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 JUN 20 PM 4 15

RECEIVED
070 FARMINGTON NM

1a. Type of Work: ☒ DRILL ☐ REENTER	5. Lease Serial No. NMSF-078891
	6. If Indian, Allottee or Tribe Name
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone	7. If Unit or CA Agreement, Name and No. Rosa Unit
	8. Lease Name and Well No. 280A
2. Name of Operator Williams Production Company, LLC	9. API Well No. 30-039-29964
3a. Address P O. Box 640 Aztec, NM 87410	3b. Phone No. *(include area code)* (505) 634-4208
	10. Field and Pool, or Exploratory Basin Fruitland Coal
4. Location of Well *(Report location clearly and in accordance with any State requirements. *)* At surface 2695' FNL & 2390' FWL; At proposed prod. zone 660' FNL & 10' FWL	11. Sec., T., R., M., or Blk. and Survey or Area Section 1, 31N, 4W
14. Distance in miles and direction from nearest town or post office* approximately 35 miles northeast of Navajo City, 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) 660'	16. No. of Acres in lease 1,965.72
	17. Spacing Unit dedicated to this well 327.26 (W/2)
	RCVD SEP 10 '07 OIL CONS. DIV. DIST. 3
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 6,838'
	20. BLM/BIA Bond No. on file UT0847
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,005' 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 6-20-06
Title Drilling COM		
Approved by *(Signature)* /s/ Matthew Halbert	Name *(Printed/Typed)*	Date 9/7/07
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 drill a well to develop the Basin Fruitland Coal formation at the above described location in accordance with the attached drilling and surface use plans.

The surface is under jurisdiction of the Carson National Forest, Jicarilla Ranger District.

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

This location would be twinned with the proposed Rosa Unit Nos. 388 and 388A wells. A 550-foot on-lease access road and a 992.70-foot pipeline tie would be required for this location. Williams Four Corners has filed a pipeline route plan for the associated pipeline. The pipeline would be owned and operated by Williams Four Corners, LLC.

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

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

HOLD C104 FOR directional survey

target is NSL

As drilled C-102

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
30-039-29964	71629	BASIN FRUITLAND COAL

[4] Property Code	[5] Property Name	[6] Well Number
17033	ROSA UNIT	280A

[7] OGRID No	[8] Operator Name	[9] Elevation
120782	WILLIAMS PRODUCTION COMPANY	7005'

[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	1	31N	4W		2695	NORTH	2390	WEST	RIO ARRIBA

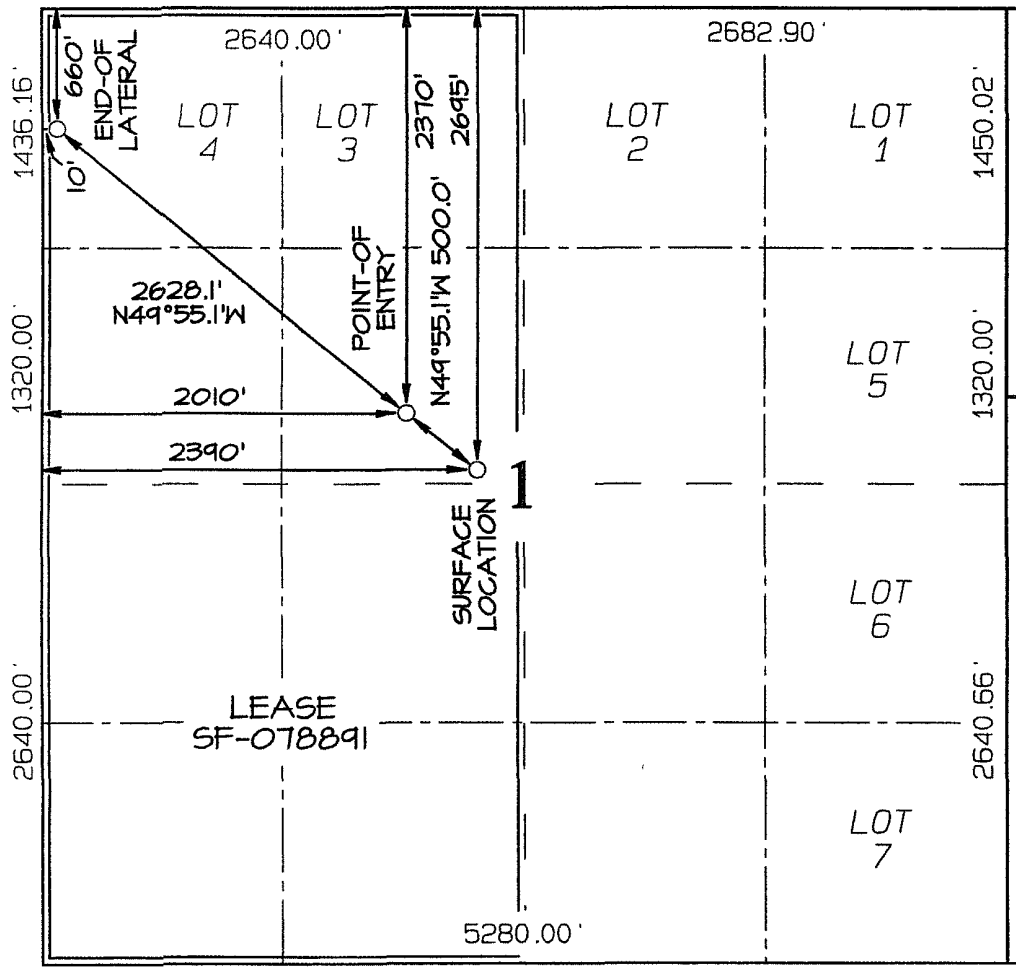
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	1	31N	4W		660	NORTH	10	WEST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
327.26 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

