

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

JAN 03 2007

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

Bureau of Land Management
Farmington Field Office

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SF-078770	
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 640 Aztec, NM 87410		8. Lease Name and Well No. 378A	
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 30-039-30152	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 510' FSL & 2225' FEL, Section 27, T.31N, R.5W. At proposed prod. zone 990' FSL & 2225' FEL, Section 27, T.31N, R.5W		10. Field and Pool, or Exploratory Basin Fruitland Coal	
11. Sec, T, R, M, or Blk. and Survey or Area BHL Section 27, T31N, R5W Surface Section 27, T31N, R5W		12. County or Parish Rio Arriba	
14. Distance in miles and direction from nearest town or post office* approximately 32 miles northeast of Blanco, New Mexico		13. State NM	
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any) 510'	16. No. of Acres in lease 2,560.00	17. Spacing Unit dedicated to this well 320.00 C Marquez 319.92 (E/2) Section 27	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1500'	19. Proposed Depth 3,752'	20. BLM/BIA Bond No. on file UT0847 UTO899	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6758 GR	22. Approximate date work will start* June 1, 2007	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

RCVD MAR 18 '08

OIL CONS. DIV.

DIST. 2

25. Signature <i>Larry Higgins</i>	Name (Printed/Typed) Larry Higgins	Date 1-2-07
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFM	Date 3/14/08
Title AFM	Office FFO	

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 U S Forest Service, Jicarilla Ranger District, Carson National Forest.

This location has been archaeologically surveyed La Plata Archaeological Consultants. Copies of their report have been submitted directly to the USFS, Jicarilla Ranger District

This APD is also serving as an application to obtain an access road and gas pipeline Required for this location is a 1,400.00-foot access road, and a gas pipeline of 1,600.50 feet, to be placed adjacent to the access road

Hold C104

for Directional Survey
and "As Drilled" plat

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

NMOCDB
MAR 24 2008 AV

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

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.5
and appeal pursuant to 43 CFR 3165.4

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

RECEIVED

JAN 02 2007

Form C-102
Revised February 21, 1994
Instructions on back
Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088
Bureau of Land Management
Farmington Field Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30152		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 378A
*OGRID No 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 6758'

¹⁰ Surface Location

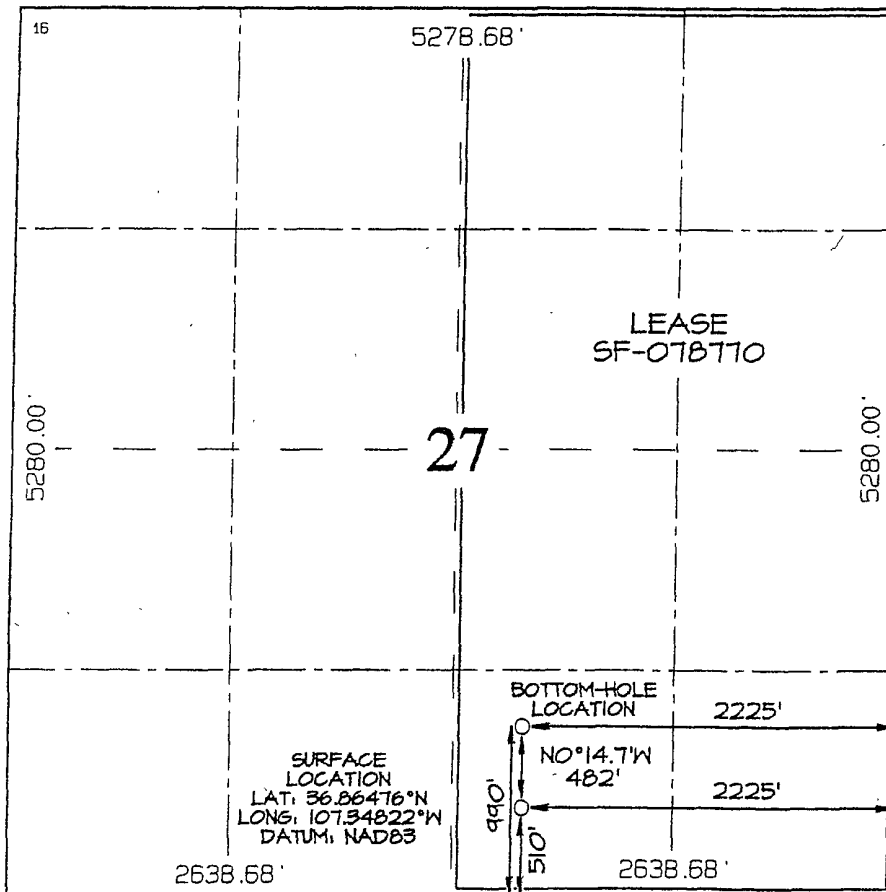
U. or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	27	31N	5W		510	SOUTH	2225	EAST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

