

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

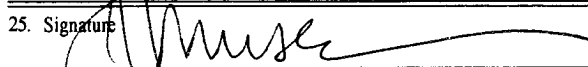
APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007


|  |  |  |  |
|--|--|--|--|
| 1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER   |  | 15. Lease Serial No.<br>NMSE 078463A   |  |
| 1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone |  | 6. If Indian, Allottee or Tribe Name   |  |
| 2. Name of Operator<br>PATINA OIL AND GAS  |  | 7. If Unit or CA Agreement, Name and No.<br>NMNMD 73701  |  |
| 3a. Address 5802 US HIGHWAY 64<br>FARMINGTON, NEW MEXICO 87401   |  | 8. Lease Name and Well No.<br>RIO BRAVO 27 #15   |  |
| 3b. Phone No. (include area code)<br>505-632-8056  |  | 9. API Well No.<br>30-045-33706  |  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.)<br>At surface 500' FSL and 1800' FEL<br>At proposed prod. zone SAME   |  | 10. Field and Pool, or Exploratory<br>Basin Dakota/Basin Fruitland Coal  |  |
| 11. Sec., T. R. M. or Blk. and Survey or Area<br>O SEC 27-T31N-R13W  |  | 12. County or Parish<br>SAN JUAN   |  |
| 13. State<br>NM  |  | 14. Distance in miles and direction from nearest town or post office*<br>7 MILES NW OF FARMINGTON                  |  |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)<br>500'  |  | 16. No. of acres in lease<br>320 ACRES   |  |
| 17. Spacing Unit dedicated to this well<br>S/2 320 ACRES   |  | 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.<br>660' |  |
| 19. Proposed Depth<br>6550'  |  | 20. BLM/BIA Bond No. on file<br>LMP8720503 - CO1291  |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br>5676' GR  |  | 22. Approximate date work will start*<br>05/01/2006  |  |
| 23. Estimated duration<br>8 DAYS   |  | 24. Attachments  |  |

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  | Name (Printed/Typed)<br>JEAN M. MUSE | Date<br>03/14/2006 |
|---|--------------------------------------|--------------------|

Title  
REGULATORY/ENGINEERING TECH

|   |                             |                  |
|---|-----------------------------|------------------|
| Approved by  | Name (Printed/Typed)<br>AFH | Date<br>11/30/06 |
|---|-----------------------------|------------------|

|              |               |
|--------------|---------------|
| Title<br>AFH | Office<br>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 page 2)

Application for pit permits must be submitted prior to constructing location

NSL

NMOCD

B 12/5/06

District I  
PO Box 1980, Hobbs, NM 88241-1980

District II  
PO Drawer DD, Artesia, NM 88211-0719

District III  
1000 Rio Brazos Rd., Aztec, NM 87410

District IV  
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 21, 1994  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

2005 APR 13 PM 1:54  
☐ AMENDED REPORT

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                             |   |                             |   |
|-----------------------------|---|-----------------------------|---|
| *API Number<br>30-045-33700 |   | *Pool Code<br>71599 / 71629 | *Pool Name<br>BASIN DAKOTA / BASIN FRUITLAND COAL |
| *Property Code<br>34335     | *Property Name<br>RIO BRAVO 27          |                             | *Well Number<br>15                                |
| *OGRID No.<br>173252        | *Operator Name<br>PATINA SAN JUAN, INC. |                             | *Elevation<br>5676'                               |

