Form 3160-3
(September 2001)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

2006 JAN 30 PM 12 19

RECEIVED
070 FARMINGTON NM

1a. Type of Work: ☒ DRILL ☐ REENTER	5. Lease Serial No. NMSF-078894
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ 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	3b. Phone No. *(include area code)* (505) 634-4208
4. Location of Well *(Report location clearly and in accordance with any State requirements. *)* At surface Lot F: 1565' FNL & 2500' FWL; At proposed prod. zone Lot C: 660' FNL & 2310' FWL	8. Lease Name and Well No. 310A
	9. API Well No. 30-039-29779
	10. Field and Pool, or Exploratory Basin Fruitland Coal
	11. Sec., T., R., M., or Blk. and Survey or Area F Section 26, 31N, 4W
14. Distance in miles and direction from nearest town or post office* approximately 34 miles northeast of Blanco, New Mexico	12. County or Parish Rio Arriba; 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1560'	16. No. of Acres in lease 2,284.16; 17. Spacing Unit dedicated to this well 320.0 acres W/2
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1500'	19. Proposed Depth 4,062; 20. BLM/BIA Bond No. on file UT0847
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,986 GR	22. Approximate date work will start* June 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.
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 01-25-06
Title Drilling COM		
Approved by *(Signature)* [signature]	Name *(Printed/Typed)*	Date 6/2/06
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 Basin Fruitland Coal 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 USDA Forest Service, Carson National Forest, Jicarilla Ranger District.

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

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 524.70 feet would be required for this location.

HOLD C104 FOR NSL ~~NSP~~ Directional Survey not in P.A.

JUN 2006

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

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

1 API Number	2 Pool Code	3 Pool Name
30-039-29779	71629	BASIN FRUITLAND COAL

4 Property Code	5 Property Name	6 Well Number
17033	ROSA UNIT	310A

7 OGRID No.	8 Operator Name	9 Elevation
120782	WILLIAMS PRODUCTION COMPANY	6986'

10 Surface Location

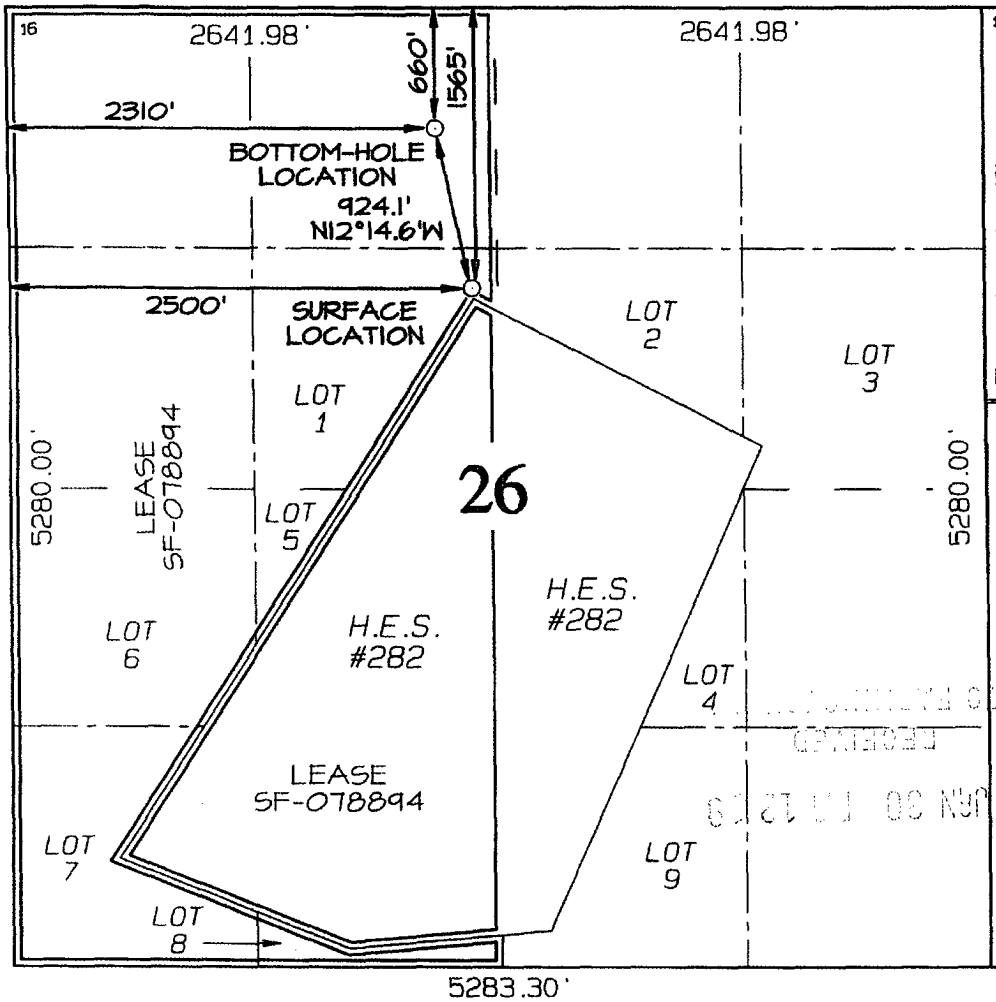
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	26	31N	4W		1565	NORTH	2500	WEST	RIO ARRIBA

