

Company: Anadarko Petroleum Corp.

Lease/Well: Schlagel / 23-4

API: 05-123-17872

Rig Name: Production / Coretech

State/County: Colorado / Weld County

Latitude: 40.253, Longitude: -104.897

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: 11/1/2013 / 14:50

Vaughn Energy Services

Henderson Colorado

303-853-4976

Norman Cowan

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	0.172	0.650	100.000	0.150	0.002	0.150	0.150	0.650	0.172
200.000	0.193	204.561	200.000	0.146	-0.067	0.146	0.160	335.413	0.357
300.000	0.073	22.080	300.000	0.052	-0.113	0.052	0.124	294.628	0.267
400.000	0.334	241.579	399.999	-0.028	-0.345	-0.028	0.347	265.401	0.394
500.000	0.342	156.432	499.998	-0.440	-0.483	-0.440	0.653	227.665	0.457
600.000	0.634	163.971	599.994	-1.245	-0.211	-1.245	1.263	189.616	0.299
700.000	0.590	165.792	699.988	-2.276	0.068	-2.276	2.277	178.282	0.048
800.000	0.816	191.927	799.981	-3.472	0.047	-3.472	3.473	179.217	0.387
900.000	0.880	190.746	899.970	-4.924	-0.243	-4.924	4.930	182.825	0.066
1000.000	0.993	197.407	999.957	-6.506	-0.645	-6.506	6.537	185.666	0.157
1100.000	0.969	234.322	1099.943	-7.826	-1.591	-7.826	7.986	191.495	0.622
1200.000	1.028	240.304	1199.928	-8.763	-3.057	-8.763	9.281	199.233	0.120
1300.000	0.824	235.975	1299.915	-9.610	-4.432	-9.610	10.582	204.760	0.216
1400.000	0.778	224.177	1399.905	-10.499	-5.501	-10.499	11.853	207.653	0.171
1500.000	0.783	252.713	1499.896	-11.189	-6.627	-11.189	13.004	210.636	0.385
1600.000	0.731	254.194	1599.887	-11.566	-7.893	-11.566	14.002	214.311	0.055
1700.000	0.859	276.715	1699.878	-11.652	-9.251	-11.652	14.878	218.448	0.335
1800.000	0.996	291.320	1799.865	-11.249	-10.805	-11.249	15.597	223.848	0.272
1900.000	0.820	298.219	1899.852	-10.594	-12.245	-10.594	16.192	229.135	0.206
2000.000	1.022	259.679	1999.840	-10.415	-13.753	-10.415	17.252	232.863	0.637
2100.000	0.819	277.387	2099.828	-10.483	-15.340	-10.483	18.580	235.651	0.347
2200.000	0.358	203.715	2199.823	-10.678	-16.175	-10.678	19.381	236.569	0.797
2300.000	0.572	73.989	2299.822	-10.826	-15.820	-10.826	19.170	235.615	0.847
2400.000	0.587	103.563	2399.817	-10.808	-14.842	-10.808	18.360	233.936	0.296
2500.000	0.752	73.933	2499.810	-10.747	-13.713	-10.747	17.423	231.913	0.377
2600.000	0.227	81.503	2599.806	-10.536	-12.887	-10.536	16.646	230.731	0.528
2700.000	0.294	41.407	2699.805	-10.314	-12.522	-10.314	16.223	230.520	0.190
2800.000	0.566	273.446	2799.804	-10.092	-12.844	-10.092	16.335	231.843	0.782
2900.000	0.398	287.642	2899.800	-9.957	-13.668	-9.957	16.910	233.926	0.205
3000.000	0.798	251.372	2999.795	-10.075	-14.659	-10.075	17.787	235.500	0.532
3100.000	0.984	257.637	3099.783	-10.481	-16.158	-10.481	19.259	237.030	0.210
3200.000	1.078	243.155	3199.767	-11.090	-17.836	-11.090	21.003	238.129	0.276
3300.000	1.267	247.280	3299.746	-11.942	-19.696	-11.942	23.033	238.771	0.206
3400.000	1.222	249.571	3399.722	-12.741	-21.715	-12.741	25.177	239.598	0.067

