

RECEIVED

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUL 16 2009

APPLICATION FOR PERMIT TO DRILL OR REENTER and Management
Farmington Field Office

5. Lease Serial No.
NMSF-078767-078763

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.
NMSF-78407A MV
Rosa Unit NMSF-78407E-MC

8. Lease Name and Well No., DK reports to
46B LEASE

9. API Well No.
3003930793

10. Field and Pool, or Exploratory
Blanco Mesaverde/Basin Mancos/Basin Dakota

11. Sec., T., R., M., or Blk. and Survey or Area

Section 8, 31N, 5W

12. County or Parish

Rio Arriba

13. State

NM

1a. Type of Work ☒ DRILL ☐ REENTER

1b. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone

2. Name of Operator

Williams Production Company, LLC

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 950' FNL & 2000' FEL

At proposed prod. zone 950' FNL & 990' FEL

14. Distance in miles and direction from nearest town or post office*

approximately 32 miles northeast of Blanco, New Mexico

15. Distance from proposed*

location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)

950'

16. No. of Acres in lease

2,518.040

17. Spacing Unit dedicated to this well

320.0 - (E/2)-MV 320.0 Acres (N/2)-Mancos, DK

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.

50' Rosa 336

19. Proposed Depth

8,383' MD

20. M/BIA Bond No. on file

UT 0047

UTB000178

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

6,347' GR

22. Approximate date work will start*

August 15, 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 the 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) OPERATOR FROM OBTAINING AN
5. Operator certification
6. Such other site specific information and/or plans as may be required by the
authorized officer.

25. Signature

Heather Riley

Name (Printed/Typed)

Heather Riley

Date

7/16/09

Title

Regulatory Specialist

Approved by (Signature)

AFM

Name (Printed/Typed)

Office

FFO

Date

8/25/11

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 137.8 feet would be required for this well.

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

Hold C104

for Directional Survey
and "As Drilled" plat

RCVD SEP 1 '11

OIL CONS. DIV.

DIST. 3

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL CONDITIONS"

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

NMOCD

A

SEP 20 2011

Hold C104
for Directional Survey
and "As Drilled" plat

District I
1625 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

RECEIVED

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

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.

Santa Fe, NM 87505
Bureau of Land Management
Farmington Field Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30793	² Pool Code 97232 / 72319 / 71599	³ Pool Name BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA
⁴ Property Code 17033	⁵ Property Name ROSA UNIT	⁶ Well Number 46B
⁷ OGRID No 120782	⁸ Operator Name WILLIAMS PRODUCTION COMPANY	⁹ Elevation 6347'

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
B	8	31N	5W		950	NORTH	2000	EAST	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
A	8	31N	5W		950	NORTH	990	EAST	RIO ARriba

¹² Dedicated Acres 320.0 Acres (E/2) - MV 320.0 Acres (N/2) - MANCOS, DK	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 5276.04' 5280.00' 8 5276.04'	2000' 990' 950' 950' SURFACE LOCATION DATUM : NAD1983 LAT: 36.91865 °N LONG: 107.38359 °W BOTTOM-HOLE DATUM : NAD1983 LAT: 36.91864 °N LONG: 107.38014 °W	¹⁷ 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 <i>Larry Higgins</i> Signature 7-17-09 Date <i>Larry Higgins</i> Printed Name 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: JANUARY 3, 2009 Signature and Seal of Professional Surveyor JASON C. EDWARDS NEW MEXICO 15269 REGISTERED PROFESSIONAL SURVEYOR JASON C. EDWARDS Certificate Number 15269
	LEASE SF-078767 LEASE SF-078767 078763 LEASE SF-078763	



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 7/9/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV
WELL NAME: Rosa #46B **SURFACE:** BLM
BH LOCATION: NENE Sec 8-31N-5W **MINERALS:** BLM
Rio Arriba, NM
ELEVATION: 6,347' GR **LEASE #** SF-078767
MEASURED DEPTH: 8,383'

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

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

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,441	2,586	Point Lookout	5,626	5,808
Kirtland	2,546	2,700	Mancos	5,946	6,128
Fruitland	2,956	3,132	Gallup	6,986	7,168
Pictured Cliffs	3,161	3,341	Greenhorn	7,706	7,888
Lewis	3,451	3,633	Graneros	7,766	7,948
Cliff House	5,391	5,573	Dakota	7,896	8,078
Menefee	5,436	5,618	Morrison	8,121	8,303
			TD	8,201	8,383

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\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:** Use Water + Gel/Polymer sweeps to drill Surface hole. Convert to a LSLD - EZ-MUD system mud (+/-50 Vis.) to drill 9-7/8 in. Intermediate Hole. Increase vis to +/-60 to run Casing. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use Air , Air Hammer and 6-3/4 in. Flat btm. bit to drill-out of 7-5/8 in. csg. and to TD well at +/- 8,383 ft. (MD).

