

Company: Anadarko Petroleum Corp.

Well: RAITH L 15-3

API: 05-123-09832

Rig Name: Production / VES

State/County: Colorado / Weld County

Latitude: 40.230, Longitude: -104.767

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: RAITH L 15-3.ut

Minimum Curvature Method

Report Date/Time: 1/19/2014 / 13:16

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	0.698	169.963	99.998	-0.600	0.106	-0.600	0.609	169.963	0.698
200.000	0.636	185.321	199.991	-1.752	0.161	-1.752	1.760	174.754	0.189
300.000	0.188	100.624	299.989	-2.335	0.271	-2.335	2.351	173.384	0.646
400.000	0.514	155.599	399.987	-2.774	0.618	-2.774	2.842	167.447	0.435
500.000	0.382	174.890	499.984	-3.515	0.833	-3.515	3.612	166.669	0.199
600.000	0.383	168.125	599.981	-4.174	0.931	-4.174	4.276	167.421	0.045
700.000	0.386	194.505	699.979	-4.827	0.916	-4.827	4.913	169.258	0.176
800.000	0.304	161.007	799.978	-5.404	0.918	-5.404	5.481	170.363	0.214
900.000	0.268	203.994	899.976	-5.868	0.909	-5.868	5.938	171.200	0.212
1000.000	0.217	204.357	999.976	-6.255	0.735	-6.255	6.298	173.297	0.051
1100.000	0.401	201.108	1099.974	-6.754	0.531	-6.754	6.775	175.504	0.184
1200.000	0.354	241.044	1199.972	-7.230	0.135	-7.230	7.231	178.932	0.261
1300.000	0.246	225.880	1299.971	-7.529	-0.289	-7.529	7.534	182.201	0.133
1400.000	0.564	253.723	1399.968	-7.816	-0.916	-7.816	7.869	186.681	0.365
1500.000	0.456	248.593	1499.964	-8.099	-1.758	-8.099	8.288	192.250	0.117
1600.000	0.536	235.629	1599.960	-8.508	-2.515	-8.508	8.872	196.468	0.137
1700.000	0.819	255.310	1699.953	-8.953	-3.592	-8.953	9.647	201.861	0.363
1800.000	0.753	283.963	1799.944	-8.976	-4.921	-8.976	10.236	208.733	0.394
1900.000	0.905	254.162	1899.934	-9.033	-6.318	-9.033	11.023	214.971	0.451
2000.000	1.199	280.194	1999.918	-9.063	-8.108	-9.063	12.161	221.815	0.554
2100.000	1.777	263.906	2099.884	-9.043	-10.679	-9.043	13.993	229.744	0.710
2200.000	1.805	278.897	2199.836	-8.964	-13.776	-8.964	16.436	236.950	0.468
2300.000	2.140	284.355	2299.777	-8.257	-17.141	-8.257	19.026	244.279	0.384
2400.000	2.245	302.591	2399.705	-6.739	-20.600	-6.739	21.674	251.884	0.702
2500.000	2.154	310.013	2499.631	-4.477	-23.689	-4.477	24.108	259.299	0.299
2600.000	2.087	314.967	2599.563	-1.981	-26.416	-1.981	26.491	265.711	0.195
2700.000	1.791	313.254	2699.506	0.376	-28.843	0.376	28.845	270.748	0.302
2800.000	1.879	317.592	2799.454	2.657	-31.087	2.657	31.200	274.886	0.164
2900.000	1.376	329.304	2899.414	4.900	-32.805	4.900	33.169	278.496	0.600
3000.000	1.580	311.880	2999.381	6.853	-34.444	6.853	35.120	281.253	0.491
3100.000	1.285	319.166	3099.350	8.622	-36.204	8.622	37.216	283.395	0.346
3200.000	1.261	324.776	3199.325	10.369	-37.572	10.369	38.976	285.428	0.127
3300.000	1.205	329.781	3299.302	12.176	-38.736	12.176	40.604	287.450	0.122

