



Company/Rig: NOBLE ENERGY/ CORETECH  
WELL: WELLS RANCH AF 06-03  
DECLINATION: 8.21  
TD AS DRILLED: 6,766 FEET  
COUNTY/STATE: WELD/COLORADO  
Latitude: 40.434, Longitude: -104.368  
GRID North is 0.730 Degrees East of True North  
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,670 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

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

Minimum Curvature Method

Report Date/Time: 10/14/2014 / 13:37

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	0.504	130.449	99.999	-0.285	0.335	-0.285	0.440	130.449	0.504
200.000	0.611	166.695	199.994	-1.089	0.792	-1.089	1.347	143.977	0.361
300.000	0.591	176.856	299.989	-2.123	0.943	-2.123	2.323	156.049	0.108
400.000	0.490	174.749	399.984	-3.064	1.010	-3.064	3.226	161.746	0.103
500.000	0.296	133.673	499.982	-3.667	1.236	-3.667	3.870	161.372	0.330
600.000	0.413	85.003	599.980	-3.814	1.782	-3.814	4.210	154.954	0.311
700.000	0.334	88.040	699.978	-3.773	2.433	-3.773	4.489	147.182	0.082
800.000	0.221	76.567	799.977	-3.718	2.912	-3.718	4.722	141.933	0.126
900.000	0.371	107.850	899.976	-3.772	3.407	-3.772	5.083	137.911	0.215
1000.000	0.333	126.178	999.974	-4.043	3.950	-4.043	5.652	135.668	0.118
1100.000	0.297	126.178	1099.972	-4.368	4.394	-4.368	6.196	134.829	0.036
1200.000	0.300	129.398	1199.971	-4.687	4.806	-4.687	6.713	134.285	0.017
1300.000	0.277	129.090	1299.970	-5.006	5.195	-5.006	7.214	133.934	0.022
1400.000	0.137	154.944	1399.969	-5.266	5.434	-5.266	7.567	134.103	0.165
1500.000	0.034	224.054	1499.969	-5.396	5.464	-5.396	7.679	134.642	0.129
1600.000	0.175	329.009	1599.969	-5.286	5.364	-5.286	7.531	134.581	0.186
1700.000	0.227	352.025	1699.968	-4.960	5.258	-4.960	7.229	133.327	0.095
1800.000	0.447	287.278	1799.967	-4.648	4.858	-4.648	6.724	133.734	0.406
1900.000	0.544	277.456	1899.963	-4.471	4.015	-4.471	6.009	138.072	0.128

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	0.511	298.199	1999.959	-4.199	3.152	-4.199	5.250	143.102	0.193
2100.000	0.543	291.749	2099.955	-3.813	2.319	-3.813	4.463	148.686	0.068
2200.000	0.586	279.548	2199.950	-3.552	1.375	-3.552	3.809	158.839	0.127
2300.000	0.176	326.187	2299.948	-3.340	0.786	-3.340	3.431	166.764	0.483
2400.000	0.229	37.109	2399.947	-3.054	0.821	-3.054	3.162	164.955	0.238
2500.000	0.256	56.555	2499.946	-2.772	1.127	-2.772	2.992	157.864	0.086
2600.000	0.382	79.854	2599.945	-2.590	1.642	-2.590	3.066	147.625	0.179
2700.000	0.334	86.380	2699.943	-2.513	2.261	-2.513	3.380	138.012	0.063
2800.000	0.418	124.033	2799.941	-2.698	2.855	-2.698	3.928	133.386	0.255
2900.000	0.610	142.469	2899.937	-3.324	3.481	-3.324	4.814	133.680	0.251
3000.000	0.872	140.325	2999.928	-4.332	4.291	-4.332	6.098	135.271	0.264
3100.000	0.784	146.720	3099.918	-5.490	5.153	-5.490	7.529	136.815	0.128
3200.000	0.652	117.656	3199.910	-6.326	6.032	-6.326	8.741	136.362	0.382
3300.000	0.186	58.911	3299.908	-6.507	6.675	-6.507	9.322	134.267	0.578
3400.000	1.016	37.509	3399.901	-5.720	7.354	-5.720	9.316	127.875	0.846
3500.000	1.930	33.505	3499.867	-3.613	8.823	-3.613	9.534	112.267	0.919
3600.000	2.293	35.636	3599.799	-0.583	10.918	-0.583	10.933	93.056	0.372
3700.000	2.780	40.722	3699.701	2.881	13.666	2.881	13.966	78.095	0.536
3800.000	2.457	46.864	3799.597	6.185	16.812	6.185	17.914	69.802	0.427
3900.000	2.356	49.151	3899.509	8.995	19.931	8.995	21.867	65.710	0.140
4000.000	2.315	47.827	3999.425	11.695	22.983	11.695	25.787	63.030	0.067
4100.000	2.053	31.380	4099.354	14.581	25.413	14.581	29.298	60.154	0.676
4200.000	2.106	38.475	4199.288	17.548	27.488	17.548	32.612	57.446	0.263
4300.000	2.386	42.678	4299.211	20.517	30.042	20.517	36.380	55.670	0.325
4400.000	2.904	46.132	4399.104	23.803	33.279	23.803	40.916	54.426	0.541
4500.000	3.837	51.398	4498.931	27.645	37.720	27.645	46.766	53.762	0.982
4600.000	4.701	56.821	4598.653	31.975	43.765	31.975	54.201	53.847	0.953
4700.000	4.909	67.827	4698.303	35.832	51.156	35.832	62.457	54.991	0.944
4800.000	4.880	78.008	4797.941	38.331	59.280	38.331	70.593	57.113	0.868
4900.000	3.985	72.826	4897.641	40.241	66.761	40.241	77.951	58.920	0.980
5000.000	3.080	76.363	4997.450	41.900	72.692	41.900	83.904	60.040	0.930
5100.000	2.185	84.619	5097.344	42.713	77.202	42.713	88.230	61.046	0.970
5200.000	1.468	106.541	5197.293	42.527	80.327	42.527	90.890	62.102	0.989
5300.000	1.082	115.474	5297.268	41.756	82.407	41.756	92.383	63.128	0.433
5400.000	0.807	169.647	5397.257	40.657	83.386	40.657	92.770	64.007	0.894
5500.000	0.370	149.976	5497.251	39.684	83.674	39.684	92.608	64.626	0.475
5600.000	0.485	151.110	5597.248	39.034	84.040	39.034	92.663	65.086	0.115
5700.000	0.477	142.322	5697.245	38.334	84.499	38.334	92.788	65.598	0.074
5800.000	0.359	165.831	5797.242	37.701	84.831	37.701	92.831	66.038	0.206
5900.000	0.295	146.212	5897.241	37.183	85.050	37.183	92.823	66.385	0.128

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	0.162	101.356	5997.240	36.942	85.332	36.942	92.985	66.591	0.213
6100.000	0.182	148.090	6097.240	36.779	85.555	36.779	93.125	66.738	0.138
6200.000	0.152	109.780	6197.239	36.600	85.763	36.600	93.246	66.889	0.113
6300.000	0.020	81.814	6297.239	36.558	85.905	36.558	93.360	66.947	0.134
6400.000	0.353	61.385	6397.238	36.708	86.193	36.708	93.684	66.932	0.334
6500.000	0.351	50.262	6497.236	37.051	86.699	37.051	94.284	66.860	0.068