



Company: Anadarko Petroleum Corp.
 Well/API: State L 16-3/05-123-14834
 Tool Type: North Seeking Rate Gyro
 Rig Name: Workover/Warrior
 County/State: Weld/Colorado
 VS-Azi: 0.000 Degrees
 Latitude: 40.23030, Longitude: -104.78485
 All Azimuths referenced to True North
 No Grid Convergence Applied



Depth Reference : RKB= GL Elevation= 4876 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: eline gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 2/5/2016 / 10:14

Lat/Long Obtained by Handheld GPS at Wellhead

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

VES Survey International- Henderson Co

Surveyor: Geof Davis / State L 16-3

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 | 0.175 | 2.439 | 100.000 | 0.152 | 0.006 | 0.152 | 0.152 | 2.439 | 0.175 |
| 200.000 | 0.239 | 136.569 | 200.000 | 0.153 | 0.156 | 0.153 | 0.219 | 45.493 | 0.381 |
| 300.000 | 0.141 | 109.220 | 299.999 | -0.038 | 0.415 | -0.038 | 0.417 | 95.249 | 0.131 |
| 400.000 | 0.102 | 28.601 | 399.999 | 0.000 | 0.574 | 0.000 | 0.574 | 90.034 | 0.160 |
| 500.000 | 0.571 | 213.077 | 499.997 | -0.340 | 0.344 | -0.340 | 0.484 | 134.635 | 0.673 |
| 600.000 | 0.780 | 256.853 | 599.991 | -0.912 | -0.591 | -0.912 | 1.087 | 212.931 | 0.540 |
| 700.000 | 0.648 | 273.234 | 699.983 | -1.035 | -1.818 | -1.035 | 2.092 | 240.341 | 0.242 |
| 800.000 | 0.317 | 272.357 | 799.980 | -0.992 | -2.659 | -0.992 | 2.838 | 249.537 | 0.331 |
| 900.000 | 0.646 | 236.195 | 899.976 | -1.295 | -3.404 | -1.295 | 3.642 | 249.177 | 0.433 |
| 1000.000 | 0.840 | 272.355 | 999.968 | -1.578 | -4.605 | -1.578 | 4.868 | 251.081 | 0.496 |
| 1100.000 | 0.366 | 303.348 | 1099.963 | -1.372 | -5.604 | -1.372 | 5.769 | 256.238 | 0.558 |
| 1200.000 | 0.536 | 261.948 | 1199.960 | -1.262 | -6.334 | -1.262 | 6.458 | 258.729 | 0.356 |
| 1300.000 | 0.777 | 270.019 | 1299.953 | -1.328 | -7.474 | -1.328 | 7.591 | 259.929 | 0.257 |
| 1400.000 | 0.751 | 274.331 | 1399.944 | -1.278 | -8.806 | -1.278 | 8.898 | 261.743 | 0.063 |
| 1500.000 | 0.588 | 258.330 | 1499.938 | -1.332 | -9.962 | -1.332 | 10.050 | 262.383 | 0.247 |
| 1600.000 | 0.481 | 260.097 | 1599.933 | -1.508 | -10.878 | -1.508 | 10.982 | 262.107 | 0.108 |
| 1700.000 | 0.399 | 259.403 | 1699.930 | -1.644 | -11.634 | -1.644 | 11.749 | 261.955 | 0.083 |
| 1800.000 | 0.664 | 280.515 | 1799.926 | -1.603 | -12.546 | -1.603 | 12.648 | 262.721 | 0.325 |