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	0.967	257.472	3499.704	-13.296	-23.538	-13.296	27.034	240.539	0.296
3600.000	0.960	283.953	3599.690	-13.278	-25.175	-13.278	28.462	242.193	0.441
3700.000	0.788	279.671	3699.678	-12.960	-26.666	-12.960	29.648	244.079	0.184
3800.000	0.307	254.879	3799.674	-12.915	-27.602	-12.915	30.474	244.926	0.525
3900.000	0.666	206.330	3899.670	-13.506	-28.119	-13.506	31.195	244.345	0.517
4000.000	0.981	228.512	3999.660	-14.594	-29.019	-14.594	32.482	243.301	0.443
4100.000	1.312	217.517	4099.640	-16.070	-30.358	-16.070	34.348	242.106	0.396
4200.000	1.320	241.724	4199.614	-17.523	-32.069	-17.523	36.544	241.347	0.552
4300.000	1.264	236.687	4299.589	-18.675	-34.005	-18.675	38.796	241.226	0.126
4400.000	1.173	251.785	4399.567	-19.601	-35.899	-19.601	40.902	241.366	0.333
4500.000	1.076	265.060	4499.548	-20.001	-37.807	-20.001	42.772	242.120	0.277
4600.000	1.139	255.156	4599.529	-20.337	-39.703	-20.337	44.608	242.877	0.201
4700.000	1.019	244.776	4699.511	-20.970	-41.468	-20.970	46.469	243.174	0.229
4800.000	0.955	268.506	4799.497	-21.371	-43.106	-21.371	48.113	243.629	0.411
4900.000	0.681	242.554	4899.487	-21.667	-44.467	-21.667	49.465	244.022	0.454
5000.000	0.553	281.230	4999.481	-21.847	-45.468	-21.847	50.444	244.336	0.426
5100.000	0.596	244.453	5099.477	-21.978	-46.410	-21.978	51.351	244.660	0.365
5200.000	0.339	261.709	5199.473	-22.245	-47.172	-22.245	52.154	244.753	0.290
5300.000	0.237	268.806	5299.472	-22.291	-47.671	-22.291	52.626	244.939	0.108
5400.000	0.320	241.159	5399.471	-22.430	-48.122	-22.430	53.093	245.009	0.155
5500.000	0.512	204.695	5499.468	-22.971	-48.553	-22.971	53.713	244.681	0.318
5600.000	1.080	254.419	5599.459	-23.630	-49.648	-23.630	54.984	244.547	0.845
5700.000	0.744	244.502	5699.447	-24.163	-51.141	-24.163	56.562	244.711	0.370
5800.000	0.532	277.324	5799.441	-24.383	-52.187	-24.383	57.603	244.957	0.414
5900.000	0.524	347.019	5899.437	-23.878	-52.751	-23.878	57.903	245.646	0.603
6000.000	0.476	311.786	5999.434	-23.156	-53.163	-23.156	57.987	246.464	0.306
6100.000	0.173	19.176	6099.432	-22.737	-53.423	-22.737	58.060	246.946	0.440
6200.000	0.438	10.690	6199.431	-22.218	-53.303	-22.218	57.748	247.372	0.269
6300.000	0.403	60.197	6299.428	-21.668	-52.927	-21.668	57.191	247.736	0.354
6400.000	0.554	344.103	6399.426	-21.028	-52.755	-21.028	56.791	248.267	0.602
6500.000	0.499	329.790	6499.422	-20.187	-53.106	-20.187	56.813	249.187	0.142
6600.000	0.333	301.857	6599.419	-19.658	-53.572	-19.658	57.065	249.850	0.257
6700.000	0.240	311.347	6699.418	-19.366	-53.976	-19.366	57.345	250.262	0.104
6800.000	0.131	267.740	6799.417	-19.232	-54.247	-19.232	57.555	250.479	0.171
6900.000	0.290	297.200	6899.417	-19.121	-54.586	-19.121	57.838	250.695	0.188
7000.000	0.185	298.521	6999.416	-18.928	-54.952	-18.928	58.121	250.994	0.106
7100.000	0.709	34.788	7099.413	-18.344	-54.741	-18.344	57.733	251.474	0.752
HORIZONTAL DISPLACEMENT IS 57.733 FEET AT 251.474 DEGREES									