

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAR 24 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.

Bureau of Land Management
Farmington Field Office

5. Lease Serial No.
NMSF-078767
6. Name of 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 #72B

9 API Well No.
30-039-30336

10 Field and Pool or Exploratory Area
BLANCO MV / BASIN MC / BASIN DK

4. Location of Well (Footage, Sec, T, R, M, or Survey Description)

Sur 2260' FSL & 600' FEL - BHL 2310' FSL & 2310' FEL SEC 6, 31N, 5W

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 PAY ADD
	☒ 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 requests authorization to drill this well to include the Basin Mancos and Basin Dakota formations as per attached plat, directional plan and operation plan

RCVD MAR 27 '09
OIL CONS. DIV.
DIST. 3

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

HOLD C104 FOR NSL in Mancos & Dakota
in P.A. for Mesoverde

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

Larry Higgins

Title Drilling COM

Signature

Date 03/24/2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy L. Salyers

Title Petroleum Engineer

Date 3/25/2009

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

(Instructions on page 2)

NMOCD

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	³ Pool Name
	97232 / 72319 / 71599	BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA
⁴ Property Code	⁵ Property Name	⁶ Well Number
17033	ROSA UNIT	72B
⁷ OGRID No	⁸ Operator Name	⁹ Elevation
120782	WILLIAMS PRODUCTION COMPANY	6334'

¹⁰ Surface Location

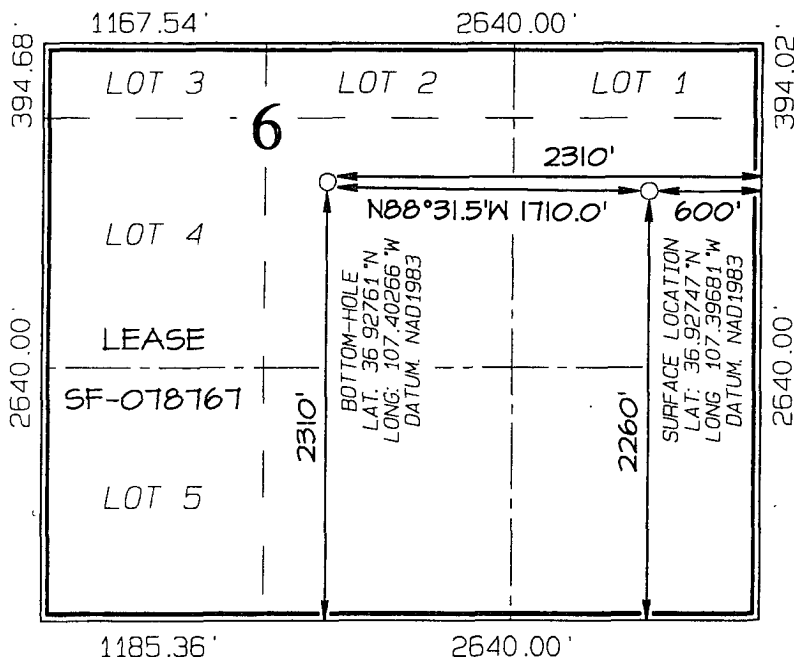
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	6	31N	5W		2260	SOUTH	600	EAST	RIO ARriba

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
J	6	31N	5W		2310	SOUTH	2310	EAST	RIO ARriba

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
264.56 Acres - (Entire Section)			

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 3-24-09
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

Survey Date: FEBRUARY 22, 2007

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: 3/24/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV
WELL NAME: Rosa Unit #72B **SURFACE:** BLM
BH LOCATION: NESE Sec 6-31N-5W **MINERALS:** BLM
Rio Arriba, NM
ELEVATION: 6,334' GR **LEASE #** SF-078767
MEASURED DEPTH: 8,548'

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,413	2,757	Menefee	5,433	5,923
Kirtland	2,518	2,878	Point Lookout	5,628	6,118
Fruitland	2,943	2,943	Mancos	5,958	6,448
Pictured Cliffs	3,178	3,649	Gallup	6,998	7,488
Lewis	3,473	3,958	Greenhorn	7,718	8,208
Cliff House	5,388	5,878	Graneros	7,778	8,268
			Dakota	7,908	8,398
			TD	8,058	8,548

- 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\ DSEN 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**

