

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APR 28 2009

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No
NMSF- 078772

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
WILLIAMS PRODUCTION CO., LLC

3a. Address
P. O. BOX 640
AZTEC, NM 87410

3b. Phone No (include area code)
(505) 634-4208

7. If Unit of CA/Agreement, Name and/or No.
ROSA UNIT

8. Well Name and No
ROSA UNIT #164C

9. API Well No
30-039-30109

10. Field and Pool or Exploratory Area
BLANCO MV/BASINMC/BASINDK

4. Location of Well (Footage, Sec, T, R., M., or Survey Description)
LOT J 1840' FSL & 865' FEL SEC 1, 31N, 6W

11. Country or Parish, State
RIO ARRIBA, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other ADD MANCOS & DAKOTA
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No on file with BLM/BIA Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

WILLIAMS PRODUCTION PLANS TO DEEPEN THIS WELL TO INCLUDE THE BASIN MANCOS & BASIN DAKOTA FORMATIONS AS PER ATTACHED PLAT, OPERATIONS AND DIRECTIONAL PLANS ✓

RCVD APR 29 '09
OIL CONS. DIV.
DIST. 3

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14 I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Larry Higgins

Title Drilling COM

Signature

Larry Higgins

Date 04/23/2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy L. Salyers

Title Petroleum Engineer

Date 4/27/2009

Conditions of approval, if any, are attached. Approval of this notice 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.

Office FFO

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.

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	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 164C
⁷ OGRID No. 120782	⁸ Operator Name WILLIAMS PRODUCTION COMPANY	⁹ Elevation 6358'

¹⁰ Surface Location

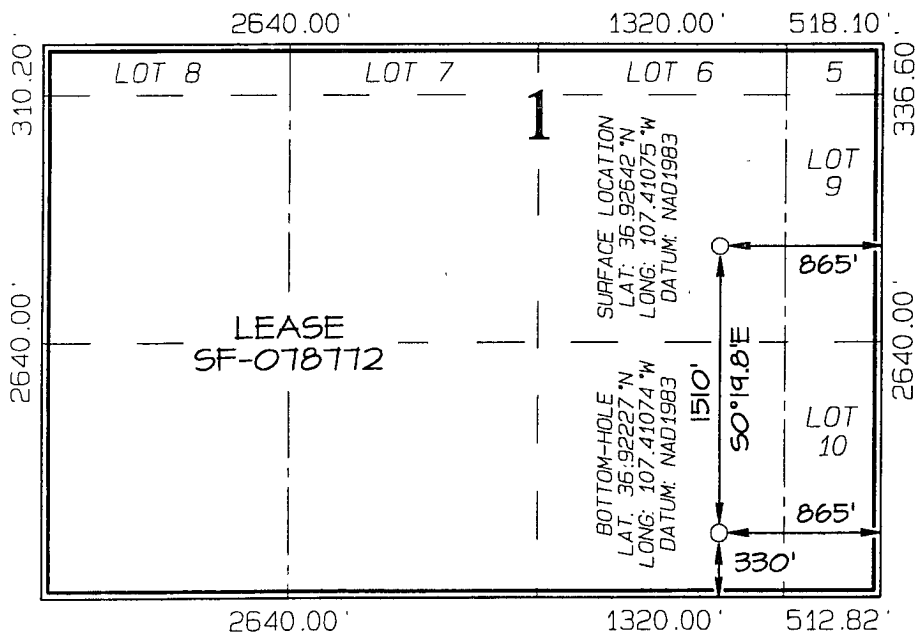
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	1	31N	6W		1840	SOUTH	865	EAST	RIO ARriba

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
0	1	31N	6W		330	SOUTH	865	EAST	RIO ARriba

¹² Dedicated Acres 303.88 Acres - Entire Section	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

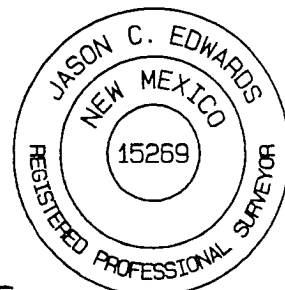
Larry Higgins 4.23.08
Signature Date
LARRY HIGGINS
Printed Name