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	3,818	7 5/8	26.4	K-55
Longstring	6 3/4	8,383	5 1/2	17	N-80

B. FLOAT EQUIPMENT:

- SURFACE CASING: 10 3/4" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
- 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).
- 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)

- 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.
- 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
- PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 375 sx (525 ft³) 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 ft³/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. **NO EXCESS SHOULD COVER 150 FEET INTO 7" CASING** Total volume (525) ft³. WOC 12 hours.

IV. IV COMPLETION**A. CBL**

- 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

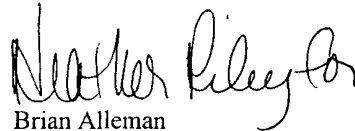
- Pressure test 5-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Dakota with approximately 5000# 100 mesh sand and 120,000# Ottawa 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 5000# 100 mesh sand and 150,000# 40/70 Ottawa sand
5. Stimulate Point Lookout with approximately 40,000# 20/40 Ottawa sand 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 40,000# 20/40 Ottawa sand 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



Brian Alleman
Drilling Engineer



ROSA UNIT #46B
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	90.23	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	90.23	400.00	0.00	0.00	0.00	0.00	0.00	
3	979.79	23.19	90.23	964.09	-0.46	115.75	4.00	90.23	115.75	
4	2659.24	23.19	90.23	2507.83	-3.10	777.12	0.00	0.00	777.13	
5	3818.82	0.00	90.23	3636.00	-4.03	1008.61	2.00	180.00	1008.62	Int. Csg. Pt
6	8228.82	0.00	90.23	8046.00	-4.03	1008.61	0.00	90.23	1008.62	PBHL

