



Company/Rig: NOBLE ENERGY/CORETECH  
WELL/API#: JOHNSON 2/05-123-12389  
DECLINATION: 8.4  
TD AS DRILLED: 7352 FEET  
COUNTY/STATE: WELD / COLORADO  
Latitude: 40.501, Longitude: -104.737  
GRID North is 0.490 Degrees East of True North  
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4813 feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro.ut

Minimum Curvature Method

Report Date/Time: 12/8/2014 / 09:00

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

SURVEYOR: BRIAN BUDD

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	0.850	353.977	99.996	0.737	-0.078	0.737	0.741	353.977	0.850
200.000	0.541	359.626	199.989	1.947	-0.159	1.947	1.953	355.340	0.316
300.000	0.405	353.643	299.985	2.770	-0.201	2.770	2.777	355.852	0.144
400.000	0.486	345.062	399.982	3.531	-0.349	3.531	3.549	354.349	0.105
500.000	0.404	359.714	499.979	4.294	-0.461	4.294	4.319	353.878	0.140
600.000	0.310	339.726	599.978	4.900	-0.556	4.900	4.931	353.527	0.155
700.000	0.453	327.332	699.975	5.486	-0.863	5.486	5.553	351.062	0.164
800.000	0.348	326.268	799.973	6.071	-1.245	6.071	6.198	348.412	0.105
900.000	0.535	297.943	899.970	6.543	-1.826	6.543	6.793	344.403	0.282
1000.000	0.510	306.584	999.966	7.027	-2.597	7.027	7.492	339.720	0.083
1100.000	0.337	294.646	1099.963	7.416	-3.222	7.416	8.085	336.516	0.193
1200.000	0.675	296.415	1199.959	7.800	-4.017	7.800	8.774	332.753	0.338
1300.000	0.437	261.939	1299.954	8.009	-4.922	8.009	9.401	328.426	0.400
1400.000	0.516	299.654	1399.951	8.178	-5.691	8.178	9.964	325.165	0.317
1500.000	0.546	276.389	1499.947	8.454	-6.556	8.454	10.699	322.207	0.216
1600.000	0.118	292.999	1599.945	8.548	-7.124	8.548	11.127	320.190	0.434
1700.000	0.120	213.826	1699.945	8.500	-7.277	8.500	11.190	319.432	0.152
1800.000	0.100	194.525	1799.945	8.328	-7.358	8.328	11.113	318.540	0.042
1900.000	0.243	192.474	1899.944	8.036	-7.426	8.036	10.942	317.261	0.143

