

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-078768
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 1895' FNL & 1915' FWL

At proposed prod. zone 1190' FNL & 1190' FWL

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

approximately 31 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)

360'

16. No. of Acres in lease

2560.00

17. Spacing Unit dedicated to this well

320.00 (N/2)

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

500'

19. Proposed Depth

3697'

20. BLM/BIA Bond No. on file

UT0847

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

6543' GR

22. Approximate date work will start*

August 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

Larry Higgins

Name (Printed/Typed)

Larry Higgins

Date

5-30-06

Title

Drilling COM

Approved by (Signature)

[Signature]
AFM

Name (Printed/Typed)

Office

PFO

Date

8/21/07

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 1800-foot on-lease access road and a 2264.80-foot pipeline tie would be required for this location. Williams Field Services has filed a pipeline route plan for the associated pipeline. The pipeline would be owned and 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

HOLD 6104 FOR *directional* NMOC
survey

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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
RCVD AUG 23 '07

WELL LOCATION AND ACREAGE DEDICATION PLAT OIL CONS. DIV.

API Number		Pool Code 71629		Pool Name DIST. 3 BASIN FRUITLAND COAL	
Property Code 17033		Property Name ROSA UNIT			Well Number 377A
OGRID No. 120782		Operator Name WILLIAMS PRODUCTION COMPANY			Elevation 6543'

¹⁰ Surface Location

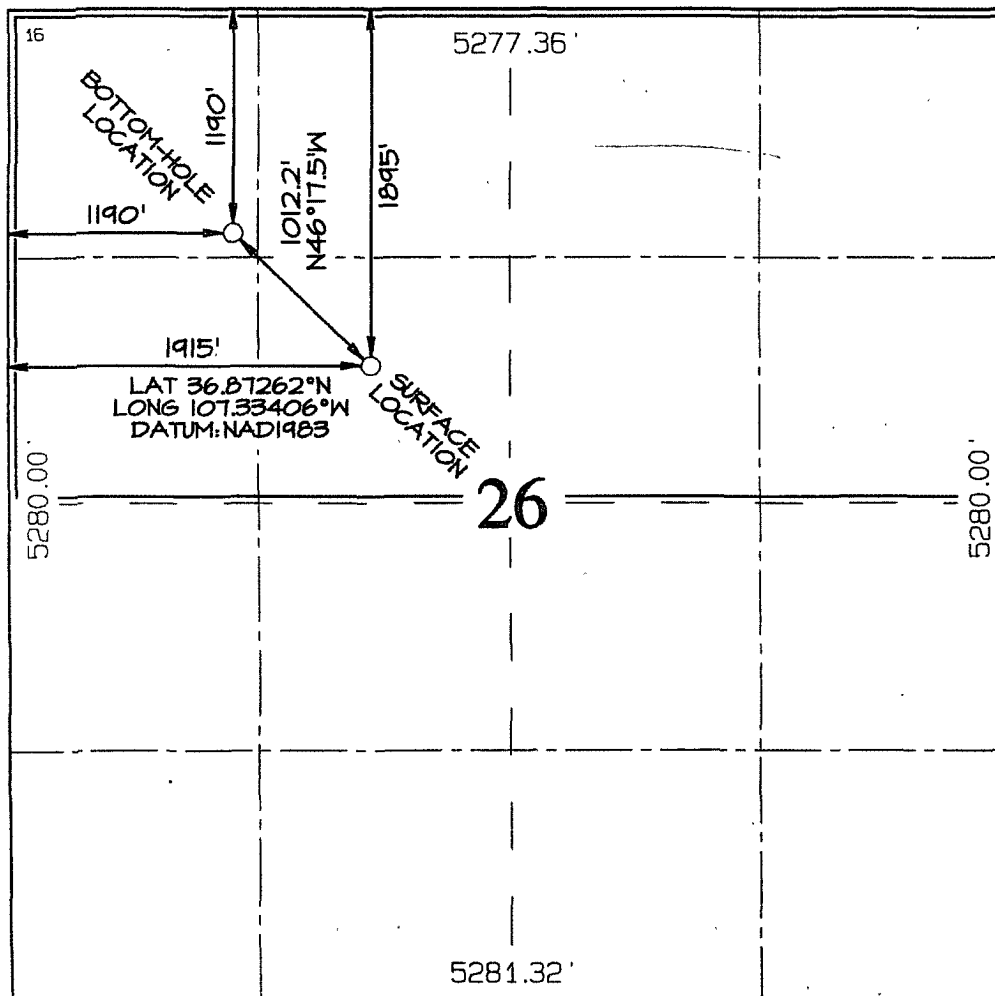
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	26	31N	5W		1895	NORTH	1915	WEST	RIO ARriba

