

Company: Anadarko Petroleum Corp.
 Well/API: HSR-Scottsdale Ranches 13-35/05-123-18893
 Tool Type: North Seeking Rate Gyro
 Rig Name: Production/CoreTech
 County/State: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.26649, Longitude: -104.86544
 All Azimuths referenced to True North
 No Grid Correction Applied



MS Gyro Survey Calculations

Depth Reference : RKB = GL Elevation = 4737
 DRILLOG MS GYRO SURVEY CALCULATIONS
 Filename: msgyrosurvey.ut
 Handheld GPS Reference: NAD83/Device Error: ±9 Feet
 VES Survey International - 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	0.276	199.270	100.000	-0.228	-0.080	-0.228	0.241	199.270	0.276
200.000	0.167	134.132	199.999	-0.557	-0.055	-0.557	0.559	185.605	0.256
300.000	0.256	138.147	299.998	-0.825	0.199	-0.825	0.848	166.426	0.091
400.000	0.284	178.017	399.997	-1.239	0.357	-1.239	1.289	163.927	0.186
500.000	0.568	200.643	499.994	-1.950	0.191	-1.950	1.959	174.415	0.325
600.000	0.590	230.118	599.990	-2.744	-0.379	-2.744	2.771	187.870	0.295
700.000	0.688	238.195	699.983	-3.391	-1.285	-3.391	3.626	200.750	0.133
800.000	0.595	303.841	799.978	-3.418	-2.226	-3.418	4.079	213.070	0.700
900.000	0.640	303.188	899.973	-2.824	-3.124	-2.824	4.211	227.891	0.046
1000.000	0.634	307.180	999.966	-2.184	-4.032	-2.184	4.586	241.557	0.045
1100.000	0.662	305.811	1099.960	-1.512	-4.941	-1.512	5.167	252.987	0.032
1200.000	0.818	241.795	1199.953	-1.511	-6.039	-1.511	6.225	255.950	0.796
1300.000	0.758	280.997	1299.944	-1.722	-7.317	-1.722	7.517	256.754	0.532
1400.000	0.698	290.778	1399.936	-1.380	-8.536	-1.380	8.647	260.817	0.138
1500.000	0.656	297.410	1499.929	-0.900	-9.614	-0.900	9.656	264.652	0.089
1600.000	0.622	286.232	1599.923	-0.485	-10.644	-0.485	10.655	267.393	0.129
1700.000	0.818	271.688	1699.915	-0.312	-11.879	-0.312	11.883	268.496	0.267
1800.000	1.062	245.792	1799.902	-0.671	-13.437	-0.671	13.454	267.142	0.483
1900.000	1.126	256.603	1899.884	-1.278	-15.238	-1.278	15.291	265.205	0.216
2000.000	1.121	259.974	1999.865	-1.676	-17.157	-1.676	17.239	264.420	0.066
2100.000	1.170	263.273	2099.845	-1.966	-19.134	-1.966	19.235	264.133	0.082
2200.000	1.068	250.280	2199.826	-2.400	-21.025	-2.400	21.161	263.488	0.273
2300.000	1.203	249.558	2299.806	-3.081	-22.885	-3.081	23.092	262.333	0.136

