



30-015-41664

# **RKI Exploration & Production**

Eddy County (NM83E)

Sec 17-T26S-R30E

RDX 17-25H

Wellbore #1

Survey: Survey #1

## **Standard Survey Report**

13 October, 2013

# Wolverine Directional, LLC

## Survey Report

|           |                              |                              |                                   |
|-----------|------------------------------|------------------------------|-----------------------------------|
| Company:  | RKI Exploration & Production | Local Co-ordinate Reference: | Well: RDX 17-25H                  |
| Project:  | Eddy County, (NM83E)         | TVD Reference:               | WELL @ 0.0ft (Original Well Elev) |
| Site:     | Sec 17-T26S-R30E             | MD Reference:                | WELL @ 0.0ft (Original Well Elev) |
| Well:     | RDX 17-25H                   | North Reference:             | True                              |
| Wellbore: | Wellbore #1                  | Survey Calculation Method:   | Minimum Curvature                 |
| Design:   | Wellbore #1                  | Database:                    | EDM 2003.21 Single User Db        |

|         |             |
|---------|-------------|
| Design: | Wellbore #1 |
|---------|-------------|

|                   |                          |               |               |                   |
|-------------------|--------------------------|---------------|---------------|-------------------|
| Audit Notes:      |                          |               |               |                   |
| Version:          | 1.0                      | Phase:        | ACTUAL        | Tie On Depth: 0.0 |
| Vertical Section: | Depth From (TVD)<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Direction<br>(°)  |
|                   | 0.0                      | 0.0           | 0.0           | 176.46            |

|                |            |                         |           |                |
|----------------|------------|-------------------------|-----------|----------------|
| Survey Program |            | Date 2013/10/13         |           |                |
| From<br>(ft)   | To<br>(ft) | Survey (Wellbore)       | Tool Name | Description    |
| 181.0          | 12,542.0   | Survey #1 (Wellbore #1) | MWD       | MWD - Standard |

