

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

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF-078767	
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Williams Production Company, LLC		7. If Unit or CA Agreement, Name and No. Rosa Unit	
3a. Address P.O. Box 316 Ignacio, CO 81137		8. Lease Name and Well No. 225A	
3b. Phone No. (include area code) (970) 563-3308		9. API Well No. 30-039-29576	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 715' FSL & 1165' FEL At proposed prod. zone 1650' FSL & 1505' FEL		10. Field and Pool, or Exploratory Basin Fruitland Coal	
14. Distance in miles and direction from nearest town or post office* approximately 15 miles northeast of Navajo City, New Mexico		11. Sec., T., R., M., or Blk. and Survey or Area 0 Section 12. 31N. 6W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1650'		12. County or Parish Rio Arriba	
16. No. of Acres in lease 2518.64		13. State NM	
17. Spacing Unit dedicated to this well 271.35 (S/2)			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'		20. BLM/BIA Bond No. on file UT0847	
19. Proposed Depth 3,649'			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6503' GR		23. Estimated duration 1 month	
22. Approximate date work will start* July 1, 2005			
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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification.   |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Larry Higgins</i>	Name (Printed/Typed) Larry Higgins	Date June 7, 2005
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Approved by (Signature) <i>Jim Lovato</i>	Name (Printed/Typed) Jim Lovato	Date 7/15/05
Title Acting Field Manager - Minerals	Office	

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 drill a directional 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.

La Plata Archaeological Consultants conducted a cultural resources inventory if the proposed location. Copies of their report have been submitted directly to the FFO/BLM.

A 320.8' -foot pipeline tie would be required.

HOLD CIRM FOR Directional Survey

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".

NMOCD

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>30-039-29576</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>225A</b>
*GRID No. <b>120782</b>	*Operator Name <b>WILLIAMS PRODUCTION COMPANY</b>		*Elevation <b>6503'</b>

#### <sup>10</sup> Surface Location

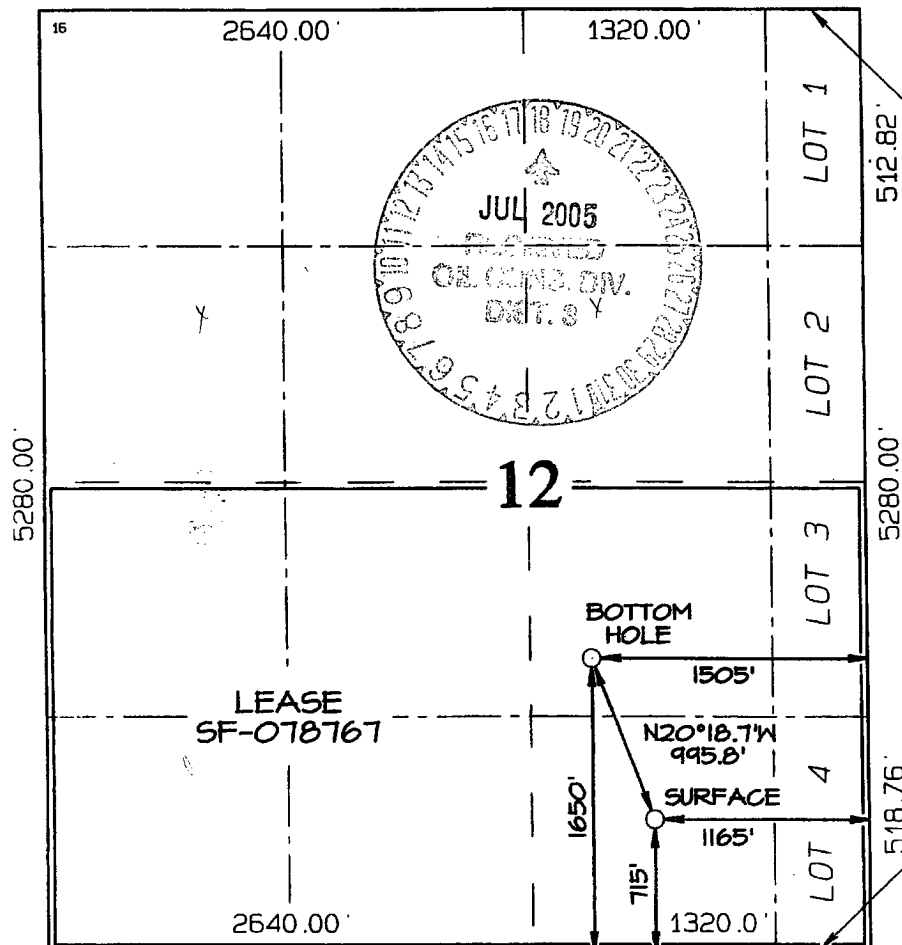
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	12	31N	6W		715	SOUTH	1165	EAST	RIO ARriba

