



Company: Noble Energy
Rig: Production/ CoreTech
API # 05-123-31990
Date: 4/22/2014
Surveyor: Sean Bratt
VS: 0.000
Lat : 40.248
Long: -104.579

Well: LDS D08-29D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.6 Degree
Declination: 8.38 Degrees
Depth Reference: Ground Level
Elevation: 4752 Feet
Total Depth as Drilled: 7173 Feet

Lat & Long obtained by handheld GPS at wellhead

MS Gyro Survey Calculations

| Depth | Inc | AzG | N/-S | E/-W | TVD | DL | VS | CD |
|----------|-------|---------|---------|---------|----------|-------|---------|--------|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | **** | 0.000 | 0.000 |
| 100.000 | 0.661 | 233.294 | -0.345 | -0.462 | 99.998 | 0.661 | -0.345 | 0.577 |
| 200.000 | 0.879 | 201.385 | -1.404 | -1.205 | 199.989 | 0.473 | -1.404 | 1.850 |
| 300.000 | 0.902 | 214.352 | -2.769 | -1.929 | 299.977 | 0.202 | -2.769 | 3.375 |
| 400.000 | 0.180 | 224.907 | -3.530 | -2.484 | 399.972 | 0.726 | -3.530 | 4.317 |
| 500.000 | 0.545 | 239.018 | -3.886 | -3.003 | 499.970 | 0.373 | -3.886 | 4.911 |
| 600.000 | 0.822 | 211.038 | -4.746 | -3.781 | 599.963 | 0.426 | -4.746 | 6.068 |
| 700.000 | 0.910 | 205.037 | -6.080 | -4.487 | 699.952 | 0.127 | -6.080 | 7.556 |
| 800.000 | 0.546 | 198.999 | -7.250 | -4.978 | 799.943 | 0.372 | -7.250 | 8.794 |
| 900.000 | 0.602 | 184.543 | -8.224 | -5.174 | 899.938 | 0.155 | -8.224 | 9.716 |
| 1000.000 | 1.321 | 205.348 | -9.789 | -5.709 | 999.924 | 0.787 | -9.789 | 11.332 |
| 1100.000 | 0.811 | 177.512 | -11.537 | -6.172 | 1099.907 | 0.713 | -11.537 | 13.084 |
| 1200.000 | 1.168 | 186.125 | -13.257 | -6.250 | 1199.892 | 0.386 | -13.257 | 14.656 |
| 1300.000 | 1.286 | 204.711 | -15.289 | -6.828 | 1299.869 | 0.413 | -15.289 | 16.744 |
| 1400.000 | 1.126 | 210.163 | -17.158 | -7.790 | 1399.847 | 0.197 | -17.158 | 18.843 |
| 1500.000 | 0.970 | 178.940 | -18.853 | -8.268 | 1499.831 | 0.584 | -18.853 | 20.586 |
| 1600.000 | 1.048 | 206.942 | -20.514 | -8.667 | 1599.816 | 0.494 | -20.514 | 22.270 |
| 1700.000 | 0.847 | 187.666 | -22.062 | -9.180 | 1699.803 | 0.374 | -22.062 | 23.896 |
| 1800.000 | 1.025 | 212.110 | -23.553 | -9.754 | 1799.790 | 0.433 | -23.553 | 25.492 |
| 1900.000 | 0.640 | 215.732 | -24.764 | -10.556 | 1899.779 | 0.388 | -24.764 | 26.919 |
| 2000.000 | 0.841 | 220.287 | -25.777 | -11.357 | 1999.771 | 0.209 | -25.777 | 28.168 |
| 2100.000 | 0.756 | 240.894 | -26.658 | -12.408 | 2099.761 | 0.298 | -26.658 | 29.404 |
| 2200.000 | 0.720 | 246.653 | -27.228 | -13.561 | 2199.753 | 0.082 | -27.228 | 30.419 |
| 2300.000 | 0.650 | 262.590 | -27.550 | -14.701 | 2299.746 | 0.202 | -27.550 | 31.227 |
| 2400.000 | 0.827 | 267.968 | -27.649 | -15.985 | 2399.738 | 0.189 | -27.649 | 31.937 |
| 2500.000 | 1.274 | 265.793 | -27.756 | -17.815 | 2499.720 | 0.449 | -27.756 | 32.982 |
| 2600.000 | 0.991 | 267.416 | -27.877 | -19.788 | 2599.701 | 0.285 | -27.877 | 34.186 |
| 2700.000 | 0.972 | 269.431 | -27.924 | -21.500 | 2699.686 | 0.039 | -27.924 | 35.242 |
| 2800.000 | 1.499 | 269.753 | -27.938 | -23.655 | 2799.663 | 0.527 | -27.938 | 36.608 |
| 2900.000 | 1.540 | 258.897 | -28.203 | -26.282 | 2899.628 | 0.290 | -28.203 | 38.550 |
| 3000.000 | 1.129 | 287.928 | -28.158 | -28.538 | 2999.601 | 0.778 | -28.158 | 40.091 |
| 3100.000 | 1.132 | 282.592 | -27.640 | -30.440 | 3099.582 | 0.105 | -27.640 | 41.116 |
| 3200.000 | 1.289 | 297.597 | -26.903 | -32.401 | 3199.560 | 0.352 | -26.903 | 42.114 |
| 3300.000 | 1.094 | 312.348 | -25.739 | -34.103 | 3299.538 | 0.362 | -25.739 | 42.726 |
| 3400.000 | 0.985 | 310.257 | -24.541 | -35.465 | 3399.522 | 0.115 | -24.541 | 43.128 |

