

Form 3160-3  
(August 2007)

OCD-HOBBS

NOV 16 2011

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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## APPLICATION FOR PERMIT TO DRILL OR REENTER

|                                                                                                                                                                                                                                                 |                                                                  |                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|
| 1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER                                                                                                                                                    |                                                                  | 5. Lease Serial No.<br>NM93223                                      |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone                                     |                                                                  | 6. If Indian, Allottee or Tribe Name<br>N/A                         |
| 2. Name of Operator<br>RMR Operating, LLC                                                                                                                                                                                                       |                                                                  | 7. If Unit or CA Agreement, Name and No.                            |
| 3a. Address 415 W. Wall Street, Suite 1700<br>Midland, Texas 79701                                                                                                                                                                              | 3b. Phone No. (include area code)<br>432-682-0440                | 8. Lease Name and Well No.<br>Madera 19 Federal 3H                  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.)*<br>At surface Section 19, T26S, R35E 330' FNL and 2260' FWL Unit C<br>At proposed prod. zone Section 19, T26S, R35E 330' FSL and 2260' FWL Unit N |                                                                  | 9. API Well No.<br>30-025-40340                                     |
| 14. Distance in miles and direction from nearest town or post office*<br>Approximately 17 miles SW of Jal, NM                                                                                                                                   |                                                                  | 10. Field and Pool, or Exploratory<br>Wildcat Bone Spring           |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)<br>Surface 330'<br>Bottom Hole 330'                                                                                       |                                                                  | 11. Sec., T. R. M. or Blk. and Survey or Area<br>Sec 19, T26S, R35E |
| 16. No. of acres in lease<br>645.6 +/-                                                                                                                                                                                                          | 17. Spacing Unit dedicated to this well<br>E2W2                  | 12. County or Parish<br>Lea County                                  |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.<br>Surface 1260'<br>Bottom Hole 1600'                                                                                                | 19. Proposed Depth<br>Pilot Hole 9,575'<br>TVD 9,416' MD 13,790' | 13. State<br>NM                                                     |
| 20. BLM/BIA Bond No. on file<br>NMB000780                                                                                                                                                                                                       | 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br>3206' GL  | 22. Approximate date work will start*<br>10/17/2011                 |
| 23. Estimated duration<br>35 days                                                                                                                                                                                                               |                                                                  |                                                                     |

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

|                                     |                                        |                 |
|-------------------------------------|----------------------------------------|-----------------|
| 25. Signature <i>Donna Stratton</i> | Name (Printed/Typed)<br>Donna Stratton | Date<br>9-19-11 |
|-------------------------------------|----------------------------------------|-----------------|

Title

Regulatory Clerk

|                                                 |                                               |                     |
|-------------------------------------------------|-----------------------------------------------|---------------------|
| Approved by (Signature) <i>/s/ W. W. Ingram</i> | Name (Printed/Typed)<br>CARLSBAD FIELD OFFICE | Date<br>NOV 12 2011 |
| Title<br><i>acting</i> FIELD MANAGER            |                                               |                     |

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

\*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations AttachedSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

DISTRICT I  
1825 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 15, 2009

Submit one copy to appropriate  
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

|                                                    |                                      |                                  |
|----------------------------------------------------|--------------------------------------|----------------------------------|
| API Number<br><b>30-025-42340</b>                  | Pool Code<br><b>96672</b>            | Pool Name<br>Wildcat Bone Spring |
| Property Code<br><del>NM-93228</del> <b>309498</b> | Property Name<br>MADERA "19" FEDERAL | Well Number<br>3H                |
| OGRID No.<br>281085                                | Operator Name<br>RMR OPERATING, LLC  | Elevation<br>3206'               |

Surface Location

| UL or lot No. | Section | Township | Range | Lot Idn. | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|----------|---------------|------------------|---------------|----------------|--------|
| C             | 19      | 26 S     | 35 E  |          | 330           | NORTH            | 2260          | WEST           | LEA    |

Bottom Hole Location If Different From Surface

| UL or lot No. | Section | Township | Range | Lot Idn. | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|----------|---------------|------------------|---------------|----------------|--------|
| N             | 19      | 26 S     | 35 E  |          | 330           | SOUTH            | 2260          | WEST           | LEA    |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|-----------------|-----------------|--------------------|-----------|
| 160             |                 |                    |           |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p><b>SURFACE LOCATION</b><br/>Lat - N 32°02'06.60"<br/>Long - W 103°24'28.20"<br/>NMSPC- N 377760.112<br/>E 828127.750<br/>(NAD-83)</p> |
| <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Alan Barksdale</i> 9-09-11<br/>Signature Date</p> <p>Alan Barksdale<br/>Printed Name</p> |                                                                                                                                          |
| <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>NOV 16 2011<br/>Date Surveyed<br/>Signature &amp; Seal of<br/>Professional Surveyor<br/>7977</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS 25158</p>                                                                                                                                                                                                                 |                                                                                                                                          |

# RMR

## Drilling Program

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### Madera 19 Fed # 3H

Surface Hole Location: 330' FSL & 2260' FWL, Unit C, Sec. 19, T26S, R35E, Lea Co., NM

Bottom Hole Location: 330' FSL & 2260' FWL, Unit N, Sec. 19, T26S, R35E, Lea Co., NM

