Form 3160-3
(August 1999)

RECEIVED
070 FARMINGTON NM

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANGEMENT
APPLICATION OFOR PERMIT TO DRILL OR REENETER

5. Lease Serial No. **SF - 080244**

6. If Indian, Allottee or tribe Name

1a. Type of Work: [X] DRILL [ ] REENTER

7. If Unit or CA Agreement, Name and No

1b. Type of Well: [ ] Oil Well [X] Gas Well Gas [ ] Other [X] Single Zone [ ] Multiple Zone

8. Lease Name and Well No.
**Riddle 2B**

2. Name of Operator
**BP America Production Company Attn: Mary Corley**

9. API Well No.
**30045 31949**

3a. Address
**P.O. Box 3092 Houston, Texas 77253**

3b. Phone No. *(include area code)*
**281-366-4491**

10. Field and Pool, or Exploratory
**Blanco Mesaverde**

4. Loction of Well *(Report location clearly and in accordance with any State requirements.*)
At surface **1670' FSL & 2540' FWL Unit K**
At proposed prod. Zone

11. Sec., T., R., M., or Blk, and survey or Area
K **Sec. 17, T30N, R09W**

14. Distance in miles and direction from nearest town or post office*
**11.5 miles from Aztec, NM**

12. County or Parish
**San Juan**

13. State
**New Mexico**

15. Distance from proposed* Location to nearest Property or lease line, ft. (Also to nearest drig. Ujnit line, if any) **970'**

16. No. of Acres in lease
**320**

17. Spacing Unit dedicated to this well
**320 S/2**

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **1300'**

19. Proposed Depth
**5457'**

20. BLM/BIA Bond No. on file
**WY2924**

21. Elevations (show whether DF, KDB., RT, GL, etc.
**6099' GL**

22. Approximate date work will start*
**December 20, 2003**

23. Estimated duration
**5 Days**

## 24. Attachments

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

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

25. Signature Mary Corley | Name *(Printed/typed)* **Mary Corley** | Date **10/06/2003**

Title **Senior Regulatory Analyst**

Approved by *(Signature)* | Name *(Printed/Typed)* | Date 11/26/03

Title Pet. Eng. / AAFM | Office

Application approval does not warrant or certify 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.

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.

*(Instructions on reverse)*

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

District I
PO Box 1980, Hobbs NM 88241-1980
District II
PO Drawer KK, Artesia, NM 87211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

D 20244

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| 1 API Number | 2 Pool Code | 3 Pool Name |
|---|---|---|
| 30-045-31949 | 72319 | BLANCO MESAVERDE |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| 000921 | Riddle | # 2B |

| 7 OGRID No. | 8 Operator Name | 9 Elevation |
|---|---|---|
| 000778 | BP AMERICA PRODUCTION COMPANY | 6099 |