U. or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	27	31N	5W		990	SOUTH	2225	EAST	RIO ARriba

¹² Dedicated Acres 320.0 Acres - (E/2)	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ 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



¹⁷ 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

DRILLING CO.
Title

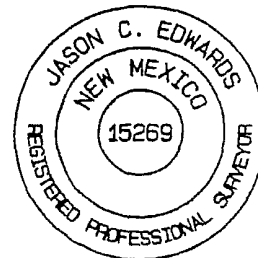
1-2-07
Date

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: OCTOBER 13, 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
May 27, 2004

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

Well API NO. 30-039-30152
5. Indicate Type of Lease FEDERAL <input checked="" type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. SF-078770
7. Lease Name or Unit Agreement Name Rosa Unit
8. Well Number 378A
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 <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other	
2. Name of Operator Williams Production Company, LLC	
3. Address of Operator P.O. Box 640 Aztec, NM 87410	
4. Well Location: Surface: Unit Letter O: 510 feet from the south line and 2225 feet from the east line Section 27 Township 31N Range 5W NMPM County Rio Arriba Bottom Hole: Unit Letter O: 990 feet from the south line and 2225 feet from the east line Section 27 Township 31N Range 5W NMPM County Rio Arriba	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6,758' GR	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>	
Pit type <u>reserve</u> Depth to Groundwater <u>>100'</u> Distance from nearest fresh water well <u>>1,000'</u> Distance from nearest surface water <u>>1,000'</u>	
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:		SUBSEQUENT REPORT OF:	
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 checked="" 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.

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 1-2-07
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,
Conditions of Approval (if any): District #3 DATE MAR 24 2008



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 10/25/2006

WELLNAME: Rosa Unit #378A **FIELD:** Basin Fruitland Coal

BH LOCATION: SWSE Sec. 27-T31N-5W **SURFACE:** USFS

SURF LOCATION: SWSE Sec 27-31N-5W **MINERALS:** BLM
Rio Arriba, NM

ELEVATION: 6,758' GR **LEASE #** SF-078770

TOTAL DEPTH: 3,752'

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

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

NAME	TVD	MD	NAME	TVD	MD
San Jose	Surface	Surface	Top Coal	3,507	3,547
Nacimiento	1,682	1,698	Bottom Coal	3,612	3,652
Ojo Alamo	2,897	2,932	Pictured Cliffs	3,612	3,652
Kirtland	3,002	3,038	TD	3,712	3,752
Fruitland	3,352	3,392			

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. Mud logger to pick 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 3,527', **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:**

<u>CASING TYPE</u>	<u>OH SIZE (IN)</u>	<u>DEPTH (MD) (FT)</u>	<u>CASING SIZE (IN)</u>	<u>WEIGHT(LB)</u>	<u>GRADE</u>
Surface	12 1/4	300	9 5/8	36	K-55
Intermediate	8 3/4	3,527	7	20	K-55
Liner	6 1/4	3,427 3,652	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:** 5-1/2" whirler type cement nose guide shoe

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% CaCl₂ 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 - 440 sx (920 cu.ft.) of "Premium Light" with 8% gel, 1% CaCl₂ 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 (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 = 990 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

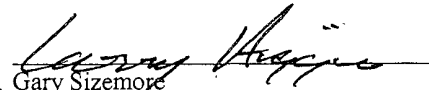
1. Pressure test 7" casing to 3300# for 15 minutes.

