



Company: PDC Energy
Well: Carlson 2
API: 05-123-14532
Rig Name: Production/ VES
State/County: Colorado/Weld
Latitude: 40.397, Longitude: -104.624
Directions are relative to True North
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG GYRO SURVEY CALCULATIONS

Filename: gyro-de_01.ut
Minimum Curvature Method
Report Date/Time: 7/15/2014 / 18:50

VES 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	0.805	297.870	99.997	0.328	-0.621	0.328	0.702	297.870	0.805
200.000	0.348	284.520	199.991	0.733	-1.536	0.733	1.702	295.509	0.473
300.000	0.210	245.015	299.990	0.732	-1.996	0.732	2.126	290.130	0.229
400.000	0.062	262.617	399.990	0.647	-2.215	0.647	2.308	286.284	0.152
500.000	0.097	271.781	499.990	0.643	-2.354	0.643	2.440	285.275	0.037
600.000	0.168	351.420	599.990	0.790	-2.460	0.790	2.584	287.810	0.178
700.000	0.222	317.407	699.989	1.078	-2.613	1.078	2.827	292.419	0.125
800.000	0.289	237.620	799.988	1.086	-2.957	1.086	3.151	290.167	0.332
900.000	0.289	239.387	899.987	0.823	-3.387	0.823	3.486	283.652	0.009
1000.000	0.113	273.311	999.987	0.700	-3.703	0.700	3.768	280.703	0.206
1100.000	0.016	202.676	1099.986	0.693	-3.807	0.693	3.869	280.313	0.109
1200.000	0.079	152.941	1199.986	0.619	-3.781	0.619	3.831	279.292	0.070
1300.000	0.242	166.337	1299.986	0.352	-3.699	0.352	3.716	275.440	0.166
1400.000	0.110	176.129	1399.985	0.052	-3.643	0.052	3.644	270.814	0.135
1500.000	0.245	174.553	1499.985	-0.256	-3.616	-0.256	3.626	265.947	0.135
1600.000	0.158	188.085	1599.984	-0.605	-3.616	-0.605	3.666	260.501	0.098
1700.000	0.206	192.915	1699.984	-0.916	-3.675	-0.916	3.788	256.002	0.050
1800.000	0.406	185.203	1799.982	-1.444	-3.747	-1.444	4.016	248.931	0.204
1900.000	0.606	189.158	1899.978	-2.318	-3.864	-2.318	4.506	239.035	0.203
2000.000	0.700	197.388	1999.972	-3.424	-4.130	-3.424	5.365	230.346	0.133
2100.000	1.010	177.746	2099.961	-4.887	-4.278	-4.887	6.495	221.200	0.422
2200.000	1.120	187.651	2199.944	-6.736	-4.374	-6.736	8.031	212.997	0.214
2300.000	1.380	215.782	2299.921	-8.681	-5.208	-8.681	10.123	210.961	0.658
2400.000	1.459	191.978	2399.891	-10.903	-6.176	-10.903	12.531	209.529	0.591
2500.000	1.353	177.735	2499.861	-13.329	-6.394	-13.329	14.783	205.627	0.364
2600.000	1.305	160.947	2599.835	-15.585	-5.975	-15.585	16.691	200.977	0.391
2700.000	1.175	140.050	2699.812	-17.448	-4.945	-17.448	18.135	195.824	0.468
2800.000	0.877	188.621	2799.797	-18.990	-4.401	-18.990	19.494	193.049	0.887
2900.000	0.602	179.459	2899.789	-20.272	-4.511	-20.272	20.768	192.545	0.298
3000.000	0.669	237.093	2999.784	-21.115	-4.996	-21.115	21.698	193.313	0.616
3100.000	0.744	156.878	3099.778	-22.029	-5.232	-22.029	22.642	193.360	0.912
3200.000	0.893	193.135	3199.769	-23.385	-5.154	-23.385	23.946	192.429	0.529
3300.000	0.734	129.642	3299.760	-24.553	-4.838	-24.553	25.025	191.146	0.867
3400.000	0.714	157.662	3399.753	-25.537	-4.107	-25.537	25.866	189.137	0.351
3500.000	0.616	147.224	3499.746	-26.566	-3.579	-26.566	26.806	187.674	0.155

