

UNITED STATES
DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICE AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir. Use "APPLICATION TO DRILL" for permit for such proposals.

RECEIVED

OCT 21 2009

SUBMIT IN TRIPLICATE

Bureau of Land Management
Farmington Field Office

1. Type of Well
Oil Well ☒ Gas Well ☐ Other ☐

2. Name of Operator
WILLIAMS PRODUCTION COMPANY

3. Address and Telephone No.
PO Box 640 Aztec, NM 87410-0640 (505) 634-4208

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1140 FNL & 1560 FWL (sur), 660 FNL & 1950 FWL (bhl), Sec 17, T32N, R11W

5. Lease Designation and Serial No
NM-03190

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation
Cox Canyon

8. Well Name and No.
Cox Canyon Unit #007B

9. API Well No.
30-045-33022

10. Field and Pool, or Exploratory Area
BLANCO MESAVERDE

11. County or Parish, State
San Juan, New Mexico

CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

X Notice of Intent
Subsequent Report
Final Abandonment

TYPE OF ACTION

Abandonment
Recompletion
Plugging Back
Casing Repair
Altering Casing
X Other Formation Change and Casing
Design Change

Change of Plans
New Construction
Non-Routine Fracturing
Water Shut-Off
Conversion to Injection
Dispose Water
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Williams Production Company, LLC, plans to drill this well as a Mesaverde stand alone and has changed the casing design as per the attached Directional Proposal and Operations Plan. ✓

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

Hold C104

for Directional Survey
and "As Drilled" plat

RCVD NOV 3 '09
OIL CONS. DIV.
DIST. 3

* Minimum: Test 7" csg to 1500 psi for 30 min

14. I hereby certify that the foregoing is true and correct

Signed

Larry Higgins

Title Drilling C.O.M.

Date October 20, 2009

(This space for Federal or State office use)

Approved by

Troy L. Saliers

Title

Petroleum Engineer

Date 10/20/09

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes 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.

NOTED

NOTIFY AZTEC OGD 24 HRS.
PRIOR TO CASING & CEMENT



Weatherford[®]

Drilling Services

PROPOSAL



**WILLIAMS PRODUCTION COMPANY
COX CANYON UNIT #7B
SAN JUAN, NEW MEXICO
WELL FILE: **PLAN 1****

Submitted: October 19, 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



Cox Canyon Unit #7B
San Juan Co., New Mexico

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target	
1	0.00	0.00	39.09	0.00	0.00	0.00	0.00	0.00	0.00		
2	400.00	0.00	39.09	400.00	0.00	0.00	0.00	0.00	0.00		
3	1243.36	25.30	39.09	1216.21	142.18	115.52	3.00	39.09	183.20		
4	1618.84	25.30	39.09	1555.68	266.73	216.71	0.00	0.00	343.67		
5	2883.87	0.00	39.09	2780.00	480.00	390.00	2.00	180.00	618.47	Int. Csg. Pt.	
6	6208.87	0.00	39.09	6105.00	480.00	390.00	0.00	39.09	618.47	Pbhl	

WELL DETAILS								
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
#7B	0.00	0.00	2179376.14	447024.14	36°59'21.000N	108°00'53.000W	N/A	

