

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-078891
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		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. 388
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 30-039-29965
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2640' FNL & 2475' FWL At proposed prod. zone 760' FNL & 760' FEL L&1/A		10. Field and Pool, or Exploratory Basin Fruitland Coal
14. Distance in miles and direction from nearest town or post office* approximately 35 miles northeast of Navajo City, New Mexico		11. Sec., T., R., M., or Blk. and Survey or Area F - Section 1, 31N, 4W
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 760'	16. No. of Acres in lease 1965.72	12. County or Parish Rio Arriba
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 6544'	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,008' GR	22. Approximate date work will start* August 1, 2006	17. Spacing Unit dedicated to this well 331.82 (E/2) 20. BLM/BIA Bond No. on file UT0847
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:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- 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 6-20-06
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFM	Date 9/7/07
Title AFM	Office FEO	

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.

This location would be twinned with the Rosa Unit Nos. 280A and 388A wells. The access road would be the same as for the Rosa Unit No. 280A well. A 74.80-foot pipeline tie would be required for this location. Williams Four Corners has filed a pipeline route plan for the associated pipeline. The pipeline would be owned and operated by Williams Four Corners, LLC.

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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

NMOCD

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.8
and appeal pursuant to 43 CFR 3165.4

9-17-07
aw

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer 00, 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 30.039.29965		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 388
*OGRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 7008'

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	1	31N	4W		2640	NORTH	2475	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
A	1	31N	4W	①	760	NORTH	760	EAST	RIO ARriba

¹² Dedicated Acres 331.82 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

¹⁶

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 COM
Date: 6-20-06

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: OCTOBER 14, 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. 30-039-29965	
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-078891	
7. Lease Name or Unit Agreement Name Rosa Unit	
8. Well Number	388
9. OGRID Number	120782
Basin Fruitland Coal	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 7,008' 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: <u>12 mil</u> Below-Grade Tank: Volume <u> </u> bbls; Construction Material <u> </u>	

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 F: 2640 feet from the north line and 2475 feet from the west line
Section 1 Township 31N Range 4W NMPM County Rio Arriba

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.

The proposed Rosa Unit 388 will be twinned with the Rosa Unit Nos. 280A and 388A wells, and a single reserve pit will serve all three wells.

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 DATE SEP 17 2007

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 #388 **FIELD:** Basin Fruitland Coal

BH LOCATION: NENE Sec. 1-T31N-4W **SURFACE:** USFS

SURF LOCATION: SENW Sec 1-31N-4W
Rio Arriba, NM **MINERALS:** BLM

ELEVATION: 7,008' GR **LEASE #** SF-078891

TOTAL DEPTH: 6,544'

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

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

NAME		TVD	MD		NAME		TVD	MD
San Jose		Surface	Surface		Top Coal		3,947	4,030
Nacimiento		2,127	2,127		Top Target Coal		3,947	4,341
Ojo Alamo		3,397	3,397		Bottom Target Coal		3,962	4,356
Kirtland		3,497	3,497		TD		3,962	6,544
Fruitland		3,767	3,972					

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 from 500' above Ojo Alamo to TD of intermediate casing. Then from drillout of intermediate 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 4,198', **DO NOT** drill deeper until Engineering is contacted.

B. **DRILLING FLUID:** Horizontal section will be drilled with Calcium Chloride 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"	+/- 4,198'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,365'- 6,544'	4-1/2"	10.5# 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 = ~~206~~ ²²⁴ cu.ft. Test to 1500#.
2. **INTERMEDIATE:** Lead - 510 sx (1,059 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 - 100 sx (139cu.ft.) of "Type III" with 1/4# cello-flake/sk, and 1% CaCl₂ (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 = 1,198 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.