[16]



[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 Cl

Title

6-20-06

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 14, 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. 30-039-29964
5. Indicate Type of Lease FEDERAL X STATE ☐ FEE ☐
6. State Oil & Gas Lease No. SF-078891

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 Unit
1. Type of Well: Oil Well ☐ Gas Well ☒ Other
8. Well Number 280A
2. Name of Operator: Williams Production Company, LLC
9. OGRID Number 120782
3. Address of Operator: P.O. Box 640 Aztec, NM 87410
Basin Fruitland Coal

4. Well Location
Unit Letter F: 2695 feet from the north line and 2390 feet from the west line
Section 1 Township 31N Range 4W NMPM County Rio Arriba

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 7,005' GR

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type reserve Depth to Groundwater >100' Distance from nearest fresh water well >1,000' Distance from nearest surface water >1,000'

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.

The proposed Rosa Unit 280A will be twinned with the Rosa Unit Nos. 388 and 388A wells, and a single reserve pit will serve all three wells.

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 6-20-06

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

For State Use Only

APPROVED BY: Deputy Oil & Gas Inspector, District #3 TITLE DATE SEP 17 2007

Conditions of Approval (if any):

WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE:	**5/19/2006**		
WELLNAME:	Rosa Unit #280A	**FIELD:**	Basin Fruitland Coal
BH LOCATION:	NWNW Sec. 1-T31N-4W	**SURFACE:**	USFS
SURF LOCATION:	SENW Sec 1-31N-4W Rio Arriba, NM	**MINERALS:**	BLM
		LEASE #	SF-078891
ELEVATION:	7,005 GR		
TOTAL DEPTH:	**6,838'**		

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

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

NAME		TVD	MD		NAME		TVD	MD
San Jose		Surface	Surface		Top Coal		3,879	4,002
Nacimiento		2,099	2,099		Top Target Coal		3,919	4,313
Ojo Alamo		3,369	3,369		Bottom Target Coal		3,934	4,323
Kirtland		3,469	3,469		Base Coal		3,944	
Fruitland		3,739	3,764		Picture Cliffs		3,944	
					TD		4,044	**6,838**

- **NOTE**: Well will be vertically drilled to 100' into Picture Cliff, logged through the PC, plug back the PC and 8-3/4" hole to 200 ft. above adjusted KOP. Dress / Kick-off cement plug and horizontally drill through the coal.

B. **LOGGING PROGRAM:** High Resolution Induction/ GR from surface casing to TD of pilot hole. Geologist will pick Density/ Neutron log intervals.

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

D. **MUD LOGGING PRORAM:** Mud logger will be on location from 500' above Ojo Alamo to TD of intermediate casing. Then from drillout of intermediate casing to TD.

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 **4,170', DO NOT** drill deeper until Engineering is contacted.

B. DRILLING FLUID: Horizontal section will be drilled with Calcium Chloride water.

C. 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"	+/- 4,170'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 3,337'- 6,838'	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 (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 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: Use 160 sx (224 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 120% excess** to circulate the surface. WOC 12 hours. Total volume = ~~206~~ 224 cu.ft. Test to 1500#.

