



Company: Noble Energy
Rig: Production / CoreTech
API # 05-123-30745
Date: 10/16/2013
Surveyor: CJ Hines
VS: 0.000
Lat : 40.481
Long: -104.506

Well: Lapp A #24-30D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.64 Deg East of True
Declination: 8.41
Depth Reference: Ground Level
Elevation: 4664
Total Depth as Drilled: 7050

Lat & Long obtained by handheld GPS at wellhead

MS 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 | 0.160 | 304.795 | 0.079 | -0.114 | 100.000 | 0.160 | 0.079 | 0.139 | 304.795 |
| 200.000 | 0.259 | 211.527 | -0.033 | -0.347 | 199.999 | 0.311 | -0.033 | 0.348 | 264.495 |
| 300.000 | 0.308 | 215.429 | -0.445 | -0.621 | 299.998 | 0.053 | -0.445 | 0.764 | 234.358 |
| 400.000 | 0.344 | 211.549 | -0.920 | -0.934 | 399.997 | 0.042 | -0.920 | 1.311 | 225.420 |
| 500.000 | 0.410 | 282.597 | -1.098 | -1.440 | 499.995 | 0.442 | -1.098 | 1.811 | 232.682 |
| 600.000 | 0.461 | 329.319 | -0.674 | -1.995 | 599.992 | 0.349 | -0.674 | 2.106 | 251.331 |
| 700.000 | 1.021 | 319.333 | 0.348 | -2.781 | 699.984 | 0.573 | 0.348 | 2.803 | 277.128 |
| 800.000 | 1.836 | 241.538 | 0.260 | -4.770 | 799.959 | 1.902 | 0.260 | 4.777 | 273.126 |
| 900.000 | 3.160 | 235.002 | -2.084 | -8.436 | 899.862 | 1.353 | -2.084 | 8.690 | 256.125 |
| 1000.000 | 4.094 | 233.621 | -5.782 | -13.568 | 999.661 | 0.938 | -5.782 | 14.748 | 246.919 |
| 1100.000 | 6.092 | 234.678 | -10.967 | -20.772 | 1099.261 | 2.000 | -10.967 | 23.489 | 242.166 |
| 1200.000 | 7.978 | 231.156 | -18.388 | -30.507 | 1198.504 | 1.933 | -18.388 | 35.620 | 238.920 |
| 1300.000 | 9.473 | 225.582 | -28.501 | -41.790 | 1297.346 | 1.716 | -28.501 | 50.583 | 235.706 |
| 1400.000 | 10.365 | 226.024 | -40.506 | -54.141 | 1395.850 | 0.895 | -40.506 | 67.617 | 233.198 |
| 1500.000 | 11.429 | 224.803 | -53.783 | -67.597 | 1494.046 | 1.089 | -53.783 | 86.383 | 231.493 |
| 1600.000 | 12.080 | 221.525 | -68.648 | -81.517 | 1591.949 | 0.932 | -68.648 | 106.571 | 229.898 |
| 1700.000 | 12.485 | 216.797 | -85.138 | -94.929 | 1689.662 | 1.084 | -85.138 | 127.514 | 228.112 |
| 1800.000 | 12.577 | 218.609 | -102.301 | -108.197 | 1787.281 | 0.404 | -102.301 | 148.903 | 226.604 |
| 1900.000 | 12.679 | 218.456 | -119.403 | -121.816 | 1884.862 | 0.107 | -119.403 | 170.576 | 225.573 |
| 2000.000 | 11.900 | 217.629 | -136.162 | -134.936 | 1982.570 | 0.798 | -136.162 | 191.697 | 224.741 |
| 2100.000 | 11.864 | 216.204 | -152.623 | -147.303 | 2080.427 | 0.296 | -152.623 | 212.113 | 223.984 |
| 2200.000 | 12.170 | 223.551 | -168.558 | -160.638 | 2178.241 | 1.559 | -168.558 | 232.844 | 223.622 |
| 2300.000 | 12.312 | 224.616 | -183.787 | -175.389 | 2275.968 | 0.267 | -183.787 | 254.046 | 223.661 |
| 2400.000 | 12.594 | 226.370 | -198.899 | -190.769 | 2373.615 | 0.472 | -198.899 | 275.597 | 223.805 |
| 2500.000 | 12.639 | 224.792 | -214.186 | -206.368 | 2471.201 | 0.348 | -214.186 | 297.428 | 223.935 |
| 2600.000 | 12.522 | 222.902 | -229.891 | -221.455 | 2568.800 | 0.428 | -229.891 | 319.206 | 223.929 |
| 2700.000 | 12.261 | 226.866 | -245.093 | -236.585 | 2666.472 | 0.890 | -245.093 | 340.650 | 223.988 |
| 2800.000 | 12.472 | 227.088 | -259.705 | -252.242 | 2764.152 | 0.216 | -259.705 | 362.039 | 224.165 |
| 2900.000 | 13.052 | 225.501 | -274.971 | -268.205 | 2861.682 | 0.678 | -274.971 | 384.113 | 224.286 |
| 3000.000 | 11.845 | 226.472 | -289.955 | -283.701 | 2959.329 | 1.225 | -289.955 | 405.660 | 224.375 |
| 3100.000 | 13.114 | 226.689 | -304.806 | -299.397 | 3056.964 | 1.270 | -304.806 | 427.253 | 224.487 |
| 3200.000 | 11.500 | 224.087 | -319.749 | -314.589 | 3154.664 | 1.707 | -319.749 | 448.559 | 224.534 |
| 3300.000 | 9.988 | 221.937 | -333.360 | -327.321 | 3252.908 | 1.563 | -333.360 | 467.192 | 224.476 |
| 3400.000 | 10.559 | 227.239 | -346.033 | -339.844 | 3351.307 | 1.104 | -346.033 | 485.007 | 224.483 |
| 3500.000 | 10.834 | 231.633 | -358.087 | -353.939 | 3449.571 | 0.860 | -358.087 | 503.487 | 224.666 |

