



Company: Noble Energy **Well:** Bickling PC E 03-21D
Rig: Production/CoreTech **Location:** Weld County, Colorado
API # 05-123-34968 **North Reference:** GRID
Date: 12/9/2013 **Convergence:** Grid north is 0.56 East of True North
Surveyor: Randy Holcomb **Declination:** 8.47
VS: 0.000 **Depth Reference:** Ground Level
Lat : 40.516 **Elevation:** 4828 Feet
Long: -104.641 **Total Depth as Drilled:** 7745 Feet

Lat & Long obtained by handheld GPS at wellhead
MS 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	0.416	296.721	0.163	-0.325	99.999	0.416	0.163	0.363	296.721
200.000	0.772	302.943	0.693	-1.215	199.994	0.361	0.693	1.399	299.715
300.000	1.801	290.245	1.604	-3.255	299.967	1.061	1.604	3.628	296.230
400.000	3.680	275.927	2.479	-7.921	399.849	1.986	2.479	8.300	287.376
500.000	4.682	277.160	3.319	-15.163	499.582	1.006	3.319	15.522	282.347
600.000	6.386	273.300	4.148	-24.765	599.113	1.744	4.148	25.110	279.508
700.000	7.766	271.331	4.625	-37.072	698.349	1.401	4.625	37.359	277.111
800.000	9.602	269.681	4.735	-52.167	797.198	1.852	4.735	52.382	275.187
900.000	12.429	273.080	5.267	-71.257	895.347	2.900	5.267	71.452	274.228
1000.000	14.276	273.588	6.617	-94.311	992.640	1.850	6.617	94.543	274.014
1100.000	16.312	272.796	8.074	-120.646	1089.093	2.047	8.074	120.916	273.829
1200.000	18.050	273.873	9.805	-150.132	1184.627	1.767	9.805	150.452	273.737
1300.000	19.514	273.475	11.864	-182.263	1279.300	1.470	11.864	182.648	273.724
1400.000	20.933	271.276	13.275	-216.796	1373.134	1.609	13.275	217.202	273.504
1500.000	22.674	269.620	13.545	-253.932	1465.977	1.846	13.545	254.293	273.053
1600.000	25.211	271.763	14.072	-294.500	1557.367	2.682	14.072	294.836	272.736
1700.000	26.873	270.751	15.023	-338.389	1647.212	1.721	15.023	338.722	272.542
1800.000	27.500	272.477	16.317	-384.055	1736.166	1.007	16.317	384.401	272.433
1900.000	27.446	271.709	18.002	-430.156	1824.889	0.358	18.002	430.533	272.396
2000.000	26.746	273.124	19.916	-475.661	1913.914	0.952	19.916	476.077	272.398
2100.000	26.830	272.825	22.254	-520.669	2003.182	0.159	22.254	521.144	272.447
2200.000	26.625	272.894	24.498	-565.587	2092.498	0.207	24.498	566.117	272.480
2300.000	26.321	272.676	26.664	-610.111	2182.012	0.319	26.664	610.693	272.502
2400.000	25.729	271.451	28.249	-653.956	2271.873	0.799	28.249	654.566	272.473
2500.000	25.565	271.719	29.446	-697.222	2362.021	0.200	29.446	697.844	272.418
2600.000	25.866	271.970	30.842	-740.590	2452.116	0.320	30.842	741.232	272.385
2700.000	25.261	269.037	31.233	-783.727	2542.330	1.403	31.233	784.350	272.282
2800.000	25.220	268.250	30.224	-826.357	2632.783	0.338	30.224	826.909	272.095
2900.000	26.127	265.896	27.997	-869.616	2722.912	1.365	27.997	870.066	271.844
3000.000	25.912	264.701	24.404	-913.334	2812.777	0.567	24.404	913.660	271.531
3100.000	25.769	264.188	20.185	-956.716	2902.778	0.265	20.185	956.929	271.209
3200.000	25.784	262.678	15.212	-999.914	2992.828	0.657	15.212	1000.029	270.872
3300.000	25.819	262.272	9.512	-1043.060	3082.859	0.180	9.512	1043.107	270.522
3400.000	25.291	264.344	4.478	-1085.900	3173.078	1.038	4.478	1085.910	270.236
3500.000	25.348	263.654	0.007	-1128.430	3263.472	0.300	0.007	1128.432	270.000
3600.000	25.045	264.188	-4.502	-1170.770	3353.957	0.379	-4.502	1170.774	269.780
3700.000	24.451	266.100	-8.054	-1212.470	3444.774	0.997	-8.054	1212.499	269.619