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
C	26	31N	4W		660	NORTH	2310	WEST	RIO ARRIBA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
320.0 Acres - (W/2)			

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

Signature

Larry Higgins

Printed Name

Drilling COM

Title

1-25-06

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.

Date of Survey: JUNE 2, 2005

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED 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

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

Form C-103
May 27, 2004

WELL API NO. 30-039-29779
5. Indicate Type of Lease FEDERAL X STATE ☐ FEE ☐
6. State Oil & Gas Lease No. **NMSF-0078894**

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.)

7. Lease Name or Unit Agreement Name: **Rosa**
1. Type of Well: Oil Well ☐ Gas Well ☒ Other
8. Well Number **310A**
2. Name of Operator: **Williams Production Company, LLC**
9. OGRID Number: **120782**
3. Address of Operator: **POB 640, Aztec, NM**
10. Pool name or Wildcat: **Basin Fruitland Coal**

4. Well Location
Unit Letter F : **1565** feet from the N line and **2500** feet from the W line
Section **26** Township **31N** Range **04W** NMPM County **Rio Arriba**

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* **6986' GR**

Pit or Below-grade Tank Application ☒ or Closure ☐ 4000'
Pit type Drlg/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:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☐	
OTHER: ☐		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 _____ TITLE EH&S Specialist DATE 01/25/06

Type or print name **Michael K. Lane** E-mail address: **myke.lane@williams.com** Telephone No. **505-634-4219**

For State Use Only

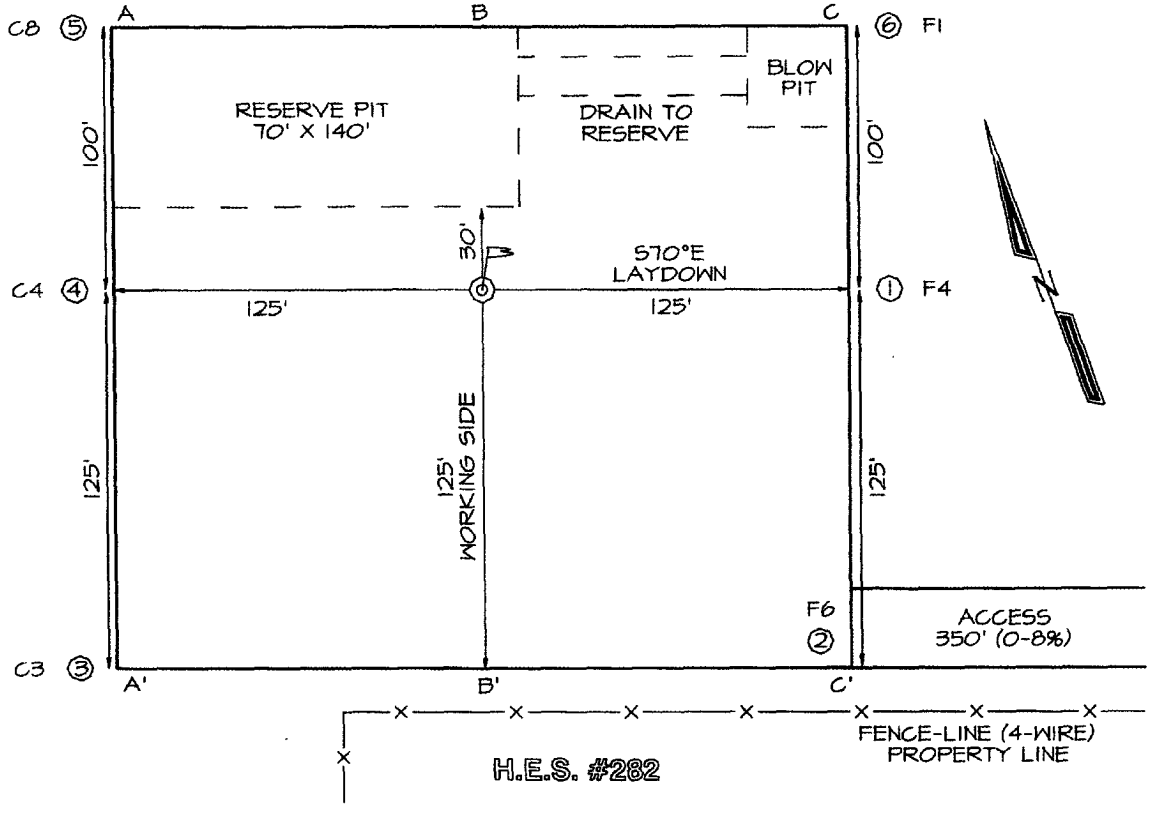
APPROVED BY: _____ TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE JUN 05 2006

