



Company: NOBLE ENERGY
Lease/Well: MCDANIEL/ #42-15
A.P.I.#: 05-123-23538
Rig Name: PRODUCTION
State/County: COLORADO/WELD
Latitude: 40.488, Longitude: -104.529
GRID North is 0.630 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 / 16:54

Vaughn Energy Services
Henderson, Colorado
866-835-8333
Jay Hinman
McDaniel 42-15

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	0.905	354.998	99.996	0.787	-0.069	0.787	0.790	354.998	0.905
200.000	0.211	16.201	199.991	1.750	-0.086	1.750	1.752	357.172	0.713
300.000	0.224	356.695	299.990	2.121	-0.046	2.121	2.122	358.746	0.075
400.000	0.182	356.862	399.989	2.475	-0.066	2.475	2.476	358.463	0.041
500.000	0.184	18.694	499.989	2.786	-0.024	2.786	2.786	359.513	0.069
600.000	0.206	36.827	599.988	3.082	0.136	3.082	3.085	2.518	0.065
700.000	0.161	27.967	699.988	3.351	0.309	3.351	3.365	5.275	0.053
800.000	0.131	7.846	799.987	3.588	0.391	3.588	3.609	6.219	0.059
900.000	0.136	31.849	899.987	3.802	0.469	3.802	3.831	7.036	0.056
1000.000	0.157	6.278	999.987	4.040	0.547	4.040	4.077	7.712	0.068
1100.000	0.183	14.270	1099.986	4.331	0.601	4.331	4.372	7.906	0.035
1200.000	0.272	14.676	1199.985	4.715	0.701	4.715	4.767	8.454	0.088
1300.000	0.142	53.470	1299.985	5.018	0.860	5.018	5.091	9.729	0.184
1400.000	0.126	46.036	1399.985	5.168	1.039	5.168	5.271	11.366	0.024
1500.000	0.176	322.960	1499.984	5.367	1.025	5.367	5.464	10.814	0.204
1600.000	0.059	349.375	1599.984	5.540	0.923	5.540	5.617	9.458	0.126
1700.000	0.253	260.002	1699.984	5.552	0.696	5.552	5.596	7.145	0.259
1800.000	0.489	232.357	1799.982	5.253	0.140	5.253	5.255	1.530	0.290
1900.000	0.566	252.451	1899.978	4.843	-0.669	4.843	4.889	352.140	0.199
2000.000	0.511	268.111	1999.973	4.680	-1.585	4.680	4.941	341.290	0.156
2100.000	0.647	321.359	2099.969	5.106	-2.383	5.106	5.635	334.981	0.533
2200.000	0.933	351.758	2199.960	6.353	-2.853	6.353	6.964	335.819	0.498
2300.000	1.333	330.899	2299.940	8.175	-3.535	8.175	8.907	336.615	0.568
2400.000	1.190	338.944	2399.916	10.161	-4.474	10.161	11.102	336.235	0.227
2500.000	1.387	343.046	2499.891	12.288	-5.200	12.288	13.343	337.062	0.217
2600.000	1.427	352.649	2599.861	14.680	-5.712	14.680	15.753	338.739	0.239
2700.000	1.456	351.501	2699.829	17.172	-6.059	17.172	18.210	340.564	0.040
2800.000	1.435	336.446	2799.798	19.576	-6.748	19.576	20.706	340.982	0.379
2900.000	1.473	346.715	2899.766	21.975	-7.543	21.975	23.233	341.054	0.263
3000.000	1.398	350.977	2999.734	24.430	-8.030	24.430	25.716	341.805	0.130
3100.000	1.419	334.829	3099.704	26.756	-8.748	26.756	28.149	341.895	0.396
3200.000	1.079	316.634	3199.681	28.560	-9.921	28.560	30.234	340.845	0.519
3300.000	1.109	287.872	3299.663	29.541	-11.488	29.541	31.696	338.751	0.544
3400.000	1.137	280.774	3399.644	30.024	-13.383	30.024	32.871	335.975	0.142

