



**Company:** Noble Energy  
**Rig:** Production / VES  
**API #** 05-123-32109  
**Date:** 1/17/2014  
**Surveyor:** CJ Hines

**Well:** LDS #E25-33D  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** Grid north is 0.57 East of True No  
**Declination:** 8.44

**VS:** 0.000  
**Lat :** 40.45626  
**Long:** -104.62  
**Depth Reference:** Ground Level  
**Elevation:** 4684  
**Total Depth as Drilled:** 7280

**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	0.000
100.000	0.262	305.303	0.132	-0.186	100.000	0.262	0.132	0.228	305.303
200.000	0.521	256.087	0.154	-0.814	199.997	0.403	0.154	0.829	280.738
300.000	0.332	237.073	-0.112	-1.499	299.995	0.234	-0.112	1.503	265.708
400.000	0.455	218.187	-0.582	-1.988	399.992	0.177	-0.582	2.071	253.675
500.000	0.164	213.859	-1.013	-2.313	499.991	0.292	-1.013	2.525	246.342
600.000	0.196	208.834	-1.282	-2.475	599.990	0.035	-1.282	2.787	242.623
700.000	0.239	187.513	-1.638	-2.585	699.990	0.091	-1.638	3.060	237.635
800.000	1.076	197.696	-2.740	-2.898	799.982	0.842	-2.740	3.988	226.603
900.000	2.895	171.674	-6.133	-2.817	899.920	1.985	-6.133	6.750	204.672
1000.000	4.784	177.057	-12.797	-2.238	999.691	1.921	-12.797	12.991	189.918
1100.000	6.242	188.048	-22.345	-2.785	1099.228	1.794	-22.345	22.518	187.104
1200.000	7.668	185.559	-34.369	-4.192	1198.490	1.457	-34.369	34.624	186.954
1300.000	9.350	184.484	-49.109	-5.474	1297.386	1.690	-49.109	49.413	186.360
1400.000	11.559	187.106	-67.153	-7.348	1395.720	2.259	-67.153	67.554	186.245
1500.000	12.780	185.617	-88.103	-9.671	1493.471	1.260	-88.103	88.632	186.264
1600.000	13.480	187.891	-110.656	-12.353	1590.857	0.870	-110.656	111.343	186.370
1700.000	14.470	190.743	-134.476	-16.283	1687.897	1.205	-134.476	135.458	186.904
1800.000	15.284	192.249	-159.631	-21.408	1784.545	0.901	-159.631	161.061	187.638
1900.000	15.480	192.161	-185.557	-27.015	1880.963	0.197	-185.557	187.513	188.283
2000.000	15.112	188.431	-211.498	-31.738	1977.422	1.050	-211.498	213.866	188.534
2100.000	15.940	187.947	-237.992	-35.548	2073.773	0.838	-237.992	240.632	188.495
2200.000	16.173	191.284	-265.250	-40.171	2169.874	0.952	-265.250	268.275	188.612
2300.000	15.623	191.284	-292.114	-45.531	2266.048	0.550	-292.114	295.641	188.859
2400.000	15.915	188.389	-318.883	-50.166	2362.286	0.839	-318.883	322.805	188.940
2500.000	16.271	189.580	-346.261	-54.498	2458.367	0.486	-346.261	350.524	188.944
2600.000	15.939	189.517	-373.617	-59.100	2554.442	0.332	-373.617	378.263	188.989
2700.000	15.849	188.519	-400.664	-63.393	2650.619	0.288	-400.664	405.648	188.991
2800.000	17.044	187.599	-428.697	-67.354	2746.526	1.223	-428.697	433.956	188.929
2900.000	15.402	186.328	-456.424	-70.756	2842.541	1.680	-456.424	461.876	188.812
3000.000	15.907	186.608	-483.236	-73.796	2938.832	0.511	-483.236	488.838	188.683
3100.000	15.861	189.744	-510.317	-77.686	3035.015	0.860	-510.317	516.197	188.656
3200.000	15.079	192.007	-536.509	-82.705	3131.392	0.988	-536.509	542.846	188.763
3300.000	14.550	195.076	-561.361	-88.678	3228.069	0.947	-561.361	568.322	188.977
3400.000	14.699	191.228	-585.935	-94.416	3324.832	0.983	-585.935	593.493	189.154
3500.000	13.957	190.213	-610.249	-99.025	3421.721	0.783	-610.249	618.231	189.217

