

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED  
OMB No. 1004-0137  
Expires: October 31, 2014

JAN 19 2013

## SUNDRY NOTICES AND REPORTS ON WELLS

**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

Jicarilla Apache Nation

Field Office

Bureau of Land Management

SUBMIT IN TRIPLICATE - Other instructions on page 2.

7. If Unit of CA/Agreement, Name and/or No.

## 1. Type of Well

☒ Oil Well☐ Gas Well☐ Other

8. Well Name and No.

Jicarilla 2505-4 13H

2. Name of Operator  
Bill Barrett Corporation

9. API Well No.

30-039-31139

3a. Address  
1099 18th Street, Suite 2300 Denver, CO 80202

3b. Phone No. (include area code)

303-312-8172

10. Field and Pool or Exploratory Area

Lindrith Gallup-Dakota, West

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
SW SW 1212' FSL and 176' FWL, Sec. 3, T25N-R5W (Surface)  
NW SW 2310' FSL and 380' FWL, Sec. 4, T25N-R5W (Btm Hole)

11. County or Parish, State

Rio Arriba County, NM

## 12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                   |                                           |                                                    |                                         |
|------------------------------------------------------|--------------------------------------------------|-------------------------------------------|----------------------------------------------------|-----------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize                 | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing            | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair           | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input type="checkbox"/> Other          |
|                                                      | <input checked="" type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       |                                         |
|                                                      | <input type="checkbox"/> Convert to Injection    | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |                                         |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

This sundry is being submitted to provide additional information that was requested from NMOCD. The drilling plan has been revised to add a plug to isolate the Dakota producing interval from the Mancos producing interval. The TD has also been corrected to 10,803' MD - 6,448' TVD (Horizontal Lateral) and 7,216' TVD (Pilot Hole). The approved project area is 320 acres; S/2 of Section 4, in the Tapacito; Gallup Associated Pool (approved from Administrative Order NSL-6729). Attached please find the revised drilling and directional plans.

RCVD FEB 4 '13

OIL CONS. DIV.

DIST. 3

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

CONDITIONS OF APPROVAL  
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
Venessa Langmacher

Title Senior Permit Analyst

Signature

Date 01/17/2013

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy L. Sahers

Title Petroleum Engineer

Date 2/1/2013

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

FFO

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 any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

Oil base muds are not to be used until any false,

fresh water zones are cased and cemented providing isolation from the oil or diesel.

This includes synthetic oils

NMOCD

DISTRICT I  
1625 N. French Dr., Hobbs, N.M. 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, N.M. 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, N.M. 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, N.M. 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

RCVD DEC 20 '12

OIL CONS. DIV.

X AMENDED REPORT

DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                     |  |                                                                                                                                 |                              |                                 |
|-------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| 30-039-31139                        |  | 58090                                                                                                                           | TAPACITO GALLUP (ASSOCIATED) |                                 |
| <sup>4</sup> Property Code<br>39687 |  | <sup>6</sup> Property Name<br>JICARILLA 2505-4                                                                                  |                              | <sup>8</sup> Well Number<br>13H |
| <sup>7</sup> GRID No.<br>287508     |  | <sup>9</sup> Operator Name<br>BILL BARRETT CORPORATION UNDER OPERATING AGREEMENT<br>WITH ENERVEST MESA, LLC & EV PROPERTIES, LP |                              | <sup>5</sup> Elevation<br>6654  |

<sup>10</sup> Surface Location

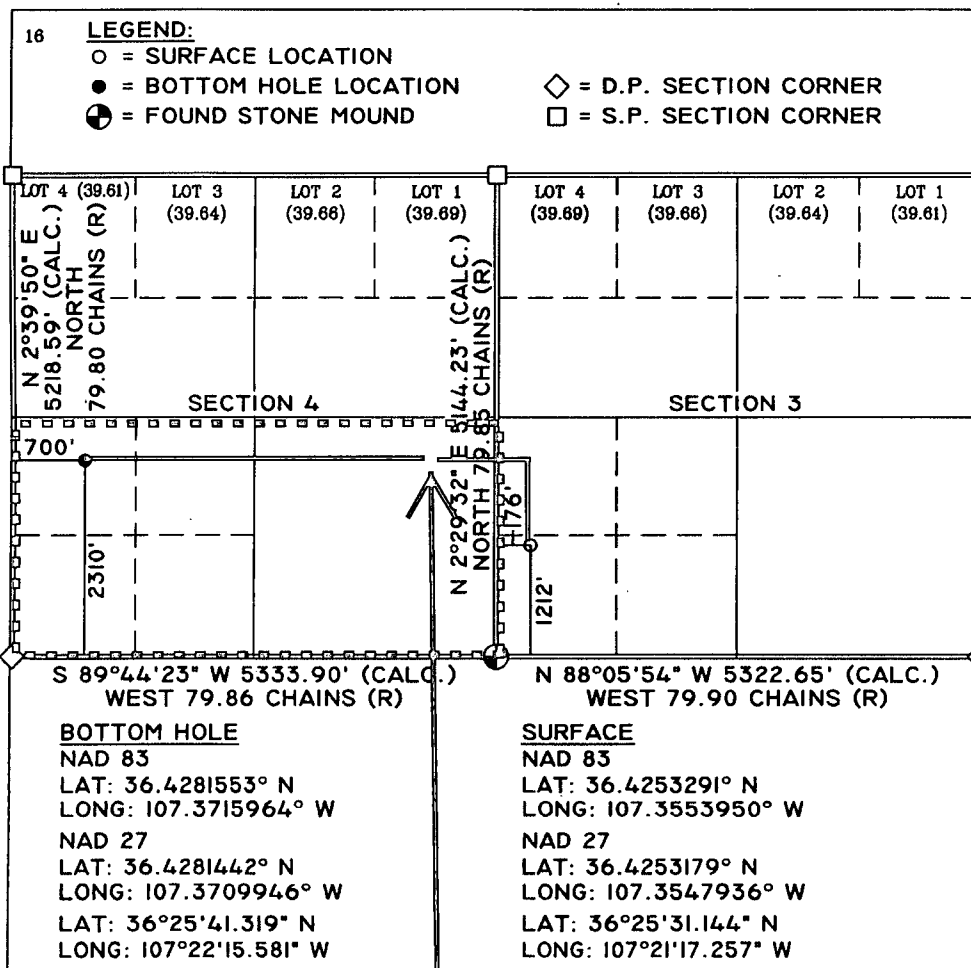
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| M             | 3       | 25 N     | 5 W   |         | 1212          | SOUTH            | 176           | WEST           | RIO ARriba |

<sup>11</sup> 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     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| L             | 4       | 25 N     | 5 W   |         | 2310          | SOUTH            | 700           | WEST           | RIO ARriba |

|                                            |                               |                                  |                         |
|--------------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br>80x4= 320 | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|--------------------------------------------|-------------------------------|----------------------------------|-------------------------|

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



17 OPERATOR CERTIFICATION

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.

Signature: *Brian Wood* Date: 12-19-12  
Printed: BRIAN WOOD  
E-mail Address: brian@permitswest.com

18 SURVEYOR CERTIFICATION

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.

