



**Company:** Noble Energy  
**Rig:** PRODUCTION / VES  
**API #** 05-123-16126  
**Date:** 1/21/2014  
**Surveyor:** DUSTIN SKORUPPA  
**VS:** 0.000  
**Lat :** 40.481  
**Long:** -104.623

**Well:** SCHWISOW E14-16  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** Grid north is 0.57 East of True N  
**Declination:** 8.45  
**Depth Reference:** Ground Level  
**Elevation:** 4704  
**Total Depth as Drilled:** 7176

**Lat & Long obtained by handheld GPS at wellhead**

**Gyro Survey Calculations**

| Depth    | Inc   | AZI     | N/S    | E/W     | TVD      | DL    | VS     | CD     | Cbrg    |
|----------|-------|---------|--------|---------|----------|-------|--------|--------|---------|
| 0.000    | 0.000 | 0.000   | 0.000  | 0.000   | 0.000    | ****  | 0.000  | 0.000  | 0.000   |
| 100.000  | 0.610 | 71.207  | 0.171  | 0.504   | 99.998   | 0.610 | 0.171  | 0.532  | 71.207  |
| 200.000  | 0.351 | 31.574  | 0.604  | 1.168   | 199.995  | 0.407 | 0.604  | 1.315  | 62.670  |
| 300.000  | 0.361 | 37.491  | 1.115  | 1.520   | 299.993  | 0.038 | 1.115  | 1.885  | 53.753  |
| 400.000  | 0.528 | 54.291  | 1.634  | 2.086   | 399.990  | 0.210 | 1.634  | 2.650  | 51.937  |
| 500.000  | 0.180 | 56.423  | 1.989  | 2.591   | 499.988  | 0.348 | 1.989  | 3.266  | 52.484  |
| 600.000  | 0.347 | 82.433  | 2.116  | 3.022   | 599.987  | 0.202 | 2.116  | 3.689  | 55.003  |
| 700.000  | 0.463 | 28.425  | 2.511  | 3.515   | 699.985  | 0.382 | 2.511  | 4.320  | 54.457  |
| 800.000  | 0.050 | 324.270 | 2.902  | 3.682   | 799.983  | 0.444 | 2.902  | 4.688  | 51.759  |
| 900.000  | 0.362 | 2.491   | 3.253  | 3.670   | 899.983  | 0.325 | 3.253  | 4.904  | 48.454  |
| 1000.000 | 0.343 | 67.864  | 3.681  | 3.962   | 999.981  | 0.381 | 3.681  | 5.408  | 47.101  |
| 1100.000 | 0.281 | 46.925  | 3.961  | 4.418   | 1099.980 | 0.129 | 3.961  | 5.934  | 48.119  |
| 1200.000 | 0.475 | 77.448  | 4.219  | 5.002   | 1199.978 | 0.274 | 4.219  | 6.543  | 49.854  |
| 1300.000 | 0.277 | 138.258 | 4.128  | 5.568   | 1299.976 | 0.417 | 4.128  | 6.931  | 53.444  |
