

## Yates Petroleum Corp.

Eddy County

Federal AB

#13H

OH

Design: OH

## Pathfinder X&Y Report

01 September, 2011

**PATHFINDER**<sup>®</sup>

A Schlumberger Company

30-015-37211



Pathfinder  
Pathfinder X&Y Report

**PATHFINDER**  
A Schlumberger Company

Company: Yates Petroleum Corp  
Project: Eddy County  
Site: Federal AB  
Well: #13H  
Wellbore: OH  
Design: OH

Local Co-ordinate Reference: Well #13H  
TVD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
MD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
North Reference: Gnd  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

Project: Eddy County

Map System: US State Plane 1983  
Geo Datum: North American Datum 1983  
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: Federal AB

Site Position: Northing: 617,922.951 usft Latitude: 32° 41' 54.914 N  
From: Map Easting: 486,800.629 usft Longitude: 104° 30' 38.242 W  
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: -0.10 "

Well: #13H

Well Position: +N/-S 0.00 usft Northing: 617,922.951 usft Latitude: 32° 41' 54.914 N  
+E/-W 0.00 usft Easting: 486,800.629 usft Longitude: 104° 30' 38.242 W  
Position Uncertainty: 0.00 usft Wellhead Elevation: usft Ground Level: 3,603.00 usft

Wellbore: OH

Magnetics: Model Name Sample Date Declination Dip Angle Field Strength  
(°) (°) (nT)  
IGRF2010 7/22/2011 8.04 60.46 48,784

Design: OH

Audit Notes:

Version: 1.0 Phase ACTUAL Tie On Depth: 0.00

Vertical Section: Depth From (TVD) +N/-S +E/-W Direction  
(usft) (usft) (usft) (°)  
0.00 0.00 0.00 0.00



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Well: #13H  
Wellbore: OH  
Design: OH

Local Co-ordinate Reference: Well #13H  
TVD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
MD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

| Survey Program |           | Date                 |            |                                  |  |  |
|----------------|-----------|----------------------|------------|----------------------------------|--|--|
|                |           | 9/1/2011             |            |                                  |  |  |
| From (usft)    | To (usft) | Survey (Wellbore)    | Tool Name  | Description                      |  |  |
| 200.00         | 2,000.00  | Gyro Survey (OH)     | NS-GYRO-MS | North sensing gyrocompassing m/s |  |  |
| 2,027.00       | 4,036.00  | Survey #2 - MWD (OH) | MWD        | MWD - Standard                   |  |  |

