

In Lieu of  
Form 3160  
(June 1990)

UNITED STATES  
DEPARTMENT OF INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

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

5. Lease Designation and Serial No.  
NMSF-078890

6. If Indian, Allottee or Tribe Name  
N/A

7. If Unit or CA, Agreement Designation  
Rosa

8. Well Name and No.  
Rosa Unit #630

9. API Well No.  
30-039-29508

10. Field and Pool, or Exploratory Area  
Blanco MV/Basin MC/Basin DK

11. County or Parish, State  
Rio Arriba, NM

SUBMIT IN TRIPLICATE

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
Surface. 2480' FNL & 2230' FEL  
BHL: 2380' FSL & 1935' FEL Sec. 7, T31N, R4W

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

TYPE OF SUBMISSION

☒ Notice of Intent  
☐ Subsequent Report  
☐ Final Abandonment

TYPE OF ACTION

Abandonment  
Recompletion  
Plugging Back  
Casing Repair  
Altering Casing  
☒ Other Name Change, Formation Change  
And Bottom Hole 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 hereby requests authorization to: 1) change the name of this well from the Rosa Unit #365A to the Rosa Unit #630; 2) change the formation from the Fruitland Basin Coal to the Blanco Mesaverde, Basin Mancos and Basin Dakota; 3) change the BHL. See attached C-102, directional plan and operations plan. Williams plans to set surface casing during the 2009 drilling season and then come back in 2010 to finish the well.

RCVD JUL 1 '09

OIL CONS. DIV.  
DIST. 3

CONDITIONS OF APPROVAL  
Adhere to previously issued stipulations.

APD will expire 7/17/2010

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

Signed

Larry Higgins

Title Drilling COM

Date 6/23/09

(This space for Federal or State office use)

Approved by TL Salyers

Title PE

Date 6/30/09

Conditions of approval, if any:

NMOC

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.

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

|                         |                                               |                                                              |
|-------------------------|-----------------------------------------------|--------------------------------------------------------------|
| 'API Number             | 'Pool Code<br>97232 / 72319 / 71599           | 'Pool Name<br>BASIN MANCOS / BLANCO MESAVERDE / BASIN DAKOTA |
| 'Property Code<br>17033 | 'Property Name<br>ROSA UNIT                   | 'Well Number<br>630                                          |
| 'OGRID No<br>120782     | 'Operator Name<br>WILLIAMS PRODUCTION COMPANY | 'Elevation<br>6461'                                          |

<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     |
| G             | 7       | 31N      | 4W    |         | 2480          | NORTH            | 2230          | EAST           | RIO ARriba |

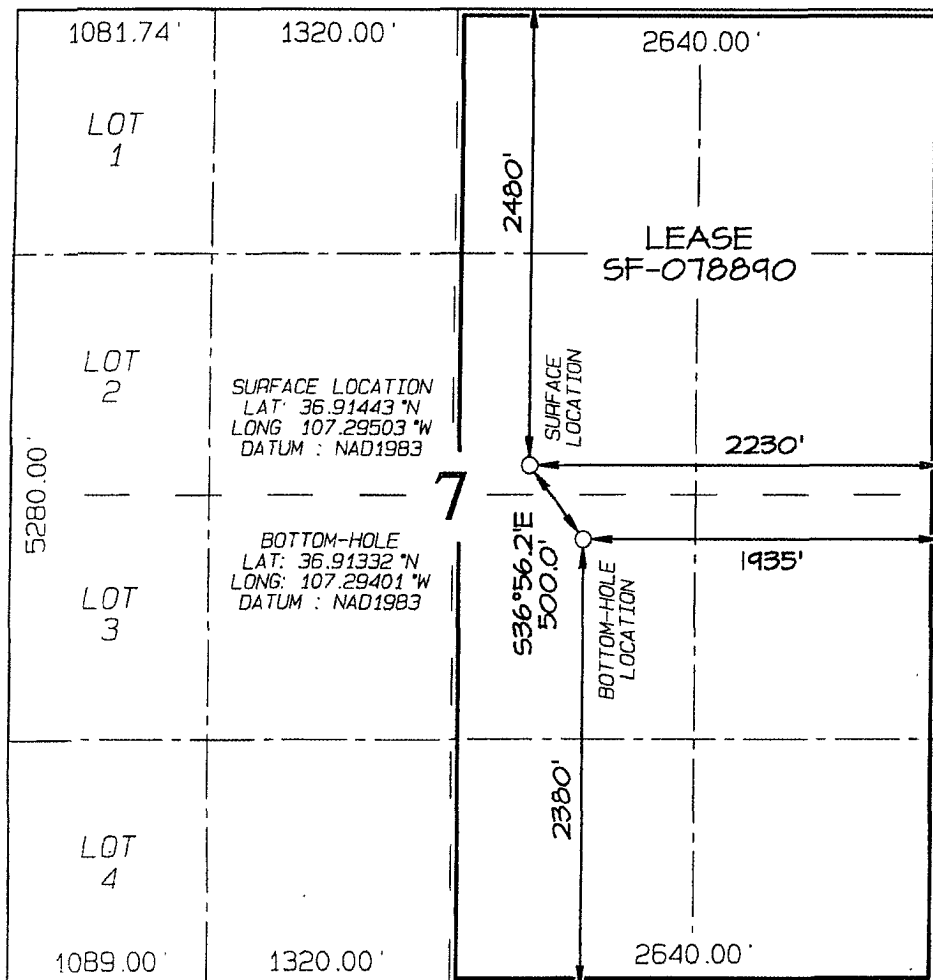
<sup>11</sup> Bottom Hole Location If Different From Surface

|               |         |          |       |         |               |                  |               |                |            |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
| J             | 7       | 31N      | 4W    |         | 2380          | SOUTH            | 1935          | EAST           | RIO ARriba |

|                                                      |                               |                                  |                         |
|------------------------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br>320.0 Acres - (E/2) | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|------------------------------------------------------|-------------------------------|----------------------------------|-------------------------|

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

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<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* 6-28-09  
Signature Date

