



Company: Noble Energy
Rig: Production/VES
API # 05-123-24289

Date: 10/23/2013

Surveyor: Nick Kula

VS: 0.000

Lat : 40.511

Long: -104.476

Well: Foss #6-45

Location: Weld County, Colorado

North Reference: GRID

Convergence: GRID North is 0.660 Degrees East

Declination: 8.41

Depth Reference: Ground Level

Elevation: 4695'

Total Depth as Drilled: 7023'

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 | 0.656 | 257.297 | -0.126 | -0.559 | 99.998 | 0.656 | -0.126 | 0.573 | 257.297 |
| 200.000 | 0.358 | 204.323 | -0.536 | -1.246 | 199.994 | 0.525 | -0.536 | 1.356 | 246.714 |
| 300.000 | 0.355 | 272.927 | -0.805 | -1.684 | 299.993 | 0.401 | -0.805 | 1.866 | 244.453 |
| 400.000 | 0.306 | 234.105 | -0.945 | -2.209 | 399.991 | 0.224 | -0.945 | 2.403 | 246.832 |
| 500.000 | 1.031 | 268.827 | -1.120 | -3.324 | 499.984 | 0.799 | -1.120 | 3.508 | 251.378 |
| 600.000 | 0.774 | 279.407 | -1.028 | -4.889 | 599.972 | 0.305 | -1.028 | 4.996 | 258.125 |
| 700.000 | 0.791 | 269.493 | -0.924 | -6.245 | 699.962 | 0.136 | -0.924 | 6.313 | 261.585 |
| 800.000 | 0.824 | 270.002 | -0.930 | -7.655 | 799.952 | 0.034 | -0.930 | 7.711 | 263.073 |
| 900.000 | 0.933 | 267.134 | -0.971 | -9.188 | 899.941 | 0.118 | -0.971 | 9.239 | 263.969 |
| 1000.000 | 0.963 | 266.954 | -1.056 | -10.841 | 999.927 | 0.030 | -1.056 | 10.892 | 264.436 |
| 1100.000 | 0.901 | 280.474 | -0.958 | -12.453 | 1099.914 | 0.228 | -0.958 | 12.490 | 265.603 |
| 1200.000 | 0.969 | 264.816 | -0.891 | -14.069 | 1199.901 | 0.263 | -0.891 | 14.097 | 266.376 |
| 1300.000 | 0.992 | 287.897 | -0.702 | -15.735 | 1299.886 | 0.393 | -0.702 | 15.751 | 267.447 |
| 1400.000 | 0.928 | 286.598 | -0.204 | -17.335 | 1399.872 | 0.067 | -0.204 | 17.336 | 269.325 |
| 1500.000 | 1.022 | 286.627 | 0.282 | -18.965 | 1499.858 | 0.093 | 0.282 | 18.967 | 270.853 |
| 1600.000 | 0.602 | 270.601 | 0.543 | -20.345 | 1599.848 | 0.473 | 0.543 | 20.352 | 271.528 |
| 1700.000 | 0.789 | 283.349 | 0.707 | -21.540 | 1699.840 | 0.241 | 0.707 | 21.551 | 271.881 |
| 1800.000 | 0.914 | 284.928 | 1.071 | -22.979 | 1799.829 | 0.127 | 1.071 | 23.004 | 272.670 |
| 1900.000 | 0.952 | 290.694 | 1.571 | -24.527 | 1899.816 | 0.102 | 1.571 | 24.577 | 273.664 |
| 2000.000 | 0.800 | 282.545 | 2.016 | -25.986 | 1999.804 | 0.197 | 2.016 | 26.064 | 274.436 |
| 2100.000 | 0.446 | 281.532 | 2.245 | -27.048 | 2099.798 | 0.354 | 2.245 | 27.141 | 274.745 |
| 2200.000 | 0.039 | 134.607 | 2.299 | -27.405 | 2199.797 | 0.480 | 2.299 | 27.502 | 274.795 |
| 2300.000 | 0.489 | 137.830 | 1.959 | -27.095 | 2299.796 | 0.449 | 1.959 | 27.165 | 274.135 |
| 2400.000 | 0.746 | 111.988 | 1.399 | -26.204 | 2399.790 | 0.373 | 1.399 | 26.242 | 273.056 |
| 2500.000 | 0.874 | 104.155 | 0.969 | -24.861 | 2499.780 | 0.169 | 0.969 | 24.880 | 272.231 |
| 2600.000 | 1.082 | 121.344 | 0.291 | -23.315 | 2599.766 | 0.358 | 0.291 | 23.317 | 270.715 |
| 2700.000 | 0.857 | 105.793 | -0.404 | -21.789 | 2699.752 | 0.344 | -0.404 | 21.792 | 268.938 |
| 2800.000 | 0.857 | 103.220 | -0.779 | -20.340 | 2799.741 | 0.039 | -0.779 | 20.355 | 267.807 |
| 2900.000 | 0.988 | 111.733 | -1.269 | -18.811 | 2899.728 | 0.189 | -1.269 | 18.854 | 266.141 |
| 3000.000 | 0.116 | 130.469 | -1.654 | -17.934 | 2999.722 | 0.879 | -1.654 | 18.010 | 264.732 |
| 3100.000 | 0.182 | 135.019 | -1.831 | -17.745 | 3099.722 | 0.067 | -1.831 | 17.839 | 264.108 |
| 3200.000 | 0.116 | 147.343 | -2.029 | -17.579 | 3199.721 | 0.073 | -2.029 | 17.695 | 263.417 |
| 3300.000 | 0.524 | 228.254 | -2.418 | -17.865 | 3299.720 | 0.518 | -2.418 | 18.028 | 262.292 |
| 3400.000 | 1.426 | 244.765 | -3.253 | -19.332 | 3399.705 | 0.936 | -3.253 | 19.603 | 260.449 |
| 3500.000 | 1.622 | 249.249 | -4.285 | -21.781 | 3499.669 | 0.229 | -4.285 | 22.198 | 258.871 |

