



A Schlumberger Company

***DIRECTIONAL SURVEY REPORT***

30-015-37931

**YATES PETROLEUM**

***CHEVRON BOT #6H – ST2***

***EDDY COUNTY, NEW MEXICO***

**RECEIVED**

SEP 30 2011

NMOCD ARTESIA

**PREPARED BY: FRANCISCO SINISTERRA**

Pathfinder

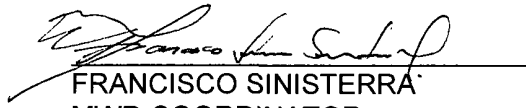
6213 W Interstate 20  
Midland, Texas 79706  
Tel 432 687 1647  
Fax 432 687 1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:  
A) JAY FULTON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 05-19-11 TO 06-08-11
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:  
  
YATES PETROLEUM  
CHEVRON BOT #6H – ST2  
EDDY COUNTY, NM  
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 653 TO 13384 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 6072.20 FEET ON A BEARING OF 357.50 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13460 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

  
FRANCISCO SINISTERRA  
MWD COORDINATOR

# PATHFINDER

## ENERGY SERVICES

### DIRECTIONAL SURVEY INFORMATION

Prepared By: FRANCISCO SINISTERRA

Name of Client: YATES PETROLEUM CORPORATION

Attention: \_\_\_\_\_

☐ Directional Only Job OR ☒ Logging Job

Name(s) of Persons Performing Surveys:

A) JAY FULTON D) \_\_\_\_\_  
B) GEORGE SAKAS E) \_\_\_\_\_  
C) \_\_\_\_\_ F) \_\_\_\_\_

Positions of Said Persons: Surveyors / Field Engineers: Other \_\_\_\_\_

Date(s) Survey was Performed: From 5/19/2011 To 6/8/2011

Type of Survey Performed: (Specify if other than MWD) GAMMA-RAY

#### IDENTIFICATION OF WELL:

|           |                                    |           |                        |
|-----------|------------------------------------|-----------|------------------------|
| Client:   | <u>YATES PETROLEUM CORPORATION</u> | Rig Name: | <u>PATRIOT 5</u>       |
| Well No.: | <u>CHEVRON "BOT" #6H ST 2</u>      | API No.:  | <u>30-015-37931</u>    |
| Location: | <u>EDDY COUNTY</u>                 | Job No.:  | <u>700001992 WT-WT</u> |
| State:    | <u>NEW MEXICO</u>                  |           |                        |

#### TEXAS RAILROAD COMMISSION INFORMATION:

Field: CEDAR CANYON; BONE SPRING

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Abstract No.: \_\_\_\_\_  
Well Plat Survey Co.: Gary L. Jones

Surveys Performed From 653 Feet TO 13384 Feet

MMS / ASCII / LAS Diskette Filename: ASCII

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOW THE WELL TO BE DISPLACED AT 6072.20 FEET ON A BEARING OF 357.50 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT PROJECTED DEPTH OF 13460 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

# PathFinder Energy Services, Inc.

## BHL Report

Page 01/01  
Tie-in Date: 03/27/2011  
Date Completed: 05/13/2011

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
Rig: PATRIOT 5  
PathFinder Office Supervisor: FRANCISCO SINISTERRA  
PathFinder Field Engineers: JAY FULTON  
GEORGE SAKAS

Survey Horiz. Reference: WELLHEAD  
Ref Coordinates: LAT: 32.14.47.0327 N LON: 104.0.31.5363 W  
GRID Reference: NAD83 new mexico east Transverse Mercator  
Ref GRID Coord: X: 641681.5720 Y: 453524.6380  
North Aligned To: GRID NORTH  
Total Magnetic Correction: 7.64° EAST TO GRID  
Vertical Section Plane: 357.51  
Survey Vert. Reference: 26.50' Rotary Table To Ground  
Altitude: 2952.00' Ground To MSL

|                       |                |             |
|-----------------------|----------------|-------------|
| Measured Depth        | 13460.00       | (feet)      |
| Inclination           | 91.54          | (deg)       |
| Azimuth               | 358.34         | (deg)       |
| True Vertical Depth   | 7601.00        | (feet)      |
| Vertical Section      | 6072.20        | (feet)      |
| Survey X cord         | 641417.09      | (feet)      |
| Survey Y cord         | 459591.07      | (feet)      |
| Survey Lat            | 32.26307586 N  | (deg)       |
| Survey Lon            | 104.00955636 W | (deg)       |
| Rectangular Corr. N/S | 6066.44 N      | (feet)      |
| Rectangular Corr. E/W | 264.46 W       | (feet)      |
| Closure Distance      | 6072.20        | (feet)      |
| Direction of Closure  | 357.50         | (deg)       |
| Dogleg Severity       | 0.00           | (deg/100ft) |

## PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION

CHEVRON BOT #6H ST2

EDDY COUNTY, NEW MEXICO

Rig: PATRIOT 5

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: JAY FULTON

GEORGE SAKAS

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.14.47.0327 N LON: 104.0.31.5363 W

GRID Reference: NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 641681.5720 Y: 453524.6380