¹¹ 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
D	26	31N	5W		1190	NORTH	1190	WEST	RIO ARriba

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



¹⁷ 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 CO. M.

Date
5-80-06

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: DECEMBER 2, 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

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.)		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 Production Company, LLC		6. State Oil & Gas Lease No. SF-078768
3. Address of Operator P.O. Box 640 Aztec, NM 87410		7. Lease Name or Unit Agreement Name Rosa Unit
4. Well Location Unit Letter F: 1895 feet from the north line and 1915 feet from the west line Section 26 Township 31N Range 5W NMPM County Rio Arriba		8. Well Number 377A
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6,543' GR		9. OGRID Number 120782
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>		
Pit type <input type="checkbox"/> reserve <input type="checkbox"/> Depth to Groundwater <input type="checkbox"/> >100' Distance from nearest fresh water well <input type="checkbox"/> >1,000' Distance from nearest surface water <input type="checkbox"/> >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:		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 530-06

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, DATE SEP 04 2007
District #3

Conditions of Approval (if any):



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 5/19/2006

WELLNAME: Rosa Unit #377A **FIELD:** Basin Fruitland Coal

BH LOCATION: NWNW Sec. 26-T31N-5W **SURFACE:** USFS

SURF LOCATION: SENW Sec 26-31N-5W
Rio Arriba, NM **MINERALS:** BLM

ELEVATION: 6,543' GR **LEASE #** SF-078768

TOTAL DEPTH: 3,697'

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

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

NAME		TVD	MD		NAME		TVD	MD
San Jose		Surface	Surface		Top Coal		3,297	3,506
Nacimiento		1,462	1,535		Bottom Coal		3,387	3,596
Ojo Alamo		2,697	2,900		Pictured Cliffs		3,387	3,596
Kirtland		2,807	3,013		TD		3,487	3,697
Fruitland		3,177	3,386					

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 PROGRAM:** 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 3,486', **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>HOLE SIZE</u>	<u>DEPTH (MD)</u>	<u>CASING SIZE</u>	<u>WT. & GRADE</u>
Surface	12-1/4"	+/- 300'	9-5/8"	36# K-55
Intermediate	8-3/4"	+/- 3,486'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,386'- 3,596'	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 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 **120% excess** to circulate the surface. WOC 12 hours. Total volume = ²²⁴206 cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 435 sx (907 cu.ft.) of "Type III" 65/35 poz 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, and 1% CaCl₂ (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 = 977 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**

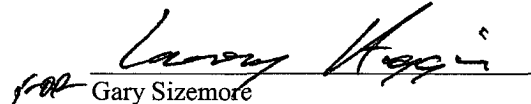
1. Pressure test 7" casing to 3300# for 15 minutes.

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



Weatherford®

ROSA UNIT #377A
SEC 26 T 31 R 5W
1895' FNL & 1915' FWL
RIO ARriba COUNTY, NM

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	313.71	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	313.71	400.00	0.00	0.00	0.00	0.00	0.00	
3	1062.50	26.50	313.71	1039.13	103.99	-108.79	4.00	313.71	150.50	
4	2534.16	26.50	313.71	2356.17	557.75	-583.44	0.00	0.00	807.15	
5	3436.83	0.00	313.71	3227.00	699.44	-731.67	2.94	180.00	1012.20	
6	3486.83	0.00	313.71	3277.00	699.44	-731.67	0.00	0.00	1012.20	Int. Cs. Pt.
7	3696.83	0.00	313.71	3487.00	699.44	-731.67	0.00	313.71	1012.20	BHL

