



Company: Noble Energy
Well: Samuel J7-15
API #: 05-123-25605
Rig Name: Production/Lightning
State/County: Colorado/Weld
Latitude: 40.412, Longitude: -104.819
GRID North is 0.440 Degrees East of True North
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01_ed.ut

Minimum Curvature Method

Report Date/Time: 8/16/2012 / 20:59

Vaughn Energy Services
Henderson, Colorado
866-835-8333
Randy Holcomb
RKB=Ground Level

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	0.525	155.634	99.999	-0.418	0.189	-0.418	0.458	155.634	0.525
200.000	0.500	161.851	199.995	-1.250	0.514	-1.250	1.352	157.639	0.061
300.000	0.583	186.088	299.990	-2.171	0.596	-2.171	2.252	164.639	0.241
400.000	0.625	321.638	399.988	-2.249	0.204	-2.249	2.259	174.817	1.118
500.000	0.777	322.256	499.980	-1.286	-0.549	-1.286	1.398	203.140	0.152
600.000	1.013	304.420	599.968	-0.250	-1.694	-0.250	1.712	261.619	0.363
700.000	1.155	304.456	699.950	0.821	-3.255	0.821	3.357	284.151	0.142
800.000	1.297	300.605	799.927	1.967	-5.060	1.967	5.429	291.244	0.164
900.000	1.293	290.141	899.902	2.932	-7.093	2.932	7.675	292.456	0.236
1000.000	1.360	284.799	999.875	3.624	-9.300	3.624	9.981	291.287	0.141
1100.000	1.380	296.912	1099.847	4.472	-11.522	4.472	12.360	291.212	0.290
1200.000	1.795	267.883	1199.810	4.959	-14.161	4.959	15.004	289.301	0.891
1300.000	2.452	230.674	1299.745	3.546	-17.381	3.546	17.739	281.530	1.491
1400.000	3.491	216.373	1399.611	-0.262	-20.841	-0.262	20.843	269.281	1.269
1500.000	4.968	214.356	1499.336	-6.288	-25.091	-6.288	25.867	255.931	1.484
1600.000	6.728	205.602	1598.813	-15.145	-30.066	-15.145	33.665	243.263	1.968
1700.000	7.961	210.231	1697.992	-26.411	-36.084	-26.411	44.717	233.798	1.367
1800.000	9.209	215.360	1796.871	-38.921	-44.201	-38.921	58.895	228.635	1.463
1900.000	10.578	213.085	1895.382	-53.138	-53.843	-53.138	75.649	225.378	1.423
2000.000	12.269	208.086	1993.400	-70.205	-63.857	-70.205	94.902	222.289	1.958
2100.000	13.164	205.606	2090.946	-89.848	-73.781	-89.848	116.259	219.392	1.048
2200.000	15.252	204.019	2187.883	-112.133	-84.057	-112.133	140.141	216.856	2.124
2300.000	16.173	206.162	2284.146	-136.649	-95.552	-136.649	166.742	214.963	1.089
2400.000	18.279	206.646	2379.655	-163.169	-108.727	-163.169	196.075	213.677	2.111
2500.000	20.808	205.943	2473.886	-193.162	-123.533	-193.162	229.286	212.600	2.540
2600.000	20.833	205.245	2567.356	-225.218	-138.887	-225.218	264.599	211.661	0.249
2700.000	25.756	205.152	2659.176	-260.991	-155.716	-260.991	303.914	210.822	4.923
2800.000	27.528	203.804	2748.556	-301.804	-174.279	-301.804	348.509	210.005	1.872
2900.000	26.036	203.500	2837.827	-343.076	-192.358	-343.076	393.323	209.279	1.498
3000.000	25.702	203.430	2927.806	-383.099	-209.732	-383.099	436.752	208.699	0.335
3100.000	25.799	207.216	3017.882	-422.350	-228.308	-422.350	480.108	208.394	1.648
3200.000	24.134	206.272	3108.534	-460.036	-247.311	-460.036	522.299	208.262	1.712
3300.000	23.645	204.845	3199.968	-496.566	-264.786	-496.566	562.751	208.068	0.757
3400.000	24.945	201.305	3291.114	-534.413	-280.875	-534.413	603.729	207.725	1.952

