



Company: Extraction Oil & Gas
Well: Graeber 33-33DX
API: 05-123-23837
Rig Name: Production/ CoreTech
State/County: Colorado/Weld
VS-Azi: 0.000 Degrees
Latitude: 40.00888, Longitude: -105.00134
All Azimuths referenced to True North
No Grid Correction Applied



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 7/19/2016 / 14:43

VES Survey International

Henderson, CO 80640

303-853-4976

Sean Bratt

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	0.976	317.076	99.995	0.623	-0.580	0.623	0.851	317.076	0.976
200.000	0.923	321.484	199.981	1.877	-1.661	1.877	2.506	318.491	0.090
300.000	0.745	326.161	299.971	3.046	-2.524	3.046	3.956	320.356	0.190
400.000	0.790	320.289	399.962	4.116	-3.326	4.116	5.292	321.059	0.091
500.000	0.786	329.100	499.952	5.235	-4.119	5.235	6.661	321.804	0.121
600.000	0.671	341.142	599.944	6.377	-4.660	6.377	7.899	323.842	0.191
700.000	0.503	346.467	699.939	7.358	-4.952	7.358	8.870	326.058	0.176
800.000	0.408	352.798	799.936	8.138	-5.100	8.138	9.604	327.928	0.108
900.000	0.198	2.558	899.935	8.664	-5.137	8.664	10.072	329.338	0.215
1000.000	0.136	338.208	999.934	8.947	-5.173	8.947	10.335	329.964	0.093
1100.000	0.147	217.941	1099.934	8.957	-5.296	8.957	10.405	329.405	0.245
1200.000	1.239	197.745	1199.925	7.826	-5.704	7.826	9.684	323.912	1.103
1300.000	3.859	187.453	1299.818	3.459	-6.470	3.459	7.337	298.126	2.649
1400.000	6.339	193.798	1399.415	-5.241	-8.224	-5.241	9.752	237.493	2.540
1500.000	8.509	204.292	1498.575	-17.347	-12.585	-17.347	21.431	215.960	2.550
1600.000	10.418	205.786	1597.210	-32.233	-19.562	-32.233	37.705	211.253	1.924
1700.000	12.253	211.420	1695.258	-49.432	-29.028	-49.432	57.325	210.423	2.141
1800.000	13.424	215.072	1792.758	-67.988	-41.230	-67.988	79.513	211.234	1.425
1900.000	14.680	218.088	1889.765	-87.462	-55.718	-87.462	103.702	212.499	1.454
2000.000	15.587	219.589	1986.296	-107.790	-72.097	-107.790	129.679	213.777	0.988
2100.000	16.162	221.896	2082.483	-128.504	-89.953	-128.504	156.859	214.992	0.854
2200.000	17.429	223.718	2178.216	-149.688	-109.598	-149.688	185.521	216.211	1.372
2300.000	18.451	224.394	2273.353	-171.820	-131.019	-171.820	216.074	217.327	1.043
2400.000	18.717	223.611	2368.139	-194.744	-153.157	-194.744	247.754	218.183	0.365
2500.000	18.349	222.212	2462.954	-218.019	-174.799	-218.019	279.441	218.721	0.577
2600.000	19.169	222.984	2557.641	-241.688	-196.568	-241.688	311.532	219.122	0.857
2700.000	18.213	222.654	2652.366	-265.192	-218.351	-265.192	343.517	219.467	0.961
2800.000	17.563	221.585	2747.532	-287.972	-238.954	-287.972	374.202	219.685	0.728
2900.000	17.487	221.756	2842.890	-310.465	-258.974	-310.465	404.297	219.833	0.092
3000.000	18.307	223.313	2938.051	-333.101	-279.754	-333.101	434.993	220.025	0.950
3100.000	19.486	223.491	3032.660	-356.630	-302.008	-356.630	467.326	220.259	1.180
3200.000	19.725	225.489	3126.863	-380.560	-325.521	-380.560	500.789	220.543	0.711
3300.000	18.863	226.623	3221.247	-403.493	-349.305	-403.493	533.686	220.883	0.940
3400.000	18.727	226.844	3315.914	-425.575	-372.765	-425.575	565.746	221.215	0.153

