

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER			5. Lease Serial No. NMSF-078765	
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. 167C	
3b. Phone No. (include area code) (505) 634-4208			9. API Well No. 30-045-33895	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface Lot D: 480' FNL & 570' FWL, Section 16, T 31N, R 6W At proposed prod. zone Lot P: 700' FNL & 700' FEL, Section 8, T 31N, R 6W			10. Field and Pool, or Exploratory Blanco Mesaverde Sec. 8	
14. Distance in miles and direction from nearest town or post office* approximately 15 miles northeast of Blanco, New Mexico			11. Sec., T., R., M., or Blk. and Survey or Area Section 8, T 31N, R 6W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 700'		16. No. of Acres in lease 2,460.23	17. Spacing Unit dedicated to this well 320.00 - (E/2) Sec 8	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 125'		19. Proposed Depth 6,642'	20. BLM/BIA Bond No. on file LTF0847	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,379' GR		22. Approximate date work will start* September 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. | 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 8-11-06
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 9/5/06
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 directional well 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 Bureau of Land Management, 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.

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 399.60 feet would be required for this location.

HOLD C104 FOR

directional survey
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

NWOCOD

entered 9-14

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 30-045-33895		*Pool Code 72319	*Pool Name BLANCO MESAVERDE
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 167C
*OGRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 6379'

¹⁰ Surface Location

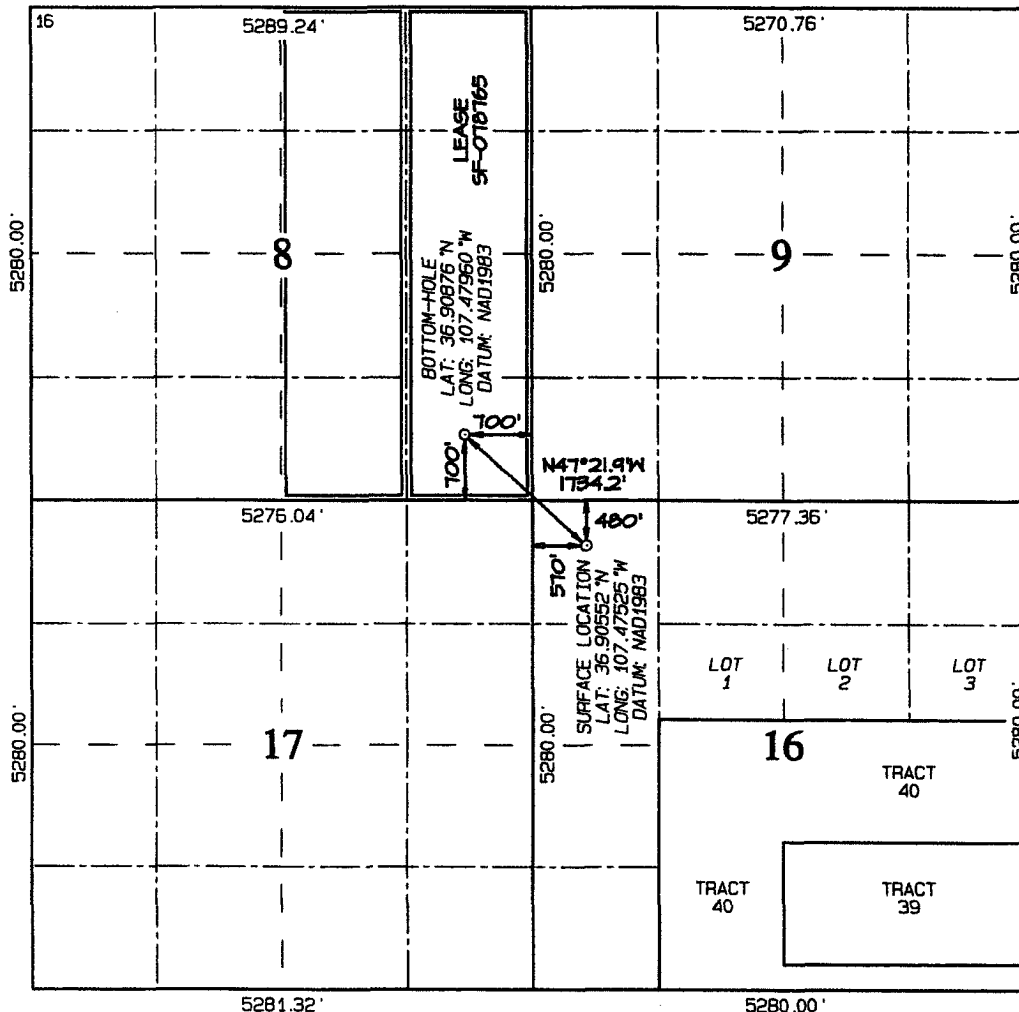
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	16	31N	6W		480	NORTH	570	WEST	SAN JUAN