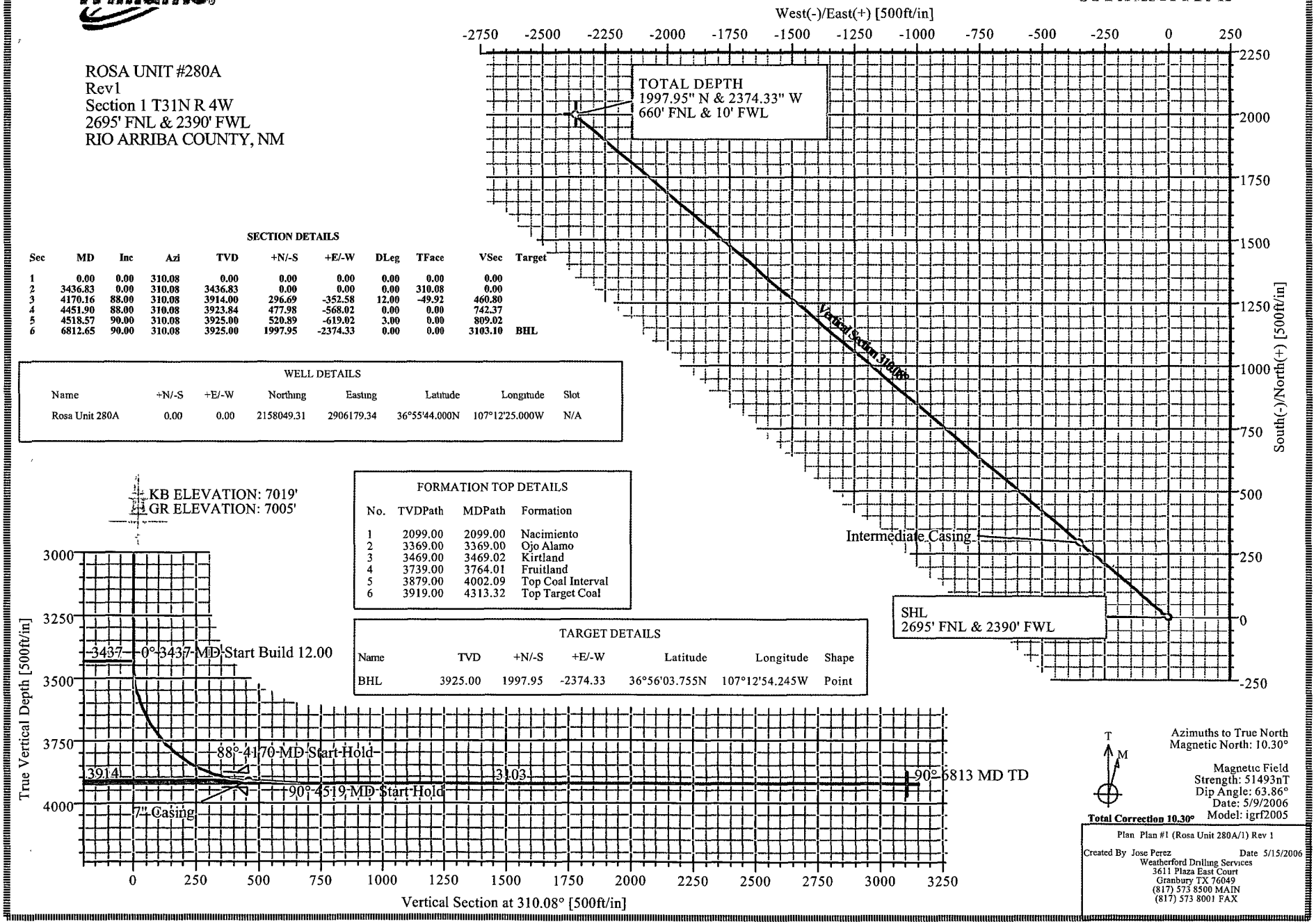
2. INTERMEDIATE: Lead - 515 sx (1,073 cu.ft.) of "Type III" 65/35 poz with 8% gel, 1% $CaCl_2$ and 1/4# cello-flake/sk (Yield = 2.09 cu.ft./sk, Weight = 12.1 #/gal.). Tail - 100 sx (139cu.ft.) of "Type III" with 1/4# cello-flake/sk, and 1% $CaCl_2$ (Yield = 1.4 cu.ft./sk, Weight = 14.5#/gal.). Use **120% excess in Lead Slurry** to circulate to surface. **No excess in Tail Slurry.** Total volume = 1,212 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.