B. STIMULATION

1. Cavitate well with reciprocation and rotation. Surge wells with water and air and then flow back. 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", 6.5#, J-55, EUE tubing with a SN on top of bottom joint. Land tubing approximately 50' above TD.


FOR Gary Sizemore
Sr. Drilling Engineer

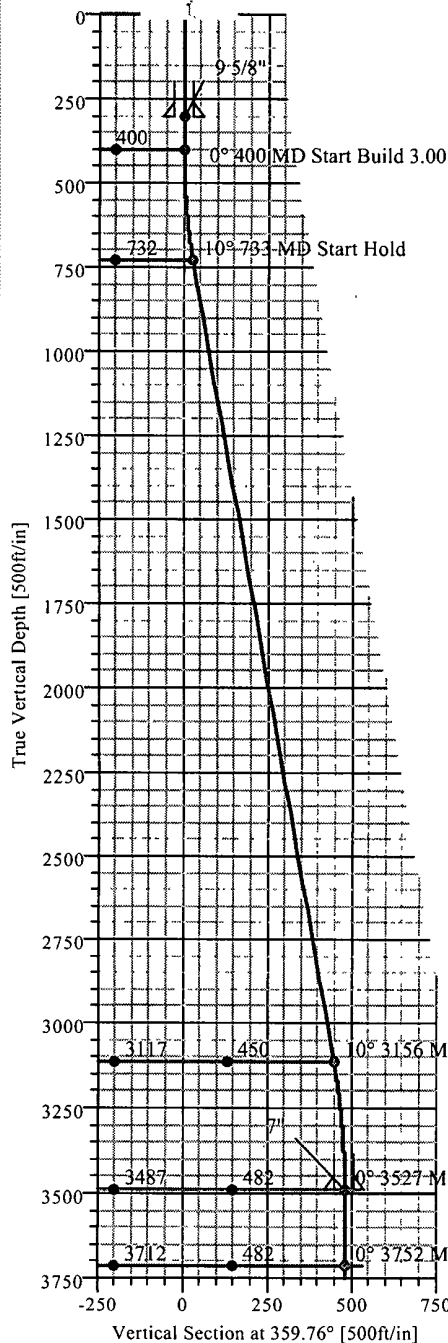


Rosa Unit 378 A
Section 27 T 31N R 5W
510' FSL & 2225' FEL
Rio Arriba County, NM
Plan 1



Weatherford

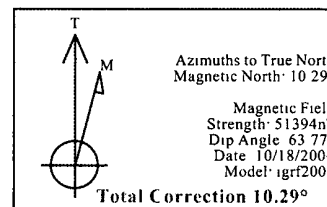
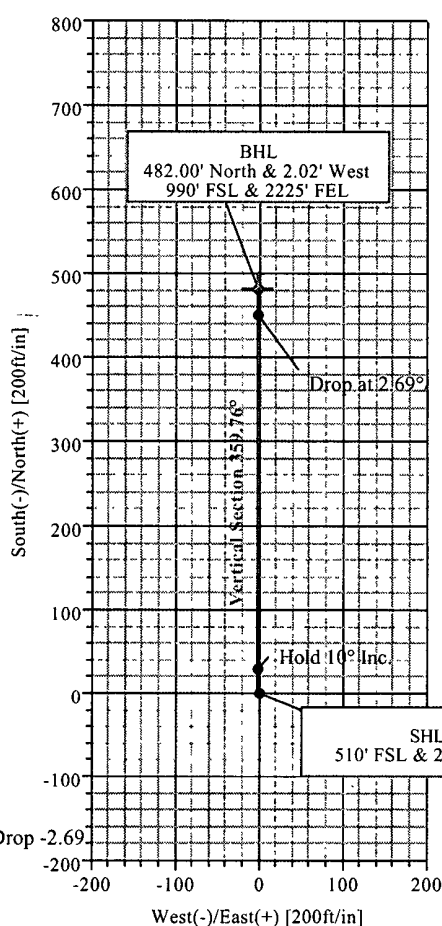
KB ELEVATION: 6772'
GR ELEVATION: 6758'



SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	I Face	VSec Target
1	0.00	0.00	359.76	0.00	0.00	0.00	0.00	0.00	0.00
2	400.00	0.00	359.76	400.00	0.00	0.00	0.00	0.00	0.00
3	733.33	10.00	359.76	731.64	29.01	-0.12	3.00	359.76	29.02
4	3155.62	10.00	359.76	3117.13	449.64	-1.88	0.00	0.00	449.64
5	3527.37	0.00	359.76	3487.00	482.00	-2.02	2.69	180.00	482.00 Int. Cs. Pt.
6	3752.37	0.00	359.76	3712.00	482.00	-2.02	0.00	359.76	482.00 PBHL

WELL DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rosa Unit 378A	0 00	0 00	2134461 45	2865005 56	36°51'53 136N	107°20'53 590W

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Int. Cs. Pt	3487 00	482.00	-2.02	2134943 43	2865001.09	Point
PBHL	3712.00	482 00	-2 02	2134943 43	2865001 09	Circle (Radius 50)



FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	1682.00	1698.35	Nacimiento
2	2897.00	2932.09	Ojo Alamo
3	3002.00	3038.71	Kirtland
4	3352.00	3392.28	Fruitland
5	3507.00	3547.37	Top Coal Interval
6	3612.00	3652.37	Base Coal

Plan Plan #1 (Rosa Unit 378 A)
Created By Jose Perez Date 10/18/06
Weatherford Drilling Services
11943 FM 529
Houston TX USA 77041
(713) 896 8194 MAIN
(713) 896 0498 FAX

GEOLOGIC PROGNOSIS

Company: Williams Production Company. LLC
Project: 2007 Drilling Plan (Fruitland Fm. Coal)
Area: Rosa Unit

Operator: Williams Production Company. LLC
Well Name: Rosa Unit No. 378A (Kfc-Directional)
Location: SWSE 27-31N-05W
Footage: 0510' FSL & 2225' FEL
County/State: Rio Arriba/New Mexico

Surveyed GL: 6758 Est: (14') KB: 6772

<u>Formation</u>	<u>Thickness</u>	<u>TVD</u>	<u>Struct. Elev.</u>
San Jose Fm.	1682	Surface	6758
Nacimiento Fm.	1215	1682	5090
Ojo Alamo Ss.	105	2897	3875
Kirtland Sh.	350	3002	3770
Fruitland Fm.	135	3352	3420
<u>Int. Csg. Depth</u>	20	<u>3487</u>	3285
Top Coal Interval	105	3507	3265
Base Coal Interval	0	3612	3160
Pictured Cliffs Ss.	100	3612	3160
<u>Total Depth</u>	NA	<u>3712</u>	3060

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

Mechanical Logs: None

Correlation Logs: Rosa Unit No. 272A (NWNW 35-31N-05W)

Notes: This well will be directionally drilled to a BHL
0990' FSL & 2225' FEL 27-31N-05W

No log control in quarter section

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:

