

PCGK: Pressure Case Gamma

[illegible]

WELL INFORMATION

MWD Run Number	100	200	300		
Date run completed	30-Oct-14	01-Nov-14	02-Nov-14		
Rig Bit Number	0100	0200	0300		
Bit Size (in)	13.500	8.750	8.750		
Tool Nominal OD (in)	6.750	6.750	6.750		
Log Start Depth (MD, ft)	97.00	1,610.00	4,515.00		
Log End Depth (MD, ft)	1,610.00	4,515.00	6,222.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	30-Oct-14 01:30	31-Oct-14 15:00	01-Nov-14 10:30		
Drill/Wipe End Date and Time	30-Oct-14 13:00	01-Nov-14 02:30	02-Nov-14 07:00		
Min Inc (deg) @ Depth (MD, ft)	0.49 @ 138.00	12.97 @ 4,463.00	0.36 @ 5,195.00		
Max Inc (deg) @ Depth (MD, ft)	15.33 @ 1,427.00	15.62 @ 3,635.00	86.51 @ 6,174.00		
Bit TFA(in2) / Bit Type	0.90 / PDC	0.65 / PDC	0.65 / PDC		
Flow Rate (gpm)	775.00	601.07	517.41		
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A		
Fluid Type	Native/Spud Mud	Native/Spud Mud	Native/Spud Mud		
Density (ppg) / Viscosity (spqt)	8.30 / 32.00	8.40 / 28.00	8.40 / 28.00		
Filtrate CL (ppm)	N/A	6,800.00	6,400.00		
pH / Fluid Loss (mptm)	10.00 / N/A	8.60 / N/A	8.60 / N/A		
PV (cP) / YP (lbf2)	N/A / N/A	2 / N/A	17 / 19.00		
% Solids / % Sand	3 / N/A	0.50 / N/A	0.50 / N/A		
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A	N/A / N/A		
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Max Tool Temp (deg F) @ 100 ft	127.00 / DGM	127.50 / DGM	127.00 / DGM		

Max Tool Temp (degF) / Source	107.90 / PCM	137.50 / PCM	167.00 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ 107.90	N/A @ 137.50	N/A @ 167.00		
Lead MWD Engineer	Benjamin Burklund	Benjamin Burklund	Benjamin Burklund		
Customer Representative	Keven Mosely	Keven Mosely	Keven Mosely		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.93	5.93	5.93		
Sub Serial Number	11404203	11404203	11404203		
Insert Serial Number	11400812	11400854	11400854		
Date and Time Initialized	29-Oct-14 23:05	31-Oct-14 02:23	31-Oct-14 02:23		
Date and Time Read	30-Oct-14 16:16	02-Nov-14 12:59	02-Nov-14 13:05		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	61.00	52.00	48.00		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11404203	11404203	11404203		
Sonde Serial Number	10919483	12177629	12177629		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	348.90	48.86	108.27		

