



Company: Anadarko Petroleum  
 Well: Browne- USX V V 21-7  
 API: 05-123-08349  
 Rig Name: Production/ CoreTech  
 State/County: Colorado/Weld  
 Latitude: 40.039, Longitude: -104.891  
 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: 1/7/2014 / 13:52

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	0.353	349.824	99.999	0.303	-0.054	0.303	0.308	349.824	0.353
200.000	0.382	93.445	199.998	0.586	0.224	0.586	0.627	20.869	0.578
300.000	0.242	23.197	299.997	0.760	0.639	0.760	0.993	40.043	0.376
400.000	0.248	51.624	399.996	1.089	0.892	1.089	1.408	39.321	0.121
500.000	0.309	99.439	499.995	1.179	1.328	1.179	1.776	48.385	0.232
600.000	0.362	128.413	599.993	0.939	1.841	0.939	2.067	62.988	0.176
700.000	0.548	168.082	699.990	0.274	2.188	0.274	2.205	82.864	0.355
800.000	0.864	173.384	799.983	-0.943	2.374	-0.943	2.554	111.672	0.322
900.000	0.720	186.965	899.973	-2.315	2.384	-2.315	3.324	134.160	0.236
1000.000	0.786	187.727	999.965	-3.618	2.216	-3.618	4.243	148.513	0.067
1100.000	0.928	193.102	1099.953	-5.086	1.940	-5.086	5.444	159.119	0.163
1200.000	0.740	207.685	1199.943	-6.447	1.457	-6.447	6.609	167.267	0.282
1300.000	0.647	232.583	1299.936	-7.361	0.708	-7.361	7.395	174.503	0.312
1400.000	0.663	250.722	1399.929	-7.895	-0.286	-7.895	7.900	182.071	0.207
1500.000	0.719	263.830	1499.922	-8.154	-1.455	-8.154	8.282	190.119	0.167
1600.000	0.599	274.511	1599.916	-8.180	-2.601	-8.180	8.583	197.636	0.171
1700.000	0.569	279.729	1699.910	-8.055	-3.612	-8.055	8.827	204.150	0.061
1800.000	0.728	273.946	1799.904	-7.927	-4.735	-7.927	9.233	210.848	0.171
1900.000	0.717	274.869	1899.896	-7.830	-5.991	-7.830	9.859	217.419	0.016
2000.000	0.854	281.366	1999.887	-7.630	-7.345	-7.630	10.591	223.908	0.164
2100.000	0.867	292.784	2099.875	-7.190	-8.774	-7.190	11.344	230.664	0.172
2200.000	0.754	291.282	2199.865	-6.658	-10.085	-6.658	12.085	236.565	0.115
2300.000	0.805	297.780	2299.856	-6.092	-11.319	-6.092	12.855	241.711	0.102
2400.000	0.837	310.374	2399.846	-5.292	-12.497	-5.292	13.571	247.050	0.183
2500.000	0.926	311.860	2499.834	-4.280	-13.655	-4.280	14.310	252.598	0.092
2600.000	1.197	328.551	2599.817	-2.850	-14.802	-2.850	15.073	259.103	0.409
2700.000	1.258	334.301	2699.794	-0.969	-15.823	-0.969	15.852	266.495	0.137
2800.000	1.298	328.277	2799.769	0.983	-16.894	0.983	16.923	273.330	0.140
2900.000	1.242	333.472	2899.745	2.916	-17.974	2.916	18.209	279.216	0.128
3000.000	1.123	331.028	2999.723	4.744	-18.933	4.744	19.518	284.066	0.130
3100.000	0.981	328.281	3099.707	6.330	-19.858	6.330	20.842	287.679	0.150
3200.000	0.831	338.445	3199.694	7.732	-20.574	7.732	21.979	290.597	0.220
3300.000	0.423	301.047	3299.688	8.597	-21.157	8.597	22.837	292.114	0.557
3400.000	0.640	264.557	3399.684	8.735	-22.029	8.735	23.698	291.628	0.391
3500.000	0.632	285.763	3499.678	8.831	-23.115	8.831	24.745	290.910	0.234

