

RECEIVED

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APR 23 2009

APPLICATION FOR PERMIT TO DRILL OR REENTER
Bureau of Land Management
Farmington Field Office

1a. Type of Work ☒ DRILL ☐ REENTER		5. Lease Serial No. NMSF-078772
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
3a. Address P.O. Box 640 Aztec, NM 87410	3b. Phone No. (include area code) (505) 634-4208	8. Lease Name and Well No 91D
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1055' FSL & 250' FEL P At proposed prod zone 2000' FSL & 700' FEL I		9. API Well No. 30-039-30763
14. Distance in miles and direction from nearest town or post office* approximately 28 miles northeast of Blanco, New Mexico		10. Field and Pool, or Exploratory Basin Mancos/Blanco Mesaverde/Basin Dakota
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 250'	16. No. of Acres in lease 2,561.86	11. Sec, T, R, M, or Blk. and Survey or Area P Section 35, 32N, 6W
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50' Rosa 91B	19. Proposed Depth 8,221'	12. County or Parish Rio Arriba
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,324' GR This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4	22. Approximate date work will start* April 1, 2009	13. State NM
23. Estimated duration 1 month		24. Attachments DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

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 4-23-09
Title Drilling COM		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFM	Date 5/18/09
Title AFM	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 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)

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the BLM.

No new access road will be required for this proposed well.

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 146.30 feet would be required for this well.

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENTATION

MAY 20 2009

NMOCD

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

Hold C104

for Directional Survey
and "As Drilled" plat

RCVD MAY 19 '09
OIL CONS. DIV.
DIST. 3

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

APR 23 2009

☐ AMENDED REPORT

Bureau of Land Management
Farmington Field Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30039-30763	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 910
⁷ GRID No. 120782	⁸ Operator Name WILLIAMS PRODUCTION COMPANY	⁹ Elevation 6324'

¹⁰ Surface Location

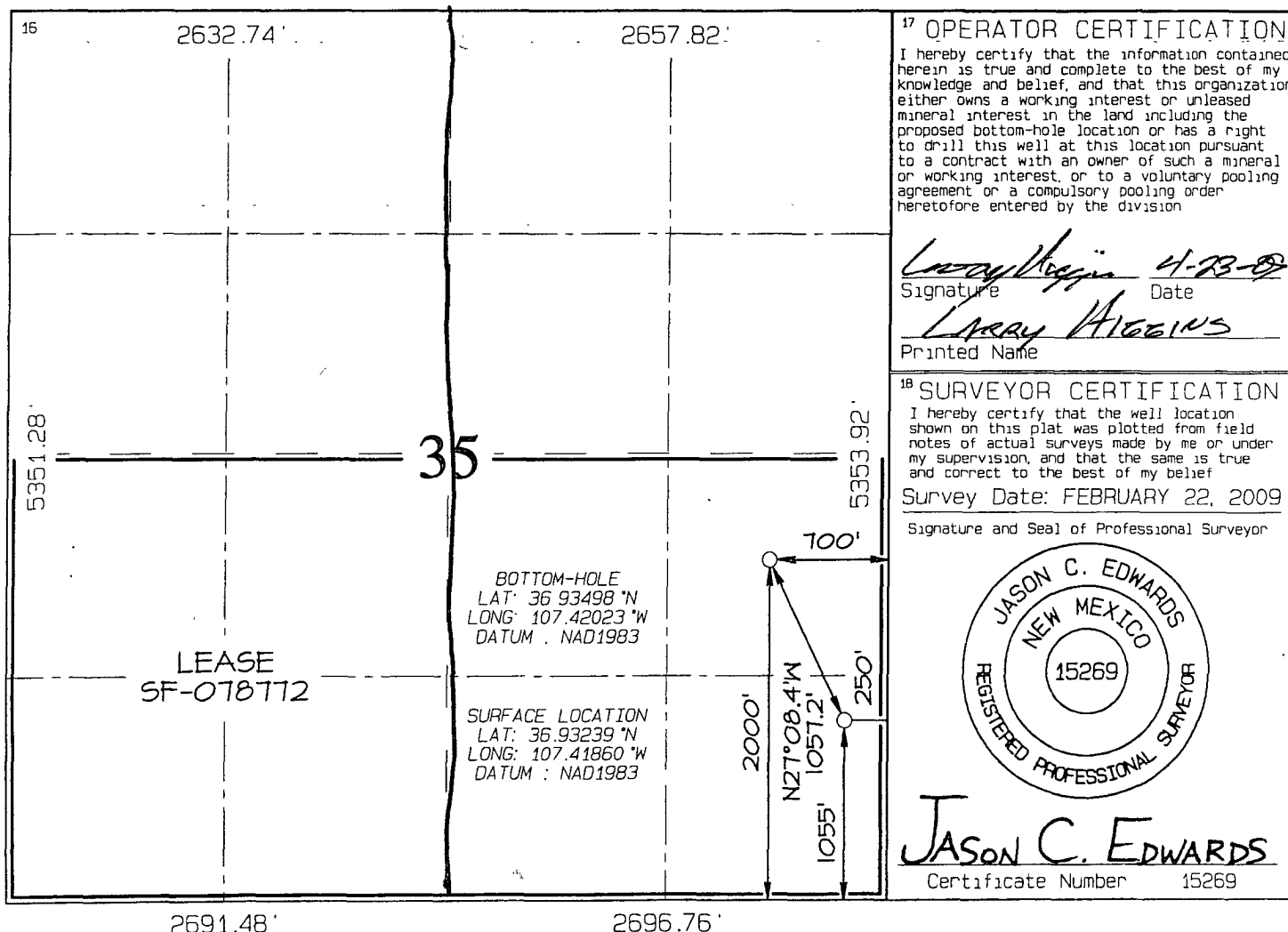
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	35	32N	6W		1055	SOUTH	250	EAST	RIO ARriba

