

**PCDC - Pressure Case Directional  
PCGK - Pressure Case Gamma**



**1 : 600 / 1 : 240**

Country : USA	Field : Wattenberg
Location : Lat: 40° 31' 15.92" North Long: 104° 27' 3.10" West	Well : NCLP AA06-69-1HNA
Company : Noble	Rig : H&P 321
LOCATION Company : Noble Rig : H&P 321 Well : NCLP AA06-69-1HNA Field : Wattenberg Country : USA API Number : 05-123-39121	
Latitude : 40° 31' 15.92" North Longitude : 104° 27' 3.10" West UTM Easting = 3,291,667.630 ft UTM Northing = 1,434,399.130 ft	Other Services <b>Directional Drilling</b>

Permanent Datum : Ground Level	Elevation : 4711.00 ft	Elev. KB N/A
Log Measured From : Drill Floor	30.00 ft Above Permanent Datum	DF 4741.00 ft
Drilling Measured From : Drill Floor	<b>TVD LOG</b>	GL 4711.00 ft
		WD N/A

Depth Logged : 888.97 ft To 6,637.30 ft	Unit No. : 11210424	Job No. : CA-XX-0901288051
Date Logged : 27-Jun-14 To 29-Jun-14	Plot Type : Final	
Total Depth MD : 7,006.00 ft TVD : 6,637.30 ft	Plot Date : 30-Jun-14	
Spud Date : 27-Jun-14		

Run No.	Borehole Record (TVD)		Run No.	Borehole Record (TVD)	
	Size	From		Size	From
100	8.750 in	888.97 ft			
200	8.750 in	5,462.57 ft			
		6,637.30 ft			
			Casing Record (TVD)		
Run No.	Size	Weight	From	To	
	9.625 in	37.90 lppf	SURFACE	878.97 ft	

**WELL INFORMATION**

	100	200		
MWD Run Number	100	200		
Date run completed	28-Jun-14	29-Jun-14		
Rig Bit Number	2	3		
Bit Size (in)	8.750	8.750		
Tool Nominal OD (in)	6.840	6.840		
Log Start Depth (TVD, ft)	888.97	5,462.57		
Log End Depth (TVD, ft)	5,462.57	6,637.30		
Drill or Wipe	Drill	Drill		
Drill/Wipe Start Date and Time	27-Jun-14 21:50	28-Jun-14 22:05		
Drill/Wipe End Date and Time	28-Jun-14 14:56	29-Jun-14 10:50		
Min Inc (deg) @ Depth (TVD, ft)	0.13 @ 5,406.57	0.53 @ 5,500.57		
Max Inc (deg) @ Depth (TVD, ft)	10.92 @ 3,899.11	89.70 @ 6,637.30		
Bit TFA(in2) / Bit Type	0.98 / PDC	0.78 / PDC		
Flow Rate (gpm)	599.09	585.49		
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)	8.93 / 35.00	10.50 / 40.00		
Filtrate CL (ppm)	1,900.00	2,000.00		
pH / Fluid Loss (mptm)	9.80 / 9	8.70 / 8		
PV (cP) / YP (Ihf2)	6 / 3.00	10 / 6.00		
% Solids / % Sand	4.40 / 0.15	11.00 / 0.15		
% 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	150.10 / PCM	162.80 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ 150.10	N/A @ 162.80			
Lead MWD Engineer	Robert Barnes	Robert Barnes			
Customer Representative	Stetson Nielsen	Stetson Nielsen			

## SENSOR INFORMATION

### Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.84	5.84			
Sub Serial Number	12365886	12365886			
Insert Serial Number	11145581	11145581			
Date and Time Initialized	27-Jun-14 13:38	01-Jan-70 00:00			
Date and Time Read	29-Jun-14 16:03	29-Jun-14 16:18			
ECMB SW Version	N/A	N/A			

### Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	56.00	54.00			
Software Version	6.21	6.21			
Sub Serial Number	12365886	12365886			
Sonde Serial Number	11638573	11638573			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	346.63	193.81			

### Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	48.80	47.08			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	12365886	12365886			
Insert/Sonde Serial Number	11120591	11120591			

## REMARKS

1. All depths are calibrated to driller's pipe tally and are true vertical depth from the Drill Floor.
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 "Brigham 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:

1:600 Log  
 PGRC (Gamma CG) and ROPA (Average Rate of Penetration)  
 Interval Resolution: 1.0 ft  
 Interval Distance: 3.0 ft

1:240 Log  
 PGRC (Gamma CG):  
 Interval Resolution: 0.5 ft  
 Interval Distance: 0.6 ft

ROPA (Average Rate Of Penetration):  
 Interval Resolution: 0.5 ft

Interval Distance: 1.2 ft

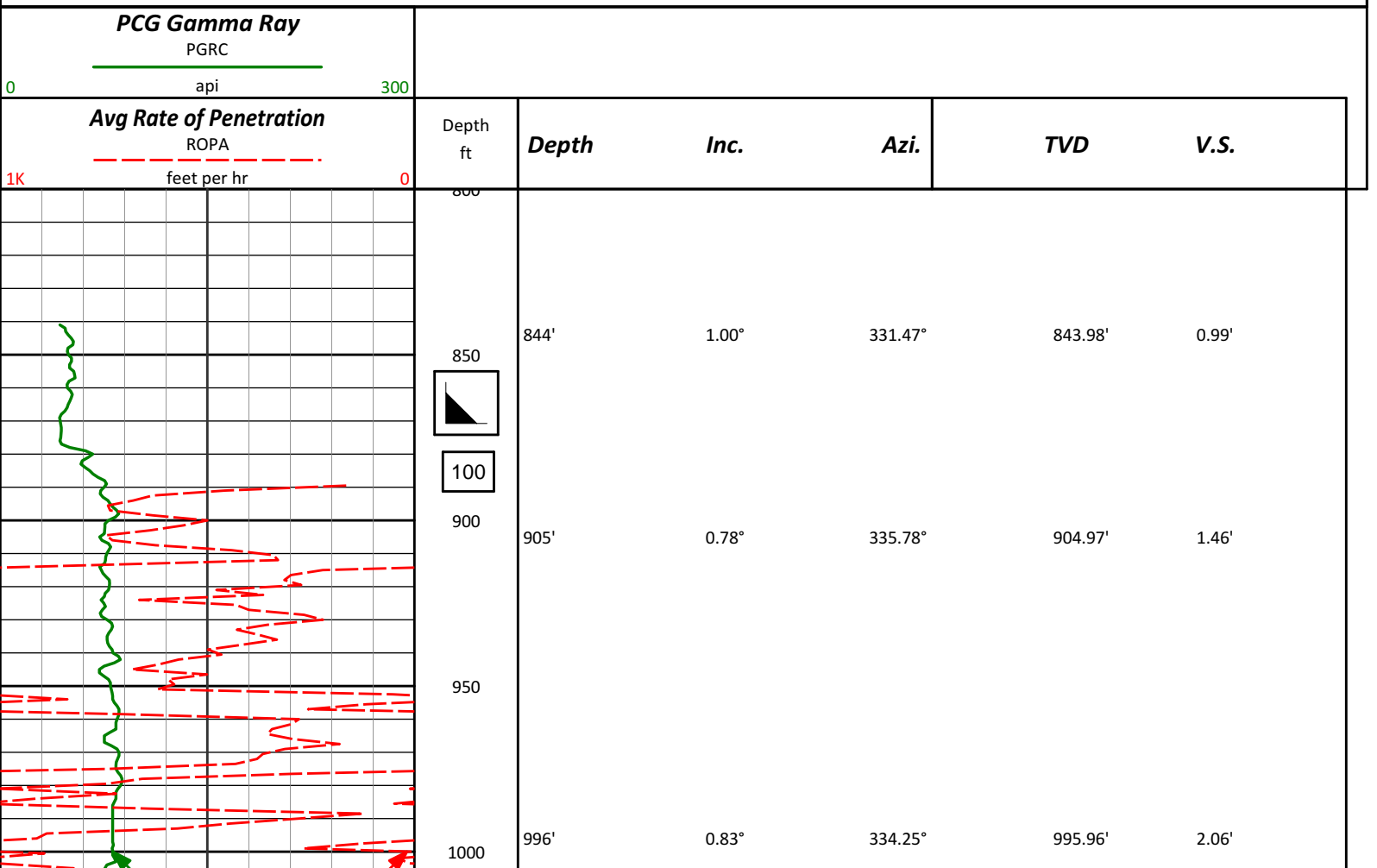
6. Insite Version v8.0.10

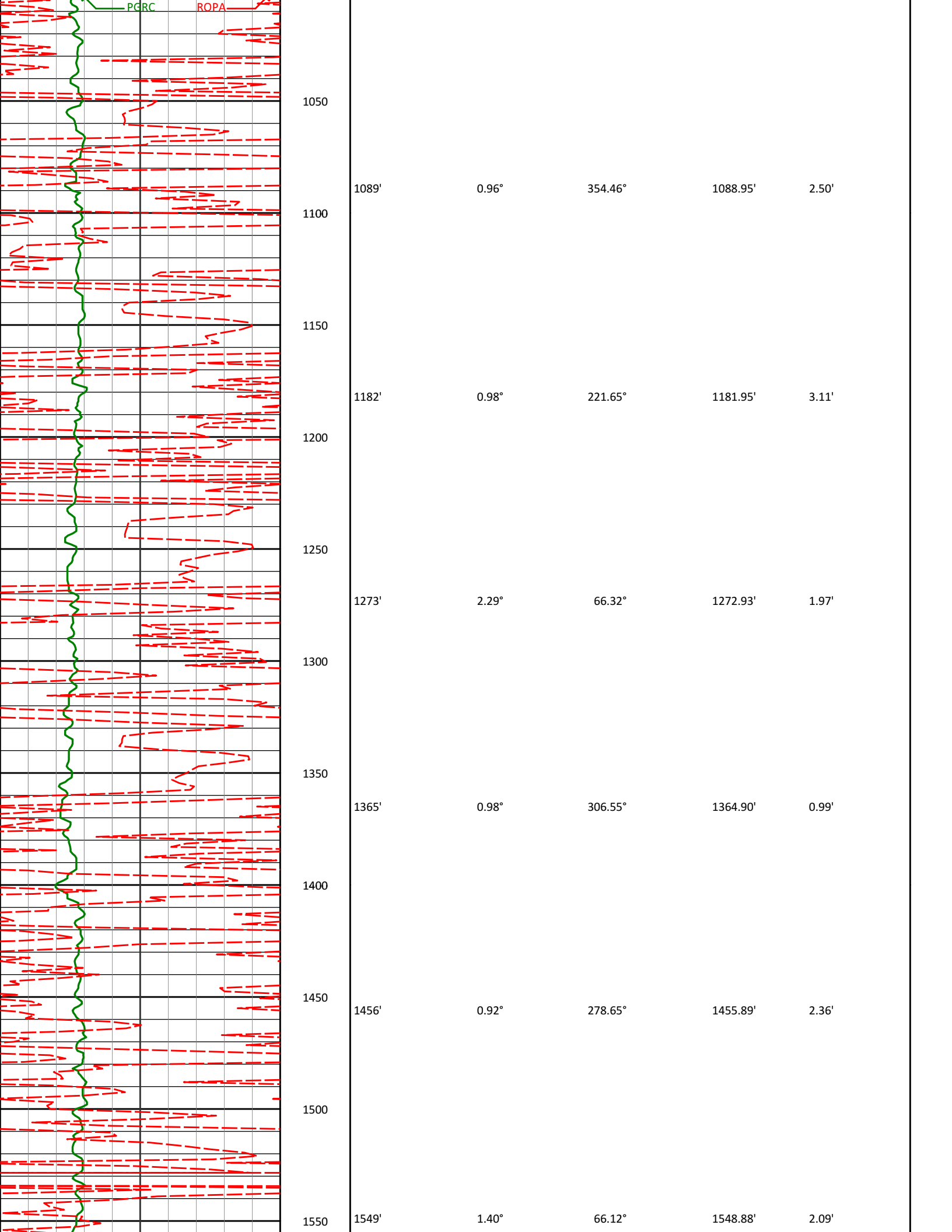
**WARRANTY**

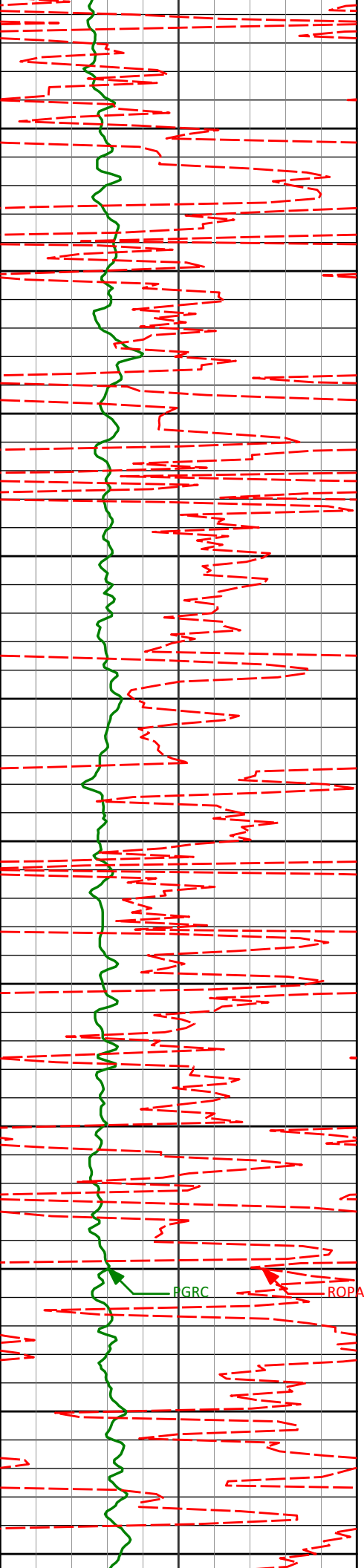
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**HALLIBURTON**  
**Sperry Drilling Services**  
**TVD Correlation Log 1:600**

