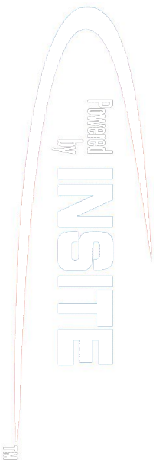


**PCDC - Pressure Case Directional
PCGK - Pressure Case Gamma**

1 : 600 / 1 : 240

Country : USA				
Field : Wattenberg				
Location : Lat: 40° 31' 15.56" North Long: 104° 27' 3.10" West				
Well : NCLP AA06-69-1BHNC				
Company : Noble				
Rig : H&P321				
LOCATION		Company : Noble Rig : H&P321 Well : NCLP AA06-69-1BHNC Field : Wattenberg Country : USA API Number : 05-123-39032		
Latitude : 40° 31' 15.56" North Longitude : 104° 27' 3.10" West UTM Easting = 3,291,668.060 ft UTM Northing = 1,434,362.700 ft				
Permanent Datum : Ground Level		Elevation : 4712.00 ft	Elev. KB N/A	
Log Measured From : Drill Floor		30.00 ft Above Permanent Datum	DF 4742.00 ft	
Drilling Measured From : Drill Floor		MD LOG	GL 4712.00 ft	
			WD N/A	
Depth Logged : 877.00 ft To 11,349.00 ft		Unit No. : 11210424		
Date Logged : 19-Jun-14 To 26-Jun-14		Job No. : CA-XX-0901286142		
Total Depth MD : 11,349.00 ft TVD: 6,756.79 ft		Plot Type : Final		
Spud Date : 07-Jun-14		Plot Date : 26-Jun-14		
Run No.	Borehole Record (MD)		Borehole Record (MD)	
	Size	From	To	Run No.
	Size	Weight	From	To
	100	8.750 in	875.00 ft	6,056.00 ft
200	8.750 in	6,057.00 ft	7,097.00 ft	
300	6.125 in	7,097.90 ft	11,349.00 ft	
		Casing Record (MD)		

WELL INFORMATION

MWD Run Number	100	200	300		
Date run completed	22-Jun-14	23-Jun-14	26-Jun-14		
Rig Bit Number	2	3	4		
Bit Size (in)	8.750	8.750	6.125		
Tool Nominal OD (in)	6.840	6.840	4.750		
Log Start Depth (MD, ft)	875.00	6,057.00	7,097.00		
Log End Depth (MD, ft)	6,057.00	7,097.00	11,349.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	15-Jun-14 11:44	23-Jun-14 03:56	24-Jun-14 16:10		
Drill/Wipe End Date and Time	15-Jun-14 11:44	23-Jun-14 12:57	25-Jun-14 18:46		
Min Inc (deg) @ Depth (MD, ft)	0.07 @ 5,527.00	0.44 @ 6,096.00	86.54 @ 7,460.00		
Max Inc (deg) @ Depth (MD, ft)	1.20 @ 3,441.00	85.90 @ 7,043.00	93.20 @ 10,208.00		
Bit TFA(in2) / Bit Type	0.98 / PDC	1.74 / PDC	0.65 / PDC		
Flow Rate (gpm)	596.57	595.00	329.82		
Max AV (fpm) / CV (fpm) @ MWD	NA / 0.0	NA / NA	NA / NA		
Fluid Type	Native/Spud Mud	Native/Spud Mud	Fresh Water Gel		
Density (ppg) / Viscosity (spqt)	8.90 / 31.00	9.80 / 45.00	9.50 / 34.00		
Filtrate CL (ppm)	NA	NA	NA		
pH / Fluid Loss (mptm)	9.20 / 14	9.00 / 6	8.60 / 8		
PV (cP) / YP (lbf/ft2)	4 / 2.00	10 / 11.00	6 / 6.00		
% Solids / % Sand	3.80 / 0.60	7.20 / 0.30	5.80 / 0.03		
% Oil / Oil:Water Ratio	NA / NA	NA / NA	NA / NA		
Rm @ Measured Temp (degF)	NA @ NA	NA @ NA	NA @ NA		
Rmf @ Measured Temp (degF)	NA @ NA	NA @ NA	NA @ NA		
Rmc @ Measured Temp (degF)	@ NA	NA @ NA	NA @ NA		

Max Tool Temp (degF) / Source	158.47 / PCM	158.47 / PCM	412.20 / PCM		
Rm @ Max Tool Temp (degF)	NA @ 158.47	NA @ 158.47	NA @ 412.20		
Lead MWD Engineer	Kyle Wass	Kyle Wass	Kyle Wass		
Customer Representative	Stetson Nielsen	Stetson Nielsen	Stetson Nielsen		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.76	5.84		
Sub Serial Number	12365886	12365886	12365886		
Insert Serial Number	11145581	11145581	11145581		
Date and Time Initialized	20-Jun-14 14:24	01-Jan-70 00:00	23-Jun-14 23:38		
Date and Time Read	01-Jan-70 00:00	23-Jun-14 17:37	26-Jun-14 03:48		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	56.00	54.00	65.00		
Software Version	6.21	6.21	6.21		
Sub Serial Number	12365886	12365886	12365886		
Sonde Serial Number	11638573	11638573	11638573		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	58.58	217.81	160.91		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	49.03	46.42	68.28		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	12365886	12365886	12365886		
Insert/Sonde Serial Number	11120591	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 Resolution: 0.5 ft
Interval Distance: 1.2 ft

6. Insite Version V8.0.10

WARRANTY

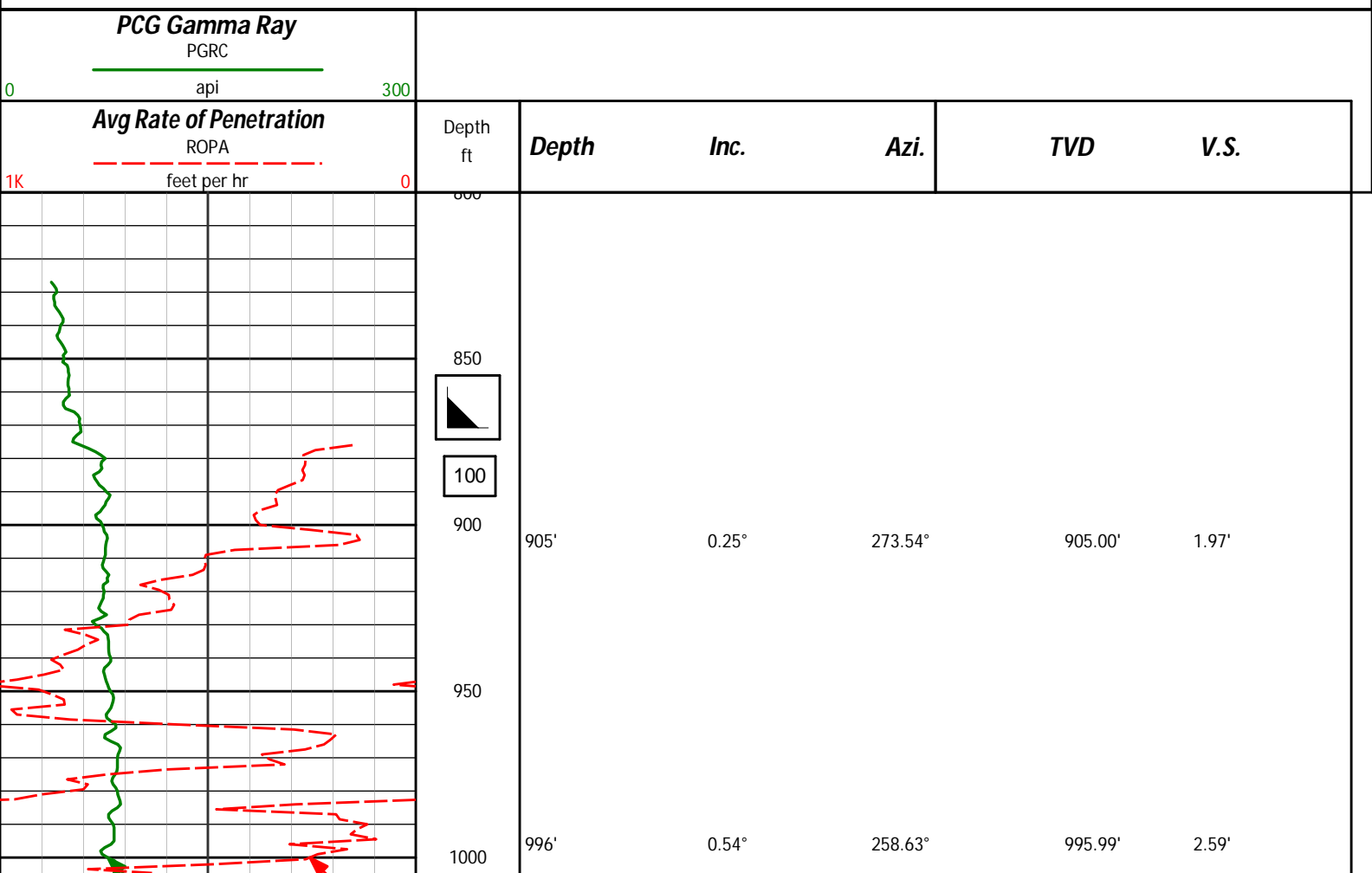
HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES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

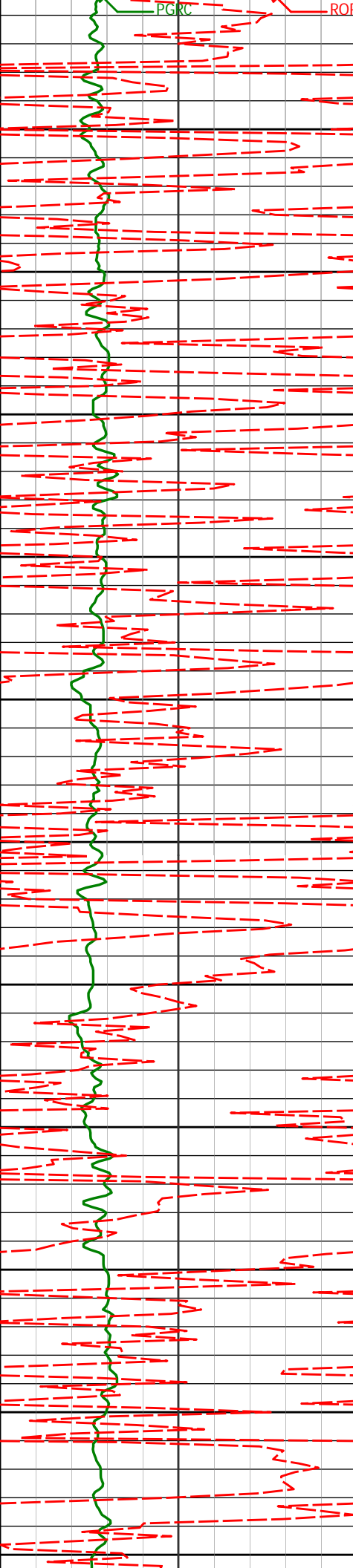
HALLIBURTON

Sperry Drilling Services

TVD Correlation Log 1:600

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





1050

1089'

0.68°

253.44°

1088.99'

3.54'

1100

1150

1182'

0.64°

263.89°

1181.98'

4.59'

1200

1250

1274'

0.59°

260.65°

1273.98'

5.56'

1300

1350

1365'

0.73°

259.25°

1364.97'

6.59'

1400

1450

1457'

0.68°

255.15°

1456.97'

7.69'

1500

1550

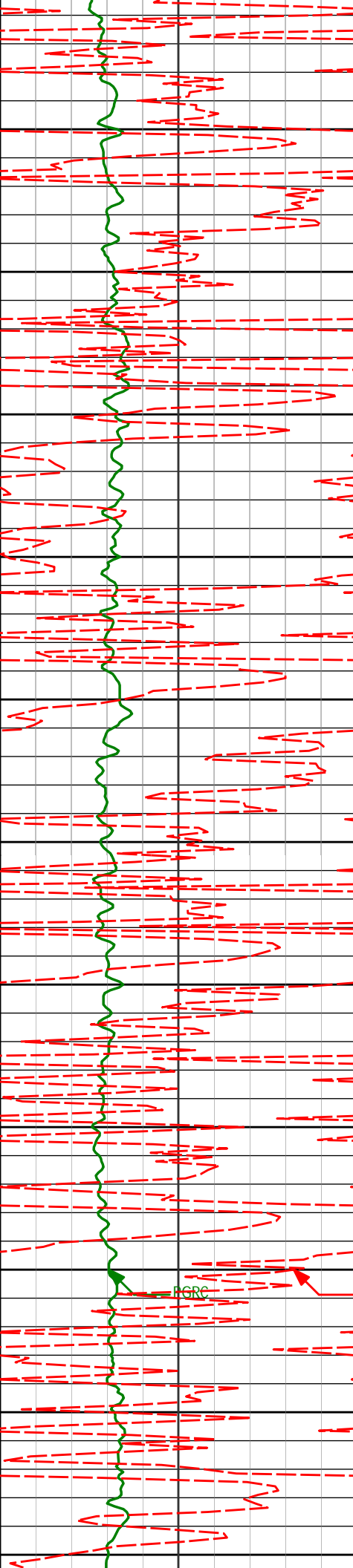
1549'

0.42°

225.95°

1548.96'

8.45'

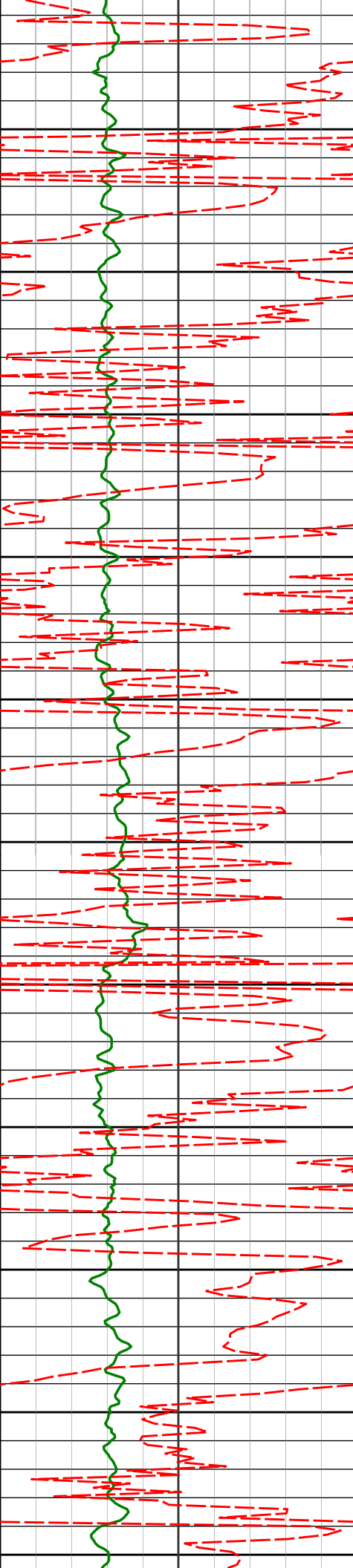


1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100

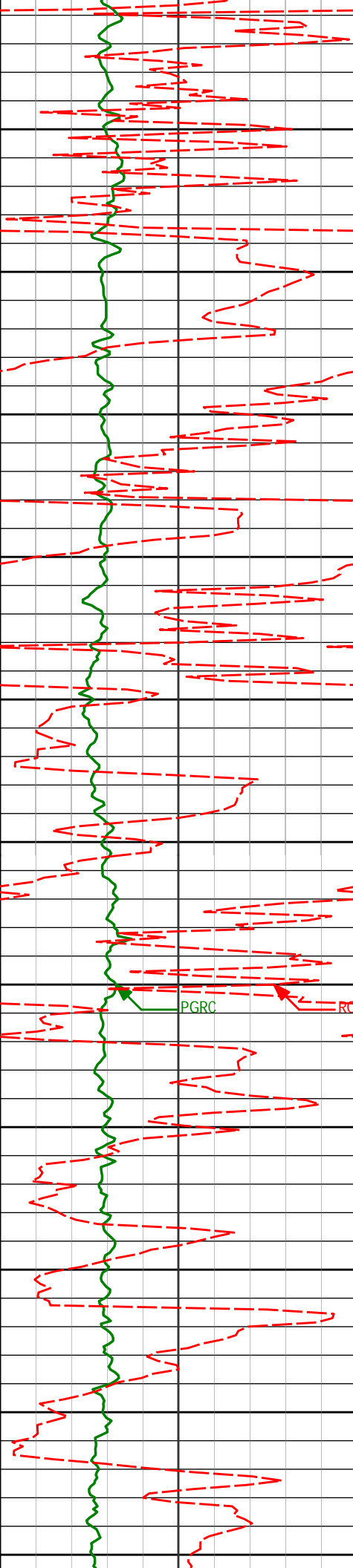
1641'	0.31°	226.83°	1640.96'	8.87'
1736'	0.16°	295.66°	1735.96'	9.17'
1831'	0.37°	144.26°	1830.96'	9.11'
1926'	0.32°	136.38°	1925.96'	8.74'
2020'	0.49°	169.59°	2019.95'	8.47'

RGRC

ROPA



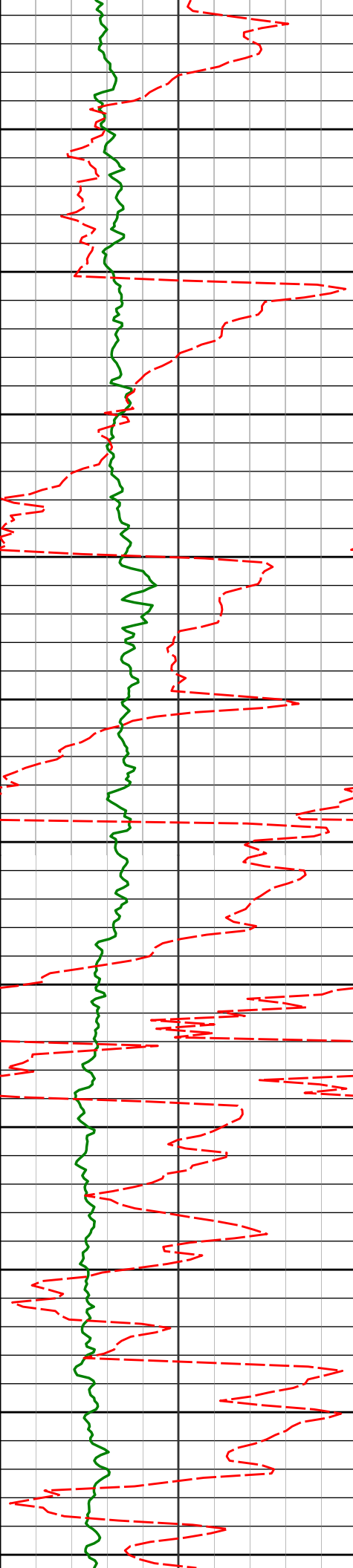
2115'	0.42°	91.37°	2114.95'	8.05'
2150				
2200				
2210'	0.61°	96.75°	2209.95'	7.19'
2250				
2300				
2304'	0.79°	87.91°	2303.94'	6.05'
2350				
2400				
2399'	1.16°	100.85°	2398.93'	4.45'
2450				
2494'	1.15°	13.35°	2493.91'	3.30'
2500				
2550				
2589'	0.76°	271.26°	2588.91'	3.72'
2600				
2650				



