



Company: Noble Energy
Rig: Production/VES
API # 05-123-22294

Date: 5/20/13

Surveyor: Justin Williams

VS: 0.000

Lat : 40.09611

Long: -104.728

Well: Marcus State W36-06J1

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid North is .500 East of True No

Declination: 8.56

Depth Reference: RKB = Ground Level

Elevation: 5068

Total Depth as Drilled: 8077

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	0.674	144.023	-0.476	0.346	99.998	0.674	-0.476	0.588	144.023
200.000	0.526	145.587	-1.331	0.951	199.992	0.149	-1.331	1.636	144.462
300.000	0.442	125.020	-1.931	1.526	299.989	0.192	-1.931	2.461	141.681
400.000	0.210	162.600	-2.327	1.897	399.987	0.304	-2.327	3.002	140.818
500.000	0.756	236.285	-2.868	1.403	499.984	0.725	-2.868	3.193	153.930
600.000	1.325	278.732	-3.058	-0.288	599.968	0.922	-3.058	3.072	185.388
700.000	1.988	291.537	-2.246	-3.045	699.926	0.755	-2.246	3.784	233.591
800.000	2.183	300.657	-0.638	-6.297	799.860	0.384	-0.638	6.330	264.217
900.000	2.410	318.086	1.898	-9.341	899.781	0.731	1.898	9.532	281.487
1000.000	2.681	315.134	5.121	-12.395	999.682	0.301	5.121	13.412	292.447
1100.000	2.919	315.394	8.592	-15.834	1099.563	0.238	8.592	18.015	298.485
1200.000	2.787	313.277	12.071	-19.392	1199.439	0.169	12.071	22.842	301.902
1300.000	2.678	312.327	15.311	-22.889	1299.325	0.119	15.311	27.538	303.779
1400.000	2.643	316.768	18.564	-26.196	1399.217	0.209	18.564	32.107	305.324
1500.000	2.575	326.049	22.107	-29.029	1499.114	0.428	22.107	36.489	307.291
1600.000	2.546	320.931	25.695	-31.684	1599.014	0.230	25.695	40.793	309.041
1700.000	2.566	327.012	29.297	-34.303	1698.915	0.272	29.297	45.111	310.500
1800.000	2.590	320.521	32.919	-36.958	1798.814	0.293	32.919	49.493	311.692
1900.000	2.263	326.271	36.304	-39.491	1898.724	0.407	36.304	53.643	312.593
2000.000	2.153	316.150	39.301	-41.888	1998.651	0.405	39.301	57.439	313.175
2100.000	2.031	321.065	42.035	-44.303	2098.584	0.217	42.035	61.071	313.495
2200.000	2.015	321.035	44.780	-46.523	2198.522	0.017	44.780	64.572	313.906
2300.000	1.842	332.058	47.566	-48.381	2298.465	0.408	47.566	67.848	314.514
2400.000	1.723	350.346	50.469	-49.386	2398.418	0.579	50.469	70.612	315.621
2500.000	1.647	354.137	53.381	-49.785	2498.375	0.135	53.381	72.994	316.996
2600.000	1.590	7.237	56.187	-49.757	2598.335	0.374	56.187	75.052	318.473
2700.000	1.890	22.472	59.087	-48.952	2698.289	0.549	59.087	76.731	320.359
2800.000	2.003	12.677	62.315	-47.939	2798.232	0.351	62.315	78.621	322.429
2900.000	2.050	19.058	65.711	-46.971	2898.169	0.230	65.711	80.773	324.442
3000.000	2.599	20.705	69.523	-45.586	2998.087	0.554	69.523	83.135	326.747
3100.000	2.878	17.487	74.039	-44.029	3097.973	0.318	74.039	86.141	329.261
3200.000	2.612	7.608	78.692	-42.973	3197.858	0.542	78.692	89.661	331.361
3300.000	2.062	8.358	82.731	-42.410	3297.775	0.552	82.731	92.967	332.859
3400.000	1.494	11.279	85.788	-41.894	3397.726	0.575	85.788	95.471	333.972