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
P	8	31N	6W		700	SOUTH	700	EAST	SAN JUAN

¹² Dedicated Acres 320.0 Acres - E/2 Section 8	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

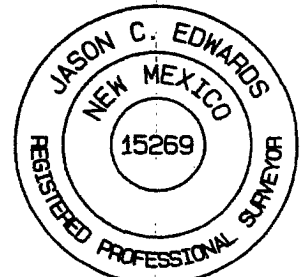
Larry Higin
Signature
LARRY HIGIN
Printed Name
DRILLING CORP
Title
8-11-06
Date

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 26, 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. 30-045-33895
5. Indicate Type of Lease FEDERAL X STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. NMSF-078765
7. Lease Name or Unit Agreement Name Rosa Unit
8. Well Number 167C
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 <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	
4. Well Location Unit Letter D : 480 feet from the N line and 570 feet from the W line Section 16 Township 31N Range 06W NMPM County San Juan	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6379' GR	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>	
Pit type <u>Drlg/Completion</u> Depth to Groundwater <u>>100 ft</u> Distance from nearest fresh water well <u>>1000 ft</u> Distance from nearest surface water <u>>500 ft</u>	
Pit Liner Thickness: <u>12</u> mil Below-Grade Tank: Volume <u> </u> bbls: Construction Material <u> </u>	

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 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

Type or print name **Larry Higgins** E-mail address: **larry.higgins@williams.com** Telephone No. **505-634-4208**

