

RECEIVED

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MAY 27 2009

APPLICATION FOR PERMIT TO DRILL OR REENTER

Bureau of Land Management  
Farmington Field Office

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF-078765	
1b. Type of Well. <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> 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	
3a. Address P O. Box 640 Aztec, NM 87410		8. Lease Name and Well No. 167D	
3b. Phone No. (include area code) (505) 634-4208		9. API Well No. 3004534985	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface <input checked="" type="checkbox"/> 1965' FNL & 5' FEL At proposed prod. zone <input checked="" type="checkbox"/> 2500' FSL & 700' FEL		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 14 Section 8, 31N, 6W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg unit line, if any) 5'		12. County or Parish San Juan	
16. No. of Acres in lease 2,460.23		13. State NM	
17. Spacing Unit dedicated to this well 320.0 - (E/2)			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50' Rosa 180C		19. Proposed Depth 8,370'	
20. BLM/BIA Bond No on file UT0847 0899			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,262' GR		22. Approximate date work will start* April 1, 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

- Well plat certified by a registered surveyor
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above)
- Operator certification.
- 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 5-27-09
Title Drilling COM		
Approved by (Signature) <i>D. Manabe Lopez</i>	Name (Printed/Typed)	Date 6/29/09
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)

NOTIFY AZTEC OCD 24 HRS.

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 right-of-way application is being submitted to the BLM.

Note: This well was originally staked as the Rosa Unit #606.  
Hold C104

for Directional Survey  
and "As Drilled" plat

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

NMOC

BB

ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

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

JUL 09 2009

*[Signature]*

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

MAY 27 2009

☐ AMENDED REPORT

Bureau of Land Management  
Farmington Field Office  
WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 3004534985	<sup>2</sup> Pool Code 97232 / 72319 / 71599	<sup>3</sup> Pool Name BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA
<sup>4</sup> Property Code 17033	<sup>5</sup> Property Name ROSA UNIT	<sup>6</sup> Well Number 167D
<sup>7</sup> OGRID No 120782	<sup>8</sup> Operator Name WILLIAMS PRODUCTION COMPANY	<sup>9</sup> Elevation 6262'

<sup>10</sup> Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	8	31N	6W		1965	NORTH	5	EAST	SAN JUAN

<sup>11</sup> 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	8	31N	6W		2500	SOUTH	700	EAST	SAN JUAN
<sup>12</sup> Dedicated Acres 320.0 Acres - (E/2)					<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order		

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

<sup>16</sup>	5289.24'	LEASE FEE	LEASE SF-078765	<sup>17</sup> 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 5-27-09 Signature Date Larry Higgins Printed Name
5280.00'	8	SURFACE LOCATION LAT: 36.91592° N LONG: 107.47723° W DATUM: NAD1983  BOTTOM-HOLE LAT: 36.91370° N LONG: 107.47960° W DATUM: NAD1983	1965' 5' 700' 2500' 5280.00'	<sup>18</sup> 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: APRIL 19, 2009 Signature and Seal of Professional Surveyor  JASON C. EDWARDS NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 15269 JASON C. EDWARDS Certificate Number 15269
		LEASE FEE		
	5276.04'			



## WILLIAMS PRODUCTION COMPANY

### Operations Plan

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

**DATE:** 5/27/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV  
**WELL NAME:** Rosa #167D **SURFACE:** BLM  
**BH LOCATION:** NESE Sec 8-31N-6W  
San Juan, NM **MINERALS:** BLM  
**ELEVATION:** 6,262' GR **LEASE #** SF-078765  
**MEASURED DEPTH:** 8,370'

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

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

Name		TVD	MD		Name		TVD	MD
Ojo Alamo		2,216	2,379		Point Lookout		5,546	5,761
Kirtland		2,331	2,507		Mancos		5,851	6,066
Fruitland		2,781	2,987		Gallup		6,876	7,091
Pictured Cliffs		3,061	3,274		Greenhorn		7,596	7,811
Lewis		3,356	3,571		Graneros		7,656	7,871
Cliff House		5,271	5,486		Dakota		7,786	8,001
Menefee		5,316	5,531		Morrison		8,011	8,226
					TD		8,091	8,306

- 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	3,751	7 5/8	26.4	K-55
Longstring	6 3/4	8,306	5 1/2	17	N-80

**B. FLOAT EQUIPMENT:**

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

**C. CEMENTING:**

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

- SURFACE:** Slurry: 290sx (521 cu.ft.) of "Type III" + 2% Cal-Seal 60 + 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.
- 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 1500 psi*
- PRODUCTION CASING:** 10 bbl Gelled Water spacer. Cement: 325 sx (454 ft<sup>3</sup>) 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 ft<sup>3</sup>/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) ft<sup>3</sup>. WOC 12 hours.

**IV. IV COMPLETION****A. CBL**

- Run Cement Bond Log across all intervals to be perforated and find Top of Cement behind all casing strings if cement not circulated to surface..

