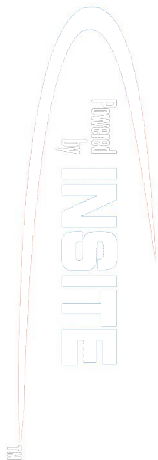


**PCGK : Pressure Case Gamma
PCDC: Pressure Case Directional**

1 : 600 / 1 : 240

Country : USA		
Field : Wattenberg		
Location : Lat: 40° 46' 30.25" North Long: 103° 51' 40.46" West		
Well : Rohn State LD03-62-1HN		
Company : Noble Energy		
Rig : H & P 273		
LOCATION Latitude : 40° 46' 30.25" North Longitude : 103° 51' 40.46" West UTM Easting = 3,453,860.550 ft UTM Northing = 1,529,397.730 ft		
Company : Noble Energy Rig : H & P 273 Well : Rohn State LD03-62-1HN Field : Wattenberg Country : USA API Number : 05-123-37452		
Permanent Datum : Ground Level Log Measured From : Drill Floor Drilling Measured From : Drill Floor	Elevation : 4706.00 ft 24.00 ft Above Permanent Datum	Elev. KB N/A DF 4730.00 ft GL 4706.00 ft WD N/A
MD LOG		
Depth Logged : 1,221.00 ft To 10,188.00 ft Date Logged : 21-Sep-14 To 26-Sep-14 Total Depth MD : 10,188.00 ft TVD : 5,702.69 ft Spud Date : 22-Sep-14	Unit No. : 11703717 Plot Type : Final Plot Date : 27-Sep-14	Job No. : CA-XX-0901675298
Run No.	Borehole Record (MD) Size From To 2 8.750 in 1,221.00 ft 6,047.00 ft 3 6.125 in 6,047.00 ft 10,188.00 ft	Borehole Record (MD) Size From To 7.000 in 26.00 lbpf SURFACE 6,037.00 ft

WELL INFORMATION

MWD Run Number	100	200		
Date run completed	24-Sep-14	26-Sep-14		
Rig Bit Number	2	3		
Bit Size (in)	8.750	6.125		
Tool Nominal OD (in)	6.750	4.750		
Log Start Depth (MD, ft)	1,221.00	6,047.00		
Log End Depth (MD, ft)	6,047.00	10,188.00		
Drill or Wipe	Drill	Drill		
Drill/Wipe Start Date and Time	22-Sep-14 23:58	24-Sep-14 22:30		
Drill/Wipe End Date and Time	23-Sep-14 20:35	26-Sep-14 08:00		
Min Inc (deg) @ Depth (MD, ft)	0.57 @ 4,953.00	85.06 @ 6,084.00		
Max Inc (deg) @ Depth (MD, ft)	81.46 @ 5,994.00	96.83 @ 10,124.00		
Bit TFA(in2) / Bit Type	0.91 / PDC	0.75 / PDC		
Flow Rate (gpm)	558.63	294.43		
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A		
Fluid Type	Fresh Water Gel	Fresh Water Gel		
Density (ppg) / Viscosity (spqt)	10.90 / 40.00	10.50 / 43.00		
Filtrate CL (ppm)	150.00	150.00		
pH / Fluid Loss (mptm)	9.70 / 8	9.70 / 0		
PV (cP) / YP (lhf2)	13 / 6.00	14 / 10.00		
% Solids / % Sand	11.60 / 0.25	10.1 / 0.1		
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A		
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A		
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A		
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A		

Max Tool Temp (degF) / Source	167.00 / PCM	213.40 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A			
Lead MWD Engineer	Paul Kock	Juan Pablo Centeno			
Customer Representative	Dave Nielson	Justin Fields			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11404274	12310756			
Insert Serial Number	11055866	11055866			
Date and Time Initialized	22-Sep-14 18:02	24-Sep-14 14:55			
Date and Time Read	24-Sep-14 06:12	26-Sep-14 17:54			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	50.99	62.43			
Software Version	6.21	6.21			
Sub Serial Number	11404274	12310756			
Sonde Serial Number	11833253	11833253			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	63.81	239.75			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	45.89	57.33			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11404274	12310756			
Insert/Sonde Serial Number	11293339	11293339			

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 6001 ft. MD to 6047 ft. MD.

WARRANTY

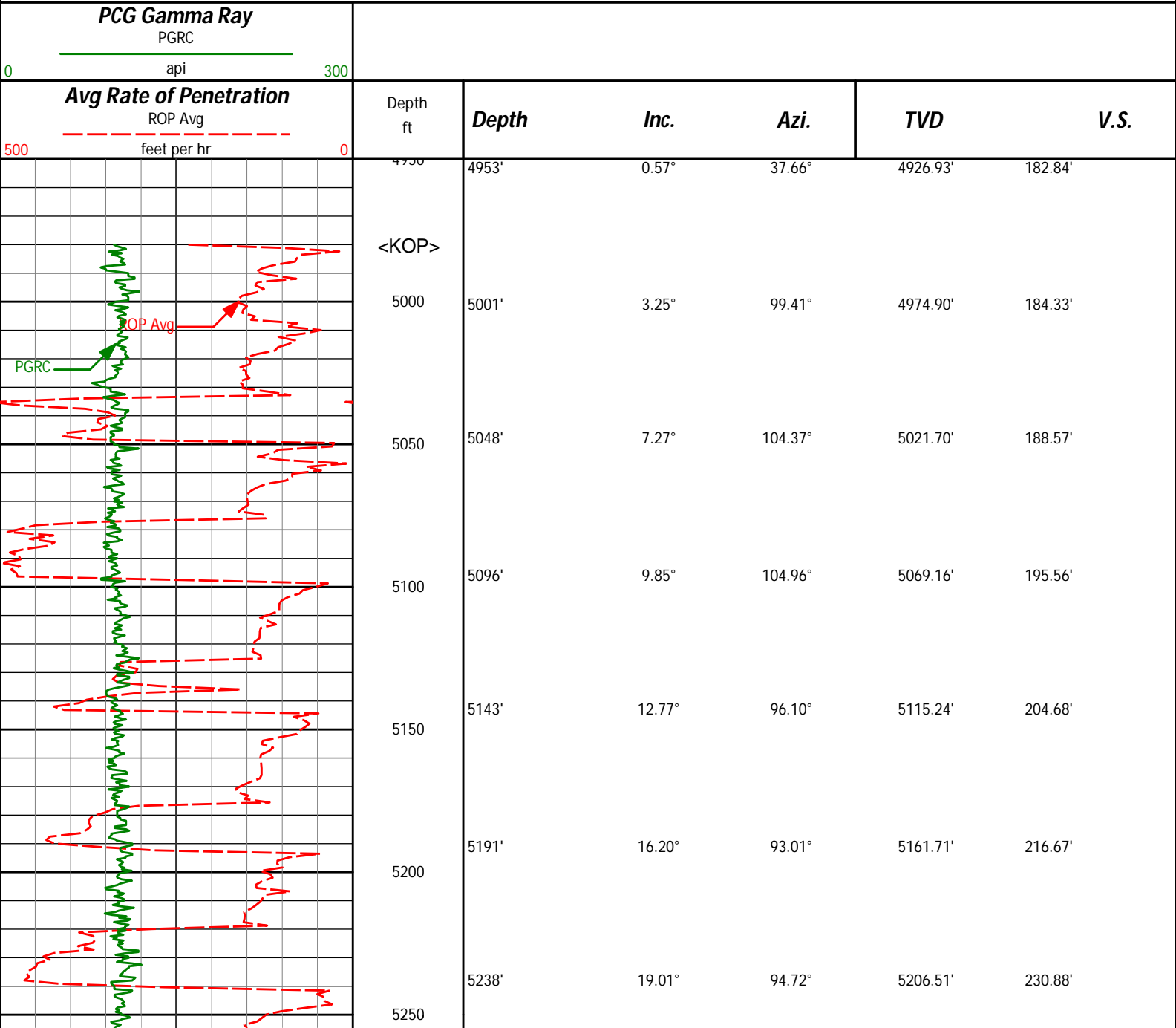
HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES 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.

