

Company: Noble Energy

Lease/Well: Schmidt / 25-10 F

API: 05-123-16243

Rig Name: Production / Lightning Wireline

State/County: Colorado / Weld

Latitude: 40.281, Longitude: -104.722

GRID North is 0.500 Degrees East of True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01_ed.ut

Minimum Curvature Method

Report Date/Time: 3/16/2012 / 12:19

Vaughn Energy Services

Henderson Colorado

866-835-8333

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	****
100.000	0.183	130.226	100.000	-0.103	0.122	-0.103	0.160	130.226	0.183
200.000	0.272	303.160	200.000	-0.077	0.045	-0.077	0.089	149.330	0.454
300.000	0.271	101.953	299.999	0.004	0.078	0.004	0.078	86.955	0.533
400.000	0.312	134.820	399.998	-0.237	0.502	-0.237	0.555	115.247	0.170
500.000	0.271	117.502	499.997	-0.538	0.905	-0.538	1.053	120.729	0.097
600.000	0.340	21.069	599.996	-0.370	1.221	-0.370	1.276	106.875	0.458
700.000	0.326	16.291	699.994	0.179	1.408	0.179	1.419	82.758	0.031
800.000	0.322	134.672	799.993	0.254	1.687	0.254	1.706	81.431	0.556
900.000	0.277	288.177	899.993	0.132	1.657	0.132	1.662	85.435	0.583
1000.000	0.214	267.672	999.992	0.200	1.240	0.200	1.256	80.834	0.107
1100.000	0.199	213.281	1099.991	0.047	0.958	0.047	0.959	87.187	0.189
1200.000	0.264	301.545	1199.991	0.022	0.666	0.022	0.667	88.104	0.326
1300.000	0.314	344.729	1299.990	0.407	0.398	0.407	0.569	44.357	0.218
1400.000	0.577	322.894	1399.986	1.073	0.022	1.073	1.073	1.178	0.308
1500.000	0.712	315.474	1499.980	1.918	-0.718	1.918	2.048	339.484	0.159
1600.000	0.906	298.377	1599.970	2.737	-1.849	2.737	3.303	325.954	0.307
1700.000	0.901	308.861	1699.958	3.606	-3.157	3.606	4.792	318.797	0.165
1800.000	1.042	313.637	1799.944	4.727	-4.427	4.727	6.476	316.873	0.163
1900.000	1.117	311.677	1899.926	6.002	-5.813	6.002	8.356	315.916	0.083
2000.000	1.284	332.550	1999.904	7.644	-7.057	7.644	10.404	317.286	0.465
2100.000	1.437	338.122	2099.876	9.803	-8.041	9.803	12.679	320.637	0.202
2200.000	1.567	331.581	2199.842	12.169	-9.159	12.169	15.231	323.032	0.215
2300.000	2.117	336.400	2299.790	15.064	-10.550	15.064	18.391	324.996	0.571
2400.000	2.281	333.843	2399.716	18.543	-12.167	18.543	22.178	326.730	0.191
2500.000	2.015	325.079	2499.646	21.771	-14.050	21.771	25.911	327.163	0.422
2600.000	2.261	331.117	2599.576	24.940	-16.010	24.940	29.637	327.303	0.333
2700.000	2.096	325.448	2699.504	28.174	-18.000	28.174	33.433	327.426	0.271
2800.000	2.152	319.051	2799.436	31.098	-20.268	31.098	37.120	326.907	0.243
2900.000	1.909	316.873	2899.373	33.732	-22.637	33.732	40.624	326.135	0.255
3000.000	1.547	319.146	2999.327	35.969	-24.658	35.969	43.609	325.567	0.369
3100.000	1.245	324.316	3099.297	37.872	-26.175	37.872	46.037	325.350	0.326
3200.000	1.115	325.359	3199.276	39.555	-27.362	39.555	48.097	325.327	0.132
3300.000	1.102	321.770	3299.257	41.111	-28.510	41.111	50.030	325.259	0.071
3400.000	1.142	324.116	3399.238	42.674	-29.689	42.674	51.986	325.173	0.061

