

PCGK - Pressure Case Gamma

1 : 240

[illegible]

WELL INFORMATION

MWD Run Number	200	300			
Date run completed	23-Apr-13	25-Apr-13			
Rig Bit Number	3	4			
Bit Size (in)	8.750	8.750			
Tool Nominal OD (in)	6.750	8.000			
Log Start Depth (TVD, ft)	6,854.82	7,164.96			
Log End Depth (TVD, ft)	7,164.96	7,426.62			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	23-Apr-13 07:15	24-Apr-13 09:00			
Drill/Wipe End Date and Time	23-Apr-13 17:50	24-Apr-13 23:00			
Min Inc (deg) @ Depth (TVD, ft)	1.26 @ 6,840.82	23.54 @ 7,165.88			
Max Inc (deg) @ Depth (TVD, ft)	19.47 @ 7,122.16	84.35 @ 7,424.24			
Bit TFA(in2) / Bit Type	.98 / PDC	1.04 / PDC			
Flow Rate (gpm)	480.00	522.73			
Max AV (fpm) / CV (fpm) @ MWD	437.9 / 232.7	466.0 / 280.0			
Fluid Type	Fresh Water Gel	Fresh Water Gel			
Density (ppg) / Viscosity (spqt)	9.20 / 34.00	9.75 / 41.00			
Filtrate CL (ppm)	1,000.00	1,000.00			
pH / Fluid Loss (mptm)	8.20 / 10	9.30 / 5			
PV (cP) / YP (lhf2)	10 / 5.00	13 / 12.00			
% Solids / % Sand	5.50 / .1	9.00 / 0.25			
% Oil / Oil:Water Ratio	N/A / N/A	1.00 / 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	163.20 / PCM	167.97 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ 163.20	N/A @ 167.97			
Lead MWD Engineer	Joshua Huckleby	Joshua Huckleby			
Customer Representative	Sam Taylor	Sam Taylor			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.76	5.76			
Sub Serial Number	11341336	11341336			
Insert Serial Number	10921370	11227484			
Date and Time Initialized	17-Apr-13 18:43	23-Apr-13 21:36			
Date and Time Read	24-Apr-13 00:19	25-Apr-13 09:44			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	45.88	46.98			
Software Version	6.21	6.21			
Sub Serial Number	11341336	11341336			
Sonde Serial Number	11297583	11478094			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	78.70	183.73			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	50.83	51.93			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11341336	11341336			
Insert/Sonde Serial Number	11680944	11680968			

Pulser Controller Sensor Information

Tool Type	PCM	PCM			
Software Version	5.76	5.76			
PIC Software Version	1.40	1.40			
Sub/HOC Serial Number	11341336	11341336			
Insert/Probe/Module SN	10921370	11227484			
Battery Serial Number	N/A	N/A			
Valve Insert SN	N/A	N/A			
DC Insert Serial Number	N/A	N/A			
Choke Size (32nd)	N/A	N/A			
Driver Current (amps)	N/A	N/A			
Driver SMI Current (amps)	N/A	N/A			
Boot Strap Version	4,130.00	4,130.00			

REMARKS

1.All depths are calibrated to the driller's pipe tally and are measured from the rotary table.

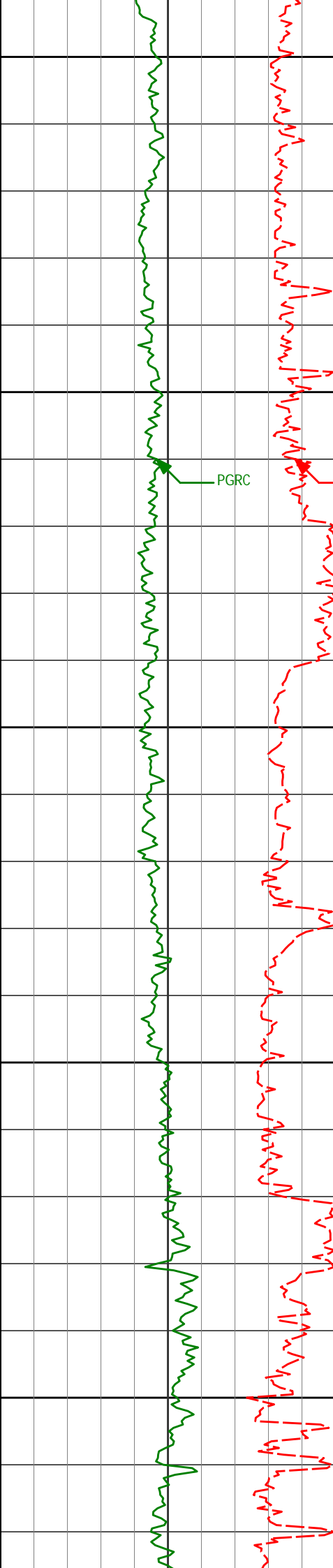
2. No depth corrections have been made for pipe stretch or compression.

