



Company: PDC
Well: LEAFGREN 23-17
API: 05-123-19533
Rig Name: Production / VES
State/County: Colorado / Weld County
Latitude: 40.485, Longitude: -104.690
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_int.ut
Minimum Curvature Method
Report Date/Time: 1/16/2014 / 21:06

Vaughn Energy Services
Henderson Colorado
303-853-4976
SURVEYOR: DUSTIN SKORUPPA

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	0.109	101.254	100.000	-0.019	0.094	-0.019	0.095	101.254	0.109
200.000	0.163	155.152	200.000	-0.166	0.247	-0.166	0.298	123.951	0.132
300.000	0.488	42.909	299.998	0.017	0.597	0.017	0.597	88.361	0.570
400.000	0.527	38.391	399.995	0.690	1.173	0.690	1.360	59.533	0.056
500.000	0.116	295.714	499.993	1.094	1.367	1.094	1.751	51.325	0.564
600.000	0.235	356.987	599.993	1.343	1.265	1.343	1.845	43.285	0.206
700.000	0.408	56.247	699.991	1.746	1.551	1.746	2.335	41.604	0.352
800.000	0.148	34.959	799.990	2.050	1.921	2.050	2.810	43.136	0.275
900.000	0.381	61.298	899.989	2.316	2.287	2.316	3.255	44.637	0.257
1000.000	0.400	53.098	999.987	2.685	2.858	2.685	3.922	46.781	0.059
1100.000	0.109	75.290	1099.986	2.919	3.229	2.919	4.353	47.884	0.302
1200.000	0.449	52.511	1199.984	3.182	3.632	3.182	4.828	48.777	0.351
1300.000	0.319	45.699	1299.982	3.615	4.142	3.615	5.498	48.887	0.137
1400.000	0.420	40.815	1399.980	4.087	4.581	4.087	6.139	48.262	0.106
1500.000	0.359	62.880	1499.978	4.508	5.100	4.508	6.806	48.528	0.161
1600.000	0.401	15.695	1599.976	4.987	5.473	4.987	7.405	47.662	0.306
1700.000	0.295	316.252	1699.974	5.510	5.390	5.510	7.708	44.371	0.357
1800.000	0.694	317.837	1799.970	6.145	4.805	6.145	7.800	38.025	0.399
1900.000	0.662	323.735	1899.963	7.059	4.057	7.059	8.142	29.884	0.077
2000.000	0.912	333.618	1999.954	8.238	3.362	8.238	8.898	22.198	0.284
2100.000	0.798	354.674	2099.943	9.644	2.943	9.644	10.083	16.971	0.332
2200.000	0.611	7.543	2199.935	10.866	2.949	10.866	11.259	15.182	0.243
2300.000	0.849	1.058	2299.927	12.136	3.032	12.136	12.509	14.029	0.252
2400.000	0.928	348.779	2399.915	13.672	2.888	13.672	13.974	11.930	0.206
2500.000	1.007	336.500	2499.901	15.272	2.381	15.272	15.456	8.860	0.221
2600.000	1.007	347.711	2599.886	16.936	1.843	16.936	17.036	6.211	0.197
2700.000	1.006	347.712	2699.870	18.653	1.469	18.653	18.710	4.504	0.001
2800.000	1.044	342.984	2799.854	20.382	1.016	20.382	20.407	2.853	0.093
2900.000	0.957	334.721	2899.839	22.009	0.392	22.009	22.012	1.021	0.168
3000.000	1.159	274.671	2999.825	22.846	-0.972	22.846	22.867	357.564	1.073
3100.000	1.094	290.751	3099.806	23.267	-2.873	23.267	23.444	352.962	0.321
3200.000	1.030	306.832	3199.789	24.144	-4.485	24.144	24.557	349.477	0.304
3300.000	0.907	319.971	3299.775	25.289	-5.714	25.289	25.927	347.269	0.253
3400.000	0.801	284.095	3399.764	26.066	-6.901	26.066	26.964	345.172	0.536

