



COMPANY/RIG: Noble Energy/Production/CoreTech
 WELL/API: Gulley 17-25/05-123-29299
 DECLINATION: 8.18 Degrees
 TD AS DRILLED: 7151 Feet
 COUNTY/STATE: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.48977, Longitude: -104.57832
 Grid North = True North -0.60 degs (NAD 27)
 Grid Correction Applied = -0.60 degs



DEPTH REFERENCE : RKB = GL Elevation = 4735

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 10/24/2016 / 11:42

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Gulley 17-25

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	0.569	331.181	99.998	0.435	-0.239	0.435	0.496	331.181	0.569
200.000	0.290	274.291	199.996	0.889	-0.731	0.889	1.151	320.554	0.477
300.000	0.164	291.813	299.995	0.961	-1.117	0.961	1.473	310.705	0.143
400.000	0.061	297.993	399.995	1.039	-1.297	1.039	1.662	308.701	0.104
500.000	0.085	282.875	499.995	1.081	-1.416	1.081	1.781	307.343	0.031
600.000	0.323	6.802	599.994	1.377	-1.455	1.377	2.003	313.412	0.325
700.000	0.222	29.299	699.993	1.825	-1.327	1.825	2.257	323.975	0.145
800.000	0.130	170.096	799.993	1.882	-1.213	1.882	2.239	327.199	0.333
900.000	0.215	326.531	899.993	1.927	-1.297	1.927	2.323	326.057	0.338
1000.000	0.333	306.910	999.991	2.259	-1.633	2.259	2.787	324.127	0.149
1100.000	0.104	334.731	1099.991	2.515	-1.905	2.515	3.155	322.865	0.246
1200.000	0.157	317.807	1199.990	2.699	-2.036	2.699	3.380	322.977	0.065
1300.000	0.246	323.588	1299.990	2.973	-2.255	2.973	3.732	322.822	0.091
1400.000	0.198	302.651	1399.989	3.239	-2.528	3.239	4.109	322.031	0.093
1500.000	0.255	266.593	1499.988	3.319	-2.896	3.319	4.405	318.900	0.150
1600.000	0.370	250.091	1599.987	3.196	-3.422	3.196	4.682	313.048	0.145