2683'	0.99°	288.90°	2682.89'	5.12'
2700				
2750				
2778'	0.51°	90.31°	2777.89'	5.48'
2800				
2850				
2873'	0.38°	94.00°	2872.89'	4.74'
2900				
2950				
2968'	0.36°	97.72°	2967.89'	4.13'
3000				
3063'	0.45°	90.39°	3062.88'	3.46'
3100				
3150				
3157'	0.34°	102.53°	3156.88'	2.82'
3200				

PGRC

ROPA



3250

3252'

0.16°

173.34°

3251.88'

2.52'

3300

3350

3346'

0.49°

155.84°

3345.88'

2.34'

3400

3450

3441'

1.20°

163.20°

3440.87'

1.86'

3500

3550

3536'

0.79°

290.09°

3535.86'

2.17'

3600

3650

3631'

1.08°

307.00°

3630.85'

3.52'

3700

3750

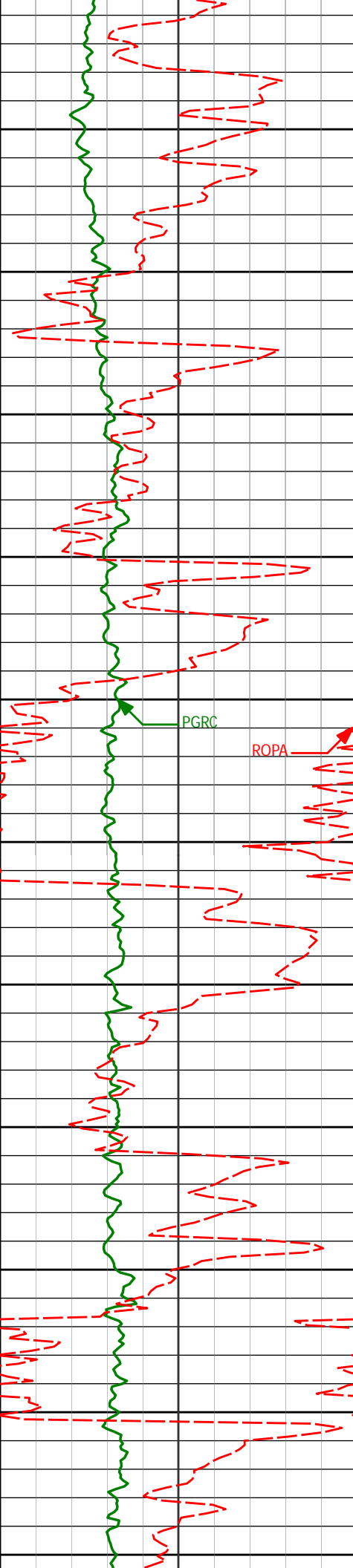
3726'

0.37°

25.54°

3725.84'

4.11'



3800

3820'

0.48°

58.17°

3819.84'

3.66'

3850

3900

3915'

0.67°

66.47°

3914.83'

2.82'

3950

4000

4010'

1.03°

61.19°

4009.82'

1.57'

4050

4100

4105'

0.40°

82.15°

4104.82'

0.50'

4150

4200

4200'

0.25°

170.27°

4199.81'

0.14'

4250

4300

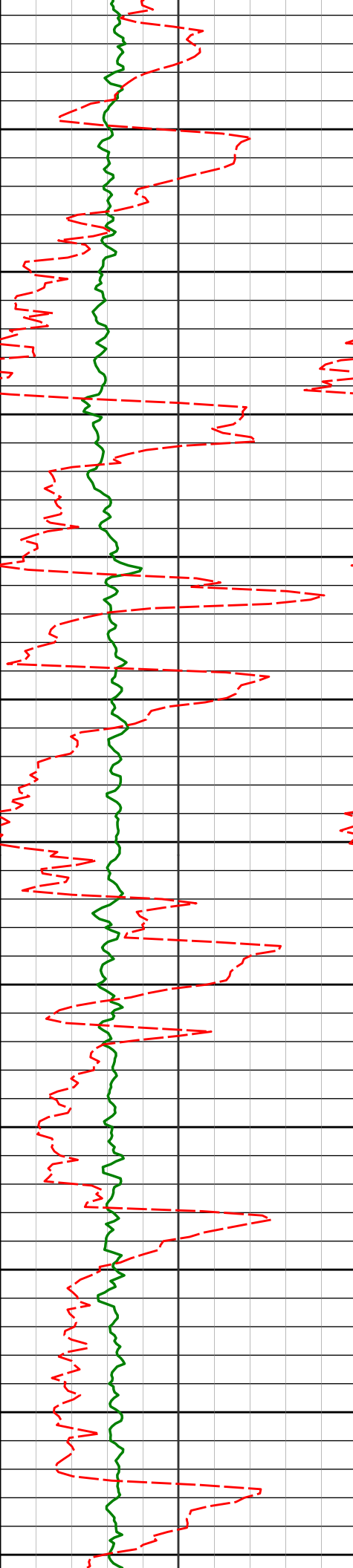
4294'

0.92°

148.10°

4293.81'

-0.31'



4350

4389'

0.38°

180.08°

4388.80'

-0.73'

4400

4450

4484'

0.25°

188.84°

4483.80'

-0.71'

4500

4550

4579'

0.44°

170.60°

4578.80'

-0.75'

4600

4650

4674'

0.53°

110.79°

4673.80'

-1.23'

4700

4750

4769'

0.21°

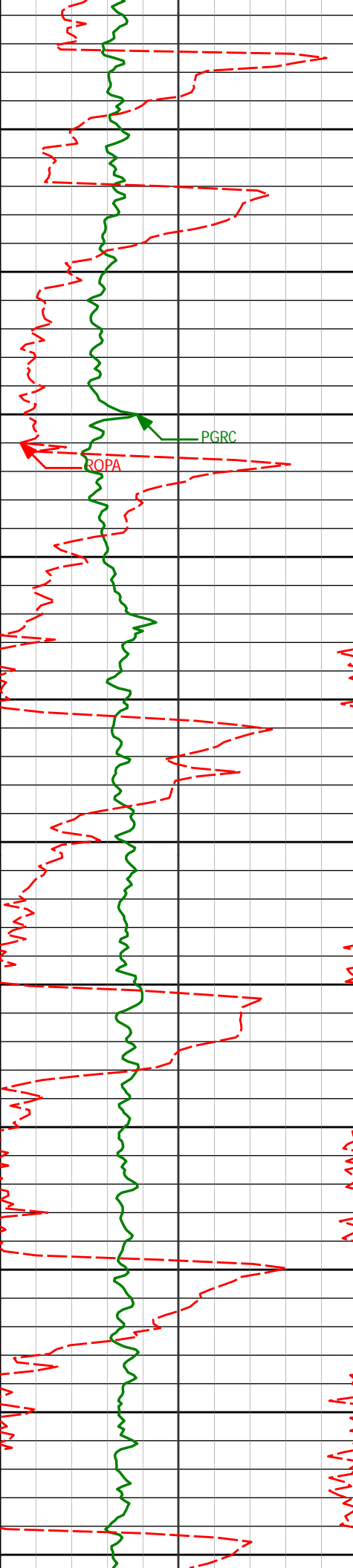
143.15°

4768.80'

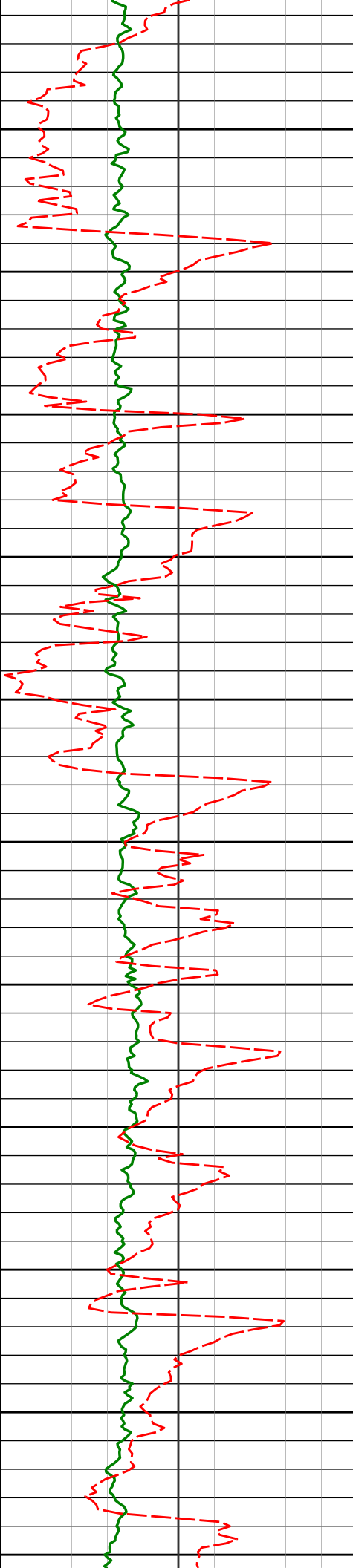
-1.75'

4800

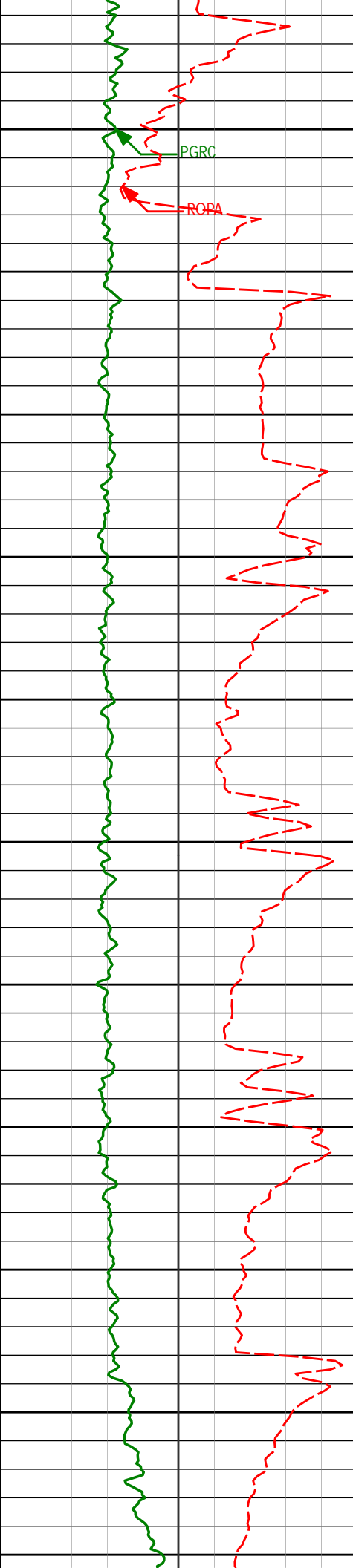
4850



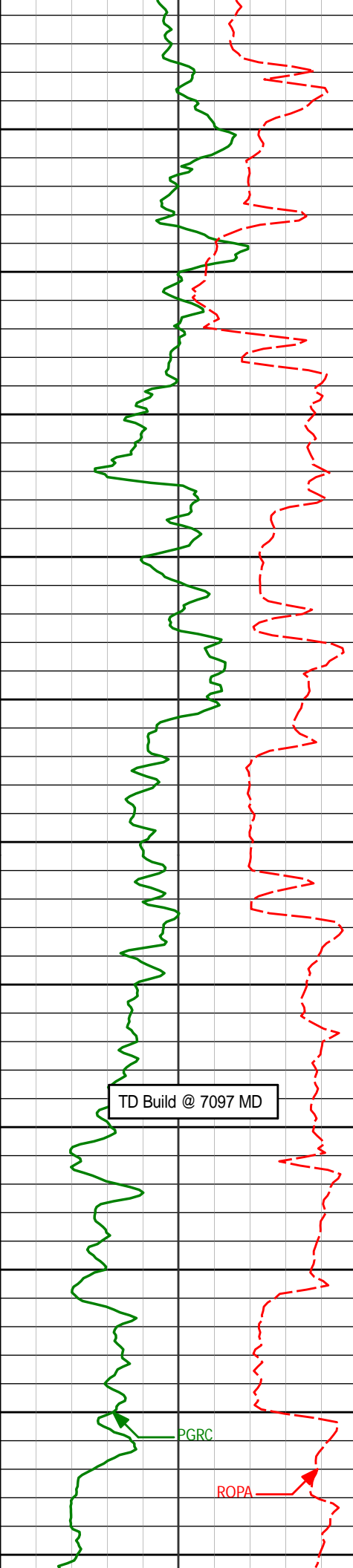
4864'	0.22°	233.77°	4863.79'	-1.71'
4900				
4950				
4958'	0.33°	203.08°	4957.79'	-1.46'
5000				
5050				
5053'	0.26°	211.13°	5052.79'	-1.25'
5100				
5148'	0.18°	230.48°	5147.79'	-1.03'
5200				
5243'	0.34°	198.56°	5242.79'	-0.83'
5300				
5338'	0.53°	258.33°	5337.79'	-0.32'
5350				
5400				



	5433'	0.54°	264.64°	5432.78'	0.55'
5450					
5500					
	5527'	0.07°	333.08°	5526.78'	1.02'
5550					
5600					
	5622'	0.22°	41.31°	5621.78'	0.93'
5650					
5700					
	5717'	0.17°	343.58°	5716.78'	0.86'
5750					
5800					
	5811'	0.19°	17.53°	5810.78'	0.85'
5850					
5900					
	5906'	0.25°	344.46°	5905.78'	0.87'
5950					



6000	6001'	0.39°	11.44°	6000.78'	0.87'
6050	6064'	0.50°	358.95°	6063.78'	0.84'
6100	6096'	0.44°	2.43°	6095.78'	0.84'
6150					
6200	6191'	6.44°	266.72°	6190.58'	6.15'
6250					
6300	6285'	13.77°	280.04°	6283.07'	22.48'
6350					
6400	6380'	19.78°	277.91°	6373.98'	49.63'
6450					
6500	6475'	32.55°	274.04°	6459.08'	91.29'



6550

6569'

46.89°

270.43°

6531.20'

151.17'

6600

6664'

53.34°

271.01°

6592.09'

224.03'

6650

6700

6759'

57.99°

273.67°

6645.66'

302.42'

6750

6800

6854'

63.54°

276.57°

6692.05'

385.06'

TD Build @ 7097 MD

6850

6900

6948'

76.10°

278.90°

6724.42'

472.50'

6950

7000

7043'

85.90°

276.95°

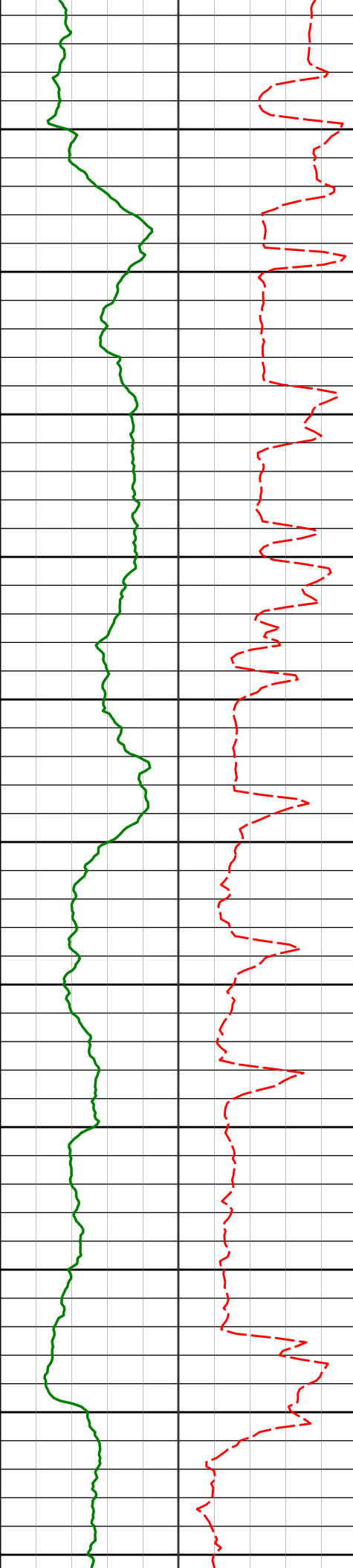
6739.26'

565.54'

7050

PGRC

ROPA



7100

300

7124'

91.54°

277.87°

6741.07'

645.98'

7150

7176'

91.48°

277.72°

6739.70'

697.60'

7200

7250

7270'

87.66°

275.95°

6740.41'

791.10'

7300

7350

7365'

87.16°

275.47°

6744.70'

885.69'

7400

7450

7460'

86.54°

275.27°

6749.92'

980.27'

7500

7550

7555'

