



Company: PDC  
Well: Riggs 44-16  
API #: 05-123-14480  
Rig Name: Production/Nabors  
State/County: Colorado/Weld  
Latitude: 40.481, Longitude: -104.661  
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: 7/17/2014 / 15:20

VES Survey International  
Henderson, Colorado  
303-853-4976  
Mark Simmons

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	0.528	53.499	99.999	0.274	0.370	0.274	0.461	53.499	0.528
200.000	0.258	132.054	199.997	0.397	0.908	0.397	0.991	66.367	0.540
300.000	0.252	65.437	299.996	0.338	1.275	0.338	1.319	75.159	0.280
400.000	0.095	90.404	399.995	0.429	1.558	0.429	1.616	74.618	0.170
500.000	0.287	149.968	499.995	0.211	1.767	0.211	1.779	83.174	0.252
600.000	0.283	142.452	599.994	-0.201	2.042	-0.201	2.052	95.614	0.038
700.000	0.246	88.429	699.993	-0.390	2.407	-0.390	2.438	99.215	0.242
800.000	0.098	194.982	799.992	-0.468	2.599	-0.468	2.641	100.200	0.290
900.000	0.116	263.840	899.992	-0.561	2.476	-0.561	2.539	102.775	0.122
1000.000	0.111	356.852	999.992	-0.476	2.371	-0.476	2.418	101.350	0.164
1100.000	0.140	183.429	1099.992	-0.501	2.358	-0.501	2.411	102.000	0.250
1200.000	0.254	255.509	1199.992	-0.679	2.136	-0.679	2.241	107.624	0.250
1300.000	0.258	231.178	1299.991	-0.875	1.746	-0.875	1.953	116.615	0.108
1400.000	0.305	288.367	1399.990	-0.932	1.318	-0.932	1.614	125.262	0.273
1500.000	0.213	217.770	1499.989	-0.995	0.952	-0.995	1.377	136.280	0.309
1600.000	0.335	257.635	1599.988	-1.205	0.552	-1.205	1.325	155.391	0.220
1700.000	0.138	261.473	1699.987	-1.285	0.146	-1.285	1.294	173.497	0.198
1800.000	0.394	253.847	1799.986	-1.399	-0.303	-1.399	1.431	192.221	0.257
1900.000	0.114	299.820	1899.985	-1.445	-0.719	-1.445	1.614	206.468	0.325
2000.000	0.060	45.200	1999.985	-1.358	-0.768	-1.358	1.561	209.494	0.142
2100.000	0.139	12.738	2099.984	-1.203	-0.704	-1.203	1.394	210.345	0.094
2200.000	0.351	7.133	2199.983	-0.781	-0.639	-0.781	1.009	219.314	0.213
2300.000	0.321	4.661	2299.982	-0.198	-0.579	-0.198	0.612	251.090	0.033
2400.000	0.268	61.193	2399.981	0.193	-0.351	0.193	0.401	298.885	0.283
2500.000	0.182	62.601	2499.980	0.380	-0.004	0.380	0.380	359.352	0.086
2600.000	0.151	24.574	2599.979	0.573	0.192	0.573	0.604	18.513	0.113
2700.000	0.342	21.077	2699.978	0.971	0.354	0.971	1.034	20.026	0.191
2800.000	0.197	51.943	2799.977	1.355	0.596	1.355	1.481	23.754	0.200
2900.000	0.168	16.493	2899.977	1.601	0.773	1.601	1.778	25.773	0.114
3000.000	0.356	23.473	2999.976	2.026	0.938	2.026	2.233	24.848	0.190
3100.000	0.139	34.170	3099.975	2.411	1.130	2.411	2.663	25.110	0.221
3200.000	0.110	93.651	3199.975	2.506	1.294	2.506	2.820	27.315	0.126
3300.000	0.030	264.126	3299.975	2.497	1.364	2.497	2.845	28.651	0.139
3400.000	0.197	5.867	3399.974	2.665	1.356	2.665	2.990	26.967	0.205

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	0.334	125.152	3499.974	2.669	1.612	2.669	3.118	31.130	0.463
3600.000	0.554	130.236	3599.971	2.189	2.219	2.189	3.117	45.386	0.223
3700.000	0.517	164.789	3699.967	1.442	2.706	1.442	3.066	61.954	0.320
3800.000	0.316	151.823	3799.964	0.763	2.954	0.763	3.051	75.513	0.221
3900.000	0.308	163.425	3899.962	0.263	3.161	0.263	3.172	85.241	0.064
4000.000	0.132	221.237	3999.962	-0.081	3.162	-0.081	3.163	91.461	0.262
4100.000	0.221	356.451	4099.962	0.026	3.074	0.026	3.074	89.520	0.328
4200.000	0.325	350.461	4199.960	0.499	3.015	0.499	3.056	80.608	0.108
4300.000	0.926	357.045	4299.954	1.585	2.926	1.585	3.328	61.552	0.603
4400.000	1.063	0.334	4399.939	3.320	2.890	3.320	4.402	41.040	0.149
4500.000	1.481	344.533	4499.914	5.493	2.551	5.493	6.057	24.908	0.542
4600.000	1.653	344.433	4599.877	8.128	1.819	8.128	8.329	12.615	0.172
4700.000	1.496	345.256	4699.839	10.780	1.100	10.780	10.836	5.826	0.159
4800.000	1.889	335.913	4799.795	13.547	0.095	13.547	13.547	0.402	0.479
4900.000	1.892	331.622	4899.741	16.504	-1.362	16.504	16.560	355.281	0.142
5000.000	1.618	331.859	4999.694	19.201	-2.813	19.201	19.406	351.667	0.274
5100.000	1.736	341.434	5099.651	21.882	-3.961	21.882	22.237	349.740	0.303
5200.000	1.574	343.788	5199.610	24.636	-4.826	24.636	25.104	348.916	0.175
5300.000	2.020	358.422	5299.561	27.716	-5.258	27.716	28.211	349.258	0.636
5400.000	1.969	16.464	5399.501	31.125	-4.820	31.125	31.496	351.197	0.627
5500.000	2.710	30.371	5499.418	34.812	-3.138	34.812	34.953	354.850	0.929
5600.000	3.408	41.587	5599.276	39.075	0.031	39.075	39.075	0.045	0.916
5700.000	4.306	43.743	5699.048	44.011	4.600	44.011	44.251	5.967	0.909
5800.000	5.245	44.432	5798.700	49.987	10.396	49.987	51.057	11.748	0.940
5900.000	6.616	44.637	5898.162	57.351	17.643	57.351	60.003	17.100	1.372
6000.000	6.700	52.338	5997.490	65.015	26.309	65.015	70.136	22.032	0.896
6100.000	7.425	56.711	6096.731	72.126	36.329	72.126	80.758	26.734	0.902
6200.000	6.914	61.446	6195.950	78.549	47.017	78.549	91.545	30.903	0.780
6300.000	6.189	62.233	6295.296	83.938	57.074	83.938	101.504	34.214	0.731
6400.000	5.440	73.371	6394.784	87.805	66.385	87.805	110.076	37.091	1.351
6500.000	4.798	85.357	6494.388	89.501	75.096	89.501	116.832	39.999	1.243
6600.000	3.446	97.052	6594.129	89.470	82.248	89.470	121.530	42.592	1.586
6700.000	2.406	112.182	6693.998	88.309	87.174	88.309	124.088	44.630	1.286
HORIZONTAL DISPLACEMENT IS 124.088 FEET AT 44.630 DEGREES									