



Company/Rig: Noble Energy/ CoreTech  
WELL/API#: Conagra B30-22/05-123-28032  
DECLINATION: 8.22 Degrees  
TD AS DRILLED: 7095 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.36996, Longitude: -104.58798  
Grid North = True North -0.59 degs (NAD 27)  
Grid Correction Applied = -0.59 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4703 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 5/31/2016 / 14:44

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt / Conagra B 30-22

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	0.987	211.268	99.995	-0.736	-0.447	-0.736	0.861	211.268	0.987
200.000	0.840	235.775	199.983	-1.884	-1.500	-1.884	2.408	218.517	0.414
300.000	0.866	236.935	299.972	-2.709	-2.739	-2.709	3.852	225.317	0.031
400.000	0.962	252.086	399.959	-3.379	-4.171	-3.379	5.368	230.986	0.259
500.000	1.073	249.079	499.943	-3.972	-5.844	-3.972	7.066	235.801	0.123
600.000	1.241	257.700	599.923	-4.537	-7.778	-4.537	9.004	239.744	0.242
700.000	1.471	255.816	699.895	-5.082	-10.080	-5.082	11.289	243.244	0.234
800.000	1.531	257.137	799.861	-5.694	-12.627	-5.694	13.851	245.727	0.069
900.000	1.526	259.263	899.825	-6.239	-15.237	-6.239	16.465	247.731	0.057
1000.000	1.582	261.860	999.788	-6.683	-17.912	-6.683	19.118	249.539	0.090
1100.000	1.793	260.716	1099.745	-7.131	-20.823	-7.131	22.010	251.096	0.213
1200.000	1.830	268.489	1199.695	-7.425	-23.963	-7.425	25.087	252.783	0.248
1300.000	1.942	272.713	1299.641	-7.387	-27.251	-7.387	28.235	254.833	0.178
1400.000	2.048	277.782	1399.580	-7.065	-30.713	-7.065	31.515	257.045	0.206
1500.000	1.712	277.280	1499.526	-6.634	-33.965	-6.634	34.607	258.948	0.336
1600.000	1.568	266.919	1599.486	-6.518	-36.812	-6.518	37.385	259.959	0.329
1700.000	1.363	271.251	1699.453	-6.566	-39.368	-6.566	39.911	260.531	0.232
1800.000	1.377	251.391	1799.425	-6.923	-41.696	-6.923	42.267	260.572	0.473