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
3500.000	18.882	225.608	3410.577	-447.875	-396.039	-447.875	597.862	221.485	0.427
3600.000	19.151	223.951	3505.120	-471.004	-418.986	-471.004	630.392	221.655	0.603
3700.000	19.307	224.320	3599.541	-494.641	-441.921	-494.641	663.298	221.778	0.198
3800.000	18.513	225.387	3694.143	-517.620	-464.773	-517.620	695.661	221.921	0.866
3900.000	18.503	225.309	3788.971	-539.929	-487.355	-539.929	727.350	222.070	0.027
4000.000	18.565	223.610	3883.785	-562.615	-509.616	-562.615	759.107	222.170	0.544
4100.000	18.784	223.873	3978.520	-585.747	-531.754	-585.747	791.115	222.234	0.234
4200.000	18.684	222.437	4073.223	-609.175	-553.721	-609.175	823.226	222.270	0.472
4300.000	18.837	224.374	4167.910	-632.536	-575.820	-632.536	855.378	222.313	0.641
4400.000	19.952	225.241	4262.235	-656.090	-599.226	-656.090	888.553	222.406	1.151
4500.000	20.450	227.179	4356.084	-679.978	-624.154	-679.978	923.005	222.549	0.834
4600.000	20.027	225.038	4449.912	-703.952	-649.084	-703.952	957.527	222.678	0.853
4700.000	20.092	225.264	4543.846	-728.141	-673.400	-728.141	991.795	222.763	0.101
4800.000	20.721	224.805	4637.570	-752.782	-698.068	-752.782	1026.636	222.840	0.649
4900.000	19.238	225.553	4731.549	-776.872	-722.297	-776.872	1060.775	222.915	1.504
5000.000	18.613	223.629	4826.143	-799.960	-745.070	-799.960	1093.190	222.965	0.883
5100.000	20.367	222.034	4920.411	-824.438	-767.735	-824.438	1126.550	222.960	1.833
5200.000	20.161	222.591	5014.221	-850.050	-791.049	-850.050	1161.182	222.941	0.282
5300.000	21.330	223.000	5107.736	-876.038	-815.116	-876.038	1196.602	222.937	1.178
5400.000	20.294	224.053	5201.210	-901.804	-839.578	-901.804	1232.129	222.954	1.102
5500.000	20.278	223.523	5295.008	-926.832	-863.570	-926.832	1266.795	222.976	0.184
5600.000	20.908	222.187	5388.618	-952.619	-887.486	-952.619	1301.966	222.973	0.786
5700.000	21.514	223.568	5481.844	-979.126	-912.107	-979.126	1338.144	222.970	0.785
5800.000	21.232	225.965	5574.968	-1005.00	-937.763	-1005.00	1374.563	223.018	0.918
5900.000	19.958	226.158	5668.575	-1029.41	-963.091	-1029.41	1409.690	223.094	1.276
6000.000	18.770	227.528	5762.917	-1052.09	-987.268	-1052.09	1442.775	223.179	1.272
6100.000	17.802	228.563	5857.867	-1073.07	-1010.60	-1073.07	1474.039	223.283	1.021
6200.000	17.340	228.038	5953.201	-1093.15	-1033.14	-1093.15	1504.114	223.383	0.488
6300.000	16.319	227.024	6048.917	-1112.70	-1054.50	-1112.70	1532.990	223.462	1.062
6400.000	14.800	226.148	6145.249	-1131.12	-1073.99	-1131.12	1559.774	223.516	1.537
6500.000	13.483	227.523	6242.217	-1147.85	-1091.80	-1147.85	1584.163	223.566	1.359
6600.000	12.123	227.652	6339.729	-1162.79	-1108.16	-1162.79	1606.269	223.622	1.360
6700.000	9.497	228.559	6437.945	-1175.33	-1122.11	-1175.33	1624.967	223.673	2.631
6800.000	7.843	229.702	6536.799	-1185.20	-1133.49	-1185.20	1639.974	223.723	1.663
HORIZONTAL DISPLACEMENT IS 1639.974 FEET AT 223.723 DEGREES									