3. All data presented is recorded (memory data) unless otherwise stated.

4. All main log data was logged while drilling

5. Environmental parameters used to process Gamma Ray are as follows:
□Hole Size: 8.75"
□Mud Density: 9.3 to 9.8 ppg

6. The following smoothing parameters have been applied to the data:
□ROP: 0.5 ft interval, 1.2 ft coercion distance
□All other curves: 0.5 ft interval, 0.6 ft coercion distance



6900

6956'

6.68°

12.03°

6935.60'

-145.27'

6950

PGRC

ROPA

7004'

9.68°

19.35°

6983.10'

-138.72'

7000

7052'

13.42°

16.15°

7030.12'

-129.54'

7050

7100

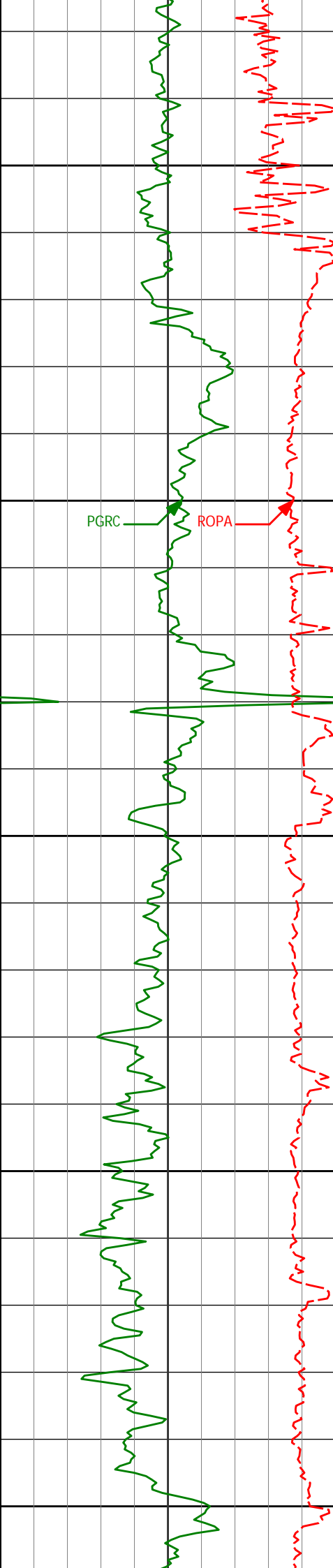
7148'

19.47°

9.31°

7122.16'

-103.00'



Run 300

7150

7200

7250

7300

7350

7195'

23.54°

11.86°

7165.88'

-86.06'

7243'

28.98°

15.62°

7208.91'

-65.43'

7291'

35.27°

17.74°

7249.55'

-40.97'

7338'

41.19°

17.11°

7286.45'

-13.18'

7386'

47.85°

14.11°

7320.66'

19.27'

