



COMPANY/RIG: Noble Energy/Production/CoreTech
WELL: Wells Ranch AF 06-12
DECLINATION: 8.21
TD AS DRILLED: 6761'
COUNTY/STATE: Weld/Colorado
Latitude: 40.427, Longitude: -104.374
GRID North is 0.730 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB = GL Elevation =4668

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro.ut
Minimum Curvature Method
Report Date/Time: 10/14/2014 / 14:15

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID
HENDERSON, COLORADO
303-853-4976

Surveyor: JUSTIN WILLIAMS

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	0.492	327.211	99.999	0.361	-0.232	0.361	0.429	327.211	0.492
200.000	0.497	335.158	199.995	1.115	-0.647	1.115	1.289	329.879	0.069
300.000	0.194	350.853	299.993	1.676	-0.856	1.676	1.882	332.939	0.315
400.000	0.199	287.172	399.993	1.894	-1.049	1.894	2.165	331.026	0.207
500.000	0.201	301.003	499.992	2.036	-1.365	2.036	2.451	326.163	0.048
600.000	0.218	300.376	599.991	2.222	-1.678	2.222	2.784	322.930	0.017
700.000	0.239	296.938	699.991	2.412	-2.028	2.412	3.152	319.942	0.026
800.000	0.280	316.571	799.990	2.684	-2.382	2.684	3.589	318.410	0.097
900.000	0.432	318.604	899.988	3.145	-2.800	3.145	4.211	318.321	0.153
1000.000	0.257	322.000	999.986	3.605	-3.188	3.605	4.812	318.515	0.176
1100.000	0.375	326.941	1099.984	4.057	-3.505	4.057	5.361	319.174	0.121
1200.000	0.269	19.150	1199.983	4.553	-3.607	4.553	5.808	321.614	0.299
1300.000	0.474	283.168	1299.981	4.868	-3.932	4.868	6.258	321.071	0.568
1400.000	0.462	295.821	1399.978	5.138	-4.698	5.138	6.962	317.563	0.104
1500.000	0.353	33.178	1499.976	5.572	-4.893	5.572	7.415	318.714	0.617
1600.000	0.348	23.619	1599.975	6.108	-4.603	6.108	7.648	323.000	0.059
1700.000	0.574	357.442	1699.971	6.887	-4.503	6.887	8.228	326.818	0.304
1800.000	0.705	351.306	1799.965	7.995	-4.619	7.995	9.233	329.985	0.147
1900.000	1.179	319.129	1899.952	9.381	-5.385	9.381	10.817	330.143	0.693

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	1.153	305.515	1999.932	10.744	-6.878	10.744	12.757	327.375	0.278
2100.000	0.774	284.446	2099.917	11.497	-8.351	11.497	14.210	324.008	0.513
2200.000	0.556	274.558	2199.911	11.704	-9.488	11.704	15.067	320.969	0.246
2300.000	0.257	259.853	2299.908	11.703	-10.192	11.703	15.519	318.947	0.314
2400.000	0.257	265.058	2399.907	11.644	-10.637	11.644	15.771	317.589	0.023
2500.000	0.066	223.993	2499.907	11.583	-10.901	11.583	15.906	316.739	0.212
2600.000	0.240	225.774	2599.906	11.396	-11.091	11.396	15.902	315.777	0.174
2700.000	0.332	236.972	2699.905	11.092	-11.484	11.092	15.966	314.005	0.108
2800.000	0.538	263.183	2799.902	10.878	-12.194	10.878	16.341	311.737	0.281
2900.000	0.897	265.884	2899.894	10.766	-13.440	10.766	17.221	308.695	0.360
3000.000	1.019	271.895	2999.880	10.739	-15.110	10.739	18.538	305.403	0.158
3100.000	0.943	275.023	3099.866	10.841	-16.819	10.841	20.010	302.804	0.093
3200.000	0.708	274.295	3199.855	10.959	-18.255	10.959	21.292	300.978	0.235
3300.000	1.413	288.558	3299.837	11.398	-20.040	11.398	23.055	299.629	0.747
3400.000	1.643	289.005	3399.802	12.257	-22.565	12.257	25.679	298.511	0.231
3500.000	1.645	284.333	3499.761	13.079	-25.311	13.079	28.491	297.327	0.134
3600.000	1.423	273.110	3599.725	13.502	-27.941	13.502	31.033	295.791	0.372
3700.000	1.882	278.366	3699.683	13.808	-30.806	13.808	33.759	294.144	0.483
3800.000	1.434	265.584	3799.641	13.951	-33.679	13.951	36.454	292.501	0.578
3900.000	1.183	280.842	3899.616	14.049	-35.940	14.049	38.588	291.350	0.428
4000.000	0.944	268.187	3999.598	14.217	-37.777	14.217	40.364	290.623	0.334
4100.000	0.716	266.983	4099.588	14.158	-39.224	14.158	41.701	289.847	0.228
4200.000	0.499	259.607	4199.582	14.046	-40.277	14.046	42.656	289.226	0.231
4300.000	0.213	286.858	4299.580	14.022	-40.882	14.022	43.220	288.931	0.325
4400.000	0.749	290.503	4399.576	14.304	-41.672	14.304	44.059	288.945	0.537
4500.000	1.248	290.808	4499.561	14.920	-43.302	14.920	45.801	289.012	0.498
4600.000	0.631	288.681	4599.547	15.483	-44.842	15.483	47.440	289.049	0.617
4700.000	0.293	281.926	4699.544	15.713	-45.614	15.713	48.245	289.007	0.342
4800.000	0.143	281.064	4799.543	15.790	-45.987	15.790	48.623	288.950	0.150
4900.000	0.140	203.010	4899.543	15.701	-46.158	15.701	48.755	288.786	0.178
5000.000	0.342	156.204	4999.542	15.316	-46.085	15.316	48.564	288.384	0.266
5100.000	0.434	160.458	5099.539	14.686	-45.838	14.686	48.134	287.765	0.096
5200.000	0.819	156.755	5199.533	13.673	-45.430	13.673	47.443	286.750	0.388
5300.000	0.934	162.960	5299.522	12.237	-44.909	12.237	46.546	285.242	0.149
5400.000	1.367	139.119	5399.502	10.555	-43.889	10.555	45.141	283.523	0.637
5500.000	1.584	139.292	5499.469	8.606	-42.207	8.606	43.076	281.525	0.216
5600.000	1.927	136.840	5599.421	6.333	-40.156	6.333	40.652	278.962	0.351
5700.000	1.675	150.524	5699.372	3.834	-38.287	3.834	38.479	275.718	0.496
5800.000	1.898	145.876	5799.324	1.191	-36.639	1.191	36.658	271.861	0.266
5900.000	1.680	156.374	5899.275	-1.523	-35.123	-1.523	35.156	267.516	0.393

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	1.893	151.740	5999.227	-4.322	-33.753	-4.322	34.028	262.704	0.257
6100.000	1.832	152.749	6099.174	-7.197	-32.239	-7.197	33.033	257.415	0.070
6200.000	1.879	177.383	6199.123	-10.256	-31.432	-10.256	33.063	251.929	0.793
6300.000	2.204	155.528	6299.061	-13.644	-30.561	-13.644	33.468	245.941	0.837
6400.000	2.723	169.168	6398.969	-17.728	-29.318	-17.728	34.261	238.839	0.779
6500.000	3.264	170.609	6498.832	-22.870	-28.407	-22.870	36.469	231.163	0.546