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	4,490	7 5/8	26.4	K-55
Longstring	6 3/4	8,548	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 (341 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 = 1198 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: 325 sx (454 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 (342) 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

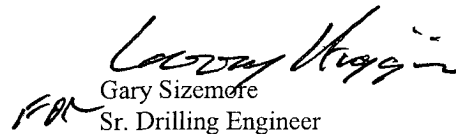
1. Pressure test 5-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

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


Gary Sizemore
Sr. Drilling Engineer



Weatherford[®]

Drilling Services

PROPOSAL (Plan 2)



WILLIAMS PRODUCTION COMPANY

ROSA UNIT 72B

Prepared by: Jose A Perez

Submitted: 08/02/07

Weatherford Drilling Services

11943 FM 529

Houston, TX 77041 USA

+1.713.896.8194 Main

+1.713.896.0498 Fax

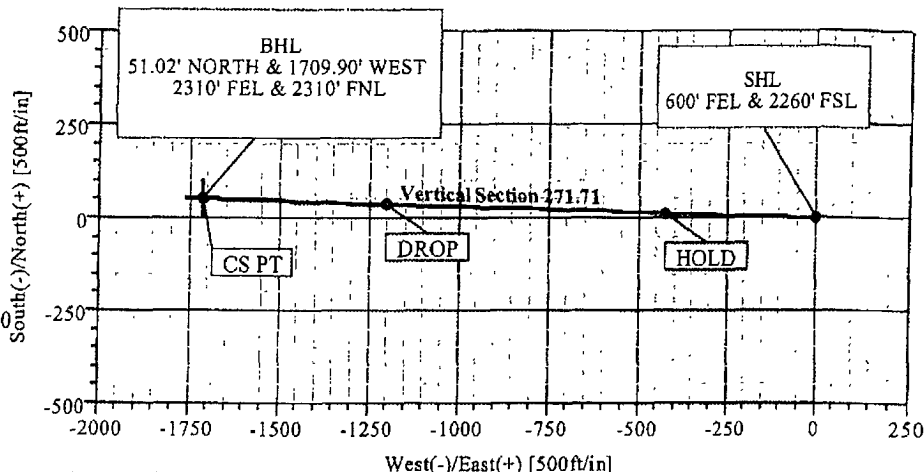
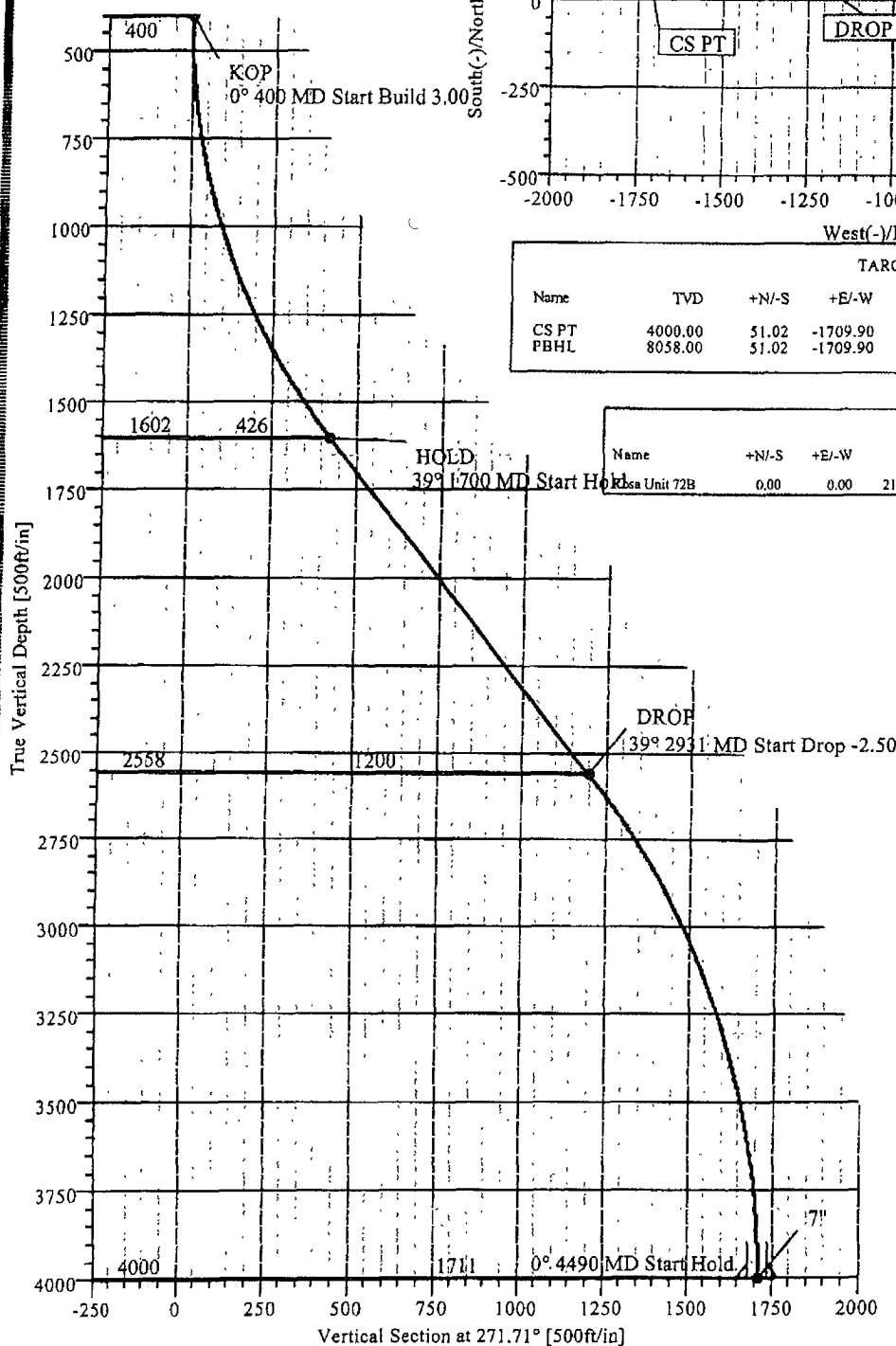
www.weatherford.com



