



Company: Noble Energy

Rig: Production/Core-Tech

API # 05-123-32253

Date: 12/26/2013

Surveyor: Nick Kula

VS: 0.000

Lat : 40.478

Long: -104.416

Well: Wells Ranch PC AA 22-1

Location: Weld County, Colorado

North Reference: GRID

Convergence: GRID North is 0.700 Degrees East

Declination: 8.34

Depth Reference: Ground Level

Elevation: 4736'

Total Depth as Drilled: 6925'

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	0.284	241.140	-0.120	-0.217	100.000	0.284	-0.120	0.248	241.140
200.000	0.450	249.759	-0.375	-0.803	199.998	0.175	-0.375	0.886	244.950
300.000	0.367	254.395	-0.597	-1.479	299.995	0.090	-0.597	1.595	248.021
400.000	0.440	251.042	-0.808	-2.151	399.992	0.077	-0.808	2.297	249.412
500.000	0.952	206.029	-1.679	-2.878	499.985	0.713	-1.679	3.332	239.740
600.000	1.149	200.654	-3.364	-3.597	599.969	0.220	-3.364	4.925	226.912
700.000	1.188	197.364	-5.292	-4.260	699.948	0.077	-5.292	6.793	218.832
800.000	1.170	197.689	-7.253	-4.879	799.927	0.019	-7.253	8.742	213.927
900.000	1.067	199.660	-9.103	-5.503	899.908	0.110	-9.103	10.637	211.153
1000.000	1.105	200.300	-10.884	-6.150	999.890	0.040	-10.884	12.501	209.471
1100.000	1.032	202.403	-12.620	-6.828	1099.872	0.083	-12.620	14.349	208.415
1200.000	0.912	205.039	-14.174	-7.508	1199.858	0.128	-14.174	16.039	207.910
1300.000	0.750	209.163	-15.466	-8.164	1299.847	0.172	-15.466	17.488	207.827
1400.000	0.862	220.201	-16.613	-8.968	1399.837	0.191	-16.613	18.879	208.363
1500.000	0.771	210.544	-17.767	-9.796	1499.827	0.165	-17.767	20.289	208.871
1600.000	0.889	212.395	-19.002	-10.554	1599.817	0.120	-19.002	21.736	209.048
1700.000	0.911	209.011	-20.351	-11.355	1699.804	0.058	-20.351	23.305	209.158
1800.000	0.706	202.843	-21.614	-11.979	1799.794	0.222	-21.614	24.712	208.997
1900.000	0.902	223.134	-22.756	-12.757	1899.785	0.343	-22.756	26.088	209.274
2000.000	0.271	257.655	-23.382	-13.526	1999.779	0.696	-23.382	27.012	210.049
2100.000	0.367	310.625	-23.224	-14.000	2099.778	0.297	-23.224	27.117	211.083
2200.000	0.354	302.751	-22.848	-14.503	2199.776	0.051	-22.848	27.062	212.405
2300.000	0.270	288.529	-22.606	-14.986	2299.774	0.113	-22.606	27.122	213.541
2400.000	0.221	244.675	-22.614	-15.384	2399.774	0.189	-22.614	27.351	214.227
2500.000	0.295	277.267	-22.664	-15.814	2499.773	0.161	-22.664	27.636	214.906
2600.000	0.323	291.852	-22.526	-16.331	2599.771	0.083	-22.526	27.823	215.941
2700.000	0.133	213.468	-22.518	-16.656	2699.771	0.323	-22.518	28.009	216.489
2800.000	0.259	203.557	-22.822	-16.811	2799.770	0.130	-22.822	28.345	216.375
2900.000	0.310	190.948	-23.295	-16.952	2899.769	0.080	-23.295	28.810	216.044
3000.000	0.359	176.622	-23.873	-16.985	2999.767	0.097	-23.873	29.299	215.431
3100.000	0.718	149.883	-24.728	-16.652	3099.763	0.429	-24.728	29.813	213.957
3200.000	0.616	183.576	-25.807	-16.371	3199.756	0.399	-25.807	30.561	212.391
3300.000	0.292	134.268	-26.520	-16.223	3299.753	0.480	-26.520	31.089	211.454
3400.000	0.854	83.778	-26.617	-15.299	3399.748	0.705	-26.617	30.701	209.890
3500.000	0.859	79.779	-26.404	-13.820	3499.737	0.060	-26.404	29.802	207.629