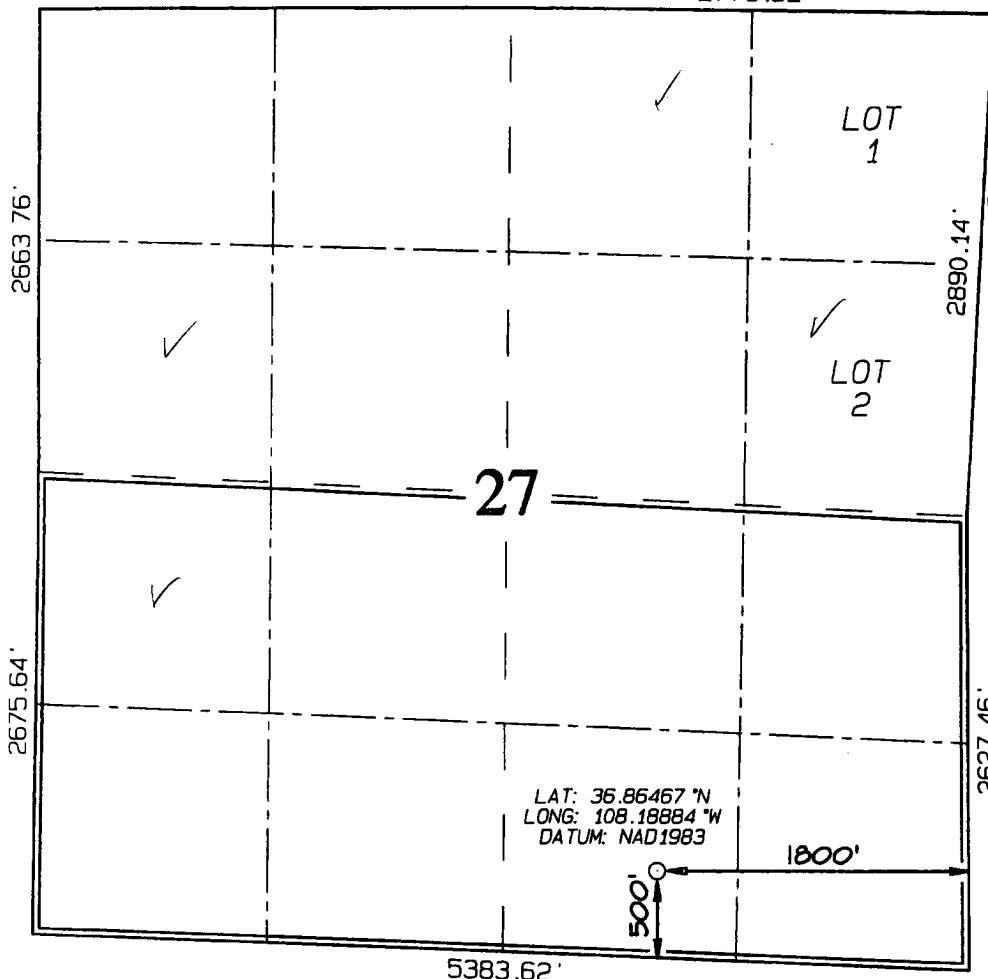
<sup>10</sup> Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County   |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| 0             | 27      | 31N      | 13W   |         | 500           | SOUTH            | 1800          | 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                  |
|--|---------|----------|-------|---------|-------------------------------|------------------|----------------------------------|----------------|-------------------------|
|  |         |          |       |         |                               |                  |                                  |                |                         |
| <sup>12</sup> Dedicated Acres<br>320.0 Acres - (S/2) |         |          |       |         | <sup>13</sup> Joint or Infill |                  | <sup>14</sup> Consolidation Code |                | <sup>15</sup> Order No. |