#### 1. Geological Name of Surface Formation

- a) Quaternary Deposits

#### 2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil & Gas

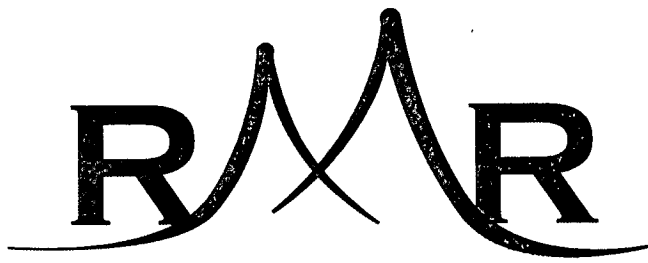
|                                           |            |       |
|-------------------------------------------|------------|-------|
| a) Quaternary                             | 20'        | Water |
| b) Surface Fresh Water                    | 160'       | Water |
| c) Surface Fresh Water                    | 230'       | Water |
| d) Rustler                                | 1045'      | Water |
| e) Surface Casing Point                   | 1056'      | N/A   |
| f) Base Salt                              | 5025'      | N/A   |
| g) Lamar Lime (Intermediate Casing Point) | 5327'      | N/A   |
| h) Cherry Canyon                          | 6553'      | Oil   |
| i) Brushy Canyon                          | 7869'      | Oil   |
| j) Brushy Canyon "D" Zone                 | 8980'      | Oil   |
| k) Bone Springs                           | 9233'      | Oil   |
| l) TVD (Avalon Shale)                     | 9416'      | Oil   |
| m) Base Avalon                            | 9424'      | Oil   |
| n) Pilot Hole TD                          | 9575'      | N/A   |
| o) Total measured Depth in Lateral        | 13,790' MD | Oil   |

Pool Name: Wildcat Bone Springs (Avalon)

Proposed Penetration Point: 9258'

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" casing at 1056' and circulate cement back to surface. The fresh water sands will be protected by setting 9-5/8" casing at 5327' and circulate cement back to surface. The Avalon Shale/Bone Springs will be isolated by setting 5-1/2" casing to total depth and circulating cement above base of 9-5/8" casing. All casing is new and API approved.





### 3. Casing Program

See COA

| <u>Hole Size</u> | <u>Hole Interval</u> | <u>Casing OD</u>                                  | <u>Casing Interval</u> | <u>Weight</u> | <u>Connection</u> | <u>Grade</u> |
|------------------|----------------------|---------------------------------------------------|------------------------|---------------|-------------------|--------------|
| 17-1/2"          | 0' – 1056' 1/2"      | 13-3/8"                                           | 0' – 1056'             | 48#           | STC               | H-40         |
| 12-1/4"          | 1056' – 5327'        | 9-5/8"                                            | 0' – 5327'             | 40#           | LTC               | HCK-55       |
| 8-3/4"           | 5327' – 9575'        | Pilot Hole Cement Kickoff Plug from 9575' – 8700' |                        |               |                   |              |
| 8-3/4"           | 8500' – 13790'       | 5-1/2"                                            | 0' – 13790' MD         | 17#           | BTC               | HCP-110      |

### Design Parameter Factors

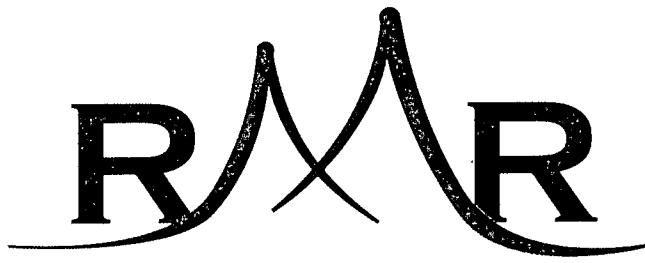
| <u>Casing Size</u> | <u>Collapse Design Factor</u> | <u>Burst Design Factor</u> | <u>Tension Design Factor</u> |
|--------------------|-------------------------------|----------------------------|------------------------------|
| 13-3/8"            | 1.6                           | 3.6                        | 6.7                          |
| 9-5/8"             | 1.5                           | 1.4                        | 4.4                          |
| 5-1/2"             | 1.3                           | 1.7                        | 2.3                          |

### 4. Cement Program

All cement volumes exceed 25% excess

- 13-3/8" Surface:      **Lead:** 650 sacks ExtendaCem – CZ, mixed at 13.50 Weight, 1.75 Yield, 9.20 gps mixing water  
                                  **Tail:** 340 sacks HalCem - C + 2% CaCl, mixed at 14.80 Weight, 1.35 Yield, 6.39 gps mixing water
- 9-5/8" Intermediate:      **Lead:** 1540 sacks EconCem – HLC + 5% salt + 5 pps Gilsonite, mixed at 12.90 Weight, 1.85 Yield, 9.32 gps mixing water  
                                  **Tail:** 250 sacks HalCem – C, mixed at 14.80 weight, 1.33 Yield, 6.34 gps mixing water
- Plug Back Volume: Cement plug from 9575' – 8700', 430 sacks Class H, 17.2# weight, 0.99 Yield
- 5-1/2" Production:      **First Stage**  
                                  **Cement Slurry:** 525 sacks SoluCem – H + 0.25 pps Defoamer +0.6% Retarder, Mixed at 15.0 weight, 2.61 Yield, 11.20 gps mixing water.  
                                  **DV Tool at 8300'**  
                                  **Second Stage**  
                                  **Lead:** 450 sacks EconoCem-HLC +0.5% Fluid loss + 6 pps salt + 5 pps Gilsonite + 0.25 pps Poly-E-Flake, mixed at 12.60 weight, 2.03 Yield, 10.48 gps mixing water.  
                                  **Tail:** 200 sacks HalCem-H + 0.2% Retarder, 15.60 weight, 1.19 Yield, 5.41 gps mixing water
- See COA





#### 4. Cement Program (Continued):

Top of cement ALL casing strings

|              |       |
|--------------|-------|
| Surface      | 0'    |
| Intermediate | 0'    |
| Production   | 4827' |

Actual cement volumes will be adjusted based on fluid caliper and open hole caliper log.