**B. PRESSURE TEST**


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

**C. STIMULATION**

1. Stimulate Dakota with approximately 5000# 100 mesh sand and 120,000# Ottawa Sand in slick water.
2. Isolate Dakota with a RBP.
3. Perforate Mancos as determined from the open hole logs
4. Stimulate Mancos with 3 stages of approximates 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.

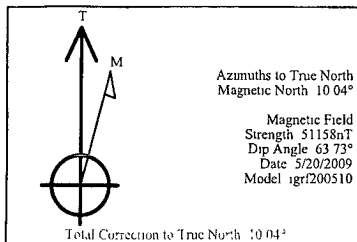
**D. RUNNING TUBING**

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

  
Gary Sizemore  
for Sr. Drilling Engineer



# ROSA UNIT #167D SAN JUAN COUNTY, NM



SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec Target
1	0.00	0.00	220.61	0.00	0.00	0.00	0.00	0.00	0.00
2	400.00	0.00	220.61	400.00	0.00	0.00	0.00	0.00	0.00
3	1067.44	26.70	220.61	1043.55	-115.94	-99.39	4.00	220.61	152.71
4	2416.63	26.70	220.61	2248.90	-576.15	-493.91	0.00	0.00	758.87
5	3751.51	0.00	220.61	3536.00	-808.02	-692.69	2.00	180.00	1064.29 Int Csg Pt
6	8136.51	0.00	220.61	7921.00	-808.02	-692.69	0.00	220.61	1064.29 PBHL

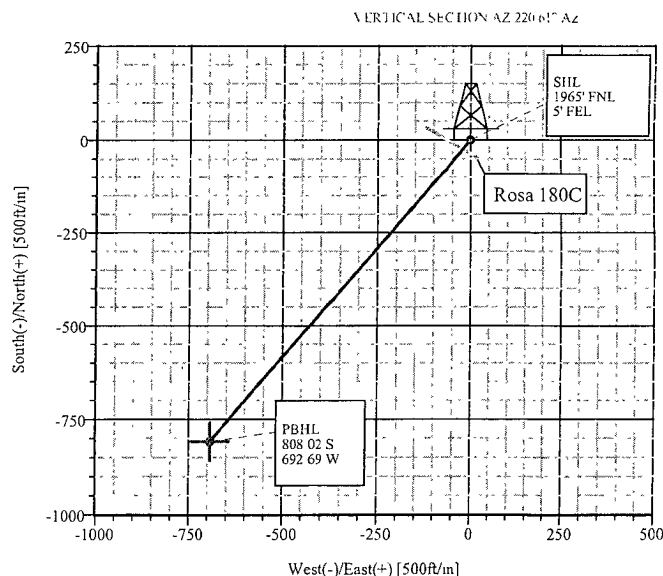
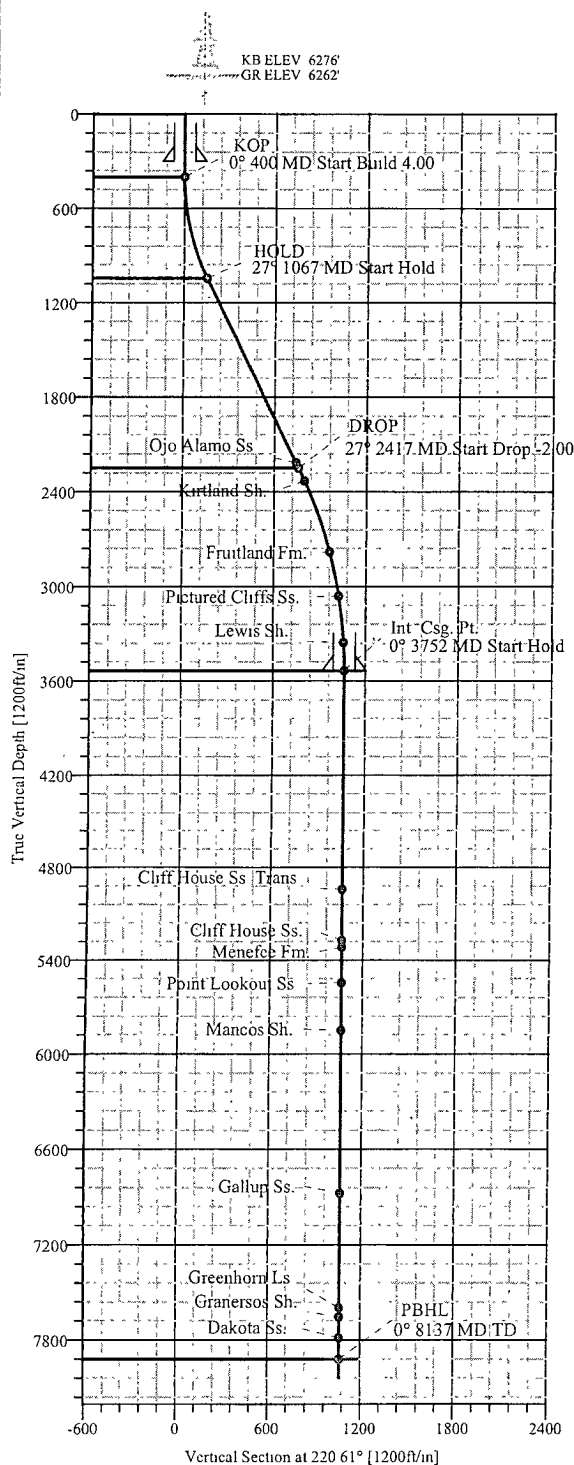
WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#167D	0.00	0.00	2152920.59	2827196.80	36°54'57.310N	107°28'38.030W	N/A

TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	
Int Csg. Pt	3536.00	-808.02	-692.69	36°54'49.320N	107°28'46.560W	Point	
PBHL	7921.00	-808.02	-692.69	36°54'49.320N	107°28'46.560W	Point	

SITE DETAILS	
Rosa Unit #167D 1965' FNL & 5' FEL	
Site Centre Latitude: 36°54'57.310N Longitude: 107°28'38.030W	
Ground Level: 6262.00 Positional Uncertainty: 0.00 Convergence: 0.21	

FIELD DETAILS	
San Juan Co., NM (NAD 83)	
Geodetic System: US State Plane Coordinate System 1983 Ellipsoid: GRS 1980 Zone: New Mexico, Western Zone Magnetic Model: igr200510	
System Datum: Mean Sea Level Local North: True North	

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2216.00	2379.80	Ojo Alamo Ss
2	2331.00	2507.81	Kirtland Sh.
3	2781.00	2987.49	Fruitland Fm.
4	3061.00	3274.31	Pictured Cliffs Ss.
5	3356.00	3571.39	Lewis Sh.
6	4941.00	5156.51	Cliff House Ss Trans
7	5271.00	5486.51	Cliff House Ss.
8	5316.00	5531.51	Menefee Fm.
9	5546.00	5761.51	Point Lookout Ss
10	5851.00	6066.51	Mancos Sh.
11	6876.00	7091.51	Gallup Ss.
12	7596.00	7811.51	Greenhorn Ls.
13	7656.00	7871.51	Graneros Sh.
14	7786.00	8001.51	Dakota Ss



CASING DETAILS				
No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.750
2	3536.00	3751.51	7 5/8"	7.625



# Weatherford International Ltd.

## PROPOSAL PLAN REPORT



Weatherford

Company: WILLIAMS PRODUCTION	Date: 5/22/2009	Time: 11:10:49	Page: 3
Field: San Juan Co., NM (NAD 83)	Co-ordinate(NE) Reference: Well: #167D, True North		
Site: Rosa Unit #167D	Vertical (TVD) Reference: SITE 6276.0		
Well: #167D	Section (VS) Reference: Well: (0.00N,0.00E,220.61Azi)		
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	220.61	6684.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7000.00	0.00	220.61	6784.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7100.00	0.00	220.61	6884.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7200.00	0.00	220.61	6984.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7300.00	0.00	220.61	7084.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7400.00	0.00	220.61	7184.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7500.00	0.00	220.61	7284.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7600.00	0.00	220.61	7384.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7700.00	0.00	220.61	7484.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7800.00	0.00	220.61	7584.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
7900.00	0.00	220.61	7684.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
8000.00	0.00	220.61	7784.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
8100.00	0.00	220.61	7884.49	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	
8136.51	0.00	220.61	7921.00	-808.02	-692.69	1064.29	0.00	0.00	0.00	220.61	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.		3536.00	-808.02	-692.69	2152109.99	2826507.13	36 54 49.320 N	107 28 46.560 W
-Plan hit target								
PBHL		7921.00	-808.02	-692.69	2152109.99	2826507.13	36 54 49.320 N	107 28 46.560 W
-Plan hit target								

### Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2379.80	2216.00	Ojo Alamo Ss.		0.00	0.00
2507.81	2331.00	Kirtland Sh.		0.00	0.00
2987.49	2781.00	Fruitland Fm.		0.00	0.00
3274.31	3061.00	Pictured Cliffs Ss.		0.00	0.00
3571.39	3356.00	Lewis Sh		0.00	0.00
5156.51	4941.00	Cliff House Ss Trans.		0.00	0.00
5486.51	5271.00	Cliff House Ss.		0.00	0.00
5531.51	5316.00	Menefee Fm		0.00	0.00
5761.51	5546.00	Point Lookout Ss		0.00	0.00
6066.51	5851.00	Mancos Sh.		0.00	0.00
7091.51	6876.00	Gallup Ss.		0.00	0.00
7811.51	7596.00	Greenhorn Ls.		0.00	0.00
7871.51	7656.00	Graneros Sh.		0.00	0.00
8001.51	7786.00	Dakota Ss.		0.00	0.00

### Annotation

MD ft	TVD ft	
400.00	400.00	KOP
1067.44	1043.55	HOLD
2416.63	2248.90	DROP
3751.51	3536.00	Int. Csg. Pt.
8136.51	7921.00	PBHL

# 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)

