



Company/Rig: Noble Energy/ CoreTech  
WELL/API#: Dinner 6-2/05-123-12524  
DECLINATION: 8.22 Degrees  
TD AS DRILLED: 7215 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.33942, Longitude: -104.59520  
Grid North = True North -0.58 degs (NAD 27)  
Grid Correction Applied = -0.58 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4820 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

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

Minimum Curvature Method

Report Date/Time: 6/1/2016 / 16:27

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt / Dinner 6-2

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	0.496	49.512	99.999	0.281	0.329	0.281	0.433	49.512	0.496
200.000	0.490	27.771	199.995	0.940	0.857	0.940	1.272	42.365	0.186
300.000	0.821	13.069	299.989	2.015	1.218	2.015	2.355	31.149	0.369
400.000	0.767	31.370	399.979	3.284	1.728	3.284	3.712	27.756	0.258
500.000	0.830	13.288	499.970	4.561	2.243	4.561	5.083	26.191	0.259
600.000	0.716	25.184	599.960	5.831	2.676	5.831	6.416	24.648	0.196
700.000	0.445	40.567	699.955	6.692	3.194	6.692	7.415	25.516	0.310
800.000	0.490	23.215	799.952	7.380	3.615	7.380	8.218	26.100	0.148
900.000	0.301	55.104	899.950	7.924	4.000	7.924	8.876	26.783	0.284
1000.000	0.245	13.635	999.949	8.282	4.266	8.282	9.316	27.251	0.200
1100.000	0.437	10.425	1099.947	8.865	4.385	8.865	9.890	26.319	0.193
1200.000	0.495	25.465	1199.944	9.630	4.640	9.630	10.690	25.725	0.135
1300.000	0.481	5.798	1299.940	10.438	4.868	10.438	11.517	25.004	0.167
1400.000	1.010	20.707	1399.931	11.680	5.222	11.680	12.794	24.090	0.559
1500.000	1.169	25.335	1499.913	13.426	5.970	13.426	14.693	23.973	0.181
1600.000	1.254	26.776	1599.891	15.325	6.899	15.325	16.806	24.238	0.091
1700.000	1.209	24.561	1699.868	17.261	7.831	17.261	18.954	24.403	0.066
1800.000	0.902	23.107	1799.851	18.944	8.578	18.944	20.796	24.362	0.308

