



Company: PDC Energy  
Well: Hall 28-2  
API#: 05-123-18364  
Rig Name: Production / V.E.S.  
State/County: Colorado / Weld County  
Latitude: 40.375, Longitude: -104.547  
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: survey.ut  
Minimum Curvature Method  
Report Date/Time: 6/11/2014 / 17:00

Vaughn Energy Services  
Henderson CO.  
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	0.339	76.082	99.999	0.071	0.287	0.071	0.296	76.082	0.339
200.000	0.695	188.528	199.997	-0.457	0.485	-0.457	0.667	133.331	0.882
300.000	0.197	125.264	299.994	-1.157	0.536	-1.157	1.275	155.154	0.631
400.000	0.786	192.806	399.990	-1.925	0.524	-1.925	1.995	164.767	0.734
500.000	0.395	175.157	499.985	-2.938	0.401	-2.938	2.965	172.221	0.426
600.000	0.289	174.303	599.983	-3.533	0.456	-3.533	3.563	172.653	0.106
700.000	0.920	181.942	699.977	-4.587	0.453	-4.587	4.609	174.354	0.634
800.000	0.577	197.852	799.968	-5.868	0.272	-5.868	5.874	177.347	0.397
900.000	0.651	193.437	899.963	-6.900	-0.015	-6.900	6.900	180.121	0.088
1000.000	0.694	182.643	999.956	-8.058	-0.175	-8.058	8.060	181.241	0.133
1100.000	0.960	175.502	1099.945	-9.498	-0.137	-9.498	9.499	180.825	0.285
1200.000	0.369	132.736	1199.939	-10.551	0.165	-10.551	10.553	179.103	0.734
1300.000	0.376	146.090	1299.937	-11.042	0.584	-11.042	11.057	176.971	0.087
1400.000	0.783	170.125	1399.931	-11.987	0.884	-11.987	12.020	175.780	0.466
1500.000	0.854	114.940	1499.923	-12.975	1.677	-12.975	13.083	172.634	0.761
1600.000	1.417	139.950	1599.903	-14.235	3.148	-14.235	14.579	167.528	0.737
1700.000	1.312	123.569	1699.875	-15.814	4.898	-15.814	16.555	162.793	0.402
1800.000	1.612	123.173	1799.842	-17.217	7.029	-17.217	18.596	157.792	0.301
1900.000	1.762	111.865	1899.799	-18.559	9.633	-18.559	20.910	152.568	0.365
2000.000	1.428	104.640	1999.761	-19.447	12.266	-19.447	22.992	147.758	0.389
2100.000	1.730	110.875	2099.723	-20.300	14.883	-20.300	25.171	143.753	0.347
2200.000	1.932	131.748	2199.673	-21.960	17.550	-21.960	28.111	141.368	0.692
2300.000	1.346	132.928	2299.631	-23.882	19.668	-23.882	30.938	140.527	0.587
2400.000	1.525	144.775	2399.600	-25.769	21.295	-25.769	33.429	140.430	0.346
2500.000	1.196	178.214	2499.573	-27.899	22.095	-27.899	35.589	141.622	0.844
2600.000	1.517	176.276	2599.545	-30.264	22.214	-30.264	37.541	143.721	0.324
2700.000	1.357	157.117	2699.514	-32.675	22.760	-32.675	39.821	145.141	0.504
2800.000	1.172	179.803	2799.490	-34.789	23.224	-34.789	41.828	146.274	0.529
2900.000	0.765	188.739	2899.476	-36.471	23.126	-36.471	43.185	147.622	0.433
3000.000	0.325	188.915	2999.471	-37.411	22.980	-37.411	43.906	148.439	0.439
3100.000	0.149	185.349	3099.470	-37.822	22.924	-37.822	44.227	148.779	0.177
3200.000	0.225	141.341	3199.470	-38.105	23.035	-38.105	44.526	148.846	0.157
3300.000	0.984	88.044	3299.464	-38.229	24.016	-38.229	45.147	147.863	0.868
3400.000	1.495	73.082	3399.440	-37.820	26.122	-37.820	45.965	145.368	0.601