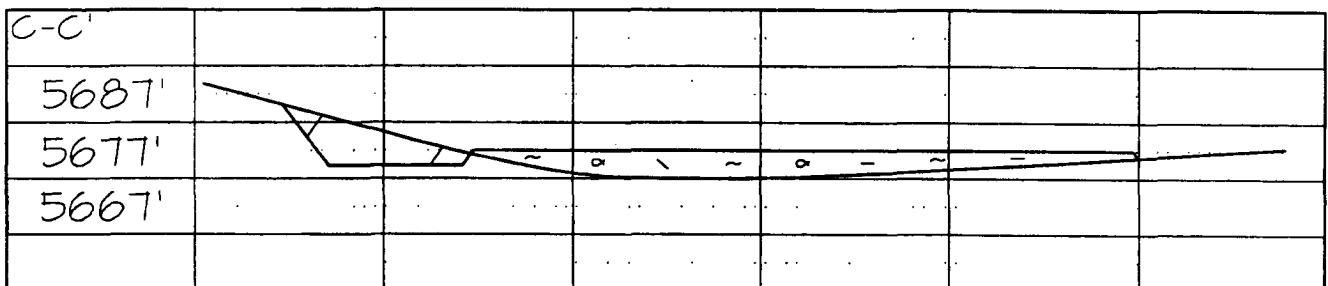
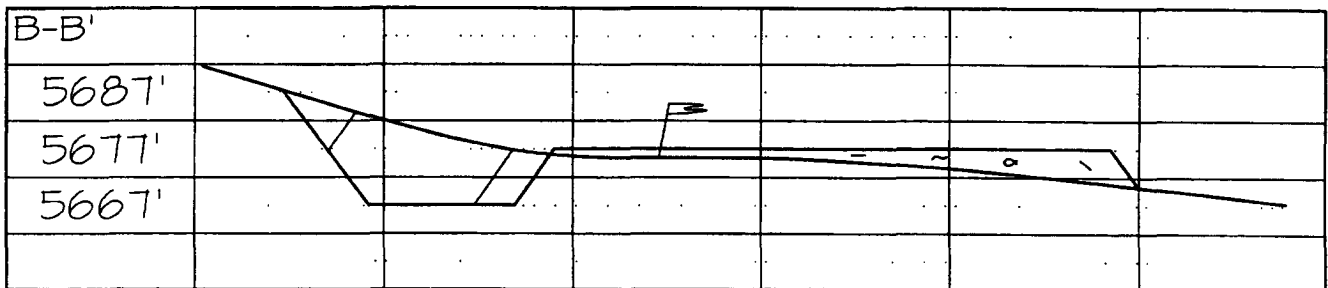
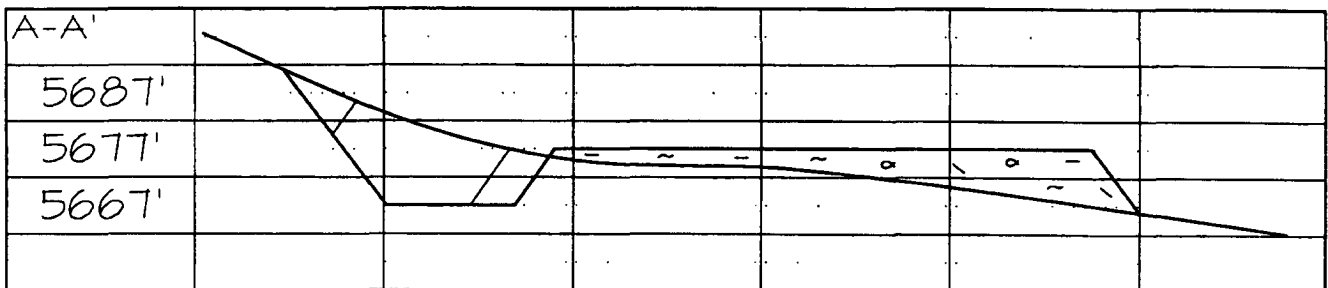
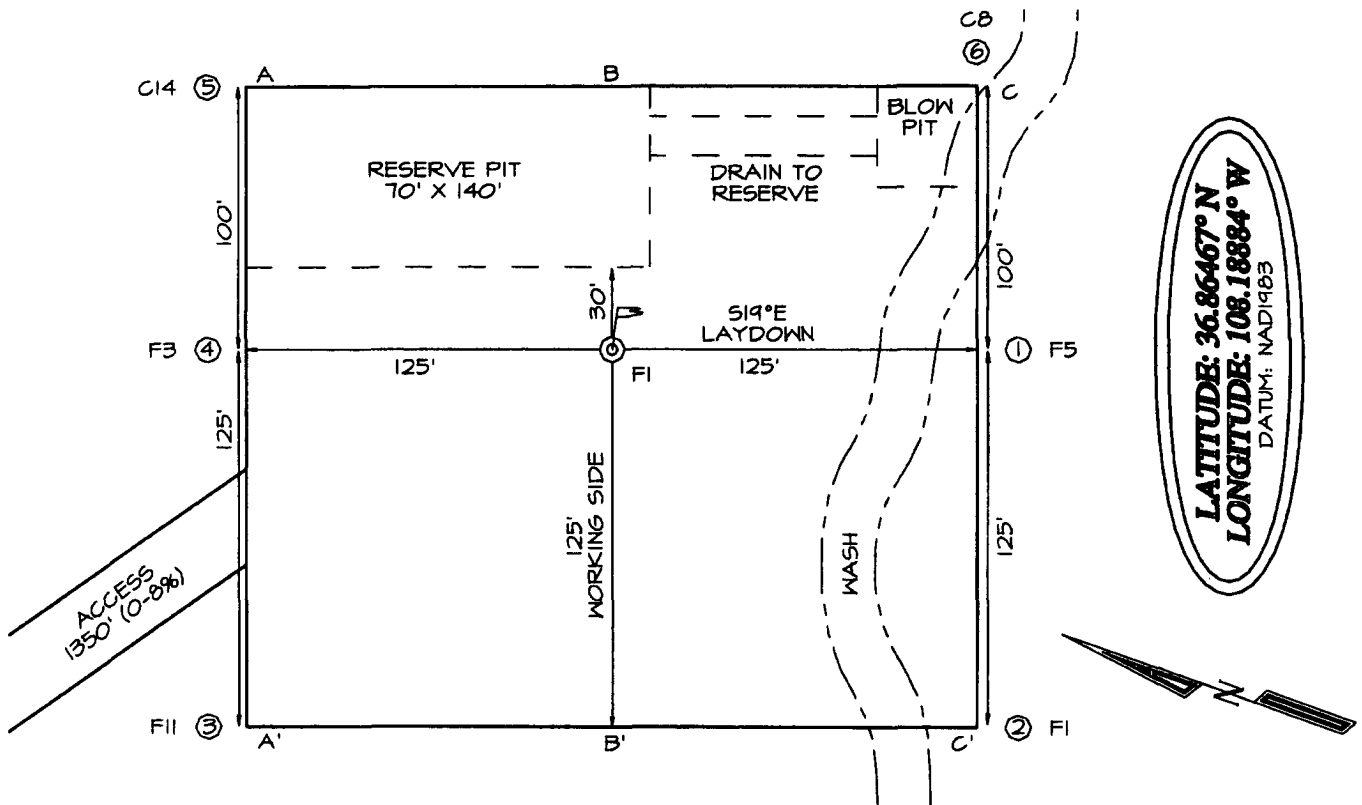
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION  
2693.46' 2776.62'



