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HOBBSOCD

## **Marbob**

**Lea County**

**Beechcraft Federal #1**

**Beechcraft Fed #1**

**OH**

**Plan: Plan #1**

## **Pathfinder X & Y Survey Report**

**08 April, 2009**

# **PATHFINDER**

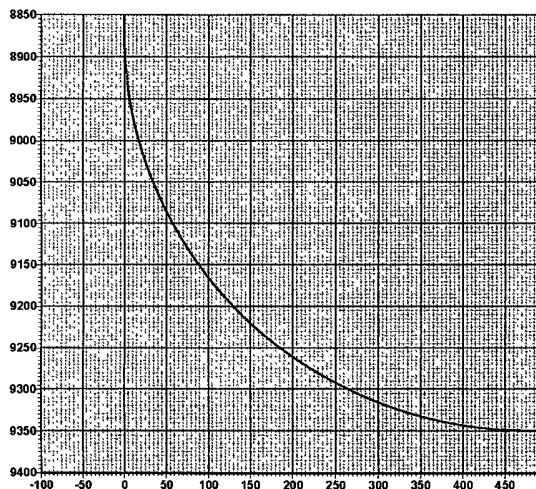


Azimuths to Grid North  
True North: -0.30°  
Magnetic North: 7.67°

Magnetic Field  
Strength: 49108.7nT  
Dip Angle: 60.64°  
Date: 04/08/2009  
Model: IGRF200510

# PATHFINDER

Project: Lea County  
Site: Beechcraft Federal #1  
Well: Beechcraft Fed #1  
Wellbore: OH  
Plan: Plan #1 (Beechcraft Fed #1/OH)

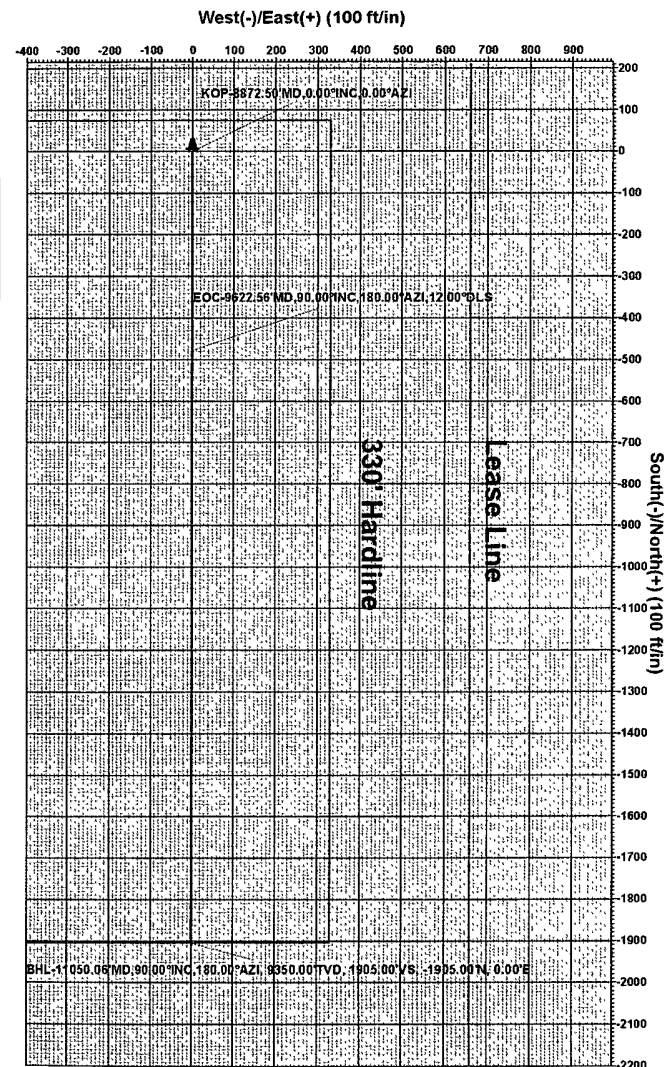
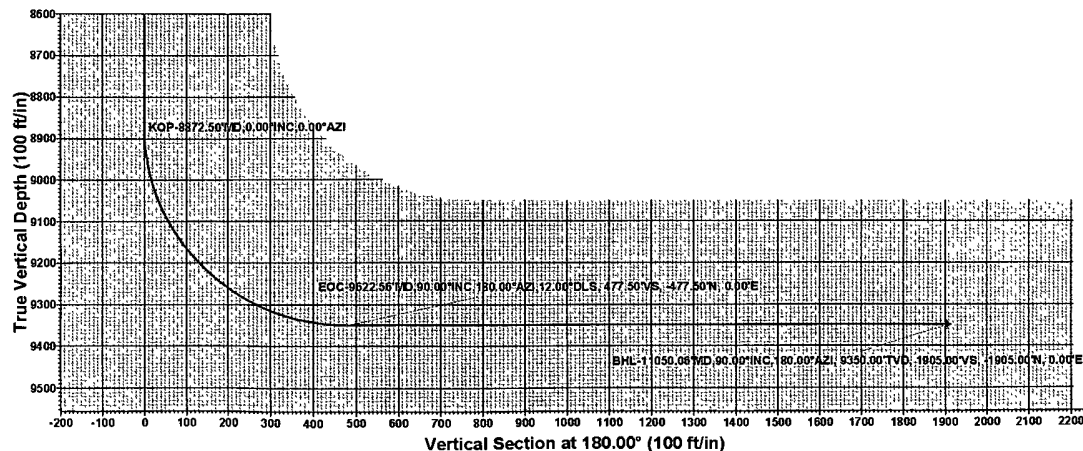


