

30.015.36403



***DIRECTIONAL SURVEY REPORT***

**YATES PETROLEUM**

***COTTONWOOD KI FED COM #2***

***EDDY COUNTY, NEW MEXICO***

**PREPARED BY: MIKE EVANS**

Pathfinder Energy Services, Inc.  
6213 W. County Road 112 • Midland, TX • 79706  
(432)681-6000

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:  
A) JAMES EIMERS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 12/11/08 TO 12/21/08
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  
COTTONWOOD KI FED COM #2  
EDDY COUNTY, NM  
RIG: JW #4
9. SURVEY CERTIFIED FROM: 4,252 TO 6,285 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 1,793.74 FEET ON A BEARING OF 269.75 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 6,370 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



MIKE EVANS  
MWD ENGINEER

# PathFinder Energy Services, Inc.

## BHL Report

Page 01/01  
Tie-in Date: 12/10/2008  
Date Completed: 12/21/2008

YATES PETROLEUM CORP.  
COTTONWOOD KI FED COM #2  
EDDY COUNTY, NEW MEXICO  
Rig:JW #4  
PathFinder Office Supervisor: FRANCISCO SINISTERRA  
PathFinder Field Engineers:J. EIMERS  
N. TVRDY

Survey Horiz. Reference:WELLHEAD  
Ref Coordinates: LAT:32.55.15.4618 N LON:104.31.1.3601 W  
GRID Reference:NAD83 new mexico east Transverse Mercator  
Ref GRID Coord: X: 484965.7670 Y: 698829.5520  
North Aligned To:GRID NORTH  
Total Magnetic Correction: 8.46° EAST TO GRID  
Vertical Section Plane: 270.22  
Survey Vert. Reference: 12.00' Rotary Table To Ground  
Altitude:3554.00' Ground To MSL

|                       |                |             |
|-----------------------|----------------|-------------|
| Measured Depth        | 6370.00        | (feet)      |
| Inclination           | 92.24          | (deg)       |
| Azimuth               | 269.22         | (deg)       |
| True Vertical Depth   | 4749.25        | (feet)      |
| Vertical Section      | 1793.68        | (feet)      |
| Survey X cord         | 483172.03      | (feet)      |
| Survey Y cord         | 698821.65      | (feet)      |
| Survey Lat            | 32.92093117 N  | (deg)       |
| Survey Lon            | 104.52289007 W | (deg)       |
| Rectangular Corr. N/S | 7.88 S         | (feet)      |
| Rectangular Corr. E/W | 1793.72 W      | (feet)      |
| Closure Distance      | 1793.74        | (feet)      |
| Direction of Closure  | 269.75         | (deg)       |
| Dogleg Severity       | 0.00           | (deg/100ft) |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORP.

COTTONWOOD KI FED COM #2

EDDY COUNTY, NEW MEXICO

Rig:JW #4

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: J. EIMERS

N. TVRDY

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.55.15.4618 N LON:104.31.1.3601 W

Reference:NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 484965.7670 Y: 698829.5520

