



Company/Rig: Noble Energy/ CoreTech  
 WELL/API#: Kohler 6-21/05-123-12291  
 DECLINATION: 8.29 Degrees  
 TD AS DRILLED: 6989 Feet  
 COUNTY/STATE: Weld/Colorado  
 VS-Azi: 0.000 Degrees  
 Latitude: 40.38657, Longitude: -104.55711  
 Grid North = True North -0.61 degs (NAD 27)  
 Grid Convergence Applied = -0.61 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4610 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 8/24/2015 / 09:24

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	0.870	162.078	99.996	-0.722	0.234	-0.722	0.759	162.078	0.870
200.000	0.437	151.886	199.989	-1.781	0.647	-1.781	1.895	160.036	0.446
300.000	0.725	193.925	299.985	-2.731	0.674	-2.731	2.813	166.127	0.496
400.000	0.233	220.635	399.981	-3.499	0.390	-3.499	3.520	173.637	0.527
500.000	0.504	220.724	499.979	-3.986	-0.029	-3.986	3.986	180.417	0.272
600.000	0.562	210.119	599.974	-4.743	-0.562	-4.743	4.777	186.757	0.114
700.000	0.156	143.479	699.973	-5.277	-0.727	-5.277	5.327	187.840	0.520
800.000	0.430	155.212	799.971	-5.728	-0.488	-5.728	5.748	184.870	0.279
900.000	0.495	166.246	899.968	-6.488	-0.228	-6.488	6.492	182.012	0.110
1000.000	0.468	161.921	999.964	-7.296	0.001	-7.296	7.296	179.988	0.045
1100.000	0.361	197.611	1099.962	-7.984	0.033	-7.984	7.984	179.764	0.274
1200.000	0.326	166.879	1199.960	-8.561	0.002	-8.561	8.561	179.985	0.185
1300.000	0.127	146.946	1299.959	-8.931	0.128	-8.931	8.932	179.182	0.211
1400.000	0.264	207.926	1399.959	-9.228	0.080	-9.228	9.229	179.502	0.231
1500.000	0.261	202.878	1499.958	-9.642	-0.116	-9.642	9.643	180.692	0.023
1600.000	0.074	217.165	1599.957	-9.904	-0.244	-9.904	9.907	181.411	0.191
1700.000	0.714	288.966	1699.955	-9.752	-0.872	-9.752	9.791	185.112	0.695
1800.000	0.839	290.092	1799.945	-9.298	-2.149	-9.298	9.543	193.015	0.125
1900.000	1.001	307.685	1899.933	-8.513	-3.528	-8.513	9.215	202.510	0.324

