

RECEIVED

FORM APPROVED  
OMB No. 1004-0136  
Expires January 31, 2004

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MAR 02 2009

APPLICATION FOR PERMIT TO DRILL OR REENTER

Bureau of Land Management  
Farmington Field Office

5. Lease Serial No.  
NMSF-078763

6. If Indian, Allottee or Tribe Name

1a. Type of Work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone

2. Name of Operator

Williams Production Company, LLC

3a. Address

P.O. Box 640 Aztec, NM 87410

3b. Phone No. (include area code)

(505) 634-4208

4. Location of Well (Report location clearly and in accordance with any State requirements. \*)

At surface 850' FNL & 1980' FEL Section 8 31N., 5W NMPM

At proposed prod. zone 720' FSL & 1140' FEL Section 5 31N., 5W NMPM

14. Distance in miles and direction from nearest town or post office\*

approximately 32 miles northeast of Blanco, New Mexico

15. Distance from proposed\*  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)

720'

16. No. of Acres in lease

2,544.640

17. Spacing Unit dedicated to this well

367.96 - (Entire Section)

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

50' Rosa 336

19. Proposed Depth

8,363'

20. BLM/BIA Bond No. on file

UT0847

UTB000178

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

6,348' GR

22. Approximate date work will start\*

April 1, 2009

23. Estimated duration

1 month

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 authorized officer.

25. Signature

Larry Higgins

Name (Printed/Typed)

Larry Higgins

Date

3-2-09

Title

Drilling COM

Approved by (Signature)

D. Montez

Name (Printed/Typed)

Office

FFO

Date

4/2/09

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.

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)

Williams Production Company, LLC, proposes to develop the Basin Mancos, Blanco Mesaverde, and Basin Dakota formations at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is under jurisdiction of the Bureau of Land Management, Farmington Field Office (BLM/FFO).

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the BLM.

No new access road will be required for this proposed well.

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 254.0 feet would be required for this well.

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

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

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

Hold C104

for Directional Survey and "As Drilled" plat

NMOCD

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

APR 07 2009

District I  
1625 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

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                            |                                               |                                                              |
|----------------------------|-----------------------------------------------|--------------------------------------------------------------|
| *API Number<br>30039-30002 | *Pool Code<br>97232 / 72319 / 71599           | *Pool Name<br>BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA |
| *Property Code<br>17033    | *Property Name<br>ROSA UNIT                   | *Well Number<br>41C                                          |
| *OGRID No.<br>120782       | *Operator Name<br>WILLIAMS PRODUCTION COMPANY | *Elevation<br>6348'                                          |

10 Surface Location

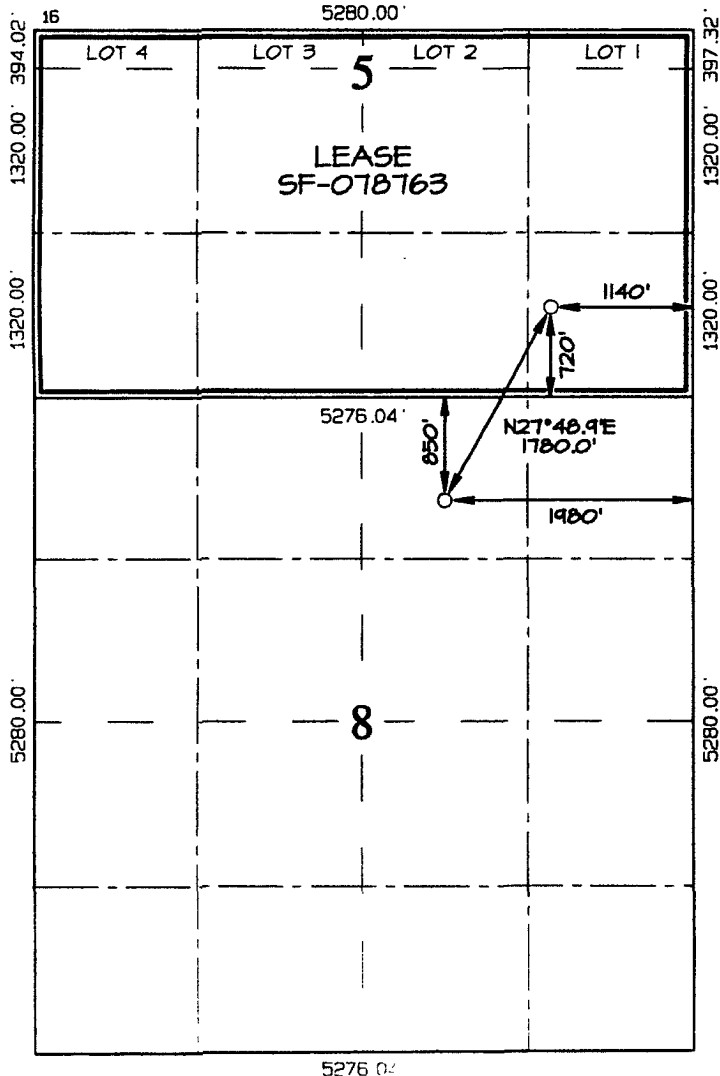
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| B             | 8       | 31N      | 5W    |         | 850           | NORTH            | 1980          | EAST           | RIO ARriba |

