



Company: Noble Energy
Rig: Production/VES
API # 05-123-33732

Date: 6/6/2013
Surveyor: Nick Kula

VS: 0.000
Lat : 40.77135
Long: -103.862

Well: ROHN PC LD 09-01
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is 1.060 Degrees East c
Declination: 8.13
Depth Reference: Ground Level
Elevation: 4744'

Total Depth as Drilled: 6109'

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

| Depth | Inc | AzG | 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 | 0.000 |
| 100.000 | 0.323 | 214.858 | -0.231 | -0.161 | 99.999 | 0.323 | -0.231 | 0.282 | 214.858 |
| 200.000 | 0.475 | 213.741 | -0.807 | -0.552 | 199.997 | 0.152 | -0.807 | 0.978 | 214.385 |
| 300.000 | 0.356 | 218.943 | -1.393 | -0.977 | 299.994 | 0.124 | -1.393 | 1.701 | 215.059 |
| 400.000 | 0.711 | 202.426 | -2.208 | -1.409 | 399.990 | 0.384 | -2.208 | 2.619 | 212.549 |
| 500.000 | 0.418 | 203.502 | -3.117 | -1.792 | 499.985 | 0.293 | -3.117 | 3.595 | 209.895 |
| 600.000 | 0.389 | 221.781 | -3.705 | -2.164 | 599.983 | 0.131 | -3.705 | 4.290 | 210.286 |
| 700.000 | 0.325 | 213.268 | -4.195 | -2.546 | 699.981 | 0.083 | -4.195 | 4.907 | 211.249 |
| 800.000 | 0.476 | 253.672 | -4.550 | -3.100 | 799.978 | 0.311 | -4.550 | 5.506 | 214.274 |
| 900.000 | 0.475 | 254.444 | -4.778 | -3.899 | 899.975 | 0.007 | -4.778 | 6.167 | 219.216 |
| 1000.000 | 0.294 | 222.522 | -5.078 | -4.471 | 999.973 | 0.274 | -5.078 | 6.766 | 221.367 |
| 1100.000 | 0.207 | 229.507 | -5.384 | -4.782 | 1099.972 | 0.092 | -5.384 | 7.201 | 221.611 |
| 1200.000 | 0.512 | 230.399 | -5.786 | -5.263 | 1199.970 | 0.305 | -5.786 | 7.822 | 222.293 |
| 1300.000 | 0.306 | 169.916 | -6.333 | -5.561 | 1299.967 | 0.449 | -6.333 | 8.428 | 221.284 |
| 1400.000 | 0.254 | 135.749 | -6.755 | -5.360 | 1399.966 | 0.172 | -6.755 | 8.623 | 218.431 |
| 1500.000 | 0.127 | 125.505 | -6.978 | -5.115 | 1499.966 | 0.130 | -6.978 | 8.652 | 216.242 |
| 1600.000 | 0.182 | 102.021 | -7.075 | -4.869 | 1599.965 | 0.082 | -7.075 | 8.589 | 214.537 |
| 1700.000 | 0.379 | 102.689 | -7.181 | -4.392 | 1699.964 | 0.197 | -7.181 | 8.417 | 211.449 |
| 1800.000 | 0.904 | 106.100 | -7.472 | -3.311 | 1799.958 | 0.526 | -7.472 | 8.173 | 203.898 |
| 1900.000 | 1.588 | 115.311 | -8.284 | -1.300 | 1899.933 | 0.711 | -8.284 | 8.385 | 188.919 |
| 2000.000 | 2.108 | 115.215 | -9.660 | 1.617 | 1999.881 | 0.520 | -9.660 | 9.794 | 170.497 |
| 2100.000 | 1.826 | 105.662 | -10.874 | 4.815 | 2099.822 | 0.432 | -10.874 | 11.892 | 156.114 |
| 2200.000 | 1.051 | 114.080 | -11.678 | 7.187 | 2199.790 | 0.802 | -11.678 | 13.712 | 148.392 |
| 2300.000 | 0.886 | 104.973 | -12.252 | 8.770 | 2299.776 | 0.225 | -12.252 | 15.067 | 144.403 |
| 2400.000 | 0.861 | 86.108 | -12.400 | 10.266 | 2399.764 | 0.287 | -12.400 | 16.098 | 140.379 |
| 2500.000 | 0.451 | 75.662 | -12.252 | 11.397 | 2499.758 | 0.425 | -12.252 | 16.733 | 137.071 |
| 2600.000 | 0.584 | 41.125 | -11.770 | 12.113 | 2599.754 | 0.333 | -11.770 | 16.890 | 134.177 |
| 2700.000 | 0.715 | 66.411 | -11.136 | 13.020 | 2699.748 | 0.312 | -11.136 | 17.133 | 130.540 |
| 2800.000 | 0.682 | 65.619 | -10.641 | 14.134 | 2799.740 | 0.034 | -10.641 | 17.692 | 126.975 |
| 2900.000 | 0.599 | 68.912 | -10.207 | 15.164 | 2899.734 | 0.091 | -10.207 | 18.279 | 123.946 |
| 3000.000 | 0.095 | 274.813 | -10.012 | 15.569 | 2999.732 | 0.686 | -10.012 | 18.510 | 122.746 |
| 3100.000 | 0.676 | 249.242 | -10.215 | 14.934 | 3099.730 | 0.592 | -10.215 | 18.093 | 124.371 |
| 3200.000 | 0.693 | 223.131 | -10.865 | 13.969 | 3199.723 | 0.310 | -10.865 | 17.697 | 127.875 |
| 3300.000 | 0.637 | 220.696 | -11.728 | 13.193 | 3299.716 | 0.063 | -11.728 | 17.652 | 131.634 |
| 3400.000 | 0.667 | 222.455 | -12.578 | 12.438 | 3399.709 | 0.036 | -12.578 | 17.690 | 135.321 |

