

Company: Anadarko Petroleum Corp.

Lease/Well: Platteville / 23-19A

API#: 05-123-18501

Rig Name: Production / Canary

State/County: Colorado / Weld County

Latitude: 40.208, Longitude: -104.826

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: 10/9/2013 / 17:28

Vaughn Energy Services

Henderson CO.

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	0.154	302.992	100.000	0.073	-0.113	0.073	0.135	302.992	0.154
200.000	0.084	296.023	200.000	0.179	-0.292	0.179	0.342	301.503	0.072
300.000	0.016	228.889	300.000	0.202	-0.368	0.202	0.420	298.710	0.079
400.000	0.122	304.180	400.000	0.252	-0.467	0.252	0.531	298.380	0.119
500.000	0.212	298.193	499.999	0.400	-0.719	0.400	0.822	299.090	0.091
600.000	0.311	277.051	599.998	0.520	-1.151	0.520	1.263	294.332	0.137
700.000	0.507	276.385	699.995	0.603	-1.859	0.603	1.955	287.962	0.196
800.000	0.512	271.840	799.992	0.666	-2.745	0.666	2.825	283.643	0.041
900.000	0.406	263.542	899.988	0.641	-3.544	0.641	3.601	280.249	0.124
1000.000	0.569	273.333	999.985	0.630	-4.392	0.630	4.437	278.160	0.182
1100.000	0.626	258.048	1099.979	0.546	-5.422	0.546	5.450	275.745	0.169
1200.000	0.778	261.926	1199.972	0.337	-6.629	0.337	6.637	272.911	0.159
1300.000	0.654	274.450	1299.964	0.286	-7.869	0.286	7.874	272.082	0.199
1400.000	0.755	283.635	1399.956	0.486	-9.078	0.486	9.091	273.062	0.151
1500.000	0.958	280.703	1499.945	0.796	-10.540	0.796	10.570	274.320	0.208
1600.000	0.890	291.692	1599.932	1.238	-12.083	1.238	12.146	275.852	0.190
1700.000	1.199	320.125	1699.916	2.328	-13.474	2.328	13.674	279.802	0.594
1800.000	1.390	326.200	1799.891	4.138	-14.820	4.138	15.387	285.603	0.235
1900.000	1.860	337.326	1899.851	6.644	-16.120	6.644	17.435	292.398	0.564
2000.000	1.959	335.833	1999.795	9.700	-17.445	9.700	19.961	299.076	0.111
2100.000	1.988	334.102	2099.736	12.819	-18.902	12.819	22.839	304.145	0.066
2200.000	2.200	342.137	2199.669	16.206	-20.248	16.206	25.935	308.673	0.362
2300.000	2.223	348.490	2299.595	19.933	-21.224	19.933	29.117	313.203	0.246
2400.000	2.322	352.882	2399.516	23.843	-21.862	23.843	32.349	317.482	0.200
2500.000	2.277	356.944	2499.436	27.836	-22.219	27.836	35.617	321.404	0.169
2600.000	2.274	356.124	2599.357	31.800	-22.459	31.800	38.931	324.768	0.033
2700.000	2.081	355.641	2699.285	35.589	-22.731	35.589	42.229	327.434	0.194
2800.000	1.846	352.230	2799.226	38.995	-23.087	38.995	45.317	329.373	0.262
2900.000	1.484	349.260	2899.184	41.863	-23.546	41.863	48.030	330.645	0.372
3000.000	1.238	343.723	2999.155	44.172	-24.090	44.172	50.314	331.394	0.279
3100.000	1.302	321.149	3099.131	46.094	-25.105	46.094	52.487	331.425	0.501
3200.000	1.387	309.716	3199.104	47.752	-26.749	47.752	54.733	330.744	0.281
3300.000	1.539	304.613	3299.071	49.288	-28.785	49.288	57.078	329.715	0.200
3400.000	1.980	285.276	3399.025	50.506	-31.556	50.506	59.553	328.003	0.734