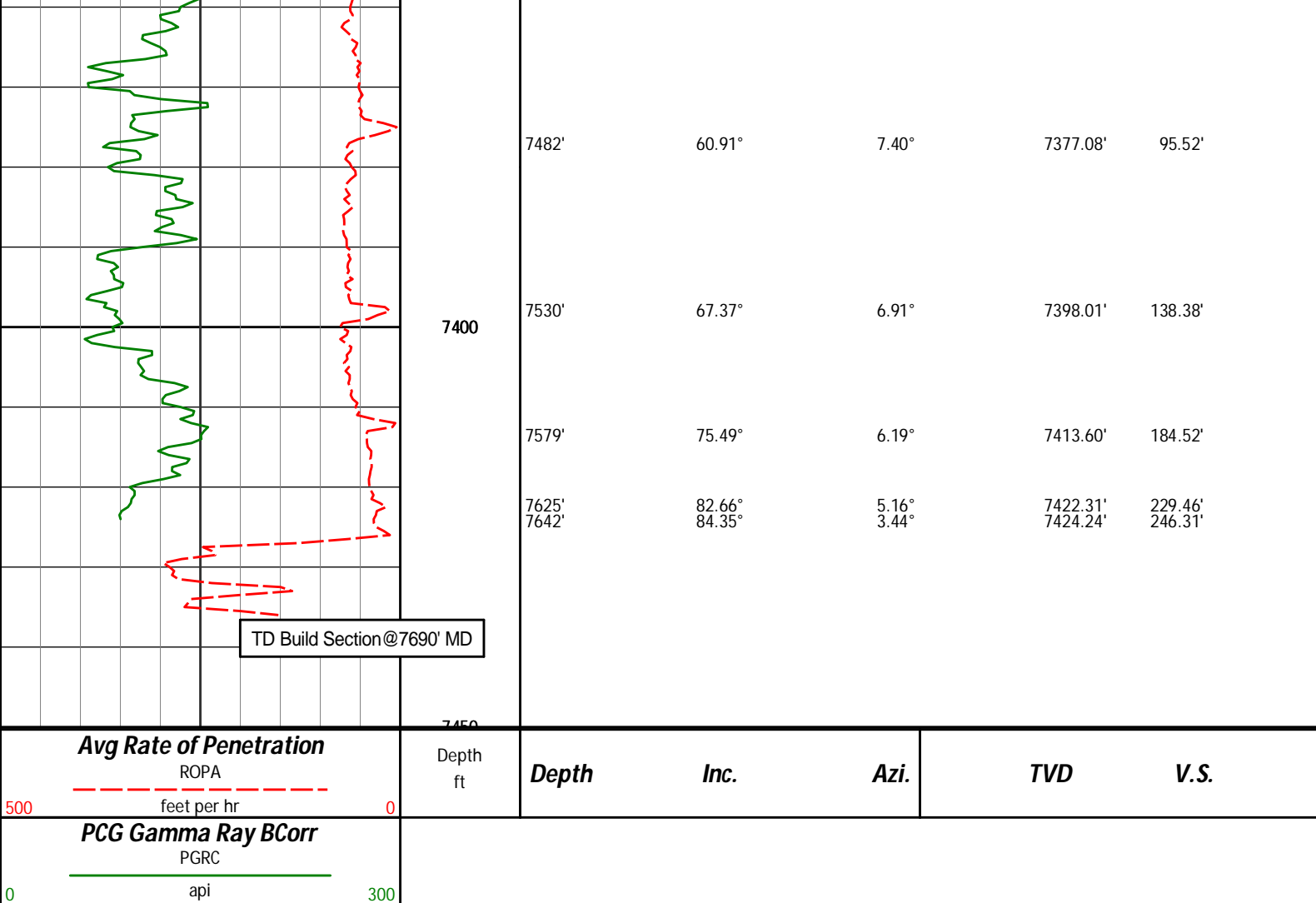
7434'

53.46°

9.60°

7351.09'

55.62'



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Anadarko Petroleum Corp
Gobbler 2N-23Hz
Wattenberg
Weld Colorado
USA
CA-XX-0900275970

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
1001.00	0.18	10.66	1000.99	2.88 N	0.67 E	2.88	TIE-IN
1250.00	0.13	343.36	1249.99	3.54 N	0.66 E	3.54	0.04
1526.00	0.39	311.22	1525.99	4.45 N	0.13 W	4.45	0.10
1802.00	0.59	311.13	1801.98	6.01 N	1.91 W	6.00	0.07
2085.00	1.46	286.82	2084.93	8.01 N	6.46 W	7.97	0.34
2372.00	1.62	322.22	2371.83	12.27 N	12.45 W	12.21	0.33
2467.00	2.26	306.36	2466.78	14.45 N	14.78 W	14.37	0.87
2562.00	2.38	279.69	2561.70	15.89 N	18.23 W	15.79	1.13
2658.00	3.09	263.48	2657.59	15.93 N	22.77 W	15.81	1.09
2753.00	4.10	261.28	2752.41	15.12 N	28.67 W	14.97	1.07
2849.00	4.55	245.89	2848.14	13.05 N	35.53 W	12.86	1.29
2944.00	5.86	236.84	2942.74	8.86 N	43.03 W	8.62	1.62
3040.00	6.54	241.63	3038.18	3.58 N	51.95 W	3.30	0.89
3135.00	8.91	239.90	3132.31	2.68 S	63.07 W	-3.02	2.51
3230.00	9.27	242.57	3226.12	9.90 S	76.23 W	-10.31	0.58
3326.00	8.80	233.47	3320.93	17.83 S	88.99 W	-18.31	1.57
3421.00	7.85	235.56	3414.93	25.83 S	100.18 W	-26.37	1.05
3517.00	7.04	239.70	3510.12	32.50 S	110.67 W	-33.10	1.01
3613.00	6.93	235.03	3605.41	38.79 S	120.50 W	-39.44	0.60
3709.00	7.79	231.05	3700.62	46.20 S	130.30 W	-46.90	1.04
3805.00	7.68	231.78	3795.75	54.26 S	140.40 W	-55.02	0.15
3901.00	7.89	236.17	3890.86	61.89 S	150.91 W	-62.71	0.66
3996.00	8.98	235.85	3884.83	68.68 S	162.47 W	-70.57	1.15

