



Company: Noble Energy

Rig: Production / Coretech

API # 05-123-24324

Date: 01/02/14

Surveyor: Brian Brewbaker

VS: 0.000

Lat : 40.484

Long: -104.453

Well: Bashor 17-41

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is 0.68 degrees East of

Declination: 8.36

Depth Reference: Ground Level

Elevation: 4674

Total Depth as Drilled: 6988

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	0.439	80.257	0.065	0.378	99.999	0.439	0.065	0.383	80.257
200.000	0.266	101.871	0.082	0.982	199.997	0.215	0.082	0.986	85.231
300.000	0.346	97.443	-0.005	1.509	299.996	0.084	-0.005	1.509	90.187
400.000	0.215	103.810	-0.089	1.991	399.994	0.135	-0.089	1.993	92.556
500.000	0.228	118.422	-0.228	2.348	499.994	0.058	-0.228	2.359	95.552
600.000	0.295	134.100	-0.502	2.708	599.993	0.098	-0.502	2.754	100.505
700.000	0.207	120.679	-0.774	3.048	699.992	0.105	-0.774	3.145	104.241
800.000	0.275	103.768	-0.923	3.437	799.991	0.098	-0.923	3.558	105.033
900.000	0.378	104.894	-1.065	3.989	899.989	0.104	-1.065	4.129	104.948
1000.000	0.464	124.611	-1.380	4.642	999.987	0.167	-1.380	4.842	106.557
1100.000	0.530	106.039	-1.738	5.420	1099.983	0.173	-1.738	5.692	107.779
1200.000	0.507	98.092	-1.928	6.302	1199.979	0.076	-1.928	6.591	107.010
1300.000	0.395	98.840	-2.043	7.081	1299.976	0.112	-2.043	7.370	106.096
1400.000	0.391	97.407	-2.140	7.761	1399.973	0.011	-2.140	8.050	105.418
1500.000	0.640	84.366	-2.130	8.654	1499.969	0.273	-2.130	8.913	103.824
1600.000	0.632	103.937	-2.208	9.745	1599.963	0.216	-2.208	9.992	102.764
1700.000	0.726	97.545	-2.424	10.909	1699.956	0.121	-2.424	11.175	102.526
1800.000	0.818	89.996	-2.507	12.250	1799.947	0.137	-2.507	12.504	101.564
1900.000	0.819	87.044	-2.470	13.678	1899.937	0.042	-2.470	13.899	100.236
2000.000	1.056	96.973	-2.545	15.306	1999.924	0.287	-2.545	15.516	99.440
2100.000	1.072	99.658	-2.814	17.143	2099.906	0.052	-2.814	17.373	99.321
2200.000	1.185	89.071	-2.954	19.100	2199.887	0.237	-2.954	19.327	98.792
2300.000	1.225	86.742	-2.876	21.201	2299.865	0.063	-2.876	21.396	97.726
2400.000	1.242	88.715	-2.791	23.352	2399.842	0.046	-2.791	23.518	96.816
2500.000	1.349	86.047	-2.686	25.609	2499.816	0.123	-2.686	25.750	95.987
2600.000	1.232	85.886	-2.528	27.856	2599.791	0.117	-2.528	27.970	95.185
2700.000	1.168	85.859	-2.377	29.944	2699.769	0.064	-2.377	30.039	94.538
2800.000	1.065	77.516	-2.102	31.868	2799.750	0.192	-2.102	31.937	93.775
2900.000	1.170	81.991	-1.759	33.786	2899.731	0.136	-1.759	33.832	92.981
3000.000	1.258	82.890	-1.481	35.886	2999.708	0.091	-1.481	35.916	92.364
3100.000	1.222	79.225	-1.146	38.022	3099.685	0.087	-1.146	38.040	91.727
3200.000	1.237	97.792	-1.093	40.139	3199.662	0.397	-1.093	40.154	91.560
3300.000	0.997	97.783	-1.358	42.071	3299.643	0.240	-1.358	42.093	91.848
3400.000	1.155	111.613	-1.847	43.870	3399.626	0.302	-1.847	43.909	92.410
3500.000	0.769	113.107	-2.481	45.424	3499.612	0.387	-2.481	45.492	93.126
3600.000	0.463	86.508	-2.719	46.445	3599.606	0.410	-2.719	46.524	93.351

3700.000	0.384	122.368	-2.874	47.131	3699.603	0.272	-2.874	47.219	93.489
3800.000	0.200	96.860	-3.074	47.587	3799.602	0.221	-3.074	47.686	93.696
3900.000	0.227	47.052	-2.960	47.905	3899.601	0.182	-2.960	47.996	93.535
4000.000	0.079	20.024	-2.759	48.074	3999.601	0.161	-2.759	48.153	93.285
4100.000	0.525	330.508	-2.296	47.872	4099.599	0.477	-2.296	47.927	92.746
4200.000	1.316	337.129	-0.840	47.201	4199.586	0.797	-0.840	47.208	91.019
4300.000	1.930	329.585	1.670	45.902	4299.545	0.650	1.670	45.932	87.916
4400.000	1.918	329.836	4.570	44.208	4399.489	0.015	4.570	44.444	84.098
4500.000	2.374	332.156	7.849	42.400	4499.418	0.464	7.849	43.120	79.513
4600.000	2.525	332.244	11.630	40.406	4599.327	0.151	11.630	42.047	73.943
4700.000	2.416	327.334	15.353	38.243	4699.234	0.238	15.353	41.210	68.126
4800.000	2.172	316.123	18.494	35.792	4799.154	0.510	18.494	40.287	62.675
4900.000	2.241	312.935	21.191	33.047	4899.080	0.141	21.191	39.258	57.330
5000.000	2.057	314.991	23.792	30.346	4999.010	0.200	23.792	38.561	51.903
5100.000	1.445	317.509	25.991	28.225	5098.963	0.616	25.991	38.369	47.360
5200.000	0.996	300.891	27.367	26.628	5198.940	0.567	27.367	38.183	44.216
5300.000	0.807	307.709	28.244	25.325	5298.928	0.217	28.244	37.935	41.881
5400.000	1.035	318.301	29.348	24.167	5398.915	0.283	29.348	38.018	39.470
5500.000	0.797	293.439	30.299	22.929	5498.902	0.458	30.299	37.997	37.117
5600.000	0.765	314.397	31.042	21.814	5598.893	0.286	31.042	37.941	35.097
5700.000	0.799	309.420	31.952	20.799	5698.884	0.076	31.952	38.125	33.062
5800.000	0.792	311.485	32.852	19.743	5798.874	0.029	32.852	38.328	31.004
5900.000	0.885	313.209	33.839	18.662	5898.864	0.096	33.839	38.644	28.877
6000.000	0.954	311.455	34.919	17.475	5998.851	0.074	34.919	39.047	26.586
6100.000	0.784	289.320	35.696	16.206	6098.840	0.373	35.696	39.203	24.418
6200.000	0.918	309.650	36.434	14.943	6198.829	0.328	36.434	39.379	22.300
6300.000	0.730	306.669	37.326	13.815	6298.818	0.194	37.326	39.800	20.311
6400.000	0.802	316.935	38.217	12.826	6398.809	0.155	38.217	40.312	18.553
6500.000	0.609	309.102	39.064	11.936	6498.802	0.215	39.064	40.847	16.991
6600.000	0.582	301.155	39.662	11.089	6598.797	0.087	39.662	41.183	15.620
6700.000	0.793	317.016	40.431	10.183	6698.789	0.282	40.431	41.693	14.136

True North