

FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level (4919 Ft)

DRILLOG MS GYRO SURVEY CALCULATIONS
Error Model: VES_Gyroflex_Drop_V4_15-Dec-2014.IPM
Filename: msgyro_run01-01-de_01.ut
Minimum Curvature Method
Report Date/Time: 11/16/2015 / 12:13

VES Survey International
Henderson, Colorado
866-835-8333
Brian Brewbaker
RKB=Ground Level= 4919'

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	0.424	6.802	99.999	0.368	0.044	0.368	0.370	6.802	0.424
200.000	0.213	347.380	199.998	0.917	0.047	0.917	0.918	2.940	0.234
300.000	0.378	326.239	299.996	1.373	-0.177	1.373	1.384	352.662	0.195
400.000	0.272	329.976	399.995	1.852	-0.479	1.852	1.913	345.509	0.108
500.000	0.385	337.945	499.993	2.369	-0.724	2.369	2.477	343.015	0.122
600.000	0.271	319.768	599.991	2.862	-1.003	2.862	3.032	340.689	0.153
700.000	0.536	323.469	699.989	3.418	-1.434	3.418	3.707	337.239	0.266
800.000	0.554	312.294	799.984	4.120	-2.071	4.120	4.611	333.317	0.108
900.000	0.621	308.147	899.979	4.780	-2.854	4.780	5.567	329.157	0.079
1000.000	0.536	322.378	999.974	5.485	-3.566	5.485	6.542	326.972	0.166
1100.000	0.730	312.436	1099.968	6.285	-4.322	6.285	7.628	325.489	0.223
1200.000	0.702	300.283	1199.960	7.024	-5.321	7.024	8.812	322.855	0.154
1300.000	0.761	311.056	1299.952	7.770	-6.352	7.770	10.036	320.736	0.150
1400.000	0.808	305.190	1399.943	8.612	-7.429	8.612	11.374	319.221	0.093
1500.000	0.936	303.143	1499.931	9.465	-8.689	9.465	12.848	317.450	0.132
1600.000	0.996	305.532	1599.917	10.417	-10.080	10.417	14.495	315.942	0.072
1700.000	1.080	303.175	1699.900	11.438	-11.576	11.438	16.273	314.656	0.094
1800.000	1.084	293.447	1799.883	12.330	-13.233	12.330	18.087	312.977	0.184
1900.000	0.919	251.937	1899.869	12.458	-14.863	12.458	19.394	309.968	0.727
2000.000	1.088	217.879	1999.854	11.460	-16.209	11.460	19.851	305.261	0.610
2100.000	1.474	212.973	2099.829	9.631	-17.492	9.631	19.968	298.838	0.401
2200.000	1.862	205.349	2199.786	7.084	-18.887	7.084	20.172	290.559	0.447
2300.000	1.730	212.698	2299.737	4.345	-20.398	4.345	20.856	282.025	0.266
2400.000	1.916	205.995	2399.687	1.572	-21.947	1.572	22.003	274.098	0.283
2500.000	1.514	213.487	2499.642	-1.032	-23.408	-1.032	23.431	267.475	0.460
2600.000	1.580	221.213	2599.606	-3.171	-25.045	-3.171	25.245	262.785	0.219
2700.000	1.645	217.498	2699.566	-5.347	-26.827	-5.347	27.355	258.729	0.123
2800.000	1.535	216.321	2799.528	-7.565	-28.495	-7.565	29.482	255.132	0.115
2900.000	1.626	211.967	2899.490	-9.848	-30.039	-9.848	31.612	251.850	0.150
3000.000	1.482	208.696	2999.453	-12.185	-31.411	-12.185	33.692	248.797	0.169
3100.000	1.147	225.673	3099.427	-14.019	-32.748	-14.019	35.623	246.825	0.510

