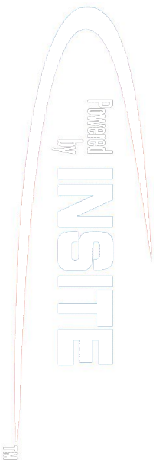


PCGK : Pressure Case Gamma
PCDC: Pressure Case Directional

1 : 600 / 1 : 240

Country : USA			
Field : Wattenberg			
Location : Lat: 40° 42' 54.07" North Long: 103° 58' 48.68" West			
Well : Brook LC28-75-1BHNC			
Company : Noble Energy			
Rig : H&P 273			
LOCATION		Company : Noble Energy Rig : H&P 273 Well : Brook LC28-75-1BHNC Field : Wattenberg Country : USA API Number : 05-123-38845	
Latitude : 40° 42' 54.07" North Longitude : 103° 58' 48.68 " West UTM Easting = 3,421,295,220 ft UTM Northing = 1,506,936,130 ft			
Permanent Datum : Ground Level		Elev. : 4843.00 ft	
Log Measured From : Drill Floor		24.00 ft Above Permanent Datum	
Drilling Measured From : Drill Floor		MD LOG	
Depth Logged : 628.00 ft To 10,435.00 ft		Unit No. : 11703717	
Date Logged : 13-Jul-14 To 19-Jul-14		Job No. : CA-XX-0901399781	
Total Depth MD : 10,435.00 ft TVD: 6,136.43 ft		Plot Type : Final	
Spud Date : 13-Jul-14		Plot Date : 19-Jul-14	
Run No.	Borehole Record (MD)		Run No.
	Size	From	
2	8.750 in	628.00 ft	4,304.00 ft
3	8.750 in	4,304.00 ft	6,506.00 ft
4	6.125 in	6,506.00 ft	10,435.00 ft
	</		

MD LOG
WELL INFORMATION

MWD Run Number	200	300	400		
Date run completed	15-Jul-14	16-Jul-14	19-Jul-14		
Rig Bit Number	2	3	4		
Bit Size (in)	8.750	8.750	6.125		
Tool Nominal OD (in)	6.750	6.750	4.750		
Log Start Depth (MD, ft)	628.00	4,304.00	6,506.00		
Log End Depth (MD, ft)	4,304.00	6,506.00	10,435.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	14-Jul-14 12:40	15-Jul-14 07:15	17-Jul-14 04:00		
Drill/Wipe End Date and Time	14-Jul-14 23:00	16-Jul-14 05:05	19-Jul-14 04:30		
Min Inc (deg) @ Depth (MD, ft)	0.06 @ 1,274.00	0.65 @ 5,337.00	87.29 @ 8,546.00		
Max Inc (deg) @ Depth (MD, ft)	8.61 @ 2,781.00	86.55 @ 6,446.00	91.94 @ 8,168.00		
Bit TFA(in2) / Bit Type	0.74 / PDC	0.86 / PDC	0.75 / PDC		
Flow Rate (gpm)	588.00	546.94	297.00		
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A		
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel		
Density (ppg) / Viscosity (spqt)	8.70 / 27.00	10.55 / 37.00	10.25 / 37.00		
Filtrate CL (ppm)	200.00	200.00	200.00		
pH / Fluid Loss (mptm)	8.90 / 10	8.40 / 0	9.10 / 0		
PV (cP) / YP (lbf/ft2)	1 / 1.00	12 / 9.00	10 / 8.00		
% Solids / % Sand	2.7 / 0	10.60 / 0.10	9.30 / 0.10		
% 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	142.25 / PCM	172.78 / PCM	221.80 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Lead MWD Engineer	Juan Pablo Centeno	Juan Pablo Centeno	Juan Pablo Centeno		
Customer Representative	Justin Fields	Justin Fields	Dave Nielsen		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.93	5.93	5.93		
Sub Serial Number	245494	245494	11670083		
Insert Serial Number	11620315	12001048	11620315		
Date and Time Initialized	13-Jul-14 23:29	15-Jul-14 01:49	16-Jul-14 09:34		
Date and Time Read	15-Jul-14 15:34	16-Jul-14 10:20	19-Jul-14 13:48		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	53.97	57.72	62.87		
Software Version	6.21	6.21	6.21		
Sub Serial Number	245494	245494	11670083		
Sonde Serial Number	11638628	11297623	11638628		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	121.49	36.00	308.25		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	48.87	52.62	57.77		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	245494	245494	11670083		
Insert/Sonde Serial Number	11579806	11293276	11579806		

REMARKS

1. All depths are calibrated to the driller's pipe tally and are measured from the rig 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.
 - ROPA: Average Rate of Penetration is real time data.
 - PGRC: Smooth Pressure Case Gamma Ray Borehole corrected is recorded data.
4. The following smoothing parameters have been applied to the data:
 - All 2" (1:600) logs - 1 ft. interval, 3 ft. coercion distance.
 - All 5" (1:240) logs - .5 ft. interval, .6 ft. coercion distance.
5. INSITE version 8.0.20
6. Gamma presented inside casing/cement from 6453 ft. MD to 6506 ft. MD.

WARRANTY

HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS

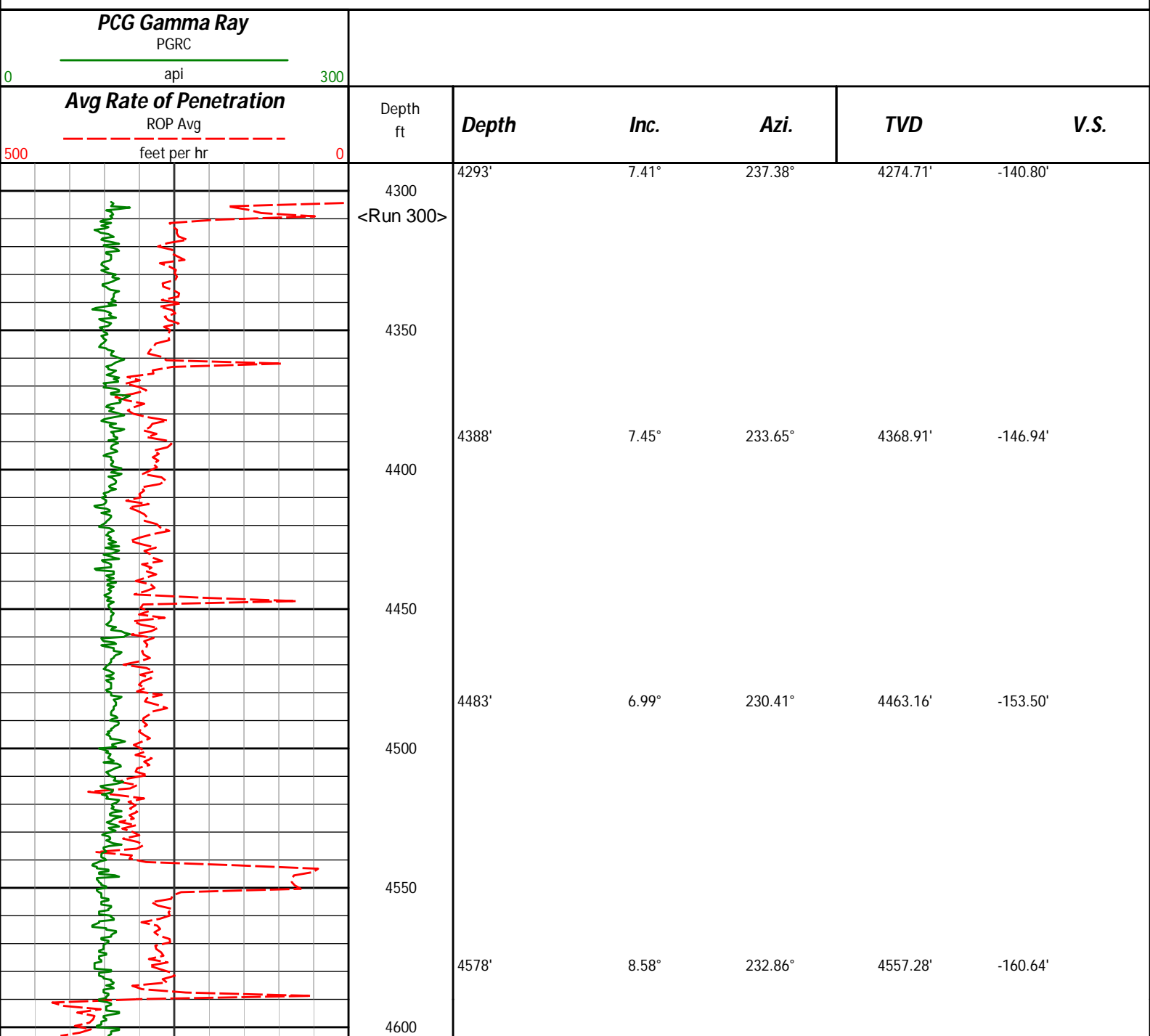
THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, 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.

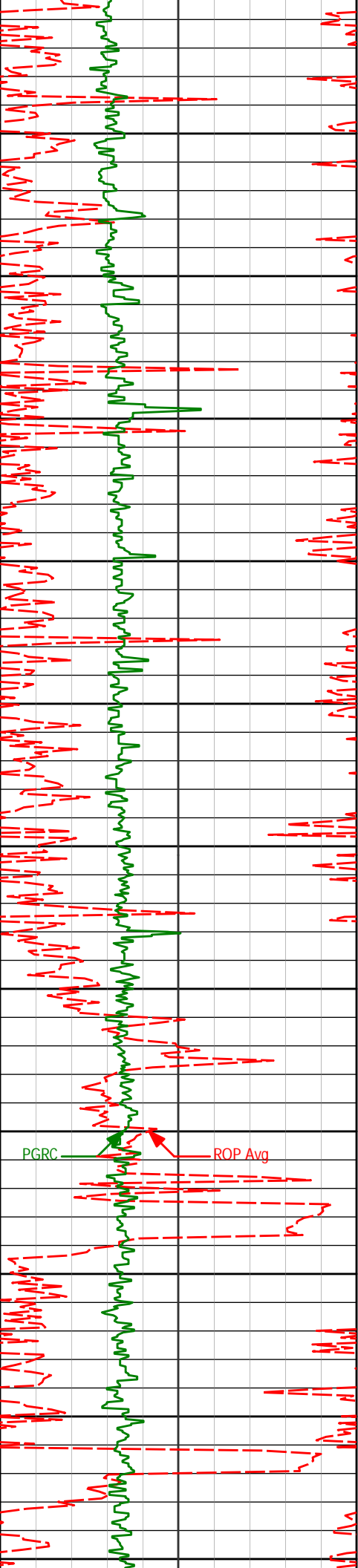
HALLIBURTON

Sperry Drilling Services

MD Main Log 1:600

Noble Energy, Inc
Brook LC28-75-1BHNC
H&P 273
T9N R59W





4650

4673'

8.01°

234.28°

4651.29'

-167.88'

4700

4750

4768'

7.44°

235.27°

4745.43'

-174.40'

4800

4850

4863'

6.70°

236.59°

4839.70'

-180.17'

4900

4950

4957'

6.24°

233.19°

4933.10'

-185.55'

5000

5050

5052'

4.03°

228.96°

5027.72'

-190.29'

5100

5150

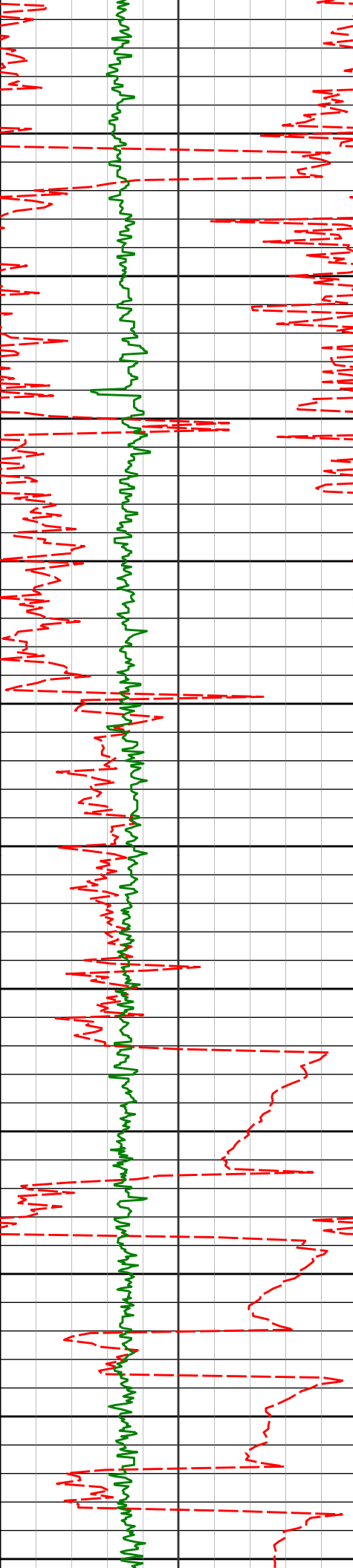
5147'

