



**Company:** Noble Energy  
**Rig:** Production / V.E.S.

**API #** 05-123-24796

**Date:** 5/8/2013

**Surveyor:** Norman Cowan

**VS:** 0.000

**Lat :** 40.165

**Long:** -104.540

**Well:** Waste Management USX Y 3-11

**Location:** Weld County, Colorado

**North Reference:** GRID

**Convergence:** Grid north is -0.62 Deg of True No

**Declination:** 8.47 Degrees

**Depth Reference:** Ground Level

**Elevation:** 4892 Feet

**Total Depth as Drilled:** 7630 Feet

**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   |
| 100.000  | 0.419 | 249.257 | -0.129  | -0.342  | 99.999   | 0.419 | -0.129  | 0.365  | 249.257 |
| 200.000  | 0.327 | 250.743 | -0.353  | -0.953  | 199.997  | 0.093 | -0.353  | 1.016  | 249.674 |
| 300.000  | 0.265 | 254.202 | -0.510  | -1.444  | 299.996  | 0.064 | -0.510  | 1.532  | 250.557 |
| 400.000  | 0.090 | 21.944  | -0.500  | -1.638  | 399.995  | 0.328 | -0.500  | 1.712  | 253.026 |
| 500.000  | 0.132 | 27.839  | -0.325  | -1.554  | 499.995  | 0.043 | -0.325  | 1.588  | 258.194 |
| 600.000  | 0.482 | 82.388  | -0.167  | -1.084  | 599.994  | 0.419 | -0.167  | 1.097  | 261.226 |
| 700.000  | 0.596 | 110.967 | -0.298  | -0.182  | 699.989  | 0.288 | -0.298  | 0.349  | 211.360 |
| 800.000  | 0.891 | 167.835 | -1.244  | 0.468   | 799.982  | 0.754 | -1.244  | 1.329  | 159.374 |
| 900.000  | 1.404 | 210.337 | -3.061  | 0.013   | 899.963  | 0.959 | -3.061  | 3.061  | 179.751 |
| 1000.000 | 2.230 | 227.424 | -5.435  | -2.038  | 999.913  | 0.980 | -5.435  | 5.805  | 200.558 |
| 1100.000 | 2.136 | 232.649 | -7.882  | -4.953  | 1099.840 | 0.220 | -7.882  | 9.309  | 212.143 |
| 1200.000 | 2.102 | 231.844 | -10.146 | -7.877  | 1199.772 | 0.045 | -10.146 | 12.845 | 217.823 |
| 1300.000 | 1.936 | 242.112 | -12.069 | -10.811 | 1299.710 | 0.398 | -12.069 | 16.203 | 221.854 |
| 1400.000 | 1.958 | 242.855 | -13.638 | -13.824 | 1399.653 | 0.034 | -13.638 | 19.420 | 225.388 |
| 1500.000 | 1.931 | 244.585 | -15.141 | -16.867 | 1499.595 | 0.065 | -15.141 | 22.666 | 228.086 |