|   |
|---|
| <b><sup>17</sup> OPERATOR CERTIFICATION</b><br>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.<br><i>[Signature]</i><br>Signature<br><i>JEAN M. MUSE</i><br>Printed Name<br><i>Regulatory/Engineering</i><br>Title<br><i>3/14/06 Tech</i><br>Date   |
| <b><sup>18</sup> SURVEYOR CERTIFICATION</b><br>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.<br>Survey Date: FEBRUARY 8, 2006<br>Signature and Seal of Professional Surveyor<br><br><i>JASON C. EDWARDS</i><br>Certificate Number 15269 |

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**PATINA SAN JUAN, INC. RIO BRAVO 27 #15**  
**500' FSL & 1800' FEL, SECTION 27, T31N, R13W, NMPM**  
**SAN JUAN COUNTY, NEW MEXICO ELEVATION: 5676'**



**Rio Bravo Federal 27 #15  
General Drilling Plan  
Patina San Juan, Inc.  
San Juan County, New Mexico**

**1. LOCATION:**

Est. elevation: 5688'  
SESE of Section 27, T31N, R13W  
San Juan, New Mexico

Field: Blanco Mesa Verde & Basin DK  
Surface: BLM  
Minerals: BLM

**2. SURFACE FORMATION, ESTIMATED TOPS AND WATER, OIL, GAS OR  
MINERAL BEARING FORMATIONS (TVD):**

Surface formation – Nacimiento

| <b><u>Formation</u></b> | <b><u>Estimated Formation Top (Ft)</u></b> |
|-------------------------|--|
| Ojo Alamo               | 729  |
| Kirtland                | 830  |
| Fruitland               | 1142                                       |
| Pictured Cliffs**       | 1794                                       |
| Lewis                   | 1998                                       |
| Cliff House**           | 3388                                       |
| Menefee**               | 3536                                       |
| Point Lookout***        | 4183                                       |
| Mancos                  | 4533                                       |
| Gallup                  | 5713                                       |
| Greenhorn               | 6233                                       |
| Graneros                | 6297                                       |
| Dakota ***              | 6359                                       |
| TD                      | 6550                                       |

Legend:      \* Freshwater bearing formation  
             \*\* Possible hydrocarbon bearing formation  
             \*\*\* Probable hydrocarbon bearing formation  
             # Possible H2S bearing formation

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and adequately protected.