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
3400.000	1.244	308.550	3399.280	13.761	-40.114	13.761	42.409	288.935	0.453
3500.000	1.291	328.523	3499.256	15.399	-41.551	15.399	44.313	290.335	0.442
3600.000	1.194	352.227	3599.233	17.392	-42.281	17.392	45.718	292.359	0.519
3700.000	1.318	1.591	3699.209	19.574	-42.389	19.574	46.690	294.785	0.240
3800.000	1.097	15.057	3799.187	21.648	-42.109	21.648	47.347	297.208	0.358
3900.000	0.226	40.066	3899.179	22.724	-41.733	22.724	47.518	298.569	0.897
4000.000	0.155	124.139	3999.179	22.799	-41.493	22.799	47.344	298.787	0.261
4100.000	0.286	172.767	4099.178	22.475	-41.350	22.475	47.063	298.526	0.217
4200.000	0.412	208.909	4199.176	21.913	-41.492	21.913	46.923	297.839	0.248
4300.000	0.310	200.744	4299.174	21.344	-41.762	21.344	46.901	297.071	0.114
4400.000	0.448	277.110	4399.173	21.139	-42.246	21.139	47.240	296.583	0.481
4500.000	0.546	289.313	4499.169	21.345	-43.083	21.345	48.081	296.356	0.144
4600.000	0.774	306.303	4599.162	21.902	-44.077	21.902	49.219	296.424	0.298
4700.000	0.811	319.343	4699.153	22.839	-45.082	22.839	50.537	296.867	0.184
4800.000	0.628	308.586	4799.145	23.718	-45.972	23.718	51.730	297.291	0.227
4900.000	0.758	324.978	4899.138	24.602	-46.780	24.602	52.855	297.740	0.236
5000.000	0.884	319.795	4999.128	25.733	-47.658	25.733	54.162	298.367	0.146
5100.000	0.842	315.670	5099.116	26.848	-48.670	26.848	55.584	298.883	0.075
5200.000	0.668	306.914	5199.108	27.724	-49.649	27.724	56.865	299.179	0.209
5300.000	1.066	313.167	5299.096	28.710	-50.794	28.710	58.346	299.477	0.409
5400.000	1.016	310.921	5399.079	29.928	-52.142	29.928	60.120	299.854	0.065
5500.000	1.072	303.220	5499.063	31.021	-53.594	31.021	61.924	300.063	0.151
5600.000	0.954	311.274	5599.047	32.082	-55.002	32.082	63.675	300.254	0.184
5700.000	1.482	314.349	5699.024	33.535	-56.553	33.535	65.748	300.668	0.532
5800.000	1.059	303.322	5799.000	34.947	-58.249	34.947	67.929	300.962	0.487
5900.000	1.728	308.360	5898.970	36.390	-60.203	36.390	70.347	301.151	0.679
6000.000	1.492	315.628	5998.930	38.256	-62.296	38.256	73.105	301.554	0.311
6100.000	0.939	322.757	6098.907	39.839	-63.702	39.839	75.134	302.022	0.572
6200.000	1.082	324.985	6198.892	41.265	-64.740	41.265	76.773	302.513	0.149
6300.000	1.130	342.042	6298.873	42.976	-65.586	42.976	78.412	303.235	0.331
6400.000	0.943	337.572	6398.857	44.675	-66.204	44.675	79.867	304.012	0.203
6500.000	0.833	327.738	6498.845	46.051	-66.906	46.051	81.222	304.539	0.188
6600.000	1.000	332.964	6598.832	47.443	-67.691	47.443	82.661	305.026	0.187
6700.000	1.073	328.820	6698.816	49.022	-68.572	49.022	84.293	305.560	0.105
6800.000	1.211	297.749	6798.797	50.315	-69.993	50.315	86.201	305.711	0.626
6900.000	1.833	284.284	6898.761	51.202	-72.478	51.202	88.739	305.239	0.714
7000.000	2.660	289.034	6998.684	52.353	-76.222	52.353	92.470	304.483	0.847
7100.000	3.046	297.502	7098.560	54.337	-80.773	54.337	97.349	303.929	0.570
7200.000	3.840	302.946	7198.379	57.385	-85.940	57.385	103.338	303.732	0.858
7300.000	4.784	313.176	7298.096	62.060	-91.791	62.060	110.802	304.062	1.214
7400.000	5.864	297.471	7397.669	67.269	-99.365	67.269	119.994	304.098	1.804
7500.000	4.294	305.888	7497.274	71.820	-106.930	71.820	128.811	303.888	1.734
7600.000	2.582	288.943	7597.093	74.746	-112.093	74.746	134.729	303.696	1.973
7700.000	1.971	269.086	7697.015	75.450	-115.944	75.450	138.331	303.054	0.989
7745.000	1.624	262.567	7741.993	75.355	-117.350	75.355	139.461	302.706	0.896

<div> HORIZONTAL DISPLACEMENT IS 139.461 FEET AT 302.706 DEGREES </div>
