



**Company:** Noble Energy  
**Rig:** Production/VES  
**API #** 05-123-23197

**Date:** 12/31/2013

**Surveyor:** Nick Kula

**VS:** 0.000

**Lat :** 40.180

**Long:** -104.647

**Well:** Moser H34-10

**Location:** Weld County, Colorado

**North Reference:** GRID

**Convergence:** GRID North is 0.550 Degrees East

**Declination:** 8.44

**Depth Reference:** Ground Level

**Elevation:** 4833'

**Total Depth as Drilled:** 7279'

**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	0.680	61.959	0.279	0.524	99.998	0.680	0.279	0.594	61.959
200.000	0.337	58.881	0.710	1.300	199.994	0.344	0.710	1.481	61.347
300.000	0.131	34.594	0.956	1.617	299.993	0.225	0.956	1.878	59.393
400.000	0.113	23.910	1.140	1.721	399.992	0.029	1.140	2.065	56.481
500.000	0.149	35.706	1.336	1.837	499.992	0.045	1.336	2.271	53.980
600.000	0.084	16.828	1.512	1.935	599.992	0.075	1.512	2.455	51.993
700.000	0.478	335.063	1.960	1.780	699.991	0.419	1.960	2.648	42.248
800.000	0.675	6.332	2.923	1.669	799.986	0.364	2.923	3.366	29.728
900.000	0.554	352.934	3.989	1.675	899.980	0.187	3.989	4.326	22.777
1000.000	0.419	343.169	4.818	1.509	999.976	0.158	4.818	5.049	17.394
1100.000	0.463	343.980	5.557	1.292	1099.973	0.044	5.557	5.705	13.091
1200.000	0.387	350.928	6.278	1.127	1199.971	0.092	6.278	6.378	10.181
1300.000	0.504	353.634	7.048	1.025	1299.968	0.119	7.048	7.123	8.278
1400.000	0.439	339.822	7.845	0.844	1399.964	0.130	7.845	7.891	6.143
1500.000	0.415	340.861	8.547	0.593	1499.962	0.025	8.547	8.568	3.972
1600.000	0.439	337.678	9.244	0.329	1599.959	0.034	9.244	9.250	2.040
1700.000	0.529	338.254	10.027	0.013	1699.955	0.090	10.027	10.027	0.074
1800.000	0.557	311.079	10.774	-0.524	1799.951	0.256	10.774	10.787	357.214
1900.000	0.551	287.259	11.236	-1.349	1899.946	0.229	11.236	11.317	353.152
2000.000	0.813	253.957	11.183	-2.490	1999.940	0.464	11.183	11.457	347.449
2100.000	1.004	257.245	10.793	-4.025	2099.927	0.198	10.793	11.520	339.547
2200.000	1.743	246.049	9.983	-6.269	2199.898	0.783	9.983	11.788	327.870
2300.000	2.082	232.291	8.254	-9.096	2299.842	0.568	8.254	12.283	312.223
2400.000	2.069	216.628	5.695	-11.610	2399.778	0.566	5.695	12.931	296.131
2500.000	1.416	228.336	3.426	-13.609	2499.731	0.740	3.426	14.034	284.129
2600.000	0.991	261.868	2.482	-15.388	2599.710	0.804	2.482	15.587	279.163
2700.000	0.874	267.131	2.322	-17.006	2699.697	0.145	2.322	17.164	277.774
2800.000	1.079	273.596	2.343	-18.708	2799.682	0.233	2.343	18.854	277.137
2900.000	1.179	283.996	2.651	-20.647	2899.663	0.228	2.651	20.816	277.315
3000.000	1.168	279.758	3.072	-22.650	2999.642	0.088	3.072	22.857	277.724
3100.000	1.294	306.004	3.909	-24.567	3099.620	0.572	3.909	24.876	279.040
3200.000	1.319	308.043	5.282	-26.387	3199.594	0.053	5.282	26.911	281.319
3300.000	1.331	309.463	6.729	-28.191	3299.567	0.035	6.729	28.983	283.426
3400.000	1.217	322.625	8.311	-29.732	3399.542	0.314	8.311	30.872	285.618
3500.000	1.441	323.618	10.167	-31.122	3499.515	0.226	10.167	32.741	288.092