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	0.581	284.677	3499.633	30.338	-14.848	30.338	33.776	333.922	0.559
3600.000	0.890	230.655	3599.625	29.974	-15.939	29.974	33.948	331.997	0.723
3700.000	0.682	190.670	3699.617	28.896	-16.650	28.896	33.350	330.049	0.572
3800.000	0.654	211.796	3799.610	27.827	-17.061	27.827	32.641	328.487	0.246
3900.000	0.397	217.130	3899.606	27.066	-17.571	27.066	32.269	327.009	0.261
4000.000	0.067	261.795	3999.605	26.781	-17.838	26.781	32.178	326.334	0.352
4100.000	0.565	59.867	4099.603	27.020	-17.470	27.020	32.176	327.116	0.628
4200.000	1.492	61.351	4199.586	27.892	-15.901	27.892	32.106	330.312	0.927
4300.000	2.380	62.132	4299.528	29.486	-12.923	29.486	32.194	336.333	0.889
4400.000	3.002	64.635	4399.417	31.579	-8.721	31.579	32.761	344.561	0.633
4500.000	3.019	64.829	4499.279	33.821	-3.972	33.821	34.053	353.302	0.020
4600.000	3.003	69.546	4599.141	35.857	0.867	35.857	35.867	1.384	0.248
4700.000	2.511	78.245	4699.026	37.218	5.466	37.218	37.618	8.355	0.645
4800.000	2.069	72.082	4798.946	38.220	9.329	38.220	39.342	13.716	0.505
4900.000	1.489	76.440	4898.897	39.080	12.309	39.080	40.973	17.483	0.596
5000.000	1.365	71.701	4998.866	39.759	14.703	39.759	42.390	20.294	0.171
5100.000	1.138	75.615	5098.842	40.379	16.795	40.379	43.733	22.584	0.243
5200.000	0.977	69.156	5198.825	40.929	18.554	40.929	44.938	24.386	0.200
5300.000	0.990	68.362	5298.810	41.551	20.153	41.551	46.181	25.875	0.019
5400.000	0.991	76.085	5398.796	42.078	21.796	42.078	47.387	27.384	0.133
5500.000	0.826	114.018	5498.784	41.992	23.293	41.992	48.020	29.017	0.611
5600.000	0.919	150.529	5598.773	41.001	24.346	41.001	47.684	30.702	0.554
5700.000	1.065	149.228	5698.758	39.504	25.216	39.504	46.866	32.551	0.147
5800.000	0.578	140.639	5798.747	38.316	26.012	38.316	46.311	34.172	0.501
5900.000	0.575	113.150	5898.743	37.728	26.793	37.728	46.274	35.381	0.274
6000.000	0.590	93.317	5998.738	37.501	27.768	37.501	46.663	36.518	0.201
6100.000	0.859	78.758	6098.730	37.618	29.016	37.618	47.508	37.645	0.324
6200.000	0.871	95.097	6198.718	37.696	30.509	37.696	48.495	38.984	0.246
6300.000	0.907	91.822	6298.706	37.603	32.057	37.603	49.413	40.448	0.062
6400.000	0.894	82.025	6398.694	37.686	33.621	37.686	50.504	41.737	0.154
6500.000	0.990	94.055	6498.681	37.734	35.255	37.734	51.640	43.055	0.219
6600.000	1.135	97.208	6598.663	37.548	37.099	37.548	52.784	44.655	0.157
6700.000	0.996	108.555	6698.646	37.147	38.905	37.147	53.792	46.324	0.252
6800.000	0.799	105.595	6798.634	36.683	40.401	36.683	54.570	47.761	0.202
6850.000	0.724	111.551	6848.629	36.473	41.031	36.473	54.898	48.365	0.218

HORIZONTAL DISPLACEMENT IS
54.898 FEET AT 48.365 DEGREES