

DC - Pressure Case Directional
PCGK - Pressure Case Gamma



1 : 600 / 1 : 240

[illegible]

WELL INFORMATION

MWD Run Number	100				
Date run completed	10-Jan-15				
Rig Bit Number	2				
Bit Size (in)	8.750				
Tool Nominal OD (in)	6.750				
Log Start Depth (MD, ft)	1,243.00				
Log End Depth (MD, ft)	5,950.00				
Drill or Wipe	Drill				
Drill/Wipe Start Date and Time	09-Jan-15 08:22				
Drill/Wipe End Date and Time	10-Jan-15 09:05				
Min Inc (deg) @ Depth (MD, ft)	0.15 @ 2,677.00				
Max Inc (deg) @ Depth (MD, ft)	86.36 @ 5,895.00				
Bit TFA(in2) / Bit Type	1.74 / PDC				
Flow Rate (gpm)	551.28				
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A				
Fluid Type	Fresh Water Gel				
Density (ppg) / Viscosity (spqt)	9.70 / 45.00				
Filtrate CL (ppm)	1,800.00				
pH / Fluid Loss (mptm)	9.70 / 7				
PV (cP) / YP (lbf2)	12 / 12.00				
% Solids / % Sand	11.50 / 0.40				
% Oil / Oil:Water Ratio	N/A / N/A				
Rm @ Measured Temp (degF)	N/A @ N/A				
Rmf @ Measured Temp (degF)	N/A @ N/A				
Rmc @ Measured Temp (degF)	N/A @ N/A				
Max Tool Temp (in) / Tool C	152.12 / 204				

Max Tool Temp (degF) / Source	150.10 / PCM				
Rm @ Max Tool Temp (degF)	N/A @ 150.10				
Lead MWD Engineer	Robert Barnes				
Customer Representative	Stetson Nielsen				

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM				
Software Version	5.93				
Sub Serial Number	11341338				
Insert Serial Number	11680738				
Date and Time Initialized	08-Jan-15 17:14				
Date and Time Read	10-Jan-15 13:44				
ECMB SW Version	N/A				

Directional Sensor Information

Tool Type	PCDC				
Distance From Bit (ft)	55.00				
Software Version	6.21				
Sub Serial Number	11341338				
Sonde Serial Number	11062056				
Sensor ID Number	N/A				
Toolface Offset (deg)	105.23				

Gamma Ray Sensor Information

Tool Type	PCG				
Distance From Bit (ft)	48.01				
Recorded Sample Period (sec)	10				
Software Version	8.15				
Sub Serial Number	11341338				
Insert/Sonde Serial Number	11293410				

REMARKS

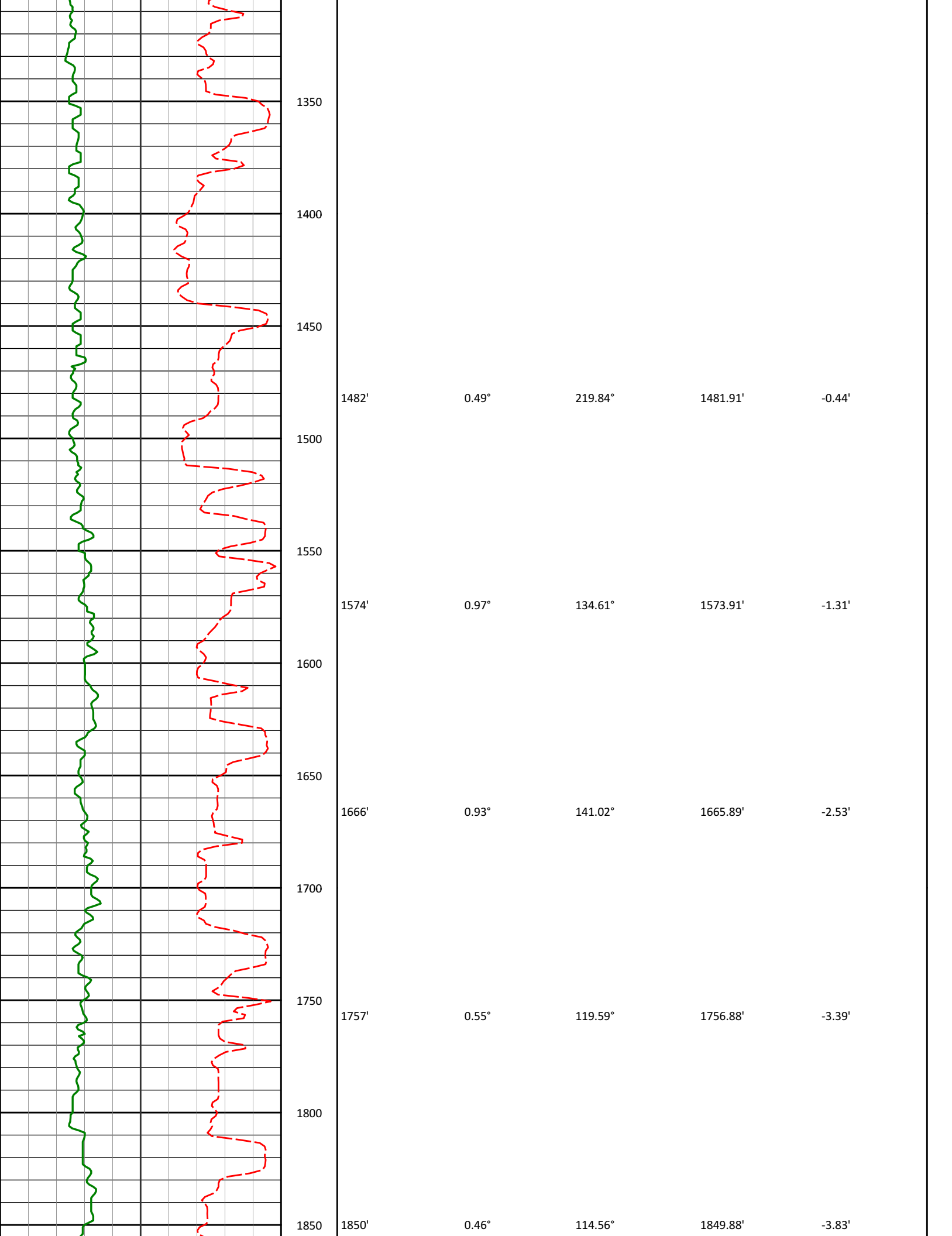
1. All depths are calibrated to driller's pipe tally and are true vertical depth from the Drill Floor.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annular velocities are calculated using the "Power Law" model for water based fluids and the "Brigham Plastic" model 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