11 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     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| P             | 5       | 31N      | 5W    |         | 720           | SOUTH            | 1140          | EAST           | RIO ARriba |

|                                                   |                  |                     |           |
|---------------------------------------------------|------------------|---------------------|-----------|
| *Dedicated Acres<br>367.96 Acres - Entire Section | *Joint or Infill | *Consolidation Code | *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



BOTTOM-HOLE  
LAT: 36.92323°N  
LONG: 107.38066°W  
DATUM: NAD83

SURFACE LOCATION  
LAT: 36.91892°N  
LONG: 107.38352°W  
DATUM: NAD83

Bureau of Land Management  
Farmington Field Office

MAR 02 2009

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.

*Larry Higgins* 3209  
Signature Date  
*Larry Higgins*  
Printed Name

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

Survey Date: JANUARY 3, 2009

Signature and Seal of Professional Surveyor

**JASON C. EDWARDS**  
NEW MEXICO  
REGISTERED PROFESSIONAL SURVEYOR  
15269

**RECEIVED**

**JASON C. EDWARDS**  
Certificate Number 15269



## WILLIAMS PRODUCTION COMPANY

### Operations Plan

*(Note: This procedure will be adjusted on site based upon actual conditions)*

**DATE:** 2/18/2009 **FIELD:** Basin DK/ Basin MN/BlancoMV  
**WELL NAME:** Rosa #41C **SURFACE:** BLM  
**BH LOCATION:** SESE Sec 5-31N-5W **MINERALS:** BLM  
Rio Arriba, NM  
**ELEVATION:** 6,348' GR **LEASE #** SF-078763  
**MEASURED DEPTH:** 8,363'

**I. GEOLOGY:** Surface formation - San Jose

**A. FORMATION TOPS:** ( KB)

| Name              | TVD   | MD    | Name          | TVD   | MD    |
|-------------------|-------|-------|---------------|-------|-------|
| Ojo Alamo         | 2,432 | 2,916 | Menefee       | 5,432 | 6,009 |
| Kirtland          | 2,537 | 3,046 | Point Lookout | 5,602 | 6,179 |
| Fruitland         | 2,922 | 3,483 | Mancos        | 5,902 | 6,479 |
| Pictured Cliffs   | 3,142 | 3,714 | Gallup        | 6,987 | 7,564 |
| Lewis             | 3,447 | 4,024 | Greenhorn     | 7,707 | 8,284 |
| Cliff House Trans | 5,082 | 5,659 | Graneros      | 7,767 | 8,344 |
| Cliff House       | 5,387 | 5,964 | Dakota        | 7,897 | 8,474 |
|                   |       |       | TD            | 8,047 | 8,624 |

- B. MUD LOGGING PROGRAM:** Mudlogger on location from intermediate csg to TD. Mud logger to pick TD.
- C. LOGGING PROGRAM:** HRI/Temp from intermediate casing to TD. SDL\DSN\DSN over zones of interest.
- D. NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

