

Company: Anadarko Petroleum Corp.

Well: Cannon Federal 4-17A

API: 05-123-21149

Rig Name: Production/Cable Inc.

State/County: Colorado/Weld

Latitude: 40.144, Longitude: -104.808

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_ed.ut

Minimum Curvature Method

Report Date/Time: 12/5/2012 / 13:23

Vaughn Energy Services

Henderson, CO

303-853-4976

Levi Sheldon

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	0.388	9.285	99.999	0.334	0.055	0.334	0.339	9.285	0.388
200.000	0.459	19.832	199.997	1.046	0.245	1.046	1.074	13.203	0.105
300.000	0.404	26.235	299.994	1.739	0.537	1.739	1.820	17.167	0.073
400.000	0.116	42.276	399.993	2.130	0.761	2.130	2.262	19.662	0.295
500.000	0.300	3.691	499.992	2.467	0.846	2.467	2.608	18.930	0.222
600.000	0.326	29.160	599.990	2.977	1.001	2.977	3.140	18.594	0.140
700.000	0.318	30.386	699.989	3.464	1.280	3.464	3.693	20.283	0.011
800.000	0.286	63.741	799.988	3.814	1.645	3.814	4.153	23.327	0.176
900.000	0.370	43.666	899.986	4.158	2.092	4.158	4.655	26.707	0.141
1000.000	0.071	74.560	999.985	4.409	2.375	4.409	5.008	28.311	0.312
1100.000	0.234	322.361	1099.985	4.587	2.310	4.587	5.136	26.727	0.269
1200.000	0.272	323.150	1199.984	4.939	2.043	4.939	5.344	22.469	0.038
1300.000	0.165	312.407	1299.983	5.226	1.794	5.226	5.525	18.948	0.114
1400.000	0.264	307.433	1399.982	5.463	1.505	5.463	5.666	15.398	0.101
1500.000	0.266	222.455	1499.982	5.432	1.165	5.432	5.556	12.103	0.358
1600.000	0.445	300.141	1599.980	5.456	0.672	5.456	5.498	7.023	0.467
1700.000	0.586	292.774	1699.976	5.849	-0.135	5.849	5.851	358.675	0.155
1800.000	0.791	282.917	1799.969	6.202	-1.280	6.202	6.332	348.340	0.237
1900.000	0.880	287.058	1899.958	6.581	-2.687	6.581	7.109	337.790	0.107
2000.000	0.947	290.639	1999.945	7.098	-4.195	7.098	8.245	329.417	0.088
2100.000	0.973	305.077	2099.932	7.877	-5.664	7.877	9.702	324.285	0.243
2200.000	1.094	296.779	2199.915	8.796	-7.211	8.796	11.374	320.653	0.192
2300.000	0.722	309.637	2299.903	9.628	-8.549	9.628	12.876	318.397	0.422
2400.000	0.403	288.943	2399.898	10.144	-9.367	10.144	13.807	317.281	0.374
2500.000	0.211	238.527	2499.897	10.162	-9.856	10.162	14.157	315.876	0.314
2600.000	0.431	158.587	2599.895	9.716	-9.876	9.716	13.854	314.534	0.445
2700.000	0.643	170.353	2699.891	8.813	-9.644	8.813	13.065	312.422	0.238
2800.000	0.932	193.945	2799.882	7.471	-9.746	7.471	12.281	307.472	0.429
2900.000	1.301	200.571	2899.862	5.619	-10.341	5.619	11.769	298.518	0.390
3000.000	1.620	196.627	2999.830	3.201	-11.145	3.201	11.596	286.027	0.335
3100.000	2.336	190.824	3099.770	-0.156	-11.932	-0.156	11.933	269.253	0.743
3200.000	2.479	190.649	3199.681	-4.283	-12.715	-4.283	13.417	251.383	0.143
3300.000	2.008	200.691	3299.605	-8.048	-13.733	-8.048	15.917	239.630	0.612
3400.000	1.479	208.199	3399.558	-10.824	-14.962	-10.824	18.467	234.118	0.575