WELL DETAILS

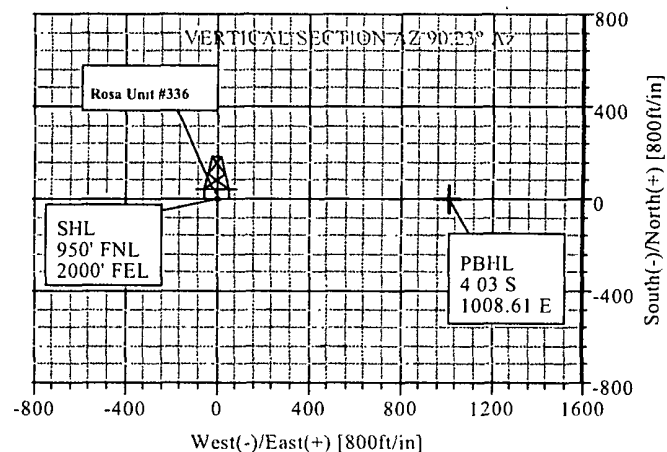
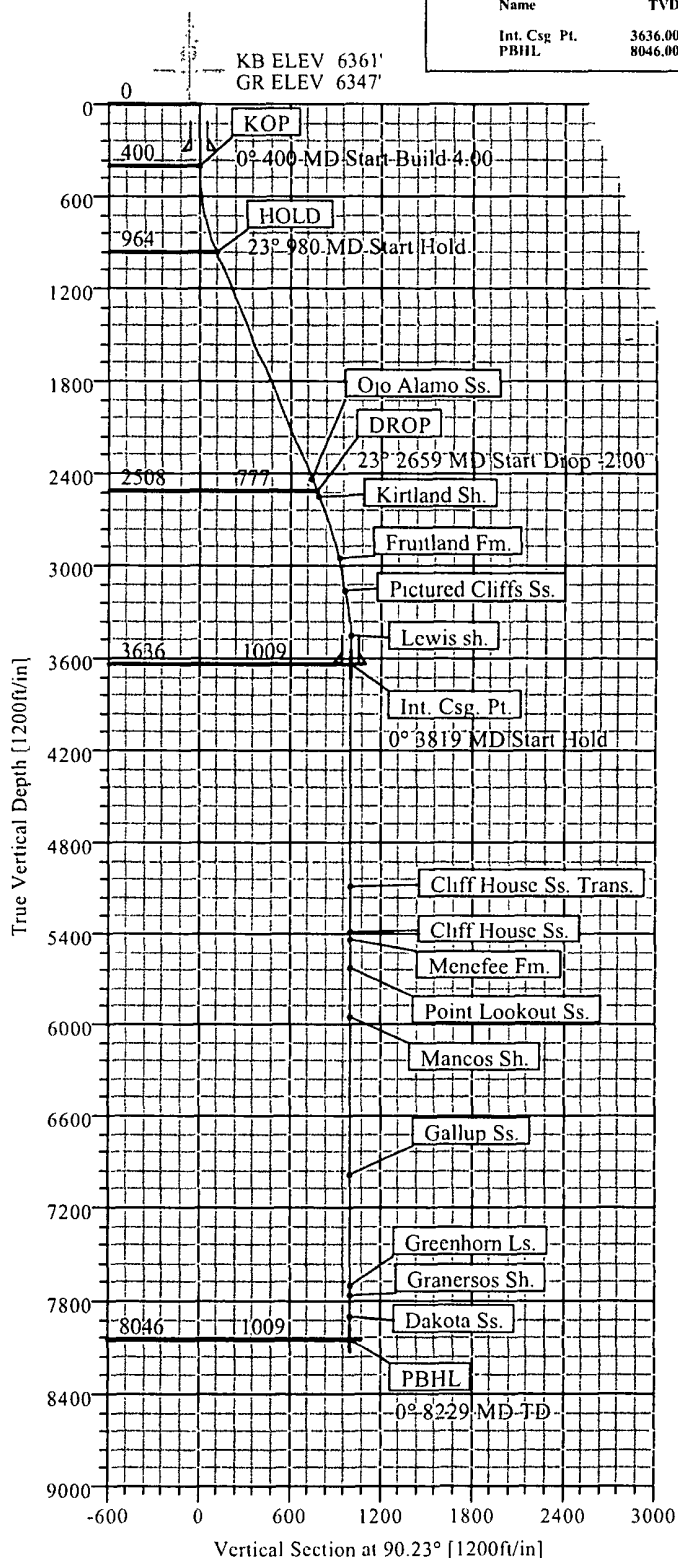
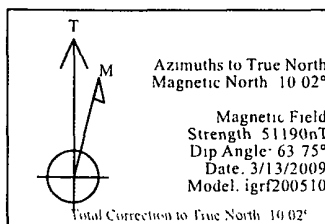
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#46B	0.00	0.00	2155653.70	1309049.26	36°55'07.140N	107°23'00.920W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Int. Csg. Pt.	3636.00	-4.03	1008.61	2155637.69	1310057.75	36°55'07.100N	107°22'48.500W	Point
PBHL	8046.00	-4.03	1008.61	2155637.69	1310057.75	36°55'07.100N	107°22'48.500W	Point

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2441.00	2586.54	Ojo Alamo Ss.
2	2546.00	2700.64	Kirtland Sh.
3	2956.00	3132.27	Fruitland Fm.
4	3161.00	3341.62	Pictured Cliffs Ss.
5	3451.00	3633.69	Lewis sh.
6	5086.00	5268.82	Cliff House Ss. Trans.
7	5391.00	5573.82	Cliff House Ss.
8	5436.00	5618.82	Menefee Fm.
9	5626.00	5808.82	Point Lookout Ss.
10	5946.00	6128.82	Mancos Sh.
11	6986.00	7168.82	Gallup Ss.
12	7706.00	7888.82	Greenhorn Ls.
13	7766.00	7948.82	Graneros Sh.
14	7896.00	8078.82	Dakota Ss.



