



Company: Noble Energy
Rig: Production/VES
API # 05-123-24323
Date: 12-28-13
Surveyor: Justin Williams
VS: 0.000
Lat : 40.48091
Long: -104.45848

Well: Bashor PC AA17-15
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.67 De
Declination: 8.36
Depth Reference: RKB = Ground Level
Elevation: 4670
Total Depth as Drilled: 6927

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.762	286.539	0.189	-0.638	99.997	0.762	0.189	0.665
200.000	0.950	320.729	1.021	-1.800	199.986	0.534	1.021	2.070
300.000	0.985	333.877	2.434	-2.704	299.972	0.224	2.434	3.638
400.000	1.289	351.970	4.319	-3.239	399.953	0.467	4.319	5.399
500.000	1.493	7.391	6.725	-3.229	499.924	0.425	6.725	7.460
600.000	1.506	7.707	9.319	-2.885	599.889	0.015	9.319	9.756
700.000	1.527	4.243	11.950	-2.610	699.854	0.094	11.950	12.232
800.000	1.517	6.421	14.594	-2.363	799.819	0.059	14.594	14.784
900.000	1.549	5.994	17.254	-2.074	899.783	0.034	17.254	17.378
1000.000	1.440	6.449	19.846	-1.792	999.749	0.109	19.846	19.927
1100.000	1.245	5.426	22.177	-1.548	1099.722	0.197	22.177	22.231
1200.000	1.043	2.435	24.167	-1.407	1199.702	0.211	24.167	24.208
1300.000	0.900	356.854	25.860	-1.411	1299.688	0.171	25.860	25.898
1400.000	0.738	357.692	27.287	-1.480	1399.677	0.162	27.287	27.327
1500.000	0.909	358.083	28.723	-1.533	1499.667	0.171	28.723	28.764
1600.000	1.028	307.547	30.062	-2.270	1599.654	0.834	30.062	30.148
1700.000	0.877	6.089	31.370	-2.900	1699.643	0.940	31.370	31.504
1800.000	0.966	9.842	32.962	-2.675	1799.630	0.107	32.962	33.070
1900.000	1.113	6.124	34.758	-2.427	1899.613	0.162	34.758	34.843
2000.000	1.264	354.360	36.822	-2.432	1999.592	0.286	36.822	36.902
2100.000	1.393	358.964	39.135	-2.562	2099.565	0.167	39.135	39.219
2200.000	1.740	16.674	41.805	-2.148	2199.528	0.591	41.805	41.860
2300.000	1.447	357.716	44.520	-1.763	2299.490	0.599	44.520	44.555
2400.000	1.448	17.592	46.986	-1.432	2399.459	0.500	46.986	47.008
2500.000	1.334	12.577	49.327	-0.797	2499.429	0.166	49.327	49.333
2600.000	0.873	11.816	51.208	-0.387	2599.410	0.462	51.208	51.210
2700.000	0.520	0.969	52.408	-0.223	2699.403	0.375	52.408	52.408
2800.000	0.504	14.051	53.288	-0.109	2799.399	0.118	53.288	53.288
2900.000	0.454	0.092	54.111	-0.002	2899.396	0.127	54.111	54.111
3000.000	0.062	18.290	54.558	0.016	2999.394	0.395	54.558	54.558
3100.000	0.043	335.872	54.644	0.018	3099.394	0.042	54.644	54.644
3200.000	0.273	359.168	54.916	-0.001	3199.394	0.234	54.916	54.916
3300.000	0.202	83.136	55.175	0.171	3299.393	0.322	55.175	55.175
3400.000	0.494	144.594	54.845	0.596	3399.392	0.435	54.845	54.848
3500.000	0.574	147.583	54.071	1.114	3499.387	0.085	54.071	54.082

3600.000	0.583	131.232	53.313	1.765	3599.382	0.165	53.313	53.342
3700.000	0.708	121.943	52.650	2.672	3699.376	0.163	52.650	52.718
3800.000	0.874	140.815	51.732	3.678	3799.366	0.307	51.732	51.863
3900.000	1.395	124.815	50.446	5.160	3899.347	0.605	50.446	50.709
4000.000	0.793	110.985	49.503	6.805	3999.328	0.654	49.503	49.969
4015.000	0.767	116.322	49.421	6.992	4014.327	0.513	49.421	49.914

0

degrees East of True North

Cbrg

0.000
286.539
299.548
311.996
323.134
334.356
342.800
347.680
350.801
353.145
354.840
356.007
356.669
356.876
356.895
356.946
355.682
354.719
355.361
356.006
356.222
356.255
357.058
357.732
358.255
359.075
359.567
359.756
359.883
359.998
0.017
0.019
359.999
0.177
0.623
1.180

1.896
2.905
4.067
5.840
7.827
8.053