1.83°

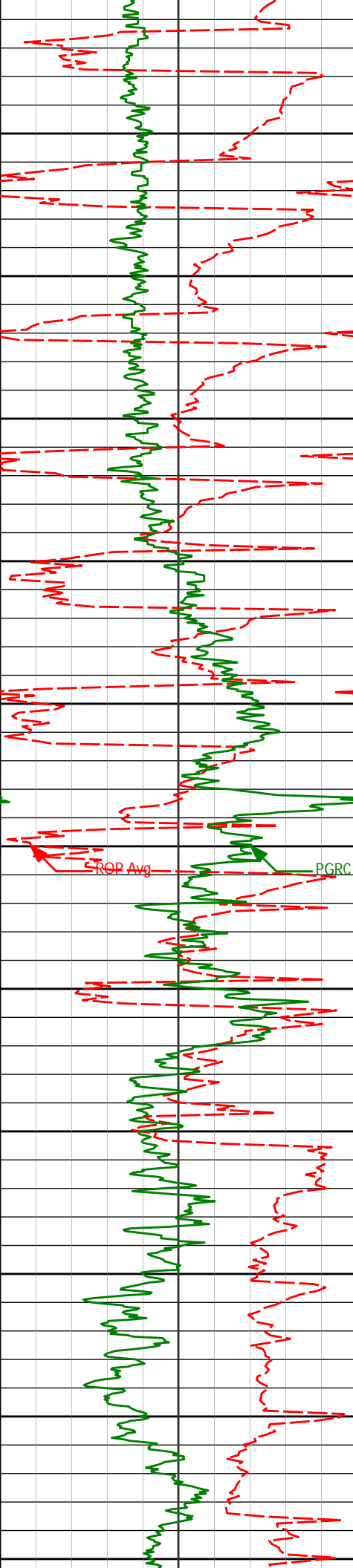
199.70°

5122.59'

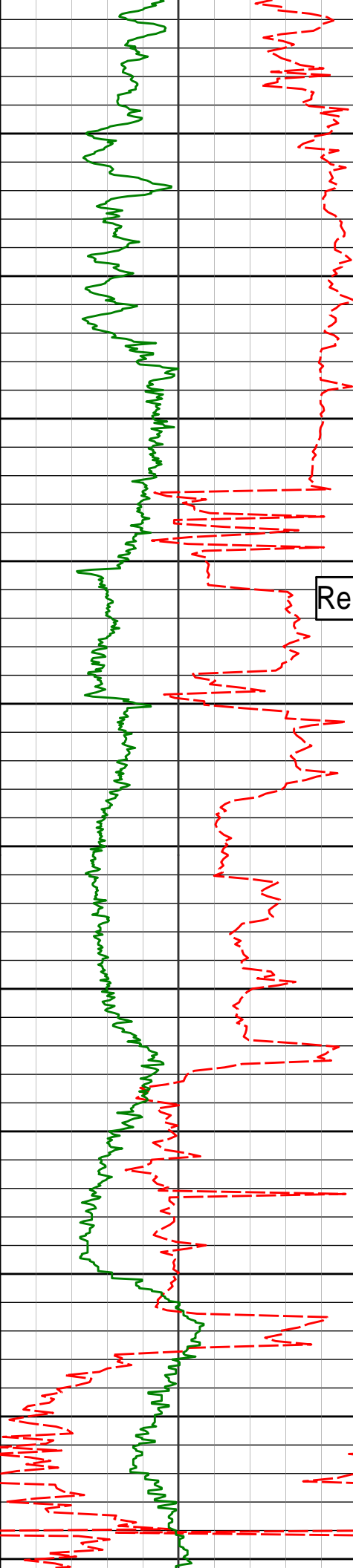
-193.66'



5200				
5242'	0.86°	105.09°	5217.57'	-195.29'
5250				
5300				
5337'	0.65°	97.79°	5312.56'	-195.64'
5350				
5400				
5431'	0.88°	102.09°	5406.56'	-195.96'
5450				
5500				
<KOP> 5526'	2.05°	41.74°	5501.53'	-195.00'
5550				
5573'	6.91°	27.43°	5548.37'	-192.02'
5600				
5621'	11.09°	18.21°	5595.77'	-185.31'
5650				
5668'	16.00°	18.15°	5641.45'	-175.16'
5700				



5716'	20.10°	16.24°	5687.08'	-161.34'
5750				
5763'	24.26°	11.98°	5730.60'	-144.52'
5800				
5811'	27.03°	2.99°	5773.88'	-124.24'
5850				
5858'	31.65°	357.72°	5814.85'	-101.32'
5900				
5906'	35.22°	357.38°	5854.90'	-74.89'
5950				
5953'	36.63°	0.34°	5892.96'	-47.37'
6000				
6000'	40.49°	1.87°	5929.71'	-18.23'
6050				
6047'	44.41°	1.21°	5964.38'	13.31'
6100				
6095'	48.69°	0.63°	5997.38'	47.99'
6150				
6142'	51.61°	359.34°	6027.50'	83.96'
6190'	58.32°	356.97°	6055.04'	123.19'
6200				
6237'	64.27°	355.69°	6077.61'	164.39'
6250				



6300

6350

6400

6450

6500

6550

6600

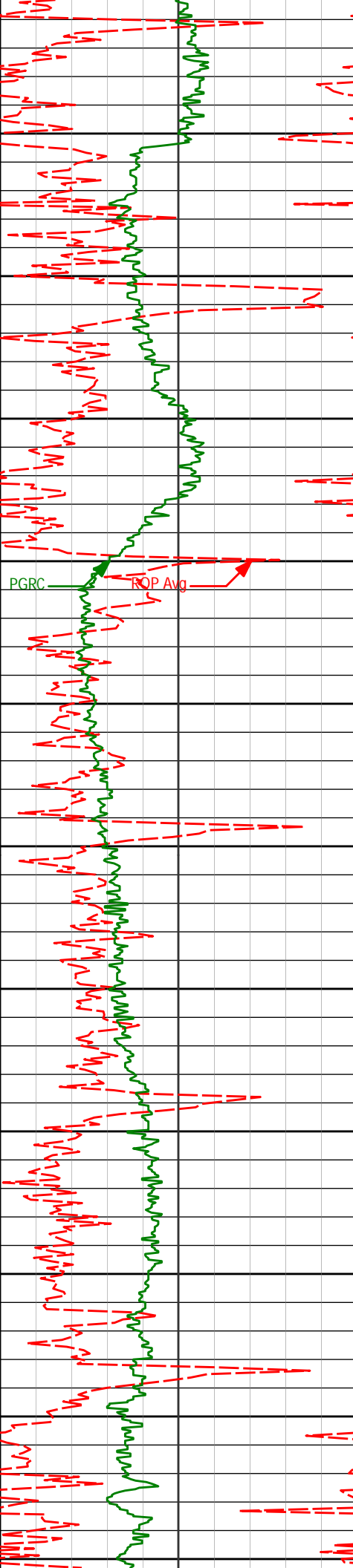
6650

6700

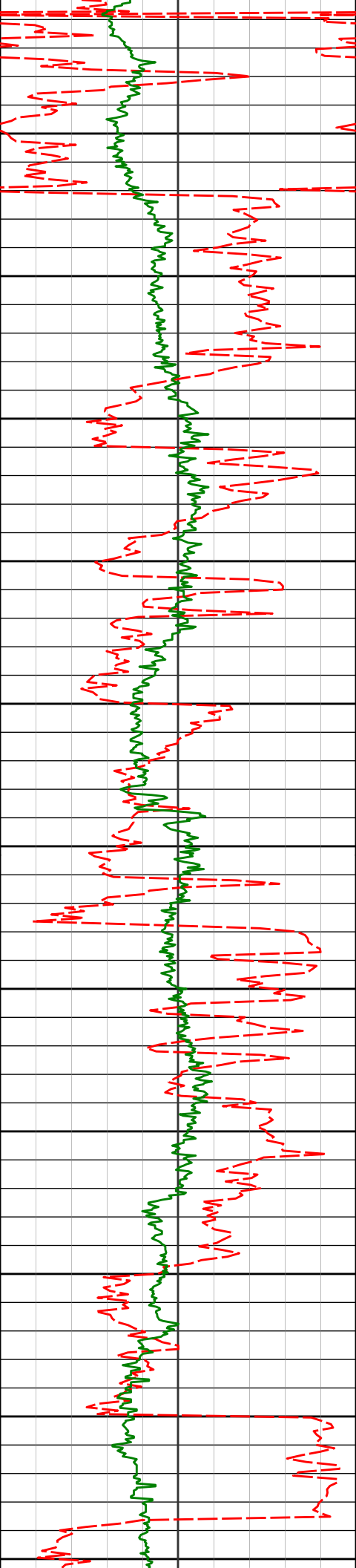
6750

6800

6285'	69.32°	356.82°	6096.52'	208.48'
6380'	80.49°	0.14°	6121.23'	299.92'
6446'	86.55°	0.59°	6128.67'	365.23'
<7" casing set at 6496' MD>				
6555'	87.75°	359.91°	6134.09'	473.71'
6650'	88.89°	359.97°	6136.88'	568.38'
6745'	89.91°	1.15°	6137.87'	663.00'



6840'	89.35°	0.57°	6138.49'	757.57'
6850				
6900				
6934'	90.80°	0.20°	6138.36'	851.23'
6950				
7000				
7029'	91.14°	359.99°	6136.75'	945.90'
7050				
7100				
7124'	90.40°	358.51°	6135.47'	1040.68'
7150				
7200				
7219'	91.08°	358.84°	6134.25'	1135.53'
7250				
7300				
7314'	91.20°	359.16°	6132.36'	1230.33'
7350				



7400

7409'

91.29°

359.01°

6130.29'

1325.12'

7450

7500

7503'

91.17°

358.38°

6128.26'

1418.94'

7550

7600

7598'

90.62°

357.26°

6126.78'

1513.85'

7650

7700

7693'

90.06°

356.76°

6126.22'

1608.81'

7750

7800

7788'

89.35°

355.18°

6126.71'

1703.81'

7850

7900

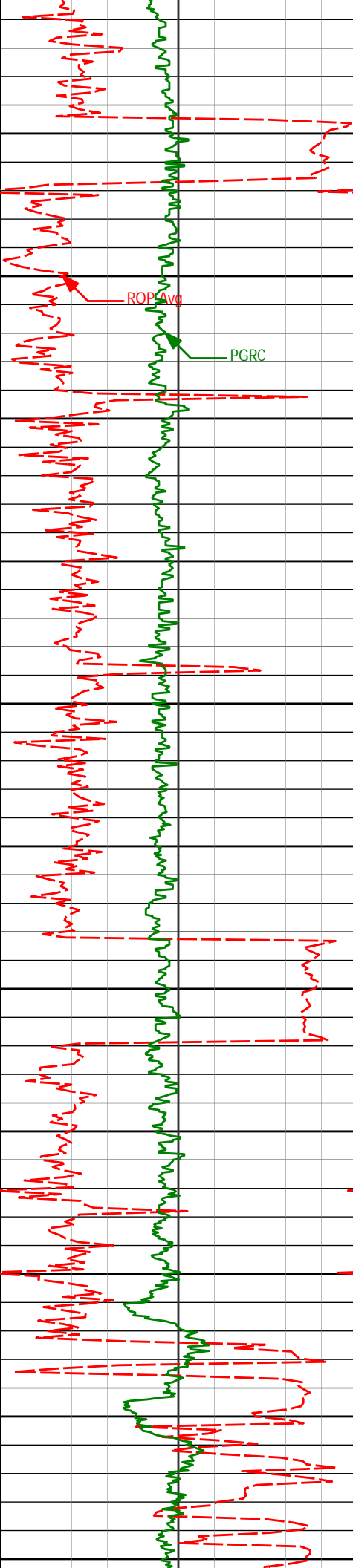
7883'

