



**Company:** Noble Energy  
**Rig:** Production/ VES  
**API #** 05-123-24793

**Date:** 4/25/2013  
**Surveyor:** Sean Bratt

**VS:** 0.000  
**Lat :** 40.17283  
**Long:** -104.54

**Well:** Waste Management US  
**Location:** Weld County, Colorado  
**North Reference:** GRID

**Convergence:** Grid north is 0.62 Degree  
**Declination:** 8.48 Degrees

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

**Total Depth as Drilled:** 7623 Feet

**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	0.258	263.013	-0.027	-0.223	100.000	0.258	-0.027	0.225
200.000	0.362	251.230	-0.156	-0.745	199.998	0.122	-0.156	0.762
300.000	0.548	231.296	-0.557	-1.418	299.995	0.242	-0.557	1.523
400.000	0.303	231.190	-1.022	-1.997	399.992	0.245	-1.022	2.243
500.000	0.255	238.433	-1.304	-2.393	499.991	0.060	-1.304	2.725
600.000	0.139	183.677	-1.542	-2.590	599.991	0.208	-1.542	3.015
700.000	0.144	181.215	-1.789	-2.601	699.990	0.008	-1.789	3.157
800.000	0.092	200.177	-1.990	-2.631	799.990	0.064	-1.990	3.299
900.000	0.131	67.729	-2.023	-2.553	899.990	0.205	-2.023	3.257
1000.000	0.165	178.861	-2.124	-2.445	999.990	0.245	-2.124	3.239
1100.000	0.071	279.830	-2.257	-2.503	1099.990	0.192	-2.257	3.370
1200.000	0.447	284.097	-2.152	-2.942	1199.988	0.376	-2.152	3.645
1300.000	0.188	75.938	-2.017	-3.160	1299.988	0.619	-2.017	3.749
1400.000	0.179	126.072	-2.069	-2.875	1399.987	0.156	-2.069	3.542
1500.000	0.405	101.042	-2.228	-2.402	1499.986	0.255	-2.228	3.277
1600.000	0.370	164.319	-2.607	-1.968	1599.984	0.408	-2.607	3.266
1700.000	0.412	129.920	-3.149	-1.605	1699.982	0.235	-3.149	3.534
1800.000	0.455	128.385	-3.626	-1.018	1799.979	0.045	-3.626	3.766
1900.000	0.285	120.438	-3.999	-0.492	1899.977	0.177	-3.999	4.029
2000.000	0.186	124.091	-4.216	-0.143	1999.976	0.100	-4.216	4.218
2100.000	0.455	133.300	-4.579	0.280	2099.974	0.273	-4.579	4.587
2200.000	0.360	96.009	-4.884	0.881	2199.972	0.276	-4.884	4.963
2300.000	0.595	119.176	-5.170	1.647	2299.968	0.299	-5.170	5.426
2400.000	0.605	123.834	-5.717	2.539	2399.963	0.050	-5.717	6.256
2500.000	0.660	129.433	-6.377	3.423	2499.957	0.082	-6.377	7.238
2600.000	0.556	127.691	-7.040	4.252	2599.951	0.106	-7.040	8.224
2700.000	1.115	171.772	-8.299	4.775	2699.941	0.813	-8.299	9.575
2800.000	0.819	176.857	-9.975	4.953	2799.927	0.307	-9.975	11.137
2900.000	1.025	160.711	-11.534	5.288	2899.914	0.330	-11.534	12.688
3000.000	0.886	180.035	-13.151	5.583	2999.900	0.349	-13.151	14.287
3100.000	1.053	167.824	-14.822	5.776	3099.886	0.265	-14.822	15.908
3200.000	1.051	171.709	-16.628	6.102	3199.869	0.071	-16.628	17.712
3300.000	0.773	192.541	-18.194	6.088	3299.857	0.429	-18.194	19.186
3400.000	0.815	208.194	-19.479	5.606	3399.847	0.220	-19.479	20.270