ROSA UNIT 72B
SECT. 6 T31N R5W
2260' FSL & 600' FEL
RIO ARriba COUNTY, NM
PLAN 2

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	271.71	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	271.71	400.00	0.00	0.00	0.00	0.00	0.00	
3	1700.00	39.00	271.71	1601.91	12.59	-425.43	3.00	271.71	425.62	
4	2930.76	39.00	271.71	2558.39	35.00	-1189.63	0.00	0.00	1200.16	
5	4490.01	0.00	271.71	4000.00	51.02	-1709.90	2.50	180.00	1710.56	CS PT
6	8548.01	0.00	271.71	8058.00	51.02	-1709.90	0.00	271.71	1710.66	PBHL

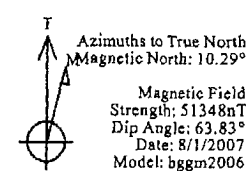
KB ELEVATION: 6348'
GR ELEVATION: 6334'



TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
CS PT	4000.00	51.02	-1709.90	36°55'39.396N	107°24'09.576W	Point
PBHL	8058.00	51.02	-1709.90	36°55'39.396N	107°24'09.576W	Circle (Radius: 50)

WELL DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rosa Unit 72B	0.00	0.00	2157223.45	2850687.05	36°55'38.892N	107°23'48.516W

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	243.00	243.00	Ojo Alamo
2	2518.00	2878.78	Kirtland
3	2943.00	3391.38	Fruitland
4	3178.00	3649.27	Pictured Cliffs
5	3473.00	3958.25	Lewis
6	5083.00	5573.01	Cliff House Trans
7	5388.00	5878.01	Cliff House
8	5433.00	5923.01	Menefee
9	5628.00	6118.01	Point Lookout
10	5958.00	6448.01	Mancos
11	6998.00	7488.01	Gallup
12	7718.00	8208.01	Greenhorn
13	7778.00	8268.01	Granceros
14	7908.00	8398.01	Dakota



Total Correction to True North 10.29°
Plan: Plan #2 (Rosa Unit 72B/1)
Created By: Jose Perez Date: 08/02/07
Weatherford Drilling Services
11943 FM 529
Houston TX 77041
(713) 896 8194 MAIN
(713) 896 8194 FAX



