



**Company:** Noble Energy  
**Rig:** Production/ V.E.S  
**API:** 05-123-26812  
**Date:** 3/20/2013  
**Surveyor:** Jay Hinman  
**VS:** N/A  
**Lat:** 40.47421  
**Long:** -104.44472

**Well:** Wells Ranch AA 21-06  
**Location:** Weld County, Colorado  
**North Reference:** Grid  
**Convergence:** Grid North is -0.68 of 1  
**Declination:** 8.46  
**Depth Reference:** Ground Level  
**Elevation:** 4675'

**Total Depth as Drilled:** 6891'

**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	0.432	67.451	0.145	0.348	99.999	0.432	0.145	0.377
200.000	0.172	291.269	0.343	0.557	199.998	0.568	0.343	0.654
300.000	0.574	302.385	0.666	-0.006	299.996	0.407	0.666	0.666
400.000	0.021	222.728	0.921	-0.441	399.994	0.571	0.921	1.021
500.000	0.095	217.971	0.842	-0.504	499.994	0.075	0.842	0.982
600.000	0.104	35.492	0.850	-0.503	599.994	0.199	0.850	0.988
700.000	0.106	14.105	1.013	-0.428	699.994	0.039	1.013	1.100
800.000	0.139	306.652	1.175	-0.503	799.994	0.139	1.175	1.278
900.000	0.154	67.421	1.299	-0.476	899.994	0.255	1.299	1.384
1000.000	0.192	127.837	1.248	-0.220	999.993	0.177	1.248	1.267
1100.000	0.189	79.838	1.174	0.074	1099.993	0.155	1.174	1.176
1200.000	0.158	104.952	1.168	0.370	1199.992	0.081	1.168	1.225
1300.000	0.244	84.784	1.151	0.714	1299.992	0.110	1.151	1.355
1400.000	0.366	85.662	1.195	1.245	1399.990	0.122	1.195	1.725
1500.000	0.435	114.535	1.061	1.909	1499.988	0.211	1.061	2.184
1600.000	0.450	106.462	0.792	2.631	1599.985	0.064	0.792	2.747
1700.000	0.447	97.219	0.632	3.394	1699.982	0.072	0.632	3.453
1800.000	0.610	100.867	0.483	4.304	1799.978	0.166	0.483	4.331
1900.000	0.521	109.455	0.231	5.256	1899.973	0.122	0.231	5.261
2000.000	0.648	107.789	-0.094	6.223	1999.967	0.128	-0.094	6.224
2100.000	0.703	95.449	-0.325	7.372	2099.961	0.155	-0.325	7.379
2200.000	0.711	96.928	-0.458	8.598	2199.953	0.020	-0.458	8.611
2300.000	0.888	130.653	-1.037	9.802	2299.944	0.494	-1.037	9.857
2400.000	1.214	123.466	-2.126	11.274	2399.927	0.351	-2.126	11.473
2500.000	0.983	127.288	-3.231	12.840	2499.908	0.242	-3.231	13.241
2600.000	0.384	151.709	-4.045	13.682	2599.901	0.653	-4.045	14.267
2700.000	0.092	205.396	-4.413	13.806	2699.900	0.338	-4.413	14.494
2800.000	0.066	214.521	-4.533	13.739	2799.900	0.029	-4.533	14.468
2900.000	0.389	213.229	-4.865	13.520	2899.899	0.323	-4.865	14.369
3000.000	0.364	282.379	-5.081	13.024	2999.897	0.428	-5.081	13.980
3100.000	0.593	278.830	-4.933	12.203	3099.894	0.230	-4.933	13.162
3200.000	0.501	273.300	-4.829	11.255	3199.889	0.105	-4.829	12.247
3300.000	0.382	260.126	-4.861	10.490	3299.886	0.156	-4.861	11.561