| WELL DETAILS: Beechcraft Fed #1                      |       |            |            |                  |                   |      |  |
|------------------------------------------------------|-------|------------|------------|------------------|-------------------|------|--|
| Ground Elevation: 3537.00                            |       |            |            |                  |                   |      |  |
| RKB Elevation: WELL @ 3649.00ft (Original Well Elev) |       |            |            |                  |                   |      |  |
| Rig Name: Original Well Elev                         |       |            |            |                  |                   |      |  |
| +N/-S                                                | +E/-W | Northing   | Easting    | Latitude         | Longitude         | Slot |  |
| 0.00                                                 | 0.00  | 609259.309 | 669910.600 | 32° 40' 25.465 N | 103° 46' 53.321 W |      |  |

| SECTION DETAILS |          |       |        |         |          |       |       |        |         |        |
|-----------------|----------|-------|--------|---------|----------|-------|-------|--------|---------|--------|
| Sec             | MD       | Inc   | Azi    | TVD     | +N/-S    | +E/-W | DLeg  | TFace  | VSec    | Target |
| 1               | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00  | 0.00  | 0.00   | 0.00    |        |
| 2               | 8872.50  | 0.00  | 0.00   | 8872.50 | 0.00     | 0.00  | 0.00  | 0.00   | 0.00    |        |
| 3               | 9622.56  | 90.00 | 180.00 | 9350.00 | -477.50  | 0.00  | 12.00 | 180.00 | 477.50  |        |
| 4               | 11050.06 | 90.00 | 180.00 | 9350.00 | -1905.00 | 0.00  | 0.00  | 0.00   | 1905.00 |        |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES) |         |          |       |            |            |       |
|--------------------------------------------|---------|----------|-------|------------|------------|-------|
| Name                                       | TVD     | +N/-S    | +E/-W | Northing   | Easting    | Shape |
| PBHL                                       | 9350.00 | -1905.00 | 0.00  | 607354.300 | 669910.600 | Point |

PROJECT DETAILS: Lea County  
Geodetic System: US State Plane 1927 (Exact solution)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level  
Local North: Grid



| Plan Plan #1 (Beechcraft Fed #1/OH) |              |      |                      |
|-------------------------------------|--------------|------|----------------------|
| Created By                          | Nate Bingham | Date | 10 14, April 08 2009 |
| Checked                             | _____        | Date | _____                |



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



Company: Marbob  
Project: Lea County  
Site: Beechcraft Federal #1  
Well: Beechcraft Fed #1  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well Beechcraft Fed #1  
TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
MD Reference: WELL @ 3649.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

Project: Lea County, New Mexico

Map System: US State Plane 1927 (Exact solution)  
Geo Datum: NAD 1927 (NADCON CONUS)  
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Beechcraft Federal #1

Site Position: Northing: 609,259.300 ft Latitude: 32° 40' 25.465 N  
From: Map Easting: 669,810.600 ft Longitude: 103° 46' 53.321 W  
Position Uncertainty: 0 00 ft Slot Radius: " Grid Convergence: 0.30 °

Well: Beechcraft Fed #1

Well Position: +N/-S 0 00 ft Northing: 609,259.300 ft Latitude: 32° 40' 25.465 N  
+E/-W 0.00 ft Easting: 669,810.600 ft Longitude: 103° 46' 53.321 W  
Position Uncertainty: 0 00 ft Wellhead Elevation: ft Ground Level: 3,637 00 ft

Wellbore: OH

| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|------------|-------------|--------------------|------------------|------------------------|
|           | IGRF200510 | 04/08/2009  | 7.97               | 60.64            | 49,109                 |

Design: Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

| Vertical Section: | Depth From (TVD)<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Direction<br>(°) |
|-------------------|--------------------------|---------------|---------------|------------------|
|                   | 0 00                     | 0.00          | 0.00          | 180.00           |

Survey Tool Program Date: 04/08/2009

| From<br>(ft) | To<br>(ft) | Survey (Wellbore) | Tool Name | Description    |
|--------------|------------|-------------------|-----------|----------------|
| 0.00         | 11,050.00  | Plan #1 (OH)      | MWD       | MWD - Standard |



