

Company: Anadarko Petroleum Corp.  
 Well/API: Bell L 12-02/05-123-15704  
 Tool Type: North Seeking Rate Gyro  
 Rig Name: Production/Summit  
 County/State: Weld/Colorado  
 Latitude: 40.246, Longitude: -104.723  
 Directions are relative to True North  
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB=GL Elevation= 4960 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 12/18/2014 / 18:19

Lat/Long Obtained By Handheld GPS At Wellhead

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

VES Survey International - Henderson CO

Mark Simmons

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	0.757	80.539	99.997	0.109	0.652	0.109	0.661	80.539	0.757
200.000	0.497	78.940	199.991	0.301	1.730	0.301	1.756	80.144	0.261
300.000	0.365	88.196	299.988	0.394	2.474	0.394	2.505	80.954	0.150
400.000	0.253	113.207	399.987	0.317	2.994	0.317	3.011	83.958	0.173
500.000	0.061	311.495	499.986	0.265	3.157	0.265	3.168	85.194	0.312
600.000	0.225	145.485	599.986	0.139	3.228	0.139	3.231	87.536	0.285
700.000	0.115	267.875	699.986	-0.027	3.239	-0.027	3.239	90.473	0.303
800.000	0.122	136.830	799.986	-0.108	3.212	-0.108	3.213	91.930	0.216
900.000	0.027	182.862	899.986	-0.209	3.283	-0.209	3.290	93.645	0.105
1000.000	0.059	195.175	999.986	-0.282	3.269	-0.282	3.281	94.935	0.034
1100.000	0.226	173.099	1099.985	-0.528	3.279	-0.528	3.321	99.147	0.173
1200.000	0.094	267.946	1199.985	-0.727	3.221	-0.727	3.302	102.715	0.252
1300.000	0.423	213.488	1299.984	-1.038	2.935	-1.038	3.113	109.471	0.376
1400.000	0.313	151.557	1399.982	-1.586	2.861	-1.586	3.272	119.000	0.390
1500.000	0.495	227.844	1499.980	-2.117	2.671	-2.117	3.408	128.395	0.520
1600.000	0.422	181.791	1599.978	-2.775	2.339	-2.775	3.629	139.870	0.365
1700.000	0.407	205.926	1699.975	-3.462	2.172	-3.462	4.087	147.893	0.174
1800.000	0.455	210.848	1799.972	-4.123	1.813	-4.123	4.504	156.257	0.061
1900.000	0.519	230.730	1899.969	-4.751	1.259	-4.751	4.915	165.157	0.180
2000.000	0.613	136.512	1999.965	-5.425	1.276	-5.425	5.573	166.763	0.832
2100.000	0.555	114.262	2099.960	-6.012	2.086	-6.012	6.364	160.867	0.232
2200.000	1.250	107.875	2199.947	-6.546	3.566	-6.546	7.455	151.422	0.701
2300.000	1.423	118.105	2299.920	-7.466	5.699	-7.466	9.393	142.644	0.294
2400.000	1.508	153.919	2399.890	-9.232	7.373	-9.232	11.815	141.390	0.905
2500.000	1.259	149.703	2499.860	-11.362	8.505	-11.362	14.193	143.184	0.269
2600.000	1.153	178.659	2599.839	-13.317	9.083	-13.317	16.119	145.703	0.612
2700.000	1.568	215.499	2699.813	-15.437	8.312	-15.437	17.532	151.700	0.946
2800.000	1.966	224.032	2799.765	-17.784	6.325	-17.784	18.875	160.420	0.476
2900.000	2.333	231.721	2899.695	-20.277	3.536	-20.277	20.583	170.109	0.466
3000.000	2.318	234.067	2999.612	-22.725	0.300	-22.725	22.727	179.242	0.096
3100.000	2.330	236.593	3099.530	-25.031	-3.034	-25.031	25.214	186.912	0.103
3200.000	2.440	251.785	3199.445	-26.816	-6.753	-26.816	27.653	194.135	0.640
3300.000	2.275	266.301	3299.361	-27.609	-10.756	-27.609	29.631	201.285	0.618