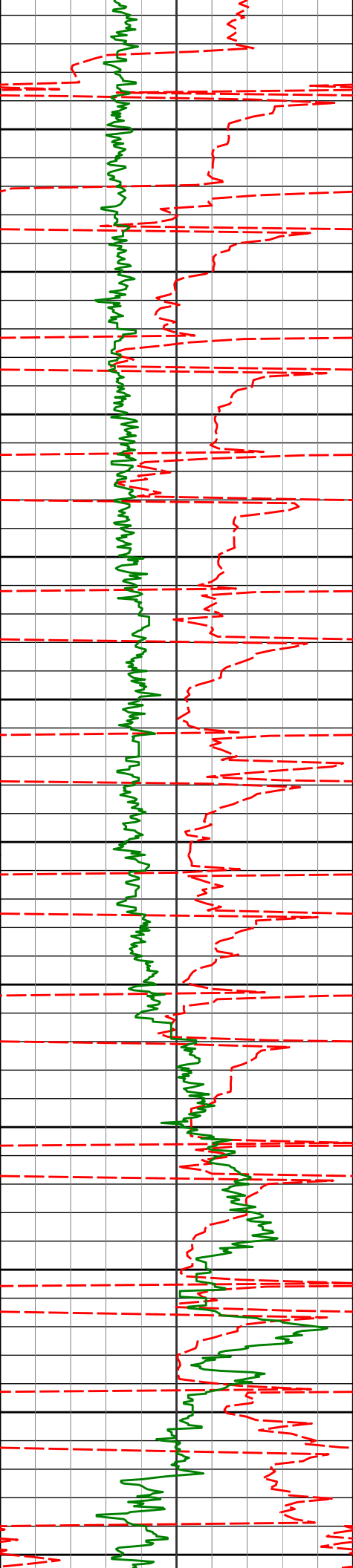
HALLIBURTON

Sperry Drilling Services

MD Main Log 1:600

Noble Energy, Inc
Rohn State LD03-62-1HN
H&P 273
T9N R58W





5300

5350

5400

5450

5500

5550

5600

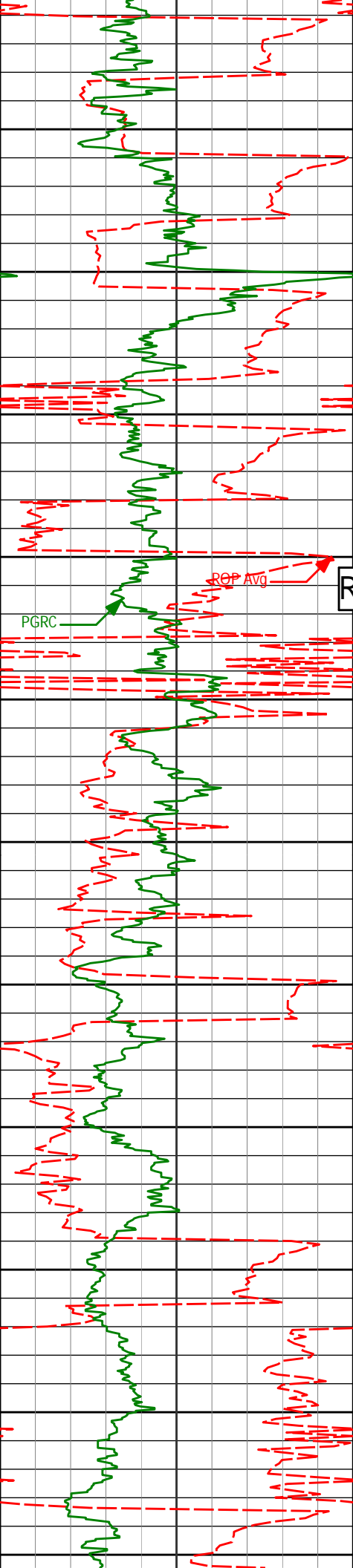
5650

5700

5750

5800

5286'	22.32°	93.30°	5251.41'	247.82'
5333'	25.99°	91.61°	5294.29'	267.04'
5381'	30.49°	91.26°	5336.56'	289.74'
5428'	34.45°	90.19°	5376.21'	314.95'
5476'	38.41°	89.39°	5414.82'	343.41'
5522'	42.45°	89.18°	5449.83'	373.18'
5570'	46.38°	90.49°	5484.11'	406.72'
5617'	50.02°	91.31°	5515.43'	441.74'
5665'	54.95°	90.77°	5544.65'	479.78'
5712'	60.92°	89.92°	5569.59'	519.55'
5760'	65.05°	89.04°	5591.39'	562.23'



5850

5900

5950

6000

6050

6100

6150

6200

6250

6300

6350

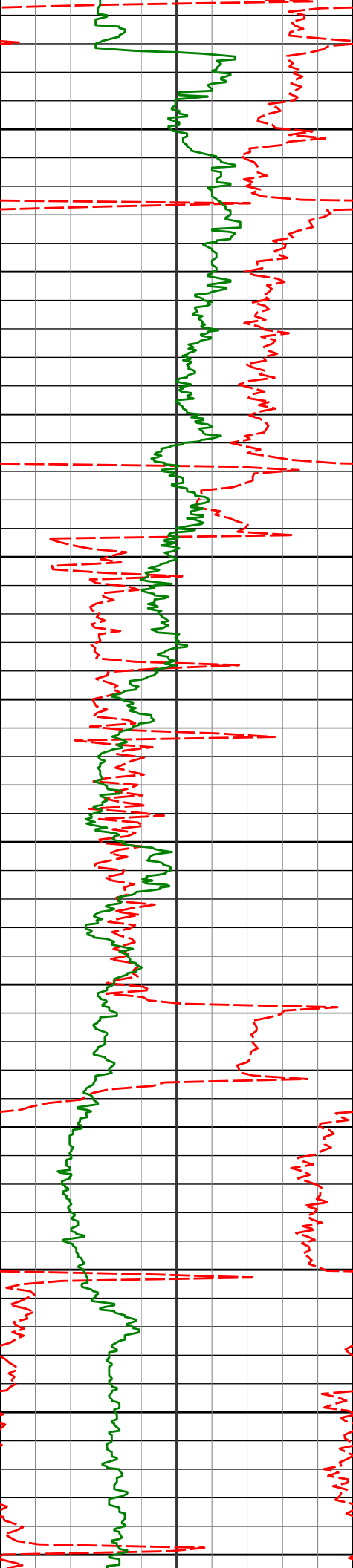
5807'	68.23°	87.73°	5610.02'	605.24'
5855'	71.11°	87.46°	5626.70'	650.06'
5902'	73.65°	89.01°	5640.92'	694.71'
5949'	77.13°	91.00°	5652.78'	740.13'
5994'	81.46°	91.70°	5661.14'	784.32'

Remark 6

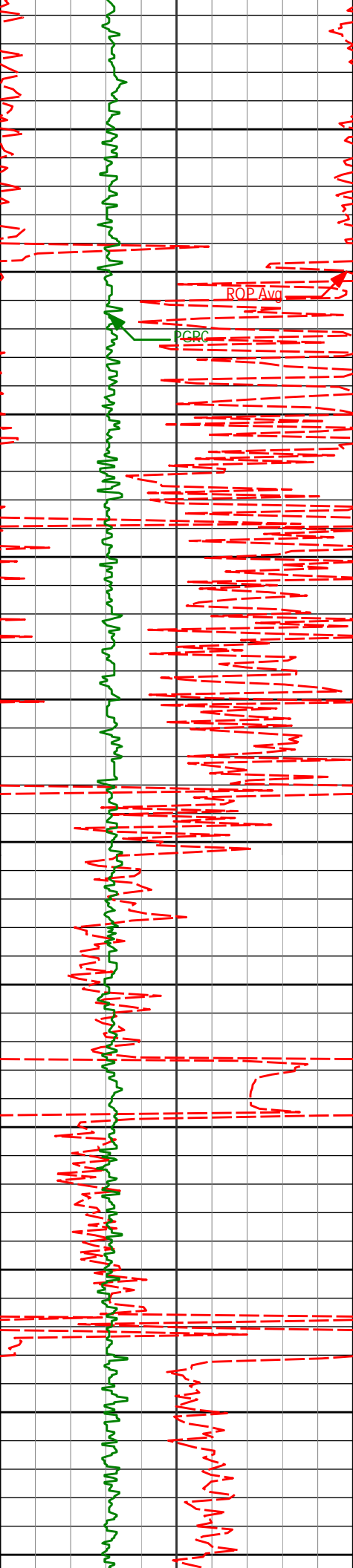
<7" casing set at 6037' MD>

<Run 200>

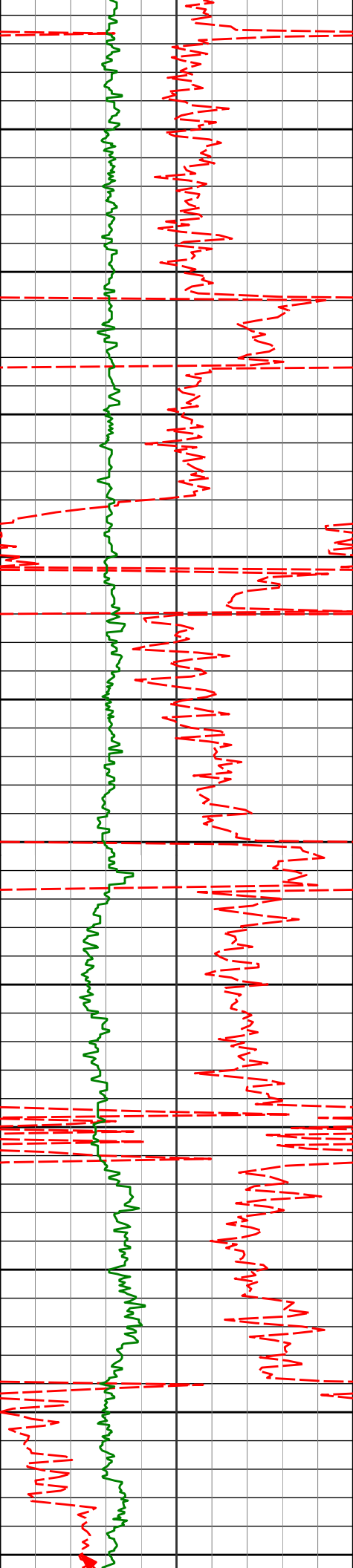
6084'	85.06°	91.64°	5671.70'	873.66'
6177'	85.99°	90.75°	5678.96'	966.34'
6270'	87.78°	88.84°	5684.01'	1059.07'



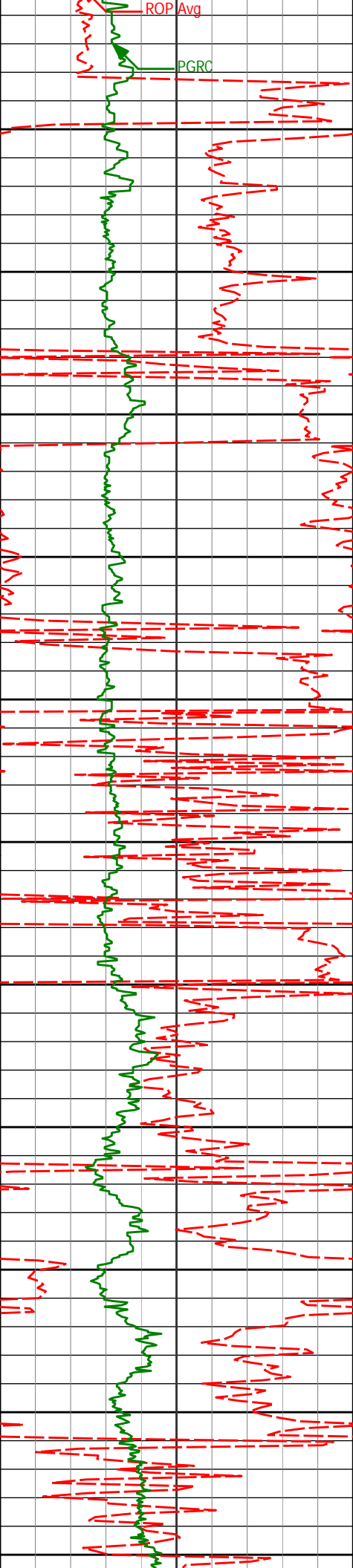
	6362'	90.12°	87.63°	5685.69'	1150.75'
6400					
6450	6454'	88.98°	85.92°	5686.41'	1242.23'
6500					
6550	6549'	89.48°	88.81°	5687.69'	1336.79'
6600					
6650	6644'	88.27°	87.53°	5689.56'	1431.45'
6700					
6750	6739'	90.43°	87.88°	5690.63'	1526.06'
6800					
6850	6833'	90.55°	88.45°	5689.82'	1619.75'
6900					