Weatherford

CASING DETAILS

No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.750
2	3636.00	3818.82	7 5/8" Int. Csg.	0.000

Wellpath (#46B/1)

Created By: Lindsey Maddux

Date: 3/16/2009



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION Date: 3/16/2009 Time: 11:03:11 Page: 1
 Field: Rio Arriba Co., NM (NAD 83) Co-ordinate(NE) Reference: Well: #46B, True North
 Site: Rosa Unit #46B Vertical (TVD) Reference: SITE 6361.0
 Well: #46B Section (VS) Reference: Well (0.00N,0.00E,90.23Azi)
 Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #1 Date Composed: 3/13/2009
 Version: 1
 Principal: Yes Tied-to: From Surface

Field: Rio Arriba Co., NM (NAD 83)

Map System: US State Plane Coordinate System 1983 Map Zone: New Mexico, Central Zone
 Geo Datum: GRS 1980 Coordinate System: Well Centre
 Sys Datum: Mean Sea Level Geomagnetic Model: igrf200510

Site: Rosa Unit #46B

950' FNL 2000' FEL of SEC 8 T31N R5W

Site Position: Northing: 2155653.70 ft Latitude: 36 55 7.140 N
 From: Geographic Easting: 1309049.26 ft Longitude: 107 23 0.920 W
 Position Uncertainty: 0.00 ft North Reference: True
 Ground Level: 6347.00 ft Grid Convergence: -0.68 deg

Well: #46B Slot Name:
 Well Position: +N/-S 0.00 ft Northing: 2155653.70 ft Latitude: 36 55 7.140 N
 +E/-W 0.00 ft Easting: 1309049.26 ft Longitude: 107 23 0.920 W
 Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
 Tie-on Depth: 0.00 ft
 Current Datum: SITE Height 6361.00 ft Above System Datum: Mean Sea Level
 Magnetic Data: 3/13/2009 Declination: 10.02 deg
 Field Strength: 51190 nT Mag Dip Angle: 63.75 deg
 Vertical Section: Depth From (TVD) +N/-S +E/-W Direction
 ft ft ft deg
 0.00 0.00 0.00 90.23

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	90.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	90.23	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
979.79	23.19	90.23	964.09	-0.46	115.75	4.00	4.00	0.00	90.23	
2659.24	23.19	90.23	2507.83	-3.10	777.12	0.00	0.00	0.00	0.00	
3818.82	0.00	90.23	3636.00	-4.03	1008.61	2.00	-2.00	0.00	180.00	Int. Csg. Pt.
8228.82	0.00	90.23	8046.00	-4.03	1008.61	0.00	0.00	0.00	90.23	PBHL

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Build deg/100ft	Turn deg/100ft	DLS deg/100ft	TFO deg	Comment
300.00	0.00	90.23	300.00	0.00	0.00	0.00	0.00	0.00	0.00	90.23	10 3/4"
400.00	0.00	90.23	400.00	0.00	0.00	0.00	0.00	0.00	0.00	90.23	KOP
500.00	4.00	90.23	499.92	-0.01	3.49	3.49	4.00	0.00	4.00	0.00	
600.00	8.00	90.23	599.35	-0.06	13.94	13.94	4.00	0.00	4.00	0.00	
700.00	12.00	90.23	697.81	-0.12	31.30	31.30	4.00	0.00	4.00	0.00	
800.00	16.00	90.23	794.82	-0.22	55.49	55.49	4.00	0.00	4.00	0.00	
900.00	20.00	90.23	889.91	-0.34	86.38	86.38	4.00	0.00	4.00	0.00	
979.79	23.19	90.23	964.09	-0.46	115.75	115.75	4.00	0.00	4.00	0.00	HOLD
1000.00	23.19	90.23	982.66	-0.49	123.71	123.71	0.00	0.00	0.00	0.00	
1100.00	23.19	90.23	1074.58	-0.65	163.09	163.09	0.00	0.00	0.00	0.00	
1200.00	23.19	90.23	1166.50	-0.81	202.47	202.47	0.00	0.00	0.00	0.00	
1300.00	23.19	90.23	1258.42	-0.97	241.85	241.85	0.00	0.00	0.00	0.00	
1400.00	23.19	90.23	1350.34	-1.12	281.23	281.23	0.00	0.00	0.00	0.00	
1500.00	23.19	90.23	1442.26	-1.28	320.61	320.61	0.00	0.00	0.00	0.00	
1600.00	23.19	90.23	1534.18	-1.44	359.99	359.99	0.00	0.00	0.00	0.00	



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba Co., NM (NAD 83)
Site: Rosa Unit #46B
Well: #46B
Wellpath: 1