| | | | | | | | | | |
|----------|--------|---------|----------|----------|----------|-------|----------|---------|---------|
| 3600.000 | 11.686 | 224.147 | -371.188 | -368.363 | 3547.650 | 1.690 | -371.188 | 522.945 | 224.781 |
| 3700.000 | 13.711 | 223.285 | -387.084 | -383.543 | 3645.199 | 2.034 | -387.084 | 544.922 | 224.737 |
| 3800.000 | 14.519 | 221.415 | -405.112 | -399.961 | 3742.180 | 0.928 | -405.112 | 569.284 | 224.633 |
| 3900.000 | 14.881 | 217.698 | -424.673 | -416.106 | 3838.909 | 1.010 | -424.673 | 594.552 | 224.416 |
| 4000.000 | 15.709 | 217.619 | -445.557 | -432.222 | 3935.366 | 0.828 | -445.557 | 620.755 | 224.130 |
| 4100.000 | 13.706 | 225.800 | -464.544 | -448.982 | 4032.095 | 2.881 | -464.544 | 646.054 | 224.024 |
| 4200.000 | 13.864 | 224.321 | -481.374 | -465.846 | 4129.215 | 0.386 | -481.374 | 669.876 | 224.061 |
| 4300.000 | 14.162 | 225.760 | -498.480 | -482.981 | 4226.239 | 0.458 | -498.480 | 694.084 | 224.095 |
| 4400.000 | 13.790 | 225.627 | -515.350 | -500.264 | 4323.279 | 0.373 | -515.350 | 718.227 | 224.149 |
| 4500.000 | 12.937 | 224.154 | -531.716 | -516.581 | 4420.570 | 0.919 | -531.716 | 741.335 | 224.173 |
| 4600.000 | 10.264 | 223.032 | -546.263 | -530.461 | 4518.519 | 2.682 | -546.263 | 761.441 | 224.159 |
| 4700.000 | 8.356 | 220.275 | -558.320 | -541.239 | 4617.198 | 1.959 | -558.320 | 777.600 | 224.110 |
| 4800.000 | 7.735 | 222.323 | -568.840 | -550.468 | 4716.213 | 0.684 | -568.840 | 791.576 | 224.060 |
| 4900.000 | 4.478 | 232.457 | -576.196 | -558.096 | 4815.635 | 3.418 | -576.196 | 802.168 | 224.086 |
| 5000.000 | 2.721 | 252.388 | -579.294 | -563.455 | 4915.438 | 2.132 | -579.294 | 808.123 | 224.206 |
| 5100.000 | 0.343 | 245.843 | -580.135 | -565.992 | 5015.395 | 2.381 | -580.135 | 810.496 | 224.293 |
| 5200.000 | 0.545 | 91.721 | -580.272 | -565.790 | 5115.393 | 0.867 | -580.272 | 810.453 | 224.276 |
| 5300.000 | 0.298 | 98.072 | -580.323 | -565.057 | 5215.391 | 0.251 | -580.323 | 809.978 | 224.236 |
| 5400.000 | 0.614 | 106.842 | -580.514 | -564.287 | 5315.387 | 0.323 | -580.514 | 809.578 | 224.188 |
| 5500.000 | 0.711 | 97.053 | -580.746 | -563.159 | 5415.381 | 0.149 | -580.746 | 808.959 | 224.119 |
| 5600.000 | 1.020 | 96.631 | -580.924 | -561.660 | 5515.369 | 0.309 | -580.924 | 808.044 | 224.034 |
| 5700.000 | 0.728 | 88.753 | -581.013 | -560.141 | 5615.357 | 0.315 | -581.013 | 807.053 | 223.952 |
| 5800.000 | 0.588 | 84.938 | -580.954 | -558.995 | 5715.351 | 0.147 | -580.954 | 806.216 | 223.896 |
| 5900.000 | 0.592 | 127.176 | -581.221 | -558.073 | 5815.346 | 0.425 | -581.221 | 805.769 | 223.836 |
| 6000.000 | 0.779 | 130.169 | -581.972 | -557.142 | 5915.339 | 0.191 | -581.972 | 805.667 | 223.751 |
| 6100.000 | 0.697 | 118.635 | -582.702 | -556.089 | 6015.331 | 0.170 | -582.702 | 805.467 | 223.661 |
| 6200.000 | 0.697 | 126.483 | -583.355 | -555.066 | 6115.323 | 0.095 | -583.355 | 805.234 | 223.577 |
| 6300.000 | 0.467 | 123.012 | -583.938 | -554.236 | 6215.318 | 0.232 | -583.938 | 805.085 | 223.505 |
| 6400.000 | 0.514 | 104.690 | -584.274 | -553.460 | 6315.314 | 0.163 | -584.274 | 804.794 | 223.449 |
| 6500.000 | 0.635 | 108.626 | -584.565 | -552.500 | 6415.309 | 0.127 | -584.565 | 804.346 | 223.385 |
| 6600.000 | 0.960 | 104.790 | -584.956 | -551.164 | 6515.299 | 0.329 | -584.956 | 803.714 | 223.296 |
| 6700.000 | 0.735 | 89.483 | -585.165 | -549.712 | 6615.289 | 0.317 | -585.165 | 802.870 | 223.211 |

North