Weatherford Drilling Services Planning Report



Weatherford

Company: WILLIAMS PRODUCTION Date: 8/2/2007 Time: 10:24:02 Page: 1
Field: Rio Arriba County (NAD 83) Co-ordinate(NE) Reference: Site: Rosa Unit 72B, True North
Site: Rosa Unit 72B Vertical (TVD) Reference: SITE 6348.0
Well: Rosa Unit 72B Section (VS) Reference: Well (0.00N,0.00E,271.71Azi)
Wellpath: 1 Plan: Plan #2

Field: Rio Arriba County (NAD 83)

Map System: US State Plane Coordinate System 1983
Geo Datum: GRS 1980
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Western Zone
Coordinate System: Site Centre
Geomagnetic Model: bggm2006

Site: Rosa Unit 72B
Sect. 6 T31N R5W
Rio Arriba County, NM

Site Position: Northing: 2157223.45 ft Latitude: 36 55 38.892 N
From: Geographic Easting: 2850687.05 ft Longitude: 107 23 48 516 W
Position Uncertainty: 0.00 ft North Reference: True
Ground Level: 6334.00 ft Grid Convergence: 0.26 deg

Well: Rosa Unit 72B

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2157223.45 ft Latitude: 36 55 38.892 N
+E/-W 0.00 ft Easting: 2850687.05 ft Longitude: 107 23 48.516 W
Position Uncertainty: 0.00 ft

Wellpath: 1

Current Datum: SITE
Magnetic Data: 8/1/2007
Field Strength: 51348 nT
Vertical Section: Depth From (TVD)
ft

Height 6348.00 ft

Drilled From: Surface
Tie-on Depth: 0.00 ft
Above System Datum: Mean Sea Level
Declination: 10.29 deg
Mag Dip Angle: 63.83 deg
+E/-W Direction
ft deg

0.00 0.00 0.00 271.71

Plan: Plan #2

Date Composed: 8/1/2007
Version: 1
Tied-to: From Surface

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	271.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	271.71	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1700.00	39.00	271.71	1601.91	12.69	-425.43	3.00	3.00	0.00	271.71	
2930.76	39.00	271.71	2558.39	35.80	-1199.63	0.00	0.00	0.00	0.00	
4490.01	0.00	271.71	4000.00	51.02	-1709.90	2.50	-2.50	0.00	180.00	CS PT
8548.01	0.00	271.71	8058.00	51.02	-1709.90	0.00	0.00	0.00	271.71	PBHL

Section 1 : Start Hold

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	TFO deg
0.00	0.00	271.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	271.71	400.00	0.00	0.00	0.00	0.00	0.00	0.00	271.71

Section 2 : Start Build 3.00

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	TFO deg
500.00	3.00	271.71	499.95	0.08	-2.62	2.62	3.00	3.00	0.00	0.00
600.00	6.00	271.71	599.63	0.31	-10.46	10.46	3.00	3.00	0.00	0.00
700.00	9.00	271.71	698.77	0.70	-23.50	23.51	3.00	3.00	0.00	0.00
800.00	12.00	271.71	797.08	1.24	-41.72	41.74	3.00	3.00	0.00	0.00
900.00	15.00	271.71	894.31	1.94	-65.05	65.08	3.00	3.00	0.00	0.00
1000.00	18.00	271.71	990.18	2.79	-93.43	93.48	3.00	3.00	0.00	0.00
1100.00	21.00	271.71	1084.43	3.78	-126.80	126.85	3.00	3.00	0.00	0.00
1200.00	24.00	271.71	1176.81	4.92	-165.04	165.12	3.00	3.00	0.00	0.00
1300.00	27.00	271.71	1267.06	6.21	-208.07	208.16	3.00	3.00	0.00	0.00
1400.00	30.00	271.71	1354.93	7.63	-255.76	255.87	3.00	3.00	0.00	0.00
1500.00	33.00	271.71	1440.18	9.19	-307.98	308.12	3.00	3.00	0.00	0.00



Weatherford Drilling Services Planning Report

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 72B
Well: Rosa Unit 72B
Wellpath: 1

Date: 8/2/2007 Time: 10:24:02 Page: 2
Co-ordinate(NE) Reference: Site: Rosa Unit 72B, True North
Vertical (TVD) Reference: SITE 6348.0
Section (VS) Reference: Well (0.00N,0.00E,271.71Azi)
Plan: Plan #2

