

PCDC - Pressure Case Directional
PCGK - Pressure Case Gamma


Country : USA			
Field : Red Tail			
Location : Lat: 40° 48' 38.46" North Long: 103° 47' 48.05" West			
Well : Horsetail #30F-1941			
Company : Whiting Oil and Gas			
Rig : Xtreme 18			
LOCATION			
Latitude : 40° 48' 38.46" North Longitude : 103° 47' 48.05" West		Company : Whiting Oil and Gas Rig : Xtreme 18 Well : Horsetail #30F-1941 Field : Red Tail Country : USA	
UTM Easting = 3,471,489,144 ft UTM Northing = 1,542,707,520 ft		API Number : 05-123-38742-00 SENW Sec 30, 10N, 57W	
Other Services Directional Drilling			
Permanent Datum : Ground Level	Elevation : 4780.00 ft		
Log Measured From : Drill Floor	17.00 ft Above Permanent Datum		
Drilling Measured From : Drill Floor	MD LOG		
Depth Logged : 0 ft	To 13,938.00 ft		
Date Logged : 29-Oct-14	To 07-Nov-14		
Total Depth MD : 13,938.00 ft	TVD : 5,765.87 ft		
Spud Date : 29-Oct-14	Plot Type : Final Plot Date : 07-Nov-14		
Unit No. : 11754115	Job No. : CA-XX-0901620580		
Borehole Record (MD)		Borehole Record (MD)	
Run No.	Size	From	To
0100	13.500 in	SURFACE	1,610.00 ft
0200	8.750 in	1,610.00 ft	4,515.00 ft
0300	8.750 in	4,515.00 ft	6,222.00 ft
0400	6.000 in	6,222.00 ft	13,938.00 ft
Casing Record (MD)		Casing Record (MD)	
Size	Weight	From	To
9.625 in	40.50 lbpf	SURFACE	1,595.00 ft
7.000 in	29.70 lbpf	SURFACE	6,202.00 ft

WELL INFORMATION

MWD Run Number	100	200	300	400	
Date run completed	30-Oct-14	01-Nov-14	02-Nov-14	07-Nov-14	
Rig Bit Number	0100	0200	0300	0400	
Bit Size (in)	13.500	8.750	8.750	6.000	
Tool Nominal OD (in)	6.750	6.750	6.750	4.750	
Log Start Depth (MD, ft)	97.00	1,610.00	4,515.00	6,222.00	
Log End Depth (MD, ft)	1,610.00	4,515.00	6,222.00	13,938.00	
Drill or Wipe	Drill	Drill	Drill	Drill	
Drill/Wipe Start Date and Time	30-Oct-14 01:30	31-Oct-14 15:00	01-Nov-14 10:30	03-Nov-14 06:30	
Drill/Wipe End Date and Time	30-Oct-14 13:00	01-Nov-14 02:30	02-Nov-14 07:00	06-Nov-14 20:00	
Min Inc (deg) @ Depth (MD, ft)	0.49 @ 138.00	12.97 @ 4,463.00	0.36 @ 5,195.00	87.32 @ 7,411.00	
Max Inc (deg) @ Depth (MD, ft)	15.33 @ 1,427.00	15.62 @ 3,635.00	86.51 @ 6,174.00	92.59 @ 12,243.00	
Bit TFA(in2) / Bit Type	0.90 / PDC	0.65 / PDC	0.65 / PDC	0.55 / PDC	
Flow Rate (gpm)	775.00	601.07	517.41	290.11	
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A	666.0 / N/A	
Fluid Type	Native/Spud Mud	Native/Spud Mud	Native/Spud Mud	Fresh Water Gel	
Density (ppg) / Viscosity (spqt)	8.30 / 32.00	8.40 / 28.00	8.40 / 28.00	9.73 / 35.00	
Filtrate CL (ppm)	N/A	6,800.00	6,400.00	4,800.00	
pH / Fluid Loss (mptm)	10.00 / N/A	8.60 / N/A	8.60 / N/A	8.20 / N/A	
PV (cP) / YP (lbf/ft2)	N/A / N/A	2 / N/A	17 / 19.00	10 / 6.00	
% Solids / % Sand	3 / N/A	0.50 / N/A	0.50 / N/A	7.40 / 0.25	
% Oil / Oil:Water Ratio	N/A / N/A	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	N/A @ N/A	
Rmf @ Measured Temp (degF)	N/A @ N/A	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	N/A @ N/A	

Max Tool Temp (degF) / Source	107.90 / PCM	137.50 / PCM	167.00 / PCM	234.50 / PCM	
Rm @ Max Tool Temp (degF)	N/A @ 107.90	N/A @ 137.50	N/A @ 167.00	N/A @ 234.50	
Lead MWD Engineer	Benjamin Burklund	Benjamin Burklund	Benjamin Burklund	Benjamin Burklund	
Customer Representative	Keven Mosely	Keven Mosely	Keven Mosely	Keven Mosely	

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM	PCM	
Software Version	5.93	5.93	5.93	5.93	
Sub Serial Number	11404203	11404203	11404203	12361802	
Insert Serial Number	11400812	11400854	11400854	11400812	
Date and Time Initialized	29-Oct-14 23:05	31-Oct-14 02:23	31-Oct-14 02:23	02-Nov-14 21:27	
Date and Time Read	30-Oct-14 16:16	02-Nov-14 12:59	02-Nov-14 13:05	07-Nov-14 13:35	
ECMB SW Version	N/A	N/A	N/A	N/A	

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC	PCDC	
Distance From Bit (ft)	61.00	52.00	48.00	44.00	
Software Version	6.21	6.21	6.21	6.21	
Sub Serial Number	11404203	11404203	11404203	12361802	
Sonde Serial Number	10919483	12177629	12177629	10919483	
Sensor ID Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	348.90	48.86	108.27	231.97	

Gamma Ray Sensor Information

Tool Type		PCG	PCG	PCG	
Distance From Bit (ft)		55.44	50.97	46.60	
Recorded Sample Period (sec)		10	10	10	
Software Version		8.15	8.15	8.15	
Sub Serial Number		11404203	11404203	12361802	
Insert/Sonde Serial Number		12037422	12037422	11293406	

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 based fluids.
4. Run 100 was drilled with directional data only.
5. All data presented is recorded (memory data) unless otherwise stated.
6. The following smoothing parameters have been applied to the 5" data:

PGRC (Corrected Gamma Ray)

Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft

ROPA (Rate of Penetration Average)

Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft

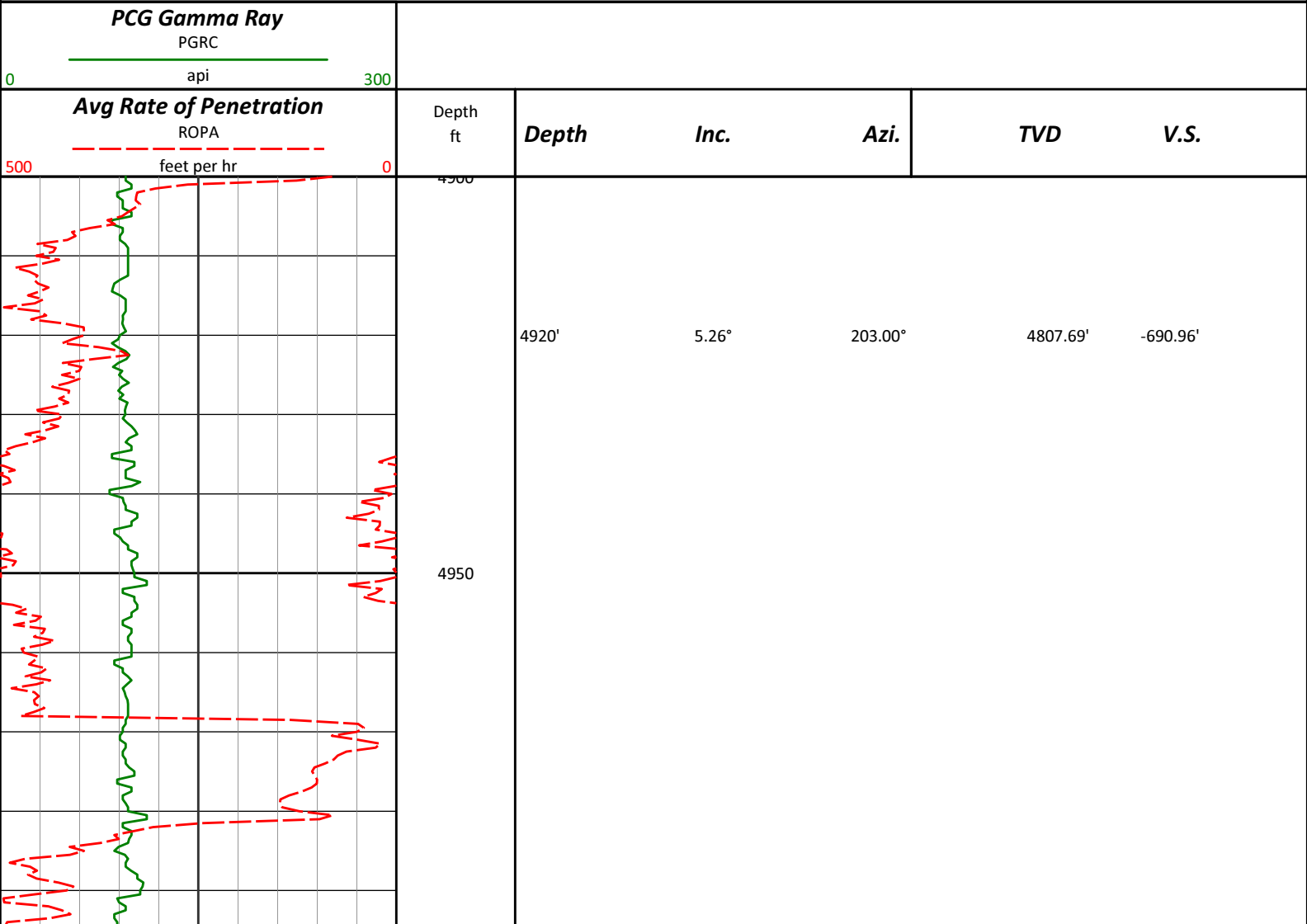
7. INSITE version 8.0.20

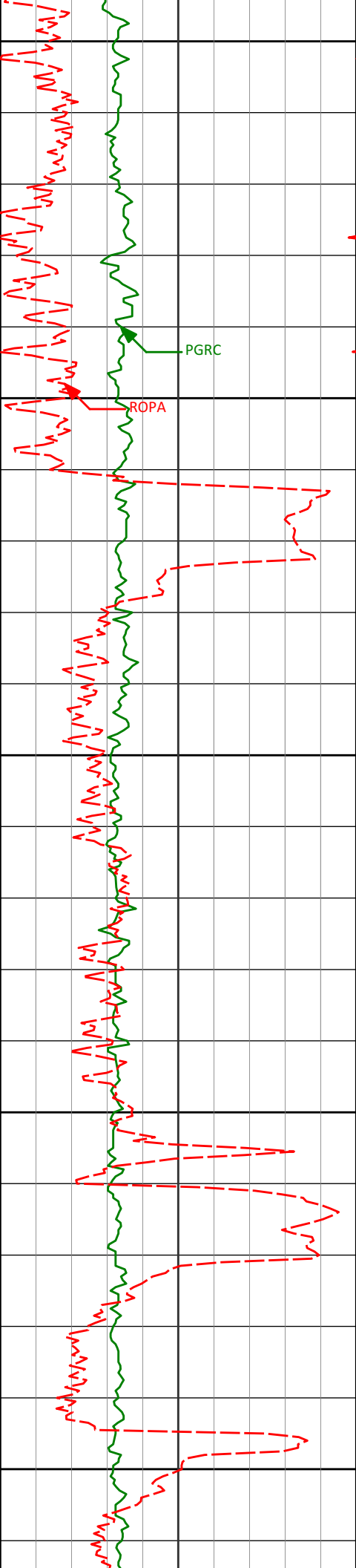
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HALLIBURTON
Sperry Drilling Services
MD Detail Log 1:240