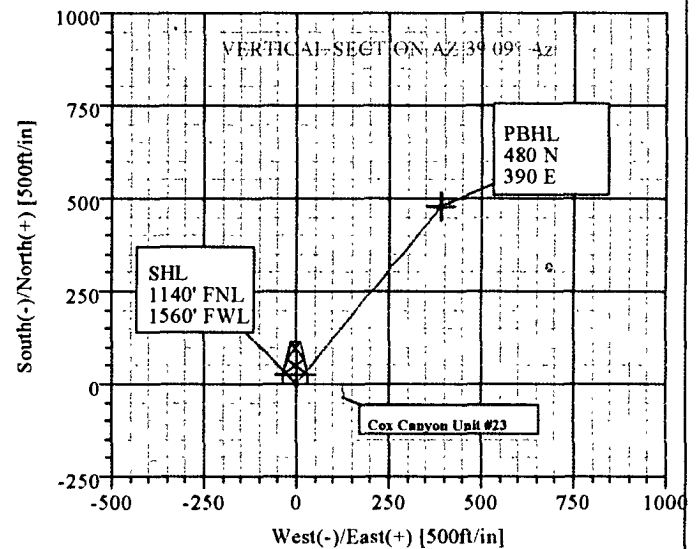
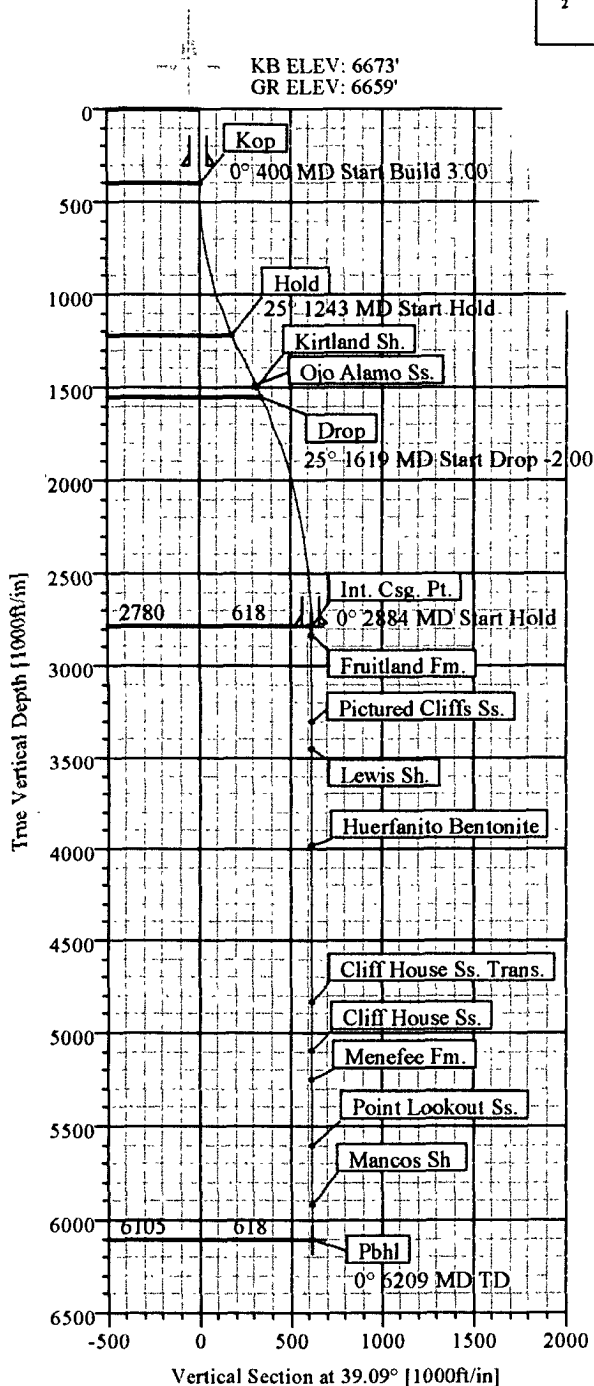
TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
Int. Csg. Pt.	2780.00	480.00	390.00	2179855.40	447415.06	36°59'25.746N	108°00'48.193W	Point	
Pbhl	6105.00	480.00	390.00	2179855.40	447415.06	36°59'25.746N	108°00'48.193W	Point	

CASING DETAILS				
No.	TVD	MD	Name	Skc
1	300.00	300.00	9 5/8"	9.625
2	2780.00	2883.87	7" Int. Csg.	0.000