Date of Survey: 05/02/12  
Signature and Seal of Professional Surveyor: *JOHN A. WUDNICH*  
Certificate Number: 14831  
11-5-2012

Penetration Point  
2310 FSL & 700 FEL

## DRILLING PLAN

### BILL BARRETT CORPORATION

#### Jicarilla 2505-4-13H Well

SW SW, 1212' FSL and 176' FWL, Section 3, T25N, R5W, (surface hole)

NW SW, 2310' FSL and 700' FWL, Section 4, T25N, R5W, (bottom hole)

Rio Arriba County, New Mexico

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Bill Barrett Corporation (BBC) intends to drill a vertical "pilot hole" through the Dakota formation, obtaining open hole logs in the vertical portion of the wellbore. Once having successfully obtained log data for determination of lateral wellbore placement, BBC would then plug and abandon the vertical portion of the wellbore to 5721', +/- 300' above the planned kick off point. Once the cement plug has cured accordingly BBC would utilize the cement plug to side track the wellbore at kick off point. The lateral portion of the wellbore would then be drilled horizontally through the prospective zone within the Tocito, as identified by open hole logs from the pilot hole.

#### Plug Back Procedure:

- 1) TIH open ended to 7,216'
- 2) Pump cement Plug:
  - Premium Cement Fluid Weight 17 lbm/gal
  - 94 lbm/sk Premium Cement (Cement) Slurry Yield: 1.00 ft<sup>3</sup>/sk
  - 3 % KCL (Accelerator) Total Mixing Fluid: 3.82 Gal/sk
  - 0.1 % HR-5 (Retarder) Top of Fluid: 6993 ft
  - Calculated Fill: 223 ft
  - Volume: 16.6 bbl
  - Calculated Sacks: 95 sks
  - Proposed Sacks: 190 sks @100% excess
- 3) TOOH to 6,321' Circulate and condition mud.
- 4) Pump Cement Plug as follows:
  - Fluid 1: Water Based Spacer
  - MUD FLUSH III Fluid Density: 8.40 lbm/gal
  - Total Volume: 37.27 bbl
  - Volume Ahead: 31.90 bbl
  
  - Fluid 2: Plug Cement
  - Premium Cement Fluid Weight 17 lbm/gal
  - 94 lbm/sk Premium Cement (Cement) Slurry Yield: 1.00 ft<sup>3</sup>/sk
  - 3 % KCL (Accelerator) Total Mixing Fluid: 3.82 Gal/sk
  - 0.1 % HR-5 (Retarder) Top of Fluid: 5737 ft
  - Calculated Fill: 600 ft
  - Volume: 62.47 bbl
  - Calculated Sacks: 351 sks
  - Proposed Sacks: 351 sks
  
  - Fluid 3: Water Spacer
  - Displacement Fluid Density: 8.33 lbm/gal
  - Total Volume: 37.27 bbl
  - Volume Behind: 5.37 bbl

Bill Barrett Corporation  
Drilling Program  
Jicarilla 2505-4-13H  
Rio Arriba County, New Mexico

- 5) TOO H to 4000' and Circulate and condition mud for 8 hours.
- 6) TOO H, Pick up BHA to drill cement.
- 7) TIH slowly, tag cement, Record in IADC reports.
- 8) Drill cement to KOP.
- 9) TOO H, Lay down cement drilling assembly.
- 10) Pick up Kick off assembly, and drill curve section.

**1 - 2. Estimated Tops of Geological Markers and Formations**

| <u>Formation</u> | <u>Depth – MD<br/>(Horizontal)</u> | <u>Depth – TVD<br/>(Pilot Hole)</u> |
|------------------|------------------------------------|-------------------------------------|
| Ojo Alamo        | 2,535'                             | 2,490                               |
| Kirtland         | 2,581'                             | 2,535                               |
| Fruitland        | 2,786'                             | 2,735                               |
| Pictured Cliffs  | 2,963'                             | 2,907                               |
| Cliff House      | 4,710'                             | 4,610                               |
| Menefee          | 4,756'                             | 4,655                               |
| Point Lookout    | 5,249'                             | 5,135                               |
| Mancos           | 5,475'                             | 5,355                               |
| Niobrara         | 6,067'                             | 5,942                               |
| Tocito           | 6,697'                             | 6,428                               |
| Gallup           |                                    | 6,658                               |
| Juana Lopez      |                                    | 6,736                               |
| Carlile          |                                    | 6,856                               |
| Greenhorn        |                                    | 7,037                               |
| Graneros         |                                    | 7,093                               |
| Dakota           |                                    | 7,116                               |
| TD               | 10,803'                            | 7,216                               |

**3. BOP and Pressure Containment Data**

| <u>Depth Intervals</u>                                                                                                                                  | <u>BOP Equipment</u>                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 0 – 500'                                                                                                                                                | No pressure control required                    |
| 500' – TD                                                                                                                                               | 11" 3000# Ram Type BOP<br>11" 3000# Annular BOP |
| - Drilling spool to accommodate choke and kill lines;                                                                                                   |                                                 |
| - Ancillary equipment and choke manifold rated at 3,000 psi. All BOP and BOPE tests will be in accordance with the requirements of onshore Order No. 2; |                                                 |
| - The BLM and the State of New Mexico will be notified 24 hours in advance of all BOP pressure tests.                                                   |                                                 |
| - BOP hand wheels may be underneath the sub-structure of the rig if the drilling rig used is set up To operate most efficiently in this manner.         |                                                 |

Bill Barrett Corporation  
Drilling Program  
Jicarilla 2505-4-13H  
Rio Arriba County, New Mexico

4. **Casing Program**

| <u>Hole Size</u> | <u>SETTING DEPTH</u> |             | <u>Casing Size</u> | <u>Casing Weight</u> | <u>Casing Grade</u> | <u>Thread</u> | <u>Condition</u> |
|------------------|----------------------|-------------|--------------------|----------------------|---------------------|---------------|------------------|
|                  | <u>(FROM)</u>        | <u>(TO)</u> |                    |                      |                     |               |                  |
| 26"              | Surface              | 40'         | 16"                | 65#                  |                     |               |                  |
| 12 1/4"          | Surface              | 500'        | 9 5/8"             | 36#                  | J or K 55           | STC           | New              |
| 8 3/4"           | Surface              | 6,924'      | 7"                 | 26#                  | N-80                | LT&C          | New              |
| 6 1/8"           | KOP                  | TD          | 4 1/2"             | 11.6#                | P-110               | LT&C          | New              |

| <u>Casing Size</u> | <u>Casing Weight</u> | <u>Casing Grade</u> | <u>Thread</u> | <u>Collapse Pressure (psi)</u> | <u>Burst Pressure (psi)</u> | <u>Tension Strength (1,000 lbs)</u> |
|--------------------|----------------------|---------------------|---------------|--------------------------------|-----------------------------|-------------------------------------|
| 9 5/8"             | 36#                  | J or K 55           | STC           | 2020                           | 3520                        | 394/423                             |
| 7"                 | 26#                  | N-80                | LT&C          | 5410                           | 7240                        | 519                                 |
| 4 1/2"<br>Liner    | 11.6#                | P-110               | LT&C          | 7560                           | 10690                       | 279                                 |

| <u>Casing Size</u> | <u>Casing Weight</u> | <u>Casing Grade</u> | <u>Thread</u> | <u>SE<sub>s</sub></u> | <u>SF<sub>b</sub></u> | <u>SF<sub>t</sub></u> |
|--------------------|----------------------|---------------------|---------------|-----------------------|-----------------------|-----------------------|
| 9 5/8"             | 36#                  | J or K 55           | STC           | 11.30                 | 29.63                 | 25.29/27.115          |
| 7"                 | 26#                  | N-80                | LT&C          | 2.04                  | 3.87                  | 3.39                  |
| 4 1/2"<br>Liner    | 11.6#                | P-110               | LT&C          | 2.85                  | 5.71                  | 2.62                  |

