

Company: Anadarko Petroleum Corp.
 Well/API: Erickson Birkle P 25-3 JI/05-123-21145
 Tool Type: North Seeking Rate Gyro
 Rig Name: Production/ CoreTech
 County/State: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.20189, Longitude: -104.84107
 All Azimuths referenced to True North
 No Grid Convergence Applied



Depth Reference : RKB= GL Elevation= 4800 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/3/2016 / 08:34

Lat/Long Obtained by Handheld GPS at Wellhead

Handheld GPS Reference: NAD83/ Device Error: +/- 9 Feet

VES Survey International- Henderson Co

Surveyor: Sean Bratt / Erickson Birkle P 25-3 JI

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	0.373	279.169	99.999	0.052	-0.321	0.052	0.325	279.169	0.373
200.000	0.289	290.141	199.998	0.190	-0.879	0.190	0.899	282.223	0.105
300.000	0.285	299.263	299.996	0.399	-1.332	0.399	1.391	286.660	0.046
400.000	0.543	314.510	399.994	0.853	-1.888	0.853	2.071	294.310	0.278
500.000	1.404	348.304	499.979	2.384	-2.474	2.384	3.436	313.943	0.999
600.000	1.866	8.153	599.939	5.195	-2.491	5.195	5.762	334.382	0.725
700.000	1.970	10.090	699.883	8.499	-1.959	8.499	8.722	347.020	0.123
800.000	1.974	0.424	799.824	11.914	-1.645	11.914	12.027	352.138	0.332
900.000	1.974	7.831	899.765	15.342	-1.398	15.342	15.406	354.794	0.255
1000.000	1.788	6.566	999.711	18.598	-0.985	18.598	18.624	356.969	0.191
1100.000	1.458	4.578	1099.670	21.416	-0.705	21.416	21.428	358.115	0.334
1200.000	1.437	4.151	1199.639	23.935	-0.513	23.935	23.940	358.773	0.024
1300.000	1.349	1.886	1299.609	26.362	-0.383	26.362	26.364	359.167	0.104
1400.000	1.306	358.691	1399.582	28.677	-0.370	28.677	28.679	359.260	0.086
1500.000	1.250	349.563	1499.557	30.889	-0.594	30.889	30.894	358.898	0.211
1600.000	1.239	348.004	1599.534	33.019	-1.017	33.019	33.035	358.237	0.036
1700.000	1.238	349.414	1699.510	35.139	-1.440	35.139	35.169	357.654	0.031
1800.000	1.220	2.030	1799.488	37.265	-1.601	37.265	37.300	357.541	0.271