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	1485.00	1540.66	Ojo Alamo Ss.
2	1500.00	1557.25	Kirtland Sh.
3	2830.00	2933.87	Fruitland Fm.
4	3300.00	3403.87	Pictured Cliffs Ss.
5	3445.00	3548.87	Lewis Sh.
6	3980.00	4083.87	Huerfano Bentonite
7	4835.00	4938.87	Cliff House Ss. Trans.
8	5090.00	5193.87	Cliff House Ss.
9	5255.00	5358.87	Menefee Fm.
10	5605.00	5708.87	Point Lookout Ss.
11	5915.00	6018.87	Mancos Sh.

LEGEND

Cox Canyon Unit #23 (I)
 Plan #1



Azimuths to True North
 Magnetic North 10 22°
 Magnetic Field
 Strength 51087nT
 Dip Angle 63 68°
 Date 10/19/2009
 Model igr2005
 Total Correction to True North 10 22°



Weatherford®



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION Date: 10/19/2009 Time: 11:32:37 Page: 1
 Field: SAN JUAN CO. NM (NAD 27) Co-ordinate(NE) Reference: Well: #7B, True North
 Site: Cox Canyon Unit #7B Vertical (TVD) Reference: SITE 6673.0
 Well: #7B Section (VS) Reference: Well (0.00N,0.00E,39.09Azi)
 Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #1 Date Composed: 10/19/2009
 Principal: Yes Version: 1
 Tied-to: From Surface

Field: SAN JUAN CO. NM (NAD 27)

Map System: US State Plane Coordinate System 1927 Map Zone: New Mexico, Western Zone
 Geo Datum: NAD27 (Clarke 1866) Coordinate System: Well Centre
 Sys Datum: Mean Sea Level Geomagnetic Model: igr2005

Site: Cox Canyon Unit #7B

1140' FNL 1560' FWL of Sec 17 T32N R11W
 Site Position: Northing: 2179376.14 ft Latitude: 36 59 21.000 N
 From: Geographic Easting: 447024.14 ft Longitude: 108 0 53.000 W
 Position Uncertainty: 0.00 ft North Reference: True
 Ground Level: 6659.00 ft Grid Convergence: -0.11 deg

Well: #7B Slot Name:
 Well Position: +N/-S 0.00 ft Northing: 2179376.14 ft Latitude: 36 59 21.000 N
 +E/-W 0.00 ft Easting: 447024.14 ft Longitude: 108 0 53.000 W
 Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
 Current Datum: SITE Height 6673.00 ft Tie-on Depth: 0.00 ft
 Magnetic Data: 10/19/2009 Above System Datum: Mean Sea Level
 Field Strength: 51087 nT Declination: 10.22 deg
 Vertical Section: Depth From (TVD) +N/-S +E/-W Mag Dip Angle: 63.68 deg
 ft ft ft Direction deg
 0.00 0.00 0.00 39.09

Plan Section Information

MD ft	Incl deg	Azlm 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	39.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	39.09	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1243.36	25.30	39.09	1216.21	142.18	115.52	3.00	3.00	0.00	39.09	
1618.84	25.30	39.09	1555.68	266.73	216.71	0.00	0.00	0.00	0.00	
2883.87	0.00	39.09	2780.00	480.00	390.00	2.00	-2.00	0.00	180.00	Int. Csg. Pt.
6208.87	0.00	39.09	6105.00	480.00	390.00	0.00	0.00	0.00	39.09	Pbhl