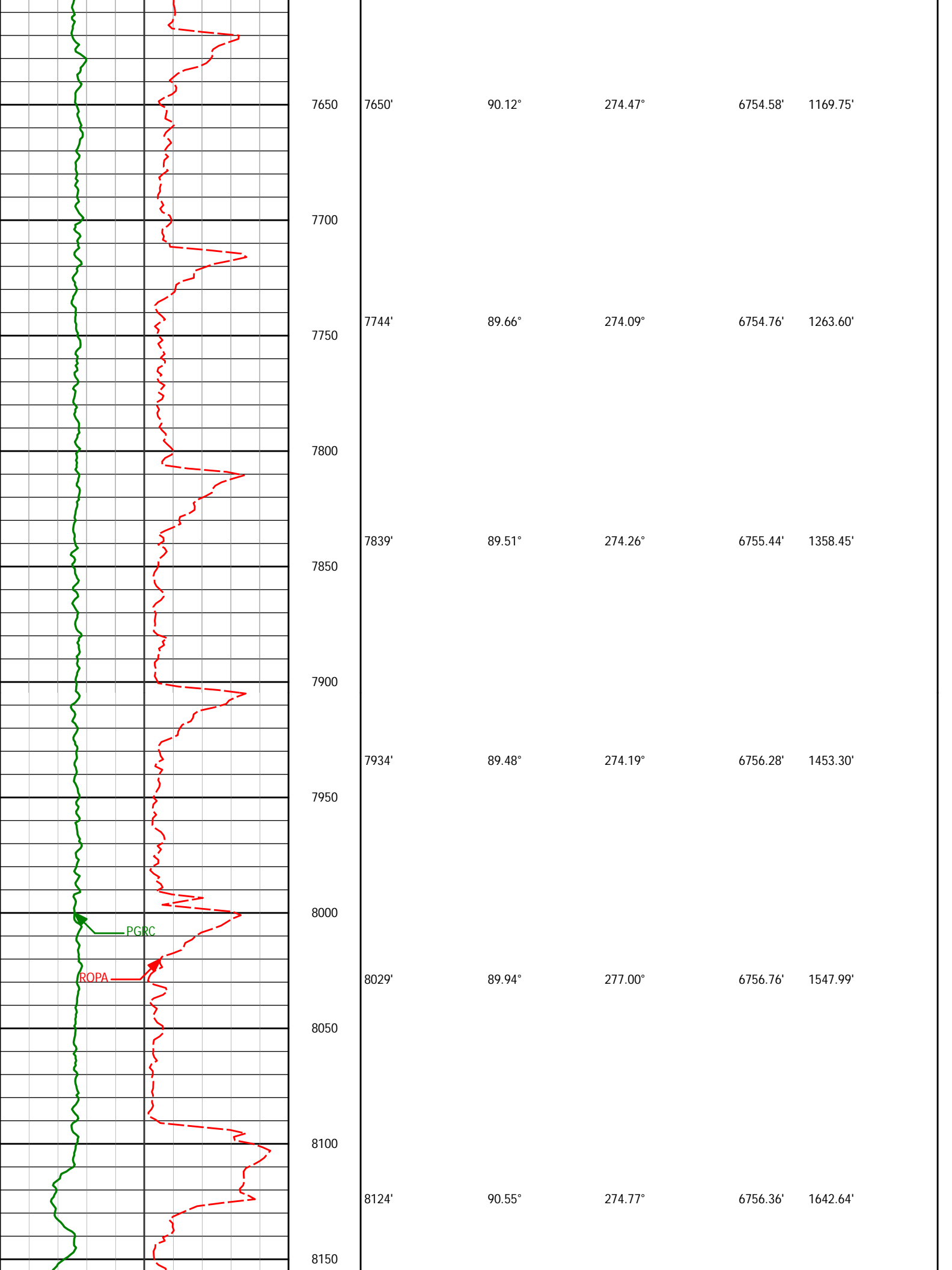
88.86°

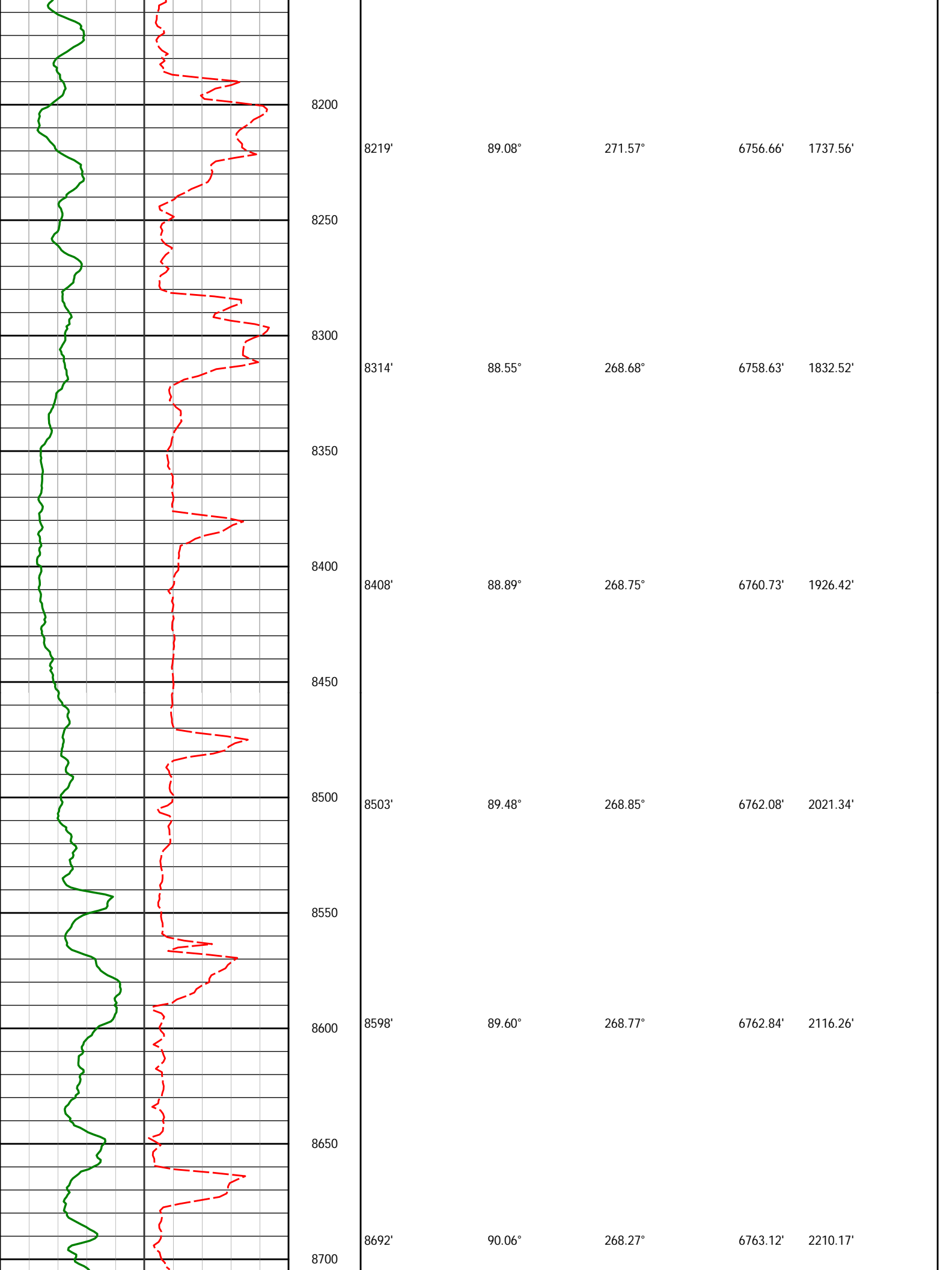
274.95°

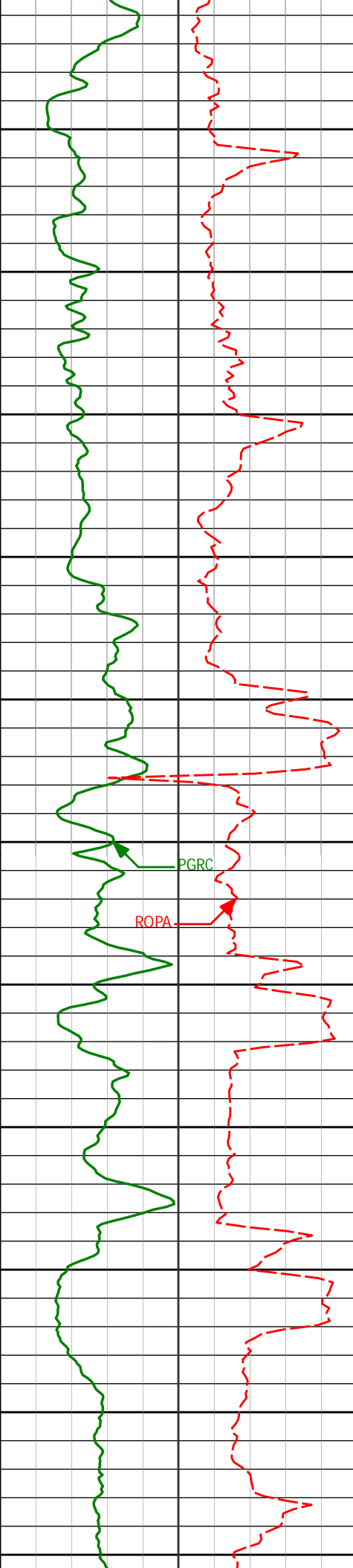
6753.73'

1074.95'

7600







8750

8787'

91.02°

268.48°

6762.23'

2305.06'

8800

8850

8881'

92.93°

267.98°

6758.99'

2398.89'

8900

8950

8976'

91.26°

267.99°

6755.51'

2493.69'

9000

PGRC

ROPA

9050

9071'

90.77°

268.87°

6753.83'

2588.57'

9100

9150

9166'

89.08°

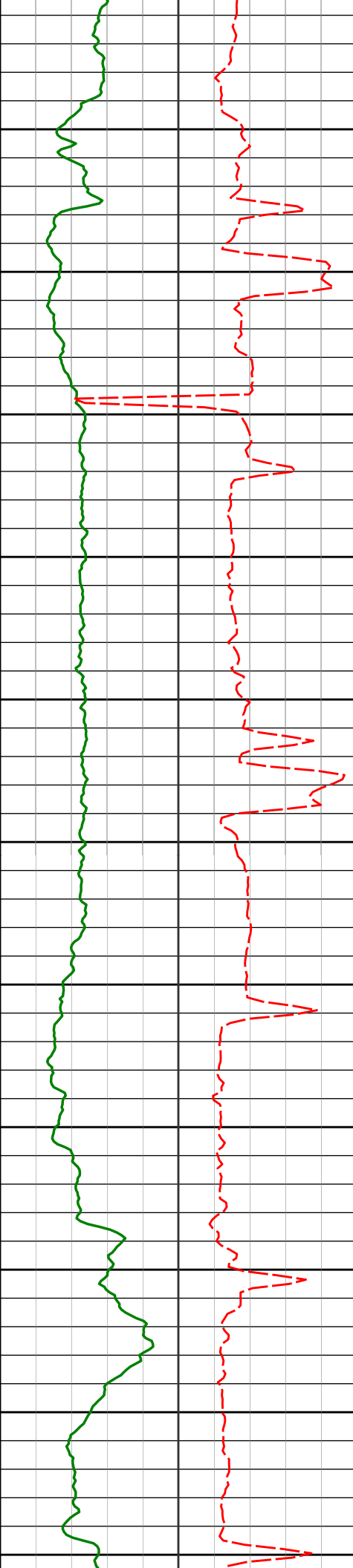
268.42°

6753.96'

2683.49'

9200

9250



9300

9350

9400

9450

9500

9550

9600

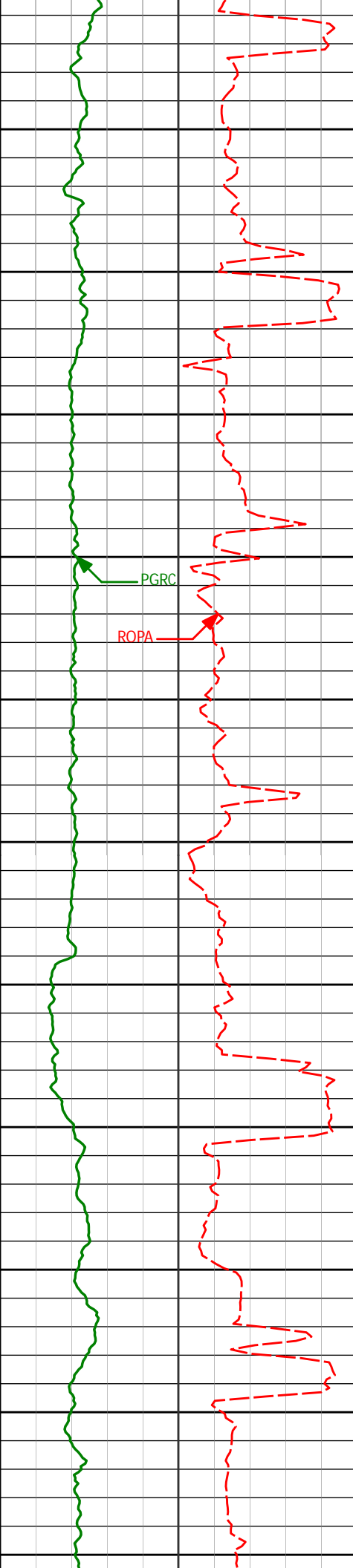
9650

9700

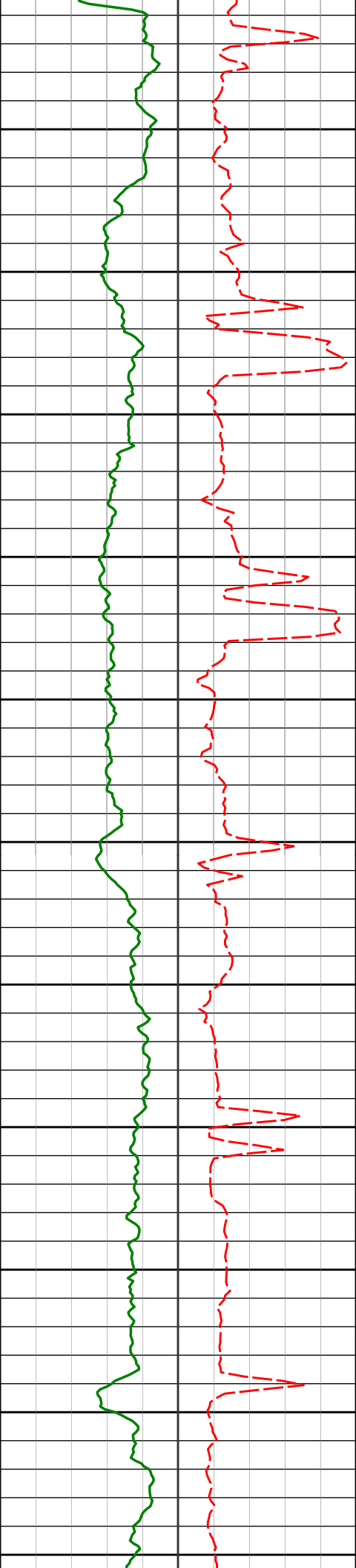
9750

9800

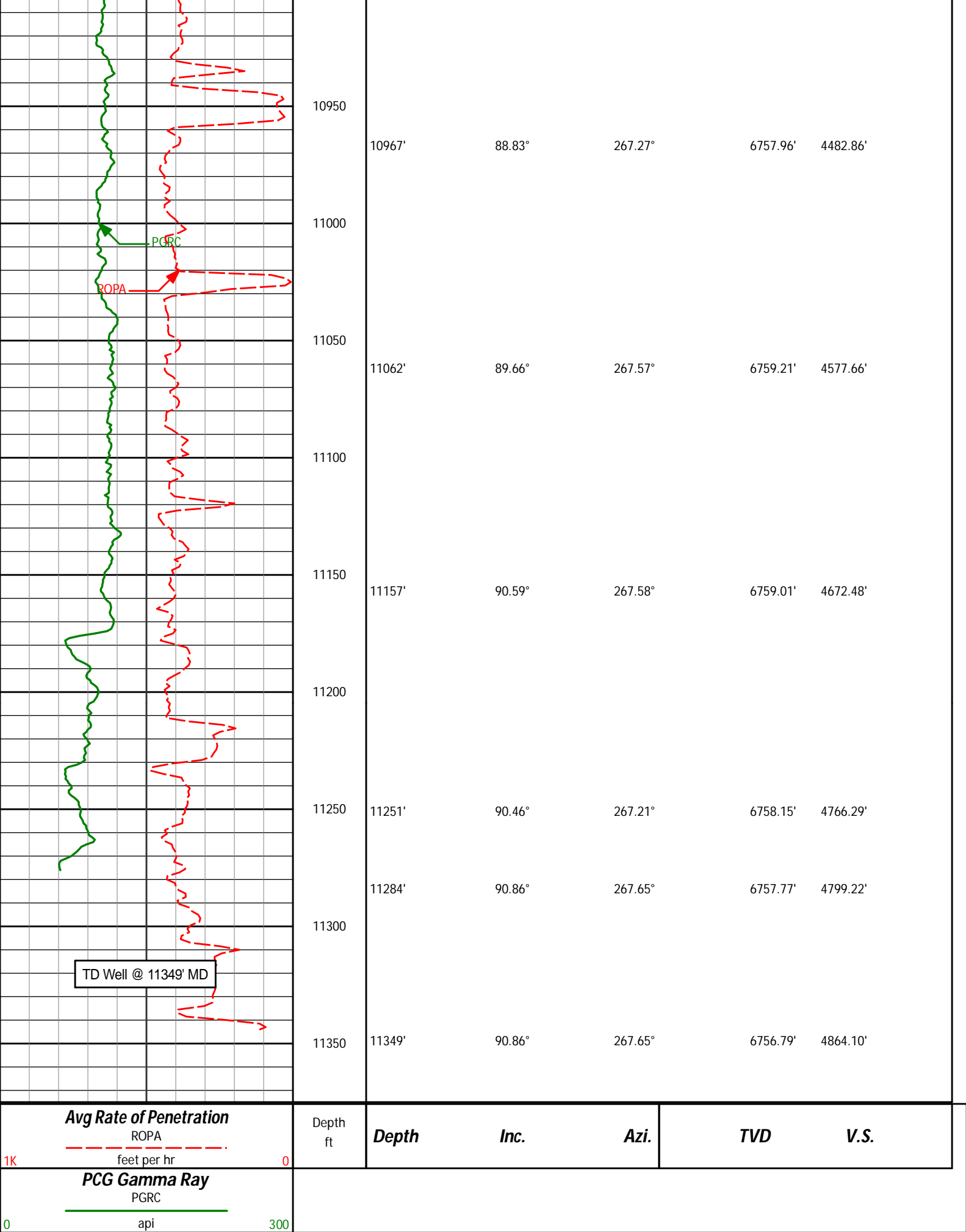
9260'	89.91°	268.41°	6754.78'	2777.38'
9355'	88.09°	267.35°	6756.44'	2872.22'
9450'	88.58°	267.78°	6759.20'	2967.00'
9545'	89.32°	269.57°	6760.94'	3061.90'
9640'	89.20°	269.27°	6762.17'	3156.86'
9735'	89.23°	269.16°	6763.47'	3251.80'



9830'	88.71°	270.24°	6765.18'	3346.76'
9850				
9900				
9924'	89.82°	270.11°	6766.39'	3440.74'
9950				
10000				
10019'	90.15°	270.67°	6766.41'	3535.73'
10050				
10100				
10113'	89.38°	271.16°	6766.80'	3629.73'
10150				
10200				
10208'	93.20°	270.56°	6764.66'	3724.68'
10250				
10300				
10303'	91.73°	269.46°	6760.57'	3819.58'
10350				



10400	10398'	91.48°	268.79°	6757.91'	3914.49'
10450					
10500	10493'	90.83°	268.95°	6756.00'	4009.40'
10550					
10600	10588'	89.57°	268.31°	6755.66'	4104.31'
10650					
10700	10682'	89.66°	267.94°	6756.30'	4198.19'
10750					
10800	10777'	89.60°	268.02°	6756.91'	4293.05'
10850					
10900	10872'	90.15°	269.49°	6757.12'	4387.97'



