



Company/Rig: NOBLE ENERGY/ CORETECH
WELL/API#: FOSS 14-41/05-123-26498
DECLINATION: 8.22
TD AS DRILLED: 7,021 FEET
COUNTY/STATE: WELD/COLORADO
Latitude: 40.485, Longitude: -104.510
GRID North is 0.640 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,679 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 4/21/2015 / 11:40

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	0.783	161.386	99.997	-0.647	0.218	-0.647	0.683	161.386	0.783
200.000	0.689	155.643	199.989	-1.842	0.684	-1.842	1.965	159.631	0.119
300.000	0.846	158.518	299.980	-3.077	1.202	-3.077	3.304	158.657	0.162
400.000	1.644	175.815	399.956	-5.195	1.578	-5.195	5.429	163.109	0.873
500.000	2.521	182.670	499.889	-8.823	1.580	-8.823	8.963	169.848	0.910
600.000	2.961	182.581	599.774	-13.600	1.361	-13.600	13.668	174.285	0.440
700.000	3.221	181.958	699.628	-18.988	1.149	-18.988	19.022	176.538	0.263
800.000	3.509	180.819	799.456	-24.856	1.009	-24.856	24.876	177.675	0.296
900.000	3.780	178.217	899.254	-31.211	1.068	-31.211	31.229	178.041	0.317
1000.000	4.016	175.766	999.022	-37.999	1.429	-37.999	38.026	177.846	0.289
1100.000	4.106	174.614	1098.771	-45.055	2.024	-45.055	45.101	177.428	0.121
1200.000	3.939	169.775	1198.525	-51.999	2.969	-51.999	52.084	176.732	0.378
1300.000	3.525	173.641	1298.313	-58.435	3.919	-58.435	58.566	176.163	0.484
1400.000	3.238	174.033	1398.139	-64.299	4.553	-64.299	64.460	175.949	0.288
1500.000	3.066	174.533	1497.987	-69.769	5.102	-69.769	69.956	175.818	0.174
1600.000	2.853	174.282	1597.854	-74.908	5.605	-74.908	75.118	175.721	0.213
1700.000	2.634	174.269	1697.739	-79.672	6.082	-79.672	79.904	175.635	0.219
1800.000	2.404	175.343	1797.643	-84.049	6.482	-84.049	84.298	175.590	0.235
1900.000	2.182	167.395	1897.563	-87.997	7.068	-87.997	88.281	175.408	0.387

