

GyroTracer Directional:

Date: 8/10/2018
 Operator : Adrian Bruner
 API: 05-123-12546
 Well Name: **Ehrlich 6-18**
 Field : Noble Energy Inc
 Tool Type And Number: 1605
 Bottom Depth : 7100.00
 Total Well Depth: 7330.00
 Latitude : 40.313806 N
 Longitude : 104.823 W
 Grid Offset : 0.44

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

Northing: 0.00 Easting: 0.00 Altitude: 4710.00

Description:

Azimuth measured in degrees and referenced to local grid

Inclination measured from Vertical

Length measured in US survey feet

Start Time: 8/10/2018 13:29

End Time: 8/10/2018 14:37

| 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 | 0.290 | 263.886 | 252.646 | 100.000 | -0.150 | -0.480 | 0.290 | 0.503 |
| 200.000 | 0.233 | 281.770 | 257.158 | 199.999 | -0.224 | -0.985 | 0.104 | 1.010 |
| 300.000 | 0.455 | 296.216 | 264.708 | 299.997 | -0.146 | -1.571 | 0.179 | 1.578 |
| 400.000 | 0.440 | 289.667 | 276.194 | 399.994 | 0.232 | -2.141 | 0.061 | 2.154 |
| 500.000 | 0.456 | 310.711 | 282.412 | 499.992 | 0.597 | -2.714 | 0.136 | 2.779 |
| 600.000 | 0.046 | 268.929 | 286.262 | 599.989 | 0.958 | -3.283 | 0.354 | 3.420 |
| 700.000 | 0.360 | 283.530 | 288.095 | 699.987 | 1.260 | -3.857 | 0.029 | 4.058 |
| 800.000 | 0.262 | 281.530 | 288.537 | 799.985 | 1.483 | -4.424 | 0.128 | 4.666 |
| 900.000 | 0.363 | 262.532 | 288.118 | 899.983 | 1.630 | -4.982 | 0.125 | 5.242 |
| 1000.000 | 0.335 | 257.501 | 285.422 | 999.981 | 1.514 | -5.490 | 0.070 | 5.695 |
| 1100.000 | 0.300 | 224.879 | 281.579 | 1099.979 | 1.240 | -6.052 | 0.162 | 6.178 |
| 1200.000 | 0.345 | 231.893 | 278.098 | 1199.977 | 0.934 | -6.568 | 0.071 | 6.634 |
| 1300.000 | 0.415 | 231.904 | 274.996 | 1299.975 | 0.620 | -7.098 | 0.040 | 7.126 |
| 1400.000 | 0.336 | 224.199 | 271.329 | 1399.973 | 0.175 | -7.552 | 0.119 | 7.554 |
| 1500.000 | 0.485 | 219.075 | 268.296 | 1499.971 | -0.239 | -8.033 | 0.243 | 8.036 |
| 1600.000 | 0.637 | 255.065 | 265.265 | 1599.966 | -0.727 | -8.781 | 0.385 | 8.811 |
| 1700.000 | 1.062 | 268.796 | 264.993 | 1699.952 | -0.914 | -10.438 | 0.485 | 10.478 |
| 1800.000 | 1.162 | 287.014 | 266.477 | 1799.931 | -0.766 | -12.442 | 0.375 | 12.466 |
| 1900.000 | 1.087 | 306.120 | 269.928 | 1899.910 | -0.018 | -14.332 | 0.385 | 14.332 |
| 2000.000 | 1.080 | 306.863 | 273.969 | 1999.890 | 1.106 | -15.943 | 0.080 | 15.981 |
| 2100.000 | 1.272 | 311.547 | 277.967 | 2099.870 | 2.437 | -17.414 | 0.235 | 17.584 |
| 2200.000 | 1.127 | 313.944 | 281.646 | 2199.851 | 3.862 | -18.737 | 0.313 | 19.131 |
| 2300.000 | 0.760 | 311.412 | 284.497 | 2299.837 | 5.112 | -19.771 | 0.381 | 20.421 |