Sperry Drilling Services

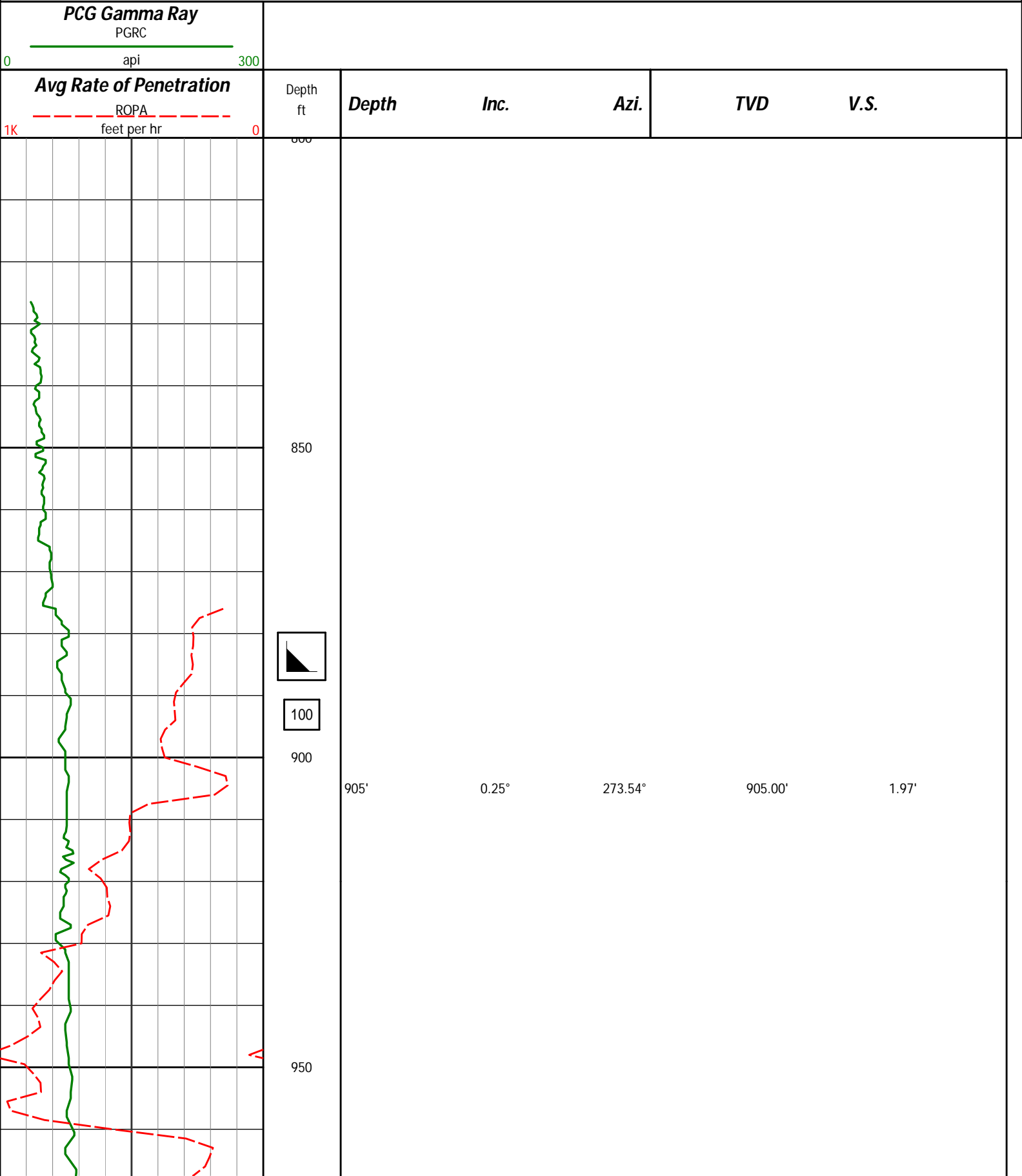
TVD Detail Log 1:240

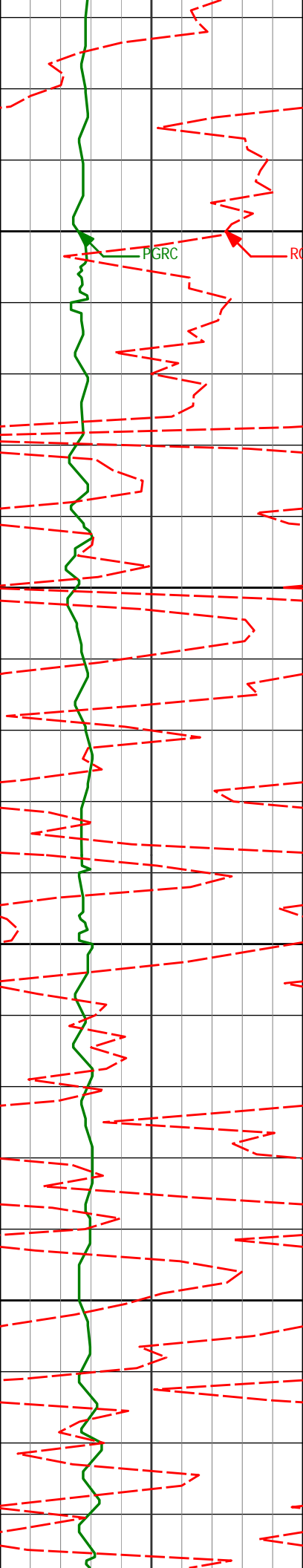
Noble Energy

NCLP AA06-69-1BHNC

H&P 321

Sec. 4-T6N-R63W





1000

1050

1100

1150

996'

0.54°

258.63°

995.99'

2.59'

1089'

0.68°

253.44°

1088.99'

3.54'

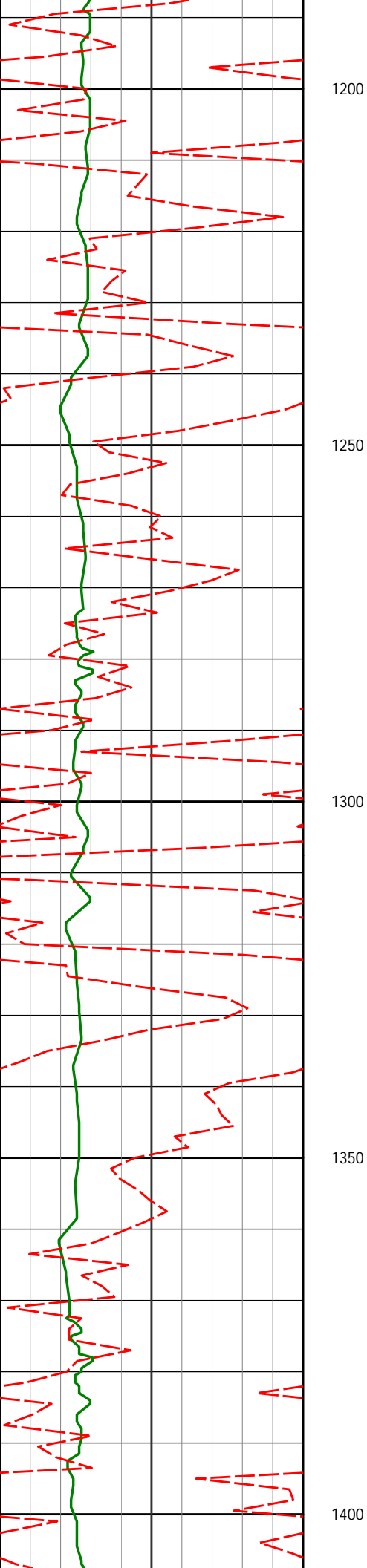
1182'

0.64°

263.89°

1181.98'

4.59'



1274'

0.59°

260.65°

1273.98'

5.56'

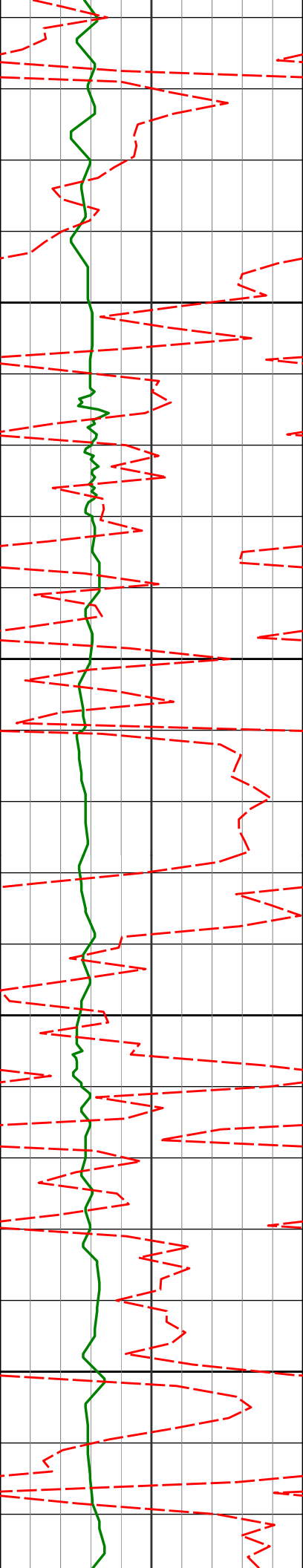
1365'

0.73°

259.25°

1364.97'

6.59'



1450

1457'

0.68°

255.15°

1456.97'

7.69'

1500

1550

1549'

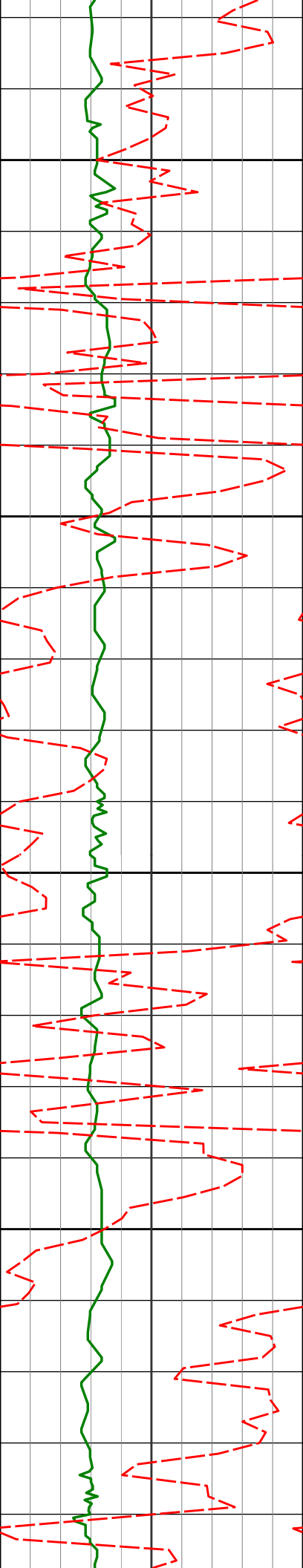
0.42°

225.95°

1548.96'

8.45'

1600



1641'

0.31°

226.83°

1640.96'

8.87'

1650

1700

1736'

0.16°

295.66°

1735.96'

9.17'

1750

1800

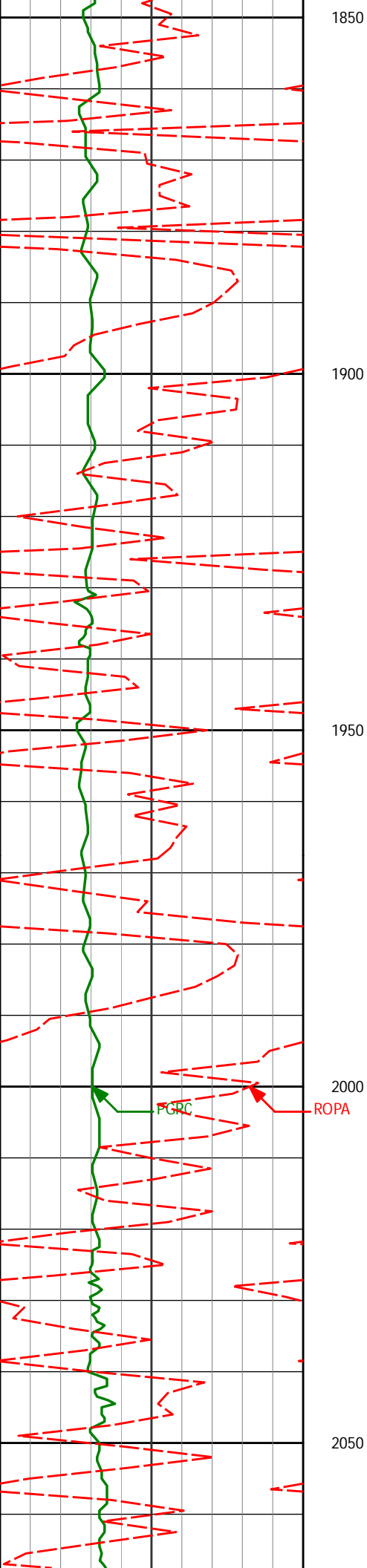
1831'

0.37°

144.26°

1830.96'

9.11'



1926'

0.32°

136.38°

1925.96'

8.74'

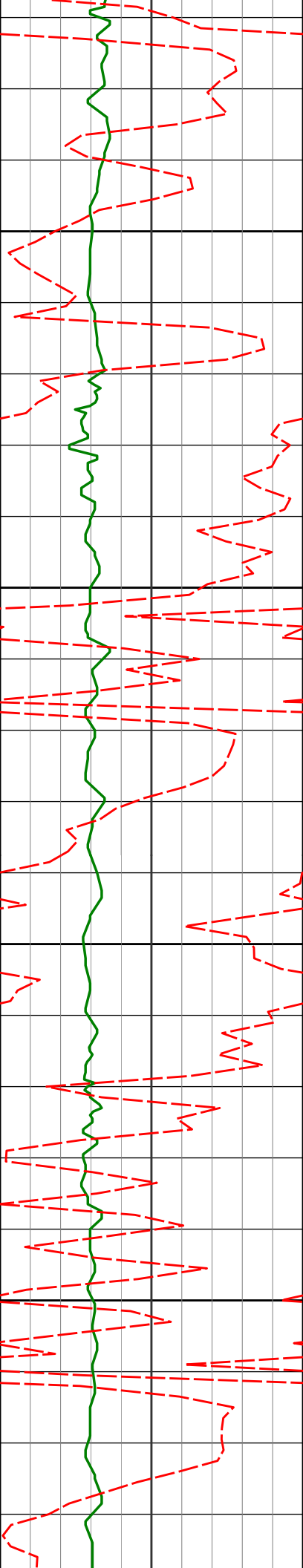
2020'

0.49°

169.59°

2019.95'

8.47'



2100

2115'

0.42°

91.37°

2114.95'

8.05'

2150

2200

2210'

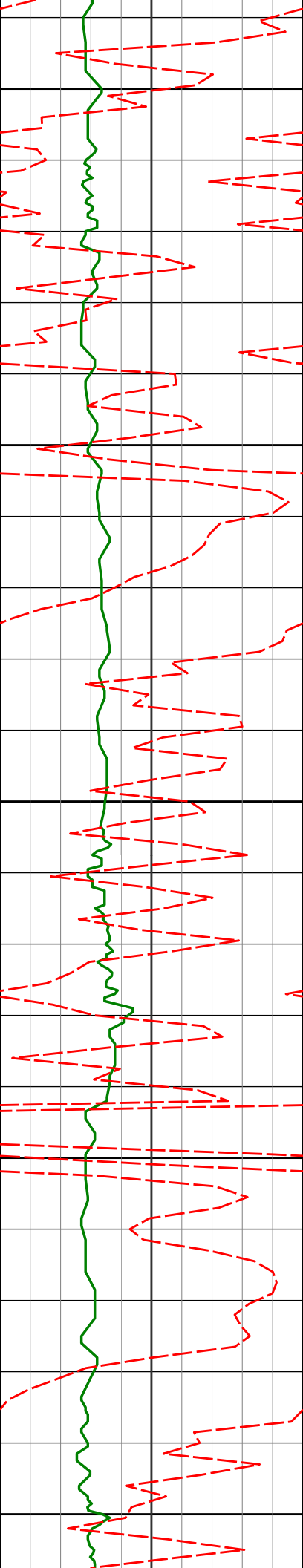
0.61°

96.75°

2209.95'

7.19'

2250



2300

2304'

0.79°

87.91°

2303.94'

6.05'

2350

2400

2399'

1.16°

100.85°

2398.93'

4.45'

2450

2494'

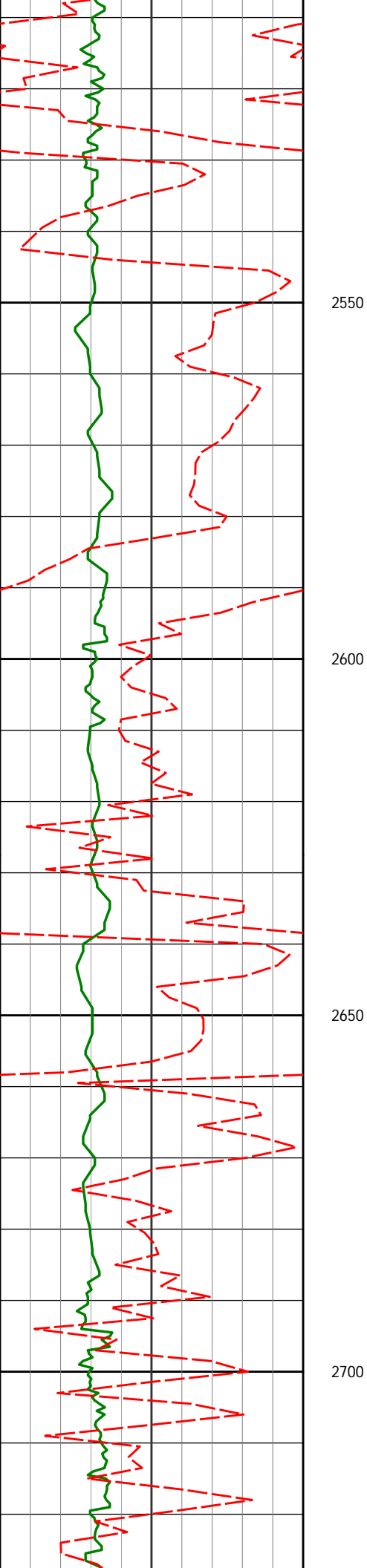
1.15°

13.35°

2493.91'

3.30'

2500



2589'

0.76°

271.26°

2588.91'

3.72'