5. **Centralizers**

| <u>Casing Size</u> | <u>SETTING DEPTH</u> |             | <u>Centralizer Description</u>                                |
|--------------------|----------------------|-------------|---------------------------------------------------------------|
|                    | <u>(FROM)</u>        | <u>(TO)</u> |                                                               |
| 9 5/8"             | Surface              | 500'        | 1 on Shoe Joint + Every other to surface (6 Centralizers)     |
| 7"                 | Surface              | 6,924'      | 1 on Shoe Joint + Every other to TOC                          |
| 4 1/2"<br>Liner    | KOP                  | TD          | Swell Packers with 1 centralizer above and below each packer. |

6. **Cementing Program**

| <u>Casing</u>          | <u>Cementing</u>                                                                                                                                                                                                                                                                                                                                 |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16" Conductor Casing   | <i>Grout</i>                                                                                                                                                                                                                                                                                                                                     |
| 9 5/8" Surface Casing  | Approximately 270 sx Halliburton Premium Cement with additives mixed at 15.8 ppg (yield = 1.17 ft <sup>3</sup> /sx) circulated to surface with 100% excess. Top of cement estimated at surface.                                                                                                                                                  |
| 7" Intermediate Casing | Lead with approximately 730 sx Halliburton Light Premium cement with additives, mixed at 12.5 ppg (yield = 1.85 ft <sup>3</sup> /sx,) . Top of lead estimated at Surface.<br><br>Tail with approximately 200 sx Halliburton Premium cement with additives mixed at 15.8 ppg (yield = 1.15 ft <sup>3</sup> /sx). Top of tail estimated at 5,924'. |
| 4 1/2" Liner           | No cement will be used in this section. Swell packers will be run to isolate the production hole from the intermediate casing section. No Centralizers.                                                                                                                                                                                          |

6. **Mud Program**

| <u>Interval</u>                                                                                                                                                                                                                                       | <u>Weight</u> | <u>Viscosity</u> | <u>Fluid Loss<br/>(API filtrate)</u> | <u>Remarks</u>                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|--------------------------------------|----------------------------------|
| 0' – 40'                                                                                                                                                                                                                                              | 8.3 – 8.8     | 26 – 36          | NC                                   | Freshwater Spud Mud Fluid System |
| 40' – 500'                                                                                                                                                                                                                                            | 8.3 – 8.8     | 26 – 36          | NC                                   | Freshwater Spud Mud Fluid System |
| 500' – TD                                                                                                                                                                                                                                             | 8.6 – 9.8     | 38-50            | 15 cc or less                        | Low Solids Non-Dispersed         |
| Note: Sufficient mud materials to maintain mud properties, control lost circulation and to contain “kicks” will be available at wellsite. BBC may require minor amounts of diesel to be added to its fluid system in order to reduce torque and drag. |               |                  |                                      |                                  |

7. **Testing, Logging and Core Programs**

|          |                                                                                                                                  |
|----------|----------------------------------------------------------------------------------------------------------------------------------|
| Cores    | None anticipated                                                                                                                 |
| Testing  | None anticipated                                                                                                                 |
| Sampling | 30' samples; surface casing to TD. Preserve samples all show intervals;                                                          |
| Surveys  | MWD as needed to land wellbore                                                                                                   |
| Logging  | Vertical Hole- Triple Combo Platform Express (RT Scanner, Density Neutron, Dipole Sonic, FMI)<br>Horizontal Hole- MWD Gamma, FMI |

8. **Anticipated Abnormal Pressures or Temperatures**

No abnormal pressures or temperatures or other hazards are anticipated.

Maximum anticipated bottom hole pressure equals approximately 3296 psi\* and maximum anticipated surface pressure equals approximately 1873 psi\*\* (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot).

\*Max Mud Wt x 0.052 x TVD = A (bottom hole pressure)

\*\*Maximum surface pressure = A – (0.22 x TVD)

9. **Auxiliary Equipment**

- a) Upper kelly cock; lower Kelly cock will be installed while drilling
- b) Inside BOP or stab-in valve (available on rig floor)
- c) Safety valve(s) and subs to fit all string connections in use
- d) Mud monitoring will be visually observed

10. **Drilling Schedule**

Location Construction: TBA  
Spud: TBA  
Duration: 23 days drilling time  
45 days completion time



**Bill Barrett Corporation**

**COMPANY DETAILS: BILL BARRETT CORP**

Calculation Method: Minimum Curvature  
Error System: ISCWSA  
Scan Method: Closest Approach 3D  
Error Surface: Elliptical Conic  
Warning Method: Error Ratio

**REFERENCE INFORMATION**

Co-ordinate (N/E) Reference: Well Jicarilla 2505-4-13H, Grid North  
Vertical (TVD) Reference: KB @ 6667.0ft (Original Well Elev)  
Section (VS) Reference: Slot - (0.0N, 0.0E)  
Measured Depth Reference: KB @ 6667.0ft (Original Well Elev)  
Calculation Method: Minimum Curvature

**WELL DETAILS: Jicarilla 2505-4-13H**

| +N/-S | +E/-W | Northing  | Easting   | Latitude         | Longitude         |
|-------|-------|-----------|-----------|------------------|-------------------|
| 0.0   | 0.0   | 602271.72 | 400879.52 | 36° 25' 31.185 N | 107° 21' 19.422 W |

**SECTION DETAILS**

| Sec | MD      | Inc   | Azi    | TVD    | +N/-S  | +E/-W   | DLeg  | TFace  | VSec   | Target          |
|-----|---------|-------|--------|--------|--------|---------|-------|--------|--------|-----------------|
| 1   | 0.0     | 0.00  | 0.00   | 0.0    | 0.0    | 0.0     | 0.00  | 0.00   | 0.0    |                 |
| 2   | 500.0   | 0.00  | 0.00   | 500.0  | 0.0    | 0.0     | 0.00  | 0.00   | 0.0    |                 |
| 3   | 872.1   | 13.02 | 344.72 | 868.9  | 40.6   | -11.1   | 3.50  | 344.72 | 19.8   |                 |
| 4   | 5549.7  | 13.02 | 344.72 | 5426.2 | 1057.4 | -288.9  | 0.00  | 0.00   | 516.7  |                 |
| 5   | 5921.8  | 0.00  | 0.00   | 5795.1 | 1098.0 | -300.0  | 3.50  | 180.00 | 536.5  |                 |
| 6   | 6021.8  | 0.00  | 0.00   | 5895.1 | 1098.0 | -300.0  | 0.00  | 0.00   | 536.5  |                 |
| 7   | 6924.8  | 90.30 | 270.00 | 6468.0 | 1098.0 | -876.0  | 10.00 | 270.00 | 1098.1 | 2505-4-13H LP   |
| 8   | 6933.1  | 90.30 | 269.79 | 6468.0 | 1098.0 | -884.3  | 2.50  | -90.00 | 1106.2 | 2505-4-13H PBHL |
| 9   | 10803.5 | 90.30 | 269.79 | 6447.7 | 1083.9 | -4754.5 | 0.00  | 0.00   | 4876.5 | 2505-4-13H PBHL |