#### 5. Minimum Specifications for Pressure Control Equipment

BLOWOUT PREVENTION DESIGN: The blow out prevention (BOP) system will consist of a bag type annular preventer, a double ram preventer and a rotating head. Both the Annular and Ram stack will be hydraulically operated. Both BOP systems will be rated at 5000 psi. The double ram preventer will be equipped with blind rams on top and pipe rams on bottom. The mentioned 5000 psi BOP systems will be installed on 13-3/8" casing and will be tested with independent testers before drilling out the associated casing shoe. Prior to drilling out the 9-5/8" shoe the BOP's and Annular will be tested as per BLM Drilling Operations Order #2

The rams system will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into a drilling spool below the BOP. In addition to the rams and annular, other BOP accessories include a Kelly cock, floor safety valve, choke lines and choke manifold rated at 5000 psi.

#### 6. Auxiliary Well Control and Monitoring Equipment

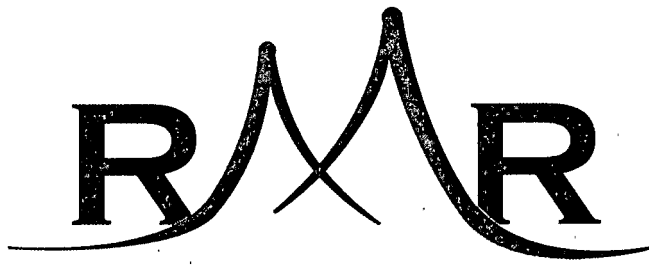
- A Kelly cock will be in drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out 13-3/8" casing shoe until the 5-1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13-3/8" shoe until total depth is reached.

#### 7. Proposed Mud Circulation System

| <u>Depth</u>    | <u>Mud Wt.</u> | <u>Visc.</u> | <u>Fluid Loss</u> | <u>Type System</u> |
|-----------------|----------------|--------------|-------------------|--------------------|
| 0' – 1056' 1125 | 8.4 – 9.0      | 32-34        | N/C               | Fresh Water        |
| 1056' – 5327'   | 10             | 28           | N/C               | Brine Water        |
| 5327' – 8750'   | 8.9 – 9.3      | 28           | N/C               | Cut Brine Water    |
| 8750' – 13790'  | 8.9 – 9.3      | 30-38        | 12 – 20           | CB / XCD Polymer   |

The necessary mud products for weight addition and fluid loss control will be on location at all times.





#### 8. Logging, Coring and Testing *See COA*

- a) The Open hole electrical logging program will be run in the pilot hole: We will run GR-Neutron Density log and DLL-MSFL log from 9575' up to 5327'. We will continue to pull the GR-Neutron log from 5350' to surface.
- b) 15 – 20 Side wall cores will be cut in the pay Intervals
- c) Drill stem test will be based on geological sample shows. If drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice.

#### 9. Potential Hazards

No abnormal pressures or temperatures are expected. A Hydrogen Sulfide contingency plan will be provided. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 5000 psi and Estimated BHT 180°.

#### 10. Anticipated Starting date and Duration of Operations

Road and location construction will begin after BLM has approved the APD. Anticipated spud date will be as soon as BLM approval and as soon as rig will be available. Move in operations and drilling is expected to take 35 days. If production casing is run then an additional 90 days will be needed to complete well and construct surface facilities and/ or lay flow lines in order to place well on production.

# **RMR Operating**

Lea County  
Madera 19 Federal  
#3H  
OH

**HOBBS OCD**

**NOV 16 2011**

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**Plan: Plan #1**

# **Pathfinder X & Y Report**

**06 September, 2011**

# Pathfinder

## Pathfinder X & Y Report

**Company:** RMR Operating  
**Project:** Lea County  
**Site:** Madera 19 Federal  
**Well:** #3H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well #3H  
**TVD Reference:** KB = TBA @ 3206.00usft (TBA)  
**MD Reference:** KB = TBA @ 3206.00usft (TBA)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Lea County                | <b>System Datum:</b> | Mean Sea Level |
| <b>Map System:</b> | US State Plane 1983       |                      |                |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                |
| <b>Map Zone:</b>   | New Mexico Eastern Zone   |                      |                |

|                              |                   |                                   |                                     |
|------------------------------|-------------------|-----------------------------------|-------------------------------------|
| <b>Site</b>                  | Madera 19 Federal |                                   |                                     |
| <b>Site Position:</b>        |                   | <b>Northing:</b> 377,760 112 usft | <b>Latitude:</b> 32° 2' 6.593 N     |
| <b>From:</b>                 | Map               | <b>Easting:</b> 828,127.750 usft  | <b>Longitude:</b> 103° 24' 28.196 W |
| <b>Position Uncertainty:</b> | 0.00 usft         | <b>Slot Radius:</b> 13-3/16 "     | <b>Grid Convergence:</b> 0.49 °     |

|                             |           |                                 |                                     |
|-----------------------------|-----------|---------------------------------|-------------------------------------|
| <b>Well</b>                 | #3H       |                                 |                                     |
| <b>Well Position</b>        | +N/-S     | 0.00 usft                       | <b>Latitude:</b> 32° 2' 6.593 N     |
|                             | +E/-W     | 0.00 usft                       | <b>Longitude:</b> 103° 24' 28.196 W |
| <b>Position Uncertainty</b> | 0.00 usft | <b>Wellhead Elevation:</b> usft | <b>Ground Level:</b> 3,206.00 usft  |

|                   |            |                            |          |
|-------------------|------------|----------------------------|----------|
| <b>Wellbore</b>   | OH         |                            |          |
| <b>Magnetics</b>  |            |                            |          |
| <b>Model Name</b> | IGRF200510 | <b>Sample Date</b>         | 9/6/2011 |
|                   |            | <b>Declination (°)</b>     | 7.46     |
|                   |            | <b>Dip Angle (°)</b>       | 60.06    |
|                   |            | <b>Field Strength (nT)</b> | 48,536   |

|                          |         |                                |                           |
|--------------------------|---------|--------------------------------|---------------------------|
| <b>Design</b>            | Plan #1 |                                |                           |
| <b>Audit Notes:</b>      |         |                                |                           |
| <b>Version:</b>          |         | <b>Phase:</b> PROTOTYPE        | <b>Tie On Depth:</b> 0.00 |
| <b>Vertical Section:</b> |         | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b>       |
|                          |         | 0.00                           | 0.00                      |
|                          |         | <b>+E/-W (usft)</b>            | <b>Direction (°)</b>      |
|                          |         | 0.00                           | 179.50                    |

|                            |  |                          |                    |
|----------------------------|--|--------------------------|--------------------|
| <b>Survey Tool Program</b> |  | <b>Date</b>              | 9/6/2011           |
| <b>From (usft)</b>         |  | <b>To (usft)</b>         |                    |
| 0.00                       |  | <b>Survey (Wellbore)</b> |                    |
|                            |  | 13,790.10                | Plan #1 (OH)       |
|                            |  | <b>Tool Name</b>         | <b>Description</b> |