90.28°

358.37°

6127.02'

1798.77'



7950

7978'

90.77°

0.97°

6126.15'

1893.50'

8000

ROPS

PGRC

8050

8073'

90.49°

1.07°

6125.10'

1988.05'

8100

8150

8168'

91.94°

1.82°

6123.08'

2082.51'

8200

8250

8263'

89.48°

2.17°

6121.90'

2176.88'

8300

8350

8357'

87.47°

1.91°

6124.41'

2270.22'

8400

8450

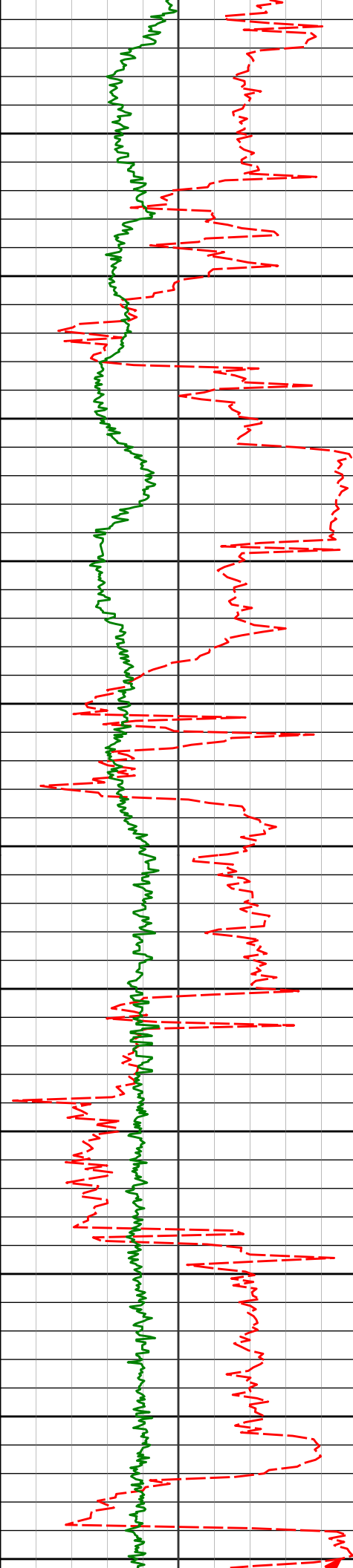
8452'

87.32°

0.65°

6128.72'

2364.63'



8500

8550

8600

8650

8700

8750

8800

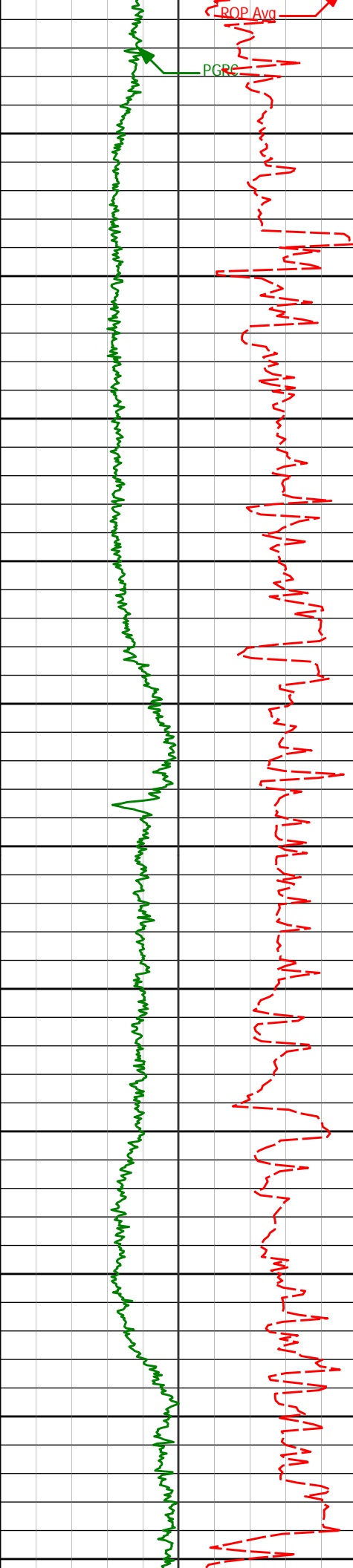
8850

8900

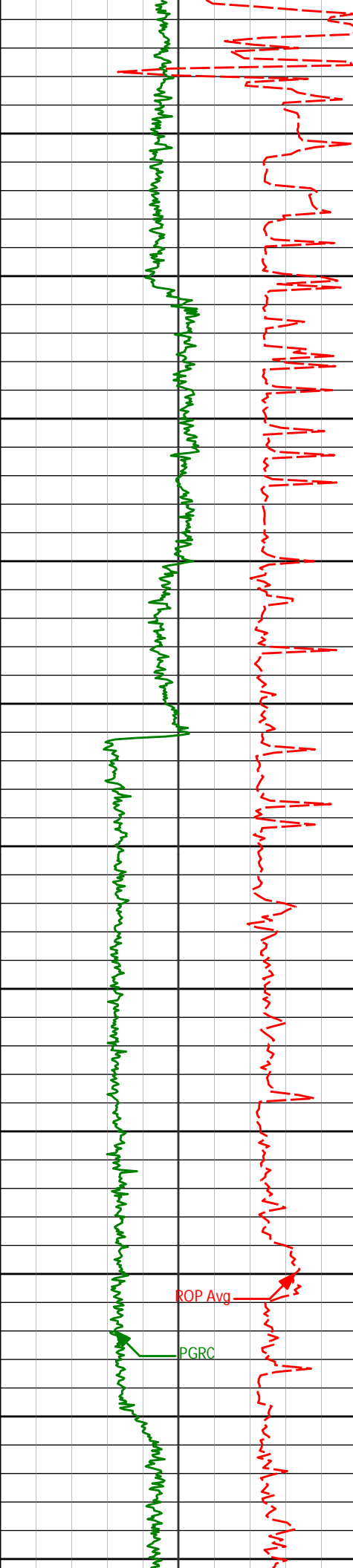
8950

9000

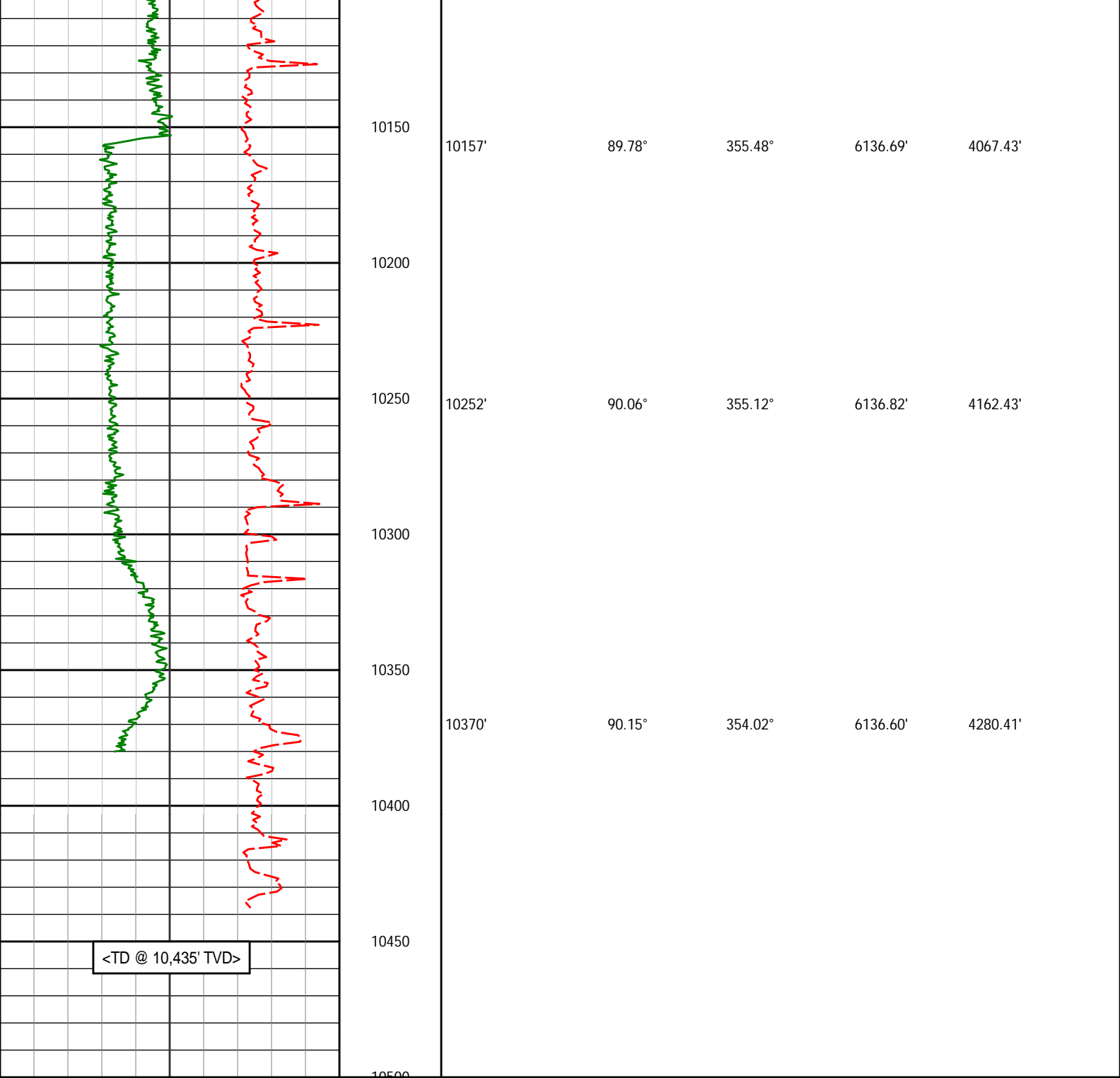
8546'	87.29°	0.58°	6133.15'	2458.15'
8641'	90.96°	0.11°	6134.60'	2552.78'
8736'	90.86°	0.19°	6133.10'	2647.45'
8831'	90.52°	359.20°	6131.95'	2742.18'
8925'	89.85°	357.93°	6131.65'	2836.04'



9020'	90.71°	358.10°	6131.19'	2930.95'
9050				
9100				
9115'	89.85°	358.88°	6130.73'	3025.81'
9150				
9200				
9210'	89.88°	358.23°	6130.96'	3120.68'
9250				
9300				
9305'	89.85°	358.04°	6131.19'	3215.57'
9350				
9400	9399'	90.03°	357.07°	6131.29'
9450				
9494'	90.15°	356.54°	6131.14'	3404.48'
9500				
9550				