| Survey                                           |            |                      |               |                 |               |               |                  |                     |                    |                   |  |
|--------------------------------------------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft)                                     | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 0.00                                             | 0.00       | 0.00                 | 0.00          | -3,621.50       | 0.00          | 0.00          | 0.00             | 0.00                | 617,922.95         | 486,800.63        |  |
| 200.00                                           | 0.50       | 267.33               | 200.00        | -3,421.50       | -0.04         | -0.87         | -0.04            | 0.25                | 617,922.91         | 486,799.76        |  |
| 400.00                                           | 0.25       | 244.11               | 399.99        | -3,221.51       | -0.27         | -2.14         | -0.27            | 0.14                | 617,922.68         | 486,798.49        |  |
| 600.00                                           | 0.50       | 149.90               | 599.99        | -3,021.51       | -1.22         | -2.09         | -1.22            | 0.29                | 617,921.73         | 486,798.54        |  |
| 800.00                                           | 0.25       | 96.68                | 799.99        | -2,821.51       | -2.02         | -1.22         | -2.02            | 0.20                | 617,920.93         | 486,799.41        |  |
| 1,000.00                                         | 0.50       | 92.46                | 999.98        | -2,621.52       | -2.11         | 0.09          | -2.11            | 0.13                | 617,920.84         | 486,800.71        |  |
| 1,200.00                                         | 0.50       | 98.69                | 1,199.97      | -2,421.53       | -2.28         | 1.82          | -2.28            | 0.03                | 617,920.67         | 486,802.45        |  |
| 1,400.00                                         | 0.50       | 92.47                | 1,399.97      | -2,221.53       | -2.45         | 3.55          | -2.45            | 0.03                | 617,920.50         | 486,804.18        |  |
| 1,600.00                                         | 0.75       | 133.26               | 1,599.96      | -2,021.54       | -3.38         | 5.38          | -3.38            | 0.25                | 617,919.57         | 486,806.01        |  |
| 1,800.00                                         | 0.75       | 132.04               | 1,799.94      | -1,821.56       | -5.16         | 7.30          | -5.16            | 0.01                | 617,917.79         | 486,807.93        |  |
| 2,000.00                                         | 0.75       | 110.60               | 1,999.92      | -1,621.58       | -6.50         | 9.50          | -6.50            | 0.14                | 617,916.46         | 486,810.13        |  |
| 2,027.00                                         | 0.79       | 154.46               | 2,026.92      | -1,594.58       | -6.73         | 9.75          | -6.73            | 2.13                | 617,916.23         | 486,810.38        |  |
| 2,058.00                                         | 0.62       | 105.79               | 2,057.92      | -1,563.58       | -6.96         | 10.00         | -6.96            | 1.94                | 617,915.99         | 486,810.63        |  |
| 2,090.00                                         | 2.20       | 35.11                | 2,089.91      | -1,531.59       | -6.51         | 10.52         | -6.51            | 6.50                | 617,916.44         | 486,811.15        |  |
| KOP - 2090.00'MD, 2089.91'TVD', -6.51'N, 10.52'E |            |                      |               |                 |               |               |                  |                     |                    |                   |  |
| 2,122.00                                         | 5.63       | 21.34                | 2,121.83      | -1,499.67       | -4.54         | 11.45         | -4.54            | 11.04               | 617,918.41         | 486,812.08        |  |
| 2,154.00                                         | 10.11      | 18.05                | 2,153.52      | -1,467.98       | -0.41         | 12.89         | -0.41            | 14.06               | 617,922.54         | 486,813.52        |  |
| 2,186.00                                         | 15.30      | 15.08                | 2,184.73      | -1,436.77       | 6.34          | 14.86         | 6.34             | 16.34               | 617,929.29         | 486,815.49        |  |
| 2,217.00                                         | 20.31      | 13.97                | 2,214.23      | -1,407.27       | 15.52         | 17.22         | 15.52            | 16.20               | 617,938.47         | 486,817.85        |  |
| 2,249.00                                         | 24.27      | 12.65                | 2,243.83      | -1,377.67       | 27.33         | 20.00         | 27.33            | 12.47               | 617,950.28         | 486,820.63        |  |
| 2,281.00                                         | 27.61      | 10.64                | 2,272.61      | -1,348.89       | 41.04         | 22.82         | 41.04            | 10.79               | 617,963.99         | 486,823.44        |  |



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Design: OH

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North Reference: Gnd  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