Noble Energy  
 NCLP AA06-69-1HNA  
 H&P 321  
 Sec. 4-T6N-R63W





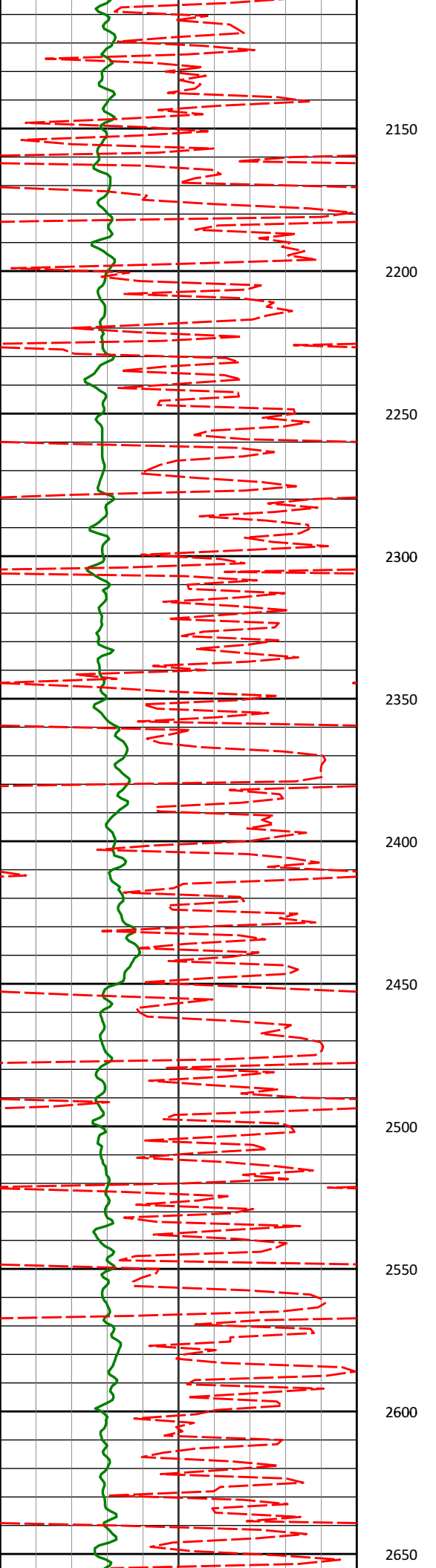


1600  
1650  
1700  
1750  
1800  
1850  
1900  
1950  
2000  
2050  
2100

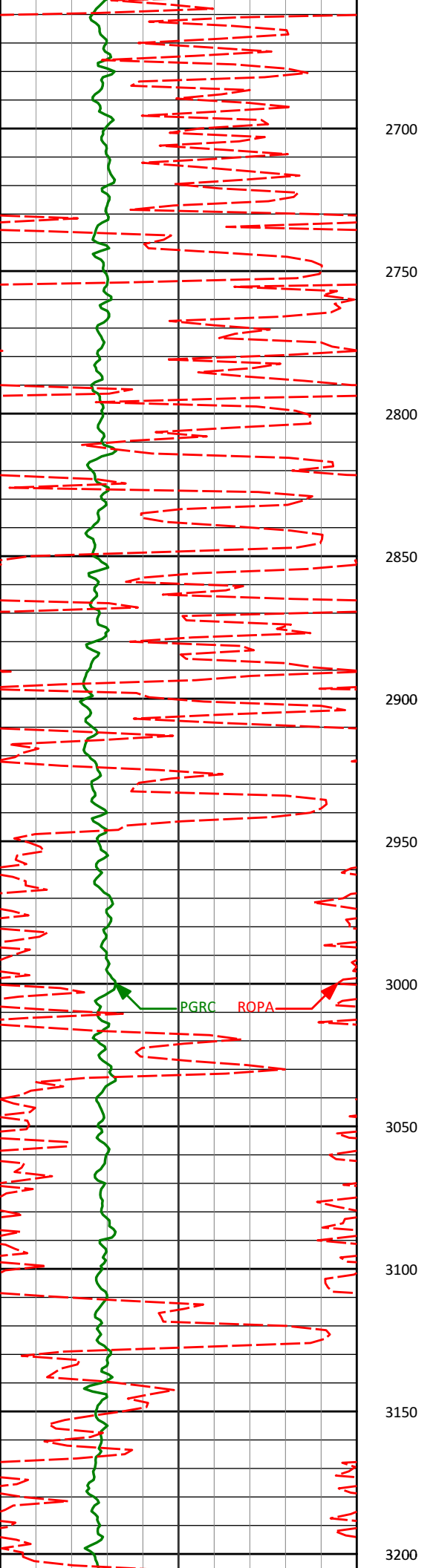
1641'	0.56°	296.31°	1640.87'	1.50'
1736'	0.60°	289.34°	1735.87'	2.41'
1830'	0.71°	282.37°	1829.86'	3.45'
1925'	0.85°	292.10°	1924.85'	4.70'
2020'	0.79°	286.42°	2019.84'	6.00'

FGRC

ROPA

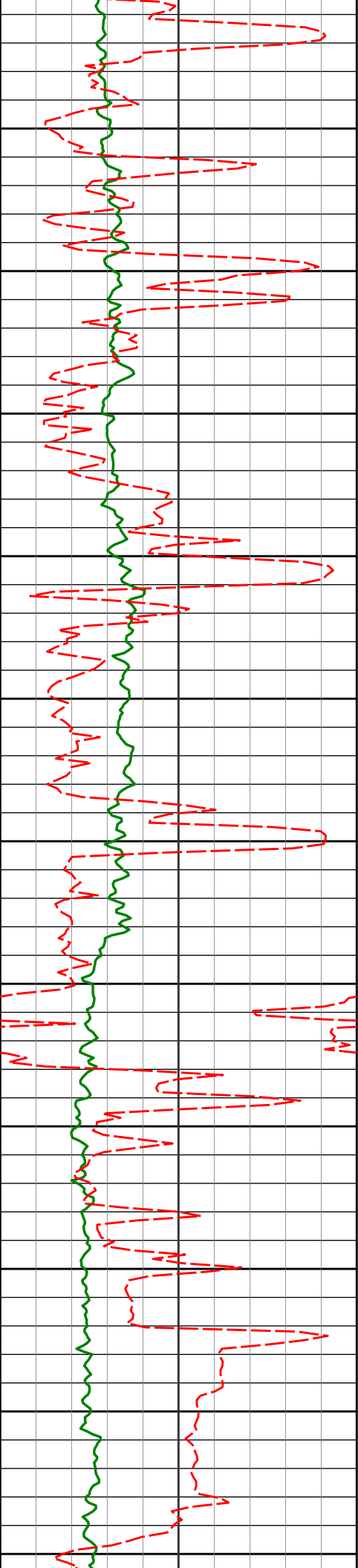


2115'	0.78°	300.96°	2114.84'	7.21'	
2150					
2200	2209'	0.68°	292.22°	2208.83'	8.30'
2250					
2300	2304'	0.62°	274.89°	2303.82'	9.35'
2350					
2400	2399'	2.16°	349.00°	2398.80'	10.30'
2450					
2500	2493'	3.90°	355.76°	2492.66'	11.13'
2550					
2600	2588'	5.54°	359.50°	2587.34'	11.82'
2650					

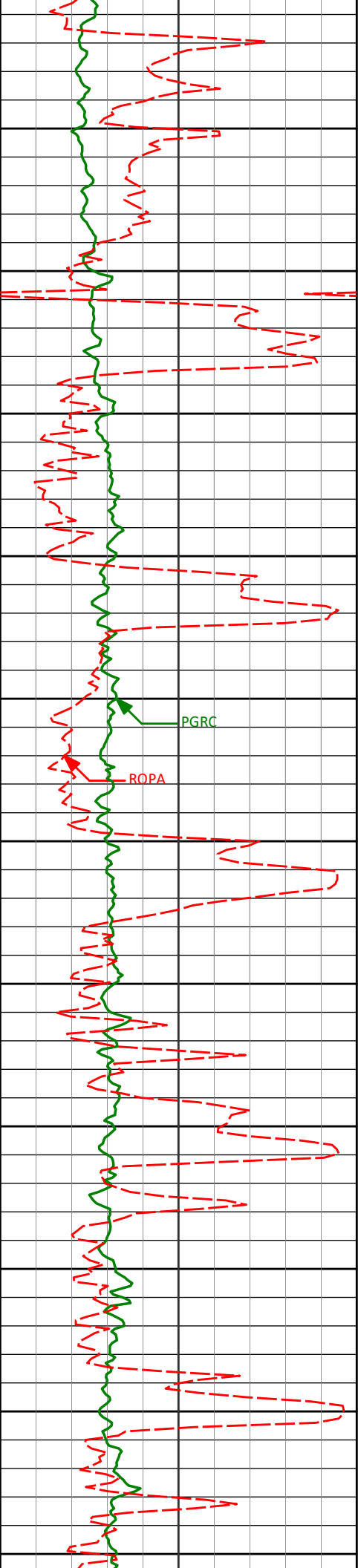


2683'	5.48°	358.46°	2681.90'	12.46'
2700				
2750				
2778'	6.91°	1.11°	2776.34'	13.01'
2800				
2850				
2873'	8.23°	359.05°	2870.51'	13.67'
2900				
2950				
2967'	10.11°	356.44°	2963.30'	15.08'
3000				
3062'	10.35°	356.43°	3056.79'	17.01'
3100				
3150	9.33°	358.79°	3150.40'	18.55'
3200				

PGRC ROPA



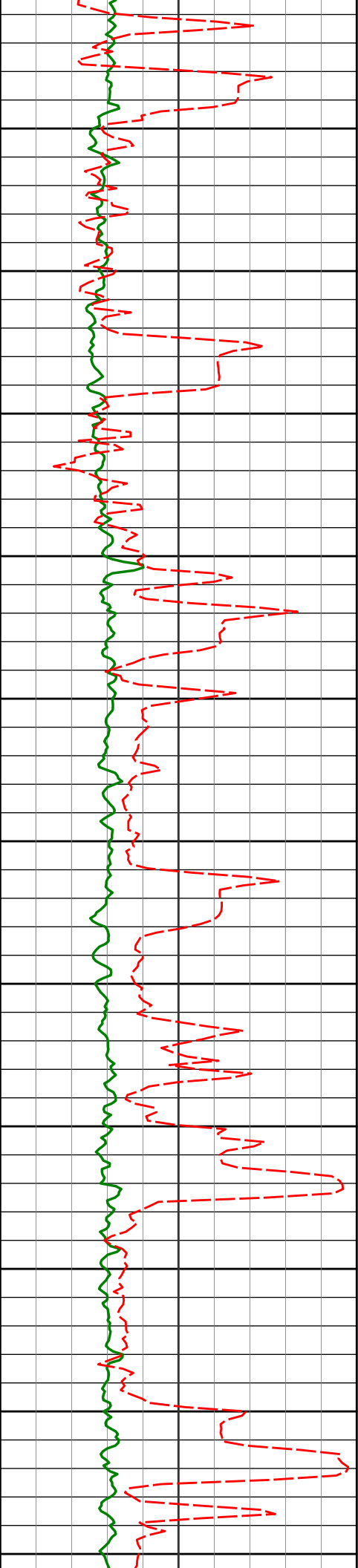
3250	3251'	8.01°	1.53°	3243.32'	19.28'
3300					
3350	3346'	7.09°	2.76°	3337.50'	19.48'
3400					
3450	3441'	7.81°	349.52°	3431.70'	21.01'
3500					
3550	3536'	8.73°	354.50°	3525.71'	23.58'
3600					
3650	3631'	9.23°	355.22°	3619.55'	25.68'
3700					
3750	3725'	9.81°	354.88°	3712.25'	27.84'