6928'	90.46°	86.55°	5688.98'	1714.34'
6950				
7000				
7023'	91.29°	87.44°	5687.52'	1808.83'
7050				
7100				
7118'	91.17°	84.95°	5685.48'	1903.17'
7150				
7200				
7213'	91.26°	85.06°	5683.46'	1997.27'
7250				
7300				
7308'	91.42°	89.24°	5681.23'	2091.76'
7350				
7400	91.26°	88.25°	5679.03'	2185.50'
7450				



7500	7497'	90.71°	85.68°	5677.40'	2279.98'
7550					
7600	7592'	90.83°	88.52°	5676.12'	2374.49'
7650					
7700	7686'	91.48°	92.96°	5674.22'	2468.39'
7750					
7800	7781'	89.44°	90.66°	5673.45'	2563.36'
7850					
7900	7876'	89.17°	89.43°	5674.60'	2658.24'
7950					
8000	7971'	90.80°	90.91°	5674.63'	2753.13'



8050

8066'

90.12°

91.80°

5673.86'

2848.10'

8100

8150

8160'

89.60°

92.51°

5674.09'

2942.09'

8200

8250

8255'

90.80°

91.95°

5673.76'

3037.08'

8300

8350

8349'

88.64°

89.16°

5674.21'

3130.99'

8400

8450

8444'

87.75°

89.60°

5677.20'

3225.77'

8500

8550

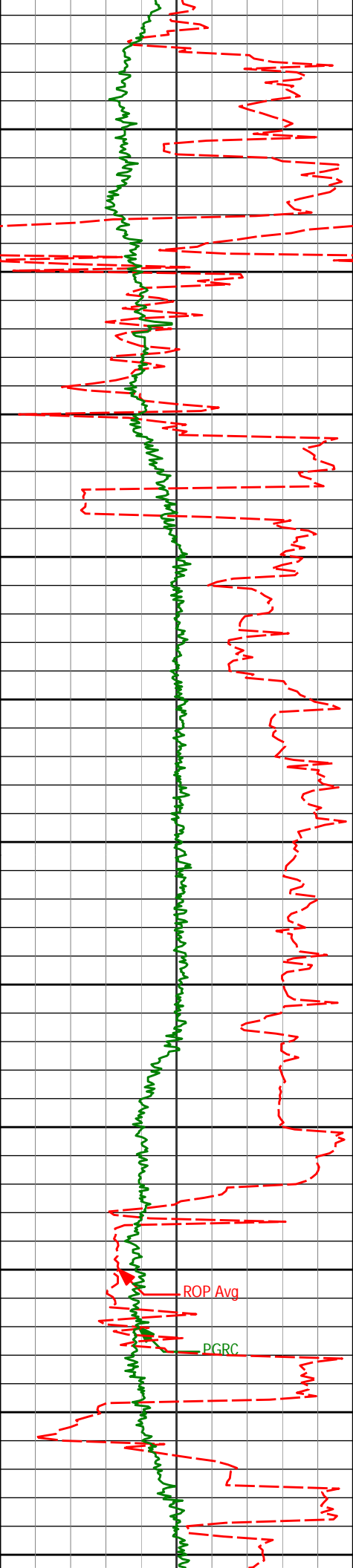
8539'

87.04°

88.97°

5681.52'

3320.50'



8600

8634'

87.87°

87.59°

5685.74'

3415.10'

8650

8700

8729'

88.61°

86.47°

5688.65'

3509.57'

8750

8800

8824'

89.48°

85.97°

5690.24'

3603.93'

8850

8900

8918'

91.23°

85.51°

5689.66'

3697.21'

8950

8967'

90.09°

86.11°

5689.09'

3745.84'

9000

9013'

88.98°

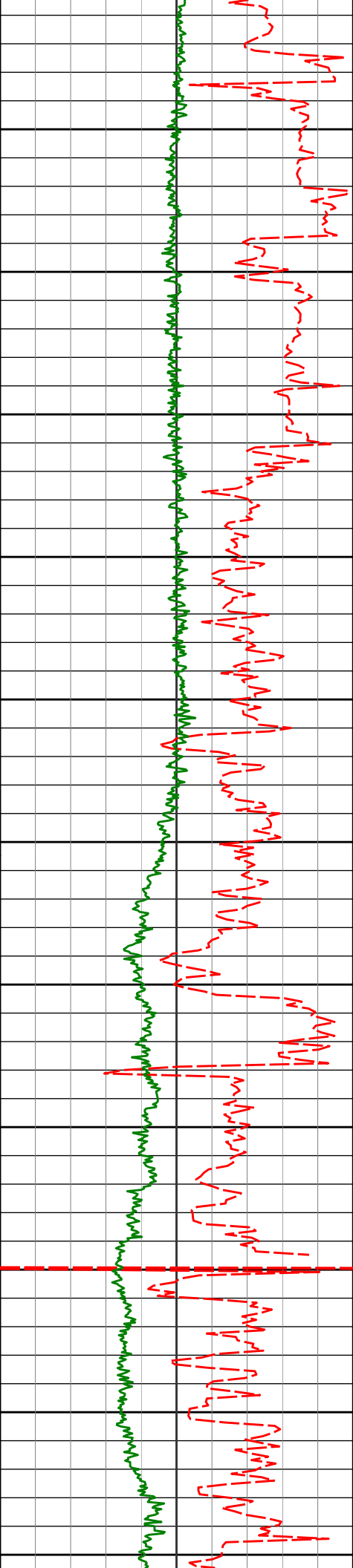
84.45°

5689.46'

3791.44'

9050

9100



9150

9200

9250

9300

9350

9400

9450

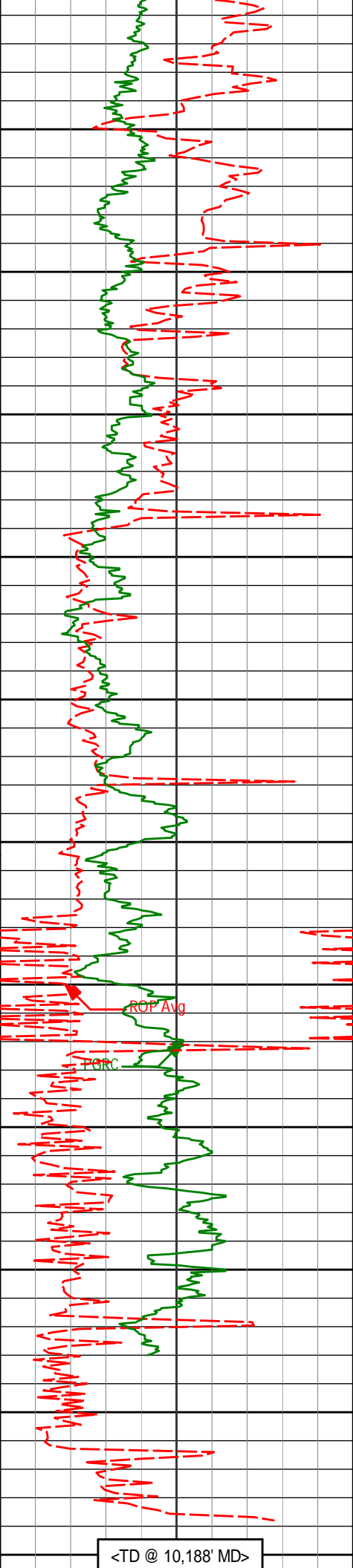
9500

9550

9600

9650

9108'	86.45°	86.39°	5693.25'	3885.56'
9202'	88.15°	87.95°	5697.67'	3979.00'
9297'	87.99°	87.48°	5700.87'	4073.57'
9392'	88.12°	86.96°	5704.09'	4168.06'
9486'	86.95°	88.94°	5708.14'	4261.63'
9581'	87.56°	88.62°	5712.69'	4356.29'



9700

9750

9800

9850

9900

9950

10000

10050

10100

10150

10200

9676'

87.44°

88.53°

5716.83'

4450.94'

9771'

87.81°

88.40°

5720.77'

4545.58'

9865'

89.11°

87.79°

5723.30'

4639.23'

9960'

91.60°

86.97°

5722.71'

4733.79'

10055'

94.88°

85.79°

5717.34'

4828.03'

10124'

96.83°

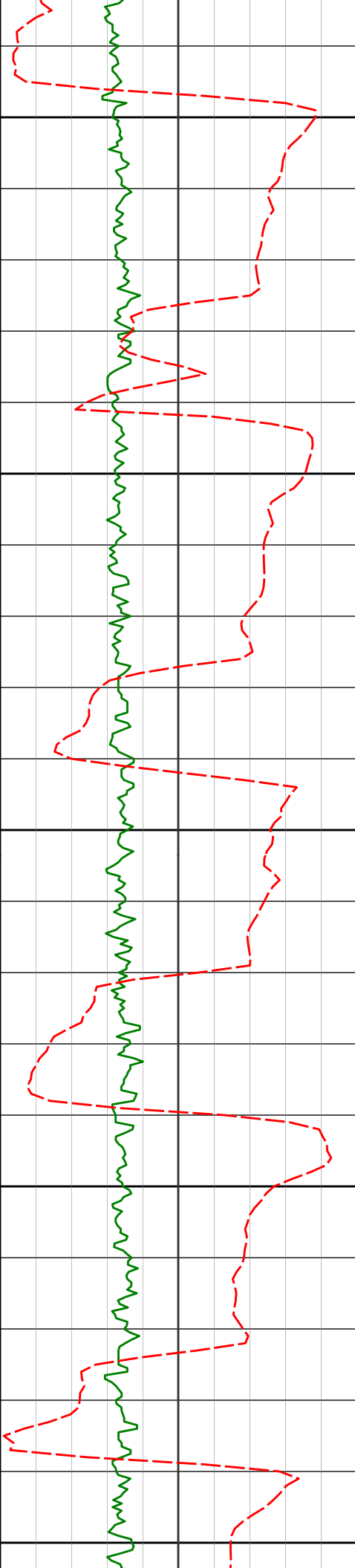
84.64°

5710.30'

4896.06'

