



Company: Noble Energy
Rig: Producton / V.E.S.
API # 05-123-26479
Date: 1/1/2014
Surveyor: Norman Cowan
VS: 0.000
Lat : 40.185
Long: -104.650

Well: Moser H34-18
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.55 Deg East of Tru
Declination: 8.44 Degrees
Depth Reference: Ground Level
Elevation: 4825 Feet
Total Depth as Drilled: 7305 Feet

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
100.000	0.818	234.326	-0.416	-0.580	99.997	0.818	-0.416	0.714	234.326
200.000	0.688	247.892	-1.059	-1.716	199.988	0.220	-1.059	2.017	238.331
300.000	0.388	241.811	-1.445	-2.571	299.984	0.305	-1.445	2.949	240.668
400.000	0.382	200.885	-1.916	-2.988	399.981	0.269	-1.916	3.549	237.332
500.000	0.442	259.721	-2.296	-3.486	499.979	0.408	-2.296	4.174	236.632
600.000	0.391	321.141	-2.099	-4.080	599.977	0.428	-2.099	4.588	242.778
700.000	0.833	13.215	-1.126	-4.128	699.972	0.668	-1.126	4.279	254.748
800.000	0.785	22.109	0.217	-3.704	799.962	0.134	0.217	3.711	273.349
900.000	0.771	17.026	1.495	-3.249	899.953	0.070	1.495	3.577	294.714
1000.000	0.715	22.813	2.714	-2.810	999.944	0.094	2.714	3.907	314.005
1100.000	0.739	16.545	3.907	-2.385	1099.936	0.083	3.907	4.578	328.603
1200.000	0.689	16.171	5.102	-2.034	1199.928	0.050	5.102	5.493	338.268
1300.000	0.579	16.490	6.164	-1.723	1299.922	0.109	6.164	6.400	344.383
1400.000	0.288	15.406	6.891	-1.513	1399.919	0.291	6.891	7.055	347.619
1500.000	0.507	37.591	7.484	-1.176	1499.917	0.263	7.484	7.576	351.068
1600.000	0.063	24.859	7.884	-0.883	1599.915	0.445	7.884	7.934	353.608
1700.000	0.234	162.219	7.740	-0.798	1699.915	0.284	7.740	7.781	354.116
1800.000	0.194	159.179	7.387	-0.675	1799.914	0.041	7.387	7.417	354.780
1900.000	0.191	189.831	7.064	-0.643	1899.914	0.102	7.064	7.093	354.798
2000.000	0.356	131.190	6.695	-0.438	1999.913	0.304	6.695	6.709	356.258
2100.000	0.730	113.124	6.240	0.382	2099.908	0.407	6.240	6.252	3.500
2200.000	0.227	133.167	5.855	1.112	2199.905	0.523	5.855	5.959	10.752
2300.000	0.837	198.192	5.025	1.028	2299.900	0.769	5.025	5.129	11.562
2400.000	0.804	202.224	3.682	0.535	2399.890	0.066	3.682	3.720	8.262
2500.000	1.084	196.254	2.124	0.004	2499.876	0.296	2.124	2.124	0.119
2600.000	1.052	192.653	0.320	-0.461	2599.859	0.074	0.320	0.562	304.733
2700.000	1.114	193.965	-1.519	-0.897	2699.841	0.066	-1.519	1.764	210.564
2800.000	0.265	239.359	-2.580	-1.331	2799.833	0.947	-2.580	2.903	207.279
2900.000	0.437	324.765	-2.387	-1.749	2899.832	0.492	-2.387	2.959	216.241
3000.000	1.004	344.704	-1.230	-2.200	2999.824	0.611	-1.230	2.521	240.787
3100.000	1.798	8.607	1.166	-2.197	3099.794	0.970	1.166	2.487	297.952
3200.000	1.607	1.967	4.118	-1.914	3199.750	0.275	4.118	4.541	335.075
3300.000	0.757	340.282	6.141	-2.089	3299.728	0.945	6.141	6.486	341.217
3400.000	1.172	296.601	7.221	-3.226	3399.715	0.814	7.221	7.909	335.928
3500.000	0.995	304.956	8.177	-4.852	3499.697	0.237	8.177	9.508	329.313

