



Company: Noble Energy
 Rig: Production / VES
 API # 05-123-23204
 Date: 01/01/14
 Surveyor: Brian Brewbaker
 VS: 0.000
 Lat : 40.178
 Long: -104.645

Well: Moser H34-23
 Location: Weld County, Colorado
 North Reference: GRID
 Convergence: Grid north is 0.55 degree East of
 Declination: 8.44
 Depth Reference: Ground Level
 Elevation: 4835
 Total Depth as Drilled: 7286

Lat & Long obtained by handheld GPS at wellhead

HA GYRO SURVEY CALCULATIONS

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100.000	0.261	150.058	-0.197	0.114	100.000	0.261	-0.197	0.227	150.058
200.000	0.216	159.927	-0.571	0.292	199.999	0.061	-0.571	0.641	152.945
300.000	0.234	181.917	-0.953	0.350	299.998	0.088	-0.953	1.015	159.850
400.000	0.277	287.543	-1.084	0.112	399.997	0.408	-1.084	1.090	174.097
500.000	0.271	283.911	-0.955	-0.348	499.996	0.019	-0.955	1.016	200.019
600.000	0.308	306.522	-0.738	-0.793	599.995	0.119	-0.738	1.083	227.071
700.000	0.370	331.873	-0.293	-1.161	699.993	0.161	-0.293	1.198	255.837
800.000	0.633	317.479	0.399	-1.687	799.989	0.290	0.399	1.734	283.308
900.000	0.662	333.651	1.324	-2.317	899.983	0.184	1.324	2.669	299.750
1000.000	0.549	292.325	2.024	-3.017	999.978	0.440	2.024	3.633	303.861
1100.000	0.563	299.724	2.450	-3.887	1099.973	0.073	2.450	4.595	302.224
1200.000	0.624	298.556	2.954	-4.792	1199.968	0.062	2.954	5.629	301.652
1300.000	0.541	254.784	3.090	-5.725	1299.963	0.441	3.090	6.505	298.359
1400.000	0.562	266.726	2.938	-6.670	1399.959	0.117	2.938	7.288	293.775
1500.000	0.574	260.975	2.832	-7.654	1499.954	0.058	2.832	8.161	290.302
1600.000	0.453	257.411	2.667	-8.534	1599.950	0.125	2.667	8.941	287.354
1700.000	0.340	286.541	2.665	-9.204	1699.947	0.227	2.665	9.582	286.149
1800.000	0.521	274.816	2.788	-9.941	1799.945	0.200	2.788	10.325	285.665
1900.000	0.463	282.654	2.914	-10.788	1899.941	0.089	2.914	11.175	285.117
2000.000	0.829	243.565	2.681	-11.830	1999.935	0.553	2.681	12.130	282.768
2100.000	1.087	252.444	2.072	-13.382	2099.921	0.297	2.072	13.542	278.803
2200.000	1.537	254.974	1.438	-15.582	2199.894	0.454	1.438	15.649	275.274
2300.000	0.915	273.183	1.135	-17.675	2299.871	0.727	1.135	17.712	273.674
2400.000	1.093	277.375	1.302	-19.419	2399.856	0.193	1.302	19.462	273.835
2500.000	0.912	279.061	1.550	-21.151	2499.841	0.183	1.550	21.208	274.190
2600.000	0.586	279.806	1.762	-22.442	2599.832	0.326	1.762	22.511	274.490
2700.000	0.988	293.848	2.198	-23.734	2699.822	0.442	2.198	23.836	275.291
2800.000	1.138	299.757	3.039	-25.385	2799.805	0.186	3.039	25.567	276.828
2900.000	1.462	302.235	4.213	-27.326	2899.779	0.328	4.213	27.649	278.764
3000.000	1.551	303.070	5.632	-29.539	2999.745	0.092	5.632	30.071	280.794
3100.000	1.522	305.541	7.142	-31.754	3099.709	0.073	7.142	32.547	282.676
3200.000	1.379	305.243	8.608	-33.817	3199.677	0.143	8.608	34.895	284.281
3300.000	1.378	305.224	9.996	-35.782	3299.648	0.001	9.996	37.151	285.608
3400.000	1.728	302.217	11.493	-38.040	3399.611	0.360	11.493	39.738	286.811
3500.000	1.101	299.421	12.769	-40.152	3499.580	0.631	12.769	42.134	287.641
3600.000	1.623	290.973	13.748	-42.312	3599.551	0.558	13.748	44.489	288.000