3996.00	8.98	233.85	3984.83	69.69 S	162.47 W	-70.57	1.13
4092.00	8.20	236.72	4079.76	77.65 S	174.39 W	-78.59	0.82
4187.00	8.53	231.75	4173.75	85.73 S	185.59 W	-86.73	0.84
4282.00	8.53	231.35	4267.69	94.49 S	196.62 W	-95.55	0.06
4378.00	9.21	232.70	4362.55	103.59 S	208.30 W	-104.72	0.74
4474.00	7.06	220.84	4457.58	112.71 S	218.27 W	-113.89	2.83
4569.00	6.22	219.81	4551.94	121.08 S	225.38 W	-122.30	0.89
4665.00	5.61	222.15	4647.43	128.56 S	231.86 W	-129.81	0.68
4760.00	5.75	225.92	4741.97	135.31 S	238.39 W	-136.60	0.42
4856.00	5.76	233.24	4837.48	141.54 S	245.71 W	-142.87	0.76
4951.00	6.58	216.09	4931.94	148.79 S	252.73 W	-150.16	2.11
5047.00	4.54	209.91	5027.48	156.53 S	257.87 W	-157.92	2.21
5142.00	4.12	195.24	5122.22	163.08 S	260.64 W	-164.49	1.24
5238.00	2.46	191.49	5218.05	168.43 S	261.96 W	-169.85	1.74
5333.00	0.50	189.92	5313.02	170.84 S	262.44 W	-172.25	2.06
5429.00	1.18	23.92	5409.01	170.35 S	262.11 W	-171.76	1.74
5715.00	0.94	4.44	5694.96	165.32 S	260.73 W	-166.72	0.15
6097.00	0.84	34.41	6076.92	159.88 S	258.91 W	-161.28	0.12
6480.00	0.82	42.07	6459.88	155.53 S	255.48 W	-156.91	0.03
6823.00	1.27	340.90	6802.83	150.12 S	255.08 W	-151.49	0.33
6861.00	1.26	357.31	6840.82	149.30 S	255.24 W	-150.68	0.95
6909.00	3.54	41.53	6888.78	147.66 S	254.28 W	-149.04	5.79
6956.00	6.68	12.03	6935.60	143.90 S	252.75 W	-145.27	8.50
7004.00	9.68	19.35	6983.10	137.36 S	250.83 W	-138.72	6.60
7052.00	13.42	16.15	7030.12	128.20 S	247.94 W	-129.54	7.90
7148.00	19.47	9.31	7122.16	101.69 S	242.25 W	-103.00	6.61
7195.00	23.54	11.86	7165.88	84.76 S	239.05 W	-86.06	8.88
7243.00	28.98	15.62	7208.91	64.17 S	233.95 W	-65.43	11.85
7291.00	35.27	17.74	7249.55	39.74 S	226.59 W	-40.97	13.31
7338.00	41.19	17.11	7286.45	12.00 S	217.89 W	-13.18	12.62
7386.00	47.85	14.11	7320.66	20.40 N	208.89 W	19.27	14.55
7434.00	53.46	9.60	7351.09	56.71 N	201.33 W	55.62	13.76
7482.00	60.91	7.40	7377.08	96.58 N	195.40 W	95.52	15.99
7530.00	67.37	6.91	7398.01	139.41 N	190.03 W	138.38	13.49
7579.00	75.49	6.19	7413.60	185.52 N	184.74 W	184.52	16.63
7625.00	82.66	5.16	7422.31	230.44 N	180.29 W	229.46	15.74
7642.00	84.35	3.44	7424.24	247.28 N	179.02 W	246.31	14.14
7683.00	89.20	0.15	7426.54	288.18 N	177.74 W	287.21	14.29

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 0.31 DEGREES (TRUE)
A TOTAL CORRECTION OF 8.63 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 7683.00 FEET
IS 338.58 FEET ALONG 328.33 DEGREES (TRUE)**

All surveys are magnetic In-Field-Referencing (IFR) corrected.