 W	-390.04	5.84
6084.00	14.33	98.15	5972.82	701.74 S	525.05 W	-379.44	6.73
6132.00	18.01	97.30	6018.91	703.52 S	511.81 W	-366.10	7.69
6180.00	21.26	96.98	6064.11	705.52 S	495.81 W	-350.02	6.76
6228.00	24.42	95.32	6108.35	707.50 S	477.29 W	-331.46	6.73
6276.00	27.91	92.54	6151.42	708.92 S	456.18 W	-310.48	7.70
6323.00	31.29	93.12	6192.28	710.07 S	432.99 W	-287.51	7.23
6371.00	35.70	94.09	6232.30	711.75 S	406.56 W	-261.25	9.24
6418.00	40.33	95.34	6269.32	714.15 S	377.73 W	-232.50	10.00
6466.00	45.16	94.23	6304.56	716.85 S	345.27 W	-200.13	10.17
6514.00	50.94	93.12	6336.63	719.12 S	309.66 W	-164.75	12.18
6562.00	56.45	93.04	6365.04	721.19 S	271.05 W	-126.47	11.46
6609.00	60.95	90.05	6389.46	722.25 S	230.92 W	-86.89	11.02
6657.00	64.24	90.31	6411.55	722.38 S	188.31 W	-45.06	6.87
6705.00	67.60	91.00	6431.13	722.89 S	144.50 W	-1.98	7.12
6753.00	70.90	91.68	6448.13	723.94 S	99.63 W	42.25	7.00
6800.00	73.29	92.23	6462.58	725.47 S	54.94 W	86.39	5.21
6848.00	77.26	91.85	6474.77	727.12 S	8.55 W	132.22	8.31
6896.00	81.48	92.55	6483.63	728.93 S	38.58 E	178.81	8.90
6901.00	81.94	92.91	6484.35	729.17 S	43.52 E	183.71	11.67
6984.00	84.97	95.22	6493.81	735.02 S	125.76 E	265.52	4.58
7079.00	85.51	94.64	6501.70	743.15 S	220.08 E	359.63	0.83
7174.00	87.04	92.08	6507.87	748.70 S	314.71 E	453.55	3.14
7270.00	88.40	91.58	6511.69	751.76 S	410.58 E	548.20	1.50
7365.00	92.06	91.77	6511.31	754.53 S	505.52 E	641.89	3.86
7461.00	92.50	89.76	6507.49	755.82 S	601.43 E	736.24	2.14
7556.00	91.97	91.40	6503.78	756.78 S	696.35 E	829.55	1.81
7652.00	93.24	85.75	6499.42	754.39 S	792.18 E	923.11	6.03
7747.00	92.47	88.86	6494.69	749.93 S	886.95 E	1015.22	3.37
7843.00	91.70	89.00	6491.20	748.14 S	982.87 E	1108.99	0.81
7938.00	92.34	88.56	6487.86	746.11 S	1077.78 E	1201.72	0.82
8033.00	91.36	88.18	6484.80	743.41 S	1172.69 E	1294.32	1.10
8129.00	91.29	87.72	6482.58	739.98 S	1268.61 E	1387.76	0.49
8224.00	90.86	88.53	6480.79	736.87 S	1363.54 E	1480.30	0.97
8320.00	89.38	88.76	6480.59	734.60 S	1459.51 E	1574.02	1.56
8415.00	88.12	89.85	6482.66	733.45 S	1554.48 E	1666.97	1.75
8510.00	89.54	89.25	6484.60	732.70 S	1649.45 E	1760.00	1.62
8606.00	90.71	90.54	6484.39	732.52 S	1745.45 E	1854.15	1.82
8701.00	89.85	91.67	6483.93	734.36 S	1840.43 E	1947.70	1.50
8797.00	90.99	89.97	6483.23	735.74 S	1936.41 E	2042.13	2.14
8892.00	91.57	91.46	6481.11	736.92 S	2031.37 E	2135.53	1.68
8988.00	91.17	91.50	6478.81	739.39 S	2127.31 E	2230.14	0.42
9083.00	91.05	91.53	6476.97	741.90 S	2222.26 E	2323.78	0.13
9179.00	91.91	93.96	6474.49	746.49 S	2318.11 E	2418.71	2.68
9274.00	91.70	93.48	6471.50	752.65 S	2412.87 E	2512.87	0.55
9370.00	89.91	93.28	6470.16	758.31 S	2508.69 E	2607.97	1.87
9465.00	91.79	91.86	6468.75	762.56 S	2603.57 E	2701.89	2.48
9561.00	90.15	92.92	6467.13	766.56 S	2699.47 E	2796.75	2.03
9656.00	89.66	93.01	6467.28	771.48 S	2794.34 E	2890.78	0.53
9752.00	90.99	93.31	6466.74	776.77 S	2890.19 E	2985.85	1.42
9847.00	91.48	92.23	6464.70	781.36 S	2985.06 E	3079.81	1.26
9942.00	90.86	90.66	6462.76	783.75 S	3080.01 E	3173.43	1.77
10038.00	90.25	90.41	6461.83	784.64 S	3176.00 E	3267.78	0.69
10133.00	88.80	90.58	6462.62	785.46 S	3270.99 E	3361.14	1.54
10227.00	88.30	89.57	6465.00	785.59 S	3364.96 E	3453.35	1.20
10275.00	90.00	90.56	6465.71	785.64 S	3412.95 E	3500.45	4.09
10323.00	90.86	91.40	6465.35	786.47 S	3460.94 E	3547.70	2.51
10390.00	92.43	92.36	6463.42	788.67 S	3527.87 E	3613.79	2.74
10418.00	93.12	93.31	6462.06	790.05 S	3555.80 E	3641.46	4.16
10514.00	91.14	92.74	6458.50	795.11 S	3651.60 E	3736.43	2.14
10609.00	90.12	92.63	6457.45	799.55 S	3746.49 E	3830.39	1.08
10705.00	88.98	92.44	6458.20	803.80 S	3842.39 E	3925.30	1.20
10800.00	88.12	91.20	6460.60	806.81 S	3937.31 E	4019.01	1.60
10896.00	87.81	90.37	6464.01	808.12 S	4033.24 E	4113.38	0.92
10926.00	87.44	90.15	6465.25	808.26 S	4063.21 E	4142.82	1.44

10986.00

87.44

90.15

6467.93

808.41 S

4123.15 E

4201.65

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 101.15 DEGREES (GRID)
A TOTAL CORRECTION OF 7.93 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 10986.00 FEET
IS 4201.66 FEET ALONG 101.09 DEGREES (GRID)**

Date Printed:22 May 2012