



**Company:** Noble Energy

**Rig:** Production/CoreTech

**API #** 05-123-32358

**Date:** 1/10/2014

**Surveyor:** Randy Holcomb

**VS:** 0.000

**Lat :** 40.490

**Long:** -104.460

**Well:** Bashor PC AA 17-18

**Location:** Weld County, Colorado

**North Reference:** GRID

**Convergence:** Grid north is 0.67 East of True North

**Declination:** 8.36

**Depth Reference:** Ground Level

**Elevation:** 4673 Feet

**Total Depth as Drilled:** 7041 Feet

**Lat & Long obtained by handheld GPS at wellhead**

**MS Gyro Survey Calculations**

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000	0.000
100.000	0.881	347.484	0.750	-0.167	99.996	0.881	0.750	0.769	347.484
200.000	1.118	312.906	2.165	-1.048	199.982	0.636	2.165	2.405	334.173
300.000	1.983	297.214	3.620	-3.301	299.945	0.956	3.620	4.899	317.640
400.000	3.637	276.625	4.778	-7.991	399.823	1.912	4.778	9.310	300.874
500.000	4.535	274.776	5.473	-15.081	499.568	0.907	5.473	16.043	289.945
600.000	4.946	272.288	5.974	-23.328	599.226	0.460	5.974	24.081	284.364
700.000	4.638	262.170	5.595	-31.641	698.878	0.898	5.595	32.132	280.028
800.000	3.676	260.039	4.490	-38.805	798.614	0.974	4.490	39.063	276.600
900.000	2.202	264.146	3.739	-43.874	898.480	1.488	3.739	44.033	274.871
1000.000	0.926	174.481	2.739	-45.707	998.450	2.384	2.739	45.789	273.429
1100.000	1.387	142.923	0.970	-44.900	1098.431	0.770	0.970	44.910	271.237
1200.000	1.451	109.147	-0.411	-42.974	1198.402	0.827	-0.411	42.976	269.452
1300.000	0.971	66.634	-0.491	-41.000	1298.381	0.986	-0.491	41.003	269.314
1400.000	0.867	45.799	0.372	-39.681	1398.369	0.348	0.372	39.683	270.538
1500.000	0.843	44.650	1.423	-38.621	1498.357	0.029	1.423	38.648	272.111
1600.000	0.379	74.505	2.035	-37.786	1598.352	0.548	2.035	37.840	273.083
1700.000	0.291	92.324	2.113	-37.214	1698.350	0.135	2.113	37.274	273.250
1800.000	0.231	75.633	2.153	-36.764	1798.349	0.096	2.153	36.827	273.352
1900.000	0.367	39.300	2.451	-36.366	1898.348	0.227	2.451	36.449	273.856
2000.000	0.400	19.456	3.028	-36.047	1998.345	0.136	3.028	36.174	274.801
2100.000	0.674	29.890	3.866	-35.638	2098.341	0.290	3.866	35.847	276.191
2200.000	0.974	31.890	5.097	-34.896	2198.331	0.301	5.097	35.266	278.310
2300.000	1.033	14.201	6.692	-34.226	2298.315	0.314	6.692	34.874	281.064
2400.000	0.712	25.370	8.128	-33.739	2398.304	0.362	8.128	34.704	283.544
2500.000	0.602	29.600	9.146	-33.213	2498.297	0.120	9.146	34.449	285.396
2600.000	0.308	4.608	9.871	-32.932	2598.294	0.349	9.871	34.379	286.685
2700.000	0.113	346.589	10.234	-32.933	2698.293	0.203	10.234	34.487	287.263
2800.000	0.147	163.168	10.207	-32.919	2798.293	0.260	10.207	34.465	287.226
2900.000	0.273	180.537	9.846	-32.884	2898.293	0.139	9.846	34.326	286.668
3000.000	0.280	170.193	9.367	-32.844	2998.291	0.050	9.367	34.154	285.918
3100.000	0.261	108.484	9.054	-32.586	3098.290	0.278	9.054	33.821	285.527
3200.000	0.151	77.058	9.011	-32.242	3198.290	0.154	9.011	33.478	285.615
3300.000	0.197	64.669	9.114	-31.959	3298.289	0.059	9.114	33.233	285.917
3400.000	0.353	71.809	9.284	-31.511	3398.288	0.159	9.284	32.850	286.416
3500.000	0.709	55.261	9.732	-30.710	3498.284	0.384	9.732	32.215	287.584
3600.000	0.667	85.129	10.134	-29.621	3598.277	0.357	10.134	31.307	288.888
3700.000	0.783	78.693	10.318	-28.372	3698.269	0.141	10.318	30.190	289.984