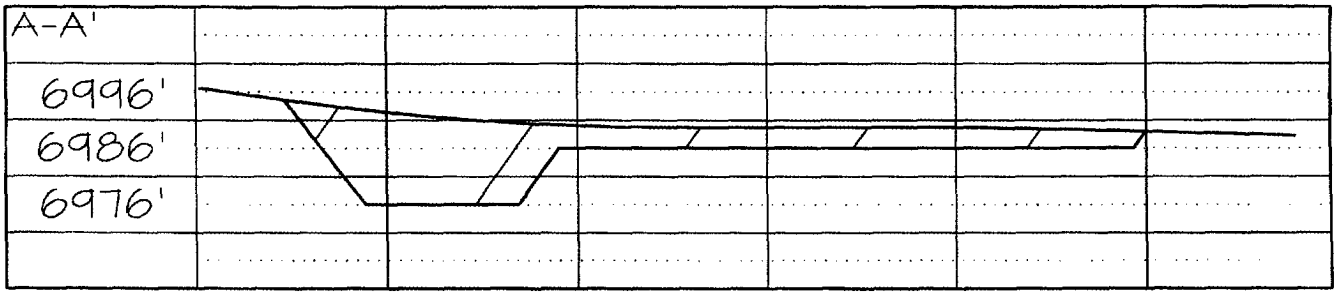
Conditions of Approval (if any):