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 377A	0.00	0.00	2137344.35	2869132.63	36°52'21.432N	107°20'02.616W	N/A

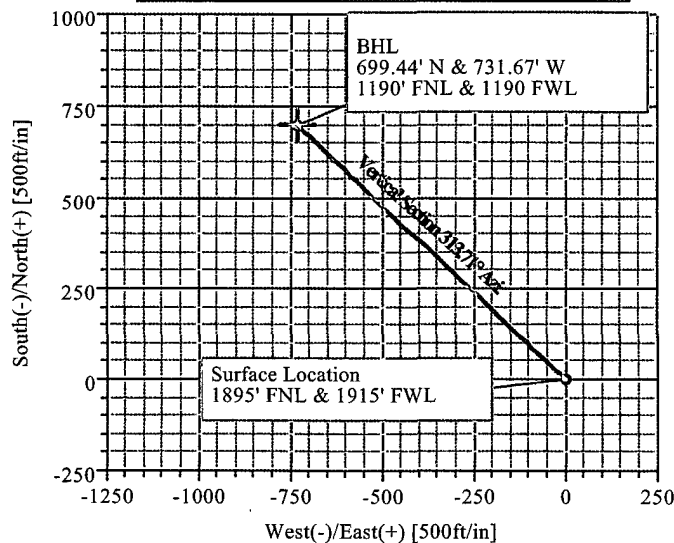
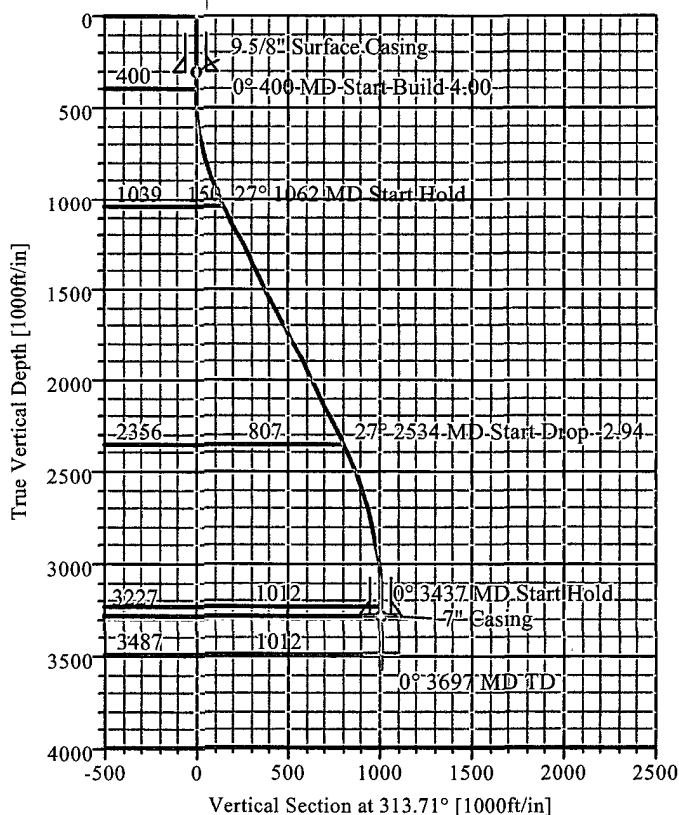
TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Int. Cs. Pt.	3277.00	699.44	-731.67	36°52'28.348N	107°20'11.621W	Point
BHL	3487.00	699.44	-731.67	36°52'28.348N	107°20'11.621W	Point

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	1462.00	1535.01	Nacimiento
2	2697.00	2900.09	Ojo Alamo
3	2807.00	3013.52	Kirtland
4	3177.00	3386.82	Fruitland
5	3297.00	3506.83	Top Coal Interval
6	3387.00	3596.83	Base Coal Interval
7	3387.00	3596.83	Pictured Cliffs

KB ELEVATION: 6557'
GR ELEVATION: 6543'