Whiting Oil & Gas
Horsetail 30F-1941
Xtreme 18
Sec. 30-T10N-R57W





5000

5012'

3.31°

209.48°

4899.43'

-696.90'

5050

ROPA

PGRC

5100

5104'

1.69°

241.40°

4991.34'

-699.65'

5150

5200

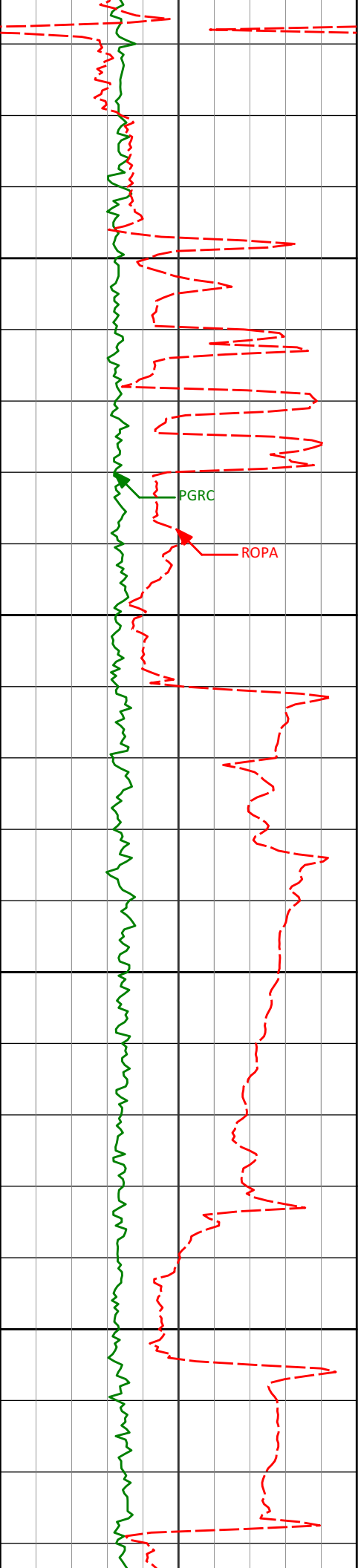
5195'

0.36°

155.25°

5082.33'

-700.46'



5250

5300

5350

5400

5287'

0.54°

138.45°

5174.32'

-701.08'

5334'

5.83°

359.35°

5221.25'

-698.87'

5380'

12.45°

356.68°

5266.64'

-691.58'

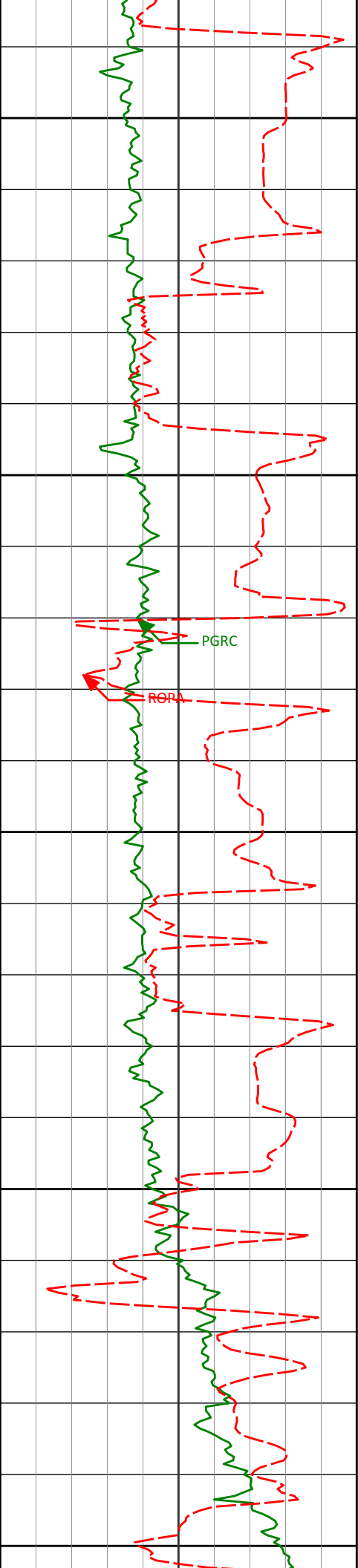
5426'

16.43°

355.03°

5311.18'

-680.11'



5450

5472'

21.29°

355.24°

5354.69'

-665.25'

5500

5514'

25.19°

359.79°

5393.28'

-648.70'

5550

5556'

28.80°

1.63°

5430.70'

-629.73'

5600

5601'

31.96°

2.36°

5469.52'

-607.12'

5650

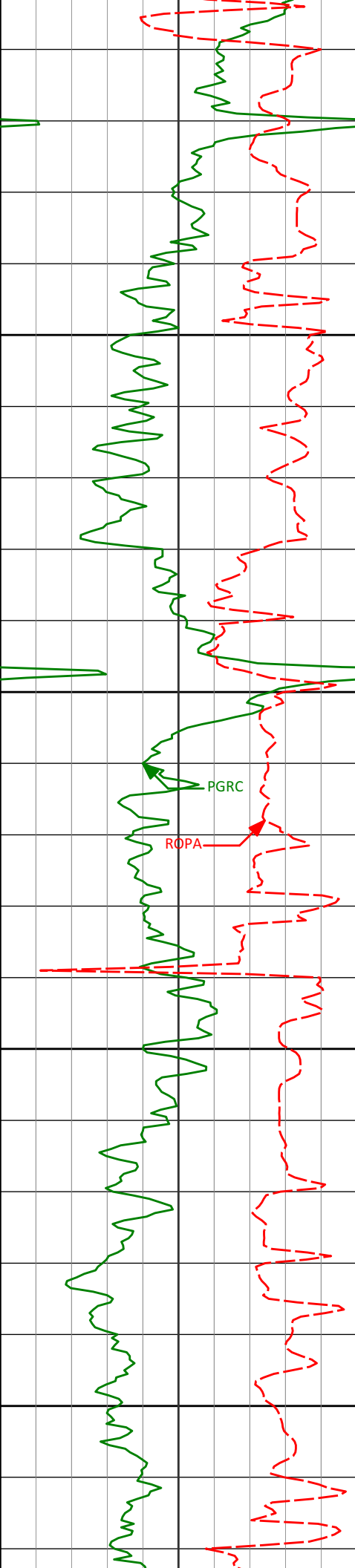
5643'

35.24°

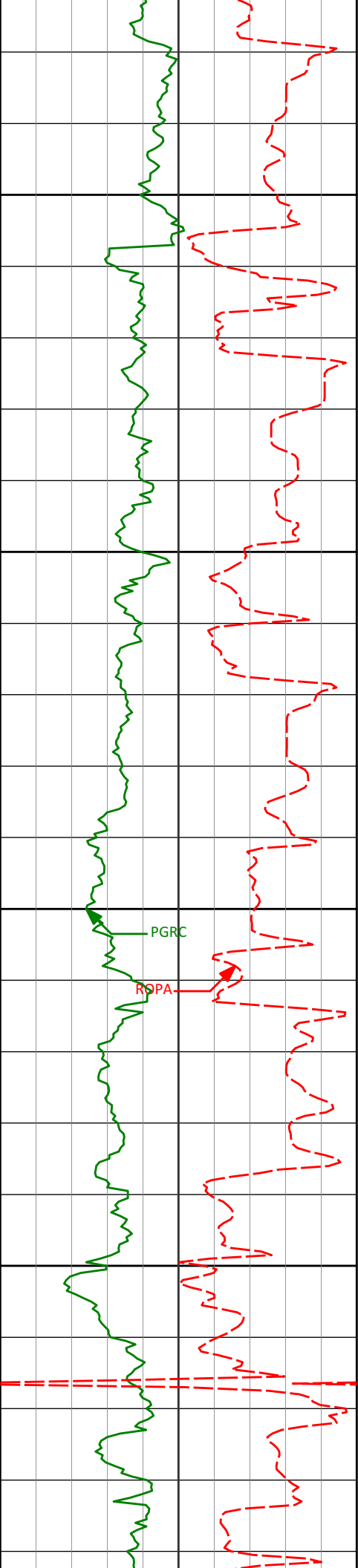
0.71°

5504.49'

-584.02'



5688'	40.67°	357.05°	5539.97'	-556.41'
5700				
5733'	44.81°	357.51°	5573.01'	-525.90'
5750				
5778'	48.25°	359.65°	5603.97'	-493.30'
5800				
5820'	52.71°	360.00°	5630.69'	-461.01'
5850				
5864'	56.79°	0.16°	5656.08'	-425.20'



5900

5909'

61.49°

359.91°

5679.15'

-386.71'

5950

5952'

66.15°

358.91°

5698.12'

-348.23'

6000

5996'

70.46°

358.49°

5714.38'

-307.43'

6050

6041'

74.05°

0.01°

5728.09'

-264.67'

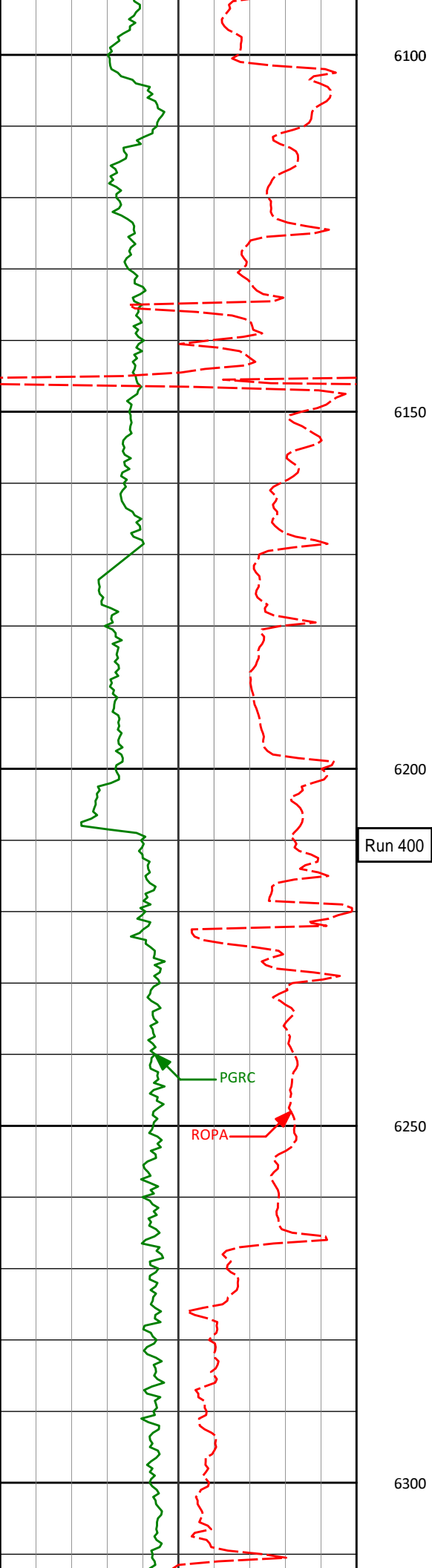
6086'

77.69°

0.49°

5739.08'

-221.20'



6131'	82.21°	0.64°	5746.93'	-177.09'
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6174'	86.51°	0.43°	5751.15'	-134.48'
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Run 400