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
2000.000	1.168	318.750	1999.915	-7.212	-4.891	-7.212	8.715	214.145	0.267
2100.000	1.017	338.690	2099.897	-5.619	-5.886	-5.619	8.138	226.328	0.407
2200.000	0.951	354.319	2199.882	-3.967	-6.291	-3.967	7.437	237.766	0.275
2300.000	0.948	9.538	2299.869	-2.325	-6.236	-2.325	6.655	249.554	0.252
2400.000	1.208	356.082	2399.851	-0.457	-6.171	-0.457	6.188	265.766	0.362
2500.000	1.115	354.971	2499.831	1.564	-6.328	1.564	6.518	283.884	0.096
2600.000	0.862	339.076	2599.816	3.236	-6.682	3.236	7.424	295.838	0.371
2700.000	1.303	322.570	2699.798	4.841	-7.642	4.841	9.046	302.356	0.536
2800.000	1.177	308.795	2799.775	6.388	-9.133	6.388	11.145	304.969	0.323
2900.000	1.191	320.916	2899.754	7.838	-10.589	7.838	13.174	306.509	0.250
3000.000	0.965	342.236	2999.736	9.446	-11.501	9.446	14.883	309.398	0.457
3100.000	1.141	351.670	3099.719	11.233	-11.902	11.233	16.366	313.344	0.247
3200.000	1.503	16.026	3199.693	13.479	-11.684	13.479	17.838	319.079	0.660
3300.000	1.624	24.578	3299.656	16.028	-10.733	16.028	19.290	326.193	0.263
3400.000	1.550	37.379	3399.618	18.392	-9.322	18.392	20.619	333.121	0.361
3500.000	1.642	40.116	3499.579	20.562	-7.578	20.562	21.914	339.770	0.120
3600.000	1.793	35.414	3599.535	22.933	-5.748	22.933	23.642	345.929	0.206
3700.000	1.647	33.728	3699.489	25.403	-4.044	25.403	25.722	350.955	0.155
3800.000	1.183	35.585	3799.459	27.437	-2.646	27.437	27.564	354.492	0.466
3900.000	0.430	17.182	3899.448	28.635	-1.934	28.635	28.700	356.136	0.787
4000.000	0.191	318.213	3999.447	29.117	-1.935	29.117	29.182	356.199	0.370
4100.000	0.264	226.881	4099.446	29.084	-2.214	29.084	29.169	355.647	0.329
4200.000	0.326	225.964	4199.445	28.729	-2.586	28.729	28.846	354.856	0.062
4300.000	0.745	251.836	4299.441	28.329	-3.409	28.329	28.533	353.138	0.474
4400.000	0.560	228.658	4399.434	27.803	-4.394	27.803	28.148	351.020	0.319
4500.000	0.926	250.939	4499.426	27.217	-5.524	27.217	27.772	348.527	0.459
4600.000	0.704	234.407	4599.416	26.596	-6.787	26.596	27.448	345.684	0.321
4700.000	0.478	124.058	4699.413	26.004	-6.940	26.004	26.915	345.057	0.979
4800.000	0.693	77.548	4799.408	25.901	-6.004	25.901	26.588	346.950	0.503
4900.000	0.238	108.883	4899.405	25.964	-5.217	25.964	26.483	348.640	0.506
5000.000	0.526	75.073	4999.402	26.016	-4.577	26.016	26.415	350.022	0.354
5100.000	1.036	91.479	5099.393	26.110	-3.229	26.110	26.309	352.950	0.552
5200.000	0.852	83.047	5199.379	26.177	-1.587	26.177	26.225	356.530	0.230
5300.000	0.793	135.316	5299.370	25.775	-0.363	25.775	25.778	359.194	0.726
5400.000	1.678	151.950	5399.346	23.992	0.812	23.992	24.005	1.939	0.946
5500.000	1.786	165.331	5499.301	21.192	1.895	21.192	21.276	5.110	0.418
5600.000	1.527	164.940	5599.259	18.397	2.636	18.397	18.585	8.154	0.260
5700.000	1.504	162.448	5699.224	15.860	3.378	15.860	16.216	12.023	0.070
5800.000	1.372	170.952	5799.193	13.427	3.962	13.427	13.999	16.440	0.250
5900.000	1.432	148.571	5899.164	11.178	4.802	11.178	12.166	23.246	0.547

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
6000.000	1.361	162.401	5999.134	8.980	5.812	8.980	10.697	32.912	0.344
6100.000	1.465	173.008	6099.104	6.580	6.327	6.580	9.128	43.878	0.281
6200.000	1.416	166.107	6199.072	4.112	6.779	4.112	7.928	58.761	0.180
6300.000	1.695	180.313	6299.036	1.434	7.067	1.434	7.211	78.531	0.474
6400.000	2.068	173.745	6398.982	-1.838	7.256	-1.838	7.485	104.214	0.430
6500.000	2.974	175.183	6498.884	-6.216	7.670	-6.216	9.873	129.023	0.908
6600.000	3.796	173.751	6598.709	-12.092	8.249	-12.092	14.637	145.700	0.827
6700.000	4.670	172.480	6698.435	-19.419	9.142	-19.419	21.463	154.790	0.879
6800.000	5.418	166.301	6798.048	-28.041	10.793	-28.041	30.047	158.949	0.923