| 1600.000 | 1.722 | 246.108 | -16.473 | -19.763 | 1599.544 | 0.215 | -16.473 | 25.728 | 230.187 |
| 1700.000 | 1.708 | 243.644 | -17.743 | -22.472 | 1699.499 | 0.075 | -17.743 | 28.632 | 231.706 |
| 1800.000 | 1.601 | 244.406 | -19.008 | -25.067 | 1799.458 | 0.109 | -19.008 | 31.459 | 232.827 |
| 1900.000 | 1.665 | 248.511 | -20.144 | -27.678 | 1899.417 | 0.133 | -20.144 | 34.232 | 233.954 |
| 2000.000 | 1.486 | 250.205 | -21.115 | -30.250 | 1999.379 | 0.184 | -21.115 | 36.891 | 235.085 |
| 2100.000 | 1.204 | 254.036 | -21.843 | -32.481 | 2099.352 | 0.296 | -21.843 | 39.143 | 236.079 |
| 2200.000 | 0.884 | 263.515 | -22.219 | -34.258 | 2199.335 | 0.363 | -22.219 | 40.832 | 237.033 |
| 2300.000 | 0.868 | 258.611 | -22.456 | -35.766 | 2299.323 | 0.077 | -22.456 | 42.232 | 237.877 |
| 2400.000 | 0.987 | 270.160 | -22.603 | -37.370 | 2399.310 | 0.221 | -22.603 | 43.674 | 238.832 |
| 2500.000 | 0.810 | 269.246 | -22.610 | -38.938 | 2499.298 | 0.178 | -22.610 | 45.026 | 239.857 |
| 2600.000 | 0.803 | 274.353 | -22.566 | -40.343 | 2599.288 | 0.072 | -22.566 | 46.226 | 240.779 |
| 2700.000 | 0.607 | 303.035 | -22.224 | -41.486 | 2699.281 | 0.398 | -22.224 | 47.064 | 241.822 |
| 2800.000 | 0.659 | 303.453 | -21.619 | -42.410 | 2799.275 | 0.053 | -21.619 | 47.602 | 242.990 |
| 2900.000 | 0.637 | 304.035 | -20.990 | -43.351 | 2899.268 | 0.023 | -20.990 | 48.165 | 244.164 |
| 3000.000 | 0.607 | 312.418 | -20.322 | -44.203 | 2999.262 | 0.096 | -20.322 | 48.650 | 245.310 |
| 3100.000 | 0.361 | 315.180 | -19.741 | -44.815 | 3099.259 | 0.247 | -19.741 | 48.971 | 246.226 |
| 3200.000 | 0.293 | 2.387   | -19.263 | -45.027 | 3199.257 | 0.269 | -19.263 | 48.974 | 246.839 |
| 3300.000 | 0.531 | 28.911  | -18.602 | -44.792 | 3299.255 | 0.299 | -18.602 | 48.501 | 247.447 |
| 3400.000 | 0.657 | 39.833  | -17.756 | -44.201 | 3399.249 | 0.168 | -17.756 | 47.634 | 248.114 |
| 3500.000 | 0.681 | 31.570  | -16.810 | -43.523 | 3499.242 | 0.099 | -16.810 | 46.656 | 248.882 |