North Aligned To:GRID NORTH

Total Magnetic Correction: 8.46° EAST TO GRID

Vertical Section Plane: 270.22

Survey Vert. Reference: 12.00' Rotary Table To Ground

Altitude:3554.00' Ground To MSL

Survey Calculations by RX5 V5.11i 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 SCIENTIFIC GYRO SURVEY @ 4200' MD. |               |                        |             |                          |                             |                                           |          |                                   |        |                   |
| 4200.00                                      | 1.88          | 76.87                  | 4199.73     | 0.00                     | -17.17                      | 10.10 N                                   | 17.21 E  | 19.95@                            | 59.59  | 0.00              |
| THE FOLLOWING ARE PATHFINDER MWD SURVEYS.    |               |                        |             |                          |                             |                                           |          |                                   |        |                   |
| 4252.00                                      | 1.85          | 71.46                  | 4251.70     | 52.00                    | -18.80                      | 10.56 N                                   | 18.84 E  | 21.59@                            | 60.72  | 0.34              |
| 4283.00                                      | 0.62          | 350.61                 | 4282.70     | 31.00                    | -19.24                      | 10.89 N                                   | 19.28 E  | 22.14@                            | 60.56  | 5.98              |
| 4315.00                                      | 4.04          | 282.63                 | 4314.67     | 32.00                    | -18.11                      | 11.30 N                                   | 18.15 E  | 21.39@                            | 58.09  | 12.03             |
| 4347.00                                      | 8.79          | 275.56                 | 4346.46     | 32.00                    | -14.57                      | 11.79 N                                   | 14.62 E  | 18.78@                            | 51.12  | 15.02             |
| 4378.00                                      | 13.72         | 273.00                 | 4376.85     | 31.00                    | -8.54                       | 12.21 N                                   | 8.59 E   | 14.93@                            | 35.12  | 15.98             |
| 4410.00                                      | 18.82         | 272.46                 | 4407.56     | 32.00                    | 0.41                        | 12.63 N                                   | 0.37 W   | 12.63@                            | 358.34 | 15.94             |
| 4442.00                                      | 23.13         | 272.64                 | 4437.43     | 32.00                    | 11.86                       | 13.14 N                                   | 11.81 W  | 17.66@                            | 318.06 | 13.47             |
| 4474.00                                      | 26.73         | 272.69                 | 4466.45     | 32.00                    | 25.33                       | 13.77 N                                   | 25.28 W  | 28.78@                            | 298.58 | 11.25             |
| 4505.00                                      | 29.63         | 271.57                 | 4493.77     | 31.00                    | 39.96                       | 14.30 N                                   | 39.91 W  | 42.39@                            | 289.72 | 9.51              |
| 4537.00                                      | 32.62         | 271.01                 | 4521.16     | 32.00                    | 56.50                       | 14.67 N                                   | 56.44 W  | 58.32@                            | 284.57 | 9.39              |
| 4569.00                                      | 35.70         | 269.25                 | 4547.64     | 32.00                    | 74.46                       | 14.70 N                                   | 74.40 W  | 75.84@                            | 281.18 | 10.11             |
| 4600.00                                      | 39.04         | 268.61                 | 4572.27     | 31.00                    | 93.27                       | 14.35 N                                   | 93.21 W  | 94.31@                            | 278.75 | 10.85             |
| 4632.00                                      | 42.12         | 267.86                 | 4596.57     | 32.00                    | 114.07                      | 13.70 N                                   | 114.02 W | 114.84@                           | 276.85 | 9.74              |
| 4664.00                                      | 44.67         | 268.69                 | 4619.82     | 32.00                    | 136.04                      | 13.04 N                                   | 135.99 W | 136.61@                           | 275.48 | 8.17              |
| 4695.00                                      | 47.57         | 270.13                 | 4641.31     | 31.00                    | 158.38                      | 12.82 N                                   | 158.33 W | 158.85@                           | 274.63 | 9.94              |
| 4727.00                                      | 50.30         | 271.08                 | 4662.33     | 32.00                    | 182.50                      | 13.08 N                                   | 182.45 W | 182.92@                           | 274.10 | 8.82              |
| 4759.00                                      | 53.73         | 272.44                 | 4682.02     | 32.00                    | 207.71                      | 13.86 N                                   | 207.66 W | 208.12@                           | 273.82 | 11.23             |
| 4790.00                                      | 56.37         | 271.98                 | 4699.78     | 31.00                    | 233.10                      | 14.84 N                                   | 233.05 W | 233.52@                           | 273.64 | 8.60              |
| 4821.00                                      | 59.00         | 271.19                 | 4716.35     | 31.00                    | 259.29                      | 15.56 N                                   | 259.23 W | 259.70@                           | 273.44 | 8.75              |
| 4853.00                                      | 61.47         | 270.90                 | 4732.23     | 32.00                    | 287.06                      | 16.07 N                                   | 287.00 W | 287.45@                           | 273.20 | 7.76              |
| 4884.00                                      | 65.16         | 269.82                 | 4746.15     | 31.00                    | 314.76                      | 16.24 N                                   | 314.70 W | 315.11@                           | 272.95 | 12.30             |