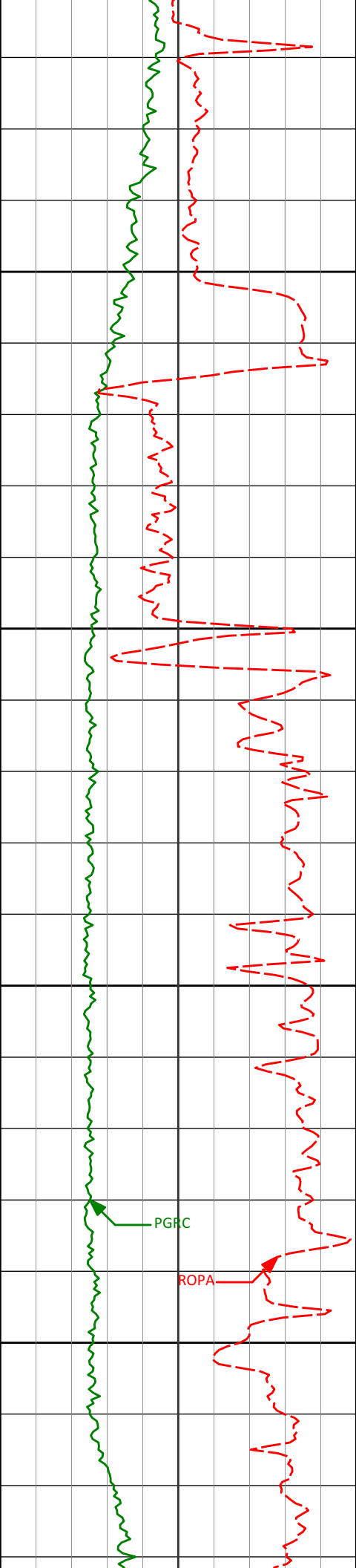
6223'	89.82°	0.64°	5752.72'	-85.71'
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PGRC

ROPA

6268'	89.77°	0.17°	5752.88'	-40.88'
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6300



6350

6355'

88.55°

359.49°

5754.16'

45.84'

6400

6441'

89.82°

358.67°

5755.38'

131.65'

6450

6500

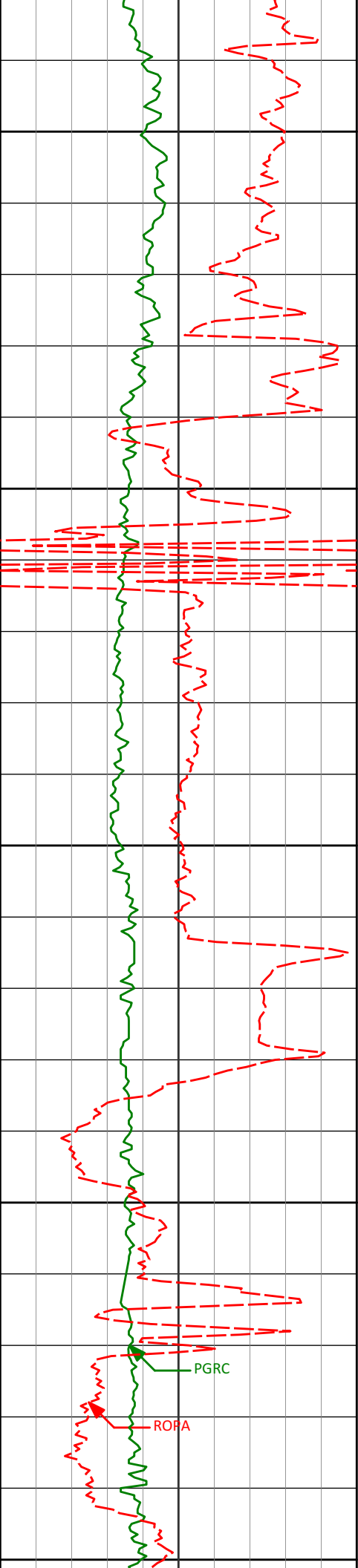
6530'

91.36°

359.27°

5754.46'

220.47'



6550

6600

6650

6700

6750

6620'

90.89°

359.59°

5752.70'

310.22'

6709'

90.25°

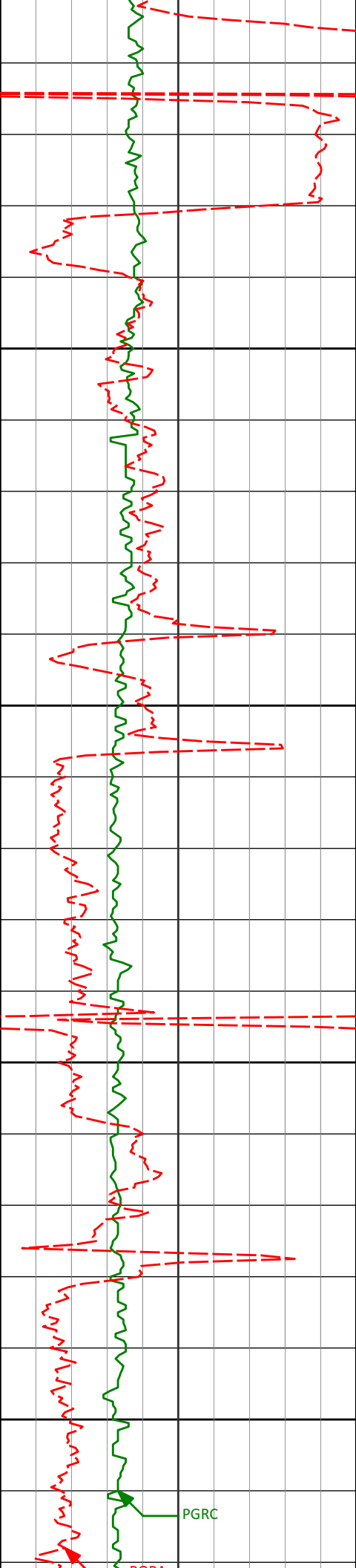
0.79°

5751.81'

398.90'

PGRC

ROFA



6800

6850

6900

6950

PGRC

6793'

6881'

6970'

88.95°

89.48°

89.66°

0.86°

0.91°

1.44°

5752.40'

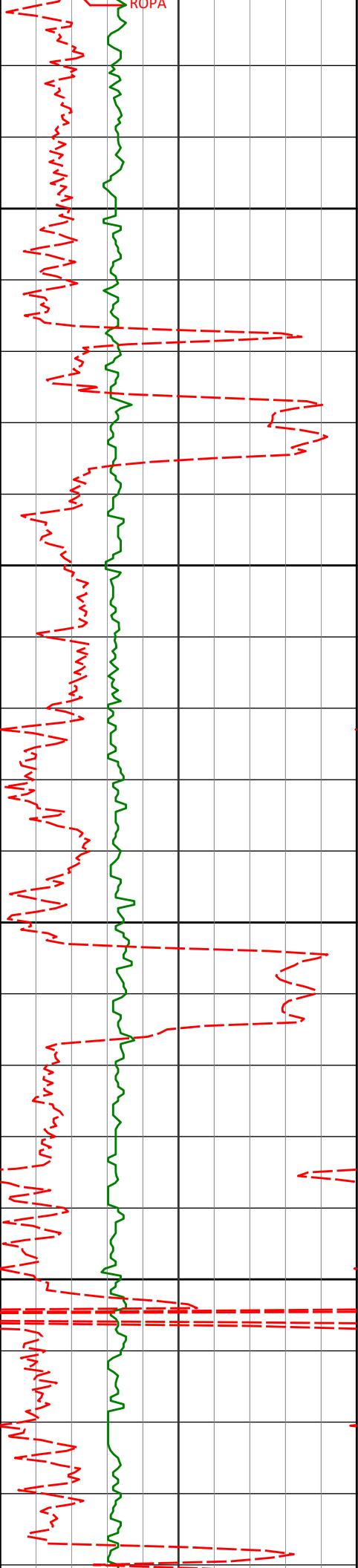
5753.60'

5754.27'

482.52'

570.10'

658.64'



7060'

89.81°

0.13°

5754.69'

748.24'

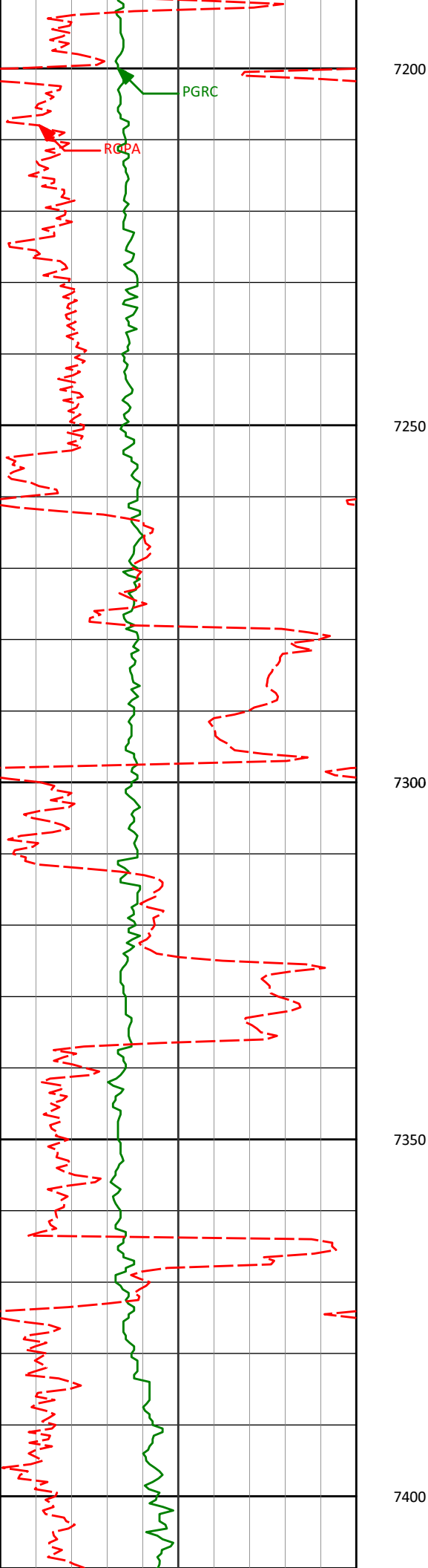
7146'

89.23°

359.57°

5755.41'

833.97'



7236'

90.71°

0.33°

5755.46'

923.68'

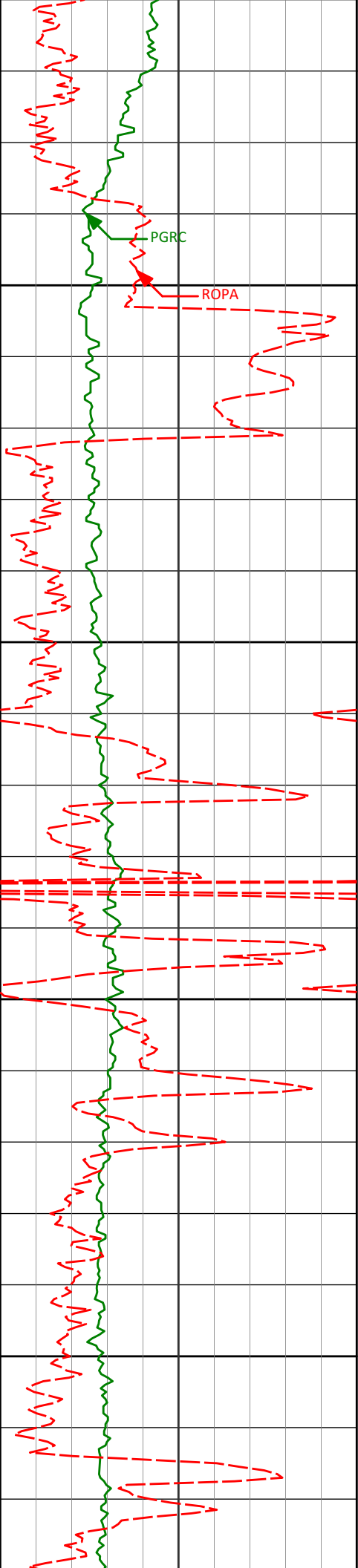
7324'