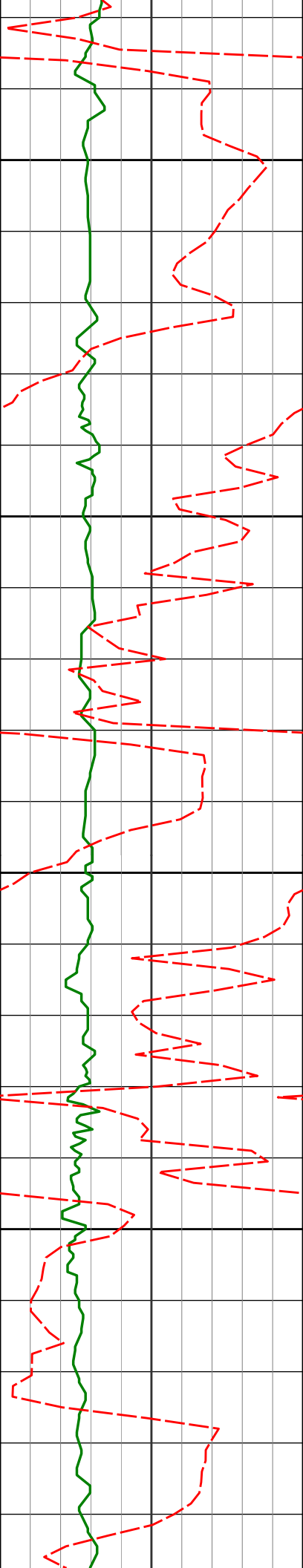
2683'

0.99°

288.90°

2682.89'

5.12'



2750

2778'

0.51°

90.31°

2777.89'

5.48'

2800

2850

2873'

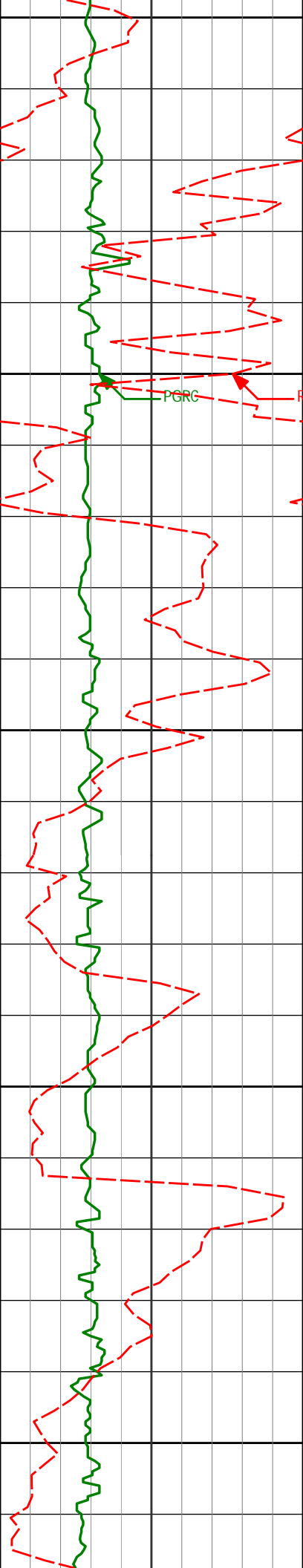
0.38°

94.00°

2872.89'

4.74'

2900



2950

2968'

0.36°

97.72°

2967.89'

4.13'

3000

PGRG

ROPA

3050

3063'

0.45°

90.39°

3062.88'

3.46'

3100

3150

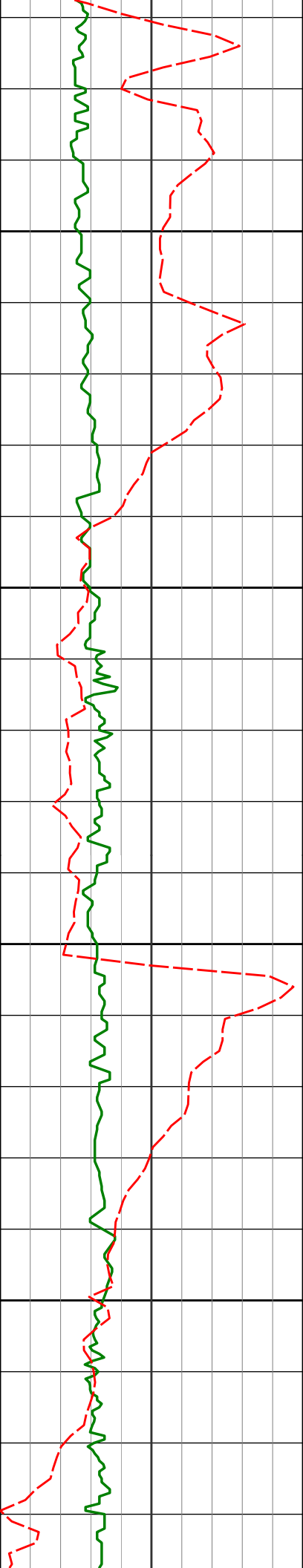
3157'

0.34°

102.53°

3156.88'

2.82'



3200

3250

3300

3350

3252'

0.16°

173.34°

3251.88'

2.52'

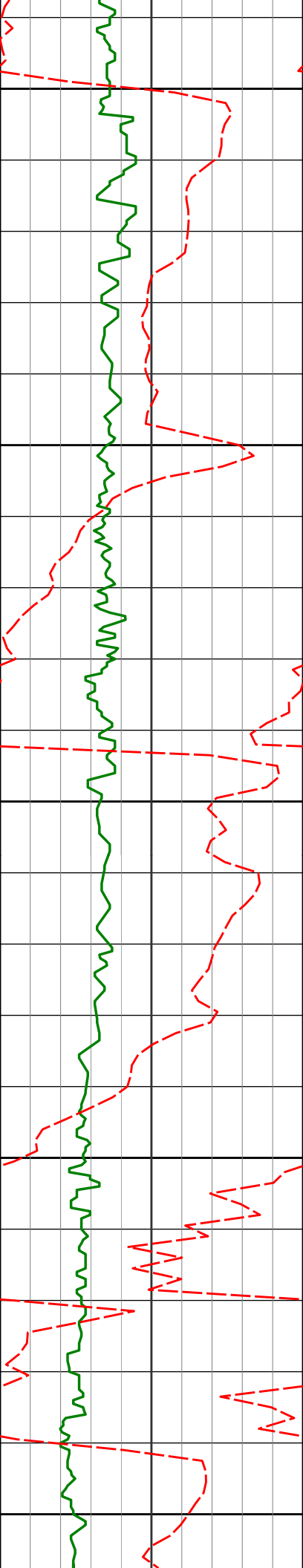
3346'

0.49°

155.84°

3345.88'

2.34'



3400

3441'

1.20°

163.20°

3440.87'

1.86'

3450

3500

3536'

0.79°

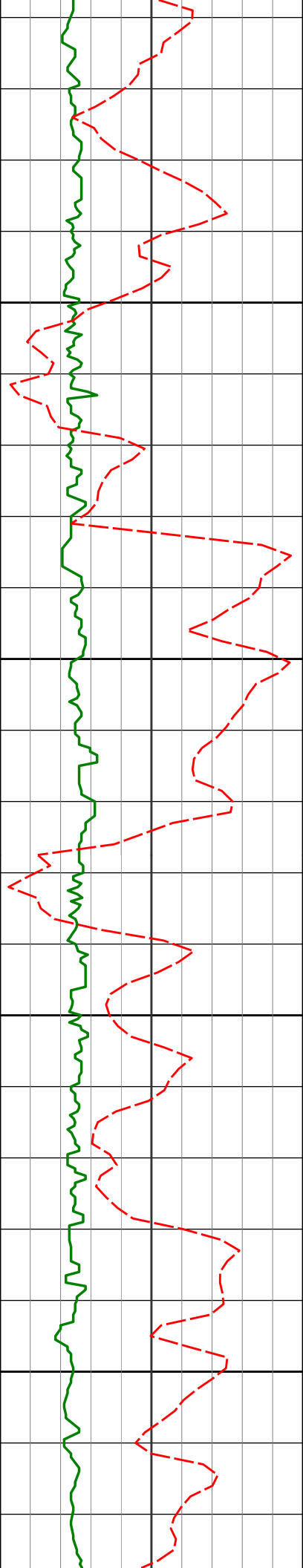
290.09°

3535.86'

2.17'

3550

3600



3650

3700

3750

3800

3631'

1.08°

307.00°

3630.85'

3.52'

3726'

0.37°

25.54°

3725.84'

4.11'

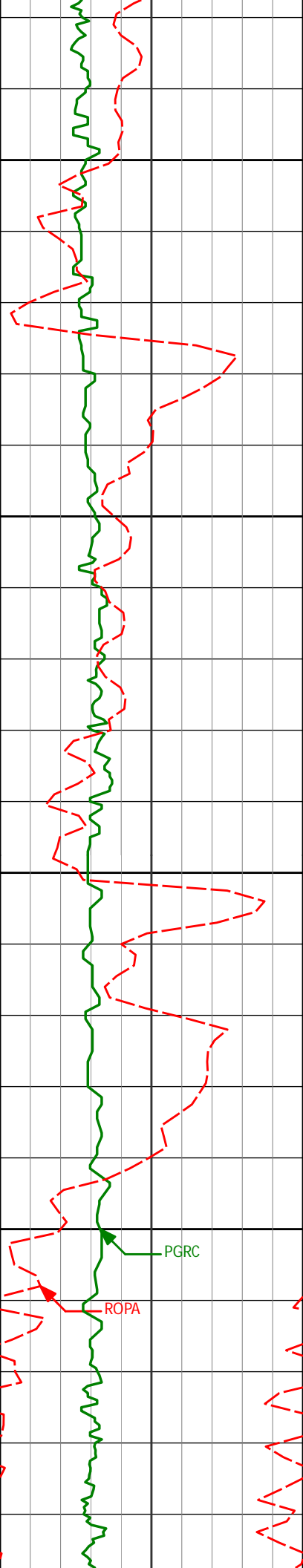
3820'

0.48°

58.17°

3819.84'

3.66'



3850

3900

3950

4000

3915'

0.67°

66.47°

3914.83'

2.82'

4010'

1.03°

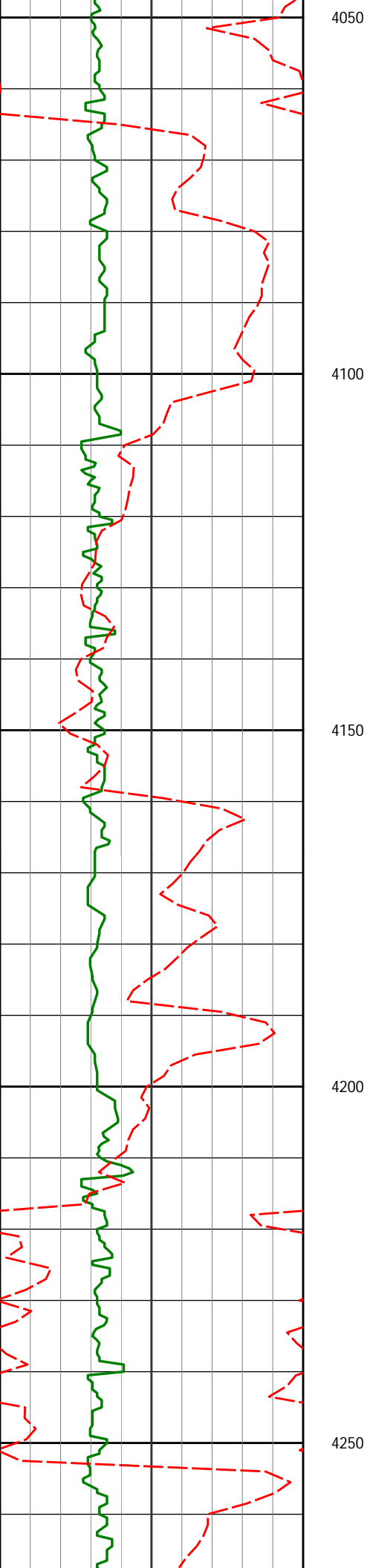
61.19°

4009.82'

1.57'

PGRC

ROPA



4105'

0.40°

82.15°

4104.82'

0.50'

4150

4200

4200'

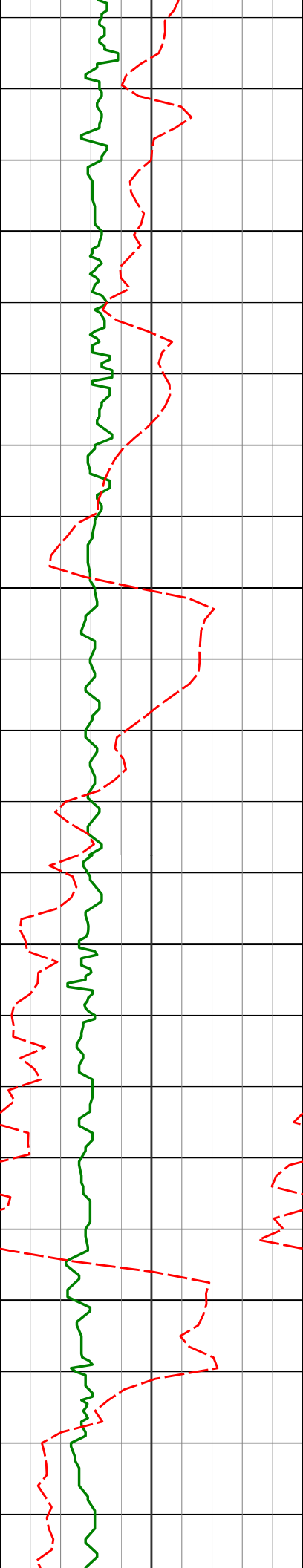
0.25°

170.27°

4199.81'

0.14'

4250



4294'

0.92°

148.10°

4293.81'

-0.31'

4300

4350

4389'

0.38°

180.08°

4388.80'

-0.73'

4400

4450

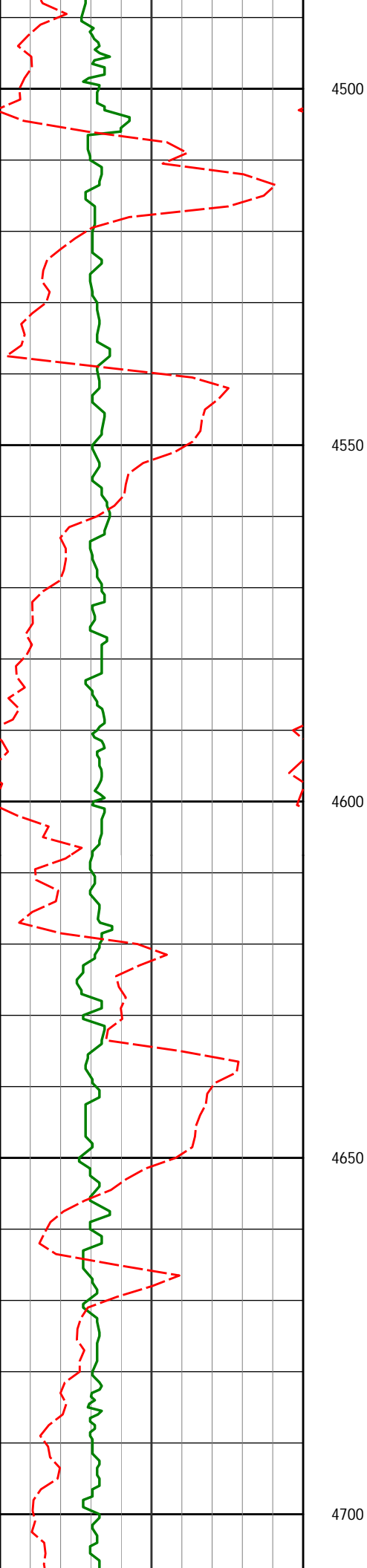
4484'

0.25°

188.84°

4483.80'

-0.71'



4579'

0.44°

170.60°

4578.80'

-0.75'

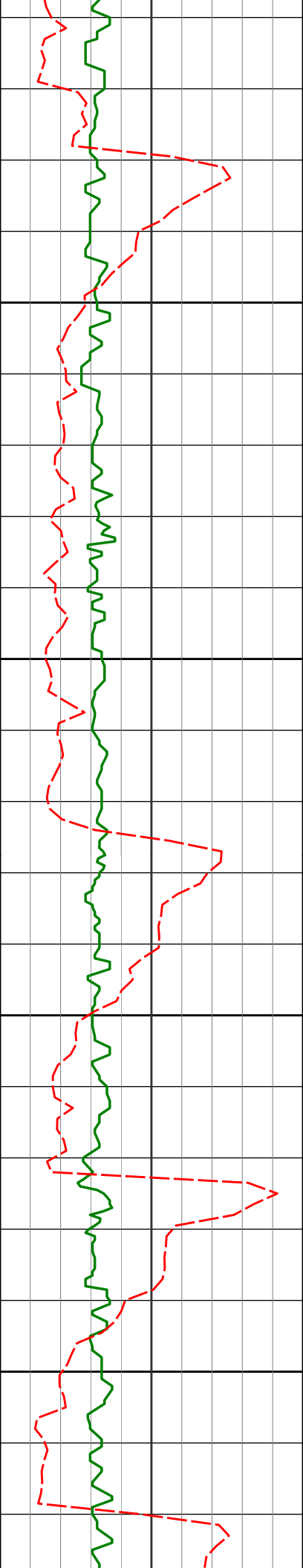
4674'

0.53°

110.79°

4673.80'

-1.23'



4750

4769'

0.21°

143.15°

4768.80'

-1.75'

4800

4850

4864'

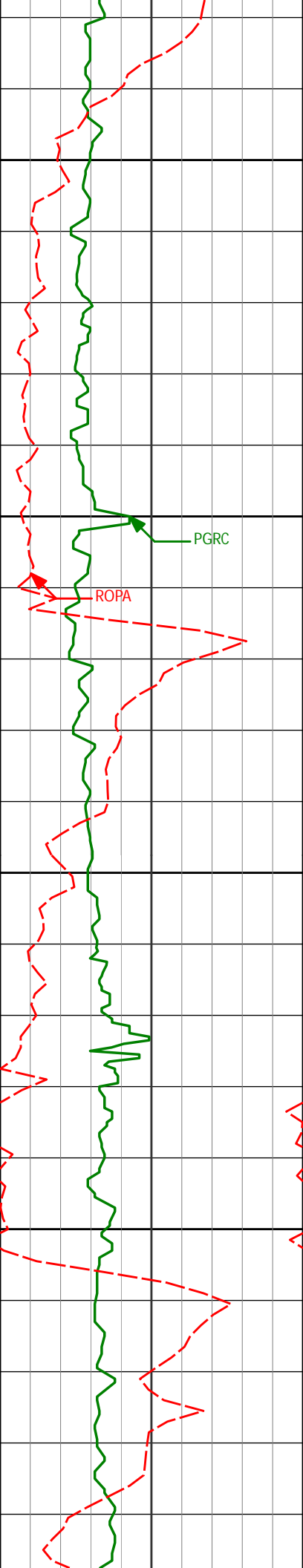
0.22°

233.77°

4863.79'

-1.71'

4900



4950

4958'

0.33°

203.08°

4957.79'

-1.46'

5000

PGRC

ROPA

5050

5053'