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	1.156	318.747	3499.218	44.239	-30.939	44.239	53.984	325.033	0.109
3600.000	1.143	318.982	3599.198	45.751	-32.258	45.751	55.980	324.813	0.014
3700.000	1.265	289.403	3699.177	46.870	-33.955	46.870	57.877	324.079	0.626
3800.000	1.494	273.837	3799.148	47.324	-36.297	47.324	59.641	322.512	0.437
3900.000	1.370	271.144	3899.117	47.435	-38.793	47.435	61.278	320.723	0.141
4000.000	1.140	268.315	3999.093	47.430	-40.983	47.430	62.683	319.171	0.238
4100.000	1.163	272.044	4099.073	47.437	-42.992	47.437	64.020	317.814	0.078
4200.000	1.167	285.764	4199.052	47.750	-44.986	47.750	65.603	316.707	0.278
4300.000	0.811	313.386	4299.038	48.512	-46.480	48.512	67.185	316.225	0.585
4400.000	0.944	338.007	4399.026	49.762	-47.303	49.762	68.657	316.451	0.396
4500.000	0.949	328.832	4499.013	51.234	-48.040	51.234	70.233	316.843	0.151
4600.000	1.060	272.537	4599.000	51.983	-49.392	51.983	71.706	316.464	0.953
4700.000	1.485	265.195	4698.975	51.915	-51.607	51.915	73.202	315.170	0.454
4800.000	1.865	253.227	4798.932	51.337	-54.457	51.337	74.840	313.311	0.515
4900.000	1.868	254.070	4898.879	50.420	-57.582	50.420	76.537	311.206	0.028
5000.000	2.386	244.098	4998.810	49.064	-61.021	49.064	78.299	308.801	0.635
5100.000	1.423	252.492	5098.754	47.781	-64.078	47.781	79.931	306.711	0.999
5200.000	0.625	263.978	5198.737	47.350	-65.804	47.350	81.069	305.737	0.820
5300.000	0.415	265.329	5298.733	47.263	-66.708	47.263	81.754	305.318	0.210
5400.000	0.230	314.307	5398.732	47.374	-67.213	47.374	82.230	305.178	0.316
5500.000	0.266	42.121	5498.731	47.686	-67.201	47.686	82.401	305.360	0.345
5600.000	0.515	34.516	5598.729	48.228	-66.791	48.228	82.383	305.832	0.254
5700.000	0.895	40.675	5698.721	49.190	-66.028	49.190	82.337	306.686	0.387
5800.000	1.132	31.058	5798.705	50.629	-65.009	50.629	82.398	307.911	0.291
5900.000	1.123	6.619	5898.687	52.448	-64.386	52.448	83.045	309.166	0.477
6000.000	0.707	1.725	5998.674	54.038	-64.255	54.038	83.957	310.063	0.423
6100.000	0.397	355.207	6098.669	55.000	-64.265	55.000	84.587	310.558	0.316
6200.000	0.423	326.931	6198.666	55.655	-64.496	55.655	85.189	310.792	0.202
6300.000	0.225	60.990	6298.665	56.060	-64.525	56.060	85.477	310.984	0.493
6400.000	0.048	73.451	6398.665	56.167	-64.313	56.167	85.387	311.132	0.179
6500.000	0.607	153.899	6498.663	55.704	-64.040	55.704	84.877	311.018	0.601
6600.000	0.910	207.680	6598.655	54.525	-64.176	54.525	84.211	310.352	0.737
6700.000	1.107	198.788	6698.640	52.908	-64.856	52.908	83.699	309.206	0.251
6800.000	1.516	174.545	6798.614	50.677	-65.041	50.677	82.453	307.924	0.680
6900.000	1.469	187.352	6898.581	48.089	-65.080	48.089	80.919	306.461	0.336
7000.000	1.499	165.595	6998.548	45.550	-64.918	45.550	79.305	305.056	0.561
7100.000	2.817	155.001	7098.475	42.056	-63.554	42.056	76.209	303.494	1.371
7200.000	3.840	150.740	7198.305	36.908	-60.879	36.908	71.193	301.226	1.052

HORIZONTAL DISPLACEMENT IS
71.193 FEET AT 301.226 DEGREES