Azimuths to True North
Magnetic North: 10.34°

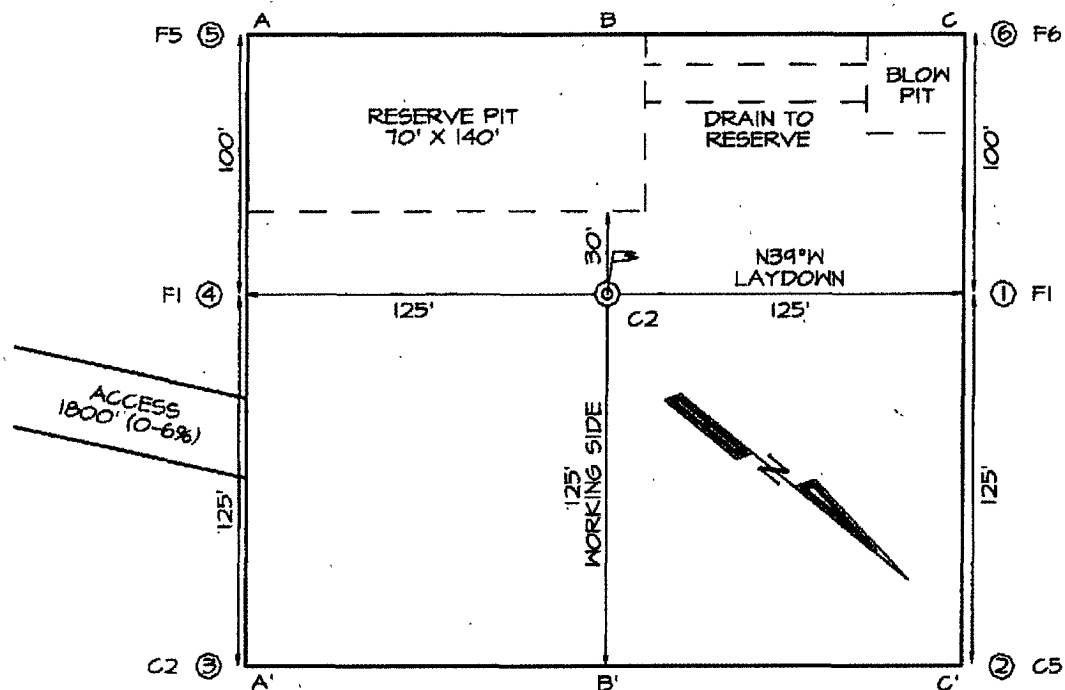
Magnetic Field
Strength: 51443nT
Dip Angle: 63.78°
Date: 5/10/2006
Model: igrf2005

