



Company: NOBLE ENERGY
 Lease/Well: LORENZ FARMS/ #22-6B
 A.P.I.#: 05-123-16609
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD
 Latitude: 40.387, Longitude: -104.651
 GRID North is 0.550 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: 3/15/2012 / 12:48

Vaughn Energy Services
 Henderson, Colorado
 866-835-8333
 Jay Hinman
 Lorenz Farms 22-6B

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	244.951	100.000	-0.059	-0.127	-0.059	0.140	244.951	0.160
200.000	0.051	265.163	200.000	-0.122	-0.297	-0.122	0.321	247.682	0.114
300.000	0.084	207.793	300.000	-0.191	-0.376	-0.191	0.421	243.085	0.071
400.000	0.078	215.193	400.000	-0.311	-0.449	-0.311	0.546	235.281	0.012
500.000	0.228	32.865	499.999	-0.200	-0.380	-0.200	0.429	242.314	0.306
600.000	0.412	34.663	599.998	0.264	-0.068	0.264	0.272	345.601	0.184
700.000	0.359	44.289	699.995	0.784	0.356	0.784	0.861	24.421	0.083
800.000	0.260	30.433	799.994	1.204	0.690	1.204	1.388	29.811	0.124
900.000	0.424	32.766	899.992	1.711	1.005	1.711	1.984	30.434	0.165
1000.000	0.455	23.968	999.989	2.385	1.367	2.385	2.749	29.815	0.074
1100.000	0.474	12.717	1099.986	3.151	1.619	3.151	3.543	27.194	0.093
1200.000	0.516	14.928	1199.982	3.990	1.826	3.990	4.388	24.594	0.046
1300.000	0.281	9.186	1299.980	4.667	1.981	4.667	5.070	23.003	0.238
1400.000	0.301	342.054	1399.979	5.159	1.939	5.159	5.512	20.603	0.138
1500.000	0.364	298.984	1499.977	5.563	1.580	5.563	5.783	15.860	0.251
1600.000	0.630	304.186	1599.973	6.026	0.848	6.026	6.085	8.009	0.269
1700.000	0.921	311.248	1699.964	6.865	-0.211	6.865	6.868	358.237	0.306
1800.000	1.019	317.574	1799.950	8.052	-1.416	8.052	8.175	350.027	0.145
1900.000	1.020	334.090	1899.934	9.509	-2.405	9.509	9.808	345.808	0.293
2000.000	1.159	337.117	1999.916	11.241	-3.187	11.241	11.684	344.172	0.150
2100.000	1.372	337.285	2099.891	13.277	-4.042	13.277	13.879	343.066	0.214
2200.000	1.381	340.141	2199.863	15.515	-4.914	15.515	16.275	342.425	0.069
2300.000	1.386	349.950	2299.834	17.839	-5.535	17.839	18.678	342.763	0.237
2400.000	1.376	336.549	2399.805	20.131	-6.223	20.131	21.071	342.821	0.322
2500.000	1.422	351.121	2499.775	22.459	-6.893	22.459	23.492	342.938	0.358
2600.000	1.431	346.774	2599.744	24.900	-7.370	24.900	25.967	343.512	0.109
2700.000	1.380	352.704	2699.714	27.309	-7.808	27.309	28.404	344.043	0.154
2800.000	1.168	343.590	2799.690	29.482	-8.249	29.482	30.614	344.368	0.293
2900.000	1.258	354.118	2899.667	31.552	-8.650	31.552	32.716	344.669	0.240
3000.000	1.286	346.509	2999.643	33.735	-9.024	33.735	34.921	345.024	0.171
3100.000	1.253	340.548	3099.618	35.856	-9.650	35.856	37.132	344.937	0.136
3200.000	1.437	338.289	3199.591	38.052	-10.478	38.052	39.469	344.605	0.192
3300.000	1.503	343.919	3299.558	40.478	-11.305	40.478	42.027	344.395	0.159
3400.000	1.483	349.640	3399.524	43.012	-11.901	43.012	44.628	344.533	0.150