Pathfinder Energy Services  
Pathfinder X & Y Survey Report



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Local Co-ordinate Reference: Well Beechcraft Fed #1  
TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
MD Reference: WELL @ 3649.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

Planned Survey

| MD<br>(ft) | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |
|------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|
| 0.00       | 0.00       | 0.00       | 0.00        | -3,649.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 100.00     | 0.00       | 0.00       | 100.00      | -3,549.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 200.00     | 0.00       | 0.00       | 200.00      | -3,449.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 300.00     | 0.00       | 0.00       | 300.00      | -3,349.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 400.00     | 0.00       | 0.00       | 400.00      | -3,249.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 500.00     | 0.00       | 0.00       | 500.00      | -3,149.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 600.00     | 0.00       | 0.00       | 600.00      | -3,049.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 700.00     | 0.00       | 0.00       | 700.00      | -2,949.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 800.00     | 0.00       | 0.00       | 800.00      | -2,849.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 900.00     | 0.00       | 0.00       | 900.00      | -2,749.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,000.00   | 0.00       | 0.00       | 1,000.00    | -2,649.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,100.00   | 0.00       | 0.00       | 1,100.00    | -2,549.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,200.00   | 0.00       | 0.00       | 1,200.00    | -2,449.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,300.00   | 0.00       | 0.00       | 1,300.00    | -2,349.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,400.00   | 0.00       | 0.00       | 1,400.00    | -2,249.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,500.00   | 0.00       | 0.00       | 1,500.00    | -2,149.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,600.00   | 0.00       | 0.00       | 1,600.00    | -2,049.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,700.00   | 0.00       | 0.00       | 1,700.00    | -1,949.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,800.00   | 0.00       | 0.00       | 1,800.00    | -1,849.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 1,900.00   | 0.00       | 0.00       | 1,900.00    | -1,749.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,000.00   | 0.00       | 0.00       | 2,000.00    | -1,649.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,100.00   | 0.00       | 0.00       | 2,100.00    | -1,549.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,200.00   | 0.00       | 0.00       | 2,200.00    | -1,449.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,300.00   | 0.00       | 0.00       | 2,300.00    | -1,349.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,400.00   | 0.00       | 0.00       | 2,400.00    | -1,249.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,500.00   | 0.00       | 0.00       | 2,500.00    | -1,149.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 2,600.00   | 0.00       | 0.00       | 2,600.00    | -1,049.00     | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |



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North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

| Planned Survey |            |            |             |               |             |             |                |                   |                  |                 |  |  |
|----------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|--|--|
| MD<br>(ft)     | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |  |  |
| 2,700.00       | 0.00       | 0.00       | 2,700.00    | -949.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 2,800.00       | 0.00       | 0.00       | 2,800.00    | -849.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 2,900.00       | 0.00       | 0.00       | 2,900.00    | -749.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,000.00       | 0.00       | 0.00       | 3,000.00    | -649.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,100.00       | 0.00       | 0.00       | 3,100.00    | -549.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,200.00       | 0.00       | 0.00       | 3,200.00    | -449.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,300.00       | 0.00       | 0.00       | 3,300.00    | -349.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,400.00       | 0.00       | 0.00       | 3,400.00    | -249.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,500.00       | 0.00       | 0.00       | 3,500.00    | -149.00       | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,600.00       | 0.00       | 0.00       | 3,600.00    | -49.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,700.00       | 0.00       | 0.00       | 3,700.00    | 51.00         | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,800.00       | 0.00       | 0.00       | 3,800.00    | 151.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 3,900.00       | 0.00       | 0.00       | 3,900.00    | 251.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,000.00       | 0.00       | 0.00       | 4,000.00    | 351.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,100.00       | 0.00       | 0.00       | 4,100.00    | 451.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,200.00       | 0.00       | 0.00       | 4,200.00    | 551.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,300.00       | 0.00       | 0.00       | 4,300.00    | 651.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,400.00       | 0.00       | 0.00       | 4,400.00    | 751.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,500.00       | 0.00       | 0.00       | 4,500.00    | 851.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,600.00       | 0.00       | 0.00       | 4,600.00    | 951.00        | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,700.00       | 0.00       | 0.00       | 4,700.00    | 1,051.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,800.00       | 0.00       | 0.00       | 4,800.00    | 1,151.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 4,900.00       | 0.00       | 0.00       | 4,900.00    | 1,251.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 5,000.00       | 0.00       | 0.00       | 5,000.00    | 1,351.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 5,100.00       | 0.00       | 0.00       | 5,100.00    | 1,451.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 5,200.00       | 0.00       | 0.00       | 5,200.00    | 1,551.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |
| 5,300.00       | 0.00       | 0.00       | 5,300.00    | 1,651.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |  |



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



Company: Marbob  
Project: Lea County  
Site: Beechcraft Federal #1  
Well: Beechcraft Fed #1  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well Beechcraft Fed #1  
TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
MD Reference: WELL @ 3649.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

| Planned Survey |            |            |             |               |             |             |                |                   |                  |                 |  |
|----------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|--|
| MD<br>(ft)     | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |  |
| 5,400.00       | 0.00       | 0.00       | 5,400.00    | 1,751.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 5,500.00       | 0.00       | 0.00       | 5,500.00    | 1,851.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 5,600.00       | 0.00       | 0.00       | 5,600.00    | 1,951.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 5,700.00       | 0.00       | 0.00       | 5,700.00    | 2,051.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 5,800.00       | 0.00       | 0.00       | 5,800.00    | 2,151.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 5,900.00       | 0.00       | 0.00       | 5,900.00    | 2,251.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,000.00       | 0.00       | 0.00       | 6,000.00    | 2,351.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,100.00       | 0.00       | 0.00       | 6,100.00    | 2,451.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,200.00       | 0.00       | 0.00       | 6,200.00    | 2,551.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,300.00       | 0.00       | 0.00       | 6,300.00    | 2,651.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,400.00       | 0.00       | 0.00       | 6,400.00    | 2,751.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,500.00       | 0.00       | 0.00       | 6,500.00    | 2,851.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,600.00       | 0.00       | 0.00       | 6,600.00    | 2,951.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,700.00       | 0.00       | 0.00       | 6,700.00    | 3,051.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,800.00       | 0.00       | 0.00       | 6,800.00    | 3,151.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 6,900.00       | 0.00       | 0.00       | 6,900.00    | 3,251.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,000.00       | 0.00       | 0.00       | 7,000.00    | 3,351.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,100.00       | 0.00       | 0.00       | 7,100.00    | 3,451.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,200.00       | 0.00       | 0.00       | 7,200.00    | 3,551.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,300.00       | 0.00       | 0.00       | 7,300.00    | 3,651.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,400.00       | 0.00       | 0.00       | 7,400.00    | 3,751.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,500.00       | 0.00       | 0.00       | 7,500.00    | 3,851.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,600.00       | 0.00       | 0.00       | 7,600.00    | 3,951.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,700.00       | 0.00       | 0.00       | 7,700.00    | 4,051.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,800.00       | 0.00       | 0.00       | 7,800.00    | 4,151.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 7,900.00       | 0.00       | 0.00       | 7,900.00    | 4,251.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |
| 8,000.00       | 0.00       | 0.00       | 8,000.00    | 4,351.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |  |



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



Company: Marbob  
Project: Lea County  
Site: Beechcraft Federal #1  
Well: Beechcraft Fed #1  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well Beechcraft Fed #1  
TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
MD Reference: WELL @ 3649.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

### Planned Survey

| MD<br>(ft)                       | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |
|----------------------------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|
| 8,100.00                         | 0.00       | 0.00       | 8,100.00    | 4,451.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,200.00                         | 0.00       | 0.00       | 8,200.00    | 4,551.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,300.00                         | 0.00       | 0.00       | 8,300.00    | 4,651.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,400.00                         | 0.00       | 0.00       | 8,400.00    | 4,751.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,500.00                         | 0.00       | 0.00       | 8,500.00    | 4,851.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,600.00                         | 0.00       | 0.00       | 8,600.00    | 4,951.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,700.00                         | 0.00       | 0.00       | 8,700.00    | 5,051.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,800.00                         | 0.00       | 0.00       | 8,800.00    | 5,151.00      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| 8,872.50                         | 0.00       | 0.00       | 8,872.50    | 5,223.50      | 0.00        | 0.00        | 0.00           | 0.00              | 609,259.30       | 669,810.60      |
| KOP-8872.50°MD,0.00°INC,0.00°AZI |            |            |             |               |             |             |                |                   |                  |                 |
| 8,875.00                         | 0.30       | 180.00     | 8,875.00    | 5,226.00      | -0.01       | 0.00        | 0.01           | 12.00             | 609,259.29       | 669,810.60      |
| 8,900.00                         | 3.30       | 180.00     | 8,899.98    | 5,250.98      | -0.79       | 0.00        | 0.79           | 12.00             | 609,258.51       | 669,810.60      |
| 8,925.00                         | 6.30       | 180.00     | 8,924.89    | 5,275.89      | -2.88       | 0.00        | 2.88           | 12.00             | 609,256.42       | 669,810.60      |
| 8,950.00                         | 9.30       | 180.00     | 8,949.66    | 5,300.66      | -6.28       | 0.00        | 6.28           | 12.00             | 609,253.02       | 669,810.60      |
| 8,975.00                         | 12.30      | 180.00     | 8,974.21    | 5,325.21      | -10.96      | 0.00        | 10.96          | 12.00             | 609,248.34       | 669,810.60      |
| 9,000.00                         | 15.30      | 180.00     | 8,998.49    | 5,349.49      | -16.92      | 0.00        | 16.92          | 12.00             | 609,242.38       | 669,810.60      |
| 9,025.00                         | 18.30      | 180.00     | 9,022.42    | 5,373.42      | -24.15      | 0.00        | 24.15          | 12.00             | 609,235.15       | 669,810.60      |
| 9,050.00                         | 21.30      | 180.00     | 9,045.94    | 5,396.94      | -32.61      | 0.00        | 32.61          | 12.00             | 609,226.69       | 669,810.60      |
| 9,075.00                         | 24.30      | 180.00     | 9,068.98    | 5,419.98      | -42.30      | 0.00        | 42.30          | 12.00             | 609,217.00       | 669,810.60      |
| 9,100.00                         | 27.30      | 180.00     | 9,091.49    | 5,442.49      | -53.18      | 0.00        | 53.18          | 12.00             | 609,206.12       | 669,810.60      |
| 9,125.00                         | 30.30      | 180.00     | 9,113.40    | 5,464.40      | -65.22      | 0.00        | 65.22          | 12.00             | 609,194.08       | 669,810.60      |
| 9,150.00                         | 33.30      | 180.00     | 9,134.64    | 5,485.64      | -78.39      | 0.00        | 78.39          | 12.00             | 609,180.91       | 669,810.60      |
| 9,175.00                         | 36.30      | 180.00     | 9,155.17    | 5,506.17      | -92.66      | 0.00        | 92.66          | 12.00             | 609,166.64       | 669,810.60      |
| 9,200.00                         | 39.30      | 180.00     | 9,174.92    | 5,525.92      | -107.98     | 0.00        | 107.98         | 12.00             | 609,151.32       | 669,810.60      |
| 9,225.00                         | 42.30      | 180.00     | 9,193.84    | 5,544.84      | -124.31     | 0.00        | 124.31         | 12.00             | 609,134.99       | 669,810.60      |
| 9,250.00                         | 45.30      | 180.00     | 9,211.89    | 5,562.89      | -141.61     | 0.00        | 141.61         | 12.00             | 609,117.69       | 669,810.60      |
| 9,275.00                         | 48.30      | 180.00     | 9,229.00    | 5,580.00      | -159.83     | 0.00        | 159.83         | 12.00             | 609,099.47       | 669,810.60      |



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



Company: Marbob  
 Project: Lea County  
 Site: Beechcraft Federal #1  
 Well: Beechcraft Fed #1  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well Beechcraft Fed #1  
 TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
 MD Reference: WELL @ 3649 00ft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Midland Database

### Planned Survey

| MD<br>(ft)                                                                  | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |
|-----------------------------------------------------------------------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|
| 9,300.00                                                                    | 51.30      | 180.00     | 9,245.14    | 5,596.14      | -178.92     | 0.00        | 178.92         | 12.00             | 609,080.38       | 669,810.60      |
| 9,325.00                                                                    | 54.30      | 180.00     | 9,260.25    | 5,611.25      | -198.83     | 0.00        | 198.83         | 12.00             | 609,060.47       | 669,810.60      |
| 9,350.00                                                                    | 57.30      | 180.00     | 9,274.30    | 5,625.30      | -219.51     | 0.00        | 219.51         | 12.00             | 609,039.79       | 669,810.60      |
| 9,375.00                                                                    | 60.30      | 180.00     | 9,287.25    | 5,638.25      | -240.89     | 0.00        | 240.89         | 12.00             | 609,018.41       | 669,810.60      |
| 9,400.00                                                                    | 63.30      | 180.00     | 9,299.07    | 5,650.07      | -262.92     | 0.00        | 262.92         | 12.00             | 608,996.38       | 669,810.60      |
| 9,425.00                                                                    | 66.30      | 180.00     | 9,309.71    | 5,660.71      | -285.53     | 0.00        | 285.53         | 12.00             | 608,973.77       | 669,810.60      |
| 9,450.00                                                                    | 69.29      | 180.00     | 9,319.16    | 5,670.16      | -308.68     | 0.00        | 308.68         | 12.00             | 608,950.62       | 669,810.60      |
| 9,475.00                                                                    | 72.29      | 180.00     | 9,327.38    | 5,678.38      | -332.28     | 0.00        | 332.28         | 12.00             | 608,927.02       | 669,810.60      |
| 9,500.00                                                                    | 75.29      | 180.00     | 9,334.36    | 5,685.36      | -356.29     | 0.00        | 356.29         | 12.00             | 608,903.01       | 669,810.60      |
| 9,525.00                                                                    | 78.29      | 180.00     | 9,340.07    | 5,691.07      | -380.62     | 0.00        | 380.62         | 12.00             | 608,878.68       | 669,810.60      |
| 9,550.00                                                                    | 81.29      | 180.00     | 9,344.50    | 5,695.50      | -405.22     | 0.00        | 405.22         | 12.00             | 608,854.08       | 669,810.60      |
| 9,575.00                                                                    | 84.29      | 180.00     | 9,347.63    | 5,698.63      | -430.02     | 0.00        | 430.02         | 12.00             | 608,829.28       | 669,810.60      |
| 9,600.00                                                                    | 87.29      | 180.00     | 9,349.47    | 5,700.47      | -454.95     | 0.00        | 454.95         | 12.00             | 608,804.35       | 669,810.60      |
| 9,622.56                                                                    | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -477.50     | 0.00        | 477.50         | 12.00             | 608,781.80       | 669,810.60      |
| EOC-9622.56°MD,90.00°INC,180.00°AZI,12.00°DLS, 477.50°VS, -477.50°N, 0.00°E |            |            |             |               |             |             |                |                   |                  |                 |
| 9,700.00                                                                    | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -554.94     | 0.00        | 554.94         | 0.00              | 608,704.36       | 669,810.60      |
| 9,800.00                                                                    | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -654.94     | 0.00        | 654.94         | 0.00              | 608,604.36       | 669,810.60      |
| 9,900.00                                                                    | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -754.94     | 0.00        | 754.94         | 0.00              | 608,504.36       | 669,810.60      |
| 10,000.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -854.94     | 0.00        | 854.94         | 0.00              | 608,404.36       | 669,810.60      |
| 10,100.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -954.94     | 0.00        | 954.94         | 0.00              | 608,304.36       | 669,810.60      |
| 10,200.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,054.94   | 0.00        | 1,054.94       | 0.00              | 608,204.36       | 669,810.60      |
| 10,300.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,154.94   | 0.00        | 1,154.94       | 0.00              | 608,104.36       | 669,810.60      |
| 10,400.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,254.94   | 0.00        | 1,254.94       | 0.00              | 608,004.36       | 669,810.60      |
| 10,500.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,354.94   | 0.00        | 1,354.94       | 0.00              | 607,904.36       | 669,810.60      |
| 10,600.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,454.94   | 0.00        | 1,454.94       | 0.00              | 607,804.36       | 669,810.60      |
| 10,700.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,554.94   | 0.00        | 1,554.94       | 0.00              | 607,704.36       | 669,810.60      |
| 10,800.00                                                                   | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,654.94   | 0.00        | 1,654.94       | 0.00              | 607,604.36       | 669,810.60      |



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



Company: Marbob  
 Project: Lea County  
 Site: Beechcraft Federal #1  
 Well: Beechcraft Fed #1  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well Beechcraft Fed #1  
 TVD Reference: WELL @ 3649.00ft (Original Well Elev)  
 MD Reference: WELL @ 3649.00ft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Midland Database

### Planned Survey

| MD<br>(ft) | Inc<br>(°) | Azi<br>(°) | TVD<br>(ft) | TVDSS<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | V. Sec<br>(ft) | DLeg<br>(°/100ft) | Northing<br>(ft) | Easting<br>(ft) |
|------------|------------|------------|-------------|---------------|-------------|-------------|----------------|-------------------|------------------|-----------------|
| 10,900.00  | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,754.94   | 0.00        | 1,754.94       | 0.00              | 607,504.36       | 669,810.60      |
| 11,000.00  | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,854.94   | 0.00        | 1,854.94       | 0.00              | 607,404.36       | 669,810.60      |
| 11,050.06  | 90.00      | 180.00     | 9,350.00    | 5,701.00      | -1,905.00   | 0.00        | 1,905.00       | 0.00              | 607,354.30       | 669,810.60      |

BHL-11050.06°MD,90.00°INC,180.00°AZI, 9350.00°TVD, 1905.00°VS, -1905.00°N, 0.00°E - PBHL(BC#1)

### Targets

| Target Name        | Dip Angle<br>(°) | Dip Dir.<br>(°) | TVD<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Northing<br>(ft) | Easting<br>(ft) | Latitude        | Longitude         |
|--------------------|------------------|-----------------|-------------|---------------|---------------|------------------|-----------------|-----------------|-------------------|
| - hit/miss target  |                  |                 |             |               |               |                  |                 |                 |                   |
| - Shape            |                  |                 |             |               |               |                  |                 |                 |                   |
| PBHL(BC#1)         | 0.00             | 0.00            | 9,350.00    | -1,905.00     | 0.00          | 607,354.300      | 669,810.600     | 32° 40' 6.615 N | 103° 46' 53.437 W |
| - plan hits target |                  |                 |             |               |               |                  |                 |                 |                   |
| - Point            |                  |                 |             |               |               |                  |                 |                 |                   |

### Plan Annotations

| Measured<br>Depth<br>(ft) | Vertical<br>Depth<br>(ft) | Local Coordinates<br>+N/-S<br>(ft) | +E/-W<br>(ft) | Comment                                                                           |
|---------------------------|---------------------------|------------------------------------|---------------|-----------------------------------------------------------------------------------|
| 8,872.50                  | 8,872.50                  | 0.00                               | 0.00          | KOP-8872.50°MD,0.00°INC,0.00°AZI                                                  |
| 9,622.56                  | 9,350.00                  | -477.50                            | 0.00          | EOC-9622.56°MD,90.00°INC,180.00°AZI,12.00°DLS, 477.50°VS, -477.50°E               |
| 11,050.06                 | 9,350.00                  | -1,905.00                          | 0.00          | BHL-11050.06°MD,90.00°INC,180.00°AZI, 9350.00°TVD, 1905.00°VS, -1905.00°N, 0.00°E |

