

**VES**

VAUGHN ENERGY SERVICES

Company: Noble Energy  
 Lease/Well: Prospect Co / 26-914  
 Location: S-26 T-4N R-64W  
 Rig Name: Production  
 State/County: Colorado / Weld County  
 Latitude: 40.28, Longitude: -104.51  
 GRID North is 0.64 Degrees East of True North  
 VS-Azi: 0.00 Degrees

**GTI**

GYRO TECHNOLOGIES, INC

## FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

## DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: inrun\_ed.ut

Minimum Curvature Method

Report Date/Time: 2/21/2011 / 14:16

Vaughn Energy Services  
 Fort Worth, Texas  
 817-741-3610  
 Robert Davis

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N-S<br>FT | +E-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|------------|------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 0.00                    | 0.00                 | 0.00                      | 0.00      | 0.00       | 0.00       | 0.00                      | 0.00                      | 0.00                        | ****                          |
| 100.00                  | 0.15                 | 223.94                    | 100.00    | -0.10      | -0.09      | -0.10                     | 0.13                      | 223.94                      | 0.15                          |
| 200.00                  | 0.44                 | 295.19                    | 200.00    | -0.03      | -0.53      | -0.03                     | 0.53                      | 267.10                      | 0.42                          |
| 300.00                  | 0.25                 | 309.82                    | 300.00    | 0.28       | -1.05      | 0.28                      | 1.08                      | 284.80                      | 0.21                          |
| 400.00                  | 0.40                 | 297.94                    | 400.00    | 0.58       | -1.52      | 0.58                      | 1.63                      | 290.86                      | 0.17                          |
| 500.00                  | 0.55                 | 284.90                    | 499.99    | 0.87       | -2.30      | 0.87                      | 2.46                      | 290.71                      | 0.18                          |
| 600.00                  | 1.09                 | 302.48                    | 599.98    | 1.50       | -3.56      | 1.50                      | 3.86                      | 292.87                      | 0.59                          |
| 700.00                  | 1.69                 | 324.23                    | 699.95    | 3.21       | -5.23      | 3.21                      | 6.14                      | 301.57                      | 0.79                          |
| 800.00                  | 1.80                 | 315.60                    | 799.91    | 5.54       | -7.19      | 5.54                      | 9.08                      | 307.59                      | 0.28                          |
| 900.00                  | 1.93                 | 332.54                    | 899.85    | 8.16       | -9.07      | 8.16                      | 12.20                     | 311.97                      | 0.57                          |
| 1000.00                 | 1.63                 | 321.83                    | 999.80    | 10.77      | -10.73     | 10.77                     | 15.21                     | 315.12                      | 0.45                          |
| 1100.00                 | 0.98                 | 305.82                    | 1099.78   | 12.39      | -12.30     | 12.39                     | 17.46                     | 315.21                      | 0.74                          |
| 1200.00                 | 0.76                 | 304.79                    | 1199.77   | 13.27      | -13.53     | 13.27                     | 18.95                     | 314.43                      | 0.22                          |
| 1300.00                 | 0.95                 | 337.13                    | 1299.76   | 14.41      | -14.40     | 14.41                     | 20.37                     | 315.02                      | 0.51                          |
| 1400.00                 | 0.81                 | 337.97                    | 1399.74   | 15.83      | -14.99     | 15.83                     | 21.79                     | 316.56                      | 0.13                          |
| 1500.00                 | 0.75                 | 297.53                    | 1499.74   | 16.78      | -15.83     | 16.78                     | 23.07                     | 316.68                      | 0.54                          |
