



Company: Noble Energy
Rig: Production/ V.E.S
API # 05-123-26808
Date: 4/1/2013
Surveyor: Geof Davis
VS: 0.000
Lat : 40.46672
Long: -104.435

Well: Wells Ranch AA 21-16
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is -0.69 of True North
Declination: 8.45 Degrees
Depth Reference: Ground Level
Elevation: 4730 Feet
Total Depth as Drilled: 6920 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	0.598	336.988	0.481	-0.204	99.998	0.598	0.481	0.522	336.988
200.000	0.494	334.424	1.351	-0.595	199.994	0.107	1.351	1.476	336.238
300.000	0.757	344.839	2.377	-0.954	299.988	0.285	2.377	2.561	338.142
400.000	0.532	31.098	3.412	-0.886	399.982	0.547	3.412	3.525	345.440
500.000	0.539	23.501	4.241	-0.459	499.977	0.071	4.241	4.266	353.824
600.000	0.244	45.950	4.820	-0.119	599.975	0.327	4.820	4.821	358.590
700.000	0.301	38.303	5.174	0.197	699.974	0.068	5.174	5.178	2.180
800.000	0.283	13.627	5.620	0.418	799.973	0.126	5.620	5.636	4.253
900.000	0.217	14.038	6.044	0.522	899.972	0.066	6.044	6.067	4.938
1000.000	0.219	350.672	6.417	0.537	999.971	0.088	6.417	6.439	4.785
1100.000	0.124	6.930	6.713	0.519	1099.971	0.106	6.713	6.733	4.423
1200.000	0.187	28.569	6.963	0.610	1199.970	0.085	6.963	6.990	5.008
1300.000	0.130	15.054	7.215	0.717	1299.970	0.068	7.215	7.251	5.678
1400.000	0.193	343.464	7.486	0.699	1399.969	0.107	7.486	7.519	5.332
1500.000	0.200	32.012	7.796	0.743	1499.969	0.162	7.796	7.831	5.444
1600.000	0.124	53.978	8.007	0.923	1599.969	0.097	8.007	8.060	6.575
1700.000	0.071	98.276	8.062	1.072	1699.968	0.088	8.062	8.133	7.574
1800.000	0.112	152.487	7.966	1.179	1799.968	0.091	7.966	8.053	8.416
1900.000	0.346	283.843	7.952	0.930	1899.968	0.428	7.952	8.007	6.671
2000.000	0.860	293.793	8.327	-0.050	1999.962	0.522	8.327	8.327	359.657
2100.000	0.890	293.521	8.940	-1.448	2099.950	0.030	8.940	9.056	350.798
2200.000	0.758	319.858	9.756	-2.587	2199.940	0.397	9.756	10.093	345.149
2300.000	0.487	26.950	10.640	-2.821	2299.935	0.724	10.640	11.008	345.152
2400.000	0.874	42.420	11.582	-2.114	2399.928	0.425	11.582	11.774	349.657
2500.000	0.600	42.059	12.534	-1.248	2499.920	0.273	12.534	12.596	354.312
2600.000	0.519	30.947	13.312	-0.664	2599.915	0.135	13.312	13.328	357.143
2700.000	0.459	44.303	13.987	-0.152	2699.911	0.129	13.987	13.988	359.378
2800.000	0.608	64.549	14.501	0.607	2799.907	0.238	14.501	14.514	2.396
2900.000	0.501	46.239	15.032	1.402	2899.903	0.205	15.032	15.097	5.327
3000.000	0.574	87.103	15.360	2.218	2999.899	0.382	15.360	15.519	8.217
3100.000	0.627	60.653	15.653	3.195	3099.893	0.280	15.653	15.976	11.537
3200.000	0.602	89.005	15.930	4.197	3199.888	0.302	15.930	16.474	14.759
3300.000	0.503	91.256	15.930	5.161	3299.883	0.101	15.930	16.745	17.952
3400.000	0.678	88.555	15.935	6.192	3399.878	0.177	15.935	17.096	21.234
3500.000	0.341	142.079	15.715	6.966	3499.874	0.549	15.715	17.190	23.907

3600.000	0.678	108.984	15.288	7.709	3599.870	0.434	15.288	17.122	26.758
3700.000	0.798	128.393	14.663	8.814	3699.862	0.275	14.663	17.108	31.009
3800.000	0.979	124.540	13.746	10.063	3799.850	0.191	13.746	17.036	36.206
3900.000	0.842	118.321	12.914	11.414	3899.837	0.169	12.914	17.235	41.472
4000.000	0.970	174.557	11.723	12.141	3999.827	0.861	11.723	16.877	46.004
4100.000	1.394	197.201	9.718	11.861	4099.806	0.624	9.718	15.334	50.672
4200.000	1.896	222.564	7.337	10.383	4199.765	0.872	7.337	12.713	54.752
4300.000	2.269	239.485	5.114	7.558	4299.700	0.715	5.114	9.126	55.919
4400.000	2.273	248.948	3.396	4.002	4399.622	0.375	3.396	5.249	49.682
4500.000	1.970	239.914	1.822	0.664	4499.554	0.451	1.822	1.940	20.030
4600.000	1.705	257.953	0.650	-2.278	4599.503	0.633	0.650	2.369	285.932
4700.000	1.253	288.911	0.694	-4.767	4699.471	0.902	0.694	4.817	278.283
4800.000	1.371	329.923	2.084	-6.401	4799.447	0.926	2.084	6.732	288.032
4900.000	1.825	358.862	4.711	-7.032	4899.409	0.911	4.711	8.465	303.820
5000.000	1.675	31.654	7.548	-6.297	4999.365	0.998	7.548	9.829	320.162
5100.000	1.777	87.696	8.854	-3.980	5099.326	1.624	8.854	9.708	335.795
5200.000	2.626	92.315	8.824	-0.141	5199.252	0.867	8.824	8.825	359.083
5300.000	2.651	102.138	8.245	4.409	5299.146	0.452	8.245	9.350	28.135
5400.000	2.750	109.764	6.948	8.928	5399.035	0.372	6.948	11.313	52.109
5500.000	2.712	123.450	4.832	13.160	5498.923	0.652	4.832	14.019	69.837
5600.000	1.992	120.873	2.636	16.626	5598.838	0.728	2.636	16.833	80.990
5700.000	1.696	142.122	0.576	19.026	5698.787	0.739	0.576	19.035	88.265
5800.000	1.514	170.229	-1.894	20.159	5798.749	0.799	-1.894	20.248	95.366
5900.000	1.556	205.690	-4.419	19.794	5898.716	0.936	-4.419	20.282	102.585
6000.000	1.566	250.886	-6.090	17.914	5998.682	1.200	-6.090	18.921	108.776
6100.000	1.164	287.043	-6.240	15.652	6098.656	0.929	-6.240	16.850	111.736
6200.000	0.432	353.634	-5.567	14.639	6198.647	1.069	-5.567	15.662	110.822
6300.000	1.067	83.010	-5.079	15.521	6298.640	1.147	-5.079	16.331	108.120
6400.000	2.704	116.782	-6.029	18.551	6398.585	1.911	-6.029	19.506	108.003
6500.000	3.070	119.850	-8.425	22.980	6498.458	0.397	-8.425	24.476	110.133
6600.000	1.223	106.806	-10.066	26.325	6598.384	1.899	-10.066	28.184	110.926
6700.000	1.162	80.788	-10.213	28.348	6698.363	0.540	-10.213	30.131	109.812
6730.000	0.959	81.925	-10.129	28.896	6728.358	0.678	-10.129	30.620	109.317