



**Company:** Noble Energy  
**Rig:** Production/VES  
**API #** 05-123-32509  
**Date:** 10/29/13  
**Surveyor:** Levi Sheldon  
**VS:** 0.000  
**Lat :** 40.498  
**Long:** -104.442

**Well:** Bashor PC AA09-24  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** GRID North is 0.680 Degrees East  
**Declination:** 8.38  
**Depth Reference:** Ground Level  
**Elevation:** 4,687 Feet  
**Total Depth as Drilled:** 6,915 Feet

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

HA 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	0.329	331.722	0.253	-0.136	99.999	0.329	0.253	0.287	331.722
200.000	0.990	23.908	1.296	0.078	199.993	0.830	1.296	1.298	3.434
300.000	1.372	50.947	2.840	1.358	299.972	0.666	2.840	3.148	25.549
400.000	1.208	82.189	3.738	3.332	399.948	0.713	3.738	5.008	41.715
500.000	1.443	85.777	3.974	5.632	499.921	0.249	3.974	6.893	54.795
600.000	1.761	81.206	4.302	8.406	599.882	0.342	4.302	9.443	62.901
700.000	1.717	84.342	4.684	11.416	699.836	0.105	4.684	12.339	67.690
800.000	1.520	84.216	4.966	14.227	799.796	0.197	4.966	15.068	70.759
900.000	1.775	84.622	5.244	17.088	899.755	0.255	5.244	17.875	72.938
1000.000	1.639	87.494	5.452	20.058	999.710	0.160	5.452	20.786	74.794
1100.000	1.514	85.174	5.626	22.804	1099.672	0.140	5.626	23.487	76.142
1200.000	1.497	83.566	5.883	25.419	1199.638	0.046	5.883	26.091	76.968
1300.000	1.485	88.133	6.072	28.012	1299.604	0.119	6.072	28.662	77.770
1400.000	1.439	91.492	6.081	30.562	1399.572	0.097	6.081	31.162	78.746
1500.000	1.318	90.545	6.038	32.968	1499.543	0.124	6.038	33.516	79.622
1600.000	0.852	98.704	5.914	34.853	1599.524	0.490	5.914	35.351	80.369
1700.000	0.191	141.239	5.672	35.691	1699.520	0.723	5.672	36.139	80.970
1800.000	0.291	207.879	5.318	35.677	1799.519	0.277	5.318	36.071	81.522
1900.000	0.835	201.857	4.417	35.287	1899.514	0.547	4.417	35.562	82.865
2000.000	0.957	189.364	2.917	34.880	1999.502	0.229	2.917	35.002	85.219
2100.000	1.180	191.167	1.084	34.545	2099.484	0.226	1.084	34.562	88.203
2200.000	1.180	181.986	-0.956	34.310	2199.463	0.189	-0.956	34.323	91.595
2300.000	0.967	162.353	-2.789	34.530	2299.446	0.422	-2.789	34.642	94.618
2400.000	0.255	168.025	-3.811	34.832	2399.440	0.714	-3.811	35.040	96.245
2500.000	0.273	111.757	-4.118	35.099	2499.439	0.250	-4.118	35.340	96.691
2600.000	0.318	118.450	-4.338	35.565	2599.437	0.057	-4.338	35.828	96.954
2700.000	0.354	109.169	-4.572	36.100	2699.436	0.065	-4.572	36.389	97.217
2800.000	0.484	62.719	-4.479	36.767	2799.433	0.352	-4.479	37.039	96.946
2900.000	0.681	48.436	-3.891	37.588	2899.428	0.243	-3.891	37.788	95.911
3000.000	0.681	60.411	-3.204	38.549	2999.421	0.142	-3.204	38.682	94.751
3100.000	0.993	72.223	-2.646	39.890	3099.410	0.355	-2.646	39.978	93.795
3200.000	1.490	74.043	-2.024	41.966	3199.387	0.499	-2.024	42.015	92.761
3300.000	1.690	84.354	-1.521	44.684	3299.348	0.348	-1.521	44.710	91.950
3400.000	1.583	79.678	-1.129	47.511	3399.308	0.171	-1.129	47.524	91.361
3500.000	1.149	59.361	-0.370	49.732	3499.279	0.644	-0.370	49.734	90.426

