

Company: ANADARKO PETROLEUM
 Well: AXELSON 24-19
 API: 05-123-18499
 Rig Name: PRODUCTION/ CANARY
 State/County: COLORADO / WELD
 Latitude: 40.204, Longitude: -104.824
 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_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 8/7/2013 / 18:33

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

866-835-8333

NICK KULA

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	0.425	44.440	99.999	0.265	0.259	0.265	0.370	44.440	0.425
200.000	0.372	46.898	199.997	0.751	0.756	0.751	1.066	45.189	0.055
300.000	0.349	4.695	299.995	1.277	1.018	1.277	1.633	38.566	0.261
400.000	0.184	162.806	399.994	1.428	1.090	1.428	1.796	37.374	0.525
500.000	0.432	95.501	499.993	1.238	1.513	1.238	1.955	50.710	0.399
600.000	0.409	342.638	599.992	1.542	1.782	1.542	2.357	49.125	0.701
700.000	0.388	314.717	699.989	2.121	1.435	2.121	2.561	34.085	0.193
800.000	0.358	246.316	799.988	2.234	0.909	2.234	2.411	22.137	0.420
900.000	0.421	320.728	899.986	2.393	0.390	2.393	2.424	9.259	0.474
1000.000	0.430	293.446	999.983	2.827	-0.187	2.827	2.833	356.220	0.201
1100.000	0.293	339.007	1099.981	3.215	-0.623	3.215	3.275	349.039	0.307
1200.000	0.558	258.208	1199.979	3.354	-1.191	3.354	3.559	340.452	0.587
1300.000	0.586	298.361	1299.975	3.498	-2.118	3.498	4.089	328.806	0.394
1400.000	0.138	305.799	1399.972	3.811	-2.666	3.811	4.651	325.029	0.449
1500.000	0.270	301.379	1499.972	4.005	-2.965	4.005	4.983	323.486	0.132
1600.000	0.475	237.153	1599.970	3.902	-3.514	3.902	5.251	317.993	0.433
1700.000	0.831	301.941	1699.964	4.061	-4.479	4.061	6.046	312.199	0.762
1800.000	0.741	335.572	1799.956	5.033	-5.362	5.033	7.354	313.191	0.463
1900.000	0.805	328.965	1899.946	6.224	-5.991	6.224	8.639	316.092	0.109
2000.000	0.427	282.069	1999.941	6.904	-6.718	6.904	9.633	315.781	0.600
2100.000	0.316	260.809	2099.939	6.938	-7.355	6.938	10.110	313.329	0.176
2200.000	0.335	263.654	2199.937	6.861	-7.917	6.861	10.477	310.912	0.026
2300.000	0.165	205.802	2299.937	6.699	-8.271	6.699	10.644	309.004	0.284
2400.000	0.275	202.179	2399.936	6.347	-8.425	6.347	10.548	306.994	0.110
2500.000	0.390	191.284	2499.934	5.792	-8.582	5.792	10.353	304.015	0.131
2600.000	0.468	258.678	2599.932	5.378	-9.048	5.378	10.526	300.725	0.480
2700.000	0.593	252.063	2699.928	5.138	-9.941	5.138	11.191	297.333	0.140
2800.000	0.859	231.146	2799.920	4.508	-11.018	4.508	11.905	292.254	0.371
2900.000	0.933	244.491	2899.907	3.688	-12.336	3.688	12.876	286.642	0.221