3600.000	0.946	332.082	9.404	-5.951	3599.683	0.458	9.404	11.129	327.674
3700.000	1.571	340.536	11.426	-6.794	3699.659	0.649	11.426	13.294	329.263
3800.000	2.183	334.708	14.440	-8.065	3799.605	0.641	14.440	16.540	330.817
3900.000	2.113	332.563	17.798	-9.728	3899.535	0.107	17.798	20.283	331.341
4000.000	1.687	329.577	20.703	-11.322	3999.479	0.437	20.703	23.597	331.326
4100.000	0.792	324.934	22.538	-12.465	4099.455	0.899	22.538	25.755	331.055
4200.000	0.377	251.341	22.999	-13.174	4199.451	0.775	22.999	26.505	330.196
4300.000	0.898	204.122	22.179	-13.805	4299.445	0.699	22.179	26.124	328.099
4400.000	0.658	213.470	20.985	-14.442	4399.435	0.271	20.985	25.474	325.463
4500.000	0.346	241.206	20.360	-15.024	4499.432	0.387	20.360	25.303	323.576
4600.000	0.265	216.923	20.029	-15.428	4599.430	0.151	20.029	25.282	322.394
4700.000	0.344	197.257	19.557	-15.656	4699.429	0.130	19.557	25.052	321.321
4800.000	1.118	207.326	18.404	-16.193	4799.420	0.781	18.404	24.514	318.656
4900.000	1.997	223.589	16.275	-17.842	4899.382	0.975	16.275	24.150	312.370
5000.000	1.950	232.480	13.977	-20.393	4999.323	0.309	13.977	24.723	304.425
5100.000	1.517	234.515	12.172	-22.820	5099.277	0.437	12.172	25.864	298.075
5200.000	1.207	252.884	11.094	-24.905	5199.249	0.532	11.094	27.264	294.011
5300.000	1.080	252.130	10.495	-26.808	5299.230	0.127	10.495	28.789	291.379
5400.000	0.880	253.417	9.986	-28.441	5399.215	0.202	9.986	30.143	289.347
5500.000	1.294	267.176	9.712	-30.305	5499.197	0.487	9.712	31.823	287.769
5600.000	1.652	278.434	9.867	-32.859	5599.164	0.459	9.867	34.308	286.715
5700.000	0.992	309.186	10.626	-34.956	5699.138	0.947	10.626	36.535	286.908
5800.000	0.884	333.714	11.864	-35.968	5799.125	0.412	11.864	37.874	288.255
5900.000	1.049	336.535	13.395	-36.674	5899.111	0.172	13.395	39.044	290.064
6000.000	0.848	331.923	14.887	-37.387	5999.097	0.215	14.887	40.241	291.712
6100.000	0.872	346.954	16.281	-37.906	6099.086	0.226	16.281	41.255	293.243
6200.000	0.504	29.189	17.406	-37.863	6199.079	0.603	17.406	41.673	294.688
6300.000	0.594	63.443	18.022	-37.185	6299.075	0.335	18.022	41.322	295.857
6400.000	0.127	74.763	18.283	-36.615	6399.072	0.470	18.283	40.925	296.534
6500.000	0.301	142.547	18.103	-36.348	6499.072	0.279	18.103	40.606	296.476
6600.000	1.110	163.713	16.964	-35.916	6599.063	0.836	16.964	39.721	295.283
6700.000	1.346	209.650	15.014	-36.225	6699.043	0.982	15.014	39.213	292.512
6800.000	0.571	245.409	13.786	-37.259	6799.029	0.943	13.786	39.728	290.305
6900.000	0.422	286.787	13.685	-38.065	6899.025	0.378	13.685	40.450	289.775
7000.000	0.441	248.668	13.652	-38.775	6999.023	0.282	13.652	41.108	289.396
7050.000	0.419	206.581	13.418	-39.036	7049.021	0.619	13.418	41.278	288.970

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