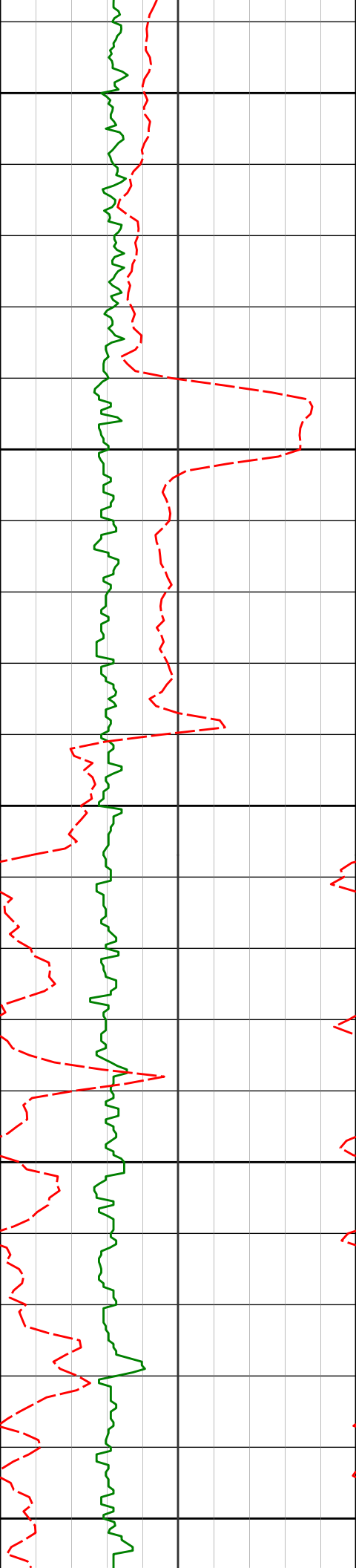
9589'	89.66°	356.30°	6131.29'	3499.47'
9600				
9650				
9683'	89.26°	355.76°	6132.18'	3593.46'
9700				
9750				
9778'	89.38°	355.74°	6133.30'	3688.45'
9800				
9850				
9873'	88.89°	355.73°	6134.73'	3783.44'
9900				
9950				
9968'	89.60°	355.55°	6135.98'	3878.43'
10000				
10050				
10062'	89.88°	354.94°	6136.41'	3972.43'
10100				



Avg Rate of Penetration ROP Avg ----- feet per hr		Depth ft			
500	0				
PCG Gamma Ray PGRC ----- api					
0	300				

HALLIBURTON
Sperry Drilling Services
MD Detail Log 1:240

Noble Energy, Inc
Brook LC28-75-1BHNC
H&P 273
T9N R59W



4500

4550

4600

4650

4700

4578'

8.58°

232.86°

4557.28'

-160.64'

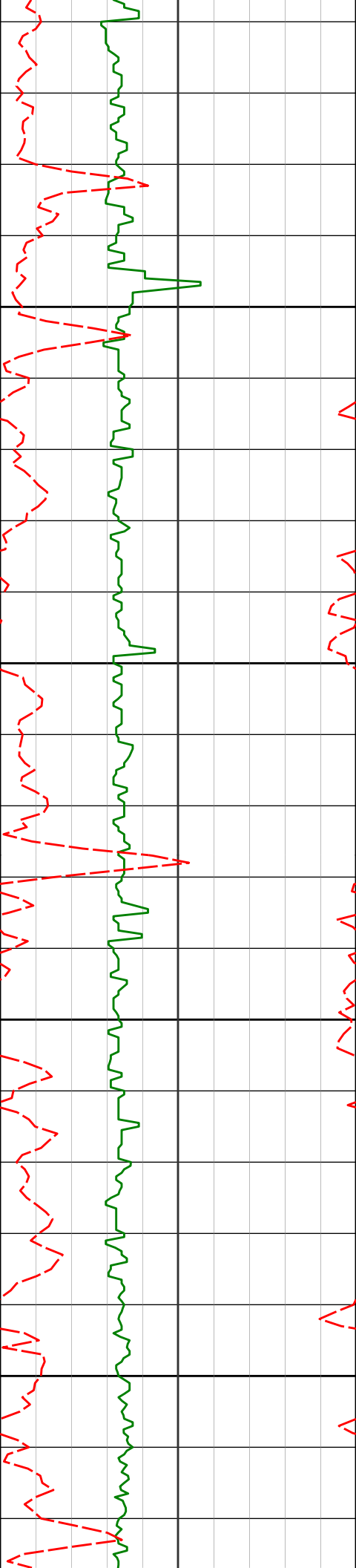
4673'

8.01°

234.28°

4651.29'

-167.88'



4750

4800

4850

4900

4768'

7.44°

235.27°

4745.43'

-174.40'

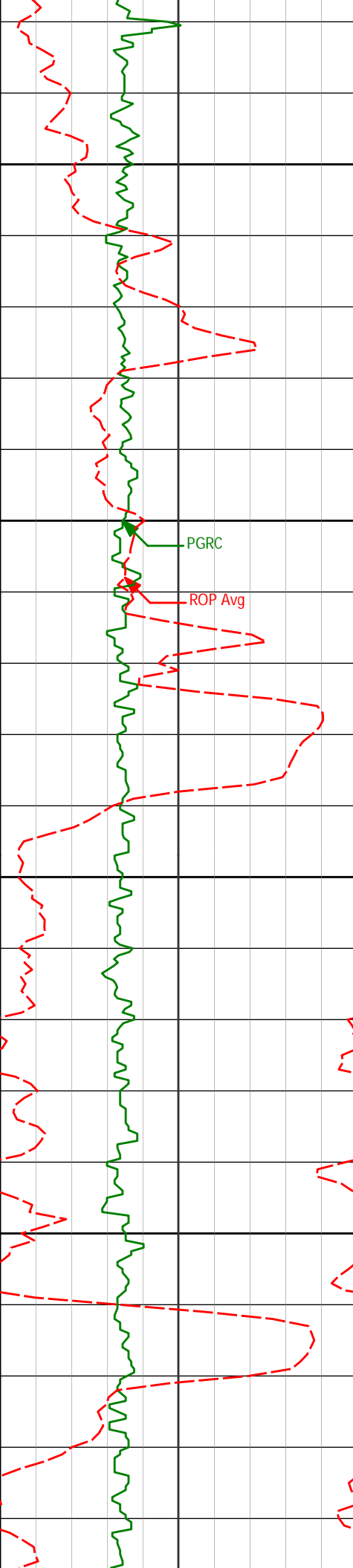
4863'

6.70°

236.59°

4839.70'

-180.17'



4950

4957'	6.24°	233.19°	4933.10'	-185.55'
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5000

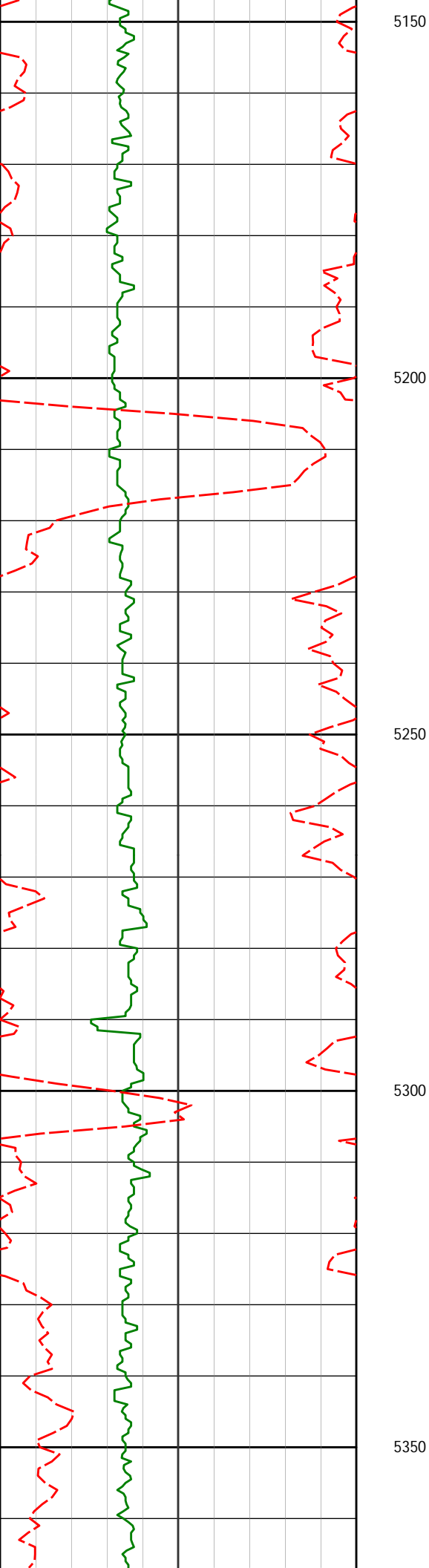
PGRC

ROP Avg

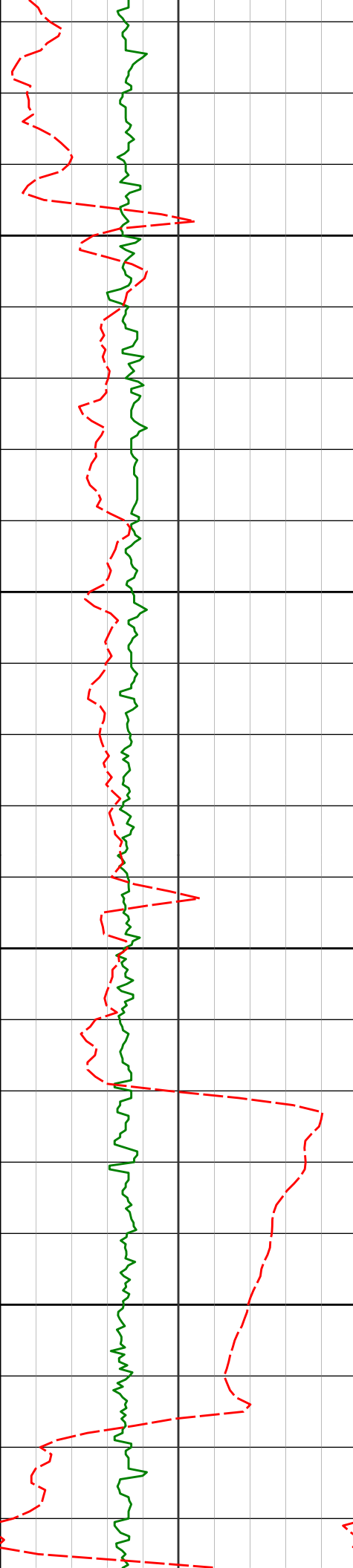
5050

5052'	4.03°	228.96°	5027.72'	-190.29'
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5100



5147'	1.63°	199.70°	5122.59'	-195.66'
5242'	0.86°	105.09°	5217.57'	-195.29'
5337'	0.65°	97.79°	5312.56'	-195.64'



5400

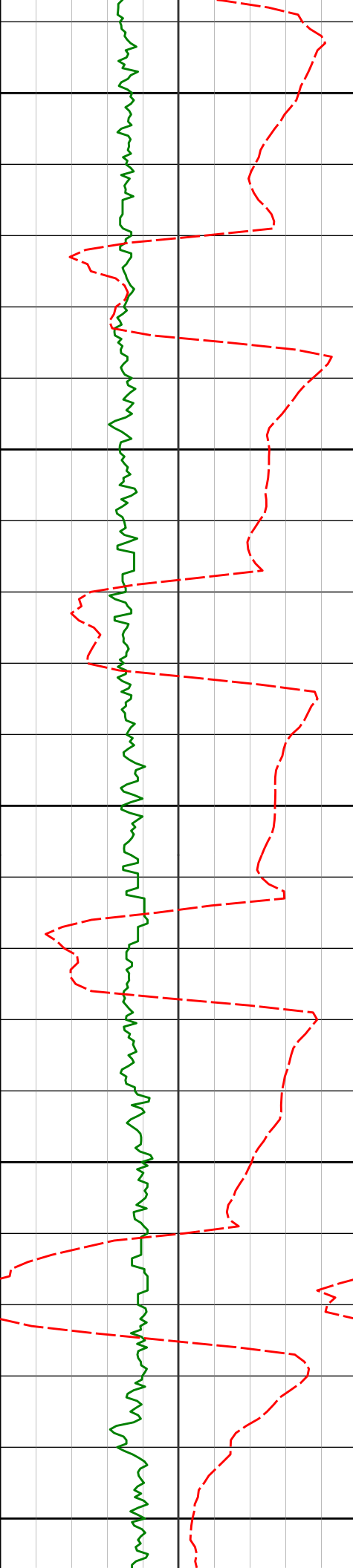
5450

5500

5550

<KOP>

5431'	0.88°	102.09°	5406.56'	-195.96'
5526'	2.05°	41.74°	5501.53'	-195.00'
5573'	6.91°	27.43°	5548.37'	-192.02'



5600

5621'

11.09°

18.21°

5595.77'

-185.31'

5650

5668'

16.00°

18.15°

5641.45'

-175.16'

5700

5716'

20.10°

16.24°

5687.08'

-161.34'

5750

5763'

