



Company/Rig: Noble Energy/ Coretech
WELL/API#: Foss 10-24/05-123-23441
DECLINATION: 8.28 Degrees
TD AS DRILLED: 7152 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.50304, Longitude: -104.53923
Grid North = True North -0.62 degs (NAD 27)
Grid Convergence Applied = -0.62 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4793 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 9/11/2015 / 12:27

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt

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	0.862	30.823	99.996	0.646	0.385	0.646	0.752	30.823	0.862
200.000	0.502	41.976	199.989	1.618	1.064	1.618	1.936	33.332	0.382
300.000	0.204	73.446	299.987	1.994	1.528	1.994	2.512	37.457	0.345
400.000	0.348	296.666	399.987	2.181	1.427	2.181	2.607	33.204	0.516
500.000	0.468	328.500	499.984	2.665	0.943	2.665	2.827	19.486	0.252
600.000	0.514	302.360	599.981	3.253	0.351	3.253	3.272	6.163	0.226
700.000	0.452	297.771	699.977	3.677	-0.376	3.677	3.696	354.157	0.073
800.000	0.563	304.003	799.973	4.135	-1.132	4.135	4.287	344.686	0.124
900.000	0.736	321.999	899.967	4.916	-1.935	4.916	5.283	338.515	0.266
1000.000	0.674	341.611	999.959	5.981	-2.516	5.981	6.489	337.182	0.248
1100.000	0.326	306.248	1099.956	6.707	-2.931	6.707	7.320	336.393	0.450
1200.000	0.376	343.391	1199.954	7.190	-3.254	7.190	7.892	335.646	0.228
1300.000	0.387	302.262	1299.952	7.685	-3.634	7.685	8.500	334.692	0.268
1400.000	0.169	331.572	1399.951	7.995	-3.990	7.995	8.935	333.478	0.253
1500.000	0.290	2.452	1499.950	8.377	-4.049	8.377	9.305	334.203	0.169
1600.000	0.261	343.480	1599.949	8.848	-4.103	8.848	9.753	335.122	0.095
1700.000	0.290	347.855	1699.947	9.314	-4.221	9.314	10.226	335.620	0.036
1800.000	0.462	7.540	1799.945	9.961	-4.222	9.961	10.819	337.033	0.212