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

Date of Survey: MARCH 21, 2006

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 4/23/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV
WELL NAME: Rosa Unit #164C **SURFACE:** BLM
BH LOCATION: ~~NWSE~~ ^{SWSL} Sec 1-31N-6W **MINERALS:** BLM
Rio Arriba, NM
ELEVATION: 6,358' GR **LEASE #** SF-078772
MEASURED DEPTH: 8,619'

I. I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,427	2,721	Point Lookout	5,687	6,084
Kirtland	2,562	2,883	Mancos	5,977	6,374
Fruitland	2,957	3,336	Gallup	6,997	7,394
Pictured Cliffs	3,207	3,599	Greenhorn	7,757	8,154
Lewis	3,502	3,899	Graneros	7,817	8,214
Cliff House	5,427	5,824	Dakota	7,947	8,344
Menefee	5,472	5,869	Morrison	8,172	8,569
			TD	8,222	8,619

- B. MUD LOGGING PROGRAM:** Mudlogger on location from intermediate csg to TD. Mud logger to pick TD.
- C. LOGGING PROGRAM:** HRI/Temp from intermediate casing to TD. SDL\DSN over zones of interest
- D. NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

- A. MUD PROGRAM:** Clear water with benex to 7-5/8" casing point. Convert to a LSND mud to log and run pipe. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use air w/Air Hammer from 7-5/8in. csg.to TD. ✓
- B. BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.** ✓

III. MATERIALS**A. CASING PROGRAM:**

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	14 3/4	300	10 3/4	40.5	K-55
Intermediate	9 7/8	4,079	7 5/8	26.4	K-55
Longstring	6 3/4	8,619	5 1/2	17	N-80

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 10 3/4" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7 5/8" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) Turbulent centralizer at 2,700 ft., 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. (NTL-FRA 90-1).
3. PRODUCTION LINER / CASING: 5-1/2" whirler type cement nose guide shoe with a latch collar on top of 20' bottom joint. Place marker joint above 5,400'. Place centralizers as needed across selected production intervals.

C. CEMENTING:

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

1. SURFACE: Slurry: 290sx (521 cu.ft.) of "Type III" + 2% Cal-Seal 60 + ¼ # of poly-e-flake/sk + 0.3% Versaset + 2% Econolite + 6% Salt (Yield = 1.796 cu.ft./sk, Weight = 13.5 #/gal.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 1500psi. ✓
2. INTERMEDIATE: Lead - 525 sx (1430 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 (Yield = 2.723 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 100 sx (117.8cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake, (Yield = 1.178 cu.ft./sk, Weight = 15.6#/gal.). **NO EXCESS PUMP AS WRITTEN SHOULD CIRCULATE TO SURFACE** Total volume = 1548 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface **Test csg to 1500psi**
3. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 325 sx (454 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 (454) 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 10,000# of LiteProp 108™ sand in slick water.
2. Isolate Dakota with a RBP.
3. Perforate Mancos as determined from the open hole logs
4. Stimulate Mancos with 3 stages of approximately 117,000# 40/70 white sand and 7500# 100 mesh white sand
5. Stimulate Point Lookout with approximately 9300# of 14/30 LiteProp™ in slick water.
6. Isolate Point Lookout with a RBP.
7. Perforate the Menefee/Cliff House as determined from the open hole logs.
8. Stimulate with approximately 9300# of 14/30 LiteProp™ in slick water.
9. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Production Tubing: Run 2-3/8", 4.7#, J-55, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing approximately 25' above the bottom Point Lookout perforation

Larry Sizemore
FOR Gary Sizemore
Sr. Drilling Engineer



Weatherford[®]

Drilling Services

PROPOSAL ✓



WILLIAMS PRODUCTION COMPANY
ROSA UNIT #164C
RIO ARRIBA COUNTY, NEW MEXICO
WELL FILE: **PLAN 1** ✓

Submitted: April 02, 2009

Weatherford International Ltd.
P.O. Box 61028
Midland, Texas 79711 USA
+1.432.561.8892 Main
+1.432.561.8895 Fax
www.weatherford.com



