



Company: Anadarko Petroleum
 Well: UPRR 42 Pan Am AO 1
 API: 05-123-09344
 Rig Name: Production/ Warrior
 State/County: Colorado/Weld
 Latitude: 40.099, Longitude: -104.853
 Directions are relative to True North
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: hgyro-de_01.ut
 Minimum Curvature Method
 Report Date/Time: 5/13/2014 / 11:00

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	0.506	25.419	99.999	0.399	0.190	0.399	0.442	25.419	0.506
200.000	0.346	354.176	199.996	1.098	0.349	1.098	1.152	17.615	0.277
300.000	0.154	326.928	299.995	1.511	0.245	1.511	1.531	9.195	0.220
400.000	0.233	296.759	399.995	1.715	-0.010	1.715	1.715	359.661	0.126
500.000	0.124	124.220	499.994	1.746	-0.102	1.746	1.749	356.656	0.356
600.000	0.531	188.502	599.993	1.227	-0.081	1.227	1.229	356.220	0.490
700.000	0.415	192.373	699.989	0.415	-0.227	0.415	0.473	331.315	0.120
800.000	0.849	190.649	799.983	-0.666	-0.441	-0.666	0.799	213.533	0.434
900.000	0.748	181.007	899.973	-2.046	-0.590	-2.046	2.130	196.078	0.168
1000.000	1.033	208.281	999.962	-3.493	-1.028	-3.493	3.641	196.407	0.503
1100.000	0.861	205.180	1099.948	-4.966	-1.775	-4.966	5.274	199.668	0.180
1200.000	0.976	211.303	1199.935	-6.374	-2.537	-6.374	6.860	201.706	0.152
1300.000	1.118	214.310	1299.918	-7.908	-3.530	-7.908	8.660	204.055	0.152
1400.000	1.045	219.141	1399.900	-9.421	-4.655	-9.421	10.508	206.297	0.117
1500.000	1.123	233.913	1499.883	-10.705	-6.023	-10.705	12.283	209.362	0.289
1600.000	0.945	230.120	1599.866	-11.811	-7.447	-11.811	13.963	212.233	0.191
1700.000	0.881	247.925	1699.854	-12.628	-8.792	-12.628	15.388	214.847	0.289
1800.000	0.871	255.340	1799.842	-13.110	-10.240	-13.110	16.635	217.994	0.114
1900.000	0.904	249.893	1899.830	-13.573	-11.715	-13.573	17.930	220.799	0.090
2000.000	0.834	254.647	1999.819	-14.037	-13.158	-14.037	19.239	223.149	0.100
2100.000	0.776	258.316	2099.809	-14.366	-14.522	-14.366	20.428	225.309	0.077
2200.000	0.628	262.108	2199.801	-14.579	-15.729	-14.579	21.446	227.173	0.155
2300.000	0.560	265.095	2299.796	-14.696	-16.759	-14.696	22.290	228.753	0.075
2400.000	0.506	258.729	2399.792	-14.824	-17.680	-14.824	23.072	230.021	0.080
2500.000	0.619	275.913	2499.787	-14.855	-18.650	-14.855	23.843	231.463	0.202
2600.000	0.444	268.149	2599.783	-14.812	-19.574	-14.812	24.547	232.886	0.189
2700.000	0.447	292.007	2699.780	-14.678	-20.323	-14.678	25.069	234.162	0.184
2800.000	0.509	298.842	2799.776	-14.318	-21.074	-14.318	25.477	235.808	0.084
2900.000	0.357	292.789	2899.773	-13.983	-21.750	-13.983	25.857	237.264	0.159
3000.000	0.300	275.674	2999.772	-13.836	-22.298	-13.836	26.242	238.180	0.113
3100.000	0.233	321.583	3099.771	-13.651	-22.685	-13.651	26.476	238.962	0.217
3200.000	0.247	242.309	3199.770	-13.592	-23.002	-13.592	26.717	239.420	0.306
3300.000	0.120	153.091	3299.770	-13.785	-23.145	-13.785	26.939	239.221	0.273
3400.000	0.434	219.152	3399.769	-14.173	-23.337	-14.173	27.303	238.729	0.401
3500.000	0.645	222.917	3499.764	-14.879	-23.959	-14.879	28.203	238.159	0.214