| 1600.00                 | 0.64                 | 317.11                    | 1599.73   | 17.50      | -16.79     | 17.50                     | 24.25                     | 316.18                      | 0.26                          |
| 1700.00                 | 0.25                 | 329.54                    | 1699.73   | 18.10      | -17.28     | 18.10                     | 25.02                     | 316.32                      | 0.41                          |
| 1800.00                 | 0.13                 | 294.22                    | 1799.73   | 18.33      | -17.49     | 18.33                     | 25.34                     | 316.33                      | 0.16                          |
| 1900.00                 | 0.70                 | 197.99                    | 1899.72   | 17.79      | -17.78     | 17.79                     | 25.16                     | 315.01                      | 0.73                          |
| 2000.00                 | 1.16                 | 202.92                    | 1999.71   | 16.28      | -18.37     | 16.28                     | 24.54                     | 311.54                      | 0.46                          |
| 2100.00                 | 1.23                 | 205.16                    | 2099.69   | 14.38      | -19.22     | 14.38                     | 24.00                     | 306.80                      | 0.08                          |
| 2200.00                 | 1.56                 | 202.96                    | 2199.66   | 12.16      | -20.20     | 12.16                     | 23.58                     | 301.04                      | 0.33                          |
| 2300.00                 | 1.53                 | 199.12                    | 2299.62   | 9.65       | -21.17     | 9.65                      | 23.26                     | 294.50                      | 0.11                          |
| 2400.00                 | 1.28                 | 178.44                    | 2399.59   | 7.27       | -21.57     | 7.27                      | 22.77                     | 288.62                      | 0.56                          |
| 2500.00                 | 1.13                 | 204.92                    | 2499.57   | 5.25       | -21.96     | 5.25                      | 22.58                     | 283.46                      | 0.57                          |
| 2600.00                 | 0.92                 | 217.67                    | 2599.56   | 3.72       | -22.87     | 3.72                      | 23.17                     | 279.24                      | 0.31                          |
| 2700.00                 | 0.65                 | 192.62                    | 2699.55   | 2.53       | -23.48     | 2.53                      | 23.62                     | 276.16                      | 0.43                          |
| 2800.00                 | 0.71                 | 202.04                    | 2799.54   | 1.40       | -23.84     | 1.40                      | 23.88                     | 273.37                      | 0.13                          |
| 2900.00                 | 0.67                 | 215.43                    | 2899.53   | 0.35       | -24.41     | 0.35                      | 24.41                     | 270.82                      | 0.17                          |
| 3000.00                 | 0.75                 | 214.56                    | 2999.52   | -0.66      | -25.12     | -0.66                     | 25.13                     | 268.49                      | 0.08                          |
| 3100.00                 | 0.74                 | 217.72                    | 3099.52   | -1.71      | -25.89     | -1.71                     | 25.94                     | 266.21                      | 0.04                          |
| 3200.00                 | 0.55                 | 225.84                    | 3199.51   | -2.56      | -26.63     | -2.56                     | 26.75                     | 264.50                      | 0.21                          |
| 3300.00                 | 0.39                 | 214.58                    | 3299.51   | -3.18      | -27.17     | -3.18                     | 27.36                     | 263.32                      | 0.18                          |
| 3400.00                 | 0.11                 | 40.32                     | 3399.50   | -3.39      | -27.30     | -3.39                     | 27.51                     | 262.92                      | 0.50                          |