Williams

Weatherford

ROSA UNIT #280A
Rev1
Section 1 T31N R 4W
2695' FNL & 2390' FWL
RIO ARRIBA COUNTY, NM



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	310.08	0.00	0.00	0.00	0.00	0.00	0.00	
2	3436.83	0.00	310.08	3436.83	0.00	0.00	0.00	310.08	0.00	
3	4170.16	88.00	310.08	3914.00	296.69	-352.58	12.00	-49.92	460.80	
4	4451.90	88.00	310.08	3923.84	477.98	-568.02	0.00	0.00	742.37	
5	4518.57	90.00	310.08	3925.00	520.89	-619.02	3.00	0.00	809.02	
6	6812.65	90.00	310.08	3925.00	1997.95	-2374.33	0.00	0.00	3103.10	BHL

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 280A	0.00	0.00	2158049.31	2906179.34	36°55'44.000N	107°12'25.000W	N/A

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2099.00	2099.00	Nacimiento
2	3369.00	3369.00	Ojo Alamo
3	3469.00	3469.02	Kirtland
4	3739.00	3764.01	Fruitland
5	3879.00	4002.09	Top Coal Interval
6	3919.00	4313.32	Top Target Coal

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
BHL	3925.00	1997.95	-2374.33	36°56'03.755N	107°12'54.245W	Point

Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 51493nT
Dip Angle: 63.86°
Date: 5/9/2006
Model: igrf2005

Total Correction 10.30°

Plan Plan #1 (Rosa Unit 280A/1) Rev 1

Created By Jose Perez Date 5/15/2006

Weatherford Drilling Services
3611 Plaza East Court
Granbury TX 76049
(817) 573 8500 MAIN
(817) 573 8001 FAX

Weatherford Drilling Services
Planning Report

Company:	WILLIAMS PRODUCTION	**Date:** 5/15/2006	**Time:** 11:37:24	**Page:**	4
Field:	Rio Arriba County (NAD 83)	**Co-ordinate(NE) Reference:**	Site: Rosa Unit #280A, True North		
Site:	Rosa Unit #280A	**Vertical (TVD) Reference:**	SITE 7019.0		
Well:	Rosa Unit 280A	**Section (VS) Reference:**	Well (0.00N,0.00E,310.08Azi)		
Wellpath:	1	**Plan:**	Plan #1		

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
4900.00	90.00	310.08	3925.00	766.48	-910.87	1190.45	0.00	0.00	0.00	
5000.00	90.00	310.08	3925.00	830.87	-987.39	1290.45	0.00	0.00	0.00	
5100.00	90.00	310.08	3925.00	895.25	-1063.90	1390.45	0.00	0.00	0.00	
5200.00	90.00	310.08	3925.00	959.64	-1140.41	1490.45	0.00	0.00	0.00	
5300.00	90.00	310.08	3925.00	1024.02	-1216.93	1590.45	0.00	0.00	0.00	
5400.00	90.00	310.08	3925.00	1088.41	-1293.44	1690.45	0.00	0.00	0.00	
5500.00	90.00	310.08	3925.00	1152.79	-1369.96	1790.45	0.00	0.00	0.00	
5600.00	90.00	310.08	3925.00	1217.18	-1446.47	1890.45	0.00	0.00	0.00	
5700.00	90.00	310.08	3925.00	1281.57	-1522.99	1990.45	0.00	0.00	0.00	
5800.00	90.00	310.08	3925.00	1345.95	-1599.50	2090.45	0.00	0.00	0.00	
5900.00	90.00	310.08	3925.00	1410.34	-1676.02	2190.45	0.00	0.00	0.00	
6000.00	90.00	310.08	3925.00	1474.72	-1752.53	2290.45	0.00	0.00	0.00	
6100.00	90.00	310.08	3925.00	1539.11	-1829.05	2390.45	0.00	0.00	0.00	
6200.00	90.00	310.08	3925.00	1603.49	-1905.56	2490.45	0.00	0.00	0.00	
6300.00	90.00	310.08	3925.00	1667.88	-1982.08	2590.45	0.00	0.00	0.00	
6400.00	90.00	310.08	3925.00	1732.27	-2058.59	2690.45	0.00	0.00	0.00	
6500.00	90.00	310.08	3925.00	1796.65	-2135.10	2790.45	0.00	0.00	0.00	
6600.00	90.00	310.08	3925.00	1861.04	-2211.62	2890.45	0.00	0.00	0.00	
6700.00	90.00	310.08	3925.00	1925.42	-2288.13	2990.45	0.00	0.00	0.00	
6800.00	90.00	310.08	3925.00	1989.81	-2364.65	3090.45	0.00	0.00	0.00	
6812.65	90.00	310.08	3925.00	1997.95	-2374.33	3103.10	0.00	0.00	0.00	BHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg	Min	Sec	<— Longitude —> Deg	Min	Sec
BHL			3925.00	1997.95	-2374.33	2160031.62	2903791.94	36	56	3.755 N	107	12	54.245 W