| 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 | 0.746 | 302.050 | 1899.919 | -1.151 | -13.668 | -1.151 | 13.716 | 265.185 | 0.276 |
| 2000.000 | 1.011 | 309.224 | 1999.907 | -0.248 | -14.904 | -0.248 | 14.906 | 269.048 | 0.287 |
| 2100.000 | 0.863 | 306.811 | 2099.893 | 0.762 | -16.191 | 0.762 | 16.209 | 272.694 | 0.153 |
| 2200.000 | 1.076 | 331.050 | 2199.879 | 2.035 | -17.248 | 2.035 | 17.368 | 276.727 | 0.457 |
| 2300.000 | 1.119 | 325.373 | 2299.861 | 3.659 | -18.257 | 3.659 | 18.620 | 281.333 | 0.117 |
| 2400.000 | 1.182 | 323.834 | 2399.841 | 5.295 | -19.421 | 5.295 | 20.130 | 285.252 | 0.070 |
| 2500.000 | 1.147 | 318.530 | 2499.820 | 6.878 | -20.692 | 6.878 | 21.805 | 288.387 | 0.113 |
| 2600.000 | 1.160 | 332.739 | 2599.800 | 8.528 | -21.819 | 8.528 | 23.426 | 291.348 | 0.286 |
| 2700.000 | 1.043 | 329.514 | 2699.782 | 10.212 | -22.744 | 10.212 | 24.931 | 294.180 | 0.132 |
| 2800.000 | 0.810 | 322.205 | 2799.769 | 11.555 | -23.639 | 11.555 | 26.312 | 296.049 | 0.262 |
| 2900.000 | 0.806 | 321.961 | 2899.759 | 12.667 | -24.505 | 12.667 | 27.585 | 297.335 | 0.005 |
| 3000.000 | 0.918 | 315.911 | 2999.747 | 13.796 | -25.496 | 13.796 | 28.989 | 298.418 | 0.144 |
| 3100.000 | 0.703 | 300.964 | 3099.737 | 14.687 | -26.580 | 14.687 | 30.368 | 298.924 | 0.300 |
| 3200.000 | 1.063 | 313.415 | 3199.725 | 15.641 | -27.780 | 15.641 | 31.880 | 299.381 | 0.406 |
| 3300.000 | 0.582 | 334.622 | 3299.715 | 16.737 | -28.671 | 16.737 | 33.199 | 300.275 | 0.561 |
| 3400.000 | 0.810 | 308.166 | 3399.708 | 17.633 | -29.445 | 17.633 | 34.321 | 300.915 | 0.388 |
| 3500.000 | 0.816 | 319.951 | 3499.698 | 18.615 | -30.459 | 18.615 | 35.697 | 301.431 | 0.167 |
| 3600.000 | 1.406 | 336.113 | 3599.679 | 20.282 | -31.414 | 20.282 | 37.392 | 302.848 | 0.662 |
| 3700.000 | 1.714 | 349.819 | 3699.642 | 22.875 | -32.175 | 22.875 | 39.478 | 305.411 | 0.482 |
| 3800.000 | 1.452 | 344.685 | 3799.604 | 25.569 | -32.774 | 25.569 | 41.568 | 307.960 | 0.297 |
| 3900.000 | 2.043 | 353.558 | 3899.557 | 28.563 | -33.309 | 28.563 | 43.878 | 310.614 | 0.648 |
| 4000.000 | 1.856 | 1.499 | 3999.499 | 31.953 | -33.466 | 31.953 | 46.271 | 313.675 | 0.328 |
| 4100.000 | 1.708 | 9.225 | 4099.451 | 35.042 | -33.185 | 35.042 | 48.262 | 316.559 | 0.282 |
| 4200.000 | 1.877 | 17.167 | 4199.402 | 38.078 | -32.463 | 38.078 | 50.037 | 319.551 | 0.300 |
| 4300.000 | 2.089 | 12.983 | 4299.342 | 41.419 | -31.570 | 41.419 | 52.079 | 322.685 | 0.257 |
| 4400.000 | 2.225 | 16.621 | 4399.271 | 45.055 | -30.605 | 45.055 | 54.467 | 325.813 | 0.193 |
| 4500.000 | 3.088 | 26.902 | 4499.164 | 49.317 | -28.831 | 49.317 | 57.126 | 329.689 | 0.982 |
| 4600.000 | 3.300 | 28.424 | 4599.008 | 54.250 | -26.243 | 54.250 | 60.264 | 334.185 | 0.228 |
| 4700.000 | 3.204 | 18.173 | 4698.848 | 59.436 | -24.001 | 59.436 | 64.099 | 338.010 | 0.589 |
| 4800.000 | 2.939 | 13.931 | 4798.705 | 64.579 | -22.513 | 64.579 | 68.390 | 340.781 | 0.349 |
| 4900.000 | 2.696 | 16.879 | 4898.584 | 69.317 | -21.213 | 69.317 | 72.490 | 342.985 | 0.282 |
| 5000.000 | 2.132 | 21.420 | 4998.495 | 73.299 | -19.850 | 73.299 | 75.940 | 344.847 | 0.596 |
| 5100.000 | 1.885 | 17.200 | 5098.433 | 76.602 | -18.685 | 76.602 | 78.848 | 346.292 | 0.288 |
| 5200.000 | 1.614 | 23.487 | 5198.387 | 79.464 | -17.638 | 79.464 | 81.398 | 347.486 | 0.332 |
| 5300.000 | 1.347 | 39.882 | 5298.354 | 81.657 | -16.323 | 81.657 | 83.273 | 348.696 | 0.498 |
| 5400.000 | 0.738 | 53.178 | 5398.337 | 82.946 | -15.053 | 82.946 | 84.300 | 349.714 | 0.652 |
| 5500.000 | 0.370 | 24.870 | 5498.332 | 83.624 | -14.402 | 83.624 | 84.855 | 350.228 | 0.448 |
| 5600.000 | 0.708 | 48.159 | 5598.328 | 84.329 | -13.806 | 84.329 | 85.452 | 350.702 | 0.396 |
| 5700.000 | 0.459 | 74.685 | 5698.322 | 84.847 | -12.960 | 84.847 | 85.831 | 351.316 | 0.361 |
| 5800.000 | 0.306 | 84.015 | 5798.320 | 84.980 | -12.308 | 84.980 | 85.867 | 351.759 | 0.164 |

