



Company: Noble Energy
 Rig: Production/VES
 API # 05-123-23249
 Date: 12/26/13
 Surveyor: Levi Sheldon
 VS: 0.000
 Lat : 40.177
 Long: -104.656

Well: Cannon H34-13
 Location: Weld County, Colorado
 North Reference: GRID
 Convergence: GRID North is 0.550 Degrees East
 Declination: 8.45
 Depth Reference: Ground Level
 Elevation: 4,838 Feet
 Total Depth as Drilled: 7,312 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	0.826	175.034	-0.718	0.062	99.997	0.826	-0.718	0.721	175.034
200.000	0.583	192.178	-1.933	0.018	199.989	0.319	-1.933	1.933	179.481
300.000	0.512	206.476	-2.830	-0.289	299.984	0.153	-2.830	2.844	185.830
400.000	0.603	223.768	-3.610	-0.852	399.980	0.190	-3.610	3.709	193.285
500.000	1.009	230.656	-4.548	-1.897	499.970	0.416	-4.548	4.928	202.644
600.000	1.283	242.535	-5.623	-3.571	599.950	0.362	-5.623	6.661	212.424
700.000	1.398	238.458	-6.777	-5.605	699.922	0.149	-6.777	8.794	219.590
800.000	1.371	238.428	-8.042	-7.664	799.893	0.027	-8.042	11.109	223.621
900.000	1.253	236.369	-9.274	-9.593	899.867	0.127	-9.274	13.343	225.971
1000.000	1.214	239.585	-10.415	-11.417	999.844	0.079	-10.415	15.454	227.627
1100.000	1.162	241.850	-11.430	-13.224	1099.822	0.070	-11.430	17.479	229.163
1200.000	1.023	243.514	-12.307	-14.918	1199.804	0.142	-12.307	19.339	230.479
1300.000	1.015	249.556	-13.014	-16.547	1299.788	0.108	-13.014	21.051	231.815
1400.000	0.947	247.544	-13.639	-18.140	1399.774	0.076	-13.639	22.696	233.062
1500.000	0.923	234.842	-14.419	-19.563	1499.760	0.208	-14.419	24.302	233.608
1600.000	0.760	245.887	-15.154	-20.827	1599.750	0.229	-15.154	25.756	233.960
1700.000	0.542	247.639	-15.605	-21.870	1699.743	0.219	-15.605	26.867	234.491
1800.000	0.484	266.521	-15.810	-22.729	1799.739	0.178	-15.810	27.687	235.178
1900.000	0.593	331.220	-15.382	-23.400	1899.736	0.584	-15.382	28.003	236.680
2000.000	0.619	350.131	-14.397	-23.742	1999.730	0.201	-14.397	27.766	238.768
2100.000	1.159	352.462	-12.862	-23.967	2099.718	0.541	-12.862	27.200	241.780
2200.000	1.514	3.579	-10.541	-24.017	2199.691	0.439	-10.541	26.229	246.304
2300.000	1.579	8.877	-7.861	-23.722	2299.654	0.157	-7.861	24.991	251.667
2400.000	1.621	9.329	-5.104	-23.280	2399.615	0.043	-5.104	23.833	257.634
2500.000	1.331	30.113	-2.704	-22.468	2499.583	0.604	-2.704	22.630	263.138
2600.000	0.856	71.579	-1.463	-21.177	2599.566	0.893	-1.463	21.227	266.048
2700.000	0.596	112.763	-1.428	-19.988	2699.558	0.566	-1.428	20.039	265.913
2800.000	0.839	110.342	-1.884	-18.822	2799.550	0.244	-1.884	18.916	264.285
2900.000	0.724	117.438	-2.429	-17.575	2899.541	0.150	-2.429	17.742	262.130
3000.000	0.559	114.780	-2.925	-16.571	2999.535	0.168	-2.925	16.827	259.990
3100.000	0.484	141.587	-3.460	-15.866	3099.531	0.252	-3.460	16.239	257.697
3200.000	0.686	142.089	-4.263	-15.236	3199.525	0.202	-4.263	15.821	254.367
3300.000	0.808	150.898	-5.352	-14.525	3299.517	0.168	-5.352	15.480	249.773
3400.000	1.250	165.379	-7.024	-13.907	3399.501	0.509	-7.024	15.580	243.204
3500.000	1.273	169.692	-9.172	-13.433	3499.476	0.098	-9.172	16.265	235.676

