

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-078769	
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 Rosa Unit NM NM-78407A	
2. Name of Operator Williams Production Company, LLC		7. If Unit or CA Agreement, Name and No. Rosa Unit NM NM-78407A	
3a. Address P.O. Box 640 Aztec, NM 87410		8. Lease Name and Well No. 187C	
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 30-039-30185	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1090' FSL & 1145' FWL At proposed prod. zone 1650' FSL & 990' FWL		10. Field and Pool, or Exploratory Blanco Mesaverde	
14. Distance in miles and direction from nearest town or post office* approximately 34 miles northeast of Blanco, New Mexico		11. Sec., T., R., M., or Blk. and Survey or Area M Section 21, 31N, 5W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1090'		12. County or Parish Rio Arriba	
16. No. of Acres in lease 2,560.000		13. State NM	
17. Spacing Unit dedicated to this well 320.0 - (W/2)			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 125'		20. BLM/BIA Bond No. on file UT0847 899	
19. Proposed Depth 6,678'			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,801' GR		22. Approximate date work will start* April 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. 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 1-31-07
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) [Signature]	Date 3/9/07
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 develop the Blanco Mesaverde formation at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is under jurisdiction of the BLM, Farmington Field Office.

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

No access road is needed, as this is a twinned location. A pipeline tie of 115.4 feet would be required for this location. The pipeline would be located on Public lands.

HOLD C104 FOR directional survey
und B.H. dev.

NOTIFY AZTEC OCD
IN TIME TO WITNESS

RCVD MAR12'07
OIL CONS. DIV.
DIST. 3

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

NMOCD

8 3/14/07

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
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

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 MAR12'07

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

OIL CONS. DIV.

*API Number 30-039-30185		*Pool Code 72319	*Pool Name BLANCO MESAVERDE	DIST. 3
*Property Code 17033	*Property Name ROSA UNIT			*Well Number 187C
*OGRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY			*Elevation 6801'

10 Surface Location

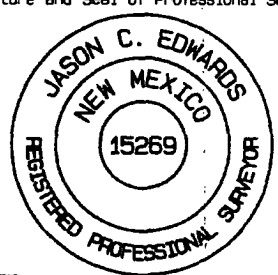
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	31N	5W		1090	SOUTH	1145	WEST	RIO ARriba

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
L	21	31N	5W		1650	SOUTH	990	WEST	RIO ARriba

12 Dedicated Acres 320.0 Acres - (W/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

16	5287.26'	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief <i>Larry Higgins</i> Signature LARRY HIGGINS Printed Name DRUM COIL Title 1-31-07 Date
LEASE SF-078769	21	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 Date of Survey: MAY 4, 2006 Signature and Seal of Professional Surveyor  JASON C. EDWARDS Certificate Number 15269
5280.00'	2643.30'	
BOTTOM-HOLE LOCATION 990'	SURFACE LOCATION LAT: 36.88081°N LONG: 107.37271°W DATUM: NAD83	
1145'	1090'	
1650'	2643.30'	

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.

30-039-30185

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

6. State Oil & Gas Lease No.
NMSF-078769

7. Lease Name or Unit Agreement Name
Rosa

8. Well Number
187C

9. OGRID Number
120782

10. Pool name or Wildcat
Blanco Mesaverde

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

4. Well Location: Surface

Unit Letter M : 1090 feet from the S line and 1145 feet from the W line
Section 21 Township 31N Range 05W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
6801' GR

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type Drilg/Completion Depth to Groundwater >100 ft Distance from nearest fresh water well >1000 ft Distance from nearest surface water >500 ft

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 DATE 1-31-07

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, DIST. 51 DATE MAR 14 2007
Conditions of Approval (if any):



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 1/16/2007 **FIELD:** Blanco MV
WELL NAME: Rosa #187C **SURFACE:** FED
BH LOCATION: NWSW Sec 21-31N-5W **MINERALS:** FED
Rio Arriba, NM
SURF LOCATION: SWSW Sec 21-31N-5W
ELEVATION: 6,801' GR **LEASE #** SF-078769
MEASURED DEPTH: 6,678