<TD @ 10,188' MD>

Avg Rate of Penetration ROP Avg ----- feet per hr		Depth ft	Depth	Inc.	Azi.	TVD	V.S.
500	0						
PCG Gamma Ray PGRC ----- api							
0	300						
<div style="text-align: center;"> <h1 style="color: red; margin: 0;">HALLIBURTON</h1> <h2 style="color: red; margin: 0;">Sperry Drilling Services</h2> <h3 style="margin: 0;">MD Detail Log 1:240</h3> </div> <div style="text-align: right; margin-top: 20px;"> Noble Energy, Inc Rohn State LD03-62-1HNM H&P 273 T9N R58W </div>							
PCG Gamma Ray PGRC ----- api							
0	300						
Avg Rate of Penetration ROP Avg ----- feet per hr		Depth ft	Depth	Inc.	Azi.	TVD	V.S.
500	0						
		4950	4953'	0.57°	37.66°	4926.93'	182.84'
		<KOP>					
		5000	5001'	3.25°	99.41°	4974.90'	184.33'
		5050	5048'	7.27°	104.37°	5021.70'	188.57'



5100

5150

5200

5250

5300

5096'

9.85°

104.96°

5069.16'

195.56'

5143'

12.77°

96.10°

5115.24'

204.68'

5191'

16.20°

93.01°

5161.71'

216.67'

5238'

19.01°

94.72°

5206.51'

230.88'

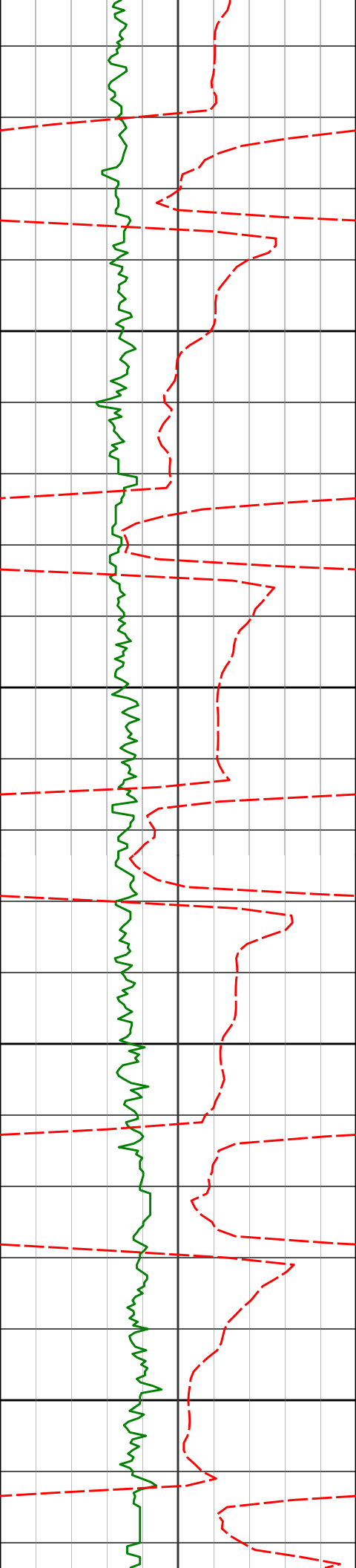
5286'

22.32°

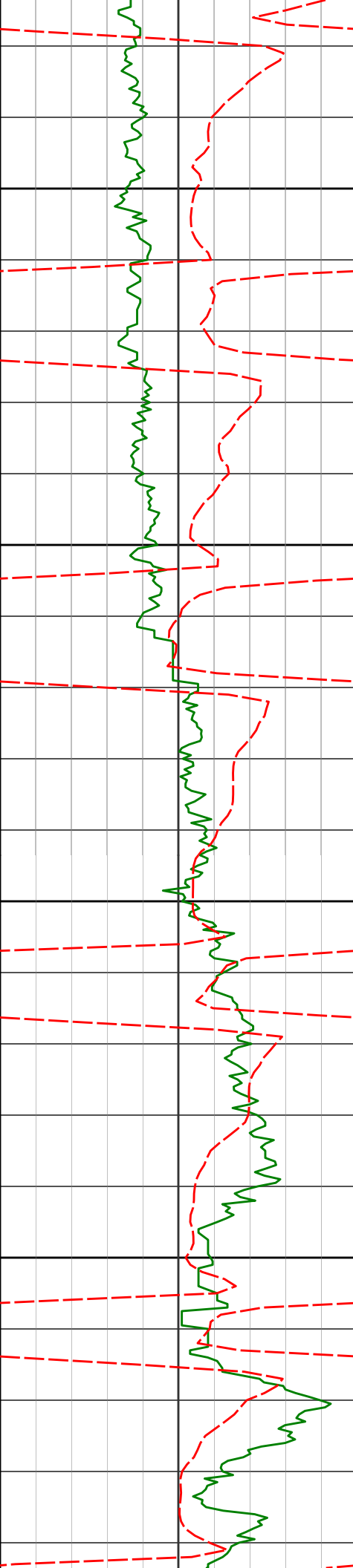
93.30°

5251.41'

247.82'



	5333'	25.99°	91.61°	5294.29'	267.04'
5350					
	5381'	30.49°	91.26°	5336.56'	289.74'
5400					
	5428'	34.45°	90.19°	5376.21'	314.95'
5450					
	5476'	38.41°	89.39°	5414.82'	343.41'
5500					
	5522'	42.45°	89.18°	5449.83'	373.18'



5550

5570'

46.38°

90.49°

5484.11'

406.72'

5600

5617'

50.02°

91.31°

5515.43'

441.74'

5650

5665'

54.95°

90.77°

5544.65'

479.78'

5700

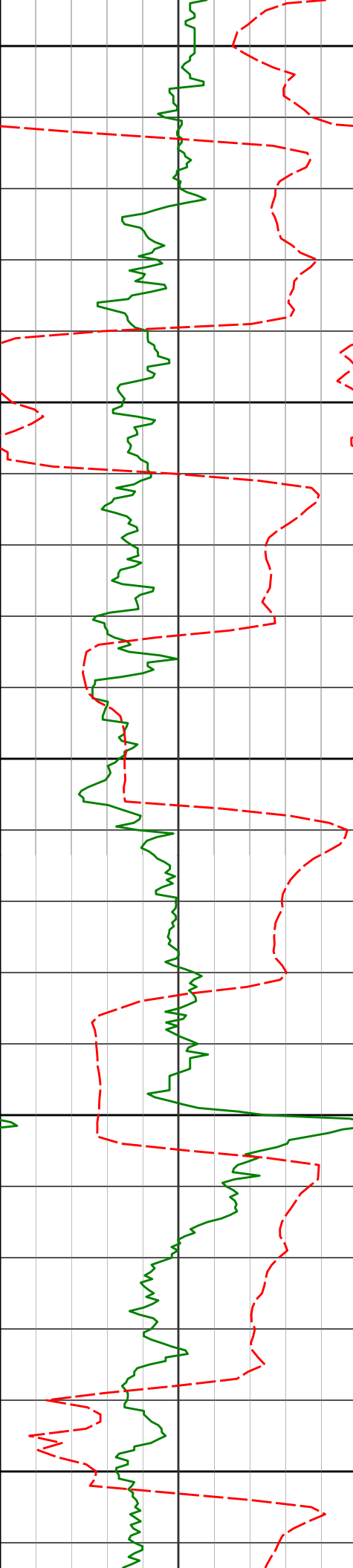
5712'

60.92°

89.92°

5569.59'

519.55'



5750

5760'

65.05°

89.04°

5591.39'

562.23'

5800

5807'

68.23°

87.73°

5610.02'

605.24'

5850

5855'

71.11°

87.46°

5626.70'

650.06'

5900

5902'

73.65°

89.01°

5640.92'

694.71'

5950

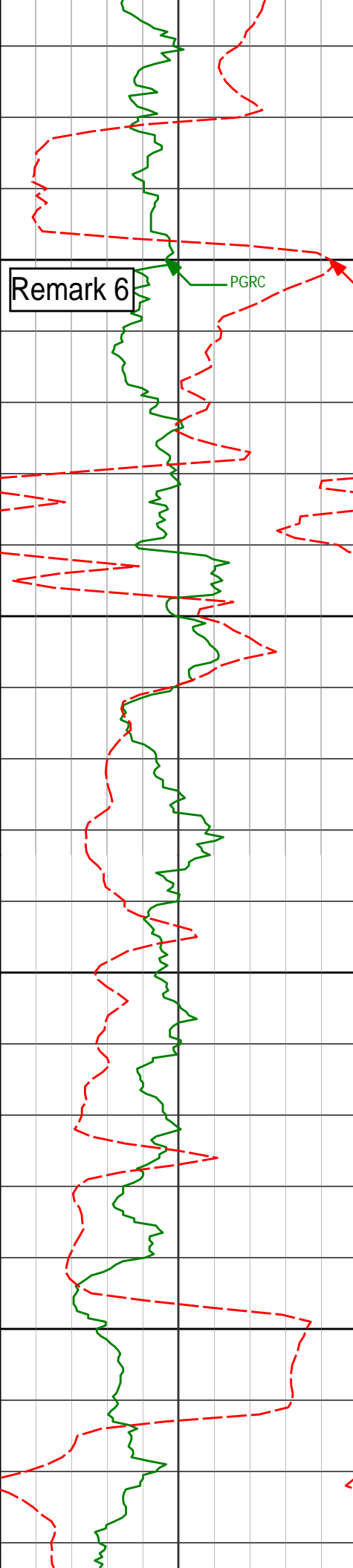
5949'

