



Company: Anadarko Petroleum Corp.  
 Well/API: Pluss L 11-05JI/05-123-21206  
 Tool Type: North Seeking Rate Gyro  
 Rig Name: Production/CoreTech  
 County/State: Weld/Colorado  
 VS-Azi: 0.000 Degrees  
 Latitude: 40.24121, Longitude: -104.75153  
 All Azimuths referenced to True North  
 No Grid Convergence Applied



Depth Reference : RKB = GL Elevation = 4890

**DRILLOG MS GYRO SURVEY CALCULATIONS**

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 2/15/2016 / 13:51

Lat/Long Obtained By Handheld GPS At Wellhead  
 Handheld GPS Reference: NAD83/Device Error: ±9 Feet  
 VES Survey International - Henderson CO  
 Surveyor: Justin Williams / Pluss L 11-05JI  
 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	0.675	134.403	99.998	-0.412	0.421	-0.412	0.589	134.403	0.675
200.000	0.637	156.876	199.991	-1.336	1.061	-1.336	1.706	141.561	0.259
300.000	0.349	116.252	299.988	-1.982	1.552	-1.982	2.518	141.939	0.436
400.000	0.341	118.483	399.986	-2.259	2.087	-2.259	3.075	137.269	0.016
500.000	0.583	119.902	499.983	-2.654	2.789	-2.654	3.850	133.583	0.242
600.000	0.614	162.258	599.978	-3.418	3.393	-3.418	4.817	135.213	0.433
700.000	0.760	139.287	699.971	-4.432	3.989	-4.432	5.963	138.010	0.309
800.000	0.638	146.182	799.963	-5.397	4.731	-5.397	7.177	138.760	0.148
900.000	0.510	100.084	899.959	-5.937	5.479	-5.937	8.079	137.298	0.464
1000.000	0.674	106.852	999.953	-6.186	6.480	-6.186	8.958	133.669	0.178
1100.000	0.684	143.758	1099.947	-6.838	7.396	-6.838	10.072	132.755	0.430
1200.000	0.712	125.147	1199.939	-7.677	8.257	-7.677	11.274	132.916	0.227
1300.000	0.548	122.990	1299.933	-8.295	9.166	-8.295	12.362	132.145	0.165
1400.000	0.727	140.878	1399.927	-9.048	9.968	-9.048	13.462	132.230	0.265
1500.000	0.718	127.737	1499.919	-9.923	10.863	-9.923	14.713	132.411	0.166
1600.000	0.580	120.972	1599.913	-10.567	11.793	-10.567	15.835	131.863	0.158
1700.000	0.421	110.674	1699.909	-10.957	12.570	-10.957	16.676	131.078	0.182
1800.000	0.171	131.214	1799.908	-11.186	13.027	-11.186	17.170	130.651	0.268

