

RECEIVED

FORM APPROVED  
OMB No. 1004-0136  
Expires January 31, 2004

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APR 23 2009

APPLICATION FOR PERMIT TO DRILL OR REENTER

Bureau of Land Management  
Farmington Field Office

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF-078771
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" 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. 20D
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 30039 30754
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1485' FNL & 1525' FEL G At proposed prod. zone 2000' FNL & 500' FEL 11		10. Field and Pool, or Exploratory Basin Mancos/Blanco Mesaverde/Basin Dakota
14. Distance in miles and direction from nearest town or post office* approximately 26 miles northeast of Blanco, New Mexico		11. Sec., T., R., M., or Blk. and Survey or Area G Section 14, 31N, 6W
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 990'	16. No. of Acres in lease 2,560.000	12. County or Parish Rio Arriba
17. Spacing Unit dedicated to this well 320.0 - (E/2)	18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 70' Rosa 67 (P&A)	13. State
19. Proposed Depth 8,308'	20. BLM/BIA Bond No. on file 0899 UT0847	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,368' GR	22. Approximate date work will start* April 1, 2009	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 4-23-09

Approved by (Signature) *[Signature]* Name (Printed/Typed) Title AFM Office FFO Date 5/26/09

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 Production Company, LLC, proposes to develop the Basin Mancos, Blanco Mesaverde, and Basin Dakota formations 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 (BLM/FFO)

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

No new access road will be required for this proposed well

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 212.60 feet would be required for this well

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

This action is subject to technical and procedural review pursuant to 43 CFR 3165.6 and appeal pursuant to 43 CFR 3165.4

HOLD C104 FOR NSL Basin Mancos B/L Tgt.

NMOCDC Basin Dakota  
Hold C104  
for Directional Survey  
and "As Drilled" plat

Drilling operations authorized are subject to compliance with attached "General Requirements".

District I  
1525 N French Dr., Hobbs, NM 88240

District II  
1301 W Grand Avenue, 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 & Natural Resources Department

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30039-30754</b>	<sup>2</sup> Pool Code <b>97232 / 72319 / 71599</b>	<sup>3</sup> Pool Name <b>BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA</b>
<sup>4</sup> Property Code <b>17033</b>	<sup>5</sup> Property Name <b>ROSA UNIT</b>	<sup>6</sup> Well Number <b>20D</b>
<sup>7</sup> GRID No. <b>120782</b>	<sup>8</sup> Operator Name <b>WILLIAMS PRODUCTION COMPANY</b>	<sup>9</sup> Elevation <b>6368'</b>

