



Company/Rig: Noble Energy/ CoreTech
WELL/API#: Carpio 22-1/05-123-11786
DECLINATION: 8.27 Degrees
TD AS DRILLED: 7028 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.46641, Longitude: -104.52918
Grid North = True North -0.63 degs (NAD 27)
Grid Convergence Applied = -0.63 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4697 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut
Minimum Curvature Method
Report Date/Time: 10/12/2015 / 12:40

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD
NORTH REFERENCE: GRID
HENDERSON, COLORADO
303-853-4976
Surveyor: Sean Bratt / Carpio 22-1

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	0.380	346.010	99.999	0.321	-0.080	0.321	0.331	346.010	0.380
200.000	0.254	352.348	199.998	0.862	-0.190	0.862	0.883	347.595	0.131
300.000	0.234	358.574	299.997	1.285	-0.224	1.285	1.305	350.108	0.033
400.000	0.236	359.386	399.996	1.695	-0.231	1.695	1.711	352.226	0.004
500.000	0.182	347.431	499.995	2.057	-0.268	2.057	2.074	352.568	0.069
600.000	0.342	343.545	599.994	2.498	-0.387	2.498	2.528	351.184	0.161
700.000	0.410	345.811	699.992	3.131	-0.560	3.131	3.180	349.867	0.069
800.000	0.492	332.956	799.989	3.860	-0.843	3.860	3.951	347.687	0.130
900.000	0.450	340.580	899.986	4.613	-1.169	4.613	4.759	345.786	0.076
1000.000	0.374	350.435	999.983	5.305	-1.353	5.305	5.475	345.690	0.104
1100.000	0.365	309.253	1099.981	5.829	-1.654	5.829	6.059	344.156	0.260
1200.000	0.658	339.652	1199.977	6.568	-2.100	6.568	6.896	342.267	0.389
1300.000	0.454	353.669	1299.973	7.500	-2.344	7.500	7.858	342.647	0.243
1400.000	0.359	359.696	1399.970	8.207	-2.389	8.207	8.548	343.770	0.104
1500.000	0.034	215.019	1499.969	8.496	-2.408	8.496	8.830	344.177	0.387
1600.000	0.478	312.974	1599.968	8.756	-2.730	8.756	9.171	342.684	0.484
1700.000	0.386	312.211	1699.965	9.266	-3.284	9.266	9.831	340.484	0.092
1800.000	0.502	306.698	1799.962	9.754	-3.885	9.754	10.499	338.284	0.123