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	0.303	103.467	1899.907	-11.346	13.396	-11.346	17.555	130.263	0.171
2000.000	0.312	54.494	1999.906	-11.249	13.874	-11.249	17.862	129.034	0.255
2100.000	0.672	56.008	2099.902	-10.763	14.582	-10.763	18.124	126.432	0.360
2200.000	0.332	91.027	2199.898	-10.441	15.358	-10.441	18.571	124.209	0.443
2300.000	0.445	5.975	2299.896	-10.060	15.688	-10.060	18.637	122.670	0.532
2400.000	0.420	302.271	2399.894	-9.479	15.419	-9.479	18.099	121.581	0.457
2500.000	0.436	263.581	2499.891	-9.325	14.730	-9.325	17.434	122.337	0.284
2600.000	0.658	313.478	2599.887	-8.973	13.935	-8.973	16.574	122.778	0.503
2700.000	0.387	300.861	2699.883	-8.405	13.229	-8.405	15.673	122.429	0.293
2800.000	0.877	294.537	2799.877	-7.914	12.243	-7.914	14.578	122.878	0.494
2900.000	0.577	277.667	2899.869	-7.529	11.048	-7.529	13.369	124.273	0.366
3000.000	0.965	279.200	2999.859	-7.327	9.718	-7.327	12.171	127.014	0.389
3100.000	0.891	264.591	3099.846	-7.266	8.113	-7.266	10.891	131.847	0.247
3200.000	0.887	273.227	3199.834	-7.295	6.566	-7.295	9.815	138.014	0.134
3300.000	0.841	266.940	3299.823	-7.291	5.060	-7.291	8.875	145.241	0.106
3400.000	0.488	235.113	3399.817	-7.574	3.978	-7.574	8.555	152.293	0.498
3500.000	0.366	208.913	3499.814	-8.096	3.474	-8.096	8.810	156.777	0.227
3600.000	0.474	218.383	3599.811	-8.700	3.063	-8.700	9.223	160.602	0.128
3700.000	0.364	179.060	3699.809	-9.341	2.812	-9.341	9.755	163.248	0.300
3800.000	0.274	118.016	3799.807	-9.771	3.028	-9.771	10.230	162.784	0.333
3900.000	0.541	146.912	3899.805	-10.279	3.496	-10.279	10.857	161.215	0.329
4000.000	0.526	154.044	3999.800	-11.087	3.955	-11.087	11.772	160.368	0.068
4100.000	0.755	158.385	4099.794	-12.113	4.399	-12.113	12.887	160.042	0.234
4200.000	0.446	154.706	4199.789	-13.077	4.807	-13.077	13.932	159.815	0.312
4300.000	0.502	104.292	4299.786	-13.536	5.398	-13.536	14.573	158.259	0.407
4400.000	0.161	215.152	4399.784	-13.759	5.742	-13.759	14.909	157.349	0.579
4500.000	0.330	114.237	4499.784	-13.992	5.924	-13.992	15.194	157.053	0.394
4600.000	0.354	69.262	4599.782	-14.001	6.475	-14.001	15.426	155.180	0.262
4700.000	0.359	51.321	4699.780	-13.696	7.009	-13.696	15.385	152.899	0.111
4800.000	0.728	346.344	4799.776	-12.882	7.103	-12.882	14.711	151.128	0.662
4900.000	1.458	330.428	4899.758	-11.158	6.325	-11.158	12.826	150.452	0.783
5000.000	1.586	345.962	4999.723	-8.710	5.362	-8.710	10.228	148.382	0.430
5100.000	1.318	325.514	5099.691	-6.419	4.375	-6.419	7.769	145.723	0.579
5200.000	1.311	311.427	5199.665	-4.715	2.866	-4.715	5.517	148.702	0.322
5300.000	1.183	299.428	5299.642	-3.450	1.109	-3.450	3.624	162.178	0.290
5400.000	0.844	303.515	5399.626	-2.537	-0.404	-2.537	2.568	189.043	0.347
5500.000	1.041	298.787	5499.612	-1.693	-1.814	-1.693	2.481	226.976	0.212
5600.000	0.933	272.790	5599.598	-1.216	-3.422	-1.216	3.632	250.446	0.456
5700.000	1.130	288.420	5699.582	-0.864	-5.171	-0.864	5.242	260.509	0.342
5800.000	1.190	274.338	5799.562	-0.474	-7.142	-0.474	7.157	266.200	0.291

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	1.156	281.345	5899.541	-0.197	-9.166	-0.197	9.168	268.766	0.147
6000.000	1.308	265.487	5999.518	-0.089	-11.293	-0.089	11.293	269.549	0.372
6100.000	0.883	252.632	6099.499	-0.409	-13.166	-0.409	13.173	268.222	0.489
6200.000	1.129	236.122	6199.484	-1.188	-14.720	-1.188	14.768	265.386	0.378
6300.000	0.944	194.846	6299.469	-2.533	-15.749	-2.533	15.951	260.862	0.751
6400.000	1.160	164.262	6399.453	-4.304	-15.685	-4.304	16.265	254.656	0.593
6500.000	0.915	143.486	6499.437	-5.920	-14.935	-5.920	16.066	248.377	0.445
6600.000	0.207	62.874	6599.432	-6.479	-14.299	-6.479	15.699	245.623	0.905
6700.000	0.904	337.508	6699.428	-5.668	-14.440	-5.668	15.512	248.567	0.911
6800.000	1.278	293.508	6799.411	-4.495	-15.764	-4.495	16.392	254.084	0.888
6900.000	1.322	304.279	6899.386	-3.401	-17.739	-3.401	18.062	259.148	0.248
7000.000	1.196	295.133	6999.361	-2.308	-19.637	-2.308	19.773	263.298	0.237
7100.000	1.199	266.616	7099.341	-1.926	-21.626	-1.926	21.712	264.911	0.590
7200.000	1.451	259.241	7199.314	-2.224	-23.914	-2.224	24.018	264.687	0.304
7300.000	1.273	242.378	7299.286	-2.976	-26.143	-2.976	26.312	263.506	0.436
7400.000	1.065	237.669	7399.265	-3.988	-27.912	-3.988	28.196	261.869	0.229
7500.000	0.768	248.561	7499.252	-4.730	-29.321	-4.730	29.700	260.837	0.343
7600.000	0.488	194.166	7599.247	-5.387	-30.049	-5.387	30.528	259.836	0.625
7700.000	0.889	215.775	7699.240	-6.429	-30.607	-6.429	31.275	258.137	0.471