Total Correction 10.34°

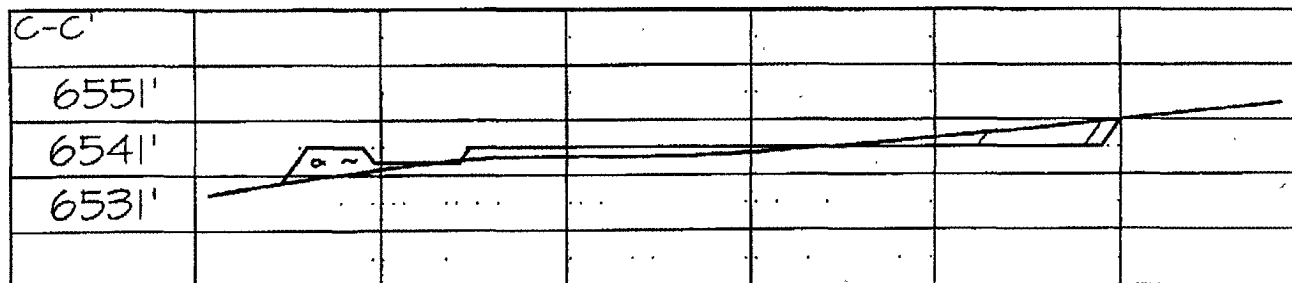
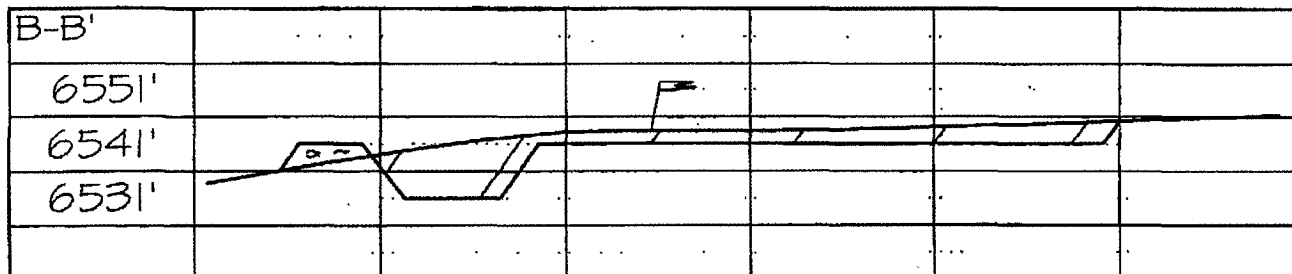
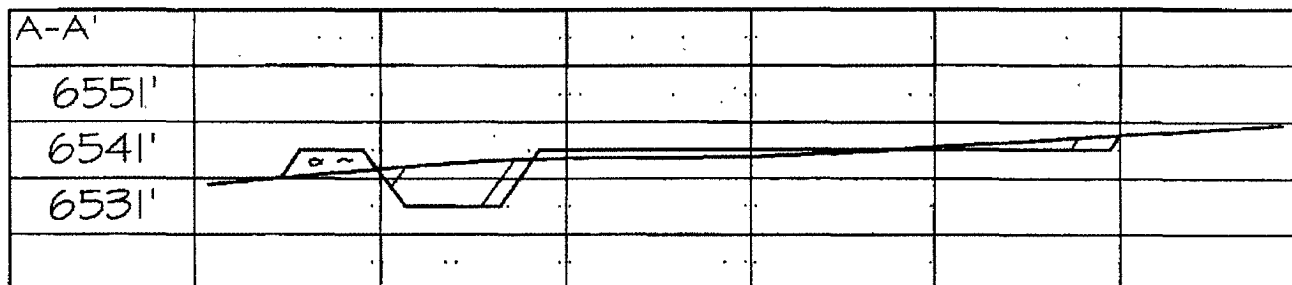
Plan: Plan #1 (Rosa Unit #377A)

Created By Jose Perez Date: 5/10/2006
Weatherford Drilling Services
Granbury Office
3611 Plaza East Court
Granbury, TX 76049
(817) 573 8500 Main
(817) 573 8001 Fax

WILLIAMS PRODUCTION COMPANY ROSA UNIT #377A
1895' FNL & 1915' FWL, SECTION 26, T31N, R5W, NMPM
RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6543'



LATITUDE: 36.87262° N
LONGITUDE: 107.33406° W
 DATUM: NAD1983



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. 377A (Kfc-Directional)**
Location: **SENW 26-31N-05W**
Footage: **1895' FNL & 1915' FWL**
County/State: **Rio Arriba/New Mexico**

Surveyed GL: 6543 Est: (14') KB: 6557

<u>Formation</u>	<u>Thickness</u>	<u>TVD</u>	<u>Struct. Elev.</u>
San Jose Fm.	1462	Surface	6543
Nacimiento Fm.	1235	1462	5095
Ojo Alamo Ss.	110	2697	3860
Kirtland Sh.	370	2807	3750
Fruitland Fm.	100	3177	3380
<u>Int. Csg. Depth</u>	20	<u>3277</u>	3280
Top Coal Interval	90	3297	3260
Base Coal Interval	0	3387	3170
Pictured Cliffs Ss.	100	3387	3170
<u>Total Depth</u>	NA	<u>3487</u>	3070

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

Mechanical Logs: None

Correlation Logs: Rosa Unit No. 132 (SWSW 22-31N-05W)
Rosa Unit No. 344 (NWSW 25-31N-05W)

Notes: This well will be directionally drilled to a BHL
1190' FNL & 1190' FWL 26-31N-05W

GENERAL ROSA DRILLING PLAN

Rosa Unit boundries:

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.

