

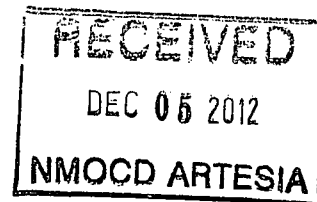
**PATRIOT DRILLING, LLC**

OPERATOR: Yates Petroleum Corp  
WELL/LEASE: Torpedo Bow State Com # 1 H  
COUNTY: Eddy Co., New Mexico  
Sec. 11, T25S, R27E

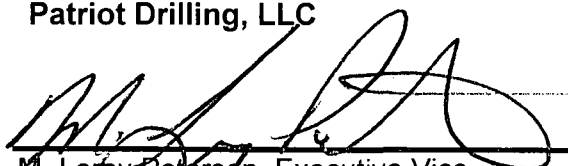
30015-37495

**STATE OF NEW MEXICO  
DEVIATION REPORT**

| <u>Depth</u> | <u>Deviation</u> | <u>Depth</u> | <u>Deviation</u> |
|--------------|------------------|--------------|------------------|
| 250          | 1                | 2,260        | 2 1/2            |
| 444          | 3                | 2,354        | 2 1/4            |
| 600          | 1 1/4            | 2,386        | 2                |
| 779          | 1 1/2            | 2,626        | 1                |
| 1,042        | 2                | 3,004        | 1                |
| 1,223        | 1 3/4            | 3,476        | 1/4              |
| 1,318        | 1                | 3,947        | 1/2              |
| 1,504        | 1 1/2            | 4,420        | 1/2              |
| 1,693        | 2 1/2            | 4,893        | 1/2              |
| 1,787        | 3                | 5,365        | 1                |
| 1,881        | 2 3/4            | 5,839        | 1                |
| 1,976        | 3                | 6,311        | 1 3/4            |
| 2,071        | 3 1/2            | 6,782        | 3 1/4            |
| 2,166        | 3                | 7,123        | 2 3/4            |



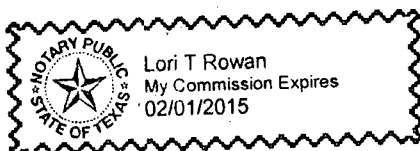
**Patriot Drilling, LLC**

  
M. Leroy Peterson, Executive Vice-  
President

The foregoing instrument was acknowledged before me on this 27th day of  
September, 2012 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling,

My Commission Expires: 02/01/2015

  
Lori T. Rowan  
Notary Public for Ector Co., Texas





**A Schlumberger Company**

***DIRECTIONAL SURVEY REPORT***

**YATES PETROLEUM**

***TORPEDO 'BOW' STATE COM #1H***

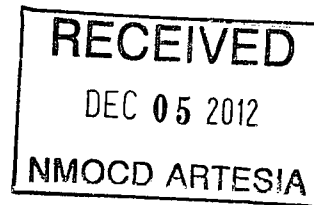
***EDDY COUNTY, NEW MEXICO***



**PREPARED BY: MARCUS MITCHAM**

Pathfinder

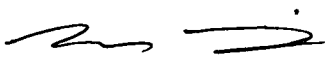
6213 WCR. 112  
Midland, Texas. 79706-3725, USA  
Tel. (432) 687-1647  
Fax (432) 687-1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:  
A) CHARLIE SANDIFER
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 9/12/12 TO 9/20/12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:  
  
YATES PETROLEUM  
TORPEDO 'BOW' STATE COM #1H  
EDDY COUNTY, NM  
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 7,123 TO 11,939 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE  
DISPLACED AT 4,603.64 FEET ON A BEARING OF 90.35 DEGREES FROM THE  
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 12,018 FEET,  
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

  
\_\_\_\_\_  
MARCUS MITCHAM  
MWD COORDINATOR

# PathFinder Energy Services, Inc.

## BHL Report

Page 01/01  
Tie-in Date: 09/11/2012  
Date Completed: 09/20/2012

YATES PETROLEUM CORPORATION  
TORPEDO BOW ST COM #1  
EDDY COUNTY, NEW MEXICO  
Rig: PATRIOT 5  
PathFinder Office Supervisor: MARCUS MITCHAM  
PathFinder Field Engineers: C. SANDIFER  
M. COX

Survey Horiz. Reference: WELLHEAD  
Ref Coordinates: LAT: 32.8.20.9608 N LON: 104.10.6.9063 W  
GRID Reference: NAD83 new mexico east Transverse Mercator  
Ref GRID Coord: X: 592330.2410 Y: 414399.5170  
North Aligned To: GRID NORTH  
Total Magnetic Correction: 7.61° EAST TO GRID  
Vertical Section Plane: 90.13  
Survey Vert. Reference: 26.50' Kelly Bushing To Ground  
Altitude: 3070.00' Ground To MSL

|                       |                |             |
|-----------------------|----------------|-------------|
| Measured Depth        | 12018.00       | (feet)      |
| Inclination           | 89.96          | (deg)       |
| Azimuth               | 90.58          | (deg)       |
| True Vertical Depth   | 7712.87        | (feet)      |
| Vertical Section      | 4603.60        | (feet)      |
| Survey X cord         | 596933.79      | (feet)      |
| Survey Y cord         | 414371.08      | (feet)      |
| Survey Lat            | 32.13905739 N  | (deg)       |
| Survey Lon            | 104.15371206 W | (deg)       |
| Rectangular Corr. N/S | 28.43 S        | (feet)      |
| Rectangular Corr. E/W | 4603.55 E      | (feet)      |
| Closure Distance      | 4603.64        | (feet)      |
| Direction of Closure  | 90.35          | (deg)       |
| Dogleg Severity       | 0.00           | (deg/100ft) |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
TORPEDO BOW ST COM #1 H  
EDDY COUNTY, NEW MEXICO  
Rig: PATRIOT 5  
PathFinder Office Supervisor: MARCUS MITCHAM  
PathFinder Field Engineers: C. SANDIFER  
M. COX

Survey Horiz. Reference: WELLHEAD  
Ref Coordinates: LAT: 32.8.20.9608 N LON: 104.10.6.9063 W  
GRID Reference: NAD83 new mexico east Transverse Mercator  
Ref GRID Coord: X: 592330.2410 Y: 414399.5170  
North Aligned To: GRID NORTH  
Total Magnetic Correction: 7.61° EAST TO GRID  
Vertical Section Plane: 90.13  
Survey Vert. Reference: 26.50' Kelly Bushing To Ground  
Altitude: 3070.00' Ground To MSL

Survey Calculations by RX5 V6.04A using Minimum Curvature

| Measured<br>Depth<br>(ft)                | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Course<br>Length<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |          | Closure<br>Dist Dir<br>(ft) (deg) |        | DLS<br>(dg/100ft) |
|------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|
| TIED INTO MULTI SHOT SURVEY AT 7060'MD   |               |                        |             |                          |                             |                                           |          |                                   |        |                   |
| 7060.00                                  | 2.71          | 204.75                 | 7057.43     | 0.00                     | 68.46                       | 51.13 S                                   | 68.34 E  | 85.35@                            | 126.80 | 0.00              |
| THE FOLLOWING ARE PATHFINDER MWD SURVEYS |               |                        |             |                          |                             |                                           |          |                                   |        |                   |
| 7123.00                                  | 2.37          | 203.52                 | 7120.37     | 63.00                    | 67.32                       | 53.68 S                                   | 67.20 E  | 86.00@                            | 128.62 | 0.55              |
| 7155.00                                  | 0.88          | 126.88                 | 7152.36     | 32.00                    | 67.25                       | 54.43 S                                   | 67.13 E  | 86.42@                            | 129.04 | 7.28              |
| 7186.00                                  | 3.87          | 96.29                  | 7183.33     | 31.00                    | 68.48                       | 54.69 S                                   | 68.36 E  | 87.54@                            | 128.66 | 10.14             |
| 7218.00                                  | 7.21          | 90.84                  | 7215.17     | 32.00                    | 71.57                       | 54.84 S                                   | 71.44 E  | 90.06@                            | 127.51 | 10.56             |
| 7249.00                                  | 10.64         | 86.54                  | 7245.79     | 31.00                    | 76.37                       | 54.69 S                                   | 76.25 E  | 93.83@                            | 125.65 | 11.26             |
| 7281.00                                  | 14.33         | 81.97                  | 7277.03     | 32.00                    | 83.24                       | 53.96 S                                   | 83.12 E  | 99.10@                            | 122.99 | 11.93             |
| 7312.00                                  | 17.24         | 80.03                  | 7306.86     | 31.00                    | 91.56                       | 52.63 S                                   | 91.44 E  | 105.51@                           | 119.92 | 9.54              |
| 7344.00                                  | 20.31         | 79.86                  | 7337.15     | 32.00                    | 101.70                      | 50.83 S                                   | 101.58 E | 113.59@                           | 116.58 | 9.59              |
| 7376.00                                  | 23.13         | 79.59                  | 7366.88     | 32.00                    | 113.34                      | 48.72 S                                   | 113.23 E | 123.27@                           | 113.28 | 8.82              |
| 7407.00                                  | 25.94         | 80.03                  | 7395.08     | 31.00                    | 126.01                      | 46.44 S                                   | 125.90 E | 134.19@                           | 110.25 | 9.08              |
| 7439.00                                  | 29.19         | 81.00                  | 7423.44     | 32.00                    | 140.61                      | 44.01 S                                   | 140.51 E | 147.24@                           | 107.39 | 10.25             |
| 7471.00                                  | 32.27         | 81.17                  | 7450.95     | 32.00                    | 156.75                      | 41.48 S                                   | 156.66 E | 162.06@                           | 104.83 | 9.63              |
| 7502.00                                  | 35.35         | 81.61                  | 7476.70     | 31.00                    | 173.80                      | 38.90 S                                   | 173.71 E | 178.01@                           | 102.62 | 9.97              |
| 7534.00                                  | 38.34         | 81.79                  | 7502.31     | 32.00                    | 192.78                      | 36.13 S                                   | 192.70 E | 196.06@                           | 100.62 | 9.35              |
| 7565.00                                  | 41.33         | 81.00                  | 7526.11     | 31.00                    | 212.40                      | 33.15 S                                   | 212.33 E | 214.90@                           | 98.87  | 9.78              |
| 7596.00                                  | 43.79         | 80.30                  | 7548.94     | 31.00                    | 233.08                      | 29.74 S                                   | 233.02 E | 234.91@                           | 97.27  | 8.08              |
| 7627.00                                  | 46.96         | 80.47                  | 7570.71     | 31.00                    | 254.82                      | 26.06 S                                   | 254.77 E | 256.10@                           | 95.84  | 10.23             |
| 7659.00                                  | 49.95         | 81.26                  | 7591.93     | 32.00                    | 278.46                      | 22.26 S                                   | 278.41 E | 279.30@                           | 94.57  | 9.52              |
| 7690.00                                  | 53.55         | 81.26                  | 7611.12     | 31.00                    | 302.51                      | 18.56 S                                   | 302.47 E | 303.04@                           | 93.51  | 11.61             |
| 7721.00                                  | 57.33         | 81.88                  | 7628.71     | 31.00                    | 327.75                      | 14.82 S                                   | 327.72 E | 328.05@                           | 92.59  | 12.30             |
| 7753.00                                  | 60.50         | 82.93                  | 7645.22     | 32.00                    | 354.90                      | 11.21 S                                   | 354.88 E | 355.06@                           | 91.81  | 10.30             |
| 7784.00                                  | 63.49         | 83.81                  | 7659.78     | 31.00                    | 382.08                      | 8.05 S                                    | 382.06 E | 382.15@                           | 91.21  | 9.96              |
| 7813.00                                  | 66.74         | 85.39                  | 7671.98     | 29.00                    | 408.26                      | 5.58 S                                    | 408.25 E | 408.29@                           | 90.78  | 12.25             |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
TORPEDO BOW ST COM #1H  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