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	0.796	211.860	3599.756	-15.881	-24.710	-15.881	29.373	237.270	0.205
3700.000	0.696	210.597	3699.748	-16.994	-25.385	-16.994	30.549	236.200	0.102
3800.000	0.602	230.186	3799.741	-17.853	-26.098	-17.853	31.621	235.624	0.239
3900.000	0.805	216.369	3899.734	-18.756	-26.918	-18.756	32.808	235.133	0.263
4000.000	0.710	208.616	3999.725	-19.865	-27.632	-19.865	34.031	234.287	0.139
4100.000	0.808	221.533	4099.716	-20.937	-28.396	-20.937	35.280	233.598	0.196
4200.000	0.733	209.893	4199.707	-22.019	-29.182	-22.019	36.558	232.964	0.173
4300.000	0.781	211.651	4299.699	-23.155	-29.859	-23.155	37.785	232.208	0.053
4400.000	1.075	190.854	4399.686	-24.656	-30.393	-24.656	39.137	230.950	0.443
4500.000	1.322	191.086	4499.664	-26.710	-30.792	-26.710	40.762	229.060	0.247
4600.000	1.279	178.869	4599.638	-28.958	-30.992	-28.958	42.415	226.943	0.280
4700.000	1.269	153.771	4699.614	-31.068	-30.480	-31.068	43.523	224.453	0.554
4800.000	1.198	163.039	4799.591	-33.061	-29.686	-33.061	44.433	221.921	0.212
4900.000	1.517	157.819	4899.563	-35.287	-28.881	-35.287	45.599	219.299	0.342
5000.000	1.163	165.088	4999.536	-37.493	-28.120	-37.493	46.866	216.870	0.392
5100.000	1.026	170.593	5099.517	-39.356	-27.713	-39.356	48.134	215.151	0.173
5200.000	0.753	179.873	5199.505	-40.897	-27.565	-40.897	49.319	213.980	0.307
5300.000	0.761	175.779	5299.497	-42.216	-27.515	-42.216	50.391	213.095	0.055
5400.000	0.764	207.115	5399.488	-43.472	-27.770	-43.472	51.585	212.570	0.412
5500.000	0.706	216.811	5499.480	-44.559	-28.443	-44.559	52.863	212.551	0.137
5600.000	0.832	215.527	5599.471	-45.643	-29.234	-45.643	54.203	212.639	0.128
5700.000	0.813	228.170	5699.461	-46.708	-30.185	-46.708	55.612	212.873	0.182
5800.000	0.806	203.255	5799.451	-47.827	-30.992	-47.827	56.990	212.943	0.349
5900.000	0.630	200.076	5899.443	-48.990	-31.458	-48.990	58.220	212.706	0.181
6000.000	0.834	214.401	5999.435	-50.106	-32.058	-50.106	59.484	212.611	0.273
6100.000	0.671	201.658	6099.426	-51.251	-32.685	-51.251	60.786	212.527	0.233
6200.000	0.619	193.361	6199.420	-52.320	-33.026	-52.320	61.872	212.261	0.106
6300.000	0.377	234.811	6299.417	-53.036	-33.419	-53.036	62.687	212.216	0.419
6400.000	0.242	228.355	6399.415	-53.366	-33.846	-53.366	63.194	212.384	0.139
6500.000	0.392	291.168	6499.414	-53.383	-34.324	-53.383	63.465	212.740	0.355
6600.000	0.423	268.710	6599.411	-53.267	-35.012	-53.267	63.744	213.317	0.162
6700.000	0.056	99.098	6699.410	-53.283	-35.334	-53.283	63.934	213.549	0.479
6800.000	0.233	270.117	6799.410	-53.291	-35.489	-53.291	64.027	213.662	0.289
6900.000	0.258	129.798	6899.410	-53.435	-35.520	-53.435	64.163	213.613	0.463
7000.000	0.306	139.043	6999.409	-53.781	-35.172	-53.781	64.260	213.184	0.066
7100.000	0.377	172.429	7099.407	-54.308	-34.953	-54.308	64.584	212.766	0.207
7200.000	0.460	175.648	7199.404	-55.034	-34.880	-55.034	65.156	212.366	0.086
7300.000	0.122	142.276	7299.403	-55.518	-34.784	-55.518	65.514	212.069	0.364
7400.000	0.407	168.838	7399.402	-55.950	-34.650	-55.950	65.810	211.771	0.303
7500.000	0.170	130.554	7499.401	-56.394	-34.469	-56.394	66.094	211.434	0.293
7600.000	0.347	160.987	7599.400	-56.777	-34.257	-56.777	66.312	211.105	0.218
7700.000	0.183	187.574	7699.398	-57.222	-34.180	-57.222	66.653	210.850	0.201
7800.000	0.107	128.534	7799.398	-57.439	-34.127	-57.439	66.813	210.717	0.158
7900.000	0.476	236.014	7899.397	-57.729	-34.399	-57.729	67.201	210.789	0.519

HORIZONTAL DISPLACEMENT IS
67.201 FEET AT 210.789 DEGREES