| Measured<br>Depth<br>FT                                    | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|--|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 3500.00  | 0.51                 | 101.36                    | 3499.50   | -3.41       | -26.81      | -3.41                     | 27.02                     | 262.76                      | 0.47                          |
| 3600.00  | 0.10                 | 68.84                     | 3599.50   | -3.46       | -26.29      | -3.46                     | 26.52                     | 262.49                      | 0.43                          |
| 3700.00  | 0.30                 | 80.08                     | 3699.50   | -3.39       | -25.95      | -3.39                     | 26.17                     | 262.56                      | 0.21                          |
| 3800.00  | 0.17                 | 138.74                    | 3799.50   | -3.46       | -25.59      | -3.46                     | 25.82                     | 262.31                      | 0.26                          |
| 3900.00  | 0.24                 | 319.36                    | 3899.50   | -3.41       | -25.63      | -3.41                     | 25.85                     | 262.42                      | 0.42                          |
| 4000.00  | 0.16                 | 305.11                    | 3999.50   | -3.17       | -25.88      | -3.17                     | 26.07                     | 263.03                      | 0.10                          |
| 4100.00  | 0.57                 | 215.16                    | 4099.50   | -3.49       | -26.29      | -3.49                     | 26.52                     | 262.43                      | 0.60                          |
| 4200.00  | 0.69                 | 254.31                    | 4199.49   | -4.07       | -27.16      | -4.07                     | 27.46                     | 261.48                      | 0.44                          |
| 4300.00  | 0.95                 | 243.18                    | 4299.48   | -4.61       | -28.48      | -4.61                     | 28.85                     | 260.81                      | 0.30                          |
| 4400.00  | 1.31                 | 221.63                    | 4399.46   | -5.84       | -29.99      | -5.84                     | 30.55                     | 258.98                      | 0.55                          |
| 4500.00  | 1.71                 | 220.02                    | 4499.43   | -7.84       | -31.71      | -7.84                     | 32.66                     | 256.12                      | 0.40                          |
| 4600.00  | 1.89                 | 225.92                    | 4599.38   | -10.13      | -33.85      | -10.13                    | 35.34                     | 253.34                      | 0.26                          |
| 4700.00  | 1.57                 | 242.92                    | 4699.33   | -11.90      | -36.26      | -11.90                    | 38.16                     | 251.83                      | 0.60                          |
| 4800.00  | 1.33                 | 231.75                    | 4799.30   | -13.24      | -38.39      | -13.24                    | 40.61                     | 250.97                      | 0.37                          |
| 4900.00  | 0.83                 | 236.12                    | 4899.28   | -14.37      | -39.91      | -14.37                    | 42.41                     | 250.20                      | 0.51                          |
| 5000.00  | 0.54                 | 225.39                    | 4999.28   | -15.10      | -40.85      | -15.10                    | 43.55                     | 249.71                      | 0.31                          |
| 5100.00  | 0.30                 | 7.18                      | 5099.27   | -15.18      | -41.15      | -15.18                    | 43.86                     | 249.75                      | 0.80                          |
| 5200.00  | 0.91                 | 85.89                     | 5199.27   | -14.86      | -40.33      | -14.86                    | 42.98                     | 249.77                      | 0.90                          |
| 5300.00  | 0.63                 | 89.01                     | 5299.26   | -14.80      | -38.99      | -14.80                    | 41.71                     | 249.22                      | 0.28                          |
| 5400.00  | 0.70                 | 80.80                     | 5399.25   | -14.69      | -37.84      | -14.69                    | 40.59                     | 248.78                      | 0.12                          |
| 5500.00  | 1.15                 | 90.08                     | 5499.24   | -14.59      | -36.23      | -14.59                    | 39.06                     | 248.06                      | 0.47                          |
| 5600.00  | 0.79                 | 89.46                     | 5599.23   | -14.59      | -34.54      | -14.59                    | 37.50                     | 247.10                      | 0.35                          |
| 5700.00  | 0.93                 | 79.77                     | 5699.21   | -14.44      | -33.05      | -14.44                    | 36.07                     | 246.40                      | 0.20                          |
| 5800.00  | 0.91                 | 80.21                     | 5799.20   | -14.16      | -31.47      | -14.16                    | 34.51                     | 245.78                      | 0.02                          |
| 5900.00  | 0.59                 | 63.04                     | 5899.19   | -13.79      | -30.23      | -13.79                    | 33.22                     | 245.48                      | 0.39                          |
| 6000.00  | 1.12                 | 75.03                     | 5999.18   | -13.30      | -28.82      | -13.30                    | 31.74                     | 245.22                      | 0.56                          |
| 6100.00  | 0.78                 | 90.20                     | 6099.17   | -13.05      | -27.20      | -13.05                    | 30.17                     | 244.36                      | 0.43                          |
| 6200.00  | 0.61                 | 65.77                     | 6199.16   | -12.84      | -26.04      | -12.84                    | 29.03                     | 243.75                      | 0.33                          |
| 6300.00  | 0.58                 | 45.54                     | 6299.16   | -12.26      | -25.19      | -12.26                    | 28.01                     | 244.04                      | 0.21                          |
| 6400.00  | 0.61                 | 83.62                     | 6399.15   | -11.84      | -24.30      | -11.84                    | 27.03                     | 244.01                      | 0.39                          |
| 6500.00  | 0.97                 | 45.65                     | 6499.14   | -11.20      | -23.17      | -11.20                    | 25.73                     | 244.21                      | 0.61                          |
| 6600.00  | 0.59                 | 28.66                     | 6599.13   | -10.15      | -22.32      | -10.15                    | 24.52                     | 245.54                      | 0.43                          |
| 6700.00  | 0.57                 | 19.13                     | 6699.13   | -9.22       | -21.90      | -9.22                     | 23.77                     | 247.16                      | 0.10                          |
| 6750.00  | 0.11                 | 17.60                     | 6749.13   | -8.94       | -21.81      | -8.94                     | 23.57                     | 247.71                      | 0.92                          |
| HORIZONTAL DISPLACEMENT IS<br>23.57 FEET AT 247.71 DEGREES |                      |                           |           |             |             |                           |                           |                             |                               |