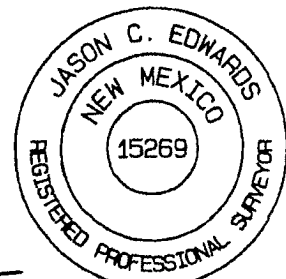
LARRY HIGGINS  
Printed Name

<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: JULY 22, 2004

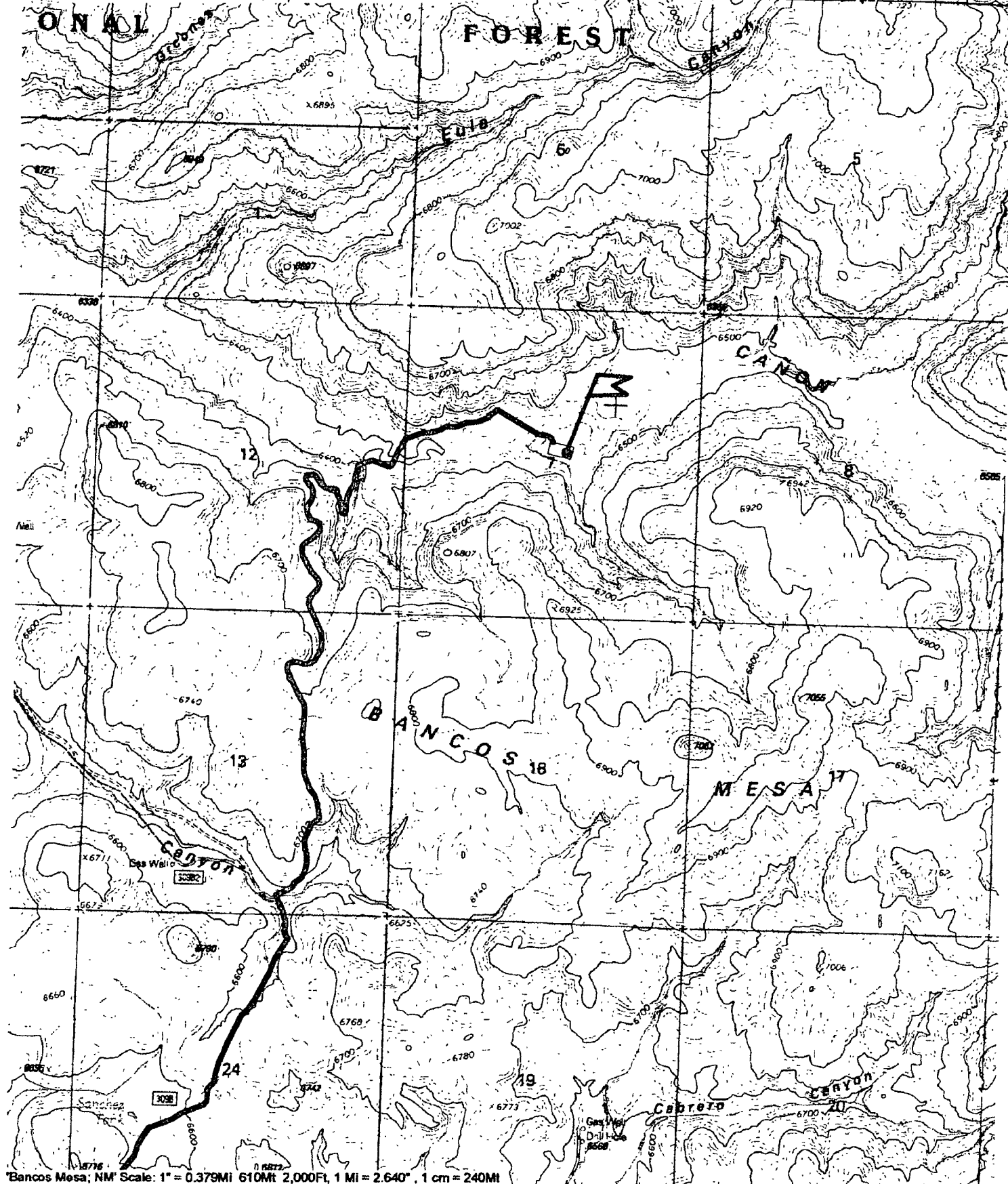
Signature and Seal of Professional Surveyor



JASON C. EDWARDS  
Certificate Number 15269

LATITUDE: 36°54'52"  
LONGITUDE: 107°17'40"  
DATUM: NAD1927

WILLIAMS PRODUCTION COMPANY: ROSA UNIT #630  
2480' FNL & 2230' FEL, SECTION 7, T31N, R4W, N.M.P.M.  
RIO ARriba COUNTY, NEW MEXICO



Bancos Mesa, NM Scale: 1" = 0.379MI 610M 2,000Ft, 1 MI = 2.640", 1 cm = 240M



**Weatherford<sup>®</sup>**

## **Drilling Services**

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## **PROPOSAL**

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WILLIAMS PRODUCTION COMPANY  
ROSA UNIT #630  
RIO ARriba COUNTY, NEW MEXICO  
WELL FILE: **PLAN 1**

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Submitted: March 3, 2009

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**Weatherford International Ltd.**  
P.O. Box 61028  
Midland, Texas 79711 USA  
+1.432.561.8892 Main  
+1.432.561.8895 Fax  
[www.weatherford.com](http://www.weatherford.com)



ROSA UNIT #630  
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 | 143.06 | 0.00    | 0.00    | 0.00   | 0.00 | 0.00   | 0.00   |               |
| 2   | 400.00  | 0.00 | 143.06 | 400.00  | 0.00    | 0.00   | 0.00 | 0.00   | 0.00   |               |
| 3   | 723.50  | 9.70 | 143.06 | 721.96  | -21.85  | 16.43  | 3.00 | 143.06 | 27.33  |               |
| 4   | 3203.12 | 9.70 | 143.06 | 3166.09 | -355.94 | 267.64 | 0.00 | 0.00   | 445.34 |               |
| 5   | 3850.12 | 0.00 | 143.06 | 3810.00 | -399.63 | 300.49 | 1.50 | 180.00 | 500.00 | Int. Csg. Pt. |
| 6   | 8455.12 | 0.00 | 143.06 | 8415.00 | -399.63 | 300.49 | 0.00 | 143.06 | 500.00 | PBHL          |