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	0.311	209.489	1999.943	7.592	-7.605	7.592	10.747	314.951	0.106
2100.000	0.900	202.285	2099.937	6.629	-8.037	6.629	10.418	309.518	0.592
2200.000	1.269	200.007	2199.919	4.863	-8.713	4.863	9.978	299.164	0.371
2300.000	1.373	205.772	2299.893	2.743	-9.613	2.743	9.997	285.926	0.169
2400.000	1.452	209.851	2399.862	0.565	-10.765	0.565	10.780	273.004	0.128
2500.000	1.654	224.757	2499.826	-1.559	-12.412	-1.559	12.510	262.841	0.450
2600.000	1.506	230.008	2599.788	-3.428	-14.435	-3.428	14.836	256.640	0.207
2700.000	1.476	235.559	2699.754	-5.001	-16.503	-5.001	17.244	253.142	0.147
2800.000	1.479	236.277	2799.721	-6.445	-18.638	-6.445	19.721	250.924	0.019
2900.000	1.358	234.736	2899.690	-7.846	-20.679	-7.846	22.117	249.223	0.127
3000.000	1.114	241.135	2999.667	-8.999	-22.497	-8.999	24.230	248.199	0.280
3100.000	0.914	242.283	3099.651	-9.839	-24.054	-9.839	25.989	247.754	0.201
3200.000	0.831	226.301	3199.640	-10.710	-25.284	-10.710	27.459	247.042	0.256
3300.000	0.899	245.984	3299.629	-11.530	-26.524	-11.530	28.922	246.505	0.303
3400.000	0.593	244.620	3399.620	-12.071	-27.708	-12.071	30.223	246.459	0.306
3500.000	0.562	235.517	3499.615	-12.571	-28.580	-12.571	31.222	246.258	0.097
3600.000	0.873	263.679	3599.607	-12.932	-29.741	-12.932	32.431	246.499	0.461
3700.000	0.702	283.246	3699.598	-12.876	-31.094	-12.876	33.654	247.506	0.316
3800.000	0.651	296.528	3799.591	-12.482	-32.198	-12.482	34.533	248.811	0.164
3900.000	0.790	319.068	3899.583	-11.707	-33.158	-11.707	35.164	250.553	0.313
4000.000	0.846	295.075	3999.573	-10.874	-34.279	-10.874	35.962	252.400	0.345
4100.000	0.990	302.203	4099.561	-10.100	-35.679	-10.100	37.081	254.194	0.183
4200.000	0.642	288.968	4199.550	-9.458	-36.940	-9.458	38.131	255.639	0.393
4300.000	0.470	291.881	4299.546	-9.123	-37.850	-9.123	38.934	256.449	0.175
4400.000	0.622	275.132	4399.541	-8.921	-38.771	-8.921	39.784	257.041	0.219
4500.000	0.547	296.512	4499.536	-8.660	-39.738	-8.660	40.671	257.706	0.229
4600.000	0.732	245.239	4599.530	-8.714	-40.745	-8.714	41.667	257.928	0.578
4700.000	0.714	238.802	4699.523	-9.305	-41.858	-9.305	42.880	257.467	0.083
4800.000	0.910	234.583	4799.512	-10.087	-43.038	-10.087	44.204	256.809	0.205
4900.000	1.017	229.487	4899.498	-11.124	-44.360	-11.124	45.733	255.922	0.137
5000.000	1.176	232.641	4999.480	-12.323	-45.850	-12.323	47.477	254.956	0.170
5100.000	0.972	225.685	5099.462	-13.539	-47.273	-13.539	49.174	254.018	0.242
5200.000	1.370	214.688	5199.441	-15.115	-48.561	-15.115	50.859	252.711	0.455
5300.000	0.851	195.834	5299.423	-16.812	-49.444	-16.812	52.224	251.221	0.628
5400.000	0.636	191.799	5399.414	-18.070	-49.760	-18.070	52.939	250.042	0.221
5500.000	0.747	194.837	5499.407	-19.244	-50.040	-19.244	53.613	248.965	0.117
5600.000	0.982	179.099	5599.396	-20.731	-50.194	-20.731	54.306	247.558	0.332
5700.000	0.748	173.398	5699.384	-22.236	-50.105	-22.236	54.818	246.069	0.248
5800.000	0.914	184.705	5799.374	-23.680	-50.095	-23.680	55.410	244.700	0.232
5900.000	0.913	158.204	5899.361	-25.214	-49.865	-25.214	55.877	243.177	0.419

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	0.476	148.388	5999.354	-26.307	-49.352	-26.307	55.926	241.940	0.451
6100.000	0.757	131.402	6099.348	-27.098	-48.639	-27.098	55.678	240.877	0.333
6200.000	0.727	154.200	6199.340	-28.106	-47.867	-28.106	55.508	239.580	0.295
6300.000	0.846	138.855	6299.330	-29.233	-47.105	-29.233	55.439	238.177	0.241
6400.000	0.537	132.496	6399.323	-30.105	-46.274	-30.105	55.205	236.952	0.319
6500.000	0.599	135.952	6499.318	-30.798	-45.565	-30.798	54.997	235.945	0.071
6600.000	0.512	167.316	6599.314	-31.610	-45.103	-31.610	55.077	234.976	0.312
6700.000	0.727	173.449	6699.308	-32.676	-44.933	-32.676	55.558	233.974	0.225
6800.000	0.257	181.233	6799.304	-33.531	-44.865	-33.531	56.011	233.226	0.474
6900.000	0.241	250.951	6899.303	-33.824	-45.068	-33.824	56.349	233.111	0.285
7000.000	0.272	270.966	6999.302	-33.889	-45.505	-33.889	56.737	233.324	0.094
7100.000	0.272	215.700	7099.301	-34.077	-45.880	-34.077	57.151	233.397	0.252
7200.000	0.493	275.452	7199.299	-34.229	-46.447	-34.229	57.697	233.612	0.426