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.64° EAST TO GRID

Vertical Section Plane: 357.51

Survey Vert. Reference: 26.50' Rotary Table To Ground

Altitude: 2952.00' Ground To MSL

Survey Calculations by RX4 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) |
|---------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|--------|-------------------|
| TIE-IN TO MULTI-SHOT GYRO SURVEY @ 500' MD. |               |                        |             |                          |                             |                                           |         |                                   |        |                   |
| 500.00                                      | 1.74          | 108.75                 | 499.95      | 0.00                     | -2.58                       | 2.36 S                                    | 5.08 E  | 5.60@                             | 114.92 | 0.00              |
| THE FOLLOWING ARE PATHFINDER MWD SURVEYS.   |               |                        |             |                          |                             |                                           |         |                                   |        |                   |
| 653.00                                      | 2.20          | 113.52                 | 652.86      | 153.00                   | -4.71                       | 4.28 S                                    | 9.97 E  | 10.85@                            | 113.22 | 0.32              |
| 747.00                                      | 0.97          | 78.50                  | 746.82      | 94.00                    | -5.37                       | 4.84 S                                    | 12.41 E | 13.32@                            | 111.31 | 1.61              |
| 841.00                                      | 0.97          | 101.61                 | 840.81      | 94.00                    | -5.44                       | 4.84 S                                    | 13.97 E | 14.78@                            | 109.12 | 0.41              |
| 1028.00                                     | 0.88          | 352.91                 | 1027.80     | 187.00                   | -4.40                       | 3.73 S                                    | 15.34 E | 15.79@                            | 103.69 | 0.81              |
| 1216.00                                     | 1.23          | 15.85                  | 1215.77     | 188.00                   | -1.04                       | 0.36 S                                    | 15.71 E | 15.72@                            | 91.32  | 0.29              |
| 1310.00                                     | 1.14          | 20.73                  | 1309.75     | 94.00                    | 0.77                        | 1.48 N                                    | 16.32 E | 16.39@                            | 84.80  | 0.14              |
| 1404.00                                     | 1.14          | 20.97                  | 1403.73     | 94.00                    | 2.49                        | 3.23 N                                    | 16.98 E | 17.29@                            | 79.23  | 0.01              |
| 1498.00                                     | 0.79          | 36.40                  | 1497.71     | 94.00                    | 3.85                        | 4.63 N                                    | 17.70 E | 18.30@                            | 75.35  | 0.46              |
| 1592.00                                     | 0.88          | 47.52                  | 1591.70     | 94.00                    | 4.82                        | 5.64 N                                    | 18.62 E | 19.45@                            | 73.16  | 0.20              |
| 1696.00                                     | 0.70          | 46.18                  | 1695.69     | 104.00                   | 5.75                        | 6.61 N                                    | 19.67 E | 20.75@                            | 71.41  | 0.17              |
| 1781.00                                     | 0.88          | 46.06                  | 1780.69     | 85.00                    | 6.53                        | 7.43 N                                    | 20.51 E | 21.82@                            | 70.10  | 0.21              |
| 1875.00                                     | 0.26          | 188.79                 | 1874.68     | 94.00                    | 6.80                        | 7.72 N                                    | 21.00 E | 22.37@                            | 69.82  | 1.17              |
| 1969.00                                     | 0.26          | 152.86                 | 1968.68     | 94.00                    | 6.39                        | 7.32 N                                    | 21.06 E | 22.30@                            | 70.85  | 0.17              |
| 2064.00                                     | 1.32          | 116.39                 | 2063.67     | 95.00                    | 5.67                        | 6.64 N                                    | 22.14 E | 23.12@                            | 73.31  | 1.18              |
| 2158.00                                     | 1.93          | 137.15                 | 2157.63     | 94.00                    | 3.94                        | 5.00 N                                    | 24.19 E | 24.70@                            | 78.33  | 0.89              |
| 2253.00                                     | 1.58          | 148.06                 | 2252.59     | 95.00                    | 1.58                        | 2.71 N                                    | 25.97 E | 26.11@                            | 84.04  | 0.51              |
| 2345.00                                     | 1.32          | 121.23                 | 2344.56     | 92.00                    | -0.11                       | 1.09 N                                    | 27.55 E | 27.57@                            | 87.74  | 0.78              |
| 2440.00                                     | 1.49          | 131.76                 | 2439.53     | 95.00                    | -1.58                       | 0.30 S                                    | 29.40 E | 29.41@                            | 90.59  | 0.32              |
| 2535.00                                     | 2.20          | 170.31                 | 2534.49     | 95.00                    | -4.25                       | 2.92 S                                    | 30.63 E | 30.77@                            | 95.45  | 1.46              |
| 2628.00                                     | 1.67          | 181.77                 | 2627.43     | 93.00                    | -7.37                       | 6.04 S                                    | 30.89 E | 31.48@                            | 101.06 | 0.70              |
| 2723.00                                     | 1.14          | 195.81                 | 2722.40     | 95.00                    | -9.65                       | 8.33 S                                    | 30.59 E | 31.70@                            | 105.23 | 0.66              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG:PATRIOT 5