| 1400.000 | 0.271 | 199.180 | 3.724  | 5.651   | 1399.975 | 0.278 | 3.724  | 6.768  | 56.615  |
| 1500.000 | 0.068 | 182.414 | 3.441  | 5.571   | 1499.974 | 0.207 | 3.441  | 6.548  | 58.294  |
| 1600.000 | 0.708 | 159.963 | 2.802  | 5.780   | 1599.971 | 0.646 | 2.802  | 6.423  | 64.138  |
| 1700.000 | 0.364 | 151.929 | 1.942  | 6.141   | 1699.967 | 0.351 | 1.942  | 6.441  | 72.456  |
| 1800.000 | 0.478 | 186.006 | 1.246  | 6.247   | 1799.964 | 0.270 | 1.246  | 6.370  | 78.717  |
| 1900.000 | 0.672 | 250.935 | 0.640  | 5.649   | 1899.960 | 0.639 | 0.640  | 5.685  | 83.540  |
| 2000.000 | 0.925 | 233.371 | -0.034 | 4.446   | 1999.951 | 0.349 | -0.034 | 4.446  | 90.433  |
| 2100.000 | 0.976 | 289.918 | -0.225 | 2.998   | 2099.939 | 0.902 | -0.225 | 3.006  | 94.290  |
| 2200.000 | 1.068 | 278.974 | 0.211  | 1.277   | 2199.923 | 0.215 | 0.211  | 1.294  | 80.632  |
| 2300.000 | 1.631 | 263.572 | 0.197  | -1.058  | 2299.895 | 0.666 | 0.197  | 1.076  | 280.524 |
| 2400.000 | 1.119 | 267.086 | -0.012 | -3.448  | 2399.866 | 0.519 | -0.012 | 3.448  | 269.794 |
| 2500.000 | 1.645 | 278.981 | 0.162  | -5.841  | 2499.837 | 0.596 | 0.162  | 5.843  | 271.588 |
| 2600.000 | 1.708 | 242.475 | -0.303 | -8.580  | 2599.797 | 1.052 | -0.303 | 8.585  | 267.980 |
| 2700.000 | 1.648 | 237.355 | -1.767 | -11.112 | 2699.754 | 0.161 | -1.767 | 11.252 | 260.964 |
| 2800.000 | 1.834 | 231.839 | -3.532 | -13.581 | 2799.708 | 0.250 | -3.532 | 14.033 | 255.424 |
| 2900.000 | 1.506 | 237.219 | -5.231 | -15.944 | 2899.665 | 0.363 | -5.231 | 16.780 | 251.834 |
| 3000.000 | 1.740 | 240.001 | -6.702 | -18.363 | 2999.625 | 0.247 | -6.702 | 19.548 | 249.950 |
| 3100.000 | 0.982 | 257.351 | -7.649 | -20.514 | 3099.597 | 0.854 | -7.649 | 21.894 | 249.552 |
| 3200.000 | 1.482 | 274.309 | -7.739 | -22.640 | 3199.574 | 0.613 | -7.739 | 23.927 | 251.128 |
| 3300.000 | 0.732 | 267.320 | -7.672 | -24.568 | 3299.554 | 0.761 | -7.672 | 25.738 | 252.658 |
| 3400.000 | 0.769 | 308.931 | -7.280 | -25.728 | 3399.546 | 0.534 | -7.280 | 26.738 | 254.200 |
| 3500.000 | 1.909 | 331.326 | -5.397 | -27.050 | 3499.518 | 1.234 | -5.397 | 27.583 | 258.717 |