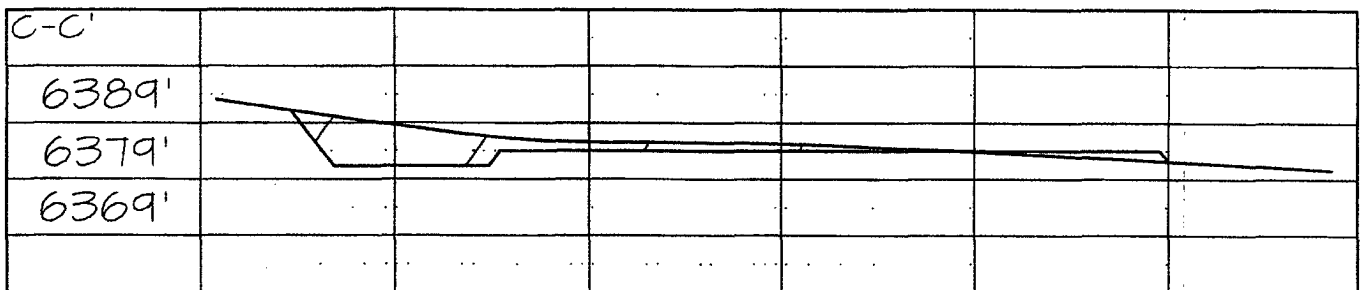
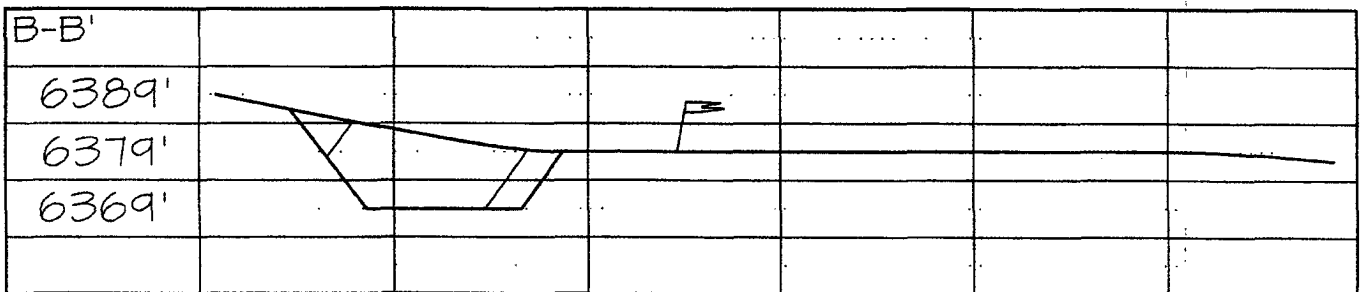
