



Company: Noble Energy
Rig: Production/V.E.S.
API # 05-123-34217
Date: 12/28/2013
Surveyor: Jay Hinman
VS: 0.000
Lat : 40.53484
Long: -104.62802

Well: Booth USX EE35-12D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is 0.57 Deg
Declination: 8.45
Depth Reference: Ground Level
Elevation: 4831'
Total Depth as Drilled: 8162'

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	0.649	259.264	-0.106	-0.557	99.998	0.650	-0.106	0.567
200.000	0.506	259.903	-0.289	-1.549	199.993	0.144	-0.289	1.575
300.000	0.739	248.351	-0.604	-2.582	299.987	0.263	-0.604	2.652
400.000	2.237	241.140	-1.784	-4.891	399.950	1.507	-1.784	5.206
500.000	3.426	249.934	-3.751	-9.407	499.827	1.262	-3.751	10.127
600.000	5.978	247.827	-6.742	-17.037	599.482	2.558	-6.742	18.323
700.000	7.624	240.095	-12.015	-27.611	698.777	1.879	-12.015	30.112
800.000	8.861	241.086	-19.046	-40.103	797.742	1.245	-19.046	44.396
900.000	10.916	240.620	-27.416	-55.098	896.251	2.056	-27.416	61.542
1000.000	11.989	240.561	-37.167	-72.394	994.259	1.074	-37.167	81.377
1100.000	13.916	239.623	-48.354	-91.815	1091.710	1.938	-48.354	103.770
1200.000	15.909	234.898	-62.317	-113.405	1188.341	2.333	-62.317	129.399
1300.000	18.020	229.940	-80.156	-136.460	1283.989	2.558	-80.156	158.261
1400.000	19.366	228.860	-101.020	-160.787	1378.712	1.390	-101.020	189.888
1500.000	20.983	230.322	-123.361	-187.055	1472.574	1.693	-123.361	224.071
1600.000	22.977	227.708	-147.930	-215.277	1565.303	2.221	-147.930	261.204
1700.000	24.858	230.076	-174.556	-245.838	1656.714	2.111	-174.556	301.506
1800.000	25.934	229.293	-202.307	-278.534	1747.049	1.127	-202.307	344.252
1900.000	27.016	230.005	-231.167	-312.511	1836.561	1.127	-231.167	388.718
2000.000	28.631	229.878	-261.206	-348.233	1924.998	1.616	-261.206	435.310
2100.000	28.492	230.969	-291.665	-385.081	2012.829	0.540	-291.665	483.070
2200.000	31.174	231.672	-322.743	-423.920	2099.569	2.705	-322.743	532.796
2300.000	32.813	227.631	-357.060	-464.250	2184.387	2.696	-357.060	585.678
2400.000	32.480	227.932	-393.309	-504.200	2268.588	0.371	-393.309	639.460
2500.000	30.969	226.351	-429.061	-542.751	2353.646	1.725	-429.061	691.861
2600.000	29.895	230.661	-462.622	-580.648	2439.879	2.432	-462.622	742.409
2700.000	28.057	229.295	-493.760	-617.753	2527.358	1.954	-493.760	790.834
2800.000	27.088	228.041	-524.321	-652.513	2616.000	1.130	-524.321	837.070
2900.000	28.029	229.814	-554.706	-687.395	2704.655	1.248	-554.706	883.295
3000.000	30.521	227.138	-587.147	-723.965	2791.880	2.815	-587.147	932.130
3100.000	30.318	228.941	-620.999	-761.610	2878.116	0.935	-620.999	982.695
3200.000	31.318	230.594	-654.077	-800.725	2963.996	1.310	-654.077	1033.914
3300.000	32.921	229.832	-688.106	-841.574	3048.688	1.654	-688.106	1087.077
3400.000	34.077	229.112	-723.974	-883.520	3132.076	1.222	-723.974	1142.255
3500.000	34.876	229.696	-760.806	-926.504	3214.511	0.865	-760.806	1198.848