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	2.003	275.387	3498.965	51.125	-34.963	51.125	61.937	325.633	0.344
3600.000	1.680	277.361	3598.913	51.477	-38.156	51.477	64.076	323.453	0.329
3700.000	1.413	270.471	3698.877	51.675	-40.842	51.675	65.866	321.678	0.325
3800.000	1.541	275.717	3798.843	51.819	-43.413	51.819	67.601	320.044	0.186
3900.000	1.722	269.134	3898.803	51.930	-46.253	51.930	69.542	318.309	0.260
4000.000	1.577	266.612	3998.762	51.826	-49.130	51.826	71.412	316.530	0.162
4100.000	1.038	250.188	4098.735	51.437	-51.356	51.437	72.686	315.045	0.651
4200.000	0.591	208.789	4198.726	50.678	-52.457	50.678	72.938	314.012	0.712
4300.000	0.521	182.869	4298.721	49.772	-52.728	49.772	72.509	313.348	0.259
4400.000	0.453	188.307	4398.718	48.927	-52.808	48.927	71.990	312.815	0.082
4500.000	0.417	176.460	4498.715	48.173	-52.843	48.173	71.505	312.353	0.097
4600.000	0.229	91.305	4598.714	47.805	-52.620	47.805	71.093	312.255	0.458
4700.000	0.785	49.634	4698.710	48.245	-51.898	48.245	70.859	312.910	0.632
4800.000	1.156	57.159	4798.695	49.235	-50.529	49.235	70.550	314.257	0.392
4900.000	1.053	56.552	4898.676	50.289	-48.915	50.289	70.154	315.794	0.103
5000.000	0.475	45.016	4998.667	51.088	-47.855	51.088	70.001	316.872	0.596
5100.000	0.146	42.102	5098.666	51.476	-47.476	51.476	70.027	317.315	0.329
5200.000	0.060	167.902	5198.666	51.519	-47.380	51.519	69.993	317.397	0.188
5300.000	0.300	74.196	5298.665	51.539	-47.117	51.539	69.830	317.566	0.309
5400.000	5.071	87.664	5398.527	51.791	-42.447	51.791	66.963	320.662	4.780
5500.000	11.059	94.098	5497.494	51.285	-28.452	51.285	58.648	330.979	6.047
5600.000	14.384	74.926	5595.069	53.832	-6.876	53.832	54.269	352.721	5.331
5700.000	17.452	67.929	5691.232	62.699	19.022	62.699	65.521	16.877	3.613
5800.000	19.002	86.041	5786.288	69.464	49.186	69.464	85.114	35.302	5.848
5900.000	21.575	100.567	5880.136	67.214	83.529	67.214	107.214	51.177	5.637
6000.000	24.483	103.170	5972.159	59.119	121.789	59.119	135.379	64.107	3.081
6100.000	28.120	99.052	6061.799	50.687	165.256	50.687	172.855	72.948	4.067
6200.000	30.632	96.452	6148.938	44.115	213.853	44.115	218.356	78.344	2.816
6300.000	34.539	91.900	6233.193	40.310	267.529	40.310	270.549	81.431	4.610
6400.000	35.311	85.343	6315.212	41.717	324.688	41.717	327.357	82.679	3.831
6500.000	34.071	79.624	6397.456	49.111	381.064	49.111	384.215	82.656	3.482
6600.000	40.972	77.711	6476.724	61.149	440.724	61.149	444.945	82.101	6.998
6700.000	43.352	79.855	6550.847	74.175	506.557	74.175	511.959	81.669	2.781
6800.000	42.756	78.392	6623.920	87.051	573.597	87.051	580.165	81.370	1.163
6900.000	41.317	82.757	6698.206	98.046	639.612	98.046	647.083	81.285	3.258
7000.000	40.871	85.562	6773.575	104.741	704.985	104.741	712.724	81.549	1.897
7100.000	42.252	92.632	6848.440	105.729	771.229	105.729	778.443	82.194	4.887
7200.000	44.322	97.898	6921.253	99.383	839.446	99.383	845.309	83.248	4.161
7300.000	46.963	101.516	6991.172	87.282	909.884	87.282	914.061	84.521	3.696
7400.000	50.345	104.697	7057.232	70.213	982.961	70.213	985.466	85.914	4.139
7500.000	49.699	106.429	7121.484	49.660	1056.777	49.660	1057.943	87.310	1.476
7600.000	47.343	112.090	7187.744	25.032	1127.467	25.032	1127.745	88.728	4.850
7700.000	41.854	113.681	7258.923	-2.218	1192.143	-2.218	1192.145	90.107	5.602
7750.000	39.758	116.502	7296.771	-16.055	1221.734	-16.055	1221.839	90.753	5.581

HORIZONTAL DISPLACEMENT IS  
1221.839 FEET AT 90.753 DEGREES