77.13°

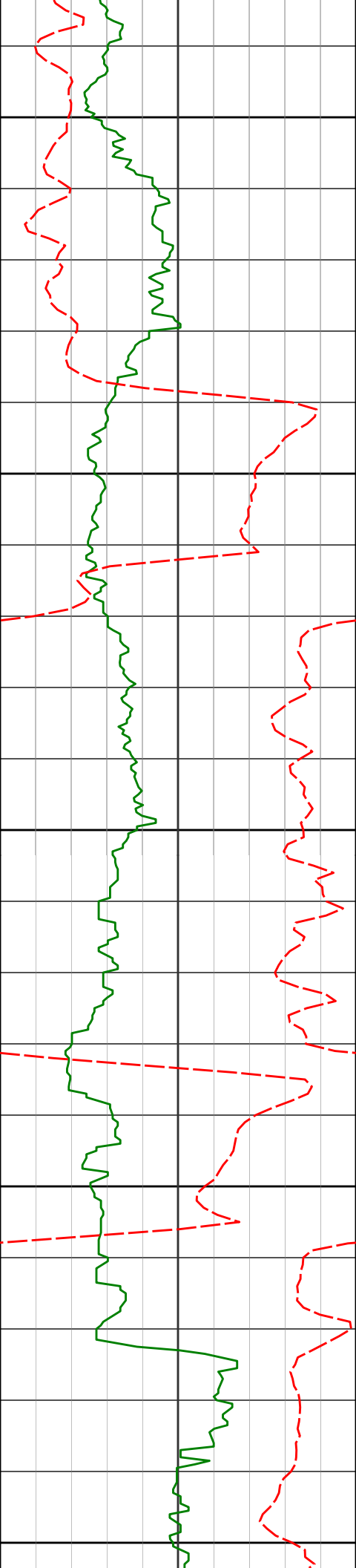
91.00°

5652.78'

740.13'



5994'	81.46°	91.70°	5661.14'	784.32'
6000				
<7" casing set at 6037' MD>				
<Run 200>				
6050				
6084'	85.06°	91.64°	5671.70'	873.66'
6100				
6150				
6177'	85.99°	90.75°	5678.96'	966.34'



6200

6250

6300

6350

6400

6270'

87.78°

88.84°

5684.01'

1059.07'

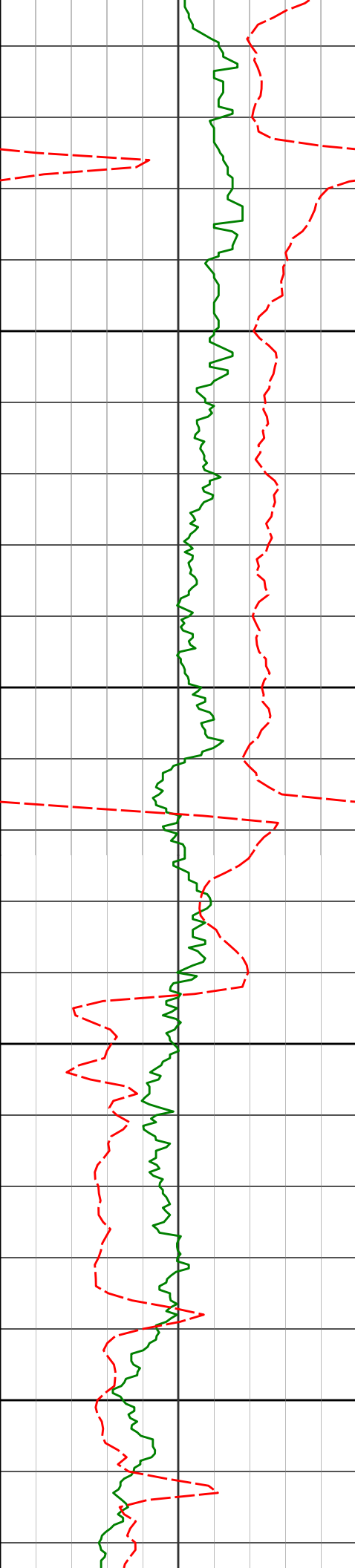
6362'

90.12°

87.63°

5685.69'

1150.75'



6450

6500

6550

6600

6454'

88.98°

85.92°

5686.41'

1242.23'

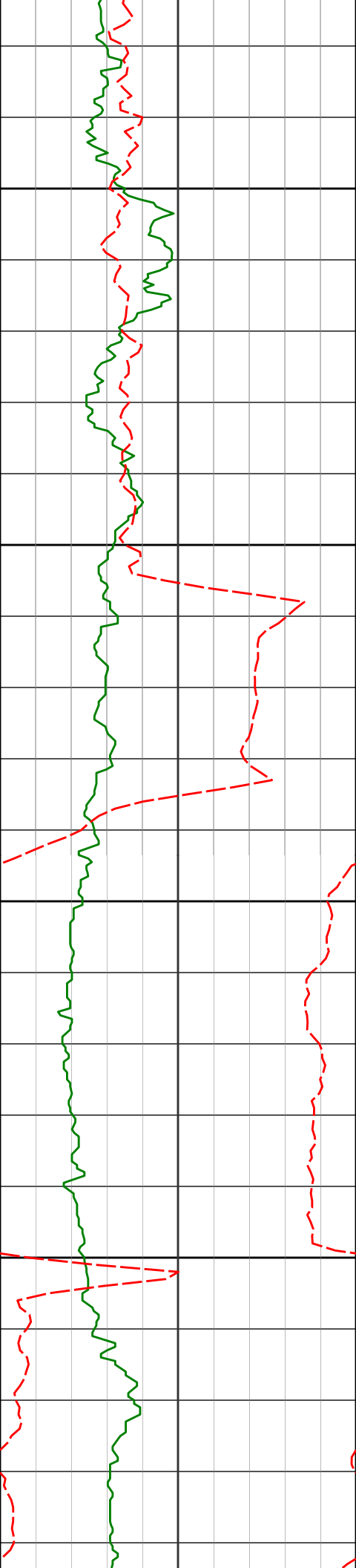
6549'

89.48°

88.81°

5687.69'

1336.79'



6644'

88.27°

87.53°

5689.56'

1431.45'

6650

6700

6739'

90.43°

87.88°

5690.63'

1526.06'

6750

6800

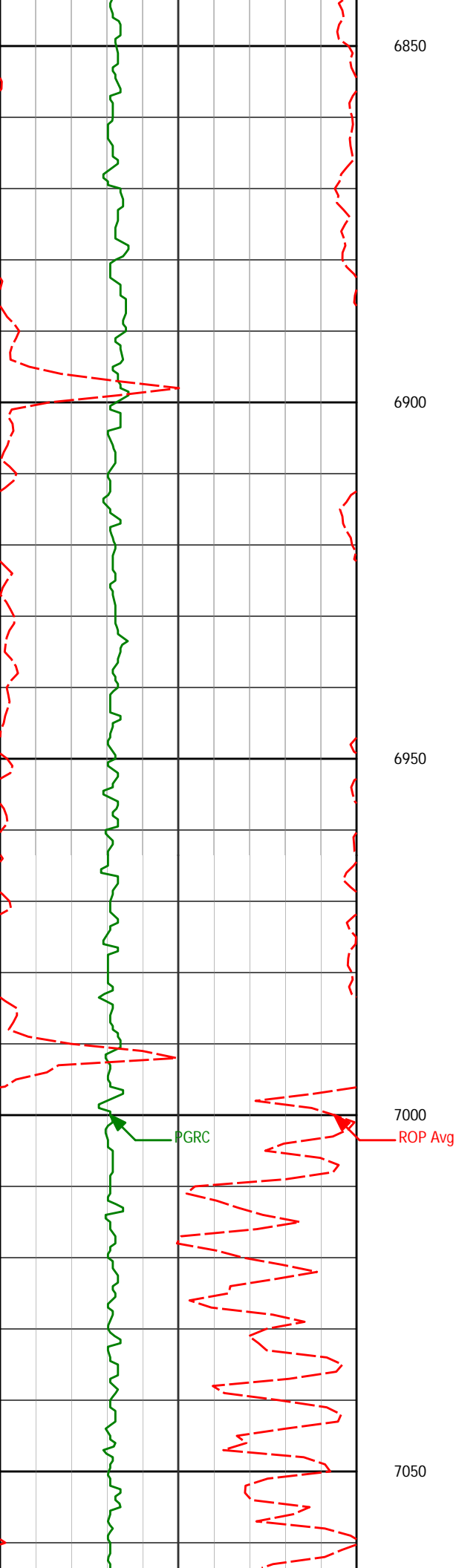
6833'

90.55°

88.45°

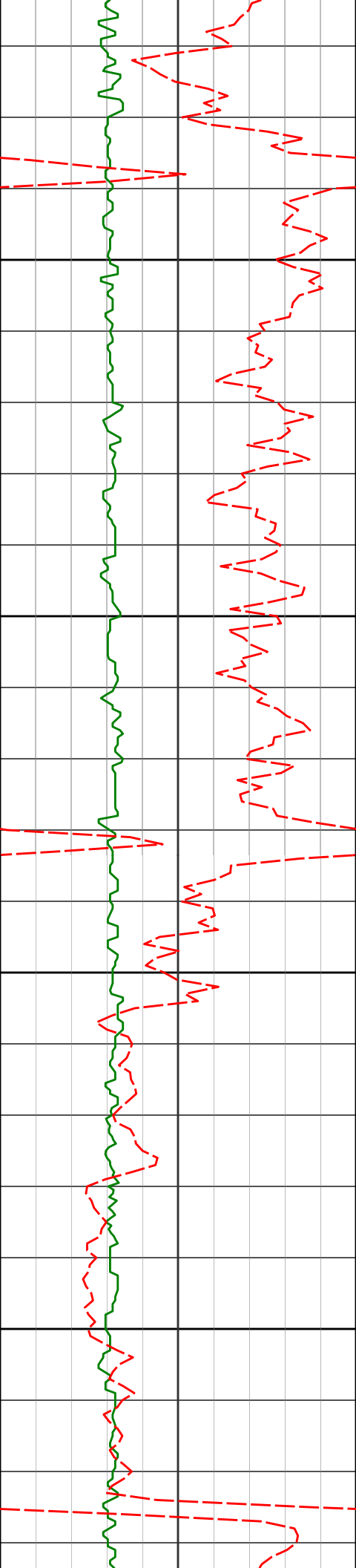
5689.82'

1619.75'



6928'	90.46°	86.55°	5688.98'	1714.34'
-------	--------	--------	----------	----------

7023'	91.29°	87.44°	5687.52'	1808.83'
-------	--------	--------	----------	----------



7100

7118'

91.17°

84.95°

5685.48'

1903.17'

7150

7200

7213'

91.26°

85.06°

5683.46'

1997.27'

7250



7300

7308'

91.42°

89.24°

5681.23'

2091.76'

7350

7400

7402'

91.26°

88.25°

5679.03'

2185.50'