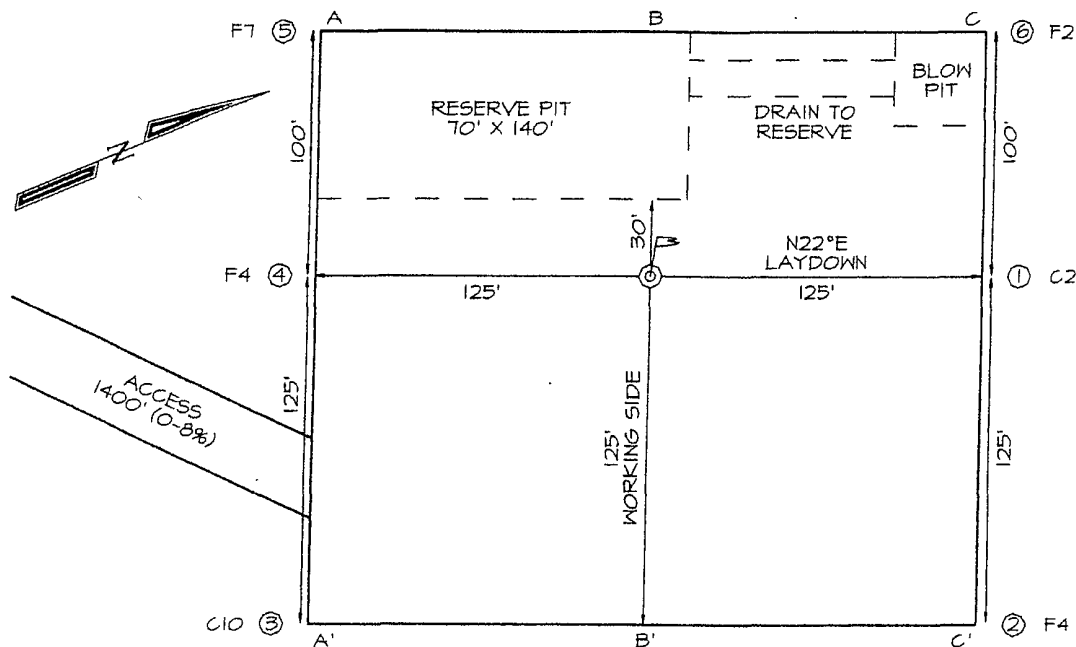
1. There are no overpressured zones expected in this well.
2. No H2S zones will be penetrated while drilling this well.

Mud System:

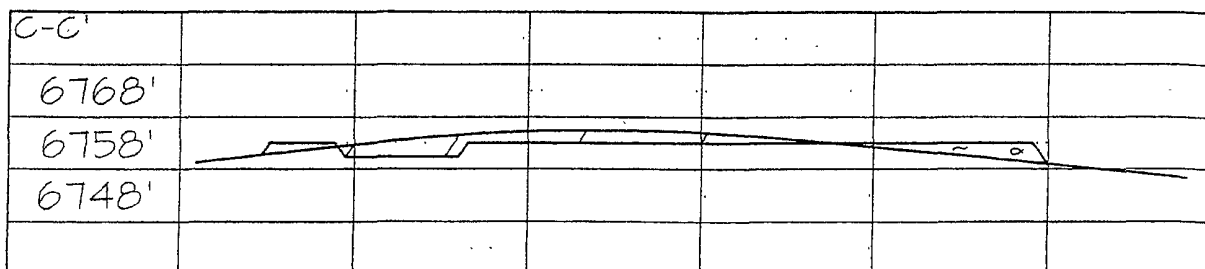
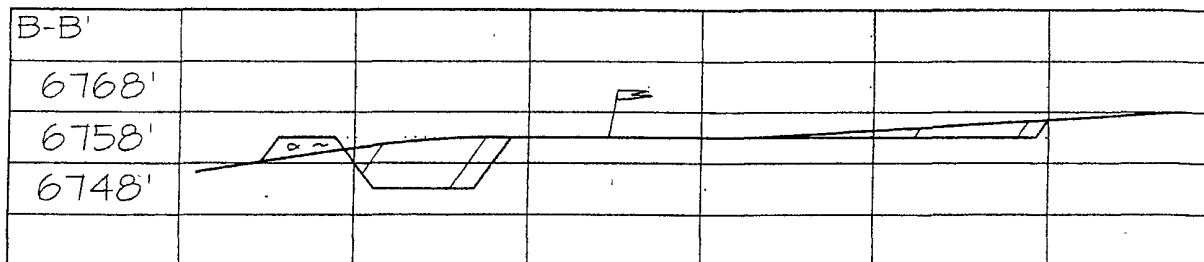
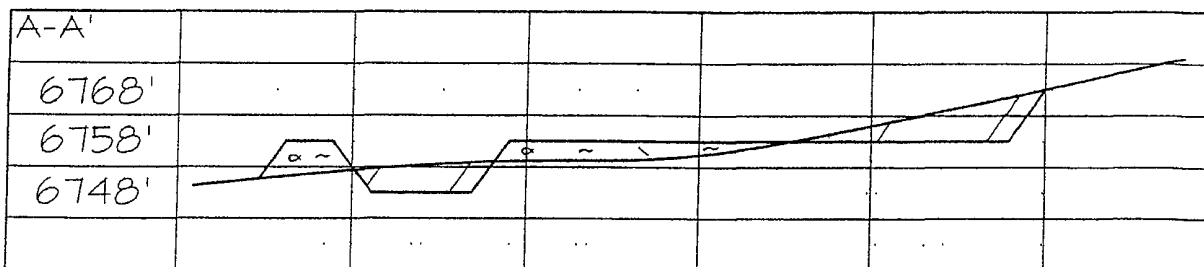
1. Surface - The surface hole will be drilled with a low-solids, non-dispersed system with starch and lost circulation material as needed. Expected mud weights will be in the 8.4 to 9.0 lb per gal range. Viscosities will be in the 30 to 60 sec/qrt range as needed to remove drill cuttings.
2. Intermediate - 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.

