



Company: PDC Energy

Well: Becker 6

API: 05-123-22594

Rig Name: Production / V.E.S.

State/County: Colorado / Weld

Latitude: 40.251, Longitude: -104.570

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: 7/12/2014 / 13:17

Vaughn Energy Services

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	0.636	303.869	99.998	0.309	-0.461	0.309	0.555	303.869	0.636
200.000	0.213	293.736	199.995	0.693	-1.092	0.693	1.293	302.420	0.428
300.000	0.213	25.634	299.995	0.935	-1.181	0.935	1.507	308.371	0.306
400.000	0.304	19.697	399.994	1.353	-1.012	1.353	1.689	323.206	0.095
500.000	0.543	10.253	499.991	2.069	-0.838	2.069	2.232	337.955	0.248
600.000	0.589	7.462	599.986	3.045	-0.687	3.045	3.121	347.290	0.053
700.000	1.040	33.122	699.976	4.314	-0.124	4.314	4.316	358.352	0.570
800.000	1.084	33.441	799.959	5.864	0.893	5.864	5.931	8.660	0.044
900.000	1.151	42.688	899.940	7.392	2.096	7.392	7.683	15.829	0.192
1000.000	1.058	8.107	999.922	9.044	2.907	9.044	9.500	17.819	0.663
1100.000	0.719	36.706	1099.910	10.461	3.412	10.461	11.004	18.066	0.548
1200.000	0.946	41.389	1199.900	11.584	4.333	11.584	12.368	20.510	0.237
1300.000	0.819	36.192	1299.888	12.780	5.302	12.780	13.836	22.530	0.150
1400.000	1.037	13.035	1399.875	14.239	5.928	14.239	15.424	22.603	0.429
1500.000	0.715	10.236	1499.863	15.735	6.243	15.735	16.928	21.641	0.325
1600.000	1.176	29.524	1599.850	17.242	6.860	17.242	18.557	21.695	0.554
1700.000	0.747	3.617	1699.836	18.786	7.407	18.786	20.193	21.518	0.601
1800.000	0.847	357.764	1799.826	20.174	7.419	20.174	21.495	20.190	0.129
1900.000	0.783	6.337	1899.816	21.592	7.465	21.592	22.846	19.073	0.138
2000.000	1.146	336.070	1999.802	23.185	7.135	23.185	24.258	17.106	0.614
2100.000	1.158	21.628	2099.784	25.038	7.102	25.038	26.026	15.836	0.892
2200.000	0.842	359.007	2199.769	26.712	7.462	26.712	27.735	15.607	0.500
2300.000	0.956	339.658	2299.757	28.229	7.159	28.229	29.122	14.231	0.322
2400.000	0.827	357.702	2399.745	29.732	6.840	29.732	30.508	12.956	0.307
2500.000	0.720	16.977	2499.736	31.054	6.995	31.054	31.832	12.693	0.280
2600.000	0.704	336.817	2599.729	32.219	6.936	32.219	32.957	12.149	0.489
2700.000	0.989	328.961	2699.718	33.524	6.249	33.524	34.101	10.559	0.307
2800.000	0.758	357.481	2799.707	34.924	5.775	34.924	35.399	9.389	0.485
2900.000	0.854	332.805	2899.697	36.248	5.405	36.248	36.649	8.482	0.357
3000.000	1.079	318.737	2999.683	37.618	4.444	37.618	37.880	6.737	0.325
3100.000	1.344	307.650	3099.661	39.042	2.895	39.042	39.149	4.240	0.353
3200.000	1.633	302.552	3199.627	40.525	0.765	40.525	40.532	1.082	0.318
3300.000	2.157	299.406	3299.572	42.216	-2.075	42.216	42.267	357.186	0.534
3400.000	2.244	315.627	3399.499	44.539	-5.083	44.539	44.828	353.489	0.627

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	3.146	321.024	3499.388	48.072	-8.179	48.072	48.763	350.345	0.936
3600.000	3.087	330.297	3599.240	52.544	-11.239	52.544	53.733	347.927	0.507
3700.000	3.794	320.208	3699.061	57.426	-14.691	57.426	59.275	345.650	0.928
3800.000	4.348	310.627	3798.809	62.437	-19.686	62.437	65.466	342.500	0.876
3900.000	4.656	317.090	3898.501	67.878	-25.327	67.878	72.449	339.538	0.593
4000.000	5.060	308.641	3998.143	73.605	-31.535	73.605	80.076	336.808	0.820
4100.000	5.003	300.308	4097.759	78.559	-38.744	78.559	87.593	333.748	0.732
4200.000	5.352	298.593	4197.351	82.991	-46.603	82.991	95.181	330.684	0.382
4300.000	4.700	291.205	4296.967	86.705	-54.518	86.705	102.421	327.839	0.918
4400.000	4.678	298.075	4396.633	90.106	-61.935	90.106	109.339	325.497	0.562
4500.000	4.623	306.013	4496.305	94.395	-68.793	94.395	116.803	323.916	0.645
4600.000	3.919	315.562	4596.028	99.205	-74.445	99.205	124.031	323.115	0.998
4700.000	3.575	323.680	4695.814	104.157	-78.685	104.157	130.537	322.931	0.632
4800.000	3.330	311.833	4795.634	108.605	-82.695	108.605	136.505	322.713	0.753
4900.000	3.591	309.565	4895.452	112.537	-87.273	112.537	142.412	322.206	0.295
5000.000	3.555	314.627	4995.258	116.710	-91.894	116.710	148.545	321.784	0.317
5100.000	3.113	317.564	5095.088	120.891	-95.932	120.891	154.330	321.567	0.474
5200.000	2.645	316.938	5194.962	124.581	-99.340	124.581	159.339	321.431	0.469
5300.000	2.421	324.581	5294.864	127.989	-102.140	127.989	163.748	321.409	0.405
5400.000	2.079	314.826	5394.787	130.989	-104.650	130.989	167.659	321.378	0.513
5500.000	1.865	306.900	5494.728	133.244	-107.238	133.244	171.038	321.172	0.346
5600.000	1.530	315.347	5594.684	135.171	-109.477	135.171	173.944	320.995	0.417
5700.000	1.341	318.402	5694.653	136.995	-111.192	136.995	176.441	320.936	0.204
5800.000	1.078	308.062	5794.631	138.450	-112.709	138.450	178.527	320.852	0.341
5900.000	1.226	314.544	5894.610	139.781	-114.213	139.781	180.508	320.748	0.197
6000.000	1.363	297.346	5994.585	141.078	-116.032	141.078	182.665	320.564	0.410
6100.000	1.492	284.889	6094.554	141.959	-118.347	141.959	184.820	320.183	0.335
6200.000	1.622	288.707	6194.518	142.747	-120.946	142.747	187.096	319.726	0.166
6300.000	1.747	296.805	6294.474	143.889	-123.647	143.889	189.717	319.327	0.268
6400.000	2.120	283.785	6394.418	145.017	-126.804	145.017	192.637	318.833	0.574
6500.000	2.138	283.024	6494.349	145.878	-130.418	145.878	195.676	318.203	0.033
6600.000	2.696	281.989	6594.259	146.787	-134.536	146.787	199.114	317.493	0.559
HORIZONTAL DISPLACEMENT IS 199.114 FEET AT 317.493 DEGREES									