# Pathfinder

## Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference:  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User Db

Well #3H

### Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 0.00         | 0.00       | 0.00                 | 0.00          | -3,206.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 100.00       | 0.00       | 0.00                 | 100.00        | -3,106.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 200.00       | 0.00       | 0.00                 | 200.00        | -3,006.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 300.00       | 0.00       | 0.00                 | 300.00        | -2,906.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 400.00       | 0.00       | 0.00                 | 400.00        | -2,806.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 500.00       | 0.00       | 0.00                 | 500.00        | -2,706.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 600.00       | 0.00       | 0.00                 | 600.00        | -2,606.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 700.00       | 0.00       | 0.00                 | 700.00        | -2,506.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 800.00       | 0.00       | 0.00                 | 800.00        | -2,406.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 900.00       | 0.00       | 0.00                 | 900.00        | -2,306.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,000.00     | 0.00       | 0.00                 | 1,000.00      | -2,206.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,100.00     | 0.00       | 0.00                 | 1,100.00      | -2,106.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,200.00     | 0.00       | 0.00                 | 1,200.00      | -2,006.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,300.00     | 0.00       | 0.00                 | 1,300.00      | -1,906.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,400.00     | 0.00       | 0.00                 | 1,400.00      | -1,806.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,500.00     | 0.00       | 0.00                 | 1,500.00      | -1,706.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,600.00     | 0.00       | 0.00                 | 1,600.00      | -1,606.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,700.00     | 0.00       | 0.00                 | 1,700.00      | -1,506.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,800.00     | 0.00       | 0.00                 | 1,800.00      | -1,406.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 1,900.00     | 0.00       | 0.00                 | 1,900.00      | -1,306.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,000.00     | 0.00       | 0.00                 | 2,000.00      | -1,206.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,100.00     | 0.00       | 0.00                 | 2,100.00      | -1,106.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,200.00     | 0.00       | 0.00                 | 2,200.00      | -1,006.00       | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,300.00     | 0.00       | 0.00                 | 2,300.00      | -906.00         | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,400.00     | 0.00       | 0.00                 | 2,400.00      | -806.00         | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,500.00     | 0.00       | 0.00                 | 2,500.00      | -706.00         | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 2,600.00     | 0.00       | 0.00                 | 2,600.00      | -606.00         | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |

# Pathfinder

## Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference:  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User Db

Well #3H

### Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(~100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|--------------------|--------------------|-------------------|
| 2,700.00     | 0.00       | 0.00                 | 2,700.00      | -506.00         | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 2,800.00     | 0.00       | 0.00                 | 2,800.00      | -406.00         | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 2,900.00     | 0.00       | 0.00                 | 2,900.00      | -306.00         | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,000.00     | 0.00       | 0.00                 | 3,000.00      | -206.00         | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,100.00     | 0.00       | 0.00                 | 3,100.00      | -106.00         | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,200.00     | 0.00       | 0.00                 | 3,200.00      | -6.00           | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,300.00     | 0.00       | 0.00                 | 3,300.00      | 94.00           | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,400.00     | 0.00       | 0.00                 | 3,400.00      | 194.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,500.00     | 0.00       | 0.00                 | 3,500.00      | 294.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,600.00     | 0.00       | 0.00                 | 3,600.00      | 394.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,700.00     | 0.00       | 0.00                 | 3,700.00      | 494.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,800.00     | 0.00       | 0.00                 | 3,800.00      | 594.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 3,900.00     | 0.00       | 0.00                 | 3,900.00      | 694.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,000.00     | 0.00       | 0.00                 | 4,000.00      | 794.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,100.00     | 0.00       | 0.00                 | 4,100.00      | 894.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,200.00     | 0.00       | 0.00                 | 4,200.00      | 994.00          | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,300.00     | 0.00       | 0.00                 | 4,300.00      | 1,094.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,400.00     | 0.00       | 0.00                 | 4,400.00      | 1,194.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,500.00     | 0.00       | 0.00                 | 4,500.00      | 1,294.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,600.00     | 0.00       | 0.00                 | 4,600.00      | 1,394.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,700.00     | 0.00       | 0.00                 | 4,700.00      | 1,494.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,800.00     | 0.00       | 0.00                 | 4,800.00      | 1,594.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 4,900.00     | 0.00       | 0.00                 | 4,900.00      | 1,694.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 5,000.00     | 0.00       | 0.00                 | 5,000.00      | 1,794.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 5,100.00     | 0.00       | 0.00                 | 5,100.00      | 1,894.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 5,200.00     | 0.00       | 0.00                 | 5,200.00      | 1,994.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |
| 5,300.00     | 0.00       | 0.00                 | 5,300.00      | 2,094.00        | 0.00          | 0.00          | 0.00             | 0.00               | 377,760.11         | 828,127.75        |

# Pathfinder

## Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference:  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User Db