**II. DRILLING**

- A. MUD PROGRAM:** Clear water with benex to 7-5/8" casing point. Convert to a LSND mud to log and run pipe. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use air w/Air Hammer from 7-5/8in. csg.to TD.
- B. BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

**III. MATERIALS****A. CASING PROGRAM:**

| CASING TYPE  | OH SIZE (IN) | DEPTH (MD) (FT) | CASING SIZE (IN) | WEIGHT(LB) | GRADE |
|--------------|--------------|-----------------|------------------|------------|-------|
| Surface      | 14 3/4       | 300             | 10 3/4           | 40.5       | K-55  |
| Intermediate | 9 7/8        | 4,194           | 7 5/8            | 26.4       | K-55  |
| Longstring   | 6 3/4        | 8,624           | 5 1/2            | 17         | N-80  |

**B. FLOAT EQUIPMENT:**

1. SURFACE CASING: 10 3/4" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7 5/8" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) Turbulent centralizer at 2,700 ft., 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. (NTL-FRA 90-1).
3. PRODUCTION LINER / CASING: 5-1/2" whirler type cement nose guide shoe with a latch collar on top of 20' bottom joint. Place marker joint above 5,400'. Place centralizers as needed across selected production intervals.

**C. CEMENTING:**

*(Note: Volumes may be adjusted onsite due to actual conditions)*

1. SURFACE: Slurry: 290sx (341 cu.ft.) of "Type III" + 2% Cal-Seal 60 + ¼ # of poly-e-flake/sk + 0.3% Versaset + 2% Econolite + 6% Salt (Yield = 1.796 cu.ft./sk, Weight = 13.5 #/gal.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 1500psi.
2. INTERMEDIATE: Lead - 525 sx (1430 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 (Yield = 2.723 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 100 sx (117.8cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake, (Yield = 1.178 cu.ft./sk, Weight = 15.6#/gal.). **NO EXCESS PUMP AS WRITTEN SHOULD CIRCULATE TO SURFACE** Total volume = 1198 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface
3. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 325 sx (454 ft<sup>3</sup>) of "FRACCEM" + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake + 0.15% HR-800. (Yield = 1.398 ft<sup>3</sup>/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. **NO EXCESS SHOULD COVER 150 FEET INTO 7" CASING** Total volume (342) ft<sup>3</sup>. WOC 12 hours.

**IV. IV COMPLETION****A. CBL**

1. Run Cement Bond Log across all intervals to be perforated and find Top of Cement behind all casing strings if cement not circulated to surface..

**B. PRESSURE TEST**

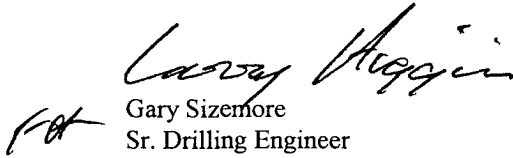
1. Pressure test 5-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Dakota with approximately 10,000# of LiteProp 108™ sand in slick water.
2. Isolate Dakota with a RBP.
3. Perforate Mancos as determined from the open hole logs
4. Stimulate Mancos with 3 stages of approximately 117,000# 40/70 white sand and 7500# 100 mesh white sand
5. Stimulate Point Lookout with approximately 9300# of 14/30 LiteProp™ in slick water.
6. Isolate Point Lookout with a RBP.
7. Perforate the Menefee/Cliff House as determined from the open hole logs.
8. Stimulate with approximately 9300# of 14/30 LiteProp™ in slick water.
9. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Production Tubing: Run 2-3/8", 4.7#, J-55, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing approximately 25' above the bottom Point Lookout perforation

