

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-0078893  
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 550' FSL & 545' FEL

At proposed prod. zone 2620' FSL & 2620' FEL

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

approximately 26 miles northeast of Navajo City, New Mexico

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

2620'

16. No. of Acres in lease

1920.00

17. Spacing Unit dedicated to this well

320.0 (E/2)

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

3500'

19. Proposed Depth

6,665'

20. BLM/BIA Bond No. on file  
RCVD MAR19'07  
BLM CONS. DIV.  
DIST. 3  
UT0847 WTB000178

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

7,061' GR

22. Approximate date work will start\*

June 1, 2006

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

Name (Printed/Typed)

Date

Title

Larry Higgins

5/10/2006

Drilling COM

Approved by (Signature)

Name (Printed/Typed)

Date

Title

Office

3/16/07

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 Carson National Forest, Jicarilla Ranger District.

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

A 2076-foot on-lease access road and a 2478.50-foot pipeline tie would be required for this location. Williams Field Services (WFS) has filed a pipeline route plan for the associated pipeline. Williams Production Company would be the owner and operator of the proposed pipeline.

NOTIFY AZTEC OCD  
IN TIME TO WITNESS

24hrs  
CSG & Cement

HOLD C184 FOR

directional  
Survey +  
BH survey

NMOCD

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

This action is subject to technical and  
procedural review pursuant to 43 CFR 3165.2  
and appeal pursuant to 43 CFR 3165.4

3/22/07

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

RECEIVED

RCVD MAR 19 '07

WELL LOCATION AND ACREAGE DEDICATION PLAT OIL CONS. DIV.

*API Number <b>30-039-29919</b>		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 384A
*OGRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 7061'

<sup>10</sup> Surface Location

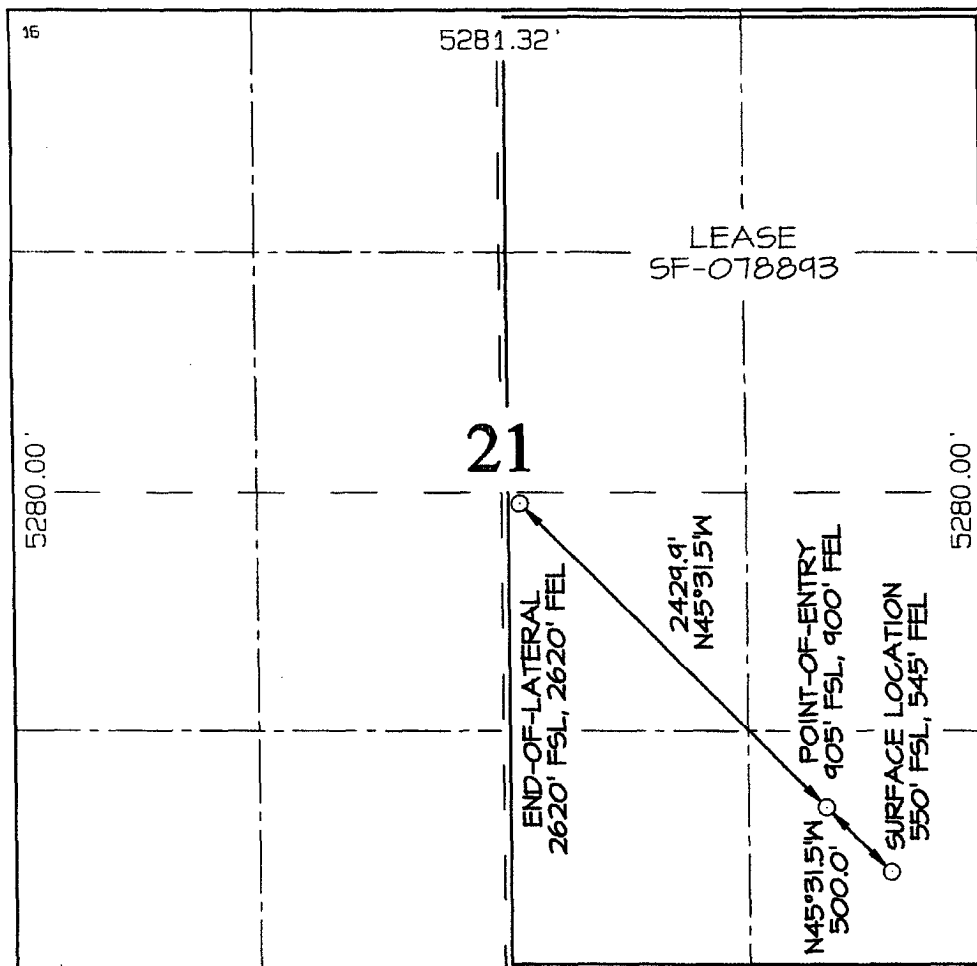
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	21	31N	4W		550	SOUTH	545	EAST	RIO ARRIBA

