

Company: Anadarko Petroleum
 Well: Brewer Pooling Unit #2
 API: 05-123-10915
 Rig Name: Production/ Canary
 State/County: Colorado/Weld
 Latitude: 40.177, Longitude: -104.833
 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: 8/2/2013 / 17:28

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

303-853-4976

SEAN BRATT

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	0.421	276.424	99.999	0.041	-0.365	0.041	0.367	276.424	0.421
200.000	0.570	279.518	199.995	0.164	-1.220	0.164	1.231	277.673	0.151
300.000	0.391	279.407	299.992	0.302	-2.047	0.302	2.069	278.402	0.179
400.000	0.140	250.631	399.991	0.318	-2.499	0.318	2.519	277.247	0.277
500.000	0.019	17.067	499.991	0.294	-2.608	0.294	2.625	276.422	0.152
600.000	0.159	246.680	599.990	0.255	-2.731	0.255	2.743	275.329	0.173
700.000	0.299	120.364	699.990	0.068	-2.634	0.068	2.635	271.472	0.414
800.000	0.100	76.344	799.989	-0.044	-2.323	-0.044	2.324	268.922	0.238
900.000	0.059	142.059	899.989	-0.064	-2.206	-0.064	2.207	268.339	0.093
1000.000	0.228	136.273	999.989	-0.249	-2.037	-0.249	2.052	263.040	0.169
1100.000	0.087	164.906	1099.989	-0.465	-1.880	-0.465	1.937	256.097	0.158
1200.000	0.217	133.045	1199.988	-0.668	-1.722	-0.668	1.847	248.806	0.151
1300.000	0.124	207.549	1299.988	-0.893	-1.633	-0.893	1.862	241.332	0.219
1400.000	0.106	78.217	1399.988	-0.970	-1.593	-0.970	1.865	238.654	0.208
1500.000	0.157	209.833	1499.988	-1.070	-1.571	-1.070	1.901	235.728	0.241
1600.000	0.293	241.137	1599.987	-1.313	-1.863	-1.313	2.279	234.830	0.179
1700.000	0.406	244.231	1699.985	-1.590	-2.406	-1.590	2.884	236.538	0.114
1800.000	0.517	228.993	1799.982	-2.040	-3.065	-2.040	3.682	236.353	0.165
1900.000	0.680	238.916	1899.976	-2.643	-3.914	-2.643	4.722	235.974	0.193
2000.000	0.781	234.971	1999.968	-3.340	-4.980	-3.340	5.997	236.151	0.113
2100.000	1.025	237.932	2099.956	-4.207	-6.297	-4.207	7.573	236.255	0.248
2200.000	0.886	234.249	2199.942	-5.133	-7.683	-5.133	9.240	236.249	0.152
2300.000	0.959	232.542	2299.929	-6.094	-8.974	-6.094	10.848	235.821	0.078
2400.000	0.989	231.081	2399.914	-7.145	-10.310	-7.145	12.544	235.277	0.039
2500.000	1.162	256.852	2499.897	-7.918	-11.969	-7.918	14.351	236.513	0.508
2600.000	0.988	259.264	2599.880	-8.309	-13.803	-8.309	16.111	238.953	0.180
2700.000	1.031	263.251	2699.864	-8.576	-15.544	-8.576	17.752	241.114	0.083
2800.000	1.016	257.007	2799.848	-8.881	-17.302	-8.881	19.448	242.829	0.112
2900.000	0.865	258.703	2899.835	-9.228	-18.906	-9.228	21.038	243.983	0.154
3000.000	0.758	265.906	2999.825	-9.423	-20.307	-9.423	22.387	245.107	0.148
3100.000	0.927	265.264	3099.814	-9.537	-21.773	-9.537	23.770	246.345	0.168
3200.000	1.219	252.290	3199.796	-9.927	-23.592	-9.927	25.595	247.178	0.378
3300.000	1.660	251.719	3299.765	-10.705	-25.980	-10.705	28.099	247.605	0.441
3400.000	1.594	257.860	3399.724	-11.452	-28.715	-11.452	30.914	248.257	0.186
3500.000	0.883	257.092	3499.700	-11.917	-30.826	-11.917	33.049	248.864	0.710

