



Company: Noble Energy
Rig: Production / VES
API # 05-123-18112

Date: 1/28/14

Surveyor: Brian Brewbaker

VS: 0.000

Lat : 40.366

Long: -104.819

Well: Mossberg 30-15H6

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is 0.44 degrees East of

Declination: 8.54

Depth Reference: Ground Level

Elevation: 4888

Total Depth as Drilled: 7555

Lat & Long obtained by handheld GPS at wellhead

Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100.000	0.296	31.003	0.221	0.133	100.000	0.296	0.221	0.258	31.003
200.000	0.339	74.238	0.523	0.551	199.998	0.237	0.523	0.760	46.472
300.000	0.257	30.711	0.797	0.950	299.997	0.234	0.797	1.240	50.026
400.000	0.304	200.530	0.741	0.972	399.997	0.559	0.741	1.222	52.674
500.000	0.305	73.336	0.569	1.133	499.996	0.545	0.569	1.268	63.355
600.000	0.353	18.069	0.938	1.484	599.994	0.308	0.938	1.755	57.701
700.000	0.430	319.460	1.516	1.335	699.992	0.389	1.516	2.021	41.372
800.000	0.088	199.475	1.729	1.066	799.992	0.480	1.729	2.031	31.652
900.000	0.096	20.234	1.735	1.069	899.992	0.184	1.735	2.038	31.644
1000.000	0.105	41.300	1.882	1.158	999.991	0.038	1.882	2.210	31.612
1100.000	0.065	134.338	1.911	1.259	1099.991	0.126	1.911	2.288	33.375
1200.000	0.461	330.742	2.222	1.103	1199.990	0.523	2.222	2.481	26.387
1300.000	0.184	11.206	2.731	0.937	1299.989	0.343	2.731	2.887	18.943
1400.000	0.176	356.278	3.041	0.958	1399.988	0.047	3.041	3.189	17.491
1500.000	0.202	173.230	3.019	0.969	1499.988	0.378	3.019	3.171	17.795
1600.000	0.273	182.127	2.606	0.981	1599.987	0.080	2.606	2.785	20.628
1700.000	0.020	337.877	2.384	0.966	1699.987	0.291	2.384	2.572	22.054
1800.000	0.293	154.719	2.168	1.069	1799.986	0.313	2.168	2.417	26.234
1900.000	0.264	198.741	1.719	1.104	1899.985	0.211	1.719	2.043	32.706
2000.000	0.409	262.603	1.455	0.676	1999.984	0.376	1.455	1.605	24.926
2100.000	0.740	198.303	0.796	0.120	2099.980	0.672	0.796	0.805	8.563
2200.000	1.096	213.922	-0.610	-0.617	2199.967	0.433	-0.610	0.868	225.294
2300.000	0.951	194.014	-2.210	-1.352	2299.951	0.382	-2.210	2.590	211.455
2400.000	0.722	245.184	-3.279	-2.125	2399.942	0.752	-3.279	3.908	212.937
2500.000	0.687	245.351	-3.794	-3.241	2499.934	0.035	-3.794	4.990	220.510
2600.000	1.227	204.731	-5.017	-4.234	2599.921	0.836	-5.017	6.565	220.166
2700.000	1.246	216.557	-6.863	-5.330	2699.898	0.255	-6.863	8.689	217.835
2800.000	1.130	248.524	-8.097	-6.896	2799.877	0.664	-8.097	10.636	220.418
2900.000	1.294	217.613	-9.353	-8.503	2899.856	0.665	-9.353	12.641	222.274
3000.000	0.960	220.578	-10.884	-9.737	2999.836	0.339	-10.884	14.604	221.816
3100.000	0.717	250.978	-11.724	-10.874	3099.826	0.498	-11.724	15.991	222.844
3200.000	0.952	270.911	-11.915	-12.295	3199.816	0.370	-11.915	17.122	225.900
3300.000	1.144	271.214	-11.881	-14.124	3299.799	0.192	-11.881	18.456	229.929
3400.000	1.218	309.253	-11.187	-15.944	3399.779	0.773	-11.187	19.478	234.945
3500.000	1.662	317.980	-9.438	-17.738	3499.747	0.494	-9.438	20.092	241.984
3600.000	1.667	338.001	-7.012	-19.253	3599.706	0.578	-7.012	20.490	249.988

