

Company: Anadarko Petroleum Corp.

Well: GNB V 36-1

API: 05-123-14933

Rig Name: Production/VES

Location: Weld County, Colorado

Latitude: 40.100, Longitude: -104.832

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: ha gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 3/20/2014 / 16:00

Vaughn Energy Services

Henderson, CO.

Justin Williams

303-853-4976

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	0.889	137.676	99.996	-0.574	0.523	-0.574	0.776	137.676	0.889
200.000	0.742	124.849	199.986	-1.518	1.577	-1.518	2.189	133.908	0.233
300.000	0.943	142.921	299.975	-2.544	2.604	-2.544	3.641	134.331	0.330
400.000	0.355	87.710	399.969	-3.188	3.410	-3.188	4.669	133.073	0.795
500.000	0.371	162.977	499.968	-3.485	3.815	-3.485	5.167	132.416	0.444
600.000	0.196	16.677	599.967	-3.632	3.959	-3.632	5.372	132.532	0.545
700.000	0.316	74.487	699.966	-3.394	4.274	-3.394	5.458	128.456	0.269
800.000	0.162	196.696	799.966	-3.456	4.499	-3.456	5.673	127.524	0.425
900.000	0.304	79.553	899.965	-3.543	4.719	-3.543	5.901	126.895	0.404
1000.000	0.433	13.531	999.963	-3.127	5.068	-3.127	5.955	121.673	0.416
1100.000	0.311	348.486	1099.961	-2.493	5.103	-2.493	5.679	116.039	0.201
1200.000	0.596	303.454	1199.958	-1.940	4.615	-1.940	5.006	112.803	0.435
1300.000	0.361	246.686	1299.955	-1.778	3.892	-1.778	4.279	114.554	0.499
1400.000	0.606	322.184	1399.953	-1.485	3.279	-1.485	3.600	114.369	0.622
1500.000	0.593	343.260	1499.947	-0.572	2.806	-0.572	2.864	101.523	0.220
1600.000	0.360	60.656	1599.945	0.078	2.931	0.078	2.932	88.482	0.623
1700.000	0.637	344.689	1699.942	0.767	3.058	0.767	3.152	75.910	0.651
1800.000	0.573	16.102	1799.936	1.783	3.050	1.783	3.533	59.681	0.333
1900.000	0.206	305.377	1899.934	2.368	3.041	2.368	3.854	52.099	0.541
2000.000	0.565	11.416	1999.932	2.956	2.992	2.956	4.206	45.352	0.517
2100.000	0.249	56.740	2099.930	3.558	3.271	3.558	4.834	42.594	0.429
2200.000	0.418	223.448	2199.929	3.413	3.202	3.413	4.680	43.177	0.662
2300.000	0.345	25.234	2299.928	3.420	3.080	3.420	4.603	42.002	0.753
2400.000	0.430	321.637	2399.926	3.987	2.975	3.987	4.975	36.731	0.415
2500.000	0.522	263.416	2499.923	4.229	2.290	4.229	4.809	28.433	0.470
2600.000	0.565	275.945	2599.919	4.228	1.348	4.228	4.438	17.680	0.126
2700.000	0.189	46.726	2699.917	4.392	0.978	4.392	4.499	12.548	0.702
2800.000	0.604	293.748	2799.916	4.717	0.615	4.717	4.757	7.430	0.699
2900.000	0.264	246.692	2899.913	4.838	-0.079	4.838	4.839	359.069	0.466
3000.000	0.656	325.969	2999.910	5.221	-0.611	5.221	5.257	353.327	0.660
3100.000	0.416	292.617	3099.906	5.836	-1.267	5.836	5.972	347.754	0.384
3200.000	0.690	304.027	3199.901	6.312	-2.100	6.312	6.653	341.594	0.293
3300.000	0.724	306.628	3299.894	7.026	-3.106	7.026	7.682	336.148	0.047
3400.000	0.393	242.501	3399.890	7.245	-3.918	7.245	8.236	331.598	0.656

