



Company: Anadarko Petroleum Corp.
 Well/API: UPRC 33-14 J5/05-123-17704
 Tool Type: North Seeking Rate Gyro
 Rig Name: Production/Summit
 County/State: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.17629, Longitude: -104.67085
 All Azimuths referenced to True North
 No Grid Convergence Applied



Depth Reference : RKB= GL Elevation= 4850 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 4/5/2017 / 08:03

Lat/Long Obtained by Handheld GPS at Wellhead

Handheld GPS Reference: NAD83/ Device Error: ± 9 Feet

VES Survey International- Henderson Co

Surveyor: Geof Davis / UPRC 33-14J5

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	0.308	298.962	100.000	0.130	-0.235	0.130	0.268	298.962	0.308
200.000	0.425	260.256	199.998	0.197	-0.835	0.197	0.858	283.289	0.267
300.000	0.055	246.539	299.997	0.115	-1.244	0.115	1.250	275.298	0.372
400.000	0.170	359.407	399.996	0.245	-1.290	0.245	1.313	280.738	0.198
500.000	0.434	347.207	499.995	0.763	-1.375	0.763	1.573	299.008	0.271
600.000	0.495	291.488	599.992	1.290	-1.861	1.290	2.265	304.738	0.437
700.000	0.386	276.045	699.989	1.484	-2.598	1.484	2.992	299.738	0.160
800.000	0.483	243.137	799.986	1.329	-3.309	1.329	3.566	291.884	0.263
900.000	0.432	233.059	899.983	0.912	-3.986	0.912	4.089	282.887	0.095
1000.000	0.508	242.292	999.980	0.479	-4.680	0.479	4.705	275.845	0.107
1100.000	0.379	283.265	1099.977	0.349	-5.395	0.349	5.406	273.700	0.333
1200.000	0.303	315.555	1199.975	0.613	-5.902	0.613	5.934	275.934	0.203
1300.000	0.268	313.591	1299.974	0.963	-6.256	0.963	6.330	278.752	0.037
1400.000	0.166	307.631	1399.973	1.213	-6.540	1.213	6.652	280.506	0.104
1500.000	0.202	304.941	1499.973	1.403	-6.800	1.403	6.943	281.654	0.037
1600.000	0.281	300.440	1599.972	1.628	-7.156	1.628	7.339	282.815	0.081