3600.000	0.975	322.420	11.854	-32.387	3599.493	0.467	11.854	34.489	290.104
3700.000	0.603	311.145	12.875	-33.302	3699.483	0.402	12.875	35.704	291.137
3800.000	0.817	325.591	13.809	-34.101	3799.476	0.277	13.809	36.791	292.045
3900.000	0.722	326.947	14.925	-34.847	3899.467	0.097	14.925	37.909	293.185
4000.000	0.976	350.288	16.292	-35.335	3999.456	0.424	16.292	38.910	294.754
4100.000	0.852	332.480	17.791	-35.822	4099.443	0.308	17.791	39.997	296.412
4200.000	0.741	333.016	19.027	-36.459	4199.434	0.111	19.027	41.125	297.559
4300.000	0.912	329.694	20.290	-37.154	4299.423	0.178	20.290	42.333	298.640
4400.000	1.178	343.303	21.962	-37.851	4399.407	0.362	21.962	43.761	300.123
4500.000	1.146	348.068	23.925	-38.353	4499.386	0.102	23.925	45.203	301.956
4600.000	1.234	348.107	25.957	-38.782	4599.365	0.089	25.957	46.666	303.794
4700.000	1.626	24.157	28.305	-38.423	4699.335	0.960	28.305	47.723	306.377
4800.000	1.753	2.544	31.127	-37.775	4799.293	0.645	31.127	48.947	309.489
4900.000	2.205	359.583	34.578	-37.721	4899.233	0.463	34.578	51.171	312.511
5000.000	2.063	356.167	38.297	-37.855	4999.164	0.190	38.297	53.849	315.333
5100.000	1.833	359.425	41.692	-37.992	5099.106	0.256	41.692	56.406	317.659
5200.000	1.370	1.742	44.486	-37.971	5199.066	0.467	44.486	58.488	319.517
5300.000	0.999	7.540	46.545	-37.821	5299.045	0.389	46.545	59.973	320.904
5400.000	0.573	357.145	47.909	-37.731	5399.035	0.447	47.909	60.982	321.777
5500.000	0.203	302.196	48.502	-37.906	5499.033	0.486	48.502	61.557	321.992
5600.000	0.284	299.337	48.718	-38.271	5599.032	0.082	48.718	61.952	321.848
5700.000	0.408	327.627	49.139	-38.677	5699.030	0.207	49.139	62.535	321.794
5800.000	0.409	284.693	49.531	-39.213	5799.028	0.299	49.531	63.174	321.632
5900.000	0.669	268.174	49.602	-40.142	5899.024	0.300	49.602	63.810	321.018
6000.000	0.826	250.021	49.338	-41.403	5999.015	0.282	49.338	64.408	319.998
6100.000	0.905	271.305	49.109	-42.870	6099.004	0.329	49.109	65.189	318.881
6200.000	1.040	271.480	49.151	-44.567	6198.990	0.135	49.151	66.348	317.800
6300.000	0.867	265.317	49.112	-46.228	6298.976	0.201	49.112	67.447	316.733
6400.000	0.927	248.353	48.752	-47.734	6398.964	0.271	48.752	68.230	315.605
6500.000	0.862	261.980	48.349	-49.231	6498.952	0.222	48.349	69.002	314.482
6600.000	1.055	256.483	48.029	-50.871	6598.938	0.214	48.029	69.961	313.354
6700.000	0.527	235.906	47.555	-52.147	6698.928	0.591	47.555	70.575	312.363
6800.000	0.393	198.113	46.972	-52.635	6798.925	0.324	46.972	70.546	311.746
6900.000	0.435	221.717	46.363	-52.994	6898.922	0.174	46.363	70.412	311.182
7000.000	0.420	240.694	45.900	-53.566	6998.920	0.142	45.900	70.542	310.593
7050.000	0.492	240.167	45.704	-53.912	7048.918	0.144	45.704	70.678	310.289

of True North