

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.  
NMSF-078764

6. If Indian, Allottee or Tribe Name

1a. Type of Work: ☒ DRILL ☐ REENTER

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

Rosa Unit

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

8. Lease Name and Well No.

232A

2. Name of Operator

Williams Exploration and Production Company, LLC

9. API Well No.

36-039-29507

3a. Address

P.O. Box 316 Ignacio, CO 81137

3b. Phone No. (include area code)

(970) 563-3308

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

At surface 1385' FSL & 2020' FEL

At proposed prod. zone same

10. Field and Pool, or Exploratory

Basin Fruitland Coal

11. Sec., T., R., M., or Blk. and Survey or Area

Section 20, 31N, 5W

12. County or Parish

Rio Arriba

13. State

NM

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

approximately 30 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)

1385'

16. No. of Acres in lease

2,507.30

17. Spacing Unit dedicated to this well

320.00 (S/2)

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

300'

19. Proposed Depth

3,406'

20. BLM/BIA Bond No. on file

UT0847

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

6,416' GR

22. Approximate date work will start\*

April 1, 2005

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

3/24/05

Title

Drilling COM

Approved by (Signature)

*[Signature]*

Name (Printed/Typed)

Date

6-15-05

Title

*AFM*

Office

*PFO*

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 Exploration and Production Company, LLC, proposes to drill a well to develop the Basin Fruitland Coal formation at the above described location in accordance with the attached drilling and surface use plans.

The surface is under jurisdiction of the Bureau of Land Management, Farmington Field Office.

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

This APD is also serving as an application to obtain road and pipeline rights-of-way. A 50-foot road and a 142.60-foot pipeline tie would be required for this location.

RECEIVED  
070 FARMINGTON  
2005 MAR 24 10 2 34

NMOC

District I  
PO Box 1980, Hobbs, NM 88241-1980

District II  
PO Drawer DD Artesia, NM 88211-0719

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

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

*API Number <b>30-039-29507</b>		*Pool Code <b>71629</b>	*Pool Name <b>BASIN FRUITLAND COAL</b>
*Property Code <b>17033</b>	*Property Name <b>ROSA UNIT</b>		*Well Number <b>232A</b>
*GRID No. <b>120782</b>	*Operator Name <b>WILLIAMS PRODUCTION COMPANY</b>		*Elevation <b>6416</b>

<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
<b>J</b>	<b>20</b>	<b>31N</b>	<b>5W</b>		<b>1385</b>	<b>SOUTH</b>	<b>2020</b>	<b>EAST</b>	<b>RIO ARriba</b>

<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
*Dedicated Acres <b>320.0 Acres - (S/2)</b>					*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

<div><p><sup>16</sup></p><p>5280.00'</p><p>20</p><p>LEASE SF-078764</p><p>2020'</p><p>1385'</p><p>5280.00'</p></div>	<div><p><sup>17</sup> OPERATOR CERTIFICATION</p><p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief</p><p><i>Larry Higgins</i> Signature</p><p><b>LARRY HIGGINS</b> Printed Name</p><p><b>DRILLING CO.</b> Title</p><p><b>3-24-05</b> Date</p></div>
	<div><p><sup>18</sup> SURVEYOR CERTIFICATION</p><p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief</p><p>Survey Date: <b>OCTOBER 20, 2004</b></p><p>Signature and Seal of Professional Surveyor</p><div><p><b>JASON C. EDWARDS</b> Certificate Number 15269</p></div></div>

Submit 3 Copies to Appropriate District Office  
District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Ave., 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 and Natural Resources