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
1700.000	0.401	309.843	1699.970	1.977	-7.636	1.977	7.888	284.511	0.132
1800.000	0.492	293.733	1799.967	2.374	-8.299	2.374	8.631	285.963	0.154
1900.000	0.476	274.726	1899.964	2.581	-9.106	2.581	9.465	285.824	0.161
2000.000	0.258	226.419	1999.962	2.460	-9.683	2.460	9.991	284.255	0.361
2100.000	0.277	268.154	2099.961	2.297	-10.088	2.297	10.346	282.830	0.191
2200.000	0.364	289.938	2199.959	2.398	-10.627	2.398	10.895	282.714	0.148
2300.000	0.230	49.098	2299.959	2.637	-10.774	2.637	11.092	283.754	0.516
2400.000	0.516	7.970	2399.957	3.214	-10.560	3.214	11.038	286.930	0.375
2500.000	0.105	220.552	2499.955	3.591	-10.557	3.591	11.151	288.783	0.607
2600.000	0.540	297.633	2599.954	3.739	-11.034	3.739	11.650	288.721	0.526
2700.000	0.223	278.778	2699.951	3.987	-11.644	3.987	12.307	288.904	0.336
2800.000	0.617	236.015	2799.949	3.716	-12.283	3.716	12.833	286.833	0.478
2900.000	0.707	272.880	2899.943	3.446	-13.345	3.446	13.783	284.479	0.427
3000.000	0.509	292.037	2999.937	3.644	-14.373	3.644	14.828	284.226	0.281
3100.000	0.517	274.587	3099.933	3.847	-15.235	3.847	15.713	284.170	0.156
3200.000	0.671	258.585	3199.928	3.767	-16.259	3.767	16.690	283.045	0.224
3300.000	0.771	254.810	3299.920	3.475	-17.482	3.475	17.824	281.243	0.111
3400.000	0.982	240.676	3399.908	2.879	-18.878	2.879	19.096	278.672	0.301
3500.000	1.094	227.133	3499.892	1.810	-20.324	1.810	20.405	275.090	0.269
3600.000	1.134	204.930	3599.873	0.264	-21.441	0.264	21.442	270.705	0.431
3700.000	1.404	193.054	3699.849	-1.827	-22.134	-1.827	22.210	265.282	0.376
3800.000	1.800	203.314	3799.810	-4.463	-23.033	-4.463	23.461	259.035	0.487
3900.000	2.003	202.809	3899.755	-7.515	-24.331	-7.515	25.466	252.835	0.204
4000.000	2.329	198.124	3999.683	-11.057	-25.641	-11.057	27.924	246.672	0.371
4100.000	2.290	196.802	4099.602	-14.901	-26.851	-14.901	30.708	240.971	0.066
4200.000	2.484	206.445	4199.516	-18.754	-28.393	-18.754	34.028	236.555	0.446
4300.000	2.638	207.911	4299.416	-22.728	-30.435	-22.728	37.985	233.249	0.167
4400.000	1.875	210.574	4399.337	-26.170	-32.345	-26.170	41.606	231.024	0.769
4500.000	1.344	211.308	4499.298	-28.580	-33.786	-28.580	44.253	229.772	0.532
4600.000	0.849	251.319	4599.280	-29.819	-35.097	-29.819	46.054	229.648	0.883
4700.000	1.472	285.251	4699.261	-29.719	-37.038	-29.719	47.487	231.257	0.902
4800.000	1.889	312.704	4799.219	-28.263	-39.488	-28.263	48.560	234.407	0.894
4900.000	1.747	336.953	4899.170	-25.743	-41.296	-25.743	48.662	238.061	0.776
5000.000	1.079	4.100	4999.140	-23.402	-41.825	-23.402	47.927	240.772	0.928
5100.000	1.050	2.531	5099.123	-21.547	-41.717	-21.547	46.953	242.683	0.041
5200.000	1.372	6.015	5199.100	-19.441	-41.551	-19.441	45.875	244.926	0.330
5300.000	0.993	354.498	5299.079	-17.388	-41.509	-17.388	45.004	247.272	0.445
5400.000	1.576	359.660	5399.054	-15.150	-41.600	-15.150	44.273	249.989	0.593
5500.000	1.613	20.081	5499.016	-12.453	-41.125	-12.453	42.969	253.153	0.566

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
5600.000	1.385	23.944	5598.981	-10.027	-40.152	-10.027	41.385	255.979	0.250
5700.000	1.387	57.873	5698.954	-8.279	-38.636	-8.279	39.513	257.906	0.809
5800.000	1.068	28.321	5798.932	-6.815	-37.169	-6.815	37.788	259.610	0.698
5900.000	1.689	5.937	5898.903	-4.529	-36.574	-4.529	36.854	262.941	0.810
6000.000	1.546	359.416	5998.863	-1.715	-36.436	-1.715	36.476	267.305	0.233
6100.000	0.835	352.439	6098.841	0.356	-36.545	0.356	36.547	270.558	0.724
6200.000	0.915	343.681	6198.829	1.844	-36.865	1.844	36.911	272.863	0.156
6300.000	1.579	4.649	6298.806	3.983	-36.978	3.983	37.192	276.147	0.795
6400.000	1.824	2.937	6398.761	6.945	-36.785	6.945	37.435	280.691	0.251
6500.000	1.417	2.925	6498.721	9.769	-36.640	9.769	37.920	284.929	0.407
6600.000	1.988	352.444	6598.677	12.723	-36.805	12.723	38.942	289.070	0.648
6700.000	1.802	354.809	6698.622	16.009	-37.175	16.009	40.476	293.298	0.202
6800.000	2.582	359.253	6798.548	19.827	-37.347	19.827	42.283	297.963	0.798
6900.000	1.610	354.312	6898.480	23.477	-37.516	23.477	44.256	302.038	0.988
7000.000	0.923	350.755	6998.455	25.670	-37.784	25.670	45.679	304.191	0.691
7100.000	0.405	28.138	7098.449	26.777	-37.747	26.777	46.280	305.351	0.649
7188.000	0.436	138.945	7186.447	26.799	-37.380	26.799	45.994	305.637	0.787