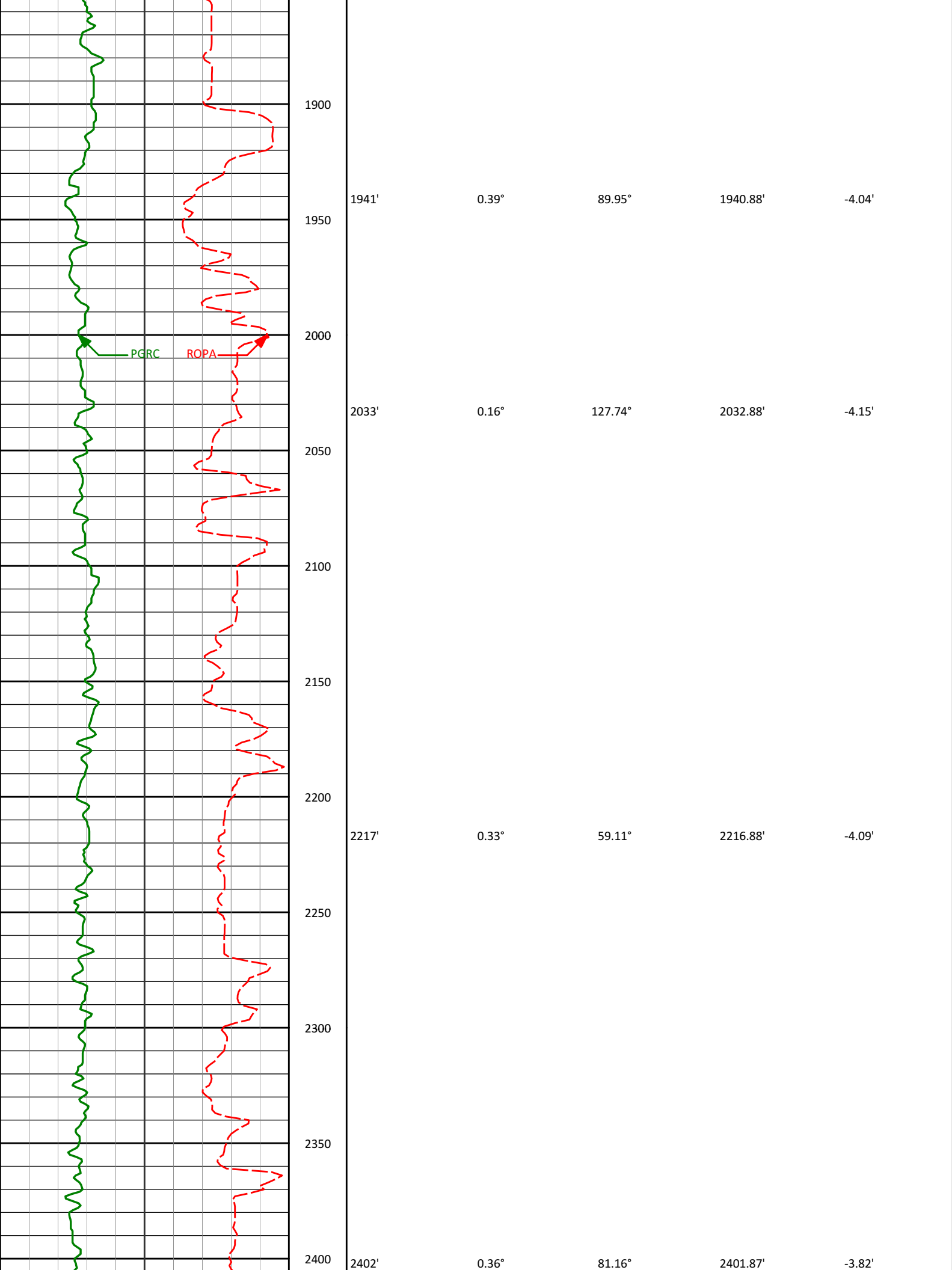
6. Insite Version v8.0.20

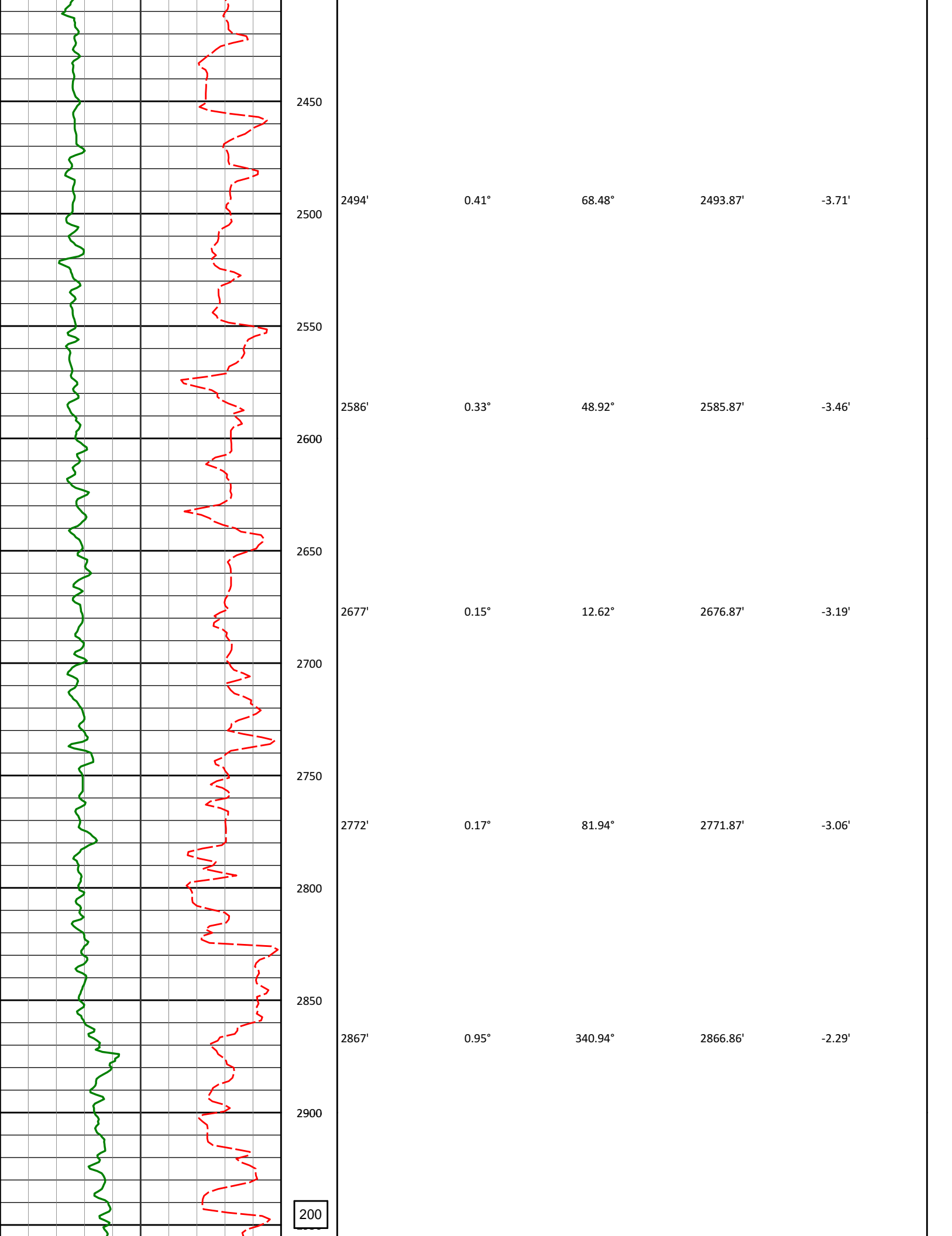
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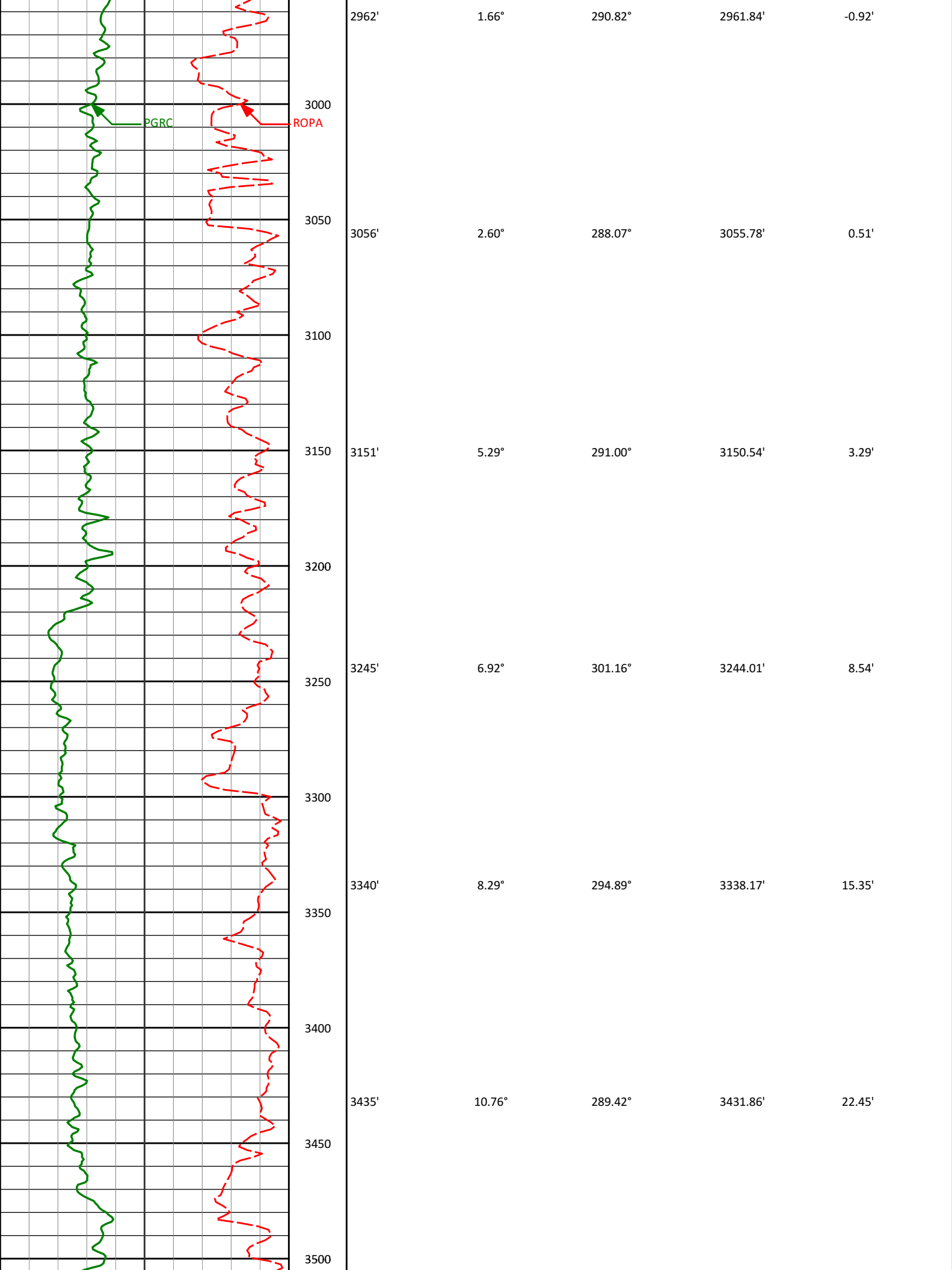
Noble Energy
Tripucka_State_LD02-75-1BHN
H&P 321
Sec.2-T9N-R58W

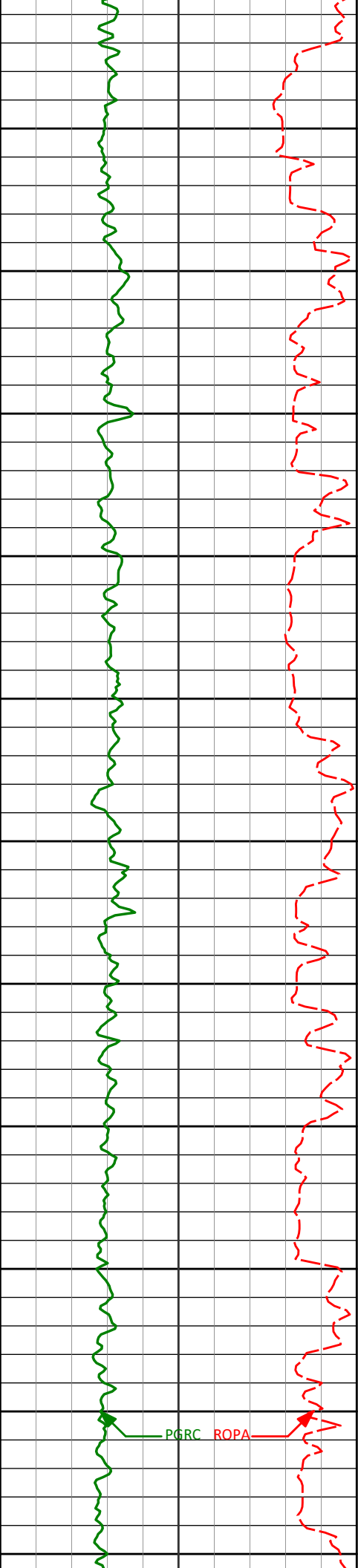
<div>PCG Gamma Ray BCorr</div> <div><div>PGRC</div><div>api</div></div> <div>0300</div>																			
<div>Avg Rate of Penetration</div> <div>ROP</div> <div>feet per hr</div> <div>1K0</div>										Depth ft	Depth	Inc.	Azi.	TVD	V.S.				
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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3529'	11.62°	281.43°	3524.07'	28.78'
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3550

3600

3623'	10.60°	278.07°	3616.31'	33.43'
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3650

3700

3718'	8.13°	275.98°	3710.04'	36.71'
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3750

3800

3812'	9.57°	276.74°	3802.92'	39.59'
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3850

