



Company/Rig: Noble Energy/ CoreTech

WELL/API#: Stewart 1/05-123-12092

DECLINATION:

TD AS DRILLED: 7213 Feet

COUNTY/STATE: Weld/Colorado

VS-Azi: 0.000 Degrees

Latitude: 40.35016, Longitude: -104.69418

Grid North = True North -0.52 degs (NAD 27)

Grid Convergence Applied = -0.52 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4672 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 7/16/2015 / 08:51

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt

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	0.498	162.044	99.999	-0.413	0.134	-0.413	0.434	162.044	0.498
200.000	0.690	157.436	199.993	-1.382	0.499	-1.382	1.470	160.158	0.198
300.000	0.879	190.227	299.984	-2.693	0.594	-2.693	2.757	167.566	0.478
400.000	0.754	211.764	399.974	-4.006	0.111	-4.006	4.008	178.407	0.329
500.000	0.863	232.396	499.965	-5.025	-0.832	-5.025	5.094	189.398	0.309
600.000	0.771	237.159	599.955	-5.850	-1.994	-5.850	6.180	198.819	0.115
700.000	0.785	232.427	699.945	-6.632	-3.102	-6.632	7.322	205.065	0.066
800.000	0.759	245.613	799.936	-7.324	-4.248	-7.324	8.467	210.116	0.179
900.000	0.716	257.452	899.928	-7.733	-5.461	-7.733	9.467	215.229	0.158
1000.000	0.769	263.050	999.920	-7.950	-6.737	-7.950	10.420	220.278	0.090
1100.000	0.726	270.473	1099.911	-8.026	-8.036	-8.026	11.357	225.037	0.106
1200.000	0.963	292.119	1199.901	-7.704	-9.448	-7.704	12.191	230.804	0.393
1300.000	0.611	298.077	1299.891	-7.137	-10.696	-7.137	12.859	236.289	0.360
1400.000	0.570	311.404	1399.886	-6.557	-11.540	-6.557	13.273	240.396	0.143
1500.000	0.900	327.876	1499.877	-5.563	-12.331	-5.563	13.528	245.718	0.388
1600.000	1.017	333.143	1599.863	-4.106	-13.149	-4.106	13.775	252.658	0.147
1700.000	1.039	341.049	1699.847	-2.456	-13.845	-2.456	14.061	259.939	0.144
1800.000	1.096	340.869	1799.830	-0.695	-14.453	-0.695	14.470	267.247	0.057