  
Gary Sizemore  
Sr. Drilling Engineer



ROSA UNIT #41-C  
RIO ARriba CO., NEW MEXICO

#### SECTION DET

| Sec | MD      | Inc   | Azi   | TVD     | +N/-S   | +E/-W  | DLeg | TFace  | VSec    | Target        |
|-----|---------|-------|-------|---------|---------|--------|------|--------|---------|---------------|
| 1   | 0.00    | 0.00  | 28.03 | 0.00    | 0.00    | 0.00   | 0.00 | 0.00   | 0.00    |               |
| 2   | 400.00  | 0.00  | 28.03 | 400.00  | 0.00    | 0.00   | 0.00 | 0.00   | 0.00    |               |
| 3   | 1479.95 | 43.20 | 28.03 | 1380.51 | 342.67  | 182.41 | 4.00 | 28.03  | 388.19  |               |
| 4   | 2754.52 | 43.20 | 28.03 | 2309.66 | 1112.82 | 592.38 | 0.00 | 0.00   | 1260.66 |               |
| 5   | 4194.46 | 0.00  | 28.03 | 3617.00 | 1569.71 | 835.59 | 3.00 | 180.00 | 1778.25 | Int. Csg. Pt. |
| 6   | 8624.46 | 0.00  | 28.03 | 8047.00 | 1569.71 | 835.59 | 0.00 | 28.03  | 1778.25 | PBHL          |

#### WELL DETAILS

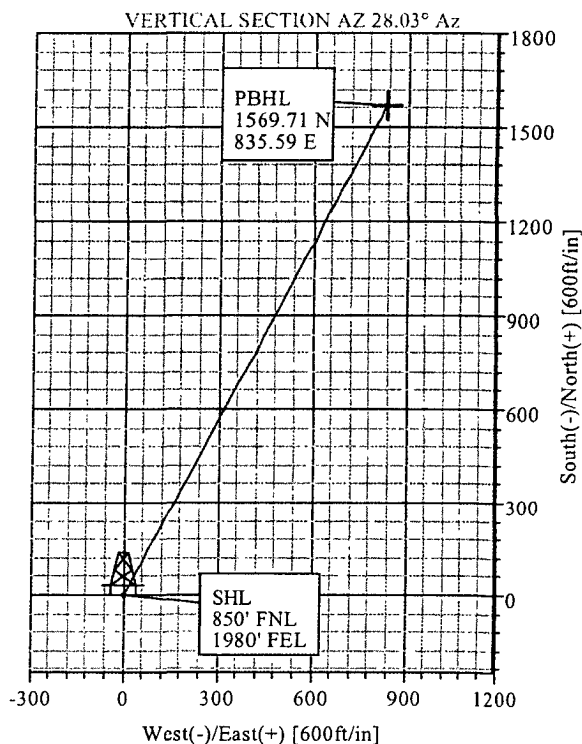
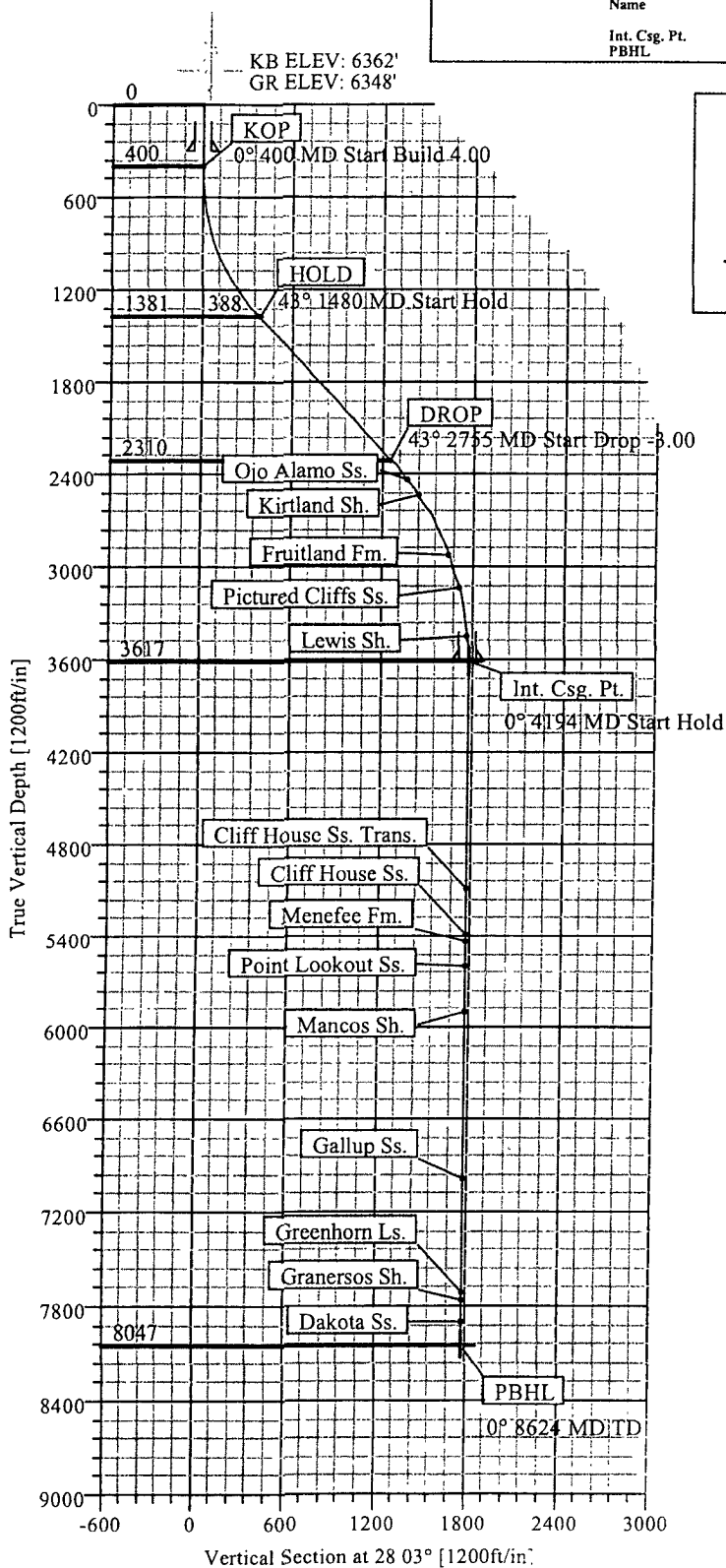
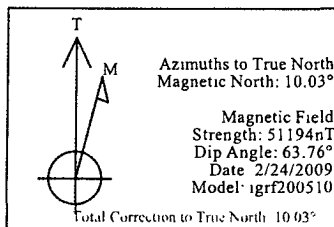
| Name  | +N/-S | +E/-W | Northing   | Easting    | Latitude      | Longitude      | Slot |
|-------|-------|-------|------------|------------|---------------|----------------|------|
| #41-C | 0.00  | 0.00  | 2155751.56 | 1309070.72 | 36°55'08.110N | 107°23'00.670W | N/A  |