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name		TVD	MD		Name		TVD	MD
Ojo Alamo		2,960	2,994		Cliff House		5,885	5,932
Kirtland		3,060	3,095		Menefee		5,930	5,977
Fruitland		3,485	3,527		Point Lookout		6,135	6,182
Pictured Cliffs		3,695	3,740		Mancos		6,445	6,492
Lewis		3,995	4,042		TD		6,630	6,678

B. MUD LOGGING PROGRAM: none

C. LOGGING PROGRAM: Cased Hole logs only

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

II. DRILLING:

A. MUD PROGRAM: Clear water with benex to 7" casing point. Convert to a LSND mud to log and run pipe. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use air w/Air Hammer from 7 in. csg.to TD.

B. 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	4,217	7	20	K-55
Liner	6 1/4	4,117 6,678	4 1/2	10.5	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 (3) 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 CASING:** 4-1/2" 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.

IV. CEMENTING:

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

1. **SURFACE:** Slurry: 150sx (205 cu.ft.) of "Type III" + 2% CaCl₂ + ¼ # of cello-flake/sk (Yield = 1.39 cu.ft./sk, Weight = 14.5 #/gal.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 1500psi.
2. **INTERMEDIATE:** Lead - 540 sx (1128) 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 = 1,198 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface.
3. **PRODUCTION LINER:** 10 bbl Gelled Water spacer. Cement: 155 sx (328 ft³) of Premium Light HS + 1% FL-52 + .2% CD-32, 0.1% R-3, 3 #/sk CSE, ¼ #/sk cello flake and 4% Phenoseal. (Yield = 2.15 ft³/sk, Weight = 12.3 #/gal.). Displace cement at a minimum of 8 BPM. The 20% excess in lead and tail should cover 100 ft into intermediate casing. Total volume 328 ft³. WOC 12 hours

V. 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 is not circulated to surface.

B. PRESSURE TEST


1. Pressure test 7" & 4-1/2" casing to max 3000 psi, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Perforate the Point Lookout as determined from the open hole logs.
2. Stimulate with approximately 9,300# of 14/30 LiteProp™ sand in slick water.
3. Isolate Point Lookout with a CIBP.
4. Perforate the Menefee/Cliff House as determined from the open hole logs.
5. Stimulate with approximately 9,300# of 14/30 LiteProp™ sand in slick water.
6. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Mesa Verde: Run 2-3/8", 4.7#, J-55, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing approximately 25' above the bottom Point Lookout perforation.