3600.000	0.754	89.172	-26.261	-12.424	3599.727	0.168	-26.261	29.052	205.319
3700.000	0.699	130.762	-26.649	-11.304	3699.720	0.519	-26.649	28.948	202.985
3800.000	0.832	151.136	-27.683	-10.492	3799.711	0.301	-27.683	29.605	200.756
3900.000	0.917	151.676	-29.024	-9.762	3899.699	0.086	-29.024	30.621	198.590
4000.000	0.929	135.672	-30.308	-8.815	3999.687	0.257	-30.308	31.564	196.218
4100.000	1.020	142.977	-31.598	-7.713	4099.672	0.154	-31.598	32.526	193.718
4200.000	1.222	119.214	-32.829	-6.247	4199.654	0.502	-32.829	33.418	190.774
4300.000	1.115	96.513	-33.460	-4.349	4299.633	0.472	-33.460	33.741	187.406
4400.000	0.996	68.655	-33.254	-2.573	4399.617	0.521	-33.254	33.353	184.424
4500.000	1.346	55.641	-32.274	-0.793	4499.596	0.437	-32.274	32.284	181.408
4600.000	1.398	59.564	-30.994	1.228	4599.567	0.107	-30.994	31.018	177.732
4700.000	1.253	84.130	-30.264	3.367	4699.541	0.581	-30.264	30.451	173.652
4800.000	1.152	119.094	-30.641	5.333	4799.521	0.729	-30.641	31.102	170.127
4900.000	1.296	144.896	-32.055	6.862	4899.499	0.564	-32.055	32.781	167.917
5000.000	1.291	145.940	-33.914	8.143	4999.473	0.024	-33.914	34.878	166.498
5100.000	1.316	143.753	-35.773	9.453	5099.447	0.055	-35.773	37.001	165.198
5200.000	1.258	143.229	-37.578	10.789	5199.422	0.059	-37.578	39.096	163.981
5300.000	1.122	127.376	-39.052	12.224	5299.401	0.355	-39.052	40.920	162.619
5400.000	1.315	132.430	-40.420	13.849	5399.378	0.221	-40.420	42.727	161.088
5500.000	1.384	134.301	-42.037	15.560	5499.350	0.081	-42.037	44.825	159.689
5600.000	1.296	136.533	-43.701	17.201	5599.323	0.102	-43.701	46.965	158.515
5700.000	1.795	143.863	-45.787	18.903	5699.286	0.536	-45.787	49.535	157.567
5800.000	1.685	144.245	-48.245	20.686	5799.240	0.111	-48.245	52.493	156.792
5900.000	1.910	138.962	-50.695	22.639	5899.191	0.279	-50.695	55.521	155.936
6000.000	1.781	137.989	-53.107	24.773	5999.139	0.132	-53.107	58.601	154.992
6100.000	1.842	142.048	-55.528	26.801	6099.089	0.142	-55.528	61.658	154.235
6200.000	1.708	137.847	-57.900	28.790	6199.041	0.187	-57.900	64.663	153.562
6300.000	1.984	148.878	-60.486	30.684	6298.990	0.449	-60.486	67.824	153.102
6400.000	2.275	144.833	-63.590	32.722	6398.921	0.327	-63.590	71.515	152.771
6500.000	2.327	155.725	-67.063	34.699	6498.840	0.440	-67.063	75.509	152.642
6600.000	1.364	162.029	-70.047	35.902	6598.787	0.983	-70.047	78.711	152.863
6650.000	1.043	170.899	-71.063	36.157	6648.776	0.740	-71.063	79.732	153.033

of True North