#### <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
J	12	31N	6W		1650	SOUTH	1505	EAST	RIO ARriba

<sup>12</sup> Dedicated Acres <b>271.35 Acres - (S/2)</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No
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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



<sup>17</sup> OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Signature: *Larry Higgins*  
Printed Name: **LARRY HIGGINS**  
Title: **DRILLING COM**  
Date: **6-7-05**

<sup>18</sup> 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: **APRIL 20, 2005**

Signature and Seal of Professional Surveyor



**JASON C. EDWARDS**  
Certificate Number 15269

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  
June 28, 2005

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

WELL API NO.

5. Indicate Type of Lease FEDERAL ☒ STATE ☐ FEE ☐

6. State Oil & Gas Lease No.  
Federal NMSF-0078767

7. Lease Name or Unit Agreement Name

Rosa Unit

8. Well Number 225A

9. OGRID Number 120782

10. Pool name or Wildcat  
Basin Fruitland Coal

SUNDRY NOTICES AND REPORTS ON WELLS

(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.)

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

2. Name of Operator  
Williams Exploration and Production Company

3. Address of Operator  
P.O. Box 316, Ignacio, CO 81137

4. Well Location

Unit Letter O: 715 feet from the south line and 1165 feet from the east line

Section 12 Township 31N Range 6W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6,503' GR

Pit or Below-grade Tank Application ☒ or Closure ☐

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐

OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ P AND A ☐  
CASING/CEMENT JOB ☐

OTHER: ☐

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

Reserve pit to be located approximately 30 feet south of the well head, in the southwest 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 6-28-2005