|          |       |         |        |         |          |       |        |        |         |
|----------|-------|---------|--------|---------|----------|-------|--------|--------|---------|
| 3600.000 | 0.570 | 337.310 | -3.476 | -28.041 | 3599.492 | 1.343 | -3.476 | 28.256 | 262.934 |
| 3700.000 | 2.272 | 345.017 | -1.102 | -28.746 | 3699.458 | 1.708 | -1.102 | 28.767 | 267.805 |
| 3800.000 | 1.185 | 2.372   | 1.846  | -29.215 | 3799.412 | 1.194 | 1.846  | 29.274 | 273.615 |
| 3900.000 | 1.249 | 12.248  | 3.944  | -28.941 | 3899.389 | 0.219 | 3.944  | 29.209 | 277.760 |
| 4000.000 | 1.442 | 19.770  | 6.193  | -28.285 | 3999.362 | 0.261 | 6.193  | 28.955 | 282.350 |
| 4100.000 | 1.143 | 30.935  | 8.232  | -27.347 | 4099.336 | 0.390 | 8.232  | 28.559 | 286.753 |
| 4200.000 | 0.620 | 43.193  | 9.481  | -26.464 | 4199.324 | 0.553 | 9.481  | 28.111 | 289.711 |
| 4300.000 | 0.514 | 18.857  | 10.300 | -25.949 | 4299.319 | 0.260 | 10.300 | 27.918 | 291.651 |
| 4400.000 | 0.249 | 17.172  | 10.932 | -25.739 | 4399.317 | 0.266 | 10.932 | 27.965 | 293.012 |
| 4500.000 | 0.755 | 19.430  | 11.761 | -25.456 | 4499.313 | 0.507 | 11.761 | 28.042 | 294.798 |
| 4600.000 | 0.281 | 7.718   | 12.626 | -25.204 | 4599.308 | 0.483 | 12.626 | 28.190 | 296.608 |
| 4700.000 | 0.525 | 1.721   | 13.327 | -25.157 | 4699.306 | 0.247 | 13.327 | 28.469 | 297.912 |
| 4800.000 | 0.395 | 215.893 | 13.505 | -25.346 | 4799.305 | 0.881 | 13.505 | 28.719 | 298.050 |
| 4900.000 | 0.452 | 203.629 | 12.864 | -25.706 | 4899.302 | 0.106 | 12.864 | 28.745 | 296.585 |
| 5000.000 | 0.240 | 317.906 | 12.658 | -26.004 | 4999.301 | 0.592 | 12.658 | 28.922 | 295.955 |
| 5100.000 | 0.987 | 239.386 | 12.375 | -26.886 | 5099.295 | 0.969 | 12.375 | 29.597 | 294.714 |
| 5200.000 | 1.451 | 239.208 | 11.288 | -28.715 | 5199.272 | 0.463 | 11.288 | 30.854 | 291.459 |
| 5300.000 | 1.801 | 246.406 | 10.010 | -31.243 | 5299.232 | 0.405 | 10.010 | 32.808 | 287.766 |
| 5400.000 | 2.520 | 258.699 | 8.950  | -34.840 | 5399.161 | 0.851 | 8.950  | 35.971 | 284.408 |
| 5500.000 | 2.128 | 268.061 | 8.457  | -38.851 | 5499.079 | 0.544 | 8.457  | 39.761 | 282.280 |
| 5600.000 | 2.699 | 293.145 | 9.319  | -42.872 | 5598.992 | 1.187 | 9.319  | 43.873 | 282.264 |
| 5700.000 | 1.897 | 262.511 | 10.029 | -46.677 | 5698.915 | 1.439 | 10.029 | 47.743 | 282.126 |
| 5800.000 | 0.321 | 231.860 | 9.640  | -48.539 | 5798.893 | 1.628 | 9.640  | 49.487 | 281.233 |
| 5900.000 | 0.720 | 226.369 | 9.033  | -49.214 | 5898.889 | 0.401 | 9.033  | 50.036 | 280.401 |
| 6000.000 | 0.729 | 284.558 | 8.760  | -50.284 | 5998.882 | 0.704 | 8.760  | 51.041 | 279.882 |
| 6100.000 | 2.095 | 267.983 | 8.855  | -52.726 | 6098.850 | 1.412 | 8.855  | 53.465 | 279.534 |
| 6200.000 | 2.004 | 315.729 | 10.043 | -55.774 | 6198.793 | 1.661 | 10.043 | 56.671 | 280.207 |
| 6300.000 | 3.020 | 308.612 | 12.938 | -59.053 | 6298.696 | 1.061 | 12.938 | 60.453 | 282.358 |
| 6400.000 | 3.233 | 305.741 | 16.229 | -63.400 | 6398.547 | 0.264 | 16.229 | 65.444 | 284.358 |
| 6500.000 | 3.503 | 10.401  | 20.883 | -65.137 | 6498.407 | 3.608 | 20.883 | 68.403 | 287.775 |
| 6600.000 | 3.674 | 4.344   | 27.082 | -64.343 | 6598.211 | 0.416 | 27.082 | 69.810 | 292.827 |
| 6700.000 | 3.695 | 35.108  | 32.914 | -62.247 | 6698.014 | 1.954 | 32.914 | 70.413 | 297.868 |
| 6800.000 | 3.780 | 61.752  | 37.110 | -57.490 | 6797.809 | 1.723 | 37.110 | 68.427 | 302.842 |
| 6900.000 | 4.556 | 65.378  | 40.325 | -50.975 | 6897.544 | 0.819 | 40.325 | 64.997 | 308.346 |

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