



Company/Rig: NOBLE ENERGY/ CORETECH  
WELL/API#: RITER C 18-16 / 05-123-17514  
DECLINATION: 8.3 DEGREES  
TD AS DRILLED: 7220 FEET  
COUNTY/STATE: WELD/COLORADO  
Latitude: 40.307, Longitude: -104.586  
GRID North is 0.590 Degrees East of True North  
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION= 4767 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

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

Minimum Curvature Method

Report Date/Time: 12/11/2014 / 08:41

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JORDAN ROLANDO

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	0.067	259.667	100.000	-0.010	-0.057	-0.010	0.058	259.667	0.067
200.000	0.321	291.802	199.999	0.083	-0.375	0.083	0.384	282.490	0.266
300.000	0.194	329.197	299.998	0.332	-0.721	0.332	0.794	294.743	0.204
400.000	0.276	305.978	399.998	0.620	-1.003	0.620	1.179	301.699	0.124
500.000	0.491	249.887	499.996	0.614	-1.600	0.614	1.714	290.990	0.407
600.000	0.681	217.216	599.991	-0.006	-2.362	-0.006	2.362	269.844	0.377
700.000	0.500	205.169	699.985	-0.875	-2.907	-0.875	3.036	253.252	0.218
800.000	0.446	241.198	799.982	-1.457	-3.433	-1.457	3.730	247.001	0.297
900.000	0.133	255.909	899.981	-1.673	-3.886	-1.673	4.231	246.712	0.319
1000.000	0.103	241.725	999.980	-1.744	-4.078	-1.744	4.435	246.850	0.041
1100.000	0.380	195.483	1099.980	-2.106	-4.246	-2.106	4.739	243.623	0.317
1200.000	0.355	220.939	1199.978	-2.659	-4.537	-2.659	5.259	239.630	0.164
1300.000	0.134	221.792	1299.977	-2.980	-4.818	-2.980	5.665	238.263	0.221
1400.000	0.125	345.513	1399.976	-2.962	-4.923	-2.962	5.746	238.967	0.228
1500.000	0.257	325.513	1499.976	-2.672	-5.078	-2.672	5.738	242.246	0.146
1600.000	0.306	341.210	1599.975	-2.234	-5.291	-2.234	5.743	247.105	0.091
1700.000	0.152	330.676	1699.974	-1.866	-5.441	-1.866	5.753	251.070	0.159
1800.000	0.446	339.301	1799.972	-1.387	-5.644	-1.387	5.812	256.193	0.297
1900.000	0.324	312.235	1899.970	-0.833	-5.991	-0.833	6.049	262.087	0.215