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|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 5900.000 | 0.805 | 324.376 | 5898.317 | 85.579 | -12.451 | 85.579 | 86.480 | 351.722 | 0.992 |
| 6000.000 | 0.556 | 323.592 | 5998.310 | 86.540 | -13.148 | 86.540 | 87.533 | 351.361 | 0.249 |
| 6100.000 | 0.746 | 354.513 | 6098.304 | 87.578 | -13.498 | 87.578 | 88.612 | 351.238 | 0.392 |
| 6200.000 | 0.437 | 9.193 | 6198.298 | 88.602 | -13.499 | 88.602 | 89.625 | 351.337 | 0.341 |
| 6300.000 | 0.444 | 9.754 | 6298.295 | 89.361 | -13.372 | 89.361 | 90.356 | 351.489 | 0.008 |
| 6400.000 | 1.300 | 21.850 | 6398.283 | 90.796 | -12.884 | 90.796 | 91.706 | 351.923 | 0.871 |
| 6500.000 | 1.401 | 353.229 | 6498.256 | 93.064 | -12.606 | 93.064 | 93.914 | 352.286 | 0.675 |
| 6600.000 | 1.538 | 313.813 | 6598.226 | 95.207 | -13.719 | 95.207 | 96.190 | 351.801 | 0.999 |
| 6700.000 | 2.583 | 280.688 | 6698.163 | 96.554 | -16.902 | 96.554 | 98.022 | 350.071 | 1.544 |
| 6800.000 | 3.019 | 266.825 | 6798.044 | 96.826 | -21.746 | 96.826 | 99.238 | 347.342 | 0.802 |
| 6900.000 | 3.145 | 255.527 | 6897.901 | 95.995 | -27.032 | 95.995 | 99.728 | 344.273 | 0.619 |
| 7000.000 | 2.631 | 240.738 | 6997.775 | 94.187 | -31.691 | 94.187 | 99.376 | 341.404 | 0.901 |
| 7100.000 | 1.760 | 232.424 | 7097.701 | 92.128 | -34.911 | 92.128 | 98.521 | 339.247 | 0.926 |
| 7200.000 | 1.716 | 214.990 | 7197.655 | 89.965 | -36.986 | 89.965 | 97.272 | 337.652 | 0.529 |
| 7300.000 | 1.148 | 197.034 | 7297.624 | 87.781 | -38.138 | 87.781 | 95.708 | 336.516 | 0.717 |
| 7400.000 | 0.435 | 175.191 | 7397.614 | 86.444 | -38.400 | 86.444 | 94.589 | 336.048 | 0.762 |
| 7440.000 | 0.817 | 153.195 | 7437.612 | 86.038 | -38.259 | 86.038 | 94.161 | 336.027 | 1.111 |