

Company: Anadarko Petroleum Corp.

Well: Magness #7-1A

API: 05-123-20660

Rig Name: Production / Canary

State/County: Colorado / Weld

Latitude: 40.169, Longitude: -104.837

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: 10/21/2013 / 14:30

Vaughn Energy Services

Henderson Colorado

CJ Hines

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	0.234	200.540	100.000	-0.191	-0.072	-0.191	0.204	200.540	0.234
200.000	0.036	216.286	199.999	-0.407	-0.162	-0.407	0.438	201.645	0.200
300.000	0.202	261.804	299.999	-0.458	-0.355	-0.458	0.579	217.784	0.179
400.000	0.015	332.758	399.999	-0.471	-0.536	-0.471	0.713	228.666	0.198
500.000	0.108	317.465	499.999	-0.390	-0.605	-0.390	0.720	237.212	0.093
600.000	0.359	332.813	599.998	-0.042	-0.812	-0.042	0.813	267.059	0.257
700.000	1.140	1.816	699.989	1.231	-0.924	1.231	1.539	323.123	0.844
800.000	1.564	15.349	799.961	3.542	-0.531	3.542	3.581	351.474	0.528
900.000	1.430	4.584	899.927	6.102	-0.070	6.102	6.102	359.343	0.311
1000.000	1.292	347.458	999.899	8.447	-0.215	8.447	8.449	358.542	0.428
1100.000	1.423	351.073	1099.871	10.774	-0.652	10.774	10.794	356.534	0.157
1200.000	1.508	340.239	1199.839	13.239	-1.290	13.239	13.302	354.434	0.289
1300.000	1.523	335.957	1299.804	15.691	-2.276	15.691	15.855	351.746	0.114
1400.000	1.467	335.815	1399.770	18.072	-3.342	18.072	18.378	349.523	0.056
1500.000	1.326	328.008	1499.740	20.221	-4.479	20.221	20.711	347.510	0.236
1600.000	1.201	310.926	1599.716	21.889	-5.884	21.889	22.666	344.953	0.395
1700.000	1.266	309.096	1699.693	23.272	-7.533	23.272	24.461	342.063	0.076
1800.000	1.135	304.681	1799.671	24.532	-9.205	24.532	26.202	339.433	0.160
1900.000	1.152	297.381	1899.651	25.557	-10.911	25.557	27.789	336.881	0.147
2000.000	1.398	282.414	1999.627	26.282	-12.995	26.282	29.319	333.690	0.412
2100.000	1.430	278.929	2099.596	26.737	-15.419	26.737	30.865	330.029	0.092
2200.000	1.381	271.270	2199.566	26.958	-17.856	26.958	32.335	326.481	0.194
2300.000	1.673	264.970	2299.531	26.857	-20.514	26.857	33.795	322.626	0.336
2400.000	1.811	283.884	2399.485	27.108	-23.502	27.108	35.877	319.075	0.589
2500.000	1.923	288.647	2499.432	28.024	-26.627	28.024	38.656	316.464	0.191
2600.000	1.915	289.708	2599.376	29.124	-29.789	29.124	41.660	314.353	0.037
2700.000	1.686	287.144	2699.327	30.121	-32.768	30.121	44.508	312.590	0.242
2800.000	1.573	286.574	2799.286	30.946	-35.490	30.946	47.087	311.087	0.114
2900.000	1.493	278.396	2899.250	31.528	-38.094	31.528	49.449	309.612	0.233
3000.000	1.482	278.477	2999.217	31.909	-40.662	31.909	51.687	308.122	0.012
3100.000	1.462	273.093	3099.184	32.168	-43.215	32.168	53.873	306.663	0.140
3200.000	1.624	268.418	3199.148	32.198	-45.906	32.198	56.072	305.045	0.205
3300.000	1.685	265.145	3299.106	32.034	-48.787	32.034	58.364	303.289	0.112
3400.000	1.992	259.022	3399.054	31.579	-51.958	31.579	60.802	301.290	0.365