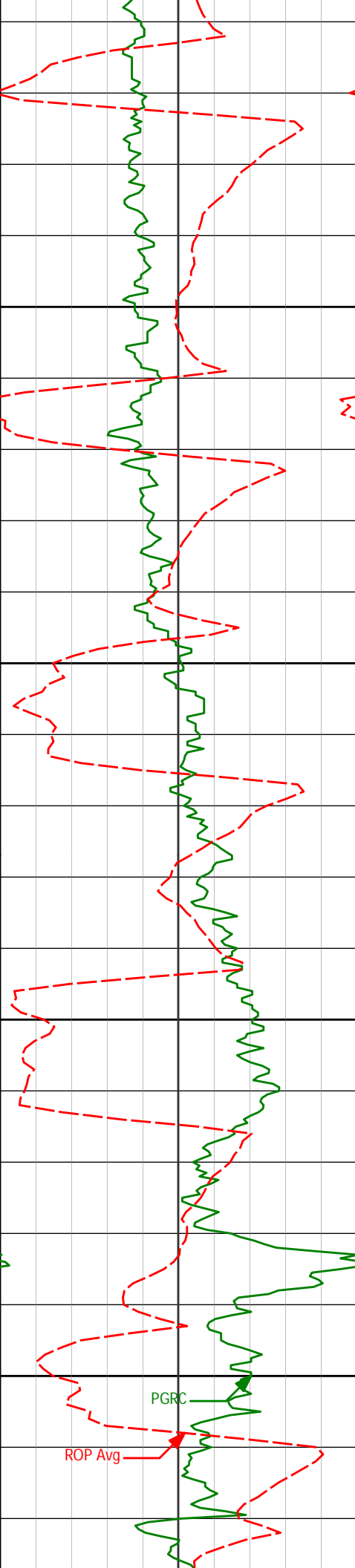
24.26°

11.98°

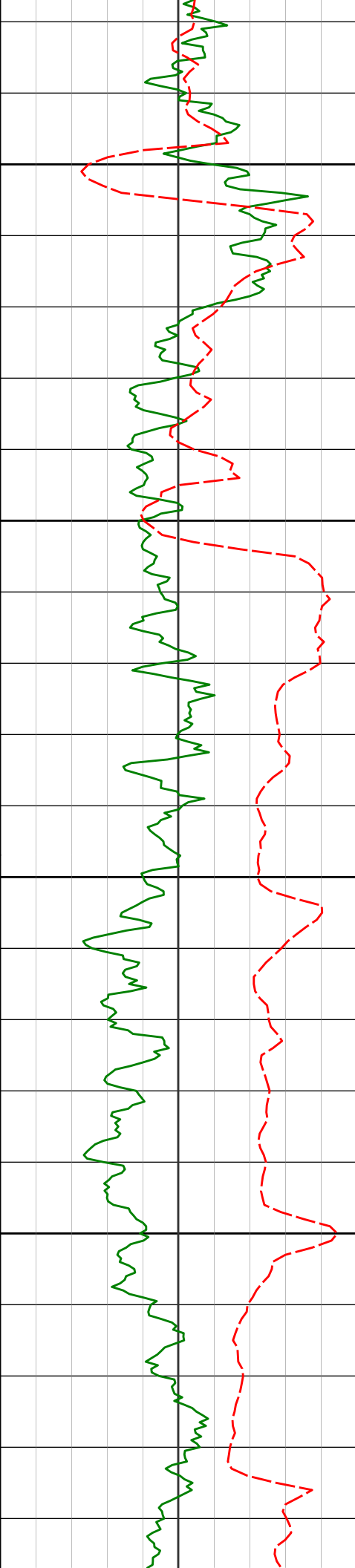
5730.60'

-144.52'

5800



5811'	27.03°	2.99°	5773.88'	-124.24'
5850				
5858'	31.65°	357.72°	5814.85'	-101.32'
5900				
5906'	35.22°	357.38°	5854.90'	-74.89'
5950				
5953'	36.63°	0.34°	5892.96'	-47.37'
6000				
6000'	40.49°	1.87°	5929.71'	-18.23'



6050

6100

6150

6200

6047'

6095'

6142'

6190'

6237'

44.41°

48.69°

51.61°

58.32°

64.27°

1.21°

0.63°

359.34°

356.97°

355.69°

5964.38'

5997.38'

6027.50'

6055.04'

6077.61'

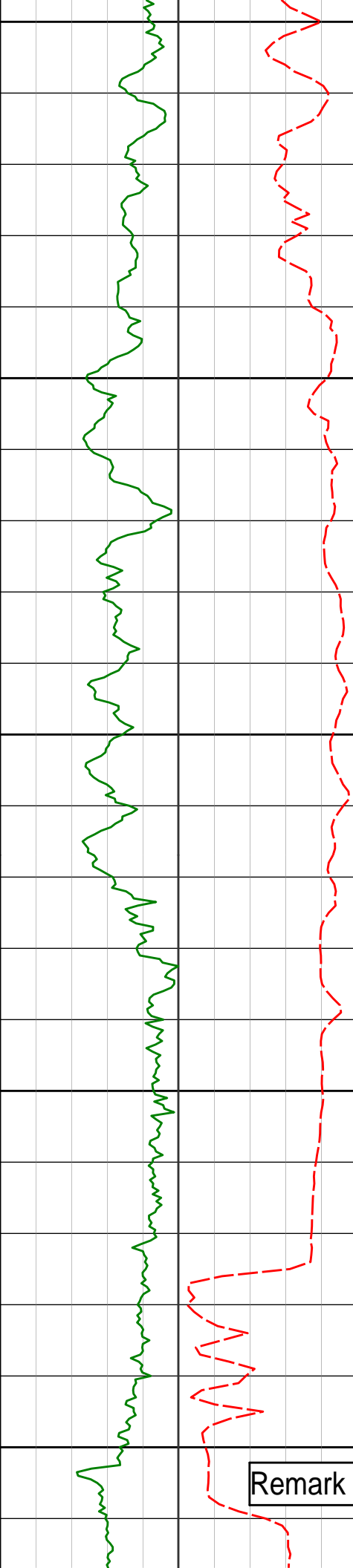
13.31'

47.99'

83.96'

123.19'

164.39'



6250

6285'

69.32°

356.82°

6096.52'

208.48'

6300

6350

6380'

80.49°

0.14°

6121.23'

299.92'

6400

6450

Remark 6

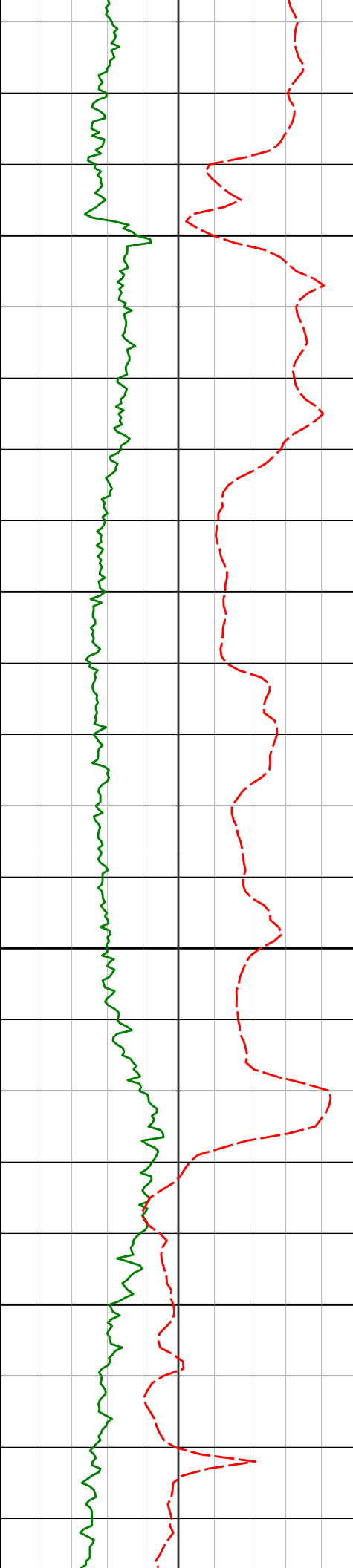
6446'

86.55°

0.59°

6128.67'

365.23'

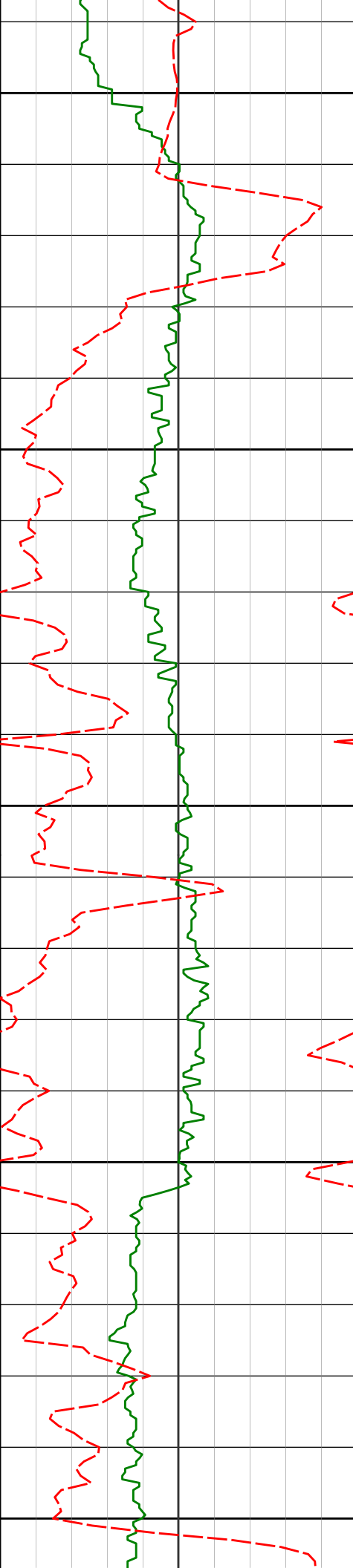


6500
<Run 400>
6550
6600
6650

<7" casing set at 6496' MD>

6555'	87.75°	359.91°	6134.09'	473.71'
-------	--------	---------	----------	---------

6650'	88.89°	359.97°	6136.88'	568.38'
-------	--------	---------	----------	---------



6700

6750

6800

6850

6900

6745'

89.91°

1.15°

6137.87'

663.00'

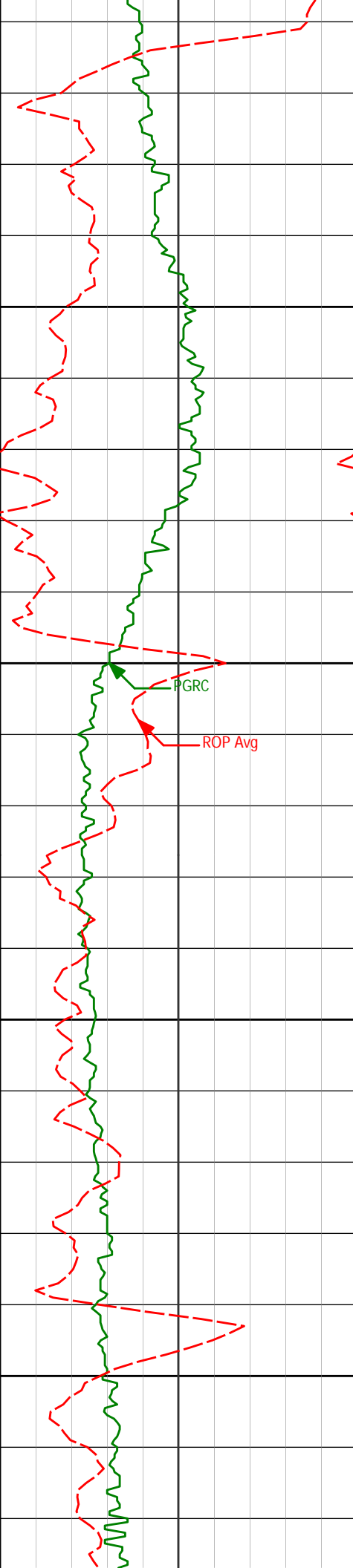
6840'

89.35°

0.57°

6138.49'

757.57'



