



Company: Anadarko Petroleum
 Well: Shafer USX W 35-7
 API: 05-123-11215
 Rig Name: Production/ CoreTech
 State/County: Colorado/Weld
 Latitude: 40.097, Longitude: -104.740
 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: 1/3/2014 / 15:34

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	0.557	99.944	99.998	-0.084	0.479	-0.084	0.486	99.944	0.557
200.000	0.316	121.758	199.996	-0.313	1.192	-0.313	1.233	104.709	0.289
300.000	0.147	112.482	299.995	-0.507	1.545	-0.507	1.626	108.169	0.173
400.000	0.127	122.298	399.994	-0.615	1.757	-0.615	1.861	109.295	0.031
500.000	0.267	25.052	499.994	-0.463	1.949	-0.463	2.003	103.355	0.310
600.000	0.442	32.956	599.992	0.073	2.258	0.073	2.259	88.155	0.181
700.000	0.306	23.181	699.990	0.642	2.573	0.642	2.652	75.984	0.150
800.000	0.460	65.424	799.988	1.055	3.043	1.055	3.220	70.884	0.311
900.000	0.375	72.521	899.985	1.320	3.720	1.320	3.947	70.466	0.099
1000.000	0.404	75.190	999.983	1.508	4.373	1.508	4.626	70.971	0.034
1100.000	0.315	83.984	1099.981	1.627	4.987	1.627	5.246	71.930	0.105
1200.000	0.274	60.358	1199.980	1.774	5.468	1.774	5.749	72.023	0.127
1300.000	0.160	223.036	1299.979	1.790	5.580	1.790	5.860	72.214	0.430
1400.000	0.094	180.865	1399.979	1.606	5.483	1.606	5.714	73.678	0.110
1500.000	0.045	262.821	1499.979	1.519	5.443	1.519	5.651	74.409	0.099
1600.000	0.163	3.158	1599.979	1.656	5.411	1.656	5.659	72.982	0.177
1700.000	0.155	178.302	1699.979	1.663	5.423	1.663	5.672	72.950	0.318
1800.000	0.217	86.195	1799.978	1.540	5.616	1.540	5.823	74.663	0.271
1900.000	0.155	177.966	1899.978	1.417	5.810	1.417	5.980	76.290	0.271
2000.000	0.180	46.334	1999.978	1.390	5.928	1.390	6.089	76.804	0.306
2100.000	0.039	231.754	2099.978	1.477	6.014	1.477	6.193	76.202	0.218
2200.000	0.207	141.269	2199.977	1.315	6.101	1.315	6.241	77.836	0.211
2300.000	0.236	131.654	2299.977	1.037	6.368	1.037	6.452	80.747	0.047
2400.000	0.860	178.703	2399.972	0.150	6.538	0.150	6.540	88.684	0.720
2500.000	1.219	185.357	2499.955	-1.659	6.456	-1.659	6.666	104.415	0.378
2600.000	1.581	191.764	2599.925	-4.069	6.076	-4.069	7.312	123.811	0.393
2700.000	1.761	196.316	2699.883	-6.894	5.363	-6.894	8.734	142.121	0.224
2800.000	1.699	202.997	2799.837	-9.733	4.352	-9.733	10.662	155.909	0.211
2900.000	1.482	207.083	2899.799	-12.249	3.184	-12.249	12.656	165.430	0.244
3000.000	1.611	207.134	2999.762	-14.652	1.954	-14.652	14.782	172.404	0.129
3100.000	1.700	204.562	3099.721	-17.252	0.696	-17.252	17.266	177.689	0.116
3200.000	1.566	207.181	3199.680	-19.817	-0.545	-19.817	19.824	181.574	0.153
3300.000	1.570	228.184	3299.643	-21.946	-2.190	-21.946	22.055	185.699	0.572
3400.000	1.673	244.029	3399.604	-23.499	-4.524	-23.499	23.930	190.896	0.458
3500.000	1.704	242.186	3499.560	-24.832	-7.151	-24.832	25.841	196.065	0.063

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	1.654	250.748	3599.518	-26.001	-9.829	-26.001	27.797	200.707	0.256
3700.000	1.701	253.080	3699.475	-26.909	-12.611	-26.909	29.718	205.110	0.083
3800.000	2.002	263.230	3799.423	-27.547	-15.765	-27.547	31.739	209.782	0.444
3830.000	2.180	264.300	3829.403	-27.665	-16.853	-27.665	32.394	211.349	0.609

HORIZONTAL DISPLACEMENT IS
32.394 FEET AT 211.349 DEGREES