

Company: Anadarko Petroleum Corp.

Well: Bell L 12-13

API#: 05-123-15715

Rig Name: Production / V.E.S.

State/County: Colorado / Weld County

Latitude: 40.233, Longitude: -104.733

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: 5/7/2014 / 16:24

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	0.961	324.998	99.995	0.687	-0.481	0.687	0.839	324.998	0.961
200.000	0.425	355.556	199.988	1.744	-0.991	1.744	2.006	330.394	0.633
300.000	0.227	322.787	299.986	2.271	-1.139	2.271	2.541	333.362	0.265
400.000	0.202	265.808	399.986	2.416	-1.434	2.416	2.809	329.297	0.206
500.000	0.149	283.244	499.985	2.433	-1.737	2.433	2.989	324.468	0.074
600.000	0.237	266.614	599.985	2.450	-2.071	2.450	3.208	319.800	0.103
700.000	0.241	227.036	699.984	2.295	-2.431	2.295	3.343	313.351	0.162
800.000	0.525	303.817	799.982	2.407	-2.965	2.407	3.819	309.062	0.525
900.000	0.511	265.292	899.978	2.625	-3.791	2.625	4.611	304.701	0.342
1000.000	0.922	190.474	999.972	1.797	-4.382	1.797	4.736	292.300	0.930
1100.000	0.654	242.960	1099.964	0.746	-5.037	0.746	5.092	278.430	0.737
1200.000	1.214	290.546	1199.951	0.859	-6.537	0.859	6.593	277.483	0.911
1300.000	0.841	321.848	1299.936	1.807	-7.982	1.807	8.184	282.757	0.661
1400.000	1.293	347.794	1399.919	3.487	-8.674	3.487	9.349	291.901	0.651
1500.000	1.512	329.172	1499.889	5.723	-9.589	5.723	11.167	300.831	0.503
1600.000	1.389	332.605	1599.857	7.932	-10.823	7.932	13.419	306.239	0.151
1700.000	1.117	330.311	1699.833	9.855	-11.863	9.855	15.423	309.718	0.277
1800.000	1.590	5.038	1799.807	12.084	-12.224	12.084	17.189	314.671	0.926
1900.000	1.677	353.476	1899.766	14.920	-12.268	14.920	19.317	320.571	0.340
2000.000	1.346	8.873	1999.732	17.535	-12.253	17.535	21.392	325.054	0.521
2100.000	1.614	3.140	2099.698	20.102	-11.995	20.102	23.409	329.175	0.305
2200.000	1.646	30.438	2199.659	22.746	-11.190	22.746	25.350	333.804	0.770
2300.000	1.760	32.268	2299.615	25.283	-9.643	25.283	27.059	339.123	0.126
2400.000	1.667	12.803	2399.571	28.000	-8.501	28.000	29.262	343.112	0.586
2500.000	1.267	358.111	2499.539	30.524	-8.215	30.524	31.610	344.937	0.547
2600.000	0.782	332.691	2599.523	32.235	-8.564	32.235	33.353	345.121	0.654
2700.000	0.474	335.079	2699.517	33.216	-9.051	33.216	34.427	344.757	0.309
2800.000	1.019	13.411	2799.508	34.456	-9.020	34.456	35.617	345.331	0.710
2900.000	0.908	20.147	2899.494	36.064	-8.540	36.064	37.062	346.677	0.158
3000.000	0.780	312.768	2999.486	37.271	-8.767	37.271	38.288	346.763	0.943
3100.000	0.463	292.680	3099.480	37.889	-9.640	37.889	39.096	345.726	0.380
3200.000	0.224	263.763	3199.478	38.023	-10.207	38.023	39.369	344.974	0.288
3300.000	0.630	279.783	3299.475	38.095	-10.943	38.095	39.636	343.973	0.419
3400.000	0.552	171.397	3399.472	37.713	-11.413	37.713	39.402	343.163	0.960

