

RECEIVED

JUL 16 2009

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Bureau of Land Management
Farmington Field Office

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMSF-078763
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 NMMN-78407A-MV
3a. Address P O. Box 640 Aztec, NM 87410		8. Lease Name and Well No. NMMN 78407B-OK 046C
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 3003930789
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface SH 285' FNL & 100' FWL Section 16 At proposed prod. zone BH 1000' FSL & 690' FEL SEC 8		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 30 miles northeast of Blanco, New Mexico		11. Sec., T., R., M., or Blk and Survey or Area BH Sec 8, 31N, 5W
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg unit line, if any) 100'		12. County or Parish Rio Arriba
16. No. of Acres in lease 2,544.640		13. State NM
17. Spacing Unit dedicated to this well 320.0 - (E/2)-MV 320.0 Acres (S/2)-Mancos, DK		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50' Rosa 360		20. M/BIA Bond No. on file UT0047 UTB 000178
19. Proposed Depth -8,733' 8564' MD		
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,273' 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 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 Heather Riley	Name (Printed/Typed) Heather Riley	Date 7/16/09
Title		
Regulatory Specialist		
Approved by (Signature) [Signature]	Name (Printed/Typed)	Date 8/25/11
Title AFM	Office PFO	

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 73.9 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 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

SEP 20 2011

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 REQUIREMENTS".

Hold C104
for Directional Survey
and "As Drilled" plat

RECEIVED

Form C-102
Revised October 12, 2005
Instructions on back
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

'API Number 30-039-30789	'Pool Code 97232 / 72319 / 71599	'Pool Name BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA	
'Property Code 17033	'Property Name ROSA UNIT		'Well Number 46C
'OGRID No 120782	'Operator Name WILLIAMS PRODUCTION COMPANY		'Elevation 6273'

¹⁰ Surface Location

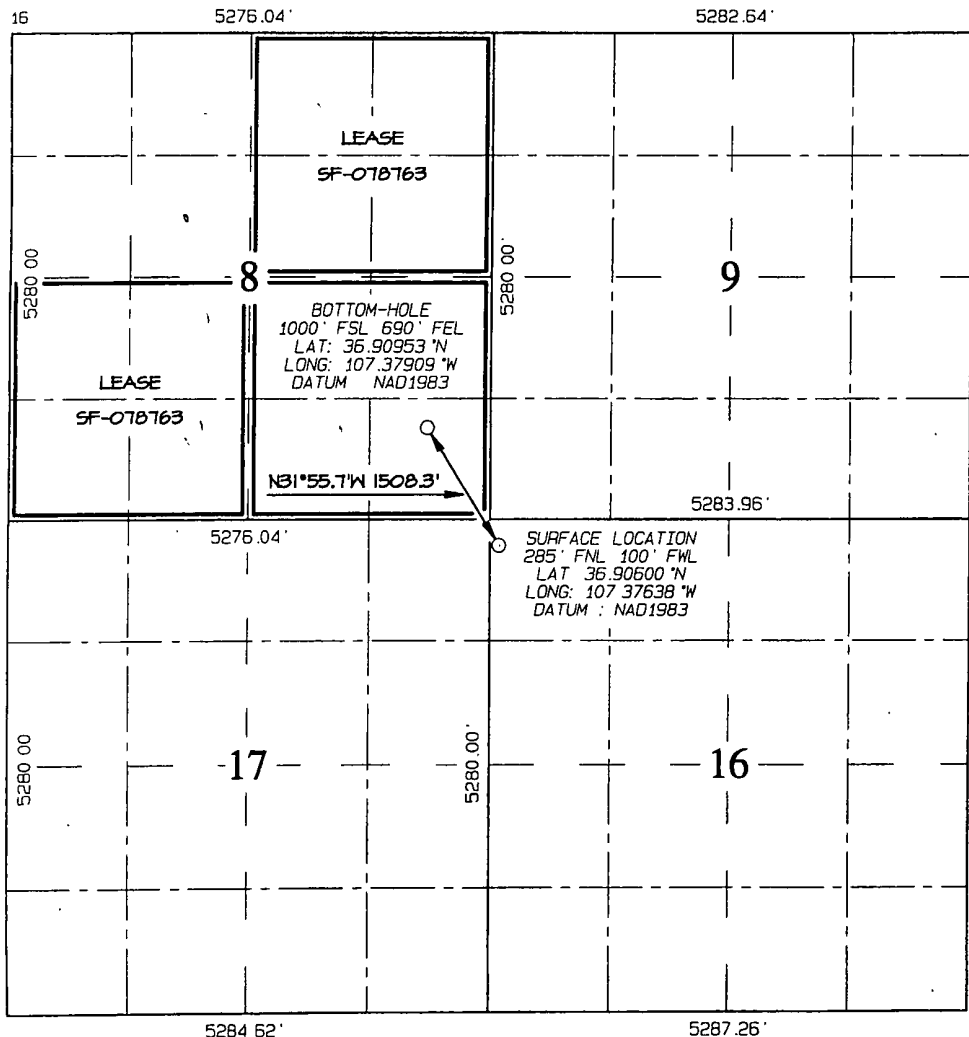
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	16	31N	5W		285	NORTH	100	WEST	RIO ARRIBA