## 10 Surface Location

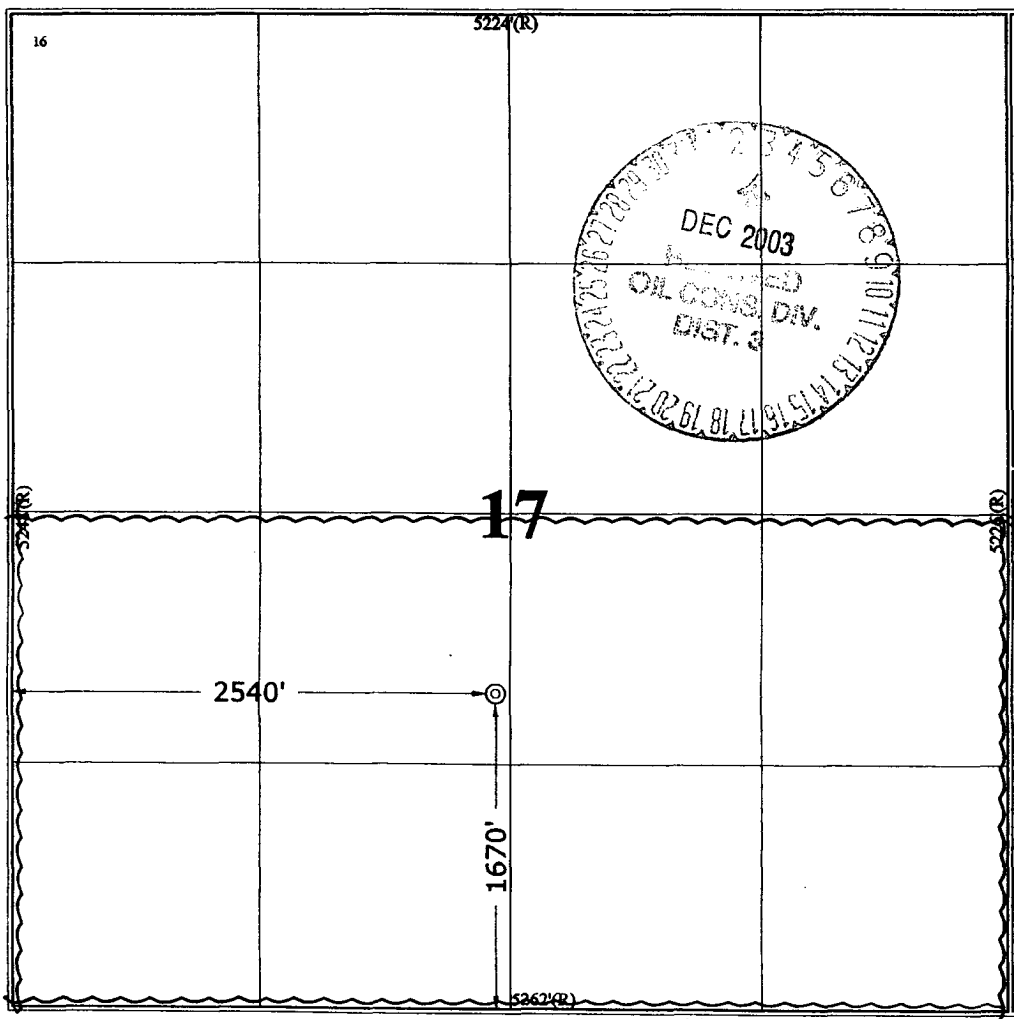
| UL or Lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| K | 17 | 30 N | 9 W | | 1670 | SOUTH | 2540 | WEST | SAN JUAN |

## 11 Bottom Hole Location If Different From Surface

| 7 UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| 12 Dedicated Acres | 13 Joint or Infill | 14 Consolidation Code | 15 Order No. |
|---|---|---|---|
| 320 | | | |

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.*

Mary Corley
Signature

Mary Corley
Printed Name

Sr. Regulatory Analyst
Title

10-06-2003
Date

## 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.*

September 2, 2003
Date of Survey

Signature and Seal of Professional Surveyor

GARY D. VANN
NEW MEXICO
7016
REGISTERED PROFESSIONAL LAND SURVEYOR

7016
Certificate Number

(R) – BLM Record

**BP AMERICA PRODUCTION COMPANY**
**DRILLING AND COMPLETION PROGRAM**

**Prospect Name:** Riddle
**Lease:** Riddle
**County:** San Juan
**State:** New Mexico
**Date:** September 11, 2003

**Well No:** 2 B
**Surface Location:** 17-30N-9W, 1670 FSL, 2540 FWL
**Field:** Blanco Mesaverde

**OBJECTIVE:** Drill 400' below the top of the Point Lookout Sandstone, set 41/2" production liner, Stimulate CH, MF and PL intervals

**METHOD OF DRILLING**

| TYPE OF TOOLS | DEPTH OF DRILLING |
|---|---|
| Rotary | 0 - TD |

**LOG PROGRAM**

| TYPE | DEPTH INVERAL |
|---|---|
| OPEN HOLE | |
| None | |
| CASED HOLE | |
| GR-CCL-TDT | TDT – TD to 7" shoe |
| CBL | Identify 4 ½" cement top |

REMARKS:
- Please report any flares (magnitude & duration).

