



Company: PDC Energy  
 Well: Chesnut 3  
 API: 05-123-15254  
 Rig Name: Production / V.E.S.  
 State/County: Colorado / Weld  
 Latitude: 40.379, Longitude: -104.552  
 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: 1/9/2015 / 17:56

VES Survey International  
 Henderson Colorado  
 303-853-4976  
 Norman Cowan

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	0.730	226.460	99.997	-0.439	-0.462	-0.439	0.637	226.460	0.730
200.000	0.640	266.610	199.991	-0.911	-1.481	-0.911	1.738	238.410	0.478
300.000	0.162	229.665	299.988	-1.035	-2.146	-1.035	2.382	244.249	0.520
400.000	0.380	44.187	399.988	-0.889	-2.022	-0.889	2.209	246.278	0.541
500.000	0.418	49.458	499.985	-0.414	-1.514	-0.414	1.570	254.711	0.053
600.000	0.414	72.703	599.983	-0.070	-0.892	-0.070	0.895	265.543	0.168
700.000	0.327	120.988	699.981	-0.109	-0.302	-0.109	0.322	250.156	0.313
800.000	0.665	105.285	799.977	-0.409	0.502	-0.409	0.648	129.170	0.361
900.000	0.625	97.737	899.970	-0.636	1.603	-0.636	1.724	111.633	0.094
1000.000	0.302	8.105	999.968	-0.448	2.181	-0.448	2.226	101.617	0.693
1100.000	0.109	178.292	1099.968	-0.282	2.221	-0.282	2.238	97.246	0.409
1200.000	0.588	98.589	1199.966	-0.454	2.731	-0.454	2.768	99.435	0.578
1300.000	0.583	39.014	1299.961	-0.135	3.558	-0.135	3.560	92.178	0.581
1400.000	0.446	15.220	1399.957	0.635	3.980	0.635	4.030	80.932	0.251
1500.000	0.045	44.622	1499.956	1.039	4.110	1.039	4.239	75.816	0.407
1600.000	0.258	100.714	1599.956	1.025	4.358	1.025	4.477	76.768	0.236
1700.000	0.444	31.860	1699.954	1.312	4.784	1.312	4.961	74.662	0.426
1800.000	0.972	79.735	1799.947	1.793	5.823	1.793	6.093	72.890	0.750
1900.000	0.787	58.850	1899.936	2.299	7.246	2.299	7.602	72.396	0.367
2000.000	1.176	88.711	1999.921	2.677	8.860	2.677	9.256	73.185	0.630
2100.000	1.186	72.002	2099.900	3.020	10.870	3.020	11.282	74.472	0.343
2200.000	0.964	98.475	2199.883	3.216	12.686	3.216	13.087	75.774	0.538
2300.000	0.618	134.695	2299.874	2.713	13.901	2.713	14.163	78.957	0.591
2400.000	0.717	82.627	2399.868	2.414	14.905	2.414	15.099	80.801	0.593
2500.000	0.704	116.053	2499.861	2.224	16.078	2.224	16.231	82.123	0.409
2600.000	0.835	125.050	2599.852	1.536	17.226	1.536	17.294	84.904	0.177
2700.000	0.811	100.636	2699.842	0.987	18.518	0.987	18.544	86.948	0.349
2800.000	0.219	102.496	2799.838	0.815	19.400	0.815	19.417	87.594	0.592
2900.000	0.951	113.293	2899.832	0.446	20.348	0.446	20.353	88.744	0.737
3000.000	0.613	144.002	2999.823	-0.315	21.424	-0.315	21.426	90.841	0.527
3100.000	0.652	82.026	3099.818	-0.668	22.301	-0.668	22.311	91.716	0.652
3200.000	0.361	110.029	3199.814	-0.697	23.161	-0.697	23.171	91.725	0.373
3300.000	1.115	89.672	3299.805	-0.800	24.430	-0.800	24.443	91.875	0.786
3400.000	1.354	110.115	3399.782	-1.201	26.512	-1.201	26.539	92.593	0.498

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	1.323	130.008	3499.755	-2.350	28.506	-2.350	28.603	94.712	0.463
3600.000	1.480	128.525	3599.725	-3.896	30.401	-3.896	30.649	97.303	0.160
3700.000	1.479	139.158	3699.692	-5.677	32.255	-5.677	32.750	99.981	0.274
3800.000	1.204	122.925	3799.665	-7.224	33.980	-7.224	34.740	102.002	0.467
3900.000	0.874	148.337	3899.649	-8.444	35.262	-8.444	36.259	103.466	0.559
4000.000	0.404	119.306	3999.643	-9.265	35.969	-9.265	37.143	104.444	0.556
4100.000	0.912	108.414	4099.636	-9.689	37.031	-9.689	38.278	104.662	0.521
4200.000	0.209	131.039	4199.631	-10.060	37.924	-10.060	39.235	104.856	0.723
4300.000	0.440	194.479	4299.629	-10.551	37.965	-10.551	39.404	105.531	0.394
4400.000	0.475	152.217	4399.626	-11.290	38.063	-11.290	39.702	106.521	0.331
4500.000	1.059	202.825	4499.618	-12.508	37.898	-12.508	39.908	108.266	0.842
4600.000	1.783	181.747	4599.587	-14.915	37.492	-14.915	40.349	111.694	0.882
4700.000	1.587	198.789	4699.544	-17.781	36.998	-17.781	41.049	115.668	0.536
4800.000	1.099	202.857	4799.517	-19.975	36.180	-19.975	41.328	118.903	0.497
4900.000	1.025	221.436	4899.500	-21.529	35.216	-21.529	41.275	121.439	0.350
5000.000	0.815	216.170	4999.487	-22.773	34.204	-22.773	41.092	123.656	0.226
5100.000	0.844	157.044	5099.478	-24.025	34.072	-24.025	41.691	125.189	0.819
5200.000	1.271	139.323	5199.461	-25.545	35.082	-25.545	43.397	126.060	0.533
5300.000	0.721	156.255	5299.446	-26.962	36.058	-26.962	45.024	126.786	0.618
5400.000	0.354	264.639	5399.443	-27.566	36.005	-27.566	45.346	127.439	0.897
5500.000	0.343	203.990	5499.441	-27.869	35.576	-27.869	45.192	128.074	0.352
5600.000	0.185	337.863	5599.441	-27.993	35.393	-27.993	45.125	128.341	0.490
5700.000	0.570	9.573	5699.439	-27.353	35.415	-27.353	44.748	127.681	0.423
5800.000	0.896	48.193	5799.431	-26.341	36.080	-26.341	44.672	126.132	0.574
5900.000	0.138	30.829	5899.426	-25.716	36.725	-25.716	44.833	125.002	0.766
6000.000	1.037	76.942	5999.420	-25.409	37.668	-25.409	45.436	124.002	0.946
6100.000	0.860	63.958	6099.406	-24.875	39.223	-24.875	46.446	122.382	0.277
6200.000	0.524	55.084	6199.399	-24.284	40.273	-24.284	47.027	121.089	0.352
6300.000	0.424	53.780	6299.396	-23.803	40.946	-23.803	47.362	120.171	0.100
6400.000	0.325	65.636	6399.393	-23.467	41.503	-23.467	47.678	119.485	0.126
6500.000	0.847	91.225	6499.388	-23.366	42.501	-23.366	48.500	118.801	0.572
6600.000	0.913	93.236	6599.376	-23.427	44.035	-23.427	49.879	118.013	0.072
HORIZONTAL DISPLACEMENT IS 49.879 FEET AT 118.013 DEGREES									