# PathFinder Energy Services, Inc.

## Survey Report

YATES PETROLEUM CORP.  
COTTONWOOD KI FED COM #2  
EDDY COUNTY, NEW MEXICO  
RIG:JW #4

Page 02/02

| 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) |
|---------------------------------------------|---------------|------------------------|-------------|--------------------------|-----------------------------|-------------------------------------------|-----------|-----------------------------------|--------|-------------------|
| 4915.00                                     | 69.20         | 268.48                 | 4758.17     | 31.00                    | 343.32                      | 15.81 N                                   | 343.26 W  | 343.62@                           | 272.64 | 13.63             |
| 4946.00                                     | 73.69         | 268.35                 | 4768.04     | 31.00                    | 372.68                      | 15.00 N                                   | 372.63 W  | 372.93@                           | 272.30 | 14.49             |
| 4976.00                                     | 78.44         | 268.46                 | 4775.26     | 30.00                    | 401.78                      | 14.19 N                                   | 401.73 W  | 401.98@                           | 272.02 | 15.84             |
| 5007.00                                     | 83.27         | 269.48                 | 4780.18     | 31.00                    | 432.37                      | 13.64 N                                   | 432.32 W  | 432.53@                           | 271.81 | 15.92             |
| 5045.00                                     | 87.76         | 270.20                 | 4783.15     | 38.00                    | 470.24                      | 13.53 N                                   | 470.19 W  | 470.39@                           | 271.65 | 11.97             |
| 5076.00                                     | 87.32         | 270.27                 | 4784.48     | 31.00                    | 501.21                      | 13.66 N                                   | 501.16 W  | 501.35@                           | 271.56 | 1.44              |
| 5170.00                                     | 88.64         | 271.17                 | 4787.80     | 94.00                    | 595.15                      | 14.84 N                                   | 595.09 W  | 595.28@                           | 271.43 | 1.70              |
| 5257.00                                     | 88.37         | 270.09                 | 4790.07     | 87.00                    | 682.11                      | 15.80 N                                   | 682.06 W  | 682.24@                           | 271.33 | 1.28              |
| 5351.00                                     | 91.01         | 269.86                 | 4790.58     | 94.00                    | 776.10                      | 15.76 N                                   | 776.05 W  | 776.21@                           | 271.16 | 2.82              |
| 5444.00                                     | 93.65         | 268.79                 | 4786.80     | 93.00                    | 869.00                      | 14.66 N                                   | 868.95 W  | 869.08@                           | 270.97 | 3.06              |
| 5537.00                                     | 94.00         | 268.44                 | 4780.59     | 93.00                    | 961.76                      | 12.42 N                                   | 961.72 W  | 961.80@                           | 270.74 | 0.53              |
| 5631.00                                     | 93.74         | 268.41                 | 4774.25     | 94.00                    | 1055.50                     | 9.84 N                                    | 1055.47 W | 1055.52@                          | 270.53 | 0.28              |
| 5724.00                                     | 91.01         | 267.35                 | 4770.39     | 93.00                    | 1148.33                     | 6.40 N                                    | 1148.32 W | 1148.33@                          | 270.32 | 3.15              |
| 5817.00                                     | 91.71         | 268.48                 | 4768.19     | 93.00                    | 1241.23                     | 3.02 N                                    | 1241.23 W | 1241.23@                          | 270.14 | 1.43              |
| 5910.00                                     | 90.84         | 268.66                 | 4766.12     | 93.00                    | 1334.17                     | 0.70 N                                    | 1334.17 W | 1334.17@                          | 270.03 | 0.96              |
| 6004.00                                     | 90.75         | 268.04                 | 4764.81     | 94.00                    | 1428.11                     | 2.01 S                                    | 1428.12 W | 1428.13@                          | 269.92 | 0.67              |
| 6096.00                                     | 92.86         | 269.30                 | 4761.91     | 92.00                    | 1520.02                     | 4.14 S                                    | 1520.05 W | 1520.05@                          | 269.84 | 2.67              |
| 6190.00                                     | 93.12         | 269.17                 | 4757.01     | 94.00                    | 1613.88                     | 5.39 S                                    | 1613.91 W | 1613.92@                          | 269.81 | 0.31              |
| 6285.00                                     | 92.24         | 269.22                 | 4752.57     | 95.00                    | 1708.76                     | 6.73 S                                    | 1708.80 W | 1708.81@                          | 269.77 | 0.93              |
| STRAIGHT-LINE PROJECTION TO BIT @ 6370' MD. |               |                        |             |                          |                             |                                           |           |                                   |        |                   |
| 6370.00                                     | 92.24         | 269.22                 | 4749.25     | 85.00                    | 1793.68                     | 7.88 S                                    | 1793.72 W | 1793.74@                          | 269.75 | 0.00              |

# PATHFINDER

## ENERGY SERVICES

### TIE-IN SURVEY INFORMATION SHEET

#### CLIENT INFORMATION

|                           |                        |     |     |
|---------------------------|------------------------|-----|-----|
| CLIENT:                   | YATES PERTROLEUM CORP. |     |     |
| LEASE / WELL No.:         | COTTONWOOD KI FED COM  | # 2 |     |
| WELL LOCATION:            | WILDCAT WOLFCAMP       |     |     |
| COUNTY / STATE / COUNTRY: | EDDY                   | NM  | USA |
| RIG:                      | JW #4                  |     |     |
| API WELL No:              | 30-015-36388           |     |     |
| JOB No:                   | 101008104 WT-WT        |     |     |
| P.O. / AFE No.            |                        |     |     |
| DIRECTIONAL COMPANY:      | PES                    |     |     |