<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	21	31N	4W		2620	SOUTH	2620	EAST	RIO ARRIBA

<sup>12</sup> Dedicated Acres 320.0 Acres - (E/2)	<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

*Larry Higgins*  
Signature

LARRY HIGGINS  
Printed Name

Drillman Co. Inc.  
Title

5-16-06  
Date

<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.

Survey Date: SEPTEMBER 2, 2004

Signature and Seal of Professional Surveyor



JASON C. EDWARDS  
Certificate Number 15269

5280.00'

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

WELL API NO.	30-039-29919
5. Indicate Type of Lease	FEDERAL <input checked="" type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.	NMSF-078893

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 Production Company, LLC

3. Address of Operator  
P.O. Box 640 Aztec, NM 87410

4. Well Location

Unit Letter P: 550 feet from the south line and 545 feet from the east line

Section 21 Township 31N Range 4W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
7,061' 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 >200'

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.

Drilling/Completion pit to be located approximately 50 to 75 feet from well head. Pit multi-use drilling and completion to avoid additional site disturbance and pit will be considered out of service once production tubing set. Pit to be constructed, operated and closed in accordance with NMOCD guidelines and Williams procedures.

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 5-10-2006

Type or print name Larry Higgins E-mail address: larry.higgins@williams.com Telephone No. (505) 634-4208

For State Use Only

APPROVED BY: [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE MAR 22 2007

Conditions of Approval (if any):

**RIO ARriba COUNTY 1, NEW MEXICO**

**GROUND ELEVATION: 7061'**

A  
B  
C

(3)  
F3  
25'  
F4  
125'  
F6  
125'

RESERVE PIT  
55' X 140'

DRAIN TO  
RESERVE PIT

BLOW  
PIT

580°E  
LAYDOWN

125'

30'

125'

