



**Company:** Noble Energy  
**Rig:** Production / VES  
**API #** 05-123-24715

**Date:** 1/17/2014  
**Surveyor:** CJ Hines

**VS:** 0.000  
**Lat :** 40.53506  
**Long:** -104.627

**Well:** Booth USX EE #35-17  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** Grid north is 0.56 East of True No  
**Declination:** 8.45  
**Depth Reference:** Ground Level  
**Elevation:** 4820  
**Total Depth as Drilled:** 7719

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

**MS 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	0.000
100.000	0.972	29.261	0.740	0.415	99.995	0.972	0.740	0.848	29.261
200.000	0.884	29.844	2.150	1.213	199.982	0.088	2.150	2.469	29.443
300.000	0.460	91.651	2.808	1.999	299.976	0.781	2.808	3.447	35.453
400.000	0.277	61.192	2.913	2.613	399.974	0.262	2.913	3.913	41.895
500.000	0.714	107.874	2.838	3.418	499.970	0.561	2.838	4.443	50.295
600.000	0.980	141.143	1.981	4.547	599.960	0.548	1.981	4.960	66.457
700.000	1.111	149.265	0.483	5.579	699.943	0.197	0.483	5.600	85.057
800.000	1.161	165.342	-1.331	6.330	799.924	0.322	-1.331	6.469	101.871
900.000	1.004	159.820	-3.133	6.889	899.906	0.189	-3.133	7.568	114.455
1000.000	1.314	160.432	-5.036	7.575	999.885	0.311	-5.036	9.096	123.614
1100.000	1.155	162.478	-7.078	8.263	1099.862	0.165	-7.078	10.880	130.582
1200.000	1.640	160.515	-9.388	9.043	1199.832	0.487	-9.388	13.035	136.069
1300.000	1.084	151.122	-11.564	9.977	1299.804	0.597	-11.564	15.273	139.213
1400.000	1.350	153.489	-13.446	10.960	1399.781	0.271	-13.446	17.347	140.817
1500.000	1.173	138.204	-15.263	12.168	1499.757	0.379	-15.263	19.520	141.439
1600.000	1.286	166.174	-17.116	13.118	1599.735	0.604	-17.116	21.564	142.533
1700.000	1.143	166.452	-19.175	13.619	1699.712	0.143	-19.175	23.519	144.615
1800.000	0.761	161.496	-20.775	14.064	1799.698	0.390	-20.775	25.087	145.903
1900.000	1.114	162.727	-22.333	14.563	1899.685	0.353	-22.333	26.662	146.891
2000.000	0.928	192.962	-24.050	14.671	1999.670	0.562	-24.050	28.171	148.617
2100.000	1.376	159.003	-25.960	14.919	2099.650	0.798	-25.960	29.942	150.114
2200.000	1.545	163.884	-28.376	15.724	2199.618	0.210	-28.376	32.441	151.008
2300.000	1.567	182.418	-31.037	16.040	2299.582	0.502	-31.037	34.937	152.670
2400.000	1.512	192.439	-33.691	15.698	2399.546	0.274	-33.691	37.169	155.017
2500.000	1.227	219.596	-35.805	14.732	2499.518	0.700	-35.805	38.717	157.635
2600.000	1.143	242.523	-37.090	13.165	2599.497	0.478	-37.090	39.357	160.458
2700.000	1.094	252.928	-37.830	11.368	2699.478	0.209	-37.830	39.501	163.274
2800.000	1.191	267.221	-38.160	9.417	2799.459	0.300	-38.160	39.305	166.138
2900.000	1.006	262.770	-38.321	7.508	2899.440	0.204	-38.321	39.050	168.915
3000.000	1.153	266.051	-38.501	5.633	2999.422	0.159	-38.501	38.911	171.676
3100.000	1.686	265.333	-38.690	3.163	3099.391	0.533	-38.690	38.819	175.327
3200.000	1.955	268.493	-38.855	-0.009	3199.341	0.286	-38.855	38.855	180.013
3300.000	2.015	276.937	-38.687	-3.459	3299.281	0.298	-38.687	38.841	185.109
3400.000	1.164	278.995	-38.316	-6.207	3399.242	0.853	-38.316	38.816	189.202
3500.000	0.590	226.135	-38.514	-7.581	3499.231	0.934	-38.514	39.253	191.136

3600.000	1.500	113.031	-39.383	-6.749	3599.220	1.815	-39.383	39.957	189.723
3700.000	2.162	89.705	-39.886	-3.658	3699.169	0.984	-39.886	40.053	185.240
3800.000	2.421	84.547	-39.675	0.331	3799.089	0.331	-39.675	39.677	179.522
3900.000	2.662	86.080	-39.316	4.750	3898.991	0.251	-39.316	39.602	173.111
4000.000	2.311	87.812	-39.080	9.082	3998.897	0.360	-39.080	40.121	166.917
4100.000	2.602	78.872	-38.565	13.324	4098.805	0.481	-38.565	40.802	160.941
4200.000	2.332	98.337	-38.422	17.564	4198.714	0.876	-38.422	42.246	155.433
4300.000	2.298	111.394	-39.448	21.444	4298.633	0.527	-39.448	44.900	151.471
4400.000	2.079	116.766	-40.996	24.930	4398.560	0.300	-40.996	47.981	148.696
4500.000	2.336	126.296	-43.020	28.193	4498.486	0.448	-43.020	51.435	146.761
4600.000	2.150	125.291	-45.310	31.367	4598.409	0.190	-45.310	55.108	145.306
4700.000	2.312	126.366	-47.590	34.522	4698.334	0.167	-47.590	58.793	144.043
4800.000	2.536	122.645	-49.979	38.009	4798.244	0.274	-49.979	62.790	142.747
4900.000	2.808	122.102	-52.474	41.947	4898.135	0.273	-52.474	67.179	141.362
5000.000	2.874	124.106	-55.181	46.097	4998.013	0.119	-55.181	71.902	140.126
5100.000	2.180	109.010	-57.206	49.971	5097.916	0.956	-57.206	75.958	138.862
5200.000	1.291	110.096	-58.213	52.827	5197.869	0.889	-58.213	78.609	137.777
5300.000	0.761	115.065	-58.882	54.486	5297.853	0.537	-58.882	80.224	137.220
5400.000	0.240	131.110	-59.301	55.246	5397.848	0.535	-59.301	81.048	137.027
5500.000	0.224	245.350	-59.520	55.227	5497.848	0.390	-59.520	81.195	137.143
5600.000	0.198	240.194	-59.688	54.899	5597.847	0.032	-59.688	81.096	137.393
5700.000	0.726	239.399	-60.096	54.204	5697.844	0.528	-60.096	80.930	137.951
5900.000	0.736	282.575	-60.461	51.859	5897.829	0.269	-60.461	79.655	139.379
6000.000	0.766	281.331	-60.190	50.577	5997.820	0.034	-60.190	78.618	139.960
6100.000	0.518	290.513	-59.900	49.498	6097.814	0.267	-59.900	77.705	140.432
6200.000	0.480	295.811	-59.559	48.697	6197.810	0.060	-59.559	76.933	140.730
6300.000	0.479	274.573	-59.343	47.903	6297.807	0.177	-59.343	76.265	141.089
6400.000	0.707	355.096	-58.695	47.434	6397.803	0.786	-58.695	75.466	141.057
6500.000	0.598	327.397	-57.641	47.100	6497.797	0.330	-57.641	74.437	140.747
6600.000	0.703	284.510	-57.048	46.225	6597.791	0.485	-57.048	73.425	140.983
6700.000	1.676	275.089	-56.765	44.175	6697.768	0.990	-56.765	71.928	142.110
6800.000	1.516	280.052	-56.404	41.415	6797.729	0.212	-56.404	69.976	143.712
6900.000	0.694	286.864	-55.998	39.532	6897.710	0.831	-55.998	68.546	144.779
7000.000	0.373	239.724	-55.986	38.671	6997.706	0.519	-55.986	68.043	145.366

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