#### TARGET DETAILS

| Name          | TVD     | +N/-S   | +E/-W  | Latitude      | Longitude      | Shape |
|---------------|---------|---------|--------|---------------|----------------|-------|
| Int. Csg. Pt. | 3617.00 | 1569.71 | 835.59 | 36°55'23.630N | 107°22'50.380W | Point |
| PBHL          | 8047.00 | 1569.71 | 835.59 | 36°55'23.630N | 107°22'50.380W | Point |

#### FORMATION TOP DETAILS

| No. | TVDPath | MDPath  | Formation              |
|-----|---------|---------|------------------------|
| 1   | 2432.00 | 2916.12 | Ojo Alamo Ss.          |
| 2   | 2537.00 | 3046.59 | Kirtland Sh.           |
| 3   | 2922.00 | 3483.13 | Fruitland Fm.          |
| 4   | 3142.00 | 3714.42 | Pictured Cliffs Ss.    |
| 5   | 3447.00 | 4024.23 | Lewis Sh.              |
| 6   | 5082.00 | 5659.46 | Cliff House Ss. Trans. |
| 7   | 5387.00 | 5964.46 | Cliff House Ss.        |
| 8   | 5432.00 | 6009.46 | Menefee Fm.            |
| 9   | 5602.00 | 6179.46 | Point Lookout Ss.      |
| 10  | 5902.00 | 6479.46 | Mancos Sh.             |
| 11  | 6987.00 | 7564.46 | Gallup Ss.             |
| 12  | 7707.00 | 8284.46 | Greenhorn Ls.          |
| 13  | 7767.00 | 8344.46 | Graneros Sh.           |
| 14  | 7897.00 | 8474.46 | Dakota Ss.             |