WORKING  
SIDE

N

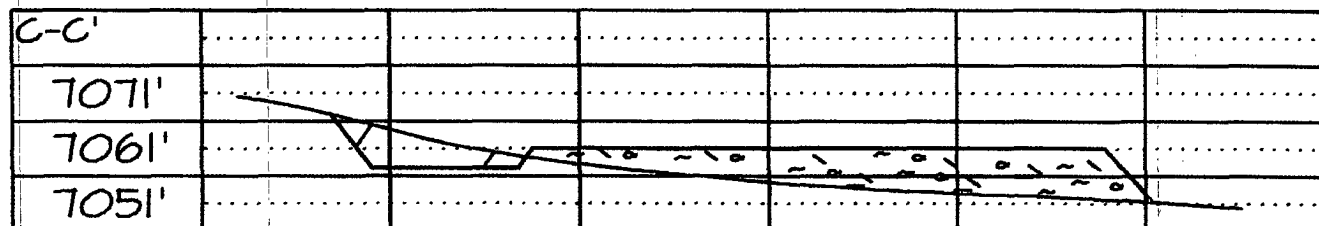
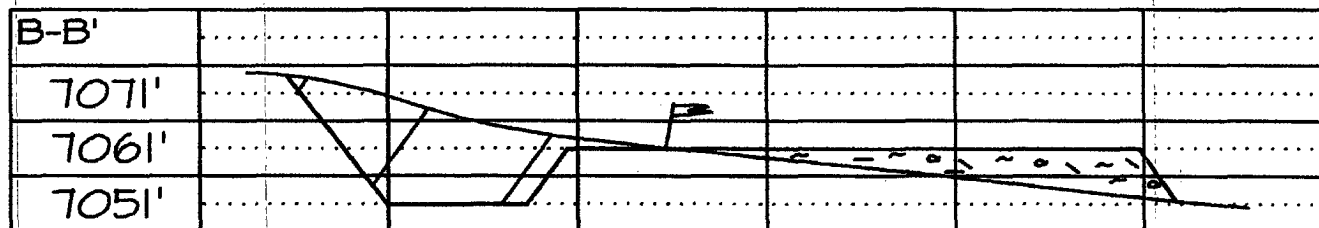
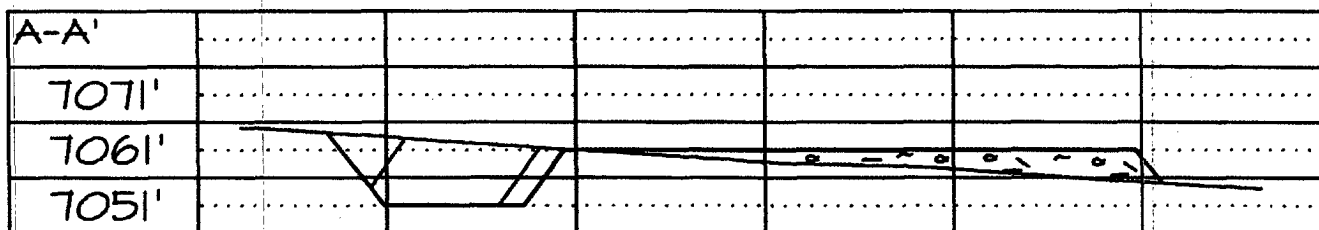
CAL WASH

F9  
125'  
F4  
125'  
F6  
125'

A'  
B'  
C'

(3)  
F3  
25'  
F4  
125'  
F6  
125'

LATITUDE: 36°52'46"  
LONGITUDE: 107°15'09"  
DATUM: NAD1927





## WILLIAMS PRODUCTION COMPANY

### Operations Plan

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

**DATE:** 4/11/2006

**WELLNAME:** Rosa #384A **FIELD:** Basin Fruitland Coal

**SURF LOCATION:** SESE Sec. 21-T31N-R4W **SURFACE:** Forest  
Rio Arriba, NM

**BH LOCATION** NWSE Sec 21-31N-4W

**ELEVATION:** 7,061' GR **MINERALS:** Federal

**TOTAL DEPTH:** 6,665' **LEASE #** SF-078893

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

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

		<b>TVD</b>	<b>MD</b>			<b>TVD</b>	<b>MD</b>
San Jose		Surface	Surface		Top Coal	3,835	3,911
Nacimiento		2,110	2,110		Top Target Coal	3,900	
Ojo Alomo		3,290	3,290		Bottom Target Coal	3,910	
Kirtland		3,465	3,465		Base Coal	3,920	
Fruitland		3,685	3,697		Picture Cliffs	3,920	
					<b>TD</b>	<b>3,905</b>	<b>6,631</b>
					<b>TD - Pilot Hole</b>	<b>4020</b>	

- NOTE:** Well will be vertically drilled to 100' into Picture Cliff, logged through the PC, plug back the PC and 8-3/4" hole to 200 ft. above adjusted KOP. Dress / Kick-off cement plug and horizontally drill through the coal.

**B. LOGGING PROGRAM:** High Resolution Induction/ GR from surface casing to TD of pilot hole. Geologist will pick Density/ Neutron log intervals

**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.
- B. **Drilling Fluid:** Horizontal section will be drilled with Calcium Chloride water.
- C. **MUD LOGGING PRORAM:** Mud logger will be on location from 500' above Ojo Alamo to TD of intermediate casing. Then from drillout of intermediate 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"	+/- 4,079'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,427-6,631'	4-1/2" perfed	10.5# K-55

\*Note: All casing depths are measured depths.