3700.000	1.374	289.624	14.658	-44.763	3699.517	0.251	14.658	47.102	288.131
3800.000	0.959	264.036	14.973	-46.725	3799.497	0.657	14.973	49.066	287.768
3900.000	0.577	245.435	14.677	-48.015	3899.488	0.451	14.677	50.208	286.997
4000.000	0.469	264.234	14.427	-48.880	3999.484	0.201	14.427	50.964	286.444
4100.000	0.292	290.726	14.476	-49.525	4099.482	0.245	14.476	51.597	286.294
4200.000	0.614	321.123	14.983	-50.099	4199.478	0.391	14.983	52.291	286.650
4300.000	0.525	326.522	15.782	-50.688	4299.473	0.104	15.782	53.088	287.294
4400.000	0.652	320.648	16.604	-51.301	4399.468	0.141	16.604	53.921	287.934
4500.000	1.419	333.397	18.151	-52.216	4499.451	0.796	18.151	55.281	289.168
4600.000	1.147	317.420	19.995	-53.448	4599.426	0.447	19.995	57.066	290.511
4700.000	0.640	306.161	21.062	-54.577	4699.414	0.534	21.062	58.500	291.102
4800.000	0.455	333.987	21.748	-55.202	4799.410	0.319	21.748	59.332	291.503
4900.000	0.473	353.594	22.516	-55.422	4899.406	0.159	22.516	59.821	292.110
5000.000	0.439	51.046	23.167	-55.170	4999.404	0.439	23.167	59.837	292.778
5100.000	0.614	66.306	23.623	-54.382	5099.399	0.223	23.623	59.291	293.480
5200.000	0.785	72.712	24.042	-53.237	5199.392	0.188	24.042	58.414	294.304
5300.000	0.778	94.203	24.196	-51.906	5299.383	0.291	24.196	57.269	294.992
5400.000	0.547	90.269	24.144	-50.752	5399.376	0.234	24.144	56.202	295.442
5500.000	0.639	103.020	24.016	-49.731	5499.371	0.160	24.016	55.226	295.777
5600.000	0.620	81.797	23.968	-48.653	5599.365	0.233	23.968	54.236	296.226
5700.000	0.577	63.148	24.272	-47.668	5699.360	0.198	24.272	53.492	296.985
5800.000	0.646	13.413	25.048	-47.088	5799.354	0.518	25.048	53.336	298.010
5900.000	1.312	23.425	26.647	-46.503	5899.339	0.685	26.647	53.596	299.813
6000.000	1.107	16.132	28.625	-45.779	5999.317	0.255	28.625	53.992	302.017
6100.000	1.344	19.082	30.662	-45.127	6099.294	0.245	30.662	54.558	304.194
6200.000	1.592	34.355	32.917	-43.960	6199.262	0.461	32.917	54.918	306.826
6300.000	1.205	22.974	35.033	-42.765	6299.232	0.474	35.033	55.283	309.324
6400.000	0.790	59.771	36.348	-41.759	6399.217	0.743	36.348	55.363	311.037
6500.000	0.533	89.095	36.703	-40.698	6499.211	0.417	36.703	54.803	312.045
6600.000	0.758	153.406	36.119	-39.937	6599.206	0.713	36.119	53.847	312.126
6700.000	1.681	161.551	34.136	-39.176	6699.182	0.937	34.136	51.962	311.067
6800.000	1.522	163.654	31.471	-38.339	6799.143	0.169	31.471	49.601	309.381
6900.000	1.351	167.939	29.043	-37.718	6899.112	0.202	29.043	47.604	307.596
7000.000	1.237	153.332	26.926	-36.987	6999.086	0.348	26.926	45.750	306.053

True North