88.48°

1.01°

5756.08'

1011.30'



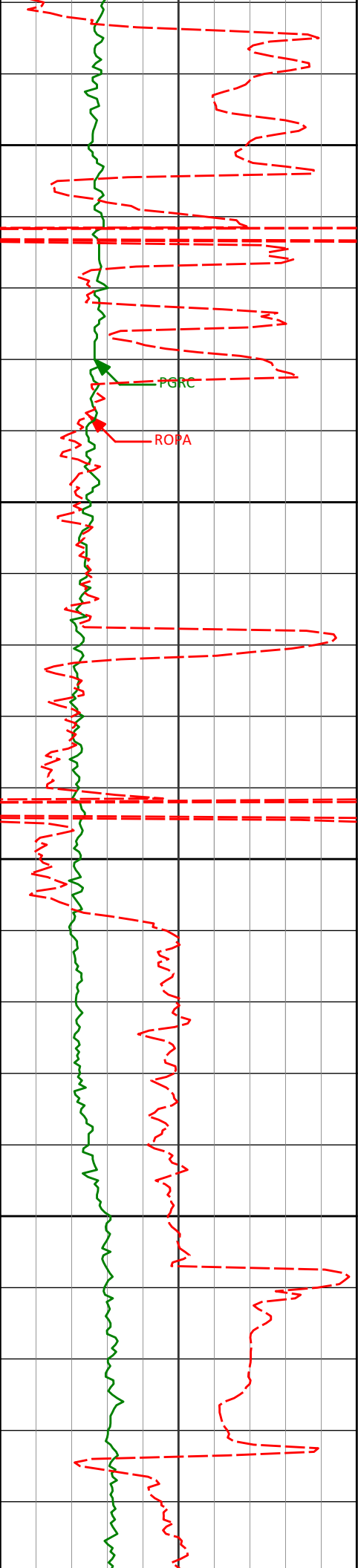
7450

7500

7550

7600

7411'	87.32°	0.25°	5759.27'	1097.87'
7498'	88.52°	359.24°	5762.42'	1184.56'
7588'	88.52°	358.57°	5764.75'	1274.36'



7650

7677'

88.61°

359.65°

5766.98'

1363.14'

7700

7750

7764'

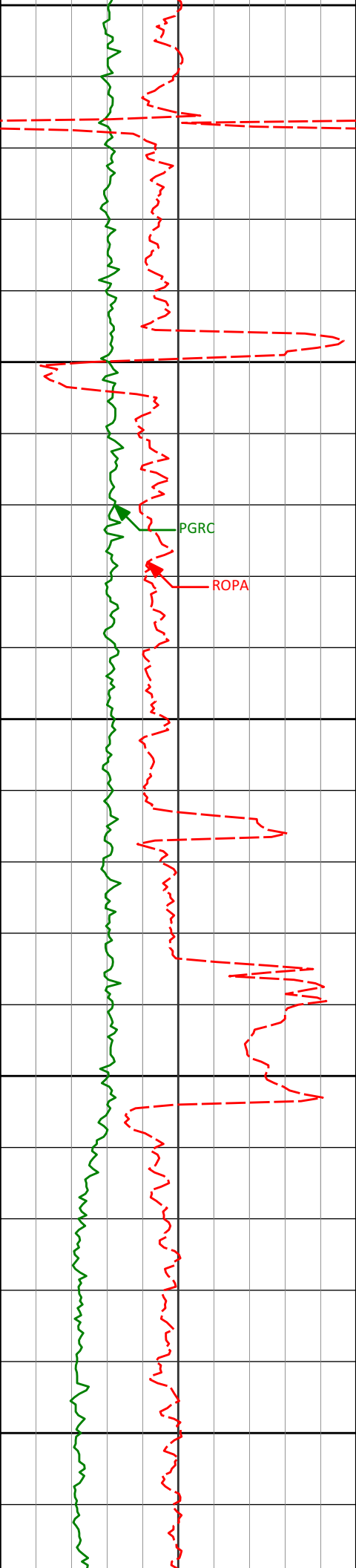
88.24°

359.68°

5769.37'

1449.86'

7800



7850

7853'

89.60°

359.80°

5771.05'

1538.58'

7900

PGRC

ROPA

7950

7943'

89.56°

358.95°

5771.71'

1628.36'

8000

8032'

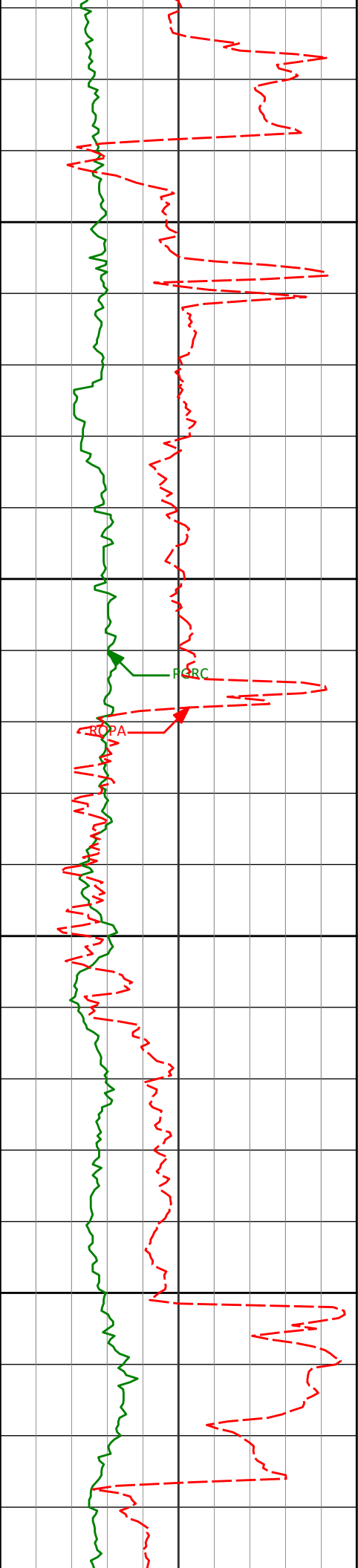
91.05°

0.38°

5771.23'

1717.10'

8050



8100

8122'

90.15°

0.39°

5770.29'

1806.75'

8150

FCRC

ACPA

8200

8209'

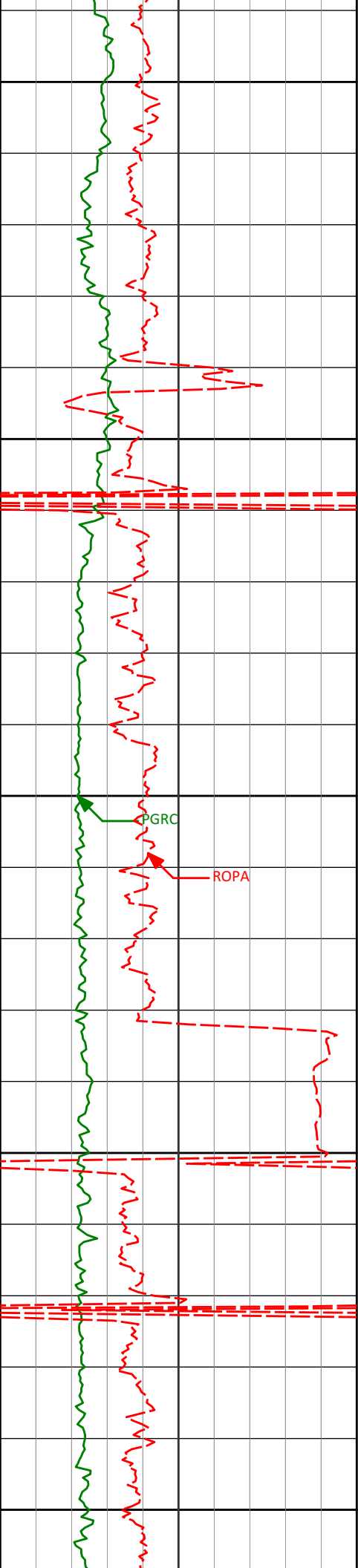
89.48°

359.57°

5770.57'

1893.47'

8250



8300

8299'

90.59°

0.03°

5770.52'

1983.20'

8350

8386'

89.41°

358.99°

5770.52'

2069.97'

8400

PGRC

ROPA

8450

8476'

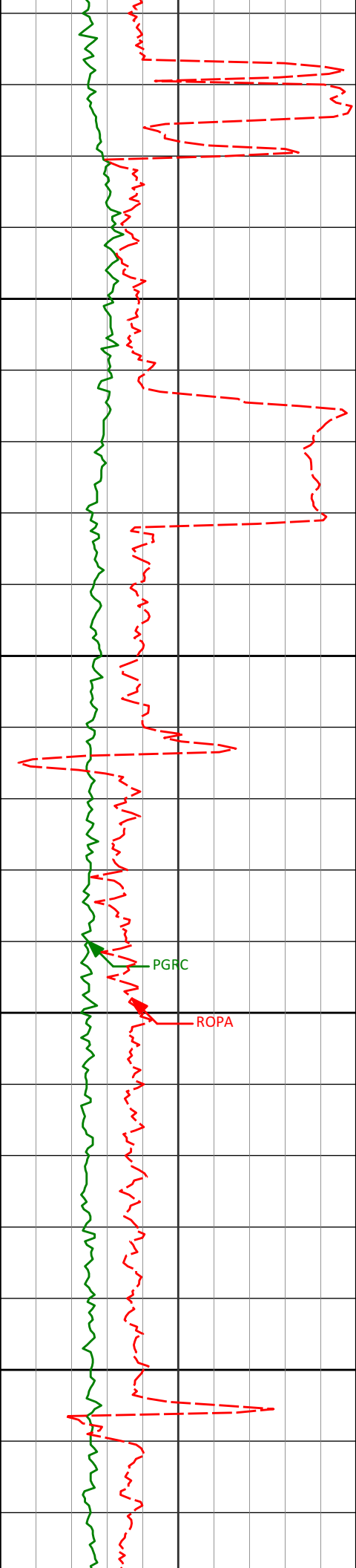
89.72°

359.66°

5771.20'

2159.75'

8500



8550

8568'

89.51°

0.03°

5771.82'

2251.47'

8600

8650

8660'

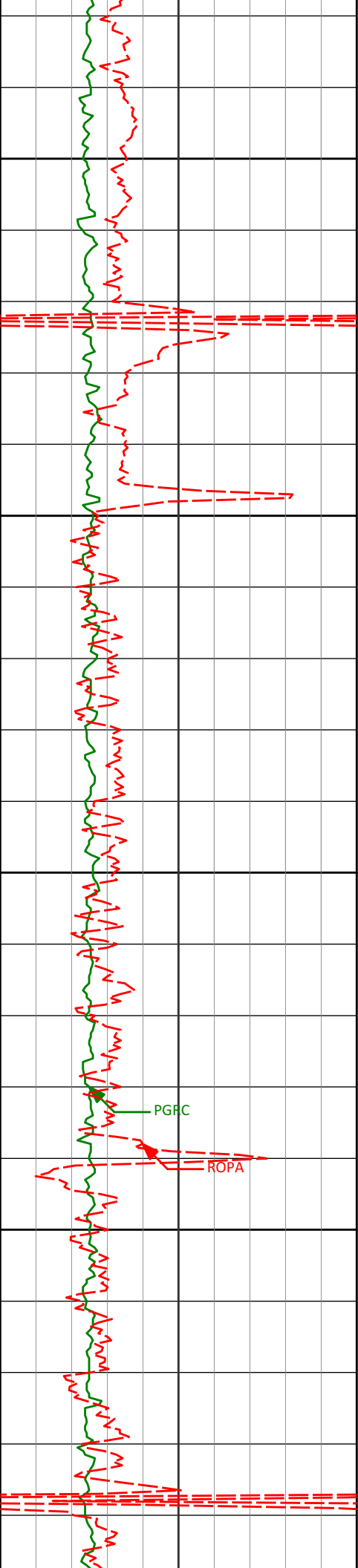
90.28°

0.49°

5771.99'