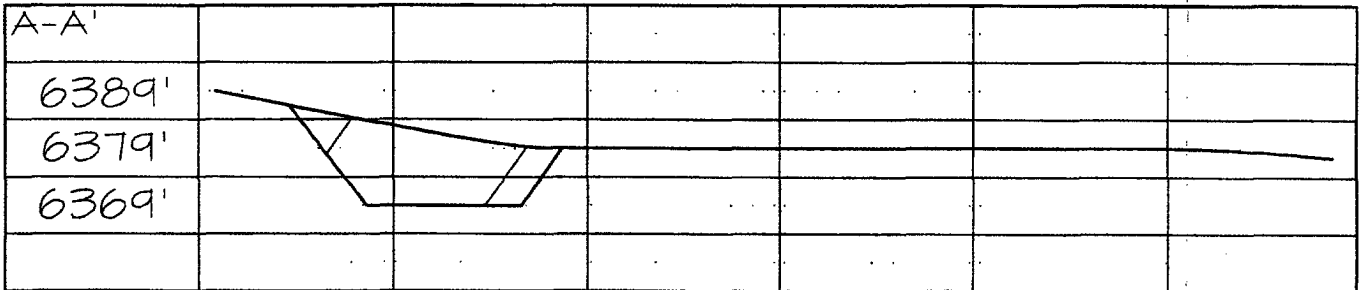
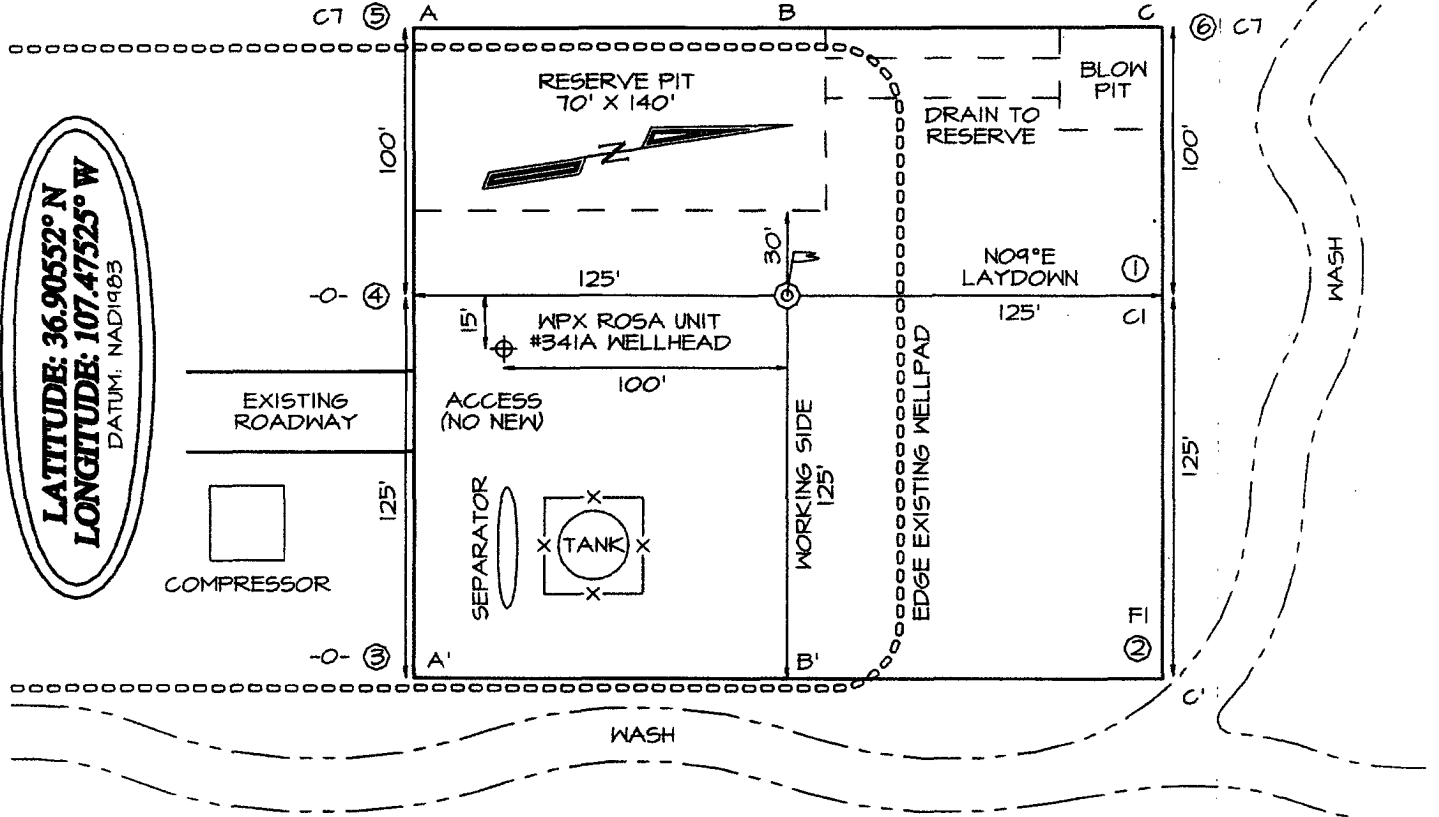
For State Use Only

