



Company/Rig: Noble Energy/ CoreTech
WELL/API#: Victor G 14-3/05-123-14746
DECLINATION: 8.32 Degrees
TD AS DRILLED: 7660 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.31797, Longitude: -104.63265
Grid North = True North -0.56 degs (NAD 27)
Grid Convergence Applied = -0.56 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4689 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run02-01-de_01_mrg.ut

Minimum Curvature Method

Report Date/Time: 9/11/2015 / 13:41

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	0.096	63.753	100.000	0.037	0.075	0.037	0.084	63.753	0.096
200.000	0.242	24.840	200.000	0.266	0.240	0.266	0.358	42.001	0.178
300.000	0.246	291.817	299.999	0.537	0.129	0.537	0.553	13.533	0.354
400.000	0.510	307.137	399.997	0.886	-0.425	0.886	0.982	334.389	0.281
500.000	0.563	342.873	499.993	1.624	-0.924	1.624	1.869	330.356	0.333
600.000	0.437	359.117	599.989	2.475	-1.075	2.475	2.699	336.524	0.189
700.000	0.329	300.491	699.987	3.002	-1.328	3.002	3.283	336.132	0.387
800.000	0.308	336.011	799.985	3.394	-1.685	3.394	3.789	333.591	0.195
900.000	0.394	353.314	899.984	3.981	-1.835	3.981	4.383	335.257	0.136
1000.000	0.451	309.922	999.981	4.575	-2.177	4.575	5.067	334.557	0.317
1100.000	0.622	335.719	1099.977	5.323	-2.702	5.323	5.970	333.086	0.292
1200.000	0.500	340.585	1199.972	6.229	-3.070	6.229	6.945	333.762	0.131
1300.000	0.465	323.359	1299.969	6.966	-3.457	6.966	7.777	333.604	0.149
1400.000	0.410	326.773	1399.966	7.591	-3.896	7.591	8.532	332.833	0.060
1500.000	0.404	325.300	1499.963	8.180	-4.293	8.180	9.238	332.312	0.012
1600.000	0.483	325.704	1599.960	8.818	-4.731	8.818	10.007	331.788	0.079
1700.000	0.467	312.386	1699.957	9.441	-5.269	9.441	10.812	330.834	0.111
1800.000	0.121	335.983	1799.955	9.812	-5.613	9.812	11.304	330.229	0.359