ROSA UNIT #164C
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	179.67	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	179.67	400.00	0.00	0.00	0.00	0.00	0.00	
3	1239.92	33.60	179.67	1192.61	-239.27	1.38	4.00	179.67	239.28	
4	2959.81	33.60	179.67	2625.19	-1190.95	6.86	0.00	0.00	1190.96	
5	4079.69	0.00	179.67	3682.00	-1509.97	8.70	3.00	180.00	1510.00	Int. Csg. Pt
6	8489.69	0.00	179.67	8092.00	-1509.97	8.70	0.00	179.67	1510.00	PBHL

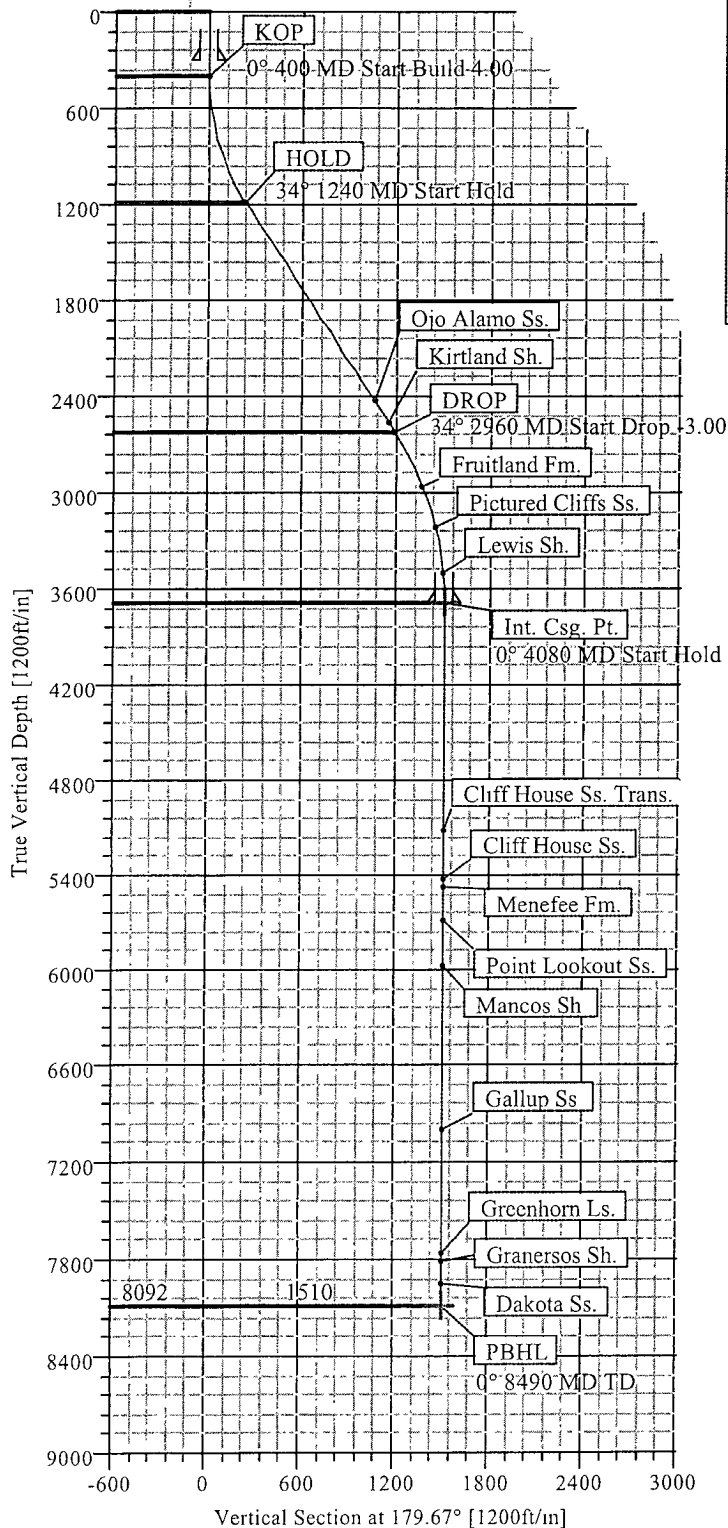
WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#164C	0.00	0.00	2158577.90	1301143.65	36°55'35.110N	107°24'38.700W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Int. Csg. Pt.	3682.00	-1509.97	8.70	36°55'20.181N	107°24'38.593W	Point
PBHL	8092.00	-1509.97	8.70	36°55'20.181N	107°24'38.593W	Point