**APPROXIMATE DEPTHS OF GEOLOGICAL MARKER**

Estimated GL: 6099' Estimated KB: 6114'

| MARKER | | SUBSEA | TVD |
|---|---|---|---|
| Ojo Alamo | | 4521 | 1593 |
| Kirtland | | 4467 | 1647 |
| Fruitland | | 3930 | 2184 |
| Fruitland Coal | * | 3555 | 2559 |
| Pictured Cliffs | * | 3305 | 2809 |
| Lewis | * | 3088 | 3026 |
| Cliff House | # | 1797 | 4317 |
| Menefee | # | 1470 | 4644 |
| Point Lookout | # | 1057 | 5057 |
| Mancos | | 701 | 5413 |
| TOTAL DEPTH | | 657 | 5457 |

# Probable completion interval * Possible Pay

**SPECIAL TESTS**

| TYPE |
|---|
| None |

REMARKS:

**DRILL CUTTING SAMPLES**

| FREQUENCY | DEPTH |
|---|---|
| None | Production hole |

**DRILLING TIME**

| FREQUENCY | DEPTH |
|---|---|
| Geolograph | 0-TD |

**MUD PROGRAM:**

| Approx. Interval | | | Type Mud | Weight, #/gal | Vis, sec/qt | W/L cc's/30 min | Other Specification |
|---|---|---|---|---|---|---|---|
| 0 | - 120 | | Spud | 8.6-9.2 | | | |
| 120 | - 2509 | (1) | Water/LSND | 8.6-9.2 | | <6 | |
| 2509 | - 5457 | | Gas/Air/N2/Mist | Volume sufficient to maintain a stable and clean wellbore | | | |

REMARKS:
(1) The hole will require sweeps to keep unloaded while fresh water drilling. Let hole conditions dictate frequency.

**CASING PROGRAM:** (Normally, tubular goods allocation letter specifies casing sizes to be used. Hole sizes will be governed by Contract)

| Casing String | Estimated Depth | Casing Size | Grade | Weight | Hole Size | Landing Pt, Cmt, Etc. |
|---|---|---|---|---|---|---|
| Surface/Conductor | 120 | 9 5/8" | H-40 ST&C | 32# | 12.25" | 1 |
| Intermediate 1 | 2509 | 7" | J/K-55 ST&C | 20# | 8.75" | 1,2 |
| Production | 5457 | 4 1/2" | J-55 | 10.5# | 6.25" | 3,4 |

REMARKS:
(1) Circulate Cement to Surface
(2) Set casing 50' above Fruitland Coal
(3) Bring cement 100' above 7" shoe
(4) 100' Overlap

**CORING PROGRAM:**
None

**COMPLETION PROGRAM:**
Rigless, 3-4 Stage Limited Entry Hydraulic Frac (Produced Water)

**GENERAL REMARKS:**
Notify BLM/NMOCD 24 hours prior to Spud, BOP testing, and Casing and Cementing.

Form 46 Reviewed by: Logging program reviewed by: N/A

| PREPARED BY: | APPROVED: | DATE: | |
|---|---|---|---|
| HGJ/MNP/JMP | | September 11, 2003 Version 1.0 | |

Form 46 12-00 MNP

# BP America Production Company
# BOP Pressure Testing Requirements

**Well Name:** Riddle 2 B
**County:** San Juan **State:** New Mexico

| Formation | Estimated TVD/MD | Anticipated Bottom Hole Pressure | Maximum Anticipated Surface Pressure ** |
|---|---|---|---|
| Ojo Alamo | 1593 | | |
| Fruitland Coal | 2559 | | |
| PC | 2809 | | |
| Lewis Shale | 3026 | | |
| Cliff House | 4317 | 500 | 0 |
| Menefee Shale | 4644 | | |
| Point Lookout | 5057 | 600 | 0 |
| Mancos | 5413 | | |
| Dakota | - | | |