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	0.419	344.291	1899.942	10.713	-4.268	10.713	11.532	338.279	0.182
2000.000	0.394	334.559	1999.940	11.376	-4.515	11.376	12.239	338.354	0.073
2100.000	0.411	23.000	2099.938	12.017	-4.522	12.017	12.840	339.378	0.331
2200.000	0.337	10.294	2199.936	12.637	-4.329	12.637	13.358	341.089	0.111
2300.000	0.066	258.531	2299.935	12.914	-4.333	12.914	13.622	341.451	0.367
2400.000	0.287	256.498	2399.935	12.844	-4.634	12.844	13.655	340.161	0.221
2500.000	0.434	225.883	2499.933	12.522	-5.150	12.522	13.540	337.646	0.237
2600.000	0.420	241.824	2599.930	12.086	-5.744	12.086	13.382	334.578	0.119
2700.000	0.582	258.742	2699.926	11.814	-6.566	11.814	13.516	330.935	0.218
2800.000	0.819	236.113	2799.919	11.316	-7.658	11.316	13.663	325.913	0.360
2900.000	0.813	251.351	2899.909	10.691	-8.923	10.691	13.925	320.149	0.216
3000.000	0.711	239.530	2999.900	10.149	-10.130	10.149	14.340	315.054	0.187
3100.000	0.415	283.594	3099.895	9.920	-11.017	9.920	14.825	312.001	0.503
3200.000	0.553	281.072	3199.892	10.097	-11.842	10.097	15.562	310.454	0.139
3300.000	0.620	270.802	3299.887	10.198	-12.856	10.198	16.410	308.422	0.125
3400.000	0.558	252.165	3399.881	10.056	-13.861	10.056	17.125	305.960	0.200
3500.000	0.478	262.921	3499.877	9.855	-14.739	9.855	17.730	303.769	0.126
3600.000	0.637	252.251	3599.873	9.635	-15.682	9.635	18.405	301.565	0.189
3700.000	0.723	245.287	3699.866	9.201	-16.785	9.201	19.141	298.732	0.119
3800.000	0.744	246.423	3799.857	8.678	-17.952	8.678	19.940	295.799	0.025
3900.000	0.845	258.315	3899.848	8.269	-19.269	8.269	20.968	293.227	0.193
4000.000	0.843	244.571	3999.837	7.804	-20.655	7.804	22.080	290.698	0.202
4100.000	0.716	256.652	4099.828	7.344	-21.928	7.344	23.125	288.516	0.207
4200.000	0.743	226.111	4199.820	6.750	-23.003	6.750	23.973	286.355	0.385
4300.000	0.557	201.887	4299.814	5.850	-23.651	5.850	24.364	283.893	0.328
4400.000	0.559	212.397	4399.809	4.987	-24.093	4.987	24.604	281.695	0.102
4500.000	0.913	204.582	4499.801	3.851	-24.686	3.851	24.985	278.867	0.367
4600.000	0.792	225.907	4599.790	2.646	-25.514	2.646	25.651	275.920	0.337
4700.000	1.404	202.738	4699.771	1.035	-26.484	1.035	26.504	272.237	0.744
4800.000	1.933	192.551	4799.729	-1.742	-27.324	-1.742	27.380	266.353	0.605
4900.000	1.817	190.588	4899.675	-4.947	-27.982	-4.947	28.416	259.975	0.133
5000.000	1.827	200.275	4999.625	-8.001	-28.826	-8.001	29.916	254.487	0.308
5100.000	1.781	196.343	5099.575	-10.988	-29.816	-10.988	31.776	249.770	0.132
5200.000	1.875	198.259	5199.525	-14.033	-30.766	-14.033	33.815	245.481	0.112
5300.000	1.669	185.982	5299.477	-17.034	-31.430	-17.034	35.749	241.543	0.431
5400.000	1.393	184.384	5399.441	-19.694	-31.675	-19.694	37.298	238.128	0.279
5500.000	1.238	187.891	5499.415	-21.976	-31.916	-21.976	38.750	235.451	0.175
5600.000	0.976	182.357	5599.396	-23.896	-32.099	-23.896	40.017	233.334	0.283
5700.000	1.085	176.238	5699.380	-25.692	-32.072	-25.692	41.094	231.302	0.155
5800.000	0.936	168.840	5799.365	-27.439	-31.852	-27.439	42.041	229.257	0.198

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	0.886	162.270	5899.352	-28.977	-31.458	-28.977	42.770	227.351	0.116
6000.000	0.825	148.501	5999.341	-30.327	-30.846	-30.327	43.258	225.487	0.214
6100.000	0.959	163.945	6099.329	-31.745	-30.239	-31.745	43.842	223.608	0.274
6200.000	1.176	153.336	6199.312	-33.466	-29.547	-33.466	44.643	221.441	0.293
6300.000	0.784	205.072	6299.299	-35.002	-29.376	-35.002	45.696	220.006	0.925
6400.000	0.312	158.163	6399.294	-35.875	-29.565	-35.875	46.487	219.492	0.614
6500.000	0.675	153.034	6499.290	-36.653	-29.196	-36.653	46.860	218.539	0.365
6600.000	0.559	140.730	6599.284	-37.556	-28.620	-37.556	47.218	217.310	0.176
6700.000	0.485	116.185	6699.280	-38.120	-27.932	-38.120	47.258	216.232	0.233
6800.000	0.842	101.581	6799.274	-38.454	-26.833	-38.454	46.890	214.907	0.392