3800	3820'	10.49°	356.07°	3805.77'	30.03'
3850					
3900	3915'	10.92°	355.65°	3899.11'	32.22'
3950					
4000	4010'	10.25°	353.04°	3992.50'	34.84'
4050					
4100	4105'	9.01°	351.58°	4086.16'	37.78'
4150					
4200	4199'	8.19°	354.45°	4179.10'	40.23'
4250					
4300	4294'	7.83°	2.80°	4273.17'	41.26'

PGRC

ROPA



4350

4389'

7.84°

0.84°

4367.29'

41.53'

4400

4450

4484'

7.75°

359.80°

4461.41'

42.14'

4500

4550

4579'

7.23°

356.56°

4555.60'

43.17'

4600

4650

4674'

6.59°

349.81°

4649.91'

45.08'

4700

4750

4769'

6.01°

357.91°

4744.34'

46.77'

4800

4850

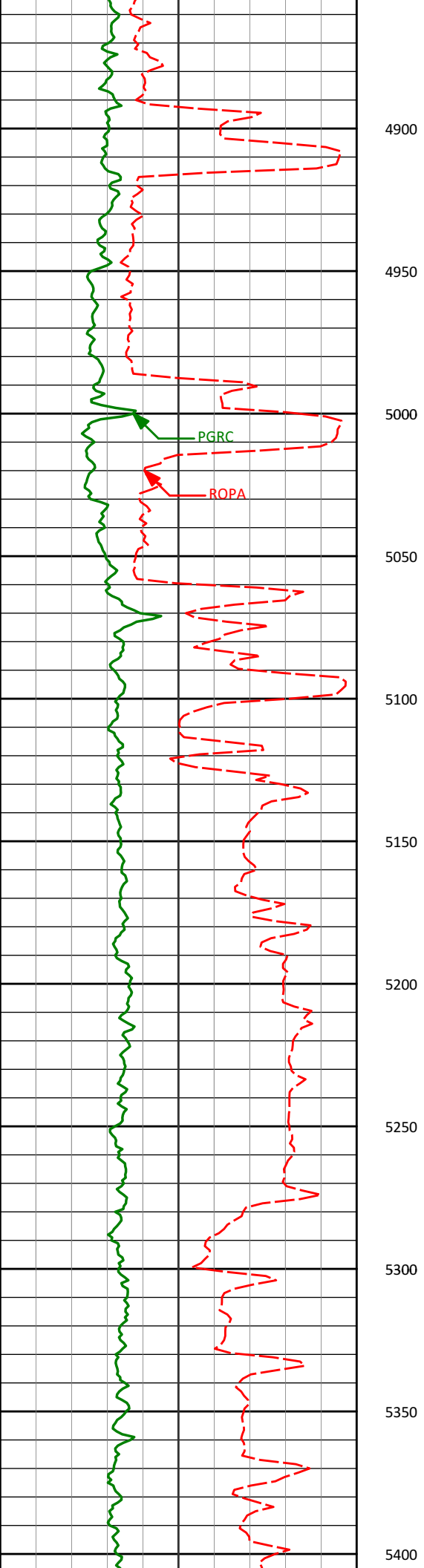
4863'

4.81°

359.29°

4837.92'

47.46'



4900

4958'

3.21°

8.07°

4932.68'

47.49'

4950

5000

PGRC

5053'

1.53°

27.70°

5027.60'

46.72'

5050

5100

5148'

0.57°

70.94°

5122.58'

45.76'

5150

5200

5243'

0.66°

99.70°

5217.58'

44.77'

5250

5300

5337'

0.65°

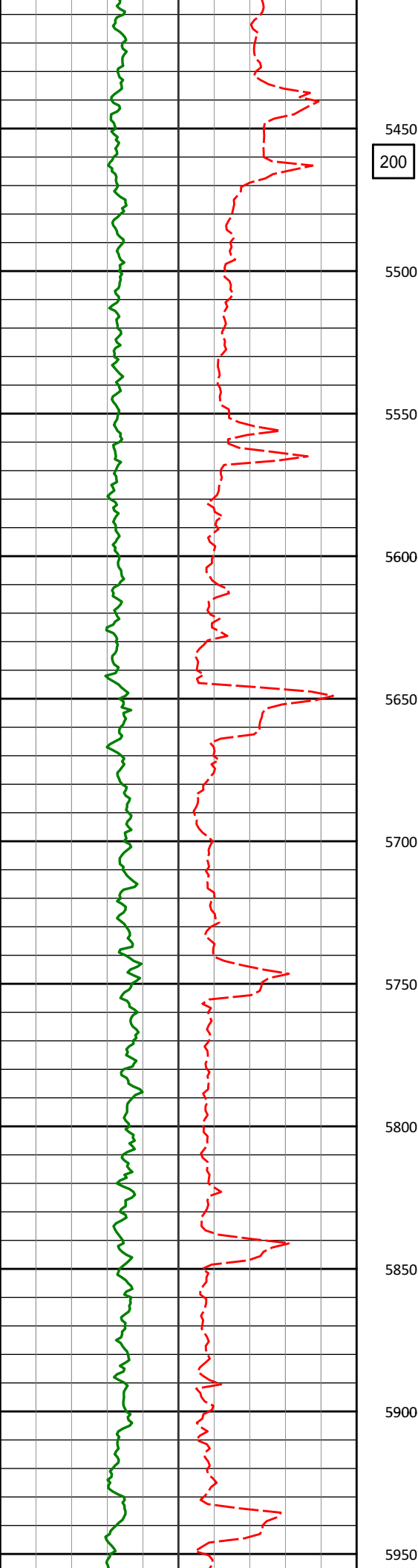
92.59°

5311.57'

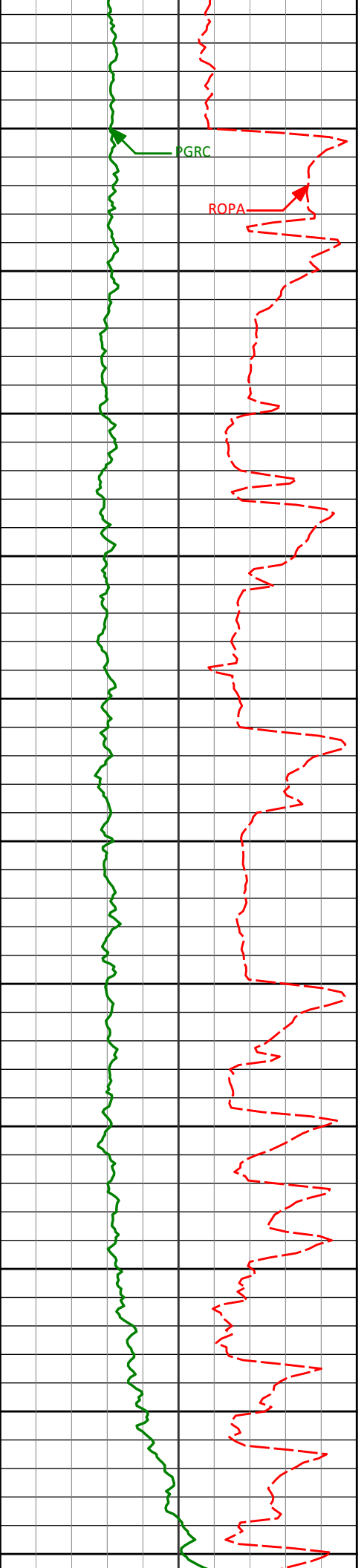
43.70'

5350

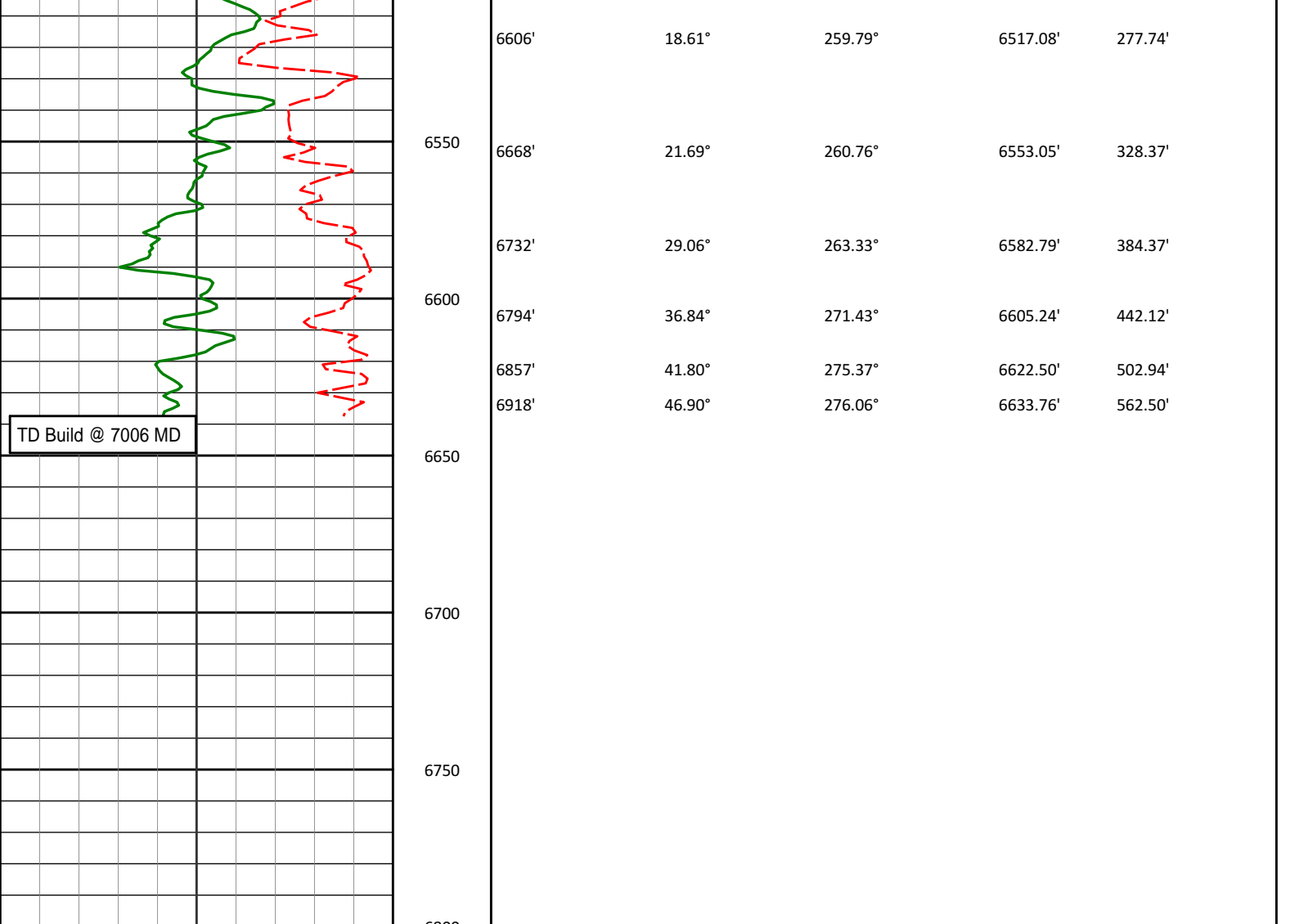
5400



Depth (ft)	Angle 1 (°)	Angle 2 (°)	Angle 3 (°)	Angle 4 (°)
5432'	0.13°	16.30°	5406.57'	43.14'
5538'	0.53°	11.33°	5512.57'	43.04'
5664'	0.74°	354.81°	5638.26'	43.19'
5791'	0.75°	338.43°	5765.28'	43.97'
5915'	0.74°	310.23°	5889.65'	45.46'



6000					
6041'	0.89°	296.94°	6015.28'	48.55'	
6050					
6100	6131'	0.73°	293.96°	6103.78'	64.21'
6150	6167'	0.66°	291.60°	6138.27'	73.50'
6200					
6250	6292'	11.53°	271.60°	6257.40'	113.16'
6300					
6350	6418'	18.07°	265.79°	6374.52'	157.49'
6400					
6450					
6542'	19.69°	263.38°	6474.10'	231.09'	
6500					



