



Company: Noble Energy
Rig: Production/ V.E.S
API # 05-123-23165
Date: 5/3/2013
Surveyor: Jay Hinman
VS:
Lat : 40.45511
Long: -104.42606

Well: Wells Ranch 23-27
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is -0.69 of 1
Declination: 8.43
Depth Reference: Ground Level
Elevation: 4820'
Total Depth as Drilled: 7048'

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
100.000	0.988	351.977	0.854	-0.120	99.995	0.988	0.854	0.862
200.000	0.610	324.237	2.139	-0.552	199.985	0.530	2.139	2.209
300.000	0.914	23.839	3.301	-0.541	299.978	0.802	3.301	3.345
400.000	0.494	315.735	4.339	-0.519	399.972	0.862	4.339	4.370
500.000	0.525	68.306	4.817	-0.394	499.969	0.848	4.817	4.833
600.000	0.491	317.298	5.301	-0.259	599.967	0.838	5.301	5.308
700.000	0.513	92.893	5.593	-0.102	699.966	0.929	5.593	5.594
800.000	0.361	281.791	5.635	0.037	799.965	0.871	5.635	5.635
900.000	0.405	101.264	5.631	0.076	899.964	0.766	5.631	5.631
1000.000	0.176	198.499	5.416	0.373	999.963	0.461	5.416	5.429
1100.000	0.234	120.963	5.166	0.499	1099.962	0.260	5.166	5.190
1200.000	0.461	157.309	4.689	0.830	1199.961	0.306	4.689	4.762
1300.000	0.431	172.101	3.945	1.037	1299.958	0.119	3.945	4.079
1400.000	0.678	160.332	3.015	1.288	1399.953	0.271	3.015	3.278
1500.000	0.429	185.034	2.084	1.454	1499.948	0.340	2.084	2.541
1600.000	0.827	161.737	1.025	1.647	1599.942	0.465	1.025	1.940
1700.000	0.634	154.132	-0.157	2.115	1699.934	0.216	-0.157	2.121
1800.000	0.414	205.025	-0.982	2.203	1799.930	0.492	-0.982	2.412
1900.000	0.445	169.175	-1.691	2.123	1899.928	0.266	-1.691	2.715
2000.000	1.029	190.649	-2.956	2.030	1999.919	0.636	-2.956	3.586
2100.000	1.556	190.235	-5.175	1.623	2099.893	0.527	-5.175	5.423
2200.000	1.227	176.026	-7.579	1.456	2199.864	0.475	-7.579	7.718
2300.000	1.500	192.784	-9.924	1.241	2299.836	0.481	-9.924	10.001
2400.000	0.824	157.317	-11.863	1.228	2399.816	0.957	-11.863	11.927
2500.000	1.289	151.795	-13.518	2.037	2499.799	0.476	-13.518	13.670
2600.000	1.018	140.897	-15.198	3.129	2599.779	0.348	-15.198	15.517
2700.000	0.856	135.885	-16.423	4.209	2699.765	0.181	-16.423	16.954
2800.000	0.766	187.042	-17.623	4.647	2799.756	0.705	-17.623	18.225
2900.000	0.383	300.520	-18.117	4.277	2899.753	0.983	-18.117	18.615
3000.000	0.361	154.403	-18.231	4.126	2999.752	0.711	-18.231	18.692
3100.000	0.200	179.529	-18.690	4.263	3099.751	0.199	-18.690	19.170
3200.000	0.523	185.057	-19.318	4.224	3199.749	0.324	-19.318	19.775
3300.000	0.103	233.578	-19.826	4.112	3299.747	0.461	-19.826	20.248
3400.000	0.461	0.638	-19.476	4.044	3399.746	0.529	-19.476	19.892
3500.000	0.921	344.633	-18.299	3.836	3499.739	0.494	-18.299	18.697

