



COMPANY/RIG: Noble Energy/Production/CoreTech
WELL/API: Conagra B 30-24/05-123-28030
DECLINATION: 8.19 Degrees
TD AS DRILLED: 7108 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.36666, Longitude: -104.59261
Grid North = True North -0.59 degs (NAD 27)
Grid Correction Applied = -0.59 degs



DEPTH REFERENCE : RKB = GL Elevation = 4710

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 9/1/2016 / 14:04

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Conagra B 30-24

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | TVD FT | +N/-S FT | +E/-W FT | Vertical Section FT | Closure Distance FT | Closure Direction Deg | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | **** |
| 100.000 | 0.098 | 244.707 | 100.000 | -0.037 | -0.078 | -0.037 | 0.086 | 244.707 | 0.098 |
| 200.000 | 0.157 | 2.272 | 200.000 | 0.064 | -0.150 | 0.064 | 0.163 | 292.984 | 0.221 |
| 300.000 | 0.283 | 344.048 | 299.999 | 0.438 | -0.212 | 0.438 | 0.486 | 334.134 | 0.142 |
| 400.000 | 0.269 | 325.271 | 399.998 | 0.868 | -0.414 | 0.868 | 0.962 | 334.508 | 0.091 |
| 500.000 | 0.733 | 234.090 | 499.995 | 0.686 | -1.066 | 0.686 | 1.267 | 302.771 | 0.786 |
| 600.000 | 0.930 | 238.310 | 599.984 | -0.116 | -2.274 | -0.116 | 2.277 | 267.091 | 0.207 |
| 700.000 | 1.205 | 232.394 | 699.967 | -1.184 | -3.798 | -1.184 | 3.978 | 252.692 | 0.295 |
| 800.000 | 1.026 | 226.536 | 799.948 | -2.441 | -5.280 | -2.441 | 5.817 | 245.193 | 0.212 |
| 900.000 | 1.046 | 225.964 | 899.932 | -3.691 | -6.587 | -3.691 | 7.550 | 240.733 | 0.023 |
| 1000.000 | 1.049 | 232.862 | 999.915 | -4.878 | -7.973 | -4.878 | 9.347 | 238.537 | 0.126 |
| 1100.000 | 1.304 | 229.158 | 1099.894 | -6.175 | -9.563 | -6.175 | 11.383 | 237.148 | 0.266 |
| 1200.000 | 1.213 | 236.791 | 1199.870 | -7.499 | -11.309 | -7.499 | 13.569 | 236.453 | 0.190 |
| 1300.000 | 1.325 | 238.065 | 1299.845 | -8.690 | -13.177 | -8.690 | 15.784 | 236.594 | 0.115 |
| 1400.000 | 1.351 | 241.294 | 1399.818 | -9.868 | -15.192 | -9.868 | 18.115 | 236.993 | 0.079 |
| 1500.000 | 1.069 | 232.014 | 1499.796 | -11.008 | -16.960 | -11.008 | 20.220 | 237.014 | 0.342 |
| 1600.000 | 1.082 | 209.617 | 1599.778 | -12.403 | -18.162 | -12.403 | 21.993 | 235.670 | 0.418 |