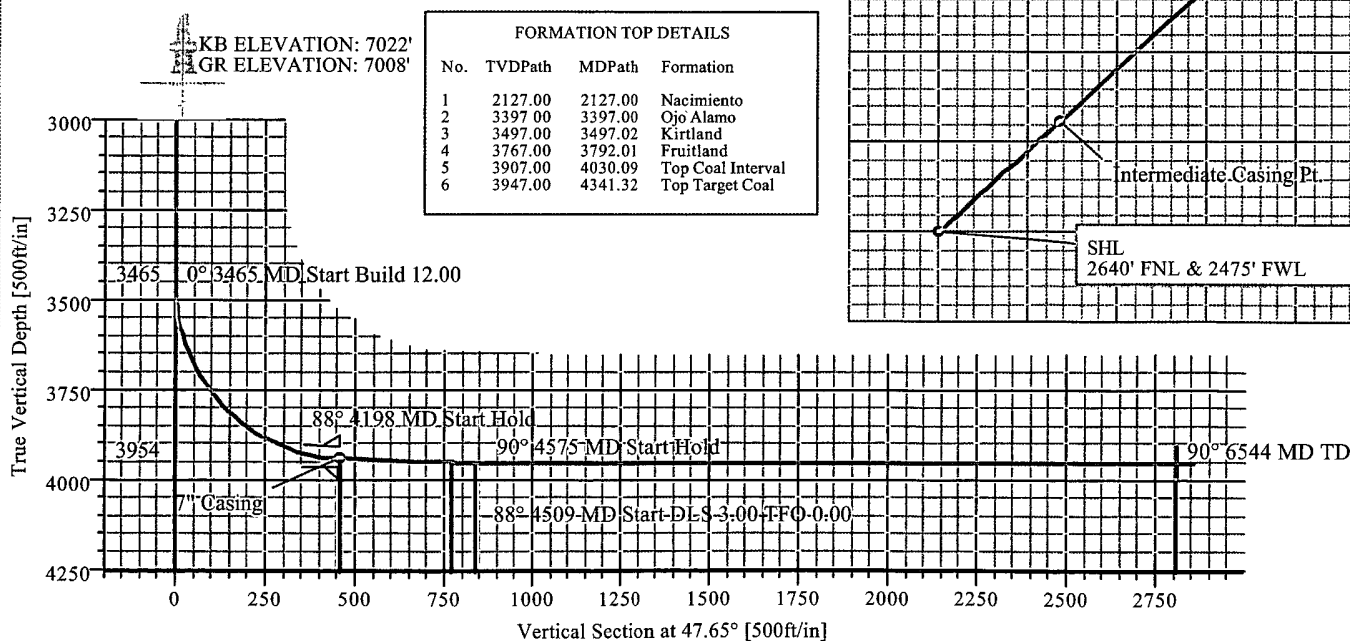
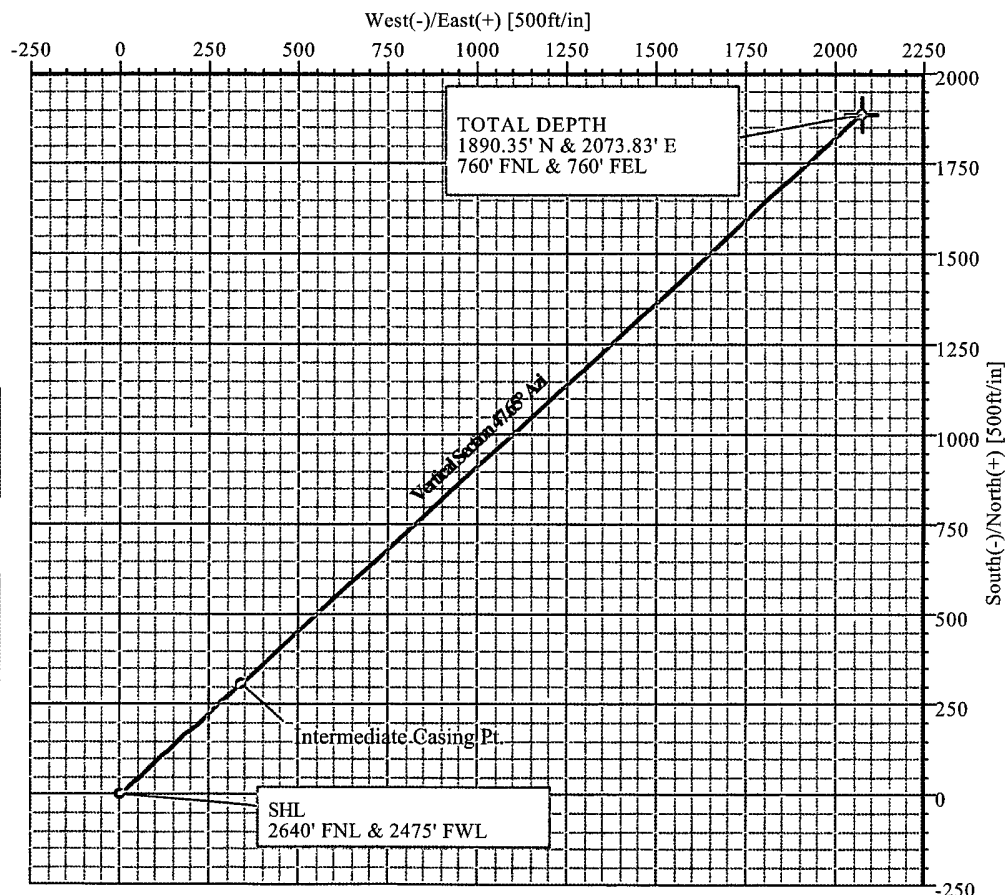