Date: 3/16/2009 Time: 11:03:11 Page: 2
Co-ordinate(NE) Reference: Well: #46B, True North
Vertical (TVD) Reference: SITE 6361.0
Section (VS) Reference: Well (0.00N,0.00E,90.23Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Build deg/100ft	Turn deg/100ft	DLS deg/100ft	TFO deg	Comment
1700.00	23.19	90.23	1626.10	-1.59	399.37	399.37	0.00	0.00	0.00	0.00	
1800.00	23.19	90.23	1718.02	-1.75	438.75	438.75	0.00	0.00	0.00	0.00	
1900.00	23.19	90.23	1809.94	-1.91	478.13	478.13	0.00	0.00	0.00	0.00	
2000.00	23.19	90.23	1901.86	-2.07	517.51	517.51	0.00	0.00	0.00	0.00	
2100.00	23.19	90.23	1993.78	-2.22	556.89	556.89	0.00	0.00	0.00	0.00	
2200.00	23.19	90.23	2085.70	-2.38	596.27	596.27	0.00	0.00	0.00	0.00	
2300.00	23.19	90.23	2177.62	-2.54	635.65	635.65	0.00	0.00	0.00	0.00	
2400.00	23.19	90.23	2269.53	-2.69	675.03	675.04	0.00	0.00	0.00	0.00	
2500.00	23.19	90.23	2361.45	-2.85	714.41	714.42	0.00	0.00	0.00	0.00	
2586.54	23.19	90.23	2441.00	-2.99	748.49	748.50	0.00	0.00	0.00	0.00	Ojo Alamo Ss.
2600.00	23.19	90.23	2453.37	-3.01	753.79	753.80	0.00	0.00	0.00	0.00	
2659.24	23.19	90.23	2507.83	-3.10	777.12	777.13	0.00	0.00	0.00	0.00	DROP
2700.00	22.38	90.23	2545.41	-3.17	792.90	792.91	-2.00	0.00	2.00	180.00	
2700.64	22.36	90.23	2546.00	-3.17	793.15	793.15	-2.00	0.00	2.00	180.00	Kirtland Sh.
2800.00	20.38	90.23	2638.52	-3.31	829.35	829.36	-2.00	0.00	2.00	180.00	
2900.00	18.38	90.23	2732.85	-3.44	862.53	862.53	-2.00	0.00	2.00	180.00	
3000.00	16.38	90.23	2828.28	-3.56	892.39	892.40	-2.00	0.00	2.00	180.00	
3100.00	14.38	90.23	2924.70	-3.67	918.90	918.91	-2.00	0.00	2.00	180.00	
3132.27	13.73	90.23	2956.00	-3.70	926.74	926.75	-2.00	0.00	2.00	180.00	Fruitland Fm.
3200.00	12.38	90.23	3021.98	-3.76	942.04	942.04	-2.00	0.00	2.00	180.00	
3300.00	10.38	90.23	3120.01	-3.84	961.76	961.77	-2.00	0.00	2.00	180.00	
3341.62	9.54	90.23	3161.00	-3.87	968.96	968.97	-2.00	0.00	2.00	180.00	Pictured Cliffs Ss.
3400.00	8.38	90.23	3218.67	-3.90	978.05	978.06	-2.00	0.00	2.00	180.00	
3500.00	6.38	90.23	3317.84	-3.96	990.89	990.90	-2.00	0.00	2.00	180.00	
3600.00	4.38	90.23	3417.39	-3.99	1000.26	1000.27	-2.00	0.00	2.00	180.00	
3633.69	3.70	90.23	3451.00	-4.00	1002.63	1002.64	-2.00	0.00	2.00	180.00	Lewis sh.
3700.00	2.38	90.23	3517.22	-4.02	1006.15	1006.16	-2.00	0.00	2.00	180.00	
3800.00	0.38	90.23	3617.18	-4.03	1008.55	1008.56	-2.00	0.00	2.00	180.00	
3818.82	0.00	90.23	3636.00	-4.03	1008.61	1008.62	-2.00	0.00	2.00	180.00	Int. Csg. Pt.
3900.00	0.00	90.23	3717.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4000.00	0.00	90.23	3817.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4100.00	0.00	90.23	3917.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4200.00	0.00	90.23	4017.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4300.00	0.00	90.23	4117.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4400.00	0.00	90.23	4217.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4500.00	0.00	90.23	4317.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4600.00	0.00	90.23	4417.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4700.00	0.00	90.23	4517.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4800.00	0.00	90.23	4617.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
4900.00	0.00	90.23	4717.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5000.00	0.00	90.23	4817.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5100.00	0.00	90.23	4917.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5200.00	0.00	90.23	5017.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5268.82	0.00	90.23	5086.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Cliff House Ss. Trans.
5300.00	0.00	90.23	5117.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5400.00	0.00	90.23	5217.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5500.00	0.00	90.23	5317.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5573.82	0.00	90.23	5391.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Cliff House Ss.
5600.00	0.00	90.23	5417.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5618.82	0.00	90.23	5436.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Menefee Fm.
5700.00	0.00	90.23	5517.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5800.00	0.00	90.23	5617.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
5808.82	0.00	90.23	5626.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Point Lookout Ss