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|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 1700.000 | 1.103 | 203.677 | 1699.760 | -14.106 | -19.015 | -14.106 | 23.676 | 233.432 | 0.115 |
| 1800.000 | 0.797 | 208.678 | 1799.746 | -15.598 | -19.736 | -15.598 | 25.155 | 231.680 | 0.317 |
| 1900.000 | 0.637 | 204.542 | 1899.739 | -16.713 | -20.300 | -16.713 | 26.295 | 230.535 | 0.168 |
| 2000.000 | 0.622 | 221.939 | 1999.733 | -17.622 | -20.894 | -17.622 | 27.333 | 229.855 | 0.191 |
| 2100.000 | 0.712 | 244.196 | 2099.726 | -18.296 | -21.816 | -18.296 | 28.472 | 230.014 | 0.272 |
| 2200.000 | 0.760 | 253.232 | 2199.718 | -18.758 | -23.010 | -18.758 | 29.687 | 230.812 | 0.125 |
| 2300.000 | 0.837 | 260.746 | 2299.708 | -19.067 | -24.366 | -19.067 | 30.939 | 231.956 | 0.130 |
| 2400.000 | 1.251 | 279.018 | 2399.692 | -19.013 | -26.165 | -19.013 | 32.343 | 233.995 | 0.526 |
| 2500.000 | 1.690 | 283.836 | 2499.658 | -18.489 | -28.674 | -18.489 | 34.118 | 237.186 | 0.455 |
| 2600.000 | 1.827 | 282.771 | 2599.611 | -17.785 | -31.660 | -17.785 | 36.313 | 240.676 | 0.141 |
| 2700.000 | 2.062 | 277.060 | 2699.554 | -17.211 | -35.001 | -17.211 | 39.003 | 243.815 | 0.305 |
| 2800.000 | 2.090 | 278.521 | 2799.488 | -16.720 | -38.589 | -16.720 | 42.056 | 246.574 | 0.059 |
| 2900.000 | 2.113 | 275.206 | 2899.421 | -16.282 | -42.229 | -16.282 | 45.259 | 248.915 | 0.124 |
| 3000.000 | 1.943 | 278.130 | 2999.358 | -15.875 | -45.743 | -15.875 | 48.420 | 250.860 | 0.199 |
| 3100.000 | 1.916 | 284.193 | 3099.302 | -15.226 | -49.042 | -15.226 | 51.351 | 252.752 | 0.206 |
| 3200.000 | 1.161 | 293.920 | 3199.265 | -14.405 | -51.589 | -14.405 | 53.562 | 254.399 | 0.796 |
| 3300.000 | 0.318 | 309.783 | 3299.256 | -13.817 | -52.728 | -13.817 | 54.508 | 255.317 | 0.860 |
| 3400.000 | 0.148 | 329.827 | 3399.255 | -13.527 | -53.006 | -13.527 | 54.705 | 255.684 | 0.186 |
| 3500.000 | 0.304 | 304.136 | 3499.254 | -13.266 | -53.291 | -13.266 | 54.918 | 256.021 | 0.182 |
| 3600.000 | 0.563 | 292.344 | 3599.251 | -12.931 | -53.966 | -12.931 | 55.493 | 256.525 | 0.272 |
| 3700.000 | 1.115 | 280.973 | 3699.240 | -12.559 | -55.375 | -12.559 | 56.782 | 257.222 | 0.574 |
| 3800.000 | 1.240 | 274.816 | 3799.219 | -12.283 | -57.409 | -12.283 | 58.708 | 257.924 | 0.177 |
| 3900.000 | 1.336 | 273.036 | 3899.194 | -12.130 | -59.651 | -12.130 | 60.872 | 258.506 | 0.104 |
| 4000.000 | 1.221 | 266.909 | 3999.169 | -12.126 | -61.879 | -12.126 | 63.056 | 258.913 | 0.179 |
| 4100.000 | 1.077 | 283.221 | 4099.149 | -11.968 | -63.857 | -11.968 | 64.969 | 259.385 | 0.356 |
| 4200.000 | 1.103 | 292.869 | 4199.131 | -11.379 | -65.659 | -11.379 | 66.637 | 260.168 | 0.185 |
| 4300.000 | 1.261 | 310.171 | 4299.110 | -10.296 | -67.386 | -10.296 | 68.168 | 261.313 | 0.388 |
| 4400.000 | 1.608 | 313.238 | 4399.079 | -8.625 | -69.248 | -8.625 | 69.783 | 262.900 | 0.355 |
| 4500.000 | 2.106 | 326.098 | 4499.026 | -6.139 | -71.295 | -6.139 | 71.559 | 265.079 | 0.647 |
| 4600.000 | 2.342 | 308.556 | 4598.952 | -3.340 | -73.918 | -3.340 | 73.994 | 267.413 | 0.717 |
| 4700.000 | 2.097 | 294.498 | 4698.878 | -1.308 | -77.181 | -1.308 | 77.192 | 269.029 | 0.595 |
| 4800.000 | 1.232 | 278.810 | 4798.835 | -0.385 | -79.908 | -0.385 | 79.909 | 269.724 | 0.970 |
| 4900.000 | 0.940 | 267.716 | 4898.817 | -0.253 | -81.790 | -0.253 | 81.791 | 269.823 | 0.358 |
| 5000.000 | 0.759 | 262.155 | 4998.806 | -0.376 | -83.266 | -0.376 | 83.267 | 269.741 | 0.199 |
| 5100.000 | 0.925 | 302.680 | 5098.796 | -0.030 | -84.601 | -0.030 | 84.601 | 269.980 | 0.604 |
| 5200.000 | 0.971 | 308.208 | 5198.782 | 0.930 | -85.947 | 0.930 | 85.952 | 270.620 | 0.103 |
| 5300.000 | 0.939 | 310.726 | 5298.769 | 1.989 | -87.234 | 1.989 | 87.257 | 271.306 | 0.053 |
| 5400.000 | 1.078 | 329.067 | 5398.753 | 3.331 | -88.339 | 3.331 | 88.402 | 272.160 | 0.350 |
| 5500.000 | 1.332 | 335.497 | 5498.731 | 5.196 | -89.305 | 5.196 | 89.456 | 273.330 | 0.287 |