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	2.119	165.686	1997.492	-91.647	7.940	-91.647	91.990	175.048	0.090
2100.000	2.094	164.216	2097.425	-95.197	8.894	-95.197	95.611	174.662	0.059
2200.000	1.953	166.438	2197.362	-98.612	9.791	-98.612	99.096	174.330	0.161
2300.000	1.933	172.093	2297.305	-101.939	10.423	-101.939	102.471	174.162	0.193
2400.000	1.949	170.426	2397.248	-105.287	10.937	-105.287	105.853	174.069	0.059
2500.000	1.765	176.304	2497.195	-108.500	11.320	-108.500	109.089	174.044	0.264
2600.000	1.323	179.018	2597.159	-111.191	11.439	-111.191	111.778	174.126	0.448
2700.000	1.233	176.403	2697.134	-113.419	11.526	-113.419	114.003	174.197	0.107
2800.000	1.239	176.536	2797.110	-115.572	11.659	-115.572	116.159	174.240	0.006
2900.000	1.280	179.493	2897.086	-117.768	11.734	-117.768	118.351	174.310	0.077
3000.000	1.301	180.688	2997.061	-120.020	11.730	-120.020	120.592	174.418	0.034
3100.000	1.383	184.593	3097.033	-122.357	11.620	-122.357	122.908	174.575	0.123
3200.000	1.913	192.068	3196.992	-125.192	11.174	-125.192	125.690	174.899	0.571
3300.000	2.319	183.644	3296.924	-128.844	10.697	-128.844	129.287	175.254	0.511
3400.000	2.587	178.082	3396.832	-133.119	10.644	-133.119	133.544	175.429	0.358
3500.000	2.757	175.126	3496.723	-137.771	10.924	-137.771	138.203	175.467	0.218
3600.000	2.862	179.190	3596.603	-142.663	11.163	-142.663	143.099	175.526	0.225
3700.000	2.885	173.241	3696.478	-147.659	11.495	-147.659	148.106	175.549	0.299
3800.000	2.941	187.302	3796.350	-152.703	11.465	-152.703	153.132	175.706	0.715
3900.000	2.837	201.169	3896.224	-157.555	10.245	-157.555	157.888	176.280	0.705
4000.000	2.627	184.118	3996.112	-162.149	9.187	-162.149	162.409	176.757	0.836
4100.000	2.296	188.531	4096.020	-166.416	8.725	-166.416	166.644	176.999	0.381
4200.000	2.348	210.300	4195.939	-170.165	7.394	-170.165	170.326	177.512	0.878
4300.000	2.051	207.726	4295.866	-173.518	5.528	-173.518	173.607	178.175	0.313
4400.000	1.851	184.891	4395.809	-176.712	4.558	-176.712	176.771	178.523	0.797
4500.000	1.748	187.666	4495.760	-179.832	4.216	-179.832	179.882	178.657	0.135
4600.000	1.597	193.706	4595.717	-182.698	3.683	-182.698	182.735	178.845	0.232
4700.000	0.903	180.365	4695.693	-184.839	3.348	-184.839	184.869	178.962	0.749
4800.000	0.819	247.506	4795.684	-185.900	2.682	-185.900	185.919	179.173	0.955
4900.000	1.065	280.065	4895.671	-186.011	1.107	-186.011	186.014	179.659	0.579
5000.000	1.048	279.303	4995.654	-185.701	-0.711	-185.701	185.702	180.219	0.022
5100.000	0.781	277.924	5095.641	-185.459	-2.288	-185.459	185.473	180.707	0.267
5200.000	0.216	0.366	5195.638	-185.177	-2.962	-185.177	185.200	180.916	0.783
5300.000	0.920	82.665	5295.633	-184.885	-2.165	-184.885	184.898	180.671	0.916
5400.000	1.829	100.446	5395.604	-185.072	0.201	-185.072	185.072	179.938	0.994
5500.000	2.007	128.503	5495.550	-186.452	3.141	-186.452	186.478	179.035	0.946
5600.000	1.202	145.650	5595.510	-188.408	5.103	-188.408	188.477	178.448	0.929
5700.000	0.583	156.785	5695.498	-189.742	5.896	-189.742	189.834	178.220	0.640
5800.000	0.488	136.920	5795.494	-190.521	6.387	-190.521	190.628	178.080	0.207
5900.000	0.320	140.073	5895.491	-191.046	6.857	-191.046	191.169	177.944	0.170

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	0.460	132.135	5995.489	-191.529	7.334	-191.529	191.670	177.807	0.150
6100.000	0.382	137.718	6095.486	-192.045	7.856	-192.045	192.206	177.657	0.088
6200.000	0.216	106.134	6195.485	-192.344	8.261	-192.344	192.522	177.541	0.228
6300.000	0.326	133.822	6295.484	-192.594	8.648	-192.594	192.788	177.429	0.168
6400.000	0.367	147.503	6395.482	-193.061	9.025	-193.061	193.272	177.324	0.092
6500.000	0.463	115.700	6495.479	-193.507	9.561	-193.507	193.743	177.171	0.245
6600.000	0.227	185.960	6595.478	-193.879	9.905	-193.879	194.132	177.075	0.441
6700.000	0.138	339.430	6695.478	-193.963	9.842	-193.963	194.213	177.095	0.357
6750.000	0.073	231.090	6745.477	-193.927	9.796	-193.927	194.174	177.108	0.351