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
1900.000	1.311	336.342	1899.808	1.257	-15.225	1.257	15.277	274.718	0.235
2000.000	1.200	340.319	1999.784	3.290	-16.037	3.290	16.371	281.595	0.141
2100.000	1.401	353.021	2099.758	5.490	-16.538	5.490	17.426	288.364	0.350
2200.000	1.423	0.853	2199.728	7.945	-16.668	7.945	18.465	295.485	0.194
2300.000	1.365	1.035	2299.698	10.377	-16.628	10.377	19.601	301.967	0.058
2400.000	1.285	13.529	2399.672	12.659	-16.344	12.659	20.673	307.758	0.299
2500.000	1.201	23.051	2499.649	14.714	-15.672	14.714	21.496	313.194	0.223
2600.000	1.116	34.525	2599.628	16.481	-14.709	16.481	22.090	318.251	0.247
2700.000	1.124	38.118	2699.609	18.055	-13.552	18.055	22.575	323.109	0.071
2800.000	1.124	43.944	2799.590	19.533	-12.265	19.533	23.065	327.875	0.114
2900.000	1.072	43.035	2899.571	20.924	-10.946	20.924	23.614	332.384	0.055
3000.000	1.010	56.528	2999.555	22.094	-9.572	22.094	24.078	336.576	0.252
3100.000	0.836	75.661	3099.542	22.761	-8.129	22.761	24.169	340.346	0.352
3200.000	0.755	71.069	3199.533	23.155	-6.798	23.155	24.133	343.638	0.103
3300.000	0.839	91.790	3299.523	23.346	-5.443	23.346	23.973	346.876	0.298
3400.000	0.772	78.780	3399.513	23.455	-4.051	23.455	23.802	350.202	0.194
3500.000	0.963	91.175	3499.502	23.569	-2.550	23.569	23.706	353.825	0.266
3600.000	1.068	110.629	3599.487	23.223	-0.838	23.223	23.238	357.934	0.359
3700.000	0.932	93.317	3699.472	22.847	0.847	22.847	22.863	2.122	0.330
3800.000	0.890	97.363	3799.459	22.701	2.429	22.701	22.830	6.106	0.077
3900.000	0.978	112.575	3899.446	22.274	3.987	22.274	22.628	10.147	0.262
4000.000	0.893	127.801	3999.433	21.469	5.390	21.469	22.135	14.093	0.262
4100.000	0.590	150.161	4099.424	20.544	6.262	20.544	21.477	16.951	0.413
4200.000	0.585	167.184	4199.419	19.599	6.632	19.599	20.691	18.694	0.174
4300.000	0.391	185.855	4299.415	18.761	6.710	18.761	19.925	19.680	0.249
4400.000	0.705	227.707	4399.411	18.008	6.220	18.008	19.052	19.056	0.489
4500.000	0.552	212.713	4499.405	17.188	5.505	17.188	18.048	17.758	0.223
4600.000	0.544	198.999	4599.401	16.334	5.090	16.334	17.109	17.307	0.131
4700.000	0.451	197.686	4699.397	15.510	4.815	15.510	16.241	17.248	0.094
4800.000	0.473	175.809	4799.394	14.724	4.726	14.724	15.464	17.796	0.177
4900.000	0.286	173.751	4899.391	14.063	4.784	14.063	14.855	18.785	0.187
5000.000	0.345	163.071	4999.390	13.527	4.898	13.527	14.386	19.907	0.083
5100.000	0.208	106.250	5099.389	13.187	5.161	13.187	14.161	21.372	0.290
5200.000	0.061	327.051	5199.389	13.181	5.306	13.181	14.209	21.927	0.258
5300.000	0.256	110.227	5299.388	13.149	5.487	13.149	14.248	22.651	0.308
5400.000	0.269	31.528	5399.388	13.271	5.820	13.271	14.491	23.678	0.333
5500.000	0.201	246.752	5499.387	13.402	5.781	13.402	14.595	23.332	0.448
5600.000	0.223	121.597	5599.387	13.230	5.785	13.230	14.440	23.618	0.377
5700.000	0.531	78.630	5699.385	13.220	6.405	13.220	14.690	25.850	0.398
5800.000	0.375	89.474	5799.382	13.314	7.186	13.314	15.130	28.358	0.177

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
5900.000	1.055	59.401	5899.374	13.786	8.306	13.786	16.094	31.068	0.754
6000.000	0.653	23.680	5999.363	14.776	9.327	14.776	17.473	32.260	0.648
6100.000	0.916	28.571	6099.354	16.000	9.938	16.000	18.836	31.845	0.271
6200.000	1.087	26.816	6199.338	17.550	10.748	17.550	20.579	31.486	0.174
6300.000	1.126	16.633	6299.320	19.338	11.458	19.338	22.478	30.647	0.200
6400.000	0.603	353.329	6399.308	20.802	11.678	20.802	23.856	29.309	0.621
6500.000	0.452	319.022	6499.304	21.622	11.358	21.622	24.424	27.713	0.343
6600.000	0.475	317.400	6599.301	22.225	10.819	22.225	24.719	25.956	0.026
6700.000	0.954	292.908	6699.293	22.854	9.772	22.854	24.856	23.149	0.558
6800.000	1.237	297.257	6799.275	23.673	8.045	23.673	25.003	18.771	0.295
6900.000	1.447	333.959	6899.249	25.302	6.531	25.302	26.131	14.474	0.868
7000.000	1.231	350.806	6999.222	27.497	5.805	27.497	28.103	11.922	0.447