3800.000	23.064	266.028	-10.818	-1252.660	3536.297	1.387	-10.818	1252.709	269.505
3900.000	23.611	262.429	-14.814	-1292.060	3628.120	1.527	-14.814	1292.143	269.343
4000.000	23.113	262.039	-20.171	-1331.350	3719.922	0.522	-20.171	1331.501	269.132
4100.000	23.281	262.839	-25.353	-1370.390	3811.838	0.357	-25.353	1370.628	268.940
4200.000	24.848	263.114	-30.336	-1410.860	3903.144	1.572	-30.336	1411.189	268.768
4300.000	26.354	263.633	-35.316	-1453.780	3993.323	1.522	-35.316	1454.213	268.608
4400.000	27.452	264.582	-39.954	-1498.790	4082.500	1.179	-39.954	1499.325	268.473
4500.000	27.790	261.927	-45.404	-1544.820	4171.106	1.276	-45.404	1545.489	268.316
4600.000	26.518	262.378	-51.639	-1590.030	4260.083	1.288	-51.639	1590.870	268.140
4700.000	25.663	262.822	-57.306	-1633.640	4349.892	0.878	-57.306	1634.648	267.991
4800.000	25.530	263.406	-62.486	-1676.530	4440.078	0.285	-62.486	1677.698	267.866
4900.000	25.397	266.639	-66.218	-1719.350	4530.369	1.396	-66.218	1720.624	267.794
5000.000	25.500	271.302	-66.986	-1762.280	4620.675	2.006	-66.986	1763.554	267.823
5100.000	24.963	272.296	-65.651	-1804.890	4711.135	0.684	-65.651	1806.080	267.917
5200.000	22.642	274.404	-63.327	-1845.170	4802.624	2.472	-63.327	1846.256	268.034
5300.000	20.653	278.510	-59.238	-1881.810	4895.572	2.499	-59.238	1882.740	268.197
5400.000	19.647	277.208	-54.519	-1915.930	4989.451	1.101	-54.519	1916.703	268.370
5500.000	18.891	275.431	-50.878	-1948.720	5083.849	0.957	-50.878	1949.386	268.504
5600.000	17.940	275.452	-47.882	-1980.170	5178.728	0.951	-47.882	1980.748	268.615
5700.000	15.290	272.912	-45.748	-2008.670	5274.545	2.748	-45.748	2009.195	268.695
5800.000	12.044	277.317	-43.749	-2032.200	5371.704	3.406	-43.749	2032.668	268.767
5900.000	9.657	278.453	-41.187	-2050.840	5469.909	2.396	-41.187	2051.258	268.849
6000.000	8.687	277.855	-38.922	-2066.620	5568.629	0.975	-38.922	2066.989	268.921
6100.000	6.666	276.003	-37.283	-2079.880	5667.728	2.036	-37.283	2080.211	268.973
6200.000	6.232	276.728	-36.040	-2091.040	5767.095	0.441	-36.040	2091.350	269.013
6300.000	5.034	274.284	-35.076	-2100.810	5866.610	1.222	-35.076	2101.098	269.043
6400.000	4.350	276.367	-34.328	-2108.950	5966.275	0.705	-34.328	2109.229	269.067
6500.000	3.440	276.381	-33.574	-2115.700	6066.042	0.910	-33.574	2115.968	269.091
6600.000	2.531	282.606	-32.758	-2120.840	6165.906	0.964	-32.758	2121.091	269.115
6700.000	1.952	282.417	-31.910	-2124.660	6265.829	0.579	-31.910	2124.896	269.140
6800.000	1.581	299.744	-30.860	-2127.520	6365.782	0.646	-30.860	2127.741	269.169
6900.000	1.168	320.075	-29.394	-2129.370	6465.754	0.632	-29.394	2129.572	269.209
7000.000	1.215	327.487	-27.718	-2130.590	6565.732	0.161	-27.718	2130.773	269.255
7100.000	1.229	334.430	-25.856	-2131.630	6665.709	0.149	-25.856	2131.783	269.305
7200.000	1.431	332.837	-23.778	-2132.660	6765.682	0.205	-23.778	2132.791	269.361
7300.000	1.222	334.310	-21.706	-2133.690	6865.655	0.211	-21.706	2133.801	269.417
7400.000	1.313	20.584	-19.672	-2133.750	6965.634	1.000	-19.672	2133.841	269.472
7500.000	1.618	17.511	-17.253	-2132.920	7065.601	0.314	-17.253	2132.992	269.537