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2099.00	2099.00	Nacimiento		0.00	0.00
3369.00	3369.00	Ojo Alamo		0.00	0.00
3469.02	3469.00	Kirtland		0.00	0.00
3764.01	3739.00	Fruitland		0.00	0.00
4002.09	3879.00	Top Coal Interval		0.00	0.00
4313.32	3919.00	Top Target Coal		0.00	0.00
	0.00	Base Target Coal		0.00	0.00
	0.00	Pictured Coal		0.00	0.00
	0.00	Base Coal Interval		0.00	0.00

DIRECTIONAL WELL INFORMATION SHEET

DATE: 5/9/2006

Attention:	Rod Middleton	**From:**	Gary Sizemore
Company:	Weatherford	**Company:**	Williams Production
Telephone #:	432-561-8892	**Telephone #:**	918-573-8776
Fax #:	432-561-8895	**Fax #:**	918-573-4839 918-573-1298

WELL INFO: **ROSA UNIT # 280-A FC: HOR**
Rig KB: 14 ft.

9-5/8 in. Surface Casing will be set @ +/- 300 ft. Drill 8-3/4 in. hole to KOP calculate KOP from 12 deg/100ft. Build rate to land 7" inter. csg. at 3,914 ft. (TVD) @ 88 deg angle. Will drill out of 7" with a 6-1/4" bit and soft land into Target Coal @ 3,919 ft. TVD. Target Coal is assumed to stay at 90 deg. Attempt to keep well bore in the center of the target Coal Seam +/- 3,925 ft. (TVD) to TD of the well. Please place Formation Names at corresponding TVD's on the Survey listing sheets.

ATTACHMENTS:

(1) Section Staking Plat
(2) Well-Pad Plat
(3) Formation Tops List

Any questions, please give me a call.

Gary Sizemore

GEOLOGIC PROGNOSIS

Company:	***Williams Production Company. LLC***
Project:	***2006 Drilling Plan (Fruitland Fm. Coal)***
Area:	***Rosa Unit***
Operator:	**Williams Production Company. LLC**
Well Name:	***Rosa Unit No. 280A (Kfc-Horizontal)***
Location:	SENW 01-31N-04W
Footage:	2695' FNL & 2390' FWL
County/State:	Rio Arriba/New Mexico

Surveyed GL: 7005 Est: (14') KB: 7019

Formation	***Thickness***	***TVD***	***Struct. Elev.***
San Jose Fm.	2099	Surface	7005
Nacimiento Fm.	1270	2099	4920
Ojo Alamo Ss.	100	3369	3650
Kirtland Sh.	270	3469	3550
Fruitland Fm.	140	3739	3280
Top Coal Interval	40	3879	3140
Int. Csg. Depth	0	**3919**	3100
Top Target Coal	15	3919	**3100**
Base Target Coal	10	3934	3085
Base Coal Interval	0	3944	3075
Pictured Cliffs Ss.	100	3944	3075
Total Depth	NA	**4044**	2975

Mud Log: Mud log (5"=100') from **500'** above Ojo Alamo Ss. to TD
(Mud Logger to pick intermediate casing point and TD)

Mechanical Logs: HRI from surface casing to TD;
SDL (EVR)/DSN from TD through minimums

Correlation Logs: Rosa Unit No. 280 (NESW 01-31N-04W)
Carracas Unit 36B No. 15 (SWSE 36-32N-04W)

Notes: This well will be drilled 100-feet into the Pictured Cliffs Ss. for logs. After logs are run, the Rosa Unit No. 280A will be plugged back above the target coal and horizontally drilled to a BHL 0660' FNL & 0010' FWL 01-31N-04W.

Target coal in surrounding wells:
Rosa Unit No. 280 (3940'-3968')
Rosa Unit No. 283 (4062'-4078')
Carracas Unit No. 114 (3917'-3932')
Carracas Unit 36B No. 11 (3969'-3985')
Carracas Unit 36B No. 15 (3987'-4000')
Jicarilla No. 31-3-6-2 (3697'-3714')
Rosa Unit No. 86 (3913'-3929')

John E. Bircher May 02, 2006

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)