TD Build @ 7006 MD

6606'	18.61°	259.79°	6517.08'	277.74'	
6650	6668'	21.69°	260.76°	6553.05'	328.37'
6732'	29.06°	263.33°	6582.79'	384.37'	
6600	6794'	36.84°	271.43°	6605.24'	442.12'
6857'	41.80°	275.37°	6622.50'	502.94'	
6918'	46.90°	276.06°	6633.76'	562.50'	
6650					
6700					
6750					
6800					

<b>Avg Rate of Penetration</b> ROPA feet per hr 1K 0		Depth ft	<b>Depth</b>	<b>Inc.</b>	<b>Azi.</b>	<b>TVD</b>	<b>V.S.</b>
<b>PCG Gamma Ray</b> PGRC api 0 300							

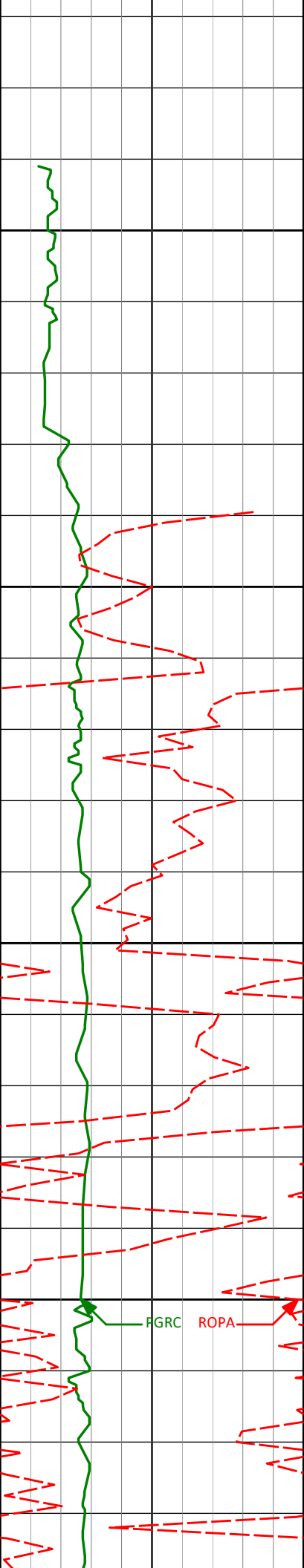
# HALLIBURTON

## Sperry Drilling Services

### TVD Detail Log 1:240

Noble Energy  
 NCLP AA06-69-1HNA  
 H&P 321  
 Sec. 4-T6N-R63W

<b>PCG Gamma Ray</b> PGRC api 0 300		Depth ft	<b>Depth</b>	<b>Inc.</b>	<b>Azi.</b>	<b>TVD</b>	<b>V.S.</b>
<b>Avg Rate of Penetration</b> ROPA feet per hr 1K 0							



100

844'      1.00°      331.47°      843.98'      0.99'

850

905'      0.78°      335.78°      904.97'      1.46'

900

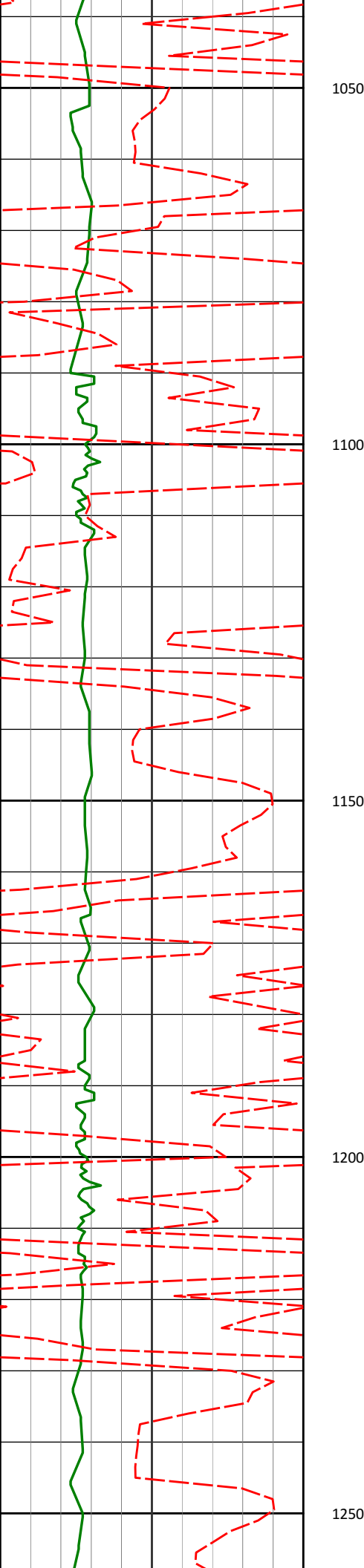
950

996'      0.83°      334.25°      995.96'      2.06'

1000

FGRC

ROPA



1050

1089'

0.96°

354.46°

1088.95'

2.50'

1100

1150

1182'

0.98°

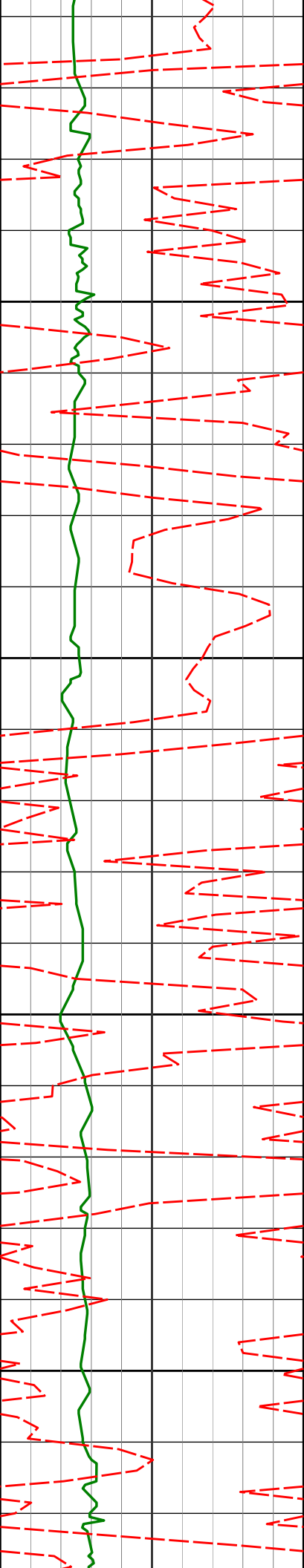
221.65°

1181.95'

3.11'

1200

1250



1273'

2.29°

66.32°

1272.93'

1.97'

1300

1350

1365'

0.98°

306.55°

1364.90'

0.99'

1400

1450

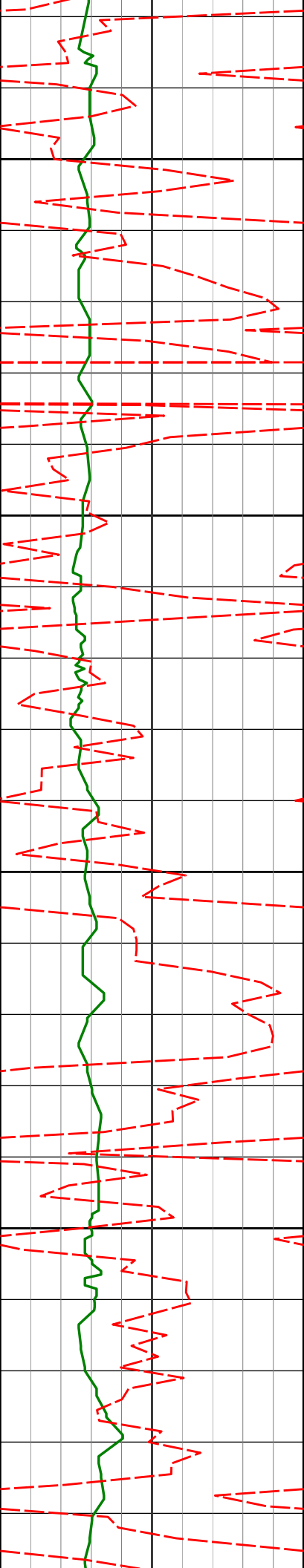
1456'

0.92°

278.65°

1455.89'

2.36'



1500

1550

1600

1650

1549'

1.40°

66.12°

1548.88'

2.09'

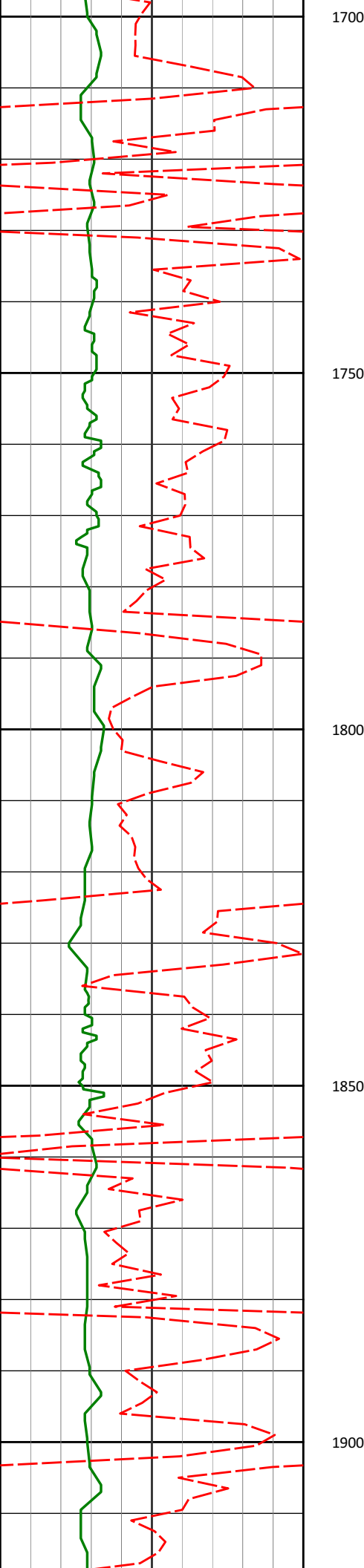
1641'

0.56°

296.31°

1640.87'

1.50'



1736'

0.60°

289.34°

1735.87'

2.41'

1830'

0.71°

282.37°

1829.86'

3.45'

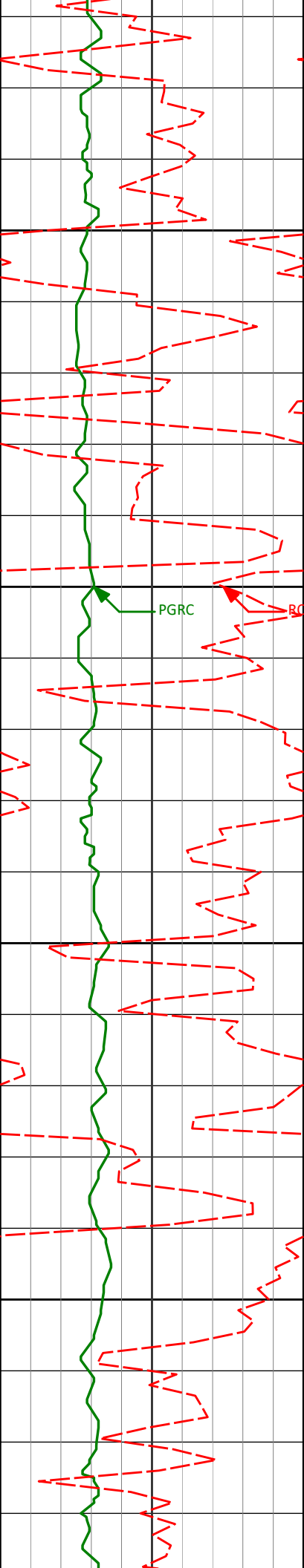
1700

1750

1800

1850

1900



1925'

0.85°

292.10°

1924.85'

4.70'

1950

2000

2020'

0.79°

286.42°

2019.84'

6.00'

2050

2100

2115'

