



Company: PDC Energy  
Well: Becker 7  
API: 05-123-23066  
Rig Name: Production/ VES  
State/County: Colorado/Weld  
Latitude: 40.251, Longitude: -104.580  
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: becker 7-de\_01.ut  
Minimum Curvature Method  
Report Date/Time: 4/28/2014 / 13:51

Vaughn Survey International  
Henderson, CO 80640  
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	0.993	48.027	99.995	0.580	0.645	0.580	0.867	48.027	0.993
200.000	0.781	36.878	199.983	1.705	1.698	1.705	2.406	44.887	0.273
300.000	0.754	39.440	299.974	2.758	2.525	2.758	3.740	42.474	0.044
400.000	0.822	49.263	399.965	3.734	3.487	3.734	5.109	43.034	0.151
500.000	0.804	48.448	499.955	4.668	4.555	4.668	6.522	44.299	0.021
600.000	0.806	50.555	599.945	5.580	5.623	5.580	7.921	45.220	0.030
700.000	0.810	59.106	699.935	6.389	6.772	6.389	9.311	46.666	0.121
800.000	0.891	57.899	799.924	7.165	8.037	7.165	10.767	48.282	0.083
900.000	0.724	59.240	899.914	7.901	9.238	7.901	12.156	49.460	0.168
1000.000	0.613	44.722	999.907	8.605	10.158	8.605	13.313	49.732	0.202
1100.000	0.676	69.521	1099.901	9.192	11.087	9.192	14.402	50.340	0.283
1200.000	0.760	49.408	1199.893	9.830	12.143	9.830	15.623	51.011	0.264
1300.000	0.637	50.050	1299.886	10.618	13.073	10.618	16.842	50.916	0.124
1400.000	0.623	49.932	1399.880	11.325	13.915	11.325	17.941	50.859	0.014
1500.000	0.418	33.461	1499.876	11.979	14.532	11.979	18.833	50.501	0.251
1600.000	0.268	59.060	1599.874	12.404	14.934	12.404	19.413	50.288	0.211
1700.000	0.210	17.333	1699.873	12.698	15.188	12.698	19.797	50.103	0.178
1800.000	0.280	291.030	1799.872	12.961	15.015	12.961	19.835	49.199	0.339
1900.000	0.467	243.581	1899.870	12.867	14.422	12.867	19.327	48.260	0.345
2000.000	0.421	305.080	1999.868	12.897	13.756	12.897	18.857	46.846	0.456
2100.000	0.465	273.158	2099.865	13.131	13.051	13.131	18.513	44.825	0.247
2200.000	0.805	261.943	2199.859	13.055	11.950	13.055	17.698	42.471	0.361
2300.000	0.842	268.423	2299.849	12.936	10.519	12.936	16.673	39.117	0.100
2400.000	0.802	242.650	2399.839	12.594	9.163	12.594	15.575	36.037	0.369
2500.000	0.978	267.850	2499.827	12.241	7.688	12.241	14.455	32.133	0.425
2600.000	0.715	250.301	2599.816	11.998	6.248	11.998	13.528	27.509	0.367
2700.000	0.938	250.483	2699.806	11.515	4.889	11.515	12.510	23.007	0.224
2800.000	0.894	262.491	2799.793	11.139	3.344	11.139	11.630	16.711	0.197
2900.000	0.714	256.951	2899.783	10.896	1.964	10.896	11.072	10.217	0.195
3000.000	0.749	287.910	2999.775	10.957	0.735	10.957	10.981	3.838	0.392
3100.000	0.733	284.034	3099.767	11.313	-0.507	11.313	11.324	357.434	0.053
3200.000	0.601	269.196	3199.760	11.460	-1.652	11.460	11.579	351.798	0.216
3300.000	0.826	275.183	3299.752	11.518	-2.894	11.518	11.876	345.896	0.237
3400.000	0.702	193.926	3399.746	10.989	-3.759	10.989	11.614	341.114	0.999
3500.000	1.525	176.440	3499.726	9.067	-3.824	9.067	9.840	337.131	0.881

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	1.795	172.049	3599.684	6.187	-3.525	6.187	7.121	330.330	0.298
3700.000	1.791	187.972	3699.636	3.088	-3.525	3.088	4.686	311.220	0.497
3800.000	1.850	194.469	3799.586	-0.023	-4.145	-0.023	4.145	269.684	0.214
3900.000	1.913	181.658	3899.532	-3.254	-4.597	-3.254	5.632	234.705	0.424
4000.000	2.142	178.359	3999.470	-6.790	-4.591	-6.790	8.196	214.067	0.257
4100.000	2.013	173.563	4099.404	-10.403	-4.341	-10.403	11.272	202.650	0.216
4200.000	2.283	181.887	4199.334	-14.138	-4.210	-14.138	14.752	196.581	0.412
4300.000	2.356	180.758	4299.252	-18.184	-4.302	-18.184	18.686	193.311	0.086
4400.000	2.206	191.678	4399.173	-22.124	-4.719	-22.124	22.621	192.041	0.459
4500.000	2.397	174.789	4499.094	-26.091	-4.919	-26.091	26.551	190.676	0.702
4600.000	2.463	184.904	4599.004	-30.315	-4.912	-30.315	30.711	189.205	0.433
4700.000	2.133	165.326	4698.925	-34.257	-4.625	-34.257	34.567	187.688	0.846
4800.000	2.470	187.640	4798.846	-38.193	-4.440	-38.193	38.450	186.630	0.950
4900.000	2.408	171.780	4898.757	-42.408	-4.426	-42.408	42.639	185.958	0.676
5000.000	2.571	194.369	4998.665	-46.660	-4.682	-46.660	46.894	185.730	0.988
5100.000	2.306	198.815	5098.574	-50.736	-5.887	-50.736	51.077	186.619	0.326
5200.000	2.481	176.417	5198.489	-54.800	-6.401	-54.800	55.173	186.662	0.945
5300.000	2.428	185.520	5298.398	-59.068	-6.469	-59.068	59.421	186.250	0.393
5400.000	1.890	207.115	5398.328	-62.644	-7.425	-62.644	63.083	186.759	0.966
5500.000	1.728	201.090	5498.278	-65.519	-8.719	-65.519	66.096	187.580	0.249
5600.000	1.722	201.811	5598.233	-68.321	-9.820	-68.321	69.023	188.179	0.023
5700.000	1.280	186.832	5698.199	-70.824	-10.511	-70.824	71.600	188.441	0.588
5800.000	1.185	202.860	5798.176	-72.886	-11.045	-72.886	73.718	188.617	0.356
5900.000	0.986	198.650	5898.158	-74.653	-11.722	-74.653	75.568	188.924	0.214
6000.000	0.548	252.443	5998.150	-75.612	-12.453	-75.612	76.631	189.352	0.796
6100.000	0.489	340.070	6098.147	-75.356	-13.055	-75.356	76.478	189.829	0.719
6200.000	0.949	7.186	6198.139	-74.133	-13.097	-74.133	75.281	190.019	0.560
6300.000	1.267	353.627	6298.121	-72.212	-13.116	-72.212	73.393	190.294	0.410
6400.000	1.436	10.130	6398.093	-69.879	-13.018	-69.879	71.081	190.553	0.422
6500.000	1.292	358.527	6498.065	-67.518	-12.827	-67.518	68.726	190.756	0.311
6600.000	1.295	15.030	6598.040	-65.301	-12.563	-65.301	66.498	190.890	0.371

HORIZONTAL DISPLACEMENT IS  
66.498 FEET AT 190.890 DEGREES