2400.000	1.231	253.346	2399.784	-3.756	-24.898	-3.756	25.180	261.423	0.085
2500.000	1.168	252.249	2499.762	-4.374	-26.899	-4.374	27.252	260.763	0.067
2600.000	1.281	252.845	2599.739	-5.015	-28.938	-5.015	29.369	260.169	0.113
2700.000	1.396	259.412	2699.712	-5.568	-31.203	-5.568	31.696	259.882	0.192
2800.000	1.563	264.314	2799.678	-5.927	-33.757	-5.927	34.274	260.041	0.210
2900.000	1.624	268.097	2899.640	-6.109	-36.531	-6.109	37.038	260.506	0.121
3000.000	1.559	267.421	2999.601	-6.218	-39.305	-6.218	39.794	261.011	0.068
3100.000	1.194	274.972	3099.572	-6.189	-41.702	-6.189	42.159	261.559	0.406
3200.000	0.912	311.306	3199.556	-5.573	-43.338	-5.573	43.695	262.672	0.709
3300.000	1.151	331.330	3299.540	-4.167	-44.417	-4.167	44.612	264.641	0.429
3400.000	1.187	28.134	3399.523	-2.372	-44.411	-2.372	44.474	266.942	1.112
3500.000	0.917	31.359	3499.506	-0.775	-43.505	-0.775	43.512	268.980	0.276
3600.000	0.820	15.303	3599.494	0.599	-42.900	0.599	42.904	270.800	0.261
3700.000	0.752	319.730	3699.486	1.791	-43.135	1.791	43.172	272.377	0.736
3800.000	0.595	314.994	3799.479	2.659	-43.927	2.659	44.007	273.464	0.167
3900.000	0.356	290.547	3899.476	3.135	-44.585	3.135	44.695	274.022	0.309
4000.000	0.737	222.476	3999.472	2.770	-45.309	2.770	45.394	273.498	0.688
4100.000	0.913	218.065	4099.462	1.668	-46.235	1.668	46.265	272.066	0.187
4200.000	0.957	224.381	4199.448	0.444	-47.310	0.444	47.312	270.538	0.112
4300.000	0.807	265.688	4299.438	-0.206	-48.596	-0.206	48.597	269.757	0.638
4400.000	1.271	316.315	4399.423	0.543	-50.065	0.543	50.068	270.622	0.982
4500.000	1.549	336.444	4499.393	2.584	-51.371	2.584	51.436	272.880	0.564
4600.000	1.456	18.284	4599.361	5.030	-51.513	5.030	51.758	275.577	1.077
4700.000	4.093	177.714	4699.294	2.668	-50.971	2.668	51.041	272.997	5.480
4800.000	9.706	176.851	4798.530	-9.325	-50.365	-9.325	51.221	259.511	5.614
4900.000	14.325	175.613	4896.313	-30.088	-48.955	-30.088	57.462	238.425	4.626
5000.000	18.605	173.599	4992.191	-58.289	-46.229	-58.289	74.396	218.418	4.318
5100.000	23.572	172.471	5085.464	-93.987	-41.828	-93.987	102.875	203.991	4.983
5200.000	29.406	171.222	5174.928	-138.111	-35.456	-138.111	142.589	194.398	5.860
5300.000	33.274	172.567	5260.323	-189.595	-28.158	-189.595	191.674	188.448	3.930
5400.000	35.194	169.358	5343.000	-245.128	-19.286	-245.128	245.885	184.499	2.635
5500.000	40.493	170.863	5421.943	-305.549	-8.801	-305.549	305.676	181.650	5.378
5600.000	46.161	171.137	5494.659	-373.294	1.920	-373.294	373.299	179.705	5.671
5700.000	46.523	171.161	5563.694	-444.779	13.052	-444.779	444.971	178.319	0.363
5800.000	47.048	172.435	5632.168	-516.911	23.446	-516.911	517.442	177.403	1.067
5900.000	46.128	172.953	5700.892	-588.963	32.686	-588.963	589.869	176.823	0.995
6000.000	44.551	173.541	5771.181	-659.594	41.055	-659.594	660.870	176.438	1.631
6100.000	41.878	172.114	5844.055	-727.524	49.582	-727.524	729.212	176.101	2.846
6200.000	39.549	171.129	5919.849	-792.051	59.073	-792.051	794.251	175.735	2.417
6300.000	34.524	171.550	5999.649	-851.575	68.152	-851.575	854.298	175.424	5.031
6400.000	29.359	168.045	6084.486	-903.627	77.401	-903.627	906.936	175.104	5.487
6500.000	24.212	167.984	6173.727	-947.695	86.755	-947.695	951.658	174.770	5.147
6600.000	21.780	169.708	6265.774	-986.012	94.339	-986.012	990.515	174.535	2.523

6700.000	18.408	170.498	6359.674	-1019.850	100.262	-1019.850	1024.764	174.385	3.383
6800.000	15.980	171.247	6455.198	-1049.030	104.964	-1049.030	1054.267	174.286	2.438
6900.000	10.725	172.644	6552.461	-1071.880	108.252	-1071.880	1077.330	174.233	5.264
7000.000	5.400	174.367	6651.437	-1085.800	109.906	-1085.800	1091.347	174.220	5.330
7100.000	2.621	184.246	6751.183	-1092.760	110.199	-1092.760	1098.305	174.242	2.854
7200.000	1.803	189.662	6851.108	-1096.590	109.766	-1096.590	1102.073	174.284	0.844
7300.000	1.301	190.722	6951.071	-1099.260	109.291	-1099.260	1104.680	174.322	0.502
7400.000	1.084	191.249	7051.049	-1101.300	108.895	-1101.300	1106.674	174.353	0.218

HORIZONTAL DISPLACEMENT IS
1106.674 FEET AT 174.353 DEGREES