0.78°

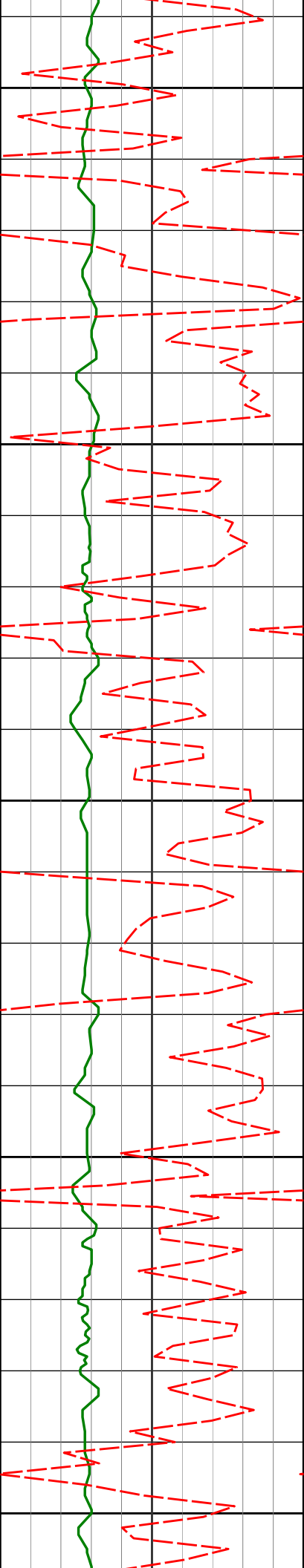
300.96°

2114.84'

7.21'

PGRC

BOPA



2150

2200

2250

2300

2350

2209'

0.68°

292.22°

2208.83'

8.30'

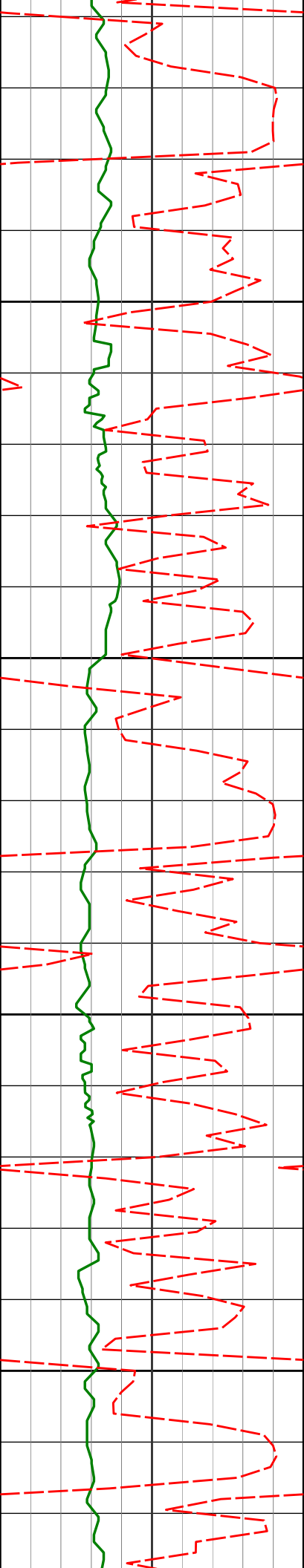
2304'

0.62°

274.89°

2303.82'

9.35'



2400

2399'

2.16°

349.00°

2398.80'

10.30'

2450

2500

2493'

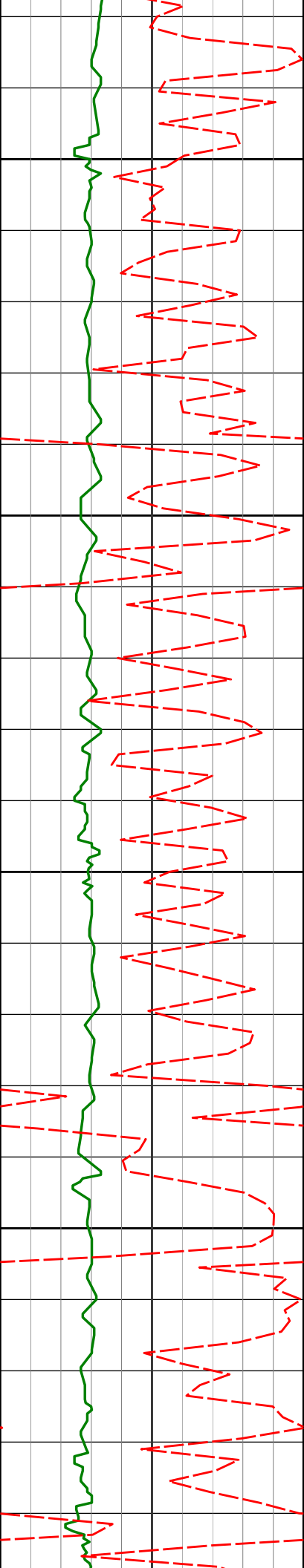
3.90°

355.76°

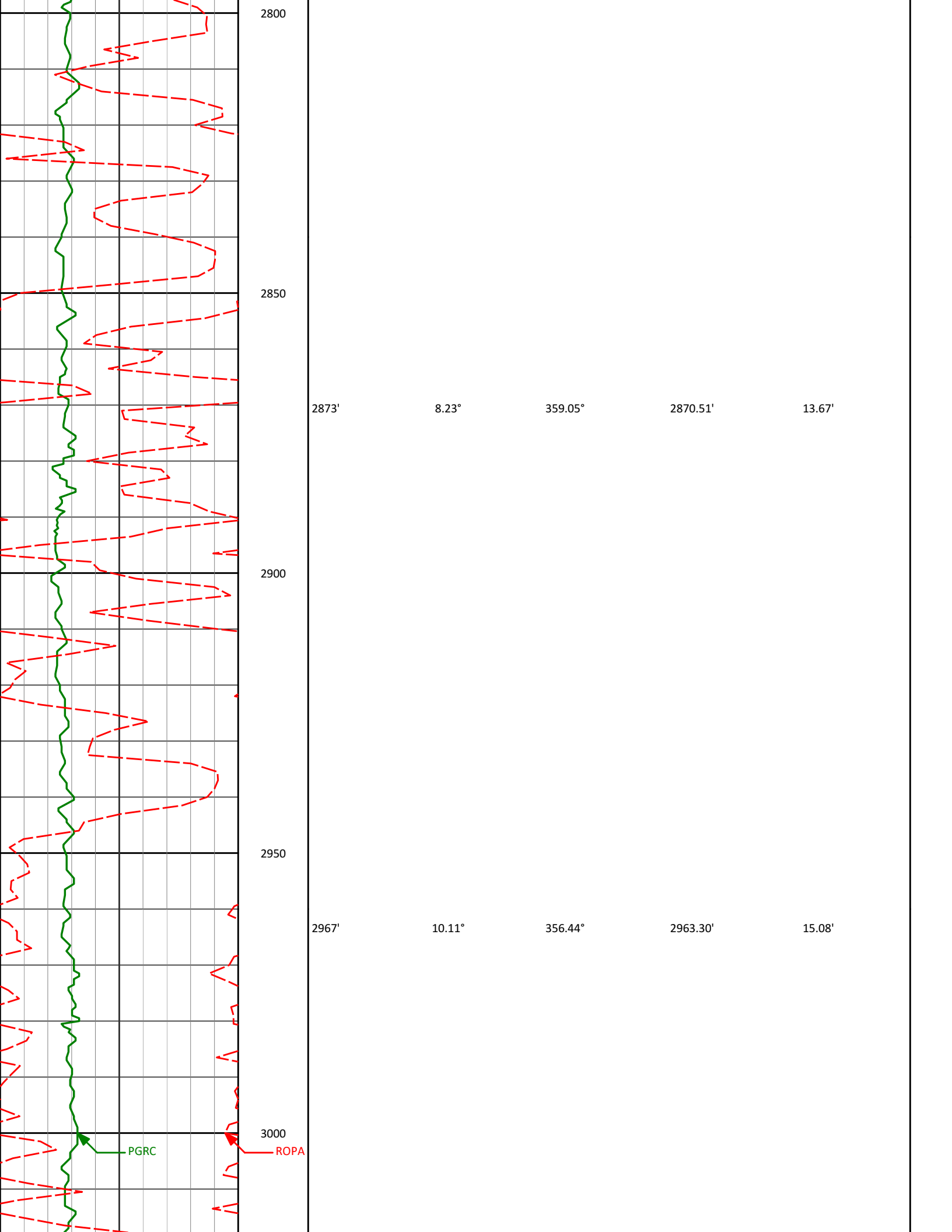
2492.66'

11.13'

2550



2588'	5.54°	359.50°	2587.34'	11.82'
2600				
2650				
2683'	5.48°	358.46°	2681.90'	12.46'
2700				
2750				
2778'	6.91°	1.11°	2776.34'	13.01'



2800

2850

2873'

8.23°

359.05°

2870.51'

13.67'

2900

2950

2967'

10.11°

356.44°

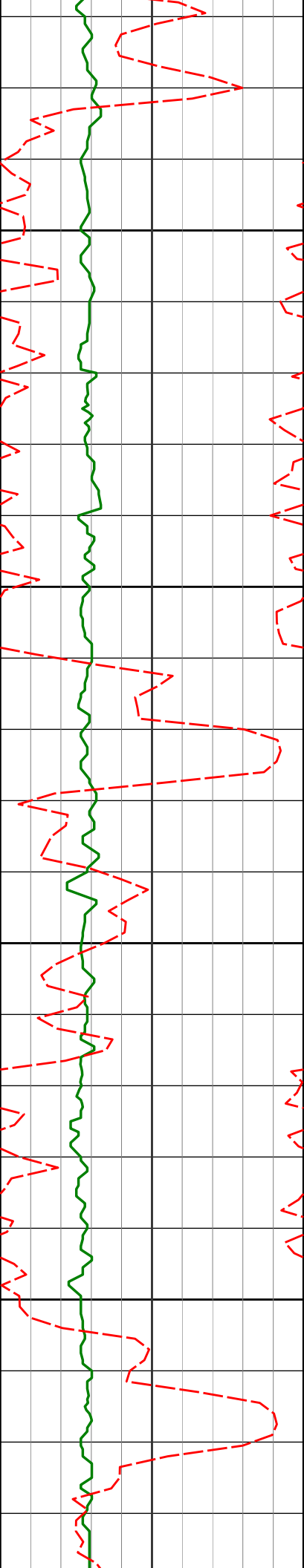
2963.30'

15.08'

3000

PGRC

ROPA



3050

3062'

10.35°

356.43°

3056.79'

17.01'

3100

3150

3157'

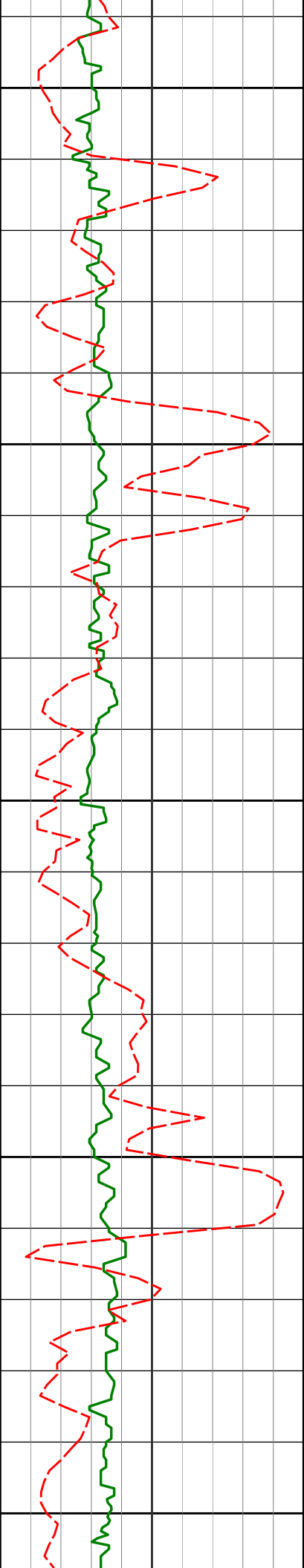
9.33°

358.79°

3150.40'

