



Company/Rig: NOBLE ENERGY/CORE-TECH
WELL: LOLOFF 1
DECLINATION: 8.28
TD AS DRILLED: 6800'
COUNTY/STATE: WELD/COLORADO
Latitude: 40.368, Longitude: -104.519
GRID North is 0.630 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION= 4609'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/25/2014 / 09:02

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

SURVEYOR: NICK KULA

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	0.536	20.615	99.999	0.438	0.165	0.438	0.468	20.615	0.536
200.000	0.390	338.329	199.996	1.193	0.204	1.193	1.210	9.697	0.361
300.000	0.382	345.350	299.993	1.832	-0.006	1.832	1.832	359.804	0.048
400.000	0.404	349.438	399.991	2.501	-0.155	2.501	2.506	356.449	0.036
500.000	0.474	355.478	499.988	3.261	-0.253	3.261	3.270	355.571	0.084
600.000	0.479	3.860	599.985	4.090	-0.257	4.090	4.098	356.404	0.070
700.000	0.268	326.311	699.982	4.701	-0.359	4.701	4.715	355.638	0.312
800.000	0.208	292.298	799.982	4.965	-0.656	4.965	5.008	352.470	0.151
900.000	0.243	258.370	899.981	4.991	-1.031	4.991	5.097	348.323	0.136
1000.000	0.245	215.912	999.980	4.775	-1.364	4.775	4.966	344.057	0.177
1100.000	0.238	202.817	1099.979	4.411	-1.570	4.411	4.682	340.408	0.056
1200.000	0.398	312.770	1199.978	4.455	-1.905	4.455	4.846	336.849	0.528
1300.000	0.349	313.825	1299.976	4.902	-2.380	4.902	5.449	334.106	0.049
1400.000	0.201	343.177	1399.975	5.281	-2.650	5.281	5.908	333.349	0.200
1500.000	0.361	313.073	1499.974	5.663	-2.931	5.663	6.377	332.636	0.213
1600.000	0.110	81.261	1599.973	5.893	-3.067	5.893	6.643	332.509	0.437
1700.000	0.596	64.075	1699.971	6.135	-2.504	6.135	6.626	337.796	0.492
1800.000	0.759	69.185	1799.964	6.598	-1.417	6.598	6.748	347.877	0.174
1900.000	0.730	79.358	1899.956	6.951	-0.172	6.951	6.953	358.586	0.135

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	0.537	92.190	1999.950	7.051	0.923	7.051	7.111	7.462	0.238
2100.000	0.353	102.059	2099.946	6.968	1.693	6.968	7.171	13.655	0.199
2200.000	0.386	108.685	2199.944	6.796	2.313	6.796	7.179	18.797	0.054
2300.000	0.278	124.937	2299.943	6.549	2.831	6.549	7.135	23.379	0.143
2400.000	0.172	176.723	2399.942	6.261	3.039	6.261	6.959	25.889	0.218
2500.000	0.234	224.758	2499.941	5.966	2.904	5.966	6.635	25.952	0.174
2600.000	0.248	216.205	2599.941	5.647	2.632	5.647	6.230	24.993	0.039
2700.000	0.158	205.544	2699.940	5.348	2.445	5.348	5.880	24.571	0.097
2800.000	0.284	242.797	2799.939	5.110	2.165	5.110	5.550	22.962	0.185
2900.000	0.271	241.142	2899.938	4.882	1.737	4.882	5.182	19.586	0.015
3000.000	0.094	189.380	2999.938	4.687	1.516	4.687	4.926	17.928	0.226
3100.000	0.693	146.820	3099.935	4.100	1.834	4.100	4.491	24.103	0.627
3200.000	1.138	156.245	3199.922	2.684	2.566	2.684	3.713	43.707	0.468
3300.000	1.755	172.511	3299.890	0.257	3.165	0.257	3.176	85.359	0.734
3400.000	1.854	169.151	3399.840	-2.850	3.669	-2.850	4.646	127.836	0.145
3500.000	1.830	172.974	3499.789	-6.024	4.169	-6.024	7.326	145.313	0.125
3600.000	1.743	171.709	3599.740	-9.114	4.584	-9.114	10.202	153.300	0.095
3700.000	1.508	163.977	3699.700	-11.884	5.166	-11.884	12.959	156.504	0.321
3800.000	1.048	163.548	3799.675	-14.026	5.789	-14.026	15.174	157.574	0.460
3900.000	0.833	163.470	3899.661	-15.600	6.255	-15.600	16.808	158.153	0.215
4000.000	0.699	165.437	3999.652	-16.888	6.615	-16.888	18.137	158.610	0.137
4100.000	0.713	164.671	4099.645	-18.078	6.933	-18.078	19.361	159.019	0.017
4200.000	0.592	177.710	4199.638	-19.193	7.118	-19.193	20.470	159.653	0.191
4300.000	0.732	150.626	4299.632	-20.265	7.451	-20.265	21.592	159.812	0.338
4400.000	0.346	175.979	4399.627	-21.123	7.786	-21.123	22.512	159.767	0.444
4500.000	0.057	170.674	4499.627	-21.473	7.815	-21.473	22.851	160.002	0.290
4600.000	0.161	54.905	4599.626	-21.442	7.938	-21.442	22.864	159.685	0.192
4700.000	0.187	9.062	4699.626	-21.200	8.078	-21.200	22.687	159.141	0.137
4800.000	0.409	83.093	4799.625	-20.997	8.458	-20.997	22.636	158.059	0.400
4900.000	0.662	117.246	4899.621	-21.218	9.325	-21.218	23.177	156.275	0.397
5000.000	0.863	135.823	4999.612	-22.022	10.363	-22.022	24.339	154.800	0.316
5100.000	0.934	159.651	5099.600	-23.327	11.171	-23.327	25.864	154.410	0.378
5200.000	1.321	187.597	5199.581	-25.234	11.302	-25.234	27.650	155.872	0.662
5300.000	1.183	207.438	5299.558	-27.293	10.674	-27.293	29.306	158.640	0.452
5400.000	0.954	229.749	5399.541	-28.747	9.563	-28.747	30.296	161.600	0.471
5500.000	0.782	242.884	5499.529	-29.596	8.321	-29.596	30.743	164.297	0.262
5600.000	0.875	243.565	5599.519	-30.247	7.030	-30.247	31.053	166.916	0.093
5700.000	0.533	214.323	5699.511	-30.971	6.084	-30.971	31.563	168.887	0.485
5800.000	0.732	225.976	5799.505	-31.800	5.362	-31.800	32.249	170.429	0.236
5900.000	0.926	221.521	5899.495	-32.849	4.367	-32.849	33.138	172.428	0.204

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	0.948	226.972	5999.481	-34.018	3.226	-34.018	34.171	174.582	0.092
6100.000	0.828	230.486	6099.469	-35.042	2.064	-35.042	35.103	176.628	0.132
6200.000	0.739	269.368	6199.461	-35.509	0.862	-35.509	35.519	178.609	0.528
6300.000	0.565	274.827	6299.454	-35.475	-0.274	-35.475	35.476	180.443	0.184
6350.000	0.580	238.676	6349.452	-35.585	-0.736	-35.585	35.593	181.185	0.711