Form C-103  
May 27, 2004

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

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO.
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other		5. Indicate Type of Lease FEDERAL <input checked="" type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator Williams Exploration and Production Company		6. State Oil & Gas Lease No. Federal NMSF-0078764
3. Address of Operator P.O. Box 316, Ignacio, CO 81137		7. Lease Name or Unit Agreement Name Rosa Unit
4. Well Location Unit Letter J: 1385 feet from the south line and 2020 feet from the east line Section 20 Township 31N Range 5W NMPM County Rio Arriba		8. Well Number 232A
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6,416' GR		9. OGRID Number 120782
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>		
Pit type reserve Depth to Groundwater >100' Distance from nearest fresh water well >1,000' Distance from nearest surface water >1,000'		
Pit Liner Thickness: 12 mil Below-Grade Tank: Volume bbls; Construction Material		

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
OTHER: <input type="checkbox"/>		OTHER: <input type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Reserve pit to be constructed in accordance with NMOCD Interim Pit and Below-grade Tank Guidelines

Rserve pit to be located approximately 30 feet east of the well head, in the northeast corner of the well pad

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE Larry Higgins TITLE Drilling COM DATE 3-24-2005

Type or print name Larry Higgins E-mail address: larry.higgins@williams.com Telephone No. (970) 563-3308

**For State Use Only**

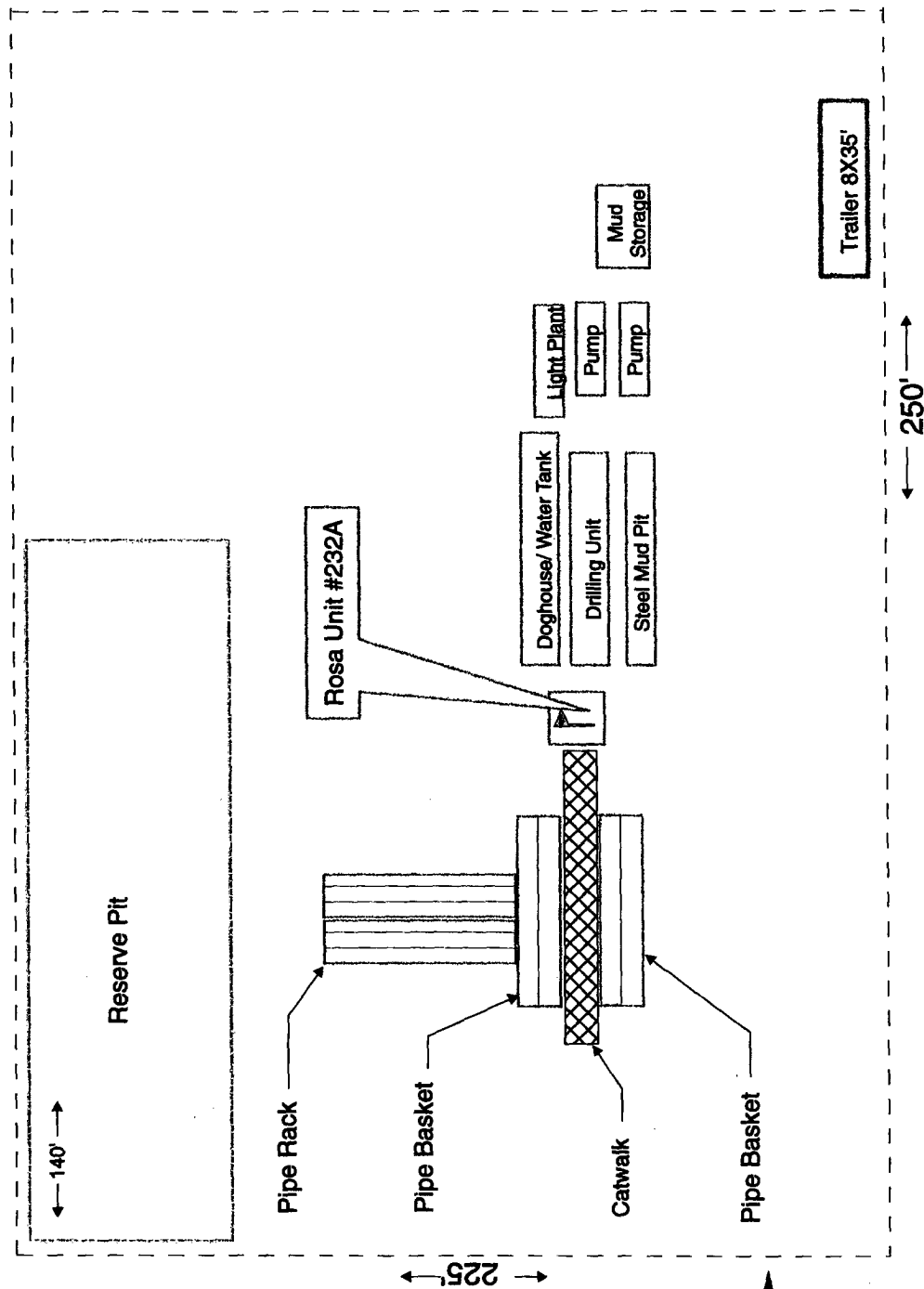
APPROVED BY: [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. 30 DATE JUN 17 2005

