



COMPANY/RIG: Noble Energy/Production/CoreTech  
WELL/API: Wilmoth C 4-24/05-123-26217  
DECLINATION: 8.18 Degrees  
TD AS DRILLED: 7034 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.33772, Longitude: -104.55485  
Grid North = True North -0.61 degs (NAD 27)  
Grid Correction Applied = -0.61 degs



DEPTH REFERENCE : RKB = GL Elevation = 4714

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 7/28/2016 / 09:24

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Wilmoth C 4-24

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	0.182	152.814	100.000	-0.142	0.073	-0.142	0.159	152.814	0.182
200.000	0.157	175.111	199.999	-0.420	0.157	-0.420	0.449	159.488	0.070
300.000	0.175	252.801	299.999	-0.602	0.023	-0.602	0.602	177.787	0.209
400.000	0.198	314.199	399.999	-0.527	-0.246	-0.527	0.581	205.036	0.191
500.000	0.328	305.487	499.998	-0.240	-0.603	-0.240	0.649	248.279	0.136
600.000	0.346	281.840	599.996	-0.012	-1.132	-0.012	1.132	269.398	0.139
700.000	0.332	265.431	699.994	0.027	-1.716	0.027	1.717	270.904	0.098
800.000	0.431	273.585	799.992	0.028	-2.380	0.028	2.380	270.663	0.113
900.000	0.400	267.317	899.989	0.035	-3.104	0.035	3.104	270.640	0.055
1000.000	0.526	253.690	999.986	-0.111	-3.893	-0.111	3.895	268.373	0.167
1100.000	0.638	264.182	1099.981	-0.296	-4.888	-0.296	4.897	266.535	0.154
1200.000	0.829	240.722	1199.973	-0.706	-6.072	-0.706	6.113	263.368	0.352
1300.000	0.672	225.858	1299.964	-1.468	-7.124	-1.468	7.274	258.355	0.248
1400.000	0.818	244.311	1399.956	-2.186	-8.188	-2.186	8.475	255.052	0.279
1500.000	0.846	243.453	1499.946	-2.825	-9.491	-2.825	9.903	253.423	0.031
1600.000	0.677	245.742	1599.937	-3.398	-10.691	-3.398	11.218	252.367	0.172