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	0.954	215.352	3499.535	-12.640	-16.054	-12.640	20.433	231.784	0.545
3600.000	0.950	219.909	3599.522	-13.955	-17.068	-13.955	22.047	230.728	0.076
3700.000	1.051	225.549	3699.506	-15.234	-18.254	-15.234	23.776	230.154	0.141
3800.000	1.292	228.844	3799.485	-16.618	-19.758	-16.618	25.817	229.933	0.250
3900.000	1.636	233.712	3899.453	-18.205	-21.758	-18.205	28.369	230.080	0.366
4000.000	1.952	233.831	3999.404	-20.055	-24.283	-20.055	31.494	230.447	0.316
4100.000	1.658	237.091	4099.354	-21.846	-26.873	-21.846	34.632	230.890	0.312
4200.000	0.848	224.315	4199.329	-23.162	-28.604	-23.162	36.806	231.002	0.851
4300.000	0.424	168.218	4299.324	-24.054	-29.046	-24.054	37.712	230.371	0.706
4400.000	0.654	153.395	4399.319	-24.926	-28.714	-24.926	38.024	229.039	0.267
4500.000	0.351	208.257	4499.316	-25.707	-28.604	-25.707	38.458	228.054	0.536
4600.000	0.446	252.923	4599.314	-26.091	-29.121	-26.091	39.099	228.141	0.315
4700.000	0.316	308.982	4699.312	-26.032	-29.707	-26.032	39.499	228.773	0.376
4800.000	0.840	319.882	4799.306	-25.298	-30.394	-25.298	39.544	230.228	0.533
4900.000	1.413	339.661	4899.287	-23.581	-31.294	-23.581	39.184	233.001	0.685
5000.000	1.059	345.224	4999.264	-21.532	-31.958	-21.532	38.535	236.030	0.374
5100.000	0.967	323.457	5099.248	-19.961	-32.696	-19.961	38.308	238.596	0.393
5200.000	0.791	323.401	5199.236	-18.729	-33.610	-18.729	38.476	240.871	0.176
5300.000	0.690	319.352	5299.228	-17.719	-34.414	-17.719	38.707	242.757	0.113
5400.000	0.513	311.415	5399.223	-16.966	-35.141	-16.966	39.022	244.230	0.195
5500.000	0.412	297.353	5499.219	-16.504	-35.796	-16.504	39.418	245.247	0.151
5600.000	0.258	291.117	5599.218	-16.258	-36.326	-16.258	39.798	245.889	0.158
5700.000	0.293	242.204	5699.217	-16.296	-36.763	-16.296	40.213	246.094	0.231
5800.000	0.438	252.708	5799.215	-16.529	-37.354	-16.529	40.848	246.131	0.159
5900.000	0.302	276.448	5899.212	-16.613	-37.981	-16.613	41.456	246.375	0.203
6000.000	0.602	259.987	5999.209	-16.675	-38.760	-16.675	42.194	246.722	0.324
6100.000	0.275	250.646	6099.206	-16.846	-39.503	-16.846	42.945	246.905	0.333
6200.000	0.509	154.282	6199.205	-17.325	-39.537	-17.325	43.166	246.337	0.605
6300.000	0.466	160.662	6299.201	-18.109	-39.210	-18.109	43.189	245.210	0.069
6400.000	0.770	177.774	6399.195	-19.164	-39.049	-19.164	43.498	243.860	0.352
6500.000	0.704	155.781	6499.187	-20.396	-38.771	-20.396	43.808	242.253	0.288
6600.000	0.563	177.275	6599.181	-21.447	-38.495	-21.447	44.066	240.876	0.274
6700.000	0.504	163.229	6699.177	-22.359	-38.345	-22.359	44.388	239.754	0.143
6800.000	1.061	164.183	6799.167	-23.670	-37.966	-23.670	44.740	238.058	0.557
6900.000	1.172	172.242	6899.148	-25.574	-37.576	-25.574	45.453	235.761	0.192
7000.000	0.778	188.693	6999.134	-27.258	-37.540	-27.258	46.393	234.017	0.479
7100.000	0.296	199.597	7099.129	-28.173	-37.730	-28.173	47.087	233.251	0.491
7200.000	0.090	323.366	7199.129	-28.353	-37.863	-28.353	47.302	233.173	0.354
7300.000	0.494	344.283	7299.127	-27.875	-38.026	-27.875	47.149	233.757	0.411
7400.000	0.553	334.554	7399.123	-27.025	-38.351	-27.025	46.916	234.829	0.106
7500.000	0.415	331.383	7499.119	-26.271	-38.731	-26.271	46.801	235.851	0.141
7600.000	0.602	7.655	7599.116	-25.433	-38.835	-25.433	46.422	236.779	0.363
7700.000	0.673	60.143	7699.110	-24.620	-38.256	-24.620	45.493	237.236	0.567
HORIZONTAL DISPLACEMENT IS 45.493 FEET AT 237.236 DEGREES									