### 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:** 4-1/2" perforated liner with guide shoe on bottom.

**C. CEMENTING:**

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

1. **SURFACE:** Use 170 sx (237 cu.ft.) of "Type III" with 2%  $\text{CaCl}_2$  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 = 206 cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 500 sx (1042 cu.ft.) of Premium Light with 8% gel, 1%  $\text{CaCl}_2$  and 1/4# cello-flake/sk (Yield = 2.09 cu.ft./sk, Weight = 12.1 #/gal.). Tail - 100 sx (139 cu.ft.) of "Type III" with 1/4# cello-flake/sk, and 1%  $\text{CaCl}_2$  (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 = 1,181 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**

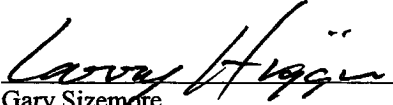
Pressure test 7" casing to 3300# for 15 minutes.

**B. STIMULATION**

None

**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 at approximately 3,730'.

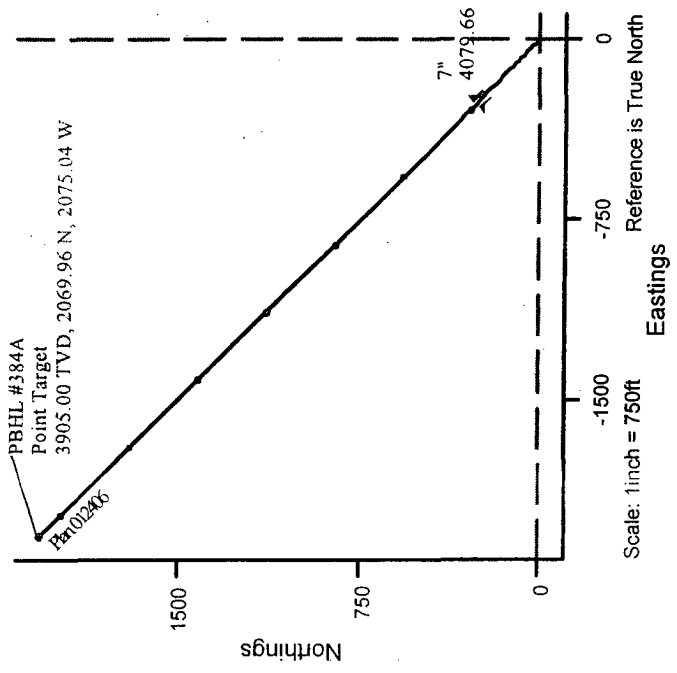
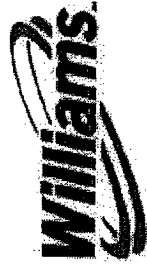
  
\_\_\_\_\_  
Gary Sizemore  
Sr. Drilling Engineer

**New Mexico**  
**Rio Arriba County**  
**Sec. 21-T31N-R04W**  
**Rosa Unit #384A**  
**Plan 012406**

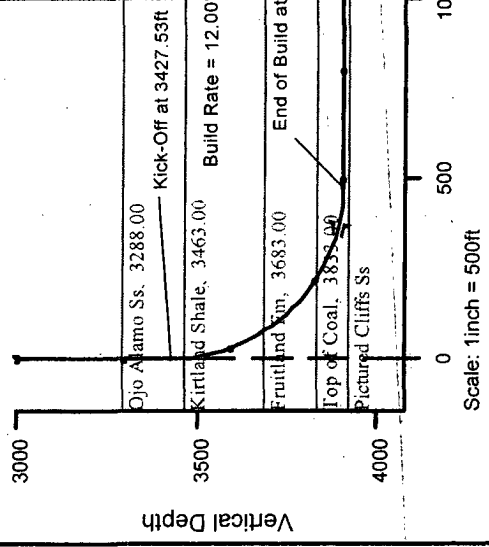


Rosa Unit #384A Surface Location	
RKB Elevation:	7073.00ft above Mean Sea Level
Ref. SE Cor Sec 21:	550.00 N, 545.00 W
Ref. Global Coordinates:	2139897.40 N, 669880.39 E
Ref. Geographical Coordinates:	36° 52' 46.0000" N, 107° 15' 09.0000" W