3500.000	0.588	234.537	-20.403	4.852	3499.840	0.388	-20.403	20.972
3600.000	0.048	291.130	-20.686	4.395	3599.838	0.563	-20.686	21.148
3700.000	0.275	222.263	-20.848	4.195	3699.838	0.262	-20.848	21.266
3800.000	0.290	161.078	-21.266	4.116	3799.837	0.288	-21.266	21.660
3900.000	0.430	141.070	-21.797	4.433	3899.835	0.186	-21.797	22.243
4000.000	0.594	161.989	-22.582	4.829	3999.831	0.246	-22.582	23.093
4100.000	0.380	166.232	-23.397	5.068	4099.827	0.217	-23.397	23.940
4200.000	0.718	186.893	-24.341	5.072	4199.822	0.386	-24.341	24.864
4300.000	0.763	184.840	-25.627	4.941	4299.814	0.052	-25.627	26.099
4400.000	0.844	176.597	-27.026	4.928	4399.804	0.141	-27.026	27.472
4500.000	0.775	169.466	-28.427	5.096	4499.794	0.122	-28.427	28.880
4600.000	0.836	168.426	-29.806	5.366	4599.784	0.062	-29.806	30.285
4700.000	0.630	153.514	-31.013	5.757	4699.776	0.279	-31.013	31.543
4800.000	0.624	146.317	-31.958	6.304	4799.770	0.079	-31.958	32.574
4900.000	0.529	136.208	-32.744	6.926	4899.765	0.138	-32.744	33.469
5000.000	0.674	142.717	-33.546	7.602	4999.760	0.160	-33.546	34.396
5100.000	0.829	141.208	-34.578	8.411	5099.751	0.156	-34.578	35.586
5200.000	0.564	151.639	-35.574	9.098	5199.744	0.293	-35.574	36.719
5300.000	0.530	100.966	-36.095	9.785	5299.740	0.469	-36.095	37.398
5400.000	0.401	68.568	-36.055	10.565	5399.736	0.288	-36.055	37.571
5500.000	0.540	52.077	-35.637	11.262	5499.733	0.193	-35.637	37.375
5600.000	0.642	49.525	-34.984	12.060	5599.728	0.106	-34.984	37.004
5700.000	0.532	24.333	-34.198	12.677	5699.723	0.278	-34.198	36.472
5800.000	0.661	35.120	-33.303	13.200	5799.717	0.171	-33.303	35.824
5900.000	0.682	10.979	-32.248	13.645	5899.711	0.282	-32.248	35.016
6000.000	0.811	27.144	-31.034	14.081	5999.702	0.246	-31.034	34.079
6100.000	0.910	11.105	-29.625	14.557	6099.691	0.259	-29.625	33.008
6200.000	1.076	7.093	-27.914	14.826	6199.676	0.180	-27.914	31.607
6300.000	1.322	19.170	-25.893	15.321	6299.654	0.351	-25.893	30.086
6400.000	0.901	42.421	-24.223	16.230	6399.636	0.609	-24.223	29.157
6500.000	0.845	33.807	-23.030	17.170	6499.624	0.142	-23.030	28.726
6600.000	0.785	44.450	-21.929	18.060	6599.614	0.162	-21.929	28.408
6700.000	0.913	23.955	-20.711	18.863	6699.603	0.327	-20.711	28.014
6800.000	0.566	29.116	-19.551	19.427	6799.595	0.353	-19.551	27.562
6900.000	0.580	67.816	-18.928	20.136	6899.590	0.380	-18.928	27.636
6950.000	0.378	31.095	-18.692	20.456	6949.588	0.715	-18.692	27.710

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es east of True North

**Cbrg**

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263.013  
258.156  
248.549  
242.900  
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239.232  
235.478  
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227.952  
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195.680  
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181.948  
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169.771  
162.330  
156.053  
151.776  
148.870  
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137.673  
135.182  
133.229  
132.420