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
3600.000	0.913	249.682	3599.688	-12.366	-32.324	-12.366	34.609	249.066	0.120
3700.000	0.803	234.550	3699.677	-13.049	-33.642	-13.049	36.084	248.801	0.251
3800.000	0.874	179.003	3799.668	-14.217	-34.200	-14.217	37.037	247.427	0.784
3900.000	1.003	187.380	3899.654	-15.847	-34.299	-15.847	37.783	245.201	0.188
4000.000	1.038	188.683	3999.639	-17.611	-34.548	-17.611	38.778	242.990	0.042
4100.000	1.082	180.048	4099.621	-19.451	-34.686	-19.451	39.767	240.718	0.165
4200.000	1.077	180.324	4199.604	-21.334	-34.692	-21.334	40.727	238.410	0.007
4300.000	1.026	176.769	4299.587	-23.168	-34.647	-23.168	41.679	236.230	0.083
4400.000	0.696	175.671	4399.575	-24.667	-34.550	-24.667	42.452	234.475	0.330
4500.000	0.550	153.405	4499.570	-25.702	-34.290	-25.702	42.853	233.146	0.280
4600.000	0.391	88.974	4599.567	-26.125	-33.734	-26.125	42.667	232.244	0.519
4700.000	0.554	67.534	4699.564	-25.934	-32.946	-25.934	41.928	231.791	0.237
4800.000	0.714	68.154	4799.557	-25.518	-31.921	-25.518	40.867	231.361	0.160
4900.000	0.733	71.971	4899.549	-25.088	-30.735	-25.088	39.674	230.776	0.052
5000.000	0.841	62.960	4999.540	-24.557	-29.473	-24.557	38.363	230.199	0.164
5100.000	0.513	43.543	5099.533	-23.899	-28.512	-23.899	37.203	230.030	0.396
5200.000	0.511	42.014	5199.529	-23.243	-27.905	-23.243	36.317	230.208	0.014
5300.000	0.364	17.594	5299.526	-22.609	-27.510	-22.609	35.608	230.585	0.235
5400.000	0.286	350.514	5399.525	-22.060	-27.455	-22.060	35.219	231.219	0.170
5500.000	0.222	317.783	5499.524	-21.669	-27.627	-21.669	35.111	231.891	0.156
5600.000	0.285	296.727	5599.523	-21.414	-27.980	-21.414	35.233	232.572	0.111
5700.000	0.189	277.702	5699.522	-21.279	-28.365	-21.279	35.460	233.123	0.123
5800.000	0.175	299.813	5799.521	-21.181	-28.662	-21.181	35.639	233.535	0.071
5900.000	0.290	314.396	5899.521	-20.928	-28.975	-20.928	35.743	234.161	0.129
6000.000	0.312	307.822	5999.519	-20.584	-29.372	-20.584	35.866	234.977	0.041
6100.000	0.427	329.088	6099.517	-20.097	-29.778	-20.097	35.925	235.984	0.177
6200.000	0.656	349.809	6199.513	-19.215	-30.070	-19.215	35.685	237.422	0.298
6300.000	0.776	350.882	6299.505	-17.983	-30.279	-17.983	35.217	239.293	0.121
6400.000	0.689	349.773	6399.497	-16.723	-30.493	-16.723	34.778	241.258	0.087
6500.000	0.856	348.538	6499.488	-15.399	-30.748	-15.399	34.389	243.398	0.167
6600.000	0.872	318.573	6599.477	-14.097	-31.400	-14.097	34.419	245.823	0.447
6700.000	0.998	312.918	6699.463	-12.933	-32.541	-12.933	35.017	248.325	0.156
6800.000	1.052	295.605	6799.448	-11.944	-34.006	-11.944	36.043	250.648	0.313
6900.000	1.415	292.855	6899.424	-11.067	-35.972	-11.067	37.636	252.899	0.368
7000.000	1.884	298.359	6999.383	-9.807	-38.556	-9.807	39.784	255.729	0.494
7100.000	2.445	312.656	7099.312	-7.581	-41.572	-7.581	42.257	259.666	0.775
7200.000	2.145	304.357	7199.232	-5.079	-44.686	-5.079	44.974	263.516	0.447
7300.000	1.623	295.208	7299.177	-3.419	-47.513	-3.419	47.635	265.884	0.601
7400.000	1.352	311.716	7399.144	-2.031	-49.675	-2.031	49.716	267.659	0.504
7500.000	1.193	317.810	7499.119	-0.475	-51.255	-0.475	51.257	269.469	0.209
7600.000	1.193	320.243	7599.098	1.097	-52.619	1.097	52.631	271.194	0.051
7700.000	0.994	317.007	7699.079	2.531	-53.876	2.531	53.936	272.690	0.209

HORIZONTAL DISPLACEMENT IS
53.936 FEET AT 272.690 DEGREES