**Weatherford**

#### CASING DETAILS

| No. | TVD     | MD      | Name                 | Size   |
|-----|---------|---------|----------------------|--------|
| 1   | 300.00  | 300.00  | 10 3/4"              | 10.750 |
| 2   | 3617.00 | 4194.46 | 7 5/8" Int. Csg. Pt. | 0.000  |

Plan: Plan #1 (#41-C/1)

Created By: Lindsey Maddux

Date: 2/24/2009



# Weatherford International, Inc.

## Proposal Plan Report



# Weatherford

Company: WILLIAMS PRODUCTION  
Field: Rio Arriba Co., NM (NAD 83)  
Site: Rosa Unit #41-C  
Well: #41-C  
Wellpath: 1

Date: 2/24/2009 Time: 14:32:25 Page: 3  
Co-ordinate(NE) Reference: Well: #41-C, True North  
Vertical (TVD) Reference: SITE 6362.0  
Section (VS) Reference: Well (0.00N, 0.00E, 28.03Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | N/S<br>ft | E/W<br>ft | VS<br>ft | Build<br>deg/100ft | Turn<br>deg/100ft | DLS<br>deg/100ft | TFO<br>deg | Comment           |
|----------|-------------|-------------|-----------|-----------|-----------|----------|--------------------|-------------------|------------------|------------|-------------------|
| 6009.46  | 0.00        | 28.03       | 5432.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Menefee Fm.       |
| 6100.00  | 0.00        | 28.03       | 5522.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6179.46  | 0.00        | 28.03       | 5602.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Point Lookout Ss. |
| 6200.00  | 0.00        | 28.03       | 5622.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6300.00  | 0.00        | 28.03       | 5722.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6400.00  | 0.00        | 28.03       | 5822.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6479.46  | 0.00        | 28.03       | 5902.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Mancos Sh.        |
| 6500.00  | 0.00        | 28.03       | 5922.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6600.00  | 0.00        | 28.03       | 6022.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6700.00  | 0.00        | 28.03       | 6122.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6800.00  | 0.00        | 28.03       | 6222.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 6900.00  | 0.00        | 28.03       | 6322.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7000.00  | 0.00        | 28.03       | 6422.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7100.00  | 0.00        | 28.03       | 6522.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7200.00  | 0.00        | 28.03       | 6622.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7300.00  | 0.00        | 28.03       | 6722.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7400.00  | 0.00        | 28.03       | 6822.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7500.00  | 0.00        | 28.03       | 6922.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7564.46  | 0.00        | 28.03       | 6987.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Gallup Ss.        |
| 7600.00  | 0.00        | 28.03       | 7022.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7700.00  | 0.00        | 28.03       | 7122.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7800.00  | 0.00        | 28.03       | 7222.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 7900.00  | 0.00        | 28.03       | 7322.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8000.00  | 0.00        | 28.03       | 7422.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8100.00  | 0.00        | 28.03       | 7522.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8200.00  | 0.00        | 28.03       | 7622.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8284.46  | 0.00        | 28.03       | 7707.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Greenhorn Ls.     |
| 8300.00  | 0.00        | 28.03       | 7722.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8344.46  | 0.00        | 28.03       | 7767.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Graneros Sh.      |
| 8400.00  | 0.00        | 28.03       | 7822.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8474.46  | 0.00        | 28.03       | 7897.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | Dakota Ss.        |
| 8500.00  | 0.00        | 28.03       | 7922.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |
| 8600.00  | 0.00        | 28.03       | 8022.54   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      | PBHL              |
| 8624.46  | 0.00        | 28.03       | 8047.00   | 1569.71   | 835.59    | 1778.25  | 0.00               | 0.00              | 0.00             | 28.03      |                   |

### Targets

| Name             | Description<br>Dip. | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | <--- Latitude ---><br>Deg Min Sec |    |          | <--- Longitude ---><br>Deg Min Sec |    |          |
|------------------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|-----------------------------------|----|----------|------------------------------------|----|----------|
| Int. Csg. Pt.    |                     |      | 3617.00   | 1569.71     | 835.59      | 2157311.22            | 1309924.91           | 36                                | 55 | 23.630 N | 107                                | 22 | 50.380 W |
| -Plan hit target |                     |      |           |             |             |                       |                      |                                   |    |          |                                    |    |          |
| PBHL             |                     |      | 8047.00   | 1569.71     | 835.59      | 2157311.22            | 1309924.91           | 36                                | 55 | 23.630 N | 107                                | 22 | 50.380 W |
| -Plan hit target |                     |      |           |             |             |                       |                      |                                   |    |          |                                    |    |          |

### Formations

| MD<br>ft | TVD<br>ft | Formations            | Lithology | Dip Angle<br>deg | Dip Direction<br>deg |
|----------|-----------|-----------------------|-----------|------------------|----------------------|
| 2916.12  | 2432.00   | Ojo Alamo Ss.         |           | 0.00             | 0.00                 |
| 3046.59  | 2537.00   | Kirtland Sh.          |           | 0.00             | 0.00                 |
| 3483.13  | 2922.00   | Fruitland Fm          |           | 0.00             | 0.00                 |
| 3714.42  | 3142.00   | Pictured Cliffs Ss    |           | 0.00             | 0.00                 |
| 4024.23  | 3447.00   | Lewis Sh.             |           | 0.00             | 0.00                 |
| 5659.46  | 5082.00   | Cliff House Ss. Trans |           | 0.00             | 0.00                 |



# Weatherford International, LLC.

## Proposal Plan Report

**Weatherford**

Company: WILLIAMS PRODUCTION  
Field: Rio Arriba Co., NM (NAD 83)  
Site: Rosa Unit #41-C  
Well: #41-C  
Wellpath: 1

Date: 2/24/2009 Time: 14:32:25 Page: 4  
Co-ordinate(NE) Reference: Well: #41-C, True North  
Vertical (TVD) Reference: SITE 6362.0  
Section (VS) Reference: Well (0.00N,0.00E,28.03Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

### Formations

| MD<br>ft | TVD<br>ft | Formations        | Lithology | Dip Angle<br>deg | Dip Direction<br>deg |
|----------|-----------|-------------------|-----------|------------------|----------------------|
| 5964.46  | 5387.00   | Cliff House Ss.   |           | 0.00             | 0.00                 |
| 6009.46  | 5432.00   | Menefee Fm.       |           | 0.00             | 0.00                 |
| 6179.46  | 5602.00   | Point Lookout Ss. |           | 0.00             | 0.00                 |
| 6479.46  | 5902.00   | Mancos Sh.        |           | 0.00             | 0.00                 |
| 7564.46  | 6987.00   | Gallup Ss.        |           | 0.00             | 0.00                 |
| 8284.46  | 7707.00   | Greenhorn Ls.     |           | 0.00             | 0.00                 |
| 8344.46  | 7767.00   | Graneros Sh.      |           | 0.00             | 0.00                 |
| 8474.46  | 7897.00   | Dakota Ss.        |           | 0.00             | 0.00                 |

### Annotation

| MD<br>ft | TVD<br>ft |               |
|----------|-----------|---------------|
| 400.00   | 400.00    | KOP           |
| 1479.95  | 1380.51   | HOLD          |
| 2754.52  | 2309.66   | DROP          |
| 4194.46  | 3617.00   | Int. Csg. Pt. |
| 8624.46  | 8047.00   | PBHL          |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name                 |
|----------|-----------|----------------|-----------------|----------------------|
| 300.00   | 300.00    | 10.750         | 12.250          | 10 3/4"              |
| 4194.46  | 3617.00   | 0.000          | 0.000           | 7 5/8" Int. Csg. Pt. |