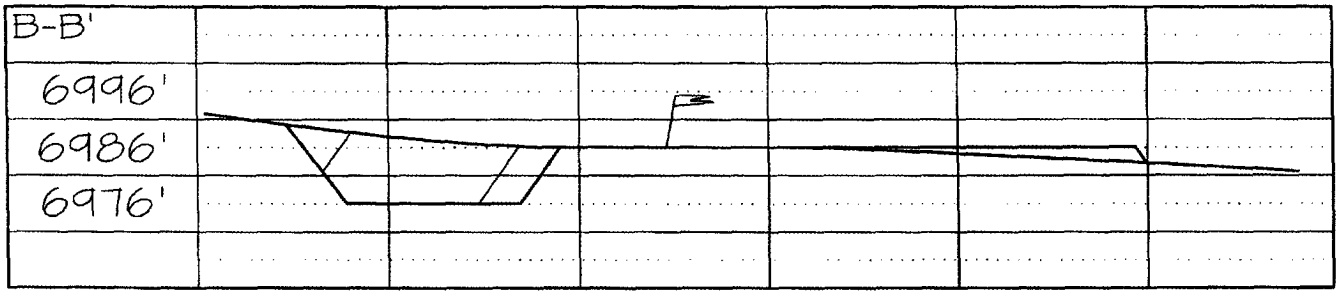
Part #1: Well Location Layout

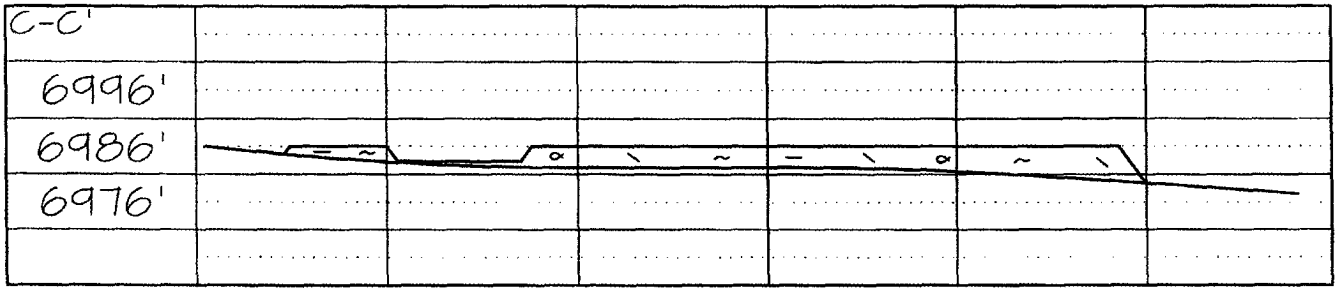
WILLIAMS PRODUCTION COMPANY ROSA UNIT #310A
1565' FNL & 2500' FWL, SECTION 26, T31N, R4W, NMPM
RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6986'

LATITUDE: 36°52'25"
LONGITUDE: 107°13'27"
DATUM: NAD1927









FILENAME: 31426T2	SHEET 2 OF 3	NCE SURVEYS, INC.	DRAWN BY: EDO	CHECKED BY: JCE

WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE:	**1/25/2006**		
WELLNAME:	Rosa Unit #310A	**FIELD:**	Basin Fruitland Coal
BH LOCATION:	NENW Sec 26-31N-4W Rio Arriba, NM	**SURFACE:**	USFS
SURF. LOCATION:	SENW Sec 26-31N-4W		
ELEVATION:	6,986' GR	**MINERALS:**	BLM
TOTAL DEPTH:	**4,062'**	**LEASE #**	SF-078768

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

NAME	TVD	MD	NAME	TVD	MD
San Jose	Surface	Surface	Top Coal	3,745	3,895
Nacimiento	1,985	N/A	Bottom Coal	3,810	3,960
Ojo Alamo	3,270	3,418	Pictured Cliffs	3,825	3,975
Kirtland	3,400	3,549	**TD**	**3,910**	**4,062**
Fruitland	3,535	3,684			

B. LOGGING PROGRAM: None

C. 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. Treat for lost circulation as necessary. Expect 100% returns prior to cementing. Notify Engineering of any mud losses. If coal is detected before **3,882'** (MD) DO NOT drill deeper until Engineering is contacted.

B. **Drilling Fluid:** Coal section will be drilled with Fruitland Coal water. Mud logger will pick TD .

C. **MUD LOGGING PRORAM:** Mud logger will be on location at drill out below 7" casing to TD.

D. **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	HOLE SIZE	DEPTH (MD)	CASING SIZE	WT. & GRADE
Surface	12-1/4"	+/- 300'	9-5/8"	36# K-55
Intermediate	8-3/4"	+/- 3,882'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,782'-3,960'	5-1/2"	15.5# 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 centralizers as needed across selected production intervals.

C. CEMENTING:

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

1. SURFACE: Use 190 sx (264 cu.ft.) of "Type III" with 2% $CaCl_2$ and 1/4# of cello-flake/sk (Yield = 1.41 cu.ft./sk, Weight = 14.5 #/gal.). **Use 100% excess** to circulate the surface. WOC 12 hours. Total volume = 264 cu.ft. Test to 1500#.

2. INTERMEDIATE: Lead - 540 sx (1,129 cu.ft.) of "Type III" 65/35 poz with 8% gel, 1% $CaCl_2$ 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, and 1% $CaCl_2$ (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 = 1,199 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.

IV COMPLETION

A. PRESSURE TEST

Pressure test 7" casing to 3300# for 15 minutes.

B. STIMULATION

Cavitate Well with reciprocation and rotation. Surge wells with water and air and then flow back to pit. Cavitate for 2 to 3 weeks. Maximum pressure not expected to exceed 2,000 psi.

C. RUNNING TUBING

1. *Fruitland Coal:* Run 2-7/8", 4.7#, J-55, EUE tubing with a SN (1.375" ID) on top of bottom joint. Land tubing approximately 50' above TD.

