



Company: Noble Energy
Rig: Producton / V.E.S.
API # 05-123-23217
Date: 1/1/2014
Surveyor: Norman Cowan
VS: 0.000
Lat : 40.176
Long: -104.642

Well: Moser H34-16
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: 4834 Feet
Total Depth as Drilled: 7307 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	0.885	241.756	-0.365	-0.680	99.996	0.885	-0.365	0.772	241.756
200.000	0.761	244.272	-1.019	-1.959	199.986	0.129	-1.019	2.208	242.513
300.000	0.406	247.835	-1.441	-2.886	299.980	0.357	-1.441	3.226	243.459
400.000	0.268	252.113	-1.647	-3.436	399.979	0.141	-1.647	3.811	244.394
500.000	0.151	282.580	-1.690	-3.788	499.978	0.157	-1.690	4.147	245.956
600.000	0.082	335.893	-1.596	-3.946	599.978	0.122	-1.596	4.256	247.977
700.000	0.179	85.780	-1.520	-3.819	699.978	0.221	-1.520	4.110	248.302
800.000	0.245	86.849	-1.496	-3.450	799.977	0.066	-1.496	3.760	246.553
900.000	0.254	86.382	-1.471	-3.016	899.976	0.009	-1.471	3.355	244.004
1000.000	0.456	97.409	-1.508	-2.400	999.974	0.213	-1.508	2.834	237.854
1100.000	0.358	95.987	-1.592	-1.694	1099.971	0.099	-1.592	2.324	226.773
1200.000	0.407	97.465	-1.671	-1.031	1199.969	0.050	-1.671	1.963	211.667
1300.000	0.317	91.306	-1.723	-0.401	1299.967	0.098	-1.723	1.769	193.110
1400.000	0.272	102.254	-1.780	0.108	1399.966	0.072	-1.780	1.783	176.536
1500.000	0.441	98.322	-1.886	0.721	1499.964	0.171	-1.886	2.019	159.081
1600.000	0.335	96.784	-1.976	1.393	1599.962	0.107	-1.976	2.418	144.831
1700.000	0.241	100.141	-2.048	1.891	1699.960	0.095	-2.048	2.787	137.290
1800.000	0.283	86.201	-2.069	2.345	1799.959	0.076	-2.069	3.127	131.425
1900.000	0.242	92.072	-2.060	2.802	1899.958	0.049	-2.060	3.478	126.326
2000.000	0.658	31.497	-1.578	3.313	1999.955	0.579	-1.578	3.669	115.470
2100.000	0.878	11.669	-0.338	3.768	2099.946	0.342	-0.338	3.783	95.126
2200.000	0.728	50.454	0.816	4.412	2199.937	0.552	0.816	4.487	79.516
2300.000	1.127	53.152	1.810	5.688	2299.924	0.401	1.810	5.970	72.347
2400.000	0.819	55.641	2.803	7.065	2399.910	0.311	2.803	7.601	68.359
2500.000	0.977	1.056	4.059	7.671	2499.899	0.835	4.059	8.678	62.117
2600.000	1.014	349.757	5.781	7.529	2599.884	0.199	5.781	9.493	52.481
2700.000	0.903	350.131	7.428	7.237	2699.870	0.110	7.428	10.371	44.250
2800.000	1.107	352.552	9.163	6.976	2799.854	0.208	9.163	11.517	37.283
2900.000	1.157	350.972	11.119	6.692	2899.835	0.059	11.119	12.978	31.044
3000.000	1.171	347.125	13.112	6.306	2999.814	0.079	13.112	14.550	25.685
3100.000	1.092	355.193	15.058	5.999	3099.795	0.178	15.058	16.209	21.722
3200.000	0.915	4.328	16.804	5.979	3199.780	0.238	16.804	17.836	19.587
3300.000	1.685	32.994	18.833	6.840	3299.754	0.985	18.833	20.037	19.960
3400.000	1.652	61.762	20.748	8.911	3399.713	0.829	20.748	22.581	23.242
3500.000	0.863	52.012	21.894	10.774	3499.689	0.815	21.894	24.401	26.202