| | | | | | | | | |
|----------|-------|---------|---------|----------|--------|---------|-------|--------|
| 2400.000 | 0.517 | 321.663 | 286.477 | 2399.829 | 6.074 | -20.537 | 0.260 | 21.416 |
| 2500.000 | 0.566 | 336.218 | 288.265 | 2499.823 | 6.985 | -21.166 | 0.148 | 22.289 |
| 2600.000 | 0.597 | 337.844 | 290.096 | 2599.817 | 7.943 | -21.710 | 0.019 | 23.118 |
| 2700.000 | 0.869 | 318.500 | 291.749 | 2699.810 | 8.926 | -22.374 | 0.324 | 24.089 |
| 2800.000 | 0.752 | 294.274 | 292.346 | 2799.802 | 9.617 | -23.395 | 0.296 | 25.295 |
| 2900.000 | 1.004 | 291.250 | 292.405 | 2899.790 | 10.228 | -24.808 | 0.255 | 26.833 |
| 3000.000 | 1.110 | 283.915 | 292.447 | 2999.775 | 10.888 | -26.354 | 0.217 | 28.514 |
| 3100.000 | 1.135 | 292.918 | 292.230 | 3099.760 | 11.448 | -28.010 | 0.172 | 30.259 |
| 3200.000 | 1.028 | 287.903 | 291.834 | 3199.743 | 11.917 | -29.742 | 0.155 | 32.041 |
| 3300.000 | 1.216 | 311.987 | 291.734 | 3299.724 | 12.588 | -31.578 | 0.485 | 33.995 |
| 3400.000 | 1.191 | 296.400 | 291.780 | 3399.699 | 13.427 | -33.604 | 0.319 | 36.188 |
| 3500.000 | 1.364 | 290.255 | 291.612 | 3499.673 | 14.170 | -35.767 | 0.189 | 38.472 |
| 3600.000 | 1.348 | 295.372 | 291.704 | 3599.644 | 15.103 | -37.945 | 0.132 | 40.840 |
| 3700.000 | 1.573 | 294.050 | 291.997 | 3699.614 | 16.209 | -40.125 | 0.210 | 43.275 |
| 3800.000 | 1.744 | 294.828 | 292.241 | 3799.582 | 17.333 | -42.386 | 0.287 | 45.793 |
| 3900.000 | 1.578 | 277.270 | 292.168 | 3899.542 | 18.333 | -44.994 | 0.491 | 48.585 |
| 4000.000 | 1.778 | 293.015 | 292.223 | 3999.496 | 19.526 | -47.793 | 0.534 | 51.628 |
| 4100.000 | 2.332 | 295.308 | 292.494 | 4099.423 | 21.192 | -51.176 | 0.544 | 55.390 |
| 4200.000 | 2.152 | 301.087 | 292.679 | 4199.342 | 22.899 | -54.798 | 0.289 | 59.390 |
| 4300.000 | 1.573 | 311.340 | 292.957 | 4299.283 | 24.483 | -57.800 | 0.686 | 62.771 |
| 4400.000 | 1.602 | 308.333 | 293.548 | 4399.243 | 26.166 | -60.041 | 0.192 | 65.495 |
| 4500.000 | 0.923 | 303.466 | 293.977 | 4499.214 | 27.560 | -61.968 | 0.482 | 67.820 |
| 4600.000 | 1.132 | 286.856 | 293.944 | 4599.197 | 28.278 | -63.681 | 0.335 | 69.678 |
| 4700.000 | 1.331 | 314.052 | 294.099 | 4699.172 | 29.339 | -65.592 | 0.585 | 71.855 |
| 4800.000 | 1.379 | 318.031 | 294.636 | 4799.147 | 30.847 | -67.262 | 0.137 | 73.998 |
| 4900.000 | 1.041 | 324.000 | 295.375 | 4899.124 | 32.508 | -68.537 | 0.370 | 75.856 |
| 5000.000 | 0.641 | 316.187 | 295.858 | 4999.111 | 33.717 | -69.567 | 0.382 | 77.308 |
| 5100.000 | 0.785 | 318.022 | 296.259 | 5099.100 | 34.811 | -70.561 | 0.198 | 78.681 |
| 5200.000 | 0.890 | 329.405 | 296.723 | 5199.091 | 35.903 | -71.314 | 0.228 | 79.842 |
| 5300.000 | 0.806 | 335.178 | 297.164 | 5299.082 | 36.948 | -72.004 | 0.092 | 80.930 |
| 5400.000 | 0.440 | 338.985 | 297.611 | 5399.077 | 37.879 | -72.422 | 0.361 | 81.730 |
| 5500.000 | 0.540 | 352.152 | 298.025 | 5499.073 | 38.695 | -72.699 | 0.150 | 82.356 |
| 5600.000 | 0.399 | 9.750 | 298.350 | 5599.070 | 39.331 | -72.892 | 0.135 | 82.826 |
| 5700.000 | 0.360 | 292.359 | 298.621 | 5699.068 | 39.926 | -73.164 | 0.549 | 83.349 |
| 5800.000 | 0.450 | 336.163 | 298.868 | 5799.065 | 40.523 | -73.502 | 0.328 | 83.933 |
| 5900.000 | 0.334 | 340.104 | 299.172 | 5899.062 | 41.228 | -73.854 | 0.163 | 84.582 |
| 6000.000 | 0.515 | 325.114 | 299.423 | 5999.058 | 41.883 | -74.260 | 0.180 | 85.256 |
| 6100.000 | 0.680 | 332.868 | 299.654 | 6099.052 | 42.687 | -74.977 | 0.126 | 86.277 |
| 6200.000 | 0.507 | 325.831 | 299.967 | 6199.047 | 43.542 | -75.517 | 0.250 | 87.170 |
| 6300.000 | 0.628 | 355.177 | 300.374 | 6299.041 | 44.459 | -75.859 | 0.475 | 87.927 |
| 6400.000 | 0.483 | 350.642 | 300.781 | 6399.036 | 45.356 | -76.142 | 0.184 | 88.627 |
| 6500.000 | 0.262 | 344.776 | 301.042 | 6499.033 | 46.011 | -76.448 | 0.336 | 89.226 |
| 6600.000 | 0.250 | 6.755 | 301.289 | 6599.032 | 46.555 | -76.602 | 0.110 | 89.639 |
| 6700.000 | 0.594 | 123.790 | 301.425 | 6699.030 | 46.618 | -76.298 | 0.743 | 89.413 |
| 6800.000 | 0.827 | 122.929 | 301.257 | 6799.021 | 45.745 | -75.364 | 0.318 | 88.161 |
| 6900.000 | 1.523 | 138.492 | 300.800 | 6898.996 | 44.059 | -73.909 | 0.762 | 86.045 |
| 7000.000 | 0.947 | 109.769 | 300.609 | 6998.972 | 42.732 | -72.229 | 0.816 | 83.923 |
| 7100.000 | 2.174 | 83.930 | 301.351 | 7098.937 | 42.480 | -69.729 | 1.354 | 81.650 |