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
3000.000	1.542	257.082	2999.884	3.036	-14.382	3.036	14.699	281.921	0.664
3100.000	1.543	226.474	3099.849	1.808	-16.670	1.808	16.768	276.191	0.814
3200.000	1.313	198.572	3199.819	-0.205	-18.011	-0.205	18.012	269.349	0.724
3300.000	1.410	200.307	3299.791	-2.444	-18.803	-2.444	18.961	262.594	0.106
3400.000	1.211	232.386	3399.766	-4.243	-20.066	-4.243	20.510	258.061	0.749
3500.000	0.395	208.232	3499.756	-5.191	-21.066	-5.191	21.696	256.157	0.866
3600.000	0.168	282.385	3599.755	-5.463	-21.372	-5.463	22.059	255.662	0.384
3700.000	0.776	37.301	3699.752	-4.893	-21.105	-4.893	21.664	256.947	0.860
3800.000	1.150	49.440	3799.738	-3.702	-19.932	-3.702	20.273	259.479	0.424
3900.000	0.971	50.130	3899.721	-2.506	-18.519	-2.506	18.688	262.294	0.180
4000.000	0.455	49.421	3999.712	-1.704	-17.567	-1.704	17.649	264.459	0.516
4100.000	0.271	257.620	4099.712	-1.496	-17.496	-1.496	17.560	265.111	0.706
4200.000	0.908	214.934	4199.706	-2.197	-18.181	-2.197	18.314	263.110	0.732
4300.000	1.282	194.672	4299.688	-3.929	-18.919	-3.929	19.322	258.266	0.533
4400.000	0.945	193.677	4399.669	-5.813	-19.397	-5.813	20.250	253.317	0.338
4500.000	0.346	160.504	4499.662	-6.899	-19.491	-6.899	20.676	250.508	0.682
4600.000	0.507	196.131	4599.660	-7.609	-19.514	-7.609	20.945	248.699	0.303
4700.000	0.867	153.560	4699.653	-8.711	-19.300	-8.711	21.175	245.707	0.601
4800.000	0.613	192.446	4799.645	-9.911	-19.078	-9.911	21.499	242.548	0.548
4900.000	0.717	150.773	4899.639	-10.979	-18.888	-10.979	21.847	239.831	0.483
5000.000	0.524	153.629	4999.633	-11.935	-18.379	-11.935	21.915	237.001	0.195
5100.000	0.255	131.836	5099.631	-12.493	-18.010	-12.493	21.919	235.252	0.303
5200.000	0.415	305.339	5199.630	-12.432	-18.140	-12.432	21.992	235.576	0.669
5300.000	0.371	329.476	5299.628	-11.944	-18.600	-11.944	22.105	237.294	0.170
5400.000	0.538	302.095	5399.625	-11.416	-19.163	-11.416	22.305	239.217	0.270
5500.000	0.413	285.618	5499.621	-11.069	-19.908	-11.069	22.778	240.925	0.184
5600.000	0.604	359.477	5599.618	-10.445	-20.260	-10.445	22.794	242.726	0.630
5700.000	0.585	18.685	5699.613	-9.435	-20.101	-9.435	22.205	244.856	0.199
5800.000	1.371	8.504	5799.598	-7.768	-19.761	-7.768	21.233	248.540	0.802
5900.000	1.587	358.908	5899.564	-5.201	-19.610	-5.201	20.288	255.147	0.328
6000.000	1.134	326.049	5999.537	-2.995	-20.189	-2.995	20.410	261.562	0.883
6100.000	0.929	292.184	6099.522	-1.868	-21.493	-1.868	21.574	265.033	0.632
6200.000	0.829	285.484	6199.510	-1.369	-22.940	-1.369	22.981	266.585	0.143
6300.000	0.681	254.557	6299.502	-1.334	-24.210	-1.334	24.247	266.846	0.427
6400.000	0.112	257.928	6399.499	-1.513	-24.879	-1.513	24.925	266.520	0.569
6500.000	0.237	244.595	6499.499	-1.622	-25.161	-1.622	25.214	266.312	0.130
6600.000	0.684	303.827	6599.496	-1.378	-25.844	-1.378	25.881	266.947	0.599
6700.000	0.786	314.751	6699.487	-0.563	-26.827	-0.563	26.833	268.797	0.173
6800.000	0.195	303.891	6799.483	0.014	-27.455	0.014	27.455	270.030	0.596
6900.000	0.435	217.980	6899.482	-0.190	-27.830	-0.190	27.831	269.608	0.464
7000.000	0.849	240.158	6999.476	-0.859	-28.706	-0.859	28.719	268.287	0.475
7100.000	0.664	224.255	7099.467	-1.642	-29.753	-1.642	29.798	266.841	0.278
7200.000	0.359	307.711	7199.464	-1.866	-30.406	-1.866	30.463	266.489	0.718
7300.000	0.721	251.432	7299.460	-1.874	-31.250	-1.874	31.307	266.568	0.601

HORIZONTAL DISPLACEMENT IS 31.307 FEET AT 266.568 DEGREES
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