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

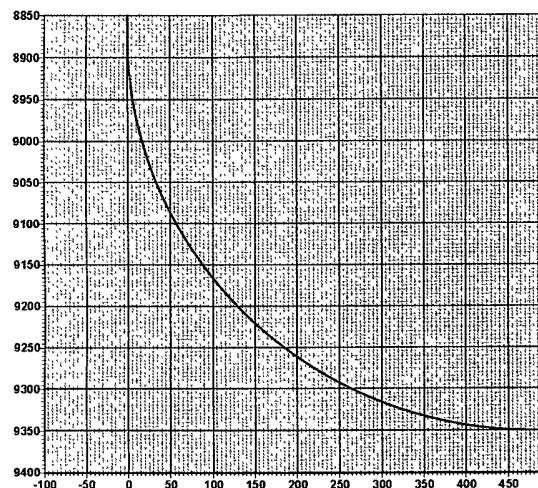


Azimuths to Grid North  
True North: -0.30°  
Magnetic North: 7.67°

Magnetic Field  
Strength: 49108.7snT  
Dip Angle: 60.64°  
Date: 04/08/2009  
Model: IGRF200510

# PATHFINDER

Project: Lea County  
Site: Beechcraft Federal #1  
Well: Beechcraft Fed #1  
Wellbore: OH  
Plan: Plan #1 (Beechcraft Fed #1/OH)

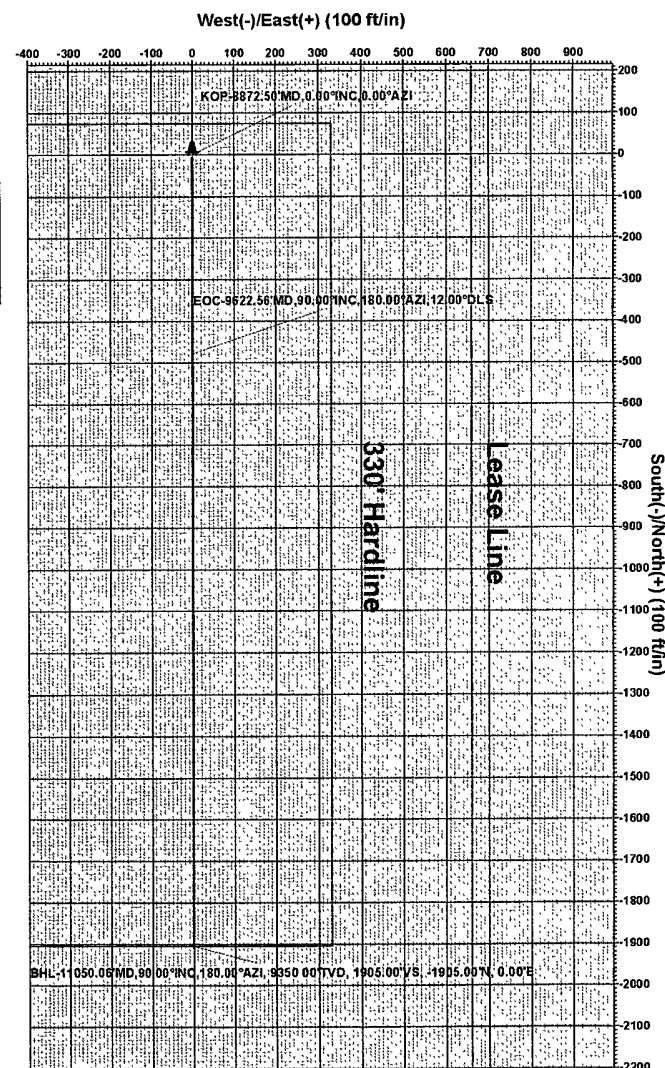
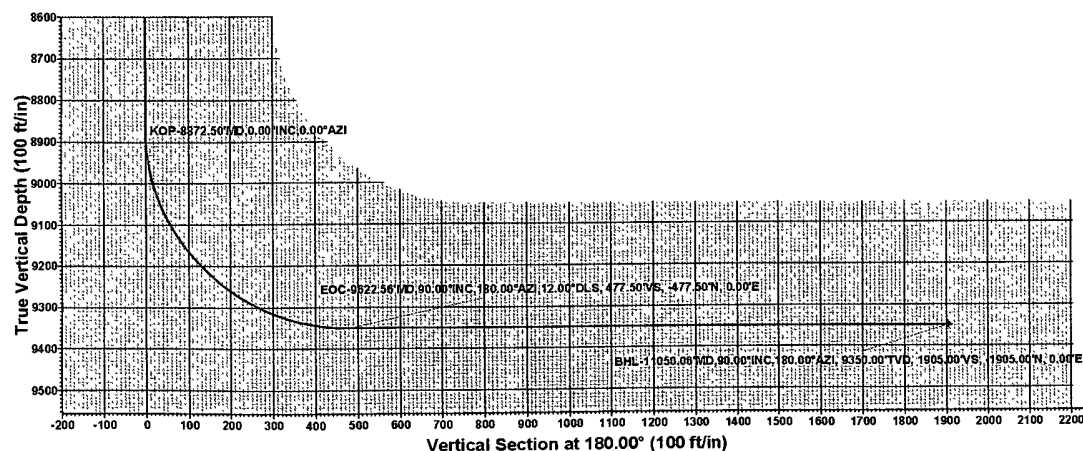