6934'	90.80°	0.20°	6138.36'	851.23'
-------	--------	-------	----------	---------

6950

7000

PGRC

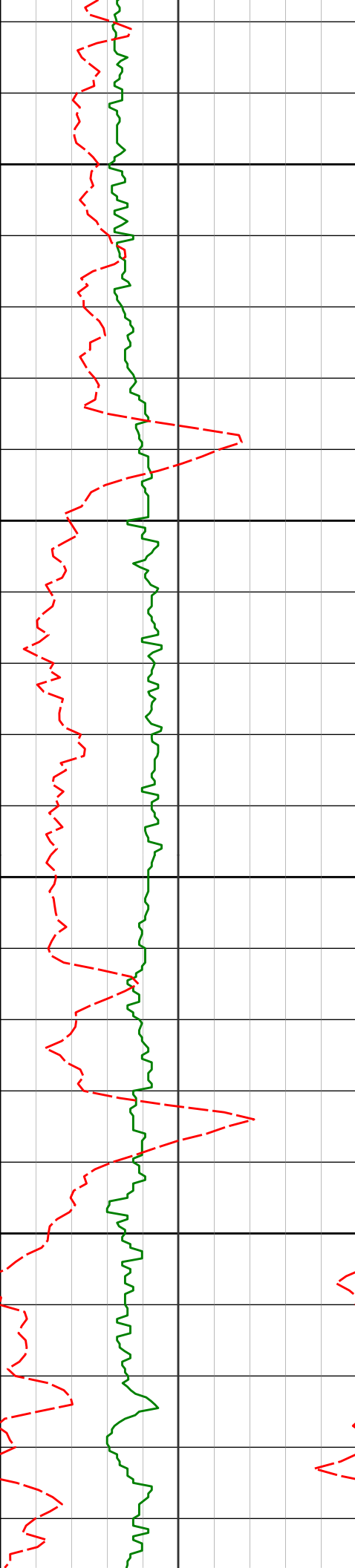
ROP Avg

7029'	91.14°	359.99°	6136.75'	945.90'
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7050

7100

7124'	90.40°	358.51°	6135.47'	1040.68'
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7150

7200

7250

7300

7219'

91.08°

358.84°

6134.25'

1135.53'

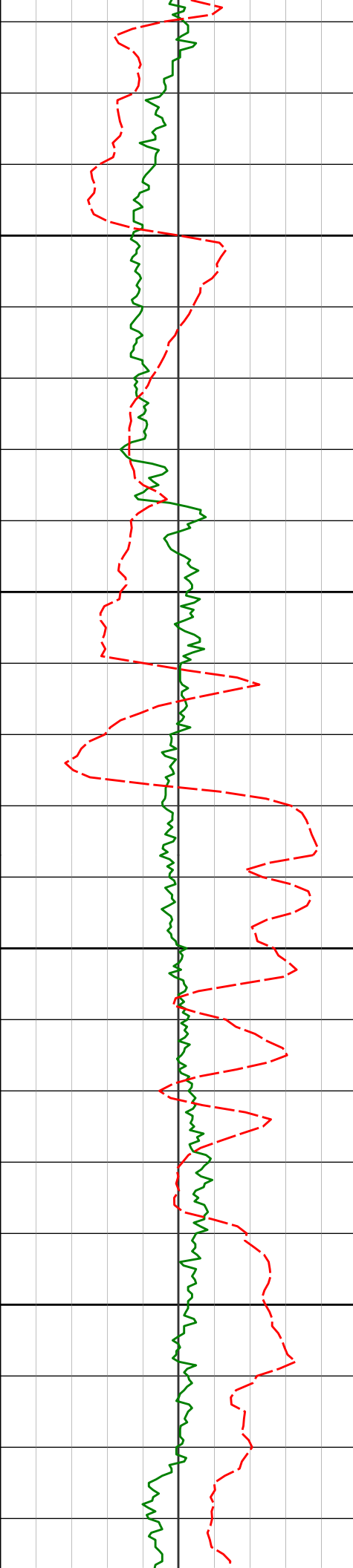
7314'

91.20°

359.16°

6132.36'

1230.33'



7600

7650

7700

7750

7598'

90.62°

357.26°

6126.78'

1513.85'

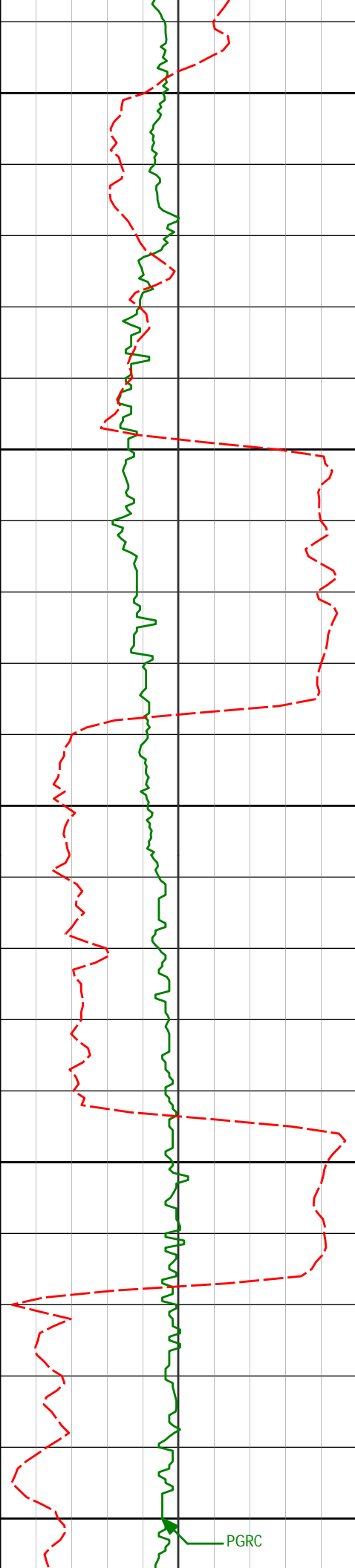
7693'

90.06°

356.76°

6126.22'

1608.81'



7800

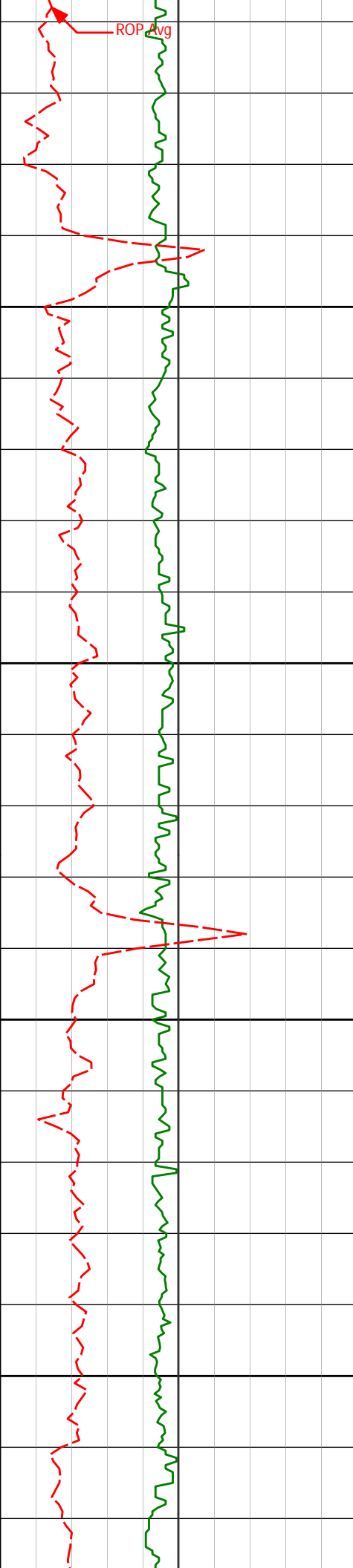
7850

7900

7950

8000

7788'	89.35°	355.18°	6126.71'	1703.81'
7883'	90.28°	358.37°	6127.02'	1798.77'
7978'	90.77°	0.97°	6126.15'	1893.50'



8050

8073'

90.49°

1.07°

6125.10'

1988.05'

8100

8150

8168'

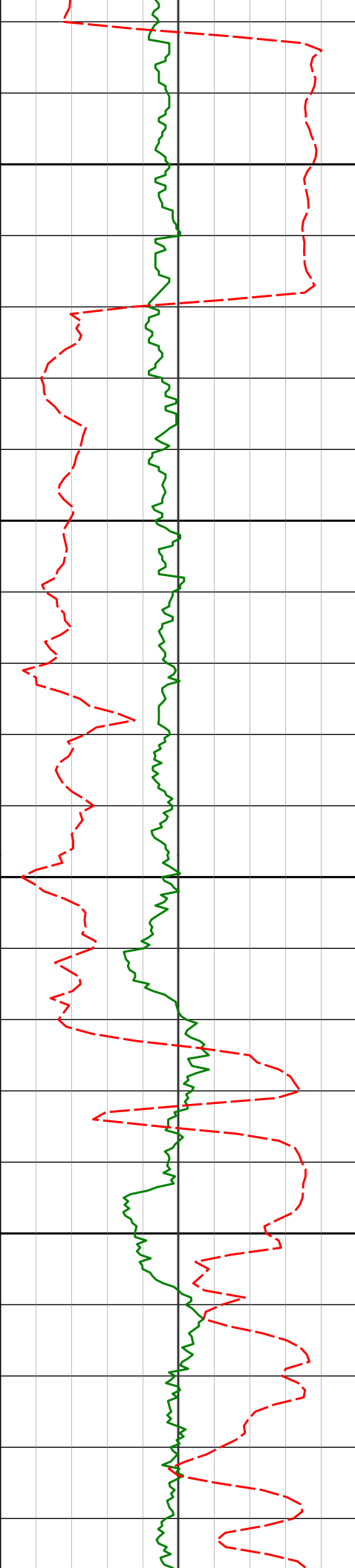
91.94°

1.82°

6123.08'

2082.51'

8200



8250

8263'

89.48°

2.17°

6121.90'

2176.88'

8300

8350

8357'

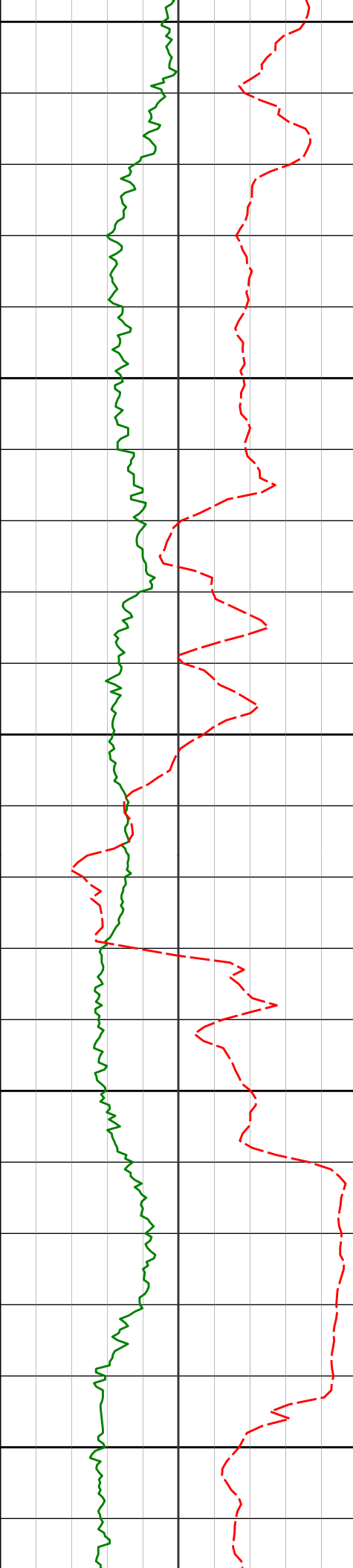
87.47°

1.91°

6124.41'

2270.22'

8400



8450

8500

8550

8600

8650

8452'

8546'

8641'

87.32°

87.29°

90.96°

0.65°

0.58°

0.11°

6128.72'

