



**Company:** Noble Energy

**Rig:** Production/Core-Tech

**API #** 05-123-32508

**Date:** 11/5/2013

**Surveyor:** Nick Kula

**VS:** 0.000

**Lat :** 40.496

**Long:** -104.444

**Well:** Bashor PC AA 9-14

**Location:** Weld County, Colorado

**North Reference:** GRID

**Convergence:** GRID North is 0.680 Degrees East

**Declination:** 8.38

**Depth Reference:** Ground Level

**Elevation:** 4686'

**Total Depth as Drilled:** 6945'

**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	0.000
100.000	0.547	119.520	-0.235	0.415	99.998	0.547	-0.235	0.477	119.520
200.000	0.535	144.491	-0.851	1.102	199.994	0.234	-0.851	1.392	127.662
300.000	0.597	144.475	-1.655	1.676	299.989	0.062	-1.655	2.356	134.634
400.000	1.086	173.185	-3.020	2.092	399.979	0.631	-3.020	3.674	145.295
500.000	1.597	185.501	-5.348	2.071	499.951	0.584	-5.348	5.735	158.837
600.000	1.769	187.911	-8.265	1.724	599.908	0.186	-8.265	8.443	168.214
700.000	1.600	191.876	-11.160	1.225	699.865	0.205	-11.160	11.227	173.738
800.000	1.566	187.189	-13.883	0.766	799.826	0.134	-13.883	13.904	176.841
900.000	1.695	190.164	-16.695	0.334	899.786	0.154	-16.695	16.698	178.853
1000.000	1.525	185.479	-19.475	-0.054	999.747	0.215	-19.475	19.475	180.159
1100.000	1.406	189.961	-22.009	-0.393	1099.714	0.165	-22.009	22.012	181.024
1200.000	1.258	200.191	-24.248	-0.984	1199.687	0.280	-24.248	24.268	182.325
1300.000	1.070	197.075	-26.170	-1.637	1299.666	0.198	-26.170	26.221	183.580
1400.000	1.031	217.372	-27.777	-2.457	1399.650	0.372	-27.777	27.885	185.055
1500.000	0.866	209.835	-29.147	-3.379	1499.636	0.206	-29.147	29.342	186.613
1600.000	0.862	229.740	-30.288	-4.329	1599.625	0.299	-30.288	30.596	188.133
1700.000	0.553	230.903	-31.078	-5.277	1699.617	0.309	-31.078	31.523	189.636
1800.000	0.271	264.468	-31.405	-5.886	1799.615	0.360	-31.405	31.952	190.615
1900.000	0.391	224.125	-31.673	-6.359	1899.613	0.254	-31.673	32.305	191.352
2000.000	0.335	226.005	-32.121	-6.806	1999.611	0.057	-32.121	32.834	191.964
2100.000	0.666	148.715	-32.820	-6.715	2099.608	0.676	-32.820	33.500	191.564
2200.000	0.697	130.996	-33.716	-5.954	2199.601	0.212	-33.716	34.238	190.015
2300.000	0.768	119.297	-34.443	-4.911	2299.593	0.165	-34.443	34.791	188.115
2400.000	1.385	114.124	-35.265	-3.224	2399.575	0.624	-35.265	35.412	185.223
2500.000	1.305	123.923	-36.394	-1.176	2499.547	0.243	-36.394	36.413	181.851
2600.000	0.833	109.649	-37.274	0.454	2599.530	0.538	-37.274	37.277	179.303
2700.000	0.690	98.689	-37.610	1.733	2699.521	0.204	-37.610	37.649	177.361
2800.000	0.591	94.814	-37.744	2.842	2799.515	0.107	-37.744	37.851	175.693
2900.000	0.634	78.609	-37.678	3.899	2899.509	0.178	-37.678	37.879	174.092
3000.000	0.488	67.000	-37.402	4.834	2999.504	0.184	-37.402	37.713	172.636
3100.000	0.643	55.605	-36.919	5.689	3099.500	0.191	-36.919	37.354	171.240
3200.000	0.558	74.976	-36.476	6.622	3199.494	0.219	-36.476	37.072	169.710
3300.000	0.805	46.498	-35.866	7.602	3299.487	0.412	-35.866	36.662	168.034
3400.000	1.480	34.421	-34.317	8.841	3399.467	0.713	-34.317	35.438	165.553
3500.000	1.599	41.157	-32.202	10.489	3499.431	0.217	-32.202	33.867	161.958