APPROVED BY: [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE SEP 08 2006

Conditions of Approval (if any):

WILLIAMS PRODUCTION COMPANY ROSA UNIT #167C
480' FNL & 570' FWL, SECTION 16, T31N, R6W, NMPM
SAN JUAN COUNTY, NEW MEXICO ELEVATION: 6379'

01/1/21 #1





WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 5/10/2006 **FIELD:** Blanco MV
WELL NAME: Rosa #167C **SURFACE:** BLM
BH LOCATION: SESE Sec 8-31N-6W **MINERALS:** BLM
SURF LOCATION: NWNW Sec 16-31N-6W **LEASE #** SF-078765
San Juan, NM
ELEVATION: 6,379' GR
MEASURED DEPTH: 6,642'

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name		TVD	MD		Name		TVD	MD
Ojo Alamo		2,363	2,740		Cliff House		5,383	5,912
Kirtland		2,473	2,880		Menefee		5,433	5,962
Fruitland		2,858	3,352		Point Lookout		5,663	6,192
Picture Cliffs		3,213	3,736		Mancos		5,693	6,492
Lewis		3,528	4,056		TD		6,113	6,642

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. BOPE 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"	+/- 4,219'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 4,119'-6,642'	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 (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" & 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.

IV. CEMENTING:

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

1. SURFACE: Slurry: 150sx (205 cu.ft.) of "Type III" + 2% CaCl₂ + 1/4 # 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 (1,128) 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 space. Lead: 50sx (130ft³) of Premium Light HS + 1% FL-52 + .2% CD-32, 0.1% R-3, 3 #/sk CSE. (Yield = 2.59 cu.ft./sk, Weight = 11.6 #/gal.). Tail: 100 sx (215 ft³) of Premium Light HS + 1% FL-52 + .2% CD-32, 0.1% R-3, 3 #/sk CSE, 1/4 #/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 322 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 3300# for 15 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



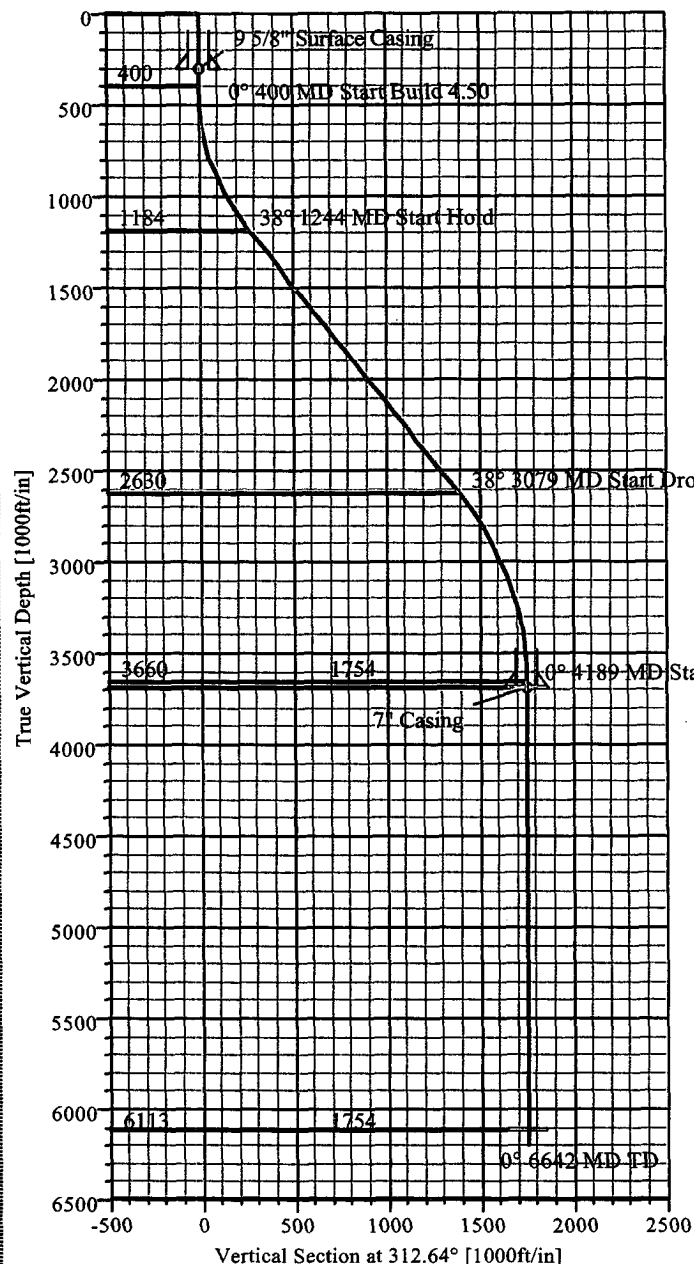
ROSA UNIT #167C
SEC 16 T 31N R 6W
480' FNL & 570' FWL
SAN JUAN COUNTY, NM