Survey

MD ft	Incl deg	Azlm 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	39.09	400.00	0.00	0.00	0.00	0.00	0.00	0.00	39.09	Kop
500.00	3.00	39.09	499.95	2.03	1.65	2.62	3.00	0.00	3.00	0.00	
600.00	6.00	39.09	599.63	8.12	6.60	10.46	3.00	0.00	3.00	0.00	
700.00	9.00	39.09	698.77	18.25	14.83	23.51	3.00	0.00	3.00	0.00	
800.00	12.00	39.09	797.08	32.39	26.32	41.74	3.00	0.00	3.00	0.00	
900.00	15.00	39.09	894.31	50.51	41.04	65.08	3.00	0.00	3.00	360.00	
1000.00	18.00	39.09	990.18	72.55	58.94	93.48	3.00	0.00	3.00	0.00	
1100.00	21.00	39.09	1084.43	98.45	79.99	126.85	3.00	0.00	3.00	0.00	
1200.00	24.00	39.09	1176.81	128.15	104.12	165.12	3.00	0.00	3.00	0.00	
1243.36	25.30	39.09	1216.21	142.18	115.52	183.20	3.00	0.00	3.00	0.00	Hold
1300.00	25.30	39.09	1267.42	160.97	130.79	207.41	0.00	0.00	0.00	0.00	
1400.00	25.30	39.09	1357.83	194.14	157.74	250.14	0.00	0.00	0.00	0.00	
1500.00	25.30	39.09	1448.24	227.31	184.69	292.88	0.00	0.00	0.00	0.00	
1540.66	25.30	39.09	1485.00	240.79	195.65	310.26	0.00	0.00	0.00	0.00	Ojo Alamo Ss.
1557.25	25.30	39.09	1500.00	246.30	200.12	317.35	0.00	0.00	0.00	0.00	Kirtland Sh.



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: SAN JUAN CO. NM (NAD 27)
Site: Cox Canyon Unit #7B
Well: #7B
Wellpath: 1

Date: 10/19/2009 Time: 11:32:37 Page: 2
Co-ordinate(NE) Reference: Well: #7B, True North
Vertical (TVD) Reference: SITE 6673.0
Section (VS) Reference: Well (0.00N,0.00E,39.09Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Bulld deg/100ft	Turn deg/100ft	DLS deg/100ft	TFO deg	Comment
1600.00	25.30	39.09	1538.65	260.48	211.64	335.62	0.00	0.00	0.00	0.00	
1618.84	25.30	39.09	1555.68	266.73	216.71	343.67	0.00	0.00	0.00	0.00	Drop
1700.00	23.68	39.09	1629.54	292.84	237.93	377.31	-2.00	0.00	2.00	180.00	
1800.00	21.68	39.09	1721.80	322.76	262.24	415.86	-2.00	0.00	2.00	180.00	
1900.00	19.68	39.09	1815.35	350.16	284.51	451.17	-2.00	0.00	2.00	180.00	
2000.00	17.68	39.09	1910.08	375.01	304.70	483.19	-2.00	0.00	2.00	180.00	
2100.00	15.68	39.09	2005.87	397.29	322.79	511.89	-2.00	0.00	2.00	180.00	
2200.00	13.68	39.09	2102.60	416.95	338.77	537.23	-2.00	0.00	2.00	180.00	
2300.00	11.68	39.09	2200.16	433.98	352.61	559.17	-2.00	0.00	2.00	180.00	
2400.00	9.68	39.09	2298.42	448.36	364.29	577.70	-2.00	0.00	2.00	180.00	
2500.00	7.68	39.09	2397.28	460.07	373.81	592.79	-2.00	0.00	2.00	180.00	
2600.00	5.68	39.09	2496.59	469.09	381.14	604.41	-2.00	0.00	2.00	180.00	
2700.00	3.68	39.09	2596.25	475.42	386.28	612.57	-2.00	0.00	2.00	180.00	
2800.00	1.68	39.09	2696.14	479.05	389.23	617.24	-2.00	0.00	2.00	180.00	
2883.87	0.00	39.09	2780.00	480.00	390.00	618.47	-2.00	0.00	2.00	180.00	Int. Csg. Pt.
2900.00	0.00	39.09	2796.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
2933.87	0.00	39.09	2830.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Fruitland Fm.
3000.00	0.00	39.09	2896.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3100.00	0.00	39.09	2996.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3200.00	0.00	39.09	3096.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3300.00	0.00	39.09	3196.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3400.00	0.00	39.09	3296.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3403.87	0.00	39.09	3300.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Pictured Cliffs Ss.
3500.00	0.00	39.09	3396.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3548.87	0.00	39.09	3445.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Lewis Sh.
3600.00	0.00	39.09	3496.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3700.00	0.00	39.09	3596.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3800.00	0.00	39.09	3696.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
3900.00	0.00	39.09	3796.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4000.00	0.00	39.09	3896.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4083.87	0.00	39.09	3980.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Huerfano Bentonite
4100.00	0.00	39.09	3996.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4200.00	0.00	39.09	4096.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4300.00	0.00	39.09	4196.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4400.00	0.00	39.09	4296.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4500.00	0.00	39.09	4396.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4600.00	0.00	39.09	4496.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4700.00	0.00	39.09	4596.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4800.00	0.00	39.09	4696.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4900.00	0.00	39.09	4796.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
4938.87	0.00	39.09	4835.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Cliff House Ss. Trans.
5000.00	0.00	39.09	4896.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5100.00	0.00	39.09	4996.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5193.87	0.00	39.09	5090.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Cliff House Ss.
5200.00	0.00	39.09	5096.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5300.00	0.00	39.09	5196.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5358.87	0.00	39.09	5255.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Menefee Fm.
5400.00	0.00	39.09	5296.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5500.00	0.00	39.09	5396.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5600.00	0.00	39.09	5496.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5700.00	0.00	39.09	5596.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
5708.87	0.00	39.09	5605.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Point Lookout Ss.
5800.00	0.00	39.09	5696.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	



