

RECEIVED

AUG 18 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-078767
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 154B
3a. Address P O Box 640 Aztec, NM 87410		8. Lease Name and Well No 154B
3b. Phone No (include area code) (505) 634-4208		9. API Well No 30039 30804
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 990' FSL & 880' FEL <i>ULP</i> At proposed prod. zone 2190' FSL & 880' FEL <i>ULI</i>		10. Field and Pool, or Exploratory Blanco Mesaverde/Basin Mancos/Basin Dakota
14. Distance in miles and direction from nearest town or post office* approximately 32 miles northeast of Blanco, New Mexico		11. Sec, T., R, M., or Blk and Survey or Area P Sec. 7, 31N, 5W
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drng unit line, if any) 880'	16. No. of Acres in lease 2,518 040	12. County or Parish Rio Arriba
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 50' Rosa 154A	19. Proposed Depth 8,467'	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc) 6,355' GR	22. Approximate date work will start* September 1, 2009	17. Spacing Unit dedicated to this well 231 90 Acres-(S/2) RCVD SEP 8 '09
24. Attachments		20. BLM/BIA Bond No. on file UT0899 OIL CONS. DIV.
23. Estimated duration 1 month DIST. 3		

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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan. | 5. Operator certification |
| 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) | 6. Such other site specific information and/or plans as may be required by the authorized officer |

25. Signature <i>Larry Higgins</i>	Name (Printed/Typed) Larry Higgins	Date 8-18-09
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFEM	Date 9/2/09
Title AFEM	Office FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon
Conditions of approval, if any, are attached.

Title 18 U S C. Section 1001 and Title 43 U S C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on reverse)

Williams Production Company, LLC, proposes to develop the Blanco Mesaverde, Basin Mancos, 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 right-of-way application is being submitted for this well.

**NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT**

NMOCD

Hold C104

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

for Directional Survey
and "As Drilled" plat

HOLD C104 FOR NSL, DK, M

**BLM'S APPROVAL OR ACCEPTANCE OF THIS
ACTION DOES NOT RELIEVE THE LESSEE AND
OPERATOR FROM OBTAINING ANY OTHER
AUTHORIZATION REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS**

SEP 10 2009

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

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

RECEIVED

AUG 18 2009

☐ AMENDED REPORT

Bureau of Land Management
Farmington Field Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30801	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 154B
⁷ OGRID No. 120782	⁸ Operator Name WILLIAMS PRODUCTION COMPANY		⁹ Elevation 6355'

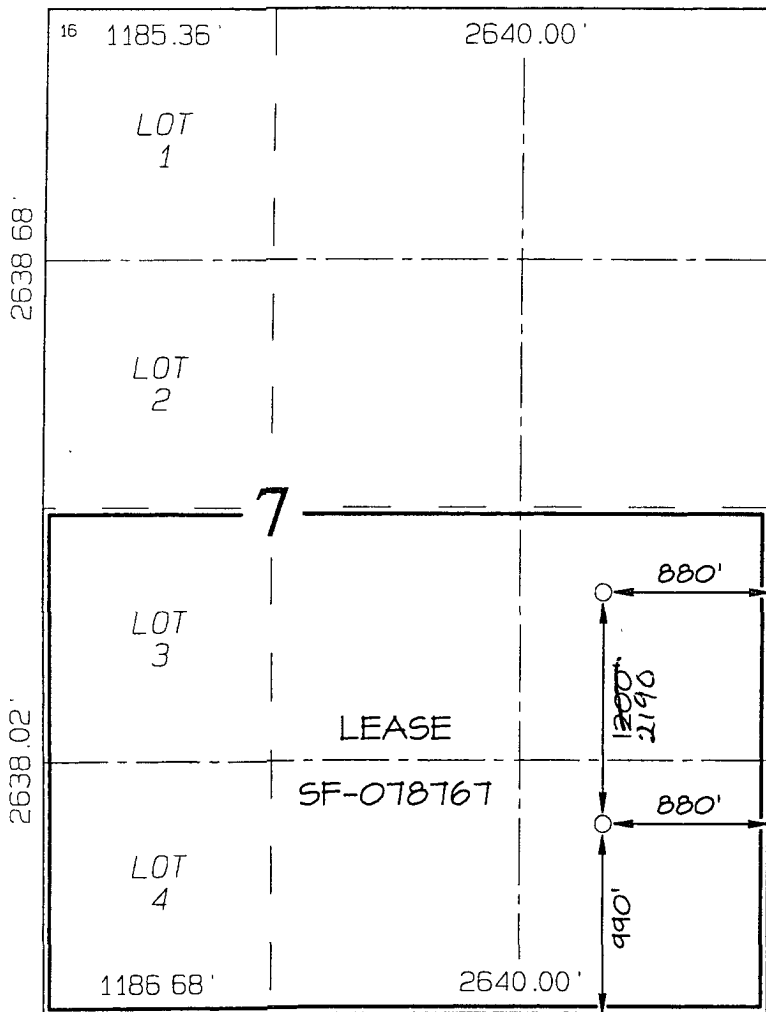
¹⁰ Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	7	31N	5W		990	SOUTH	880	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
I	7	31N	5W		2190	SOUTH	880	EAST	RIO ARriba
¹² Dedicated Acres 231.90 Acres - (S/2)					¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No R-13068 NSP