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	0.505	238.410	1699.984	2.855	-4.101	2.855	4.997	304.852	0.161
1800.000	0.593	249.253	1799.979	2.442	-4.959	2.442	5.528	296.212	0.136
1900.000	0.597	250.074	1899.974	2.081	-5.933	2.081	6.287	289.325	0.010
2000.000	0.606	246.844	1999.968	1.695	-6.910	1.695	7.115	283.782	0.035
2100.000	0.847	272.917	2099.961	1.524	-8.135	1.524	8.276	280.614	0.403
2200.000	0.954	270.380	2199.948	1.568	-9.706	1.568	9.832	279.174	0.114
2300.000	0.613	260.036	2299.939	1.481	-11.065	1.481	11.164	277.621	0.368
2400.000	0.522	272.079	2399.934	1.405	-12.048	1.405	12.129	276.650	0.149
2500.000	0.437	228.343	2499.931	1.168	-12.788	1.168	12.841	275.216	0.366
2600.000	0.101	212.995	2599.929	0.840	-13.121	0.840	13.148	273.663	0.341
2700.000	0.158	208.774	2699.929	0.645	-13.235	0.645	13.251	272.791	0.058
2800.000	0.345	249.660	2799.928	0.420	-13.584	0.420	13.590	271.770	0.248
2900.000	0.151	138.895	2899.928	0.216	-13.780	0.216	13.781	270.899	0.422
3000.000	0.578	190.924	2999.926	-0.379	-13.789	-0.379	13.794	268.427	0.500
3100.000	0.517	199.238	3099.921	-1.300	-14.033	-1.300	14.093	264.708	0.100
3200.000	0.578	180.451	3199.917	-2.229	-14.185	-2.229	14.360	261.068	0.188
3300.000	1.017	183.099	3299.907	-3.619	-14.237	-3.619	14.690	255.736	0.441
3400.000	1.512	185.488	3399.882	-5.818	-14.412	-5.818	15.542	248.014	0.498
3500.000	1.903	191.755	3499.837	-8.757	-14.876	-8.757	17.262	239.516	0.433
3600.000	1.884	195.255	3599.783	-11.969	-15.647	-11.969	19.699	232.587	0.117
3700.000	1.871	190.793	3699.729	-15.158	-16.385	-15.158	22.321	227.227	0.147
3800.000	1.936	187.038	3799.674	-18.438	-16.898	-18.438	25.010	222.503	0.141
3900.000	1.746	180.231	3899.623	-21.638	-17.111	-21.638	27.586	218.336	0.290
4000.000	1.455	180.494	3999.583	-24.431	-17.128	-24.431	29.837	215.034	0.290
4100.000	1.289	193.937	4099.555	-26.792	-17.410	-26.792	31.952	213.016	0.361
4200.000	0.555	187.823	4199.541	-28.364	-17.747	-28.364	33.458	212.034	0.740
4300.000	0.603	162.459	4299.536	-29.345	-17.654	-29.345	34.246	211.031	0.259
4400.000	0.253	48.858	4399.535	-29.702	-17.329	-29.702	34.388	210.260	0.742
4500.000	0.516	115.304	4499.533	-29.750	-16.756	-29.750	34.144	209.389	0.476
4600.000	1.715	135.296	4599.512	-31.006	-15.296	-31.006	34.574	206.258	1.243
4700.000	2.657	162.414	4699.441	-34.280	-13.543	-34.280	36.858	201.557	1.374
4800.000	2.441	186.800	4799.345	-38.605	-13.094	-38.605	40.765	198.736	1.097
4900.000	1.162	201.520	4899.294	-41.663	-13.718	-41.663	43.863	198.225	1.350
5000.000	0.427	223.897	4999.284	-42.875	-14.349	-42.875	45.212	198.504	0.784
5100.000	0.393	235.558	5099.281	-43.338	-14.890	-43.338	45.824	198.962	0.090
5200.000	0.335	242.864	5199.279	-43.665	-15.434	-43.665	46.312	199.466	0.074
5300.000	0.456	278.193	5299.277	-43.742	-16.088	-43.742	46.607	200.194	0.267
5400.000	0.555	281.565	5399.273	-43.588	-16.957	-43.588	46.770	201.257	0.103
5500.000	0.937	282.156	5499.264	-43.319	-18.231	-43.319	46.998	202.824	0.382

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	0.951	295.823	5599.251	-42.785	-19.777	-42.785	47.135	204.809	0.225
5700.000	0.128	28.870	5699.246	-42.325	-20.471	-42.325	47.015	205.811	0.967
5800.000	0.349	104.040	5799.245	-42.301	-20.121	-42.301	46.842	205.439	0.340
5900.000	0.563	120.692	5899.242	-42.625	-19.403	-42.625	46.834	204.475	0.249
6000.000	0.480	118.714	5999.238	-43.077	-18.614	-43.077	46.927	203.370	0.085
6100.000	0.269	123.299	6099.236	-43.407	-18.050	-43.407	47.011	202.580	0.212
6200.000	0.262	3.557	6199.235	-43.308	-17.840	-43.308	46.839	202.388	0.459
6300.000	0.593	307.199	6299.233	-42.768	-18.238	-42.768	46.494	203.095	0.498
6400.000	0.688	273.142	6399.227	-42.422	-19.249	-42.422	46.585	204.407	0.386
6500.000	0.865	302.500	6499.218	-41.984	-20.485	-41.984	46.715	206.010	0.429
6600.000	0.577	1.379	6599.211	-41.075	-21.110	-41.075	46.182	207.200	0.752
6700.000	0.689	100.829	6699.207	-40.684	-20.507	-40.684	45.560	206.751	0.969
6800.000	0.979	158.109	6799.198	-41.590	-19.598	-41.590	45.976	205.230	0.839
6900.000	1.061	173.704	6899.183	-43.303	-19.178	-43.303	47.359	203.887	0.288