7450

7500

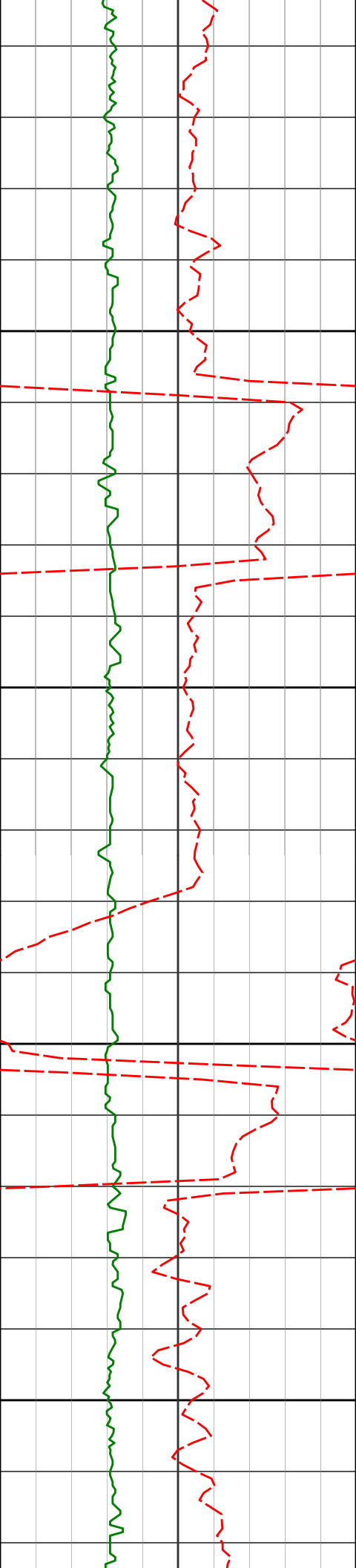
7497'

90.71°

85.68°

5677.40'

2279.98'



7550

7592'

90.83°

88.52°

5676.12'

2374.49'

7600

7650

7686'

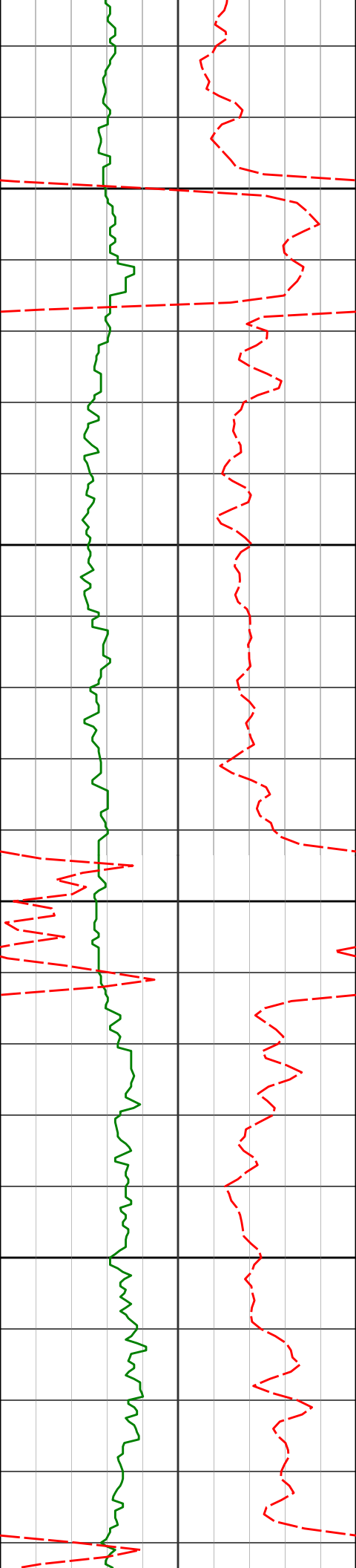
91.48°

92.96°

5674.22'

2468.39'

7700



7750

7781'

89.44°

90.66°

5673.45'

2563.36'

7800

7850

7876'

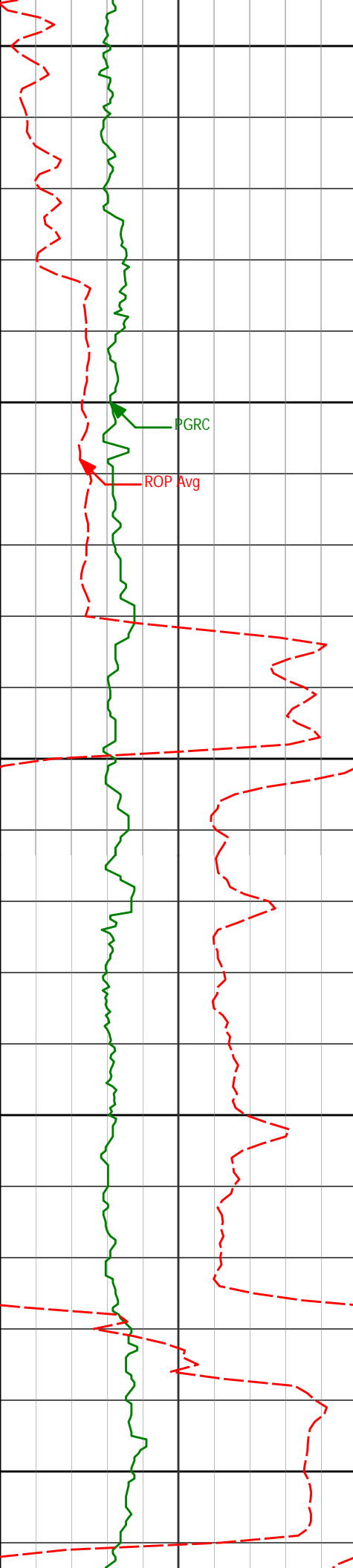
89.17°

89.43°

5674.60'

2658.24'

7900



7950

7971'

90.80°

90.91°

5674.63'

2753.13'

8000

PGRC

ROP Avg

8050

8066'

90.12°

91.80°

5673.86'

2848.10'

8100

8150

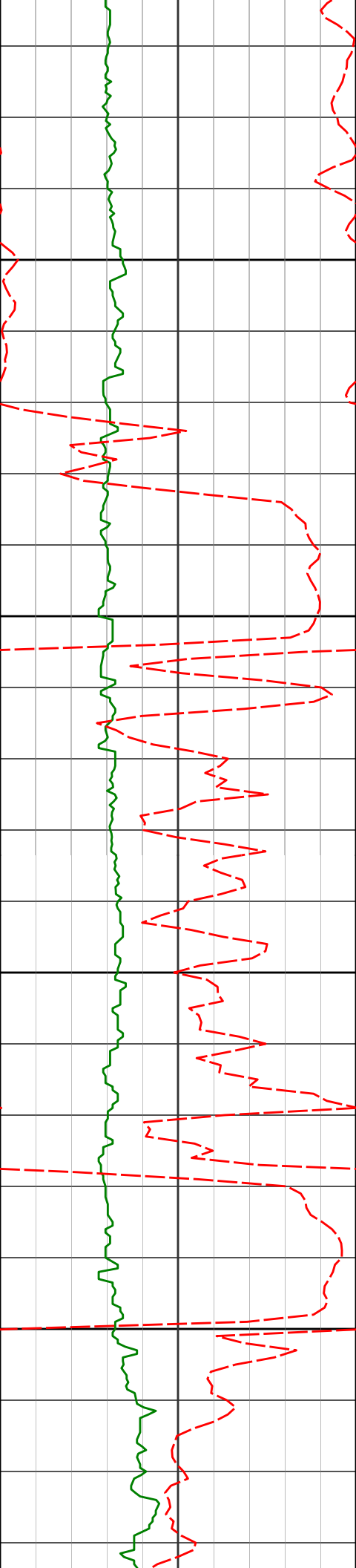
8160'

89.60°

92.51°

5674.09'

2942.09'



8200

8250

8300

8350

8255'

90.80°

91.95°

5673.76'

3037.08'

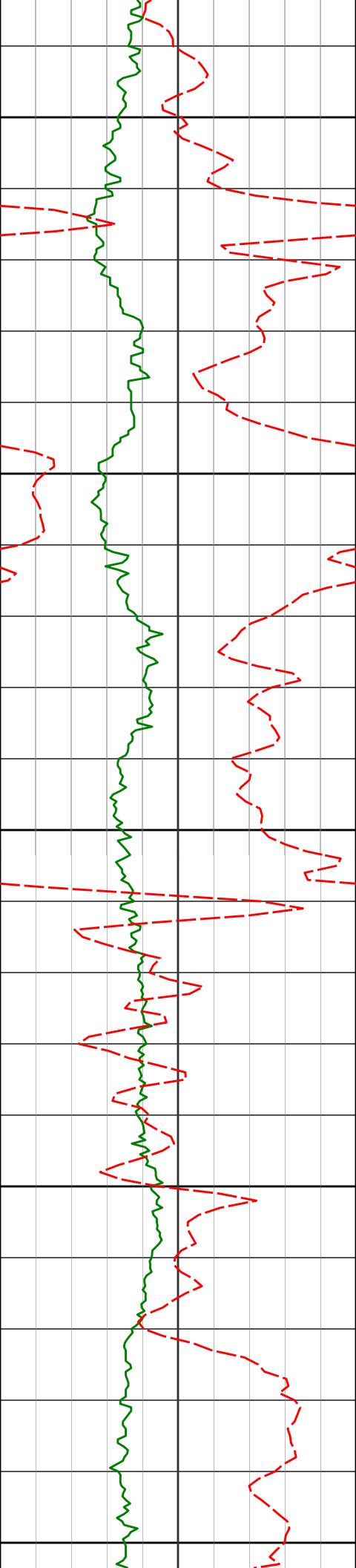
8349'

88.64°

89.16°

5674.21'

3130.99'



8400

8450

8500

8550

8600

8444'

87.75°

89.60°

5677.20'

3225.77'

