



Company: Noble Energy  
 Rig: Production/VES  
 API # 05-123-25527  
 Date: 9/21/2013  
 Surveyor: Nick Kula  
 VS: 0.000  
 Lat : 40.349  
 Long: -104.626

Well: Tool G 2-17  
 Location: Weld County, Colorado  
 North Reference: GRID  
 Convergence: GRID North is 0.560 Degrees East  
 Declination: 8.48  
 Depth Reference: Ground Level  
 Elevation: 4683'  
 Total Depth as Drilled: 7395'

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	0.407	265.701	-0.027	-0.354	99.999	0.407	-0.027	0.355	265.701
200.000	0.587	264.709	-0.100	-1.218	199.995	0.181	-0.100	1.222	265.285
300.000	0.636	274.425	-0.105	-2.281	299.990	0.114	-0.105	2.283	267.367
400.000	0.376	285.818	0.027	-3.150	399.986	0.277	0.027	3.150	270.499
500.000	0.737	319.911	0.609	-3.881	499.981	0.475	0.609	3.928	278.924
600.000	0.558	316.185	1.453	-4.633	599.975	0.184	1.453	4.855	287.418
700.000	0.692	294.269	2.053	-5.520	699.969	0.271	2.053	5.890	290.401
800.000	0.654	200.987	1.768	-6.275	799.964	0.979	1.768	6.520	285.737
900.000	2.208	170.445	-0.665	-6.160	899.931	1.678	-0.665	6.196	263.841
1000.000	4.071	173.808	-6.094	-5.457	999.777	1.871	-6.094	8.180	221.846
1100.000	5.826	174.920	-14.679	-4.625	1099.400	1.758	-14.679	15.390	197.488
1200.000	7.680	173.782	-26.378	-3.452	1198.702	1.859	-26.378	26.603	187.455
1300.000	9.494	171.019	-41.168	-1.440	1297.577	1.859	-41.168	41.193	182.004
1400.000	11.193	171.502	-58.914	1.282	1395.949	1.701	-58.914	58.927	178.754
1500.000	12.177	172.595	-78.972	4.075	1493.875	1.009	-78.972	79.077	177.046
1600.000	14.674	173.424	-102.017	6.885	1591.135	2.504	-102.017	102.249	176.139
1700.000	16.281	172.492	-128.498	10.167	1687.506	1.626	-128.498	128.900	175.476
1800.000	17.820	172.051	-157.551	14.115	1783.107	1.544	-157.551	158.182	174.881
1900.000	19.155	170.667	-188.896	18.892	1877.945	1.405	-188.896	189.838	174.289
2000.000	19.669	171.701	-221.738	23.982	1972.261	0.619	-221.738	223.031	173.827
2100.000	19.424	173.490	-254.913	28.296	2066.498	0.647	-254.913	256.478	173.666
2200.000	19.142	173.051	-287.708	32.165	2160.888	0.317	-287.708	289.501	173.621
2300.000	18.775	174.727	-320.008	35.628	2255.464	0.656	-320.008	321.985	173.647
2400.000	19.389	172.672	-352.496	39.224	2349.970	0.910	-352.496	354.672	173.650
2500.000	19.865	170.813	-385.732	44.054	2444.161	0.785	-385.732	388.240	173.484
2600.000	19.461	174.845	-419.096	48.264	2538.334	1.415	-419.096	421.866	173.431
2700.000	19.700	173.311	-452.427	51.724	2632.552	0.567	-452.427	455.374	173.478
2800.000	20.396	175.481	-486.539	55.060	2726.493	1.019	-486.539	489.644	173.543
2900.000	18.941	175.160	-520.083	57.803	2820.657	1.459	-520.083	523.286	173.658
3000.000	19.257	176.084	-552.707	60.298	2915.152	0.438	-552.707	555.986	173.774
3100.000	19.821	174.692	-586.040	62.993	3009.394	0.731	-586.040	589.416	173.865
3200.000	19.262	173.223	-619.301	66.508	3103.634	0.744	-619.301	622.862	173.870
3300.000	18.460	174.609	-651.444	69.942	3198.264	0.919	-651.444	655.188	173.872
3400.000	18.599	174.422	-683.077	72.979	3293.080	0.151	-683.077	686.965	173.902
3500.000	19.049	175.723	-715.223	75.746	3387.732	0.616	-715.223	719.223	173.955

