



Company: Noble Energy
Rig: Production/VES
API # 05-123-29491

Date: 4/17/2013
Surveyor: Randy Holcomb

VS: 0.000
Lat : 40.47362

Long: -104.40157

Well: Wells Ranch USX AA 23-1
Location: Weld County, Colorado
North Reference: GRID

Convergence: Grid north is 0.71 Degree
Declination: 8.42

Depth Reference: Ground Level
Elevation: 4788 Feet

Total Depth as Drilled: 6945 Feet

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.204	338.079	0.166	-0.067	100.000	0.204	0.166	0.178
200.000	0.090	216.241	0.268	-0.179	200.000	0.263	0.268	0.323
300.000	0.484	246.670	0.038	-0.613	299.998	0.409	0.038	0.615
400.000	0.248	293.858	-0.042	-1.199	399.996	0.364	-0.042	1.200
500.000	0.290	301.846	0.179	-1.613	499.995	0.056	0.179	1.622
600.000	0.289	276.070	0.340	-2.078	599.994	0.129	0.340	2.105
700.000	0.218	310.861	0.491	-2.473	699.993	0.166	0.491	2.521
800.000	0.364	306.179	0.803	-2.873	799.992	0.147	0.803	2.983
900.000	0.704	301.869	1.315	-3.651	899.987	0.342	1.315	3.881
1000.000	0.633	283.346	1.767	-4.711	999.980	0.226	1.767	5.031
1100.000	0.869	296.058	2.227	-5.930	1099.972	0.287	2.227	6.334
1200.000	0.920	320.941	3.184	-7.117	1199.960	0.388	3.184	7.796
1300.000	1.361	308.471	4.546	-8.552	1299.940	0.504	4.546	9.686
1400.000	1.364	324.238	6.251	-10.178	1399.912	0.374	6.251	11.944
1500.000	1.747	319.209	8.371	-11.870	1499.875	0.406	8.371	14.525
1600.000	1.827	323.268	10.803	-13.819	1599.827	0.150	10.803	17.541
1700.000	1.595	328.480	13.267	-15.501	1699.782	0.279	13.267	20.403
1800.000	1.306	344.537	15.552	-16.532	1799.750	0.496	15.552	22.697
1900.000	0.917	4.166	17.448	-16.778	1899.732	0.538	17.448	24.206
2000.000	0.974	5.162	19.093	-16.643	1999.718	0.059	19.093	25.328
2100.000	0.985	15.474	20.767	-16.337	2099.703	0.176	20.767	26.423
2200.000	1.024	21.865	22.425	-15.775	2199.688	0.118	22.425	27.418
2300.000	1.246	13.166	24.312	-15.195	2299.669	0.280	24.312	28.670
2400.000	1.630	15.743	26.739	-14.562	2399.637	0.390	26.739	30.447
2500.000	1.520	359.140	29.434	-14.196	2499.600	0.468	29.434	32.679
2600.000	1.026	337.488	31.588	-14.558	2599.575	0.681	31.588	34.781
2700.000	1.096	348.044	33.351	-15.099	2699.558	0.207	33.351	36.610
2800.000	1.141	358.859	35.282	-15.317	2799.539	0.216	35.282	38.464
2900.000	1.217	354.190	37.334	-15.445	2899.518	0.122	37.334	40.403
3000.000	1.503	5.790	39.695	-15.420	2999.490	0.396	39.695	42.585
3100.000	1.550	19.623	42.273	-14.833	3099.455	0.371	42.273	44.800
3200.000	1.217	46.659	44.276	-13.607	3199.427	0.724	44.276	46.320
3300.000	1.426	68.807	45.455	-11.675	3299.401	0.547	45.455	46.930
3400.000	1.782	59.111	46.702	-9.181	3399.361	0.446	46.702	47.596

3500.000	1.153	29.297	48.378	-7.355	3499.330	0.969	48.378	48.934
3600.000	1.304	1.512	50.394	-6.832	3599.307	0.608	50.394	50.855
3700.000	1.459	342.659	52.746	-7.182	3699.279	0.477	52.746	53.233
3800.000	1.368	12.787	55.125	-7.297	3799.250	0.740	55.125	55.606
3900.000	1.302	8.854	57.412	-6.857	3899.223	0.113	57.412	57.820
4000.000	0.984	28.349	59.291	-6.275	3999.203	0.498	59.291	59.622
4100.000	0.807	47.231	60.525	-5.350	4099.191	0.342	60.525	60.761
4200.000	0.745	344.706	61.630	-5.005	4199.183	0.807	61.630	61.832
4300.000	0.940	329.322	62.962	-5.595	4299.173	0.297	62.962	63.210
4400.000	1.101	313.690	64.331	-6.708	4399.157	0.320	64.331	64.679
4500.000	0.784	289.889	65.227	-8.046	4499.144	0.497	65.227	65.722
4600.000	1.063	265.875	65.393	-9.615	4599.131	0.471	65.393	66.096
4700.000	0.695	238.499	65.010	-11.057	4699.119	0.549	65.010	65.943
4800.000	0.367	217.628	64.439	-11.770	4799.115	0.375	64.439	65.505
4900.000	0.408	189.825	63.835	-12.026	4899.113	0.190	63.835	64.958
5000.000	0.442	212.958	63.161	-12.296	4999.110	0.174	63.161	64.347
5100.000	0.506	219.850	62.498	-12.789	5099.107	0.086	62.498	63.793
5200.000	0.568	238.409	61.899	-13.495	5199.102	0.184	61.899	63.353
5300.000	0.508	252.634	61.507	-14.341	5299.098	0.146	61.507	63.157
5400.000	0.602	224.331	60.999	-15.131	5399.094	0.286	60.999	62.848
5500.000	0.793	230.022	60.179	-16.028	5499.086	0.203	60.179	62.277
5600.000	1.073	273.058	59.784	-17.493	5599.074	0.732	59.784	62.291
5700.000	1.058	262.785	59.718	-19.345	5699.057	0.191	59.718	62.773
5800.000	1.441	294.956	60.133	-21.400	5799.034	0.784	60.133	63.827
5900.000	1.625	287.431	61.088	-23.893	5898.998	0.273	61.088	65.595
6000.000	1.606	274.370	61.620	-26.643	5998.959	0.368	61.620	67.133
6100.000	1.937	265.769	61.602	-29.725	6098.911	0.424	61.602	68.399
6200.000	2.317	242.830	60.554	-33.209	6198.844	0.924	60.554	69.062
6300.000	1.814	265.055	59.494	-36.584	6298.780	0.937	59.494	69.842
6400.000	1.701	278.137	59.568	-39.631	6398.733	0.416	59.568	71.547
6500.000	1.354	293.270	60.245	-42.186	6498.698	0.529	60.245	73.547
6600.000	2.800	270.936	60.752	-45.714	6598.631	1.631	60.752	76.030
6700.000	3.107	282.320	61.370	-50.805	6698.499	0.660	61.370	79.671
6750.000	3.296	284.820	62.027	-53.518	6748.421	0.469	62.027	81.924

es East of True North

Cbrg

0.000
338.079
326.205
273.529
268.009
276.349
279.279
281.228
285.615
289.804
290.558
290.588
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297.992
301.556
305.193
308.016
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313.250
316.123
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