Page 02/03

| Measured<br>Depth<br>(ft) | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Course<br>Length<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |           | Closure<br>Dist Dir<br>(ft) (deg) |       | DLS<br>(dg/100ft) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|-----------|-----------------------------------|-------|-------------------|
| 7843.00                   | 70.26         | 86.54                  | 7682.98     | 30.00                    | 436.10                      | 3.62 S                                    | 436.09 E  | 436.10@                           | 90.48 | 12.26             |
| 7873.00                   | 73.42         | 87.41                  | 7692.32     | 30.00                    | 464.55                      | 2.12 S                                    | 464.55 E  | 464.56@                           | 90.26 | 10.89             |
| 7906.00                   | 76.94         | 87.33                  | 7700.76     | 33.00                    | 496.41                      | 0.65 S                                    | 496.41 E  | 496.41@                           | 90.08 | 10.67             |
| 7938.00                   | 80.64         | 87.24                  | 7706.98     | 32.00                    | 527.76                      | 0.83 N                                    | 527.76 E  | 527.76@                           | 89.91 | 11.57             |
| 7973.00                   | 84.50         | 86.54                  | 7711.51     | 35.00                    | 562.40                      | 2.72 N                                    | 562.41 E  | 562.42@                           | 89.72 | 11.20             |
| 8068.00                   | 88.90         | 89.00                  | 7716.98     | 95.00                    | 657.13                      | 6.40 N                                    | 657.15 E  | 657.18@                           | 89.44 | 5.30              |
| 8163.00                   | 88.29         | 89.17                  | 7719.31     | 95.00                    | 752.09                      | 7.92 N                                    | 752.11 E  | 752.15@                           | 89.40 | 0.67              |
| 8257.00                   | 88.20         | 89.79                  | 7722.19     | 94.00                    | 846.04                      | 8.77 N                                    | 846.06 E  | 846.11@                           | 89.41 | 0.67              |
| 8351.00                   | 89.87         | 90.49                  | 7723.77     | 94.00                    | 940.02                      | 8.54 N                                    | 940.04 E  | 940.08@                           | 89.48 | 1.93              |
| 8446.00                   | 90.04         | 90.75                  | 7723.84     | 95.00                    | 1035.02                     | 7.51 N                                    | 1035.04 E | 1035.07@                          | 89.58 | 0.33              |
| 8540.00                   | 89.43         | 90.84                  | 7724.28     | 94.00                    | 1129.01                     | 6.21 N                                    | 1129.03 E | 1129.04@                          | 89.68 | 0.66              |
| 8634.00                   | 88.37         | 90.40                  | 7726.08     | 94.00                    | 1222.99                     | 5.19 N                                    | 1223.00 E | 1223.01@                          | 89.76 | 1.22              |
| 8729.00                   | 88.90         | 91.46                  | 7728.35     | 95.00                    | 1317.95                     | 3.65 N                                    | 1317.96 E | 1317.97@                          | 89.84 | 1.25              |
| 8823.00                   | 88.72         | 91.63                  | 7730.30     | 94.00                    | 1411.90                     | 1.12 N                                    | 1411.91 E | 1411.91@                          | 89.95 | 0.26              |
| 8917.00                   | 89.52         | 93.04                  | 7731.74     | 94.00                    | 1505.82                     | 2.71 S                                    | 1505.82 E | 1505.82@                          | 90.10 | 1.72              |
| 9012.00                   | 89.96         | 93.57                  | 7732.17     | 95.00                    | 1600.67                     | 8.19 S                                    | 1600.66 E | 1600.68@                          | 90.29 | 0.72              |
| 9106.00                   | 90.22         | 94.36                  | 7732.02     | 94.00                    | 1694.46                     | 14.69 S                                   | 1694.43 E | 1694.49@                          | 90.50 | 0.89              |
| 9200.00                   | 91.19         | 93.65                  | 7730.87     | 94.00                    | 1788.23                     | 21.25 S                                   | 1788.19 E | 1788.32@                          | 90.68 | 1.28              |
| 9294.00                   | 91.01         | 93.74                  | 7729.06     | 94.00                    | 1882.04                     | 27.31 S                                   | 1881.98 E | 1882.18@                          | 90.83 | 0.21              |
| 9388.00                   | 91.36         | 94.53                  | 7727.12     | 94.00                    | 1975.79                     | 34.09 S                                   | 1975.71 E | 1976.01@                          | 90.99 | 0.92              |
| 9483.00                   | 91.28         | 94.80                  | 7724.93     | 95.00                    | 2070.46                     | 41.81 S                                   | 2070.37 E | 2070.80@                          | 91.16 | 0.30              |
| 9577.00                   | 91.10         | 92.95                  | 7722.98     | 94.00                    | 2164.24                     | 48.16 S                                   | 2164.13 E | 2164.67@                          | 91.27 | 1.98              |
| 9671.00                   | 91.01         | 91.55                  | 7721.25     | 94.00                    | 2258.15                     | 51.85 S                                   | 2258.04 E | 2258.64@                          | 91.32 | 1.49              |
| 9765.00                   | 91.10         | 91.63                  | 7719.52     | 94.00                    | 2352.11                     | 54.46 S                                   | 2351.99 E | 2352.62@                          | 91.33 | 0.13              |
| 9860.00                   | 90.40         | 90.75                  | 7718.27     | 95.00                    | 2447.08                     | 56.43 S                                   | 2446.96 E | 2447.61@                          | 91.32 | 1.18              |
| 9955.00                   | 90.13         | 90.75                  | 7717.83     | 95.00                    | 2542.08                     | 57.68 S                                   | 2541.95 E | 2542.61@                          | 91.30 | 0.28              |
| 10049.00                  | 89.78         | 91.19                  | 7717.91     | 94.00                    | 2636.07                     | 59.27 S                                   | 2635.94 E | 2636.60@                          | 91.29 | 0.60              |
| 10144.00                  | 88.99         | 89.52                  | 7718.93     | 95.00                    | 2731.05                     | 59.86 S                                   | 2730.93 E | 2731.58@                          | 91.26 | 1.94              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
TORPEDO BOW ST COM #1  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