**PROJECT DETAILS: RIO ARRIBA COUNTY, NM (NAD 83)**

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Central Zone

**FORMATION TOP DETAILS**

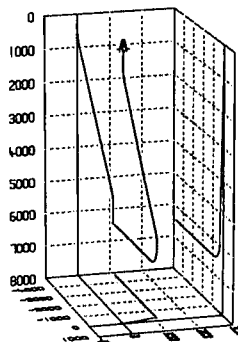
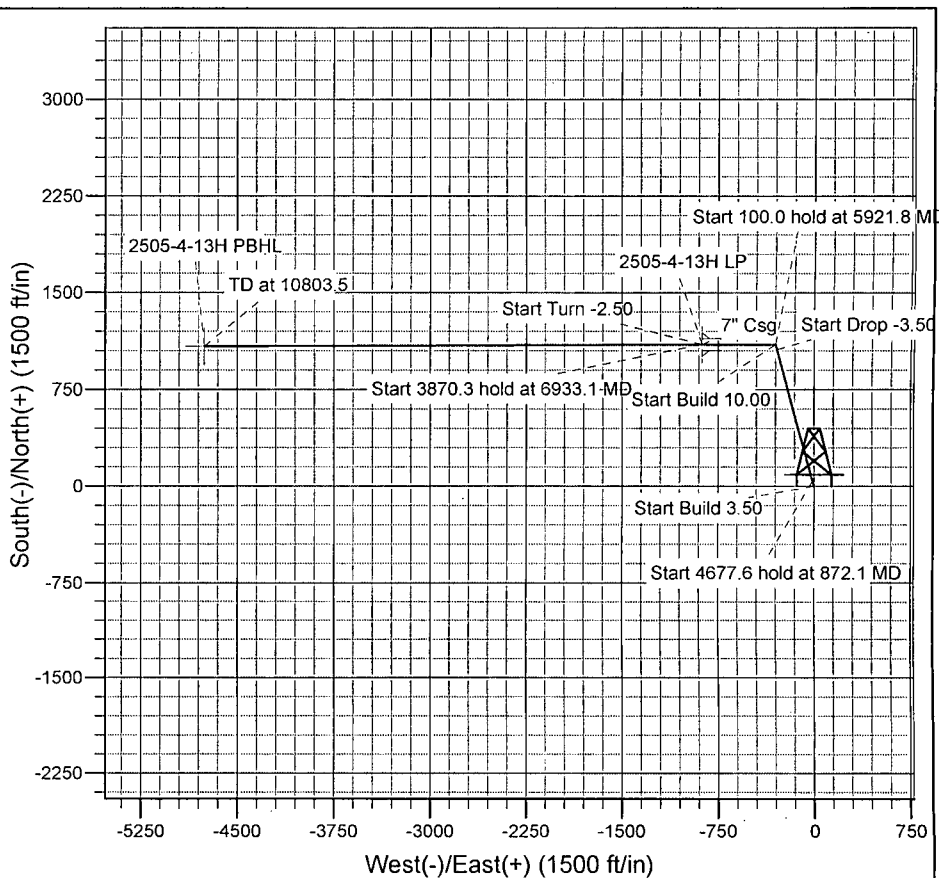
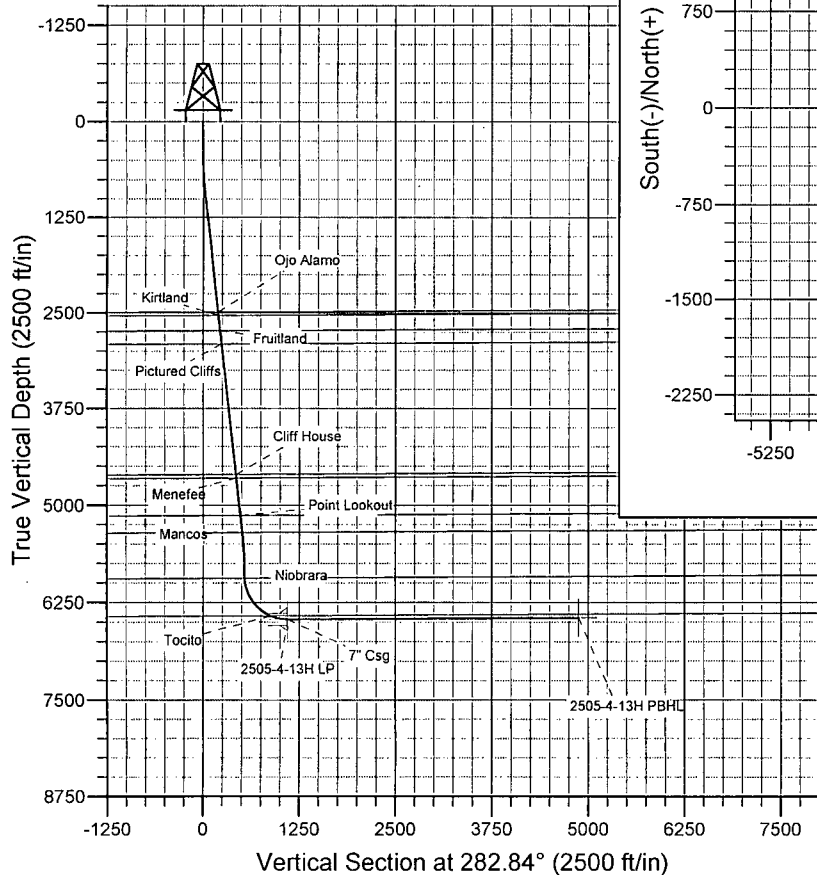
| TVDPath | MDPath | Formation       |
|---------|--------|-----------------|
| 2489.4  | 2535.4 | Ojo Alamo       |
| 2534.4  | 2581.6 | Kirtland        |
| 2734.4  | 2786.8 | Fruitland       |
| 2906.3  | 2963.3 | Pictured Cliffs |
| 4608.8  | 4710.7 | Cliff House     |
| 4653.8  | 4756.9 | Menefee         |
| 5133.6  | 5249.4 | Point Lookout   |
| 5353.5  | 5475.1 | Mancos          |
| 5940.4  | 6067.2 | Niobrara        |
| 6424.6  | 6697.2 | Tocito          |

**CASING DETAILS**

| TVD    | MD     | Name   | Size  |
|--------|--------|--------|-------|
| 6468.1 | 6924.0 | 7" Csg | 7.000 |

**WELLBORE TARGET DETAILS**

| Name            | TVD    | +N/-S  | +E/-W   | Shape |
|-----------------|--------|--------|---------|-------|
| 2505-4-13H PBHL | 6447.0 | 1083.9 | -4754.5 | Point |
| 2505-4-13H LP   | 6468.0 | 1098.0 | -876.0  | Point |



Azimuths to Grid North  
True North: 0.66°  
Magnetic North: 10.21°

Magnetic Field  
Strength: 50499.9snT  
Dip Angle: 63.24°  
Date: 7/13/2012  
Model: IGRF2010

# Bill Barrett Corp

## Planning Report

**Database:** Compass  
**Company:** BILL BARRETT CORP  
**Project:** RIO ARRIBA COUNTY, NM (NAD 83)  
**Site:** Jicarilla 2505-4-13H  
**Well:** Jicarilla 2505-4-13H  
**Wellbore:** Wellbore #1  
**Design:** Design #2 JO