| Survey                                              |            |                      |               |                 |               |               |                  |                     |                    |                   |
|-----------------------------------------------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| MD<br>(usft)                                        | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
| 2,313.00                                            | 30.95      | 9.15                 | 2,300.52      | -1,320.98       | 56.45         | 25.49         | 56.45            | 10.68               | 617,979.41         | 486,826.12        |
| 2,344.00                                            | 34.73      | 8.03                 | 2,326.56      | -1,294.94       | 73.08         | 28.00         | 73.08            | 12.35               | 617,996.03         | 486,828.62        |
| 2,376.00                                            | 38.69      | 6.79                 | 2,352.21      | -1,269.29       | 92.04         | 30.45         | 92.04            | 12.59               | 618,014.99         | 486,831.08        |
| 2,407.00                                            | 42.30      | 5.10                 | 2,375.78      | -1,245.72       | 112.06        | 32.53         | 112.06           | 12.17               | 618,035.01         | 486,833.16        |
| 2,438.00                                            | 45.81      | 3.44                 | 2,398.05      | -1,223.45       | 133.55        | 34.12         | 133.55           | 11.92               | 618,056.50         | 486,834.75        |
| 2,470.00                                            | 50.30      | 1.48                 | 2,419.44      | -1,202.06       | 157.32        | 35.13         | 157.32           | 14.75               | 618,080.27         | 486,835.76        |
| 2,501.00                                            | 53.99      | 1.34                 | 2,438.46      | -1,183.04       | 181.79        | 35.73         | 181.79           | 11.91               | 618,104.74         | 486,836.36        |
| 2,532.00                                            | 57.33      | 1.58                 | 2,455.94      | -1,165.56       | 207.37        | 36.38         | 207.37           | 10.79               | 618,130.32         | 486,837.01        |
| 2,564.00                                            | 61.11      | 1.05                 | 2,472.32      | -1,149.18       | 234.85        | 37.01         | 234.85           | 11.90               | 618,157.80         | 486,837.64        |
| 2,596.00                                            | 64.37      | 0.77                 | 2,486.97      | -1,134.53       | 263.29        | 37.46         | 263.29           | 10.22               | 618,186.24         | 486,838.09        |
| 2,628.00                                            | 67.27      | 1.31                 | 2,500.08      | -1,121.42       | 292.48        | 37.99         | 292.48           | 9.19                | 618,215.43         | 486,838.62        |
| 2,659.00                                            | 70.70      | 1.32                 | 2,511.19      | -1,110.31       | 321.40        | 38.66         | 321.40           | 11.06               | 618,244.35         | 486,839.29        |
| 2,691.00                                            | 73.09      | 1.19                 | 2,520.98      | -1,100.52       | 351.86        | 39.32         | 351.86           | 9.35                | 618,274.81         | 486,839.95        |
| 2,723.00                                            | 76.06      | 1.15                 | 2,529.33      | -1,092.17       | 382.74        | 39.95         | 382.74           | 7.41                | 618,305.69         | 486,840.58        |
| 2,755.00                                            | 80.37      | 0.92                 | 2,535.86      | -1,085.64       | 414.05        | 40.52         | 414.05           | 13.49               | 618,337.00         | 486,841.15        |
| 2,787.00                                            | 83.10      | 0.84                 | 2,540.46      | -1,081.04       | 445.71        | 41.01         | 445.71           | 8.53                | 618,368.67         | 486,841.63        |
| 2,864.00                                            | 89.08      | 0.02                 | 2,545.71      | -1,075.79       | 522.50        | 41.58         | 522.50           | 7.84                | 618,445.45         | 486,842.21        |
| 2,896.00                                            | 90.92      | 359.98               | 2,545.71      | -1,075.79       | 554.50        | 41.58         | 554.50           | 5.75                | 618,477.45         | 486,842.21        |
| LP - 2896.00' MD, 2545.71' TVD, 554.50' N, 41.58' E |            |                      |               |                 |               |               |                  |                     |                    |                   |
| 2,928.00                                            | 91.10      | 359.77               | 2,545.14      | -1,076.36       | 586.49        | 41.51         | 586.49           | 0.86                | 618,509.44         | 486,842.14        |
| 2,960.00                                            | 89.69      | 0.15                 | 2,544.92      | -1,076.58       | 618.49        | 41.49         | 618.49           | 4.56                | 618,541.44         | 486,842.12        |
| 2,991.00                                            | 88.11      | 0.51                 | 2,545.52      | -1,075.98       | 649.48        | 41.67         | 649.48           | 5.23                | 618,572.43         | 486,842.30        |
| 3,022.00                                            | 87.85      | 0.98                 | 2,546.61      | -1,074.89       | 680.46        | 42.07         | 680.46           | 1.73                | 618,603.41         | 486,842.70        |
| 3,054.00                                            | 88.20      | 1.57                 | 2,547.71      | -1,073.79       | 712.43        | 42.78         | 712.43           | 2.14                | 618,635.38         | 486,843.41        |
| 3,086.00                                            | 89.08      | 1.58                 | 2,548.47      | -1,073.03       | 744.41        | 43.66         | 744.41           | 2.75                | 618,667.36         | 486,844.29        |
| 3,118.00                                            | 89.25      | 1.59                 | 2,548.94      | -1,072.56       | 776.40        | 44.55         | 776.40           | 0.53                | 618,699.35         | 486,845.17        |
| 3,149.00                                            | 88.72      | 0.70                 | 2,549.49      | -1,072.01       | 807.38        | 45.16         | 807.38           | 3.34                | 618,730.34         | 486,845.79        |



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Well: #13H  
Wellbore: OH  
Design: OH

