

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.  
SF-078772  
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 070 FARMINGTON ☒ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.  
238A

2. Name of Operator

9. API Well No.  
30-039-29967

3a. Address  
Williams Production Company, LLC

3b. Phone No. (include area code)

10. Field and Pool, or Exploratory

P.O. Box 640 Aztec, NM 87410

(505) 634-4208

Basin Fruitland Coal

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

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

At surface 2325' FSL & 1765' FEL

At proposed prod. zone 2325' FSL & 2290' FWL

K Section 3, 31N, 6W

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

12. County or Parish

13. State

approximately 26 miles northeast of Blanco, New Mexico

Rio Arriba

NM

15. Distance from proposed\*

16. No. of Acres in lease

17. Spacing Unit dedicated to this well

location to nearest property or lease line, ft.  
(Also to nearest drig. unit line, if any)

1765'

2,561.86

350.54

252.87 Entire Section

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

50'

19. Proposed Depth

3,570'

20. BLM/BIA Bond No. on file

UT0847

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

22. Approximate date work will start\*

23. Estimated duration

6,354 GR

August 1, 2006

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

6-20-06

Drilling COM

Approved by (Signature)

Name (Printed/Typed)

Date

Title

Office

8/8/06

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 Blanco Mesaverde 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 Reclamation.

HOLD C104 FOR directional survey

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

This APD is also serving as an application to obtain a pipeline right-of-way (ROW) grant. A 87.30-foot pipeline tie would be required for this location, to be operated by Williams Field Services.

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

NMCCD

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>30-039-29967</b>		*Pool Code 71629		*Pool Name BASIN FRUITLAND COAL	
*Property Code 17033		*Property Name ROSA UNIT COM			*Well Number 238A
*OGRID No 120782		*Operator Name WILLIAMS PRODUCTION COMPANY			*Elevation 6354'

<sup>10</sup> Surface Location

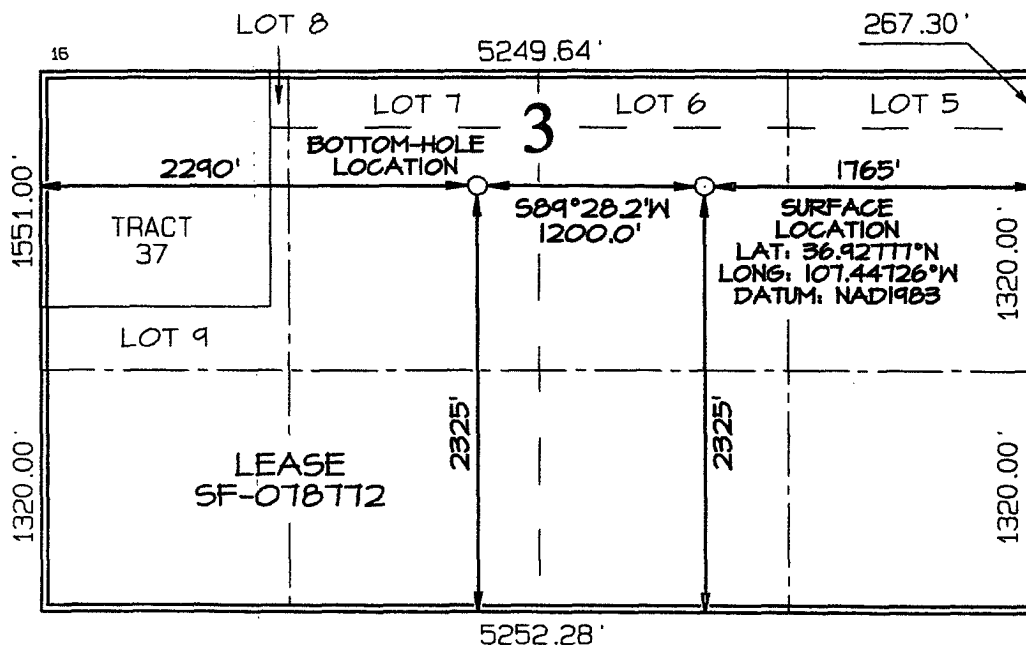
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	3	31N	6W		2325	SOUTH	1765	EAST	RIO ARriba

<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
K	3	31N	6W		2325	SOUTH	2290	WEST	RIO ARriba

<sup>12</sup> Dedicated Acres <del>352.87</del> Acres - Entire Section <b>350.04</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 Heger*

Printed Name

**DRILLING CO.**

Title

**L-20-06**

Date

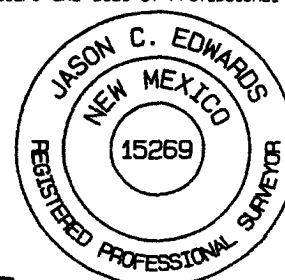
<sup>18</sup> SURVEYOR CERTIFICATION

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

Date Revised: APRIL 18, 2006

Survey Date: OCTOBER 17, 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

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

Form C-103

May 27, 2004

WELL API NO.