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	35	32N	6W		2000	SOUTH	700	EAST	RIO ARriba

¹² Dedicated Acres 320.0 Acres - (S/2) DK, M, F/2, M, V	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No R-13123
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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





WILLIAMS PRODUCTION COMPANY

Operations Plan

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

DATE: 4/21/2009 **FIELD:** Basin DK/ Basin MN/BlancoMV
WELL NAME: Rosa #91D **SURFACE:** BLM
BH LOCATION: NESE Sec 35-32N-6W **MINERALS:** BLM
Rio Arriba, NM
ELEVATION: 6,324' GR **LEASE #** SF-078772
MEASURED DEPTH: 8,221'

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

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

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,358	2,516	Menefee	5,403	5,606
Kirtland	2,488	2,659	Point Lookout	5,608	5,811
Fruitland	2,938	3,135	Mancos	5,933	5,136
Pictured Cliffs	3,148	3,349	Gallup	6,978	7,181
Lewis	3,483	3,686	Greenhorn	7,703	7,906
Cliff House	5,363	5,566	Graneros	7,763	7,966
			Dakota	7,893	8,096
			TD	8,018	8,221

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**

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	3,826	7 5/8	26.4	K-55
Longstring	6 3/4	8,221	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
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



Gary Sizemore
Sr. Drilling Engineer

for



ROSA UNIT #91D
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	333.20	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	333.20	400.00	0.00	0.00	0.00	0.00	0.00	
3	1023.75	24.95	333.20	1004.22	119.32	-60.26	4.00	333.20	133.68	
4	2579.25	24.95	333.20	2414.56	705.01	-356.07	0.00	0.00	789.83	
5	3826.74	0.00	333.20	3623.00	943.65	-476.60	2.00	180.00	1057.18	Int. Csg. Pt.
6	8221.74	0.00	333.20	8018.00	943.65	-476.60	0.00	333.20	1057.18	PBHL

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#91D	0.00	0.00	2160779.29	1298875.72	36°55'56.600N	107°25'06.960W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Int. Csg. Pt.	3623.00	943.65	-476.60	2161728.71	1298410.72	36°56'05.930N	107°25'12.830W	Point
PBHL	8018.00	943.65	-476.60	2161728.71	1298410.72	36°56'05.930N	107°25'12.830W	Point