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	0.778	252.904	3599.671	8.782	-24.294	8.782	25.833	289.873	0.422
3700.000	1.109	255.376	3699.657	8.338	-25.879	8.338	27.189	287.858	0.334
3800.000	1.019	251.519	3799.640	7.812	-27.659	7.812	28.741	285.771	0.115
3900.000	1.064	262.468	3899.624	7.408	-29.423	7.408	30.341	284.132	0.204
4000.000	0.913	264.506	3999.609	7.210	-31.137	7.210	31.961	283.038	0.156
4100.000	0.993	248.594	4099.595	6.817	-32.736	6.817	33.439	281.764	0.276
4200.000	0.900	262.287	4199.582	6.396	-34.321	6.396	34.912	280.556	0.244
4300.000	0.937	267.302	4299.569	6.252	-35.916	6.252	36.456	279.874	0.088
4400.000	0.937	251.724	4399.555	5.957	-37.509	5.957	37.979	279.024	0.254
4500.000	1.569	261.117	4499.531	5.489	-39.638	5.489	40.017	277.884	0.662
4600.000	1.298	263.122	4599.500	5.142	-42.116	5.142	42.428	276.961	0.275
4700.000	1.188	268.049	4699.476	4.971	-44.276	4.971	44.554	276.406	0.154
4800.000	1.722	257.105	4799.444	4.601	-46.776	4.601	47.002	275.617	0.599
4900.000	1.832	254.821	4899.396	3.847	-49.783	3.847	49.932	274.418	0.131
5000.000	1.797	255.731	4999.346	3.042	-52.846	3.042	52.933	273.294	0.046
5100.000	1.854	248.954	5099.295	2.074	-55.875	2.074	55.913	272.126	0.223
5200.000	2.301	240.822	5199.229	0.515	-59.138	0.515	59.140	270.499	0.535
5300.000	2.232	231.693	5299.151	-1.671	-62.419	-1.671	62.441	268.466	0.367
5400.000	1.875	233.695	5399.087	-3.847	-65.265	-3.847	65.378	266.627	0.364
5500.000	1.657	246.385	5499.040	-5.394	-67.908	-5.394	68.122	265.458	0.446
5600.000	1.205	243.923	5599.008	-6.436	-70.178	-6.436	70.472	264.760	0.456
5700.000	1.071	278.651	5698.990	-6.758	-72.046	-6.758	72.362	264.641	0.691
5800.000	0.232	344.443	5798.983	-6.422	-73.024	-6.422	73.306	264.974	0.998
5900.000	0.455	353.927	5898.981	-5.832	-73.120	-5.832	73.353	265.440	0.229
6000.000	0.405	35.784	5998.979	-5.150	-72.956	-5.150	73.137	265.962	0.311
6100.000	0.426	31.878	6098.976	-4.547	-72.553	-4.547	72.695	266.414	0.035
6200.000	0.191	351.396	6198.975	-4.067	-72.381	-4.067	72.496	266.784	0.307
6300.000	0.311	28.627	6298.974	-3.664	-72.276	-3.664	72.369	267.098	0.197
6400.000	0.489	353.193	6398.971	-3.002	-72.197	-3.002	72.259	267.619	0.296
6500.000	0.474	336.019	6498.968	-2.201	-72.415	-2.201	72.449	268.259	0.144
6600.000	0.798	11.133	6598.962	-1.140	-72.449	-1.140	72.458	269.098	0.493
6700.000	0.468	20.854	6698.956	-0.075	-72.169	-0.075	72.169	269.940	0.345
6800.000	0.663	34.693	6798.951	0.782	-71.694	0.782	71.698	270.625	0.236
6900.000	0.846	57.646	6898.942	1.653	-70.741	1.653	70.760	271.339	0.350
7000.000	0.447	128.812	6998.937	1.804	-69.813	1.804	69.836	271.480	0.820
7100.000	0.771	146.251	7098.931	1.000	-69.135	1.000	69.142	270.829	0.369
7200.000	0.649	131.832	7198.924	0.064	-68.340	0.064	68.340	270.053	0.215
7300.000	0.807	124.049	7298.916	-0.708	-67.335	-0.708	67.339	269.398	0.186
7400.000	0.785	67.420	7398.908	-0.839	-66.119	-0.839	66.125	269.273	0.755
7500.000	0.892	77.735	7498.897	-0.411	-64.727	-0.411	64.728	269.636	0.184
7600.000	0.800	97.015	7598.886	-0.331	-63.274	-0.331	63.275	269.700	0.297
HORIZONTAL DISPLACEMENT IS 63.275 FEET AT 269.700 DEGREES									