3900

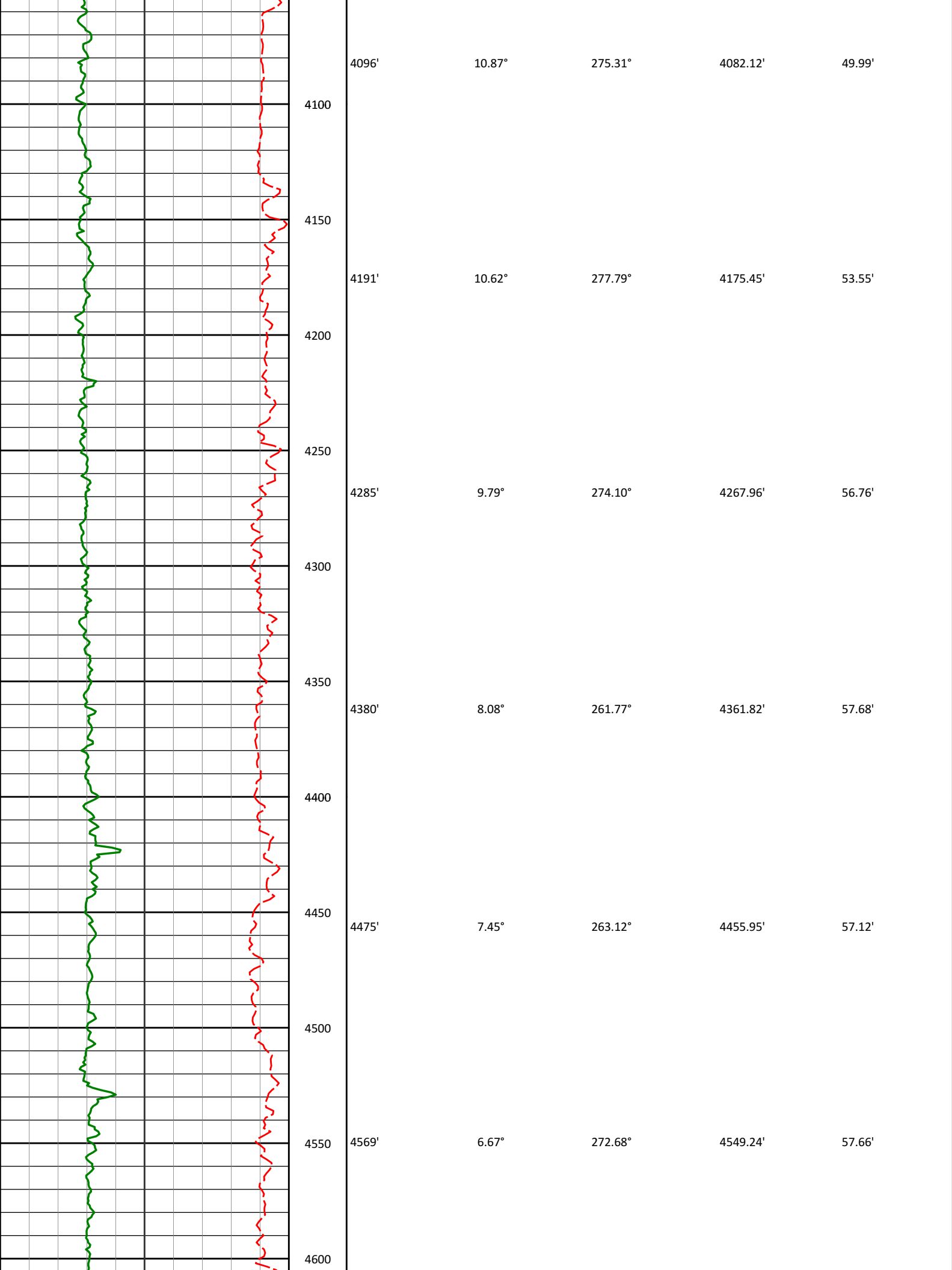
3907'	10.90°	278.13°	3896.40'	43.26'
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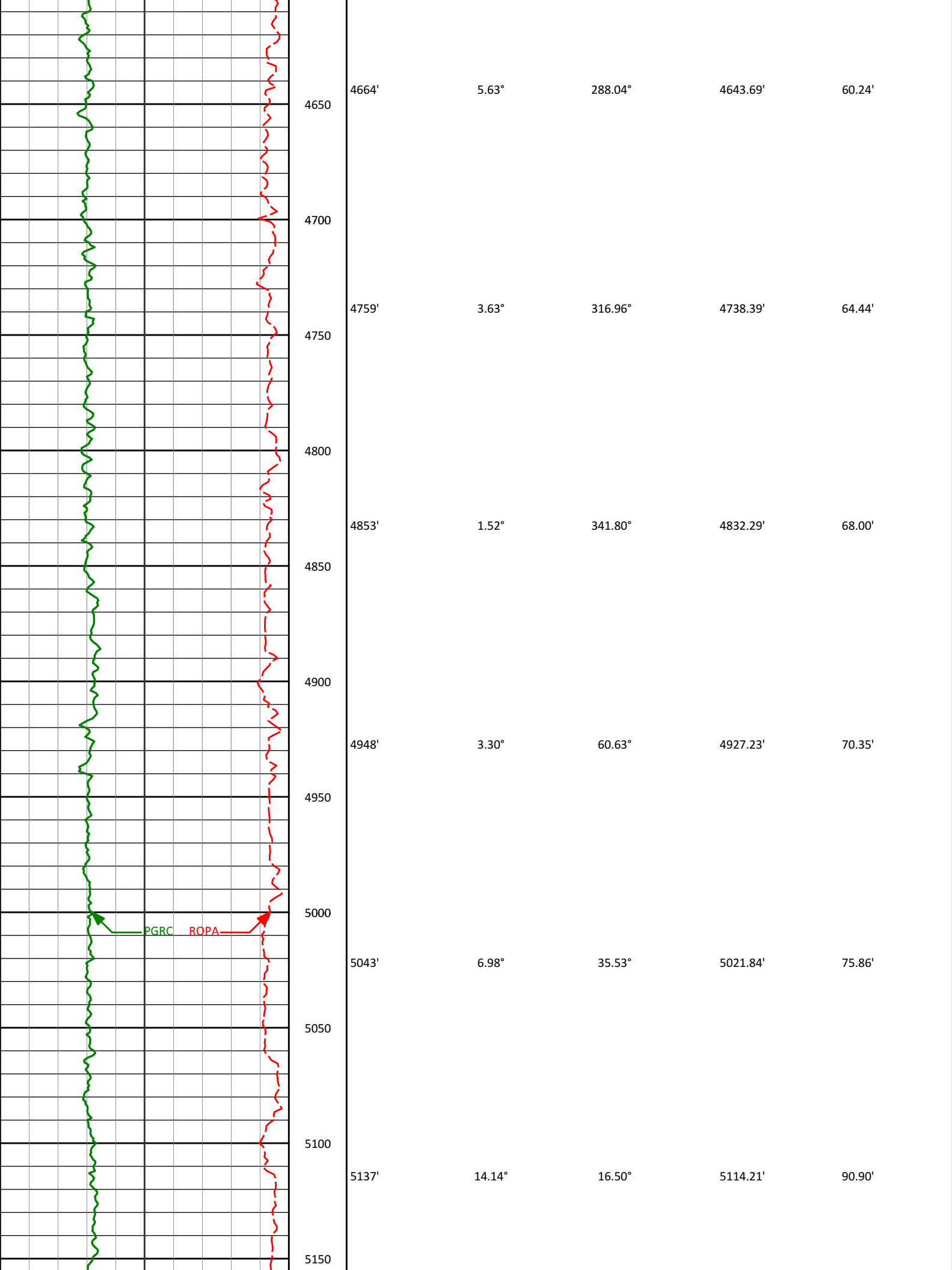
3950

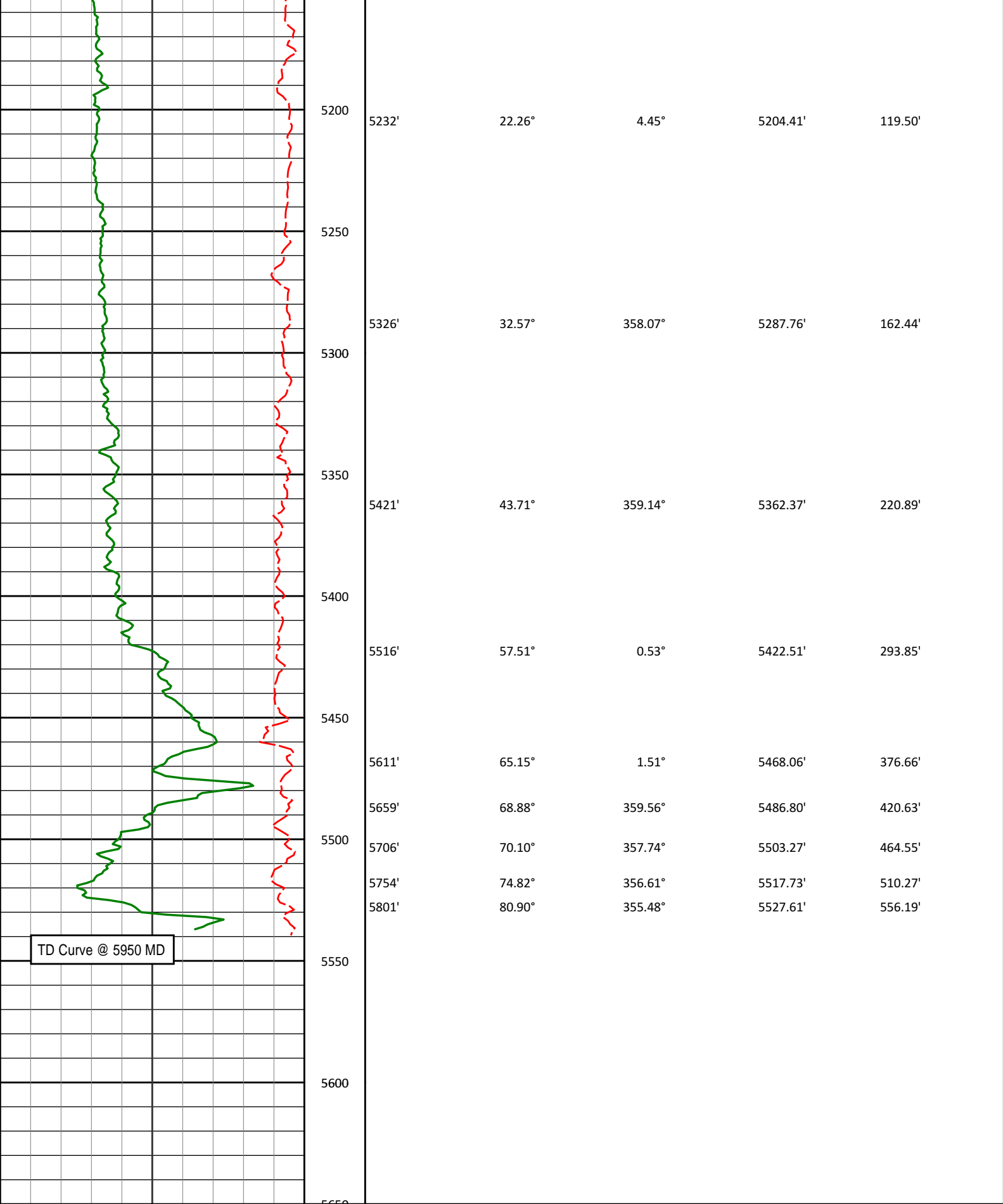
4000

4001'	10.51°	275.23°	3988.77'	46.82'
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4050