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	0.215	26.980	1999.969	-0.475	-6.115	-0.475	6.134	265.558	0.339
2100.000	0.380	47.234	2099.968	-0.083	-5.787	-0.083	5.787	269.183	0.193
2200.000	0.727	52.944	2199.963	0.525	-5.037	0.525	5.065	275.945	0.351
2300.000	0.584	75.341	2299.957	1.036	-4.039	1.036	4.169	284.382	0.290
2400.000	0.956	100.611	2399.948	1.011	-2.726	1.011	2.907	290.351	0.495
2500.000	1.000	98.227	2499.933	0.732	-1.041	0.732	1.273	305.117	0.060
2600.000	0.895	123.888	2599.920	0.172	0.471	0.172	0.502	69.957	0.433
2700.000	0.837	136.964	2699.909	-0.797	1.618	-0.797	1.804	116.235	0.206
2800.000	0.606	111.887	2799.901	-1.528	2.607	-1.528	3.022	120.379	0.386
2900.000	0.407	133.429	2899.897	-1.969	3.355	-1.969	3.891	120.411	0.272
3000.000	0.383	127.663	2999.895	-2.418	3.878	-2.418	4.570	121.943	0.047
3100.000	0.568	125.491	3099.891	-2.909	4.546	-2.909	5.397	122.622	0.186
3200.000	0.645	226.299	3199.888	-3.586	4.542	-3.586	5.787	128.289	0.936
3300.000	1.328	247.402	3299.873	-4.420	3.066	-4.420	5.379	145.256	0.763
3400.000	1.251	287.712	3399.849	-4.533	0.955	-4.533	4.633	168.099	0.892
3500.000	1.356	328.463	3499.826	-3.192	-0.704	-3.192	3.269	192.434	0.913
3600.000	0.897	350.733	3599.806	-1.411	-1.449	-1.411	2.023	225.754	0.626
3700.000	0.867	357.956	3699.795	0.117	-1.602	0.117	1.606	274.191	0.115
3800.000	0.797	0.018	3799.784	1.569	-1.629	1.569	2.262	313.939	0.076
3900.000	0.921	6.915	3899.773	3.063	-1.532	3.063	3.425	333.435	0.161
4000.000	0.710	356.725	3999.763	4.480	-1.470	4.480	4.715	341.830	0.256
4100.000	0.368	25.592	4099.758	5.388	-1.367	5.388	5.559	345.765	0.426
4200.000	0.463	359.508	4199.756	6.081	-1.232	6.081	6.205	348.551	0.209
4300.000	0.514	7.121	4299.752	6.930	-1.179	6.930	7.030	350.341	0.083
4400.000	0.411	358.128	4399.749	7.734	-1.136	7.734	7.817	351.647	0.125
4500.000	0.175	356.671	4499.747	8.246	-1.156	8.246	8.326	352.018	0.236
4600.000	0.202	244.357	4599.747	8.322	-1.324	8.322	8.427	350.960	0.314
4700.000	0.512	256.082	4699.745	8.138	-1.917	8.138	8.361	346.745	0.317
4800.000	0.421	253.854	4799.742	7.929	-2.704	7.929	8.377	341.169	0.093
4900.000	0.792	245.833	4899.736	7.544	-3.687	7.544	8.396	333.952	0.380
5000.000	0.864	264.925	4999.726	7.194	-5.068	7.194	8.800	324.836	0.283
5100.000	0.803	270.712	5099.715	7.136	-6.519	7.136	9.666	317.586	0.104
5200.000	0.716	271.822	5199.706	7.165	-7.844	7.165	10.624	312.407	0.089
5300.000	1.364	269.043	5299.689	7.165	-9.658	7.165	12.026	306.568	0.650
5400.000	1.596	283.482	5399.656	7.469	-12.203	7.469	14.307	301.471	0.438
5500.000	1.264	314.244	5499.626	8.564	-14.347	8.564	16.709	300.832	0.824
5600.000	1.578	300.265	5599.596	10.027	-16.326	10.027	19.160	301.556	0.466
5700.000	1.949	298.481	5699.548	11.531	-19.010	11.531	22.234	301.241	0.375
5800.000	1.853	283.285	5799.494	12.714	-22.078	12.714	25.477	299.936	0.511
5900.000	2.287	301.060	5899.430	14.115	-25.361	14.115	29.024	299.099	0.770

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	2.484	309.116	5999.343	16.511	-28.751	16.511	33.155	299.868	0.388
6100.000	2.029	331.632	6099.267	19.436	-31.274	19.436	36.821	301.861	0.987
6200.000	1.505	330.847	6199.219	22.141	-32.754	22.141	39.536	304.058	0.525
6300.000	1.705	332.094	6299.180	24.603	-34.090	24.603	42.041	305.817	0.203
6400.000	1.639	325.597	6399.138	27.097	-35.595	27.097	44.736	307.281	0.201
6500.000	1.345	332.129	6499.104	29.315	-36.952	29.315	47.168	308.426	0.340
6600.000	1.727	347.782	6599.068	31.825	-37.819	31.825	49.428	310.081	0.564
6700.000	3.192	334.838	6698.974	35.818	-39.322	35.818	53.189	312.330	1.558
6800.000	4.453	327.155	6798.750	41.599	-42.611	41.599	59.550	314.312	1.358
6900.000	5.259	313.328	6898.394	48.006	-48.050	48.006	67.922	314.973	1.415
6950.000	5.879	310.220	6948.158	51.231	-51.673	51.231	72.765	314.754	1.380