#### WELL DETAILS

| Name | +N/-S | +E/-W | Northing   | Easting   | Latitude      | Longitude      | Slot |
|------|-------|-------|------------|-----------|---------------|----------------|------|
| #630 | 0.00  | 0.00  | 2153758.27 | 194665.28 | 36°54'52.000N | 107°17'40.000W | N/A  |

#### TARGET DETAILS

| Name          | TVD     | +N/-S   | +E/-W  | Latitude      | Longitude      | Shape |
|---------------|---------|---------|--------|---------------|----------------|-------|
| Int. Csg. Pt. | 3810.00 | -399.63 | 300.49 | 36°54'48.049N | 107°17'36.300W | Point |
| PBHL          | 8415.00 | -399.63 | 300.49 | 36°54'48.049N | 107°17'36.300W | Point |

#### FORMATION TOP DETAILS

| No. | TVDPath | MDPath  | Formation              |
|-----|---------|---------|------------------------|
| 1   | 2580.00 | 2608.52 | Ojo Alamo Ss.          |
| 2   | 2760.00 | 2791.14 | Kirtland Sh.           |
| 3   | 3130.00 | 3166.51 | Fruitland Fm.          |
| 4   | 3310.00 | 3348.68 | Pictured Cliffs Ss.    |
| 5   | 3650.00 | 3690.07 | Lewis Sh.              |
| 6   | 5270.00 | 5310.12 | Cliff House Ss. Trans. |
| 7   | 5570.00 | 5610.12 | Cliff House Ss.        |
| 8   | 5620.00 | 5660.12 | Menefee Fm.            |
| 9   | 5760.00 | 5800.12 | Point Lookout Ss.      |
| 10  | 6095.00 | 6135.12 | Mancos Sh.             |
| 11  | 7140.00 | 7180.12 | Gallup Ss.             |
| 12  | 7860.00 | 7900.12 | Greenhorn Ls.          |
| 13  | 7915.00 | 7955.12 | Graneros Sh.           |
| 14  | 8040.00 | 8080.12 | Dakota Ss.             |
| 15  | 8315.00 | 8355.12 | Morrison Fm.           |

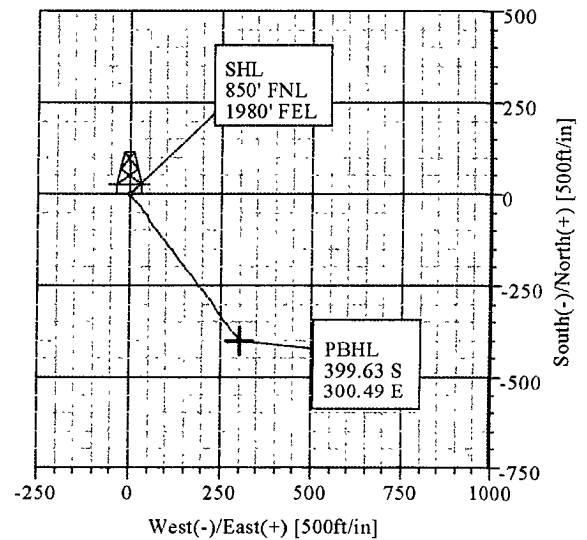


Azimuths to True North  
Magnetic North 9.99°

Magnetic Field  
Strength 51202nT  
Dip Angle 63.77°  
Date 3/3/2009  
Model igr200510