<sup>10</sup> Surface Location

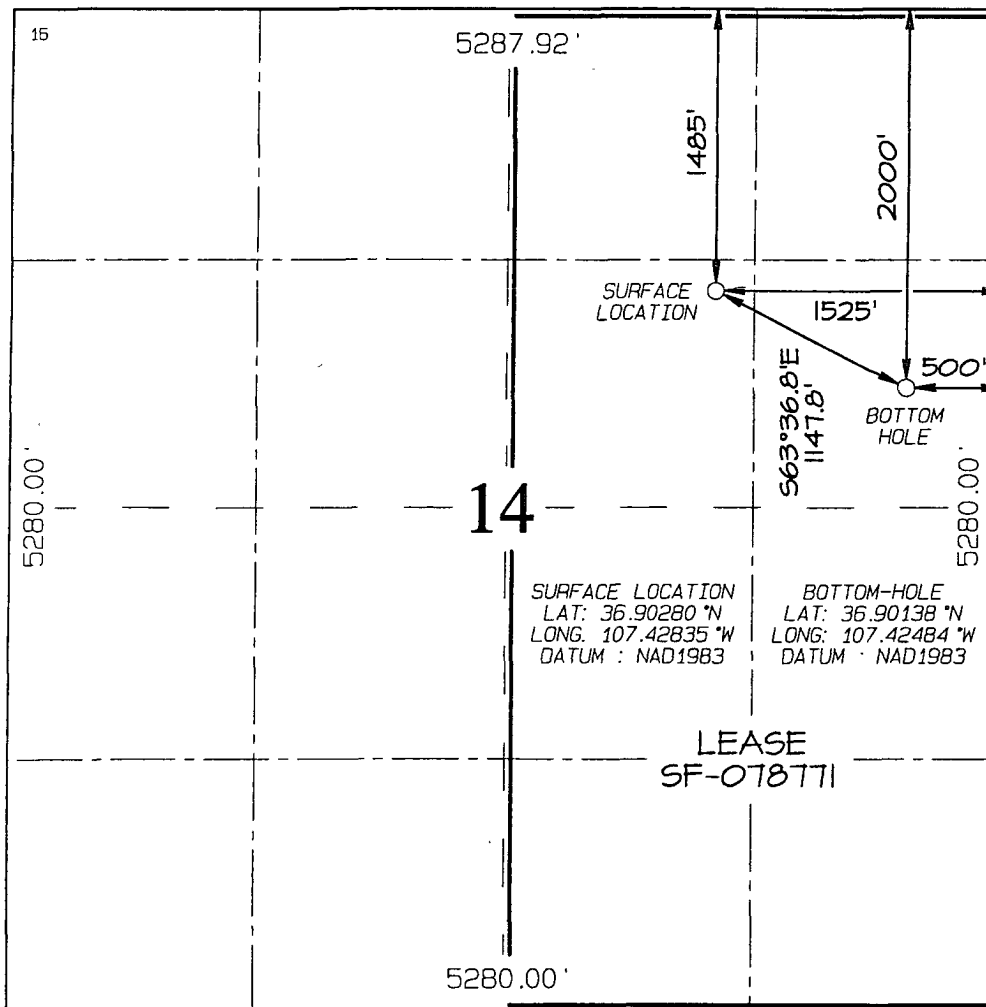
UL or lot no <b>G</b>	Section <b>14</b>	Township <b>31N</b>	Range <b>6W</b>	Lot Idn	Feet from the <b>1485</b>	North/South line <b>NORTH</b>	Feet from the <b>1525</b>	East/West line <b>EAST</b>	County <b>RIO ARriba</b>
--------------------------	----------------------	------------------------	--------------------	---------	------------------------------	----------------------------------	------------------------------	-------------------------------	-----------------------------

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no <b>H</b>	Section <b>14</b>	Township <b>31N</b>	Range <b>6W</b>	Lot Idn	Feet from the <b>2000</b>	North/South line <b>NORTH</b>	Feet from the <b>500</b>	East/West line <b>EAST</b>	County <b>RIO ARriba</b>
--------------------------	----------------------	------------------------	--------------------	---------	------------------------------	----------------------------------	-----------------------------	-------------------------------	-----------------------------

<sup>12</sup> Dedicated Acres <b>320.0 Acres - (E/2)</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No. <b>R-13123</b>
---	-------------------------------	----------------------------------	---

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



<sup>17</sup> OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Larry Higgins* 5-21-09  
Signature Date  
*Larry Higgins*  
Printed Name

<sup>18</sup> 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: NOVEMBER 21, 2008

Signature and Seal of Professional Surveyor



*JASON C. EDWARDS*  
Certificate Number 15269



## WILLIAMS PRODUCTION COMPANY

### Operations Plan

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

**DATE:** 4/21/2009 **FIELD:** Basin DK/ Basin MN/BlancoMV  
**WELL NAME:** Rosa #20D **SURFACE:** BLM  
**BH LOCATION:** ~~SW~~ NE Sec 14-31N-6W **MINERALS:** BLM  
Rio Arriba, NM  
~~6,358'~~ **ELEVATION:** 6,358' GR **LEASE #** SF-078771  
**MEASURED DEPTH:** 8,308'