| Measured Depth<br>(ft)  | Inclination<br>(°) | Azimuth<br>(°) | Vertical Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical Section<br>(ft) | Dogleg Rate<br>(°/100ft) | Build Rate<br>(°/100ft) | Turn Rate<br>(°/100ft) |
|-------------------------|--------------------|----------------|------------------------|---------------|---------------|--------------------------|--------------------------|-------------------------|------------------------|
| 0.0                     | 0.00               | 0.00           | 0.0                    | 0.0           | 0.0           | 0.0                      | 0.00                     | 0.00                    | 0.00                   |
| 181.0                   | 0.50               | 342.30         | 181.0                  | 0.8           | -0.2          | -0.8                     | 0.28                     | 0.28                    | 0.00                   |
| <b>First MWD Survey</b> |                    |                |                        |               |               |                          |                          |                         |                        |
| 271.0                   | 0.70               | 7.30           | 271.0                  | 1.7           | -0.3          | -1.7                     | 0.36                     | 0.22                    | 27.78                  |
| 363.0                   | 0.50               | 59.50          | 363.0                  | 2.4           | 0.1           | -2.4                     | 0.61                     | -0.22                   | 56.74                  |
| 456.0                   | 0.70               | 36.60          | 456.0                  | 3.1           | 0.8           | -3.0                     | 0.33                     | 0.22                    | -24.62                 |
| 548.0                   | 0.40               | 345.70         | 548.0                  | 3.9           | 1.1           | -3.8                     | 0.59                     | -0.33                   | -55.33                 |
| 640.0                   | 0.40               | 328.40         | 640.0                  | 4.4           | 0.8           | -4.4                     | 0.13                     | 0.00                    | -18.80                 |
| 732.0                   | 0.50               | 341.10         | 732.0                  | 5.1           | 0.5           | -5.1                     | 0.15                     | 0.11                    | 13.80                  |
| 823.0                   | 0.40               | 140.20         | 823.0                  | 5.2           | 0.6           | -5.2                     | 0.97                     | -0.11                   | 174.84                 |
| 921.0                   | 0.20               | 207.10         | 921.0                  | 4.8           | 0.7           | -4.8                     | 0.38                     | -0.20                   | 68.27                  |
| 1,012.0                 | 0.50               | 236.50         | 1,012.0                | 4.5           | 0.3           | -4.4                     | 0.37                     | 0.33                    | 32.31                  |
| 1,105.0                 | 0.70               | 254.40         | 1,105.0                | 4.1           | -0.5          | -4.1                     | 0.29                     | 0.22                    | 19.25                  |
| 1,196.0                 | 0.90               | 245.10         | 1,196.0                | 3.6           | -1.7          | -3.7                     | 0.26                     | 0.22                    | -10.22                 |
| 1,287.0                 | 0.50               | 231.60         | 1,286.9                | 3.1           | -2.7          | -3.2                     | 0.47                     | -0.44                   | -14.84                 |
| 1,379.0                 | 0.70               | 238.10         | 1,378.9                | 2.5           | -3.5          | -2.7                     | 0.23                     | 0.22                    | 7.07                   |
| 1,471.0                 | 0.70               | 240.50         | 1,470.9                | 2.0           | -4.4          | -2.2                     | 0.03                     | 0.00                    | 2.61                   |
| 1,566.0                 | 0.70               | 228.90         | 1,565.9                | 1.3           | -5.4          | -1.6                     | 0.15                     | 0.00                    | -12.21                 |
| 1,661.0                 | 0.50               | 217.50         | 1,660.9                | 0.6           | -6.1          | -1.0                     | 0.24                     | -0.21                   | -12.00                 |