Total Correction to True North 9.99°

#### VERTICAL SECTION AZ 143.06° Az



**Weatherford**

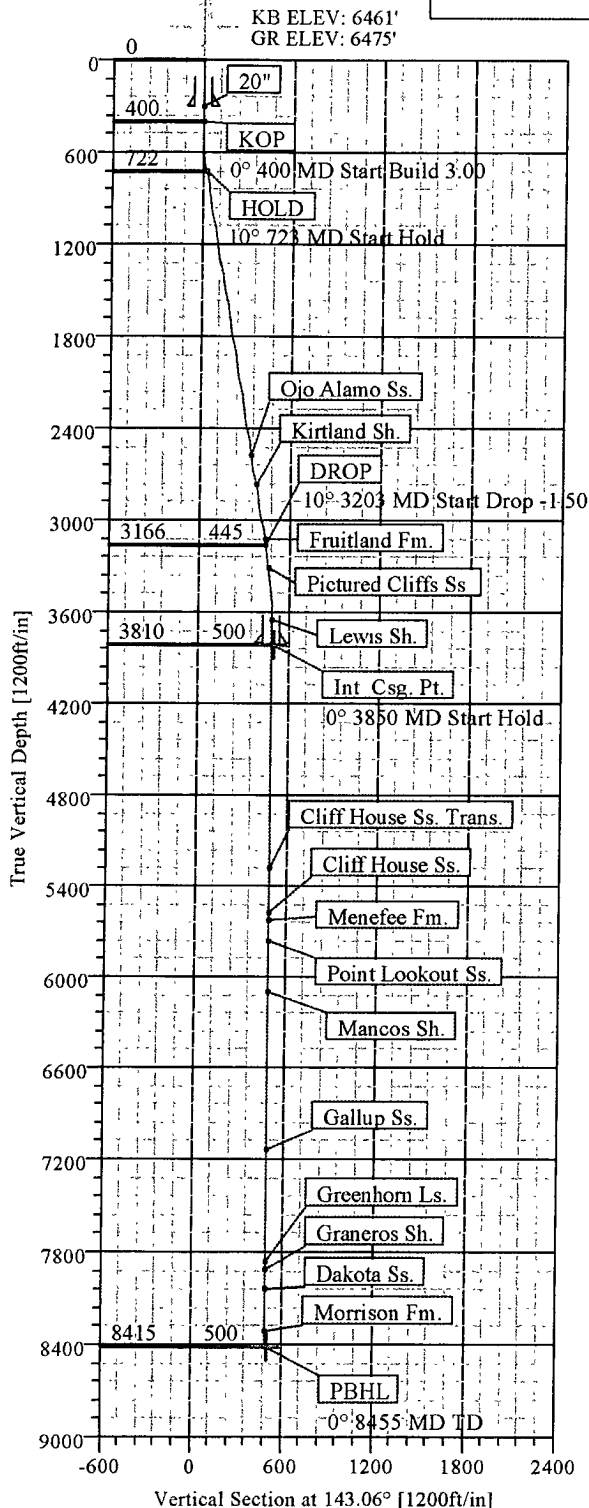
#### CASING DETAILS

| No. | TVD     | MD      | Name              | Size   |
|-----|---------|---------|-------------------|--------|
| 1   | 300.00  | 300.00  | 20"               | 20.000 |
| 2   | 3810.00 | 3850.12 | 13 3/8" Int. Csg. | 0.000  |

Plan: Plan #1 (#630/1)

Created By: Lindsey Maddux

Date: 3/4/2009





# Weatherford International, Inc.

## Proposal Plan Report



**Weatherford**

Company: WILLIAMS PRODUCTION Date: 3/3/2009 Time: 16:56:33 Page: 1  
 Field: Rio Arriba County, NM ( NAD 27) Co-ordinate(NE) Reference: Well: #630, True North  
 Site: Rosa Unit #630 Vertical (TVD) Reference: SITE 6475.0  
 Well: #630 Section (VS) Reference: Well (0.00N,0.00E,143.06Azi)  
 Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #1 Date Composed: 3/3/2009  
 Principal: Yes Version: 1  
 Tied-to: From Surface

Field: Rio Arriba County, NM ( NAD 27)

Map System: US State Plane Coordinate System 1927 Map Zone: New Mexico, Central Zone  
 Geo Datum: NAD27 (Clarke 1866) Coordinate System: Well Centre  
 Sys Datum: Mean Sea Level Geomagnetic Model: igr200510

Site: Rosa Unit #630

2480' FNL 2230' FEL of SEC 7 T31N R4W  
 Site Position: Northing: 2153758.27 ft Latitude: 36 54 52.000 N  
 From: Geographic Easting: 194665.28 ft Longitude: 107 17 40.000 W  
 Position Uncertainty: 0.00 ft North Reference: True  
 Ground Level: 6461.00 ft Grid Convergence: -0.63 deg

Well: #630 Slot Name:  
 Well Position: +N/-S 0.00 ft Northing: 2153758.27 ft Latitude: 36 54 52.000 N  
 +E/-W 0.00 ft Easting: 194665.28 ft Longitude: 107 17 40.000 W  
 Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface  
 Current Datum: SITE Height 6475.00 ft Tie-on Depth: 0.00 ft  
 Magnetic Data: 3/3/2009 Above System Datum: Mean Sea Level  
 Field Strength: 51202 nT Declination: 9.99 deg  
 Vertical Section: Depth From (TVD) +N/-S +E/-W Mag Dip Angle: 63.77 deg  
 ft ft ft Direction deg  
 0.00 0.00 0.00 143.06

### Plan Section Information

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | TFO<br>deg | Target        |
|----------|-------------|-------------|-----------|-------------|-------------|------------------|--------------------|-------------------|------------|---------------|
| 0.00     | 0.00        | 143.06      | 0.00      | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |               |
| 400.00   | 0.00        | 143.06      | 400.00    | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |               |
| 723.50   | 9.70        | 143.06      | 721.96    | -21.85      | 16.43       | 3.00             | 3.00               | 0.00              | 143.06     |               |
| 3203.12  | 9.70        | 143.06      | 3166.09   | -355.94     | 267.64      | 0.00             | 0.00               | 0.00              | 0.00       |               |
| 3850.12  | 0.00        | 143.06      | 3810.00   | -399.63     | 300.49      | 1.50             | -1.50              | 0.00              | 180.00     | Int. Csg. Pt. |
| 8455.12  | 0.00        | 143.06      | 8415.00   | -399.63     | 300.49      | 0.00             | 0.00               | 0.00              | 143.06     | PBHL          |

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | N/S<br>ft | E/W<br>ft | VS<br>ft | Build<br>deg/100ft | Turn<br>deg/100ft | DLS<br>deg/100ft | TFO<br>deg | Comment |
|----------|-------------|-------------|-----------|-----------|-----------|----------|--------------------|-------------------|------------------|------------|---------|
| 300.00   | 0.00        | 143.06      | 300.00    | 0.00      | 0.00      | 0.00     | 0.00               | 0.00              | 0.00             | 143.06     | 20"     |
| 400.00   | 0.00        | 143.06      | 400.00    | 0.00      | 0.00      | 0.00     | 0.00               | 0.00              | 0.00             | 143.06     | KOP     |
| 500.00   | 3.00        | 143.06      | 499.95    | -2.09     | 1.57      | 2.62     | 3.00               | 0.00              | 3.00             | 0.00       |         |
| 600.00   | 6.00        | 143.06      | 599.63    | -8.36     | 6.29      | 10.46    | 3.00               | 0.00              | 3.00             | 0.00       |         |
| 700.00   | 9.00        | 143.06      | 698.77    | -18.79    | 14.13     | 23.51    | 3.00               | 0.00              | 3.00             | 0.00       |         |
| 723.50   | 9.70        | 143.06      | 721.96    | -21.85    | 16.43     | 27.33    | 3.00               | 0.00              | 3.00             | 0.00       | HOLD    |
| 800.00   | 9.70        | 143.06      | 797.36    | -32.15    | 24.18     | 40.23    | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 900.00   | 9.70        | 143.06      | 895.93    | -45.63    | 34.31     | 57.09    | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1000.00  | 9.70        | 143.06      | 994.50    | -59.10    | 44.44     | 73.94    | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1100.00  | 9.70        | 143.06      | 1093.07   | -72.57    | 54.57     | 90.80    | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1200.00  | 9.70        | 143.06      | 1191.64   | -86.05    | 64.70     | 107.66   | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1300.00  | 9.70        | 143.06      | 1290.20   | -99.52    | 74.83     | 124.52   | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1400.00  | 9.70        | 143.06      | 1388.77   | -113.00   | 84.96     | 141.37   | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1500.00  | 9.70        | 143.06      | 1487.34   | -126.47   | 95.09     | 158.23   | 0.00               | 0.00              | 0.00             | 0.00       |         |
| 1600.00  | 9.70        | 143.06      | 1585.91   | -139.94   | 105.22    | 175.09   | 0.00               | 0.00              | 0.00             | 0.00       |         |