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	23.467	202.494	3382.320	-572.458	-296.155	-572.458	644.528	207.354	1.556
3600.000	23.567	202.737	3474.014	-609.292	-311.499	-609.292	684.301	207.078	0.139
3700.000	23.875	202.971	3565.566	-646.362	-327.123	-646.362	724.426	206.844	0.322
3800.000	25.161	203.926	3656.548	-684.427	-343.643	-684.427	765.853	206.661	1.345
3900.000	27.851	204.578	3746.028	-725.109	-361.984	-725.109	810.441	206.529	2.706
4000.000	29.020	203.578	3833.962	-768.584	-381.403	-768.584	858.014	206.393	1.262
4100.000	29.459	204.129	3921.221	-813.256	-401.158	-813.256	906.815	206.256	0.515
4200.000	28.599	203.353	4008.658	-857.671	-420.698	-857.671	955.294	206.128	0.939
4300.000	24.836	203.570	4097.966	-898.908	-438.589	-898.908	1000.198	206.008	3.764
4400.000	23.442	203.971	4189.219	-936.334	-455.069	-936.334	1041.062	205.920	1.403
4500.000	24.039	204.951	4280.757	-972.977	-471.742	-972.977	1081.307	205.866	0.716
4600.000	24.043	205.460	4372.082	-1009.84	-489.092	-1009.84	1122.044	205.842	0.207
4700.000	24.961	205.018	4463.076	-1047.35	-506.773	-1047.35	1163.514	205.821	0.936
4800.000	25.185	204.661	4553.652	-1085.81	-524.574	-1085.81	1205.885	205.786	0.271
4900.000	23.568	205.881	4644.735	-1123.13	-542.180	-1123.13	1247.153	205.768	1.694
5000.000	20.626	206.651	4737.380	-1156.87	-558.811	-1156.87	1284.765	205.782	2.956
5100.000	18.597	206.394	4831.574	-1186.90	-573.801	-1186.90	1318.324	205.801	2.031
5200.000	16.705	206.468	4926.862	-1214.05	-587.297	-1214.05	1348.643	205.815	1.892
5300.000	15.462	205.824	5022.946	-1238.92	-599.510	-1238.92	1376.346	205.822	1.256
5400.000	12.197	206.229	5120.034	-1260.40	-609.988	-1260.40	1400.246	205.825	3.266
5500.000	9.825	207.462	5218.186	-1277.45	-618.593	-1277.45	1419.341	205.838	2.383
5600.000	7.020	206.055	5317.097	-1290.51	-625.213	-1290.51	1433.984	205.849	2.812
5700.000	4.968	206.170	5416.545	-1299.89	-629.808	-1299.89	1444.426	205.851	2.052
5800.000	3.361	202.418	5516.278	-1306.48	-632.836	-1306.48	1451.683	205.845	1.629
5900.000	2.674	195.984	5616.139	-1311.44	-634.596	-1311.44	1456.908	205.822	0.765
6000.000	1.929	189.825	5716.058	-1315.34	-635.526	-1315.34	1460.824	205.788	0.784
6100.000	1.048	187.563	5816.023	-1317.90	-635.933	-1317.90	1463.311	205.759	0.883
6200.000	0.831	182.330	5916.010	-1319.53	-636.083	-1319.53	1464.846	205.736	0.233
6300.000	0.503	183.664	6016.003	-1320.70	-636.141	-1320.70	1465.918	205.719	0.329
6400.000	0.396	200.804	6116.000	-1321.46	-636.291	-1321.46	1466.669	205.711	0.171
6500.000	0.263	168.633	6215.998	-1322.01	-636.369	-1322.01	1467.196	205.705	0.223
6600.000	0.275	97.661	6315.997	-1322.26	-636.086	-1322.26	1467.305	205.690	0.312
6700.000	0.290	83.555	6415.996	-1322.27	-635.597	-1322.27	1467.096	205.673	0.071
6800.000	0.318	60.011	6515.995	-1322.10	-635.105	-1322.10	1466.733	205.659	0.127
6900.000	0.371	47.570	6615.993	-1321.74	-634.626	-1321.74	1466.203	205.648	0.091
7000.000	0.415	35.156	6715.991	-1321.23	-634.178	-1321.23	1465.545	205.641	0.096
7100.000	0.319	49.337	6815.989	-1320.75	-633.759	-1320.75	1464.933	205.634	0.132
7200.000	0.276	51.803	6915.987	-1320.42	-633.358	-1320.42	1464.462	205.625	0.045
7300.000	0.252	69.111	7015.986	-1320.19	-632.963	-1320.19	1464.086	205.615	0.083
7400.000	0.230	77.429	7115.985	-1320.07	-632.561	-1320.07	1463.802	205.603	0.041
7500.000	0.293	84.539	7215.984	-1320.00	-632.111	-1320.00	1463.546	205.588	0.070
HORIZONTAL DISPLACEMENT IS 1463.546 FEET AT 205.588 DEGREES									