

PCDC - Pressure Case Directional
PCGK - Pressure Case Gamma

1 : 600 / 1 : 240

Country : USA			
Field : Wattenberg			
Location : Lat: 40° 19' 56.71" North Long: 104° 48' 46.84" West			
Well : SHABLE K08-69-1HN			
Company : Noble			
Rig : H&P 321			
LOCATION			
Latitude : 40° 19' 56.71" North Longitude : 104° 48' 46.84" West			
UTM Easting = 3,191,522.640 ft UTM Northing = 1,364,683.260 ft			
Company : Noble			
Rig : H&P 321			
Well : SHABLE K08-69-1HN			
Field : Wattenberg			
Country : USA			
API Number : 05-123-39561			
Permanent Datum : Ground Level			
Log Measured From : Drill Floor			
Drilling Measured From : Drill Floor			
Elevation : 4715.00 ft			
30.00 ft Above Permanent Datum			
MD LOG			
Depth Logged : 641.00 ft To 7,393.00 ft			
Date Logged : 07-Aug-14 To 11-Aug-14			
Total Depth MD : 7,393.00 ft TVD : 6,996.99 ft			
Spud Date : 07-Aug-14			
Unit No. : 11210424			
Job No. : CA-XX-0901563498			
Plot Type : Final			
Plot Date : 13-Aug-14			
Run No.			
Size			
From			
To			
0100			
8,750 in			
631.00 ft			
6,342.00 ft			
0200			
8,750 in			
6,342.00 ft			
7,393.00 ft			
Run No.			
Size			
From			
To			
9,625 in			
37.90 lbp			
SURFACE			
631.00 ft			

WELL INFORMATION

MWD Run Number	100	200		
Date run completed	10-Aug-14	11-Aug-14		
Rig Bit Number	2	3		
Bit Size (in)	8.750	8.750		
Tool Nominal OD (in)	6.880	6.880		
Log Start Depth (MD, ft)	641.00	6,342.00		
Log End Depth (MD, ft)	6,342.00	7,393.00		
Drill or Wipe	Drill	Drill		
Drill/Wipe Start Date and Time	08-Aug-14 17:48	10-Aug-14 15:50		
Drill/Wipe End Date and Time	09-Aug-14 17:28	11-Aug-14 00:39		
Min Inc (deg) @ Depth (MD, ft)	0.15 @ 1,000.00	0.14 @ 6,374.00		
Max Inc (deg) @ Depth (MD, ft)	14.54 @ 3,911.00	83.08 @ 7,339.00		
Bit TFA(in2) / Bit Type	1.05 / PDC	1.74 / PDC		
Flow Rate (gpm)	592.80	600.00		
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)	9.10 / 36.00	10.00 / 44.00		
Filtrate CL (ppm)	1,400.00	1,300.00		
pH / Fluid Loss (mptm)	9.90 / 7	9.40 / 6		
PV (cP) / YP (lbf/ft2)	8 / 7.00	12 / 14.00		
% Solids / % Sand	5.00 / 0.20	8.50 / 0.10		
% 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	171.20 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ 167.00	N/A @ 171.20			
Lead MWD Engineer	Robert Barnes	Robert Barnes			
Customer Representative	Jim Turner	Jim Turner			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	241717	241717			
Insert Serial Number	11620311	11620311			
Date and Time Initialized	08-Aug-14 10:48	01-Jan-70 00:00			
Date and Time Read	11-Aug-14 06:19	11-Aug-14 06:26			
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	241717	241717			
Sonde Serial Number	10993517	10993517			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	334.79	66.13			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	49.11	46.94			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	241717	241717			
Insert/Sonde Serial Number	11579832	11579832			

REMARKS

1. All depths are calibrated to driller's pipe tally and are measured 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: 1.2 ft

6. Insite Version v8.0.10

WARRANTY

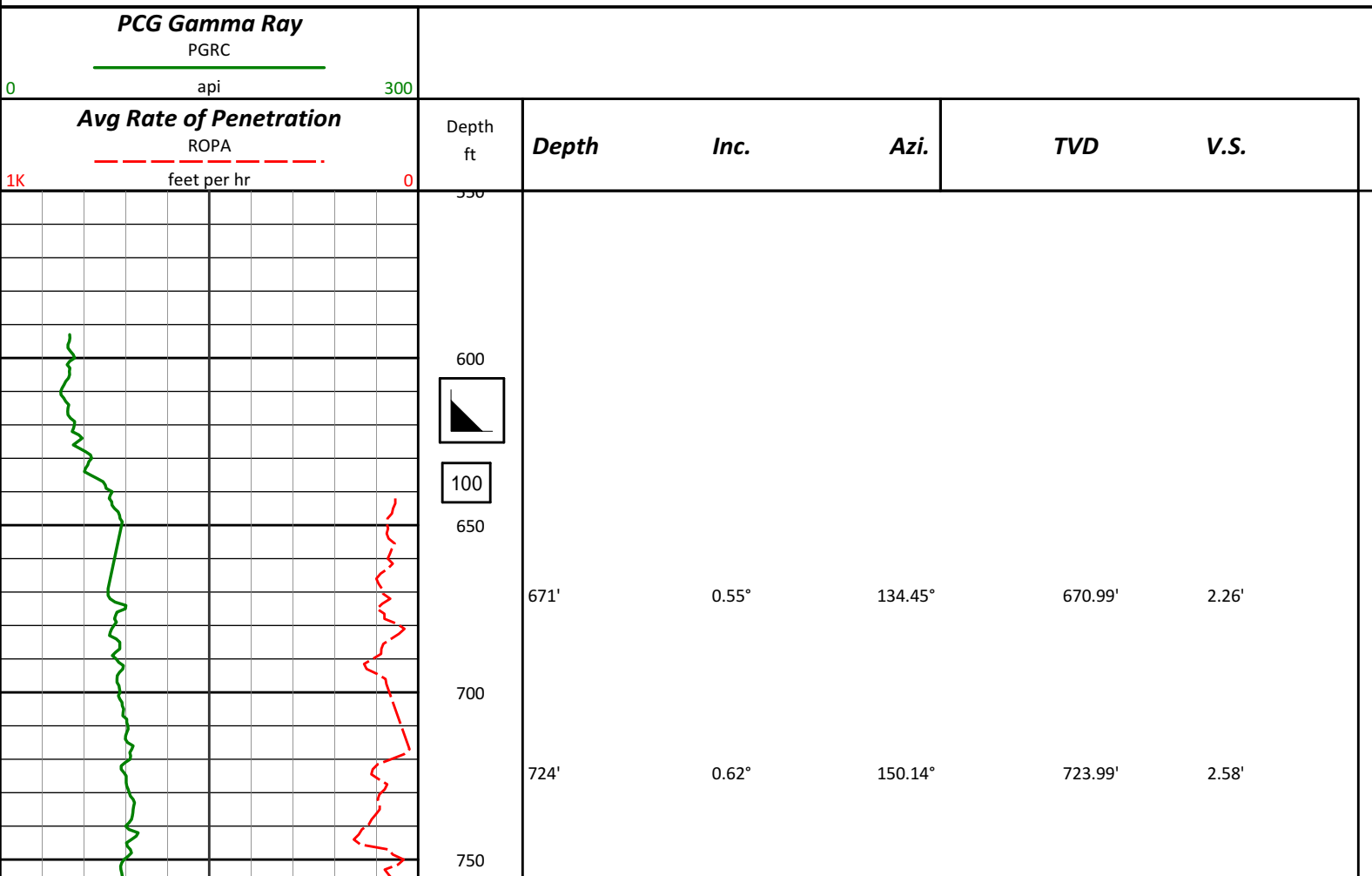
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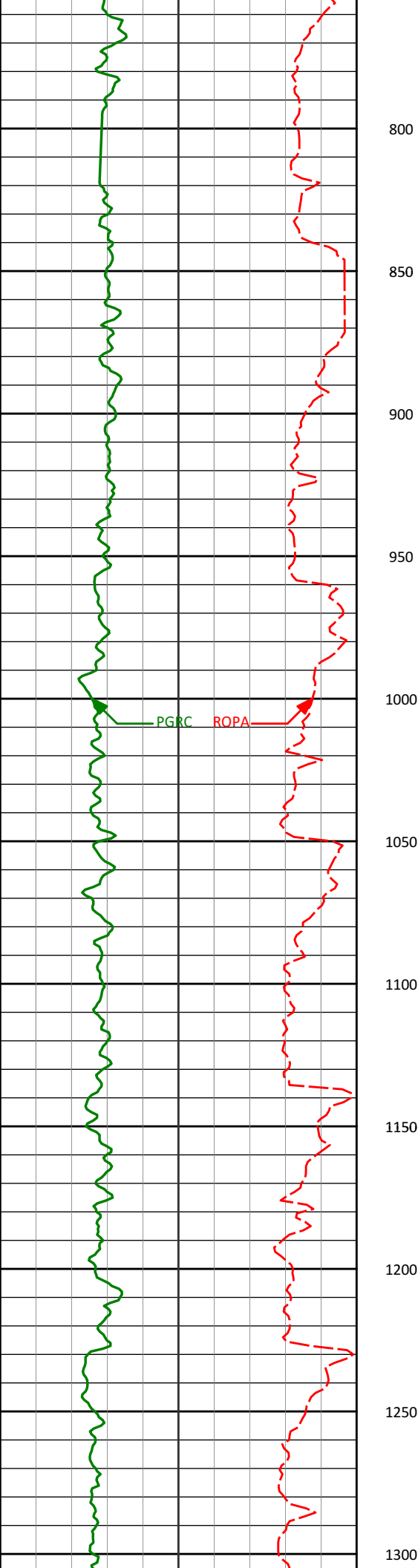
HALLIBURTON

