

SUBMIT IN TRIPLICATE*
(Other instructions on
reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires December 31, 1991

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

2002 MAR -6 AM 11:36

5. LEASE DESIGNATION AND SERIAL NO.

SF- 078771

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

Rosa Unit

8. FARM OR LEASE NAME, WELL NO.

21C

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

1b. TYPE OF WELL

OIL ☐
WELL

GAS ☒
WELL

OTHER ☐

SINGLE ☐
ZONE

MULTIPLE ☒
ZONE

2. NAME OF OPERATOR

Williams Production Company

3. ADDRESS OF OPERATOR

c/o Walsh Engineering 7415 E. Main St., Farmington, NM 87402 (505) 327-4892

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At Surface 2150' FNL and 1080' FWL

At proposed Prod. Zone

9. API WELL NO.

30-039-26946

10. FIELD AND POOL OR WILDCAT

Blanco Mesa Verde/DK

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

E Sec. 23, T31N, R6W

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

25.5 miles NE of Blanco, NM

12. COUNTY OR PARISH

Rio Arriba

13. STATE

NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)

1080'

16. NO. OF ACRES IN LEASE

2560

17. NO. OF ACRES ASSIGNED TO THIS WELL

320 w/ mvd N/A OK

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT.

1300'

19. PROPOSED DEPTH

7973'

20. ROTARY OR CABLE TOOLS

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED

21. ELEVATIONS (Show whether DF or surface) *This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4.

6216'

"GENERAL REQUIREMENTS"

April 15, 2002

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT/FOOT	SETTING DEPTH	QUANTITY OF CEMENT
14-3/4"	10-3/4"	32.75#	+/- 250'	~313 cu.ft. Type III w/ 2% CaCl ₂
9-7/8"	7-5/8"	26.4#	+/- 3533'	~1162 cu.ft. 65/35 poz & ~356 cu.ft. Type
6-3/4"	5-1/2"	17.0#	+/- 7973'	~568 cu.ft. Prem. Lite HS w/ additives

Williams Production Company proposes to drill a vertical well to develop the Mesa Verde and Dakota formations at the above described location in accordance with the attached drilling and surface use plans.

This location has been archaeologically surveyed by Independent Contract Archaeology. Copies of their report have been submitted directly to your office.

This APD also is serving as an application to obtain BLM road and pipeline right-of-ways. This well will require ~350' of new access road (see Pipeline & Well Plats #3 & #4). The well will be accessed by utilizing an existing road that runs through the SW/NW, NW/SW, NE/SW, NW/SE of section 23 of T31N, R6W, where it joins the main "Rosa Road".

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

TITLE John C. Thompson, Agent

DATE

3/4/02

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

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

APPROVED BY

TITLE

Acting Field Manager - Minerals

5/31/05

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes 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.

NMOCD

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 30-039-26946		*Pool Code 72319 - 71599	*Pool Name Blanco Mesaverde Basin Dakota
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 21C
*OGRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 6216'