Well #3H

### Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | D/Leg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|----------------------|--------------------|-------------------|
| 5,400.00     | 0.00       | 0.00                 | 5,400.00      | 2,194.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 5,500.00     | 0.00       | 0.00                 | 5,500.00      | 2,294.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 5,600.00     | 0.00       | 0.00                 | 5,600.00      | 2,394.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 5,700.00     | 0.00       | 0.00                 | 5,700.00      | 2,494.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 5,800.00     | 0.00       | 0.00                 | 5,800.00      | 2,594.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 5,900.00     | 0.00       | 0.00                 | 5,900.00      | 2,694.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,000.00     | 0.00       | 0.00                 | 6,000.00      | 2,794.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,100.00     | 0.00       | 0.00                 | 6,100.00      | 2,894.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,200.00     | 0.00       | 0.00                 | 6,200.00      | 2,994.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,300.00     | 0.00       | 0.00                 | 6,300.00      | 3,094.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,400.00     | 0.00       | 0.00                 | 6,400.00      | 3,194.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,500.00     | 0.00       | 0.00                 | 6,500.00      | 3,294.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,600.00     | 0.00       | 0.00                 | 6,600.00      | 3,394.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,700.00     | 0.00       | 0.00                 | 6,700.00      | 3,494.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,800.00     | 0.00       | 0.00                 | 6,800.00      | 3,594.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 6,900.00     | 0.00       | 0.00                 | 6,900.00      | 3,694.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,000.00     | 0.00       | 0.00                 | 7,000.00      | 3,794.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,100.00     | 0.00       | 0.00                 | 7,100.00      | 3,894.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,200.00     | 0.00       | 0.00                 | 7,200.00      | 3,994.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,300.00     | 0.00       | 0.00                 | 7,300.00      | 4,094.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,400.00     | 0.00       | 0.00                 | 7,400.00      | 4,194.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,500.00     | 0.00       | 0.00                 | 7,500.00      | 4,294.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,600.00     | 0.00       | 0.00                 | 7,600.00      | 4,394.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,700.00     | 0.00       | 0.00                 | 7,700.00      | 4,494.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,800.00     | 0.00       | 0.00                 | 7,800.00      | 4,594.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 7,900.00     | 0.00       | 0.00                 | 7,900.00      | 4,694.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |
| 8,000.00     | 0.00       | 0.00                 | 8,000.00      | 4,794.00        | 0.00          | 0.00          | 0.00             | 0.00                 | 377,760.11         | 828,127.75        |

# Pathfinder

Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well #3H  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User.Db

## Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 8,100.00     | 0.00       | 0.00                 | 8,100.00      | 4,894.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,200.00     | 0.00       | 0.00                 | 8,200.00      | 4,994.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,300.00     | 0.00       | 0.00                 | 8,300.00      | 5,094.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,400.00     | 0.00       | 0.00                 | 8,400.00      | 5,194.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,500.00     | 0.00       | 0.00                 | 8,500.00      | 5,294.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,600.00     | 0.00       | 0.00                 | 8,600.00      | 5,394.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,700.00     | 0.00       | 0.00                 | 8,700.00      | 5,494.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,800.00     | 0.00       | 0.00                 | 8,800.00      | 5,594.00        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,843.04     | 0.00       | 0.00                 | 8,843.04      | 5,637.04        | 0.00          | 0.00          | 0.00             | 0.00                | 377,760.11         | 828,127.75        |
| 8,850.00     | 0.70       | 179.50               | 8,850.00      | 5,644.00        | -0.04         | 0.00          | 0.00             | 0.04                | 377,760.07         | 828,127.75        |
| 8,900.00     | 5.70       | 179.50               | 8,899.91      | 5,693.91        | -2.83         | 0.02          | 0.00             | 2.83                | 377,757.28         | 828,127.77        |
| 8,950.00     | 10.70      | 179.50               | 8,949.38      | 5,743.38        | -9.95         | 0.09          | 0.00             | 9.95                | 377,750.16         | 828,127.84        |
| 9,000.00     | 15.70      | 179.50               | 8,998.04      | 5,792.04        | -21.36        | 0.19          | 0.00             | 21.37               | 377,738.75         | 828,127.94        |
| 9,050.00     | 20.70      | 179.50               | 9,045.53      | 5,839.53        | -36.97        | 0.32          | 0.00             | 36.97               | 377,723.14         | 828,128.07        |
| 9,100.00     | 25.70      | 179.50               | 9,091.47      | 5,885.47        | -56.66        | 0.50          | 0.00             | 56.66               | 377,703.45         | 828,128.25        |
| 9,150.00     | 30.70      | 179.50               | 9,135.53      | 5,929.53        | -80.28        | 0.70          | 0.00             | 80.28               | 377,679.84         | 828,128.45        |
| 9,200.00     | 35.70      | 179.50               | 9,177.35      | 5,971.35        | -107.64       | 0.94          | 0.00             | 107.64              | 377,652.47         | 828,128.69        |
| 9,250.00     | 40.70      | 179.50               | 9,216.63      | 6,010.63        | -138.55       | 1.21          | 0.00             | 138.55              | 377,621.56         | 828,128.96        |
| 9,300.00     | 45.70      | 179.50               | 9,253.07      | 6,047.07        | -172.76       | 1.51          | 0.00             | 172.77              | 377,587.35         | 828,129.26        |
| 9,350.00     | 50.70      | 179.50               | 9,286.39      | 6,080.39        | -210.02       | 1.84          | 0.00             | 210.03              | 377,550.09         | 828,129.59        |
| 9,400.00     | 55.70      | 179.50               | 9,316.34      | 6,110.34        | -250.04       | 2.19          | 0.00             | 250.05              | 377,510.07         | 828,129.94        |
| 9,450.00     | 60.70      | 179.50               | 9,342.68      | 6,136.68        | -292.52       | 2.57          | 0.00             | 292.53              | 377,467.60         | 828,130.32        |
| 9,500.00     | 65.70      | 179.50               | 9,365.22      | 6,159.22        | -337.13       | 2.96          | 0.00             | 337.14              | 377,422.98         | 828,130.71        |
| 9,550.00     | 70.70      | 179.50               | 9,383.78      | 6,177.78        | -383.53       | 3.36          | 0.00             | 383.55              | 377,376.58         | 828,131.11        |
| 9,600.00     | 75.70      | 179.50               | 9,398.24      | 6,192.24        | -431.38       | 3.78          | 0.00             | 431.40              | 377,328.73         | 828,131.53        |
| 9,650.00     | 80.70      | 179.50               | 9,408.46      | 6,202.46        | -480.31       | 4.21          | 0.00             | 480.33              | 377,279.80         | 828,131.96        |
| 9,700.00     | 85.70      | 179.50               | 9,414.38      | 6,208.38        | -529.94       | 4.65          | 0.00             | 529.96              | 377,230.17         | 828,132.40        |