PLAT #1

WILLIAMS PRODUCTION COMPANY ROSA UNIT #378A
 510' FSL & 2225' FEL, SECTION 27, T31N, R5W, NMPM
 RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6758'



LATITUDE: 36.86476° N
 LONGITUDE: 107.34822° W
 DATUM: NAD1983



WILLIAMS PRODUCTION COMPANY, LLC

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

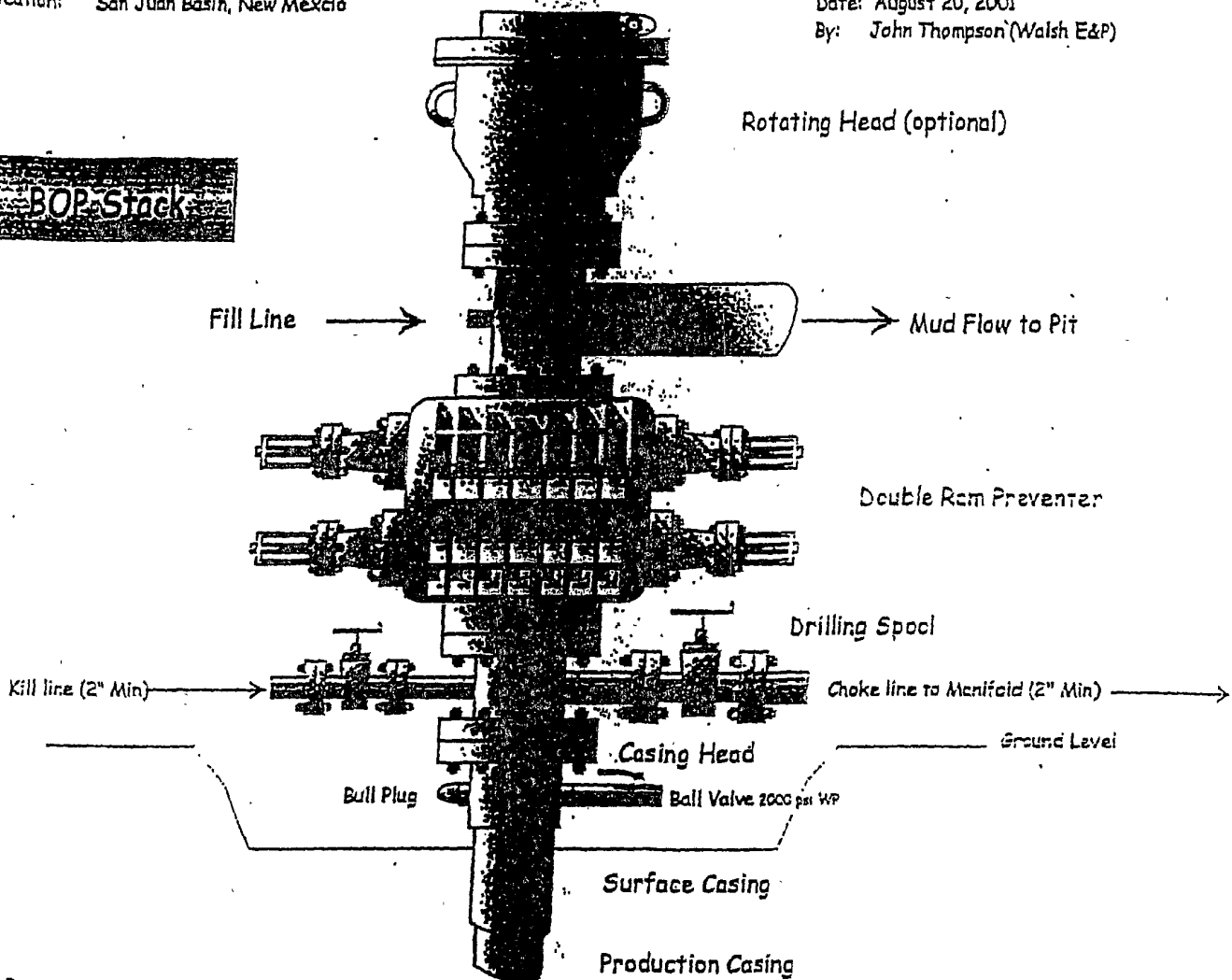
Typical BOP setup

Location: San Juan Basin, New Mexico

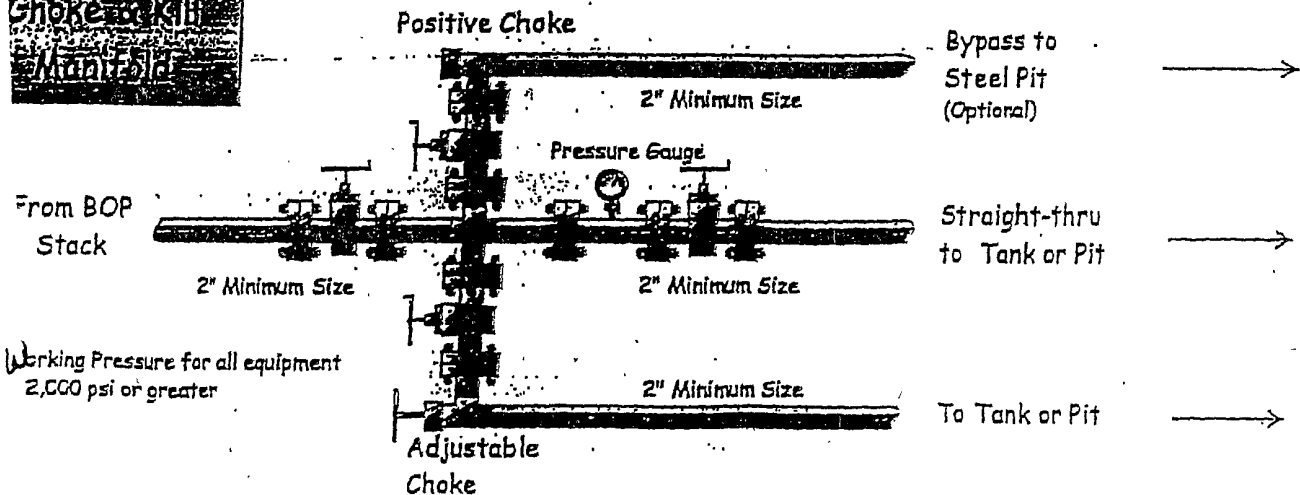
Date: August 20, 2001

By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold



Working Pressure for all equipment
2,000 psi or greater