2343.13'

8700



8750

8752'

90.09°

0.54°

5771.69'

2434.76'

8800

8844'

90.17°

0.54°

5771.48'

2526.39'

8850

PGRC

ROPA

8900

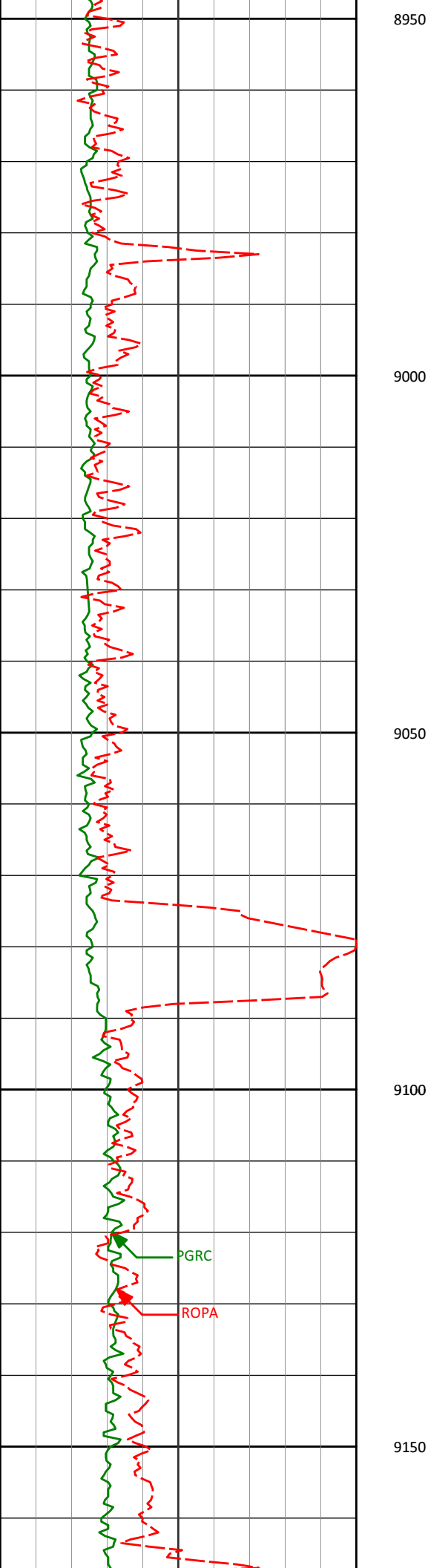
8936'

90.03°

0.96°

5771.32'

2617.98'



9028'

89.90°

0.81°

5771.38'

2709.56'

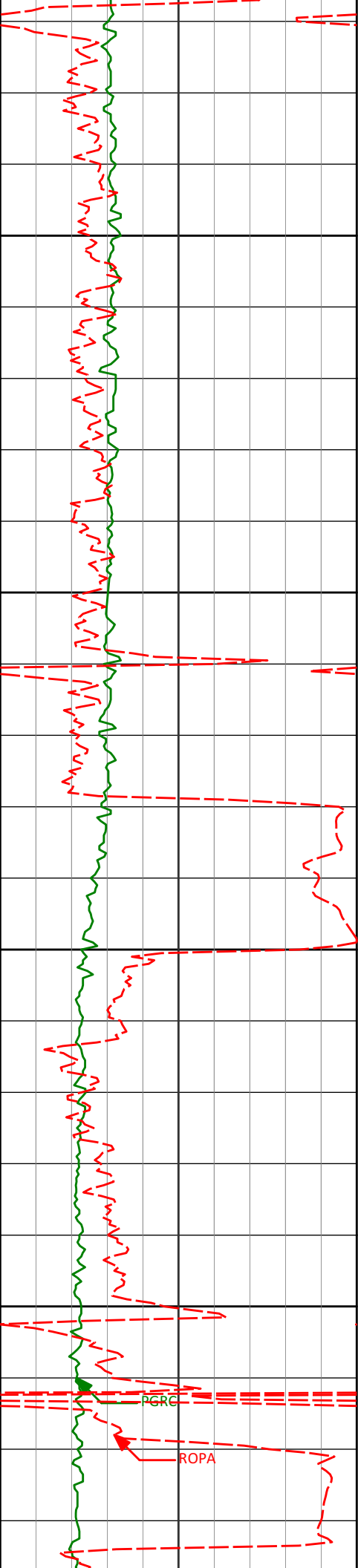
9120'

91.08°

0.13°

5770.59'

2801.19'



9200

9211'

89.69°

358.88°

5769.98'

2891.94'

9250

9300

9304'

91.51°

1.68°

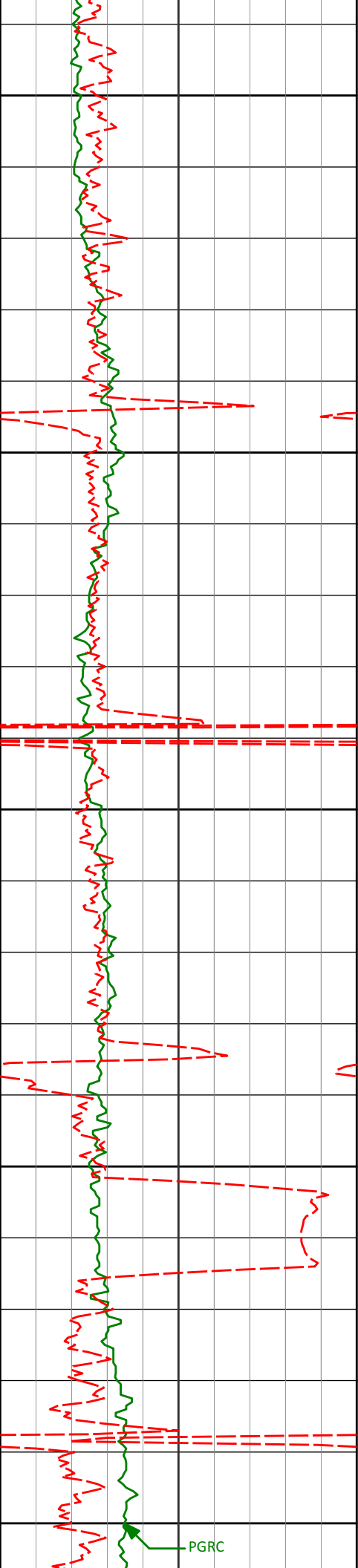
5769.00'

2984.58'

9350

PGRC

ROPA



9400

9450

9500

9550

9600

9395'

88.71°

359.59°

5768.83'

3075.19'

9488'

88.46°

359.31°

5771.13'

3167.92'

9580'

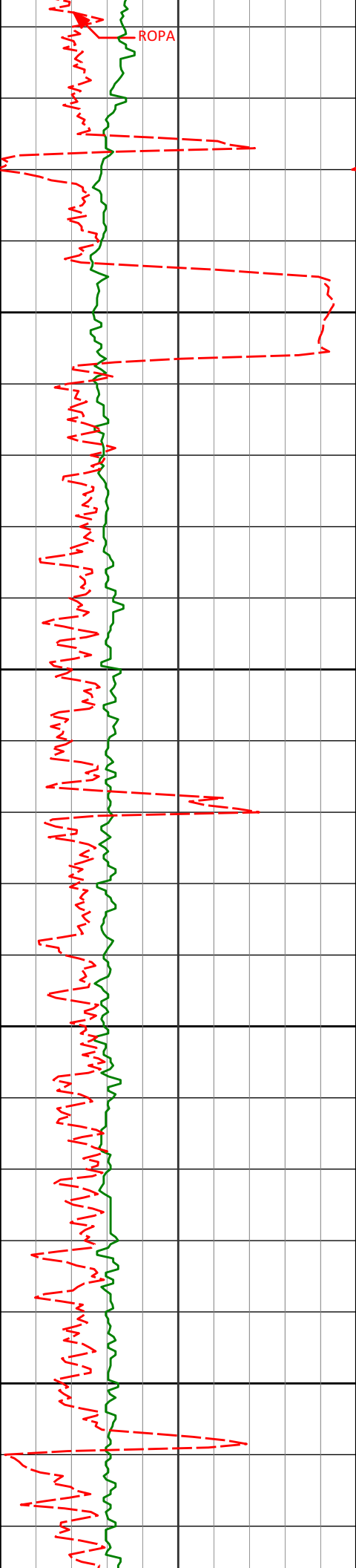
89.20°

358.68°

5773.00'

3259.72'

PGRC



9650

9672'

91.14°

359.45°

5772.73'

3351.52'

9700

9750

9764'

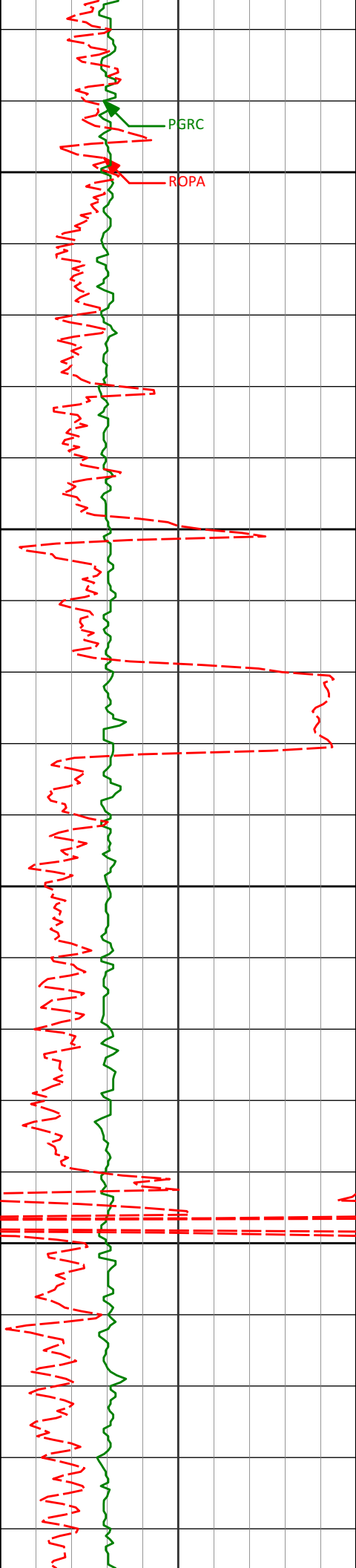
90.72°

0.63°

5771.24'

3443.20'

9800



9850

9856'

90.33°

1.70°

5770.40'

3534.73'

9900

9950

9948'

90.22°

0.81°

5769.95'

3626.24'

