



Company: Anadarko Petroleum
 Well: Berry 24-8
 API: 05-123-22401
 Rig Name: Production/ CoreTech
 State/County: Colorado/Weld
 Latitude: 40.241, Longitude: -104.910
 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: 12/27/2013 / 10:06

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	0.368	268.001	99.999	-0.011	-0.321	-0.011	0.321	268.001	0.368
200.000	0.398	330.814	199.997	0.281	-0.811	0.281	0.858	289.097	0.400
300.000	0.393	290.156	299.995	0.702	-1.302	0.702	1.479	298.333	0.275
400.000	0.345	194.777	399.994	0.529	-1.701	0.529	1.781	287.288	0.546
500.000	0.633	234.406	499.990	-0.083	-2.227	-0.083	2.228	267.857	0.429
600.000	0.816	272.633	599.983	-0.372	-3.387	-0.372	3.408	263.726	0.505
700.000	0.840	262.696	699.973	-0.433	-4.825	-0.433	4.844	264.873	0.145
800.000	0.897	235.974	799.962	-0.964	-6.201	-0.964	6.275	261.163	0.405
900.000	0.874	230.329	899.950	-1.889	-7.436	-1.889	7.672	255.749	0.090
1000.000	0.967	236.965	999.937	-2.836	-8.731	-2.836	9.180	252.007	0.141
1100.000	1.080	241.107	1099.921	-3.751	-10.263	-3.751	10.927	249.924	0.135
1200.000	1.087	237.320	1199.903	-4.719	-11.887	-4.719	12.789	248.349	0.072
1300.000	1.064	254.160	1299.886	-5.484	-13.579	-5.484	14.645	248.007	0.316
1400.000	0.858	257.335	1399.871	-5.902	-15.203	-5.902	16.308	248.783	0.213
1500.000	0.700	246.383	1499.862	-6.311	-16.493	-6.311	17.659	249.061	0.216
1600.000	0.625	257.203	1599.856	-6.676	-17.585	-6.676	18.809	249.209	0.146
1700.000	0.328	324.718	1699.853	-6.564	-18.282	-6.564	19.424	250.249	0.584
1800.000	0.417	354.435	1799.851	-5.968	-18.482	-5.968	19.422	252.103	0.210
1900.000	0.344	279.833	1899.849	-5.555	-18.813	-5.555	19.616	253.549	0.465
2000.000	0.304	324.559	1999.847	-5.288	-19.262	-5.288	19.974	254.649	0.249
2100.000	0.912	44.707	2099.843	-4.506	-18.855	-4.506	19.386	256.559	0.911
2200.000	0.932	28.368	2199.830	-3.224	-17.909	-3.224	18.197	259.794	0.263
2300.000	1.138	359.919	2299.814	-1.515	-17.524	-1.515	17.589	265.058	0.547
2400.000	1.120	349.565	2399.795	0.439	-17.702	0.439	17.707	271.420	0.205
2500.000	0.844	339.262	2499.780	2.088	-18.140	2.088	18.259	276.567	0.326
2600.000	0.858	337.395	2599.769	3.468	-18.688	3.468	19.007	280.514	0.031
2700.000	1.015	331.173	2699.756	4.936	-19.403	4.936	20.021	284.272	0.187
2800.000	1.016	318.976	2799.740	6.380	-20.412	6.380	21.386	287.358	0.216
2900.000	1.040	308.647	2899.724	7.616	-21.703	7.616	23.000	289.337	0.187
3000.000	0.695	271.879	2999.713	8.202	-23.017	8.202	24.435	289.614	0.638
3100.000	0.683	256.609	3099.706	8.084	-24.203	8.084	25.517	288.471	0.183
3200.000	0.955	252.762	3199.696	7.699	-25.579	7.699	26.712	286.752	0.278
3300.000	0.858	229.192	3299.684	6.963	-26.942	6.963	27.827	284.491	0.382
3400.000	0.540	190.602	3399.676	6.011	-27.595	6.011	28.242	282.289	0.551
3500.000	0.369	157.435	3499.673	5.251	-27.558	5.251	28.054	280.788	0.307