Plan 012406 Bottom Hole Location	
Ref. RKB(7061'±12'KB):	3905.00ft
Ref. Structure:	3893.00ft
Ref. Mean Sea Level:	-3168.00ft
Ref. Wellhead:	2069.96 N, 2075.04 W (True North)
Ref. SE Cor Sec 21:	2620.00 N, 2620.00 W (True North)
Ref. Global Coordinates:	2141954.70 N, 667792.80 E
Ref. Geographical Coordinates:	36° 53' 06.4677" N, 107° 15' 34.5421" W



Plan 012406 Proposal Data						
Measured Depth	Incl.	Azim.	Vertical Depth	Northings	Eastings	Dogleg Rate
Kick-Off Point	0.00	0.000	0.00	0.00 N	0.00 E	0.00
Hold Angle	3427.53	0.000	3427.53	0.00 N	0.00 E	0.00
Total Depth	4177.53	90.000	3905.00	337.20 N	338.03 W	12.00
	6631.03	90.000	3905.00	2069.96 N	2075.04 W	0.00



Prepared by: Dennis Cook  
Date/Time: 24 January, 2006 - 14:25  
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 Dadota	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.

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

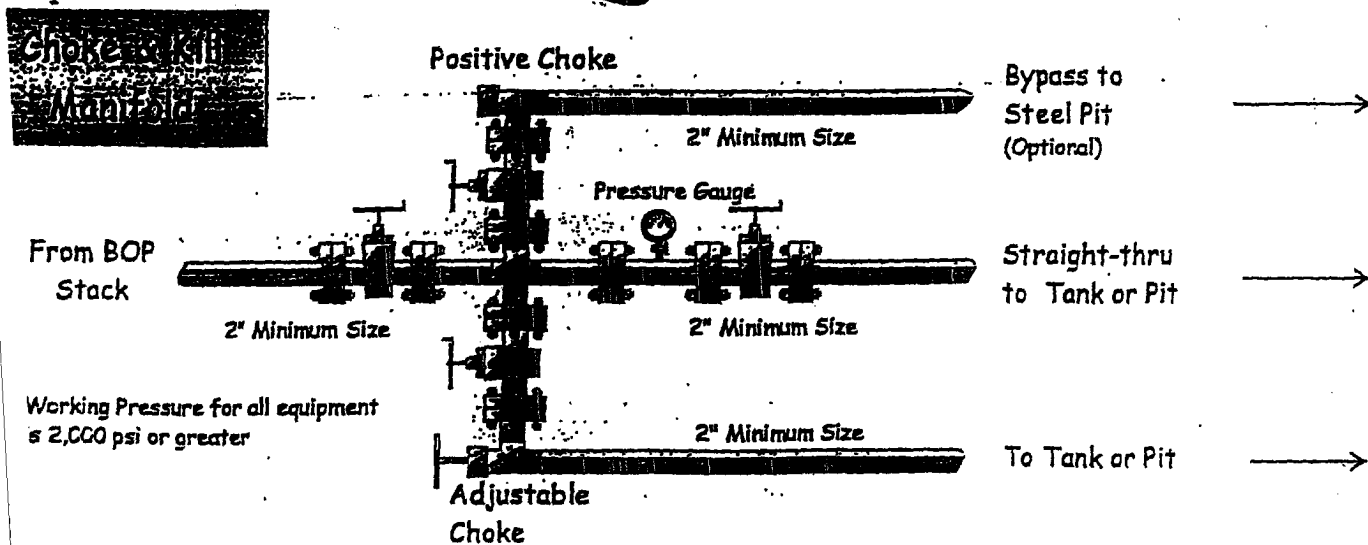
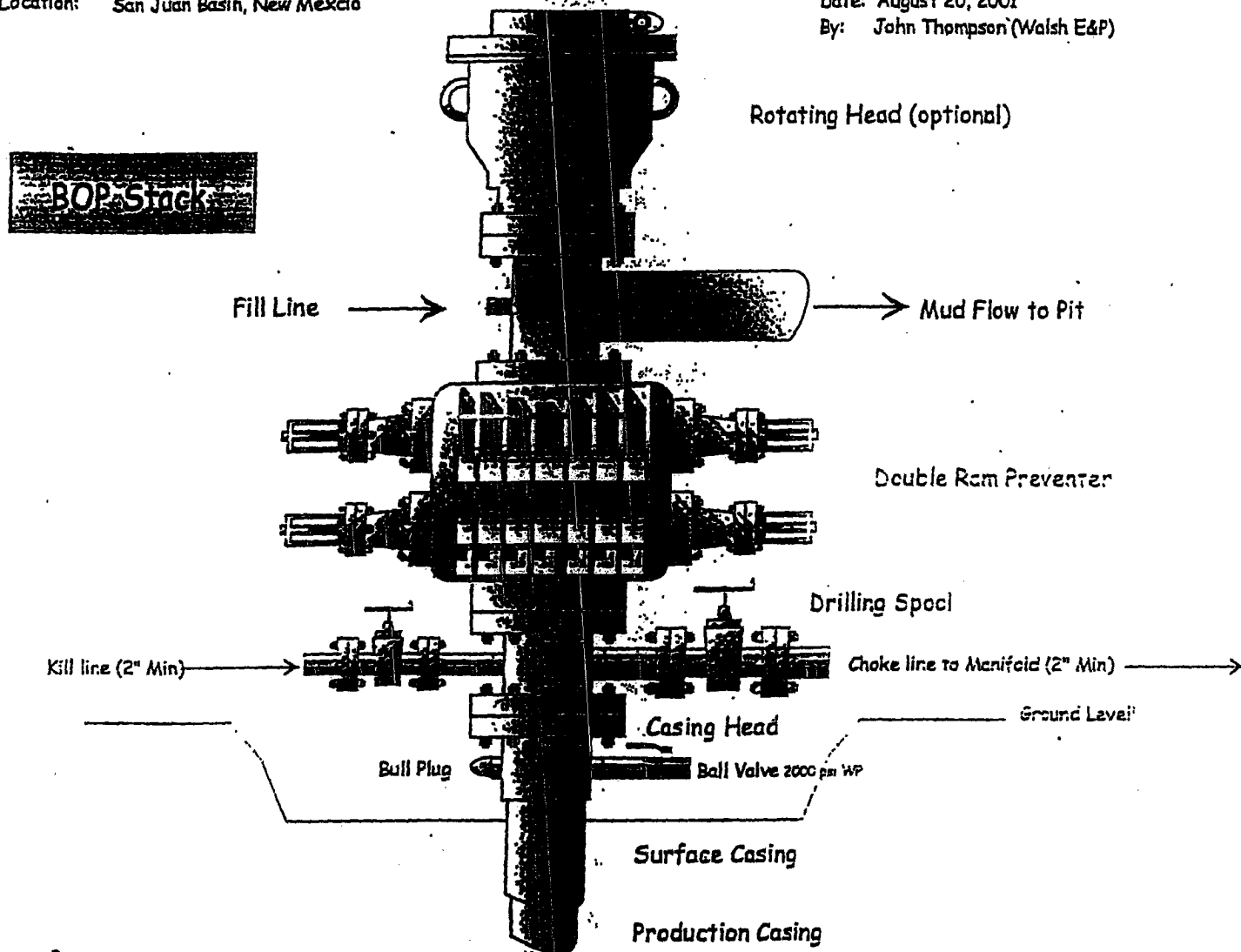
Attachment to Drilling Technical Program

Typical BOP setup

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)



Working Pressure for all equipment  
is 2,000 psi or greater