



Company: Anadarko Petroleum
 Well: Fiechter 18-13J7
 API: 05-123-17959
 Rig Name: Production/ CoreTech
 State/County: Colorado/Weld
 Latitude: 40.221, Longitude: -104.939
 Directions are relative to True North
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run02-01-de_01_mrg.ut

Minimum Curvature Method

Report Date/Time: 1/10/2014 / 09:51

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

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	0.297	239.333	100.000	-0.132	-0.223	-0.132	0.259	239.333	0.297
200.000	0.258	243.032	199.998	-0.367	-0.647	-0.367	0.744	240.451	0.043
300.000	0.142	195.865	299.998	-0.588	-0.881	-0.588	1.060	236.279	0.192
400.000	0.309	190.130	399.997	-0.974	-0.963	-0.974	1.369	224.682	0.168
500.000	0.634	179.482	499.993	-1.793	-1.005	-1.793	2.055	209.281	0.335
600.000	0.569	163.542	599.988	-2.822	-0.860	-2.822	2.950	196.943	0.179
700.000	0.825	171.103	699.981	-4.009	-0.608	-4.009	4.055	188.622	0.271
800.000	0.950	178.714	799.969	-5.549	-0.478	-5.549	5.569	184.924	0.172
900.000	0.872	217.729	899.957	-6.979	-0.925	-6.979	7.040	187.549	0.613
1000.000	0.993	153.311	999.946	-8.355	-1.001	-8.355	8.415	186.834	0.999
1100.000	0.808	203.795	1099.935	-9.775	-0.897	-9.775	9.816	185.241	0.786
1200.000	0.651	197.558	1199.927	-10.962	-1.353	-10.962	11.045	187.034	0.175
1300.000	0.525	237.306	1299.922	-11.752	-1.910	-11.752	11.906	189.230	0.417
1400.000	0.606	215.827	1399.917	-12.428	-2.605	-12.428	12.698	191.838	0.226
1500.000	0.718	240.502	1499.911	-13.166	-3.460	-13.166	13.613	194.724	0.303
1600.000	0.698	214.300	1599.904	-13.977	-4.348	-13.977	14.638	197.281	0.321
1700.000	0.744	200.169	1699.896	-15.090	-4.916	-15.090	15.871	198.043	0.183
1800.000	0.394	215.360	1799.891	-15.981	-5.339	-15.981	16.849	198.473	0.378
1900.000	0.429	233.704	1899.888	-16.483	-5.839	-16.483	17.487	199.507	0.135
2000.000	0.493	326.212	1999.886	-16.347	-6.380	-16.347	17.548	201.321	0.667
2100.000	0.618	326.529	2099.881	-15.539	-6.917	-15.539	17.009	203.996	0.125
2200.000	0.455	325.580	2199.877	-14.761	-7.439	-14.761	16.530	206.745	0.164
2300.000	0.563	299.564	2299.873	-14.192	-8.090	-14.192	16.336	209.687	0.252
2400.000	0.436	328.780	2399.869	-13.624	-8.715	-13.624	16.173	212.607	0.280
2500.000	0.476	317.202	2499.866	-12.993	-9.194	-12.993	15.917	215.284	0.100
2600.000	0.553	303.750	2599.862	-12.421	-9.878	-12.421	15.870	218.493	0.143
2700.000	0.374	290.441	2699.859	-12.039	-10.584	-12.039	16.030	221.321	0.208
2800.000	0.298	296.366	2799.857	-11.809	-11.123	-11.809	16.223	223.285	0.083
2900.000	0.374	316.521	2899.856	-11.457	-11.580	-11.457	16.290	225.306	0.139
3000.000	0.401	292.583	2999.853	-11.086	-12.128	-11.086	16.431	227.570	0.163
3100.000	0.461	310.955	3099.851	-10.688	-12.755	-10.688	16.641	230.039	0.150
3200.000	0.379	329.493	3199.848	-10.139	-13.227	-10.139	16.666	232.529	0.158
3300.000	0.730	11.675	3299.843	-9.230	-13.266	-9.230	16.161	235.171	0.516
3400.000	0.731	20.951	3399.835	-8.011	-12.909	-8.011	15.193	238.179	0.118
3500.000	0.866	18.407	3499.826	-6.697	-12.442	-6.697	14.130	241.708	0.140