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	0.283	287.535	1899.960	10.090	-4.472	10.090	11.037	336.098	0.252
2000.000	0.288	276.210	1999.959	10.192	-4.958	10.192	11.334	334.060	0.057
2100.000	0.578	297.424	2099.956	10.452	-5.656	10.452	11.884	331.580	0.327
2200.000	0.546	290.494	2199.951	10.851	-6.550	10.851	12.674	328.884	0.075
2300.000	0.622	279.598	2299.946	11.108	-7.531	11.108	13.420	325.863	0.135
2400.000	0.717	261.634	2399.939	11.108	-8.686	11.108	14.100	321.976	0.229
2500.000	0.586	246.606	2499.933	10.813	-9.774	10.813	14.576	317.890	0.214
2600.000	0.659	252.970	2599.927	10.442	-10.793	10.442	15.018	314.051	0.100
2700.000	0.650	262.318	2699.920	10.198	-11.905	10.198	15.676	310.583	0.107
2800.000	0.508	263.770	2799.915	10.074	-12.908	10.074	16.373	307.970	0.143
2900.000	0.515	267.378	2899.911	10.005	-13.797	10.005	17.043	305.949	0.033
3000.000	0.508	264.337	2999.907	9.941	-14.686	9.941	17.734	304.093	0.028
3100.000	0.655	276.373	3099.902	9.961	-15.695	9.961	18.589	302.400	0.191
3200.000	0.399	262.792	3199.898	9.980	-16.609	9.980	19.377	301.002	0.283
3300.000	0.685	291.470	3299.893	10.156	-17.511	10.156	20.243	300.112	0.386
3400.000	0.449	349.431	3399.889	10.759	-18.139	10.759	21.090	300.674	0.587
3500.000	0.536	34.244	3499.886	11.530	-17.948	11.530	21.333	302.718	0.384
3600.000	0.736	20.753	3599.880	12.517	-17.457	12.517	21.481	305.642	0.249
3700.000	0.588	30.324	3699.873	13.561	-16.971	13.561	21.723	308.627	0.185
3800.000	0.283	7.071	3799.870	14.249	-16.682	14.249	21.939	310.503	0.346
3900.000	0.421	341.449	3899.868	14.842	-16.768	14.842	22.393	311.514	0.206
4000.000	0.488	313.295	3999.865	15.483	-17.195	15.483	23.138	312.001	0.231
4100.000	0.318	6.052	4099.863	16.051	-17.476	16.051	23.729	312.567	0.389
4200.000	0.443	350.137	4199.861	16.709	-17.513	16.709	24.205	313.654	0.163
4300.000	0.538	340.350	4299.857	17.532	-17.737	17.532	24.940	314.667	0.126
4400.000	0.481	338.623	4399.853	18.366	-18.048	18.366	25.749	315.500	0.059
4500.000	0.687	0.611	4499.848	19.356	-18.195	19.356	26.565	316.771	0.301
4600.000	0.859	11.082	4599.839	20.691	-18.044	20.691	27.454	318.909	0.222
4700.000	1.507	6.693	4699.817	22.733	-17.747	22.733	28.840	322.022	0.653
4800.000	1.757	1.801	4799.777	25.570	-17.545	25.570	31.011	325.544	0.286
4900.000	1.888	20.372	4899.727	28.647	-16.924	28.647	33.273	329.427	0.602
5000.000	1.638	13.048	4999.680	31.584	-16.027	31.584	35.418	333.095	0.336
5100.000	1.399	30.736	5099.645	34.026	-15.081	34.026	37.218	336.097	0.523
5200.000	1.801	52.416	5199.607	36.034	-13.211	36.034	38.379	339.865	0.720
5300.000	1.507	56.380	5299.565	37.720	-10.871	37.720	39.256	343.923	0.316
5400.000	1.259	79.905	5399.536	38.641	-8.695	38.641	39.607	347.319	0.614
5500.000	0.839	95.988	5499.520	38.757	-6.886	38.757	39.364	349.926	0.509
5600.000	0.340	12.880	5599.515	38.970	-6.092	38.970	39.443	351.116	0.866
5700.000	0.320	22.506	5699.514	39.517	-5.919	39.517	39.958	351.482	0.059
5800.000	1.091	322.473	5799.506	40.530	-6.391	40.530	41.031	351.038	0.971

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	0.607	325.838	5899.495	41.723	-7.268	41.723	42.351	350.118	0.486
6000.000	0.352	92.887	5999.493	42.145	-7.259	42.145	42.766	350.227	0.866
6100.000	0.339	326.234	6099.492	42.376	-7.117	42.376	42.970	350.466	0.618
6200.000	0.089	34.658	6199.492	42.687	-7.237	42.687	43.296	350.377	0.318
6300.000	0.537	23.092	6299.490	43.182	-7.009	43.182	43.747	350.780	0.450
6400.000	0.749	25.926	6399.484	44.202	-6.539	44.202	44.683	351.584	0.214
6500.000	0.626	22.126	6499.476	45.296	-6.048	45.296	45.698	352.395	0.131
6600.000	0.621	91.779	6599.472	45.785	-5.300	45.785	46.091	353.396	0.712
6700.000	1.213	123.790	6699.459	45.179	-3.879	45.179	45.346	355.092	0.761