



COMPANY/RIG: Noble Energy/Production/CoreTech  
WELL/API: Connell C 4-20/05-123-24852  
DECLINATION: 8.2 Degrees  
TD AS DRILLED: 7028 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.34189, Longitude: -104.56064  
Grid North = True North -0.61 degs (NAD 27)  
Grid Correction Applied = -0.61 degs



DEPTH REFERENCE : RKB = GL Elevation = 4709

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 6/21/2016 / 09:02

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Connell C 4-20

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	0.177	204.862	100.000	-0.140	-0.065	-0.140	0.155	204.862	0.177
200.000	0.077	179.621	200.000	-0.348	-0.130	-0.348	0.371	200.454	0.113
300.000	0.164	185.120	299.999	-0.557	-0.142	-0.557	0.575	194.297	0.088
400.000	0.179	189.309	399.999	-0.854	-0.180	-0.854	0.873	191.906	0.019
500.000	0.254	147.544	499.998	-1.195	-0.086	-1.195	1.198	184.128	0.170
600.000	0.368	173.425	599.997	-1.701	0.070	-1.701	1.702	177.659	0.178
700.000	0.382	160.336	699.995	-2.334	0.219	-2.334	2.344	174.651	0.087
800.000	0.481	153.283	799.992	-3.023	0.520	-3.023	3.067	170.249	0.112
900.000	0.394	157.083	899.989	-3.715	0.842	-3.715	3.810	167.225	0.091
1000.000	0.663	164.040	999.985	-4.589	1.136	-4.589	4.727	166.101	0.276
1100.000	0.587	171.908	1099.979	-5.652	1.367	-5.652	5.815	166.406	0.115
1200.000	0.580	186.033	1199.974	-6.662	1.386	-6.662	6.804	168.250	0.144
1300.000	0.689	192.523	1299.967	-7.752	1.202	-7.752	7.845	171.185	0.131
1400.000	0.599	195.766	1399.961	-8.842	0.930	-8.842	8.891	173.998	0.097
1500.000	0.727	200.848	1499.954	-9.938	0.562	-9.938	9.954	176.765	0.140
1600.000	0.731	219.089	1599.946	-11.026	-0.066	-11.026	11.026	180.343	0.231
1700.000	0.959	228.068	1699.935	-12.080	-1.091	-12.080	12.129	185.158	0.263
1800.000	1.054	210.007	1799.920	-13.435	-2.173	-13.435	13.610	189.186	0.329