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

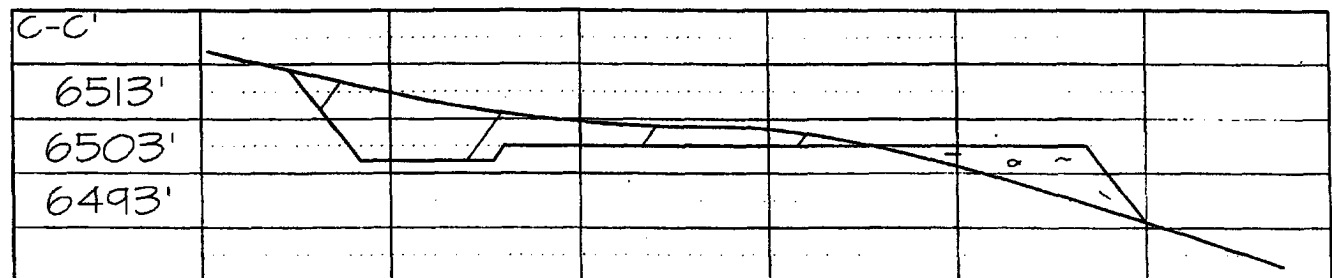
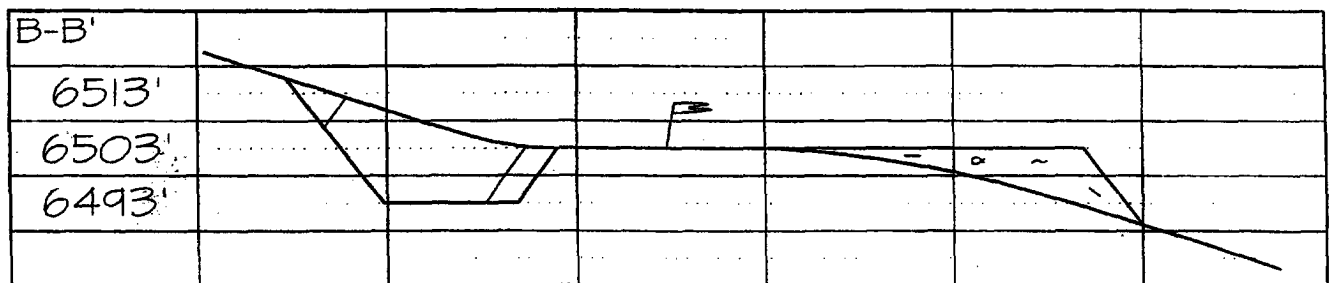
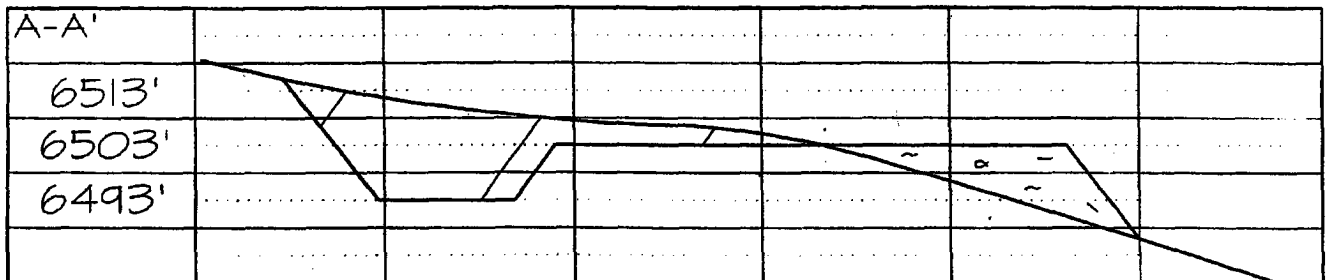
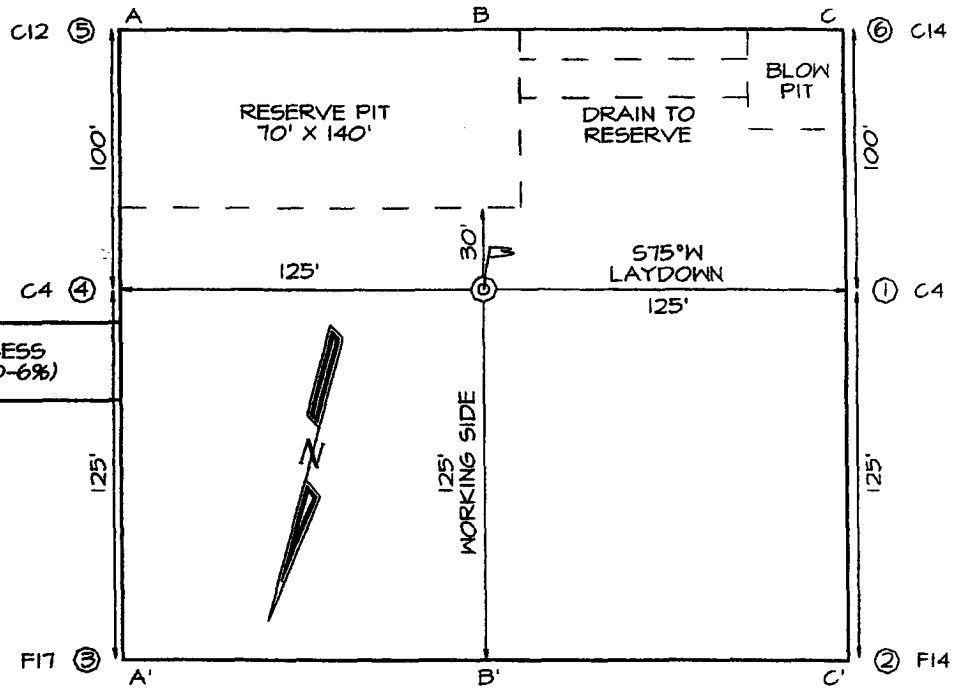
APPROVED BY: [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. NO DATE JUL 18 2005  
Conditions of Approval (if any):