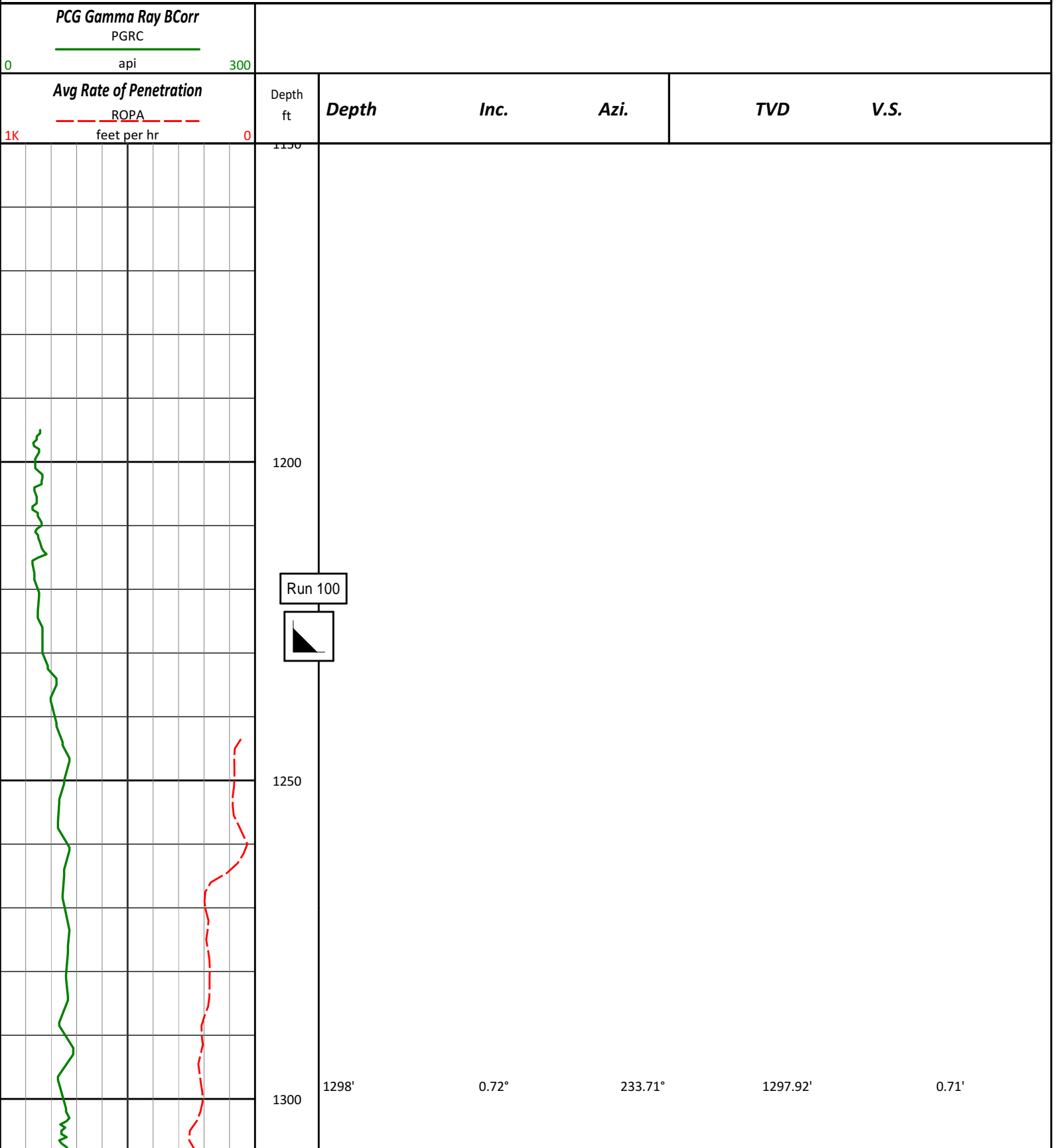


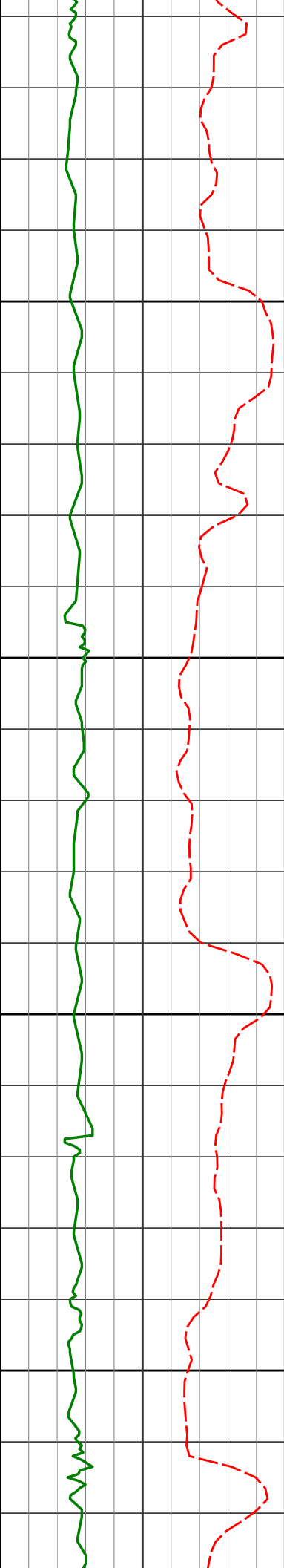
TD Curve @ 5950 MD

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

HALLIBURTON
Sperry Drilling Services
TVD Detail Log 1:240

Noble Energy
Tripucka_State_LD02-75-1BHN
H&P 321
Sec. 2-T9N-R58W





1350

1400

1450

1500

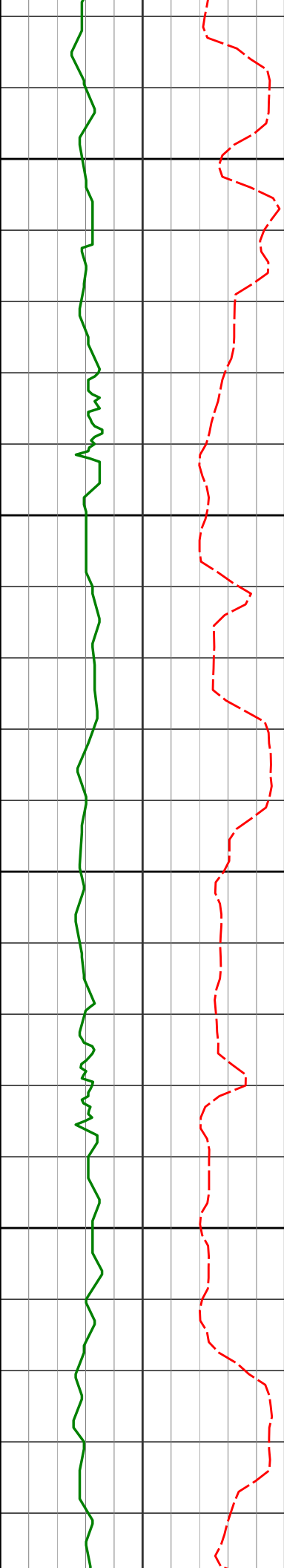
1482'

0.49°

219.84°

1481.91'

-0.44'



1550

1574'

0.97°

134.61°

1573.91'

-1.31'

1600

1650

1666'

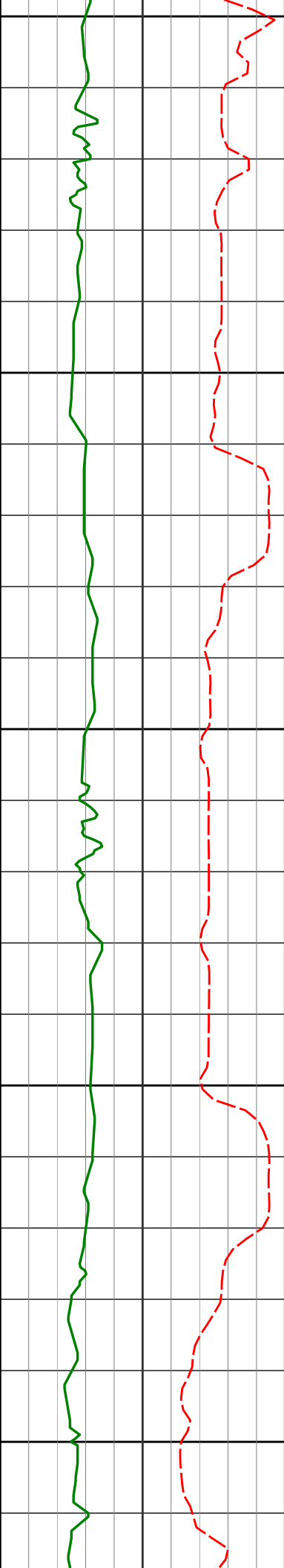
0.93°

141.02°

1665.89'

-2.53'

1700



1750

1757'

1800

1850

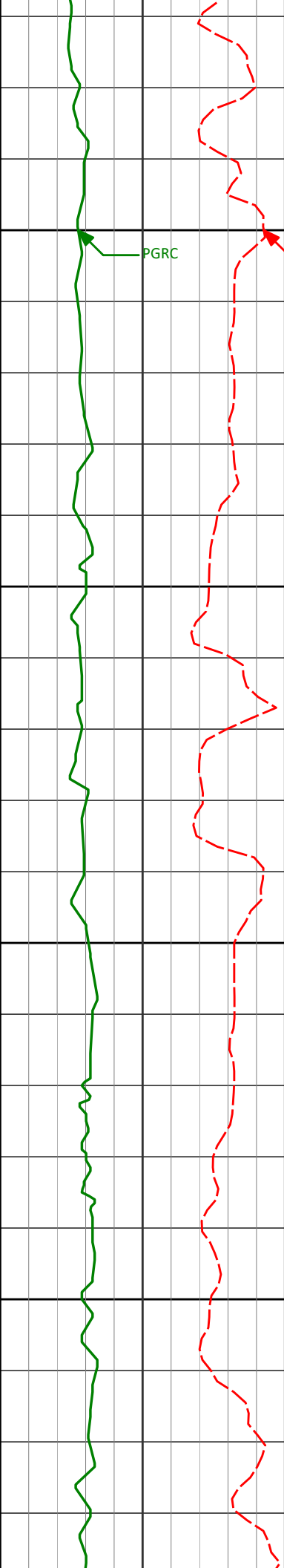
1850'

1900

1941'

1950

1757'	0.55°	119.59°	1756.88'	-3.39'
1850'	0.46°	114.56°	1849.88'	-3.83'
1941'	0.39°	89.95°	1940.88'	-4.04'



2000

PGRC

ROPA

2033'

0.16°

127.74°

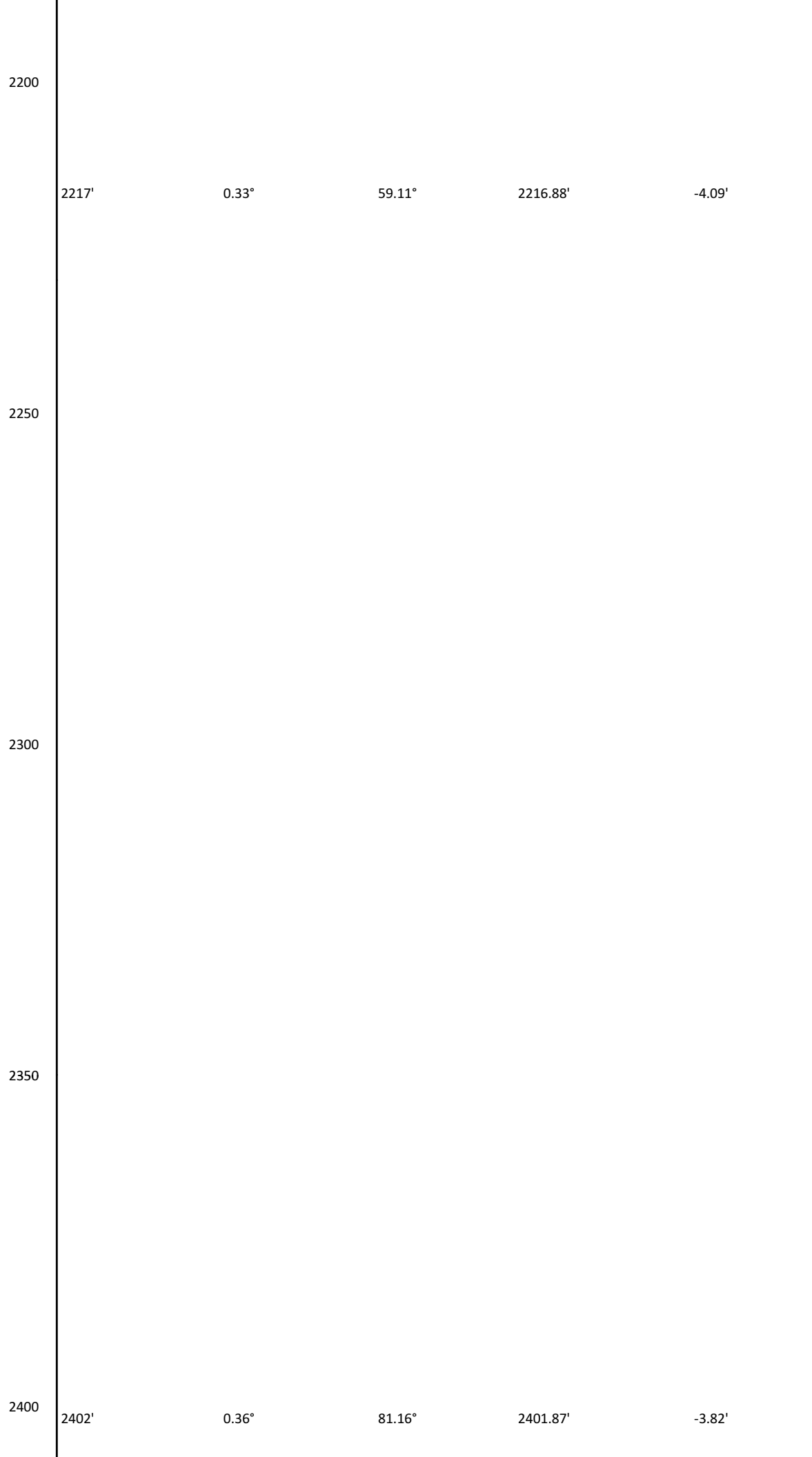
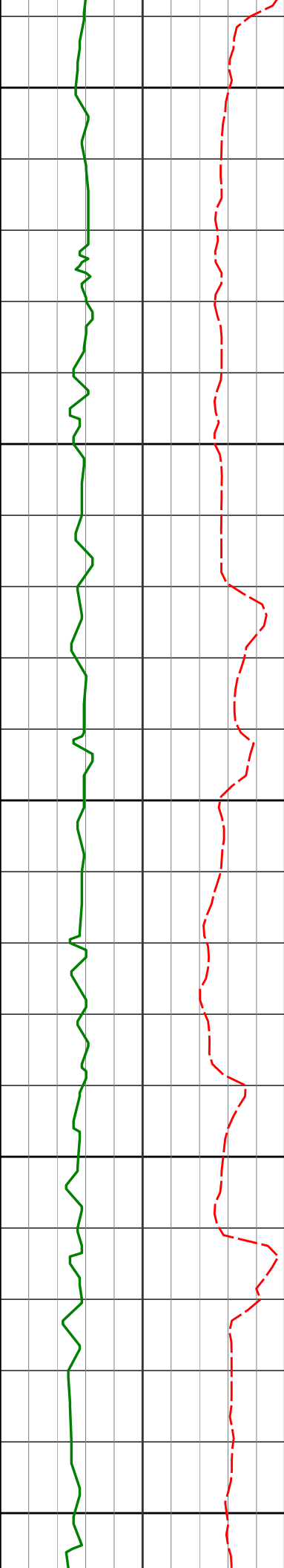
2032.88'

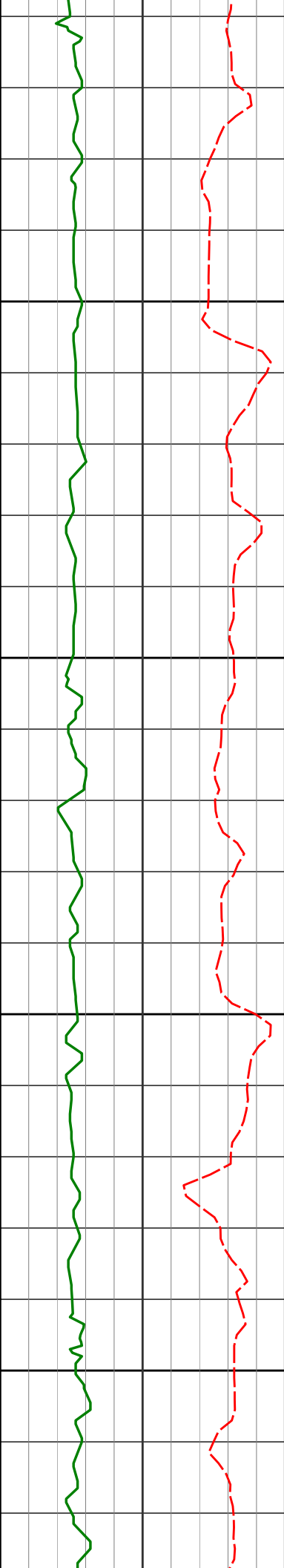
-4.15'

2050

2100

2150





2450

2500

2550

2600

2494'

0.41°

68.48°

2493.87'

-3.71'

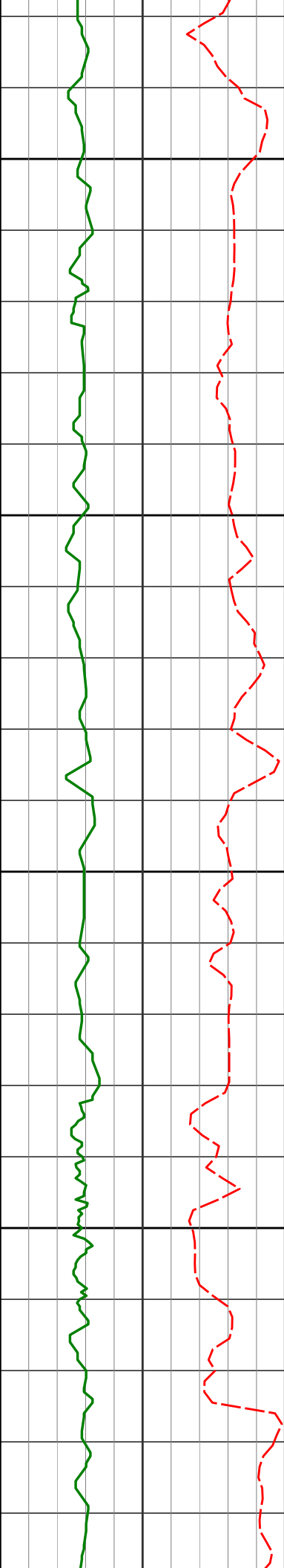
2586'

0.33°

48.92°

2585.87'

-3.46'



2650

2677'

0.15°

12.62°

2676.87'

-3.19'

2700

2750

2772'

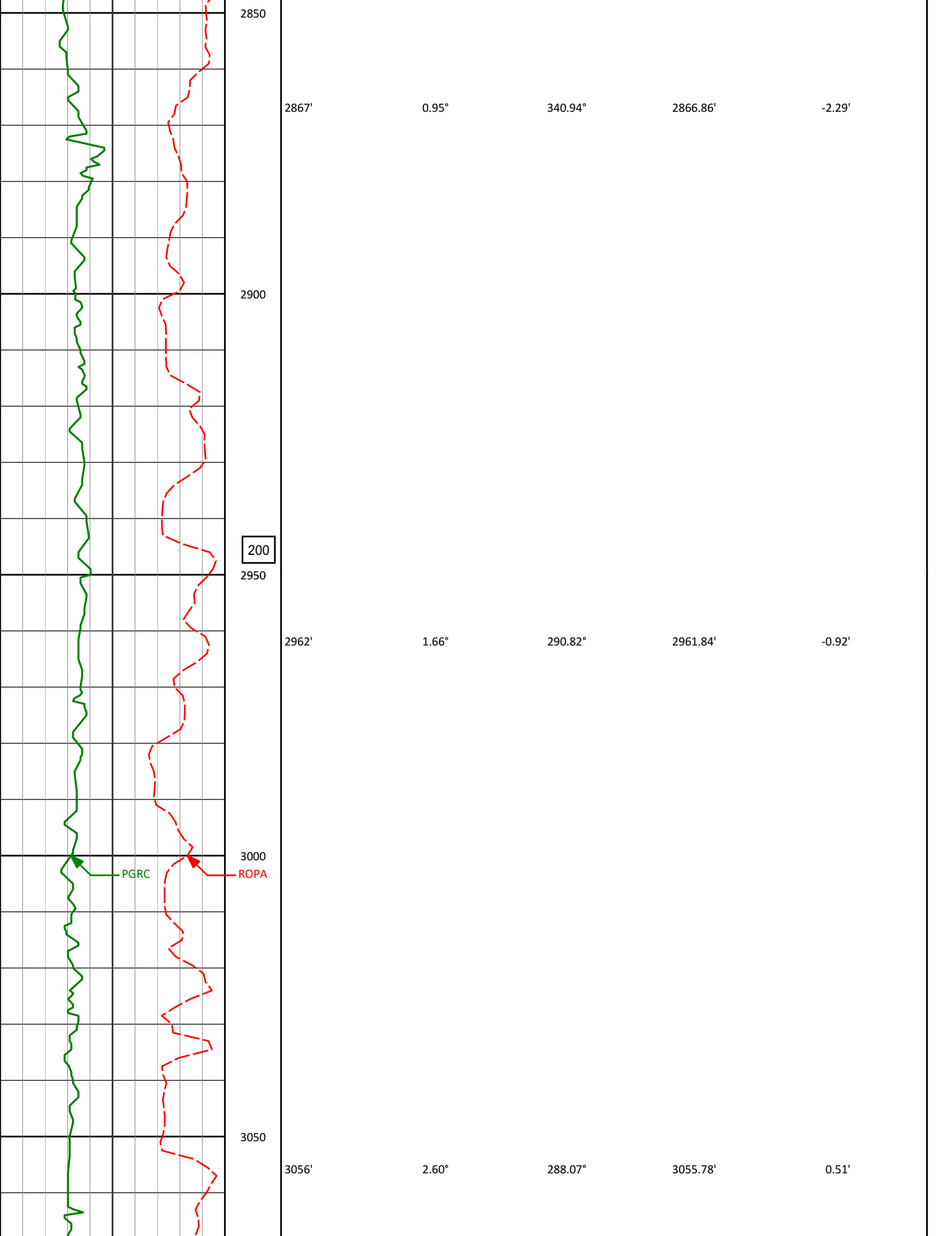
0.17°

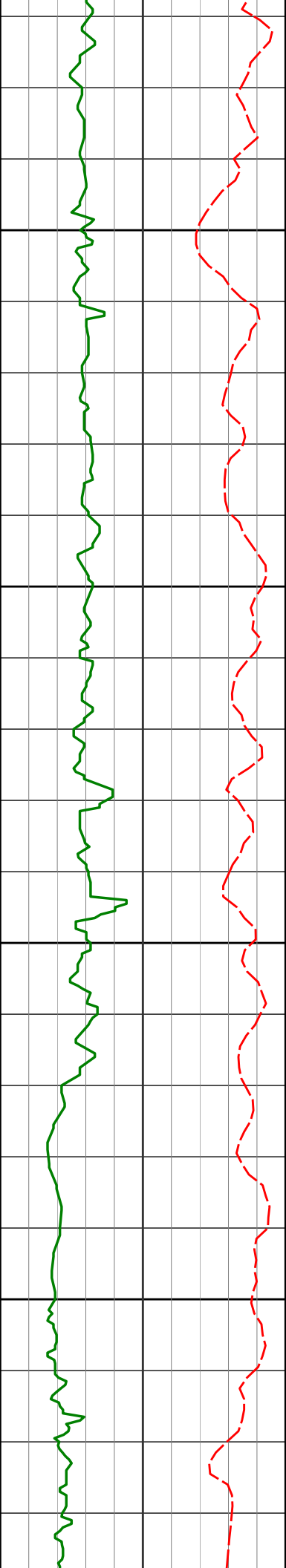
81.94°

2771.87'

-3.06'

2800





3100

3150

3200

3250

3151'

5.29°

291.00°

3150.54'

3.29'

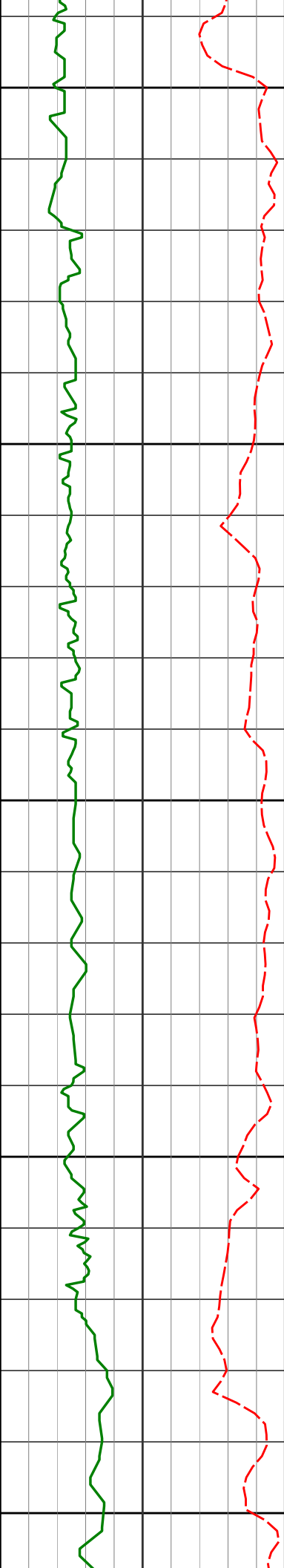
3245'

6.92°

301.16°

3244.01'

8.54'



3300

3340'

8.29°

294.89°

3338.17'

15.35'

3350

3400

3435'

10.76°

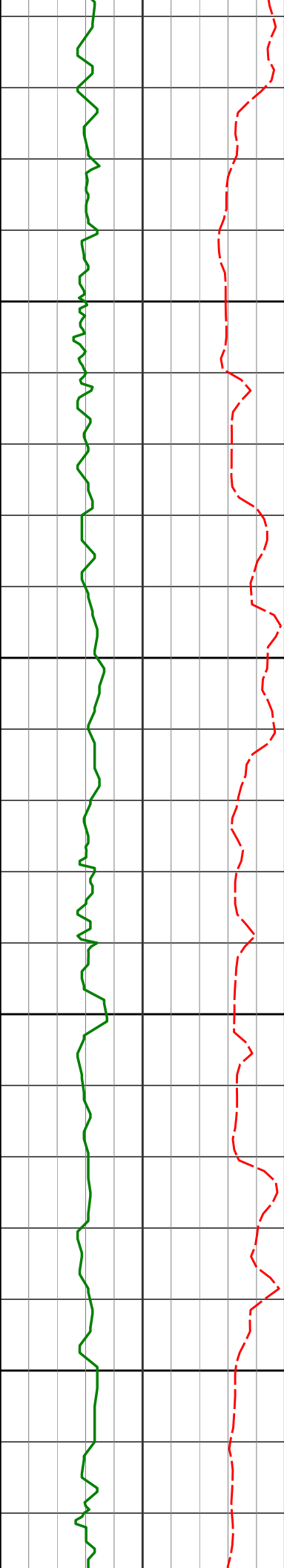
289.42°

3431.86'

22.45'

3450

3500



3529'

11.62°

281.43°

3524.07'

28.78'

3550

3600

3623'

10.60°

278.07°

3616.31'

33.43'

3650

3700

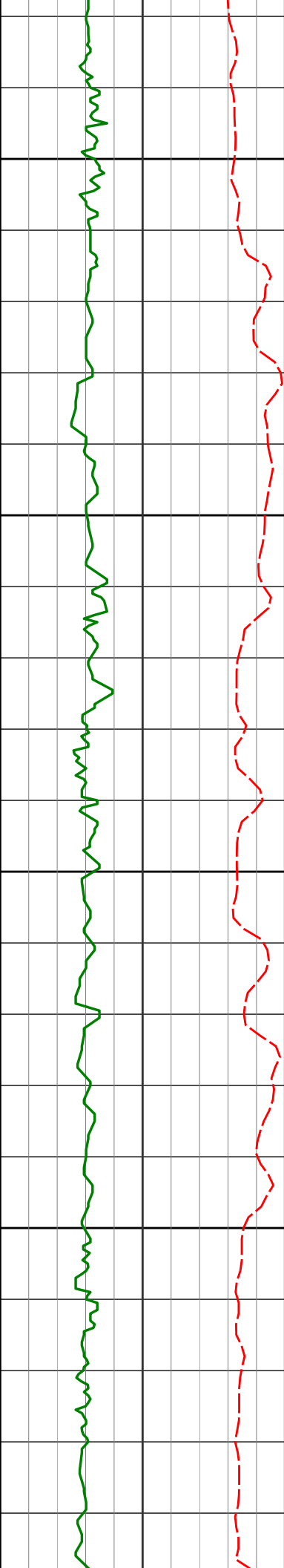
3718'

8.13°

275.98°

3710.04'

36.71'



3750

3800

3850

3900

3812'

9.57°

276.74°

3802.92'

39.59'

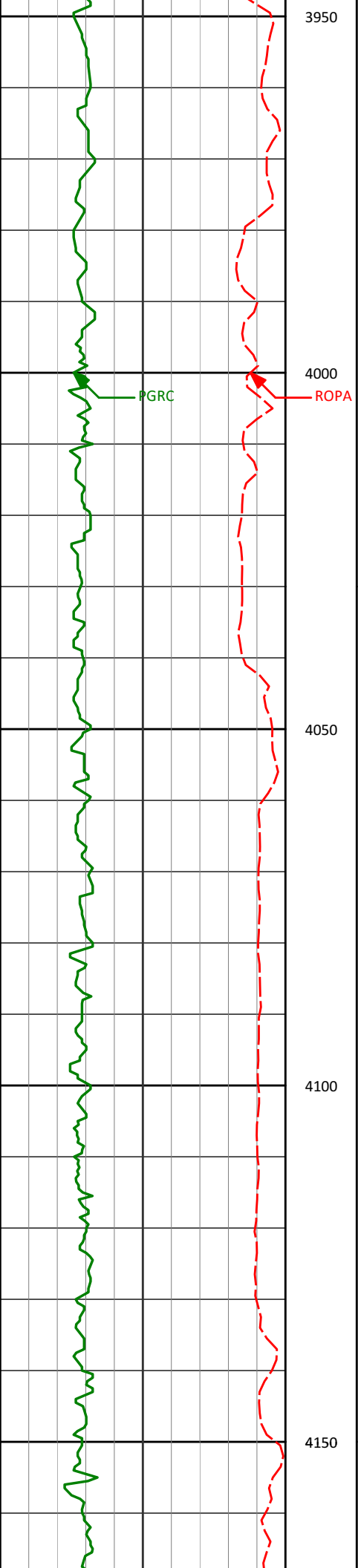
3907'

10.90°

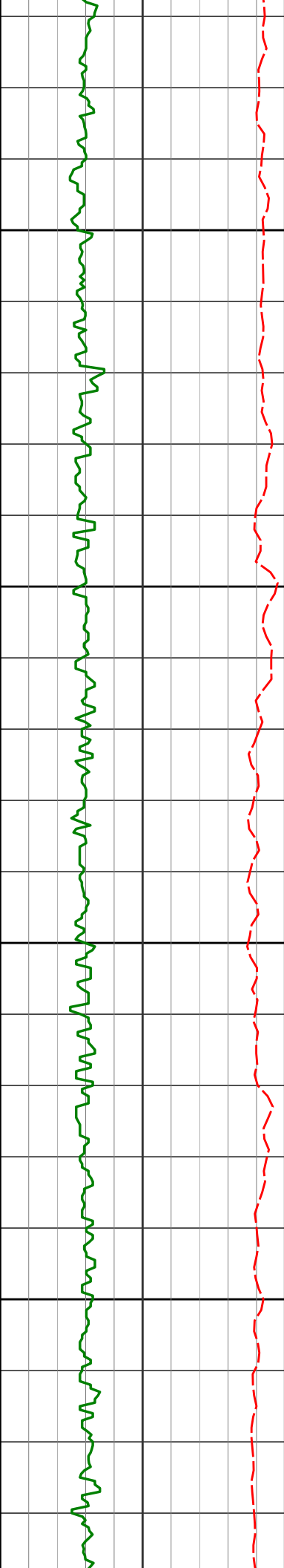
278.13°

3896.40'

43.26'



3950				
4001'	10.51°	275.23°	3988.77'	46.82'
4000				
4050				
4096'	10.87°	275.31°	4082.12'	49.99'
4100				
4150				



4191'

10.62°

277.79°

4175.45'

53.55'

4200

4250

4285'

9.79°

274.10°

4267.96'

56.76'

4300

4350

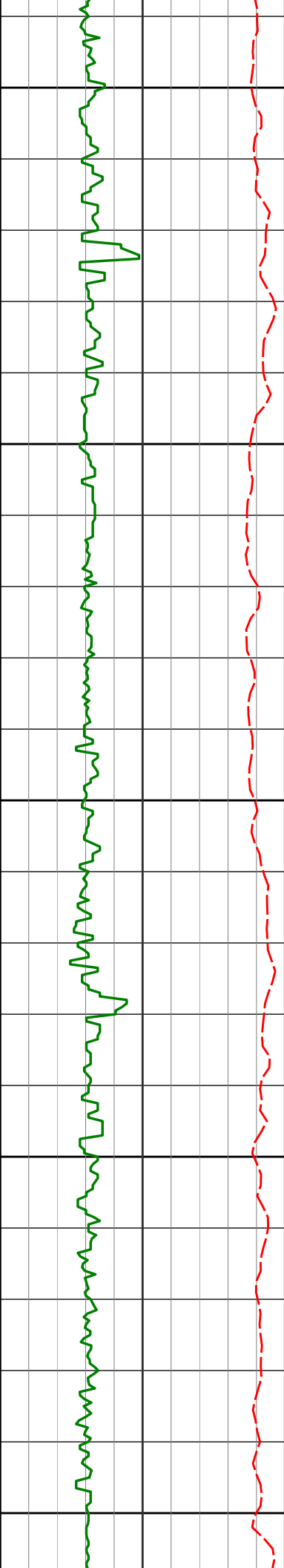
4380'

8.08°

261.77°

4361.82'

57.68'



4400

4450

4500

4550

4600

4475'

7.45°

263.12°

4455.95'

57.12'

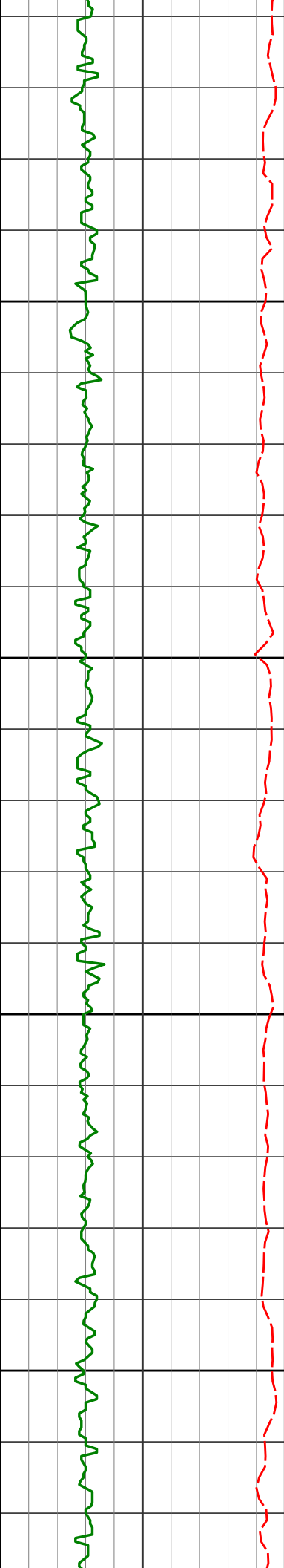
4569'

6.67°

272.68°

4549.24'

57.66'



4650

4700

4750

4800

4664'

4759'

5.63°

3.63°

288.04°

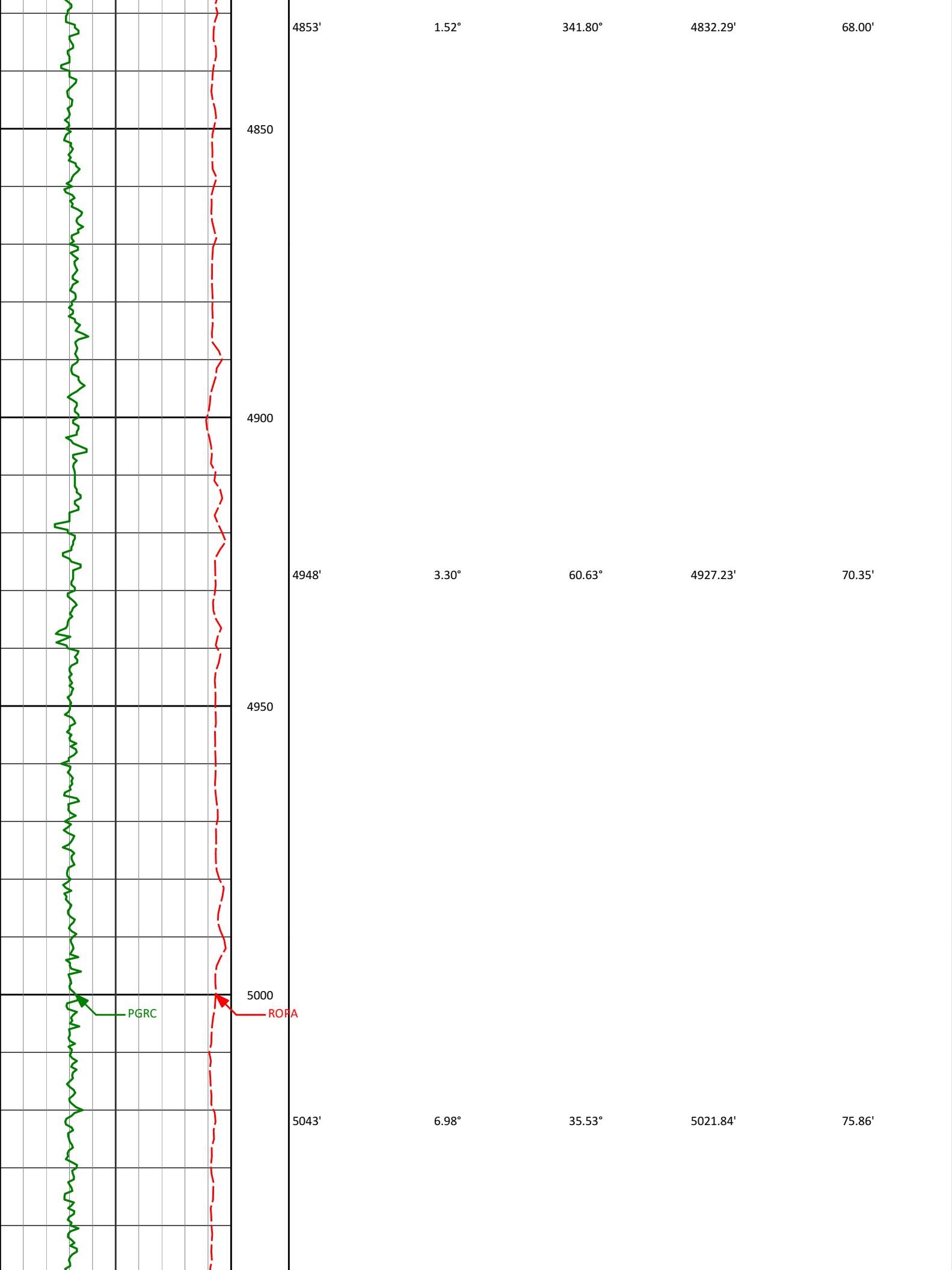
316.96°

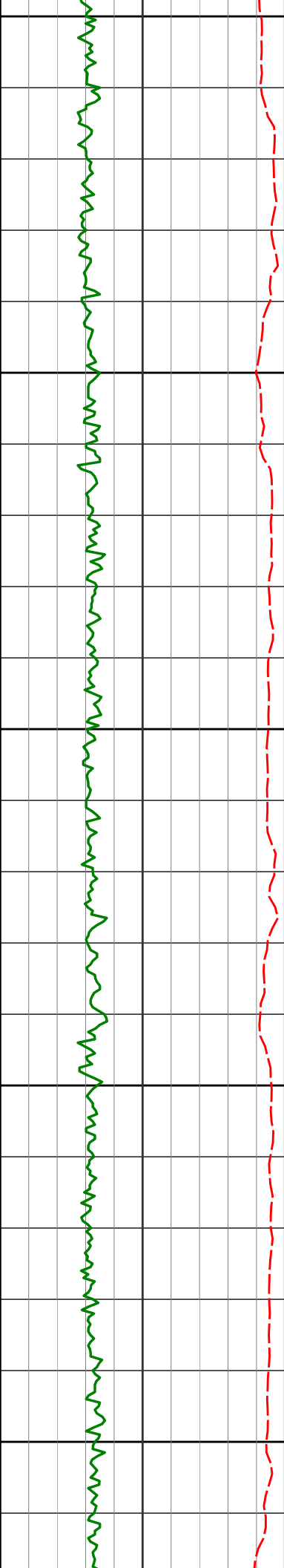
4643.69'

4738.39'

60.24'

64.44'





5050

5100

5150

5200

5250

5137'

14.14°

16.50°

5114.21'

90.90'

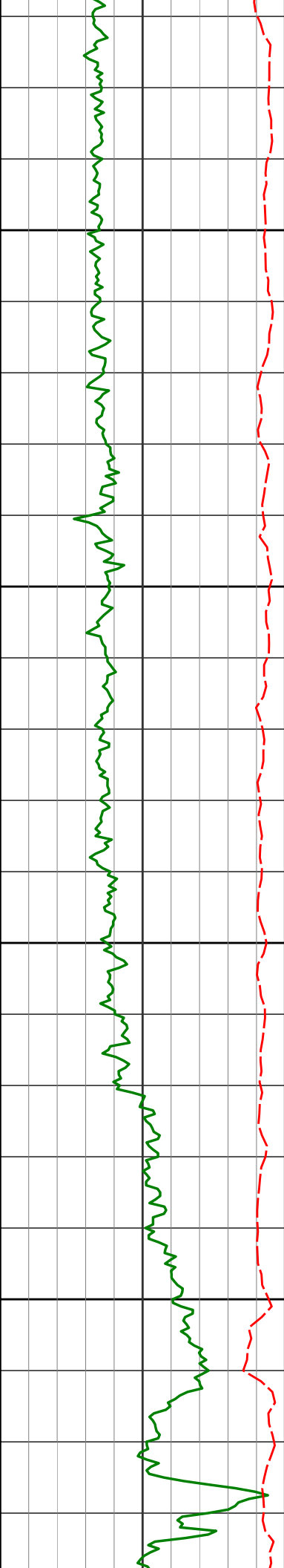
5232'

22.26°

4.45°

5204.41'

119.50'



5326'	32.57°	358.07°	5287.76'	162.44'
5300				
5350				
5421'	43.71°	359.14°	5362.37'	220.89'
5400				
5516'	57.51°	0.53°	5422.51'	293.85'
5450				
5611'	65.15°	1.51°	5468.06'	376.66'
5659'	68.88°	359.56°	5486.80'	420.63'

USA
CA-XX-0901941248

<i>Measured Depth (feet)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (feet)</i>	<i>Latitude (feet)</i>	<i>Departure (feet)</i>	<i>Vertical Section (feet)</i>	<i>Dogleg (deg/100ft)</i>
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
273.00	0.30	253.72	273.00	0.20 S	0.69 W	-0.14	0.11
546.00	0.60	291.22	545.99	0.12 N	2.70 W	0.36	0.15
830.00	1.40	251.42	829.95	0.45 S	7.38 W	0.20	0.36
1099.00	0.70	42.82	1098.93	0.29 S	9.38 W	0.54	0.76
1298.00	0.72	233.71	1297.92	0.14 S	9.56 W	0.71	0.71
1482.00	0.49	219.84	1481.91	1.42 S	10.99 W	-0.44	0.15
1574.00	0.97	134.61	1573.91	2.27 S	10.69 W	-1.31	1.14
1666.00	0.93	141.02	1665.89	3.39 S	9.66 W	-2.53	0.12
1757.00	0.55	119.59	1756.88	4.19 S	8.81 W	-3.39	0.51
1850.00	0.46	114.56	1849.88	4.56 S	8.08 W	-3.83	0.11
1941.00	0.39	89.95	1940.88	4.71 S	7.45 W	-4.04	0.21
2033.00	0.16	127.74	2032.88	4.79 S	7.04 W	-4.15	0.30
2217.00	0.33	59.11	2216.88	4.67 S	6.38 W	-4.09	0.17
2402.00	0.36	81.16	2401.87	4.31 S	5.35 W	-3.82	0.07
2494.00	0.41	68.48	2493.87	4.14 S	4.76 W	-3.71	0.10
2586.00	0.33	48.92	2585.87	3.85 S	4.26 W	-3.46	0.16
2677.00	0.15	12.62	2676.87	3.56 S	4.04 W	-3.19	0.24
2772.00	0.17	81.94	2771.87	3.42 S	3.87 W	-3.06	0.19
2867.00	0.95	340.94	2866.86	2.65 S	4.00 W	-2.29	1.05
2962.00	1.66	290.82	2961.84	1.42 S	5.54 W	-0.92	1.34
3056.00	2.60	288.07	3055.78	0.27 S	8.83 W	0.51	1.01
3151.00	5.29	291.00	3150.54	1.97 N	14.97 W	3.29	2.84
3245.00	6.92	301.16	3244.01	6.45 N	23.87 W	8.54	2.08
3340.00	8.29	294.89	3338.17	12.30 N	34.98 W	15.35	1.68
3435.00	10.76	289.42	3431.86	18.13 N	49.56 W	22.45	2.76
3529.00	11.62	281.43	3524.07	22.92 N	67.12 W	28.78	1.89
3623.00	10.60	278.07	3616.31	26.01 N	84.96 W	33.43	1.28
3718.00	8.13	275.98	3710.04	27.94 N	100.30 W	36.71	2.63
3812.00	9.57	276.74	3802.92	29.55 N	114.67 W	39.59	1.54
3907.00	10.90	278.13	3896.40	31.75 N	131.40 W	43.26	1.42
4001.00	10.51	275.23	3988.77	33.78 N	148.74 W	46.82	0.70
4096.00	10.87	275.31	4082.12	35.40 N	166.29 W	49.99	0.38
4191.00	10.62	277.79	4175.45	37.42 N	183.89 W	53.55	0.55
4285.00	9.79	274.10	4267.96	39.16 N	200.44 W	56.76	1.13
4380.00	8.08	261.77	4361.82	38.78 N	215.10 W	57.68	2.69
4475.00	7.45	263.12	4455.95	37.09 N	227.83 W	57.12	0.70
4569.00	6.67	272.68	4549.24	36.61 N	239.32 W	57.66	1.50
4664.00	5.63	288.04	4643.69	38.32 N	249.26 W	60.24	2.04
4759.00	3.63	316.96	4738.39	41.96 N	255.75 W	64.44	3.17
4853.00	1.52	341.80	4832.29	45.31 N	258.17 W	68.00	2.48
4948.00	3.30	60.63	4927.23	47.85 N	256.18 W	70.35	3.53
5043.00	6.98	35.53	5021.84	53.90 N	250.44 W	75.86	4.45
5137.00	14.14	16.50	5114.21	69.58 N	243.85 W	90.90	8.38
5232.00	22.26	4.45	5204.41	98.71 N	239.14 W	119.50	9.37
5326.00	32.57	358.07	5287.76	141.87 N	238.61 W	162.44	11.39
5421.00	43.71	359.14	5362.37	200.43 N	239.97 W	220.89	11.74
5516.00	57.51	0.53	5422.51	273.66 N	240.09 W	293.85	14.57
5611.00	65.15	1.51	5468.06	356.94 N	238.58 W	376.66	8.09
5659.00	68.88	359.56	5486.80	401.11 N	238.17 W	420.63	8.62
5706.00	70.10	357.74	5503.27	445.12 N	239.21 W	464.55	4.46
5754.00	74.82	356.61	5517.73	490.82 N	241.47 W	510.27	10.08
5801.00	80.90	355.48	5527.61	536.64 N	244.64 W	556.19	13.16
5849.00	85.77	355.40	5533.18	584.15 N	248.43 W	603.85	10.15
5895.00	86.36	356.16	5536.33	629.91 N	251.81 W	649.74	2.09
5950.00	87.91	357.25	5539.08	684.75 N	254.97 W	704.64	3.44

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 354.92 DEGREES (GRID)
A TOTAL CORRECTION OF 6.92 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 5950.00 FEET
IS 730.68 FEET ALONG 339.58 DEGREES (GRID)

Tied in @ Surface
First four Survey's from 3rd party source (Muilti Shot EMS)

Final survey projected to bit.

Date Printed:10 January 2015