Sperry Drilling Services

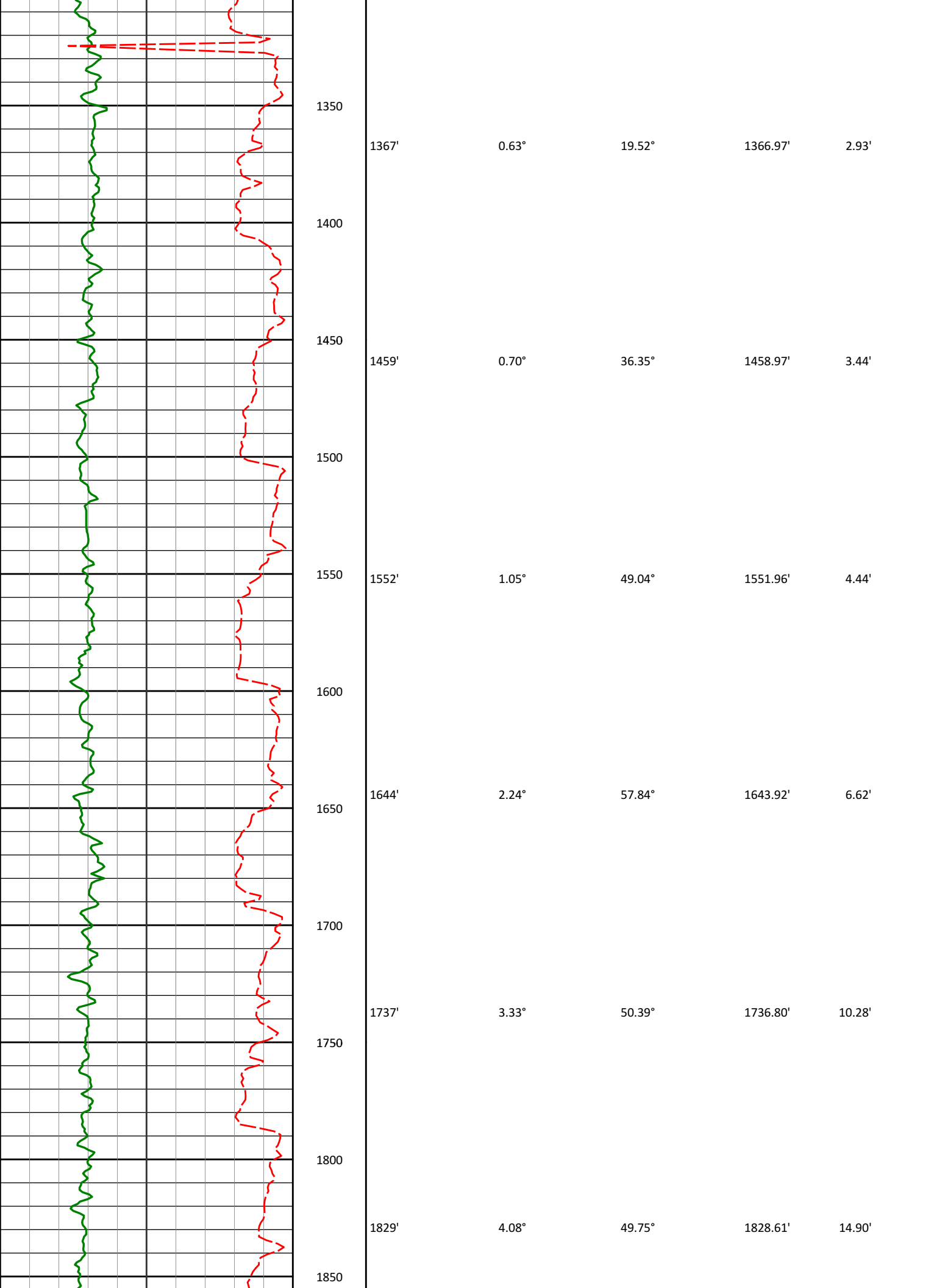
MD Correlation Log 1:600

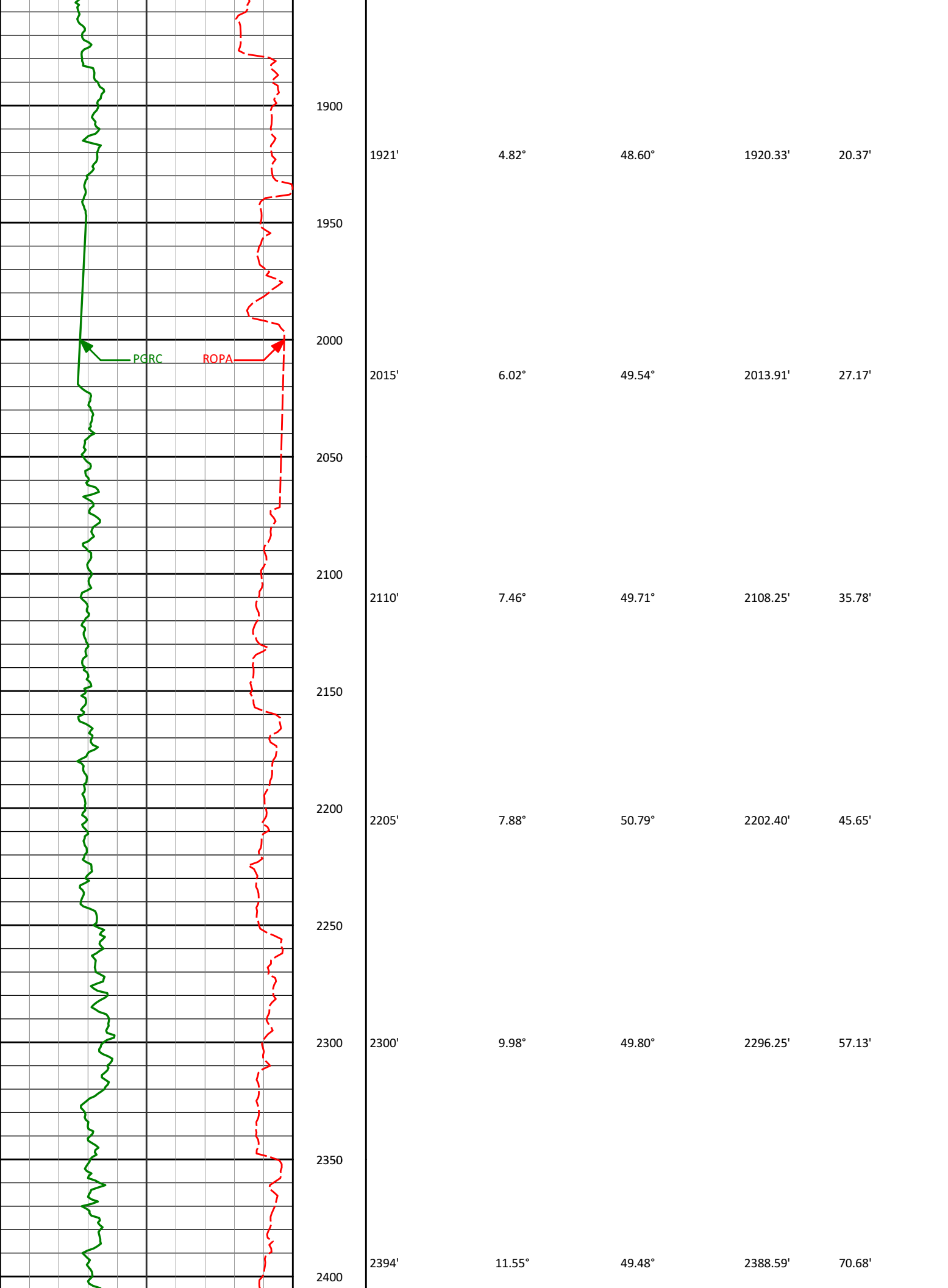
Noble Energy
Shable K08-69-1HN
H&P 321
Sec. 7-T4N-R66W

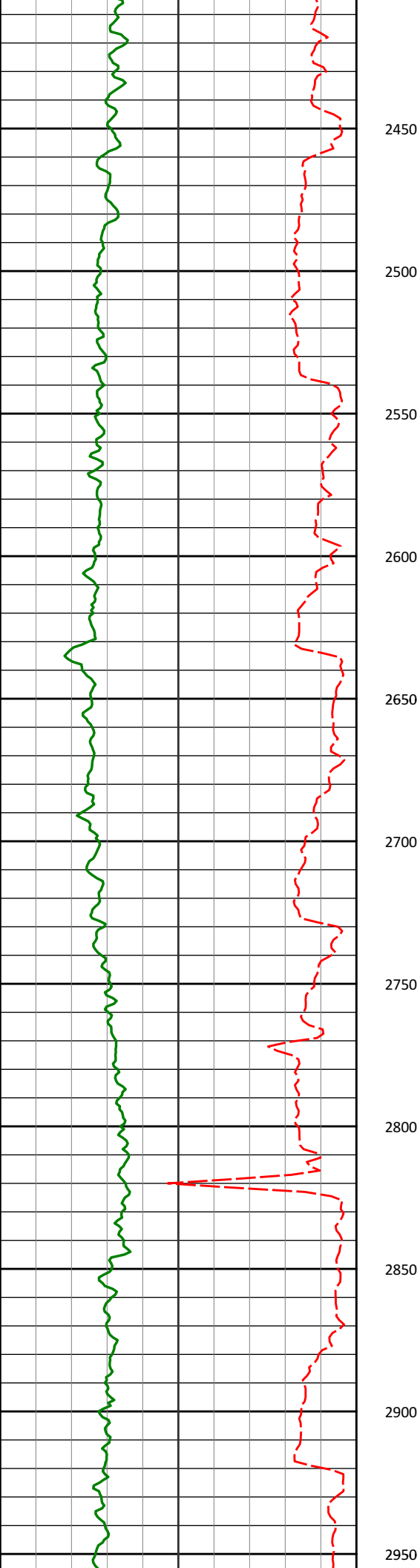




815'	0.59°	141.07°	814.98'	3.11'
907'	0.44°	170.57°	906.98'	3.45'
1000'	0.15°	139.44°	999.98'	3.58'
1092'	0.22°	307.72°	1091.98'	3.52'
1183'	0.28°	306.97°	1182.98'	3.21'
1275'	0.29°	321.84°	1274.97'	2.89'







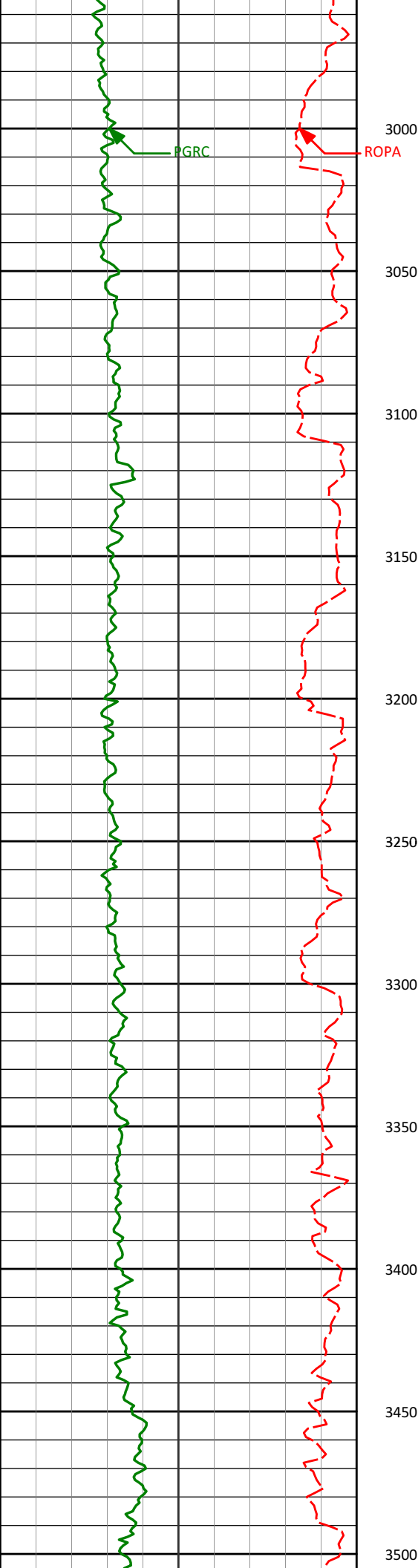
2489'	11.19°	50.29°	2481.72'	85.19'
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2584'	12.15°	50.20°	2574.76'	100.15'
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2679'	13.59°	50.01°	2667.37'	116.59'
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2774'	12.16°	47.83°	2759.98'	132.77'
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2869'	11.57°	49.61°	2852.95'	147.64'
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2964'	11.61°	50.58°	2946.01'	162.47'
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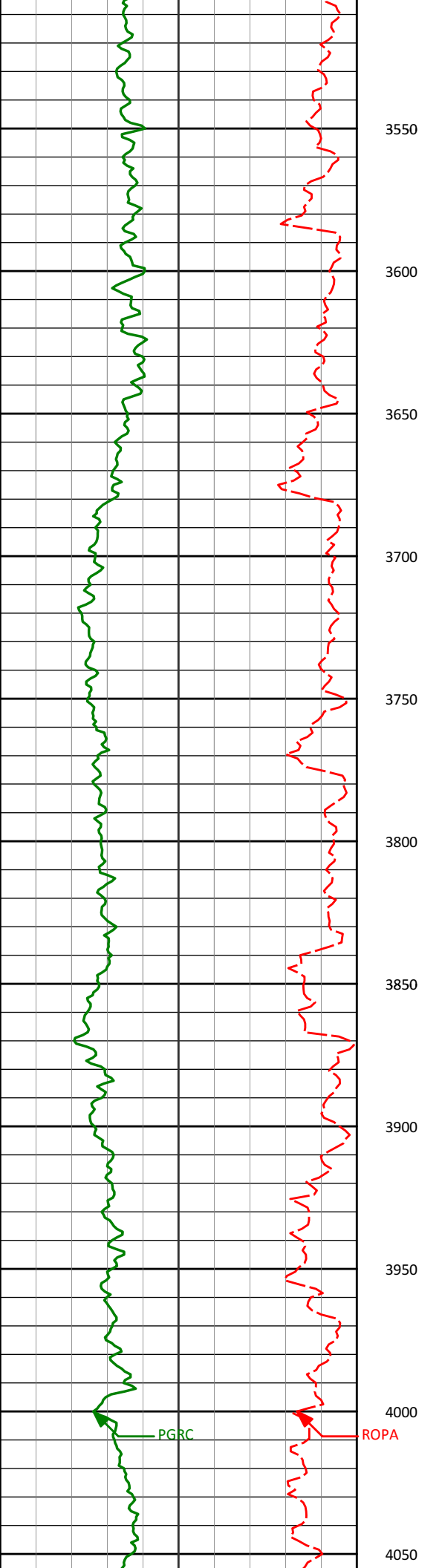
3058'	11.60°	50.33°	3038.09'	177.24'
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3153'	10.76°	47.23°	3131.29'	191.29'
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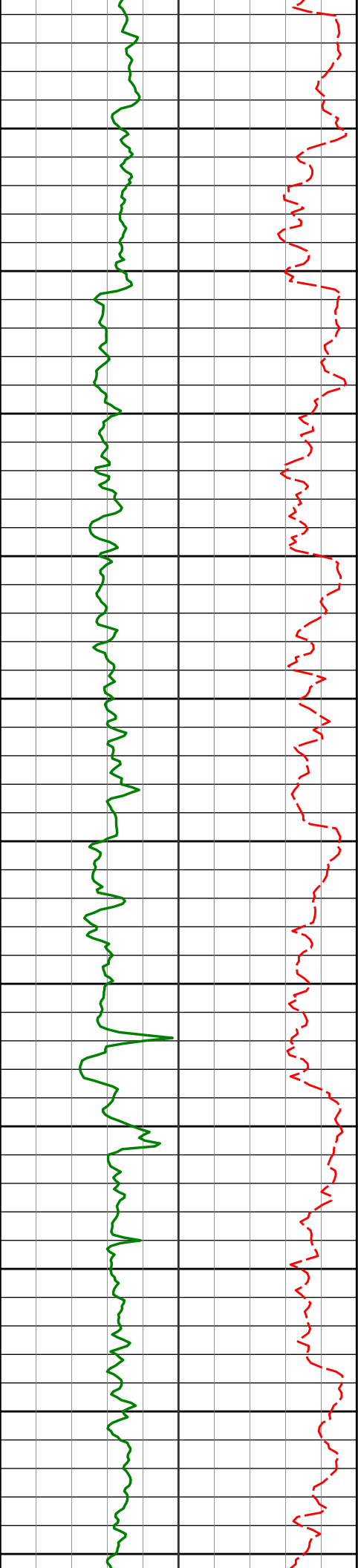
3248'	10.39°	49.38°	3224.68'	204.48'
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3343'	10.17°	49.20°	3318.15'	217.50'
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3438'	10.60°	55.44°	3411.60'	231.21'
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3532'	11.60°	54.99°	3503.84'	246.23'
3550				
3600				
3627'	11.12°	49.52°	3596.98'	261.19'
3650				
3700				
3722'	11.76°	51.61°	3690.09'	275.93'
3750				
3800				
3817'	13.65°	50.35°	3782.76'	292.36'
3850				
3900				
3911'	14.54°	48.94°	3873.93'	310.02'
3950				
4000				
4006'	12.86°	46.63°	3966.23'	326.93'
4050				



4100

4101'

11.00°

50.02°

4059.17'

341.77'

4150

4200

4195'

9.94°

47.46°

4151.60'

354.79'

4250

4300

4290'

8.48°

44.03°

4245.38'

365.86'

4350

4400

4385'

6.52°

35.53°

4339.56'

374.01'

4450

4500

4479'

5.88°

33.18°

4433.01'

379.88'

4550

4600

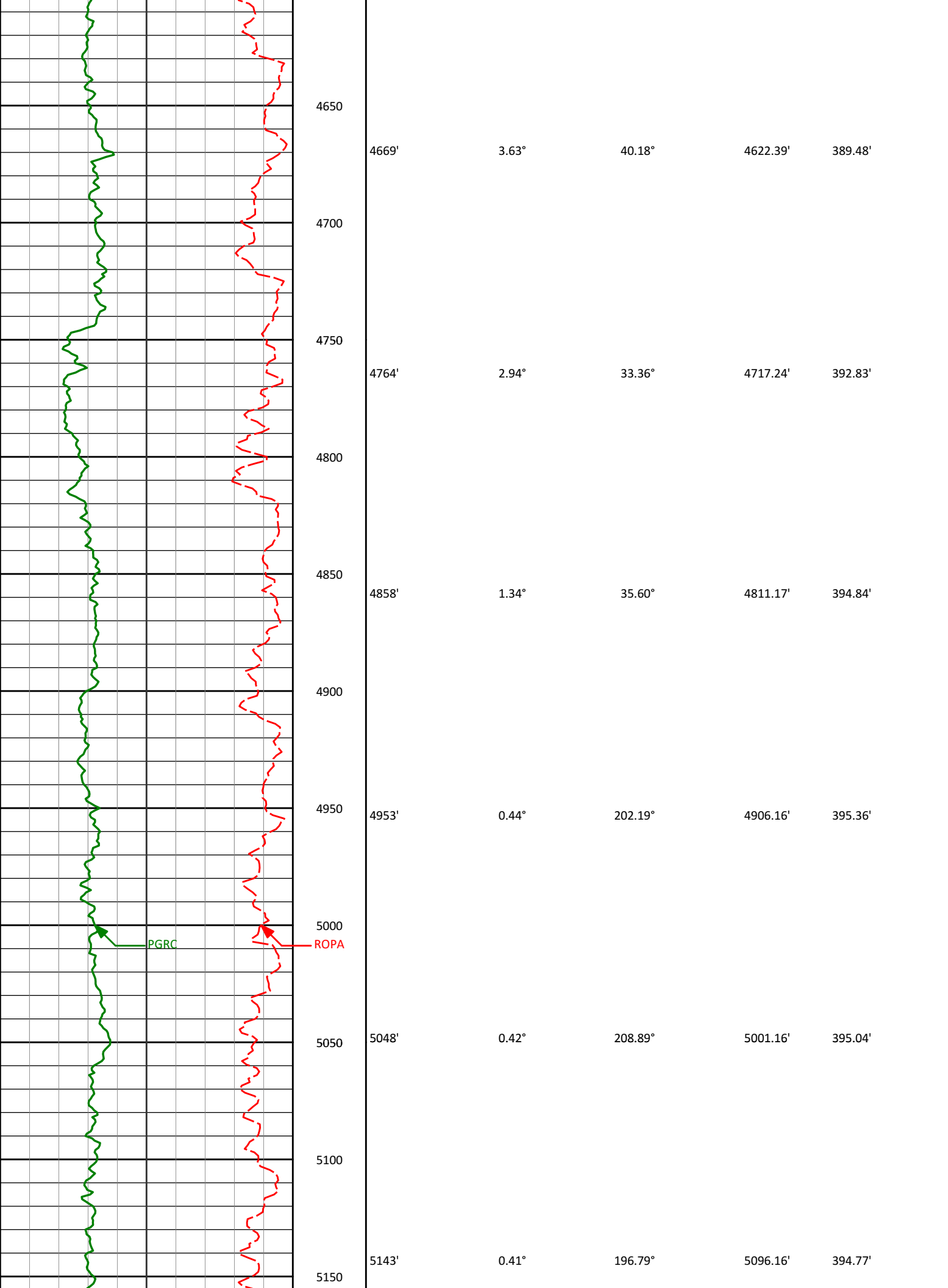
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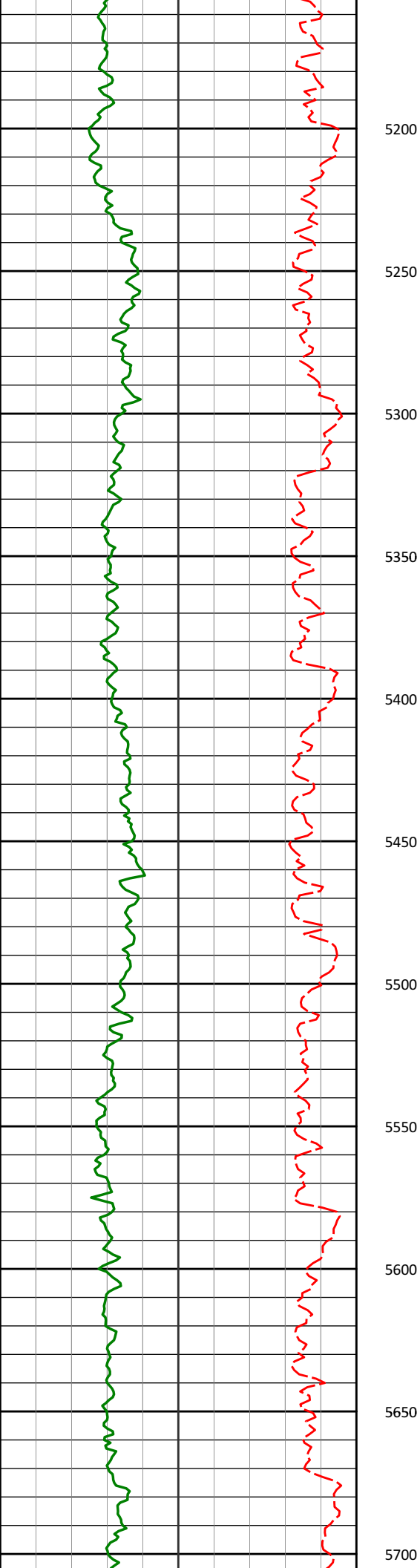
4.42°

41.15°

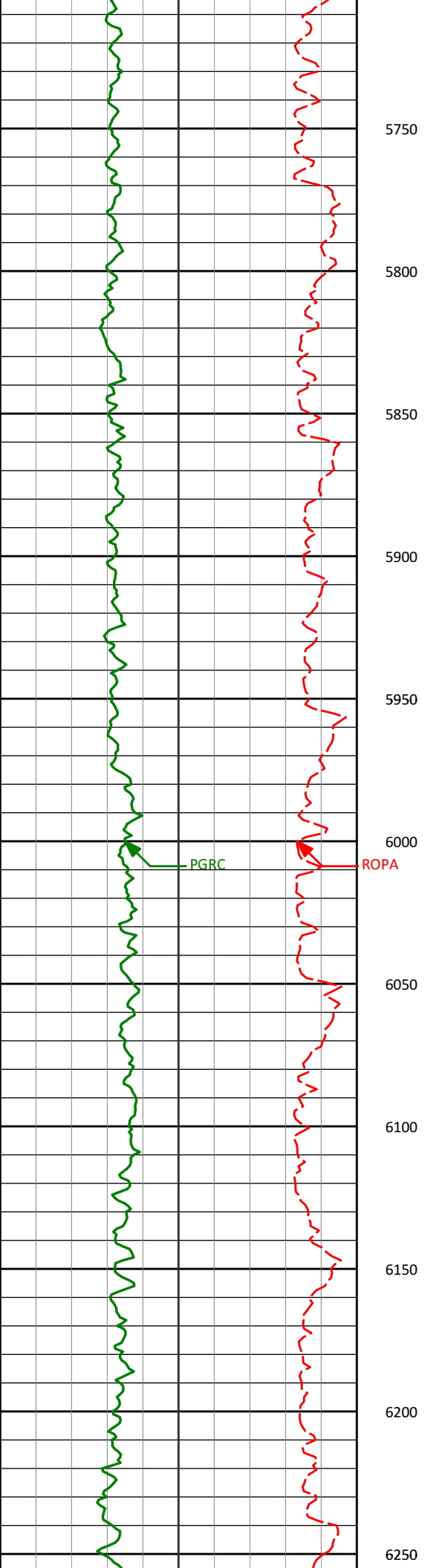
4527.63'

385.06'

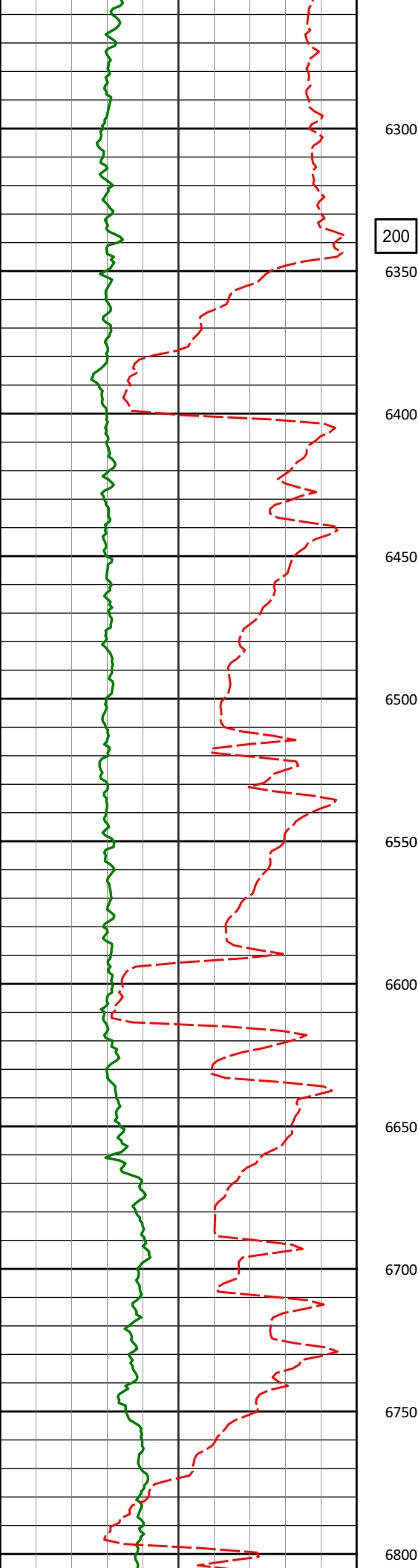




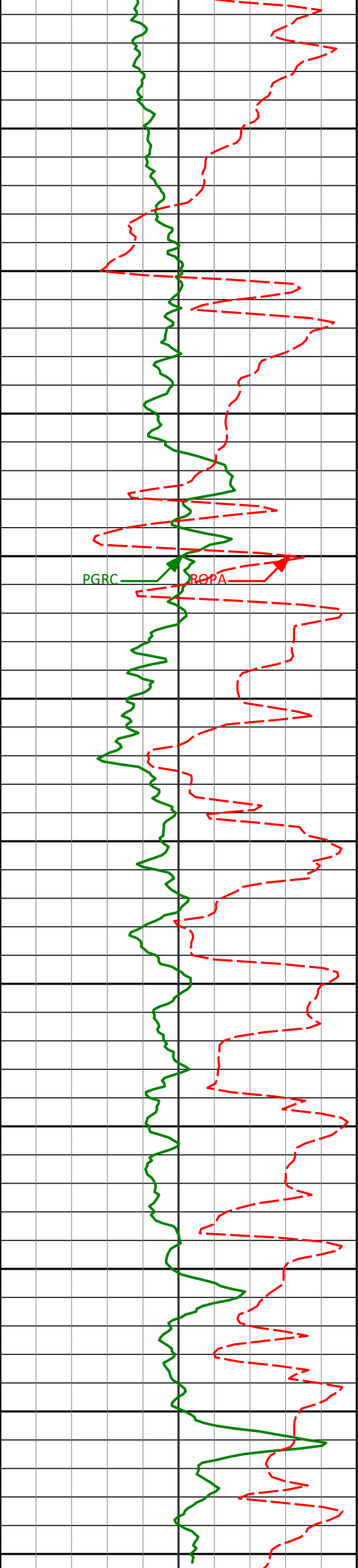
5237'	0.65°	196.70°	5190.15'	394.50'
5332'	0.84°	222.30°	5285.15'	393.86'
5427'	0.81°	213.58°	5380.13'	393.01'
5522'	0.86°	217.32°	5475.13'	392.19'
5616'	1.55°	172.10°	5569.11'	391.90'



5711'	1.20°	160.10°	5664.08'	392.39'
5806'	0.34°	174.99°	5759.07'	392.73'
5901'	0.32°	173.03°	5854.07'	392.78'
5996'	0.41°	152.46°	5949.07'	392.96'
6090'	0.28°	169.94°	6043.06'	393.15'
6185'	0.36°	189.86°	6138.06'	393.13'



6286'	0.19°	212.95°	6239.06'	392.97'
6300				
6374'	0.14°	202.61°	6327.06'	392.85'
6400				
6468'	7.53°	89.65°	6420.79'	398.97'
6500				
6563'	17.37°	87.34°	6513.44'	419.42'
6600				
6658'	22.19°	85.65°	6602.81'	451.52'
6700				
6753'	29.43°	85.35°	6688.28'	492.77'
6800				



6850

6848'

39.90°

88.86°

6766.32'

546.69'

6900

6950

6942'

52.70°

93.90°

6831.15'

614.40'

7000

PGRC

ROPA

7037'

60.27°

95.49°

6883.56'

693.16'

7050

7085'

61.70°

94.34°

6906.85'

734.92'

7100

7132'

63.18°

92.94°

6928.59'

776.45'

7150

7180'

65.76°

92.04°

6949.28'

819.69'

7200

7226'

69.82°

89.83°

6966.66'

862.24'

7250

7274'

74.78°

87.61°

6981.26'

907.95'

7300

7339'

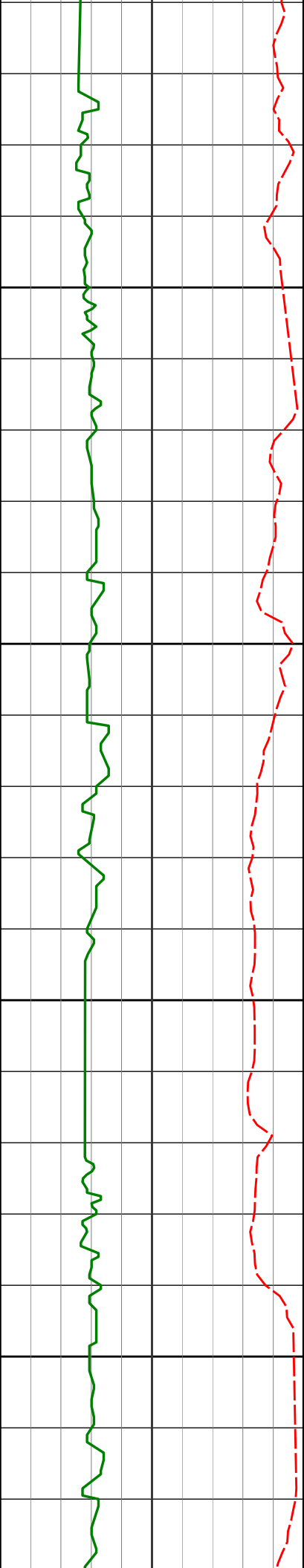
83.08°

87.08°

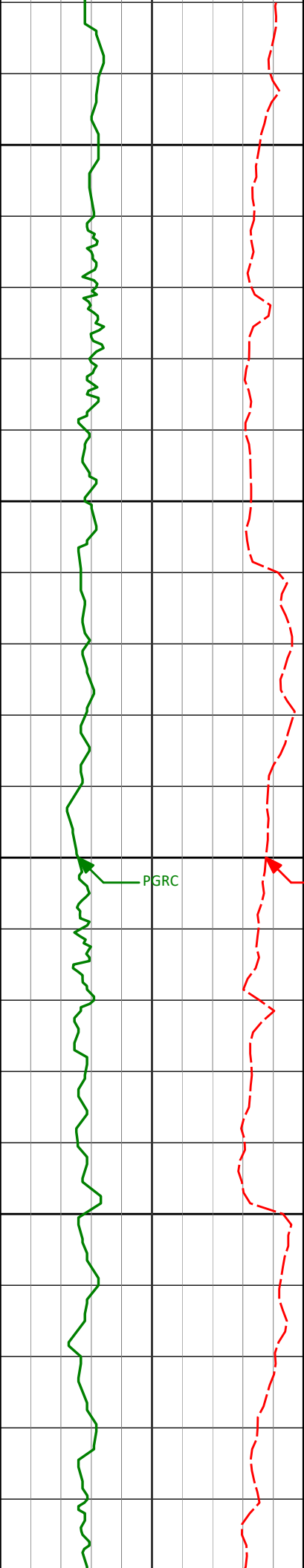
6993.73'

971.65'

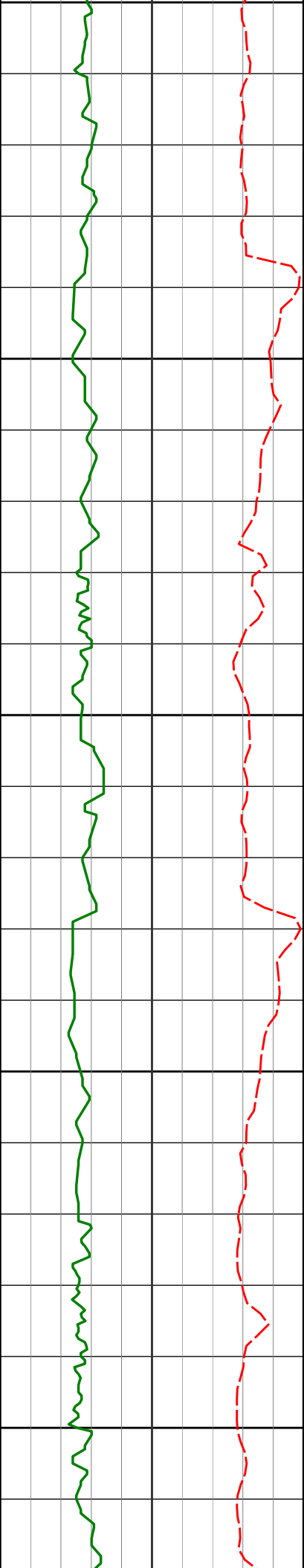
7350



671'	0.55°	134.45°	670.99'	2.26'
700				
724'	0.62°	150.14°	723.99'	2.58'
750				
800				
815'	0.59°	141.07°	814.98'	3.11'
850				



900				
907'	0.44°	170.57°	906.98'	3.45'
950				
1000	0.15°	139.44°	999.98'	3.58'
1050				
1092'	0.22°	307.72°	1091.98'	3.52'
1100				



1100
1150
1200
1250
1300

1183'

0.28°

306.97°

1182.98'

3.21'

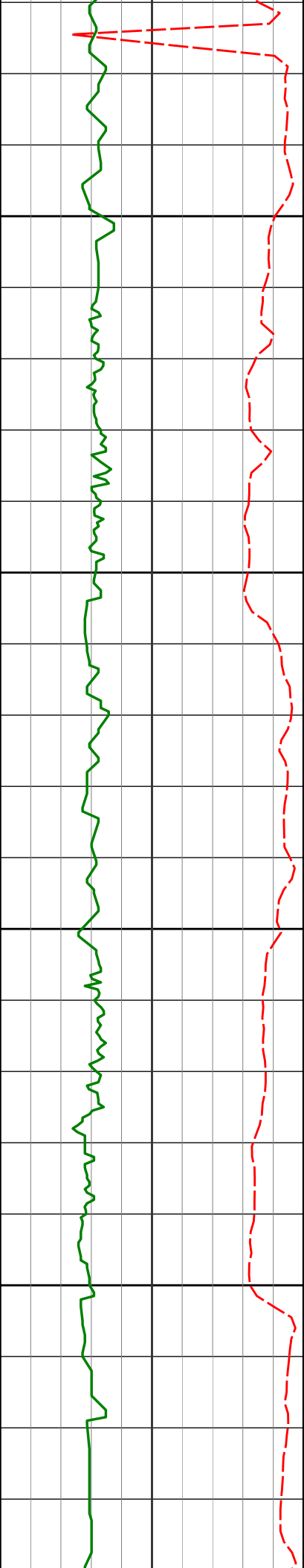
1275'

0.29°

321.84°

1274.97'

2.89'



1350

1367'

0.63°

19.52°

1366.97'

2.93'

1400

1450

1459'

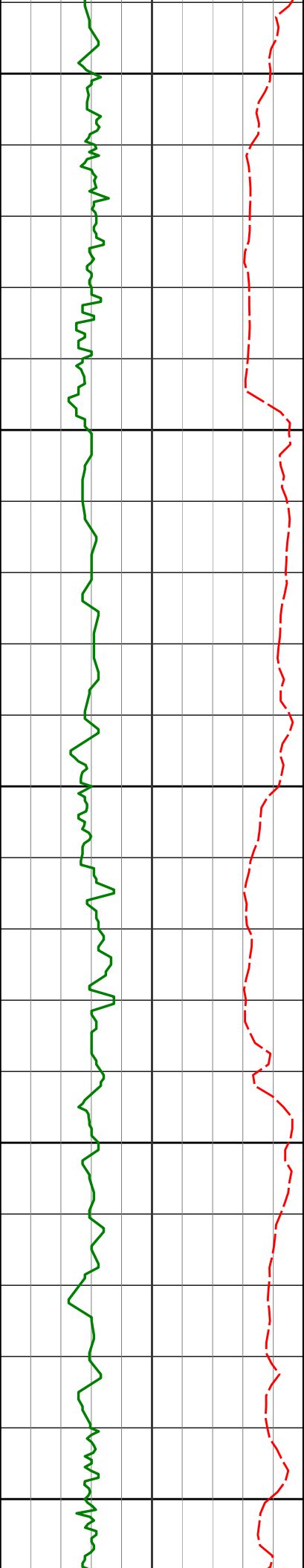
0.70°

36.35°

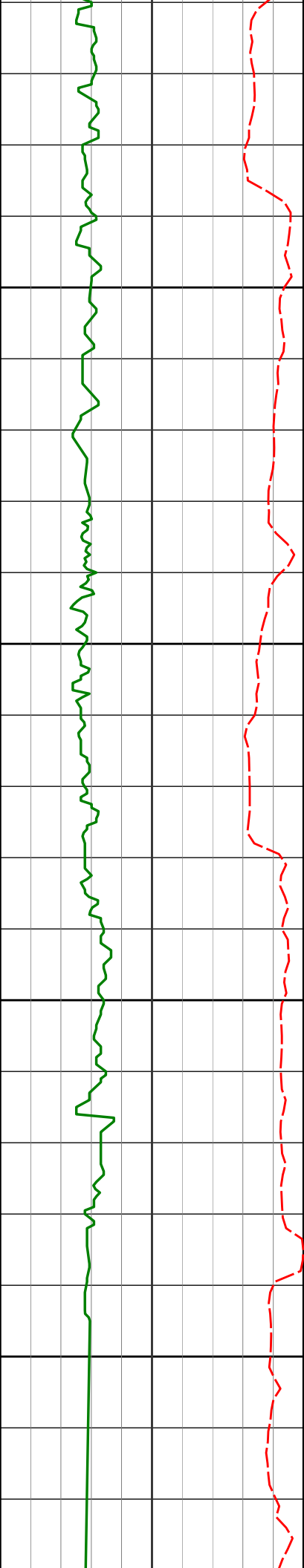
1458.97'

3.44'

1500



1550	1552'	1.05°	49.04°	1551.96'	4.44'
1600					
1650	1644'	2.24°	57.84°	1643.92'	6.62'
1700					
1750	1737'	3.33°	50.39°	1736.80'	10.28'



1800

1850

1900

1950

1829'

4.08°

49.75°

1828.61'

14.90'

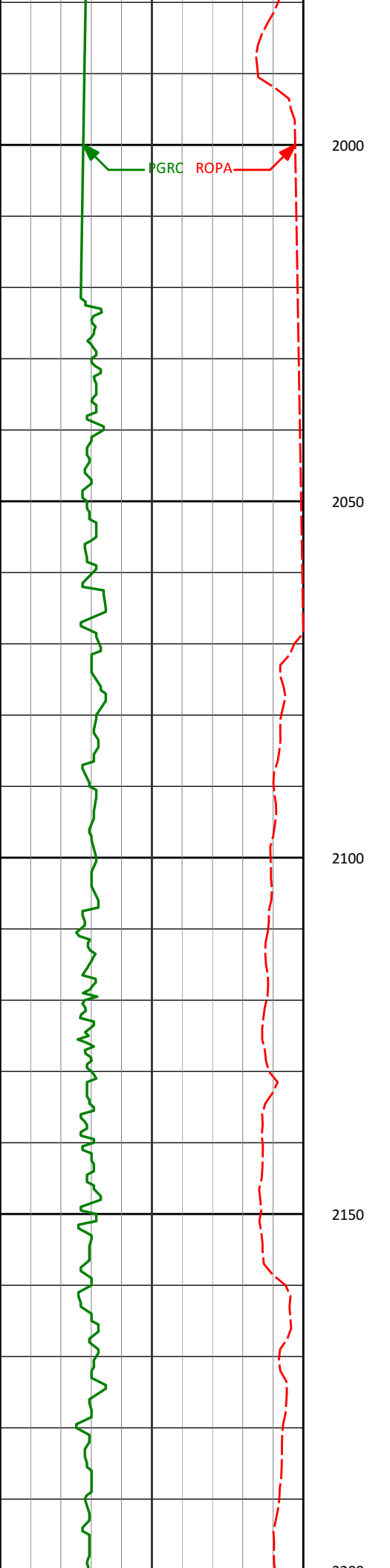
1921'

4.82°

48.60°

1920.33'

20.37'



2015'

6.02°

49.54°

2013.91'

27.17'

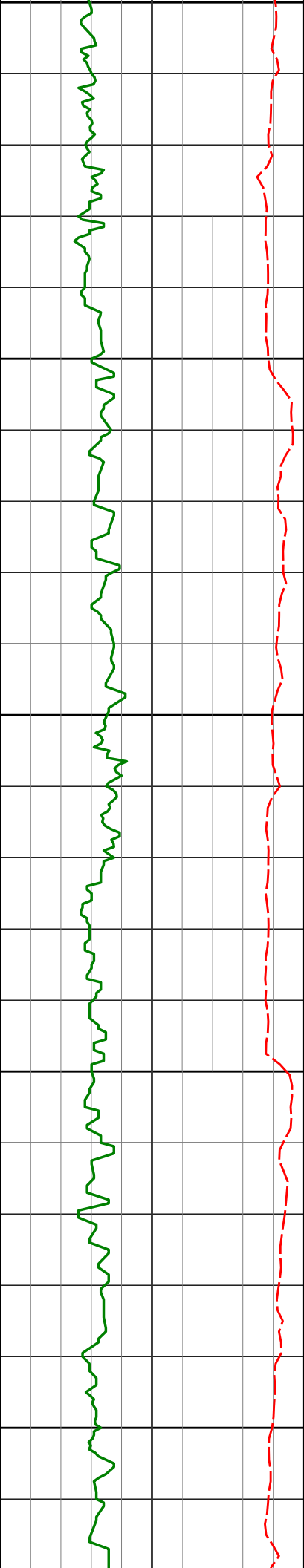
2110'

7.46°

49.71°

2108.25'

35.78'



2200
2250
2300
2350
2400

2205'

7.88°

50.79°

2202.40'

45.65'

2300'

9.98°

49.80°

2296.25'

57.13'

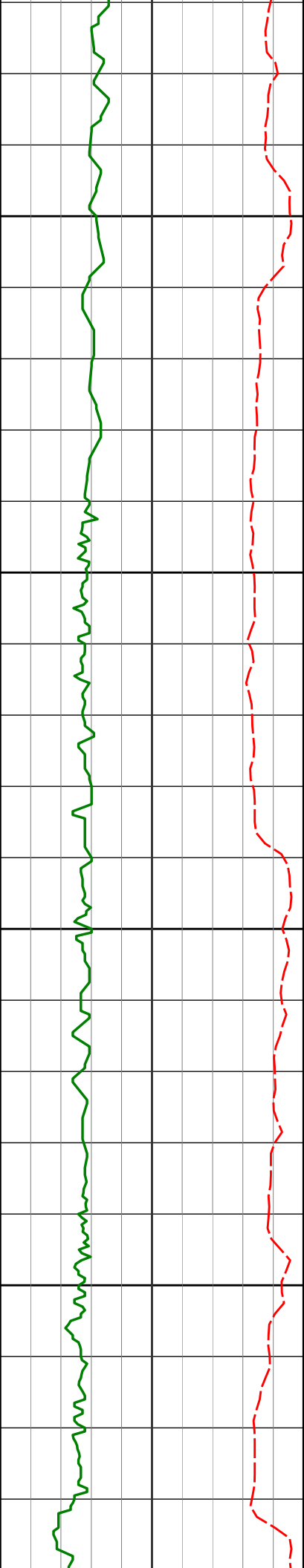
2394'

11.55°

49.48°

2388.59'

70.68'



2450

2489'

11.19°

50.29°

2481.72'

85.19'

2500

2550

2584'

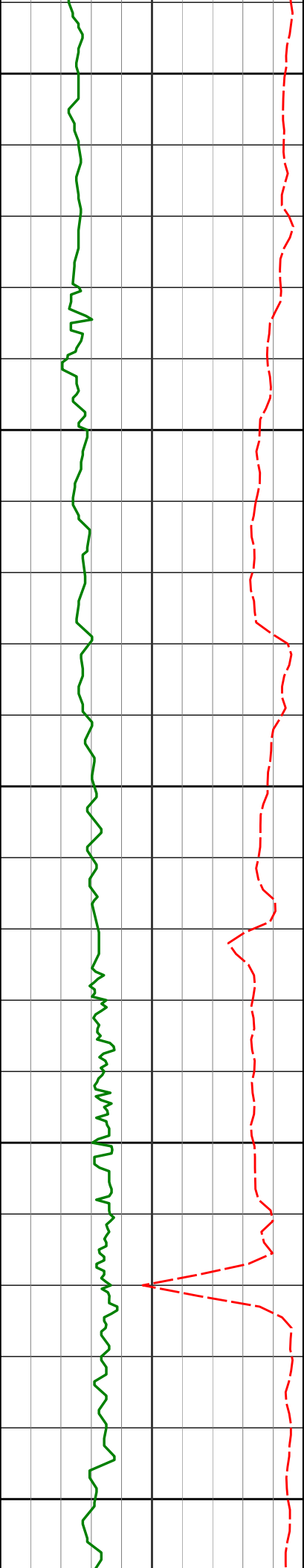
12.15°

50.20°

2574.76'

100.15'

2600



2650

2679'

13.59°

50.01°

2667.37'

116.59'

2700

2750

2774'

12.16°

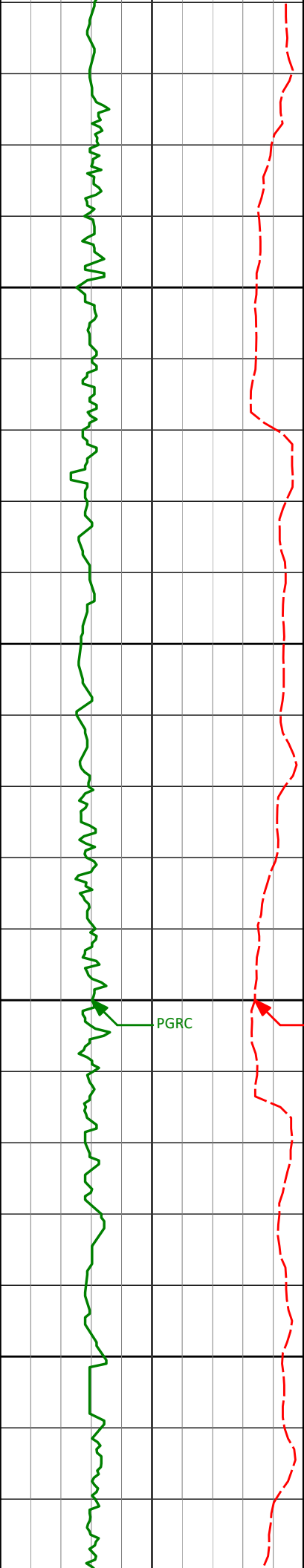
47.83°

2759.98'

132.77'

2800

2850



2869'	11.57°	49.61°	2852.95'	147.64'
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2900

2950

2964'	11.61°	50.58°	2946.01'	162.47'
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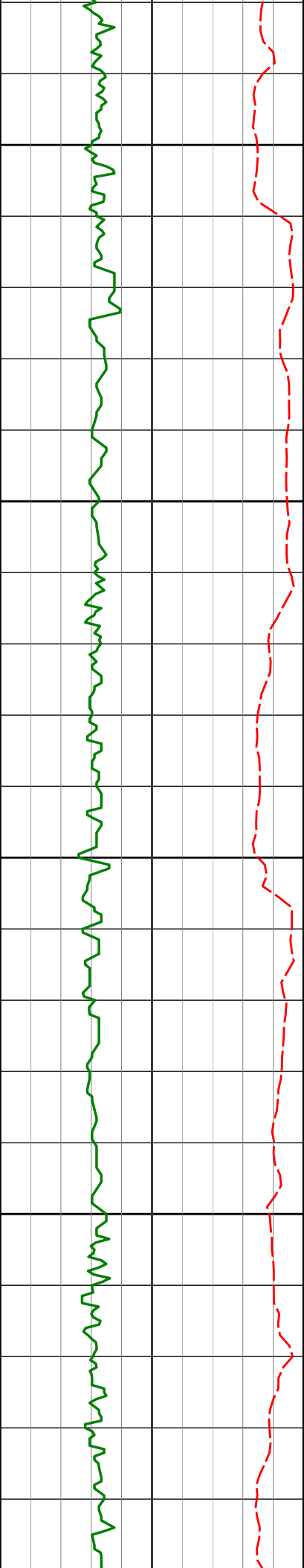
3000

PGRC

ROPA

3050

3058'	11.60°	50.33°	3038.09'	177.24'
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3100

3150

3200

3250

3300

3153'

10.76°

47.23°

3131.29'

191.29'

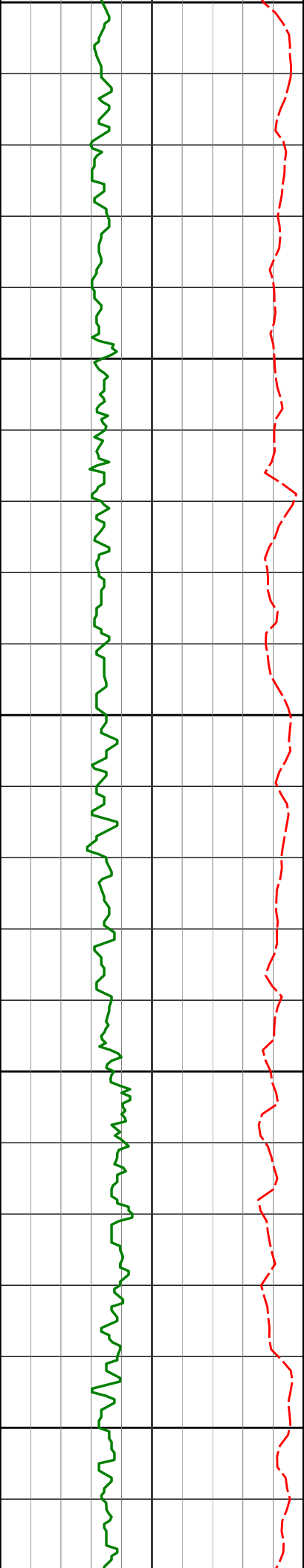
3248'

10.39°

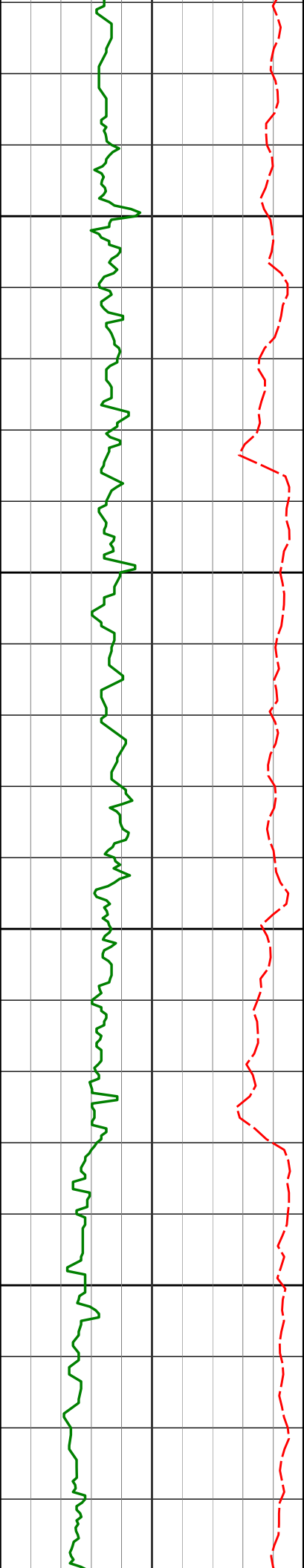
49.38°

3224.68'

204.48'



3300					
3343'	10.17°	49.20°	3318.15'	217.50'	
3350					
3400					
3438'	10.60°	55.44°	3411.60'	231.21'	
3450					
3500					



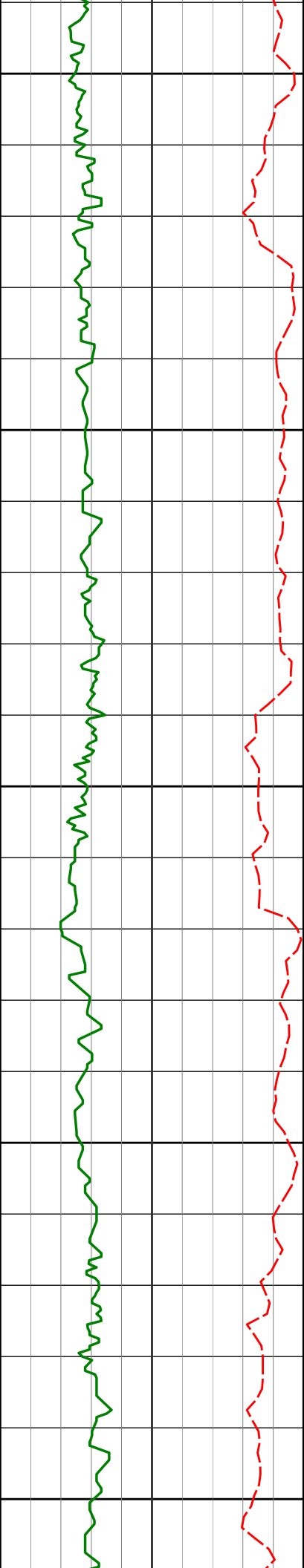
3550

3600

3650

3700

3532'	11.60°	54.99°	3503.84'	246.23'
3627'	11.12°	49.52°	3596.98'	261.19'
3722'	11.76°	51.61°	3690.09'	275.93'



3750

3800

3850

3900

3950

3817'

13.65°

50.35°

3782.76'

292.36'

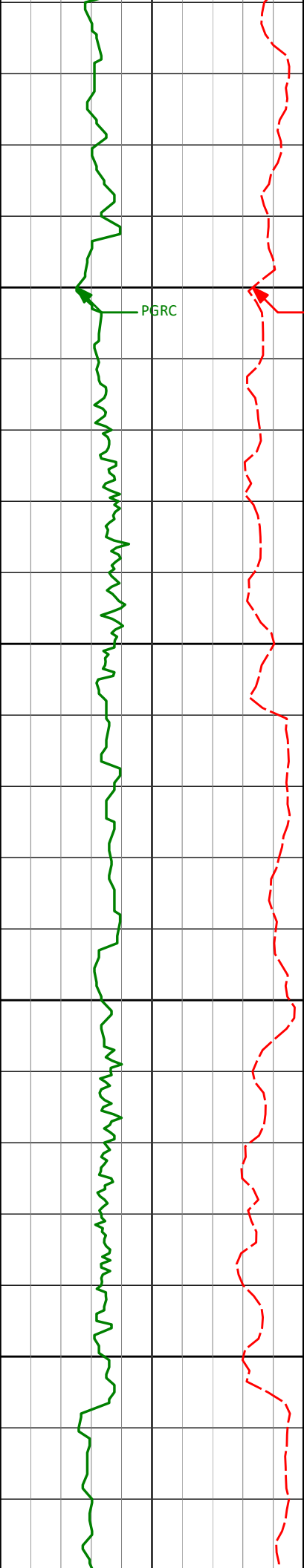
3911'

14.54°

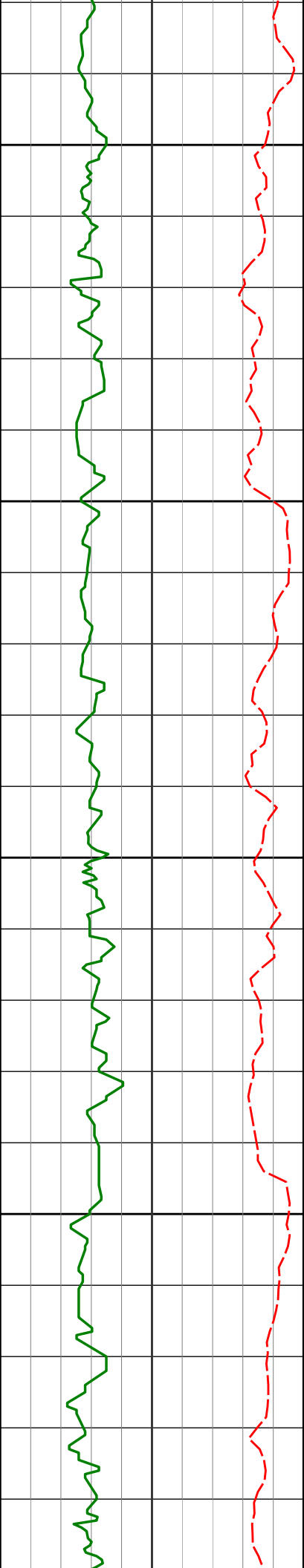
48.94°

3873.93'

310.02'



4000				
4006'	12.86°	46.63°	3966.23'	326.93'
4050				
4100	11.00°	50.02°	4059.17'	341.77'
4101'				
4150				



4195'

4200

4250

4290'

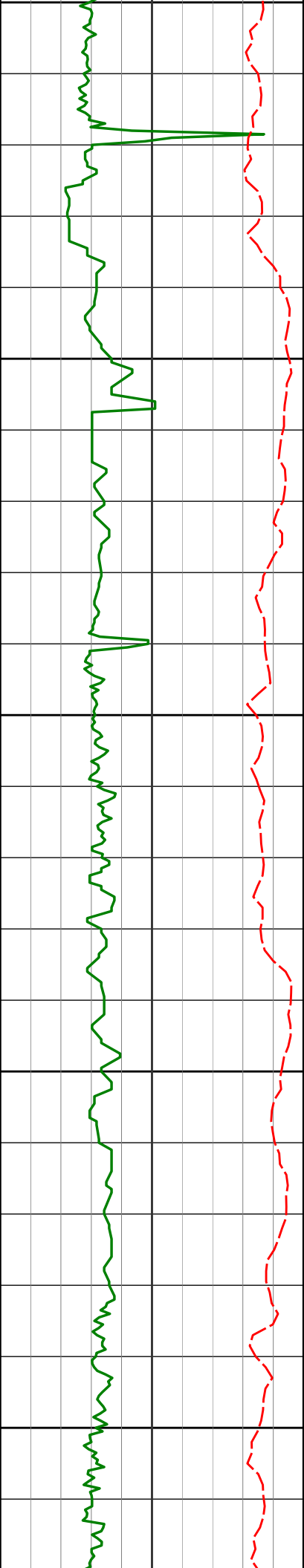
4300

4350

4385'

4400

4195'	9.94°	47.46°	4151.60'	354.79'
4290'	8.48°	44.03°	4245.38'	365.86'
4385'	6.52°	35.53°	4339.56'	374.01'



4400

4450

4500

4550

4600

4479'

5.88°

33.18°

4433.01'

379.88'

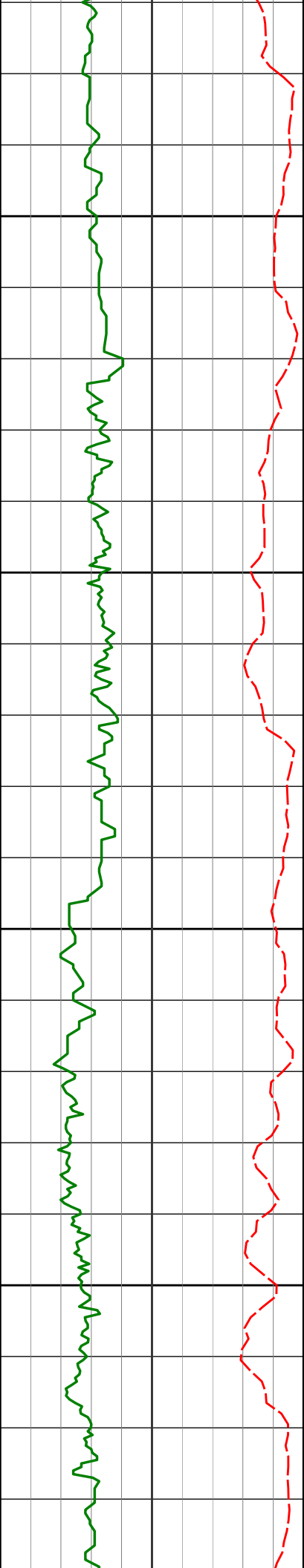
4574'

4.42°

41.15°

4527.63'

385.06'



4650

4669'

3.63°

40.18°

4622.39'

389.48'

4700

4750

4764'

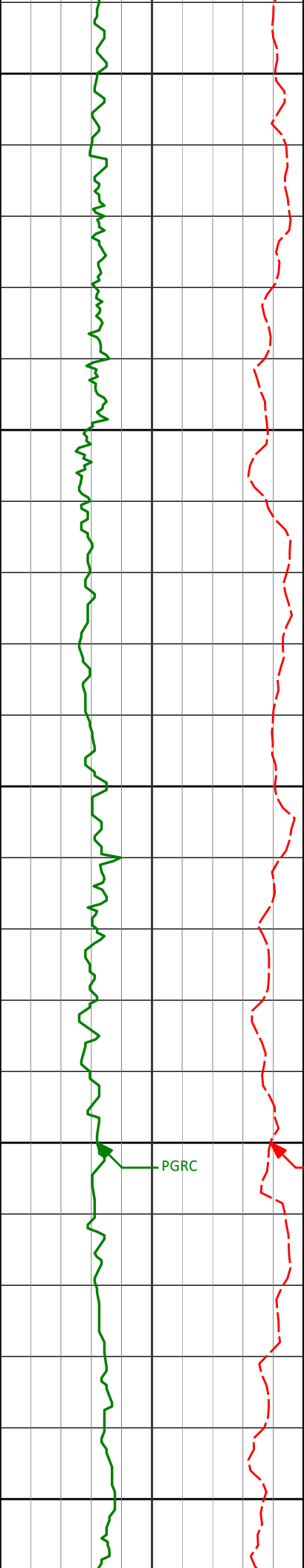
2.94°

33.36°

4717.24'

392.83'

4800



4850

4858'

1.34°

35.60°

4811.17'

394.84'

4900

4950

4953'

0.44°

202.19°

4906.16'

395.36'

5000

PGRC

ROPA

5050

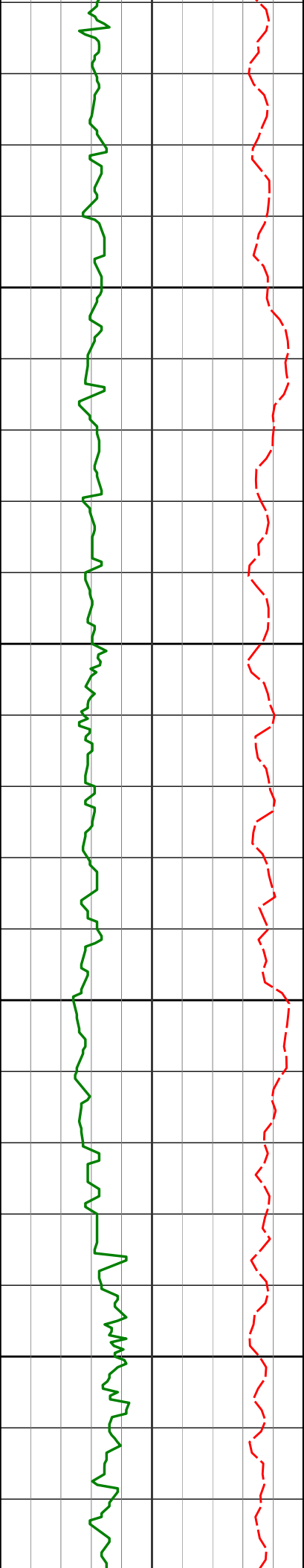
5048'

0.42°

208.89°

5001.16'

395.04'



5100

5150

5200

5250

5143'

0.41°

196.79°

5096.16'

394.77'

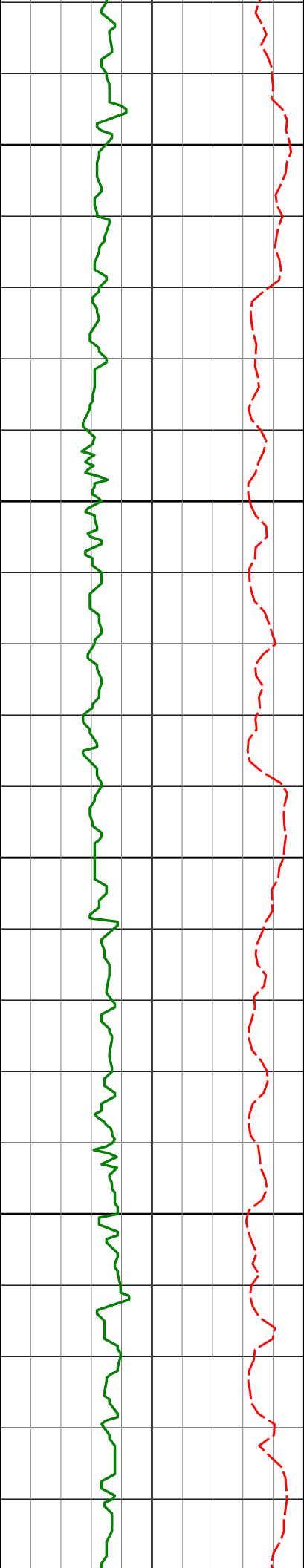
5237'

0.65°

196.70°

5190.15'

394.50'



5300

5332'

0.84°

222.30°

5285.15'

393.86'

5350

5400

5427'

0.81°

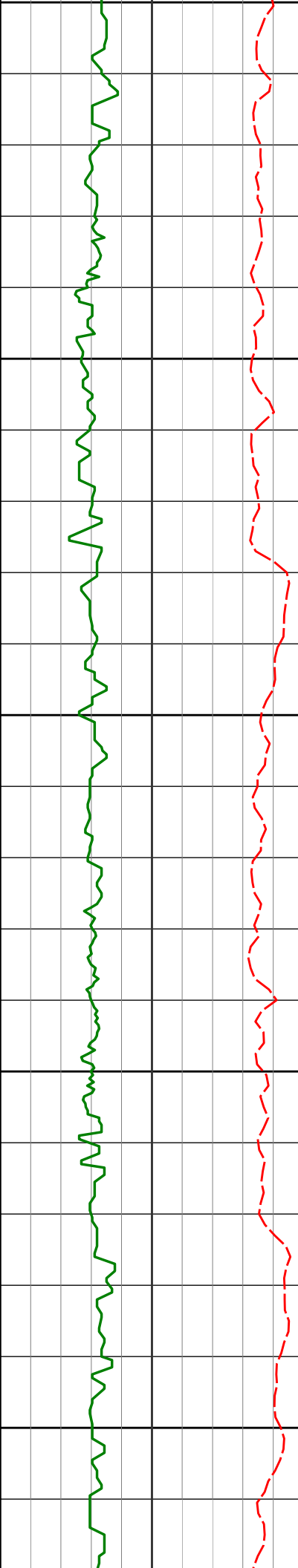
213.58°

5380.13'

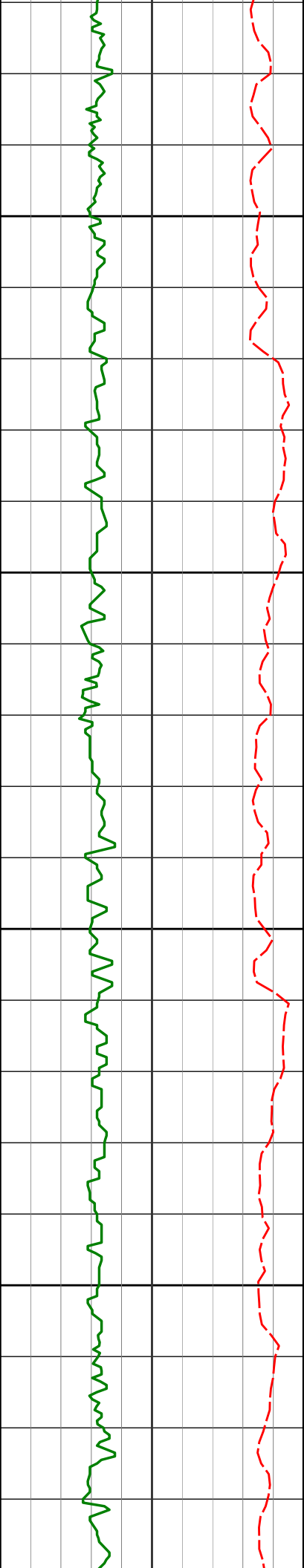
393.01'

5450

5500



X (ft)	Y (°)	Z (ft)	Value
5522'	0.86°	5500	217.32°
5616'	0.86°	5500	172.10°
5711'	0.86°	5500	160.10°
5522'	1.55°	5500	5475.13'
5616'	1.55°	5500	5569.11'
5711'	1.55°	5500	5664.08'
5522'	0.86°	5550	392.19'
5616'	0.86°	5550	391.90'
5711'	0.86°	5550	392.39'



5750

5800

5850

5900

5806'

0.34°

174.99°

5759.07'

392.73'

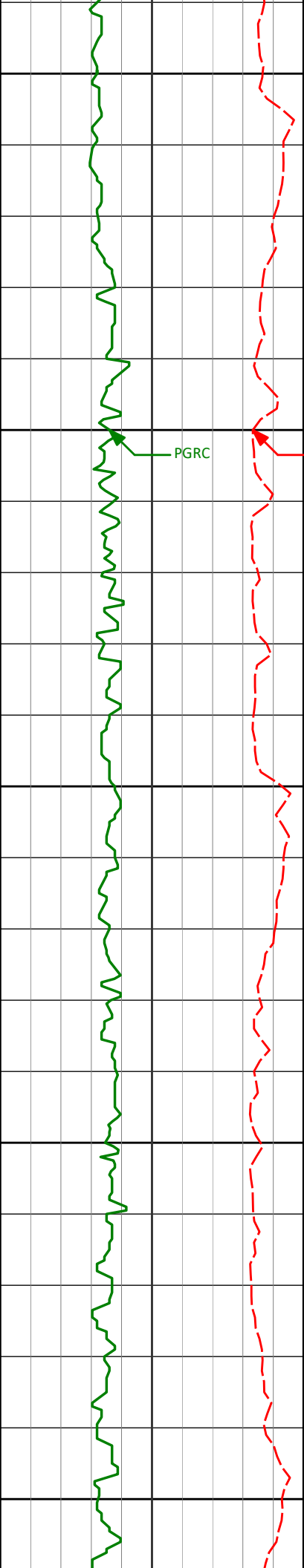
5901'

0.32°

173.03°

5854.07'

392.78'



5950

5996'

0.41°

152.46°

5949.07'

392.96'

6000

PGRC

ROPA

6050

6090'

0.28°

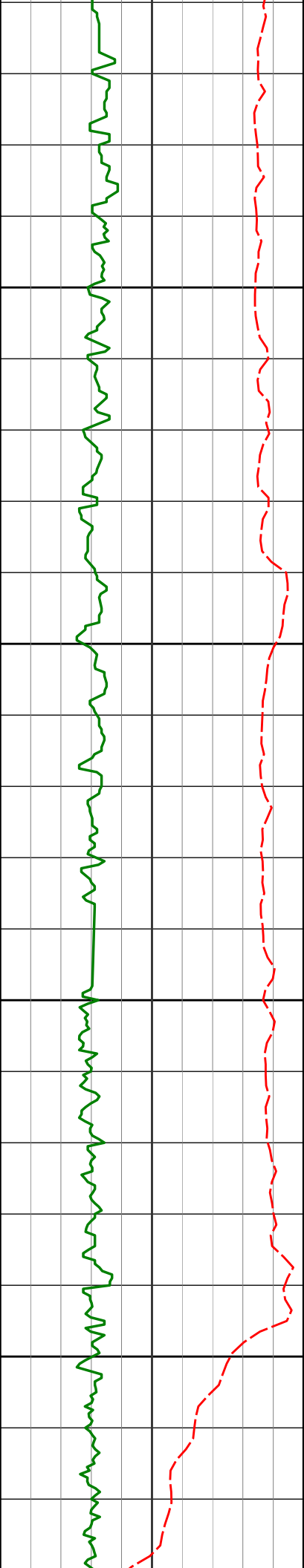
169.94°

6043.06'

393.15'

6100

6150



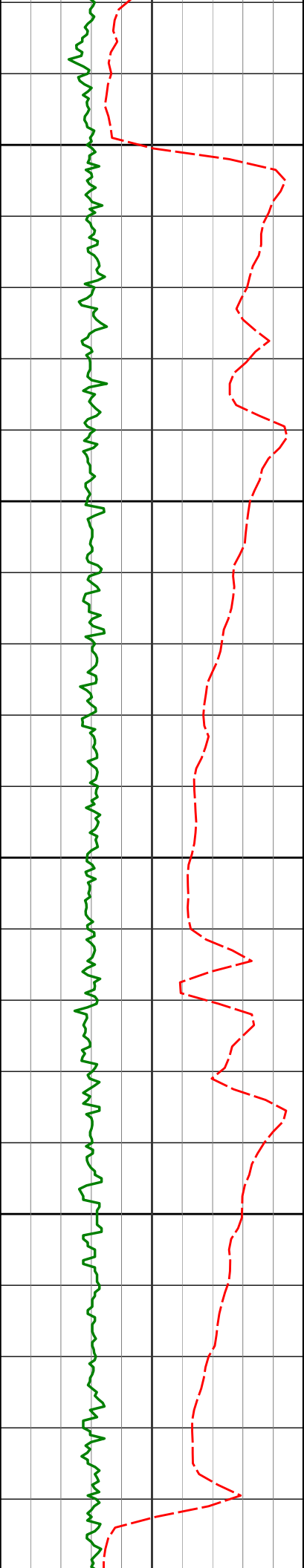
6200

6250

6300

6350

6185'	0.36°	189.86°	6138.06'	393.13'
6286'	0.19°	212.95°	6239.06'	392.97'
6374'	0.14°	202.61°	6327.06'	392.85'



6400

6450

6500

6550

6468'

7.53°

89.65°

6420.79'

398.97'

6563'

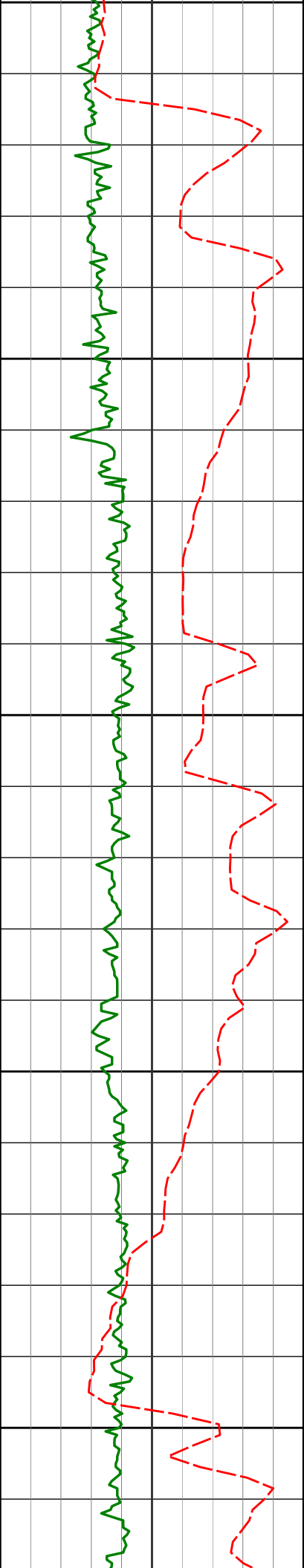
17.37°

87.34°

6513.44'

419.42'

6600



6600
6650
6700
6750
6800

6658'

22.19°

85.65°

6602.81'

451.52'

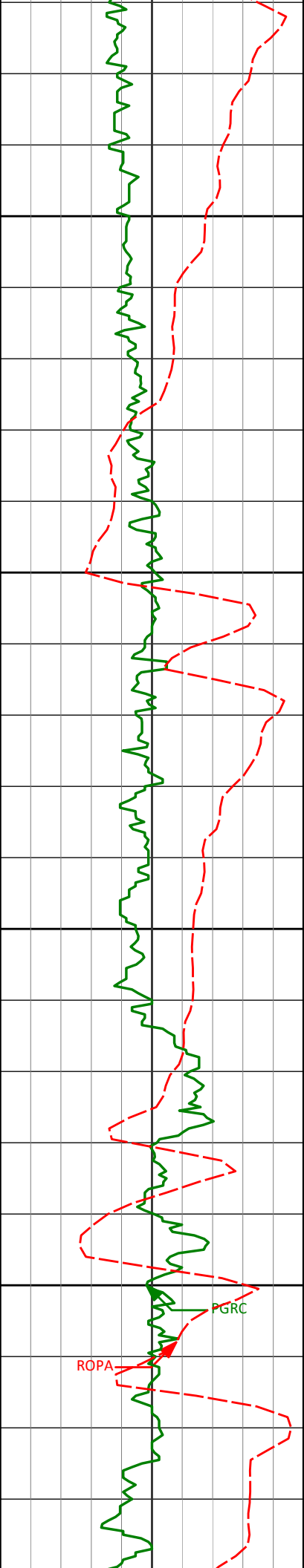
6753'

29.43°

85.35°

6688.28'

492.77'



6850	6848'	39.90°	88.86°	6766.32'	546.69'
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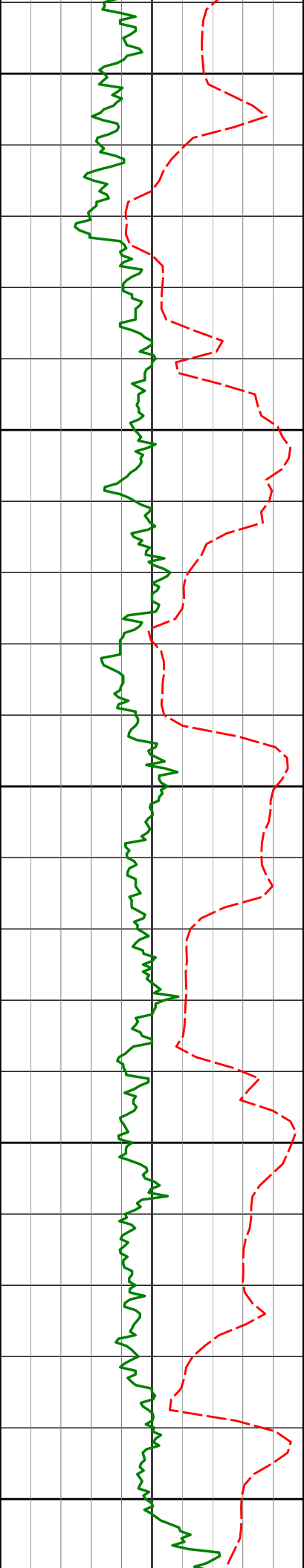
6900

6942'	52.70°	93.90°	6831.15'	614.40'
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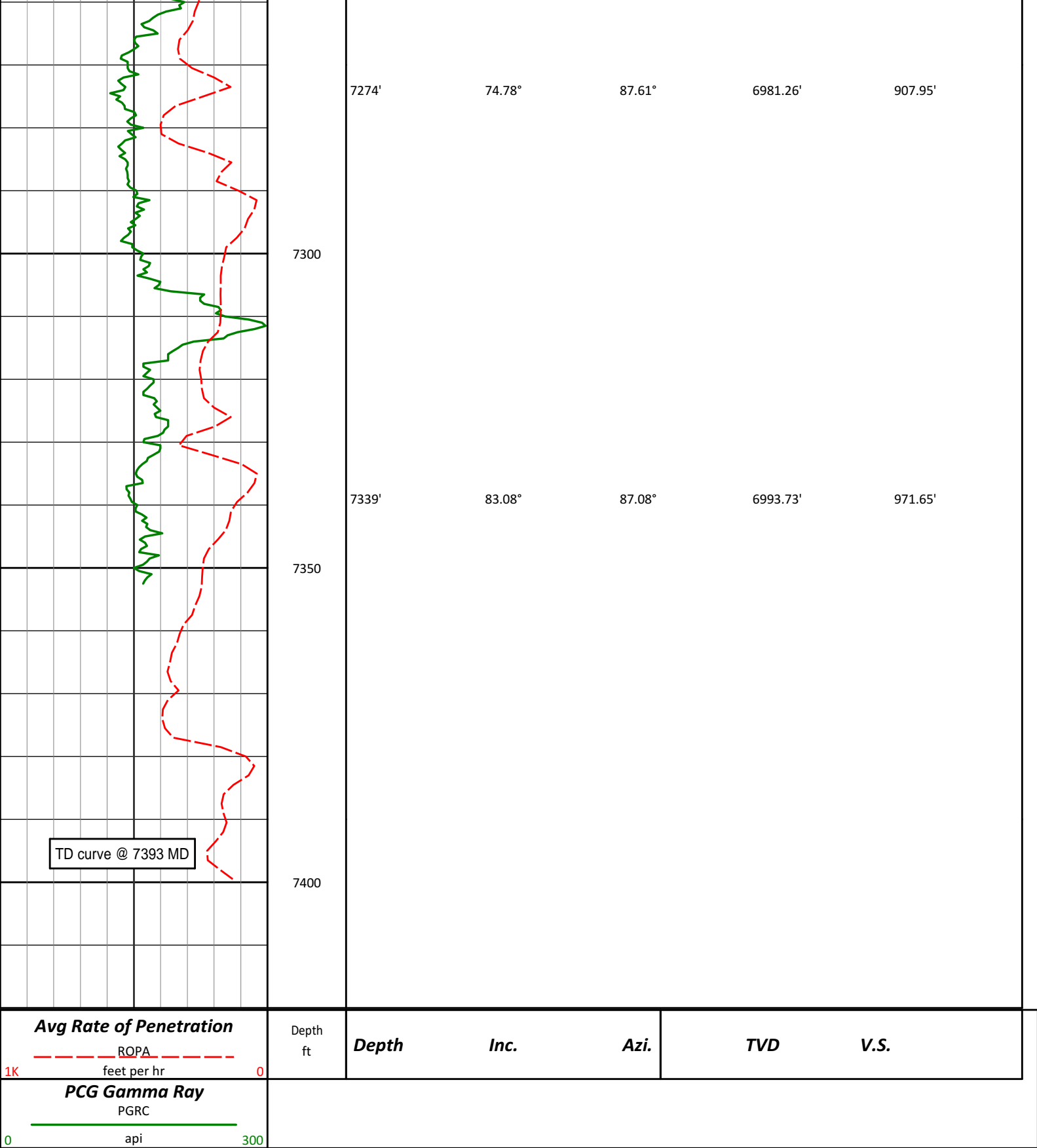
6950

7000

7037'	60.27°	95.49°	6883.56'	693.16'
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7050					
	7085'	61.70°	94.34°	6906.85'	734.92'
7100					
	7132'	63.18°	92.94°	6928.59'	776.45'
7150					
	7180'	65.76°	92.04°	6949.28'	819.69'
7200					
	7226'	69.82°	89.83°	6966.66'	862.24'
7250					



HALLIBURTON

DIRECTIONAL SURVEY REPORT
Noble
SHABLE K08-69-1HN
Wattenberg
Weld Colorado
USA

USA CA-XX-0901563498							
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
671.00	0.55	134.45	670.99	2.26 S	2.30 E	2.26	0.08
724.00	0.62	150.14	723.99	2.68 S	2.62 E	2.58	0.33
815.00	0.59	141.07	814.98	3.47 S	3.16 E	3.11	0.11
907.00	0.44	170.57	906.98	4.19 S	3.52 E	3.45	0.33
1000.00	0.15	139.44	999.98	4.64 S	3.66 E	3.58	0.35
1092.00	0.22	307.72	1091.98	4.62 S	3.59 E	3.52	0.40
1183.00	0.28	306.97	1182.98	4.38 S	3.28 E	3.21	0.07
1275.00	0.29	321.84	1274.97	4.06 S	2.96 E	2.89	0.08
1367.00	0.63	19.52	1366.97	3.40 S	2.98 E	2.93	0.58
1459.00	0.70	36.35	1458.97	2.47 S	3.48 E	3.44	0.22
1552.00	1.05	49.04	1551.96	1.45 S	4.46 E	4.44	0.43
1644.00	2.24	57.84	1643.92	0.06 N	6.62 E	6.62	1.32
1737.00	3.33	50.39	1736.80	2.74 N	10.24 E	10.28	1.23
1829.00	4.08	49.75	1828.61	6.56 N	14.80 E	14.90	0.82
1921.00	4.82	48.60	1920.33	11.23 N	20.20 E	20.37	0.81
2015.00	6.02	49.54	2013.91	17.04 N	26.91 E	27.17	1.28
2110.00	7.46	49.71	2108.25	24.27 N	35.40 E	35.78	1.52
2205.00	7.88	50.79	2202.40	32.37 N	45.15 E	45.65	0.47
2300.00	9.98	49.80	2296.25	41.80 N	56.49 E	57.13	2.22
2394.00	11.55	49.48	2388.59	53.17 N	69.86 E	70.68	1.67
2489.00	11.19	50.29	2481.72	65.24 N	84.18 E	85.19	0.41
2584.00	12.15	50.20	2574.76	77.53 N	98.96 E	100.15	1.01
2679.00	13.59	50.01	2667.37	91.10 N	115.19 E	116.59	1.52
2774.00	12.16	47.83	2759.98	104.99 N	131.16 E	132.77	1.59
2869.00	11.57	49.61	2852.95	117.89 N	145.83 E	147.64	0.73
2964.00	11.61	50.58	2946.01	130.13 N	160.47 E	162.47	0.21
3058.00	11.60	50.33	3038.09	142.17 N	175.05 E	177.24	0.05
3153.00	10.76	47.23	3131.29	154.29 N	188.91 E	191.29	1.09
3248.00	10.39	49.38	3224.68	165.89 N	201.93 E	204.48	0.57
3343.00	10.17	49.20	3318.15	176.94 N	214.78 E	217.50	0.23
3438.00	10.60	55.44	3411.60	187.38 N	228.32 E	231.21	1.27
3532.00	11.60	54.99	3503.84	197.71 N	243.18 E	246.23	1.07
3627.00	11.12	49.52	3596.98	209.14 N	257.98 E	261.19	1.24
3722.00	11.76	51.61	3690.09	221.09 N	272.53 E	275.93	0.80
3817.00	13.65	50.35	3782.76	234.26 N	288.75 E	292.36	2.01
3911.00	14.54	48.94	3873.93	249.09 N	306.19 E	310.02	1.01
4006.00	12.86	46.63	3966.23	264.18 N	322.87 E	326.93	1.86
4101.00	11.00	50.02	4059.17	277.27 N	337.50 E	341.77	2.09
4195.00	9.94	47.46	4151.60	288.52 N	350.35 E	354.79	1.23
4290.00	8.48	44.03	4245.38	299.10 N	361.26 E	365.86	1.64
4385.00	6.52	35.53	4339.56	308.52 N	369.26 E	374.01	2.37
4479.00	5.88	33.18	4433.01	316.90 N	375.00 E	379.88	0.73
4574.00	4.42	41.15	4527.63	323.73 N	380.07 E	385.06	1.71
4669.00	3.63	40.18	4622.39	328.78 N	384.42 E	389.48	0.83
4764.00	2.94	33.36	4717.24	333.11 N	387.70 E	392.83	0.83
4858.00	1.34	35.60	4811.17	336.02 N	389.67 E	394.84	1.70
4953.00	0.44	202.19	4906.16	336.59 N	390.18 E	395.36	1.86
5048.00	0.42	208.89	5001.16	335.94 N	389.87 E	395.04	0.06
5143.00	0.41	196.79	5096.16	335.31 N	389.60 E	394.77	0.09
5237.00	0.65	196.70	5190.15	334.48 N	389.35 E	394.50	0.26
5332.00	0.84	222.30	5285.15	333.45 N	388.73 E	393.86	0.40
5427.00	0.81	213.58	5380.13	332.37 N	387.89 E	393.01	0.14
5522.00	0.86	217.32	5475.13	331.25 N	387.09 E	392.19	0.08
5616.00	1.55	172.10	5569.11	329.43 N	386.83 E	391.90	1.20
5711.00	1.20	160.10	5664.08	327.22 N	387.35 E	392.39	0.48
5806.00	0.34	174.99	5759.07	326.00 N	387.71 E	392.73	0.92
5901.00	0.32	173.03	5854.07	325.46 N	387.77 E	392.78	0.02
5996.00	0.41	152.46	5949.07	324.89 N	387.96 E	392.96	0.17

6090.00	0.28	169.94	6043.06	324.37 N	388.15 E	393.15	0.18
6185.00	0.36	189.86	6138.06	323.85 N	388.14 E	393.13	0.14
6286.00	0.19	212.95	6239.06	323.39 N	388.00 E	392.97	0.20
6374.00	0.14	202.61	6327.06	323.17 N	387.88 E	392.85	0.07
6468.00	7.53	89.65	6420.79	323.10 N	394.00 E	398.97	8.07
6563.00	17.37	87.34	6513.44	323.80 N	414.44 E	419.42	10.37
6658.00	22.19	85.65	6602.81	325.82 N	446.51 E	451.52	5.11
6753.00	29.43	85.35	6688.28	329.08 N	487.72 E	492.77	7.62
6848.00	39.90	88.86	6766.32	331.58 N	541.60 E	546.69	11.22
6942.00	52.70	93.90	6831.15	329.63 N	609.35 E	614.40	14.15
7037.00	60.27	95.49	6883.56	323.11 N	688.22 E	693.16	8.09
7085.00	61.70	94.34	6906.85	319.51 N	730.04 E	734.92	3.64
7132.00	63.18	92.94	6928.59	316.87 N	771.62 E	776.45	4.11
7180.00	65.76	92.04	6949.28	314.99 N	814.89 E	819.69	5.63
7226.00	69.82	89.83	6966.66	314.31 N	857.46 E	862.24	9.88
7274.00	74.78	87.61	6981.26	315.34 N	903.16 E	907.95	11.23
7339.00	83.08	87.08	6993.73	318.30 N	966.82 E	971.65	12.79

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 89.11 DEGREES (GRID)
A TOTAL CORRECTION OF 7.92 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 7339.00 FEET
IS 1017.87 FEET ALONG 71.78 DEGREES (GRID)**

Tied in @ Surface