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
P	8	31N	5W		1000	SOUTH	690	EAST	RIO ARRIBA

¹² Dedicated Acres 320.0 Acres (E/2) - MV 320.0 Acres (S/2) - MANCOS, DK	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
---	-------------------------------	----------------------------------	-------------------------

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, 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.

Signature Larry Higgins Date 7-17-09
Printed Name LARRY HIGGINS

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: DECEMBER 6, 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: 7/16/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV
WELL NAME: Rosa #46C **SURFACE:** BLM
BH LOCATION: NESE Sec 8-31N-5W **MINERALS:** BLM
Rio Arriba, NM
ELEVATION: 6,273' GR **LEASE #** SF-078763
MEASURED DEPTH: 8,564'

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

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

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,397	2,671	Point Lookout	5,582	5,979
Kirtland	2,507	2,801	Mancos	5,957	6,354
Fruitland	2,897	3,263	Gallup	6,942	7,339
Pictured Cliffs	3,117	3,504	Greenhorn	7,667	8,064
Lewis	3,437	3,833	Graneros	7,727	8,124
Cliff House	5,347	5,744	Dakota	7,862	8,259
Menefee	5,387	5,787	Morrison	8,087	8,484
			TD	8,167	8,564

- 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:** 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	3,989	7 5/8	26.4	K-55
Longstring	6 3/4	8,564	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 + 1/4 # 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
3. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 375 sx (525 ft³) of "FRACCCEM" + 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**

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

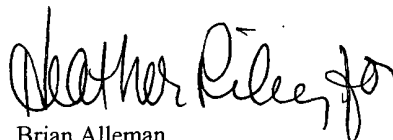
1. Pressure test 5-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Dakota with approximately 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 #46C
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	328.37	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	328.37	400.00	0.00	0.00	0.00	0.00	0.00	
3	1217.59	32.70	328.37	1173.91	193.33	-119.09	4.00	328.37	227.07	
4	3171.50	32.70	328.37	2818.09	1092.17	-672.78	0.00	0.00	1282.76	
5	3989.10	0.00	328.37	3592.00	1285.50	-791.88	4.00	180.00	1509.83	Int. Csg Pt.
6	8409.10	0.00	328.37	8012.00	1285.50	-791.88	0.00	328.37	1509.83	PBHL