Gary Sizemore
Sr. Drilling Engineer

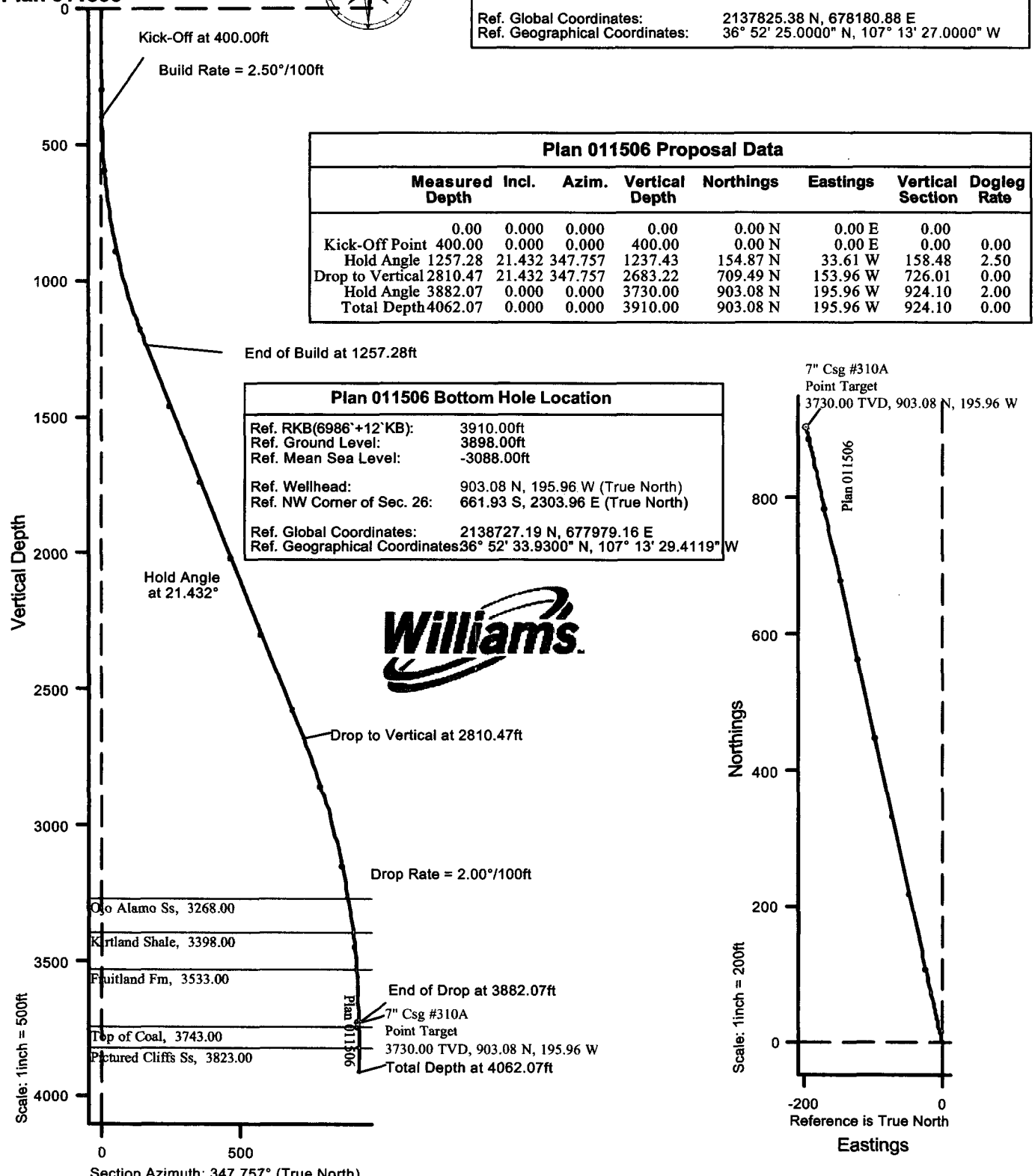
HALLIBURTON
Sperry Drilling Services

Williams Production Company

DrillQuest
Sperry-Sun

New Mexico
Rio Arriba County
Sec. 26-T31N-R04W
Rosa Unit #310A
Plan 011506

Rosa Unit #310A Surface Location	
RKB Elevation:	6998.00ft above Mean Sea Level
Ref. NW Corner of Sec. 26:	1565.00 S, 2500.00 E
Ref. Global Coordinates:	2137825.38 N, 678180.88 E
Ref. Geographical Coordinates:	36° 52' 25.0000" N, 107° 13' 27.0000" W