# Pathfinder

## Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well #3H  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User Db

### Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLag<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 9,743.04     | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -572.94       | 5.02          | 572.96           | 10.00               | 377,187.18         | 828,132.77        |
| 9,800.00     | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -629.89       | 5.52          | 629.92           | 0.00                | 377,130.22         | 828,133.27        |
| 9,900.00     | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -729.89       | 6.40          | 729.92           | 0.00                | 377,030.22         | 828,134.15        |
| 10,000.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -829.89       | 7.28          | 829.92           | 0.00                | 376,930.23         | 828,135.03        |
| 10,100.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -929.88       | 8.15          | 929.92           | 0.00                | 376,830.23         | 828,135.90        |
| 10,200.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,029.88     | 9.03          | 1,029.92         | 0.00                | 376,730.23         | 828,136.78        |
| 10,300.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,129.87     | 9.91          | 1,129.92         | 0.00                | 376,630.24         | 828,137.66        |
| 10,400.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,229.87     | 10.78         | 1,229.92         | 0.00                | 376,530.24         | 828,138.53        |
| 10,500.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,329.87     | 11.66         | 1,329.92         | 0.00                | 376,430.25         | 828,139.41        |
| 10,600.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,429.86     | 12.54         | 1,429.92         | 0.00                | 376,330.25         | 828,140.29        |
| 10,700.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,529.86     | 13.42         | 1,529.92         | 0.00                | 376,230.25         | 828,141.17        |
| 10,800.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,629.86     | 14.29         | 1,629.92         | 0.00                | 376,130.26         | 828,142.04        |
| 10,900.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,729.85     | 15.17         | 1,729.92         | 0.00                | 376,030.26         | 828,142.92        |
| 11,000.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,829.85     | 16.05         | 1,829.92         | 0.00                | 375,930.26         | 828,143.80        |
| 11,100.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -1,929.84     | 16.92         | 1,929.92         | 0.00                | 375,830.27         | 828,144.67        |
| 11,200.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,029.84     | 17.80         | 2,029.92         | 0.00                | 375,730.27         | 828,145.55        |
| 11,300.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,129.84     | 18.68         | 2,129.92         | 0.00                | 375,630.28         | 828,146.43        |
| 11,400.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,229.83     | 19.55         | 2,229.92         | 0.00                | 375,530.28         | 828,147.30        |
| 11,500.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,329.83     | 20.43         | 2,329.92         | 0.00                | 375,430.28         | 828,148.18        |
| 11,600.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,429.82     | 21.31         | 2,429.92         | 0.00                | 375,330.29         | 828,149.06        |
| 11,700.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,529.82     | 22.18         | 2,529.92         | 0.00                | 375,230.29         | 828,149.93        |
| 11,800.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,629.82     | 23.06         | 2,629.92         | 0.00                | 375,130.30         | 828,150.81        |
| 11,900.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,729.81     | 23.94         | 2,729.92         | 0.00                | 375,030.30         | 828,151.69        |
| 12,000.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,829.81     | 24.81         | 2,829.92         | 0.00                | 374,930.30         | 828,152.56        |
| 12,100.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -2,929.81     | 25.69         | 2,929.92         | 0.00                | 374,830.31         | 828,153.44        |
| 12,200.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,029.80     | 26.57         | 3,029.92         | 0.00                | 374,730.31         | 828,154.32        |
| 12,300.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,129.80     | 27.44         | 3,129.92         | 0.00                | 374,630.31         | 828,155.19        |

# Pathfinder

## Pathfinder X & Y Report

Company: RMR Operating  
 Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference:  
 TVD Reference: KB = TBA @ 3206.00usft (TBA)  
 MD Reference: KB = TBA @ 3206.00usft (TBA)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.1 Single User Db

Well #3H  
 KB = TBA @ 3206.00usft (TBA)  
 KB = TBA @ 3206.00usft (TBA)  
 Grid  
 Minimum Curvature  
 EDM 5000.1 Single User Db

### Planned Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | TVDSS<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|---------------|-----------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 12,400.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,229.79     | 28.32         | 3,229.92         | 0.00                | 374,530.32         | 828,156.07        |
| 12,500.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,329.79     | 29.20         | 3,329.92         | 0.00                | 374,430.32         | 828,156.95        |
| 12,600.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,429.79     | 30.08         | 3,429.92         | 0.00                | 374,330.33         | 828,157.83        |
| 12,700.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,529.78     | 30.95         | 3,529.92         | 0.00                | 374,230.33         | 828,158.70        |
| 12,800.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,629.78     | 31.83         | 3,629.92         | 0.00                | 374,130.33         | 828,159.58        |
| 12,900.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,729.77     | 32.71         | 3,729.92         | 0.00                | 374,030.34         | 828,160.46        |
| 13,000.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,829.77     | 33.58         | 3,829.92         | 0.00                | 373,930.34         | 828,161.33        |
| 13,100.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -3,929.77     | 34.46         | 3,929.92         | 0.00                | 373,830.35         | 828,162.21        |
| 13,200.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,029.76     | 35.34         | 4,029.92         | 0.00                | 373,730.35         | 828,163.09        |
| 13,300.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,129.76     | 36.21         | 4,129.92         | 0.00                | 373,630.35         | 828,163.96        |
| 13,400.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,229.76     | 37.09         | 4,229.92         | 0.00                | 373,530.36         | 828,164.84        |
| 13,500.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,329.75     | 37.97         | 4,329.92         | 0.00                | 373,430.36         | 828,165.72        |
| 13,600.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,429.75     | 38.84         | 4,429.92         | 0.00                | 373,330.36         | 828,166.59        |
| 13,700.00    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,529.74     | 39.72         | 4,529.92         | 0.00                | 373,230.37         | 828,167.47        |
| 13,790.14    | 90.00      | 179.50               | 9,416.00      | 6,210.00        | -4,619.88     | 40.51         | 4,620.06         | 0.00                | 373,140.23         | 828,168.26        |

