



Company: NOBLE ENERGY
Lease/Well: MCKENNEY/ #14-14
A.P.I.#: 05-123-26512
Rig Name: PRODUCTION
State/County: COLORADO/WELD
Latitude: 40.488, Longitude: -104.510
GRID North is 0.640 Degrees East of True North
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01_ed.ut
Minimum Curvature Method
Report Date/Time: 2/29/2012 / 11:40

Vaughn Energy Services
Henderson, Colorado
866-835-8333
Jay Hinman
McKenney 14-14

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	****
100.000	0.160	299.953	100.000	0.070	-0.121	0.070	0.139	299.953	0.160
200.000	0.099	337.390	200.000	0.219	-0.275	0.219	0.351	308.525	0.101
300.000	0.073	341.292	300.000	0.358	-0.328	0.358	0.486	317.515	0.027
400.000	0.089	303.510	399.999	0.461	-0.413	0.461	0.620	318.144	0.055
500.000	0.656	334.137	499.997	1.019	-0.728	1.019	1.253	324.473	0.581
600.000	0.745	340.466	599.989	2.148	-1.195	2.148	2.458	330.905	0.118
700.000	0.667	331.254	699.982	3.271	-1.693	3.271	3.683	332.641	0.138
800.000	0.720	329.934	799.975	4.325	-2.287	4.325	4.893	332.129	0.055
900.000	0.797	325.358	899.966	5.441	-2.998	5.441	6.212	331.150	0.098
1000.000	0.734	330.668	999.957	6.572	-3.707	6.572	7.545	330.576	0.095
1100.000	0.713	324.695	1099.949	7.638	-4.380	7.638	8.805	330.168	0.078
1200.000	0.806	321.931	1199.940	8.700	-5.174	8.700	10.122	329.262	0.100
1300.000	0.942	325.365	1299.928	9.930	-6.075	9.930	11.641	328.545	0.145
1400.000	1.069	327.140	1399.913	11.390	-7.048	11.390	13.394	328.252	0.131
1500.000	1.219	329.224	1499.893	13.087	-8.098	13.087	15.390	328.252	0.156
1600.000	1.323	335.961	1599.869	15.055	-9.113	15.055	17.598	328.815	0.182
1700.000	1.286	331.878	1699.843	17.099	-10.112	17.099	19.865	329.402	0.100
1800.000	1.224	337.532	1799.819	19.075	-11.048	19.075	22.044	329.920	0.138
1900.000	1.448	342.886	1899.792	21.269	-11.828	21.269	24.337	330.921	0.256
2000.000	1.355	334.533	1999.762	23.545	-12.709	23.545	26.756	331.641	0.224
2100.000	1.546	349.658	2099.730	25.940	-13.459	25.940	29.224	332.576	0.426
2200.000	1.555	352.895	2199.693	28.613	-13.869	28.613	31.797	334.140	0.088
2300.000	1.563	0.017	2299.656	31.323	-14.037	31.323	34.324	335.861	0.194
2400.000	1.697	2.336	2399.616	34.166	-13.976	34.166	36.914	337.752	0.149
2500.000	1.799	7.168	2499.569	37.203	-13.720	37.203	39.652	339.757	0.179
2600.000	2.062	10.362	2599.513	40.530	-13.200	40.530	42.626	341.960	0.284
2700.000	2.283	8.546	2699.441	44.269	-12.581	44.269	46.022	344.136	0.231
2800.000	2.296	15.151	2799.361	48.173	-11.761	48.173	49.588	346.280	0.264
2900.000	2.583	10.639	2899.270	52.321	-10.822	52.321	53.429	348.314	0.345
3000.000	2.544	21.553	2999.171	56.600	-9.590	56.600	57.407	350.383	0.489
3100.000	2.761	21.431	3099.064	60.906	-7.895	60.906	61.416	352.614	0.217
3200.000	2.720	25.864	3198.950	65.283	-5.980	65.283	65.556	354.766	0.216
3300.000	2.460	21.853	3298.847	69.410	-4.146	69.410	69.534	356.582	0.317
3400.000	2.677	18.806	3398.747	73.613	-2.594	73.613	73.658	357.982	0.256