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

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

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,442	2,634	Menefee	5,457	5,693
Kirtland	2,547	2,750	Point Lookout	5,707	5,943
Fruitland	2,942	3,169	Mancos	6,012	6,248
Pictured Cliffs	3,222	3,456	Gallup	7,022	7,258
Lewis	3,517	3,753	Greenhorn	7,752	7,988
Cliff House	5,407	5,643	Graneros	7,802	8,038
			Dakota	7,927	8,163
			TD	8,072	8,308

B. **MUD LOGGING PROGRAM:** Mudlogger on location from intermediate csg to TD. Mud logger to pick TD.

C. **LOGGING PROGRAM:** HRI/Temp from intermediate casing to TD. SDL\DSN over zones of interest.

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 7-5/8" 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 7-5/8in. 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	14 3/4	300	10 3/4	40.5	K-55
Intermediate	9 7/8	3,933	7 5/8	26.4	K-55
Longstring	6 3/4	8,308	5 1/2	17	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 (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7 5/8" 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: 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: Slurry: 290sx (521 cu.ft.) of "Type III" + 2% Cal-Seal 60 + ¼ # of poly-e-flake/sk + 0.3% Versaset + 2% Econolite + 6% Salt (Yield = 1.796 cu.ft./sk, Weight = 13.5 #/gal.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 1500psi.
2. INTERMEDIATE: Lead - 525 sx (1430 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 (Yield = 2.723 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 100 sx (117.8cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake, (Yield = 1.178 cu.ft./sk, Weight = 15.6#/gal.). **NO EXCESS PUMP AS WRITTEN SHOULD CIRCULATE TO SURFACE** Total volume = 1548 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface **Test csg to 1500psi.**
3. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 325 sx (454 ft<sup>3</sup>) of "FRACCEM" + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake + 0.15% HR-800. (Yield = 1.398 ft<sup>3</sup>/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. **NO EXCESS SHOULD COVER 150 FEET INTO 7" CASING** Total volume (454) ft<sup>3</sup>. WOC 12 hours.

**IV. 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**

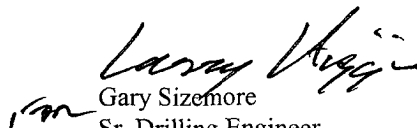
1. Pressure test 5-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

**C. STIMULATION**

1. Stimulate Dakota with approximately 10,000# of LiteProp 108™ sand in slick water.
2. Isolate Dakota with a RBP.
3. Perforate Mancos as determined from the open hole logs
4. Stimulate Mancos with 3 stages of approximately 117,000# 40/70 white sand and 7500# 100 mesh white sand
5. Stimulate Point Lookout with approximately 9300# of 14/30 LiteProp™ in slick water.
6. Isolate Point Lookout with a RBP.
7. Perforate the Menefee/Cliff House as determined from the open hole logs.
8. Stimulate with approximately 9300# of 14/30 LiteProp™ in slick water.
9. Test each zone before removing bridge plugs.

**D. RUNNING TUBING**

1. Production Tubing: 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

  
Gary Sizemore  
Sr. Drilling Engineer



ROSA UNIT #20D  
RIO ARriba CO., NEW MEXICO

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	116.74	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	116.74	400.00	0.00	0.00	0.00	0.00	0.00	
3	1070.79	26.83	116.74	1046.54	-69.38	137.73	4.00	116.74	154.22	
4	2591.94	26.83	116.74	2403.91	-378.26	750.93	0.00	0.00	840.82	
5	3933.53	0.00	116.74	3697.00	-517.01	1026.40	2.00	180.00	1149.26	
6	8308.53	0.00	116.74	8072.00	-517.01	1026.40	0.00	0.00	1149.26	Pbhl

#### WELL DETAILS

Name	+N/-S	+E/-W	Northng	Easting	Latitude	Longitude	Slot
#20D	0.00	0.00	2150041.64	1295892.90	36°54'10.080N	107°25'42.060W	N/A

#### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Pbhl	8072.00	-517.01	1026.40	36°54'04.968N	107°25'29.424W	Point

#### FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2442.00	2634.46	Ojo Alamo Ss.
2	2547.00	2750.16	Kirtland Sh.
3	2942.00	3169.50	Fruitland Fm.
4	3222.00	3456.32	Pictured Cliff Ss.
5	3517.00	3753.41	Lewis Sh.
6	5097.00	5333.53	Cliff House Ss. Trans.
7	5407.00	5643.53	Cliff House Ss.
8	5457.00	5693.53	Menefee Fm.
9	5707.00	5943.53	Point Lookout Ss.
10	6012.00	6248.53	Mancos Sh.
11	7022.00	7258.53	Gallup Ss.
12	7752.00	7988.53	Greenhorn Ls.
13	7802.00	8038.53	Graneros Sh.
14	7927.00	8163.53	Dakota Ss.

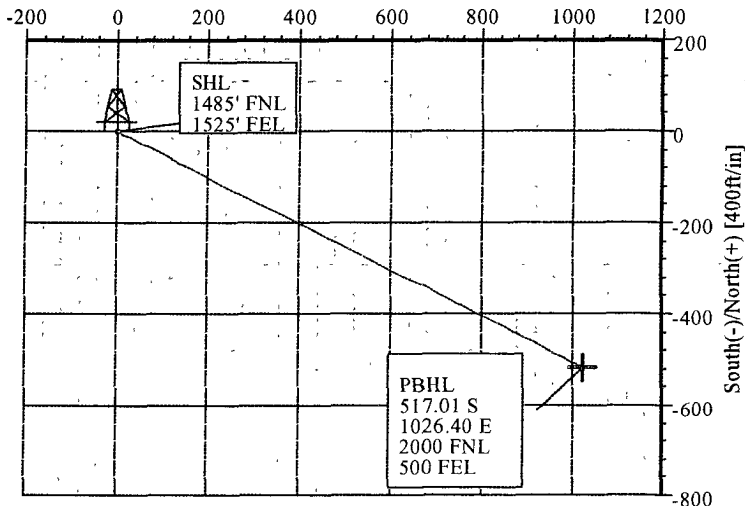
Azimuths to True North  
Magnetic North: 10 03°

Magnetic Field  
Strength: 51164nT  
Dip Angle: 63 73°  
Date: 4/20/2009  
Model: igrf200510

Total Correction to True North 10 03°

#### VERTICAL SECTION AZ 116.74° Az

West(-)/East(+) [400ft/in]