#### WELL SITE INFORMATION

|                           |                                                                                                        |                 |                   |
|---------------------------|--------------------------------------------------------------------------------------------------------|-----------------|-------------------|
| MAGNETIC DECLINATION:     |                                                                                                        |                 |                   |
| On Wall Plat:             | 8.36                                                                                                   | LWD Calculated: | 8.459631          |
|                           |                                                                                                        | Agreed Upon:    | 8.46              |
| X =                       | 484965.767000                                                                                          | Feet            | Y = 698829.552000 |
|                           |                                                                                                        |                 | Feet              |
| SITE LATITUDE:            | 32.92096162 N                                                                                          | SITE LONGITUDE: | 104.5170445       |
| GRID SYSTEM:              | TRUE <input type="checkbox"/> UTM <input checked="" type="checkbox"/> LAMBERT <input type="checkbox"/> | ZONE:           | NEW MEXICO EAST   |
| PROPOSED DRIFT DIRECTION: | 270.03                                                                                                 |                 |                   |
| KELLY BUSHING ELEVATION:  | 12                                                                                                     |                 |                   |
| ALTITUDE:                 | 3554                                                                                                   | Feet            | WATER DEPTH:      |
|                           |                                                                                                        |                 | Feet              |

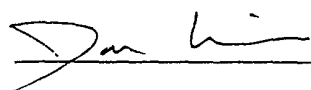
#### TIE-IN SURVEY

|                                    |                                                                                                                            |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| MEASURED DEPTH:                    | 4200                                                                                                                       |
| DRIFT ANGLE:                       | 1.88                                                                                                                       |
| DRIFT DIRECTION:                   | 76.87                                                                                                                      |
| TRUE VERTICAL DEPTH:               | 4199.73                                                                                                                    |
| VERTICAL SECTION:                  | 10.1                                                                                                                       |
| RECTANGULAR COORDINATE ( N / S ):  | 10.1                                                                                                                       |
| RECTANGULAR COORDINATE ( E / W ):  | 17.21                                                                                                                      |
| CLOSURE DISTANCE / DIRECTION:      |                                                                                                                            |
| 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 ): | SCIENTIFIC DRILLING CONTROLS                                                                                               |
| COPY OF TIE-IN SURVEY REPORT       | <input checked="" type="checkbox"/> YES NO                                                                                 |

#### WELL PLAN

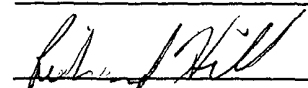
|                |      |              |      |
|----------------|------|--------------|------|
| KICKOFF DEPTH: | 4280 | TOTAL DEPTH: | 9000 |
| KICKOFF ANGLE: | 0    | MAX ANGLE:   | 91   |

PES Engineers:



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

Directional Driller:



DATE: 10-Dec-2008







# PathFinder Energy Services, Inc.

## Magnetic & Grid Calculations

YATES PETROLEUM  
COTTONWOOD KI FED COM #2  
EDDY COUNTY, NEW MEXICO  
Rig:JW 4

Tue Dec 09 16:49:06 2008

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### Coordinates

Latitude: 32.920962 N (32 deg. 55 min. 15.4618 sec.)  
Longitude: 104.517044 W (-104 deg. 31 min. 1.3601 sec.)  
Elevation: 3566.00 feet.  
Calculation Date: Dec/09/2008

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### Magnetic Calculations

Model: IGRF2005  
Dip Angle: 60.7397 degrees  
Total Magnetic Field: 0.49205 gauss  
Magnetic Declination: 8.359787 degrees  
Horizontal Intensity: 0.240502 gauss  
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.359787 Degr

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### Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east  
Ellipsoid: GRS80  
X: 484965.7670 feet  
Y: 698829.5520 feet  
True to Grid: (convergence) 0.099844 degrees  
Magnetic to Grid: 8.459631 degrees  
To Convert a Magnetic Dir. to a GRID dir. Add 8.459631 Degr.

# PathFinder Energy Services, Inc.

## Magnetic & Grid Calculations

YATES PETROLEUM CORP.  
COTTONWOOD KI FED COM #2  
WILDCAT WOLFCAMP  
Rig:JW #4

FILED COPY

Fri Dec 12 13:24:06 2008

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### Coordinates

Latitude: 32.920962 N ( 32 deg. 55 min. 15.4618 sec.)  
Longitude: 104.517044 W (-104 deg. 31 min. 1.3601 sec.)  
Elevation: 3566.00 feet.  
Calculation Date: Dec/10/2008

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### Magnetic Calculations

Model: IGRF2005  
Dip Angle: 60.7395 degrees  
Total Magnetic Field: 0.49231 gauss  
Magnetic Declination: 8.361335 degrees  
Horizontal Intensity: 0.240634 gauss  
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.361335 Degr

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### Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east  
Ellipsoid: GRS80  
X: 484965.7670 feet  
Y: 698829.5520 feet  
True to Grid: (convergence) 0.099844 degrees  
Magnetic to Grid: 8.461179 degrees  
To Convert a Magnetic Dir. to a GRID dir. Add 8.461179 Degr.