



Company: Noble Energy

Rig: Production / CoreTech

API # 05-123-24321

Date: 11/26/2013

Surveyor: CJ Hines

VS: 0.000

Lat : 40.49264

Long: -104.453

Well: Bashor #17-11

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is 0.68 East of True N

Declination: 8.37

Depth Reference: Ground Level

Elevation: 4692

Total Depth as Drilled: 7022

Lat & Long obtained by handheld GPS at wellhead

MS Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100.000	0.543	353.015	0.470	-0.058	99.999	0.543	0.470	0.474	353.015
200.000	0.158	356.631	1.078	-0.123	199.996	0.385	1.078	1.085	353.474
300.000	0.316	307.313	1.383	-0.351	299.996	0.245	1.383	1.427	345.757
400.000	0.115	327.624	1.635	-0.624	399.995	0.212	1.635	1.750	339.097
500.000	0.651	14.348	2.271	-0.538	499.992	0.578	2.271	2.333	346.682
600.000	0.645	9.440	3.377	-0.304	599.986	0.056	3.377	3.390	354.850
700.000	0.666	339.602	4.477	-0.415	699.980	0.338	4.477	4.496	354.709
800.000	0.581	341.177	5.502	-0.781	799.974	0.086	5.502	5.557	351.922
900.000	0.652	3.913	6.550	-0.906	899.968	0.253	6.550	6.612	352.127
1000.000	0.981	350.250	7.961	-1.012	999.958	0.380	7.961	8.025	352.756
1100.000	0.953	354.757	9.633	-1.233	1099.944	0.081	9.633	9.711	352.706
1200.000	1.103	19.252	11.370	-0.991	1199.928	0.460	11.370	11.413	355.017
1300.000	0.932	14.304	13.067	-0.473	1299.912	0.192	13.067	13.076	357.927
1400.000	1.218	5.509	14.914	-0.170	1399.895	0.329	14.914	14.915	359.347
1500.000	1.229	28.364	16.915	0.441	1499.872	0.485	16.915	16.921	1.495
1600.000	0.902	4.517	18.643	1.013	1599.856	0.544	18.643	18.670	3.109
1700.000	1.088	18.749	20.326	1.380	1699.841	0.308	20.326	20.373	3.884
1800.000	1.119	8.855	22.191	1.836	1799.822	0.193	22.191	22.266	4.729
1900.000	1.231	352.234	24.220	1.841	1899.801	0.357	24.220	24.290	4.346
2000.000	1.791	349.351	26.820	1.407	1999.766	0.565	26.820	26.857	3.003
2100.000	1.995	332.945	29.907	0.326	2099.712	0.577	29.907	29.908	0.625
2200.000	1.869	337.935	32.968	-1.078	2199.655	0.210	32.968	32.986	358.127
2300.000	2.107	331.378	36.094	-2.572	2299.595	0.329	36.094	36.185	355.925
2400.000	1.941	331.131	39.190	-4.270	2399.533	0.166	39.190	39.422	353.782
2500.000	2.112	335.265	42.347	-5.858	2499.470	0.225	42.347	42.750	352.124
2600.000	2.060	321.674	45.430	-7.744	2599.405	0.496	45.430	46.085	350.327
2700.000	2.147	328.841	48.443	-9.827	2699.338	0.277	48.443	49.430	348.532
2800.000	2.019	319.505	51.385	-11.940	2799.272	0.362	51.385	52.754	346.918
2900.000	1.904	316.080	53.921	-14.237	2899.213	0.164	53.921	55.769	345.210
3000.000	2.029	314.295	56.354	-16.656	2999.154	0.139	56.354	58.764	343.535
3100.000	2.136	316.387	58.939	-19.208	3099.088	0.132	58.939	61.990	341.949
3200.000	1.854	327.436	61.652	-21.365	3199.028	0.476	61.652	65.249	340.887
3300.000	1.915	346.395	64.640	-22.628	3298.975	0.624	64.640	68.486	340.706
3400.000	2.117	351.670	68.091	-23.289	3398.913	0.274	68.091	71.964	341.118
3500.000	2.037	337.040	71.555	-24.250	3498.848	0.535	71.555	75.552	341.279
3600.000	2.241	341.096	75.041	-25.576	3598.778	0.254	75.041	79.280	341.179

3700.000	2.017	340.967	78.554	-26.784	3698.709	0.223	78.554	82.995	341.173
3800.000	1.927	338.768	81.785	-27.967	3798.650	0.118	81.785	86.435	341.122
3900.000	2.104	336.081	85.031	-29.320	3898.588	0.200	85.031	89.944	340.975
4000.000	1.976	346.540	88.386	-30.466	3998.525	0.393	88.386	93.489	340.981
4100.000	2.165	344.165	91.880	-31.382	4098.460	0.208	91.880	97.091	341.142
4200.000	1.576	356.681	95.070	-31.977	4198.406	0.713	95.070	100.304	341.409
4300.000	1.201	359.786	97.491	-32.061	4298.377	0.382	97.491	102.627	341.796
4400.000	0.735	0.850	99.180	-32.055	4398.362	0.467	99.180	104.231	342.089
4500.000	0.455	39.549	100.127	-31.793	4498.357	0.474	100.127	105.053	342.384
4600.000	0.197	33.943	100.575	-31.444	4598.355	0.260	100.575	105.376	342.638
4700.000	0.535	249.460	100.554	-31.786	4698.354	0.705	100.554	105.458	342.458
4800.000	0.780	239.627	100.046	-32.810	4798.348	0.269	100.046	105.289	341.843
4900.000	0.715	248.610	99.475	-33.978	4898.339	0.134	99.475	105.117	341.141
5000.000	0.635	241.803	98.986	-35.046	4998.332	0.113	98.986	105.007	340.503
5100.000	0.583	238.977	98.462	-35.970	5098.327	0.060	98.462	104.826	339.932
5200.000	0.284	225.434	98.026	-36.583	5198.324	0.314	98.026	104.630	339.535
5300.000	0.313	231.944	97.684	-36.974	5298.322	0.045	97.684	104.447	339.268
5400.000	0.395	329.080	97.811	-37.366	5398.321	0.533	97.811	104.705	339.092
5500.000	0.735	342.703	98.719	-37.734	5498.316	0.364	98.719	105.685	339.081
5600.000	1.099	329.008	100.154	-38.419	5598.303	0.422	100.154	107.270	339.013
5700.000	1.412	320.977	101.933	-39.688	5698.279	0.358	101.933	109.387	338.726
5800.000	2.530	325.505	104.709	-41.714	5798.218	1.127	104.709	112.712	338.279
5900.000	1.983	332.213	108.059	-43.770	5898.141	0.606	108.059	116.587	337.949
6000.000	0.498	7.276	110.022	-44.522	5998.115	1.601	110.022	118.688	337.968
6100.000	1.218	105.671	110.166	-43.444	6098.107	1.382	110.166	118.422	338.478
6200.000	1.942	115.636	109.146	-40.893	6198.069	0.771	109.146	116.555	339.461
6300.000	2.618	120.292	107.261	-37.394	6297.989	0.700	107.261	113.592	340.780
6400.000	2.976	121.990	104.734	-33.221	6397.870	0.367	104.734	109.876	342.401
6500.000	2.825	125.877	101.915	-29.022	6497.742	0.248	101.915	105.967	344.105
6600.000	2.392	126.599	99.227	-25.351	6597.638	0.434	99.227	102.414	345.668

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