| 1,756.0                 | 0.70               | 217.90         | 1,755.9                | -0.2          | -6.7          | -0.2                     | 0.21                     | 0.21                    | 0.42                   |
| 1,851.0                 | 0.70               | 199.80         | 1,850.9                | -1.2          | -7.2          | 0.8                      | 0.23                     | 0.00                    | -19.05                 |
| 1,946.0                 | 0.40               | 135.90         | 1,945.9                | -2.0          | -7.2          | 1.5                      | 0.67                     | -0.32                   | -67.26                 |
| 2,040.0                 | 0.90               | 71.60          | 2,039.9                | -2.0          | -6.3          | 1.6                      | 0.86                     | 0.53                    | -68.40                 |
| 2,135.0                 | 0.90               | 72.70          | 2,134.9                | -1.5          | -4.9          | 1.2                      | 0.02                     | 0.00                    | 1.16                   |
| 2,228.0                 | 0.90               | 78.50          | 2,227.9                | -1.2          | -3.4          | 1.0                      | 0.10                     | 0.00                    | 6.24                   |
| 2,323.0                 | 0.50               | 82.90          | 2,322.9                | -1.0          | -2.3          | 0.8                      | 0.42                     | -0.42                   | 4.63                   |
| 2,418.0                 | 0.70               | 116.30         | 2,417.9                | -1.2          | -1.4          | 1.1                      | 0.42                     | 0.21                    | 35.16                  |
| 2,512.0                 | 0.50               | 134.20         | 2,511.9                | -1.7          | -0.6          | 1.7                      | 0.29                     | -0.21                   | 19.04                  |
| 2,606.0                 | 0.70               | 178.00         | 2,605.9                | -2.6          | -0.2          | 2.6                      | 0.52                     | 0.21                    | 46.60                  |
| 2,701.0                 | 0.50               | 172.00         | 2,700.9                | -3.6          | -0.2          | 3.6                      | 0.22                     | -0.21                   | -6.32                  |
| 2,795.0                 | 1.20               | 146.80         | 2,794.8                | -4.8          | 0.4           | 4.8                      | 0.83                     | 0.74                    | -26.81                 |
| 2,890.0                 | 1.80               | 130.30         | 2,889.8                | -6.6          | 2.1           | 6.7                      | 0.77                     | 0.63                    | -17.37                 |
| 2,985.0                 | 1.80               | 115.70         | 2,984.8                | -8.2          | 4.6           | 8.5                      | 0.48                     | 0.00                    | -15.37                 |
| 3,080.0                 | 1.80               | 109.00         | 3,079.7                | -9.3          | 7.3           | 9.8                      | 0.22                     | 0.00                    | -7.05                  |
| 3,174.0                 | 2.50               | 115.40         | 3,173.7                | -10.7         | 10.6          | 11.3                     | 0.79                     | 0.74                    | 6.81                   |
| 3,269.0                 | 1.80               | 105.90         | 3,268.6                | -12.0         | 13.9          | 12.8                     | 0.82                     | -0.74                   | -10.00                 |
| 3,328.0                 | 1.20               | 90.20          | 3,327.6                | -12.3         | 15.4          | 13.2                     | 1.22                     | -1.02                   | -26.61                 |
| 3,435.0                 | 0.70               | 66.30          | 3,434.5                | -12.0         | 17.1          | 13.0                     | 0.59                     | -0.47                   | -22.34                 |
| 3,529.0                 | 0.70               | 73.40          | 3,528.5                | -11.6         | 18.2          | 12.7                     | 0.09                     | 0.00                    | 7.55                   |