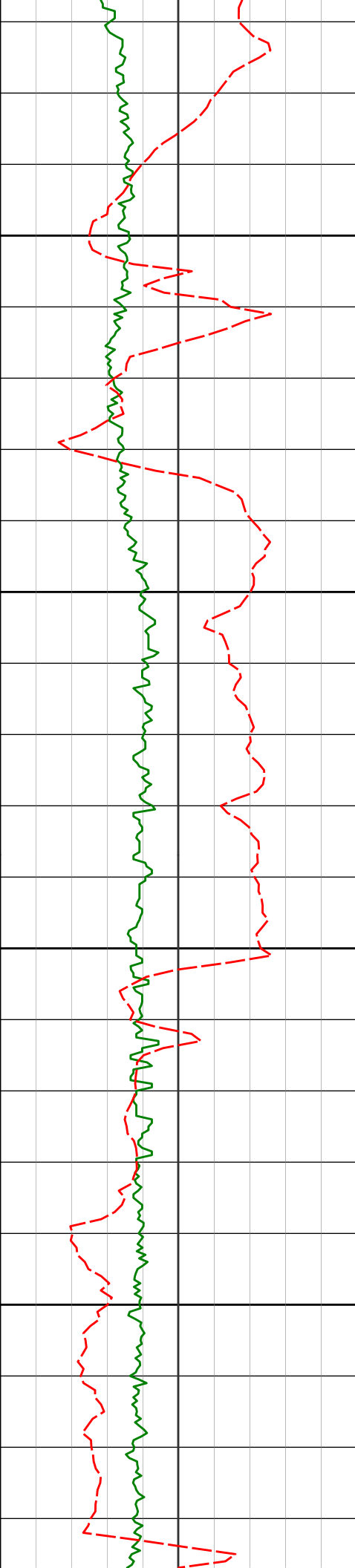
6133.15'

6134.60'

2364.63'

2458.15'

2552.78'



8700

8750

8800

8850

8736'

90.86°

0.19°

6133.10'

2647.45'

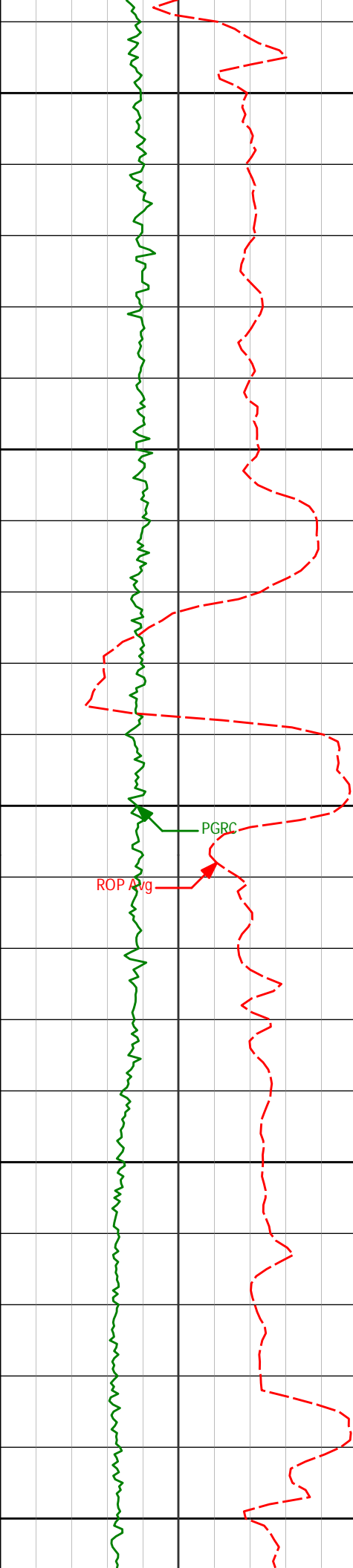
8831'

90.52°

359.20°

6131.95'

2742.18'



8900

8925'

89.85°

357.93°

6131.65'

2836.04'

8950

9000

PGRC

ROP Avg

9020'

90.71°

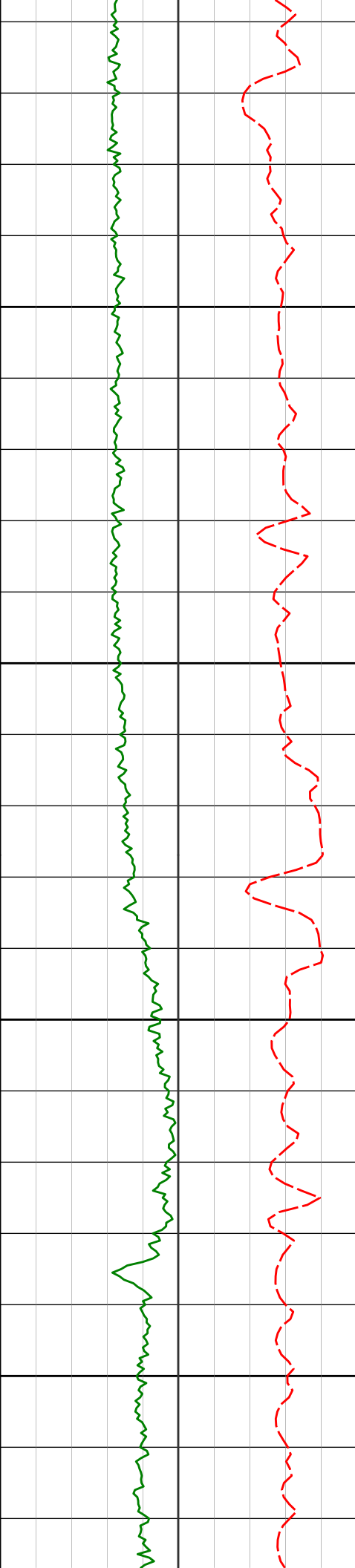
358.10°

6131.19'

2930.95'

9050

9100



9115'

89.85°

358.88°

6130.73'

3025.81'

9150

9200

9210'

89.88°

358.23°

6130.96'

3120.68'

9250

9300

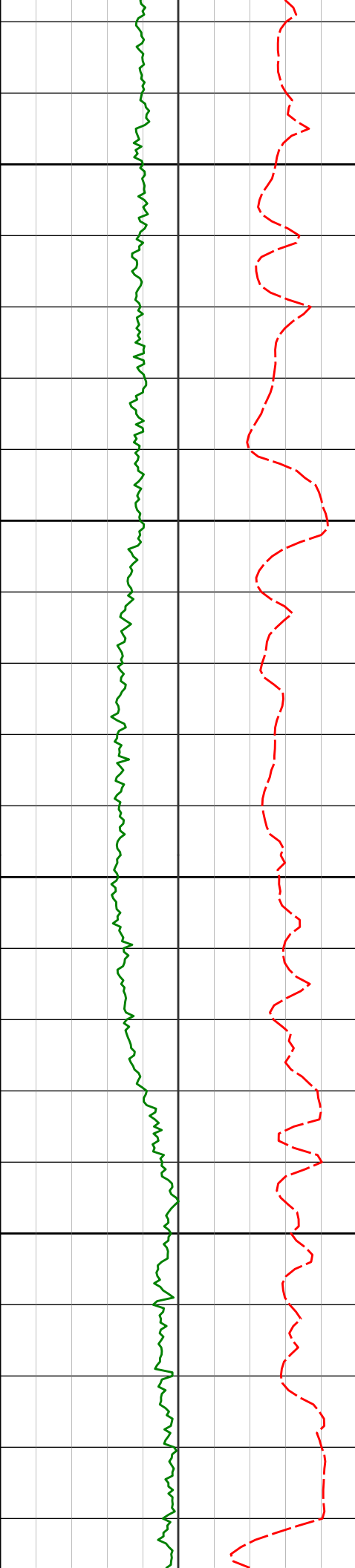
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89.85°

358.04°

6131.19'

3215.57'



9350

9400

9450

9500

9399'

90.03°

357.07°

6131.29'

3309.51'

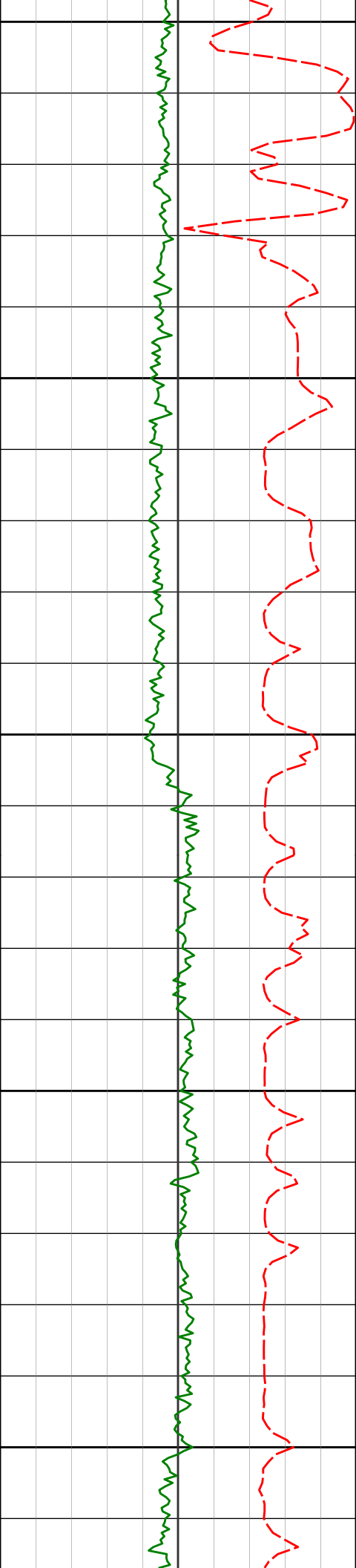
9494'

90.15°

356.54°

6131.14'

3404.48'



9550

9589'

89.66°

356.30°

6131.29'

3499.47'

9600

9650

9683'

89.26°

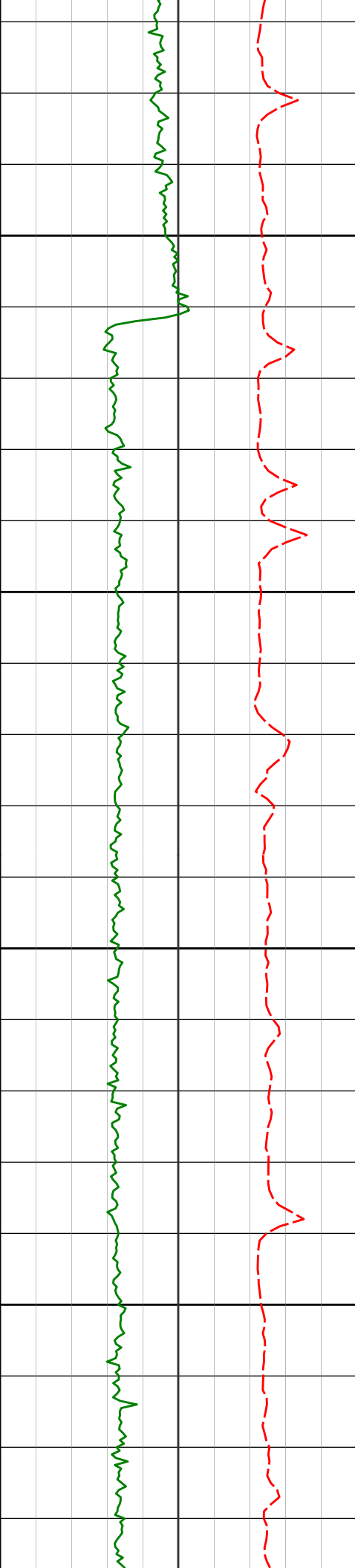
355.76°

6132.18'

3593.46'

9700

9750



9800

9850

9900

9950

9778'

89.38°

355.74°

6133.30'

3688.45'

9873'

88.89°

355.73°

6134.73'

3783.44'