¹⁰ Surface Location

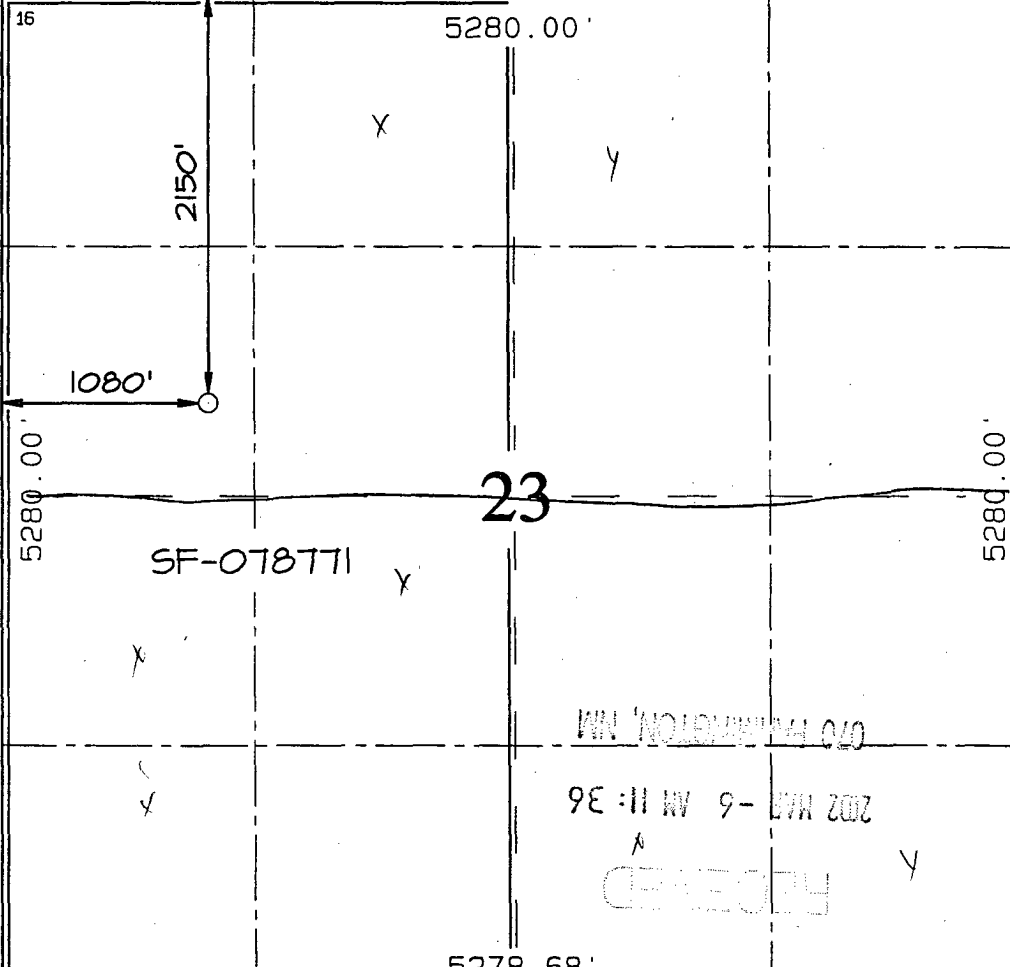

UL or lot no. E	Section 23	Township 31N	Range 6W	Lot Idn	Feet from the 2150	North/South line NORTH	Feet from the 1080	East/West line WEST	County RIO ARriba
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¹¹ Bottom Hole Location If Different From Surface

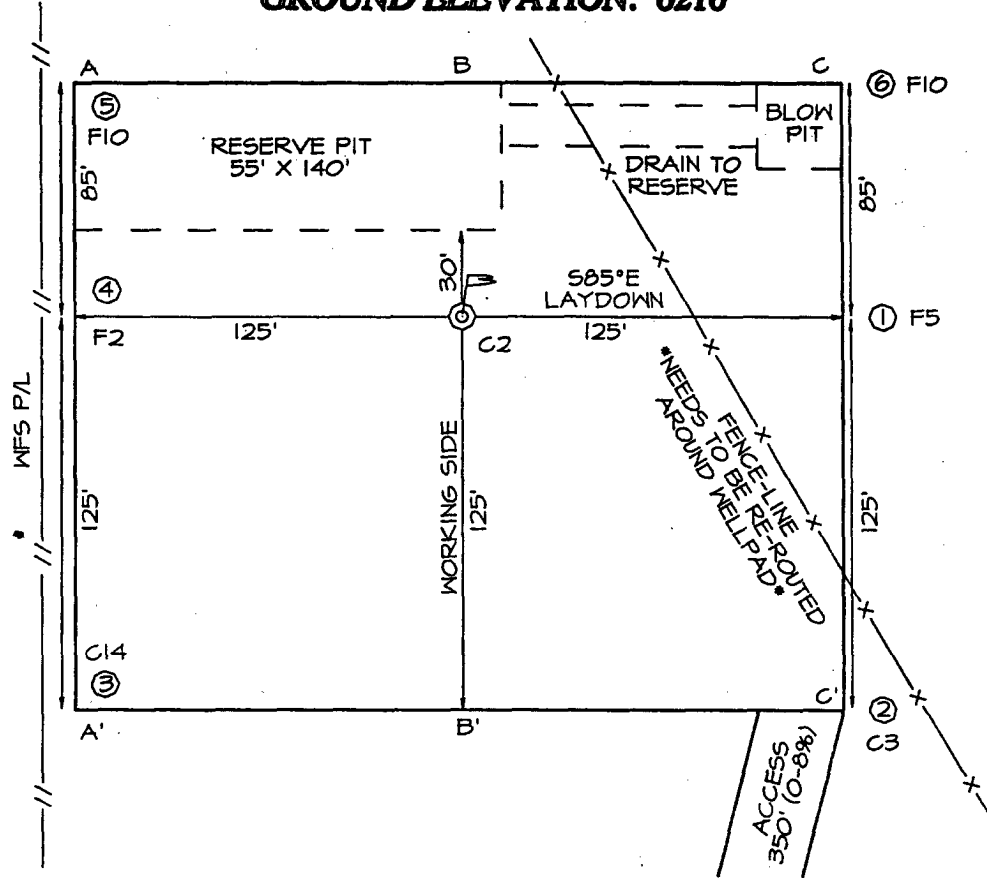
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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¹² Dedicated Acres 320.0 Acres - (W/2) MV NB - OK	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