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba Co., NM (NAD 83)
Site: Rosa Unit #46B
Well: #46B
Wellpath: 1

Date: 3/16/2009
Co-ordinate(NE) Reference: Well: #46B, True North
Vertical (TVD) Reference: SITE 6361.0
Section (VS) Reference: Well (0.00N,0.00E,90.23Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Page: 3

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Build deg/100ft	Turn deg/100ft	DLS deg/100ft	TFO deg	Comment
5900.00	0.00	90.23	5717.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6000.00	0.00	90.23	5817.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6100.00	0.00	90.23	5917.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6128.82	0.00	90.23	5946.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Mancos Sh.
6200.00	0.00	90.23	6017.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6300.00	0.00	90.23	6117.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6400.00	0.00	90.23	6217.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6500.00	0.00	90.23	6317.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6600.00	0.00	90.23	6417.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6700.00	0.00	90.23	6517.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6800.00	0.00	90.23	6617.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
6900.00	0.00	90.23	6717.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7000.00	0.00	90.23	6817.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7100.00	0.00	90.23	6917.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7168.82	0.00	90.23	6986.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Gallup Ss.
7200.00	0.00	90.23	7017.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7300.00	0.00	90.23	7117.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7400.00	0.00	90.23	7217.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7500.00	0.00	90.23	7317.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7600.00	0.00	90.23	7417.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7700.00	0.00	90.23	7517.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7800.00	0.00	90.23	7617.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7888.82	0.00	90.23	7706.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Greenhorn Ls.
7900.00	0.00	90.23	7717.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
7948.82	0.00	90.23	7766.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Graneros Sh
8000.00	0.00	90.23	7817.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
8078.82	0.00	90.23	7896.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	Dakota Ss.
8100.00	0.00	90.23	7917.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
8200.00	0.00	90.23	8017.18	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	
8228.82	0.00	90.23	8046.00	-4.03	1008.61	1008.62	0.00	0.00	0.00	90.23	PBHL

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		
Int. Csg. Pt.			3636.00	-4.03	1008.61	2155637.69	1310057.75	36	55	7.100 N	107	22	48.500 W
-Plan hit target													
PBHL			8046.00	-4.03	1008.61	2155637.69	1310057.75	36	55	7.100 N	107	22	48.500 W
-Plan hit target													

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2586.54	2441.00	Ojo Alamo Ss.		0.00	0.00
2700.64	2546.00	Kirtland Sh.		0.00	0.00
3132.27	2956.00	Fruitland Fm.		0.00	0.00
3341.62	3161.00	Pictured Cliffs Ss.		0.00	0.00
3633.69	3451.00	Lewis sh.		0.00	0.00
5268.82	5086.00	Cliff House Ss. Trans.		0.00	0.00
5573.82	5391.00	Cliff House Ss.		0.00	0.00
5618.82	5436.00	Menefee Fm.		0.00	0.00
5808.82	5626.00	Point Lookout Ss.		0.00	0.00
6128.82	5946.00	Mancos Sh.		0.00	0.00
7168.82	6986.00	Gallup Ss.		0.00	0.00
7888.82	7706.00	Greenhorn Ls.		0.00	0.00



Weatherford International, Inc.
Proposal Plan Report



Weatherford

Company:	WILLIAMS PRODUCTION	Date:	3/16/2009	Time:	11:03:11	Page:	4
Field:	Rio Arriba Co., NM (NAD 83)	Co-ordinate(NE) Reference:	Well: #46B, True North				
Site:	Rosa Unit #46B	Vertical (TVD) Reference:	SITE 6361.0				
Well:	#46B	Section (VS) Reference:	Well (0.00N,0.00E,90.23Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature			Db:	Sybase

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
7948.82	7766.00	Graneros Sh.		0.00	0.00
8078.82	7896.00	Dakota Ss.		0.00	0.00

