



Company: Noble Energy
Rig: Production/VES
API # 05-123-25490

Date: 4/22/2013

Surveyor: Justin Williams

VS: 0.000

Lat : 40.34265

Long: -104.742

Well: Werning 7-2B

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid North is 0.49 Degrees East of

Declination: 8.6

Depth Reference: Ground Level

Elevation: 4672

Total Depth as Drilled: 7430

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	0.000
100.000	0.171	30.780	0.128	0.076	100.000	0.171	0.128	0.149	30.780
200.000	0.235	64.384	0.345	0.337	199.999	0.132	0.345	0.482	44.381
300.000	0.220	79.947	0.467	0.711	299.998	0.063	0.467	0.851	56.707
400.000	0.187	24.189	0.649	0.966	399.998	0.192	0.649	1.164	56.118
500.000	0.094	7.926	0.879	1.044	499.998	0.100	0.879	1.365	49.923
600.000	1.473	335.071	2.126	0.514	599.986	1.395	2.126	2.187	13.591
700.000	3.680	323.671	5.877	-1.929	699.879	2.255	5.877	6.186	341.826
800.000	6.085	336.541	13.326	-5.941	799.512	2.628	13.326	14.591	335.971
900.000	8.161	335.513	24.649	-10.994	898.735	2.080	24.649	26.990	335.962
1000.000	9.821	335.798	38.889	-17.433	997.503	1.660	38.889	42.617	335.855
1100.000	10.531	333.632	54.855	-24.988	1095.929	0.807	54.855	60.278	335.510
1200.000	10.299	334.964	71.143	-32.830	1194.282	0.334	71.143	78.352	335.228
1300.000	10.143	337.463	87.375	-39.988	1292.695	0.470	87.375	96.091	335.409
1400.000	10.012	336.633	103.487	-46.810	1391.152	0.196	103.487	113.582	335.661
1500.000	10.309	336.068	119.646	-53.887	1489.584	0.313	119.646	131.221	335.754
1600.000	9.714	335.833	135.521	-60.971	1588.061	0.596	135.521	148.605	335.777
1700.000	9.903	335.454	151.040	-67.997	1686.599	0.199	151.040	165.641	335.763
1800.000	9.866	334.212	166.576	-75.296	1785.115	0.216	166.576	182.804	335.676
1900.000	9.588	333.117	181.718	-82.789	1883.677	0.334	181.718	199.689	335.506
2000.000	9.684	333.318	196.662	-90.332	1982.266	0.102	196.662	216.415	335.329
2100.000	9.502	334.365	211.619	-97.680	2080.868	0.252	211.619	233.075	335.223
2200.000	9.671	333.127	226.553	-105.047	2179.472	0.267	226.553	249.723	335.124
2300.000	10.466	334.758	242.261	-112.718	2277.931	0.844	242.261	267.200	335.049
2400.000	11.341	335.699	259.438	-120.637	2376.125	0.893	259.438	286.115	335.062
2500.000	11.528	337.366	277.622	-128.529	2474.140	0.380	277.622	305.931	335.158
2600.000	11.682	336.966	296.161	-136.336	2572.096	0.174	296.161	326.035	335.281
2700.000	11.809	335.970	314.824	-144.464	2670.002	0.240	314.824	346.387	335.351
2800.000	10.890	336.582	332.838	-152.385	2768.046	0.927	332.838	366.064	335.400
2900.000	10.765	337.705	350.148	-159.682	2866.265	0.245	350.148	384.840	335.485
3000.000	9.841	336.594	366.632	-166.621	2964.652	0.945	366.632	402.718	335.560
3100.000	9.204	335.787	381.769	-173.295	3063.274	0.652	381.769	419.260	335.585
3200.000	8.837	335.935	396.076	-179.707	3162.037	0.368	396.076	434.938	335.595
3300.000	8.542	334.308	409.782	-186.059	3260.889	0.384	409.782	450.043	335.580
3400.000	9.030	333.975	423.526	-192.722	3359.715	0.491	423.526	465.313	335.533

3500.000	9.722	335.911	438.286	-199.611	3458.379	0.761	438.286	481.601	335.514
3600.000	10.332	336.612	454.225	-206.617	3556.851	0.622	454.225	499.010	335.540
3700.000	10.576	332.169	470.572	-214.461	3655.193	0.842	470.572	517.138	335.499
3800.000	10.224	331.546	486.490	-222.974	3753.550	0.369	486.490	535.154	335.376
3900.000	9.778	333.037	501.862	-231.053	3852.030	0.516	501.862	552.495	335.279
4000.000	9.063	333.918	516.504	-238.366	3950.681	0.730	516.504	568.854	335.227
4100.000	9.629	334.325	531.116	-245.452	4049.353	0.570	531.116	585.091	335.196
4200.000	9.261	335.355	545.968	-252.432	4147.997	0.405	545.968	601.500	335.186
4300.000	9.226	337.620	560.694	-258.839	4246.699	0.366	560.694	617.556	335.220
4400.000	9.830	336.963	575.962	-265.232	4345.319	0.613	575.962	634.098	335.274
4500.000	8.896	336.361	590.902	-271.673	4443.986	0.939	590.902	650.362	335.309
4600.000	8.569	334.547	604.712	-277.975	4542.827	0.428	604.712	665.542	335.313
4700.000	8.607	341.038	618.516	-283.608	4641.708	0.970	618.516	680.438	335.367
4800.000	8.760	334.252	632.452	-289.348	4740.564	1.035	632.452	695.498	335.416
4900.000	8.872	331.962	646.116	-296.281	4839.383	0.369	646.116	710.808	335.366
5000.000	8.300	333.180	659.364	-303.162	4938.262	0.601	659.364	725.719	335.308
5100.000	8.450	333.869	672.401	-309.654	5037.196	0.181	672.401	740.277	335.273
5200.000	8.491	334.731	685.674	-316.042	5136.105	0.133	685.674	755.004	335.254
5300.000	8.103	332.023	698.574	-322.499	5235.058	0.550	698.574	769.423	335.219
5400.000	8.166	330.148	710.958	-329.341	5334.052	0.272	710.958	783.535	335.145
5500.000	8.619	329.593	723.581	-336.669	5432.981	0.461	723.581	798.069	335.048
5600.000	8.697	333.007	736.781	-343.893	5531.842	0.520	736.781	813.086	334.979
5700.000	8.612	332.141	750.138	-350.824	5630.704	0.156	750.138	828.121	334.935
5800.000	8.442	339.222	763.621	-356.927	5729.601	1.063	763.621	842.920	334.948
5900.000	8.565	342.706	777.594	-361.745	5828.502	0.529	777.594	857.620	335.052
6000.000	8.133	337.155	791.223	-366.704	5927.444	0.914	791.223	872.070	335.134
6100.000	7.214	336.142	803.484	-371.990	6026.547	0.929	803.484	885.417	335.157
6200.000	6.217	332.103	814.011	-377.063	6125.861	1.103	814.011	897.102	335.146
6300.000	4.384	329.634	822.095	-381.529	6225.429	1.846	822.095	906.314	335.104
6400.000	2.939	328.644	827.583	-384.796	6325.222	1.447	827.583	912.667	335.063
6500.000	2.716	301.680	831.016	-388.146	6425.105	1.336	831.016	917.194	334.964
6600.000	1.172	239.837	831.747	-391.047	6525.053	2.397	831.747	919.087	334.819
6700.000	0.159	330.780	831.354	-391.999	6625.046	1.186	831.354	919.137	334.755
6800.000	0.262	288.274	831.547	-392.284	6725.045	0.180	831.547	919.433	334.744
6900.000	0.158	217.577	831.510	-392.585	6825.044	0.257	831.510	919.528	334.726
7000.000	0.216	104.585	831.353	-392.487	6925.044	0.313	831.353	919.344	334.728
7100.000	0.242	110.208	831.233	-392.106	7025.043	0.034	831.233	919.073	334.746

True North