Page 03/03

| Measured<br>Depth<br>(ft)                    | Incl<br>(deg) | Drift<br>Dir.<br>(deg) | TVD<br>(ft) | Course<br>Length<br>(ft) | Vertical<br>Section<br>(ft) | TOTAL<br>Rectangular Offsets<br>(ft) (ft) |           | Closure<br>Dist Dir<br>(ft) (deg) |       | DLS<br>(dg/100ft) |
|----------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|-----------|-----------------------------------|-------|-------------------|
| 10238.00                                     | 89.08         | 88.65                  | 7720.51     | 94.00                    | 2825.03                     | 58.35 S                                   | 2824.90 E | 2825.50@                          | 91.18 | 0.93              |
| 10333.00                                     | 88.29         | 88.56                  | 7722.69     | 95.00                    | 2919.97                     | 56.04 S                                   | 2919.85 E | 2920.38@                          | 91.10 | 0.84              |
| 10427.00                                     | 90.22         | 89.00                  | 7723.91     | 94.00                    | 3013.93                     | 54.04 S                                   | 3013.81 E | 3014.30@                          | 91.03 | 2.11              |
| 10522.00                                     | 89.78         | 88.65                  | 7723.91     | 95.00                    | 3108.90                     | 52.09 S                                   | 3108.79 E | 3109.23@                          | 90.96 | 0.59              |
| 10617.00                                     | 88.99         | 88.12                  | 7724.93     | 95.00                    | 3203.85                     | 49.42 S                                   | 3203.75 E | 3204.13@                          | 90.88 | 1.00              |
| 10711.00                                     | 88.29         | 87.15                  | 7727.16     | 94.00                    | 3297.73                     | 45.54 S                                   | 3297.64 E | 3297.95@                          | 90.79 | 1.27              |
| 10806.00                                     | 88.29         | 86.45                  | 7730.00     | 95.00                    | 3392.53                     | 40.24 S                                   | 3392.45 E | 3392.69@                          | 90.68 | 0.74              |
| 10900.00                                     | 90.48         | 85.74                  | 7731.01     | 94.00                    | 3486.29                     | 33.84 S                                   | 3486.22 E | 3486.38@                          | 90.56 | 2.45              |
| 10994.00                                     | 92.07         | 86.98                  | 7728.92     | 94.00                    | 3580.05                     | 27.87 S                                   | 3580.00 E | 3580.11@                          | 90.45 | 2.14              |
| 11089.00                                     | 92.24         | 87.33                  | 7725.34     | 95.00                    | 3674.86                     | 23.16 S                                   | 3674.82 E | 3674.89@                          | 90.36 | 0.41              |
| 11183.00                                     | 91.36         | 88.91                  | 7722.39     | 94.00                    | 3768.75                     | 20.08 S                                   | 3768.72 E | 3768.77@                          | 90.31 | 1.92              |
| 11278.00                                     | 91.19         | 89.79                  | 7720.28     | 95.00                    | 3863.72                     | 19.00 S                                   | 3863.68 E | 3863.73@                          | 90.28 | 0.94              |
| 11373.00                                     | 91.01         | 90.49                  | 7718.45     | 95.00                    | 3958.70                     | 19.23 S                                   | 3958.67 E | 3958.71@                          | 90.28 | 0.76              |
| 11468.00                                     | 91.01         | 90.58                  | 7716.78     | 95.00                    | 4053.68                     | 20.12 S                                   | 4053.65 E | 4053.70@                          | 90.28 | 0.09              |
| 11562.00                                     | 91.19         | 91.11                  | 7714.97     | 94.00                    | 4147.66                     | 21.50 S                                   | 4147.62 E | 4147.68@                          | 90.30 | 0.60              |
| 11656.00                                     | 90.57         | 90.84                  | 7713.53     | 94.00                    | 4241.64                     | 23.10 S                                   | 4241.59 E | 4241.66@                          | 90.31 | 0.72              |
| 11750.00                                     | 90.13         | 91.02                  | 7712.96     | 94.00                    | 4335.62                     | 24.63 S                                   | 4335.58 E | 4335.65@                          | 90.33 | 0.51              |
| 11845.00                                     | 90.04         | 91.02                  | 7712.82     | 95.00                    | 4430.61                     | 26.32 S                                   | 4430.56 E | 4430.64@                          | 90.34 | 0.09              |
| 11939.00                                     | 89.96         | 90.58                  | 7712.82     | 94.00                    | 4524.61                     | 27.63 S                                   | 4524.56 E | 4524.64@                          | 90.35 | 0.48              |
| STRAIGHT LINE PROJECTION TO BIT AT 12018' MD |               |                        |             |                          |                             |                                           |           |                                   |       |                   |
| 12018.00                                     | 89.96         | 90.58                  | 7712.87     | 79.00                    | 4603.60                     | 28.43 S                                   | 4603.55 E | 4603.64@                          | 90.35 | 0.00              |



A Schlumberger Company

## TIE-IN SURVEY INFORMATION SHEET

### CLIENT INFORMATION

|                           |                             |            |     |
|---------------------------|-----------------------------|------------|-----|
| CLIENT:                   | YATES PETROLEUM CORPORATION |            |     |
| LEASE / WELL No.:         | TORPEDO BOW STATE COM       | #1H        |     |
| WELL LOCATION:            | EDDY COUNTY                 |            |     |
| COUNTY / STATE / COUNTRY: | EDDY                        | NEW MEXICO | USA |
| RIG:                      | PATRIOT 5                   |            |     |
| API WELL No:              | 30-015-37495                |            |     |
| JOB No:                   | 12MLD0416                   |            |     |
| P.O. / AFE No.            |                             |            |     |
| DIRECTIONAL COMPANY:      | PATHFINDER ENERGY SERVICES  |            |     |

### WELL SITE INFORMATION

|                                  |                                                                                                        |                 |                   |
|----------------------------------|--------------------------------------------------------------------------------------------------------|-----------------|-------------------|
| TOTAL MAGNETIC CORRECTION (TMC): |                                                                                                        |                 |                   |
| On Wall Plat:                    | 7.61                                                                                                   | LWD Calculated: | 7.61              |
| Agreed Upon:                     |                                                                                                        | 7.61            |                   |
| X =                              | 592330.240000                                                                                          | Feet            | Y = 414399.520000 |
|                                  |                                                                                                        | Feet            |                   |
| SITE LATITUDE:                   | 32.139156                                                                                              | SITE LONGITUDE: | 104.168585        |
| GRID SYSTEM:                     | TRUE <input type="checkbox"/> UTM <input checked="" type="checkbox"/> LAMBERT <input type="checkbox"/> | ZONE:           | NEW MEXICO EAST   |
| PROPOSED DRIFT DIRECTION:        | 90.13                                                                                                  |                 |                   |
| KELLY BUSHING ELEVATION:         | 26.5                                                                                                   |                 |                   |
| ALTITUDE:                        | 3170                                                                                                   | Feet            | WATER DEPTH:      |
|                                  |                                                                                                        | Feet            |                   |

### TIE-IN SURVEY

|                                    |                                                                                                                            |       |                             |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------|
| MEASURED DEPTH:                    | 7060                                                                                                                       |       |                             |
| DRIFT ANGLE:                       | 2.71                                                                                                                       |       |                             |
| DRIFT DIRECTION:                   | 204.75                                                                                                                     |       |                             |
| TRUE VERTICAL DEPTH:               | 7057.43                                                                                                                    |       |                             |
| VERTICAL SECTION:                  | 68.45                                                                                                                      |       |                             |
| RECTANGULAR COORDINATE ( N / S ):  | -51.13                                                                                                                     |       |                             |
| RECTANGULAR COORDINATE ( E / W ):  | 68.34                                                                                                                      |       |                             |
| CLOSURE DISTANCE / DIRECTION:      | 85.35                                                                                                                      | 126.8 |                             |
| SURVEY CALCULATION METHOD:         | AA <input type="checkbox"/> MC <input checked="" type="checkbox"/> RC <input type="checkbox"/> BT <input type="checkbox"/> |       |                             |
| SOURCE OF TIE-IN DATA ( COMPANY ): | MS Survey                                                                                                                  |       |                             |
| COPY OF TIE-IN SURVEY REPORT       | <input checked="" type="checkbox"/> YES                                                                                    |       | <input type="checkbox"/> NO |

### WELL PLAN

|                |              |
|----------------|--------------|
| KICKOFF DEPTH: | TOTAL DEPTH: |
| KICKOFF ANGLE: | MAX ANGLE:   |

PES Engineers:

CHARLIE SANDIFER

\*\*Signature of both field engineers required if applicable

MAGGI COX

Directional Driller: MANNY CERVANTES

DATE: 11-Sep-2012



|                                              |                                            |
|----------------------------------------------|--------------------------------------------|
| <b>Company:</b> Yates Petroleum Corporation  | <b>Operator:</b> Bryan Roberts             |
| <b>Lease / Well:</b> Torpedo BOW ST. Com #1H | <b>Job Number:</b> SVCO-121287             |
| <b>County/Parish:</b> Eddy County            | <b>Gyro Serial #:</b> 4114                 |
| <b>State:</b> New Mexico                     | <b>Proposed Direction:</b> 90.13           |
| <b>Date:</b> 9/11/2012                       | <b>Mag. Declination:</b> 7.64 East to Grid |
| <b>API#:</b> 30-015-37495                    | <b>Rig/RKB:</b> Patriot #5 26.5 ft.        |
| <b>Dir. Company:</b> na                      | <b>Tie-in Company:</b> na                  |

**FIELD USE ONLY, DEFINITIVE SURVEY WILL COME FROM MS SURVEY OFFICES**

| TIE-IN Survey        |         |          |             |         |
|----------------------|---------|----------|-------------|---------|
| Measured Inclination | Azimuth | Vertical | Coordinates |         |
| Depth (ft.)          | Bearing | Depth    | (+N/-S)     | (+E/-W) |