WELL DETAILS

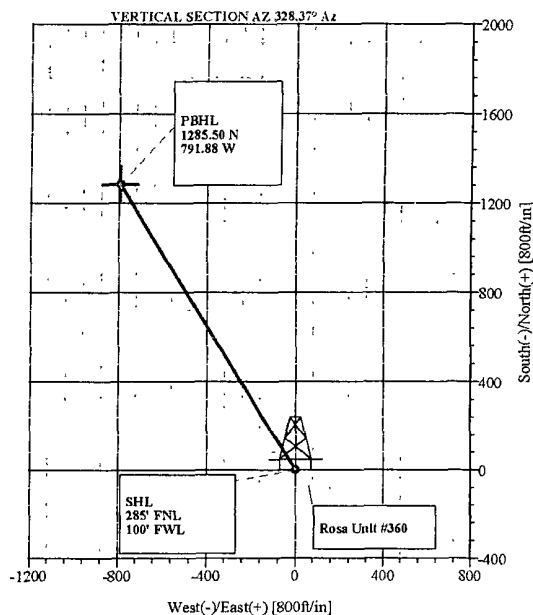
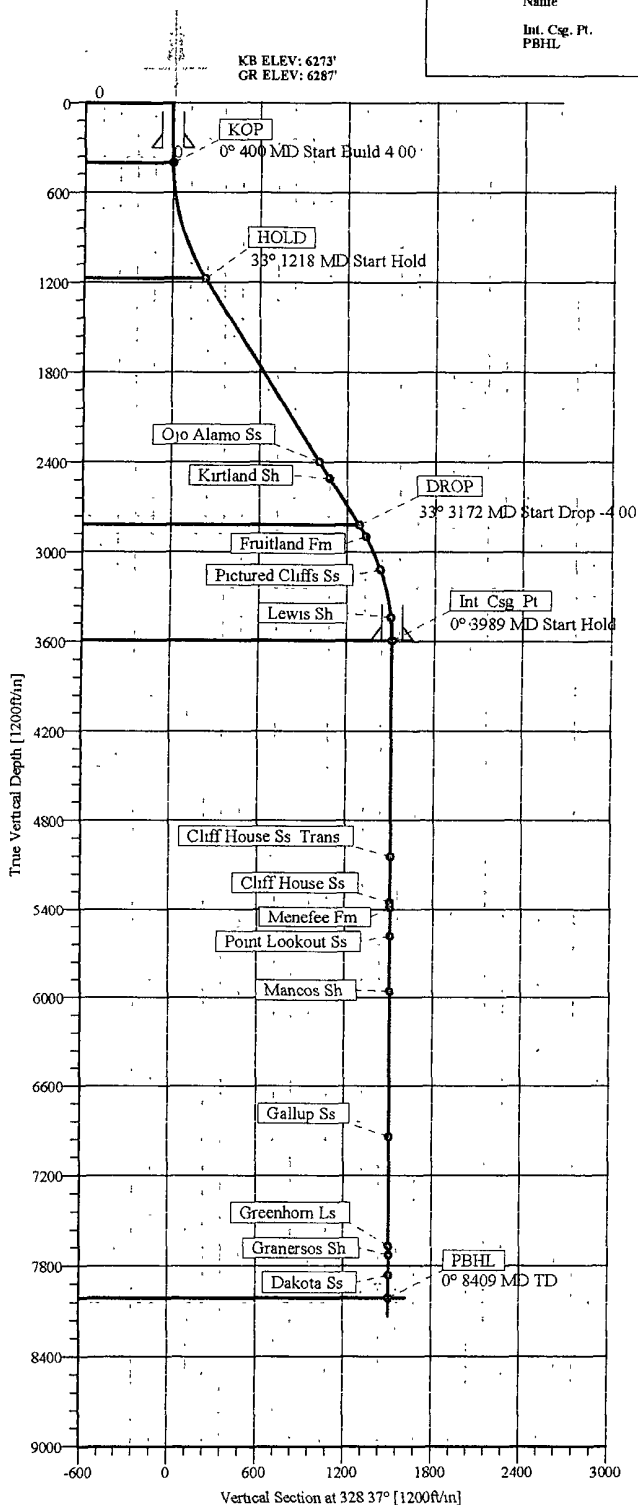
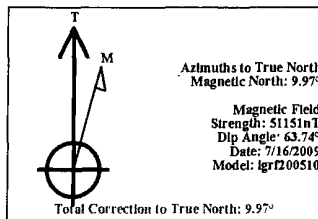
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#46C	0.00	0.00	2151023.15	1311102.09	36°54'21.600N	107°22'34.970W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Int. Csg. Pt.	3592.00	1285.50	-791.88	2152317.91	1310325.44	36°54'34.310N	107°22'44.720W	Point
PBHL	8012.00	1285.50	-791.88	2152317.91	1310325.44	36°54'34.310N	107°22'44.720W	Point

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2397.00	2671.09	Ojo Alamo Ss
2	2507.00	2801.81	Kirtland Sh.
3	2897.00	3263.45	Fruitland Fm.
4	3117.00	3504.93	Pictured Cliffs Ss.
5	3437.00	3833.79	Lewis Sh.
6	5042.00	5439.10	Cliff House Ss. Trans.
7	5347.00	5744.10	Cliff House Ss.
8	5387.00	5784.10	Menefee Fm.
9	5582.00	5979.10	Point Lookout Ss.
10	5957.00	6354.10	Mancos Sh.
11	6942.00	7339.10	Gallup Ss.
12	7667.00	8064.10	Greenhorn Ls.
13	7727.00	8124.10	Graneros Sh.
14	7862.00	8259.10	Dakota Ss.