30-039-29967

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

6. State Oil & Gas Lease No.  
SF-078772

7. Lease Name or Unit Agreement Name

Rosa Unit

8. Well Number 238A

9. OGRID Number 120782

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 Production Company, LLC

3. Address of Operator

P.O. Box 640 Aztec, NM 87410

4. Well Location

Unit Letter J: 2325 feet from the south line and 1765 feet from the east line

Section 3 Township 31N Range 6W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6,354' 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 7200' <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.

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 6-20-06

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

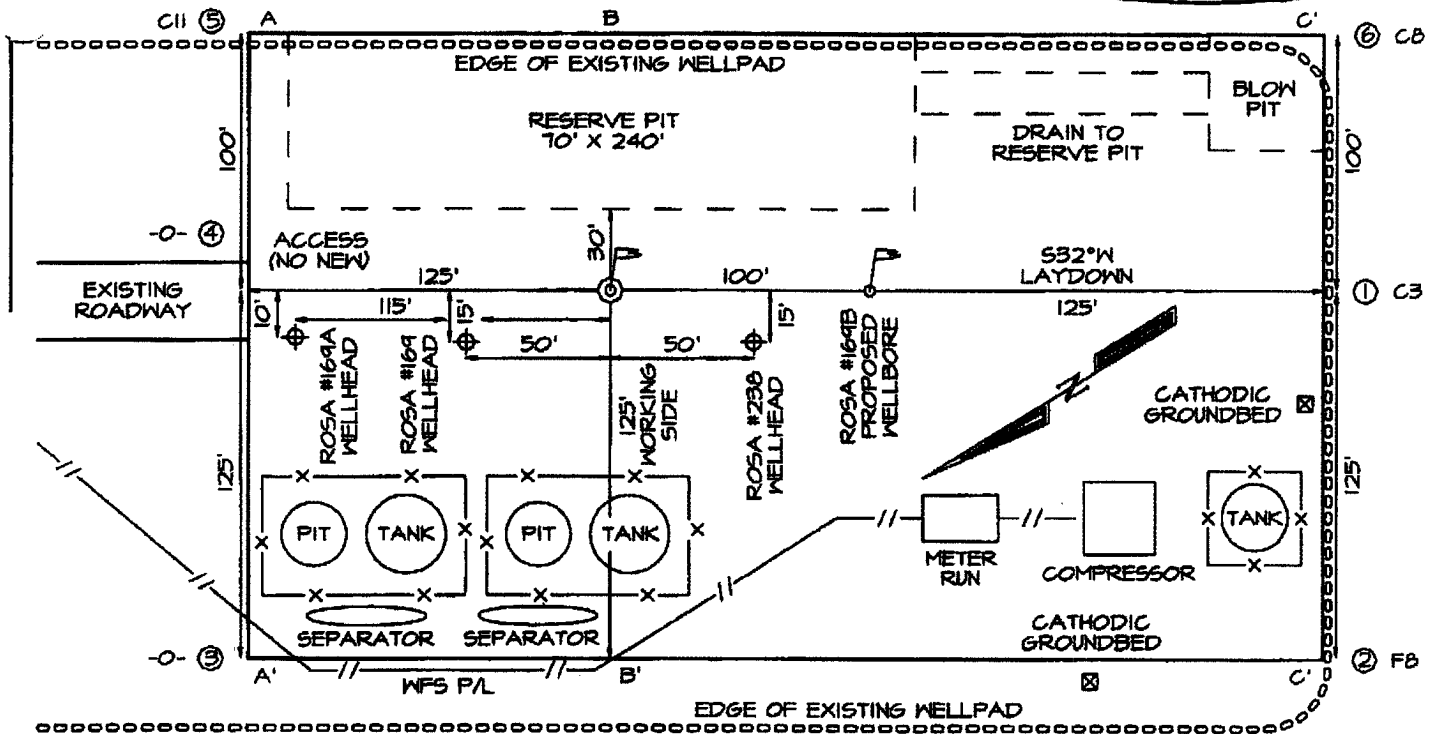
**For State Use Only**

APPROVED BY: [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. 4 DATE AUG 10 2006