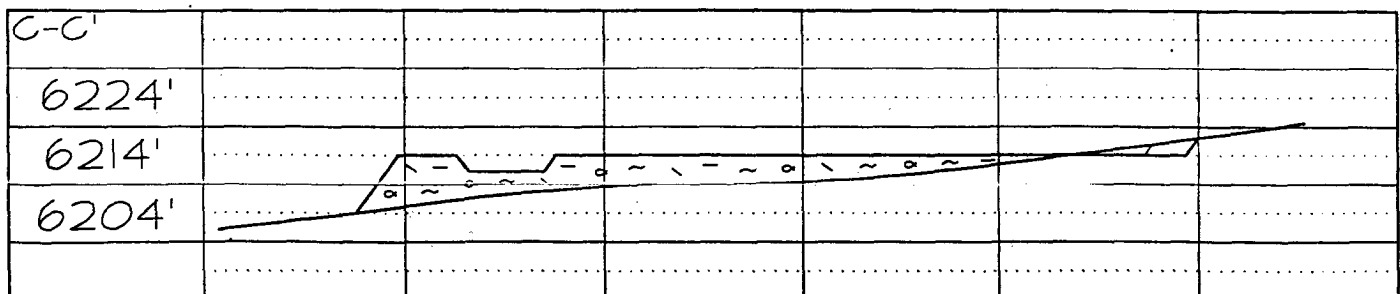
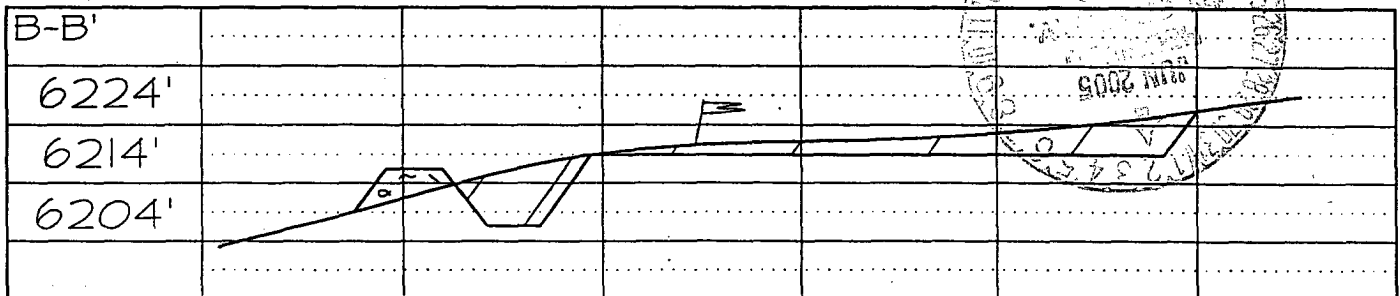
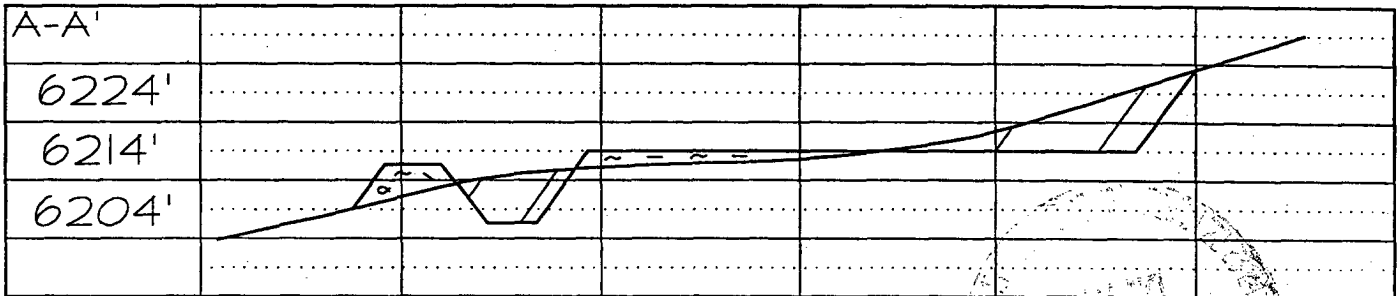
<div><p>¹⁶</p></div>	<div><p>¹⁷ OPERATOR CERTIFICATION</p><p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p><p><i>[Signature]</i></p><p>Signature John C. Thompson</p><p>Printed Name Agent/Engineer</p><p>Title 3/4/02</p><p>Date</p></div>
	<div><p>¹⁸ SURVEYOR CERTIFICATION</p><p>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.</p><p>Survey Date: NOVEMBER 7, 2001</p><p>Signature and Seal of Professional Surveyor</p><div><p>JASON C. EDWARDS Certificate Number 15269</p></div></div>