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| Project:  | Eddy County (NM83E)          | TVD Reference:               | WELL @ 0.0ft (Original Well Elev) |
| Site:     | Sec 17-T26S-R30E             | MD Reference:                | WELL @ 0.0ft (Original Well Elev) |
| Well:     | RDX 17-25H                   | North Reference:             | True                              |
| Wellbore: | Wellbore #1                  | Survey Calculation Method:   | Minimum Curvature                 |
| Design:   | Wellbore #1                  | Database:                    | EDM 2003.21 Single User Db        |

| Survey              |                 |             |                     |           |           |                       |                       |                      |                     |
|---------------------|-----------------|-------------|---------------------|-----------|-----------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N-S (ft) | +E-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 3,625.0             | 0.70            | 73.50       | 3,624.5             | -11.3     | 19.3      | 12.4                  | 0.00                  | 0.00                 | 0.10                |
| 3,718.0             | 0.70            | 80.00       | 3,717.5             | -11.0     | 20.4      | 12.3                  | 0.09                  | 0.00                 | 6.99                |
| 3,813.0             | 0.70            | 93.90       | 3,812.5             | -11.0     | 21.6      | 12.3                  | 0.18                  | 0.00                 | 14.63               |
| 3,909.0             | 0.90            | 89.90       | 3,908.5             | -11.0     | 22.9      | 12.4                  | 0.22                  | 0.21                 | -4.17               |
| 4,004.0             | 1.10            | 102.40      | 4,003.5             | -11.2     | 24.6      | 12.7                  | 0.31                  | 0.21                 | 13.16               |
| 4,100.0             | 0.90            | 108.20      | 4,099.5             | -11.6     | 26.2      | 13.2                  | 0.23                  | -0.21                | 6.04                |
| 4,195.0             | 1.10            | 116.80      | 4,194.5             | -12.3     | 27.7      | 13.9                  | 0.26                  | 0.21                 | 9.05                |
| 4,290.0             | 1.10            | 103.80      | 4,289.5             | -12.9     | 29.4      | 14.7                  | 0.26                  | 0.00                 | -13.68              |
| 4,386.0             | 0.90            | 111.00      | 4,385.4             | -13.4     | 31.0      | 15.3                  | 0.25                  | -0.21                | 7.50                |
| 4,481.0             | 0.90            | 106.40      | 4,480.4             | -13.9     | 32.4      | 15.8                  | 0.08                  | 0.00                 | -4.84               |
| 4,587.0             | 0.90            | 108.20      | 4,586.4             | -14.4     | 34.0      | 16.4                  | 0.03                  | 0.00                 | 1.70                |
| 4,682.0             | 0.50            | 114.30      | 4,681.4             | -14.8     | 35.1      | 16.9                  | 0.43                  | -0.42                | 6.42                |
| 4,776.0             | 0.70            | 113.90      | 4,775.4             | -15.2     | 36.0      | 17.4                  | 0.21                  | 0.21                 | -0.43               |
| 4,872.0             | 0.70            | 107.10      | 4,871.4             | -15.6     | 37.1      | 17.8                  | 0.09                  | 0.00                 | -7.08               |
| 4,968.0             | 0.70            | 111.50      | 4,967.4             | -16.0     | 38.2      | 18.3                  | 0.06                  | 0.00                 | 4.58                |
| 5,062.0             | 0.70            | 115.40      | 5,061.4             | -16.4     | 39.2      | 18.8                  | 0.05                  | 0.00                 | 4.15                |
| 5,157.0             | 0.70            | 118.90      | 5,156.4             | -16.9     | 40.3      | 19.4                  | 0.05                  | 0.00                 | 3.68                |
| 5,253.0             | 0.70            | 109.10      | 5,252.4             | -17.4     | 41.3      | 19.9                  | 0.12                  | 0.00                 | -10.21              |
| 5,347.0             | 0.90            | 123.50      | 5,346.4             | -18.0     | 42.5      | 20.6                  | 0.30                  | 0.21                 | 15.32               |
| 5,443.0             | 0.90            | 139.30      | 5,442.3             | -19.0     | 43.6      | 21.7                  | 0.26                  | 0.00                 | 16.46               |
| 5,537.0             | 1.10            | 133.00      | 5,536.3             | -20.2     | 44.8      | 22.9                  | 0.24                  | 0.21                 | -6.70               |
| 5,632.0             | 0.90            | 133.30      | 5,631.3             | -21.3     | 46.0      | 24.1                  | 0.21                  | -0.21                | 0.32                |
| 5,728.0             | 0.90            | 135.10      | 5,727.3             | -22.4     | 47.0      | 25.2                  | 0.03                  | 0.00                 | 1.88                |
| 5,823.0             | 0.90            | 143.90      | 5,822.3             | -23.5     | 48.0      | 26.4                  | 0.15                  | 0.00                 | 9.26                |