Section 2 : Start Build 3.00

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	TFO deg
1600.00	36.00	271.71	1522.59	10.88	-364.59	364.75	3.00	3.00	0.00	0.00
1700.00	39.00	271.71	1601.91	12.69	-425.43	425.62	3.00	3.00	0.00	0.00

Section 3 : Start Hold

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	TFO deg
1800.00	39.00	271.71	1679.63	14.57	-488.33	488.55	0.00	0.00	0.00	0.00
1900.00	39.00	271.71	1757.34	16.45	-551.24	551.48	0.00	0.00	0.00	0.00
2000.00	39.00	271.71	1835.06	18.33	-614.14	614.42	0.00	0.00	0.00	0.00
2100.00	39.00	271.71	1912.77	20.20	-677.05	677.35	0.00	0.00	0.00	0.00
2200.00	39.00	271.71	1990.49	22.08	-739.95	740.28	0.00	0.00	0.00	0.00
2300.00	39.00	271.71	2068.20	23.96	-802.85	803.21	0.00	0.00	0.00	0.00
2400.00	39.00	271.71	2145.92	25.83	-865.76	866.14	0.00	0.00	0.00	0.00
2500.00	39.00	271.71	2223.63	27.71	-928.66	929.08	0.00	0.00	0.00	0.00
2600.00	39.00	271.71	2301.34	29.59	-991.57	992.01	0.00	0.00	0.00	0.00
2700.00	39.00	271.71	2379.06	31.47	-1054.47	1054.94	0.00	0.00	0.00	0.00
2800.00	39.00	271.71	2456.77	33.34	-1117.37	1117.87	0.00	0.00	0.00	0.00
2878.78	39.00	271.71	2518.00	34.82	-1166.93	1167.45	0.00	0.00	0.00	0.00
2900.00	39.00	271.71	2534.49	35.22	-1180.28	1180.80	0.00	0.00	0.00	0.00
2930.76	39.00	271.71	2558.39	35.80	-1199.63	1200.16	0.00	0.00	0.00	0.00

Section 4 : Start Drop -2.50

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	TFO deg
3000.00	37.27	271.71	2612.85	37.07	-1242.36	1242.92	2.50	-2.50	0.00	180.00
3100.00	34.77	271.71	2693.73	38.83	-1301.14	1301.72	2.50	-2.50	0.00	180.00
3200.00	32.27	271.71	2777.10	40.47	-1356.32	1356.93	2.50	-2.50	0.00	180.00
3300.00	29.76	271.71	2862.79	42.01	-1407.82	1408.45	2.50	-2.50	0.00	180.00
3391.38	27.48	271.71	2943.00	43.31	-1451.57	1452.22	2.50	-2.50	0.00	180.00
3400.00	27.26	271.71	2950.66	43.43	-1455.54	1456.18	2.50	-2.50	0.00	180.00
3500.00	24.76	271.71	3040.52	44.74	-1499.37	1500.04	2.50	-2.50	0.00	180.00
3600.00	22.26	271.71	3132.21	45.93	-1539.24	1539.93	2.50	-2.50	0.00	180.00
3649.27	21.03	271.71	3178.00	46.47	-1557.41	1558.10	2.50	-2.50	0.00	-180.00
3700.00	19.76	271.71	3225.55	47.00	-1575.08	1575.78	2.50	-2.50	0.00	180.00
3800.00	17.26	271.71	3320.37	47.95	-1606.81	1607.52	2.50	-2.50	0.00	180.00
3900.00	14.76	271.71	3416.49	48.77	-1634.37	1635.10	2.50	-2.50	0.00	180.00
3958.25	13.30	271.71	3473.00	49.19	-1648.48	1649.22	2.50	-2.50	0.00	180.00
4000.00	12.26	271.71	3513.71	49.47	-1657.71	1658.45	2.50	-2.50	0.00	180.00
4100.00	9.76	271.71	3611.87	50.04	-1676.79	1677.54	2.50	-2.50	0.00	180.00
4200.00	7.25	271.71	3710.76	50.48	-1691.57	1692.33	2.50	-2.50	0.00	180.00
4300.00	4.75	271.71	3810.20	50.79	-1702.03	1702.79	2.50	-2.50	0.00	180.00
4400.00	2.25	271.71	3910.01	50.97	-1708.13	1708.89	2.50	-2.50	0.00	180.00
4490.01	0.00	271.71	4000.00	51.02	-1709.90	1710.66	2.50	-2.50	0.00	-180.00

