



Company/Rig: NOBLE ENERGY/CORETECH
WELL/API#: LILLI UNIT 6-6/05-123-14022
DECLINATION: 7.96
TD AS DRILLED: 6,618 FEET
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.69200, Longitude: -103.90800
Grid North = True North -1.03 degs (NAD 27)
Grid Convergence Applied = -1.03 degs



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,799 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 8/24/2015 / 10:33

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: LEVI SHELDON

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	0.289	149.928	100.000	-0.219	0.127	-0.219	0.253	149.928	0.289
200.000	0.195	161.000	199.999	-0.598	0.308	-0.598	0.673	152.707	0.105
300.000	0.127	223.341	299.998	-0.839	0.287	-0.839	0.887	161.097	0.176
400.000	0.133	197.027	399.998	-1.031	0.177	-1.031	1.046	170.246	0.059
500.000	0.193	186.856	499.998	-1.308	0.123	-1.308	1.314	174.619	0.067
600.000	0.220	209.521	599.997	-1.642	0.009	-1.642	1.642	179.695	0.085
700.000	0.197	217.852	699.996	-1.945	-0.191	-1.945	1.954	185.614	0.038
800.000	0.191	184.363	799.996	-2.246	-0.309	-2.246	2.267	187.839	0.112
900.000	0.181	196.974	899.995	-2.563	-0.368	-2.563	2.589	188.170	0.042
1000.000	0.120	173.752	999.995	-2.818	-0.403	-2.818	2.847	188.129	0.085
1100.000	0.139	281.173	1099.995	-2.899	-0.510	-2.899	2.944	189.976	0.209
1200.000	0.234	358.865	1199.994	-2.671	-0.633	-2.671	2.745	193.327	0.246
1300.000	0.167	316.199	1299.994	-2.362	-0.738	-2.362	2.474	197.349	0.159
1400.000	0.307	332.024	1399.993	-2.020	-0.964	-2.020	2.238	205.514	0.153
1500.000	0.515	336.382	1499.990	-1.372	-1.270	-1.372	1.869	222.779	0.211
1600.000	0.669	346.757	1599.985	-0.392	-1.583	-0.392	1.631	256.095	0.187
1700.000	0.826	349.450	1699.977	0.885	-1.849	0.885	2.050	295.572	0.161
1800.000	0.838	355.931	1799.966	2.323	-2.033	2.323	3.087	318.808	0.095

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	0.448	355.959	1899.959	3.442	-2.112	3.442	4.039	328.464	0.390
2000.000	0.078	328.247	1999.958	3.890	-2.176	3.890	4.458	330.781	0.380
2100.000	0.173	210.114	2099.958	3.818	-2.288	3.818	4.451	329.068	0.221
2200.000	0.160	209.603	2199.958	3.566	-2.433	3.566	4.317	325.696	0.013
2300.000	0.188	209.284	2299.957	3.301	-2.582	3.301	4.191	321.974	0.028
2400.000	0.208	195.721	2399.957	2.984	-2.711	2.984	4.032	317.744	0.051
2500.000	0.157	195.793	2499.956	2.678	-2.797	2.678	3.872	313.746	0.051
2600.000	0.230	183.415	2599.956	2.346	-2.847	2.346	3.689	309.488	0.084
2700.000	0.340	164.680	2699.954	1.859	-2.780	1.859	3.345	303.771	0.143
2800.000	0.392	169.960	2799.952	1.236	-2.642	1.236	2.917	295.073	0.062
2900.000	0.298	200.066	2899.951	0.655	-2.672	0.655	2.751	283.784	0.201
3000.000	0.294	231.213	2999.949	0.251	-2.961	0.251	2.972	274.837	0.159
3100.000	0.321	257.250	3099.948	0.028	-3.434	0.028	3.434	270.465	0.141
3200.000	0.319	255.493	3199.946	-0.104	-3.977	-0.104	3.978	268.506	0.010
3300.000	0.284	258.994	3299.945	-0.221	-4.490	-0.221	4.496	267.184	0.039
3400.000	0.229	228.479	3399.944	-0.401	-4.883	-0.401	4.900	265.311	0.145
3500.000	0.217	214.078	3499.943	-0.690	-5.139	-0.690	5.185	262.358	0.057
3600.000	0.270	244.693	3599.942	-0.947	-5.458	-0.947	5.539	260.157	0.139
3700.000	0.423	213.386	3699.941	-1.356	-5.874	-1.356	6.029	257.001	0.238
3800.000	0.237	184.941	3799.939	-1.870	-6.095	-1.870	6.376	252.940	0.243
3900.000	0.394	138.821	3899.938	-2.335	-5.887	-2.335	6.333	248.362	0.286
4000.000	0.517	130.299	3999.934	-2.886	-5.317	-2.886	6.049	241.509	0.140
4100.000	0.531	141.599	4099.930	-3.540	-4.685	-3.540	5.872	232.924	0.104
4200.000	0.532	141.915	4199.926	-4.268	-4.111	-4.268	5.926	223.926	0.003
4300.000	0.555	149.983	4299.921	-5.053	-3.583	-5.053	6.194	215.340	0.080
4400.000	0.794	197.865	4399.915	-6.131	-3.553	-6.131	7.087	210.092	0.589
4500.000	0.837	199.803	4499.905	-7.478	-4.013	-7.478	8.487	208.220	0.051
4600.000	0.559	213.003	4599.898	-8.575	-4.527	-8.575	9.697	207.828	0.319
4700.000	0.422	301.371	4699.895	-8.793	-5.107	-8.793	10.168	210.147	0.691
4800.000	0.696	342.978	4799.891	-8.021	-5.599	-8.021	9.782	214.915	0.472
4900.000	0.792	355.346	4899.882	-6.752	-5.832	-6.752	8.922	220.822	0.187
5000.000	0.576	41.293	4999.876	-5.686	-5.557	-5.686	7.950	224.345	0.570
5100.000	0.751	38.243	5099.869	-4.793	-4.820	-4.793	6.798	225.158	0.179
5200.000	0.801	37.761	5199.860	-3.726	-3.986	-3.726	5.456	226.932	0.050
5300.000	0.903	32.841	5299.849	-2.511	-3.131	-2.511	4.013	231.264	0.125
5400.000	0.651	36.833	5399.840	-1.395	-2.363	-1.395	2.744	239.448	0.257
5500.000	0.771	50.467	5499.832	-0.512	-1.503	-0.512	1.588	251.207	0.206
5600.000	0.631	41.838	5599.824	0.327	-0.617	0.327	0.698	297.942	0.174
5700.000	0.613	64.004	5699.819	0.972	0.232	0.972	1.000	13.405	0.240
5800.000	0.889	96.998	5799.810	1.112	1.482	1.112	1.853	53.116	0.502

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	1.617	128.467	5899.787	0.140	3.356	0.140	3.359	87.605	0.976
6000.000	1.401	127.853	5999.752	-1.487	5.426	-1.487	5.626	105.328	0.216
6100.000	1.016	127.775	6099.730	-2.780	7.092	-2.780	7.618	111.408	0.385
6200.000	0.850	143.602	6199.717	-3.921	8.233	-3.921	9.119	115.464	0.305
6300.000	0.647	149.780	6299.708	-5.005	8.957	-5.005	10.261	119.197	0.218
6400.000	0.561	144.486	6399.702	-5.892	9.526	-5.892	11.201	121.737	0.102
6500.000	0.626	149.271	6499.697	-6.760	10.089	-6.760	12.145	123.822	0.082