Weatherford International, Inc.

Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: SAN JUAN CO. NM (NAD 27)
Site: Cox Canyon Unit #7B
Well: #7B
Wellpath: 1

Date: 10/19/2009 Time: 11:32:37 Page: 3
Co-ordinate(NE) Reference: Well: #7B, True North
Vertical (TVD) Reference: SITE 6673.0
Section (VS) Reference: Well (0.00N,0.00E,39.09Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azlm 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	39.09	5796.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
6000.00	0.00	39.09	5896.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
6018.87	0.00	39.09	5915.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	Mancos Sh.
6100.00	0.00	39.09	5996.13	480.00	390.00	618.47	0.00	0.00	0.00	39.09	
6208.87	0.00	39.09	6105.00	480.00	390.00	618.47	0.00	0.00	0.00	39.09	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.			2780.00	480.00	390.00	2179855.40	447415.06	36	59	25.746 N	108	0	48.193 W
-Plan hit target													
Pbhl			6105.00	480.00	390.00	2179855.40	447415.06	36	59	25.746 N	108	0	48.193 W
-Plan hit target													

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
1540.66	1485.00	Ojo Alamo Ss.		0.00	0.00
1557.25	1500.00	Kirtland Sh.		0.00	0.00
2933.87	2830.00	Fruitland Fm.		0.00	0.00
3403.87	3300.00	Pictured Cliffs Ss.		0.00	0.00
3548.87	3445.00	Lewis Sh.		0.00	0.00
4083.87	3980.00	Huerfano Bentonite		0.00	0.00
4938.87	4835.00	Cliff House Ss. Trans.		0.00	0.00
5193.87	5090.00	Cliff House Ss.		0.00	0.00
5358.87	5255.00	Menefee Fm.		0.00	0.00
5708.87	5605.00	Point Lookout Ss.		0.00	0.00
6018.87	5915.00	Mancos Sh.		0.00	0.00

Annotation

MD ft	TVD ft	
400.00	400.00	Kop
1243.36	1216.22	Hold
1618.84	1555.68	Drop
2883.87	2780.00	Int. Csg. Pt.
6208.87	6105.00	Pbhl

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	9.625	12.250	9 5/8"
2883.87	2780.00	0.000	0.000	7" Int. Csg.