Weatherford®

CASING DETAILS

No	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.750
2	3592.00	3989.10	7 5/8" Int. Csg	0.000

Plan: Plan #2 (#46C/1)

Created By: Jayne Wilson

Date: 7/16/2009



Weatherford International Ltd.

PROPOSAL PLAN REPORT



Weatherford

Company: WILLIAMS PRODUCTION Date: 7/16/2009 Time: 14:11:19 Page: 1
 Field: RIO ARRIBA CO. NM (NAD 83) Co-ordinate(NE) Reference: Well: #46C, True North
 Site: Rosa Unit #46C Vertical (TVD) Reference: SITE 6287.0
 Well: #46C Section (VS) Reference: Well (0.00N,0.00E,328.37Azi)
 Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #2 Date Composed: 7/16/2009
 Principal: Yes Version: 1
 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 #46C

285' FNL 100' FWL of SEC 16 T31N R5W
 Site Position: Northing: 2151023.15 ft Latitude: 36 54 21.600 N
 From: Geographic Easting: 1311102.09 ft Longitude: 107 22 34.970 W
 Position Uncertainty: 0.00 ft North Reference: True
 Ground Level: 6273.00 ft Grid Convergence: -0.68 deg

Well: #46C Slot Name:
 Well Position: +N/-S 0.00 ft Northing: 2151023.15 ft Latitude: 36 54 21.600 N
 +E/-W 0.00 ft Easting: 1311102.09 ft Longitude: 107 22 34.970 W
 Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
 Current Datum: SITE Height 6287.00 ft Tie-on Depth: 0.00 ft
 Magnetic Data: 7/16/2009 Above System Datum: Mean Sea Level
 Field Strength: 51151 nT Declination: 9.97 deg
 Vertical Section: Depth From (TVD) +N/-S Mag Dip Angle: 63.74 deg
 ft ft +E/-W Direction
 ft deg
 0.00 0.00 0.00 328.37

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	328.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	328.37	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1217.59	32.70	328.37	1173.91	193.33	-119.09	4.00	4.00	0.00	328.37	
3171.50	32.70	328.37	2818.09	1092.17	-672.78	0.00	0.00	0.00	0.00	
3989.10	0.00	328.37	3592.00	1285.50	-791.88	4.00	-4.00	0.00	180.00	Int. Csg. Pt.
8409.10	0.00	328.37	8012.00	1285.50	-791.88	0.00	0.00	0.00	328.37	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
400.00	0.00	328.37	400.00	0.00	0.00	0.00	0.00	0.00	0.00	328.37	KOP
500.00	4.00	328.37	499.92	2.97	-1.83	3.49	4.00	0.00	4.00	0.00	
600.00	8.00	328.37	599.35	11.87	-7.31	13.94	4.00	0.00	4.00	0.00	
700.00	12.00	328.37	697.81	26.65	-16.42	31.30	4.00	0.00	4.00	0.00	
800.00	16.00	328.37	794.82	47.24	-29.10	55.49	4.00	0.00	4.00	0.00	
900.00	20.00	328.37	889.91	73.55	-45.31	86.38	4.00	0.00	4.00	0.00	
1000.00	24.00	328.37	982.61	105.44	-64.95	123.84	4.00	0.00	4.00	0.00	
1100.00	28.00	328.37	1072.47	142.75	-87.94	167.67	4.00	0.00	4.00	0.00	
1200.00	32.00	328.37	1159.05	185.32	-114.16	217.66	4.00	0.00	4.00	0.00	
1217.59	32.70	328.37	1173.91	193.33	-119.09	227.07	4.00	0.00	4.00	0.00	HOLD
1300.00	32.70	328.37	1243.26	231.24	-142.45	271.59	0.00	0.00	0.00	0.00	
1400.00	32.70	328.37	1327.41	277.24	-170.78	325.62	0.00	0.00	0.00	0.00	
1500.00	32.70	328.37	1411.55	323.24	-199.12	379.65	0.00	0.00	0.00	0.00	
1600.00	32.70	328.37	1495.70	369.25	-227.46	433.68	0.00	0.00	0.00	0.00	
1700.00	32.70	328.37	1579.85	415.25	-255.80	487.71	0.00	0.00	0.00	0.00	



Weatherford International Ltd.