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	1.061	3.866	3499.499	45.209	-12.072	45.209	46.793	345.050	0.524
3600.000	0.912	9.830	3599.484	46.918	-11.873	46.918	48.397	345.799	0.181
3700.000	0.996	11.443	3699.471	48.554	-11.565	48.554	49.913	346.603	0.088
3800.000	0.908	11.845	3799.457	50.182	-11.230	50.182	51.423	347.386	0.089
3900.000	0.604	22.203	3899.448	51.445	-10.868	51.445	52.580	348.071	0.332
4000.000	0.375	39.003	3999.444	52.187	-10.463	52.187	53.226	348.663	0.267
4100.000	0.289	33.967	4099.443	52.651	-10.116	52.651	53.614	349.124	0.091
4200.000	0.367	43.398	4199.441	53.092	-9.755	53.092	53.981	349.589	0.095
4300.000	0.391	68.295	4299.439	53.451	-9.219	53.451	54.240	350.215	0.165
4400.000	0.220	92.010	4399.437	53.570	-8.710	53.570	54.274	350.766	0.209
4500.000	0.791	349.478	4499.434	54.242	-8.643	54.242	54.927	350.946	0.866
4600.000	1.041	314.413	4599.422	55.556	-9.418	55.556	56.349	350.379	0.601
4700.000	0.997	306.525	4699.406	56.710	-10.766	56.710	57.722	349.251	0.147
4800.000	0.492	285.897	4799.398	57.345	-11.878	57.345	58.562	348.297	0.564
4900.000	0.550	279.081	4899.394	57.539	-12.766	57.539	58.938	347.491	0.085
5000.000	0.544	290.631	4999.389	57.782	-13.684	57.782	59.380	346.676	0.110
5100.000	0.537	288.679	5099.385	58.099	-14.572	58.099	59.899	345.920	0.020
5200.000	0.534	282.351	5199.380	58.349	-15.471	58.349	60.365	345.150	0.059
5300.000	0.757	281.466	5299.374	58.580	-16.574	58.580	60.879	344.202	0.223
5400.000	0.863	311.836	5399.364	59.213	-17.782	59.213	61.826	343.285	0.436
5500.000	1.020	337.036	5499.351	60.535	-18.690	60.535	63.354	342.842	0.438
5600.000	0.971	352.705	5599.336	62.195	-19.145	62.195	65.075	342.890	0.276
5700.000	0.693	12.282	5699.326	63.627	-19.124	63.627	66.439	343.271	0.394
5800.000	0.432	0.513	5799.321	64.595	-18.992	64.595	67.330	343.616	0.284
5900.000	0.569	27.010	5899.317	65.415	-18.763	65.415	68.052	343.995	0.265
6000.000	0.611	18.154	5999.312	66.363	-18.372	66.363	68.859	344.526	0.100
6100.000	0.495	18.733	6099.307	67.278	-18.067	67.278	69.662	344.968	0.116
6200.000	0.715	355.639	6199.302	68.309	-17.976	68.309	70.634	345.256	0.324
6300.000	0.749	345.143	6299.294	69.562	-18.191	69.562	71.902	345.345	0.138
6400.000	0.934	330.990	6399.283	70.907	-18.754	70.907	73.345	345.185	0.276
6500.000	0.925	332.989	6499.270	72.339	-19.516	72.339	74.925	344.902	0.033
6600.000	1.322	329.448	6599.250	74.051	-20.469	74.051	76.828	344.549	0.402
6700.000	1.137	337.246	6699.227	75.959	-21.439	75.959	78.927	344.239	0.249
6800.000	0.833	357.533	6799.213	77.601	-21.854	77.601	80.619	344.272	0.458
6900.000	1.015	15.158	6899.200	79.182	-21.653	79.182	82.090	344.706	0.335
6950.000	0.753	41.915	6949.194	79.854	-21.318	79.854	82.651	345.053	0.964
HORIZONTAL DISPLACEMENT IS 82.651 FEET AT 345.053 DEGREES									