| Digital Multi-Shot Survey Report |         |          |          |             |         |           |          |           |        |
|----------------------------------|---------|----------|----------|-------------|---------|-----------|----------|-----------|--------|
| Measured Inclination             | Azimuth | Vertical | Vertical | Coordinates |         | Dog-Leg   | Closure  | Closure   |        |
| Depth (ft.)                      | Bearing | Depth    | Section  | (+N/-S)     | (+E/-W) | / 100 ft. | Distance | Direction |        |
| 200.00                           | 1.22    | 119.94   | 199.98   | 1.85        | -1.06   | 1.85      | 0.61     | 2.13      | 119.94 |
| 400.00                           | 0.85    | 142.90   | 399.95   | 4.59        | -3.31   | 4.58      | 0.27     | 5.65      | 125.81 |
| 600.00                           | 1.77    | 130.48   | 599.90   | 7.84        | -6.50   | 7.83      | 0.48     | 10.17     | 129.69 |
| 800.00                           | 1.02    | 173.30   | 799.84   | 10.41       | -10.27  | 10.39     | 0.62     | 14.61     | 134.68 |
| 1000.00                          | 2.02    | 255.43   | 999.79   | 7.21        | -12.93  | 7.18      | 1.07     | 14.79     | 150.94 |
| 1200.00                          | 1.85    | 302.31   | 1199.69  | 1.07        | -12.09  | 1.04      | 0.77     | 12.13     | 175.07 |
| 1400.00                          | 1.32    | 45.92    | 1399.64  | -0.01       | -8.76   | -0.03     | 1.26     | 8.76      | 180.21 |
| 1600.00                          | 1.35    | 92.64    | 1599.59  | 3.99        | -7.26   | 3.98      | 0.53     | 8.28      | 151.30 |
| 1800.00                          | 2.78    | 85.16    | 1799.46  | 11.18       | -6.96   | 11.16     | 0.73     | 13.16     | 121.95 |
| 2000.00                          | 3.65    | 80.59    | 1999.14  | 22.29       | -5.51   | 22.28     | 0.45     | 22.95     | 103.90 |
| 2200.00                          | 3.01    | 77.72    | 2198.80  | 33.70       | -3.36   | 33.69     | 0.33     | 33.86     | 95.69  |
| 2400.00                          | 2.09    | 71.59    | 2398.60  | 42.28       | -1.09   | 42.28     | 0.48     | 42.29     | 91.47  |
| 2600.00                          | 1.37    | 83.17    | 2598.51  | 48.11       | 0.35    | 48.11     | 0.40     | 48.12     | 89.58  |
| 2800.00                          | 1.73    | 81.51    | 2798.44  | 53.47       | 1.08    | 53.47     | 0.18     | 53.48     | 88.84  |
| 3000.00                          | 0.82    | 106.40   | 2998.39  | 57.83       | 1.12    | 57.83     | 0.52     | 57.84     | 88.89  |
| 3200.00                          | 0.09    | 151.49   | 3198.38  | 59.28       | 0.58    | 59.28     | 0.38     | 59.28     | 89.44  |
| 3400.00                          | 0.48    | 339.42   | 3398.38  | 59.06       | 1.23    | 59.06     | 0.28     | 59.07     | 88.81  |
| 3600.00                          | 0.16    | 69.43    | 3598.37  | 59.02       | 2.11    | 59.03     | 0.25     | 59.07     | 87.95  |
| 3800.00                          | 0.50    | 271.98   | 3798.37  | 58.41       | 2.24    | 58.42     | 0.33     | 58.46     | 87.81  |
| 4000.00                          | 0.61    | 290.26   | 3998.36  | 56.54       | 2.63    | 56.55     | 0.10     | 56.61     | 87.33  |
| 4200.00                          | 0.19    | 47.17    | 4198.36  | 55.78       | 3.23    | 55.79     | 0.36     | 55.88     | 86.69  |
| 4400.00                          | 0.36    | 261.62   | 4398.36  | 55.40       | 3.36    | 55.41     | 0.26     | 55.51     | 86.53  |
| 4600.00                          | 0.46    | 169.69   | 4598.35  | 54.93       | 2.48    | 54.93     | 0.30     | 54.99     | 87.41  |
| 4800.00                          | 0.42    | 160.12   | 4798.35  | 55.33       | 1.00    | 55.33     | 0.04     | 55.34     | 88.96  |
| 5000.00                          | 0.48    | 145.85   | 4998.34  | 56.05       | -0.38   | 56.05     | 0.06     | 56.05     | 90.39  |
| 5200.00                          | 0.92    | 134.80   | 5198.33  | 57.66       | -2.21   | 57.66     | 0.23     | 57.70     | 92.19  |
| 5400.00                          | 1.18    | 149.61   | 5398.29  | 59.85       | -5.11   | 59.84     | 0.19     | 60.06     | 94.88  |
| 5600.00                          | 1.67    | 142.27   | 5598.23  | 62.68       | -9.19   | 62.66     | 0.26     | 63.33     | 98.35  |
| 5800.00                          | 0.81    | 150.35   | 5798.18  | 65.17       | -12.73  | 65.15     | 0.44     | 66.38     | 101.05 |
| 6000.00                          | 1.09    | 124.21   | 5998.16  | 67.45       | -15.03  | 67.42     | 0.25     | 69.07     | 102.56 |
| 6200.00                          | 1.02    | 164.55   | 6198.12  | 69.51       | -17.81  | 69.47     | 0.37     | 71.71     | 104.38 |
| 6400.00                          | 2.26    | 171.55   | 6398.04  | 70.57       | -23.43  | 70.52     | 0.63     | 74.31     | 108.38 |
| 6600.00                          | 2.19    | 175.97   | 6597.89  | 71.44       | -31.14  | 71.37     | 0.09     | 77.87     | 113.57 |
| 6800.00                          | 2.50    | 184.59   | 6797.72  | 71.38       | -39.30  | 71.29     | 0.23     | 81.40     | 118.87 |
| 7000.00                          | 2.87    | 197.95   | 6997.50  | 69.50       | -48.41  | 69.39     | 0.36     | 84.61     | 124.90 |

|         |      |        |         |       |        |       |      |       |        |
|---------|------|--------|---------|-------|--------|-------|------|-------|--------|
| 7060.00 | 2.71 | 204.75 | 7057.43 | 68.45 | -51.13 | 68.34 | 0.61 | 85.35 | 126.80 |
|---------|------|--------|---------|-------|--------|-------|------|-------|--------|

# PathFinder Energy Services, Inc.

## Magnetic & Grid Calculations

Yates Petroleum  
Torpedo Bow ST Com #1  
Eddy County, New Mexico  
Rig: Patriot #5

Tue Sep 11 08:43:22 2012

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### Coordinates

Latitude: 32.139156 N ( 32 deg. 8 min. 20.9608 sec.)  
Longitude: 104.168585 W (-104 deg. 10 min. 6.9063 sec.)  
Elevation: 3196.50 feet.  
Calculation Date: Sep/11/2012

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### Magnetic Calculations

Model: IGRF2010  
Dip Angle: 59.9742 degrees  
Total Magnetic Field: 0.48376 gauss  
Magnetic Declination: 7.699778 degrees  
Horizontal Intensity: 0.242070 gauss  
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.699778 Degr.

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### Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east  
Ellipsoid: GRS80  
X: 592330.2410 feet  
Y: 414399.5170 feet  
True to Grid: (convergence) -0.087643 degrees  
Magnetic to Grid: 7.612135 degrees  
To Convert a Magnetic Dir. to a GRID dir. Add 7.612135 Degr.



Job Number: SVCO-121287  
 Company: Yates Petroleum Corporation  
 Lease/Well: TORPEDO BOW ST COM 1H  
 Location: Eddy County, NM  
 Rig Name: Patriot #5  
 RKB: 26.5'  
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA  
 Declination: 7.64°  
 Grid: East To Grid North  
 File name: F:\SURVEY\2012SU~1\YATES\CONROE\TORPED~1\1H.SVY  
 Date/Time: 12-Sep-12 / 09:00  
 Curve Name: Surface - 7060' M.D. (SRG)

WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 90.13  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from  
 Surface MD to 7060' MD is, to the best of  
 our knowledge a true and accurate account of  
 the well bore.  
 Bryan Roberts 9/12/12  
 MS Energy Services Date

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | CLOSURE        |                  | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
|                         |                      |                           |                           |           |           |                           | Distance<br>FT | Direction<br>Deg |                               |
| .00                     | .00                  | .00                       | .00                       | .00       | .00       | .00                       | .00            | .00              | .00                           |
| 200.00                  | 1.22                 | 119.94                    | 199.98                    | -1.06     | 1.85      | 1.85                      | 2.13           | 119.94           | .61                           |
| 400.00                  | .85                  | 142.90                    | 399.95                    | -3.31     | 4.58      | 4.59                      | 5.65           | 125.81           | .27                           |
| 600.00                  | 1.77                 | 130.48                    | 599.90                    | -6.50     | 7.83      | 7.84                      | 10.17          | 129.69           | .48                           |
| 800.00                  | 1.02                 | 173.30                    | 799.84                    | -10.27    | 10.39     | 10.41                     | 14.61          | 134.68           | .62                           |
| 1000.00                 | 2.02                 | 255.43                    | 999.79                    | -12.93    | 7.18      | 7.21                      | 14.79          | 150.94           | 1.07                          |
| 1200.00                 | 1.85                 | 302.31                    | 1199.69                   | -12.09    | 1.04      | 1.07                      | 12.13          | 175.07           | .77                           |
| 1400.00                 | 1.32                 | 45.92                     | 1399.64                   | -8.76     | -.03      | -.01                      | 8.76           | 180.21           | 1.26                          |
| 1600.00                 | 1.35                 | 92.64                     | 1599.59                   | -7.26     | 3.98      | 3.99                      | 8.28           | 151.30           | .53                           |
| 1800.00                 | 2.78                 | 85.16                     | 1799.46                   | -6.96     | 11.16     | 11.18                     | 13.16          | 121.95           | .73                           |