KB ELEV: 6372'
GR ELEV: 6358'



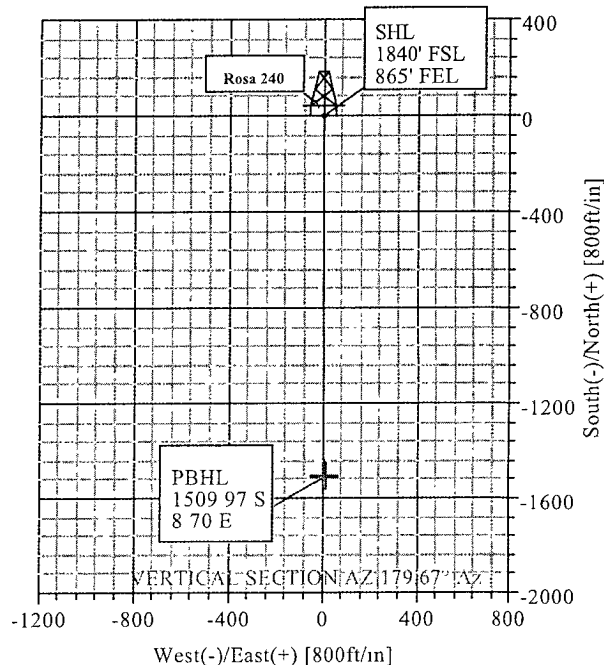
Azimuths to True North
Magnetic North: 10.03°

Magnetic Field
Strength: 51186nT
Dip Angle: 63.75°
Date: 3/30/2009
Model: igrf200510

Total Correction to True North 10.03°

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2427.00	2721.87	Ojo Alamo Ss.
2	2562.00	2883.94	Kirtland Sh.
3	2957.00	3336.04	Fruitland Fm.
4	3207.00	3599.66	Pictured Cliffs Ss.
5	3502.00	3899.43	Lewis Sh.
6	5112.00	5509.69	Cliff House Ss. Trans.
7	5472.00	5824.69	Cliff House Ss.
8	5472.00	5869.69	Menefee Fm.
9	5687.00	6084.69	Point Lookout Ss.
10	5977.00	6374.69	Mancos Sh.
11	6997.00	7394.69	Gallup Ss.
12	7757.00	8154.69	Greenhorn Ls.
13	7817.00	8214.69	Graneros Sh.
14	7947.00	8344.69	Dakota Ss.



Weatherford

CASING DETAILS

No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10 7/8"
2	3682.00	4079.69	7 5/8" Int. Csg.	0.000

Plan: Plan #1 (#164C/1)

Created By: Lindsey Maddux

Date: 4/3/2009



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION	Date: 4/3/2009	Time: 09:29:12	Page: 1
Field: Rio Arriba Co., NM (NAD 83)	Co-ordinate(NE) Reference: Well: #164C, True North		
Site: Rosa Unit #164C	Vertical (TVD) Reference: SITE 6372.0		
Well: #164C	Section (VS) Reference: Well: (0.00N,0.00E,179.67Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #1	Date Composed: 3/30/2009
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 #164C

1840' FSL 865' FEL of SEC 1 T31N R6W

Site Position:	Northing: 2158577.90 ft	Latitude: 36 55 35.110 N
From: Geographic	Easting: 1301143.65 ft	Longitude: 107 24 38.700 W
Position Uncertainty: 0.00 ft		North Reference: True
Ground Level: 6358.00 ft		Grid Convergence: -0.70 deg

Well: #164C

Slot Name:

Well Position: +N/-S 0.00 ft	Northing: 2158577.90 ft	Latitude: 36 55 35.110 N
+E/-W 0.00 ft	Easting: 1301143.65 ft	Longitude: 107 24 38.700 W
Position Uncertainty: 0.00 ft		