** Note: Determined using the following formula: ABHP – (.22*TVD) = ASP

Requested BOP Pressure Test Exception: 750 psi

**SAN JUAN BASIN**
**Mesaverde Formation**
**Pressure Control Equipment**

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**Background**

Mesaverde

**The objective ~~Dakota~~ formation maximum surface pressure is anticipated to be less than 1000 psi, based on shut-in surface pressures from adjacent wells. Pressure control equipment working pressure minimum requirements are therefore 2000 psi. Equipment to be used will conform to API RP-53 (Figure 2.C.2) for a 2000 psi system per Federal Onshore Order No. 2. Due to available conventional equipment within the area, 3000 psi rated pressure control equipment will typically be utilized in a double ram type arrangement. Regional drilling rights to be utilized have substructure height limitations which exclude the use of annular preventers; therefore a rotating head will be installed above these rams. This pressure control equipment will be utilized for conventional drilling below conductor to total depth in the ~~Basin Dakota~~. No abnormal temperature, pressure, or H2S anticipated.**

Blanco Mesaverde

**Equipment Specification**

| Interval | BOP Equipment |
|---|---|
| Below conductor casing to total depth | 11" nominal or 7 1/16",3000 psi double ram preventer with rotating head. |

**All ram type preventers and related control equipment will be hydraulically tested to 250 psi (low pressure) and 2000 psi (high pressure), upon installation, following any repairs or equipment replacements, or at 30 day intervals. Accessories to BOP equipment will include kelly cock, upper kelly cock with a handle available, floor safety valves and choke manifold which will also be tested to equivalent pressure.**

# Cementing Program

| | | | |
|---|---|---|---|
| Well Name: | Riddle 2B | Field: | Blanco Mesaverde |
| Location: | 17-30N-09W, 1670 FSL, 2540 FWL | API No. | |
| County: | San Juan | Well Flac | |
| State: | New Mexico | Formation: | MesaVerde |
| | | KB Elev (est) | 6114 |
| | | GL Elev. (est) | 6100 |

**Casing Program:**

| Casing String | Est. Depth (ft.) | Hole Size (in.) | Casing Size (in.) | Thread | TOC (ft.) | Stage Tool Or TOL (ft.) | Cmt Cir. Out (bbl.) |
|---|---|---|---|---|---|---|---|
| Surface | 120 | 12.25 | 9.625 | ST&C | Surface | NA | |
| Intermediate | 2509 | 8.75 | 7 | LT&C | Surface | NA | |
| Production - | 5457 | 6.25 | 4.5 | | 2409 | NA | |

**Casing Properties:** (No Safety Factor Included)

| Casing String | Size (in.) | Weight (lb/ft) | Grade | Burst (psi.) | Collapse (psi.) | Joint St. (1000 lbs.) | Capacity (bbl/ft.) | Drift (in.) |
|---|---|---|---|---|---|---|---|---|
| Surface | 9.625 | 32 | H-40 | 3370 | 1400 | 254 | 0.0787 | 8.845 |
| Intermediate | 7 | 20 | K-55 | 3740 | 2270 | 234 | 0.0405 | 6.456 |
| Production - | 4.5 | 11.6 | J-55 | 5350 | 4960 | 154 | 0.0155 | 3.875 |

Mud Program

| Apx. Interval (ft.) | Mud Type | Mud Weight |
|---|---|---|
| 0 - SCP | Water/Spud | 8.6-9.2 |
| SCP - ICP | Water/LSND | 8.6-9.2 |
| ICP - ICP2 | Gas/Air Mist | NA |
| ICP2 - TD | LSND | 8.6 - 9.2 |

Recommended Mud Properties Prio Cementing:

PV <20

YP <10

Fluid Loss <15

Cementing Program:

| | Surface | Intermediate | Production |
|---|---|---|---|
| Excess %, Lead | 100 | 100 | 40 |
| Excess %, Tail | NA | 0 | 40 |
| BHST (est deg. F) | 72 | 110 | 159 |
| Time Between Stages, (hr) | NA | NA | NA |
| Special Instructions | 1,6 | 1,6 | 2,6 |

1. Do not wash pumps and lines.
2. Wash pumps and lines.
3. Reverse out
4. Run Blend Test on Cement
5. Record Rate, Pressure, and Density on 3.5" disk
6. Confirm densitometer with pressurized mud scales
7. 1" cement to surface if cement is not circulated.
8. If cement is not circulated to surface, run temp. survey 10-12 hr. after landing plug.