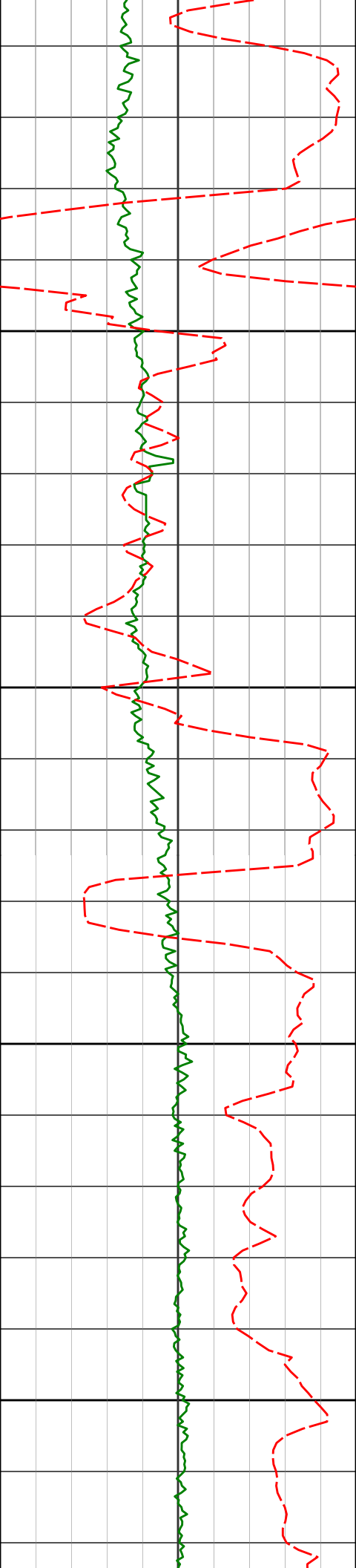
8539'

87.04°

88.97°

5681.52'

3320.50'



8634'

87.87°

87.59°

5685.74'

3415.10'

8650

8700

8729'

88.61°

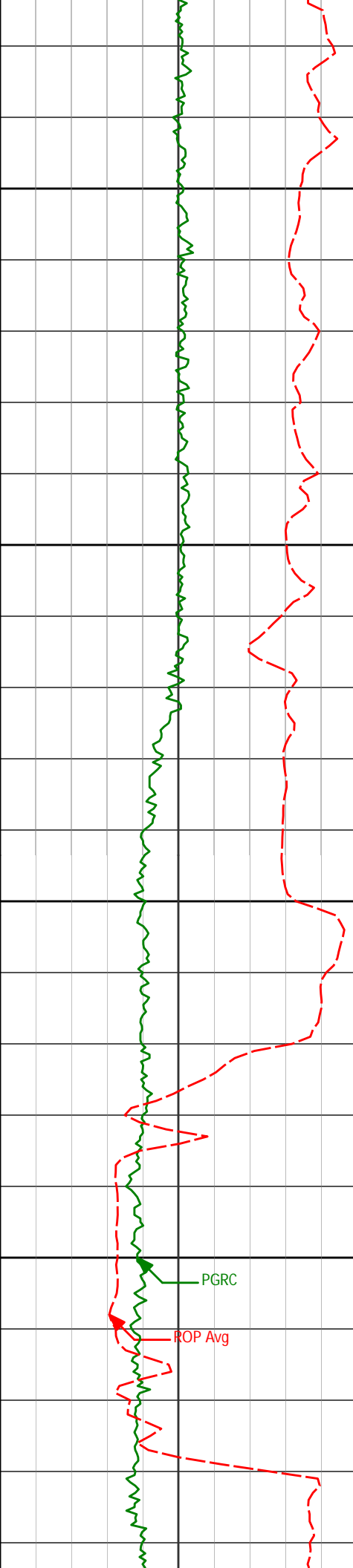
86.47°

5688.65'

3509.57'

8750

8800



8850

8900

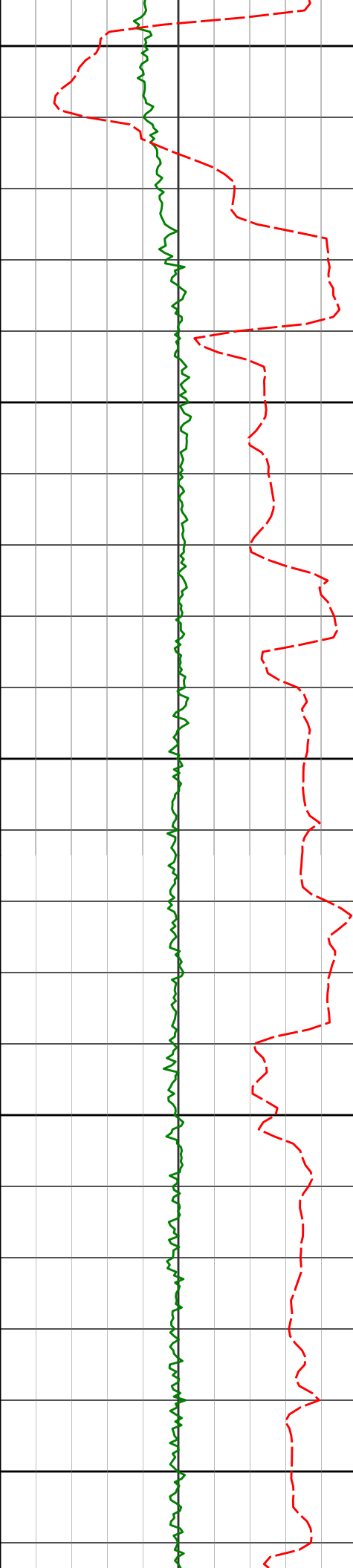
8950

9000

PGRC

ROP Avg

8824'	89.48°	85.97°	5690.24'	3603.93'
8918'	91.23°	85.51°	5689.66'	3697.21'
8967'	90.09°	86.11°	5689.09'	3745.84'
9013'	88.98°	84.45°	5689.46'	3791.44'



9050

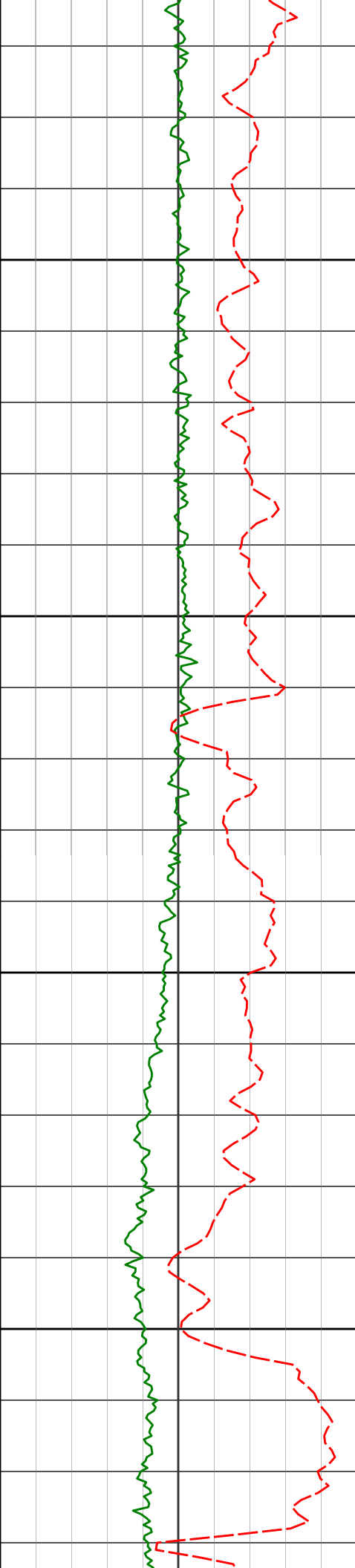
9100

9150

9200

9250

9108'	86.45°	86.39°	5693.25'	3885.56'
9202'	88.15°	87.95°	5697.67'	3979.00'



9300

9350

9400

9450

9297'

87.99°

87.48°

5700.87'

4073.57'

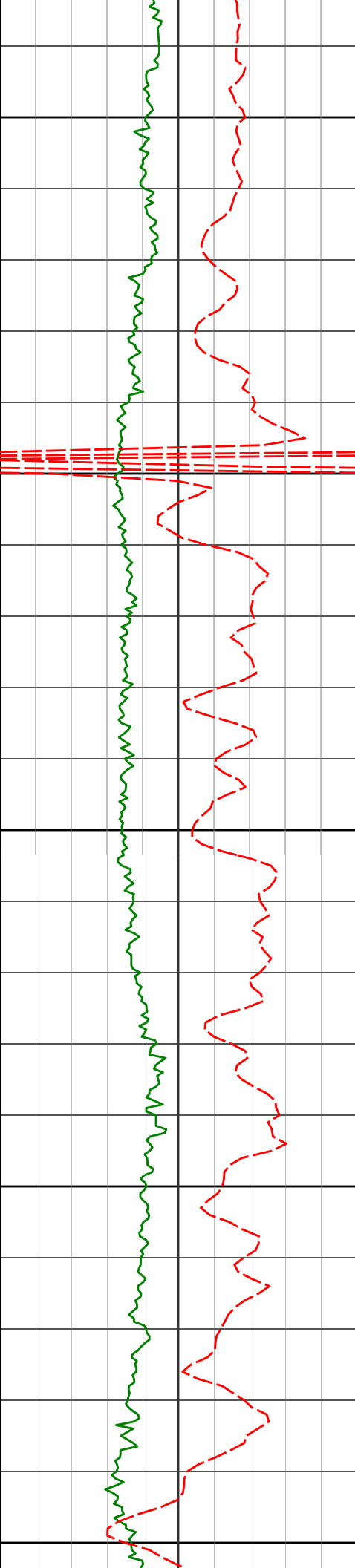
9392'

88.12°

86.96°

5704.09'

4168.06'



9500

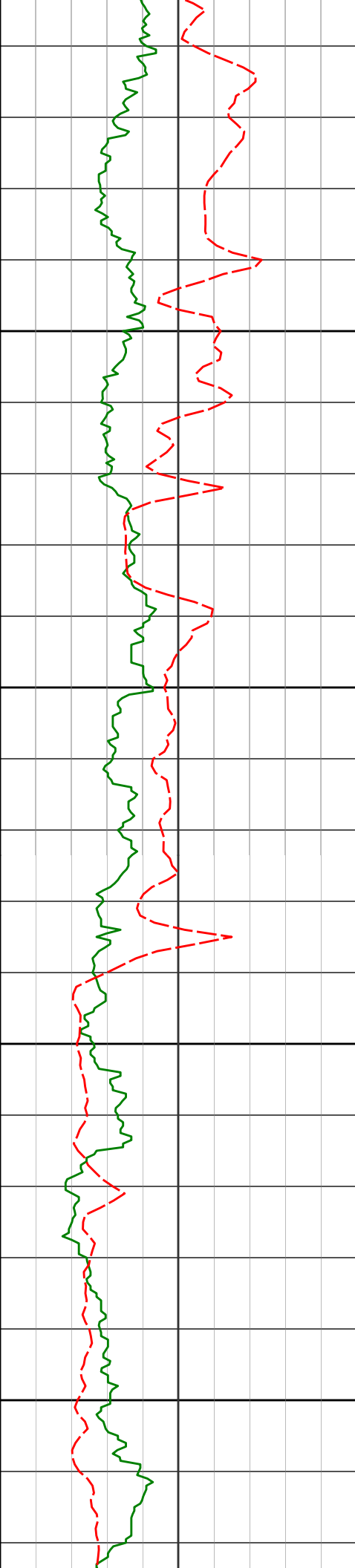
9550

9600

9650

9700

9486'	86.95°	88.94°	5708.14'	4261.63'
9581'	87.56°	88.62°	5712.69'	4356.29'
9676'	87.44°	88.53°	5716.83'	4450.94'