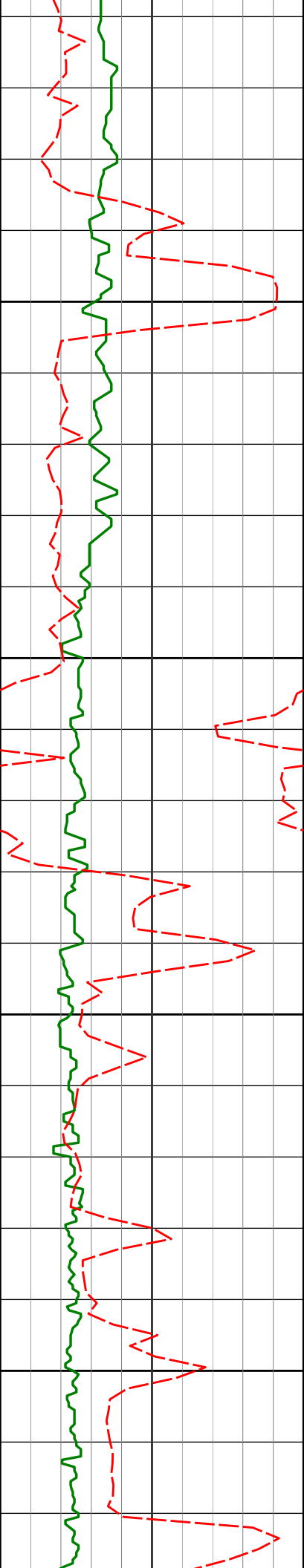
18.55'

3200



3251'  
3250  
3300  
3346'  
3350  
3400  
3441'  
3450

3251'	8.01°	1.53°	3243.32'	19.28'
3346'	7.09°	2.76°	3337.50'	19.48'
3441'	7.81°	349.52°	3431.70'	21.01'



3500

3536'

8.73°

354.50°

3525.71'

23.58'

3550

3600

3631'

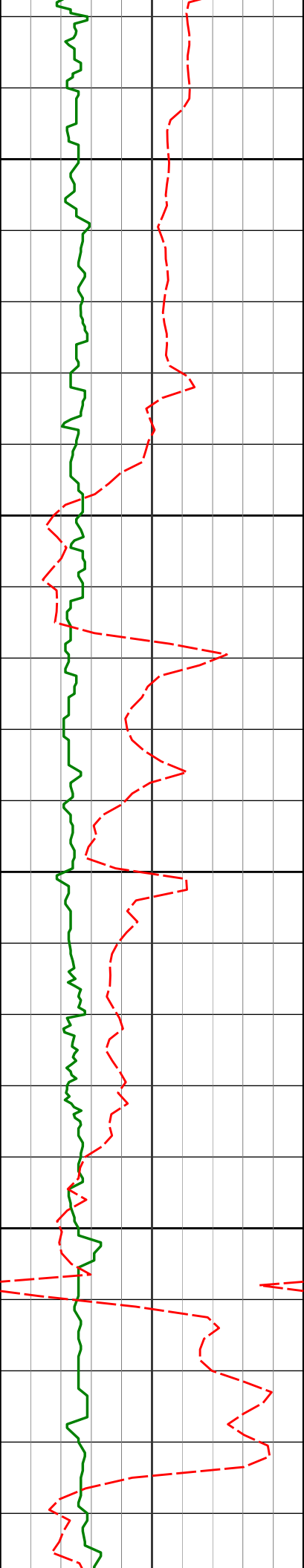
9.23°

355.22°

3619.55'

25.68'

3650



3700

3725'

9.81°

354.88°

3712.25'

27.84'

3750

3800

3820'

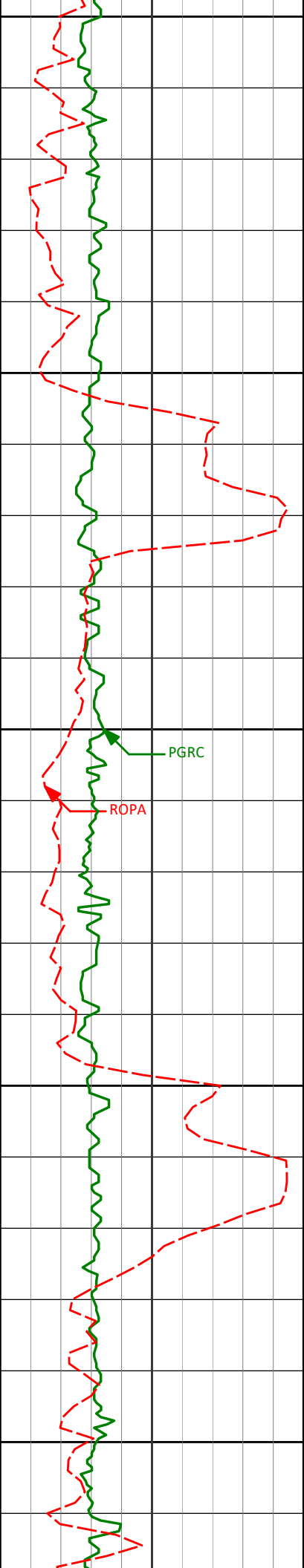
10.49°

356.07°

3805.77'

30.03'

3850



3900

3950

4000

4050

4100

3915'

4010'

4105'

10.92°

10.25°

9.01°

355.65°

353.04°

351.58°

3899.11'

3992.50'

4086.16'

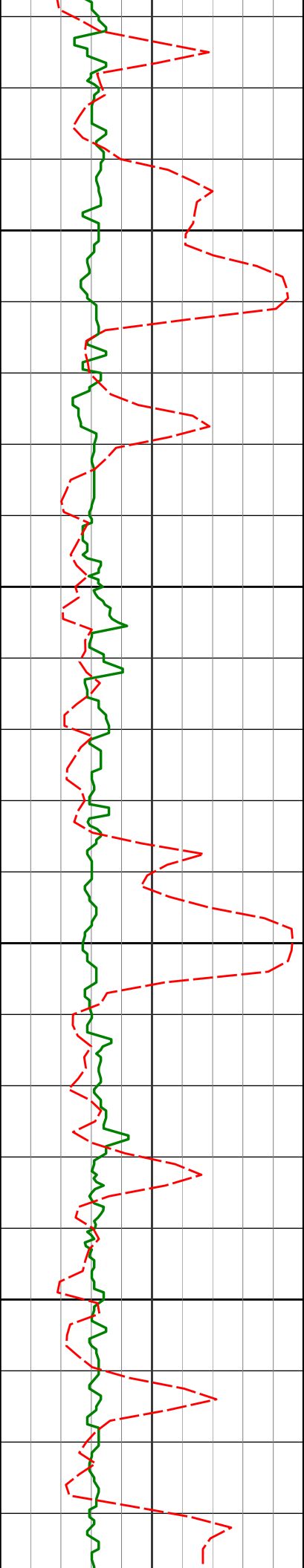
32.22'

34.84'

37.78'

PGRC

ROPA



4150

4199'

8.19°

354.45°

4179.10'

40.23'

4200

4250

4294'

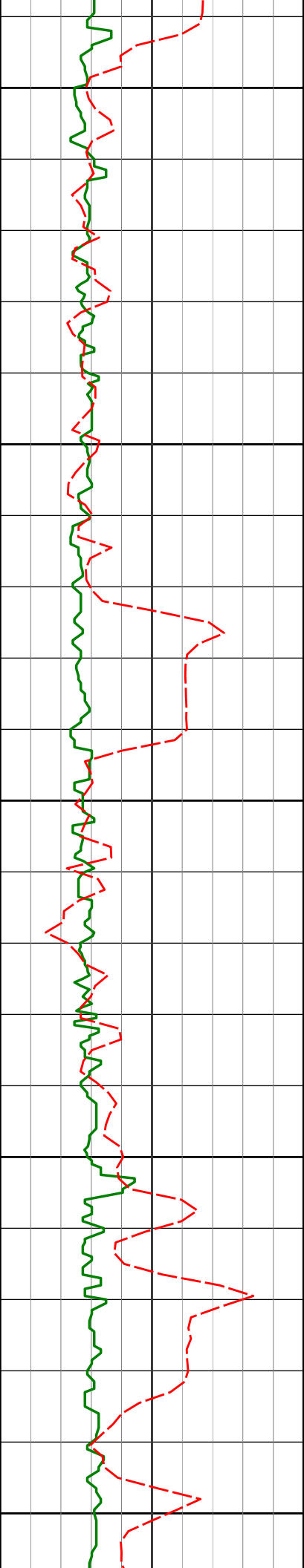
7.83°

2.80°

4273.17'

41.26'

4300



4350

4389'

7.84°

0.84°

4367.29'

41.53'

4400

4450

4484'

7.75°

359.80°

4461.41'

42.14'

4500

4550

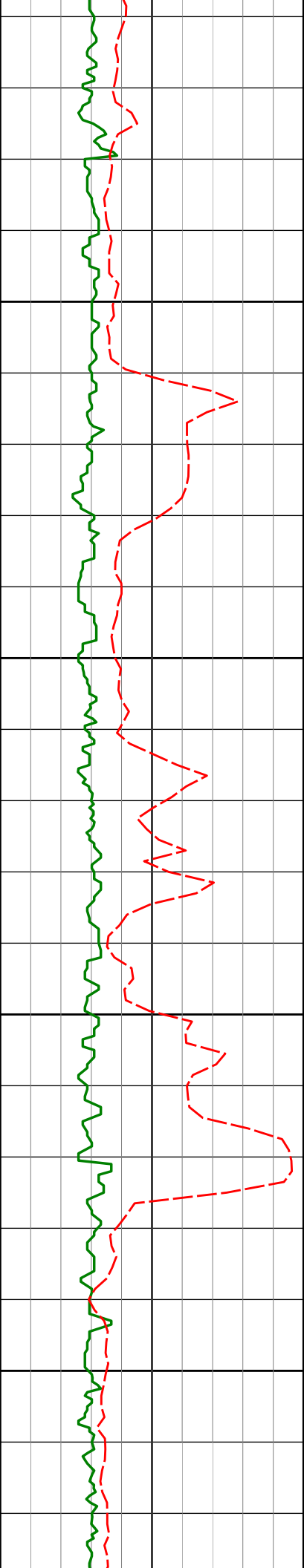
4579'

7.23°

356.56°

4555.60'

43.17'



4600

4650

4700

4750

4674'

6.59°

349.81°

4649.91'

45.08'

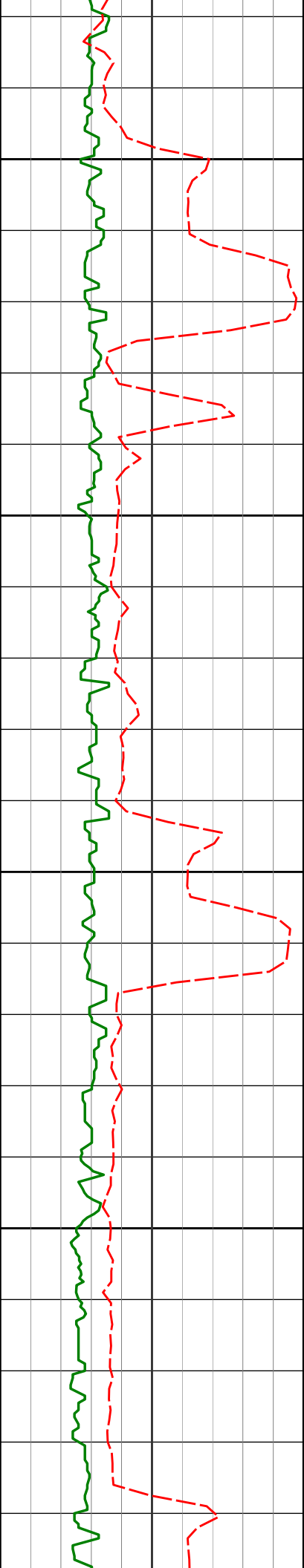
4769'

6.01°

357.91°

4744.34'

46.77'



4800

4863'

4.81°

359.29°

4837.92'

47.46'

4850

4900

4958'