Conditions of Approval (if any):

**WILLIAMS PRODUCTION COMPANY ROSA UNIT COM #238A**  
**2325' FSL & 1765' FEL, SECTION 3, T31N, R6W, NMPM**  
**RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6354'**

**LATITUDE: 36°55'40"**  
**LONGITUDE: 107°26'50"**  
 DATUM: NAD1983



A-A'						
6364'						
6354'						
6344'						

B-B'						
6364'						
6354'						
6344'						

C-C'						
6364'						
6354'						
6344'						



## WILLIAMS PRODUCTION COMPANY

### Operations Plan

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

**DATE:** 6/14/2006

**WELLNAME:** Rosa Unit #238A      **FIELD:** Basin Fruitland Coal

**BH LOCATION:** NESW Sec. 3-T31N-6W      **SURFACE:** BLM

**SURF LOCATION:** NWSE Sec 3-31N-6W      **MINERALS:** BLM  
Rio Arriba, NM

**ELEVATION:** 6,354' GR      **LEASE #** SF-078772

**TOTAL DEPTH:** 3,570'

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

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

NAME		TVD	MD		NAME		TVD	MD
San Jose		Surface	Surface		Top Coal		3,038	3,380
Nacimiento		1,023	1,044		Bottom Coal		3,128	3,470
Ojo Alamo		2,328	2,653		Pictured Cliffs		3,133	3,475
Kirtland		2,448	2,780		TD		3,228	3,570
Fruitland		2,903	3,245					

B. **LOGGING PROGRAM:** None

C. **NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

D. **MUD LOGGING PRORAM:** Mud logger will be on location at drill out below 7" casing to TD.

## 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 3,360', **DO NOT** drill deeper until Engineering is contacted.

B. **DRILLING FLUID:** Coal section will be drilled with Fruitland Coal water.

- C. **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	12 1/4	300	9 5/8	36	K-55
Intermediate	8 3/4	3,360	7	20	K-55
Liner	6 1/4	3,360 3,470	5 1/2	15.5	J-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 160 sx (224 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 **120% excess** to circulate the surface. WOC 12 hours. Total volume = 286 cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 420 sx (870 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 = 940 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.



