



**Company:** Noble Energy  
**Rig:** Production / V.E.S.

**API #** 05-123-22246

**Date:** 9/26/2013

**Surveyor:** Norman Cowan

**VS:** 0.000

**Lat :** 40.264

**Long:** -104.598

**Well:** Ocoma C 31-25

**Location:** Weld County, Colorado

**North Reference:** GRID

**Convergence:** Grid North is 0.58 Deg East of True

**Declination:** 8.46 Degrees

**Depth Reference:** Ground Level

**Elevation:** 4859 Feet

**Total Depth as Drilled:** 7270 Feet

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

HA 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
100.000	0.157	320.497	0.106	-0.087	100.000	0.157	0.106	0.137	320.497
200.000	0.151	264.380	0.198	-0.306	200.000	0.145	0.198	0.364	302.997
300.000	0.370	180.910	-0.137	-0.442	299.999	0.383	-0.137	0.463	252.763
400.000	0.399	199.877	-0.787	-0.565	399.997	0.130	-0.787	0.969	215.698
500.000	0.437	186.191	-1.493	-0.725	499.994	0.106	-1.493	1.660	205.895
600.000	0.634	188.628	-2.419	-0.849	599.989	0.198	-2.419	2.563	199.340
700.000	0.634	181.704	-3.518	-0.948	699.983	0.077	-3.518	3.644	195.085
800.000	0.652	190.388	-4.631	-1.067	799.977	0.099	-4.631	4.752	192.979
900.000	0.610	195.847	-5.703	-1.315	899.971	0.073	-5.703	5.852	192.988
1000.000	0.583	175.221	-6.721	-1.418	999.966	0.215	-6.721	6.869	191.916
1100.000	0.479	180.076	-7.646	-1.377	1099.961	0.112	-7.646	7.769	190.205
1200.000	0.528	176.967	-8.525	-1.353	1199.958	0.056	-8.525	8.631	189.017
1300.000	0.489	176.862	-9.411	-1.305	1299.954	0.039	-9.411	9.501	187.895
1400.000	0.390	182.062	-10.177	-1.294	1399.951	0.107	-10.177	10.259	187.246
1500.000	0.550	180.695	-10.997	-1.312	1499.947	0.161	-10.997	11.075	186.803
1600.000	0.520	188.457	-11.926	-1.384	1599.943	0.079	-11.926	12.006	186.622
1700.000	0.545	196.908	-12.830	-1.590	1699.939	0.082	-12.830	12.928	187.063
1800.000	0.668	197.472	-13.841	-1.903	1799.933	0.123	-13.841	13.971	187.828
1900.000	0.365	223.071	-14.629	-2.295	1899.929	0.373	-14.629	14.808	188.917
2000.000	0.533	283.894	-14.750	-2.964	1999.926	0.477	-14.750	15.045	191.364
2100.000	0.701	319.986	-14.170	-3.809	2099.921	0.414	-14.170	14.673	195.046
2200.000	1.125	339.579	-12.782	-4.545	2199.908	0.521	-12.782	13.566	199.573
2300.000	1.107	335.119	-10.985	-5.294	2299.889	0.089	-10.985	12.194	205.729
2400.000	1.038	350.720	-9.215	-5.846	2399.872	0.299	-9.215	10.913	212.393
2500.000	1.145	0.429	-7.322	-5.985	2499.854	0.214	-7.322	9.457	219.263
2600.000	1.040	8.463	-5.424	-5.844	2599.836	0.186	-5.424	7.973	227.132
2700.000	1.086	8.983	-3.590	-5.562	2699.818	0.047	-3.590	6.620	237.159
2800.000	1.223	14.513	-1.621	-5.147	2799.798	0.176	-1.621	5.396	252.515
2900.000	1.004	18.706	0.241	-4.599	2899.779	0.233	0.241	4.605	272.999
3000.000	0.874	7.351	1.827	-4.220	2999.766	0.226	1.827	4.599	293.410
3100.000	0.694	10.571	3.179	-4.011	3099.757	0.185	3.179	5.119	308.399
3200.000	0.776	15.917	4.426	-3.715	3199.748	0.107	4.426	5.778	319.997
3300.000	0.614	13.335	5.599	-3.405	3299.741	0.165	5.599	6.553	328.691
3400.000	0.497	19.647	6.528	-3.136	3399.736	0.131	6.528	7.242	334.342
3500.000	0.273	3.950	7.174	-2.974	3499.734	0.246	7.174	7.766	337.486