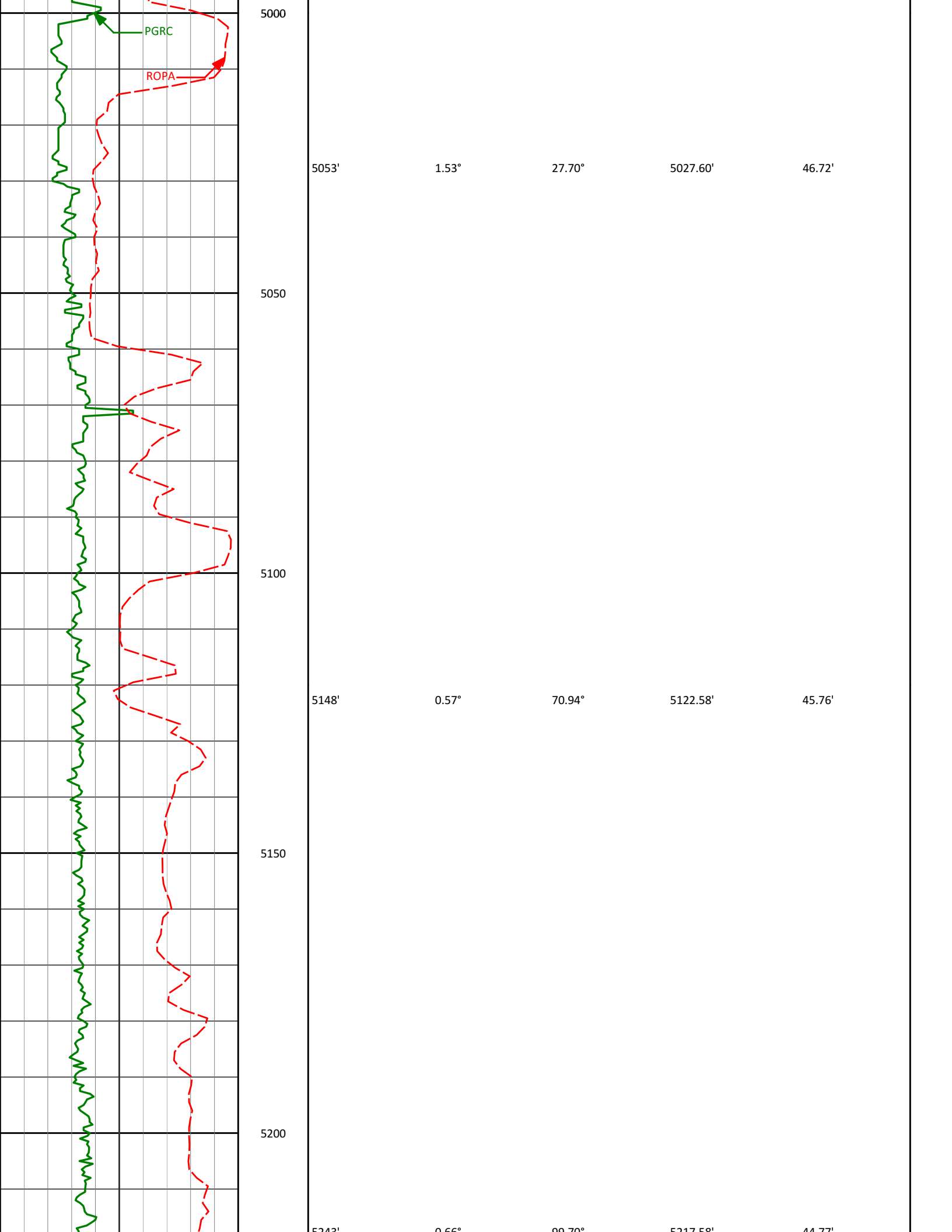
3.21°

8.07°

4932.68'

47.49'

4950



PGRC

ROPA

5053'

1.53°

27.70°

5027.60'

46.72'

5050

5100

5148'

0.57°

70.94°

5122.58'

45.76'

5150

5200

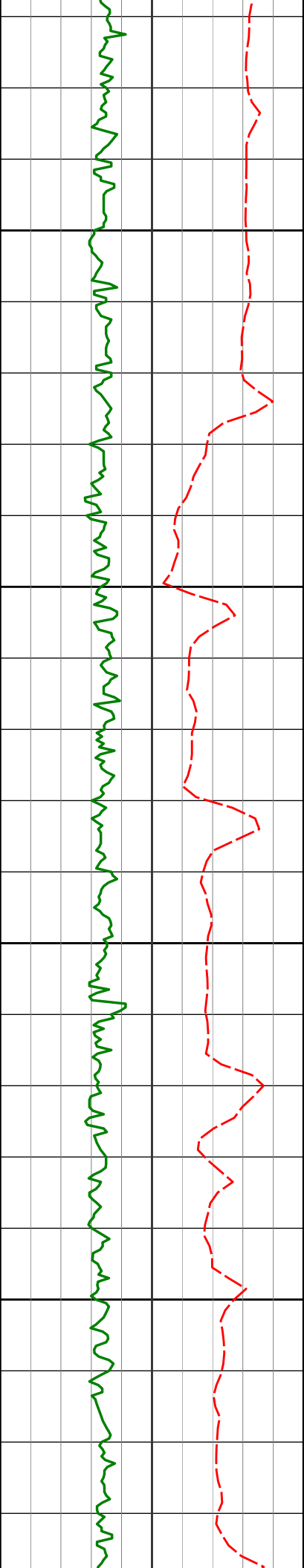
5243'

0.66°

99.70°

5217.58'

44.77'



5250

5300

5350

5400

5337'

0.65°

92.59°

5311.57'

43.70'

5432'

0.13°

16.30°

5406.57'

43.14'

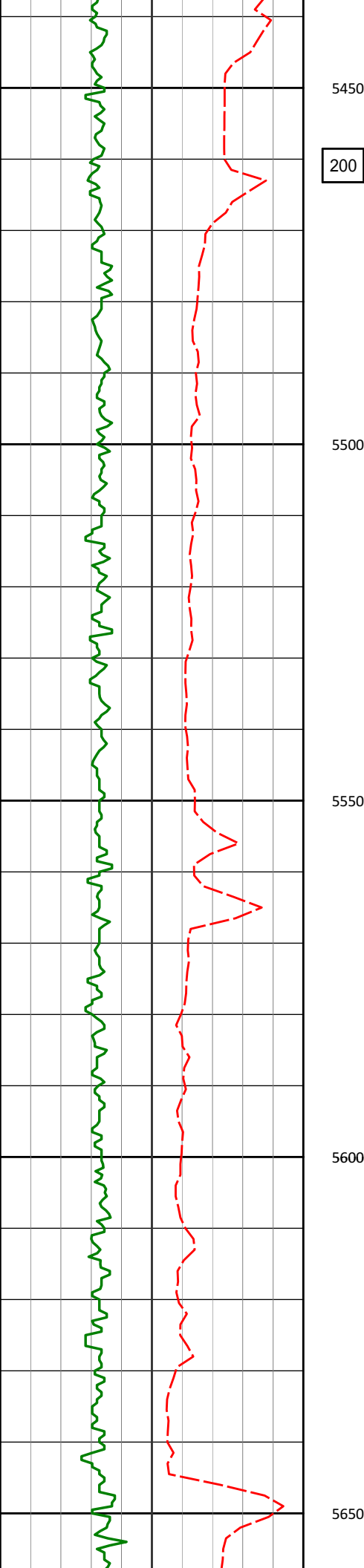
5245

0.00

99.70

5217.58

44.77



5450

200

5500

5538'

0.53°

11.33°

5512.57'

43.04'

5550

5600

5664'

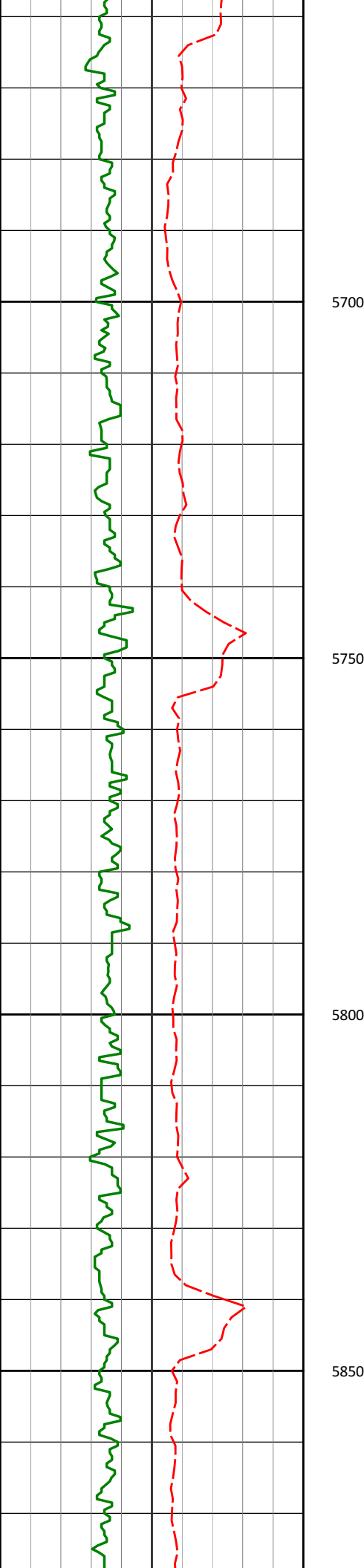
0.74°

354.81°

5638.26'

43.19'

5650



5700

5750

5800

5850

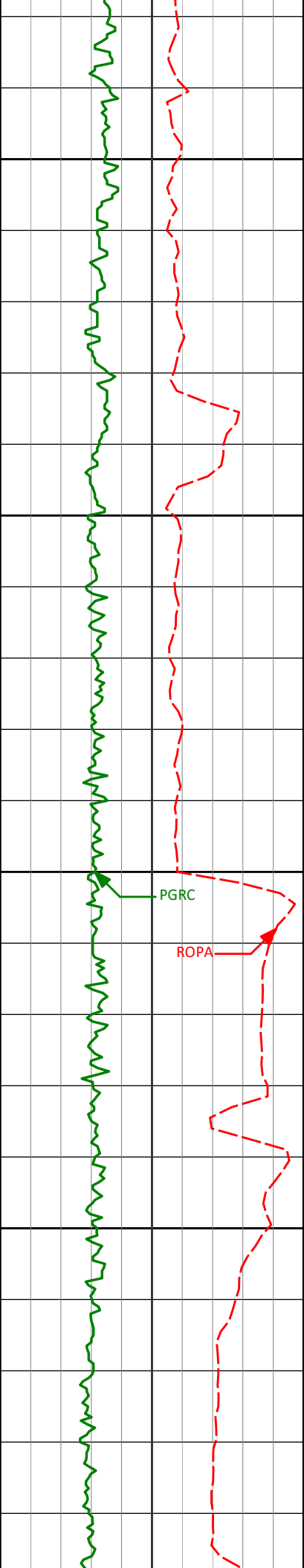
5791'

0.75°

338.43°

5765.28'

43.97'



5900

5950

6000

6050

5915'

0.74°

310.23°

5889.65'

45.46'

PGRC

ROPA

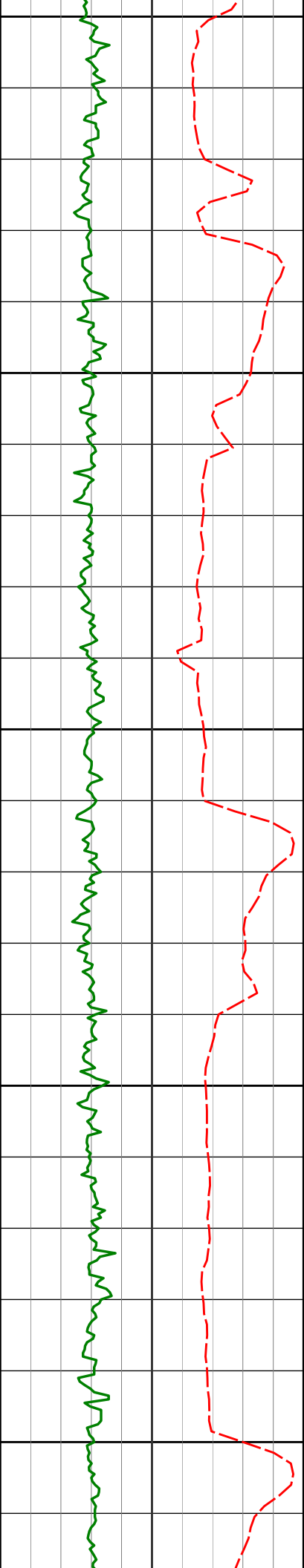
6041'

0.89°

296.94°

6015.28'

48.55'



6100

6131'

0.73°

293.96°

6103.78'

64.21'

6167'

0.66°

291.60°

6138.27'

73.50'

6150

6200

6250

6292'

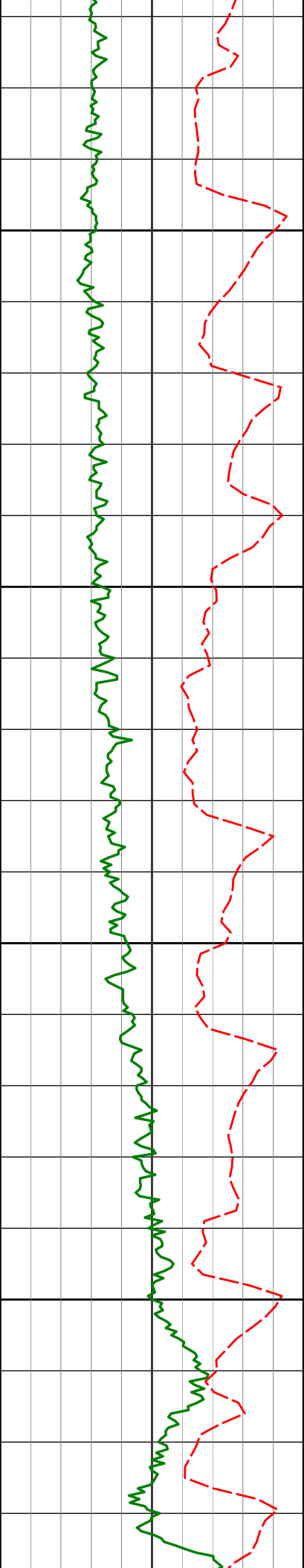
11.53°

271.60°

6257.40'