**WILLIAMS PRODUCTION COMPANY ROSA UNIT #225A**  
**715' FSL & 1165' FEL, SECTION 12, T31N, R6W, NMPM**  
**RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6503'**

Plat #1 Location Layout

**LATITUDE: 36°54'32"**  
**LONGITUDE: 107°24'40"**  
 DATUM: NAD1927

EDGE OF EXISTING WPX ROSA UNIT #30 WELLPAD





## **WILLIAMS PRODUCTION COMPANY**

### **Operations Plan**

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

**DATE:** 6/28/2005

**WELLNAME:** Rosa Unit #225A      **FIELD:** Basin Fruitland Coal

**BH LOCATION:** NWSE Sec 12-31N-6W      **SURFACE:** BLM  
Rio Arriba, NM

**SURF. LOCATION:** SWSE Sec 12-31N-6W

**ELEVATION:** 6,503' GR      **MINERALS:** BLM

**TOTAL DEPTH:** 3,649'      **LEASE #** SF-078767

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

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

NAME	TVD	MD	NAME	TVD	MD
San Jose	Surface	Surface	Top Coal	3,202	3,394
Nacimiento	1,262	1,297	Bottom Coal	3,357	3,549
Ojo Alamo	2,607	2,783	Pictured Cliffs	3,357	3,549
Kirtland	2,707	2,889	TD	3,457	3,649
Fruitland	3,097	3,288			

**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 3,376 (MD) DO NOT drill deeper until Engineering is contacted.
- B. Drilling Fluid:** Coal section will be drilled with Fruitland Coal water. Mud logger will pick TD at +/- 3,649'.
- 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 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:**

<u>CASING TYPE</u>	<u>HOLE SIZE</u>	<u>DEPTH (MD)</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"	+/- 3,376'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,276'-3,549'	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 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 **100% excess** to circulate the surface. WOC 12 hours. Total volume = 264 cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 460 sx (962 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 **100% excess in Lead Slurry** to circulate to surface. **No excess in Tail Slurry.** Total volume = 1,032 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**

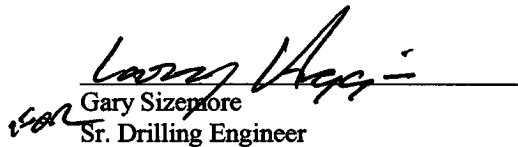
Pressure test 7" casing to 3300# for 15 minutes.

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

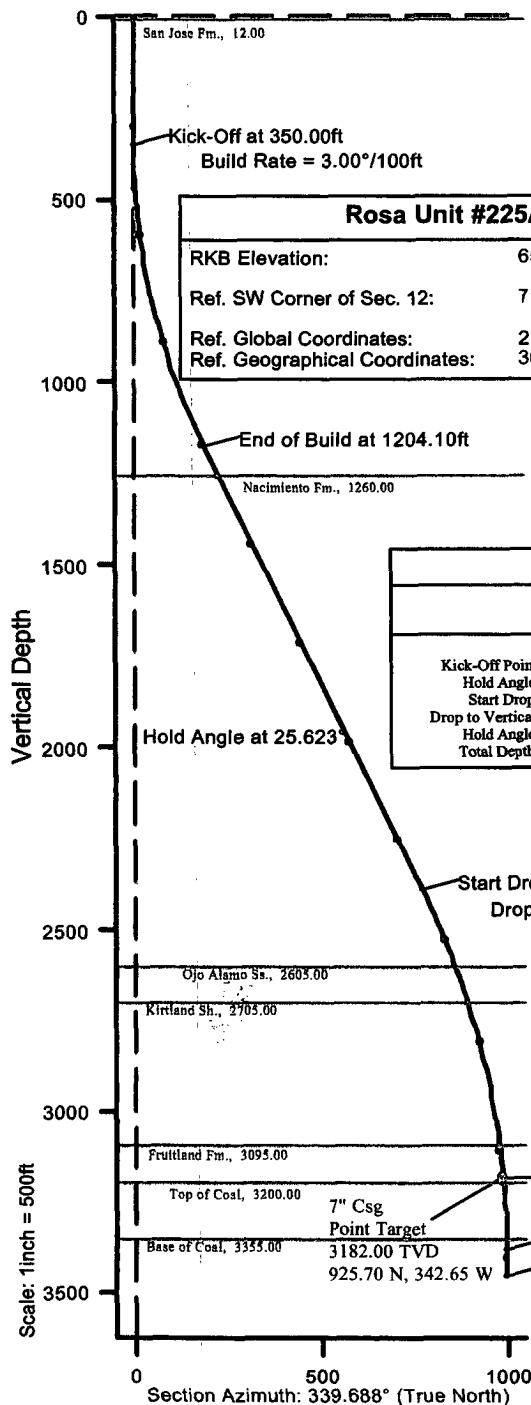
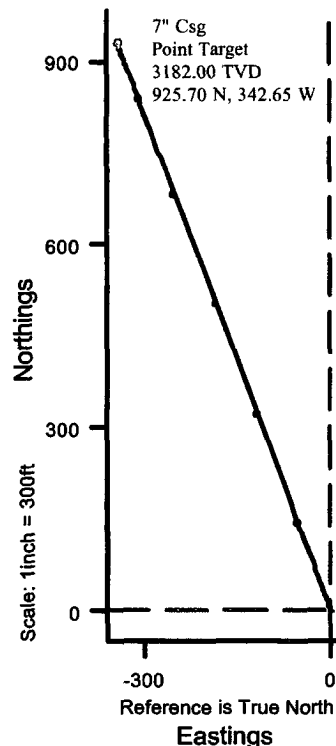
**Cavitate Well** with reciprocation and rotation. Surge wells with water and air and then flow back to pit.  
Cavitate for 2 to 3 weeks. Maximum pressure not expected to exceed 2,000 psi.

