



Company/Rig: Noble Energy/Production/V.E.S.
Well/API: Maggie B 13-13/ 05-123-18469
Declination: 8.48'
TD as Drilled:
County/State: Weld/Colorado
Latitude: 40.393, Longitude: -104.506
GRID North is 0.640 Degrees East of True North
VS-Azi: 0.000 Degrees



Depth Reference : RKB = Ground Level

DRILLOG MV GYRO SURVEY CALCULATIONS

Filename: run1_int.ut

Minimum Curvature Method

Report Date/Time: 4/16/2013 / 09:03

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, CO

303-853-4976

SURVEYOR: NORMAN COWAN

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.788	90.733	99.997	-0.009	0.688	-0.009	0.688	90.733	0.788
200.000	0.756	80.543	199.988	0.091	2.027	0.091	2.029	87.434	0.141
300.000	0.724	70.354	299.979	0.412	3.273	0.412	3.299	82.830	0.135
400.000	0.692	60.164	399.972	0.925	4.392	0.925	4.489	78.111	0.130
500.000	0.660	49.975	499.965	1.596	5.357	1.596	5.590	73.415	0.124
600.000	0.628	39.785	599.959	2.387	6.149	2.387	6.596	68.784	0.119
700.000	0.596	29.596	699.953	3.260	6.756	3.260	7.502	64.242	0.113
800.000	0.564	19.407	799.948	4.176	7.177	4.176	8.303	59.805	0.108
900.000	0.531	9.217	899.943	5.098	7.414	5.098	8.998	55.490	0.102
1000.000	0.499	359.028	999.939	5.991	7.481	5.991	9.584	51.311	0.097
1100.000	0.641	344.375	1099.934	6.966	7.323	6.966	10.107	46.433	0.202
1200.000	0.786	328.722	1199.927	8.091	6.816	8.091	10.579	40.112	0.242
1300.000	0.932	313.070	1299.916	9.233	5.866	9.233	10.939	32.428	0.275
1400.000	1.077	297.418	1399.900	10.221	4.437	10.221	11.143	23.468	0.309
1500.000	1.223	281.766	1499.880	10.871	2.559	10.871	11.168	13.244	0.345
1600.000	1.368	266.114	1599.855	11.008	0.323	11.008	11.013	1.683	0.381
1700.000	1.513	250.462	1699.824	10.485	-2.112	10.485	10.696	348.613	0.418
1800.000	1.659	234.810	1799.786	9.210	-4.539	9.210	10.268	333.765	0.455
1900.000	1.804	219.157	1899.741	7.155	-6.715	7.155	9.813	316.817	0.493