# Weatherford International, Inc.

## Proposal Plan Report

**Weatherford**

Company: WILLIAMS PRODUCTION  
Field: Rio Arriba County, NM ( NAD 27)  
Site: Rosa Unit #630  
Well: #630  
Wellpath: 1

Date: 3/3/2009 Time: 16:56:33 Page: 2  
Co-ordinate(NE) Reference: Well: #630, True North  
Vertical (TVD) Reference: SITE 6475.0  
Section (VS) Reference: Well (0.00N,0.00E,143.06Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | N/S<br>ft | E/W<br>ft | VS<br>ft | Build<br>deg/100ft | Turn<br>deg/100ft | DLS<br>deg/100ft | TFO<br>deg | Comment                |
|----------|-------------|-------------|-----------|-----------|-----------|----------|--------------------|-------------------|------------------|------------|------------------------|
| 1700.00  | 9.70        | 143.06      | 1684.48   | -153.42   | 115.36    | 191.95   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 1800.00  | 9.70        | 143.06      | 1783.05   | -166.89   | 125.49    | 208.80   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 1900.00  | 9.70        | 143.06      | 1881.62   | -180.36   | 135.62    | 225.66   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2000.00  | 9.70        | 143.06      | 1980.19   | -193.84   | 145.75    | 242.52   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2100.00  | 9.70        | 143.06      | 2078.76   | -207.31   | 155.88    | 259.38   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2200.00  | 9.70        | 143.06      | 2177.32   | -220.78   | 166.01    | 276.23   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2300.00  | 9.70        | 143.06      | 2275.89   | -234.26   | 176.14    | 293.09   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2400.00  | 9.70        | 143.06      | 2374.46   | -247.73   | 186.27    | 309.95   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2500.00  | 9.70        | 143.06      | 2473.03   | -261.20   | 196.40    | 326.81   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2600.00  | 9.70        | 143.06      | 2571.60   | -274.68   | 206.53    | 343.66   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2608.52  | 9.70        | 143.06      | 2580.00   | -275.83   | 207.40    | 345.10   | 0.00               | 0.00              | 0.00             | 0.00       | Ojo Alamo Ss.          |
| 2700.00  | 9.70        | 143.06      | 2670.17   | -288.15   | 216.67    | 360.52   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2791.14  | 9.70        | 143.06      | 2760.00   | -300.43   | 225.90    | 375.88   | 0.00               | 0.00              | 0.00             | 0.00       | Kirtland Sh.           |
| 2800.00  | 9.70        | 143.06      | 2768.74   | -301.63   | 226.80    | 377.38   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 2900.00  | 9.70        | 143.06      | 2867.31   | -315.10   | 236.93    | 394.24   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 3000.00  | 9.70        | 143.06      | 2965.88   | -328.57   | 247.06    | 411.09   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 3100.00  | 9.70        | 143.06      | 3064.44   | -342.05   | 257.19    | 427.95   | 0.00               | 0.00              | 0.00             | 0.00       |                        |
| 3166.51  | 9.70        | 143.06      | 3130.00   | -351.01   | 263.93    | 439.16   | 0.00               | 0.00              | 0.00             | 0.00       | Fruitland Fm.          |
| 3203.12  | 9.70        | 143.06      | 3166.09   | -355.94   | 267.64    | 445.34   | 0.00               | 0.00              | 0.00             | 0.00       | DROP                   |
| 3300.00  | 8.25        | 143.06      | 3261.78   | -368.02   | 276.72    | 460.45   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3348.68  | 7.52        | 143.06      | 3310.00   | -373.36   | 280.74    | 467.13   | -1.50              | 0.00              | 1.50             | 180.00     | Pictured Cliffs Ss.    |
| 3400.00  | 6.75        | 143.06      | 3360.92   | -378.46   | 284.57    | 473.51   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3500.00  | 5.25        | 143.06      | 3460.37   | -386.82   | 290.85    | 483.96   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3600.00  | 3.75        | 143.06      | 3560.06   | -393.09   | 295.57    | 491.81   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3690.07  | 2.40        | 143.06      | 3650.00   | -396.95   | 298.47    | 496.65   | -1.50              | 0.00              | 1.50             | 180.00     | Lewis Sh.              |
| 3700.00  | 2.25        | 143.06      | 3659.92   | -397.28   | 298.72    | 497.05   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3800.00  | 0.75        | 143.06      | 3759.88   | -399.37   | 300.29    | 499.67   | -1.50              | 0.00              | 1.50             | 180.00     |                        |
| 3850.12  | 0.00        | 143.06      | 3810.00   | -399.63   | 300.49    | 500.00   | -1.50              | 0.00              | 1.50             | 180.00     | Int. Csg. Pt.          |
| 3900.00  | 0.00        | 143.06      | 3859.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4000.00  | 0.00        | 143.06      | 3959.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4100.00  | 0.00        | 143.06      | 4059.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4200.00  | 0.00        | 143.06      | 4159.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4300.00  | 0.00        | 143.06      | 4259.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4400.00  | 0.00        | 143.06      | 4359.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4500.00  | 0.00        | 143.06      | 4459.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4600.00  | 0.00        | 143.06      | 4559.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4700.00  | 0.00        | 143.06      | 4659.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4800.00  | 0.00        | 143.06      | 4759.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 4900.00  | 0.00        | 143.06      | 4859.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5000.00  | 0.00        | 143.06      | 4959.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5100.00  | 0.00        | 143.06      | 5059.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5200.00  | 0.00        | 143.06      | 5159.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5300.00  | 0.00        | 143.06      | 5259.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5310.12  | 0.00        | 143.06      | 5270.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Cliff House Ss. Trans. |
| 5400.00  | 0.00        | 143.06      | 5359.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5500.00  | 0.00        | 143.06      | 5459.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5600.00  | 0.00        | 143.06      | 5559.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5610.12  | 0.00        | 143.06      | 5570.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Cliff House Ss.        |
| 5660.12  | 0.00        | 143.06      | 5620.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Menefee Fm.            |
| 5700.00  | 0.00        | 143.06      | 5659.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5800.00  | 0.00        | 143.06      | 5759.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |
| 5800.12  | 0.00        | 143.06      | 5760.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Point Lookout Ss.      |
| 5900.00  | 0.00        | 143.06      | 5859.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |                        |





