



Company: Anadarko Petroleum
 Well: Fort Saint Vrain #22
 API: 05-123-15692
 Rig Name: Production/ CoreTech
 State/County: Colorado/Weld
 Latitude: 40.239, Longitude: -104.884
 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: 10/27/2013 / 09:55

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	0.423	56.215	99.999	0.205	0.307	0.205	0.369	56.215	0.423
200.000	0.313	18.127	199.997	0.670	0.699	0.670	0.969	46.199	0.262
300.000	0.137	92.522	299.997	0.925	0.903	0.925	1.293	44.328	0.306
400.000	0.111	279.127	399.996	0.935	0.927	0.935	1.316	44.743	0.248
500.000	0.060	22.625	499.996	0.999	0.851	0.999	1.312	40.421	0.139
600.000	0.351	261.017	599.996	1.000	0.569	1.000	1.151	29.642	0.386
700.000	0.467	291.994	699.993	1.105	-0.111	1.105	1.110	354.271	0.245
800.000	0.335	286.589	799.991	1.341	-0.769	1.341	1.546	330.168	0.137
900.000	0.559	277.500	899.988	1.488	-1.532	1.488	2.136	314.156	0.234
1000.000	0.405	282.307	999.984	1.627	-2.361	1.627	2.867	304.569	0.158
1100.000	0.432	265.854	1099.982	1.675	-3.083	1.675	3.509	298.516	0.123
1200.000	0.543	270.851	1199.978	1.655	-3.933	1.655	4.267	292.819	0.118
1300.000	0.721	297.191	1299.972	1.949	-4.966	1.949	5.335	291.430	0.336
1400.000	0.787	298.352	1399.963	2.563	-6.130	2.563	6.644	292.689	0.069
1500.000	0.842	294.207	1499.953	3.190	-7.405	3.190	8.063	293.309	0.080
1600.000	0.892	276.860	1599.942	3.585	-8.847	3.585	9.546	292.056	0.266
1700.000	1.152	289.313	1699.926	4.010	-10.569	4.010	11.304	290.778	0.341
1800.000	1.311	285.673	1799.903	4.651	-12.618	4.651	13.448	290.235	0.177
1900.000	1.306	286.962	1899.877	5.293	-14.810	5.293	15.727	289.666	0.030
2000.000	1.202	287.207	1999.853	5.936	-16.902	5.936	17.914	289.350	0.105
2100.000	1.191	299.202	2099.831	6.753	-18.811	6.753	19.986	289.747	0.250
2200.000	1.111	316.525	2199.811	7.963	-20.385	7.963	21.885	291.338	0.355
2300.000	0.861	323.697	2299.797	9.272	-21.497	9.272	23.411	293.332	0.278
2400.000	0.621	304.061	2399.788	10.181	-22.390	10.181	24.597	294.452	0.346
2500.000	0.568	306.499	2499.783	10.780	-23.238	10.780	25.616	294.886	0.058
2600.000	0.569	285.756	2599.778	11.209	-24.114	11.209	26.592	294.931	0.205
2700.000	0.616	271.020	2699.773	11.354	-25.130	11.354	27.575	294.314	0.159
2800.000	0.652	265.579	2799.767	11.319	-26.234	11.319	28.572	293.339	0.070
2900.000	0.828	272.905	2899.758	11.312	-27.522	11.312	29.757	292.344	0.200
3000.000	0.687	267.654	2999.750	11.324	-28.843	11.324	30.986	291.436	0.157
3100.000	0.668	280.778	3099.743	11.409	-30.014	11.409	32.109	290.812	0.156
3200.000	0.550	285.892	3199.737	11.649	-31.048	11.649	33.161	290.566	0.130
3300.000	0.733	291.243	3299.731	12.012	-32.106	12.012	34.279	290.513	0.193
3400.000	0.617	287.377	3399.724	12.405	-33.216	12.405	35.457	290.479	0.125