113.16'

6300



6350

6418'

18.07°

265.79°

6374.52'

157.49'

6400

6450

6542'

19.69°

263.38°

6474.10'

231.09'

6500

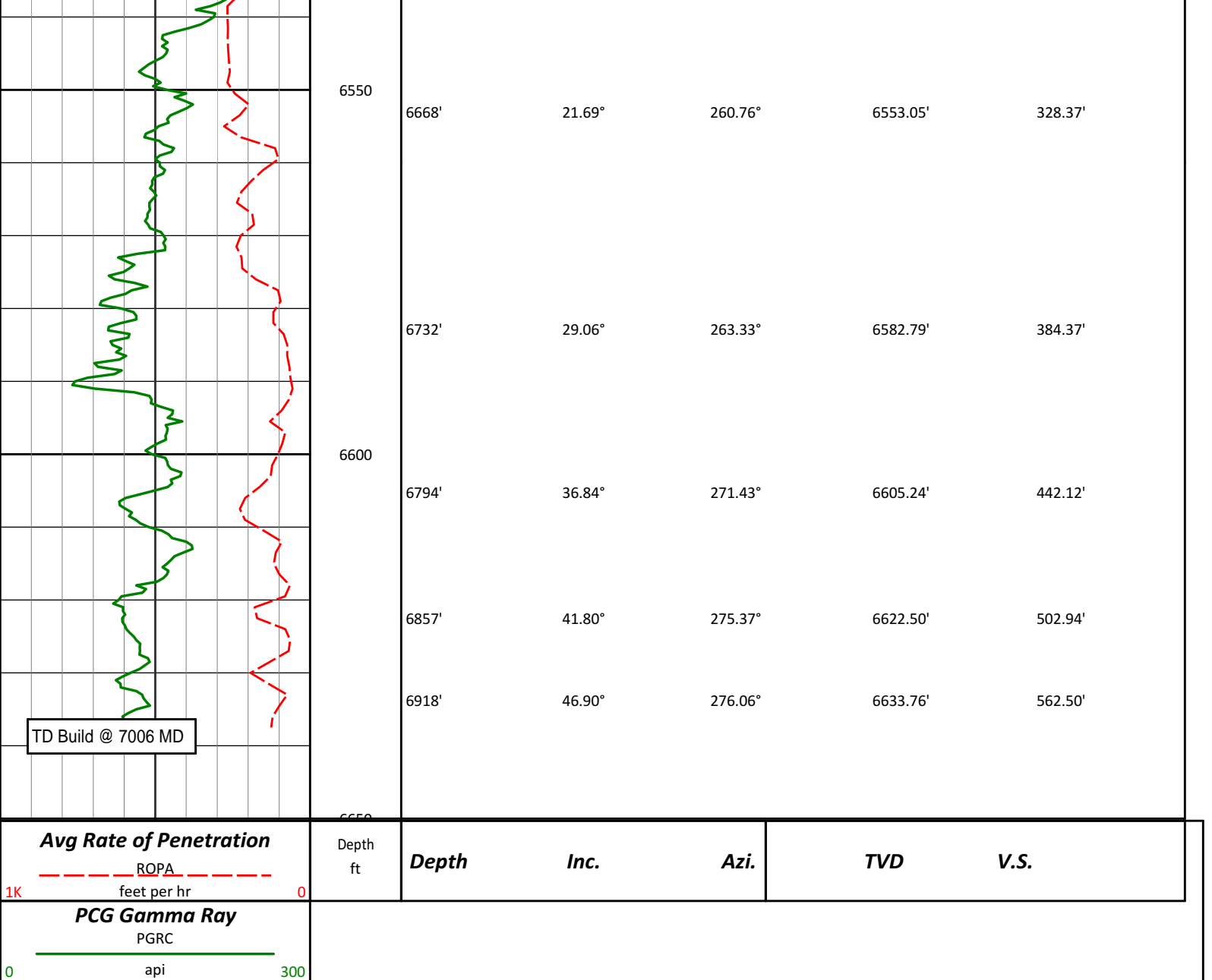
6606'

18.61°

259.79°

6517.08'

277.74'



# HALLIBURTON

## DIRECTIONAL SURVEY REPORT

Noble  
NCLP AA06-69-1HNA  
Wattenberg  
Weld Colorado  
USA  
CA-XX-0901288051  
Other Information:

First Three Survey's from 3rd party source (Multi Shot EMS)

Survey Depth 270 Inc 0.10 Azi 13.87  
Survey Depth 550 Inc 0.30 Azi 12.97  
Survey Depth 844 Inc 1.0 Azi 331.47

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
270.00	0.10	13.87	270.00	0.23 N	0.06 E	-0.04	0.04

550.00	0.30	12.97	550.00	1.18 N	0.28 E	-0.22	0.07
844.00	1.00	331.47	843.98	4.18 N	0.77 W	0.99	0.27
905.00	0.78	335.78	904.97	5.03 N	1.20 W	1.46	0.38
996.00	0.83	334.25	995.96	6.19 N	1.74 W	2.06	0.06
1089.00	0.96	354.46	1088.95	7.57 N	2.11 W	2.50	0.36
1182.00	0.98	221.65	1181.95	7.75 N	2.71 W	3.11	1.91
1273.00	2.29	66.32	1272.93	7.90 N	1.56 W	1.97	3.52
1365.00	0.98	306.55	1364.90	9.11 N	0.51 W	0.99	3.16
1456.00	0.92	278.65	1455.89	9.68 N	1.86 W	2.36	0.51
1549.00	1.40	66.12	1548.88	10.25 N	1.56 W	2.09	2.40
1641.00	0.56	296.31	1640.87	10.91 N	0.93 W	1.50	1.97
1736.00	0.60	289.34	1735.87	11.28 N	1.82 W	2.41	0.09
1830.00	0.71	282.37	1829.86	11.57 N	2.85 W	3.45	0.14
1925.00	0.85	292.10	1924.85	11.96 N	4.08 W	4.70	0.20
2020.00	0.79	286.42	2019.84	12.41 N	5.36 W	6.00	0.11
2115.00	0.78	300.96	2114.84	12.93 N	6.54 W	7.21	0.21
2209.00	0.68	292.22	2208.83	13.47 N	7.61 W	8.30	0.16
2304.00	0.62	274.89	2303.82	13.72 N	8.64 W	9.35	0.22
2399.00	2.16	349.00	2398.80	15.52 N	9.50 W	10.30	2.19
2493.00	3.90	355.76	2492.66	20.45 N	10.07 W	11.13	1.89
2588.00	5.54	359.50	2587.34	28.26 N	10.35 W	11.82	1.76
2683.00	5.48	358.46	2681.90	37.38 N	10.51 W	12.46	0.12
2778.00	6.91	1.11	2776.34	47.63 N	10.52 W	13.01	1.53
2873.00	8.23	359.05	2870.51	60.14 N	10.52 W	13.67	1.42
2967.00	10.11	356.44	2963.30	75.10 N	11.15 W	15.08	2.05
3062.00	10.35	356.43	3056.79	91.94 N	12.20 W	17.01	0.25
3157.00	9.33	358.79	3150.40	108.16 N	12.89 W	18.55	1.15
3251.00	8.01	1.53	3243.32	122.33 N	12.88 W	19.28	1.47
3346.00	7.09	2.76	3337.50	134.80 N	12.42 W	19.48	0.98
3441.00	7.81	349.52	3431.70	147.00 N	13.31 W	21.01	1.95
3536.00	8.73	354.50	3525.71	160.53 N	15.17 W	23.58	1.23
3631.00	9.23	355.22	3619.55	175.29 N	16.50 W	25.68	0.54
3725.00	9.81	354.88	3712.25	190.78 N	17.84 W	27.84	0.62
3820.00	10.49	356.07	3805.77	207.47 N	19.16 W	30.03	0.75
3915.00	10.92	355.65	3899.11	225.07 N	20.43 W	32.22	0.46
4010.00	10.25	353.04	3992.50	242.44 N	22.14 W	34.84	0.87
4105.00	9.01	351.58	4086.16	258.18 N	24.25 W	37.78	1.33
4199.00	8.19	354.45	4179.10	272.13 N	25.98 W	40.23	0.98
4294.00	7.83	2.80	4273.17	285.33 N	26.32 W	41.26	1.28
4389.00	7.84	0.84	4367.29	298.27 N	25.91 W	41.53	0.28
4484.00	7.75	359.80	4461.41	311.16 N	25.83 W	42.14	0.18
4579.00	7.23	356.56	4555.60	323.53 N	26.22 W	43.17	0.70
4674.00	6.59	349.81	4649.91	334.86 N	27.54 W	45.08	1.09
4769.00	6.01	357.91	4744.34	345.20 N	28.68 W	46.77	1.12
4863.00	4.81	359.29	4837.92	354.05 N	28.91 W	47.46	1.28
4958.00	3.21	8.07	4932.68	360.67 N	28.59 W	47.49	1.80
5053.00	1.53	27.70	5027.60	364.43 N	27.63 W	46.72	1.94
5148.00	0.57	70.94	5122.58	365.71 N	26.59 W	45.76	1.24
5243.00	0.66	99.70	5217.58	365.77 N	25.60 W	44.77	0.33
5337.00	0.65	92.59	5311.57	365.65 N	24.54 W	43.70	0.09
5432.00	0.13	16.30	5406.57	365.73 N	23.97 W	43.14	0.67
5526.00	0.53	11.33	5500.57	366.26 N	23.85 W	43.05	0.43
5621.00	0.74	354.81	5595.56	367.30 N	23.82 W	43.08	0.29
5717.00	0.75	338.43	5691.55	368.50 N	24.11 W	43.43	0.22
5811.00	0.74	310.23	5785.55	369.47 N	24.80 W	44.17	0.39
5906.00	0.89	296.94	5880.54	370.20 N	25.93 W	45.33	0.25
5974.00	0.73	293.96	5948.53	370.61 N	26.79 W	46.22	0.24
6001.00	0.66	291.60	5975.53	370.74 N	27.09 W	46.52	0.28
6096.00	11.53	271.60	6069.85	371.21 N	37.12 W	56.56	11.49
6191.00	18.07	265.79	6161.66	370.39 N	61.34 W	80.70	7.05
6285.00	19.69	263.38	6250.60	367.49 N	91.61 W	110.78	1.91
6333.00	18.61	259.79	6295.94	365.20 N	107.18 W	126.21	3.33
6380.00	21.69	260.76	6340.06	362.48 N	123.14 W	142.00	6.59
6428.00	29.06	263.33	6383.40	359.70 N	143.50 W	162.19	15.52
6475.00	36.84	271.43	6422.83	358.72 N	168.97 W	187.58	18.99
6523.00	41.80	275.37	6459.96	360.58 N	199.31 W	217.97	11.56
6569.00	46.90	276.06	6492.84	363.79 N	231.29 W	250.08	11.14
6617.00	51.88	276.07	6524.07	367.64 N	267.52 W	286.45	10.38
6664.00	58.31	271.22	6550.96	370.02 N	305.95 W	324.96	16.08
6712.00	63.30	269.81	6574.37	370.39 N	347.83 W	366.80	10.71
6759.00	68.78	267.78	6593.45	369.47 N	390.75 W	409.62	12.31

6807.00	72.56	267.41	6609.34	367.57 N	436.00 W	454.70	7.91
6854.00	76.75	267.94	6621.77	365.73 N	481.28 W	499.82	8.98
6902.00	80.28	267.93	6631.33	364.03 N	528.28 W	546.66	7.35
6952.00	86.45	266.70	6637.10	361.71 N	577.86 W	596.06	12.58

**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 273.01 DEGREES (GRID)  
A TOTAL CORRECTION OF 7.47 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.  
HORIZONTAL DISPLACEMENT(CLOSURE) AT 6952.00 FEET  
IS 681.73 FEET ALONG 302.04 DEGREES (GRID)**

**Tied in @ Surface**