| Measured<br>Depth<br>FT           | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | CLOSURE        |                  | Dogleg<br>Severity<br>Deg/100 |
|-----------------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
|                                   |                      |                           |                           |           |           |                           | Distance<br>FT | Direction<br>Deg |                               |
| 2000.00                           | 3.65                 | 80.59                     | 1999.14                   | -5.51     | 22.28     | 22.29                     | 22.95          | 103.90           | .45                           |
| 2200.00                           | 3.01                 | 77.72                     | 2198.80                   | -3.36     | 33.69     | 33.70                     | 33.86          | 95.69            | .33                           |
| 2400.00                           | 2.09                 | 71.59                     | 2398.60                   | -1.09     | 42.28     | 42.28                     | 42.29          | 91.47            | .48                           |
| 2600.00                           | 1.37                 | 83.17                     | 2598.51                   | .35       | 48.11     | 48.11                     | 48.12          | 89.58            | .40                           |
| 2800.00                           | 1.73                 | 81.51                     | 2798.44                   | 1.08      | 53.47     | 53.47                     | 53.48          | 88.84            | .18                           |
| 3000.00                           | .82                  | 106.40                    | 2998.39                   | 1.12      | 57.83     | 57.83                     | 57.84          | 88.89            | .52                           |
| 3200.00                           | .09                  | 151.49                    | 3198.38                   | .58       | 59.28     | 59.28                     | 59.28          | 89.44            | .38                           |
| 3400.00                           | .48                  | 339.42                    | 3398.38                   | 1.23      | 59.06     | 59.06                     | 59.07          | 88.81            | .28                           |
| 3600.00                           | .16                  | 69.43                     | 3598.37                   | 2.11      | 59.03     | 59.02                     | 59.07          | 87.95            | .25                           |
| 3800.00                           | .50                  | 271.98                    | 3798.37                   | 2.24      | 58.42     | 58.41                     | 58.46          | 87.81            | .33                           |
| 4000.00                           | .61                  | 290.26                    | 3998.36                   | 2.63      | 56.55     | 56.54                     | 56.61          | 87.33            | .10                           |
| 4200.00                           | .19                  | 47.17                     | 4198.36                   | 3.23      | 55.79     | 55.78                     | 55.88          | 86.69            | .36                           |
| 4400.00                           | .36                  | 261.62                    | 4398.36                   | 3.36      | 55.41     | 55.40                     | 55.51          | 86.53            | .26                           |
| 4600.00                           | .46                  | 169.69                    | 4598.35                   | 2.48      | 54.93     | 54.93                     | 54.99          | 87.41            | .30                           |
| 4800.00                           | .42                  | 160.12                    | 4798.35                   | 1.00      | 55.33     | 55.33                     | 55.34          | 88.96            | .04                           |
| 5000.00                           | .48                  | 145.85                    | 4998.34                   | -.38      | 56.05     | 56.05                     | 56.05          | 90.39            | .06                           |
| 5200.00                           | .92                  | 134.80                    | 5198.33                   | -2.21     | 57.66     | 57.66                     | 57.70          | 92.19            | .23                           |
| 5400.00                           | 1.18                 | 149.61                    | 5398.29                   | -5.11     | 59.84     | 59.85                     | 60.06          | 94.88            | .19                           |
| 5600.00                           | 1.67                 | 142.27                    | 5598.23                   | -9.19     | 62.66     | 62.68                     | 63.33          | 98.35            | .26                           |
| 5800.00                           | .81                  | 150.35                    | 5798.18                   | -12.73    | 65.15     | 65.17                     | 66.38          | 101.05           | .44                           |
| 6000.00                           | 1.09                 | 124.21                    | 5998.16                   | -15.03    | 67.42     | 67.45                     | 69.07          | 102.56           | .25                           |
| 6200.00                           | 1.02                 | 164.55                    | 6198.12                   | -17.81    | 69.47     | 69.51                     | 71.71          | 104.38           | .37                           |
| 6400.00                           | 2.26                 | 171.55                    | 6398.04                   | -23.43    | 70.52     | 70.57                     | 74.31          | 108.38           | .63                           |
| 6600.00                           | 2.19                 | 175.97                    | 6597.89                   | -31.14    | 71.37     | 71.44                     | 77.87          | 113.57           | .09                           |
| 6800.00                           | 2.50                 | 184.59                    | 6797.72                   | -39.30    | 71.29     | 71.38                     | 81.40          | 118.87           | .23                           |
| 7000.00                           | 2.87                 | 197.95                    | 6997.50                   | -48.41    | 69.39     | 69.50                     | 84.61          | 124.90           | .36                           |
| <b>Last Survey Depth Recorded</b> |                      |                           |                           |           |           |                           |                |                  |                               |
| 7060.00                           | 2.71                 | 204.75                    | 7057.43                   | -51.13    | 68.34     | 68.45                     | 85.35          | 126.80           | .61                           |



## Yates Petroleum Corp.

Eddy County (NAD 83)

Torpedo "BOW" State Com

#1H

OH

Design: OH

## PathfinderX & Y Report

21 September, 2012

**PATHFINDER<sup>®</sup>**

A Schlumberger Company



Pathfinder  
PathfinderX & Y Report

**PATHFINDER**  
A Schlumberger Company

|           |                         |                              |                                    |
|-----------|-------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.   | Local Co-ordinate Reference: | Well #1H                           |
| Project:  | Eddy County (NAD 83)    | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot-5) |
| Site:     | Torpedo "BOW" State Com | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot-5) |
| Well:     | #1H                     | North Reference:             | Grid:                              |
| Wellbore: | OH                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                      | Database:                    | EDM 5000.1 Single User Db          |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project:    | Eddy County (NAD 83)      |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | New Mexico Eastern Zone   |               |                |

|                       |                         |                   |                  |
|-----------------------|-------------------------|-------------------|------------------|
| Site:                 | Torpedo "BOW" State Com |                   |                  |
| Site Position:        |                         | Northing:         | 414,399.517 usft |
| From:                 | Map                     | Easting:          | 592,330.241 usft |
| Position Uncertainty: | 0.0 usft                | Slot Radius:      | 13-3/16 "        |
|                       |                         | Latitude:         | 32.139156        |
|                       |                         | Longitude:        | -104.168585      |
|                       |                         | Grid Convergence: | 0.09 °           |

|                      |          |                     |           |                  |              |             |
|----------------------|----------|---------------------|-----------|------------------|--------------|-------------|
| Well:                |          | #1H1                |           |                  |              |             |
| Well Position        | +N/-S    | 0.0 usft            | Northing: | 414,399.517 usft | Latitude:    | 32.139156   |
|                      | +E/-W    | 0.0 usft            | Easting:  | 592,330.241 usft | Longitude:   | -104.168585 |
| Position Uncertainty | 0.0 usft | Wellhead Elevation: | usft      | Ground Level:    | 3,170.0 usft |             |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | OH         |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF200510 | 6/1/2012    | 7.73               | 60.01            | 48,446                 |

|                   |                            |                 |                 |                   |
|-------------------|----------------------------|-----------------|-----------------|-------------------|
| Design:           |                            | OH              |                 |                   |
| Audit Notes:      |                            |                 |                 |                   |
| Version:          | 1.0                        | Phase:          | ACTUAL          | Tie On Depth: 0.0 |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°)  |
|                   | 0.0                        | 0.0             | 0.0             | 90.13             |



# Pathfinder PathfinderX & Y Report

**PATHFINDER**  
A Schlumberger Company

|           |                         |                              |                                    |
|-----------|-------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.   | Local Co-ordinate Reference: | Well #1H                           |
| Project:  | Eddy County (NAD 83)    | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Site:     | Torpedo "BOW" State Com | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Well:     | #1H                     | North Reference:             | Grid                               |
| Wellbore: | OH                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                      | Database:                    | EDM 5000.1 Single User Db          |

| Survey Program |           | Date: 9/21/2012   |           |                                    |
|----------------|-----------|-------------------|-----------|------------------------------------|
| From (usft)    | To (usft) | Survey (Wellbore) | Tool Name | Description                        |
| 200.0          | 7,060.0   | Gyro #1 (OH)      | CTG-SR-SS | Continuous gyro - surface ref. s/s |
| 7,123.0        | 12,018.0  | MWD #1 (OH)       | MWD       | MWD - Standard                     |