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

1. **Fruitland Coal**: Run 2-7/8", 4.7#, J-55, EUE tubing with a SN (1.375" ID) on top of bottom joint. Land tubing approximately 50' above TD.

  
Gary Sizemore  
Sr. Drilling Engineer

New Mexico  
Rio Arriba County  
Sec. 12-T31N-R06W  
Rosa Unit #225A  
Plan 060205



### Rosa Unit #225A Surface Location

RKB Elevation: 6515.00ft above Mean Sea Level  
Ref. SW Corner of Sec. 12: 715.00 N, 3313.76 E  
Ref. Global Coordinates: 2150373.14 N, 623442.59 E  
Ref. Geographical Coordinates: 36° 54' 32.0000" N, 107° 24' 40.0000" W

### Plan 060205 Proposal Data

	Measured Depth	Incl.	Azim.	Vertical Depth	Northings	Eastings	Vertical Section	Dogleg Rate
Kick-Off Point	0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	0.00
Hold Angle	350.00	0.000	0.000	350.00	0.00 N	0.00 E	0.00	0.00
Start Drop	1204.10	25.623	339.688	1175.91	176.14 N	65.20 W	187.82	3.00
Drop to Vertical	2551.32	25.623	339.688	2390.65	722.51 N	267.44 W	770.42	0.00
Hold Angle	3376.24	5.000	339.688	3182.00	925.70 N	342.65 W	987.08	2.50
End of Drop	3576.24	0.000	0.000	3381.75	933.88 N	345.67 W	995.80	2.50
Total Depth	3649.50	0.000	0.000	3455.00	933.88 N	345.67 W	995.80	0.00

### Plan 060205 Bottom Hole Location

Ref. RKB(6503'+12'KB): 3455.00ft  
Ref. Ground Level: 3426.00ft  
Ref. Mean Sea Level: -3060.00ft  
Ref. Wellhead: 933.88 N, 345.67 W (True North)  
Ref. SW Corner of Sec. 12: 1648.84 N, 2967.97 E (True North)  
Ref. Global Coordinates: 2151305.48 N, 623092.78 E  
Ref. Geographical Coordinates: 36° 54' 41.2346" N, 107° 24' 44.2565" W

Vertical Section

Prepared by:  
Dennis Cook

Date/Time:  
2 June, 2005 - 16:23

Checked:

Approved:



## 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
Nacimiento	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/thin interbedded shales	Possible	Yes	Possible	No	Possible
Lewis	Shale w/thin 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 H<sub>2</sub>S 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.