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	0.752	260.335	3499.755	26.126	-8.225	26.126	27.390	342.525	0.323
3600.000	0.382	236.055	3599.750	25.829	-9.148	25.829	27.402	340.497	0.433
3700.000	0.209	193.454	3699.749	25.466	-9.467	25.466	27.169	339.607	0.268
3800.000	0.334	163.979	3799.748	25.008	-9.429	25.008	26.727	339.341	0.184
3900.000	0.459	184.503	3899.746	24.329	-9.380	24.329	26.074	338.915	0.187
4000.000	0.177	108.502	3999.744	23.880	-9.265	23.880	25.615	338.794	0.450
4100.000	0.521	194.695	4099.743	23.391	-9.234	23.391	25.148	338.457	0.539
4200.000	0.375	224.216	4199.740	22.717	-9.578	22.717	24.653	337.138	0.269
4300.000	0.821	294.300	4299.735	22.777	-10.459	22.777	25.063	335.335	0.777
4400.000	0.911	304.475	4399.724	23.522	-11.767	23.522	26.301	333.422	0.178
4500.000	1.591	314.234	4499.699	24.940	-13.418	24.940	28.321	331.720	0.710
4600.000	1.785	330.673	4599.656	27.266	-15.175	27.266	31.205	330.902	0.519
4700.000	1.382	340.863	4699.618	29.764	-16.333	29.764	33.951	331.243	0.489
4800.000	1.211	307.977	4799.594	31.553	-17.562	31.553	36.111	330.901	0.752
4900.000	1.601	318.602	4899.564	33.252	-19.319	33.252	38.456	329.844	0.468
5000.000	1.850	317.464	4999.518	35.489	-21.334	35.489	41.408	328.988	0.251
5100.000	1.599	322.811	5099.473	37.790	-23.269	37.790	44.380	328.378	0.298
5200.000	1.348	318.157	5199.440	39.779	-24.897	39.779	46.928	327.958	0.278
5300.000	1.223	316.321	5299.415	41.427	-26.419	41.427	49.134	327.473	0.132
5400.000	0.972	327.176	5399.396	42.912	-27.616	42.912	51.030	327.237	0.325
5500.000	1.964	330.217	5499.362	45.112	-28.927	45.112	53.590	327.331	0.995
5600.000	2.225	339.966	5599.296	48.423	-30.443	48.423	57.198	327.843	0.440
5700.000	2.485	329.716	5699.212	52.118	-32.201	52.118	61.264	328.290	0.494
5800.000	2.411	323.024	5799.121	55.671	-34.560	55.671	65.526	328.169	0.295
5900.000	1.491	344.393	5899.063	58.604	-36.175	58.604	68.870	328.314	1.158
6000.000	1.965	345.166	5999.017	61.515	-36.964	61.515	71.766	328.998	0.474
6100.000	2.599	335.861	6098.938	65.241	-38.330	65.241	75.668	329.565	0.733
6200.000	2.282	334.978	6198.847	69.115	-40.100	69.115	79.905	329.878	0.319
6300.000	2.119	328.335	6298.773	72.493	-41.912	72.493	83.737	329.965	0.302
6400.000	2.283	339.532	6398.700	75.932	-43.579	75.932	87.549	330.147	0.459
6500.000	2.202	346.204	6498.623	79.664	-44.734	79.664	91.364	330.684	0.273
6600.000	2.747	350.889	6598.530	83.895	-45.572	83.895	95.474	331.489	0.580
6700.000	2.867	354.403	6698.410	88.750	-46.195	88.750	100.053	332.503	0.210
6800.000	2.747	345.221	6798.291	93.556	-47.050	93.556	104.721	333.302	0.465
6900.000	2.843	339.611	6898.172	98.198	-48.525	98.198	109.533	333.703	0.290
7000.000	3.781	323.100	6998.006	103.159	-51.369	103.159	115.242	333.529	1.329
7050.000	3.305	311.124	7047.911	105.426	-53.445	105.426	118.199	333.118	1.755
HORIZONTAL DISPLACEMENT IS 118.199 FEET AT 333.118 DEGREES									