| 5,917.0             | 1.10            | 155.10      | 5,916.3             | -24.9     | 48.8      | 27.9                  | 0.30                  | 0.21                 | 11.91               |
| 6,013.0             | 1.90            | 182.70      | 6,012.2             | -27.3     | 49.1      | 30.3                  | 1.10                  | 0.83                 | 28.75               |
| 6,107.0             | 3.20            | 208.40      | 6,106.2             | -31.2     | 47.8      | 34.1                  | 1.81                  | 1.38                 | 27.34               |
| 6,202.0             | 4.40            | 229.80      | 6,200.9             | -35.9     | 43.8      | 38.5                  | 1.93                  | 1.26                 | 22.53               |
| 6,298.0             | 5.30            | 262.30      | 6,296.6             | -38.9     | 36.6      | 41.0                  | 2.96                  | 0.94                 | 33.85               |
| 6,390.0             | 5.10            | 281.80      | 6,388.2             | -38.6     | 28.4      | 40.3                  | 1.92                  | -0.22                | 21.20               |
| 6,484.0             | 4.60            | 304.50      | 6,481.9             | -35.6     | 21.2      | 36.8                  | 2.09                  | -0.53                | 24.15               |
| 6,579.0             | 4.20            | 324.70      | 6,576.6             | -30.6     | 16.0      | 31.5                  | 1.68                  | -0.42                | 21.26               |
| 6,674.0             | 4.00            | 339.50      | 6,671.4             | -24.7     | 12.8      | 25.4                  | 1.13                  | -0.21                | 15.58               |
| 6,767.0             | 3.90            | 341.30      | 6,764.2             | -18.6     | 10.7      | 19.2                  | 0.17                  | -0.11                | 1.94                |
| 6,861.0             | 3.30            | 343.70      | 6,858.0             | -13.0     | 8.9       | 13.5                  | 0.66                  | -0.64                | 2.55                |
| 6,956.0             | 1.80            | 349.00      | 6,952.9             | -8.9      | 7.9       | 9.4                   | 1.60                  | -1.58                | 5.58                |
| 7,051.0             | 1.10            | 346.40      | 7,047.9             | -6.6      | 7.4       | 7.0                   | 0.74                  | -0.74                | -2.74               |
| 7,145.0             | 1.20            | 236.10      | 7,141.9             | -6.2      | 6.3       | 6.6                   | 2.01                  | 0.11                 | -117.34             |
| 7,241.0             | 2.10            | 241.90      | 7,237.8             | -7.6      | 3.9       | 7.8                   | 0.95                  | 0.94                 | 6.04                |
| 7,322.0             | 1.60            | 243.00      | 7,318.8             | -8.8      | 1.6       | 8.9                   | 0.62                  | -0.62                | 1.36                |
| 7,377.0             | 1.80            | 231.40      | 7,373.8             | -9.7      | 0.3       | 9.7                   | 0.72                  | 0.36                 | -21.09              |
| 7,408.0             | 3.90            | 196.60      | 7,404.7             | -11.0     | -0.4      | 11.0                  | 8.49                  | 6.77                 | -112.26             |
| 7,440.0             | 6.90            | 187.40      | 7,436.6             | -14.0     | -1.0      | 13.9                  | 9.73                  | 9.38                 | -28.75              |
| 7,471.0             | 10.00           | 184.50      | 7,467.2             | -18.5     | -1.4      | 18.4                  | 10.09                 | 10.00                | -9.35               |
| 7,503.0             | 13.20           | 182.90      | 7,498.6             | -24.9     | -1.8      | 24.8                  | 10.05                 | 10.00                | -5.00               |
| 7,534.0             | 15.10           | 178.10      | 7,528.6             | -32.5     | -1.9      | 32.3                  | 7.20                  | 6.13                 | -15.48              |
| 7,567.0             | 16.20           | 173.00      | 7,560.4             | -41.4     | -1.2      | 41.2                  | 5.33                  | 3.33                 | -15.45              |
| 7,599.0             | 17.80           | 174.40      | 7,591.0             | -50.7     | -0.2      | 50.6                  | 5.16                  | 5.00                 | 4.38                |
| 7,630.0             | 20.10           | 176.70      | 7,620.3             | -60.7     | 0.6       | 60.6                  | 7.80                  | 7.42                 | 7.42                |
| 7,662.0             | 22.30           | 172.20      | 7,650.2             | -72.2     | 1.8       | 72.2                  | 8.55                  | 6.88                 | -14.06              |
| 7,694.0             | 25.00           | 170.40      | 7,679.5             | -84.9     | 3.7       | 85.0                  | 8.73                  | 8.44                 | -5.63               |
| 7,725.0             | 27.60           | 170.40      | 7,707.3             | -98.4     | 6.0       | 98.6                  | 8.39                  | 8.39                 | 0.00                |
| 7,757.0             | 31.00           | 172.30      | 7,735.2             | -113.9    | 8.3       | 114.2                 | 11.01                 | 10.63                | 5.94                |
| 7,788.0             | 32.90           | 174.80      | 7,761.5             | -130.2    | 10.2      | 130.6                 | 7.47                  | 6.13                 | 8.06                |