Checked By: \_\_\_\_\_

Approved By: \_\_\_\_\_

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

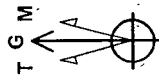
Project: Lea County  
 Site: Madera 19 Federal  
 Well: #3H  
 Wellbore: OH  
 Plan: Plan #1 (#3H/OH)

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

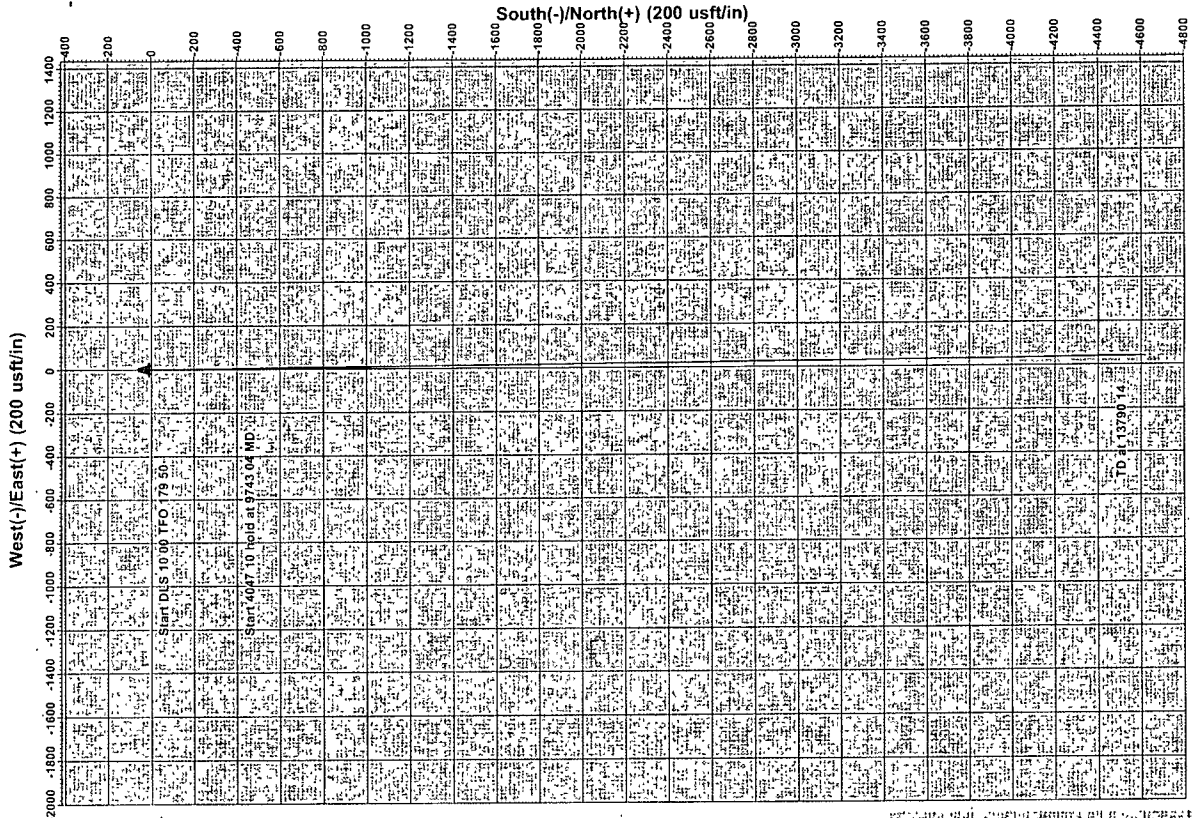
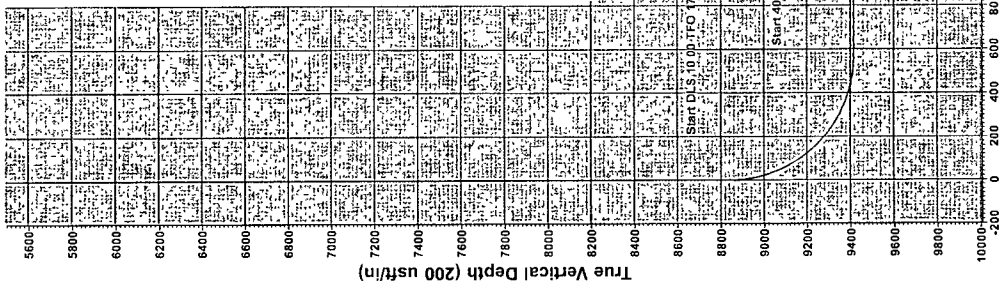
| WELL DETAILS #3H |                              |            |                |                    |
|------------------|------------------------------|------------|----------------|--------------------|
| Ground Elevation | 3206.00                      |            |                |                    |
| RKB Station      | 100' TBA @ 3206.00usft (TBA) |            |                |                    |
| Rig Name         | TBA                          |            |                |                    |
|                  |                              | Latitude   | Longitude      | Slot               |
| +N-S             | 0.00                         | 828127.750 | 32° 2' 6.93" N | 103° 24' 28.196" W |
| +E-W             | 0.00                         | 377760.112 |                |                    |
|                  |                              |            |                |                    |