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 8-18-09
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

Date of Survey, JULY 18, 2009

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

BOTTOM-HOLE
LAT: 36.91280°N
LONG: 107.39774°W
DATUM: NAD1983

SURFACE LOCATION
LAT: 36.90951°N
LONG: 107.39774°W
DATUM: NAD1983



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 8/3/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV
WELL NAME: Rosa #154B **SURFACE:** BLM
BH LOCATION: NESE Sec 7-31N-5W **MINERALS:** FEDERAL
Rio Arriba, NM
ELEVATION: 6,355' GR **LEASE #** SF-078767
MEASURED DEPTH: 8,467'

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

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

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,449	2,628	Point Lookout	5,634	5,882
Kirtland	2,559	2,750	Mancos	6,009	6,257
Fruitland	2,949	3,180	Gallup	6,994	7,242
Pictured Cliffs	3,169	3,412	Greenhorn	7,719	7,967
Lewis	3,504	3,752	Graneros	7,779	8,027
Cliff House	5,394	5,642	Dakota	7,914	8,162
Menefee	5,439	5,687	Morrison	8,139	8,387
			TD	8,219	8,467

- 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:** 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 +/- 8,197 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	3,892	7 5/8	26.4	K-55
Longstring	6 3/4	8,467	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.). **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: 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. **SHOULD COVER 150 FEET INTO 7-5/8" 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 approximates 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


Brian Alleman
Drilling Engineer

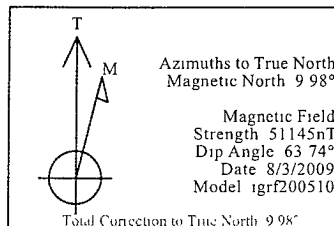
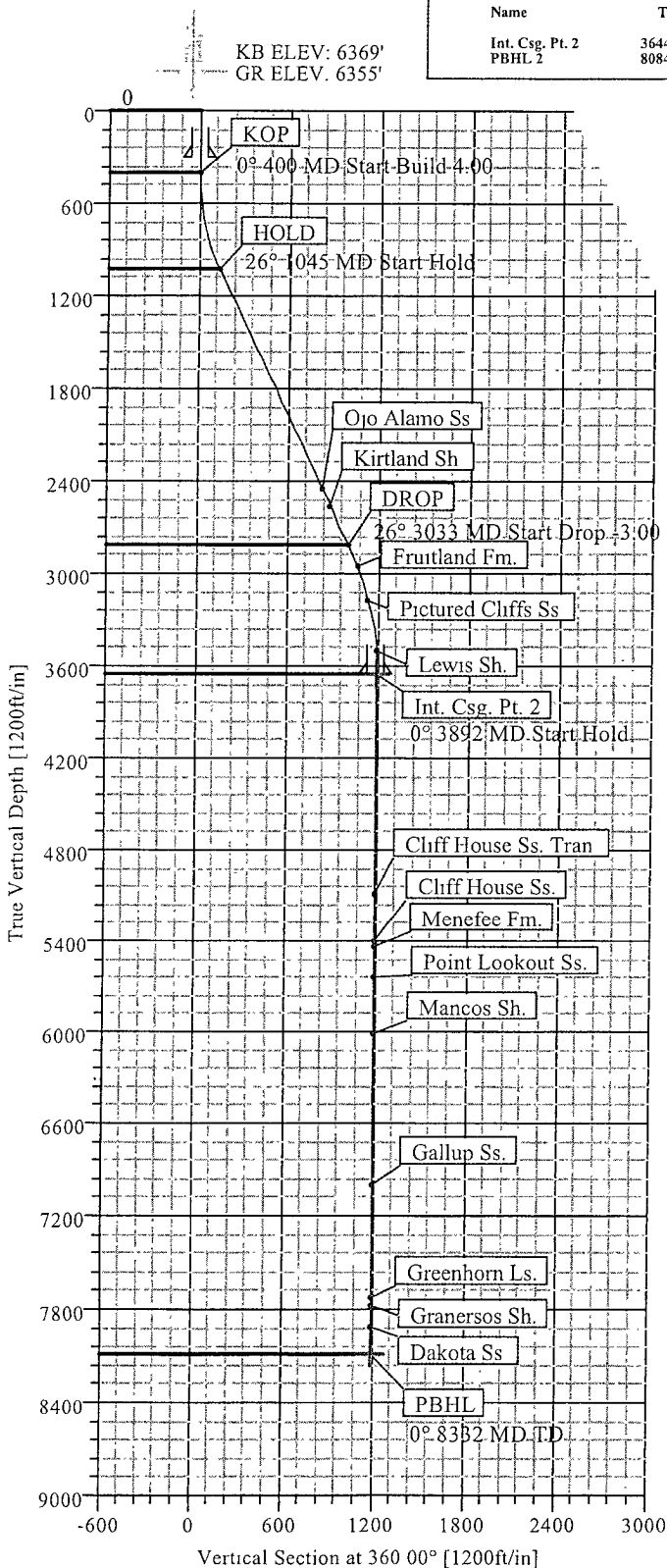


ROSA UNIT #154B
RIO ARriba CO., NEW MEXICO

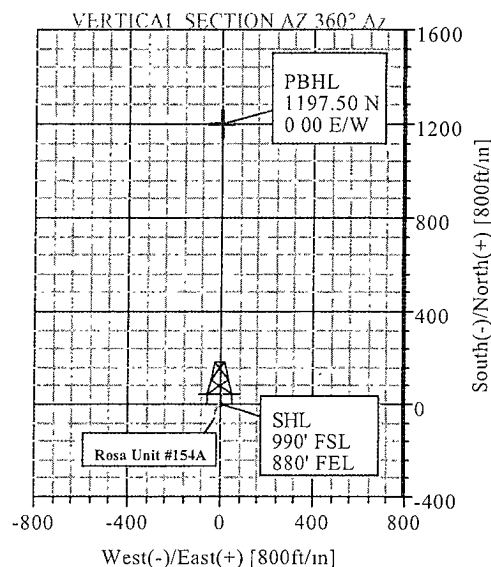
SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target	
1	0.00	0.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	400.00	0.00	360.00	400.00	0.00	0.00	0.00	0.00	0.00		
3	1044.57	25.78	360.00	1023.03	142.60	0.00	4.00	360.00	142.60		
4	3032.74	25.78	360.00	2813.29	1007.37	0.00	0.00	0.00	1007.37		
5	3892.17	0.00	360.00	3644.00	1197.50	0.00	3.00	180.00	1197.50	Int. Csg. Pt 2	
6	8332.17	0.00	360.00	8084.00	1197.50	0.00	0.00	360.00	1197.50	PBHL 2	

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
154B	0.00	0.00	2152375.90	1304872.74	36°54'34.240N	107°23'51.860W	N/A

TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Int. Csg. Pt. 2	3644.00	1197.50	0.00	2153573.31	1304887.15	36°54'46.080N	107°23'51.860W	Point
PBHL 2	8084.00	1197.50	0.00	2153573.31	1304887.15	36°54'46.080N	107°23'51.860W	Point



FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2449.00	2628.18	Ojo Alamo Ss
2	2559.00	2750.35	Kirtland Sh.
3	2949.00	3180.84	Frutland Fm.
4	3169.00	3412.13	Pictured Cliffs Ss.
5	3504.00	3752.05	Lewis Sh.
6	5089.00	5337.17	Cliff House Ss. Tran.
7	5394.00	5642.17	Cliff House Ss.
8	5439.00	5687.17	Menefee Fm.
9	5634.00	5882.17	Point Lookout Ss.
10	6009.00	6257.17	Mancos Sh.
11	6994.00	7242.17	Gallup Ss.
12	7719.00	7967.17	Greenhorn Ls.
13	7779.00	8027.17	Graneros Sh.
14	7914.00	8162.17	Dakota Ss.



Weatherford®

CASING DETAILS				
No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.750
2	3644.00	3892.17	7 5/8" Int. Csg.	7.000

Plan: Plan #2 (154B/1)
Created By: Lindsey Maddux Date: 8/3/2009



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION	Date: 8/3/2009	Time: 14:54.39	Page: 3
Field: RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference:	Well: 154B True North	
Site: Rosa Unit #154B	Vertical (TVD) Reference:	SITE 6369.0	
Well: 154B	Section (VS) Reference:	Well (0.00N,0.00E,360.00Azi)	
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
5900.00	0.00	360.00	5651.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6000.00	0.00	360.00	5751.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6100.00	0.00	360.00	5851.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6200.00	0.00	360.00	5951.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6257.17	0.00	360.00	6009.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	Mancos Sh.
6300.00	0.00	360.00	6051.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6400.00	0.00	360.00	6151.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6500.00	0.00	360.00	6251.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6600.00	0.00	360.00	6351.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6700.00	0.00	360.00	6451.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6800.00	0.00	360.00	6551.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
6900.00	0.00	360.00	6651.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7000.00	0.00	360.00	6751.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7100.00	0.00	360.00	6851.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7200.00	0.00	360.00	6951.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7242.17	0.00	360.00	6994.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	Gallup Ss.
7300.00	0.00	360.00	7051.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7400.00	0.00	360.00	7151.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7500.00	0.00	360.00	7251.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7600.00	0.00	360.00	7351.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7700.00	0.00	360.00	7451.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7800.00	0.00	360.00	7551.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7900.00	0.00	360.00	7651.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
7967.17	0.00	360.00	7719.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	Greenhorn Ls.
8000.00	0.00	360.00	7751.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
8027.17	0.00	360.00	7779.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	Graneros Sh
8100.00	0.00	360.00	7851.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
8162.17	0.00	360.00	7914.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	Dakota Ss.
8200.00	0.00	360.00	7951.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
8300.00	0.00	360.00	8051.83	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	
8332.17	0.00	360.00	8084.00	1197.50	0.00	1197.50	0.00	0.00	0.00	360.00	PBHL 2

Targets

Name	Description	TVD	+N/-S	+E/-W	Map Northing	Map Easting	Latitude Deg Min Sec	Longitude Deg Min Sec
Int Csg Pt. 2		3644.00	1197.50	0.00	2153573.31	1304887.15	36 54 46 080 N	107 23 51.860 W
-Plan hit target								
PBHL 2		8084.00	1197.50	0.00	2153573.31	1304887.15	36 54 46 080 N	107 23 51.860 W
-Plan hit target								

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2628.18	2449.00	Ojo Alamo Ss		0.00	0.00
2750.35	2559.00	Kirtland Sh.		0.00	0.00
3180.84	2949.00	Fruitland Fm.		0.00	0.00
3412.13	3169.00	Pictured Cliffs Ss.		0.00	0.00
3752.05	3504.00	Lewis Sh.		0.00	0.00
5337.17	5089.00	Cliff House Ss. Tran.		0.00	0.00
5642.17	5394.00	Cliff House Ss.		0.00	0.00
5687.17	5439.00	Menefee Fm.		0.00	0.00
5882.17	5634.00	Point Lookout Ss.		0.00	0.00
6257.17	6009.00	Mancos Sh.		0.00	0.00
7242.17	6994.00	Gallup Ss.		0.00	0.00



Weatherford International, Inc.

Proposal Plan Report



Weatherford®

Company:	WILLIAMS PRODUCTION	Date:	8/3/2009	Time:	14:54:39	Page:	4
Field:	RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference:	Well: 154B, True North				
Site:	Rosa Unit #154B	Vertical (TVD) Reference:	SITE 6369.0				
Well:	154B	Section (VS) Reference:	Well (0.00N,0.00E,360.00Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature			Db:	Sybase

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
7967.17	7719.00	Greenhorn Ls.		0.00	0.00
8027.17	7779.00	Graneros Sh.		0.00	0.00
8162.17	7914.00	Dakota Ss		0.00	0.00

Annotation

MD ft	TVD ft	
400.00	400.00	KOP
1044.57	1023.03	HOLD
3032.74	2813.28	DROP
3892.17	3644.00	Int. Csg. Pt. 2
8332.17	8084.00	PBHL

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	10.750	12.250	10 3/4"
3892.17	3644.00	7.000	8.500	7 5/8" Int. Csg.

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)