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## Survey Report

|           |                              |                              |                                   |
|-----------|------------------------------|------------------------------|-----------------------------------|
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| Project:  | Eddy County (NM83E)          | TVD Reference:               | WELL @ 0.0ft (Original Well Elev) |
| Site:     | Sec 17-T26S-R30E             | MD Reference:                | WELL @ 0.0ft (Original Well Elev) |
| Well:     | RDX 17-25H                   | North Reference:             | True                              |
| Wellbore: | Wellbore #1                  | Survey Calculation Method:   | Minimum Curvature                 |
| Design:   | Wellbore #1                  | Database:                    | EDM 2003.21 Single User Db        |

| Survey              |                 |             |                     |            |            |                       |                       |                      |                     |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 7,821.0             | 33.40           | 178.10      | 7,789.1             | -148.2     | 11.3       | 148.6                 | 5.67                  | 1.52                 | 10.00               |
| 7,852.0             | 35.90           | 180.20      | 7,814.6             | -165.8     | 11.5       | 166.2                 | 8.94                  | 8.06                 | 6.77                |
| 7,883.0             | 39.10           | 181.30      | 7,839.2             | -184.7     | 11.3       | 185.1                 | 10.55                 | 10.32                | 3.55                |
| 7,915.0             | 42.10           | 180.40      | 7,863.5             | -205.5     | 11.0       | 205.8                 | 9.55                  | 9.38                 | -2.81               |
| 7,946.0             | 45.90           | 180.10      | 7,885.8             | -227.1     | 10.9       | 227.3                 | 12.28                 | 12.26                | -0.97               |
| 7,977.0             | 50.70           | 179.50      | 7,906.4             | -250.2     | 11.0       | 250.4                 | 15.55                 | 15.48                | -1.94               |
| 8,008.0             | 55.40           | 179.40      | 7,925.0             | -275.0     | 11.2       | 275.1                 | 15.16                 | 15.16                | -0.32               |
| 8,040.0             | 60.70           | 180.10      | 7,942.0             | -302.1     | 11.3       | 302.2                 | 16.67                 | 16.56                | 2.19                |
| 8,072.0             | 66.50           | 179.70      | 7,956.2             | -330.8     | 11.4       | 330.8                 | 18.16                 | 18.13                | -1.25               |
| 8,104.0             | 72.00           | 176.90      | 7,967.5             | -360.7     | 12.3       | 360.7                 | 19.03                 | 17.19                | -8.75               |
| 8,135.0             | 75.70           | 174.60      | 7,976.1             | -390.3     | 14.5       | 390.5                 | 13.90                 | 11.94                | -7.42               |
| 8,167.0             | 80.20           | 173.90      | 7,982.8             | -421.5     | 17.6       | 421.8                 | 14.22                 | 14.06                | -2.19               |
| 8,194.0             | 84.30           | 174.10      | 7,986.5             | -448.1     | 20.4       | 448.5                 | 15.20                 | 15.19                | 0.74                |
| 8,225.0             | 87.30           | 175.50      | 7,988.7             | -478.9     | 23.2       | 479.4                 | 10.67                 | 9.68                 | 4.52                |
| 8,320.0             | 90.40           | 174.40      | 7,990.6             | -573.5     | 31.6       | 574.3                 | 3.46                  | 3.26                 | -1.16               |
| 8,415.0             | 91.10           | 175.10      | 7,989.4             | -668.0     | 40.3       | 669.3                 | 1.04                  | 0.74                 | 0.74                |
| 8,510.0             | 92.20           | 177.60      | 7,986.6             | -762.8     | 46.3       | 764.2                 | 2.87                  | 1.16                 | 2.63                |
| 8,604.0             | 93.40           | 181.50      | 7,982.1             | -856.7     | 47.1       | 857.9                 | 4.34                  | 1.28                 | 4.15                |
| 8,697.0             | 91.10           | 180.20      | 7,978.4             | -949.6     | 45.7       | 950.6                 | 2.84                  | -2.47                | -1.40               |
| 8,794.0             | 89.60           | 176.70      | 7,977.8             | -1,046.5   | 48.3       | 1,047.5               | 3.93                  | -1.55                | -3.61               |
| 8,889.0             | 89.00           | 176.90      | 7,979.0             | -1,141.4   | 53.6       | 1,142.5               | 0.67                  | -0.63                | 0.21                |
| 8,983.0             | 89.40           | 177.60      | 7,980.3             | -1,235.2   | 58.1       | 1,236.5               | 0.86                  | 0.43                 | 0.74                |
| 9,078.0             | 89.60           | 174.10      | 7,981.1             | -1,330.0   | 65.0       | 1,331.5               | 3.69                  | 0.21                 | -3.68               |
| 9,173.0             | 91.00           | 172.70      | 7,980.6             | -1,424.3   | 75.9       | 1,426.3               | 2.08                  | 1.47                 | -1.47               |