| WELL DETAILS: Beechcraft Fed #1                      |       |            |            |                  |                   |      |
|------------------------------------------------------|-------|------------|------------|------------------|-------------------|------|
| Ground Elevation: 3637.00                            |       |            |            |                  |                   |      |
| RKB Elevation: WELL @ 3649.00ft (Original Well Elev) |       |            |            |                  |                   |      |
| Rig Name: Original Well Elev                         |       |            |            |                  |                   |      |
| +N/-S                                                | +E/-W | Northing   | Eastings   | Latitude         | Longitude         | Slot |
| 0.00                                                 | 0.00  | 809259.300 | 669810.600 | 32° 40' 25.465 N | 103° 46' 53.321 W |      |

| SECTION DETAILS |          |       |        |         |          |       |       |        |         |        |
|-----------------|----------|-------|--------|---------|----------|-------|-------|--------|---------|--------|
| Sec             | MD       | Inc   | Azi    | TVD     | +N/-S    | +E/-W | DLeg  | TFace  | VSec    | Target |
| 1               | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00  | 0.00  | 0.00   | 0.00    |        |
| 2               | 8872.50  | 0.00  | 0.00   | 8872.50 | 0.00     | 0.00  | 0.00  | 0.00   | 0.00    |        |
| 3               | 9622.56  | 90.00 | 180.00 | 9350.00 | -477.50  | 0.00  | 12.00 | 180.00 | 477.50  |        |
| 4               | 11050.06 | 90.00 | 180.00 | 9350.00 | -1905.00 | 0.00  | 0.00  | 0.00   | 1905.00 |        |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES) |         |          |       |            |            |       |
|--------------------------------------------|---------|----------|-------|------------|------------|-------|
| Name                                       | TVD     | +N/-S    | +E/-W | Northing   | Eastings   | Shape |
| PEHL                                       | 9350.00 | -1905.00 | 0.00  | 607354.306 | 669810.600 | Point |

PROJECT DETAILS: Lea County  
Geodetic System: US State Plane 1927 (Exact solution)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level  
Local North: Grid



| Plan Plan #1 (Beechcraft Fed #1/OH) |              |      |                      |
|-------------------------------------|--------------|------|----------------------|
| Created By                          | Nate Bingham | Date | 10 14, April 08 2009 |
| Checked                             |              | Date |                      |

## PECOS DISTRICT CONDITIONS OF APPROVAL

|                                  |                                          |
|----------------------------------|------------------------------------------|
| <b>OPERATOR'S NAME:</b>          | <b>Marbob</b>                            |
| <b>LEASE NO.:</b>                | <b>NMNM13422B</b>                        |
| <b>WELL NAME &amp; NO.:</b>      | <b>Beechcraft Federal #1H</b>            |
| <b>SURFACE HOLE<br/>FOOTAGE:</b> | <b>2235' FSL &amp; 660' FEL</b>          |
| <b>BOTTOM HOLE FOOTAGE</b>       | <b>330' FSL &amp; 660' FEL</b>           |
| <b>LOCATION:</b>                 | <b>Section 08, T. 19S., R 32E., NMPM</b> |
| <b>COUNTY:</b>                   | <b>Lea County, New Mexico</b>            |

### I. DRILLING

#### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 393-3612

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

## B. CASING

1. The 13-3/8 inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite and above the salt at approximately 975 feet** and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial action will be done prior to drilling out that string.

**Possible lost circulation in the Artesia Group and the Capitan Reef.**

**Possible water flows in the Artesia and Salado Groups.**

**Production casing to be changed to the following to meet collapse and joint strength safety factors: 0-11,050' 17#, N-80, J-55 casing**

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
  - ☒ Cement to surface. If cement does not circulate see B.1.a-d above.  
**Please provide WOC times to inspector for cement slurries.**  
**Both stages to circulate.**
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.  
**Please provide WOC times to inspector for cement slurries.**  
**First stage to circulate. Additional cement may be required for first stage.**
4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **3000 (3M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
  - e. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**RGH 041109**