### 3. **PRESSURE CONTROL EQUIPMENT:**

BOP equipment will be tested to its rated working pressure or 70-percent of the internal yield of the surface casing, but not to exceed 1,000 psi. See attachments for BOP and choke manifold diagrams.

#### **Production Hole BOP Requirements and Test Plan**

11" – 2,000 psi single ram (blind)

11" – 2,000 psi single ram (pipe)

Test as follows:

|                    |                  |               |
|--------------------|------------------|---------------|
| a) Pipe rams:      | 1,000 psi (High) | 250 psi (low) |
| b) Choke manifold: | 1,000 psi (High) | 250 psi (low) |
| c) Choke lines:    | 1,000 psi (High) | 250 psi (low) |

All ram type preventers and related equipment will be hydraulically tested at nipple-up. They will also be retested in either of the following events:

- A pressure seal is broken.
- 30 days have elapsed since the last successful test of the equipment.

Furthermore, BOP's will be checked daily as to mechanical operating condition. All ram type preventers will have hand wheels, which will be operative and accessible at the time the preventers are installed. See attached Exhibit for details on the BOP equipment.

### **AUXILIARY EQUIPMENT:**

- a) Manually operated kelly cock (upper and lower)
- b) Full opening manually operated safety valves in the full open position, capable of fitting all drill stem connections.

#### 4. CASING DESIGN:

| Hole Data    |                   |                      |          |             |
|--------------|-------------------|----------------------|----------|-------------|
| Interval     | Bit Size (Inches) | Casing Size (Inches) | Top (Ft) | Bottom (Ft) |
| Surface      | 13.50             | 9.625                | 0        | 300         |
| Intermediate | 8.75              | 7.0                  | 0        | 4600        |
| Production   | 6.25              | 4.5                  | 4300     | 6550        |

| Casing Data |             |                 |       |        |                |             |                    |
|-------------|-------------|-----------------|-------|--------|----------------|-------------|--------------------|
| OD (Inches) | ID (Inches) | Weight (Lbs/Ft) | Grade | Thread | Collapse (psi) | Burst (psi) | Min. Tensile (Lbs) |
| 9.625       | 8.921       | 36.0            | J55   | STC    | 2,020          | 3,520       | 394,000            |
| 7.000       | 6.366       | 23.0            | L80   | LTC    | 3,830          | 6,340       | 435,000            |
| 4.5         | 4.276       | 11.6            | N80   | LTC    | 6,350          | 7,780       | 223,000            |

#### MINIMUM CASING DESIGN FACTORS:

COLLAPSE: 1.125

BURST: 1.00

TENSION: 1.80

Area Fracture Gradient Range: 0.7 – 0.8 psi/foot

Maximum anticipated reservoir pressure: 2,500 psi

Maximum anticipated mud weight: 9.0 ppg

Maximum surface treating pressure: 3,750 psi

Float Equipment:

**Surface Casing:** Guide shoe on bottom and 3 centralizers on the bottom 3 joints.

**Intermediate Casing:** Float shoe on bottom joint and a float collar one joint up from float shoe. One centralizer 10 ft above float shoe and nine centralizers spaced every joint above the float collar. Stage tool above the Cliffhouse formation. One centralizer below stage tool and one centralizer above stage tool.

**Production Casing:** 4 1/2" whirler type cement nosed guide shoe and a float collar on top of bottom joint with centralizers over potential hydrocarbon bearing zones.

## CEMENTING PROGRAMS:

### 9-5/8" Surface casing:

225 sx Type III cement with 3%  $\text{CaCl}_2$ , 1/4#/sx cellofakes. 100% excess to circulate cement to surface. WOC 12 hrs. Pressure test surface casing to 1000 psi for 30 minutes.

Slurry weight: 14.5 ppg  
Slurry yield: 1.42 ft<sup>3</sup>/sack

|               |                                  |                  |
|---------------|----------------------------------|------------------|
| Volume basis: | 40' of 9-5/8" shoe joint         | 17 cu ft         |
|               | 300' of 13-1/2" x 9-5/8" annulus | 147 cu ft        |
|               | <u>100% excess (annulus)</u>     | <u>147 cu ft</u> |
|               | Total                            | 311 cu ft        |

Note:

1. Design top of cement is the surface.
2. Have available 100 sx Type III cement with 2%  $\text{CaCl}_2$  for top out purposes.