| 9,267.0             | 91.30           | 172.00      | 7,978.7             | -1,517.5   | 88.4       | 1,520.1               | 0.81                  | 0.32                 | -0.74               |
| 9,361.0             | 90.30           | 172.70      | 7,977.4             | -1,610.6   | 100.9      | 1,613.8               | 1.30                  | -1.06                | 0.74                |
| 9,456.0             | 90.60           | 174.30      | 7,976.7             | -1,705.0   | 111.7      | 1,708.7               | 1.71                  | 0.32                 | 1.68                |
| 9,551.0             | 92.60           | 175.80      | 7,974.0             | -1,799.6   | 119.9      | 1,803.6               | 2.63                  | 2.11                 | 1.58                |
| 9,646.0             | 92.00           | 175.30      | 7,970.2             | -1,894.3   | 127.2      | 1,898.5               | 0.82                  | -0.63                | -0.53               |
| 9,740.0             | 91.80           | 176.60      | 7,967.1             | -1,988.0   | 133.9      | 1,992.4               | 1.40                  | -0.21                | 1.38                |
| 9,835.0             | 91.50           | 177.60      | 7,964.4             | -2,082.8   | 138.7      | 2,087.4               | 1.10                  | -0.32                | 1.05                |
| 9,930.0             | 91.30           | 178.50      | 7,962.0             | -2,177.7   | 141.9      | 2,182.3               | 0.97                  | -0.21                | 0.95                |
| 10,025.0            | 91.30           | 179.90      | 7,959.9             | -2,272.7   | 143.2      | 2,277.2               | 1.47                  | 0.00                 | 1.47                |
| 10,119.0            | 93.30           | 179.50      | 7,956.1             | -2,366.6   | 143.7      | 2,371.0               | 2.17                  | 2.13                 | -0.43               |
| 10,214.0            | 91.00           | 178.50      | 7,952.5             | -2,461.5   | 145.4      | 2,465.8               | 2.64                  | -2.42                | -1.05               |
| 10,308.0            | 91.50           | 176.00      | 7,950.5             | -2,555.4   | 149.9      | 2,559.8               | 2.71                  | 0.53                 | -2.66               |
| 10,403.0            | 91.30           | 175.30      | 7,948.2             | -2,650.1   | 157.1      | 2,654.7               | 0.77                  | -0.21                | -0.74               |
| 10,499.0            | 91.70           | 176.90      | 7,945.7             | -2,745.8   | 163.6      | 2,750.7               | 1.72                  | 0.42                 | 1.67                |
| 10,594.0            | 91.80           | 176.20      | 7,942.8             | -2,840.6   | 169.3      | 2,845.6               | 0.74                  | 0.11                 | -0.74               |
| 10,688.0            | 92.40           | 178.80      | 7,939.3             | -2,934.4   | 173.4      | 2,939.6               | 2.84                  | 0.64                 | 2.77                |
| 10,784.0            | 90.80           | 175.50      | 7,936.6             | -3,030.3   | 178.2      | 3,035.5               | 3.82                  | -1.67                | -3.44               |
| 10,878.0            | 90.60           | 176.00      | 7,935.5             | -3,124.0   | 185.2      | 3,129.5               | 0.57                  | -0.21                | 0.53                |
| 10,971.0            | 90.10           | 177.80      | 7,934.9             | -3,216.9   | 190.2      | 3,222.5               | 2.01                  | -0.54                | 1.94                |
| 11,066.0            | 89.70           | 177.60      | 7,935.1             | -3,311.8   | 194.0      | 3,317.4               | 0.47                  | -0.42                | -0.21               |
| 11,161.0            | 89.40           | 179.20      | 7,935.8             | -3,406.7   | 196.7      | 3,412.4               | 1.71                  | -0.32                | 1.68                |
| 11,255.0            | 88.90           | 178.10      | 7,937.2             | -3,500.7   | 198.9      | 3,506.3               | 1.29                  | -0.53                | -1.17               |
| 11,350.0            | 90.30           | 176.00      | 7,937.9             | -3,595.6   | 203.8      | 3,601.3               | 2.66                  | 1.47                 | -2.21               |
| 11,446.0            | 92.20           | 175.80      | 7,935.8             | -3,691.3   | 210.6      | 3,697.3               | 1.99                  | 1.98                 | -0.21               |
| 11,541.0            | 92.40           | 176.00      | 7,932.0             | -3,786.0   | 217.4      | 3,792.2               | 0.30                  | 0.21                 | 0.21                |
| 11,635.0            | 92.40           | 175.00      | 7,928.0             | -3,879.6   | 224.8      | 3,886.1               | 1.06                  | 0.00                 | -1.06               |
| 11,730.0            | 93.60           | 176.60      | 7,923.1             | -3,974.2   | 231.7      | 3,980.9               | 2.10                  | 1.26                 | 1.68                |
| 11,825.0            | 91.70           | 175.80      | 7,918.7             | -4,068.9   | 238.0      | 4,075.8               | 2.17                  | -2.00                | -0.84               |
| 11,920.0            | 89.40           | 175.30      | 7,917.8             | -4,163.6   | 245.4      | 4,170.8               | 2.48                  | -2.42                | -0.53               |
| 12,016.0            | 88.70           | 174.80      | 7,919.4             | -4,259.2   | 253.7      | 4,266.8               | 0.90                  | -0.73                | -0.52               |