3600.000	1.087	213.823	-11.052	-13.762	3599.457	0.903	-11.052	17.651	231.232
3700.000	0.901	250.679	-12.101	-15.032	3699.443	0.653	-12.101	19.297	231.166
3800.000	0.404	269.666	-12.363	-16.126	3799.436	0.535	-12.363	20.320	232.526
3900.000	0.437	322.344	-12.063	-16.712	3899.434	0.374	-12.063	20.611	234.178
4000.000	0.445	327.346	-11.434	-17.155	3999.431	0.039	-11.434	20.616	236.315
4100.000	0.301	347.668	-10.851	-17.420	4099.429	0.193	-10.851	20.523	238.080
4200.000	0.616	62.123	-10.344	-17.001	4199.426	0.608	-10.344	19.901	238.682
4300.000	0.750	72.899	-9.900	-15.901	4299.419	0.185	-9.900	18.731	238.092
4400.000	0.717	73.653	-9.532	-14.675	4399.411	0.034	-9.532	17.499	236.995
4500.000	1.051	84.843	-9.273	-13.161	4499.399	0.374	-9.273	16.100	234.831
4600.000	1.162	64.448	-8.754	-11.333	4599.381	0.407	-8.754	14.320	232.317
4700.000	1.834	40.275	-7.095	-9.384	4699.347	0.909	-7.095	11.764	232.906
4800.000	2.113	46.032	-4.595	-7.022	4799.288	0.342	-4.595	8.392	236.804
4900.000	2.292	67.390	-2.546	-3.850	4899.215	0.835	-2.546	4.616	236.521
5000.000	2.519	64.443	-0.829	-0.021	4999.127	0.259	-0.829	0.830	181.467
5100.000	2.214	67.399	0.861	3.745	5099.042	0.328	0.861	3.843	77.047
5200.000	1.668	68.069	2.147	6.879	5198.984	0.547	2.147	7.206	72.663
5300.000	1.267	63.516	3.184	9.219	5298.951	0.417	3.184	9.753	70.945
5400.000	1.197	62.296	4.163	11.134	5398.928	0.075	4.163	11.887	69.498
5500.000	0.831	66.502	4.938	12.723	5498.912	0.374	4.938	13.648	68.789
5600.000	0.612	78.948	5.329	13.912	5598.904	0.268	5.329	14.898	69.040
5700.000	0.620	109.140	5.254	14.948	5698.899	0.321	5.254	15.844	70.633
5800.000	0.571	97.967	5.008	15.952	5798.893	0.126	5.008	16.720	72.571
5900.000	0.711	92.282	4.914	17.065	5898.887	0.154	4.914	17.759	73.936
6000.000	0.713	75.368	5.046	18.287	5998.880	0.209	5.046	18.971	74.573
6100.000	0.640	69.736	5.397	19.412	6098.873	0.099	5.397	20.149	74.463
6200.000	0.414	70.570	5.710	20.277	6198.868	0.226	5.710	21.065	74.272
6300.000	0.451	90.254	5.829	21.011	6298.865	0.152	5.829	21.804	74.495
6400.000	0.346	78.863	5.885	21.701	6398.863	0.131	5.885	22.484	74.826
6500.000	0.383	79.478	6.005	22.326	6498.861	0.038	6.005	23.119	74.946
6600.000	0.117	188.686	5.965	22.639	6598.860	0.436	5.965	23.412	75.240
6700.000	0.058	339.072	5.911	22.605	6698.860	0.171	5.911	23.365	75.346
6800.000	0.852	308.884	6.425	22.008	6798.856	0.802	6.425	22.927	73.724
6900.000	1.554	285.384	7.252	20.122	6898.834	0.844	7.252	21.389	70.180
7000.000	1.978	260.301	7.321	17.114	6998.788	0.871	7.321	18.614	66.839
7100.000	1.740	242.872	6.338	14.061	7098.736	0.610	6.338	15.424	65.737

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