3600.000	0.874	333.810	-16.840	3.286	3599.727	0.176	-16.840	17.158
3700.000	0.549	307.374	-15.865	2.569	3699.719	0.454	-15.865	16.071
3800.000	0.489	280.216	-15.498	1.768	3799.715	0.251	-15.498	15.599
3900.000	0.163	334.733	-15.294	1.287	3899.714	0.416	-15.294	15.348
4000.000	0.245	58.759	-15.054	1.409	3999.713	0.280	-15.054	15.119
4100.000	0.478	321.242	-14.618	1.330	4099.712	0.565	-14.618	14.678
4200.000	0.628	314.159	-13.911	0.676	4199.707	0.165	-13.911	13.927
4300.000	0.461	340.240	-13.151	0.147	4299.703	0.295	-13.151	13.151
4400.000	0.920	15.133	-11.997	0.221	4399.696	0.603	-11.997	11.999
4500.000	0.760	6.977	-10.564	0.511	4499.685	0.200	-10.564	10.576
4600.000	1.534	14.071	-8.608	0.917	4599.664	0.786	-8.608	8.656
4700.000	0.692	349.253	-6.716	1.130	4699.645	0.951	-6.716	6.810
4800.000	0.390	246.378	-6.258	0.705	4799.642	0.867	-6.258	6.298
4900.000	0.823	212.688	-6.999	0.005	4899.636	0.544	-6.999	6.999
5000.000	0.901	224.755	-8.162	-0.936	4999.625	0.197	-8.162	8.216
5100.000	1.004	221.346	-9.378	-2.068	5099.611	0.118	-9.378	9.604
5200.000	0.884	234.035	-10.489	-3.271	5199.598	0.240	-10.489	10.987
5300.000	0.820	274.003	-10.892	-4.609	5299.588	0.585	-10.892	11.827
5400.000	0.604	286.689	-10.691	-5.828	5399.580	0.266	-10.691	12.176
5500.000	0.858	278.668	-10.426	-7.073	5499.572	0.273	-10.426	12.599
5600.000	0.757	267.063	-10.347	-8.472	5599.562	0.192	-10.347	13.374
5700.000	0.982	286.473	-10.138	-9.954	5699.550	0.368	-10.138	14.208
5800.000	0.859	253.415	-10.109	-11.495	5799.538	0.537	-10.109	15.308
5900.000	0.919	257.074	-10.502	-12.995	5899.526	0.082	-10.502	16.708
6000.000	1.011	275.885	-10.591	-14.654	5999.512	0.328	-10.591	18.080
6100.000	0.848	261.152	-10.615	-16.263	6099.499	0.288	-10.615	19.420
6200.000	0.659	288.398	-10.547	-17.540	6199.491	0.400	-10.547	20.467
6300.000	0.880	271.867	-10.340	-18.853	6299.482	0.311	-10.340	21.503
6400.000	0.725	286.641	-10.134	-20.227	6399.472	0.257	-10.134	22.624
6500.000	0.804	259.522	-10.080	-21.523	6499.464	0.366	-10.080	23.767
6600.000	0.465	254.138	-10.319	-22.603	6599.457	0.343	-10.319	24.847
6700.000	0.513	270.545	-10.425	-23.441	6699.454	0.147	-10.425	25.655
6800.000	0.752	260.198	-10.533	-24.535	6799.448	0.264	-10.533	26.700

0

True North

Cbrg

0.000

351.977

345.537

350.697

353.173

355.319

357.205

358.956

0.378

0.769

3.943

5.523

10.032

14.722

23.126

34.900

58.096

94.258

114.030

128.540

145.515

162.585

169.125

172.874

174.090

171.431

168.368

165.627

165.229

166.717

167.249

167.151

167.665

168.283

168.269

168.161

168.957
170.802
173.491
175.190
174.654
174.799
177.217
179.359
178.945
177.231
173.919
170.451
173.571
179.955
186.542
192.437
197.322
202.937
208.596
214.151
219.311
224.476
228.670
231.055
234.142
236.868
238.981
241.257
243.389
244.904
245.462
246.023
246.766