Local Co-ordinate Reference: Well #13H  
TVD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
MD Reference: KB=18.5' @ 3621.50usft (Patterson 101)  
North Reference: Gnd  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

| Survey                                                               |            |                      |               |                 |               |               |                  |                     |                    |                   |
|----------------------------------------------------------------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| MD<br>(usft)                                                         | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
| 3,181.00                                                             | 88.20      | 359.38               | 2,550.35      | -1,071.15       | 839.37        | 45.19         | 839.37           | 4.43                | 618,762.32         | 486,845.82        |
| 3,213.00                                                             | 88.29      | 359.31               | 2,551.33      | -1,070.17       | 871.36        | 44.82         | 871.36           | 0.36                | 618,794.31         | 486,845.45        |
| 3,245.00                                                             | 88.11      | 359.31               | 2,552.33      | -1,069.17       | 903.34        | 44.44         | 903.34           | 0.56                | 618,826.29         | 486,845.07        |
| 3,277.00                                                             | 87.85      | 359.67               | 2,553.46      | -1,068.04       | 935.32        | 44.15         | 935.32           | 1.39                | 618,858.27         | 486,844.78        |
| 3,308.00                                                             | 87.93      | 359.99               | 2,554.60      | -1,066.90       | 966.29        | 44.06         | 966.29           | 1.06                | 618,889.25         | 486,844.69        |
| 3,340.00                                                             | 88.11      | 358.94               | 2,555.71      | -1,065.79       | 998.27        | 43.76         | 998.27           | 3.33                | 618,921.22         | 486,844.39        |
| 3,371.00                                                             | 88.11      | 358.84               | 2,556.73      | -1,064.77       | 1,029.25      | 43.16         | 1,029.25         | 0.32                | 618,952.20         | 486,843.79        |
| 3,403.00                                                             | 88.29      | 358.91               | 2,557.74      | -1,063.76       | 1,061.23      | 42.53         | 1,061.23         | 0.60                | 618,984.18         | 486,843.16        |
| 3,466.00                                                             | 88.46      | 359.02               | 2,559.52      | -1,061.98       | 1,124.19      | 41.40         | 1,124.19         | 0.32                | 619,047.14         | 486,842.02        |
| 3,530.00                                                             | 89.43      | 358.94               | 2,560.70      | -1,060.80       | 1,188.17      | 40.26         | 1,188.17         | 1.52                | 619,111.12         | 486,840.89        |
| 3,594.00                                                             | 89.43      | 359.03               | 2,561.34      | -1,060.16       | 1,252.16      | 39.12         | 1,252.16         | 0.14                | 619,175.11         | 486,839.75        |
| 3,657.00                                                             | 89.09      | 358.80               | 2,561.82      | -1,059.68       | 1,315.15      | 37.93         | 1,315.15         | 0.55                | 619,238.10         | 486,838.56        |
| 3,720.00                                                             | 89.78      | 359.19               | 2,562.11      | -1,059.39       | 1,378.13      | 36.82         | 1,378.13         | 0.64                | 619,301.09         | 486,837.45        |
| 3,783.00                                                             | 89.25      | 359.17               | 2,562.65      | -1,058.85       | 1,441.13      | 35.92         | 1,441.13         | 0.84                | 619,364.08         | 486,836.55        |
| 3,847.00                                                             | 87.67      | 359.54               | 2,564.37      | -1,057.13       | 1,505.10      | 35.20         | 1,505.10         | 2.54                | 619,428.05         | 486,835.83        |
| 3,911.00                                                             | 86.70      | 358.44               | 2,567.51      | -1,053.99       | 1,569.01      | 34.08         | 1,569.01         | 2.29                | 619,491.96         | 486,834.71        |
| 3,974.00                                                             | 86.61      | 358.63               | 2,571.18      | -1,050.32       | 1,631.88      | 32.47         | 1,631.88         | 0.33                | 619,554.83         | 486,833.10        |
| 4,036.00                                                             | 86.44      | 359.23               | 2,574.94      | -1,046.56       | 1,693.75      | 31.31         | 1,693.75         | 1.00                | 619,616.71         | 486,831.94        |
| BHL - 4036.00'MD, 2574.94'TVD', 1693.75'N, 31.31'E - BHL (Fed AB 14) |            |                      |               |                 |               |               |                  |                     |                    |                   |