ROSA UNIT #388
Section 1 T 31N R 4W
2640' FNL & 2475' FWL
RIO ARriba COUNTY, NM

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	47.65	0.00	0.00	0.00	0.00	0.00	0.00	
2	3464.83	0.00	47.65	3464.83	0.00	0.00	0.00	47.65	0.00	
3	4198.16	88.00	47.65	3942.00	310.42	340.55	12.00	47.65	460.80	
4	4508.56	88.00	47.65	3952.84	519.39	569.81	0.00	0.00	771.01	
5	4575.22	90.00	47.65	3954.00	564.30	619.07	3.00	0.00	837.66	
6	6543.66	90.00	47.65	3954.00	1890.35	2073.83	0.00	0.00	2806.10	BHL

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
BHL	3954.00	1890.35	2073.83	36°56'02.691N	107°11'58.456W	Point

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit #388	0.00	0.00	2158049.84	2906260.53	36°55'44.000N	107°12'24.000W	N/A



FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2127.00	2127.00	Nacimiento
2	3397.00	3397.00	Ojo Alamo
3	3497.00	3497.02	Kirtland
4	3767.00	3792.01	Fruitland
5	3907.00	4030.09	Top Coal Interval
6	3947.00	4341.32	Top Target Coal



Azimuths to True North
Magnetic North: 10 30°

Magnetic Field
Strength: 51493nT
Dip Angle: 63 86°
Date: 5/10/2006
Model: igr2005

Total Correction 10.30

Plan Plan #1 (Rosa Unit 388)
Created By Jose Perez Date 5/10/2006
Weatherford Drilling Services
3611 Plaza East Court
Granbury TX 76049
(817) 573 8500 MAIN
(817) 573 8001 FAX

Weatherford Drilling Services

Planning Report

Company:	WILLIAMS PRODUCTION	Date:	5/10/2006	Time:	12:47:47	Page:	4
Field:	Rio Arriba County (NAD 83)	Co-ordinate(NE) Reference:	Site: Rosa Unit #388, True North				
Site:	Rosa Unit #388	Vertical (TVD) Reference:	SITE 7022.0				
Well:	Rosa Unit #388	Section (VS) Reference:	Well (0.00N,0.00E,47.65Azi)				
Wellpath:	1	Plan:	Plan #1				

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5400.00	90.00	47.65	3954.00	1119.91	1228.61	1662.44	0.00	0.00	0.00	
5500.00	90.00	47.65	3954.00	1187.28	1302.52	1762.44	0.00	0.00	0.00	
5600.00	90.00	47.65	3954.00	1254.64	1376.42	1862.44	0.00	0.00	0.00	
5700.00	90.00	47.65	3954.00	1322.01	1450.33	1962.44	0.00	0.00	0.00	
5800.00	90.00	47.65	3954.00	1389.38	1524.23	2062.44	0.00	0.00	0.00	
5900.00	90.00	47.65	3954.00	1456.74	1598.13	2162.44	0.00	0.00	0.00	
6000.00	90.00	47.65	3954.00	1524.11	1672.04	2262.44	0.00	0.00	0.00	
6100.00	90.00	47.65	3954.00	1591.47	1745.94	2362.44	0.00	0.00	0.00	
6200.00	90.00	47.65	3954.00	1658.84	1819.85	2462.44	0.00	0.00	0.00	
6300.00	90.00	47.65	3954.00	1726.20	1893.75	2562.44	0.00	0.00	0.00	
6400.00	90.00	47.65	3954.00	1793.57	1967.66	2662.44	0.00	0.00	0.00	
6500.00	90.00	47.65	3954.00	1860.94	2041.56	2762.44	0.00	0.00	0.00	
6543.66	90.00	47.65	3954.00	1890.35	2073.83	2806.10	0.00	0.00	0.00	BHL