3800.000	0.765	56.271	10.822	-27.147	3798.260	0.301	10.822	29.225	291.735
3900.000	0.817	43.484	11.711	-26.101	3898.251	0.184	11.711	28.608	294.164
4000.000	1.162	27.114	13.130	-25.148	3998.236	0.443	13.130	28.370	297.570
4100.000	1.823	25.165	15.473	-24.010	4098.201	0.663	15.473	28.563	302.799
4200.000	2.529	22.090	18.957	-22.504	4198.128	0.715	18.957	29.424	310.110
4300.000	2.760	21.524	23.241	-20.791	4298.022	0.232	23.241	31.183	318.185
4400.000	3.036	21.317	27.947	-18.945	4397.894	0.276	27.947	33.763	325.868
4500.000	3.102	25.458	32.857	-16.819	4497.751	0.231	32.857	36.912	332.893
4600.000	3.470	24.594	38.053	-14.396	4597.586	0.372	38.053	40.685	339.277
4700.000	3.547	29.205	43.505	-11.627	4697.399	0.292	43.505	45.032	345.037
4800.000	2.735	32.883	48.209	-8.822	4797.248	0.836	48.209	49.009	349.629
4900.000	0.967	2.672	51.055	-7.488	4897.194	1.961	51.055	51.601	351.657
5000.000	0.376	17.259	52.211	-7.351	4997.186	0.610	52.211	52.726	351.986
5100.000	0.226	29.552	52.695	-7.156	5097.185	0.162	52.695	53.179	352.266
5200.000	0.328	36.725	53.097	-6.888	5197.184	0.108	53.097	53.542	352.609
5300.000	0.344	52.491	53.509	-6.478	5297.182	0.093	53.509	53.900	353.097
5400.000	0.412	67.353	53.830	-5.908	5397.180	0.119	53.830	54.154	353.736
5500.000	0.489	115.402	53.786	-5.191	5497.177	0.373	53.786	54.036	354.487
5600.000	0.579	146.793	53.180	-4.529	5597.173	0.301	53.180	53.373	355.132
5700.000	0.816	155.752	52.108	-3.960	5697.165	0.261	52.108	52.258	355.654
5800.000	0.698	154.387	50.909	-3.404	5797.157	0.120	50.909	51.023	356.174
5900.000	0.838	153.712	49.705	-2.817	5897.148	0.140	49.705	49.784	356.756
6000.000	0.828	155.897	48.389	-2.198	5997.137	0.033	48.389	48.439	357.399
6100.000	0.794	146.437	47.152	-1.520	6097.127	0.138	47.152	47.177	358.154
6200.000	0.927	132.974	46.023	-0.545	6197.116	0.241	46.023	46.027	359.322
6300.000	1.061	92.654	45.429	0.972	6297.102	0.697	45.429	45.440	1.225
6400.000	1.130	114.706	44.974	2.793	6397.084	0.425	44.974	45.061	3.553
6500.000	1.142	78.753	44.756	4.666	6497.066	0.701	44.756	44.999	5.952
6600.000	1.488	77.968	45.221	6.914	6597.039	0.347	45.221	45.747	8.693
6700.000	1.822	110.315	44.940	9.675	6697.000	0.976	44.940	45.970	12.150
6750.000	2.311	125.563	44.078	11.241	6746.967	1.464	44.078	45.489	14.306