**Local Co-ordinate Reference:** Well Jicarilla 2505-4-13H  
**TVD Reference:** KB @ 6667.0ft (Original Well Elev)  
**MD Reference:** KB @ 6667.0ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

|                    |                                |                      |                |
|--------------------|--------------------------------|----------------------|----------------|
| <b>Project</b>     | RIO ARRIBA COUNTY, NM (NAD 83) |                      |                |
| <b>Map System:</b> | US State Plane 1983            | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983      |                      |                |
| <b>Map Zone:</b>   | New Mexico Central Zone        |                      |                |

|                       |          |                      |              |                   |                   |
|-----------------------|----------|----------------------|--------------|-------------------|-------------------|
| Site                  |          | Jicarilla 2505-4-13H |              |                   |                   |
| Site Position:        |          | Northing:            | 602,271.72 m | Latitude:         | 36° 25' 31.185 N  |
| From:                 | Lat/Long | Easting:             | 400,879.52 m | Longitude:        | 107° 21' 19.422 W |
| Position Uncertainty: |          | Slot Radius:         | in           | Grid Convergence: | -0.66 °           |

|                             |                      |        |                            |              |                      |                   |
|-----------------------------|----------------------|--------|----------------------------|--------------|----------------------|-------------------|
| <b>Well</b>                 | Jicarilla 2505-4-13H |        |                            |              |                      |                   |
| <b>Well Position</b>        | <b>+N/-S</b>         | 0.0 ft | <b>Northing:</b>           | 602,271.72 m | <b>Latitude:</b>     | 36° 25' 31.185 N  |
|                             | <b>+E/-W</b>         | 0.0 ft | <b>Easting:</b>            | 400,879.52 m | <b>Longitude:</b>    | 107° 21' 19.422 W |
| <b>Position Uncertainty</b> |                      | 0.0 ft | <b>Wellhead Elevation:</b> | ft           | <b>Ground Level:</b> | 6,654.0 ft        |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2010          | 7/13/2012          | 9.55                   | 63.24                | 50,500                     |

|                          |                         |                   |                   |                      |     |
|--------------------------|-------------------------|-------------------|-------------------|----------------------|-----|
| <b>Design</b>            | Design #2 JO            |                   |                   |                      |     |
| <b>Audit Notes:</b>      |                         |                   |                   |                      |     |
| <b>Version:</b>          | <b>Phase:</b>           | PLAN              |                   | <b>Tie On Depth:</b> | 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Direction (°)</b> |     |
|                          | 0.0                     | 0.0               | 0.0               | 282.84               |     |

| Plan Sections       |                 |             |                     |            |            |                       |                      |                     |         |                 |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-----------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target          |
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 500.0               | 0.00            | 0.00        | 500.0               | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 872.1               | 13.02           | 344.72      | 868.9               | 40.6       | -11.1      | 3.50                  | 3.50                 | 0.00                | 344.72  |                 |
| 5,549.7             | 13.02           | 344.72      | 5,426.2             | 1,057.4    | -288.9     | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 5,921.8             | 0.00            | 0.00        | 5,795.1             | 1,098.0    | -300.0     | 3.50                  | -3.50                | 0.00                | 180.00  |                 |
| 6,021.8             | 0.00            | 0.00        | 5,895.1             | 1,098.0    | -300.0     | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 6,924.8             | 90.30           | 270.00      | 6,468.0             | 1,098.0    | -876.0     | 10.00                 | 10.00                | 0.00                | 270.00  | 2505-4-13H LP   |
| 6,933.1             | 90.30           | 269.79      | 6,468.0             | 1,098.0    | -884.3     | 2.50                  | 0.00                 | -2.50               | -90.00  | 2505-4-13H PBHL |
| 10,803.5            | 90.30           | 269.79      | 6,447.7             | 1,083.9    | -4,754.5   | 0.00                  | 0.00                 | 0.00                | 0.00    | 2505-4-13H PBHL |

# Bill Barrett Corp

## Planning Report

Database: Compass  
 Company: BILL BARRETT CORP  
 Project: RIO ARRIBA COUNTY, NM (NAD 83)  
 Site: Jicarilla 2505-4-13H  
 Well: Jicarilla 2505-4-13H  
 Wellbore: Wellbore #1  
 Design: Design #2 JO