Conditions of Approval (if any):

Plat #3 Location Diagram  
Williams Exploratin and Production Company

Rosa Unit #232A

Surface Location: 1385' FSL & 2020' FEL, Sec. 20, T 31N, R 5W  
Rio Arriba County, New Mexico





## **WILLIAMS PRODUCTION COMPANY**

### **Operations Plan**

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

**DATE:** 3/15/2005

**WELLNAME:** Rosa Unit #232A      **FIELD:** Basin Fruitland Coal

**LOCATION:** NWSE Sec. 20-T31N-5W      **SURFACE:** BLM  
Rio Arriba, NM

**ELEVATION:** 6,416' GR      **MINERALS:** BLM

**TOTAL DEPTH:** 3,406'      **LEASE #** SF-078764

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

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

NAME	DEPTH	NAME	DEPTH
San Jose	Surface	Top Coal	3,156
Nancimiento	1,336	Bottom Coal	3,306
Ojo Alamo	2,576	Pictured Cliffs	3,306
Kirtland	2,681	TD	3,406
Fruitland	3,056		

**B. LOGGING PROGRAM:** None

**C. 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" casing point. Treat for lost circulation as necessary. Expect 100% returns prior to cementing. Notify Engineering of any mud losses. If coal is detected before 3,136' DO NOT drill deeper until Engineering is contacted.
- B. Drilling Fluid:** Coal section will be drilled with Fruitland Coal water.
- C. MUD LOGGING PRORAM:** Mud logger will be on location at drill out below 7" casing to TD.

- D. **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 rams will be tested to 1500 psi. The surface and intermediate casing strings will be pressure tested to 1500 psi in conjunction with the BOP test before drilling out cement. The drum brakes will be inspected and tested each tour. All tests, inspections and SPR's will be recorded in the tour book as to time and results.

### III. **MATERIALS**

#### A. **CASING PROGRAM:**

<u>CASING TYPE</u>	<u>HOLE SIZE</u>	<u>DEPTH</u>	<u>CASING SIZE</u>	<u>WT. &amp; GRADE</u>
Surface	12-1/4"	+/- 300'	9-5/8"	36# K-55
Intermediate	8-3/4"	+/- 3,136'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,036' - 3,306'	5-1/2"	15.5# K-55