| MD (usft) | Inc (%) | Azi (azimuth) (°) | TVD (usft) | TVDSS (usft) | N/S (usft) | E/W (usft) | V-Sec (usft) | DLeg (°/100usft) | Northing (usft) | Easting (usft) |
|-----------|---------|-------------------|------------|--------------|------------|------------|--------------|------------------|-----------------|----------------|
| 0.0       | 0.00    | 0.00              | 0.0        | -3,196.5     | 0.0        | 0.0        | 0.0          | 0.00             | 414,399.52      | 592,330.24     |
| 200.0     | 1.22    | 119.94            | 200.0      | -2,996.5     | -1.1       | 1.8        | 1.8          | 0.61             | 414,398.45      | 592,332.09     |
| 400.0     | 0.85    | 142.90            | 400.0      | -2,796.5     | -3.3       | 4.6        | 4.6          | 0.27             | 414,396.21      | 592,334.83     |
| 600.0     | 1.77    | 130.48            | 599.9      | -2,596.6     | -6.5       | 7.8        | 7.8          | 0.48             | 414,393.02      | 592,338.07     |
| 800.0     | 1.02    | 173.30            | 799.8      | -2,396.7     | -10.3      | 10.4       | 10.4         | 0.62             | 414,389.25      | 592,340.63     |
| 1,000.0   | 2.02    | 255.43            | 999.8      | -2,196.7     | -12.9      | 7.2        | 7.2          | 1.07             | 414,386.59      | 592,337.42     |
| 1,200.0   | 1.85    | 302.31            | 1,199.7    | -1,996.8     | -12.1      | 1.0        | 1.1          | 0.77             | 414,387.43      | 592,331.28     |
| 1,400.0   | 1.32    | 45.92             | 1,399.6    | -1,796.9     | -8.8       | 0.0        | 0.0          | 1.26             | 414,390.76      | 592,330.21     |
| 1,600.0   | 1.35    | 92.64             | 1,599.6    | -1,596.9     | -7.3       | 4.0        | 4.0          | 0.53             | 414,392.25      | 592,334.22     |
| 1,800.0   | 2.78    | 85.16             | 1,799.5    | -1,397.0     | -7.0       | 11.2       | 11.2         | 0.73             | 414,392.55      | 592,341.40     |
| 2,000.0   | 3.65    | 80.59             | 1,999.1    | -1,197.4     | -5.5       | 22.3       | 22.3         | 0.45             | 414,394.00      | 592,352.52     |
| 2,200.0   | 3.01    | 77.72             | 2,198.8    | -997.7       | -3.4       | 33.7       | 33.7         | 0.33             | 414,396.16      | 592,363.93     |
| 2,400.0   | 2.09    | 71.59             | 2,398.6    | -797.9       | -1.1       | 42.3       | 42.3         | 0.48             | 414,398.43      | 592,372.52     |
| 2,600.0   | 1.37    | 83.17             | 2,598.5    | -598.0       | 0.3        | 48.1       | 48.1         | 0.40             | 414,399.87      | 592,378.35     |
| 2,800.0   | 1.73    | 81.51             | 2,798.4    | -398.1       | 1.1        | 53.5       | 53.5         | 0.18             | 414,400.60      | 592,383.71     |
| 3,000.0   | 0.82    | 106.40            | 2,998.4    | -198.1       | 1.1        | 57.8       | 57.8         | 0.52             | 414,400.64      | 592,388.07     |
| 3,200.0   | 0.09    | 151.49            | 3,198.4    | 1.9          | 0.6        | 59.3       | 59.3         | 0.38             | 414,400.10      | 592,389.52     |
| 3,400.0   | 0.48    | 339.42            | 3,398.4    | 201.9        | 1.2        | 59.1       | 59.1         | 0.28             | 414,400.74      | 592,389.30     |
| 3,600.0   | 0.16    | 69.43             | 3,598.4    | 401.9        | 2.1        | 59.0       | 59.0         | 0.25             | 414,401.62      | 592,389.27     |
| 3,800.0   | 0.50    | 271.98            | 3,798.4    | 601.9        | 2.2        | 58.4       | 58.4         | 0.33             | 414,401.75      | 592,388.66     |
| 4,000.0   | 0.61    | 290.26            | 3,998.4    | 801.9        | 2.6        | 56.5       | 56.5         | 0.10             | 414,402.15      | 592,386.79     |



# Pathfinder PathfinderX & Y Report

**PATHFINDER**  
A Schlumberger Company

|           |                         |                              |                                    |
|-----------|-------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.   | Local Co-ordinate Reference: | Well #1H                           |
| Project:  | Eddy County (NAD 83)    | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Site:     | Torpedo "BOW" State Com | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Well:     | #1H                     | North Reference:             | Grid                               |
| Wellbore: | OH                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                      | 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) |  |
| 4,200.0                                      | 0.19       | 47.17                | 4,198.4       | 1,001.9         | 3.2           | 55.8          | 55.8             | 0.36                | 414,402.75         | 592,386.03        |  |
| 4,400.0                                      | 0.36       | 261.62               | 4,398.4       | 1,201.9         | 3.4           | 55.4          | 55.4             | 0.26                | 414,402.88         | 592,385.65        |  |
| 4,600.0                                      | 0.46       | 169.69               | 4,598.4       | 1,401.9         | 2.5           | 54.9          | 54.9             | 0.30                | 414,402.00         | 592,385.18        |  |
| 4,800.0                                      | 0.42       | 160.12               | 4,798.3       | 1,601.8         | 1.0           | 55.3          | 55.3             | 0.04                | 414,400.52         | 592,385.57        |  |
| 5,000.0                                      | 0.48       | 145.85               | 4,998.3       | 1,801.8         | -0.4          | 56.0          | 56.0             | 0.06                | 414,399.14         | 592,386.29        |  |
| 5,200.0                                      | 0.92       | 134.80               | 5,198.3       | 2,001.8         | -2.2          | 57.7          | 57.7             | 0.23                | 414,397.31         | 592,387.90        |  |
| 5,400.0                                      | 1.18       | 149.61               | 5,398.3       | 2,201.8         | -5.1          | 59.8          | 59.8             | 0.19                | 414,394.40         | 592,390.08        |  |
| 5,600.0                                      | 1.67       | 142.27               | 5,598.2       | 2,401.7         | -9.2          | 62.7          | 62.7             | 0.26                | 414,390.32         | 592,392.90        |  |
| 5,800.0                                      | 0.81       | 150.35               | 5,798.2       | 2,601.7         | -12.7         | 65.1          | 65.2             | 0.44                | 414,386.79         | 592,395.39        |  |
| 6,000.0                                      | 1.09       | 124.21               | 5,998.2       | 2,801.7         | -15.0         | 67.4          | 67.5             | 0.25                | 414,384.49         | 592,397.66        |  |
| 6,200.0                                      | 1.02       | 164.55               | 6,198.1       | 3,001.6         | -17.8         | 69.5          | 69.5             | 0.37                | 414,381.71         | 592,399.71        |  |
| 6,400.0                                      | 2.26       | 171.55               | 6,398.0       | 3,201.5         | -23.4         | 70.5          | 70.6             | 0.63                | 414,376.09         | 592,400.76        |  |
| 6,600.0                                      | 2.19       | 175.97               | 6,597.9       | 3,401.4         | -31.1         | 71.4          | 71.4             | 0.09                | 414,368.38         | 592,401.61        |  |
| 6,800.0                                      | 2.50       | 184.59               | 6,797.7       | 3,601.2         | -39.3         | 71.3          | 71.4             | 0.23                | 414,360.22         | 592,401.53        |  |
| 7,000.0                                      | 2.87       | 197.95               | 6,997.5       | 3,801.0         | -48.4         | 69.4          | 69.5             | 0.36                | 414,351.11         | 592,399.64        |  |
| 7,060.0                                      | 2.71       | 204.75               | 7,057.4       | 3,860.9         | -51.1         | 68.3          | 68.5             | 0.61                | 414,348.39         | 592,398.58        |  |
| 7,123.0                                      | 2.37       | 203.52               | 7,120.4       | 3,923.9         | -53.7         | 67.2          | 67.3             | 0.55                | 414,345.84         | 592,397.44        |  |
| 7,155.0                                      | 0.88       | 126.88               | 7,152.4       | 3,955.9         | -54.4         | 67.1          | 67.3             | 7.28                | 414,345.09         | 592,397.37        |  |
| 7,186.0                                      | 3.87       | 96.29                | 7,183.3       | 3,986.8         | -54.7         | 68.4          | 68.5             | 10.14               | 414,344.83         | 592,398.60        |  |
| KOP - 7186.0 MD, 7183.3 TVD, -54.7 N, 68.4 E |            |                      |               |                 |               |               |                  |                     |                    |                   |  |
| 7,218.0                                      | 7.21       | 90.84                | 7,215.2       | 4,018.7         | -54.8         | 71.4          | 71.6             | 10.55               | 414,344.68         | 592,401.68        |  |
| 7,249.0                                      | 10.64      | 86.54                | 7,245.8       | 4,049.3         | -54.7         | 76.2          | 76.4             | 11.26               | 414,344.83         | 592,406.48        |  |
| 7,281.0                                      | 14.33      | 81.97                | 7,277.0       | 4,080.5         | -54.0         | 83.1          | 83.2             | 11.93               | 414,345.56         | 592,413.36        |  |
| 7,312.0                                      | 17.24      | 80.03                | 7,306.9       | 4,110.4         | -52.6         | 91.4          | 91.6             | 9.54                | 414,346.89         | 592,421.68        |  |
| 7,344.0                                      | 20.31      | 79.86                | 7,337.2       | 4,140.7         | -50.8         | 101.6         | 101.7            | 9.60                | 414,348.69         | 592,431.82        |  |
| 7,376.0                                      | 23.13      | 79.59                | 7,366.9       | 4,170.4         | -48.7         | 113.2         | 113.3            | 8.82                | 414,350.80         | 592,443.47        |  |
| 7,407.0                                      | 25.94      | 80.03                | 7,395.1       | 4,198.6         | -46.4         | 125.9         | 126.0            | 9.08                | 414,353.08         | 592,456.14        |  |



# Pathfinder

PathfinderX & Y Report

**PATHFINDER**  
A Schlumberger Company

|           |                          |                              |                                    |
|-----------|--------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.    | Local Co-ordinate Reference: | Well #1H:                          |
| Project:  | Eddy County (NAD 83)     | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Site:     | Torpedo "BOW" State Corn | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Well:     | #1H                      | North Reference:             | Grid                               |
| Wellbore: | OH                       | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                       | Database:                    | EDM 5000.1 Single User Db          |