3600.000	1.415	38.013	-30.178	12.168	3599.396	0.202	-30.178	32.539	158.041
3700.000	1.211	17.901	-28.200	13.253	3699.371	0.501	-28.200	31.159	154.829
3800.000	1.480	15.528	-25.951	13.923	3799.343	0.275	-25.951	29.450	151.786
3900.000	1.398	23.667	-23.590	14.758	3899.311	0.220	-23.590	27.826	147.969
4000.000	1.315	36.245	-21.548	15.926	3999.284	0.308	-21.548	26.794	143.531
4100.000	1.408	75.575	-20.316	17.795	4099.258	0.920	-20.316	27.007	138.785
4200.000	3.149	77.986	-19.438	21.671	4199.175	1.744	-19.438	29.112	131.891
4300.000	3.484	87.674	-18.743	27.394	4299.008	0.652	-18.743	33.192	124.380
4400.000	3.448	82.045	-18.203	33.408	4398.825	0.342	-18.203	38.045	118.585
4500.000	3.298	87.680	-17.671	39.261	4498.652	0.364	-17.671	43.054	114.232
4600.000	4.051	89.086	-17.498	45.667	4598.446	0.759	-17.498	48.904	110.965
4700.000	3.939	98.377	-17.942	52.597	4698.204	0.656	-17.942	55.573	108.836
4800.000	3.067	105.022	-19.136	58.580	4798.017	0.961	-19.136	61.626	108.090
4900.000	2.886	116.809	-20.965	63.410	4897.882	0.637	-20.965	66.786	108.295
5000.000	2.686	111.567	-22.961	67.836	4997.764	0.324	-22.961	71.617	108.700
5100.000	2.587	104.073	-24.372	72.205	5097.659	0.358	-24.372	76.207	108.651
5200.000	2.817	117.758	-26.065	76.569	5197.549	0.683	-26.065	80.884	108.799
5300.000	2.713	121.688	-28.453	80.758	5297.432	0.216	-28.453	85.624	109.409
5400.000	2.128	104.963	-30.176	84.566	5397.344	0.912	-30.176	89.788	109.638
5500.000	1.181	98.157	-30.801	87.379	5497.301	0.965	-30.801	92.649	109.418
5600.000	0.428	66.359	-30.798	88.742	5597.291	0.848	-30.798	93.934	109.139
5700.000	0.329	75.412	-30.575	89.362	5697.289	0.116	-30.575	94.448	108.888
5800.000	0.185	71.185	-30.451	89.793	5797.288	0.145	-30.451	94.816	108.733
5900.000	0.462	58.716	-30.189	90.291	5897.286	0.284	-30.189	95.204	108.488
6000.000	0.298	158.615	-30.221	90.730	5997.285	0.591	-30.221	95.631	108.422
6100.000	0.471	112.380	-30.620	91.205	6097.283	0.341	-30.620	96.208	108.558
6200.000	0.396	85.888	-30.751	91.930	6197.280	0.212	-30.751	96.937	108.496
6300.000	0.388	106.847	-30.825	92.598	6297.277	0.143	-30.825	97.594	108.412
6400.000	0.288	123.012	-31.060	93.133	6397.276	0.137	-31.060	98.176	108.444
6500.000	0.161	18.114	-31.064	93.388	6497.275	0.365	-31.064	98.419	108.399
6600.000	0.282	357.766	-30.684	93.422	6597.274	0.143	-30.684	98.332	108.182
6700.000	0.786	112.920	-30.705	94.045	6697.271	0.942	-30.705	98.930	108.081

of True North