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	0.534	239.234	3499.886	6.849	-4.622	6.849	8.262	325.988	0.143
3600.000	0.900	285.829	3599.879	6.825	-5.777	6.825	8.942	319.752	0.659
3700.000	0.431	315.184	3699.872	7.306	-6.798	7.306	9.979	317.063	0.565
3800.000	1.036	264.719	3799.864	7.489	-7.963	7.489	10.932	313.245	0.831
3900.000	1.040	275.490	3899.848	7.493	-9.766	7.493	12.310	307.497	0.195
4000.000	1.063	258.692	3999.832	7.398	-11.579	7.398	13.741	302.574	0.308
4100.000	0.900	239.698	4099.817	6.820	-13.167	6.820	14.828	297.382	0.362
4200.000	0.791	214.274	4199.807	5.854	-14.233	5.854	15.390	292.355	0.387
4300.000	1.421	220.968	4299.787	4.347	-15.435	4.347	16.036	285.729	0.642
4400.000	1.796	218.060	4399.748	2.177	-17.214	2.177	17.351	277.206	0.384
4500.000	1.471	210.773	4499.707	-0.160	-18.837	-0.160	18.838	269.513	0.386
4600.000	1.745	205.997	4599.668	-2.631	-20.161	-2.631	20.332	262.565	0.305
4700.000	2.544	197.472	4699.597	-6.116	-21.495	-6.116	22.348	254.117	0.858
4800.000	2.644	196.693	4799.495	-10.442	-22.823	-10.442	25.099	245.416	0.106
4900.000	2.925	188.801	4899.377	-15.172	-23.876	-15.172	28.289	237.566	0.475
5000.000	2.364	185.525	4999.270	-19.747	-24.465	-19.747	31.440	231.092	0.580
5100.000	2.665	199.718	5099.175	-23.988	-25.448	-23.988	34.972	226.692	0.689
5200.000	2.609	200.841	5199.069	-28.304	-27.042	-28.304	39.146	223.694	0.076
5300.000	1.894	192.206	5298.991	-32.046	-28.201	-32.046	42.688	221.349	0.789
5400.000	2.206	203.218	5398.927	-35.430	-29.310	-35.430	45.982	219.599	0.501
5500.000	2.081	204.683	5498.857	-38.849	-30.827	-38.849	49.594	218.432	0.136
5600.000	1.888	208.489	5598.797	-41.947	-32.371	-41.947	52.985	217.658	0.233
5700.000	1.634	214.220	5698.750	-44.574	-33.958	-44.574	56.036	217.302	0.309
5800.000	1.198	223.350	5798.720	-46.513	-35.477	-46.513	58.499	217.335	0.489
5900.000	1.438	231.126	5898.693	-48.061	-37.172	-48.061	60.758	217.720	0.299
6000.000	0.850	216.133	5998.673	-49.447	-38.587	-49.447	62.722	217.967	0.655
6100.000	1.171	234.885	6098.658	-50.634	-39.860	-50.634	64.441	218.210	0.457
6200.000	1.089	228.932	6198.638	-51.847	-41.413	-51.847	66.356	218.616	0.143
6300.000	0.781	253.615	6298.625	-52.664	-42.784	-52.664	67.852	219.090	0.501
6400.000	0.860	253.545	6398.615	-53.069	-44.157	-53.069	69.037	219.763	0.079
6500.000	1.155	207.979	6498.601	-54.171	-45.350	-54.171	70.648	219.935	0.827
6600.000	1.162	234.149	6598.581	-55.656	-46.645	-55.656	72.617	219.966	0.525
6700.000	0.575	197.094	6698.570	-56.729	-47.614	-56.729	74.062	220.007	0.784
6800.000	0.565	227.773	6798.565	-57.540	-48.126	-57.540	75.013	219.909	0.302
6900.000	1.388	212.056	6898.550	-58.898	-49.134	-58.898	76.701	219.836	0.857
7000.000	1.398	214.169	6998.520	-60.933	-50.462	-60.933	79.115	219.630	0.052
7100.000	1.061	206.750	7098.497	-62.769	-51.564	-62.769	81.233	219.403	0.372
7200.000	1.071	205.989	7198.480	-64.436	-52.390	-64.436	83.046	219.113	0.018
7300.000	0.750	207.079	7298.467	-65.859	-53.098	-65.859	84.598	218.877	0.321
7350.000	0.741	186.995	7348.463	-66.472	-53.286	-66.472	85.194	218.717	0.521
<div> <div>HORIZONTAL DISPLACEMENT IS</div> <div>85.194 FEET AT 218.717 DEGREES</div> </div>									