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
1900.000	1.363	355.398	1899.462	39.515	-1.658	39.515	39.550	357.597	0.206
2000.000	1.425	348.648	1999.433	41.919	-1.998	41.919	41.967	357.271	0.175
2100.000	1.421	342.674	2099.402	44.321	-2.612	44.321	44.398	356.627	0.148
2200.000	1.621	338.870	2199.367	46.825	-3.491	46.825	46.954	355.736	0.224
2300.000	1.666	334.802	2299.326	49.459	-4.620	49.459	49.675	354.663	0.125
2400.000	1.563	332.193	2399.286	51.981	-5.875	51.981	52.312	353.551	0.127
2500.000	0.901	311.262	2499.263	53.706	-7.102	53.706	54.173	352.466	0.790
2600.000	0.996	313.813	2599.249	54.826	-8.321	54.826	55.454	351.370	0.104
2700.000	0.992	313.148	2699.234	56.020	-9.580	56.020	56.833	350.296	0.012
2800.000	1.029	316.630	2799.218	57.264	-10.828	57.264	58.279	349.293	0.072
2900.000	0.967	313.583	2899.203	58.499	-12.056	58.499	59.728	348.355	0.081
3000.000	0.946	308.226	2999.189	59.592	-13.316	59.592	61.061	347.404	0.092
3100.000	0.804	311.115	3099.178	60.564	-14.493	60.564	62.274	346.542	0.148
3200.000	0.606	311.433	3199.170	61.375	-15.418	61.375	63.282	345.898	0.198
3300.000	0.607	308.305	3299.164	62.054	-16.231	62.054	64.141	345.342	0.033
3400.000	0.585	298.108	3399.159	62.623	-17.097	62.623	64.915	344.730	0.108
3500.000	0.556	281.974	3499.154	62.964	-18.022	62.964	65.493	344.027	0.163
3600.000	0.638	262.056	3599.149	62.988	-19.048	62.988	65.805	343.174	0.222
3700.000	0.642	265.148	3699.143	62.864	-20.158	62.864	66.016	342.221	0.035
3800.000	0.666	262.908	3799.136	62.745	-21.293	62.745	66.259	341.255	0.035
3900.000	0.900	277.709	3899.127	62.778	-22.648	62.778	66.738	340.163	0.308
4000.000	0.769	261.134	3999.116	62.780	-24.089	62.780	67.243	339.008	0.274
4100.000	0.972	257.036	4099.105	62.487	-25.578	62.487	67.519	337.739	0.213
4200.000	1.135	261.503	4199.088	62.150	-27.384	62.150	67.916	336.221	0.182
4300.000	1.069	263.204	4299.069	61.893	-29.290	61.893	68.474	334.675	0.074
4400.000	0.710	265.374	4399.057	61.733	-30.834	61.733	69.005	333.459	0.360
4500.000	0.536	262.573	4499.051	61.622	-31.916	61.622	69.397	332.619	0.177
4600.000	0.554	268.598	4599.047	61.550	-32.863	61.550	69.774	331.901	0.060
4700.000	0.461	270.108	4699.043	61.539	-33.748	61.539	70.185	331.260	0.094
4800.000	0.502	252.474	4799.039	61.408	-34.568	61.408	70.469	330.624	0.153
4900.000	0.708	236.432	4899.034	60.934	-35.501	60.934	70.522	329.775	0.264
5000.000	0.912	225.998	4999.024	60.040	-36.588	60.040	70.310	328.642	0.251
5100.000	1.166	218.186	5099.007	58.687	-37.790	58.687	69.801	327.222	0.290
5200.000	1.254	211.962	5198.985	56.959	-38.998	56.959	69.030	325.602	0.158
5300.000	1.292	202.371	5298.960	54.988	-40.006	54.988	68.001	323.963	0.216
5400.000	1.206	205.670	5398.937	52.997	-40.891	52.997	66.939	322.348	0.112
5500.000	1.220	203.467	5498.914	51.072	-41.771	51.072	65.979	320.721	0.049
5600.000	1.134	188.268	5598.893	49.116	-42.337	49.116	64.844	319.239	0.323
5700.000	1.281	166.781	5698.872	47.048	-42.224	47.048	63.217	318.093	0.473
5800.000	1.415	164.854	5798.844	44.769	-41.646	44.769	61.144	317.070	0.141

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
5900.000	1.233	181.563	5898.818	42.502	-41.353	42.502	59.300	315.785	0.425
6000.000	1.076	212.072	5998.798	40.631	-41.881	40.631	58.351	314.132	0.626
6100.000	0.987	206.339	6098.782	39.063	-42.761	39.063	57.918	312.412	0.136
6200.000	0.961	213.952	6198.768	37.596	-43.612	37.596	57.580	310.763	0.132
6300.000	1.124	215.793	6298.751	36.104	-44.654	36.104	57.424	308.957	0.167
6400.000	1.134	222.676	6398.732	34.581	-45.898	34.581	57.468	306.995	0.136
6500.000	0.724	238.273	6498.718	33.521	-47.107	33.521	57.816	305.436	0.478
6600.000	0.736	238.176	6598.710	32.850	-48.190	32.850	58.322	304.281	0.012
6700.000	0.879	242.609	6698.700	32.159	-49.417	32.159	58.959	303.055	0.155
6800.000	0.735	237.423	6798.690	31.461	-50.638	31.461	59.615	301.852	0.161
6900.000	0.632	218.589	6898.683	30.684	-51.523	30.684	59.968	300.775	0.246
7000.000	0.363	216.212	6998.680	29.997	-52.054	29.997	60.079	299.954	0.270
7100.000	0.405	217.879	7098.677	29.463	-52.458	29.463	60.166	299.321	0.044
7200.000	0.376	223.211	7198.675	28.945	-52.899	28.945	60.301	298.686	0.046
7300.000	0.410	198.000	7298.673	28.366	-53.234	28.366	60.320	298.051	0.175
7400.000	0.328	220.975	7398.671	27.810	-53.533	27.810	60.325	297.451	0.167
7500.000	0.463	211.038	7498.668	27.247	-53.929	27.247	60.421	296.805	0.150
7600.000	0.646	254.776	7598.664	26.753	-54.682	26.753	60.875	296.070	0.447
7650.000	0.962	230.128	7648.659	26.410	-55.276	26.410	61.261	295.537	0.923