Williams Production Company, LLC

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

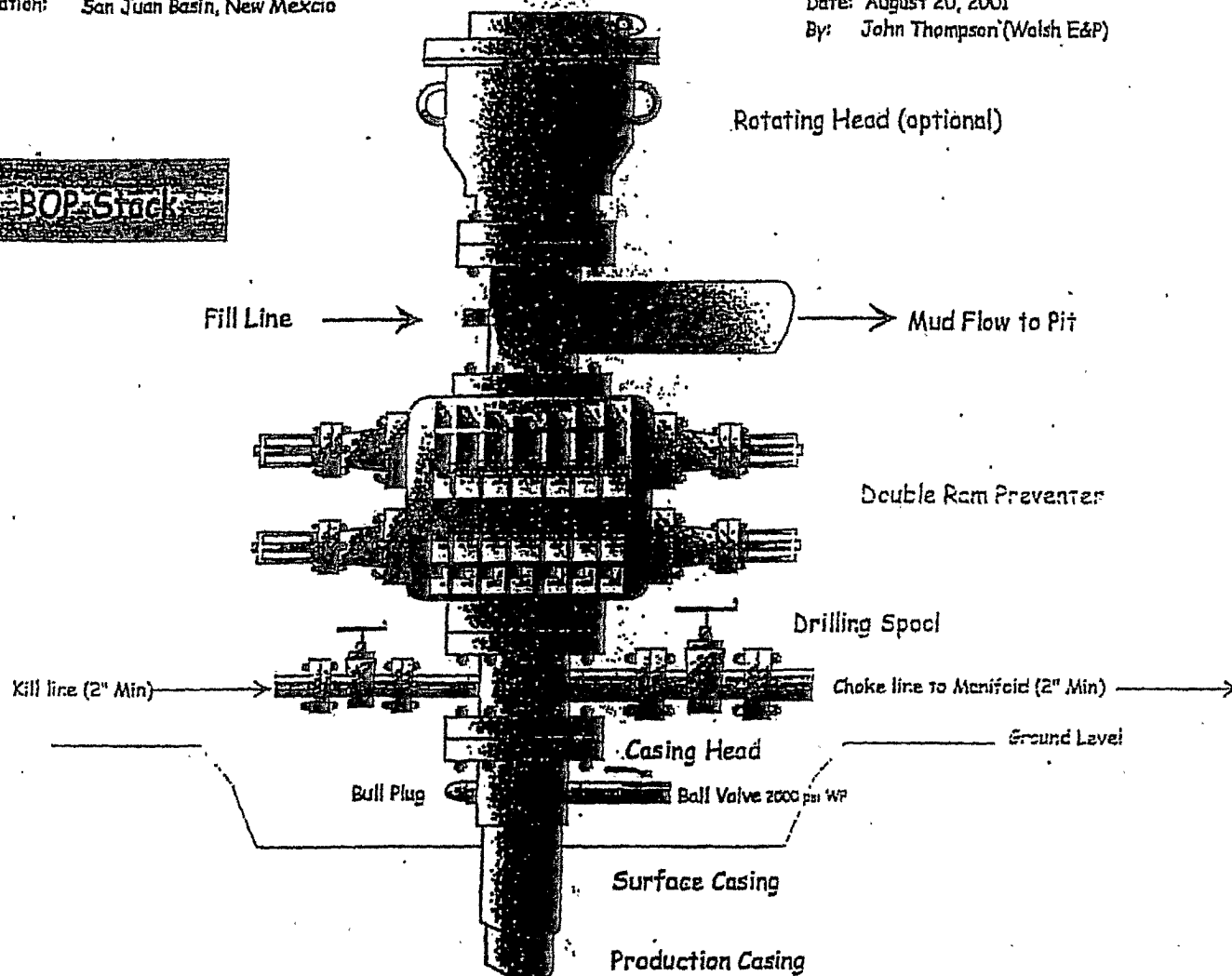
Typical BOP setup

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold