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| 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) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|--------|-------------------|
| 2772.00                   | 0.79          | 192.92                 | 2771.40     | 49.00                    | -10.44                      | 9.13 S                                    | 30.38 E | 31.72@                            | 106.72 | 0.72              |
| 2916.00                   | 1.06          | 180.38                 | 2915.38     | 144.00                   | -12.73                      | 11.43 S                                   | 30.15 E | 32.24@                            | 110.76 | 0.23              |
| 3010.00                   | 1.32          | 169.80                 | 3009.36     | 94.00                    | -14.67                      | 13.36 S                                   | 30.34 E | 33.15@                            | 113.77 | 0.36              |
| 3104.00                   | 1.85          | 175.73                 | 3103.32     | 94.00                    | -17.26                      | 15.94 S                                   | 30.64 E | 34.54@                            | 117.49 | 0.59              |
| 3198.00                   | 3.52          | 281.07                 | 3197.25     | 94.00                    | -18.10                      | 16.90 S                                   | 27.92 E | 32.64@                            | 121.19 | 4.67              |
| 3292.00                   | 2.46          | 288.54                 | 3291.13     | 94.00                    | -16.70                      | 15.71 S                                   | 23.18 E | 28.00@                            | 124.12 | 1.20              |
| 3387.00                   | 1.23          | 274.22                 | 3386.08     | 95.00                    | -15.85                      | 14.98 S                                   | 20.23 E | 25.17@                            | 126.53 | 1.37              |
| 3481.00                   | 1.23          | 275.19                 | 3480.05     | 94.00                    | -15.59                      | 14.82 S                                   | 18.22 E | 23.48@                            | 129.13 | 0.02              |
| 3575.00                   | 1.23          | 273.46                 | 3574.03     | 94.00                    | -15.36                      | 14.66 S                                   | 16.20 E | 21.85@                            | 132.15 | 0.04              |
| 3668.00                   | 1.14          | 269.89                 | 3667.01     | 93.00                    | -15.21                      | 14.61 S                                   | 14.28 E | 20.43@                            | 135.64 | 0.13              |
| 3856.00                   | 0.88          | 261.76                 | 3854.98     | 188.00                   | -15.28                      | 14.82 S                                   | 10.98 E | 18.44@                            | 143.45 | 0.16              |
| 4045.00                   | 0.79          | 259.11                 | 4043.96     | 189.00                   | -15.62                      | 15.27 S                                   | 8.27 E  | 17.37@                            | 151.57 | 0.05              |
| 4233.00                   | 0.97          | 297.97                 | 4231.94     | 188.00                   | -15.00                      | 14.77 S                                   | 5.59 E  | 15.79@                            | 159.27 | 0.32              |
| 4421.00                   | 0.53          | 271.31                 | 4419.93     | 188.00                   | -14.13                      | 14.00 S                                   | 3.32 E  | 14.39@                            | 166.68 | 0.29              |
| 4609.00                   | 0.62          | 272.82                 | 4607.92     | 188.00                   | -13.98                      | 13.93 S                                   | 1.43 E  | 14.01@                            | 174.14 | 0.05              |
| 4798.00                   | 0.53          | 272.63                 | 4796.91     | 189.00                   | -13.81                      | 13.84 S                                   | 0.46 W  | 13.85@                            | 181.92 | 0.05              |
| 4986.00                   | 0.62          | 272.20                 | 4984.90     | 188.00                   | -13.65                      | 13.76 S                                   | 2.35 W  | 13.96@                            | 189.69 | 0.05              |
| 5174.00                   | 0.62          | 251.96                 | 5172.89     | 188.00                   | -13.84                      | 14.04 S                                   | 4.33 W  | 14.69@                            | 197.15 | 0.12              |
| 5363.00                   | 0.44          | 254.41                 | 5361.88     | 189.00                   | -14.28                      | 14.55 S                                   | 6.00 W  | 15.74@                            | 202.42 | 0.10              |
| 5551.00                   | 0.35          | 241.19                 | 5549.87     | 188.00                   | -14.70                      | 15.02 S                                   | 7.20 W  | 16.66@                            | 205.62 | 0.07              |
| 5739.00                   | 0.35          | 181.56                 | 5737.87     | 188.00                   | -15.52                      | 15.87 S                                   | 7.72 W  | 17.65@                            | 205.94 | 0.19              |
| 5927.00                   | 0.70          | 163.30                 | 5925.86     | 188.00                   | -17.21                      | 17.55 S                                   | 7.41 W  | 19.05@                            | 202.89 | 0.20              |
| 6116.00                   | 0.53          | 183.03                 | 6114.85     | 189.00                   | -19.20                      | 19.53 S                                   | 7.12 W  | 20.78@                            | 200.04 | 0.14              |
| 6304.00                   | 0.62          | 181.95                 | 6302.84     | 188.00                   | -21.08                      | 21.41 S                                   | 7.20 W  | 22.59@                            | 198.59 | 0.05              |
| 6493.00                   | 0.62          | 168.62                 | 6491.83     | 189.00                   | -23.11                      | 23.44 S                                   | 7.04 W  | 24.47@                            | 196.71 | 0.08              |
| 6588.00                   | 0.53          | 159.13                 | 6586.83     | 95.00                    | -24.03                      | 24.35 S                                   | 6.78 W  | 25.28@                            | 195.55 | 0.14              |
| 6776.00                   | 0.79          | 124.84                 | 6774.82     | 188.00                   | -25.64                      | 25.90 S                                   | 5.40 W  | 26.46@                            | 191.78 | 0.25              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

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| 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) |
|-------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|---------|-----------------------------------|--------|-------------------|
| 6851.00                                   | 0.62          | 131.57                 | 6849.81     | 75.00                    | -26.24                      | 26.47 S                                   | 4.68 W  | 26.88@                            | 190.02 | 0.25              |
| 6895.00                                   | 0.26          | 65.97                  | 6893.81     | 44.00                    | -26.37                      | 26.58 S                                   | 4.41 W  | 26.95@                            | 189.41 | 1.28              |
| ST2 DEPARTS ORIGINAL WELLBORE @ 6900' MD. |               |                        |             |                          |                             |                                           |         |                                   |        |                   |
| 6924.00                                   | 0.88          | 0.96                   | 6922.81     | 29.00                    | -26.12                      | 26.34 S                                   | 4.34 W  | 26.69@                            | 189.36 | 2.78              |
| 6956.00                                   | 2.46          | 353.18                 | 6954.79     | 32.00                    | -25.19                      | 25.41 S                                   | 4.42 W  | 25.79@                            | 189.87 | 4.98              |
| 6987.00                                   | 4.31          | 353.12                 | 6985.74     | 31.00                    | -23.37                      | 23.59 S                                   | 4.64 W  | 24.04@                            | 191.13 | 5.97              |
| 7018.00                                   | 6.77          | 352.91                 | 7016.59     | 31.00                    | -20.38                      | 20.62 S                                   | 5.00 W  | 21.22@                            | 193.64 | 7.94              |
| 7050.00                                   | 9.23          | 350.31                 | 7048.28     | 32.00                    | -15.96                      | 16.22 S                                   | 5.67 W  | 17.18@                            | 199.27 | 7.77              |
| 7081.00                                   | 11.43         | 349.03                 | 7078.77     | 31.00                    | -10.45                      | 10.75 S                                   | 6.67 W  | 12.65@                            | 211.82 | 7.14              |
| 7113.00                                   | 13.98         | 347.64                 | 7109.99     | 32.00                    | -3.51                       | 3.86 S                                    | 8.10 W  | 8.98@                             | 244.52 | 8.02              |
| 7144.00                                   | 16.27         | 346.83                 | 7139.91     | 31.00                    | 4.45                        | 4.03 N                                    | 9.89 W  | 10.68@                            | 292.14 | 7.42              |
| 7175.00                                   | 18.47         | 346.77                 | 7169.49     | 31.00                    | 13.54                       | 13.04 N                                   | 12.01 W | 17.72@                            | 317.35 | 7.10              |
| 7207.00                                   | 20.14         | 347.45                 | 7199.69     | 32.00                    | 23.95                       | 23.35 N                                   | 14.37 W | 27.41@                            | 328.40 | 5.27              |
| 7238.00                                   | 21.02         | 347.69                 | 7228.71     | 31.00                    | 34.68                       | 33.99 N                                   | 16.71 W | 37.87@                            | 333.82 | 2.85              |
| 7269.00                                   | 21.98         | 347.57                 | 7257.56     | 31.00                    | 45.88                       | 45.09 N                                   | 19.14 W | 48.98@                            | 336.99 | 3.10              |
| 7300.00                                   | 22.60         | 346.74                 | 7286.24     | 31.00                    | 57.44                       | 56.55 N                                   | 21.76 W | 60.59@                            | 338.95 | 2.24              |
| 7331.00                                   | 22.60         | 346.92                 | 7314.86     | 31.00                    | 69.15                       | 68.15 N                                   | 24.47 W | 72.41@                            | 340.25 | 0.22              |
| 7362.00                                   | 24.71         | 347.57                 | 7343.25     | 31.00                    | 81.39                       | 80.28 N                                   | 27.22 W | 84.77@                            | 341.27 | 6.86              |
| 7394.00                                   | 28.40         | 347.78                 | 7371.87     | 32.00                    | 95.48                       | 94.26 N                                   | 30.27 W | 99.00@                            | 342.20 | 11.53             |
| 7425.00                                   | 32.62         | 347.32                 | 7398.58     | 31.00                    | 110.98                      | 109.62 N                                  | 33.66 W | 114.67@                           | 342.93 | 13.63             |
| 7457.00                                   | 37.11         | 347.28                 | 7424.83     | 32.00                    | 128.98                      | 127.46 N                                  | 37.68 W | 132.91@                           | 343.53 | 14.03             |
| 7488.00                                   | 41.68         | 347.28                 | 7448.77     | 31.00                    | 148.33                      | 146.65 N                                  | 42.02 W | 152.55@                           | 344.01 | 14.74             |
| 7520.00                                   | 46.78         | 347.38                 | 7471.70     | 32.00                    | 170.30                      | 168.42 N                                  | 46.91 W | 174.83@                           | 344.44 | 15.94             |
| 7551.00                                   | 51.79         | 347.52                 | 7491.91     | 31.00                    | 193.42                      | 191.35 N                                  | 52.01 W | 198.29@                           | 344.79 | 16.16             |
| 7582.00                                   | 56.89         | 348.33                 | 7509.98     | 31.00                    | 218.25                      | 215.97 N                                  | 57.27 W | 223.43@                           | 345.15 | 16.59             |
| 7614.00                                   | 61.73         | 349.02                 | 7526.31     | 32.00                    | 245.44                      | 242.94 N                                  | 62.67 W | 250.90@                           | 345.53 | 15.24             |
| 7645.00                                   | 65.69         | 349.07                 | 7540.03     | 31.00                    | 272.92                      | 270.22 N                                  | 67.95 W | 278.64@                           | 345.88 | 12.77             |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