PROPOSAL PLAN REPORT

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: RIO ARRIBA CO. NM (NAD 83)
Site: Rosa Unit #46C
Well: #46C
Wellpath: 1

Date: 7/16/2009 Time: 14:11:19 Page: 2
Co-ordinate(NE) Reference: Well: #46C, True North
Vertical (TVD) Reference: SITE 6287.0
Section (VS) Reference: Well (0.00N,0.00E,328.37Azi)
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
1800.00	32.70	328.37	1664.00	461.25	-284.13	541.74	0.00	0.00	0.00	0.00	
1900.00	32.70	328.37	1748.14	507.25	-312.47	595.77	0.00	0.00	0.00	0.00	
2000.00	32.70	328.37	1832.29	553.25	-340.81	649.80	0.00	0.00	0.00	0.00	
2100.00	32.70	328.37	1916.44	599.25	-369.15	703.83	0.00	0.00	0.00	0.00	
2200.00	32.70	328.37	2000.59	645.26	-397.48	757.86	0.00	0.00	0.00	0.00	
2300.00	32.70	328.37	2084.73	691.26	-425.82	811.89	0.00	0.00	0.00	0.00	
2400.00	32.70	328.37	2168.88	737.26	-454.16	865.92	0.00	0.00	0.00	0.00	
2500.00	32.70	328.37	2253.03	783.26	-482.50	919.95	0.00	0.00	0.00	0.00	
2600.00	32.70	328.37	2337.18	829.26	-510.83	973.98	0.00	0.00	0.00	0.00	
2700.00	32.70	328.37	2421.33	875.27	-539.17	1028.01	0.00	0.00	0.00	0.00	
2800.00	32.70	328.37	2505.47	921.27	-567.51	1082.04	0.00	0.00	0.00	0.00	
2900.00	32.70	328.37	2589.62	967.27	-595.85	1136.06	0.00	0.00	0.00	0.00	
3000.00	32.70	328.37	2673.77	1013.27	-624.18	1190.09	0.00	0.00	0.00	0.00	
3100.00	32.70	328.37	2757.92	1059.27	-652.52	1244.12	0.00	0.00	0.00	0.00	
3171.50	32.70	328.37	2818.09	1092.17	-672.78	1282.76	0.00	0.00	0.00	0.00	DROP
3200.00	31.56	328.37	2842.21	1105.07	-680.73	1297.91	-4.00	0.00	4.00	180.00	
3300.00	27.56	328.37	2929.18	1147.07	-706.61	1347.24	-4.00	0.00	4.00	180.00	
3400.00	23.56	328.37	3019.37	1183.80	-729.23	1390.39	-4.00	0.00	4.00	180.00	
3500.00	19.56	328.37	3112.35	1215.09	-748.51	1427.13	-4.00	0.00	4.00	180.00	
3600.00	15.56	328.37	3207.67	1240.78	-764.33	1457.30	-4.00	0.00	4.00	180.00	
3700.00	11.56	328.37	3304.86	1260.74	-776.63	1480.75	-4.00	0.00	4.00	180.00	
3800.00	7.56	328.37	3403.45	1274.89	-785.34	1497.36	-4.00	0.00	4.00	180.00	
3900.00	3.56	328.37	3502.96	1283.14	-790.43	1507.06	-4.00	0.00	4.00	180.00	
3989.10	0.00	328.37	3592.00	1285.50	-791.88	1509.83	-4.00	0.00	4.00	180.00	Int. Csg. Pt.
4000.00	0.00	328.37	3602.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4100.00	0.00	328.37	3702.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4200.00	0.00	328.37	3802.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4300.00	0.00	328.37	3902.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4400.00	0.00	328.37	4002.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4500.00	0.00	328.37	4102.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4600.00	0.00	328.37	4202.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4700.00	0.00	328.37	4302.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4800.00	0.00	328.37	4402.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
4900.00	0.00	328.37	4502.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5000.00	0.00	328.37	4602.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5100.00	0.00	328.37	4702.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5200.00	0.00	328.37	4802.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5300.00	0.00	328.37	4902.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5400.00	0.00	328.37	5002.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5500.00	0.00	328.37	5102.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5600.00	0.00	328.37	5202.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5700.00	0.00	328.37	5302.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5800.00	0.00	328.37	5402.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
5900.00	0.00	328.37	5502.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6000.00	0.00	328.37	5602.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6100.00	0.00	328.37	5702.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6200.00	0.00	328.37	5802.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6300.00	0.00	328.37	5902.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6400.00	0.00	328.37	6002.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6500.00	0.00	328.37	6102.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6600.00	0.00	328.37	6202.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6700.00	0.00	328.37	6302.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
6800.00	0.00	328.37	6402.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	