WILLIAMS PRODUCTION COMPANY

Operations Plan

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

<u>DATE:</u>	10/20/2009	<u>FIELD:</u>	Blanco MV
<u>WELL NAME:</u>	Cox Canyon #7B	<u>SURFACE:</u>	BLM
<u>BH LOCATION:</u>	NENW Sec 17-32N-11W San Juan, NM	<u>MINERALS:</u>	BLM
<u>SURF. LOCATION:</u>	NENW Sec 17-32N-11W		
<u>ELEVATION:</u>	6,659' GR	<u>LEASE #</u>	NM-03190
<u>MEASURED DEPTH:</u>	6,208'		

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	1,485	1,540	Cliff House	5,090	5,193
Kirtland	1,500	1,557	Menefee	5,255	5,358
Fruitland	2,830	2,933	Point Lookout	5,605	5,708
Picture Cliffs	3,300	3,403	Mancos	5,915	6,018
Lewis	3,445	3,548	TD	6,105	6,208
Huerfanito Bentonite	3,980	4,083			

B. MUD LOGGING PROGRAM: None

C. LOGGING PROGRAM: HRI from intermediate csg to TD, SDL/DSEN over intervals 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 8-3/4 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 6-1/4 in. Flat btm. bit to drill-out of 7 in. csg. and to TD well at +/- 6,208. (MD). **Run TOTCO Survey at 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 rams will be tested to 1500 psi. The surface and intermediate casing strings will be pressure tested to 1500 psi in conjunction with the BOP test before drilling out cement. The drum brakes will be inspected and tested each tour. All tests, inspections and SPR's will be recorded in the tour book as to time and results.

III. MATERIALS

A. CASING PROGRAM:

<u>CASING TYPE</u>	<u>HOLE SIZE</u>	<u>DEPTH (MD)</u>	<u>CASING SIZE</u>	<u>WT. & GRADE</u>
Surface	12-1/4"	+/- 300'	9-5/8"	36# K-55
Intermediate	8-3/4"	+/- 2,883'	7"	20# K-55
Prod. Liner	6-1/4"	+/- 2,783'-6,208'	4-1/2"	10.5# K-55

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING: 7" 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 CASING: 4-1/2" 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: 120sx (215 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, **30 min**
2. INTERMEDIATE: 20 bbl Water Spacer + Lead - 345 sx (942 cu.ft.) of of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 + 0.5% D-Air-3000 (Yield = 2.73 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 = 1060 cu.ft. Bump Plug to 1,500 psi.
3. PRODUCTION LINER: 20 bbl Gelled Water spacer. Cement: 270 sx (350 ft³) of "FRACCEM" +0.4% Halad-9 +2.5 lb/sk Kol-Seal + 0.05% HR-5 + 0.3% D-AIR 3000 + 0.4% Halad-413. (Yield= 1.31 ft³/sk, Weight = 13.5 #/gal.). Displace cement at a minimum of 8 BPM. **SHOULD COVER 150 FEET INTO 7" CASING** Total volume (350) ft³. WOC 12 hours

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 is not circulated to surface.

B. PRESSURE TEST

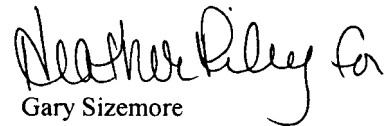
1. Pressure test 7" ~~&~~ 4-1/2" casing to 3300# for 15 minutes.

C. STIMULATION

1. Perforate the Point Lookout as determined from the open hole logs.
2. Stimulate with approximately 80,000# of 20/40 sand in slick water.
3. Isolate Point Lookout with a CIBP.
4. Perforate the Menefee/Cliff House as determined from the open hole logs.
5. Stimulate with approximately 80,000# of 20/40 sand in slick water.
6. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Mesa Verde: 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