| | | | | | | | | | |
|----------|-------|---------|---------|---------|----------|-------|---------|--------|---------|
| 3600.000 | 1.758 | 247.722 | -5.368 | -24.523 | 3599.626 | 0.144 | -5.368 | 25.104 | 257.654 |
| 3700.000 | 1.647 | 257.095 | -6.270 | -27.344 | 3699.582 | 0.299 | -6.270 | 28.054 | 257.085 |
| 3800.000 | 1.523 | 255.228 | -6.930 | -30.030 | 3799.543 | 0.135 | -6.930 | 30.819 | 257.006 |
| 3900.000 | 1.757 | 243.826 | -7.945 | -32.690 | 3899.503 | 0.400 | -7.945 | 33.642 | 256.340 |
| 4000.000 | 1.162 | 256.042 | -8.866 | -35.050 | 3999.470 | 0.667 | -8.866 | 36.154 | 255.805 |
| 4100.000 | 0.902 | 258.995 | -9.261 | -36.808 | 4099.454 | 0.265 | -9.261 | 37.955 | 255.878 |
| 4200.000 | 0.746 | 202.032 | -10.015 | -37.825 | 4199.445 | 0.798 | -10.015 | 39.129 | 255.170 |
| 4300.000 | 0.815 | 152.583 | -11.250 | -37.742 | 4299.437 | 0.656 | -11.250 | 39.383 | 253.403 |
| 4400.000 | 0.829 | 128.471 | -12.331 | -36.848 | 4399.427 | 0.344 | -12.331 | 38.857 | 251.498 |
| 4500.000 | 1.234 | 79.493 | -12.585 | -35.223 | 4499.412 | 0.931 | -12.585 | 37.404 | 250.339 |
| 4600.000 | 1.753 | 50.302 | -11.411 | -32.987 | 4599.379 | 0.905 | -11.411 | 34.905 | 250.918 |
| 4700.000 | 2.072 | 38.659 | -9.022 | -30.681 | 4699.324 | 0.501 | -9.022 | 31.980 | 253.613 |
| 4800.000 | 1.396 | 34.455 | -6.607 | -28.863 | 4799.277 | 0.688 | -6.607 | 29.609 | 257.107 |
| 4900.000 | 1.240 | 50.502 | -4.914 | -27.339 | 4899.251 | 0.399 | -4.914 | 27.777 | 259.809 |
| 5000.000 | 1.148 | 56.694 | -3.676 | -25.667 | 4999.229 | 0.158 | -3.676 | 25.929 | 261.849 |
| 5100.000 | 0.961 | 80.312 | -2.985 | -24.002 | 5099.213 | 0.469 | -2.985 | 24.187 | 262.911 |
| 5200.000 | 0.440 | 84.814 | -2.809 | -22.794 | 5199.205 | 0.524 | -2.809 | 22.966 | 262.974 |
| 5300.000 | 0.140 | 70.676 | -2.734 | -22.297 | 5299.204 | 0.306 | -2.734 | 22.464 | 263.009 |
| 5400.000 | 0.735 | 12.986 | -2.068 | -22.038 | 5399.201 | 0.671 | -2.068 | 22.135 | 264.638 |
| 5500.000 | 0.830 | 12.285 | -0.735 | -21.739 | 5499.191 | 0.095 | -0.735 | 21.752 | 268.062 |
| 5600.000 | 0.727 | 14.989 | 0.585 | -21.421 | 5599.182 | 0.109 | 0.585 | 21.429 | 271.564 |
| 5700.000 | 0.458 | 32.146 | 1.536 | -21.045 | 5699.177 | 0.319 | 1.536 | 21.101 | 274.174 |
| 5800.000 | 0.232 | 33.592 | 2.043 | -20.720 | 5799.175 | 0.225 | 2.043 | 20.820 | 275.631 |
| 5900.000 | 0.104 | 28.057 | 2.292 | -20.565 | 5899.174 | 0.129 | 2.292 | 20.692 | 276.360 |
| 6000.000 | 0.233 | 309.988 | 2.503 | -20.678 | 5999.174 | 0.235 | 2.503 | 20.829 | 276.902 |
| 6100.000 | 0.204 | 296.604 | 2.713 | -20.993 | 6099.173 | 0.058 | 2.713 | 21.168 | 277.365 |
| 6200.000 | 0.329 | 323.435 | 3.024 | -21.323 | 6199.172 | 0.173 | 3.024 | 21.537 | 278.071 |
| 6300.000 | 0.482 | 271.816 | 3.267 | -21.914 | 6299.170 | 0.379 | 3.267 | 22.157 | 278.480 |
| 6400.000 | 0.388 | 276.292 | 3.318 | -22.671 | 6399.167 | 0.099 | 3.318 | 22.913 | 278.326 |
| 6500.000 | 0.511 | 242.567 | 3.150 | -23.404 | 6499.164 | 0.286 | 3.150 | 23.615 | 277.665 |
| 6600.000 | 0.362 | 225.733 | 2.724 | -24.026 | 6599.161 | 0.195 | 2.724 | 24.180 | 276.468 |

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