



Company: Anadarko Petroleum Corp.  
 Well/API: PSC 16-9 X/ 05-123-21553  
 Tool Type: North Seeking Rate Gyro  
 Rig Name: Production/ Summit  
 County/State: Weld / Colorado  
 VS-Azi: 0.000 Degrees  
 Latitude: 40.23393, Longitude: -104.88673  
 All Azimuths referenced to True North  
 No Grid Convergence Applied



Depth Reference : RKB = GL Elevation = 4771'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run2-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 2/5/2016 / 09:52

Lat/Long Obtained By Handheld GPS At Wellhead  
 Handheld GPS Reference: NAD83/Device Error: ±9 Feet  
 VES Survey International - Commerce City, CO  
 Surveyor: Jay Hinman / PSC 16-9 X  
 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	0.468	242.648	99.999	-0.188	-0.363	-0.188	0.408	242.648	0.468
200.000	0.683	308.065	199.995	-0.008	-1.194	-0.008	1.194	269.630	0.648
300.000	0.987	311.328	299.984	0.929	-2.310	0.929	2.490	291.895	0.308
400.000	1.351	318.054	399.963	2.375	-3.746	2.375	4.435	302.373	0.389
500.000	2.409	305.818	499.908	4.482	-6.238	4.482	7.681	305.695	1.125
600.000	2.664	293.807	599.811	6.650	-10.069	6.650	12.066	303.442	0.588
700.000	2.359	310.260	699.716	8.918	-13.766	8.918	16.402	302.937	0.779
800.000	2.647	291.776	799.622	11.105	-17.481	11.105	20.710	302.426	0.853
900.000	2.588	298.792	899.518	13.049	-21.604	13.049	25.238	301.132	0.326
1000.000	2.936	294.753	999.402	15.208	-25.908	15.208	30.042	300.414	0.399
1100.000	2.668	296.735	1099.282	17.328	-30.312	17.328	34.915	299.754	0.285
1200.000	2.502	300.510	1199.180	19.483	-34.271	19.483	39.421	299.618	0.238
1300.000	2.325	300.600	1299.092	21.623	-37.897	21.623	43.632	299.708	0.177
1400.000	2.182	298.395	1399.014	23.561	-41.317	23.561	47.563	299.694	0.167
1500.000	2.075	295.458	1498.945	25.245	-44.627	25.245	51.272	299.496	0.153
1600.000	1.898	300.551	1598.885	26.864	-47.688	26.864	54.734	299.394	0.250
1700.000	1.800	297.191	1698.833	28.424	-50.511	28.424	57.959	299.368	0.146
1800.000	1.690	291.324	1798.787	29.678	-53.282	29.678	60.990	299.118	0.210