| 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) |
|--------------------------------------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 7,439.0                                    | 29.19      | 81.00                | 7,423.4       | 4,226.9         | -44.0         | 140.5         | 140.6            | 10.25               | 414,355.51         | 592,470.75        |
| 7,471.0                                    | 32.27      | 81.17                | 7,450.9       | 4,254.4         | -41.5         | 156.7         | 156.8            | 9.63                | 414,358.04         | 592,486.90        |
| 7,502.0                                    | 35.35      | 81.61                | 7,476.7       | 4,280.2         | -38.9         | 173.7         | 173.8            | 9.97                | 414,360.62         | 592,503.95        |
| 7,534.0                                    | 38.34      | 81.79                | 7,502.3       | 4,305.8         | -36.1         | 192.7         | 192.8            | 9.35                | 414,363.39         | 592,522.94        |
| 7,565.0                                    | 41.33      | 81.00                | 7,526.1       | 4,329.6         | -33.2         | 212.3         | 212.4            | 9.78                | 414,366.37         | 592,542.57        |
| 7,596.0                                    | 43.79      | 80.30                | 7,548.9       | 4,352.4         | -29.7         | 233.0         | 233.1            | 8.08                | 414,369.77         | 592,563.25        |
| 7,627.0                                    | 46.96      | 80.47                | 7,570.7       | 4,374.2         | -26.1         | 254.8         | 254.8            | 10.23               | 414,373.46         | 592,585.01        |
| 7,659.0                                    | 49.95      | 81.26                | 7,591.9       | 4,395.4         | -22.3         | 278.4         | 278.5            | 9.52                | 414,377.26         | 592,608.65        |
| 7,690.0                                    | 53.55      | 81.26                | 7,611.1       | 4,414.6         | -18.6         | 302.5         | 302.5            | 11.61               | 414,380.96         | 592,632.71        |
| 7,721.0                                    | 57.33      | 81.88                | 7,628.7       | 4,432.2         | -14.8         | 327.7         | 327.7            | 12.30               | 414,384.69         | 592,657.96        |
| 7,753.0                                    | 60.50      | 82.93                | 7,645.2       | 4,448.7         | -11.2         | 354.9         | 354.9            | 10.30               | 414,388.31         | 592,685.12        |
| 7,784.0                                    | 63.49      | 83.81                | 7,659.8       | 4,463.3         | -8.0          | 382.1         | 382.1            | 9.97                | 414,391.47         | 592,712.30        |
| 7,813.0                                    | 66.74      | 85.39                | 7,672.0       | 4,475.5         | -5.6          | 408.2         | 408.3            | 12.25               | 414,393.94         | 592,738.49        |
| 7,843.0                                    | 70.26      | 86.54                | 7,683.0       | 4,486.5         | -3.6          | 436.1         | 436.1            | 12.26               | 414,395.90         | 592,766.33        |
| 7,873.0                                    | 73.42      | 87.41                | 7,692.3       | 4,495.8         | -2.1          | 464.5         | 464.6            | 10.89               | 414,397.40         | 592,794.79        |
| 7,906.0                                    | 76.94      | 87.33                | 7,700.8       | 4,504.3         | -0.7          | 496.4         | 496.4            | 10.67               | 414,398.86         | 592,826.65        |
| 7,938.0                                    | 80.64      | 87.24                | 7,707.0       | 4,510.5         | 0.8           | 527.8         | 527.8            | 11.57               | 414,400.35         | 592,858.00        |
| 7,973.0                                    | 84.50      | 86.54                | 7,711.5       | 4,515.0         | 2.7           | 562.4         | 562.4            | 11.21               | 414,402.24         | 592,892.65        |
| 8,068.0                                    | 88.90      | 89.00                | 7,717.0       | 4,520.5         | 6.4           | 657.1         | 657.1            | 5.30                | 414,405.92         | 592,987.39        |
| LP = 8068.0 MD, 7717.0 TVD, 6.4 N, 657.1 E |            |                      |               |                 |               |               |                  |                     |                    |                   |
| 8,163.0                                    | 88.29      | 89.17                | 7,719.3       | 4,522.8         | 7.9           | 752.1         | 752.1            | 0.67                | 414,407.44         | 593,082.35        |
| 8,257.0                                    | 88.20      | 89.79                | 7,722.2       | 4,525.7         | 8.8           | 846.1         | 846.0            | 0.67                | 414,408.29         | 593,176.30        |
| 8,351.0                                    | 89.87      | 90.49                | 7,723.8       | 4,527.3         | 8.5           | 940.0         | 940.0            | 1.93                | 414,408.06         | 593,270.28        |
| 8,446.0                                    | 90.04      | 90.75                | 7,723.8       | 4,527.3         | 7.5           | 1,035.0       | 1,035.0          | 0.33                | 414,407.03         | 593,365.28        |
| 8,540.0                                    | 89.43      | 90.84                | 7,724.3       | 4,527.8         | 6.2           | 1,129.0       | 1,129.0          | 0.66                | 414,405.73         | 593,459.27        |
| 8,634.0                                    | 88.37      | 90.40                | 7,726.1       | 4,529.6         | 5.2           | 1,223.0       | 1,223.0          | 1.22                | 414,404.71         | 593,553.24        |
| 8,729.0                                    | 88.90      | 91.46                | 7,728.3       | 4,531.8         | 3.7           | 1,318.0       | 1,317.9          | 1.25                | 414,403.17         | 593,648.20        |



# Pathfinder PathfinderX & Y Report



|           |                         |                              |                                    |
|-----------|-------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.   | Local Co-ordinate Reference: | Well #111                          |
| Project:  | Eddy County, (NAD 83)   | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Site:     | Torpedo "BOW" State Com | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Well:     | #1H                     | North Reference:             | Grid                               |
| Wellbore: | OH                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                      | 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) | D Leg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 8,823.0      | 88.72      | 91.63                | 7,730.3       | 4,533.8         | 1.1           | 1,411.9       | 1,411.9          | 0.26                 | 414,400.63         | 593,742.15        |  |
| 8,917.0      | 89.52      | 93.04                | 7,731.7       | 4,535.2         | -2.7          | 1,505.8       | 1,505.8          | 1.72                 | 414,396.81         | 593,836.05        |  |
| 9,012.0      | 89.96      | 93.52                | 7,732.2       | 4,535.7         | -8.1          | 1,600.7       | 1,600.7          | 0.69                 | 414,391.37         | 593,930.90        |  |
| 9,106.0      | 90.22      | 94.36                | 7,732.0       | 4,535.5         | -14.6         | 1,694.4       | 1,694.5          | 0.94                 | 414,384.91         | 594,024.67        |  |
| 9,200.0      | 91.19      | 93.65                | 7,730.9       | 4,534.4         | -21.2         | 1,788.2       | 1,788.2          | 1.28                 | 414,378.35         | 594,118.44        |  |
| 9,294.0      | 91.01      | 93.74                | 7,729.1       | 4,532.6         | -27.2         | 1,882.0       | 1,882.0          | 0.21                 | 414,372.29         | 594,212.22        |  |
| 9,388.0      | 91.36      | 94.53                | 7,727.1       | 4,530.6         | -34.0         | 1,975.7       | 1,975.8          | 0.92                 | 414,365.51         | 594,305.96        |  |
| 9,483.0      | 91.26      | 94.80                | 7,724.9       | 4,528.4         | -41.7         | 2,070.4       | 2,070.5          | 0.30                 | 414,357.79         | 594,400.62        |  |
| 9,577.0      | 91.10      | 92.95                | 7,723.0       | 4,526.5         | -48.1         | 2,164.1       | 2,164.2          | 1.98                 | 414,351.44         | 594,494.38        |  |
| 9,671.0      | 91.01      | 91.55                | 7,721.3       | 4,524.8         | -51.8         | 2,258.0       | 2,258.2          | 1.49                 | 414,347.75         | 594,588.29        |  |
| 9,765.0      | 91.10      | 91.63                | 7,719.6       | 4,523.1         | -54.4         | 2,352.0       | 2,352.1          | 0.13                 | 414,345.14         | 594,682.24        |  |
| 9,860.0      | 90.40      | 90.75                | 7,718.3       | 4,521.8         | -56.3         | 2,447.0       | 2,447.1          | 1.18                 | 414,343.17         | 594,777.21        |  |
| 9,955.0      | 90.13      | 90.75                | 7,717.9       | 4,521.4         | -57.6         | 2,542.0       | 2,542.1          | 0.28                 | 414,341.92         | 594,872.20        |  |
| 10,049.0     | 89.78      | 91.19                | 7,717.9       | 4,521.4         | -59.2         | 2,635.9       | 2,636.1          | 0.60                 | 414,340.33         | 594,966.18        |  |
| 10,144.0     | 88.99      | 89.52                | 7,719.0       | 4,522.5         | -59.8         | 2,730.9       | 2,731.1          | 1.94                 | 414,339.74         | 595,061.17        |  |
| 10,238.0     | 89.08      | 88.65                | 7,720.5       | 4,524.0         | -58.3         | 2,824.9       | 2,825.0          | 0.93                 | 414,341.25         | 595,155.14        |  |
| 10,333.0     | 88.29      | 88.56                | 7,722.7       | 4,526.2         | -56.0         | 2,919.8       | 2,920.0          | 0.84                 | 414,343.56         | 595,250.09        |  |
| 10,427.0     | 90.22      | 89.00                | 7,723.9       | 4,527.4         | -54.0         | 3,013.8       | 3,013.9          | 2.11                 | 414,345.56         | 595,344.06        |  |
| 10,522.0     | 89.78      | 88.65                | 7,723.9       | 4,527.4         | -52.0         | 3,108.8       | 3,108.9          | 0.59                 | 414,347.51         | 595,439.04        |  |
| 10,617.0     | 88.99      | 88.12                | 7,725.0       | 4,528.5         | -49.3         | 3,203.8       | 3,203.9          | 1.00                 | 414,350.18         | 595,533.99        |  |
| 10,711.0     | 88.29      | 87.15                | 7,727.2       | 4,530.7         | -45.5         | 3,297.6       | 3,297.7          | 1.27                 | 414,354.06         | 595,627.88        |  |
| 10,806.0     | 88.29      | 86.45                | 7,730.0       | 4,533.5         | -40.2         | 3,392.5       | 3,392.5          | 0.74                 | 414,359.36         | 595,722.69        |  |
| 10,900.0     | 90.48      | 85.74                | 7,731.0       | 4,534.5         | -33.8         | 3,486.2       | 3,486.3          | 2.45                 | 414,365.76         | 595,816.46        |  |
| 10,994.0     | 92.07      | 86.98                | 7,729.0       | 4,532.5         | -27.8         | 3,580.0       | 3,580.1          | 2.14                 | 414,371.73         | 595,910.25        |  |
| 11,089.0     | 92.24      | 87.33                | 7,725.4       | 4,528.9         | -23.1         | 3,674.8       | 3,674.9          | 0.41                 | 414,376.44         | 596,005.06        |  |
| 11,183.0     | 91.36      | 88.91                | 7,722.4       | 4,525.9         | -20.0         | 3,768.7       | 3,768.8          | 1.92                 | 414,379.52         | 596,098.96        |  |
| 11,278.0     | 91.19      | 89.79                | 7,720.3       | 4,523.8         | -18.9         | 3,863.7       | 3,863.7          | 0.94                 | 414,380.60         | 596,193.93        |  |