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
3500.000	2.734	27.410	3498.636	77.941	-0.743	77.941	77.944	359.454	0.410
3600.000	3.071	31.155	3598.507	82.351	1.741	82.351	82.369	1.211	0.386
3700.000	3.191	29.421	3698.358	87.067	4.494	87.067	87.183	2.954	0.153
3800.000	3.404	28.886	3798.193	92.091	7.295	92.091	92.380	4.529	0.215
3900.000	3.443	30.044	3898.014	97.290	10.233	97.290	97.827	6.004	0.079
4000.000	3.608	24.461	3997.825	102.754	13.039	102.754	103.578	7.232	0.380
4100.000	3.703	20.956	4097.622	108.633	15.497	108.633	109.733	8.119	0.243
4200.000	3.803	23.469	4197.407	114.691	17.973	114.691	116.091	8.906	0.193
4300.000	3.567	18.917	4297.201	120.676	20.302	120.676	122.372	9.550	0.376
4400.000	3.398	20.416	4397.016	126.396	22.344	126.396	128.356	10.025	0.191
4500.000	3.154	13.242	4496.853	131.852	24.008	131.852	134.020	10.320	0.477
4600.000	2.842	20.443	4596.716	136.854	25.505	136.854	139.210	10.557	0.489
4700.000	2.835	12.883	4696.594	141.588	26.922	141.588	144.125	10.766	0.374
4800.000	3.028	26.354	4796.464	146.365	28.646	146.365	149.142	11.074	0.713
4900.000	3.182	8.884	4896.320	151.474	30.247	151.474	154.465	11.292	0.955
5000.000	3.402	4.852	4996.155	157.173	30.927	157.173	160.187	11.132	0.319
5100.000	3.265	9.695	5095.986	162.937	31.657	162.937	165.984	10.995	0.313
5200.000	3.537	6.452	5195.810	168.809	32.483	168.809	171.906	10.892	0.333
5300.000	3.647	5.935	5295.613	175.037	33.159	175.037	178.150	10.727	0.115
5400.000	3.701	1.632	5395.408	181.427	33.580	181.427	184.508	10.486	0.281
5500.000	3.039	0.516	5495.234	187.304	33.695	187.304	190.310	10.198	0.665
5600.000	2.846	355.144	5595.103	192.428	33.509	192.428	195.324	9.878	0.336
5700.000	3.081	358.351	5694.969	197.588	33.221	197.588	200.362	9.544	0.287
5800.000	3.071	355.281	5794.825	202.944	32.924	202.944	205.598	9.215	0.165
5900.000	3.158	356.049	5894.677	208.362	32.514	208.362	210.884	8.869	0.096
6000.000	2.984	352.813	5994.533	213.693	31.998	213.693	216.075	8.516	0.245
6100.000	3.127	350.379	6094.391	218.965	31.217	218.965	221.179	8.114	0.192
6200.000	2.951	339.276	6194.252	224.061	29.850	224.061	226.040	7.588	0.613
6300.000	3.091	342.103	6294.113	229.034	28.111	229.034	230.753	6.997	0.205
6400.000	2.834	350.670	6393.979	234.040	26.881	234.040	235.578	6.552	0.511
6500.000	2.982	0.717	6493.851	239.080	26.513	239.080	240.546	6.328	0.530
6600.000	3.427	354.703	6593.695	244.657	26.270	244.657	246.063	6.129	0.557
6700.000	3.036	347.107	6693.536	250.214	25.403	250.214	251.500	5.797	0.579
6800.000	2.552	340.714	6793.417	254.897	24.077	254.897	256.031	5.396	0.574

HORIZONTAL DISPLACEMENT IS
256.031 FEET AT 5.396 DEGREES