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	312.64	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	312.64	400.00	0.00	0.00	0.00	0.00	0.00	
3	1244.44	38.00	312.64	1183.88	182.84	-198.55	4.50	312.64	269.91	
4	3079.01	38.00	312.64	2629.54	947.93	-1029.42	0.00	0.00	1399.39	
5	4189.08	0.00	312.64	3660.00	1188.28	-1290.43	3.42	180.00	1754.20	
6	4219.08	0.00	312.64	3690.00	1188.28	-1290.43	0.00	0.00	1754.20	Int. Cs. Pt.
7	6642.08	0.00	312.64	6113.00	1188.28	-1290.43	0.00	312.64	1754.20	BHL

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 167C	0.00	0.00	2149136.68	2827789.99	36°54'19.872N	107°28'30.900W	N/A

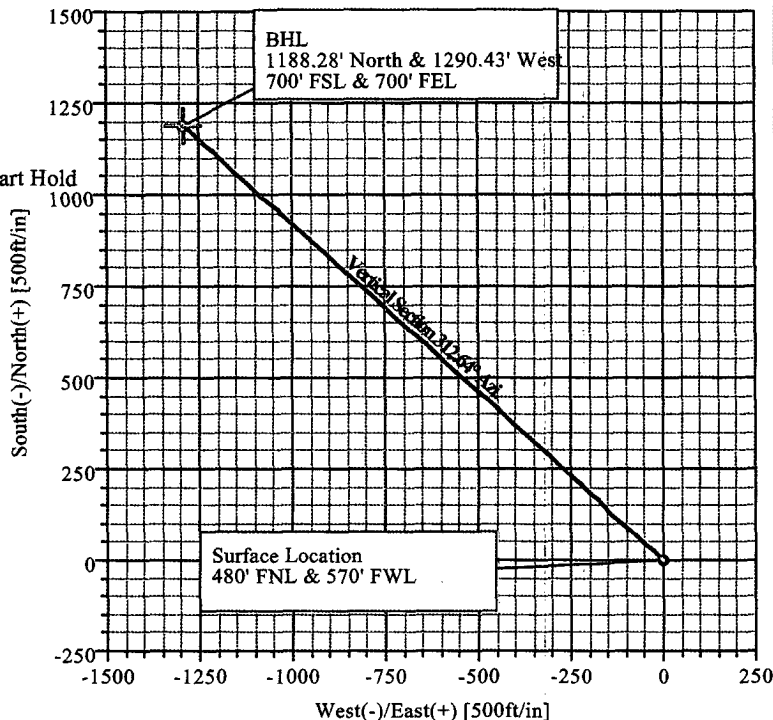
TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Int. Cs. Pt.	3690.00	1188.28	-1290.43	2150320.10	2826495.10	Point
BHL	6113.00	1188.28	-1290.43	2150320.10	2826495.10	Point

KB ELEVATION: 6393'
GR ELEVATION: 6379'



Azimuths to True North
Magnetic North: 10.41°
Magnetic Field
Strength: 51442nT
Dip Angle: 63.78°
Date: 5/9/2006
Model: igr2005
Total Correction 10.41°

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2363.00	2740.76	Ojo Alamo
2	2473.00	2880.36	Kirtland
3	2858.00	3352.70	Fruitland
4	3213.00	3736.59	Pictured Cliffs
5	3528.00	4056.94	Lewis
6	5058.00	5587.08	Cliff House Trans
7	5383.00	5912.08	Cliff House
8	5433.00	5962.08	Menefee
9	5663.00	6192.08	Point Lookout
10	5963.00	6492.08	Mancos



Weatherford

Plan: Plan #1 (Rosa Unit #167C)
 Created By: Jose Perez
 Weatherford Drilling Services
 Granbury Office
 3611 Plaza East Court
 Granbury, TX 76049
 (817) 573 8500 Main
 (817) 573 8001 Fax
 Date: 5/9/2006