Page 04/08

| 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) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|
| 7677.00                   | 69.03         | 349.35                 | 7552.35     | 32.00                    | 302.14                      | 299.23 N                                  | 73.48 W  | 308.12@                           | 346.20 | 10.47             |
| 7708.00                   | 73.07         | 349.63                 | 7562.42     | 31.00                    | 331.17                      | 328.05 N                                  | 78.83 W  | 337.39@                           | 346.49 | 13.06             |
| 7739.00                   | 77.29         | 349.47                 | 7570.34     | 31.00                    | 360.84                      | 357.52 N                                  | 84.26 W  | 367.31@                           | 346.74 | 13.62             |
| 7771.00                   | 80.90         | 348.43                 | 7576.40     | 32.00                    | 391.91                      | 388.35 N                                  | 90.28 W  | 398.71@                           | 346.91 | 11.72             |
| 7802.00                   | 83.10         | 348.11                 | 7580.71     | 31.00                    | 422.21                      | 418.41 N                                  | 96.52 W  | 429.40@                           | 347.01 | 7.17              |
| 7833.00                   | 85.74         | 348.14                 | 7583.72     | 31.00                    | 452.64                      | 448.60 N                                  | 102.87 W | 460.24@                           | 347.08 | 8.52              |
| 7915.00                   | 89.08         | 349.07                 | 7587.43     | 82.00                    | 533.56                      | 528.89 N                                  | 119.05 W | 542.12@                           | 347.31 | 4.23              |
| 7947.00                   | 89.78         | 348.69                 | 7587.75     | 32.00                    | 565.20                      | 560.29 N                                  | 125.23 W | 574.11@                           | 347.40 | 2.49              |
| 7979.00                   | 90.40         | 349.05                 | 7587.70     | 32.00                    | 596.83                      | 591.68 N                                  | 131.40 W | 606.10@                           | 347.48 | 2.24              |
| 8010.00                   | 91.36         | 349.93                 | 7587.22     | 31.00                    | 627.53                      | 622.16 N                                  | 137.06 W | 637.08@                           | 347.58 | 4.20              |
| 8042.00                   | 91.71         | 350.38                 | 7586.36     | 32.00                    | 659.25                      | 653.68 N                                  | 142.53 W | 669.03@                           | 347.70 | 1.78              |
| 8081.00                   | 91.01         | 350.05                 | 7585.44     | 39.00                    | 697.92                      | 692.10 N                                  | 149.15 W | 707.99@                           | 347.84 | 1.98              |
| 8112.00                   | 90.84         | 350.59                 | 7584.94     | 31.00                    | 728.68                      | 722.65 N                                  | 154.36 W | 738.96@                           | 347.94 | 1.83              |
| 8144.00                   | 91.01         | 350.25                 | 7584.42     | 32.00                    | 760.43                      | 754.20 N                                  | 159.69 W | 770.92@                           | 348.05 | 1.19              |
| 8175.00                   | 90.66         | 351.26                 | 7583.97     | 31.00                    | 791.21                      | 784.80 N                                  | 164.67 W | 801.89@                           | 348.15 | 3.45              |
| 8207.00                   | 89.96         | 352.12                 | 7583.80     | 32.00                    | 823.04                      | 816.46 N                                  | 169.29 W | 833.83@                           | 348.29 | 3.46              |
| 8238.00                   | 88.99         | 352.46                 | 7584.08     | 31.00                    | 853.91                      | 847.18 N                                  | 173.45 W | 864.75@                           | 348.43 | 3.32              |
| 8270.00                   | 89.16         | 354.07                 | 7584.60     | 32.00                    | 885.82                      | 878.95 N                                  | 177.20 W | 896.64@                           | 348.60 | 5.06              |
| 8302.00                   | 90.40         | 355.56                 | 7584.72     | 32.00                    | 917.78                      | 910.82 N                                  | 180.10 W | 928.45@                           | 348.82 | 6.06              |
| 8333.00                   | 90.40         | 356.33                 | 7584.50     | 31.00                    | 948.77                      | 941.74 N                                  | 182.29 W | 959.22@                           | 349.04 | 2.48              |
| 8365.00                   | 89.96         | 356.67                 | 7584.40     | 32.00                    | 980.76                      | 973.68 N                                  | 184.24 W | 990.96@                           | 349.29 | 1.74              |
| 8396.00                   | 88.55         | 357.17                 | 7584.81     | 31.00                    | 1011.76                     | 1004.63 N                                 | 185.91 W | 1021.69@                          | 349.52 | 4.83              |
| 8428.00                   | 86.61         | 357.97                 | 7586.16     | 32.00                    | 1043.73                     | 1036.57 N                                 | 187.26 W | 1053.35@                          | 349.76 | 6.56              |
| 8459.00                   | 86.61         | 357.88                 | 7587.99     | 31.00                    | 1074.67                     | 1067.50 N                                 | 188.38 W | 1083.99@                          | 349.99 | 0.29              |
| 8491.00                   | 87.58         | 358.15                 | 7589.61     | 32.00                    | 1106.63                     | 1099.44 N                                 | 189.49 W | 1115.65@                          | 350.22 | 3.15              |
| 8522.00                   | 88.29         | 358.01                 | 7590.73     | 31.00                    | 1137.61                     | 1130.40 N                                 | 190.53 W | 1146.34@                          | 350.43 | 2.33              |
| 8554.00                   | 88.20         | 357.83                 | 7591.71     | 32.00                    | 1169.59                     | 1162.36 N                                 | 191.69 W | 1178.06@                          | 350.64 | 0.63              |



# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG:PATRIOT 5

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| 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 |          | Closure<br>Dist Dir |        | DLS<br>(dg/100ft) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|------------------------------|----------|---------------------|--------|-------------------|
| (ft)                      | (deg)         | (deg)                  | (ft)        | (ft)                     | (ft)                        | (ft)                         | (ft)     | (ft)                | (deg)  | (dg/100ft)        |
| 8586.00                   | 87.93         | 358.69                 | 7592.79     | 32.00                    | 1201.57                     | 1194.33 N                    | 192.66 W | 1209.77@            | 350.84 | 2.82              |
| 8618.00                   | 88.11         | 358.76                 | 7593.89     | 32.00                    | 1233.55                     | 1226.30 N                    | 193.37 W | 1241.45@            | 351.04 | 0.60              |
| 8649.00                   | 89.16         | 359.04                 | 7594.63     | 31.00                    | 1264.53                     | 1257.29 N                    | 193.97 W | 1272.16@            | 351.23 | 3.50              |
| 8681.00                   | 89.60         | 359.41                 | 7594.98     | 32.00                    | 1296.51                     | 1289.28 N                    | 194.40 W | 1303.86@            | 351.43 | 1.80              |
| 8713.00                   | 88.64         | 359.45                 | 7595.47     | 32.00                    | 1328.49                     | 1321.28 N                    | 194.72 W | 1335.55@            | 351.62 | 3.00              |
| 8745.00                   | 87.93         | 359.21                 | 7596.43     | 32.00                    | 1360.46                     | 1353.26 N                    | 195.09 W | 1367.25@            | 351.80 | 2.34              |
| 8777.00                   | 88.72         | 358.07                 | 7597.36     | 32.00                    | 1392.44                     | 1385.24 N                    | 195.85 W | 1399.01@            | 351.95 | 4.33              |
| 8808.00                   | 90.22         | 358.18                 | 7597.65     | 31.00                    | 1423.43                     | 1416.22 N                    | 196.87 W | 1429.84@            | 352.09 | 4.85              |
| 8840.00                   | 90.84         | 358.53                 | 7597.35     | 32.00                    | 1455.43                     | 1448.20 N                    | 197.78 W | 1461.65@            | 352.22 | 2.22              |
| 8871.00                   | 91.36         | 358.65                 | 7596.76     | 31.00                    | 1486.42                     | 1479.19 N                    | 198.55 W | 1492.45@            | 352.36 | 1.72              |
| 8903.00                   | 90.66         | 358.74                 | 7596.20     | 32.00                    | 1518.40                     | 1511.17 N                    | 199.28 W | 1524.26@            | 352.49 | 2.21              |
| 8935.00                   | 89.87         | 359.25                 | 7596.05     | 32.00                    | 1550.39                     | 1543.17 N                    | 199.84 W | 1556.05@            | 352.62 | 2.94              |
| 8966.00                   | 88.37         | 359.06                 | 7596.52     | 31.00                    | 1581.38                     | 1574.16 N                    | 200.29 W | 1586.85@            | 352.75 | 4.88              |
| 8998.00                   | 87.32         | 358.89                 | 7597.73     | 32.00                    | 1613.34                     | 1606.13 N                    | 200.87 W | 1618.64@            | 352.87 | 3.32              |
| 9029.00                   | 87.49         | 357.62                 | 7599.13     | 31.00                    | 1644.31                     | 1637.09 N                    | 201.81 W | 1649.48@            | 352.97 | 4.13              |
| 9061.00                   | 88.90         | 357.26                 | 7600.14     | 32.00                    | 1676.29                     | 1669.04 N                    | 203.24 W | 1681.37@            | 353.06 | 4.55              |
| 9093.00                   | 89.43         | 357.24                 | 7600.60     | 32.00                    | 1708.29                     | 1701.00 N                    | 204.77 W | 1713.28@            | 353.14 | 1.66              |
| 9124.00                   | 89.34         | 357.56                 | 7600.94     | 31.00                    | 1739.29                     | 1731.96 N                    | 206.18 W | 1744.19@            | 353.21 | 1.07              |
| 9155.00                   | 89.34         | 358.05                 | 7601.29     | 31.00                    | 1770.28                     | 1762.94 N                    | 207.37 W | 1775.09@            | 353.29 | 1.58              |
| 9187.00                   | 89.60         | 358.57                 | 7601.59     | 32.00                    | 1802.28                     | 1794.92 N                    | 208.31 W | 1806.97@            | 353.38 | 1.82              |
| 9219.00                   | 89.34         | 358.53                 | 7601.89     | 32.00                    | 1834.27                     | 1826.91 N                    | 209.12 W | 1838.84@            | 353.47 | 0.82              |
| 9250.00                   | 89.16         | 358.68                 | 7602.29     | 31.00                    | 1865.26                     | 1857.90 N                    | 209.87 W | 1869.72@            | 353.56 | 0.76              |
| 9282.00                   | 89.87         | 358.87                 | 7602.56     | 32.00                    | 1897.25                     | 1889.89 N                    | 210.56 W | 1901.58@            | 353.64 | 2.30              |
| 9313.00                   | 91.28         | 358.97                 | 7602.25     | 31.00                    | 1928.24                     | 1920.88 N                    | 211.14 W | 1932.45@            | 353.73 | 4.56              |
| 9345.00                   | 91.80         | 358.82                 | 7601.39     | 32.00                    | 1960.22                     | 1952.87 N                    | 211.76 W | 1964.31@            | 353.81 | 1.69              |
| 9377.00                   | 91.71         | 358.62                 | 7600.41     | 32.00                    | 1992.20                     | 1984.84 N                    | 212.47 W | 1996.18@            | 353.89 | 0.68              |
| 9408.00                   | 91.10         | 358.19                 | 7599.65     | 31.00                    | 2023.19                     | 2015.82 N                    | 213.34 W | 2027.08@            | 353.96 | 2.41              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG:PATRIOT 5