3600.000	14.405	189.651	-634.381	-103.248	3518.673	0.469	-634.381	642.728	189.244
3700.000	16.561	188.842	-660.730	-107.525	3615.038	2.167	-660.730	669.422	189.243
3800.000	17.628	186.332	-689.863	-111.386	3710.620	1.296	-689.863	698.797	189.172
3900.000	18.056	185.885	-720.328	-114.645	3805.811	0.450	-720.328	729.394	189.043
4000.000	18.564	188.365	-751.494	-118.550	3900.749	0.930	-751.494	760.787	188.965
4100.000	17.107	189.191	-781.764	-123.215	3995.940	1.479	-781.764	791.414	188.957
4200.000	15.396	191.230	-809.306	-128.150	4091.941	1.803	-809.306	819.389	188.998
4300.000	14.041	192.027	-834.192	-133.263	4188.658	1.370	-834.192	844.769	189.076
4400.000	13.826	191.302	-857.774	-138.133	4285.715	0.277	-857.774	868.825	189.148
4500.000	14.176	190.070	-881.548	-142.615	4382.744	0.460	-881.548	893.009	189.190
4600.000	14.604	189.433	-906.040	-146.823	4479.607	0.456	-906.040	917.860	189.205
4700.000	12.908	192.282	-929.392	-151.265	4576.736	1.826	-929.392	941.621	189.244
4800.000	10.309	191.439	-949.079	-155.416	4674.683	2.604	-949.079	961.720	189.300
4900.000	8.771	188.268	-965.395	-158.288	4773.297	1.625	-965.395	978.286	189.311
5000.000	7.228	188.452	-979.164	-160.309	4872.321	1.543	-979.164	992.200	189.298
5100.000	6.475	188.637	-990.961	-162.080	4971.606	0.754	-990.961	1004.129	189.289
5200.000	5.552	190.625	-1001.290	-163.819	5071.055	0.946	-1001.290	1014.603	189.292
5300.000	4.668	189.878	-1010.050	-165.409	5170.657	0.886	-1010.050	1023.508	189.300
5400.000	3.884	193.144	-1017.360	-166.877	5270.378	0.821	-1017.360	1030.956	189.315
5500.000	3.221	193.860	-1023.390	-168.320	5370.185	0.665	-1023.390	1037.136	189.340
5600.000	2.455	191.830	-1028.210	-169.432	5470.062	0.772	-1028.210	1042.077	189.357
5700.000	2.215	180.725	-1032.240	-169.896	5569.979	0.511	-1032.240	1046.127	189.347
5800.000	1.162	171.654	-1035.170	-169.773	5669.934	1.083	-1035.170	1049.003	189.314
5900.000	0.678	175.079	-1036.770	-169.575	5769.921	0.487	-1036.770	1050.543	189.289
6000.000	0.537	125.883	-1037.630	-169.145	5869.916	0.522	-1037.630	1051.326	189.258
6100.000	0.275	124.668	-1038.040	-168.568	5969.914	0.262	-1038.040	1051.639	189.224
6200.000	0.388	29.712	-1037.880	-168.203	6069.913	0.495	-1037.880	1051.425	189.205
6300.000	0.725	1.576	-1036.960	-168.017	6169.908	0.424	-1036.960	1050.480	189.204
6400.000	0.933	0.204	-1035.510	-167.997	6269.897	0.209	-1035.510	1049.049	189.215
6500.000	1.500	11.716	-1033.410	-167.728	6369.875	0.614	-1033.410	1046.938	189.219
6600.000	2.007	9.963	-1030.410	-167.159	6469.827	0.510	-1030.410	1043.879	189.215
6700.000	2.106	8.893	-1026.870	-166.573	6569.763	0.106	-1026.870	1040.291	189.214
6800.000	2.788	10.074	-1022.660	-165.863	6669.671	0.685	-1022.660	1036.022	189.212
6900.000	3.121	7.106	-1017.560	-165.101	6769.538	0.366	-1017.560	1030.869	189.216

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