



Company: Noble Energy  
 Rig: Production  
 API # 05-123-15089  
 Date: 10/7/13  
 Surveyor: Brian Brewbaker  
 VS: 0.000  
 Lat : 40.30685  
 Long: -104.632

Well: Boulter 14-14G  
 Location: Weld County, Colorado  
 North Reference: GRID  
 Convergence: Grid north is 0.56 degrees East of  
 Declination: 8.47  
 Depth Reference: Ground Level  
 Elevation: 4697  
 Total Depth as Drilled: 7149

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100.000	0.328	258.678	-0.056	-0.281	99.999	0.328	-0.056	0.287	258.678
200.000	0.040	295.885	-0.097	-0.593	199.999	0.298	-0.097	0.601	260.669
300.000	0.084	301.220	-0.044	-0.687	299.999	0.045	-0.044	0.688	266.302
400.000	0.138	152.662	-0.113	-0.694	399.999	0.214	-0.113	0.704	260.750
500.000	0.568	161.684	-0.690	-0.484	499.997	0.432	-0.690	0.843	215.024
600.000	0.524	175.449	-1.616	-0.292	599.992	0.138	-1.616	1.642	190.231
700.000	0.345	193.472	-2.365	-0.326	699.989	0.223	-2.365	2.387	187.839
800.000	0.266	166.076	-2.883	-0.340	799.988	0.164	-2.883	2.903	186.724
900.000	0.436	191.779	-3.481	-0.362	899.986	0.228	-3.481	3.500	185.933
1000.000	0.370	193.887	-4.168	-0.517	999.983	0.068	-4.168	4.200	187.073
1100.000	0.335	195.370	-4.763	-0.672	1099.982	0.037	-4.763	4.810	188.031
1200.000	0.382	195.488	-5.366	-0.838	1199.980	0.047	-5.366	5.431	188.881
1300.000	0.432	193.747	-6.053	-1.017	1299.977	0.051	-6.053	6.138	189.537
1400.000	0.223	176.500	-6.612	-1.095	1399.975	0.229	-6.612	6.702	189.399
1500.000	0.364	224.656	-7.032	-1.306	1499.974	0.272	-7.032	7.153	190.522
1600.000	0.164	192.010	-7.398	-1.559	1599.973	0.243	-7.398	7.561	191.903
1700.000	0.064	282.541	-7.526	-1.644	1699.973	0.177	-7.526	7.704	192.322
1800.000	0.279	204.064	-7.736	-1.798	1799.973	0.274	-7.736	7.943	193.085
1900.000	0.020	50.140	-7.947	-1.884	1899.972	0.298	-7.947	8.168	193.335
2000.000	0.265	278.183	-7.903	-2.099	1999.972	0.279	-7.903	8.177	194.877
2100.000	0.243	266.059	-7.885	-2.540	2099.971	0.058	-7.885	8.284	197.858
2200.000	0.101	263.783	-7.909	-2.840	2199.970	0.142	-7.909	8.403	199.750
2300.000	0.243	227.567	-8.062	-3.084	2299.970	0.172	-8.062	8.631	200.934
2400.000	0.288	192.092	-8.451	-3.293	2399.969	0.167	-8.451	9.069	201.290
2500.000	0.308	207.880	-8.934	-3.472	2499.968	0.084	-8.934	9.585	201.235
2600.000	0.443	199.676	-9.536	-3.727	2599.965	0.145	-9.536	10.238	201.350
2700.000	0.400	192.759	-10.240	-3.935	2699.963	0.066	-10.240	10.970	201.019
2800.000	0.298	208.492	-10.810	-4.136	2799.961	0.139	-10.810	11.574	200.938
2900.000	0.362	163.994	-11.342	-4.173	2899.959	0.257	-11.342	12.086	200.200
3000.000	0.605	185.609	-12.172	-4.138	2999.956	0.300	-12.172	12.856	198.775
3100.000	0.346	150.929	-12.962	-4.042	3099.952	0.376	-12.962	13.577	197.322
3200.000	0.716	90.741	-13.234	-3.271	3199.949	0.621	-13.234	13.632	193.882
3300.000	1.328	85.586	-13.153	-1.490	3299.932	0.618	-13.153	13.237	186.464
3400.000	1.640	81.843	-12.860	1.082	3399.899	0.326	-12.860	12.906	175.192
3500.000	1.491	85.716	-12.560	3.796	3499.861	0.183	-12.560	13.121	163.185
3600.000	1.403	100.516	-12.686	6.296	3599.830	0.383	-12.686	14.163	153.604