Local Co-ordinate Reference: Well Jicarilla 2505-4-13H  
 TVD Reference: KB @ 6667.0ft (Original Well Elev)  
 MD Reference: KB @ 6667.0ft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical<br>Section<br>(ft) | Dogleg<br>Rate<br>(°/100ft) | Build<br>Rate<br>(°/100ft) | Turn<br>Rate<br>(°/100ft) |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|----------------------------|---------------------------|
| 0.0                       | 0.00               | 0.00           | 0.0                       | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 100.0                     | 0.00               | 0.00           | 100.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 200.0                     | 0.00               | 0.00           | 200.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 300.0                     | 0.00               | 0.00           | 300.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 400.0                     | 0.00               | 0.00           | 400.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 500.0                     | 0.00               | 0.00           | 500.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | 0.00                      |
| 600.0                     | 3.50               | 344.72         | 599.9                     | 2.9           | -0.8          | 1.4                         | 3.50                        | 3.50                       | 0.00                      |
| 700.0                     | 7.00               | 344.72         | 699.5                     | 11.8          | -3.2          | 5.8                         | 3.50                        | 3.50                       | 0.00                      |
| 800.0                     | 10.50              | 344.72         | 798.3                     | 26.4          | -7.2          | 12.9                        | 3.50                        | 3.50                       | 0.00                      |
| 872.1                     | 13.02              | 344.72         | 868.9                     | 40.6          | -11.1         | 19.8                        | 3.50                        | 3.50                       | 0.00                      |
| 900.0                     | 13.02              | 344.72         | 896.1                     | 46.7          | -12.8         | 22.8                        | 0.00                        | 0.00                       | 0.00                      |
| 1,000.0                   | 13.02              | 344.72         | 993.5                     | 68.4          | -18.7         | 33.4                        | 0.00                        | 0.00                       | 0.00                      |
| 1,100.0                   | 13.02              | 344.72         | 1,090.9                   | 90.2          | -24.6         | 44.1                        | 0.00                        | 0.00                       | 0.00                      |
| 1,200.0                   | 13.02              | 344.72         | 1,188.4                   | 111.9         | -30.6         | 54.7                        | 0.00                        | 0.00                       | 0.00                      |
| 1,300.0                   | 13.02              | 344.72         | 1,285.8                   | 133.6         | -36.5         | 65.3                        | 0.00                        | 0.00                       | 0.00                      |
| 1,400.0                   | 13.02              | 344.72         | 1,383.2                   | 155.4         | -42.5         | 75.9                        | 0.00                        | 0.00                       | 0.00                      |
| 1,500.0                   | 13.02              | 344.72         | 1,480.7                   | 177.1         | -48.4         | 86.5                        | 0.00                        | 0.00                       | 0.00                      |
| 1,600.0                   | 13.02              | 344.72         | 1,578.1                   | 198.8         | -54.3         | 97.2                        | 0.00                        | 0.00                       | 0.00                      |
| 1,700.0                   | 13.02              | 344.72         | 1,675.5                   | 220.6         | -60.3         | 107.8                       | 0.00                        | 0.00                       | 0.00                      |
| 1,800.0                   | 13.02              | 344.72         | 1,772.9                   | 242.3         | -66.2         | 118.4                       | 0.00                        | 0.00                       | 0.00                      |
| 1,900.0                   | 13.02              | 344.72         | 1,870.4                   | 264.1         | -72.1         | 129.0                       | 0.00                        | 0.00                       | 0.00                      |
| 2,000.0                   | 13.02              | 344.72         | 1,967.8                   | 285.8         | -78.1         | 139.7                       | 0.00                        | 0.00                       | 0.00                      |
| 2,100.0                   | 13.02              | 344.72         | 2,065.2                   | 307.5         | -84.0         | 150.3                       | 0.00                        | 0.00                       | 0.00                      |
| 2,200.0                   | 13.02              | 344.72         | 2,162.7                   | 329.3         | -90.0         | 160.9                       | 0.00                        | 0.00                       | 0.00                      |
| 2,300.0                   | 13.02              | 344.72         | 2,260.1                   | 351.0         | -95.9         | 171.5                       | 0.00                        | 0.00                       | 0.00                      |
| 2,400.0                   | 13.02              | 344.72         | 2,357.5                   | 372.7         | -101.8        | 182.1                       | 0.00                        | 0.00                       | 0.00                      |
| 2,500.0                   | 13.02              | 344.72         | 2,454.9                   | 394.5         | -107.8        | 192.8                       | 0.00                        | 0.00                       | 0.00                      |
| 2,535.4                   | 13.02              | 344.72         | 2,489.4                   | 402.2         | -109.9        | 196.5                       | 0.00                        | 0.00                       | 0.00                      |
| Ojo Alamo                 |                    |                |                           |               |               |                             |                             |                            |                           |
| 2,581.6                   | 13.02              | 344.72         | 2,534.4                   | 412.2         | -112.6        | 201.4                       | 0.00                        | 0.00                       | 0.00                      |
| Kirtland                  |                    |                |                           |               |               |                             |                             |                            |                           |
| 2,600.0                   | 13.02              | 344.72         | 2,552.4                   | 416.2         | -113.7        | 203.4                       | 0.00                        | 0.00                       | 0.00                      |
| 2,700.0                   | 13.02              | 344.72         | 2,649.8                   | 437.9         | -119.7        | 214.0                       | 0.00                        | 0.00                       | 0.00                      |
| 2,786.8                   | 13.02              | 344.72         | 2,734.4                   | 456.8         | -124.8        | 223.2                       | 0.00                        | 0.00                       | 0.00                      |
| Fruitland                 |                    |                |                           |               |               |                             |                             |                            |                           |
| 2,800.0                   | 13.02              | 344.72         | 2,747.2                   | 459.7         | -125.6        | 224.6                       | 0.00                        | 0.00                       | 0.00                      |
| 2,900.0                   | 13.02              | 344.72         | 2,844.6                   | 481.4         | -131.5        | 235.2                       | 0.00                        | 0.00                       | 0.00                      |
| 2,963.3                   | 13.02              | 344.72         | 2,906.3                   | 495.2         | -135.3        | 242.0                       | 0.00                        | 0.00                       | 0.00                      |
| Pictured Cliffs           |                    |                |                           |               |               |                             |                             |                            |                           |
| 3,000.0                   | 13.02              | 344.72         | 2,942.1                   | 503.2         | -137.5        | 245.9                       | 0.00                        | 0.00                       | 0.00                      |
| 3,100.0                   | 13.02              | 344.72         | 3,039.5                   | 524.9         | -143.4        | 256.5                       | 0.00                        | 0.00                       | 0.00                      |
| 3,200.0                   | 13.02              | 344.72         | 3,136.9                   | 546.6         | -149.4        | 267.1                       | 0.00                        | 0.00                       | 0.00                      |
| 3,300.0                   | 13.02              | 344.72         | 3,234.4                   | 568.4         | -155.3        | 277.7                       | 0.00                        | 0.00                       | 0.00                      |
| 3,400.0                   | 13.02              | 344.72         | 3,331.8                   | 590.1         | -161.2        | 288.4                       | 0.00                        | 0.00                       | 0.00                      |
| 3,500.0                   | 13.02              | 344.72         | 3,429.2                   | 611.8         | -167.2        | 299.0                       | 0.00                        | 0.00                       | 0.00                      |
| 3,600.0                   | 13.02              | 344.72         | 3,526.6                   | 633.6         | -173.1        | 309.6                       | 0.00                        | 0.00                       | 0.00                      |
| 3,700.0                   | 13.02              | 344.72         | 3,624.1                   | 655.3         | -179.0        | 320.2                       | 0.00                        | 0.00                       | 0.00                      |
| 3,800.0                   | 13.02              | 344.72         | 3,721.5                   | 677.1         | -185.0        | 330.8                       | 0.00                        | 0.00                       | 0.00                      |
| 3,900.0                   | 13.02              | 344.72         | 3,818.9                   | 698.8         | -190.9        | 341.5                       | 0.00                        | 0.00                       | 0.00                      |
| 4,000.0                   | 13.02              | 344.72         | 3,916.4                   | 720.5         | -196.9        | 352.1                       | 0.00                        | 0.00                       | 0.00                      |
| 4,100.0                   | 13.02              | 344.72         | 4,013.8                   | 742.3         | -202.8        | 362.7                       | 0.00                        | 0.00                       | 0.00                      |
| 4,200.0                   | 13.02              | 344.72         | 4,111.2                   | 764.0         | -208.7        | 373.3                       | 0.00                        | 0.00                       | 0.00                      |
| 4,300.0                   | 13.02              | 344.72         | 4,208.6                   | 785.7         | -214.7        | 384.0                       | 0.00                        | 0.00                       | 0.00                      |
| 4,400.0                   | 13.02              | 344.72         | 4,306.1                   | 807.5         | -220.6        | 394.6                       | 0.00                        | 0.00                       | 0.00                      |

# Bill Barrett Corp

## Planning Report

Database: Compass  
 Company: BILL BARRETT CORP  
 Project: RIO ARRIBA COUNTY, NM (NAD 83)  
 Site: Jicarilla 2505-4-13H  
 Well: Jicarilla 2505-4-13H  
 Wellbore: Wellbore #1  
 Design: Design #2 JO