Annotation

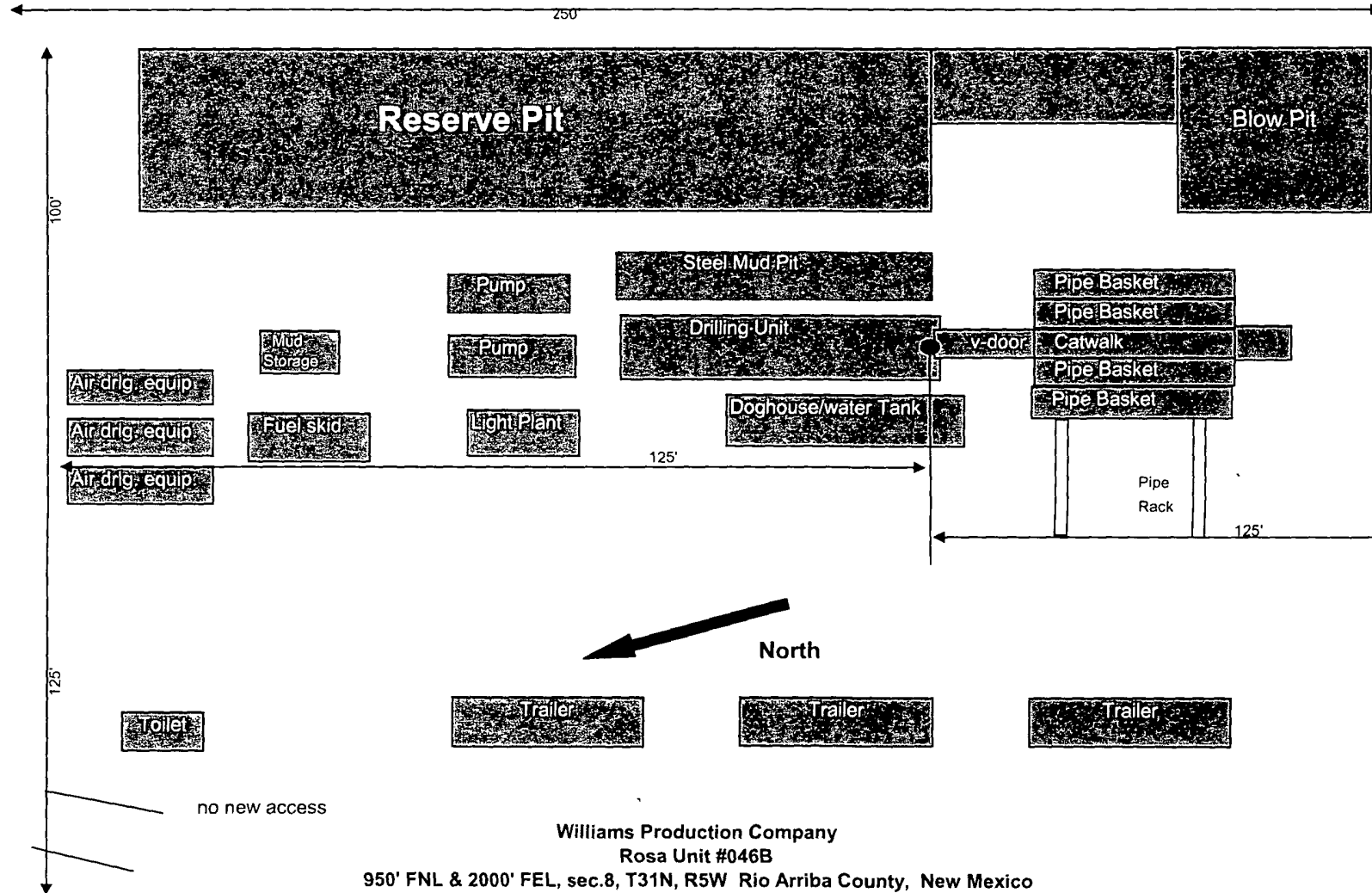
MD ft	TVD ft	
400.00	400.00	KOP
979.79	964.09	HOLD
2659.24	2507.83	DROP
3818.82	3636.00	Int. Csg. Pt.
8228.82	8046.00	PBHL

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	10.750	12.250	10 3/4"
3818.82	3636.00	0.000	0.000	7 5/8" Int. Csg.

Plat #3 Location Diagram

Location Dimensions 225'x250'



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)