10000

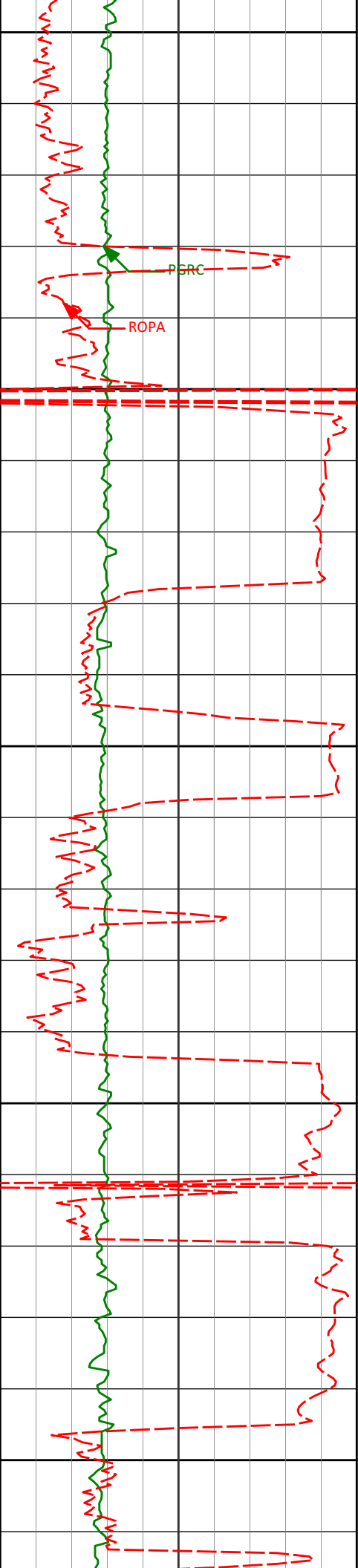
10039'

90.19°

3.23°

5769.63'

3716.62'



10050

PGRC

ROPA

10100

10130'

89.75°

1.11°

5769.68'

3806.97'

10150

10176'

90.75°

0.86°

5769.48'

3852.75'

10200

10222'

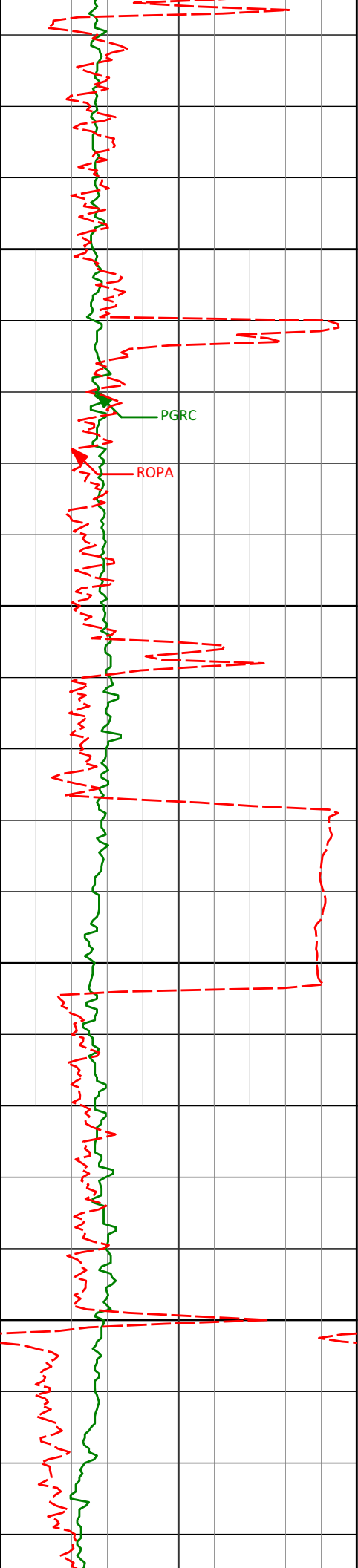
90.22°

359.12°

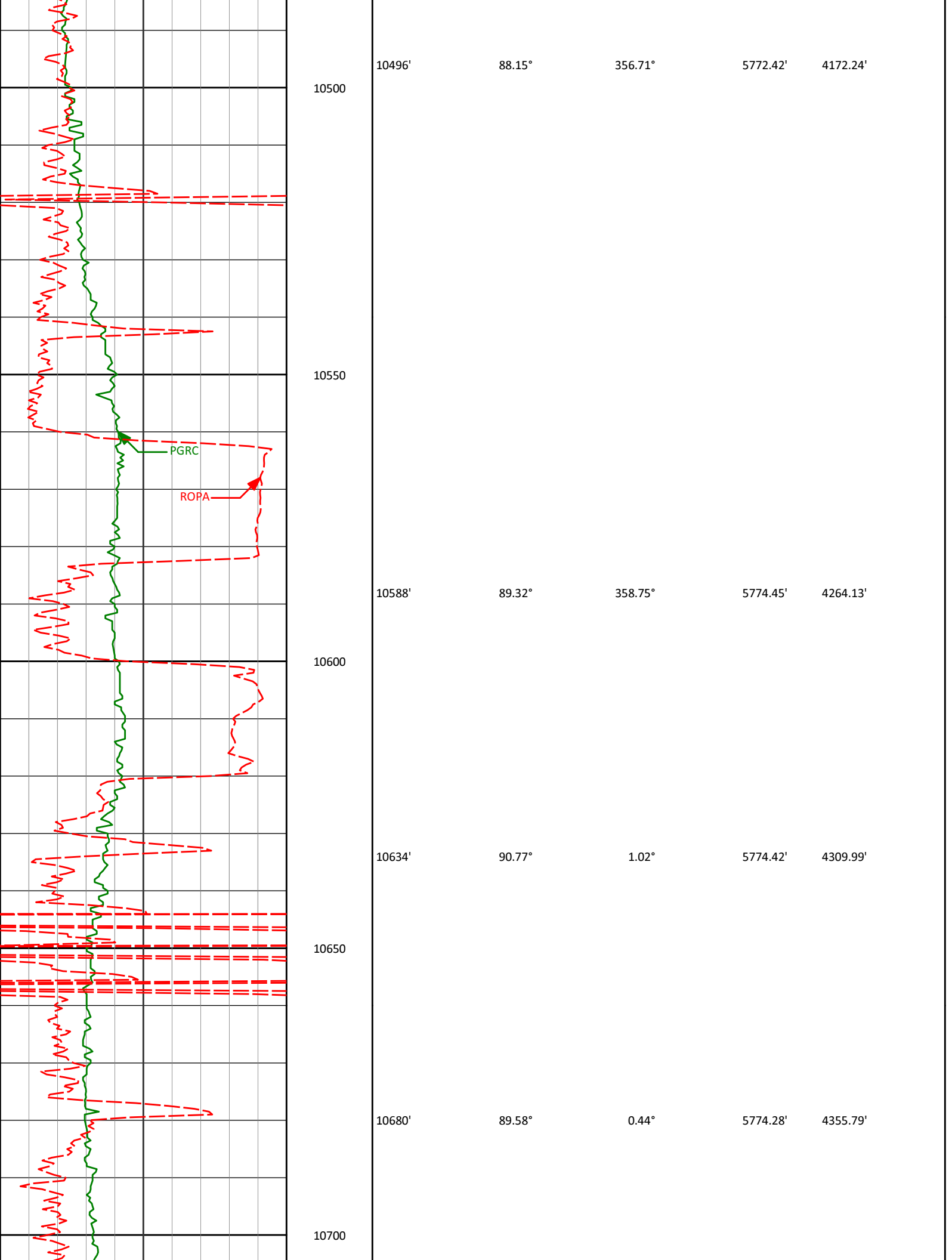
5769.09'

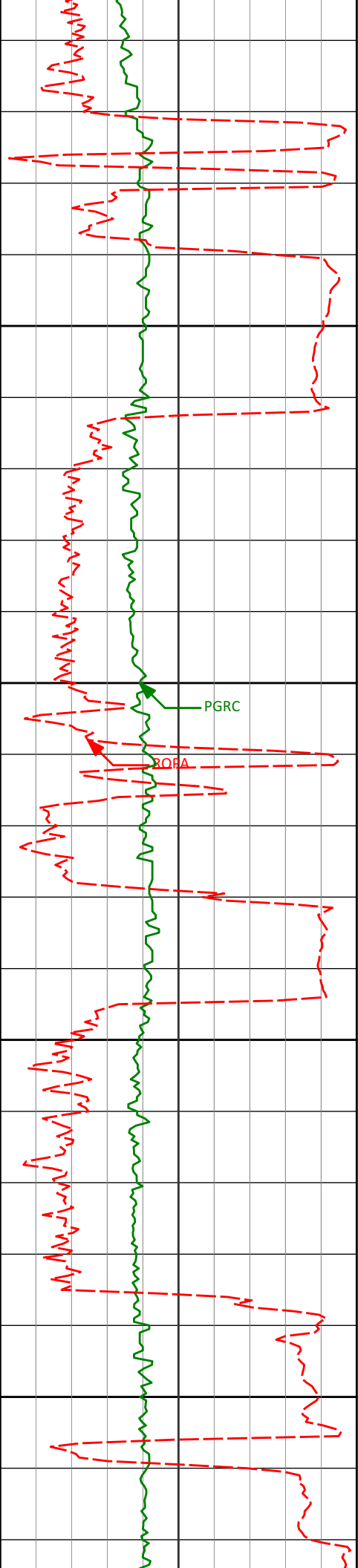
3898.60'

10250



10268'	89.97°	358.32°	5769.01'	3944.52'
10300				
10314'	90.39°	359.11°	5768.86'	3990.44'
10350				
10400				
10405'	88.49°	357.29°	5769.75'	4081.32'
10450				





10750

10772'

90.06°

1.05°

5774.57'

4447.38'

10800

PGRC

ROPA

10850

10863'

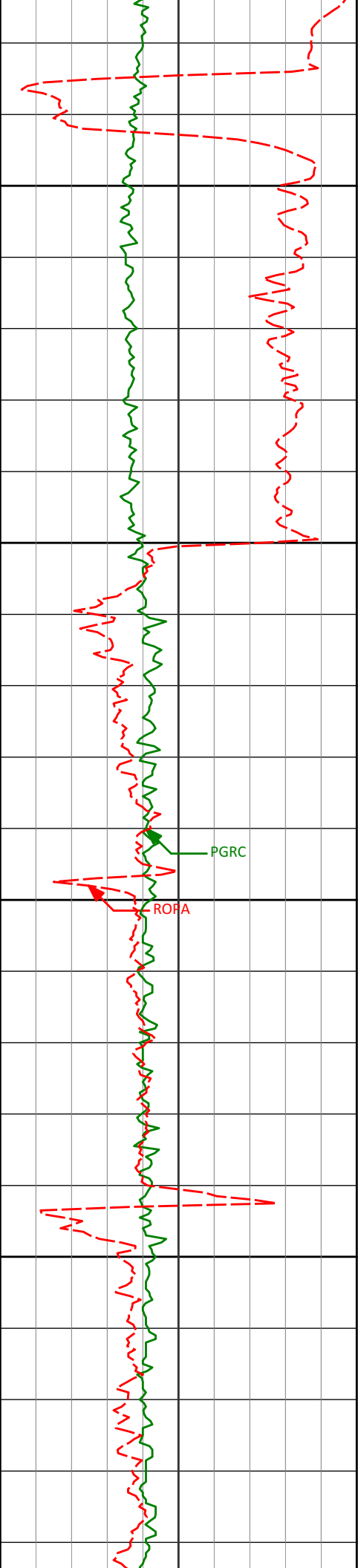
90.59°

0.28°

5774.05'

4537.99'

10900



10950

11000

11050

11100

10955'

11047'

11139'

90.89°

90.80°

91.88°

0.52°

0.41°

2.81°

5772.86'