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|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 5600.000 | 1.344 | 350.437 | 5598.704 | 7.410 | -89.982 | 7.410 | 90.286 | 274.708 | 0.348 |
| 5700.000 | 0.965 | 347.165 | 5698.684 | 9.388 | -90.364 | 9.388 | 90.850 | 275.931 | 0.384 |
| 5800.000 | 0.661 | 345.121 | 5798.673 | 10.767 | -90.699 | 10.767 | 91.336 | 276.770 | 0.306 |
| 5900.000 | 0.450 | 354.382 | 5898.669 | 11.716 | -90.886 | 11.716 | 91.638 | 277.345 | 0.229 |
| 6000.000 | 0.638 | 0.206 | 5998.664 | 12.663 | -90.922 | 12.663 | 91.800 | 277.929 | 0.196 |
| 6100.000 | 0.791 | 6.954 | 6098.656 | 13.905 | -90.837 | 13.905 | 91.895 | 278.703 | 0.175 |
| 6200.000 | 0.966 | 13.716 | 6198.645 | 15.409 | -90.553 | 15.409 | 91.855 | 279.658 | 0.203 |
| 6300.000 | 1.032 | 17.825 | 6298.629 | 17.086 | -90.078 | 17.086 | 91.684 | 280.740 | 0.097 |
| 6400.000 | 1.085 | 23.043 | 6398.612 | 18.814 | -89.431 | 18.814 | 91.389 | 281.880 | 0.110 |
| 6500.000 | 0.717 | 34.246 | 6498.600 | 20.202 | -88.709 | 20.202 | 90.980 | 282.829 | 0.406 |
| 6600.000 | 0.614 | 31.787 | 6598.593 | 21.174 | -88.075 | 21.174 | 90.584 | 283.518 | 0.107 |
| 6700.000 | 0.581 | 44.128 | 6698.588 | 21.993 | -87.440 | 21.993 | 90.163 | 284.118 | 0.133 |
| 6800.000 | 0.673 | 41.968 | 6798.582 | 22.794 | -86.694 | 22.794 | 89.641 | 284.731 | 0.095 |
| 6850.000 | 0.821 | 39.674 | 6848.578 | 23.288 | -86.269 | 23.288 | 89.357 | 285.107 | 0.302 |