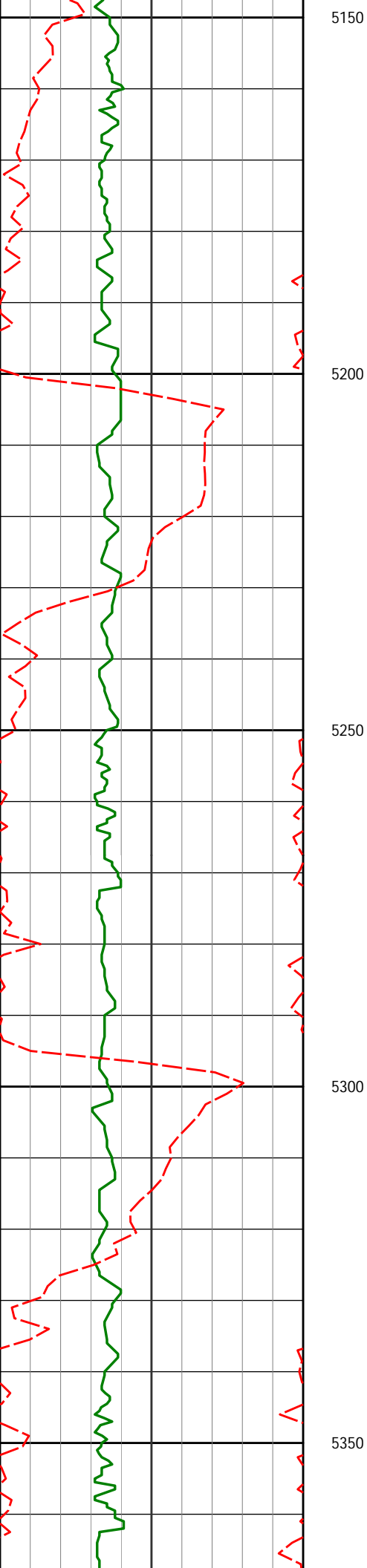
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211.13°

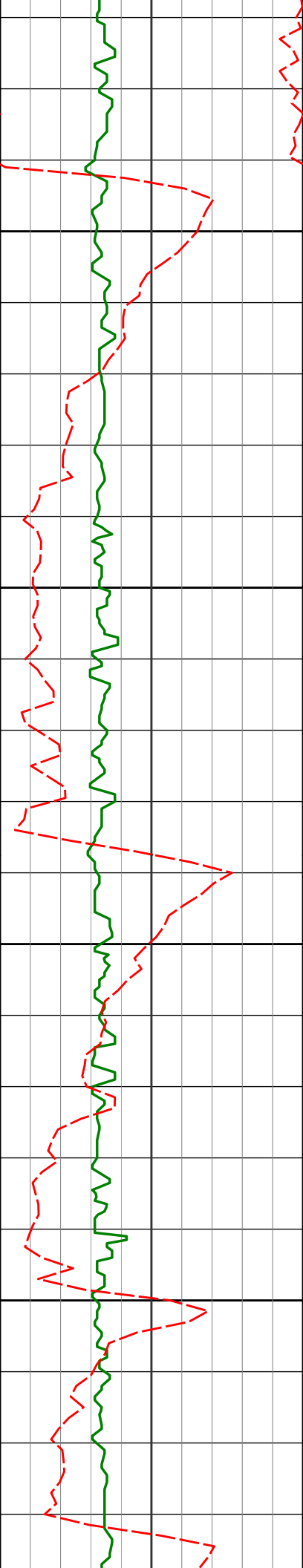
5052.79'

-1.25'

5100



5148'	0.18°	230.48°	5147.79'	-1.03'
5243'	0.34°	198.56°	5242.79'	-0.83'
5338'	0.53°	258.33°	5337.79'	-0.32'



5400

5433'

0.54°

264.64°

5432.78'

0.55'

5450

5500

5527'

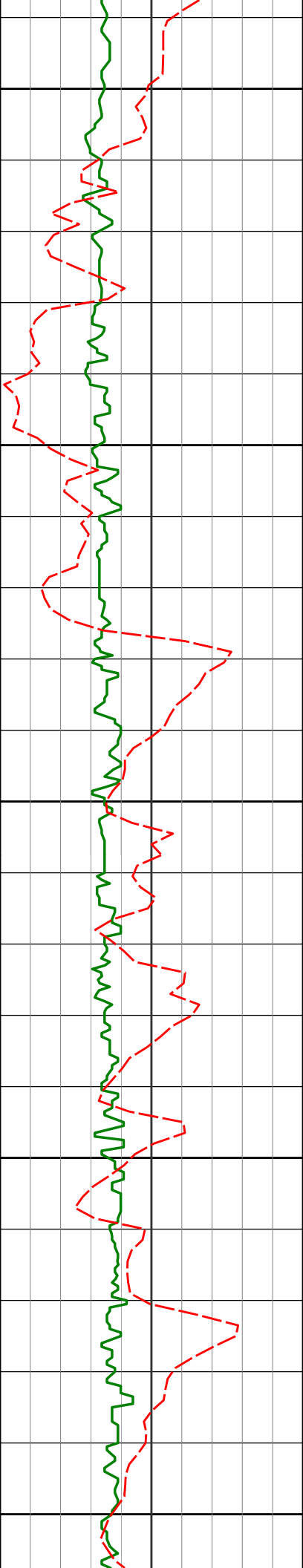
0.07°

333.08°

5526.78'

1.02'

5550



5600

5622'

0.22°

41.31°

5621.78'

0.93'

5650

5700

5717'

0.17°

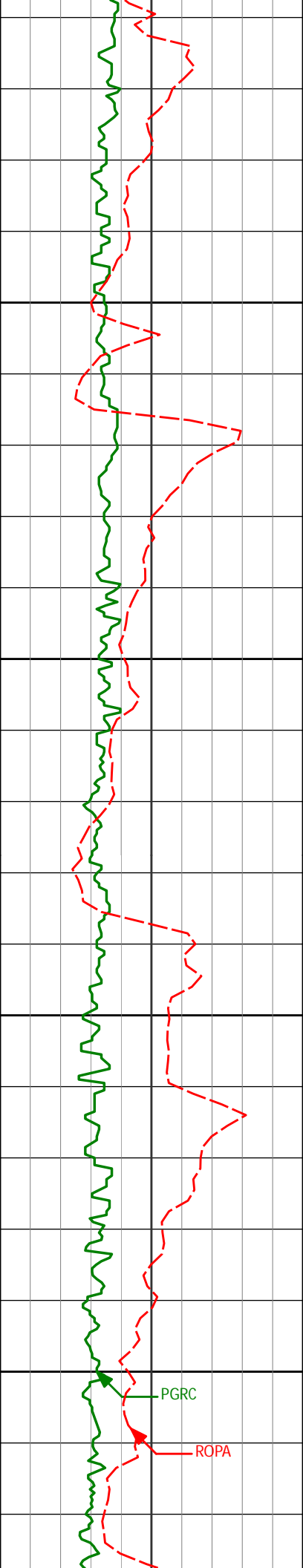
343.58°

5716.78'

0.86'

5750

5800



5850

5900

5950

6000

5811'

0.19°

17.53°

5810.78'

0.85'

5906'

0.25°

344.46°

5905.78'

0.87'

6001'

0.39°

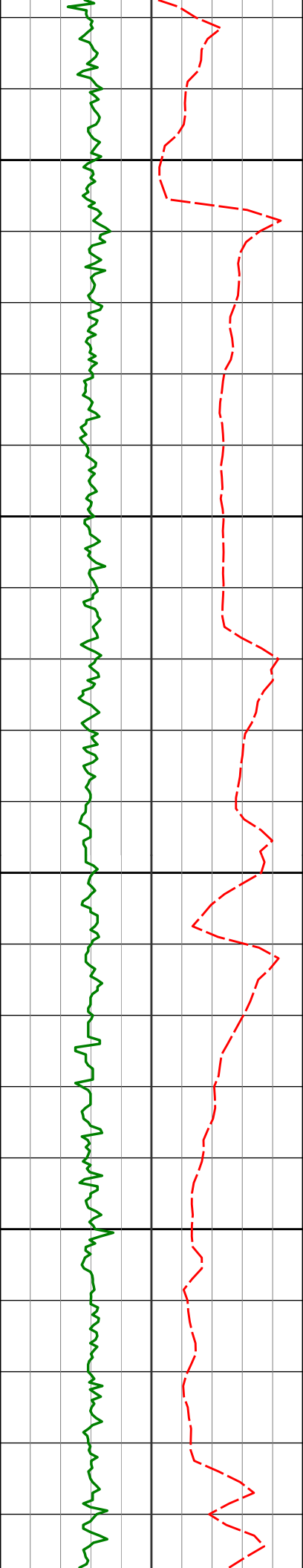
11.44°

6000.78'

0.87'

PGRC

ROPA



6050

200

6064'

0.50°

358.95°

6063.78'

0.84'

6096'

0.44°

2.43°

6095.78'

0.84'

6100

6150

6191'

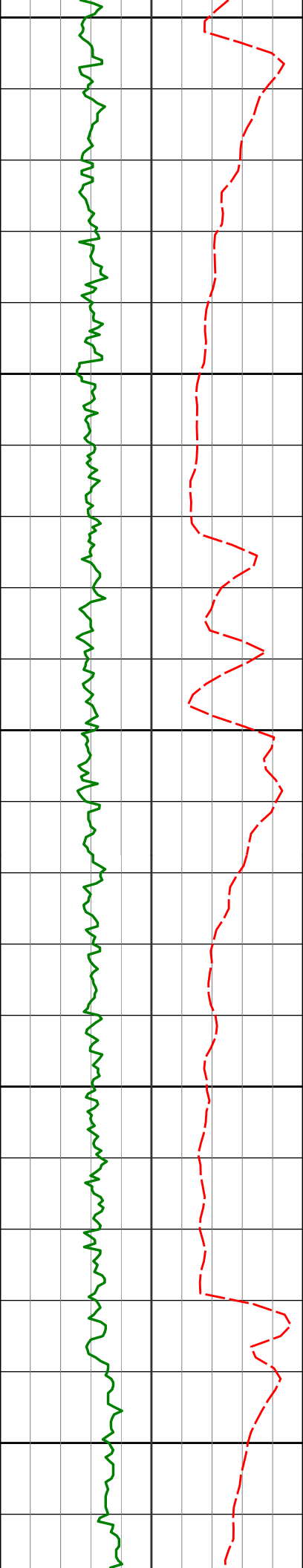
6.44°

266.72°

6190.58'

6.15'

6200



6250

6285'

13.77°

280.04°

6283.07'

22.48'

6300

6350

6380'

19.78°

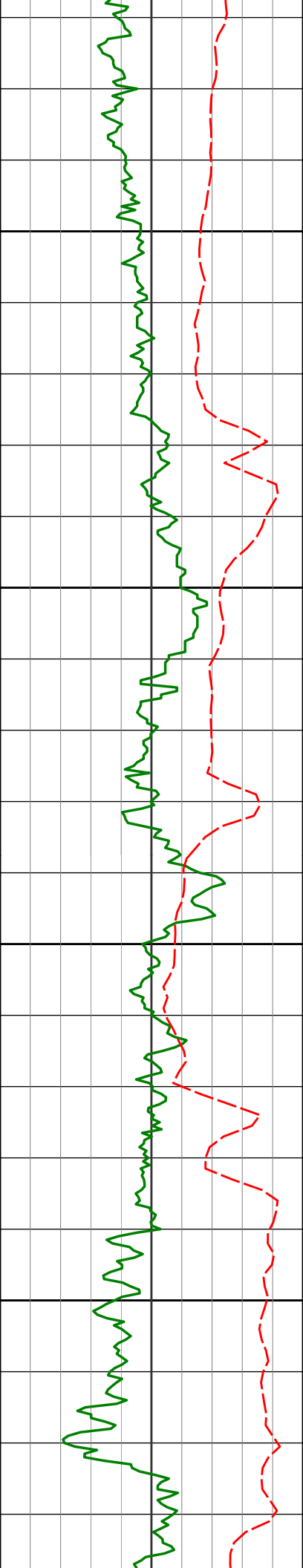
277.91°

6373.98'

49.63'

6400

6450



6475'

32.55°

274.04°

6459.08'

91.29'

6500

6550

6569'

46.89°

270.43°

6531.20'

151.17'

6600

6650

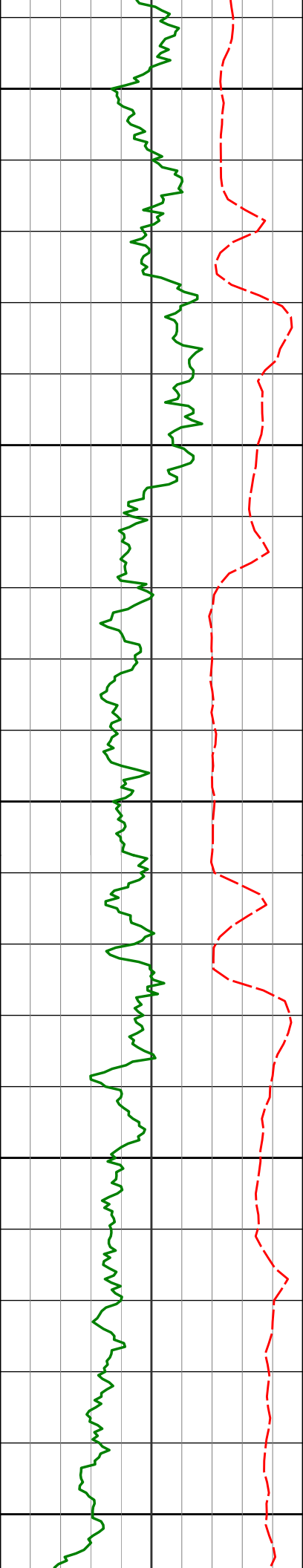
6664'

53.34°

271.01°

6592.09'

224.03'



6700

6750

6800

6850

6900

6759'

57.99°

273.67°

6645.66'

302.42'

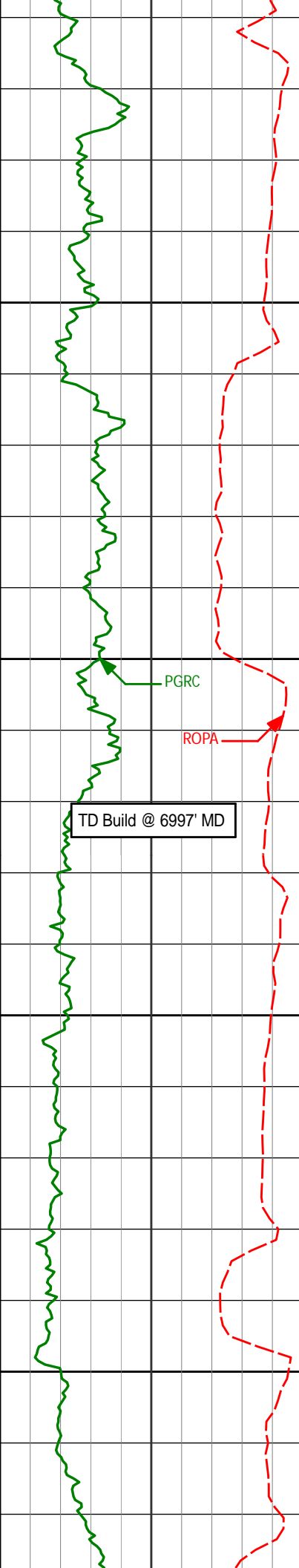
6854'

63.54°

276.57°

6692.05'

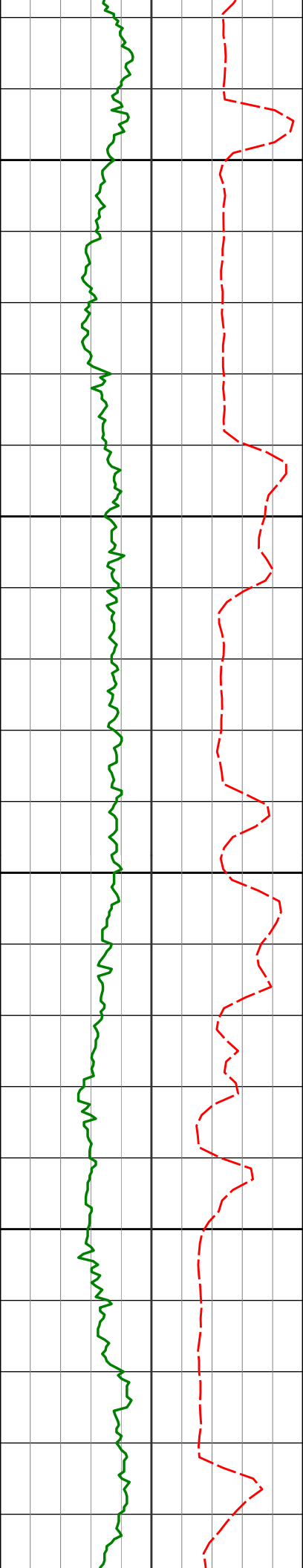
385.06'



6950	6948'	76.10°	278.90°	6724.42'	472.50'
7000					
7050	7043'	85.90°	276.95°	6739.26'	565.54'
7100					
	7124'	91.54°	277.87°	6741.07'	645.98'



300



7150

7176'

91.48°

277.72°

6739.70'

697.60'

7200

7250

7270'

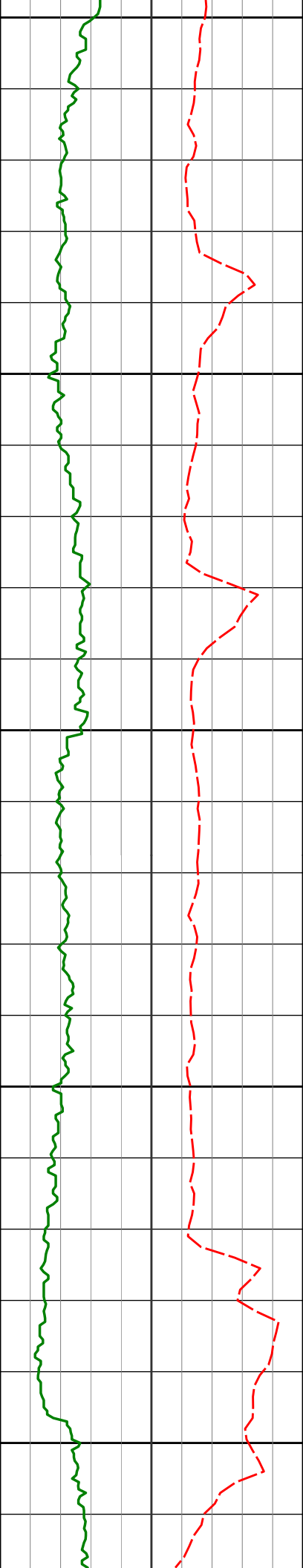
87.66°

275.95°

6740.41'

791.10'

7300



7350

7365'

87.16°

275.47°

6744.70'

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7400

7450

7460'

86.54°

275.27°

6749.92'

980.27'