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	1.188	220.960	1899.901	-15.014	-3.312	-15.014	15.375	192.440	0.253
2000.000	1.292	221.406	1999.878	-16.643	-4.737	-16.643	17.304	195.889	0.104
2100.000	1.082	246.059	2099.857	-17.871	-6.346	-17.871	18.964	199.549	0.546
2200.000	1.197	272.022	2199.838	-18.217	-8.252	-18.217	19.999	204.370	0.524
2300.000	1.079	281.724	2299.818	-17.989	-10.218	-17.989	20.689	209.596	0.226
2400.000	0.833	323.484	2399.805	-17.214	-11.572	-17.214	20.742	213.912	0.719
2500.000	0.967	339.528	2499.793	-15.838	-12.300	-15.838	20.054	217.833	0.284
2600.000	0.900	332.535	2599.780	-14.350	-12.958	-14.350	19.335	222.080	0.132
2700.000	1.212	341.352	2699.763	-12.651	-13.658	-12.651	18.617	227.192	0.351
2800.000	1.229	347.031	2799.740	-10.604	-14.237	-10.604	17.752	233.321	0.122
2900.000	1.259	346.572	2899.717	-8.490	-14.733	-8.490	17.004	240.048	0.032
3000.000	1.236	336.630	2999.693	-6.431	-15.416	-6.431	16.704	247.357	0.217
3100.000	1.050	340.211	3099.673	-4.578	-16.154	-4.578	16.790	254.176	0.199
3200.000	0.687	324.847	3199.662	-3.226	-16.809	-3.226	17.116	259.135	0.428
3300.000	0.632	281.900	3299.656	-2.623	-17.694	-2.623	17.887	261.569	0.485
3400.000	0.668	279.278	3399.649	-2.415	-18.809	-2.415	18.963	262.684	0.046
3500.000	0.911	257.819	3499.640	-2.489	-20.161	-2.489	20.314	262.963	0.379
3600.000	1.092	253.604	3599.624	-2.925	-21.852	-2.925	22.047	262.375	0.195
3700.000	1.313	257.780	3699.602	-3.437	-23.886	-3.437	24.132	261.812	0.238
3800.000	1.449	249.891	3799.573	-4.114	-26.192	-4.114	26.513	261.074	0.233
3900.000	1.277	251.013	3899.545	-4.911	-28.433	-4.911	28.854	260.201	0.174
4000.000	1.316	248.305	3999.520	-5.698	-30.553	-5.698	31.080	259.436	0.073
4100.000	1.256	260.533	4099.495	-6.303	-32.701	-6.303	33.303	259.091	0.280
4200.000	1.400	235.589	4199.468	-7.173	-34.791	-7.173	35.522	258.349	0.591
4300.000	1.876	215.223	4299.428	-9.201	-36.743	-9.201	37.877	255.941	0.745
4400.000	1.743	201.029	4399.379	-11.958	-38.232	-11.958	40.059	252.632	0.466
4500.000	1.447	219.837	4499.341	-14.347	-39.587	-14.347	42.107	250.078	0.597
4600.000	1.207	247.688	4599.315	-15.717	-41.370	-15.717	44.255	249.198	0.680
4700.000	1.240	257.876	4699.292	-16.344	-43.402	-16.344	46.378	249.365	0.220
4800.000	1.296	278.178	4799.268	-16.410	-45.579	-16.410	48.443	250.199	0.450
4900.000	1.201	295.737	4899.245	-15.794	-47.642	-15.794	50.192	251.658	0.392
5000.000	0.753	287.874	4999.230	-15.138	-49.211	-15.138	51.487	252.902	0.466
5100.000	0.822	262.468	5099.221	-15.030	-50.548	-15.030	52.735	253.440	0.353
5200.000	0.865	250.261	5199.210	-15.379	-51.970	-15.379	54.197	253.515	0.184
5300.000	0.846	219.890	5299.199	-16.201	-53.154	-16.201	55.568	253.049	0.449
5400.000	0.279	141.639	5399.195	-16.959	-53.476	-16.959	56.100	252.405	0.835
5500.000	0.560	94.916	5499.193	-17.192	-52.838	-17.192	55.564	251.977	0.421
5600.000	0.640	96.278	5599.187	-17.295	-51.796	-17.295	54.607	251.536	0.082
5700.000	0.622	80.062	5699.181	-17.262	-50.706	-17.262	53.564	251.200	0.179
5800.000	0.362	97.428	5799.177	-17.209	-49.859	-17.209	52.745	250.957	0.297

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	0.224	120.638	5899.176	-17.350	-49.378	-17.350	52.337	250.640	0.179
6000.000	0.343	123.550	5999.175	-17.615	-48.960	-17.615	52.032	250.213	0.120
6100.000	0.134	162.957	6099.174	-17.892	-48.676	-17.892	51.861	249.818	0.254
6200.000	0.308	291.057	6199.174	-17.908	-48.893	-17.908	52.069	249.884	0.405
6300.000	0.474	270.583	6299.171	-17.807	-49.558	-17.807	52.660	250.236	0.215
6400.000	0.428	214.223	6399.169	-18.111	-50.181	-18.111	53.350	250.155	0.428
6500.000	0.250	212.042	6499.167	-18.605	-50.507	-18.605	53.824	249.778	0.178
6600.000	0.271	205.773	6599.166	-19.002	-50.725	-19.002	54.168	249.464	0.035
6700.000	0.388	202.868	6699.164	-19.527	-50.960	-19.527	54.573	249.034	0.119
6800.000	0.316	197.911	6799.162	-20.101	-51.176	-20.101	54.982	248.556	0.078