

GyroTracer Directional:

Date: 10/15/2018
 Operator : Adrian Bruner
 API: 05-123-24274
 Well Name: **Monfort E 31-27**
 Field : Noble Energy Inc
 Tool Type And Number: 1717
 Bottom Depth : 7250.00
 Total Well Depth: 7502.00
 Latitude : 40.45548 N
 Longitude : 104.70199 W
 Grid Offset : 0.52

**Starting Point Coordinates (in local grid):**

Northing: 0.00 Easting: 0.00 Altitude: 4711.00

Description:

Azimuth measured in degrees and referenced to local grid

Inclination measured from Vertical

Length measured in US survey feet

Start Time: 10/15/2018 11:28

End Time: 10/15/2018 13:25

| Depth | Inclination | Azimuth | Closure Direction | True Depth | Coordinates | | Dogleg Severity | Closure Distance |
|----------|-------------|---------|----------------------|------------|-------------|--------|--------------------|---------------------|
| | | | | | +N/-S | +E/-W | | |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 100.000 | 0.230 | 334.183 | 318.945 | 100.000 | 0.310 | -0.270 | 0.230 | 0.411 |
| 200.000 | 0.178 | 315.101 | 321.355 | 199.999 | 0.599 | -0.479 | 0.089 | 0.767 |
| 300.000 | 0.203 | 298.196 | 314.497 | 299.997 | 0.924 | -0.941 | 0.197 | 1.319 |
| 400.000 | 0.271 | 310.882 | 312.428 | 399.995 | 1.258 | -1.377 | 0.042 | 1.865 |
| 500.000 | 0.490 | 251.854 | 308.901 | 499.994 | 1.498 | -1.857 | 0.449 | 2.386 |
| 600.000 | 0.791 | 233.251 | 285.405 | 599.985 | 0.809 | -2.936 | 0.343 | 3.046 |
| 700.000 | 0.997 | 225.589 | 268.018 | 699.975 | -0.138 | -3.975 | 0.245 | 3.977 |
| 800.000 | 0.867 | 231.139 | 256.940 | 799.964 | -1.168 | -5.034 | 0.147 | 5.167 |
| 900.000 | 0.827 | 235.248 | 249.613 | 899.951 | -2.281 | -6.137 | 0.053 | 6.547 |
| 1000.000 | 1.128 | 221.532 | 244.024 | 999.939 | -3.470 | -7.122 | 0.222 | 7.923 |
| 1100.000 | 0.866 | 208.964 | 239.090 | 1099.926 | -4.800 | -8.018 | 0.127 | 9.345 |
| 1200.000 | 0.860 | 208.147 | 234.946 | 1199.913 | -6.146 | -8.760 | 0.197 | 10.701 |
| 1300.000 | 1.679 | 155.436 | 228.983 | 1299.896 | -7.812 | -8.981 | 1.332 | 11.903 |
| 1400.000 | 3.592 | 149.935 | 210.160 | 1399.782 | -12.018 | -6.983 | 1.956 | 13.899 |
| 1500.000 | 5.510 | 158.690 | 191.454 | 1499.456 | -19.403 | -3.931 | 2.001 | 19.797 |
| 1600.000 | 6.840 | 150.489 | 179.087 | 1598.884 | -29.101 | 0.464 | 1.591 | 29.105 |
| 1700.000 | 7.807 | 149.820 | 170.451 | 1698.088 | -40.020 | 6.732 | 0.957 | 40.582 |
| 1800.000 | 9.418 | 158.190 | 165.825 | 1796.993 | -53.140 | 13.421 | 2.046 | 54.809 |
| 1900.000 | 10.990 | 166.266 | 164.953 | 1895.463 | -69.704 | 18.738 | 2.129 | 72.179 |
| 2000.000 | 13.082 | 170.864 | 165.736 | 1993.250 | -90.168 | 22.923 | 2.266 | 93.036 |
| 2100.000 | 15.305 | 175.933 | 167.407 | 2090.272 | -114.214 | 25.516 | 2.547 | 117.030 |
| 2200.000 | 18.020 | 174.603 | 169.109 | 2186.135 | -142.579 | 27.433 | 2.744 | 145.194 |
| 2300.000 | 19.790 | 171.184 | 169.744 | 2280.673 | -174.884 | 31.644 | 2.073 | 177.724 |