Local Co-ordinate Reference: Well Jicarilla 2505-4-13H  
 TVD Reference: KB @ 6667.0ft (Original Well Elev)  
 MD Reference: KB @ 6667.0ft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 4,500.0              | 13.02           | 344.72      | 4,403.5             | 829.2      | -226.6     | 405.2                 | 0.00                  | 0.00                 | 0.00                |
| 4,600.0              | 13.02           | 344.72      | 4,500.9             | 850.9      | -232.5     | 415.8                 | 0.00                  | 0.00                 | 0.00                |
| 4,700.0              | 13.02           | 344.72      | 4,598.4             | 872.7      | -238.4     | 426.4                 | 0.00                  | 0.00                 | 0.00                |
| 4,710.7              | 13.02           | 344.72      | 4,608.8             | 875.0      | -239.1     | 427.6                 | 0.00                  | 0.00                 | 0.00                |
| <b>Cliff House</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 4,756.9              | 13.02           | 344.72      | 4,653.8             | 885.0      | -241.8     | 432.5                 | 0.00                  | 0.00                 | 0.00                |
| <b>Menefee</b>       |                 |             |                     |            |            |                       |                       |                      |                     |
| 4,800.0              | 13.02           | 344.72      | 4,695.8             | 894.4      | -244.4     | 437.1                 | 0.00                  | 0.00                 | 0.00                |
| 4,900.0              | 13.02           | 344.72      | 4,793.2             | 916.2      | -250.3     | 447.7                 | 0.00                  | 0.00                 | 0.00                |
| 5,000.0              | 13.02           | 344.72      | 4,890.6             | 937.9      | -256.3     | 458.3                 | 0.00                  | 0.00                 | 0.00                |
| 5,100.0              | 13.02           | 344.72      | 4,988.1             | 959.6      | -262.2     | 468.9                 | 0.00                  | 0.00                 | 0.00                |
| 5,200.0              | 13.02           | 344.72      | 5,085.5             | 981.4      | -268.1     | 479.6                 | 0.00                  | 0.00                 | 0.00                |
| 5,249.4              | 13.02           | 344.72      | 5,133.6             | 992.1      | -271.1     | 484.8                 | 0.00                  | 0.00                 | 0.00                |
| <b>Point Lookout</b> |                 |             |                     |            |            |                       |                       |                      |                     |
| 5,300.0              | 13.02           | 344.72      | 5,182.9             | 1,003.1    | -274.1     | 490.2                 | 0.00                  | 0.00                 | 0.00                |
| 5,400.0              | 13.02           | 344.72      | 5,280.4             | 1,024.8    | -280.0     | 500.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,475.1              | 13.02           | 344.72      | 5,353.5             | 1,041.2    | -284.5     | 508.8                 | 0.00                  | 0.00                 | 0.00                |
| <b>Mancos</b>        |                 |             |                     |            |            |                       |                       |                      |                     |
| 5,500.0              | 13.02           | 344.72      | 5,377.8             | 1,046.6    | -286.0     | 511.4                 | 0.00                  | 0.00                 | 0.00                |
| 5,549.7              | 13.02           | 344.72      | 5,426.2             | 1,057.4    | -288.9     | 516.7                 | 0.00                  | 0.00                 | 0.00                |
| 5,600.0              | 11.26           | 344.72      | 5,475.4             | 1,067.6    | -291.7     | 521.7                 | 3.50                  | -3.50                | 0.00                |
| 5,700.0              | 7.76            | 344.72      | 5,574.0             | 1,083.5    | -296.0     | 529.5                 | 3.50                  | -3.50                | 0.00                |
| 5,800.0              | 4.26            | 344.72      | 5,673.4             | 1,093.6    | -298.8     | 534.4                 | 3.50                  | -3.50                | 0.00                |
| 5,900.0              | 0.76            | 344.72      | 5,773.3             | 1,097.9    | -300.0     | 536.5                 | 3.50                  | -3.50                | 0.00                |
| 5,921.8              | 0.00            | 0.00        | 5,795.1             | 1,098.0    | -300.0     | 536.5                 | 3.50                  | -3.50                | 0.00                |
| 6,000.0              | 0.00            | 0.00        | 5,873.3             | 1,098.0    | -300.0     | 536.5                 | 0.00                  | 0.00                 | 0.00                |
| 6,021.8              | 0.00            | 0.00        | 5,895.1             | 1,098.0    | -300.0     | 536.5                 | 0.00                  | 0.00                 | 0.00                |
| 6,067.2              | 4.54            | 270.00      | 5,940.4             | 1,098.0    | -301.8     | 538.3                 | 10.00                 | 10.00                | 0.00                |
| <b>Niobrara</b>      |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,100.0              | 7.82            | 270.00      | 5,973.1             | 1,098.0    | -305.3     | 541.7                 | 10.00                 | 10.00                | 0.00                |
| 6,200.0              | 17.82           | 270.00      | 6,070.4             | 1,098.0    | -327.5     | 563.3                 | 10.00                 | 10.00                | 0.00                |
| 6,300.0              | 27.82           | 270.00      | 6,162.5             | 1,098.0    | -366.2     | 601.1                 | 10.00                 | 10.00                | 0.00                |
| 6,400.0              | 37.82           | 270.00      | 6,246.4             | 1,098.0    | -420.4     | 653.9                 | 10.00                 | 10.00                | 0.00                |
| 6,500.0              | 47.82           | 270.00      | 6,319.7             | 1,098.0    | -488.2     | 720.1                 | 10.00                 | 10.00                | 0.00                |
| 6,600.0              | 57.82           | 270.00      | 6,380.0             | 1,098.0    | -567.8     | 797.7                 | 10.00                 | 10.00                | 0.00                |
| 6,697.2              | 67.54           | 270.00      | 6,424.6             | 1,098.0    | -654.1     | 881.8                 | 10.00                 | 10.00                | 0.00                |
| <b>Tocito</b>        |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,700.0              | 67.82           | 270.00      | 6,425.7             | 1,098.0    | -656.7     | 884.3                 | 10.00                 | 10.00                | 0.00                |
| 6,800.0              | 77.82           | 270.00      | 6,455.2             | 1,098.0    | -752.1     | 977.3                 | 10.00                 | 10.00                | 0.00                |
| 6,900.0              | 87.82           | 270.00      | 6,467.6             | 1,098.0    | -851.2     | 1,073.9               | 10.00                 | 10.00                | 0.00                |
| 6,924.0              | 90.22           | 270.00      | 6,468.1             | 1,098.0    | -875.2     | 1,097.3               | 10.00                 | 10.00                | 0.00                |
| <b>7" Csg</b>        |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,924.8              | 90.30           | 270.00      | 6,468.0             | 1,098.0    | -876.0     | 1,098.1               | 9.49                  | 9.49                 | 0.00                |
| <b>2505-4-13H LP</b> |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,933.1              | 90.30           | 269.79      | 6,468.0             | 1,098.0    | -884.3     | 1,106.2               | 2.51                  | 0.00                 | -2.51               |
| 7,000.0              | 90.30           | 269.79      | 6,467.7             | 1,097.7    | -951.2     | 1,171.4               | 0.00                  | 0.00                 | 0.00                |
| 7,100.0              | 90.30           | 269.79      | 6,467.1             | 1,097.4    | -1,051.2   | 1,268.8               | 0.00                  | 0.00                 | 0.00                |
| 7,200.0              | 90.30           | 269.79      | 6,466.6             | 1,097.0    | -1,151.2   | 1,366.2               | 0.00                  | 0.00                 | 0.00                |
| 7,300.0              | 90.30           | 269.79      | 6,466.1             | 1,096.6    | -1,251.2   | 1,463.6               | 0.00                  | 0.00                 | 0.00                |
| 7,400.0              | 90.30           | 269.79      | 6,465.6             | 1,096.3    | -1,351.2   | 1,561.0               | 0.00                  | 0.00                 | 0.00                |
| 7,500.0              | 90.30           | 269.79      | 6,465.0             | 1,095.9    | -1,451.2   | 1,658.4               | 0.00                  | 0.00                 | 0.00                |
| 7,600.0              | 90.30           | 269.79      | 6,464.5             | 1,095.6    | -1,551.1   | 1,755.9               | 0.00                  | 0.00                 | 0.00                |
| 7,700.0              | 90.30           | 269.79      | 6,464.0             | 1,095.2    | -1,651.1   | 1,853.3               | 0.00                  | 0.00                 | 0.00                |

# Bill Barrett Corp

## Planning Report

Database: Compass  
 Company: BILL BARRETT CORP  
 Project: RIO ARRIBA COUNTY, NM (NAD 83)  
 Site: Jicarilla 2505-4-13H  
 Well: Jicarilla 2505-4-13H  
 Wellbore: Wellbore #1  
 Design: Design #2 JO