3700.000	1.265	98.358	-13.070	8.592	3699.803	0.146	-13.070	15.641	146.680
3800.000	1.273	104.495	-13.509	10.759	3799.778	0.136	-13.509	17.270	141.463
3900.000	1.252	107.434	-14.114	12.877	3899.754	0.068	-14.114	19.106	137.623
4000.000	1.201	83.806	-14.328	14.962	3999.732	0.505	-14.328	20.717	133.760
4100.000	1.260	86.545	-14.149	17.102	4099.709	0.083	-14.149	22.196	129.603
4200.000	1.407	87.112	-14.021	19.425	4199.681	0.148	-14.021	23.956	125.822
4300.000	1.499	83.865	-13.819	21.952	4299.649	0.124	-13.819	25.939	122.192
4400.000	1.215	57.037	-13.103	24.142	4399.622	0.688	-13.103	27.468	118.491
4500.000	1.019	42.911	-11.874	25.637	4499.603	0.336	-11.874	28.253	114.853
4600.000	0.728	52.370	-10.835	26.745	4599.592	0.324	-10.835	28.857	112.054
4700.000	0.620	115.049	-10.676	27.739	4699.586	0.707	-10.676	29.723	111.051
4800.000	1.357	155.753	-11.986	28.716	4799.571	0.975	-11.986	31.117	112.655
4900.000	1.937	180.213	-14.755	29.196	4899.531	0.898	-14.755	32.713	116.811
5000.000	1.668	184.711	-17.895	29.070	4999.481	0.304	-17.895	34.137	121.616
5100.000	1.397	182.867	-20.563	28.889	5099.445	0.275	-20.563	35.460	125.443
5200.000	1.137	184.855	-22.769	28.745	5199.421	0.264	-22.769	36.670	128.384
5300.000	0.938	169.347	-24.563	28.812	5299.405	0.342	-24.563	37.861	130.448
5400.000	1.012	152.377	-26.150	29.373	5399.390	0.297	-26.150	39.326	131.678
5500.000	1.231	155.719	-27.911	30.224	5499.371	0.228	-27.911	41.140	132.722
5600.000	0.873	192.575	-29.634	30.500	5599.355	0.747	-29.634	42.525	134.175
5700.000	1.016	141.524	-31.072	30.886	5699.343	0.824	-31.072	43.810	135.172
5800.000	0.717	149.915	-32.307	31.751	5799.332	0.324	-32.307	45.297	135.497
5900.000	1.016	150.494	-33.620	32.501	5899.320	0.300	-33.620	46.761	135.969
6000.000	1.195	126.349	-35.010	33.777	5999.302	0.494	-35.010	48.647	136.026
6100.000	0.906	118.772	-36.008	35.310	6099.285	0.319	-36.008	50.432	135.561
6200.000	1.487	117.815	-36.994	37.151	6199.263	0.581	-36.994	52.429	134.879
6300.000	1.751	113.493	-38.209	39.700	6299.223	0.291	-38.209	55.100	133.904
6400.000	2.177	114.050	-39.592	42.835	6399.164	0.426	-39.592	58.330	132.746
6500.000	2.017	116.919	-41.162	46.139	6499.097	0.192	-41.162	61.831	131.738
6600.000	2.046	107.474	-42.495	49.410	6599.035	0.336	-42.495	65.170	130.697
6700.000	2.876	112.589	-43.994	53.428	6698.942	0.858	-43.994	69.211	129.469
6800.000	3.784	119.191	-46.567	58.626	6798.772	0.985	-46.567	74.870	128.461
6900.000	3.867	123.130	-50.020	64.331	6898.549	0.276	-50.020	81.489	127.867
6975.000	2.936	123.057	-52.450	68.059	6973.416	1.241	-52.450	85.925	127.620

True North