Weatherford International Ltd.

PROPOSAL PLAN REPORT



Weatherford

Company: WILLIAMS PRODUCTION	Date: 7/16/2009	Time: 14:11:19	Page: 3
Field: RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference:	Well: #46C, True North	
Site: Rosa Unit #46C	Vertical (TVD) Reference:	SITE 6287.0	
Well: #46C	Section (VS) Reference:	Well (0.00N,0.00E,328.37Azi)	
Wellpath: 1	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
6900.00	0.00	328.37	6502.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7000.00	0.00	328.37	6602.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7100.00	0.00	328.37	6702.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7200.00	0.00	328.37	6802.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7300.00	0.00	328.37	6902.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7400.00	0.00	328.37	7002.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7500.00	0.00	328.37	7102.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7600.00	0.00	328.37	7202.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7700.00	0.00	328.37	7302.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7800.00	0.00	328.37	7402.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
7900.00	0.00	328.37	7502.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
8000.00	0.00	328.37	7602.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
8100.00	0.00	328.37	7702.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
8200.00	0.00	328.37	7802.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
8300.00	0.00	328.37	7902.90	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	
8409.10	0.00	328.37	8012.00	1285.50	-791.88	1509.83	0.00	0.00	0.00	328.37	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.		3592.00	1285.50	-791.88	2152317.91	1310325.44	36	54	34.310 N	107	22	44.720 W
-Plan hit target												
PBHL		8012.00	1285.50	-791.88	2152317.91	1310325.44	36	54	34.310 N	107	22	44.720 W
-Plan hit target												

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2671.09	2397.00	Ojo Alamo Ss.		0.00	0.00
2801.81	2507.00	Kirtland Sh.		0.00	0.00
3263.45	2897.00	Fruitland Fm.		0.00	0.00
3504.93	3117.00	Pictured Cliffs Ss.		0.00	0.00
3833.79	3437.00	Lewis Sh.		0.00	0.00
5439.10	5042.00	Cliff House Ss. Trans		0.00	0.00
5744.10	5347.00	Cliff House Ss.		0.00	0.00
5784.10	5387.00	Menefee Fm.		0.00	0.00
5979.10	5582.00	Point Lookout Ss.		0.00	0.00
6354.10	5957.00	Mancos Sh.		0.00	0.00
7339.10	6942.00	Gallup Ss.		0.00	0.00
8064.10	7667.00	Greenhorn Ls.		0.00	0.00
8124.10	7727.00	Graneros Sh.		0.00	0.00
8259.10	7862.00	Dakota Ss.		0.00	0.00

Annotation

MD ft	TVD ft	
400.00	400.00	KOP
1217.59	1173.91	HOLD
3171.50	2818.08	DROP
3989.10	3592.00	Int. Csg. Pt.
8409.09	8011.99	PBHL