**Weatherford®**

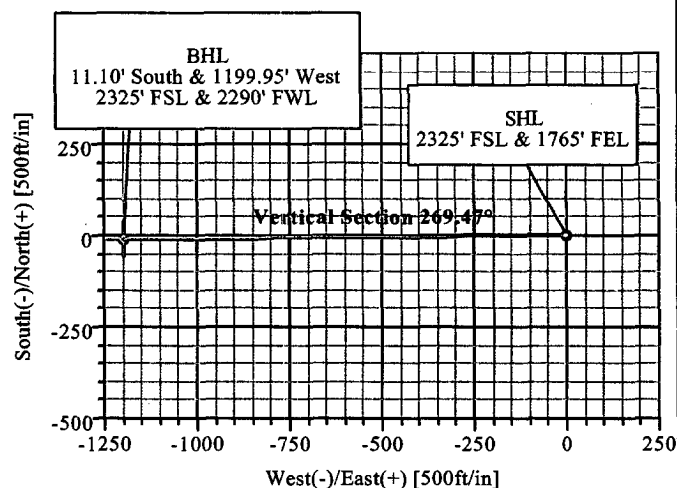
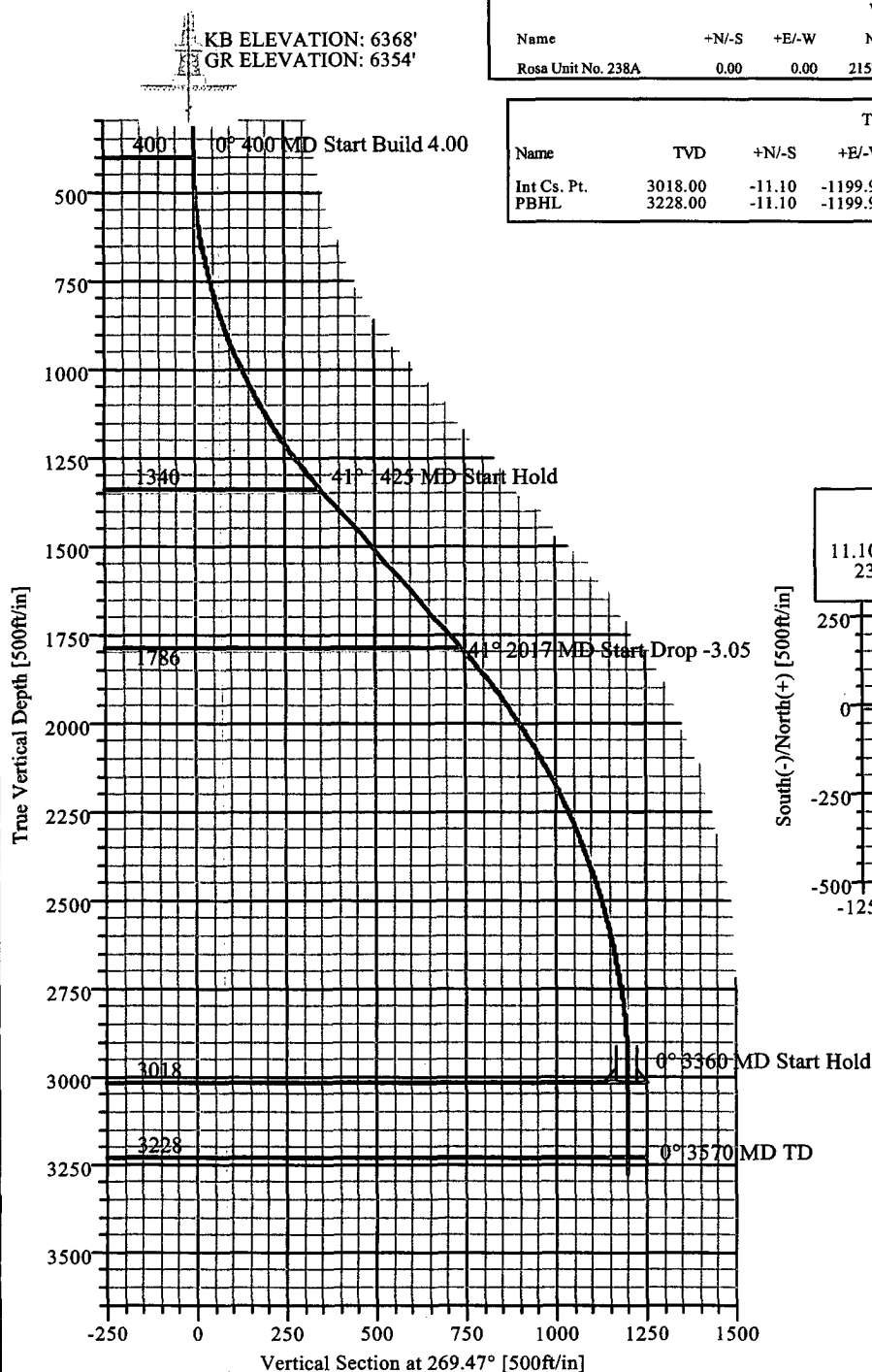
ROSA UNIT 238A  
Section 3 T31N R 6W  
2325' FSL & 1765' FEL  
RIO ARriba COUNTY, NM

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec Target
1	0.00	0.00	269.47	0.00	0.00	0.00	0.00	0.00	0.00
2	400.00	0.00	269.47	400.00	0.00	0.00	0.00	0.00	0.00
3	1425.00	41.00	269.47	1339.74	-3.25	-351.34	4.00	269.47	351.35
4	2016.55	41.00	269.47	1786.18	-6.84	-739.41	0.00	0.00	739.44
5	3360.13	0.00	269.47	3018.00	-11.10	-1199.95	3.05	180.00	1200.00 Int Cs. Pt.
6	3570.13	0.00	269.47	3228.00	-11.10	-1199.95	0.00	269.47	1200.00 PBHL

WELL DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rosa Unit No. 238A	0.00	0.00	2157271.95	2835951.71	36°55'40.000N	107°26'50.000W

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Int Cs. Pt.	3018.00	-11.10	-1199.95	36°55'39.890N	107°27'04.779W	Point
PBHL	3228.00	-11.10	-1199.95	36°55'39.890N	107°27'04.779W	Circle (Radius: 50)