3600.000	1.137	65.336	0.555	51.497	3599.260	0.120	0.555	51.500	89.383
3700.000	1.272	66.340	1.414	53.415	3699.237	0.137	1.414	53.433	88.483
3800.000	1.398	66.277	2.350	55.548	3799.210	0.126	2.350	55.598	87.577
3900.000	1.045	58.501	3.318	57.442	3899.187	0.389	3.318	57.538	86.695
4000.000	0.375	60.657	3.954	58.505	3999.179	0.670	3.954	58.638	86.133
4100.000	0.349	21.318	4.399	58.901	4099.177	0.245	4.399	59.065	85.729
4200.000	0.845	320.439	5.251	58.542	4199.172	0.741	5.251	58.777	84.875
4300.000	1.279	295.860	6.306	57.068	4299.156	0.620	6.306	57.415	83.695
4400.000	1.465	286.160	7.149	54.836	4399.127	0.297	7.149	55.300	82.573
4500.000	1.922	257.966	7.155	51.968	4499.085	0.937	7.155	52.458	82.161
4600.000	2.652	241.476	5.700	48.295	4599.005	0.976	5.700	48.630	83.269
4700.000	2.417	240.009	3.541	44.435	4698.907	0.244	3.541	44.576	85.444
4800.000	1.601	224.301	1.487	41.633	4798.846	0.978	1.487	41.660	87.954
4900.000	1.519	221.090	-0.511	39.786	4898.809	0.120	-0.511	39.790	90.737
5000.000	1.456	217.300	-2.521	38.146	4998.775	0.117	-2.521	38.229	93.780
5100.000	1.236	197.921	-4.557	37.044	5098.748	0.502	-4.557	37.324	97.013
5200.000	1.244	171.967	-6.658	36.864	5198.725	0.557	-6.658	37.461	100.237
5300.000	1.470	173.027	-9.006	37.172	5298.697	0.227	-9.006	38.247	103.619
5400.000	0.918	177.786	-11.079	37.358	5398.675	0.561	-11.079	38.966	106.518
5500.000	0.174	210.192	-12.011	37.313	5498.670	0.776	-12.011	39.198	107.843
5600.000	0.399	199.472	-12.470	37.120	5598.669	0.231	-12.470	39.159	108.570
5700.000	0.582	174.626	-13.305	37.052	5698.665	0.277	-13.305	39.368	109.752
5800.000	0.401	181.565	-14.161	37.090	5798.662	0.190	-14.161	39.701	110.897
5900.000	0.577	199.819	-14.984	36.910	5898.658	0.232	-14.984	39.835	112.096
6000.000	0.647	175.611	-16.021	36.782	5998.652	0.266	-16.021	40.120	113.536
6100.000	0.811	176.823	-17.291	36.865	6098.644	0.165	-17.291	40.718	115.128
6200.000	0.548	187.443	-18.472	36.842	6198.637	0.291	-18.472	41.214	116.629
6300.000	0.793	183.040	-19.638	36.743	6298.630	0.250	-19.638	41.662	118.123
6400.000	0.884	213.107	-20.976	36.285	6398.620	0.444	-20.976	41.912	120.031
6500.000	0.839	218.790	-22.193	35.405	6498.609	0.096	-22.193	41.786	122.080
6600.000	0.803	198.190	-23.429	34.727	6598.599	0.296	-23.429	41.892	124.006
6625.000	0.710	185.198	-23.750	34.659	6623.596	0.777	-23.750	42.015	124.421

of True North