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	0.768	134.640	3599.739	-27.489	-2.812	-27.489	27.632	185.840	0.214
3700.000	0.647	185.130	3699.732	-28.522	-2.385	-28.522	28.621	184.781	0.613
3800.000	0.769	163.593	3799.724	-29.727	-2.246	-29.727	29.812	184.321	0.291
3900.000	0.473	192.761	3899.719	-30.774	-2.148	-30.774	30.849	183.993	0.424
4000.000	0.554	307.643	3999.717	-30.882	-2.622	-30.882	30.993	184.853	0.867
4100.000	0.687	213.373	4099.713	-31.087	-3.335	-31.087	31.266	186.123	0.914
4200.000	0.581	229.238	4199.707	-31.919	-4.049	-31.919	32.175	187.229	0.204
4300.000	0.387	185.951	4299.703	-32.586	-4.468	-32.586	32.891	187.807	0.400
4400.000	0.309	216.084	4399.702	-33.140	-4.661	-33.140	33.466	188.006	0.196
4500.000	0.611	142.114	4499.699	-33.779	-4.492	-33.779	34.076	187.576	0.604
4600.000	0.774	198.745	4599.693	-34.840	-4.382	-34.840	35.114	187.169	0.673
4700.000	0.673	274.580	4699.687	-35.433	-5.185	-35.433	35.810	188.324	0.893
4800.000	0.370	260.280	4799.683	-35.440	-6.088	-35.440	35.959	189.747	0.328
4900.000	0.720	323.025	4899.679	-34.992	-6.784	-34.992	35.644	190.972	0.642
5000.000	0.585	260.508	4999.673	-34.574	-7.665	-34.574	35.414	192.501	0.687
5100.000	0.787	288.425	5099.666	-34.442	-8.820	-34.442	35.553	194.365	0.385
5200.000	0.868	301.438	5199.656	-33.829	-10.118	-33.829	35.310	196.652	0.204
5300.000	1.084	281.294	5299.642	-33.249	-11.693	-33.249	35.245	199.375	0.402
5400.000	1.739	298.162	5399.611	-32.348	-13.958	-32.348	35.230	203.340	0.768
5500.000	1.745	313.519	5499.566	-30.583	-16.399	-30.583	34.703	208.201	0.465
5600.000	1.026	291.111	5599.536	-29.212	-18.339	-29.212	34.492	212.119	0.887
5700.000	1.232	303.832	5699.517	-28.291	-20.067	-28.291	34.686	215.349	0.323
5800.000	1.504	302.739	5799.488	-26.983	-22.064	-26.983	34.855	219.273	0.273
5900.000	1.364	264.919	5899.459	-26.379	-24.353	-26.379	35.902	222.714	0.939
6000.000	1.428	262.562	5999.430	-26.645	-26.774	-26.645	37.774	225.138	0.086
6100.000	1.164	224.045	6099.406	-27.537	-28.716	-27.537	39.786	226.201	0.890
6200.000	0.897	236.645	6199.390	-28.697	-30.076	-28.697	41.570	226.344	0.349
6300.000	0.766	304.203	6299.381	-28.752	-31.282	-28.752	42.488	227.414	0.931
6400.000	0.466	253.089	6399.376	-28.494	-32.224	-28.494	43.015	228.515	0.596
6500.000	0.470	281.960	6499.373	-28.528	-33.015	-28.528	43.632	229.170	0.233
6600.000	0.586	220.730	6599.369	-28.830	-33.750	-28.830	44.387	229.495	0.547
6700.000	0.705	320.743	6699.365	-28.742	-34.473	-28.742	44.883	230.181	0.992
6800.000	0.627	354.276	6799.359	-27.721	-34.917	-27.721	44.583	231.553	0.391
6875.000	0.552	283.443	6874.356	-27.229	-35.309	-27.229	44.588	232.362	0.915

HORIZONTAL DISPLACEMENT IS
44.588 FEET AT 232.362 DEGREES