GEOLOGIC PROGNOSIS

Company: **Williams Production Company, LLC**
Project: **2006 Drilling Plan**
Area: **Rosa Unit**

Operator: **Williams Production Company, LLC**
Well Name: **Rosa Unit No. 167C (Kmv-Directional)**
Location: **NWNW 16-31N-06W**
Footage: **0480' FNL & 0570' FWL**
County/State: **San Juan/New Mexico**

Surveyed GL: 6379 Estimate (14') KB: 6393

<u>Formation</u>	<u>Thickness</u>	<u>TVD</u>	<u>Struct. Elev.</u>
<i>San Jose Fm.</i>	2363	Surface	6379
<i>Ojo Alamo Ss.</i>	110	2363	4030
<i>Kirtland Sh.</i>	385	2473	3920
<i>Fruitland Fm.</i>	355	2858	3535
<i>Pictured Cliffs Ss.</i>	315	3213	3180
<i>Lewis Sh.</i>	160	3528	2865
<u>Intermediate Casing Depth</u>	1370	<u>3688</u>	2705
<i>Cliff House Ss. Trans.</i>	325	5058	1335
<i>Cliff House Ss.</i>	50	5383	1010
<i>Manefee Fm.</i>	230	5433	960
<i>Point Lookout Ss.</i>	300	5663	730
<i>Mancos Sh.</i>	150	5963	430
<u>Total Depth</u>	NA	<u>6113</u>	280

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

Correlation Logs: Rosa Unit No. 145A (NWNW 16-31N-06W)

Notes: This well will be directionally drilled to a BHL
0700' FSL & 0700' FEL 08-31N-06W