3600.000	19.599	175.945	-748.227	78.149	3482.098	0.554	-748.227	752.297	174.037
3700.000	19.201	173.060	-781.281	81.322	3576.422	1.037	-781.281	785.502	174.058
3800.000	20.407	172.011	-814.871	85.733	3670.506	1.257	-814.871	819.369	173.994
3900.000	20.738	171.249	-849.635	90.849	3764.129	0.426	-849.635	854.479	173.897
4000.000	20.742	170.061	-884.576	96.599	3857.649	0.421	-884.576	889.835	173.768
4100.000	19.844	169.444	-918.705	102.765	3951.441	0.923	-918.705	924.435	173.617
4200.000	19.454	170.144	-951.798	108.725	4045.618	0.456	-951.798	957.988	173.483
4300.000	19.699	172.894	-984.930	113.661	4139.840	0.954	-984.930	991.466	173.417
4400.000	19.805	171.115	-1018.390	118.362	4233.957	0.610	-1018.390	1025.248	173.371
4500.000	20.121	170.748	-1052.110	123.744	4327.948	0.340	-1052.110	1059.359	173.292
4600.000	20.097	174.766	-1086.190	128.077	4421.857	1.382	-1086.190	1093.719	173.275
4700.000	19.495	172.083	-1119.830	131.943	4515.949	1.090	-1119.830	1127.577	173.280
4800.000	19.117	176.853	-1152.710	135.141	4610.331	1.621	-1152.710	1160.604	173.313
4900.000	19.303	178.635	-1185.580	136.433	4704.764	0.615	-1185.580	1193.407	173.435
5000.000	17.268	174.056	-1216.870	138.364	4799.715	2.489	-1216.870	1224.714	173.513
5100.000	16.539	176.695	-1245.850	140.721	4895.395	1.058	-1245.850	1253.768	173.556
5200.000	15.036	179.993	-1273.030	141.544	4991.622	1.750	-1273.030	1280.873	173.656
5300.000	12.471	183.648	-1296.780	140.858	5088.749	2.707	-1296.780	1304.407	173.801
5400.000	8.877	177.147	-1315.270	140.555	5187.006	3.785	-1315.270	1322.757	173.900
5500.000	6.170	172.647	-1328.310	141.627	5286.137	2.768	-1328.310	1335.835	173.914
5600.000	5.208	175.472	-1338.160	142.673	5385.643	1.002	-1338.160	1345.744	173.914
5700.000	3.784	175.115	-1345.970	143.312	5485.333	1.424	-1345.970	1353.581	173.922
5800.000	1.441	208.342	-1350.370	142.996	5585.227	2.697	-1350.370	1357.918	173.955
5900.000	0.548	228.733	-1351.790	142.040	5685.211	0.947	-1351.790	1359.232	174.002
6000.000	0.399	209.124	-1352.410	141.512	5785.207	0.218	-1352.410	1359.793	174.026
6100.000	0.452	180.325	-1353.110	141.340	5885.205	0.218	-1353.110	1360.470	174.037
6200.000	0.667	251.000	-1353.690	140.787	5985.201	0.671	-1353.690	1360.993	174.062
6300.000	0.541	217.476	-1354.260	139.949	6085.196	0.369	-1354.260	1361.468	174.100
6400.000	0.680	199.606	-1355.190	139.463	6185.190	0.234	-1355.190	1362.348	174.124
6500.000	0.798	209.356	-1356.360	138.922	6285.182	0.172	-1356.360	1363.452	174.152
6600.000	1.348	193.244	-1358.110	138.312	6385.164	0.623	-1358.110	1365.133	174.185
6700.000	1.063	212.593	-1360.030	137.543	6485.142	0.493	-1360.030	1366.971	174.225
6800.000	0.431	235.701	-1361.030	136.733	6585.133	0.688	-1361.030	1367.878	174.263
6900.000	0.348	249.675	-1361.340	136.137	6685.131	0.125	-1361.340	1368.134	174.289
7000.000	0.321	261.334	-1361.490	135.576	6785.129	0.073	-1361.490	1368.226	174.313
7100.000	0.263	256.921	-1361.590	135.076	6885.128	0.062	-1361.590	1368.270	174.335

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