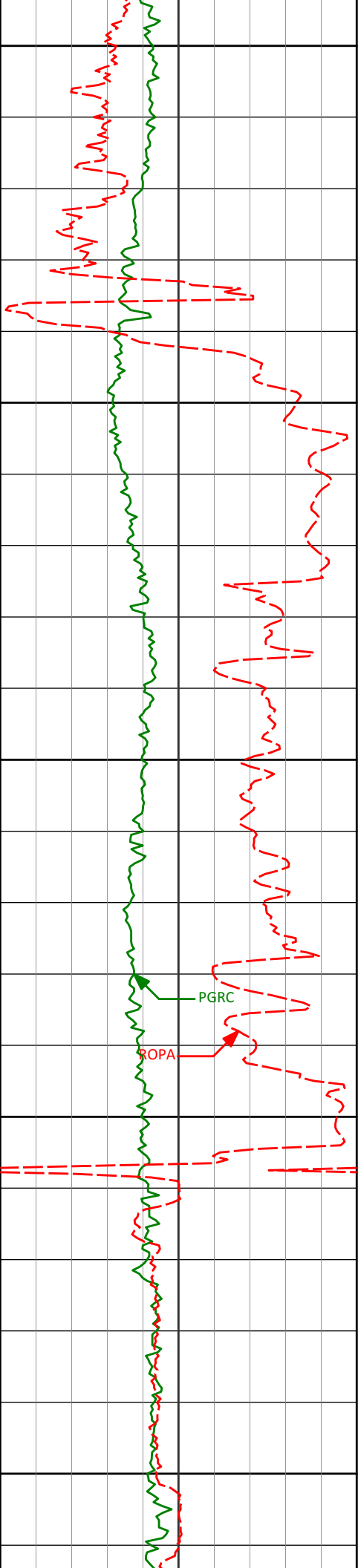
5771.50'

5769.35'

4629.63'

4721.25'

4812.67'



11150

11200

11231'

89.11°

0.85°

5768.56'

4904.07'

11250

PGRC

ROPA

11300

11323'

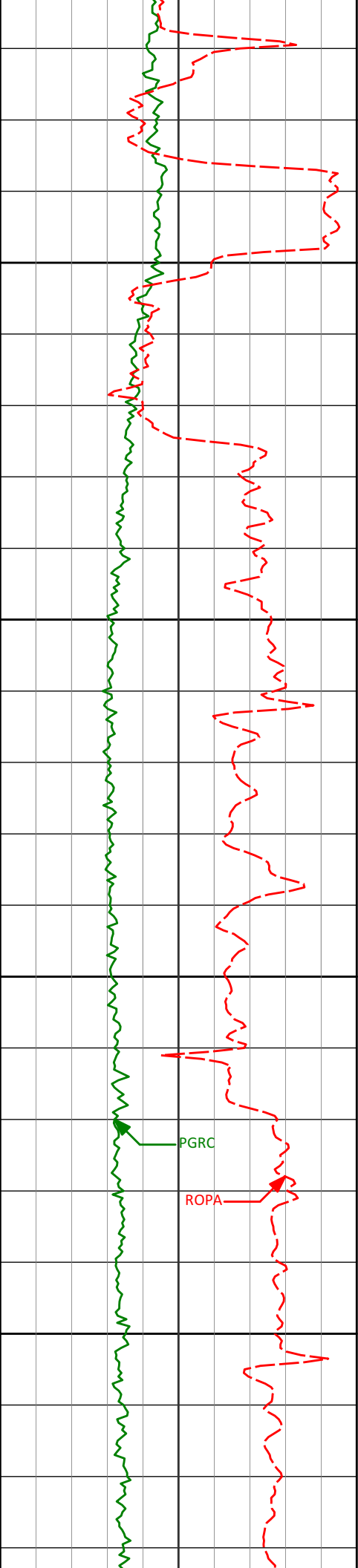
90.21°

0.94°

5769.10'

4995.64'

11350



11400

11415'

89.37°

359.32°

5769.44'

5087.32'

11450

11500

11506'

89.32°

359.73°

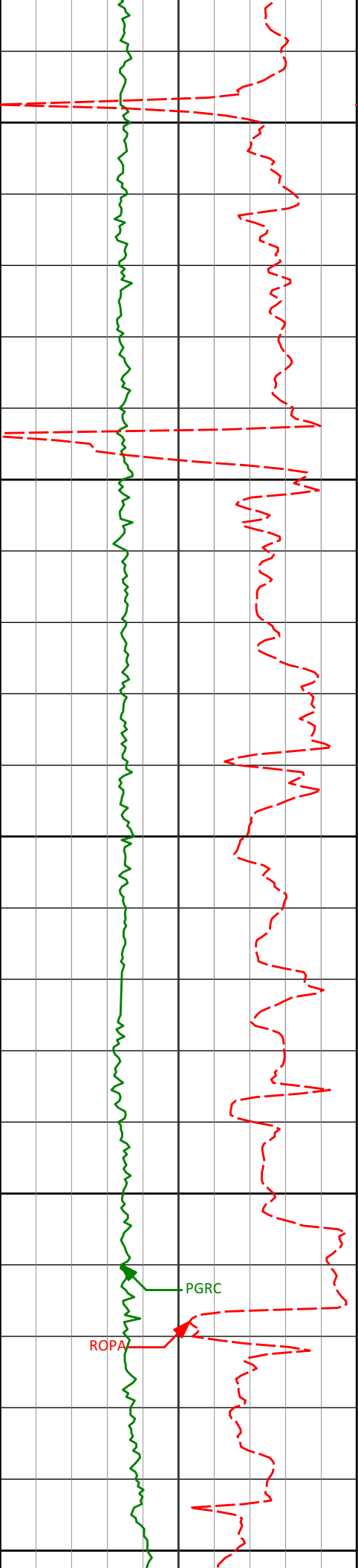
5770.48'

5178.08'

11550

PGRC

ROPA



11600

11650

11700

11750

11800

11598'

11690'

11782'

89.91°

89.14°

89.94°

359.40°

357.98°

359.03°

5771.10'

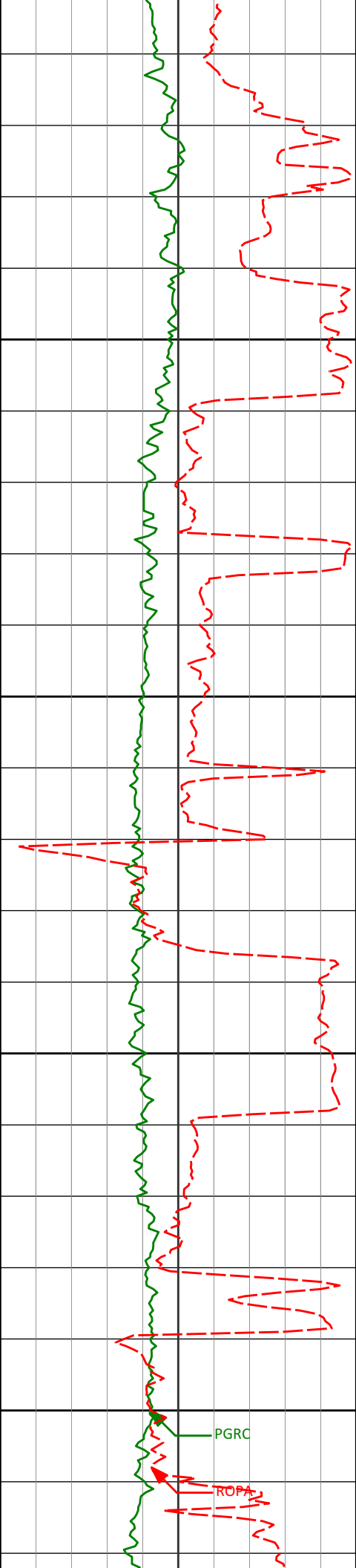
5771.86'

5772.60'

5269.83'

5361.67'

5453.52'



11850

11874'

89.63°

357.61°

5772.95'

5545.40'

11900

11950

11967'

89.72°

359.03°

5773.47'

5638.27'

12000

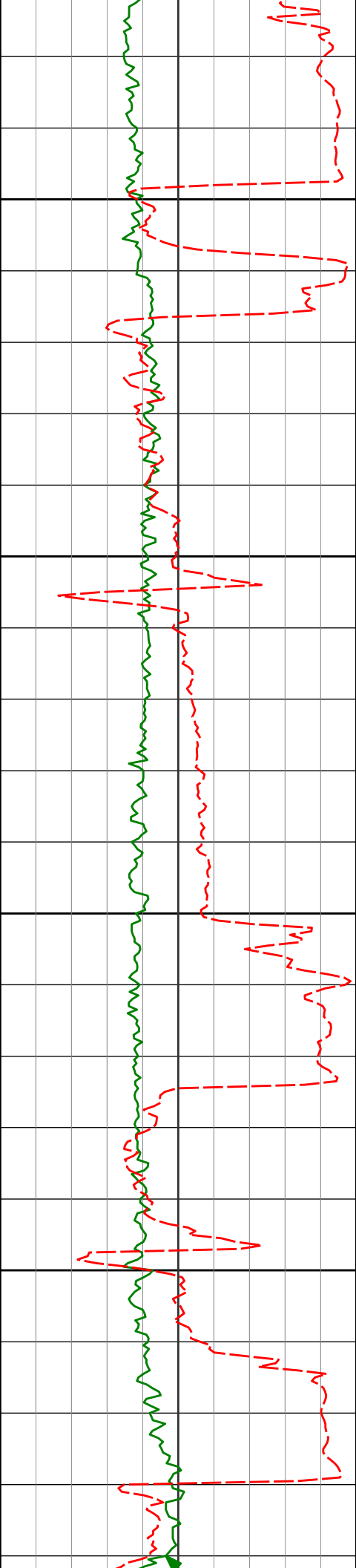
12013'

89.94°

359.00°

5773.61'

5684.18'



12050

12059'

91.48°

1.39°

5773.04'

5730.01'

12100

12106'

90.92°

0.08°

5772.06'

5776.79'

12150

12151'

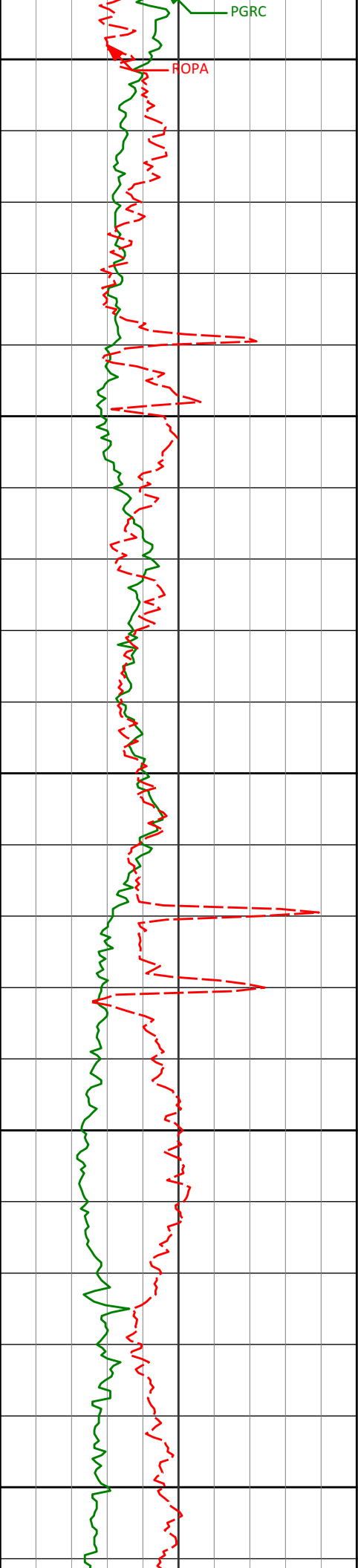
90.40°

359.63°

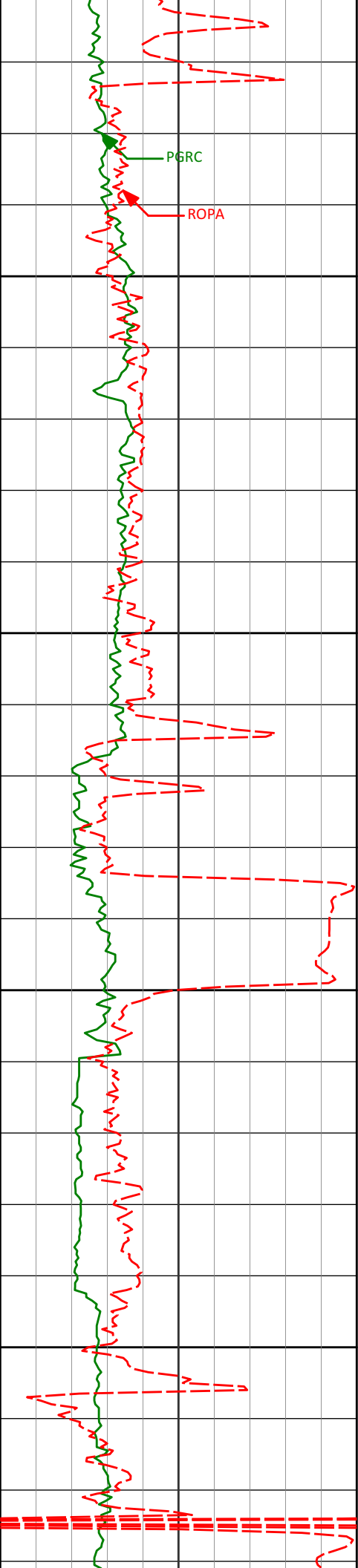
5771.54'