Weatherford International Ltd.
PROPOSAL PLAN REPORT



Weatherford

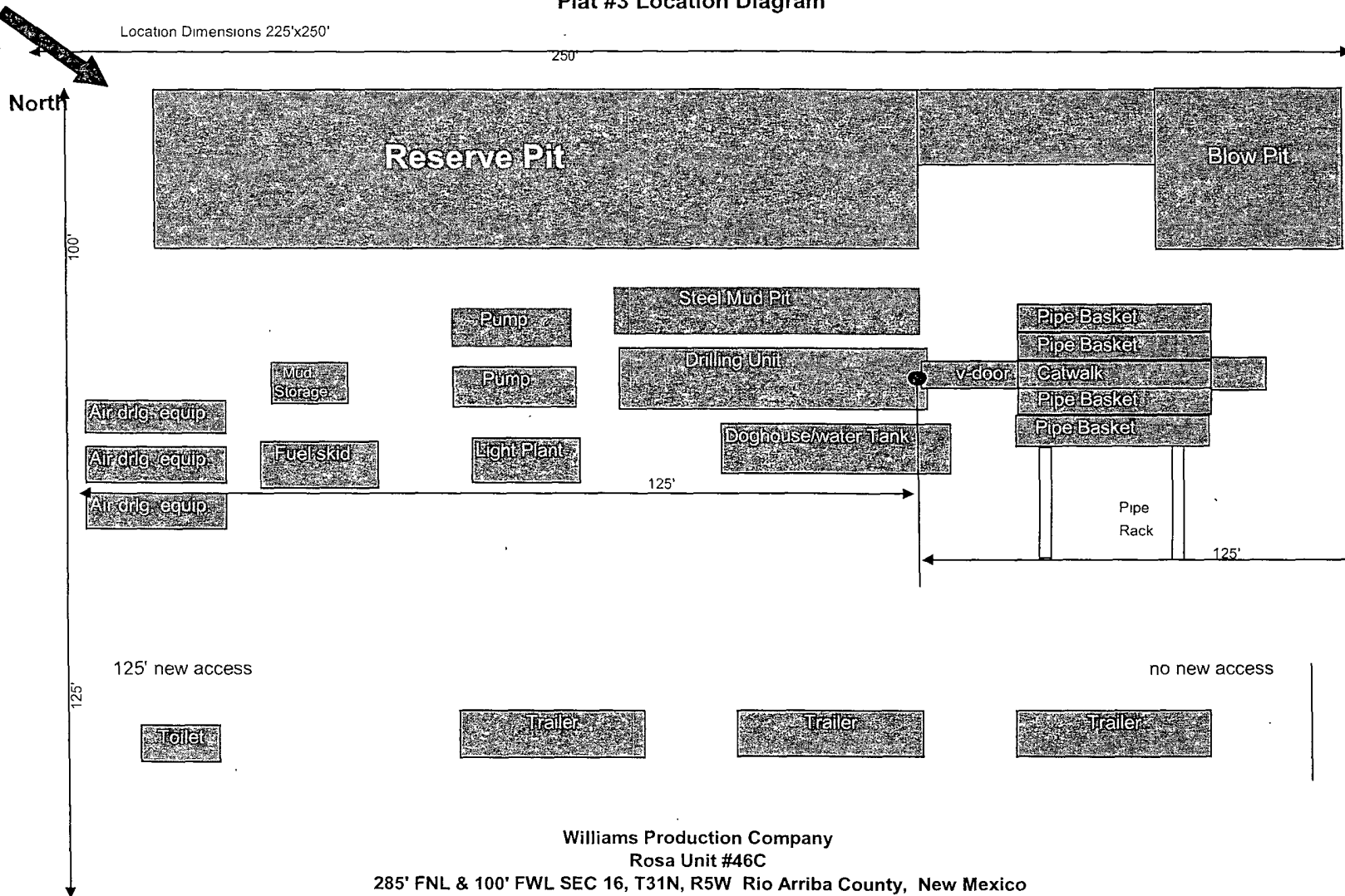
Company:	WILLIAMS PRODUCTION	Date:	7/16/2009	Time:	14:11:19	Page:	4
Field:	RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference:	Well: #46C, True North				
Site:	Rosa Unit #46C	Vertical (TVD) Reference:	SITE 6287.0				
Well:	#46C	Section (VS) Reference:	Well (0.00N, 0.00E, 328.37Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature				Db: Sybase

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	10.750	12.250	10 3/4"
3989.10	3592.00	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)