### 7" Intermediate Casing:

1<sup>st</sup> Stage:

150 sx of Type III cement plus additives

Slurry weight: 12.3 ppg

Slurry yield: 2.22 ft<sup>3</sup>/sx

2<sup>nd</sup> Stage: (Stage tool at  $\pm 3000'$ )

Lead: 240 sx of Type III cement plus additives

Slurry weight: 12.3 ppg

Slurry yield: 2.22 ft<sup>3</sup>/sx

Tail: 50 sx of Type III cement plus additives

Slurry weight: 14.5 ppg

Slurry yield: 1.40 ft<sup>3</sup>/sx

|               |                             |                  |
|---------------|-----------------------------|------------------|
| Volume Basis: | 40' of 7" shoe joint        | 9 cu ft          |
|               | 4300' of 7" x 8 3/4" hole   | 646 cu ft        |
|               | 300' of 7" x 9 5/8" casing  | 50 cu ft         |
|               | <u>30% excess (annulus)</u> | <u>209 cu ft</u> |
|               | Total                       | 914 cu ft        |

Note:

1. Design top of cement is surface.
2. Actual cement volumes to be based on caliper log plus 30%.

#### **4 1/2" Production casing:**

175 sx of Type III cement plus additives

Slurry weight: 12.5 ppg

Slurry yield: 2.06 ft<sup>3</sup>/sx

|               |  |                 |
|---------------|--|-----------------|
| Volume basis: | 40' of 4 1/2" shoe joint                   | 5 cu ft         |
|               | 1950' of 4 1/2" x 6 1/4" hole              | 200 cu ft       |
|               | 300' of 4 1/2" x 7" casing overlap         | 33 cu ft        |
|               | 200' above 4.5" liner (without drill pipe) | 44 cu ft        |
|               | <u>30% excess (annulus)</u>                | <u>70 cu ft</u> |
|               | Total                                      | 352 cu ft       |

Note:

1. Design top of cement is  $\pm 4100'$  (200' above the top of the 4.5" liner w/out drill pipe).
2. Actual cement volumes to be based on caliper log plus 30%.

#### **5. MUD PROGRAM:**

The surface hole will be drilled with spud mud. Gel and polymer sweeps will be used from surface to 300 feet as necessary to keep hole clean.

The intermediate hole will be drilled with water until mud up at about 3100 ft. From mud up point to intermediate casing depth ( $\pm 4600'$ ), it will be drilled with a LSND mud. Anticipated mud weight ranges from 8.5 – 9.2 ppg. Mud weight will be increased as required to maintain hole stability and control gas influx.

The production hole will be drilled with air or air/mist to TD.

Sufficient mud materials to maintain stable wellbore conditions (for either well control or lost circulation scenarios) will be maintained at the well site.

No chrome-based additives will be used in the mud system.



**6. EVALUATION PROGRAM:**

Mud logger: From base of surface casing to TD.

Testing: No DST is planned

Coring: None Planned

Electric logs: Intermediate Hole:

1) DIL-GR-SP: TD to base of surface casing.

2) LDT-CNL-GR-CAL-PE: TD to base of surface casing

Production Hole:

1) No open hole logs

2) Cased hole resistivity & porosity logs

**7. ABNORMAL PRESSURE AND TEMPERATURE:**

|                           |           |
|---------------------------|-----------|
| H <sub>2</sub> S          | None      |
| Coal                      | Fruitland |
| Minerals                  | None      |
| Water                     | None      |
| Static BHT                | 175° F    |
| Lost Circulation          | Possible  |
| Hole Deviation            | None      |
| Abnormal Pressures        | None      |
| Unusual Drilling Problems | None      |