WILLIAMS PRODUCTION COMPANY ROSA UNIT #21C
2150' FNL : 1080' FWL, SECTION 23, T31 R6W, NMPM
RIO ARriba COUNTY, NEW MEXICO
GROUND ELEVATION: 6216'



LATITUDE: 36°53'11"
 LONGITUDE: 107°26'13"
 DATUM: NAD1927

Plat #2





OPERATIONS PLAN

A. **MUD PROGRAM:** Clear water with benex to 7" casing point. LSND to log and run pipe. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

B. **BOP TESTING:** While drill pipe is in use, the pipe rams will be function tested not less than once each day. The blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the rams will be tested to 1500 psi. The drum brakes will be inspected and tested each tour. All tests, inspections and SPR's 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</u>	<u>CASING SIZE</u>	<u>WT. & GRADE</u>
Surface	14-3/4"	+/- 250'	10-3/4"	32.75# H-40
Intermediate	9-7/8"	+/-3533'	7-5/8"	26.4# K-55
Prod. Casing	6-3/4"	+/- 7973'	5-1/2"	17.0# N-80

B. FLOAT EQUIPMENT:

1. **SURFACE CASING:** 10-3/4" notched regular pattern guide shoe. Run (1) Standard centralizer on each of the bottom (3) Joints.
2. **INTERMEDIATE CASING:** 7-5/8" cement nose guide shoe with a self- fill insert float. Place float one (1) joint above the shoe and five (5) centralizers, spaced every other joint, starting with the float collar. Place turbulent centralizers, at 120' intervals, starting at 1500' to the surface. Total centralizers (5 regular and 13 turbulent).
3. **PRODUCTION CASING:** 5-1/2" whirler type cement nose guide shoe with a latch collar on top of 20' bottom joint. Place 20' marker joint on top of 10 th joint and one above 5100'.

C. CEMENTING:

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

1. **SURFACE:** Use 230sx (313cu.ft.) of class "Type III" with 2% CaCl₂ and 1/4# of cello-flake/sk (Yield = 1.39 cu.ft./sk, Weight = 14.5 #/gal.). 125% excess to circulate the surface. WOC 12 hours. Test to 1500#.
2. **INTERMEDIATE:** Lead: 555sx (1162cu.ft.) of class "Premium Lite" 65/35, Type III/Poz with 8% gel and 1/4# cello-flake/sk (Yield = 2.09 cu.ft./sk, Weight = 12.1 #/gal.). Tail: 255sx (356cu.ft.) of class "Type III" with 1/4# cello-flake/sk (Yield = 1.39 cu.ft./sk, Weight = 14.5#/gal.). 100% excess in lead and tail to circulate to surface. Total volume = 1518 cu.ft. WOC 12 hours. Run a temperature survey after 8 hours if cement is not circulated.
3. **PRODUCTION CASING:** 30 sks Scavenger of Premium Light HS + 1% FL-52 + .2% CD-32 + .25 #/sk Celloflake + 4% Phenoseal + .3% R3. (Weight = 11 #/gal.). **Cement Slurry:** 285 sx (568 ft³) of Premium Light HS + 1% FL-52 + .2% CD-32 + .25 #/sk Celloflake + 4% Phenoseal + .1% R3. (Yield = 1.99 ft³/sk, Weight = 12.5 #/gal.). Displace cement at a minimum of 8 BPM. Use 50% excess in calculation to raise cement 100' into intermediate casing. Total volume 568 ft³. WOC 12 hours.



IV COMPLETION

A. CBL

1. Run Cement Bond Log across all intervals to be perforated and find Top of Cement behind all casing strings if cement not circulated to surface..

