



Company/Rig: NOBLE ENERGY/ CORETECH  
WELL/API#: FOSS 14-43/05-123-26500  
DECLINATION: 8.22  
TD AS DRILLED: 7,050 FEET  
COUNTY/STATE: WELD/COLORADO  
Latitude: 40.480, Longitude: -104.516  
GRID North is 0.640 Degrees East of True North  
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,675 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

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

Minimum Curvature Method

Report Date/Time: 4/21/2015 / 13:45

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	0.972	333.490	99.995	0.759	-0.379	0.759	0.848	333.490	0.972
200.000	0.634	335.704	199.985	2.023	-0.985	2.023	2.250	334.034	0.339
300.000	0.502	328.205	299.980	2.900	-1.444	2.900	3.239	333.533	0.152
400.000	0.458	282.471	399.977	3.359	-2.065	3.359	3.943	328.413	0.375
500.000	0.548	277.333	499.973	3.506	-2.931	3.506	4.570	320.109	0.101
600.000	0.592	286.936	599.968	3.718	-3.900	3.718	5.388	313.632	0.105
700.000	0.668	289.895	699.962	4.067	-4.942	4.067	6.400	309.450	0.082
800.000	0.772	294.471	799.954	4.544	-6.103	4.544	7.609	306.669	0.119
900.000	0.804	298.488	899.945	5.157	-7.332	5.157	8.964	305.122	0.064
1000.000	0.776	299.489	999.935	5.825	-8.538	5.825	10.336	304.304	0.031
1100.000	0.786	301.587	1099.926	6.518	-9.712	6.518	11.696	303.866	0.030
1200.000	0.861	306.685	1199.916	7.326	-10.899	7.326	13.132	303.909	0.105
1300.000	0.829	310.092	1299.905	8.241	-12.055	8.241	14.602	304.357	0.060
1400.000	0.856	308.062	1399.894	9.167	-13.196	9.167	16.068	304.787	0.041
1500.000	0.867	304.066	1499.883	10.051	-14.411	10.051	17.570	304.895	0.061
1600.000	0.504	315.347	1599.876	10.788	-15.347	10.788	18.759	305.105	0.385
1700.000	0.442	312.768	1699.872	11.363	-15.939	11.363	19.575	305.485	0.066
1800.000	0.596	327.386	1799.868	12.063	-16.503	12.063	20.442	306.166	0.202
1900.000	0.693	10.427	1899.862	13.097	-16.674	13.097	21.202	308.148	0.481

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	1.051	25.865	1999.851	14.517	-16.164	14.517	21.726	311.926	0.425
2100.000	1.156	23.939	2099.832	16.264	-15.355	16.264	22.367	316.645	0.111
2200.000	1.099	27.150	2199.813	18.038	-14.509	18.038	23.149	321.190	0.085
2300.000	1.112	25.323	2299.794	19.768	-13.656	19.768	24.026	325.363	0.037
2400.000	1.445	24.452	2399.769	21.793	-12.719	21.793	25.233	329.730	0.334
2500.000	1.378	15.404	2499.739	24.100	-11.878	24.100	26.868	333.764	0.233
2600.000	1.213	3.622	2599.714	26.316	-11.491	26.316	28.716	336.411	0.312
2700.000	1.088	358.230	2699.693	28.322	-11.454	28.322	30.550	337.981	0.165
2800.000	1.088	358.886	2799.675	30.221	-11.502	30.221	32.335	339.164	0.012
2900.000	0.926	16.995	2899.660	31.943	-11.284	31.943	33.877	340.544	0.355
3000.000	0.782	25.830	2999.649	33.330	-10.750	33.330	35.021	342.123	0.194
3100.000	0.805	22.097	3099.639	34.596	-10.188	34.596	36.065	343.590	0.057
3200.000	0.743	20.181	3199.630	35.855	-9.701	35.855	37.144	344.861	0.068
3300.000	0.691	26.231	3299.622	37.004	-9.210	37.004	38.133	346.023	0.091
3400.000	0.719	23.939	3399.615	38.119	-8.689	38.119	39.097	347.159	0.040
3500.000	0.645	30.729	3499.608	39.177	-8.146	39.177	40.015	348.253	0.110
3600.000	0.801	33.454	3599.600	40.244	-7.474	40.244	40.932	349.480	0.159
3700.000	0.763	66.106	3699.591	41.097	-6.480	41.097	41.604	351.039	0.441
3800.000	0.788	61.890	3799.582	41.690	-5.265	41.690	42.021	352.802	0.062
3900.000	0.944	45.263	3899.571	42.594	-4.074	42.594	42.788	354.537	0.295
4000.000	1.340	38.308	3999.551	44.091	-2.764	44.091	44.178	356.414	0.418
4100.000	1.729	34.406	4099.515	46.253	-1.187	46.253	46.268	358.530	0.402
4200.000	2.132	39.639	4199.458	48.930	0.853	48.930	48.938	0.998	0.440
4300.000	2.653	36.389	4299.370	52.226	3.413	52.226	52.337	3.739	0.538
4400.000	2.741	39.354	4399.259	55.938	6.302	55.938	56.292	6.428	0.165
4500.000	2.370	44.388	4499.160	59.264	9.264	59.264	59.984	8.884	0.433
4600.000	2.018	46.836	4599.087	61.946	11.994	61.946	63.096	10.958	0.364
4700.000	2.409	52.262	4699.012	64.437	14.941	64.437	66.146	13.054	0.443
4800.000	1.879	66.638	4798.942	66.373	18.107	66.373	68.798	15.260	0.751
4900.000	1.146	92.351	4898.908	66.982	20.611	66.982	70.081	17.103	0.981
5000.000	1.077	98.367	4998.889	66.804	22.539	66.804	70.504	18.644	0.135
5100.000	1.028	86.004	5098.872	66.730	24.363	66.730	71.038	20.057	0.232
5200.000	0.684	69.268	5198.861	67.004	25.816	67.004	71.805	21.071	0.422
5300.000	0.776	85.875	5298.853	67.263	27.049	67.263	72.498	21.907	0.230
5400.000	1.287	95.415	5398.837	67.206	28.842	67.206	73.134	23.227	0.537
5500.000	1.399	88.041	5498.809	67.142	31.180	67.142	74.028	24.909	0.206
5600.000	1.008	110.241	5598.788	66.879	33.225	66.879	74.678	26.418	0.601
5700.000	1.028	119.370	5698.772	66.135	34.833	66.135	74.747	27.775	0.163
5800.000	1.139	118.830	5798.754	65.215	36.485	65.215	74.728	29.225	0.111
5900.000	1.067	109.153	5898.735	64.431	38.235	64.431	74.922	30.686	0.199

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	0.500	118.250	5998.726	63.918	39.500	63.918	75.139	31.715	0.578
6100.000	0.480	132.475	6098.722	63.429	40.193	63.429	75.091	32.362	0.123
6200.000	0.374	109.356	6198.719	63.038	40.811	63.038	75.095	32.919	0.200
6300.000	0.383	123.144	6298.717	62.747	41.398	62.747	75.173	33.415	0.091
6400.000	0.479	7.868	6398.716	62.978	41.735	62.978	75.552	33.532	0.730
6500.000	0.516	118.692	6498.714	63.177	42.187	63.177	75.967	33.734	0.819
6600.000	0.382	113.839	6598.711	62.826	42.887	62.826	76.068	34.318	0.139
6700.000	0.755	80.005	6698.706	62.806	43.840	62.806	76.593	34.916	0.486
6750.000	1.078	96.437	6748.699	62.810	44.632	62.810	77.053	35.397	0.827