3600.000	35.429	228.972	-798.327	-970.174	3296.274	0.692	-798.327	1256.409
3700.000	36.097	228.922	-836.710	-1014.250	3377.417	0.669	-836.710	1314.830
3800.000	33.926	226.476	-875.291	-1056.690	3459.320	2.585	-875.291	1372.128
3900.000	32.279	230.173	-911.617	-1097.440	3543.095	2.605	-911.617	1426.683
4000.000	32.069	230.437	-945.627	-1138.410	3627.738	0.253	-945.627	1479.932
4100.000	30.431	229.533	-978.974	-1178.150	3713.227	1.704	-978.974	1531.806
4200.000	29.543	228.708	-1011.680	-1215.940	3799.841	0.979	-1011.680	1581.774
4300.000	32.791	231.580	-1044.790	-1255.690	3885.400	3.572	-1044.790	1633.508
4400.000	33.925	230.247	-1079.460	-1298.370	3968.925	1.350	-1079.460	1688.487
4500.000	34.824	229.065	-1116.020	-1341.390	4051.462	1.119	-1116.020	1744.941
4600.000	35.070	229.714	-1153.300	-1384.880	4133.430	0.446	-1153.300	1802.216
4700.000	34.088	229.416	-1190.110	-1428.080	4215.763	0.996	-1190.110	1858.966
4800.000	34.486	228.576	-1227.070	-1470.590	4298.386	0.618	-1227.070	1915.287
4900.000	34.068	229.192	-1264.110	-1513.020	4381.018	0.543	-1264.110	1971.593
5000.000	33.876	229.034	-1300.680	-1555.260	4463.949	0.212	-1300.680	2027.463
5100.000	32.938	228.520	-1336.960	-1596.670	4547.426	0.980	-1336.960	2082.507
5200.000	31.907	228.087	-1372.620	-1636.710	4631.836	1.057	-1372.620	2136.098
5300.000	30.565	226.006	-1407.940	-1674.670	4717.341	1.722	-1407.940	2187.879
5400.000	28.814	227.592	-1441.860	-1710.760	4804.211	1.919	-1441.860	2237.329
5500.000	28.985	227.454	-1474.490	-1746.400	4891.758	0.183	-1474.490	2285.617
5600.000	29.700	225.963	-1508.100	-1782.060	4978.929	1.023	-1508.100	2334.545
5700.000	28.914	226.001	-1542.110	-1817.260	5066.129	0.786	-1542.110	2383.390
5800.000	29.666	227.550	-1575.610	-1852.910	5153.344	1.067	-1575.610	2432.248
5900.000	29.782	230.966	-1607.950	-1890.470	5240.193	1.698	-1607.950	2481.811
6000.000	28.726	230.812	-1638.780	-1928.390	5327.438	1.059	-1638.780	2530.666
6100.000	28.104	231.939	-1668.490	-1965.560	5415.391	0.821	-1668.490	2578.228
6200.000	27.485	232.058	-1697.200	-2002.300	5503.853	0.621	-1697.200	2624.821
6300.000	27.386	230.965	-1725.870	-2038.370	5592.606	0.513	-1725.870	2670.872
6400.000	27.051	229.905	-1755.000	-2073.630	5681.534	0.589	-1755.000	2716.605
6500.000	28.001	230.684	-1784.520	-2109.180	5770.213	1.017	-1784.520	2762.817
6600.000	26.553	231.047	-1813.450	-2144.730	5859.090	1.457	-1813.450	2808.637
6700.000	28.226	231.837	-1842.110	-2180.710	5947.877	1.712	-1842.110	2854.620
6800.000	30.818	230.456	-1873.040	-2219.060	6034.887	2.679	-1873.040	2903.876
6900.000	31.953	228.839	-1906.760	-2258.740	6120.256	1.413	-1906.760	2955.950
7000.000	29.902	228.743	-1940.620	-2297.400	6206.033	2.051	-1940.620	3007.334
7100.000	28.060	228.326	-1972.700	-2333.710	6293.507	1.853	-1972.700	3055.773
7200.000	25.537	227.046	-2003.030	-2367.060	6382.760	2.589	-2003.030	3100.823
7300.000	22.451	225.100	-2031.200	-2396.370	6474.110	3.186	-2031.200	3141.396
7400.000	18.980	227.945	-2055.580	-2421.980	6567.633	3.612	-2055.580	3176.695
7500.000	16.803	226.556	-2076.420	-2444.550	6662.791	2.218	-2076.420	3207.387
7600.000	17.153	233.080	-2095.220	-2466.830	6758.441	1.936	-2095.220	3236.543
7700.000	17.814	235.246	-2112.800	-2491.190	6853.822	0.928	-2112.800	3266.489
7800.000	17.338	232.011	-2130.690	-2515.500	6949.156	1.087	-2130.690	3296.604
7900.000	14.850	229.926	-2148.110	-2537.060	7045.230	2.554	-2148.110	3324.311

0

rees East of True North

Cbrg

0.000
259.264
259.443
256.840
249.963
248.260
248.410
246.484
244.596
243.545
242.824
242.227
241.211
239.570
237.859
236.595
235.505
234.624
234.008
233.509
233.127
232.859
232.717
232.436
232.043
231.673
231.454
231.365
231.217
231.098
230.957
230.807
230.756
230.729
230.668
230.609

230.550
230.479
230.364
230.284
230.285
230.275
230.239
230.238
230.260
230.240
230.213
230.193
230.158
230.122
230.094
230.059
230.015
229.945
229.875
229.825
229.760
229.682
229.624
229.617
229.641
229.673
229.715
229.746
229.757
229.766
229.784
229.811
229.833
229.830
229.812
229.792
229.762
229.715
229.678
229.655
229.657
229.699
229.735
229.746