7500

7550

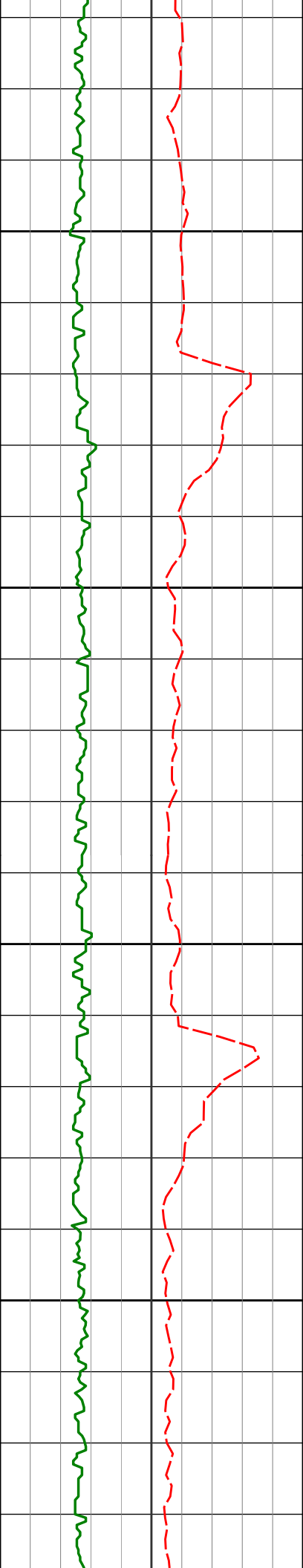
7555'

88.86°

274.95°

6753.73'

1074.95'



7600

7650

7700

7750

7650'

7744'

90.12°

89.66°

274.47°

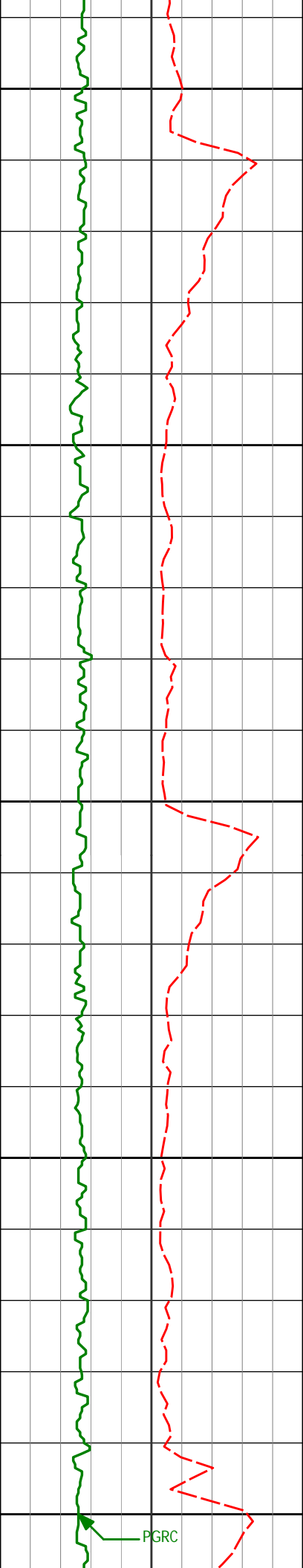
274.09°

6754.58'

6754.76'

1169.75'

1263.60'



7800

7839'

89.51°

274.26°

6755.44'

1358.45'

7850

7900

7934'

89.48°

274.19°

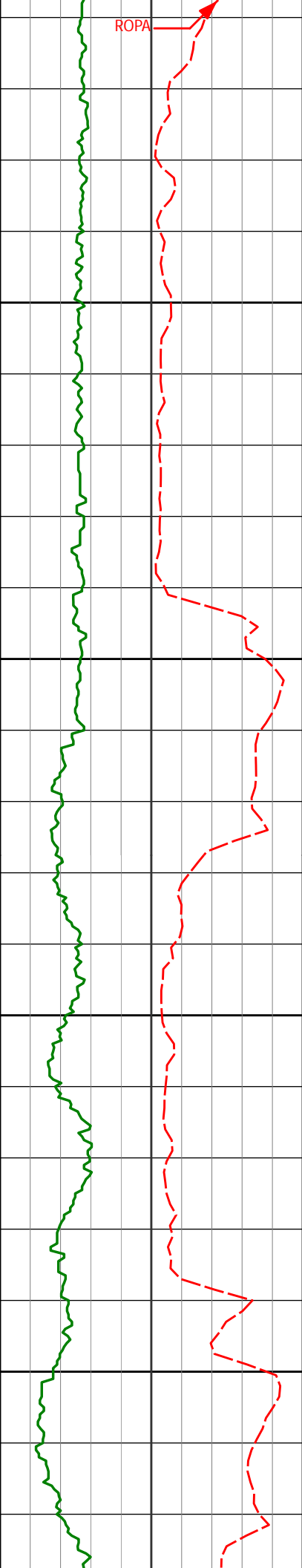
6756.28'

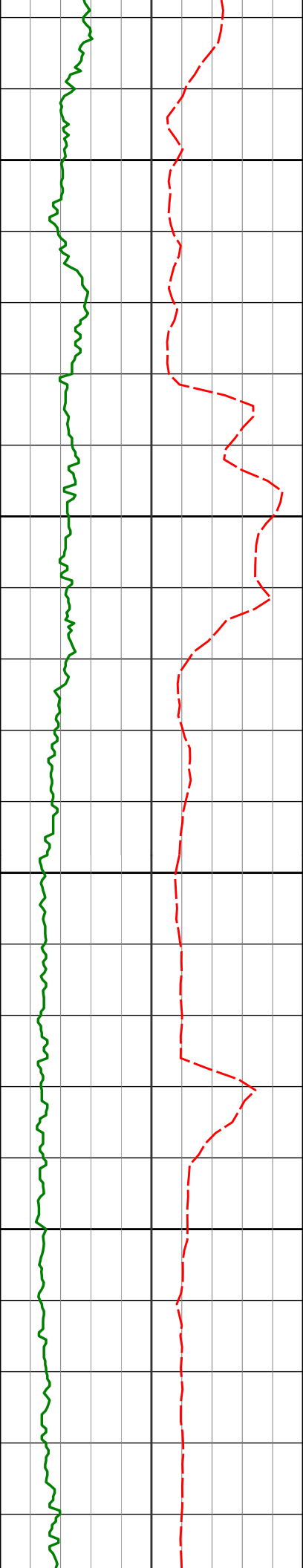
1453.30'

7950

8000

PGRC





8250

8300

8350

8400

8314'

88.55°

268.68°

6758.63'

1832.52'

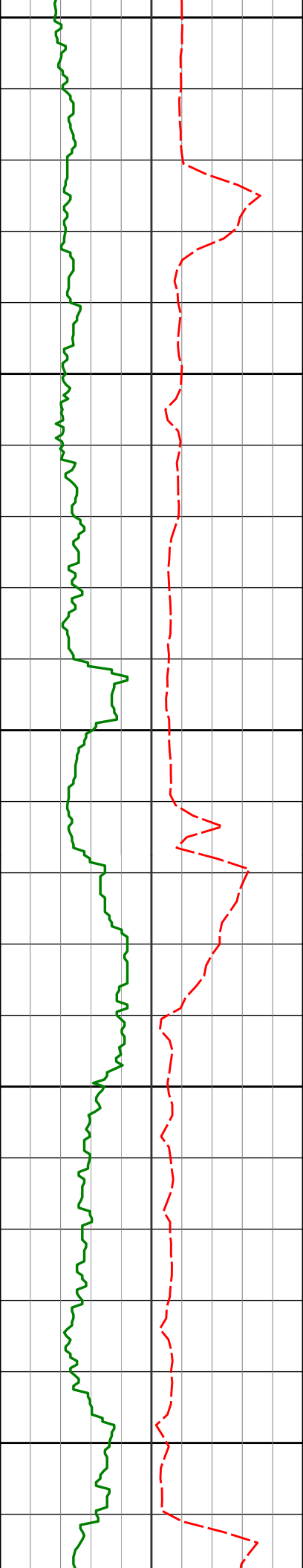
8408'

88.89°

268.75°

6760.73'

1926.42'



8450

8500

8550

8600

8650

8503'

89.48°

268.85°

6762.08'

2021.34'

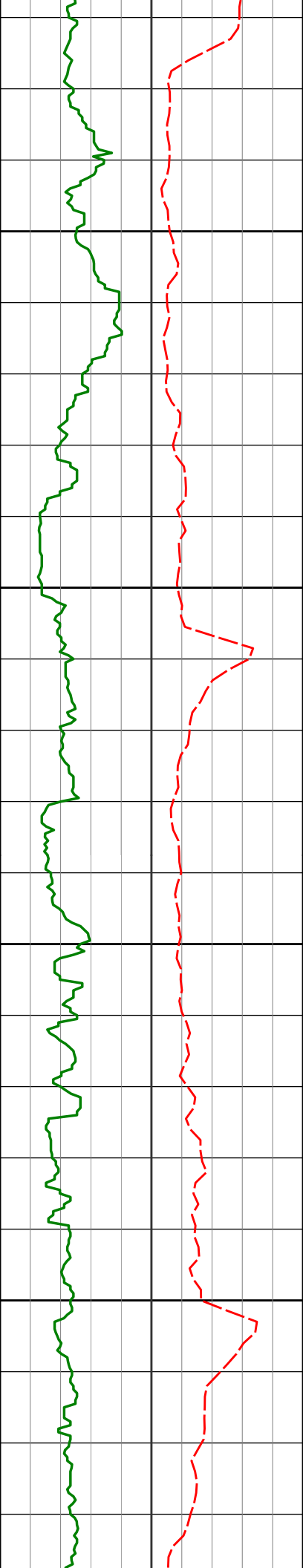
8598'

89.60°

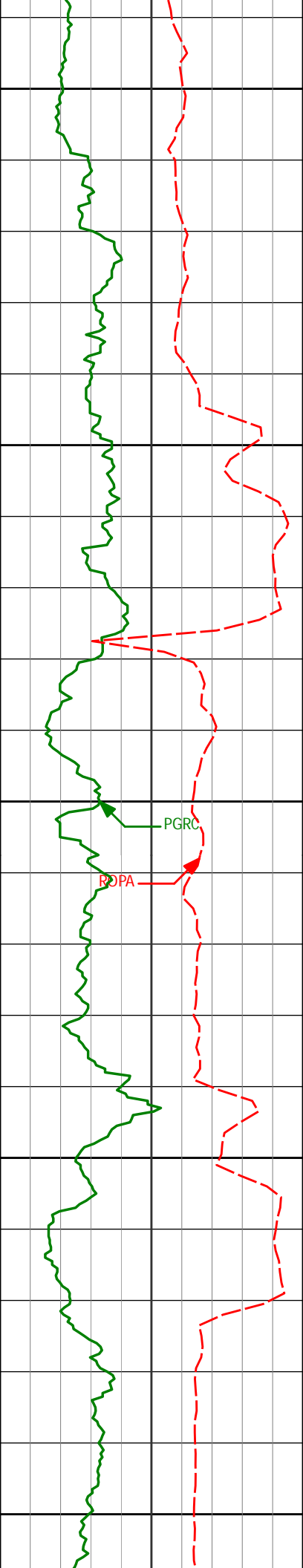
268.77°

6762.84'

2116.26'



8692'	90.06°	268.27°	6763.12'	2210.17'
8700				
8750				
8787'	91.02°	268.48°	6762.23'	2305.06'
8800				
8850				
8881'	92.93°	267.98°	6758.99'	2398.89'



8900

8950

9000

9050

9100

8976'

91.26°

267.99°

6755.51'

2493.69'

9071'

90.77°

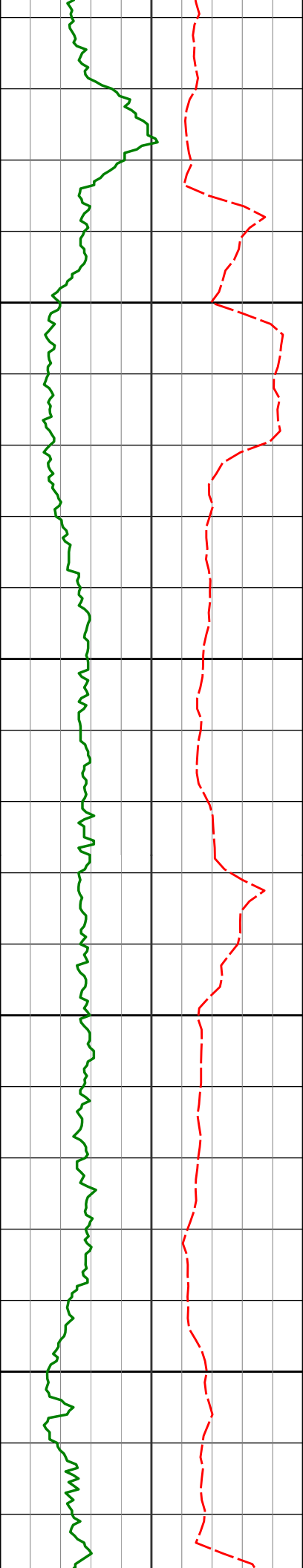
268.87°

6753.83'

2588.57'

PGRU

ROPA



9150

9166'

89.08°

268.42°

6753.96'

2683.49'

9200

9250

9260'

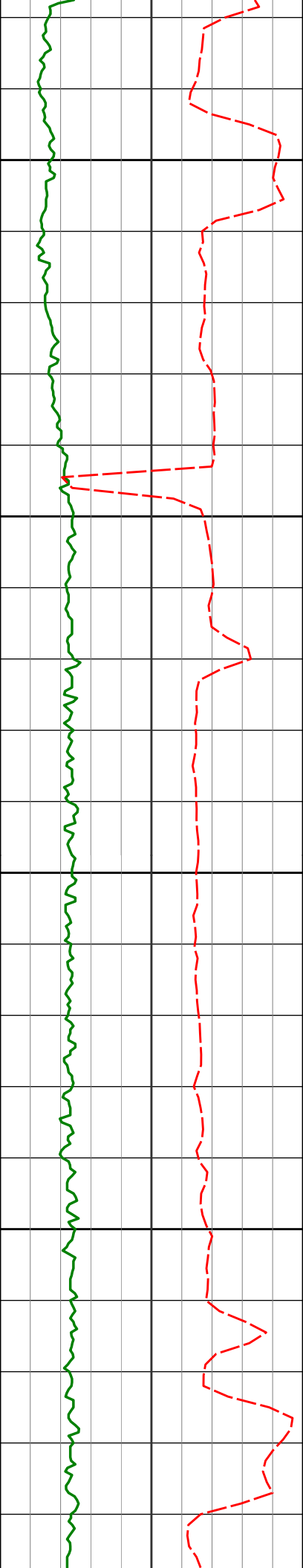
89.91°

268.41°

6754.78'

2777.38'

9300



9350

9355'

88.09°

267.35°

6756.44'

2872.22'

9400

9450

9450'

88.58°

267.78°

6759.20'

2967.00'

9500

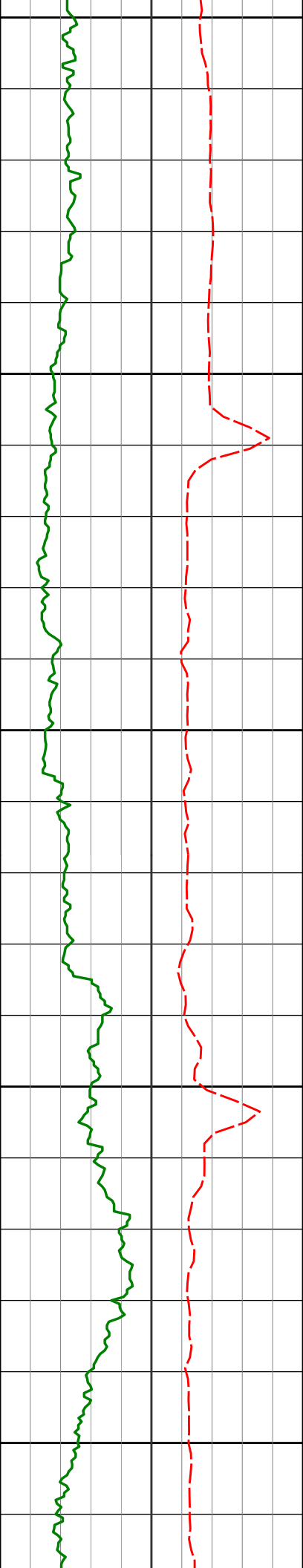
9545'

89.32°

269.57°

6760.94'

3061.90'



9550

9600

9650

9700

9750

9640'

89.20°

269.27°

6762.17'

3156.86'

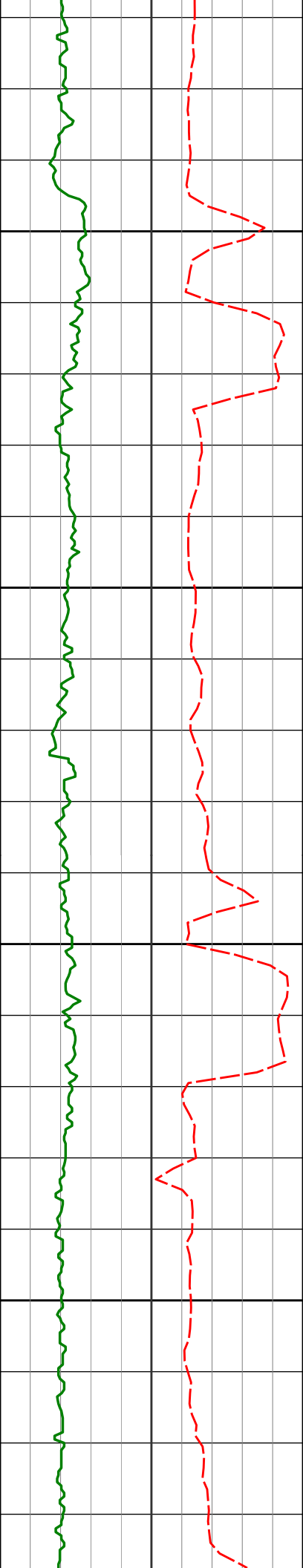
9735'

89.23°

269.16°

6763.47'

3251.80'



9800

9830'

9850

9900

9924'

9950

88.71°

270.24°

6765.18'