Section 5 : Start Hold

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	TFO deg
4500.00	0.00	271.71	4009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
4600.00	0.00	271.71	4109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
4700.00	0.00	271.71	4209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
4800.00	0.00	271.71	4309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
4900.00	0.00	271.71	4409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5000.00	0.00	271.71	4509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5100.00	0.00	271.71	4609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5200.00	0.00	271.71	4709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5300.00	0.00	271.71	4809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5400.00	0.00	271.71	4909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5500.00	0.00	271.71	5009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5573.01	0.00	271.71	5083.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5600.00	0.00	271.71	5109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5700.00	0.00	271.71	5209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71



Weatherford Drilling Services Planning Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 72B
Well: Rosa Unit 72B
Wellpath: 1

Date: 8/2/2007 Time: 10:24:02 Page: 3
Co-ordinate(NE) Reference: Site: Rosa Unit 72B, True North
Vertical (TVD) Reference: SITE 6348.0
Section (VS) Reference: Well (0.00N,0.00E,271.71Azi)
Plan: Plan #2

Section 5 : Start Hold

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	TFO deg
5800.00	0.00	271.71	5309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5878.01	0.00	271.71	5388.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5900.00	0.00	271.71	5409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
5923.01	0.00	271.71	5433.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6000.00	0.00	271.71	5509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6100.00	0.00	271.71	5609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6118.01	0.00	271.71	5628.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6200.00	0.00	271.71	5709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6300.00	0.00	271.71	5809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6400.00	0.00	271.71	5909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6448.01	0.00	271.71	5958.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6500.00	0.00	271.71	6009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6600.00	0.00	271.71	6109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6700.00	0.00	271.71	6209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6800.00	0.00	271.71	6309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
6900.00	0.00	271.71	6409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7000.00	0.00	271.71	6509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7100.00	0.00	271.71	6609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7200.00	0.00	271.71	6709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7300.00	0.00	271.71	6809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7400.00	0.00	271.71	6909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7488.01	0.00	271.71	6998.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7500.00	0.00	271.71	7009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7600.00	0.00	271.71	7109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7700.00	0.00	271.71	7209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7800.00	0.00	271.71	7309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
7900.00	0.00	271.71	7409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8000.00	0.00	271.71	7509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8100.00	0.00	271.71	7609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8200.00	0.00	271.71	7709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8208.01	0.00	271.71	7718.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8268.01	0.00	271.71	7778.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8300.00	0.00	271.71	7809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8398.01	0.00	271.71	7908.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8400.00	0.00	271.71	7909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8500.00	0.00	271.71	8009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71
8548.01	0.00	271.71	8058.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	271.71

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
400.00	0.00	271.71	400.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP
500.00	3.00	271.71	499.95	0.08	-2.62	2.62	3.00	3.00	0.00	
600.00	6.00	271.71	599.63	0.31	-10.46	10.46	3.00	3.00	0.00	
700.00	9.00	271.71	698.77	0.70	-23.50	23.51	3.00	3.00	0.00	
800.00	12.00	271.71	797.08	1.24	-41.72	41.74	3.00	3.00	0.00	
900.00	15.00	271.71	894.31	1.94	-65.05	65.08	3.00	3.00	0.00	
1000.00	18.00	271.71	990.18	2.79	-93.43	93.48	3.00	3.00	0.00	
1100.00	21.00	271.71	1084.43	3.78	-126.80	126.85	3.00	3.00	0.00	
1200.00	24.00	271.71	1176.81	4.92	-165.04	165.12	3.00	3.00	0.00	
1300.00	27.00	271.71	1267.06	6.21	-208.07	208.16	3.00	3.00	0.00	
1400.00	30.00	271.71	1354.93	7.63	-255.76	255.87	3.00	3.00	0.00	
1500.00	33.00	271.71	1440.18	9.19	-307.98	308.12	3.00	3.00	0.00	
1600.00	36.00	271.71	1522.59	10.88	-364.59	364.75	3.00	3.00	0.00	
1700.00	39.00	271.71	1601.91	12.69	-425.43	425.62	3.00	3.00	0.00	HOLD
1800.00	39.00	271.71	1679.63	14.57	-488.33	488.55	0.00	0.00	0.00	
1900.00	39.00	271.71	1757.34	16.45	-551.24	551.48	0.00	0.00	0.00	
2000.00	39.00	271.71	1835.06	18.33	-614.14	614.42	0.00	0.00	0.00	
2100.00	39.00	271.71	1912.77	20.20	-677.05	677.35	0.00	0.00	0.00	
2200.00	39.00	271.71	1990.49	22.08	-739.95	740.28	0.00	0.00	0.00	