#### B. **FLOAT EQUIPMENT:**

1. **SURFACE CASING:** 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. **INTERMEDIATE CASING:** 7" 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:** 4-1/2" & 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:** Use 190 sx (264 cu.ft.) of "Type III" with 2% CaCl<sub>2</sub> and 1/4# of cello-flake/sk (Yield = 1.41 cu.ft./sk, Weight = 14.5 #/gal.). Use **150% excess** to circulate the surface. WOC 12 hours. Total volume = ~~206~~ <sup>264</sup> cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 425 sx (883 cu.ft.) of "Type III" 65/35 poz with 8% gel, 1% CaCl<sub>2</sub> and 1/4# cello-flake/sk (Yield = 2.09 cu.ft./sk, Weight = 12.1 #/gal.). Tail - 50 sx (70cu.ft.) of "Type III" with 1/4# cello-flake/sk, and 1% CaCl<sub>2</sub> (Yield = 1.4 cu.ft./sk, Weight = 14.5#/gal.). Use **120% excess in Lead Slurry** to circulate to surface. **No excess in Tail Slurry.** Total volume = 953 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface.
3. **PRODUCTION LINER:** Open hole completion. No cement.

#### **IV COMPLETION**

##### **A. PRESSURE TEST**


Pressure test 7" casing to 3300# for 15 minutes.

##### **B. STIMULATION**

**Cavitate Well** with reciprocation and rotation. Surge wells with water and air and then flow back to pit.  
Cavitate for 2 to 3 weeks. Maximum pressure not expected to exceed 2,000 psi.

##### **C. RUNNING TUBING**

1. Fruitland Coal: Run 2-3/8", 4.7#, J-55, EUE tubing with a SN (1.375" ID) on top of bottom joint. Land tubing approximately 50' above TD.

*for*   
\_\_\_\_\_  
Gary Sizemore  
Sr. Drilling Engineer

## GENERAL ROSA DRILLING PLAN

### Rosa Unit boundaries:

T31N, R4W: all except sections 32-36  
T31N, R5W: all except sections 1 & 2  
T31N, R6W: all except sections 6,7,18,20, & 27-36  
T32N, R6W: sections 32-36

FORMATION	LITHOLOGY	WATER	GAS	OIL/COND	OVER-PRES	LOST CIRC
Nacimlento	Interbedded shales, siltstones and sandstones	Possible	Possible	No	No	No
Ojo Alamo	Sandstone and conglomerates with lenses of shale	Fresh	No	No	No	No
Kirtland	Shale W/interbedded sandstones	No	Possible	No	No	No
Fruitland	Inter, SS, SiltSt, SH & Coals w/carb, SS, SiltSt, SH	Yes	Yes	No	Possible	Possible
Pictured Cliffs	Massive Sandstone w/within interbedded shales	Possible	Yes	Possible	No	Possible
Lewis	Shale w/within interbedded sandstones and siltstones	No	Possible	No	No	No
Cliff House	Transgressive sandstones	Possible	Yes	No	No	No
Menefee	Sandstones, carb shales and coal	Possible	Yes	No	No	No
Point Lookout	Regressive coastal barrier sandstone	Possible	Yes	Possible	No	Yes
Mancos	Marine shale and interbedded sandstone	No	Possible	Possible	No	Possible
Upr Dakota	Marine sand and shales	No	Yes	Possible	No	Possible
Lwr Dakota	Fluvial sands, shales, & coal	Possible	Yes	Possible	No	Possible

## DRILLING

### Potential Hazards:

1. There are no overpressured zones expected in this well.
2. No H2S zones will be penetrated while drilling this well.

### Mud System:

1. Surface - The surface hole will be drilled with a low-solids, non-dispersed system with starch and lost circulation material as needed. Expected mud weights will be in the 8.4 to 9.0 lb per gal range. Viscosities will be in the 30 to 60 sec/qrt range as needed to remove drill cuttings.
2. Intermediate - The intermediate hole will be drilled with clear water and Benex to TD where the well will be mudded up to log and run casing. The mud system will be low-solids, non-dispersed with mud weights in the 9 to 10 lb per gal range as needed to control the well. Viscosities will be in the 45 to 55 range as needed to support any weight material. The weight material will consist of Barite.
3. Production - The well will be drilled using air from the intermediate casing point to TD. For Fruitland Coal wells, the coal section will be drilled with air/mist.



**Well Control Equipment Schematic for 2M Service**

Attachment to Drilling Technical Program

**Typical BOP setup**

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)