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	0.365	60.281	1899.954	10.066	-5.379	10.066	11.414	331.880	0.373
2000.000	0.652	106.008	1999.951	10.067	-4.556	10.067	11.050	335.652	0.476
2100.000	0.493	97.858	2099.946	9.851	-3.582	9.851	10.483	340.017	0.179
2200.000	0.848	112.221	2199.939	9.513	-2.471	9.513	9.829	345.437	0.390
2300.000	0.940	107.623	2299.927	8.985	-1.004	8.985	9.041	353.622	0.117
2400.000	0.895	92.281	2399.914	8.705	0.558	8.705	8.723	3.669	0.249
2500.000	1.350	94.946	2499.895	8.572	2.512	8.572	8.933	16.332	0.457
2600.000	0.873	99.571	2599.875	8.344	4.436	8.344	9.450	27.998	0.484
2700.000	0.907	112.672	2699.863	7.912	5.918	7.912	9.881	36.794	0.206
2800.000	0.979	94.958	2799.850	7.533	7.500	7.533	10.630	44.871	0.299
2900.000	0.534	133.108	2899.842	7.141	8.691	7.141	11.248	50.591	0.649
3000.000	0.460	102.609	2999.838	6.735	9.423	6.735	11.582	54.445	0.271
3100.000	0.715	115.121	3099.833	6.383	10.379	6.383	12.184	58.410	0.284
3200.000	0.821	143.343	3199.824	5.543	11.371	5.543	12.650	64.012	0.388
3300.000	0.835	139.829	3299.814	4.412	12.269	4.412	13.038	70.223	0.053
3400.000	0.983	155.358	3399.801	3.075	13.097	3.075	13.453	76.785	0.286
3500.000	1.087	182.347	3499.786	1.348	13.415	1.348	13.483	84.260	0.493
3600.000	1.642	186.098	3599.757	-1.023	13.224	-1.023	13.264	94.425	0.562
3700.000	1.978	197.641	3699.707	-4.092	12.549	-4.092	13.200	108.061	0.494
3800.000	2.003	202.334	3799.647	-7.353	11.362	-7.353	13.534	122.909	0.165
3900.000	1.818	188.055	3899.592	-10.540	10.476	-10.540	14.860	135.174	0.509
4000.000	0.882	180.831	3999.563	-12.880	10.243	-12.880	16.456	141.507	0.949
4100.000	0.715	121.966	4099.555	-13.979	10.761	-13.979	17.641	142.412	0.798
4200.000	1.298	73.388	4199.541	-13.986	12.375	-13.986	18.675	138.497	0.983
4300.000	1.198	46.575	4299.518	-12.944	14.220	-12.944	19.229	132.311	0.587
4400.000	1.572	43.485	4399.488	-11.230	15.923	-11.230	19.484	125.194	0.381
4500.000	1.694	28.135	4499.448	-8.931	17.564	-8.931	19.704	116.953	0.453
4600.000	1.463	49.118	4599.411	-6.792	19.226	-6.792	20.390	109.456	0.618
4700.000	1.705	71.126	4699.374	-5.475	21.599	-5.475	22.282	104.224	0.650
4800.000	1.793	53.487	4799.328	-4.063	24.264	-4.063	24.602	99.506	0.543
4900.000	1.707	79.648	4899.283	-2.864	26.987	-2.864	27.138	96.058	0.797
5000.000	1.603	80.235	4999.241	-2.359	29.831	-2.359	29.924	94.522	0.105
5100.000	1.168	105.493	5099.212	-2.394	32.192	-2.394	32.281	94.254	0.740
5200.000	1.488	76.622	5199.187	-2.366	34.437	-2.366	34.518	93.931	0.731
5300.000	0.959	101.319	5299.164	-2.230	36.521	-2.230	36.589	93.495	0.735
5400.000	1.277	109.157	5399.145	-2.760	38.395	-2.760	38.494	94.112	0.352
5500.000	1.655	117.382	5499.112	-3.790	40.730	-3.790	40.906	95.316	0.432
5600.000	0.981	110.540	5599.085	-4.755	42.813	-4.755	43.076	96.337	0.691
5700.000	1.758	131.554	5699.056	-6.072	44.762	-6.072	45.172	97.725	0.913
5800.000	1.363	148.045	5799.020	-8.099	46.540	-8.099	47.239	99.872	0.594

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	1.444	152.926	5898.990	-10.230	47.743	-10.230	48.826	102.094	0.144
6000.000	1.429	182.495	5998.960	-12.597	48.262	-12.597	49.879	104.629	0.733
6100.000	0.742	170.073	6098.941	-14.481	48.319	-14.481	50.442	106.683	0.723
6200.000	1.405	191.157	6198.923	-16.322	48.193	-16.322	50.882	108.710	0.762
6300.000	0.976	192.072	6298.902	-18.357	47.778	-18.357	51.183	111.018	0.430
6400.000	1.877	178.094	6398.870	-20.827	47.654	-20.827	52.006	113.607	0.960
6500.000	2.310	153.888	6498.805	-24.273	48.596	-24.273	54.321	116.542	0.974
6600.000	2.521	135.929	6598.717	-27.663	51.012	-27.663	58.030	118.470	0.782
6700.000	2.808	118.498	6698.611	-30.412	54.695	-30.412	62.581	119.075	0.855
6800.000	3.558	111.478	6798.456	-32.717	59.734	-32.717	68.107	118.710	0.844
6900.000	4.473	108.864	6898.210	-35.114	66.312	-35.114	75.035	117.902	0.934
7000.000	5.298	96.153	6997.848	-36.869	74.593	-36.869	83.207	116.302	1.356
7100.000	6.591	94.357	7097.309	-37.800	84.906	-37.800	92.941	113.999	1.307
7200.000	2.852	122.526	7196.963	-39.575	92.730	-39.575	100.822	113.111	4.293
7300.000	1.519	145.501	7296.890	-42.005	95.579	-42.005	104.402	113.724	1.570
7400.000	0.611	169.600	7396.872	-43.621	96.426	-43.621	105.834	114.341	0.993
7500.000	0.983	193.913	7496.862	-44.978	96.316	-44.978	106.300	115.032	0.495
7550.000	0.852	209.276	7546.856	-45.719	96.031	-45.719	106.358	115.458	0.555