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
1700.000	0.545	274.714	1699.931	-3.602	-11.704	-3.602	12.245	252.894	0.331
1800.000	0.393	304.667	1799.928	-3.368	-12.460	-3.368	12.907	254.875	0.284
1900.000	0.243	260.260	1899.927	-3.209	-12.951	-3.209	13.342	256.084	0.277
2000.000	0.476	295.276	1999.925	-3.067	-13.536	-3.067	13.879	257.232	0.310
2100.000	0.851	276.976	2099.918	-2.800	-14.648	-2.800	14.913	259.180	0.426
2200.000	0.831	267.991	2199.907	-2.735	-16.110	-2.735	16.340	260.365	0.133
2300.000	0.931	265.638	2299.895	-2.822	-17.644	-2.822	17.868	260.913	0.107
2400.000	0.883	255.921	2399.883	-3.071	-19.202	-3.071	19.446	260.913	0.161
2500.000	0.953	246.236	2499.870	-3.594	-20.710	-3.594	21.019	260.156	0.170
2600.000	0.852	244.392	2599.858	-4.250	-22.141	-4.250	22.546	259.134	0.104
2700.000	0.862	255.844	2699.846	-4.756	-23.541	-4.756	24.017	258.579	0.171
2800.000	0.863	258.300	2799.835	-5.092	-25.008	-5.092	25.521	258.490	0.037
2900.000	0.775	250.634	2899.825	-5.469	-26.383	-5.469	26.943	258.289	0.140
3000.000	0.689	263.214	2999.817	-5.764	-27.618	-5.764	28.213	258.211	0.181
3100.000	0.523	253.330	3099.811	-5.966	-28.652	-5.966	29.267	258.237	0.196
3200.000	0.435	245.526	3199.808	-6.254	-29.435	-6.254	30.092	258.004	0.109
3300.000	1.302	242.000	3299.795	-6.945	-30.783	-6.945	31.557	257.287	0.868
3400.000	1.657	220.902	3399.763	-8.570	-32.732	-8.570	33.836	255.327	0.644
3500.000	0.367	184.207	3499.746	-9.982	-33.702	-9.982	35.149	253.502	1.380
3600.000	1.586	44.624	3599.734	-9.316	-32.754	-9.316	34.053	254.122	1.880
3700.000	2.488	36.479	3699.670	-6.586	-30.491	-6.586	31.194	257.811	0.945
3800.000	2.417	31.469	3799.579	-3.043	-28.100	-3.043	28.264	263.820	0.226
3900.000	1.886	15.329	3899.509	0.343	-26.564	0.343	26.567	270.739	0.800
4000.000	2.066	10.537	3999.449	3.702	-25.800	3.702	26.064	278.166	0.244
4100.000	2.017	13.122	4099.386	7.188	-25.070	7.188	26.081	285.999	0.104
4200.000	2.164	355.589	4199.320	10.785	-24.816	10.785	27.058	293.489	0.653
4300.000	2.535	356.404	4299.236	14.874	-25.100	14.874	29.176	300.651	0.372
4400.000	3.212	0.518	4399.110	19.883	-25.213	19.883	32.110	308.258	0.707
4500.000	3.760	4.327	4498.925	25.953	-24.941	25.953	35.994	316.140	0.594
4600.000	3.900	6.572	4598.701	32.601	-24.304	32.601	40.663	323.295	0.205
4700.000	3.905	3.130	4698.470	39.380	-23.729	39.380	45.976	328.928	0.234
4800.000	3.402	359.124	4798.266	45.746	-23.588	45.746	51.470	332.723	0.564
4900.000	3.392	349.366	4898.091	51.620	-24.180	51.620	57.003	334.901	0.578
5000.000	2.763	343.149	4997.947	56.834	-25.424	56.834	62.262	335.899	0.712
5100.000	1.830	343.184	5097.866	60.669	-26.584	60.669	66.238	336.338	0.933
5200.000	0.958	342.044	5197.835	62.992	-27.304	62.992	68.655	336.566	0.872
5300.000	1.506	333.541	5297.812	64.964	-28.147	64.964	70.800	336.574	0.576
5400.000	1.516	336.445	5397.777	67.354	-29.262	67.354	73.435	336.518	0.077
5500.000	1.724	338.137	5497.737	69.963	-30.351	69.963	76.262	336.548	0.213

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
5600.000	1.469	322.539	5597.698	72.377	-31.691	72.377	79.011	336.353	0.502
5700.000	1.332	338.590	5697.669	74.477	-32.895	74.477	81.418	336.170	0.414
5800.000	1.112	340.146	5797.646	76.472	-33.649	76.472	83.547	336.250	0.222
5900.000	1.132	332.328	5897.627	78.259	-34.437	78.259	85.501	336.249	0.154
6000.000	0.813	332.843	5997.612	79.764	-35.219	79.764	87.194	336.177	0.319
6100.000	0.742	20.603	6097.604	81.001	-35.315	81.001	88.365	336.444	0.633
6200.000	0.626	56.286	6197.598	81.910	-34.633	81.910	88.931	337.081	0.433
6300.000	1.207	73.225	6297.585	82.518	-33.170	82.518	88.935	338.101	0.635
6400.000	1.354	73.042	6397.560	83.166	-31.032	83.166	88.767	339.538	0.147
6500.000	1.348	65.747	6497.532	83.994	-28.830	83.994	88.804	341.056	0.172
6600.000	1.205	55.030	6597.507	85.080	-26.896	85.080	89.230	342.457	0.277
6700.000	0.937	54.419	6697.490	86.158	-25.368	86.158	89.816	343.593	0.268
6800.000	1.285	40.900	6797.471	87.482	-23.969	87.482	90.706	344.678	0.433