Weatherford Drilling Services Planning Report

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 72B
Well: Rosa Unit 72B
Wellpath: 1

Date: 8/2/2007 Time: 10:24:02 Page: 4
Co-ordinate(NE) Reference: Site: Rosa Unit 72B, True North
Vertical (TVD) Reference: SITE 6348.0
Section (VS) Reference: Well (0.00N,0.00E,271.71Azi)
Plan: Plan #2

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
2300.00	39.00	271.71	2068.20	23.96	-802.85	803.21	0.00	0.00	0.00	
2400.00	39.00	271.71	2145.92	25.83	-865.76	866.14	0.00	0.00	0.00	
2500.00	39.00	271.71	2223.63	27.71	-928.66	929.08	0.00	0.00	0.00	
2600.00	39.00	271.71	2301.34	29.59	-991.57	992.01	0.00	0.00	0.00	
2700.00	39.00	271.71	2379.06	31.47	-1054.47	1054.94	0.00	0.00	0.00	
2800.00	39.00	271.71	2456.77	33.34	-1117.37	1117.87	0.00	0.00	0.00	
2878.78	39.00	271.71	2518.00	34.82	-1166.93	1167.45	0.00	0.00	0.00	Kirtland
2900.00	39.00	271.71	2534.49	35.22	-1180.28	1180.80	0.00	0.00	0.00	
2930.76	39.00	271.71	2558.39	35.80	-1199.63	1200.16	0.00	0.00	0.00	DROP
3000.00	37.27	271.71	2612.85	37.07	-1242.36	1242.92	2.50	-2.50	0.00	
3100.00	34.77	271.71	2693.73	38.83	-1301.14	1301.72	2.50	-2.50	0.00	
3200.00	32.27	271.71	2777.10	40.47	-1356.32	1356.93	2.50	-2.50	0.00	
3300.00	29.76	271.71	2862.79	42.01	-1407.82	1408.45	2.50	-2.50	0.00	
3391.38	27.48	271.71	2943.00	43.31	-1451.57	1452.22	2.50	-2.50	0.00	Fruitland
3400.00	27.26	271.71	2950.66	43.43	-1455.54	1456.18	2.50	-2.50	0.00	
3500.00	24.76	271.71	3040.52	44.74	-1499.37	1500.04	2.50	-2.50	0.00	
3600.00	22.26	271.71	3132.21	45.93	-1539.24	1539.93	2.50	-2.50	0.00	
3649.27	21.03	271.71	3178.00	46.47	-1557.41	1558.10	2.50	-2.50	0.00	Pictured Cliffs
3700.00	19.76	271.71	3225.55	47.00	-1575.08	1575.78	2.50	-2.50	0.00	
3800.00	17.26	271.71	3320.37	47.95	-1606.81	1607.52	2.50	-2.50	0.00	
3900.00	14.76	271.71	3416.49	48.77	-1634.37	1635.10	2.50	-2.50	0.00	
3958.25	13.30	271.71	3473.00	49.19	-1648.48	1649.22	2.50	-2.50	0.00	Lewis
4000.00	12.26	271.71	3513.71	49.47	-1657.71	1658.45	2.50	-2.50	0.00	
4100.00	9.76	271.71	3611.87	50.04	-1676.79	1677.54	2.50	-2.50	0.00	
4200.00	7.25	271.71	3710.76	50.48	-1691.57	1692.33	2.50	-2.50	0.00	
4300.00	4.75	271.71	3810.20	50.79	-1702.03	1702.79	2.50	-2.50	0.00	
4400.00	2.25	271.71	3910.01	50.97	-1708.13	1708.89	2.50	-2.50	0.00	
4490.01	0.00	271.71	4000.00	51.02	-1709.90	1710.66	2.50	-2.50	0.00	CS PT
4500.00	0.00	271.71	4009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
4600.00	0.00	271.71	4109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
4700.00	0.00	271.71	4209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
4800.00	0.00	271.71	4309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
4900.00	0.00	271.71	4409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5000.00	0.00	271.71	4509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5100.00	0.00	271.71	4609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5200.00	0.00	271.71	4709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5300.00	0.00	271.71	4809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5400.00	0.00	271.71	4909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5500.00	0.00	271.71	5009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5573.01	0.00	271.71	5083.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Cliff House Trans
5600.00	0.00	271.71	5109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5700.00	0.00	271.71	5209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5800.00	0.00	271.71	5309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5878.01	0.00	271.71	5388.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Cliff House
5900.00	0.00	271.71	5409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
5923.01	0.00	271.71	5433.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Menefee
6000.00	0.00	271.71	5509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6100.00	0.00	271.71	5609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6118.01	0.00	271.71	5628.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Point Lookout
6200.00	0.00	271.71	5709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6300.00	0.00	271.71	5809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6400.00	0.00	271.71	5909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6448.01	0.00	271.71	5958.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Mancos