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	1.850	285.208	3399.297	-27.314	-14.294	-27.314	30.828	207.625	0.797
3500.000	1.687	312.340	3499.251	-25.899	-16.940	-25.899	30.947	213.187	0.844
3600.000	1.730	331.989	3599.207	-23.575	-18.737	-23.575	30.114	218.476	0.585
3700.000	1.772	339.500	3699.161	-20.794	-19.987	-20.794	28.842	223.867	0.233
3800.000	1.277	353.453	3799.125	-18.238	-20.656	-18.238	27.555	228.557	0.616
3900.000	1.139	0.810	3899.103	-16.138	-20.769	-16.138	26.302	232.152	0.207
4000.000	1.019	313.346	3999.087	-14.534	-21.402	-14.534	25.870	235.819	0.875
4100.000	0.991	320.930	4099.072	-13.252	-22.594	-13.252	26.193	239.607	0.136
4200.000	1.254	334.562	4199.053	-11.592	-23.609	-11.592	26.301	243.849	0.373
4300.000	1.838	356.099	4299.017	-9.004	-24.188	-9.004	25.810	249.582	0.814
4400.000	2.296	2.608	4398.952	-5.404	-24.206	-5.404	24.802	257.416	0.514
4500.000	2.192	4.390	4498.875	-1.496	-23.968	-1.496	24.015	266.428	0.125
4600.000	2.142	3.892	4598.804	2.275	-23.695	2.275	23.804	275.485	0.053
4700.000	2.074	2.243	4698.736	5.948	-23.498	5.948	24.239	284.205	0.091
4800.000	1.956	12.198	4798.674	9.424	-23.066	9.424	24.917	292.223	0.369
4900.000	2.179	16.966	4898.609	12.910	-22.151	12.910	25.638	300.235	0.281
5000.000	2.228	43.036	4998.538	16.149	-20.270	16.149	25.916	308.545	0.995
5100.000	2.243	66.229	5098.464	18.359	-17.152	18.359	25.124	316.947	0.899
5200.000	1.743	55.952	5198.403	19.999	-14.100	19.999	24.470	324.815	0.613
5300.000	1.432	37.133	5298.365	21.847	-12.086	21.847	24.967	331.049	0.603
5400.000	1.568	10.012	5398.332	24.191	-11.093	24.191	26.613	335.364	0.716
5500.000	1.701	12.660	5498.292	26.986	-10.530	26.986	28.968	338.684	0.153
5600.000	1.538	15.943	5598.252	29.724	-9.836	29.724	31.310	341.689	0.188
5700.000	1.086	7.847	5698.225	31.953	-9.339	31.953	33.290	343.708	0.488
5800.000	0.537	2.837	5798.215	33.359	-9.186	33.359	34.601	344.604	0.553
5900.000	0.512	331.817	5898.211	34.221	-9.374	34.221	35.481	344.681	0.281
6000.000	0.748	357.713	5998.205	35.267	-9.611	35.267	36.553	344.755	0.364
6100.000	0.523	325.049	6098.199	36.293	-9.899	36.293	37.619	344.744	0.418
6200.000	0.816	349.372	6198.192	37.368	-10.292	37.368	38.759	344.601	0.402
6300.000	1.531	15.245	6298.171	39.357	-10.072	39.357	40.625	345.646	0.873
6400.000	1.437	24.062	6398.138	41.791	-9.209	41.791	42.794	347.573	0.247
6500.000	1.507	4.035	6498.106	44.248	-8.606	44.248	45.077	348.994	0.516
6600.000	1.370	21.073	6598.075	46.674	-8.083	46.674	47.369	350.175	0.447
6700.000	0.755	342.381	6698.058	48.417	-7.853	48.417	49.050	350.787	0.912
6800.000	0.722	337.405	6798.050	49.626	-8.294	49.626	50.314	350.512	0.072
6900.000	0.786	284.907	6898.042	50.384	-9.199	50.384	51.217	349.653	0.669
7000.000	0.737	254.836	6998.034	50.392	-10.483	50.392	51.471	348.249	0.398
7100.000	0.642	225.954	7098.027	49.834	-11.506	49.834	51.145	346.999	0.356
7200.000	0.492	193.254	7198.022	49.027	-12.007	49.027	50.476	346.238	0.350
7300.000	0.494	179.577	7298.019	48.179	-12.103	48.179	49.676	345.899	0.117
7400.000	0.796	218.682	7398.013	47.206	-12.533	47.206	48.842	345.131	0.517
7500.000	0.830	214.698	7498.003	46.069	-13.380	46.069	47.972	343.805	0.066
HORIZONTAL DISPLACEMENT IS 47.972 FEET AT 343.805 DEGREES									