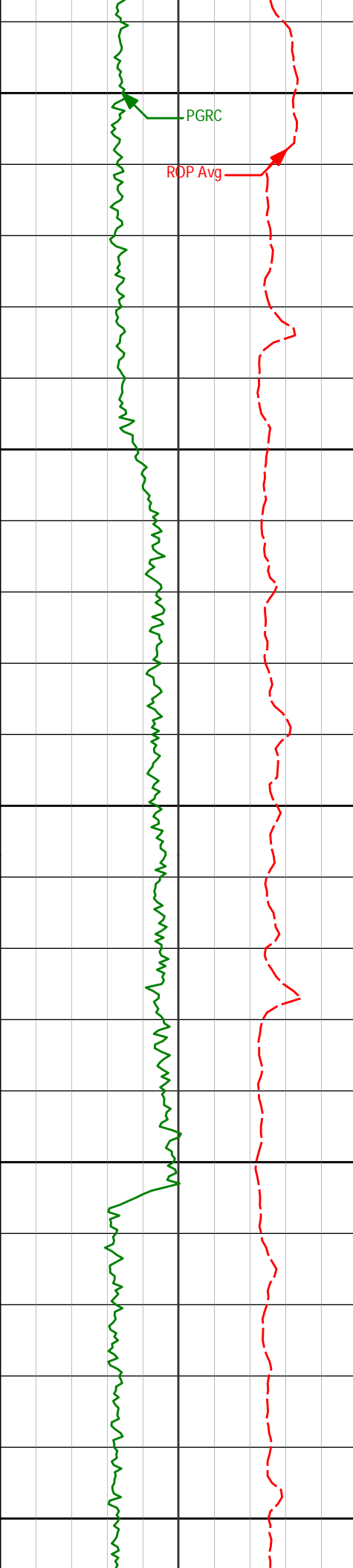
9968'

89.60°

355.55°

6135.98'

3878.43'



10000

10050

10100

10150

10200

10062'

89.88°

354.94°

6136.41'

3972.43'

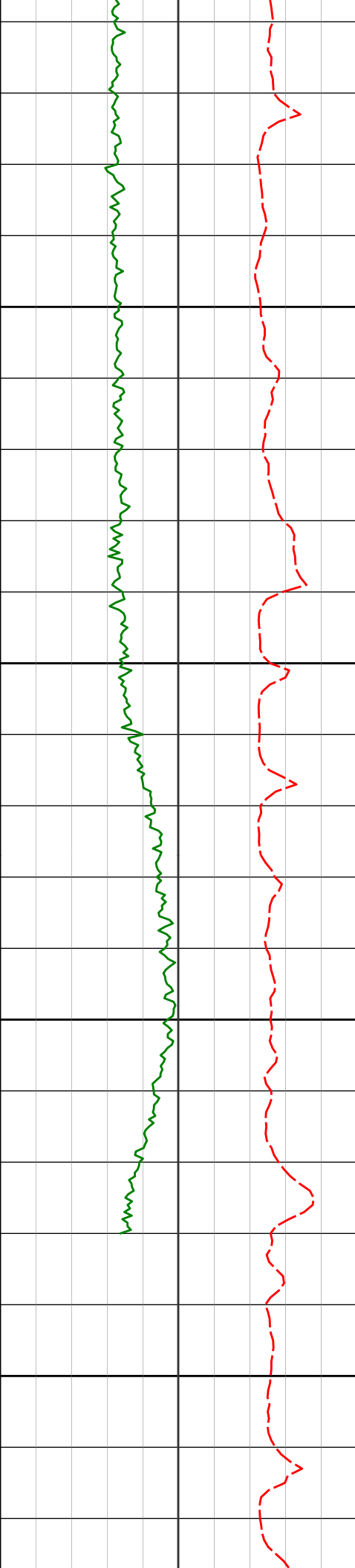
10157'

89.78°

355.48°

6136.69'

4067.43'



10250

10252'

90.06°

355.12°

6136.82'

4162.43'

10300

10350

10370'

90.15°

354.02°

6136.60'

4280.41'

10400

3255.00	6.85	241.63	3245.60	81.72 S	120.81 W	-71.92	1.50
3350.00	8.00	233.60	3339.81	88.33 S	131.13 W	-77.70	1.63
3445.00	7.90	233.90	3433.89	96.11 S	141.72 W	-84.61	0.12
3540.00	7.82	234.99	3528.00	103.66 S	152.29 W	-91.31	0.18
3635.00	7.56	234.05	3622.15	111.04 S	162.65 W	-97.85	0.30
3730.00	7.43	233.87	3716.34	118.33 S	172.67 W	-104.32	0.14
3825.00	7.29	233.53	3810.55	125.54 S	182.48 W	-110.73	0.16
3920.00	6.83	231.70	3904.83	132.62 S	191.76 W	-117.06	0.54
4015.00	7.10	238.04	3999.13	139.22 S	201.17 W	-122.90	0.86
4109.00	8.38	236.42	4092.27	146.09 S	211.81 W	-128.90	1.37
4204.00	7.03	234.25	4186.42	153.31 S	222.29 W	-135.28	1.44
4293.00	7.41	237.38	4274.71	159.59 S	231.55 W	-140.80	0.61
4388.00	7.45	233.65	4368.91	166.54 S	241.67 W	-146.94	0.51
4483.00	6.99	230.41	4463.16	173.88 S	251.08 W	-153.50	0.65
4578.00	8.58	232.86	4557.28	181.84 S	261.18 W	-160.64	1.71
4673.00	8.01	234.28	4651.29	189.98 S	272.20 W	-167.88	0.64
4768.00	7.44	235.27	4745.43	197.34 S	282.63 W	-174.40	0.62
4863.00	6.70	236.59	4839.70	203.90 S	292.31 W	-180.17	0.79
4957.00	6.24	233.19	4933.10	209.98 S	300.98 W	-185.55	0.64
5052.00	4.03	228.96	5027.72	215.26 S	307.63 W	-190.29	2.36
5147.00	1.83	199.70	5122.59	218.88 S	310.66 W	-193.66	2.72
5242.00	0.86	105.09	5217.57	220.50 S	310.48 W	-195.29	2.19
5337.00	0.65	97.79	5312.56	220.76 S	309.26 W	-195.64	0.24
5431.00	0.88	102.09	5406.56	220.98 S	308.03 W	-195.96	0.25
5526.00	2.05	41.74	5501.53	219.87 S	306.18 W	-195.00	1.88
5573.00	6.91	27.43	5548.37	216.73 S	304.32 W	-192.02	10.53
5621.00	11.09	18.21	5595.77	209.78 S	301.55 W	-185.31	9.18
5668.00	16.00	18.15	5641.45	199.33 S	298.12 W	-175.16	10.45
5716.00	20.10	16.24	5687.08	185.12 S	293.75 W	-161.34	8.63
5763.00	24.26	11.98	5730.60	167.91 S	289.48 W	-144.52	9.49
5811.00	27.03	2.99	5773.88	147.36 S	286.86 W	-124.24	9.93
5858.00	31.65	357.72	5814.85	124.36 S	286.80 W	-101.32	11.25
5906.00	35.22	357.38	5854.90	97.94 S	287.93 W	-74.89	7.45
5953.00	36.63	0.34	5892.96	70.38 S	288.47 W	-47.37	4.76
6000.00	40.49	1.87	5929.71	41.09 S	287.89 W	-18.23	8.47
6047.00	44.41	1.21	5964.38	9.39 S	287.04 W	13.31	8.40
6095.00	48.69	0.63	5997.38	25.45 N	286.49 W	47.99	8.95
6142.00	51.61	359.34	6027.50	61.52 N	286.50 W	83.96	6.56
6190.00	58.32	356.97	6055.04	100.77 N	287.80 W	123.19	14.55
6237.00	64.27	355.69	6077.61	141.89 N	290.45 W	164.39	12.88
6285.00	69.32	356.82	6096.52	185.90 N	293.32 W	208.48	10.75
6380.00	80.49	0.14	6121.23	277.43 N	295.68 W	299.92	12.23
6446.00	86.55	0.59	6128.67	342.98 N	295.26 W	365.23	9.21
6555.00	87.75	359.91	6134.09	451.84 N	294.79 W	473.71	1.27
6650.00	88.89	359.97	6136.88	546.80 N	294.89 W	568.38	1.20
6745.00	89.91	1.15	6137.87	641.78 N	293.97 W	663.00	1.64
6840.00	89.35	0.57	6138.49	736.77 N	292.54 W	757.57	0.84
6934.00	90.80	0.20	6138.36	830.76 N	291.91 W	851.23	1.59
7029.00	91.14	359.99	6136.75	925.75 N	291.76 W	945.90	0.42
7124.00	90.40	358.51	6135.47	1020.73 N	293.00 W	1040.68	1.74
7219.00	91.08	358.84	6134.25	1115.70 N	295.19 W	1135.53	0.79
7314.00	91.20	359.16	6132.36	1210.66 N	296.85 W	1230.33	0.36
7409.00	91.29	359.01	6130.29	1305.63 N	298.37 W	1325.12	0.18
7503.00	91.17	358.38	6128.26	1399.58 N	300.50 W	1418.94	0.69
7598.00	90.62	357.26	6126.78	1494.50 N	304.12 W	1513.85	1.31
7693.00	90.06	356.76	6126.22	1589.37 N	309.07 W	1608.81	0.79
7788.00	89.35	355.18	6126.71	1684.13 N	315.74 W	1703.81	1.82
7883.00	90.28	358.37	6127.02	1778.96 N	321.09 W	1798.77	3.49
7978.00	90.77	0.97	6126.15	1873.95 N	321.64 W	1893.50	2.79
8073.00	90.49	1.07	6125.10	1968.93 N	319.95 W	1988.05	0.31
8168.00	91.94	1.82	6123.08	2063.87 N	317.55 W	2082.51	1.72
8263.00	89.48	2.17	6121.90	2158.80 N	314.24 W	2176.88	2.62
8357.00	87.47	1.91	6124.41	2252.70 N	310.90 W	2270.22	2.15
8452.00	87.32	0.65	6128.72	2347.58 N	308.77 W	2364.63	1.33
8546.00	87.29	0.58	6133.15	2441.47 N	307.76 W	2458.15	0.08
8641.00	90.96	0.11	6134.60	2536.44 N	307.18 W	2552.78	3.89
8736.00	90.86	0.19	6133.10	2631.43 N	306.93 W	2647.45	0.13
8831.00	90.52	359.20	6131.95	2726.42 N	307.44 W	2742.18	1.10
8925.00	89.85	357.93	6131.65	2820.39 N	309.79 W	2836.04	1.53
9020.00	90.71	358.10	6131.19	2915.33 N	313.08 W	2930.95	0.93
9115.00	89.85	358.88	6130.73	3010.29 N	315.58 W	3025.81	1.22
9210.00	89.88	358.23	6130.96	3105.26 N	317.97 W	3120.68	0.68
9305.00	89.85	358.04	6131.19	3200.21 N	321.06 W	3215.57	0.21
9399.00	90.03	357.07	6131.29	3294.12 N	325.08 W	3309.51	1.05
9494.00	90.15	356.54	6131.14	3388.08 N	329.27 W	3404.48	0.57

9494.00	90.13	356.34	6131.14	3588.98 N	330.37 W	3404.48	0.57
9589.00	89.66	356.30	6131.29	3483.79 N	336.30 W	3499.47	0.58
9683.00	89.26	355.76	6132.18	3577.56 N	342.80 W	3593.46	0.72
9778.00	89.38	355.74	6133.30	3672.29 N	349.84 W	3688.45	0.13
9873.00	88.89	355.73	6134.73	3767.02 N	356.91 W	3783.44	0.52
9968.00	89.60	355.55	6135.98	3861.73 N	364.13 W	3878.43	0.77
10062.00	89.88	354.94	6136.41	3955.41 N	371.92 W	3972.43	0.72
10157.00	89.78	355.48	6136.69	4050.08 N	379.86 W	4067.43	0.58
10252.00	90.06	355.12	6136.82	4144.76 N	387.64 W	4162.43	0.48
10370.00	90.15	354.02	6136.60	4262.23 N	398.80 W	4280.41	0.94
10435.00	90.15	354.02	6136.43	4326.87 N	405.57 W	4345.39	0.01

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 355.47 DEGREES (GRID)
A TOTAL CORRECTION OF 7.14 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 10435.00 FEET
IS 4345.84 FEET ALONG 354.65 DEGREES (GRID)**

Surface surveys at 350 ft and 575 ft have had azimuths corrected to grid north, but were not taken by Halliburton.

Last survey is a projection from 10370 ft MD to TD at 10435 ft MD.