|          |       |         |         |         |          |       |         |        |         |
|----------|-------|---------|---------|---------|----------|-------|---------|--------|---------|
| 3600.000 | 0.556 | 32.168  | -15.893 | -42.954 | 3599.237 | 0.125 | -15.893 | 45.799 | 249.696 |
| 3700.000 | 0.355 | 14.054  | -15.181 | -42.620 | 3699.233 | 0.245 | -15.181 | 45.243 | 250.394 |
| 3800.000 | 0.925 | 339.518 | -14.125 | -42.827 | 3799.227 | 0.664 | -14.125 | 45.096 | 251.747 |
| 3900.000 | 1.229 | 344.075 | -12.337 | -43.404 | 3899.209 | 0.315 | -12.337 | 45.123 | 254.133 |
| 4000.000 | 1.602 | 347.680 | -9.940  | -43.997 | 3999.179 | 0.383 | -9.940  | 45.105 | 257.269 |
| 4100.000 | 1.852 | 350.814 | -6.979  | -44.553 | 4099.133 | 0.267 | -6.979  | 45.096 | 261.097 |
| 4200.000 | 1.981 | 1.115   | -3.657  | -44.777 | 4199.078 | 0.367 | -3.657  | 44.926 | 265.331 |
| 4300.000 | 2.047 | 351.836 | -0.161  | -44.997 | 4299.016 | 0.332 | -0.161  | 44.997 | 269.795 |
| 4400.000 | 2.081 | 352.879 | 3.408   | -45.476 | 4398.951 | 0.051 | 3.408   | 45.603 | 274.286 |
| 4500.000 | 2.114 | 4.541   | 7.048   | -45.555 | 4498.885 | 0.427 | 7.048   | 46.097 | 278.795 |
| 4600.000 | 2.261 | 347.718 | 10.814  | -45.828 | 4598.813 | 0.656 | 10.814  | 47.087 | 283.277 |
| 4700.000 | 2.320 | 325.260 | 14.405  | -47.402 | 4698.735 | 0.894 | 14.405  | 49.542 | 286.904 |
| 4800.000 | 2.431 | 305.238 | 17.292  | -50.287 | 4798.651 | 0.833 | 17.292  | 53.177 | 288.977 |
| 4900.000 | 2.423 | 287.774 | 19.161  | -54.032 | 4898.562 | 0.737 | 19.161  | 57.329 | 289.526 |
| 5000.000 | 2.057 | 289.190 | 20.396  | -57.739 | 4998.486 | 0.370 | 20.396  | 61.235 | 289.455 |
| 5100.000 | 1.946 | 288.478 | 21.524  | -61.044 | 5098.425 | 0.114 | 21.524  | 64.727 | 289.422 |
| 5200.000 | 1.694 | 292.583 | 22.629  | -64.019 | 5198.374 | 0.283 | 22.629  | 67.901 | 289.468 |
| 5300.000 | 1.525 | 291.730 | 23.690  | -66.619 | 5298.335 | 0.171 | 23.690  | 70.706 | 289.575 |
| 5400.000 | 1.177 | 276.391 | 24.297  | -68.876 | 5398.307 | 0.499 | 24.297  | 73.036 | 289.431 |
| 5500.000 | 0.979 | 269.394 | 24.402  | -70.752 | 5498.289 | 0.237 | 24.402  | 74.842 | 289.029 |
| 5600.000 | 0.773 | 252.688 | 24.192  | -72.250 | 5598.278 | 0.326 | 24.192  | 76.193 | 288.513 |
| 5700.000 | 0.970 | 232.547 | 23.477  | -73.566 | 5698.267 | 0.361 | 23.477  | 77.222 | 287.699 |
| 5800.000 | 0.559 | 236.043 | 22.689  | -74.643 | 5798.257 | 0.413 | 22.689  | 78.015 | 286.908 |
| 5900.000 | 0.507 | 271.648 | 22.429  | -75.490 | 5898.253 | 0.330 | 22.429  | 78.752 | 286.548 |
| 6000.000 | 0.121 | 225.520 | 22.368  | -76.007 | 5998.252 | 0.432 | 22.368  | 79.230 | 286.399 |
| 6100.000 | 0.344 | 171.528 | 21.997  | -76.038 | 6098.251 | 0.290 | 21.997  | 79.156 | 286.135 |
| 6200.000 | 0.600 | 108.433 | 21.535  | -75.497 | 6198.248 | 0.540 | 21.535  | 78.509 | 285.920 |
| 6300.000 | 1.207 | 122.873 | 20.798  | -74.116 | 6298.235 | 0.644 | 20.798  | 76.978 | 285.675 |
| 6400.000 | 1.292 | 110.570 | 19.830  | -72.175 | 6398.212 | 0.281 | 19.830  | 74.849 | 285.363 |
| 6500.000 | 1.160 | 116.950 | 18.975  | -70.217 | 6498.189 | 0.190 | 18.975  | 72.735 | 285.122 |
| 6600.000 | 1.223 | 135.165 | 17.759  | -68.562 | 6598.167 | 0.382 | 17.759  | 70.825 | 284.522 |
| 6700.000 | 1.190 | 135.477 | 16.262  | -67.082 | 6698.145 | 0.033 | 16.262  | 69.025 | 283.627 |
| 6800.000 | 1.032 | 142.447 | 14.808  | -65.805 | 6798.127 | 0.208 | 14.808  | 67.450 | 282.682 |
| 6900.000 | 0.729 | 153.990 | 13.522  | -64.977 | 6898.115 | 0.350 | 13.522  | 66.369 | 281.756 |
| 7000.000 | 0.919 | 165.090 | 12.176  | -64.492 | 6998.104 | 0.247 | 12.176  | 65.631 | 280.691 |

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