**8. ANTICIPATED STARTING DATE: Q1, 2006**

Anticipated duration: 16 days

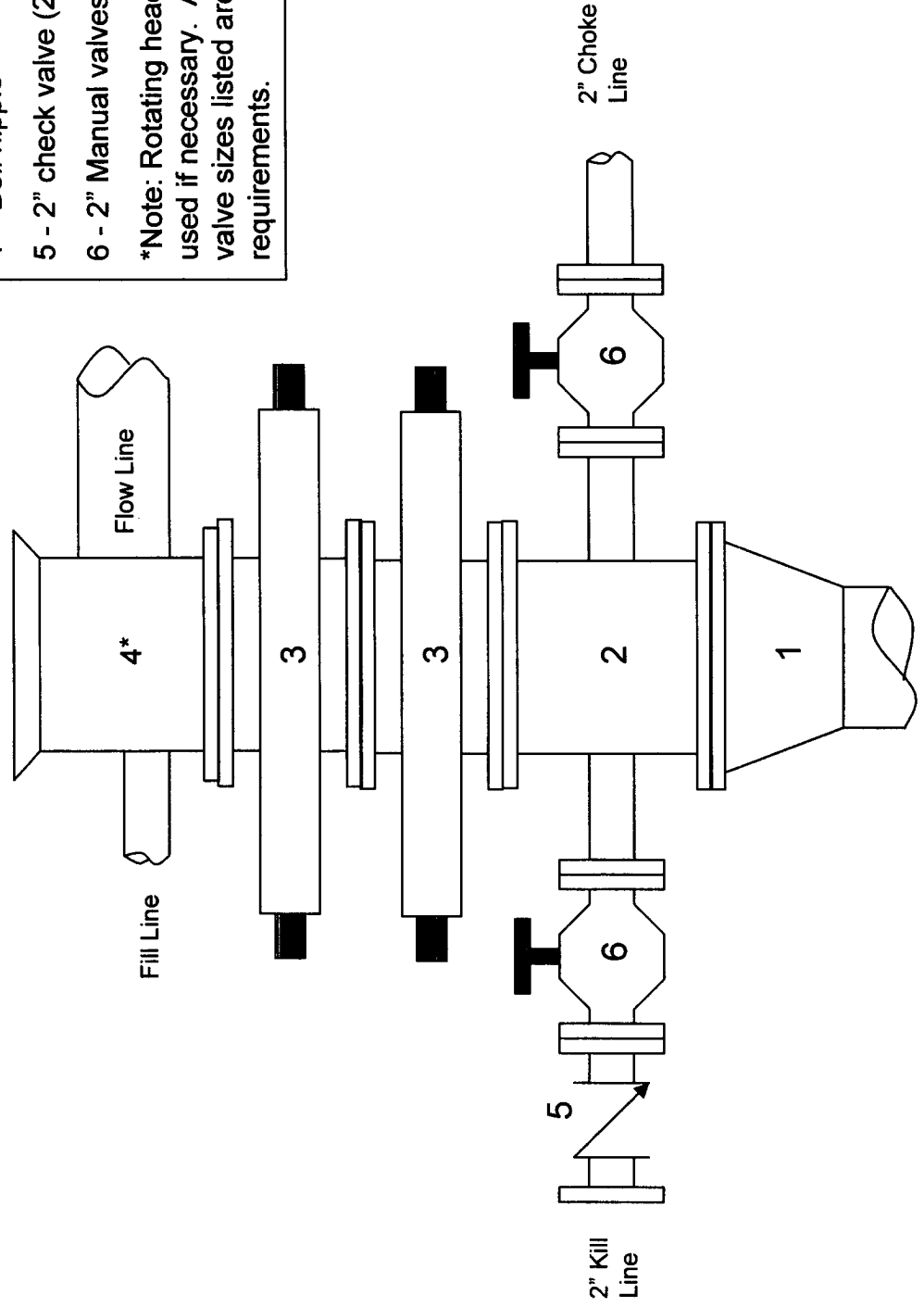
# Rio Bravo 27 #15

2000 psi BOP stack  
Minimum requirements

## Components

- 1 - Wellhead 9-5/8" (2M)
- 2 - Drilling spool 11" (2M)
- 3 - A double or two single rams with blinds on bottom 11" (2M)
- 4 - Bell nipple\*
- 5 - 2" check valve (2M)
- 6 - 2" Manual valves (2M)

\*Note: Rotating head may also be used if necessary. Also, all line and valve sizes listed are minimum requirements.



# Rio Bravo 27 #15

## 2000 psi Choke Manifold

### Minimum requirements

#### Components

- 1 – 2" Valve (2M)
- 2 – 2" Valve (2M)
- 3 – Mud cross with gauge (2M) flanged below the gage.
- 4 – Adjustable choke (2M)
- 5 – Adjustable choke (2M)

Note: All line and valve sizes listed are minimum requirements.