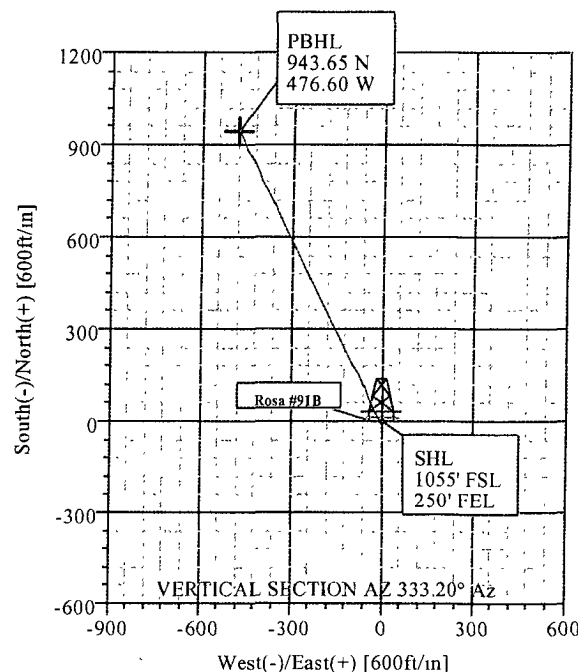
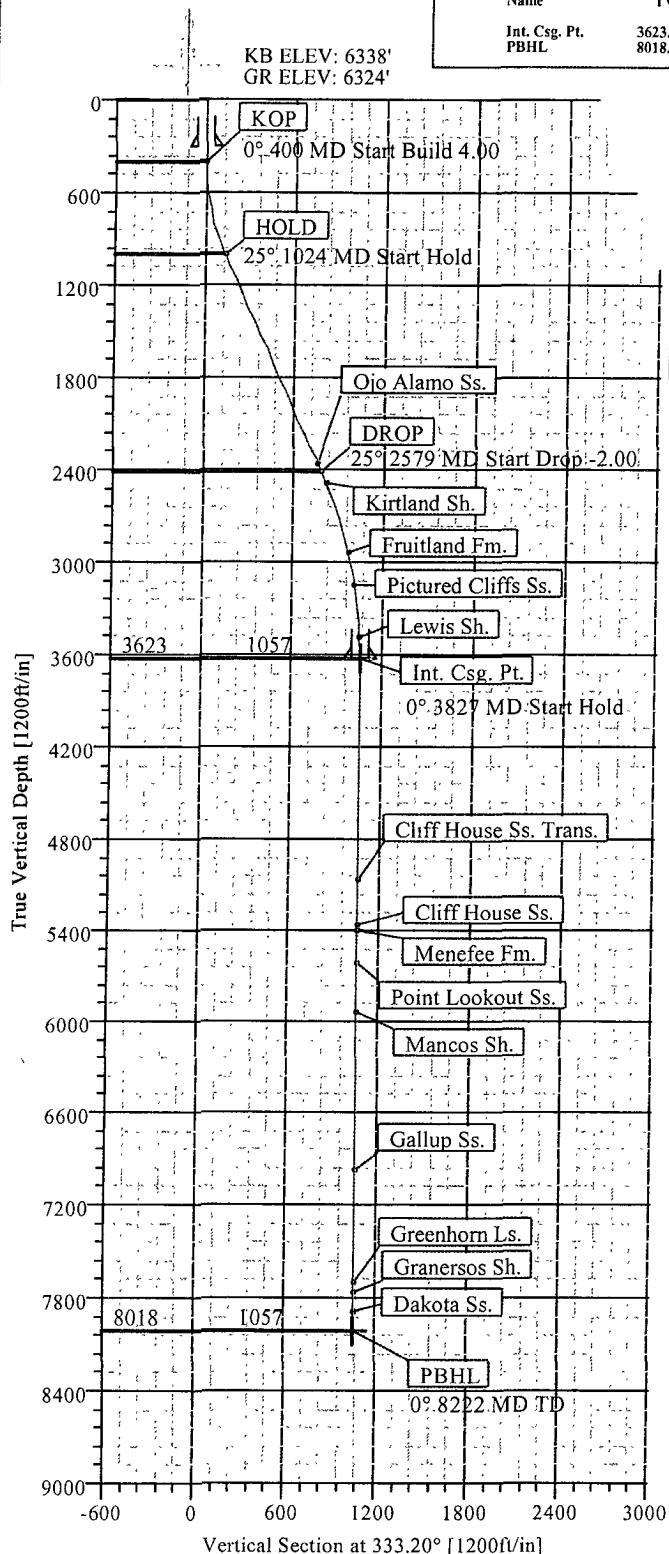
FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2358.00	2516.87	Ojo Alamo Ss.
2	2488.00	2659.73	Kirtland Sh.
3	2938.00	3135.04	Fruitland Fm.
4	3148.00	3349.54	Pictured Cliffs Ss.
5	3483.00	3686.69	Lewis Sh.
6	5058.00	5261.74	Cliff House Ss. Trans.
7	5363.00	5566.74	Cliff House Ss.
8	5403.00	5606.74	Menefee Fm.
9	5608.00	5811.74	Point Lookout Ss.
10	5933.00	6136.74	Mancos Sh.
11	6978.00	7181.74	Gallup Ss.
12	7703.00	7906.74	Greenhorn Ls.
13	7763.00	7966.74	Graneros Ss.
14	7893.00	8096.74	Dakota Ss.



Azimuths to True North
Magnetic North. 10.02°
Magnetic Field
Strength 51183nT
Dip Angle: 63.76°
Date 4/20/2009
Model igrf200510

Total Correction to True North 10.02°



Weatherford

CASING DETAILS

No.	TVD	MD	Name	Size
1	300.00	300.00	10 3/4"	10.750
2	3623.00	3826.74	7 5/8" Int. Csg.	0.000

Plan: Plan #1 (#91D/1)

Created By: Lindsey Maddux

Date: 4/20/2009



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba Co., NM (NAD 83)
Site: Rosa Unit #91D
Well: #91D
Wellpath: 1

Date: 4/20/2009 Time: 16:25:40 Page: 3
Co-ordinate(NE) Reference: Well: #91D, True North
Vertical (TVD) Reference: SITE 6338.0
Section (VS) Reference: Well (0.00N,0.00E,333.20Azi)
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
6000.00	0.00	333.20	5796.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6100.00	0.00	333.20	5896.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6136.74	0.00	333.20	5933.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	Mancos Sh.
6200.00	0.00	333.20	5996.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6300.00	0.00	333.20	6096.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6400.00	0.00	333.20	6196.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6500.00	0.00	333.20	6296.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6600.00	0.00	333.20	6396.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6700.00	0.00	333.20	6496.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6800.00	0.00	333.20	6596.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
6900.00	0.00	333.20	6696.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7000.00	0.00	333.20	6796.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7100.00	0.00	333.20	6896.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7181.74	0.00	333.20	6978.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	Gallup Ss
7200.00	0.00	333.20	6996.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7300.00	0.00	333.20	7096.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7400.00	0.00	333.20	7196.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7500.00	0.00	333.20	7296.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7600.00	0.00	333.20	7396.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7700.00	0.00	333.20	7496.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7800.00	0.00	333.20	7596.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7900.00	0.00	333.20	7696.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
7906.74	0.00	333.20	7703.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	Greenhorn Ls
7966.74	0.00	333.20	7763.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	Granerosos Sh.
8000.00	0.00	333.20	7796.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
8096.74	0.00	333.20	7893.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	Dakota Ss.
8100.00	0.00	333.20	7896.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
8200.00	0.00	333.20	7996.26	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	
8221.74	0.00	333.20	8018.00	943.65	-476.60	1057.18	0.00	0.00	0.00	333.20	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.			3623.00	943.65	-476.60	2161728.71	1298410.72	36	56	5.930 N	107	25	12.830 W
-Plan hit target													
PBHL			8018.00	943.65	-476.60	2161728.71	1298410.72	36	56	5.930 N	107	25	12.830 W
-Plan hit target													

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg.	Dip Direction deg.
2516.87	2358.00	Ojo Alamo Ss		0.00	0.00
2659.73	2488.00	Kirtland Sh.		0.00	0.00
3135.04	2938.00	Fruitland Fm.		0.00	0.00
3349.54	3148.00	Pictured Cliffs Ss		0.00	0.00
3686.69	3483.00	Lewis Sh.		0.00	0.00
5261.74	5058.00	Cliff House Ss. Trans		0.00	0.00
5566.74	5363.00	Cliff House Ss		0.00	0.00
5606.74	5403.00	Menefee Fm.		0.00	0.00
5811.74	5608.00	Point Lookout Ss.		0.00	0.00
6136.74	5933.00	Mancos Sh.		0.00	0.00
7181.74	6978.00	Gallup Ss		0.00	0.00
7906.74	7703.00	Greenhorn Ls.		0.00	0.00
7966.74	7763.00	Granerosos Sh		0.00	0.00



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: Rio Arriba Co., NM (NAD 83)
Site: Rosa Unit #91D
Well: #91D
Wellpath: 1

Date: 4/20/2009 Time: 16:25:40 Page: 4
Co-ordinate(NE) Reference: Well #91D, True North
Vertical (TVD) Reference: SITE 6338 0
Section (VS) Reference: Well (0.00N,0.00E,333.20Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
8096.74	7893.00	Dakota Ss.		0.00	0 00

Annotation

MD ft	TVD ft	
400.00	400.00	KOP
1023.75	1004.22	HOLD
2579.25	2414.56	DROP
3826.74	3623.00	Int. Csg. Pt.
8221.74	8018.00	PBHL

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	10 750	12 250	10 3/4"
3826.74	3623.00	0.000	0.000	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)