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| 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 |          | Closure<br>Dist Dir |        | DLS<br>(dg/100ft) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|------------------------------|----------|---------------------|--------|-------------------|
|                           |               |                        |             |                          |                             | (ft)                         | (ft)     | (ft)                | (deg)  |                   |
| 9440.00                   | 89.43         | 358.04                 | 7599.50     | 32.00                    | 2055.18                     | 2047.80 N                    | 214.39 W | 2058.99@            | 354.02 | 5.24              |
| 9472.00                   | 88.64         | 358.09                 | 7600.04     | 32.00                    | 2087.18                     | 2079.78 N                    | 215.47 W | 2090.91@            | 354.09 | 2.47              |
| 9503.00                   | 88.64         | 358.54                 | 7600.78     | 31.00                    | 2118.16                     | 2110.76 N                    | 216.38 W | 2121.82@            | 354.15 | 1.45              |
| 9535.00                   | 88.99         | 359.34                 | 7601.44     | 32.00                    | 2150.15                     | 2142.74 N                    | 216.97 W | 2153.70@            | 354.22 | 2.73              |
| 9566.00                   | 89.60         | 0.10                   | 7601.82     | 31.00                    | 2181.12                     | 2173.74 N                    | 217.12 W | 2184.56@            | 354.30 | 3.14              |
| 9598.00                   | 90.22         | 0.19                   | 7601.87     | 32.00                    | 2213.09                     | 2205.74 N                    | 217.04 W | 2216.39@            | 354.38 | 1.96              |
| 9629.00                   | 90.13         | 0.10                   | 7601.78     | 31.00                    | 2244.05                     | 2236.74 N                    | 216.96 W | 2247.24@            | 354.46 | 0.41              |
| 9661.00                   | 89.87         | 0.17                   | 7601.78     | 32.00                    | 2276.02                     | 2268.74 N                    | 216.89 W | 2279.08@            | 354.54 | 0.84              |
| 9707.00                   | 89.96         | 359.76                 | 7601.85     | 46.00                    | 2321.98                     | 2314.74 N                    | 216.92 W | 2324.88@            | 354.65 | 0.91              |
| 9739.00                   | 89.78         | 359.70                 | 7601.92     | 32.00                    | 2353.95                     | 2346.74 N                    | 217.07 W | 2356.76@            | 354.72 | 0.59              |
| 9770.00                   | 89.34         | 359.68                 | 7602.16     | 31.00                    | 2384.93                     | 2377.74 N                    | 217.24 W | 2387.64@            | 354.78 | 1.42              |
| 9802.00                   | 88.90         | 359.73                 | 7602.65     | 32.00                    | 2416.90                     | 2409.73 N                    | 217.40 W | 2419.52@            | 354.84 | 1.38              |
| 9834.00                   | 88.64         | 359.82                 | 7603.33     | 32.00                    | 2448.87                     | 2441.73 N                    | 217.53 W | 2451.40@            | 354.91 | 0.86              |
| 9866.00                   | 88.99         | 359.79                 | 7604.00     | 32.00                    | 2480.84                     | 2473.72 N                    | 217.63 W | 2483.27@            | 354.97 | 1.10              |
| 9897.00                   | 89.43         | 359.41                 | 7604.42     | 31.00                    | 2511.81                     | 2504.72 N                    | 217.85 W | 2514.17@            | 355.03 | 1.88              |
| 9929.00                   | 89.60         | 359.57                 | 7604.69     | 32.00                    | 2543.79                     | 2536.71 N                    | 218.14 W | 2546.07@            | 355.09 | 0.73              |
| 9961.00                   | 89.87         | 359.81                 | 7604.84     | 32.00                    | 2575.77                     | 2568.71 N                    | 218.31 W | 2577.97@            | 355.14 | 1.13              |
| 9992.00                   | 90.04         | 359.60                 | 7604.87     | 31.00                    | 2606.75                     | 2599.71 N                    | 218.47 W | 2608.87@            | 355.20 | 0.87              |
| 10024.00                  | 90.31         | 359.76                 | 7604.77     | 32.00                    | 2638.73                     | 2631.71 N                    | 218.65 W | 2640.78@            | 355.25 | 0.98              |
| 10056.00                  | 90.22         | 359.68                 | 7604.62     | 32.00                    | 2670.70                     | 2663.71 N                    | 218.80 W | 2672.68@            | 355.30 | 0.38              |
| 10118.00                  | 91.19         | 359.62                 | 7603.86     | 62.00                    | 2732.65                     | 2725.70 N                    | 219.18 W | 2734.50@            | 355.40 | 1.57              |
| 10149.00                  | 91.63         | 359.92                 | 7603.10     | 31.00                    | 2763.62                     | 2756.69 N                    | 219.31 W | 2765.40@            | 355.45 | 1.72              |
| 10213.00                  | 90.66         | 0.10                   | 7601.82     | 64.00                    | 2827.54                     | 2820.68 N                    | 219.30 W | 2829.19@            | 355.55 | 1.54              |
| 10276.00                  | 90.22         | 359.73                 | 7601.33     | 63.00                    | 2890.49                     | 2883.68 N                    | 219.39 W | 2892.01@            | 355.65 | 0.91              |
| 10339.00                  | 89.52         | 358.98                 | 7601.48     | 63.00                    | 2953.45                     | 2946.67 N                    | 220.10 W | 2954.88@            | 355.73 | 1.63              |
| 10402.00                  | 89.78         | 359.12                 | 7601.86     | 63.00                    | 3016.43                     | 3009.66 N                    | 221.14 W | 3017.78@            | 355.80 | 0.47              |
| 10434.00                  | 89.87         | 359.00                 | 7601.96     | 32.00                    | 3048.42                     | 3041.66 N                    | 221.67 W | 3049.73@            | 355.83 | 0.47              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