Plan 011506 Proposal Data								
	Measured Depth	Incl.	Azim.	Vertical Depth	Northings	Eastings	Vertical Section	Dogleg Rate
	0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
Kick-Off Point	400.00	0.000	0.000	400.00	0.00 N	0.00 E	0.00	0.00
Hold Angle	1257.28	21.432	347.757	1237.43	154.87 N	33.61 W	158.48	2.50
Drop to Vertical	2810.47	21.432	347.757	2683.22	709.49 N	153.96 W	726.01	0.00
Hold Angle	3882.07	0.000	0.000	3730.00	903.08 N	195.96 W	924.10	2.00
Total Depth	4062.07	0.000	0.000	3910.00	903.08 N	195.96 W	924.10	0.00

Plan 011506 Bottom Hole Location	
Ref. RKB(6986'+12'KB):	3910.00ft
Ref. Ground Level:	3898.00ft
Ref. Mean Sea Level:	-3088.00ft
Ref. Wellhead:	903.08 N, 195.96 W (True North)
Ref. NW Corner of Sec. 26:	661.93 S, 2303.96 E (True North)
Ref. Global Coordinates:	2138727.19 N, 677979.16 E
Ref. Geographical Coordinates	36° 52' 33.9300" N, 107° 13' 29.4119" W

Prepared by:	Date/Time:	Checked:	Approved:
Dennis Cook	15 January, 2006 - 10:59		

GENERAL ROSA DRILLING PLAN

Rosa Unit boundries:

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 Dadota	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.

Williams Production Company, LLC

Well Control Equipment Schematic for 2M Service

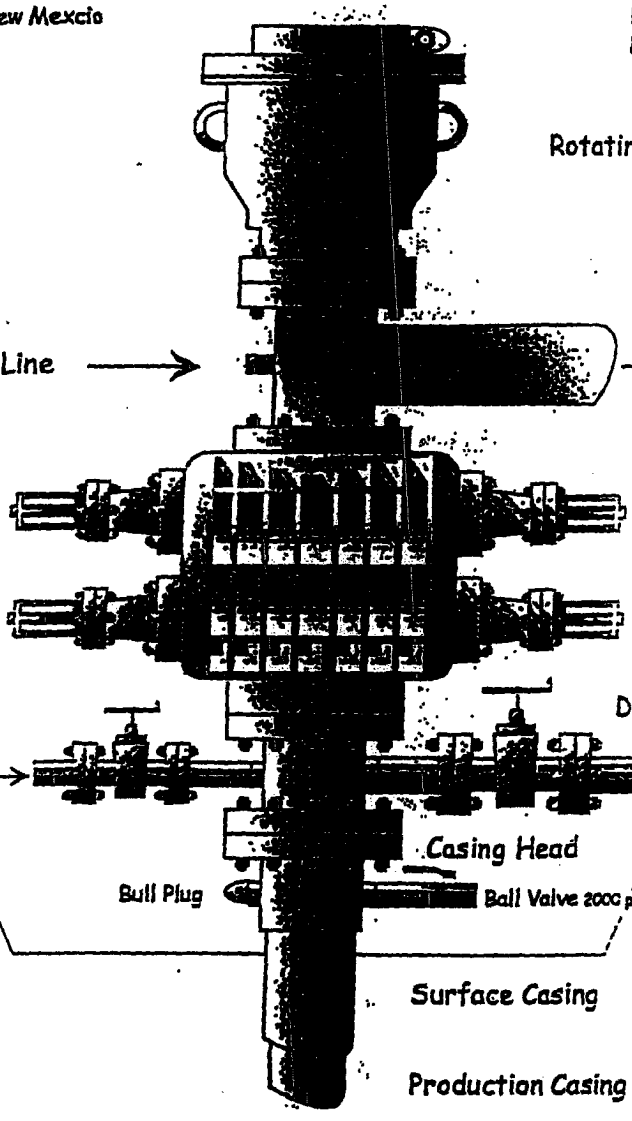
Attachment to Drilling Technical Program

Typical BOP setup

Location: San Juan Basin, New Mexcio

Date: August 20, 2001
By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold