



Company/Rig: Noble Energy/CoreTech
 WELL/API#: Monfort BB 30-14/05-123-18609
 DECLINATION: 8.05 Degrees
 TD AS DRILLED: 6864 Feet
 COUNTY/STATE: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.36497, Longitude: -104.48173
 Grid North = True North -0.66 degs (NAD 27)
 Grid Correction Applied = -0.66 degs



DEPTH REFERENCE : RKB=GL Elevation= 4577 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 7/14/2017 / 15:07

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Geof Davis / Monfort BB 30-14

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	0.960	215.448	99.995	-0.682	-0.486	-0.682	0.837	215.448	0.960
200.000	1.567	227.341	199.971	-2.291	-1.977	-2.291	3.026	220.793	0.659
300.000	1.361	211.234	299.938	-4.234	-3.599	-4.234	5.557	220.367	0.458
400.000	1.308	201.595	399.911	-6.311	-4.635	-6.311	7.830	216.295	0.230
500.000	1.359	199.800	499.884	-8.488	-5.457	-8.488	10.091	212.737	0.066
600.000	1.532	216.343	599.853	-10.681	-6.651	-10.681	12.582	211.911	0.450
700.000	1.534	217.130	699.817	-12.824	-8.251	-12.824	15.249	212.756	0.021
800.000	1.190	216.444	799.789	-14.727	-9.676	-14.727	17.621	213.305	0.344
900.000	1.392	199.974	899.764	-16.704	-10.708	-16.704	19.841	212.660	0.421
1000.000	1.574	223.577	999.731	-18.841	-12.069	-18.841	22.375	212.643	0.632
1100.000	1.184	219.241	1099.702	-20.636	-13.670	-20.636	24.753	213.521	0.403
1200.000	1.379	222.655	1199.677	-22.322	-15.139	-22.322	26.972	214.146	0.209
1300.000	0.781	217.945	1299.659	-23.745	-16.374	-23.745	28.843	214.589	0.605
1400.000	0.969	198.111	1399.647	-25.085	-17.055	-25.085	30.334	214.212	0.354
1500.000	0.901	211.771	1499.634	-26.557	-17.732	-26.557	31.933	213.731	0.232
1600.000	0.612	174.189	1599.626	-27.757	-18.092	-27.757	33.133	213.097	0.559

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	0.470	197.382	1699.621	-28.679	-18.161	-28.679	33.946	212.343	0.258
1800.000	0.610	164.690	1799.617	-29.584	-18.143	-29.584	34.704	211.519	0.332
1900.000	0.250	44.025	1899.615	-29.940	-17.850	-29.940	34.857	210.804	0.768
2000.000	0.279	303.058	1999.615	-29.650	-17.902	-29.650	34.635	211.123	0.409
2100.000	0.695	338.979	2099.611	-28.951	-18.324	-28.951	34.262	212.331	0.497
2200.000	0.619	326.817	2199.604	-27.932	-18.837	-27.932	33.690	213.995	0.159
2300.000	1.279	291.895	2299.591	-27.064	-20.168	-27.064	33.752	216.692	0.849
2400.000	1.211	292.317	2399.567	-26.247	-22.180	-26.247	34.364	220.200	0.068
2500.000	1.198	295.790	2499.545	-25.391	-24.099	-25.391	35.007	223.504	0.074
2600.000	1.286	315.824	2599.522	-24.131	-25.822	-24.131	35.343	226.939	0.441
2700.000	1.066	283.894	2699.502	-23.103	-27.507	-23.103	35.922	229.974	0.681
2800.000	1.441	306.676	2799.479	-22.128	-29.419	-22.128	36.812	233.051	0.617
2900.000	1.255	322.416	2899.451	-20.509	-31.096	-20.509	37.250	236.594	0.413
3000.000	1.033	304.710	2999.432	-19.128	-32.505	-19.128	37.716	239.525	0.415
3100.000	0.264	229.559	3099.425	-18.764	-33.422	-18.764	38.329	240.689	0.999
3200.000	0.824	170.891	3199.421	-19.623	-33.484	-19.623	38.810	239.627	0.722
3300.000	0.996	179.626	3299.408	-21.202	-33.364	-21.202	39.531	237.565	0.221
3400.000	1.156	234.070	3399.393	-22.664	-34.175	-22.664	41.007	236.449	0.995
3500.000	1.114	243.568	3499.374	-23.688	-35.863	-23.688	42.980	236.554	0.192
3600.000	0.883	224.254	3599.359	-24.673	-37.271	-24.673	44.698	236.496	0.405
3700.000	0.739	262.812	3699.349	-25.305	-38.449	-25.305	46.029	236.649	0.552
3800.000	0.480	242.541	3799.344	-25.579	-39.461	-25.579	47.026	237.048	0.333
3900.000	0.179	202.862	3899.342	-25.916	-39.893	-25.916	47.572	236.990	0.361
4000.000	0.298	25.105	3999.342	-25.824	-39.843	-25.824	47.480	237.051	0.477
4100.000	0.694	15.256	4099.338	-25.005	-39.574	-25.005	46.811	237.713	0.403
4200.000	1.187	23.746	4199.324	-23.473	-38.997	-23.473	45.516	238.956	0.511
4300.000	1.022	12.574	4299.306	-21.654	-38.386	-21.654	44.073	240.572	0.271
4400.000	0.815	42.733	4399.293	-20.262	-37.709	-20.262	42.808	241.750	0.518
4500.000	0.539	36.926	4499.286	-19.364	-36.945	-19.364	41.712	242.340	0.284
4600.000	0.515	14.116	4599.282	-18.552	-36.553	-18.552	40.991	243.090	0.210
4700.000	0.369	354.976	4699.279	-17.795	-36.471	-17.795	40.581	243.991	0.206
4800.000	1.162	1.124	4799.269	-16.461	-36.480	-16.461	40.021	245.714	0.797
4900.000	0.678	10.725	4899.256	-14.865	-36.349	-14.865	39.271	247.758	0.506
5000.000	0.928	13.152	4999.246	-13.495	-36.055	-13.495	38.498	249.480	0.252
5100.000	0.534	50.188	5099.239	-12.408	-35.513	-12.408	37.618	250.741	0.596
5200.000	0.236	26.217	5199.236	-11.925	-35.064	-11.925	37.036	251.218	0.333
5300.000	0.311	64.747	5299.235	-11.624	-34.727	-11.624	36.621	251.493	0.194
5400.000	1.182	37.800	5399.226	-10.694	-33.850	-10.694	35.499	252.468	0.915
5500.000	1.324	18.173	5499.202	-8.781	-32.857	-8.781	34.011	255.037	0.449

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	1.392	51.983	5599.176	-6.936	-31.540	-6.936	32.294	257.598	0.792
5700.000	1.653	36.560	5699.141	-5.030	-29.725	-5.030	30.147	260.396	0.484
5800.000	1.816	42.319	5799.095	-2.700	-27.799	-2.700	27.930	264.453	0.239
5900.000	1.664	33.557	5899.049	-0.318	-25.930	-0.318	25.932	269.298	0.306
6000.000	1.638	27.734	5999.008	2.157	-24.462	2.157	24.557	275.039	0.170
6100.000	2.057	37.788	6098.956	4.840	-22.697	4.840	23.207	282.038	0.529
6200.000	1.593	34.635	6198.905	7.402	-20.807	7.402	22.085	289.583	0.475
6300.000	0.722	34.091	6298.884	9.068	-19.664	9.068	21.654	294.757	0.871
6400.000	0.384	62.415	6398.879	9.745	-19.014	9.745	21.366	297.137	0.426
6500.000	0.551	100.797	6498.876	9.810	-18.245	9.810	20.715	298.268	0.345