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	1.674	284.214	1898.744	30.573	-56.072	30.573	63.865	298.601	0.209
2000.000	1.482	277.573	1998.706	31.102	-58.770	31.102	66.492	297.889	0.265
2100.000	1.545	269.580	2098.671	31.263	-61.400	31.263	68.900	296.984	0.220
2200.000	1.723	264.761	2198.631	31.115	-64.245	31.115	71.383	295.842	0.225
2300.000	1.602	249.090	2298.589	30.479	-67.048	30.479	73.651	294.446	0.469
2400.000	2.156	254.843	2398.535	29.488	-70.170	29.488	76.114	292.794	0.584
2500.000	2.252	268.540	2498.462	28.946	-73.950	28.946	79.414	291.377	0.534
2600.000	3.104	279.584	2598.352	29.347	-78.585	29.347	83.886	290.478	0.992
2700.000	3.898	288.477	2698.165	30.875	-84.479	30.875	89.944	290.076	0.960
2800.000	5.581	290.520	2797.820	33.657	-92.258	33.657	98.206	290.043	1.691
2900.000	6.291	292.307	2897.283	37.442	-101.882	37.442	108.544	290.179	0.733
3000.000	6.920	294.933	2996.619	42.061	-112.413	42.061	120.025	290.514	0.697
3100.000	7.193	293.267	3095.862	47.074	-123.628	47.074	132.286	290.845	0.342
3200.000	7.298	294.178	3195.063	52.148	-135.173	52.148	144.883	291.096	0.155
3300.000	7.924	295.812	3294.182	57.751	-147.173	57.751	158.098	291.425	0.663
3400.000	7.925	293.023	3393.227	63.448	-159.723	63.448	171.864	291.665	0.384
3500.000	7.413	290.998	3492.333	68.456	-172.091	68.456	185.206	291.692	0.579
3600.000	7.388	289.336	3591.500	72.896	-184.179	72.896	198.081	291.593	0.215
3700.000	8.528	297.943	3690.539	78.500	-196.797	78.500	211.876	291.747	1.646
3800.000	8.492	295.492	3789.438	85.152	-210.012	85.152	226.618	292.071	0.364
3900.000	7.280	292.018	3888.491	90.706	-222.551	90.706	240.326	292.174	1.301
4000.000	6.749	289.342	3987.742	95.027	-233.970	95.027	252.531	292.105	0.624
4100.000	7.209	292.093	4087.001	99.334	-245.328	99.334	264.675	292.043	0.569
4200.000	7.256	290.336	4186.206	103.888	-257.064	103.888	277.263	292.005	0.226
4300.000	7.348	295.082	4285.396	108.794	-268.778	108.794	289.962	292.037	0.610
4400.000	7.585	296.404	4384.548	114.440	-280.482	114.440	302.930	292.196	0.293
4500.000	7.064	297.929	4483.731	120.255	-291.826	120.255	315.633	292.396	0.556
4600.000	7.395	299.593	4582.936	126.314	-302.855	126.314	328.141	292.640	0.392
4700.000	7.055	297.819	4682.142	132.358	-313.883	132.358	340.648	292.864	0.406
4800.000	6.920	296.644	4781.399	137.925	-324.699	137.925	352.779	293.015	0.197
4900.000	6.800	296.625	4880.683	143.280	-335.377	143.280	364.701	293.133	0.120
5000.000	7.392	292.899	4979.918	148.437	-346.596	148.437	377.044	293.184	0.749
5100.000	7.273	292.734	5079.100	153.386	-358.359	153.386	389.806	293.172	0.121
5200.000	10.345	299.562	5177.911	160.264	-372.011	160.264	405.063	293.307	3.240
5300.000	9.234	312.034	5276.465	170.067	-385.782	170.067	421.605	293.790	2.387
5400.000	7.628	332.518	5375.403	181.331	-394.806	181.331	434.457	294.669	3.380
5500.000	5.728	351.485	5474.732	192.156	-398.609	192.156	442.508	295.737	2.887
5600.000	5.544	14.796	5574.262	201.763	-398.114	201.763	446.322	296.876	2.281
5700.000	5.880	20.477	5673.766	211.231	-395.089	211.231	448.011	298.131	0.658
5800.000	5.381	21.218	5773.283	220.401	-391.600	220.401	449.363	299.372	0.505

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	5.001	23.529	5872.873	228.768	-388.163	228.768	450.561	300.513	0.433
6000.000	5.251	25.947	5972.473	236.879	-384.421	236.879	451.543	301.641	0.331
6100.000	4.535	20.408	6072.108	244.700	-381.040	244.700	452.846	302.708	0.857
6200.000	5.443	8.692	6171.731	253.094	-378.944	253.094	455.692	303.739	1.360
6300.000	5.400	10.933	6271.284	262.403	-377.335	262.403	459.605	304.815	0.216
6400.000	4.893	14.822	6370.881	271.145	-375.352	271.145	463.043	305.843	0.615
6500.000	4.273	14.353	6470.560	278.877	-373.337	278.877	465.997	306.759	0.620
6600.000	3.817	12.775	6570.311	285.732	-371.678	285.732	468.815	307.552	0.470
6700.000	3.284	19.825	6670.119	291.673	-369.970	291.673	471.117	308.251	0.688
6800.000	3.005	17.098	6769.969	296.873	-368.228	296.873	472.996	308.876	0.317
6900.000	2.631	8.869	6869.848	301.646	-367.104	301.646	475.137	309.410	0.550
7000.000	2.281	359.051	6969.756	305.903	-366.783	305.903	477.605	309.829	0.546