Wellpath: 1

Current Datum: SITE	Height 6372.00 ft	Drilled From: Surface
Magnetic Data: 3/30/2009		Tie-on Depth: 0.00 ft
Field Strength: 51186 nT		Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD)		Declination: 10.03 deg
ft	+N/-S ft	Mag Dip Angle: 63.75 deg
0.00	0.00	+E/-W ft
		Direction deg
		179.67

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	179.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	179.67	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1239.92	33.60	179.67	1192.61	-239.27	1.38	4.00	4.00	0.00	179.67	
2959.81	33.60	179.67	2625.19	-1190.95	6.86	0.00	0.00	0.00	0.00	
4079.69	0.00	179.67	3682.00	-1509.97	8.70	3.00	-3.00	0.00	180.00	Int. Csg. Pt.
8489.69	0.00	179.67	8092.00	-1509.97	8.70	0.00	0.00	0.00	179.67	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	179.67	400.00	0.00	0.00	0.00	0.00	0.00	0.00	179.67	KOP
500.00	4.00	179.67	499.92	-3.49	0.02	3.49	4.00	0.00	4.00	0.00	
600.00	8.00	179.67	599.35	-13.94	0.08	13.94	4.00	0.00	4.00	0.00	
700.00	12.00	179.67	697.81	-31.30	0.18	31.30	4.00	0.00	4.00	0.00	
800.00	16.00	179.67	794.82	-55.49	0.32	55.49	4.00	0.00	4.00	0.00	
900.00	20.00	179.67	889.91	-86.38	0.50	86.38	4.00	0.00	4.00	0.00	
1000.00	24.00	179.67	982.61	-123.83	0.71	123.84	4.00	0.00	4.00	0.00	
1100.00	28.00	179.67	1072.47	-167.66	0.97	167.67	4.00	0.00	4.00	0.00	
1200.00	32.00	179.67	1159.05	-217.65	1.25	217.66	4.00	0.00	4.00	0.00	
1239.92	33.60	179.67	1192.61	-239.27	1.38	239.28	4.00	0.00	4.00	0.00	HOLD
1300.00	33.60	179.67	1242.65	-272.52	1.57	272.52	0.00	0.00	0.00	0.00	
1400.00	33.60	179.67	1325.95	-327.85	1.89	327.86	0.00	0.00	0.00	0.00	
1500.00	33.60	179.67	1409.24	-383.19	2.21	383.19	0.00	0.00	0.00	0.00	
1600.00	33.60	179.67	1492.54	-438.52	2.53	438.53	0.00	0.00	0.00	0.00	
1700.00	33.60	179.67	1575.83	-493.85	2.84	493.86	0.00	0.00	0.00	0.00	



Weatherford International, Inc.