5821.65'

12200



	12243'	92.59°	0.52°	5769.14'	5913.30'
12250					
12300					
	12334'	92.10°	359.86°	5765.41'	6003.90'
12350					
12400					
	12427'	91.88°	359.30°	5762.19'	6096.60'
12450					



12500

12550

12600

12650

12519'

91.33°

358.55°

5759.61'

6188.38'

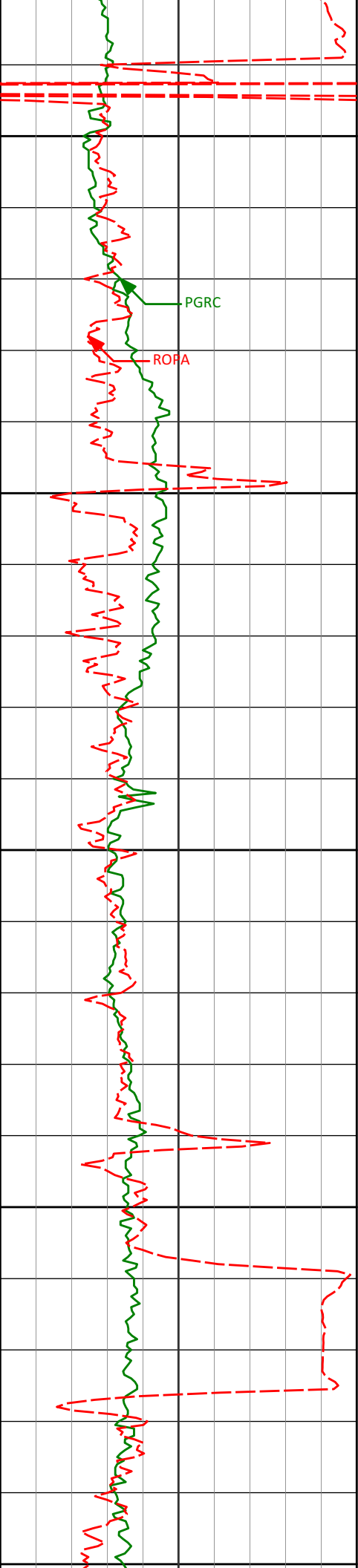
12610'

90.86°

359.29°

5757.87'

6279.19'



12700

12702'

90.70°

359.95°

5756.62'

6370.93'

PGRC

ROFA

12750

12800

12794'

90.77°

359.21°

5755.44'

6462.67'

12850

12886'

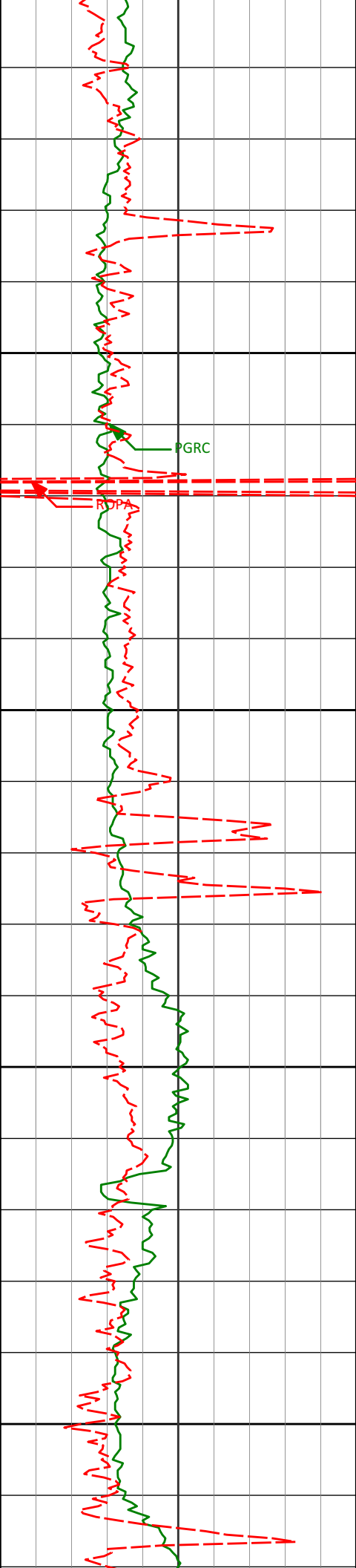
90.16°

1.34°

5754.69'

6554.33'

12900



12950

12950

PGR

12977'

89.65°

0.90°

5754.84'

6644.87'

13000

13050

13069'

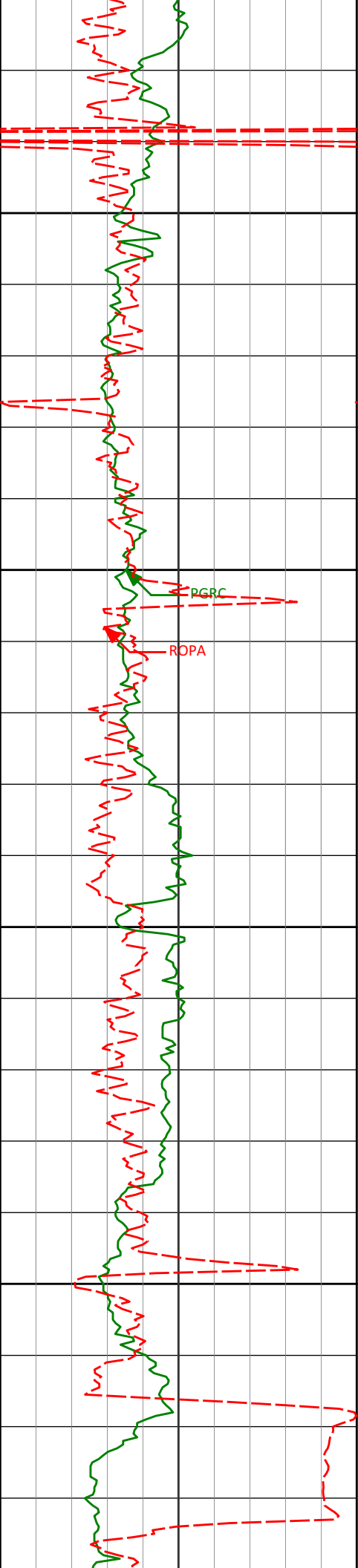
89.17°

0.96°

5755.79'

6736.43'

13100



13150

13160'

89.26°

0.83°

5757.04'

6827.00'

13200

PGRC

ROPA

13250

13252'

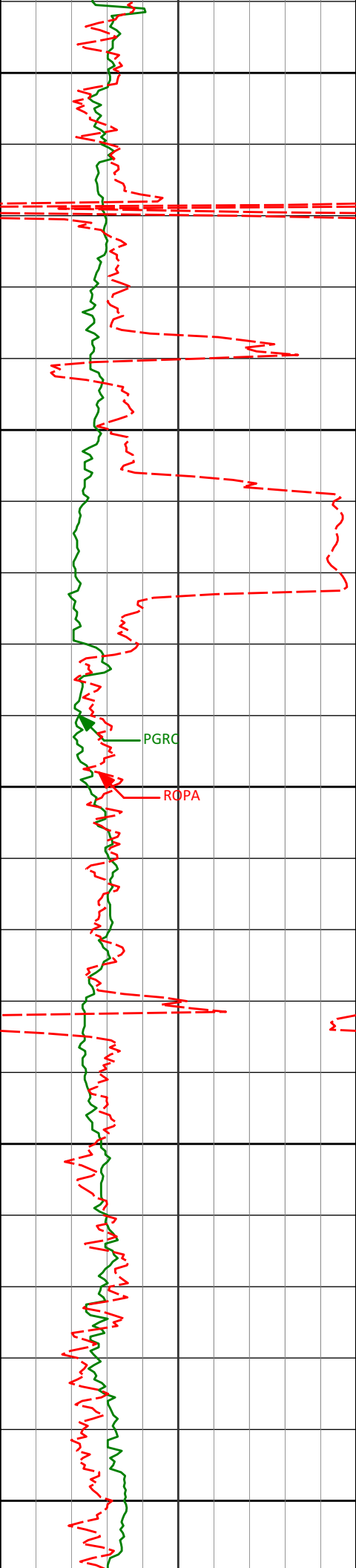
89.11°

1.55°

5758.34'

6918.51'

13300



13350

13400

13450

13500

13550

13344'

89.51°

1.40°

5759.45'

7009.98'

13436'

89.25°

359.50°

5760.45'

7101.61'

13527'

88.67°

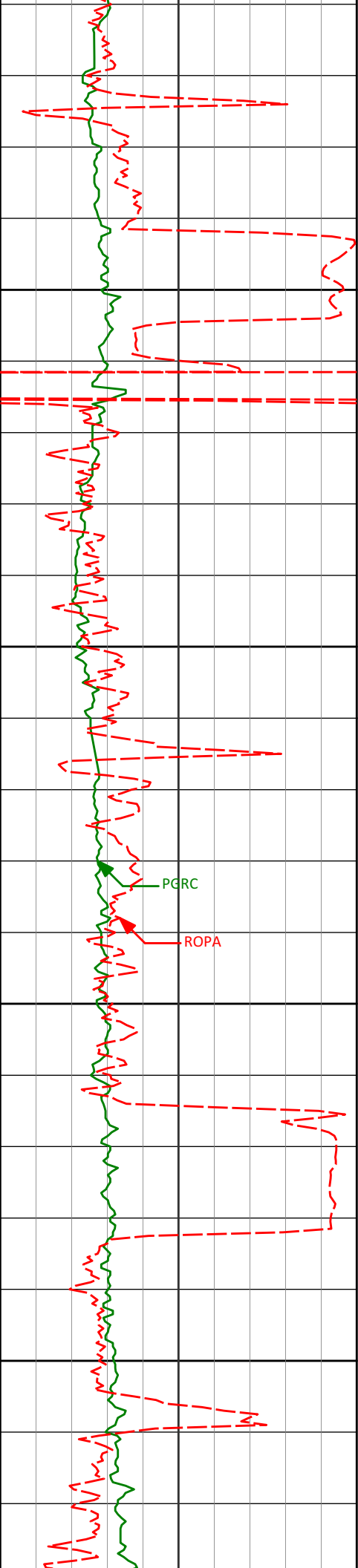
359.22°

5762.10'

7192.38'

PGRC

ROPA



13600

13650

13700

13750

13619'

89.57°

358.27°

5763.51'

7284.21'

13711'

89.87°

358.02°

5763.96'

7376.10'

