



**Company:** Noble Energy  
**Rig:** Production / V.E.S.  
**API #** 05-123-24797

**Date:** 4-26-13  
**Surveyor:** Norman Cowan

**VS:** 0.000  
**Lat :** 40.165

**Long:** -104.545

**Well:** Waste Management USX Y 3-12  
**Location:** Weld County, Colorado  
**North Reference:** GRID

**Convergence:** Grid north is -0.62 degrees of True  
**Declination:** 8.47 Degrees

**Depth Reference:** Ground Level  
**Elevation:** 4875 Feet

**Total Depth as Drilled:** 7188Feet

**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	0.284	144.371	-0.201	0.144	100.000	0.284	-0.201	0.247	144.371
200.000	0.198	148.077	-0.549	0.380	199.999	0.087	-0.549	0.667	145.329
300.000	0.060	108.075	-0.711	0.521	299.998	0.156	-0.711	0.882	143.794
400.000	0.144	294.245	-0.676	0.456	399.998	0.204	-0.676	0.816	145.980
500.000	0.259	241.261	-0.733	0.144	499.998	0.207	-0.733	0.747	168.897
600.000	0.259	233.748	-0.976	-0.237	599.997	0.034	-0.976	1.004	193.634
700.000	0.343	237.618	-1.270	-0.672	699.995	0.086	-1.270	1.436	207.876
800.000	0.230	272.529	-1.421	-1.125	799.994	0.203	-1.421	1.812	218.360
900.000	0.362	248.149	-1.530	-1.619	899.993	0.180	-1.530	2.227	226.618
1000.000	0.468	188.625	-2.051	-1.974	999.991	0.422	-2.051	2.846	223.898
1100.000	0.643	198.716	-2.986	-2.215	1099.986	0.200	-2.986	3.718	216.568
1200.000	0.717	195.332	-4.120	-2.560	1199.979	0.084	-4.120	4.851	211.856
1300.000	0.564	199.747	-5.187	-2.892	1299.973	0.160	-5.187	5.938	209.142
1400.000	0.592	214.436	-6.076	-3.350	1399.968	0.150	-6.076	6.939	208.872
1500.000	0.578	215.904	-6.911	-3.938	1499.962	0.020	-6.911	7.954	209.677
1600.000	0.624	225.949	-7.698	-4.625	1599.957	0.115	-7.698	8.981	210.999
1700.000	0.503	245.221	-8.261	-5.415	1699.952	0.223	-8.261	9.877	213.247
1800.000	0.514	232.949	-8.715	-6.172	1799.948	0.109	-8.715	10.679	215.307
1900.000	0.519	265.942	-9.017	-6.982	1899.944	0.293	-9.017	11.404	217.750
2000.000	0.686	277.363	-8.972	-8.027	1999.939	0.205	-8.972	12.039	221.818
2100.000	0.854	291.250	-8.625	-9.316	2099.930	0.250	-8.625	12.696	227.204
2200.000	0.916	287.415	-8.116	-10.774	2199.918	0.086	-8.116	13.489	233.010
2300.000	1.142	287.177	-7.582	-12.489	2299.902	0.226	-7.582	14.610	238.737
2400.000	0.854	295.937	-6.962	-14.111	2399.887	0.325	-6.962	15.735	243.740
2500.000	0.891	296.975	-6.283	-15.474	2499.875	0.041	-6.283	16.701	247.901
2600.000	1.267	282.606	-5.689	-17.247	2599.857	0.460	-5.689	18.161	251.744
2700.000	1.403	280.042	-5.234	-19.531	2699.830	0.149	-5.234	20.220	254.998
2800.000	1.402	292.535	-4.552	-21.867	2799.800	0.305	-4.552	22.336	258.241
2900.000	1.504	290.811	-3.617	-24.223	2899.768	0.111	-3.617	24.492	261.508
3000.000	1.541	287.990	-2.735	-26.729	2999.733	0.084	-2.735	26.869	264.157
3100.000	1.470	290.566	-1.869	-29.210	3099.698	0.098	-1.869	29.270	266.339
3200.000	1.593	295.201	-0.827	-31.669	3199.663	0.174	-0.827	31.679	268.505
3300.000	1.474	296.450	0.338	-34.077	3299.627	0.124	0.338	34.079	270.568
3400.000	1.761	294.655	1.552	-36.625	3399.587	0.292	1.552	36.658	272.426
3500.000	1.650	293.310	2.763	-39.344	3499.543	0.118	2.763	39.441	274.017

3600.000	1.660	295.887	3.965	-41.970	3599.501	0.075	3.965	42.156	275.396
3700.000	1.264	317.876	5.415	-44.012	3699.469	0.679	5.415	44.344	277.014
3800.000	1.090	312.387	6.875	-45.455	3799.448	0.207	6.875	45.972	278.600
3900.000	1.090	308.956	8.114	-46.897	3899.430	0.065	8.114	47.594	279.816
4000.000	1.106	305.816	9.277	-48.420	3999.411	0.062	9.277	49.300	280.846
4100.000	1.250	321.115	10.691	-49.887	4099.390	0.344	10.691	51.020	282.096
4200.000	1.129	300.422	12.039	-51.422	4199.369	0.444	12.039	52.812	283.177
4300.000	1.257	316.984	13.340	-53.020	4299.348	0.366	13.340	54.672	284.123
4400.000	1.515	322.971	15.197	-54.564	4399.319	0.295	15.197	56.641	285.564
4500.000	1.703	333.090	17.577	-56.032	4499.279	0.340	17.577	58.725	287.417
4600.000	2.131	325.207	20.429	-57.766	4599.223	0.502	20.429	61.272	289.476
4700.000	2.558	328.658	23.863	-59.988	4699.139	0.450	23.863	64.560	291.692
4800.000	2.489	339.173	27.798	-61.921	4799.043	0.467	27.798	67.874	294.177
4900.000	1.717	355.823	31.323	-62.802	4898.976	0.977	31.323	70.180	296.508
5000.000	1.390	7.226	34.020	-62.759	4998.939	0.449	34.020	71.386	298.461
5100.000	1.253	21.197	36.243	-62.211	5098.913	0.349	36.243	71.998	300.224
5200.000	1.210	28.161	38.193	-61.317	5198.890	0.156	38.193	72.239	301.917
5300.000	1.303	23.429	40.166	-60.367	5298.866	0.140	40.166	72.509	303.639
5400.000	1.246	26.987	42.179	-59.422	5398.841	0.097	42.179	72.870	305.368
5500.000	1.260	44.975	43.925	-58.151	5498.817	0.392	43.925	72.877	307.066
5600.000	0.959	89.730	44.707	-56.537	5598.800	0.889	44.707	72.077	308.335
5700.000	0.691	86.900	44.743	-55.098	5698.790	0.271	44.743	70.977	309.079
5800.000	0.700	89.792	44.778	-53.884	5798.782	0.036	44.778	70.061	309.727
5900.000	0.579	104.391	44.654	-52.784	5898.776	0.202	44.654	69.138	310.231
6000.000	0.511	150.576	44.141	-52.075	5998.772	0.432	44.141	68.266	310.286
6100.000	0.423	131.787	43.507	-51.581	6098.769	0.175	43.507	67.479	310.146
6200.000	0.461	180.693	42.858	-51.311	6198.766	0.368	42.858	66.855	309.871
6300.000	0.351	153.819	42.181	-51.180	6298.764	0.217	42.181	66.323	309.494
6400.000	0.407	159.650	41.574	-50.922	6398.762	0.068	41.574	65.738	309.229
6500.000	0.369	190.870	40.924	-50.859	6498.759	0.212	40.924	65.280	308.822
6600.000	0.246	182.256	40.393	-50.928	6598.758	0.132	40.393	65.003	308.419
6700.000	0.276	190.446	39.942	-50.981	6698.757	0.048	39.942	64.764	308.078
6800.000	0.358	188.427	39.395	-51.070	6798.755	0.082	39.395	64.499	307.647
6900.000	0.298	108.743	39.003	-50.869	6898.754	0.423	39.003	64.101	307.478
6950.000	0.093	153.878	38.925	-50.728	6948.754	0.484	38.925	63.941	307.500

North