# Wolverine Directional, LLC

## Survey Report

|           |                              |                              |                                   |
|-----------|------------------------------|------------------------------|-----------------------------------|
| Company:  | RKI Exploration & Production | Local Co-ordinate Reference: | Well: RDX 17-25H                  |
| Project:  | Eddy County, (NM83E)         | TVD Reference:               | WELL @ 0.0ft (Original Well Elev) |
| Site:     | Sec 17-T26S-R30E             | MD Reference:                | WELL @ 0.0ft (Original Well Elev) |
| Well:     | RDX 17-25H                   | North Reference:             | True                              |
| Wellbore: | Wellbore #1                  | Survey Calculation Method:   | Minimum Curvature                 |
| Design:   | Wellbore #1                  | Database:                    | EDM:2003.21 Single User Db        |

| Survey                       |                 |             |                     |            |            |                       |                       |                      |                     |  |
|------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (ft)          | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |  |
| 12,112.0                     | 89.00           | 174.80      | 7,921.3             | -4,354.8   | 262.4      | 4,362.7               | 0.31                  | 0.31                 | 0.00                |  |
| 12,208.0                     | 91.10           | 174.80      | 7,921.2             | -4,450.4   | 271.1      | 4,458.7               | 2.19                  | 2.19                 | 0.00                |  |
| 12,304.0                     | 91.30           | 176.00      | 7,919.2             | -4,546.1   | 278.8      | 4,554.6               | 1.27                  | 0.21                 | 1.25                |  |
| 12,399.0                     | 90.80           | 176.90      | 7,917.4             | -4,640.9   | 284.7      | 4,649.6               | 1.08                  | -0.53                | 0.95                |  |
| 12,486.0                     | 90.30           | 175.00      | 7,916.6             | -4,727.7   | 290.8      | 4,736.6               | 2.26                  | -0.57                | -2.18               |  |
| Last MWD Survey              |                 |             |                     |            |            |                       |                       |                      |                     |  |
| 12,542.0                     | 90.30           | 175.00      | 7,916.3             | -4,783.4   | 295.7      | 4,792.6               | 0.00                  | 0.00                 | 0.00                |  |
| Proj to TD - RDX 17-25H PBHL |                 |             |                     |            |            |                       |                       |                      |                     |  |

| Survey Annotations  |                     |                   |            |                  |  |
|---------------------|---------------------|-------------------|------------|------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            |                  |  |
|                     |                     | +N/-S (ft)        | +E/-W (ft) | Comment          |  |
| 181.0               | 181.0               | 0.8               | -0.2       | First MWD Survey |  |
| 12,486.0            | 7,916.6             | -4,727.7          | 290.8      | Last MWD Survey  |  |
| 12,542.0            | 7,916.3             | -4,783.4          | 295.7      | Proj to TD       |  |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_