| | | | | | | | | | |
|----------|-------|---------|---------|---------|----------|-------|---------|--------|---------|
| 3500.000 | 0.667 | 229.655 | -13.385 | 11.602 | 3499.703 | 0.084 | -13.385 | 17.713 | 139.082 |
| 3600.000 | 0.872 | 243.667 | -14.099 | 10.476 | 3599.694 | 0.277 | -14.099 | 17.565 | 143.386 |
| 3700.000 | 0.905 | 233.033 | -14.911 | 9.164 | 3699.682 | 0.168 | -14.911 | 17.502 | 148.428 |
| 3800.000 | 1.258 | 197.129 | -16.435 | 8.210 | 3799.665 | 0.746 | -16.435 | 18.371 | 153.457 |
| 3900.000 | 0.978 | 184.066 | -18.335 | 7.826 | 3899.646 | 0.377 | -18.335 | 19.935 | 156.886 |
| 4000.000 | 1.352 | 182.742 | -20.365 | 7.709 | 3999.625 | 0.375 | -20.365 | 21.775 | 159.267 |
| 4100.000 | 1.654 | 189.640 | -22.967 | 7.411 | 4099.591 | 0.351 | -22.967 | 24.133 | 162.117 |
| 4200.000 | 1.796 | 186.697 | -25.946 | 6.986 | 4199.545 | 0.167 | -25.946 | 26.870 | 164.930 |
| 4300.000 | 1.831 | 202.477 | -28.979 | 6.193 | 4299.496 | 0.499 | -28.979 | 29.633 | 167.938 |
| 4400.000 | 0.787 | 276.751 | -30.375 | 4.900 | 4399.474 | 1.787 | -30.375 | 30.767 | 170.837 |
| 4500.000 | 2.442 | 289.092 | -29.597 | 2.204 | 4499.431 | 1.682 | -29.597 | 29.679 | 175.741 |
| 4600.000 | 2.743 | 306.892 | -27.463 | -1.723 | 4599.330 | 0.855 | -27.463 | 27.517 | 183.591 |
| 4700.000 | 2.906 | 309.786 | -24.405 | -5.585 | 4699.208 | 0.216 | -24.405 | 25.036 | 192.891 |
| 4800.000 | 3.301 | 303.272 | -21.203 | -9.940 | 4799.062 | 0.529 | -21.203 | 23.417 | 205.118 |
| 4900.000 | 3.526 | 304.193 | -17.895 | -14.891 | 4898.884 | 0.232 | -17.895 | 23.281 | 219.764 |
| 5000.000 | 3.231 | 292.391 | -15.093 | -20.041 | 4998.712 | 0.754 | -15.093 | 25.089 | 233.015 |
| 5100.000 | 1.767 | 265.160 | -14.150 | -24.184 | 5098.617 | 1.846 | -14.150 | 28.019 | 239.668 |
| 5200.000 | 1.055 | 236.637 | -14.786 | -26.489 | 5198.587 | 0.980 | -14.786 | 30.337 | 240.830 |
| 5300.000 | 1.092 | 220.950 | -16.012 | -27.882 | 5298.570 | 0.295 | -16.012 | 32.153 | 240.133 |
| 5400.000 | 1.008 | 174.468 | -17.607 | -28.422 | 5398.555 | 0.832 | -17.607 | 33.434 | 238.223 |
| 5500.000 | 1.234 | 149.252 | -19.407 | -27.787 | 5498.536 | 0.537 | -19.407 | 33.893 | 235.069 |
| 5600.000 | 1.526 | 135.425 | -21.281 | -26.302 | 5598.507 | 0.441 | -21.281 | 33.833 | 231.024 |
| 5700.000 | 1.659 | 148.325 | -23.461 | -24.607 | 5698.469 | 0.381 | -23.461 | 33.999 | 226.366 |
| 5800.000 | 1.313 | 133.647 | -25.484 | -23.018 | 5798.436 | 0.512 | -25.484 | 34.341 | 222.090 |
| 5900.000 | 0.763 | 136.629 | -26.759 | -21.732 | 5898.419 | 0.552 | -26.759 | 34.472 | 219.082 |
| 5975.000 | 1.155 | 138.792 | -27.690 | -20.891 | 5973.408 | 0.524 | -27.690 | 34.687 | 217.033 |

of True North