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	0.576	171.254	3599.670	4.457	-27.358	4.457	27.719	279.253	0.235
3700.000	0.625	190.565	3699.665	3.424	-27.382	3.424	27.595	277.127	0.207
3800.000	0.669	169.350	3799.658	2.313	-27.374	2.313	27.471	274.831	0.242
3900.000	0.804	87.093	3899.652	1.775	-26.565	1.775	26.624	273.822	0.974
4000.000	1.123	124.649	3999.639	1.253	-25.058	1.253	25.089	272.863	0.690
4100.000	1.195	139.826	4099.619	-0.101	-23.579	-0.101	23.579	269.756	0.314
4200.000	0.986	141.972	4199.601	-1.575	-22.377	-1.575	22.432	265.974	0.213
4300.000	0.737	169.115	4299.590	-2.884	-21.725	-2.884	21.916	262.439	0.471
4400.000	1.295	212.519	4399.575	-4.468	-22.211	-4.468	22.656	258.626	0.913
4500.000	1.518	248.694	4499.547	-5.902	-24.053	-5.902	24.766	256.213	0.899
4600.000	1.233	266.907	4599.518	-6.442	-26.361	-6.442	27.137	256.268	0.518
4700.000	1.103	266.498	4699.497	-6.558	-28.397	-6.558	29.144	256.995	0.130
4800.000	0.980	265.078	4799.481	-6.691	-30.210	-6.691	30.942	257.512	0.126
4900.000	0.858	260.366	4899.468	-6.889	-31.800	-6.889	32.538	257.776	0.143
5000.000	0.931	264.387	4999.456	-7.094	-33.347	-7.094	34.093	257.990	0.096
5100.000	0.865	266.558	5099.444	-7.219	-34.909	-7.219	35.647	258.316	0.075
5200.000	0.890	266.861	5199.432	-7.307	-36.437	-7.307	37.162	258.661	0.025
5300.000	0.992	246.556	5299.419	-7.694	-38.006	-7.694	38.777	258.556	0.347
5400.000	1.167	226.181	5399.401	-8.743	-39.535	-8.743	40.491	257.530	0.419
5500.000	1.772	212.165	5499.368	-10.757	-41.093	-10.757	42.478	255.331	0.699
5600.000	0.955	200.097	5599.339	-12.848	-42.202	-12.848	44.115	253.068	0.861
5700.000	0.071	218.202	5699.334	-13.679	-42.527	-13.679	44.673	252.169	0.888
5800.000	0.265	146.567	5799.334	-13.921	-42.438	-13.921	44.662	251.839	0.252
5900.000	0.360	130.934	5899.332	-14.320	-42.073	-14.320	44.443	251.204	0.127
6000.000	0.424	124.866	5999.330	-14.737	-41.532	-14.737	44.069	250.464	0.077
6100.000	0.346	90.843	6099.328	-14.953	-40.926	-14.953	43.573	249.929	0.238
6200.000	0.173	137.414	6199.327	-15.068	-40.523	-15.068	43.234	249.602	0.259
6300.000	0.126	78.677	6299.327	-15.158	-40.313	-15.158	43.068	249.394	0.152
6400.000	0.184	265.526	6399.327	-15.148	-40.365	-15.148	43.114	249.429	0.310
6500.000	0.963	276.140	6499.321	-15.071	-41.361	-15.071	44.021	249.979	0.783
6600.000	1.263	253.378	6599.302	-15.297	-43.253	-15.297	45.878	250.523	0.529
6700.000	1.412	223.922	6699.276	-16.500	-45.164	-16.500	48.083	249.931	0.695
6800.000	2.913	150.024	6799.217	-19.589	-44.749	-19.589	48.849	246.359	2.863
6900.000	1.987	141.900	6899.125	-23.154	-42.410	-23.154	48.319	241.368	0.987
7000.000	1.133	122.180	6999.088	-25.044	-40.504	-25.044	47.621	238.270	0.996
<div> <div>HORIZONTAL DISPLACEMENT IS</div> <div>47.621 FEET AT 238.270 DEGREES</div> </div>									