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	0.659	18.075	1899.841	20.214	9.065	20.214	22.154	24.154	0.252
2000.000	0.693	5.366	1999.834	21.363	9.300	21.363	23.299	23.526	0.153
2100.000	0.837	17.792	2099.826	22.661	9.580	22.661	24.603	22.917	0.219
2200.000	0.928	14.695	2199.814	24.140	10.009	24.140	26.133	22.520	0.102
2300.000	0.878	8.499	2299.801	25.681	10.327	25.681	27.680	21.907	0.110
2400.000	0.884	2.870	2399.789	27.209	10.479	27.209	29.157	21.064	0.087
2500.000	0.965	10.055	2499.776	28.808	10.665	28.808	30.719	20.315	0.141
2600.000	0.899	7.371	2599.763	30.416	10.913	30.416	32.314	19.737	0.079
2700.000	1.014	28.513	2699.750	31.971	11.436	31.971	33.955	19.681	0.369
2800.000	0.818	51.891	2799.737	33.190	12.420	33.190	35.438	20.517	0.418
2900.000	0.540	19.383	2899.730	34.075	13.138	34.075	36.521	21.085	0.465
3000.000	0.795	34.781	2999.724	35.090	13.691	35.090	37.666	21.314	0.309
3100.000	0.760	22.821	3099.714	36.271	14.344	36.271	39.005	21.577	0.166
3200.000	0.732	25.915	3199.706	37.457	14.880	37.457	40.305	21.666	0.049
3300.000	0.528	47.125	3299.700	38.345	15.497	38.345	41.359	22.006	0.307
3400.000	0.626	46.239	3399.695	39.037	16.229	39.037	42.276	22.575	0.098
3500.000	0.405	65.312	3499.691	39.562	16.945	39.562	43.038	23.186	0.276
3600.000	0.643	48.933	3599.687	40.078	17.690	40.078	43.809	23.815	0.279
3700.000	0.474	73.519	3699.682	40.565	18.509	40.565	44.588	24.527	0.290
3800.000	0.496	52.805	3799.678	40.944	19.251	40.944	45.243	25.182	0.176
3900.000	0.448	70.763	3899.675	41.334	19.965	41.334	45.903	25.781	0.155
4000.000	0.458	77.863	3999.672	41.547	20.726	41.547	46.430	26.512	0.057
4100.000	0.503	43.325	4099.669	41.951	21.418	41.951	47.102	27.047	0.289
4200.000	0.634	95.432	4199.664	42.218	22.270	42.218	47.732	27.812	0.513
4300.000	0.631	79.180	4299.658	42.269	23.362	42.269	48.296	28.930	0.179
4400.000	0.563	51.032	4399.653	42.681	24.285	42.681	49.107	29.639	0.298
4500.000	0.682	68.414	4499.647	43.209	25.220	43.209	50.031	30.271	0.222
4600.000	0.631	28.742	4599.641	43.911	26.038	43.911	51.051	30.667	0.448
4700.000	0.650	19.581	4699.635	44.928	26.493	44.928	52.158	30.527	0.104
4800.000	0.898	12.950	4799.626	46.226	26.859	46.226	53.463	30.158	0.263
4900.000	1.267	14.915	4899.608	48.058	27.319	48.058	55.280	29.617	0.371
5000.000	1.210	11.047	4999.584	50.163	27.806	50.163	57.354	29.000	0.101
5100.000	1.290	18.203	5099.561	52.269	28.360	52.269	59.467	28.483	0.175
5200.000	0.914	32.117	5199.542	54.014	29.136	54.014	61.372	28.343	0.459
5300.000	0.868	33.481	5299.530	55.321	29.978	55.321	62.922	28.453	0.051
5400.000	0.839	42.411	5399.519	56.493	30.889	56.493	64.387	28.669	0.136
5500.000	1.131	56.264	5499.504	57.582	32.203	57.582	65.975	29.217	0.375
5600.000	0.792	95.480	5599.491	58.064	33.712	58.064	67.141	30.139	0.720
5700.000	0.644	120.875	5699.484	57.709	34.882	57.709	67.433	31.151	0.347
5800.000	0.730	118.273	5799.476	57.119	35.926	57.119	67.478	32.169	0.091

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	0.738	139.644	5899.468	56.326	36.905	56.326	67.339	33.232	0.272
6000.000	1.068	155.159	5999.456	54.990	37.713	54.990	66.679	34.443	0.408
6100.000	1.425	149.711	6099.432	53.071	38.732	53.071	65.701	36.122	0.375
6200.000	1.620	145.180	6199.397	50.837	40.166	50.837	64.789	38.312	0.229
6300.000	1.756	142.865	6299.353	48.455	41.898	48.455	64.057	40.849	0.152
6400.000	2.037	149.630	6399.299	45.700	43.721	45.700	63.246	43.732	0.359
6500.000	1.874	159.451	6499.241	42.636	45.194	42.636	62.131	46.668	0.372
6600.000	1.717	168.714	6599.192	39.635	46.061	39.635	60.766	49.288	0.329
6700.000	2.011	191.408	6699.140	36.446	46.007	36.446	58.694	51.614	0.788
6800.000	2.125	203.139	6799.075	33.022	44.931	33.022	55.761	53.687	0.438
6900.000	2.451	211.021	6898.996	29.484	43.101	29.484	52.221	55.625	0.452
7000.000	2.554	209.661	6998.900	25.716	40.897	25.716	48.310	57.838	0.119