# Weatherford International, Inc.

## Proposal Plan Report



**Weatherford**

Company: WILLIAMS PRODUCTION  
Field: Rio Arriba County, NM ( NAD 27)  
Site: Rosa Unit #630  
Well: #630  
Wellpath: 1

Date: 3/3/2009 Time: 16:56:33 Page: 3  
Co-ordinate(NE) Reference: Well: #630, True North  
Vertical (TVD) Reference: SITE 6475.0  
Section (VS) Reference: Well (0.00N,0.00E,143.06Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | N/S<br>ft | E/W<br>ft | VS<br>ft | Build<br>deg/100ft | Turn<br>deg/100ft | DLS<br>deg/100ft | TFO<br>deg | Comment       |
|----------|-------------|-------------|-----------|-----------|-----------|----------|--------------------|-------------------|------------------|------------|---------------|
| 6000.00  | 0.00        | 143.06      | 5959.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6100.00  | 0.00        | 143.06      | 6059.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6135.12  | 0.00        | 143.06      | 6095.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Mancos Sh.    |
| 6200.00  | 0.00        | 143.06      | 6159.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6300.00  | 0.00        | 143.06      | 6259.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6400.00  | 0.00        | 143.06      | 6359.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6500.00  | 0.00        | 143.06      | 6459.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6600.00  | 0.00        | 143.06      | 6559.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6700.00  | 0.00        | 143.06      | 6659.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6800.00  | 0.00        | 143.06      | 6759.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 6900.00  | 0.00        | 143.06      | 6859.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7000.00  | 0.00        | 143.06      | 6959.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7100.00  | 0.00        | 143.06      | 7059.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7180.12  | 0.00        | 143.06      | 7140.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Gallup Ss.    |
| 7200.00  | 0.00        | 143.06      | 7159.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7300.00  | 0.00        | 143.06      | 7259.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7400.00  | 0.00        | 143.06      | 7359.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7500.00  | 0.00        | 143.06      | 7459.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7600.00  | 0.00        | 143.06      | 7559.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7700.00  | 0.00        | 143.06      | 7659.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7800.00  | 0.00        | 143.06      | 7759.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7900.00  | 0.00        | 143.06      | 7859.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 7900.12  | 0.00        | 143.06      | 7860.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Greenhorn Ls. |
| 7955.12  | 0.00        | 143.06      | 7915.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Graneros Sh.  |
| 8000.00  | 0.00        | 143.06      | 7959.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 8080.12  | 0.00        | 143.06      | 8040.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Dakota Ss.    |
| 8100.00  | 0.00        | 143.06      | 8059.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 8200.00  | 0.00        | 143.06      | 8159.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 8300.00  | 0.00        | 143.06      | 8259.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 8355.12  | 0.00        | 143.06      | 8315.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | Morrison Fm.  |
| 8400.00  | 0.00        | 143.06      | 8359.88   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     |               |
| 8455.12  | 0.00        | 143.06      | 8415.00   | -399.63   | 300.49    | 500.00   | 0.00               | 0.00              | 0.00             | 143.06     | PBHL          |

### Targets

| Name             | Description<br>Dip. | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | <--- Latitude ---><br>Deg Min Sec |    |          | <--- Longitude ---><br>Deg Min Sec |    |          |
|------------------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|-----------------------------------|----|----------|------------------------------------|----|----------|
| Int. Csg. Pt.    |                     |      | 3810.00   | -399.63     | 300.49      | 2153355.37            | 194961.37            | 36                                | 54 | 48.049 N | 107                                | 17 | 36.300 W |
| -Plan hit target |                     |      |           |             |             |                       |                      |                                   |    |          |                                    |    |          |
| PBHL             |                     |      | 8415.00   | -399.63     | 300.49      | 2153355.37            | 194961.37            | 36                                | 54 | 48.049 N | 107                                | 17 | 36.300 W |
| -Plan hit target |                     |      |           |             |             |                       |                      |                                   |    |          |                                    |    |          |

### Formations

| MD<br>ft | TVD<br>ft | Formations             | Lithology | Dip Angle<br>deg | Dip Direction<br>deg |
|----------|-----------|------------------------|-----------|------------------|----------------------|
| 2608.52  | 2580.00   | Ojo Alamo Ss.          |           | 0.00             | 0.00                 |
| 2791.14  | 2760.00   | Kirtland Sh            |           | 0.00             | 0.00                 |
| 3166.51  | 3130.00   | Fruitland Fm           |           | 0.00             | 0.00                 |
| 3348.68  | 3310.00   | Pictured Cliffs Ss.    |           | 0.00             | 0.00                 |
| 3690.07  | 3650.00   | Lewis Sh.              |           | 0.00             | 0.00                 |
| 5310.12  | 5270.00   | Cliff House Ss. Trans. |           | 0.00             | 0.00                 |
| 5610.12  | 5570.00   | Cliff House Ss.        |           | 0.00             | 0.00                 |
| 5660.12  | 5620.00   | Menefee Fm.            |           | 0.00             | 0.00                 |
| 5800.12  | 5760.00   | Point Lookout Ss.      |           | 0.00             | 0.00                 |
| 6135.12  | 6095.00   | Mancos Sh              |           | 0.00             | 0.00                 |