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	1023.00	1044.53	Nacimiento
2	2328.00	2653.57	Ojo Alamo Ss.
3	2448.00	2780.99	Kirtland
4	2903.00	3245.06	Fruitland
5	3038.00	3380.13	Top Coal Interval
6	3128.00	3470.13	Base Coal Interval
7	3133.00	3475.13	Pictured Cliffs Ss



T  
Azimuths to True North  
Magnetic North: 10.39°  
Magnetic Field  
Strength: 51450nT  
Dip Angle: 63.81°  
Date: 6/13/2006  
Model: igrf2005  
Total Correction 10.39°

Plan: Plan #1 (Rosa Unit 238A/1) p1  
Created By: Jose Perez Date: 06/13/2006  
Weatherford Drilling Services  
3611 Plaza East Court  
Granbury TX 76049  
(817) 573 8500 MAIN  
(817) 573 8001 FAX

## **GEOLOGIC PROGNOSIS**

Company: **Williams Production Company. LLC**  
Project: **2006 Drilling Plan (Fruitland Fm. Coal)**  
Area: **Rosa Unit**

Operator: **Williams Production Company. LLC**  
Well Name: **Rosa Unit Com. No. 238A (Kfc-Directional)**  
Location: **NWSE 03-31N-06W**  
Footage: **2325' FSL & 1765' FEL**  
County/State: **Rio Arriba/New Mexico**

Surveyed GL: 6354 Est: (14') KB: 6368

<b><u>Formation</u></b>	<b><u>Thickness</u></b>	<b><u>TVD</u></b>	<b><u>Struct. Elev.</u></b>
<i>San Jose Fm.</i>	1023	Surface	6354
<i>Nacimiento Fm.</i>	1305	1023	5345
<i>Ojo Alamo Ss.</i>	120	2328	4040
<i>Kirtland Sh.</i>	455	2448	3920
<i>Fruitland Fm.</i>	115	2903	3465
<b><u>Int. Csg. Depth</u></b>	20	<b><u>3018</u></b>	3350
<i>Top Coal Interval</i>	90	3038	<b><u>3330</u></b>
<i>Base Coal Interval</i>	5	3128	3240
<i>Pictured Cliffs Ss.</i>	95	3133	3235
<b><u>Total Depth</u></b>	NA	<b><u>3228</u></b>	3140