3600.000	0.406	13.626	22.702	11.451	3599.683	0.600	22.702	25.427	26.767
3700.000	0.713	282.529	23.181	10.928	3699.679	0.827	23.181	25.628	25.239
3800.000	1.525	269.796	23.312	8.990	3799.659	0.845	23.312	24.985	21.089
3900.000	1.884	275.565	23.466	6.023	3899.615	0.397	23.466	24.227	14.396
4000.000	1.953	274.183	23.750	2.688	3999.559	0.083	23.750	23.902	6.458
4100.000	2.207	280.497	24.225	-0.904	4099.493	0.342	24.225	24.242	357.862
4200.000	2.331	285.008	25.103	-4.763	4199.415	0.217	25.103	25.550	349.257
4300.000	2.269	286.435	26.189	-8.626	4299.334	0.085	26.189	27.573	341.770
4400.000	2.063	286.060	27.247	-12.254	4399.263	0.206	27.247	29.876	335.785
4500.000	2.045	285.079	28.209	-15.706	4499.199	0.040	28.209	32.287	330.892
4600.000	2.078	286.270	29.181	-19.169	4599.134	0.054	29.181	34.914	326.699
4700.000	2.223	291.223	30.391	-22.717	4699.063	0.236	30.391	37.943	323.222
4800.000	2.574	299.513	32.199	-26.479	4798.976	0.492	32.199	41.689	320.568
4900.000	2.685	307.575	34.734	-30.290	4898.871	0.386	34.734	46.086	318.910
5000.000	2.567	302.407	37.363	-34.037	4998.766	0.264	37.363	50.542	317.667
5100.000	2.374	307.561	39.826	-37.570	5098.673	0.294	39.826	54.750	316.670
5200.000	2.057	309.042	42.219	-40.606	5198.598	0.323	42.219	58.577	316.116
5300.000	1.669	316.289	44.402	-43.006	5298.546	0.453	44.402	61.814	315.915
5400.000	1.410	318.976	46.383	-44.820	5398.509	0.268	46.383	64.499	315.982
5500.000	1.138	324.106	48.115	-46.209	5498.485	0.295	48.115	66.711	316.158
5600.000	0.962	326.667	49.620	-47.252	5598.468	0.182	49.620	68.520	316.400
5700.000	1.106	317.272	51.031	-48.369	5698.452	0.222	51.031	70.311	316.534
5800.000	0.954	312.569	52.303	-49.637	5798.435	0.174	52.303	72.107	316.498
5900.000	0.910	320.914	53.483	-50.751	5898.422	0.142	53.483	73.730	316.502
6000.000	0.800	324.689	54.669	-51.655	5998.411	0.124	54.669	75.213	316.624
6100.000	0.642	323.161	55.687	-52.394	6098.403	0.159	55.687	76.461	316.745
6200.000	0.463	326.343	56.472	-52.954	6198.398	0.182	56.472	77.416	316.841
6300.000	0.460	333.927	57.169	-53.355	6298.395	0.061	57.169	78.199	316.977
6400.000	0.421	317.597	57.801	-53.779	6398.392	0.131	57.801	78.950	317.064
6500.000	0.479	327.740	58.426	-54.250	6498.389	0.098	58.426	79.729	317.122
6600.000	0.540	285.444	58.905	-54.928	6598.386	0.372	58.905	80.541	317.001
6700.000	0.508	245.533	58.847	-55.786	6698.382	0.359	58.847	81.086	316.529
6800.000	1.017	190.465	57.790	-56.351	6798.374	0.837	57.790	80.716	315.722
6900.000	1.200	179.068	55.870	-56.495	6898.355	0.285	55.870	79.456	314.681
7000.000	1.630	196.888	53.463	-56.891	6998.325	0.611	53.463	78.070	313.221

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