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| 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 |          | Closure<br>Dist Dir |        | DLS<br>(dg/100ft) |
|---------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|------------------------------|----------|---------------------|--------|-------------------|
|                           |               |                        |             |                          |                             | (ft)                         | (ft)     | (ft)                | (deg)  |                   |
| 10498.00                  | 90.57         | 359.70                 | 7601.71     | 64.00                    | 3112.38                     | 3105.65 N                    | 222.39 W | 3113.61@            | 355.90 | 1.55              |
| 10529.00                  | 90.40         | 359.37                 | 7601.45     | 31.00                    | 3143.36                     | 3136.65 N                    | 222.65 W | 3144.54@            | 355.94 | 1.20              |
| 10593.00                  | 89.78         | 358.96                 | 7601.35     | 64.00                    | 3207.33                     | 3200.64 N                    | 223.58 W | 3208.44@            | 356.00 | 1.16              |
| 10624.00                  | 89.43         | 358.67                 | 7601.56     | 31.00                    | 3238.33                     | 3231.64 N                    | 224.22 W | 3239.41@            | 356.03 | 1.47              |
| 10656.00                  | 88.81         | 357.94                 | 7602.06     | 32.00                    | 3270.32                     | 3263.62 N                    | 225.17 W | 3271.38@            | 356.05 | 2.99              |
| 10720.00                  | 89.52         | 357.95                 | 7602.99     | 64.00                    | 3334.31                     | 3327.57 N                    | 227.46 W | 3335.34@            | 356.09 | 1.11              |
| 10751.00                  | 89.16         | 358.00                 | 7603.34     | 31.00                    | 3365.31                     | 3358.55 N                    | 228.56 W | 3366.32@            | 356.11 | 1.17              |
| 10815.00                  | 90.66         | 358.43                 | 7603.44     | 64.00                    | 3429.30                     | 3422.51 N                    | 230.55 W | 3430.27@            | 356.15 | 2.44              |
| 10846.00                  | 91.36         | 358.85                 | 7602.90     | 31.00                    | 3460.29                     | 3453.50 N                    | 231.28 W | 3461.24@            | 356.17 | 2.63              |
| 10909.00                  | 91.80         | 358.63                 | 7601.16     | 63.00                    | 3523.25                     | 3516.46 N                    | 232.67 W | 3524.15@            | 356.21 | 0.78              |
| 10941.00                  | 91.54         | 358.59                 | 7600.23     | 32.00                    | 3555.23                     | 3548.44 N                    | 233.45 W | 3556.11@            | 356.24 | 0.82              |
| 10973.00                  | 90.48         | 358.19                 | 7599.67     | 32.00                    | 3587.22                     | 3580.42 N                    | 234.34 W | 3588.08@            | 356.26 | 3.54              |
| 11005.00                  | 89.69         | 358.03                 | 7599.62     | 32.00                    | 3619.22                     | 3612.40 N                    | 235.40 W | 3620.07@            | 356.27 | 2.52              |
| 11100.00                  | 89.60         | 357.96                 | 7600.21     | 95.00                    | 3714.21                     | 3707.34 N                    | 238.72 W | 3715.02@            | 356.32 | 0.12              |
| 11163.00                  | 89.87         | 359.04                 | 7600.50     | 63.00                    | 3777.20                     | 3770.32 N                    | 240.37 W | 3777.97@            | 356.35 | 1.77              |
| 11195.00                  | 89.69         | 359.83                 | 7600.62     | 32.00                    | 3809.18                     | 3802.32 N                    | 240.69 W | 3809.93@            | 356.38 | 2.53              |
| 11227.00                  | 90.31         | 0.12                   | 7600.62     | 32.00                    | 3841.15                     | 3834.32 N                    | 240.70 W | 3841.87@            | 356.41 | 2.14              |
| 11290.00                  | 90.04         | 359.66                 | 7600.43     | 63.00                    | 3904.10                     | 3897.32 N                    | 240.82 W | 3904.75@            | 356.46 | 0.85              |
| 11354.00                  | 90.22         | 0.35                   | 7600.28     | 64.00                    | 3968.04                     | 3961.32 N                    | 240.82 W | 3968.63@            | 356.52 | 1.11              |
| 11386.00                  | 90.40         | 0.21                   | 7600.11     | 32.00                    | 4000.00                     | 3993.32 N                    | 240.66 W | 4000.56@            | 356.55 | 0.71              |
| 11418.00                  | 89.60         | 359.68                 | 7600.11     | 32.00                    | 4031.97                     | 4025.32 N                    | 240.69 W | 4032.50@            | 356.58 | 3.00              |
| 11481.00                  | 89.52         | 359.70                 | 7600.59     | 63.00                    | 4094.92                     | 4088.31 N                    | 241.03 W | 4095.41@            | 356.63 | 0.13              |
| 11576.00                  | 89.69         | 359.99                 | 7601.25     | 95.00                    | 4189.84                     | 4183.31 N                    | 241.29 W | 4190.26@            | 356.70 | 0.35              |
| 11608.00                  | 89.96         | 359.45                 | 7601.35     | 32.00                    | 4221.82                     | 4215.31 N                    | 241.45 W | 4222.22@            | 356.72 | 1.89              |
| 11671.00                  | 89.08         | 359.66                 | 7601.87     | 63.00                    | 4284.78                     | 4278.30 N                    | 241.94 W | 4285.14@            | 356.76 | 1.44              |
| 11734.00                  | 88.81         | 358.95                 | 7603.03     | 63.00                    | 4347.73                     | 4341.29 N                    | 242.70 W | 4348.07@            | 356.80 | 1.20              |
| 11766.00                  | 89.08         | 358.63                 | 7603.62     | 32.00                    | 4379.72                     | 4373.28 N                    | 243.37 W | 4380.04@            | 356.81 | 1.31              |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORPORATION  
CHEVRON BOT #6H ST2  
EDDY COUNTY, NEW MEXICO  
RIG: PATRIOT 5