for 
Gary Sizemore
Sr. Drilling Engineer



Weatherford

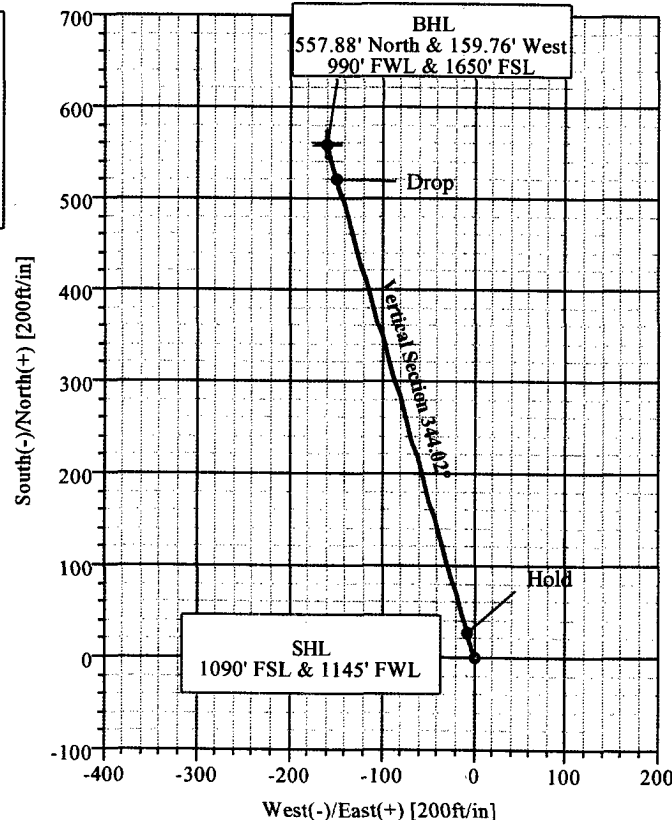
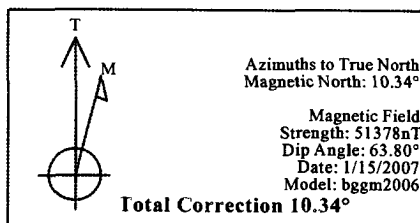
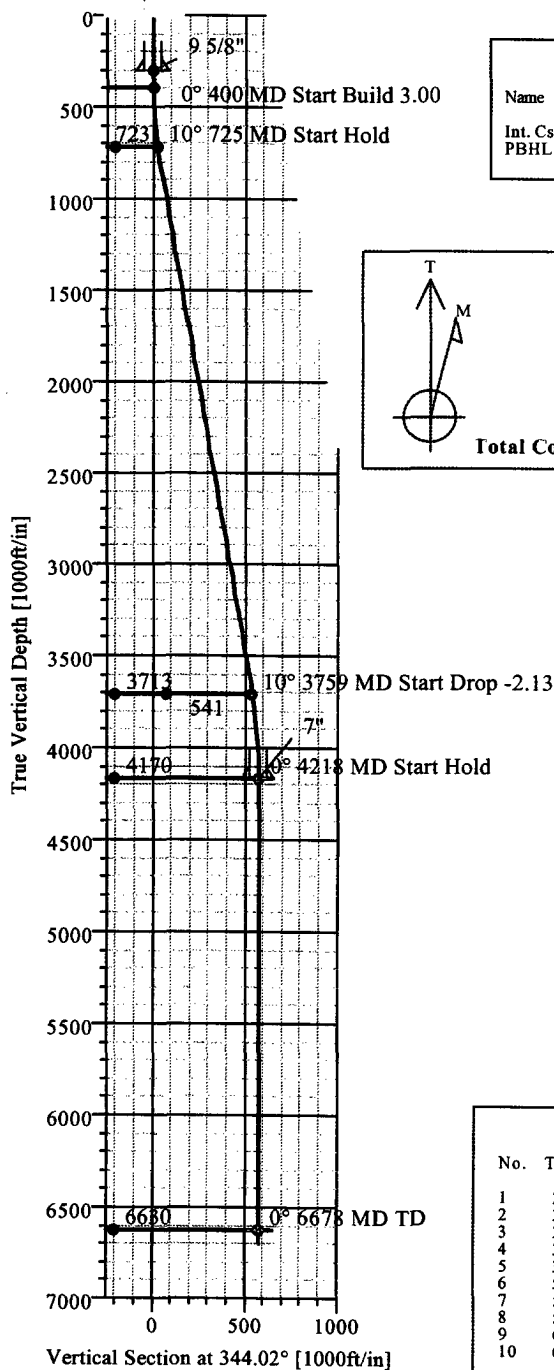
Rosa Unit 187 C
Section 21 T 31N R 5W
1090' FSL & 1145' FWL
Rio Arriba County, NM
Plan 1

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	344.02	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	344.02	400.00	0.00	0.00	0.00	0.00	0.00	
3	725.00	9.75	344.02	723.43	26.52	-7.59	3.00	344.02	27.59	
4	3758.79	9.75	344.02	3713.40	520.44	-149.04	0.00	0.00	541.36	
5	4217.60	0.00	344.02	4170.00	557.88	-159.76	2.13	180.00	580.30	Int. Cs. Pt.
6	6677.60	0.00	344.02	6630.00	557.88	-159.76	0.00	344.02	580.30	PBHL

WELL DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rosa Unit 187 C	0.00	0.00	2140269.14	2857795.65	36°52'50.916N	107°22'21.972W

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Int. Cs. Pt.	4170.00	557.88	-159.76	36°52'56.432N	107°22'23.938W	Point
PBHL	6630.00	557.88	-159.76	36°52'56.432N	107°22'23.938W	Circle (Radius: 50)

KB ELEVATION: 6815'
GR ELEVATION: 6801'



FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2960.00	2994.34	Ojo Alamo
2	3060.00	3095.81	Kirtland
3	3485.00	3527.04	Fruitland
4	3695.00	3740.12	Pictured Cliffs
5	3995.00	4042.47	Lewis
6	5570.00	5617.60	Cliff House Trans
7	5885.00	5932.60	Cliff House
8	5930.00	5977.60	Menefee
9	6135.00	6182.60	Point Lookout
10	6445.00	6492.60	Mancos

Plan: Plan #1 (Rosa Unit 187 C)
Created By: Jose Perez Date: 01/15/06
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**
Area: **Rosa Unit**

Operator: **Williams Production Company. LLC**
Well Name: **Rosa Unit No. 187C (Kmv-Directional)**
Location: **SWSW 21-31N-05W**
Footage: **1090' FSL & 1145' FWL**
County/State: **Rio Arriba/New Mexico**

Surveyed GL: 6801 Estimate (14') KB: 6815

<u>Formation</u>	<u>Thickness</u>	<u>TVD</u>	<u>Struct. Elev.</u>
San Jose Fm.	2960	Surface	6801
Ojo Alamo Ss.	100	2960	3855
Kirtland Sh.	425	3060	3755
Fruitland Fm.	210	3485	3330
Pictured Cliffs Ss.	300	3695	3120
Lewis Sh.	175	3995	2820
<u>Intermediate Casing Depth</u>	1400	<u>4170</u>	2645
Cliff House Ss. Trans.	315	5570	1245
Cliff House Ss.	45	5885	930
Menefee Fm.	205	5930	885
Point Lookout Ss.	310	6135	680
Mancos Sh.	185	6445	370
<u>Total Depth</u>	NA	<u>6630</u>	185

Mechanical Logs: Cased hole (TMDL, CBL) logs only

Correlation Logs: Rosa Unit No. 111 (SESW 21-31N-05W)

Notes: This well will be directionally drilled to a BHL
1650' FSL & 0990' FWL 21-31N-05W

Well Control Equipment Schematic for 2M Service

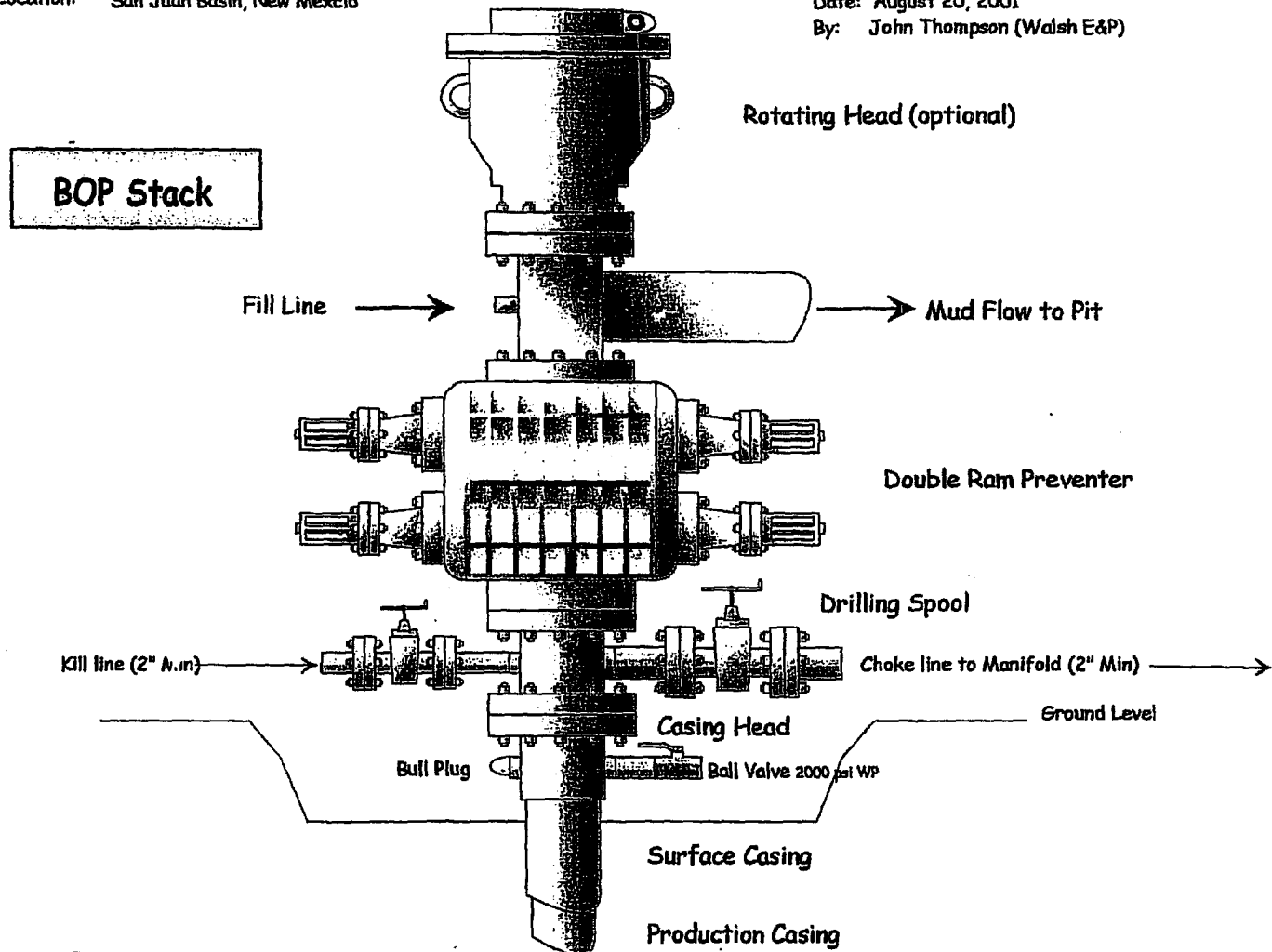
Attachment to Drilling Technical Program