9750

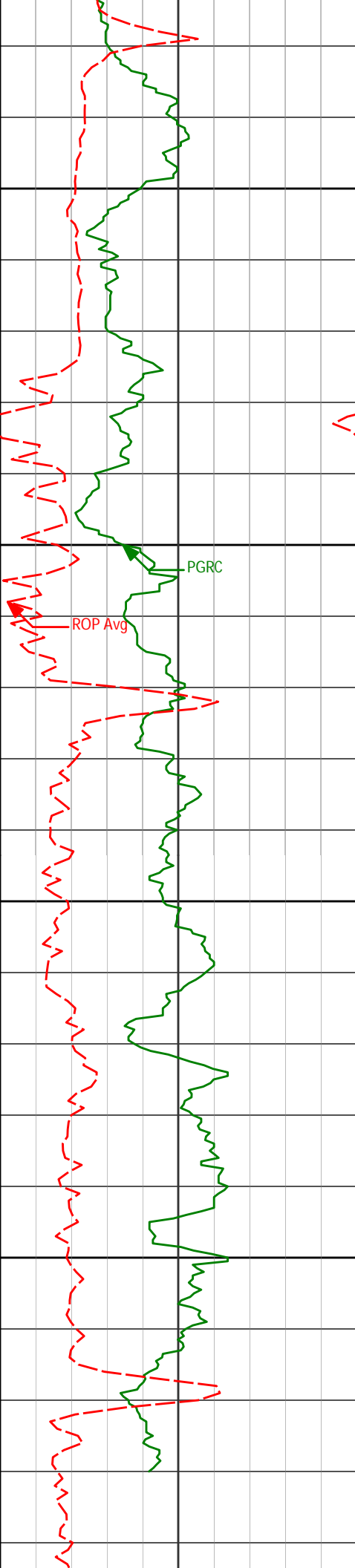
9771'	87.81°	88.40°	5720.77'	4545.58'
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9800

9850

9865'	89.11°	87.79°	5723.30'	4639.23'
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9900



9950

9960'

91.60°

86.97°

5722.71'

4733.79'

10000

PGRC

ROP Avg

10050

10055'

94.88°

85.79°

5717.34'

4828.03'

10100

10124'

96.83°

84.64°

5710.30'

4896.06'

4574.00	2.37	131.42	4548.01	357.02 S	160.05 E	177.36	0.54
4764.00	0.87	44.38	4737.95	358.58 S	164.00 E	181.38	1.30
4859.00	0.78	36.60	4832.94	357.55 S	164.88 E	182.21	0.15
4953.00	0.57	37.66	4926.93	356.67 S	165.55 E	182.84	0.22
5001.00	3.25	99.41	4974.90	356.70 S	167.04 E	184.33	6.29
5048.00	7.27	104.37	5021.70	357.65 S	171.24 E	188.57	8.60
5096.00	9.85	104.96	5069.16	359.47 S	178.15 E	195.56	5.39
5143.00	12.77	96.10	5115.24	361.06 S	187.20 E	204.68	7.21
5191.00	16.20	93.01	5161.71	361.98 S	199.17 E	216.67	7.32
5238.00	19.01	94.72	5206.51	362.95 S	213.35 E	230.88	6.08
5286.00	22.32	93.30	5251.41	364.12 S	230.24 E	247.82	6.97
5333.00	25.99	91.61	5294.29	364.92 S	249.45 E	267.04	7.96
5381.00	30.49	91.26	5336.56	365.48 S	272.15 E	289.74	9.36
5428.00	34.45	90.19	5376.21	365.79 S	297.38 E	314.95	8.52
5476.00	38.41	89.39	5414.82	365.68 S	325.87 E	343.41	8.32
5522.00	42.45	89.18	5449.83	365.31 S	355.70 E	373.18	8.78
5570.00	46.38	90.49	5484.11	365.22 S	389.29 E	406.72	8.40
5617.00	50.02	91.31	5515.43	365.78 S	424.31 E	441.74	7.85
5665.00	54.95	90.77	5544.65	366.46 S	462.37 E	479.78	10.30
5712.00	60.92	89.92	5569.59	366.69 S	502.18 E	519.55	12.80
5760.00	65.05	89.04	5591.39	366.30 S	544.93 E	562.23	8.76
5807.00	68.23	87.73	5610.02	365.07 S	588.05 E	605.24	7.23
5855.00	71.11	87.46	5626.70	363.19 S	633.02 E	650.06	6.02
5902.00	73.65	89.01	5640.92	361.81 S	677.79 E	694.71	6.25
5949.00	77.13	91.00	5652.78	361.82 S	723.26 E	740.13	8.46
5994.00	81.46	91.70	5661.14	362.86 S	767.45 E	784.32	9.74
6084.00	85.06	91.64	5671.70	365.46 S	856.78 E	873.66	4.00
6177.00	85.99	90.75	5678.96	367.39 S	949.47 E	966.34	1.38
6270.00	87.78	88.84	5684.01	367.06 S	1042.33 E	1059.07	2.81
6362.00	90.12	87.63	5685.69	364.22 S	1134.26 E	1150.75	2.87
6454.00	88.98	85.92	5686.41	359.05 S	1226.10 E	1242.23	2.23
6549.00	89.48	88.81	5687.69	354.68 S	1320.99 E	1336.79	3.09
6644.00	88.27	87.53	5689.56	351.65 S	1415.92 E	1431.45	1.85
6739.00	90.43	87.88	5690.63	347.85 S	1510.83 E	1526.06	2.30
6833.00	90.55	88.45	5689.82	344.84 S	1604.78 E	1619.75	0.61
6928.00	90.46	86.55	5688.98	340.70 S	1699.68 E	1714.34	2.00
7023.00	91.29	87.44	5687.52	335.72 S	1794.53 E	1808.83	1.28
7118.00	91.17	84.95	5685.48	329.42 S	1889.29 E	1903.17	2.62
7213.00	91.26	85.06	5683.46	321.15 S	1983.91 E	1997.27	0.15
7308.00	91.42	89.24	5681.23	316.44 S	2078.75 E	2091.76	4.40
7402.00	91.26	88.25	5679.03	314.39 S	2172.70 E	2185.50	1.07
7497.00	90.71	85.68	5677.40	309.35 S	2267.54 E	2279.98	2.77
7592.00	90.83	88.52	5676.12	304.54 S	2362.40 E	2374.49	2.99
7686.00	91.48	92.96	5674.22	305.75 S	2456.35 E	2468.39	4.78
7781.00	89.44	90.66	5673.45	308.75 S	2551.29 E	2563.36	3.24
7876.00	89.17	89.43	5674.60	308.82 S	2646.28 E	2658.24	1.32
7971.00	90.80	90.91	5674.63	309.11 S	2741.27 E	2753.13	2.32
8066.00	90.12	91.80	5673.86	311.35 S	2836.24 E	2848.10	1.17
8160.00	89.60	92.51	5674.09	314.88 S	2930.18 E	2942.09	0.94
8255.00	90.80	91.95	5673.76	318.58 S	3025.10 E	3037.08	1.40
8349.00	88.64	89.16	5674.21	319.48 S	3119.08 E	3130.99	3.75
8444.00	87.75	89.60	5677.20	318.45 S	3214.03 E	3225.77	1.05
8539.00	87.04	88.97	5681.52	317.27 S	3308.92 E	3320.50	1.00
8634.00	87.87	87.59	5685.74	314.42 S	3403.78 E	3415.10	1.69
8729.00	88.61	86.47	5688.65	309.51 S	3498.61 E	3509.57	1.42
8824.00	89.48	85.97	5690.24	303.24 S	3593.39 E	3603.93	1.05
8918.00	91.23	85.51	5689.66	296.26 S	3687.12 E	3697.21	1.93
8967.00	90.09	86.11	5689.09	292.68 S	3735.99 E	3745.84	2.62
9013.00	88.98	84.45	5689.46	288.89 S	3781.83 E	3791.44	4.33
9108.00	86.45	86.39	5693.25	281.31 S	3876.43 E	3885.56	3.35
9202.00	88.15	87.95	5697.67	276.68 S	3970.21 E	3979.00	2.46
9297.00	87.99	87.48	5700.87	272.89 S	4065.08 E	4073.57	0.53
9392.00	88.12	86.96	5704.09	268.28 S	4159.91 E	4168.06	0.56
9486.00	86.95	88.94	5708.14	264.92 S	4253.76 E	4261.63	2.45
9581.00	87.56	88.62	5712.69	262.89 S	4348.63 E	4356.29	0.73
9676.00	87.44	88.53	5716.83	260.53 S	4443.51 E	4450.94	0.16
9771.00	87.81	88.40	5720.77	257.98 S	4538.39 E	4545.58	0.41
9865.00	89.11	87.79	5723.30	254.85 S	4632.30 E	4639.23	1.52
9960.00	91.60	86.97	5722.71	250.51 S	4727.19 E	4733.79	2.77
10055.00	94.88	85.79	5717.34	244.52 S	4821.84 E	4828.03	3.66
10124.00	96.83	84.64	5710.30	238.81 S	4890.24 E	4896.06	3.28
10188.00	96.83	84.64	5702.69	232.87 S	4953.50 E	4958.96	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 92.81 DEGREES (GRID)
A TOTAL CORRECTION OF 6.98 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 10188.00 FEET
IS 4958.97 FEET ALONG 92.69 DEGREES (GRID)**

Surface surveys at 910 ft and 1200 ft have had azimuths corrected to grid north, but were not taken by Halliburton.

Last survey is a projection from 10124 ft MD to TD at 10188 ft MD.

Date Printed:26 September 2014