Pathfinder  
PathfinderX & Y Report

**PATHFINDER**  
A Schlumberger Company

|           |                         |                              |                                    |
|-----------|-------------------------|------------------------------|------------------------------------|
| Company:  | Yates Petroleum Corp.   | Local Co-ordinate Reference: | Well #1H                           |
| Project:  | Eddy County (NAD 83)    | TVD Reference:               | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Site:     | Torpedo "BOW" State Com | MD Reference:                | KB = 26.5 @ 3196.5usft (Patriot 5) |
| Well:     | #1H                     | North Reference:             | Grid                               |
| Wellbore: | OH                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | OH                      | Database:                    | EDM 5000.1 Single User Db          |

| 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) | DIeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|----------------------------------------------------------------------------------------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 11,373.0                                                                                     | 91.01      | 90.49                | 7,718.5       | 4,522.0         | -19.1         | 3,958.7       | 3,958.7          | 0.76                | 414,380.37         | 596,288.91        |
| 11,468.0                                                                                     | 91.01      | 90.58                | 7,716.8       | 4,520.3         | -20.0         | 4,053.7       | 4,053.7          | 0.09                | 414,379.48         | 596,383.89        |
| 11,562.0                                                                                     | 91.19      | 91.11                | 7,715.0       | 4,518.5         | -21.4         | 4,147.6       | 4,147.7          | 0.60                | 414,378.10         | 596,477.86        |
| 11,656.0                                                                                     | 90.57      | 90.84                | 7,713.6       | 4,517.1         | -23.0         | 4,241.6       | 4,241.6          | 0.72                | 414,376.50         | 596,571.84        |
| 11,750.0                                                                                     | 90.13      | 91.02                | 7,713.0       | 4,516.5         | -24.5         | 4,335.6       | 4,335.6          | 0.51                | 414,374.97         | 596,665.82        |
| 11,845.0                                                                                     | 90.04      | 91.02                | 7,712.8       | 4,516.3         | -26.2         | 4,430.6       | 4,430.6          | 0.09                | 414,373.28         | 596,760.81        |
| 11,939.0                                                                                     | 89.96      | 90.58                | 7,712.8       | 4,516.3         | -27.5         | 4,524.6       | 4,524.6          | 0.48                | 414,371.97         | 596,854.80        |
| 12,018.0                                                                                     | 89.96      | 90.58                | 7,712.9       | 4,516.4         | -28.3         | 4,603.6       | 4,603.6          | 0.00                | 414,371.17         | 596,933.80        |
| PROJECTED BHL - 12018.0 'MD, 7712.9 'TVD, -28.3 'N, 4603.6 'E - FNL:688', FEL:361', FSL:642' |            |                      |               |                 |               |               |                  |                     |                    |                   |

| Design Annotations          |                             |                   |                 |                                                               |
|-----------------------------|-----------------------------|-------------------|-----------------|---------------------------------------------------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                                                       |
|                             |                             | +N/-S<br>(usft)   | -E/+W<br>(usft) |                                                               |
| 7,186.0                     | 7,183.3                     | -54.7             | 68.4            | KOP - 7186.0 'MD, 7183.3 'TVD, -54.7 'N, 68.4 'E              |
| 8,068.0                     | 7,717.0                     | 6.4               | 657.1           | LP - 8068.0 'MD, 7717.0 'TVD, 6.4 'N, 657.1 'E                |
| 12,018.0                    | 7,712.9                     | -28.3             | 4,603.6         | PROJECTED BHL - 12018.0 'MD, 7712.9 'TVD, -28.3 'N, 4603.6 'E |
| 12,018.0                    | 7,712.9                     | -28.3             | 4,603.6         | FNL:688', FEL:361', FSL:642'                                  |

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



Project: Eddy County (NAD 83)  
Site: Torpedo "BOW" State Com  
Well: #1H  
Wellbore: OH  
Plan: Post Gyro Plan #2

PROJECT DETAILS: Eddy County (NAD 83)  
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



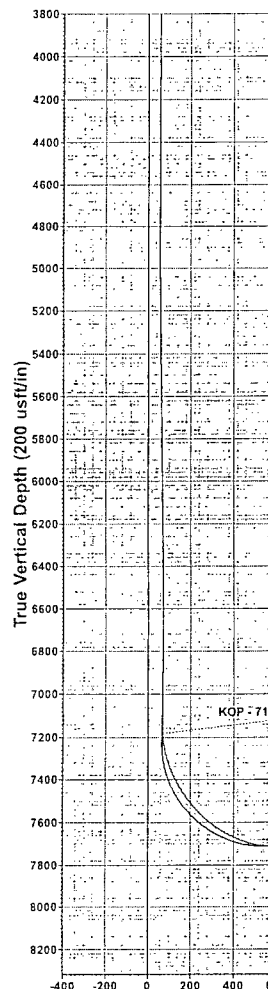
A Schlumberger Company

#### WELL DETAILS: #1H

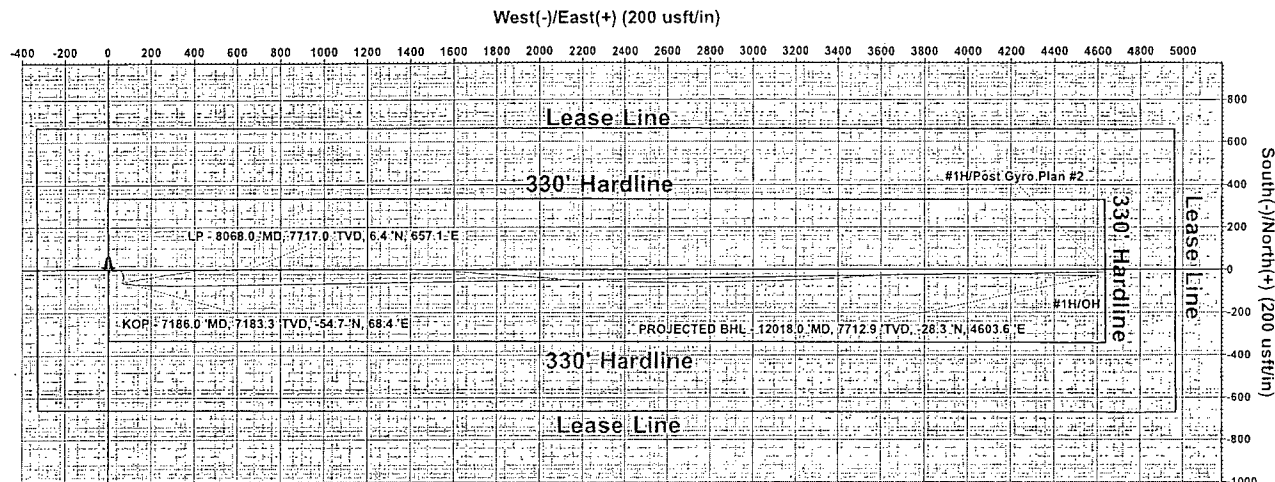
Ground Elevation: 3170.0  
RKB Elevation: KB = 26.5 @ 3196.5usft (Patriot 5)  
Rig Name: Patriot 5

| +N/-S | +E/-W | Northing   | Easting    | Latitude  | Longitude   | Slot |
|-------|-------|------------|------------|-----------|-------------|------|
| 0.0   | 0.0   | 414399.517 | 592330.241 | 32.139156 | -104.168585 |      |

EOW



Vertical Section at 90.13° (200 usft/in)



#### SECTION DETAILS

| MD      | Inc   | Azi    | TVD    | +N/-S | +E/-W  | Dleg  | TFace   | VSect  | Target             |
|---------|-------|--------|--------|-------|--------|-------|---------|--------|--------------------|
| 7060.0  | 2.71  | 204.75 | 7057.4 | -51.1 | 68.3   | 0.00  | 0.00    | 68.5   |                    |
| 7227.0  | 2.71  | 204.75 | 7224.2 | -58.3 | 65.0   | 0.00  | 0.00    | 65.2   |                    |
| 7978.7  | 89.04 | 89.15  | 7711.0 | -71.8 | 534.6  | 12.00 | -115.62 | 534.8  |                    |
| 12079.9 | 89.04 | 89.15  | 7780.0 | -10.8 | 4634.7 | 0.00  | 0.00    | 4634.7 | PBHL (Torpedo #1H) |

#### DESIGN TARGET DETAILS

| Name               | TVD    | +N/-S | +E/-W  | Northing   | Easting    | Latitude  | Longitude   |
|--------------------|--------|-------|--------|------------|------------|-----------|-------------|
| PBHL (Torpedo #1H) | 7780.0 | -10.8 | 4634.7 | 414388.672 | 596964.953 | 32.139106 | -104.153611 |



Azimuths to Grid North  
True North: -0.09°  
Magnetic North: 7.64°

Magnetic Field  
Strength: 48446.0sn1  
Dip Angle: 60.01°  
Date: 6/1/2012  
Model: IGRF200510

Plan: Post Gyro Plan #2 (#1H/OH)

Created By: Sam Bliffe Date: 9:14, September 21 2012

Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Pathfinder  
Version: 10.0  
Date: 9/21/2012