**Williams Production Company, LLC**  
**Well Control Equipment Schematic for 2M Service**

Attachment to Drilling Technical Program

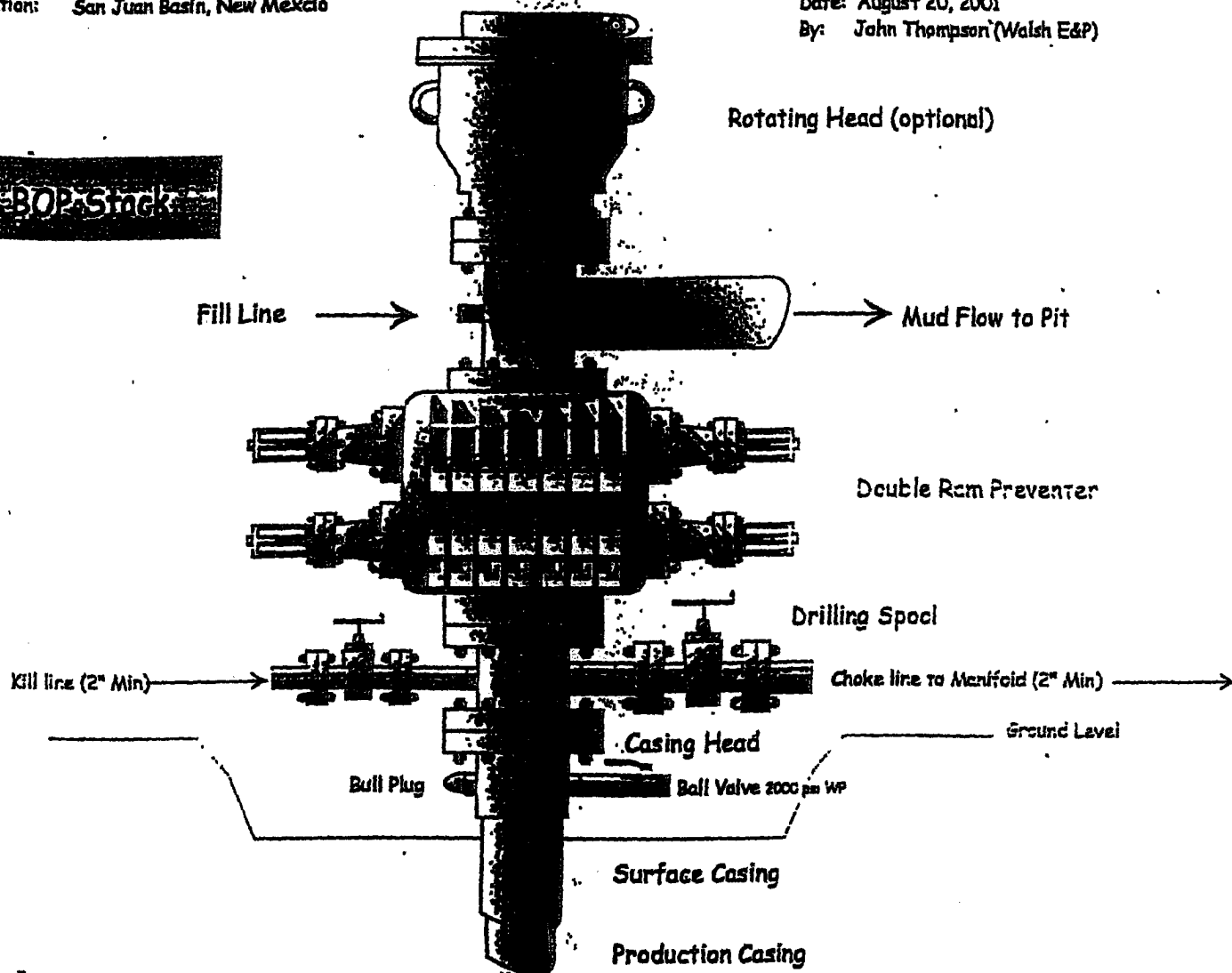
**Typical BOP setup**

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)

**BOP Stack**



**Choke & Kill Manifold**