Local Co-ordinate Reference: Well Jicarilla 2505-4-13H  
 TVD Reference: KB @ 6667.0ft (Original Well Elev)  
 MD Reference: KB @ 6667.0ft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 7,800.0             | 90.30           | 269.79      | 6,463.5             | 1,094.8    | -1,751.1   | 1,950.7               | 0.00                  | 0.00                 | 0.00                |
| 7,900.0             | 90.30           | 269.79      | 6,462.9             | 1,094.5    | -1,851.1   | 2,048.1               | 0.00                  | 0.00                 | 0.00                |
| 8,000.0             | 90.30           | 269.79      | 6,462.4             | 1,094.1    | -1,951.1   | 2,145.5               | 0.00                  | 0.00                 | 0.00                |
| 8,100.0             | 90.30           | 269.79      | 6,461.9             | 1,093.7    | -2,051.1   | 2,242.9               | 0.00                  | 0.00                 | 0.00                |
| 8,200.0             | 90.30           | 269.79      | 6,461.4             | 1,093.4    | -2,151.1   | 2,340.3               | 0.00                  | 0.00                 | 0.00                |
| 8,300.0             | 90.30           | 269.79      | 6,460.8             | 1,093.0    | -2,251.1   | 2,437.8               | 0.00                  | 0.00                 | 0.00                |
| 8,400.0             | 90.30           | 269.79      | 6,460.3             | 1,092.6    | -2,351.1   | 2,535.2               | 0.00                  | 0.00                 | 0.00                |
| 8,500.0             | 90.30           | 269.79      | 6,459.8             | 1,092.3    | -2,451.1   | 2,632.6               | 0.00                  | 0.00                 | 0.00                |
| 8,600.0             | 90.30           | 269.79      | 6,459.3             | 1,091.9    | -2,551.1   | 2,730.0               | 0.00                  | 0.00                 | 0.00                |
| 8,700.0             | 90.30           | 269.79      | 6,458.8             | 1,091.5    | -2,651.1   | 2,827.4               | 0.00                  | 0.00                 | 0.00                |
| 8,800.0             | 90.30           | 269.79      | 6,458.2             | 1,091.2    | -2,751.1   | 2,924.8               | 0.00                  | 0.00                 | 0.00                |
| 8,900.0             | 90.30           | 269.79      | 6,457.7             | 1,090.8    | -2,851.1   | 3,022.3               | 0.00                  | 0.00                 | 0.00                |
| 9,000.0             | 90.30           | 269.79      | 6,457.2             | 1,090.5    | -2,951.1   | 3,119.7               | 0.00                  | 0.00                 | 0.00                |
| 9,100.0             | 90.30           | 269.79      | 6,456.7             | 1,090.1    | -3,051.1   | 3,217.1               | 0.00                  | 0.00                 | 0.00                |
| 9,200.0             | 90.30           | 269.79      | 6,456.1             | 1,089.7    | -3,151.1   | 3,314.5               | 0.00                  | 0.00                 | 0.00                |
| 9,300.0             | 90.30           | 269.79      | 6,455.6             | 1,089.4    | -3,251.1   | 3,411.9               | 0.00                  | 0.00                 | 0.00                |
| 9,400.0             | 90.30           | 269.79      | 6,455.1             | 1,089.0    | -3,351.1   | 3,509.3               | 0.00                  | 0.00                 | 0.00                |
| 9,500.0             | 90.30           | 269.79      | 6,454.6             | 1,088.6    | -3,451.1   | 3,606.8               | 0.00                  | 0.00                 | 0.00                |
| 9,600.0             | 90.30           | 269.79      | 6,454.0             | 1,088.3    | -3,551.1   | 3,704.2               | 0.00                  | 0.00                 | 0.00                |
| 9,700.0             | 90.30           | 269.79      | 6,453.5             | 1,087.9    | -3,651.1   | 3,801.6               | 0.00                  | 0.00                 | 0.00                |
| 9,800.0             | 90.30           | 269.79      | 6,453.0             | 1,087.5    | -3,751.1   | 3,899.0               | 0.00                  | 0.00                 | 0.00                |
| 9,900.0             | 90.30           | 269.79      | 6,452.5             | 1,087.2    | -3,851.1   | 3,996.4               | 0.00                  | 0.00                 | 0.00                |
| 10,000.0            | 90.30           | 269.79      | 6,451.9             | 1,086.8    | -3,951.1   | 4,093.8               | 0.00                  | 0.00                 | 0.00                |
| 10,100.0            | 90.30           | 269.79      | 6,451.4             | 1,086.4    | -4,051.1   | 4,191.2               | 0.00                  | 0.00                 | 0.00                |
| 10,200.0            | 90.30           | 269.79      | 6,450.9             | 1,086.1    | -4,151.1   | 4,288.7               | 0.00                  | 0.00                 | 0.00                |
| 10,300.0            | 90.30           | 269.79      | 6,450.4             | 1,085.7    | -4,251.1   | 4,386.1               | 0.00                  | 0.00                 | 0.00                |
| 10,400.0            | 90.30           | 269.79      | 6,449.9             | 1,085.4    | -4,351.1   | 4,483.5               | 0.00                  | 0.00                 | 0.00                |
| 10,500.0            | 90.30           | 269.79      | 6,449.3             | 1,085.0    | -4,451.1   | 4,580.9               | 0.00                  | 0.00                 | 0.00                |
| 10,600.0            | 90.30           | 269.79      | 6,448.8             | 1,084.6    | -4,551.1   | 4,678.3               | 0.00                  | 0.00                 | 0.00                |
| 10,700.0            | 90.30           | 269.79      | 6,448.3             | 1,084.3    | -4,651.1   | 4,775.7               | 0.00                  | 0.00                 | 0.00                |
| 10,800.0            | 90.30           | 269.79      | 6,447.8             | 1,083.9    | -4,751.1   | 4,873.2               | 0.00                  | 0.00                 | 0.00                |
| 10,803.5            | 90.30           | 269.79      | 6,447.7             | 1,083.9    | -4,754.5   | 4,876.5               | 0.00                  | 0.00                 | 0.00                |

2505-4-13H PBHL

### Casing Points

| Measured Depth (ft) | Vertical Depth (ft) | Name   | Casing Diameter (in) | Hole Diameter (in) |
|---------------------|---------------------|--------|----------------------|--------------------|
| 6,924.0             | 6,468.1             | 7" Csg | 7.000                | 8.750              |

# Bill Barrett Corp

## Planning Report

**Database:** Compass  
**Company:** BILL BARRETT CORP  
**Project:** RIO ARRIBA COUNTY, NM (NAD 83)  
**Site:** Jicarilla 2505-4-13H  
**Well:** Jicarilla 2505-4-13H  
**Wellbore:** Wellbore #1  
**Design:** Design #2 JO

**Local Co-ordinate Reference:** Well Jicarilla 2505-4-13H  
**TVD Reference:** KB @ 6667.0ft (Original Well Elev)  
**MD Reference:** KB @ 6667.0ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Formations

| Measured<br>Depth<br>(ft) | Vertical<br>Depth<br>(ft) | Name            | Lithology | Dip<br>(°) | Dip<br>Direction<br>(°) |
|---------------------------|---------------------------|-----------------|-----------|------------|-------------------------|
| 2,535.4                   | 2,490.0                   | Ojo Alamo       |           | -0.30      | 269.79                  |
| 2,581.6                   | 2,535.0                   | Kirtland        |           | -0.30      | 269.79                  |
| 2,786.8                   | 2,735.0                   | Fruitland       |           | -0.30      | 269.79                  |
| 2,963.3                   | 2,907.0                   | Pictured Cliffs |           | -0.30      | 269.79                  |
| 4,710.7                   | 4,610.0                   | Cliff House     |           | -0.30      | 269.79                  |
| 4,756.9                   | 4,655.0                   | Menefee         |           | -0.30      | 269.79                  |
| 5,249.4                   | 5,135.0                   | Point Lookout   |           | -0.30      | 269.79                  |
| 5,475.1                   | 5,355.0                   | Mancos          |           | -0.30      | 269.79                  |
| 6,067.2                   | 5,942.0                   | Niobrara        |           | -0.30      | 269.79                  |
| 6,697.2                   | 6,428.0                   | Tocito          |           | -0.30      | 269.79                  |