

Company: Anadarko Petroleum Corp.

Well: Thomason X 16-4

API: 05-123-17143

Rig Name: Production/Coretech

Location: Weld County, Colorado

Latitude: 40.144, Longitude: -104.676

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_02.ut

Minimum Curvature Method

Report Date/Time: 3/27/2014 / 17:15

Vaughn Energy Services

Henderson, CO.

Justin Williams

303-853-4976

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	0.241	92.450	100.000	-0.009	0.210	-0.009	0.211	92.450	0.241
200.000	0.278	96.783	199.999	-0.047	0.661	-0.047	0.663	94.032	0.041
300.000	0.289	95.867	299.997	-0.101	1.152	-0.101	1.157	95.007	0.012
400.000	0.215	130.962	399.997	-0.250	1.545	-0.250	1.565	99.183	0.167
500.000	0.276	153.077	499.996	-0.587	1.795	-0.587	1.889	108.109	0.111
600.000	0.176	202.405	599.995	-0.944	1.845	-0.944	2.073	117.084	0.209
700.000	0.142	230.085	699.995	-1.166	1.692	-1.166	2.054	124.568	0.083
800.000	0.239	311.790	799.994	-1.106	1.441	-1.106	1.817	127.514	0.260
900.000	0.301	330.610	899.993	-0.739	1.157	-0.739	1.373	122.560	0.107
1000.000	0.265	325.961	999.992	-0.318	0.899	-0.318	0.953	109.515	0.043
1100.000	0.348	328.475	1099.990	0.132	0.611	0.132	0.625	77.814	0.084
1200.000	0.268	315.185	1199.989	0.557	0.287	0.557	0.626	27.246	0.107
1300.000	0.255	319.756	1299.988	0.893	-0.022	0.893	0.893	358.569	0.024
1400.000	0.310	314.317	1399.987	1.252	-0.360	1.252	1.303	343.959	0.061
1500.000	0.317	312.291	1499.985	1.628	-0.758	1.628	1.796	335.017	0.013
1600.000	0.279	317.237	1599.984	1.993	-1.128	1.993	2.290	330.477	0.045
1700.000	0.280	318.924	1699.983	2.356	-1.455	2.356	2.769	328.308	0.008
1800.000	0.409	298.843	1799.981	2.713	-1.928	2.713	3.328	324.597	0.175
1900.000	0.283	292.562	1899.979	2.980	-2.469	2.980	3.869	320.359	0.132
2000.000	0.260	207.732	1999.978	2.873	-2.802	2.873	4.013	315.719	0.367
2100.000	0.383	262.259	2099.977	2.627	-3.239	2.627	4.170	309.051	0.314
2200.000	0.337	249.167	2199.975	2.478	-3.845	2.478	4.574	302.799	0.094
2300.000	0.463	243.994	2299.972	2.196	-4.483	2.196	4.992	296.094	0.131
2400.000	0.462	233.921	2399.969	1.781	-5.172	1.781	5.470	289.001	0.081
2500.000	0.660	269.109	2499.965	1.535	-6.074	1.535	6.265	284.180	0.388
2600.000	0.778	264.268	2599.957	1.458	-7.325	1.458	7.469	281.256	0.133
2700.000	0.616	267.132	2699.949	1.363	-8.537	1.363	8.645	279.072	0.166
2800.000	0.780	310.140	2799.943	1.775	-9.594	1.775	9.757	280.482	0.534
2900.000	0.714	309.611	2899.934	2.611	-10.595	2.611	10.912	283.845	0.066
3000.000	0.451	322.378	2999.929	3.321	-11.315	3.321	11.793	286.354	0.292
3100.000	0.588	293.726	3099.925	3.839	-12.026	3.839	12.623	287.704	0.289
3200.000	0.528	327.126	3199.920	4.432	-12.746	4.432	13.494	289.176	0.326
3300.000	0.436	333.395	3299.917	5.160	-13.166	5.160	14.141	291.401	0.106
3400.000	0.587	323.724	3399.913	5.913	-13.640	5.913	14.867	293.439	0.174

HORIZONTAL DISPLACEMENT IS
6.067 FEET AT 49.989 DEGREES