



DECLINATION: 8.28  
TD AS DRILLED: 6,900 FEET  
COUNTY/STATE: WELD/COLORADO  
VS-Azi: 0.000 Degrees  
Latitude: 40.39011, Longitude: -104.55244  
Grid North = True North -0.61 degs (NAD 27)  
Grid Convergence Applied = -0.61 degs

DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,606 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut  
Minimum Curvature Method  
Report Date/Time: 8/24/2015 / 12:49

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	0.371	155.739	99.999	-0.295	0.133	-0.295	0.324	155.739	0.371
200.000	0.390	143.450	199.997	-0.863	0.469	-0.863	0.982	151.512	0.084
300.000	0.345	156.020	299.995	-1.412	0.793	-1.412	1.619	150.662	0.092
400.000	0.434	170.963	399.993	-2.061	0.975	-2.061	2.280	154.674	0.134
500.000	0.382	179.865	499.990	-2.768	1.036	-2.768	2.955	159.487	0.082
600.000	0.378	180.017	599.988	-3.431	1.036	-3.431	3.584	163.193	0.004
700.000	0.299	183.128	699.986	-4.021	1.022	-4.021	4.149	165.740	0.081
800.000	0.189	204.127	799.985	-4.432	0.940	-4.432	4.531	168.023	0.140
900.000	0.037	267.618	899.985	-4.584	0.841	-4.584	4.661	169.606	0.176
1000.000	0.105	297.522	999.985	-4.543	0.727	-4.543	4.601	170.904	0.076
1100.000	0.100	1.636	1099.985	-4.413	0.648	-4.413	4.460	171.643	0.109
1200.000	0.277	327.145	1199.984	-4.122	0.519	-4.122	4.154	172.817	0.203
1300.000	0.294	345.275	1299.983	-3.670	0.323	-3.670	3.685	174.972	0.092
1400.000	0.267	29.541	1399.982	-3.219	0.373	-3.219	3.241	173.396	0.213
1500.000	0.380	22.239	1499.981	-2.709	0.613	-2.709	2.778	167.245	0.120
1600.000	0.326	352.448	1599.979	-2.120	0.702	-2.120	2.233	161.693	0.189
1700.000	0.315	1.097	1699.977	-1.563	0.669	-1.563	1.701	156.819	0.049
1800.000	0.504	54.008	1799.975	-1.030	1.030	-1.030	1.457	134.982	0.402

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	0.629	62.410	1899.970	-0.517	1.873	-0.517	1.943	105.439	0.150
2000.000	0.657	53.825	1999.964	0.075	2.822	0.075	2.823	88.468	0.100
2100.000	0.591	44.920	2099.958	0.779	3.649	0.779	3.731	77.950	0.117
2200.000	0.609	52.926	2199.952	1.464	4.437	1.464	4.672	71.735	0.086
2300.000	0.653	42.625	2299.946	2.204	5.247	2.204	5.691	67.213	0.121
2400.000	0.699	17.974	2399.940	3.203	5.821	3.203	6.644	61.175	0.292
2500.000	0.820	359.127	2499.931	4.499	5.998	4.499	7.498	53.129	0.276
2600.000	0.879	347.357	2599.920	5.963	5.820	5.963	8.332	44.302	0.184
2700.000	0.935	343.149	2699.907	7.492	5.415	7.492	9.244	35.858	0.087
2800.000	1.079	330.840	2799.892	9.095	4.720	9.095	10.247	27.427	0.259
2900.000	1.112	325.818	2899.874	10.720	3.716	10.720	11.346	19.118	0.101
3000.000	1.225	319.827	2999.853	12.340	2.481	12.340	12.587	11.369	0.167
3100.000	1.251	329.553	3099.830	14.098	1.238	14.098	14.152	5.020	0.211
3200.000	1.166	321.117	3199.808	15.831	0.047	15.831	15.831	0.168	0.197
3300.000	1.221	324.005	3299.786	17.485	-1.218	17.485	17.527	356.014	0.082
3400.000	1.309	328.276	3399.762	19.319	-2.445	19.319	19.473	352.786	0.129
3500.000	1.338	317.760	3499.735	21.154	-3.831	21.154	21.499	349.736	0.244
3600.000	1.392	309.526	3599.707	22.792	-5.552	22.792	23.458	346.309	0.203
3700.000	1.446	309.962	3699.676	24.375	-7.456	24.375	25.490	342.991	0.055
3800.000	1.180	315.708	3799.650	25.922	-9.142	25.922	27.487	340.573	0.296
3900.000	0.659	310.338	3899.637	27.032	-10.300	27.032	28.928	339.141	0.527
4000.000	0.526	315.331	3999.631	27.731	-11.062	27.731	29.856	338.254	0.143
4100.000	0.393	336.328	4099.628	28.372	-11.522	28.372	30.622	337.897	0.213
4200.000	0.289	342.858	4199.626	28.927	-11.734	28.927	31.216	337.920	0.111
4300.000	0.318	339.880	4299.625	29.428	-11.904	29.428	31.744	337.976	0.033
4400.000	0.268	346.246	4399.624	29.916	-12.055	29.916	32.254	338.053	0.059
4500.000	0.242	1.841	4499.623	30.355	-12.104	30.355	32.679	338.260	0.074
4600.000	0.016	206.942	4599.622	30.553	-12.104	30.553	32.863	338.389	0.257
4700.000	0.389	176.465	4699.622	30.201	-12.089	30.201	32.531	338.184	0.375
4800.000	0.574	182.011	4799.618	29.362	-12.086	29.362	31.752	337.627	0.190
4900.000	0.647	171.702	4899.612	28.303	-12.022	28.303	30.750	336.986	0.132
5000.000	0.711	170.726	4999.605	27.132	-11.840	27.132	29.603	336.424	0.065
5100.000	0.845	162.334	5099.596	25.817	-11.517	25.817	28.269	335.959	0.175
5200.000	0.901	147.580	5199.585	24.451	-10.871	24.451	26.758	336.029	0.231
5300.000	1.178	153.183	5299.568	22.869	-9.986	22.869	24.955	336.411	0.295
5400.000	1.273	153.082	5399.545	20.962	-9.019	20.962	22.820	336.719	0.095
5500.000	1.482	155.620	5499.516	18.794	-7.983	18.794	20.419	336.986	0.218
5600.000	1.399	148.309	5599.485	16.578	-6.808	16.578	17.921	337.673	0.201
5700.000	1.444	144.103	5699.454	14.518	-5.428	14.518	15.500	339.500	0.114
5800.000	1.783	130.095	5799.415	12.496	-3.499	12.496	12.976	344.356	0.518

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	2.657	141.681	5899.339	9.675	-0.872	9.675	9.714	354.853	0.978
6000.000	3.083	141.468	5999.213	5.753	2.241	5.753	6.174	21.278	0.426
6100.000	3.176	139.548	6099.064	1.542	5.713	1.542	5.917	74.899	0.141
6200.000	3.216	142.714	6198.909	-2.799	9.210	-2.799	9.626	106.902	0.181
6300.000	2.792	148.744	6298.771	-7.113	12.173	-7.113	14.099	120.297	0.528
6400.000	2.605	165.183	6398.662	-11.392	14.018	-11.392	18.063	129.100	0.793
6500.000	2.674	182.833	6498.557	-15.919	14.484	-15.919	21.522	137.702	0.812
6600.000	2.243	200.815	6598.467	-20.078	13.674	-20.078	24.292	145.744	0.878
6700.000	1.392	214.220	6698.416	-22.912	12.295	-22.912	26.002	151.781	0.945