3600.000	0.316	298.742	7.544	-3.199	3599.733	0.319	7.544	8.194	337.021
3700.000	0.732	272.214	7.701	-4.079	3699.729	0.471	7.701	8.715	332.091
3800.000	1.037	258.816	7.551	-5.605	3799.717	0.366	7.551	9.404	323.412
3900.000	1.313	250.406	6.991	-7.572	3899.696	0.325	6.991	10.306	312.715
4000.000	1.478	238.981	5.942	-9.757	3999.666	0.323	5.942	11.424	301.342
4100.000	1.779	220.447	4.096	-11.869	4099.626	0.603	4.096	12.556	289.039
4200.000	1.854	213.626	1.568	-13.772	4199.576	0.229	1.568	13.861	276.494
4300.000	2.047	218.711	-1.173	-15.785	4299.518	0.259	-1.173	15.829	265.750
4400.000	2.239	216.961	-4.128	-18.077	4399.448	0.202	-4.128	18.542	257.137
4500.000	2.179	214.769	-7.250	-20.335	4499.374	0.104	-7.250	21.589	250.377
4600.000	1.930	208.318	-10.294	-22.218	4599.310	0.339	-10.294	24.487	245.141
4700.000	1.588	200.753	-13.072	-23.508	4699.263	0.413	-13.072	26.898	240.922
4800.000	1.485	178.396	-15.664	-23.963	4799.227	0.604	-15.664	28.628	236.829
4900.000	1.819	160.301	-18.453	-23.391	4899.186	0.615	-18.453	29.794	231.731
5000.000	2.031	162.393	-21.637	-22.320	4999.130	0.224	-21.637	31.086	225.891
5100.000	1.958	158.680	-24.917	-21.163	5099.069	0.149	-24.917	32.692	220.343
5200.000	1.698	153.350	-27.832	-19.878	5199.019	0.310	-27.832	34.202	215.534
5300.000	1.517	140.959	-30.184	-18.380	5298.979	0.391	-30.184	35.340	211.338
5400.000	1.351	130.305	-31.975	-16.647	5398.948	0.313	-31.975	36.049	207.503
5500.000	1.322	117.437	-33.269	-14.724	5498.921	0.301	-33.269	36.381	203.874
5600.000	0.977	114.728	-34.157	-12.926	5598.901	0.349	-34.157	36.521	200.729
5700.000	0.911	127.135	-34.993	-11.518	5698.888	0.214	-34.993	36.840	198.219
5800.000	0.442	160.922	-35.838	-10.758	5798.881	0.597	-35.838	37.418	196.709
5900.000	0.404	196.801	-36.540	-10.734	5898.878	0.263	-36.540	38.084	196.371
6000.000	0.659	203.272	-37.406	-11.063	5998.874	0.262	-37.406	39.008	196.476
6100.000	0.453	219.173	-38.241	-11.540	6098.869	0.256	-38.241	39.944	196.793
6200.000	0.754	223.487	-39.025	-12.243	6198.863	0.304	-39.025	40.900	197.418
6300.000	0.662	221.912	-39.932	-13.082	6298.856	0.094	-39.932	42.021	198.139
6400.000	0.539	210.702	-40.767	-13.708	6398.850	0.170	-40.767	43.010	198.585
6500.000	0.491	231.566	-41.437	-14.283	6498.846	0.192	-41.437	43.830	199.019
6600.000	0.611	226.638	-42.069	-15.006	6598.842	0.129	-42.069	44.665	199.631
6700.000	0.451	231.275	-42.681	-15.700	6698.837	0.165	-42.681	45.477	200.196
6800.000	0.547	231.406	-43.225	-16.381	6798.834	0.096	-43.225	46.225	200.755
6900.000	0.446	209.850	-43.861	-16.948	6898.830	0.211	-43.861	47.021	201.126
7000.000	0.554	210.341	-44.616	-17.386	6998.826	0.108	-44.616	47.884	201.290

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