



COMPANY/RIG: Noble Energy/Production/CoreTech  
WELL/API: Connell C 4-18/05-123-24873  
DECLINATION: 8.19 Degrees  
TD AS DRILLED: 7036 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.34479, Longitude: -104.55574  
Grid North = True North -0.61 degs (NAD 27)  
Grid Correction Applied = -0.61 degs



DEPTH REFERENCE : RKB = GL Elevation = 4694

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 6/21/2016 / 08:34

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Connell C 4-18

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	0.369	332.834	99.999	0.287	-0.147	0.287	0.322	332.834	0.369
200.000	0.409	318.354	199.997	0.840	-0.532	0.840	0.995	327.684	0.106
300.000	0.086	320.648	299.996	1.165	-0.816	1.165	1.423	324.983	0.324
400.000	0.226	298.523	399.996	1.317	-1.037	1.317	1.676	321.784	0.150
500.000	0.790	212.753	499.992	0.832	-1.583	0.832	1.788	297.708	0.805
600.000	0.905	200.614	599.981	-0.488	-2.234	-0.488	2.287	257.691	0.213
700.000	1.028	181.696	699.967	-2.124	-2.539	-2.124	3.310	230.087	0.340
800.000	1.119	178.433	799.950	-3.997	-2.539	-3.997	4.735	212.424	0.109
900.000	1.104	179.883	899.931	-5.936	-2.510	-5.936	6.445	202.922	0.032
1000.000	1.057	180.479	999.913	-7.821	-2.516	-7.821	8.216	197.832	0.048
1100.000	1.013	186.701	1099.897	-9.621	-2.627	-9.621	9.973	195.272	0.121
1200.000	1.073	182.787	1199.880	-11.433	-2.776	-11.433	11.765	193.645	0.093
1300.000	0.980	193.442	1299.864	-13.200	-3.020	-13.200	13.541	192.886	0.212
1400.000	0.750	185.319	1399.853	-14.683	-3.279	-14.683	15.045	192.589	0.259
1500.000	0.509	205.917	1499.847	-15.734	-3.534	-15.734	16.126	192.658	0.328
1600.000	0.685	223.589	1599.841	-16.566	-4.140	-16.566	17.076	194.031	0.253
1700.000	0.685	232.775	1699.834	-17.361	-5.028	-17.361	18.074	196.151	0.110
1800.000	0.974	209.142	1799.824	-18.465	-5.918	-18.465	19.390	197.770	0.443