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	2.107	255.963	3498.990	30.802	-55.448	30.802	63.429	299.052	0.159
3600.000	1.779	234.937	3598.934	29.464	-58.503	29.464	65.503	296.732	0.779
3700.000	1.751	229.448	3698.887	27.579	-60.934	27.579	66.885	294.352	0.171
3800.000	1.344	247.093	3798.851	26.129	-63.175	26.129	68.365	292.470	0.622
3900.000	1.318	238.014	3898.824	25.064	-65.230	25.064	69.880	291.019	0.212
4000.000	1.335	239.198	3998.797	23.858	-67.206	23.858	71.316	289.545	0.033
4100.000	1.386	241.106	4098.769	22.677	-69.266	22.677	72.884	288.128	0.068
4200.000	1.396	235.158	4198.739	21.397	-71.324	21.397	74.465	286.699	0.145
4300.000	1.453	231.646	4298.708	19.915	-73.318	19.915	75.975	285.196	0.104
4400.000	1.354	231.331	4398.678	18.390	-75.235	18.390	77.450	283.735	0.099
4500.000	1.544	221.095	4498.647	16.636	-77.043	16.636	78.819	282.185	0.320
4600.000	1.650	213.435	4598.608	14.419	-78.722	14.419	80.032	280.379	0.238
4700.000	2.345	206.181	4698.547	11.381	-80.418	11.381	81.220	278.055	0.738
4800.000	2.576	202.279	4798.454	7.466	-82.173	7.466	82.511	275.192	0.285
4900.000	2.533	192.705	4898.356	3.232	-83.510	3.232	83.573	272.216	0.428
5000.000	1.903	180.418	4998.281	-0.584	-84.008	-0.584	84.011	269.602	0.786
5100.000	1.529	149.568	5098.238	-3.395	-83.345	-3.395	83.414	267.668	0.981
5200.000	0.824	121.631	5198.217	-4.923	-82.056	-4.923	82.204	266.567	0.889
5300.000	0.478	139.775	5298.210	-5.618	-81.174	-5.618	81.368	266.041	0.399
5400.000	0.357	187.240	5398.208	-6.246	-80.944	-6.246	81.185	265.588	0.354
5500.000	0.396	221.031	5498.206	-6.815	-81.210	-6.815	81.496	265.203	0.222
5600.000	0.521	268.050	5598.203	-7.091	-81.891	-7.091	82.198	265.051	0.383
5700.000	0.764	299.961	5698.197	-6.774	-82.924	-6.774	83.200	265.330	0.423
5800.000	1.436	313.008	5798.178	-5.586	-84.417	-5.586	84.602	266.214	0.713
5900.000	0.696	337.768	5898.160	-4.169	-85.564	-4.169	85.665	267.210	0.855
6000.000	0.716	329.759	5998.153	-3.067	-86.108	-3.067	86.163	267.960	0.101
6100.000	0.583	327.119	6098.146	-2.100	-86.699	-2.100	86.724	268.612	0.136
6200.000	0.583	330.358	6198.141	-1.231	-87.226	-1.231	87.235	269.191	0.033
6300.000	0.349	278.443	6298.138	-0.745	-87.779	-0.745	87.782	269.514	0.459
6400.000	0.174	320.925	6398.137	-0.582	-88.176	-0.582	88.178	269.622	0.250
6500.000	0.405	294.222	6498.136	-0.319	-88.594	-0.319	88.595	269.793	0.262
6600.000	0.423	270.913	6598.133	-0.168	-89.285	-0.168	89.285	269.892	0.168
6700.000	0.495	233.430	6698.130	-0.420	-90.001	-0.420	90.002	269.733	0.303
6800.000	0.410	271.630	6798.128	-0.667	-90.705	-0.667	90.707	269.579	0.307
6900.000	0.343	203.904	6898.126	-0.930	-91.183	-0.930	91.188	269.416	0.423
7000.000	0.289	200.443	6998.124	-1.440	-91.393	-1.440	91.404	269.097	0.057
HORIZONTAL DISPLACEMENT IS 91.404 FEET AT 269.097 DEGREES									