Weatherford Drilling Services

Planning Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 72B
Well: Rosa Unit 72B
Wellpath: 1

Date: 8/2/2007 Time: 10:24:02 Page: 5
Co-ordinate(NE) Reference: Site: Rosa Unit 72B, True North
Vertical (TVD) Reference: SITE 6348.0
Section (VS) Reference: Well (0.00N,0.00E,271.71Azi)
Plan: Plan #2

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
6500.00	0.00	271.71	6009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6600.00	0.00	271.71	6109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6700.00	0.00	271.71	6209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6800.00	0.00	271.71	6309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
6900.00	0.00	271.71	6409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7000.00	0.00	271.71	6509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7100.00	0.00	271.71	6609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7200.00	0.00	271.71	6709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7300.00	0.00	271.71	6809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7400.00	0.00	271.71	6909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7488.01	0.00	271.71	6998.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Gallup
7500.00	0.00	271.71	7009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7600.00	0.00	271.71	7109.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7700.00	0.00	271.71	7209.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7800.00	0.00	271.71	7309.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
7900.00	0.00	271.71	7409.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8000.00	0.00	271.71	7509.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8100.00	0.00	271.71	7609.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8200.00	0.00	271.71	7709.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8208.01	0.00	271.71	7718.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Greenhorn
8268.01	0.00	271.71	7778.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Granerosos
8300.00	0.00	271.71	7809.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8398.01	0.00	271.71	7908.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	Dakota
8400.00	0.00	271.71	7909.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8500.00	0.00	271.71	8009.99	51.02	-1709.90	1710.66	0.00	0.00	0.00	
8548.01	0.00	271.71	8058.00	51.02	-1709.90	1710.66	0.00	0.00	0.00	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
CS PT		4000.00	51.02	-1709.90	2157266.652848976.93		36 55 39.396 N	107 24 9.576 W
-Plan hit target								
PBHL		8058.00	51.02	-1709.90	2157266.652848976.93		36 55 39.396 N	107 24 9.576 W
-Circle (Radius: 50)								
-Plan hit target								

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
243.00	243.00	Ojo Alamo		0.00	0.00
2878.78	2518.00	Kirtland		0.00	0.00
3391.38	2943.00	Fruitland		0.00	0.00
3649.27	3178.00	Pictured Cliffs		0.00	0.00
3958.25	3473.00	Lewis		0.00	0.00
5573.01	5083.00	Cliff House Trans		0.00	0.00
5878.01	5388.00	Cliff House		0.00	0.00
5923.01	5433.00	Menefee		0.00	0.00
6118.01	5628.00	Point Lookout		0.00	0.00
6448.01	5958.00	Mancos		0.00	0.00
7488.01	6998.00	Gallup		0.00	0.00
8208.01	7718.00	Greenhorn		0.00	0.00
8268.01	7778.00	Granerosos		0.00	0.00
8398.01	7908.00	Dakota		0.00	0.00