Proposal Plan Report



Weatherford®

Company: WILLIAMS PRODUCTION	Date: 4/3/2009	Time: 09:29:12	Page: 2
Field: Rio Arriba Co., NM (NAD 83)	Co-ordinate(NE) Reference:	Well: #164C, True North	
Site: Rosa Unit #164C	Vertical (TVD) Reference:	SITE 6372 0	
Well: #164C	Section (VS) Reference:	Well (0.00N;0.00E;179.67Azi)	
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
1800.00	33.60	179.67	1659.13	-549.19	3.16	549.19	0.00	0.00	0.00	0.00	
1900.00	33.60	179.67	1742.42	-604.52	3.48	604.53	0.00	0.00	0.00	0.00	
2000.00	33.60	179.67	1825.72	-659.85	3.80	659.86	0.00	0.00	0.00	0.00	
2100.00	33.60	179.67	1909.02	-715.19	4.12	715.20	0.00	0.00	0.00	0.00	
2200.00	33.60	179.67	1992.31	-770.52	4.44	770.53	0.00	0.00	0.00	0.00	
2300.00	33.60	179.67	2075.61	-825.85	4.76	825.87	0.00	0.00	0.00	0.00	
2400.00	33.60	179.67	2158.90	-881.19	5.08	881.20	0.00	0.00	0.00	0.00	
2500.00	33.60	179.67	2242.20	-936.52	5.39	936.53	0.00	0.00	0.00	0.00	
2600.00	33.60	179.67	2325.49	-991.85	5.71	991.87	0.00	0.00	0.00	0.00	
2700.00	33.60	179.67	2408.79	-1047.19	6.03	1047.20	0.00	0.00	0.00	0.00	
2721.87	33.60	179.67	2427.00	-1059.28	6.10	1059.30	0.00	0.00	0.00	0.00	Ojo Alamo Ss.
2800.00	33.60	179.67	2492.08	-1102.52	6.35	1102.54	0.00	0.00	0.00	0.00	
2883.94	33.60	179.67	2562.00	-1148.97	6.62	1148.98	0.00	0.00	0.00	0.00	Kirtland Sh.
2900.00	33.60	179.67	2575.38	-1157.85	6.67	1157.87	0.00	0.00	0.00	0.00	
2959.81	33.60	179.67	2625.19	-1190.95	6.86	1190.96	0.00	0.00	0.00	0.00	DROP
3000.00	32.39	179.67	2658.90	-1212.83	6.99	1212.85	-3.00	0.00	3.00	180.00	
3100.00	29.39	179.67	2744.71	-1264.17	7.28	1264.19	-3.00	0.00	3.00	180.00	
3200.00	26.39	179.67	2833.08	-1310.94	7.55	1310.96	-3.00	0.00	3.00	180.00	
3300.00	23.39	179.67	2923.78	-1353.02	7.79	1353.04	-3.00	0.00	3.00	180.00	
3336.04	22.31	179.67	2957.00	-1367.02	7.87	1367.04	-3.00	0.00	3.00	180.00	Fruitland Fm.
3400.00	20.39	179.67	3016.56	-1390.30	8.01	1390.32	-3.00	0.00	3.00	180.00	
3500.00	17.39	179.67	3111.17	-1422.67	8.19	1422.70	-3.00	0.00	3.00	180.00	
3599.66	14.40	179.67	3207.00	-1449.96	8.35	1449.99	-3.00	0.00	3.00	180.00	Pictured Cliffs Ss.
3600.00	14.39	179.67	3207.33	-1450.05	8.35	1450.07	-3.00	0.00	3.00	180.00	
3700.00	11.39	179.67	3304.80	-1472.36	8.48	1472.38	-3.00	0.00	3.00	180.00	
3800.00	8.39	179.67	3403.30	-1489.53	8.58	1489.56	-3.00	0.00	3.00	180.00	
3899.43	5.41	179.67	3502.00	-1501.47	8.65	1501.50	-3.00	0.00	3.00	180.00	Lewis Sh.
3900.00	5.39	179.67	3502.57	-1501.53	8.65	1501.55	-3.00	0.00	3.00	180.00	
4000.00	2.39	179.67	3602.33	-1508.31	8.69	1508.34	-3.00	0.00	3.00	180.00	
4079.69	0.00	179.67	3682.00	-1509.97	8.70	1510.00	-3.00	0.00	3.00	180.00	Int. Csg. Pt.
4100.00	0.00	179.67	3702.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4200.00	0.00	179.67	3802.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4300.00	0.00	179.67	3902.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4400.00	0.00	179.67	4002.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4500.00	0.00	179.67	4102.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4600.00	0.00	179.67	4202.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4700.00	0.00	179.67	4302.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4800.00	0.00	179.67	4402.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
4900.00	0.00	179.67	4502.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5000.00	0.00	179.67	4602.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5100.00	0.00	179.67	4702.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5200.00	0.00	179.67	4802.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5300.00	0.00	179.67	4902.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5400.00	0.00	179.67	5002.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5500.00	0.00	179.67	5102.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5509.69	0.00	179.67	5112.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Cliff House Ss. Trans.
5600.00	0.00	179.67	5202.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5700.00	0.00	179.67	5302.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5800.00	0.00	179.67	5402.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
5824.69	0.00	179.67	5427.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Cliff House Ss.
5869.69	0.00	179.67	5472.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Menefee Fm
5900.00	0.00	179.67	5502.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6000.00	0.00	179.67	5602.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION	Date: 4/3/2009	Time: 09:29:12	Page: 3
Field: Rio Arriba Co., NM (NAD 83)	Co-ordinate(NE) Reference:	Well: #164C, True North	
Site: Rosa Unit #164C	Vertical (TVD) Reference:	SITE 6372.0	
Well: #164C	Section (VS) Reference:	Well (0.00N, 0.00E, 179.67Azi)	
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
6084.69	0.00	179.67	5687.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Point Lookout Ss.
6100.00	0.00	179.67	5702.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6200.00	0.00	179.67	5802.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Mancos Sh.
6300.00	0.00	179.67	5902.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6374.69	0.00	179.67	5977.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6400.00	0.00	179.67	6002.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6500.00	0.00	179.67	6102.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6600.00	0.00	179.67	6202.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Gallup Ss
6700.00	0.00	179.67	6302.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6800.00	0.00	179.67	6402.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
6900.00	0.00	179.67	6502.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7000.00	0.00	179.67	6602.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7100.00	0.00	179.67	6702.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7200.00	0.00	179.67	6802.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7300.00	0.00	179.67	6902.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7394.69	0.00	179.67	6997.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7400.00	0.00	179.67	7002.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7500.00	0.00	179.67	7102.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Greenhorn Ls.
7600.00	0.00	179.67	7202.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7700.00	0.00	179.67	7302.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7800.00	0.00	179.67	7402.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
7900.00	0.00	179.67	7502.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8000.00	0.00	179.67	7602.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Graneros Sh.
8100.00	0.00	179.67	7702.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8154.69	0.00	179.67	7757.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8200.00	0.00	179.67	7802.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8214.69	0.00	179.67	7817.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	Dakota Ss.
8300.00	0.00	179.67	7902.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8344.69	0.00	179.67	7947.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8400.00	0.00	179.67	8002.31	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	
8489.69	0.00	179.67	8092.00	-1509.97	8.70	1510.00	0.00	0.00	0.00	179.67	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.			3682.00	-1509.97	8.70	2157067.93	1301133.97	36 55 20.181 N	107 24 38.593 W
-Plan hit target									
PBHL			8092.00	-1509.97	8.70	2157067.93	1301133.97	36 55 20.181 N	107 24 38.593 W
-Plan hit target									

