



Company: PDC Energy
 Well: Coors V #6-4
 API: 05-123-17322
 Rig Name: Production / VESSI
 State/County: Colorado/Weld
 Latitude: 40.173, Longitude: -104.939
 Directions are relative to True North
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : Gournrd Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ha gyro-de_01.ut
 Minimum Curvature Method
 Report Date/Time: 12/18/2014 / 10:16

VES Survey International
 Henderson, Colorado
 303-853-4976
 Kevin McDowell

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	0.865	177.584	99.996	-0.754	0.032	-0.754	0.755	177.584	0.865
200.000	0.844	189.116	199.985	-2.235	-0.053	-2.235	2.236	181.358	0.173
300.000	0.663	191.921	299.976	-3.528	-0.289	-3.528	3.540	184.685	0.184
400.000	0.751	221.965	399.969	-4.582	-0.847	-4.582	4.659	190.471	0.376
500.000	0.629	191.404	499.962	-5.607	-1.393	-5.607	5.778	193.956	0.382
600.000	0.561	203.019	599.957	-6.596	-1.693	-6.596	6.810	194.399	0.138
700.000	0.480	211.097	699.953	-7.405	-2.101	-7.405	7.697	195.841	0.109
800.000	0.497	222.154	799.949	-8.085	-2.609	-8.085	8.496	197.882	0.096
900.000	0.599	247.094	899.945	-8.610	-3.381	-8.610	9.250	201.439	0.257
1000.000	0.770	234.298	999.938	-9.206	-4.408	-9.206	10.207	205.588	0.229
1100.000	0.775	244.714	1099.929	-9.887	-5.566	-9.887	11.347	209.378	0.140
1200.000	0.773	248.303	1199.919	-10.426	-6.805	-10.426	12.450	213.134	0.049
1300.000	1.025	254.554	1299.907	-10.914	-8.294	-10.914	13.708	217.235	0.269
1400.000	1.037	256.329	1399.891	-11.366	-10.035	-11.366	15.162	221.443	0.034
1500.000	1.058	258.173	1499.874	-11.769	-11.818	-11.769	16.678	225.119	0.040
1600.000	0.870	250.532	1599.860	-12.211	-13.437	-12.211	18.157	227.738	0.227
1700.000	1.071	251.309	1699.846	-12.764	-15.039	-12.764	19.725	229.679	0.201
1800.000	0.616	219.822	1799.835	-13.476	-16.269	-13.476	21.125	230.363	0.634
1900.000	0.855	241.859	1899.827	-14.241	-17.271	-14.241	22.385	230.492	0.366
2000.000	1.114	196.867	1999.813	-15.523	-18.210	-15.523	23.928	229.555	0.790
2100.000	1.381	210.209	2099.790	-17.494	-19.099	-17.494	25.900	227.510	0.393
2200.000	1.339	216.923	2199.762	-19.470	-20.407	-19.470	28.206	226.346	0.165
2300.000	1.656	221.963	2299.727	-21.479	-22.076	-21.479	30.801	225.784	0.343
2400.000	1.464	220.374	2399.690	-23.527	-23.869	-23.527	33.515	225.414	0.197
2500.000	1.572	222.357	2499.655	-25.514	-25.621	-25.514	36.158	225.120	0.120
2600.000	1.161	228.418	2599.627	-27.200	-27.303	-27.200	38.539	225.109	0.435
2700.000	0.796	217.368	2699.612	-28.425	-28.483	-28.425	40.240	225.059	0.409
2800.000	0.800	229.642	2799.602	-29.429	-29.437	-29.429	41.624	225.007	0.171
2900.000	0.679	187.250	2899.595	-30.469	-30.043	-30.469	42.790	224.597	0.547
3000.000	0.755	192.797	2999.587	-31.700	-30.264	-31.700	43.827	223.673	0.102
3100.000	0.674	208.091	3099.579	-32.861	-30.687	-32.861	44.961	223.041	0.206
3200.000	1.132	214.791	3199.567	-34.190	-31.527	-34.190	46.507	222.679	0.469
3300.000	1.070	186.274	3299.549	-35.929	-32.192	-35.929	48.242	221.860	0.545
3400.000	1.101	190.636	3399.531	-37.801	-32.472	-37.801	49.833	220.663	0.088
3500.000	1.306	215.864	3499.510	-39.669	-33.317	-39.669	51.804	220.026	0.563

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	1.107	203.766	3599.487	-41.477	-34.374	-41.477	53.870	219.650	0.323
3700.000	1.042	207.240	3699.470	-43.169	-35.180	-43.169	55.688	219.177	0.092
3800.000	0.982	209.498	3799.454	-44.723	-36.018	-44.723	57.423	218.846	0.072
3900.000	1.111	211.421	3899.438	-46.296	-36.945	-46.296	59.230	218.590	0.134
4000.000	1.342	194.404	3999.415	-48.257	-37.741	-48.257	61.263	218.028	0.429
4100.000	1.376	197.997	4099.387	-50.534	-38.403	-50.534	63.470	217.233	0.092
4200.000	1.448	205.644	4199.357	-52.815	-39.321	-52.815	65.845	216.668	0.201
4300.000	1.393	204.343	4299.326	-55.061	-40.369	-55.061	68.274	216.248	0.064
4400.000	1.427	226.676	4399.296	-57.022	-41.776	-57.022	70.688	216.227	0.547
4500.000	1.378	234.913	4499.266	-58.568	-43.666	-58.568	73.054	216.707	0.207
4600.000	1.555	243.896	4599.234	-59.856	-45.868	-59.856	75.410	217.463	0.289
4700.000	1.460	235.023	4699.199	-61.184	-48.131	-61.184	77.846	218.191	0.252
4800.000	1.479	244.036	4799.167	-62.479	-50.335	-62.479	80.232	218.856	0.232
4900.000	1.415	240.460	4899.135	-63.653	-52.570	-63.653	82.555	219.553	0.110
5000.000	1.077	241.386	4999.111	-64.712	-54.469	-64.712	84.584	220.088	0.339
5100.000	1.066	248.294	5099.093	-65.506	-56.158	-65.506	86.283	220.606	0.129
5200.000	1.063	260.996	5199.076	-65.995	-57.938	-65.995	87.819	221.281	0.236
5300.000	0.617	266.318	5299.065	-66.175	-59.393	-66.175	88.919	221.908	0.452
5400.000	0.644	284.525	5399.059	-66.068	-60.474	-66.068	89.566	222.469	0.201
5500.000	0.292	36.984	5499.057	-65.724	-60.864	-65.724	89.577	222.802	0.802
5600.000	0.529	129.809	5599.055	-65.816	-60.356	-65.816	89.301	222.522	0.617
5700.000	0.570	175.674	5699.051	-66.607	-59.964	-66.607	89.623	221.996	0.430
5800.000	0.306	304.374	5799.050	-66.952	-60.147	-66.952	90.002	221.935	0.798
5900.000	1.048	270.232	5899.042	-66.798	-61.282	-66.798	90.650	222.534	0.813
6000.000	1.155	318.718	5999.026	-66.037	-62.862	-66.037	91.173	223.589	0.910
6100.000	1.280	321.212	6099.003	-64.409	-64.226	-64.409	90.959	224.919	0.136
6200.000	1.064	322.508	6198.982	-62.801	-65.491	-62.801	90.736	226.201	0.217
6300.000	0.911	22.698	6298.970	-61.331	-65.750	-61.331	89.914	226.992	0.999
6400.000	0.479	107.119	6398.964	-60.721	-65.044	-60.721	88.982	226.969	0.987
6500.000	0.421	305.513	6498.963	-60.630	-64.944	-60.630	88.846	226.967	0.889
6600.000	0.256	6.229	6598.962	-60.195	-65.219	-60.195	88.752	227.294	0.371
6700.000	0.323	343.468	6698.960	-59.703	-65.275	-59.703	88.460	227.552	0.132
6750.000	0.567	319.064	6748.959	-59.381	-65.477	-59.381	88.393	227.795	0.608

HORIZONTAL DISPLACEMENT IS
88.393 FEET AT 227.795 DEGREES