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	1.094	143.361	3499.462	36.470	-10.771	36.470	38.028	343.546	0.660
3600.000	0.508	202.206	3599.453	35.294	-10.369	35.294	36.785	343.628	0.938
3700.000	1.026	255.971	3699.445	34.666	-11.405	34.666	36.494	341.789	0.833
3800.000	1.760	247.210	3799.414	33.854	-13.689	33.854	36.517	337.984	0.763
3900.000	2.412	263.752	3899.348	33.030	-17.196	33.030	37.239	332.498	0.881
4000.000	2.157	247.705	3999.270	32.087	-21.029	32.087	38.364	326.761	0.685
4100.000	2.341	232.346	4099.194	30.126	-24.387	30.126	38.760	321.009	0.628
4200.000	2.163	243.843	4199.117	28.046	-27.698	28.046	39.418	315.357	0.484
4300.000	1.538	257.437	4299.065	26.922	-30.702	26.922	40.834	311.247	0.760
4400.000	1.960	239.937	4399.019	25.773	-33.492	25.773	42.261	307.580	0.677
4500.000	1.749	255.171	4498.967	24.526	-36.447	24.526	43.931	303.937	0.535
4600.000	2.283	241.840	4598.905	23.196	-39.678	23.196	45.961	300.310	0.707
4700.000	1.688	262.034	4698.846	22.052	-42.892	22.052	48.229	297.208	0.910
4800.000	1.398	288.417	4798.811	22.233	-45.508	22.233	50.649	296.038	0.759
4900.000	0.797	329.652	4898.793	23.219	-47.017	23.219	52.438	296.282	0.956
5000.000	1.267	9.643	4998.778	24.909	-47.184	24.909	53.355	297.830	0.832
5100.000	1.311	4.363	5098.753	27.139	-46.911	27.139	54.196	300.050	0.127
5200.000	1.150	0.051	5198.730	29.283	-46.824	29.283	55.226	302.022	0.185
5300.000	0.417	49.619	5298.721	30.523	-46.545	30.523	55.661	303.256	0.935
5400.000	0.196	112.471	5398.719	30.693	-46.110	30.693	55.391	303.650	0.371
5500.000	0.246	176.056	5498.719	30.414	-45.937	30.414	55.093	303.508	0.237
5600.000	0.372	184.313	5598.717	29.876	-45.947	29.876	54.806	303.033	0.133
5700.000	0.582	218.534	5698.714	29.155	-46.288	29.155	54.704	302.206	0.345
5800.000	1.129	208.795	5798.702	27.895	-47.079	27.895	54.722	300.647	0.564
5900.000	0.719	215.015	5898.689	26.518	-47.913	26.518	54.762	298.963	0.421
6000.000	1.034	212.978	5998.677	25.247	-48.764	25.247	54.912	297.372	0.316
6100.000	0.873	229.328	6098.664	23.994	-49.833	23.994	55.308	295.710	0.315
6200.000	0.434	186.806	6198.658	23.121	-50.456	23.121	55.501	294.619	0.626
6300.000	0.545	166.584	6298.654	22.282	-50.390	22.282	55.097	293.854	0.204
6400.000	0.500	65.688	6398.651	21.999	-49.882	21.999	54.518	293.798	0.806
6500.000	0.030	12.092	6498.650	22.204	-49.479	22.204	54.233	294.168	0.483
6600.000	0.257	10.996	6598.650	22.449	-49.431	22.449	54.290	294.425	0.227
6700.000	0.399	65.769	6698.648	22.812	-49.071	22.812	54.114	294.933	0.327
6800.000	0.232	118.971	6798.647	22.857	-48.577	22.857	53.686	295.199	0.319
6900.000	0.219	151.688	6898.646	22.591	-48.309	22.591	53.330	295.062	0.128
7000.000	0.217	152.396	6998.645	22.255	-48.130	22.255	53.026	294.815	0.004
7100.000	0.289	171.583	7098.644	21.837	-48.006	21.837	52.739	294.460	0.111
7200.000	0.179	252.592	7198.644	21.540	-48.117	21.540	52.719	294.116	0.315
7300.000	0.087	245.961	7298.644	21.463	-48.335	21.463	52.886	293.943	0.093
HORIZONTAL DISPLACEMENT IS 52.886 FEET AT 293.943 DEGREES									