Targets

Name	Description Dip Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec			Longitude Deg Min Sec		
BHL		3954.00	1890.35	2073.83	2159953.78	2908321.89	36	56	2.691 N	107	11	58.456 W

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2127.00	2127.00	Nacimiento		0.00	0.00
3397.00	3397.00	Ojo Alamo		0.00	0.00
3497.02	3497.00	Kirtland		0.00	0.00
3792.01	3767.00	Fruitland		0.00	0.00
4030.09	3907.00	Top Coal Interval		0.00	0.00
4341.32	3947.00	Top Target Coal		0.00	0.00
	0.00	Base Target Coal		0.00	0.00

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 No. 388 (Kfc-Horizontal)**
Location: **SENW 01-31N-04W**
Footage: **2640' FNL & 2475' FWL**
County/State: **Rio Arriba/New Mexico**

Surveyed GL: 7008 Est: (14') KB: 7022

<u>Formation</u>	<u>Thickness</u>	<u>TVD</u>	<u>Struct. Elev.</u>
San Jose Fm.	2127	Surface	7008
Nacimiento Fm.	1270	2127	4895
Ojo Alamo Ss.	100	3397	3625
Kirtland Sh.	270	3497	3525
Fruitland Fm.	140	3767	3255
Top Coal Interval	40	3907	3115
Int. Csg. Depth	0	<u>3947</u>	3075
Top Target Coal	15	3947	3075
Base Target Coal	0	3962	3060
<u>Total Depth</u>	NA	<u>3962</u>	3060

Mud Log: Mud log (5"=100') from 500' above Ojo Alamo Ss. to TD
(Mud Logger to pick intermediate casing point and TD)

Mechanical Logs: None

Correlation Logs: Rosa Unit No. 280 (NESW 01-31N-04W)
Carracas Unit 36B No. 15 (SWSE 36-32N-04W)

Notes: The Rosa Unit No. 388 will be horizontally drilled to a
BHL 0760' FNL & 0760' FEL 01-31N-04W.

Target coal in surrounding wells:

Rosa Unit No. 280 (3940'-3968')
Rosa Unit No. 283 (4062'-4078')
Carracas Unit No. 114 (3917'-3932')
Carracas Unit 36B No. 11 (3969'-3985')
Carracas Unit 36B No. 15 (3987'-4000')
Jicarilla No. 31-3-6-2 (3697'-3714')
Rosa Unit No. 86 (3913'-3929')

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
Nacminto	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/qt 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.