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| 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) |
|----------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|----------|-----------------------------------|--------|-------------------|
| 11861.00                                     | 89.78         | 359.37                 | 7604.57     | 95.00                    | 4474.68                     | 4468.26 N                                 | 245.03 W | 4474.97@                          | 356.86 | 1.07              |
| 11956.00                                     | 91.80         | 1.02                   | 7603.26     | 95.00                    | 4569.56                     | 4563.24 N                                 | 244.71 W | 4569.79@                          | 356.93 | 2.75              |
| 12052.00                                     | 91.28         | 0.97                   | 7600.68     | 96.00                    | 4665.35                     | 4659.19 N                                 | 243.04 W | 4665.52@                          | 357.01 | 0.54              |
| 12147.00                                     | 91.63         | 0.99                   | 7598.27     | 95.00                    | 4760.14                     | 4754.14 N                                 | 241.42 W | 4760.27@                          | 357.09 | 0.37              |
| 12242.00                                     | 90.31         | 0.87                   | 7596.66     | 95.00                    | 4854.96                     | 4849.12 N                                 | 239.88 W | 4855.04@                          | 357.17 | 1.40              |
| 12273.00                                     | 90.04         | 0.35                   | 7596.56     | 31.00                    | 4885.91                     | 4880.11 N                                 | 239.55 W | 4885.99@                          | 357.19 | 1.89              |
| 12336.00                                     | 91.01         | 0.62                   | 7595.99     | 63.00                    | 4948.82                     | 4943.11 N                                 | 239.01 W | 4948.88@                          | 357.23 | 1.60              |
| 12432.00                                     | 90.92         | 359.84                 | 7594.37     | 96.00                    | 5044.70                     | 5039.09 N                                 | 238.63 W | 5044.74@                          | 357.29 | 0.82              |
| 12527.00                                     | 88.81         | 359.98                 | 7594.59     | 95.00                    | 5139.61                     | 5134.09 N                                 | 238.78 W | 5139.64@                          | 357.34 | 2.23              |
| 12622.00                                     | 87.85         | 359.52                 | 7597.36     | 95.00                    | 5234.50                     | 5229.04 N                                 | 239.19 W | 5234.51@                          | 357.38 | 1.12              |
| 12717.00                                     | 89.16         | 358.32                 | 7599.84     | 95.00                    | 5329.43                     | 5323.99 N                                 | 240.98 W | 5329.44@                          | 357.41 | 1.87              |
| 12812.00                                     | 88.02         | 357.89                 | 7602.18     | 95.00                    | 5424.40                     | 5418.91 N                                 | 244.12 W | 5424.40@                          | 357.42 | 1.28              |
| 12908.00                                     | 88.64         | 358.20                 | 7604.98     | 96.00                    | 5520.35                     | 5514.81 N                                 | 247.40 W | 5520.36@                          | 357.43 | 0.72              |
| 13003.00                                     | 89.08         | 357.71                 | 7606.87     | 95.00                    | 5615.33                     | 5609.73 N                                 | 250.79 W | 5615.33@                          | 357.44 | 0.69              |
| 13066.00                                     | 89.78         | 357.85                 | 7607.49     | 63.00                    | 5678.33                     | 5672.68 N                                 | 253.23 W | 5678.33@                          | 357.44 | 1.13              |
| 13098.00                                     | 90.22         | 358.55                 | 7607.49     | 32.00                    | 5710.32                     | 5704.66 N                                 | 254.23 W | 5710.33@                          | 357.45 | 2.58              |
| 13162.00                                     | 90.48         | 358.89                 | 7607.10     | 64.00                    | 5774.31                     | 5768.65 N                                 | 255.66 W | 5774.31@                          | 357.46 | 0.67              |
| 13194.00                                     | 90.22         | 358.71                 | 7606.91     | 32.00                    | 5806.30                     | 5800.64 N                                 | 256.33 W | 5806.30@                          | 357.47 | 0.99              |
| 13289.00                                     | 91.45         | 357.90                 | 7605.52     | 95.00                    | 5901.28                     | 5895.58 N                                 | 259.14 W | 5901.28@                          | 357.48 | 1.55              |
| 13384.00                                     | 91.54         | 358.34                 | 7603.04     | 95.00                    | 5996.24                     | 5990.50 N                                 | 262.26 W | 5996.24@                          | 357.49 | 0.47              |
| STRAIGHT LINE PROJECTION TO BIT @ 13460' MD. |               |                        |             |                          |                             |                                           |          |                                   |        |                   |
| 13460.00                                     | 91.54         | 358.34                 | 7601.00     | 76.00                    | 6072.20                     | 6066.44 N                                 | 264.46 W | 6072.20@                          | 357.50 | 0.00              |



A Schlumberger Company **PathFinder Energy Services, Inc.**

## Magnetic & Grid Calculations

YATES PETROLEUM  
CHEVRON BOT #6H  
EDDY COUNTY, NEW MEXICO  
Rig: PATRIOT 5

Tue May 17 11:34:41 2011

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### Coordinates

Latitude: 32.246398 N ( 32 deg. 14 min. 47.0327 sec.)  
Longitude: 104.008760 W (-104 deg. 0 min. 31.5363 sec.)  
Elevation: 2978.50 feet.  
Calculation Date: May/17/2011

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### Magnetic Calculations

Model: IGRF2010  
Dip Angle: 60.1333 degrees  
Total Magnetic Field: 0.48614 gauss  
Magnetic Declination: 7.798434 degrees  
Horizontal Intensity: 0.242091 gauss  
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.798434 Degr.

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### Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east  
Ellipsoid: GRS80  
X: 641681.5720 feet  
Y: 453524.6380 feet  
True to Grid: (convergence) -0.173181 degrees  
Magnetic to Grid: 7.625252 degrees  
To Convert a Magnetic Dir. to a GRID dir. Add 7.625252 Degr.