# Weatherford International, Inc.

## Proposal Plan Report



Weatherford

Company: WILLIAMS PRODUCTION.  
Field: Rio Arriba County, NM ( NAD 27)  
Site: Rosa Unit #630  
Well: #630  
Wellpath: 1

Date: 3/3/2009 Time: 16:56:33 Page: 4  
Co-ordinate(NE) Reference: Well: #630, True North  
Vertical (TVD) Reference: SITE 6475.0  
Section (VS) Reference: Well (0.00N,0.00E,143.06Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

### Formations

| MD<br>ft | TVD<br>ft | Formations    | Lithology | Dip Angle<br>deg | Dip Direction<br>deg |
|----------|-----------|---------------|-----------|------------------|----------------------|
| 7180.12  | 7140.00   | Gallup Ss.    |           | 0.00             | 0.00                 |
| 7900.12  | 7860.00   | Greenhorn Ls. |           | 0.00             | 0.00                 |
| 7955.12  | 7915.00   | Graneros Sh.  |           | 0.00             | 0.00                 |
| 8080.12  | 8040.00   | Dakota Ss.    |           | 0.00             | 0.00                 |
| 8355.12  | 8315.00   | Morrison Fm.  |           | 0.00             | 0.00                 |

### Annotation

| MD<br>ft | TVD<br>ft |               |
|----------|-----------|---------------|
| 400.00   | 400.00    | KOP           |
| 723.50   | 721.96    | HOLD          |
| 3203.12  | 3166.09   | DROP          |
| 3850.12  | 3810.00   | Int. Csg. Pt. |
| 8455.12  | 8415.00   | PBHL          |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name              |
|----------|-----------|----------------|-----------------|-------------------|
| 300.00   | 300.00    | 20.000         | 26.000          | 20"               |
| 3850.12  | 3810.00   | 0.000          | 0.000           | 13 3/8" Int. Csg. |

# GEOLOGIC PROGNOSIS

Company: Williams Production Company. LLC  
Project: 2009 Drilling Plan  
Area: Rosa Unit  
  
Operator: Williams Production Company. LLC  
Well Name: Rosa Unit No. 630 (Kmv/Kg/Kd-Directional)  
Location: SWNE 07-31N-04W  
Footage: 2480' FNL & 2230' FEL  
County/State: Rio Arriba/New Mexico

Surveyed GL: 6461 Est: (14') KB: 6475

| <u>Formation</u>              | <u>Thickness</u> | <u>TVD</u>  | <u>Struct. Elev.</u> |
|-------------------------------|------------------|-------------|----------------------|
| San Jose Fm.                  | 2580             | Surface     | 6461                 |
| Ojo Alamo Ss.                 | 180              | 2580        | 3895                 |
| Kirtland Sh.                  | 370              | 2760        | 3715                 |
| Fruitland Fm.                 | 180              | 3130        | 3345                 |
| Pictured Cliffs Ss.           | 340              | 3310        | 3165                 |
| Lewis Sh.                     | 160              | 3650        | 2825                 |
| <u>Int. Csg. Depth</u>        | 1460             | <b>3810</b> | 2665                 |
| <b>Cliff House Ss. Trans.</b> | 300              | 5270        | <b>1205</b>          |
| Cliff House Ss.               | 50               | 5570        | 891                  |
| Menefee Fm.                   | 140              | 5620        | 855                  |
| Point Lookout Ss.             | 335              | 5760        | 715                  |
| Mancos Sh.                    | 0                | 6095        | 380                  |
| <u>Prot. Lnr. Depth</u>       | 1045             | 6095        | 380                  |
| Gallup Ss.                    | 720              | 7140        | -665                 |
| Greenhorn Ls.                 | 55               | 7860        | -1385                |
| <b>Graneros Sh.</b>           | 125              | 7915        | <b>-1440</b>         |
| Dakota Ss.                    | 275              | 8040        | -1565                |
| Morrison Fm.                  | 100              | 8315        | -1840                |
| <u>Total Depth</u>            | NA               | <b>8415</b> | -1940                |

**Mud Log:** Mud log (5"=100') from protection liner to TD  
(mud logger to pick TD)

**Gas Geochemistry:** Sampling as required

**Cores:** Core selected Mancos, Gallup, and Dakota intervals

**Core Analysis and Desorption:** Sampling as required

**Mechanical Logs:** Schlumberger: induction/density/neutron logs from intermediate casing depth to TD;  
additional speciality logs from protection liner depth to TD

**Correlation Logs:** Rosa Unit No. 81 (NENE 07-31N-04W)  
Rosa Unit No. 131 (SWSE 12-31N-05W)

**Notes:** This well will be directionally drilled to a BHL  
2380' FSL & 1935' FEL 07-31N-04W



## **WILLIAMS PRODUCTION COMPANY**

### **Operations Plan**

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

**DATE:** 6/23/2009 **FIELD:** Basin DK/ Basin MC/BlancoMV  
**WELL NAME:** Rosa #630 **SURFACE:** BLM  
**BH LOCATION:** NWSE Sec 7-31N-4W **MINERALS:** BLM  
Rio Arriba, NM  
**ELEVATION:** 6,461' GR **LEASE #** SF-078890  
**MEASURED DEPTH:** 8,455'

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

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

| Name            | TVD   | MD    | Name          | TVD          | MD           |
|-----------------|-------|-------|---------------|--------------|--------------|
| Ojo Alamo       | 2,580 | 2,608 | Point Lookout | 5,760        | 5,800        |
| Kirtland        | 2,760 | 2,791 | Mancos        | 6,095        | 6,135        |
| Fruitland       | 3,130 | 3,166 | Gallup        | 7,140        | 7,180        |
| Pictured Cliffs | 3,310 | 3,348 | Greenhorn     | 7,860        | 7,900        |
| Lewis           | 3,650 | 3,690 | Graneros      | 7,915        | 7,955        |
| Cliff House     | 5,570 | 5,610 | Dakota        | 8,040        | 8,080        |
| Menefee         | 5,620 | 5,660 | Morrison      | 8,315        | 8,355        |
|                 |       |       | <b>TD</b>     | <b>8,415</b> | <b>8,455</b> |