| Design Annotations          |                             |                   |                 |                                                    |
|-----------------------------|-----------------------------|-------------------|-----------------|----------------------------------------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                                            |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                                                    |
| 2,090.00                    | 2,089.91                    | -6.51             | 10.52           | KOP - 2090.00'MD, 2089.91'TVD', -6.51'N, 10.52'E   |
| 2,896.00                    | 2,545.71                    | 554.50            | 41.58           | LP - 2896.00'MD, 2545.71'TVD', 554.50'N, 41.58'E   |
| 4,036.00                    | 2,574.94                    | 1,693.75          | 31.31           | BHL - 4036.00'MD, 2574.94'TVD', 1693.75'N, 31.31'E |



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Design: OH

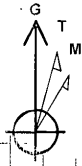
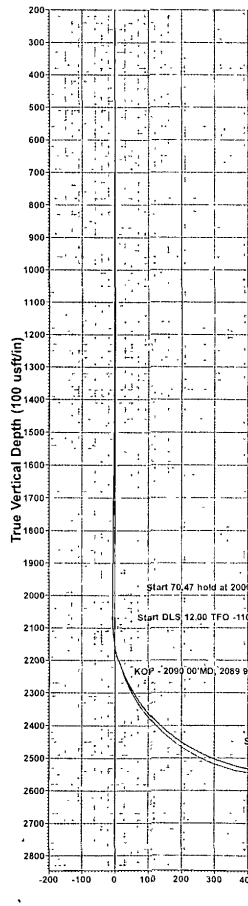
Local Co-ordinate Reference: Well #13H  
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North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

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



Project: Eddy County  
Site: Federal AB  
Well: #13H  
Wellbore: OH  
Plan: Plan #3 (#13H/OH)

**PATHFINDER**  
A Schlumberger Company



Azimuths to Grid North  
True North: 0.10°  
Magnetic North: 8.13°  
Magnetic Field  
Strength: 48784.0snT  
Dip Angle: 60.46°  
Date: 7/22/2011  
Model: IGRF2010

| SECTION DETAILS |         |       |        |         |         |       |       |         |               |
|-----------------|---------|-------|--------|---------|---------|-------|-------|---------|---------------|
| Sec             | MD      | Inc   | Azi    | TVD     | +N/S    | +E/W  | Dleg  | TFace   | V Sect Target |
| 1               | 2000.00 | 0.75  | 110.60 | 1999.92 | -6.50   | 9.50  | 0.00  | 0.00    | -6.50         |
| 2               | 2070.47 | 0.75  | 110.60 | 2070.39 | -6.82   | 10.37 | 0.00  | 0.00    | -6.82         |
| 3               | 2814.81 | 85.06 | 0.30   | 2548.92 | 462.77  | 18.62 | 12.00 | -110.31 | 462.77        |
| 4               | 4295.80 | 89.06 | 0.30   | 2574.22 | 1943.55 | 26.37 | 0.00  | 0.00    | 1943.55       |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES) |         |      |      |          |            |                  |
|--------------------------------------------|---------|------|------|----------|------------|------------------|
| Name                                       | TVD     | +N/S | +E/W | Northing | Easting    | Shape            |
| BHL (Fed AB) 06/5 00                       | 1943.55 |      |      | 26.37    | 615866.501 | 486826.999 Point |

| WELL DETAILS #13H                                     |      |            |            |                  |                   |      |
|-------------------------------------------------------|------|------------|------------|------------------|-------------------|------|
| Ground Elevation: 3603.00                             |      |            |            |                  |                   |      |
| RKB Elevation: KB=18.5' @ 3621.50usft (Patterson 101) |      |            |            |                  |                   |      |
| Rig Name: Patterson 101                               |      |            |            |                  |                   |      |
| +N/S                                                  | +E/W | Northing   | Easting    | Latitude         | Longitude         | Slot |
| 0.00                                                  | 0.00 | 617922.951 | 486800.029 | 32° 41' 54.914 N | 104° 30' 38.242 W |      |

PROJECT DETAILS: Eddy County  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone  
System Datum: Mean Sea Level  
Local North: Grid