B. PRESSURE TEST

1. Pressure test 7 5/8" & 5-1/2" casing to 3300# for 15 minutes.

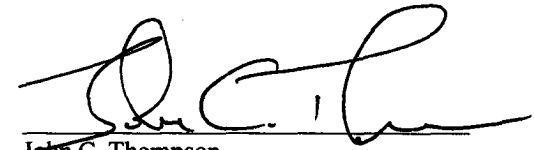
C. STIMULATION

1. Stimulate Dakota with approximately 70,000# of 20/40 sand in x-link foam.
2. Isolate Dakota with a RBP.
3. Stimulate Point Lookout with approximately 80,000# of 20/40 sand in slick water.
4. Isolate Point Lookout with a RBP.
5. Perforate the Menefee/Cliff House as determined from the open hole logs.
6. Stimulate with approximately 80,000# of 20/40 sand in slick water.
7. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Dakota: Run 2-1/16", 3.25#, J-55, IJ tubing with 1/2 mule shoe on bottom, SN with pump-out plug on top of bottom joint. Will use a production packer w/ 5 Seal Units to isolate Dakota from Mesaverde formation. Land tubing approximately 100' below top Dakota perf.
2. Mesa Verde: Run 2-1/16", 2.9#, J-55, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing approximately 25' above the bottom Point Lookout perforations.