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
3600.000	0.997	347.443	3599.813	-5.130	-12.393	-5.130	13.413	247.512	0.513
3700.000	0.790	348.559	3699.801	-3.605	-12.719	-3.605	13.220	254.177	0.208
3800.000	0.706	345.507	3799.792	-2.332	-13.010	-2.332	13.217	259.836	0.093
3900.000	0.514	12.680	3899.787	-1.299	-13.065	-1.299	13.130	264.322	0.342
4000.000	0.522	5.153	3999.783	-0.408	-12.926	-0.408	12.933	268.191	0.068
4100.000	0.660	337.717	4099.777	0.579	-13.104	0.579	13.117	272.528	0.311
4200.000	0.549	310.661	4199.772	1.424	-13.686	1.424	13.760	275.940	0.303
4300.000	0.693	282.296	4299.766	1.865	-14.640	1.865	14.758	277.259	0.335
4400.000	0.931	257.489	4399.757	1.818	-16.025	1.818	16.127	276.471	0.420
4500.000	1.181	260.622	4499.740	1.474	-17.835	1.474	17.895	274.724	0.256
4600.000	1.404	247.232	4599.714	0.831	-19.981	0.831	19.998	272.383	0.374
4700.000	1.299	259.971	4699.687	0.160	-22.227	0.160	22.228	270.412	0.318
4800.000	1.008	262.989	4799.666	-0.145	-24.216	-0.145	24.217	269.657	0.296
4900.000	0.690	253.719	4899.655	-0.421	-25.668	-0.421	25.671	269.060	0.346
5000.000	0.649	245.146	4999.648	-0.828	-26.760	-0.828	26.772	268.228	0.108
5100.000	0.815	256.773	5099.640	-1.229	-27.966	-1.229	27.993	267.484	0.221
5200.000	1.078	255.066	5199.627	-1.634	-29.567	-1.634	29.612	266.837	0.264
5300.000	0.337	252.801	5299.618	-1.963	-30.756	-1.963	30.819	266.348	0.741
5400.000	0.468	268.949	5399.616	-2.058	-31.446	-2.058	31.513	266.256	0.172
5500.000	1.000	242.395	5499.607	-2.470	-32.628	-2.470	32.722	265.671	0.618
5600.000	0.821	275.909	5599.595	-2.800	-34.114	-2.800	34.229	265.307	0.552
5700.000	1.615	261.352	5699.572	-2.938	-36.220	-2.938	36.339	265.362	0.845
5800.000	2.237	269.329	5799.516	-3.173	-39.565	-3.173	39.692	265.415	0.677
5900.000	2.836	255.875	5899.418	-3.800	-43.916	-3.800	44.080	265.055	0.840
6000.000	3.758	252.926	5999.251	-5.366	-49.447	-5.366	49.737	263.807	0.937
6100.000	2.804	252.929	6099.086	-7.046	-54.918	-7.046	55.368	262.689	0.954
6200.000	1.941	250.625	6199.000	-8.325	-58.854	-8.325	59.440	261.948	0.868
6300.000	1.139	247.002	6298.963	-9.276	-61.366	-9.276	62.063	261.405	0.807
6400.000	0.522	287.683	6398.953	-9.526	-62.715	-9.526	63.435	261.364	0.817
6500.000	0.769	213.003	6498.948	-9.950	-63.515	-9.950	64.290	261.097	0.807
6600.000	0.748	224.976	6598.939	-10.974	-64.342	-10.974	65.271	260.321	0.160
6700.000	0.748	239.153	6698.931	-11.770	-65.363	-11.770	66.414	259.792	0.185
6800.000	0.299	202.444	6798.926	-12.346	-66.023	-12.346	67.167	259.409	0.539
6900.000	0.993	222.072	6898.919	-13.230	-66.703	-13.230	68.002	258.782	0.719
7000.000	0.855	219.117	6998.906	-14.452	-67.755	-14.452	69.279	257.959	0.146
7100.000	0.361	219.611	7098.901	-15.274	-68.426	-15.274	70.110	257.417	0.494

HORIZONTAL DISPLACEMENT IS
70.110 FEET AT 257.417 DEGREES