



Company/Rig: NOBLE ENERGY/PRODUCTION
WELL/API#: WELLS RANCH USX BB 5-11/05-123-26211
DECLINATION: 8.27
TD AS DRILLED: 7005 FEET
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.42715, Longitude: -104.46271
Grid Convergence Applied = -0.67 degs (NAD 27)
Grid North = True North -0.67 degs



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4704'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 5/22/2015 / 10:50

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JASON KINCHELOW

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	0.149	154.802	100.000	-0.117	0.055	-0.117	0.130	154.802	0.149
200.000	0.121	118.480	200.000	-0.285	0.203	-0.285	0.350	144.507	0.088
300.000	0.357	169.283	299.999	-0.642	0.354	-0.642	0.733	151.110	0.296
400.000	0.145	278.981	399.998	-0.929	0.287	-0.929	0.972	162.827	0.429
500.000	0.241	286.657	499.998	-0.849	-0.040	-0.849	0.850	182.690	0.099
600.000	0.371	324.810	599.996	-0.523	-0.428	-0.523	0.676	219.292	0.235
700.000	0.373	317.204	699.994	-0.020	-0.836	-0.020	0.836	268.658	0.049
800.000	0.373	321.008	799.992	0.472	-1.262	0.472	1.347	290.506	0.025
900.000	0.254	335.809	899.990	0.927	-1.557	0.927	1.812	300.752	0.143
1000.000	0.399	334.891	999.989	1.443	-1.795	1.443	2.304	308.794	0.145
1100.000	0.388	324.160	1099.986	2.033	-2.141	2.033	2.952	313.509	0.074
1200.000	0.382	341.178	1199.984	2.622	-2.447	2.622	3.587	316.981	0.114
1300.000	0.419	332.305	1299.982	3.262	-2.724	3.262	4.250	320.126	0.073
1400.000	0.483	307.700	1399.979	3.843	-3.228	3.843	5.019	319.972	0.202
1500.000	0.755	246.886	1499.974	3.843	-4.167	3.843	5.668	312.679	0.669
1600.000	1.078	230.676	1599.961	2.988	-5.501	2.988	6.260	298.509	0.412
1700.000	0.952	195.908	1699.946	1.593	-6.456	1.593	6.650	283.860	0.618
1800.000	0.748	188.578	1799.935	0.149	-6.781	0.149	6.783	271.256	0.230

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
1900.000	0.107	201.225	1899.932	-0.584	-6.912	-0.584	6.937	265.167	0.644
2000.000	0.177	308.100	1999.932	-0.576	-7.068	-0.576	7.092	265.338	0.232
2100.000	0.316	334.764	2099.931	-0.231	-7.307	-0.231	7.311	268.187	0.177
2200.000	0.488	26.084	2199.929	0.401	-7.238	0.401	7.249	273.172	0.381
2300.000	1.036	39.731	2299.919	1.479	-6.472	1.479	6.639	282.873	0.573
2400.000	1.134	35.224	2399.902	2.983	-5.324	2.983	6.102	299.264	0.130
2500.000	1.188	79.203	2499.883	3.986	-3.735	3.986	5.462	316.865	0.871
2600.000	1.326	91.784	2599.859	4.144	-1.560	4.144	4.428	339.373	0.308
2700.000	1.176	120.458	2699.836	3.588	0.481	3.588	3.620	7.641	0.636
2800.000	1.189	111.875	2799.815	2.681	2.329	2.681	3.551	40.981	0.177
2900.000	1.137	121.933	2899.794	1.770	4.133	1.770	4.496	66.823	0.210
3000.000	0.715	116.801	2999.781	0.964	5.532	0.964	5.616	80.120	0.429
3100.000	0.911	123.858	3099.771	0.239	6.749	0.239	6.753	87.969	0.219
3200.000	0.943	123.663	3199.758	-0.660	8.094	-0.660	8.121	94.659	0.033
3300.000	0.805	114.884	3299.746	-1.411	9.416	-1.411	9.522	98.525	0.193
3400.000	0.783	77.568	3399.737	-1.560	10.721	-1.560	10.833	98.278	0.508
3500.000	0.960	68.163	3499.726	-1.101	12.166	-1.101	12.215	95.171	0.227
3600.000	0.941	74.855	3599.712	-0.575	13.736	-0.575	13.748	92.396	0.113
3700.000	0.993	89.746	3699.698	-0.356	15.395	-0.356	15.399	91.326	0.256
3800.000	1.159	84.551	3799.680	-0.257	17.268	-0.257	17.270	90.851	0.192
3900.000	1.133	79.624	3899.660	0.018	19.247	0.018	19.247	89.948	0.102
4000.000	0.965	64.066	3999.644	0.564	20.978	0.564	20.985	88.460	0.329
4100.000	0.780	20.411	4099.633	1.571	21.973	1.571	22.029	85.911	0.671
4200.000	1.204	338.158	4199.619	3.185	21.819	3.185	22.050	81.696	0.817
4300.000	2.026	323.753	4299.579	5.585	20.383	5.585	21.134	74.676	0.910
4400.000	2.535	324.569	4399.500	8.813	18.056	8.813	20.092	63.984	0.511
4500.000	2.588	324.557	4499.400	12.454	15.465	12.454	19.856	51.156	0.052
4600.000	2.179	323.207	4599.313	15.815	13.018	15.815	20.483	39.458	0.413
4700.000	1.860	323.226	4699.251	18.637	10.908	18.637	21.594	30.340	0.319
4800.000	1.449	302.698	4799.210	20.619	8.872	20.619	22.447	23.281	0.714
4900.000	1.147	291.896	4899.184	21.676	6.879	21.676	22.741	17.608	0.388
5000.000	0.705	291.518	4999.171	22.275	5.379	22.275	22.915	13.576	0.442
5100.000	0.947	230.263	5099.162	21.972	4.171	21.972	22.364	10.749	0.867
5200.000	0.798	245.406	5199.151	21.153	2.902	21.153	21.351	7.811	0.273
5300.000	0.049	130.284	5299.147	20.836	2.301	20.836	20.962	6.302	0.820
5400.000	0.391	112.814	5399.147	20.676	2.648	20.676	20.845	7.298	0.344
5500.000	0.525	76.043	5499.144	20.654	3.407	20.654	20.933	9.366	0.316
5600.000	0.381	85.128	5599.140	20.793	4.182	20.793	21.209	11.373	0.160
5700.000	0.270	96.017	5699.139	20.796	4.747	20.796	21.331	12.859	0.127
5800.000	0.116	29.763	5799.138	20.859	5.031	20.859	21.458	13.561	0.247

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
5900.000	0.078	319.937	5899.138	20.999	5.038	20.999	21.595	13.491	0.115
6000.000	0.304	242.285	5999.138	20.928	4.760	20.928	21.462	12.813	0.297
6100.000	0.576	257.902	6099.135	20.699	4.033	20.699	21.088	11.026	0.295
6200.000	0.304	303.473	6199.132	20.740	3.320	20.740	21.004	9.095	0.423
6300.000	0.975	248.285	6299.126	20.572	2.308	20.572	20.701	6.402	0.839
6400.000	1.366	265.938	6399.105	20.172	0.329	20.172	20.175	0.935	0.527
6500.000	1.776	274.804	6499.067	20.218	-2.404	20.218	20.360	353.220	0.476
6600.000	1.867	282.721	6599.017	20.706	-5.537	20.706	21.434	345.029	0.267
6700.000	1.012	261.758	6698.985	20.938	-8.000	20.938	22.415	339.089	0.990