John C. Thompson
Engineer

Walsh Engineering & Production

Well Control Equipment Schematic for 2M Service

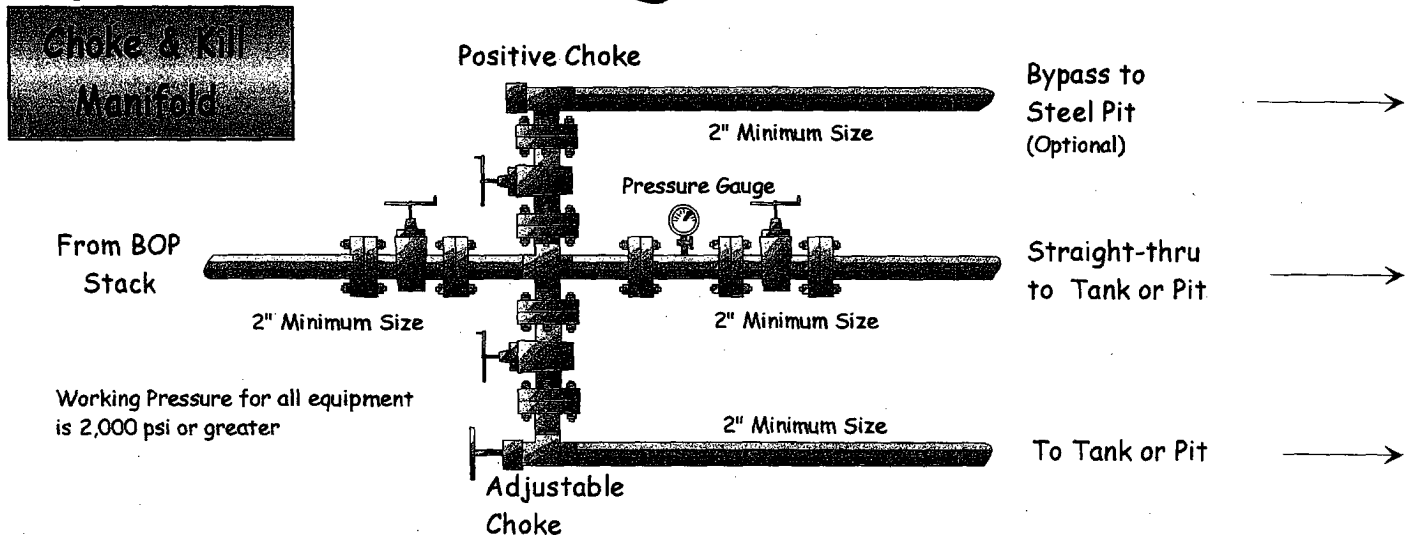
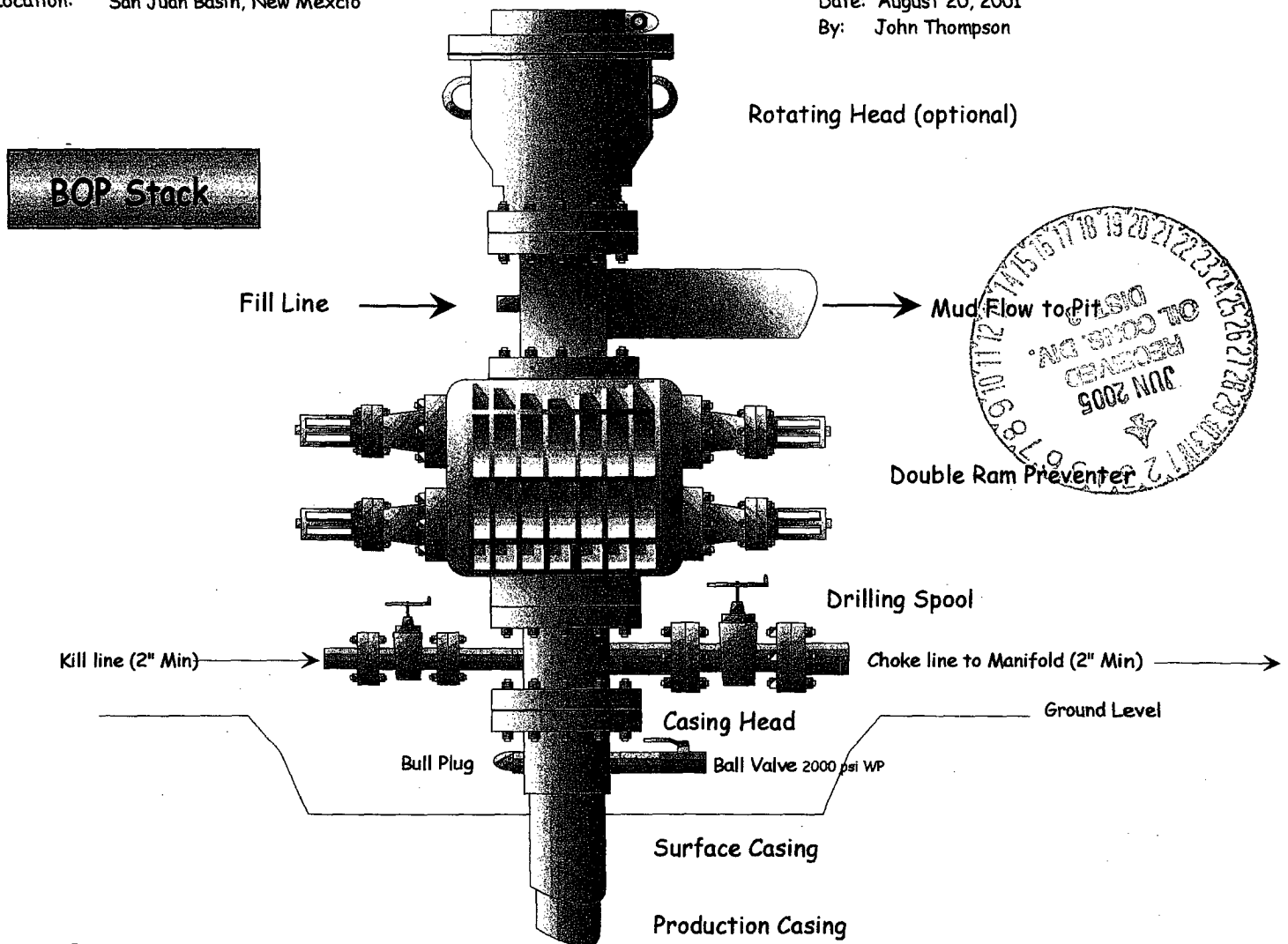
Attachment to Drilling Technical Program

Typical BOP setup

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson



General Rosa Unit Drilling Plan

OSA 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 Characteristics:

Formation	Lithology	Water	Gas	Oil	Over-Pres.	Lost Circ.
Nacimiento	Interbedded shales, siltstones & sandstones	No	No	No	No	No
Ojo Alamo	Sandstone & conglomerates w/ 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	No
Pictured Cliffs	Massive Sandstone w/ thin Interbedded Shales	Poss	Yes	Possible	No	Possible
Lewis	Shale w/ thin Interbedded sandstones & Siltstones	No	Possible	No	No	No
Cliff House	Transgressive sandstones	Poss	Yes	No	No	No
Menefee	Sandstones, Carb shales & coal	Poss	Yes	No	No	No
Point Lookout	Regressive coastal barrier sandstone	Poss	Yes	Possible	No	Yes
Mancos	Marine shale	No	No	No	No	No

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 #/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 #/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.