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	0.562	264.357	3499.719	12.517	-34.217	12.517	36.435	290.093	0.241
3600.000	0.635	282.661	3599.713	12.591	-35.246	12.591	37.427	289.658	0.203
3700.000	0.636	272.667	3699.707	12.738	-36.340	12.738	38.508	289.316	0.111
3800.000	0.768	252.459	3799.700	12.561	-37.534	12.561	39.580	288.504	0.279
3900.000	0.747	242.766	3899.691	12.061	-38.753	12.061	40.587	287.287	0.130
4000.000	0.770	220.785	3999.682	11.253	-39.772	11.253	41.334	285.799	0.290
4100.000	0.679	224.971	4099.674	10.325	-40.630	10.325	41.922	284.258	0.105
4200.000	0.734	236.711	4199.667	9.554	-41.585	9.554	42.668	282.939	0.155
4300.000	0.736	230.672	4299.659	8.796	-42.617	8.796	43.515	281.661	0.077
4400.000	0.793	247.207	4399.650	8.121	-43.751	8.121	44.498	280.515	0.227
4500.000	0.700	243.179	4499.641	7.577	-44.934	7.577	45.568	279.572	0.106
4600.000	0.880	252.559	4599.632	7.071	-46.212	7.071	46.750	278.700	0.221
4700.000	0.756	252.319	4699.622	6.641	-47.572	6.641	48.034	277.947	0.124
4800.000	0.655	250.606	4799.614	6.251	-48.740	6.251	49.139	277.309	0.103
4900.000	0.525	243.210	4899.609	5.855	-49.688	5.855	50.031	276.720	0.150
5000.000	0.538	243.104	4999.605	5.436	-50.515	5.436	50.807	276.142	0.013
5100.000	0.564	246.008	5099.600	5.023	-51.384	5.023	51.629	275.584	0.038
5200.000	0.536	225.887	5199.595	4.498	-52.169	4.498	52.362	274.928	0.194
5300.000	0.654	235.610	5299.590	3.850	-52.975	3.850	53.115	274.157	0.155
5400.000	0.758	237.539	5399.582	3.173	-54.004	3.173	54.097	273.363	0.107
5500.000	0.838	232.068	5499.573	2.368	-55.139	2.368	55.190	272.460	0.110
5600.000	0.879	247.926	5599.562	1.631	-56.427	1.631	56.450	271.656	0.240
5700.000	0.683	244.261	5699.552	1.084	-57.674	1.084	57.684	271.077	0.202
5800.000	0.654	258.510	5799.546	0.711	-58.771	0.711	58.775	270.693	0.168
5900.000	0.596	258.199	5899.540	0.491	-59.839	0.491	59.841	270.470	0.059
6000.000	0.476	245.715	5999.535	0.214	-60.727	0.214	60.727	270.202	0.166
6100.000	0.444	245.243	6099.532	-0.119	-61.457	-0.119	61.458	269.889	0.033
6200.000	0.253	261.468	6199.530	-0.314	-62.027	-0.314	62.028	269.710	0.213
6300.000	0.300	265.455	6299.529	-0.368	-62.506	-0.368	62.508	269.663	0.051
6400.000	0.322	265.728	6399.528	-0.409	-63.048	-0.409	63.049	269.628	0.022
6500.000	0.359	265.613	6499.526	-0.454	-63.641	-0.454	63.642	269.591	0.037
6600.000	0.344	241.342	6599.524	-0.622	-64.216	-0.622	64.219	269.445	0.148
6700.000	0.411	259.701	6699.522	-0.830	-64.833	-0.830	64.838	269.266	0.138
6800.000	0.367	257.009	6799.520	-0.966	-65.498	-0.966	65.505	269.155	0.048
6900.000	0.401	253.302	6899.517	-1.139	-66.145	-1.139	66.155	269.014	0.042
7000.000	0.360	266.549	6999.515	-1.258	-66.794	-1.258	66.806	268.921	0.097
HORIZONTAL DISPLACEMENT IS 66.806 FEET AT 268.921 DEGREES									