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2000.000	1.949	203.505	1999.688	4.375	-8.388	4.375	9.460	297.548	0.531
2100.000	1.852	213.434	2099.633	1.467	-9.956	1.467	10.064	278.381	0.343
2200.000	2.358	223.677	2199.566	-1.370	-12.268	-1.370	12.344	263.627	0.629
2300.000	2.465	233.921	2299.478	-4.125	-15.427	-4.125	15.969	255.031	0.443
2400.000	2.257	244.165	2399.393	-6.249	-18.937	-6.249	19.941	251.738	0.469
2500.000	1.877	254.408	2499.328	-7.547	-22.286	-7.547	23.530	251.292	0.529
2600.000	2.038	264.652	2599.270	-8.153	-25.634	-8.153	26.899	252.357	0.385
2700.000	1.289	274.896	2699.228	-8.223	-28.525	-8.223	29.687	253.920	0.803
2800.000	1.195	285.139	2799.204	-7.854	-30.652	-7.854	31.643	255.628	0.241
2900.000	1.101	295.383	2899.184	-7.170	-32.527	-7.170	33.308	257.568	0.225
3000.000	1.007	305.627	2999.167	-6.247	-34.109	-6.247	34.676	259.622	0.210
3100.000	1.076	318.099	3099.151	-5.036	-35.450	-5.036	35.806	261.915	0.236
3200.000	1.111	330.010	3199.133	-3.498	-36.562	-3.498	36.728	264.536	0.230
3300.000	1.146	341.921	3299.114	-1.707	-37.357	-1.707	37.396	267.384	0.237
3400.000	1.182	353.832	3399.093	0.269	-37.778	0.269	37.779	270.408	0.244
3500.000	1.217	5.743	3499.071	2.351	-37.782	2.351	37.855	273.560	0.251
3600.000	1.252	17.654	3599.048	4.448	-37.345	4.448	37.609	276.793	0.259
3700.000	1.287	29.566	3699.024	6.466	-36.459	6.466	37.028	280.058	0.266
3800.000	1.323	41.477	3798.998	8.308	-35.141	8.308	36.109	283.302	0.273
3900.000	1.358	53.388	3898.971	9.879	-33.425	9.879	34.855	286.466	0.280
4000.000	1.393	65.299	3998.942	11.094	-31.370	11.094	33.274	289.476	0.288
4100.000	1.261	79.826	4098.916	11.796	-29.183	11.796	31.477	292.010	0.360
4200.000	1.135	94.750	4198.894	11.909	-27.113	11.909	29.613	293.712	0.335
4300.000	1.009	109.674	4298.877	11.530	-25.297	11.530	27.801	294.503	0.305
4400.000	0.883	124.598	4398.863	10.796	-23.833	10.796	26.164	294.369	0.276
4500.000	0.758	139.522	4498.853	9.855	-22.770	9.855	24.811	293.404	0.247
4600.000	0.632	154.446	4598.846	8.855	-22.102	8.855	23.810	291.832	0.219
4700.000	0.506	169.370	4698.841	7.923	-21.783	7.923	23.179	289.988	0.193
4800.000	0.380	184.294	4798.838	7.158	-21.727	7.158	22.875	288.235	0.170
4900.000	0.255	199.218	4898.837	6.617	-21.825	6.617	22.806	286.867	0.149
5000.000	0.129	214.142	4998.836	6.314	-21.961	6.314	22.851	286.041	0.134
5100.000	1.186	208.828	5098.828	5.314	-22.523	5.314	23.142	283.276	1.058
5200.000	1.125	205.114	5198.808	3.518	-23.439	3.518	23.702	278.537	0.096
5300.000	1.265	201.400	5298.786	1.601	-24.259	1.601	24.311	273.777	0.159
5400.000	1.004	197.686	5398.766	-0.261	-24.928	-0.261	24.929	269.400	0.271
5500.000	1.034	193.972	5498.750	-1.972	-25.412	-1.972	25.488	265.562	0.073
5600.000	0.738	190.258	5598.738	-3.482	-25.744	-3.482	25.979	262.297	0.301
5700.000	0.523	186.544	5698.732	-4.569	-25.911	-4.569	26.311	259.999	0.219
5800.000	0.462	182.830	5798.729	-5.425	-25.983	-5.425	26.543	258.207	0.068
5900.000	0.501	179.116	5898.725	-6.265	-25.996	-6.265	26.741	256.450	0.050
6000.000	0.541	175.402	5998.721	-7.173	-25.952	-7.173	26.925	254.548	0.052
6100.000	0.582	183.459	6098.716	-8.151	-25.944	-8.151	27.195	252.558	0.089

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
6200.000	0.863	190.812	6198.708	-9.398	-26.116	-9.398	27.756	250.209	0.294
6300.000	1.067	198.165	6298.694	-11.022	-26.548	-11.022	28.745	247.453	0.238
6400.000	1.271	205.518	6398.673	-12.907	-27.316	-12.907	30.212	244.708	0.253
6500.000	0.528	212.872	6498.660	-14.295	-28.044	-14.295	31.477	242.990	0.750
19.8' Ellipse of Uncertainty									
6600.000	0.795	222.080	6598.653	-15.197	-28.758	-15.197	32.527	242.147	0.286