**B. MUD LOGGING PROGRAM:** Mudlogger on location from protection liner to TD. Mud logger to pick TD.

**C. LOGGING PROGRAM:** Schlumberger: induction/density/neutron logs from intermediate casing depth to TD; additional speciality logs from protection liner depth to TD

**D. NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

## **II. DRILLING**

- A. SURFACE HOLE:** PU 12 1/4", 17 1/2" 26" in. Bit, Drill / ream to +400 ft. (MD). Drill with water and Gel sweeps. RU and run 20 in. Surface Casing, set at 400 ft.+ (MD). NU 20in. SOW X 21-1/4 in. 2000 psi Braden Head. NU 20in annular preventer. The surface casing will be pressure tested to 1400 psi in conjunction with the BOP test before drilling out cement. Run TOTCO surveys at 200ft. and 400ft. **RDMO after setting surface csg. Will return at later date to finish well**
- B. INTERMEDIATE HOLE:** Drill out of 20in. csg. with a 17-1/2in. Tri-cone bit. Use LSND Mud System to 13-3/8 in. intermediate casing point. Increase Viscosity of mud system to 40+ to run casing. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Circulate cement to surface. NU 21-1/4in 2,000 psi X 13-5/8 in. "B" Section. Run TOTCO Surveys each 500 ft.
- C. INTERMEDIATE LINER HOLE:** Drill out of 13-3/8in. csg. with a 12-1/4in. air hammer bit. Use Air Drilling System, to 9-5/8 in. intermediate casing point. Run & set 9-5/8" liner. Circulate cement to 100ft. above TOL. Run TOTCO Surveys each 500 ft.

- D. PRODUCTION HOLE:** Drill out of 9-5/8in. csg with an 7-7/8in tri-cone bit. Use Dispersed Mud System with water loss less than 8 ml/30 min to top of first coring interval. POOH, P/U Coring BHA (7-7/8in. coring head) and 5in. drill pipe. Cut and wireline retrieve 3in. cores over intervals of interest. POOH, run OH logs. Increase Viscosity of mud system to 40+ to run casing. Treat for lost circulation as necessary. Notify Engineering of any mud losses.
- E. 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 surface and Intermediate casing will be pressure tested to **1500 psi for 30 minutes** after the BOPE 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.**

## II. MATERIALS

### A. CASING PROGRAM:

| <u>CASING TYPE</u> | <u>OH SIZE (IN)</u> | <u>DEPTH (MD) (FT)</u> | <u>CASING SIZE (IN)</u> | <u>WEIGHT(LB)</u> | <u>GRADE</u> |
|--------------------|---------------------|------------------------|-------------------------|-------------------|--------------|
| Surface            | 26                  | 400                    | 20                      | 94                | K-55         |
| Intermediate       | 17-1/2              | 3,850                  | 13 3/8                  | 68                | HCN-80       |
| Protection Liner   | 12 1/4              | 3,700-6,135            | 9 5/8                   | 47                | HCN-80       |
| Longstring         | 7 7/8               | 8,275                  | 5 1/2                   | 17                | N-80         |

### B. FLOAT EQUIPMENT:

- SURFACE CASING:** 20in. notched regular pattern guide shoe. Run one (1) standard centralizer on each of the bottom three (3) joints
- INTERMEDIATE CASING:** 13-3/8in. cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install one Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to the surface casing.
- DRILLING LINER:** 9-5/8in. Whirler type cement nose guide shoe with a latch collar on top of bottom joint.
- PRODUCTION CASING:** 5-1/2" whirler type cement nose guide shoe with a float collar on top of bottom joint. Place marker joint above 5,600'. Place one turbolizer every third joint thru Dakota and Mesa Verde intervals. ( Call this in to BLM for approval. If denied, follow what is in the Operations Plan in the Permit package. )

### B. CEMENTING:

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

- SURFACE:** 10 bbl FW spacer, Slurry: 685 sx (1224 ft<sup>3</sup>) Premium Plus Type III + 2% Cal-Seal 60 + ¼ #/sk Poly-E-Flake + 0.3% Versaset + 2% Econolite + 6% Salt (13.5 lb/gal, 1.796 ft<sup>3</sup>/sk) WOC 12 hours. Test csg to 1500psi.
- INTERMEDIATE:** 20 bbl FW spacer, Lead - 1835 sx (4997 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 (Yield = 2.723 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 210 sx (247cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake + 0.2% Halad-9, (Yield = 1.178 cu.ft./sk, Weight = 15.6#/gal.). **NO EXCESS PUMP AS WRITTEN SHOULD CIRCULATE TO SURFACE** Total volume = 5244 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface WOC 12 hours. Run a temperature survey after 8 hours if cement is not circulated.

## Rosa #630 MVDK Ops Plan

3. PROTECTION LINER: 20 bbl gelled water spacer, Lead: 595 sx (831 ft<sup>3</sup>) Econocem system + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake (13.1 lb/gal, 1.396 ft<sup>3</sup>/sk), Tail: 100 sx (117.9 ft<sup>3</sup>) + 0.3% Halad-9 + 0.125 #/sk Poly-E-Flake (15.6 lb/gal, 1.179 ft<sup>3</sup>/sk) **NO EXCESS PUMP AS WRITTEN SHOULD CIRCULATE CEMENT TO 100' ABOVE LINER TOP. NO EXCESS PUMP AS WRITTEN.** Total volume 948.9 ft<sup>3</sup>. WOC 12 hours
4. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 395 sx (552 ft<sup>3</sup>) of "FRACCEM" + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake + 0.1% HR-5. (Yield = 1.398 ft<sup>3</sup>/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. **NO EXCESS PUMP AS WRITTEN** Total volume (552) ft<sup>3</sup>. WOC 12 hours.

**III. 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 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  
 Sr. Drilling Engineer