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	1.053	80.753	3499.416	-37.293	28.277	-37.293	46.802	142.829	0.472
3600.000	1.581	60.403	3599.389	-36.464	30.384	-36.464	47.464	140.197	0.698
3700.000	1.446	58.648	3699.354	-35.126	32.662	-35.126	47.965	137.082	0.143
3800.000	1.257	39.380	3799.327	-33.622	34.435	-33.622	48.127	134.316	0.489
3900.000	1.281	75.298	3899.304	-32.491	36.212	-32.491	48.651	131.900	0.783
4000.000	1.017	57.399	3999.284	-31.729	38.040	-31.729	49.536	129.831	0.442
4100.000	0.823	80.009	4099.272	-31.126	39.495	-31.126	50.286	128.242	0.408
4200.000	1.245	44.896	4199.256	-30.232	40.969	-30.232	50.916	126.425	0.743
4300.000	0.900	61.503	4299.239	-29.087	42.426	-29.087	51.440	124.435	0.461
4400.000	0.905	83.955	4399.227	-28.629	43.902	-28.629	52.412	123.109	0.352
4500.000	1.229	77.134	4499.209	-28.307	45.733	-28.307	53.785	121.756	0.347
4600.000	0.657	120.503	4599.196	-28.359	47.273	-28.359	55.127	120.960	0.877
4700.000	1.059	111.371	4699.185	-28.987	48.627	-28.987	56.611	120.799	0.424
4800.000	0.574	116.489	4799.174	-29.547	49.936	-29.547	58.023	120.613	0.490
4900.000	0.574	149.861	4899.170	-30.204	50.636	-30.204	58.960	120.815	0.330
5000.000	0.629	76.457	4999.165	-30.508	51.421	-30.508	59.790	120.681	0.720
5100.000	0.453	57.923	5099.161	-30.170	52.289	-30.170	60.369	119.985	0.246
5200.000	0.945	63.218	5199.153	-29.589	53.360	-29.589	61.015	119.009	0.496
5300.000	0.322	103.184	5299.147	-29.281	54.370	-29.281	61.754	118.305	0.728
5400.000	0.449	333.289	5399.146	-28.995	54.468	-28.995	61.705	118.028	0.701
5500.000	1.259	6.725	5499.135	-27.554	54.420	-27.554	60.998	116.854	0.919
5600.000	1.576	356.058	5599.104	-25.090	54.454	-25.090	59.957	114.738	0.411
5700.000	1.226	347.691	5699.074	-22.673	54.132	-22.673	58.688	112.726	0.405
5800.000	1.498	330.489	5799.046	-20.490	53.260	-20.490	57.065	111.043	0.488
5900.000	1.837	325.247	5899.004	-18.036	51.702	-18.036	54.758	109.231	0.372
6000.000	1.983	349.732	5998.950	-15.016	50.480	-15.016	52.666	106.566	0.822
6100.000	1.734	346.855	6098.897	-11.841	49.828	-11.841	51.215	103.368	0.266
6200.000	2.534	338.484	6198.827	-8.312	48.673	-8.312	49.377	99.691	0.856
6300.000	2.813	321.846	6298.720	-4.326	46.346	-4.326	46.548	95.332	0.821
6400.000	2.651	341.748	6398.608	-0.199	44.106	-0.199	44.106	90.259	0.957
6500.000	2.419	325.565	6498.512	3.738	42.188	3.738	42.353	84.937	0.750
6600.000	2.997	342.087	6598.401	7.966	40.191	7.966	40.972	78.789	0.965
6700.000	2.671	350.801	6698.279	12.752	39.014	12.752	41.046	71.899	0.539
HORIZONTAL DISPLACEMENT IS 41.046 FEET AT 71.899 DEGREES									