Notes:

*Do not wash up on top of plug. Wash lines before displacing production cement job to minmize drillout.

**Surface:**

| | | | |
|---|---|---|---|
| Preflush | 20 bbl. | FreshWater | |
| Slurry 1 | 70 sx Class G Cement | | 81 ~~75~~ cuft |
| TOC@Surface | + 2% CaCl2 (accelerator) | | |
| | 0.25 #/sk Cellophane Flake (lost circulation additive) | | 0.3132 cuft/ft OH |
| | 0.1% D46 antifoam | | 100 % excess |

| Slurry Properties: | Density (lb/gal) | Yield (ft3/sk) | Water (gal/sk) |
|---|---|---|---|
| Slurry 1 | 15.8 | 1.16 | 4.95 |

Casing Equipment:

9-5/8", 8R, ST&C
1 Guide Shoe
1 Top Wooden Plug
1 Autofill insert float valve
Centralizers, 1 per joint except top joint

# Cementing Program

1 Stop Ring
1 Thread Lock Compound

**Intermediate:**

| | | | | |
|---|---|---|---|---|
| | Fresh Water | 20 bbl | fresh water | |
| | Lead | 230 sx | Class "G" Cement | 600 ~~589~~ cuft |
| | Slurry 1 | | + 3% D79 extender | |
| | TOC@Surface | | +1/4 #/sk. Cellophane Flake | |
| | | | + 0.1% D46 antifoam' | |
| | | 60 sx | 50/50 Class "G"/Poz | |
| | Tail | | + 2% gel (extender) | 75 cuft |
| | Slurry 2 | | 0.1% D46 antifoam | |
| | 500 ft fill | | +1/4 #/sk. Cellophane Flake | 0.1503 cuft/ft OH |
| | | | + 2% S1 Calcium Chloride | 0.1746 cuft/ft csg ann |
| | | | | 80 % excess |

| Slurry Properties: | Density (lb/gal) | Yield (ft3/sk) | Water (gal/sk) |
|---|---|---|---|
| Slurry 1 | 11.7 | 2.61 | 17.77 |
| Slurry 2 | 13.5 | 1.27 | 5.72 |

Casing Equipment: 7", 8R, ST&C

1 Float Shoe
1 Float Collar
1 Stop Ring
Centralizers, one every other joint to base of Ojo
2 Turbolizers across Ojo
Centalizers, one every 4th joint from Ojo to base of surface casing
1 Top Rubber Plug
1 Thread Lock Compound

**Production:**

| | | | | |
|---|---|---|---|---|
| | Fresh Water | 10 bbl | CW100 | |
| | Slurry | 180 | LiteCrete D961 / D124 / D154 | 454 ~~440~~ cuft |
| | | | + 0.03 gps D47 antifoam | |
| | | | + 0.5% D112 fluid loss | |
| | TOC@Liner Top | | + 0.11% D65 TIC | |
| | | | | 0.1026 cuft/ft OH |
| | | | | 40 % excess |
| | | | | 0.1169 cuft/ft csg ann |

| Slurry Properties: | Density (lb/gal) | Yield (ft3/sk) | Water (gal/sk) |
|---|---|---|---|
| Slurry | 9.5 | 2.52 | 6.38 |

Casing Equipment: 4-1/2", 8R, ST&C
1 Float Shoe (autofill with minimal LCM in mud)
1 Float Collar (autofill with minimal LCM in mud)
1 Stop Ring
Centralizers, every 4th joint in mud drilled holes, none in air drilled holes
1 Top Rubber Plug
1 Thread Lock Compound