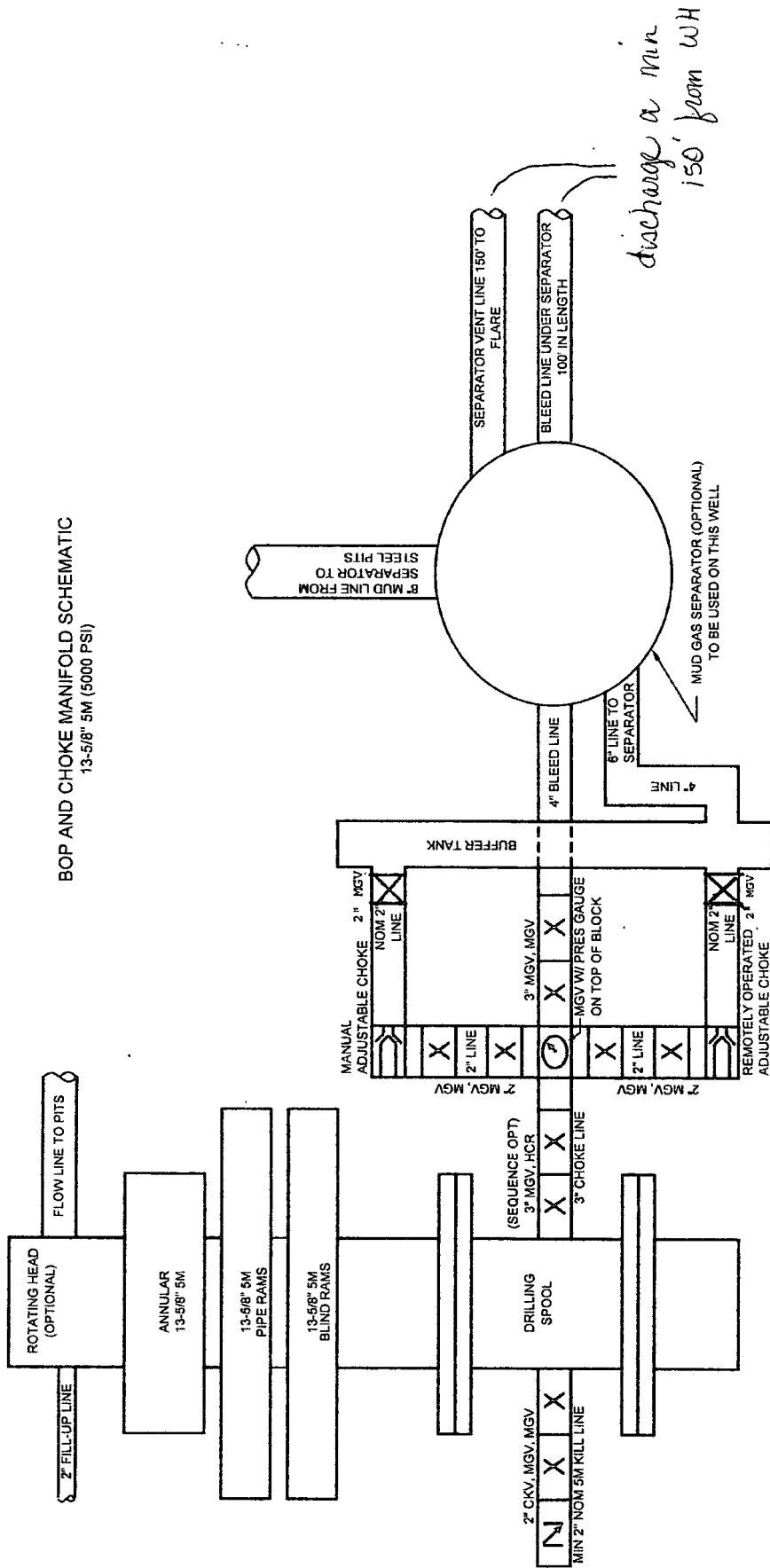
| WELLBORE TARGET DETAILS (MAP CO-ORDINATES) |                               |       |            |                        |
|--------------------------------------------|-------------------------------|-------|------------|------------------------|
| Name                                       | PBHL/madera 19 fed #3H#416.00 | +N-S  | +E-W       | Northing Easting Shape |
|                                            |                               | 40.51 | 373140.234 | 828168.261 Point       |

| SECTION DETAILS |          |       |        |         |          |       |       |         |                        |
|-----------------|----------|-------|--------|---------|----------|-------|-------|---------|------------------------|
| Sec             | MD       | Inc   | Asi    | TVD     | +N-S     | +E-W  | TFace | VSet    | Target                 |
|                 | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00  | 0.00  | 0.00    | 0.00                   |
|                 | 28843.04 | 0.00  | 0.00   | 8843.04 | 0.00     | 0.00  | 0.00  | 0.00    | 0.00                   |
|                 | 39743.04 | 90.00 | 179.50 | 9416.00 | -572.94  | 5.02  | 10.00 | 179.50  | 572.96                 |
|                 | 43790.14 | 90.00 | 179.50 | 9416.00 | -4619.88 | 40.51 | 0.00  | 4620.05 | PBHL/madera 19 fed #3H |



Azimuths to Grid North  
 True North: -0.49°  
 Magnetic North: 6.97°  
 Magnetic Field  
 Strength: 48536.4nT  
 Dip Angle: 60.06°  
 Date: 9/6/2011  
 Model: IGRF200510





**NOTES**  
 MGCV - MANUAL GATE VALVE  
 HCR - REMOTELY OPERATED HIGH CLOSING RATIO VALVE  
 CKV - CHECK VALVE  
 LINE SIZES GIVEN IN NOMINAL DIMENSIONS



[illegible]

**Mouse hole:** 5'-7" east (15" hole, 12' - 15' deep, 2-1/2 degrees)

**Rat hole:** 7'-7" east and 12'-1" right (15" hole, 30" deep, 7 degrees)