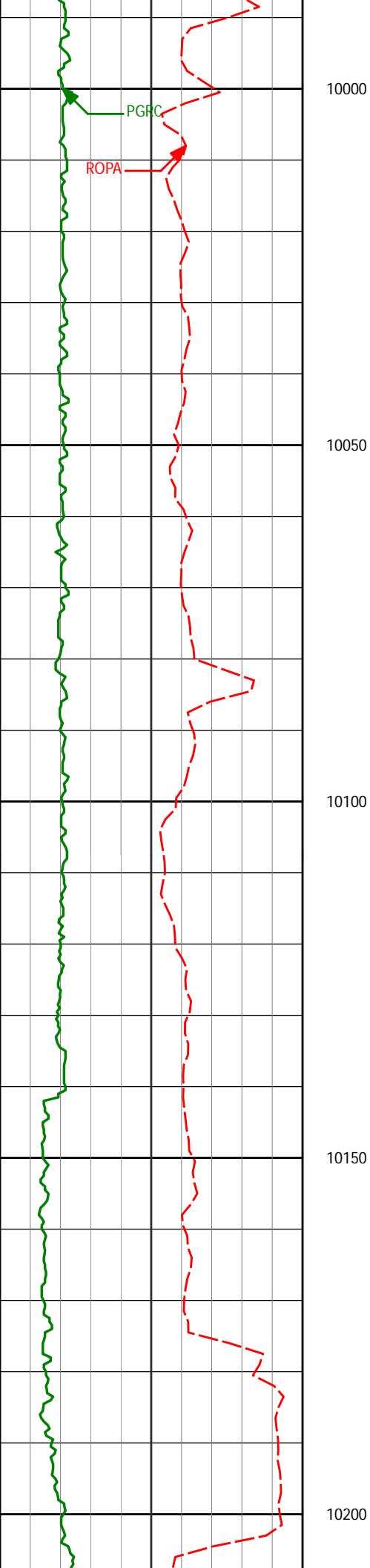
3346.76'

89.82°

270.11°

6766.39'

3440.74'



10019'

90.15°

270.67°

6766.41'

3535.73'

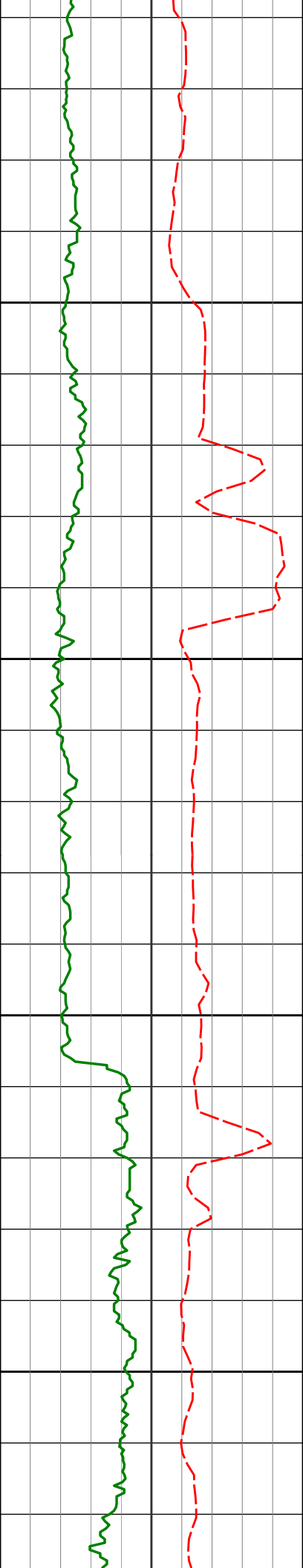
10113'

89.38°

271.16°

6766.80'

3629.73'



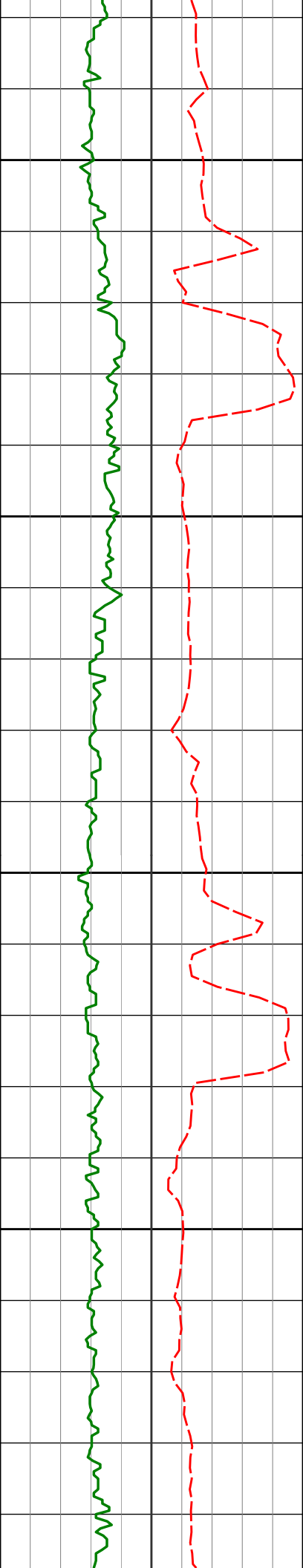
10250

10300

10350

10400

10208'	93.20°	270.56°	6764.66'	3724.68'
10303'	91.73°	269.46°	6760.57'	3819.58'
10398'	91.48°	268.79°	6757.91'	3914.49'



10450

10493'

90.83°

268.95°

6756.00'

4009.40'

10500

10550

10588'

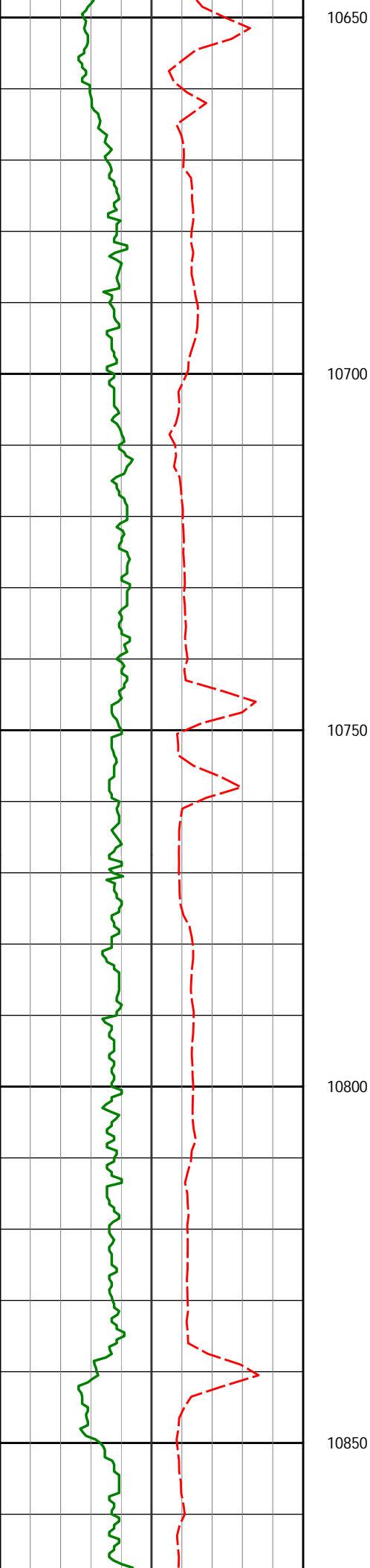
89.57°

268.31°

6755.66'

4104.31'

10600



10682'

89.66°

267.94°

6756.30'

4198.19'

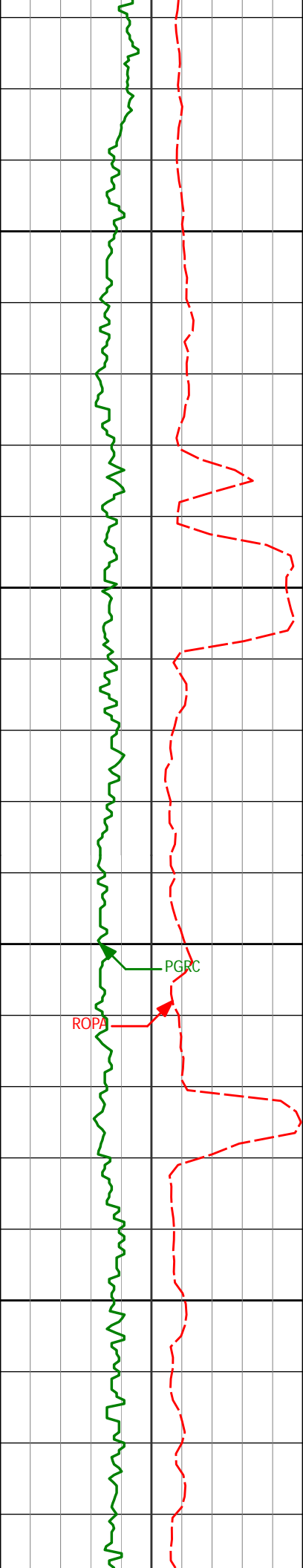
10777'

89.60°

268.02°

6756.91'

4293.05'



10872'

90.15°

269.49°

6757.12'

4387.97'

10900

10950

10967'

88.83°

267.27°

6757.96'

4482.86'

11000

ROPA

PGRC

11050

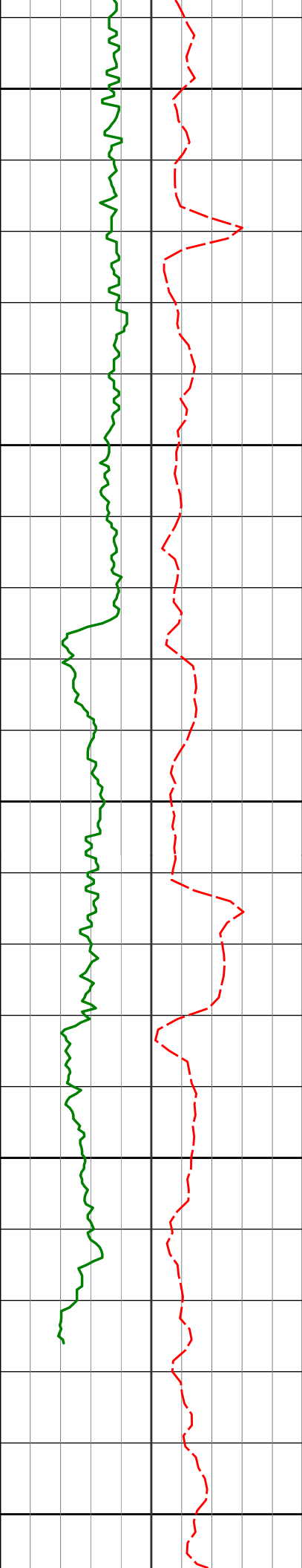
11062'

89.66°

267.57°

6759.21'

4577.66'



11100

11150

11200

11250

11300

11157'

90.59°

267.58°

6759.01'

4672.48'

11251'

90.46°

267.21°

6758.15'

4766.29'

11284'

90.86°

267.65°

6757.77'

4799.22'

3157.00	0.34	102.53	3156.88	1.72 S	2.85 W	2.82	0.15
3252.00	0.16	173.34	3251.88	1.91 S	2.56 W	2.56	0.34
3346.00	0.49	155.84	3345.88	2.41 S	2.38 W	2.34	0.36
3441.00	1.20	163.20	3440.87	3.73 S	1.93 W	1.86	0.75
3536.00	0.79	290.09	3535.86	4.46 S	2.25 W	2.17	1.88
3631.00	1.08	307.00	3630.85	3.70 S	3.58 W	3.52	0.42
3726.00	0.37	25.54	3725.84	2.88 S	4.17 W	4.11	1.13
3820.00	0.48	58.17	3819.84	2.40 S	3.70 W	3.66	0.28
3915.00	0.67	66.47	3914.83	1.97 S	2.85 W	2.82	0.22
4010.00	1.03	61.19	4009.82	1.33 S	1.60 W	1.57	0.39
4105.00	0.40	82.15	4104.82	0.88 S	0.52 W	0.50	0.71
4200.00	0.25	170.27	4199.81	1.04 S	0.16 W	0.14	0.49
4294.00	0.92	148.10	4293.81	1.88 S	0.28 E	-0.31	0.74
4389.00	0.38	180.08	4388.80	2.84 S	0.68 E	-0.73	0.66
4484.00	0.25	188.84	4483.80	3.36 S	0.65 E	-0.71	0.15
4579.00	0.44	170.60	4578.80	3.93 S	0.68 E	-0.75	0.23
4674.00	0.53	110.79	4673.80	4.44 S	1.15 E	-1.23	0.52
4769.00	0.21	143.15	4768.80	4.74 S	1.66 E	-1.75	0.39
4864.00	0.22	233.77	4863.79	4.98 S	1.62 E	-1.71	0.32
4958.00	0.33	203.08	4957.79	5.34 S	1.37 E	-1.46	0.19
5053.00	0.26	211.13	5052.79	5.78 S	1.15 E	-1.25	0.09
5148.00	0.18	230.48	5147.79	6.05 S	0.92 E	-1.03	0.11
5243.00	0.34	198.56	5242.79	6.42 S	0.72 E	-0.83	0.22
5338.00	0.53	258.33	5337.79	6.77 S	0.20 E	-0.32	0.49
5433.00	0.54	264.64	5432.78	6.90 S	0.68 W	0.55	0.06
5527.00	0.07	333.08	5526.78	6.89 S	1.15 W	1.02	0.55
5622.00	0.22	41.31	5621.78	6.71 S	1.05 W	0.93	0.22
5717.00	0.17	343.58	5716.78	6.43 S	0.97 W	0.86	0.20
5811.00	0.19	17.53	5810.78	6.15 S	0.96 W	0.85	0.11
5906.00	0.25	344.46	5905.78	5.80 S	0.97 W	0.87	0.15
6001.00	0.39	11.44	6000.78	5.28 S	0.96 W	0.87	0.21
6064.00	0.50	358.95	6063.78	4.80 S	0.93 W	0.84	0.23
6096.00	0.44	2.43	6095.78	4.54 S	0.92 W	0.84	0.21
6191.00	6.44	266.72	6190.58	4.48 S	6.23 W	6.15	6.84
6285.00	13.77	280.04	6283.07	2.83 S	22.54 W	22.48	8.13
6380.00	19.78	277.91	6373.98	1.36 N	49.62 W	49.63	6.36
6475.00	32.55	274.04	6459.08	5.39 N	91.21 W	91.29	13.55
6569.00	46.89	270.43	6531.20	7.44 N	151.06 W	151.17	15.45
6664.00	53.34	271.01	6592.09	8.37 N	223.91 W	224.03	6.81
6759.00	57.99	273.67	6645.66	11.63 N	302.26 W	302.42	5.41
6854.00	63.54	276.57	6692.05	19.08 N	384.78 W	385.06	6.42
6948.00	76.10	278.90	6724.42	31.00 N	472.01 W	472.50	13.56
7043.00	85.90	276.95	6739.26	43.90 N	564.83 W	565.54	10.51
7124.00	91.54	277.87	6741.07	54.34 N	645.10 W	645.98	7.05
7176.00	91.48	277.72	6739.70	61.39 N	696.60 W	697.60	0.31
7270.00	87.66	275.95	6740.41	72.57 N	789.91 W	791.10	4.48
7365.00	87.16	275.47	6744.70	82.01 N	884.34 W	885.69	0.73
7460.00	86.54	275.27	6749.92	90.89 N	978.78 W	980.27	0.69
7555.00	88.86	274.95	6753.73	99.35 N	1073.32 W	1074.95	2.47
7650.00	90.12	274.47	6754.58	107.15 N	1168.00 W	1169.75	1.42
7744.00	89.66	274.09	6754.76	114.16 N	1261.73 W	1263.60	0.63
7839.00	89.51	274.26	6755.44	121.08 N	1356.48 W	1358.45	0.24
7934.00	89.48	274.19	6756.28	128.08 N	1451.22 W	1453.30	0.08
8029.00	89.94	277.00	6756.76	137.34 N	1545.75 W	1547.99	3.00
8124.00	90.55	274.77	6756.36	147.08 N	1640.25 W	1642.64	2.43
8219.00	89.08	271.57	6756.66	152.33 N	1735.08 W	1737.56	3.71
8314.00	88.55	268.68	6758.63	152.54 N	1830.05 W	1832.52	3.09
8408.00	88.89	268.75	6760.73	150.43 N	1924.01 W	1926.42	0.37
8503.00	89.48	268.85	6762.08	148.44 N	2018.98 W	2021.34	0.63
8598.00	89.60	268.77	6762.84	146.47 N	2113.95 W	2116.26	0.15
8692.00	90.06	268.27	6763.12	144.04 N	2207.92 W	2210.17	0.72
8787.00	91.02	268.48	6762.23	141.34 N	2302.88 W	2305.06	1.03
8881.00	92.93	267.98	6758.99	138.44 N	2396.77 W	2398.89	2.10
8976.00	91.26	267.99	6755.51	135.10 N	2491.65 W	2493.69	1.76
9071.00	90.77	268.87	6753.83	132.50 N	2586.59 W	2588.57	1.06
9166.00	89.08	268.42	6753.96	130.26 N	2681.56 W	2683.49	1.84
9260.00	89.91	268.41	6754.78	127.66 N	2775.52 W	2777.38	0.88
9355.00	88.09	267.35	6756.44	124.14 N	2870.44 W	2872.22	2.22
9450.00	88.58	267.78	6759.20	120.11 N	2965.31 W	2967.00	0.69
9545.00	89.32	269.57	6760.94	117.91 N	3060.27 W	3061.90	2.04
9640.00	89.20	269.27	6762.17	116.95 N	3155.25 W	3156.86	0.34
9735.00	89.23	269.16	6763.47	115.65 N	3250.23 W	3251.80	0.12
9830.00	88.71	270.24	6765.18	115.15 N	3345.22 W	3346.76	1.26
9924.00	89.82	270.11	6766.39	115.44 N	3439.21 W	3440.74	1.19
10019.00	90.15	270.67	6766.41	116.08 N	3534.20 W	3535.73	0.68

10113.00	89.38	271.16	6766.80	117.59 N	3628.19 W	3629.73	0.97
10208.00	93.20	270.56	6764.66	119.01 N	3723.14 W	3724.68	4.07
10303.00	91.73	269.46	6760.57	119.03 N	3818.05 W	3819.58	1.93
10398.00	91.48	268.79	6757.91	117.58 N	3913.00 W	3914.49	0.75
10493.00	90.83	268.95	6756.00	115.70 N	4007.96 W	4009.40	0.70
10588.00	89.57	268.31	6755.66	113.43 N	4102.93 W	4104.31	1.49
10682.00	89.66	267.94	6756.30	110.36 N	4196.88 W	4198.19	0.41
10777.00	89.60	268.02	6756.91	107.01 N	4291.81 W	4293.05	0.11
10872.00	90.15	269.49	6757.12	104.94 N	4386.79 W	4387.97	1.65
10967.00	88.83	267.27	6757.96	102.26 N	4481.74 W	4482.86	2.72
11062.00	89.66	267.57	6759.21	97.98 N	4576.63 W	4577.66	0.93
11157.00	90.59	267.58	6759.01	93.96 N	4671.55 W	4672.48	0.98
11251.00	90.46	267.21	6758.15	89.69 N	4765.45 W	4766.29	0.42
11284.00	90.86	267.65	6757.77	88.21 N	4798.41 W	4799.22	1.80
11349.00	90.86	267.65	6756.79	85.55 N	4863.35 W	4864.10	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

**VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 271.04 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 11349.00 FEET
IS 4864.10 FEET ALONG 271.01 DEGREES (GRID)**

Tied in @ Surface

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