Exhibit #1 Typical BOP setup

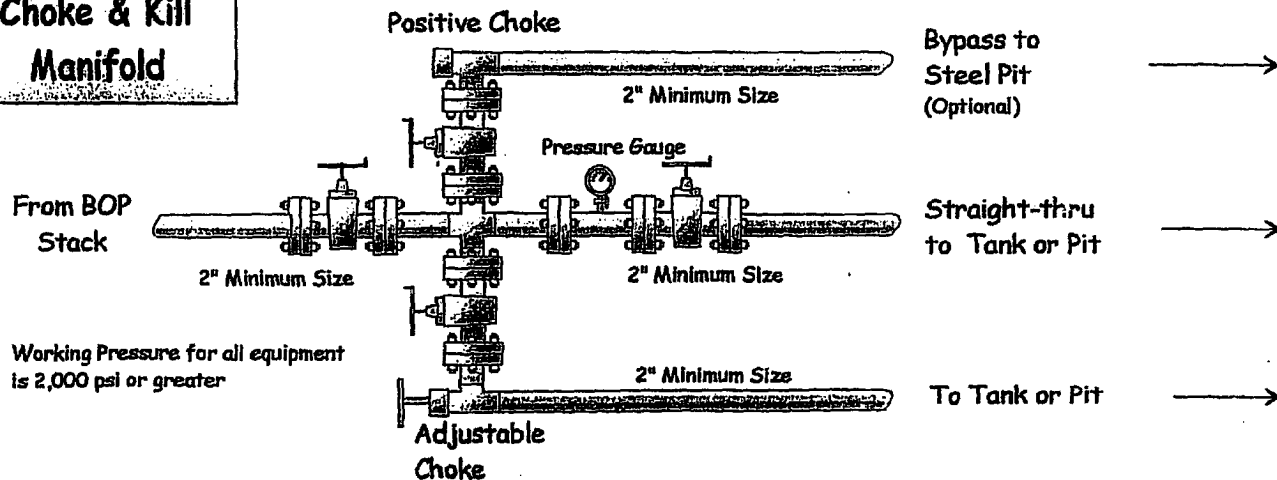
Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)



Choke & Kill Manifold



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.