3500.000	1.223	16.409	88.090	-41.337	3497.698	0.297	88.090	97.307	334.861
3600.000	0.539	17.465	89.562	-40.895	3597.686	0.684	89.562	98.457	335.458
3700.000	0.248	324.781	90.188	-40.879	3697.683	0.435	90.188	99.020	335.617
3800.000	0.424	5.077	90.734	-40.971	3797.682	0.284	90.734	99.555	335.698
3900.000	0.530	351.636	91.560	-41.005	3897.678	0.154	91.560	100.323	335.875
4000.000	0.714	319.350	92.491	-41.479	3997.673	0.389	92.491	101.366	335.845
4100.000	0.919	313.180	93.513	-42.470	4097.662	0.223	93.513	102.705	335.574
4200.000	0.647	303.710	94.375	-43.524	4197.653	0.301	94.375	103.928	335.242
4300.000	0.920	288.694	94.945	-44.754	4297.644	0.339	94.945	104.964	334.762
4400.000	1.092	260.466	95.045	-46.454	4397.629	0.518	95.045	105.790	333.952
4500.000	1.390	273.078	94.952	-48.605	4497.606	0.402	94.952	106.669	332.893
4600.000	1.459	276.767	95.167	-51.080	4597.575	0.115	95.167	108.009	331.776
4700.000	1.321	314.422	96.124	-53.168	4697.547	0.907	96.124	109.848	331.052
4800.000	1.657	314.881	97.951	-55.016	4797.513	0.337	97.951	112.344	330.679
4900.000	1.683	326.129	100.191	-56.859	4897.471	0.328	100.191	115.200	330.425
5000.000	1.475	334.939	102.576	-58.223	4997.433	0.319	102.576	117.948	330.421
5100.000	1.272	348.053	104.829	-58.998	5097.405	0.373	104.829	120.290	330.629
5200.000	1.517	347.051	107.205	-59.524	5197.375	0.245	107.205	122.621	330.959
5300.000	1.515	346.791	109.781	-60.123	5297.340	0.007	109.781	125.166	331.292
5400.000	1.565	3.138	112.431	-60.350	5397.304	0.441	112.431	127.604	331.774
5500.000	1.360	355.393	114.977	-60.371	5497.272	0.284	114.977	129.863	332.298
5600.000	1.246	15.225	117.210	-60.180	5597.246	0.463	117.210	131.757	332.822
5700.000	1.256	10.017	119.338	-59.704	5697.223	0.114	119.338	133.440	333.422
5800.000	1.280	26.964	121.413	-59.007	5797.198	0.374	121.413	134.993	334.080
5900.000	1.413	27.539	123.503	-57.930	5897.171	0.134	123.503	136.414	334.871
6000.000	1.239	18.652	125.620	-57.014	5997.144	0.269	125.620	137.953	335.589
6100.000	1.328	27.131	127.676	-56.140	6097.119	0.210	127.676	139.474	336.265
6200.000	0.700	22.634	129.271	-55.376	6197.103	0.633	129.271	140.633	336.811
6300.000	0.928	8.943	130.635	-55.015	6297.093	0.298	130.635	141.747	337.162
6400.000	0.827	33.992	132.033	-54.486	6397.082	0.393	132.033	142.834	337.576
6500.000	0.745	359.965	133.282	-54.083	6497.073	0.467	133.282	143.837	337.914
6600.000	0.375	349.911	134.254	-54.141	6597.068	0.381	134.254	144.760	338.037
6700.000	0.310	322.819	134.792	-54.362	6697.066	0.172	134.792	145.342	338.036
6800.000	0.191	40.868	135.134	-54.417	6797.065	0.329	135.134	145.679	338.066
6900.000	0.580	33.581	135.682	-54.028	6897.063	0.392	135.682	146.043	338.288
7000.000	1.546	22.604	137.349	-53.229	6997.044	0.983	137.349	147.303	338.816
7100.000	2.250	5.894	140.547	-52.509	7096.990	0.888	140.547	150.036	339.514
7200.000	1.375	359.481	143.699	-52.318	7196.939	0.896	143.699	152.927	339.994
7300.000	0.771	4.157	145.570	-52.280	7296.921	0.610	145.570	154.674	340.245
7400.000	1.156	16.621	147.208	-51.943	7396.907	0.437	147.208	156.104	340.564
7500.000	1.278	40.845	149.019	-50.925	7496.885	0.524	149.019	157.480	341.133
7600.000	1.163	46.757	150.557	-49.457	7596.862	0.170	150.557	158.472	341.815
7700.000	1.461	53.809	152.005	-47.689	7696.836	0.338	152.005	159.310	342.582
7800.000	0.720	56.975	153.100	-46.133	7796.817	0.743	153.100	159.900	343.231
7900.000	0.825	79.493	153.574	-44.899	7896.808	0.319	153.574	160.003	343.703

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