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2721.87	2427.00	Ojo Alamo Ss		0.00	0.00
2883.94	2562.00	Kirtland Sh.		0.00	0.00
3336.04	2957.00	Fruitland Fm.		0.00	0.00
3599.66	3207.00	Pictured Cliffs Ss.		0.00	0.00
3899.43	3502.00	Lewis Sh		0.00	0.00
5509.69	5112.00	Cliff House Ss. Trans.		0.00	0.00
5824.69	5427.00	Cliff House Ss.		0.00	0.00
5869.69	5472.00	Menefee Fm.		0.00	0.00
6084.69	5687.00	Point Lookout Ss.		0.00	0.00
6374.69	5977.00	Mancos Sh.		0.00	0.00
7394.69	6997.00	Gallup Ss.		0.00	0.00



Weatherford International, Inc.

Proposal Plan Report

**Weatherford***

Company:	WILLIAMS PRODUCTION	Date:	4/3/2009	Time:	09:29:12	Page:	4
Field:	Rio Arriba Co., NM (NAD'83)	Co-ordinate(NE) Reference:	Well: #164C, True North				
Site:	Rosa Unit #164C	Vertical (TVD) Reference:	SITE 6372.0				
Well:	#164C	Section (VS) Reference:	Well (0.00N, 0.00E, 179.67Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
8154.69	7757.00	Greenhorn Ls.		0.00	0.00
8214.69	7817.00	Graneros Sh.		0.00	0.00
8344.69	7947.00	Dakota Ss.		0.00	0.00

Annotation

MD ft	TVD ft	
400.00	400.00	KOP
1239.92	1192.61	HOLD
2959.81	2625.20	DROP
4079.69	3682.00	Int. Csg. Pt.
8489.69	8092.00	PBHL

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	10.750	12.250	10 3/4"
4079.69	3682.00	0.000	0.000	7 5/8" Int. Csg.