3400.000	1.713	271.114	-4.889	8.668	3399.867	1.340	-4.889	9.951
3500.000	1.370	295.454	-4.346	6.094	3499.832	0.731	-4.346	7.485
3600.000	1.667	293.708	-3.247	3.683	3599.797	0.301	-3.247	4.910
3700.000	1.814	304.554	-1.765	1.048	3699.751	0.360	-1.765	2.053
3800.000	1.926	307.306	0.151	-1.592	3799.698	0.144	0.151	1.599
3900.000	1.874	295.648	1.878	-4.403	3899.643	0.389	1.878	4.786
4000.000	1.615	271.690	2.627	-7.285	3999.598	0.767	2.627	7.744
4100.000	1.475	253.874	2.311	-9.929	4099.562	0.498	2.311	10.195
4200.000	1.546	245.547	1.395	-12.394	4199.528	0.231	1.395	12.472
4300.000	2.165	265.634	0.693	-15.505	4299.476	0.889	0.693	15.521
4400.000	3.467	286.234	1.394	-20.292	4399.355	1.629	1.394	20.340
4500.000	2.817	296.334	3.329	-25.397	4499.205	0.852	3.329	25.614
4600.000	2.249	307.492	5.613	-29.155	4599.108	0.750	5.613	29.691
4700.000	2.091	307.212	7.910	-32.164	4699.036	0.158	7.910	33.123
4800.000	2.435	329.982	10.853	-34.680	4798.960	0.955	10.853	36.338
4900.000	2.517	332.482	14.640	-36.757	4898.867	0.136	14.640	39.565
5000.000	2.135	323.105	18.077	-38.890	4998.784	0.538	18.077	42.886
5100.000	1.974	316.045	20.807	-41.204	5098.720	0.300	20.807	46.159
5200.000	1.569	309.666	22.920	-43.453	5198.672	0.450	22.920	49.127
5300.000	1.096	287.098	24.075	-45.420	5298.646	0.698	24.075	51.406
5400.000	0.438	267.247	24.338	-46.716	5398.636	0.700	24.338	52.675
5500.000	0.882	257.628	24.155	-47.849	5498.629	0.456	24.155	53.600
5600.000	1.575	243.565	23.378	-49.831	5598.606	0.750	23.378	55.043
5700.000	1.194	225.835	22.041	-51.809	5698.577	0.569	22.041	56.302
5800.000	0.294	263.827	21.287	-52.811	5798.568	0.979	21.287	56.940
5900.000	0.435	325.214	21.572	-53.282	5898.566	0.391	21.572	57.483
6000.000	0.280	66.490	21.981	-53.275	5998.565	0.561	21.981	57.632
6100.000	0.524	320.811	22.432	-53.340	6098.564	0.657	22.432	57.865
6200.000	0.492	303.150	23.021	-53.988	6198.560	0.159	23.021	58.692
6300.000	0.095	321.724	23.321	-54.399	6298.558	0.403	23.321	59.187
6400.000	0.394	51.805	23.598	-54.180	6398.557	0.405	23.598	59.096
6500.000	0.336	57.588	23.967	-53.663	6498.555	0.068	23.967	58.772
6600.000	0.230	122.483	24.017	-53.246	6598.554	0.317	24.017	58.412
6700.000	0.176	267.194	23.901	-53.230	6698.554	0.387	23.901	58.350

0

True North

**Cbrg**

0.000  
67.451  
58.328  
359.497  
334.420  
329.087  
329.392  
337.101  
336.828  
339.863  
350.004  
3.629  
17.563  
31.822  
46.173  
60.928  
73.241  
79.453  
83.602  
87.487  
90.861  
92.521  
93.046  
96.041  
100.681  
104.122  
106.472  
107.725  
108.259  
109.788  
111.311  
112.012  
113.221  
114.861

119.424  
125.494  
131.402  
149.295  
275.426  
293.095  
289.828  
283.102  
276.422  
272.558  
273.931  
277.469  
280.898  
283.817  
287.377  
291.717  
294.930  
296.793  
297.811  
297.926  
297.519  
296.785  
295.133  
293.046  
291.954  
292.041  
292.420  
292.809  
293.094  
293.205  
293.535  
294.067  
294.278  
294.181