**Mud Log** Mud log (5"=100') from intermediate casing to TD  
(Mud Logger to pick TD)

**Mechanical Logs:** None

**Correlation Logs:** Rosa Unit No. 169 (NWSE 03-31N-06W)

**Notes:** This well will be directionally drilled to a BHL  
2325' FSL & 2920' FWL 03-31N-06W



# WATKINS PRODUCTION Company, LLC Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

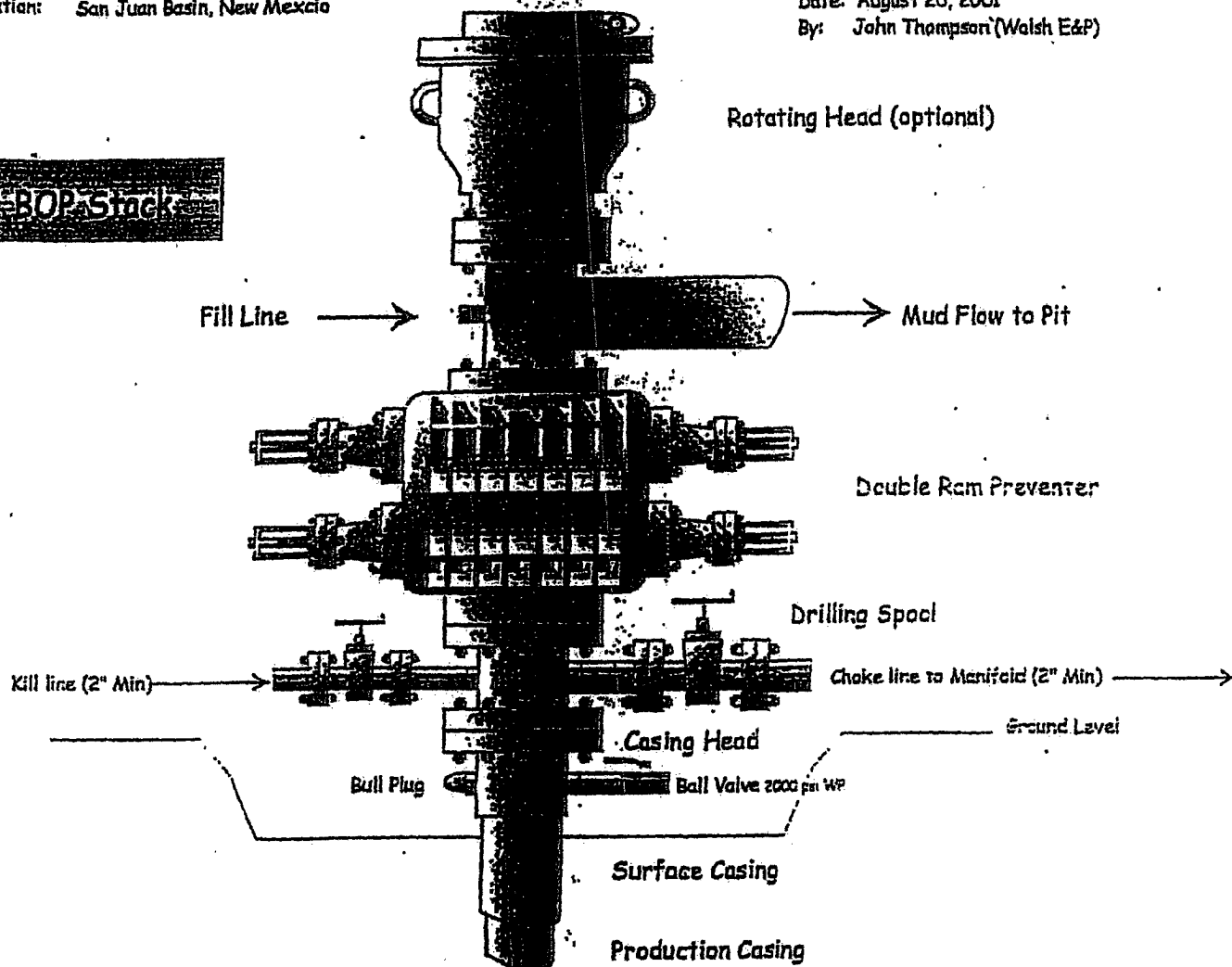
## Typical BOP setup

Location: San Juan Basin, New Mexico

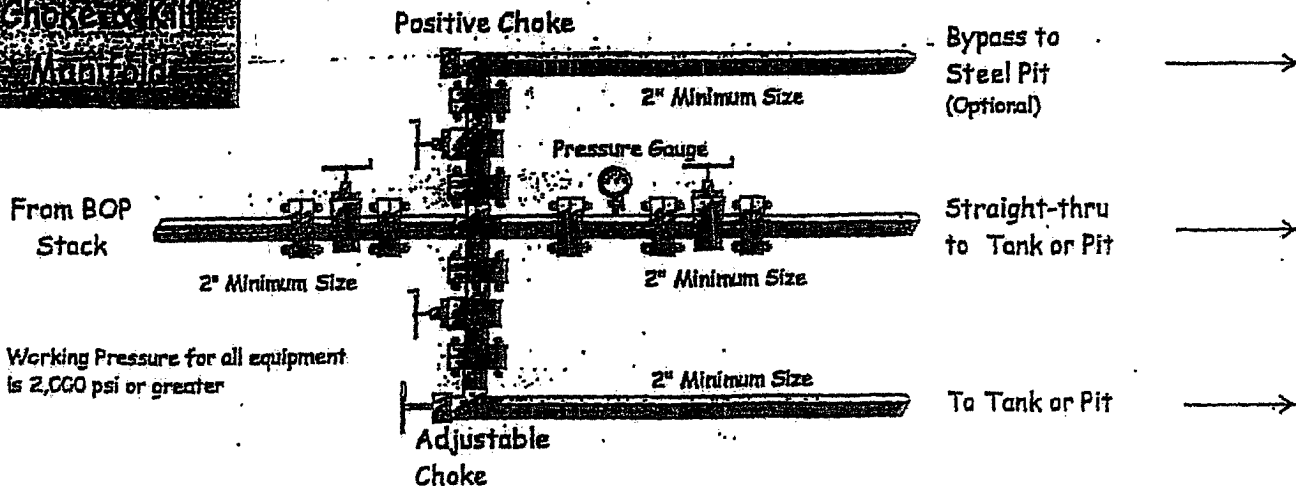
Date: August 20, 2001

By: John Thompson (Walsh E&P)

**BOP Stack**



**Choke & Kill Manifold**



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

## 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 within interbedded shales	Possible	Yes	Possible	No	Possible
Lewis	Shale 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 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.