3700.000	1.112	327.854	-4.842	-20.314	3699.677	0.605	-4.842	20.883	256.592
3800.000	0.563	314.409	-3.677	-21.181	3799.666	0.579	-3.677	21.498	260.151
3900.000	0.716	329.993	-2.792	-21.845	3899.659	0.230	-2.792	22.022	262.716
4000.000	0.689	339.057	-1.689	-22.372	3999.652	0.114	-1.689	22.436	265.681
4100.000	0.694	301.723	-0.810	-23.102	4099.645	0.442	-0.810	23.116	267.992
4200.000	1.331	278.113	-0.328	-24.767	4199.629	0.749	-0.328	24.769	269.242
4300.000	1.846	246.428	-0.808	-27.393	4299.592	0.999	-0.808	27.405	268.311
4400.000	1.419	224.683	-2.333	-29.741	4399.553	0.745	-2.333	29.832	265.515
4500.000	1.379	202.548	-4.325	-31.073	4499.523	0.539	-4.325	31.373	262.076
4600.000	1.015	201.617	-6.260	-31.861	4599.501	0.364	-6.260	32.470	258.884
4700.000	1.557	192.983	-8.407	-32.493	4699.476	0.574	-8.407	33.563	255.493
4800.000	1.484	182.178	-11.026	-32.847	4799.441	0.295	-11.026	34.648	251.445
4900.000	1.633	168.367	-13.716	-32.609	4899.404	0.403	-13.716	35.376	247.188
5000.000	1.305	173.488	-16.243	-32.193	4999.371	0.354	-16.243	36.058	243.227
5100.000	1.314	177.155	-18.519	-32.007	5099.345	0.084	-18.519	36.978	239.946
5200.000	1.028	183.372	-20.559	-32.002	5199.324	0.313	-20.559	38.037	237.282
5300.000	0.825	158.275	-22.123	-31.789	5299.312	0.448	-22.123	38.729	235.164
5400.000	0.437	187.633	-23.170	-31.573	5399.306	0.493	-23.170	39.162	233.726
5500.000	0.440	136.838	-23.828	-31.361	5499.303	0.376	-23.828	39.386	232.772
5600.000	0.594	100.916	-24.206	-30.589	5599.299	0.351	-24.206	39.008	231.644
5700.000	0.918	148.312	-24.986	-29.660	5699.291	0.676	-24.986	38.782	229.889
5800.000	0.621	216.722	-26.102	-29.563	5799.284	0.899	-26.102	39.437	228.558
5900.000	0.586	179.568	-27.047	-29.883	5899.279	0.386	-27.047	40.306	227.851
6000.000	0.832	216.873	-28.140	-30.315	5999.271	0.510	-28.140	41.362	227.131
6100.000	0.811	201.313	-29.380	-31.008	6099.261	0.223	-29.380	42.716	226.544
6200.000	0.732	266.257	-30.081	-31.902	6199.254	0.831	-30.081	43.848	226.683
6300.000	0.901	291.378	-29.836	-33.272	6299.244	0.392	-29.836	44.690	228.116
6400.000	0.724	253.848	-29.726	-34.611	6399.235	0.549	-29.726	45.624	229.342
6500.000	0.780	279.004	-29.795	-35.890	6499.226	0.332	-29.795	46.646	230.302
6600.000	0.732	274.997	-29.633	-37.199	6599.218	0.071	-29.633	47.559	231.459
6700.000	0.635	279.417	-29.486	-38.382	6699.211	0.111	-29.486	48.400	232.467
6800.000	0.608	259.903	-29.489	-39.450	6799.205	0.212	-29.489	49.254	233.222
6900.000	0.509	234.872	-29.837	-40.336	6899.200	0.261	-29.837	50.172	233.509
7000.000	0.711	148.738	-30.623	-40.377	6999.196	0.846	-30.623	50.676	232.823
7100.000	0.444	48.143	-30.894	-39.767	7099.193	0.905	-30.894	50.357	232.157
7200.000	0.523	55.467	-30.377	-39.102	7199.189	0.100	-30.377	49.514	232.158
7250.000	0.530	56.677	-30.120	-38.720	7249.187	0.025	-30.120	49.056	232.121

True North