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

Attachment to Drilling Technical Program

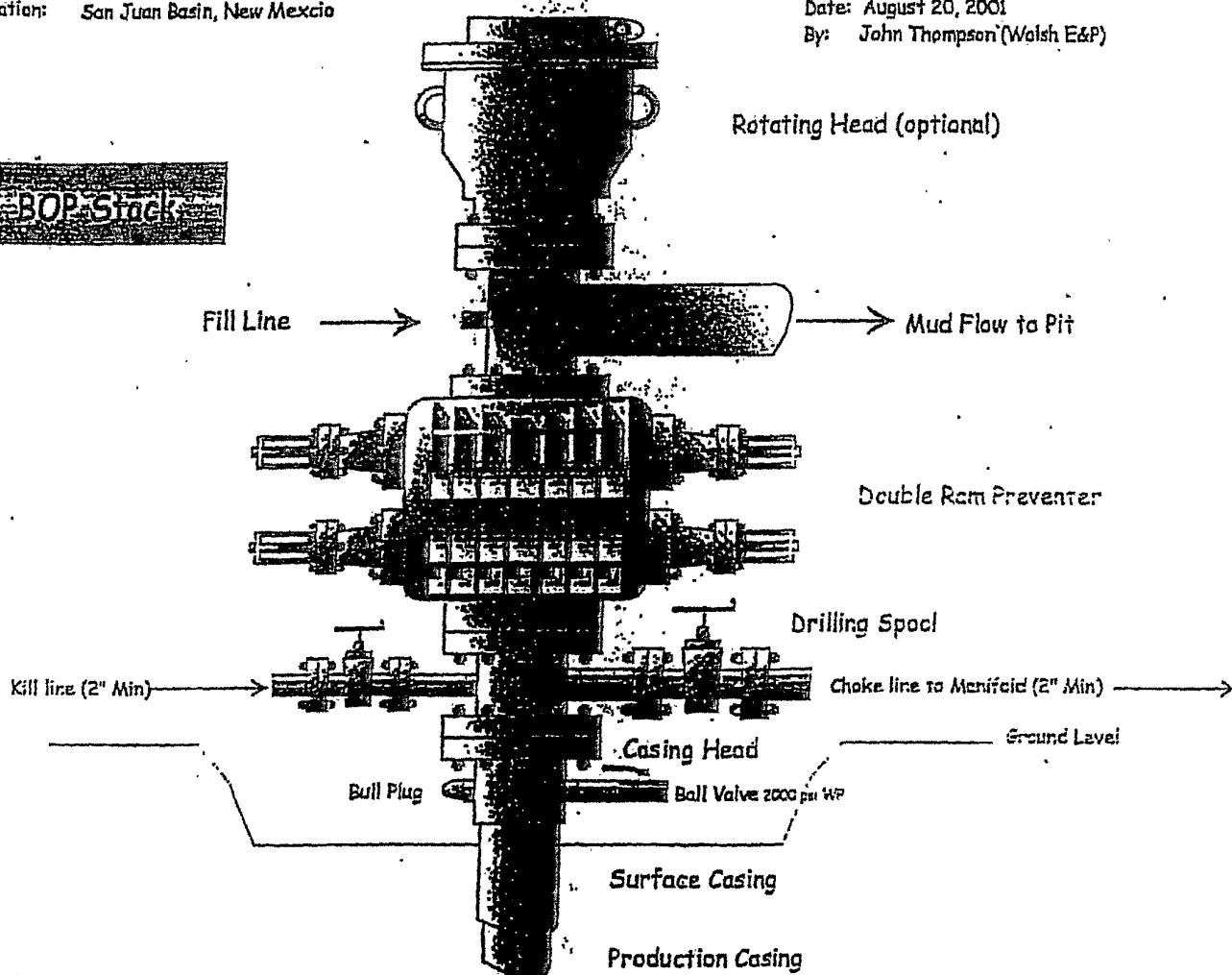
Typical BOP setup

Location: San Juan Basin, New Mexico

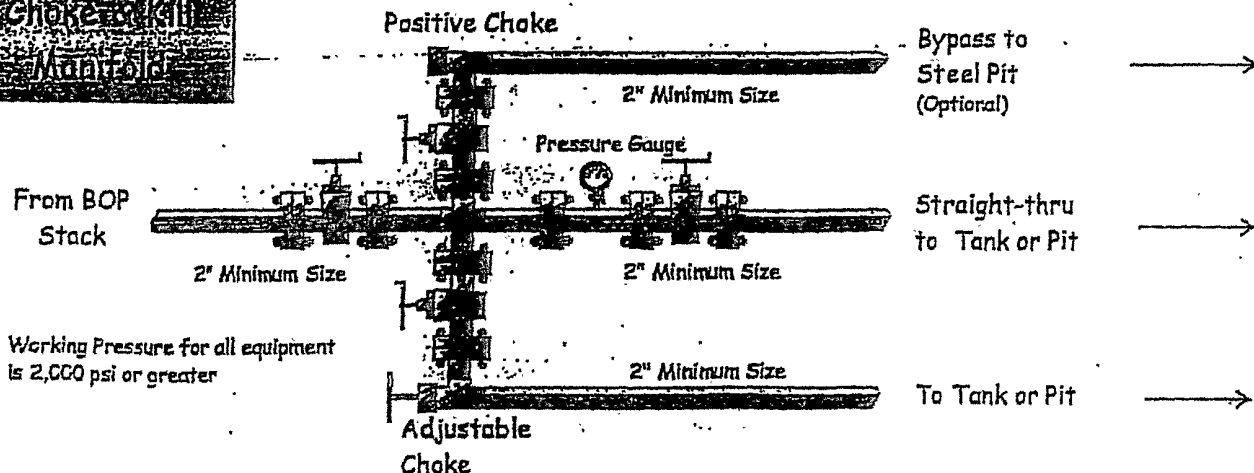
Date: August 20, 2001

By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold



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