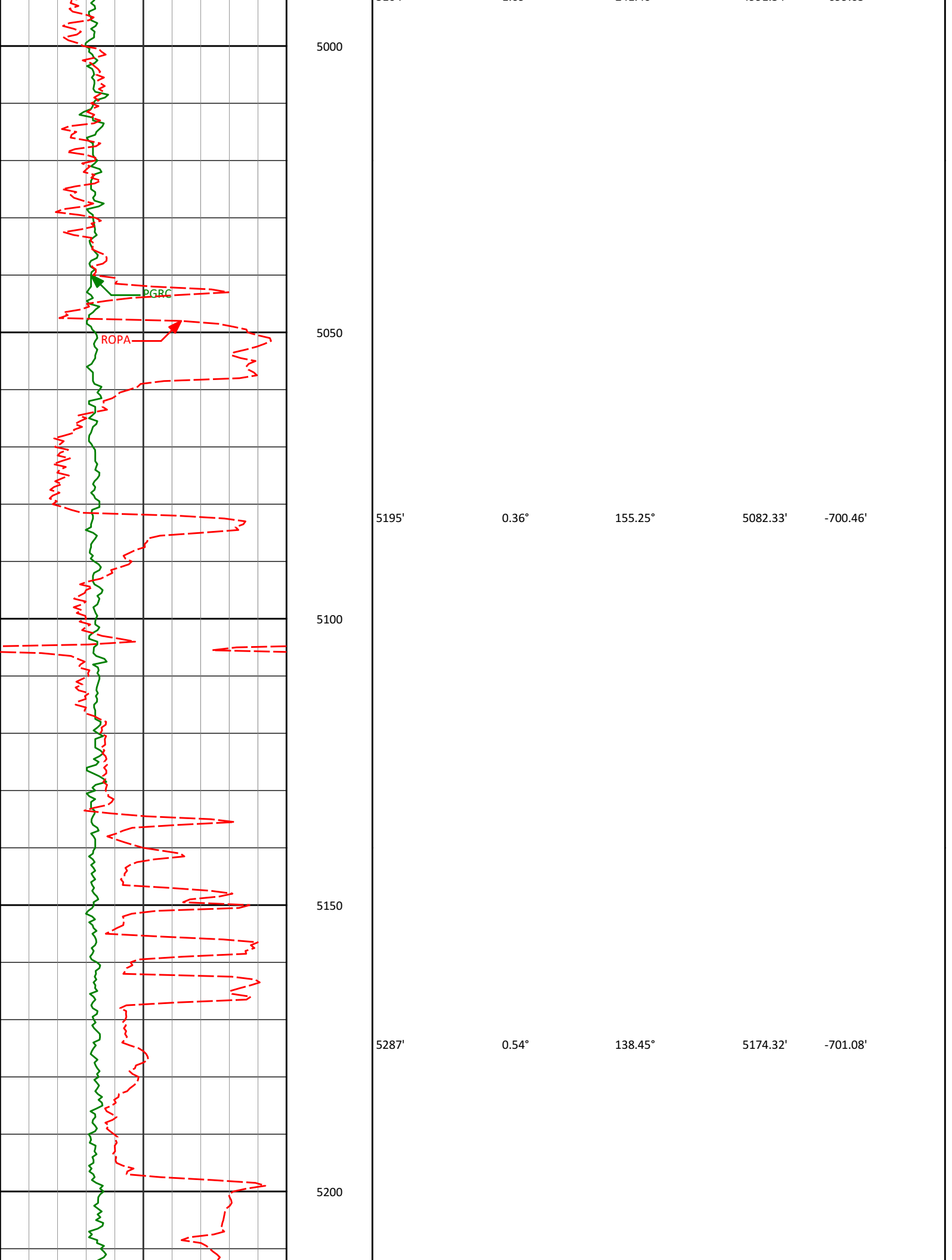
Gamma Ray Sensor Information

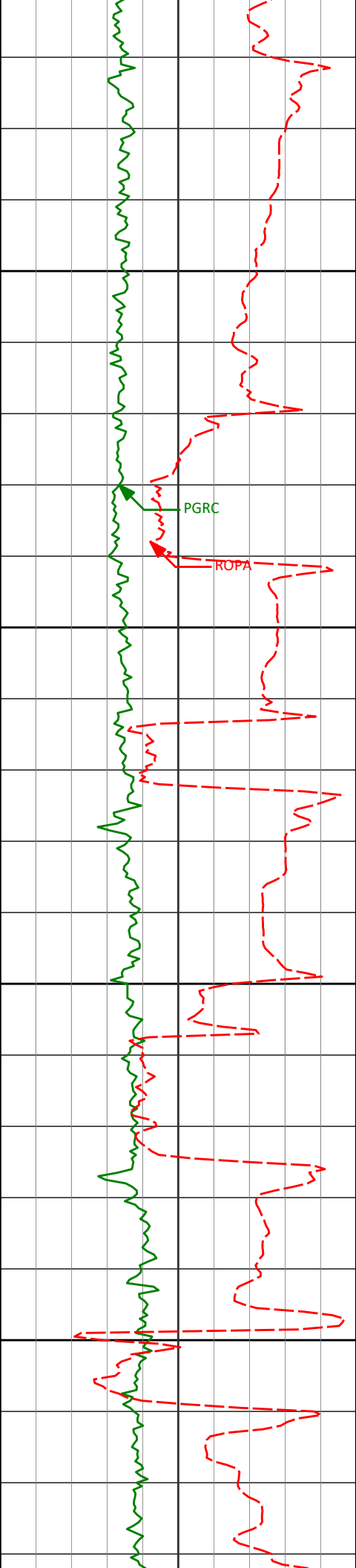
Tool Type		PCG	PCG		
Distance From Bit (ft)		55.44	50.97		
Recorded Sample Period (sec)		10	10		
Software Version		8.15	8.15		
Sub Serial Number		11404203	11404203		
Insert/Sonde Serial Number		12037422	12037422		