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	1.209	229.783	1899.400	-7.988	-43.641	-7.988	44.366	259.627	0.512
2000.000	2.002	212.382	1999.360	-10.145	-45.382	-10.145	46.502	257.399	0.922
2100.000	1.953	207.212	2099.301	-13.135	-47.096	-13.135	48.894	254.416	0.185
2200.000	2.041	207.661	2199.240	-16.228	-48.703	-16.228	51.335	251.572	0.089
2300.000	1.997	222.345	2299.179	-19.093	-50.703	-19.093	54.179	249.365	0.518
2400.000	1.764	229.416	2399.125	-21.382	-53.045	-21.382	57.193	248.046	0.329
2500.000	1.450	230.573	2499.086	-23.187	-55.191	-23.187	59.864	247.212	0.316
2600.000	1.244	233.466	2599.058	-24.636	-57.040	-24.636	62.133	246.640	0.216
2700.000	1.245	229.128	2699.034	-25.993	-58.734	-25.993	64.229	246.128	0.094
2800.000	1.080	225.903	2799.014	-27.360	-60.233	-27.360	66.156	245.570	0.178
2900.000	0.759	228.990	2899.001	-28.451	-61.409	-28.451	67.680	245.142	0.325
3000.000	0.562	213.594	2998.994	-29.294	-62.181	-29.294	68.735	244.774	0.264
3100.000	0.407	210.911	3098.990	-30.007	-62.634	-30.007	69.451	244.402	0.157
3200.000	0.545	256.234	3198.987	-30.424	-63.278	-30.424	70.213	244.322	0.388
3300.000	1.488	250.864	3298.970	-30.963	-64.967	-30.963	71.968	244.518	0.946
3400.000	2.276	262.924	3398.916	-31.633	-68.164	-31.633	75.146	245.105	0.877
3500.000	2.402	259.975	3498.833	-32.243	-72.198	-32.243	79.070	245.935	0.175
3600.000	2.516	256.642	3598.741	-33.115	-76.397	-33.115	83.265	246.565	0.182
3700.000	2.476	241.837	3698.647	-34.641	-80.437	-34.641	87.579	246.700	0.644
3800.000	2.559	234.202	3798.551	-36.967	-84.152	-36.967	91.914	246.285	0.345
3900.000	2.526	240.792	3898.452	-39.348	-87.886	-39.348	96.293	245.881	0.294
4000.000	2.149	239.108	3998.369	-41.386	-91.418	-41.386	100.350	245.643	0.384
4100.000	1.983	224.378	4098.305	-43.585	-94.237	-43.585	103.828	245.179	0.554
4200.000	1.574	202.179	4198.258	-46.094	-95.966	-46.094	106.462	244.344	0.794
4300.000	0.953	168.464	4298.234	-48.181	-96.318	-48.181	107.697	243.425	0.944
4400.000	1.759	109.051	4398.209	-49.497	-94.701	-49.497	106.856	242.406	1.515
4500.000	1.056	85.178	4498.179	-49.920	-92.332	-49.920	104.963	241.602	0.901
4600.000	0.498	24.296	4598.171	-49.447	-91.235	-49.447	103.773	241.543	0.923
4700.000	0.542	9.564	4698.167	-48.585	-90.978	-48.585	103.138	241.897	0.141
4800.000	1.146	38.822	4798.156	-47.339	-90.272	-47.339	101.931	242.327	0.723
4900.000	1.022	62.048	4898.139	-46.142	-88.857	-46.142	100.123	242.558	0.453
5000.000	0.798	112.655	4998.128	-45.992	-87.427	-45.992	98.786	242.253	0.804
5100.000	0.513	117.475	5098.121	-46.466	-86.387	-46.466	98.091	241.725	0.291
5200.000	0.546	157.038	5198.117	-47.112	-85.804	-47.112	97.887	241.231	0.360
5300.000	0.635	178.265	5298.112	-48.104	-85.601	-48.104	98.192	240.666	0.234
5400.000	0.712	155.423	5398.105	-49.224	-85.326	-49.224	98.506	240.020	0.277
5500.000	0.659	67.156	5498.100	-49.566	-84.538	-49.566	97.997	239.616	0.955
5600.000	0.830	37.647	5598.092	-48.769	-83.566	-48.769	96.756	239.732	0.414
5700.000	0.664	74.659	5698.084	-48.042	-82.565	-48.042	95.525	239.806	0.500
5800.000	0.404	110.249	5798.080	-48.011	-81.675	-48.011	94.742	239.552	0.409

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	0.460	110.917	5898.077	-48.277	-80.969	-48.277	94.269	239.195	0.056
6000.000	0.615	105.301	5998.073	-48.562	-80.076	-48.562	93.651	238.765	0.163
6100.000	0.465	109.222	6098.068	-48.837	-79.175	-48.837	93.025	238.332	0.154
6200.000	0.501	97.546	6198.065	-49.028	-78.358	-49.028	92.432	237.966	0.104
6300.000	0.296	101.179	6298.062	-49.136	-77.671	-49.136	91.908	237.682	0.206
6400.000	0.341	98.291	6398.061	-49.229	-77.124	-49.229	91.496	237.449	0.047
6500.000	0.341	87.329	6498.059	-49.258	-76.532	-49.258	91.014	237.234	0.065
6600.000	0.334	129.536	6598.057	-49.429	-76.011	-49.429	90.669	236.964	0.243