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	1.286	210.255	1899.804	-20.177	-6.897	-20.177	21.323	198.872	0.312
2000.000	1.457	212.041	1999.776	-22.224	-8.137	-22.224	23.667	200.109	0.176
2100.000	1.475	218.437	2099.743	-24.310	-9.612	-24.310	26.141	201.573	0.165
2200.000	0.974	230.879	2199.720	-25.854	-11.071	-25.854	28.125	203.181	0.564
2300.000	0.937	277.840	2299.708	-26.279	-12.540	-26.279	29.118	205.511	0.762
2400.000	1.164	316.937	2399.692	-25.425	-14.044	-25.425	29.046	208.915	0.735
2500.000	1.274	322.109	2499.669	-23.805	-15.421	-23.805	28.364	212.934	0.155
2600.000	1.387	320.839	2599.642	-21.990	-16.867	-21.990	27.714	217.490	0.116
2700.000	1.778	324.030	2699.604	-19.796	-18.543	-19.796	27.124	223.127	0.401
2800.000	1.728	328.718	2799.557	-17.252	-20.237	-17.252	26.593	229.551	0.152
2900.000	1.285	351.203	2899.523	-14.856	-21.191	-14.856	25.880	234.968	0.731
3000.000	0.790	21.600	2999.508	-13.107	-21.109	-13.107	24.847	238.162	0.724
3100.000	0.477	75.782	3099.502	-12.365	-20.452	-12.365	23.899	238.844	0.640
3200.000	0.334	140.897	3199.500	-12.489	-19.864	-12.489	23.464	237.842	0.453
3300.000	0.694	204.623	3299.496	-13.266	-19.933	-13.266	23.943	236.355	0.623
3400.000	0.830	240.542	3399.488	-14.173	-20.816	-14.173	25.182	235.751	0.487
3500.000	0.372	261.574	3499.482	-14.576	-21.767	-14.576	26.197	236.192	0.501
3600.000	0.500	275.914	3599.480	-14.579	-22.522	-14.579	26.829	237.084	0.167
3700.000	0.416	315.082	3699.477	-14.277	-23.211	-14.277	27.251	238.405	0.317
3800.000	0.427	302.608	3799.474	-13.820	-23.781	-13.820	27.505	239.839	0.092
3900.000	0.237	226.434	3899.473	-13.761	-24.245	-13.761	27.878	240.421	0.436
4000.000	0.277	314.492	3999.472	-13.734	-24.567	-13.734	28.145	240.793	0.358
4100.000	0.936	320.312	4099.466	-12.936	-25.261	-12.936	28.381	242.884	0.661
4200.000	1.782	304.646	4199.437	-11.423	-27.062	-11.423	29.374	247.116	0.916
4300.000	2.338	288.233	4299.373	-9.901	-30.279	-9.901	31.856	251.893	0.806
4400.000	2.305	270.813	4399.292	-9.234	-34.227	-9.234	35.451	254.902	0.704
4500.000	2.015	254.171	4499.222	-9.685	-37.929	-9.685	39.146	255.676	0.688
4600.000	2.407	233.305	4599.149	-11.419	-41.304	-11.419	42.854	254.546	0.889
4700.000	2.777	224.811	4699.047	-14.393	-44.695	-14.393	46.955	252.150	0.533
4800.000	3.642	220.767	4798.889	-18.517	-48.476	-18.517	51.892	249.094	0.893
4900.000	3.130	210.037	4898.715	-23.286	-51.917	-23.286	56.900	245.843	0.812
5000.000	2.249	203.760	4998.604	-27.445	-54.074	-27.445	60.640	243.090	0.928
5100.000	1.321	197.023	5098.555	-30.343	-55.202	-30.343	62.992	241.204	0.950
5200.000	0.948	183.134	5198.535	-32.271	-55.585	-32.271	64.274	239.862	0.460
5300.000	0.767	167.127	5298.524	-33.750	-55.481	-33.750	64.940	238.687	0.299
5400.000	0.633	154.935	5398.517	-34.903	-55.098	-34.903	65.222	237.647	0.199
5500.000	0.215	150.597	5498.514	-35.567	-54.771	-35.567	65.306	237.002	0.420
5600.000	0.233	71.917	5598.513	-35.667	-54.486	-35.667	65.122	236.791	0.284
5700.000	0.082	23.758	5698.513	-35.538	-54.264	-35.538	64.866	236.779	0.188
5800.000	0.282	62.413	5798.512	-35.358	-54.017	-35.358	64.561	236.792	0.224

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	0.335	43.384	5898.511	-35.032	-53.598	-35.032	64.031	236.831	0.114
6000.000	0.336	62.288	5998.509	-34.683	-53.138	-34.683	63.455	236.868	0.110
6100.000	0.190	38.452	6098.508	-34.417	-52.776	-34.417	63.007	236.890	0.179
6200.000	0.301	335.547	6198.507	-34.048	-52.782	-34.048	62.811	237.175	0.273
6300.000	0.280	347.669	6298.506	-33.571	-52.942	-33.571	62.689	237.621	0.065
6400.000	0.351	112.253	6398.505	-33.448	-52.711	-33.448	62.428	237.602	0.559
6500.000	0.307	126.110	6498.504	-33.722	-52.211	-33.722	62.154	237.142	0.091
6600.000	0.507	176.027	6598.501	-34.322	-51.964	-34.322	62.275	236.555	0.389
6700.000	0.135	171.120	6698.500	-34.880	-51.915	-34.880	62.544	236.104	0.373
6800.000	0.177	164.746	6798.499	-35.145	-51.856	-35.145	62.644	235.873	0.045