REMARKS

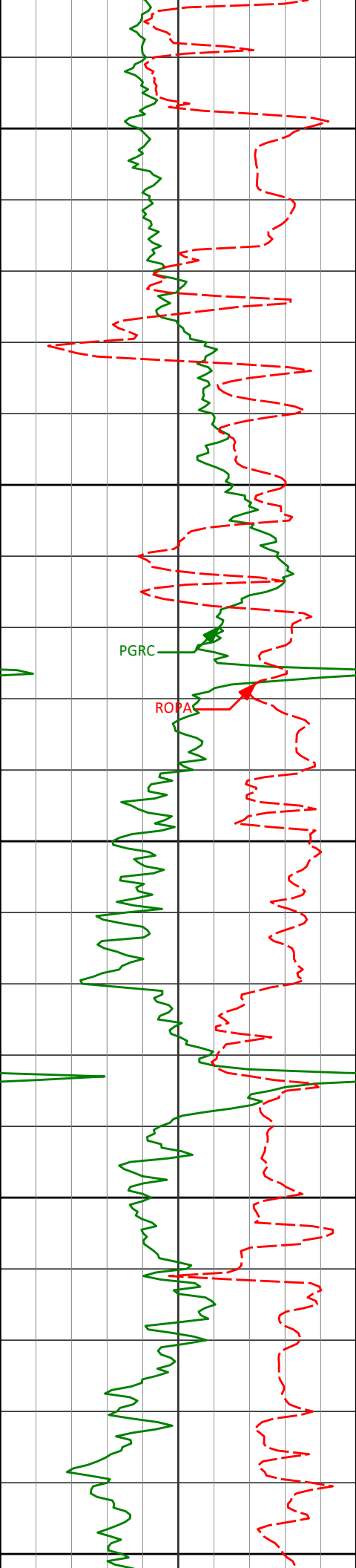
1. All depths are true vertical bit depths, referenced to the Driller's pipe tally and are measured from the drill floor, unless otherwise specified.
2. No depth corrections have been made for pipe stretch or compression.
3. Critical annular velocities are calculated using the "Power Law" model for water based fluids and the "Bingham Plastic" model for oil based fluids.
4. Run 100 was drilled with directional data only.
5. All data presented is recorded (memory data) unless otherwise stated.
6. The following smoothing parameters have been applied to the 5" data:
PGRC (Corrected Gamma Ray)
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft

ROPA (Rate of Penetration Average)
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft
Gap Fill: 3.0 ft
8. INSITE version 8.0.20





5250	5334'	5.83°	359.35°	5221.25'	-698.87'
5300	5380'	12.45°	356.68°	5266.64'	-691.58'
5350	5426'	16.43°	355.03°	5311.18'	-680.11'
5400	5472'	21.29°	355.24°	5354.69'	-665.25'
5450	5514'	25.19°	359.79°	5393.28'	-648.70'
5500	5556'	28.80°	1.63°	5430.70'	-629.73'



5450

5601'

31.96°

2.36°

5469.52'

-607.12'

5500

5643'

35.24°

0.71°

5504.49'

-584.02'

PGRC

ROPA

5688'

40.67°

357.05°

5539.97'

-556.41'

5550

5733'

44.81°

357.51°

5573.01'

-525.90'

5600

5778'

48.25°

359.65°

5603.97'

-493.30'

5820'

52.71°

360.00°

5630.69'

-461.01'

5650