| | | | | | | | | |
|----------|-------|---------|---------|---------|----------|-------|---------|--------|
| 3500.000 | 0.918 | 307.410 | -23.499 | -36.757 | 3499.508 | 0.082 | -23.499 | 43.626 |
| 3600.000 | 0.773 | 316.534 | -22.523 | -37.857 | 3599.497 | 0.198 | -22.523 | 44.050 |
| 3700.000 | 0.502 | 302.571 | -21.797 | -38.690 | 3699.491 | 0.310 | -21.797 | 44.408 |
| 3800.000 | 0.514 | 300.356 | -21.335 | -39.447 | 3799.487 | 0.023 | -21.335 | 44.846 |
| 3900.000 | 0.622 | 295.769 | -20.872 | -40.322 | 3899.482 | 0.117 | -20.872 | 45.404 |
| 4000.000 | 0.871 | 297.673 | -20.283 | -41.484 | 3999.474 | 0.251 | -20.283 | 46.177 |
| 4100.000 | 1.174 | 291.536 | -19.554 | -43.111 | 4099.458 | 0.322 | -19.554 | 47.338 |
| 4200.000 | 0.848 | 318.337 | -18.625 | -44.555 | 4199.442 | 0.566 | -18.625 | 48.292 |
| 4300.000 | 1.006 | 302.915 | -17.596 | -45.784 | 4299.429 | 0.294 | -17.596 | 49.049 |
| 4400.000 | 0.632 | 316.377 | -16.720 | -46.901 | 4399.419 | 0.418 | -16.720 | 49.792 |
| 4500.000 | 0.626 | 290.210 | -16.132 | -47.794 | 4499.413 | 0.285 | -16.132 | 50.443 |
| 4600.000 | 0.545 | 247.249 | -16.127 | -48.745 | 4599.409 | 0.435 | -16.127 | 51.343 |
| 4700.000 | 0.547 | 196.521 | -16.768 | -49.319 | 4699.405 | 0.468 | -16.768 | 52.092 |
| 4800.000 | 1.004 | 166.937 | -18.079 | -49.257 | 4799.396 | 0.593 | -18.079 | 52.470 |
| 4900.000 | 1.452 | 174.355 | -20.193 | -48.934 | 4899.372 | 0.474 | -20.193 | 52.937 |
| 5000.000 | 1.054 | 176.034 | -22.372 | -48.746 | 4999.348 | 0.399 | -22.372 | 53.634 |
| 5100.000 | 1.553 | 178.169 | -24.644 | -48.639 | 5099.322 | 0.501 | -24.644 | 54.526 |
| 5200.000 | 1.479 | 177.280 | -27.287 | -48.534 | 5199.287 | 0.078 | -27.287 | 55.679 |
| 5300.000 | 0.935 | 171.766 | -29.383 | -48.356 | 5299.265 | 0.556 | -29.383 | 56.584 |
| 5400.000 | 0.633 | 191.196 | -30.732 | -48.347 | 5399.255 | 0.398 | -30.732 | 57.287 |
| 5500.000 | 0.262 | 192.250 | -31.497 | -48.502 | 5499.252 | 0.371 | -31.497 | 57.832 |
| 5600.000 | 0.312 | 213.847 | -31.946 | -48.702 | 5599.251 | 0.118 | -31.946 | 58.245 |
| 5700.000 | 0.286 | 216.304 | -32.373 | -49.002 | 5699.249 | 0.029 | -32.373 | 58.730 |
| 5800.000 | 0.186 | 153.030 | -32.719 | -49.076 | 5799.249 | 0.262 | -32.719 | 58.982 |
| 5900.000 | 0.203 | 7.238 | -32.688 | -48.980 | 5899.249 | 0.371 | -32.688 | 58.886 |
| 6000.000 | 0.463 | 357.212 | -32.108 | -48.977 | 5999.247 | 0.266 | -32.108 | 58.564 |
| 6100.000 | 0.985 | 351.039 | -30.855 | -49.131 | 6099.238 | 0.527 | -30.855 | 58.016 |
| 6200.000 | 1.491 | 351.074 | -28.720 | -49.467 | 6199.215 | 0.506 | -28.720 | 57.200 |
| 6300.000 | 1.660 | 339.711 | -26.076 | -50.171 | 6299.177 | 0.354 | -26.076 | 56.543 |
| 6400.000 | 2.332 | 321.241 | -23.132 | -51.946 | 6399.117 | 0.922 | -23.132 | 56.864 |
| 6500.000 | 1.424 | 311.470 | -20.723 | -54.151 | 6499.062 | 0.960 | -20.723 | 57.980 |
| 6600.000 | 0.760 | 288.791 | -19.686 | -55.709 | 6599.044 | 0.779 | -19.686 | 59.086 |
| 6700.000 | 0.504 | 287.083 | -19.344 | -56.758 | 6699.038 | 0.257 | -19.344 | 59.964 |
| 6800.000 | 0.276 | 339.657 | -18.988 | -57.262 | 6799.036 | 0.401 | -18.988 | 60.328 |
| 6850.000 | 0.511 | 330.008 | -18.682 | -57.415 | 6849.035 | 0.487 | -18.682 | 60.378 |

0

es East of True North

Cbrg

0.000

233.294

220.629

214.863

215.133

217.693

218.543

216.425

214.474

212.178

210.252

208.145

205.242

204.064

204.420

203.680

202.903

202.592

202.496

203.086

203.777

204.959

206.476

208.085

210.034

212.694

215.368

217.594

220.255

222.981

225.383

227.760

230.296

232.957

235.318

237.409
239.250
240.604
241.593
242.632
243.944
245.602
247.314
248.977
250.380
251.349
251.693
251.222
249.845
247.576
245.347
243.130
240.655
238.716
237.558
237.001
236.737
236.549
236.309
236.282
236.752
237.870
239.860
242.537
245.997
249.059
250.538
251.180
251.654
251.976