| | | | | | | | | |
|----------|--------|---------|---------|----------|-----------|---------|-------|----------|
| 2400.000 | 20.190 | 170.645 | 169.921 | 2374.543 | -208.912 | 37.135 | 0.440 | 212.187 |
| 2500.000 | 20.640 | 170.658 | 170.018 | 2468.257 | -243.339 | 42.830 | 0.449 | 247.080 |
| 2600.000 | 20.552 | 172.456 | 170.206 | 2561.844 | -278.189 | 48.023 | 0.643 | 282.304 |
| 2700.000 | 20.500 | 173.043 | 170.476 | 2655.452 | -313.077 | 52.525 | 0.212 | 317.452 |
| 2800.000 | 21.040 | 174.239 | 170.781 | 2748.980 | -348.241 | 56.524 | 0.690 | 352.798 |
| 2900.000 | 20.743 | 174.173 | 171.102 | 2842.337 | -383.899 | 60.102 | 0.311 | 388.575 |
| 3000.000 | 20.254 | 174.009 | 171.341 | 2936.109 | -418.446 | 63.726 | 0.524 | 423.270 |
| 3100.000 | 20.810 | 173.431 | 171.522 | 3029.793 | -453.211 | 67.559 | 0.585 | 458.219 |
| 3200.000 | 19.099 | 171.403 | 171.588 | 3123.675 | -487.338 | 72.067 | 1.860 | 492.638 |
| 3300.000 | 18.920 | 171.745 | 171.580 | 3218.389 | -519.063 | 76.836 | 0.208 | 524.719 |
| 3400.000 | 19.030 | 173.211 | 171.617 | 3312.929 | -551.352 | 81.247 | 0.505 | 557.307 |
| 3500.000 | 18.913 | 173.657 | 171.742 | 3407.389 | -583.979 | 84.760 | 0.173 | 590.098 |
| 3600.000 | 19.140 | 171.406 | 171.760 | 3501.852 | -616.480 | 89.276 | 0.762 | 622.910 |
| 3700.000 | 19.139 | 172.283 | 171.763 | 3596.296 | -649.014 | 93.949 | 0.289 | 655.778 |
| 3800.000 | 19.806 | 172.674 | 171.798 | 3690.601 | -681.990 | 98.299 | 0.689 | 689.038 |
| 3900.000 | 20.800 | 172.033 | 171.837 | 3784.389 | -716.394 | 102.768 | 1.014 | 723.727 |
| 4000.000 | 21.417 | 171.718 | 171.833 | 3877.664 | -752.075 | 107.927 | 0.620 | 759.779 |
| 4100.000 | 21.610 | 171.787 | 171.830 | 3970.632 | -788.530 | 113.212 | 0.201 | 796.615 |
| 4200.000 | 20.831 | 172.001 | 171.829 | 4063.650 | -824.865 | 118.440 | 0.791 | 833.324 |
| 4300.000 | 19.256 | 170.879 | 171.831 | 4157.584 | -858.803 | 123.281 | 1.632 | 867.606 |
| 4400.000 | 19.091 | 167.480 | 171.727 | 4252.082 | -890.903 | 129.547 | 1.127 | 900.273 |
| 4500.000 | 19.487 | 169.355 | 171.603 | 4346.437 | -923.329 | 136.299 | 0.740 | 933.335 |
| 4600.000 | 18.744 | 170.601 | 171.556 | 4440.754 | -956.073 | 141.935 | 0.878 | 966.551 |
| 4700.000 | 18.506 | 169.872 | 171.514 | 4535.492 | -987.620 | 147.360 | 0.348 | 998.554 |
| 4800.000 | 17.730 | 170.482 | 171.461 | 4630.512 | -1018.287 | 152.893 | 0.796 | 1029.701 |
| 4900.000 | 18.031 | 171.000 | 171.444 | 4725.704 | -1048.534 | 157.755 | 0.355 | 1060.335 |
| 5000.000 | 16.130 | 172.924 | 171.448 | 4821.069 | -1078.279 | 162.143 | 2.000 | 1090.402 |
| 5100.000 | 14.690 | 173.969 | 171.493 | 4917.507 | -1104.543 | 165.206 | 1.464 | 1116.830 |
| 5200.000 | 14.480 | 173.803 | 171.548 | 5014.328 | -1129.415 | 167.833 | 0.215 | 1141.817 |
| 5300.000 | 12.131 | 174.250 | 171.594 | 5111.521 | -1152.768 | 170.354 | 2.363 | 1165.288 |
| 5400.000 | 9.736 | 175.505 | 171.648 | 5209.731 | -1171.489 | 171.993 | 2.410 | 1184.047 |
| 5500.000 | 7.760 | 176.254 | 171.695 | 5308.561 | -1186.654 | 173.230 | 1.984 | 1199.231 |
| 5600.000 | 5.789 | 177.251 | 171.747 | 5407.879 | -1198.260 | 173.793 | 1.966 | 1210.797 |
| 5700.000 | 4.127 | 179.602 | 171.792 | 5507.518 | -1206.709 | 174.058 | 1.653 | 1219.198 |
| 5800.000 | 2.253 | 191.741 | 171.830 | 5607.372 | -1212.013 | 173.999 | 1.954 | 1224.439 |
| 5900.000 | 0.994 | 190.687 | 171.863 | 5707.330 | -1214.788 | 173.690 | 1.319 | 1227.143 |
| 6000.000 | 0.678 | 217.468 | 171.894 | 5807.321 | -1215.929 | 173.189 | 0.512 | 1228.201 |
| 6100.000 | 0.652 | 227.172 | 171.930 | 5907.316 | -1216.711 | 172.511 | 0.145 | 1228.880 |
| 6200.000 | 0.709 | 233.298 | 171.968 | 6007.311 | -1217.301 | 171.772 | 0.085 | 1229.361 |
| 6300.000 | 0.417 | 239.522 | 172.008 | 6107.306 | -1217.637 | 170.946 | 0.073 | 1229.578 |
| 6400.000 | 0.572 | 252.085 | 172.049 | 6207.302 | -1217.833 | 170.104 | 0.186 | 1229.655 |
| 6500.000 | 0.411 | 281.931 | 172.090 | 6307.298 | -1217.865 | 169.202 | 0.283 | 1229.562 |
| 6600.000 | 0.419 | 283.037 | 172.126 | 6407.294 | -1217.696 | 168.411 | 0.243 | 1229.287 |
| 6700.000 | 0.342 | 312.009 | 172.150 | 6507.292 | -1217.530 | 167.855 | 0.143 | 1229.046 |
| 6800.000 | 0.489 | 300.838 | 172.169 | 6607.290 | -1217.270 | 167.410 | 0.250 | 1228.728 |
| 6900.000 | 0.313 | 236.471 | 172.191 | 6707.288 | -1217.227 | 166.938 | 0.366 | 1228.621 |
| 7000.000 | 0.050 | 168.780 | 172.196 | 6807.288 | -1217.327 | 166.847 | 0.342 | 1228.708 |
| 7100.000 | 0.122 | 82.296 | 172.193 | 6907.287 | -1217.256 | 166.900 | 0.230 | 1228.645 |
| 7200.000 | 0.294 | 166.271 | 172.190 | 7007.287 | -1217.235 | 166.967 | 0.319 | 1228.633 |
| 7250.000 | 0.090 | 314.380 | 172.189 | 7058.776 | -1217.283 | 166.981 | 0.046 | 1228.682 |