Williams Production Company, LLC

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

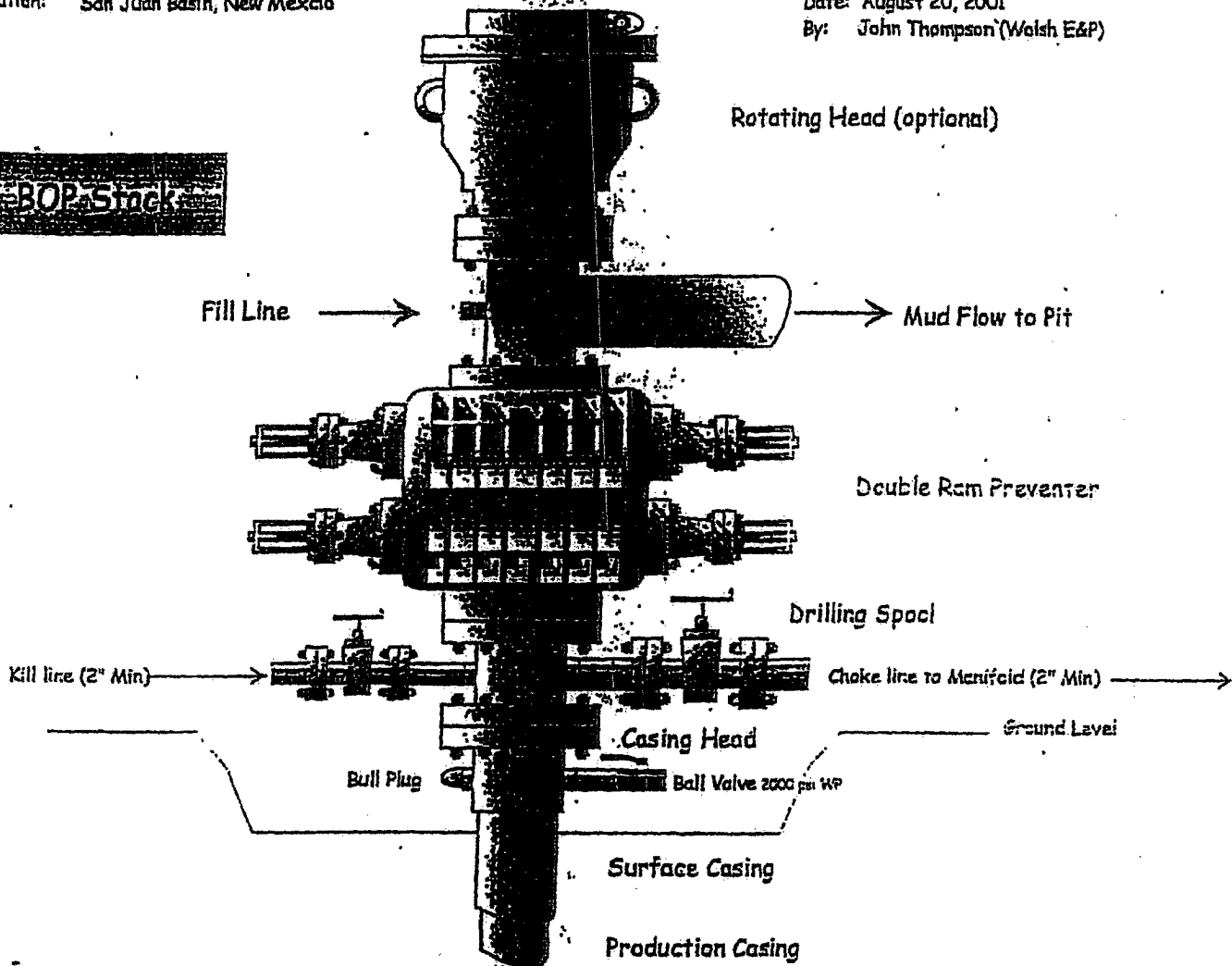
Typical BOP setup

Location: San Juan Basin, New Mexico

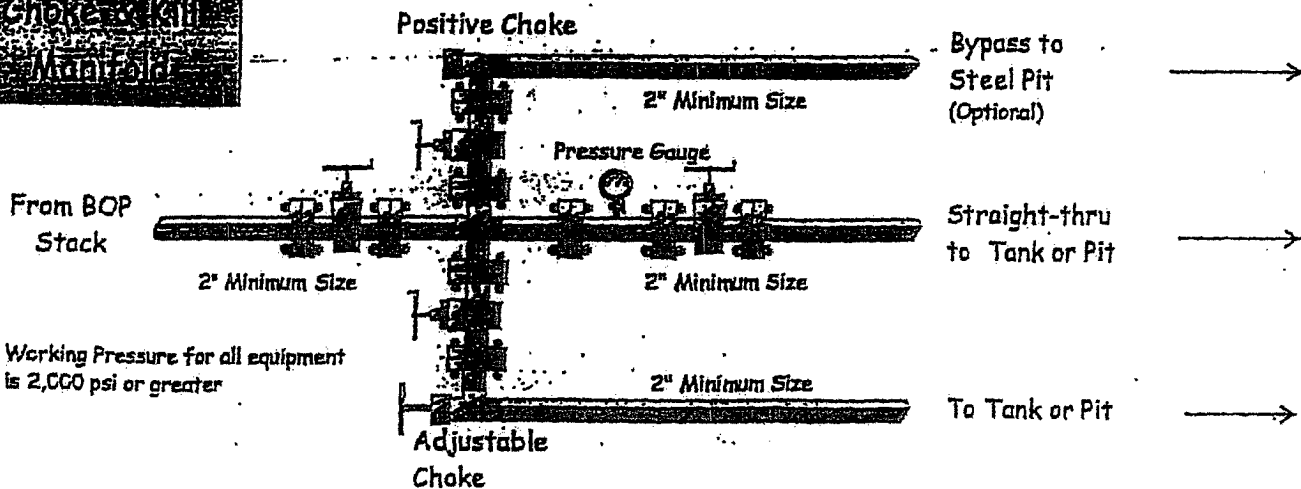
Date: August 20, 2001

By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold



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

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.