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
3200.000	1.137	213.289	3199.407	-15.548	-34.009	-15.548	37.394	245.432	0.247
3300.000	0.855	217.609	3299.392	-16.968	-35.008	-16.968	38.903	244.142	0.292
3400.000	0.651	228.623	3399.383	-17.934	-35.890	-17.934	40.121	243.449	0.249
3500.000	0.523	234.763	3499.378	-18.573	-36.689	-18.573	41.122	243.150	0.143
3600.000	0.286	212.265	3599.375	-19.047	-37.194	-19.047	41.788	242.883	0.281
3700.000	0.028	173.914	3699.375	-19.282	-37.325	-19.282	42.011	242.679	0.264
3800.000	0.162	138.388	3799.375	-19.412	-37.228	-19.412	41.985	242.461	0.141
3900.000	0.751	197.889	3899.371	-20.142	-37.335	-20.142	42.422	241.653	0.683
4000.000	1.033	210.405	3999.359	-21.543	-37.993	-21.543	43.676	240.445	0.341
4100.000	1.254	223.991	4099.340	-23.108	-39.209	-23.108	45.512	239.487	0.349
4200.000	1.629	229.435	4199.308	-24.819	-41.049	-24.819	47.969	238.841	0.398
4300.000	1.819	240.414	4299.263	-26.527	-43.509	-26.527	50.958	238.629	0.381
4400.000	1.863	245.240	4399.211	-27.992	-46.365	-27.992	54.160	238.880	0.161
4500.000	1.950	242.357	4499.156	-29.462	-49.348	-29.462	57.474	239.162	0.129
4600.000	2.203	248.566	4599.090	-30.953	-52.644	-30.953	61.070	239.545	0.338
4700.000	2.001	245.719	4699.023	-32.374	-56.025	-32.374	64.706	239.979	0.227
4800.000	1.675	255.380	4798.972	-33.461	-59.031	-33.461	67.855	240.454	0.449
4900.000	1.631	262.795	4898.930	-34.008	-61.857	-34.008	70.590	241.199	0.218
5000.000	1.184	254.361	4998.900	-34.465	-64.265	-34.465	72.923	241.795	0.491
5100.000	0.967	263.295	5098.882	-34.842	-66.097	-34.842	74.719	242.205	0.274
5200.000	0.865	258.055	5198.869	-35.097	-67.674	-35.097	76.234	242.588	0.131
5300.000	0.985	261.659	5298.856	-35.378	-69.263	-35.378	77.775	242.943	0.133
5400.000	1.170	275.240	5398.839	-35.409	-71.130	-35.409	79.456	243.535	0.315
5500.000	1.179	294.461	5498.818	-34.890	-73.083	-34.890	80.984	244.480	0.392
5600.000	0.999	290.612	5598.800	-34.157	-74.836	-34.157	82.262	245.467	0.194
5700.000	0.832	309.913	5698.787	-33.384	-76.209	-33.384	83.200	246.343	0.348
5800.000	0.720	314.785	5798.778	-32.476	-77.212	-32.476	83.763	247.188	0.130
5900.000	0.826	319.885	5898.769	-31.482	-78.122	-31.482	84.227	248.051	0.126
6000.000	0.674	329.982	5998.761	-30.422	-78.880	-30.422	84.543	248.910	0.201
6100.000	0.778	336.754	6098.753	-29.289	-79.442	-29.289	84.669	249.762	0.135
6200.000	1.063	344.088	6198.740	-27.773	-79.965	-27.773	84.650	250.847	0.308
6300.000	1.302	354.548	6298.718	-25.750	-80.327	-25.750	84.353	252.226	0.321
6400.000	1.238	349.289	6398.694	-23.557	-80.635	-23.557	84.006	253.714	0.133
6500.000	1.731	349.352	6498.660	-21.012	-81.115	-21.012	83.793	255.477	0.494
6600.000	2.082	348.346	6598.604	-17.748	-81.761	-17.748	83.665	257.753	0.353
6700.000	2.034	345.113	6698.540	-14.254	-82.584	-14.254	83.805	260.207	0.126
6800.000	2.388	344.004	6798.465	-10.536	-83.614	-10.536	84.275	262.818	0.357
6900.000	2.451	347.143	6898.376	-6.450	-84.664	-6.450	84.909	265.644	0.147
7000.000	2.903	345.227	6998.267	-1.917	-85.785	-1.917	85.807	268.720	0.461
7100.000	3.435	340.892	7098.114	3.363	-87.412	3.363	87.476	272.203	0.584
7200.000	3.997	341.173	7197.903	9.493	-89.517	9.493	90.019	276.053	0.562
7300.000	4.282	351.563	7297.644	16.484	-91.190	16.484	92.668	280.247	0.801
7400.000	3.375	351.680	7397.419	23.090	-92.164	23.090	95.012	284.065	0.907
7500.000	2.711	353.892	7497.278	28.354	-92.841	28.354	97.075	286.983	0.674
7600.000	1.954	357.711	7597.194	32.409	-93.161	32.409	98.638	289.182	0.772

<div> HORIZONTAL DISPLACEMENT IS 98.638 FEET AT 289.182 DEGREES </div>