Weatherford

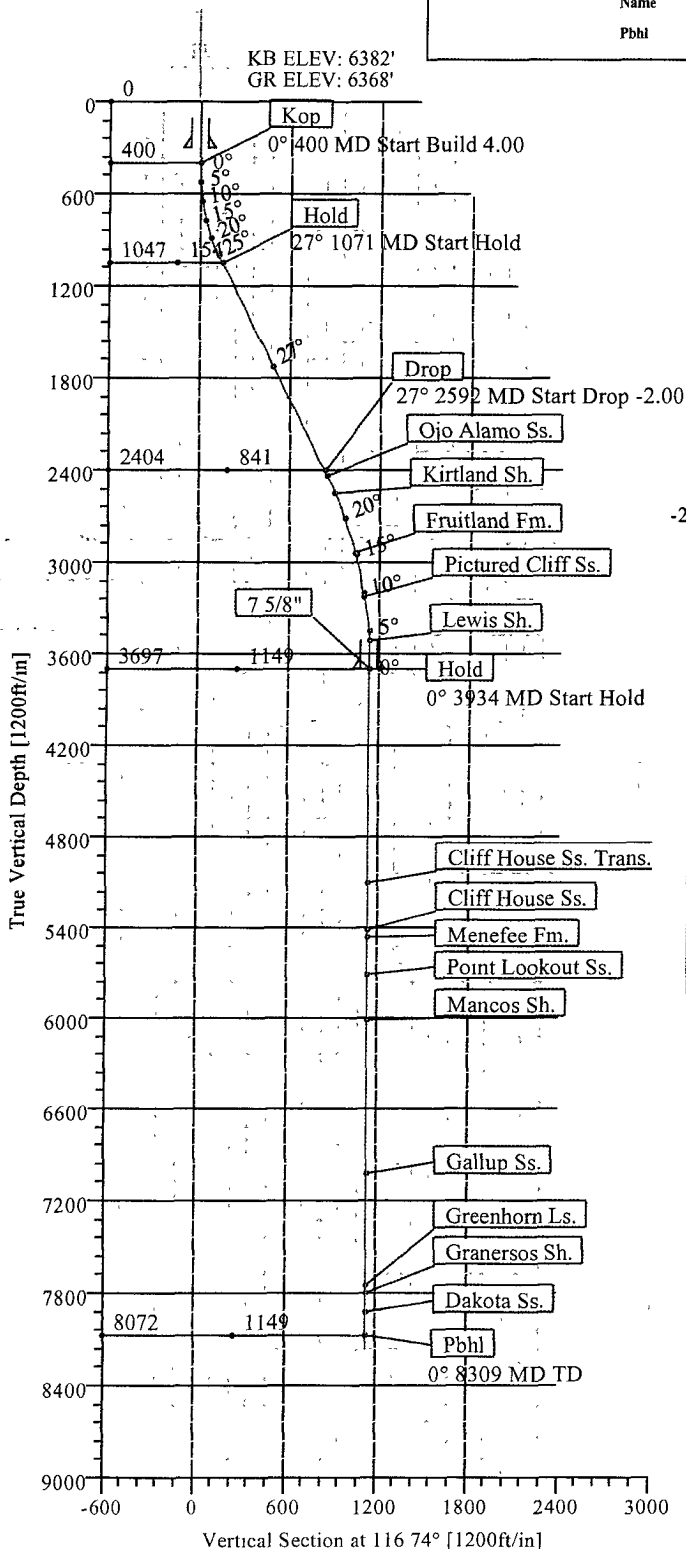
#### CASING DETAILS

No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.75
2	3697.00	3933.53	7 5/8"	0.00

Plan: Plan #1 (#20D/1)

Created By: Russell Joyner

Date: 4/20/2009





# Weatherford WELL PLAN REPORT

**Weatherford**

Company: WILLIAMS PRODUCTION  
Field: Rio Arriba Co., NM (NAD 83)  
Site: Rosa Unit #20D  
Well: #20D  
Wellpath: 1

Date: 4/20/2009 Time: 11:01:52 Page: 4  
Co-ordinate(NE) Reference: Well: #20D, True North  
Vertical (TVD) Reference: SITE 6382.0  
Section (VS) Reference: Well (0.00N,0.00E,116.74Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

## Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2634.46	2442.00	Ojo Alamo Ss.		0.00	0.00
2750.16	2547.00	Kirtland Sh.		0.00	0.00
3169.50	2942.00	Fruitland Fm		0.00	0.00
3456.32	3222.00	Pictured Cliff Ss.		0.00	0.00
3753.41	3517.00	Lewis Sh.		0.00	0.00
5333.53	5097.00	Cliff House Ss Trans.		0.00	0.00
5643.53	5407.00	Cliff House Ss.		0.00	0.00
5693.53	5457.00	Menefee Fm.		0.00	0.00
5943.53	5707.00	Point Lookout Ss.		0.00	0.00
6248.53	6012.00	Mancos Sh.		0.00	0.00
7258.53	7022.00	Gallup Ss.		0.00	0.00
7988.53	7752.00	Greenhorn Ls.		0.00	0.00
8038.53	7802.00	Graneros Sh.		0.00	0.00
8163.53	7927.00	Dakota Ss.		0.00	0.00

# 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)

